



1986-91 Jeep Wagoneer

**Gen 5 Evaporator Kit
(755692)**



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Packing List: Evaporator Kit (755692)

No.	Qty.	Part No.	Description
1.	1	765200	Gen 5 Magnum Max Module with 404 ECU
2.	1	795692	Accessory Kit

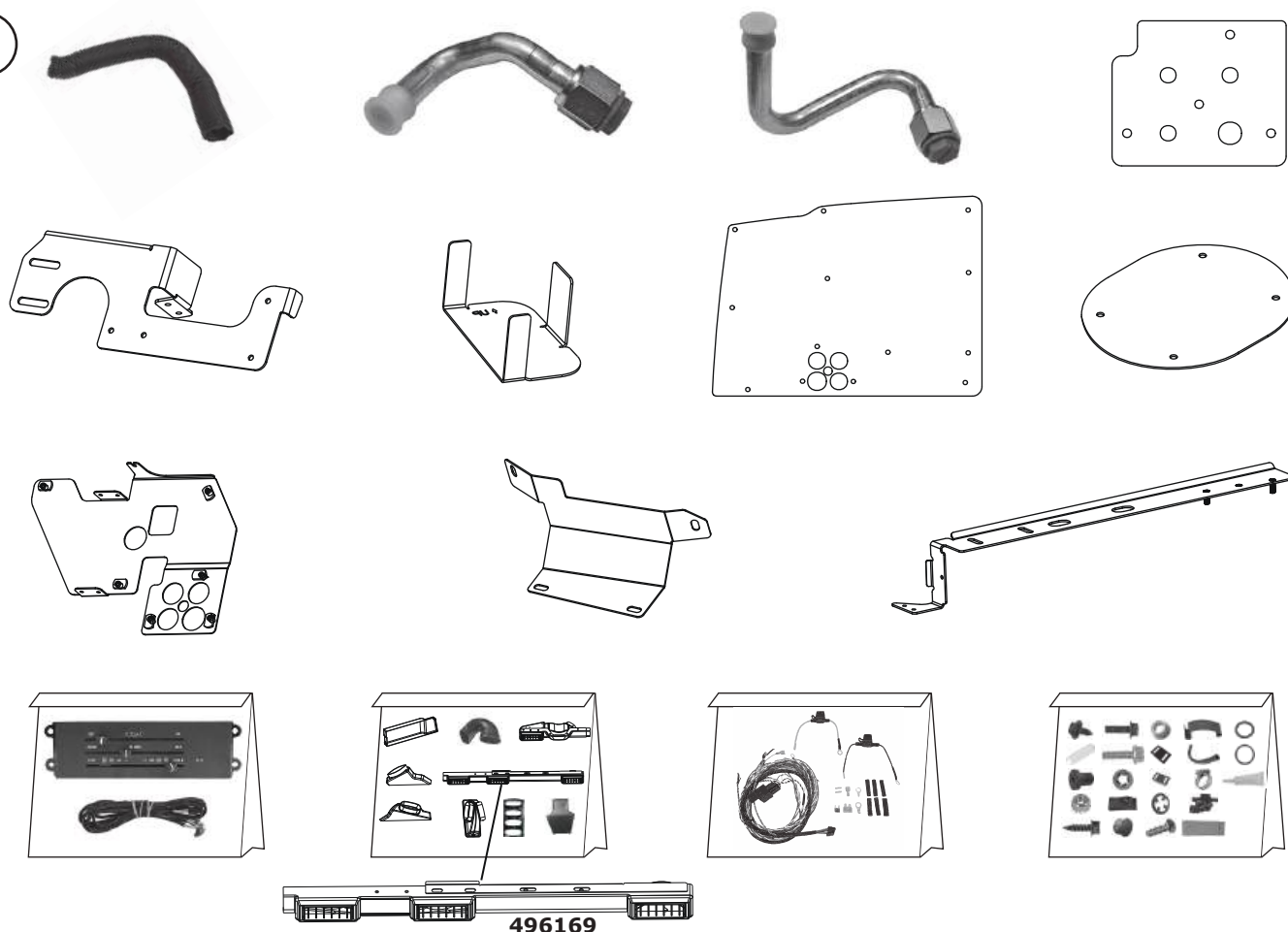
**** Before beginning installation, open all packages and check contents of shipment.
Please report any shortages directly to Vintage Air within 15 days. After 15 days,
Vintage Air will not be responsible for missing or damaged items.**

1



**Gen 5 Magnum Max
Module with 404 ECU
765200**

2



**Accessory Kit
795692**

**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.

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.



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Control Panel Information—Please Read

The supplied control panel is shown below. For a more customized look, additional options are available for purchase from Vintage Air.

Included: Control Panel Kit (479028)

This kit features a replacement control panel designed to bolt directly into your OEM dash as shown below.



Included

As an **optional upgrade**, (3) Oval 3-Knob Control Panels are available for additional purchase. These controls may be installed at the time of system installation or anytime thereafter.

NOTE: A modification will be needed to fit the control panel into the under dash louver assembly. A template with measurements is provided in the control panel instructions.



Options

- 491210-RUA — Polished Finish
- 491223-RUA — Black Anodized Finish
- 491294 — Clear Anodized Finish

NOTE: To see images of the different finishes, visit our website at www.vintageair.com



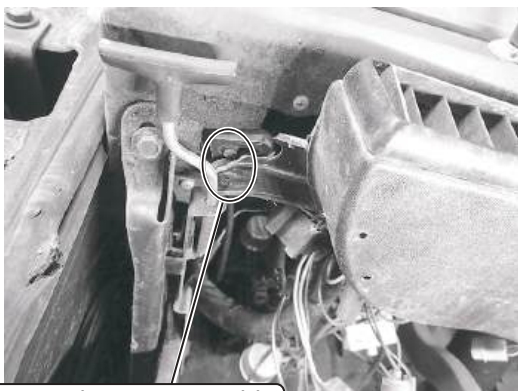
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Compartment Disassembly

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

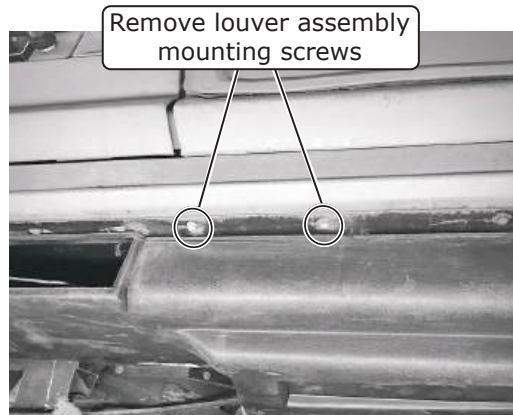
Perform the following:

1. Remove the louver assembly mounting screws attaching the unit to the lower dash (See Photos 1-4, below). Remove rear bracket mounting screw (See Photo 5, below).
2. Lower the A/C unit, and disconnect the power wire from the fuse panel. Disconnect the vacuum and A/C hoses. **NOTE: To ease the removal of the OEM unit, the A/C hoses may be cut, as they will not be reused.**



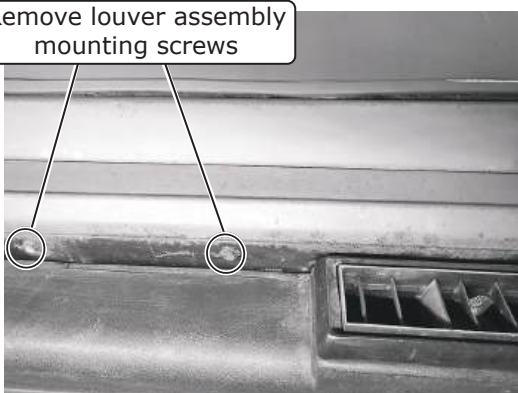
Remove louver assembly mounting screws

Photo 1



Remove louver assembly mounting screws

Photo 2



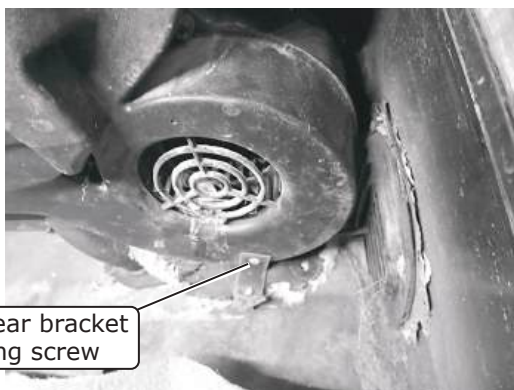
Remove louver assembly mounting screws

Photo 3



Remove louver assembly mounting screws

Photo 4



Remove rear bracket mounting screw

Photo 5



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Compartment Disassembly (Cont.)

3. Remove the fresh air grille, cable and door housing, then clean out the kick panel opening (See Photos 6-8, below).
4. Remove all OEM insulation, retainers and hardware from the firewall (See Photos 9 and 10, below).
5. From the engine compartment, remove the heater hoses, plugs, cables and mounting hardware, then remove the fan and heater housing (See Photos 11-14, below).

Remove fresh
air grille

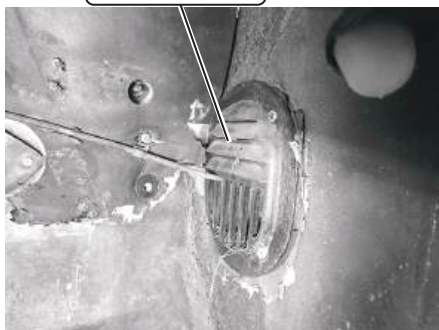


Photo 6

Remove
cable

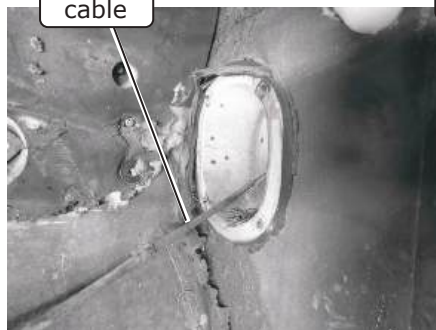


Photo 7

Remove door housing,
then clean out
kick
panel opening



Photo 8

Remove all
OEM insulation

Remove retainers

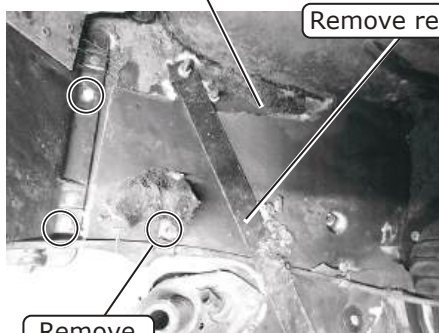


Photo 9

Remove
hardware



Retainers Removed Photo 10

Removes cables
and mounting
hardware



Photo 11

Remove
heater hoses

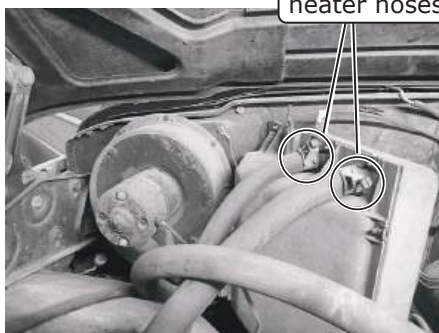


Photo 12

Remove fan and
heater housing

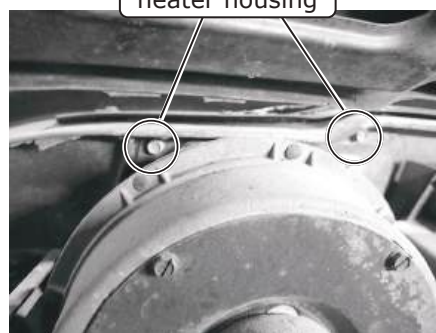


Photo 13

Remove
plugs



Photo 14



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Compartment Disassembly (Final)

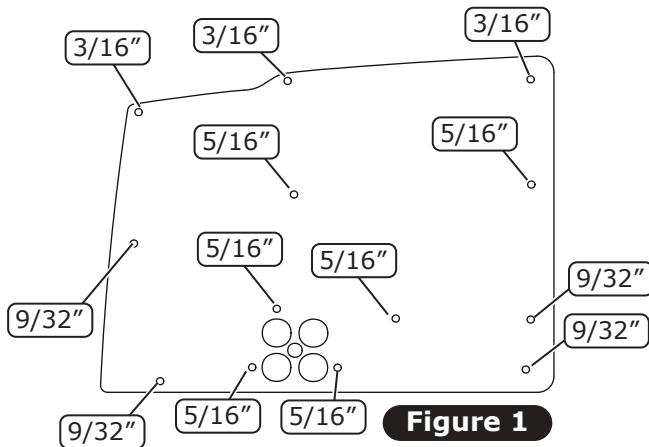
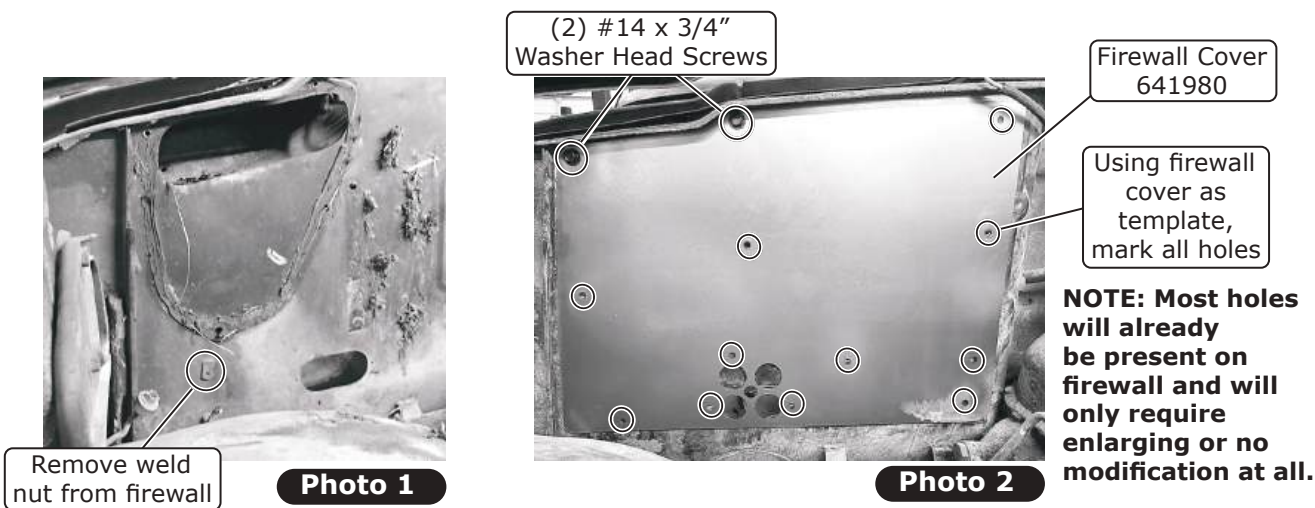
- From the passenger compartment, disconnect the duct hoses and remove the heater assembly from the firewall, then remove the passenger-side defrost duct (See Photo 15, below). **NOTE: Be sure not to damage the defrost duct, as it will be reused.**



Photo 15

Firewall Modification

- Remove the weld nut from the firewall (See Photo 1, below).
- Place the firewall cover on the firewall, and secure it with (2) #14 x 3/4" washer head screws (See Photo 2, below). Using the firewall cover as a template, mark all holes (See Photo 2, below). **NOTE: Most holes will already be present on the firewall and will only require enlarging or no modification at all.**
- Remove the firewall cover from the firewall, then drill or enlarge all holes to the sizes shown on Figure 1, below.





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Firewall Modification (Cont.)

4. Measure from the top of the oval 5/8" and mark, then drill pilot holes (See Photo 3, below).
5. From inside the cab, using a step bit, enlarge the (2) previously drilled pilot holes to 1 1/4" (See Photo 4, below).
6. Cut all holes together to make one large square opening (See Photo 5, below).
7. Modified firewall should appear as shown in Photo 6, below.

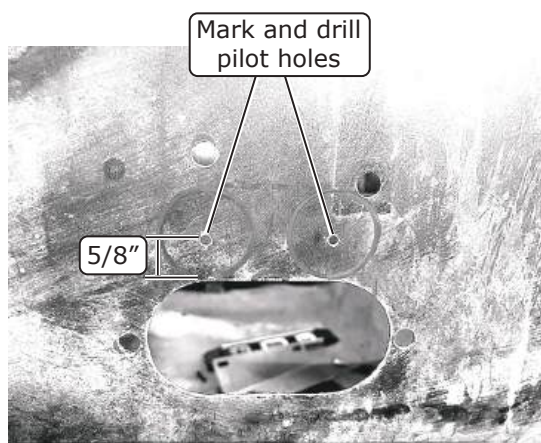


Photo 3

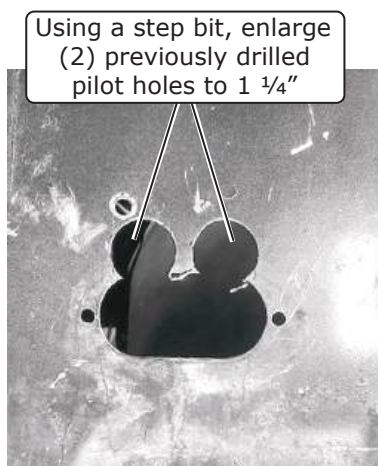


Photo 4

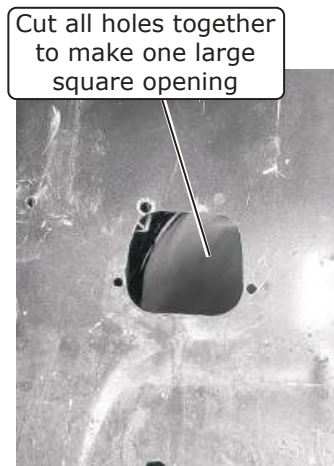


Photo 5



NOTE: All circled holes will be used

Photo 6



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Glove Box Modification

NOTE: To have enough clearance for the new evaporator module, the OEM glove box must be trimmed. This glove box is part of the dash and the modification must be done from inside the cabin. A template was made to help scribe the line on the glove box.

1. Insert the glove box template into the glove box with the marked side up as shown in Figures 1 and 2, below.
NOTE: Ensure the template is pushed to the back of the glove box so all surfaces are flush (See Figure 2, below).
2. Use the template as a straight edge to make a cut line around the inside of the glove box with a marker by sliding the template along the inside and tracing it (See Figure 3, below).
3. Remove the template and cut along the line with a cut off wheel (See Figure 4, below).
4. Clean and debur all the edges (See Figure 4, below).

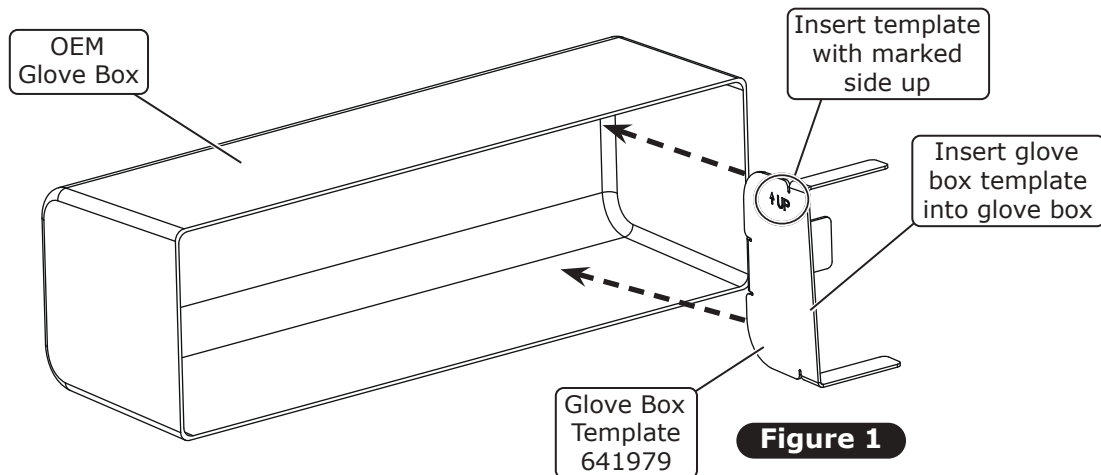


Figure 1

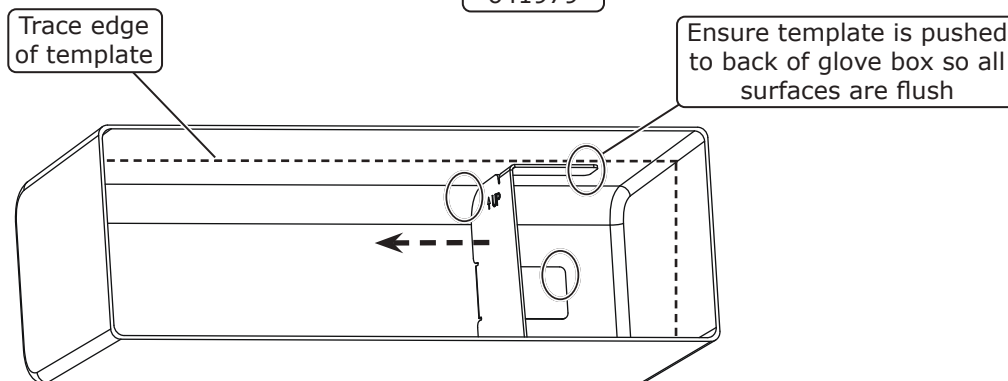


Figure 2

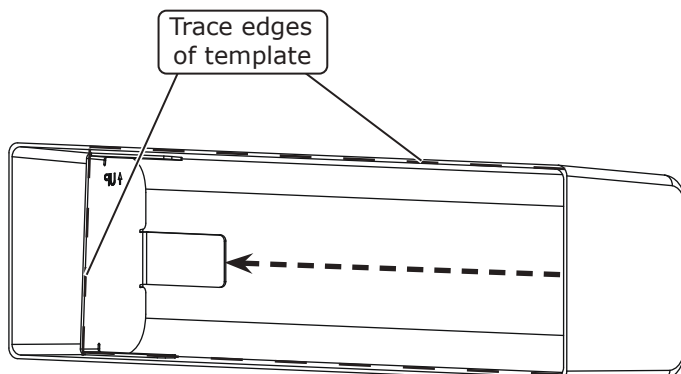


Figure 3

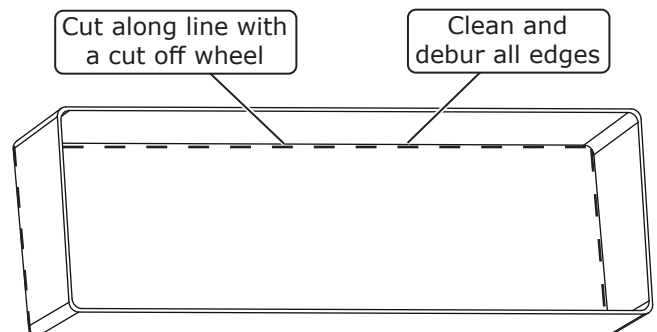


Figure 4



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Firewall Insulation

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

1. Once the disassembly is complete, clean and prep the firewall. Apply insulation to the area shown in Photo 1, below. **NOTE: Be sure to punch out all mounting holes.**

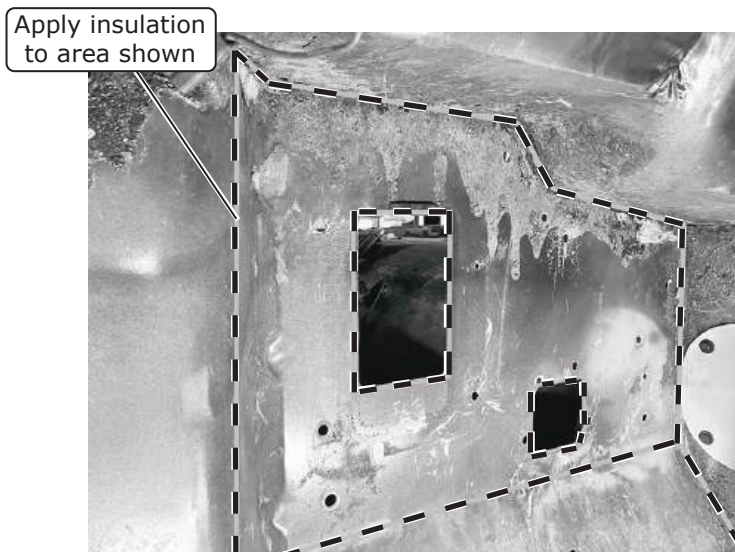


Photo 1

Kick Panel Plate Installation

1. Clean around the opening on the kick panel, where the fresh air grille was mounted (See Photo 1, below). **NOTE: Remove the old gasket material and clean.**
2. Apply a bead of silicone around the perimeter of the supplied kick panel plate, then install it over the kick panel opening using (4) M6.3 x 16mm hex head screws with washers as shown in Figure 1 and Photo 2, below.

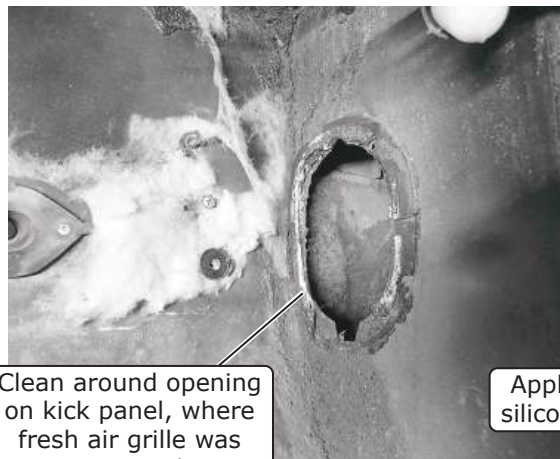


Photo 1

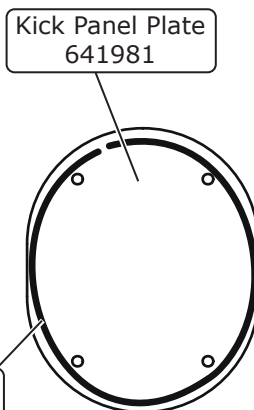


Figure 1

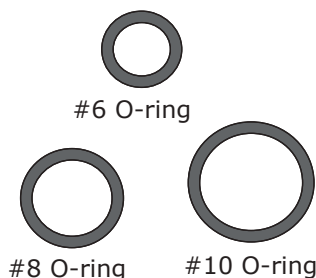


Photo 2

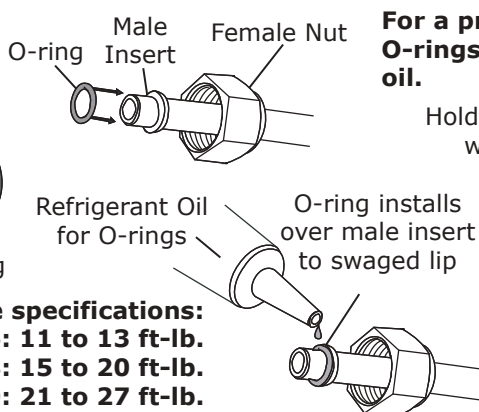


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Lubricating O-rings & Fitting Torque Specs

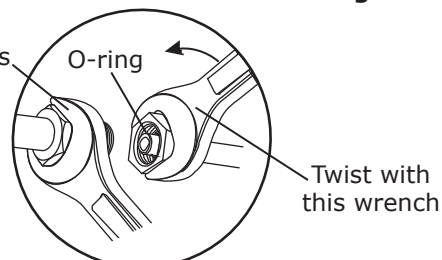


NOTE: Standard torque specifications:
#6: 11 to 13 ft-lb.
#8: 15 to 20 ft-lb.
#10: 21 to 27 ft-lb.



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

Hold with this wrench



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.

Evaporator Preparation

1. Using the provided spring clips, install the defrost, dash and floor plenums as shown in Figures 1 and 2, below.

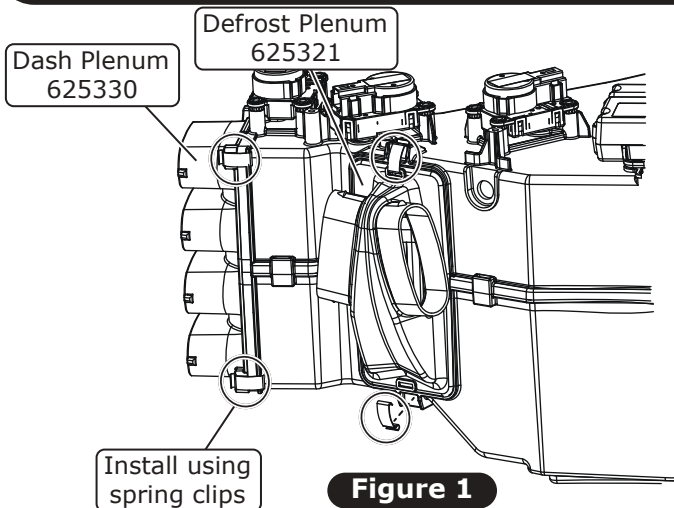


Figure 1

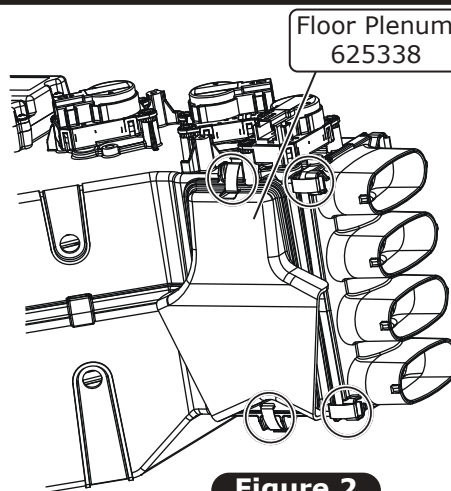


Figure 2



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Evaporator Preparation (Cont.)

2. Install (3) 1/2" plastic plugs as shown in Figure 3, below.
3. Install (2) 1/4-20 well nuts as shown in Figure 4, below.
4. With properly lubricated O-rings (See Lubricating O-rings, Page 13), install the #10 upper and lower heater hardlines as shown in Figure 5, below. Leave loose at this time.
5. Install the evaporator firewall bracket using (4) #10 x 5/8" screws and (1) pre-existing evaporator case screw as shown in Figure 6, below.
6. Center the heater hardlines inside the evaporator firewall bracket holes, then tighten the lines.

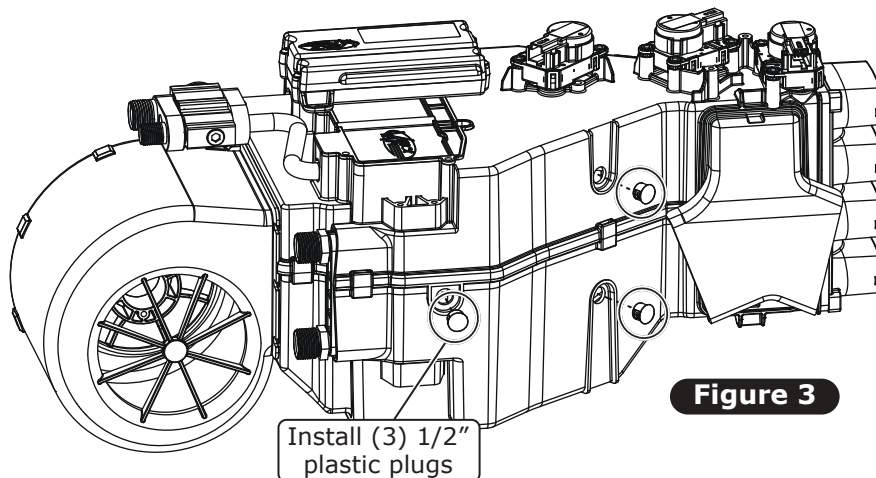


Figure 3

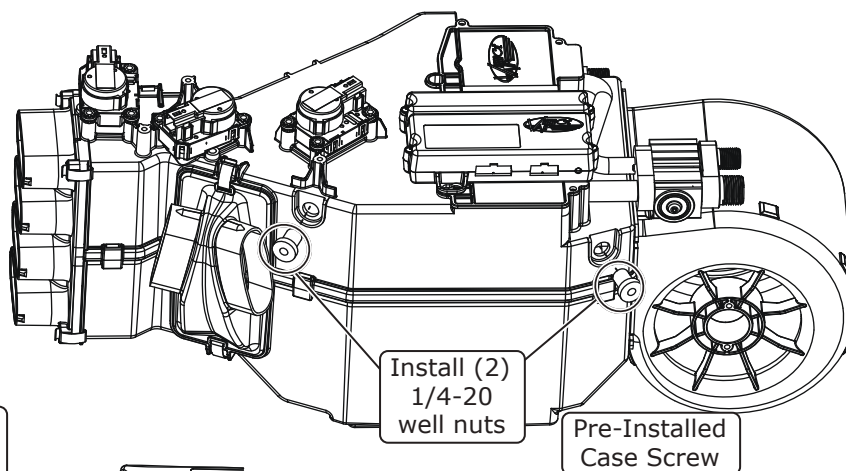


Figure 4

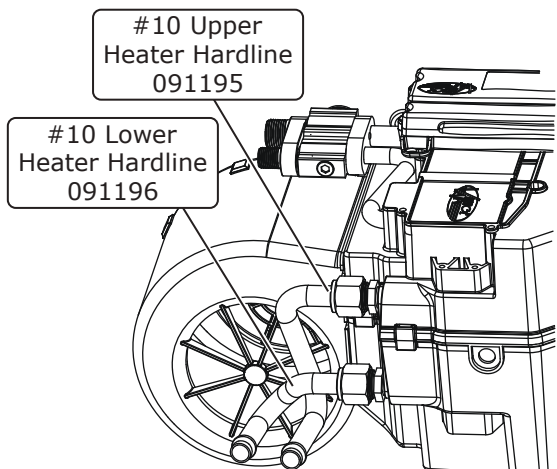


Figure 5

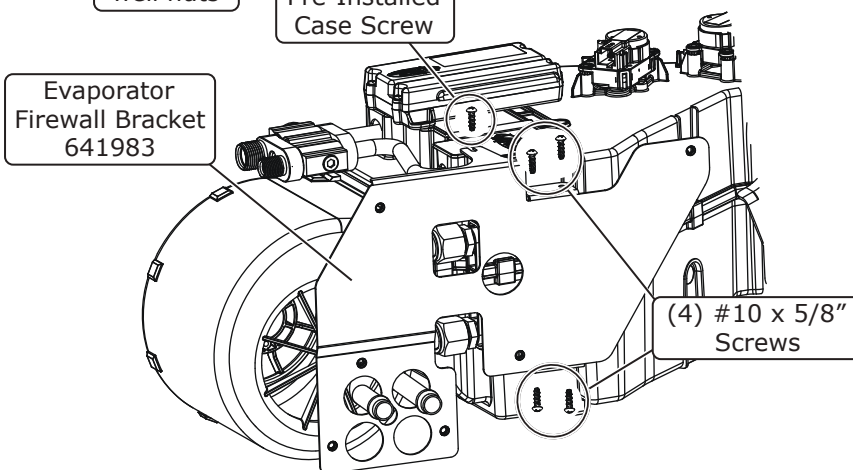


Figure 6



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Evaporator Preparation (Cont.)

7. Install (2) 1/4-20 full-threaded studs into the evaporator firewall bracket as shown in Figure 7, below.
8. Apply transfer tape to the evaporator firewall bracket as shown in Figure 7, below.
9. Install the firewall rubber boot onto the evaporator firewall bracket (See Figure 8, below). **NOTE: The transfer tape will secure the boot during installation of the evaporator module. Ensure all holes on the boot and bracket are lined up, and the hardlines are tight.**

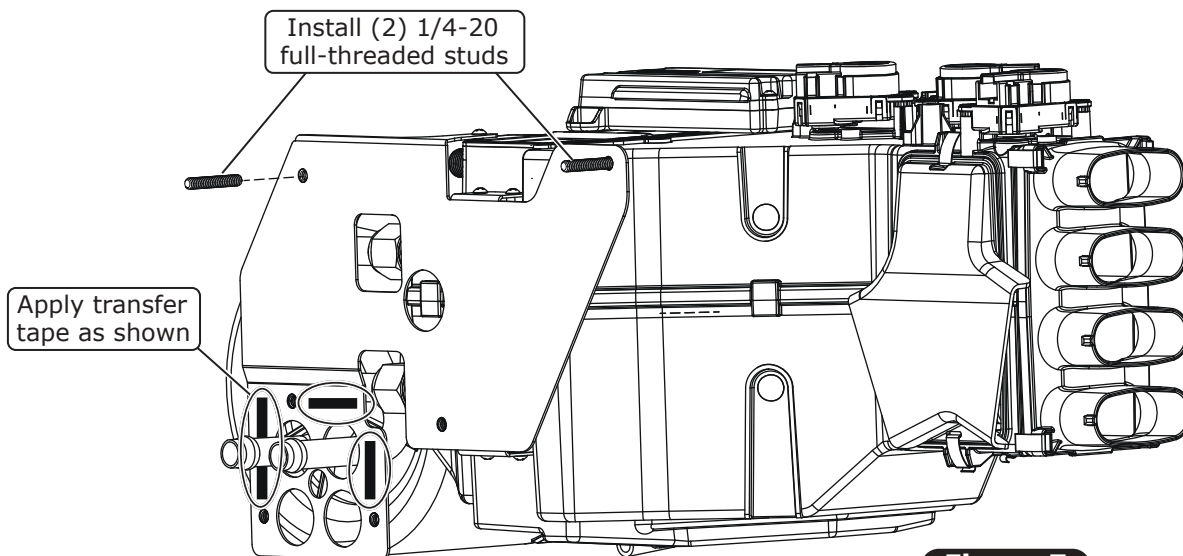


Figure 7

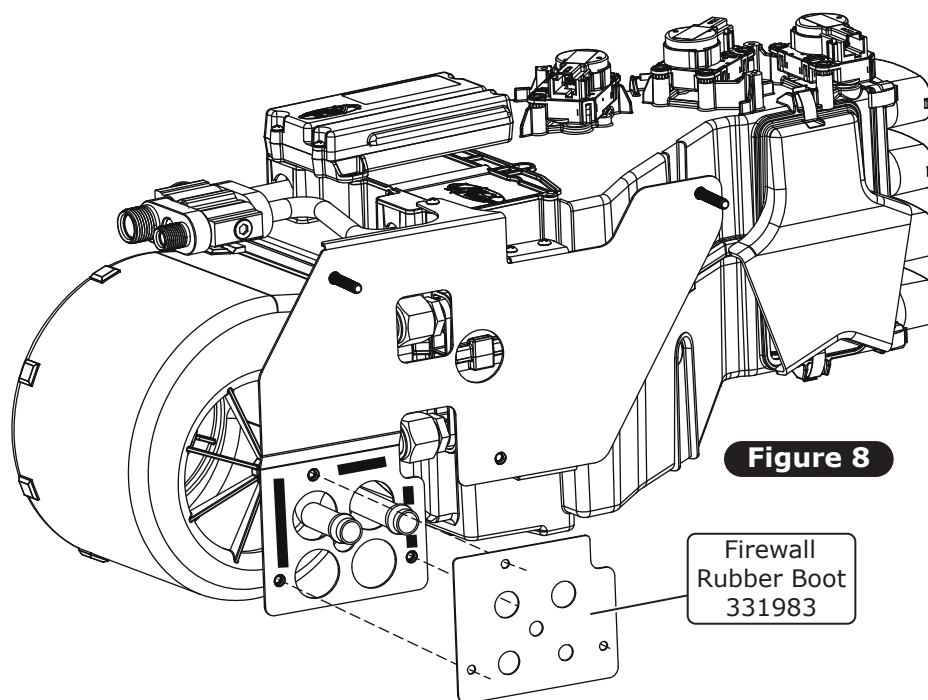


Figure 8



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Evaporator Preparation (Final)

10. Remove the (2) #10 x 5/8" screws (discard), securing the ECU to the evaporator module (See Photo 1, below), and let it hang in front of the module.
11. Install (2) nylon bushings onto the (2) 8-18 x 5/8" screws, then reinstall them into the top of the evaporator module (See Photos 2 and 3, below). **NOTE: The nylon bushings will ease the reinstallation of the ECU when the evaporator module is fully installed into the vehicle and there is limited access to the ECU mounting screws. Reinstall ECU.**



Photo 1

Remove (2)
#10 x 5/8"
screws (discard),
securing ECU
to evaporator
module

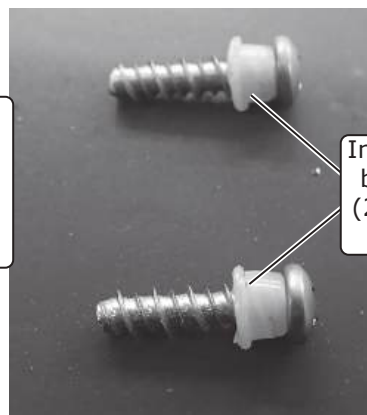


Photo 2

Install (2) nylon
bushings onto
(2) 8-18 x 5/8"
screws

Reinstall (2) 8-18
x 5/8" screws
with nylon
bushings into top
of module

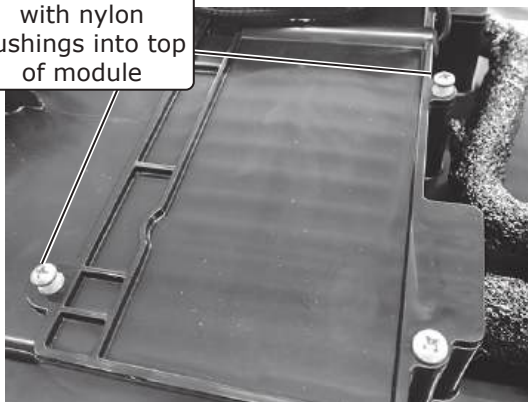


Photo 3



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Defrost Duct Modification and Installation

1. Mark the bend line on the OEM defrost duct plenum as shown in Photos 1-3, below.
2. Measure a 1/2" down from the marked bend line, then draw a cut line as shown in Photos 4 and 5, below.
3. Cut the plenum along the cut lines as shown in Photos 6, 7 and 8, below.

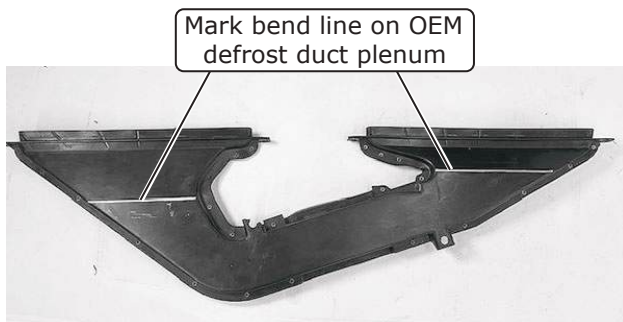


Photo 1

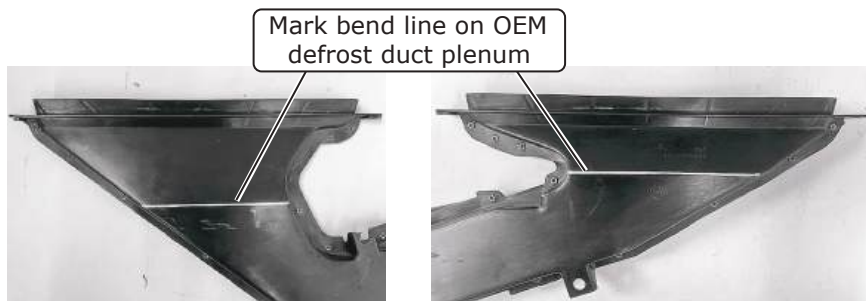


Photo 2

Photo 3

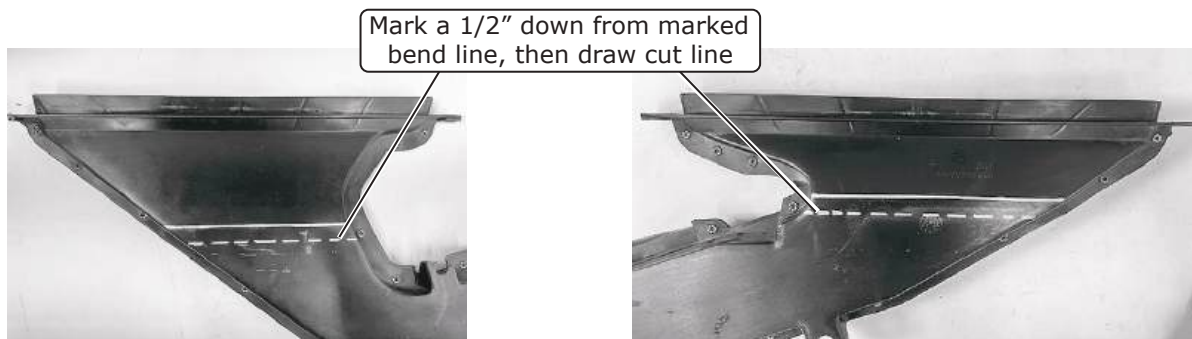


Photo 4

Photo 5

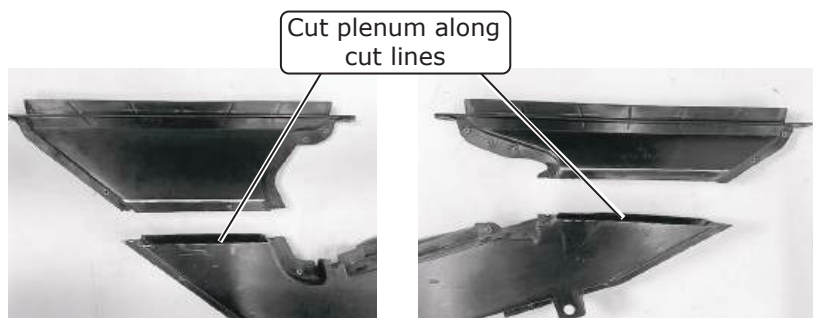


Photo 6

Photo 7



After Cutting Plenum

Photo 8



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Defrost Duct Modification and Installation (Cont.)

4. Install the provided driver-side defrost duct adapter onto the driver-side defrost plenum as shown in Photos 9-12, below.
5. Drill 1/8" pilot holes (2 on each side), then secure with provided #6 x 3/8" pan head screws (See Photos 11 and 12, below).



Photo 9

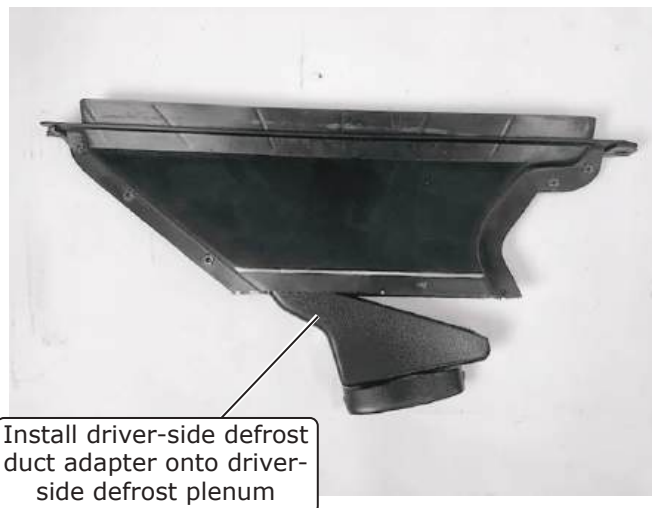


Photo 10

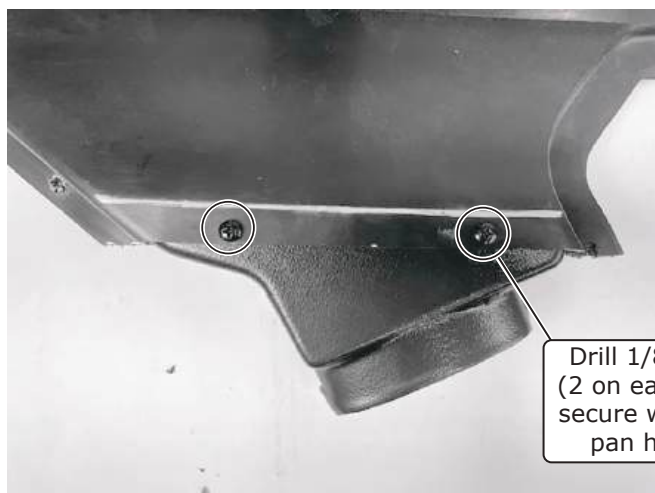


Photo 11

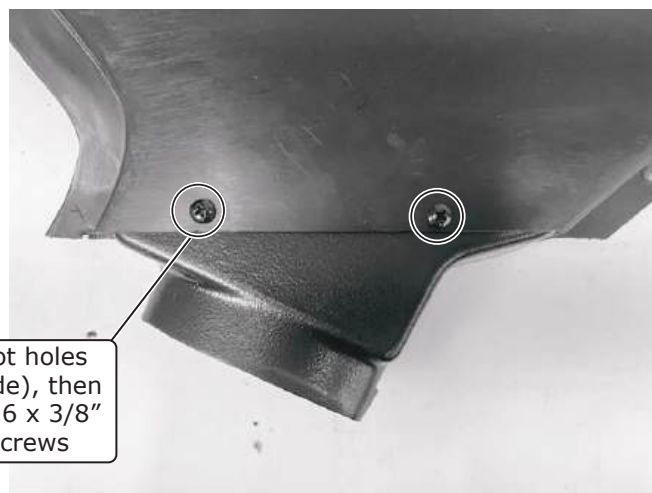


Photo 12



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Defrost Duct Modification and Installation (Cont.)

6. Install the provided passenger-side defrost duct adapter onto the passenger-side defrost plenum as shown in Photos 13-14, below.
7. Drill 1/8" pilot holes (2 on each side), then secure with provided #6 x 3/8" pan head screws (See Photos 15 and 16, below).

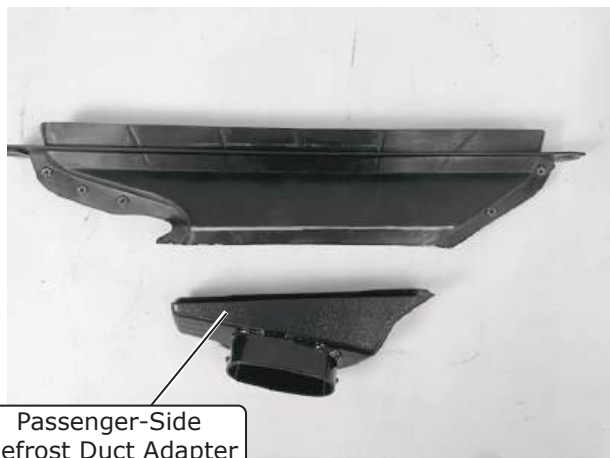


Photo 13



Photo 14

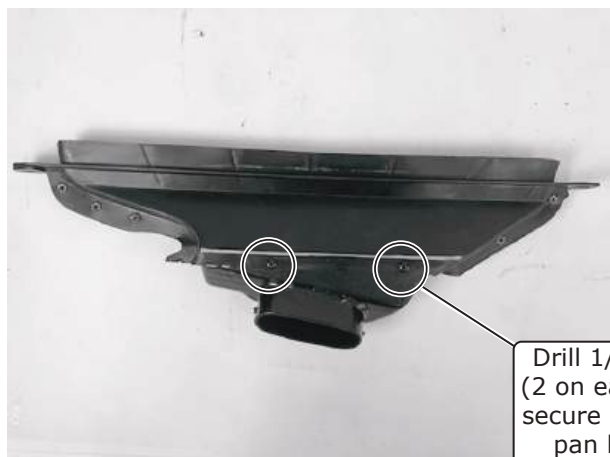


Photo 15

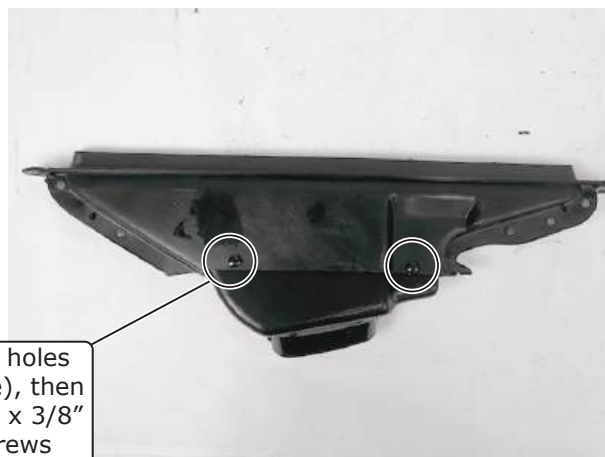


Photo 16

Drill 1/8" pilot holes (2 on each side), then secure with #6 x 3/8" pan head screws



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Defrost Duct Modification and Installation (Final)

8. Silicone around the edges of the adapters and be sure to fill any voids (See Photos 17 and 18, below).
9. Attach a length of duct hose onto each defrost duct adapter (See Duct Hose Routing, Page 43, for duct hose lengths). Install the defrost plenums into their original locations, and secure them using the OEM hardware or the provided 3/16" push-on rings (See Photos 19 and 20, below). **NOTE: Duct hose must be installed onto defrost duct adapters before installing onto dash.**

Silicone around edges
of adapters and be
sure to fill any voids



Photo 17

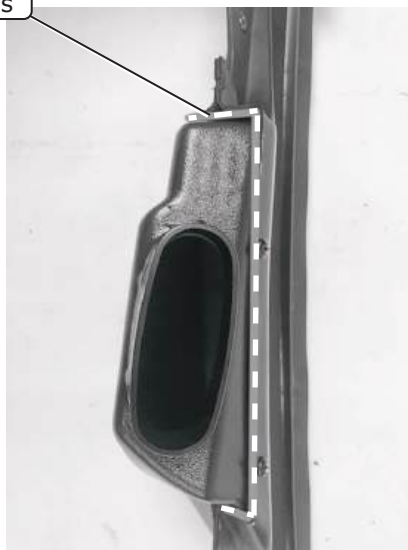


Photo 18

Install defrost plenums into original
locations and secure them using OEM
hardware or provided 3/16" push-on rings

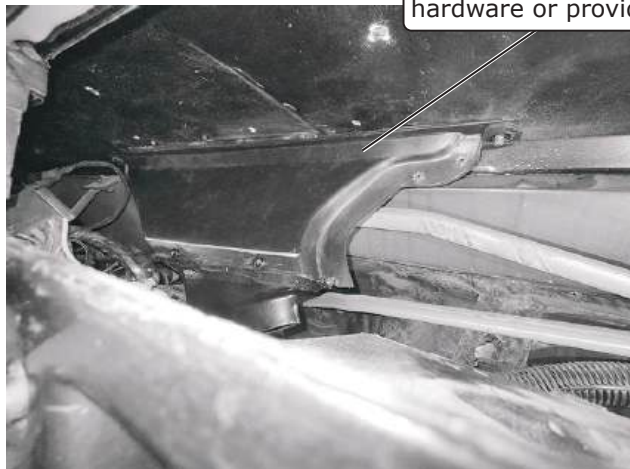


Photo 19



Photo 20

**NOTE: Duct hose must be installed onto defrost
duct adapters before installing onto dash.**



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Evaporator Installation

1. Loosen the A/C caps on the evaporator module so they are only finger tight (See Photo 1, below).
NOTE: This will make removal of caps easier once module is installed behind the dash. Caps should not be removed completely, as they will keep debris and moisture out during the installation process.
2. Mount the main harness relay in the passenger footwell or kick panel area where it will not interfere with the evaporator module installation, then attach the white ground wire with ring terminal to a suitable ground on the kick panel (See Photo 2, below).
3. Place the evaporator module onto the passenger floorboard (See Photo 3, below).
4. Route the heater control valve plug through the center hole on the evaporator firewall bracket and rubber boot, followed by the red & white, blue, and (2) heavy gauge orange and white wires (See Photos 4-6, below).
5. Pull the excess slack through the bracket, then route the wires through the modified area on the firewall (See Photo 7, below).

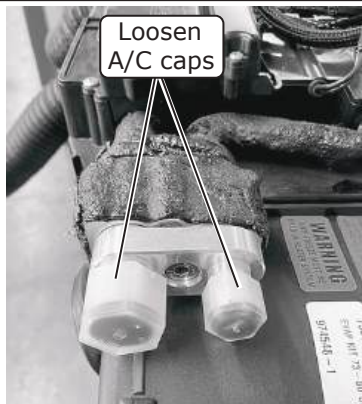


Photo 1



Photo 2



Photo 3

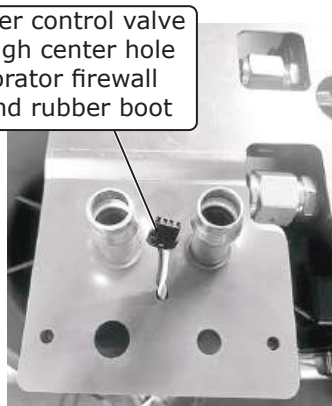


Photo 4

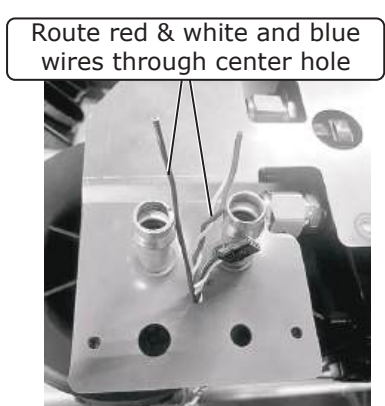


Photo 5

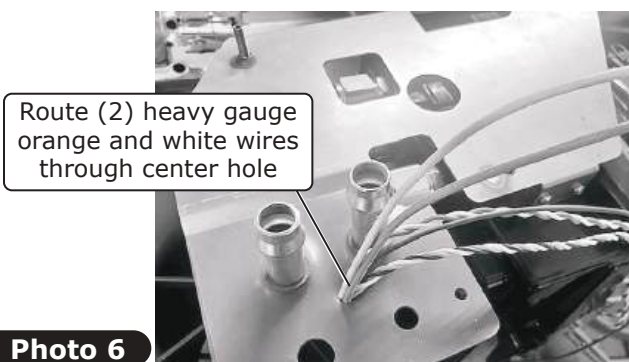


Photo 6

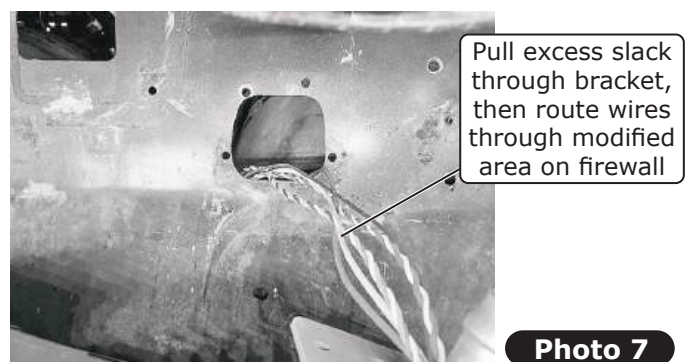


Photo 7



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Evaporator Installation (Cont.)

6. Due to tight clearance and limited accessibility, it is recommended to insert the wiring connections into the ECU at this time (See Photo 8, below).
7. Lift the evaporator module up behind the dash (See Photo 9, below), inserting the previously installed studs through the corresponding holes on the firewall and the heater lines through the previously modified opening (See Photo 10, below).
8. Carefully hang the evaporator module in place or if necessary, wedge something between the module and dashboard to temporarily secure it. From the engine bay, install (2) of the provided 1/4-20 hex nuts with star washers onto the studs and tighten (See Photo 11, below). **NOTE: These will be replaced later, but need to be securely tightened for the next step.**
9. From the passenger foot well, place the evaporator dash bracket against the underside of the dash and align it with the well nuts on the evaporator module (See Photo 12, below).
10. Secure the evaporator dash bracket to the evaporator module using (2) 1/4-20 x 1" serrated flange bolts and hand tighten (See Photos 13 and 14, below).
11. Confirm the evaporator firewall bracket is sitting flat against the firewall, then mark the holes on the underside of the dash using the bracket as a template (See Photo 15, below). Remove the dash bracket.
12. Drill out the marked holes to 5/16" (See Photo 16, below).

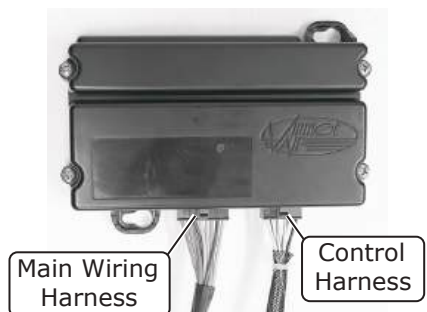


Photo 8



Photo 9



Photo 10



Photo 11

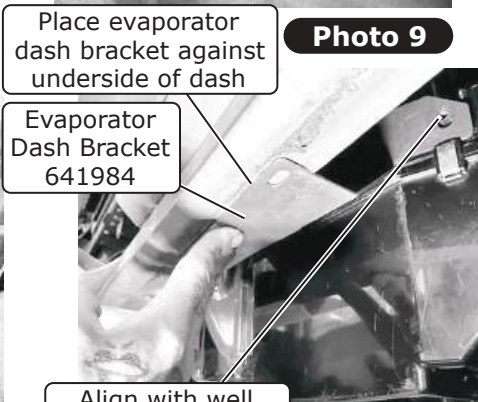


Photo 12

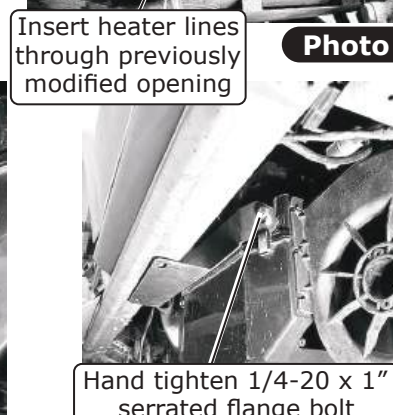


Photo 13



Photo 14

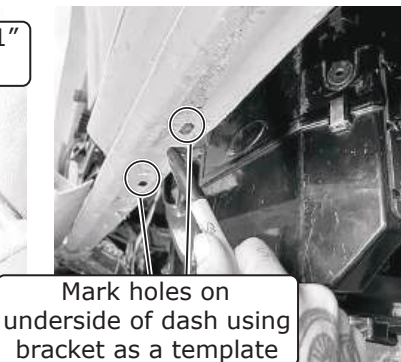


Photo 15



Photo 16



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Evaporator Installation (Final)

13. Install the supplied 1/4-20 U-nuts onto the dash bracket as shown in Photo 17, below.
14. Install the dash bracket using the supplied hardware, ensure the U-nuts line up with the previously drilled dash holes (See Photo 18, below). **NOTE: You may tighten the bolts attaching the bracket to the evaporator module, but do not tighten the bolts attaching the bracket to the dash (See Photo 19, below). These bolts are installed temporarily to confirm fitment and will also be used to attach the under dash louver assembly to the dash.**
15. Install control panel assembly. Refer to control panel instructions.
16. Plug the wiring harnesses into the ECU module on the sub case. Wire according to wiring diagrams on Pages 45 and 46.

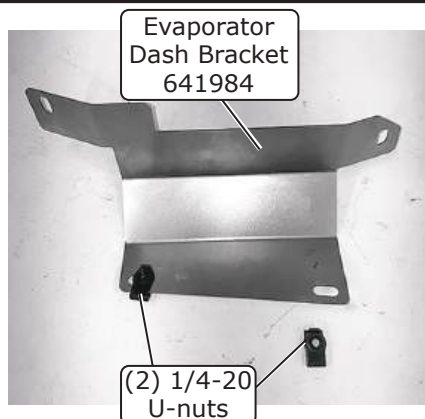


Photo 17

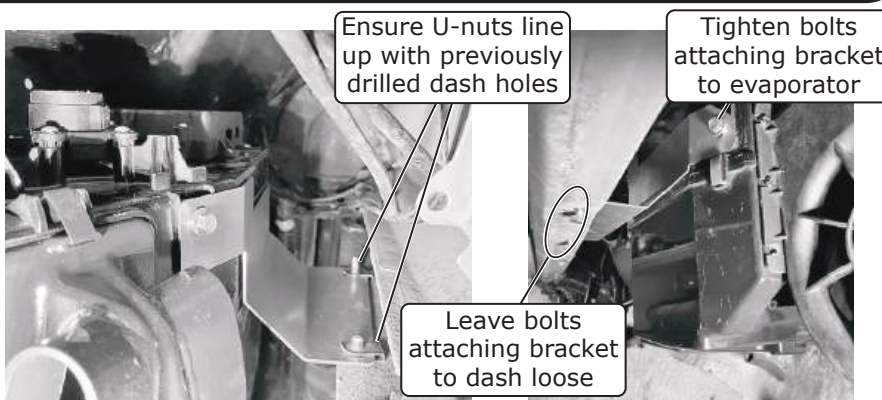


Photo 18



Photo 19

Firewall Cover Installation

1. Place the firewall cover on a work bench with the outside face down as shown in Photo 1, below.
2. Install (4) 1/4-20 x 3/4" black serrated flange bolts with (4) 1/4" pushnut bolt retainers as shown in Photos 2 and 3, below. **NOTE: Using a 5/16" or similar sized deep socket to push the retainers onto the bolts will ease installation.**

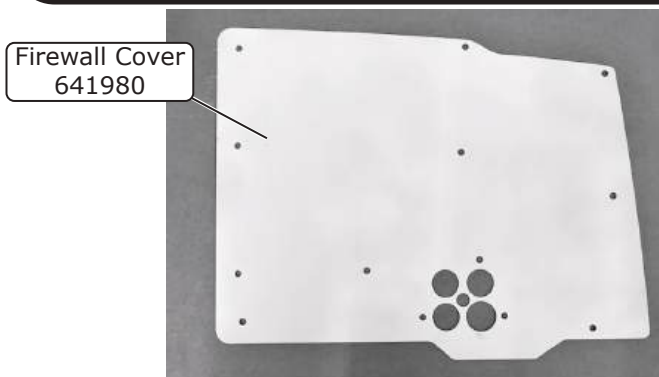


Photo 1

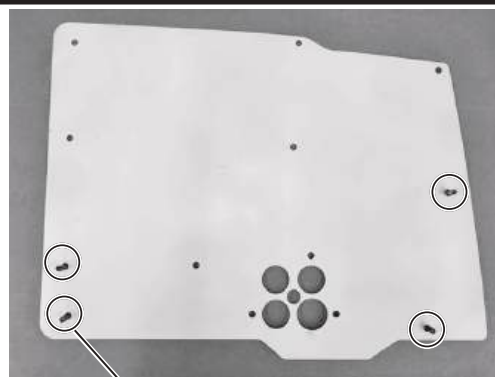


Photo 2

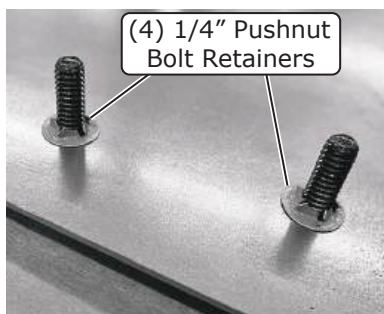


Photo 3



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Firewall Cover Installation (Cont.)

3. Apply a bead of silicone around the perimeter of the firewall cover and to the specified areas on the firewall as shown in Photos 4 and 5, below.
4. Install the firewall cover onto the firewall and secure it with (3) #14 x 3/4" washer head screws and (4) 1/4-20 x 3/4" black serrated flange bolts as shown in Photo 6, below.
5. Once all the bolts are in place, swap the studs one at a time for 1/4-20 x 3/4" black serrated flange bolts, then install the nuts with star washers from inside the cab onto the (4) bolts with retainers on them (See Photo 7, below).
6. Once the evaporator module is installed, attach the 150° adapter for 4-vent plenum to the top outlet on the dash plenum as shown in Figure 1, below.

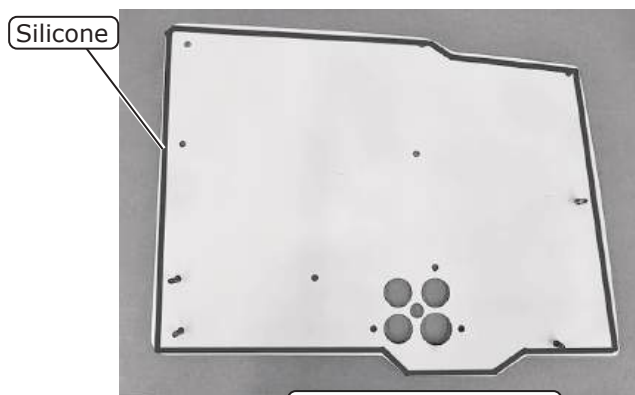


Photo 4

(3) #14 x 3/4"
Washer Head Screws

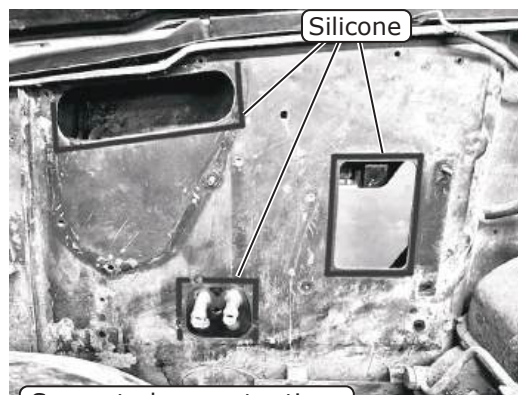


Photo 5

Swap studs one at a time
for (2) 1/4-20 x 3/4"
black serrated flange bolts



Photo 6

(4) 1/4-20 x 3/4"
black serrated flange bolts, threaded
into evaporator firewall bracket

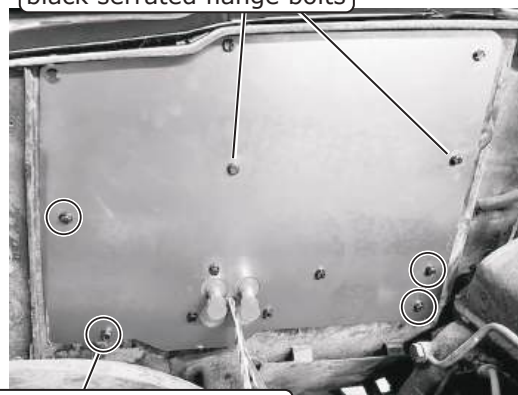


Photo 7

Install 1/4-20 nuts with star
washers from inside cab
onto (4) bolts with retainers

Attach 150° adapter for
4-vent plenum to top
outlet on dash plenum

150° Adapter for
4-Vent Plenum
496147

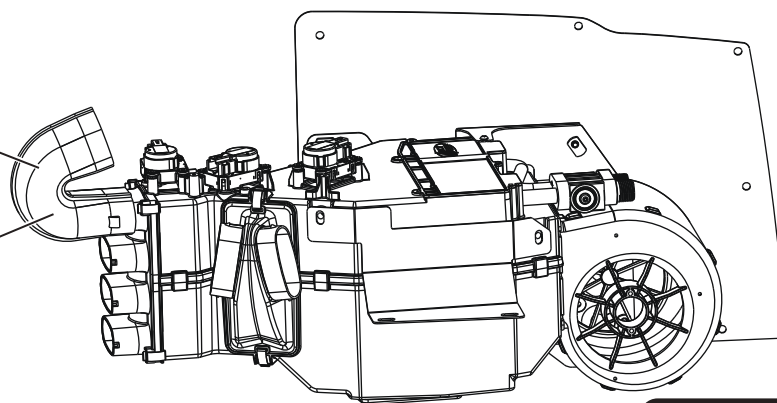


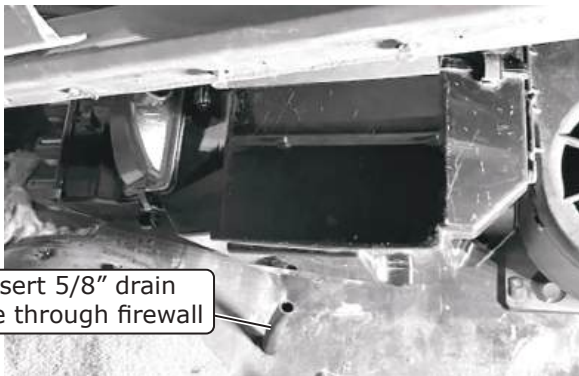
Figure 1



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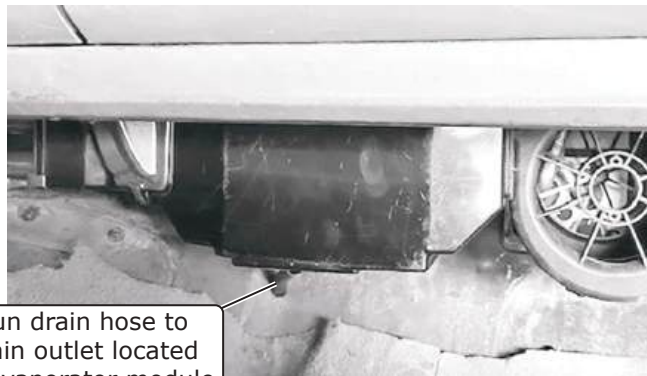
Drain Hose Installation

1. If there is an existing hole under the unit as shown in Photo 1, below, enlarge it to 5/8". If not, measure and mark approximately 1" to 1 1/2" under the bottom of the evaporator module, then drill a 5/8" hole for the drain hose. **NOTE: Before drilling, confirm the hole and drain hose will not interfere with the firewall cover or any other components on the engine side of the firewall. Double check the location for the drain hose hole, as the location can vary depending on years and/or models.**
2. Insert the 5/8" drain hose through the firewall and run it to the drain outlet located on the evaporator module (See Photos 1 and 2, below). On the engine side of the firewall, an inch after the firewall, cut the line and install the supplied 1/2" drain elbow. Use the cut piece of hose to extend the other side of the elbow.



Insert 5/8" drain hose through firewall

Photo 1

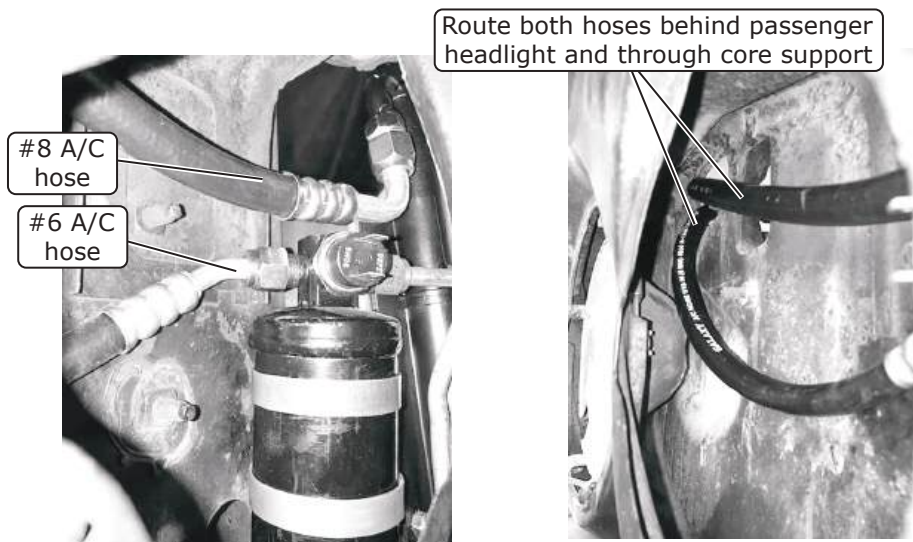


Run drain hose to drain outlet located on evaporator module

Photo 2

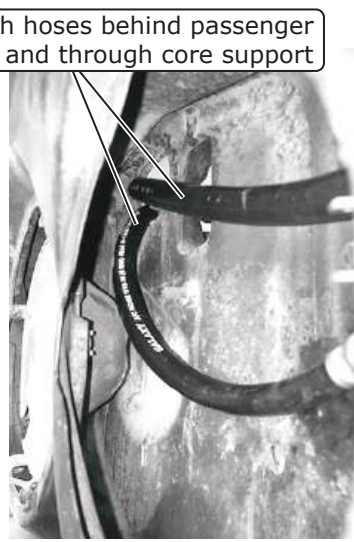
A/C Hose Installation

1. With properly lubricated O-rings (See Lubricating O-rings, Page 13), connect the 45° fitting on the #6 A/C hose to the outlet port on the drier and the 90° fitting on the #8 A/C hose to the top fitting on the condenser (See Photo 1, below).
2. Route both hoses behind the passenger headlight, and through the core support (See Photo 2, below).



#8 A/C hose
#6 A/C hose

Photo 1



Route both hoses behind passenger headlight and through core support

Photo 2



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A/C Hose Installation (Cont.)

3. Route the hoses along the passenger fender, and secure them with the provided Adel clamps and tie wraps (See Photos 3 and 4, below).
4. With a properly lubricated O-ring (See Lubricating O-rings, Page 13), connect the straight fitting with service port on the #8 A/C hose to the corresponding #8 service port on the compressor (See Photo 4, below).
5. With a properly lubricated O-ring (See Lubricating O-rings, Page 13), connect the 45° fitting with service port on the #10 A/C hose to the corresponding #10 service port on the compressor (See Photo 4, below).
6. Route the #6 and #10 A/C hoses through the firewall cover as shown in Photo 5, below.



Photo 3

Route #6 and #10 A/C hose through firewall cover



Photo 5

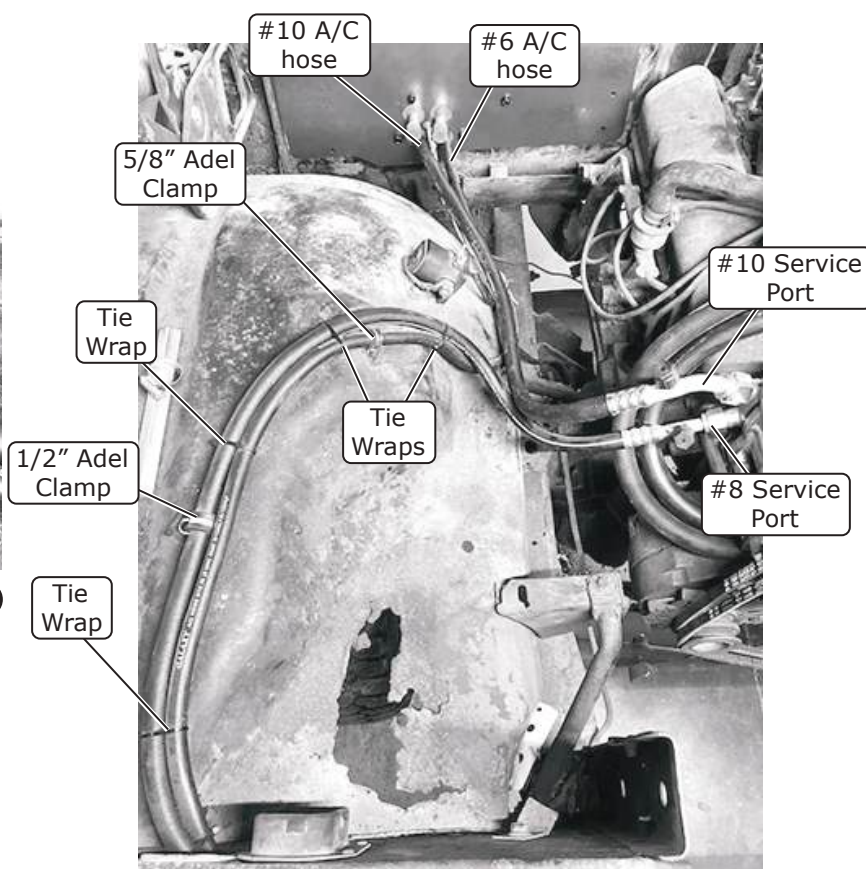


Photo 4



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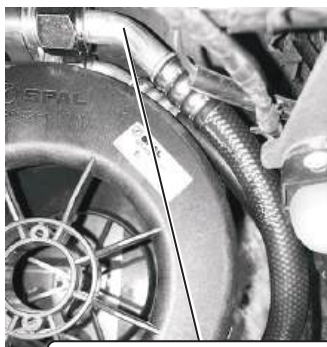
A/C Hose Installation (Final)

- From inside the passenger footwell, with properly lubricated O-rings (See Lubricating O-rings, Page 13), connect the 45° fitting on the #6 A/C hose to the corresponding port on the evaporator (See Photo 6, below), then connect the 45° fitting on the #10 A/C hose to the corresponding port on the evaporator (See Photo 7, below). Ensure the hoses are not kinked (See Photo 8, below).



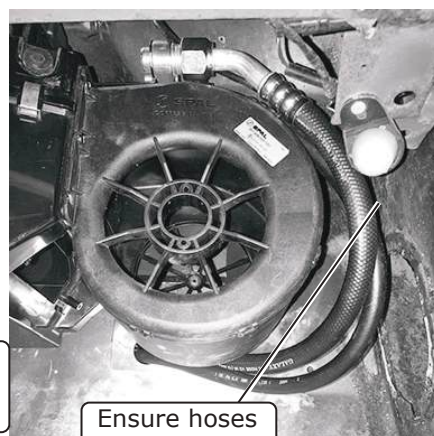
Connect 45° fitting on #6 A/C hose to corresponding port on evaporator

Photo 6



Connect 45° fitting on #10 A/C hose to corresponding port on evaporator

Photo 7



Ensure hoses are not kinked

Photo 8

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) or molded hose will need to be installed in the heater hose.

- Cut a 6 1/2" piece of heater hose and install it onto the heater control valve as shown in Photo 1, below. Note the valve direction, then connect the hose to the heater hardline closer to the driver-side as shown in Photo 1, below. Secure with hose clamps (See Photo 1, below). **NOTE: The heater control valve is directional. Refer to Figure 1, below, for correct installation.**

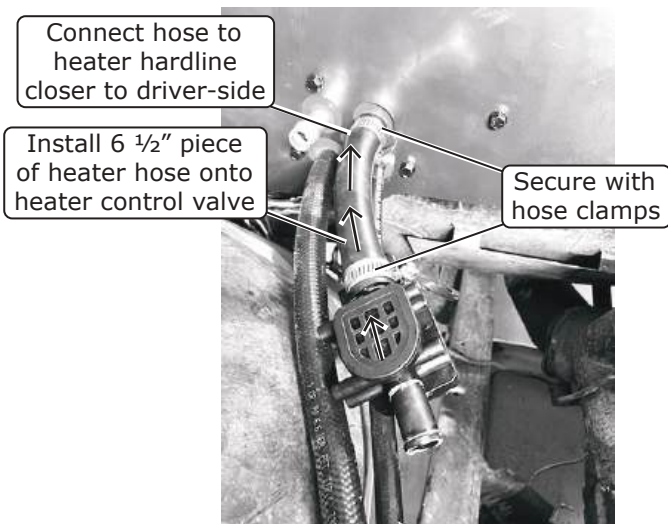


Photo 1

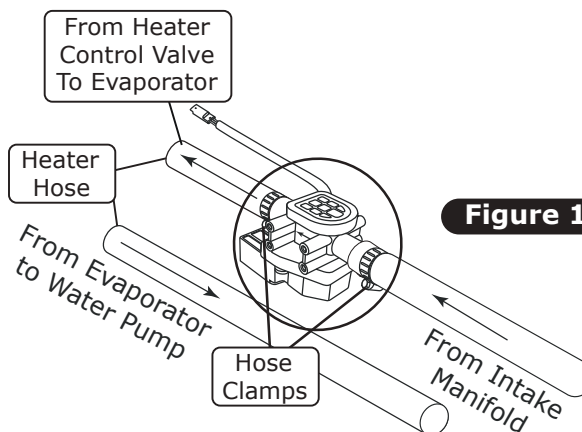


Figure 1

NOTE: Flow Direction Follows Molded Arrow on Valve.



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Heater Hose & Heater Control Valve Installation (Cont.)

2. Connect (2) more lengths of heater hose to the passenger-side heater hardline and the inlet side of the heater control valve (See Photo 2, below).
3. Connect the hose coming off the heater control valve to the nipple toward the back of the intake manifold (See Photos 2-4, below). Then, connect the hose from the heater hardline to the water pump nipple under the alternator (See Photos 2, 4 and 5, below).
4. Secure all hose ends with the provided hose clamps.
5. Connect the heater control valve plug to the wiring harness (See Photo 6, below).

Connect a length of heater hose to passenger-side heater hardline

Heater Control Valve

Connect a length of heater hose to inlet side of heater control valve

From Intake Manifold

Connect hose coming off heater control valve to nipple toward back of intake manifold

To Water Pump

Photo 2

Photo 3

From Intake Manifold

Connect hose from heater hardline to water pump nipple under alternator

In from thermostat bypass

In from heater core

To Water Pump

Photo 4

Photo 5

Lower radiator hose

Connect heater control valve plug to wiring harness

Photo 6



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Under Dash Louver Installation without 4WD Switch

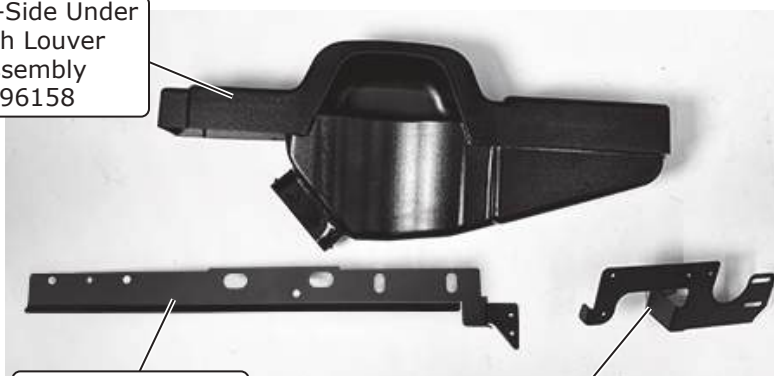
NOTE: The under dash louver bezel is configured to work with or without the OEM 4WD switch (See Photo 1, below). Follow the steps below if not using the OEM 4WD switch. If using the OEM 4WD switch, proceed to Page 34.

1. Locate the driver-side under dash louver assembly, the driver-side left under dash bezel bracket, and the driver-side right under dash bezel bracket (See Photo 2, below).
2. Install the driver-side left under dash bezel bracket onto the louver assembly, and secure it using (6) #6 x 3/8" pan head screws (See Photos 3 and 4, below).
3. Install the driver-side right under dash bezel bracket onto the louver assembly, and secure it using (3) #6 x 3/8" pan head screws (See Figure 1, below).



Photo 1

Driver-Side Under
Dash Louver
Assembly
496158



Driver-Side Right
Under Dash Bezel
Bracket
642010

Driver-Side Left
Under Dash Bezel
Bracket
641978

Photo 2

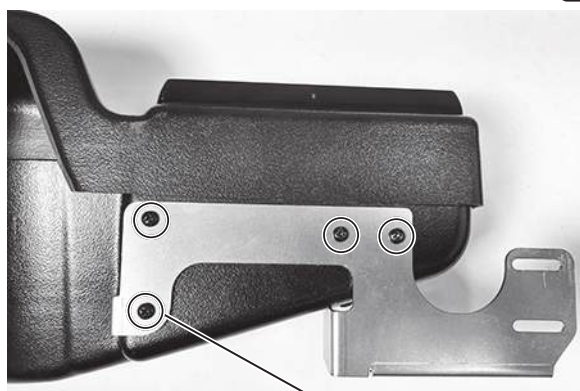


Photo 3

Install Driver-Side Left Under Dash Bezel Bracket onto louver assembly, and secure with (6) #6 x 3/8" pan head screws

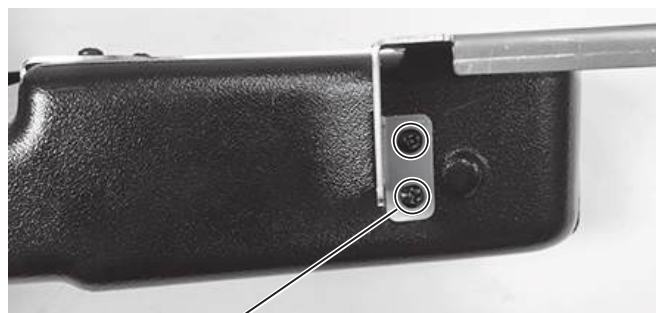


Photo 4

Install Driver-Side Right Under Dash Bezel Bracket onto louver assembly, and secure with (3) #6 x 3/8" pan head screws

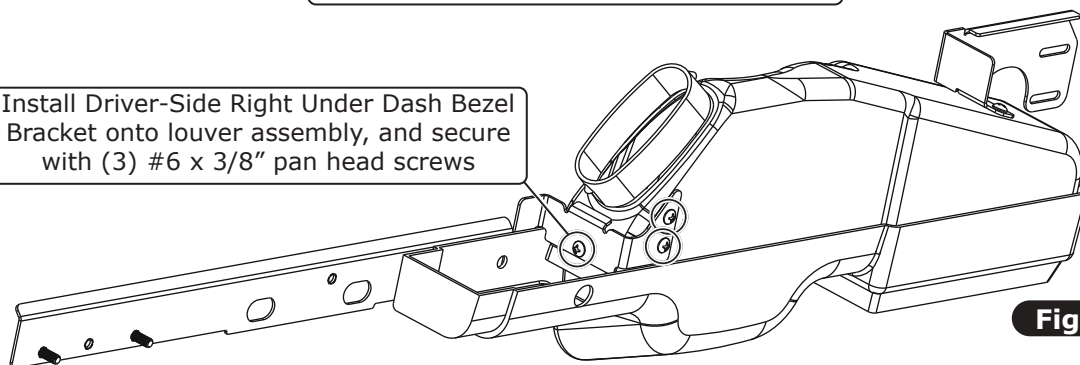


Figure 1

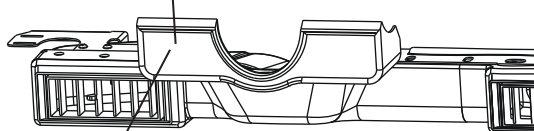


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Under Dash Louver Installation without 4WD Switch (Cont.)

4. Install the steering column cover on top of the driver-side assembly using (2) 10-32 x 1/2" pan head screws (See Figures 2 and 3, below). **NOTE: OEM is usually brittle, and the fresh air knobs will not be used anymore, we provide a new cover that can be used to install switches or just as a cover for a clean look.**
5. Locate the steel spacers provided with the kit. The height of the OEM mounting location may vary between years, start with the thicker spacer and change it if needed once mounted.
6. Place the spacer on top of the driver-side left under dash bezel bracket (See Photo 5, below), and temporarily secure the assembly to the OEM mounting location, right behind the emergency brake, using the supplied #8 x 1" screw (See Photo 6, below). **NOTE: In most cases, only the front slot will be used. Center the under dash assembly with the steering column, then secure the screw, this is important to get a good alignment on the next holes that need to be drilled under the dash.**
7. Locate the (2) mounting holes on the right-side bracket, these two holes must be marked under the dash, hold the assembly against the dash, make sure the bracket is aligned and parallel to the bottom of the dash. Once aligned, mark the two holes shown on Figure 4, these will be drilled on the next steps. **NOTE: The plastic assembly has a 1/2" clearance hole underneath to be able to insert a marker and later the tool to secure the assembly to the dash (See Figure 4, below).**

Install steering column cover onto driver-side under dash louver assembly



Steering Column Cover
496171

Figure 2

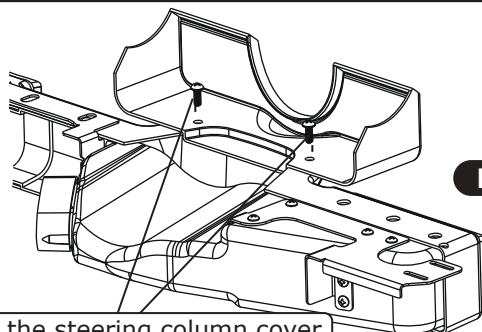


Figure 3

Secure the steering column cover to the louver assembly using (2) 10-32 x 1/2" pan head screws

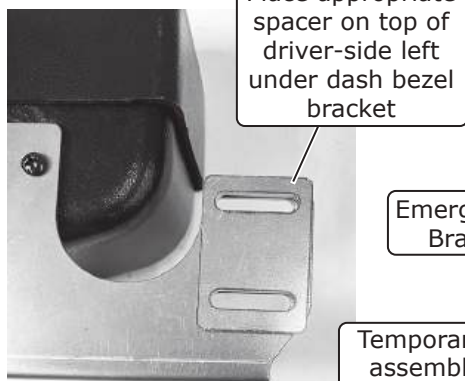


Photo 5

Place appropriate spacer on top of driver-side left under dash bezel bracket

Emergency Brake

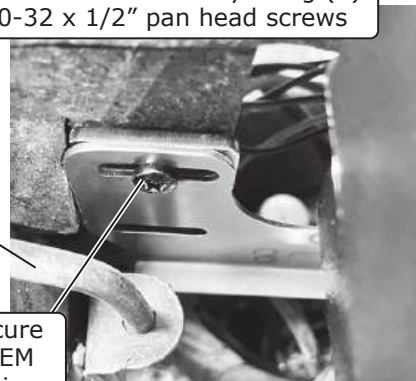


Photo 6

Temporarily secure assembly to OEM mounting location using #8 x 1" screw

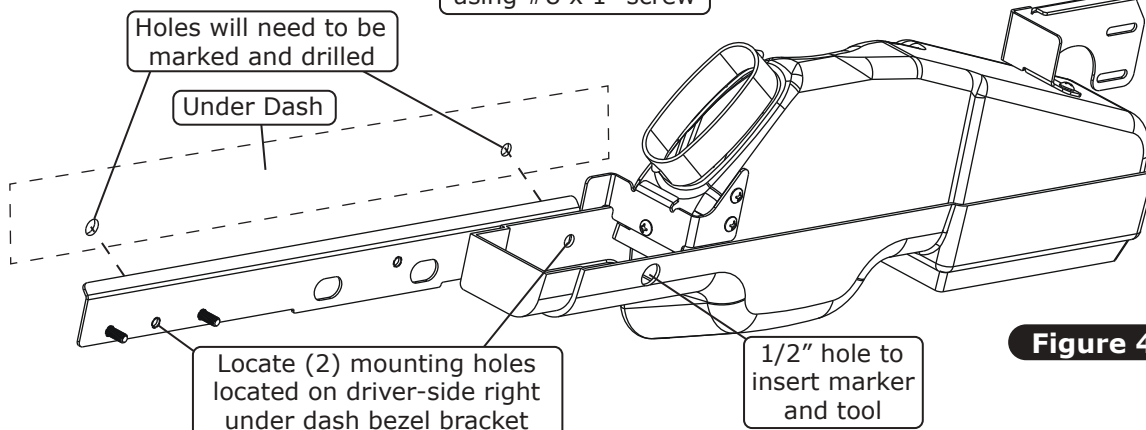


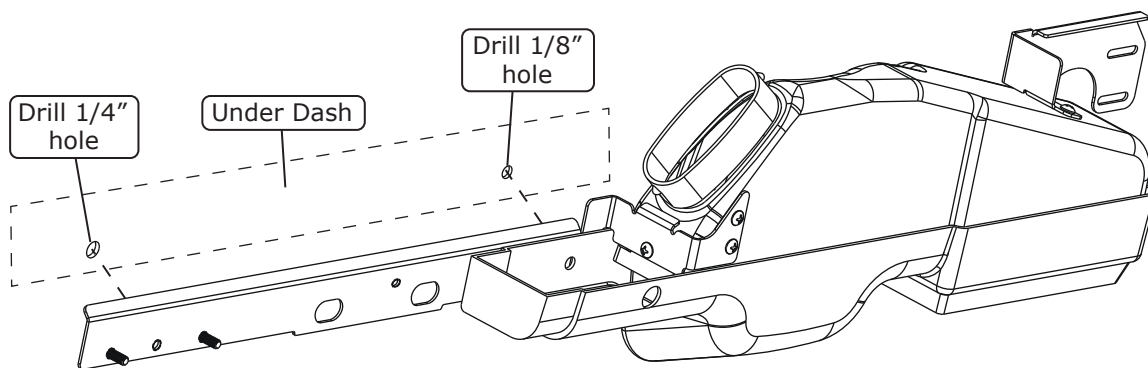
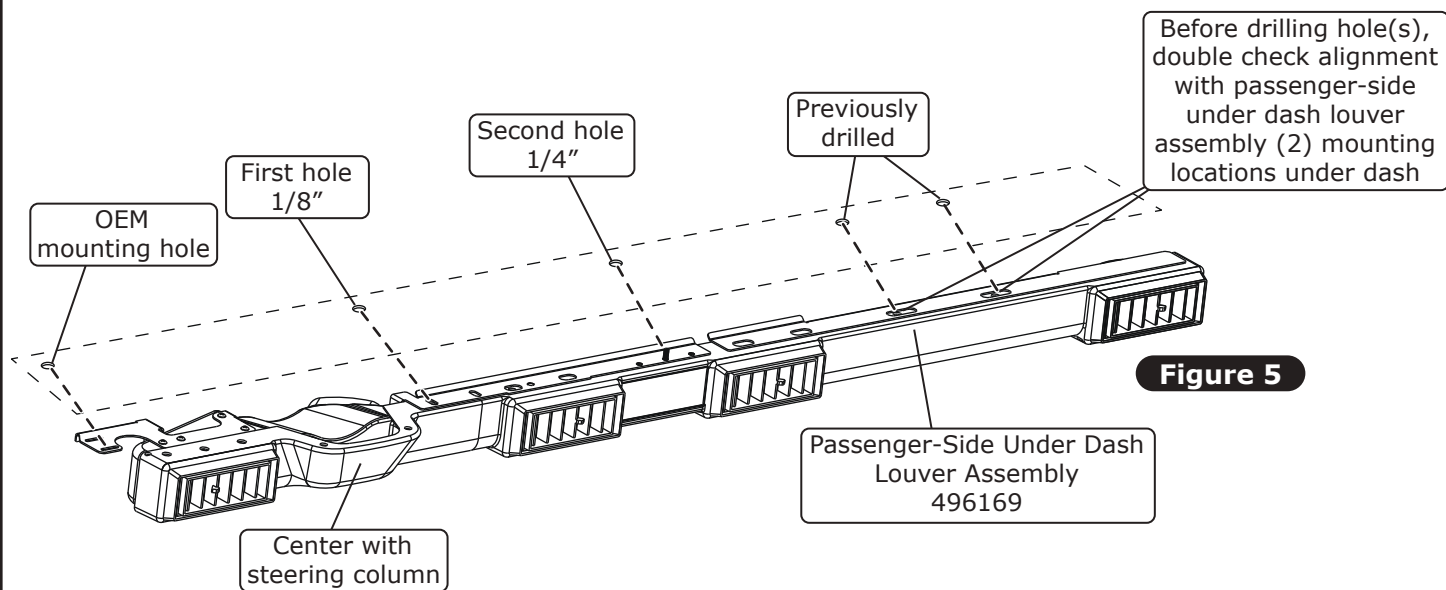
Figure 4



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Under Dash Louver Installation without 4WD Switch (Cont.)

8. Now mockup the passenger side louver bezel against the driver side assembly, aligning it under the dash, to be parallel with the dash (See Figure 5, below). Temporarily secure under the dash using some clamps. This step is to confirm that all holes are aligned before drilling.
9. Once alignment is confirmed, remove the driver- and passenger-side louver bezel, and drill the (2) marked holes on the bottom of the dash as shown in Figure 6, below. **NOTE: The first hole will be secured using #10 x 1/2" sheet metal screw and washer, and the second one will be secured using a 10-24 nut with star washer from the top of the dash.**

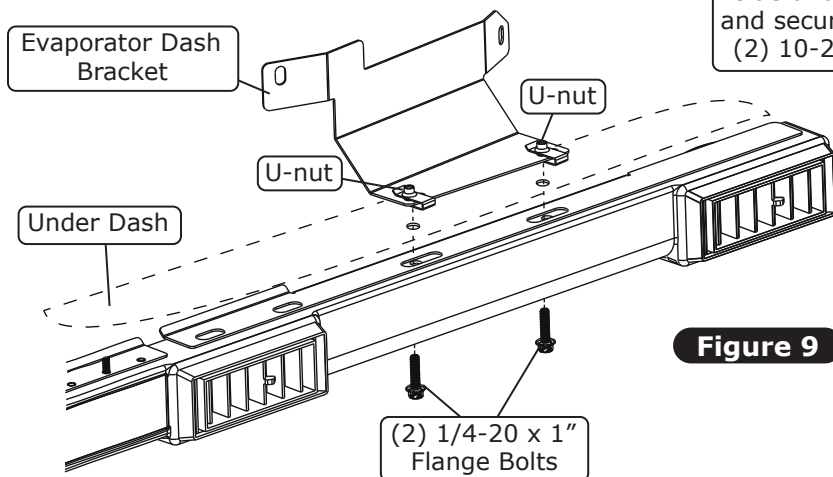
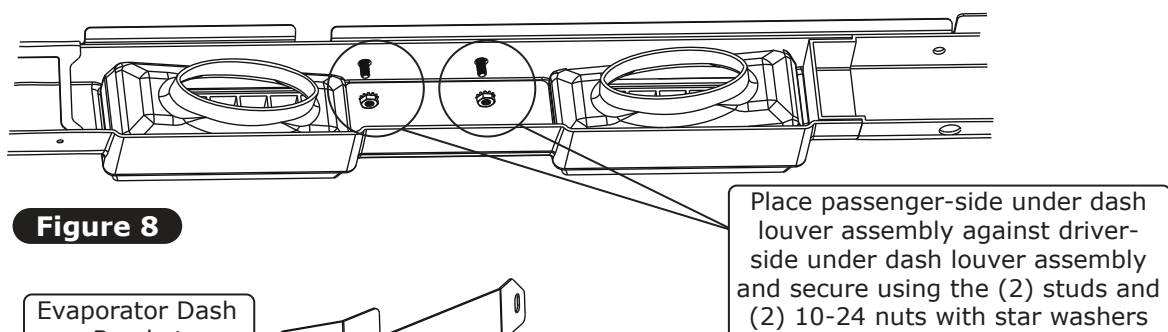
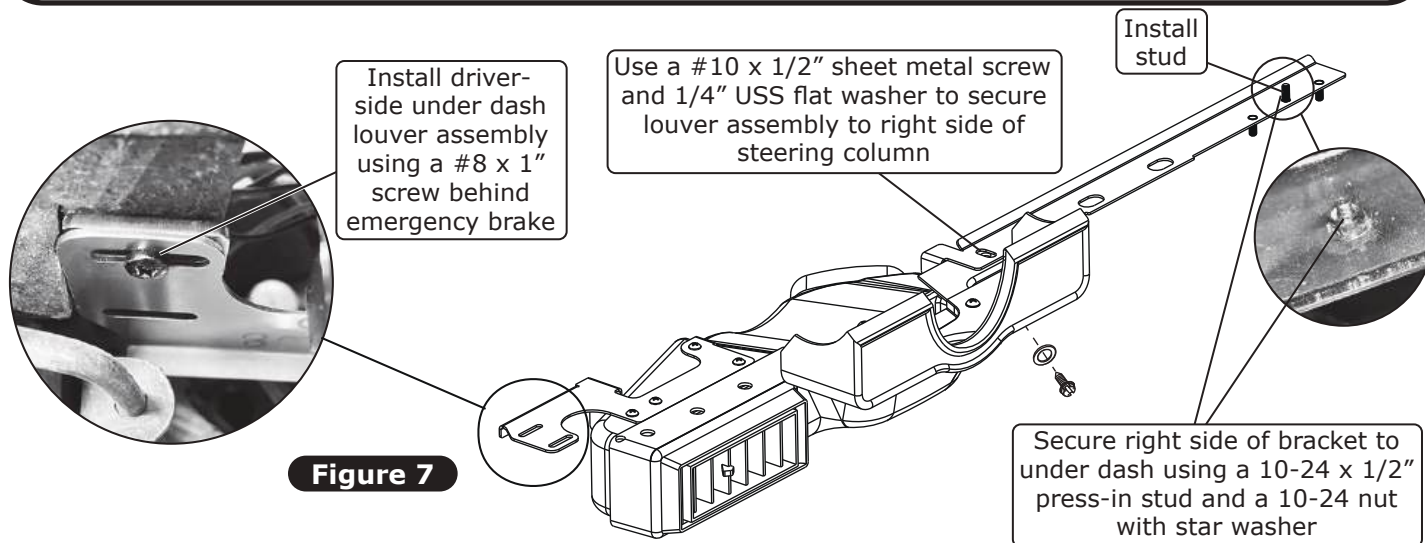




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Under Dash Louver Installation without 4WD Switch (Cont.)

10. Locate a 10-24 x 1/2" press-in stud and install it on the right side bracket pointing up, opposite of the (2) studs already installed (See Figure 7, below).
11. Reinstall the driver-side under dash louver assembly using a #8 x 1" screw behind the emergency brake. Then, a #10 x 1/2" sheet metal screw and a 1/4" USS flat washer from underneath to secure the plastic on the right side of the steering column. Last, secure the right-side bracket to the bottom of the dash using a 10-24 x 1/2" press-in stud and a 10-24 nut with star washer (See Figure 7, below).
12. Place the passenger-side under dash louver assembly against the driver-side under dash louver assembly, and using the (2) studs, secure it with (2) 10-24 nuts with star washers (See Figure 8, below).
13. Secure the other side of the passenger-side under dash louver assembly using (2) 1/4-20 x 1" flange bolts through the plastic, the dash, then the U-nuts on the evaporator dash bracket (See Figure 9, below).





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Under Dash Louver Installation without 4WD Switch (Final)

- 14.** Install the 1/2" plastic caps provided underneath the passenger- and driver-side under dash assemblies to cover the 1/2" holes (See Figure 10, below). The final installation view is shown in Figure 11, below.

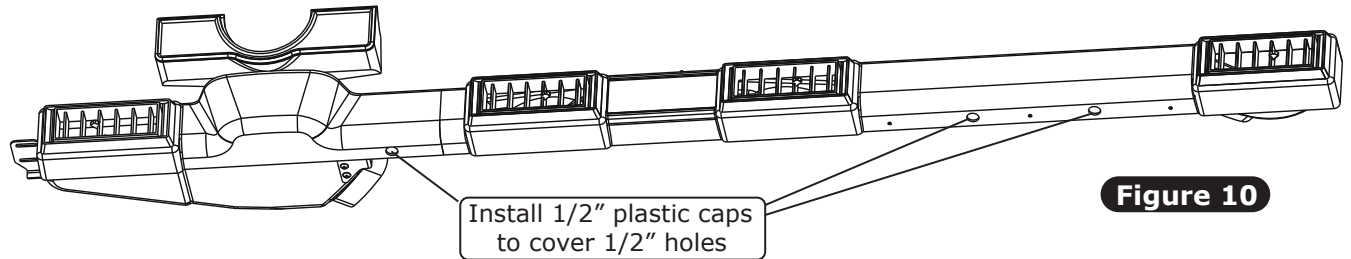
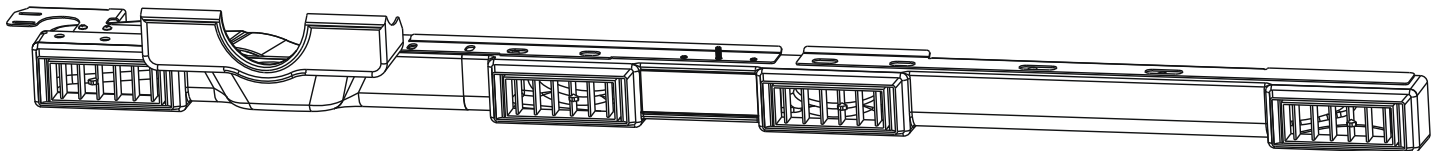


Figure 10



Final Installation View

Figure 11



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Under Dash Louver Installation with 4WD Switch

NOTE: The under dash louver bezel is configured to work with or without the OEM 4WD switch (See Photo 1, below). Follow the steps below if using the OEM 4WD switch. If not using the OEM 4WD switch, proceed to Page 39.

1. The driver-side under dash louver assembly must be modified to clear the 4WD switch. Trim the right side end of the assembly using the provided dimensions (See Figures 1 and 2, below), this is the width of the OEM 4WD switch. Before trimming, verify your OEM 4WD switch dimensions, they may vary. **NOTE: The side wall of the 4WD switch has 2 degrees of draft, consider this when cutting to reduce the gap between the driver-side under dash louver bezel assembly and the 4WD switch (See Figure 3, below).**
2. The passenger-side under dash louver bezel assembly must be modified as well. Trim the left side end as shown in Figures 4 and 5, below, considering the slight draft.

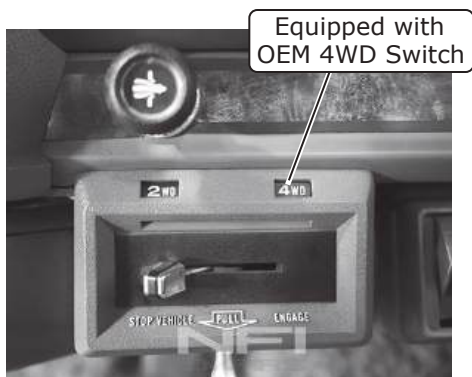


Photo 1

Before Modification

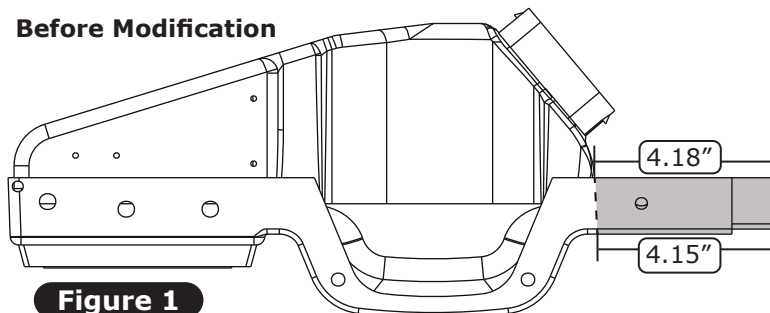


Figure 1

After Modification

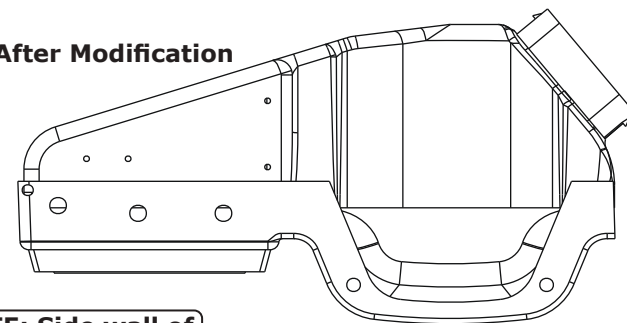
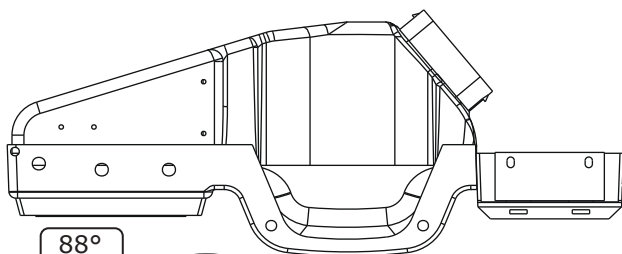


Figure 2



88°
Angle

Figure 3

NOTE: Side wall of 4WD switch has 2 degrees of draft

Before Modification

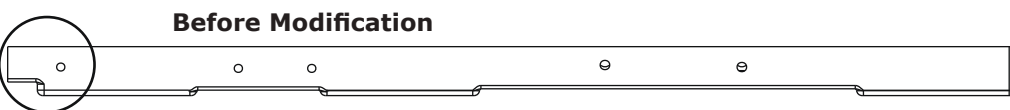
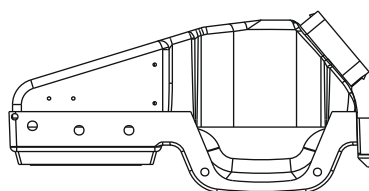


Figure 4

After Modification



Figure 5



4WD Switch Installed with Dash Louver Bezel Assemblies

Figure 6



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Under Dash Louver Installation with 4WD Switch (Cont.)

3. Locate the driver-side left and right side under dash bezel brackets (See Photo 2, below).
4. Install the driver-side left under dash bezel bracket onto the louver assembly, and secure it using (6) #6 x 3/8" pan head screws (See Photos 3 and 4, below).
5. Install the driver-side right under dash bezel bracket onto the louver assembly, and secure it using (3) #6 x 3/8" pan head screws (See Figure 7, below).
6. Install the steering column cover on top of the driver-side assembly using (2) 10-32 x 1/2" pan head screws (See Figures 8 and 9, below). **NOTE: OEM is usually brittle, and the fresh air knobs will not be used anymore, we provide a new cover that can be used to install switches or just as a cover for a clean look.**

Driver-Side Right
Under Dash Bezel
Bracket
642010



Photo 2

Driver-Side Left
Under Dash Bezel
Bracket
641978

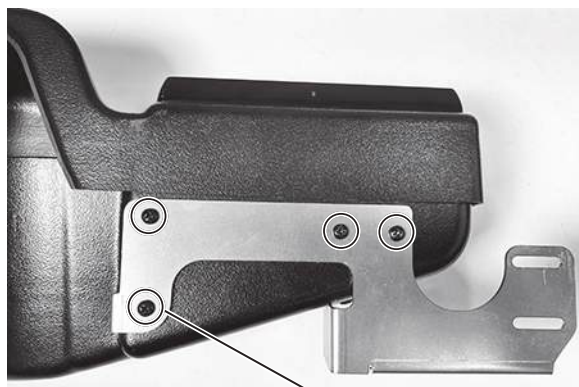


Photo 3

Install Driver-Side Left Under Dash Bezel Bracket onto louver assembly, and secure with (6) #6 x 3/8" pan head screws

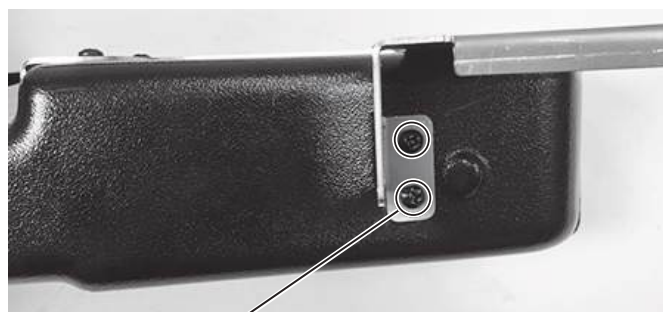


Photo 4

Install Driver-Side Right Under Dash Bezel Bracket onto louver assembly, and secure with (3) #6 x 3/8" pan head screws

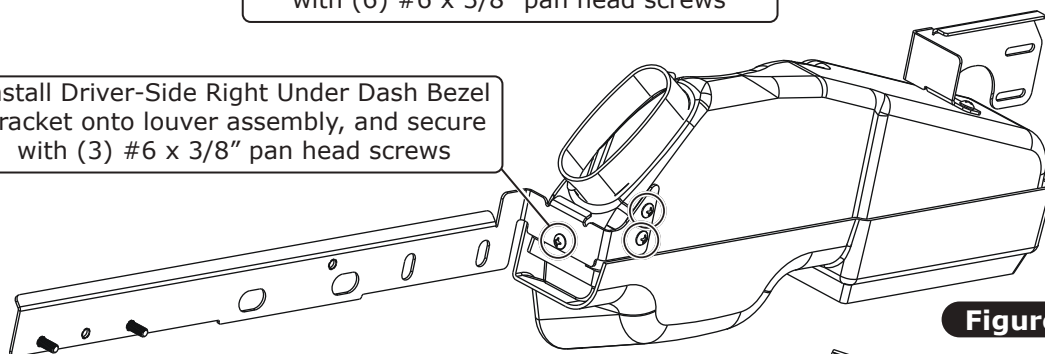
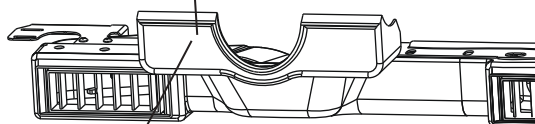


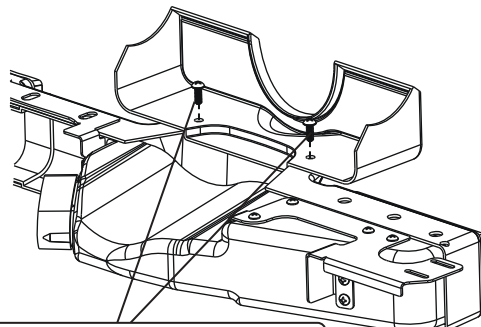
Figure 7

Install steering column cover onto driver-side under dash louver assembly



Steering Column Cover
496171

Figure 8



Secure the steering column cover to the louver assembly using (2) 10-32 x 1/2" pan head screws

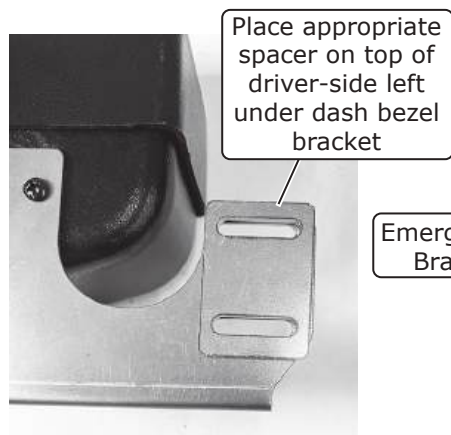
Figure 9



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Under Dash Louver Installation with 4WD Switch (Cont.)

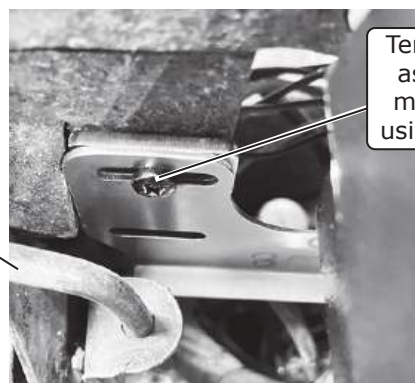
7. Locate the steel spacers provided with the kit. The height of the OEM mounting location may vary between years, start with the thicker spacer and change it if needed once mounted.
8. Place the spacer on top of the driver-side left under dash bezel bracket (See Photo 5, below), and temporarily secure the assembly to the OEM mounting location, right behind the emergency brake, using the supplied #8 x 1" screw (See Photo 6, below). **NOTE: In most cases, only the front slot will be used. Center the under dash assembly with the steering column, then secure the screw, this is important to get a good alignment on the next holes that need to be drilled under the dash.**
9. Temporarily install the OEM 4WD switch using the (2) OEM screws or (2) #10 x 1/2" sheet metal screws provided (See Figure 10, below).
10. **Locate the (2) mounting holes on the right-side bracket, these two holes must be marked** under the dash, hold the assembly against the dash, make sure the bracket is aligned and parallel to the bottom of the dash. Once aligned, mark the two holes shown on Figure 11, these will be drilled on the next steps. **NOTE: The plastic assembly has a 1/2" clearance hole underneath to be able to insert a marker and later the tool to secure the assembly to the dash (See Figure 11, below).**



Place appropriate spacer on top of driver-side left under dash bezel bracket

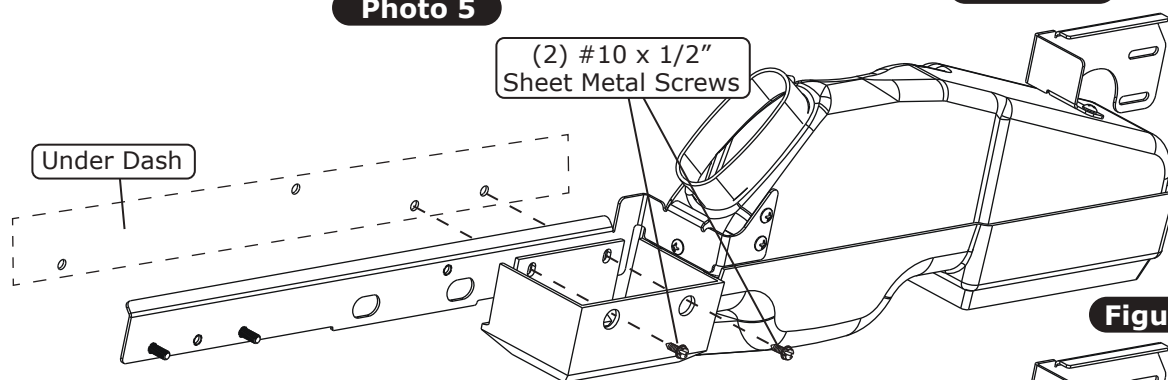
Emergency Brake

Photo 5



Temporarily secure assembly to OEM mounting location using #8 x 1" screw

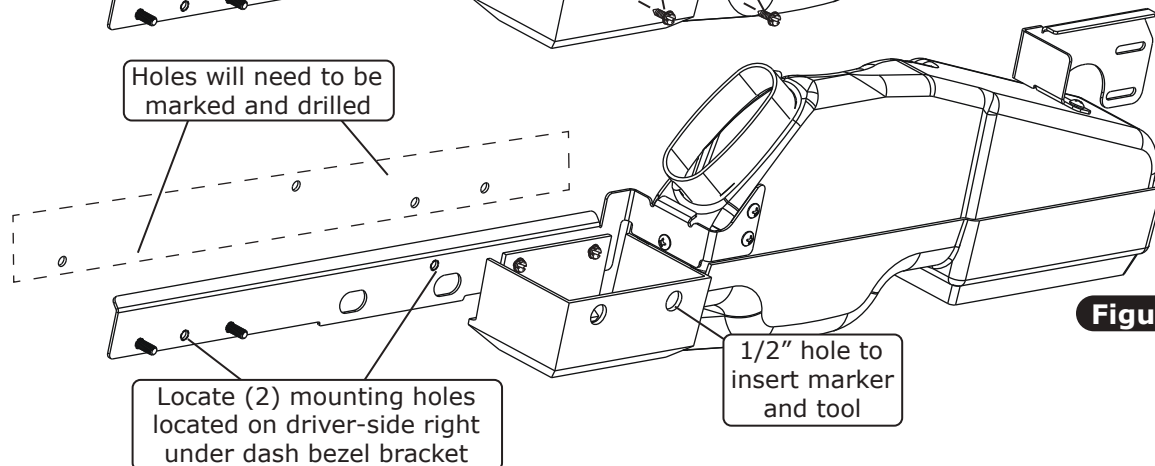
Photo 6



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

Under Dash

Figure 10



Holes will need to be marked and drilled

Locate (2) mounting holes located on driver-side right under dash bezel bracket

1/2" hole to insert marker and tool

Figure 11



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Under Dash Louver Installation with 4WD Switch (Final)

11. Now mock up the passenger-side louver bezel against the driver-side assembly, aligning it under the dash, to be parallel with the dash (See Figure 12, below). Temporarily secure under the dash using some clamps. This step is to confirm that all holes are aligned before drilling.
12. Once alignment is confirmed, remove the driver- and passenger-side louver bezel, and drill the (2) marked holes on the bottom of the dash as shown in Figure 13, below. **NOTE: The first and the second hole will be secured using a 10-24 nut with star washer from the top of the dash.**

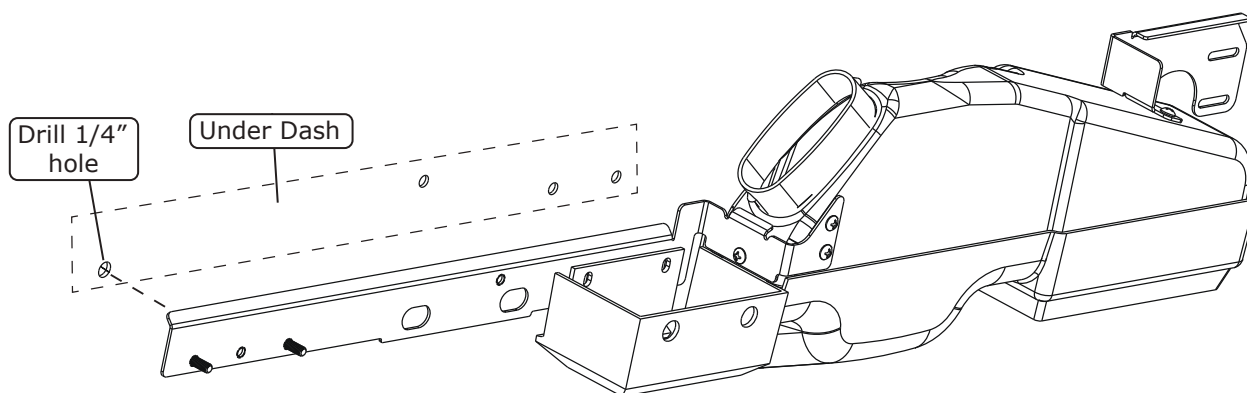
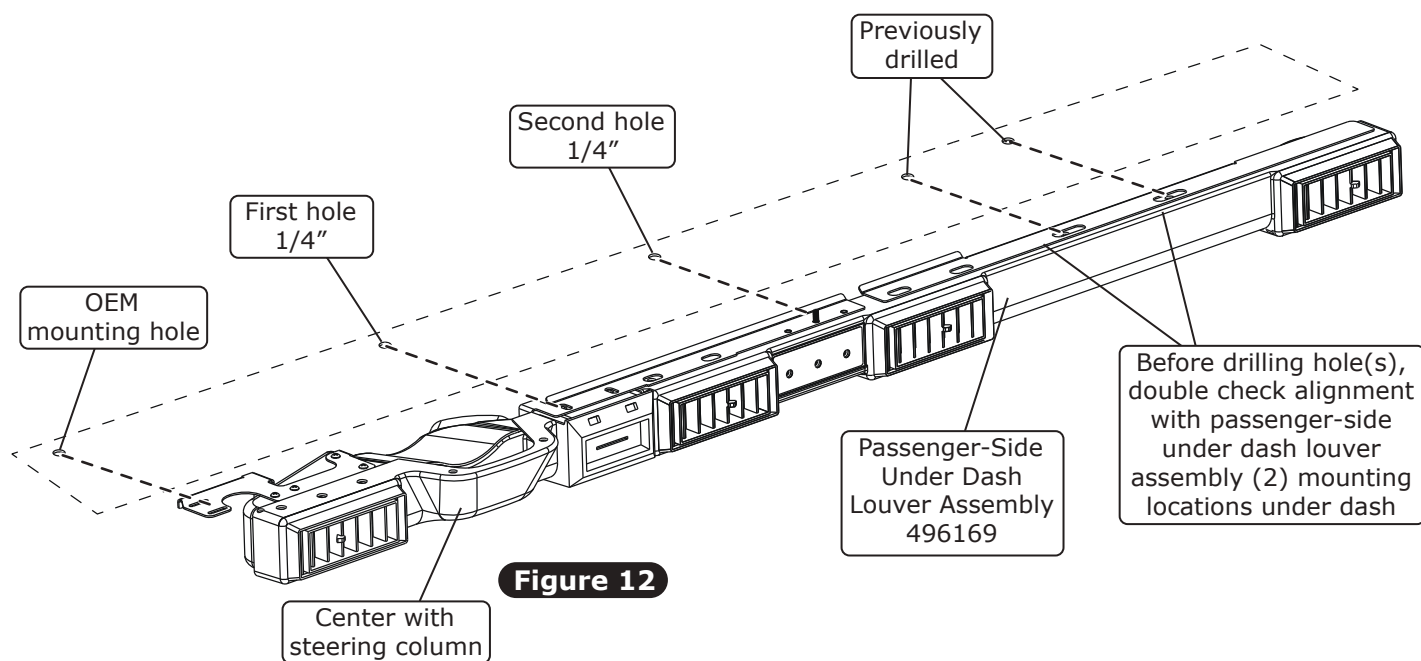


Figure 13

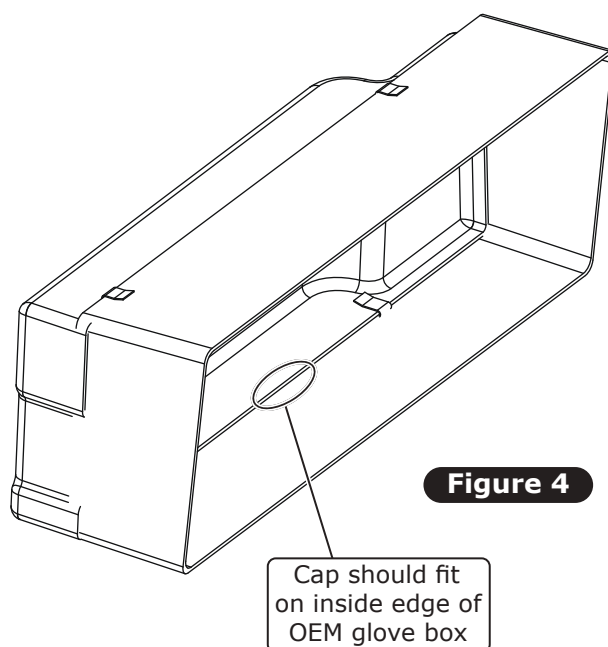
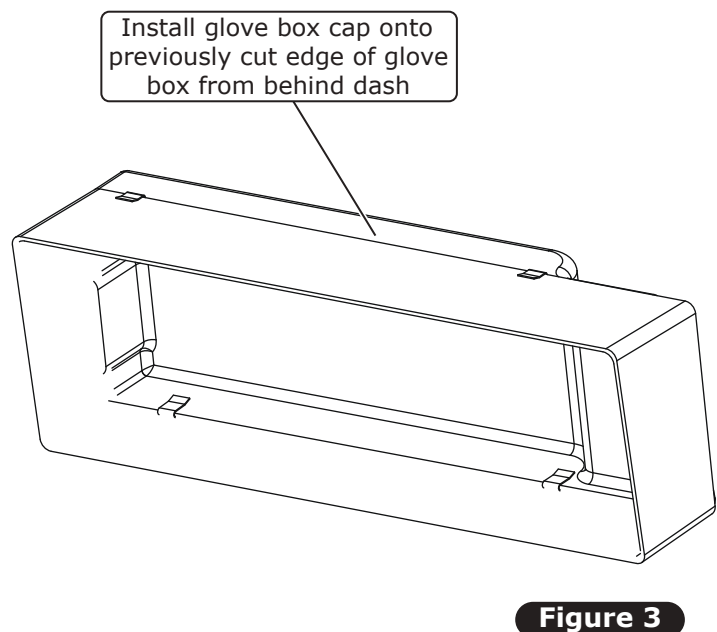
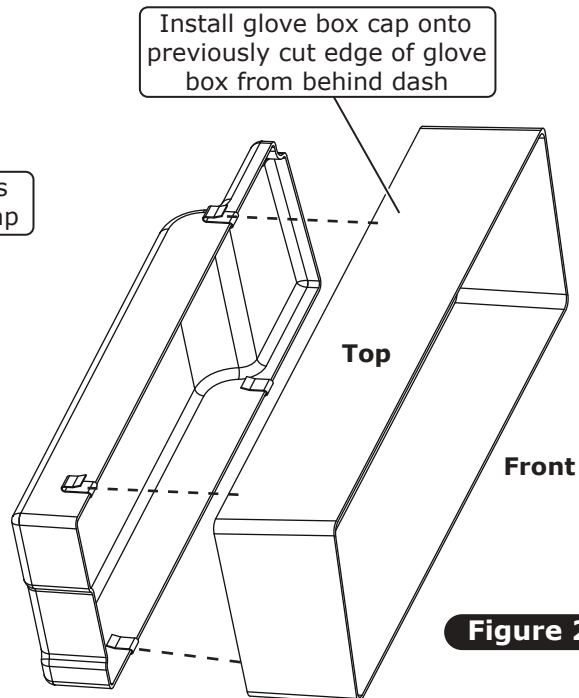
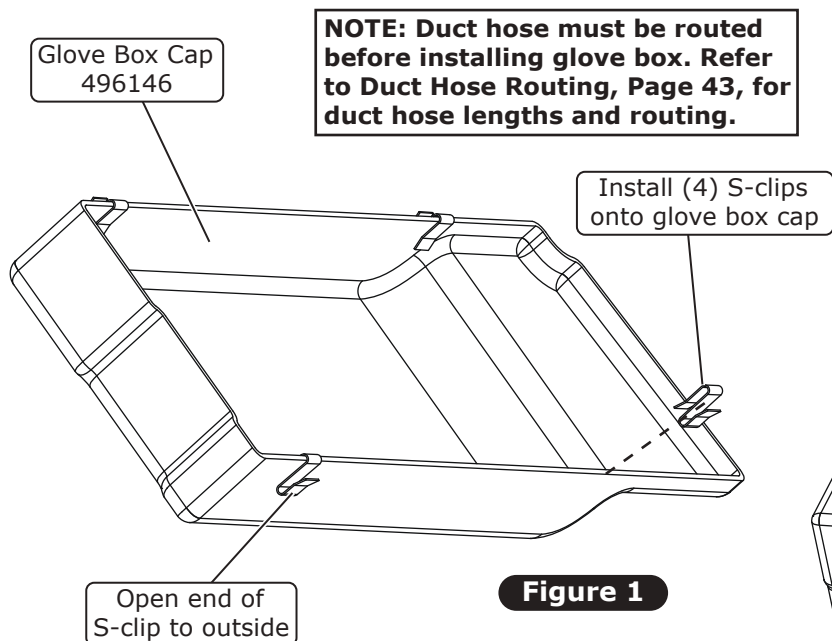


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Glove Box Installation

NOTE: Duct hose must be routed before installing the glove box. Refer to Duct Hose Routing, Page 43, for duct hose lengths and routing.

1. Install the provided S-clips onto the glove box cap (See Figure 1, below).
2. Install the glove box cap onto the previously cut edge of the glove box from behind the dash (See Figures 2-4, below). **NOTE: Cap should fit on the inside edge of the OEM glove box (See Figure 4, below).**
3. Silicone may be used on the seam for a better seal or cleaner appearance (if desired).



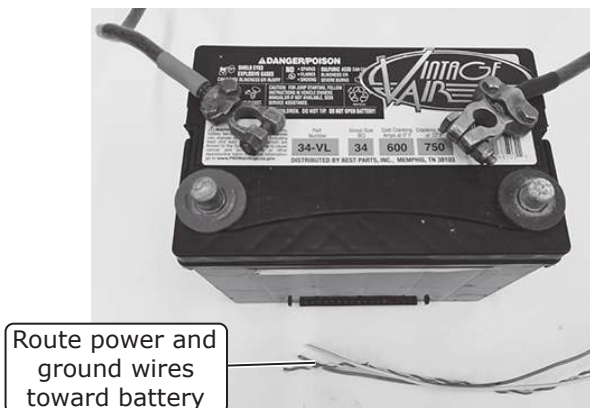


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Engine Compartment Wiring

NOTE: The following connections are critical to the performance of the system. Before making connections, refer to the Quality Crimp Guidelines, Page 44.

1. Route power and ground wires toward the battery (See Photo 1, below).
2. 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 2, below). Slide the heat shrink over the crimp, then apply heat.
3. 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 3, below). Slide the heat shrink over the crimp, then apply heat.
4. Install the fuses into the holders (See Photos 4 and 5, below).
5. Install the supplied heat shrink over the white ground wires, then crimp on the supplied ring terminals (See Photo 6, 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 7 and 8, below).**



Route power and ground wires toward battery

Photo 1

Crimp 12 AWG orange fuse holder wire to 12 AWG orange wire from main wiring harness

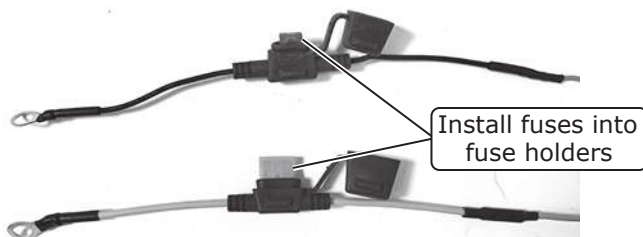
Install heat shrink over 12 AWG orange standard fuse holder assembly wire

Photo 2

Crimp 16 AWG black fuse holder wire to 16 AWG red wire from main wiring harness

Install heat shrink over 16 AWG black standard fuse holder assembly wire

Photo 3



Install fuses into fuse holders

Photo 4

Install heat shrink over white ground wires, then crimp on ring terminals

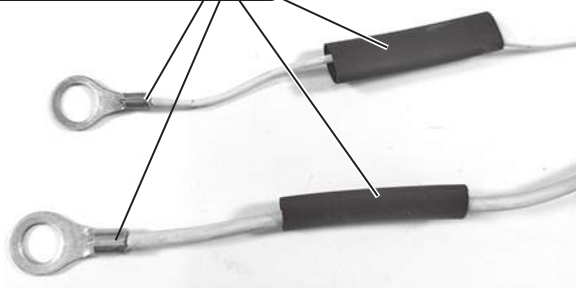


Photo 6

Both white ground wires can be crimped together. Install heat shrink, then strip wires, twist together and trim to length.

Photo 5

Crimp on ring terminal, then slide heat shrink over and apply heat



Photo 7



Photo 8



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Engine Compartment Wiring (Cont.)

6. Connect the ground wire ring terminals to the negative battery terminal connector (See Photos 9 and 10, below).
7. Connect the positive wire ring terminals to the positive battery terminal connector (See Photos 11 and 12, below). **NOTE: Do not connect power until the installation is completed.**
8. Wiring completed (See Photo 13, below).

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



Photo 9

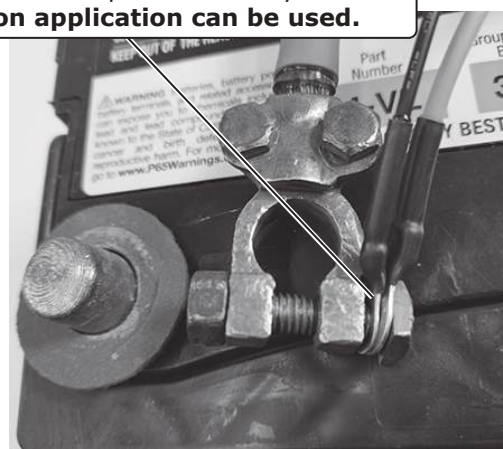


Photo 10

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



Photo 11



NOTE: Do not connect power until installation is completed.

Photo 12



Completed Installation
Shown

Photo 13



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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 repetitive blinking is observed, go to the Advanced Diagnostics Section to diagnose.
☐ Blower speed control	Set the blower speed control to OFF, <u>confirm that the blower is off</u>. Position the blower speed control to LOW then MEDIUM and then HIGH. <u>At each setting confirm that the blower speed increases</u>, 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. <u>Confirm that air is being blown at the dash vents.</u> Set the MODE control to the FLOOR position. <u>Confirm that air is being blown at the floor vents.</u> Set the MODE control to the DEFROST position. <u>Confirm that all air is being blown from the defrost vents</u> If heater lines are installed: Set the MODE control to the DASH position. Set the TEMP control to the MAX HEAT position. <u>Confirm that HOT air is coming from the dash vents.</u>
☐ Temperature control	If system is charged: Set the TEMP control to the MAX COOL position. <u>Confirm that COLD air is coming from the dash vents.</u> Also <u>confirm that the compressor "clicks" on</u> 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, <u>confirm that the blue AC Indicator light is on</u>.
☐ Backlight (If applicable)	If your control panel has backlight capabilities and has been wired, turn the dash lamp on and <u>confirm that the AC panel's legend is lit</u>.
☐ Fittings	Verify AC and Heater fittings are all tight.



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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 47.



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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.

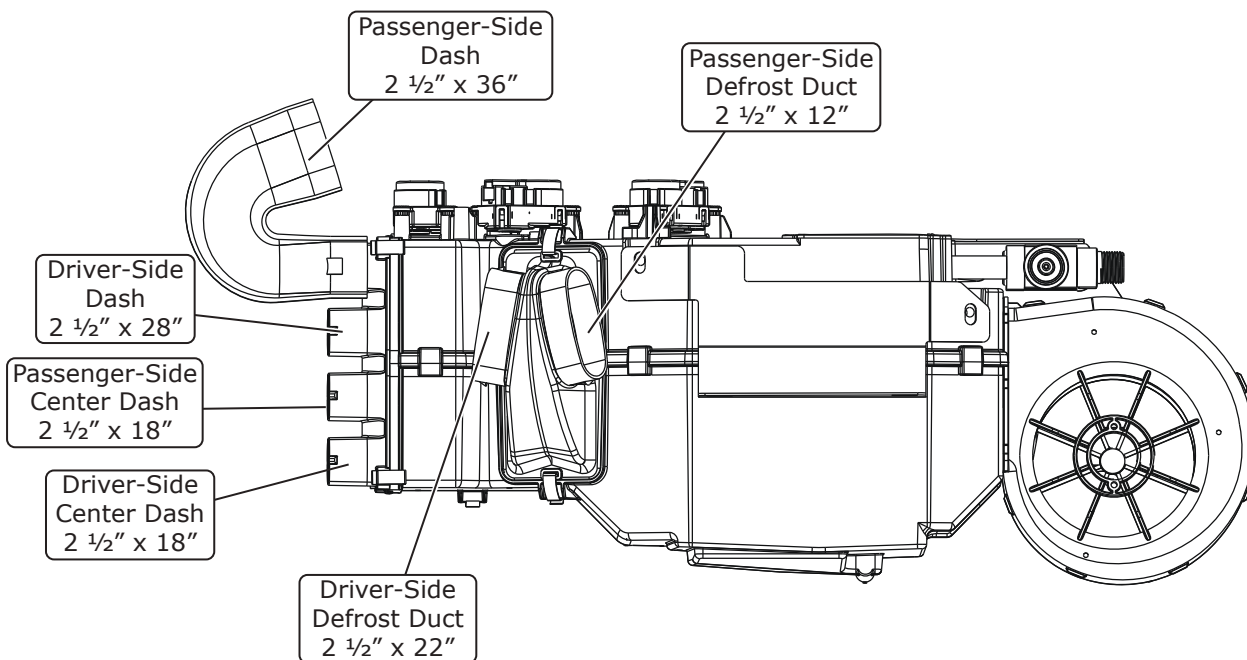
1. Stretch the duct hose until there is no slack, measure, mark and cut hose to size (See Photo 1, below).

Stretch, measure,
mark and cut
hose to size



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.

Position connectors
towards bottom



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Quality Crimp Guideline

Acceptable strip length
(Some copper visible)

Crimped area is centered
on each side of splice

Bad strip length
(Too much copper visible)
Visible copper should be
just enough to ensure
clearance between splice
area and wire insulation

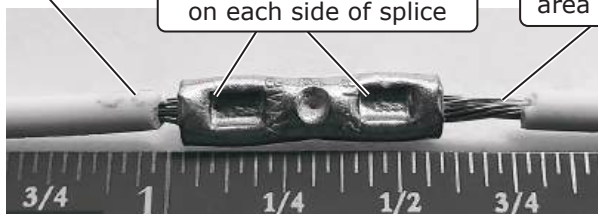


Photo 1

A good crimp requires
seam of butt splice to be
opposite of crimp die tooth

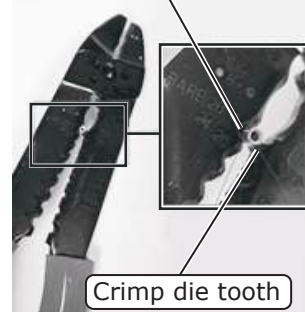


Photo 2

Good Ring Terminal Crimp Bad Ring Terminal Crimp



Photo 3

Crimp
area is
centered
on barrel



Photo 4

Excessive
wire "brush"

Crimp
area is not
centered on
barrel

Crimp area
is on seam
(Should be
opposite)



Photo 5

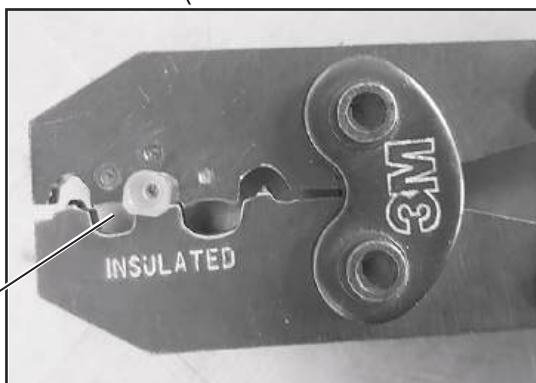


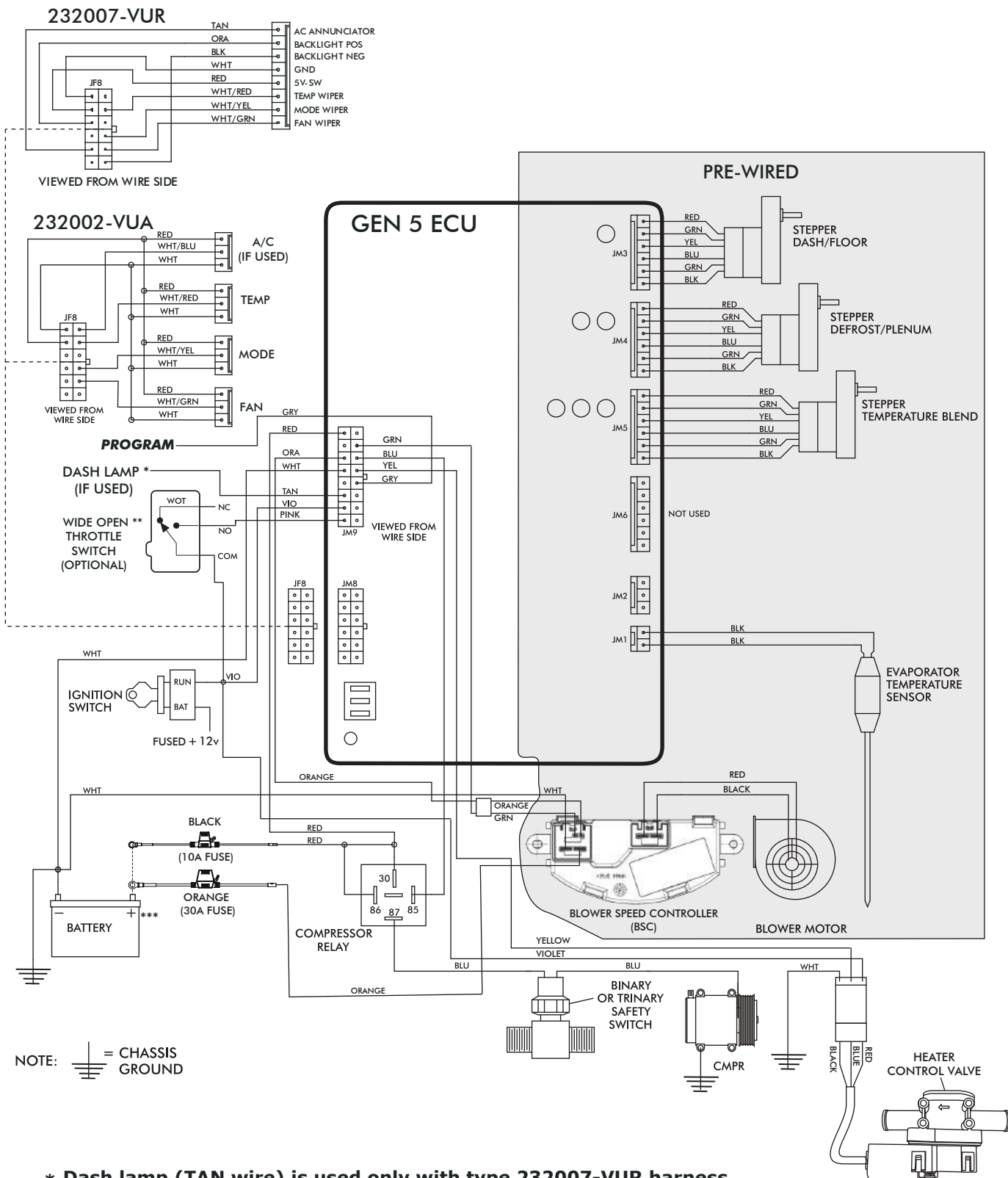
Photo 5a

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.



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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.

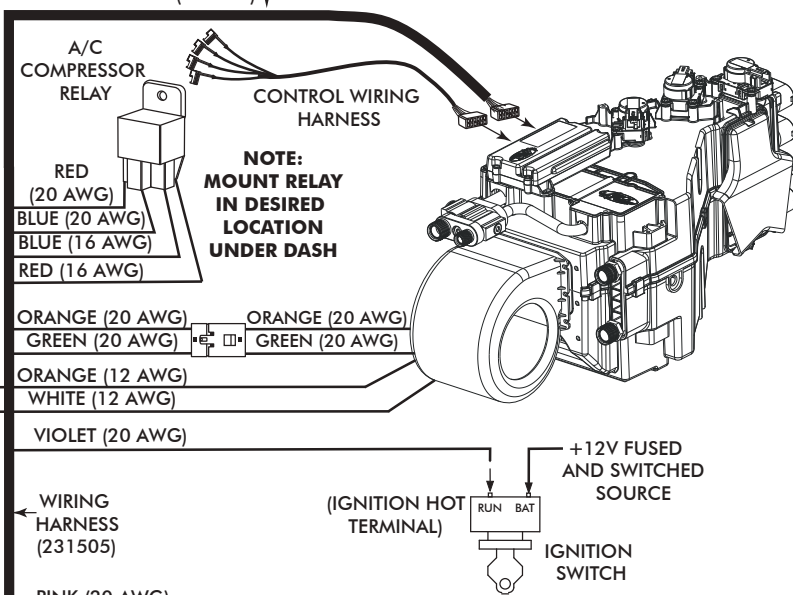
*** Install fuse assemblies at or as near to the battery as possible.



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Gen 5 Wiring Instructions

WIRING HARNESS (231505) ↓



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):

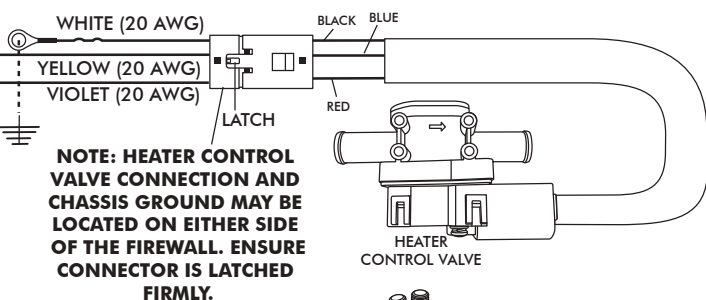
If a wide open throttle switch is required, connect the 20 AWG pink wire to a normally open switch that, when closed, connects a fused and switched 12V source to the pink wire. See Gen 5 wiring diagram for an example.

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).

FIREWALL

FIREWALL



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.



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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

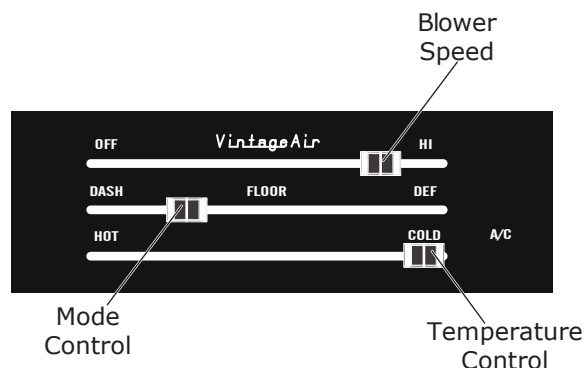
This lever/knob controls blower speed, from OFF to HI.

Mode Control

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

Temperature Control

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



A/C Operation

Blower Speed

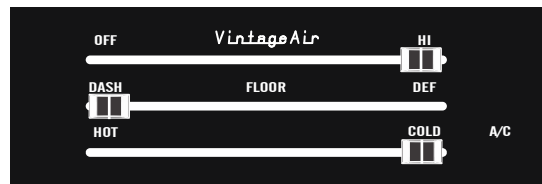
Adjust to desired speed.

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

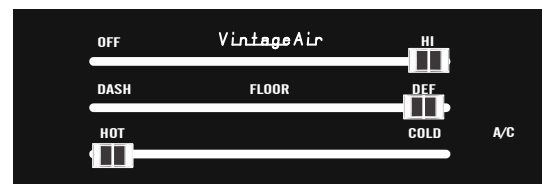
Adjust to desired speed.

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. All other functions work.	Check for damaged pins or wires in the control panel wire assembly and mating header at ECU. Check for a bad ECU GND. Check for damaged pins or wires in the control panel wire assembly and mating header at ECU. Check if Blower power fuse is blown. Check for a bad ECU GND.	If found damaged, replace wire assembly or ECU. If found damaged, replace wire assembly or ECU. Replace fuse. Repair connection.	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.
2. Compressor will not turn on (All other functions work).	System is not charged. System is charged.	System must be charged for compressor to engage. Check for faulty A/C potentiometer or associated wiring (not applicable to 3-pot controls). Check for disconnected or faulty thermistor.	Charge system. Check continuity to ground on white control head wire. Check for 5V on red control head wire. Check 2-pin connector at ECU housing.	Danger: Never bypass safety switch with engine running. Serious injury can result. 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. 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. Check for faulty A/C relay.	Repair or replace pot/control wiring. Replace relay.	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.



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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



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Packing List: Evaporator Kit (755692)

No.	Qty.	Part No.	Description
1.	1	765200	Gen 5 Magnum Max Module with 404 ECU
2.	1	795692	Accessory Kit

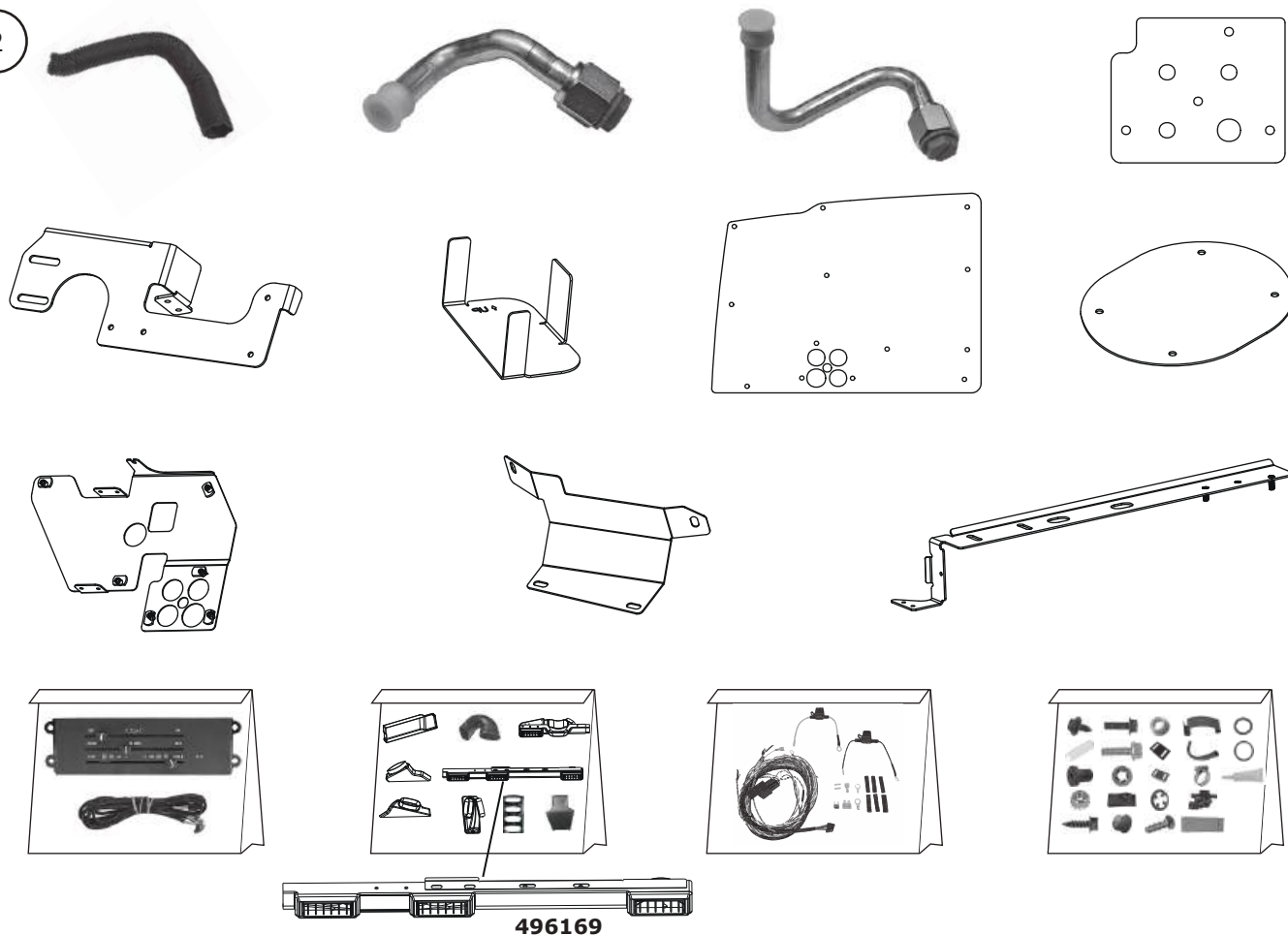
Checked By: _____
Packed By: _____
Date: _____

1



**Gen 5 Magnum Max
Module with 404 ECU
765200**

2



**Accessory Kit
795692**

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