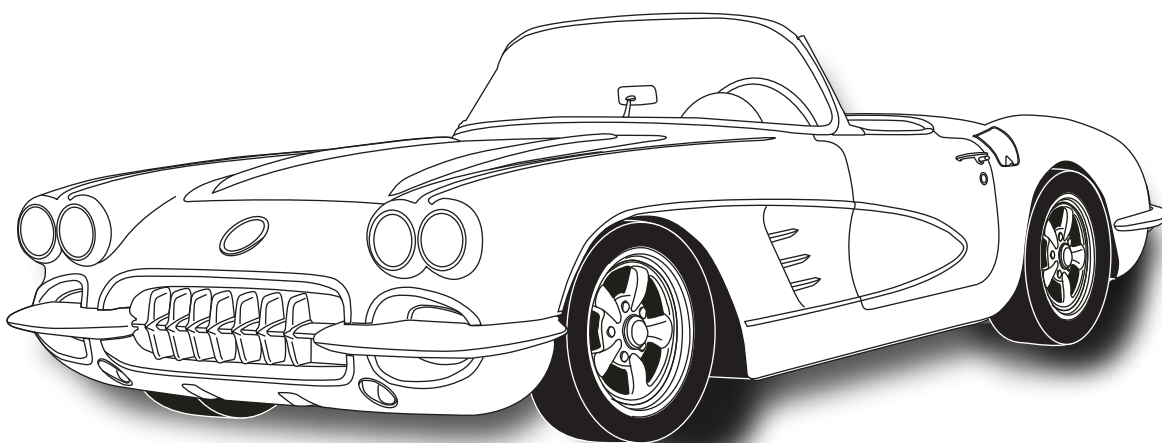




1961-62 Chevrolet Corvette

**Gen 5 Evaporator Kit
(561201)**



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Tech Support: tech@vintageair.com
www.vintageair.com



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Packing List: Evaporator Kit (561201)

No.	Qty.	Part No.	Description
1.	1	765100	Gen 5 Magnum Module with 404 ECU
2.	1	781201	Accessory Kit

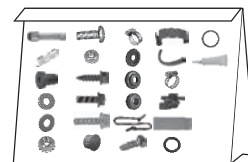
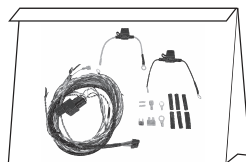
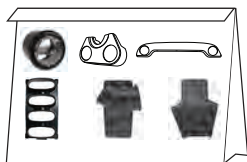
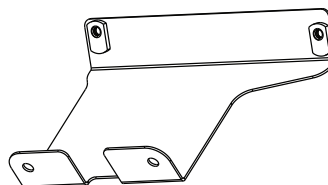
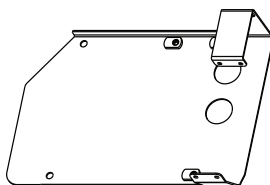
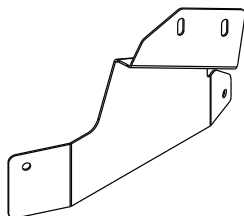
**** Before beginning installation, open all packages and check contents of shipment.
Please report any shortages directly to Vintage Air within 15 days. After 15 days,
Vintage Air will not be responsible for missing or damaged items.**

1



Gen 5 Magnum
Module with 404 ECU
765100

2



Accessory Kit
781201

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



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Important Notice—Please Read

For Maximum System Performance, Vintage Air Recommends the Following:

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

Refrigerant Capacities:

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

Other Systems: Consult manufacturer's guidelines.

Lubricant Capacities:

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

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

Safety Switches

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

Service Info:

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

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

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

Bolts Passing Through Cowl and /or Firewall:

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

Heater Hose (not included with this kit):

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

Important Wiring Notice—Please Read

Some vehicles may have had some or all of their radio interference capacitors removed. There should be a capacitor found at each of the following locations:

- 1. On the positive terminal of the ignition coil.**
- 2. If there is a generator, on the armature terminal of the generator.**
- 3. If there is a generator, on the battery terminal of the voltage regulator.**

Most alternators have a capacitor installed internally to eliminate what is called “whining” as the engine is revved. If whining is heard in the radio, or just to be extra cautious, a radio interference capacitor can be added to the battery terminal of the alternator.

It is also important that the battery lead is in good shape and that the ground leads are not compromised. There should be a heavy ground from the battery to the engine block, and additional grounds to the body and chassis.

If these precautions are not observed, it is possible for voltage spikes to be present on the battery leads. These spikes come from ignition systems and charging systems, and from switching some of the vehicle’s other systems on and off. Modern computer-operated equipment can be sensitive to voltage spikes on the power leads, which can cause unexpected resets, strange behavior and/or permanent damage.

Vintage Air strives to harden our products against these types of electrical noise, but there is a point where a vehicle’s electrical system can be degraded so much that nothing can help.

Radio interference capacitors should be available at most auto and truck parts suppliers. They typically are cylindrical in shape, a little over an inch long and a little over a half-inch in diameter, and they have a single lead coming from one end of the cylinder with a terminal on the end of the wire, as well as a mounting clip which is screwed into a good ground on the vehicle. The specific value of the capacitance is not too significant in comparison to ignition capacitors that are matched with the coil to reduce pitting of the points.

- Care must be taken, when installing the compressor lead, not to short it to ground. The compressor lead must not be connected to a condenser fan or to any other auxiliary device. Shorting to ground or connecting to a condenser fan or any other auxiliary device may damage wiring or the compressor relay, and/or cause a malfunction.
- When installing ground leads on Gen 5 systems, the blower control ground and ECU ground must be connected directly to the negative battery post.
- For proper system operation, the heater control valve must be connected to the ECU.



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Engine Compartment Disassembly

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

Perform the following:

1. Drain the radiator.
2. Disconnect the battery.
3. Remove the OEM blower assembly (under hood).
4. Remove the OEM heater hoses (discard) (See Figure 1, below).

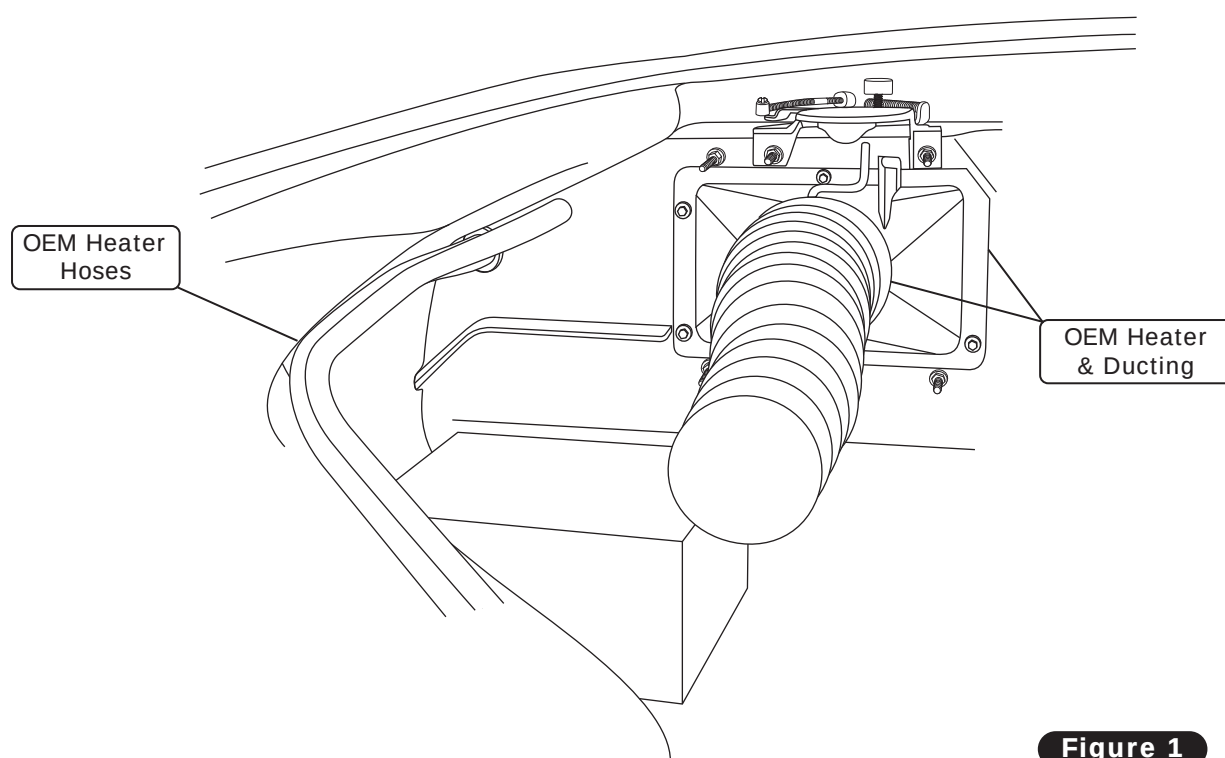


Figure 1

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.



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Passenger Compartment Disassembly

Perform the following:

1. Remove the package tray (if equipped) (retain) (See Figure 1, below).
2. Remove the passenger side under dash cover (retain).
3. Remove the door step (retain).
4. Remove the kick panel (retain).
5. Remove the kick panel brace (discard).
6. Resecure the top kick panel brace using a 1/4-20 x 3/4" serrated flange black bolt, a 1/4" USS flat washer and a 1/4-20 nut with star washer as shown in Figure 1a, below.
7. Disconnect all wires and cables from the control panel.

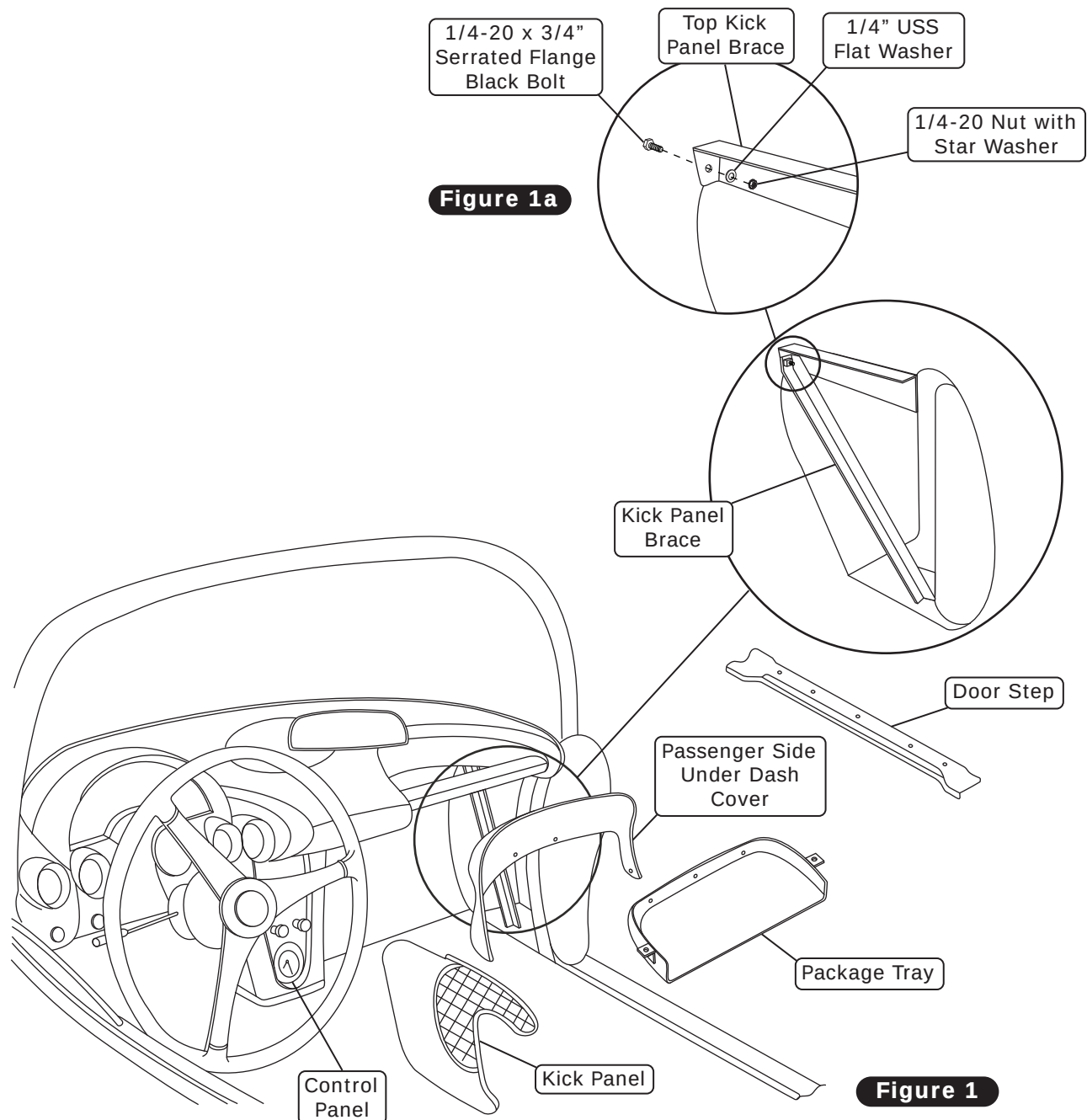


Figure 1a

Figure 1



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Kick Panel Modification

1. Remove the kick panel by removing (6) OEM screws.
2. Modify the passenger-side kick panel as shown in Figure 1, below.

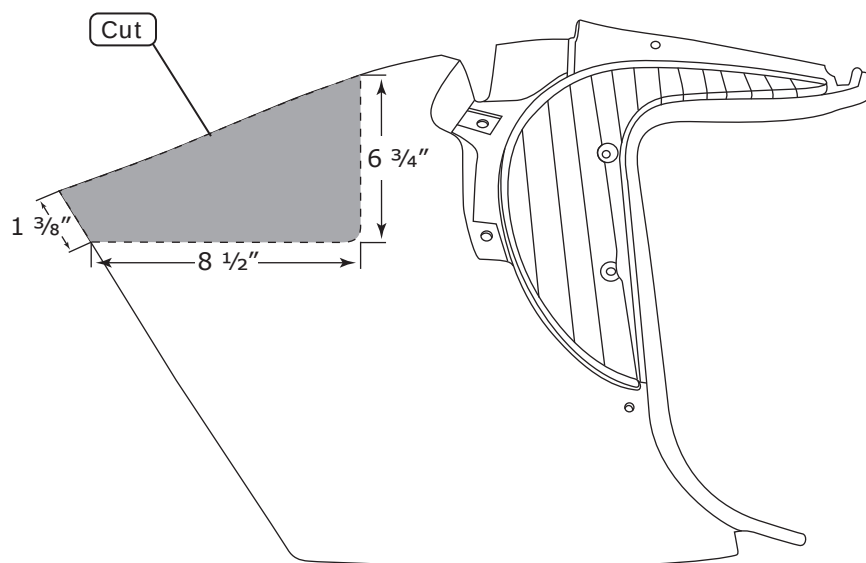
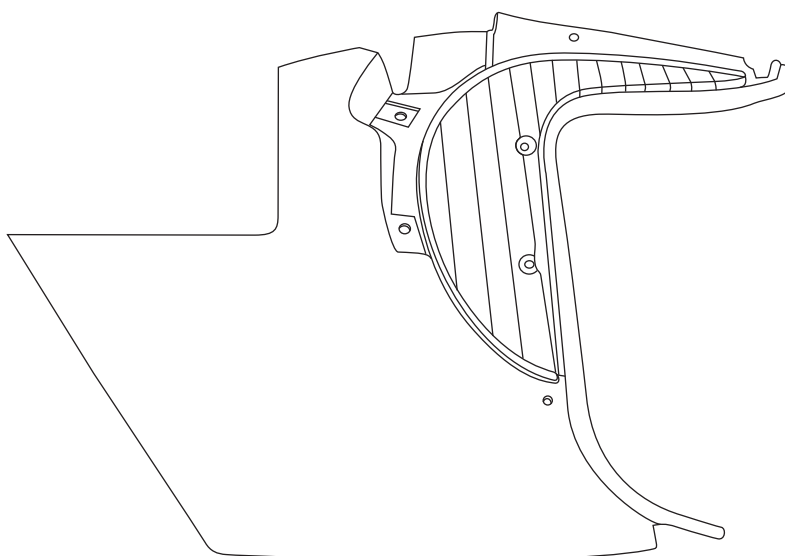


Figure 1





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Firewall Preparation

1. Enlarge the OEM heater holes to 1 1/4" as shown in Figure 1, below.
2. Drill 5/8" hole in the firewall 2" over from the bottom OEM heater hole as shown in Figure 1, below.
3. Install the grommets into the firewall as shown in Figure 1, below.

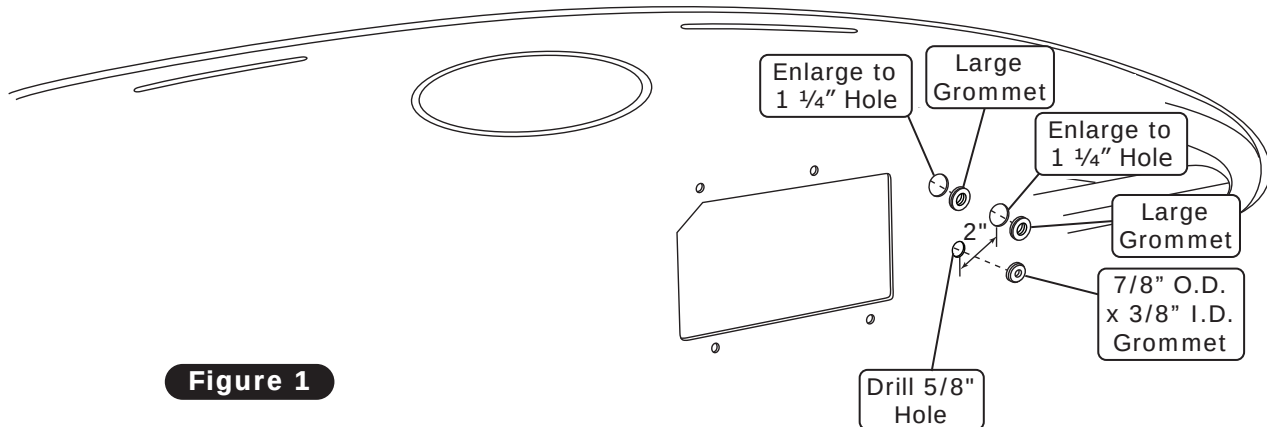
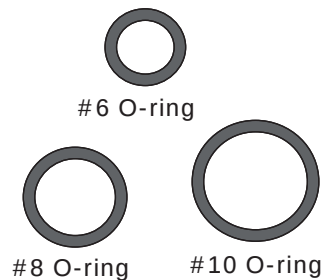
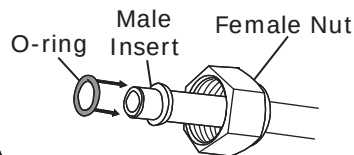


Figure 1

Lubricating O-rings



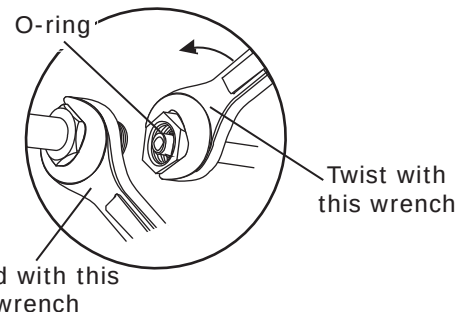
NOTE: Standard torque specifications:
#6: 11 to 13 ft-lb.
#8: 15 to 20 ft-lb.
#10: 21 to 27 ft-lb.



Refrigerant Oil for O-rings

O-ring installs over male insert to swaged lip

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

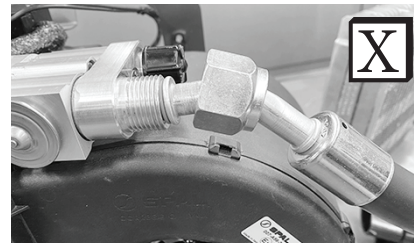


Photo 2

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



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Evaporator Preparation

1. On a workbench, 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).
3. Install (2) 1/4-20 well nuts as shown in Figure 1, below.
4. Attach the evaporator dash bracket onto the evaporator with (2) 1/4-20 x 1" serrated flange bolts (See Figure 1, below).
5. Install the plastic plug at the location shown in Figure 2, below.
6. Install (2) 1/4-20 well nuts as shown in Figure 2, below.
7. Install the floor plenum onto the evaporator module with (2) spring clips.
8. Install the driver-side evaporator firewall bracket onto the evaporator module with (2) 1/4-20 x 1" serrated flange bolts.
9. Install a 1/4-20 full-threaded stud onto the driver-side evaporator firewall bracket as shown in Figure 2, below.

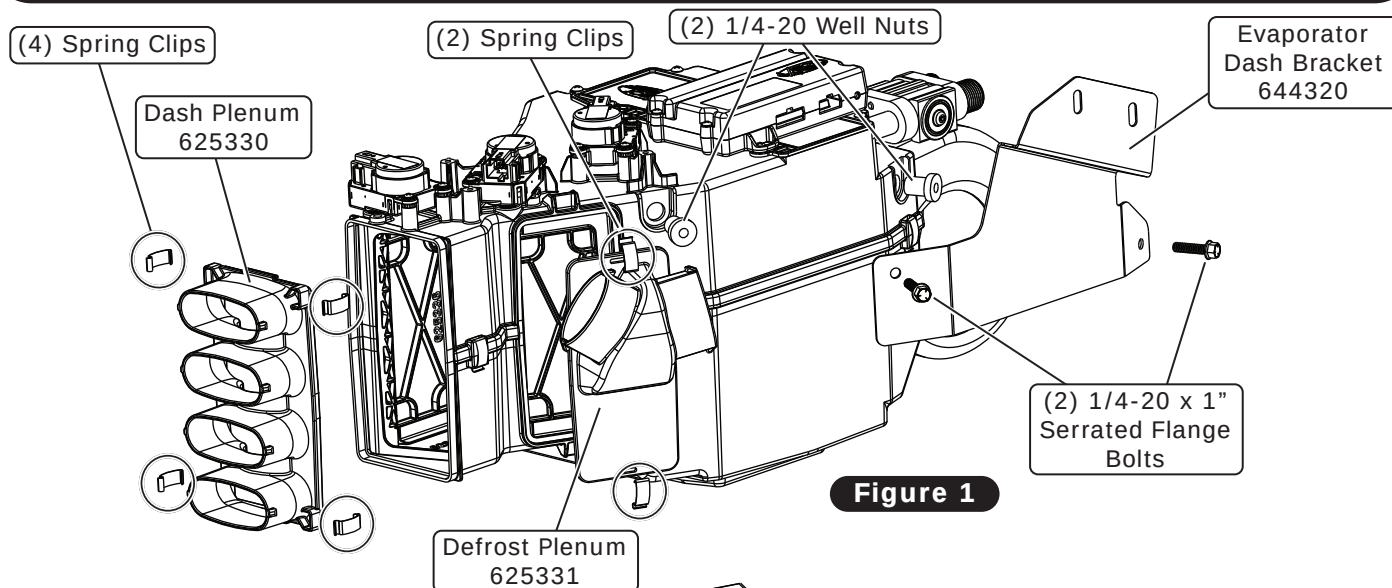


Figure 1

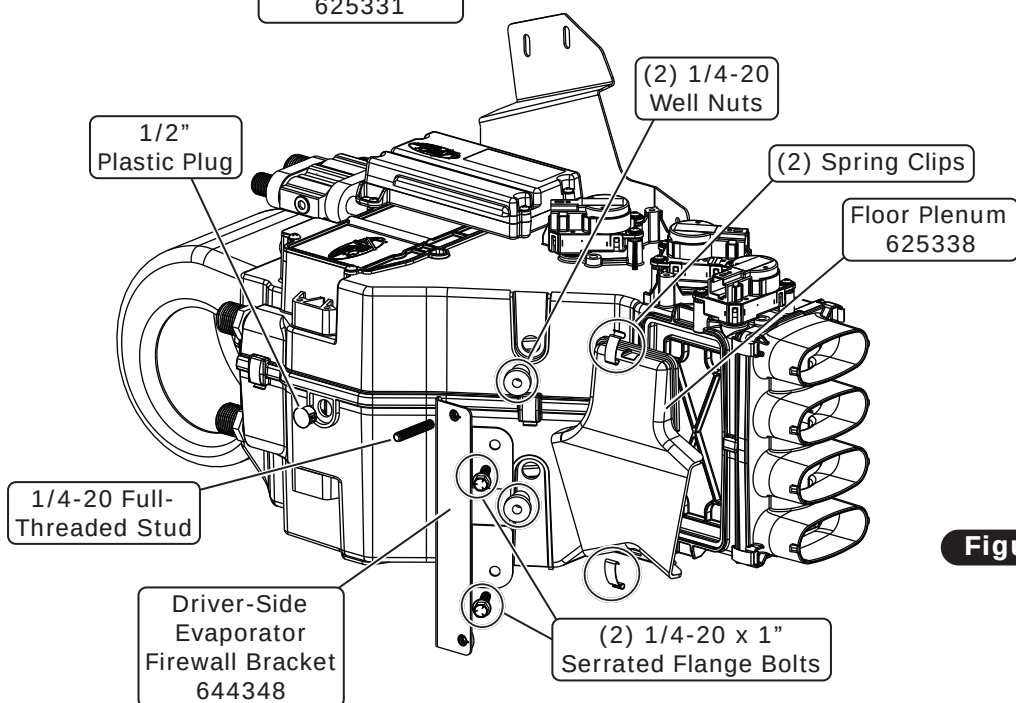


Figure 2



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Evaporator Preparation (Cont.)

10. Install the evaporator firewall bracket onto the evaporator module with (4) #10 x 5/8" screws (See Figure 3, below).
11. Install the grommets as shown in Figure 3, below.
12. Install a 1/4-20 full-threaded stud onto the evaporator firewall bracket as shown in Figure 3, below.
13. Install the (2) heater hardlines with properly lubricated O-rings (See Figure 4, below and Lubricating O-rings, Page 9). **NOTE: Be careful when removing caps from the sub case. The sub case is shipped under pressure.**

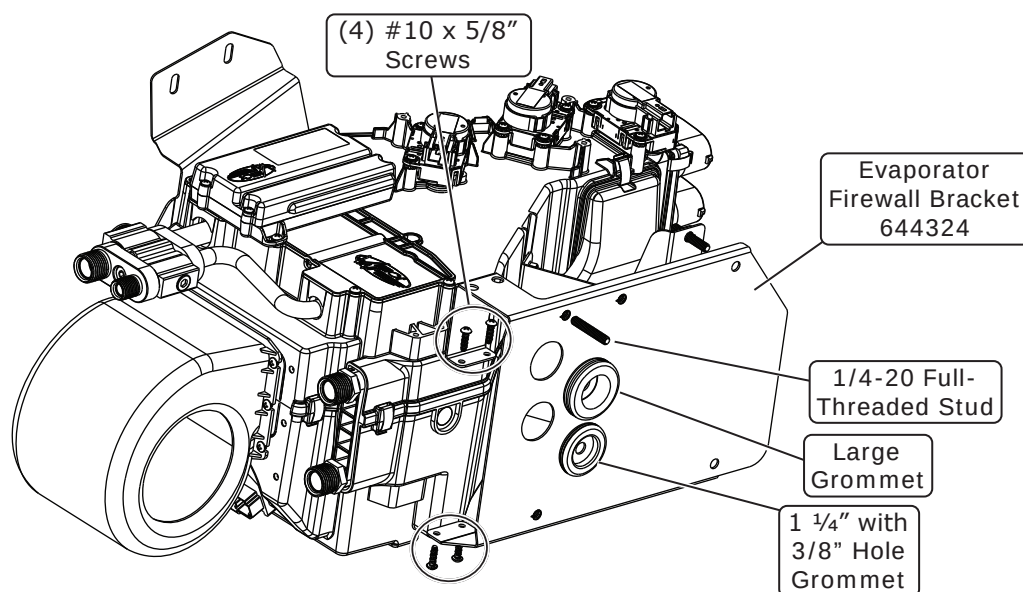


Figure 3

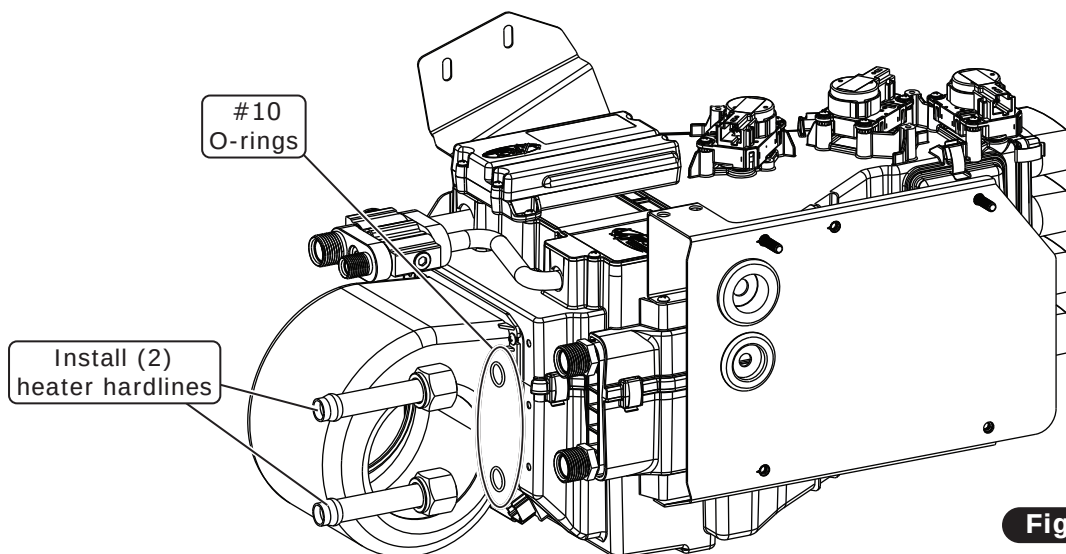


Figure 4



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Evaporator Preparation (Final)

14. Using a properly lubricated #6 O-ring (See Lubricating O-rings, Page 9), install the 135° fitting on the #6 drier/evaporator A/C hose onto the #6 port of the block valve adapter on the evaporator module. Route the hose through the firewall cover evaporator bracket as shown in Figure 5, below.
15. Using a properly lubricated #10 O-ring (See Lubricating O-rings, Page 9), install the 135° fitting on the #10 compressor/evaporator A/C hose onto the #10 port of the block valve adapter on the evaporator module. Route the hose through the firewall cover evaporator bracket as shown in Figure 5, below.
16. Wrap exposed metal fittings and adapter block with press tape (See Figure 6, below).

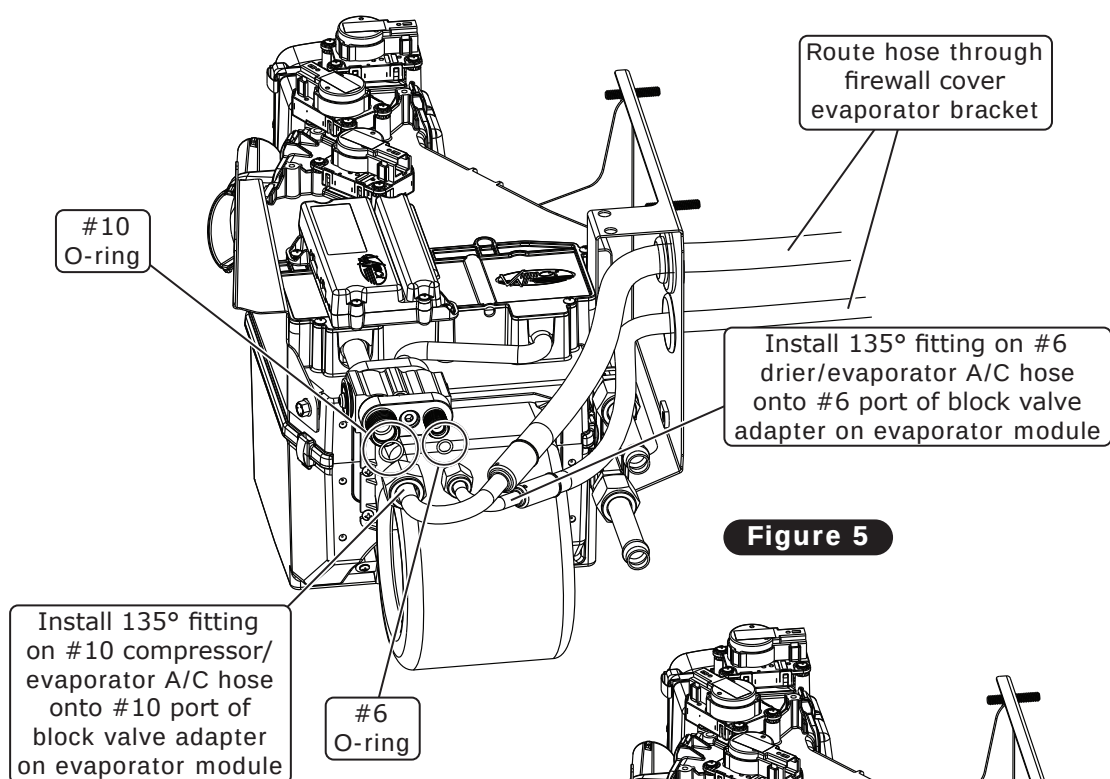


Figure 5

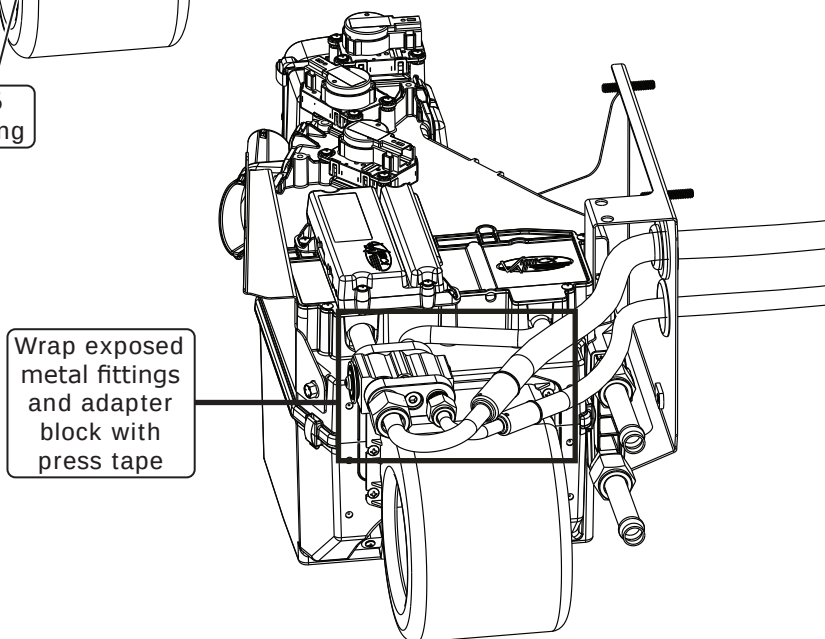


Figure 6



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Wiring Installation

1. Locate the heater control valve plug on the main wiring harness (white/yellow/purple). Route it through the 7/8" wiring grommet on the firewall and into the engine compartment (See Figure 1, below).
2. Route the red, white and blue wires from the main harness through the 7/8" wiring grommet on the firewall and into the engine compartment (See Figure 1, below).
3. Inside the passenger compartment, leave approximately 12" of wiring between the firewall and relay. Select a suitable mounting location for the main relay and secure with a #10 x 1/2" sheet metal screw.
4. Place the evaporator module on the passenger-side floorboard.
5. Route the heavy gauge orange and white wires through the wiring grommet in the firewall and into the engine compartment.
6. Connect the blower speed controller plug into the main wiring harness plug (orange and green wires) (See Photo 1, below).

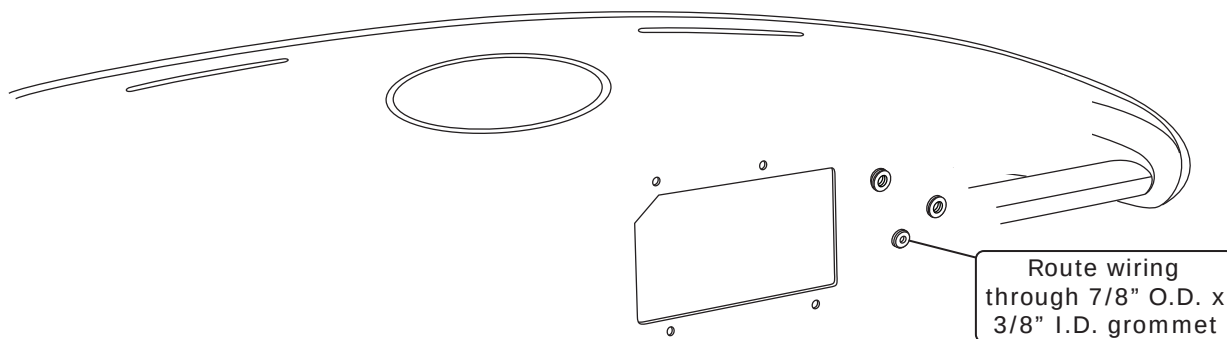


Figure 1

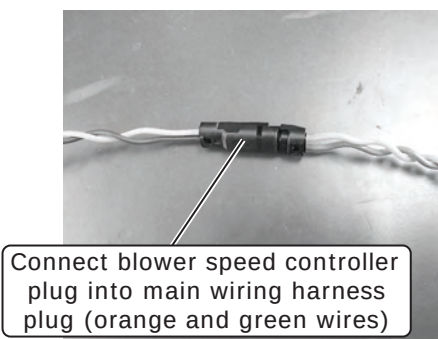


Photo 1



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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. With the evaporator module on the passenger-side floorboard, cut a section of heater hose long enough to route from the water pump heater hose port, over to and along the passenger-side inner fender. Then in through the upper heater hose firewall opening, looping around and along the firewall. End the hose at the midpoint of the firewall opening.
2. Secure the hose to the upper heater fitting of the heater core with a hose clamp.
3. Cut a second section of heater hose and route similarly from the intake manifold heater hose port, in through the lower heater hose firewall opening. End the hose at the same point as the first hose.
4. Secure the hose to the lower heater fitting of the heater core with a hose clamp.

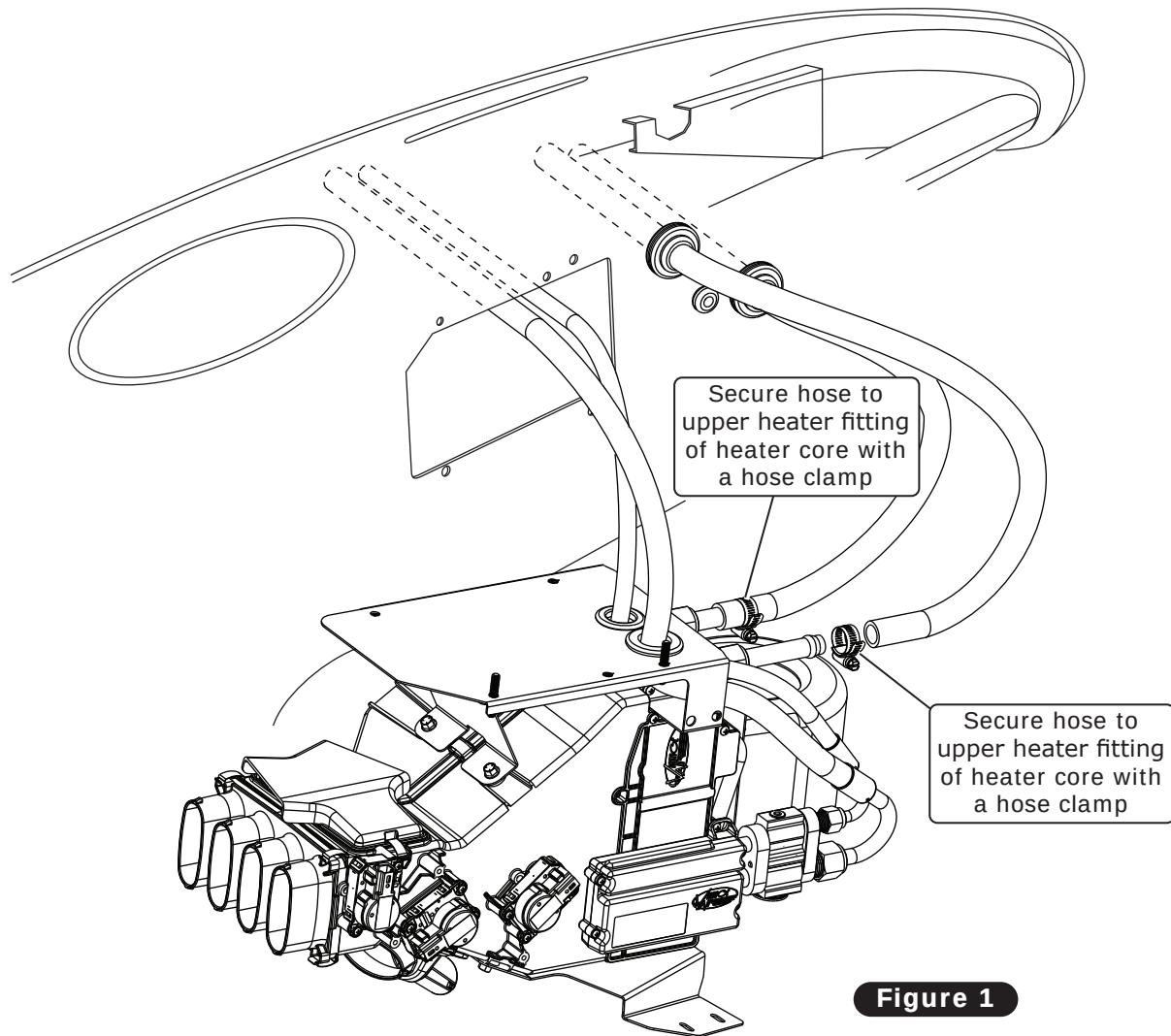


Figure 1



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Evaporator Installation (Cont.)

5. Using the template provided on Page 32, drill (2) 3/16" holes into the dash brace as shown below in Figure 2, below.
6. Add a bead of silicone around the firewall opening.
7. Lift the evaporator module up under the dash, aligning the studs with the mounting provisions on the firewall. Temporarily secure it in place using (2) 1/4-20 nuts with star washers from the engine side of the firewall.
8. Continue to secure the evaporator module to the firewall opening by adding (3) 1/4-20 x 3/4" serrated flange black bolts as shown in Figure 2, below.
9. Secure the evaporator dash bracket to the dash brace using (2) #14 x 3/4" washer head screws (See Figure 2, below).
10. Replace the studs and nuts in the firewall with (2) 1/4-20 x 3/4" serrated flange black bolts.

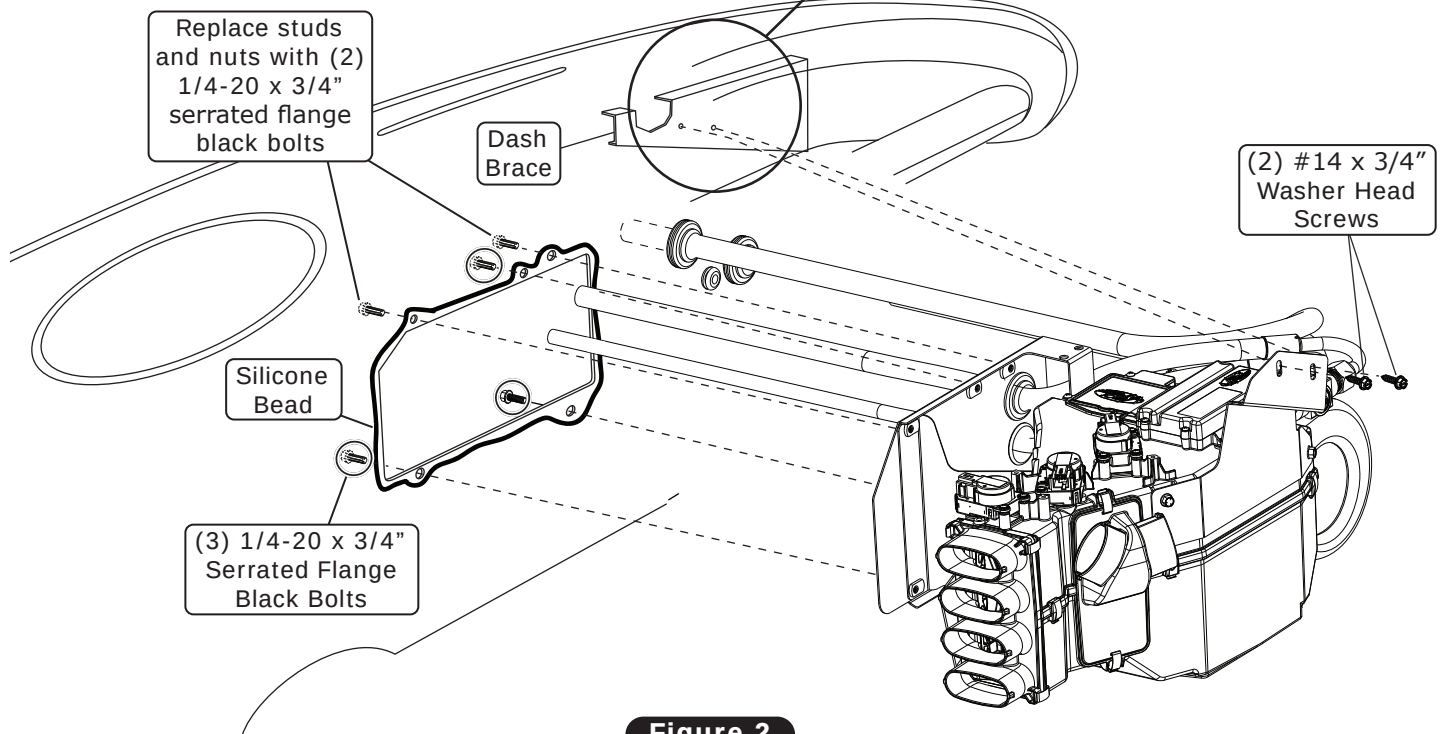
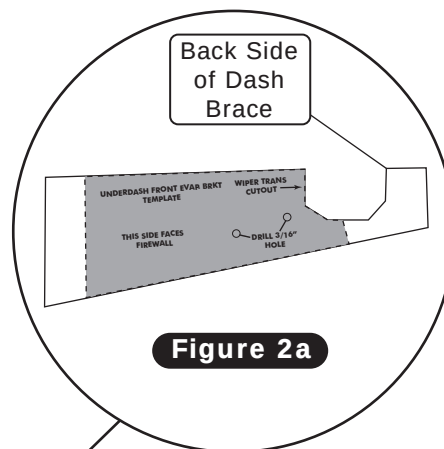


Figure 2



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Drain Hose Installation

1. Locate the evaporator drain on the bottom of the evaporator case.
2. In-line with the drain, lightly make a mark on the firewall measuring 1" down. Drill a 5/8" hole through the firewall (See Figure 1, below).
3. Install the drain hose onto the bottom of the evaporator module, and route it through the firewall. Install a 1/2" 90° drain elbow onto the drain hose (See Figure 1, below).

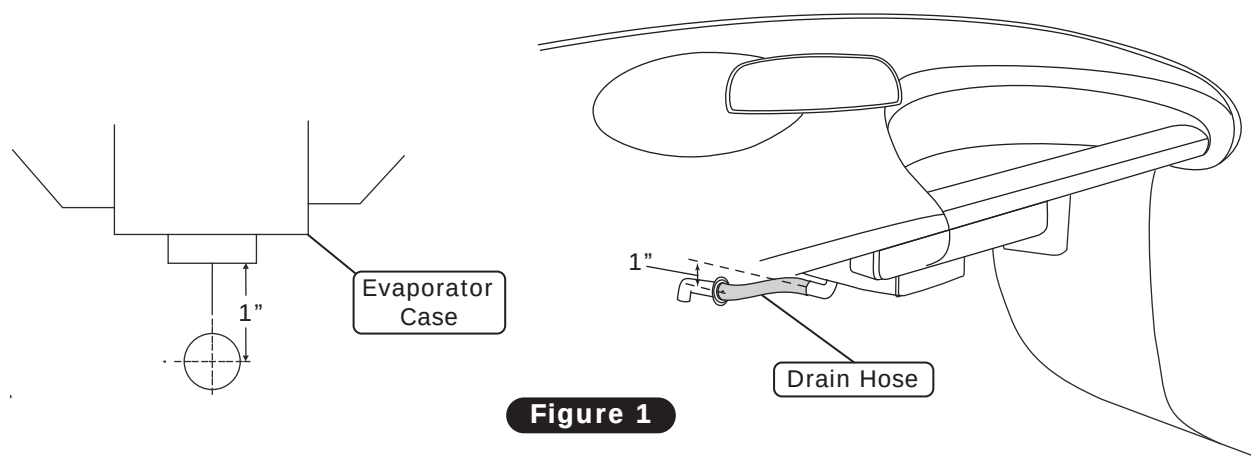


Figure 1

A/C Hose Installation

Standard Hose Kit:

1. Locate the #8 compressor A/C hose. Lubricate (2) #8 O-rings (See Lubricating O-rings, Page 9), and connect the 90° female fitting to the #8 discharge port on the compressor. Then route the straight female fitting with 134a service port to the #8 condenser hardline coming through the core support (See Figure 1, Pages 17 and 18). Tighten each fitting connection.
2. Locate the #10 compressor A/C hose. Lubricate (2) #10 O-rings (See Lubricating O-rings, Page 13), and connect the #10 135° female fitting with 134a service port to the #10 suction port on the compressor. Then route the 135° female fitting to the #10 evaporator adapter block port (See Figure 1, Page 12, and Figure 1, Pages 17 and 18). Tighten each fitting connection.
3. Locate the #6 evaporator A/C hose. Lubricate (2) #6 O-rings (See Lubricating O-rings, Page 13), and connect the 90° female fitting to the #6 hardline coming through the core support from the drier. Then route the 45° female fitting to the #6 evaporator adapter block port (See Photo 1, Page 12, and Figure 1, Pages 17 and 18). Tighten each fitting connection.

Modified Hose Kit:

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



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Driver-Side Compressor Mount AC & Heater Hose Routing (1962 Corvette Shown)

NOTE: Vintage Air Systems use 5/8" heater connections. On engines equipped with 3/4" hose nipples, these will need to be removed and replaced with 5/8" nipples (not supplied). For water pumps with a cast-in 3/4" heater outlet, a 3/4" x 5/8" reducer fitting in the heater hose (not supplied) or molded hose (Vintage Air Part # 099010) will need to be installed.

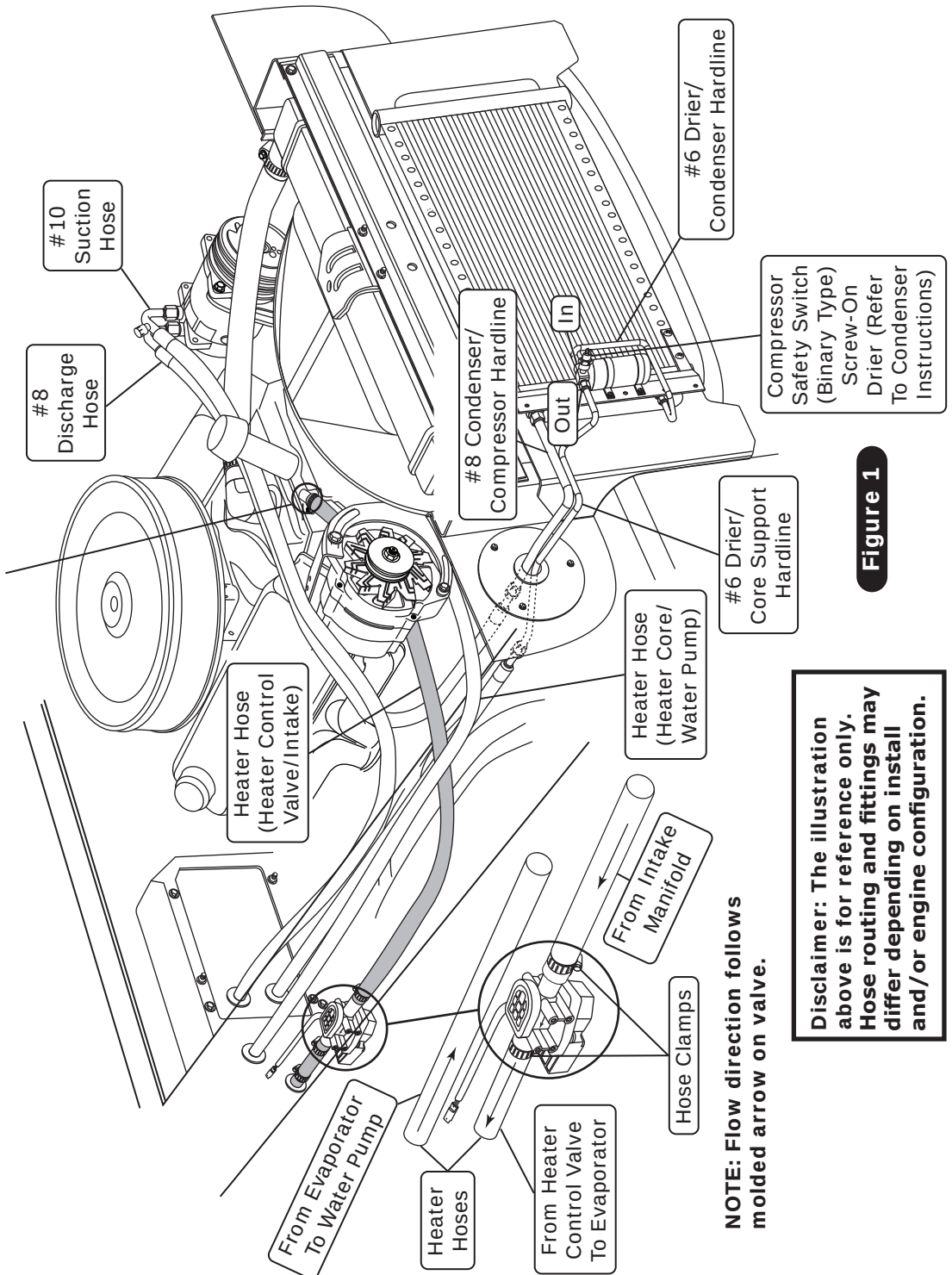


Figure 1

Disclaimer: The illustration above is for reference only. Hose routing and fittings may differ depending on install and/or engine configuration.

NOTE: Flow direction follows molded arrow on valve.

Heater Hose & Heater Control Valve Installation

1. Route a piece of heater hose from the water pump to the top heater fitting of the heater core as shown in Figure 1, Page 14, and Figure 1, below. Secure the hose using hose clamps.
2. Route a piece of heater hose from the intake to the bottom heater fitting of the heater core as shown in Figure 1, Page 14, and Figure 1, below. Install the heater control valve in-line with the intake manifold (pressure side) heater hose. Secure the hose using hose clamps as shown in Figure 11, below. **NOTE: Flow direction follows molded arrow on valve.**



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Passenger-Side Compressor Mount AC & Heater Hose Routing (1962 Corvette Shown)

NOTE: Vintage Air Systems use 5/8" heater connections. On engines equipped with 3/4" hose nipples, these will need to be removed and replaced with 5/8" nipples (not supplied). For water pumps with a cast-in 3/4" heater outlet, a 3/4" x 5/8" reducer fitting in the heater hose (not supplied) or molded hose (Vintage Air Part # 099010) will need to be installed.

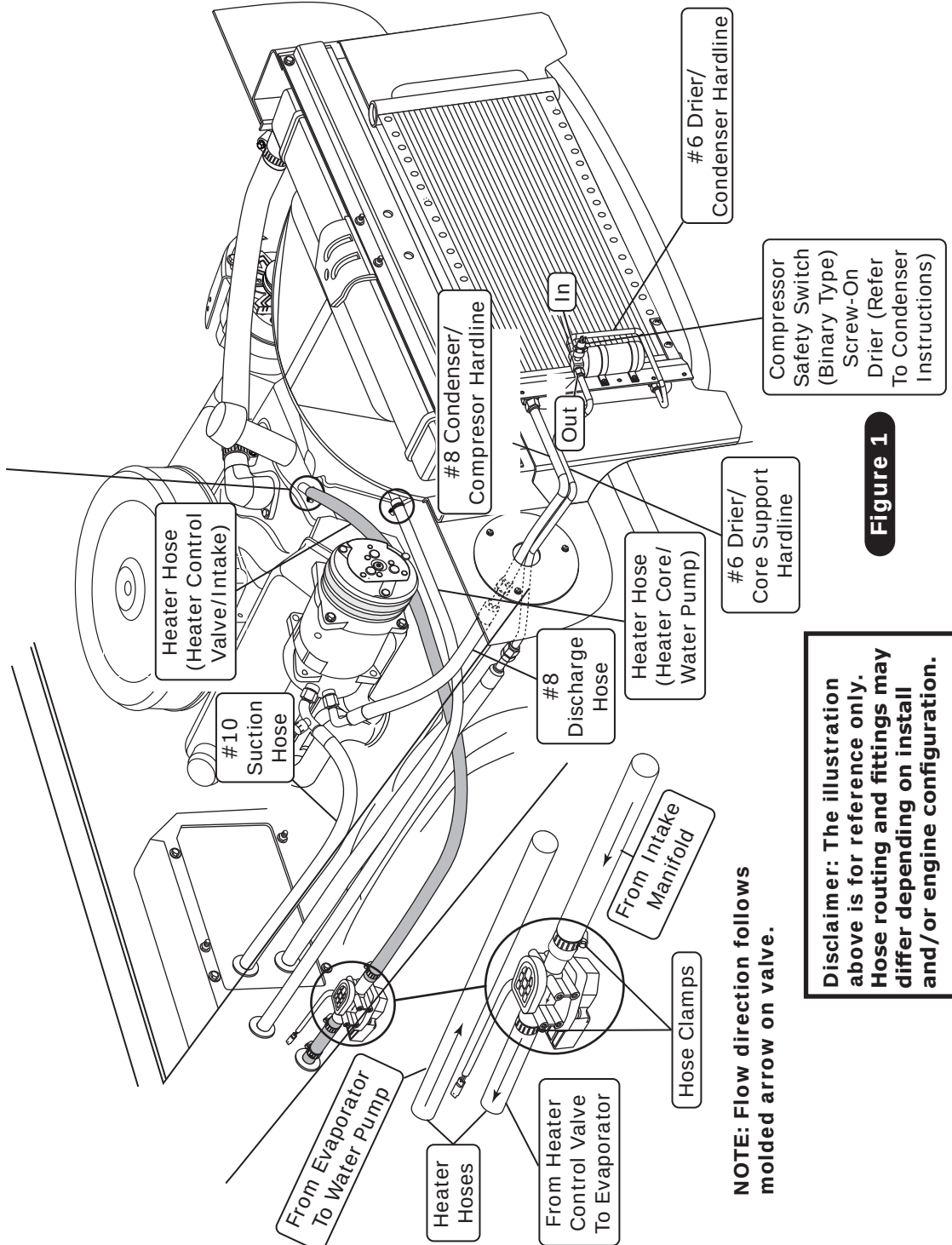


Figure 1

NOTE: Flow direction follows molded arrow on valve.

Disclaimer: The illustration above is for reference only. Hose routing and fittings may differ depending on install and/or engine configuration.

Heater Hose & Heater Control Valve Installation

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2. Route a piece of heater hose from the intake to the bottom heater fitting of the heater core as shown in Figure 1, Page 14, and Figure 1, below. Install the heater control valve in-line with the intake manifold (pressure side) heater hose. Secure the hose using hose clamps as shown in Figure 12, below. **NOTE: Flow direction follows molded arrow on valve.**



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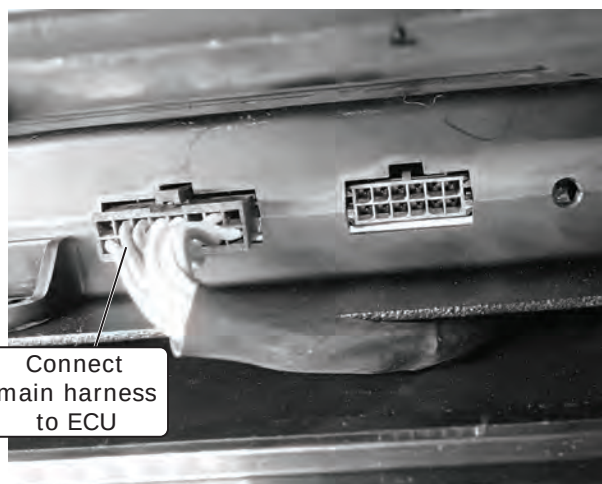
Wiring Final

1. 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.
2. Route the violet power wire to a switched 12v power source on the fuse panel (See Photo 1, below).
NOTE: This requires a male fuse extension (not supplied).
3. Connect the tan wire to the factory dash lights to enable control panel backlighting (if applicable).
4. Connect the main harness to the ECU (See Photo 2, below).
5. Select a suitable mounting location for the main relay.
6. Route the blue lead from the main wiring harness to the safety switch (See Photo 3, below).
7. Connect the compressor lead wire to the safety switch (See Photo 3, below).
8. Connect the bullet terminal of the compressor lead to the compressor bullet terminal (See Photo 4, below).

Attach Violet Wire to
Switched Power Source



Photo 1



Connect
main harness
to ECU

Photo 2

Connect compressor lead
wire to safety switch

Connect blue lead from
main wiring harness to
safety switch

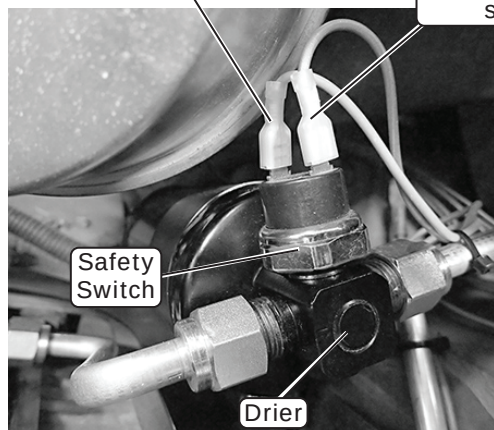
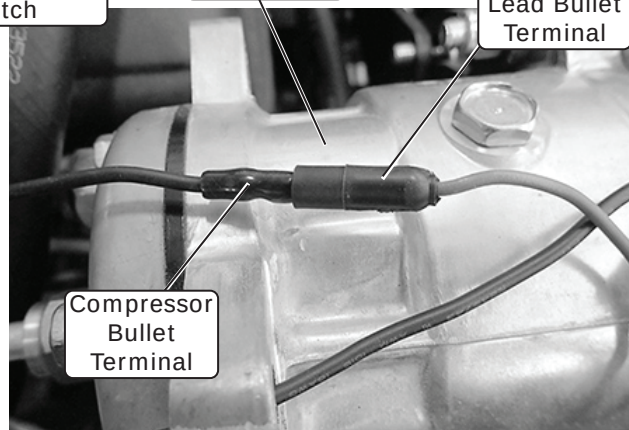


Photo 3

Compressor

Compressor
Lead Bullet
Terminal



Compressor
Bullet
Terminal

Photo 4

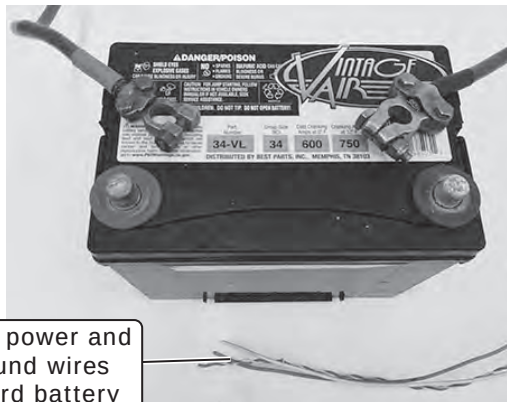


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Engine Compartment Wiring

NOTE: The following connections are critical to the performance of the system. Before making connections, refer to the Quality Crimp Guidelines, Page 26.

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



Photo 2

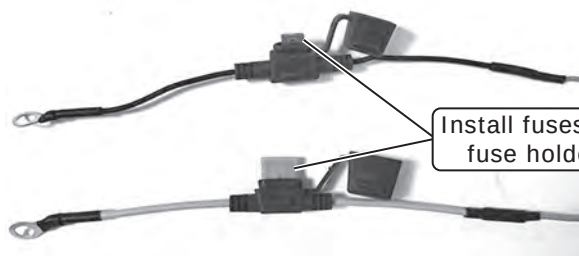
Install heat shrink over 12 AWG orange standard fuse holder assembly wire

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



Photo 3

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



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.

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

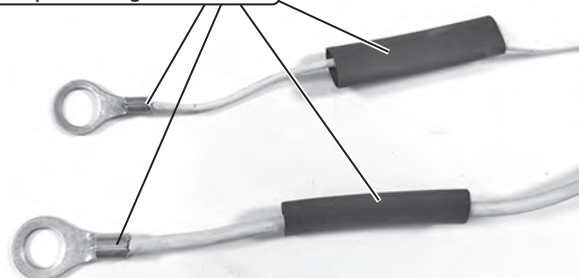


Photo 6



Photo 7

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



Photo 8



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Engine Compartment Wiring (Cont.)

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

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

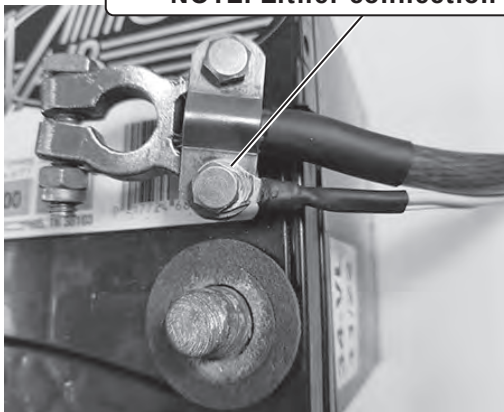


Photo 9

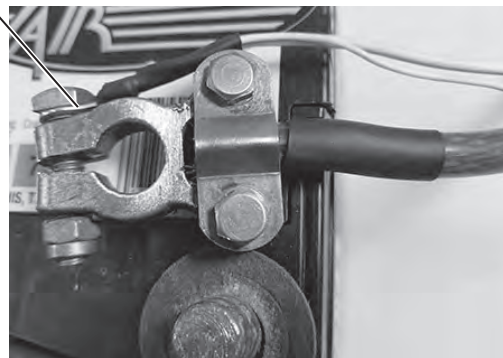


Photo 10

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

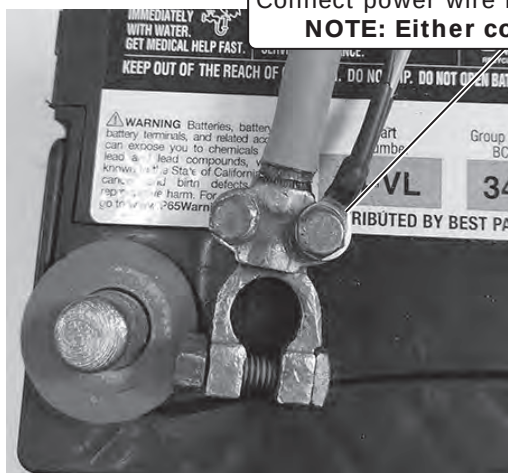


Photo 11

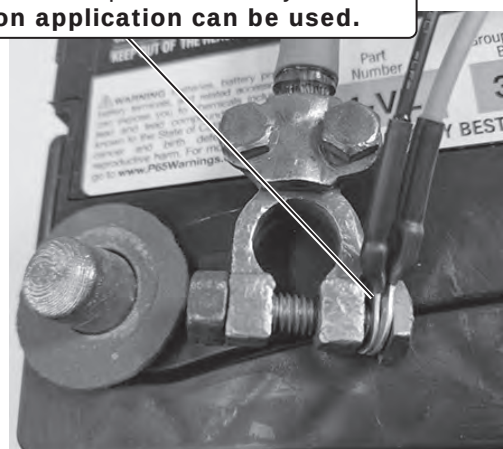


Photo 12

NOTE: Do not connect power until installation is completed.



Completed Installation
Shown

Photo 13



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Final Steps: Installation Check

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



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Final Steps: Completing the Install

- 1.** Install the duct hoses as shown in Duct Hose Routing, Page 24.
- 2.** Install the control panel assembly. Refer to control panel instructions.
- 3.** Plug the wiring harnesses into the ECU module on the sub case. Wire according to wiring diagrams on Pages 27 and 28.
- 4.** Reinstall the passenger-side under dash cover, package tray, if equipped.
- 5.** Reinstall the kick panel.
- 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 29.



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Duct Hose Routing

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

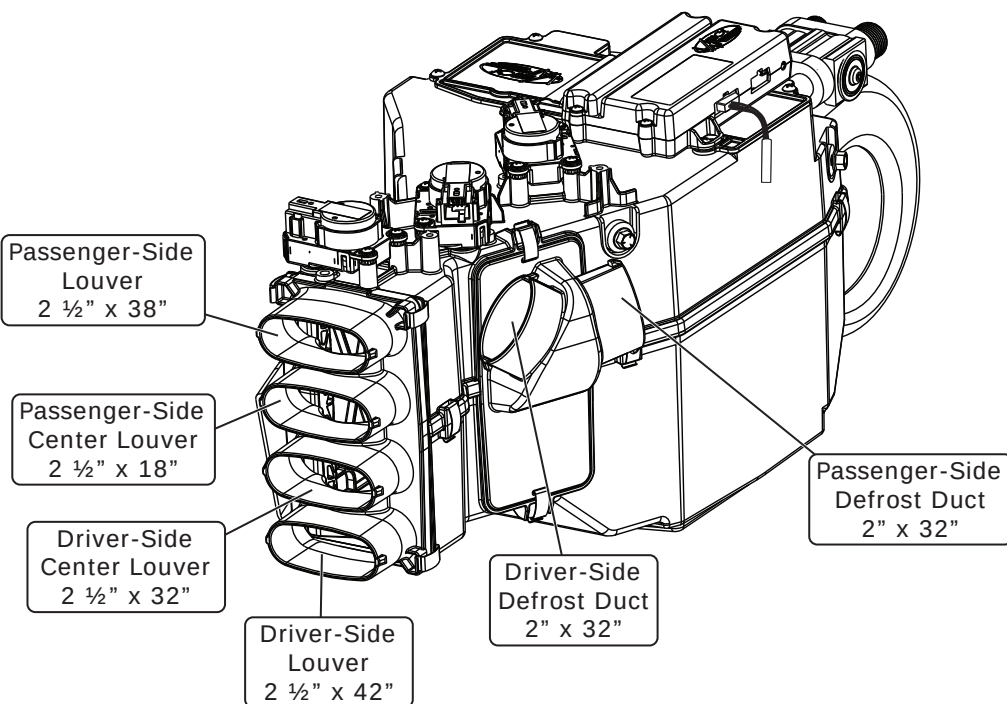
1. Stretch the duct hose until there is no slack, measure, mark and cut hose to size (See Photo 1, below).

Stretch, measure,
mark and cut
hose to size



Photo 1

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



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

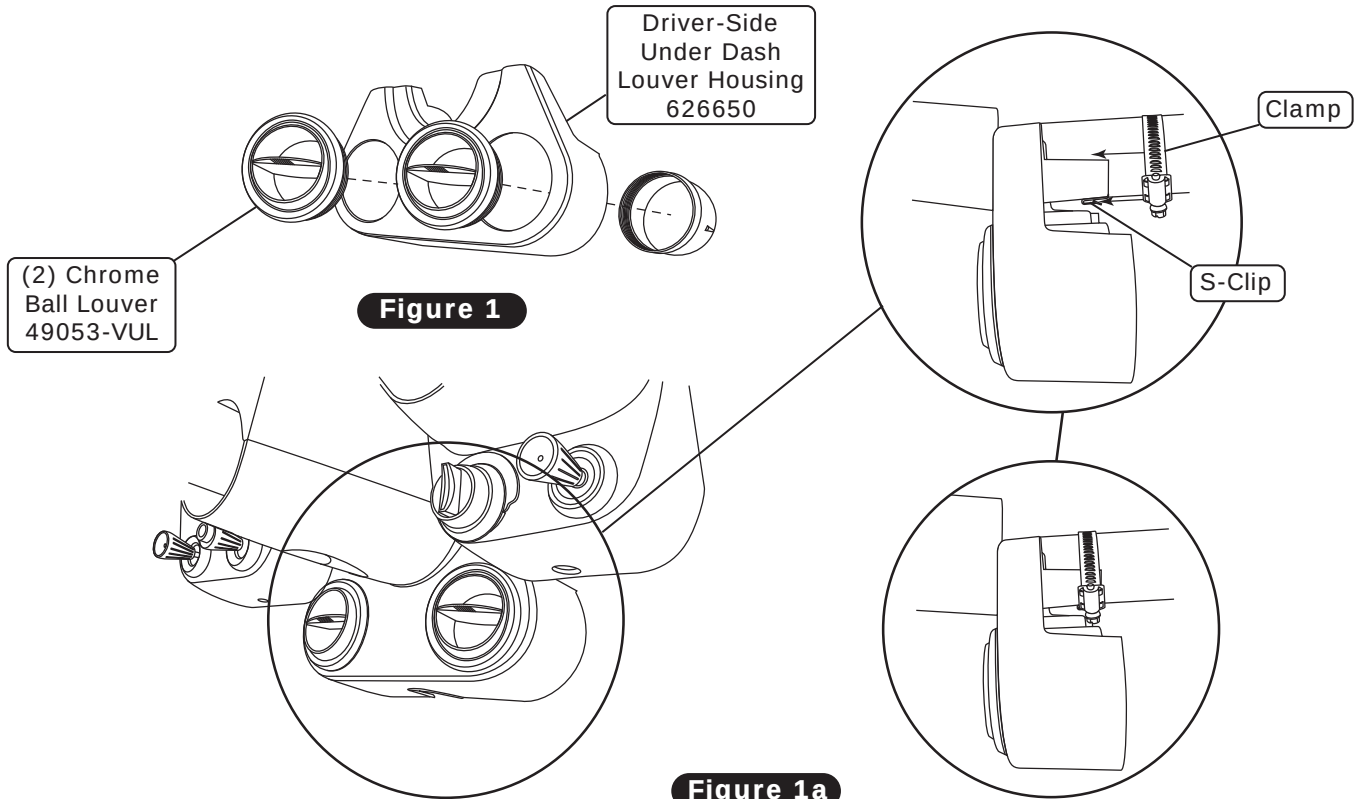
Position connectors
towards bottom



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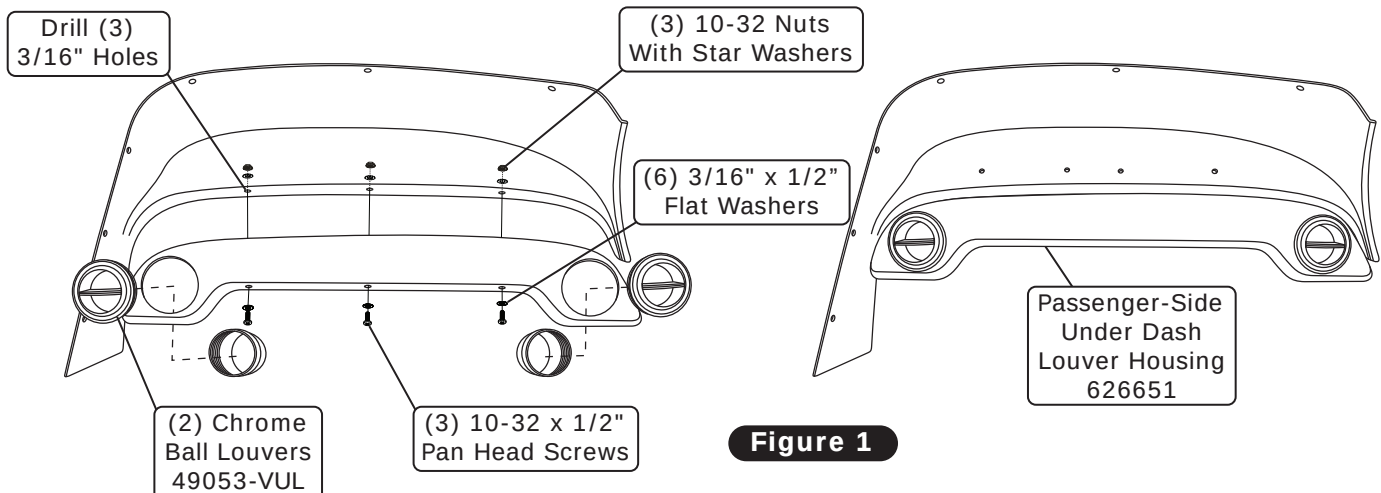
Driver-Side Under Dash Louver Installation

1. Install the chrome ball louvers into the driver-side under dash louver housing as shown in Figure 1, below.
2. Secure the louver housing to the under dash steering column using an S-clip and clamp as shown in Figure 1a, below.



Passenger-Side Under Dash Louver Installation

1. Locate the passenger-side under dash louver housing, and drill (3) 3/16" holes (See Figure 1, below).
2. Secure the louver housing to the dash using (3) 10-32 x 1/2" pan head screws, (6) 3/16" x 1/2" flat washers and (3) 10-32 nuts with star washers as shown in Figure 1, below.
3. Install the louvers into the under dash housing as shown in Figure 1, below.





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Quality Crimp Guideline

Acceptable strip length
(Some copper visible)

Crimped area is centered
on each side of splice

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

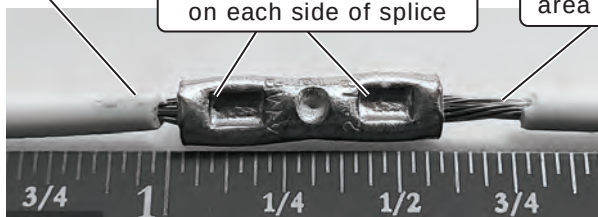


Photo 1

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

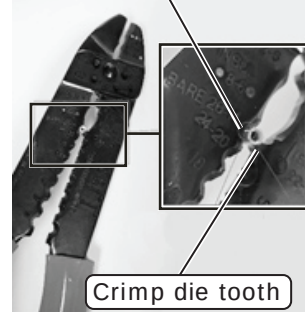


Photo 2

Good Ring Terminal Crimp Bad Ring Terminal Crimp

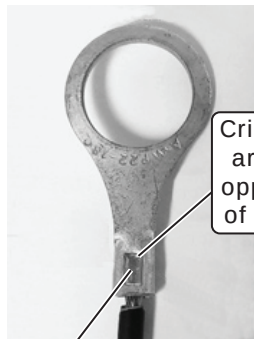


Photo 3

Crimp
area is
centered
on barrel

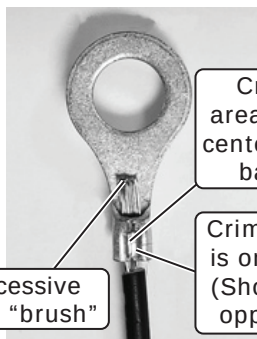


Photo 4

Excessive
wire "brush"

Crimp
area is not
centered on
barrel

Crimp area
is on seam
(Should be
opposite)



Photo 5

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

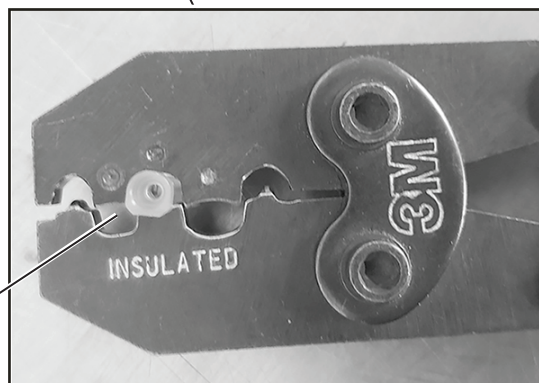
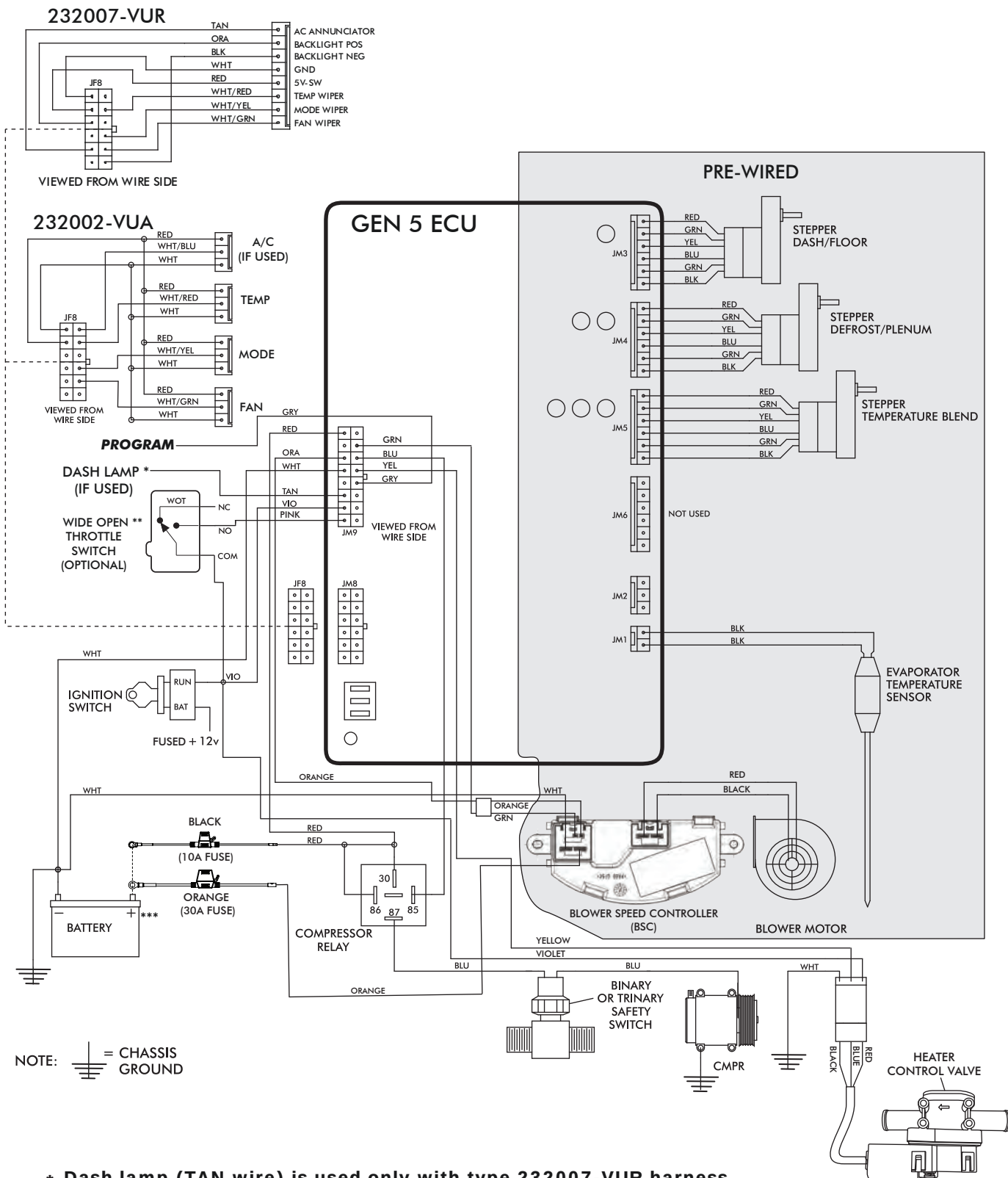


Photo 5a



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Gen 5 Wiring Diagram



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

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

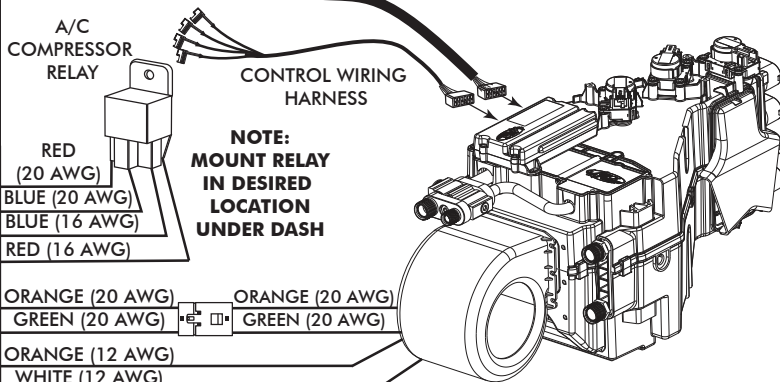
*** Install fuse assemblies at or as near to the battery as possible.



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Gen 5 Wiring Instructions

WIRING HARNESS (231505) ↓



Ignition Switch:

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

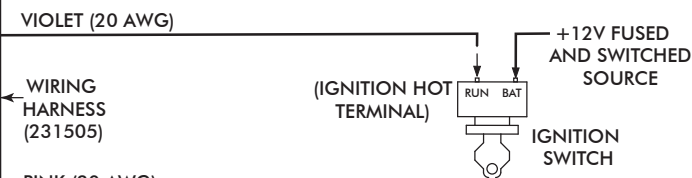
Wide Open Throttle Switch (Optional):

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

Dash Light (Optional):

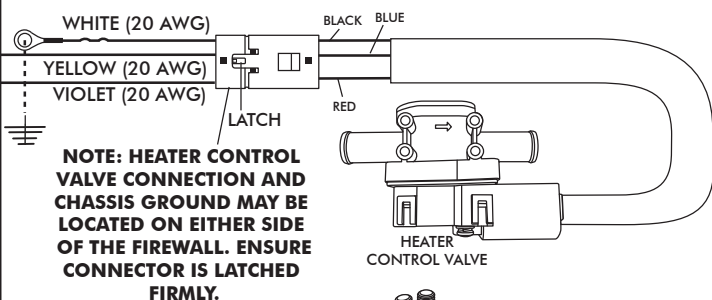
If using a Vintage Air control panel with back light, connect the 20 AWG tan wire to the vehicle's dash back light 0-12V using provided butt splice (PN 226004).

WIRING HARNESS (232020)



FIREWALL

FIREWALL



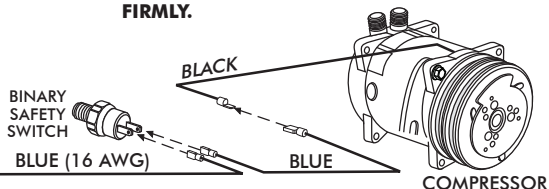
Heater Control Valve:

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

Binary / Trinary & Compressor:

Binary Switch: Terminate provided insulated female terminal (PN 23172-VUW) to the blue 16 AWG wire. Connect as shown.

Trinary Switch: Connect according to trinary switch wiring diagram.



Battery Connections:

ECU Ground: Terminate provided ring terminal (PN 226110) to 20 AWG white wire from the 231505 wire assembly and install at battery.

ECU PWR: Terminate provided fuse assembly with black leads (PN 233012) to the 16 AWG red wire from the 231505 wire assembly. Install provided 10A Red Mini Fuse (PN 226118). Install at battery.

Blower Speed Controller (BSC) Ground: Terminate provided ring terminal (PN 226111) to 12 AWG white wire from the 232020 wire assembly and install at battery.

Blower Speed Controller (BSC) PWR: Terminate provided fuse assembly with orange leads (PN 233008) to the 12 AWG orange wire from the 232020 wire assembly. Install provided 30A Green ATO/ATC Fuse (PN 226125). Install at battery.



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Operation of Controls

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

Blower Speed

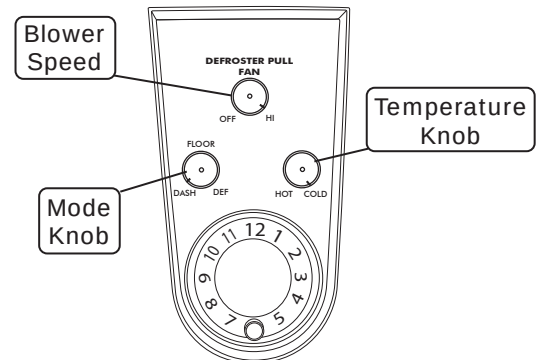
This lever/knob controls blower speed, from OFF to HI.

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

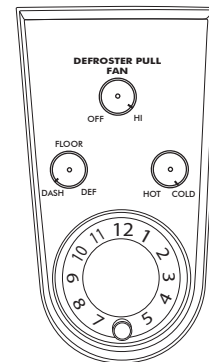
Adjust to desired speed.

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

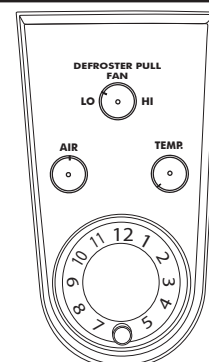
Adjust to desired speed.

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

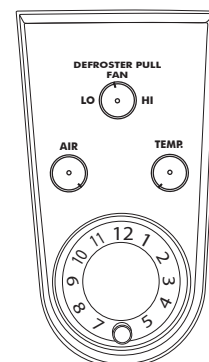
Adjust to desired speed.

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.	
	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.	If fuse continues to blow, there is a serious problem in the wiring. Check all wiring and ensure the wire is not damaged and shorting out along its route.
2. Compressor will not turn on (All other functions work).	System is not charged.	System 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.
3. Compressor will not turn off (All other functions work).		Check for faulty A/C potentiometer or associated wiring. Check for faulty A/C relay.	Repair or replace pot/control wiring. Replace relay.	Red wire at A/C pot should have approximately 5V with ignition on. White wire will have continuity to chassis ground. White/Red wire should vary between 0V and 5V when lever is moved up or down.



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Troubleshooting Guide (Cont.)

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

Advanced Diagnostics and Troubleshooting Guide

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

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

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



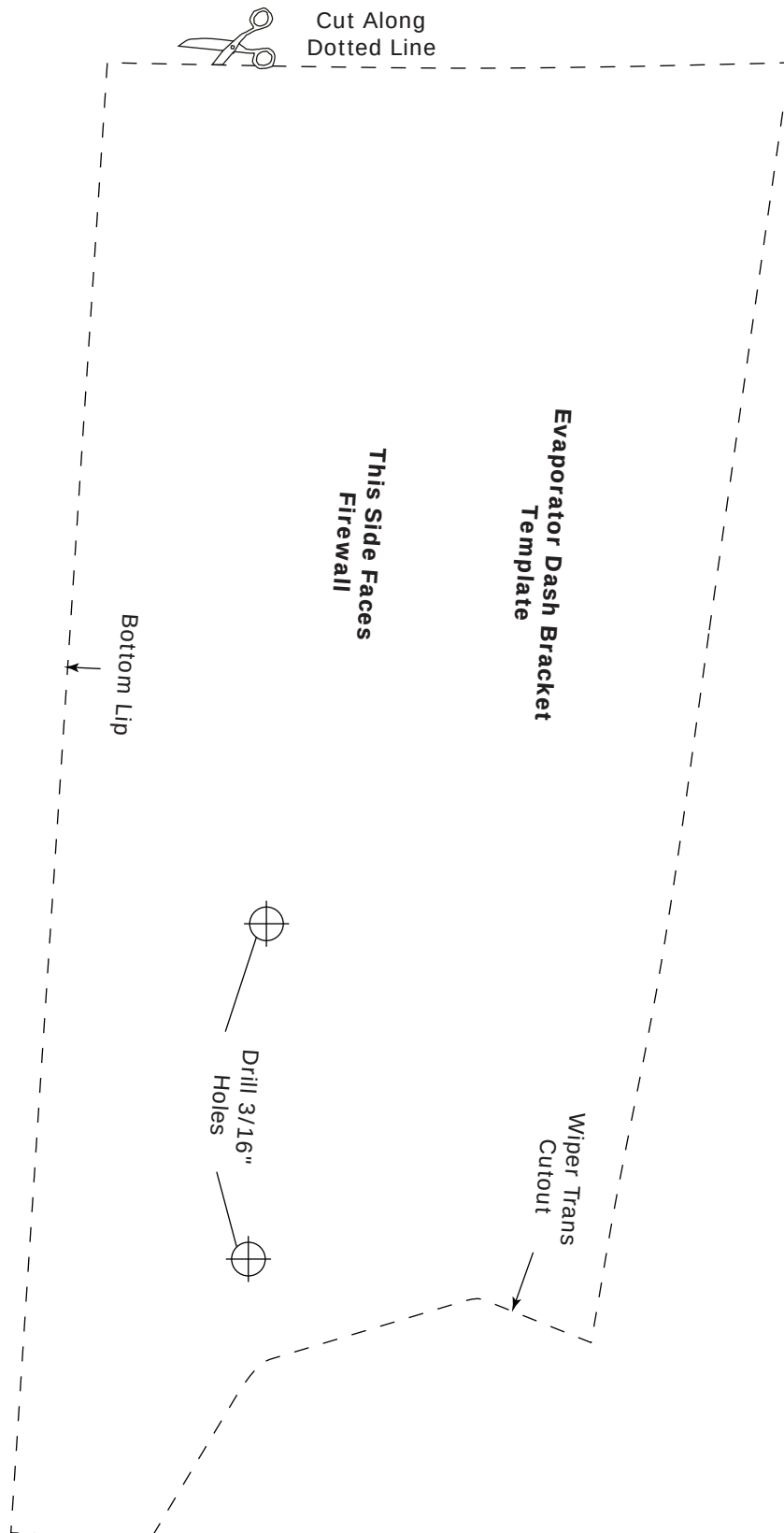
You can also access the guide by typing the following address into your web browser:

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



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NOTE: Due to printing variances, measure the line below before using this template. If template is scaled properly, the line should measure 6 inches.





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Packing List: Evaporator Kit (561201)

No.	Qty.	Part No.	Description
1.	1	765100	Gen 5 Magnum Module with 404 ECU
2.	1	781201	Accessory Kit

Checked By: _____

Packed By: _____

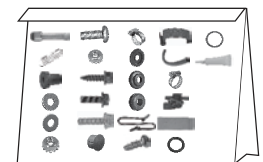
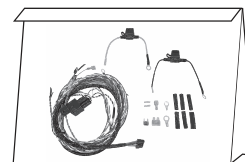
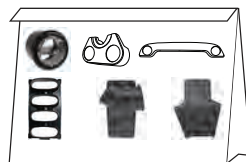
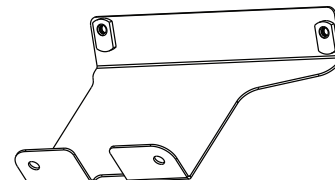
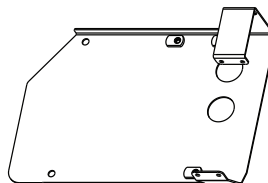
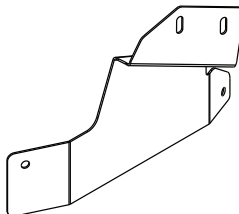
Date: _____

1



**Gen 5 Magnum
Module with 404 ECU
765100**

2



**Accessory Kit
781201**

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