1976-86 Jeep CJ5/CJ7/CJ8

Gen 5 Evaporator Kit
(755696)

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Packing List: Evaporator Kit (755696)

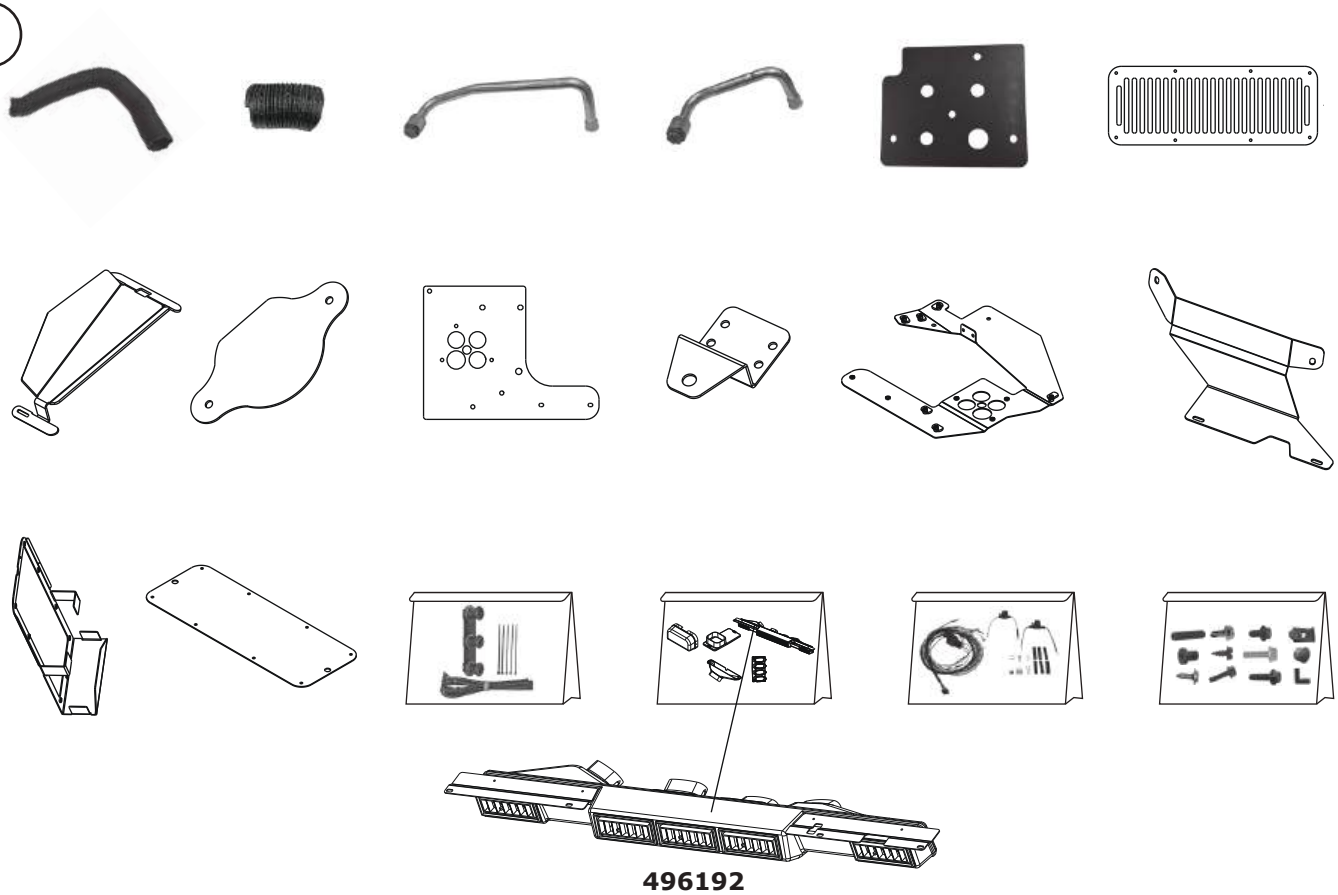
No.	Qty.	Part No.	Description
1.	1	765200	Gen 5 Magnum MAX Module with 404 ECU
2.	1	795696	Accessory Kit

**** 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 Magnum MAX Module with 404 ECU 765200

2



496192

Accessory Kit 795696

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, study the instructions, illustrations, photos & diagrams.

Perform the following:

1. Disconnect and remove the battery (See Photo 1, below).
2. Unbolt the battery tray. Remove (4) bolts on top of the battery tray and a nut on the bottom (See Photos 2, 3, and 4, below). Remove the screws fastening the wiring to the side of the battery tray (See Photo 5, below).
3. Drain the radiator (See Photos 6 and 7, below). Remove refrigerant if equipped with air conditioning.

Photo 1

Photo 2

Photo 3

Photo 4

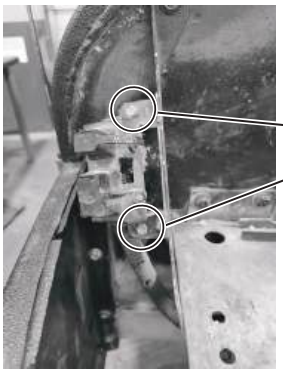
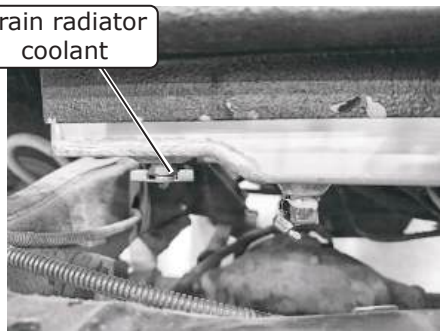


Photo 5

Photo 6



View from Bottom of Radiator

Photo 7

Engine Compartment Disassembly (Cont.)

4. Remove the heater hoses and fresh air intake drain hose. The fresh air intake drain hose is the large hose located to the right of the heater hoses and battery tray behind the vehicle wiring harness. Loosen the hose clamps and remove the hoses (See Photos 8, 9 and 10, below).
5. Remove the (4) heater assembly mounting nuts located on the firewall. [27 is 31,29,28,30] Use this opportunity to remove the blower motor power wire which is the single wire below the battery tray next to the mounting nut in photo [30].
6. Remove the (6) screws fastening the fresh air intake vent to the cowl. [39]
7. Remove the (4) screws fastening the fresh air intake duct to the cowl. These screws are located under the vent in the corners. [38

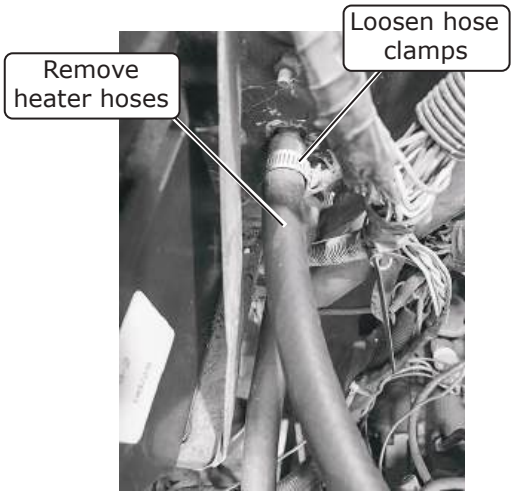


Photo 8

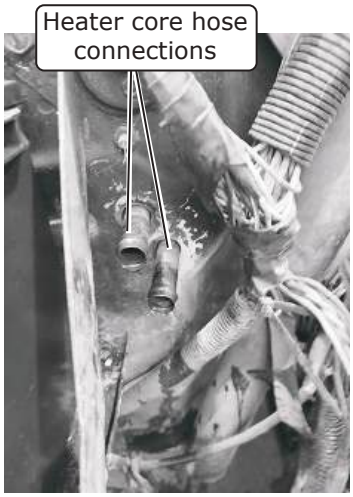
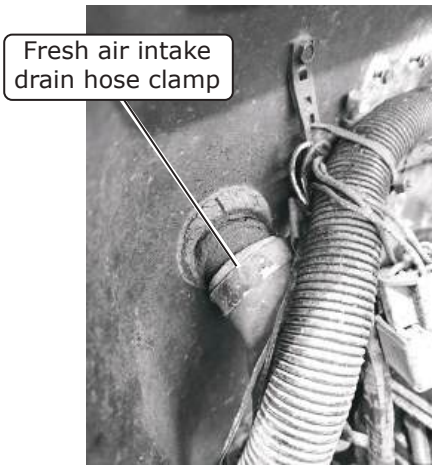


Photo 9



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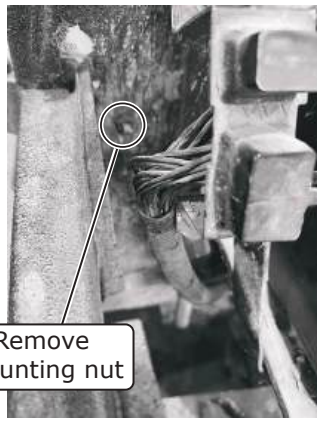

Photo 11

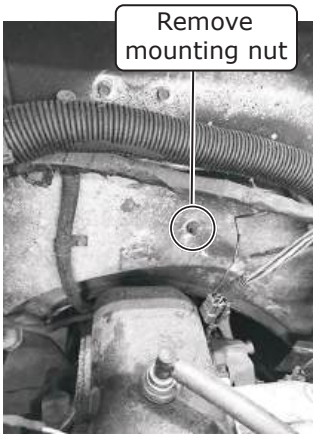

Photo 12

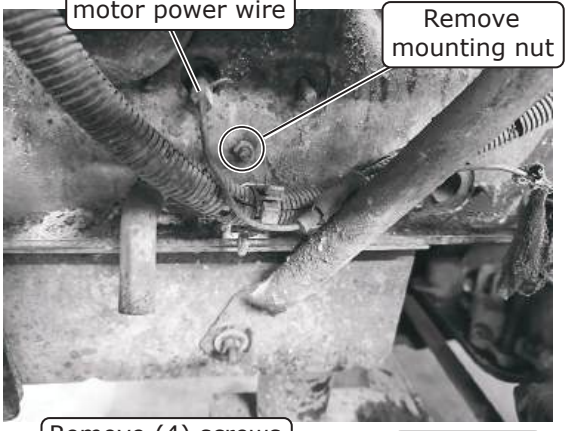

Photo 13

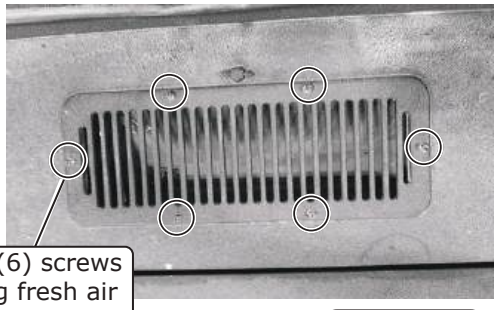

Photo 14

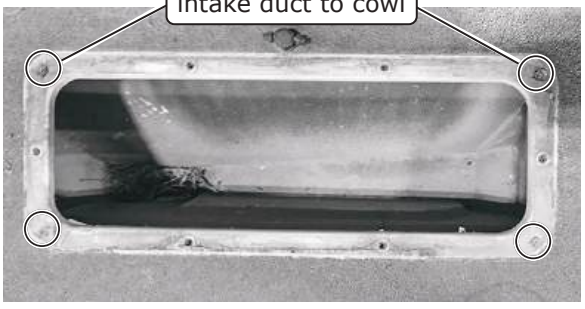

Photo 15

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Passenger Compartment Disassembly

Perform the following:

1. Remove screws fastening the hard top or soft top to the windshield frame. This step will vary depending on the soft top or hard top manufacturer. Follow the manufacturer's instructions
2. Remove the glove box fastening screws if present.
3. Remove (3) evaporator duct assembly mounting screws and carefully lower the assembly (See Photos 1, 2, 3 and 4, below).
4. Disconnect the wires to the evaporator duct assembly (See Photo 5, below). Cap and tape the wires. One of these wires will have 12v when the ignition is on. **NOTE: If these wires are in good condition they may be used as 12v ignition wires for the new air conditioning unit.**
5. Disconnect OEM air conditioning hoses and pull them through the OEM evaporator hose firewall seal (See Photo 6, below).

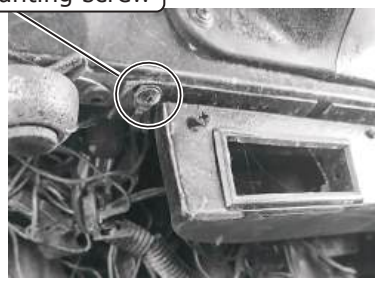


Photo 1

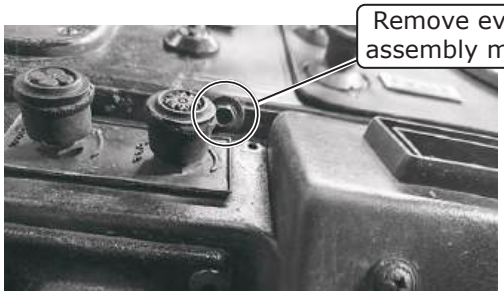
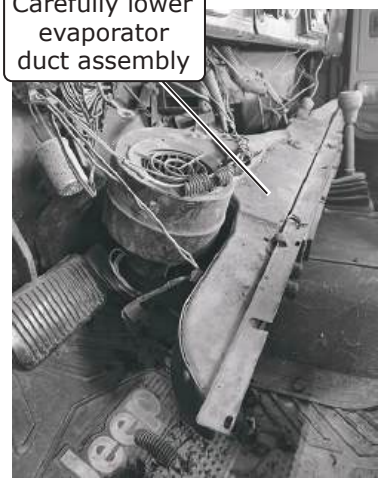


Photo 2

Photo 3



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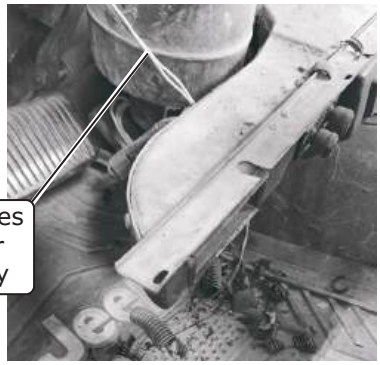


Photo 5

Photo 6

Passenger Compartment Disassembly (Cont.)

6. The OEM evaporator duct can now be gently pulled from its position. Be aware that gauge and radio wiring are routed above the assembly and may become tangled.

7. The heater box assembly under the dash can now be lowered to access the defrost hose and control cables more easily (See Photos 7 and 8, below). Be aware of the gauge cluster and speaker wiring routed around this assembly (See Photo 7, below). There are (3) control cables that need to be removed by prying the locking ring and cable retainer on the mounting brackets (See Photos 9 and 10, below).

8. Remove the (2) interior windshield hinge locking knobs and fold the windshield down (See Photos 11 and 12, below).

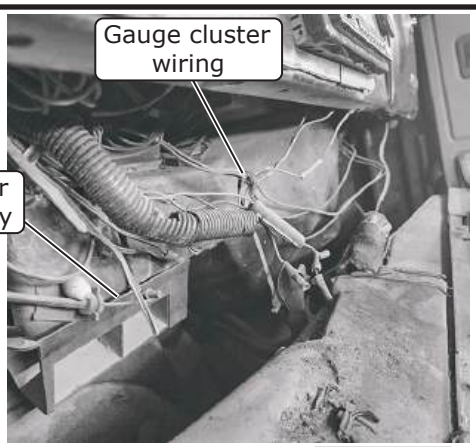


Photo 7

Photo 8

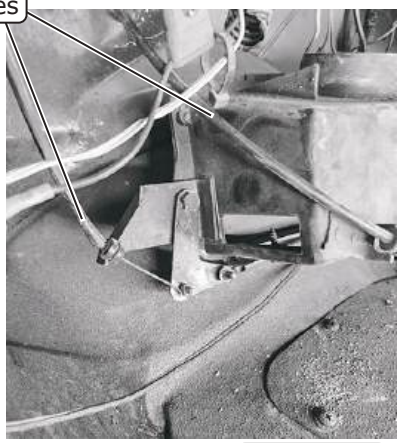


Photo 9

Photo 10

Photo 11

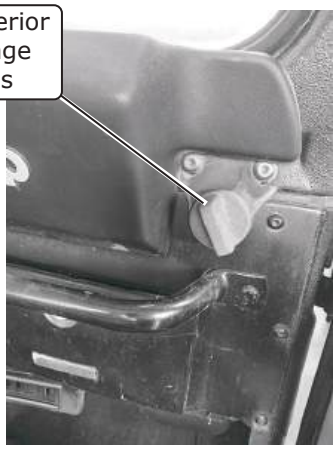


Photo 12

Passenger Compartment Disassembly (Cont.)

9. Lay the windshield forward to expose the defrost duct screws. The screws are under the windshield frame seal. Remove the defrost duct screws (See Photo 13, below).

10. Remove the (4) upper screws fastening the dash pad (See Photo 14, below). They are located under the windshield frame.

11. Remove the (4) lower screws fastening the dash pad (See Photos 15, 16 and 17, below). They are located along the bottom.

12. Remove the steering column trim (See Photo 18, below).

Photo 13

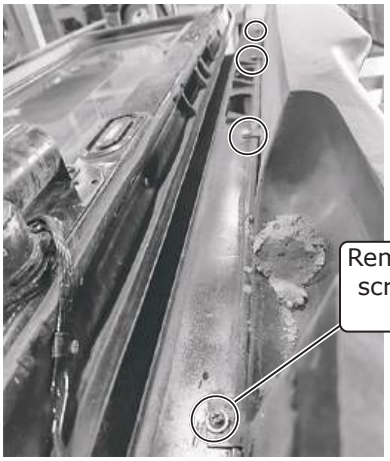


Photo 14

Photo 15

Photo 16

Photo 17

Photo 18

Passenger Compartment Disassembly (Cont.)

13. Remove the screws around the perimeter of the dash panel (See Photos 19-22, below). Leave (2) screws loosely in each corner of the dash panel to support it (See Photo 21, below).

14. Remove the ECU from the bracket on the bottom of the fresh air intake duct and remove the wiring plug (See Photos 23 and 24, below).

15. The fresh air intake duct is now unfastened. Gently pull out the dash panel and support it to drop out the fresh air intake duct and defrost duct (See Photos 25 and 26, below).

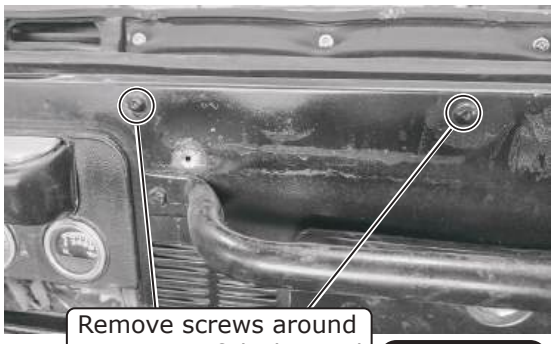


Photo 19

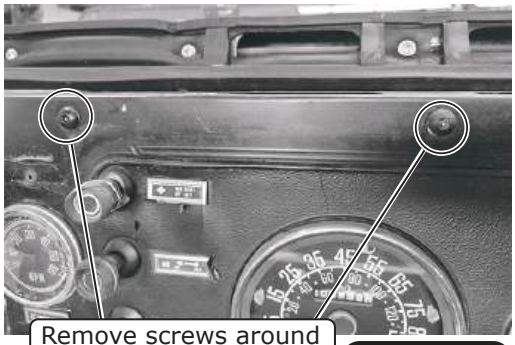


Photo 20

Photo 21

Photo 22

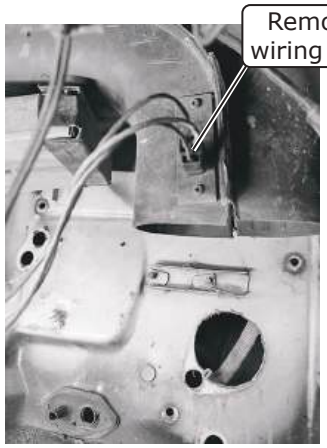


Photo 23

Photo 24

Photo 25

Photo 26

Passenger Compartment Disassembly (Final)

16. Reattach the dash panel with several perimeter screws, but leave it loose to help with assembly.

17. Remove the (3) lower hvac controls from the dash panel by squeezing the locking tabs and pushing the knob out of the front of the dash panel (See Photos 27, 28 and 29, below). **NOTE: The bottom (3) holes will be used for the new controls.**

Photo 27

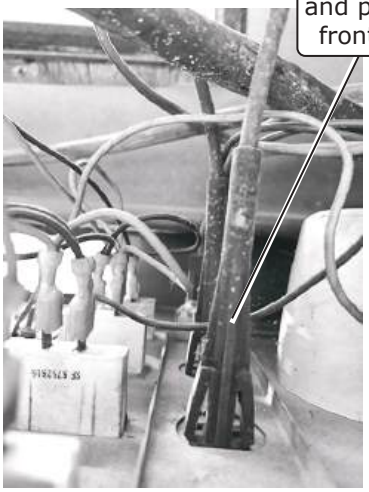


Photo 28

Photo 29

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.

Defrost Duct Installation

1. Depending on the radio, gauges, and accessories the dash panel may need to be pulled out and supported to install the defrost duct (See Photo 1, below).
2. Place the provided defrost duct assembly in the same location as the OEM duct and fasten using OEM screws or (2) #8 x 1/2" wide head screws (See Photos 1 and 2, below).

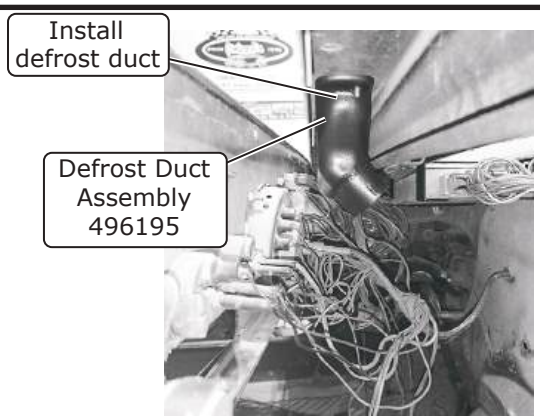


Photo 1

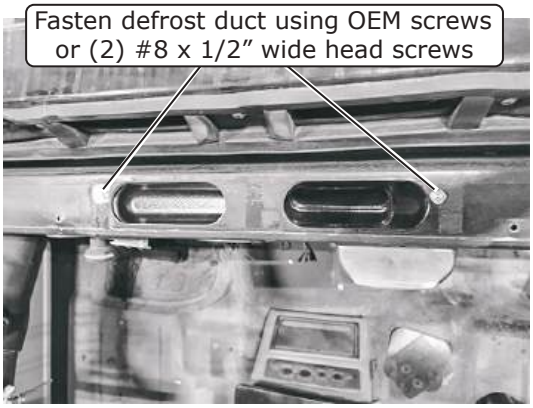


Photo 2

Firewall Modification

1. There is a sheet metal channel that acts as a backing plate for the battery tray. Bend battery tray backing channel flange over the weld nut to increase the clearance for evaporator unit (See Photos 1 and 2, below).
2. Enlarge evaporator seal mounting holes to .25" using drill bit (See Photo 3, below).

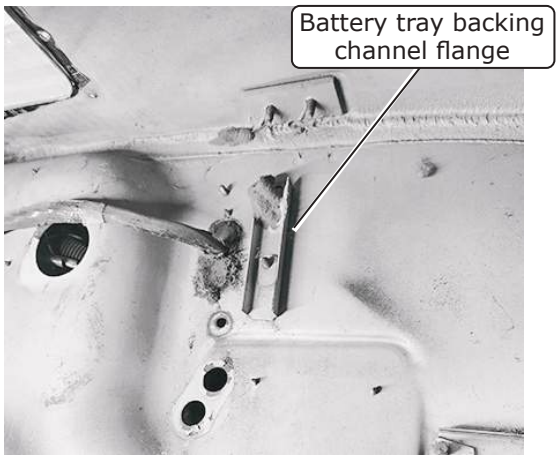


Photo 1

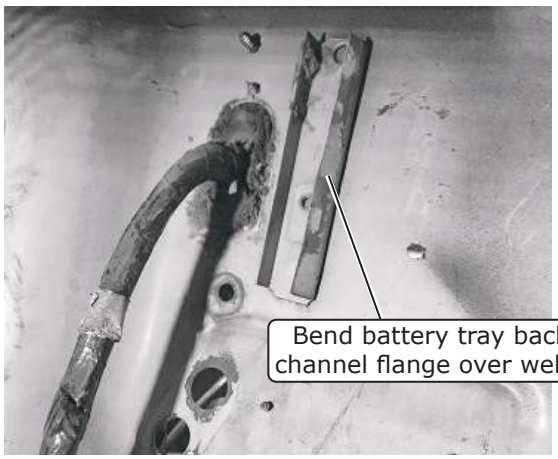


Photo 2

Photo 3

Firewall Modification (Cont.)

3. Install the evaporator firewall bracket and firewall cover using the (4) 1/4-20 x 1/2” flange head black bolts through the existing firewall holes, the battery trays and (2) lower mounting bolts. These bolts will pass through the firewall through existing holes (See Photos 4, 5, 6 and Figure 1, below).
4. Mark the hole locations using the brackets for alignment (See Photos 7 and 8, below).
5. Depending on the Jeep model and year, the firewall may overhang the holes slightly. Mark these locations (See Photo 8, below).
6. Locate the dimple in the firewall below the heater hose ports. Measure 2” to the passenger side of the vehicle from the center of the dimple and 4” below the tab on the evaporator mounting bracket (643302) (See Photo 9, below). Mark this location and drill an 1/8” pilot hole and then drill out to 5/8”. This will be the evaporator drain hole.

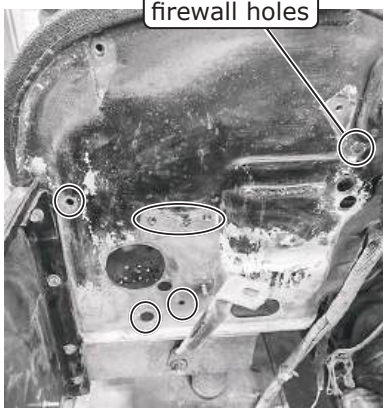


Photo 4

Photo 5

Photo 6

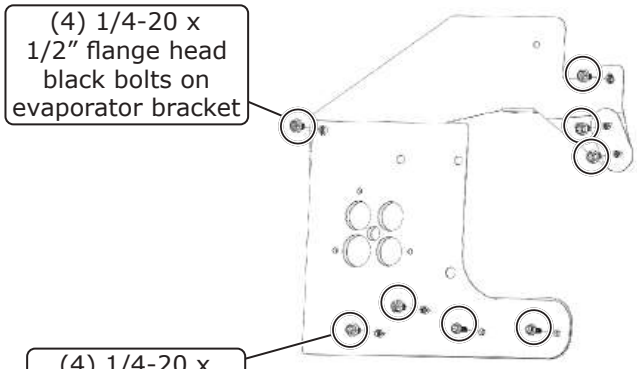


Figure 1

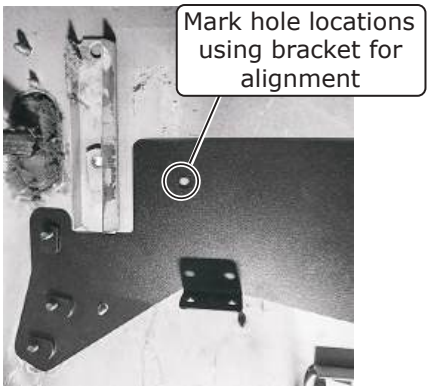
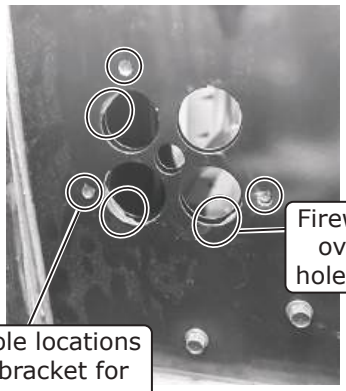


Photo 7



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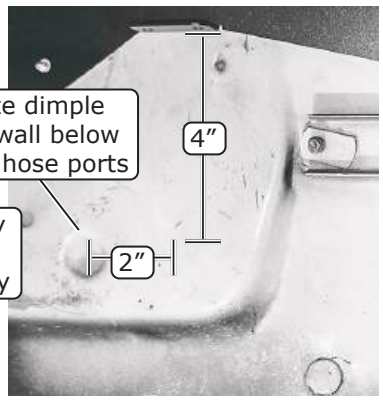


Photo 9

Firewall Modification (Final)

7. Remove the firewall cover and evaporator mounting bracket. Drill the holes marked in the previous step to .25" (See Photos 10, 11 and 12, below). Clearance the firewall so that there is no overhang.

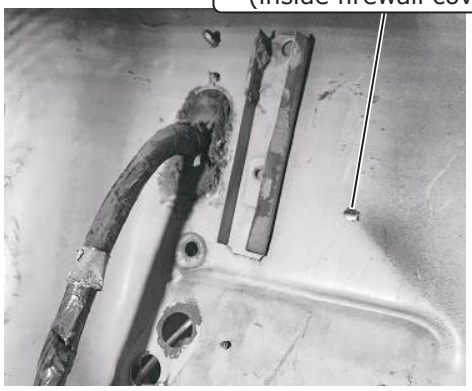


Photo 10

Photo 11

Photo 12

Evaporator Preparation

Perform the following on a workbench:

1. Remove the plastic caps and rubber inserts from the heater fittings on the evaporator module (See Photo 1, below).

2. Install the upper and lower heater hardlines onto the evaporator module using properly lubricated #10 O-rings and torque to specifications (See Lubricating O-ring & Fitting Torque Specs, Page 17) (See Figure 1, below). **NOTE: Use back up wrenches on these connections.**

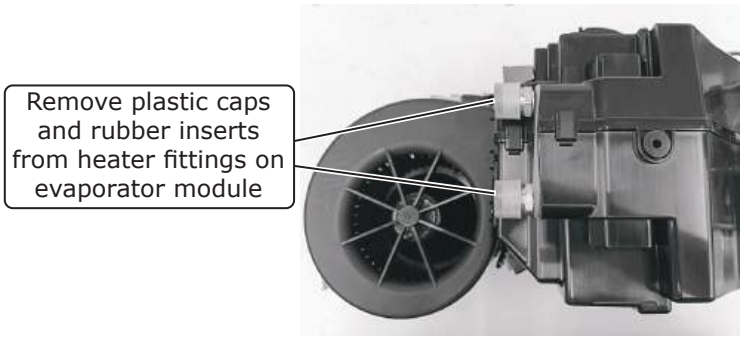


Photo 1

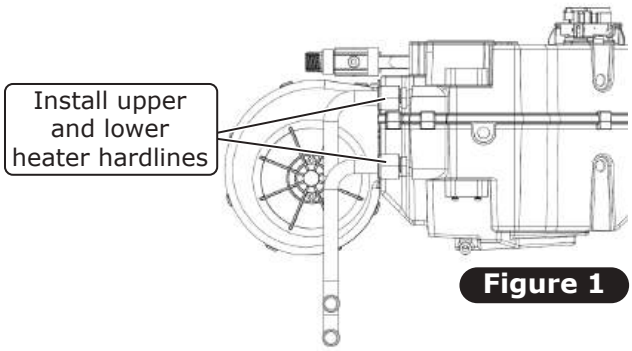


Figure 1

Evaporator Preparation (Cont.)

3. Place (3) well nuts into the mounting location as shown in Figures 2 and 3, below.

4. Install (2) 1/2" plastic plugs into the back mounting provisions, as shown in Figure 4, below. **NOTE: These mounting locations will not be used for this application.**

5. Install the floor vent deflector using (2) spring clips (See Photo 2, below).

6. Install the dash plenum using (4) spring clips ((2) on each side) (See Photos 3 and 4, below).

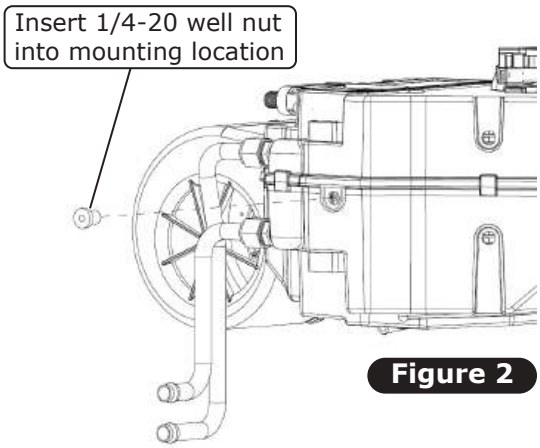


Figure 2

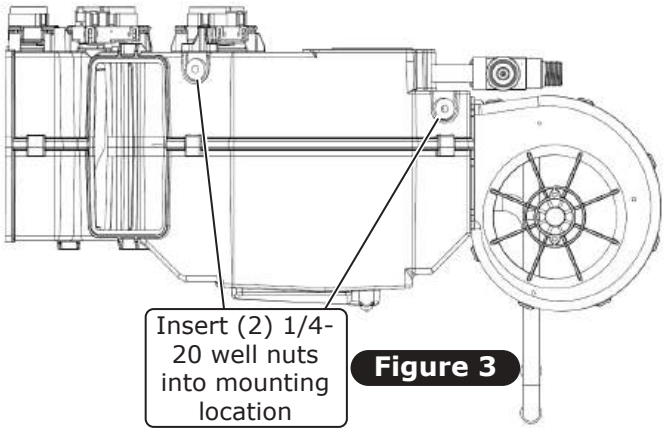


Figure 3

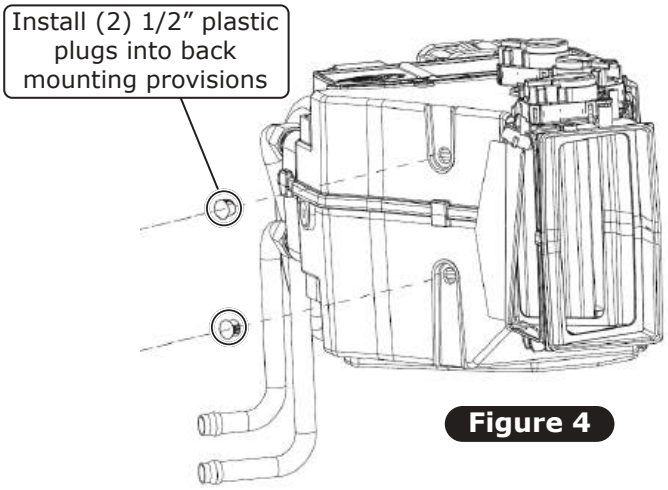


Figure 4

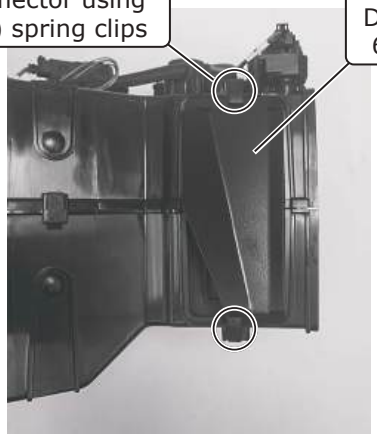


Photo 2

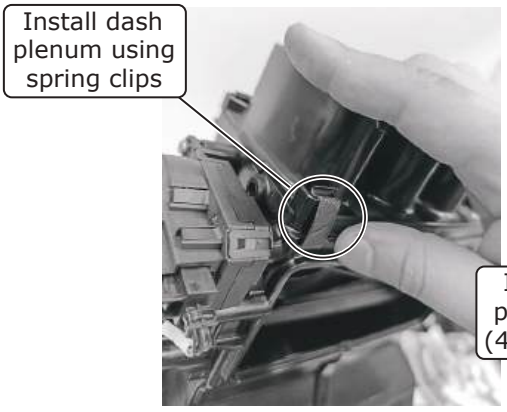


Photo 3

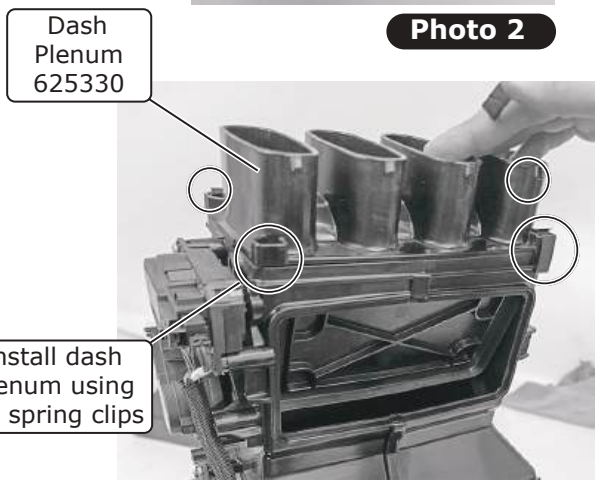


Photo 4

Evaporator Preparation (Final)

7. Attach the evaporator firewall bracket to the evaporator assembly using (2) #10 x 5/8" screws (See Figures 5 and 6, below).

8. Slide the firewall boot over the heater core hardlines in the orientation shown in Figure 7, below.

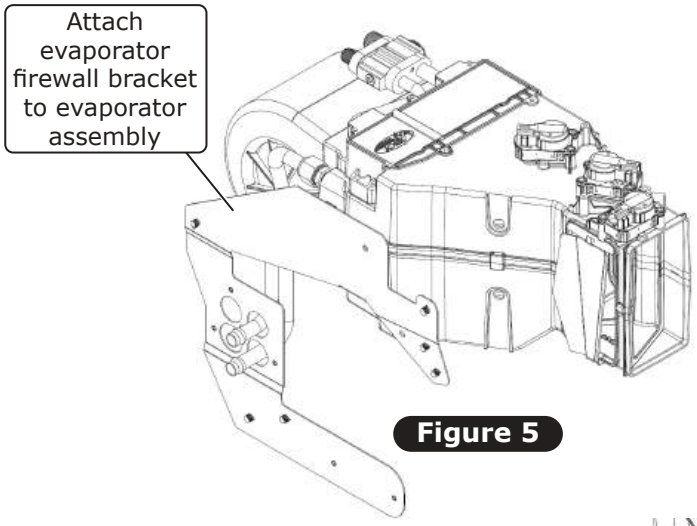


Figure 5

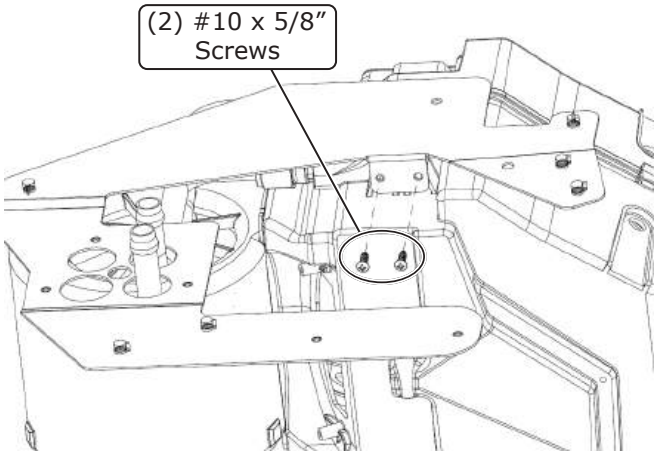


Figure 6

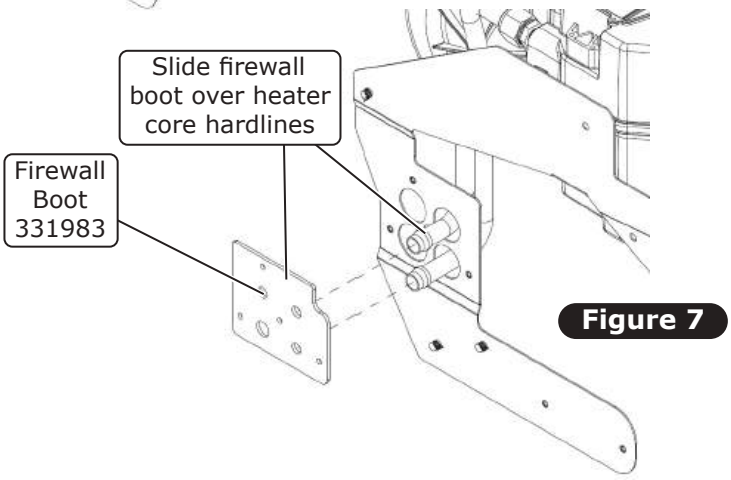
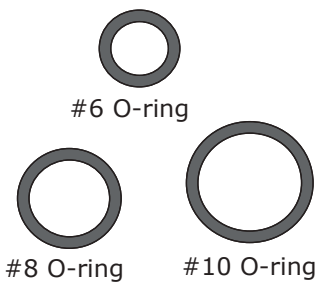
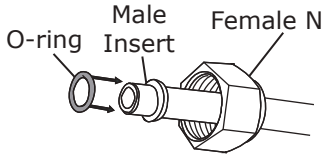
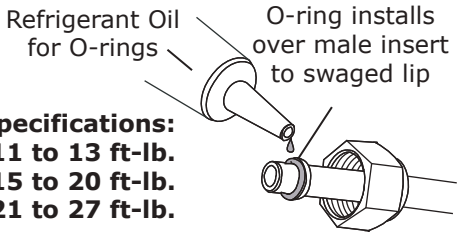


Figure 7

Lubricating O-rings & Fitting Torque Specs

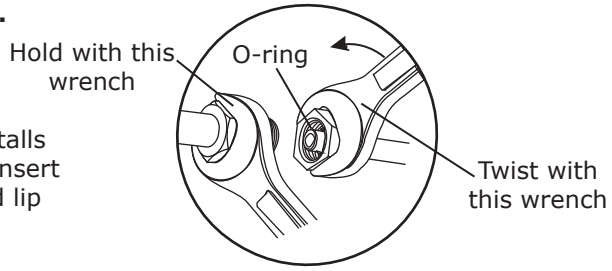






NOTE: Standard torque specifications:
#6: 11 to 13 ft-lb.
#8: 15 to 20 ft-lb.
#10: 21 to 27 ft-lb.

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



The use of a backup wrench is recommended to reduce the chance of damaging the fittings/hardline.

Properly Seated O-ring Land

When installing a hardline or A/C hose fitting onto the evaporator module, ensure the O-ring land is seated properly (See Photo 1, below). An improperly seated O-ring land (See Photo 2, below) can cause a leak. To properly install the fitting, slide the hardline or A/C hose nut back to expose the O-ring land and seat it onto the evaporator module fitting. Then, slide the hardline or A/C hose nut forward and thread it onto the evaporator module fitting, ensuring the O-ring land does not move or lift.

Properly Seated O-ring Land

Photo 1

Improperly Seated O-ring Land

Photo 2

NOTE: Photos shown are for reference only. Fittings may vary depending on kit received.

Cowl Vent Grille Installation

1. Remove factory vent.
2. Mockup new cowl vent grille using supplied 10-24 x 3/4” serrated flange black bolts (See Photo 1, below).
3. Use painters tape and follow along the outside edge of the new vent grille (See Photo 2, below).
4. Leaving the tape outlining the position of the vent, remove the new vent cover and clean the surface of the cowl the vent grille will be mounting to (See Photo 3, below).
5. Drill out the (4) corner holes with a 1/4” drill bit (See Photo 4, below).
6. Install the (2) #8 U-nuts on the threaded bracket assembly as shown in Photos 5 and 6, below.

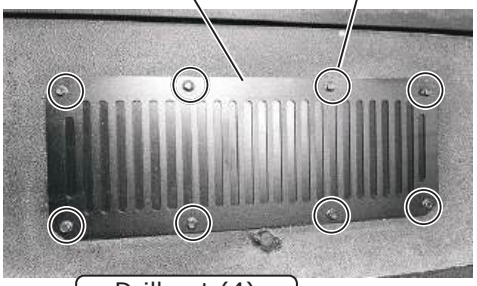


Photo 1

Photo 2

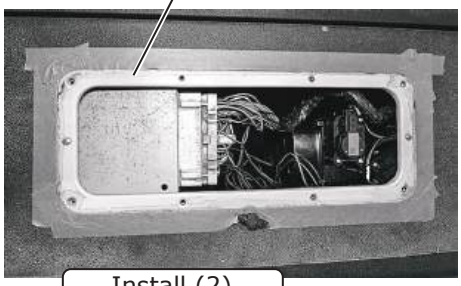


Photo 3

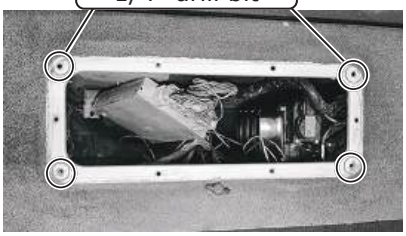


Photo 4

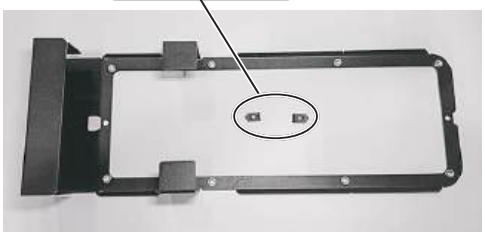


Photo 5

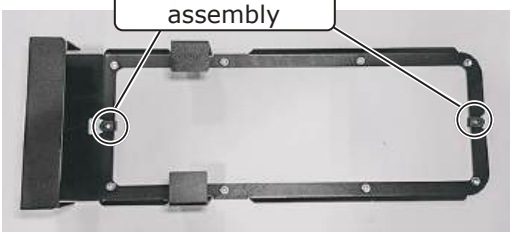


Photo 6

Cowl Vent Cover Installation (Cont.)

7. Route this assembly under the dash through the vent hole and slide the factory ECU into its holding position as shown in Photos 7 and 8, below.
8. Use (2) supplied #8 x 1/2" wide head screws into the U-nuts to retain the bracket's location (See Photo 9, below).
9. Apply layer of silicone to the cowl/vent mating surface (See Photo 10, below). Add a thick bead of silicone on top of the #8 x 1/2" wide head screws (See Photo 10, below).
10. Install cover plates using supplied (8) 10-24 x 3/4" serrated flange black bolts (See Photo 11, below).
11. Ensure the cowl vent cover is sitting flush on the underside of the cowl (See Photo 12, below).
12. Remove tape on the outside to remove any excess silicone (See Photo 13, below).

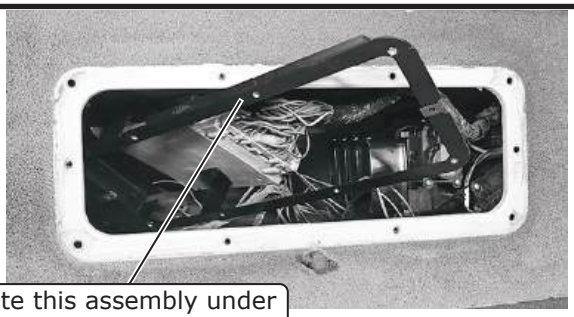


Photo 7

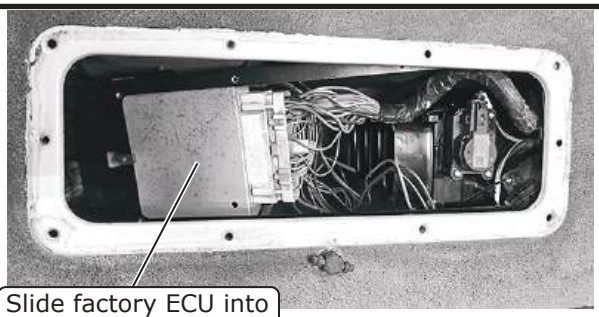


Photo 8

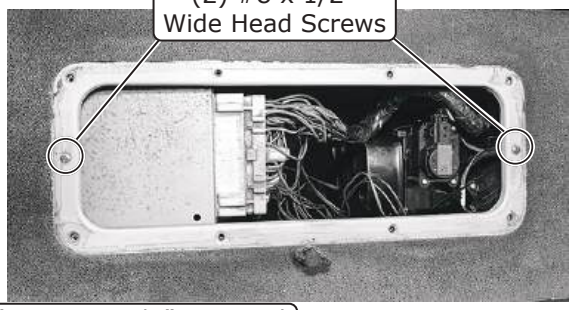


Photo 9

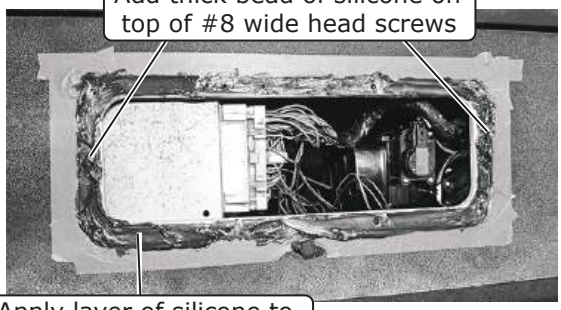


Photo 10

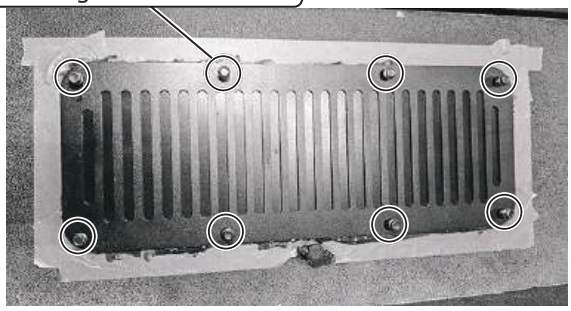


Photo 11

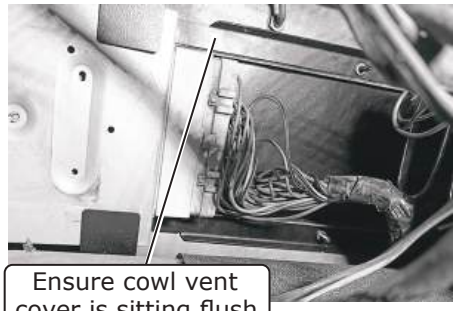


Photo 12

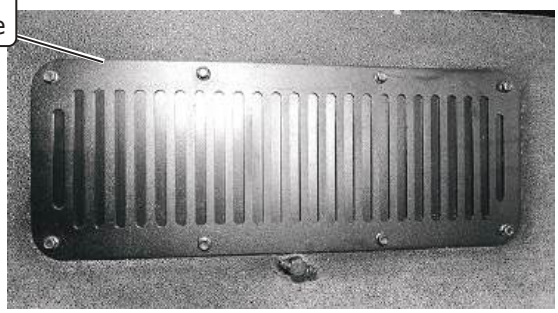


Photo 13

Firewall Block-Off Plate

NOTE: The firewall block-off plate goes over the fresh air intake drain hose on the firewall.

1. Remove the wiring harness retention screws so that the wiring harness can be moved out of the way (See Photo 1, below).
2. Center the block-off plate over the hole located on the firewall. The mounting holes will be vertical and equal distance from the edge of the hole. Mark the mounting holes (See Photo 2, below).
3. Center punch and drill the holes to 1/8" (See Photo 3, below).
4. Seal the block-off plate with silicone (See Photo 4, below).
5. Fasten the block-off plate with #10 x 1/2" sheet metal screws (See Photo 5, below).
6. Return the wiring to the original location and fasten the screws.

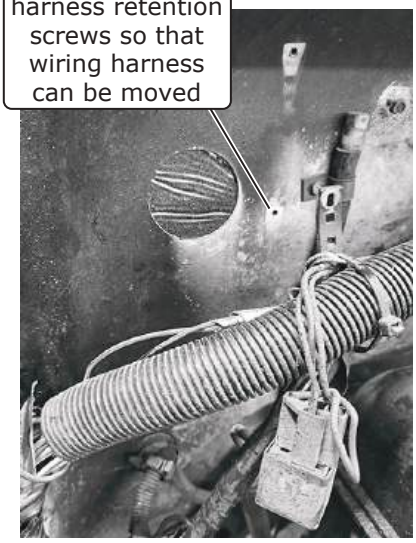


Photo 1

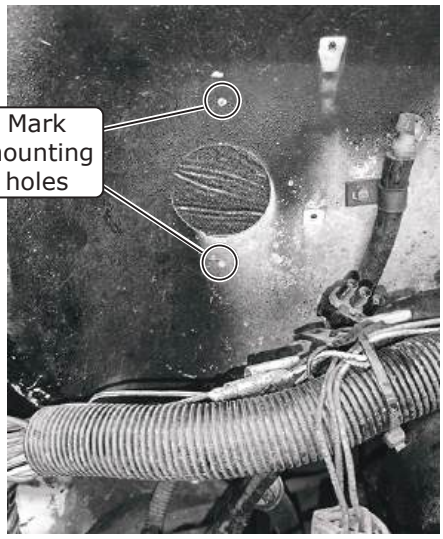


Photo 2

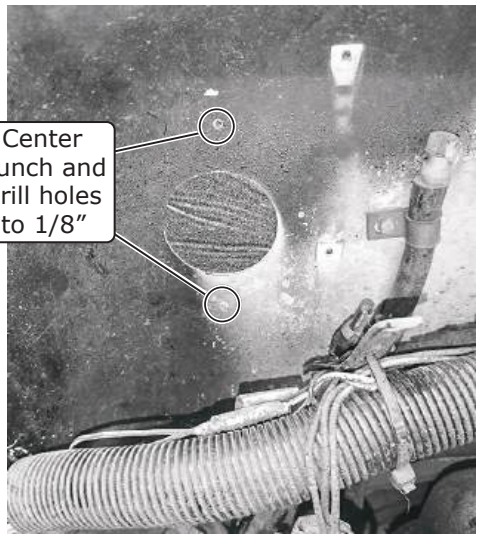


Photo 3

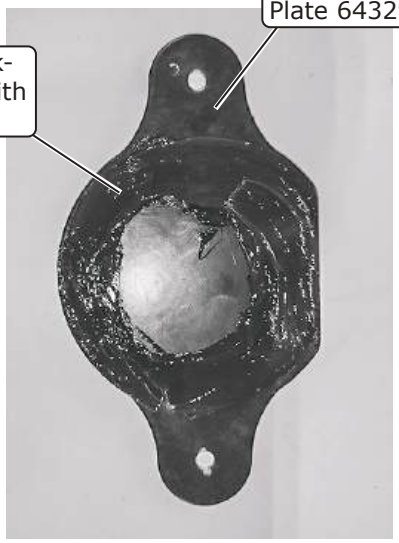


Photo 4

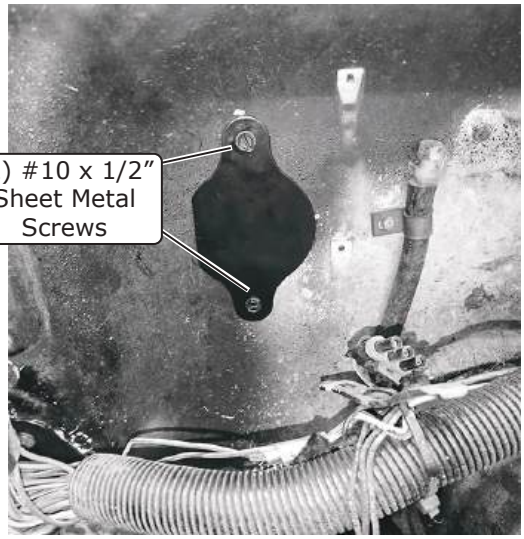


Photo 5

Firewall Insulation

NOTE: For proper system operation, Vintage Air recommends using heat-blocking insulation in the area around the evaporator unit (firewall, inner cowl and kick panel). Due to the tight clearance for the evaporator unit between the firewall and dash, Vintage Air recommends an insulation thickness of no more than 1/8". Spray on insulation is recommended for Jeeps where dirt or water may be present.

1. For all areas that will receive insulation clean thoroughly to ensure proper adhesion of the insulation. Spray adhesive is recommended.

Evaporator 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. Place the evaporator assembly on the passenger side floor of the vehicle.
2. Install the firewall cover using only the (2) lower battery tray bolts. Leave the bolts loose. May apply silicone to seal the firewall cover as shown in Figure 1, below.
3. Route the #10 and #6 45° A/C hose fittings on the #10 and #6 A/C hoses through the passenger-side holes. The larger hose goes through the lower hole, which is slightly larger than the others (See Photo 1, below).
4. Route the A/C hoses through the firewall boot (See Photo 2, below). The larger hose goes through the larger hole. Oil or lubrication will make it easier to feed the hose fitting through.
5. Remove the plastic caps from the evaporator connections (See Photo 3, below).
6. Route the hoses along the outside edge of the blower motor housing (See Photo 4, below). Lubricate the O-rings (See Lubricating O-ring & Fitting Torque Specs, Page 17) and install the #10 and #6 hardlines (See Photo 4, below). Torque to specification.
7. Wrap all metal portions of the #10 hose fitting with provided press tape (See Photo 5, below).

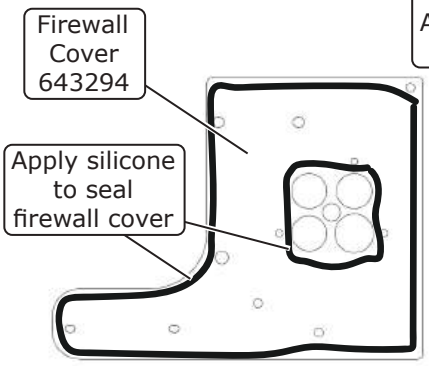


Figure 1

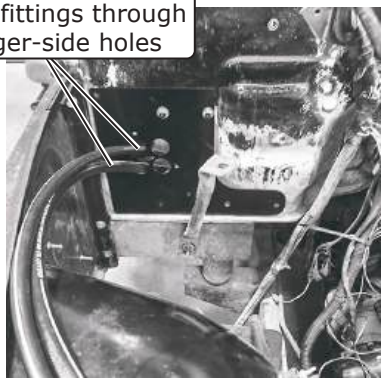


Photo 1

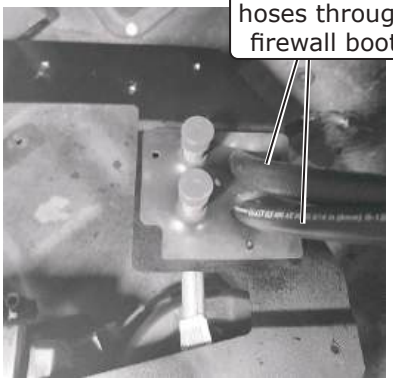


Photo 2

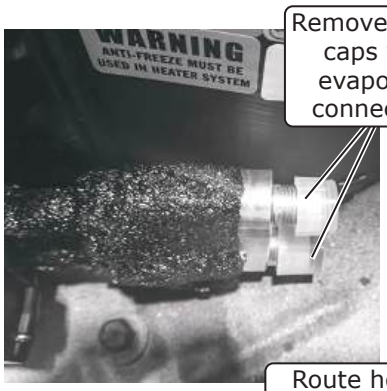


Photo 3

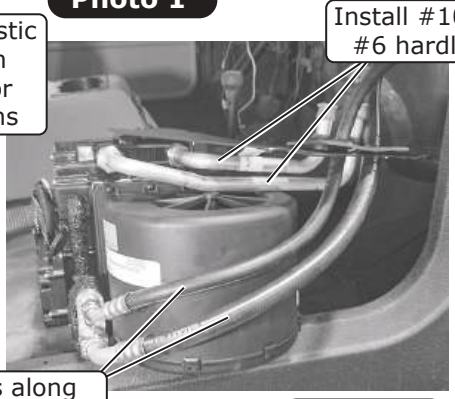


Photo 4

Photo 5

Evaporator Installation (Cont.)

8. Install (2) 1/4-20 full-threaded studs in the specified locations to help with alignment (See Figure 2, below). **NOTE: The Allen head of the full-length stud should be installed where it can be removed with an Allen wrench later when they are replaced.**

9. Lift and rotate the assembly into position using the 1/4-20 studs to help with alignment. Support the evaporator assembly and install the 1/4-20 x 1" serrated flange black bolt through the evaporator firewall bracket hole and into the well nut into the position shown in Figure 3 and Photo 6, below. This will temporarily support the assembly.

10. Slip the evaporator dash bracket into position on the front of the evaporator assembly (See Photo 7, below). Align the holes with the well nuts. The bracket will be on top of the dash panel's bottom flange and share holes with the glove box door hinges. Leave the bolts loose.

11. Remove 1/4" studs. Start all fasteners before tightening (See Figures 4 and 5, below). Install the OEM heater hose cover. Ensure the A/C hoses clear the pinch seam on the side of the firewall (See Photo 8, below). Align and level the evaporator assembly and tighten the fasteners.

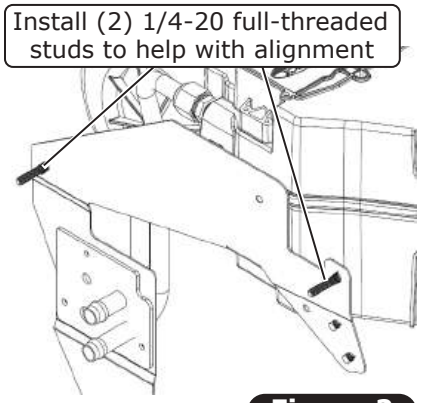


Figure 2

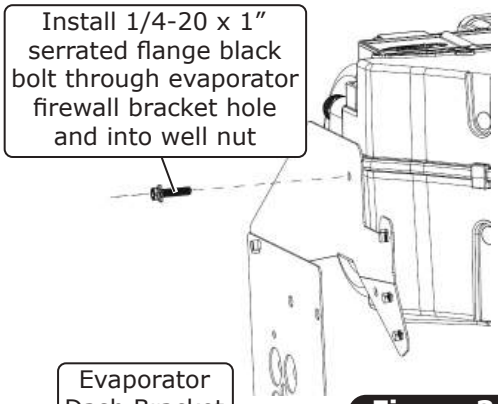


Figure 3

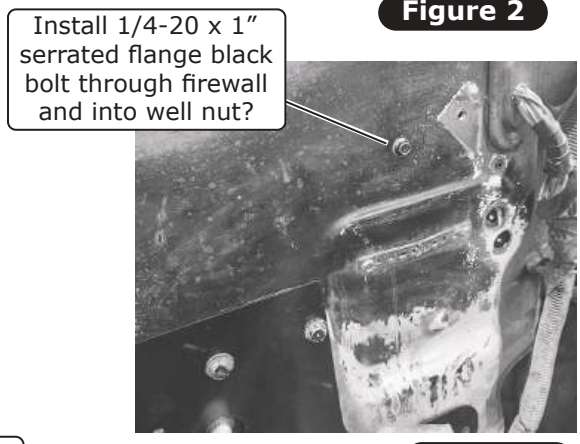


Photo 6

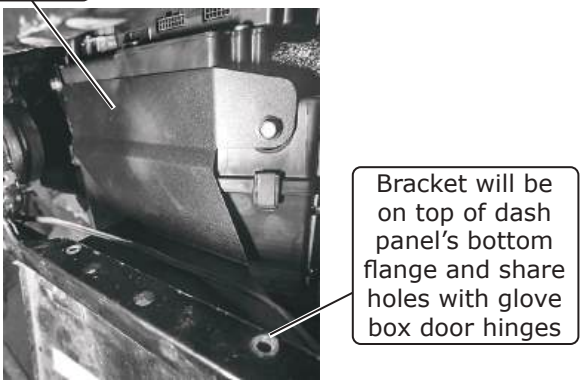


Photo 7

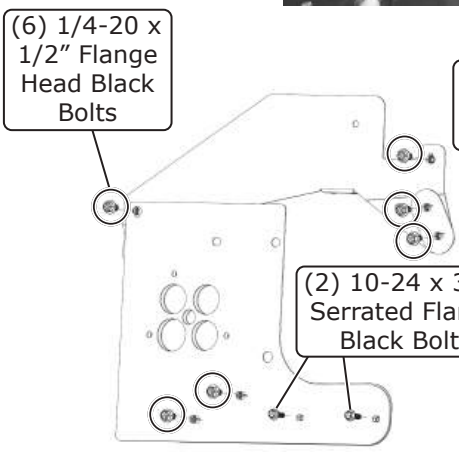


Figure 4

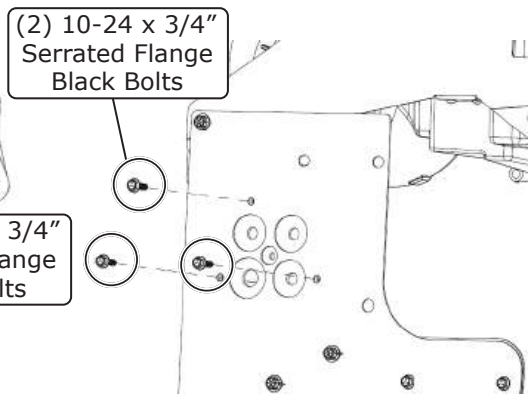


Figure 5

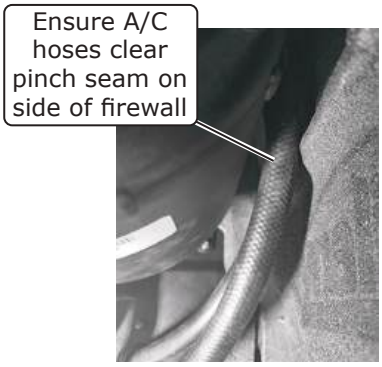


Photo 8

Evaporator Installation (Cont.)

12. Locate drain hole through insulation (See Photo 9, below).

13. Cut 8” piece of drain hose and feed through the drain hole in the firewall. Then slide the hose over the drain hose barb on the evaporator assembly (See Photo 10, below).

14. Install the 1/2” drain elbow outside the firewall and install the remainder of the drain hose onto the drain elbow (See Photo 11, below).

15. Reinstall the battery tray (See Photo 12, below), but leave bolts loose it will be removed again later. The drain hose will route directly below the tray (See Photo 13, below).

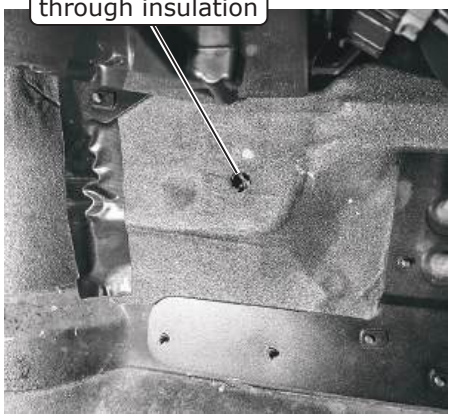


Photo 9

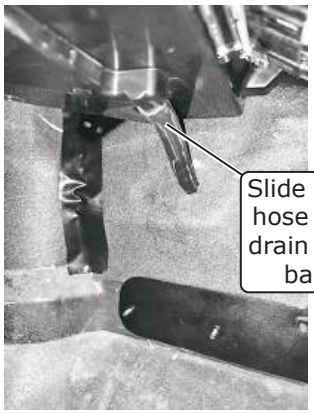


Photo 10

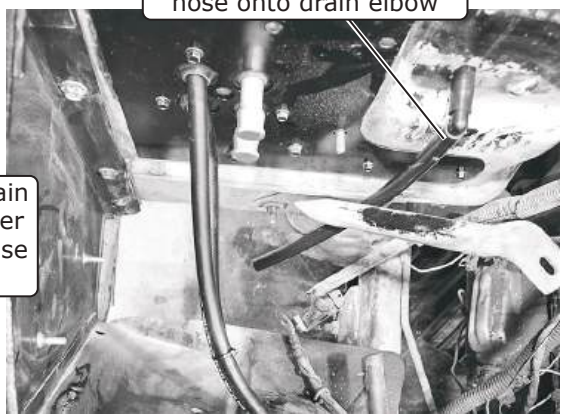


Photo 11

Photo 12

Photo 13

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A/C Hose Installation

1. Begin with the #8 A/C hose from the condenser to the compressor. Route the hose under the radiator next to the hose going from the condenser to the drier (See Photo 1, below). Lubricate O-rings and torque the fittings (See Lubricating O-ring & Fitting Torque Specs, Page 17).
2. There is a hole in the frame. Tap the hole in the side of the frame to 1/4-20 and install the 5/8" I.D. Adel clamp around the #8 A/C hose (See Photos 2 and 3, below).
3. Tie wrap the #8 A/C hose to the #6 A/C hose (See Photo 4, below).
4. Install the #10 A/C hose. This hose runs from the evaporator to the compressor and was attached to the evaporator during the evaporator installation. Lubricate the O-ring (See Lubricating O-ring & Fitting Torque Specs, Page 17) and install the fitting on the back of the compressor and torque to specifications (See Photo 5, below).
5. Install the #6 A/C hose. This hose runs from the evaporator to the drier and was attached to the evaporator during the evaporator installation. Lubricate the O-ring (See Lubricating O-ring & Fitting Torque Specs, Page 17) and install the fitting on the drier (See Photo 6, below). Torque to specifications.

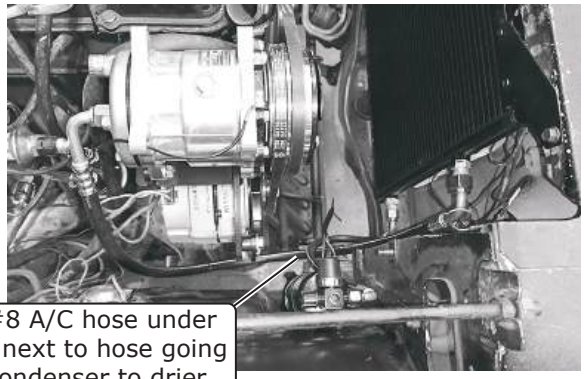


Photo 1

Photo 2

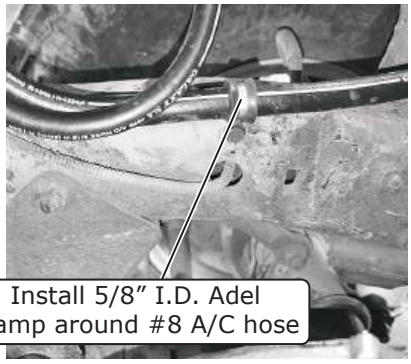


Photo 3

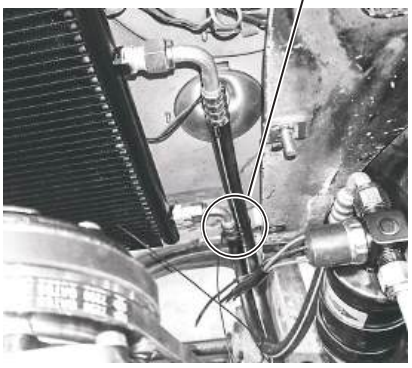


Photo 4

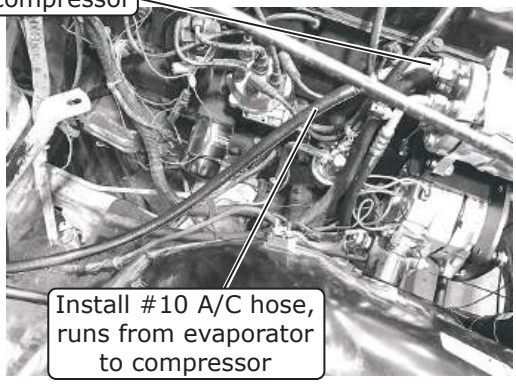


Photo 5

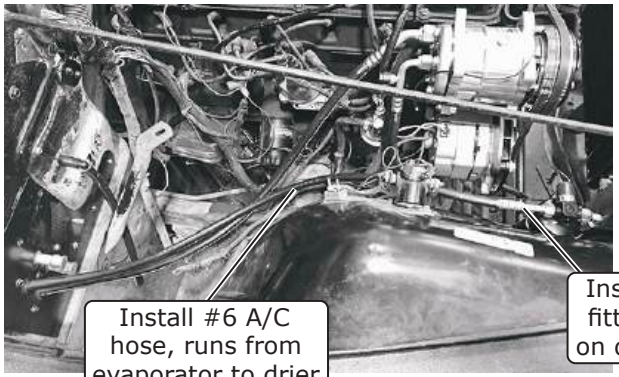


Photo 6

A/C Hose Installation (Cont.)

6. Secure the #10 A/C hose to the fender using a 3/4" I.D. Adel clamp in the existing fender support hole with a supplied 10-24 x 3/4" serrated flange black bolt and 10-24 locknut around the #10 A/C hose (See Photos 7 and 8, below). If this hole is used in your application, drill a 3/16" hole in the fender to mount the hose.

7. Secure the #6 A/C to the #10 A/C hose using tie wraps (See Photo 9, below). **NOTE: Wait until wiring is complete so that the wires for the binary switch or the electric fan controller, if installed, can be routed along the same path.**

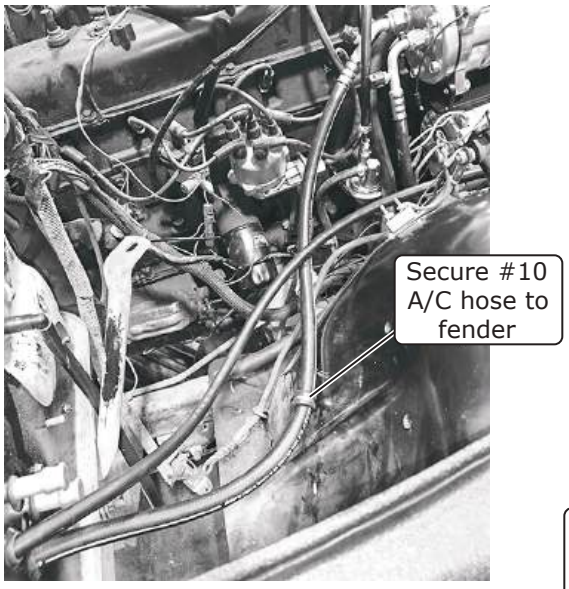
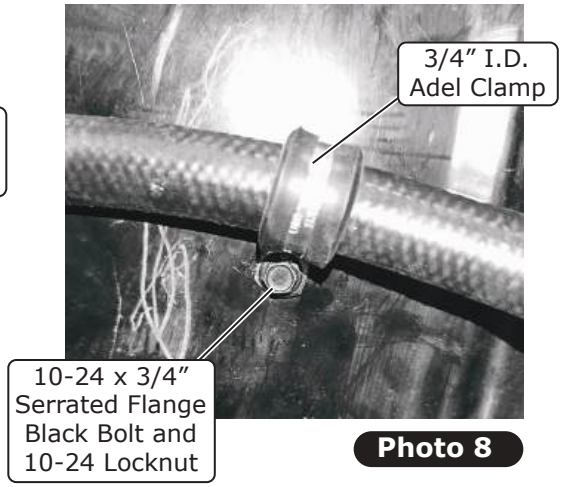


Photo 7



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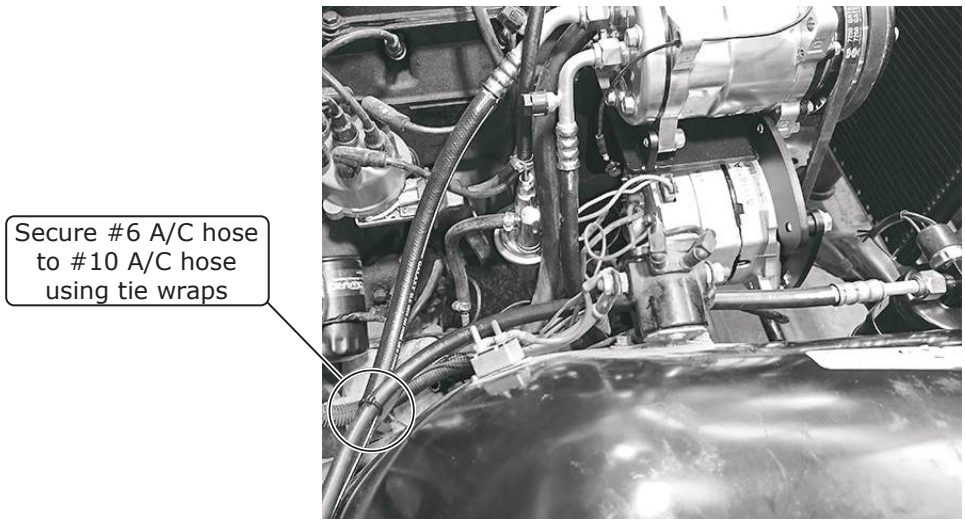

Photo 9

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Heater Hose & Heater Control Valve Installation

NOTE: Heater hoses will not be included.

1. Install the heater valve bracket onto the heater control valve using (2) #8 x 1/2" wide head screws (See Photos 1 and 2, below).
2. The heater valve will be mounted to the bottom of the battery tray using the 5/16" OEM stud that attaches the support strut to the bottom of the battery tray (See Photo 3, below). Ensure direction arrow is facing the direction of flow (towards the heater core, away from the engine) (See Photo 4, below). **NOTE: The arrow on the heater control valve should point towards the evaporator.** The heater hose coming from near the thermostat housing is flowing out of the engine and then through intake manifold.
3. Route 5/8" heater hose from upper heater core line to the valve and install hose clamps on each end (See Photo 5, below). Route heater hose from back of the engine intake manifold to the valve (See Photo 6, below).
4. Route the 3/4" heater hose from the front of the engine near the water pump to the lower heater core line (See Photos 7 and 8, below). A 3/4" to 5/8" hose reducer will be required because the heater core hardline is 5/8" (See Photo 9, below). It may be helpful to remove the battery tray again once the heater control valve position is known.

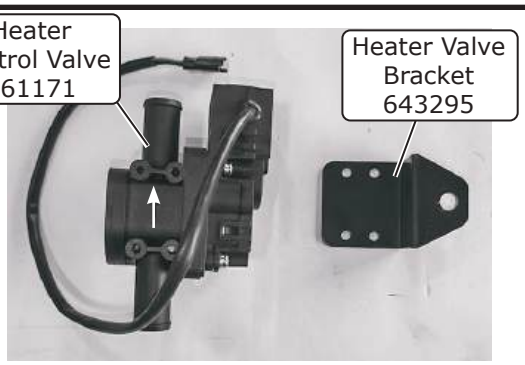


Photo 1

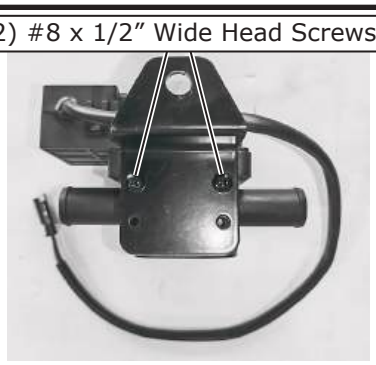


Photo 2

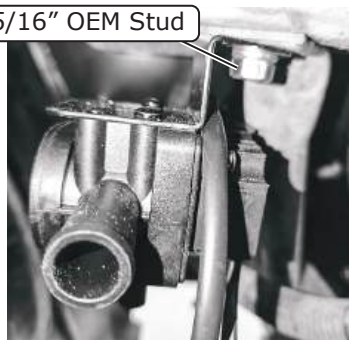
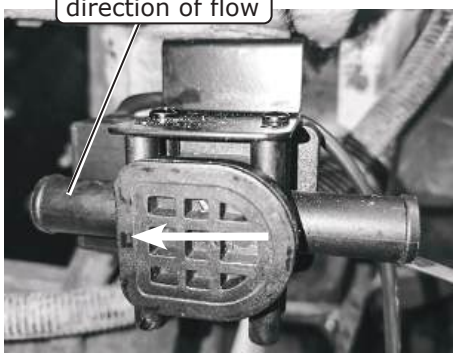


Photo 3



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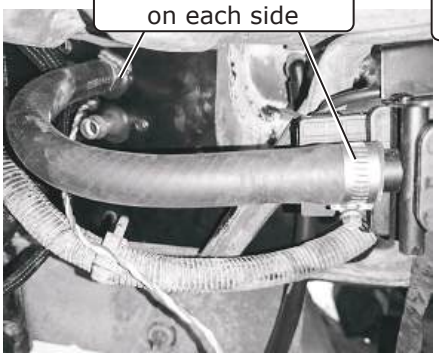

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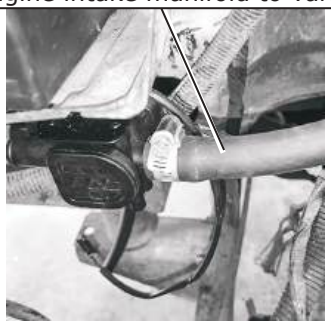

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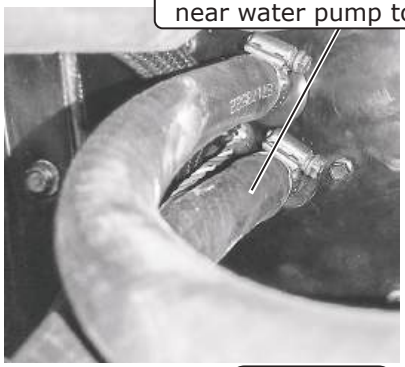


Photo 7

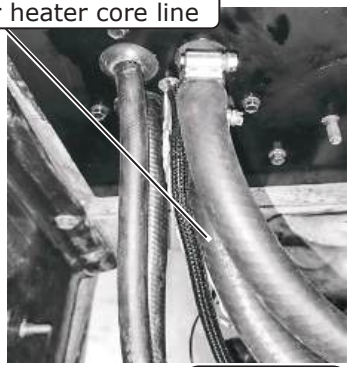


Photo 8

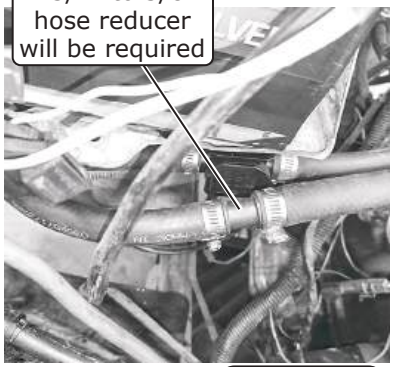


Photo 9

Wiring Installation

1. Feed the heater valve connector on the violet, yellow and white wires through the firewall gasket first (See Photos 1 and 2, below). Plug the connector into the heater valve (See Photo 3, below).
2. Feed the blue, orange, 2 white wires, and red wire through the firewall gasket (See Photos 4 and 5, below).
3. Connect the BSC wiring to the main harness (See Photo 6, below).
4. Mount the relay on the flange behind the floor lighting with a 10-24 nut with star washer and 10-24 x 1/2" button socket cap screw (See Photo 7, below). There is a hole there.
5. Mount the ground to a metal portion of the dash with a #12 x 1/2" self-tapping screw (See Photo 8, below). There are holes. Remove paint under the ring terminal.
6. Plug the connector into the A/C ECU on top of the evaporator housing through the glove box hole (See Photo 9, below).

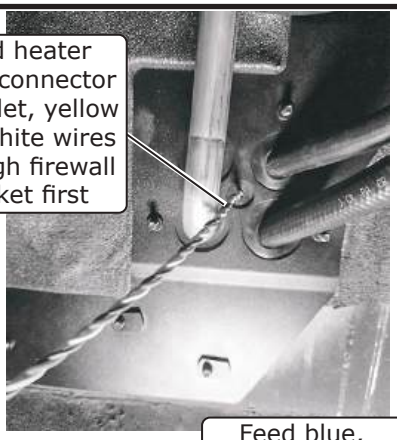


Photo 1

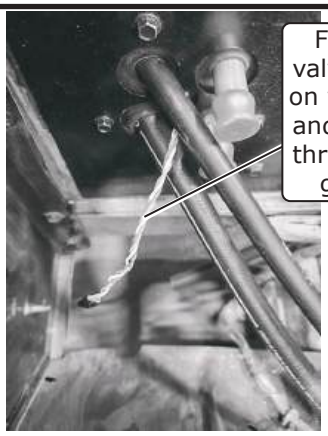


Photo 2

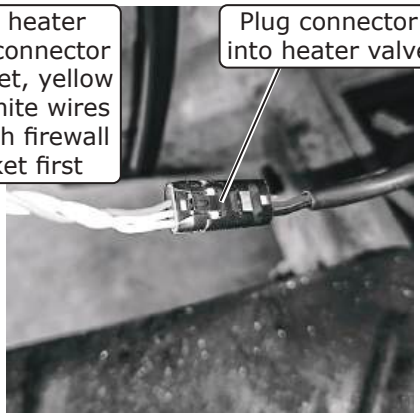


Photo 3

Photo 4

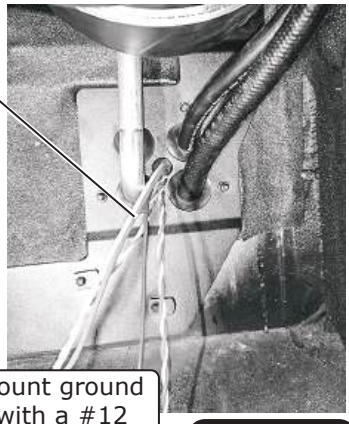


Photo 5

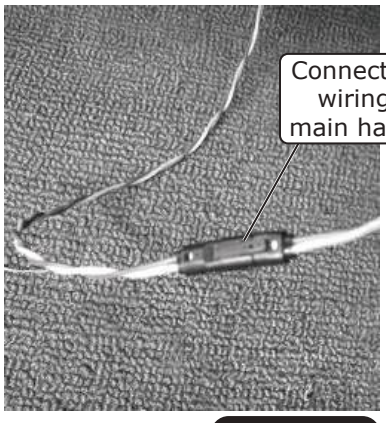


Photo 6

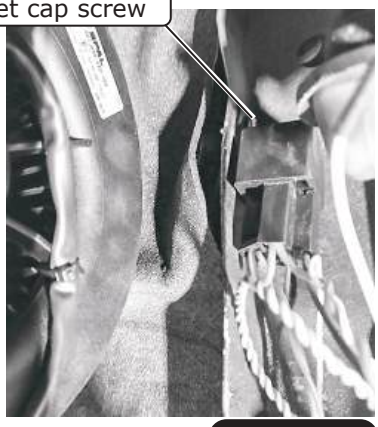


Photo 7

Photo 8

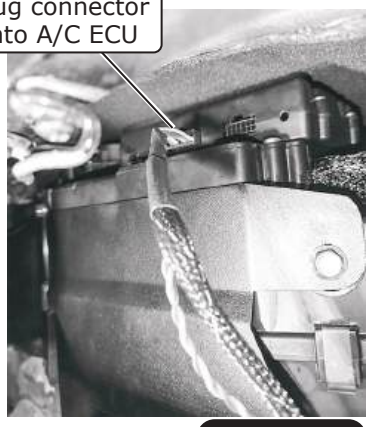


Photo 9

Wiring Installation (Cont.)

7. Route the violet wire to the driver side along the lower dash panel flange. This will go to a keyed 12v source that can be located under the dash. The power wire for the heater fan control switch can be used. Use a 5 amp fuse (See Photo 10, below). **NOTE: If using the OEM A/C wiring, install a 5 amp fuse into the fuse panel for that circuit.**

8. Route the control wires along the same path as the violet source wire and connect to the A/C ECU.

9. Connect the blower motor wiring.

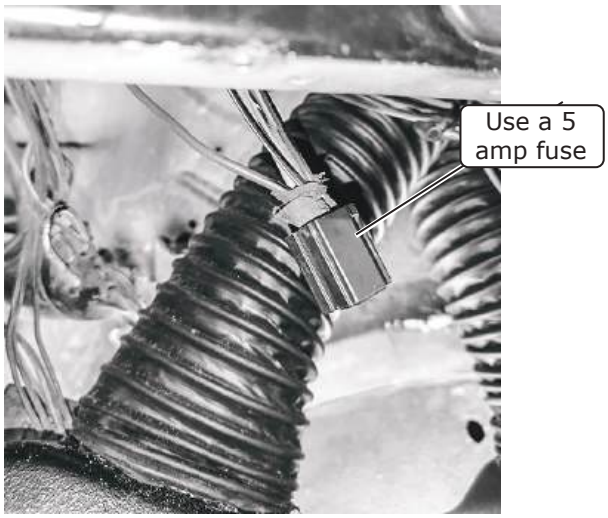


Photo 10

Control Panel Installation

1. Connect the ECU harness to the control panel (route the wiring over the evaporator unit).

Engine Compartment Wiring

NOTE: The following connections are critical to the performance of the system. Before making connections, refer to the Quality Crimp Guidelines, Page 38.

1. Connect the heater control valve plug to the connection on the main harness.
2. Route the blue wire from the main harness along the #6 A/C hose toward the safety switch. Use supplied tie wraps to secure the wire to the #6 A/C hose.
3. If necessary shorten the wire, strip and crimp on the supplied spade terminal connector then install onto the drier safety switch (See Photo 1, below).
4. Connect the compressor lead bullet connector to the compressor wire.
5. Route the compressor lead along the #8 A/C hose toward the safety switch. Secure the lead to the A/C hose using the supplied tie wraps. Install the spade terminal connector onto the safety switch (See Photo 2, below).
6. Route power and ground wires toward the battery (See Photo 3, below).
7. Install the supplied heat shrink over the 12 AWG orange standard fuse holder assembly wire and crimp it to the 12 AWG orange wire from the main wiring harness (See Photo 4, below). Slide the heat shrink over the crimp, then apply heat.
8. Install the supplied heat shrink over the 16 AWG black mini fuse holder assembly wire and crimp it to the 16 AWG red wire from the main wiring harness (See Photo 5, below). Slide the heat shrink over the crimp, then apply heat.

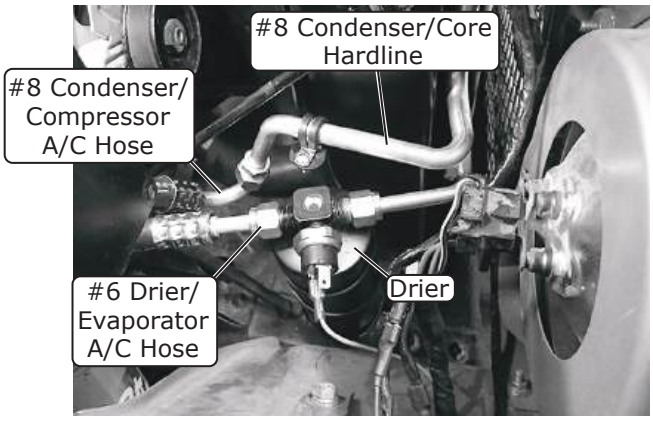


Photo 1

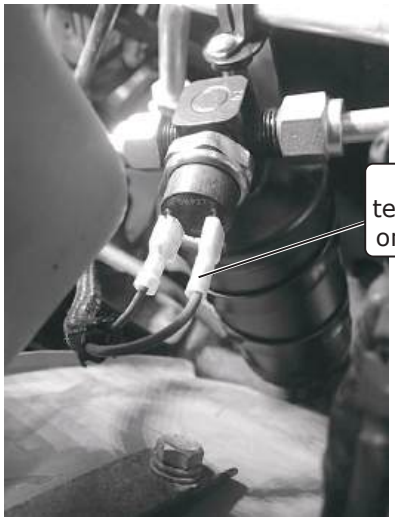


Photo 2

Photo 3

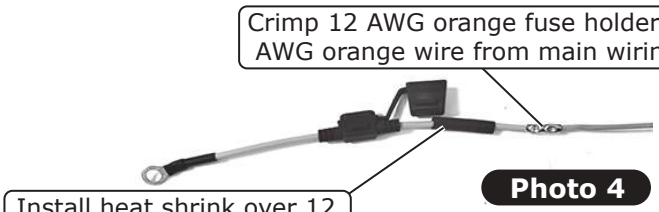


Photo 4

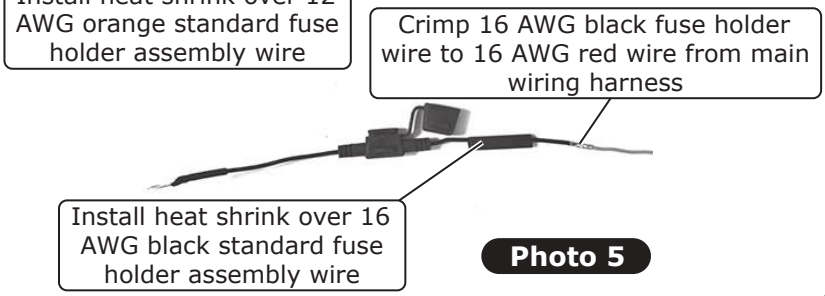


Photo 5

Engine Compartment Wiring (Cont.)

9. Install the fuses into the holders (See Photos 6 and 7, below).

10. Install the supplied heat shrink over the white ground wires, then crimp on the supplied ring terminals (See Photo 8, below). Slide the heat shrink over the crimps, then apply heat. **NOTE: Both white wires can be crimped to the larger ring terminal. Install the heat shrink, then strip the wires, twist them together and trim to length. Crimp on the ring terminal, then slide the heat shrink over and apply heat (See Photos 9 and 10, below).**

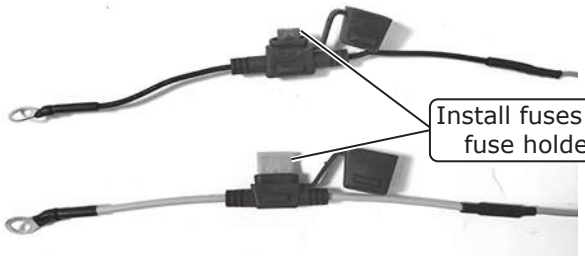
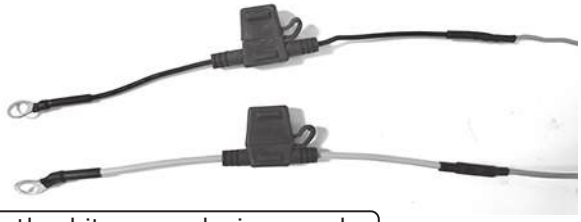


Photo 6



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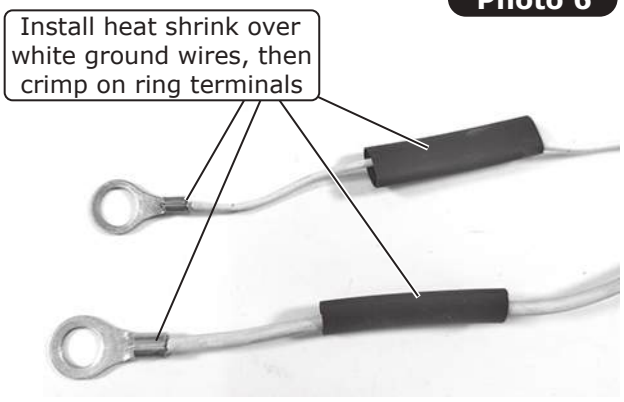


Photo 8

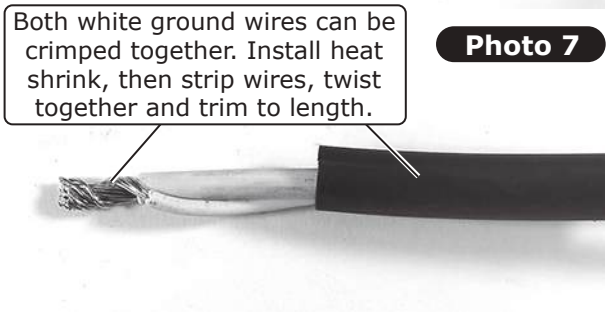


Photo 9

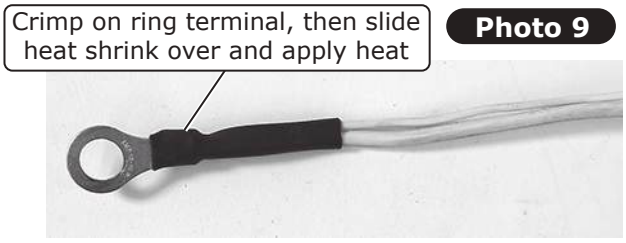


Photo 10

Engine Compartment Wiring (Final)

11. Connect the ground wire ring terminals to the negative battery terminal connector (See Photos 11 and 12, below).

12. Connect the positive wire ring terminals to the positive battery terminal connector (See Photos 13 and 14, below). **NOTE: Do not connect power until the installation is completed.**

13. Wiring completed (See Photo 15, below).

Connect ground wire ring terminals to negative battery terminal
NOTE: Either connection application can be used.

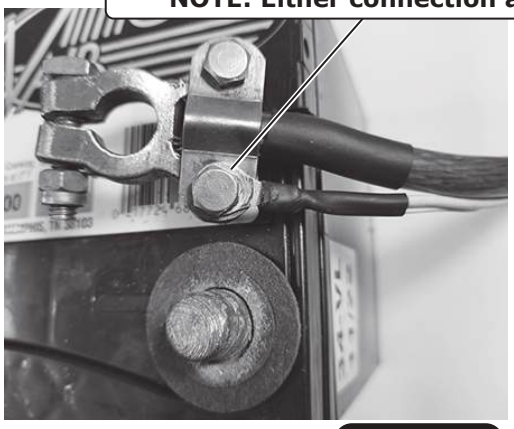


Photo 11

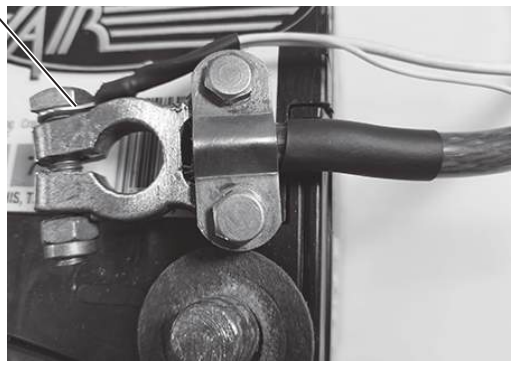
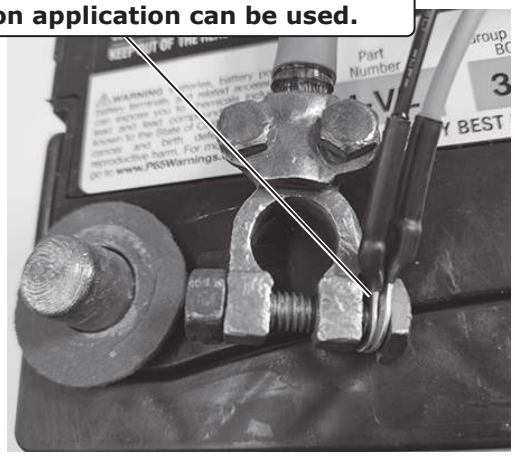


Photo 12

Connect power wire ring terminals to positive battery terminal
NOTE: Either connection application can be used.

Photo 13



NOTE: Do not connect power until installation is completed.

Photo 14

Completed Installation Shown

Photo 15

Under Dash Duct Installation

NOTE: Refer to Duct Hose Routing, Page 37, before performing these steps.

1. Cut 3” duct hose to 14” and install on the defrost duct that was installed under the Jeep dash. Install the defrost plenums on the hose (See Photos 1 and 2, below).
2. Install the defrost plenum in the evaporator assembly with (2) spring clips in the front outlet. One clip on the bottom and one on the top (See Photo 3, below).
3. Cut the 2.5” duct hose into (4) pieces. The lengths are 27”, 19”,15”, and 11”. It is easier to attach all the hoses to the dash plenum outlet prior to attaching the under dash duct. Start at the top outlet and go down.
4. Attach the 27” hose to the top outlet. This hose will go behind all other hoses and to the passenger side (See Photo 4, below).
5. Attach the 19” hose to the second from the top outlet (See Photo 5, below).
6. Attach the 15” hose to the third outlet (See Photo 6, below).
7. Attach the 11” hose to the bottom outlet (See Photo 7, below).
8. Lay the under dash louver bezel assembly under the dash and begin hooking up the hoses.
9. The top outlet goes to the passenger duct inlet (See Photo 8, below).
10. The second from the top goes to the driver duct inlet (See Photo 8, below).
11. The third outlet goes to the driver side middle duct inlet (See Photo 8, below).
12. The bottom goes to the passenger-side middle duct inlet (See Photo 8, below).

Photo 1

Photo 2

Photo 3

Photo 4

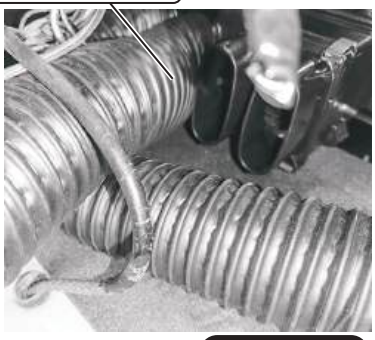


Photo 5

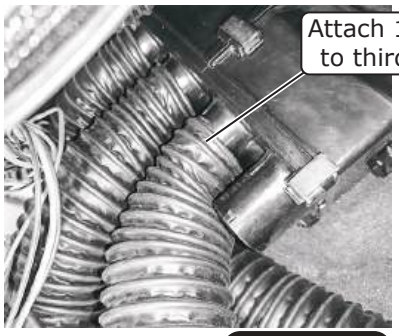


Photo 6

Photo 7

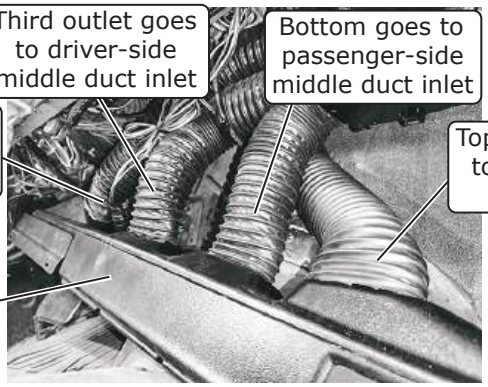


Photo 8

Under Dash Duct Installation (Cont.)

13. The under dash duct can now be lifted into place and secured using (4) #12 x 1/2" self-tapping screws (See Photos 9-12, below).

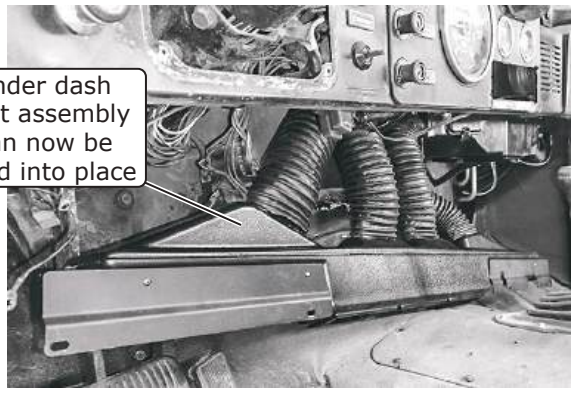


Photo 9

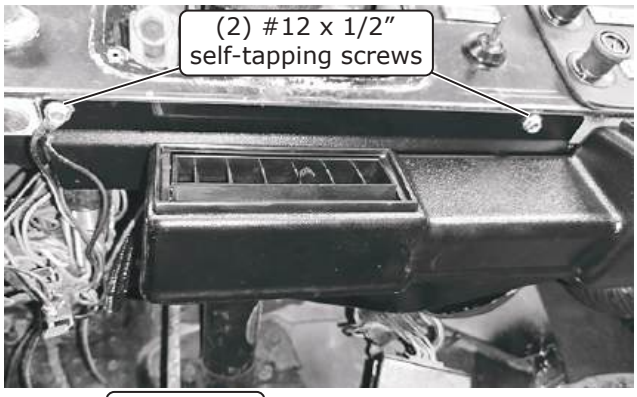


Photo 10

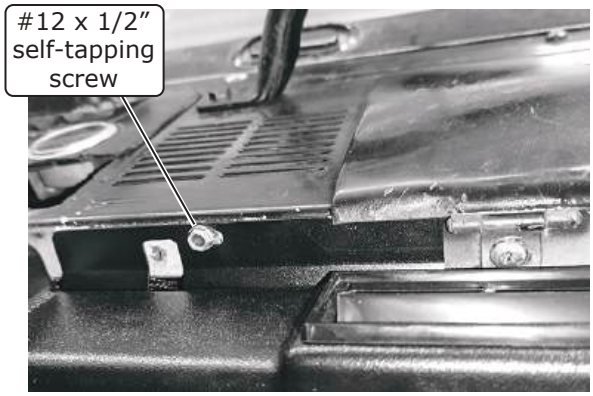


Photo 11

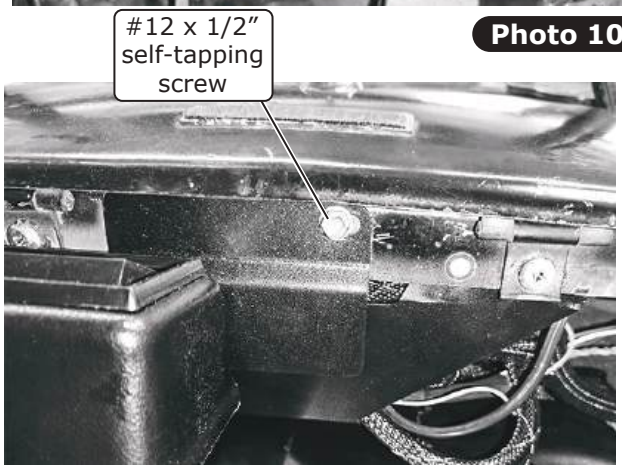


Photo 12

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Glove Box Installation

1. Install the #8 U-nuts on the (6) positions around the glove box hole in the dash (See Photos 1, 2 and 3, below).
2. Remove the glove box latch to make it easier to slide the glove box in the glove box opening.
3. The wiring can be concealed and secured under the glove box (See Photo 4, below).
4. Slide the glove box in the glove box opening and start the #8 x 1/2" wide head screws (See Photo 5, below). There is some adjustment in the placement of the U-nuts to help align the holes.
5. Tighten the screws. Reinstall the glove box latch (See Photo 6, below).

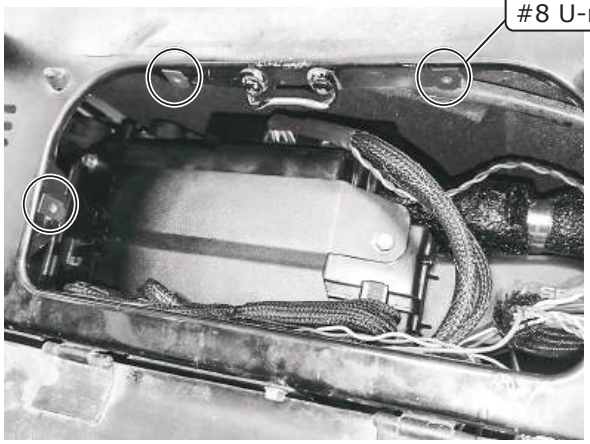


Photo 1

Photo 2

Photo 3

Photo 4

Photo 5

Photo 6

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. Install duct hoses as shown in Duct Hose Routing, Page 37.
2. Route A/C wires (12 volt/grounds/binary switch/heater valve) through 3/8” grommet.
3. Plug the wiring harnesses into the ECU module on the sub case. Wire according to wiring diagrams on Pages 39 and 40.
4. Reinstall all previously removed items.
5. 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.
6. Double check all fittings, brackets and belts for tightness.
7. Vintage Air recommends that all A/C systems be serviced by a licensed automotive A/C technician.
8. Evacuate the system for a minimum of 45 minutes prior to charging, and perform a leak check prior to servicing.
9. Charge the system to the capacities stated on Page 4 of this instruction manual.
10. See Operation of Controls procedures on Page 41.

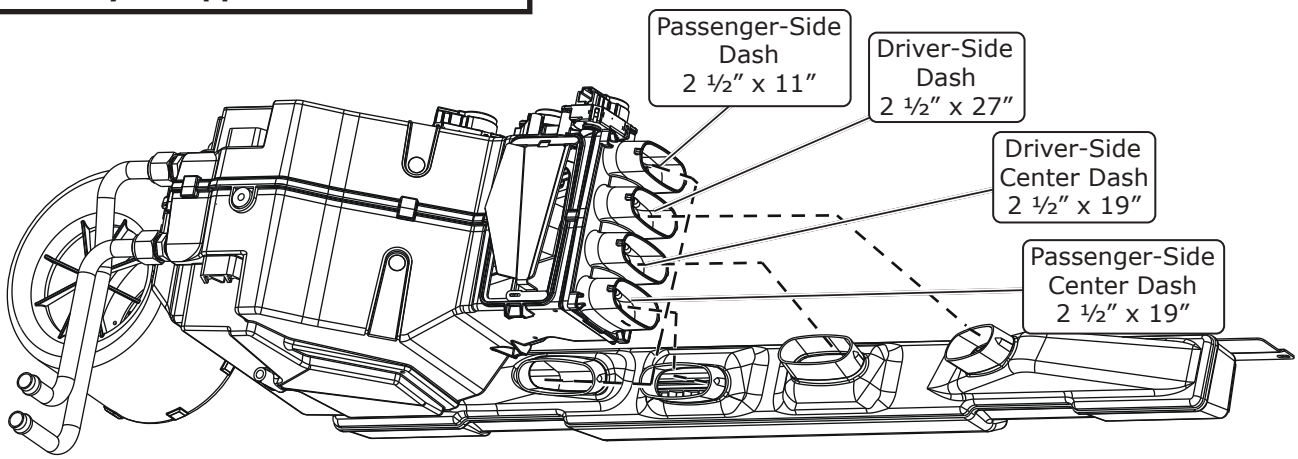
Duct Hose Routing

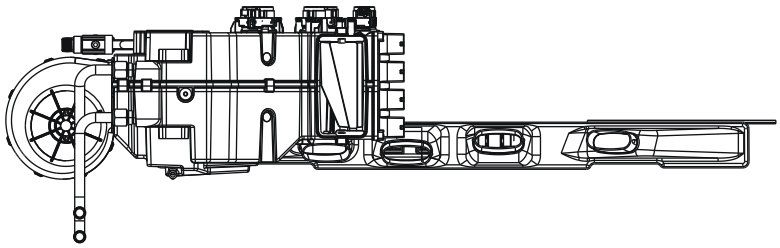
NOTE: For the system to function optimally, the duct hoses must be routed as directly as possible, taking care to avoid kinks, sharp bends and unnecessary length. Vintage Air supplies duct hoses in continuous lengths that will need to be cut to size depending on application. Before cutting, familiarize 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

Disclaimer: Before cutting duct hose to length, verify the routing will work for your application.





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.

Quality Crimp Guideline

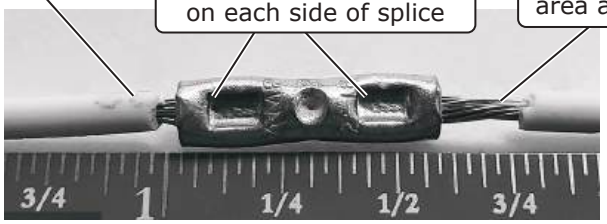


Photo 1

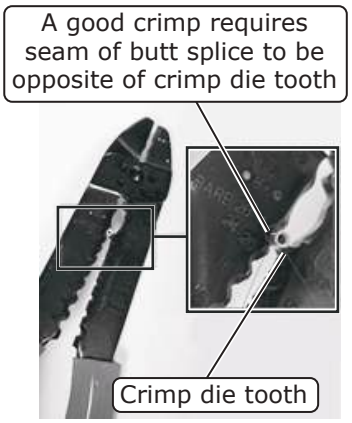


Photo 2

Good Ring Terminal Crimp

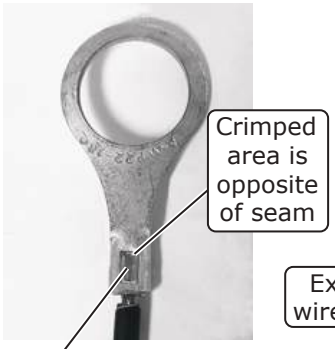


Photo 3

Bad Ring Terminal Crimp

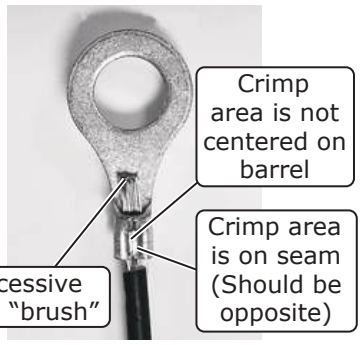


Photo 4

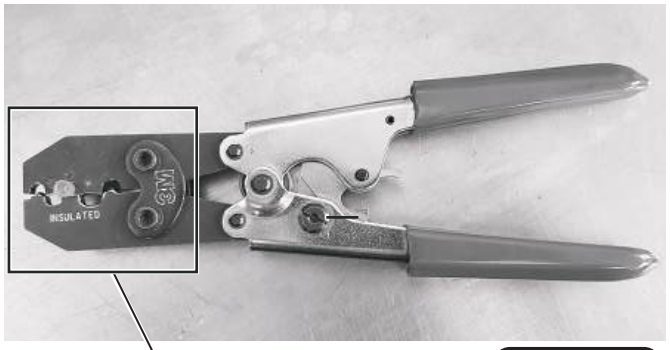
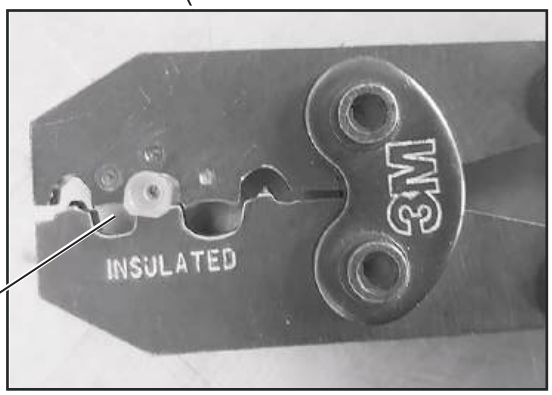


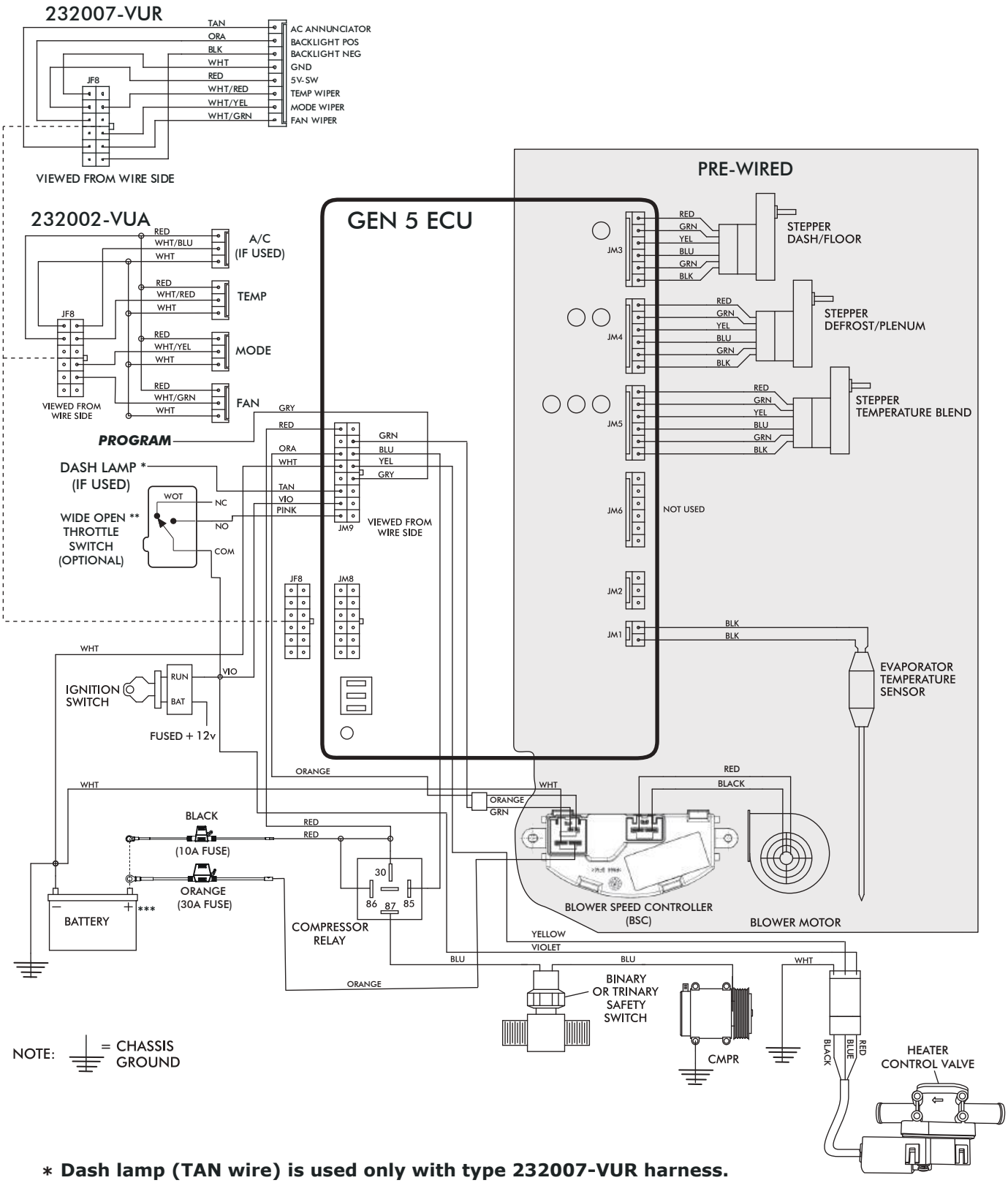
Photo 5



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

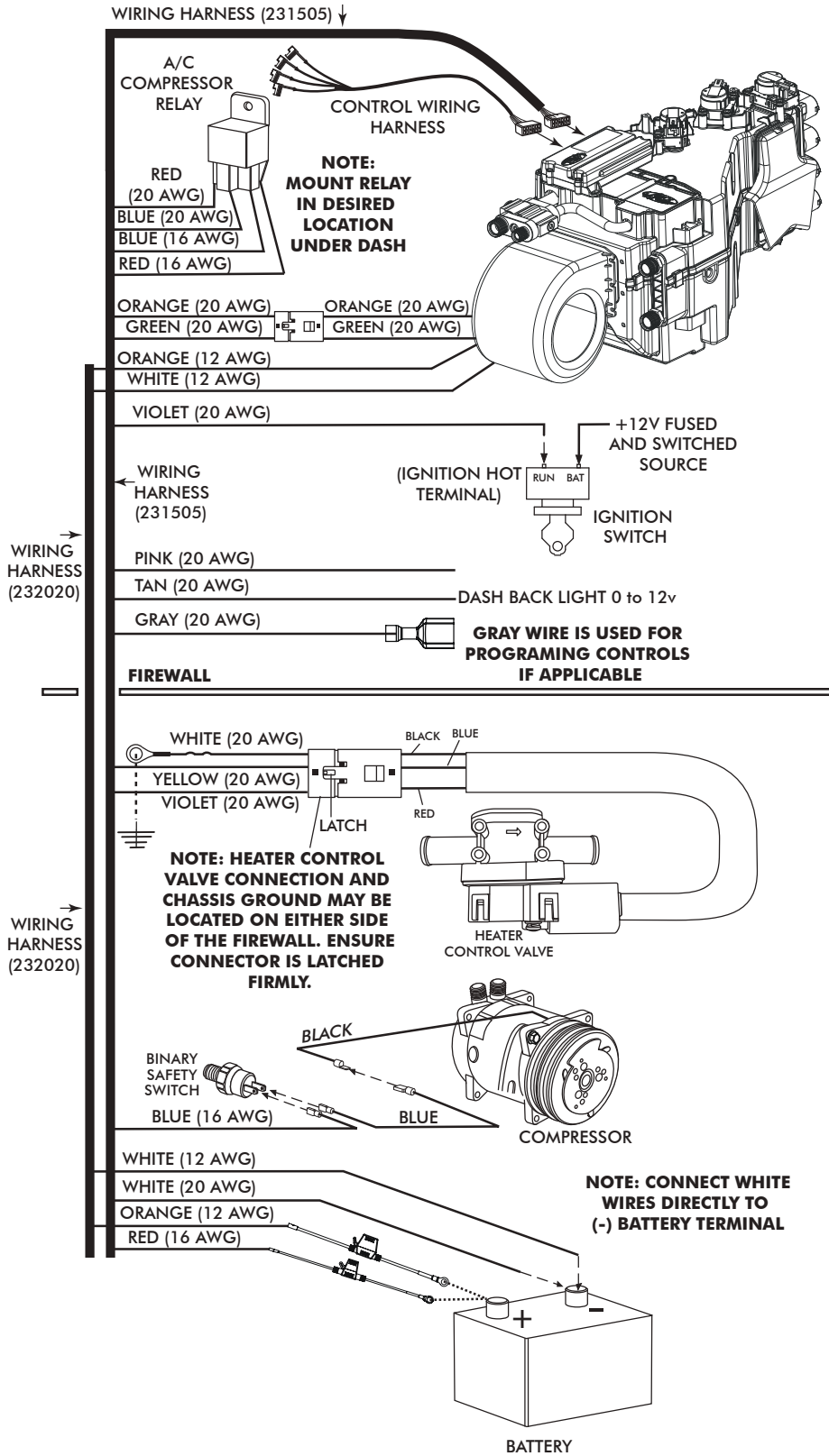


∗ Dash lamp (TAN wire) is used only with type 232007-VUR harness.

∗∗ 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 16 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 Gen IV or Gen 5 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 in and out of heat and A/C 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 (755696)

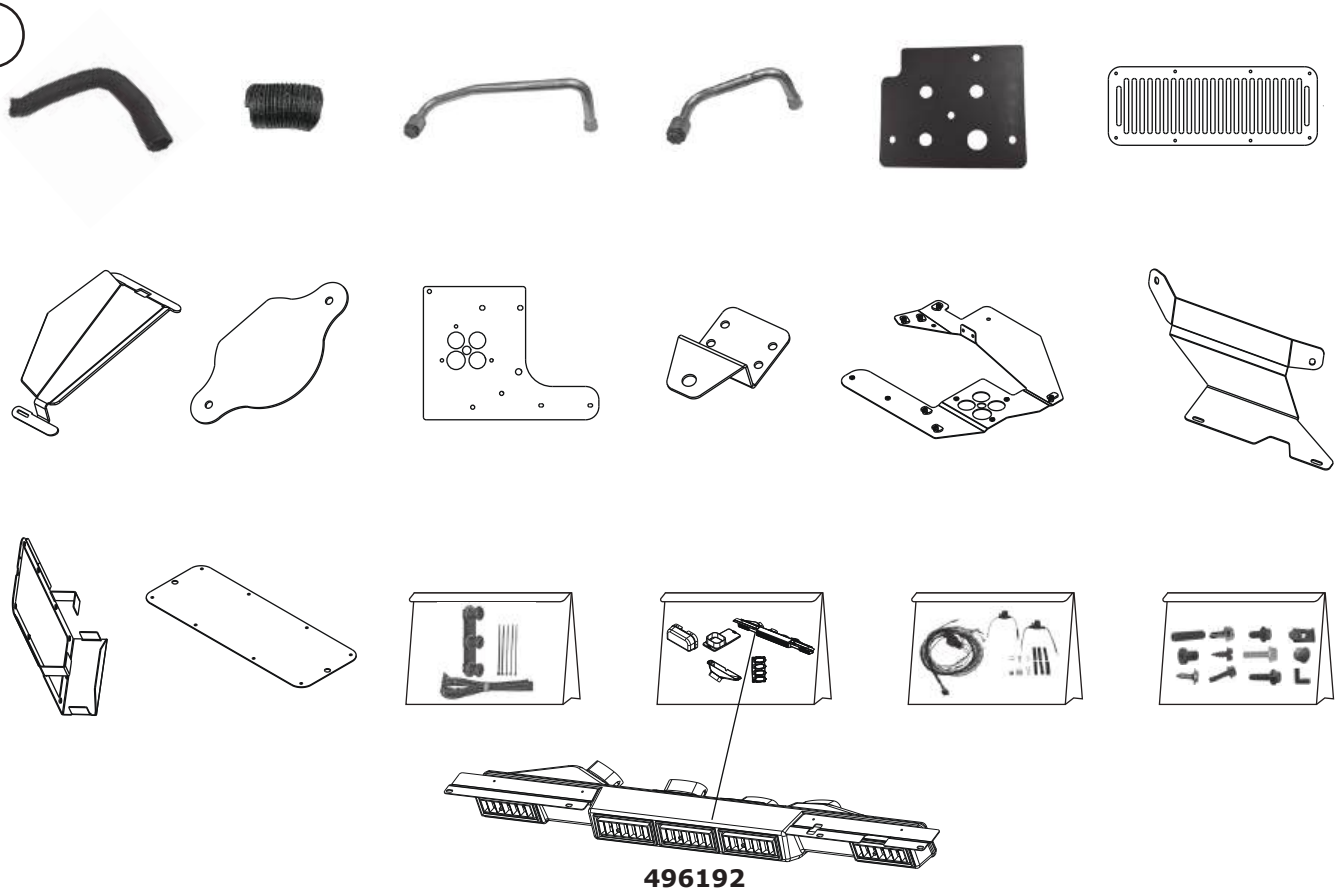
No.	Qty.		Part No.	Description
1.	1	_____	765200	Gen 5 Magnum MAX Module with 404 ECU
2.	1	_____	795696	Accessory Kit

Checked By: _____
Packed By: _____
Date: _____

1

Gen 5 Magnum MAX Module with 404 ECU 765200

2



496192

Accessory Kit 795696

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