

# 1973-79 Ford F-Series/ 1978-79 Bronco

with Factory Air Evaporator Kit (754160)



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# Packing List: Evaporator Kit (754160)

No.	Qty.	Part No.	Description
1.	1	744004-VUE	Gen IV Evaporator Sub Case
2.	1	794160	Accessory Kit

\*\* 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.

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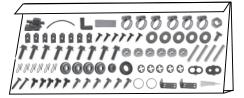
Gen IV Evaporator Sub Case 744004-VUE











Accessory Kit 794160 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. (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 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 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.



# Engine Compartment Disassembly

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

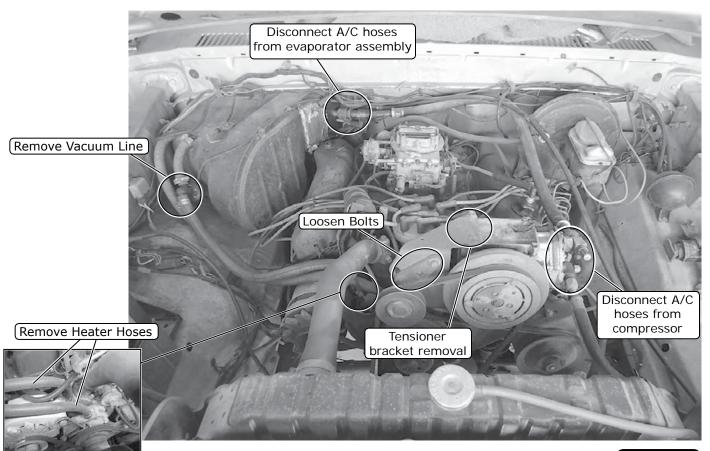
#### Perform the Following:

- 1. Evacuate the A/C system (if necessary).
- 2. Disconnect the battery.
- 3. Place a jack stand under the axle bar on the passenger side of the vehicle (See Photo 1, below), and remove the passenger side front tire.
- 4. Drain the radiator.
- 5. Remove the vacuum line from the OEM heater control valve (See Photo 2, below).
- 6. Remove the (2) heater hoses from the heater core, then at the intake and water pump (discard) (See Photo 2, below).
- 7. Disconnect the A/C hoses from the evaporator blower assembly and compressor (See Photo 2, below).

Place jack stand under axle bar



Photo 1

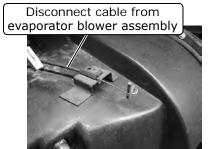




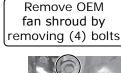
# Engine Compartment Disassembly (Cont.)

- 8. Disconnect the cable from the evaporator blower assembly (See Photo 3, below).
- 9. Temporarily remove the vacuum elbow from the passenger side valve cover (See Photo 4, below). NOTE: Removing the vacuum elbow temporarily prevents it from being damaged, and makes it easier to the remove the blower housing.
- 10. Remove the OEM fan shroud by removing (4) bolts, ((2) on each side) (See Photo 5, below).
- 11. Remove the radiator cooling fan by removing (4) bolts from the fan (See Photo 6, below).
- 12. Disconnect the A/C hoses from the A/C compressor (See Photo 2, Page 6).
- 13. Loosen the (2) bolts on the A/C compressor drive belt tensioner, and remove the belt (See Photo 2, Page 6).
- 14. Loosen the alternator adjustment bolts and remove the belt (See Photo 7, below).
- 15. Loosen the power steering adjustments and remove the belt (See Photo 8, below).
- 16. Remove the water pump pulley (See Photo 9, below).
- 17. Remove the A/C belt tensioner bracket by removing (5) bolts (See Photo 2, Page 6).
- **18.** Remove (4) compressor bracket bolts located under the compressor.
- **19**. Remove the (3) compressor base mounting bolts.

Photo 3







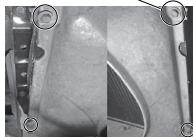


Photo 5

Photo 4

Remove radiator cooling fan by removing (4) bolts from fan

and remove belt





Loosen power steering adjustments



Loosen alternator adjustment bolts and remove belt

Photo 7



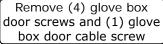
Remove water pump pulley

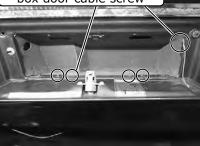


# Passenger Compartment Disassembly

#### Perform the Following:

- 1. Remove (4) glove box door screws and (1) glove box door cable screw (See Photo 1, below), then remove the glove box door (retain door and hardware).
- 2. Remove (4) glove box mounting screws and remove the glove box from the dash (discard) (See Photo 2, below).
- 3. Remove (4) nuts and (2) screws from the OEM evaporator blower housing (See Photos 3 and 4, below), then remove the blower door cover (See Photo 5, below) (discard).
- 4. Remove (3) screws from the fresh air duct assembly on the passenger side kick panel and remove the fresh air boot (See Photo 6, below) (discard).
- 5. Remove the passenger side A/C duct (See Photo 7, below) NOTE: S-clips hold duct to louver.
- 6. Remove (2) duct adapter screws and separate the adapter from the housing, then remove vacuum and duct hoses. Remove the duct adapter (See Photo 8, below) (discard).
- 7. Remove (2) bolts from the firewall (See Photo 9, below).





Remove (4) mounting screws and remove glove box from dash

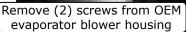


Remove (4) nuts from OEM evaporator blower housing

Photo 1

Photo 2

Photo 3





Remove blower door cover



Photo 5

Remove (3) screws from fresh air duct assembly and remove fresh air boot



Photo 6



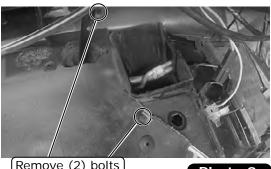
Photo 7



Remove (2) duct adapter screws



Photo 8



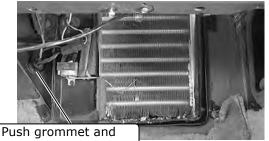
Remove (2) bolts from firewall

Photo 9



# Passenger Compartment Disassembly (Cont.)

- 8. Unplug the wiring connections, then push the grommet and wiring through the firewall into the engine compartment (See Photo 10, below).
- 9. Push the heater core housing into the engine compartment, and remove it from the vehicle.
- **10**. Remove radio knobs and mounting hardware, then the headlight and wiper knobs (See Photos 11 and 12, below).
- 11. Remove (5-7) gauge cluster bezel screws (depending on model) (retain) (See Photo 13, below).
- 12. Disconnect the light for the headlight and wiper knobs (See Photo 14, below).
- **13**. Disconnect the driver side A/C duct hose, and remove the bezel from the vehicle.
- **14**. Remove the (4) gauge cluster mounting screws (See Photo 15, below) (retain), then unplug the wiring and speedometer connections from the back of the cluster. Remove from the vehicle.
- **15**. Remove the (4) control panel mounting screws (discard), disconnect all plugs, cables and remove the control panel from the vehicle (See Photo 16, below).
- **16.** Remove the (4) control panel/radio mounting bracket screws. Unplug the radio connections and remove the radio from the vehicle (See Photo 17, below). **NOTE: This is to gain access for the installation**.
- 17. Disconnect the center louver duct hose from the duct system and center louver.
- 18. Remove screw from the bottom center duct bracket (See Photo 18, below).



Push grommet and wiring through firewall into engine compartment



Photo 11



Remove (4) gauge cluster screws (retain)

Photo 12

Remove (5-7) gauge bezel screws

Photo 10



Photo 13



Photo 14

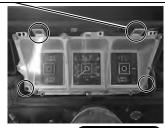


Photo 15

Remove (4) control panel mounting screws (discard), then disconnect all plugs and cables



Photo 16

Remove (4) control panel/ radio mounting bracket screws then unplug radio connections



Photo 17

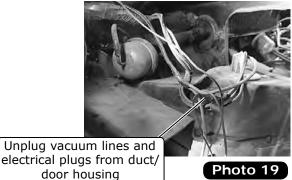


Photo 18



# Passenger Compartment Disassembly (Final)

- 19. Unplug the vacuum lines and electrical plugs from the duct/door housing, then remove from the underdash (See Photo 19, below).
- 20. Remove the (2) driver side air duct screws and remove the duct from the vehicle (See Photo 20, below).
- 21. Remove the (2) screws from the driver/passenger defrost vents to remove the defrost plenum (See Photos 21 and 22, below). NOTE: Vacuum lines and wiring are no longer needed.



Remove (2) driver side air duct screws

Remove (2) screws from

driver/passenger defrost vents to remove defrost plenums

Photo 21

Photo 22

Photo 20

# 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 bracket.



# Passenger Side Wheel Well Modification

- 1. Locate the passenger side inner fender kick panel grommet. Follow step "a" if there is a grommet and/or opening. Follow step "b" if the truck does not have a grommet and/or opening.
  - a. Remove the passenger side inner fender kick panel grommet (See Photo 1, below). Locate the firewall A/C hose cover plate and center it onto the passenger side inner fender kick panel opening. Using the cover plate as a template, mark and drill (2) 5/32" mounting holes (See Photo 2, below).
  - b. Locate the firewall A/C hose cover plate. Measure down from the body seam 4' (See Photos 3 and 4, below) and from the side body seam 1/2" (See Photo 5, below). Secure the cover plate in place as shown in Photo 6, below. Mark the (4) holes. The (2) mounting holes will be drilled using a 5/32" drillbit and the (2) A/C hose openings will be drilled to 1 1/4" (See Photo 7, below).

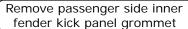




Photo 1

Measure down 4 from body seam Body Seam Measure down from body seam 4'



Firewall A/C Hose Cover Plate 646954

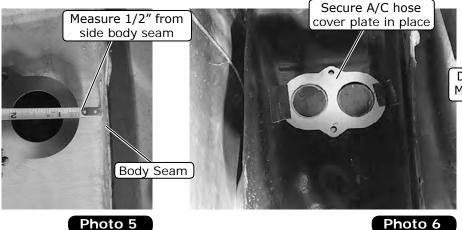
> Mark and drill (2) 5/32" mounting hole

Photo 3

Photo 4

Firewall A/C Hose **Cover Plate** 646954

Photo 2



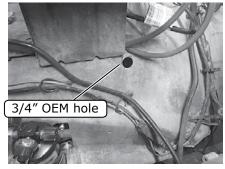
Drill (2) 5/32" Mounting holes Drill (2) 1 1/4" A/C hose openings

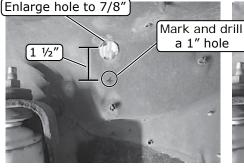


# Engine Compartment, Passenger Side Inner Fender Modification

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- 1. On the passenger side inner fender under the battery tray, locate a 3/4" OEM hole (See Photo 1, below). Enlarge the hole to 7/8" to accommodate the #10 A/C hose bulkhead fitting (See Photo 2, below).
- 2. Directly under the recently enlarged hole, measure from the middle of the hole 1 ½" down, then mark and drill a 1" hole to accommodate the #6 A/C hose grommet (See Photos 2 and 3, below).







**Engine Side** 

Photo 1

Wheel Well Side

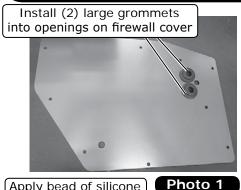
Photo 2

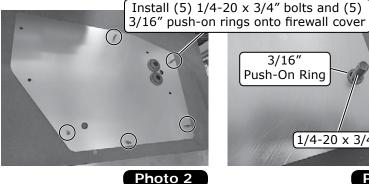
Wheel Well Side

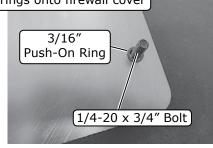
Photo 3

#### Firewall Cover Installation

- 1. Install (2) large grommets into the openings on the firewall cover (See Photo 1, below). NOTE: Verify correct side of grommet is installed as shown in Photo 1, below.
- 2. Install (5) 1/4-20 x 3/4" bolts and (5) 3/16" push-on rings onto the firewall cover as shown in Photos 2 and 3, below.
- 3. Apply a bead of silicone to the mating surface of the firewall cover (See Figure 1, below).
- 4. Install the firewall cover from the engine compartment (See Photo 4, below), and secure it from inside the passenger compartment using (5) 1/4" USS flat washers and (5) 1/4-20 nuts with star washers (See Photo 5, below). NOTE: Ensure the mounting holes are aligned before tightening the mounting hardware.







Apply bead of silicone to mating surface of firewall cover

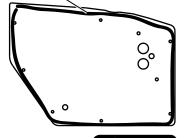


Figure 1

Install firewall cover from





(5) 1/4-20 Nuts with Star Washers

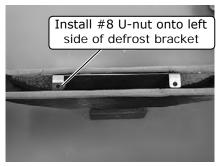


#### Firewall Insulation

NOTE: For proper operation of the evaporator unit, Vintage Air recommends using heat-blocking insulation in the area around the subcase (firewall, inner cowl and kick panel). Due to tight clearance for the evaporator unit between the firewall and dash, Vintage Air recommends an insulation thickness of no more than 1/4".

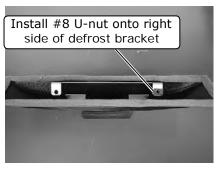
#### **Defrost Duct Installation**

- On the driver side defrost duct, install a #8 U-nut onto the left side of the defrost bracket as shown in Photo 1, below.
- 2. On the passenger side defrost duct, install a #8 U-nut onto the right side of the defrost bracket as shown in Photo 2, below.
- 3. Install the driver and passenger side defrost ducts, and secure them using (2) ((1) per side) #8 x 1" screws in the OEM defrost mounting holes (See Photo 3, below).



**Driver Side Defrost Duct** 

Photo 1



Passenger Side Defrost Duct

Photo 2

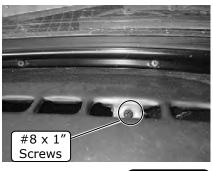
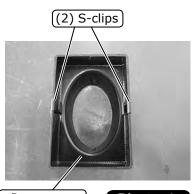


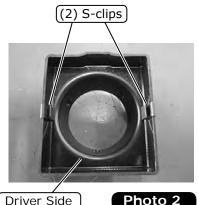
Photo 3

# Louver Hose Adapter Installation

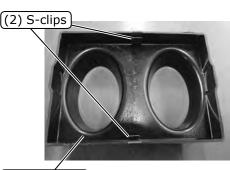
 Install the S-clips onto the driver/passenger and center louver hose adapters as shown in Photos 1, 2 and 3, below.



Passenger Side Louver Hose Adapter 592970 Photo 1



Driver Side Photo 2
Louver Hose



Dual Center OEM Louver Hose Adapter 592972 Photo 3

Adapter

592971



# Louver Hose Adapter Installation (Cont.)

2. Install the hose adapters onto the OEM dash louvers as shown in Photos 4-9, below.



Passenger Side Photo 4



Passenger Side Photo 5



**Center Louver** Photo 6



Photo 7

**Center Louver** 



**Driver Side** 



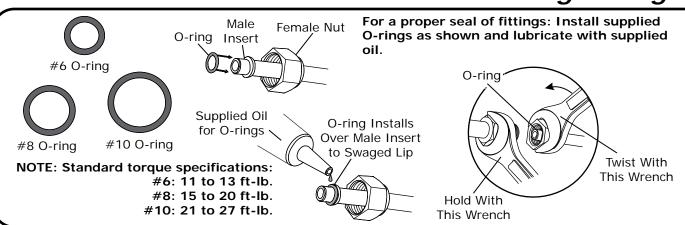
Photo 8

**Driver Side** 



Photo 9

# Lubricating O-rings

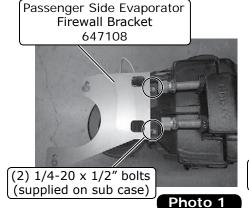




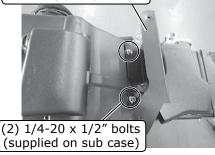
# **Evaporator Preparation**

#### On a workbench, perform the following:

- 1. Install the passenger side evaporator firewall bracket onto the evaporator using (2)  $1/4-20 \times 1/2''$  bolts (supplied on the evaporator sub case) (See Photo 1, below).
- 2. Install the driver side evaporator firewall bracket using (2) 1/4-20 x 1/2" bolts (supplied on the evaporator sub case) (See Photo 2, below).
- 3. Install the #10 upper and lower heater hardlines onto the evaporator unit with properly lubricated #10 O-rings (See Lubricating O-rings, on Page 14 and Photo 3, below). NOTE: The sub case is shipped under pressure. When removing the caps from the sub case, be careful and ensure the rubber inserts are removed! Do not fully tighten the hardlines until all lines are in the proper position for installation.
- 4. Install (4) 1/4-20 x 1 ½" full-length studs into the weldnuts of the evaporator firewall brackets (See Photos 4 and 5, below).
- 5. Temporarily place the firewall cover onto the evaporator bracket (See Photo 6, below). Center the hardlines, then remove the firewall cover and tighten the hardlines.
- 6. Install (2) #8 U-nuts onto the evaporator dash bracket (See Photo 7, below).







#10 Upper Heater Hardline

082081

#10 Lower Heater Hardline 082082

Photo 3

(4) 1/4-20 x 1 ½" Full-Length Studs

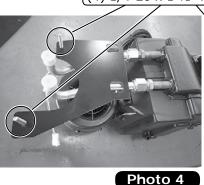
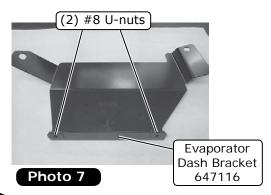


Photo 5

Firewall Cover 647110 Photo 6

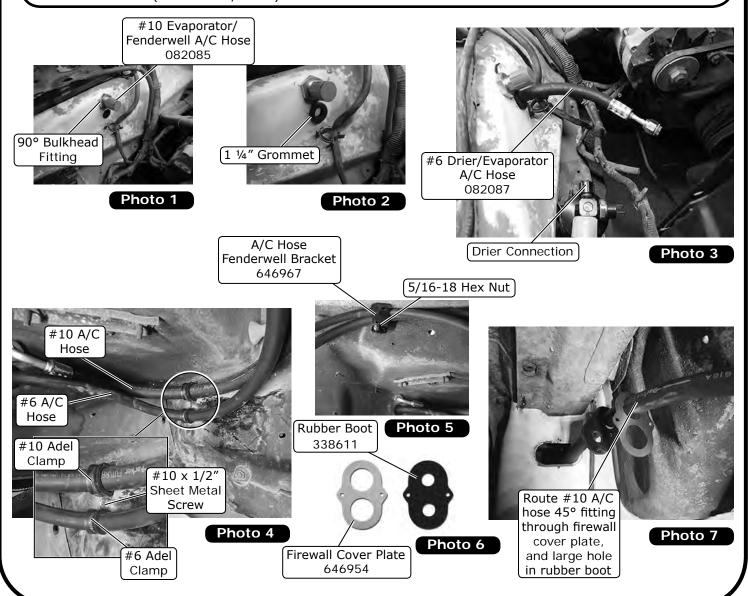




# A/C Hose Routing & Kick Panel Cover Installation

NOTE: Soapy water may be used to ease insertion of the A/C hoses through the grommets, but be sure the hoses are capped to prevent water from getting inside.

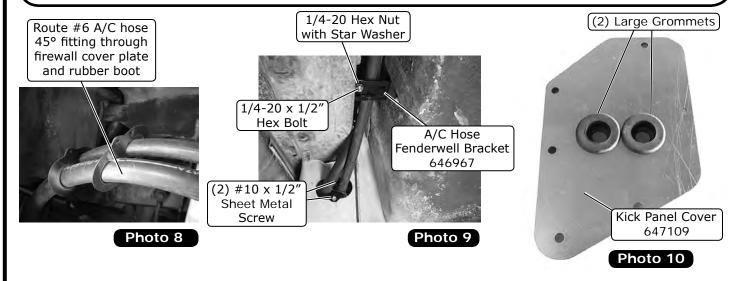
- 1. Locate the #10 evaporator/fenderwell A/C hose, and install the end of the hose with the 90° fitting through the inner fenderwell (See Photo 1, below). **NOTE: The 90° bulkhead fitting will restrict the A/C hose from going through the inner fenderwell**.
- Locate the 1 ¼" grommet and install it into the inner fenderwell under the #10 bulkhead fitting (See Photo 2, below).
- 3. Locate the #6 drier/evaporator A/C hose and route the straight fitting from under the fenderwell through the grommet into the engine compartment (See Photo 3, below). **NOTE: Ensure that the straight fitting reaches the drier connection**.
- **4.** Secure the #10 and #6 A/C hoses to the core support using the #10 and #6 Adel clamps with #10 x 1/2" sheet metal screws (See Photo 4, below).
- **5.** Route the (2) A/C hoses into the channel on the inner fender, and install an A/C hose fenderwell bracket onto the OEM bolt using a 5/16-18 hex nut (See Photo 5, below).
- 6. Locate the firewall A/C hose cover plate and rubber boot (See Photo 6, below).
- **7**. Route the #10 A/C hose 45° fitting through the firewall A/C hoses cover plate, and through the large hole in the rubber boot (See Photo 7, below).

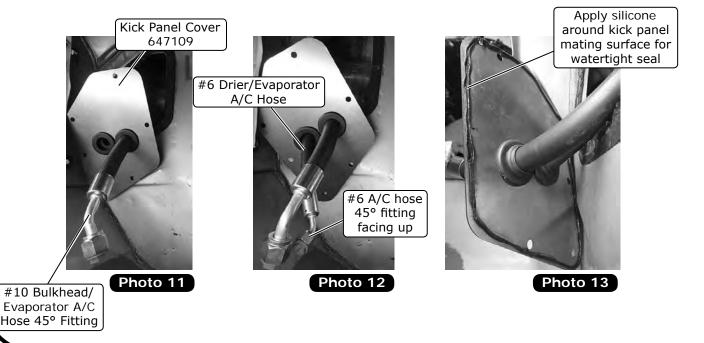




A/C Hose Routing & Kick Panel Cover Installation (Cont.)

- 8. Route the #6 A/C hose 45° fitting through the firewall cover plate and rubber boot (See Photo 8, below).
- 9. Route the #6 and #10 A/C hoses through the kick panel opening into the passenger compartment.
- **10**. Install an A/C hose fenderwell bracket using a 1/4-20 x 1/2" hex bolt and 1/4-20 nut with star washer through the OEM hole on the inner fender (See Photo 9, below).
- **11.** Secure the rubber boot and firewall cover plate to the firewall using (2) #10 x 1/2" sheet metal screws into the previously drilled 5/32" holes in the inner fender kick panel grommet location (See Photo 9, below).
- **12**. Locate the kick panel cap and install (2) large grommets (See Photo 10, below). **NOTE: Verify the correct side of the grommet is installed.**
- **13**. Route the #10 evaporator/fenderwell A/C hose 45° fitting through the right side grommet in the kick panel cover (See Photo 11, below).
- 14. Route the #6 drier/evaporator A/C hose 45° fitting through the left side kick panel grommet (See Photo 12, below). NOTE: Be sure that the 45° fitting is facing up as shown in Photo 12, below.
- 15. Apply silicone around the kick panel cover mating surface for a watertight seal (See Photo 13, below).

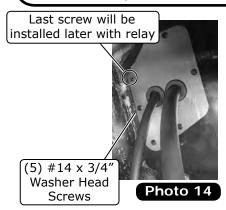






# A/C Hose Routing & Kick Panel Cover Installation (Final)

- 16. Install the kick panel cover onto the kick panel opening, and secure it using (5)  $\#14 \times 3/4$ " washer head screws (See Photo 14, below). NOTE: The last screw will be installed later with the relay.
- 17. Secure the A/C hoses to the fenderwell brackets using the supplied tie wraps (See Photos 15 and 16, below).



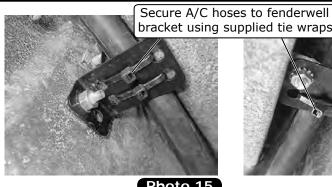




Photo 15

Photo 16

# **Evaporator Installation**

NOTE: A board cut between 12" to 13 1/2" may be used between the firewall and the dash to provide space to install the evaporator unit (See Photo 1, below).

- 1. Remove the (2) dash mounting bolts ((1) in the center of lower dash (See Photo 2, below), and (1) on the passenger side in the upper right corner next to the kick panel opening (See Photo 3, below)). NOTE: This will be necessary to provide extra space when installing the evaporator unit.
- 2. Place the evaporator unit on the passenger floorboard, and connect the #6 A/C hose 45° fitting to the expansion valve with a properly lubricated #6 O-ring (See Lubricating O-rings, Page 14, and Photos 4 and 5, below).
- 3. Raise the evaporator unit under the dash, inserting the studs and hardlines through the firewall.
- 4. Remove the support board, and loosely install the evaporator dash bracket onto the evaporator sub case inside of the dash with the (2)  $1/4-20 \times 1/2$ " bolts (supplied on sub case) (See Photo 6, below).
- 5. Reinstall the previously removed (2) OEM dash mounting bolts from Photos 2 and 3, below.

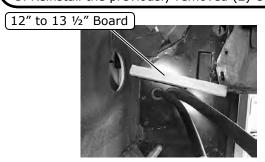


Photo 1

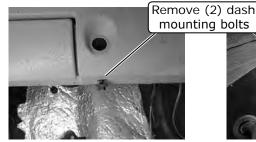


Photo 2

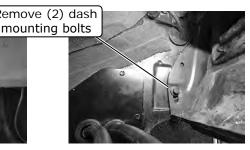


Photo 3

Place evaporator unit on passenger floorboard

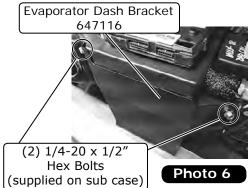


Photo 4

Connect #6 A/C hose 45° fitting to expansion valve



Photo 5

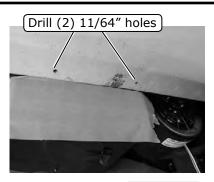




# Evaporator Installation (Cont.)

- 6. Use the template provided against the evaporator unit to mark the bottom of the dash (See Photo 7, below).
- 7. Drill (2) 11/64" holes (See Photo 8, below).
- 8. Install (2) #8 x 1/2" screws through the lower dash into the evaporator dash bracket (See Photo 9, below).
- 9. From the engine compartment, replace the full-length studs with (4) 1/4-20 x 3/4" hex washer bolts ((2) on the passenger side firewall cover, and (2) on the driver side evaporator bracket) (See Photo 10, below). NOTE: Do not fully tighten mounting hardware at this time.





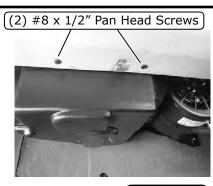
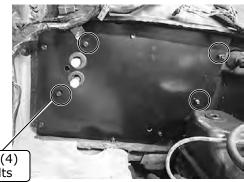


Photo 7

Photo 8

Photo 9



Replace full-length studs with (4)  $1/4-20 \times 3/4$ " hex washer bolts

Photo 10

# **Evaporator Unit Leveling**

NOTE: To ensure proper drainage, it is very important the evaporator is level, both fore-aft and left-right. Before leveling the evaporator, ensure the vehicle is level (See Photos 1 and 2, below).

1. Once the unit has been leveled, tighten all mounting hardware ((3) firewall mounting bolts and (2) dash bracket mounting bolts).



Photo 1



Photo 2



### Wiring Installation

- 1. Disconnect the circuit breaker from the main wiring harness (See Photo 1, below).
- 2. Enlarge the hole on the relay mounting tab to accommodate the #14 x 3/4" washer head screw installed on the kick panel cover (See Photo 2, below).
- 3. Route the heater control valve plug through the 7/8" OD x 3/8" ID grommet (See Photo 3, below).
- 4. Install the 7/8" OD x 3/8" ID grommet into the 5/8" hole in the firewall cover (See Photo 4, below).
- 5. Route the red, white and blue wires from the main wiring harness through the 7/8" OD x 3/8" ID grommet into the engine compartment and along the top of the inner fender toward the battery in the engine compartment (See Photo 5, below).
- 6. Attach the white ground wire eyelet from the heater control valve to a suitable ground (See Photo 6, below).
- 7. Install the main wiring harness relay onto the kick panel cover with the remaining #14 x 3/4" washer head screw (See Photo 7, below).
- 8. Plug the white connector of the heater control valve into the white connector on the main wiring harness (See Photo 8, below).
- 9. Plug the white connector of the fan motor into the white connector of the main harness (See Photo 9, below)

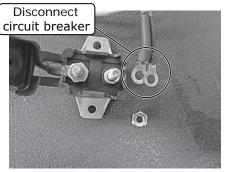


Photo 1

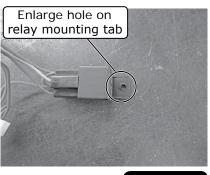


Photo 2

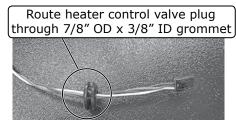


Photo 3

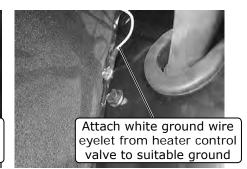
Install 7/8" OD x 3/8" ID grommet into 5/8" hole in firewall cover



Photo 4



Route red, white and blue wires from main wiring harness through 7/8" OD x 3/8" ID grommet



Plug white connector of fan

motor into white connector

Photo 5



Plug white connector of heater control valve into white connector on main wiring harness

Photo 6



Photo 9

#14 x 3/4" Washer Head Screw

Install main wiring harness relay

to kick panel cover with remaining

#14 x 3/4" washer head screw

Photo 7



# Wiring Installation (Cont.)

- 10. Place the circuit breaker onto the vehicle body and secure it using (2) #10 x 1/2" sheet metal screws (See Photo 10, below). NOTE: Mount the circuit breaker as close to the battery as possible.
- 11. Reconnect the positive wires to the circuit breaker (See Photo 11, below).
- **12**. Crimp the supplied 5/16" ring terminals to the white ground wires and connect them to the negative side of the battery (See Photo 12, below).
- 13. Crimp the supplied 5/16" ring terminal to the red positive wire. NOTE: Do not connect to the positive side of the battery until the installation is complete.
- 14. Plug the main wiring harness into the ECU (See Photo 13, below).
- 15. Route the violet power wire to a switched 12v power source on the fuse panel (See Photo 14, below).
- 16. Connect the tan wire to the factory dash lights to enable control panel backlighting.

Place circuit breaker onto vehicle body



(2) #10 x 1/2" Sheet Metal Screws

Reconnect positive wires to circuit breaker



Photo 10 Photo 11

Crimp 5/16" ring terminals to white ground wires, and connect to negative side of battery



Photo 12

Plug main wiring harness into ECU



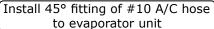
Photo 13

Route violet power wire to switched 12V power source on fuse panel



#### A/C Hose Installation

- 1. Install the 45° fitting of the #10 evaporator/fenderwell A/C hose to the evaporator unit #10 fitting with a properly lubricated #10 O-ring (See Lubricating O-rings, Page 14, and Photo 1, below).
- 2. Insulate the #10 evaporator fitting and all exposed metal with the supplied press tape (See Photo 2, below).
- **3**. Using a properly lubricated #6 O-ring (See Lubricating O-rings, Page 14), connect the straight fitting of the #6 drier/evaporator A/C hose to the drier (See Photo 3, below).
- **4**. Using a properly lubricated #10 O-ring (See Lubricating O-rings, Page 14), connect the 135° fitting with service port of the #10 fenderwell/compressor A/C hose to the #10 suction port on the compressor (See Photo 4, below).
- 5. Using a properly lubricated #10 O-ring (See Lubricating O-rings, Page 14), connect the 45° fitting of the #10 fenderwell/compressor A/C hose to the #10 bulkhead fitting (See Photo 5, below).
- **6.** Using a properly lubricated #8 O-ring (See Lubricating O-rings, Page 14), connect the #8 condenser/ compressor A/C hose 90° fitting with service port to the #8 discharge port on the compressor (See Photo 6, below).
- 7. Using a properly lubricated #8 O-ring (See Lubricating O-rings, Page 14), connect the #8 A/C hose straight fitting to the #8 condenser hardline (See Photo 7, below).





Insulate all exposed metal with supplied press tape



Connect straight fitting

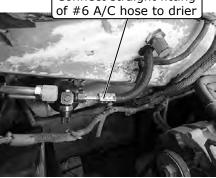


Photo 1

Photo 2

Photo 3

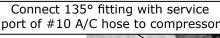




Photo 4



Photo 5

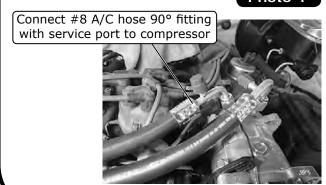


Photo 6



Connect #8 A/C hose straight fitting to #8 condenser hardline



# Wiring Final Steps

- 1. Route the blue wire from the main wiring harness along the inner fender toward the drier, and secure it to the #6 A/C hose with the supplied tie wraps. Crimp the supplied 1/4" female terminal to the blue wire, and connect it to the safety switch on the drier (See Photo 1, below).
- 2. Connect the bullet terminal of the compressor lead to the compressor bullet terminal (See Photo 2, below).
- 3. Route the compressor lead wire along the #8 A/C hose. Secure the compressor lead wire to the #8 A/C hose with the supplied tie wraps. Connect the 1/4" female terminal of the compressor lead to the safety switch on the drier (See Photo 3, below).

Crimp supplied 1/4" female terminal to blue wire, connect it to safety switch on drier



Route blue wire from main wiring harness along inner fender toward drier and secure it to #6 A/C hose with supplied 4" tie wraps

Photo 1



Connect bullet terminal of compressor lead to compressor bullet terminal

Photo 2

Secure compressor lead wire to #8 A/C hose with supplied tie wraps



Connect 1/4" female terminal of compressor lead to safety switch on drier

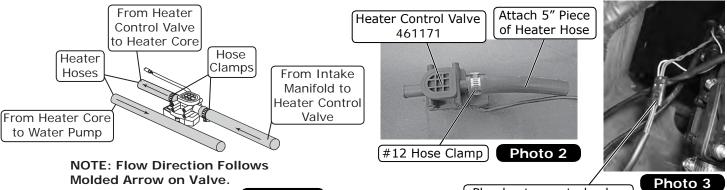


# Heater Hose & Heater Control Valve Installation

NOTE: Vintage Air systems use 5/8" connections. On engines equipped with 3/4" hose nipples, these will need to be removed and replaced with 5/8" nipples (not supplied). For water pumps with cast-in 3/4" heater outlet, a 3/4" x 5/8" reducer fitting (not supplied) or molded hose (Vintage Air part #099010) will need to be installed in the heater hose.

- 1. Remove the caps from the heater hardlines.
- 2. Route a piece of heater hose (not supplied) from the lower heater hardline to the water pump and secure the hose using (2) #12 hose clamps (See Photo 1, below).
- 3. Install a 5" piece of heater hose (not supplied) to the heater control valve and install it to the upper heater hardline, then secure it using (2) #12 hose clamps (See Photos 1 and 2, below). NOTE: Ensure proper flow direction through the heater control valve (the flow direction follows the molded arrow on the valve) (See Figure 1, and Photo 2, below).
- 4. Install a length of heater hose (not supplied) from the heater control valve to the intake manifold fitting. Secure the hose with (2) #12 hose clamps (See Photo 1, below).
- 5. Plug the heater control valve connector to the main harness (See Photo 3, below).





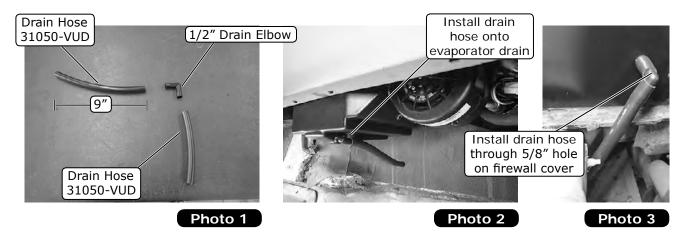
Plug heater control valve connector to main harness

Figure 1



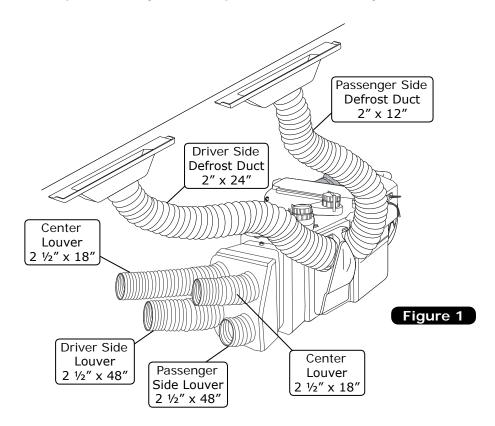
#### **Drain Hose Installation**

- 1. Cut the supplied drain hose to 9" long, and install the 1/2" drain elbow, then attach the remainder of the drain hose to the other end as shown in Photo 1, below.
- 2. Install the drain hose through the 5/8" hole on the firewall cover, then onto the evaporator drain (See Photos 2 and 3, below). NOTE: The 9" piece of hose attaches to the drain on the evaporator.



# **Duct Hose Installation and Routing**

NOTE: During the installation of the duct hoses, ensure there is enough clearance around the passenger side windshield wiper assembly for the wiper arm to move freely.



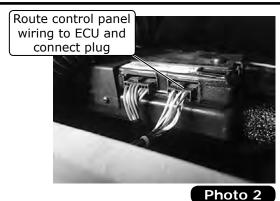


#### Control Panel Installation

NOTE: Before installation, refer to the instructions included with the control panel.

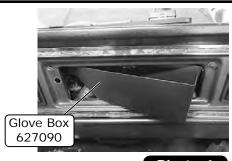
- 1. Install the new Vintage Air control panel into the OEM control panel/radio bracket, and secure it using (4) #8 x 1/2" pan head screws (See Photo 1, below). Reinstall the bracket assembly into the dash opening using OEM hardware.
- 2. Plug in the OEM rear window/auxiliary tank switch connection, if equipped.
- 3. Route the Vintage Air control panel wiring to the ECU and connect the plug (See Photo 2, below).
- 4. Reinstall the radio and plug in connections.

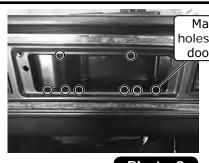




#### Glove Box Installation

- 1. Insert the glove box into the dash opening (left side first, clearing the glove box door tab, then rotate into place) (See Photo 1, below). Pull the glove box into the correct position against the back of the dash opening, then mark the (4) mounting holes and the (4) glove box door mounting holes (See Photo 2, below).
- 2. Remove the glove box and drill out marks using a 3/16" drillbit. Install (4) #8 U-nuts onto the glove box mounting holes as shown in photo Photo 3, below.
- 3. Reinstall the glove box into the dash opening and secure it using (4) #8 x 1/2" pan head screws (See Photo 4, below).
- 4. Reinstall the glove box door using the OEM hardware (See Photo 5, below).





Mark (4) mounting holes and (4) glove box door mounting holes

(4) #8 U-nuts

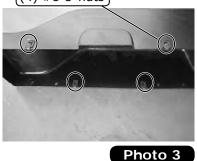


Photo 1



Photo 2



Photo 5

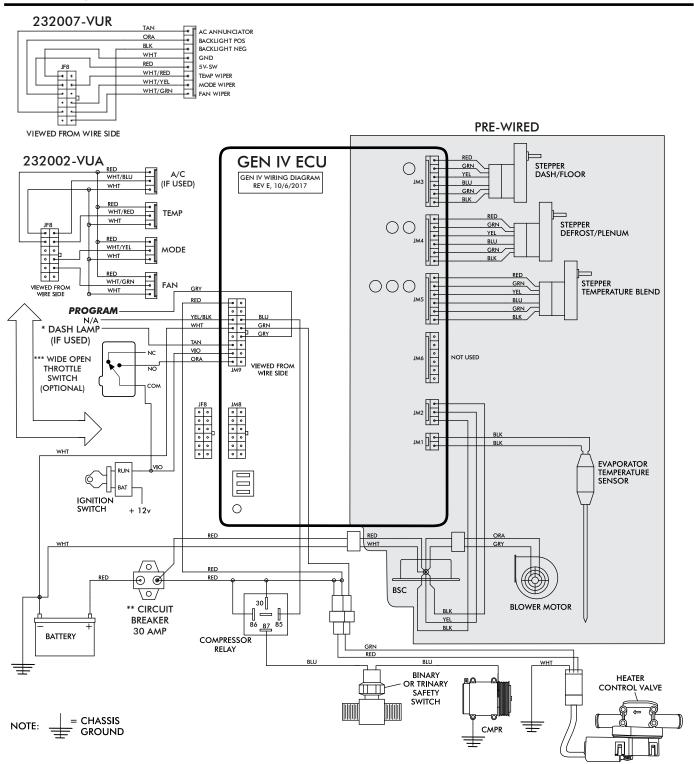


# Final Steps

- Connect the speedometer cable and connection plug to the gauge cluster and reinstall it into the dash using the OEM hardware.
- 2. Reinstall the gauge bezel connecting the driver side duct hose to the louver.
- 3. Reinstall any other previously removed items.
- **4.** 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.
- 5. Double check all fittings, brackets and belts for tightness.
- 6. Vintage Air recommends that all A/C systems be serviced by a licensed automotive technician.
- **7.** Evacuate the system for a minimum of 45 minutes prior to charging, and perform a leak check prior to servicing.
- 8. Charge the system to the capacities stated on Page 4 of this manual.
- 9. See the operation of controls procedures on Page 30 of this manual.





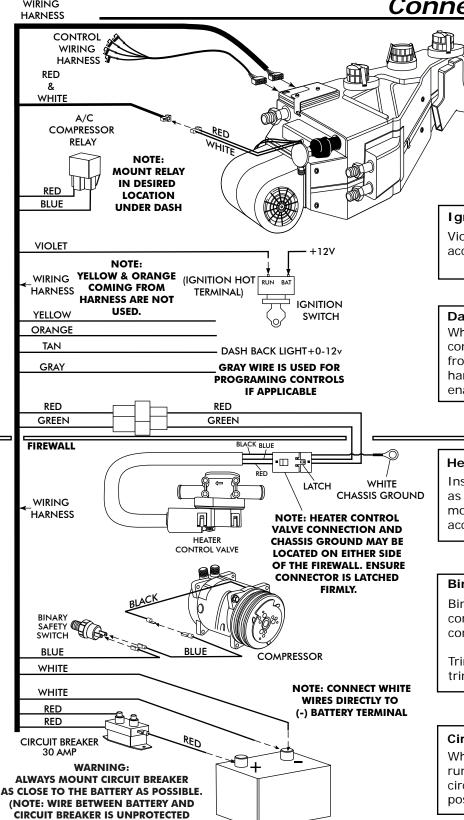


- \* Dash lamp is used only with type 232007-VUR harness.
- \*\* Warning: Always mount circuit breaker as close to the battery as possible. (NOTE: Wire between battery and circuit breaker is unprotected and should be carefully routed to avoid a short circuit).
- \*\*\* Wide open throttle switch contacts close only at full throttle, which disables A/C compressor.



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

# Gen IV Wiring Connection Instruction



#### **Ignition Switch:**

Violet 12V ignition switch source (key on accessory) position must be switched.

#### Dash Light:

When using a Vintage Air supplied control panel, connect the tan wire from the Gen IV evaporator wiring harness to the factory dash lights to enable panel backlighting.

#### **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.

**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.

#### **Blower Speed**

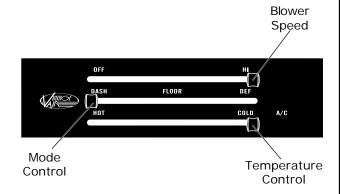
This lever/knob controls blower speed, from OFF to HI.

#### **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**

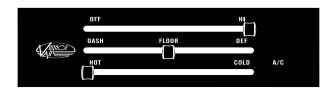
Adjust to desired speed.

#### **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**

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	Symptom	Condition	Checks	Actions	Notes
	1a.		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.	
	Blower stays on high speed when	No 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.	Loss of ground on this wire ▶ renders control head inoperable.
		All other functions work.	Check for damaged blower switch or potentiometer and associated wiring.		See blower switch check procedure.
	1b.		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 ignition is on or off.		Improperly wired or damaged.  Unplug 3-wire BSC control  connector from ECU. If blower	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.	
31			stays running, BSC is either improperly wired or damaged.	Replace BSC (This will require removal of evaporator from vehicle).	No other part replacements should be necessary.
	5	System is not charged.	System must be charged for compressor to engage.	→ Charge system or bypass pressure switch.	Danger: Never bypass safety switch with engine running. Serious injury can result.
	Compressor will not turn on (All other functions work).	200	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 55V, and will vary with pot
		√Joystelli is chaigeu.	Check for disconnected or faulty thermistor.	→ Check 2-pin connector at ECU housing.	Fever position.  ◆ Disconnected or faulty thermistor will cause compressor to be disabled.
	Gompressor 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/
			Check for faulty A/C relay.	➤ Replace relay.	between 0V and 5V when lever is moved up or down.



# Troubleshooting Guide (Cont.)

	www.viiitageaii.com	all com	-		-
	Symptom	Condition	Checks	Actions	Notes
	4	Works when engine is not running; shuts off when engine is started (typically early Gen IV, but possible on all	Noise interference from either ignition or alternator.	Install capacitors on ignition coil and alternator. Ensure good ground at all points. Relocate coil and associated wiring away from ECU and ECU wiring. Check for burned or loose plug wires.	Ignition noise (radiated or conducted) will cause the system to shut down due to high voltage spikes. If this is suspected, check with a quality oscilloscope. Spikes
	System will not turn on, or runs intermittently.	√versions).	Verify connections on power lead, ignition lead, and both white ground wires	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.
<u> </u>	5. Loss of mode door function.	No mode change at all.	Check for damaged mode  → switch or potentiometer and associated wiring.  Check for obstructed or		Typically caused by evaporator housing installed in a bind in the vehicle. Be sure all
<b>2</b> –		Partial function of mode doors.	binding mode doors.  Check for damaged stepper motor or wiring.		mounting locations line up and don't have to be forced into position.
	6. Blower turns on and off rapidly.	Battery voltage is at least 12V.  Battery voltage is less than 12V.	Check for at least 12V at circuit breaker.  Check for faulty battery or alternator.	Ensure all system grounds and power connections are clean and tight.  Charge battery.	System shuts off blower at 10V. Poor connections or weak battery can cause shutdown at up to 11V.
	7. Erratic functions of blower, mode, temp, etc.		Check for damaged switch or pot and associated wiring.	Repair or replace.	
	When ignition is turned on, blower momentarily comes on, then shuts off. This occurs with the blower switch in the OFF position.		This is an indicator that the system has been reset. Be sure the red power wire is on the battery post, and not on a switched source. Also, if the system is pulled below 7V for even a split second, the system will reset.	►Run red power wire directly to battery.	



# Packing List: Evaporator Kit (754160)

No.	Qty.	Part No.	Description		
1.	1	744004-VUE	Gen IV Evaporator Sub Case		
2.	1	794160	Accessory Kit		
				Checked By:Packed By:	
				Date:	= $J$

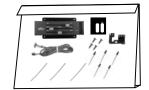
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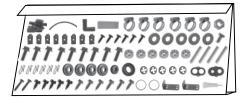
Gen IV Evaporator Sub Case 744004-VUE

(2)









Accessory Kit 794160 NOTE: Images may not depict actual parts and quantities. Refer to packing list for actual parts and quantities.