1968-76 Chevrolet Corvette

with **Factory Air**
Gen 5 Evaporator Kit
(564218)

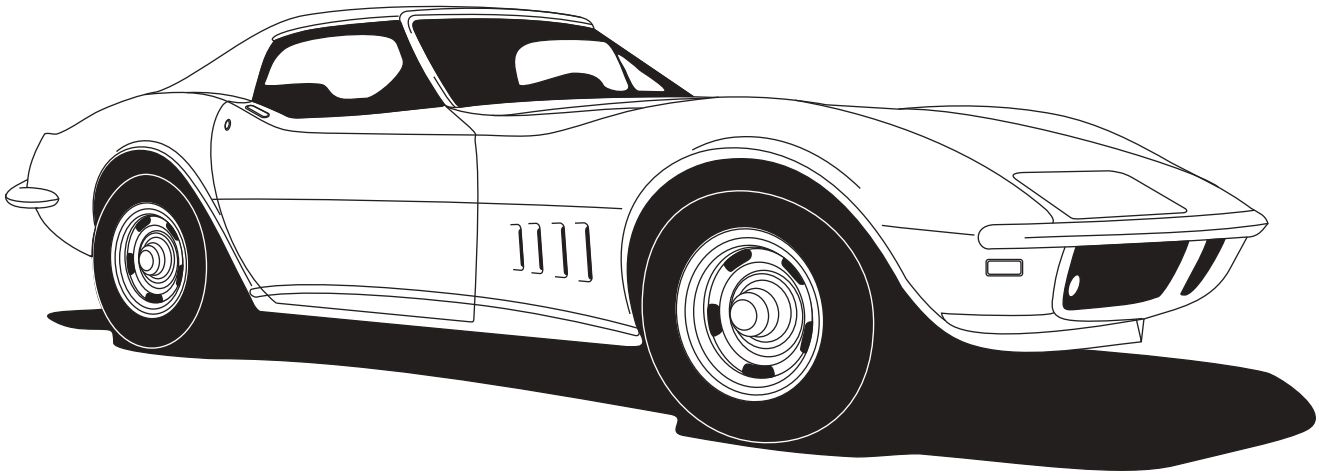

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Table of Contents

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Packing List: Evaporator Kit (564218)

No.	Qty.	Part No.	Description
1.	1	765100	Gen 5 Magnum Module with 404 ECU
2.	1	784218	Accessory Kit

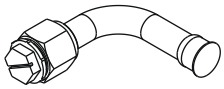
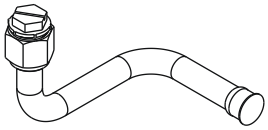
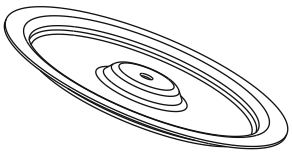
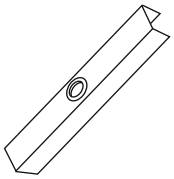
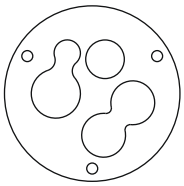
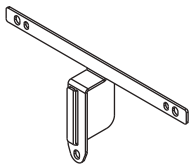
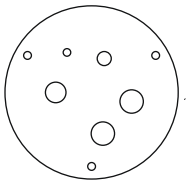
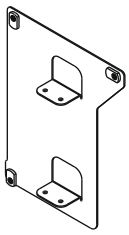
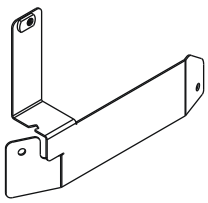
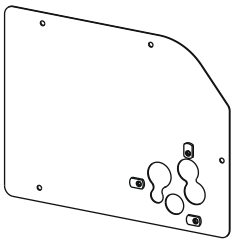
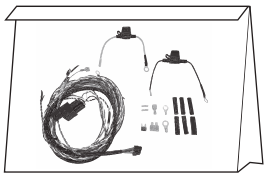
**** Before beginning installation, open all packages and check contents of shipment. Please report any shortages directly to Vintage Air within 15 days. After 15 days, Vintage Air will not be responsible for missing or damaged items.**

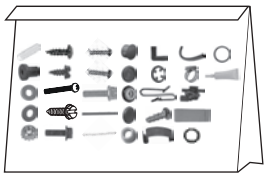
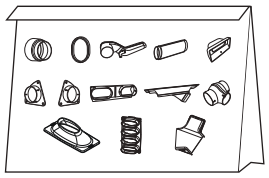
1

Gen 5 Magnum Module with 404 ECU 765100

2



Accessory Kit 784218

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 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.
2. Remove the hood to ease installation (retain).
3. Drain the radiator.
4. Evacuate the A/C system (if necessary).
5. Remove the OEM condenser and drier (discard).
6. Remove the OEM A/C lines from the compressor to evaporator (discard).
7. Remove the OEM compressor and compressor bracket (discard).
8. Remove the coolant overflow bottle (retain).
9. Remove the OEM blower assembly and cover (discard).
10. Remove the OEM evaporator and cover (discard).
11. Remove the OEM A/C harness and vacuum harness (discard).
12. Install (2) 1 ⅝" plugs in firewall as shown in Figure 1a, below. **NOTE: Apply a small bead of silicone onto the back edge of the plugs and install.**

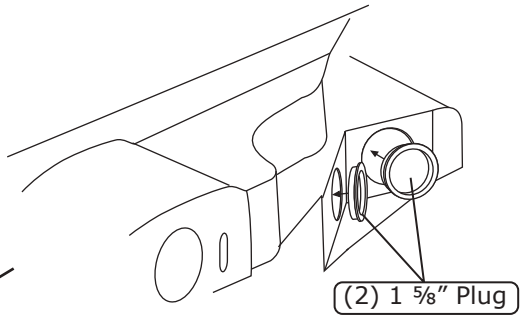


Figure 1a

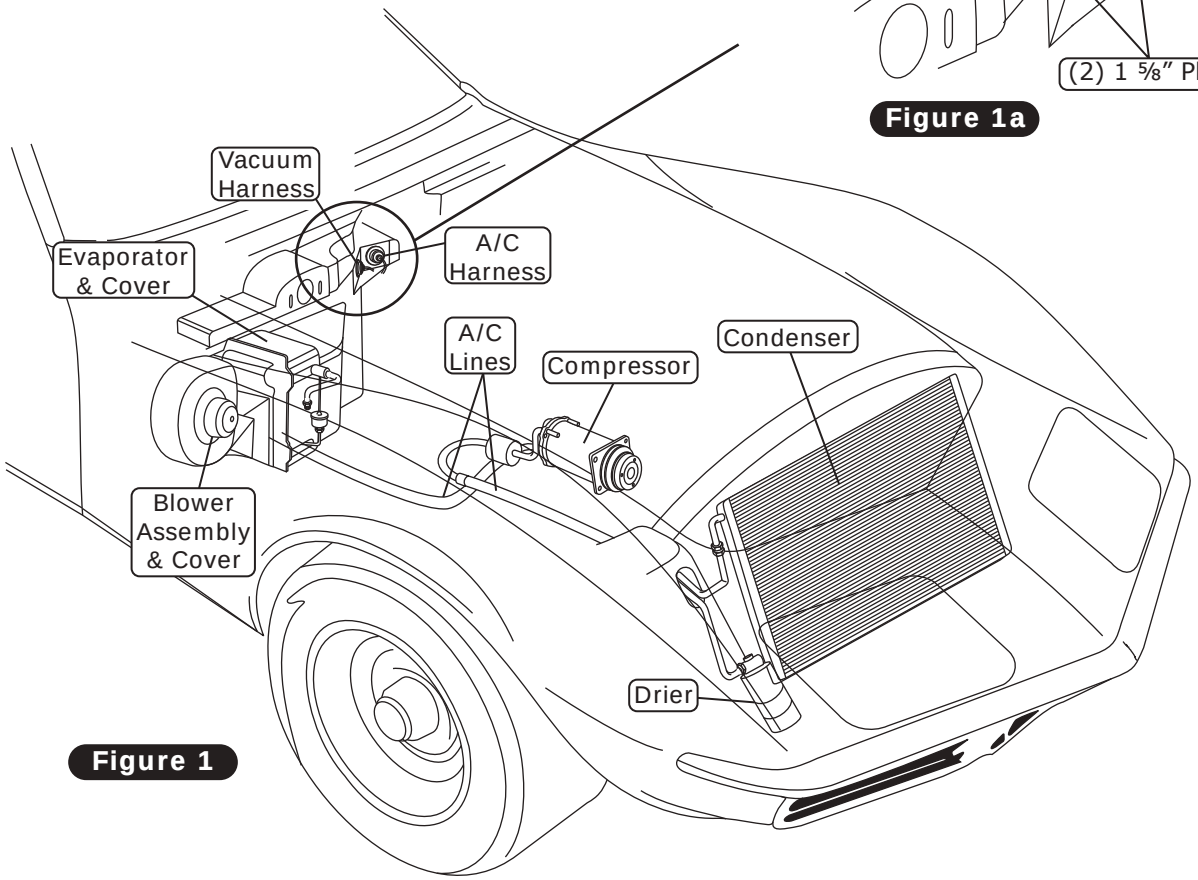


Figure 1

Passenger Compartment Disassembly

Perform the following:

1. Remove the passenger-side dash (retain).
2. Disconnect the center dash (retain) and pull forward to remove the OEM A/C duct (discard duct).
3. Remove the OEM radio (retain).
4. Remove the OEM control panel (discard panel, retain mounting support bracket). Refer to control panel kit instruction for installation of new control panel.
5. Drop the steering column from the console.
6. Disconnect the driver-side dash and pull forward.
7. Remove the passenger-side, center and driver-side A/C ducts as shown in Figure 2, below (discard).
8. Remove the floor heater duct as shown (discard).

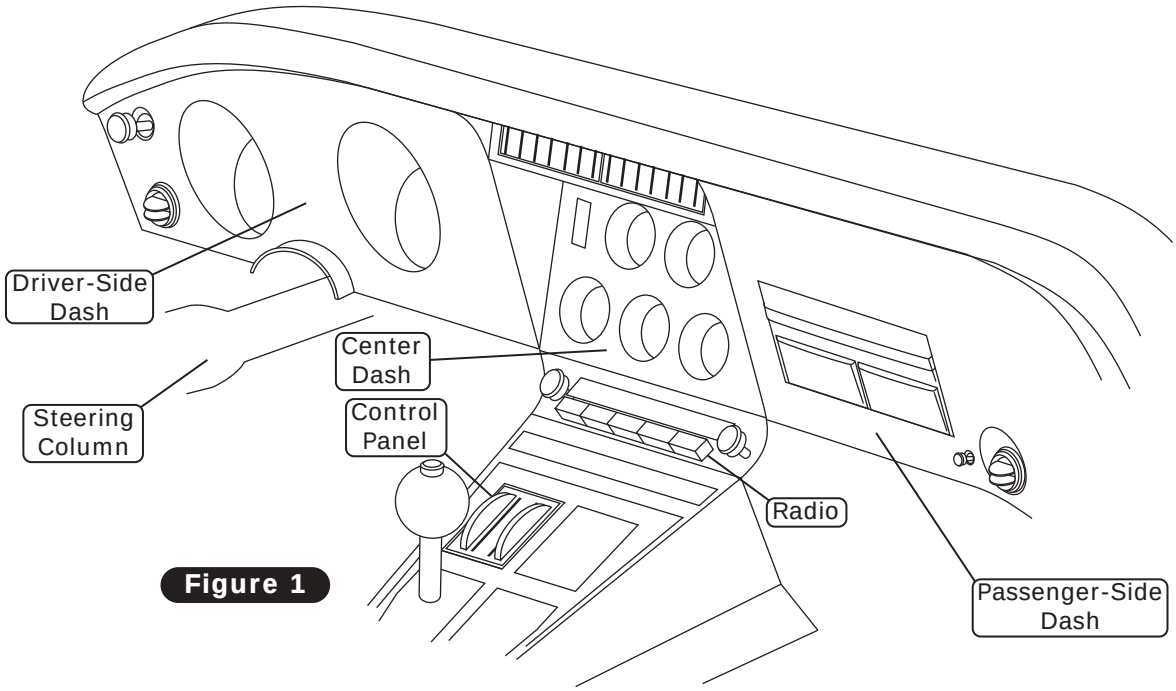


Figure 1

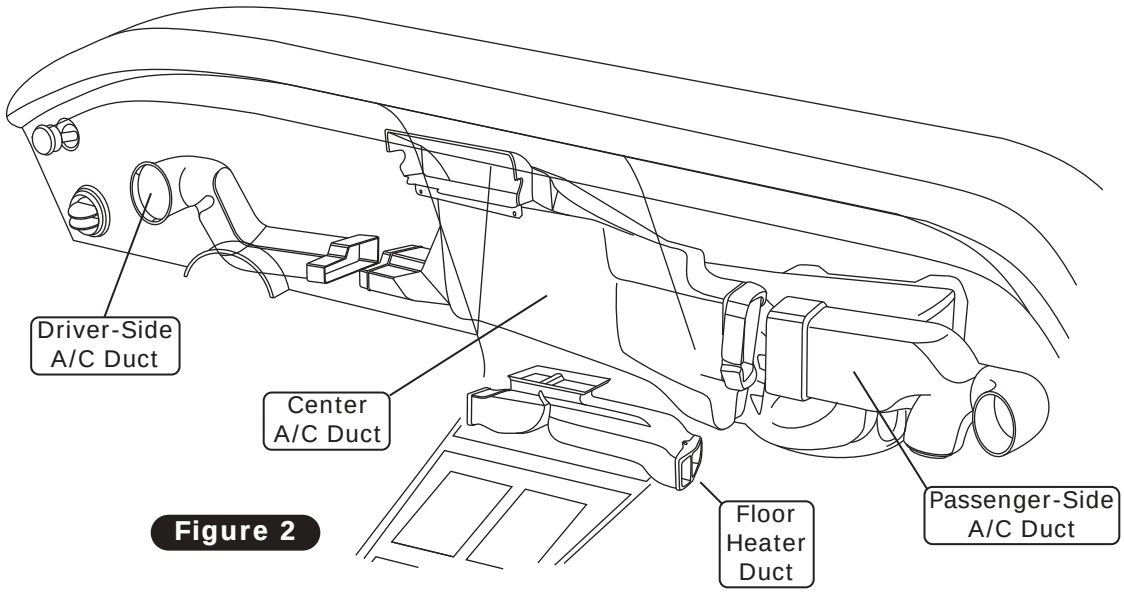


Figure 2

Passenger Compartment Disassembly (Cont.)

9. Remove the OEM defrost duct (discard).

10. Remove the heater housing from under the dash.

11. Remove the kick panel vacuum control assembly (discard) (See Figure 3a, below).

12. Using (2) #8 x 1/2" pan head screws, install the kick panel fresh air cap as shown in Figure 3a, below. Prior to final installation, mark and drill (2) 1/8" holes using the kick panel fresh air cap as a template.

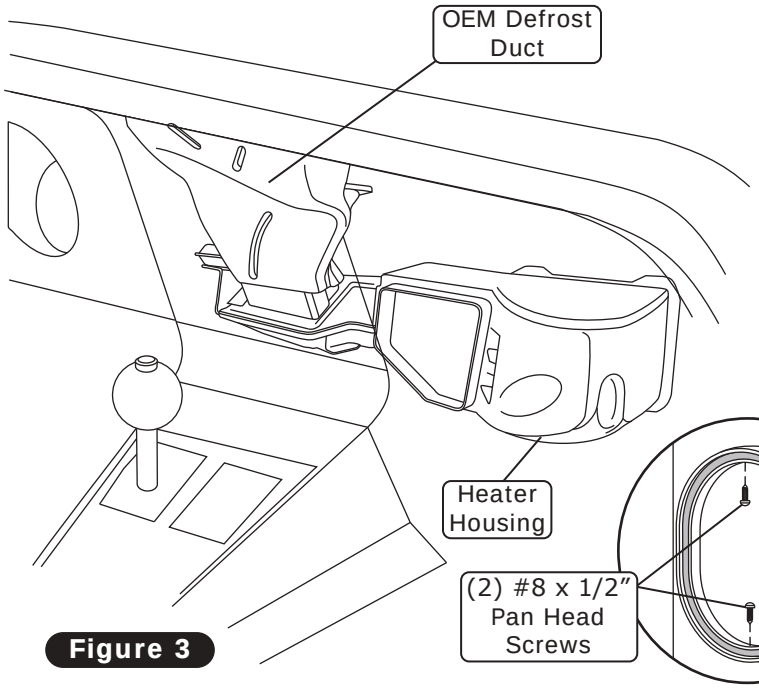


Figure 3

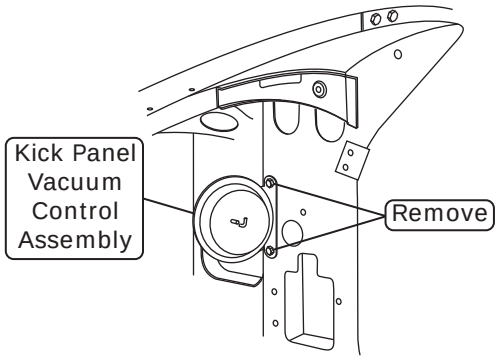
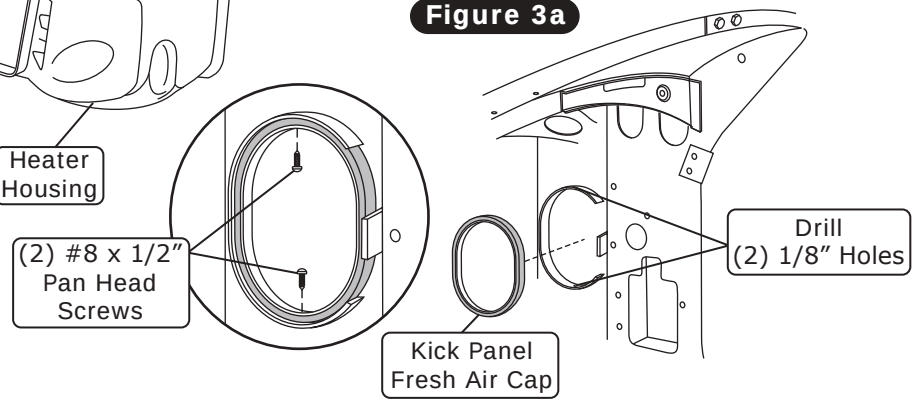


Figure 3a



Fresh Air Cover Installation

1. Apply a 1/4" bead of silicone around the mating surface of the fresh air cap as shown in Figure 1, below.

2. Attach the fresh air cap to the firewall using a 1/4-20 x 1" hex bolt and 1/4" USS flat washer (See Figure 1, below).

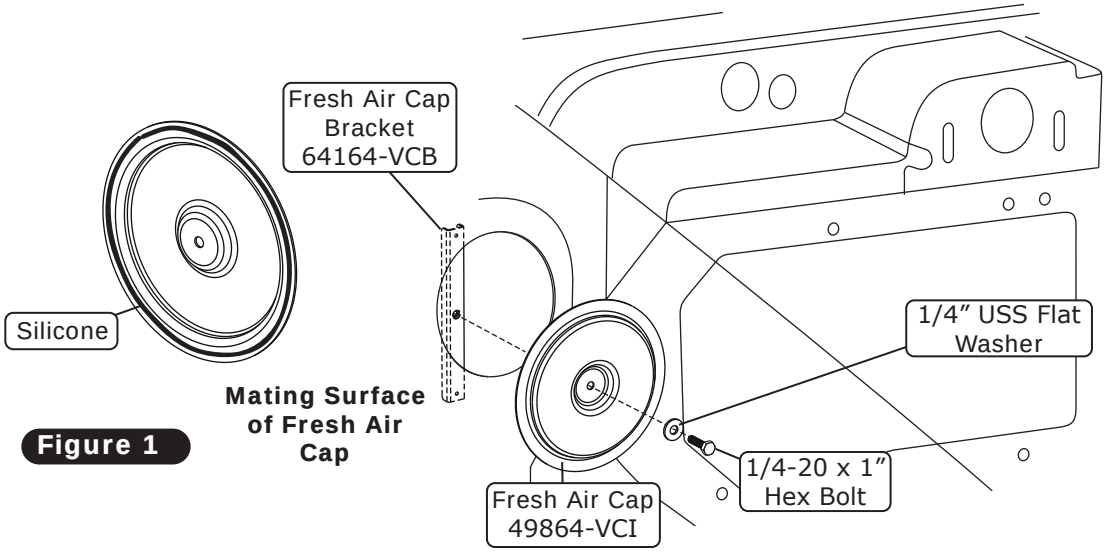


Figure 1

Condenser Assembly and Installation

1. Refer to separate instructions included with the condenser kit to install the condenser.

Compressor and Brackets

1. Refer to separate instructions included with the bracket kit to install the compressor bracket.

Defrost Duct Replacement

1. Remove the screws attaching the OEM defrost duct (retain (2) screws attaching the duct to the dash pad) (See Photo 1, below).

2. Place the new defrost duct onto the dash pad (See Photo 2, below).

3. Secure the duct using the (2) screws removed in Step #1 (See Photo 3, below).

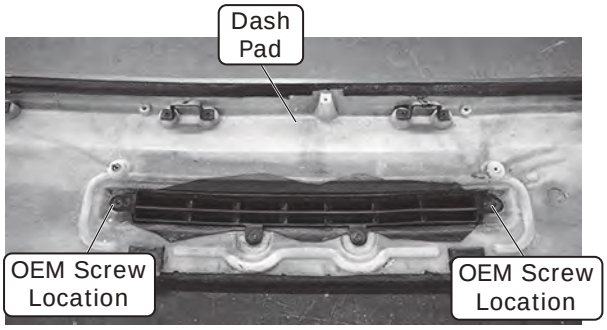
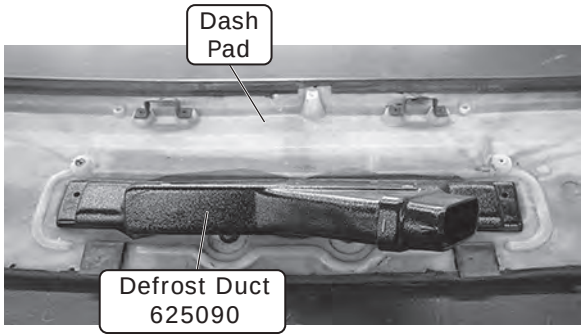


Photo 1



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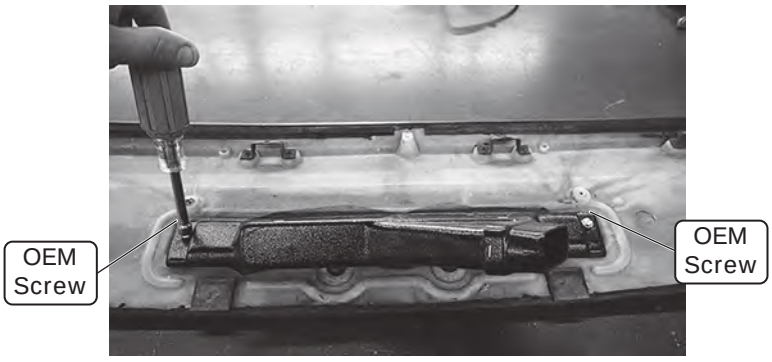

Photo 3

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Passenger and Driver-Side A/C Duct Hose Adapter Installation

1. Remove the (2) vent knobs as shown in Figure 1, below (retain).
2. Remove the passenger- and driver-side vent adapters (discard) as shown in Figure 2, below. **NOTE: Retain the mounting hardware.**
3. Install the inner and outer A/C duct hose adapters as shown in Figure 2, below. Use the OEM screws to secure the adapters to the dash.
4. Install the vent knob as shown using a 10-24 x 1 ¼" pan head screw and 3/16" flat washer. **NOTE: The passenger side installation is shown below in Figure 2. Repeat the same steps for the driver side installation.**
5. See Figure 2a, below, for a completely assembled view of the A/C duct hose adapter.

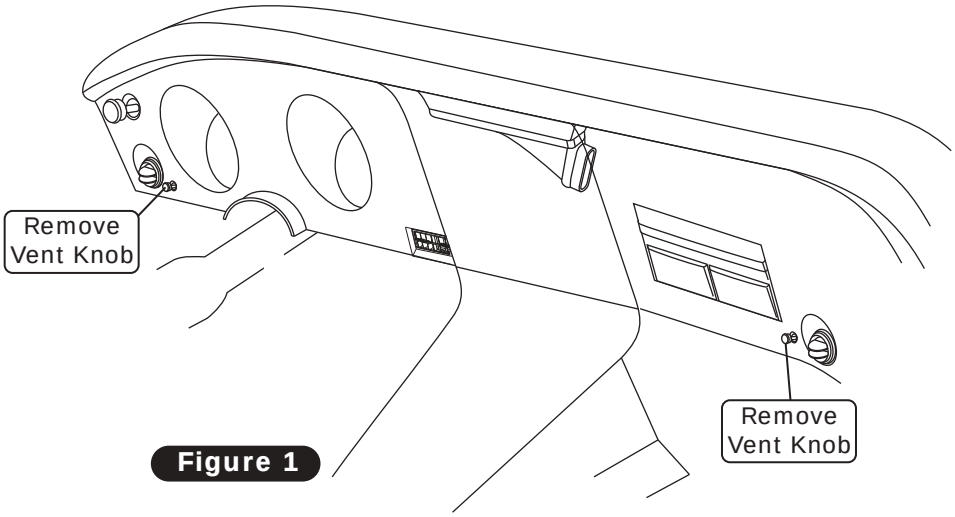


Figure 1

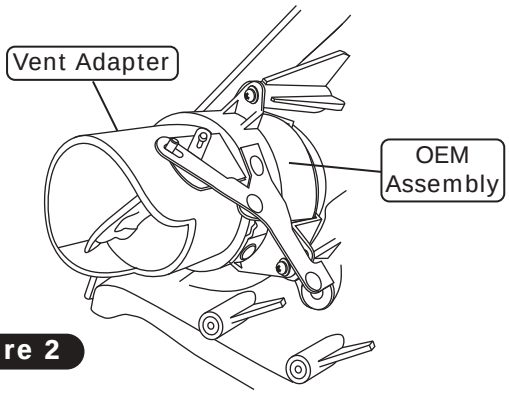
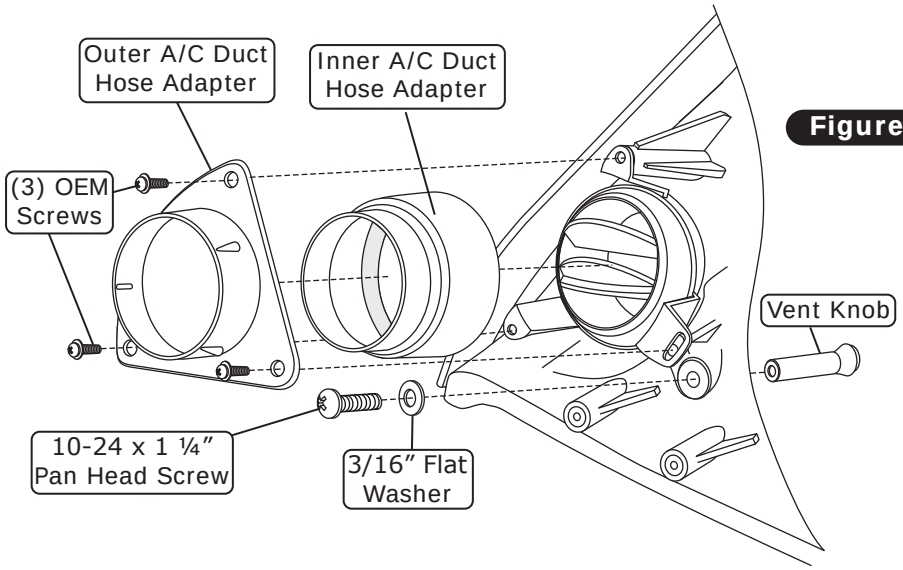


Figure 2



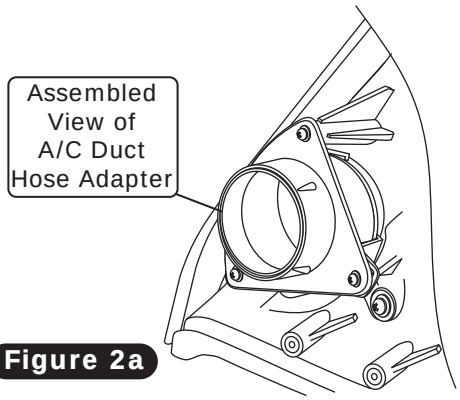


Figure 2a

Driver-Side Under Dash Louver Hose Adapter (1974 Vehicles and Up)

1. Install the hose adapter onto the driver-side under dash louver using a #8 x 1/2" pan head screw as shown in Figure 1, below, and Duct Hose Routing, Page 31 or 32.

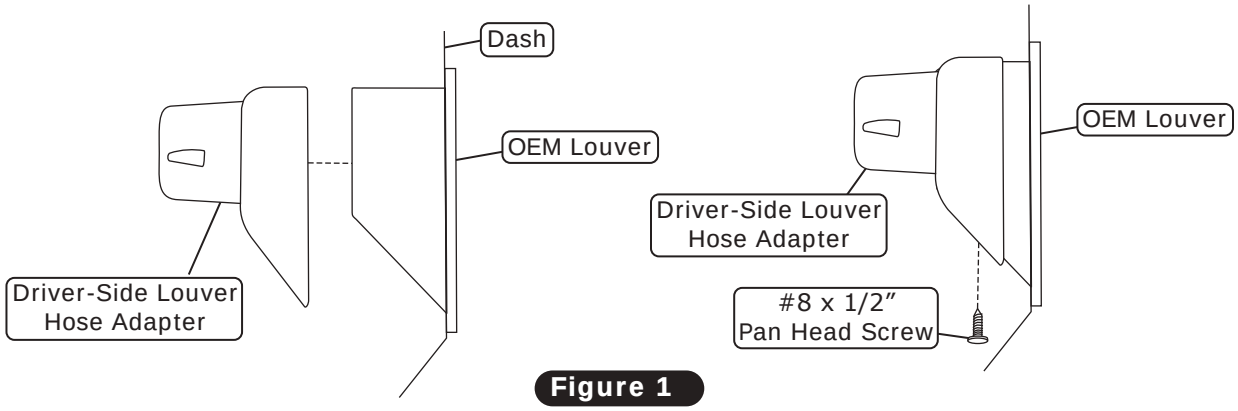


Figure 1

Center Louver Assembly

1. Remove the center louver assembly from the center console.
2. On the rear of the center louver assembly, remove (3) OEM screws attaching the center louver vent door to the center louver frame (retain) (See Photo 1, below). Discard the center louver vent door and housing.
3. Making sure the OEM vents are in their original location, install the center louver adapter to the previously removed OEM vent door location as shown in Photos 2 and 3, below.
4. Install the center louver bracket to the center louver adapter by inserting the vent divider blade through the open slot in the center louver adapter as shown in Photo 4, below.
5. Install and tighten the (3) OEM screws as shown in Photos 5 and 6, below.

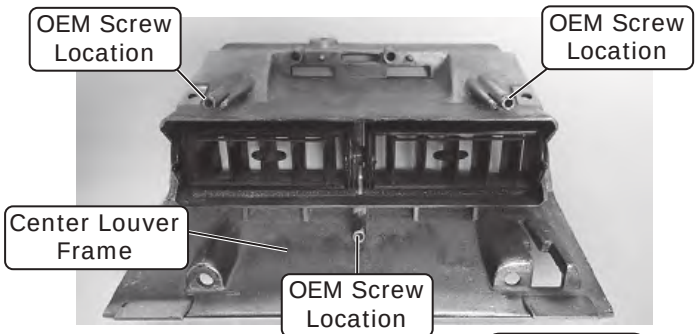


Photo 1

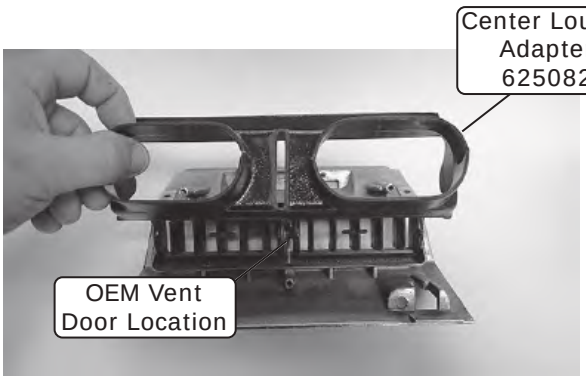
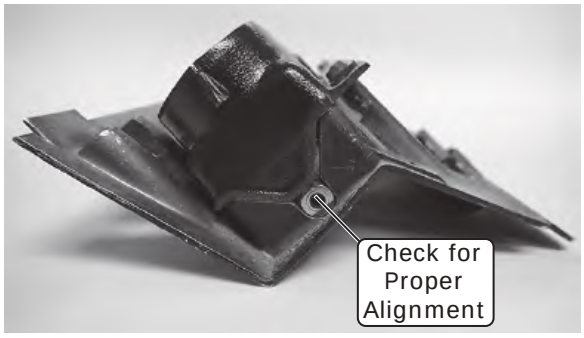


Photo 2



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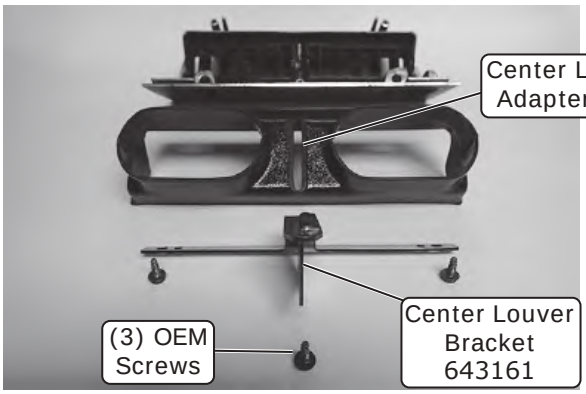

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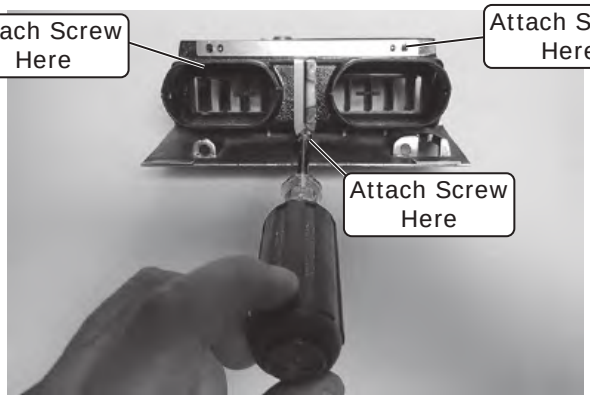
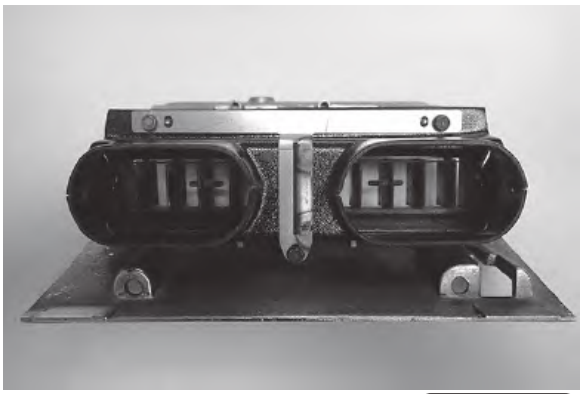


Photo 5



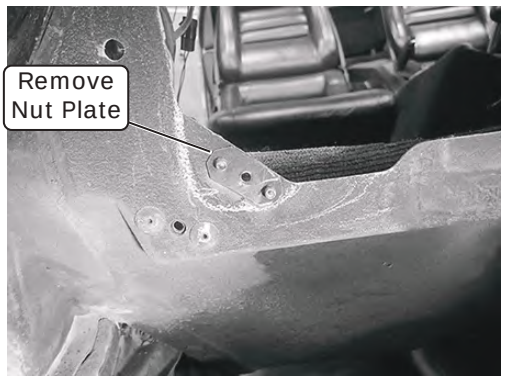
Final Installation

Photo 6

Firewall Modification

NOTE: In order to install the new firewall cover, heater hardlines and A/C hoses, the firewall will require a modification. Perform the following:

1. Remove the OEM riveted nut plates from the firewall in the engine and passenger compartments (discard) (See Photos 1 and 3, below).
2. Temporarily, place the firewall cover over the opening on the firewall, lining up the existing bolt holes using the supplied 1/4-20 x 3/4" bolts to hold the firewall cover in position (See Photo 2, below).
3. Mark the (2) lower mounting holes of the firewall cover onto the firewall (See Photo 2, below).
4. From the passenger compartment, mark the lower corner of the firewall so that the firewall cover weld nuts and A/C and heater hose holes clear after trimming (See Photo 3, below).
5. Trace the firewall opening onto the firewall cover. (See Photo 4, below).
6. Remove the firewall cover and drill the marked holes using a 3/8" drill bit. Cut and remove the marked lower portion of the firewall (See Photo 5, below).



Engine Compartment View **Photo 1**

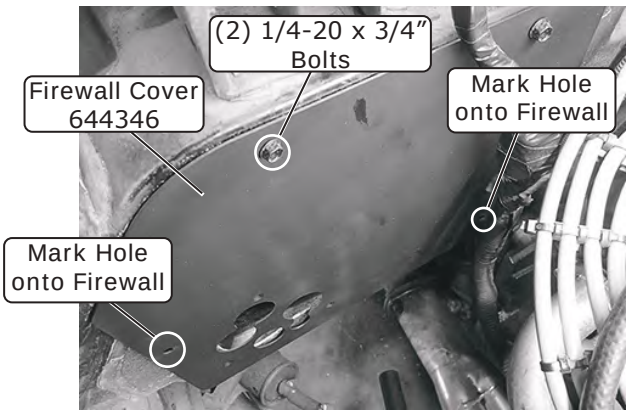
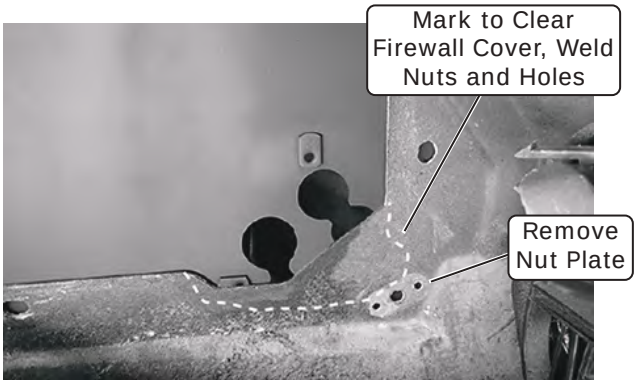


Photo 2



Passenger Compartment View **Photo 3**

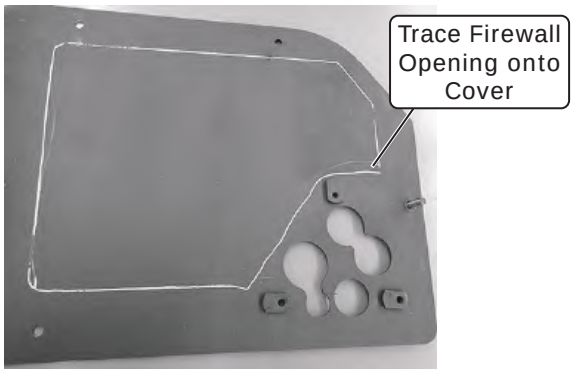
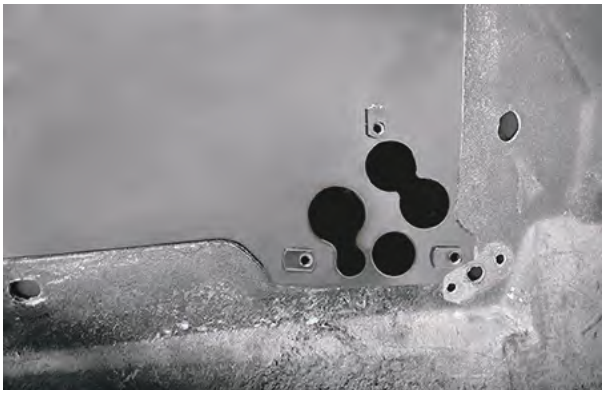
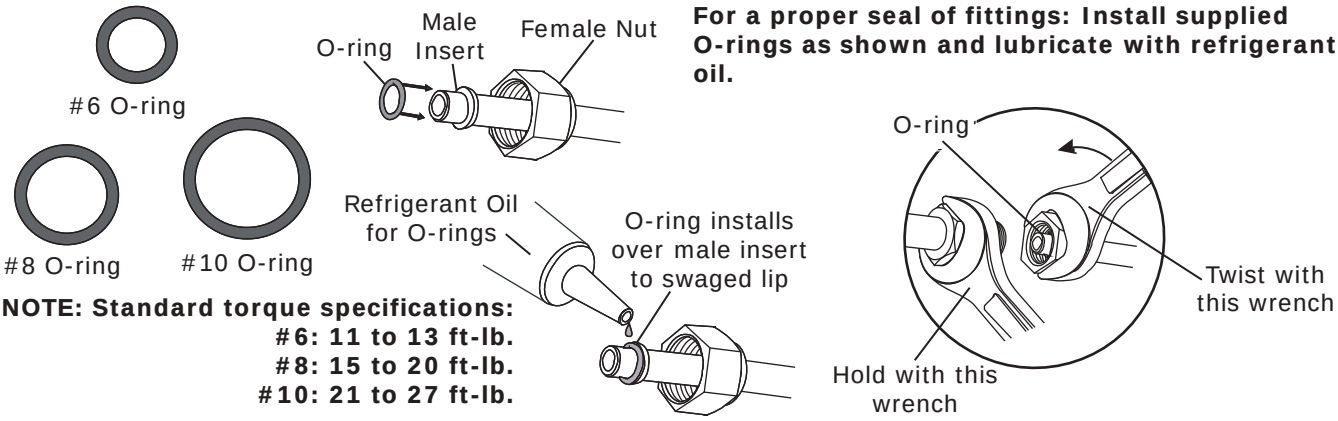


Photo 4



After Modification **Photo 5**

Lubricating O-rings



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

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

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. On a work bench, assemble the defrost plenum onto the evaporator module with (2) spring clips (See Figure 1, below).
2. Assemble the dash plenum onto the evaporator module with (4) spring clips (See Figure 1, below).

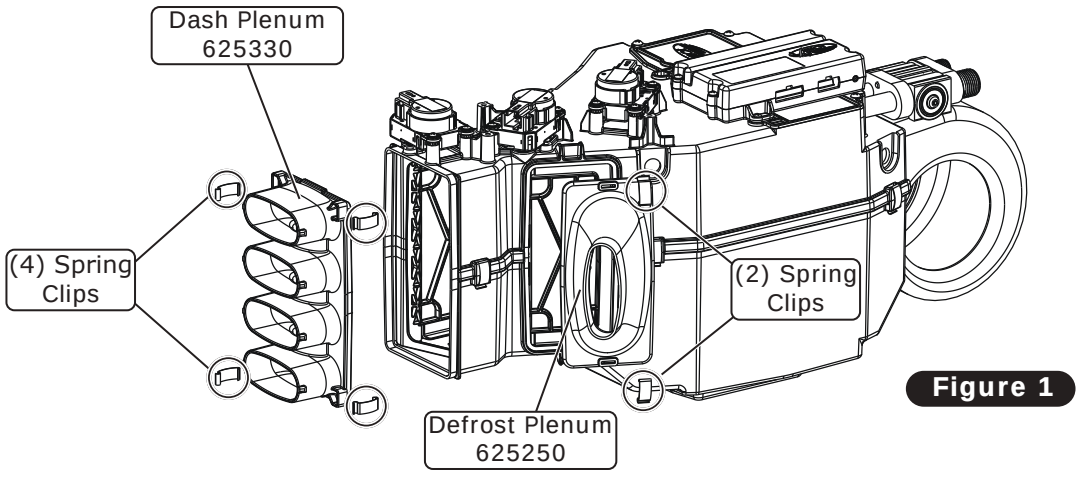


Figure 1

Evaporator Preparation (Cont.)

3. Install (3) plastic plugs at the locations shown in Figure 2, below.

4. Install the floor plenum onto the evaporator module with (2) spring clips (See Figure 2, below).

5. Install the evaporator firewall bracket onto the evaporator module with (4) #10 x 5/8" screws (See Figure 2, below).

6. Loosely install the (2) heater hardlines with properly lubricated O-rings (See Lubricating O-rings, Page 14 and Figure 3, below). **NOTE: When removing the caps from the sub case, be careful! The sub case is shipped under pressure.**

7. Install (3) 1/4-20 x 1 ½" studs into the evaporator bracket approximately 1/4" in depth (See Figure 3, below).

8. Place the firewall cover over the studs and adjust the hardlines as needed (See Figure 4, below).

9. Remove the firewall cover, and tighten the hardlines.

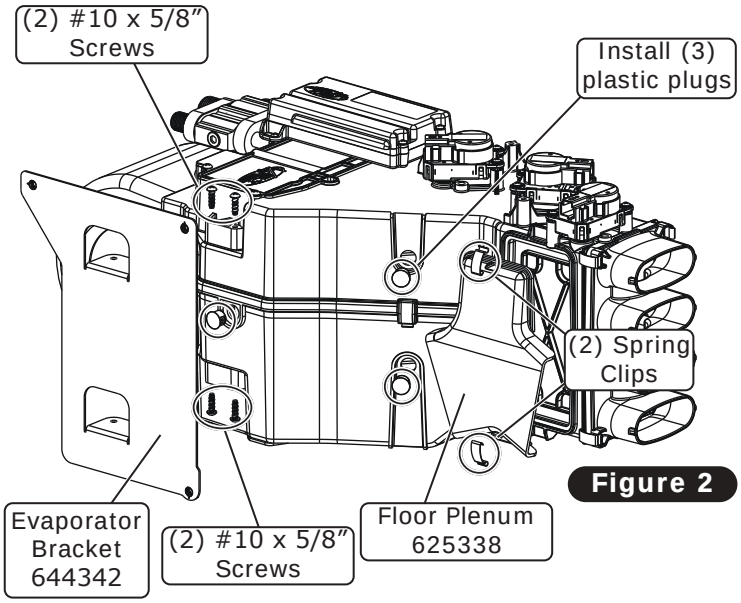


Figure 2

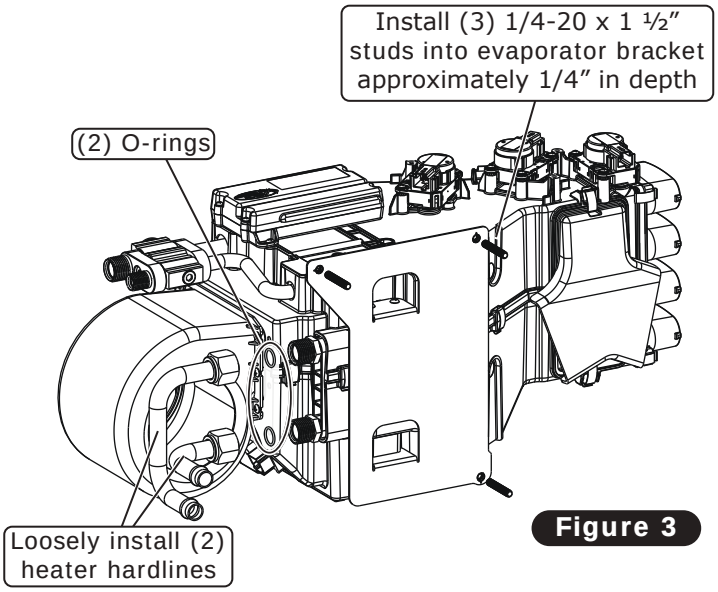


Figure 3

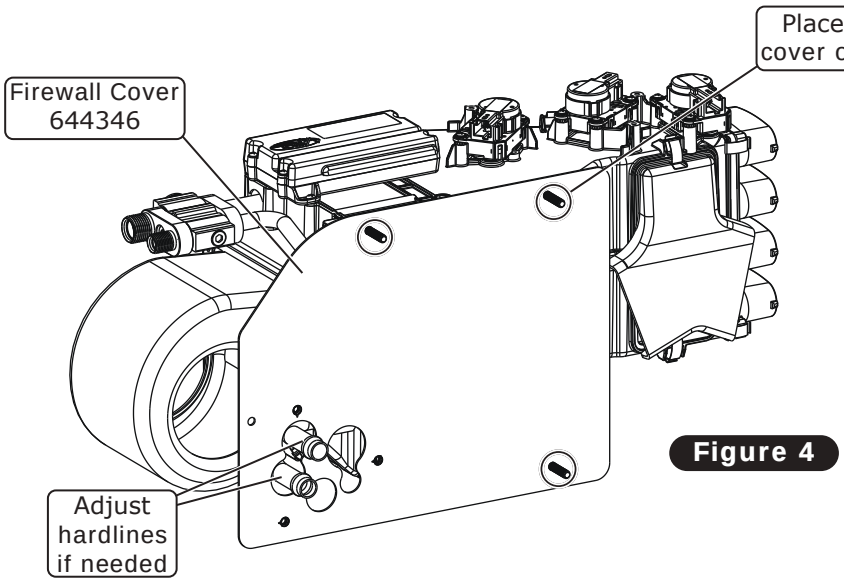


Figure 4

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 (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, where there is limited access to the ECU mounting screws. Reinstall ECU.**

Photo 1

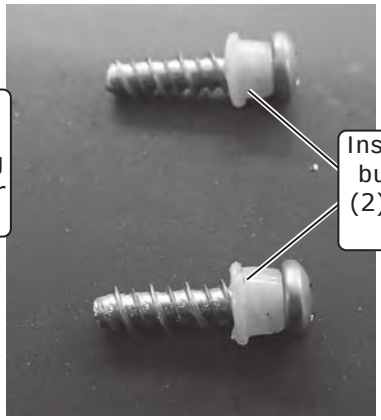


Photo 2

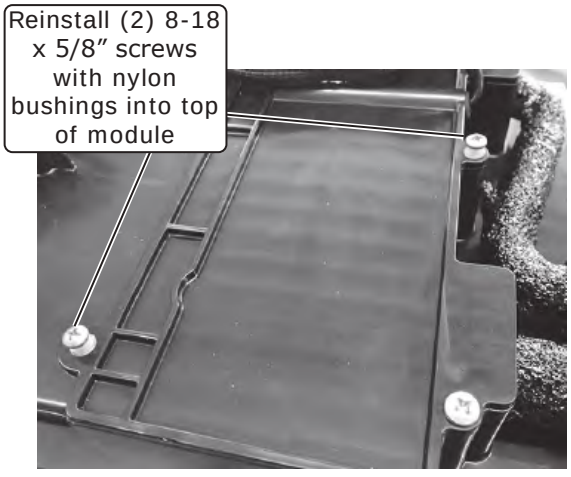


Photo 3

Evaporator Installation

NOTE: For proper system operation, Vintage Air recommends using heat blocking insulation in the area around the evaporator module (firewall, kick panel, inner cowl, firewall cover). 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". To ensure a watertight seal between the passenger compartment and the exterior, for all bolts passing through the firewall, Vintage Air recommends coating the threads with silicone prior to installation.

1. Place evaporator module on passenger-side floor board (See Photo 1, below).
2. Route 90° ends of #6 and #10 A/C hoses through the firewall opening into the passenger-side floor board.
3. Attach A/C lines with lubricated #6 and #10 O-rings (See Lubricating O-rings, Page 14) onto the evaporator block as shown in Photo 1, below.
4. Wrap evaporator block and all exposed metal fittings with press tape.
5. Install the evaporator module into place and use a block of wood to hold it in position (See Photo 2, below).
6. From the engine compartment, use a 1/4" USS flat washer and 1/4-20 nut with star washer to secure the module. (See Photo 3, below). **NOTE: Do not place the board directly under the drain outlet, as it may break.**

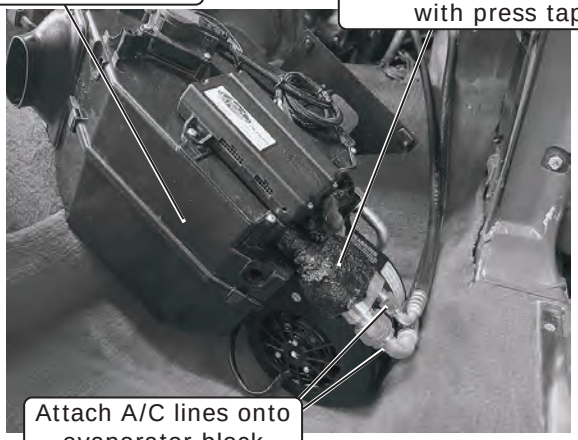


Photo 1

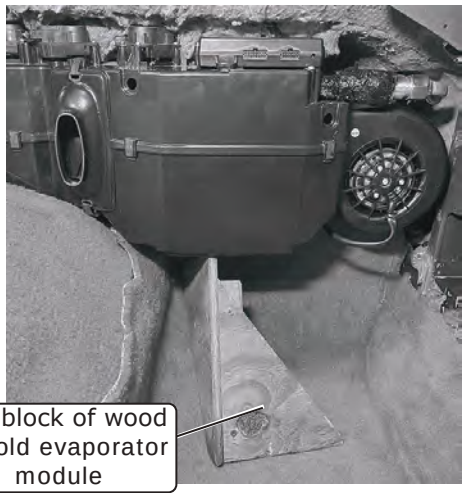


Photo 2

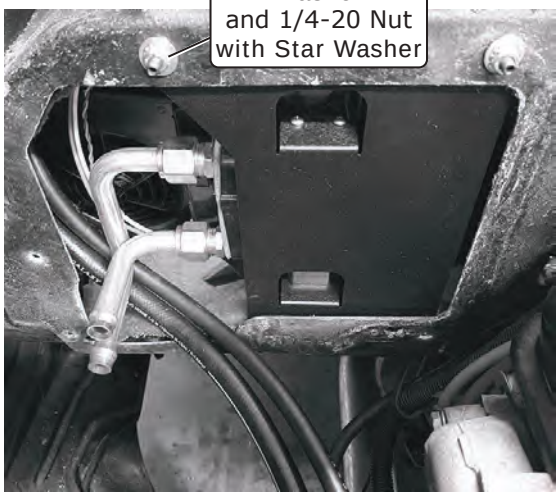


Photo 3

Evaporator Installation (Cont.)

7. Install the 1/4-20 well nuts in the locations shown in Photo 4, below.
8. Loosely install the dash bracket onto the evaporator using (2) 1/4-20 x 1" bolts (supplied on module (See Photo 5, below).
9. Level the module left-right and fore-aft (See Photo 6, below). **NOTE: To ensure proper drainage, it is very important that the evaporator is level.**
10. Using the dash bracket as a template, mark the mounting hole (See Photo 6, below). Remove the dash bracket from the module, and drill a 1/4" hole (See Photo 7, below).
11. Reinstall the evaporator dash bracket. From the engine compartment, install a 1/4-20 x 3/4" serrated flange black bolt through the cowl and into the dash and bracket (See Photo 8, below).
12. Tighten the (2) 1/4-20 x 1" bolts on the dash bracket.

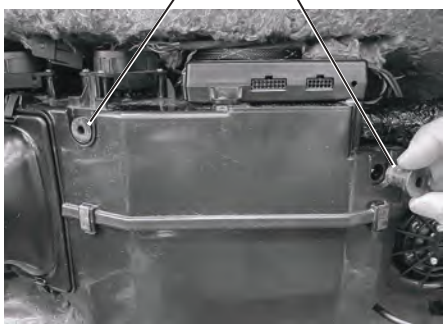


Photo 4

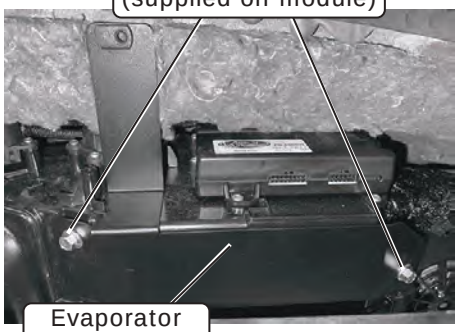


Photo 5

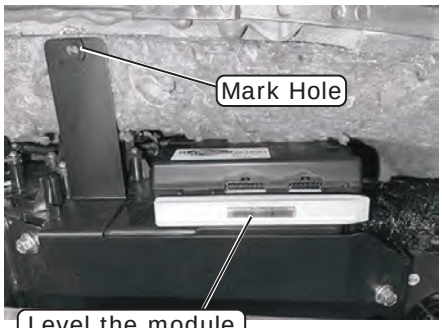


Photo 6

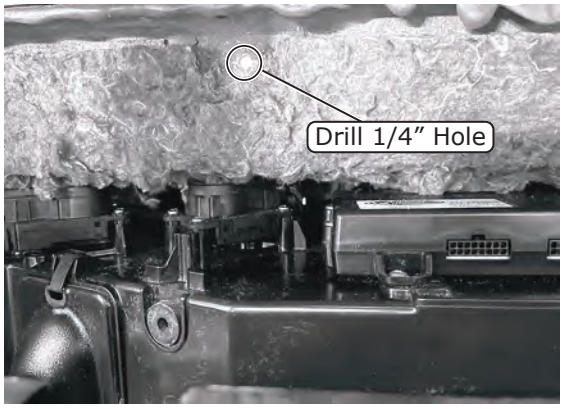
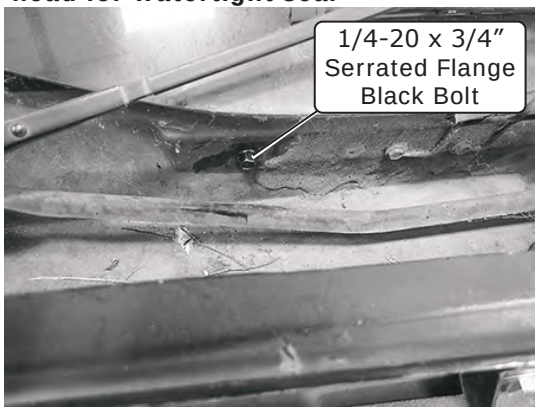


Photo 7

NOTE: Seal around bolt head for watertight seal



Engine Compartment View

Photo 8

Firewall Cover

1. On a workbench, install a 1/4-20 x 3/4" bolt into the firewall cover with a 3/16" push-on ring as shown in Photo 1, below.
2. Apply insulation to the marked area of the firewall cover (See Photo 2, below).
3. Remove the 1/4-20 nut with star washer and 1/4" USS flat washer from the stud on the firewall (retain) (See Photo 3, below). **NOTE: This hardware will be reused.**
4. Apply a bead of silicone to the mating surface of the firewall and firewall cover (See Figure 1, below).
5. Route the #10 and #6 A/C hoses through the firewall cover. Install the firewall cover over the (3) 1/4-20 full-threaded studs (See Photo 4, below). **NOTE: Temporarily remove the service port cap on the #10 A/C hose to route through the firewall cover. Reinstall the cap after installation to avoid contaminants.**

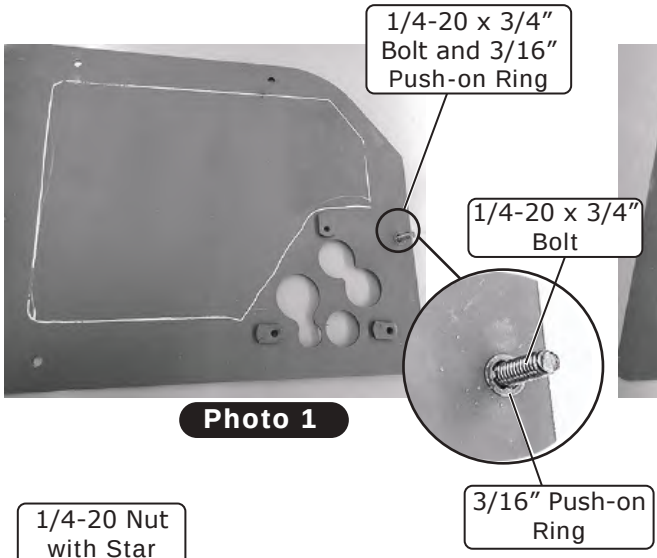


Photo 1

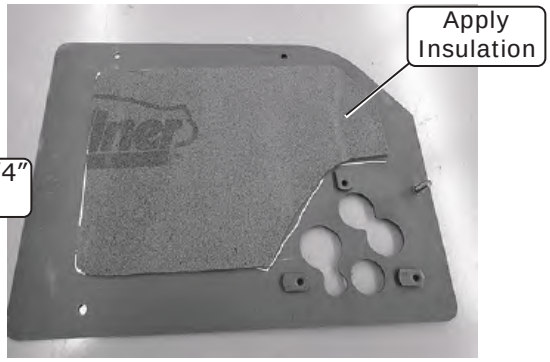


Photo 2

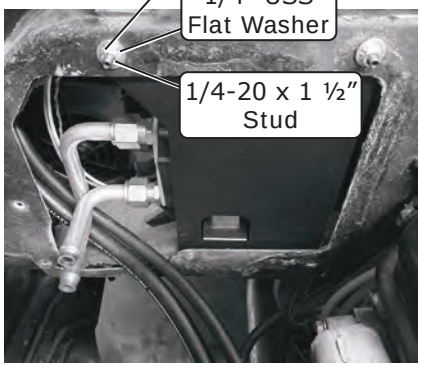


Photo 3

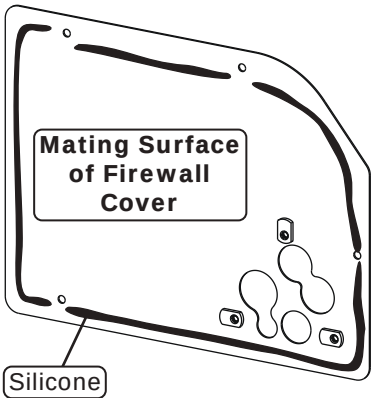


Figure 1

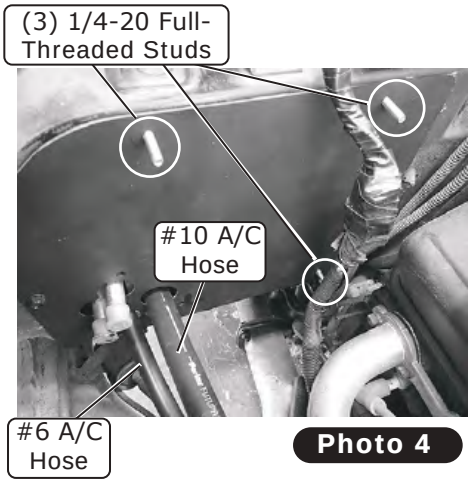


Photo 4

Firewall Cover (Cont.)

6. Replace the (3) 1/4-20 x 1 ½" studs with (3) 1/4-20 x 3/4" serrated flange black bolts (See Photo 5, below). **NOTE: Do not fully tighten the bolts at this time.**
7. Install the previously removed 1/4" USS flat washer and 1/4-20 nut with star washer onto the last bolt on the firewall cover in the passenger compartment (See Photo 6, below).
8. Ensure the evaporator module is still leveled left-right and fore-aft (See Photo 7, below).
9. Fully tighten the (3) 1/4-20 x 3/4" serrated flange black bolts on the firewall cover.

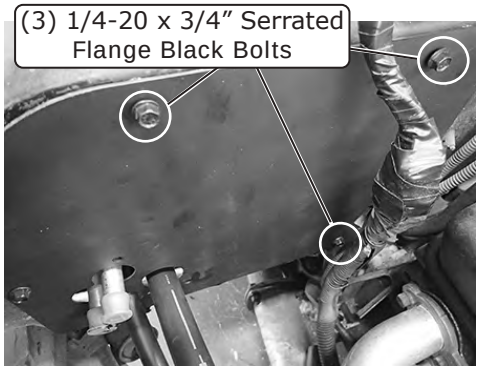


Photo 5

Photo 6

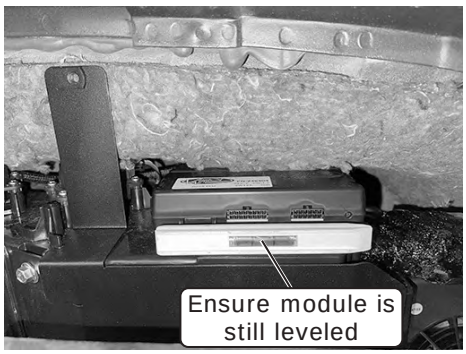


Photo 7

Firewall Rubber Boot and Evaporator Firewall Hose Bracket Installation

NOTE: Remove the heater hardline caps for this step and replace when completed.

1. Route the #10 and #6 A/C hoses through the rubber boot and slide it into position on the firewall cover (See Photo 1, 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.**
2. Route the #10 and #6 A/C hoses through the evaporator firewall hose bracket and secure it to the firewall using (3) 1/4-20 x 3/4" serrated flange black bolts (See Photos 2 and 3, below).

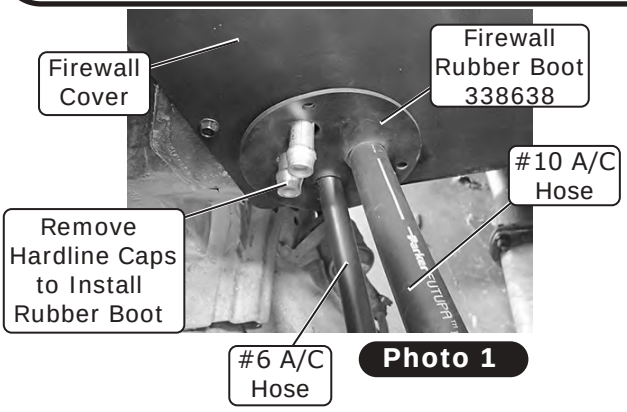


Photo 1

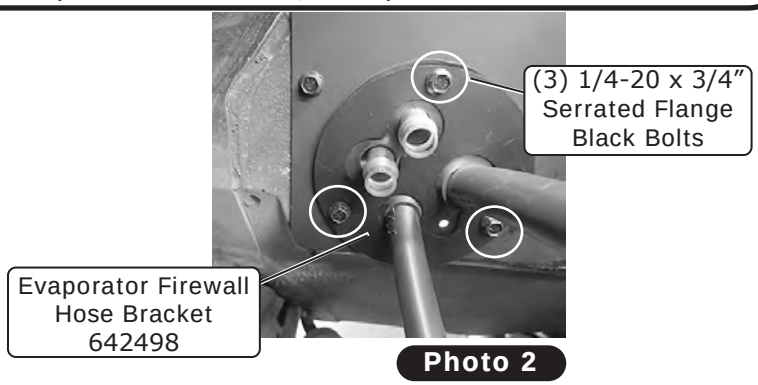


Photo 2

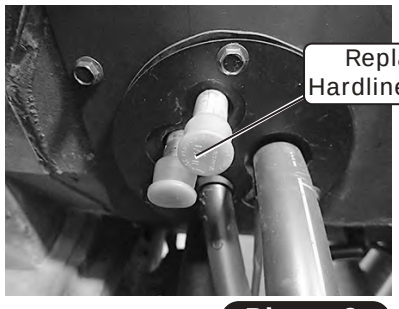


Photo 3

A/C Hose Installation

Standard Hose Kit:

1. Route the #6 drier/evaporator A/C hose along the inner fender, and connect the 45° fitting to the #6 drier hardline with a properly lubricated O-ring. Install a #6 Adel clamp onto the #6 A/C hose and attach it to the inner fender with a #10 x 1/2" sheet metal screw (See Lubricating O-rings, Page 14 and Photo 1, below).
2. Connect the #10 A/C hose 45° fitting with service port and a properly lubricated O-ring to the #10 suction port on the compressor (See Lubricating O-rings, Page 14, and Photo 2, below).
3. Connect the #8 A/C hose 45° fitting with service port to the #8 discharge port on the compressor with a properly lubricated O-ring (See Lubricating O-rings, Page 14, and Photo 2, below).
4. Loop the #8 A/C hose behind the passenger-side inner fender (See Photo 3, below). Secure the hose with one #8 Adel clamp at the top of the loop (See Photo 4, below) and one at the bottom of the loop (See Photo 5, below). **NOTE: For cars supplied with coolant expansion tanks, other than pictured, and cars without coolant expansion tanks, mounting holes will need to be drilled to mount the Adel clamps.** Using the Adel clamp locations mark and drill (2) 3/16" holes to mount the clamps. Secure the clamps with (2) 10-32 x 1" screws and #8 washers from the wheel side of the passenger-side wheel well (See Photo 6, Page 22) and 10-32 nuts with star washers from inside the engine bay to mount the #8 Adel clamps.
5. Connect the #8 A/C hose 45° fitting to the #8 condenser hardline with a properly lubricated O-ring (See Lubricating O-rings, Page 14 and Photo 1, below).

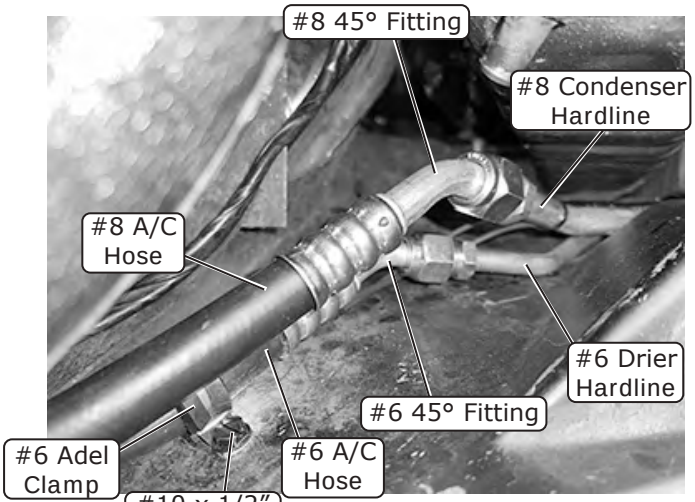


Photo 1

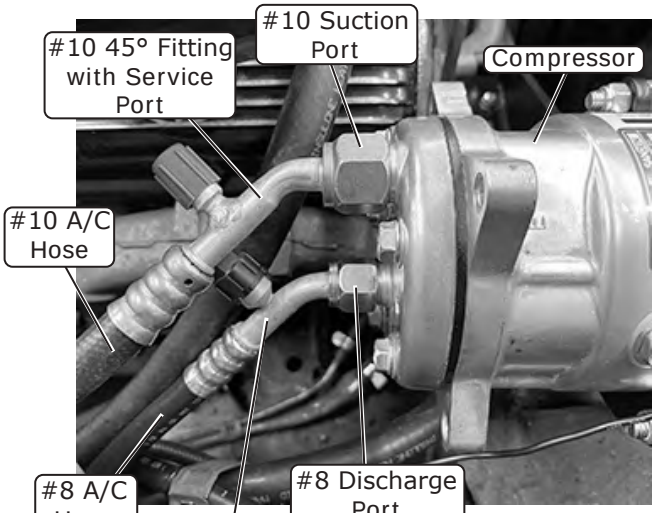


Photo 2

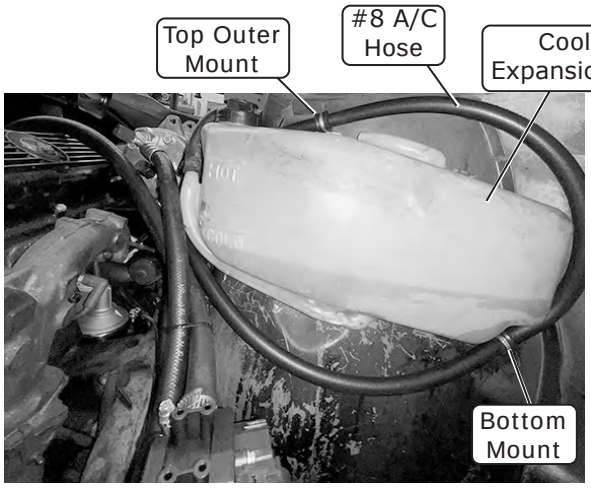


Photo 3

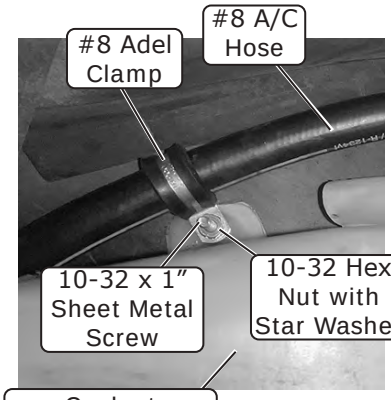


Photo 4

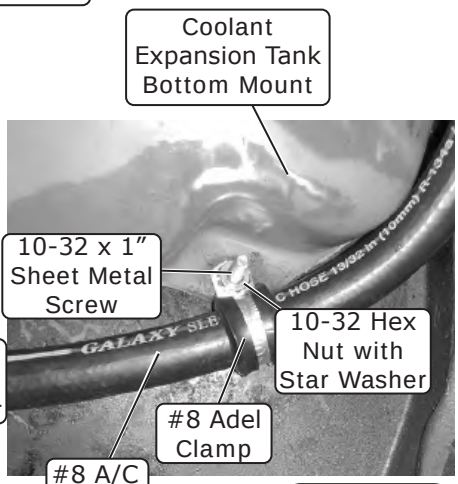


Photo 5

A/C Hose Installation (Cont.)

Standard Hose Kit:

6. For serviceability verify A/C service coupling clearances. Adjust fitting clocking if necessary (See Photo 7, below).

Modified Hose Kit:

1. Refer to separate instructions included with modified hose kit.

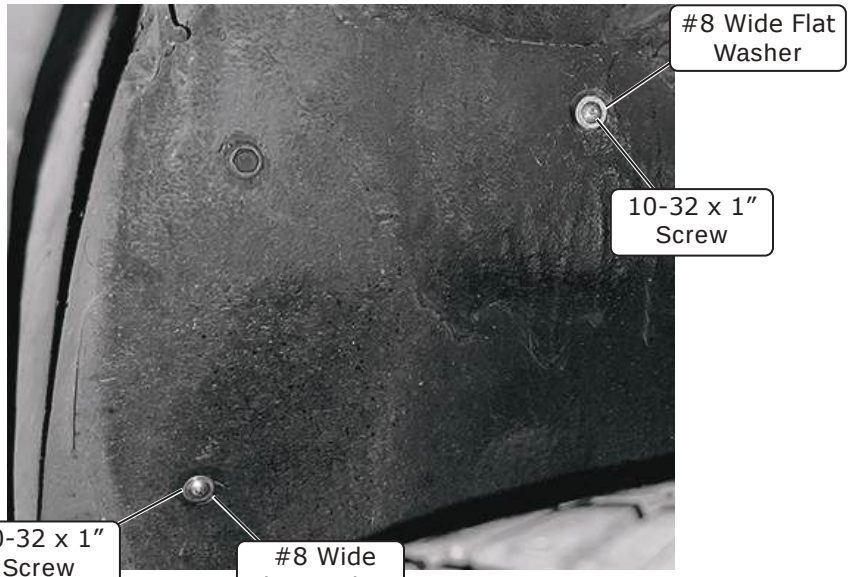


Photo 6

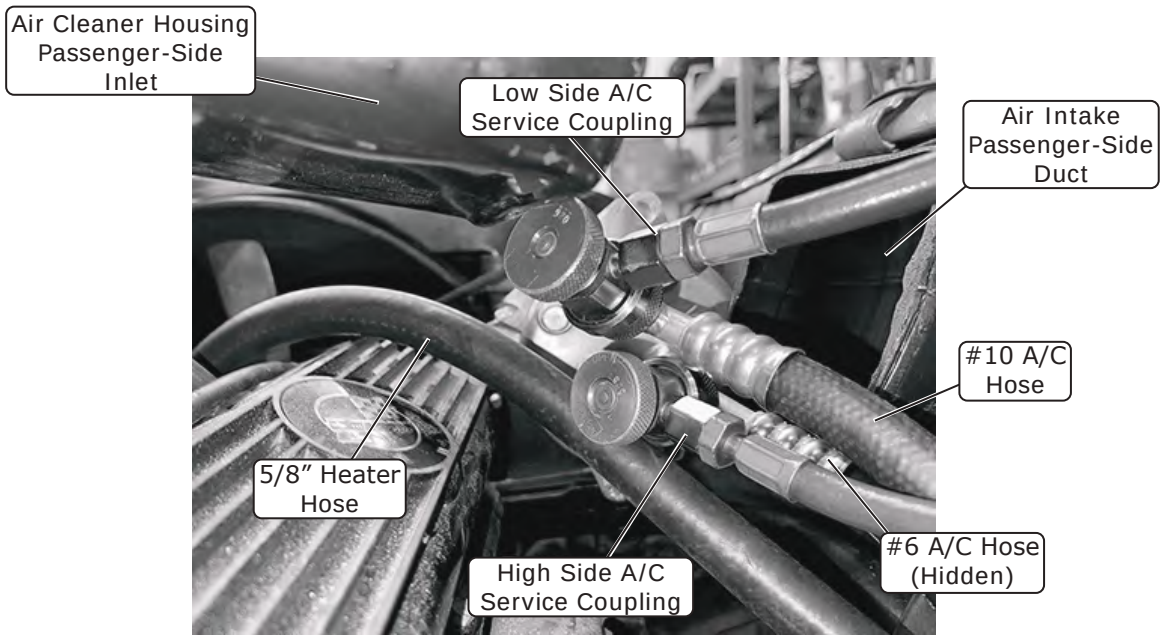


Photo 7

Passenger Compartment Wiring

1. Locate the main relay, and enlarge the mounting hole using a 1/4" drill bit (See Photo 1, below).
2. Attach the main relay to the back of the dash bracket bolt and secure it using a 1/4-20 nut with star washer (See Photo 2, below).
3. Select a suitable ground location for the white ground wire eyelet from the heater control valve harness, and secure it using a #10 x 1/2" sheet metal screw.
4. Route the violet power wire to a switched 12v power source on the fuse panel. **NOTE: This requires a male fuse extension (not supplied).**
5. Connect the tan wire to the factory dash lights to enable control panel backlighting (if applicable).
6. Connect the BSC wiring to the main harness (See Photo 3, below).
7. Connect the main harness to the ECU (See Photo 4, below).
8. Route the blue safety switch wire from the main wiring harness through the evaporator firewall ring, and tie wrap it to the #6 A/C hose (See Photo 5, below).
9. Route the heavy gauge white and orange wires and the twisted red and white wires through the center console back to the battery compartment.

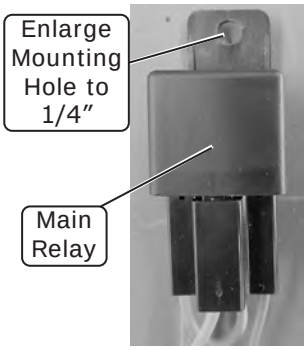


Photo 1

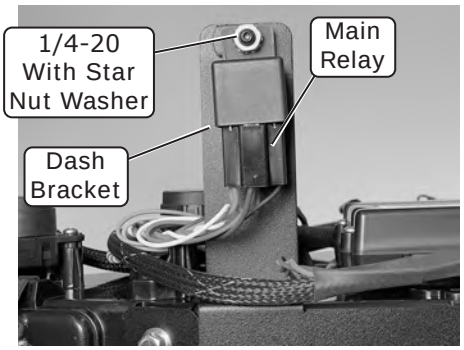


Photo 2

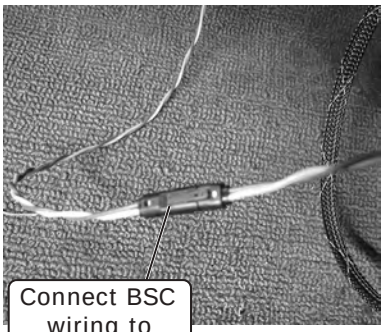


Photo 3

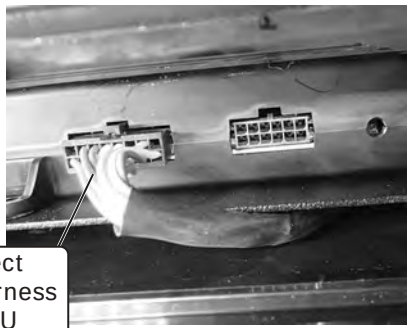


Photo 4

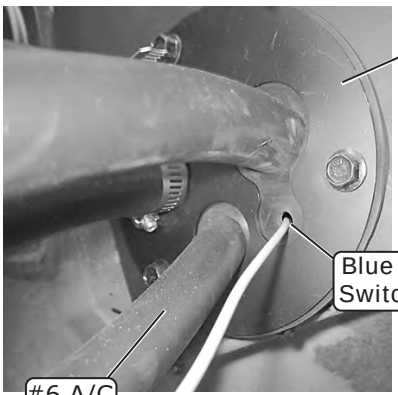


Photo 5

Drain Hose Installation

1. From the passenger compartment, locate the evaporator drain. Mark and drill a 5/8” hole, 3/4” lower and directly in front of the evaporator drain (See Photo 1, below). **NOTE: To ensure a tight fit, do not enlarge the hole to more than 5/8”.**
2. Cut the supplied drain hose to 7 ½” long, and install the 1/2” drain elbow (See Photo 2, below).
3. Install the drain hose through the 5/8” hole on the firewall, then onto the evaporator drain (See Photo 3, below).

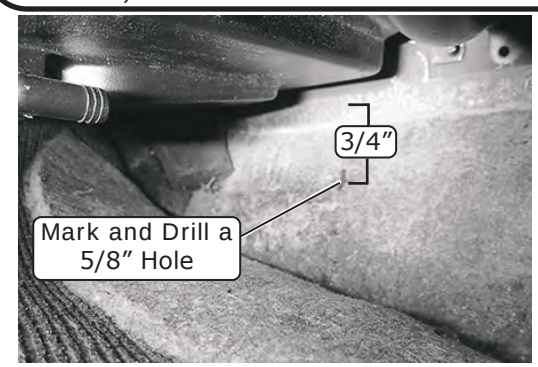


Photo 1

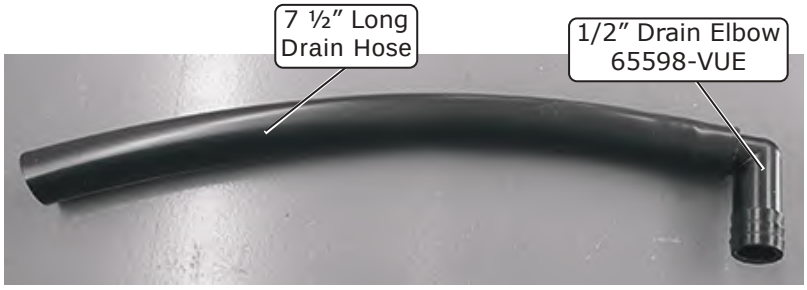


Photo 2

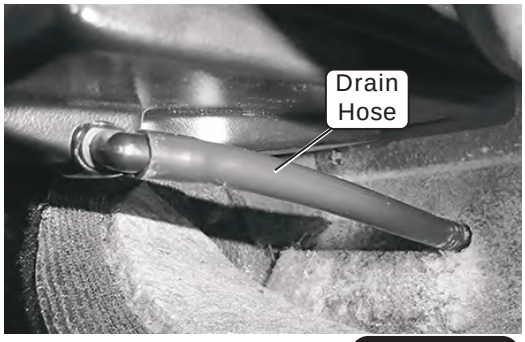


Photo 3

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Heater Hose & Heater Control Valve Installation

1. Route a piece of heater hose from the water pump to the bottom heater fitting of the heater core as shown in Figure 1, below. Secure using hose clamps. **NOTE: Rubber hoses must be inserted through rubber boot for proper seal.**
2. Route a piece of heater hose from the intake to the top heater fitting of the heater core as shown in Figure 1, below. **NOTE: Install the heater control valve (the flow direction follows the molded arrow on the valve) in line with the intake manifold (pressure side), heater hose, and secure using hose clamps as shown in Figure 1, below. Also note proper flow direction.**
3. Route the heater control valve plug through the evaporator firewall bracket and into the passenger compartment (See Photo 1, below).
4. Connect the heater control valve harness plug and the heater control valve plug together (See Photo 2, below).

A/C & Heater Hose Routing

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" to 5/8" reducer fitting (not supplied) or molded hose will need to be installed in the heater hose.

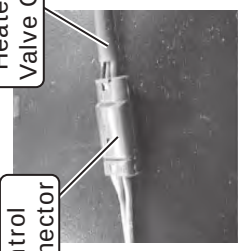


Photo 2

Photo 1

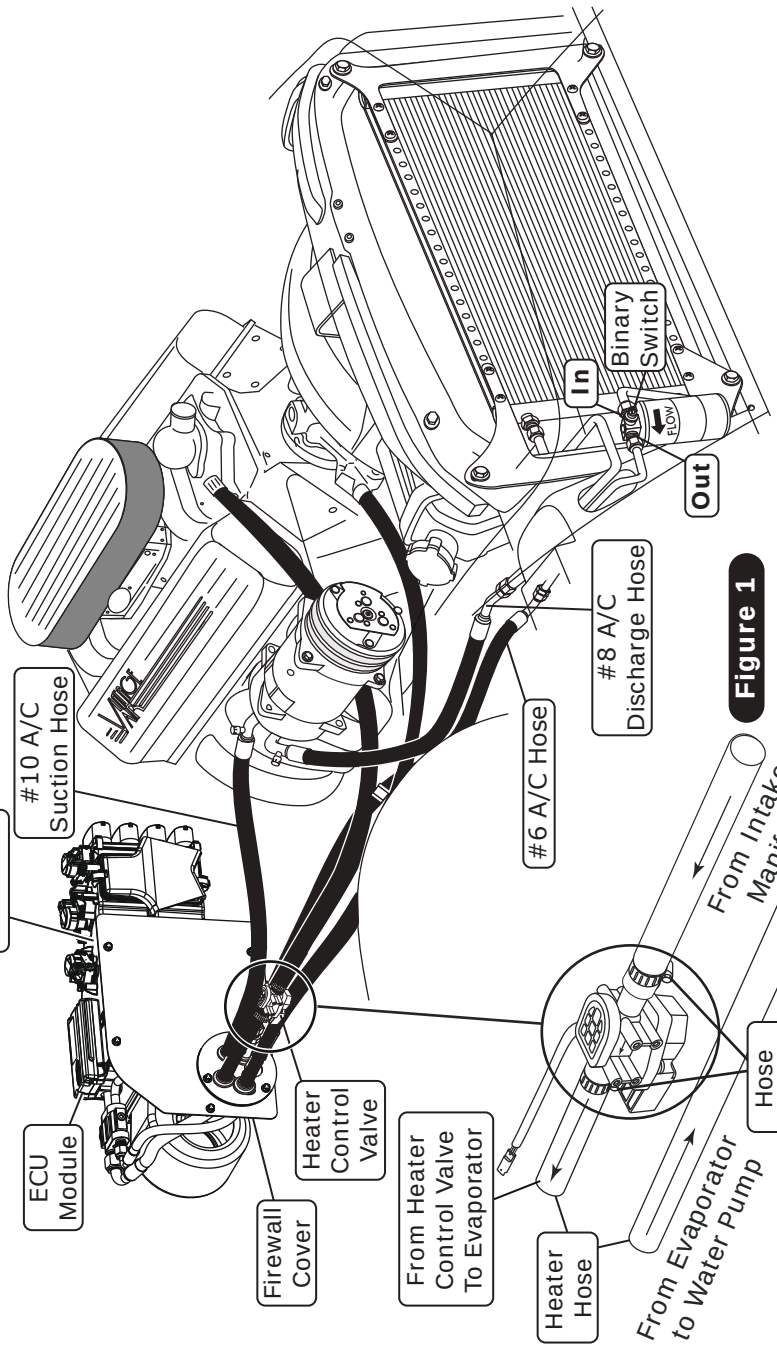


Figure 1

Engine Compartment Wiring

1. Route the blue lead from the main wiring harness to the safety switch (See Photo 1, below).
2. Connect the compressor lead wire to the safety switch (See Photo 1, below).
3. Connect the bullet terminal of the compressor lead to the compressor bullet terminal (See Photo 2, below).

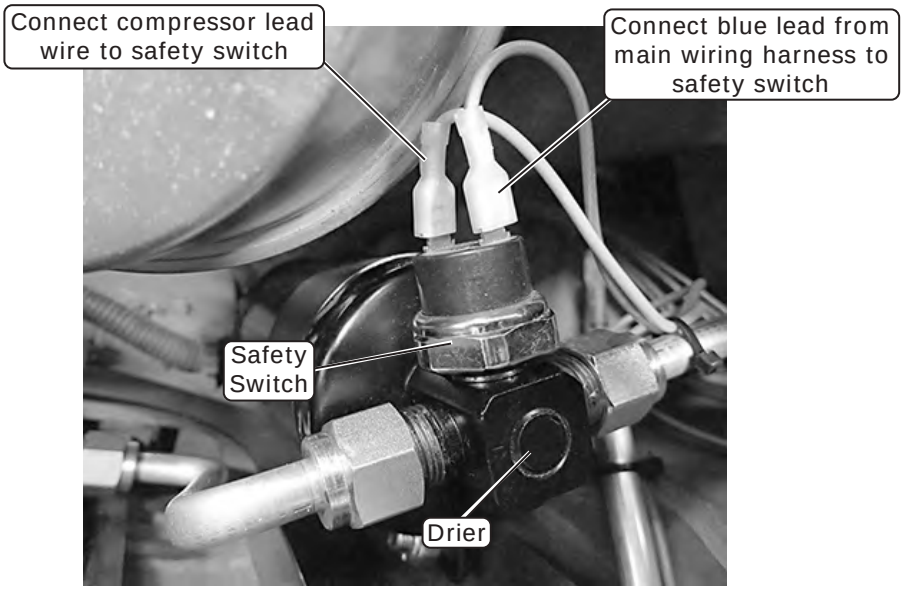


Photo 1

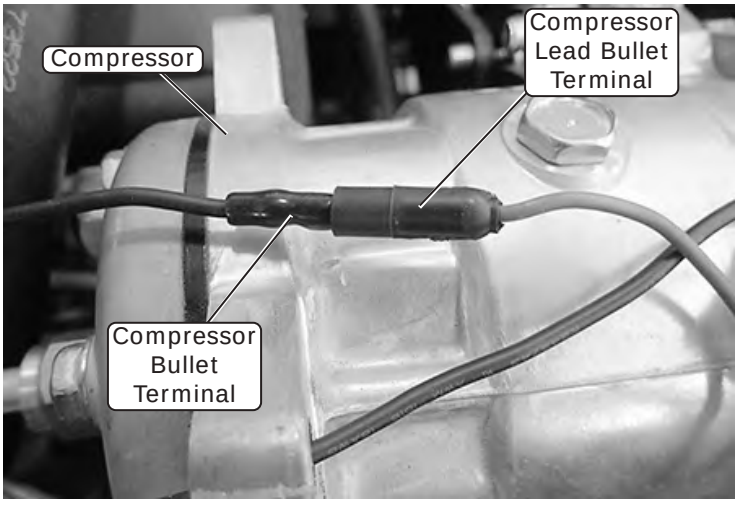
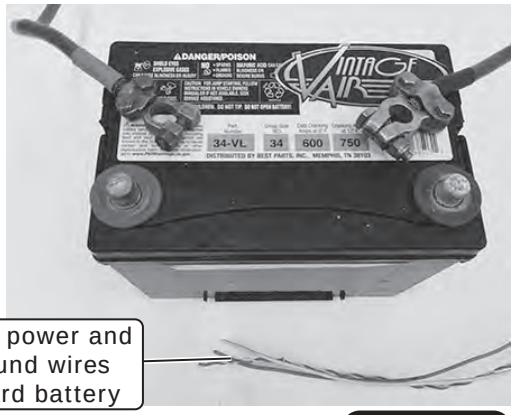


Photo 2

Battery Compartment Wiring

NOTE: The following connections are critical to the performance of the system. Before making connections, refer to the Quality Crimp Guidelines, Page 33.

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

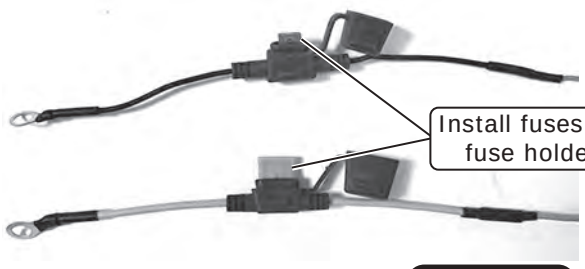
Install heat shrink over 12 AWG orange standard fuse holder assembly wire

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

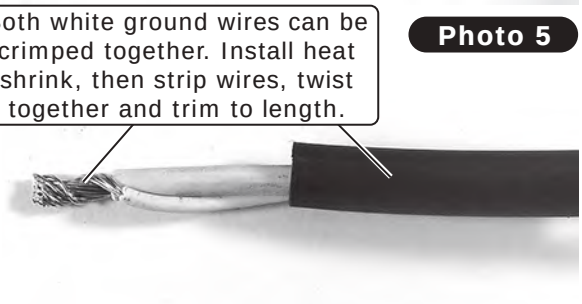
Photo 3



Install fuses into fuse holders

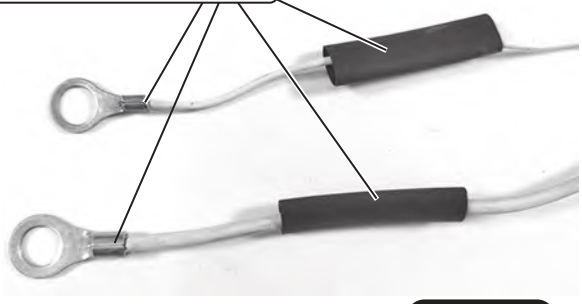
Photo 4

Photo 5



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

Photo 7



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

Photo 6

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

Photo 8

Battery 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.

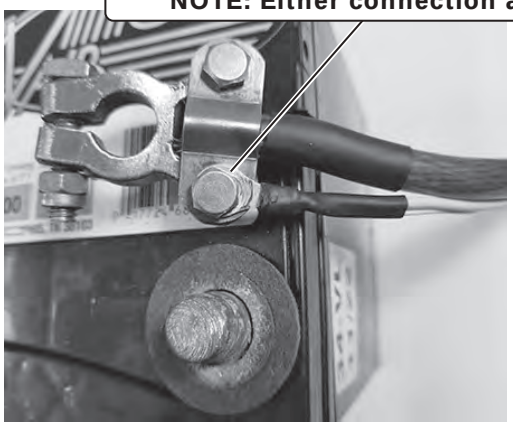


Photo 9

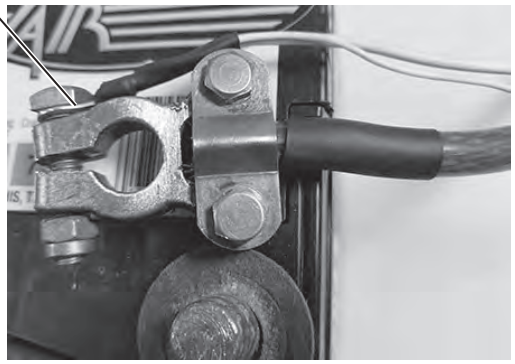


Photo 10

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

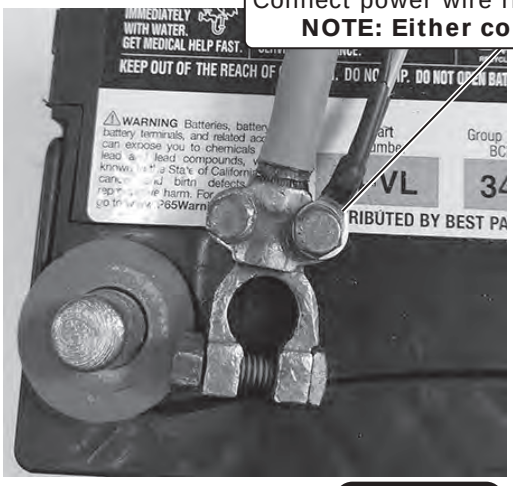
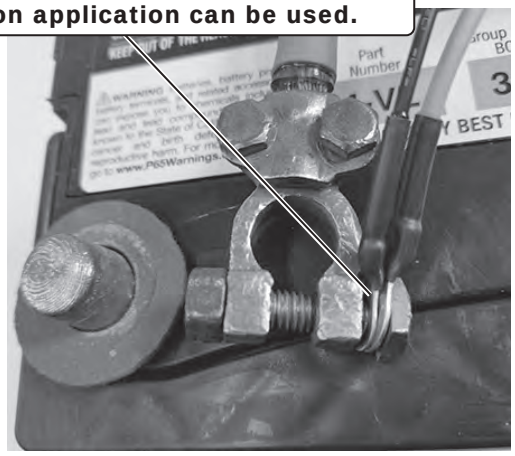
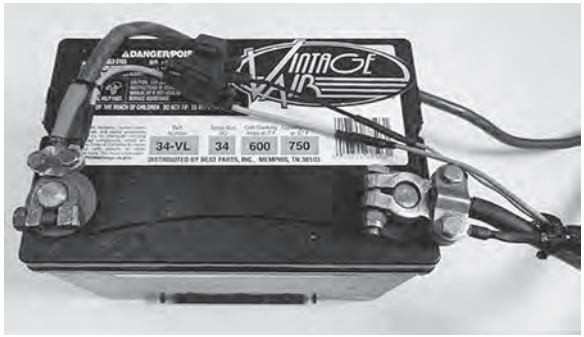


Photo 11



NOTE: Do not connect power until installation is completed.

Photo 12



Completed Installation Shown

Photo 13

Final Steps: Installation Check

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

Final Steps: Completing the Install

1. Using the supplied tie wraps and a #10 x 3/4" sheet metal screw, install the driver-side louver adapter assembly as shown in Photo 1, below. **NOTE: Use the tie wraps to raise and secure the louver adapter assembly.**
2. Install the duct hoses as shown in Duct Hose Routing, Page 31 or 32.
3. Install control panel assembly. Refer to control panel instructions. **NOTE: Control panel needs to be installed before completing Final Steps: Installation Check, Page 29.**
4. Reinstall dash into the vehicle (connecting all wiring and plugs, previously removed speakers, gauges, light switch, radio, etc.)
5. Reinstall the center dash assembly.
6. Reinstall all previously removed items.
7. 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.
8. Double check all fittings, brackets and belts for tightness.
9. Vintage Air recommends that all A/C systems be serviced by a licensed automotive A/C technician.
10. Evacuate the system for a minimum of 45 minutes prior to charging, and perform a leak check prior to servicing.
11. Charge the system to the capacities stated on Page 4 of this instruction manual.
12. See Operation of Controls procedures on Page 36.

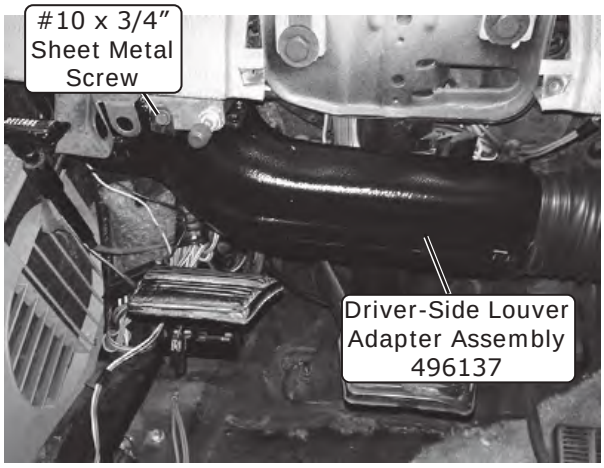


Photo 1

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Duct Hose Routing (1968-73)

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

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

Photo 1

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

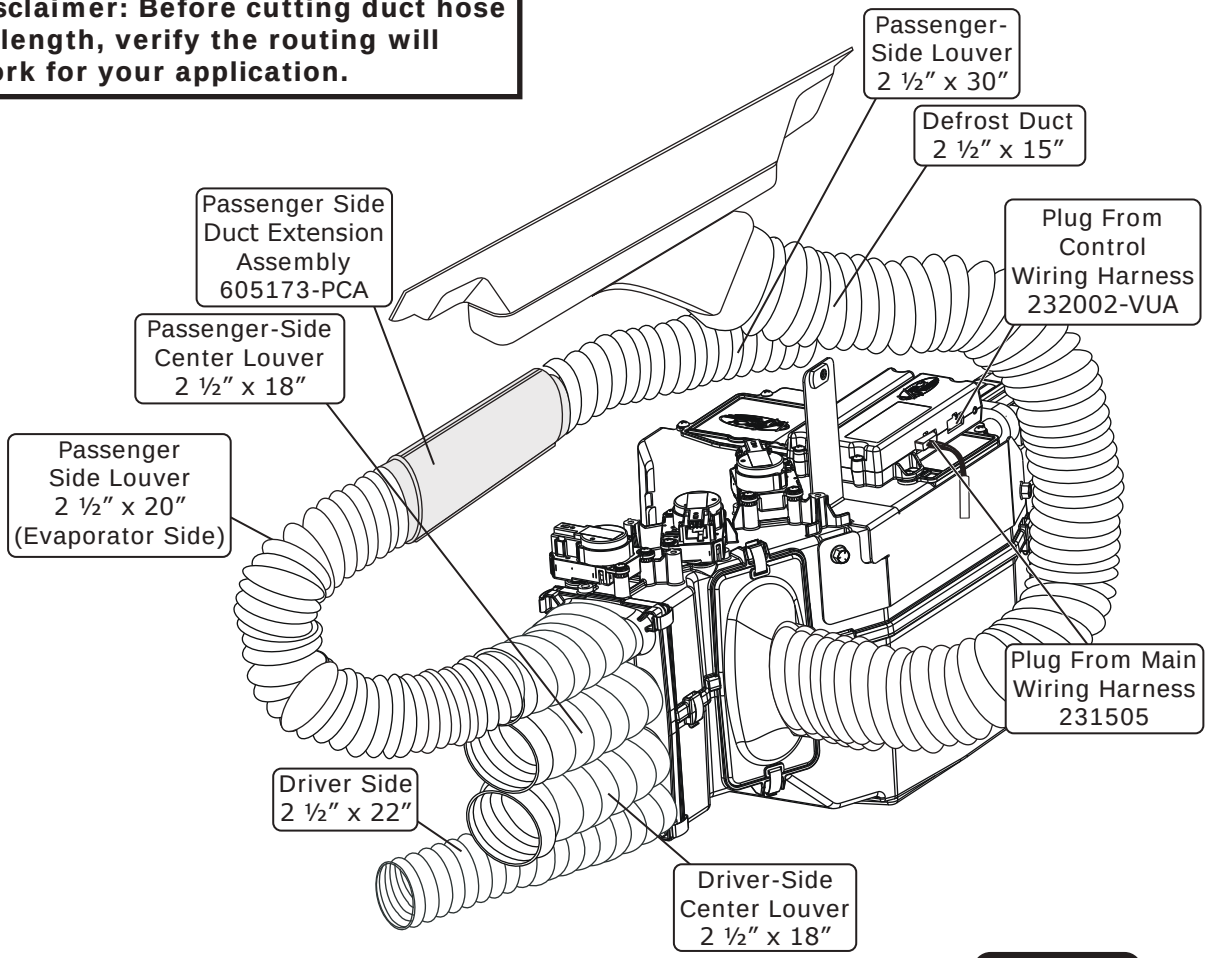

Figure 1

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

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Duct Hose Routing (1974-76)

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

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

Photo 1

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

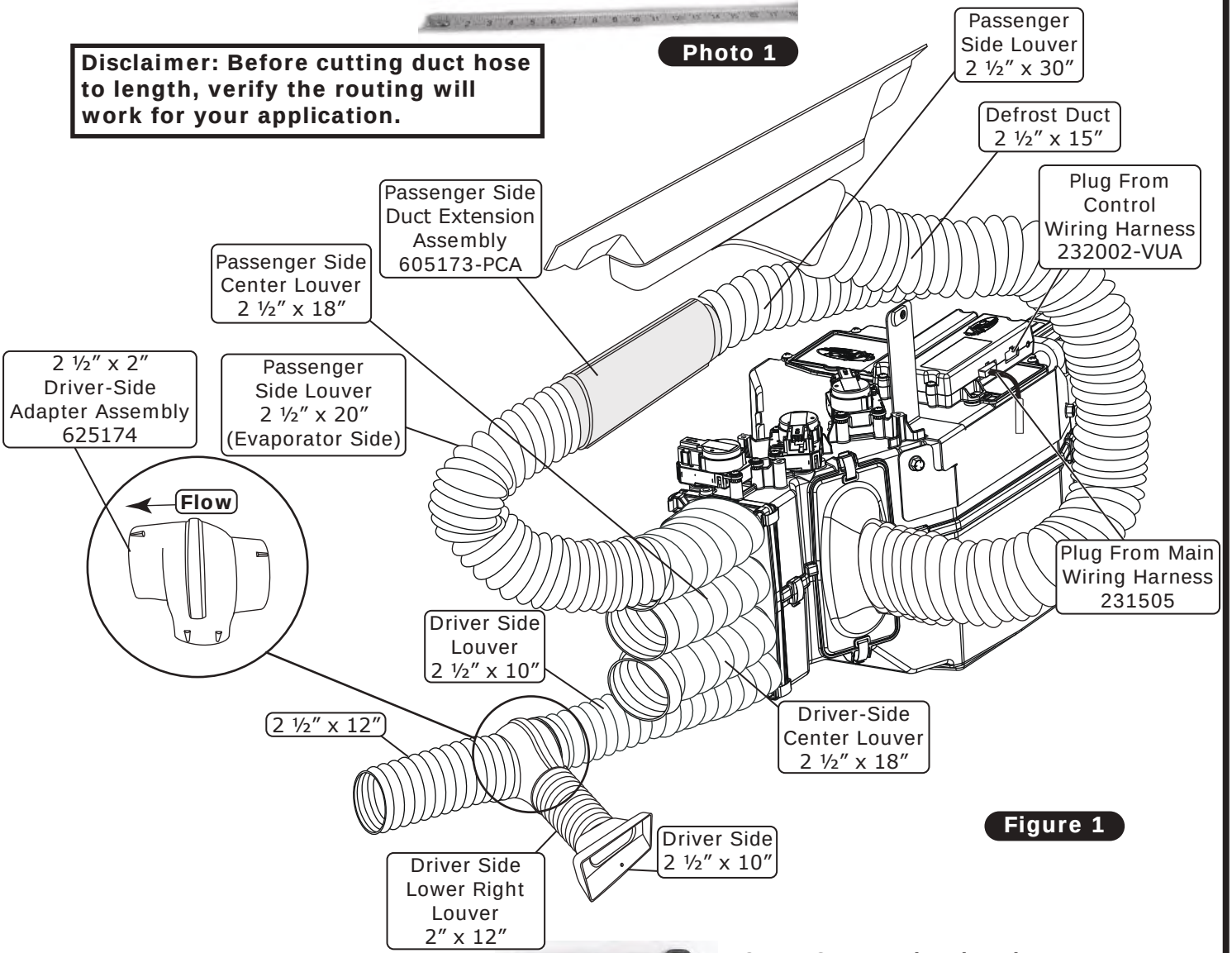


Figure 1

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

Quality Crimp Guideline

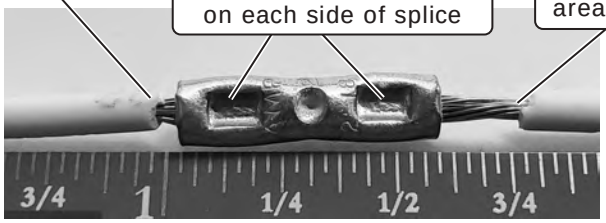


Photo 1

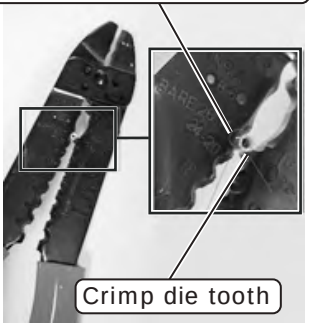


Photo 2

Good Ring Terminal Crimp

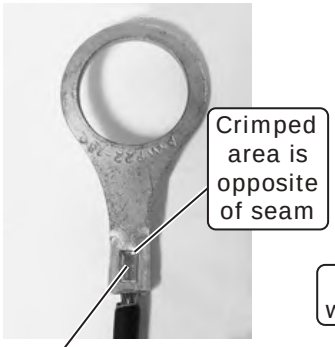


Photo 3

Bad Ring Terminal Crimp

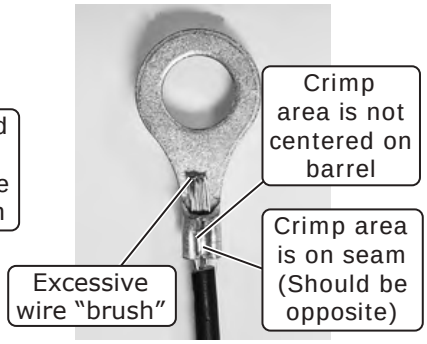


Photo 4

Photo 5

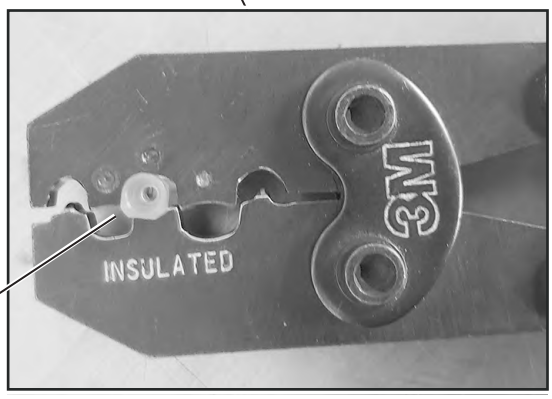
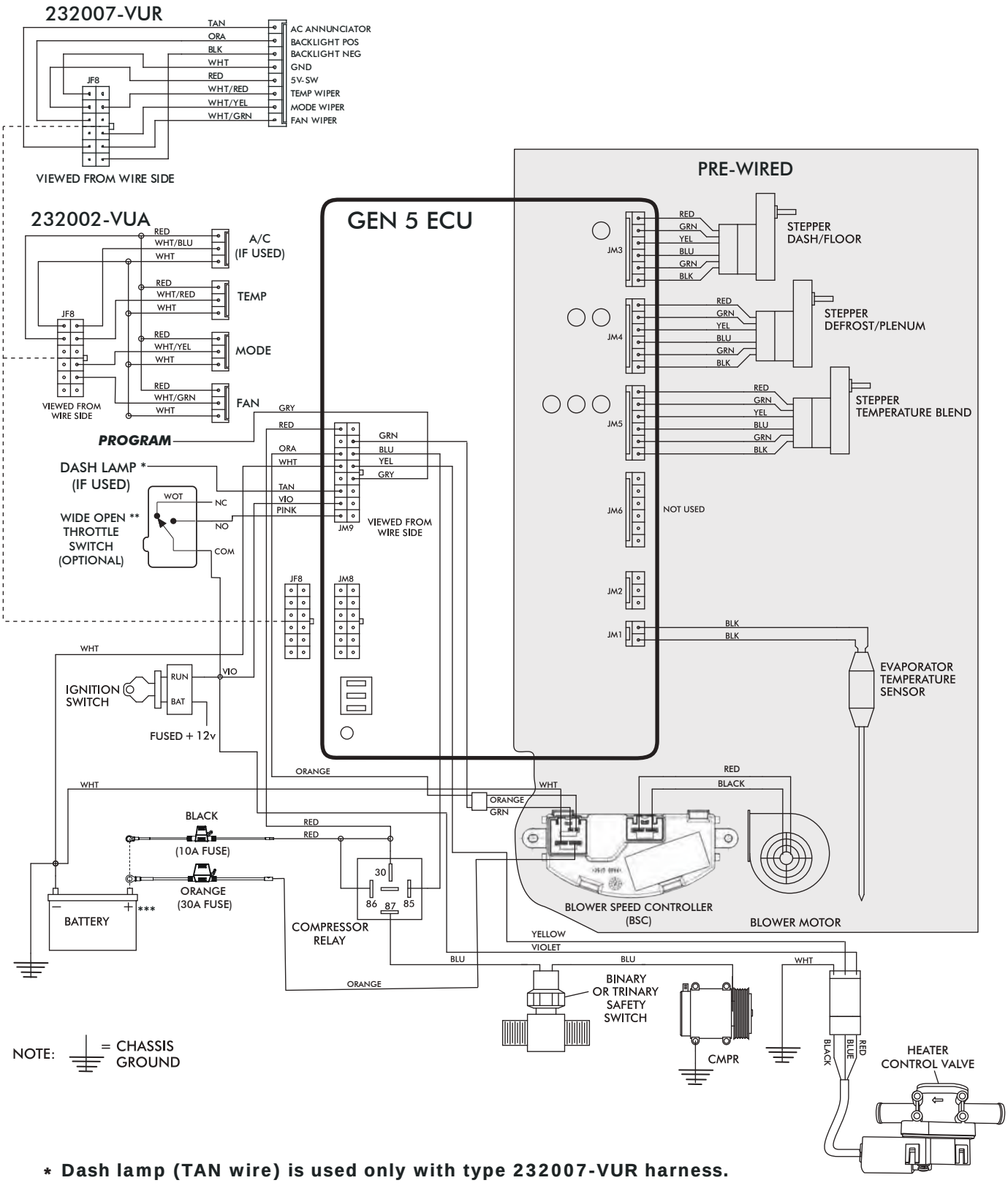


Photo 5a

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.

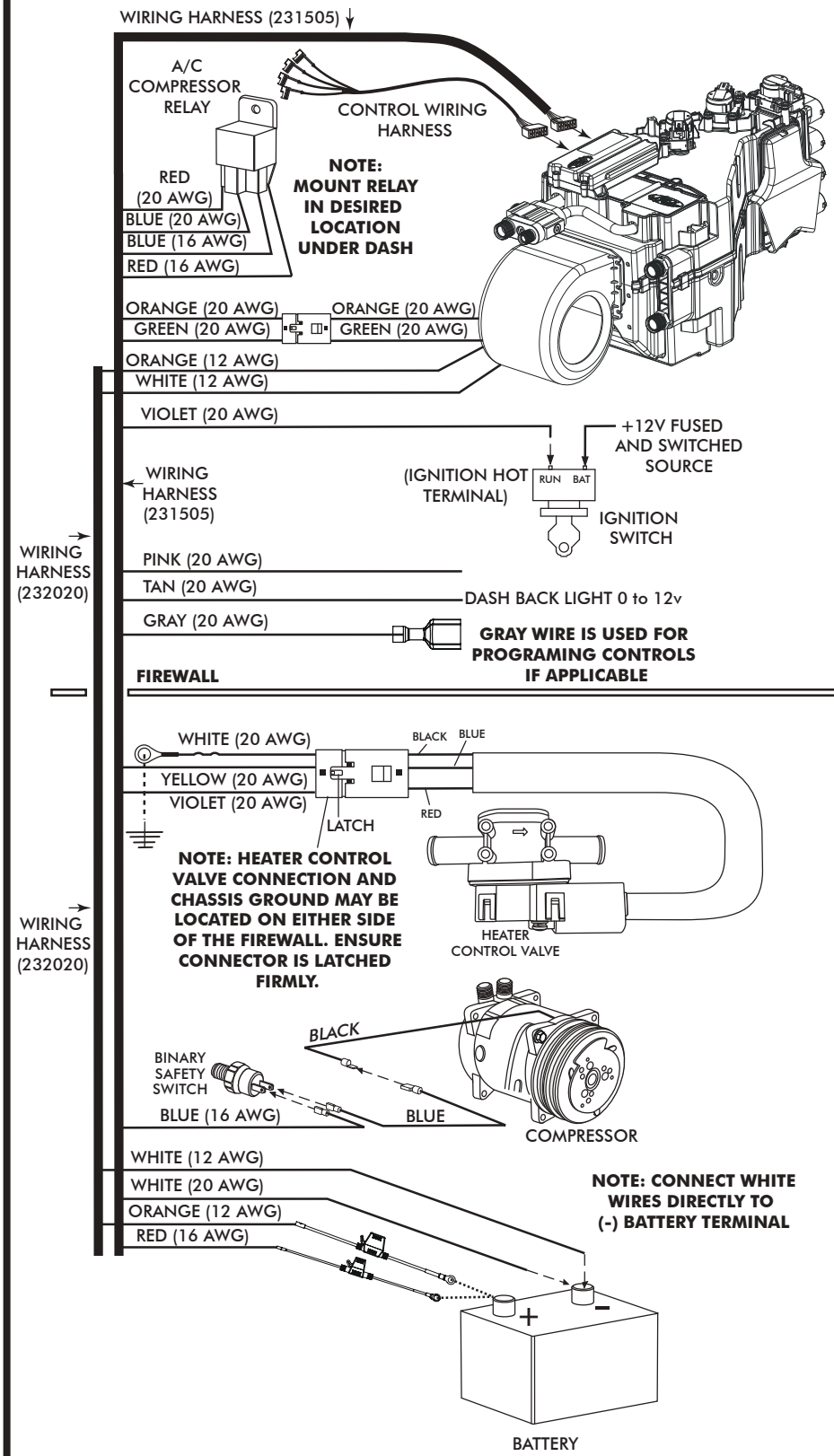
Gen 5 Wiring Diagram



*** 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.**



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

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

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

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

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

Battery Connections:
ECU Ground: Terminate provided ring terminal (PN 226110) to 20 AWG white wire from the 231505 wire assembly and install at battery.
ECU PWR: Terminate provided fuse assembly with black leads (PN 233012) to the 16 AWG red wire from the 231505 wire assembly. Install provided 10A Red Mini Fuse (PN 226118). Install at battery.
Blower Speed Controller (BSC) Ground: Terminate provided ring terminal (PN 226111) to 12 AWG white wire from the 232020 wire assembly and install at battery.
Blower Speed Controller (BSC) PWR: Terminate provided fuse assembly with orange leads (PN 233008) to the 12 AWG orange wire from the 232020 wire assembly. Install provided 30A Green ATO/ATC Fuse (PN 226125). Install at battery.

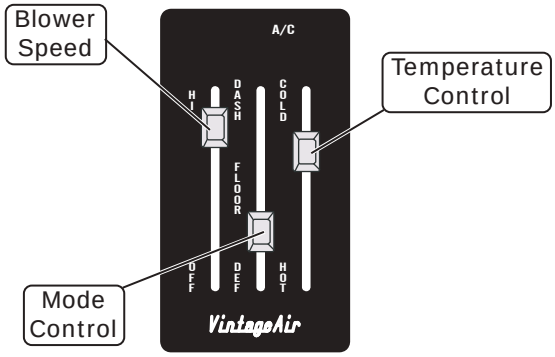
Operation of Controls

On Gen IV or Gen 5 systems with three lever/knob controls, the temperature control toggles between heat and A/C operations. To activate A/C, move the temperature lever/knob all the way to cold and then back it off to the desired vent temperature. For heat operation, move the temperature lever/knob all the way to hot and then adjust to the desired vent temperature. The blower will momentarily change speed, each time you toggle in and out of heat and A/C operations, to indicate the change. **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.

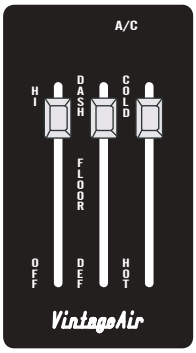


A/C Operation

Blower Speed
Adjust to desired speed.

Mode Control
Adjust to desired mode position (DASH position recommended).

Temperature Control
For A/C operation, adjust to coldest position to engage compressor (adjust between HOT and COLD to reach desired temperature).

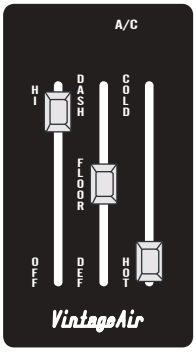


Heat Operation

Blower Speed
Adjust to desired speed.

Mode Control
Adjust to desired mode position (FLOOR position recommended).

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

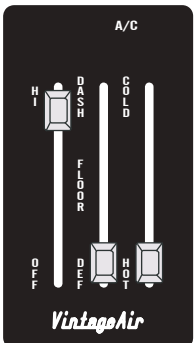


Defrost/De-fog Operation

Blower Speed
Adjust to desired speed.

Temperature Control
Adjust to desired temperature.

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



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Troubleshooting Guide

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

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

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

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

Troubleshooting Guide (Cont.)

Symptom	Condition	Checks	Actions	Notes
4. System will not turn on, or runs intermittently.	Works when engine is not running; shuts off when engine is started	Noise interference from either ignition or alternator.	Install capacitors on ignition coil and alternator. Ensure good ground at all points. Relocate coil and associated wiring away from ECU and ECU wiring. Check for burned or loose plug wires.	Ignition noise (radiated or conducted) will cause the system to shut down due to high voltage spikes. If this is suspected, check with a quality oscilloscope. Spikes greater than 16V will shut down the ECU. Install a radio capacitor at the positive post of the ignition coil (see radio capacitor installation bulletin). A faulty alternator or worn out battery can also result in this condition.
	Will not turn on under any conditions.	Verify connections on power lead, ignition lead, and both white ground wires.	Check for power at ECU, and confirm ignition is being applied to ECU properly.	
		Verify battery voltage is greater than 10 volts and less than 16 while engine is running.	Verify proper meter function by checking the condition of a known good battery.	
5. Loss of mode door function.	No mode change at all.	Check for damaged mode switch or potentiometer and associated wiring.		
6. Blower turns on and off rapidly.	Battery voltage is at least 12V.	Check for at least 12V at circuit breaker.	Ensure all system grounds and power connections are clean and tight.	System shuts off blower at 10V. Poor connections or weak battery can cause shutdown at up to 11V.
	Battery voltage is less than 12V.	Check for faulty battery or alternator.	Charge battery.	
7. Erratic functions of blower, mode, temp, etc.		Check for damaged switch or pot and associated wiring.	Repair or replace.	

Advanced Diagnostics and Troubleshooting Guide

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

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

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

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

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

www.vintageair.com

Packing List: Evaporator Kit (564218)

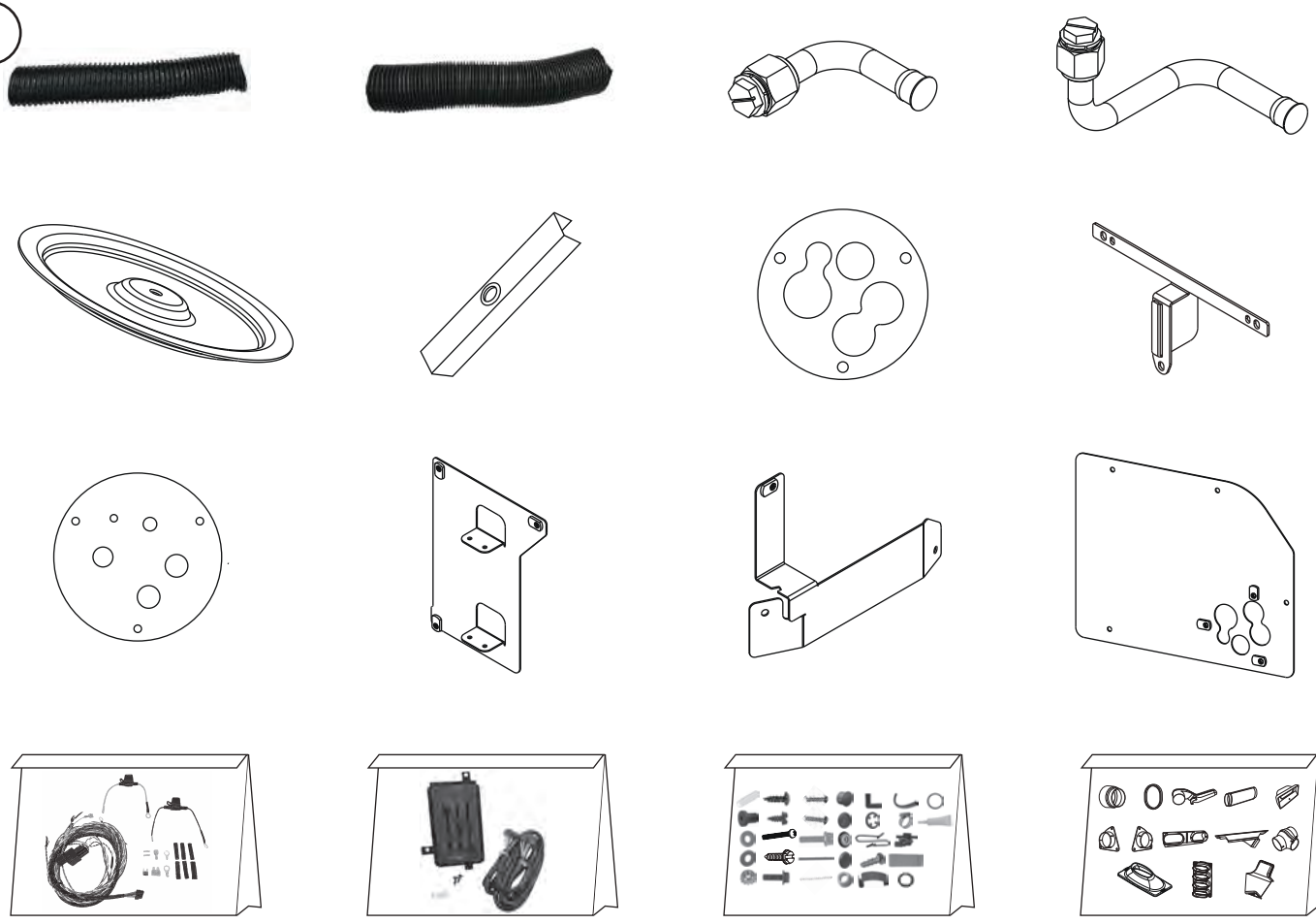
No.	Qty.		Part No.	Description
1.	1	_____	765100	Gen 5 Magnum Module with 404 ECU
2.	1	_____	784218	Accessory Kit

Checked By: _____
Packed By: _____
Date: _____

1

Gen 5 Magnum Module with 404 ECU 765100

2



Accessory Kit 784218

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