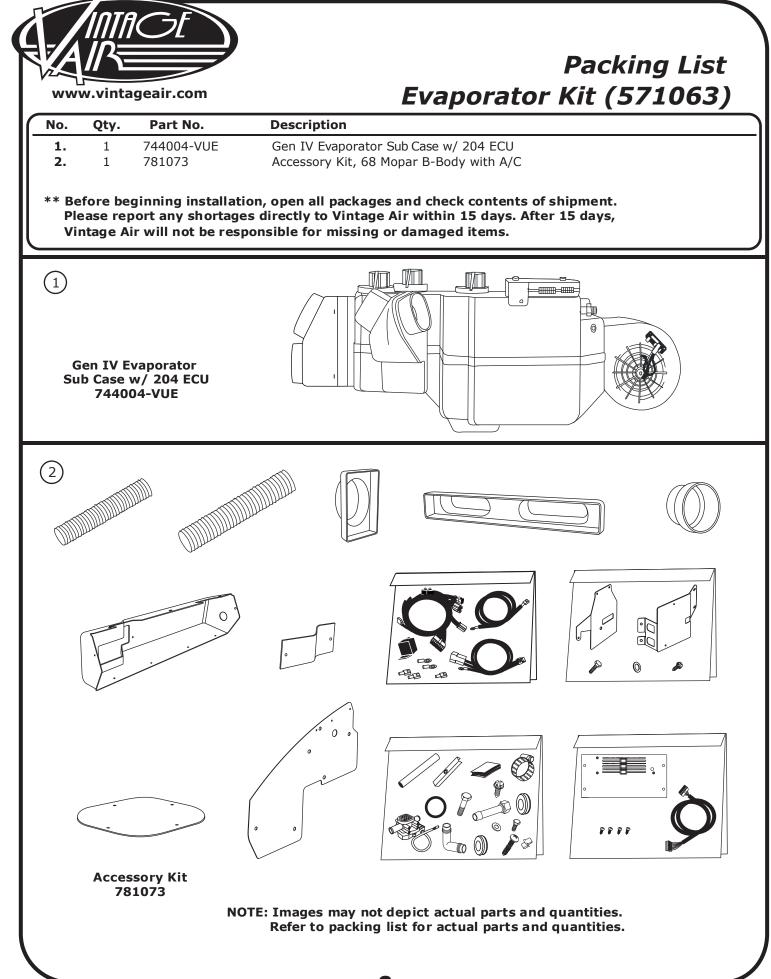




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### Important Notice—Please Read

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. (1 lb., 12 oz.) 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.



### **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.

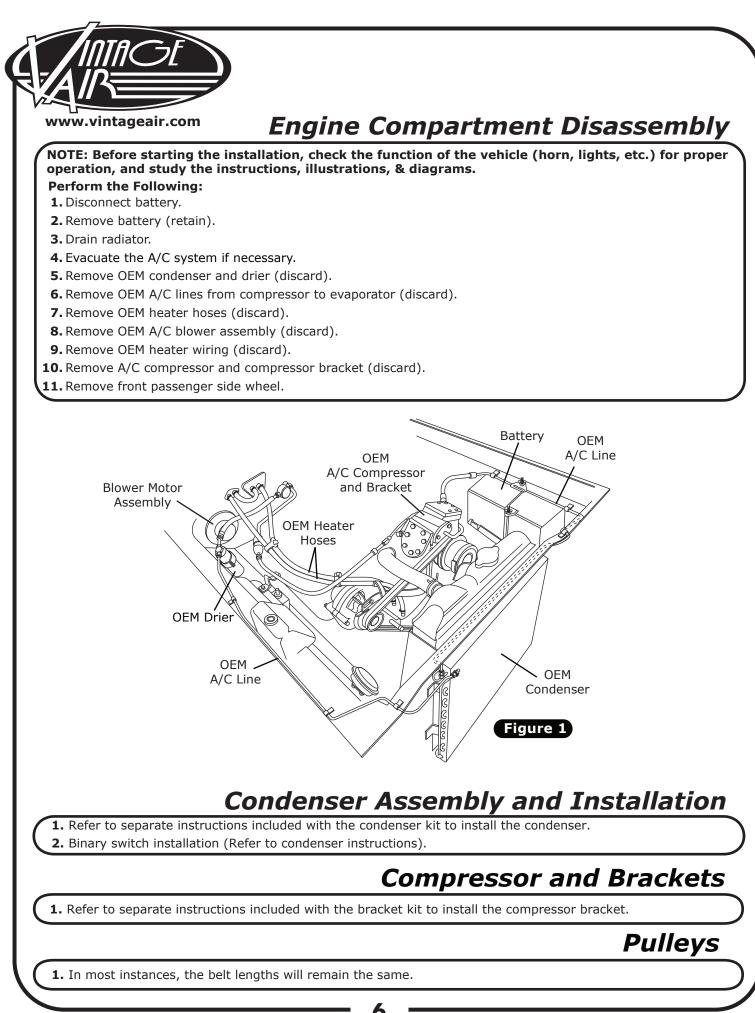
It is also important that the battery lead is in good shape and that the ground leads are not compromised. There should be a heavy ground from the battery to the engine block, and additional grounds to the body and chassis.

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.

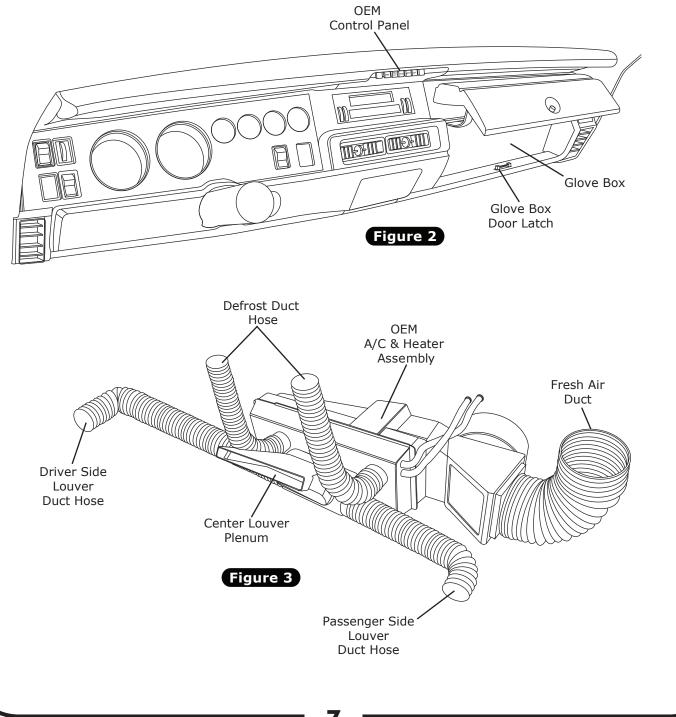


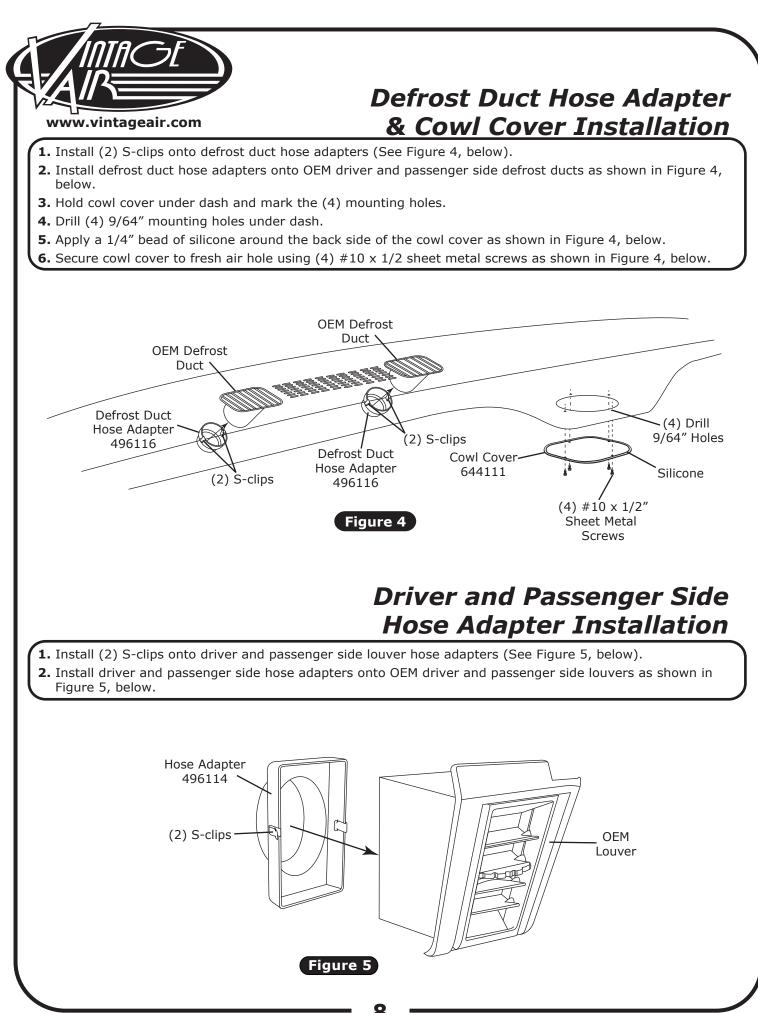
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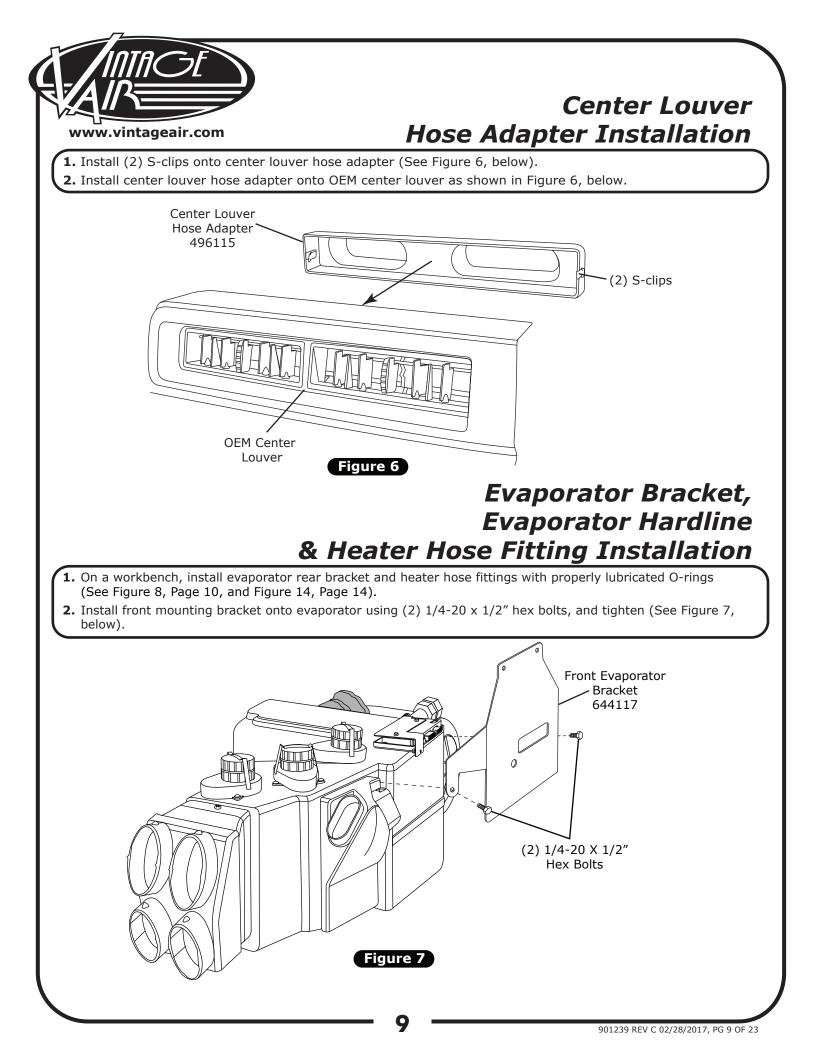


### Passenger Compartment Disassembly

- 2. Remove glove box (discard, but retain OEM screws).
- 3. Disconnect all wires and cables from OEM control panel (discard).
- 4. Remove OEM control panel assembly (discard).
- 5. Remove OEM duct hoses from defrost ducts and driver and passenger side louvers (discard).
- 6. Remove OEM fresh air duct (discard).
- 7. Remove OEM A/C and heater assembly (discard).

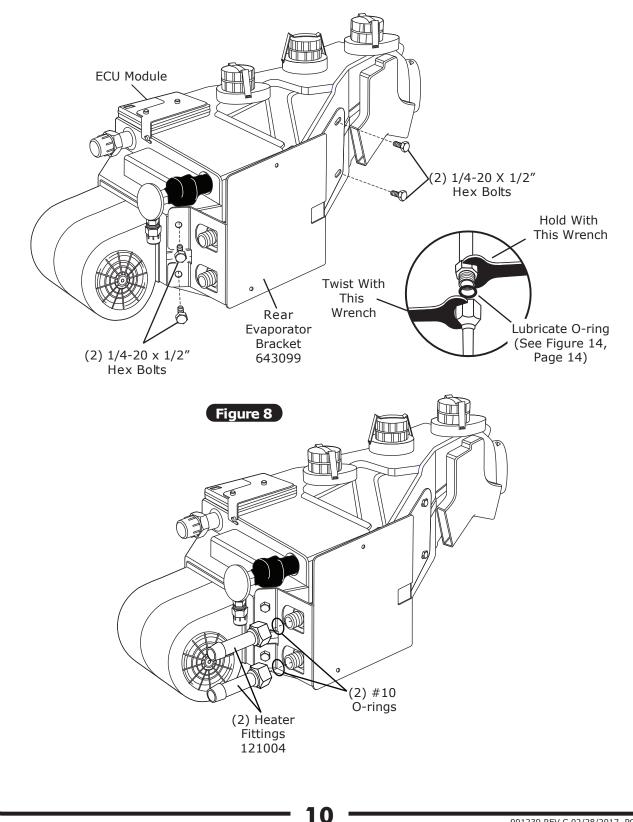


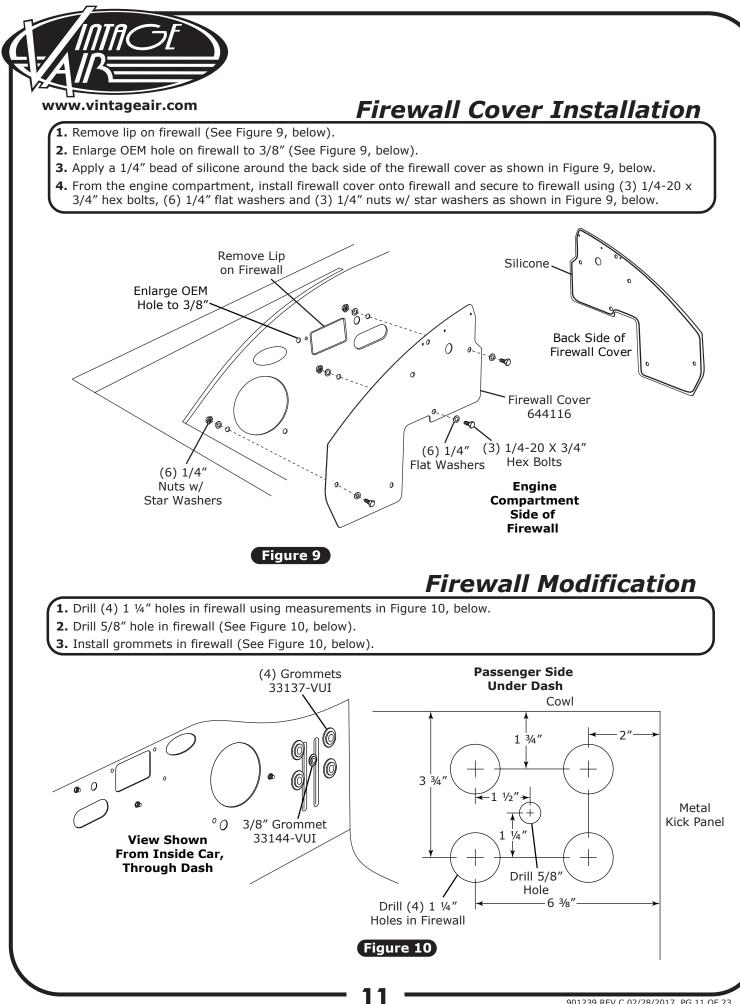






*Evaporator Bracket, Evaporator Hardline* & Heater Hose Fitting Installation (Cont.)





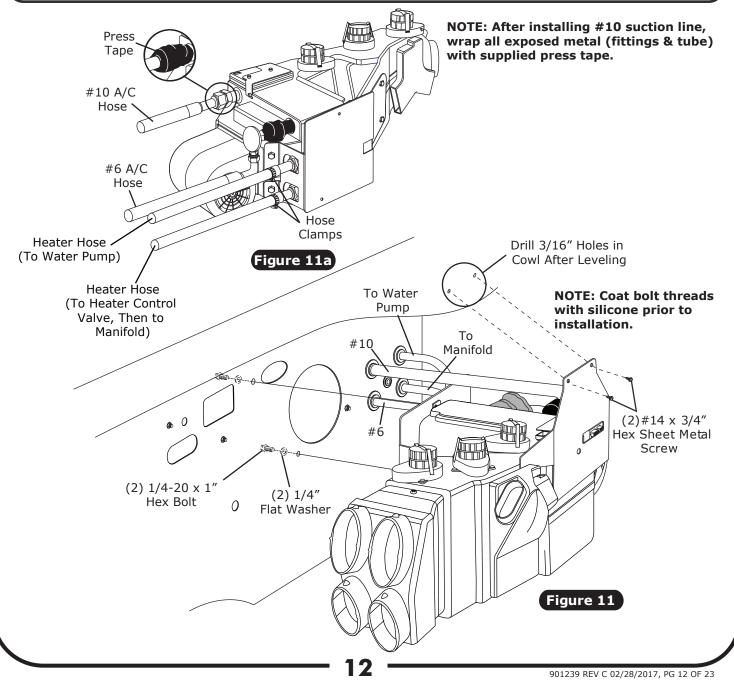
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### **Evaporator Installation**

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.

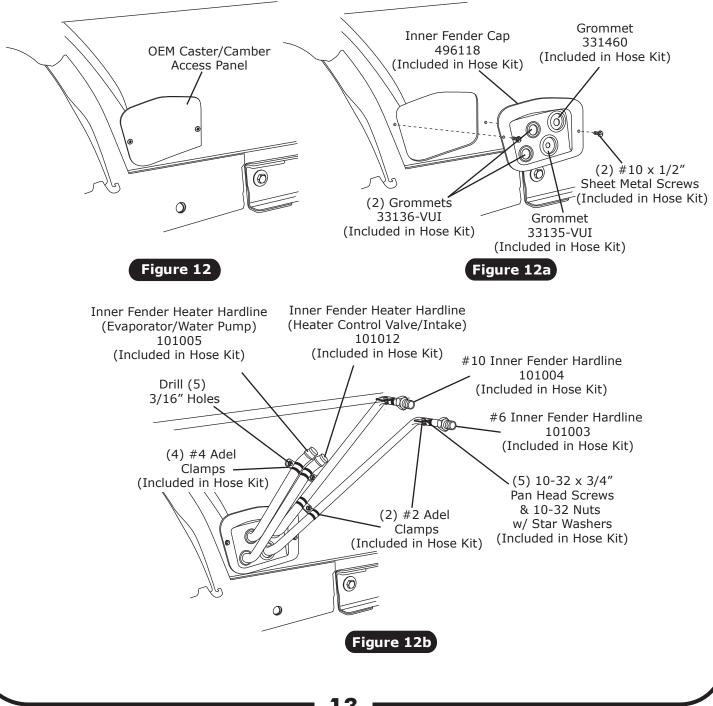
- 1. Install A/C and heater hoses (See Figure 11a, below).
- 2. Lift evaporator unit up under the dashboard. Secure loosely to firewall using (2) 1/4-20 x 1" hex bolts and flat washers (See Figure 11, below). NOTE: To ensure proper drainage, it is very important that the evaporator is level, both left-right and fore-aft. Check for level on the flat portions of the case around the drain.
- 3. Using front evaporator bracket as a guide, mark and drill (2) 3/16" holes in cowl (See Figure 11, below).
- Using (2) #14 x 3/4" hex sheet metal screws, secure the front evaporator mounting bracket to the cowl (See Figure 11, below).
- 5. Verify that evaporator unit is level and square to the dash; then tighten all mounting bolts. NOTE: Tighten the bolt on the firewall first. Then tighten the front mounting bracket.

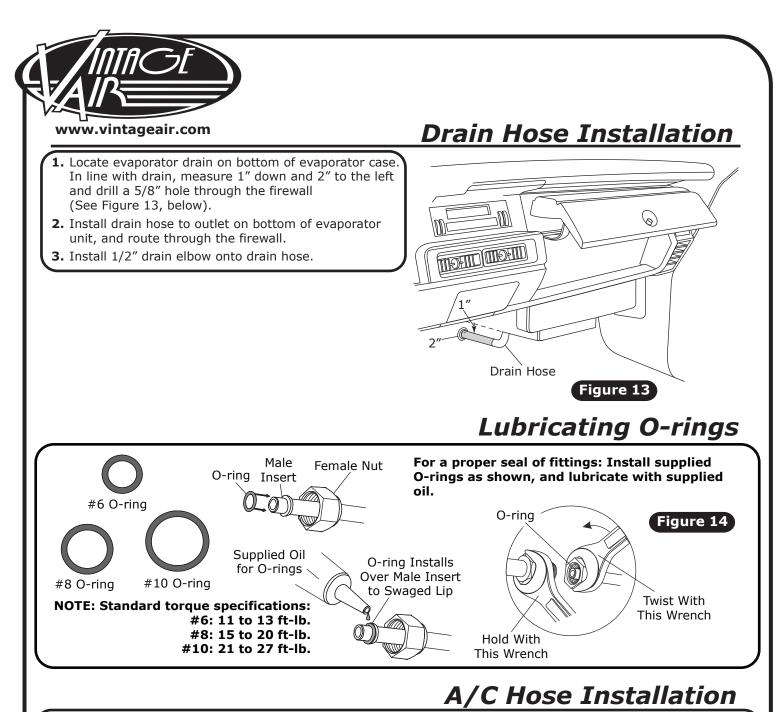


### Inner Fender Cover <u>& Hardline Installation</u>

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- 1. Remove OEM caster/camber access panel from passenger side wheel well (discard) (See Figure 12, below).
- 2. Install (4) grommets in inner fender cap (See Figure 12a, below).
- **3.** Install inner fender cap in wheel well side using  $(2)#10 \times 1/2''$  sheet metal screws as shown in Figure 12a, below.
- **4.** Install hardlines in inner fender cap as shown in Figure 12b, below.
- 5. Install Adel clamps onto hardlines as shown in Figure 12b, below.
- 6. Using Adel clamps as a guide, drill (5) 3/16" holes in inner fender. Secure Adel clamps and hardlines to inner fender using (5) 10-32 x 3/4" pan head screws and (5) 10-32 nuts with star washers as shown in Figure 12b, below.





#### Standard Hose Kit:

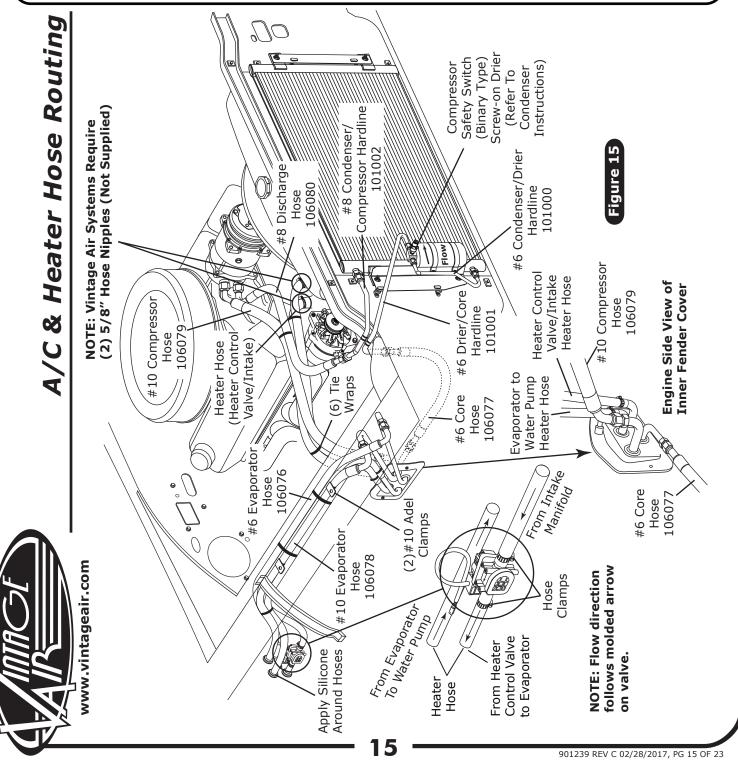
- Locate the #8 compressor A/C hose. Lubricate (2) #8 O-rings and connect the 90° female fitting to the #8 discharge port on the compressor. Then route the straight female fitting with R134a service port to the #8 condenser hardline coming over the core support. Tighten each fitting connection as shown in Figure 14, above.
- 2. Locate the #10 compressor A/C hose. Lubricate (2) #10 O-rings and connect the 45° fitting to the #10 suction port on the compressor. Route the 45° female fitting with R134a service port to the #10 hardline on the inner fender cap. Lubricate (2) #10 O-rings and connect the 90° female fitting in the wheel well to the #10 hardline on the inner fender cap. Then route the straight female fitting from the inner fender cap to the #10 fitting on the evaporator (See Figure 11a, Page 12 and Figure 15, Page 15). Tighten each fitting connection as shown in Figure 14, above.
- **3.** Locate the #6 evaporator A/C hose. Lubricate (2) #6 O-rings and connect the straight female fitting to the #6 hardline coming over the core support from the drier. Route the straight female fitting to the #6 hardline on the inner fender cap. Lubricate (2) #6 O-rings and connect the 90° female fitting in the wheel well to the #6 hardline on the inner fender cap. Then route the 90° female fitting from the inner fender cap to the #6 fitting on the evaporator (See Figure 11a, Page 12 and Figure 15, Page 15). Tighten each fitting connection as shown in Figure 14, above.

#### Modified Hose Kit:

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

### Heater Hose & Heater Control Valve Installation

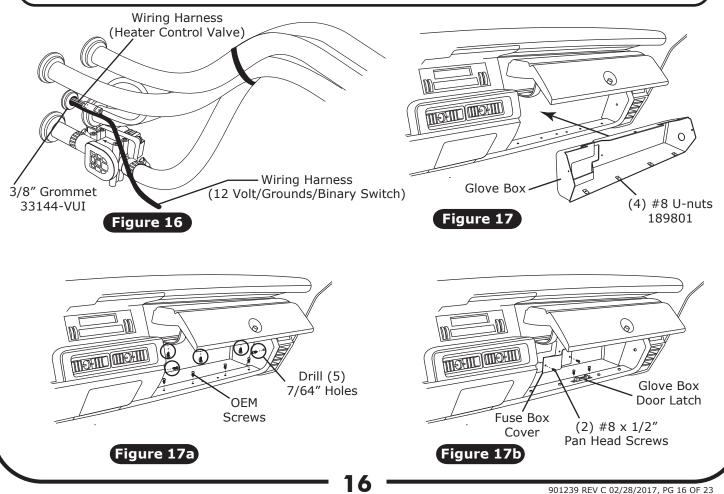
- 1. In engine compartment, route a piece of heater hose from the water pump to the top heater fitting on the inner fender cap (See Figure 15, below). Secure using hose clamps.
- **2.** In engine compartment, route a piece of heater hose from the intake to the bottom heater fitting on the inner fender cap (See Figure 15, below). Secure using hose clamps.
- **3.** In wheel well, route a piece of heater hose from the top heater fitting on the inner fender cap to the top heater fitting of the heater core as shown in Figure 11a, Page 12, and Figure 15, below. Secure using hose clamps.
- 4. In wheel well, route a piece of heater hose from the bottom heater fitting on the inner fender cap to the bottom heater fitting of the heater core as shown in Figure 11a, Page 12, and Figure 15, below. Secure using hose clamps. NOTE: Install heater control valve in line with intake manifold (pressure side) heater hose, and secure using hose clamps as shown in Figure 15, below. Also note proper flow direction.
- **5.** Apply a bead of silicone around each hose where it passes through the grommet on the firewall (See Figure 15, below).

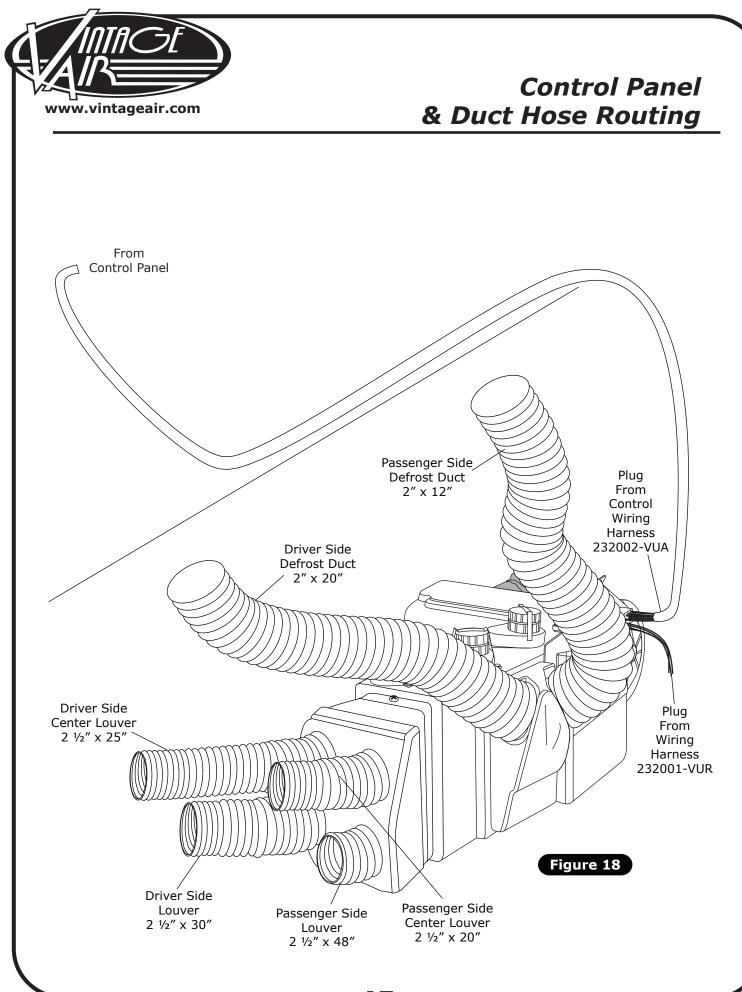




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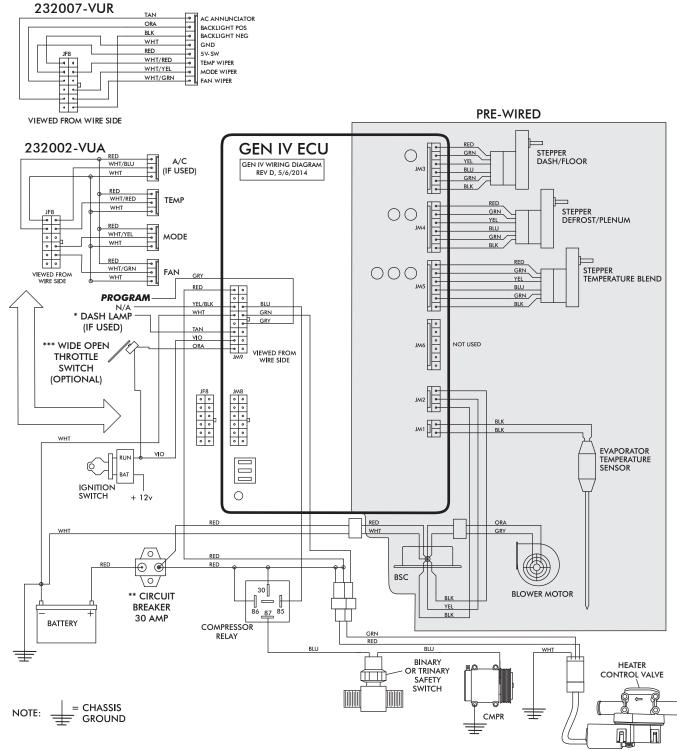
- 1. Install duct hoses as shown in Figure 18, Page 17.
- Route A/C wires (12 volt/grounds/binary switch/heater valve) through 3/8" grommet (See Figure 16, below).
- 3. Install control panel assembly. Refer to control panel instructions.
- Plug the wiring harnesses into the ECU module on the sub case (See Figure 18, Page 17). Wire according to wiring diagrams on Pages 18 and 19.
- 5. Install (4) #8 U-nuts on glove box, and install glove box in glove box compartment (See Figure 17, below).
- **6.** Mark and drill (3) 7/64" holes through glove box into top of glove compartment and (1) 7/64" hole through glove box into each side of glove compartment, for a total of (5) holes (See Figure 17a, below).
- 7. Secure glove box in glove box compartment using OEM screws (See Figure 17a, below).
- 8. Install fuse box cover in glove box using (2) #8 x 1/2" pan head screws (See Figure 17b, below).
- 9. Reinstall glove box latch using OEM screws (See Figure 17b, below).
- 10. Reinstall all previously removed items.
- **11.** 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.
- **12.** Double check all fittings, brackets and belts for tightness.
- **13.** Vintage Air recommends that all A/C systems be serviced by a licensed automotive A/C technician.
- **14.** Evacuate the system for a minimum of 45 minutes prior to charging, and perform a leak check prior to servicing.
- **15.** Charge the system to the capacities stated on Page 4 of this instruction manual.
- 16. See Operation of Controls procedures on Page 20.





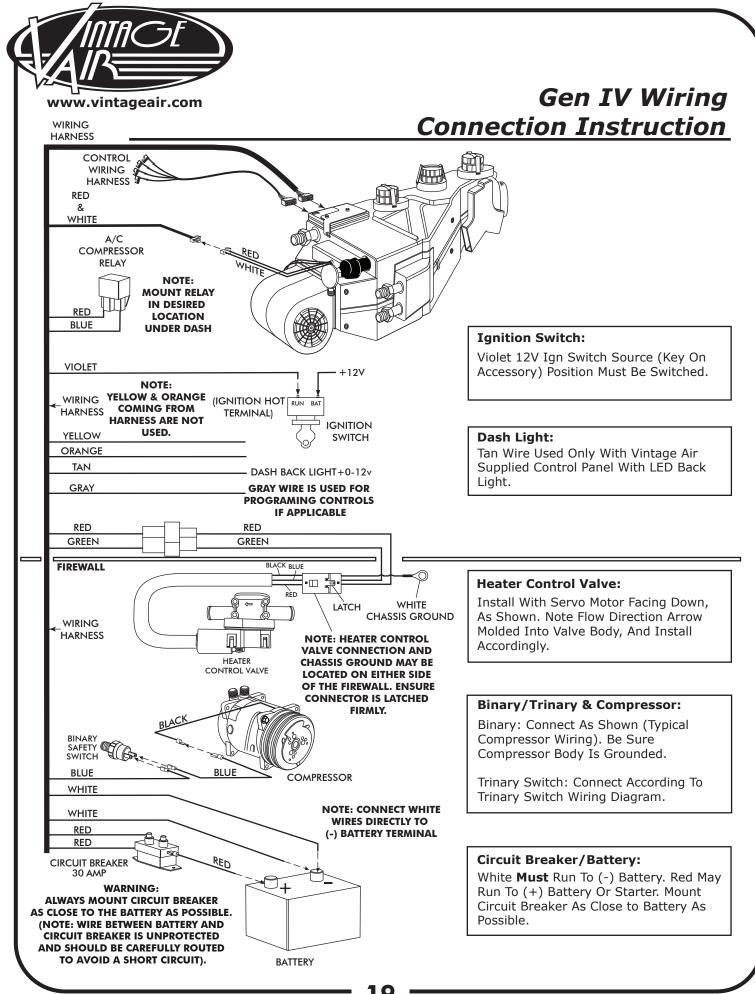


Wiring Diagram



- Dash Lamp Is Used Only With Type 232007-VUR Harness.
- Warning: Always Mount Circuit Breaker As Close to the Battery As Possible. (NOTE: Wire Between Battery and Circuit Breaker Is Unprotected and Should Be Carefully Routed to Avoid a Short Circuit).
- Wide Open Throttle Switch Contacts Close Only at Full Throttle, Which Disables A/C Compressor.

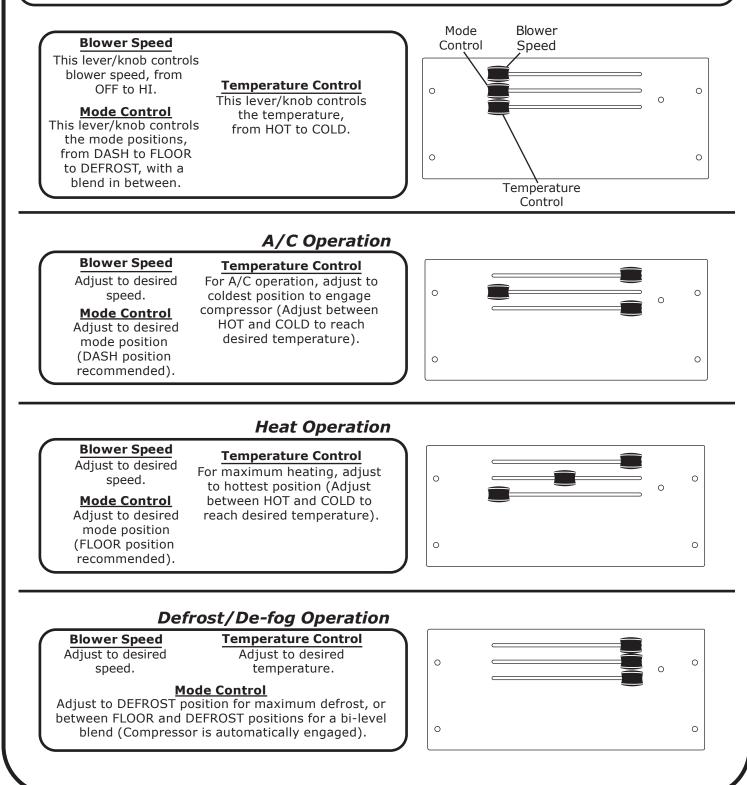
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## **Operation of Controls**

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.



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www.vintageair.com	air.com		<b>Troubleshooting Guide</b>	oting Guide
Symptom	Condition	Checks	Actions	Notes
. <b>a.</b> Blower stays on	No other functions work.	Check for damaged pins or wires in control head plug. Check for damaged ground wire (white) in control head	ted into plug. Ensure that no רבט. ground with white control	Loss of ground on this wire renders control head
high speed when ignition is on.	All other functions work.		nead wire at various points.	inoperable. See blower switch check procedure.
		Unplug 3-wire BSC control Connector from ECU. If blower chine off ECU is either	Be sure the small, 20 GA white ground wire is connected to the battery ground post. If it is, replace the ECU.	
Blower stays on high speed when ignition is on or off.		Unplug 3-wire BSC control	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.	
		stays running, BSC is either improperly wired or damaged.	Replace BSC (This will require removal of evaporator from vehicle).	No other part replacements should be necessary.
	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.
Compressor will not turn on (All other functions, work).	System is charged.	Check for faulty A/C potentiometer or associated wiring (Not applicable to 3-pot controls).	Check continuity to ground on white control head wire.	To check for proper pot function, check voltage at white/blue wire. Voltage should be between 0V and 5V, and will vary with pot lever position.
		Check for disconnected or faulty thermistor.	Check 2-pin connector at ECU housing.	<ul> <li>Disconnected or faulty thermistor will cause compressor to be disabled.</li> </ul>
8. 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 varV
			A Renlace relav	between 0V and 5V when

			Troubleshooting Guide (Cont.)	iide (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	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
System will not turn on, or runs intermittently.	Will not turn on under any conditions.	Verify connections on power lead, ignition lead, and both white ground wires. Verify battery voltage is greater than 10 volts and less than 16.	<ul> <li>Uneck for positive power at neater valve green wire and blower red wire. Check for ground on control head white wire.</li> <li>Verify proper meter function by checking the condition of a known good battery.</li> </ul>	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.
<b>5.</b> Loss of mode door function.	No mode change at all. Partial function of mode doors.	Check for damaged mode switch or potentiometer and associated wiring. Check for obstructed or binding mode doors. Check for damaged stepper motor or 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.
<b>6.</b> Blower turns on and off rapidly.	Battery voltage is at least 12V. Battery voltage is less than 12V.	Check for at least 12V at circuit breaker. Check for faulty battery or alternator.	<ul> <li>Ensure all system grounds and power connections are clean and tight.</li> <li>Charge battery.</li> </ul>	System shuts off blower at 10V. Poor connections or weak battery can cause → shutdown at up to 11V.
7. Erratic functions of blower, mode, temp, etc.		<ul> <li>Check for damaged switch or pot and associated wiring.</li> </ul>	▲ 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.	



### *Packing List Evaporator Kit (571063)*

