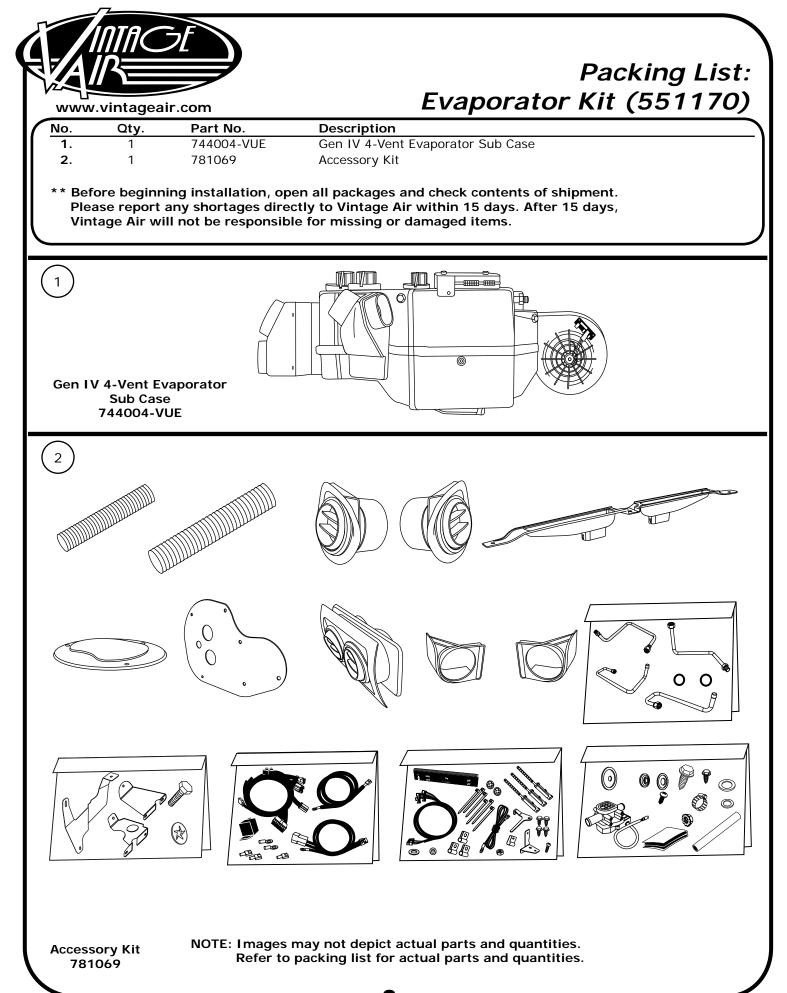


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# Important Notice—Please Read

For Maximum System Performance, Vintage Air Recommends the Following:

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

#### Refrigerant Capacities:

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

Other Systems: Consult manufacturer's guidelines.

#### Lubricant Capacities:

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

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

#### Safety Switches

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

#### Service Info:

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

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

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

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

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

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

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



# **Important Wiring Notice—Please Read**

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

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

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

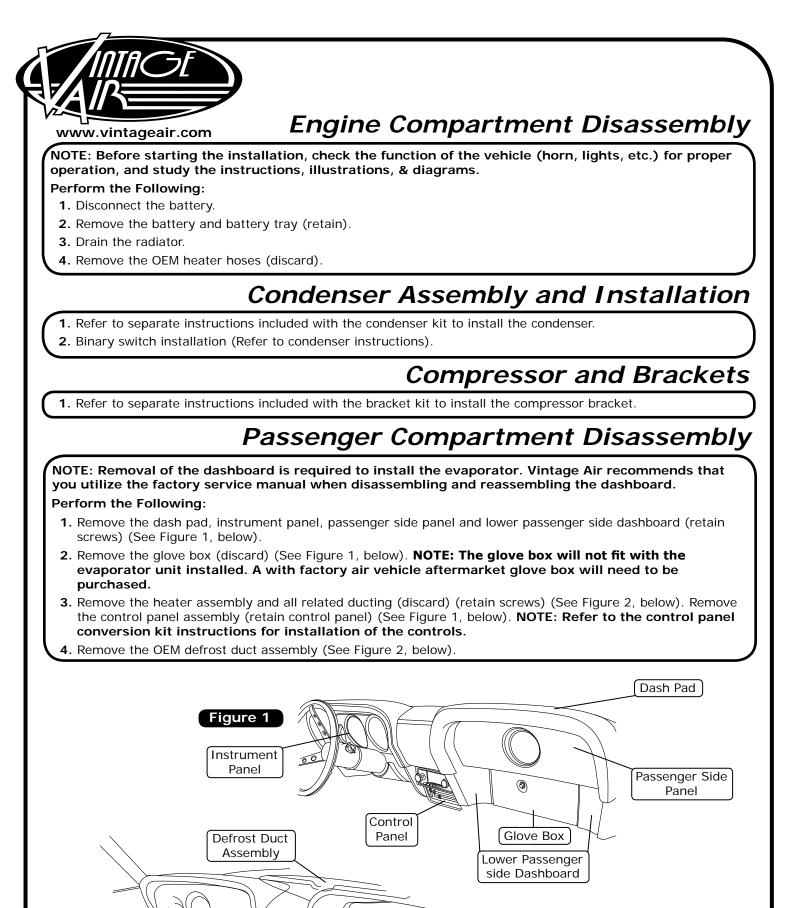
It is also important that the battery lead is in good shape and that the ground leads are not compromised. There should be a heavy ground from the battery to the engine block, and additional grounds to the body and chassis.

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

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

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

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



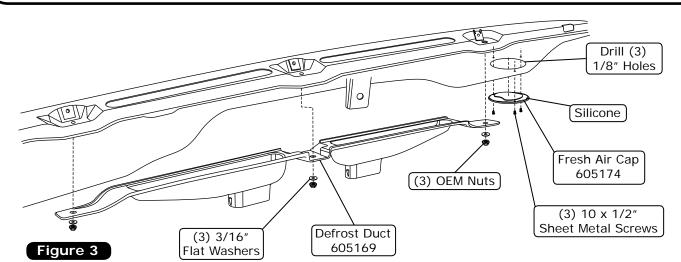
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Heater Assembly

# Defrost Duct and Fresh Air Cap Installation

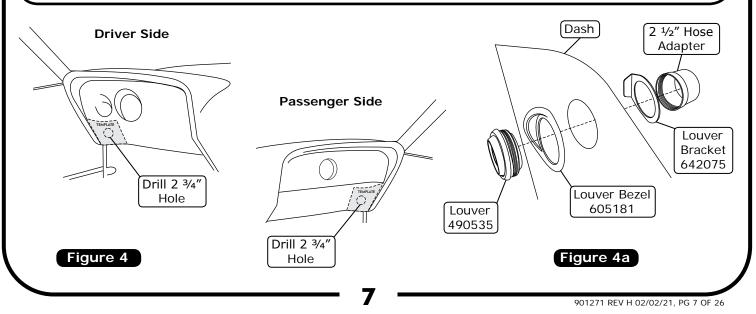
#### www.vintageair.com

- Install the defrost duct under the dash as shown in Figure 3, below. Secure it using the OEM nuts with (3) 3/16" flat washers.
- 2. Hold the fresh air cap under the dash and mark the (3) mounting holes.
- 3. Drill (3) 1/8" mounting holes under the dash.
- 4. Apply a 1/4" bead of silicone around the back side of the fresh air cap as shown in Figure 3, below.
- Secure the fresh air cap to the fresh air hole using (3) #10 x 1/2" sheet metal screws as shown in Figure 3, below.



### Driver and Passenger Side Louver Installation

- 1. Cut out the template provided on Page 22. Place the driver side template on the dash by aligning the left side of the template against the edge of the dash, then align the bottom of the template to the bottom of the dash as shown in Figure 4, below.
- **2.** Cut out the template provided on Page 23. Place the passenger side template on the dash by aligning the right side of the template against the edge of the dash, then align the bottom of the template to the bottom of the dash as shown in Figure 4, below.
- Once the template is aligned correctly, use a center punch to mark the hole on the dash. Remove the template. Use a 2 <sup>3</sup>/<sub>4</sub>" hole saw to cut a hole in the dash (See Figure 4, below).
- 4. Install the louvers in the dash as shown in Figure 4a, below.

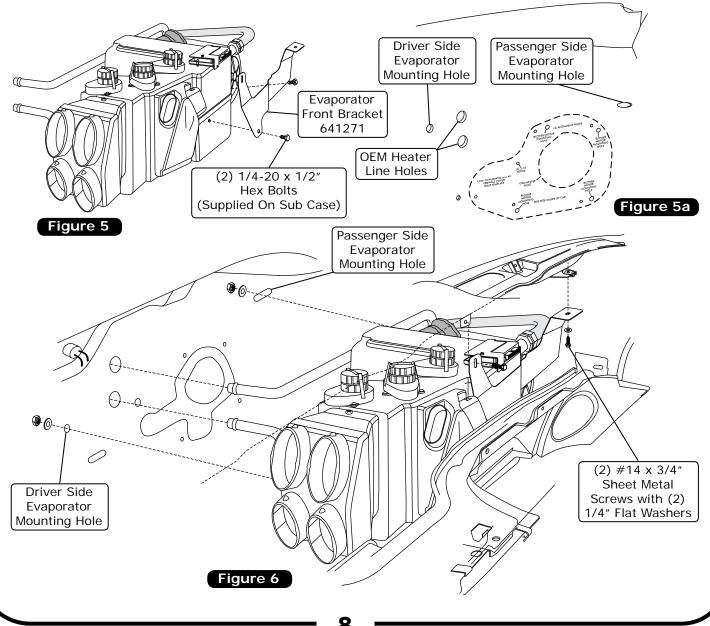


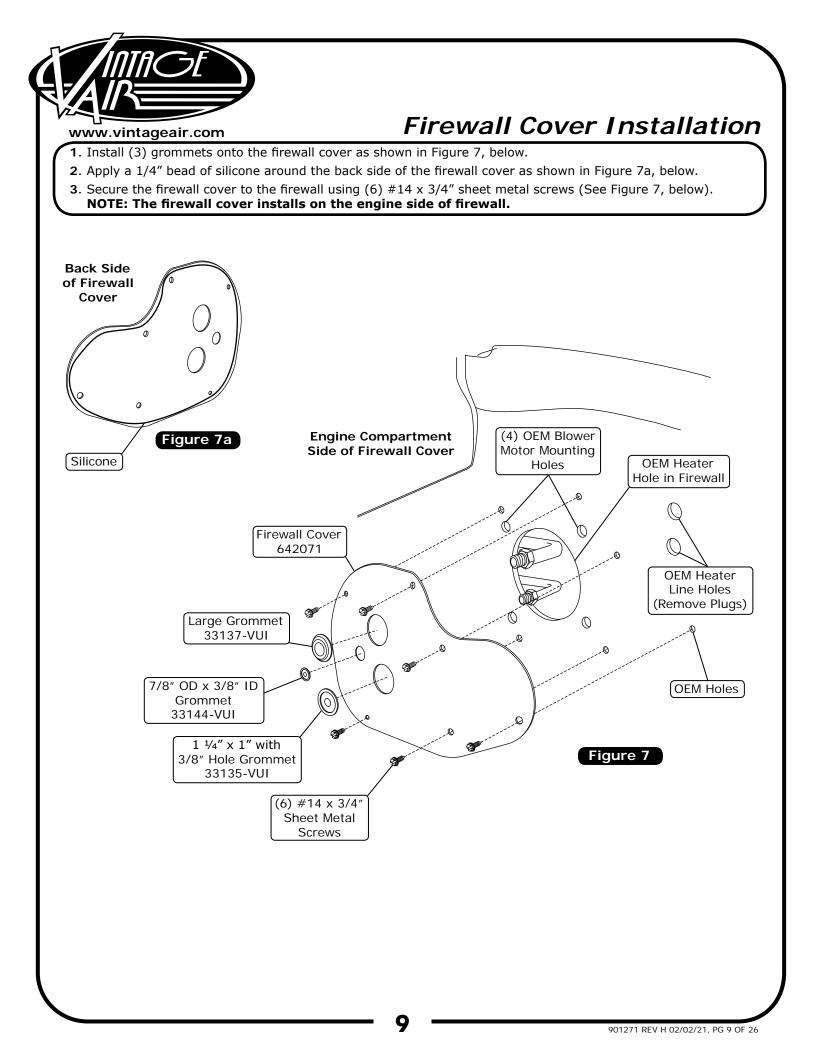


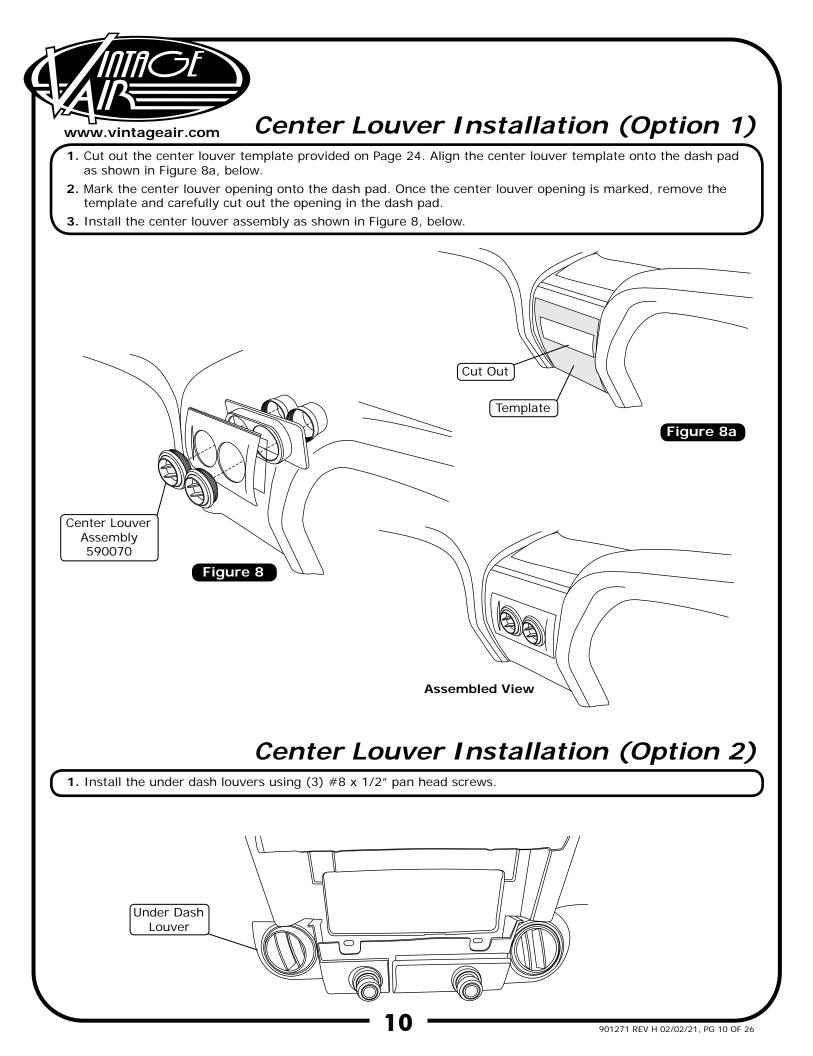
- Use the template provided on Page 25. Align the template with the OEM blower motor mounting holes and drill (6) 3/16" holes in the firewall from inside the passenger compartment and under the dash (See Figure 5a, below).
- 2. On a work bench, install the evaporator rear bracket and hardlines with properly lubricated O-rings (See Figure 10, Page 12 and Figure 15, Page 16).
- 3. Remove the (2) OEM heater plugs in the firewall (See Figure 7, Page 9).

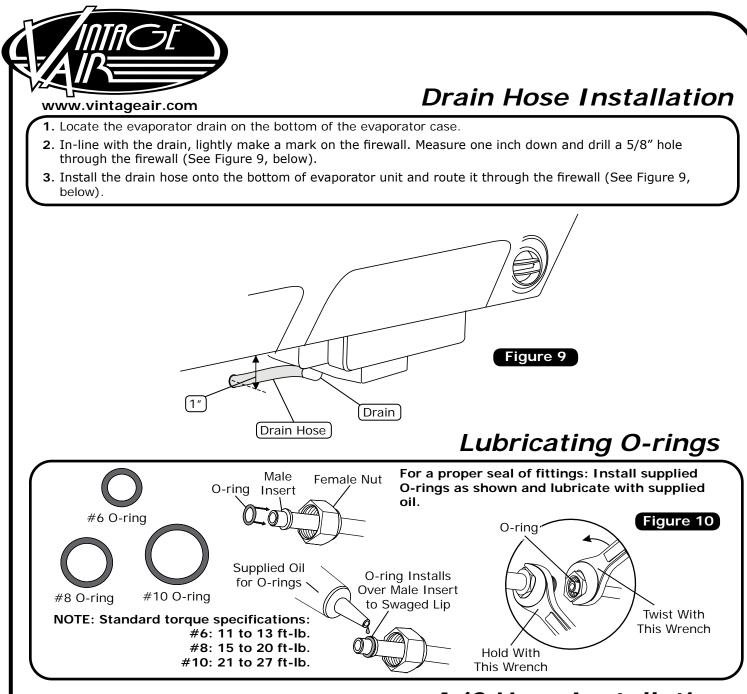
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- **4.** Install the front mounting bracket onto the evaporator using (2) 1/4-20 x 1/2" hex bolts (supplied on the sub case) and tighten as shown in Figure 5, below.
- Lift the evaporator unit up under the dashboard (See Figure 6, below). Secure it loosely to the firewall from the engine compartment side using (2) 1/4-20 nuts and (2) 1/4" washers (See Figure 6, below).
- 6. Using (2) #14 x 3/4" sheet metal screws with 1/4" flat washers, secure the front evaporator mounting bracket to the inner cowl (See Figure 6, below).
- 7. Verify that the evaporator unit is level and square to the dash, then tighten all mounting bolts. NOTE: Tighten the bolt on the firewall first, then the front mounting bracket screws.









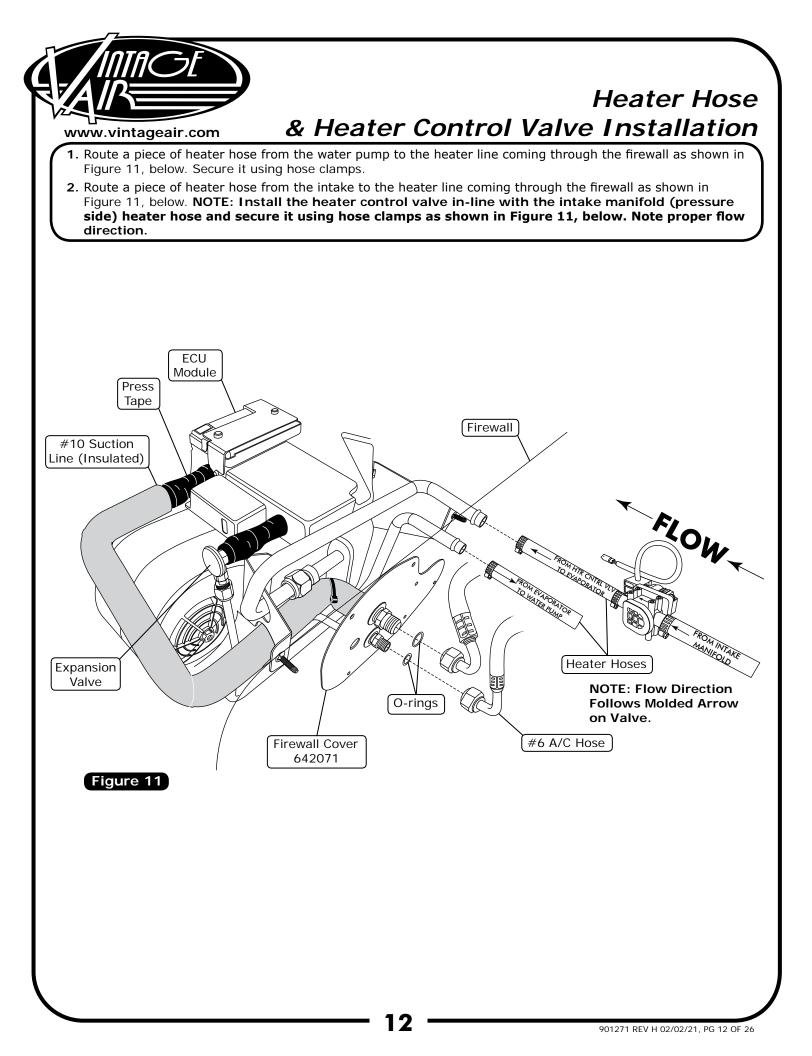
### A/C Hose Installation

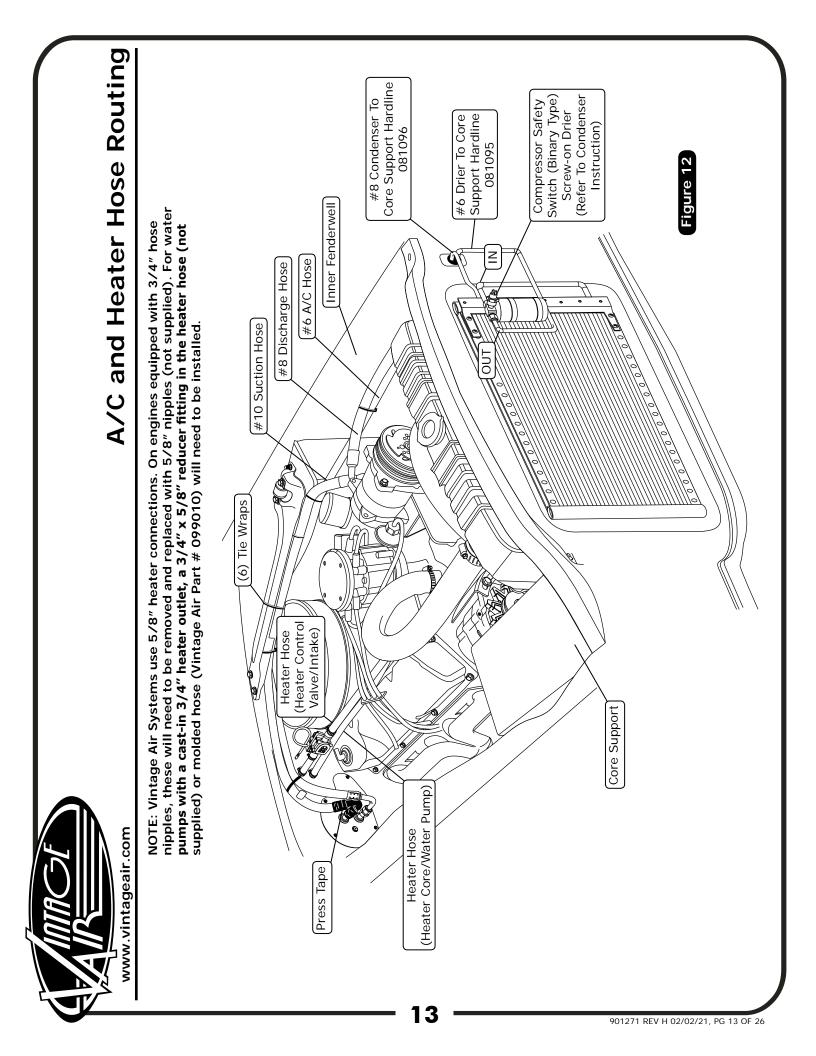
#### Standard Hose Kit:

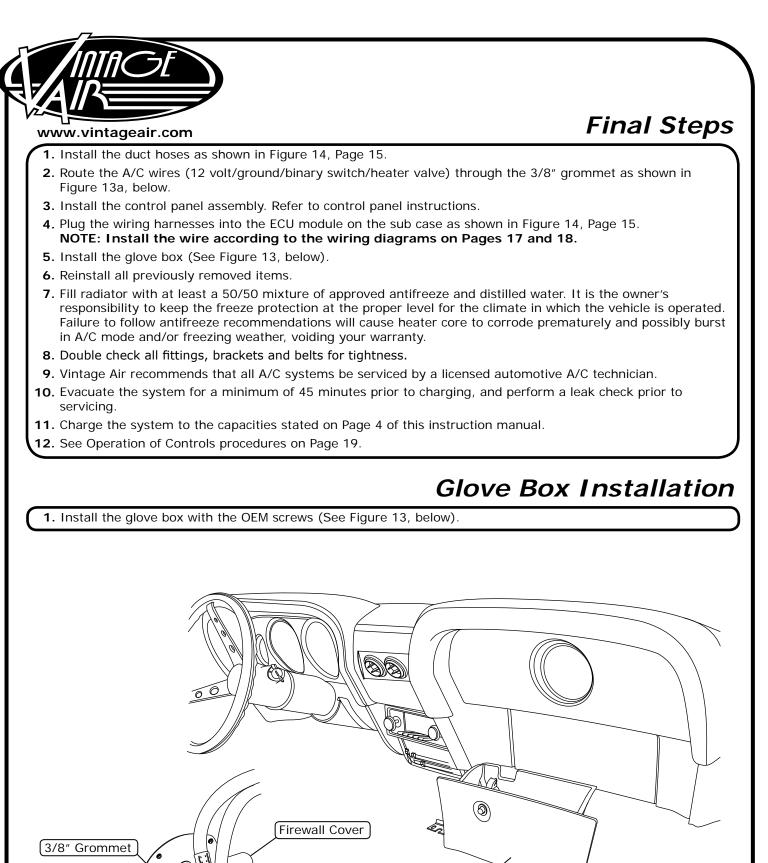
- Locate the #8 compressor A/C hose. Lubricate (2) #8 O-rings (See Figure 10, above) and connect the 45° fitting to the #8 discharge port on the compressor. Then route the straight fitting with service port to the #8 condenser hardline coming through the radiator core support (See Figure 12, Page 13). Tighten each fitting connection as shown in Figure 10, above.
- 2. Locate the #10 compressor A/C hose. Lubricate (2) #10 O-rings (See Figure 10, above) and connect the 90° with fitting with service port to the #10 suction port on the compressor. Then route the 135° fitting to the #10 evaporator hardline coming through the firewall (See Figure 11, Page 12 & Figure 12, Page 13). Tighten each fitting connection as shown in Figure 10, above. NOTE: Wrap the #10 fitting connections with press tape (See Figure 11, Page 12 & Figure 12, Page 12, Page 13).
- **3.** Locate the #6 evaporator/drier hose. Lubricate (2) #6 O-rings (See Figure 10, above) and connect the straight fitting the #6 drier hardline coming through the radiator core support. Route the 90° fitting to the #6 evaporator hardline coming through the firewall (See Figure 11, Page 12 & Figure 12, Page 13). Tighten each fitting connection as shown in Figure 10, above.

#### Modified Hose Kit:

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







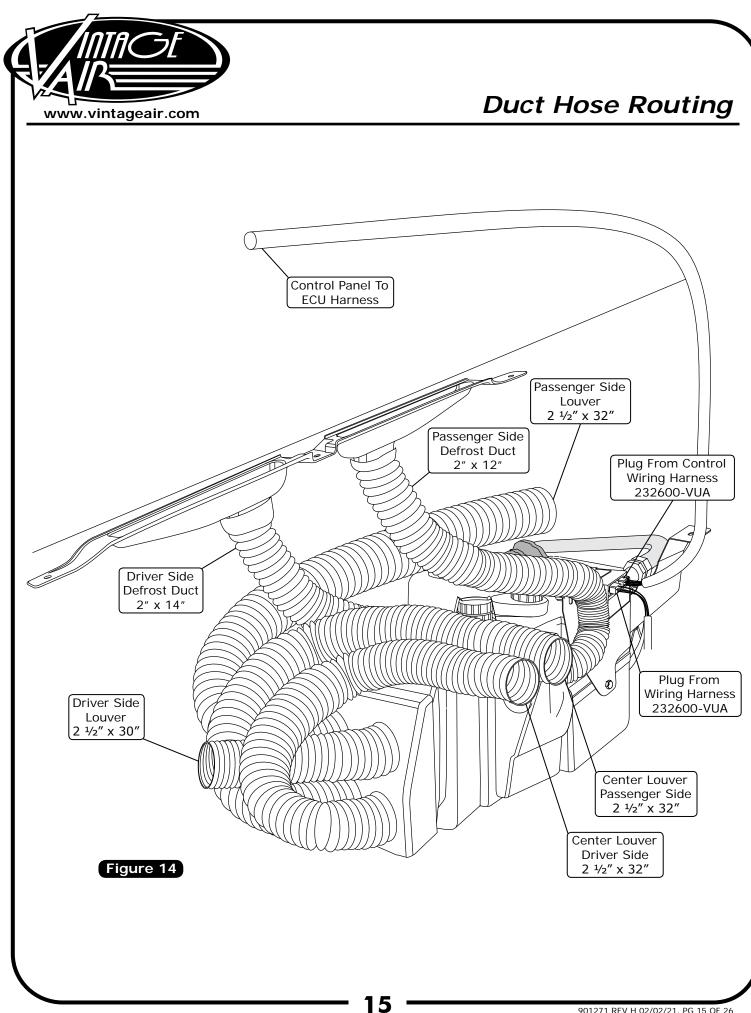
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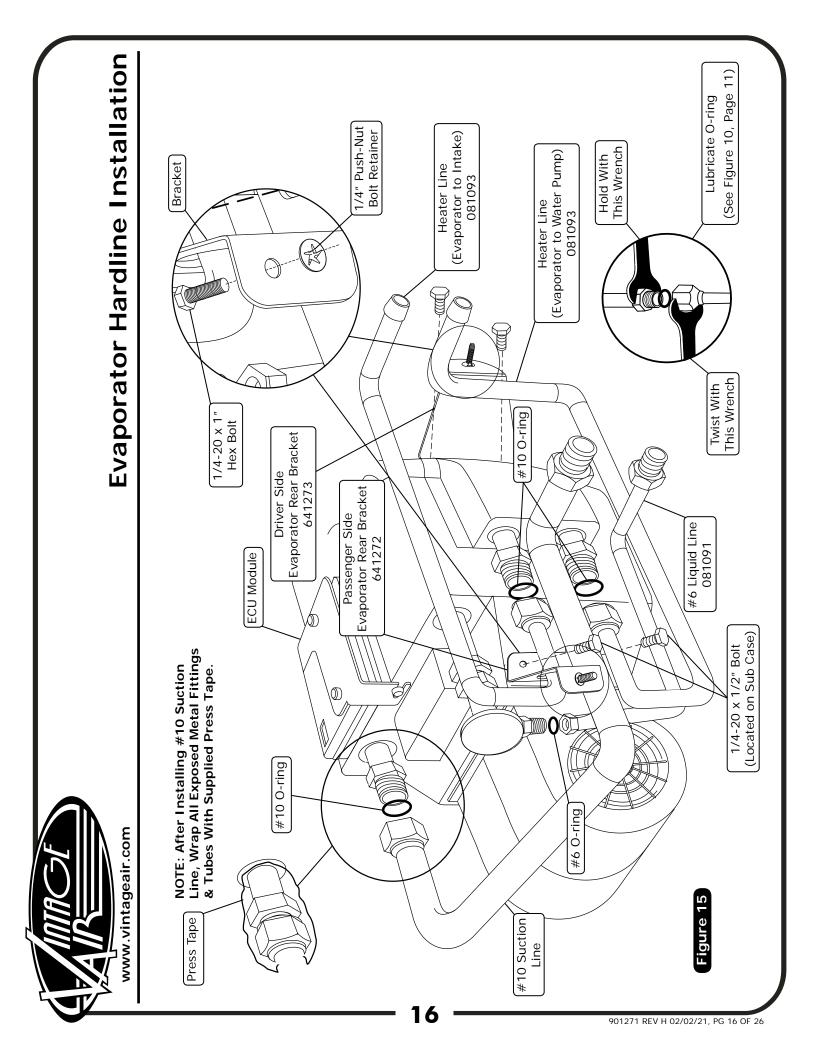
Figure 13a

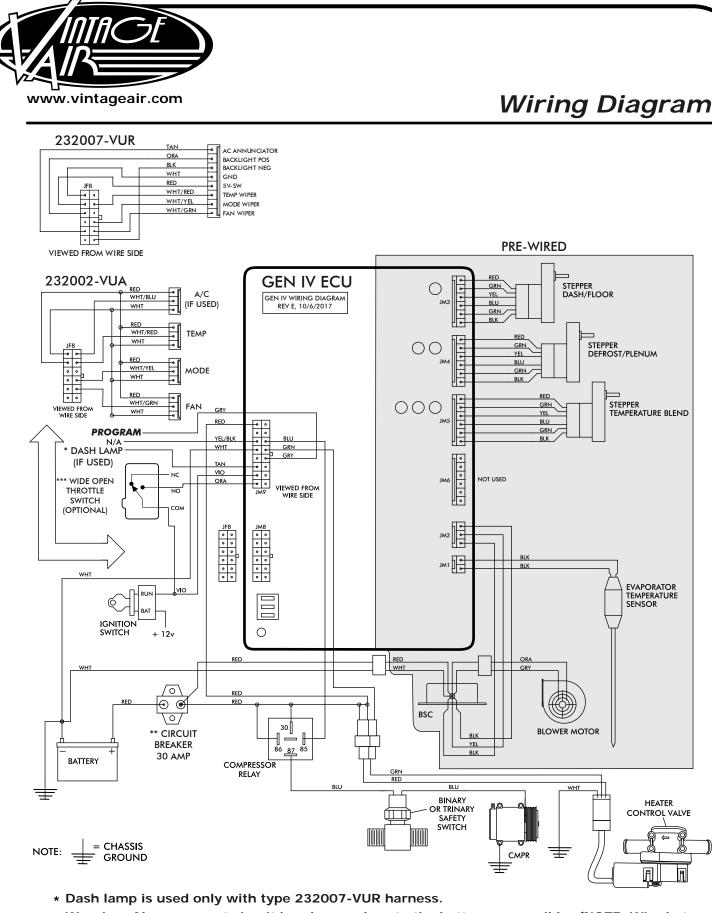
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Figure 13

Glove Box



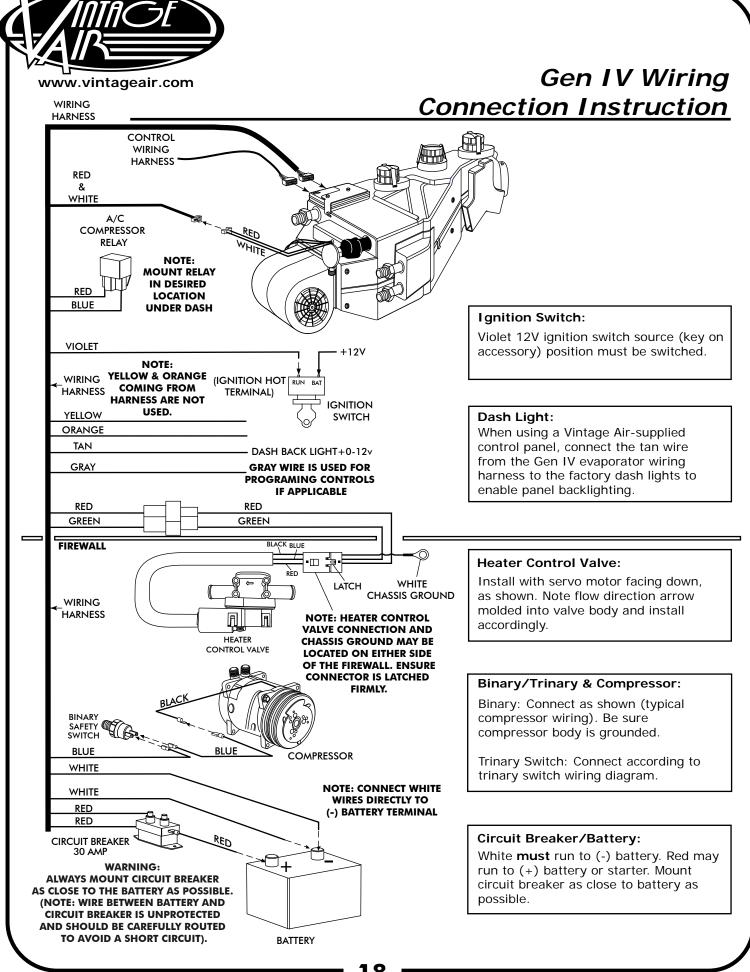


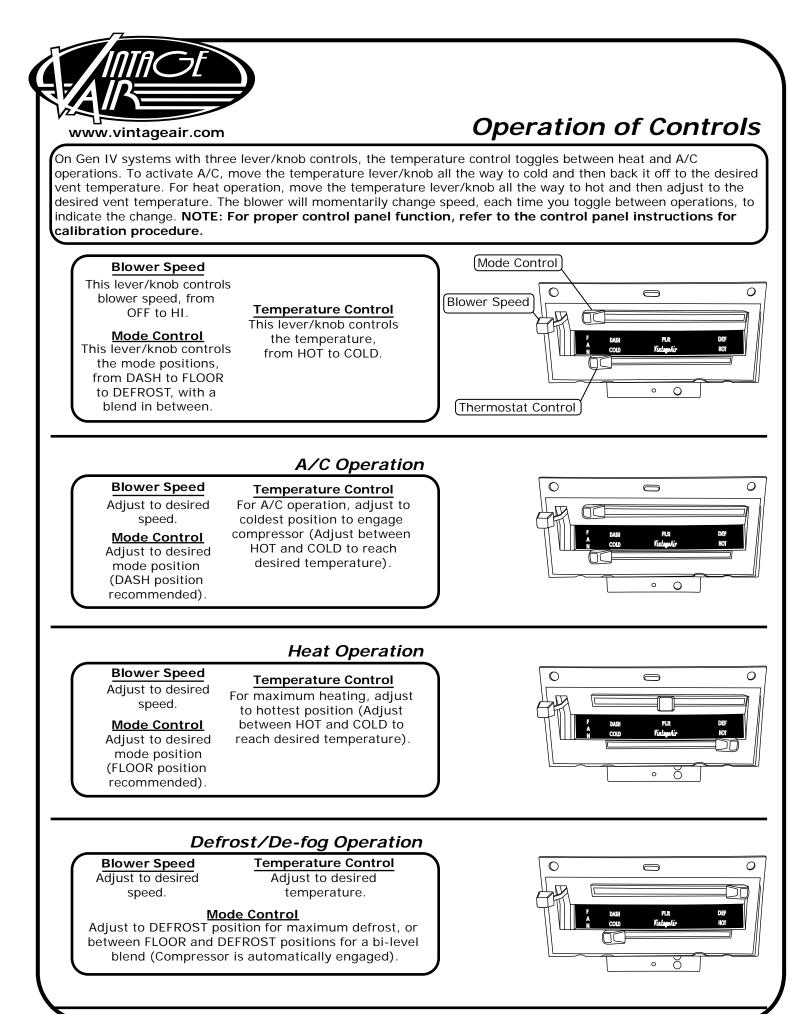


\*\* Warning: Always mount circuit breaker as close to the battery as possible. (NOTE: Wire between battery and circuit breaker is unprotected and should be carefully routed to avoid a short circuit).

7

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

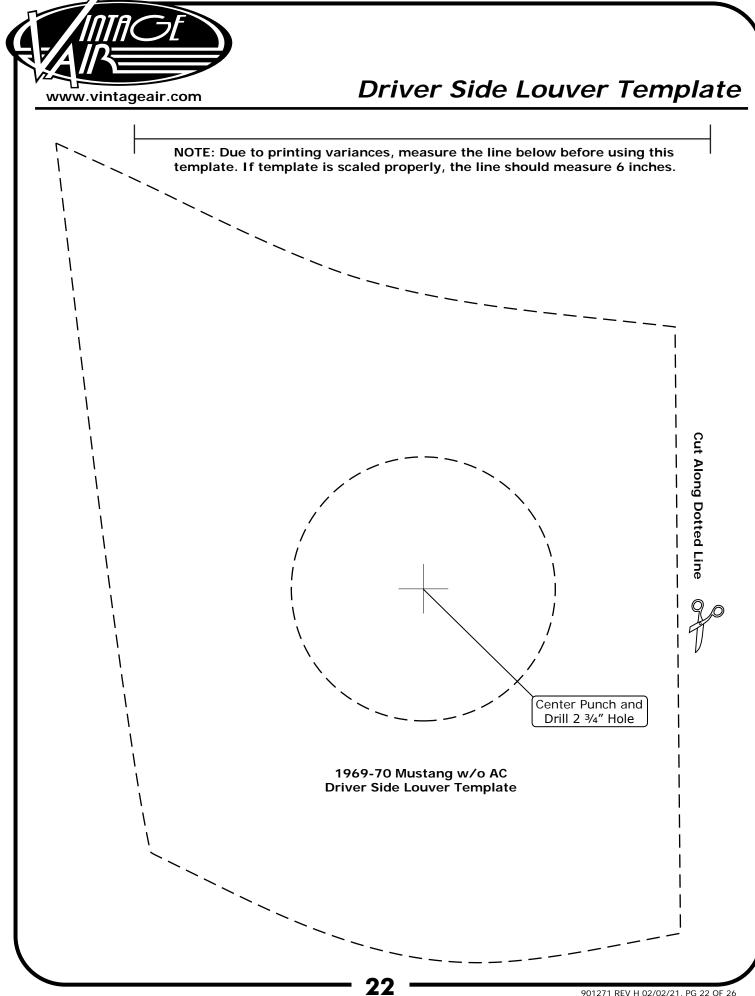




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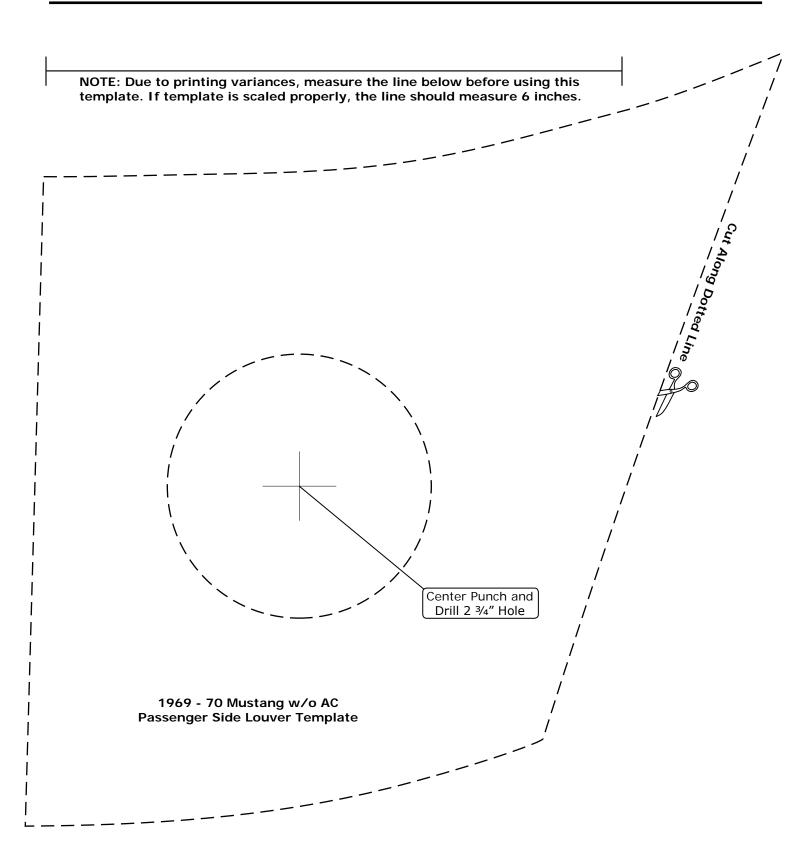
www.vintageair.com	air.com		Troublesho	Troubleshooting Guide
Symptom	Condition	Checks	Actions	Notes
	No other functions work.	Check for damaged pins or wires in control head plug. Check for damaged ground	Verify that all pins are inserted into plug. Ensure that no pins are bent or damaged in ECU. Verify continuity to chassis ground with white control	
Blower stays on high speed when ignition is on.	:	wire (white) in control head harness. Check for damaged blower	head wire at various points.	renders control head     inoperable.
	All other functions work.	switch or potentiometer and associated wiring.		See blower switch check procedure.
		Unplug 3-wire BSC control connector from ECU. If blower shuts 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		improperly wired or damaged.	Check to ensure that no BSC wiring is damaged or shorted to vehicle ground. The BSC operates the blower by ground side pulse width modulation switching. The positive wire to the blower will always be hot. If the	
ignition is on or off.		Unplug 3-wire BSC control connector from ECU. If blower stays running, BSC is either improperly wired or damaged.	<ul> <li>✓ "ground" side of the blower is shorted to chassis ground, the blower will run on HI.</li> <li>→ Replace BSC (This will require removal of evaporator from vehicle).</li> </ul>	No other part replacements should be necessary.
	Novetem is not charged		Charge system or bypass pressure switch.	Danger: Never bypass safety switch with
		compressor to engage.		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. Check for 5V on red control head wire.	To check for proper pot function, check voltage at white/blue wire. Voltage should be between OV and 5V, and will vary with pot lever position.
		Check for disconnected or faulty thermistor.	→ Check 2-pin connector at ECU housing.	Disconnected or faulty thermistor will cause compressor to be disabled.
3. Compressor will not turn off (All other functions work)		Check for faulty A/C potentiometer or associated wiring.	→ Repair or replace pot/control wiring.	Red wire at A/C pot should have approximately 5V with ignition on. White wire will have continuity to chassis ground. White/ Blue wire should varv
		Check for faulty A/C relay	→ Replace relav	between OV and 5V when

Jampan         Condition         Condit <thcondit< th="">         Condit<!--</th--><th>www.vintageair.com</th><th>air.com</th><th></th><th>Troubleshooting Guide (Cont.)</th><th>iide (Cont.)</th></thcondit<>	www.vintageair.com	air.com		Troubleshooting Guide (Cont.)	iide (Cont.)
Morks when engine is not engine is not engine is not engine is not engine is and executed for starting a wars of the fundament of the interference from the points starting and associated for priority and and associated in the interference is not an interference from the point is starting and associated in the interference is not an interference interference is not an interference interfe		Condition	Checks	Actions	Notes
State with one of the service of all service of the service of t	4.	Works when engine is not running; shuts off when engine is started (tvpically early Gen IV,	Noise interference from either ignition or alternator.	Install capacitors on ignition coil and alternator. Ensure good ground at all points. Relocate coil and associated viring 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
• Wenty parter y         verity proper meter function by checking the condition of         tran 16, then 10 voits and         tran 10, then 10 voits and         tran 10, then 10 voits and         tran 10, then         tran 11, then         tran 12, the         tran 12, then         tran         tran         tran 12, then	System will not turn on, or runs intermittently.	versions). Versions). Will not turn on under any conditions.	tions on power lead, and both wires.		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
Momode change at all.       Check for damaged mode os of mode change at all.       Sescolated wing.         oss of mode door       Bartiel function of mode       Check for damaged stepper         Incluin       Bartiel function of mode       Check for damaged stepper         Bartiely voltage is at least       Check for damaged stepper       Decision         Bartiery voltage is at least       Check for damaged stepper       Decision         Bartery voltage is at least       Check for at wing.       Check for at wing.         I2X.       Bartery voltage is at least       Check for at wing.         Interctions of trapidy.       Decision       Decision         Interctions of trapidy.       Check for damaged switch or place.       Decision         Interctions of trapidity.       Decision of trapidity.       Decision of trapidity.         Interctions of trapidity.       Decision of trapidity.       Decision of trapidity.         Interctions of them fight.       Decision of trapidity.       Decision of trapidity.         Interctions of them fight.       Decision of trapidity.       Decision of trapidity.         Interctions of them fight.       Decision of trapidity.       Decision of trapidity.         Interctions of them fight.       Decision of trapidity.       Decision of trapidity.         Inted of rapidity.       Decision of tr			greater than 10 volts and less - than 16.	Verify proper meter function by checking the condition of a known good battery.	faulty alternator or worn out battery can also result in this condition.
Partial function of mode doors.       Direct for damaged stepper motor or wiring.       Direct for damaged stepper motor or wiring.         Nower turns on dower turns on motor rapidy.       Battery voltage is at least 12N.       Check for damaged stepper motor or wiring.         Nower turns on motor rapidy.       Battery voltage is at least 12N.       Check for damaged stepper circuit breaker.       Ensure all system grounds and power connections are circuit breaker.         Nower turns on mover, mode.       Battery voltage is less frame is the than 12V.       Check for damaged switch or alternation.       Check for damaged switch or be of a social ad witch or tradic functions of than 12V.         New ignition is onwer, mode.       Direct for damaged switch or and social ad wind.       Repair or replace.         New ignition is onwer mode.       Direct for damaged switch or be of Position.       Repair or replace.         New ignition is onwer switch in be Of Position.       New ignition is system will reset.       New ignition is system will reset.	5. Loss of mode door function.				Typically caused by evaporator housing installed in a bind in the vehicle. Be sure all
<ul> <li>Battery voltage is at least 12V.</li> <li>Battery voltage is less 12V.</li> <li>Check for faulty battery or circuit breaker.</li> <li>Check for faulty battery or circuit breaker.</li> <li>Check for faulty battery or circuit breaker.</li> <li>Check for damaged switch or be attery.</li> <li>Check for damaged switch or be or power connections are be or power switch or be or power</li> <li>Check for damaged switch or be pattery power wire is system has been reset. Be switched source. Also, if the system is pulled below 7V for switch de source. Also, if the system will reset.</li> </ul>		I function of mode			mounting locations line up and don't have to be forced into position.
Image: Second off rapidly.       Battery voltage is less       Check for faulty battery or low than 12V.         Image: Second of rapidly.       Battery voltage is less       Check for faulty battery or low than 12V.         Image: Second of rapid of rapidly.       Battery voltage is less       Iternator.         Image: Second of rapid of rap	6. Blower turns on	ery voltage is at least	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
This is an indicator that the system has been reset. Be surface on, blower with the system has been reset. Be sure the red power wire is on ones on, then hurs off. This is an indicator that the system is under the heattery post, and not on a switched source. Also, if the system is pulled below 7V for even a split second, the better.	and off rapidly.			Charge battery.	weak battery can cause ♦shutdown at up to 11V.
Vien ignition is Vien ignition is urned on, blower nomentarily omes on, then huts off. This curres with the curres with the blower switch in he OFF position. Viewen a split second, the system will reset.	Erratic functions of blower, mode, temp, etc.			Repair or replace.	
	When ignition is When ignition is turned on, blower momentarily comes on, then shuts off. This occurs with the			<ul> <li>Run red power wire directly to battery.</li> </ul>	
	the OFF position.		even a spiit second, the system will reset.		



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### Passenger Side Louver Template





# **Center Louver Template**

