1980-86 Ford F-Series/Bronco

with **Factory Air Evaporator Kit (754185)**

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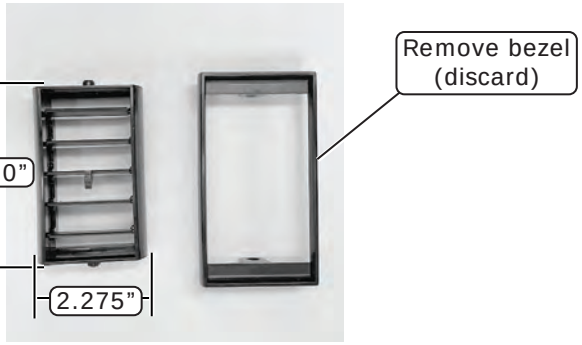
Additional Parts Available:

- For replacement OEM louvers, order Vintage Air part #491798. Remove the louver from the bezel, then apply foam to the top and bottom of it to reinforce the louver into the housing. **NOTE: Before ordering new louvers, confirm the louver dimensions, as some trucks may differ.**

491798
Louver with Bezel



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Packing List: Evaporator Kit (754185)

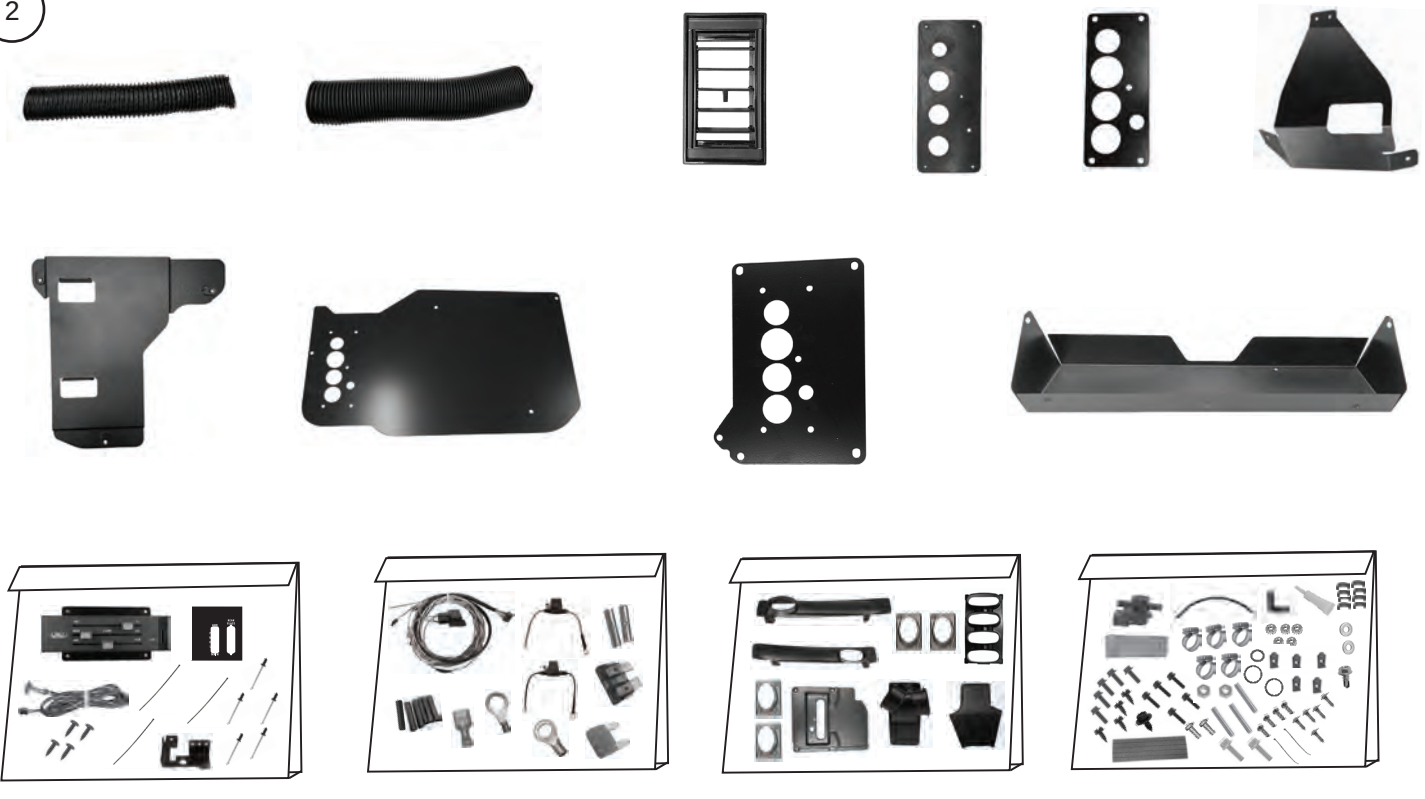
No.	Qty.	Part No.	Description
1.	1	765200	Gen 5 Super Magnum Evaporator Module
2.	1	794185	Accessory Kit

**** 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.**

1

Gen 5 Super Magnum Evaporator Module 765200

2



Accessory Kit 794185

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

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Important Notice—Please Read

For Maximum System Performance, Vintage Air Recommends the Following:

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

Refrigerant Capacities:

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

Other Systems: Consult manufacturer's guidelines.

Lubricant Capacities:

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

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

Safety Switches

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

Service Info:

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

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

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

Bolts Passing Through Cowl and/or Firewall:

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

Heater Hose (not included with this kit):

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

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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 5 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, photos, illustrations, & diagrams. Retain OEM bolts, washers and nuts, as some hardware will be reused.

Perform the following:

1. Disconnect the battery.
2. Evacuate the A/C system (if necessary).
3. Drain the radiator.
4. Place a jack stand under the lower arm on the passenger side of the vehicle, then remove the passenger-side front tire. **NOTE: This is necessary to gain access to the OEM heater core mounting hardware.**
5. Remove the screws along the inner fender and the (2) screws on the top of the fender (See Photo 1, below).
6. Disconnect the heater hoses from the firewall, the intake and the water pump (See Photos 2 and 3, below).
7. Disconnect the wiring harness connections to the evaporator housing (See Photo 4, below).

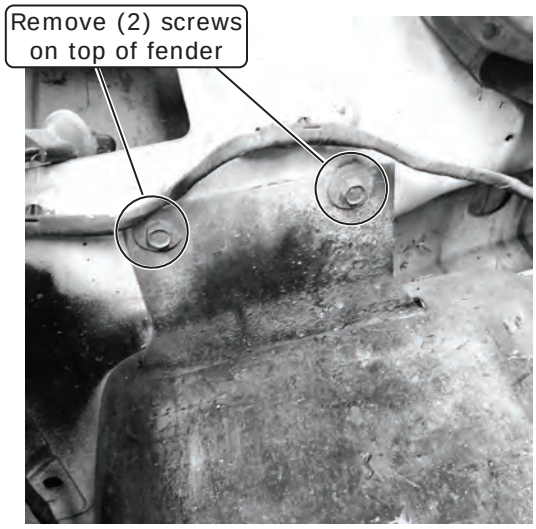
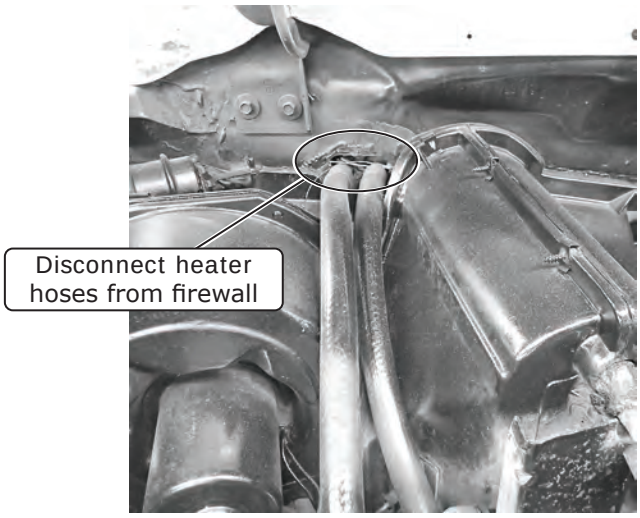


Photo 1



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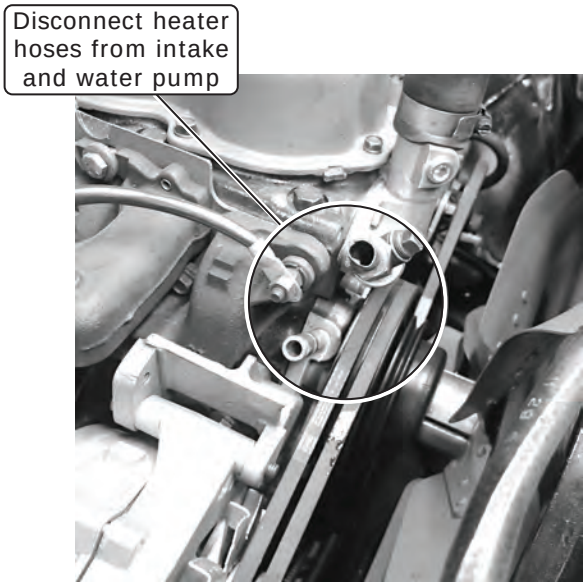


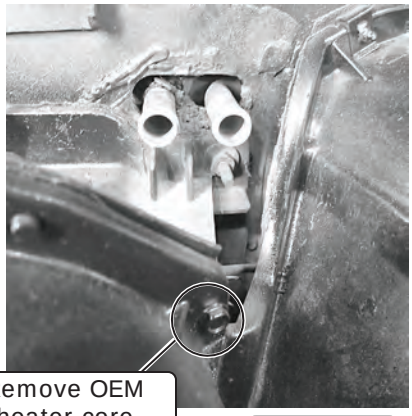
Photo 3

Photo 4

Engine Compartment Disassembly (Cont.)

8. From the engine compartment, remove the (4) OEM heater core mounting nuts from the firewall (See Photos 5, 6, 7 and 8, below).
9. From the passenger compartment, remove the (3) OEM heater core mounting nuts from the firewall (See Photos 9 and 10, below), then remove the OEM heater core from the engine compartment (See Photo 11, below).
10. Remove the reminesnce of seam sealer and other residue from the firewall.
11. Reinstall the passenger-side inner fender using the OEM hardware, then reinstall the tire and jack the truck down.

Photo 5



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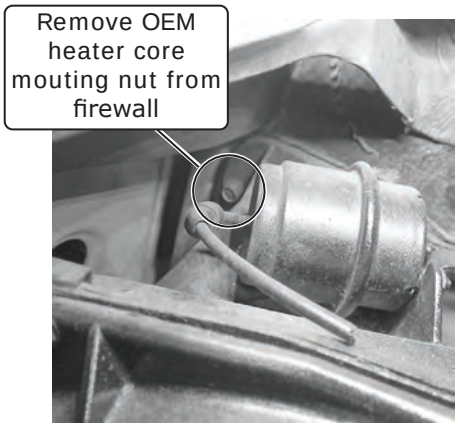

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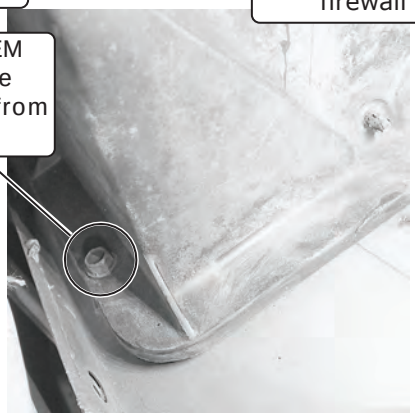
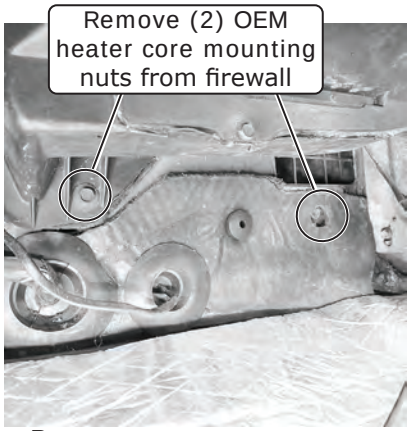
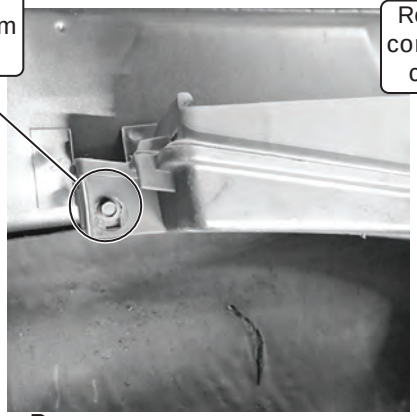


Photo 8



Passenger Compartment View

Photo 9



Passenger Compartment View

Photo 10

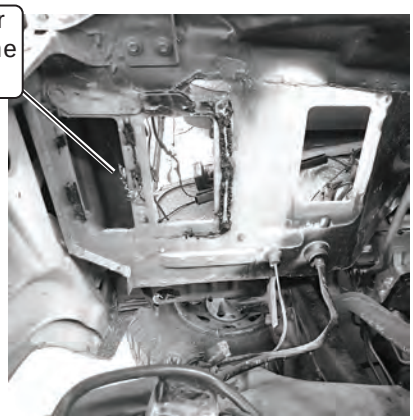


Photo 11

Passenger Compartment Disassembly

NOTE: The removal of the dash is required to remove the OEM duct work from the vehicle. Refer to the vehicle shop manual for more detailed information. Retain the OEM bolts, washers and nuts, as some hardware will be reused.

Perform the following:

1. Remove the (8) screws on the front of the dash pad (See Photos 1, 2 and 3, below), then remove the (4) screws on the back of the defrost vents (See Photos 4 and 5, below).
2. Pull the radio knobs off (See Photo 6, below), then remove the front of the radio bezel. Remove the (4) screws on the A/C control panel bracket, then remove the control panel (See Photo 7, below).

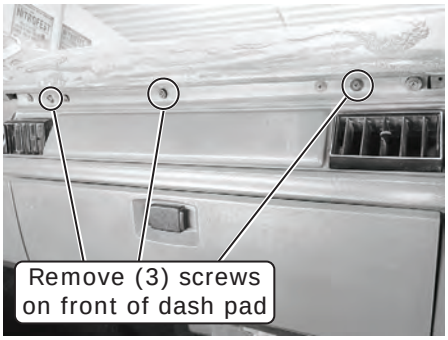
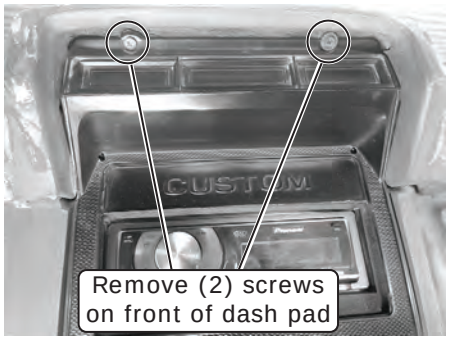


Photo 1



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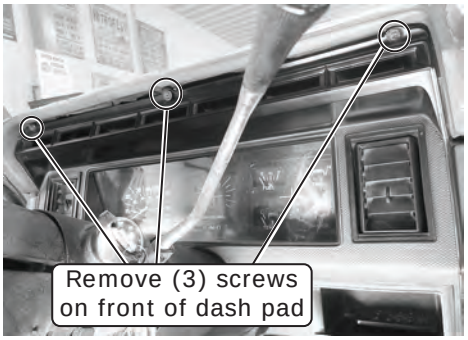

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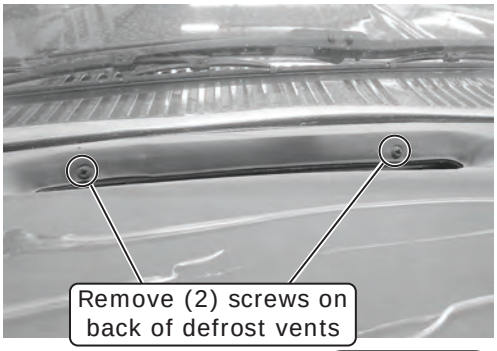

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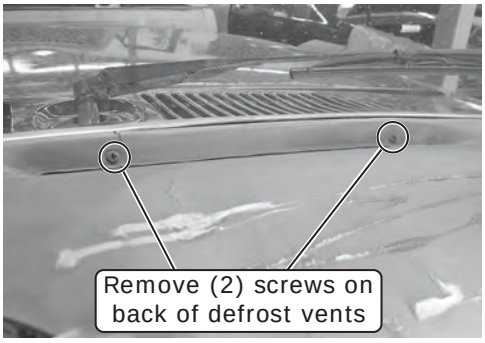


Photo 5

Photo 6

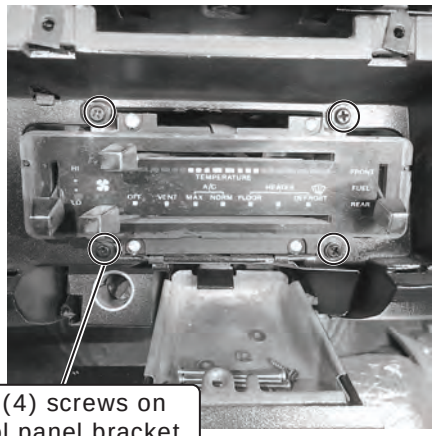


Photo 7

Passenger Compartment Disassembly (Cont.)

3. Remove the screw underneath the steering column (See Photo 8, below), then pull the cover off. Remove the screw holding the shift cable, so the selector is just being held in the instrument cluster. Pull the headlight and wiper knobs (See Photo 9, below), then remove the instrument panel bezel. Remove the (4) screws from the instrument panel, then remove it (See Photos 10 and 11, below).
4. Undo the headlight and wiper switch, then unclip the light above them. Push the light behind the dash, then remove the (4) screws holding the driver-side A/C vents (See Photo 12, below).
5. Remove the dash piece underneath the steering column by removing the (2) screws (See Photo 13, below). Remove the (2) bolts on the steering column bracket (See Photo 14, below), then remove the bolt directly above the steering column.
6. Remove the bolt holding the emergency brake and the (2) bolts holding the hood latch bracket (See Photo 15, below).

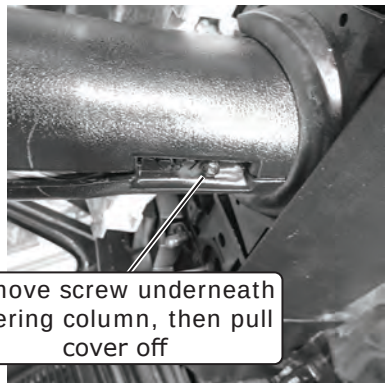
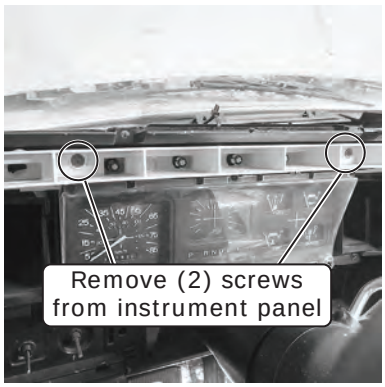


Photo 8

Photo 9



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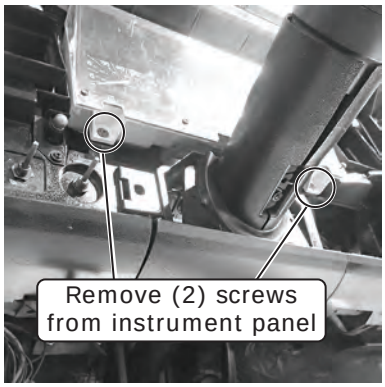

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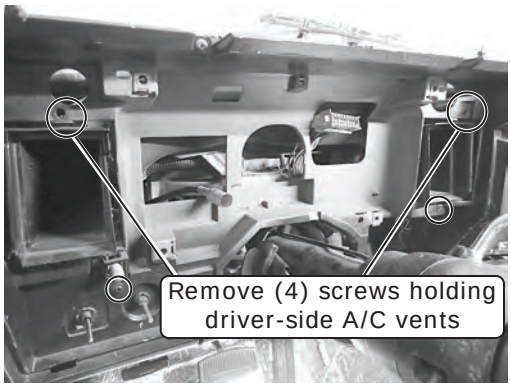

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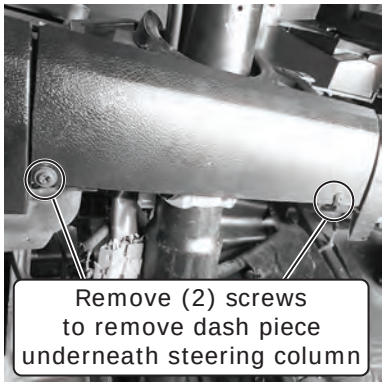

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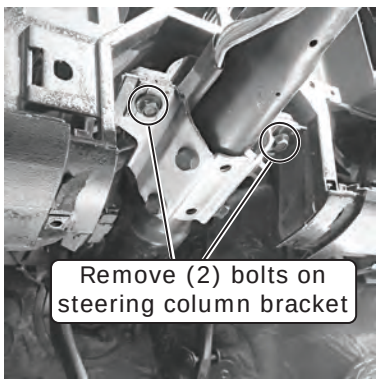


Photo 14

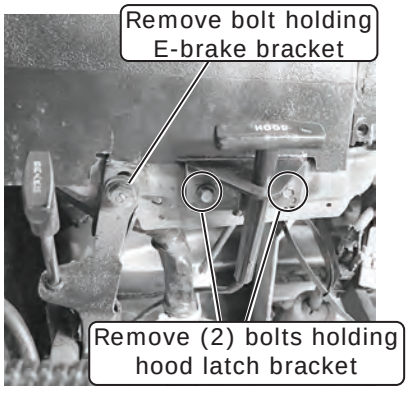
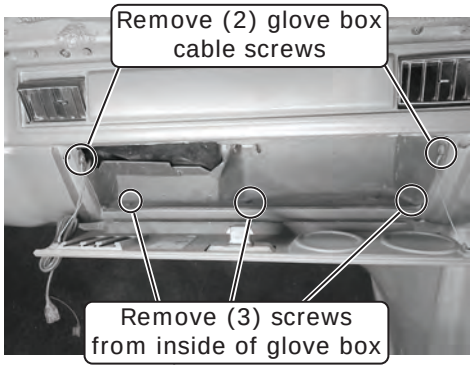


Photo 15

Passenger Compartment Disassembly (Cont.)

7. Remove the (3) screws from inside the glove box and the (2) glove box cable screws (See Photo 16, below), then the (3) screws to remove the glove box door (See Photo 17, below).
8. Remove the (2) bolts underneath the dash in the middle (See Photo 18, below) and the bolt holding the dash to the firewall (See Photo 19, below). Remove the (2) bolts on the top of the dash, near the windshield on the driver and passenger side (See Photos 20 and 21, below). Remove the (2) bolts in the middle, above the radio (See Photo 22, below), then remove the (2) bolts on either side, underneath the dash (See Photos 23 and 24, below).



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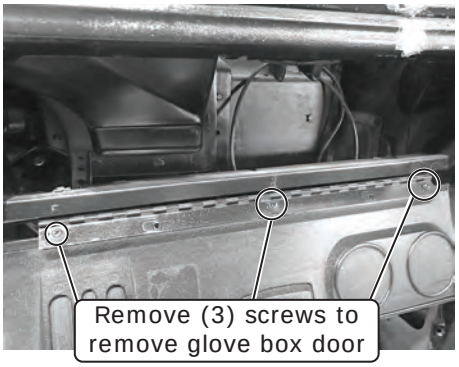

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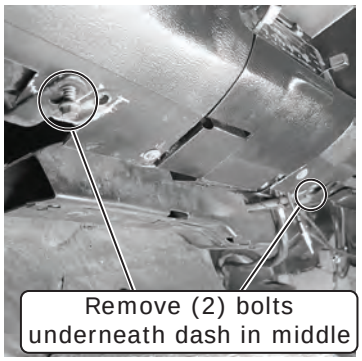

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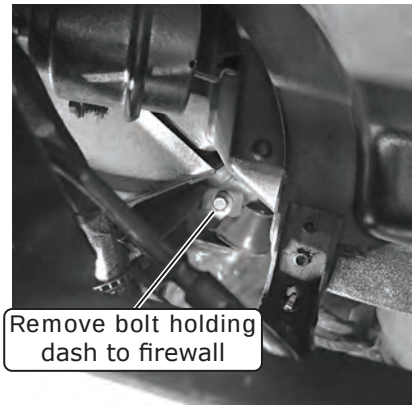

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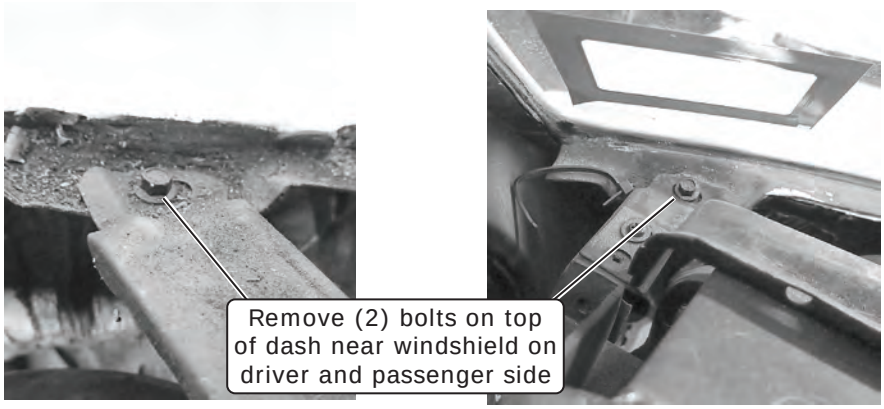


Photo 20

Photo 21

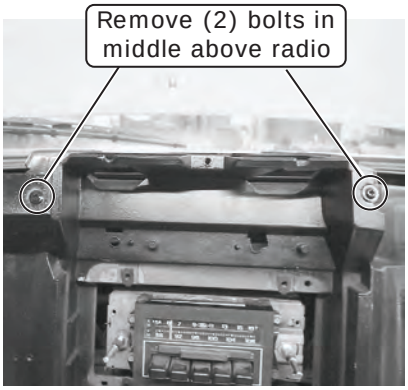


Photo 22

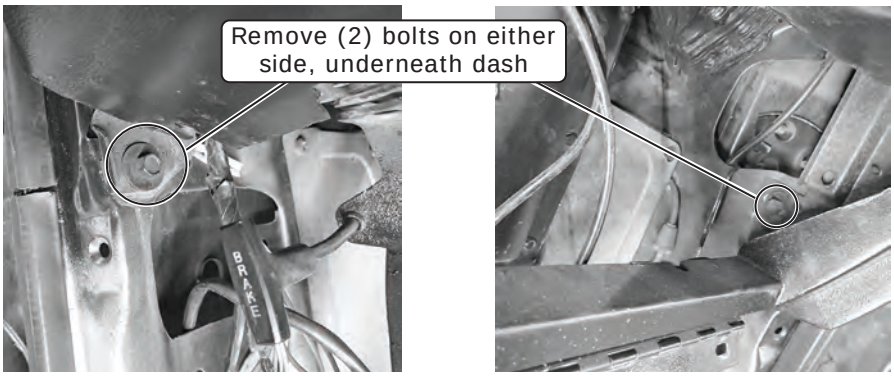


Photo 23

Photo 24

Passenger Compartment Disassembly (Final)

9. Disconnect the radio plugs and ground wires from the dash brace, then drop the dash away from the ductwork (See Photo 25, below).

10. Remove the OEM ductwork, then remove the (4) screws from the defrost ducts and remove them.

11. Locate the passenger-side lower dash brace (if equipped), and remove it (will not be reused) (See Photo 26, below).

12. Remove the tank selector (rear window for Bronco's) switch from the control panel (See Photo 27, below). Disconnect all plugs and cables from the control panel, then remove it (See Photos 27 and 28, below).

Disconnect radio plugs and ground wires from dash brace, then drop dash away from ductwork

Photo 25

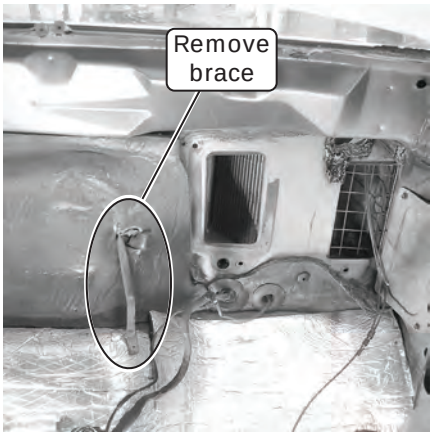
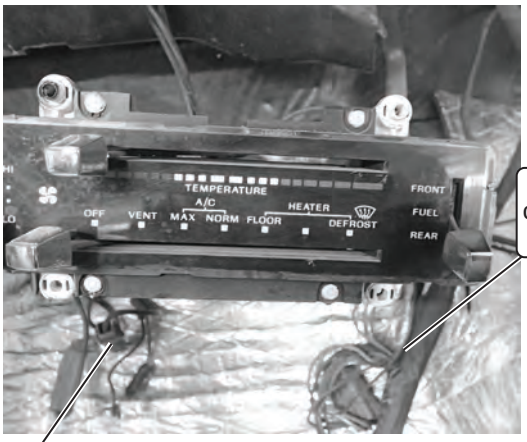


Photo 26



Remove tank selector switch from control panel

Photo 27

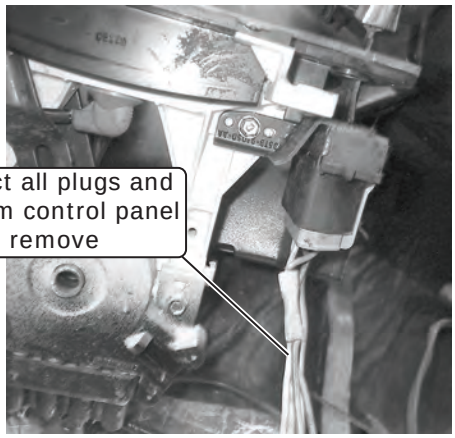


Photo 28

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.

Kick Panel Modification

1. Follow the seam on the OEM kick panel. Cut out the top corner of the kick panel to allow it to fit in place with the new kick panel plate (See Photos 1, 2 and 3, below). **NOTE: Photo 3, below, shows how the new kick panel will mount back into the truck.**

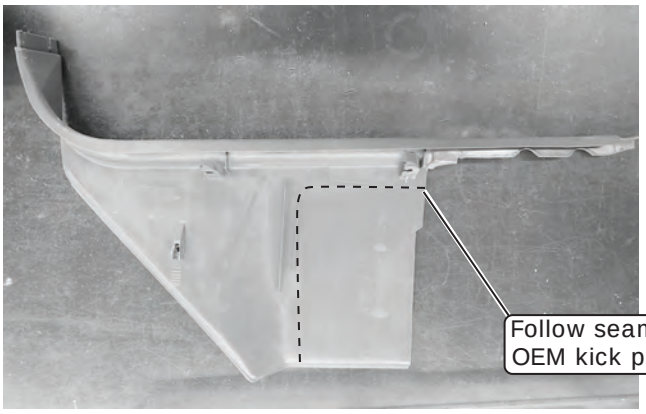
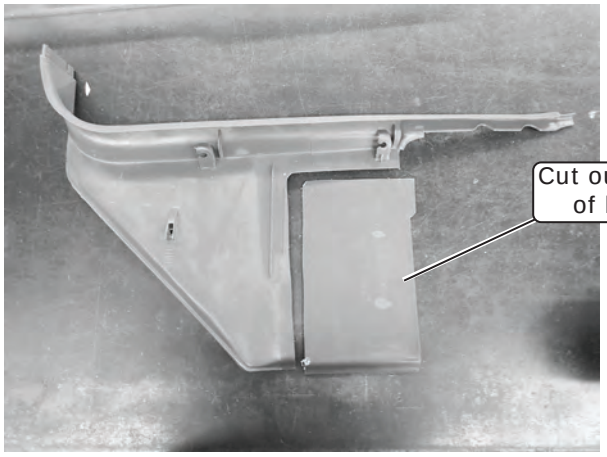


Photo 1



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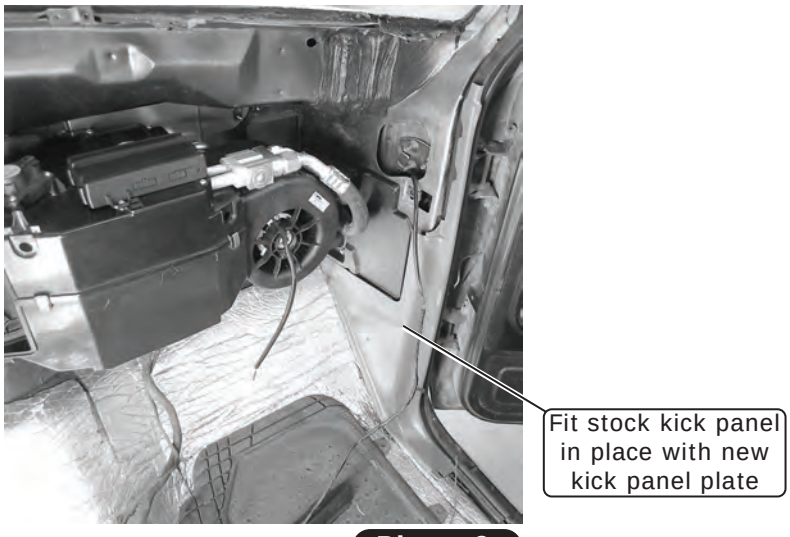

Photo 3

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Dash Louver Adapter Preparation

NOTE: For replacement louvers, See Additional Parts Available, Page 2. The OEM louvers can be loose inside the louver housing, however, Vintage Air recommends using foam on the top and bottom of the louvers to reinforce them.

On a workbench, perform the following:

1. Remove the foam from the back of the passenger- and driver-side louvers (See Photos 1, 2, 3, 4, and 5, below).
2. On the hose adapters with four dimples, apply a bead of silicone onto the inner rim, then install it over the back of the passenger-side louvers (See Photos 6, 7 and 8, below).
3. On the hose adapters with two dimples, apply a bead of silicone onto the inner rim, then install it over the back of the driver-side louvers (See Photo 9, below).

Photo 1

Photo 2

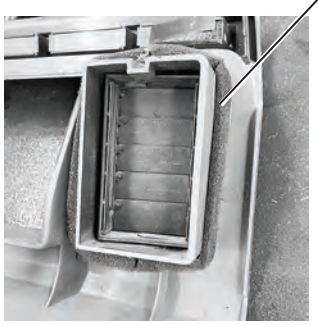
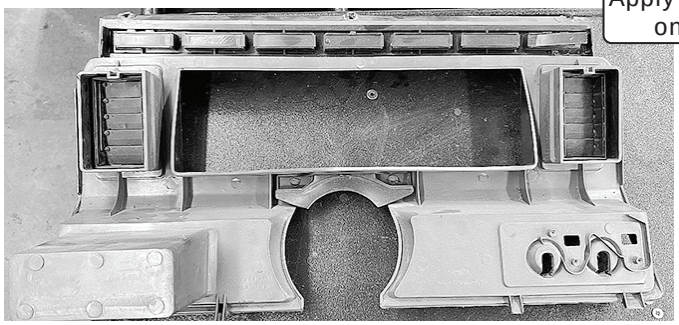


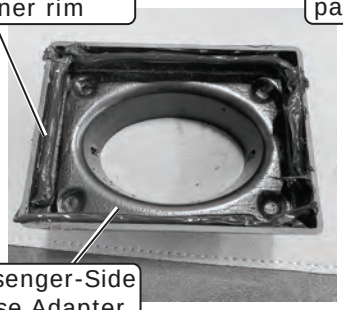
Photo 3

Photo 4



Foam Removed from Driver-Side Louvers

Photo 5



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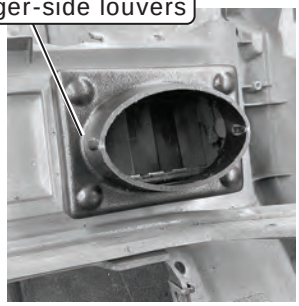


Photo 7

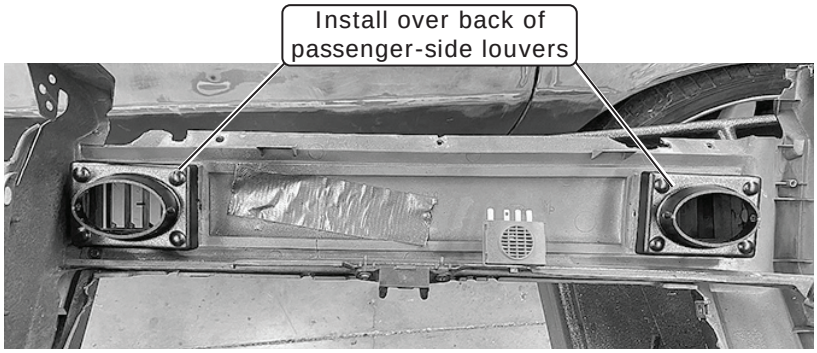


Photo 8

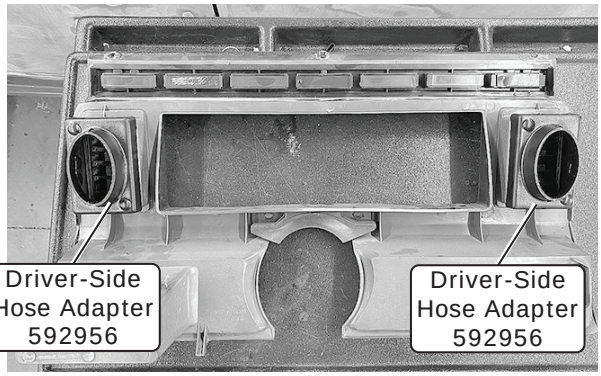


Photo 9

Control Panel Installation

NOTE: The OEM control panel removal is shown during the dash removal under "Passenger Compartment Disassembly", Page 8. Install the new control panel before reinstalling the dash. Refer to control panel instructions for control panel preparation and operation.

1. Install the Vintage Air control panel into the dash. **NOTE: The control panel installs against the back side of the dash and the (4) #8 x 3/4" countersunk screws with washers are inserted from the front (See Photo 1, below).**
2. Route the control panel harness over to the passenger side of the dash and temporarily secure it to keep it out of the way during the dash reinstallation.

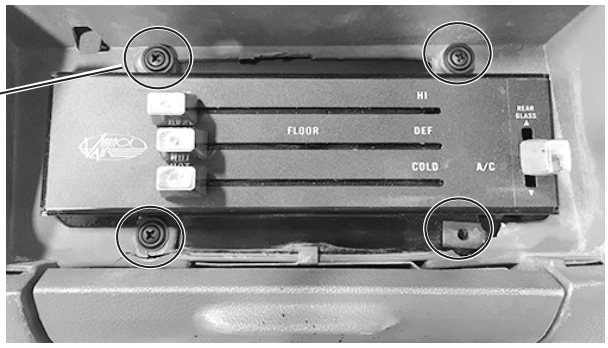
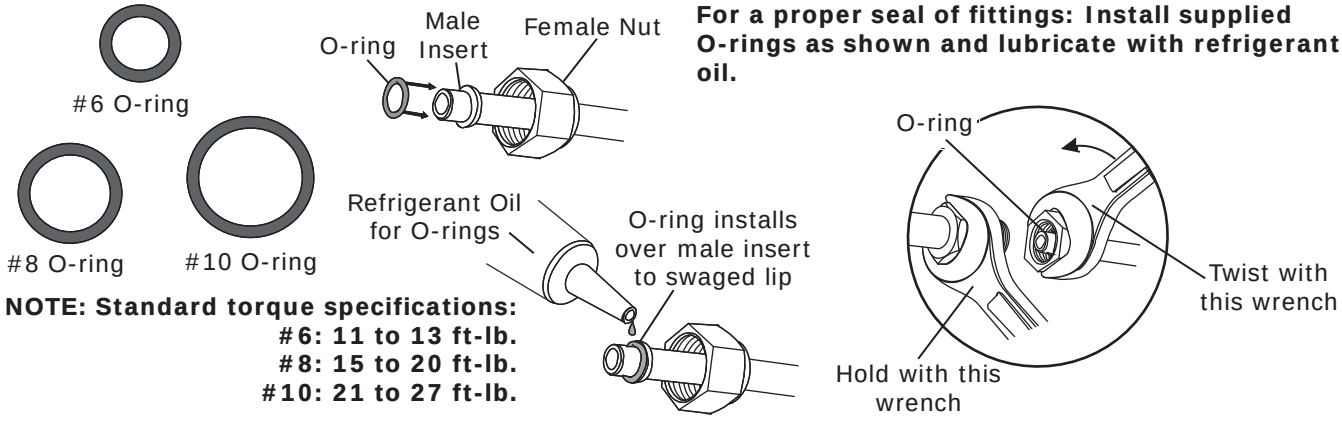


Photo 1

Lubricating O-rings



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

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

Evaporator Preparation

On a workbench, perform the following:

1. Install (3) 1/2" plastic caps into the back of the evaporator case (See Photo 1, below), as these mounting provisions will not be used in this application.

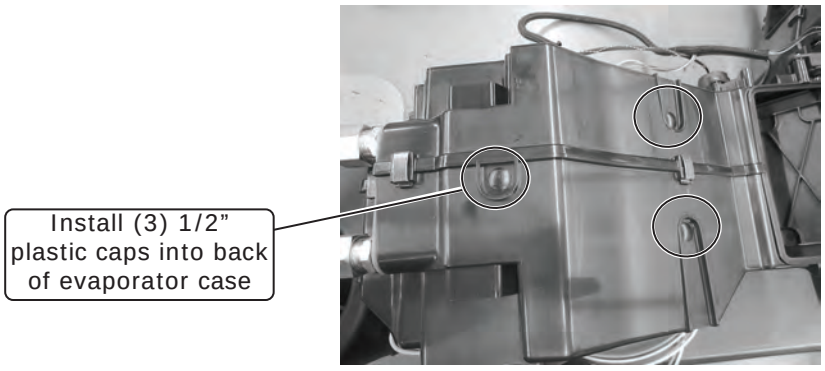


Photo 1

Evaporator Preparation (Cont.)

2. Install the (2) 45° heater hose fittings with properly lubricated #10 O-rings as shown in Lubricating O-rings, Page 14, and Photos 2 and 3, below. **NOTE: When removing the caps from the unit, Be careful, as the evaporator module is shipped under pressure. Also, be sure to remove the rubber inserts.**

3. Install the evaporator firewall bracket onto the evaporator using (4) 10 x 5/8" screws (supplied on the evaporator module) (See Photos 4, 5 and 6, below).

4. Install (3) 1/4-20 x 1 ½" full-length studs into the weld nuts on the evaporator bracket (See Photo 7, below).

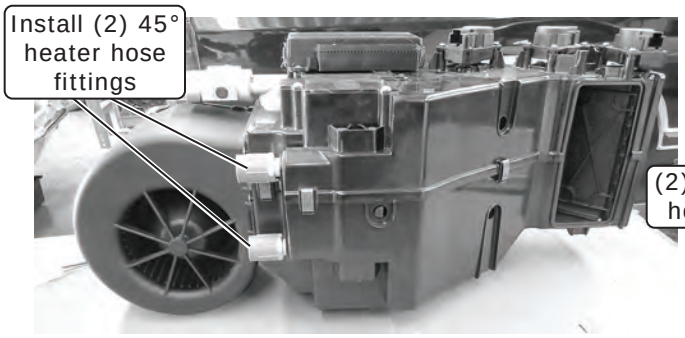


Photo 2

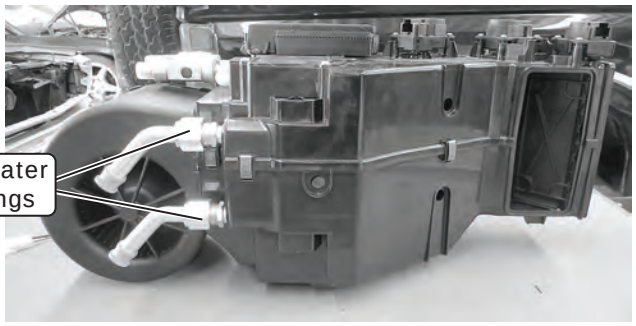


Photo 3

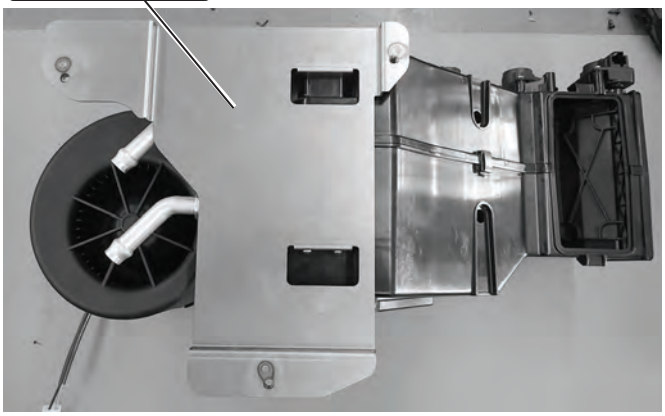
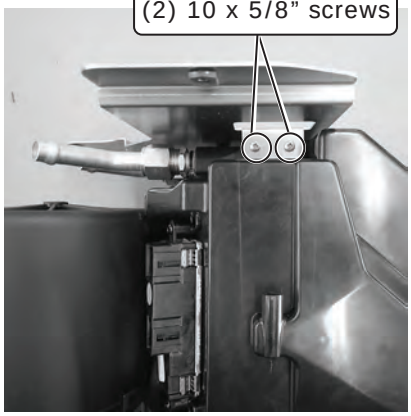


Photo 4



Bottom View of Evaporator Module **Photo 5**

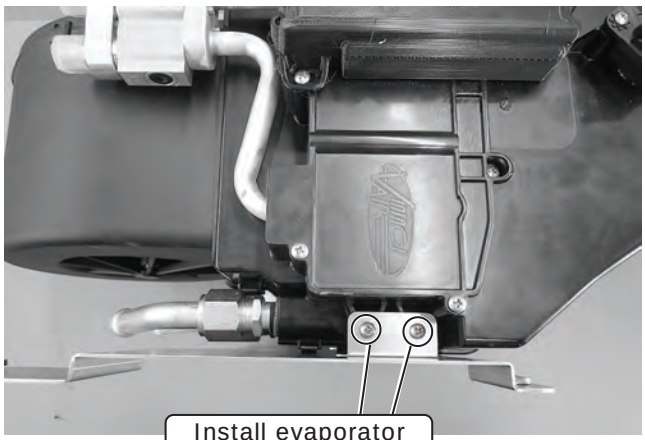


Photo 6

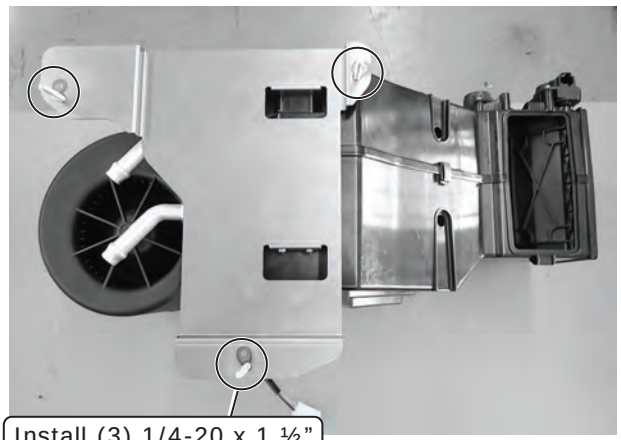


Photo 7

Evaporator Preparation (Final)

5. On the back of the module, install the floor plenum by using (2) spring clips (See Photos 8 and 9, below). Install the dash plenum on the left side of the module by using (4) spring clips (See Photos 10 and 11, below). Install the defrost plenum on the front of the module by using (2) spring clips (See Photo 12, below).

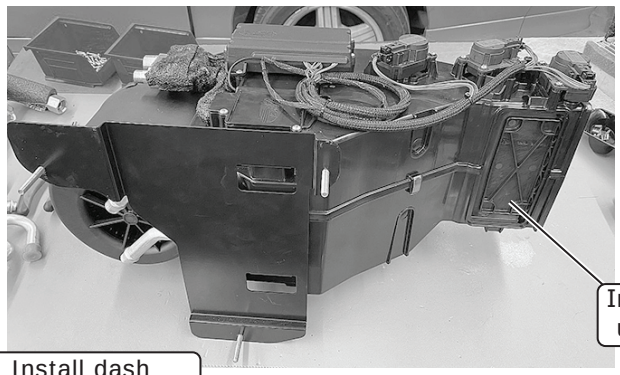


Photo 8

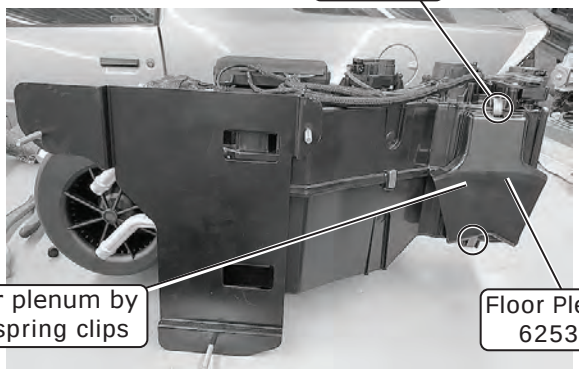


Photo 9

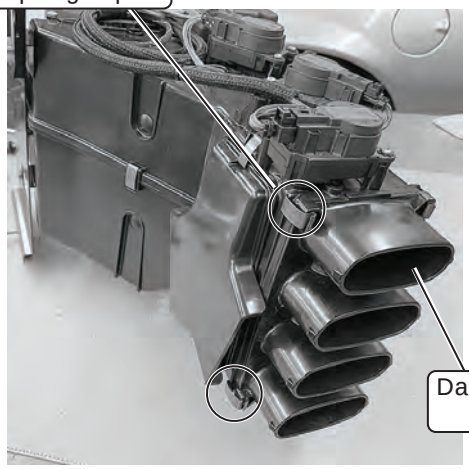


Photo 10

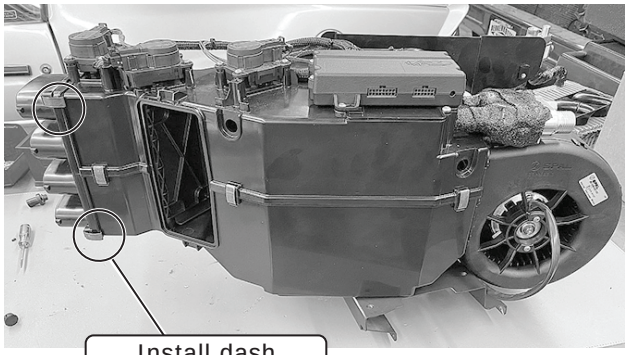


Photo 11

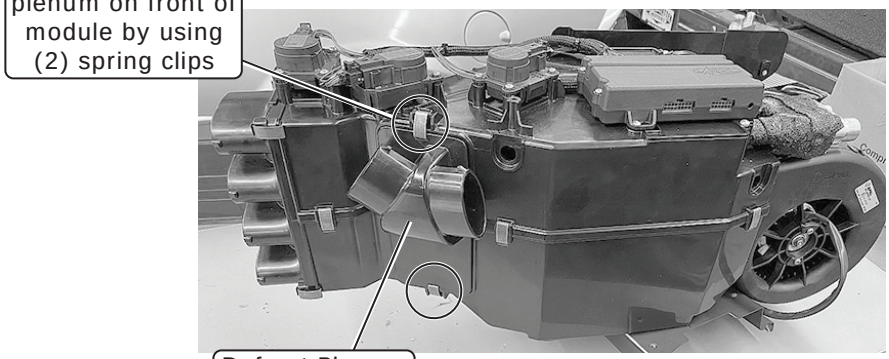


Photo 12

Drain Hose Hole Modification

1. Pull back the carpet to gain access to where the firewall meets the floorboard.
2. Measure over 1" from the factory wiring grommet. Mark an area on the firewall insulation 1" wide and 1 ½" up from the intersection for the floorboard and the firewall. Cut out and remove the insulation in this area.
3. Centered in the cutout section of the insulation, mark a spot on the horizontal portion of the floorboard, halfway between the firewall and the bend down of the floorboard. Drill a 5/8" hole for the drain hose (See Photo 1, below). **NOTE: To ensure a tight fit for the drain tube, do not enlarge the drain hole larger than 5/8".**

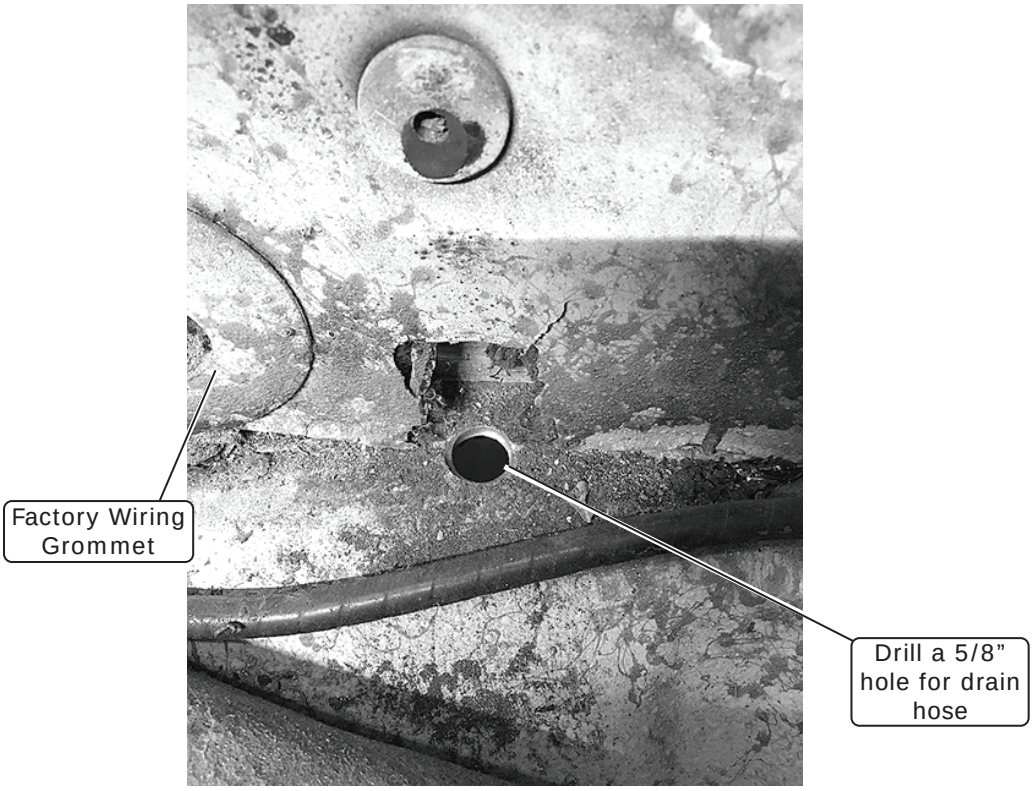


Photo 1

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Firewall Cover and Kick Panel Installation

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

1. Install the hose rubber boot and the rubber boot cover onto the firewall cover using (5) 10-24 nuts with star washers and (5) 10-24 x 3/4" serrated flange bolts (See Photos 1, 2 and 3, below). **NOTE: Ensure the hose rubber boot and rubber boot cover are installed on the correct side of the firewall cover as shown in Photo 2, below.**
2. Add foam to the outside of the kick panel opening to create a seal (See Photos 4 and 5, below).

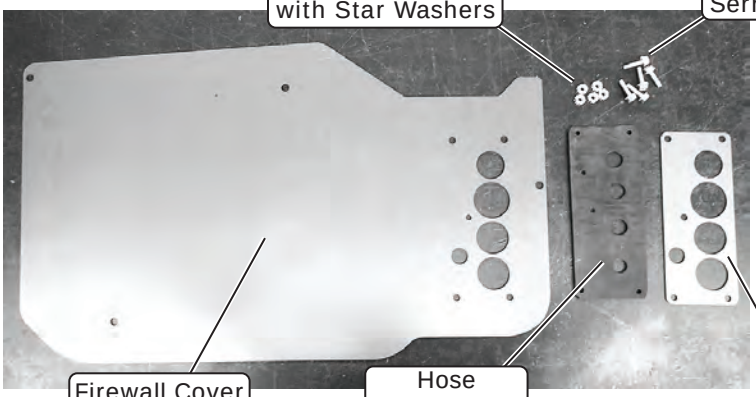


Photo 1

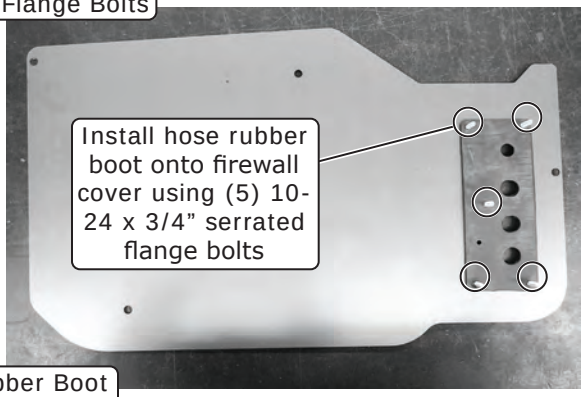
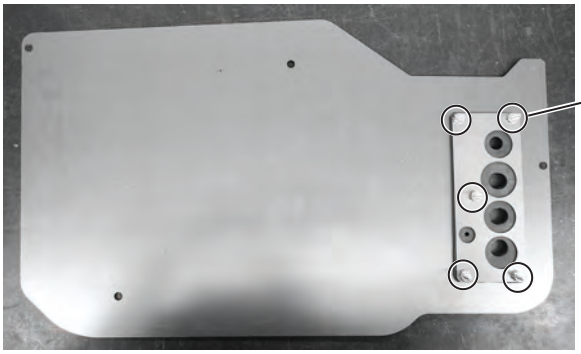


Photo 2



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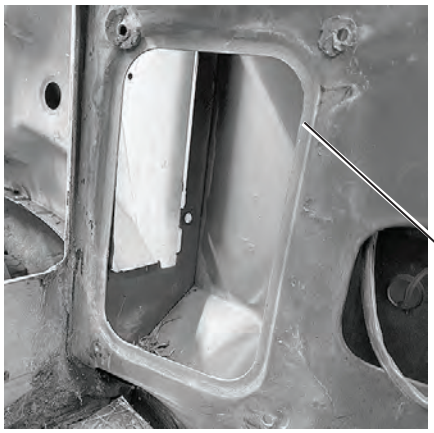

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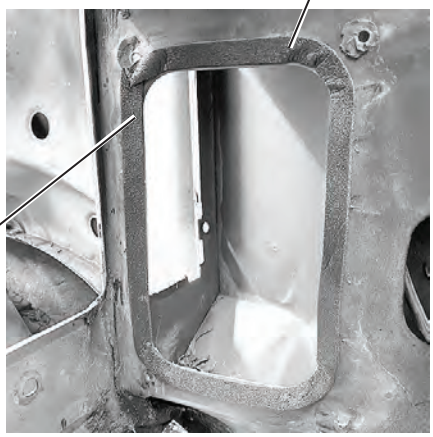


Photo 5

Firewall Cover and Kick Panel Installation (Cont.)

3. Run both heater hoses through the firewall cover assembly and into the passenger compartment, through the fresh air vent on the left (See Photos 6 and 7, below). **NOTE: Soapy water may be used to ease insertion of the A/C hoses through the rubber boots, but be sure the hoses are capped to prevent water from getting inside.**
4. Repeat Step 3, above with the #10 and #6 A/C hoses (See Photos 8 and 9, below). **NOTE: Ensure the #10 and #6 A/C hose fittings without service ports are routed into the passenger compartment. All (4) hoses should be in the passenger compartment with the firewall assembly still hanging in the engine bay (See Photo 10, below).**

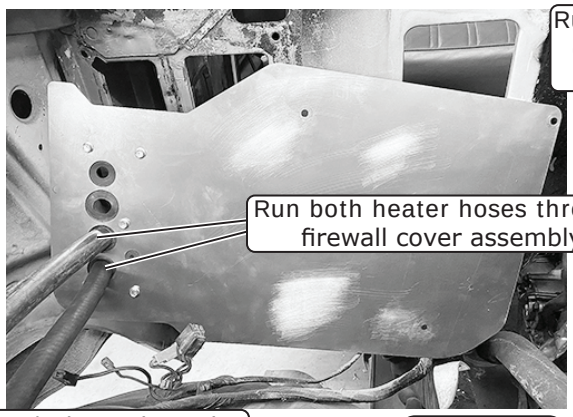


Photo 6

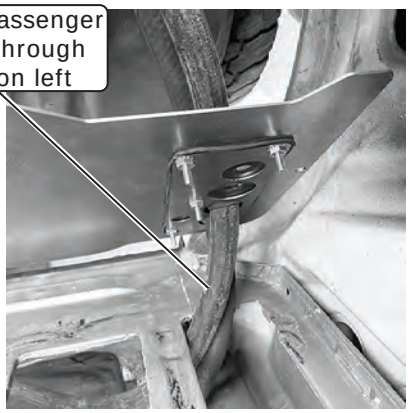


Photo 7

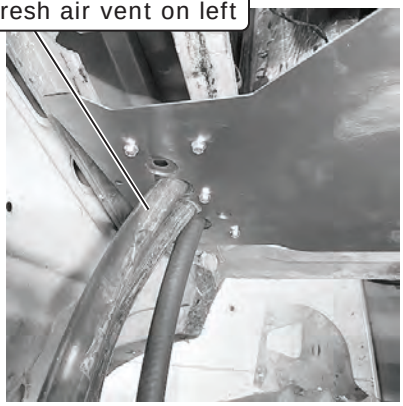


Photo 8

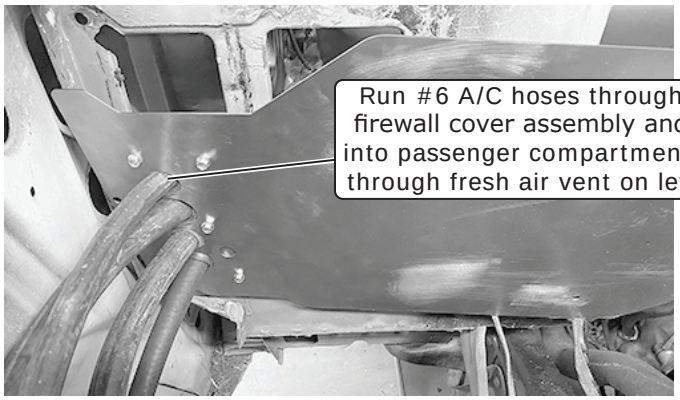
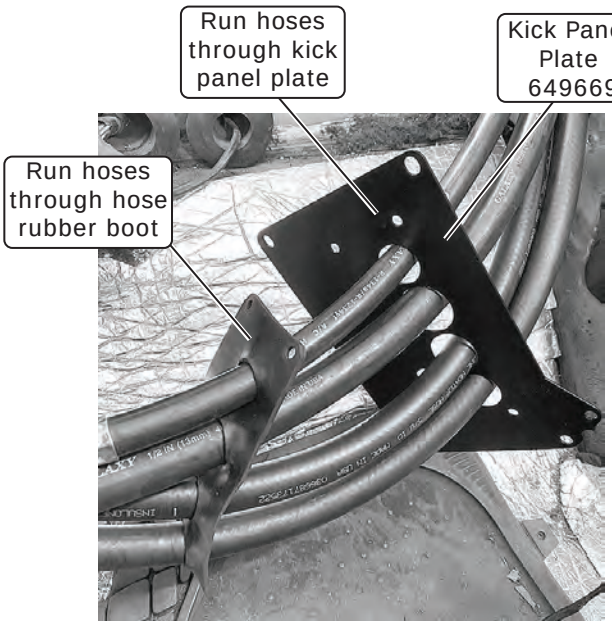


Photo 9

Photo 10

Firewall Cover and Kick Panel Installation (Final)

5. Run the hoses through the kick panel plate, then through the hose rubber boot, and finally through the plastic kick panel cover (See Photos 11 and 12, below). Once the hoses have been inserted through all (3) parts, use (5) 10-24 x 3/4" serrated flange bolts and (5) 10-24 nuts with star washers to hold the parts together (See Photos 13 and 14, below).



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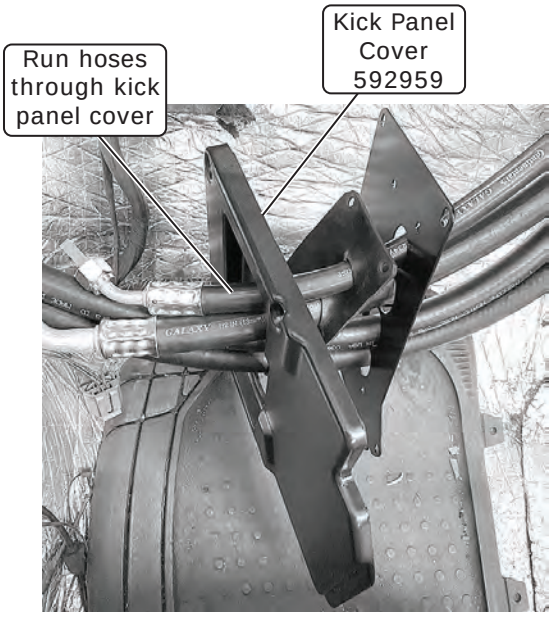

Photo 12

Photo 13

Photo 14

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Wiring Installation

1. Locate the main wiring harness. Route the heater control valve plug and wiring through the kick panel cover, towards the engine compartment (See Photo 1, below).
2. Route the red, white and blue wires from the main wiring harness through the kick panel cover, towards the engine compartment (See Photo 2, below).
3. Route the orange/white wires from the main wiring harness through the kick panel cover and firewall cover, towards the engine compartment (See Photo 3, below).
4. Route both the heater control valve, orange/white and the red, white and blue wires through the firewall cover (See Photo 4, below), then run the red, white and blue wires along the top of the inner fender towards the battery.
5. After installing the wiring, push the kick panel cover back to the kick panel, then secure it using (4) 1/4-14 x 1 ¼" slotted flange hex bolts (See Photo 5, below). **NOTE: Be sure to install (2) 9/32" flat washers onto the top (2) 1/4-14 x 1 ¼" slotted flange hex bolts before installing them into the kick panel.**

Photo 1

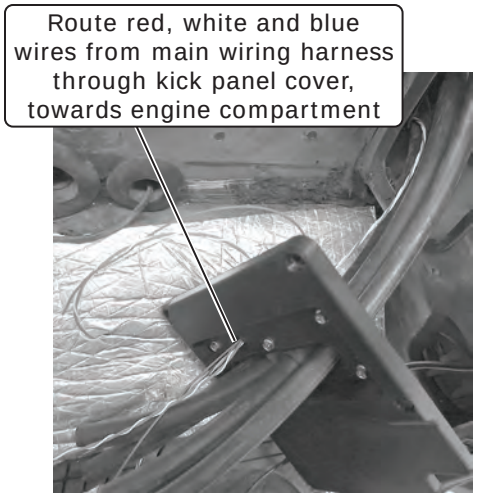


Photo 2

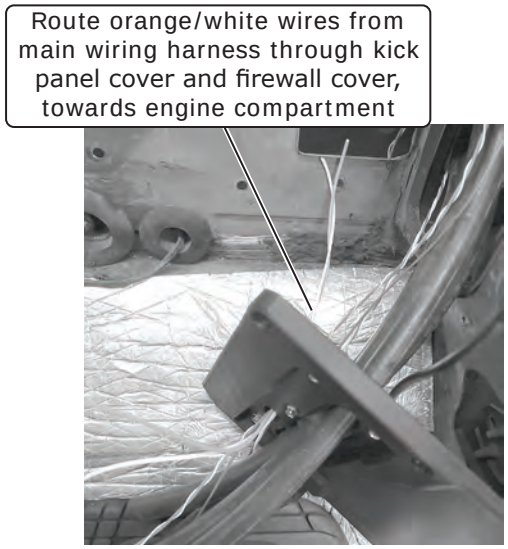
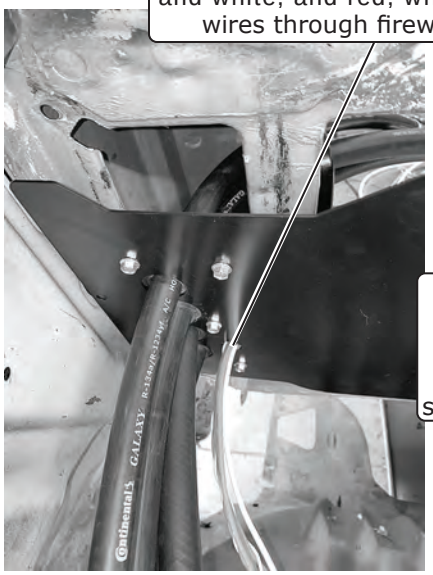


Photo 3



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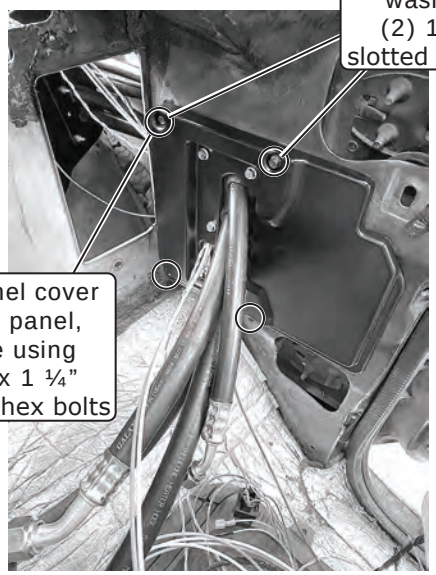


Photo 5

Evaporator Unit Installation

NOTE: The holes in the firewall may need to be drilled out to 5/16" to ease the installation of the evaporator module. A 2" x 4" board cut to approximately 16 ½" to 17" may be used between the firewall and the dash to provide space to install the evaporator module.

1. With the unit on the floorboard, attach the heater hoses to the 45° heater fittings on the back of the evaporator module. Run the hose coming out of the bottom of the kick panel to the bottom fitting and the one above it to the top fitting. Use hose clamps to secure the hoses to the fittings (See Photo 1, below).
2. Mount the evaporator module to the firewall by inserting the (3) 1/4-20 x 1 ½" full-length studs into the OEM firewall holes (See Photo 2, below). Wedge a 2" x 4" board to keep the evaporator module in place while working in the engine compartment (See Photo 3, below). **NOTE: When wedging the board into place, be sure not the hit and damage the evaporator drain located underneath the unit.**
3. Apply a bead of silicone onto the mating surface of the firewall, then install the firewall cover over the full-length studs (See Photos 4 and 5, below).

Photo 1

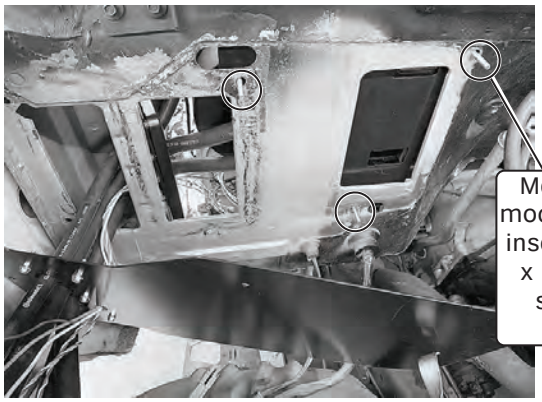


Photo 2

Photo 3

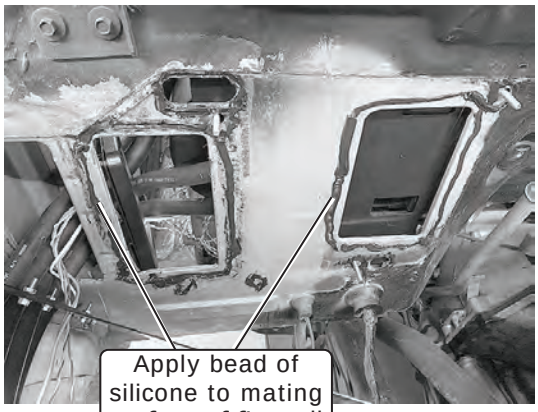


Photo 4

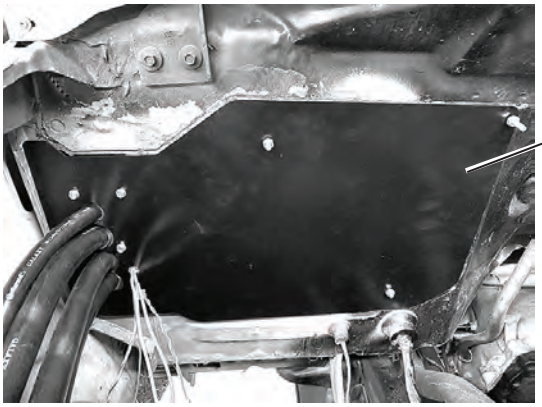


Photo 5

Evaporator Unit Installation (Cont.)

4. Replace the full-length studs one at a time with (3) 1/4-20 x 3/4" serrated flange bolts (See Photo 6, below). **NOTE: Do not fully tighten the bolts at this time.**
5. Drill a 11/64" pilot hole into the far left side of the firewall cover and install a M6.3 x 16MM hex head screw with washer (See Photo 7, below).
6. In the passenger compartment, starting with the #6 A/C hose first, attach the #6 and #10 A/C hoses with properly lubricated O-rings onto the expasion valve located on top of the evaporator module (See Lubricating O-rings, Page 14, and Photos 8 and 11, below). **NOTE: When installing the A/C hose fittings to the expansion valve, do not install the fitting pointing straight down towards the blower motor, as this may cause the O-ring land of the hose to seat improperly (See Photo 9, below) and leak. To properly install the fittings, slide the A/C hose nut back to expose the O-ring land, then angle the fitting toward the firewall to fully seat it inside the expansion valve fitting (See Photo 10, below).**
7. Wrap the #10 A/C hose fitting separately with press tape (See Photo 12, below).
8. Cut approximately 3" of drain hose, and connect it to the drain under the evaporator. Next, connect the 90° drain elbow to the hose facing down. Lastly, route the remainder of the drain hose from the 90° drain elbow down through the hole previously drilled into the floor. **NOTE: To prevent water from getting trapped in the drain hose, be sure to point it down approximately 1".**

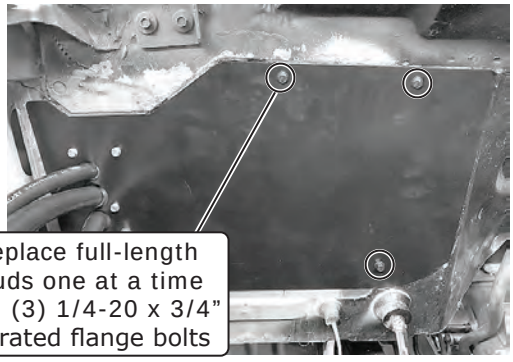


Photo 6

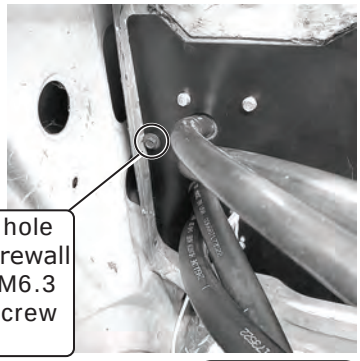


Photo 7

Improperly Seated O-ring Land

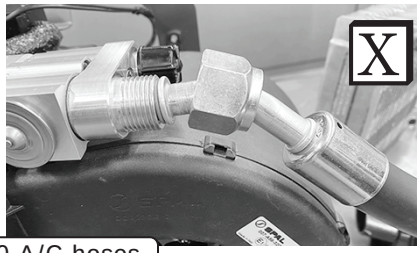


Photo 8

Properly Seated O-ring Land

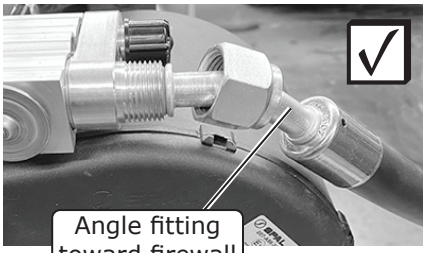


Photo 9

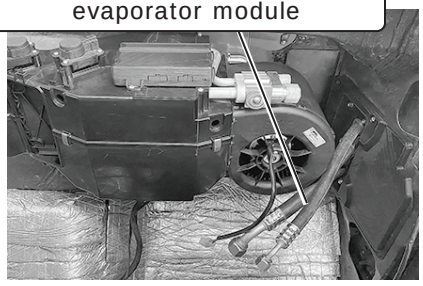
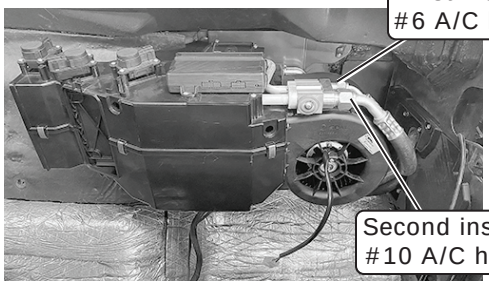


Photo 10



A/C Hoses Installed

Photo 11

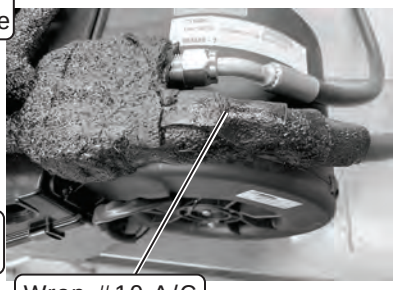


Photo 12

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. Check for level on the flat portions of the case around the drain (See Photos 1 and 2, below).

1. Once the unit has been leveled, install (2) well nuts into the mounting provisions on the evaporator module (See Photo 3, below).
2. Install the cowl bracket using (2) 1/4-20 x 1" serrated flange bolts on the front of the evaporator module and (2) #10 x 1/2" sheet metal screws on top of the cowl (See Photos 4 and 5, below). **NOTE: Drill 11/64" pilot holes for the sheet metal screws.**
3. Tighten all mounting hardware at this time ((3) firewall mounting bolts and (2) dash bracket mounting bolts).

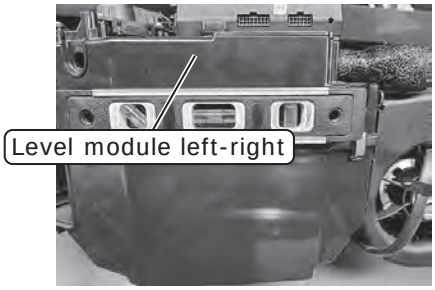


Photo 1

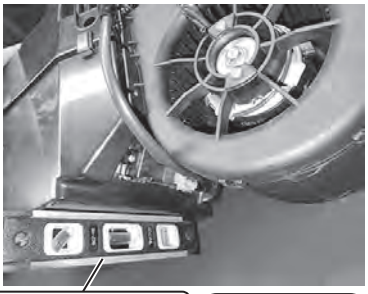


Photo 2

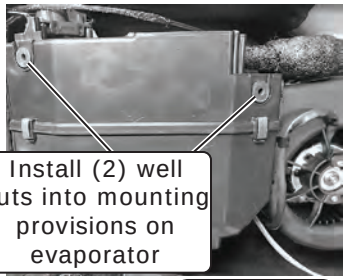


Photo 3

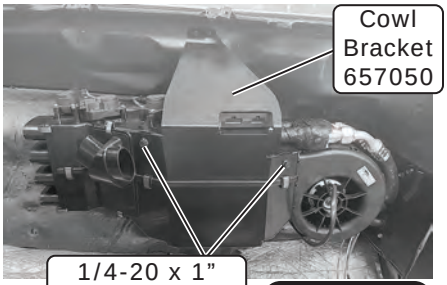


Photo 4

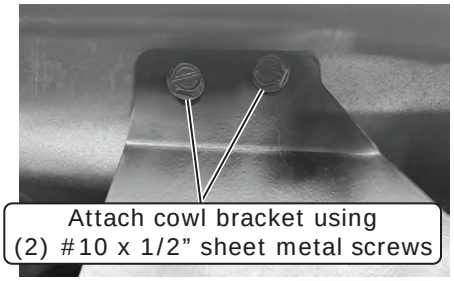


Photo 5

Passenger Compartment Wiring

1. Install the main wiring harness relay and white ground wire eyelet from the heater control valve harness above the kick panel cover using a #10 x 1/2" sheet metal screw (See Photo 1, below).
2. Route the violet power wire to a switched 12v power source on the fuse panel. **NOTE: This requires a male fuse extension (not supplied).**
3. Connet the tan wire to the factory dash lights to enable control panel backlighting.
4. Connect the BSC (Blower Speed Control) wiring to the main harness (See Photo 2, below).

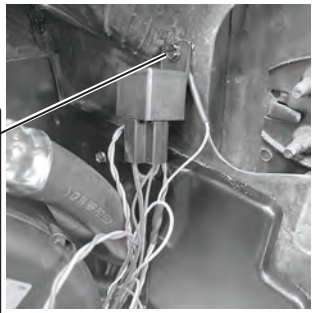


Photo 1

Photo 2

Passenger Compartment Wiring (Cont.)

5. Plug the main wiring harness connector into the ECU (See Photo 3, below).

6. Route the control panel wiring to the ECU, then plug in the connector (See Photo 4, below).

Photo 3

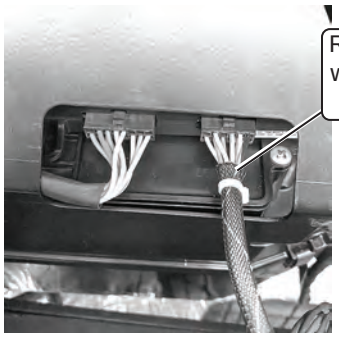


Photo 4

A/C Hose Installation

NOTE: Be sure to use a backup wrench when connecting A/C hoses and hardlines to avoid damaging fittings (See Lubricating O-rings, Page 14).

1. Route the #6 A/C hose along the inner fender. With a properly lubricated #6 O-ring (See Lubricating O-rings, Page 14), connect the straight fitting to the #6 drier fitting (See Photo 1, below).

2. Install a #6 Adel clamp onto the #6 A/C hose. Under the voltage regulator, drill a 11/64" pilot hole, then secure the hose to the inner fender using a #10 x 1/2" sheet metal screw (See Photo 2, below). Secure the rest of the hoses using tie wraps (See Photo 3, below).

3. With a properly lubricated #10 O-ring (See Lubricating O-rings, Page 14), attach the 90° fitting on the #10 A/C hose to the suction port on the compressor (See Photo 4, below).

4. With a properly lubricated #8 O-ring (See Lubricating O-rings, Page 14), attach the 135° fitting on the #8 A/C hose to the discharge port on the compressor (See Photo 5, below).

5. Route the straight fitting of the #8 A/C hose to the condenser. With a properly lubricated #8 O-ring (See Lubricating O-rings, Page 14), attach the fitting to the #8 condenser hardline (See Photo 6, below).

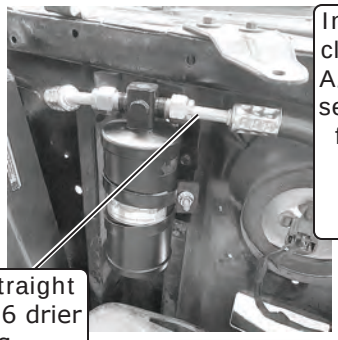


Photo 1

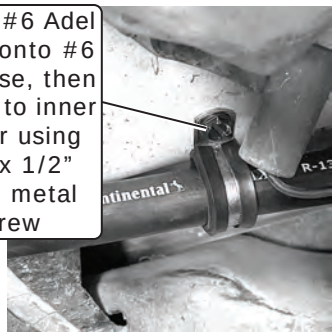


Photo 2

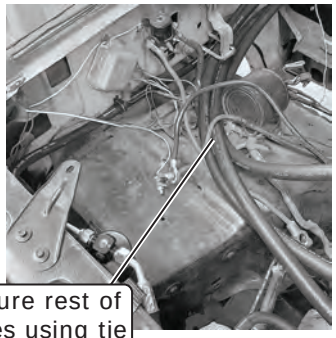


Photo 3

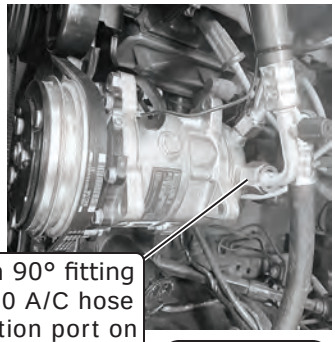


Photo 4

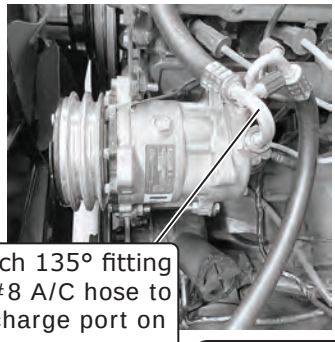


Photo 5

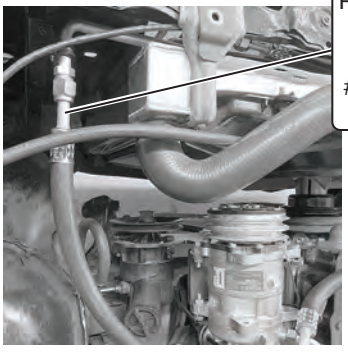


Photo 6

Heater Hose & Heater Control Valve Installation

NOTE: Vintage Air systems use 5/8" heater 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 a cast-in 3/4" heater outlet, a 3/4" x 5/8" reducer fitting (not supplied) in the heater hose or molded hose (Vintage Air Part # 099010) will need to be installed.

1. Cut the upper heater hose approximately 4" or 5" from the firewall cover and install the heater control valve. Secure it with the supplied hose clamp. **NOTE: Ensure proper flow direction through the heater control valve. The flow direction follows the molded arrow on the valve. The arrow should be pointing towards the firewall.**
2. Install another length of heater hose from the heater control valve to the intake manifold, then secure it with hose clamps (See Photos 1 and 2, below).
3. Plug the heater control valve connector into the heater control valve connector wiring harness (See Photo 3, below).

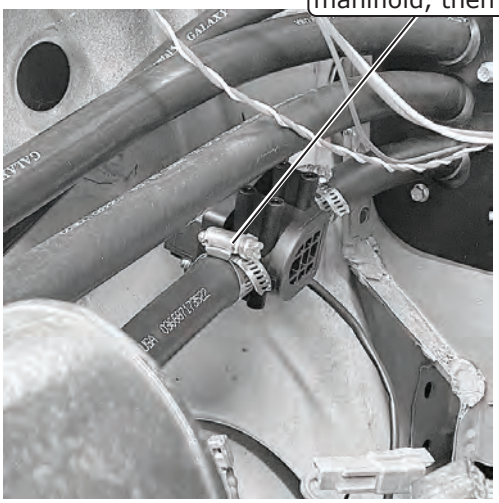


Photo 1

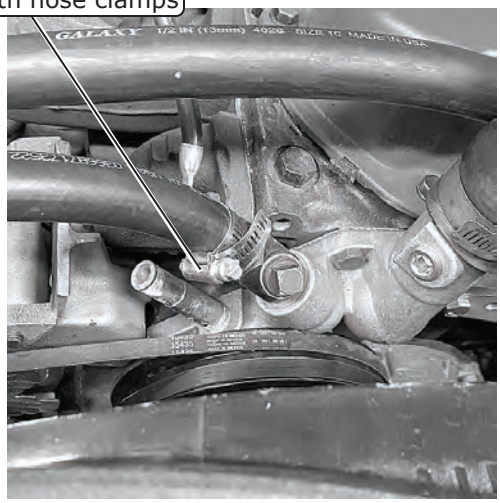


Photo 2

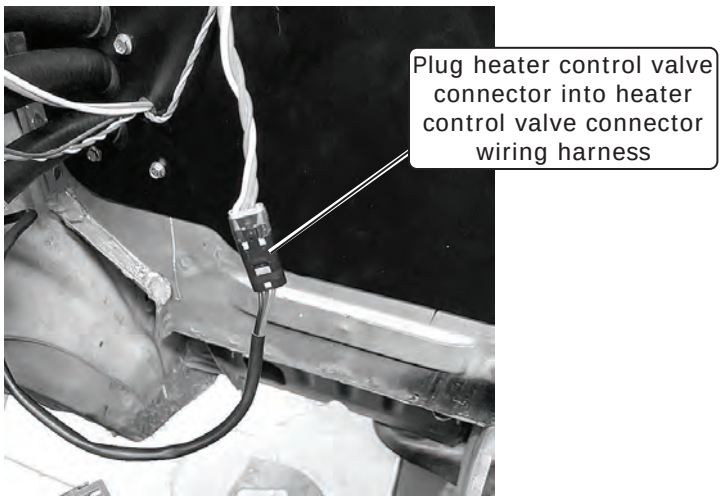


Photo 3

Heater Hose & Heater Control Valve Installation (Cont.)

4. Route the lower heater hose to the water pump on the front of the engine (See Photos 4 and 5, below).

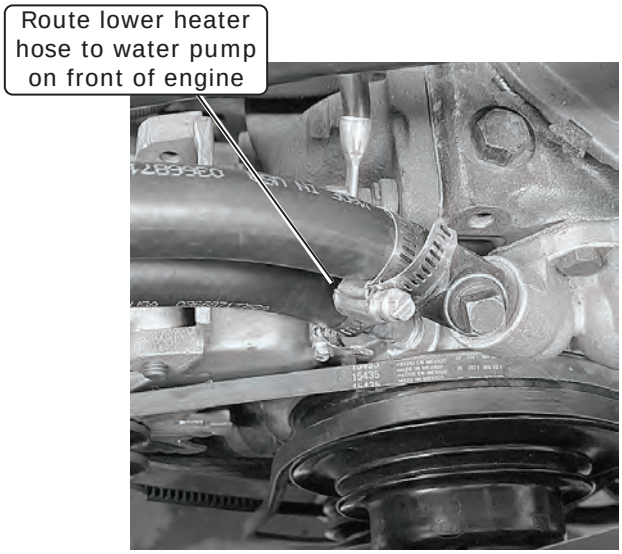


Photo 4

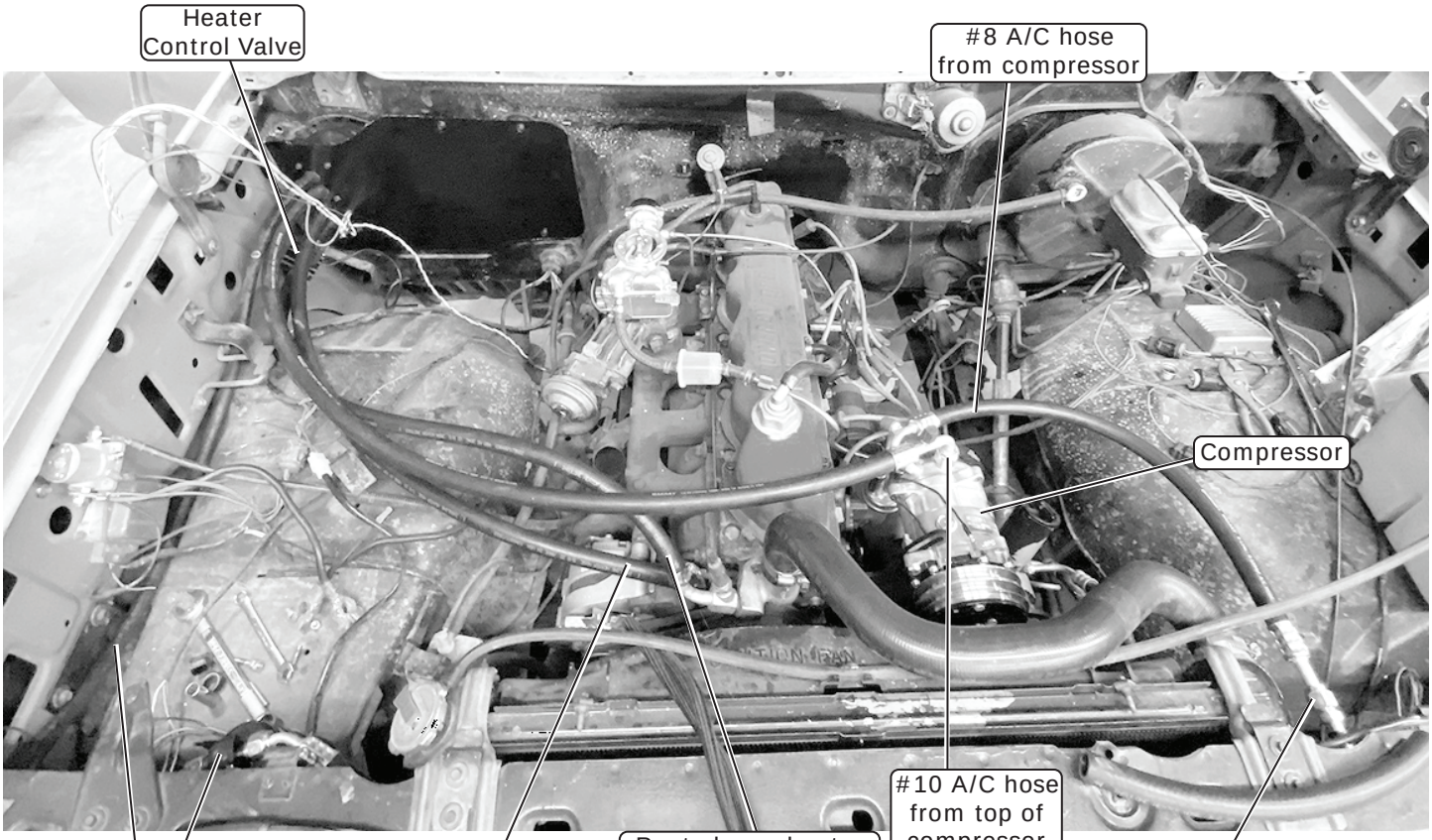


Photo 5

Engine Compartment Wiring

NOTE: Cut wires to lengths as necessary. Do not connect the power until the installation is complete.

1. Reinstall the battery.
2. Starting at the firewall, run the flexo sleeve over the wires.
3. Route the power and ground wires along the #6 A/C hose, toward the battery.
4. Connect the positive wiring eyelets to the positive battery terminal connector (See Photo 1, below).
5. Connect the blue wire to the binary switch using the supplied spade terminal (See Photo 2, below).
6. Install the supplied heat shrink over the 12 AWG orange fuse holder assembly wire and crimp it to the 12 AWG orange wire from the main wiring harness (See Photos 3 and 4, below, and Quality Crimp Guideline, Page 34).
7. Install the supplied heat shrink over the 16 AWG black fuse holder assembly wire and crimp it to the 16 AWG red wire from the main wiring harness (See Photos 5 and 6, below), and Quality Crimp Guideline, Page 34).

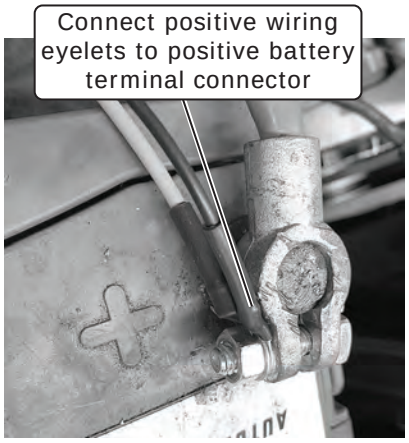
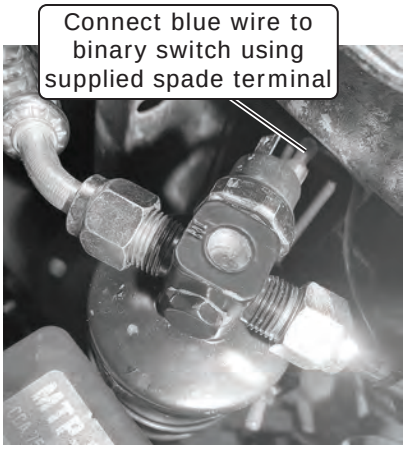


Photo 1



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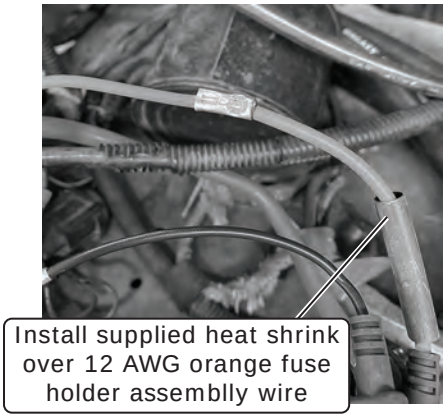


Photo 3

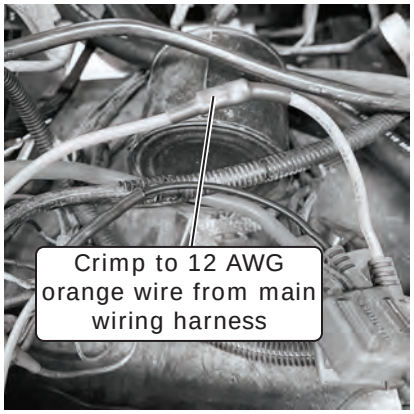


Photo 4

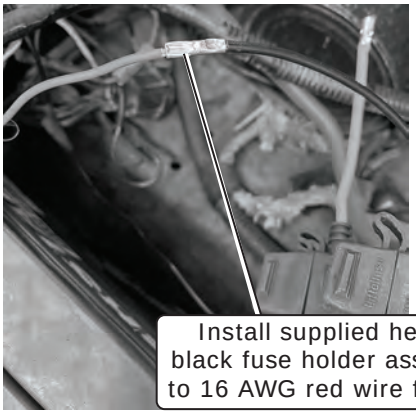


Photo 5

Photo 6

Engine Compartment Wiring (Cont.)

8. Install the fuses into the holders (See Photos 7 and 8, below).

9. Connect the ground wiring eyelets to the negative battery terminal connector (See Photo 9, below).

10. Connect the compressor bullet connector to the compressor lead (See Photo 10, below).

11. Route the compressor lead along the #10 and #6 A/C hoses, then secure it with the supplied tie wraps. Connect the compressor lead to the binary switch using the supplied spade terminal (See Photo 11, below).

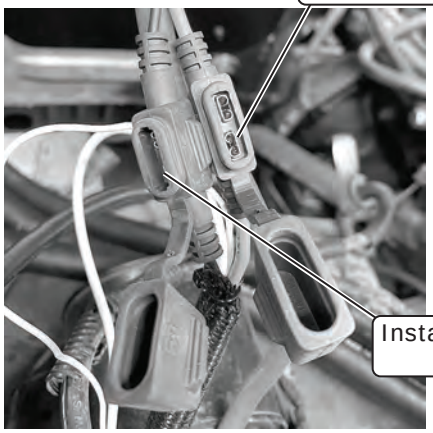


Photo 7

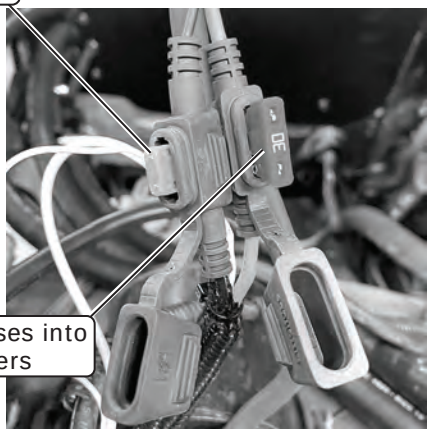


Photo 8

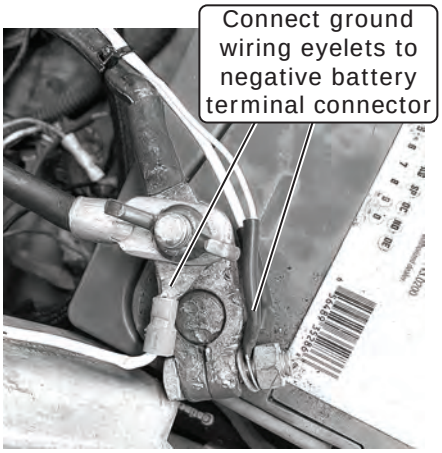


Photo 9

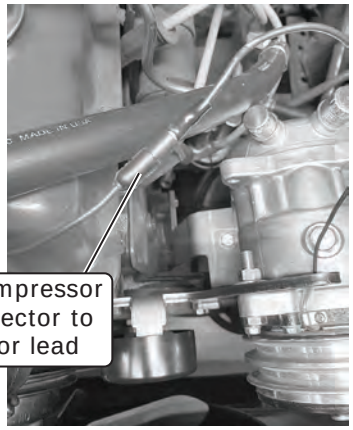


Photo 10

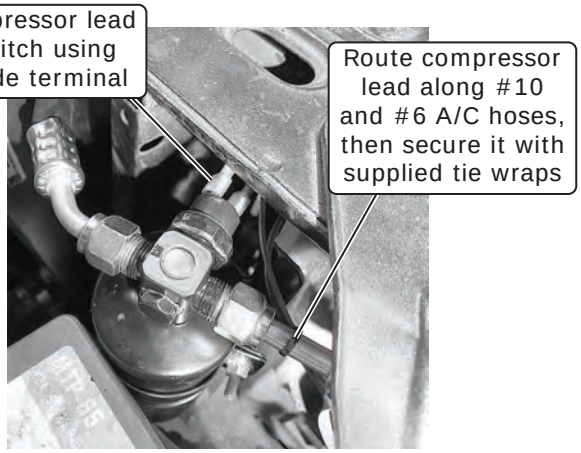


Photo 11

Engine Compartment Wiring (Final)

12. Install the supplied heat shrink over the white ground wires and crimp on the supplied eyelets (See Photos 12, 13, 14 and 15, below, and Quality Crimp Guideline, Page 34).

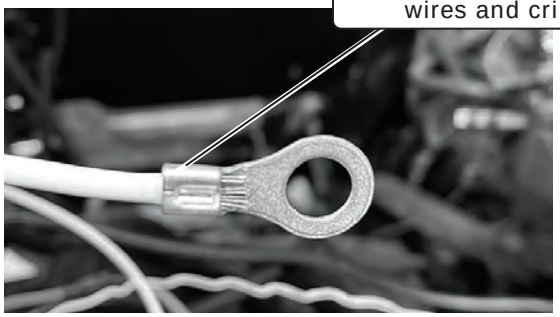


Photo 12

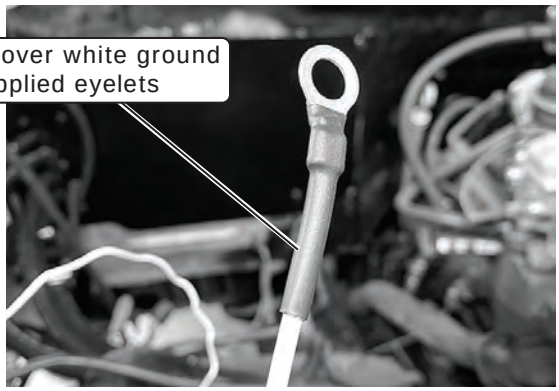


Photo 13

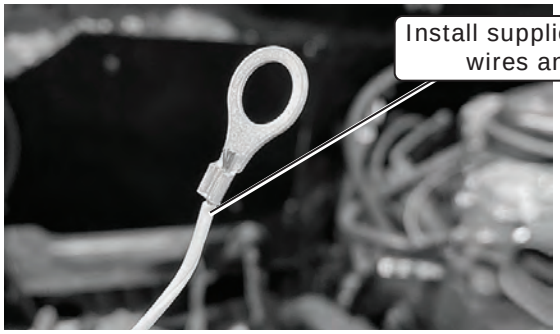


Photo 14

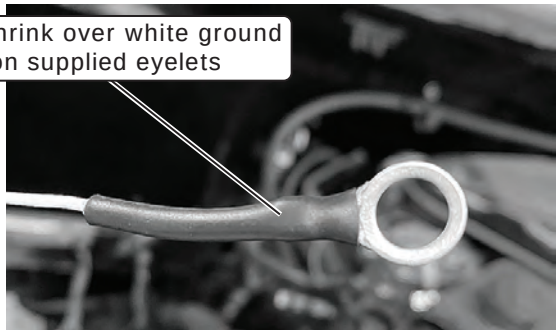


Photo 15

Defrost Duct Installation

1. Install the defrost ducts using the (4) OEM screws on top of the dash (See Photos 1 and 2, below).

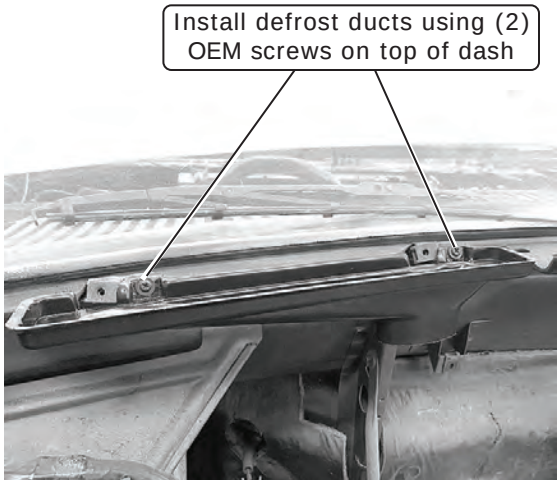


Photo 1

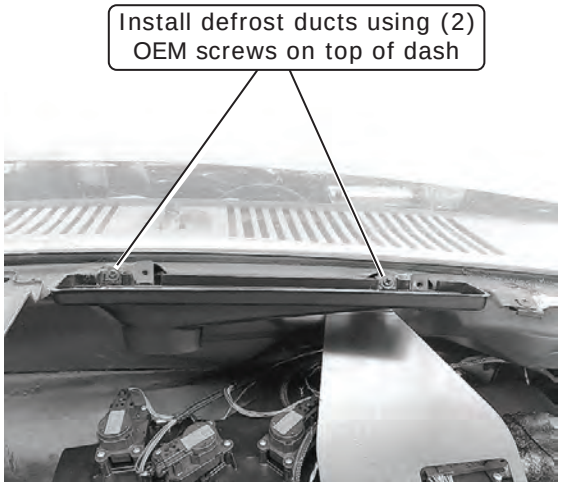


Photo 2

ECU, Control Panel & Duct Hose Routing

NOTE: For the system to function optimally, the duct hoses must be routed as directly as possible, taking care to avoid kinks, sharp bends and unnecessary length. Vintage Air supplies duct hoses in continuous lengths that will need to be cut to size depending on application. Before cutting, familiarize yourself with the installation instructions and verify the routing will work with your application. For custom hose routing, additional hose may be needed and can be purchased from Vintage Air.

1. Stretch the duct hose until there is no slack, measure, mark and cut hose to size (See Photo 1, below).

Photo 1

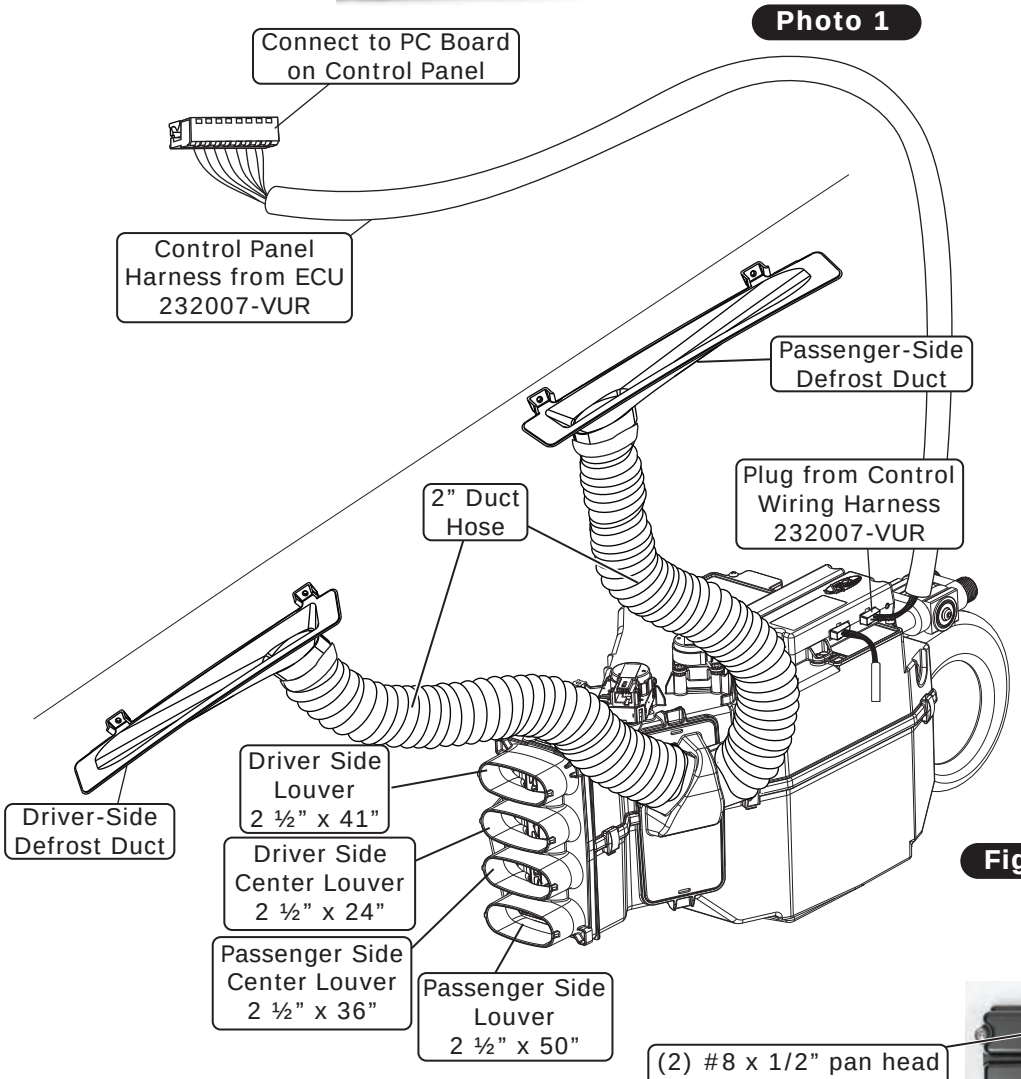


Figure 1

NOTE: ECU must be placed away from water and humidity, and also be accessible for servicing. If relocating, connectors must be positioned towards the bottom.

Final Steps: Installation Check

Installation Check		
ITEM TO CHECK		Procedure
☐	ECU	If no blinking is observed after 1 minute of turning the ignition on, go to the next check. If repetetive blinking is observed, go to the **Advanced Diagnostics** Section to diagnose.
☐	Blower speed control	Set the blower speed control to **OFF**, *confirm that the blower is off*. Position the blower speed control to **LOW** then **MEDIUM** and then **HIGH**. *At each setting confirm that the blower speed increases*, do this by feeling for the amount of air coming from the unit and hearing the blower speed increase.
☐	Mode control	Set the **MODE** control to the **DASH** position. *Confirm that air is being blown at the dash vents.* Set the **MODE** control to the **FLOOR** position. *Confirm that air is being blown at the floor vents.* Set the **MODE** control to the **DEFROST** position. *Confirm that all air is being blown from the defrost vents*
☐	Temperature control	**If heater lines are installed:** Set the **MODE** control to the **DASH** position. Set the **TEMP** control to the **MAX HEAT** position. *Confirm that HOT air is coming from the dash vents.* **If system is charged:** Set the **TEMP** control to the **MAX COOL** position. *Confirm that **COLD** air is coming from the dash vents.* Also *confirm that the compressor "clicks" on* when adjusting the **TEMP** control from the **MAX HEAT** position to the **MAX COOL** position.
☐	AC Indicator (If applicable)	While the **MODE** control is set to the **DASH** position, and the **TEMP** control is set to the **MAX COOL/MIN HEAT** position, *confirm that the blue AC Indicator light is on*.
☐	Backlight (If applicable)	If your control panel has backlight capabilities and has been wired, turn the dash lamp on and *confirm that the AC panel's legend is lit*.
☐	Fittings	Verify AC and Heater fittings are all tight.

Final Steps: Completing the Install

1. Reinstall all previously removed items.
2. 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.
3. Double check all fittings, brackets and belts for tightness.
4. Vintage Air recommends that all A/C systems be serviced by a licensed automotive A/C technician.
5. Evacuate the system for a minimum of 45 minutes prior to charging, and perform a leak check prior to servicing.
6. Charge the system to the capacities stated on Page 4 of this instruction manual.
7. See Operation of Controls procedures on Page 37.

Dash Reinstallation

1. Reinstall the dash, connecting the (2) passenger-side duct hoses to the hose adapters. Guide the (2) driver-side duct hoses to the holes for the hose adapters. Next, reinstall the instrument cluster and the instrument cluster bezel. When installing the bezel, connect the hoses to the hose adapters that were previously glued on.

Glove Box Installation

1. Install the ECU onto the back of the glove box, with the connectors facing down, and secure it using (2) 10-32 x 1/2" pan head screws and (2) 10-32 hex nuts (See Photos 1 and 2, below).
2. Install the new glove box into the opening and secure it using the (5) OEM mounting screws (See Photo 3, below).
3. Reinstall the glove box door.

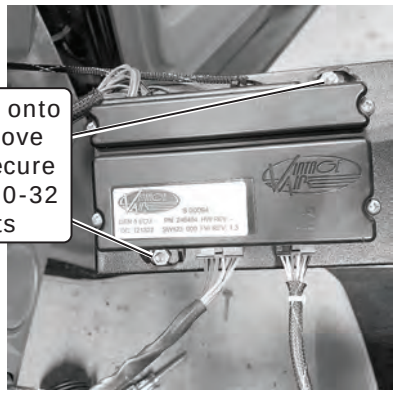


Photo 1

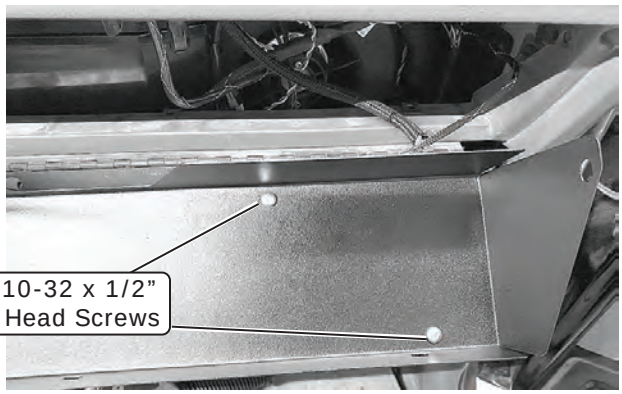


Photo 2

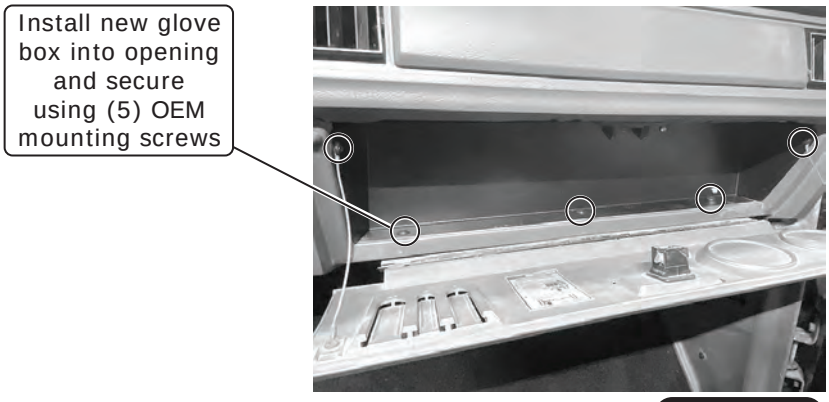


Photo 3

Quality Crimp Guideline

Refer to wiring diagram on Page 35, and instructions on Page 36.

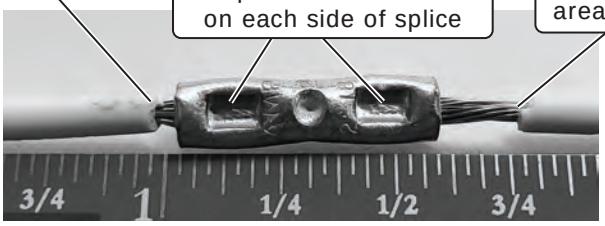


Photo 1

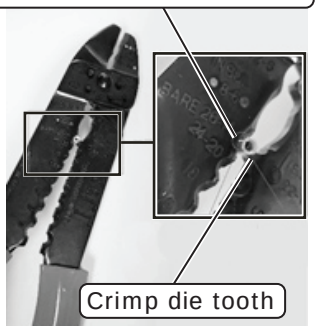


Photo 2

Good Ring Terminal Crimp

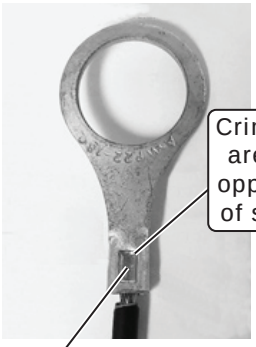


Photo 3

Bad Ring Terminal Crimp

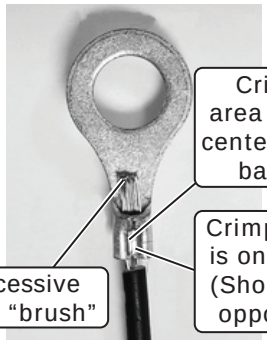


Photo 4

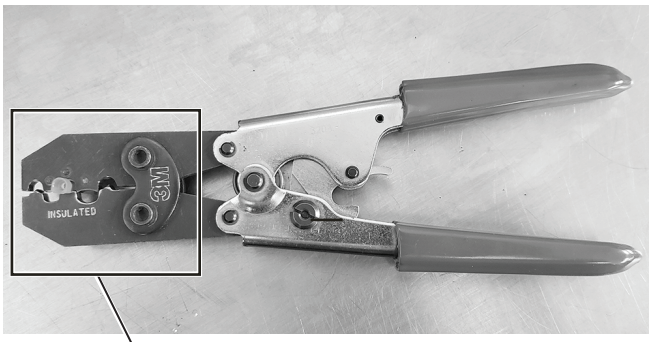
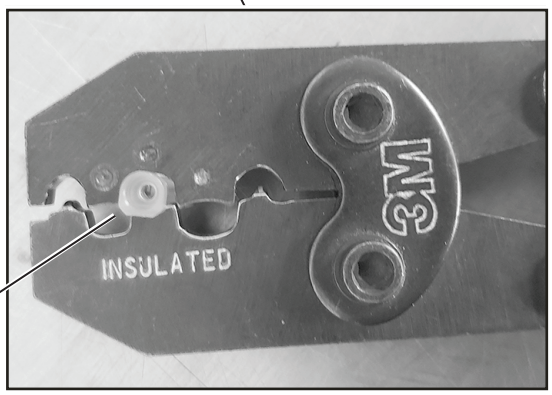


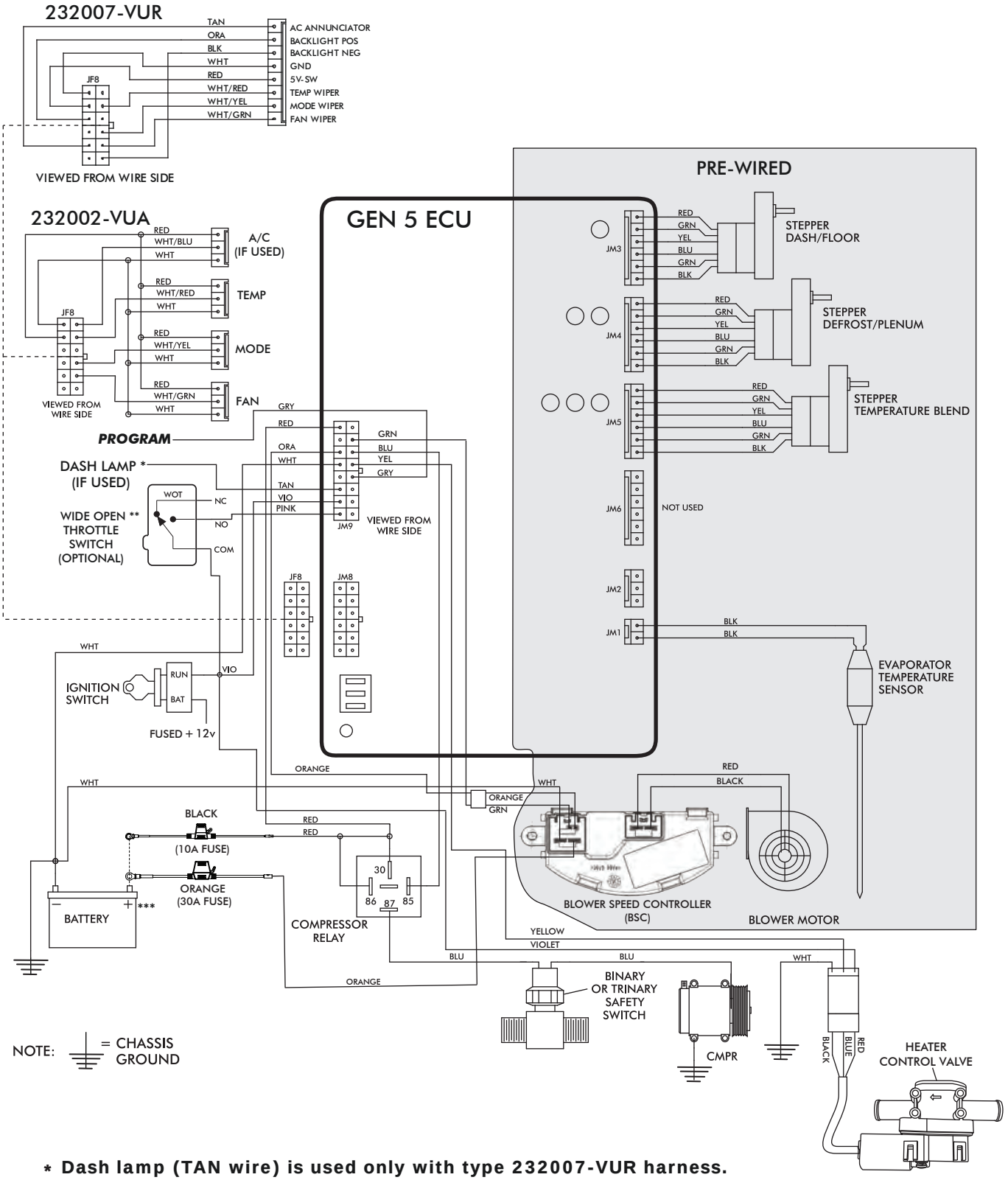
Photo 5



Use a ratcheting crimp tool for insulated barrel terminals when crimping the provided female insulated terminal. Ensure terminal is inserted in appropriate position before crimping.

Photo 5a

Gen 5 Wiring Diagram

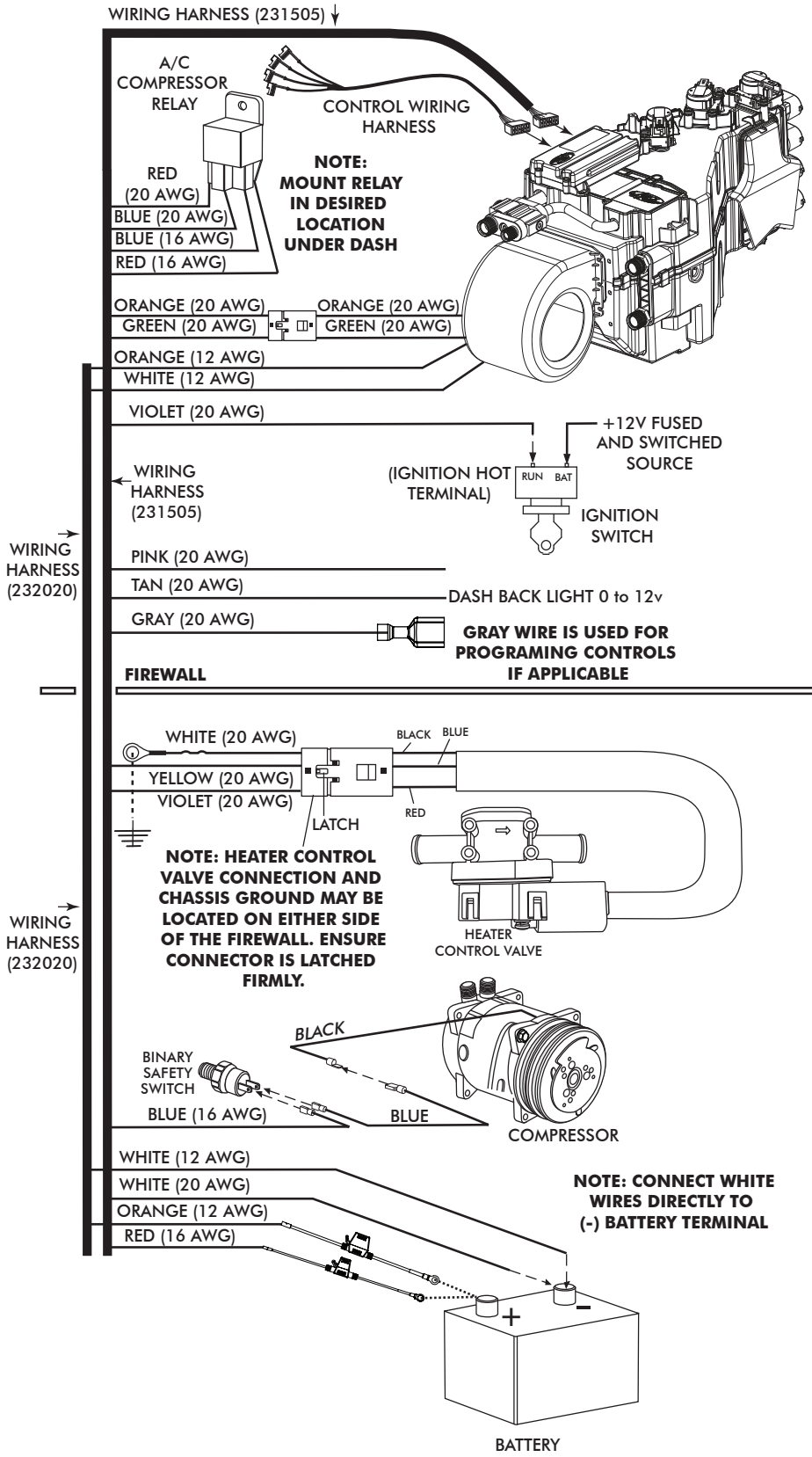


*** Dash lamp (TAN wire) is used only with type 232007-VUR harness.**

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

***** Install fuse assemblies at or as near to the battery as possible.**

Gen 5 Wiring Instructions



Ignition Switch:
Using provided butt splice (PN 226004), connect the 20 AWG violet wire to a 5A fused and switched 12V source such as Key On.

Wide Open Throttle Switch (Optional):
If a wide open throttle switch is required, connect the 20 AWG pink wire to a normally open switch that, when closed, connects a fused and switched 12V source to the pink wire. See Gen 5 wiring diagram for an example.

Dash Light (Optional):
If using a Vintage Air control panel with back light, connect the 20 AWG tan wire to the vehicle's dash back light 0-12V using provided butt splice (PN 226004).

Heater Control Valve:
Connect the Violet/Yellow/White twisted branch with 3 position connector into the heater control valve connector. Ensure that the mating latch is fully seated.

Binary/Trinary & Compressor:
Binary Switch: Terminate provided insulated female terminal (PN 23172-VUW) to the blue 16 AWG wire. Connect as shown.
Trinary Switch: Connect according to trinary switch wiring diagram.

Battery Connections:
ECU Ground: Terminate provided ring terminal (PN 226110) to 20 AWG white wire from the 231505 wire assembly and install at battery.
ECU PWR: Terminate provided fuse assembly with black leads (PN 233012) to the 20 AWG red wire from the 231505 wire assembly. Install provided 10A Red Mini Fuse (PN 226118). Install at battery.
Blower Speed Controller (BSC) Ground: Terminate provided ring terminal (PN 226111) to 12 AWG white wire from the 232020 wire assembly and install at battery.
Blower Speed Controller (BSC) PWR: Terminate provided fuse assembly with orange leads (PN 233008) to the 12 AWG orange wire from the 232020 wire assembly. Install provided 30A Green ATO/ATC Fuse (PN 226125). Install at battery.

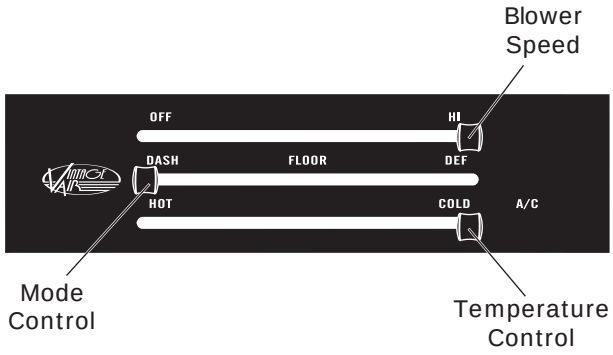
Operation of Controls

On 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).

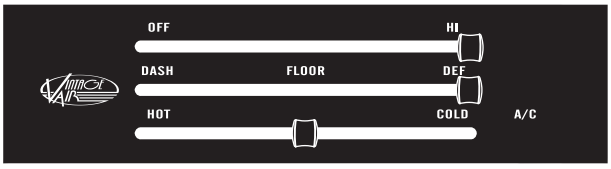
Temperature Control
For maximum heating, adjust to hottest position (adjust between HOT and COLD to reach desired temperature).

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).



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Troubleshooting Guide

This printed troubleshooting guide is our basic guide that covers common installation problems. To see our advanced diagnostics and troubleshooting guide, please refer to the following page, for instructions on how to download the complete guide.

WARNING: While troubleshooting the system, never probe connector terminals from the front mating side, only back probe.

WARNING: While troubleshooting the system, never use automotive check lights.

Symptom	Condition	Checks	Actions	Notes
1. Blower stays on high speed with ignition on.	No other functions work.	Check for damaged pins or wires in the control panel wire assembly and mating header at ECU.	If found damaged, replace wire assembly or ECU.	
		Check for a bad ECU GND.		
	All other functions work.	Check for damaged pins or wires in the control panel wire assembly and mating header at ECU.	If found damaged, replace wire assembly or ECU.	
		Check if Blower power fuse is blown.	Replace fuse.	If fuse continues to blow, there is a serious problem in the wiring. Check all wiring and ensure the wire is not damaged and shorting out along its route.
		Check for a bad ECU GND.	Repair connection.	
2. Compressor will not turn on (All other functions work).	System is not charged.	System must be charged for compressor to engage.	Charge system.	**Danger: Never bypass safety switch with engine running. Serious injury can result.**
	System is charged.	Check for faulty A/C potentiometer or associated wiring (not applicable to 3-pot controls).	Check continuity to ground on white control head wire. Check for 5V on red control head wire.	To check for proper pot function, check voltage at white/red wire. Voltage should be between 0V and 5V, and will vary with pot lever position.
		Check for disconnected or faulty thermistor.	Check 2-pin connector at ECU housing.	Disconnected or faulty thermistor will cause compressor to be disabled.
3. Compressor will not turn off (All other functions work).		Check for faulty A/C potentiometer or associated wiring.	Repair or replace pot/control wiring.	Red wire at A/C pot should have approximately 5V with ignition on. White wire will have continuity to chassis ground. White/Red wire should vary between 0V and 5V when lever is moved up or down.
		Check for faulty A/C relay.	Replace 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	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.	Check for power at ECU, and confirm ignition is being applied to ECU properly.	
		Verify battery voltage is greater than 10 volts and less than 16 while engine is running.	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.		
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.	Check for faulty battery or alternator.	Charge battery.	
7. Erratic functions of blower, mode, temp, etc.		Check for damaged switch or pot and associated wiring.	Repair or replace.	

Advanced Diagnostics and Troubleshooting Guide

If after referencing the Troubleshooting Guide, the issue is not resolved, move to The Advanced Diagnostics and Troubleshooting Guide that covers the following:

- **ECU Diagnostics Codes**
  1. ***ECU Blink Sequence***
  2. ***Firmware Version Number***
  3. ***ECU Model Number***
  4. ***ECU Start-Up Blink Sequence***
  5. ***Diagnostic Codes***
- **Complete Advanced Troubleshooting Guidelines**

Access the latest version of the Advanced Diagnostics and Troubleshooting Guide by scanning the following QR code on your mobile device:

You can also access the guide by typing the following address into your web browser:

https://www.vintageair.com/instructions_pdf/905000.pdf

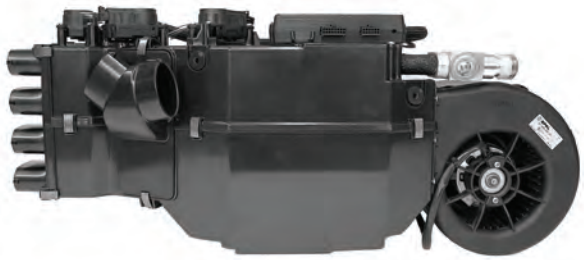
www.vintageair.com

Packing List: Evaporator Kit (754185)

No.	Qty.	Part No.	Description	
1.	1	765200	Gen 5 Super Magnum Evaporator Module	_____
2.	1	794185	Accessory Kit	_____

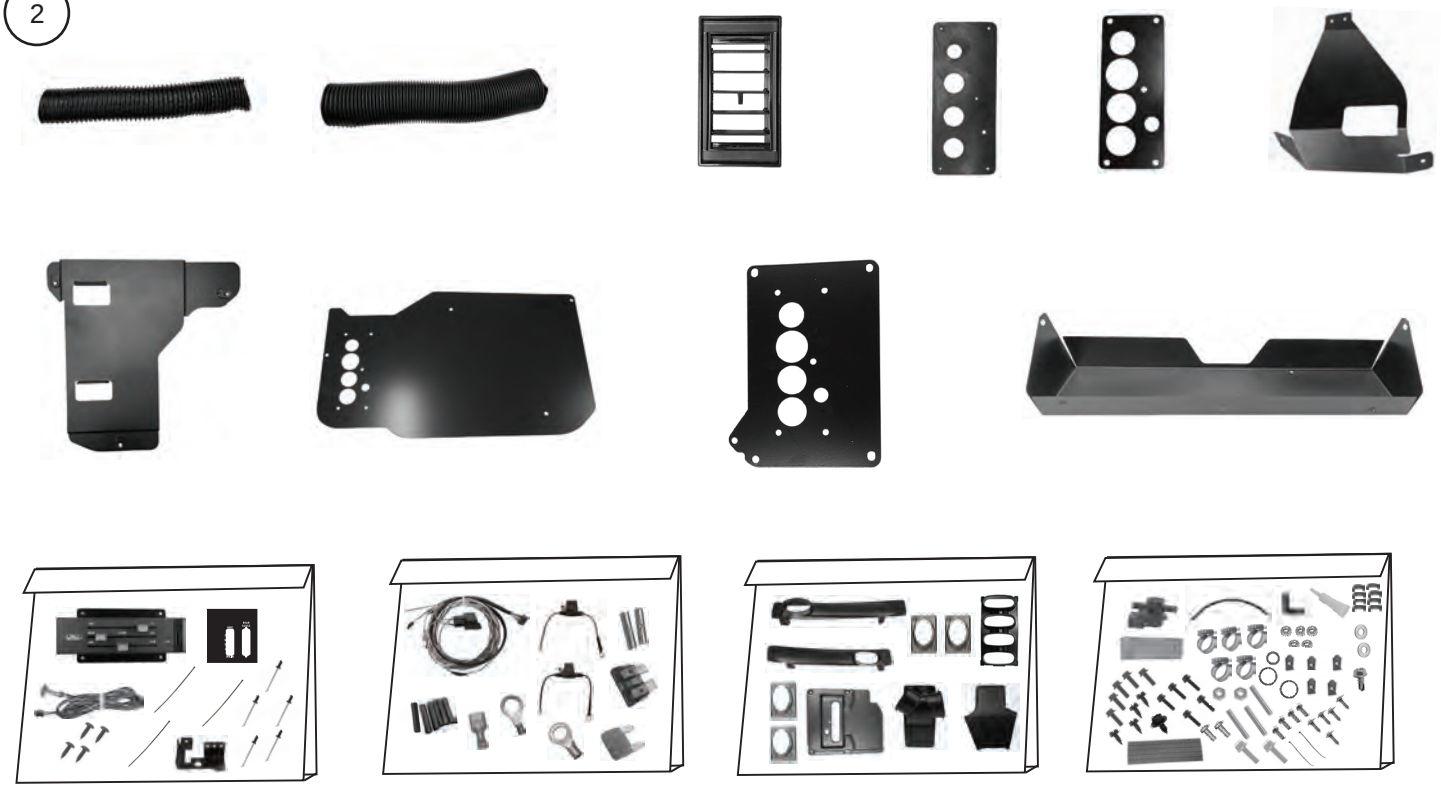
Checked By: _____
Packed By: _____
Date: _____

1



Gen 5 Super Magnum Evaporator Module 765200

2



Accessory Kit 794185

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