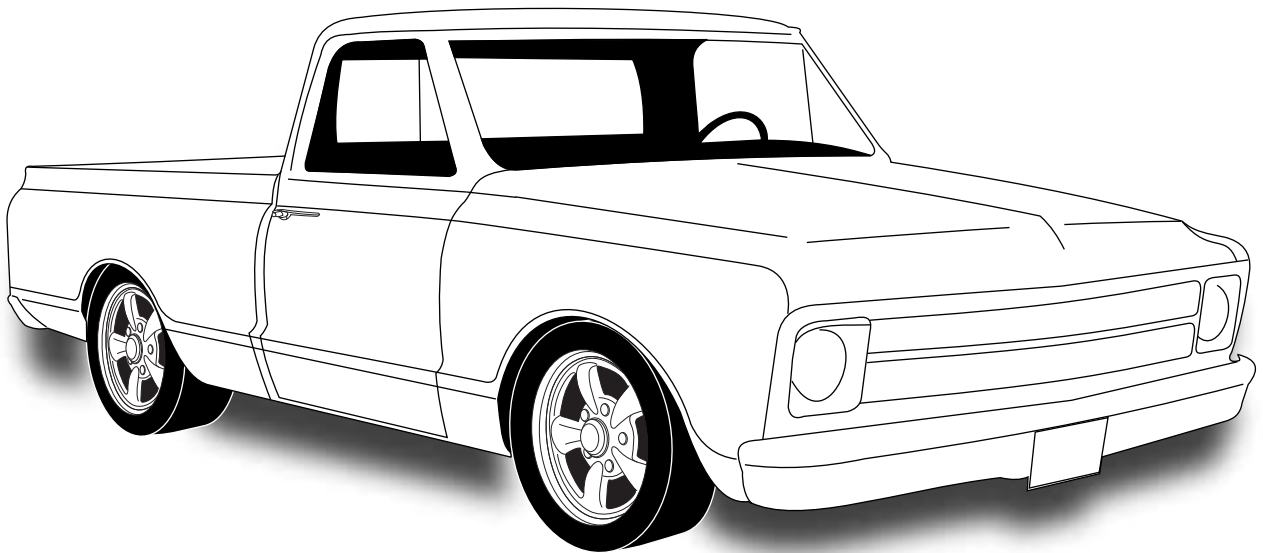




an ISO 9001:2008 Registered Company

1967-72 Chevy Pickup

without **Factory Air**
751170



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



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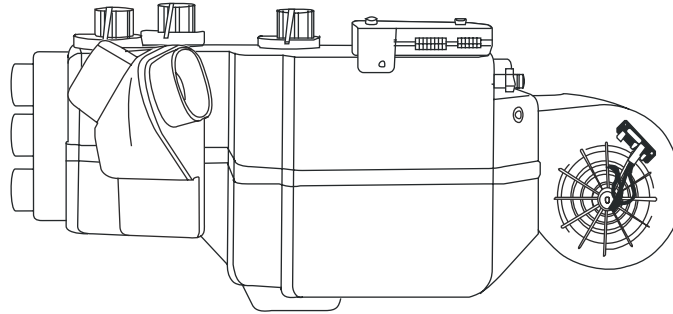
Packing List Evaporator Kit (751170)

No.	Qty.	Part No.	Description
1.	1	744005	Gen IV 3-Vent Evaporator Sub Case w/ 204 ECU
2.	1	791170	Accessory Kit 67-72 Chevy Pickup without A/C

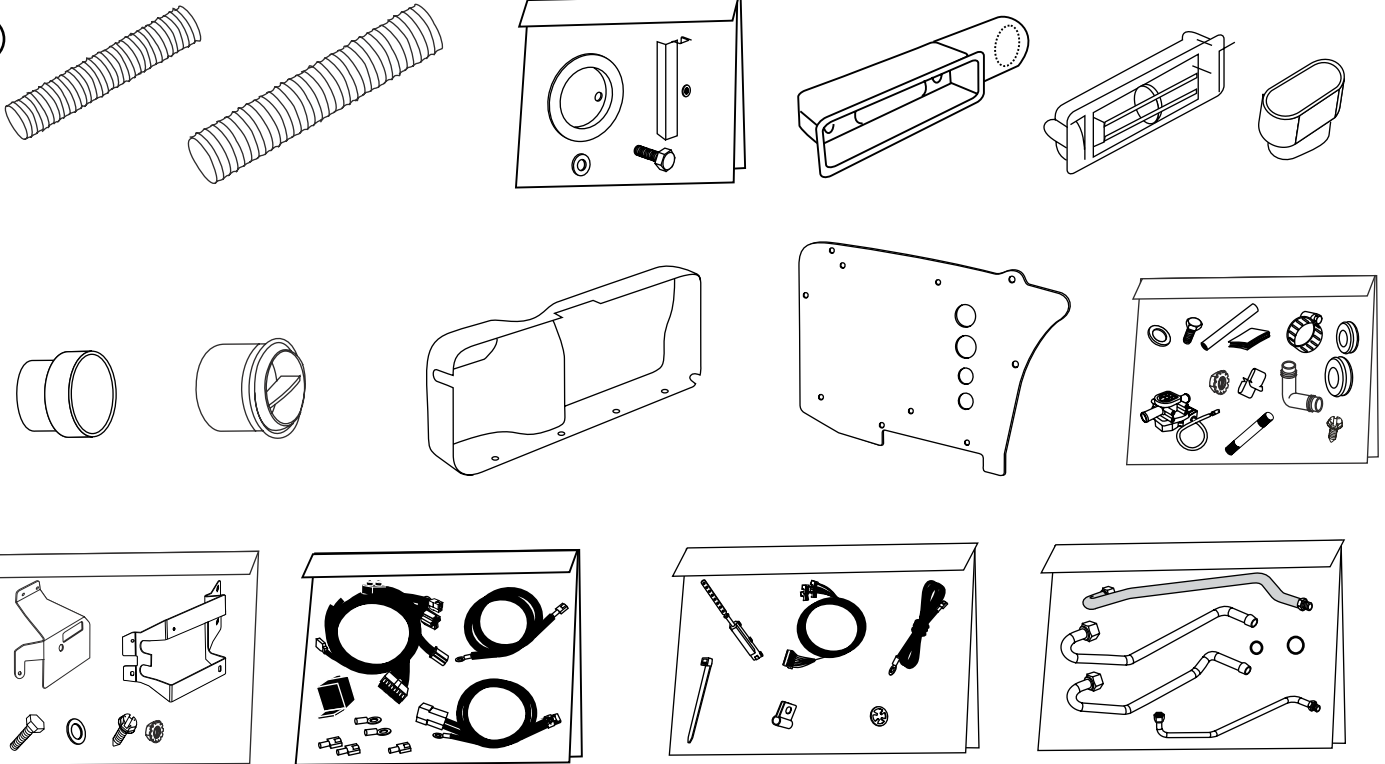
**** Before beginning installation, open all packages and check contents of shipment. Please report any shortages directly to Vintage Air within 15 days. After 15 days, Vintage Air will not be responsible for missing or damaged items.**

1

**Gen IV 3-Vent
Evaporator Sub Case
w/ 204 ECU
744005**



2



**Accessory Kit
791170**

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:

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.



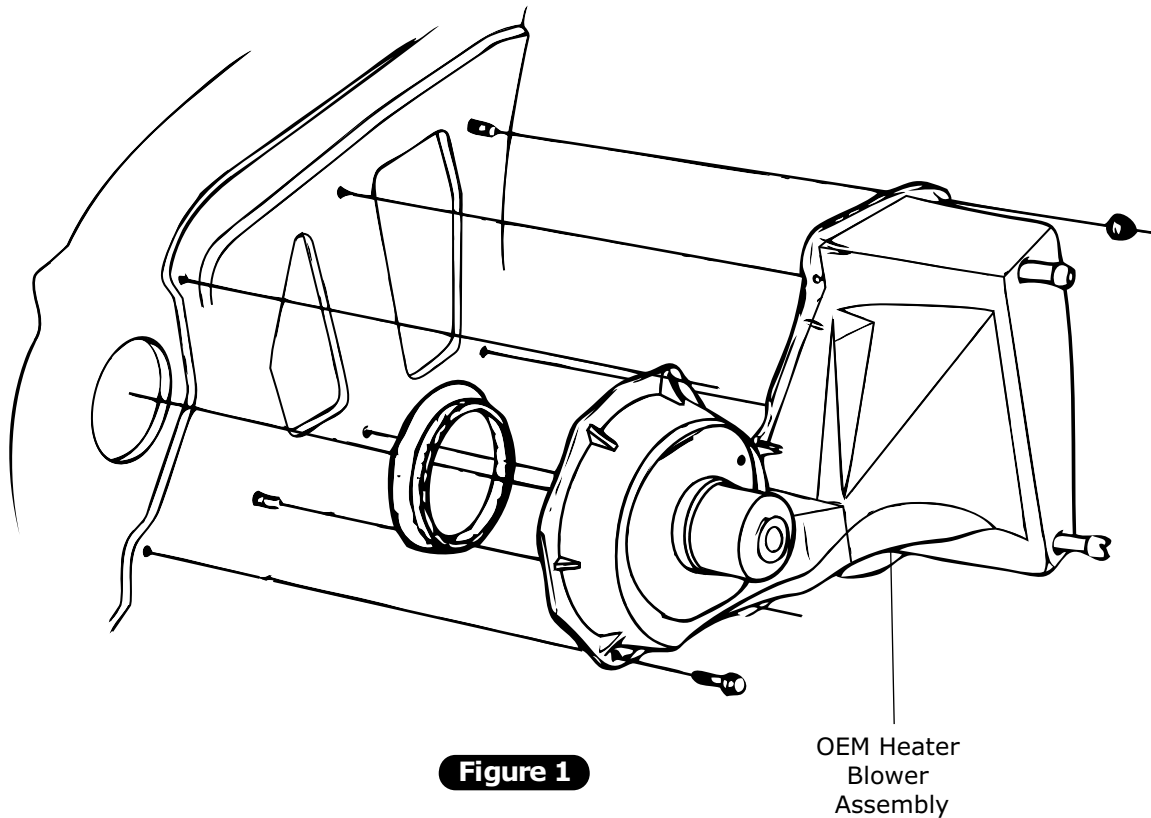
Engine Compartment

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

Perform the Following:

1. Disconnect battery.
2. Drain and remove radiator (retain).
3. Remove heater blower assembly and OEM heater hoses (discard).

NOTE: To remove the OEM heater blower assembly (under hood) and the air distribution system (under dash), the factory manual recommends that the right inner fender be removed for accessibility.





Condenser Assembly and Installation

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

Compressor and Brackets

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

Passenger Compartment

Perform the Following:

1. Remove the glove box door (retain) and glove box (discard).
2. Disconnect all wires and cables from control panel and radio.
3. Remove all hoses and ducting from defrost ducts (See Figure 2, below).
4. Remove OEM heater assembly.

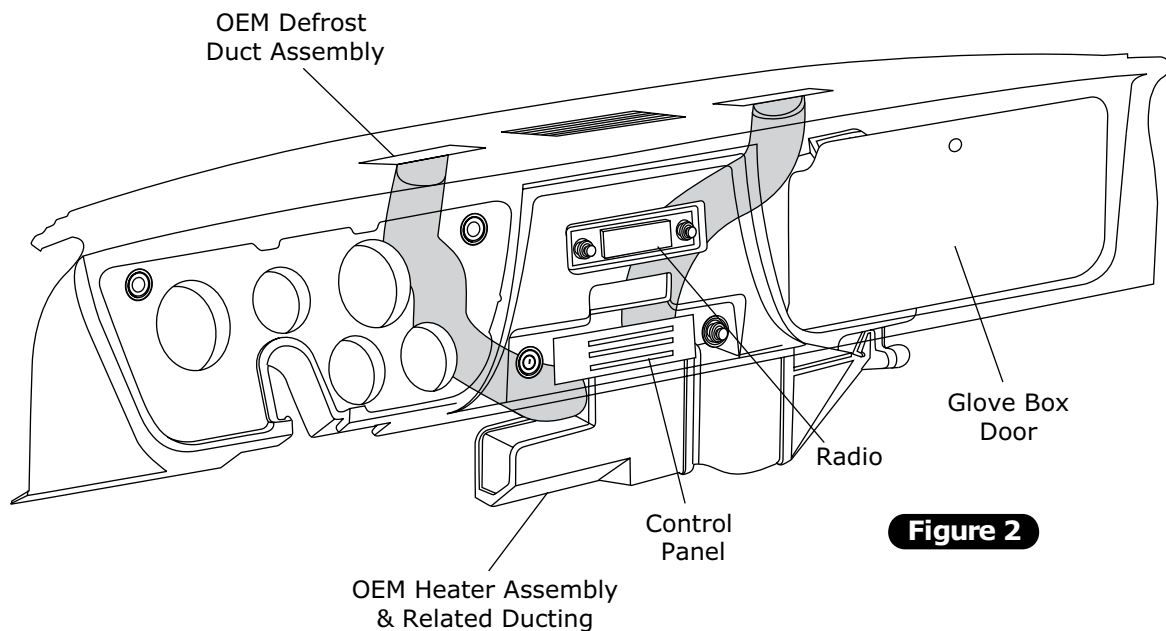
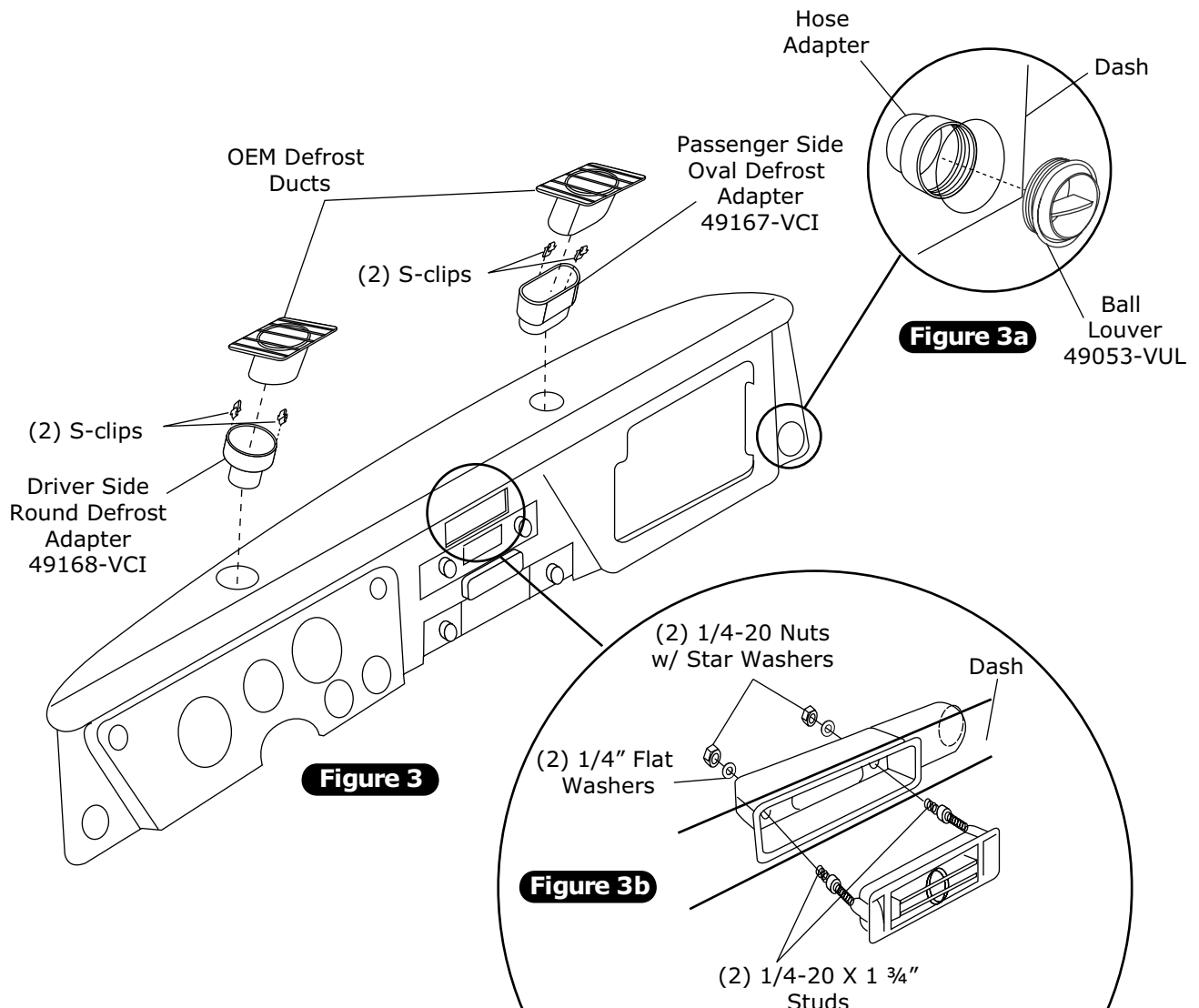


Figure 2



Defrost Duct and Louver Installation

1. Install S-clips on defrost duct hose adapters, and attach to OEM defrost ducts as shown in Figure 3, below.
2. Install center louver into dash as shown in Figure 3b, below. Use dimensions provided on Page 23. **NOTE: Center louver may need to be tapped to 1/4-20 to accept studs.**
3. Install driver/passenger side louvers into dash as shown in Figure 3a, below. Use template provided on Page 22.



NOTE: Studs, nuts and washers are packaged in bag with heater control valve.



Fresh Air Cap & Firewall Cover Installation

1. Apply a 1/4" bead of silicone around the back side of the fresh air cap as shown in Figure 4, below.
2. Attach fresh air cap to firewall using a 1/4-20 x 1" bolt and washer (See Figure 4, below).
3. Apply a 1/4" bead of silicone around the back side of the firewall cover as shown below.
4. Install firewall cover onto firewall using (2) 1/4-20 x 1" hex bolts, (2) flat washers and (2) 1/4" nuts with star washers in the OEM holes as shown below.
5. Use firewall cover as a template to drill (6) 3/16" holes in firewall, and then secure using #14 x 3/4" sheet metal screws as shown below.
6. Using the firewall cover as a template, drill (2) 9/32" holes in the firewall as shown below.
7. Install grommets as shown below.

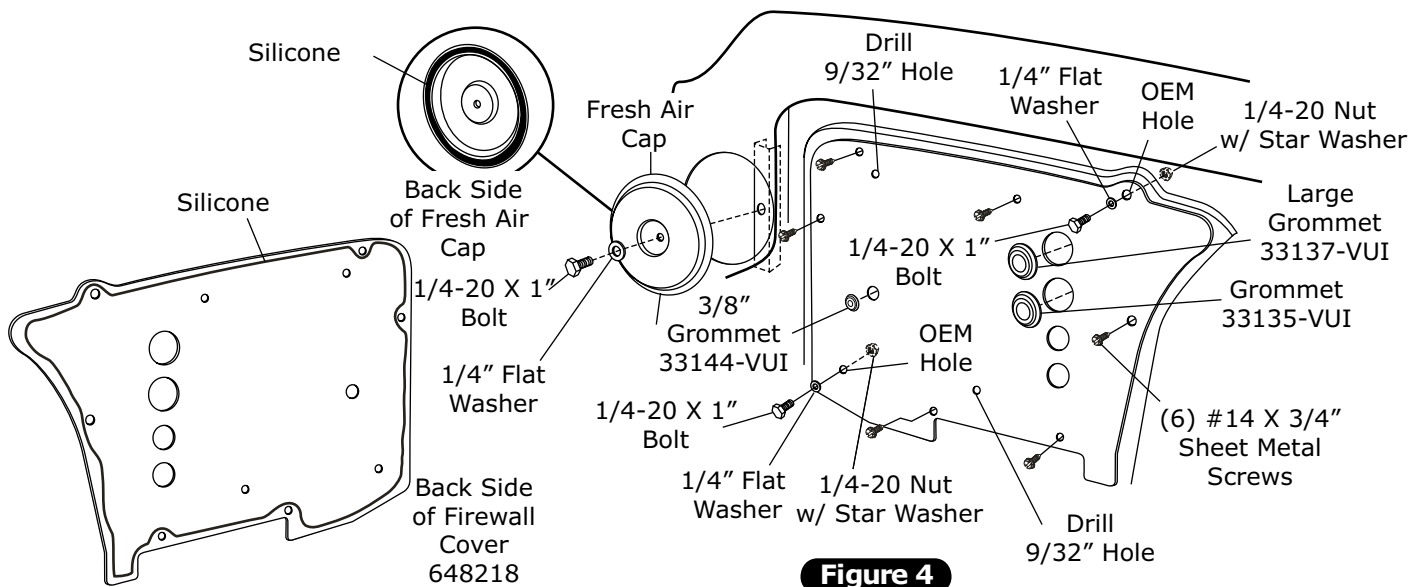


Figure 4

Bracket & Evaporator Hardline Installation

1. On a workbench, install evaporator rear bracket using (4) 1/4-20 x 1/2" hex bolts.
2. Install hardlines with properly lubricated O-rings (See Figure 9, Page 12, and Figure 6, Page 10). **NOTE: Wrap the #10 fitting connections with press tape (See Figure 6, Page 10).**
3. Install evaporator front bracket onto evaporator using (2) 1/4-20 x 1/2" hex bolts, and tighten as shown in Figure 5, below.

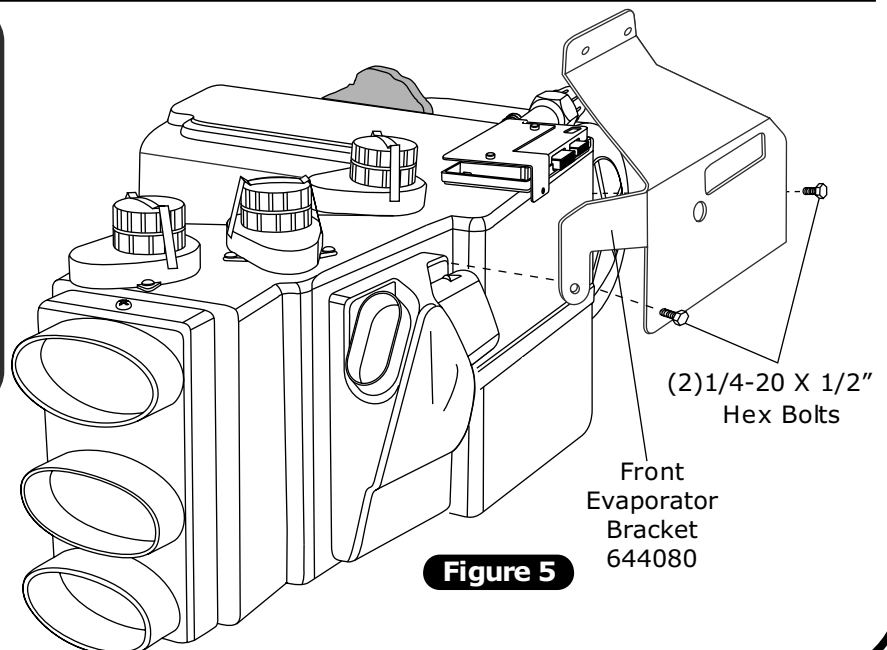
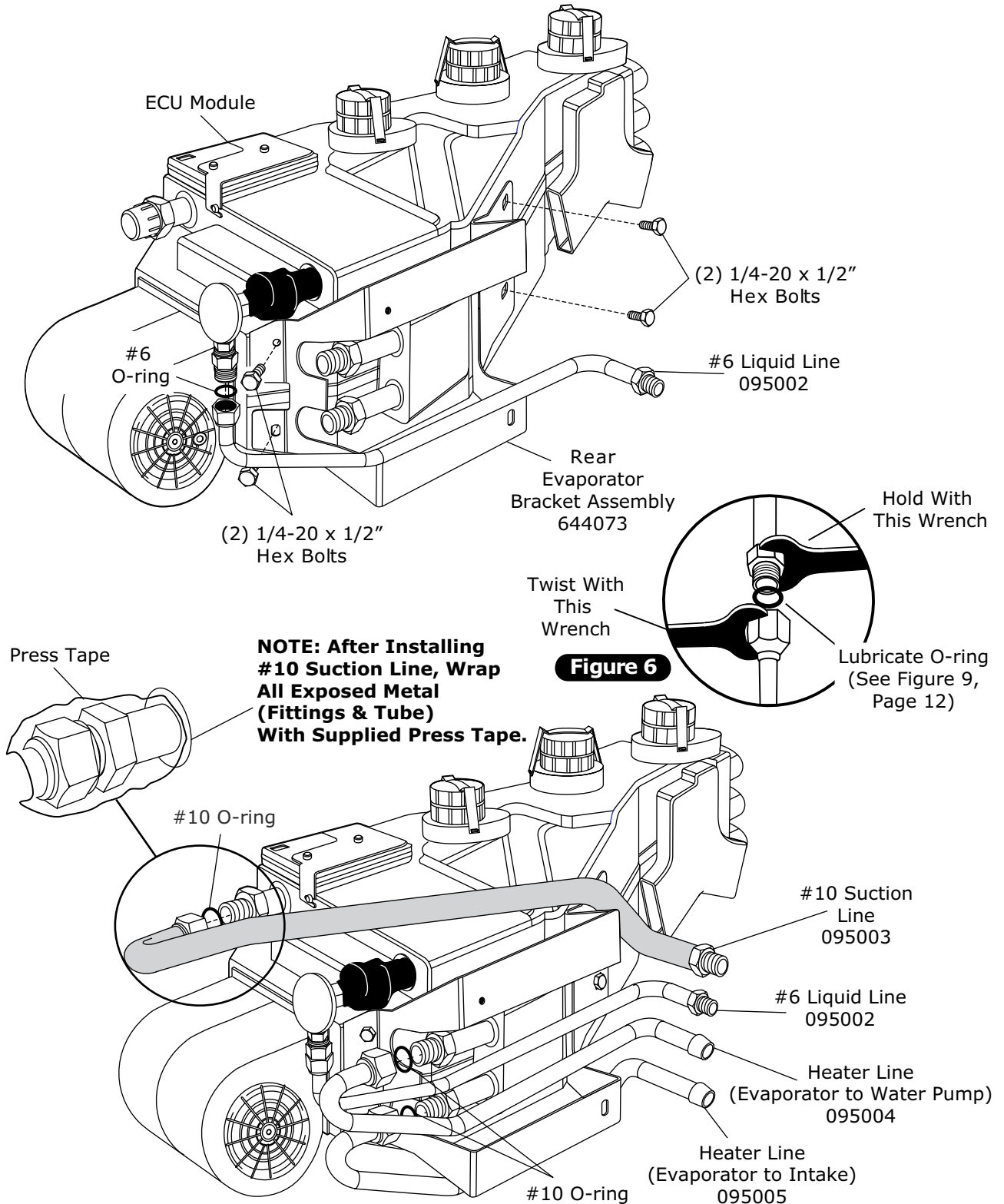


Figure 5



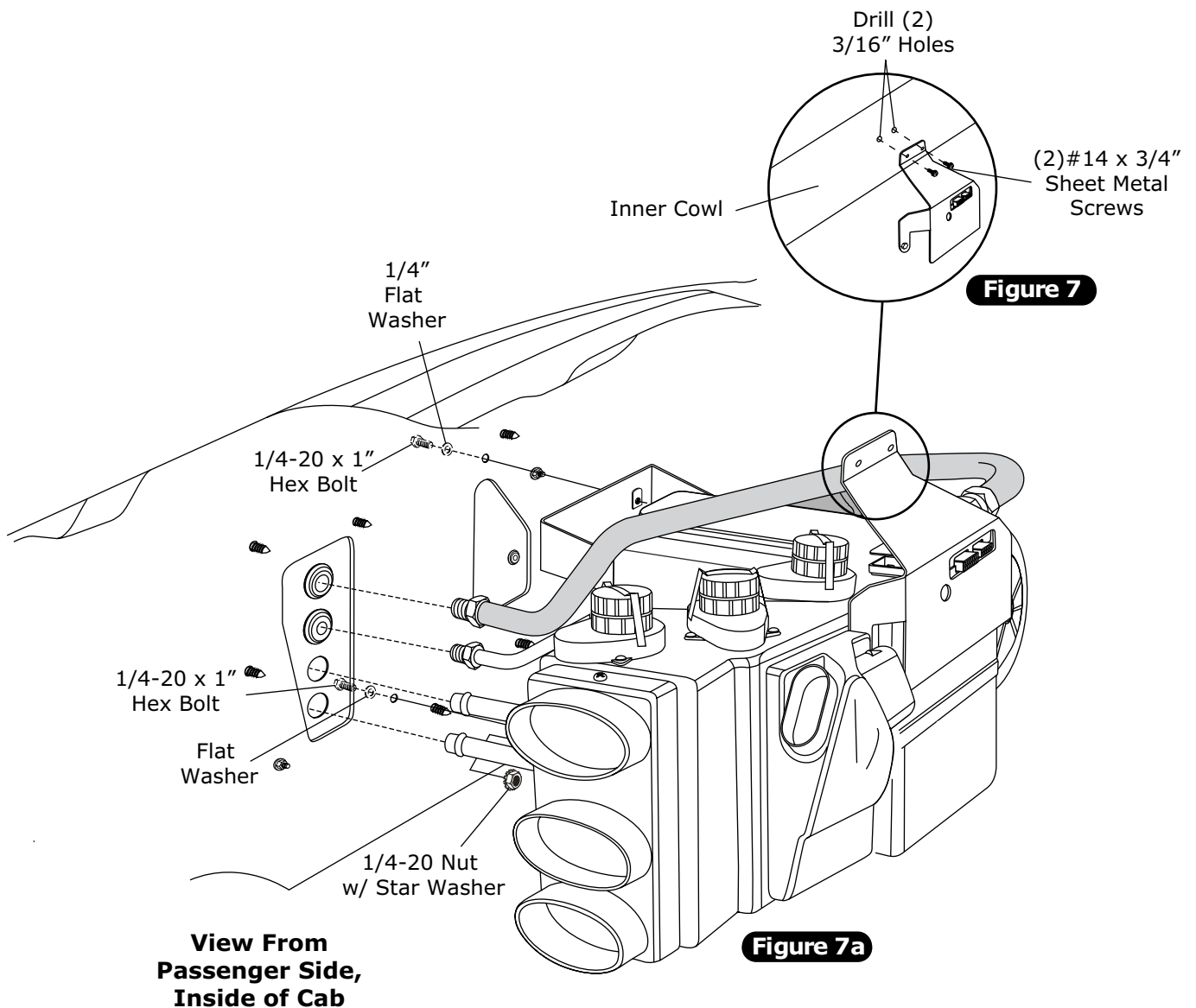
Bracket & Evaporator Hardline Installation (Cont.)





Evaporator Installation

1. Lift evaporator unit up under the dashboard, and secure loosely to the firewall using (2) 1/4-20 x 1" hex bolts, (2) flat washers and (1) 1/4-20 nut with star washer (See Figure 7, below). **NOTE: To ensure proper drainage, it is very important that the evaporator is level, both left-to-right and fore-aft. Check for level on the flat portions of the case around the drain, block the unit up, and then drill holes for front bracket screws.**
2. Secure the front evaporator mounting bracket to the cowl using (2) #14 x 3/4" hex sheet metal screws (See Figure 7a, below).
3. Verify that the evaporator unit is level and square to the dash, and then tighten all mounting bolts. **NOTE: Tighten the bolt on firewall first, and then the front mounting bracket.**





Drain Hose Installation

1. Locate evaporator drain on bottom of evaporator case.
2. In line with drain, lightly make a mark on the firewall. Measure 1" down and drill a 5/8" hole through the firewall.
3. Install drain hose to bottom of evaporator unit and route through firewall. Install 1/2" 90° drain elbow onto drain hose.

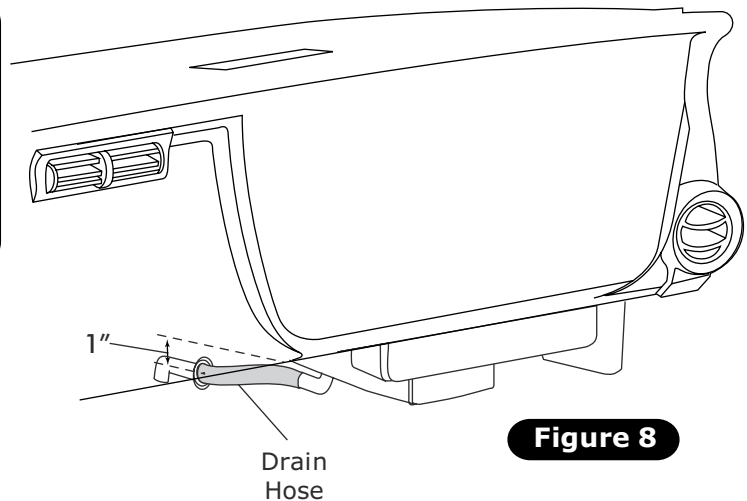
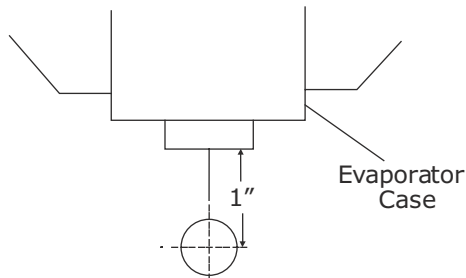
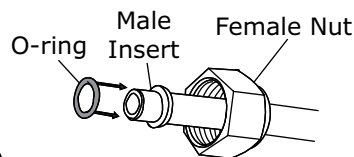
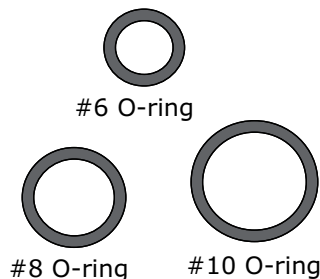


Figure 8

Lubricating O-rings



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

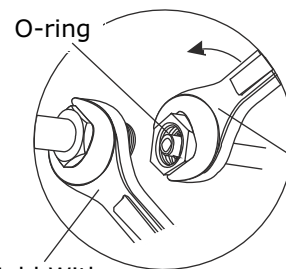
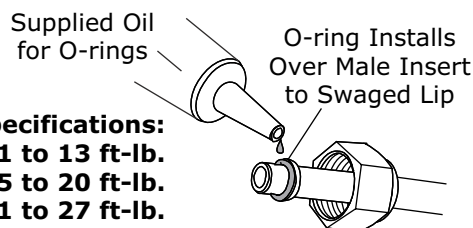


Figure 9

Twist With This Wrench

Hold With This Wrench

NOTE: Standard torque specifications:
#6: 11 to 13 ft-lb.
#8: 15 to 20 ft-lb.
#10: 21 to 27 ft-lb.

A/C Hose Installation

Standard Hose Kit:

1. Locate the #8 compressor A/C hose. Lubricate (2) #8 O-rings (See Figure 9, above) and connect the 135° female fitting with 134a service port to the #8 discharge port on the compressor. Route the straight female fitting to the #8 condenser hardline coming through the core support (See Figure 11, Page 14). Tighten each fitting connection as shown.
2. Locate the #10 compressor A/C hose. Lubricate (2) #10 O-rings (See Figure 9, 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 evaporator (See Figure 10, Page 13, and Figure 11, Page 14). Tighten each fitting connection as shown.
3. Locate the #6 evaporator A/C hose. Lubricate (2) #6 O-rings (See Figure 9, above) and connect the straight female fitting to the #6 condenser hardline coming through the core support. Route the 90° female fitting to the #6 evaporator (See Figure 10, Page 13, and Figure 11, Page 14). Tighten each fitting connection as shown.

Modified A/C Hose Kit:

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



Heater Hose and Heater Control Valve Installation

1. Route heater hose from water pump to the heater line coming through the firewall as shown in Figure 10, below. Secure using hose clamps. **NOTE: A small amount of silicone spray will ease heater hose installation.**
2. Route heater hose from the intake to the heater line coming through the firewall as shown below. **NOTE: Install heater control valve in line with intake manifold (pressure side) heater hose, and secure using hose clamps as shown. Also note proper flow direction.**
3. Hose should protrude through the firewall cover slightly to close the gap between the aluminum line and the firewall cover. Seal any remaining gap with RTV silicone.

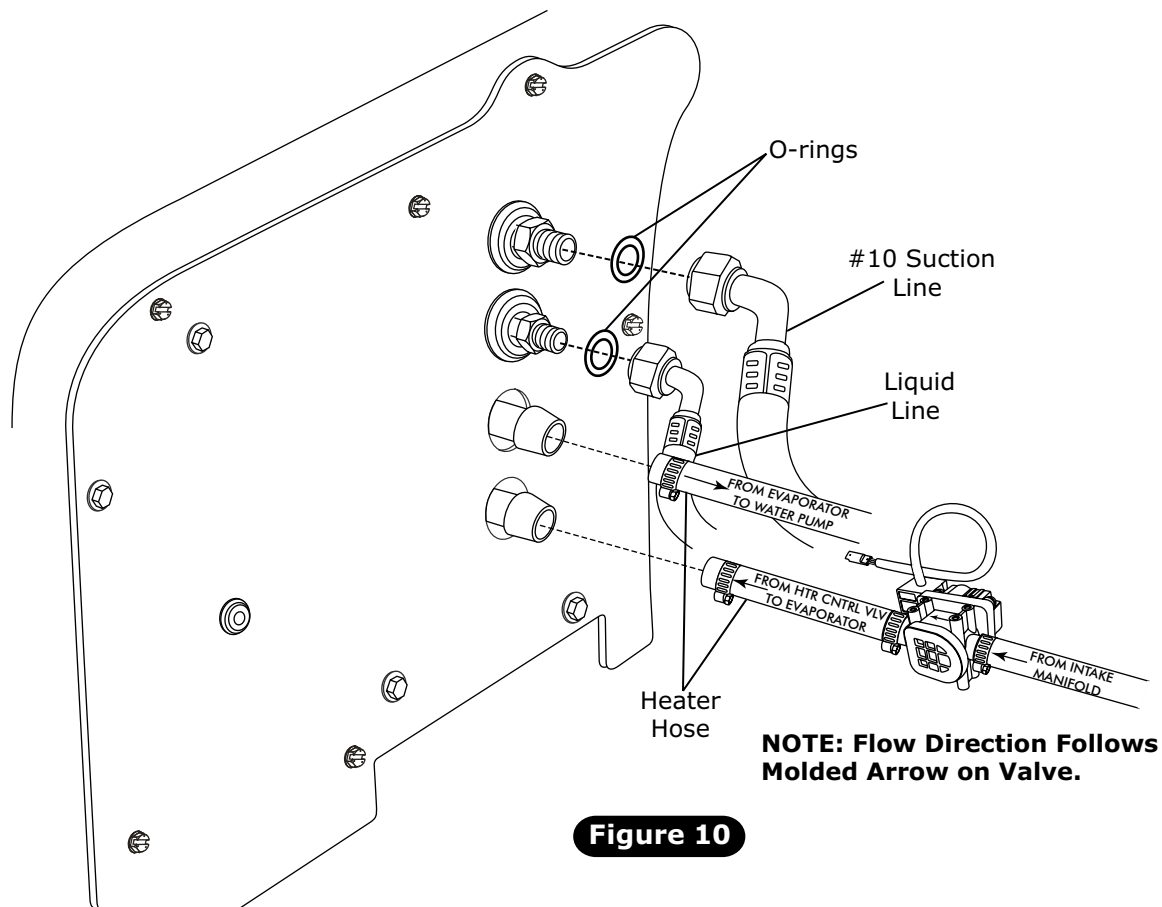
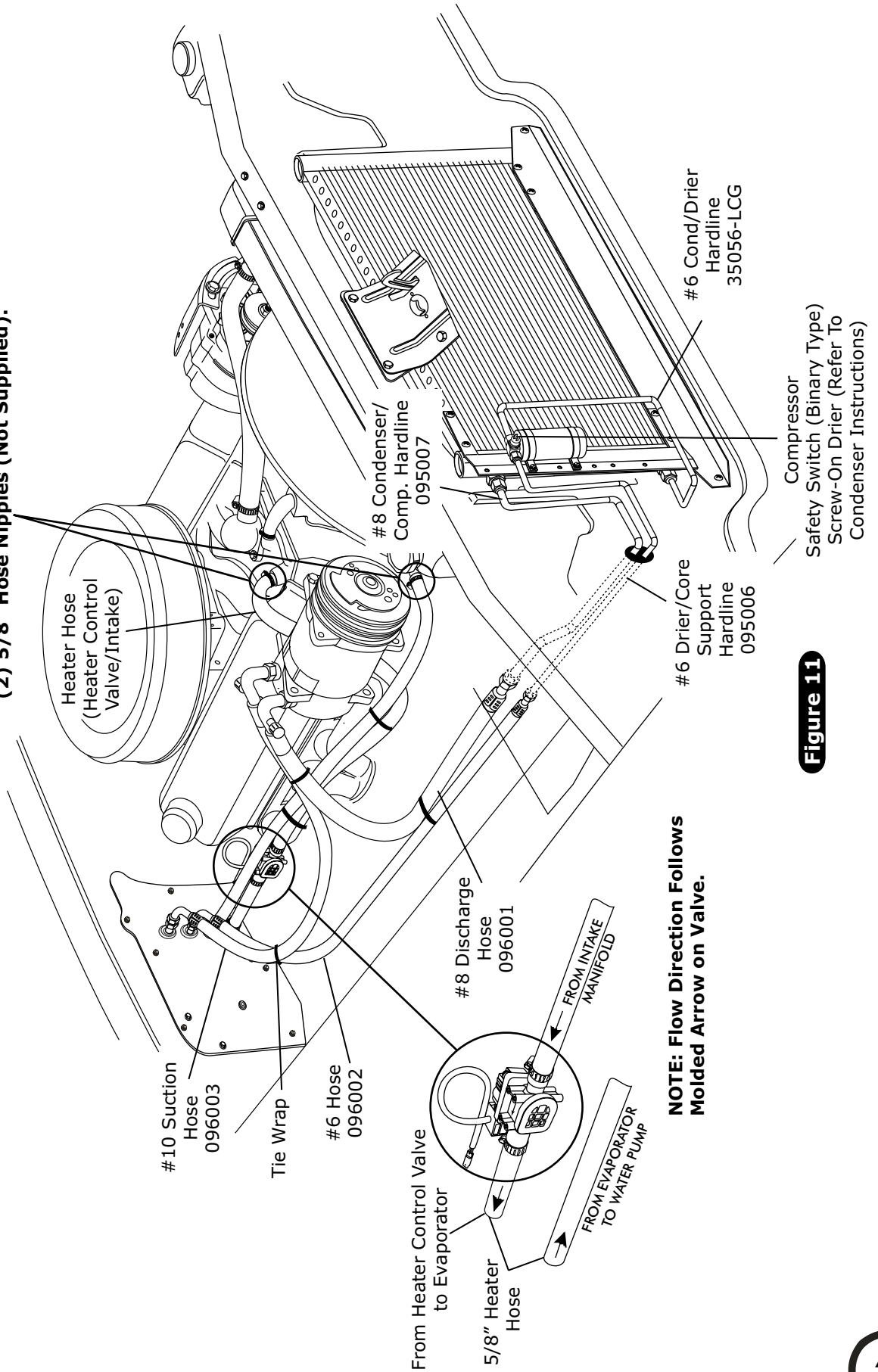


Figure 10



A/C & Heater Hose Routing

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



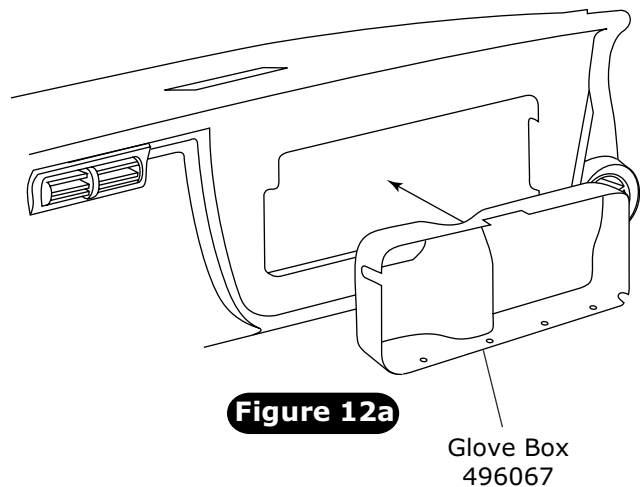
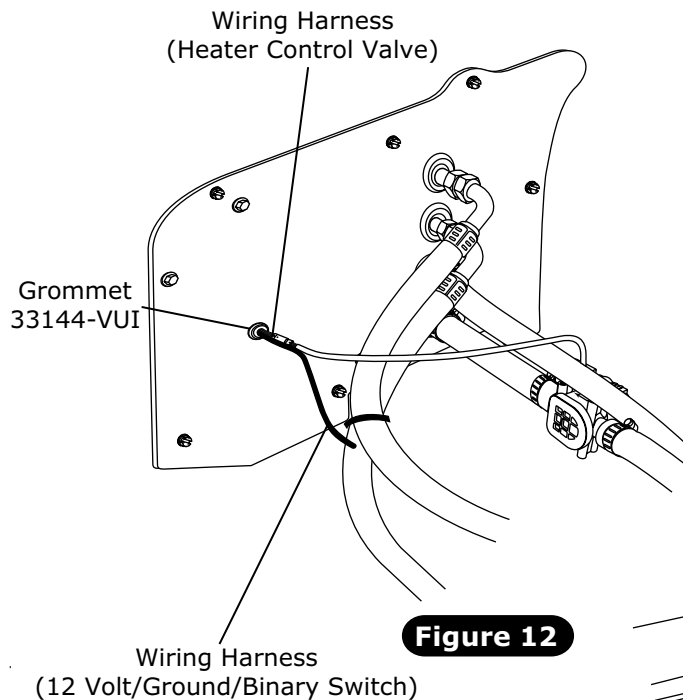
NOTE: Flow Direction Follows Molded Arrow on Valve.

Figure 11



Final Steps

1. Install duct hoses as shown in Figure 13, Page 16.
2. Route A/C wires (12 volt/ground/binary switch/heater valve) through 3/8" grommet as shown in Figure 12, below.
3. Install control panel assembly.
4. Plug the wiring harnesses into the ECU module on the sub case as shown in Figure 13, Page 16 (Wire according to wiring diagram on Pages 17 and 18).
5. Install new glove box using OEM screws (See Figure 12a, below).
6. Install glove box door.
7. Reinstall all previously removed items, including inner fender.
8. 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.
9. Double check all fittings, brackets and belts for tightness.
10. Vintage Air recommends that all A/C systems be serviced by a certified automotive air conditioning technician.
11. Evacuate the system for a minimum of 45 minutes prior to charging, and perform a leak check prior to servicing.
12. Charge the system to the capacities stated on Page 4 of this instruction manual.
13. See Operation of Controls procedures on Page 19.





Control Panel and Duct Hose Routing

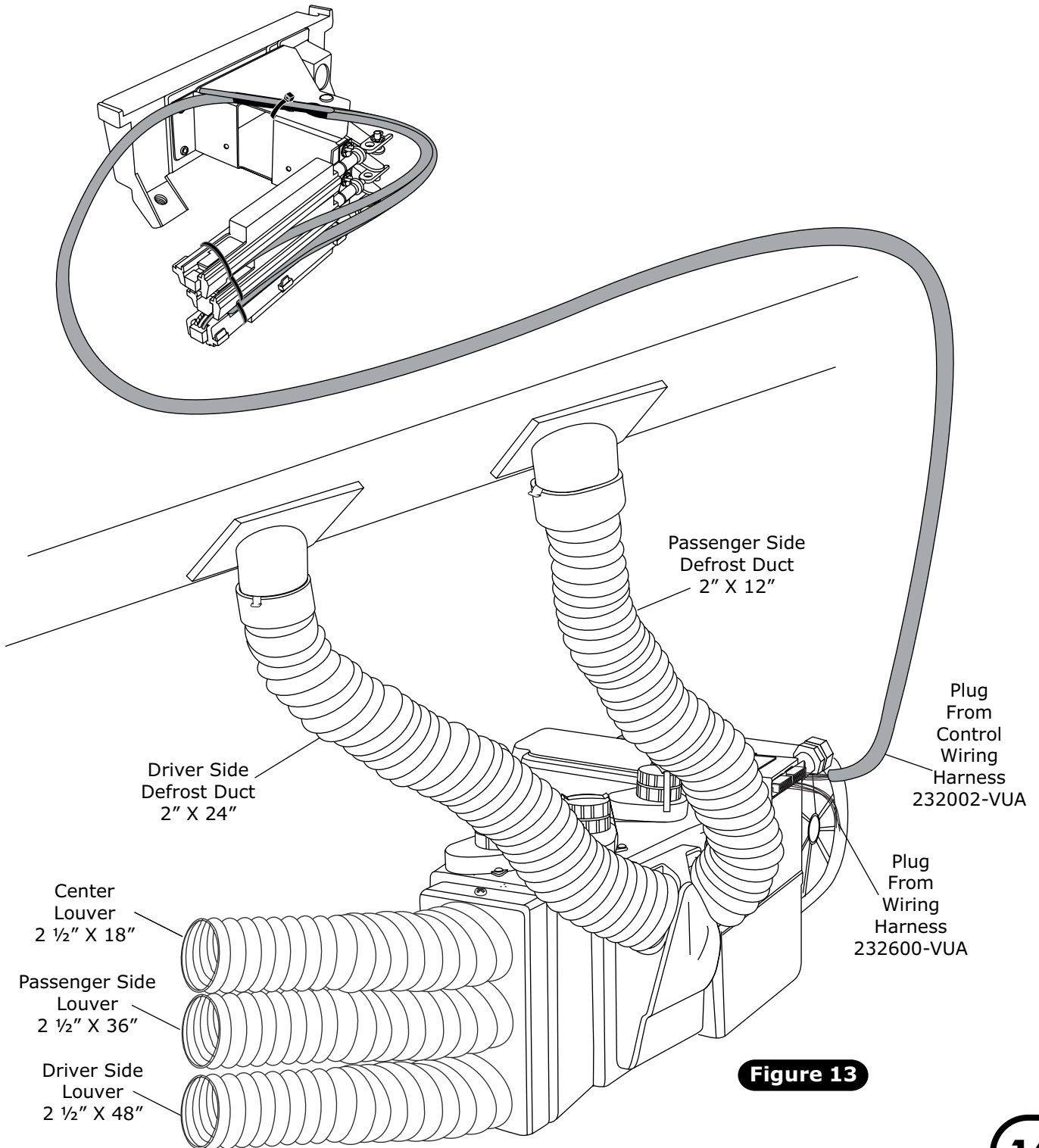
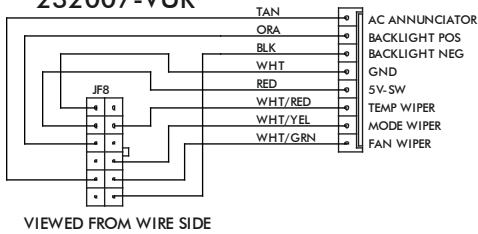


Figure 13



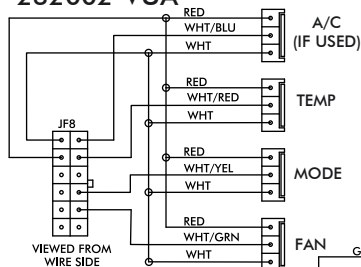
Wiring Diagram

232007-VUR



VIEWED FROM WIRE SIDE

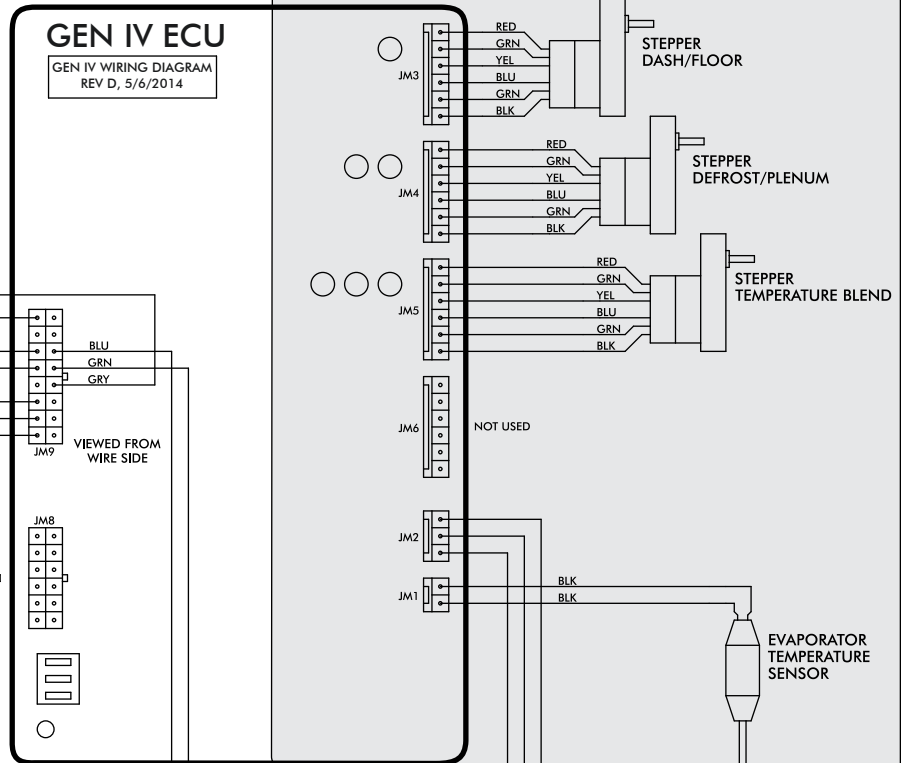
232002-VUA



VIEWED FROM WIRE SIDE

GEN IV ECU

GEN IV WIRING DIAGRAM
REV D, 5/6/2014



PROGRAM

N/A
* DASH LAMP (IF USED)

*** WIDE OPEN THROTTLE SWITCH (OPTIONAL)

IGNITION SWITCH +12v

** CIRCUIT BREAKER 30 AMP

COMPRESSOR RELAY

BINARY OR TRINARY SAFETY SWITCH

CMPR

HEATER CONTROL VALVE

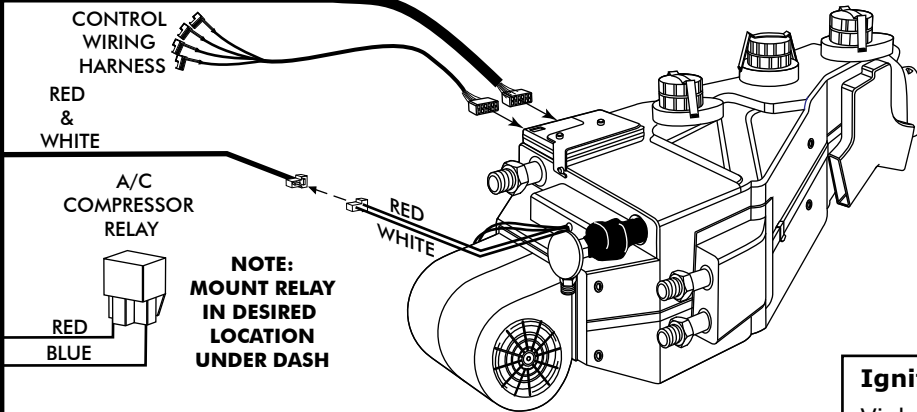
NOTE: = CHASSIS GROUND

- 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.



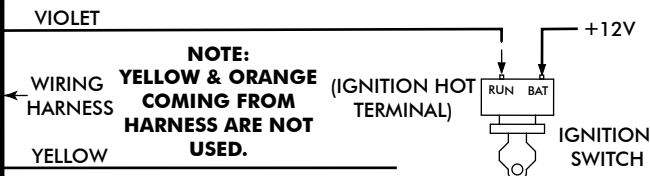
Gen IV Wiring Connection Instruction

WIRING HARNESS



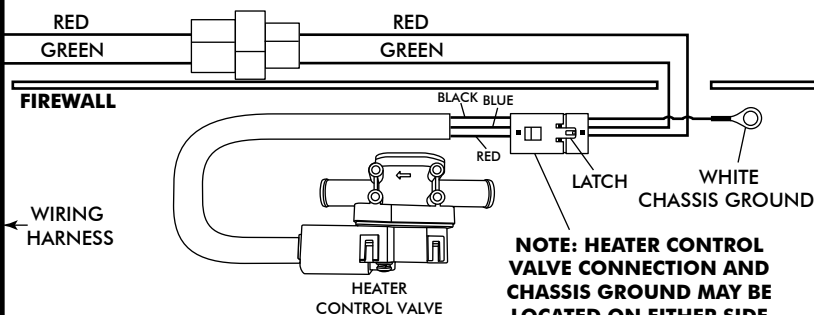
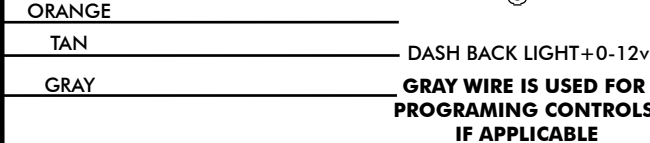
Ignition Switch:

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



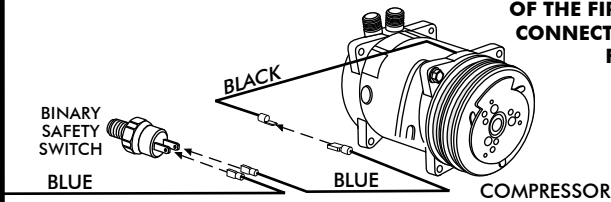
Dash Light:

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



Heater Control Valve:

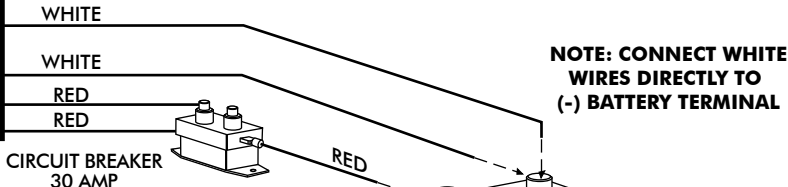
Install With Servo Motor Facing Down, As Shown. Note Flow Direction Arrow Molded Into Valve Body, And Install Accordingly.



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.

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).

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

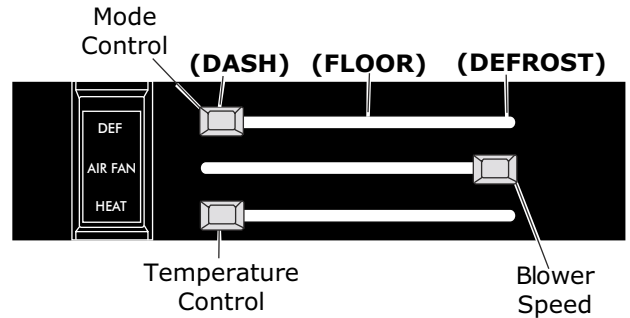
This lever/knob controls blower speed, from OFF to HI.

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.



A/C Operation

Blower Speed

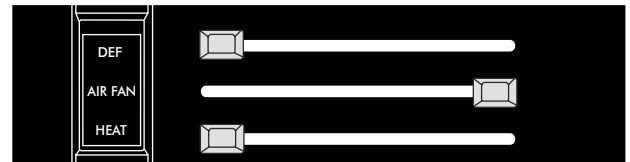
Adjust to desired speed.

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

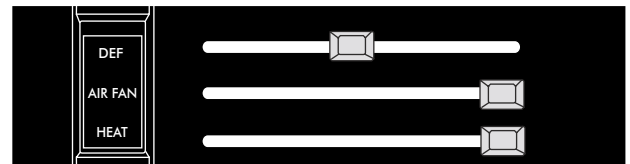
Adjust to desired speed.

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).





Troubleshooting Guide

Symptom	Condition	Checks	Actions	Notes
1a. Blower stays on high speed when ignition is on.	No other functions work.	Check for damaged pins or wires in control head plug.	Verify that all pins are inserted into plug. Ensure that no pins are bent or damaged in ECU.	Loss of ground on this wire renders control head inoperable.
	All other functions work.	Check for damaged ground wire (white) in control head harness.	Verify continuity to chassis ground with white control head wire at various points.	
			Check for damaged blower switch or potentiometer and associated wiring.	Check for damaged blower switch or potentiometer and associated wiring.
	1b. Blower stays on high speed when ignition is on or off.		Unplug 3-wire BSC control connector from ECU. If blower shuts off, ECU is either improperly wired or damaged.	Be sure the small, 20 GA white ground wire is connected to the battery ground post. If it is, replace the ECU.
Unplug 3-wire BSC control connector from ECU. If blower stays running, BSC is either 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 "ground" side of the blower is shorted to chassis ground, the blower will run on HI.	
			Replace BSC (This will require removal of evaporator from vehicle).	
2. Compressor will not turn on (All other functions work).		System is not charged.	Charge system or bypass pressure switch.	Danger: Never bypass safety switch with engine running. Serious injury can result. 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. Disconnected or faulty thermistor will cause compressor to be disabled.
		System is charged.	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.	
3. Compressor will not turn off (All other functions work).		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.	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 vary between 0V and 5V when lever is moved up or down.
		System is charged.	Check for disconnected or faulty thermistor.	
			Check for faulty A/C potentiometer or associated wiring.	
			Check for faulty A/C relay.	



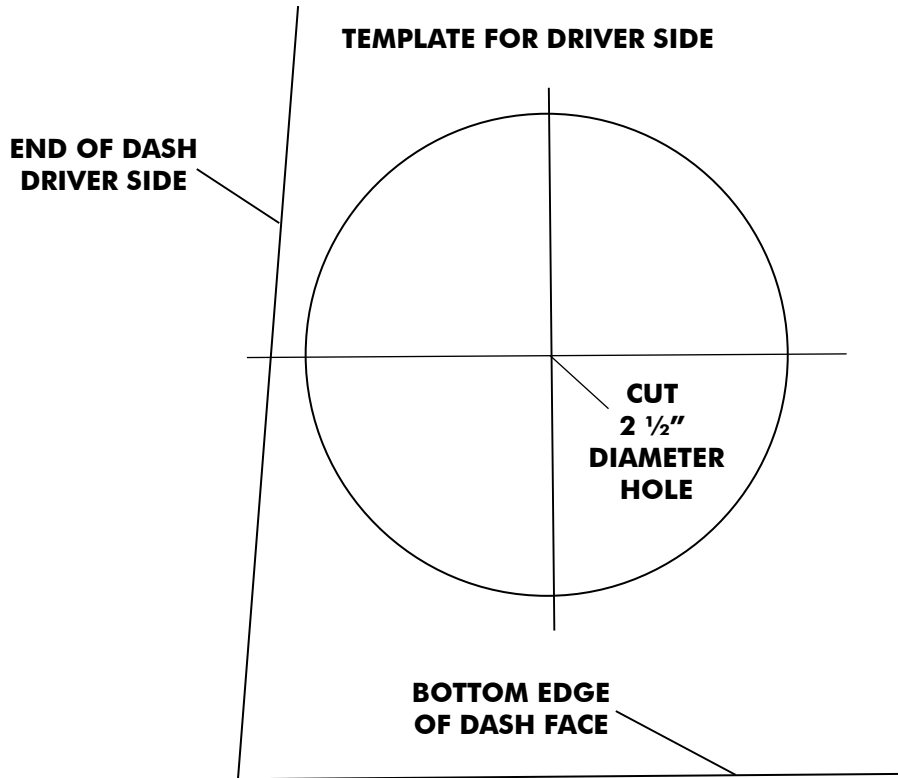
Troubleshooting Guide (Cont.)

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

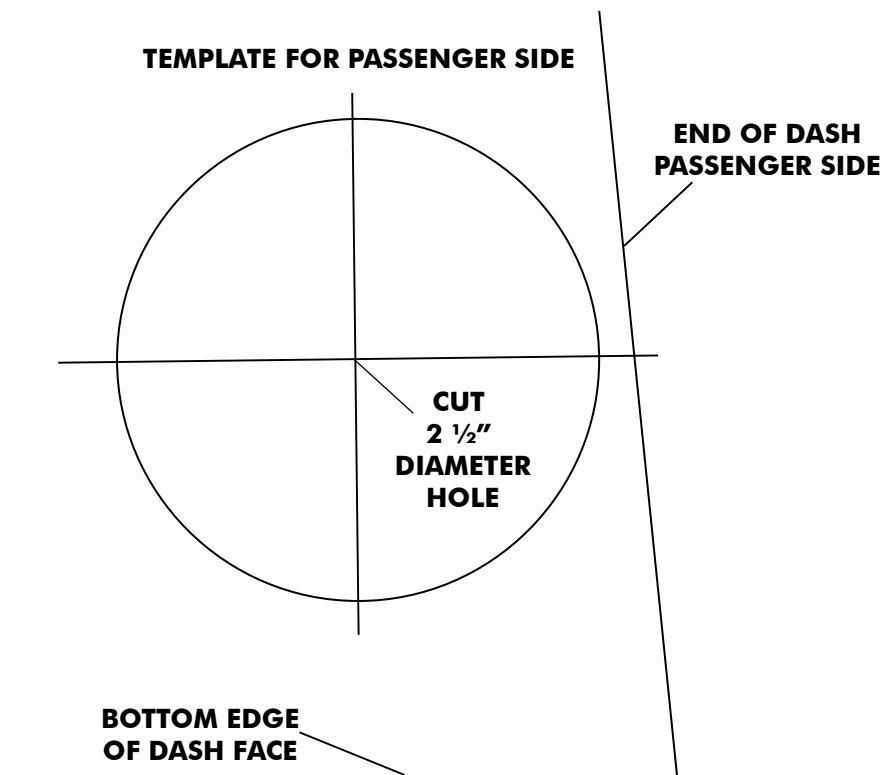


Driver/Passenger Side Louver Template

TEMPLATE FOR DRIVER SIDE

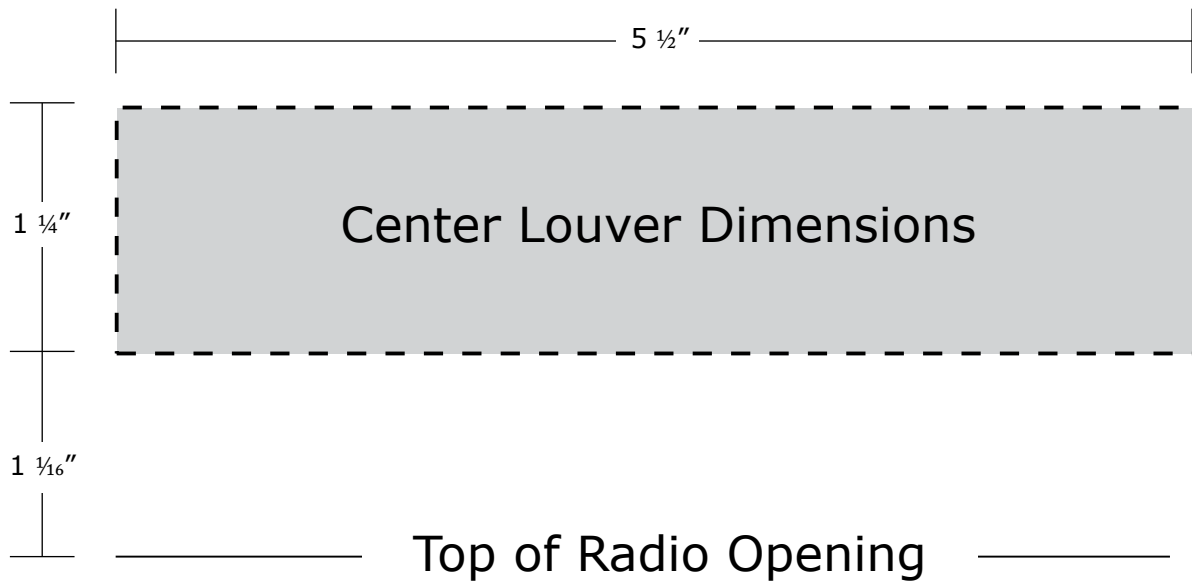


TEMPLATE FOR PASSENGER SIDE





Center Louver Dimensions





Packing List

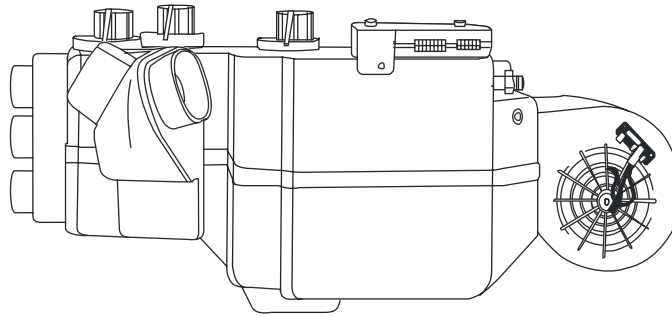
Evaporator Kit (751170)

No.	Qty.	Part No.	Description
1.	1	744005	Gen IV 3-Vent Evaporator Sub Case w/ 204 ECU
2.	1	791170	Accessory Kit 67-72 Chevy Pickup without A/C

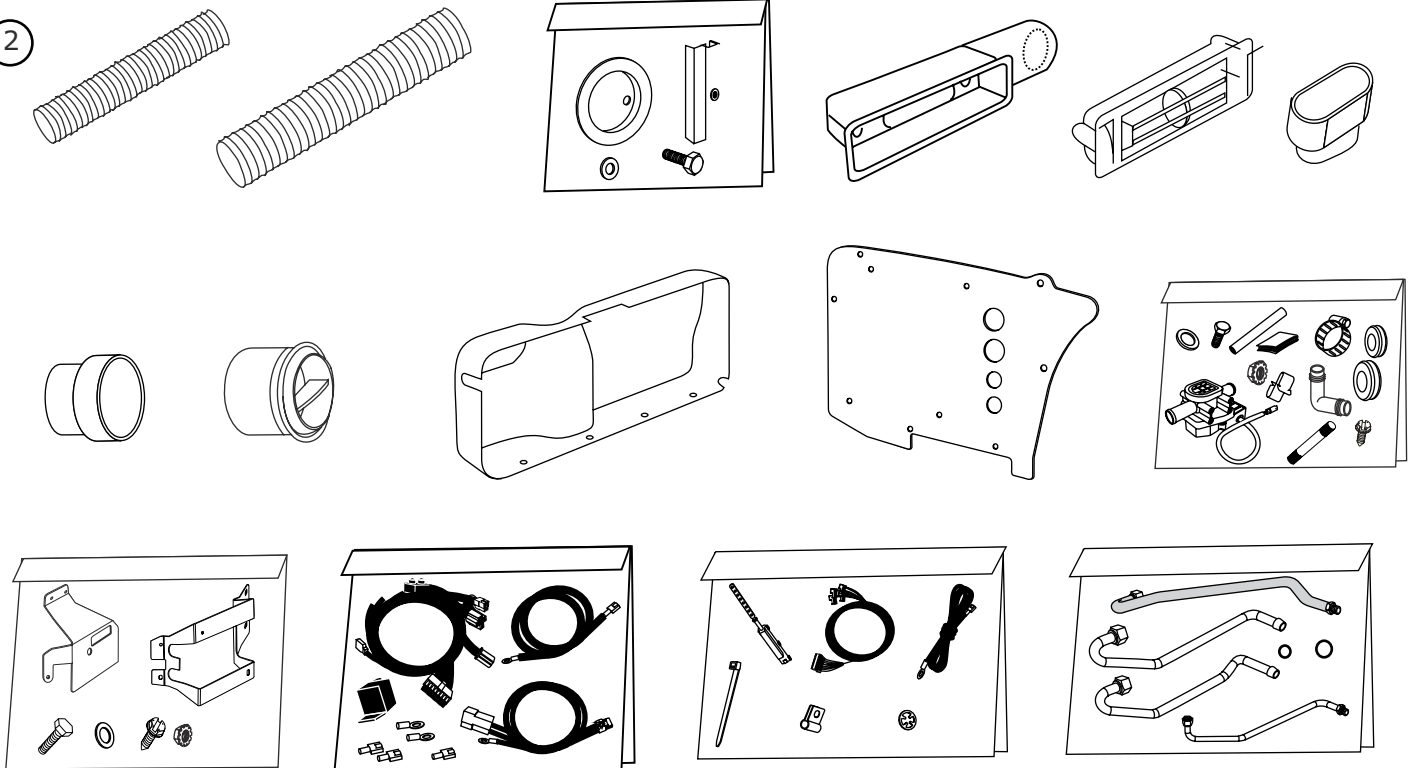
Checked By: _____
 Packed By: _____
 Date: _____

①

**Gen IV 3-Vent
Evaporator Sub Case
w/ 204 ECU
744005**



②



**Accessory Kit
791170**

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