



# **1987-91 Ford F-Series/Bronco**

*with* **Factory Air  
Evaporator Kit  
(751703)**



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## Important Notice - Please Read

- For this installation the dashboard has to be removed from the vehicle to install the Gen 5 Magnum Max.



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## Packing List: Evaporator Kit (751703)

No.	Qty.	Part No.	Description
1.	1	765200	Gen 5 Magnum Max Module with 404 ECU
2.	1	791703	Accessory Kit

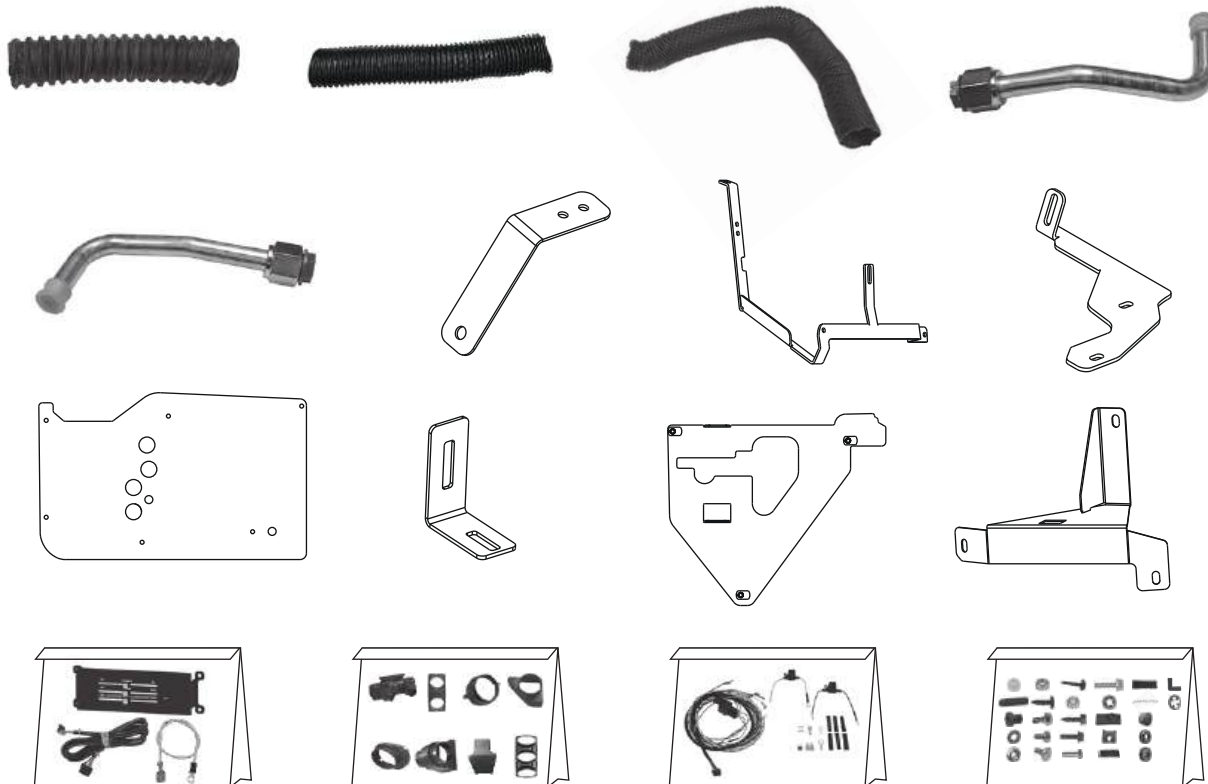
**\*\* Before beginning installation, open all packages and check contents of shipment.  
Please report any shortages directly to Vintage Air within 15 days. After 15 days,  
Vintage Air will not be responsible for missing or damaged items.**

1



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

2



**Accessory Kit  
791703**

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



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## Important Notice—Please Read

*For Maximum System Performance, Vintage Air Recommends the Following:*

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

### Refrigerant Capacities:

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

**Other Systems:** Consult manufacturer's guidelines.

### Lubricant Capacities:

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

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

### Safety Switches

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

### Service Info:

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

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

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

### Bolts Passing Through Cowl and/or Firewall:

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

### Heater Hose (not included with this kit):

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

## Important Wiring Notice—Please Read

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

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

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

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

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

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

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

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



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## Engine Compartment Disassembly

**NOTE:** Before starting the installation, check the function of the vehicle (horn, lights, etc.) for proper operation, study the instructions, illustrations, photos & diagrams. Retain the OEM bolts, washers and nuts, as some hardware will be reused.

**Perform the following:**

1. Disconnect the battery.
2. Evacuate the OEM A/C system (if necessary).
3. Drain the radiator.
4. Remove the air filter cover and intake tubes (See Photos 1 and 2, below).
5. If installing the condenser kit, remove the upper and lower radiator hoses (See Photo 3, below).
6. Remove the radiator cooling fan, fan shroud and radiator (See Photo 3, below).
7. Remove the serpentine belt.

Remove air  
filter cover



**Photo 1**

Remove  
intake tubes



**Photo 2**

Remove OEM  
compressor/  
evaporator A/C  
hoses

Remove radiator  
cooling fan



Remove upper and  
lower radiator hose

Remove  
fan shroud

**Photo 3**



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## Engine Compartment Disassembly (Cont.)

8. Remove the OEM heater hoses (discard) (See Photos 4 and 5, below).
9. Remove the OEM compressor/evaporator A/C hoses (discard) (See Photo 3, Page 6).
10. Disconnect the accumulator fitting and remove the plug from the switch (See Photo 6, below).
11. Remove the accumulator mounting hardware and remove the accumulator (discard).
12. Remove the accumulator bracket mounting hardware, then remove the bracket (See Photo 7, below).
13. Disconnect the wiring from the blower motor. Remove the mounting hardware, then remove the fan from the housing (discard) (See Photos 8 and 9, below). **NOTE: Removal of these items will create the necessary space to remove the evaporator coil housing from the engine compartment.**
14. Disconnect the wiring plug from the coil housing.
15. Remove the MAP sensor bracket nut and the coil housing mounting nut behind it (See Photos 10 and 11, below). Unplug the A/C wiring plug mounted to the MAP sensor bracket. **NOTE: The MAP sensor bracket will be relocated when the firewall cover is installed.**

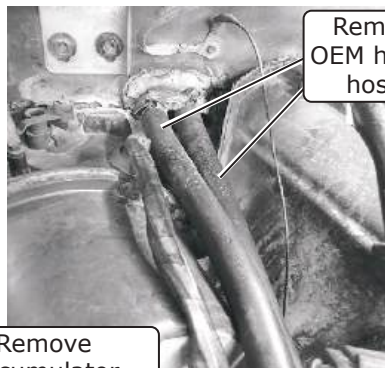


Photo 4

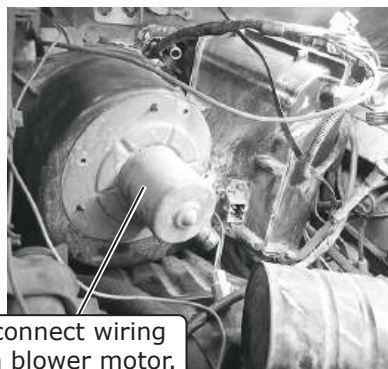
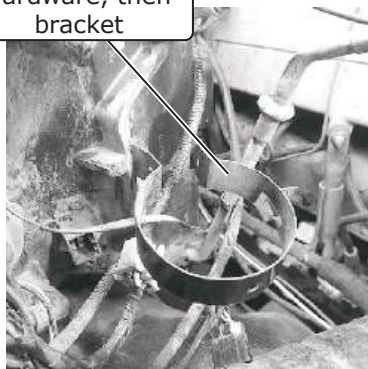


Photo 5

Disconnect accumulator fitting and remove plug from switch



Remove accumulator bracket mounting hardware, then bracket



Disconnect wiring from blower motor. Remove mounting hardware, then remove fan

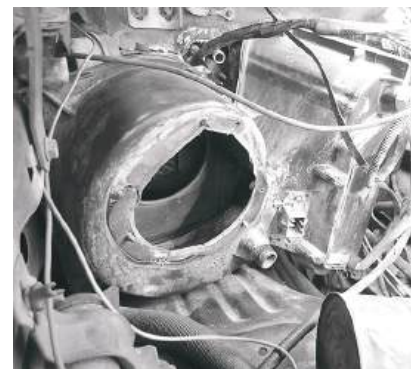
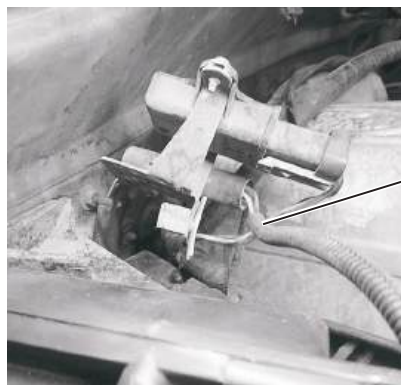
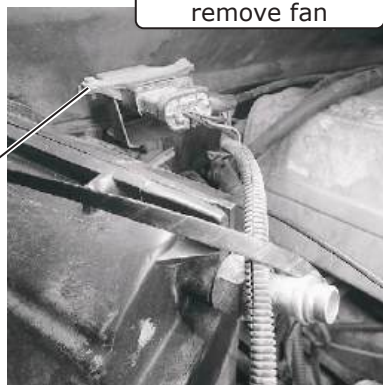


Photo 9

Remove MAP sensor bracket nut and coil housing mounting nut behind it



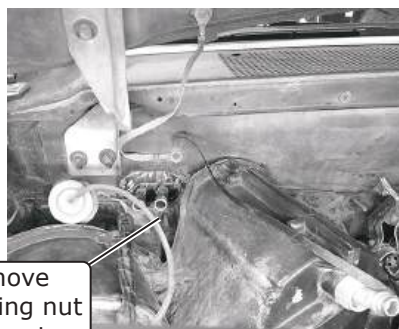
Unplug A/C wiring plug mounted to MAP sensor bracket



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## Engine Compartment Disassembly (Final)

16. Remove the mounting nut from the center, under the OEM heater hardline (See Photo 12, below).  
**NOTE: To remove the next (2) bolts, a long extension, swivel and 7/16" socket can be used. The vacuum actuator may be moved to gain access to the mounting bolt closest to the fender.**
17. Remove the mounting bolt to the left side of the coil housing.
18. To gain access to the last firewall mounting bolt, remove some inner fender mounting hardware under the housing. Once the bolt is visible, remove it and reinstall the inner fender hardware (See Photo 13, below).
19. From the passenger compartment, remove the passenger-side kick panel.
20. Disconnect the evaporator vacuum plug and the (2) wiring connectors (See Photos 14 and 15, below).
21. Remove the (2) mounting bolts (See Photo 16, below).
22. From the engine compartment, remove the coil housing (See Photo 17, below).
23. Remove the (2) U-nuts from the left side of the firewall opening (See Photo 18, below).



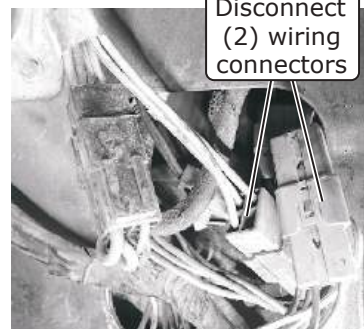
Remove mounting nut from center

Photo 12



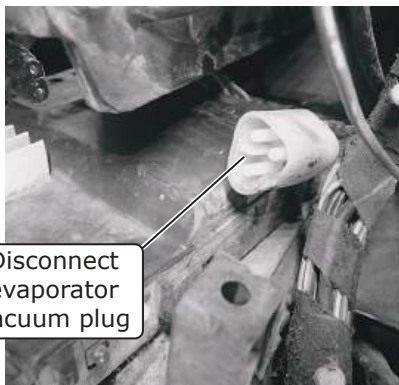
Remove firewall mounting bolt

Photo 13



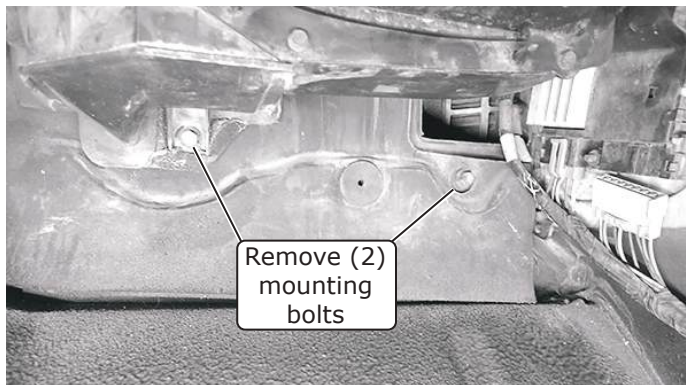
Disconnect (2) wiring connectors

Photo 14



Disconnect evaporator vacuum plug

Photo 15



Remove (2) mounting bolts

Photo 16



Remove coil housing

Photo 17



Remove (2) U-nuts from left side of firewall opening

Photo 18



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## Passenger Compartment Disassembly

**NOTE:** Removal of the passenger seat is optional. This will increase the working area while the disassembly process is completed. Use caution when removing the following plastic parts, as these parts may be brittle and easy to damage. Retain the hardware that is removed during the disassembly, as some hardware will be reused.

### Perform the following:

1. To remove the glove box, open the glove box and pull the right side of the inner panel, allowing the plastic clip to pass the inner dash, then remove the glove box (retain) (See Photos 1, 2 and 3, below).
2. Remove the radio/control panel bezel by carefully pulling away from the dash or using the proper interior tools to disengage the bezel clips (See Photos 4 and 5, below).
3. Disconnect the wiring and remove the radio (See Photo 6, below).
4. Remove the (4) control panel mounting screws and disconnect all plugs and remove cable ends (See Photo 7, below). Remove the control panel from the dash.



**Photo 1**



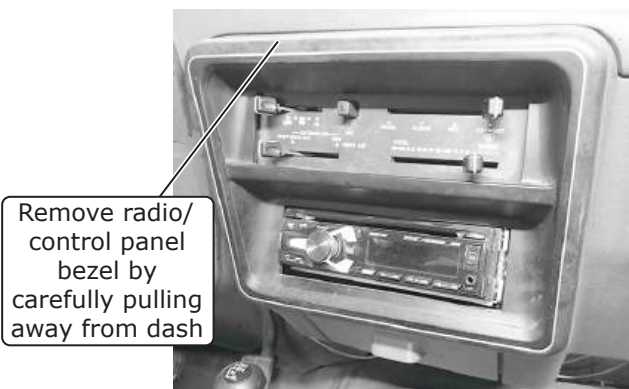
Allow plastic clip to pass inner dash

**Photo 2**



**Glove Box Removed**

**Photo 3**



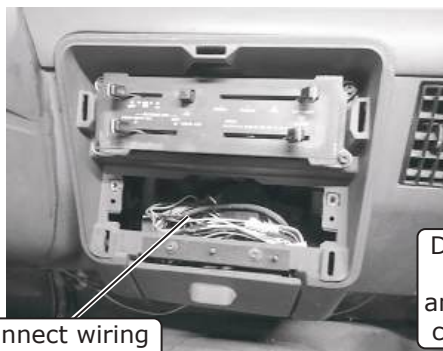
Remove radio/control panel bezel by carefully pulling away from dash

**Photo 4**



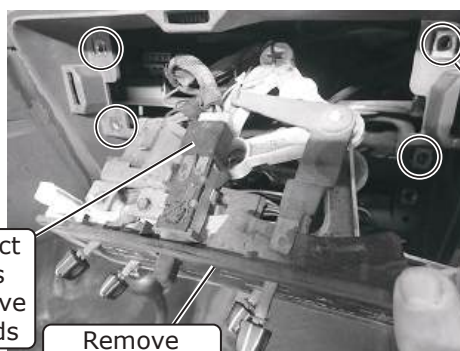
**Radio/Control Panel Bezel Removed**

**Photo 5**



Disconnect wiring and remove radio

**Photo 6**



Remove control panel from dash

**Photo 7**

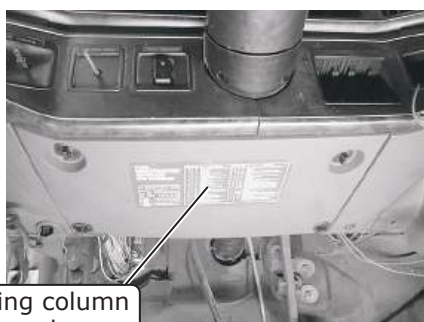
Remove (4) control panel mounting screws



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## Passenger Compartment Disassembly (Cont.)

5. Remove the steering column access panel (See Photos 8 and 9, below).
6. Remove the light and wiper switch knobs.
7. Remove the left trim panel by carefully pulling away from the dash or using the proper interior tools to disengage the panel clips (See Photos 10 and 11, below). Disconnect the rear window switch.
8. Remove (1) screw, then remove the right trim panel (See Photo 12, below).
9. Remove (6) gauge cluster bezel screws (See Photo 13, below), then gently pull or use the proper interior tools to disengage the retaining clips. Remove the bezel.
10. Remove the steering column cover by removing (2) mounting screws (See Photo 14, below).



Remove steering column  
access panel

**Photo 8**



**Photo 9**

**Steering Column  
Access Panel Removed**



Remove left trim panel by  
carefully pulling away from dash

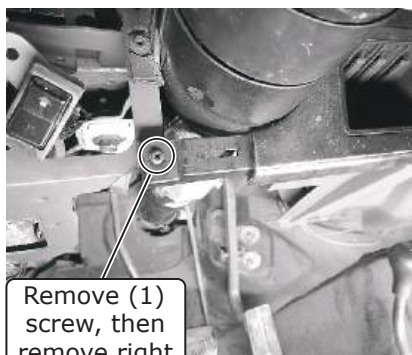
**Photo 10**



**Left Trim Panel  
Removed**

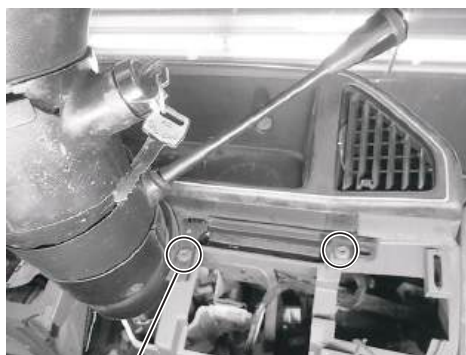
**Photo 11**

Remove steering  
column cover  
by removing (2)  
mounting screws



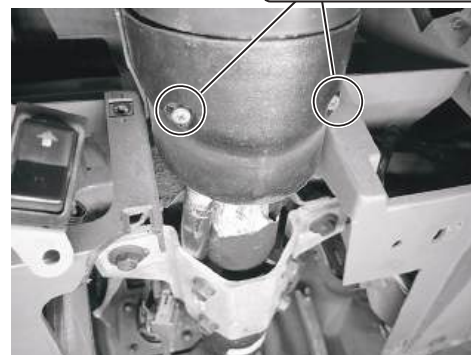
Remove (1)  
screw, then  
remove right  
trim panel

**Photo 12**



Remove (6) gauge  
cluster bezel screws

**Photo 13**

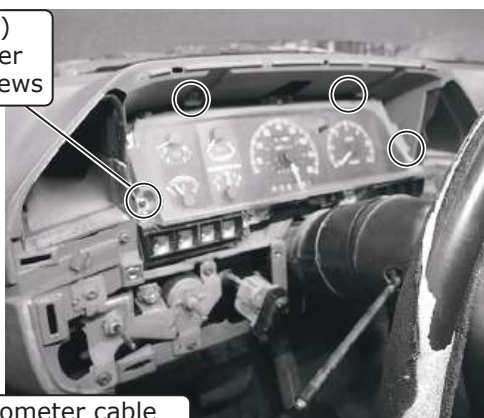


**Photo 14**

## Passenger Compartment Disassembly (Cont.)

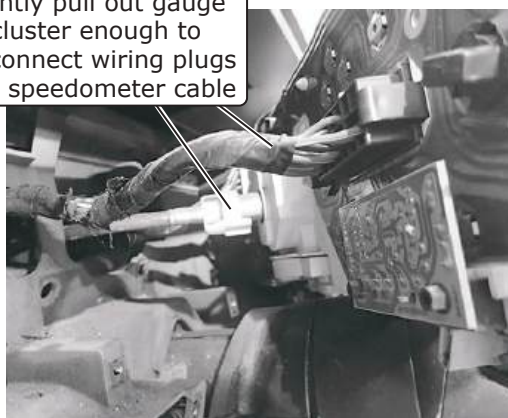
11. Remove the (4) gauge cluster mounting screws, and gently pull out the gauge cluster enough to disconnect the wiring plugs and speedometer cable (See Photos 15 and 16, below). **NOTE: The speedometer cable may not have enough slack to provide space behind the cluster to make the disconnections. If this is the case, you may unclip the speedometer cable from under the vehicle, then feed the cable up through the floorboard (See Photo 17, below).**
12. Once the cluster is free, remove the gear select cable retaining screw on the side of the steering column, then unhook the cable (See Photo 18, below).
13. Remove the (2) steering column bolts, then drop the column (See Photo 19, below).
14. Remove the dash mounting bolt to the right of the glove box (See Photo 20, below).
15. Remove the mounting bolt from the under dash support bracket (See Photo 21, below).
16. Remove the dash mounting bolt to the left of the brake release handle (See Photo 22, below).

Remove (4)  
gauge cluster  
mounting screws



**Photo 15**

Gently pull out gauge  
cluster enough to  
disconnect wiring plugs  
and speedometer cable



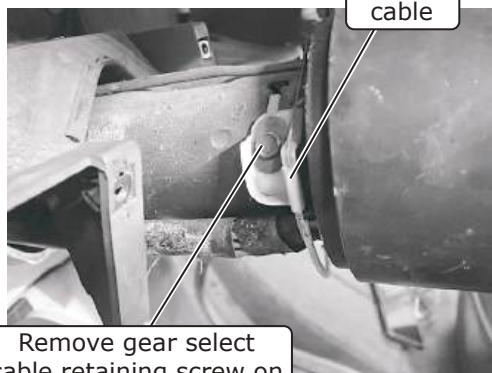
**Photo 16**

Unclip speedometer cable  
from under vehicle, then feed  
cable up through floorboard



**Photo 17**

Unhook  
cable



**Photo 18**

Remove gear select  
cable retaining screw on  
side of steering column

Remove (2) steering column  
bolts, then drop column



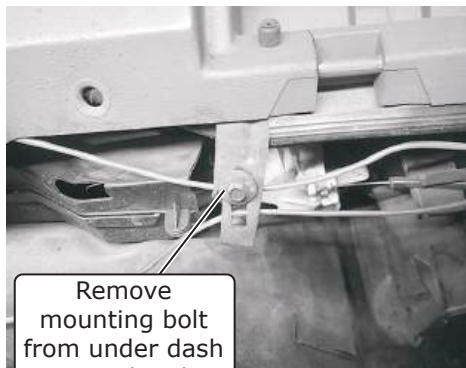
**Photo 19**

Remove dash  
mounting  
bolt to right  
of glove box



**Photo 20**

Remove  
mounting bolt  
from under dash  
support bracket



**Photo 21**

Remove dash  
mounting bolt  
to left of brake  
release handle



**Photo 22**



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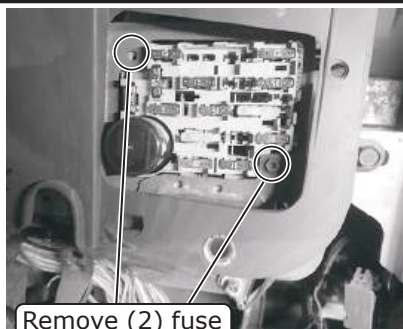
## Passenger Compartment Disassembly (Final)

17. Remove the dash-to-brake release bracket mounting bolt and ground screw to the right of the bracket (See Photo 23, below).
18. Remove (2) fuse panel mounting screws (See Photo 24, below).
19. Remove the headlight and wiper switch mounting hardware (See Photo 25, below).
20. Remove the (4) dash mounting screws located in the defrost duct openings (See Photos 26 and 27, below). **NOTE: As the dashboard is pulled away from the firewall, there are connected plugs that will have to be disconnected and some hardware that will have to be removed. The main harness that is held to the dash with push in retainers will have to be separated in order to remove the dash. Take notes and photos of all components and wiring disconnected, as this will be useful during the reinstallation process.**
21. Once all disconnections behind the dash are completed, remove the dash from the vehicle.
22. Remove the OEM evaporator unit mounting bolt, then remove the unit from the vehicle (discard) (See Photo 28, below).
23. Remove the dash support bracket (retain bracket) (See Photo 29, below).



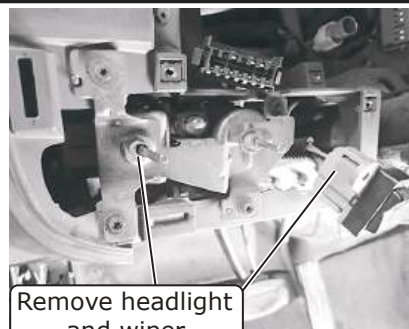
Remove dash-to-brake release bracket mounting bolt and ground screw to right of bracket

Photo 23



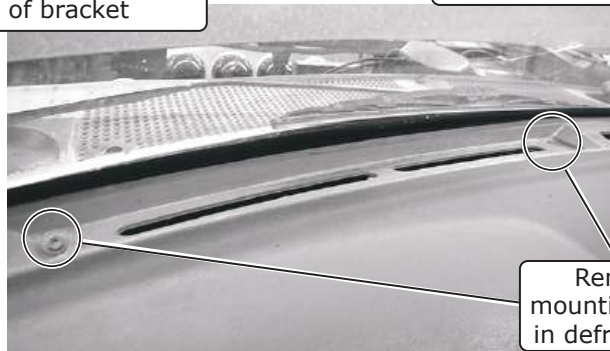
Remove (2) fuse panel mounting screws

Photo 24



Remove headlight and wiper switch mounting hardware

Photo 25



Remove (4) dash mounting screws located in defrost duct openings

Photo 26

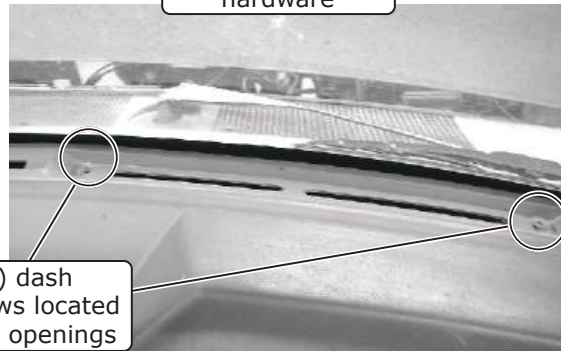
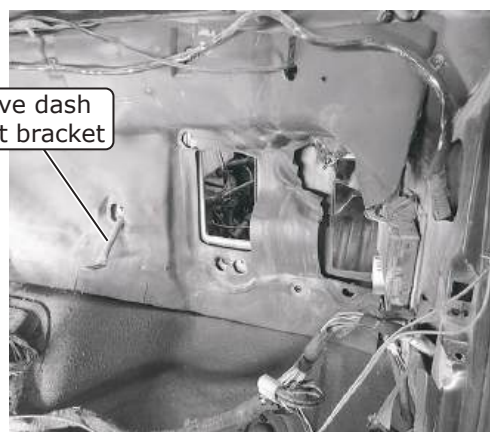


Photo 27



Remove evaporator unit mounting bolt

Photo 28



Remove dash support bracket

Photo 29



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## Firewall Modification & Insulation

**NOTE:** For proper system operation, Vintage Air recommends using heat-blocking insulation in the area around the evaporator unit (firewall, inner cowl, firewall covers and kick panel). Due to the tight clearance for the evaporator unit between the firewall and dash, Vintage Air recommends an insulation thickness of no more than 1/8".

1. Measuring 30" from the kick panel, remove the OEM insulation (See Photos 1 and 2, below).
2. Remove/flatten the stamped lip of the firewall opening (See Photos 3 and 4, below). **NOTE: This will provide increased area for the evaporator module to be mounted.**
3. Using the evaporator firewall bracket as a template, line up the mounting holes and trace the bracket (See Photo 5, below).
4. Remove the bracket and clean the firewall area. Apply the insulation at this time (See Photo 6, below). **NOTE: Do not apply insulation to the marked area. Spray adhesive may be used where needed.**
5. From the engine compartment, install (2) 1/4-20 U-nuts (See Photo 7, below).

Remove/flatten  
stamped lip of  
firewall opening

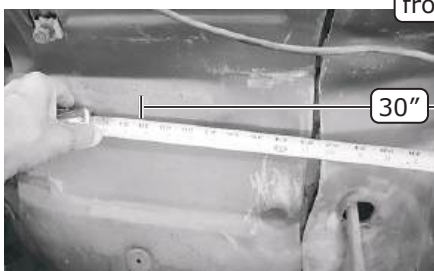


Photo 1

Measure 30"  
from kick panel

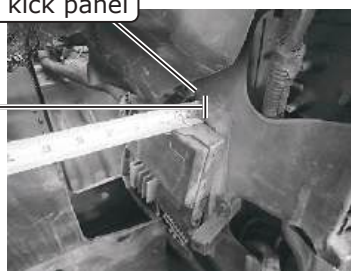


Photo 2



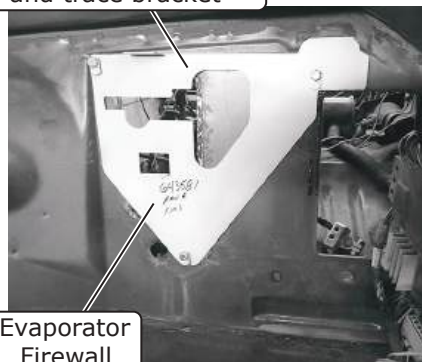
Photo 3



Stamped Lip  
Removed/Flattened

Photo 4

Line up mounting holes  
and trace bracket



Evaporator  
Firewall  
Bracket  
643581

Photo 5



Clean firewall area  
and apply insulation

Photo 6

Install (2)  
1/4-20  
U-nuts

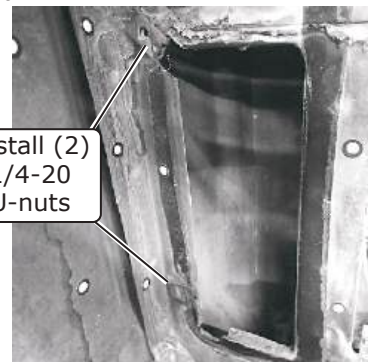


Photo 7



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## Dash Modification & Louver Adapter Preparation

**NOTE:** Once the OEM plenums are removed, wash/clean the plenums that will be reinstalled. In order for the evaporator module to conform behind the dashboard, a modification to the glove box area will be necessary for the installation. Once the evaporator module is installed, test fit the dashboard to confirm fitment, as some additional trimming may be needed.

1. On a workbench, remove the area of the glove box shown in Photos 1 and 2, below.
2. Remove the defrost plenum by removing (4) screws at the defrost opening, and (1) at the inlet (See Photos 3, 4 and 5, below). **NOTE: This plenum will be modified and reused.**
3. From the front of the dash, remove the (2) mounting screws from the driver-side dash louver outlets (See Photos 6 and 7, below).

Remove area  
of glove box

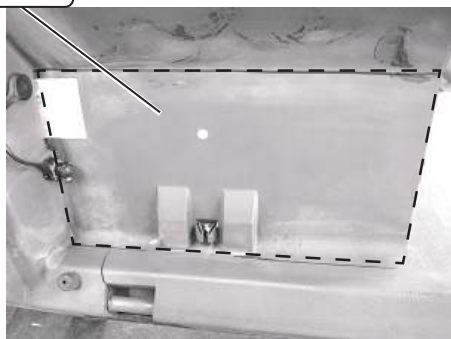


Photo 1



Glove Box Area  
Removed

Photo 2

Remove (2) screws  
at defrost opening

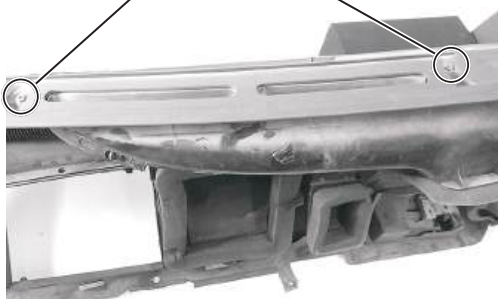


Photo 3

Remove (2) screws  
at defrost opening

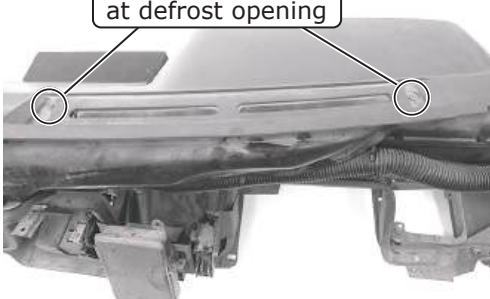


Photo 4

Remove (1)  
screw at inlet



Photo 5

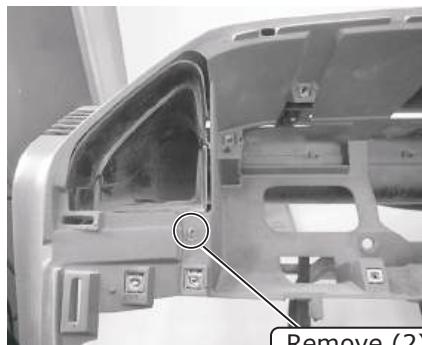


Photo 6

Remove (2) mounting  
screws from driver-side  
dash louver outlets



Photo 7



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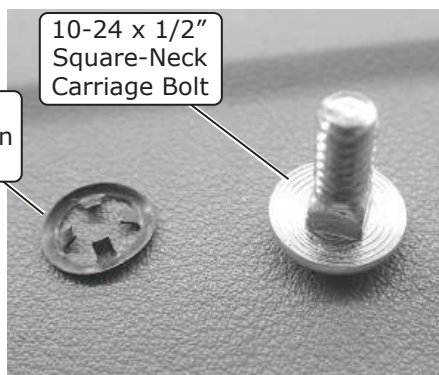
## Dash Modification & Louver Adapter Preparation (Cont.)

4. From the back of the dash, remove the mounting hardware to remove the OEM plenums (See Photo 8, below). The driver- and passenger-side plenums will be reused.
5. Locate the radio bracket and a 10-24 x 1/2" square-neck carriage bolt with 3/16" push-on ring (See Photos 9 and 10, below).
6. Install the carriage bolt and push-on ring onto the radio bracket (See Photo 11, below).
7. Install the radio bracket behind the dash brace, and mount the hardware through the OEM hole in the top of the brace (See Photos 12 and 13, below). Secure it using a 10-24 nut with star washer.
8. **NOTE: For this step, the OEM radio was used to confirm placement of the radio bracket.** Using the radio bracket as a template, drill (2) mounting holes for the (2) 10-24 x 3/8" pan head screws (See Photo 14, below). Once the holes are drilled, secure the bracket to the brace using the 10-24 x 3/8" pan head screws and 10-24 nuts with star washers (See Photo 15, below).



Remove mounting hardware to remove OEM plenums

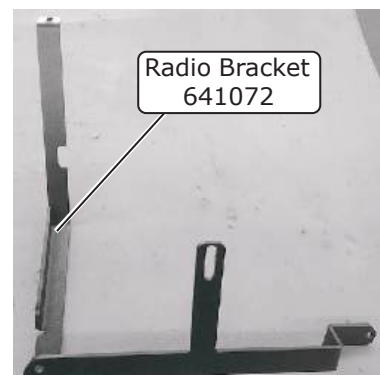
Photo 8



3/16" Push-on Ring

10-24 x 1/2" Square-Neck Carriage Bolt

Photo 9



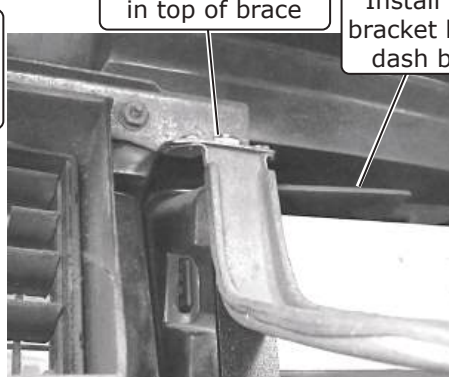
Radio Bracket 641072

Photo 10



Install carriage bolt and push-on ring onto radio bracket

Photo 11



Mount hardware through OEM hole in top of brace

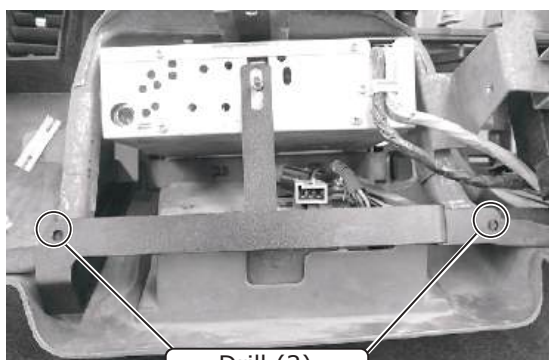
Install radio bracket behind dash brace

Photo 12



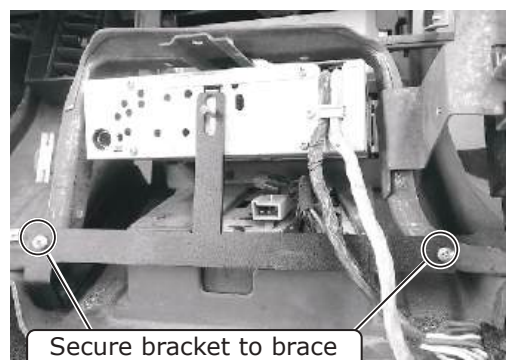
Secure using a 10-24 nut with star washer

Photo 13



Drill (2) mounting holes

Photo 14



Secure bracket to brace with (2) 10-24 x 3/8" pan head screws and (2) 10-24 nuts with star washers

Photo 15

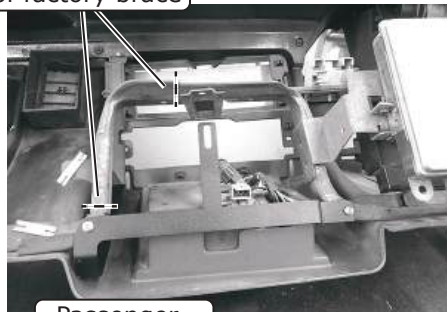


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## Dash Modification & Louver Adapter Preparation (Cont.)

9. Remove the portion of the factory brace as shown in Photos 16 and 17, below.
10. Install the radio extension bracket onto the brace using (2) 10-24 x 3/8" pan head screws and (2) 10-24 nuts with star washers through the OEM holes (See Photo 18, below), then secure the bracket to the installed radio bracket using (2) 10-24 x 3/8" pan head screws and (2) 10-24 nuts with star washers (See Photo 18, below).
11. Locate the passenger-side "Y" hose adapter (See Photo 19, below). Apply silicone to the adapter (See Photo 20, below), and install it onto the OEM dash louver (See Photos 21 and 22, below).
12. Locate the driver-side center vent hose adapter. Apply silicone to the adapter, and install it onto the OEM bezel louver (See Photos 23 and 24, below).

Remove portion  
of factory brace



Passenger-  
Side "Y"  
Hose Adapter  
592950

**Photo 16**

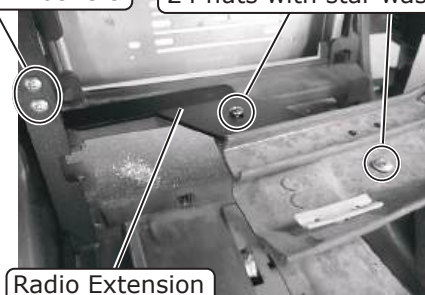


Portion of Factory  
Brace Removed

**Photo 17**

(2) 10-24 x 3/8" pan  
head screws and (2) 10-  
24 nuts with star washers

(2) 10-24 x 3/8" pan  
head screws and (2) 10-  
24 nuts with star washers



Radio Extension  
Bracket  
641073

**Photo 18**

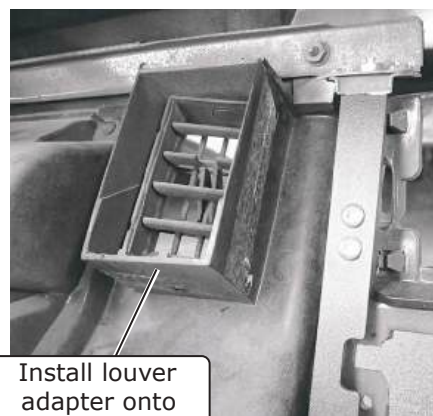


**Photo 19**



Apply silicone  
to adapter

**Photo 20**



Install louver  
adapter onto  
OEM dash louver

**Photo 21**



Passenger-Side  
"Y" Hose Adapter  
Installed

**Photo 22**



Install driver-  
side center hose  
adapter onto OEM  
bezel louver

**Photo 23**



Driver-Side  
Center Vent  
Hose Adapter  
498857

**Photo 24**



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## Dash Modification & Louver Adapter Preparation (Cont.)

13. Locate the driver-side plenum adapter, and apply silicone to the mating surface. Install it onto the OEM driver-side plenum (See Photos 25 and 26, below). **NOTE: #6 screws can be used to secure the adapter during the installation process while silicone cures.**
14. Locate the passenger-side plenum adapter, and apply silicone to the mating surface. Install it onto the OEM passenger-side plenum (See Photos 27 and 28, below).
15. Mark the defrost plenum, 3" from the center defrost to the passenger side (See Photo 29, below) and 1" to the driver side (See Photo 30, below). After marking the defrost plenum (See Photo 31, below), remove the center section (See Photo 32, below).

Install driver-side plenum adapter onto OEM driver-side plenum

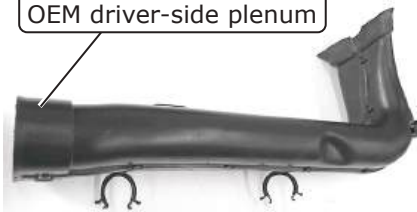


Photo 25

Driver-Side Louver Hose Adapter 593018



Photo 26

Install passenger-side plenum adapter onto OEM passenger-side plenum

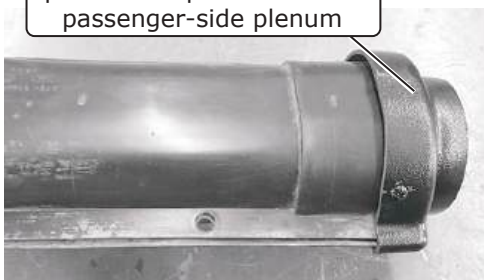


Photo 28

Mark 3" from center defrost to passenger side

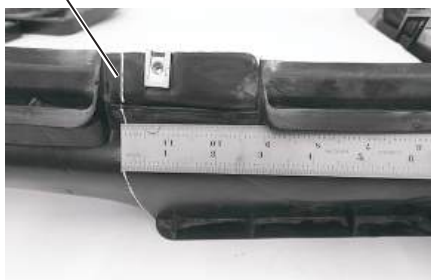


Photo 29

Passenger-Side Vent Hose Adapter 498856

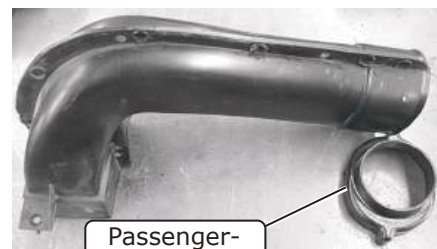


Photo 27

Mark 1" to driver side

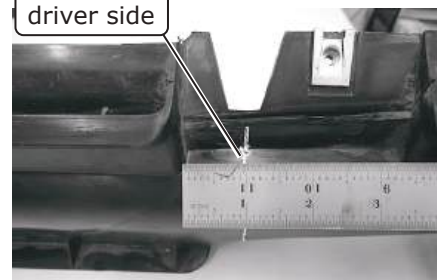


Photo 30

Markings on defrost plenum

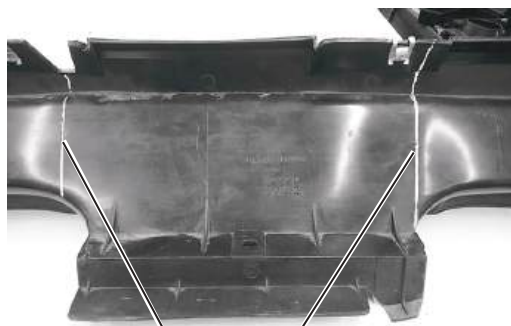


Photo 31

Remove marked center section

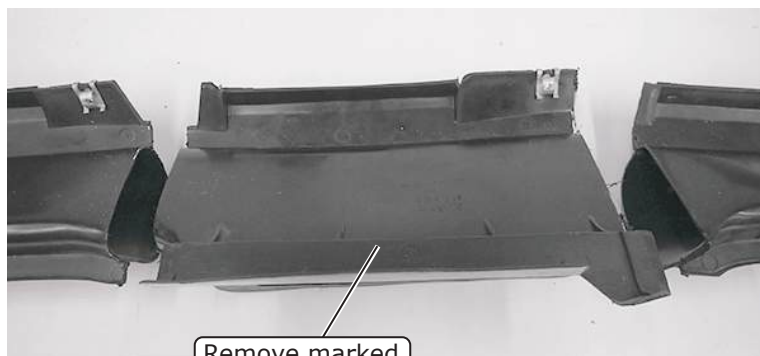


Photo 32



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## Dash Modification & Louver Adapter Preparation (Cont.)

16. Reinstall the driver- and passenger-side plenums using the OEM hardware (See Photos 33 and 34, below).
17. Install the louver support brackets using the 10-24 x 3/8" pan head screws and 10-24 nuts with star washers into the OEM mounts on the dashboard (See Photo 35, below). Mark the plenum (See Photo 36, below), then remove the bracket. Secure the bracket to the plenum using a #8 x 1/2" pan head screw (See Photo 37, below). Reinstall the assembly onto the dashboard (See Photo 38, below). Repeat steps for the passenger-side plenum (See Photos 39-42, below).

Reinstall driver-side plenum using OEM hardware



**Photo 33**

Reinstall passenger-side plenum using OEM hardware



**Photo 34**

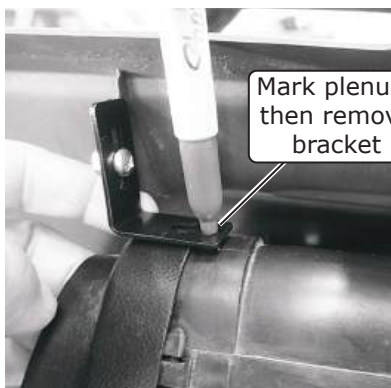
Louver Support Bracket 643579

10-24 x 3/8" pan head screw and 10-24 nut with star washer



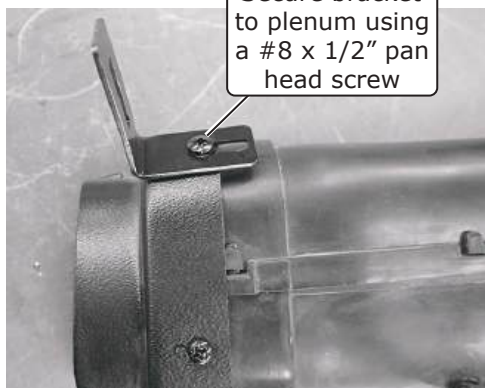
**Photo 35**

Mark plenum then remove bracket



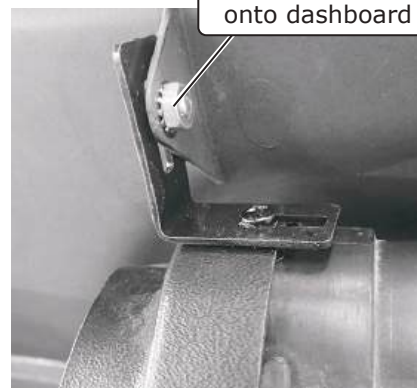
**Photo 36**

Secure bracket to plenum using a #8 x 1/2" pan head screw



**Photo 37**

Reinstall assembly onto dashboard



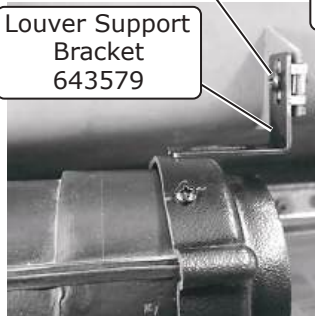
**Photo 38**

10-24 x 3/8" pan head screw and 10-24 nut with star washer

Louver Support Bracket 643579

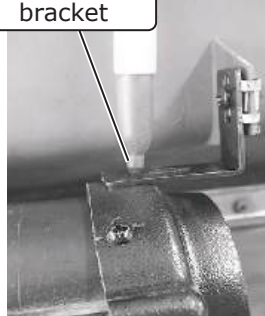


**Photo 39**



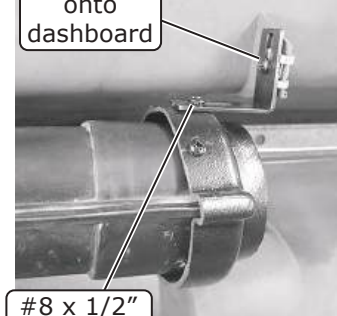
**Photo 40**

Mark plenum, then remove bracket



**Photo 41**

Reinstall assembly onto dashboard



#8 x 1/2" Pan Head Screw

**Photo 42**



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## Dash Modification & Louver Adapter Preparation (Cont.)

18. Install a 10" length of 2 1/2" duct hose between the passenger-side dash plenum and the passenger-side "Y" hose adapter (See Photo 43, below).
19. Twist the end of the 26" long 1" duct hose into the defrost duct adapter (See Photo 44-46, below). Repeat the process for the other side of the adapter. **NOTE: Only one ring of the duct hose should be visible from the inside of the adapter after installation (See Photo 44, below).**
20. Reinstall the driver-side defrost duct onto the dashboard using the OEM hardware (See Photos 47 and 48, below).

Install a 10" length of 2 1/2" duct hose between passenger-side dash plenum and passenger-side "Y" hose adapter

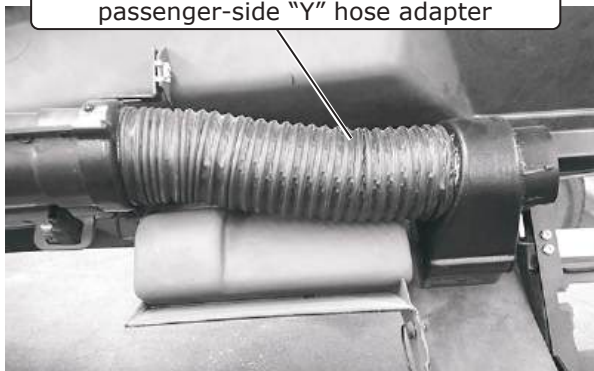


Photo 43

Only one ring of duct hose should be visible from inside of adapter

Twist end of 26" long 1" duct hose into defrost duct adapter

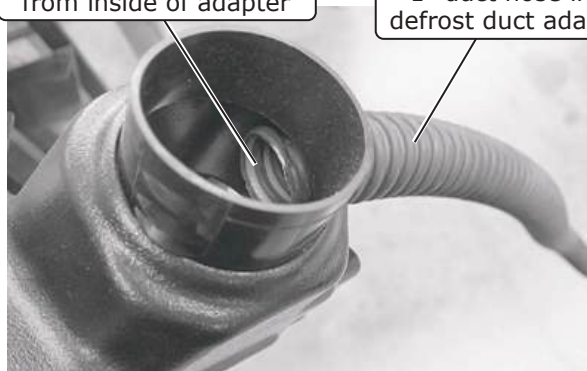


Photo 44

Twist end of 26" long 1" duct hose into defrost duct adapter



Reinstall driver-side defrost duct onto dashboard using OEM hardware

Photo 45

Twist end of 26" long 1" duct hose into defrost duct adapter

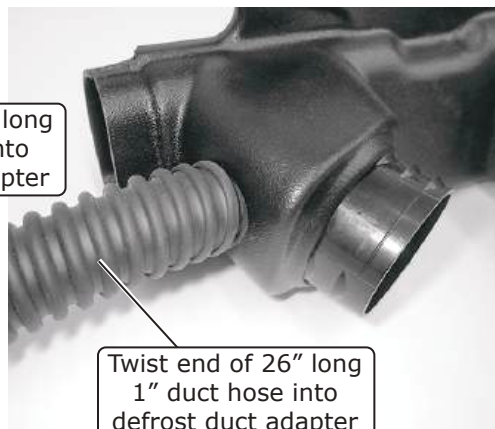


Photo 46



Photo 47

Reinstall driver-side defrost duct onto dashboard using OEM hardware



Photo 48



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## Dash Modification & Louver Adapter Preparation (Final)

21. Install a #8 J-nut onto the defrost duct bracket, then loosely install it onto the dashboard using the OEM hardware (See Photos 49 and 50, below).
22. Install the center defrost plenum into the driver-side defrost louver, and secure the plenum to the bracket using (2) #6 x 3/8" pan head screws (See Photos 51 and 52, below).
23. Install the passenger-side defrost louver onto the center defrost plenum, then secure it to the dash using the OEM screw (See Photos 53 and 54, below). Tighten the support bracket screw at this time.
24. Install the 1" duct hoses onto the side window defrost ducts (See Photos 55 and 56, below). **NOTE: Vintage Air recommends the removal of the OEM 1" side window defroster plenums from the dashboard prior to the installation of the duct hose to avoid damaging the fragile mounting tabs.**

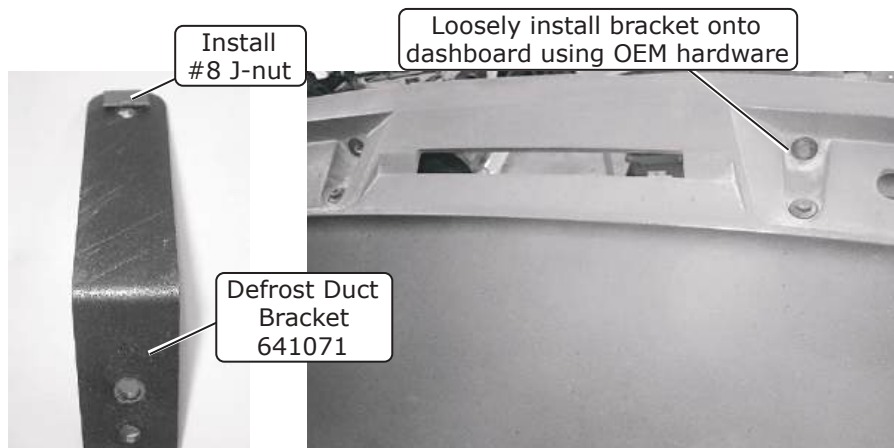


Photo 49

(2) #6 x 3/8"  
Pan Head  
Screws

Photo 50

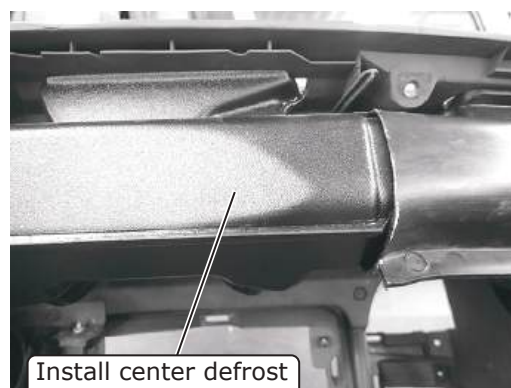


Photo 51

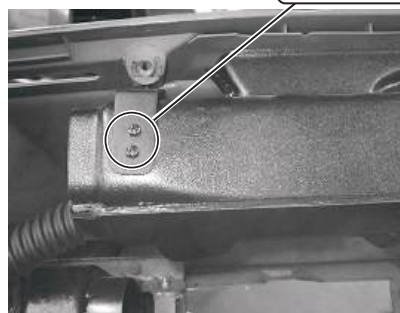


Photo 52

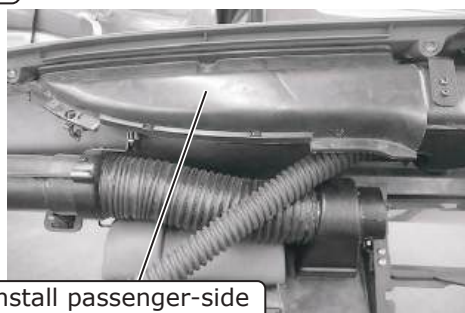


Photo 53



Photo 54



Photo 55

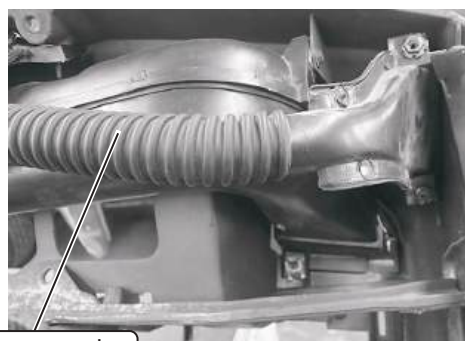


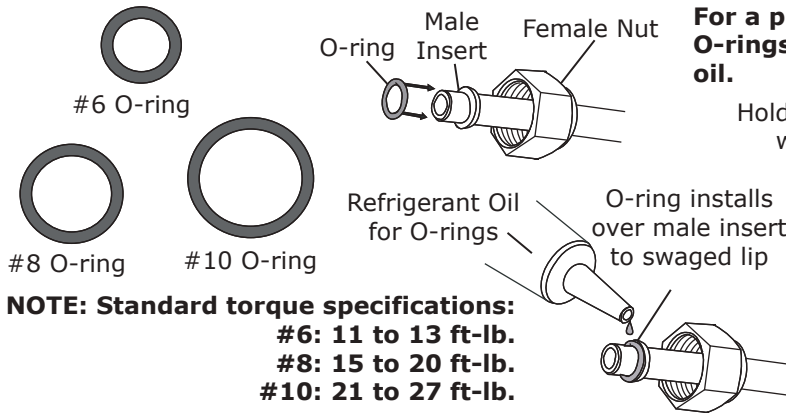
Photo 56

Install 1" duct hoses onto  
side window defrost ducts



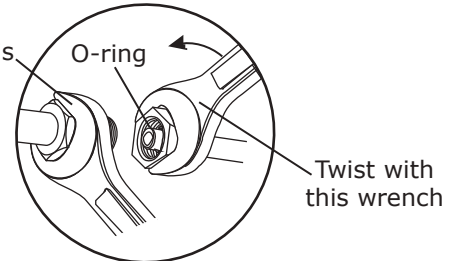
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## Lubricating O-rings & Fitting Torque Specs



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

Hold with this wrench



**The use of a backup wrench is recommended to reduce the chance of damaging the fittings/hardline.**

## Properly Seated O-ring Land

When installing a hardline or A/C hose fitting onto the evaporator module, ensure the O-ring land is seated properly (See Photo 1, below). An improperly seated O-ring land (See Photo 2, below) can cause a leak. To properly install the fitting, slide the hardline or A/C hose nut back to expose the O-ring land and seat it onto the evaporator module fitting. Then, slide the hardline or A/C hose nut forward and thread it onto the evaporator module fitting, ensuring the O-ring land does not move or lift.

**Properly Seated O-ring Land**



**Photo 1**

**Improperly Seated O-ring Land**



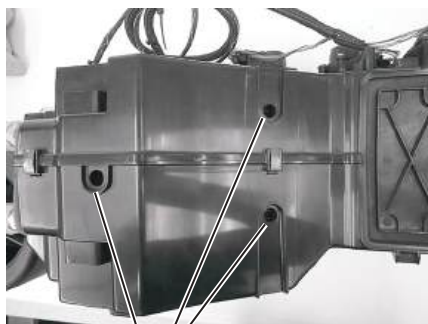
**Photo 2**

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

## Evaporator Preparation

**On a workbench, perform the following:**

1. Install (3) 1/2" plastic plugs as shown in Photos 1 and 2, below. **NOTE: These mounting provisions will not be used for this installation.**



Install (3)  
1/2" plastic  
plugs

**Photo 1**



(3) 1/2"  
Plastic Plugs

**Photo 2**

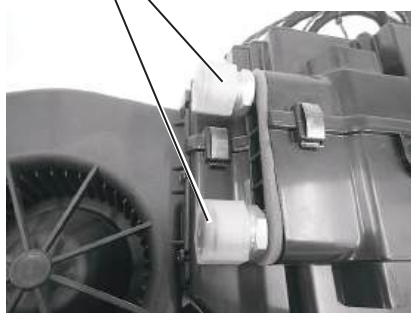


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## Evaporator Preparation (Cont.)

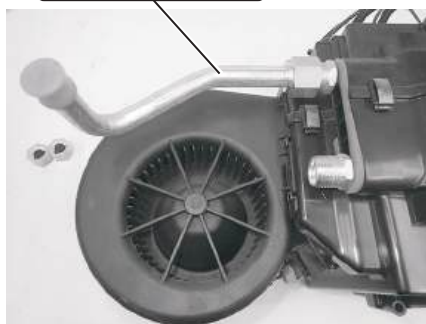
2. Remove the plastic caps and rubber inserts (See Photo 3, below). Install the #10 upper and lower heater hardlines onto the evaporator module using (2) properly lubricated #10 O-rings (See Lubricating O-rings & Fitting Torque Specs, Page 21) (See Photos 4 and 5, below). **NOTE: Use back up wrenches on these connections. Confirm that the lines are positioned at 90° to the blower housing after tightening.**
3. Install the dash plenum using (4) spring clips (See Photo 6, below).
4. Install the floor plenum using (2) spring clips (See Photo 7, below).
5. Install the defrost plenum using (2) spring clips (See Photo 8, below).
6. Install the evaporator firewall bracket using (4) #10 x 5/8" screws (See Photos 9 and 10, below).

Remove plastic caps  
and rubber inserts



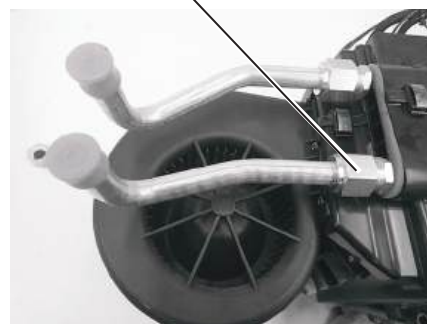
**Photo 3**

Install #10 upper  
heater hardline



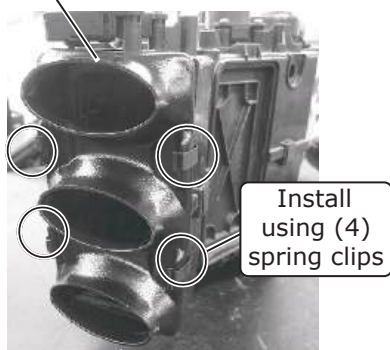
**Photo 4**

Install #10 lower  
heater hardline



**Photo 5**

Dash Plenum  
629909



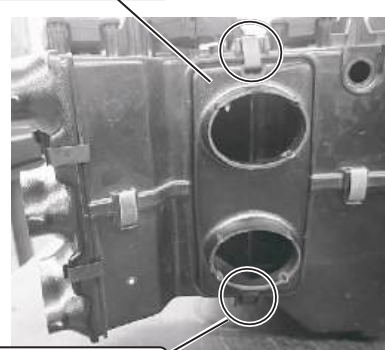
**Photo 6**

Floor Plenum  
625338



**Photo 7**

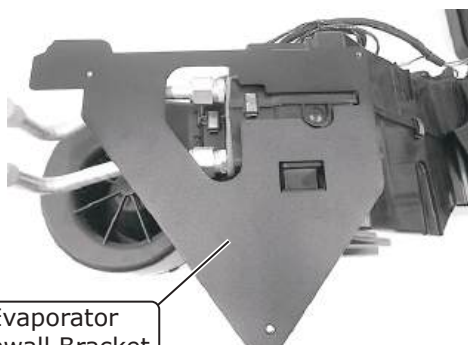
Defrost Plenum  
497054



**Photo 8**

Install using  
(2) spring clips

Install using  
(2) spring clips



Evaporator  
Firewall Bracket  
643581

**Photo 9**

(4) #10 x 5/8"  
Screws



**Photo 10**



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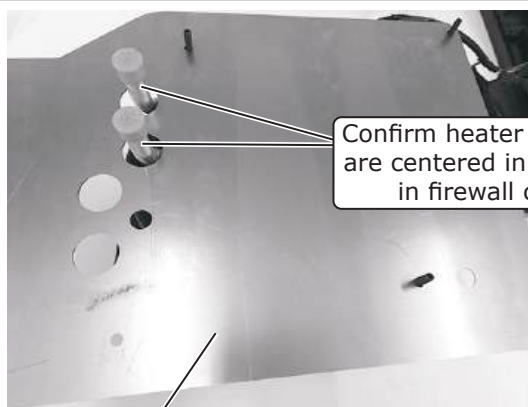
## Evaporator Preparation (Cont.)

7. Install (3) 1/4-20 full-threaded studs into the evaporator firewall bracket (See Photo 11, below). **NOTE: Install with the Allen head facing out.**
8. Temporarily install the firewall cover to confirm the heater hardlines are centered in the openings (See Photo 12, below). Adjust if necessary.



Install (3) 1/4-20 full-threaded studs

**Photo 11**



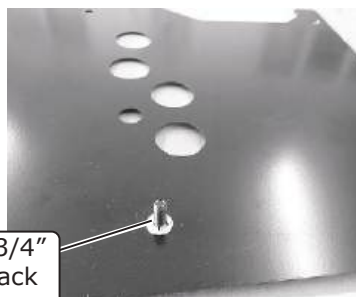
Confirm heater hardlines are centered in openings in firewall cover

Firewall Cover  
643578

**Photo 12**

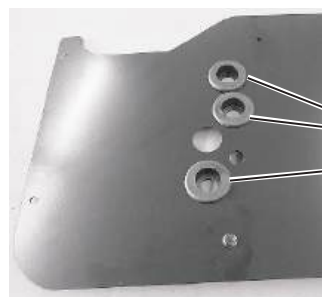
## Firewall Cover Preparation & Installation

1. Install a 1/4-20 x 3/4" serrated flange black bolt into the cover with a 1/4" pushnut bolt retainer (See Photo 1, below).
2. Install (3) large grommets into the firewall cover as shown in Photo 2, below.
3. Apply silicone to the mating surface of the firewall cover, then install it onto the firewall. Secure the firewall cover to the firewall using (2) 1/4-20 x 3/4" serrated flange black bolts (See Photo 3, below).



Install a 1/4-20 x 3/4" serrated flange black bolt into firewall cover with a 1/4" pushnut bolt retainer

**Photo 1**



Install (3) large grommets into firewall cover

**Photo 2**



Secure firewall cover to firewall using (2) 1/4-20 x 3/4" serrated flange black bolts

**Photo 3**



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## Firewall Cover Preparation & Installation (Cont.)

4. From the passenger compartment, install a 1/4" USS flat washer and a 1/4-20 hex nut with star washer (See Photo 4, below). **NOTE: Align the firewall cover with the mounting holes before tightening the hardware.**
5. Install a large grommet over the #10 A/C hose 90° fitting as shown in Photo 5, below.
6. Route the #10 A/C hose into the passenger compartment, and install the grommet into the firewall cover as shown in Photo 6, below
7. Install the 90° fitting of the #6 A/C hose through the large grommet, then route it into the passenger compartment (See Photo 7, below).

Install 1/4" USS  
flat washer and  
1/4-20 hex nut  
with star washer

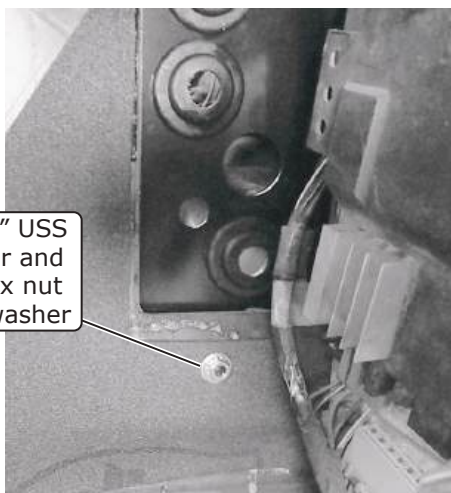


Photo 4

Install a large  
grommet over #10  
A/C hose 90° fitting

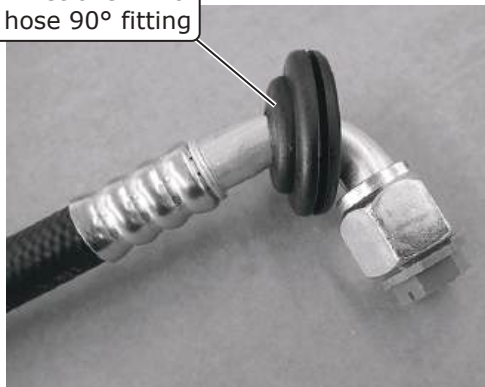


Photo 5

Install large  
grommet into  
firewall cover

Route #10 A/C  
hose into passenger  
compartment

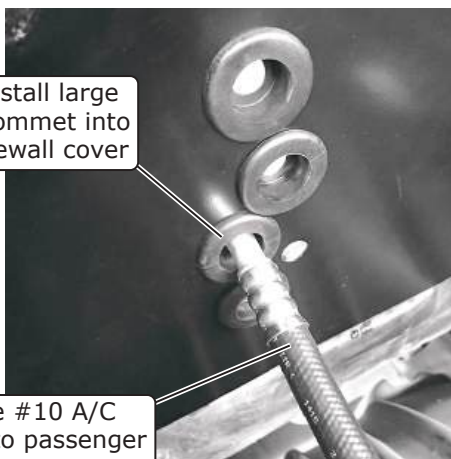
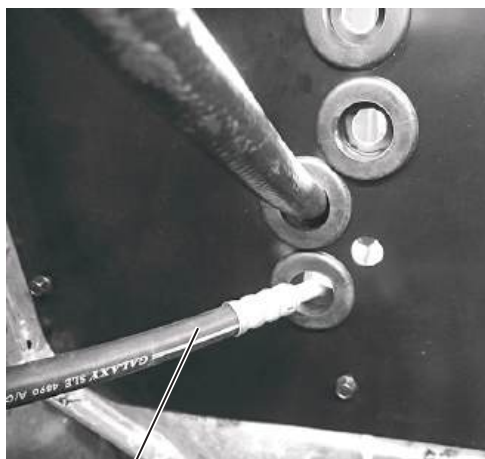


Photo 6



Route #6 A/C hose  
into passenger  
compartment

Photo 7



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## Wiring Installation

1. Route the heater control valve plug (white, yellow and purple) from the main harness through the wiring grommet (See Photo 1, below).
2. Route the heater control valve plug through the wiring provision in the firewall cover into the engine compartment, then install the grommet into the firewall cover (See Photos 2 and 3, below).
3. Route the red, white and blue wires from the main harness through the wiring grommet into the engine compartment (See Photo 4, below). **NOTE: The tan and violet wiring stay in the passenger compartment.**
4. Select a mounting location for the main relay and ground eyelet, then secure them using the supplied #12 x 1/2" self-tapping screws (See Photo 5, below).

Route heater control valve plug through wiring grommet

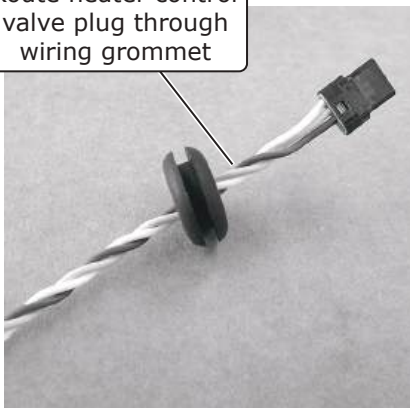


Photo 1

Route heater control valve plug through wiring provision in firewall cover into engine compartment

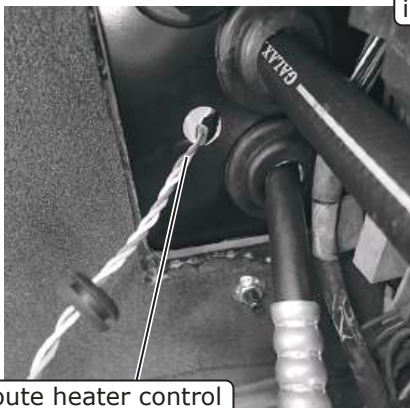


Photo 2

Install grommet into firewall cover



Photo 3

Route red, white and blue wires from main harness through wiring grommet into engine compartment

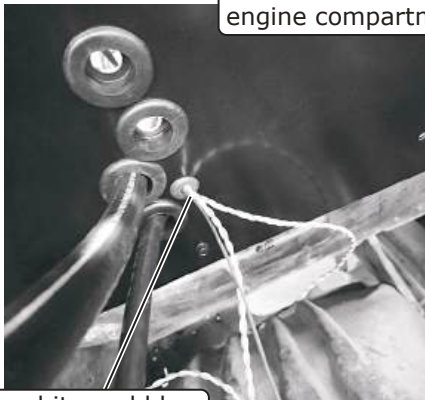
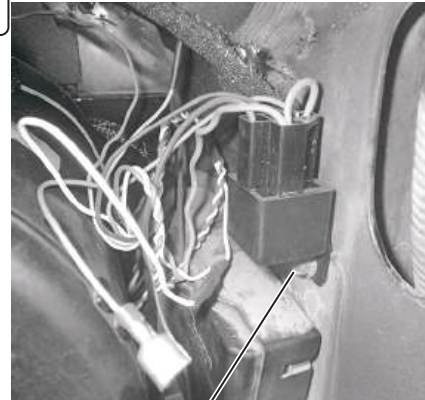


Photo 4



Secure main relay and ground eyelet using #12 x 1/2" self-tapping screws

Photo 5



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## Evaporator Installation

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

1. Install the OEM dashboard reinforcement bracket using a .310" ID x .750" OD x .185" length spacer and an 8mm 1.25 x 25mm hex bolt (See Photos 1 and 2, below). **NOTE: Once the module is in place, it will be difficult to install the bracket.**
2. Turn the module over, and route the heavy gauge orange and white wires through the wiring grommet into the engine compartment with the rest of the wiring (See Photos 3 and 4, below).
3. Lift the evaporator module into place, using the full-length studs to locate the mounting provisions in the firewall. From the engine compartment, use (2) 1/4-20 hex nuts with star washers to loosely hold the evaporator in place (See Photo 5, below).
4. With a properly lubricated #6 O-ring (See Lubricating O-rings & Fitting Torque Specs, Page 21), connect the 90° fitting of the #6 A/C hose to the block fitting on the module (See Photo 6, below).

Install OEM dashboard reinforcement bracket



Photo 1

8mm 1.25 x 25mm Hex Bolt

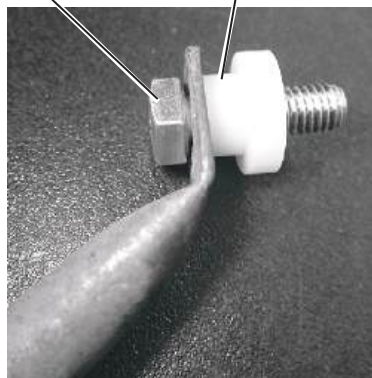
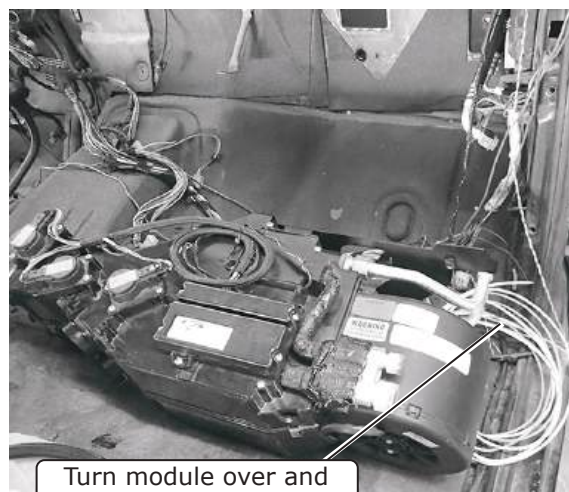


Photo 2

.310" ID x .750" OD x .185" Length Spacer



Turn module over and route heavy gauge orange and white wires through wiring grommet

Photo 3

Use (2) 1/4-20 hex nuts with star washers to loosely hold evaporator in place



Route heavy gauge orange and white wires through wiring grommet into engine compartment

Photo 4



Photo 5

Connect 90° fitting of #6 A/C hose to block fitting on module

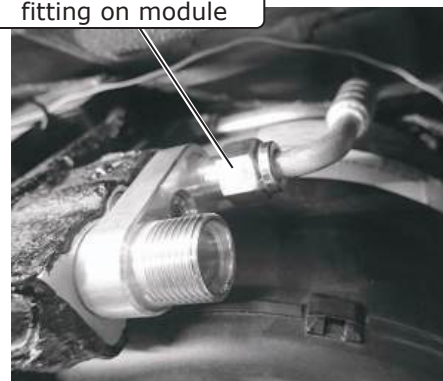


Photo 6



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## Evaporator Installation (Cont.)

5. With a properly lubricated #10 O-ring (See Lubricating O-rings & Fitting Torque Specs, Page 21), connect the #10 A/C hose to the block fitting on the module (See Photo 7, below). **NOTE: Cover all exposed metal with the supplied press tape (See Photo 8, below).**
6. Loosen the screws securing the ECU to the evaporator module and remove the ECU, then retighten the screws (See Photo 9, below). Cut the tie wraps holding the ECU wiring (See Photo 10, below). Apply (2) strips of Velcro to the ECU (See Photo 11, below). Let the ECU hang in front of the evaporator module, as it will be relocated to the glove box.
7. Install (2) 1/4-20 well nuts into the modules front mounting provisions (See Photo 12, below).
8. Install the dash bracket using (2) 1/4-20 x 1" serrated flange bolts (See Photo 13, below).
9. Level the evaporator module left to right and fore and aft. Once the module is in place, secure the dash bracket to the cowl using a #14 x 3/4" washer head screw (See Photo 14, below).

Connect #10 A/C hose to block fitting on module

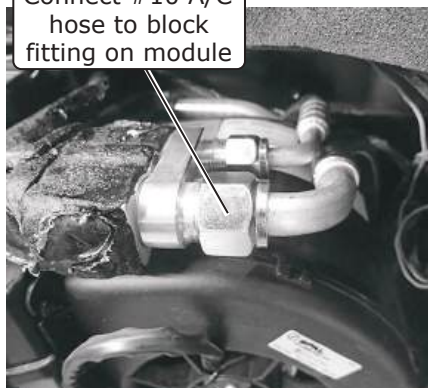


Photo 7

Cover all exposed metal with press tape



Photo 8

Loosen screws securing ECU and remove, then retighten screws



Photo 9

Cut tie wraps holding ECU wiring

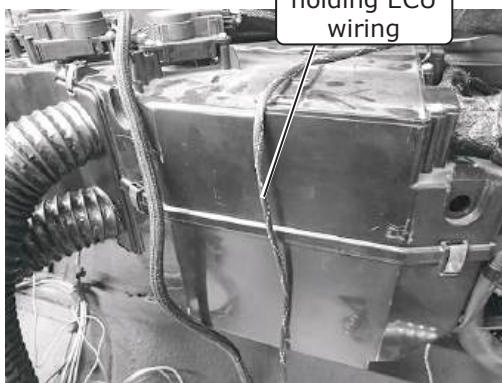


Photo 10

Apply (2) strips of Velcro to ECU

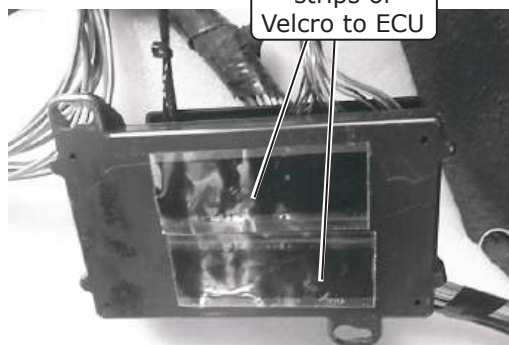


Photo 11

Install (2) 1/4-20 well nuts

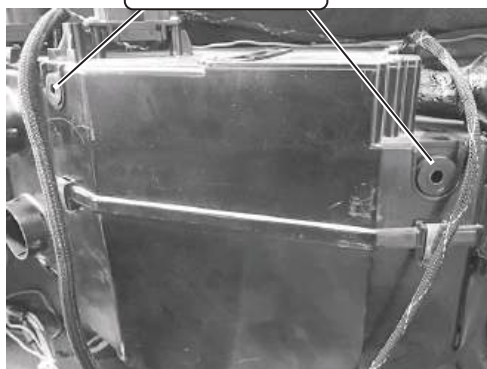


Photo 12

Dash Bracket 643582

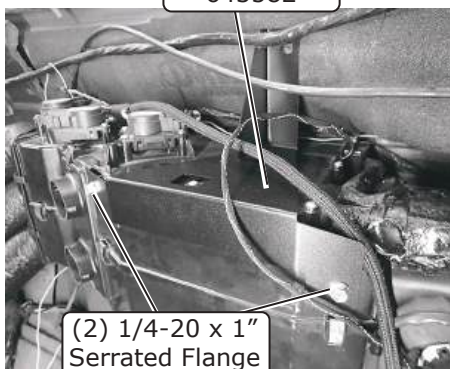


Photo 13

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

#14 x 3/4" Washer Head Screw

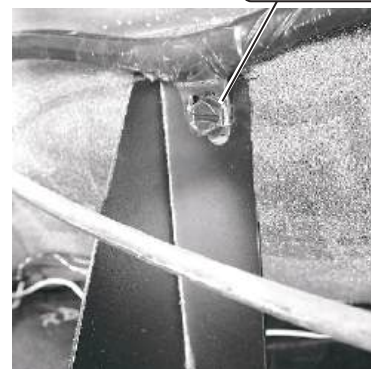


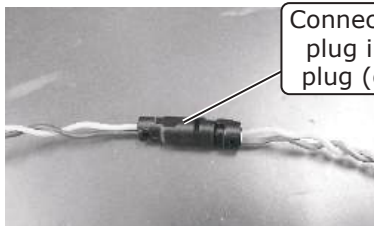
Photo 14



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## Evaporator Installation (Cont.)

10. Connect the blower speed control connector to the main harness connector (See Photo 15, below).
11. From the engine compartment, remove the (2) washers and nuts, and replace the (3) full-length studs with (3) 1/4-20 x 3/4" serrated flange black bolts (See Photo 16, below).
12. Install the MAF sensor bracket onto the upper-right firewall cover bolt (See Photo 17, below).



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

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



Photo 15

Install MAF sensor bracket onto upper right firewall cover bolt

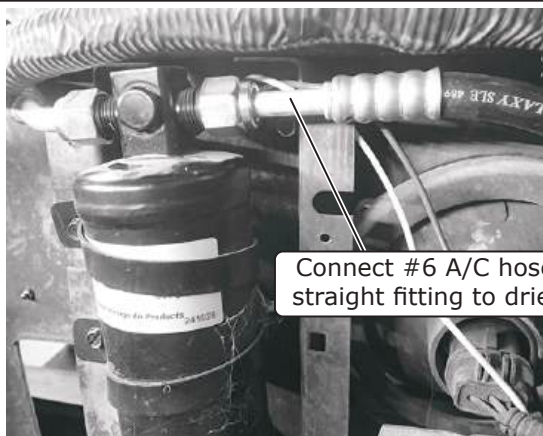


Photo 16

Photo 17

## Engine Compartment A/C Hose Installation

1. Route the #6 A/C hose along the inner fender, and around the battery. With a properly lubricated #6 O-ring (See Lubricating O-rings & Fitting Torque Specs, Page 21), connect the straight fitting to the drier (See Photo 1, below).
2. Route the #10 A/C hose toward the compressor, and with a properly lubricated #10 O-ring (See Lubricating O-rings & Fitting Torque Specs, Page 21), connect the 135° fitting to the suction port of the compressor (See Photo 2, below).



Connect #6 A/C hose straight fitting to drier

Photo 1



Connect #10 A/C hose 135° fitting to suction port of compressor

Photo 2



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## Engine Compartment A/C Hose Installation (Cont.)

- Using (2) properly lubricated #8 O-rings (See Lubricating O-rings & Fitting Torque Specs, Page 21), connect the 135° fitting to the discharge port of the compressor and the 90° fitting to the condenser hardline (See Photos 3 and 4, below).

Connect #8 A/C hose 135° fitting to discharge port of compressor

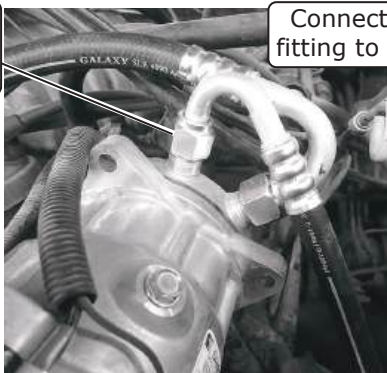


Photo 3

Connect #8 A/C hose 90° fitting to condenser hardline



Photo 4

## A/C Hose & Heater Control Valve Installation

**NOTE: Vintage Air Systems use 5/8" heater connections. On engines equipped with 3/4" hose nipples, these will need to be removed and replaced with 5/8" nipples (not supplied). For water pumps with a cast-in 3/4" heater outlet, a 3/4" x 5/8" reducer fitting in the heater hose (not supplied) or molded hose (Vintage Air Part # 099010) will need to be installed.**

- Route a length of heater hose from the lower heater hardline to the "T" fitting from the water pump, and secure it using (2) hose clamps (See Photo 1, below).
- Cut a length of heater hose approximately 4" to 5" from the firewall cover, then install it onto the upper heater hardline. Install the heater control valve, and secure it with (2) hose clamps (See Photo 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).** Install another length of heater hose from the heater control valve to the intake, then secure it with (2) hose clamps (See Photo 3, below).
- Plug the heater control valve connector into the connector of the main wiring harness (See Photo 4, below).

Secure using (2) hose clamps

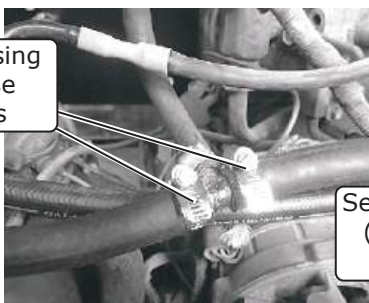


Photo 1

Secure with (2) hose clamps

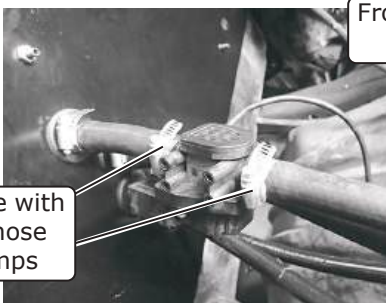


Photo 2

From Heater Control Valve To Evaporator

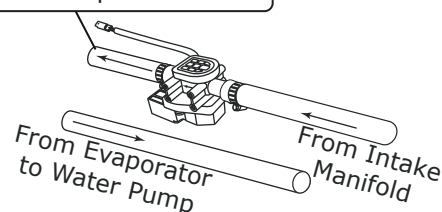


Figure 1

Secure length of heater hose from heater control to intake, then secure with (2) hose clamps



Photo 3

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

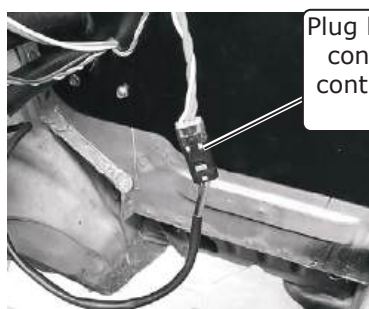


Photo 4



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## Engine Compartment Wiring

**NOTE: The following connections are critical to the performance of the system. Before making connections, refer to the Quality Crimp Guidelines, Page 38.**

1. Route power and ground wires toward the battery (See Photo 1, below).
2. Install the supplied heat shrink over the 12 AWG orange standard fuse holder assembly wire and crimp it to the 12 AWG orange wire from the main wiring harness (See Photo 2, below). Slide the heat shrink over the crimp, then apply heat.
3. Install the supplied heat shrink over the 16 AWG black mini fuse holder assembly wire and crimp it to the 16 AWG red wire from the main wiring harness (See Photo 3, below). Slide the heat shrink over the crimp, then apply heat.
4. Install the fuses into the holders (See Photos 4 and 5, below).
5. Install the supplied heat shrink over the white ground wires, then crimp on the supplied ring terminals (See Photo 6, below). Slide the heat shrink over the crimps, then apply heat. **NOTE: Both white wires can be crimped to the larger ring terminal. Install the heat shrink, then strip the wires, twist them together and trim to length. Crimp on the ring terminal, then slide the heat shrink over and apply heat (See Photos 7 and 8, below).**



Route power and ground wires toward battery

**Photo 1**

Crimp 12 AWG orange fuse holder wire to 12 AWG orange wire from main wiring harness



**Photo 2**

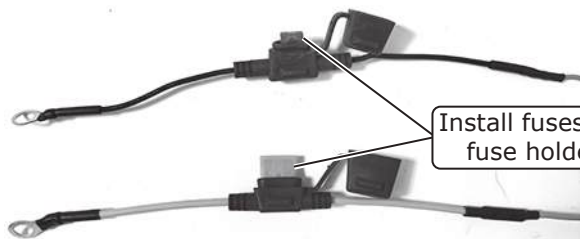
Install heat shrink over 12 AWG orange standard fuse holder assembly wire

Crimp 16 AWG black fuse holder wire to 16 AWG red wire from main wiring harness



**Photo 3**

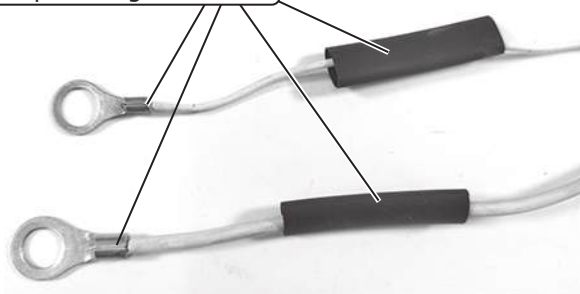
Install heat shrink over 16 AWG black standard fuse holder assembly wire



Install fuses into fuse holders

**Photo 4**

Install heat shrink over white ground wires, then crimp on ring terminals



**Photo 6**

Both white ground wires can be crimped together. Install heat shrink, then strip wires, twist together and trim to length.



**Photo 5**

Crimp on ring terminal, then slide heat shrink over and apply heat



**Photo 7**

**Photo 8**



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## Engine Compartment Wiring (Cont.)

6. Connect the ground wire ring terminals to the negative battery terminal connector (See Photos 9 and 10, below).
7. Connect the positive wire ring terminals to the positive battery terminal connector (See Photos 11 and 12, below). **NOTE: Do not connect power until the installation is completed.**
8. Wiring completed (See Photo 13, below).

Connect ground wire ring terminals to negative battery terminal  
**NOTE: Either connection application can be used.**



Photo 9

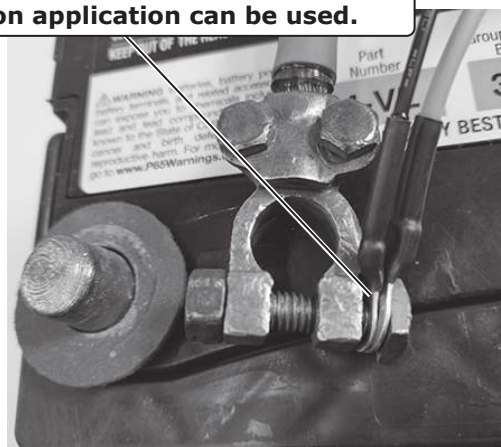


Photo 10

Connect power wire ring terminals to positive battery terminal  
**NOTE: Either connection application can be used.**



Photo 11



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

Photo 12



Completed Installation  
Shown

Photo 13



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## Passenger Compartment Wiring

1. Locate 25 amp (factory non-air vehicles) or 30 amp (factory air equipped vehicles) fuse (See Photo 1, below).
2. Remove the corresponding fuse and replace it with the provided 5 amp fuse (See Photo 2, below).
3. Locate the brown/orange striped wire at the passenger side of the OEM heater/A/C harness (See Photo 3, below).
4. Using the provided butt splice connector and shrink tubing, connect the brown/orange striped wire to the purple keyed-on wire coming from the Vintage Air wire harness (See Photo 4, below).
5. Route the tan wire toward the center of the dash along the firewall (See Photo 5, below). **NOTE: The tan wire will be connected during the control panel installation.**

Locate 25 or 30 amp fuse

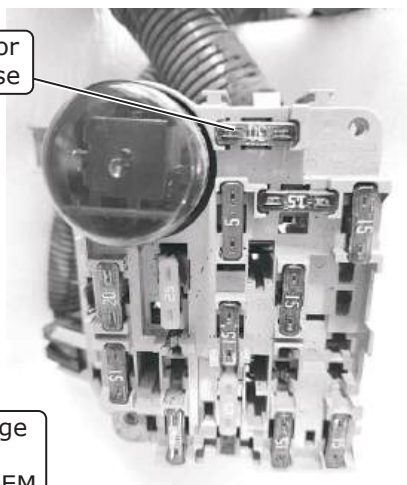


Photo 1

Remove 25 or 30 amp fuse and replace with 5 amp fuse

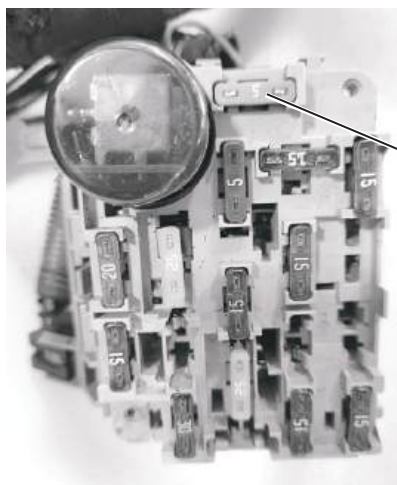
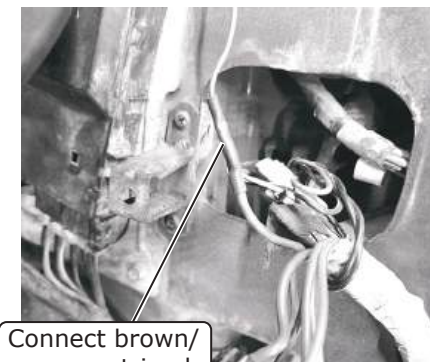


Photo 2

Locate brown/orange striped wire at passenger side of OEM heater/A/C harness



Photo 3



Connect brown/orange striped wire to purple keyed-on wire

Photo 4



Route tan wire toward center of dash along firewall

Photo 5

## Dash Reinstallation

1. Bring the dashboard into the vehicle and reinstall all sensors, plugs and wiring that were removed during the removal process.
2. Reinstall the dashboard to the upper firewall using the OEM hardware. **NOTE: Do not install the lower dash hardware at this time.**



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## Duct Hose Installation

**NOTE: Refer to Duct Hose Routing, Page 37.**

1. Install 15" of 2 1/2" duct hose from the upper outlet of the dash plenum on the evaporator module to the passenger-side louver adapter.
2. Install 26" of 2 1/2" duct hose from the center outlet of the dash plenum on the evaporator module to the driver-side plenum adapter.
3. Install 30" of 2 1/2" duct hose from the lower outlet of the dash plenum on the evaporator module to the driver-side center vent opening in the dash. **NOTE: This will be connected after the bezel is reinstalled.**
4. Route 19" of 2" duct hose from the upper outlet of the defrost plenum on the evaporator module to the passenger side of the defrost plenum.
5. Route 22" of 2" duct hose from the lower outlet of the defrost plenum on the evaporator module to the driver side of the defrost plenum.

## Lower Dash Hardware Installation

1. Under the dash bracket, secure using a 1/4-20 x 3/4" serrated flange black bolt (See Photo 1, below).
2. Install a .310" I.D. x .750" O.D. x .185" length spacer behind the passenger-side dash mounting bracket and secure using a 1/4-20 x 1 1/2" flange head black bolt (See Photo 2, below).

Secure dash bracket using a 1/4-20 x 3/4" serrated flange black bolt

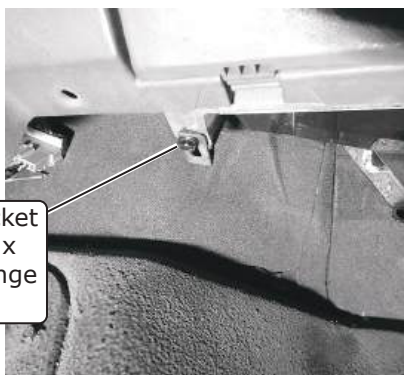
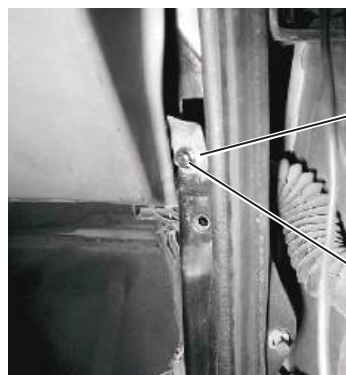


Photo 1

Install .310" I.D. x .750" O.D. x .185" length spacer behind passenger-side dash mounting bracket



Secure using a 1/4-20 x 1 1/2" flange head black bolt

Photo 2

## Control Panel Installation

1. Refer to control panel kit installation instructions.

## Glove Box & ECU Installation

1. Route the ECU and wiring through the glove box opening, and secure the ECU wiring to the ECU mounting tabs as shown using the supplied tie wraps (See Photo 1, below).
2. Reinstall the glove box door. Route the ECU and wiring through the removed portion of the glove box, then install the ECU's Velcro to the glove box (See Photo 2, below).

Secure ECU wiring to ECU mounting tabs using tie wraps

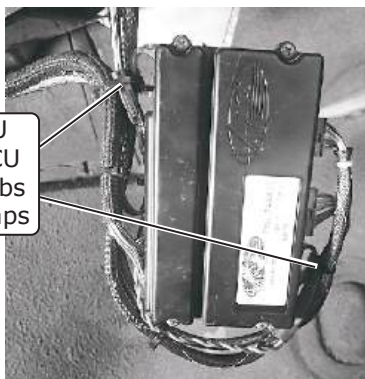


Photo 1

Install ECU's Velcro to glove box



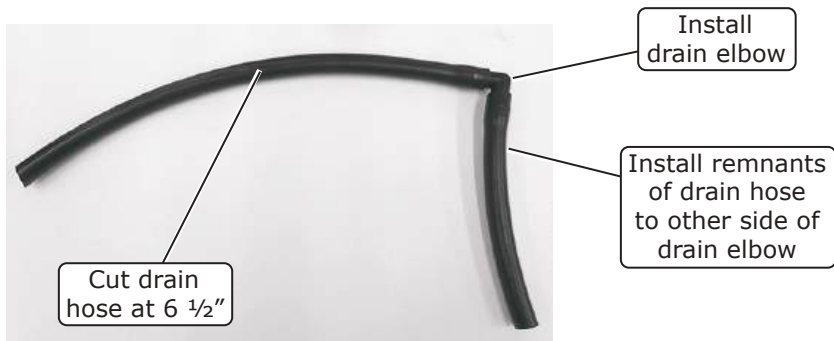
Photo 2



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## Drain Hose Installation

1. Cut the drain hose at 6 ½" then install the drain elbow (See Photo 1, below). Install the remnants of the drain hose to the other side of the drain elbow.
2. Route the 6 ½" side of the drain hose through the firewall cover into the passenger compartment (See Photo 2, below).
3. Attach the drain hose to the evaporator drain outlet (See Photo 3, below).
4. For the drain hose in the engine compartment, route it away from the exhaust.



**Photo 1**

Route 6 ½" side of drain hose through firewall cover into passenger compartment



**Photo 2**

Attach drain hose to evaporator drain outlet



**Photo 3**



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## Final Steps: Installation Check

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



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## ***Final Steps: Completing the Install***

- 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 41.



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## Duct Hose Routing

**NOTE:** For the system to function optimally, the duct hoses must be routed as directly as possible, taking care to avoid kinks, sharp bends and unnecessary length. Vintage Air supplies duct hoses in continuous lengths that will need to be cut to size depending on application. Before cutting, familiarize yourself with the installation instructions and verify the routing will work with your application. For custom hose routing, additional hose may be needed and can be purchased from Vintage Air.

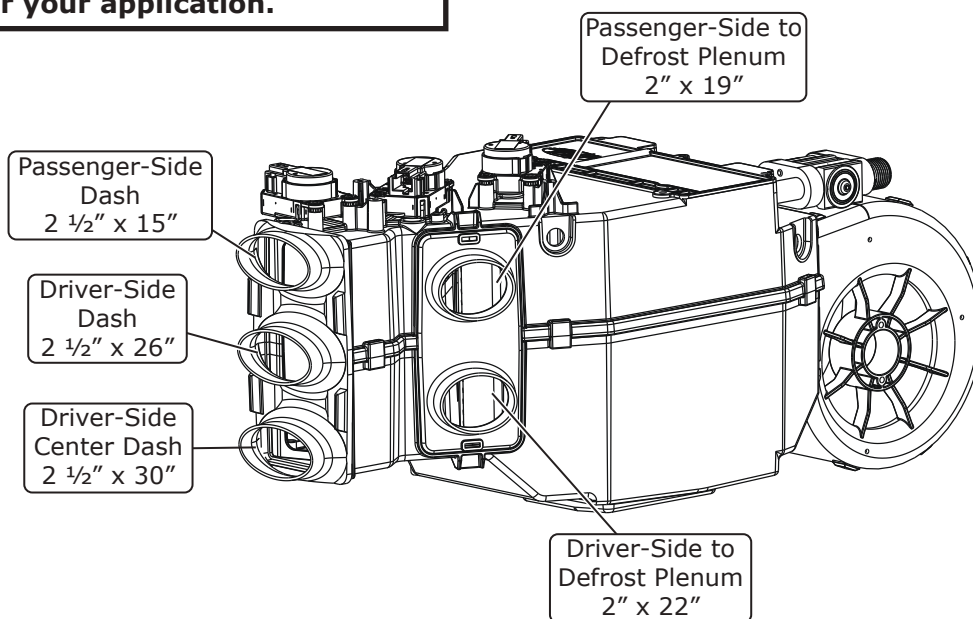
1. Stretch the duct hose until there is no slack, measure, mark and cut hose to size (See Photo 1, below).

Stretch, measure,  
mark and cut  
hose to size



**Photo 1**

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



**NOTE:** ECU must be placed away from water and humidity, and also be accessible for servicing. If relocating, connectors must be positioned towards the bottom.

Position connectors  
towards bottom



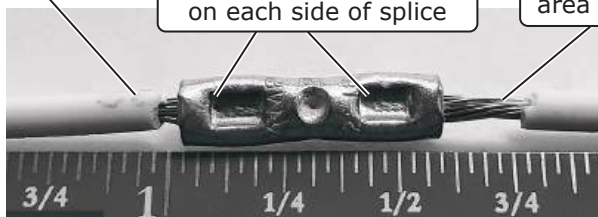
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## Quality Crimp Guideline

Acceptable strip length  
(Some copper visible)

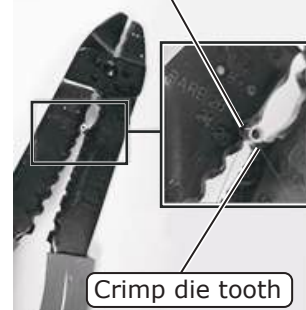
Crimped area is centered  
on each side of splice

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



**Photo 1**

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



**Photo 2**

### Good Ring Terminal Crimp Bad Ring Terminal Crimp



**Photo 3**

Crimp  
area is  
centered  
on barrel



**Photo 4**

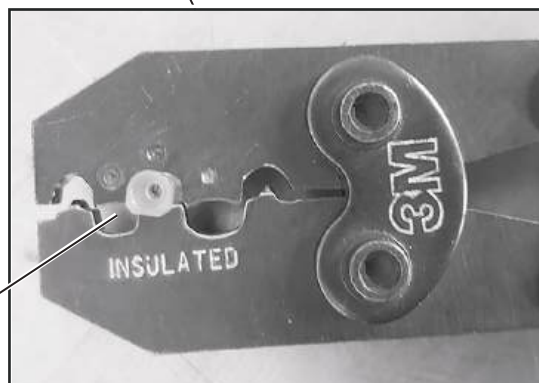
Excessive  
wire "brush"

Crimp  
area is not  
centered on  
barrel

Crimp area  
is on seam  
(Should be  
opposite)



**Photo 5**



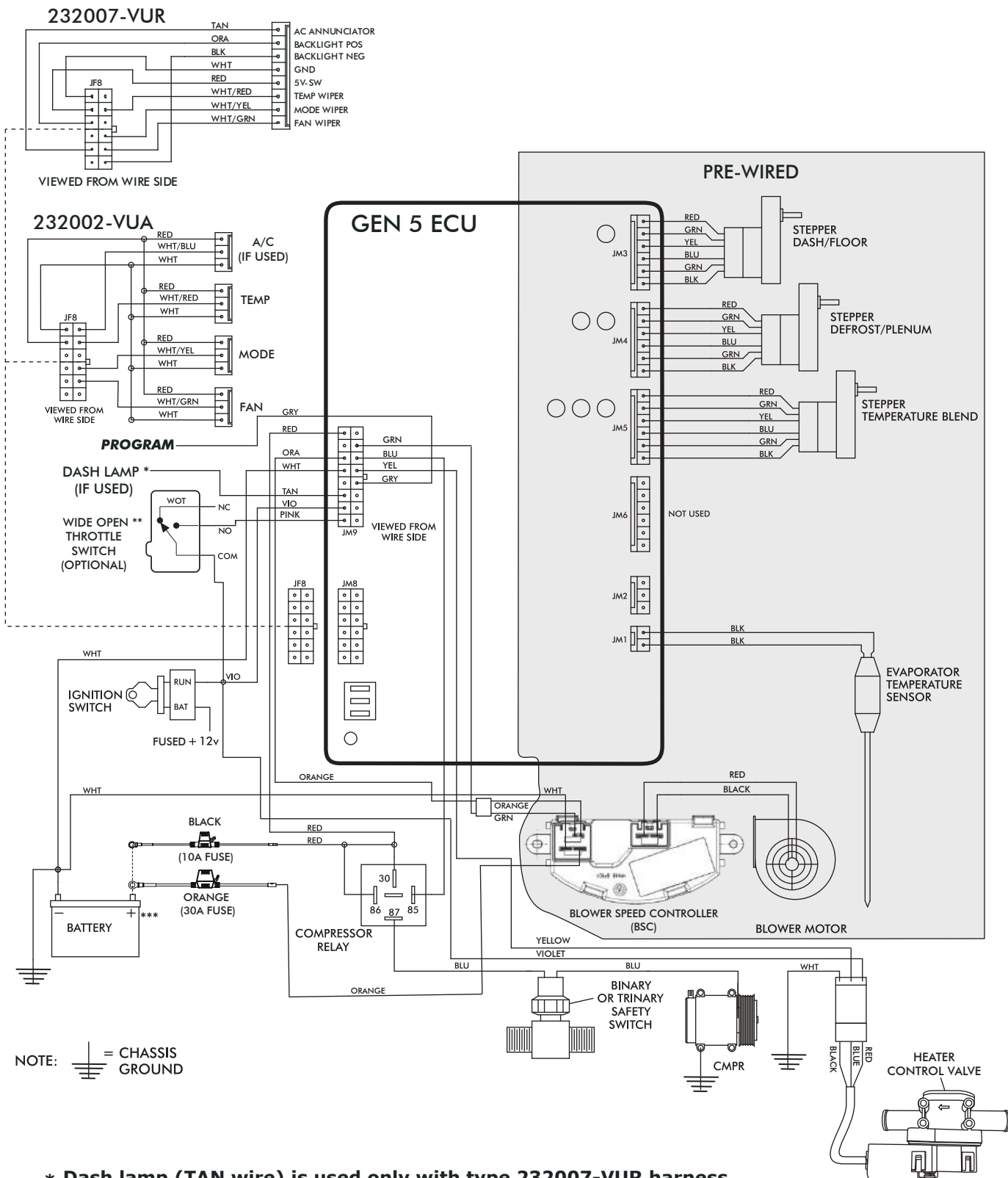
**Photo 5a**

Use a ratcheting crimp tool  
for insulated barrel terminals  
when crimping the provided  
female insulated terminal.  
Ensure terminal is inserted in  
appropriate position before  
crimping.



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# Gen 5 Wiring Diagram



\* Dash lamp (TAN wire) is used only with type 232007-VUR harness.

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

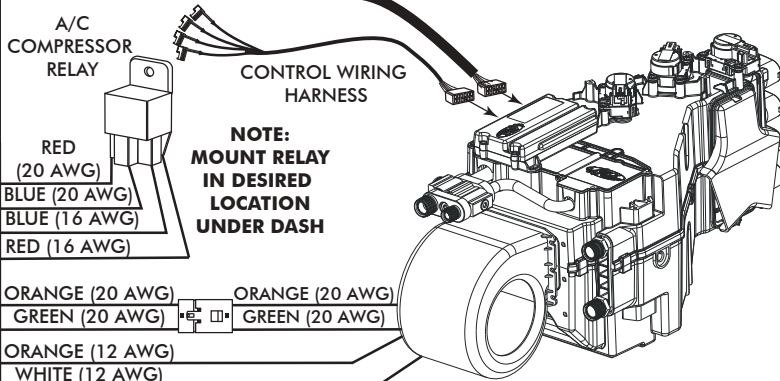
\*\*\* Install fuse assemblies at or as near to the battery as possible.



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## Gen 5 Wiring Instructions

WIRING HARNESS (231505) ↓



### Ignition Switch:

Using provided butt splice (PN 226004), connect the 20 AWG violet wire to a 5A fused and switched 12V source such as Key On.

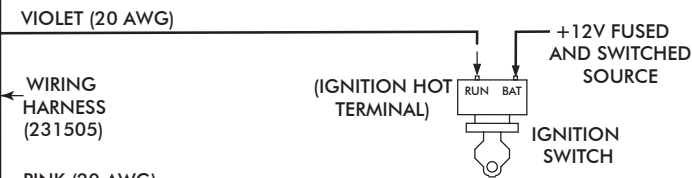
### Wide Open Throttle Switch (Optional):

If a wide open throttle switch is required, connect the 20 AWG pink wire to a normally open switch that, when closed, connects a fused and switched 12V source to the pink wire. See Gen 5 wiring diagram for an example.

### Dash Light (Optional):

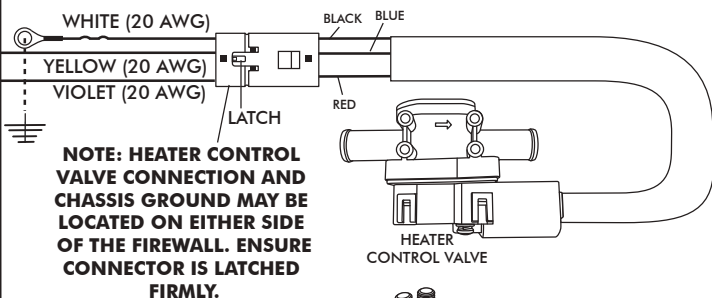
If using a Vintage Air control panel with back light, connect the 20 AWG tan wire to the vehicle's dash back light 0-12V using provided butt splice (PN 226004).

WIRING HARNESS (232020) →



FIREWALL

FIREWALL



### Heater Control Valve:

Connect the Violet/Yellow/White twisted branch with 3 position connector into the heater control valve connector. Ensure that the mating latch is fully seated.

### Binary/Trinary & Compressor:

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

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

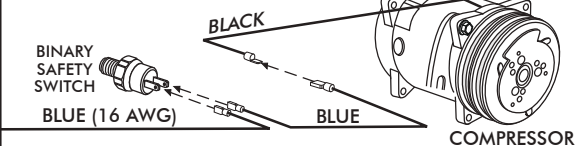
### Battery Connections:

**ECU Ground:** Terminate provided ring terminal (PN 226110) to 20 AWG white wire from the 231505 wire assembly and install at battery.

**ECU PWR:** Terminate provided fuse assembly with black leads (PN 233012) to the 16 AWG red wire from the 231505 wire assembly. Install provided 10A Red Mini Fuse (PN 226118). Install at battery.

**Blower Speed Controller (BSC) Ground:** Terminate provided ring terminal (PN 226111) to 12 AWG white wire from the 232020 wire assembly and install at battery.

**Blower Speed Controller (BSC) PWR:** Terminate provided fuse assembly with orange leads (PN 233008) to the 12 AWG orange wire from the 232020 wire assembly. Install provided 30A Green ATO/ATC Fuse (PN 226125). Install at battery.



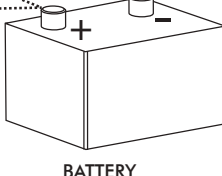
WHITE (12 AWG)

WHITE (20 AWG)

ORANGE (12 AWG)

RED (16 AWG)

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



BATTERY



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## Operation of Controls

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

### **Blower Speed**

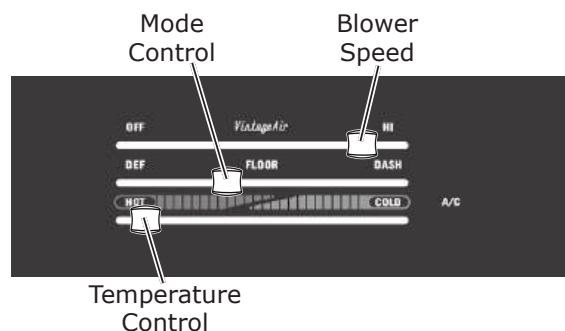
This lever/knob controls blower speed, from OFF to HI.

### **Mode Control**

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

### **Temperature Control**

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



## A/C Operation

### **Blower Speed**

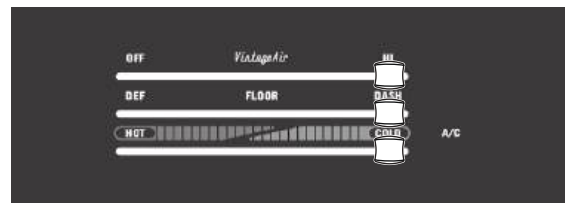
Adjust to desired speed.

### **Mode Control**

Adjust to desired mode position (DASH position recommended).

### **Temperature Control**

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



## Heat Operation

### **Blower Speed**

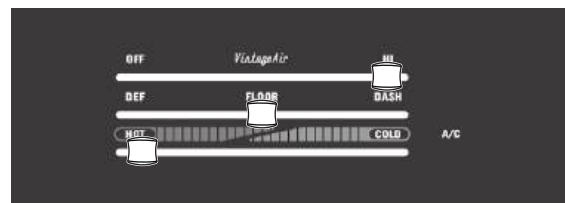
Adjust to desired speed.

### **Mode Control**

Adjust to desired mode position (FLOOR position recommended).

### **Temperature Control**

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



## Defrost/De-fog Operation

### **Blower Speed**

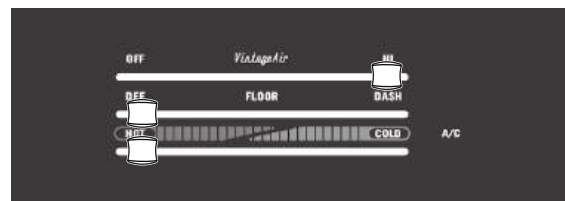
Adjust to desired speed.

### **Temperature Control**

Adjust to desired temperature.

### **Mode Control**

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





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# Troubleshooting Guide

This printed troubleshooting guide is our basic guide that covers common installation problems. To see our advanced diagnostics and troubleshooting guide, please refer to the following page for instructions on how to download the complete guide.

**WARNING: While troubleshooting the system, never probe connector terminals from the front mating side, only back probe.**  
**WARNING: While troubleshooting the system, never use automotive check lights.**

Symptom	Condition	Checks	Actions	Notes
1. Blower stays on high speed with ignition on.	No other functions work. All other functions work.	Check for damaged pins or wires in the control panel wire assembly and mating header at ECU. Check for a bad ECU GND. Check for damaged pins or wires in the control panel wire assembly and mating header at ECU. Check if Blower power fuse is blown. Check for a bad ECU GND.	If found damaged, replace wire assembly or ECU. If found damaged, replace wire assembly or ECU. Replace fuse. Repair connection.	If fuse continues to blow, there is a serious problem in the wiring. Check all wiring and ensure the wire is not damaged and shorting out along its route.
2. Compressor will not turn on (All other functions work).	System is not charged. System is charged.	System must be charged for compressor to engage. Check for faulty A/C potentiometer or associated wiring (not applicable to 3-pot controls). Check for disconnected or faulty thermistor.	Charge system. Check continuity to ground on white control head wire. Check for 5V on red control head wire. Check 2-pin connector at ECU housing.	<b>Danger: Never bypass safety switch with engine running. Serious injury can result.</b> To check for proper pot function, check voltage at white/red wire. Voltage should be between 0V and 5V, and will vary with pot lever position. 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. Check for faulty A/C relay.	Repair or replace pot/control wiring. Replace relay.	Red wire at A/C pot should have approximately 5V with ignition on. White wire will have continuity to chassis ground. White/Red wire should vary between 0V and 5V when lever is moved up or down.



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## Troubleshooting Guide (Cont.)

Symptom	Condition	Checks	Actions	Notes
4. System will not turn on, or runs intermittently.	Works when engine is not running; shuts off when engine is started	Noise interference from either ignition or alternator.	Install capacitors on ignition coil and alternator. Ensure good ground at all points. Relocate coil and associated wiring away from ECU and ECU wiring. Check for burned or loose plug wires.	Ignition noise (radiated or conducted) will cause the system to shut down due to high voltage spikes. If this is suspected, check with a quality oscilloscope. Spikes greater than 16V will shut down the ECU. Install a radio capacitor at the positive post of the ignition coil (see radio capacitor installation bulletin). A faulty alternator or worn out battery can also result in this condition.
	Will not turn on under any conditions.	Verify connections on power lead, ignition lead, and both white ground wires.	Check for power at ECU, and confirm ignition is being applied to ECU properly.	
		Verify battery voltage is greater than 10 volts and less than 16 while engine is running.	Verify proper meter function by checking the condition of a known good battery.	
5. Loss of mode door function.	No mode change at all.	Check for damaged mode switch or potentiometer and associated wiring.		
6. Blower turns on and off rapidly.	Battery voltage is at least 12V.	Check for at least 12V at circuit breaker.	Ensure all system grounds and power connections are clean and tight.	System shuts off blower at 10V. Poor connections or weak battery can cause shutdown at up to 11V.
	Battery voltage is less than 12V.	Check for faulty battery or alternator.	Charge battery.	
7. Erratic functions of blower, mode, temp, etc.		Check for damaged switch or pot and associated wiring.	Repair or replace.	

## Advanced Diagnostics and Troubleshooting Guide

If after referencing the Troubleshooting Guide, the issue is not resolved, move to The Advanced Diagnostics and Troubleshooting Guide that covers the following:

- **ECU Diagnostics Codes**
  1. **ECU Blink Sequence**
  2. **Firmware Version Number**
  3. **ECU Model Number**
  4. **ECU Start-Up Blink Sequence**
  5. **Diagnostic Codes**
- **Complete Advanced Troubleshooting Guidelines**

Access the latest version of the Advanced Diagnostics and Troubleshooting Guide by scanning the following QR code on your mobile device:



You can also access the guide by typing the following address into your web browser:

[https://www.vintageair.com/instructions\\_pdf/905000.pdf](https://www.vintageair.com/instructions_pdf/905000.pdf)



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## Packing List: Evaporator Kit (751703)

No.	Qty.	Part No.	Description
1.	1	765200	Gen 5 Magnum Max Module with 404 ECU
2.	1	791703	Accessory Kit

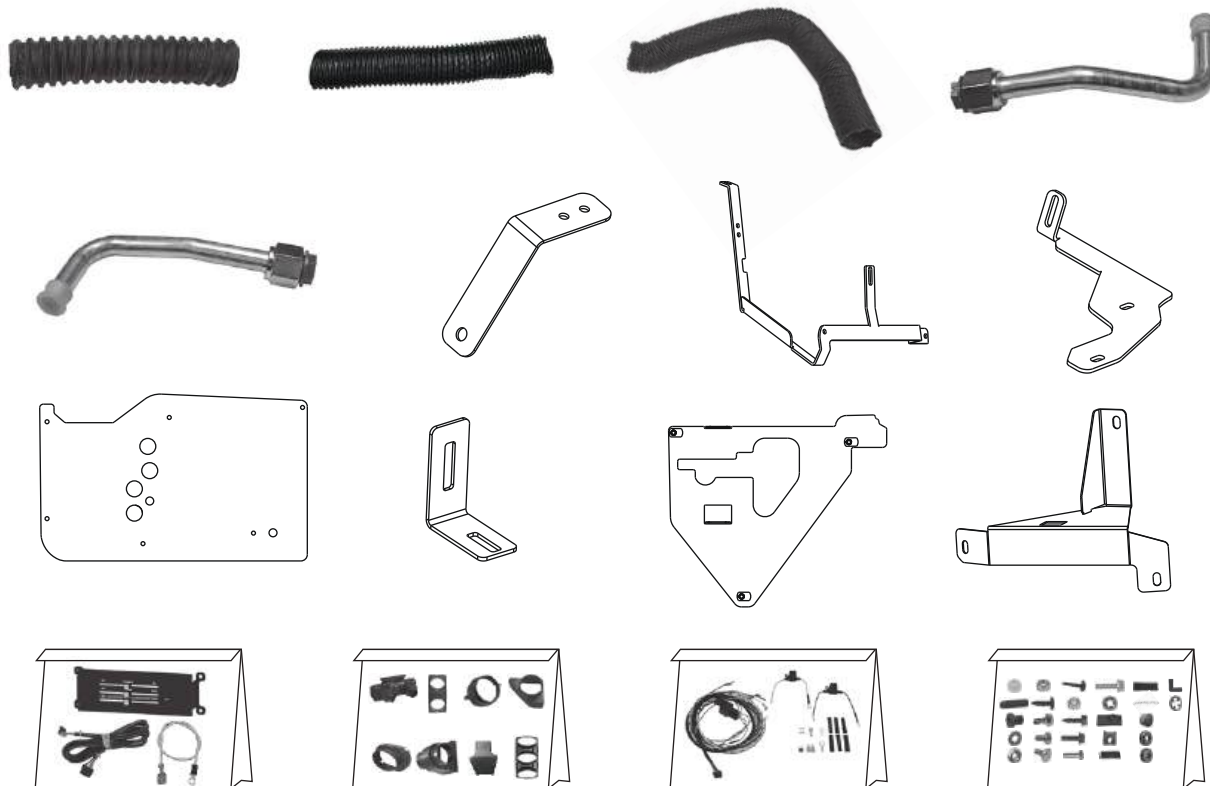
Checked By: \_\_\_\_\_  
Packed By: \_\_\_\_\_  
Date: \_\_\_\_\_

1



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

2



**Accessory Kit  
791703**

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