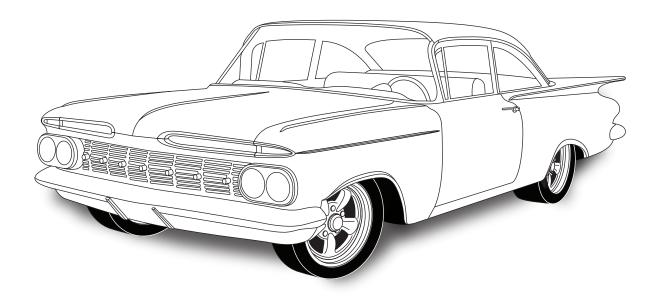


an ISO 9001:2008 Registered Company

1959-60 Chevrolet Full-Size/El Camino

with 2-Lever Controls 561055



18865 Goll St. San Antonio, TX 78266 ph: 210-654-7171 fax: 210-654-3113



Table of Contents

- 1. Cover
- 2. Table of Contents
- 3. Packing List/Parts Disclaimer
- 4. Information Page
- 5. Wiring Notice
- 6. Engine Compartment, Condenser Assembly & Installation, Compressor & Brackets, Pulleys
 Figure 1
- 7. Passenger Compartment

Figures 2 & 2a

- 8. Defrost Duct Installation, Fresh Air Cap Installation Figures 3 & 4
- **9. Kick Panel Fresh Air Plate Installation** *Figures 5, 5a, 5b & 5c*
- Firewall Cover Installation, Evaporator Bracket and Heater Hose Fitting Installation

Figures 6 & 7

- 11. Evaporator Bracket and Heater Hose Fitting Installation (Cont.)

 Figure 8
- 12. Evaporator Installation

Figures 9 & 9a

- 13. Drain Hose Installation, Lubricating O-rings, A/C Hose Installation Figures $10 \ \& \ 11$
- **14. Heater Hose & Heater Control Valve Installation** *Figure 12*
- Driver Side Under Dash Louver Installation, Center/Passenger Side Under Dash Louver Installation

Figures 13, 13a, 14 & 14a

16. Final Steps

Figures 15, 16 & 17

17. Control Panel & Duct Hose Routing

Figure 18

- 18. Wiring Diagram
- 19. Gen IV Wiring Connection Instruction
- 20. Operation of Controls
- 21. Troubleshooting Information
- 22. Troubleshooting Information (Cont.)
- 23. Evaporator Kit Packing List

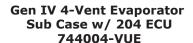


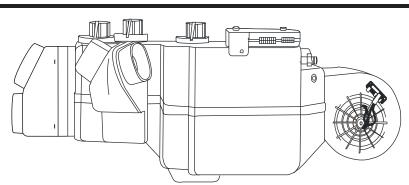
Packing List Evaporator Kit (561055)

No.	Qty.	Part No.	Description
1.	1	744004-VUE	Gen IV 4-Vent Evaporator Sub Case w/ 204 ECU
2.	1	781159	Accessory Kit 59-60 Chevrolet Full-Size/El Camino
			w/ 2-Lever Controls

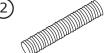
** Before beginning installation, open all packages and check contents of shipment. Please report any shortages directly to Vintage Air within 15 days. After 15 days, Vintage Air will not be responsible for missing or damaged items.

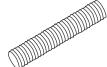






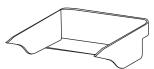












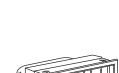


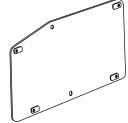




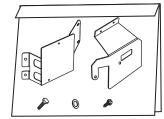


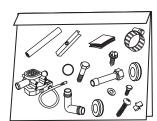






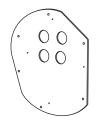












Accessory Kit 781159

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



Important Notice—Please Read

For Maximum System Performance, Vintage Air Recommends the Following:

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.

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.

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:

Attention: The following system components are capped: Compressor, evaporator, condenser & drier. Caps may be <u>under pressure with dry nitrogen</u>. Be careful removing caps. Do not remove caps prior to installation. Removing caps prior to installation will cause components to collect moisture and lead to premature failure and reduced performance.

Evacuate the system for 35-45 minutes with system components (Drier, compressor, evaporator and condenser) at a temperature of at least 85° F. On a cool day, the components can be heated with a heat gun \underline{OR} by running the engine with the heater on before evacuating. Leak check and charge to specifications.

Vintage Air Systems Are Designed to Operate With R134a Refrigerant Only! Use of Any Other Refrigerants Is a Fire Hazard and Could Damage Either Your Air Conditioning System or Your Vehicle.

Use of Any Other Refrigerants Will Void All Warranties of the Air Conditioning System and Components. Use of the Proper Type and Amount of Refrigerant Is Critical to Proper System Operation. Vintage Air Recommends Our Systems Be Charged By Weight With a Quality Charging Station or Scale.

Refrigerant Capacity for Vintage Air Systems:

(For other systems, consult manufacturer's guidelines)

R134a System

Charge with 1.8 lbs. (1 lb., 12 oz.) of refrigerant.

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).



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 FCU.

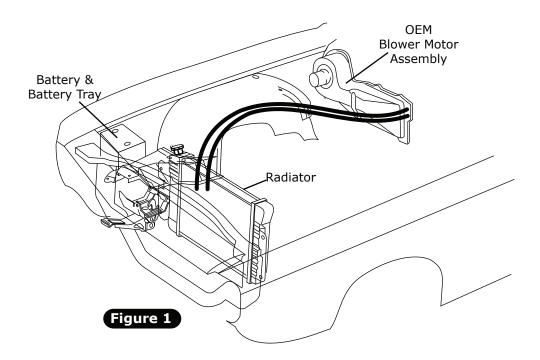


Engine Compartment

Before starting the installation, check the function of the vehicle (horn, lights, etc.) for proper operation. Study the instructions, illustrations & diagrams.

Perform the Following:

- 1. Remove battery and battery tray (retain) (See Figure 1, below).
- 2. Drain radiator.
- **3.** Remove heater blower motor assembly (discard) (See Figure 1, below).
- 4. Remove OEM heater hoses (discard) (See Figure 1, below).
- 5. Remove OEM heater wiring.



Condenser Assembly & Installation

- 1. Refer to separate instructions included with the condenser kit to install the condenser.
- 2. Binary switch installation (Refer to condenser instructions).

Compressor & Brackets

1. Refer to separate instructions included with the bracket kit to install the compressor bracket.

Pulleys

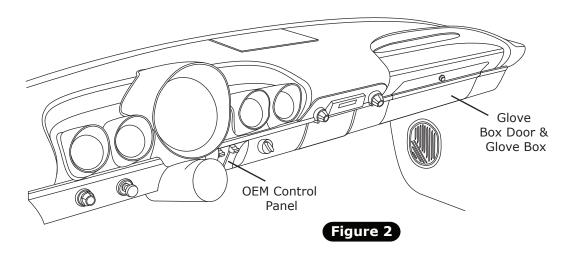
1. In most instances, the belt lengths will remain the same.

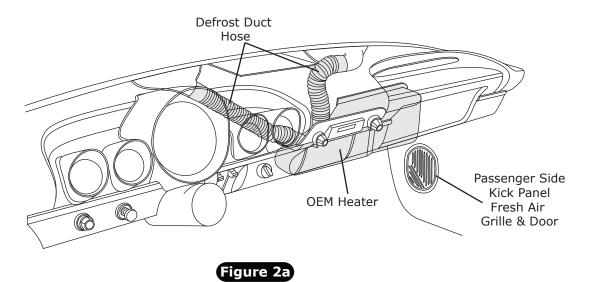


Passenger Compartment

Perform the Following:

- 1. Remove glove box door (retain) and glove box (discard) (See Figure 2, below).
- 2. Disconnect all wires and cables from OEM control panel.
- 3. Remove OEM heater assembly (discard) (See Figure 2a, below).
- 4. Remove OEM duct hose from defrost ducts (discard) (See Figure 2a, below).
- 5. Remove passenger side OEM kick panel fresh air grille and door (discard) (See Figure 2a, below).

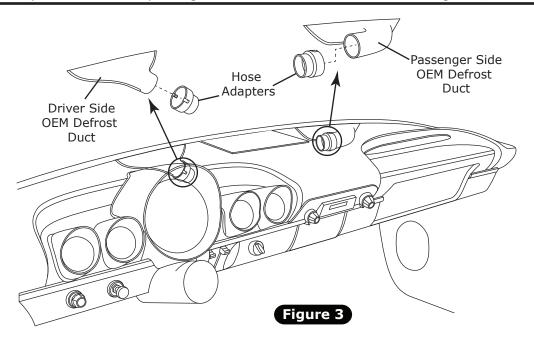






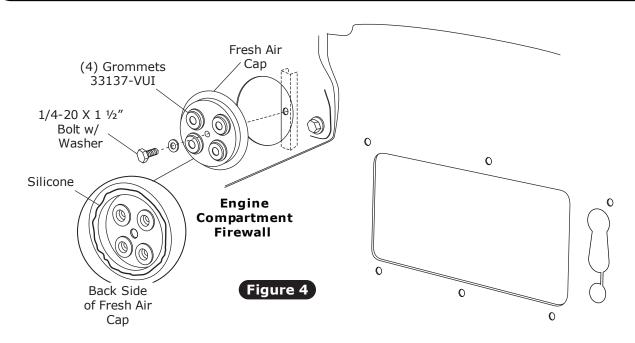
Defrost Duct Installation

- 1. Install (2) S-clips onto driver and passenger side defrost duct hose adapters (See Figure 3, below).
- 2. Attach hose adapters to driver and passenger side OEM defrost ducts as shown in Figure 3, below.



Fresh Air Cap Installation

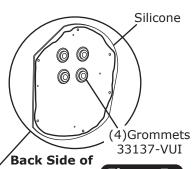
- 1. Install (4) grommets in fresh air cap (See Figure 4, below).
- 2. Apply a 1/4" bead of silicone around the back side of the fresh air cap as shown in Figure 4, below.
- **3.** Attach fresh air cap to firewall using a 1/4-20 X 1 ½" bolt and washer (See Figure 4, below). **NOTE: Fresh air cap installs on engine side of firewall.**



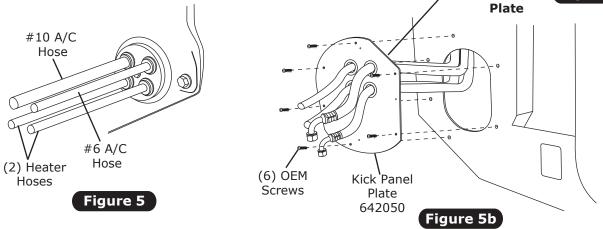


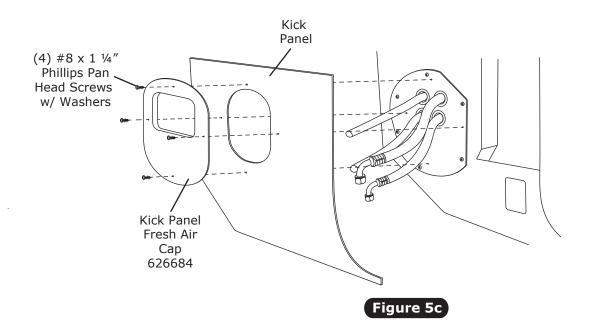
Kick Panel Fresh Air Plate Installation

- 1. Install (4) grommets in kick panel plate (See Figure 5a, below).
- 2. Route A/C and heater hoses through fresh air cap and kick panel plate as shown in Figures 5 and 5b, below.
- **3.** Apply a 1/4" bead of silicone around the back side of the kick panel plate as shown in Figure 5a, below.
- **4.** Secure kick panel plate to kick panel using (6) OEM screws as shown in Figure 5b, below.
- 5. Reinstall kick panel (See Figure 5c, below).
- **6.** Secure kick panel fresh air cap to kick panel using (4) #8 x 1 ¼" Phillips pan head screws with washers as shown in Figure 5c, below.



Kick Panel Figure 5a

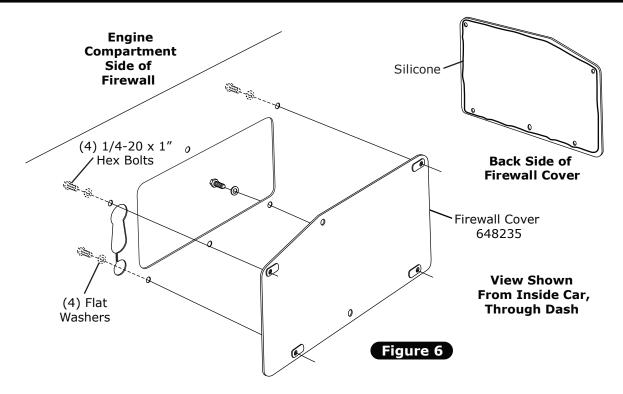






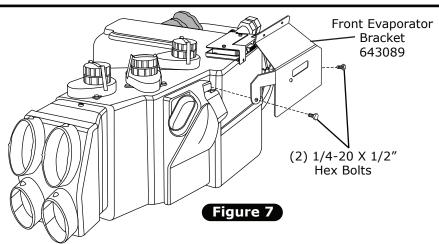
Firewall Cover Installation

- 1. Apply a 1/4" bead of silicone around the back side of the firewall cover as shown in Figure 6, below.
- 2. From inside the car, install firewall cover onto firewall as shown in Figure 6, below. From the engine compartment, secure firewall cover to firewall using (4) 1/4-20 x 1" hex bolts and (4) flat washers (See Figure 6, below).

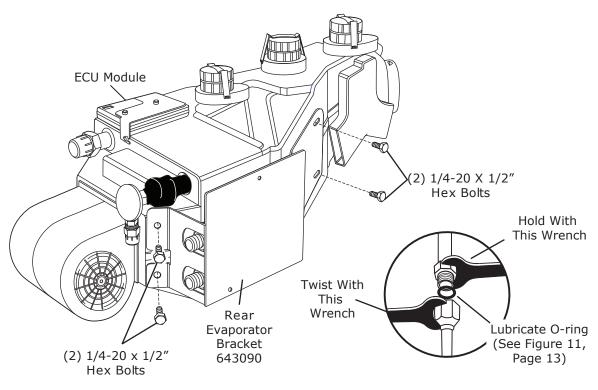


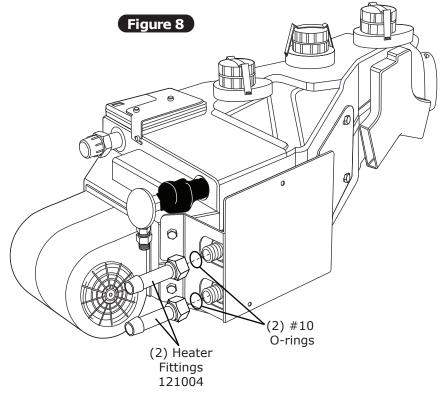
Evaporator Bracket and Heater Hose Fitting Installation

- 1. On a workbench, install evaporator rear bracket and heater hose fittings with properly lubricated O-rings (See Figure 8, Page 11, and Figure 11, Page 13).
- **2.** Install front mounting bracket onto evaporator using (2) $1/4-20 \times 1/2''$ hex bolts and tighten as shown in Figure 7, below.



Evaporator Bracket and Heater Hose Fitting Installation (Cont.)

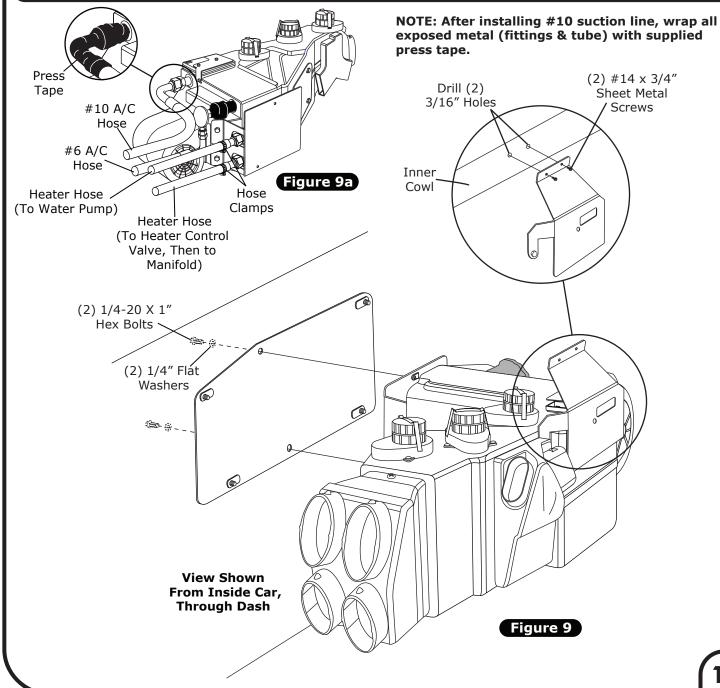






Evaporator Installation

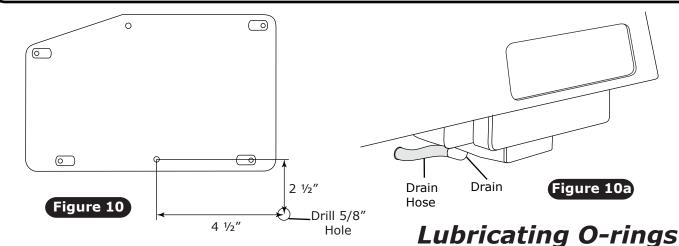
- 1. Install A/C & heater hoses as shown in Figure 9a, below.
- 2. Lift evaporator unit up under the dashboard. Secure loosely to the firewall using (2) 1/4-20 x 1" hex bolts and (2) flat washers (See Figure 9, below). NOTE: To ensure proper drainage, it is very important that the evaporator is level, 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 9, below).
- **4.** Using (2) #14 x 3/4" sheet metal screws, secure the front evaporator mounting bracket to the inner cowl (See Figure 9, 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.**

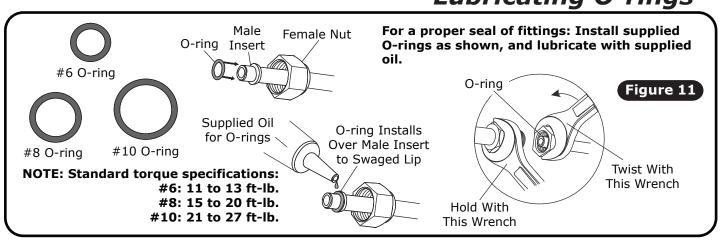




Drain Hose Installation

- 1. Drill a 5/8" hole in firewall using the measurements in Figure 10, below.
- 2. Install drain hose to bottom of evaporator unit and route through firewall (See Figure 10a, below).





A/C Hose Installation

Standard Hose Kit:

- 1. Locate the #8 compressor A/C hose. Lubricate (2) #8 O-rings (See Figure 11, above) and connect the 135° female fitting with 134a service port to the #8 discharge port on the compressor. Route the 90° female fitting to the #8 condenser hardline (See Figure 12, Page 14). Tighten each fitting connection as shown in Figure 11, above.
- 2. Locate the #10 compressor A/C hose. Lubricate (2) #10 O-rings (See Figure 11, above) and connect the #10 135° female fitting with 134a service port to the #10 suction port on the compressor. Route the 90° female fitting to the #10 fitting on evaporator (See Figure 9a, Page 12, and Figure 12, Page 14). Tighten each fitting connection as shown in Figure 11, above. Install #10 adel clamp on #10 A/C hose, and secure to passenger side fender well using a 10/32 x 1/2" Phillips pan head screw and a 10/32 nut with star washer (See Figure 12, Page 14).
- **3.** Locate the #6 evaporator A/C hose. Lubricate (2) #6 O-rings (See Figure 11, above) and connect the 90° female fitting to the drier. Route the 90° female fitting to the #6 fitting on evaporator (See Figure 9a, Page 12, and Figure 12, Page 14). Tighten each fitting connection as shown in Figure 11, above. Install #6 adel clamp on #6 A/C hose, and secure to passenger side fender well using a 10/32 x 1/2" Phillips pan head screw and 10/32 nut with star washer (See Figure 12, Page 14).

Modified A/C Hose Kit:

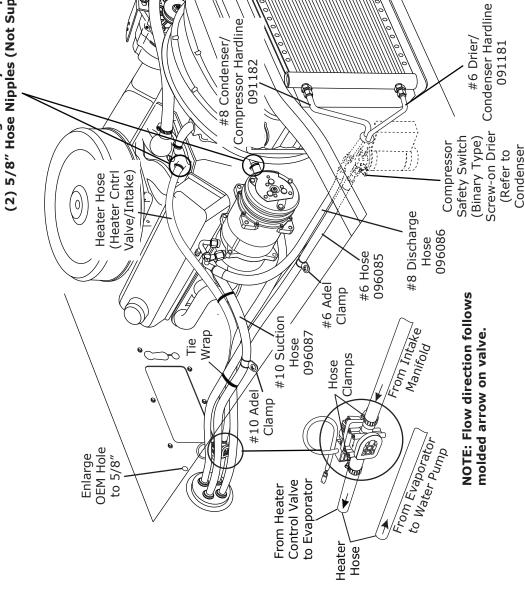
1. Refer to separate instructions included with modified hose kit.

Heater Hose & Heater Control Valve Installation

- 1. Route a piece of heater hose from the water pump to the top heater fitting of the heater core as shown in Figure 9a, Page 12, and Figure 12, below. Secure using hose clamps.
- 2. Route a piece of heater hose from the intake to the bottom heater fitting of the heater core as shown in Figure 9a, Page 12, and Figure 12, below. NOTE: Install heater control valve in line with intake manifold (pressure side) heater hose, and secure using hose clamps as shown in Figure 12, below. Also note proper flow direction.

/C & Heater Hose Routing

NOTE: Vintage Air Systems Require (2) 5/8" Hose Nipples (Not Supplied)



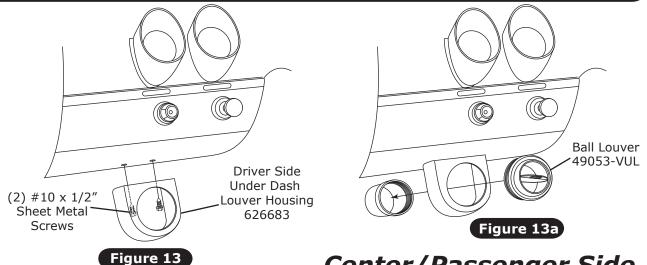


Instructions)



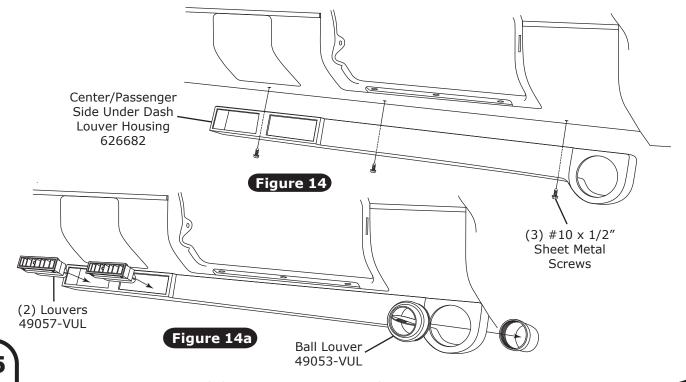
Driver Side Under Dash Louver Installation

- 1. Place driver side louver housing under dash. Mark and drill (2) 5/32" holes in dash as shown in Figure 13, below.
- 2. Secure louver housing under dash using (2) #10 x 1/2" sheet metal screws as shown in Figure 13, below.
- 3. Install louver into housing as shown in Figure 13a, below.



Center/Passenger Side Under Dash Louver Installation

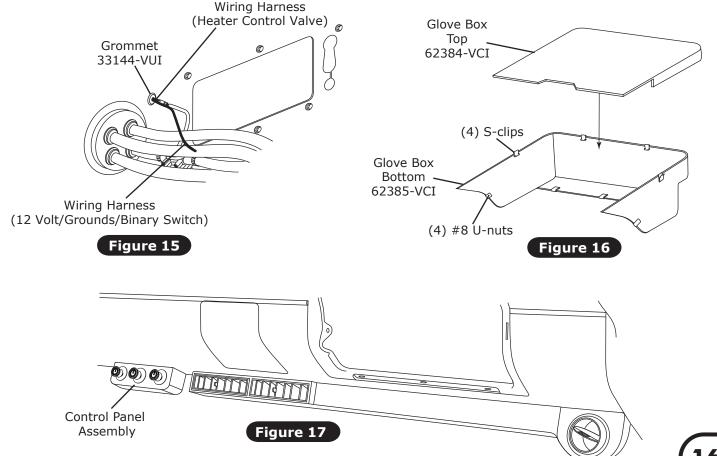
- Place louver housing under dash. Align center louvers with center of radio; then mark and drill (3) 5/32" holes in dash as shown in Figure 14, below.
- 2. Secure louver housing under dash using (3) #10 x 1/2" sheet metal screws as shown in Figure 14, below.
- 3. Install louvers into housing as shown in Figure 14a, below.





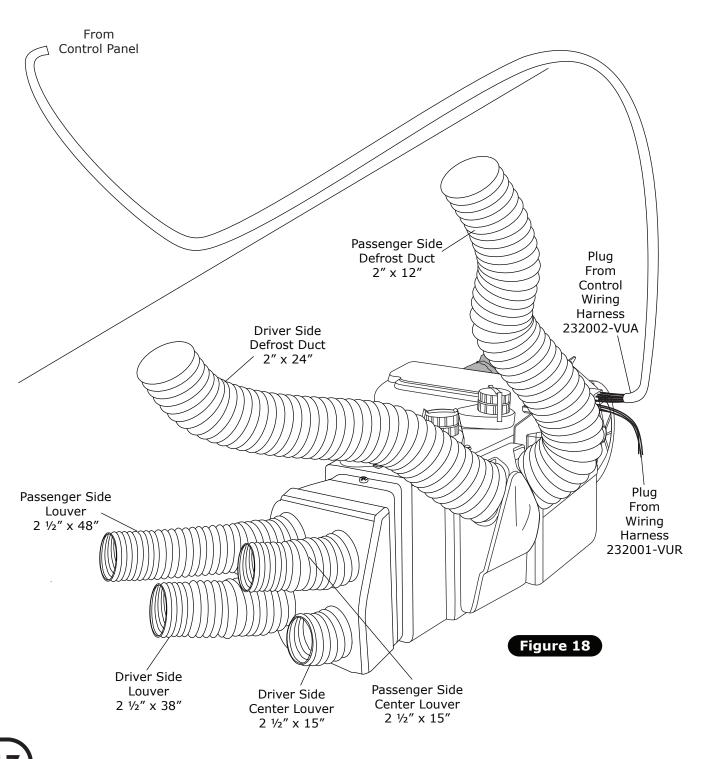
Final Steps

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



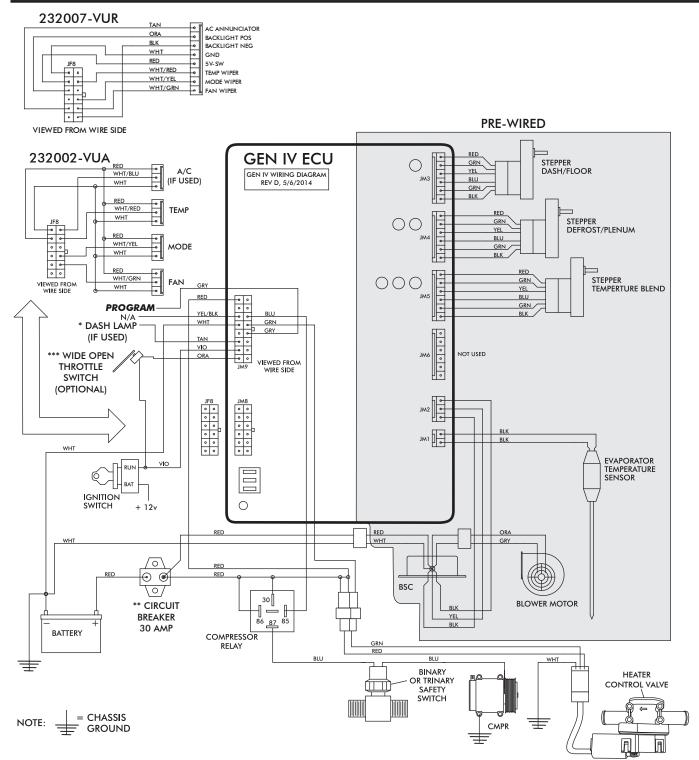


Control Panel & Duct Hose Routing





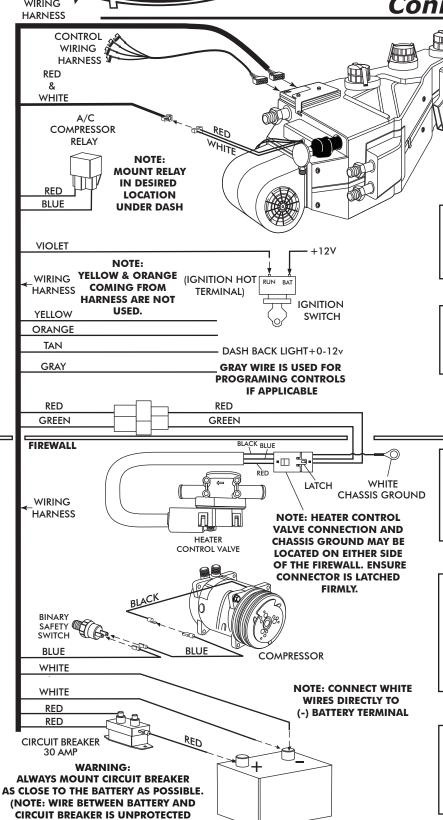
Wiring Diagram



- 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.



Gen IV Wiring Connection Instruction



Ignition Switch:

Violet 12V Ign Switch Source (Key On Accessory) Position Must Be Switched.

Dash Light:

Tan Wire Used Only With Vintage Air Supplied Control Panel With LED Back Light.

Heater Control Valve:

Install With Servo Motor Facing Down, As Shown. Note Flow Direction Arrow Molded Into Valve Body, And Install Accordingly.

Binary/Trinary & Compressor:

Binary: Connect As Shown (Typical Compressor Wiring). Be Sure Compressor Body Is Grounded.

Trinary Switch: Connect According To Trinary Switch Wiring Diagram.

Circuit Breaker/Battery:

White **Must** Run To (-) Battery. Red May Run To (+) Battery Or Starter. Mount Circuit Breaker As Close to Battery As Possible.

AND SHOULD BE CAREFULLY ROUTED TO AVOID A SHORT CIRCUIT).

BATTERY



Operation of Controls

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

Blower Speed

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

Mode Control

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

Temperature Control

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

Blower Speed



Mode Control



Temperature Control



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).







	l			. —↑ _ ↑			I _ <u>↑</u>
Troublesho	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.		Be sure the small, 20 GA white ground wire is connected to the battery ground post. If it is, replace the ECU. 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 positive wire to the blower is shorted to chassis ground, the blower will run on HI.	Replace BSC (This will require removal of evaporator from vehicle).	Check for 5V on red control head wire.	→ Check 2-pin connector at ECU housing.	Repair or replace pot/control wiring.
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 sonnector from ECU. If blower	stays running, BSC is either improperly wired or damaged. 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.
Condition	1 1.1 1*	All other functions work.		System is not charged.		System is charged.	
Symptom	Blower stays on high speed when ignition is on.		B Sylving an or off.	2.	Compressor will not turn on (All other functions work).		3. Compressor will not turn off (All other functions work).

No other part replacements should be necessary.

safety switch with engine running. Serious

injury can result.

Danger: Never bypass

should be between OV and 5V, and will vary with pot

→ Disconnected or faulty thermistor will cause compressor to be

lever position.

To check for proper pot function, check voltage at white/blue wire. Voltage

wire will have continuity to chassis ground. White/Blue wire should vary between 0V and 5V when lever is moved up or down.

→ Replace relay.

Check for faulty A/C relay.

Red wire at A/C pot should

disabled.

→ have approximately 5V with ignition on. White

shooting Guide

Loss of ground on this wire renders control head

inoperable.

Notes

See blower switch check procedure.



Troubleshooting Guide (Cont.)

Symptom	Condition	Checks	Actions	Notes
4	Works when engine is not	Noise interference from either		Ignition noise (radiated or conducted) will cause the
	running; shuts off when engine is started (Typically early Gen IV,	ignition or	➡ wiring away from ECU and ECU wiring. Check for burned or loose plug wires.	system to shut down due to high voltage spikes. If this is suspected, check with a quality oscilloscope. Spikes
System will not turn on, or runs	versions).	Verify connections on power lead, ignition lead, and both	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
	Will not turn on under any conditions.	white ground wires. Varify battery voltage is		coil (See radio capacitor installation bulletin). A
	,	greater than 10 volts and less than 16.	Verify proper meter function by checking the condition of a known good battery.	raulty alternator or worn out battery can also result in this condition.
rų.	No mode change at all.			Typically caused by evaporator housing
Loss of mode door function.		associated wiring.		installed in a bind in the vehicle. Be sure all
	Partial function of mode	binding mode doors.		mounting locations line up
		▲ Check for damaged stepper motor or wiring.		into position.
	Battery voltage is at least	Check for at least 12V at	Ensure all system grounds and power connections are	System shuts off blower at 10V. Poor connections or
Blower turns on and off rapidly.	Battery voltage is less			weak battery can cause → shutdown at up to 11V.
7	than 12V.	alternatur.		
		Check for damaged switch or	معدا مرمة	
temp, etc.		pot and associated wiring.	Repail of replace.	
1 00 .				
When ignition is turned on, blower		This is an indicator that the system has been reset. Be		
momentarily comes on, then	,	sure the red power wire is on the battery post, and not on a	On the second se	
shuts off. This		switched source. Also, if the	Kuli red power wire directly to battery.	
blower switch in the OFF position.		even a split second, the system will reset.		

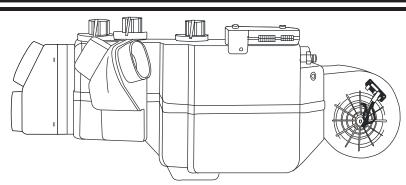


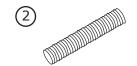
Packing List Evaporator Kit (561055)

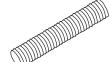
No.	Qty.	Part No.	Description
1.	1	744004-VUE	Gen IV 4-Vent Evaporator Sub Case w/ 204 ECU
2.	1	781159	Accessory Kit 59-60 Chevrolet Full-Size/El Camino w/ 2-Lever Controls
			Checked By: Packed By: Date:

1

Gen IV 4-Vent Evaporator Sub Case w/ 204 ECU 744004-VUE

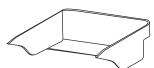










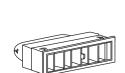


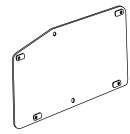


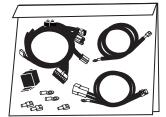


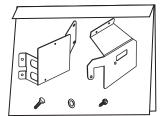


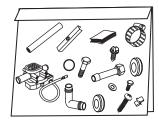






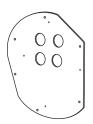












Accessory Kit 781159 NOTE: Images may not depict actual parts and quantities.

Refer to packing list for actual parts and quantities.