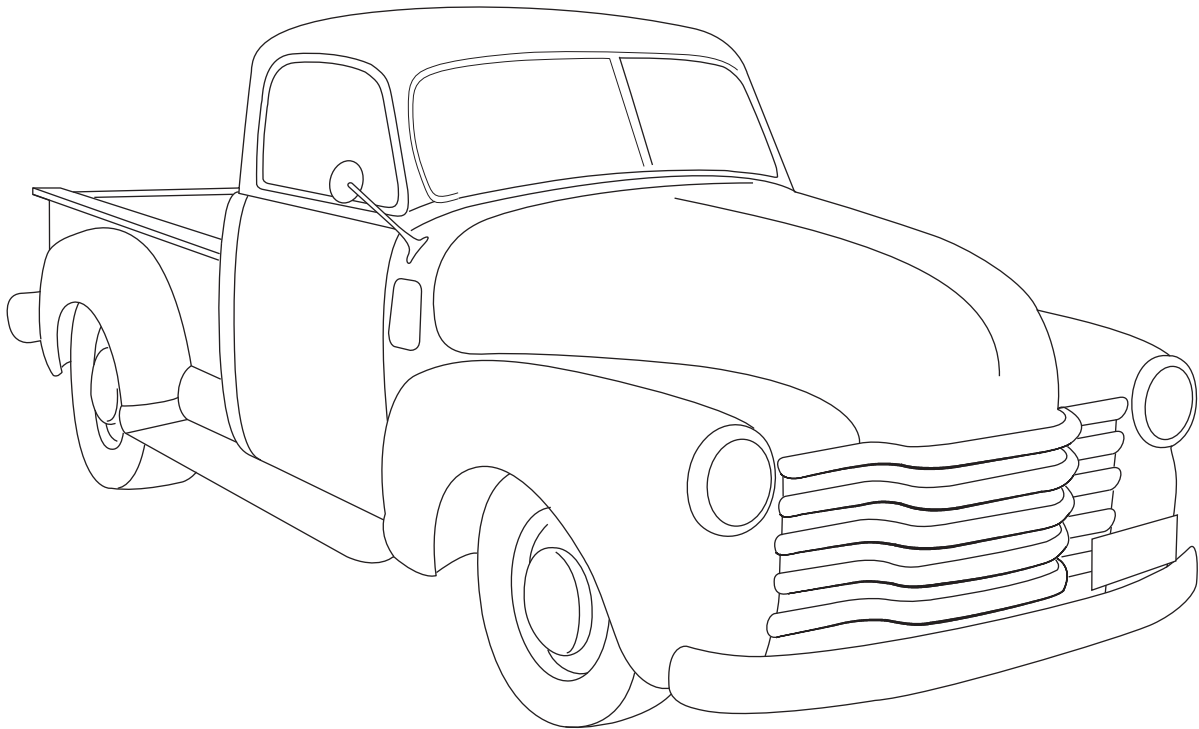




1947-49 Chevrolet Pickup

Gen 5 Evaporator Kit
(751550)



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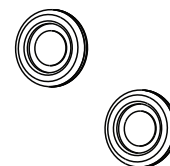
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Additional Parts & Accessories

- **OPTIONAL – For factory deluxe heaters, use the Deluxe Heater Delete Cover and (2) 1 1/4" x 1" Grommet (not included with kit):**

1. 642503 - 1947-55 Chevy Pickup Deluxe Heater Delete Cover

2. 33132-VUI - 1 1/4" x 1" Grommet





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Packing List: Evaporator Kit (751550)

No.	Qty.	Part No.	Description
1.	1	765200	Gen 5 Magnum Max Module with 404 ECU
2.	1	791550	Accessory Kit

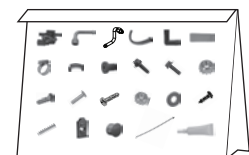
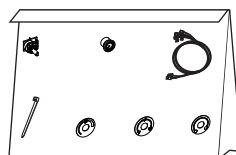
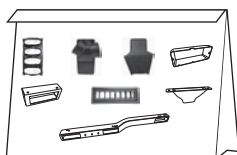
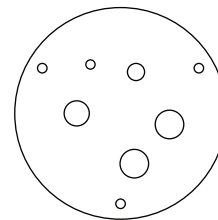
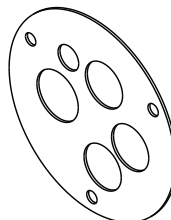
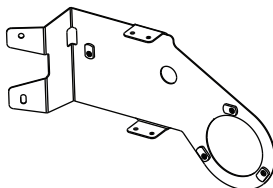
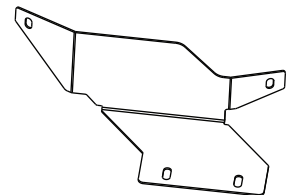
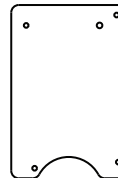
**** Before beginning installation, open all packages and check contents of shipment. Please report any shortages directly to Vintage Air within 15 days. After 15 days, Vintage Air will not be responsible for missing or damaged items.**

1



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

2



**Accessory Kit
791550**

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.



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Engine & Passenger Compartment Disassembly

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

Perform the following:

1. Disconnect the battery. Ensure that the cable remains disconnected throughout the entire installation process. **NOTE: Battery is located under the passenger floorboard.**
2. Drain the radiator.
3. Remove the OEM heater hoses (discard).
4. Remove the OEM heater/blower assembly if installed (discard) (See Photo 1, below).
5. If a deluxe heater is installed, remove, discard and replace with the optional deluxe heater delete cover using the OEM hardware. Plug the OEM heater firewall holes with the optional (2) 1 ¼" x 1" grommets (See Additional Parts & Accessories, Page 2).
6. Remove the OEM heater wiring (discard).
7. Remove the glove box door (retain).
8. Remove the glove box (discard, but retain OEM screws).
9. Disconnect all the wires and cables from the OEM control panel (discard).
10. Disconnect all the wires and cables from the OEM heater control knobs (discard).
11. Remove the OEM defrost ducts (discard).
12. Remove the defrost vent garnish/cover (retain) (See Photo 2, below).
13. Remove the round cover from the firewall (See Photo 3, below).

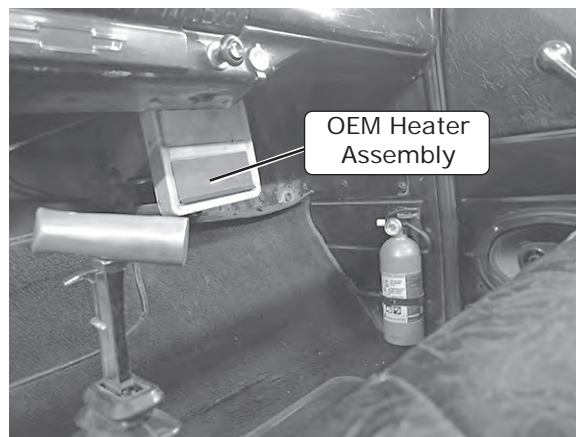


Photo 1



Photo 2

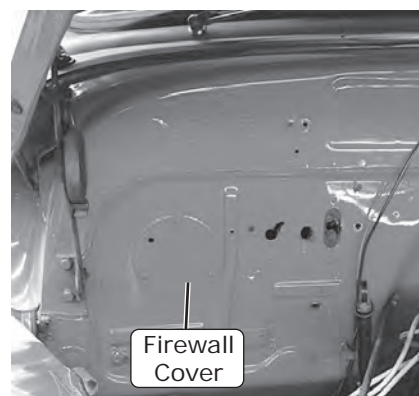


Photo 3



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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.

Pulleys

1. In most instances, the belt lengths will remain the same.

Defrost Duct Installation

1. Using (2) #6 x 3/8" pan head screws, attach 18 inches of 2" duct hose to the passenger side defrost duct. Attach the remainder of the duct hose to the driver-side defrost duct.
2. Install the passenger- and driver-side defrost ducts into the dash using (4) #6 x 3/8" pan head screws, (2) screws for each duct. Direct the passenger-side defrost duct away from firewall, and toward the wiper arm. Direct the driver side duct toward the firewall, and away from wiper arm (See Photos 4-7, below).

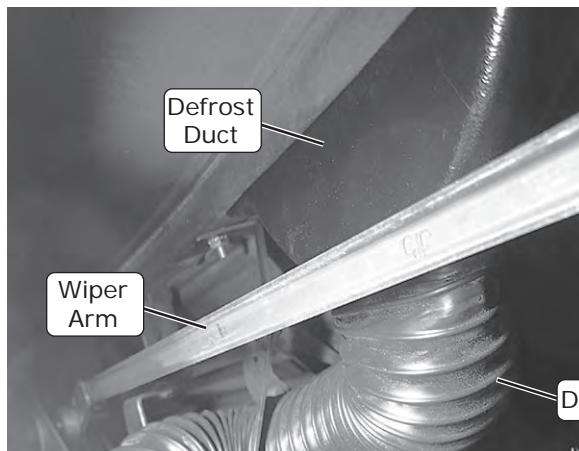


Photo 4

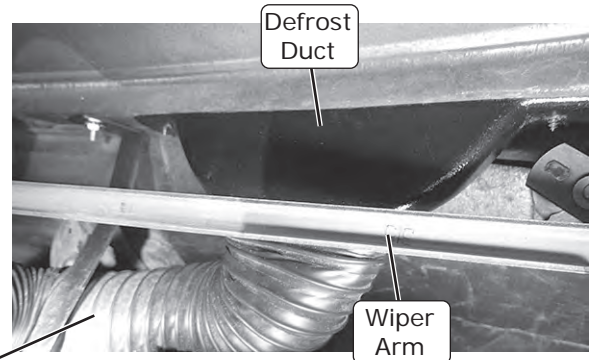
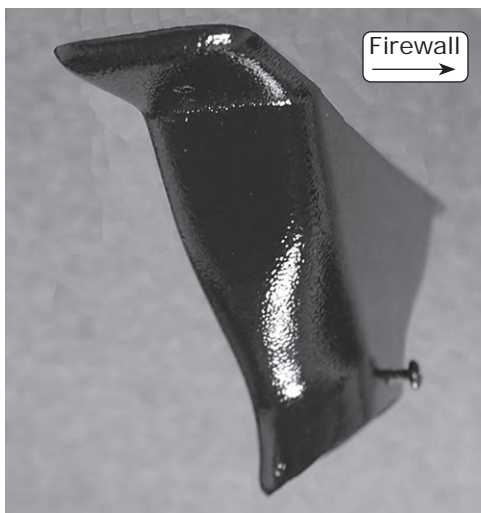
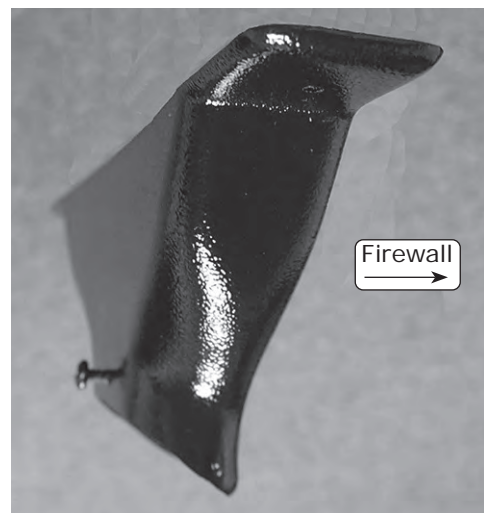


Photo 5



Driver Side

Photo 6



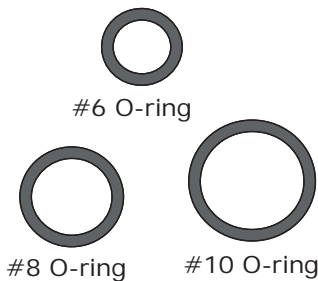
Passenger Side

Photo 7

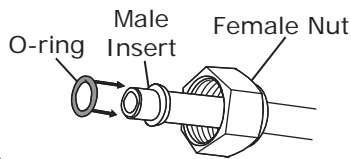


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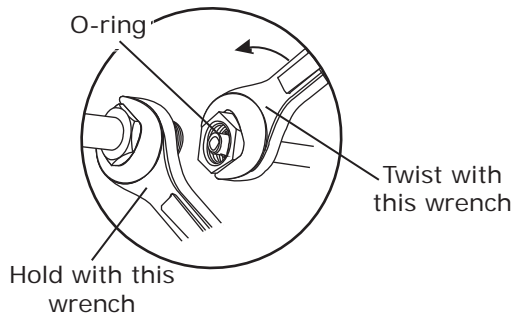
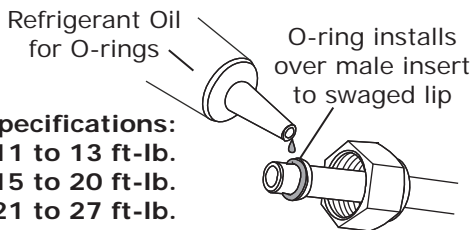
Lubricating O-rings



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.



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

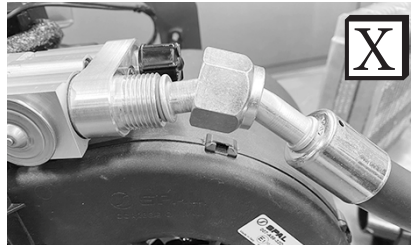


Photo 2

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



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Evaporator Preparation

On a workbench, perform the following:

1. Install a plastic cap as shown in Photo 1, below.
2. Install the floor plenum using (2) S-clips (See Figure 1 and Photo 2, below).
3. Install the dash plenum using (4) S-clips (See Figure 2 and Photo 3, below).
4. Install the defrost plenum using (2) S-clips (See Figure 2, below).
5. Install the (2) hardlines as shown in Figure 3, below, with (2) properly lubricated #10 O-rings (See Lubricating O-rings, Page 8), do not fully tighten, they will get adjusted in the next steps.
6. Install (2) well nuts next to the floor plenum (See Figure 3, below).
7. Install the evaporator firewall bracket using (2) 1/4-20 x 1" serrated flange bolts (See Figure 4, below).

Install a plastic cap

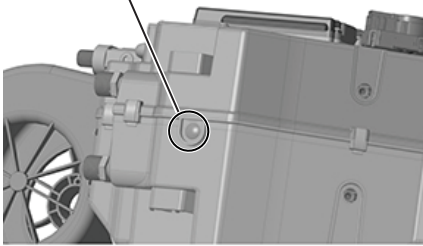


Photo 1

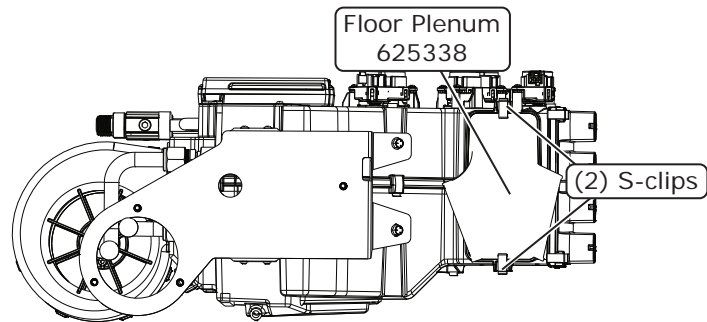


Figure 1

Using (2) spring clips, install floor plenum

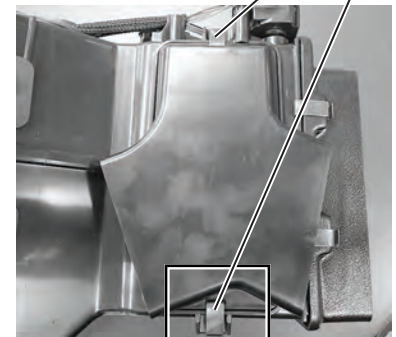


Photo 2

Dash Plenum 625330

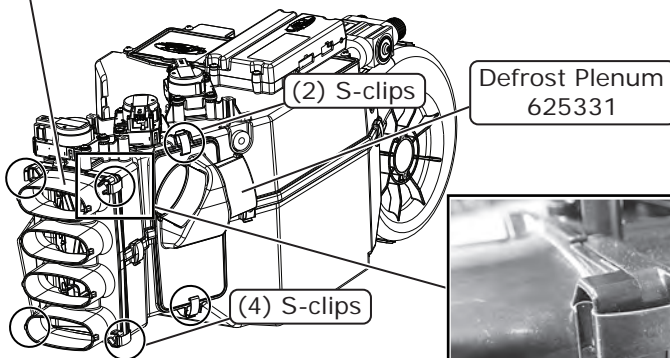
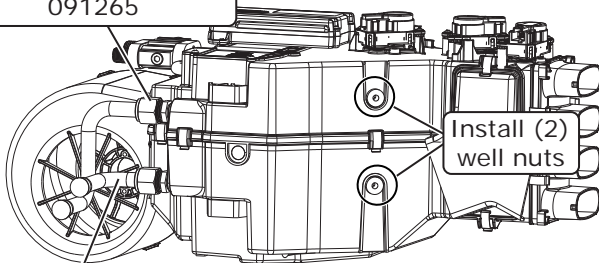


Figure 2



Spring Clip Installed Photo 3

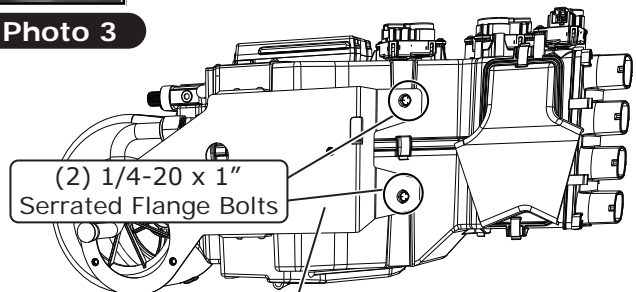
Upper Heater Hardline 091265



Lower Heater Hardline 121018

Figure 3

(2) 1/4-20 x 1" Serrated Flange Bolts



Install evaporator firewall bracket 642591

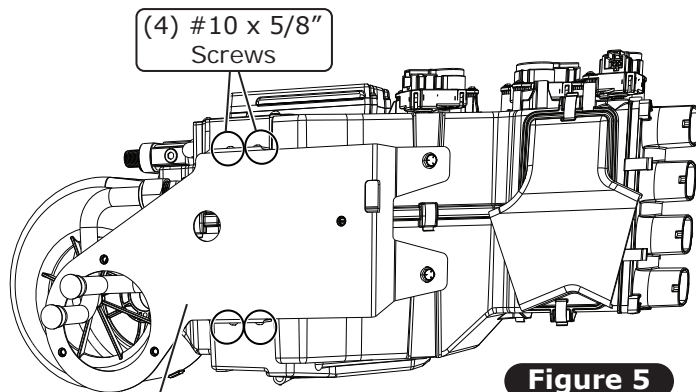
Figure 4



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Evaporator Preparation (Cont.)

8. Install the passenger-side bracket using (4) #10 x 5/8" screws (See Figure 5, below).
9. Connect two pieces of heater hose approximately 45" long to the heater hose fittings. Use a small amount of white grease to ease slipping the hoses past the plane of the firewall mounting bracket as shown in Photo 4, below.
10. Install (2) 1/4-20 full-threaded studs, (1) on the top mounting hole of the passenger-side bracket and (1) on the driver-side bracket (See Figure 6, below). Thread the studs approximately 1/4" in. **NOTE: If the studs are sticking out too far, it may cause interference issues when mounting the unit under the dash due to the tight clearance.**
11. Temporarily place the evaporator firewall hose bracket on top of the evaporator brackets, using the studs to align it, then center the hardlines into the firewall cover holes (See Figure 7, below). Once the hardlines are centered, remove the bracket, and tighten the hardlines. **NOTE: For additional clearance, when tightening hardlines, the evaporator bracket can be temporarily removed.**



(4) #10 x 5/8"
Screws

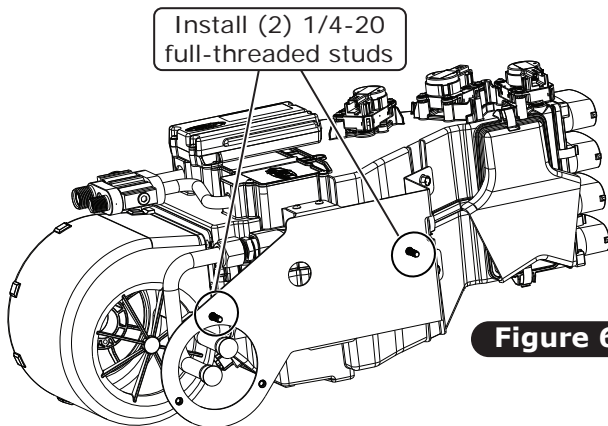
Figure 5

Install evaporator firewall
bracket 642591



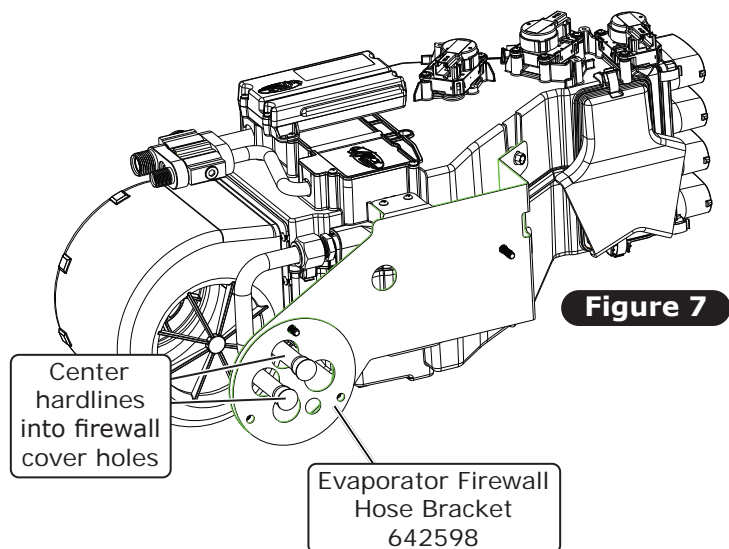
Push hoses
past plane
of bracket

Photo 4



Install (2) 1/4-20
full-threaded studs

Figure 6



Center
hardlines
into firewall
cover holes

Evaporator Firewall
Hose Bracket
642598

Figure 7



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Firewall Cover Installation

1. From the engine compartment, temporarily secure the firewall cover to the firewall using (2) 1/4-20 x 3/4" black serrated flange bolts and (2) 1/4-20 nuts with star washers (See Photo 1, below).
2. Mark and drill (2) 5/16" holes through the upper and lower passenger-side mounting holes in the firewall cover (See Photo 1, below).
3. Remove the firewall cover, and apply a bead of silicone to the back side of the firewall cover at the edge of all seams and bolt holes. Secure the firewall cover to the firewall using (4) 1/4-20 x 3/4" black serrated flange bolts and (4) 1/4-20 nuts with star washers. **NOTE: The remaining hole on the firewall cover will be used to mount the evaporator unit (See Photo 1, below). Also note, paint will not adhere to silicone.**
4. Enlarge the (3) screw holes that held on the round cover to 5/16" (See Photo 2, below).

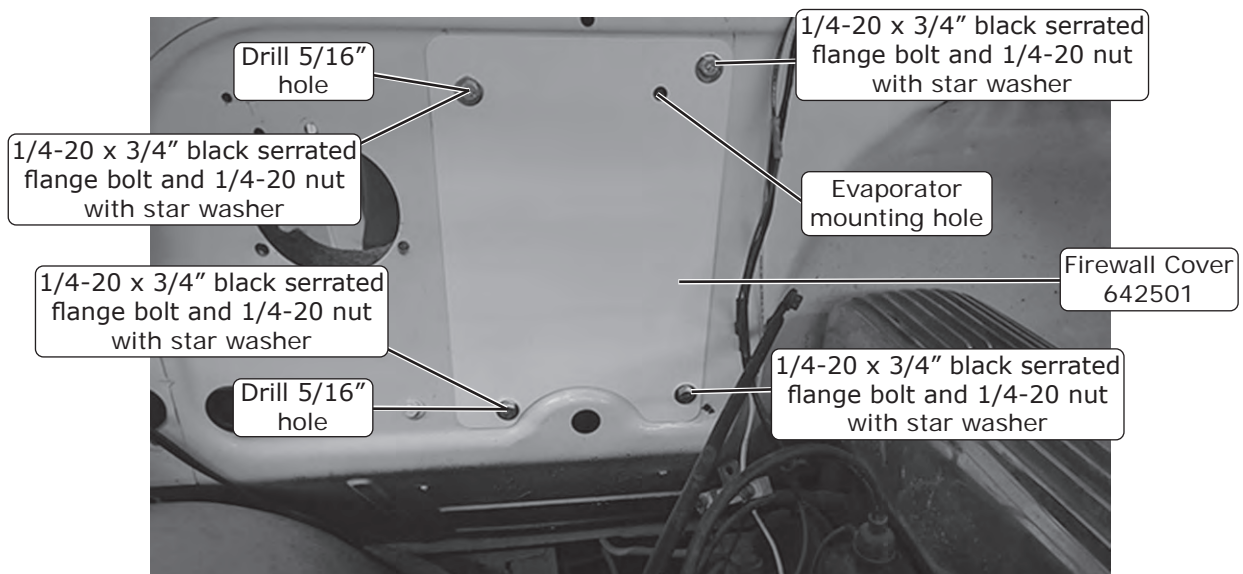


Photo 1

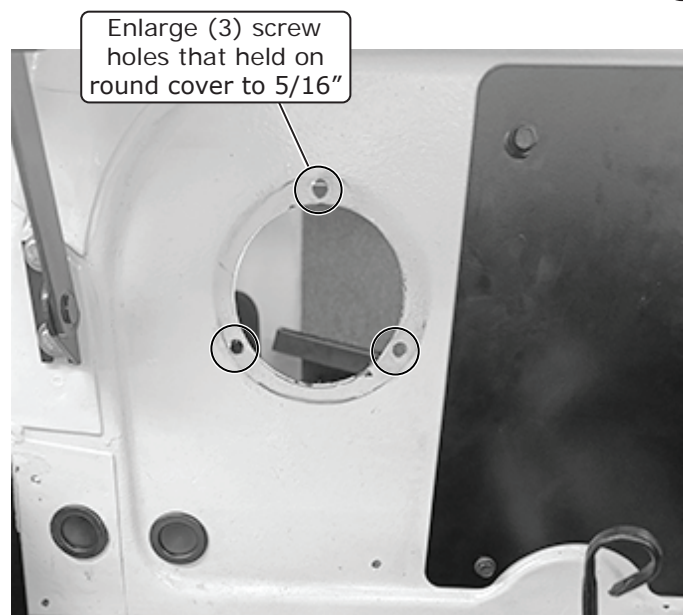


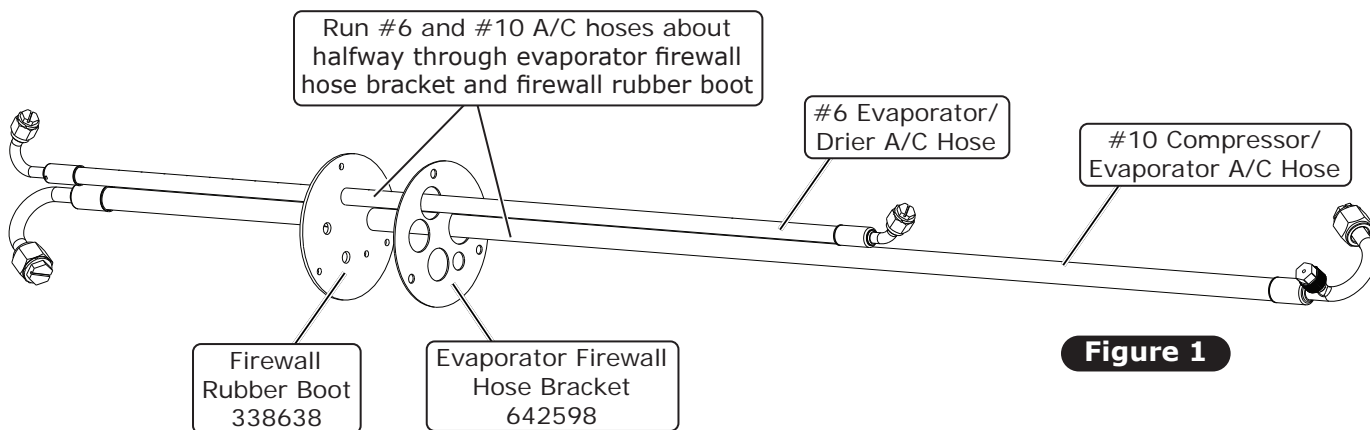
Photo 2



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A/C & Heater Hose Installation

1. On a workbench, run the #6 and #10 A/C hoses about halfway through the evaporator firewall hose bracket and firewall rubber boot (See Figure 1, below). The #10 A/C hose will pass through the 1 ¼" hole and the #6 A/C hose through the 1 ⅝" hole of the firewall bracket.
2. From the engine compartment, pass both A/C hoses through the round firewall opening into the truck cabin (See Photo 1, below). The firewall rubber boot must be facing the firewall. A/C hose fittings with service ports, stay in the engine compartment.



Pass both A/C hoses through round firewall opening into truck cabin



Photo 1



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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 on the passenger-side floorboard. Insert the attached heater hoses through the firewall hole and into the engine bay (See Photo 1, below).
2. With a properly lubricated #6 O-ring (See Lubricating O-rings, Page 8), attach the #6 A/C hose fitting to the suction port on the evaporator (See Photo 2, below).
3. Utilizing the full-threaded studs (previously installed in the Evaporator Preparation section), lift the evaporator up under the dash and install into position through the holes in the firewall and firewall cover. Use 1/4-20 nuts with star washers to temporarily secure the evaporator module in place for the following steps.
4. With the evaporator module in place, attach a #10 A/C hose fitting to the suction with a properly lubricated #10 O-ring (See Lubricating O-rings, Page 8) (See Photos 3 and 4, below).
5. In the engine bay, pass the heater hoses through the remaining holes in the firewall rubber boot and the evaporator firewall hose bracket (See Photo 5, below). Push the rubber boot and bracket 4" to 6" from the firewall (See Photo 5, below). **NOTE: Soapy water may be used to ease installation of the hoses through the boot, but be sure the A/C hoses are capped to prevent water from getting inside.**

Place evaporator on passenger-side floorboard

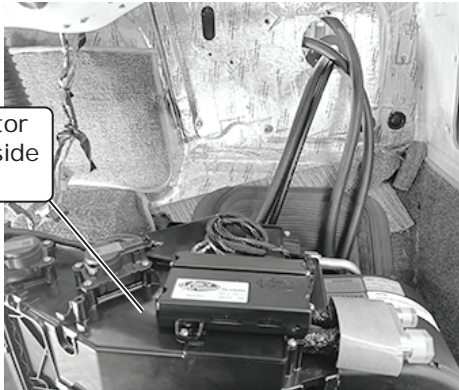


Photo 1

Attach #6 A/C hose fitting to suction port on evaporator



Photo 2

Push rubber boot and bracket 4" to 6" from firewall



Photo 3

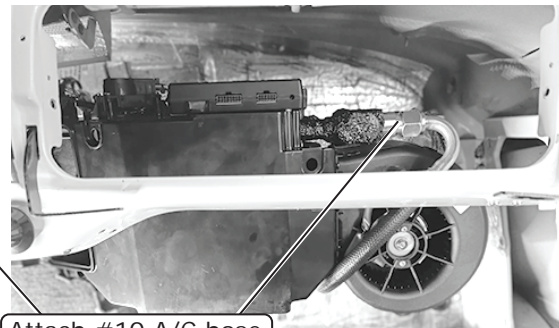


Photo 4

Attach #10 A/C hose fitting to suction port on evaporator

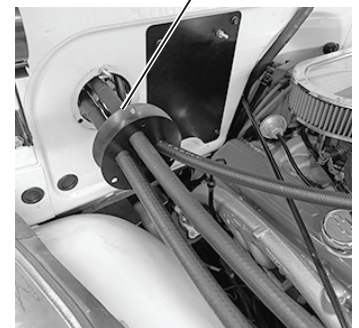


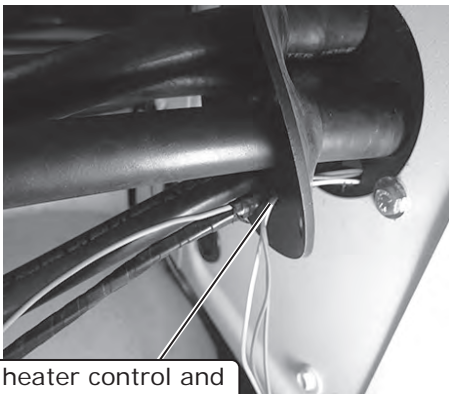
Photo 5



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Evaporator Installation (Cont.)

6. With the hoses installed through the rubber boot and the boot 4" to 6" from the firewall, feed the wiring harness from inside the passenger compartment, through the firewall and through the rubber boot (See Photo 5, Page 13, and Photo 6, below). **NOTE: Route the heater control valve harness, then the compressor clutch lead through the rubber boot. Lubrication of the connector will ease installation. Battery power and ground stay inside vehicle, where battery is located.**
7. Push the rubber boot and evaporator firewall hose bracket over the full-threaded stud and against the firewall.
8. Align the (2) remaining holes in the rubber boot and evaporator firewall hose bracket with the holes in the firewall and install (2) 1/4-20 x 3/4 black serrated flange bolts. Once tightened, remove the full-threaded stud and replace with a 1/4-20 x 3/4 black serrated flange bolt (See Photo 7, below).
9. When all the bolts are tight on the evaporator firewall hose bracket, remove the full-threaded stud from the firewall cover and replace it with a 1/4-20 x 3/4 black serrated flange bolt.
10. From the passenger compartment, attach the evaporator dash bracket to the evaporator using (2) 1/4-20 x 1" black serrated flange bolts (See Figure 1, below). The bracket flange should rest firmly against the OEM lower dash brace (See Photo 8, below).
11. Install hose clamps onto the heater hoses as shown in Photo 7, below.



Route heater control and compressor leads through firewall and rubber boot

Photo 6



Tighten all bolts

Install hose clamp

Photo 7

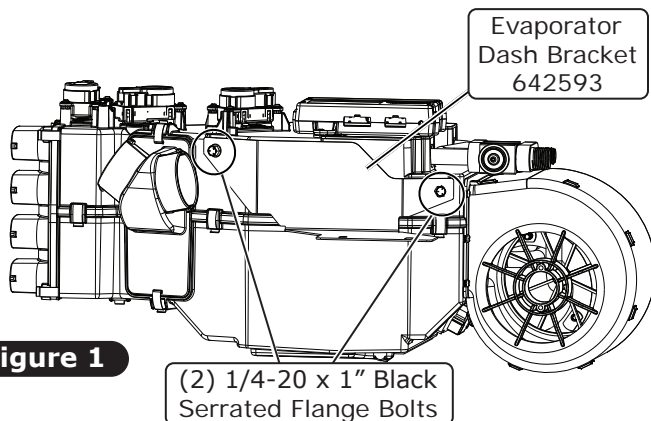


Figure 1

(2) 1/4-20 x 1" Black Serrated Flange Bolts

Evaporator Dash Bracket
642593



Bracket flange should rest firmly against OEM lower dash brace

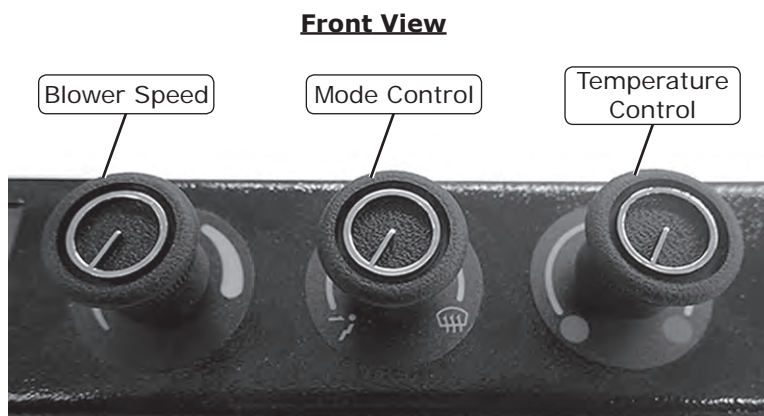
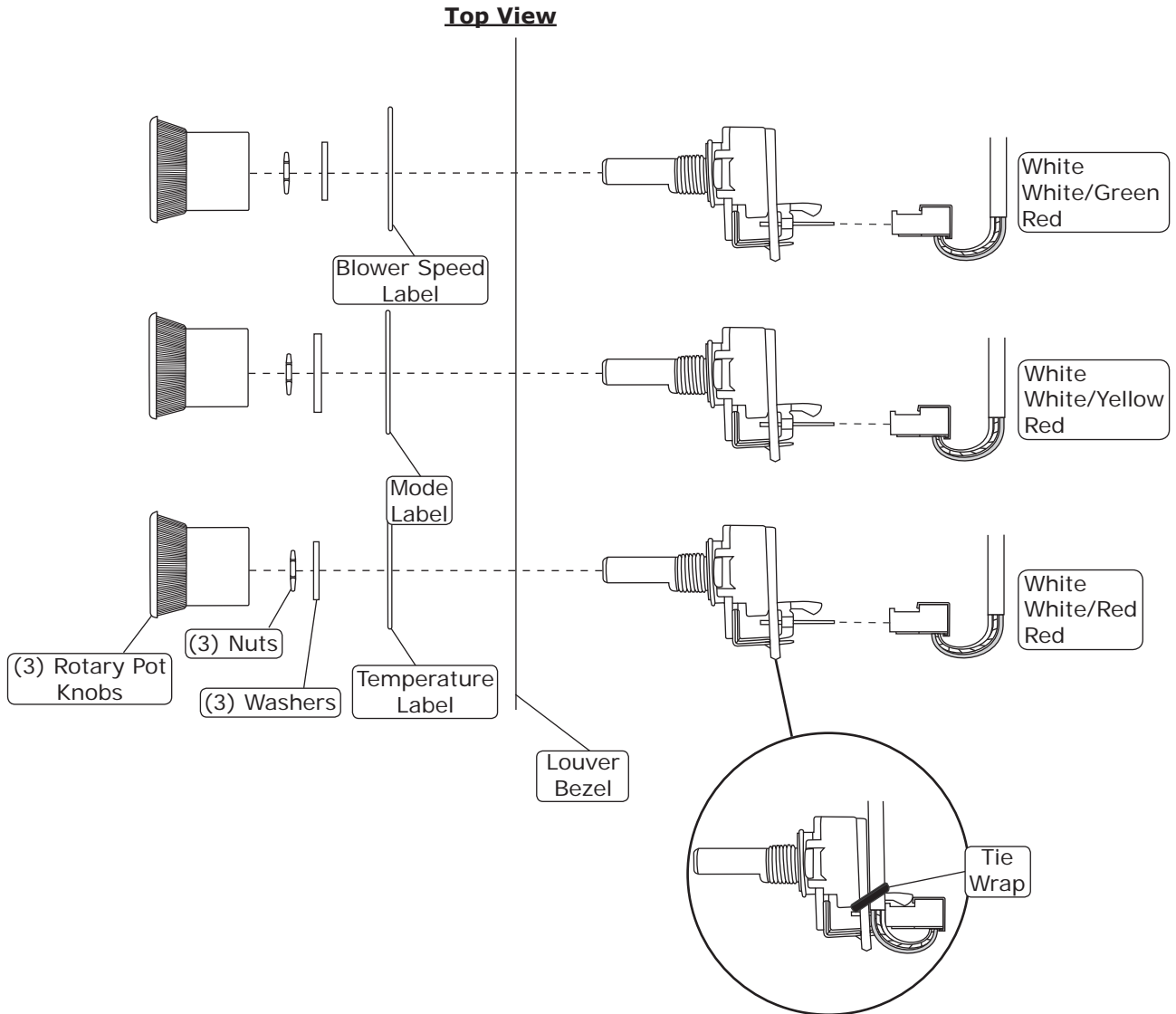
Photo 8



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Rotary Pot Installation

1. Locate the (3) rotary pot assemblies, and install them into the louver bezel as shown below.
2. Tie wrap the wires to the rotary pots as shown below.





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Control Panel/ Louver Bezel Assembly Installation

1. Before attaching the dash bracket to the dash, install the control panel/louver bezel assembly.
 - A. Locate the (2) OEM 5/16" bolts under the far passenger side of the dash. Remove the inner 5/16" bolt. **NOTE: This bolt will be reinstalled through the louver bezel in Step D, below. The bezel has a clearance hole for the outer bolt.**
 - B. Align the predrilled holes on the louver bezel with the (2) OEM mounting holes under the dash.
 - C. Secure the control panel/louver bezel assembly under the dash using (2) 10-32 x 3/4" screws, (4) 3/16" x 1/2" flat washers and (2) 10-32 nuts with star washers (See Photos 1 & 2, below).
 - D. Reinstall the 5/16" bolt that was removed in Step A, above (See Photo 3, below).
 - E. Insert the louvers into the louver bezel.

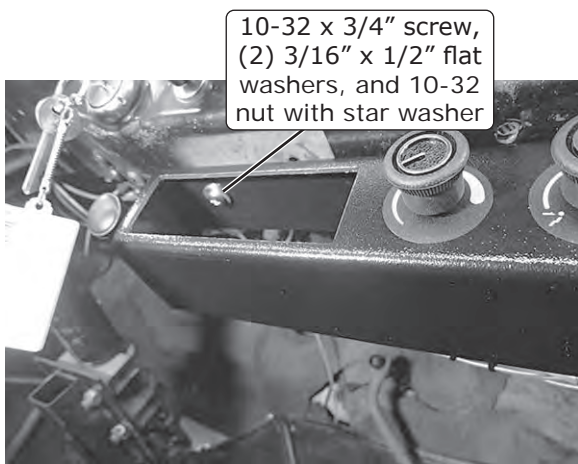


Photo 1

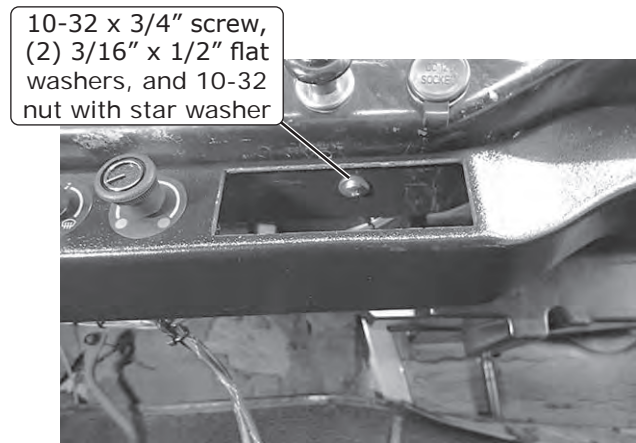


Photo 2

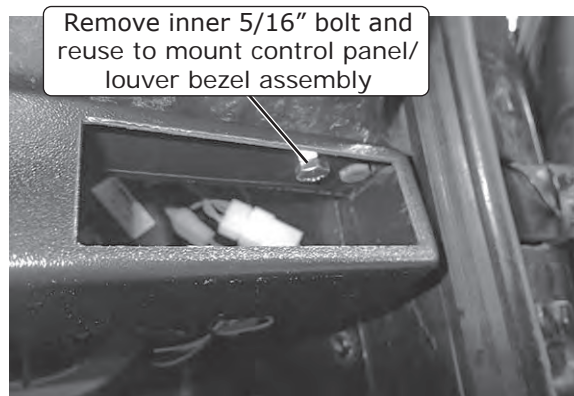


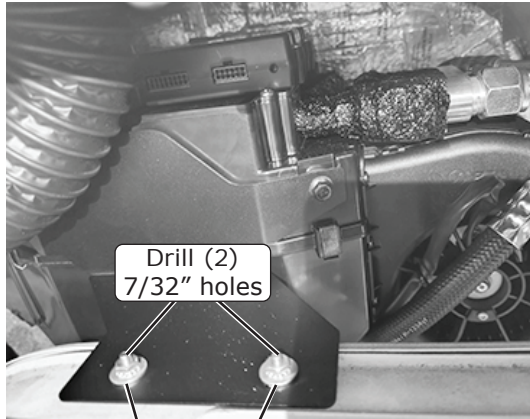
Photo 3



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Evaporator Installation (Final)

1. With the louver bezel and the dash bracket secured to the evaporator, drill (2) 7/32" holes (See Photo 1, below) aligned with the center of the slots on the evaporator dash bracket flange. Drill through the OEM dash brace and the top of the louver bezel. Attach the dash bracket to the dash brace through all drilled holes using (2) 10-32 x 1" screws, (4) 3/16" x 1/2" flat washers, and (2) 10-32 nuts with star washers (See Photo 1 and Figure 1, below).
2. Check that the evaporator module is level at the passenger side of the drain pan (See Photo 2, below). If the evaporator is not level, check to ensure installation steps were properly performed. **NOTE: Slotted holes on the evaporator dash bracket may be used to adjust evaporator level.**



(2) 10-32 x 1" screws, (4) 3/16" x 1/2" flat washers and (2) 10-32 nuts with star washers

Photo 1

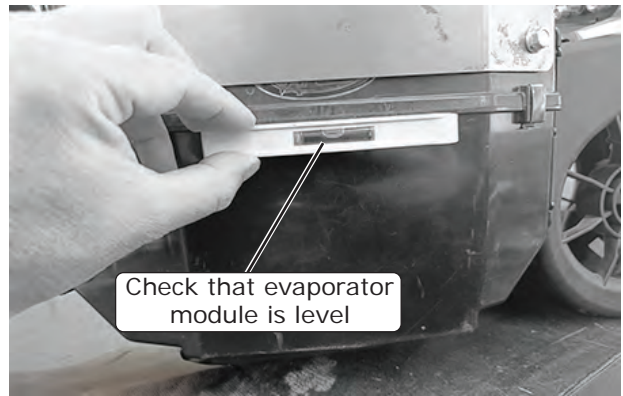


Photo 2

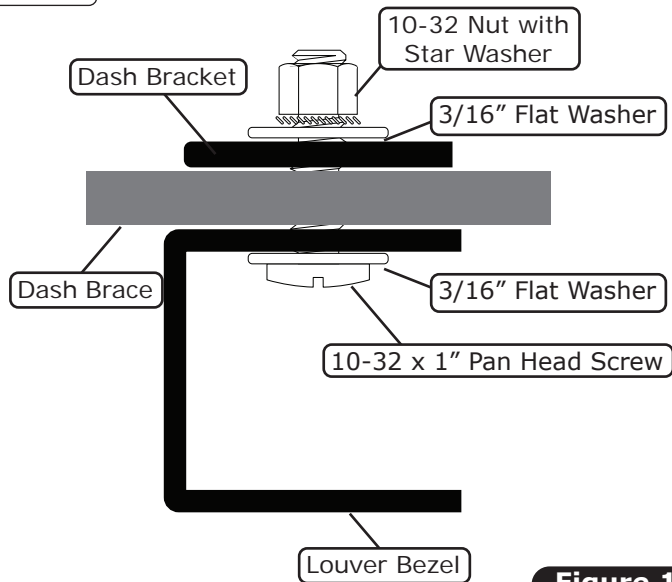


Figure 1



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Driver-Side Under Dash Louver Installation

1. Align the inner hole on the driver-side louver bezel with the OEM hole under the dash as shown in Photo 1, below. Using the bezel's outer hole as a template, mark and drill a hole into the bottom of the dash. Install the driver-side louver bezel using (2) 10-32 x 3/4" screws, (4) 3/16" x 1/2" flat washers, and (2) 10-32 nuts with star washers (See Photo 1, below).
2. Insert the louvers into the louver housing (See Photo 2, below).

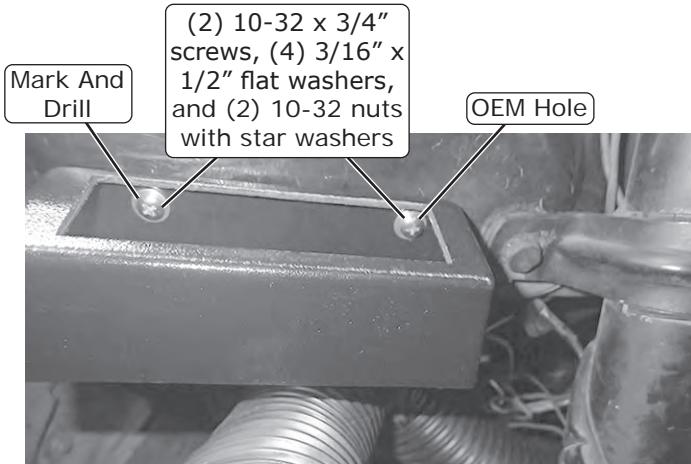


Photo 1

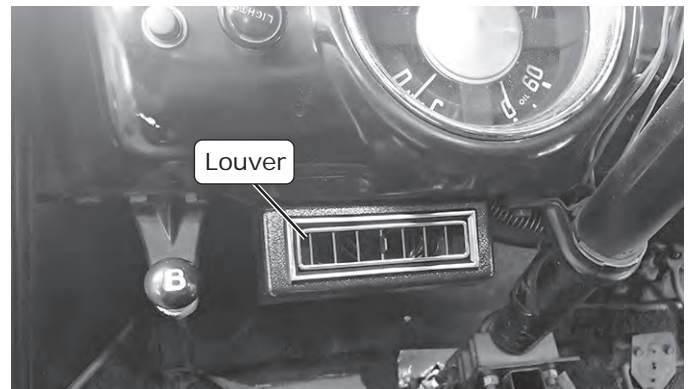


Photo 2

Heater Control Valve Installation

1. With the evaporator installed and (4) hoses exiting the firewall, cut the heater hose located at the 9 o'clock position, 6 1/2" from the firewall. Slide a hose clamp over the hose coming out of the firewall, push the valve onto the hose and tighten the clamp. Connect the remaining hose to the other end of the valve, and clamp the hose. **NOTE: The arrow molded on the heater control valve body needs to point toward the firewall (See Photo 1, below). Ideally, the valve should be mounted as shown in Photo 1, below. However, the valve can be rolled 90° as shown in Photo 2, below. White grease may be used on the valve barbs to ease installation.**

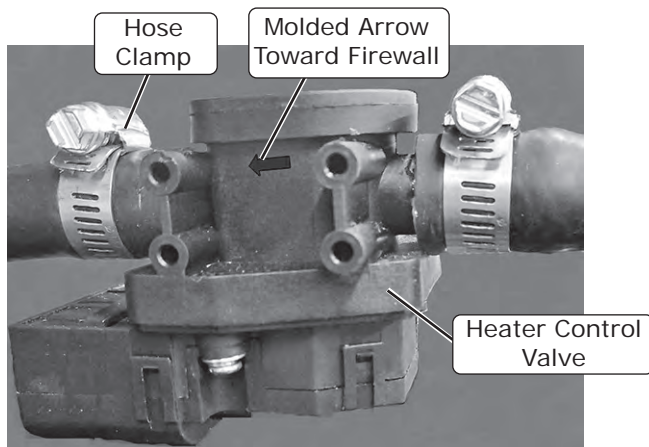


Photo 1

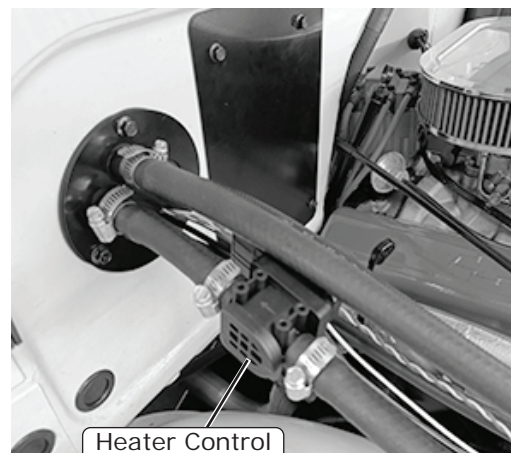


Photo 2



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A/C & Heater Hose Installation, V-8 Engines (Final)

1. Using a properly lubricated O-ring (See Lubricating O-rings, Page 8), connect the #6 A/C hose to the #6 condenser hardline (See Photo 1, below).
2. Using a properly lubricated O-ring (See Lubricating O-rings, Page 8), connect the #10 A/C hose to the compressor (See Photo 1, below).
3. Using a properly lubricated O-ring (See Lubricating O-rings, Page 8), connect the straight fitting on the #8 A/C hose to the #8 hardline from the condenser. Connect the 135° fitting to the compressor (See Photo 1, below).
4. Connect the heater hose from the heater control valve to the intake manifold. Secure with a hose clamp (See Photo 1, below).
5. Connect the remaining heater hose to the water pump. Secure with a hose clamp (See Photo 1, below).

NOTE: Vintage Air systems require (2) 5/8" hose nipples (Not Supplied).

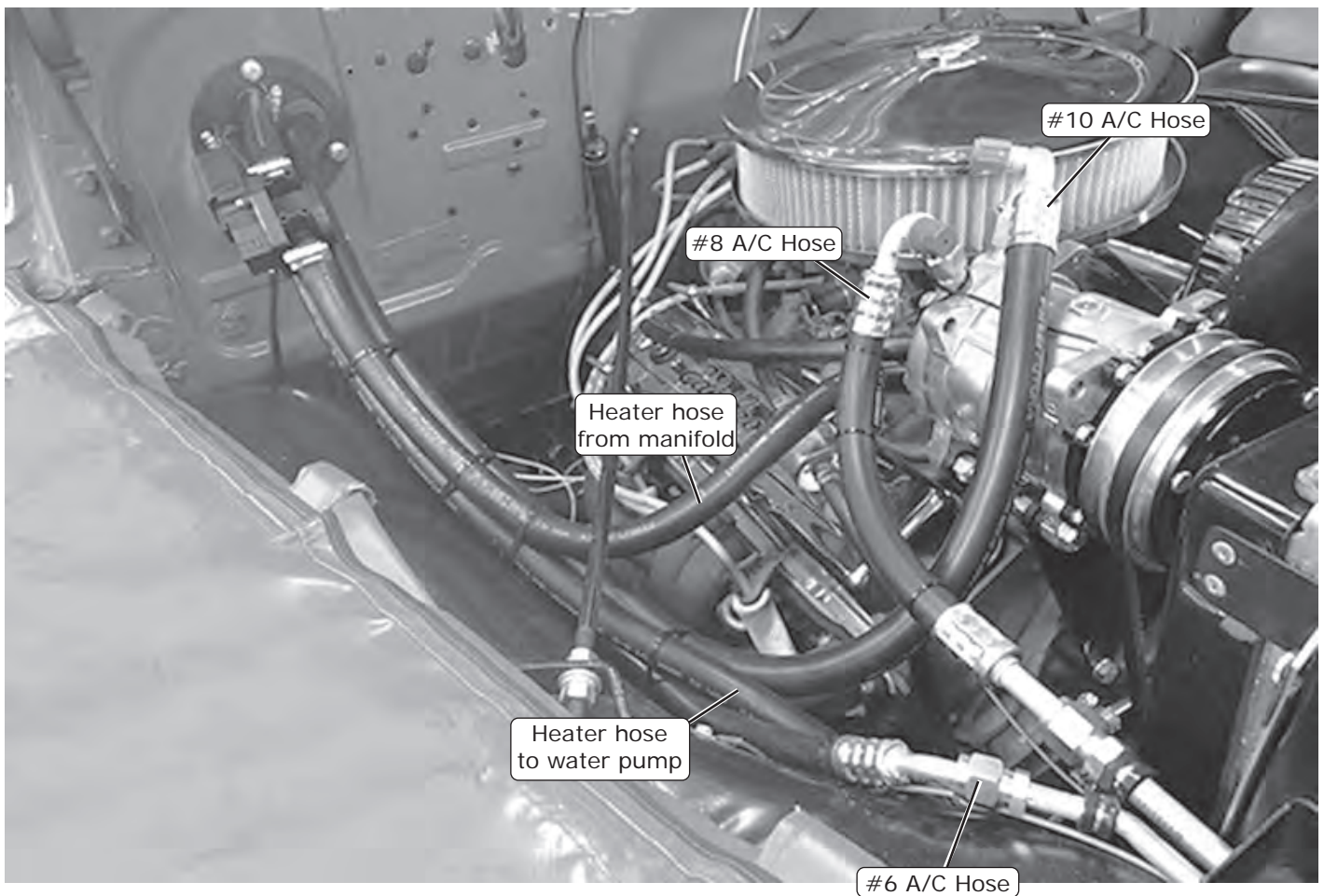


Photo 1



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A/C & Heater Hose Installation, 6-Cylinder Engines (Final)

NOTE: On 6-cylinder engine compartments, there are multiple possibilities for routing the #8 and #10 A/C hoses, depending on the installer's preference. For this reason, the #8 and #10 hoses are shipped with fittings installed on one end only. The other end will need to be cut and crimped after routing has been determined. For our installation, Vintage Air's technicians routed the hoses beneath the engine, securing them to the front frame cross member with (2) #10 Adel clamps as shown below.

1. Using a properly lubricated O-ring (See Lubricating O-rings, Page 8), connect the #6 A/C hose to the #6 condenser hardline (See Photo 1, Page 19).
2. From where it exits the firewall, route the #10 A/C hose to the compressor. Temporarily attach the 135° fitting to the compressor. Cut the hose to the proper length, and connect the hose to the compressor fitting. Mark the fitting and hose to ensure proper positioning, and remove the fitting from the compressor. Crimp the fitting onto the hose, and permanently connect to the compressor using a properly lubricated O-ring (See Lubricating O-rings, Page 8) (See Photos 1 & 2, below).
3. Using a properly lubricated O-ring (See Lubricating O-rings, Page 8), connect the 90° fitting on the #8 A/C hose to the #8 condenser hardline. From there, route the #8 hose to the compressor. Temporarily attach the 135° fitting to the compressor. Cut the hose to the proper length, and connect the hose to the compressor fitting. Mark the fitting and hose to ensure proper positioning, and remove the fitting from the compressor. Crimp the fitting onto the hose, and permanently connect to the compressor using a properly lubricated O-ring (See Lubricating O-rings, Page 8) (See Photos 1 & 2, below).
4. Connect the heater hose from the heater control valve to the water neck. Secure with a hose clamp (See Photo 3, below).
5. Connect the remaining heater hose to the water pump. Secure with a hose clamp (See Photo 3, below).

NOTE: Vintage Air systems require (2) 5/8" hose nipples (Not Supplied).

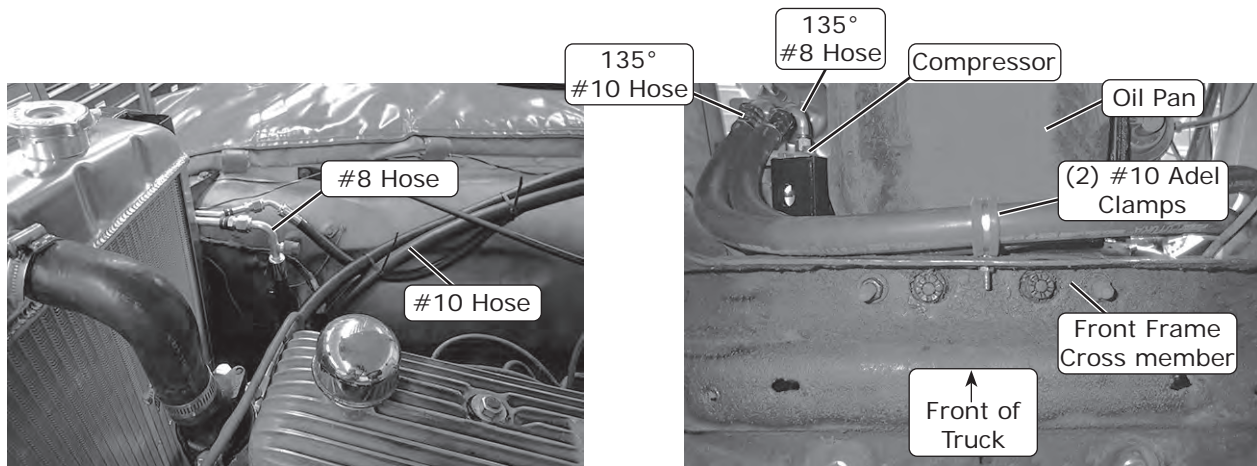


Photo 1

Photo 2

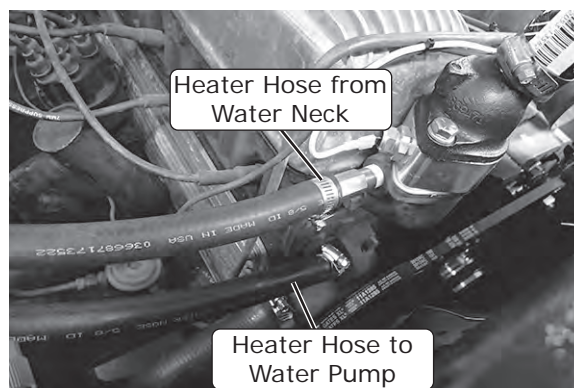


Photo 3



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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 28.

1. Access the battery in the passenger-side floorboard for the following steps (See Photo 1, below).
2. Route the blue lead from the main wiring harness along the #6 A/C hose and connect it to the safety switch (See Photo 2, below).
3. Connect the compressor lead bullet connector to compressor lead then route it along the #8 A/C hose and connect it to the safety switch (See Photo 3, below).
4. Route power and ground wires toward the battery (See Photo 4, below).
5. 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 5, below). Slide the heat shrink over the crimp, then apply heat.
6. 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 6, below). Slide the heat shrink over the crimp, then apply heat.

Access battery in passenger-side floorboard

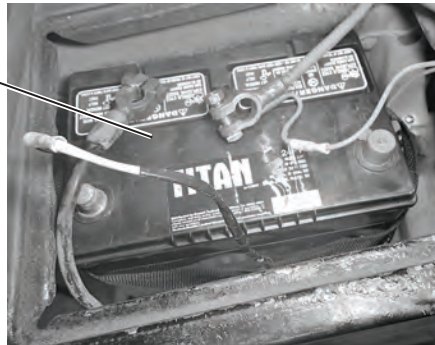
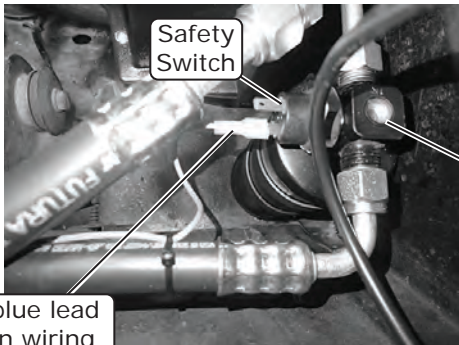
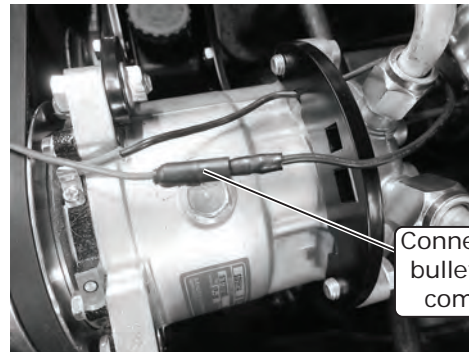


Photo 1



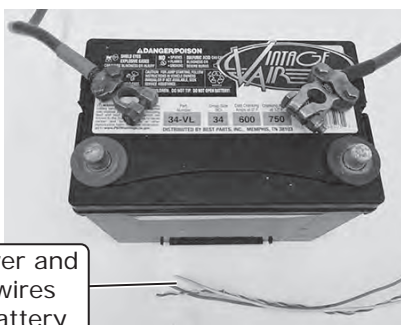
Connect blue lead from main wiring harness to safety switch on drier

Photo 2



Connect compressor bullet connector to compressor lead

Photo 3



Route power and ground wires toward battery

Photo 4

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

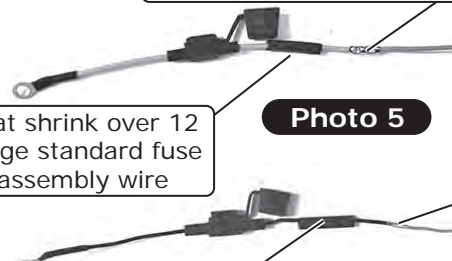


Photo 5

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

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 6



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Engine Compartment Wiring (Cont.)

7. Install the fuses into the holders (See Photos 7 and 8, below).
8. Install the supplied heat shrink over the white ground wires, then crimp on the supplied ring terminals (See Photos 9 and 10, 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 11 and 12, below).**



Photo 7

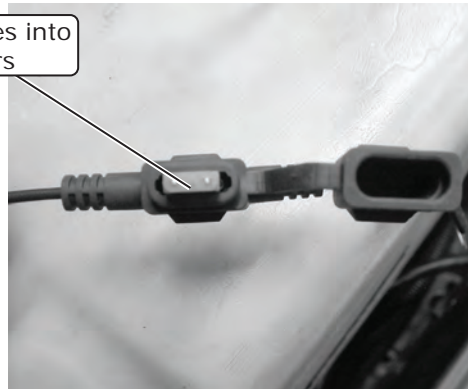


Photo 8

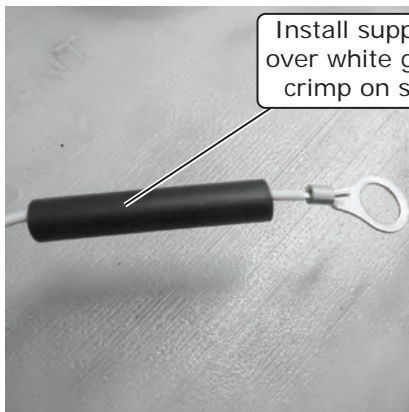


Photo 9

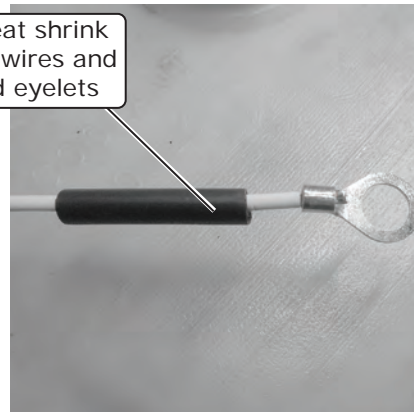


Photo 10

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

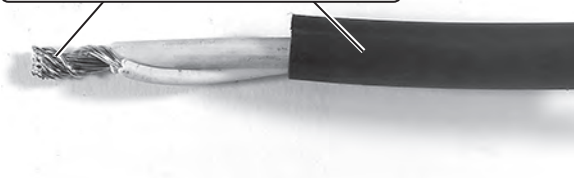


Photo 11

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



Photo 12



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Engine Compartment Wiring (Final.)

9. Connect the ground wire ring terminals to the negative battery terminal connector (See Photos 13 and 14, below).
10. Connect the positive wire ring terminals to the positive battery terminal connector (See Photos 15 and 16, below). **NOTE: Do not connect power until the installation is completed.**
11. Wiring completed (See Photo 17, below).

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

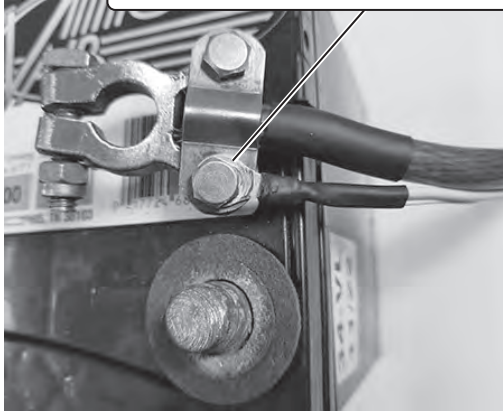


Photo 13

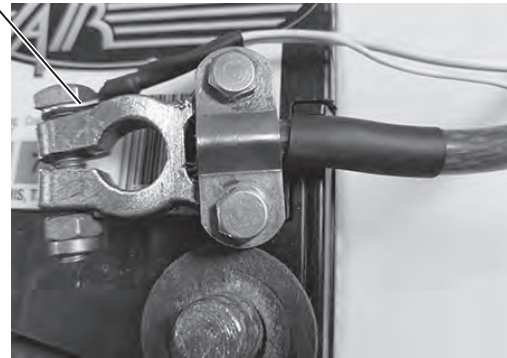


Photo 14

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

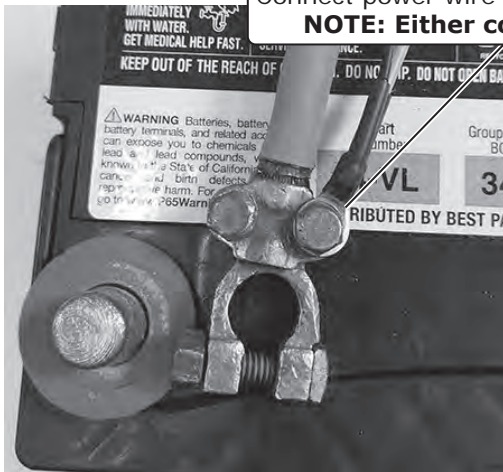
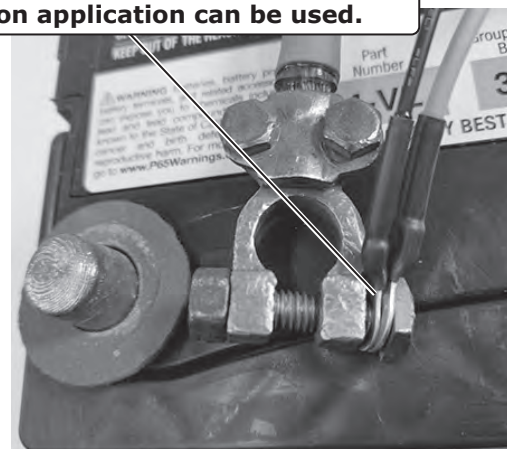


Photo 15



NOTE: Do not connect power until installation is completed.

Photo 16



Completed Installation Shown

Photo 17



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Drain Hose Installation

1. Locate the evaporator drain on the bottom of the evaporator case. In line with the drain, drill a 5/8" hole through the floor where it meets the firewall (See Photos 1 & 2, below). Cut a 3" to 4" piece of drain hose, and connect it to the 1/2" 90° elbow (See Photo 3, below). Connect the long piece of drain hose to the 90° elbow (See Photo 3, below). From inside the truck, push the tail end of the drain hose through the hole in the floorboard. With the elbow against the firewall, measure and cut the hose, and then push it onto the evaporator drain pan fitting. Ensure that the hose from the drain pan has adequate drop to allow drainage (See Photo 3, below). On the engine side of the firewall, cut the hose and install the second 90° elbow. Attach the remaining hose to the elbow, and route to drain below the cab (See Photo 4, below). Seal with silicone around the hose at the floorboard to prevent water from coming in.

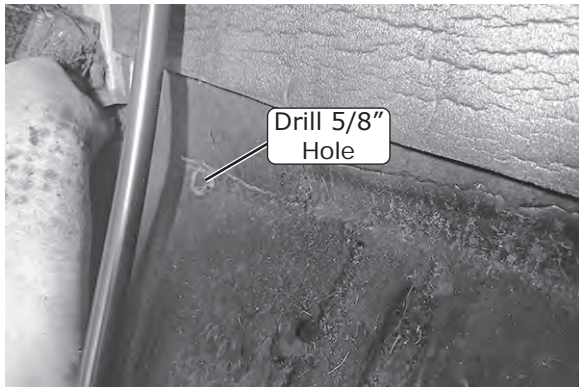


Photo 1

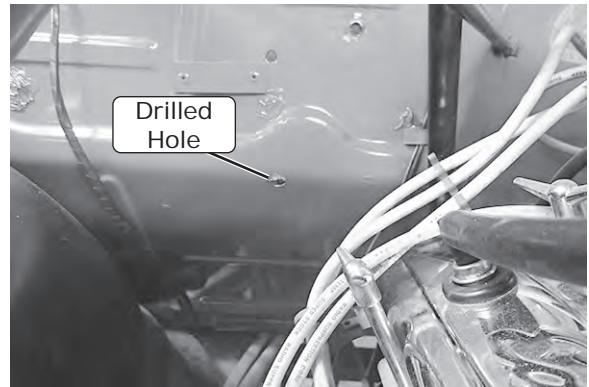


Photo 2

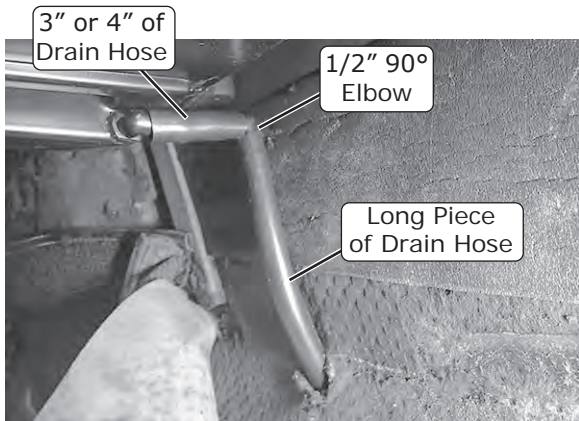


Photo 3

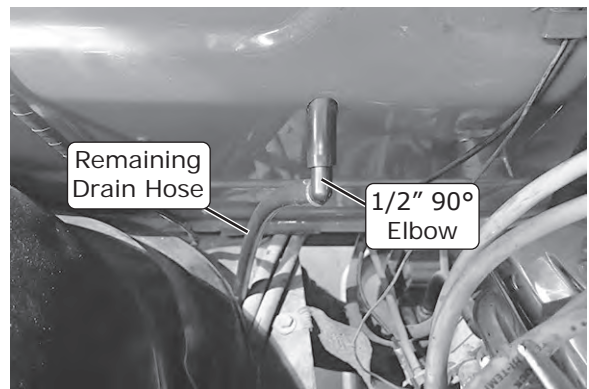


Photo 4



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Final Steps: Installation Check

Installation Check	
ITEM TO CHECK	Procedure
<input type="checkbox"/>	<p>ECU</p> <p>If no blinking is observed after 1 minute of turning the ignition on, go to the next check.</p> <p>If repetitive blinking is observed, go to the Advanced Diagnostics Section to diagnose.</p>
<input type="checkbox"/>	<p>Blower speed control</p> <p>Set the blower speed control to OFF, <u>confirm that the blower is off</u>.</p> <p>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.</p>
<input type="checkbox"/>	<p>Mode control</p> <p>Set the MODE control to the DASH position. <u>Confirm that air is being blown at the dash vents</u>.</p> <p>Set the MODE control to the FLOOR position. <u>Confirm that air is being blown at the floor vents</u>.</p> <p>Set the MODE control to the DEFROST position. <u>Confirm that all air is being blown from the defrost vents</u></p> <p>If heater lines are installed:</p> <p>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>.</p>
<input type="checkbox"/>	<p>Temperature control</p> <p>If system is charged:</p> <p>Set the TEMP control to the MAX COOL position. <u>Confirm that COLD air is coming from the dash vents</u>.</p> <p>Also <u>confirm that the compressor "clicks" on</u> when adjusting the TEMP control from the MAX HEAT position to the MAX COOL position.</p>
<input type="checkbox"/>	<p>AC Indicator (If applicable)</p> <p>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>.</p>
<input type="checkbox"/>	<p>Backlight (If applicable)</p> <p>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>.</p>
<input type="checkbox"/>	<p>Fittings</p> <p>Verify AC and Heater fittings are all tight.</p>



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Final Steps: Completing the Install

1. Install duct hoses as shown in Duct Hose Routing, Page 27.
2. Route A/C wires (12 volt/grounds/binary switch/heater valve) through the rubber boot.
3. Install control panel assembly. Refer to control panel instructions.
4. Plug the wiring harnesses into the ECU module on the sub case. Wire according to wiring diagrams on Pages (specify pages).
5. Reinstall all previously removed items.
6. 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.
7. Double check all fittings, brackets and belts for tightness.
8. Vintage Air recommends that all A/C systems be serviced by a licensed automotive A/C technician.
9. Evacuate the system for a minimum of 45 minutes prior to charging, and perform a leak check prior to servicing.
10. Charge the system to the capacities stated on Page 4 of this instruction manual.
11. See Operation of Controls procedures on Page 31.

Glove Box Installation

1. Using the OEM glove box screws, install the glove box provided with the kit (See Photo 1, below). **NOTE: Loosely install all screws before tightening.**
2. Reinstall the glove box door (See Photo 2, below).



Photo 1



Photo 2



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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).

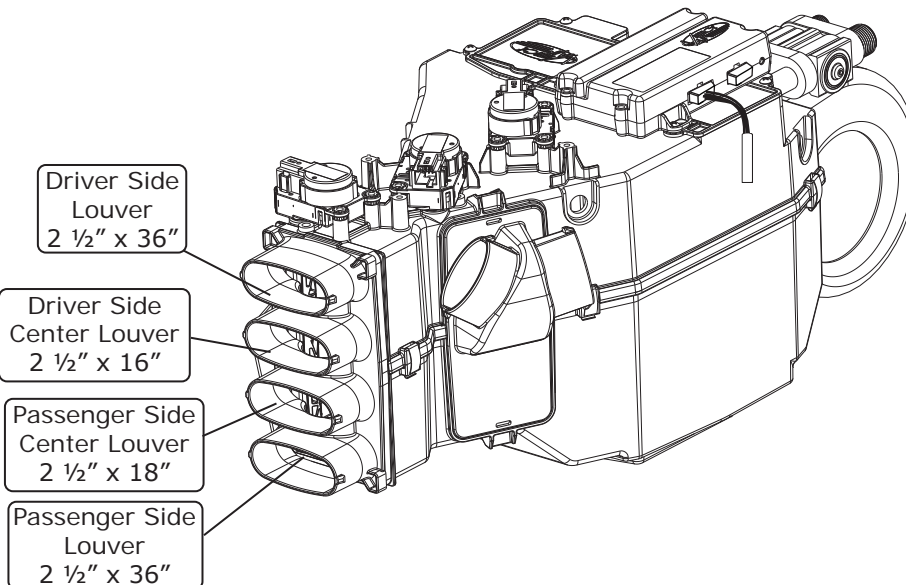
Stretch, measure, mark and cut hose to size



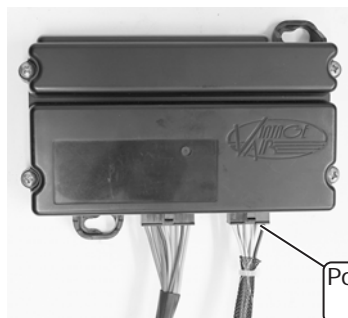
Photo 1

NOTE: While looking through the glove box operate the wipers and fully open the cowl vent. Check for any interference to the hoses and wiring harness. Use tie wraps or reroute to create clearance.

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

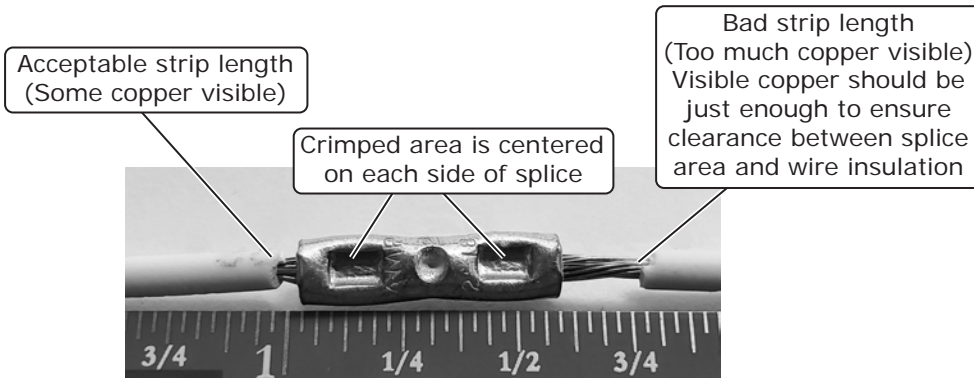


Photo 1

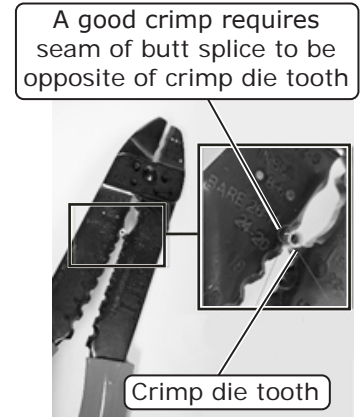


Photo 2

Good Ring Terminal Crimp Bad Ring Terminal Crimp

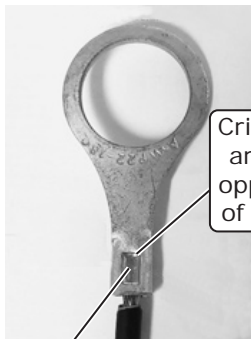


Photo 3

Crimp area is centered on barrel

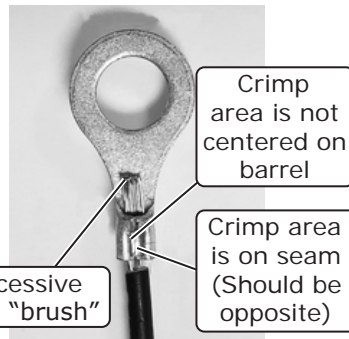


Photo 4



Photo 5

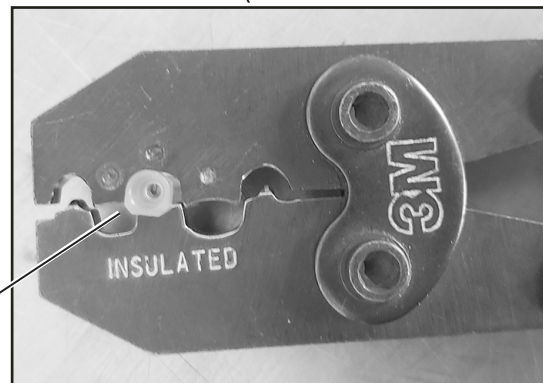


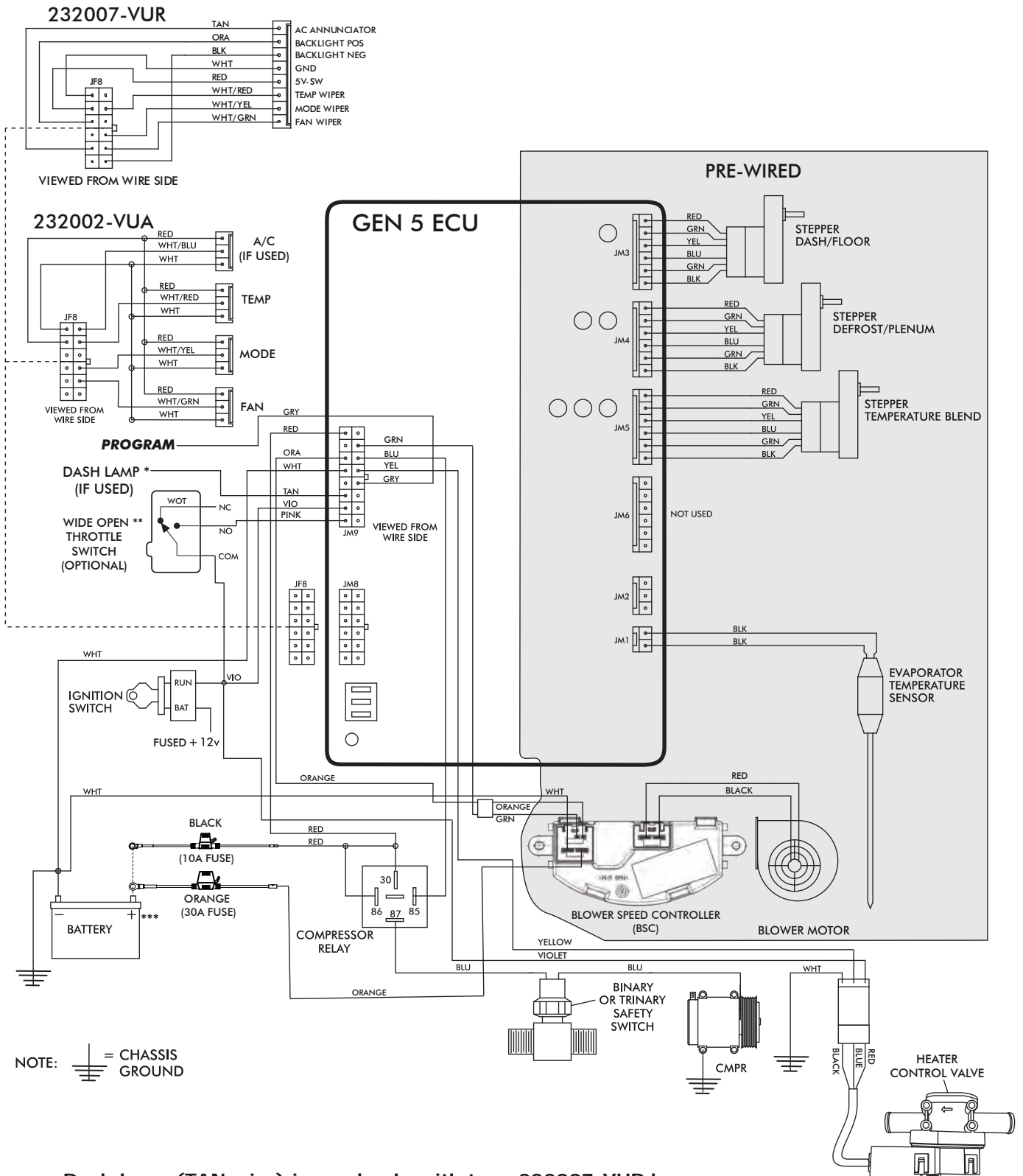
Photo 5a

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



NOTE: = CHASSIS GROUND

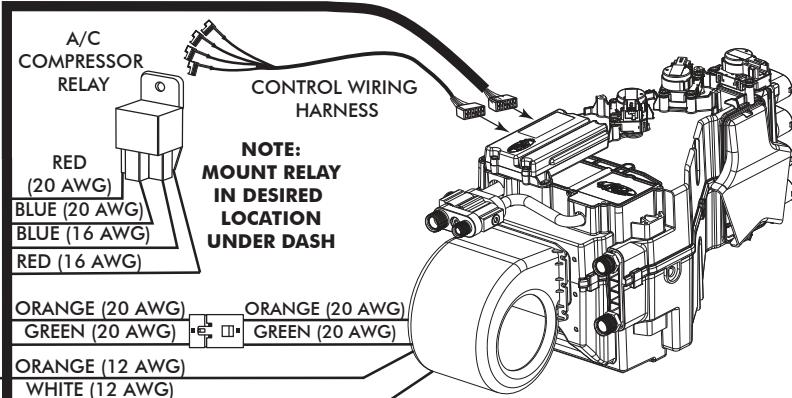
- * Dash lamp (TAN wire) is used only with type 232007-VUR harness.
- ** Wide open throttle switch contacts close only at full throttle, which disables A/C compressor.
- *** Install fuse assemblies at or as near to the battery as possible.



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Gen 5 Wiring Instructions

WIRING HARNESS (231505) ↓



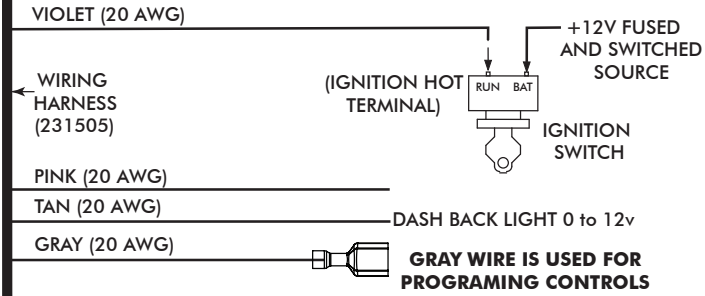
NOTE:
MOUNT RELAY
IN DESIRED
LOCATION
UNDER DASH

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.

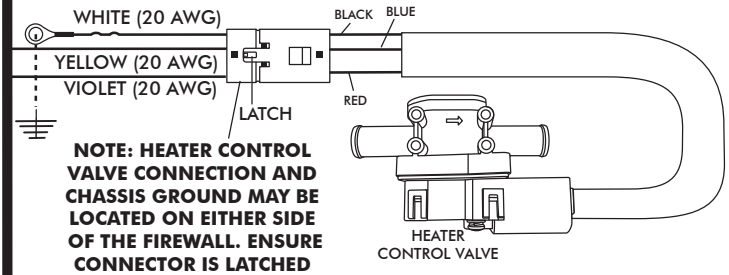
Dash Light (Optional):
If using a Vintage Air control panel with back light, connect the 20 AWG tan wire to the vehicle's dash back light 0-12V using provided butt splice (PN 226004).

WIRING HARNESS (232020) →



FIREWALL FIREWALL

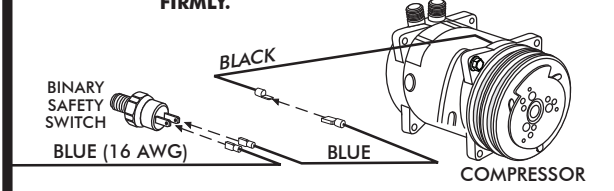
WIRING HARNESS (232020) →



NOTE: HEATER CONTROL VALVE CONNECTION AND CHASSIS GROUND MAY BE LOCATED ON EITHER SIDE OF THE FIREWALL. ENSURE CONNECTOR IS LATCHED FIRMLY.

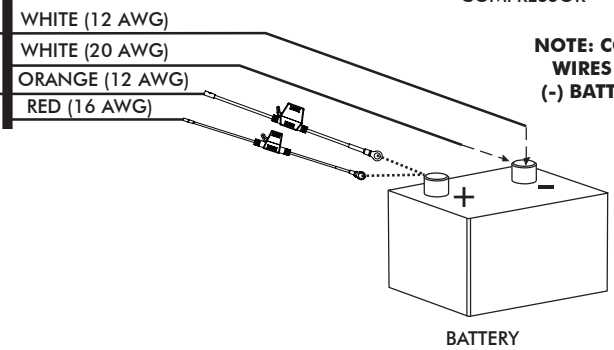
Heater Control Valve:
Connect the Violet/Yellow/White twisted branch with 3 position connector into the heater control valve connector. Ensure that the mating latch is fully seated.

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.



NOTE: CONNECT WHITE WIRES DIRECTLY TO (-) BATTERY TERMINAL

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 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 between operations, to indicate the change. **NOTE: For proper control panel function, refer to control panel instructions for calibration procedure.**

Blower Speed

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

Mode Control

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

Temperature Control

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

Blower Speed



Mode Control



Temperature Control



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.

Mode Control

Adjust to DEFROST position for maximum defrost, or between FLOOR and DEFROST positions for a bi-level blend (Compressor is automatically engaged).

Temperature Control

Adjust to desired temperature.





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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.	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.
	All other functions work.	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. Replace fuse. 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 for disconnected or faulty thermistor.	Check continuity to ground on white control head wire. Check for 5V on red control head wire. Check 2-pin connector at ECU housing.	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.
	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.
3. Compressor will not turn off (All other functions work).	System is charged.	Check for faulty A/C relay.	Replace relay.	



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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.	
		Check for damaged mode switch or potentiometer and associated wiring.		
5. Loss of mode door function.	No mode change at all.	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 at least 12V.	Check for faulty battery or alternator.	Charge battery.	
6. Blower turns on and off rapidly.	Battery voltage is less than 12V.	Check for damaged switch or pot and associated wiring.	Repair or replace.	
	Erratic functions of blower, mode, temp, etc.			

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 (751550)

No.	Qty.	Part No.	Description
1.	1	765200	Gen 5 Magnum Max Module with 404 ECU
2.	1	791550	Accessory Kit

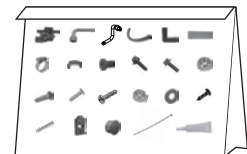
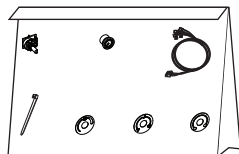
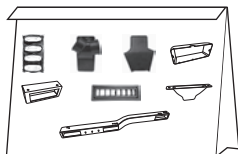
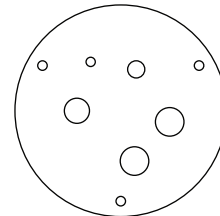
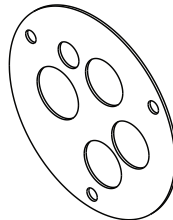
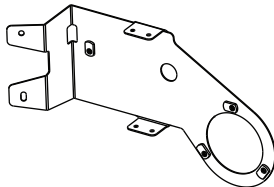
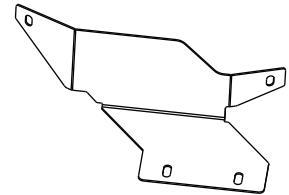
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1



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

2



Accessory Kit
791550

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