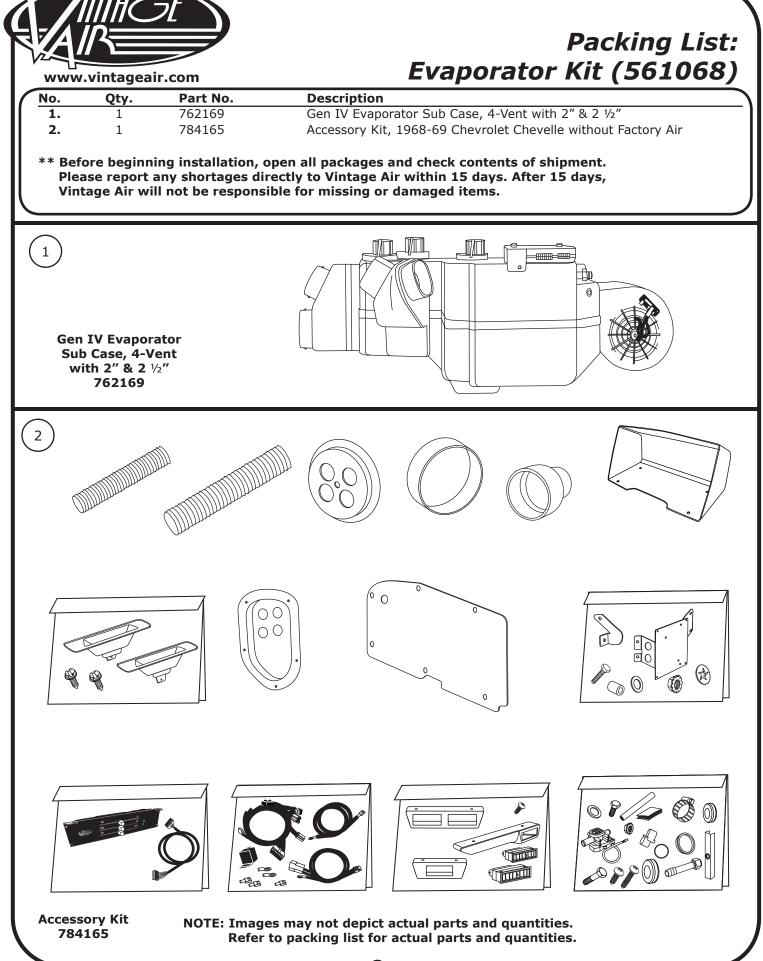




Table of Contents

Thank you for purchasing this evaporator kit from Vintage Air. When installing these components as part of a complete SureFit[™] system, Vintage Air recommends working from front to back on the vehicle, installing the condenser kit, hose kit, and compressor first, followed by the wiring, evaporator, and finally the control panel.

Cover
Table of Contents 2
Packing List/Parts Disclaimer
Information Page 4
Wiring Notice
Engine Compartment Disassembly, Condenser Assembly and Installation, Compressor and Brackets, Pulleys
Passenger Compartment Disassembly
Kick Panel Modification
Defrost Duct Installation, (Optional) Hose Adapter Installation
Fresh Air Cap Installation, Kick Panel Fresh Air Cap Installation
Firewall Cover Installation, Evaporator Installation
Evaporator Installation (Cont.)
Evaporator Installation (Final)
1968-69 Models without Astro Vents, 1969 Models with Astro Vents
Drain Hose Installation, Lubricating O-rings, A/C Hose Installation
Heater Hose & Heater Control Valve Installation, A/C & Heater Hose Routing 1968 Chevelle 16
Heater Hose & Heater Control Valve Installation, A/C & Heater Hose Routing 1969 Chevelle 17
Final Steps
Control Panel & Duct Hose Routing 19
Wiring Diagram 20
Gen IV Wiring Connection Instruction
Operation of Controls 22
Troubleshooting Guide
Troubleshooting Guide (Cont.)
Kick Panel Modification Template
Packing List





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.

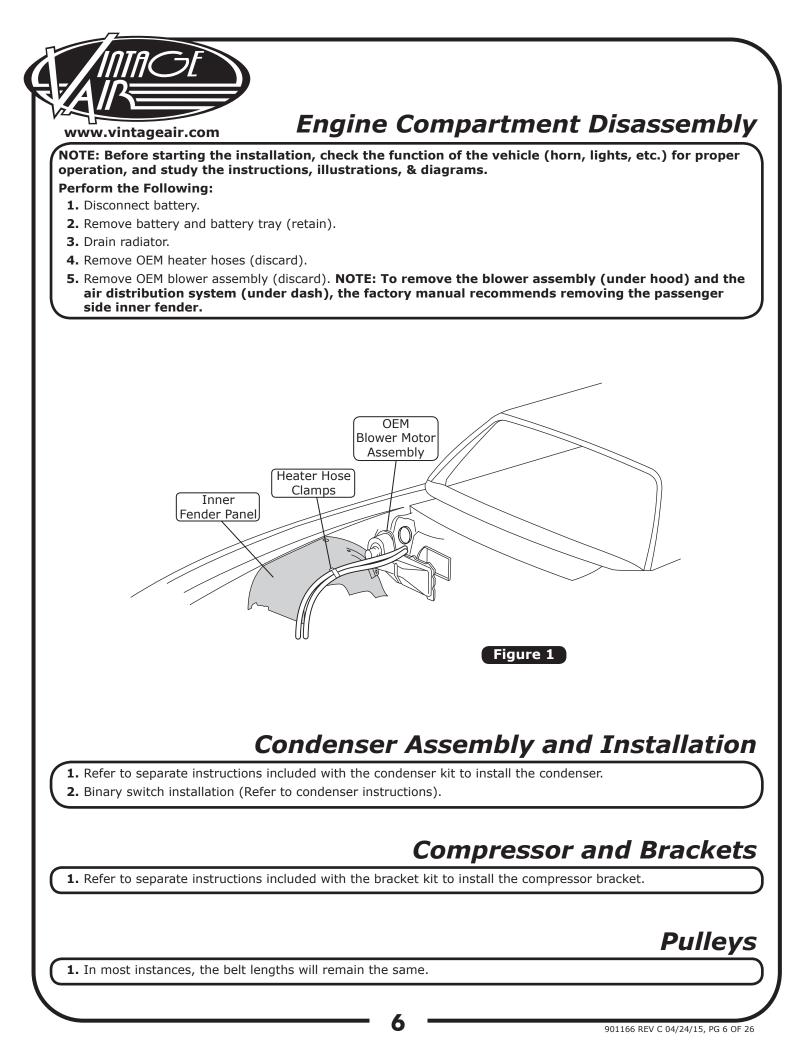
It is also important that the battery lead is in good shape and that the ground leads are not compromised. There should be a heavy ground from the battery to the engine block, and additional grounds to the body and chassis.

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.





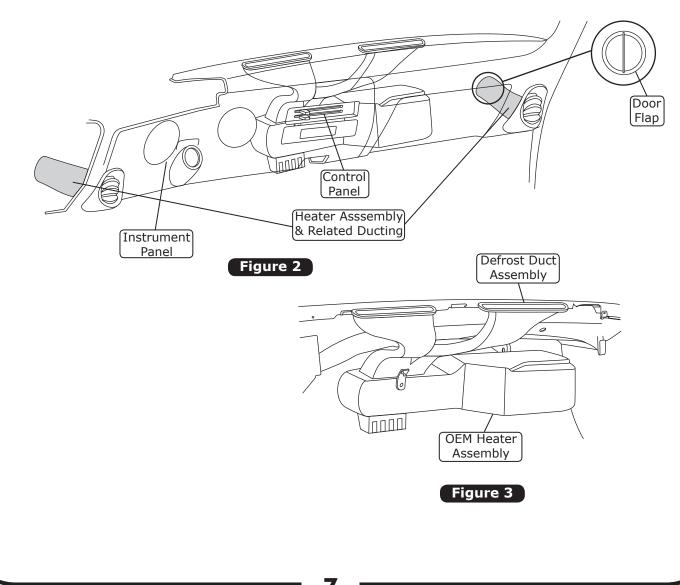
Passenger Compartment Disassembly

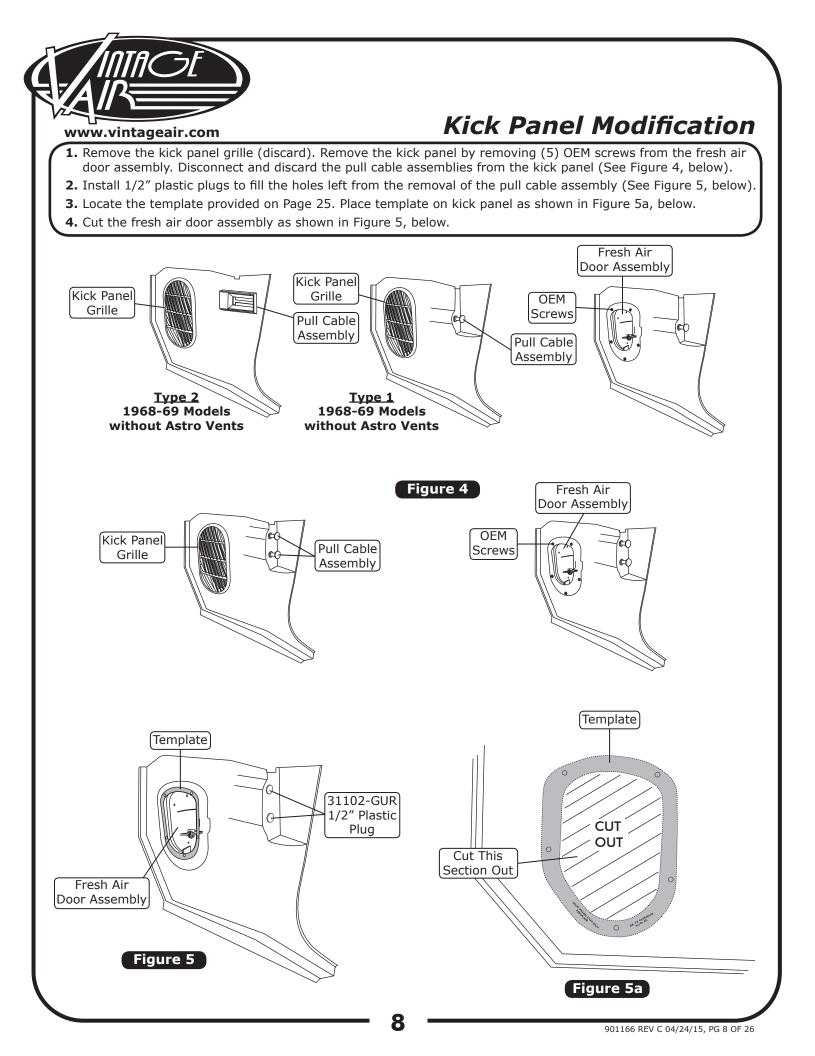
NOTE: Removal of dashboard is required to install the evaporator. Vintage Air recommends using the factory service manual when disassembling and reassembling the dashboard.

Perform the Following:

- 1. Remove the dash pad by removing (6) OEM screws (retain) (See Figure 2, below).
- **2.** Lower the steering column. Protect the steering column with a cloth.
- 3. Disconnect all wires and cables from the instrument panel, speedometer, control panel and radio.
- **4.** Remove the instrument panel retaining screws at top, bottom and side of panel.
- 5. Remove the glove box door (retain).
- 6. Remove the glove box (discard).
- Remove all the hoses and ducting from the OEM louvers and astro vent door (if equipped) (See Figure 2, below).
- 8. Remove OEM defrost duct assembly by removing the (4) screws (See Figure 3, below).
- 9. Remove OEM heater assembly (discard). See Figure 3, below.
- **10.** Remove the passenger side kick panel/fresh air door assembly as shown in Figure 4, Page 8.

NOTE: 1969 Chevelle Shown



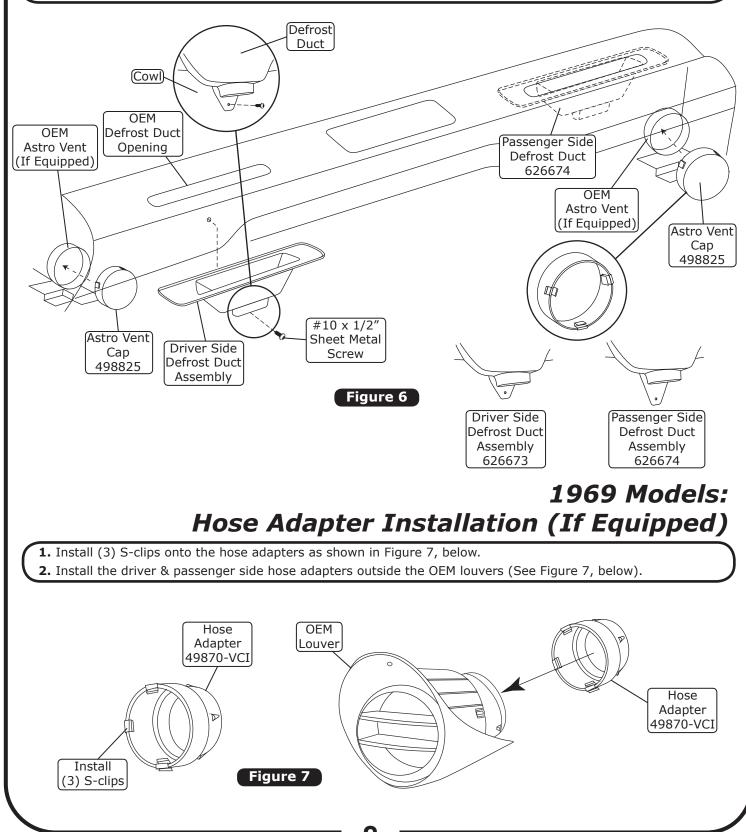




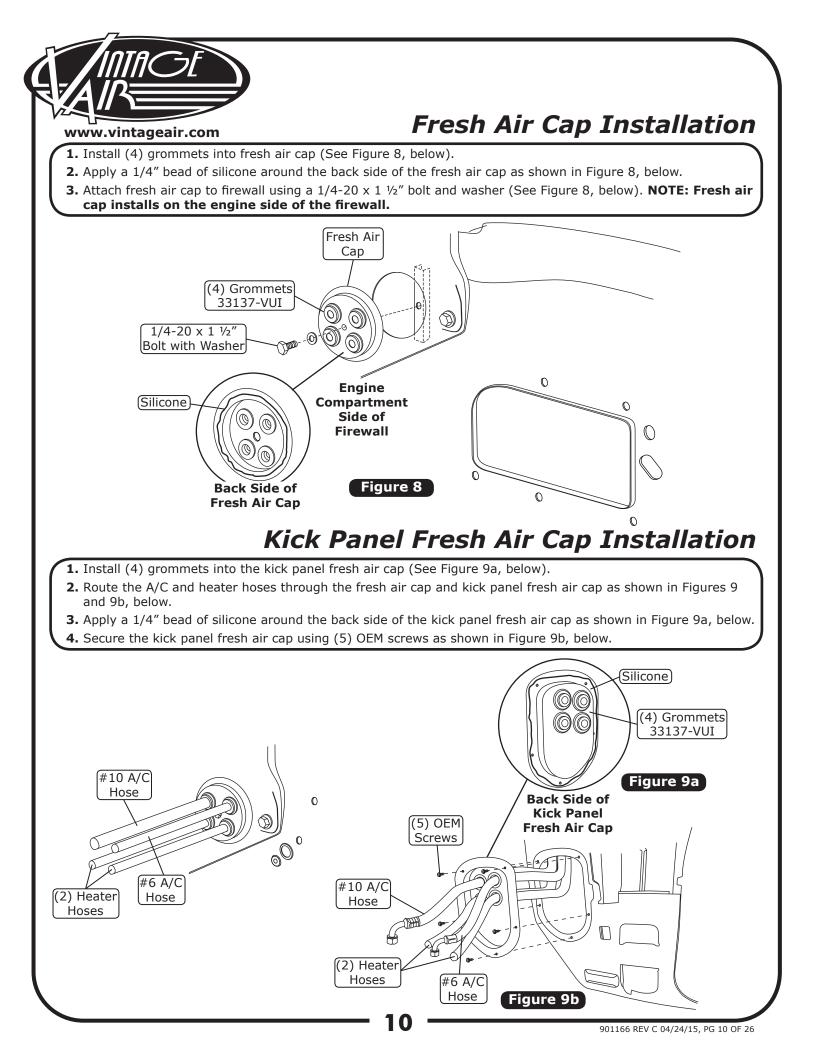
www.vintageair.com

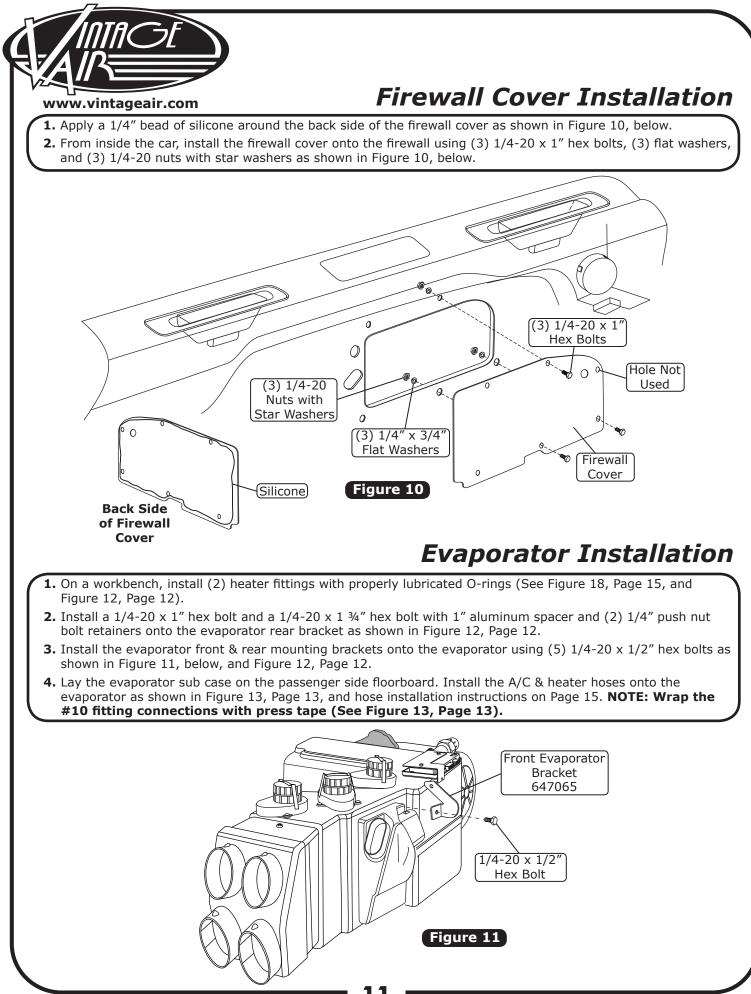
Defrost Duct Installation

Install the defrost ducts under the dash, aligning them with OEM opening. Secure the defrost ducts to the cowl using #10 x 1/2" sheet metal screws (See Figure 6, below). NOTE: On 1969 models, install astro vent cap as shown in Figure 6, below.



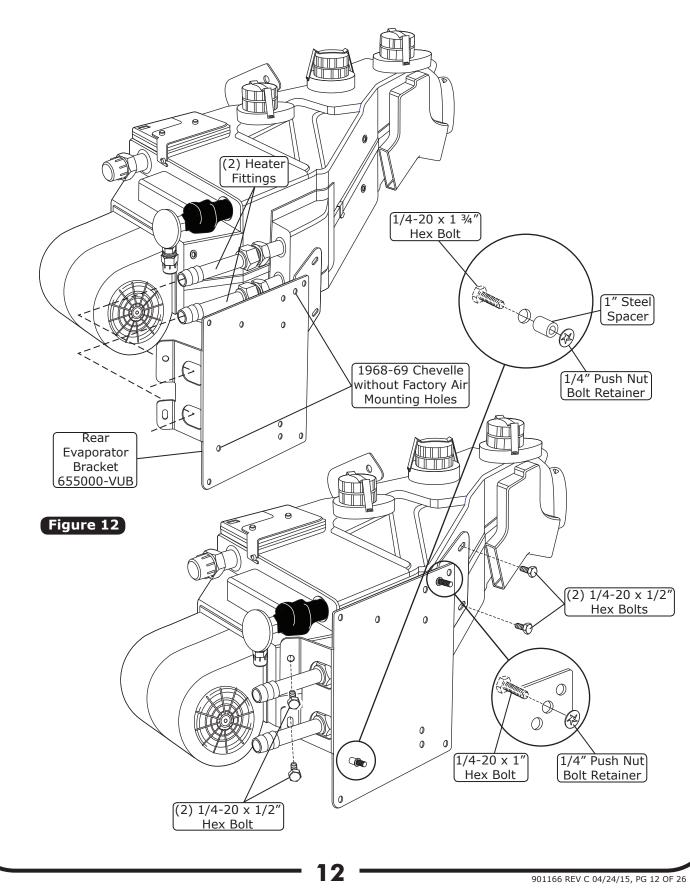
901166 REV C 04/24/15, PG 9 OF 26







Evaporator Installation (Cont.)

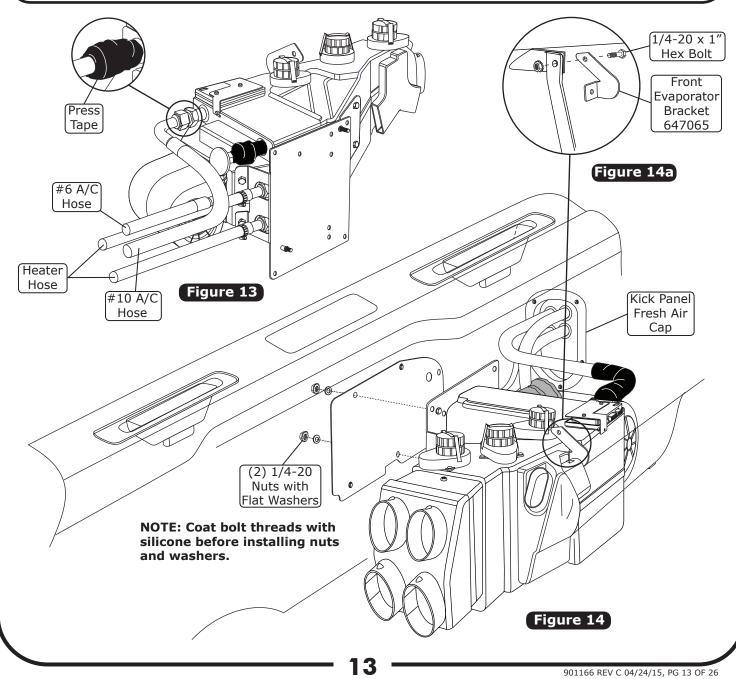


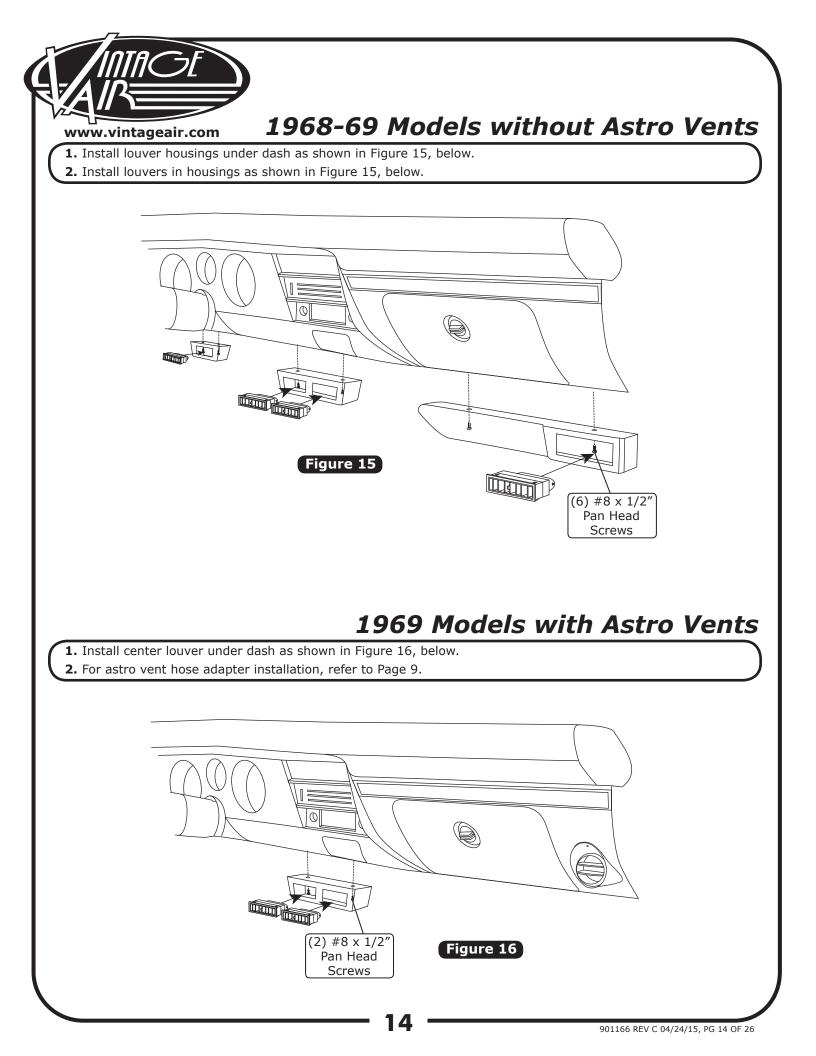


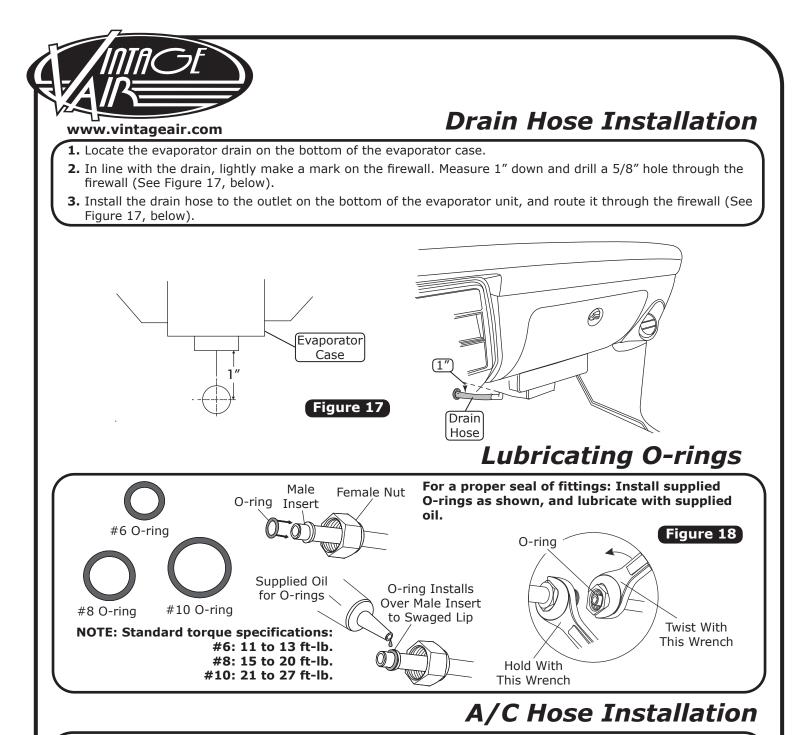
Evaporator Installation (Final)

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.

- Lift evaporator unit up under the dashboard. Secure loosely to firewall from the engine compartment side using (2) 1/4-20 nuts and flat washers (See Figure 14, 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.
- **2.** Using a 1/4-20 x 1" hex bolt, flat washer, and a 1/4" nut with star washer, secure the front evaporator mounting bracket between the dash bracket and cowl bracket (See Figure 14a, below).
- **3.** 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.**
- Once evaporator is in place, route the A/C & heater hoses out of the kick panel fresh air cap and through the fresh air cap.





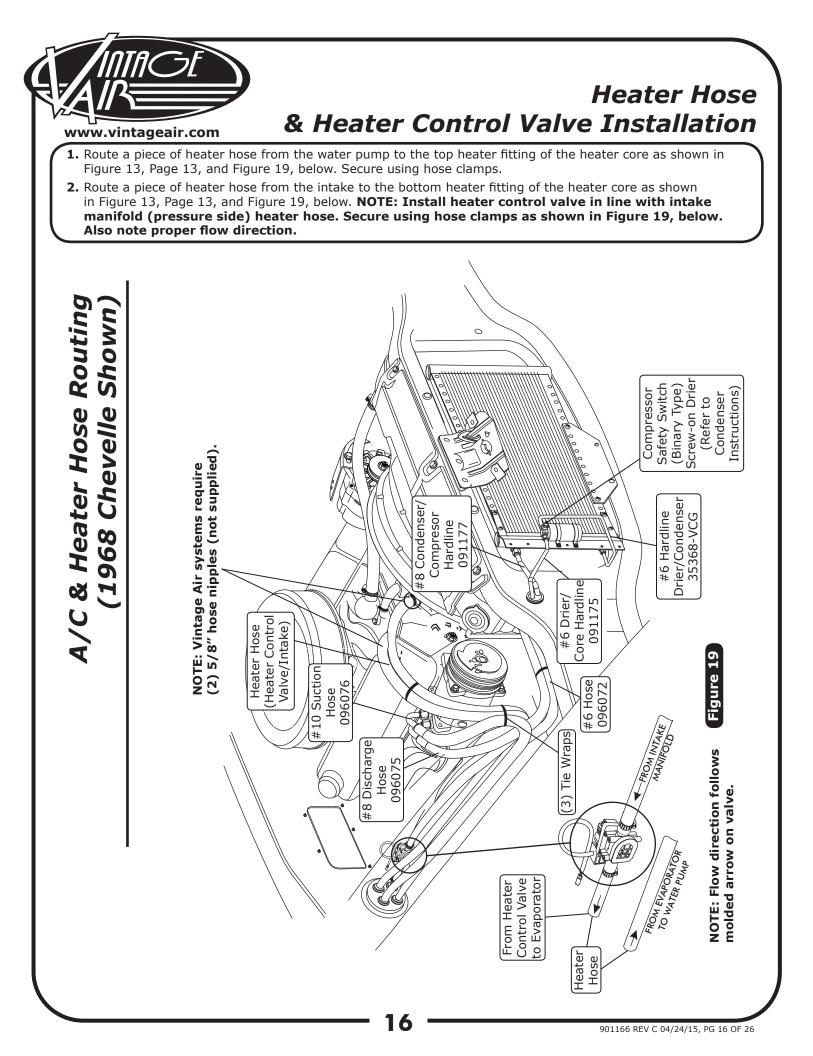


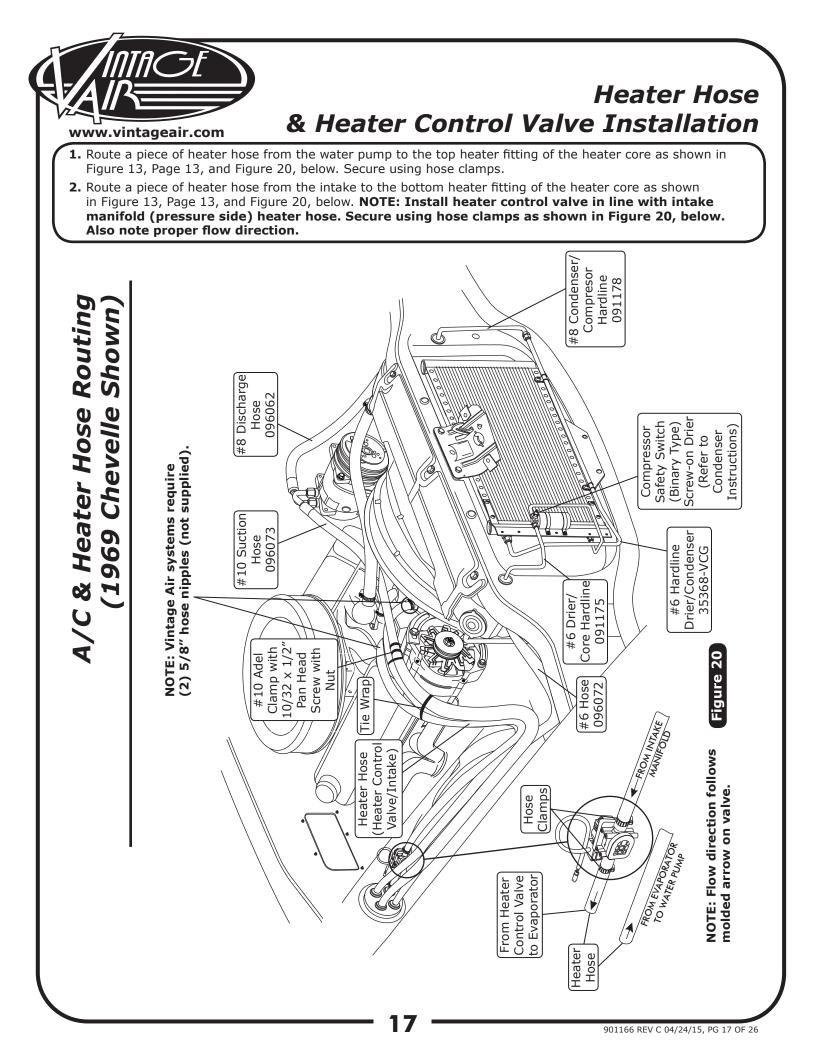
Standard Hose Kit:

- Locate the #8 compressor A/C hose. Lubricate (2) #8 O-rings (See Figure 18, above) and connect the 135° female fitting with 134a service port to the #8 discharge port on the compressor. Then route the straight female fitting to the #8 condenser hardline coming through the core support (See Figure 19, Page 16, and Figure 20, Page 17). Tighten each fitting connection as shown in Figure 18, above.
- 2. Locate the #10 compressor A/C hose. Lubricate (2) #10 O-rings (See Figure 18, above) and connect the #10 135° female fitting with 134a service port to the #10 suction port on the compressor. Then route the 90° female fitting to the #10 fitting on the evaporator (See Figure 13, Page 13, Figure 19, Page 16, and Figure 20, Page 17). Tighten each fitting connection as shown in Figure 18, above.
- **3.** Locate the #6 evaporator A/C hose. Lubricate (2) #6 O-rings (See Figure 18, above) and connect the straight female fitting to the #6 hardline coming through the core support from the drier. Then route the 90° female fitting to the #6 fitting on the evaporator (See Figure 13, Page 13, Figure 19, Page 16 and Figure 20, Page 17). Tighten each fitting connection as shown in 18, above.

Modified Hose Kit:

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

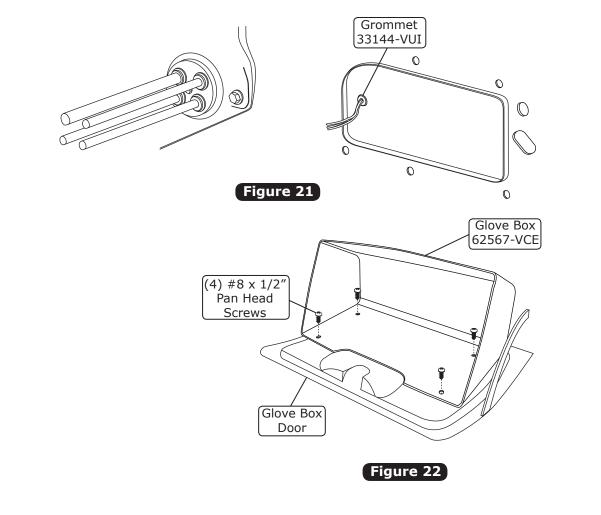


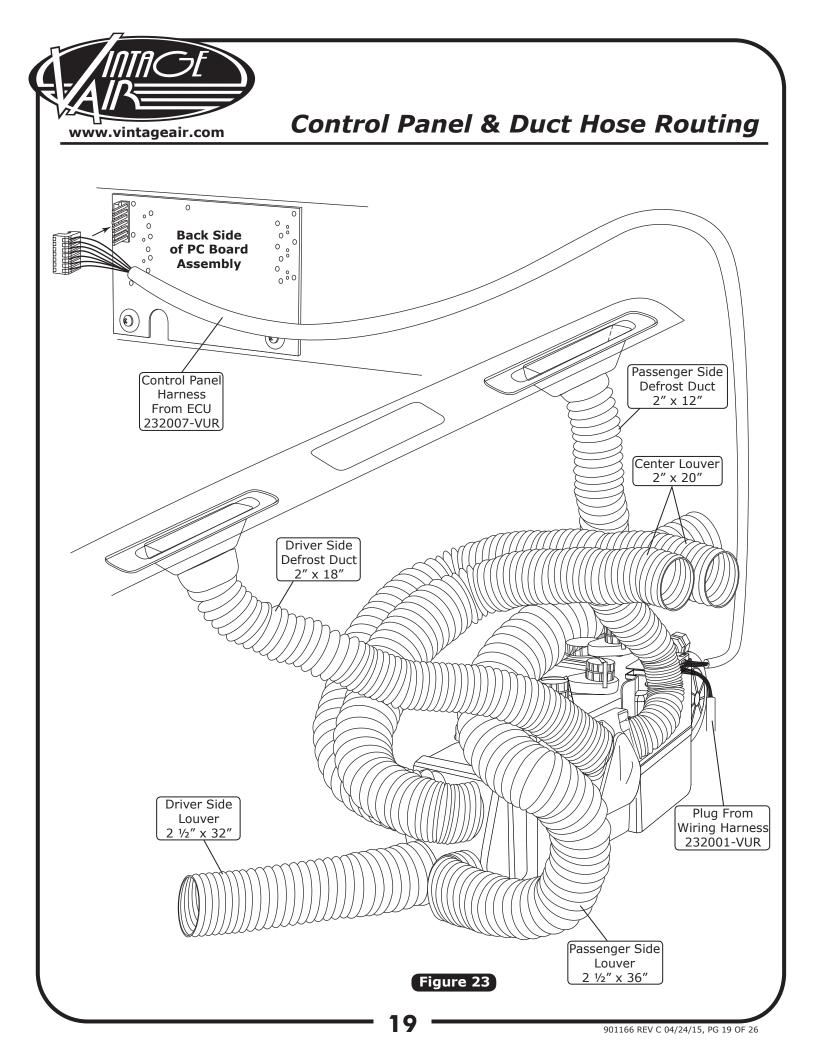


Final Steps

www.vintageair.com

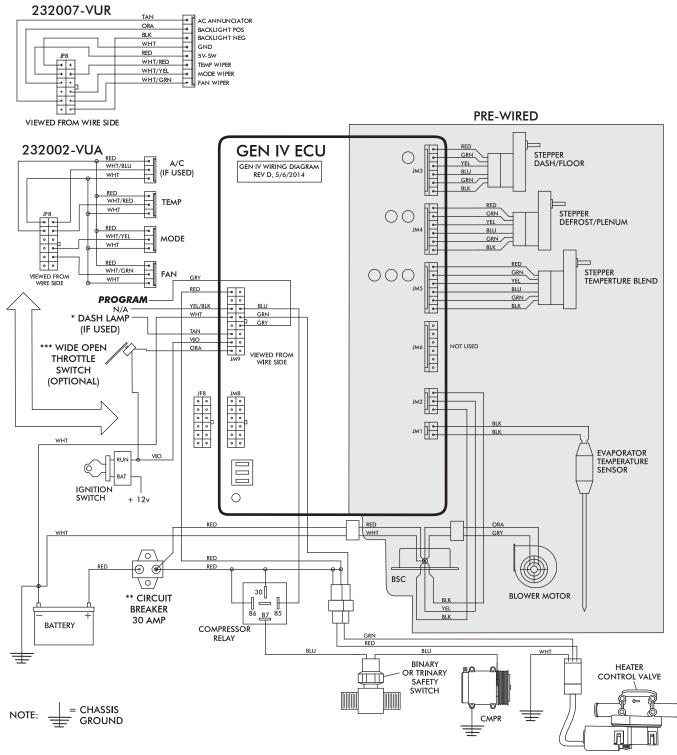
- 1. Install duct hoses as shown in Figure 23, Page 19.
- Route A/C wires (12 volt/grounds/binary switch/heater valve) through 3/8" grommet as shown in Figure 21, below.
- 3. Install control panel assembly. Refer to control panel instructions.
- **4.** Plug the wiring harnesses into the ECU module on the sub case as shown in Figure 23, Page 19. Wire according to the wiring diagrams on Pages 20 and 21.
- Install new glove box. Center glove box to glove box door and drill (4) 1/8" Holes. Install glove box to door using (4) #8 x 1/2" pan head screws (See Figure 22, below).
- 6. Reinstall all previously removed items (battery tray, battery, and inner fender).
- 7. 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.
- 8. Double check all fittings, brackets and belts for tightness.
- 9. Vintage Air recommends that all A/C systems be serviced by a licensed automotive A/C technician.
- **10.** Evacuate the system for a minimum of 45 minutes prior to charging, and perform a leak check prior to servicing.
- **11.** Charge the system to the capacities stated on Page 4 of this instruction manual.
- **12.** See Operation of Controls procedures on Page 22.





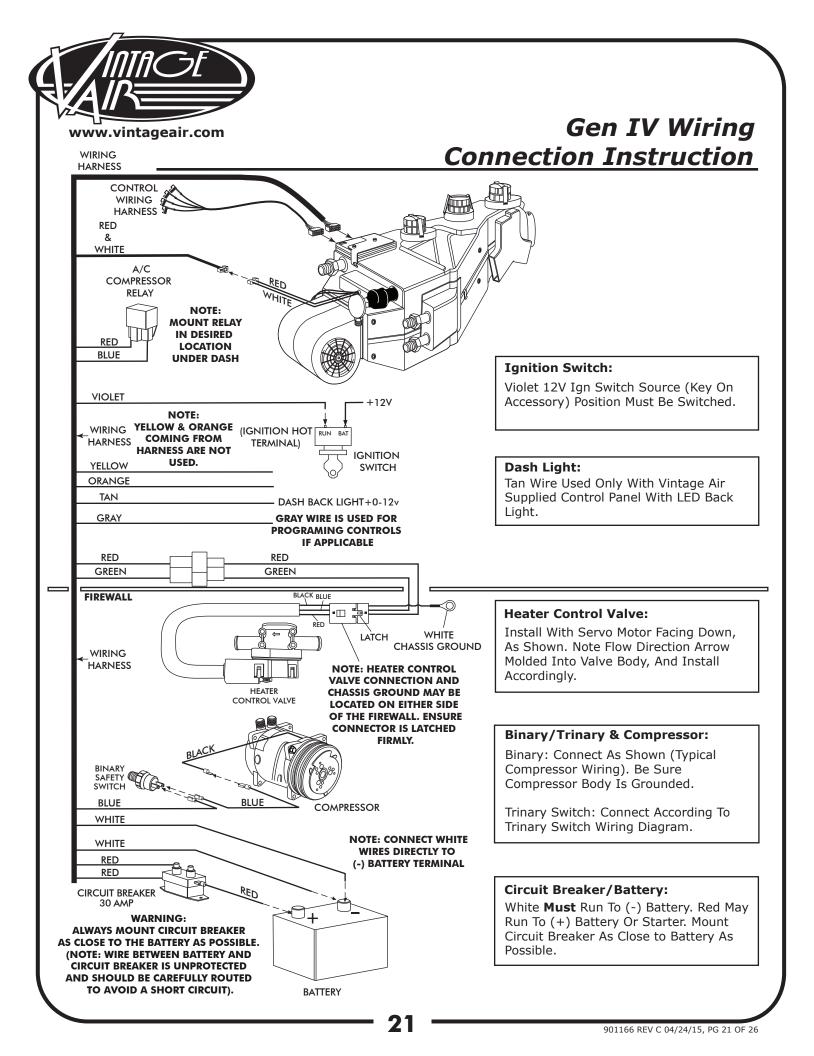


Wiring Diagram



- 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.

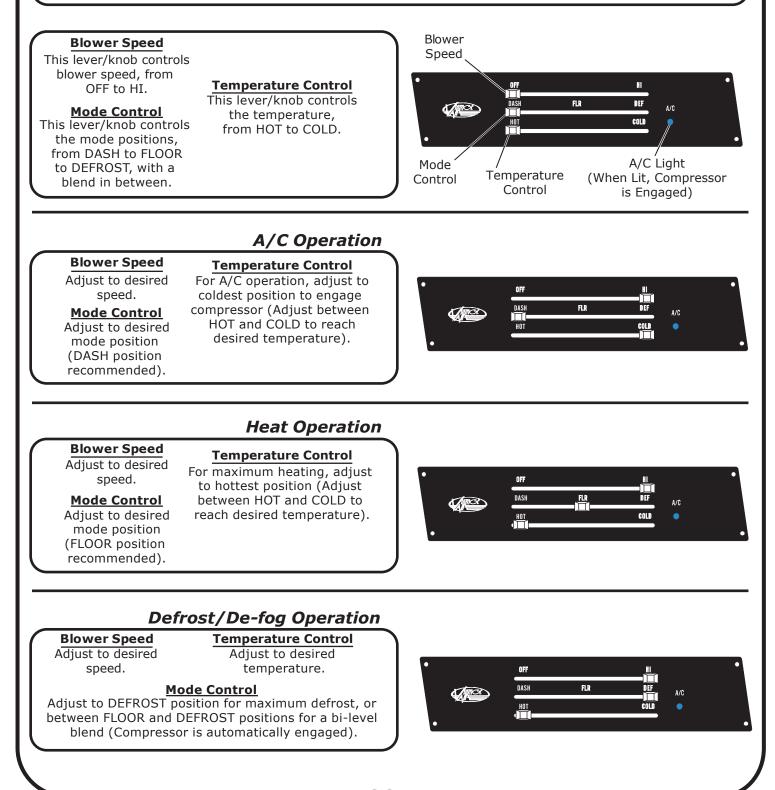
20





Operation of Controls

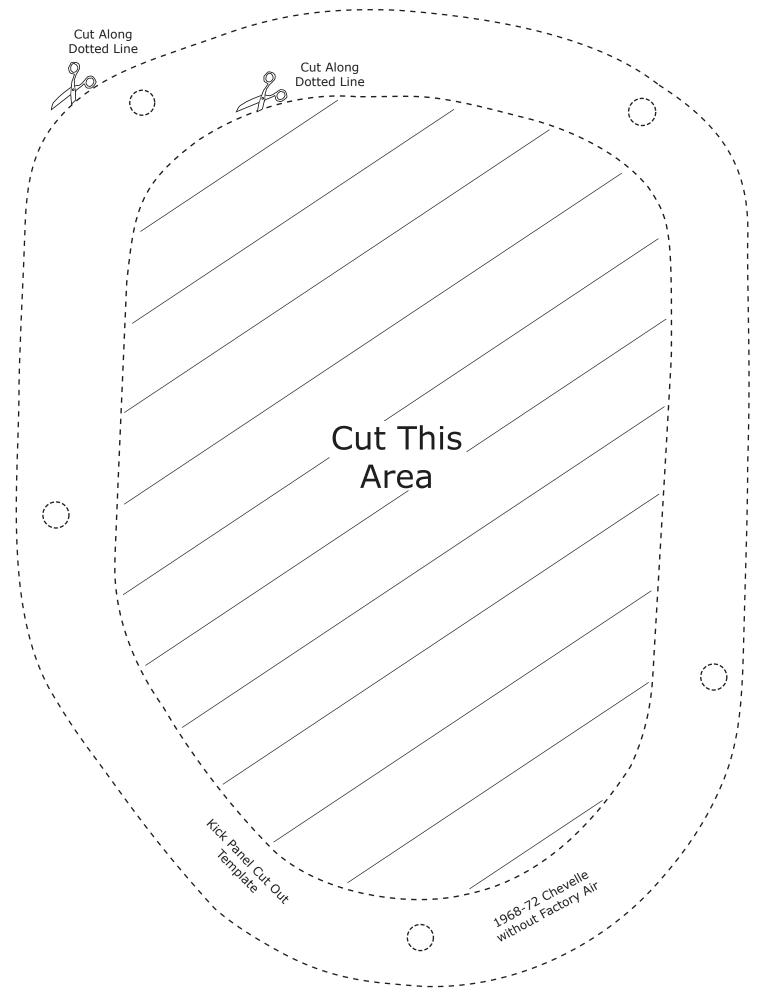
On Gen IV systems with three lever/knob controls, the temperature control toggles between heat and A/C operations. To activate A/C, move the temperature lever/knob all the way to cold and then back it off to the desired vent temperature. For heat operation, move the temperature lever/knob all the way 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.

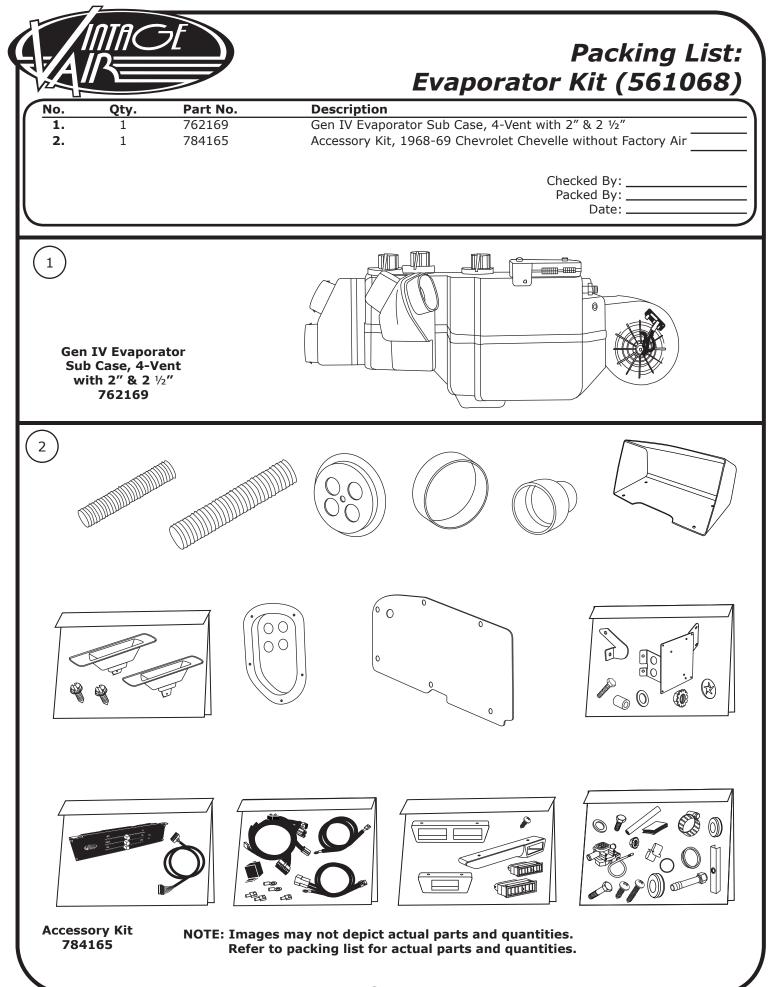


Troubleshooting Guide	1s Notes	I into plug. Ensure that no CU. Loss of ground on this wire und with white control Inoperable. See blower switch check Procedure.	e ground wire is connected t is, replace the ECU. viring is damaged or BSC operates the blower dulation switching. The always be hot. If the shorted to chassis ground,			viring. Red wire at A/C pot should with ignition on. White with ignition on. White wire will have continuity to chassis ground. White/ Blue wire should vary between OV and 5V when
• - 1	Actions	 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 head wire at various points. 			ot Check continuity to ground on white control head wire. Check for 5V on red control head wire. Check 2-pin connector at ECU housing.	 Repair or replace pot/control wiring. Replace relav.
	Checks	Check for damaged pins or wires in control head plug. Check for damaged ground wire (white) in control head harness. Check for damaged blower switch or potentiometer and associated wiring.	Unplug 3-wire BSC control connector from ECU. If blower shuts off, ECU is either improperly wired or damaged. Unplug 3-wire BSC control connector from ECU. If blower stays running, BSC is either	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.	Check for faulty A/C potentiometer or associated wiring.
ageair.com	Condition	No other functions work.	en en r off	*System is not charged.	li Lions	tions
www.vintageair.com	Symptom	1a. Blower stays on high speed when ignition is on.	1b. Blower stays on high speed when ignition is on or off.	5	Compressor will not turn on (All other functions work).	3. Compressor will not turn off (All other functions work).

www.vintageair.com	air.com		Troubleshooting Guide (Cont.)	ide (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.	L
System will not turn on, or runs intermittently.	versions).		Check for positive power at heater valve green wire and blower red wire. Check for ground on control head white wire.	greater than 16V will shut down the ECU. Install a radio capacitor at the positive post of the ignition
	Will not turn on under any conditions.	Verify battery voltage is greater than 10 volts and less than 16.	Verify proper meter function by checking the condition of a known good battery.	coil (See radio capacitor installation bulletin). A faulty alternator or worn out battery can also result in this condition.
5. Loss of mode door function.	No mode change at all.	Check for damaged mode switch or potentiometer and associated wiring.		Typically caused by evaporator housing installed in a bind in the
	Partial function of mode doors.	Lineck for obstructed of binding mode doors. Check for damaged stepper motor or wiring.		women of the surger of the sur
6. Blower turns on and off rapidly.	oltage is at least oltage is less	Check for at least 12V at circuit breaker. Check for faulty battery or	Ensure all system grounds and power connections are clean and tight.	System shuts off blower at 10V. Poor connections or weak battery can cause shittdown at in to 11V
7. Erratic functions of blower, mode, temp, etc.	[than 12V.	alternator.	e,	
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.	

24





26