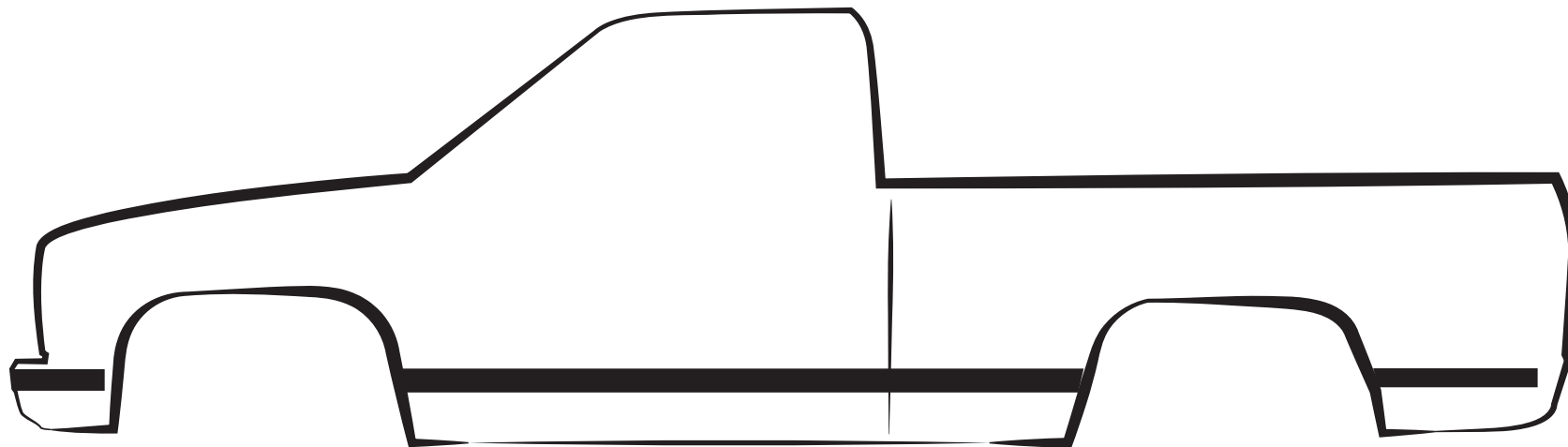




Installation Manual

1988-94 Chevy Truck-Factory Air

Document #1-3097FA

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Congratulations...

You have just purchased the highest quality, best performing A/C system ever designed for your 1988-94 Chevy Truck with Factory Air.

To obtain the high level of performance and dependability our systems are known for, please pay close attention to the following instructions. Our installation steps and procedures are derived from a long history of research and development and the combined experience achieved thru thousands of successful installations (and feedback from customers like you). Please remember that our #1 goal is that you'll have a successful installation and a system that performs at a very high level for many years to come.

Before starting, read the instructions carefully, from beginning to end, and follow the proper sequence. On the next page you'll find a safety and general checklist that you should read before starting your installation.

Thank you from our entire staff.

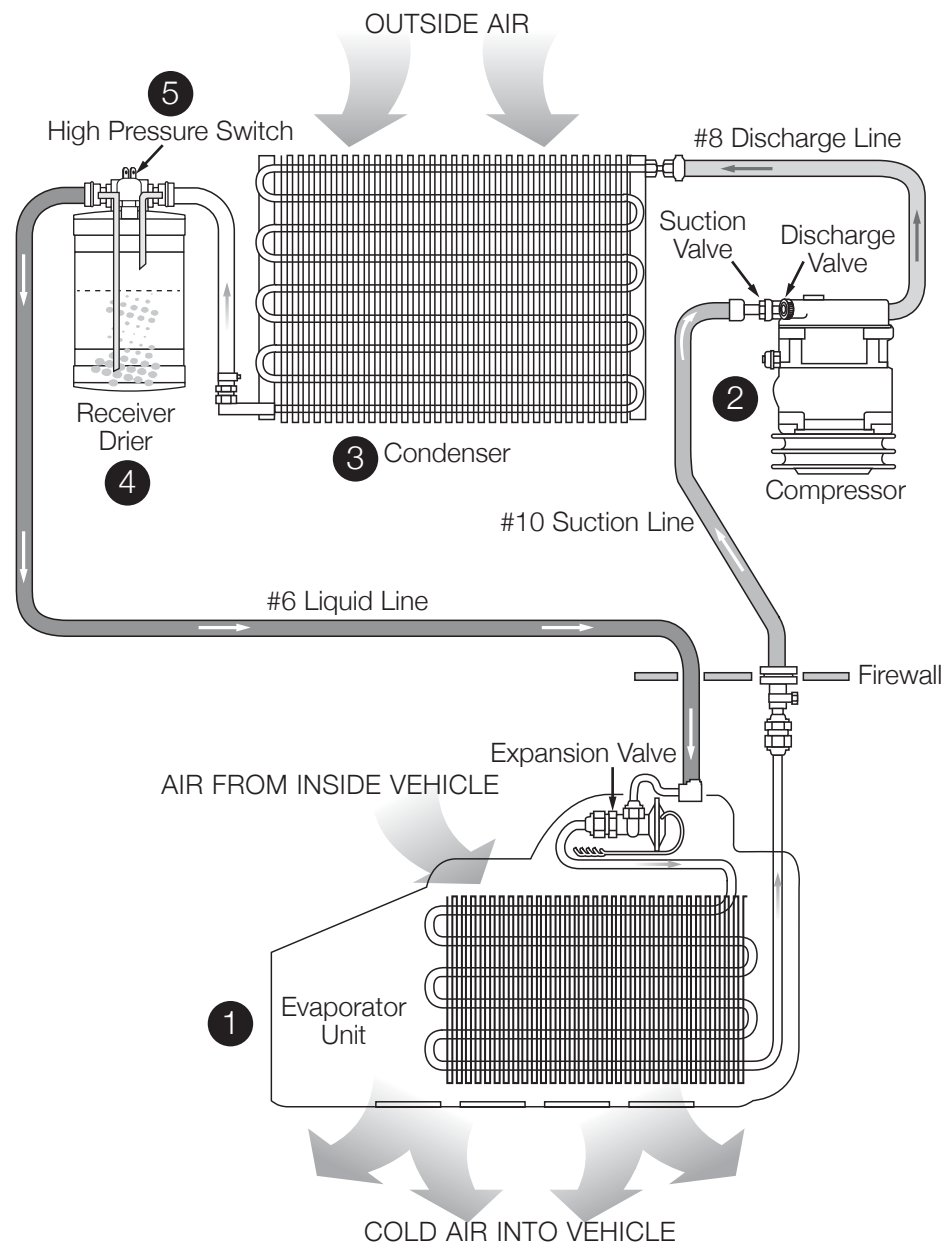
Overview



A Basic Overview of Automotive A/C....

- 1 Evaporator with Blower Fan:** In order to remove the heat from the air in the vehicle, the A/C evaporator allows the refrigerant to absorb the heat from the air passing over it. The blower fan moves cool air out into the car interior.
- 2 Compressor:** The compressor pumps and circulates the refrigerant through the system.
- 3 Condenser:** The condenser is a heat exchanger mounted at the front of the vehicle. Heat drawn out of the interior of the car is expelled here.
- 4 Receiver/Drier:** The drier not only dries refrigerant, it also filters the refrigerant and stores it under certain operating conditions.
- 5 High Pressure Switch:** A pressure switch is used to shut down the system if high or low pressure is detected, basically it acts as a safety switch.

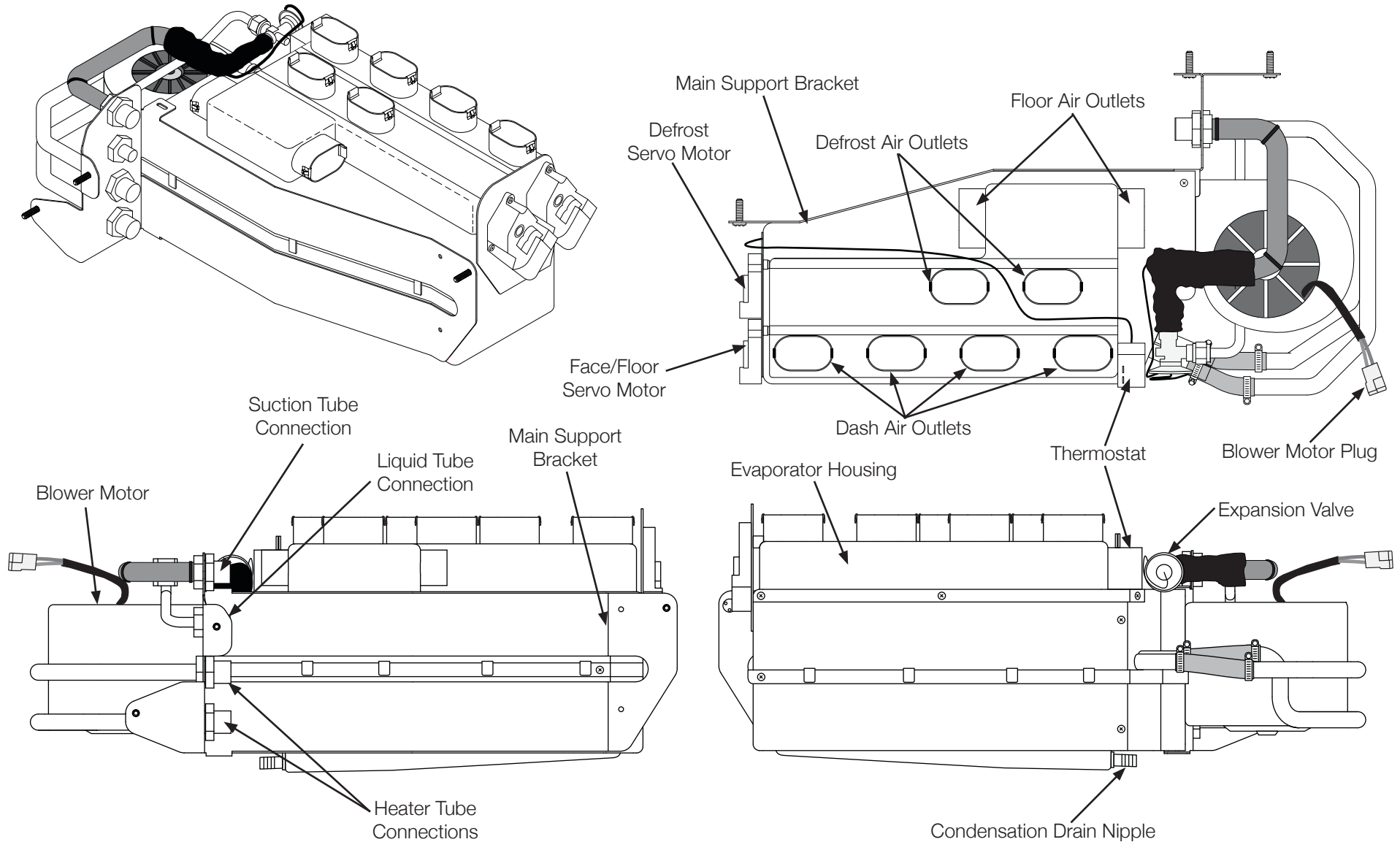
The air conditioning system in your vehicle is comprised of a compressor, condenser, expansion valve, receiver/drier, and evaporator. Refrigerant (also known as Freon) is compressed in the compressor. In the condenser, gas is cooled to a liquid state and travels to the expansion valve. As the liquid refrigerant goes through the expansion valve it rapidly cools in the evaporator. A fan blows over the evaporator and cools the air that blows out your vents.



Overview



First, take a minute to familiarize yourself with the evaporator unit.



Check List, Pre-Installation:

- ☐ Before beginning the installation check the shipping box for the correct components. Your boxed unit includes a list of major components and a list of bagged parts.
- ☐ A basic cleaning of the engine compartment and interior before beginning will make things go more smoothly.
- ☐ Check condition of engine mounts. Excessive engine movement can damage hoses to A/C and/or heater.
- ☐ Before starting, check vehicle interior electrical functions (interior lights, radio, horn, etc). Make a note of anything that does not work as it's supposed to. During the installation you might find the opportunity to repair or upgrade non-working or out of date components. When you're ready to start the installation, **DISCONNECT THE BATTERY FIRST**.
- ☐ Drain the radiator. Retain the coolant and reuse, or dispose of properly.
- ☐ Tools: Your installation only requires the basic tools everyone has in their garage, nothing exotic or specific to A/C or Heat equipment.
- ☐ **SAFETY FIRST:** Wear eye protection while drilling/cutting, deburr sharp edges, and never get in a hurry or force a part.

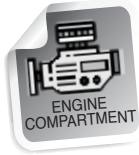
Procedures During Installation:

NOTE: If your vehicle has been or is being modified, some procedures will need to be adjusted to fit your particular application.

- ☐ Fittings: Use one or two drops of mineral oil (supplied with your kit) on ALL rubber o-rings, threads and where o-rings seat in fittings. Do not use thread tape or sealants.
- ☐ Measure twice (or more), cut once.
- ☐ Should you have any technical questions, or feel you have defective components (or missing items), call us immediately, we will be glad to assist you.

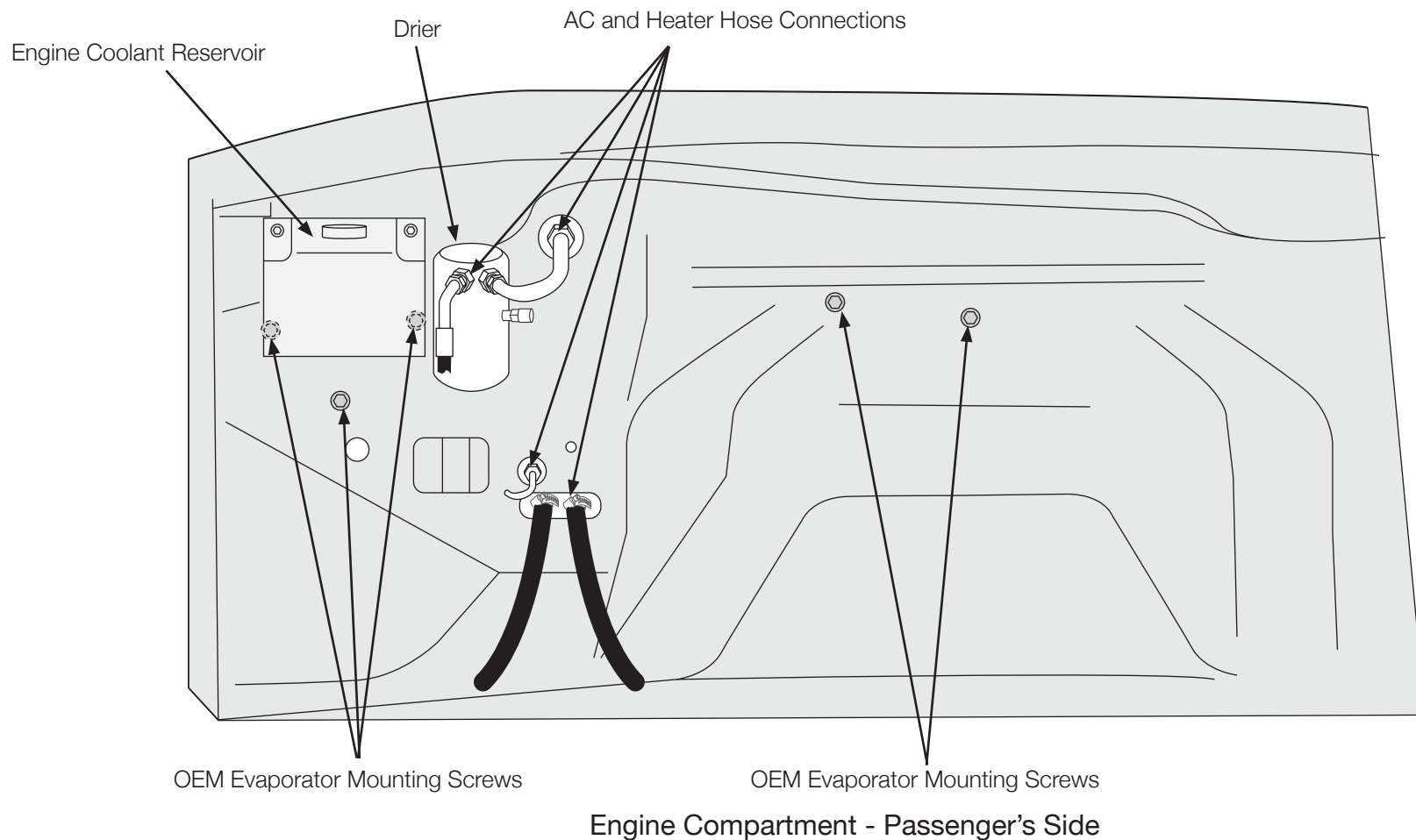
YOU CAN NOW BEGIN THE INSTALLATION...

Install Prep



WARNING: Before continuing, disconnect battery and make sure coolant is drained from the radiator. Store safely for reuse or recycle accordingly.

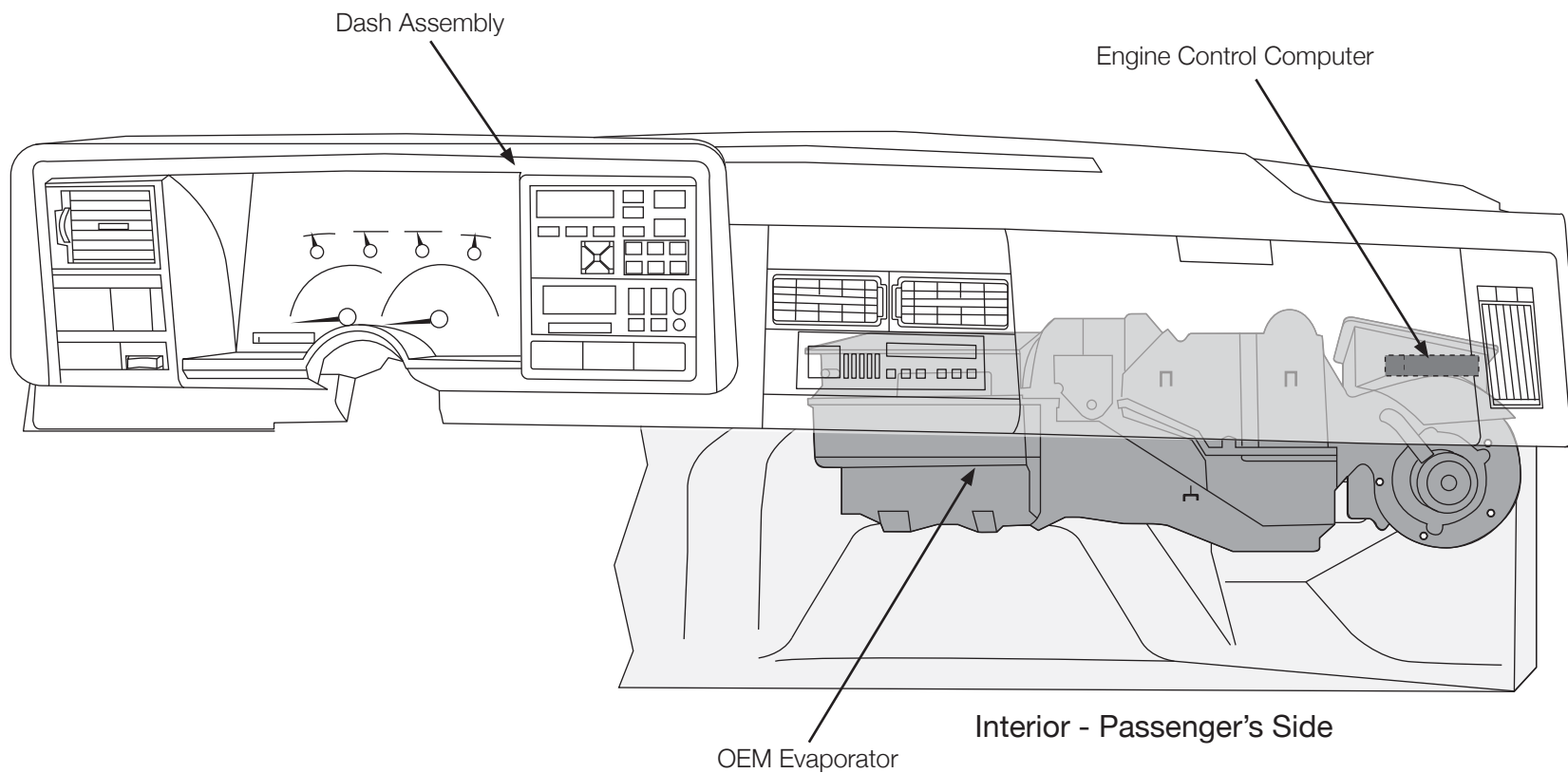
- Remove engine coolant reservoir. Reserve to reinstall.
- Disconnect and remove AC and heater lines and OEM drier from evaporator.
- Remove 5 mounting screws that hold the original OEM evaporator.



Install Prep

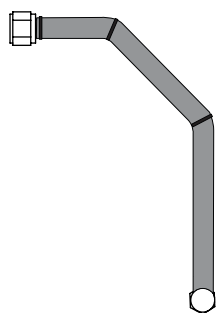


- Remove entire dash assembly and set aside.
- Remove engine control computer and set aside.
- Remove OEM evaporator and discard.

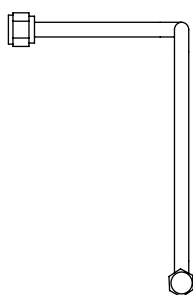


THESE ARE THE PARTS YOU WILL FIND IN BAG KIT A

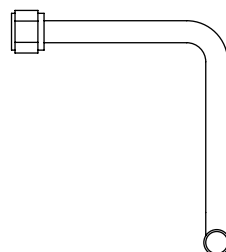
You will use all of these parts and hardware during the next series of installation steps.



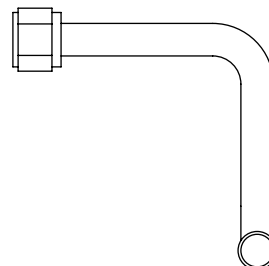
Suction Tube
Part# 8-3097FA-1



Liquid Tube
Part# 0132-7



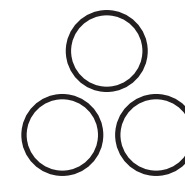
Heater Tube
Part# 0132-8



Heater Tube
Part# 0132-9



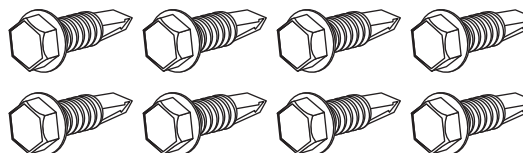
#6 O-Ring
Part# 011G



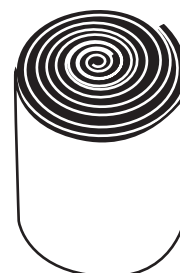
#10 O-Ring (Qty. 3)
Part# 015G



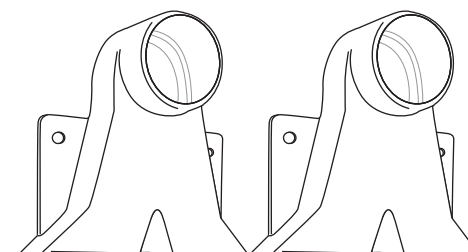
Block Off Assembly, Air Inlet
Part# 10-3097FA-1



#10 x 3/4" Tek Screws (Qty. 8)
Part# 10B75HW3Z



Refrigerant Tape
Part# Q-201



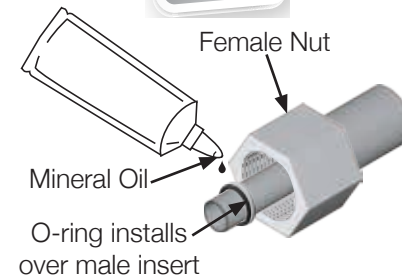
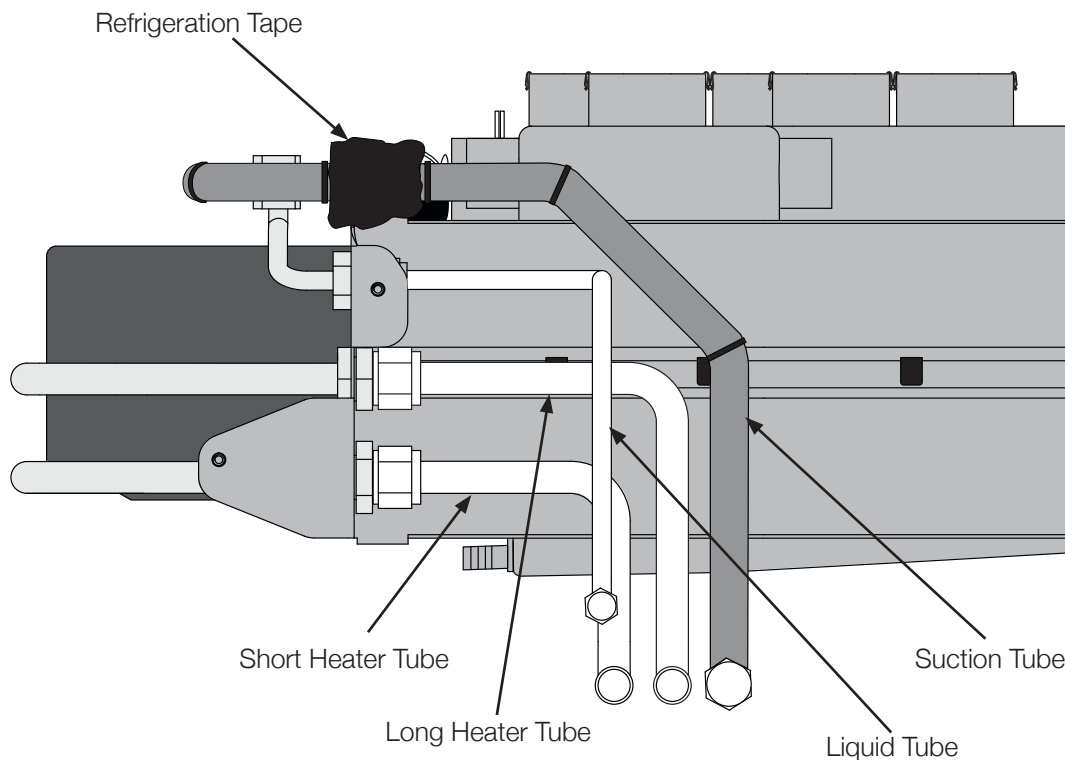
Heat Dump (Qty. 2)
Part# 0045-24

Install Prep

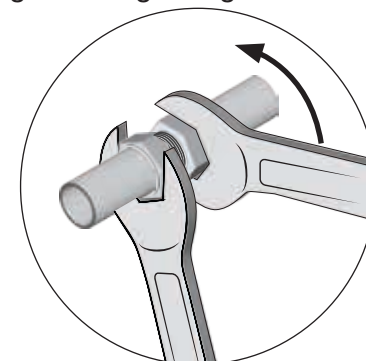


➤ Set new evaporator on a flat level surface. Attach the following evaporator tubes into the tube connections on the evaporator. It is recommended you install the tubes in the following order for ease of install.

- 1) Install the shorter heater tube (Part# 0132-9) into the bottom heater connection as shown with a #10 O-ring and a few drops of mineral oil.
- 2) Install the longer heater tube (Part# 0132-8) into the other heater connection as shown with a #10 O-ring and a few drops of mineral oil.
- 3) Install the liquid tube into the liquid connection as shown with a #6 O-ring and a few drops of mineral oil.
- 4) Install the suction tube into the suction connection as shown with a #10 O-ring and a few drops of mineral oil.
- 5) Apply refrigeration tape to seal at suction tube connection.



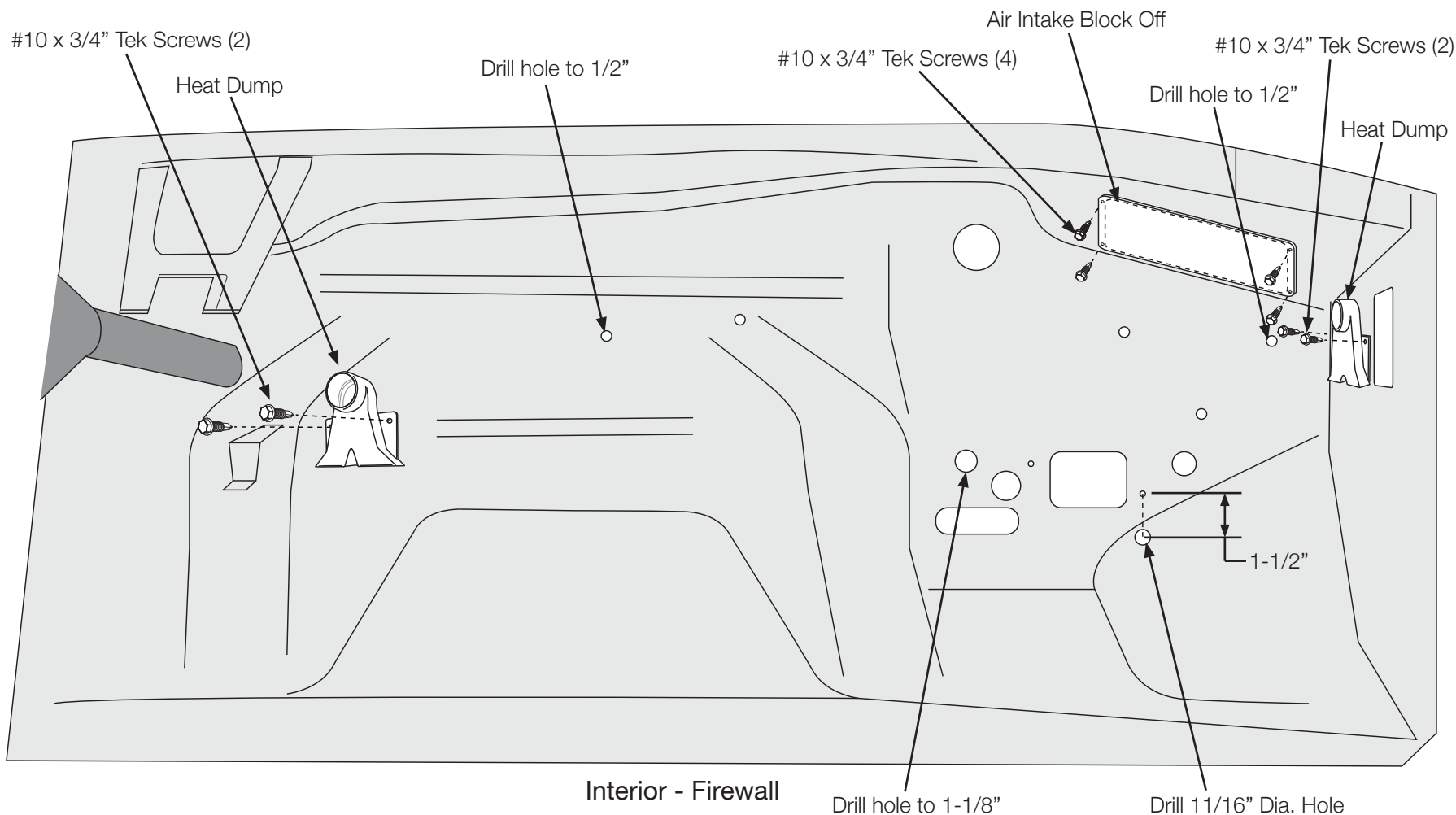
NOTE: For a proper seal of fittings, install O-rings as shown with supplied mineral oil. Tighten fittings using two wrenches



Installation - Air Block Off, Heat Dumps

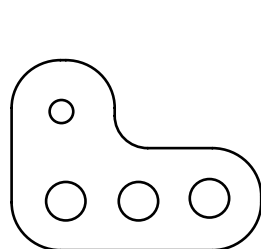


- Drill open 2 factory holes shown below to 1/2" diameter.
- Drill open 1 factory hole shown below to 1-1/8" diameter.
- Drill an 11/16" Dia. hole through the firewall and wheel well 1-1/2" below passenger side mounting hole of the ECM wire harness.
- Install the air intake block off assembly over the air intake using (4) #10 x 3/4" Tek screws.
- Install a heat dump near the driver's side of the transmission tunnel as shown using (2) #10 x 3/4" Tek screws.
- Install a heat dump as high as possible on the passenger's side kick panel as shown using (2) #10 x 3/4" Tek screws.

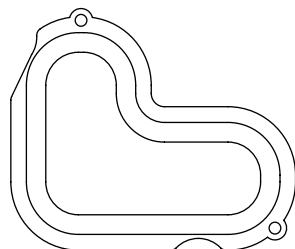


THESE ARE THE PARTS YOU WILL FIND IN BAG KIT B

You will use all of these parts and hardware during the next series of installation steps.



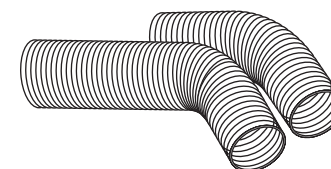
Firewall Grommet
Part# 0132-19R1



Bracket, Firewall Grommet
Part# 0132-19R2



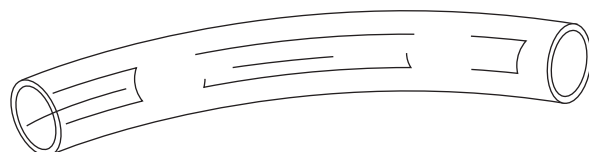
1/4\"-20 Flange Nut (Qty. 3)
Part# 25CNFLZ/S



Duct Hose, 2\" I.D., 1' L
Duct Hose, 2\" I.D., 3' L
Part# 2-1013



1/4\" x .875 O.D. Flat Washer (Qty. 3)
Part# SW16



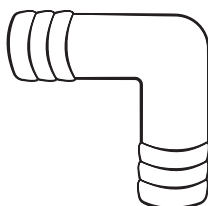
1/2\" Dia. X12\" L Clear Drain Tube
Part# 31004845



6\" Zip-Tie (Qty. 4)
Part# AL-08-40-0-M



#10 x 3/4\" Tek Screws (Qty. 2)
Part# 10B75HW3Z



90 Degree Elbow
Part# 1875



2\" Cap Plug
Part# SR-2



1/2\" Cap Plug (Qty. 2)
Part# SR-1/2

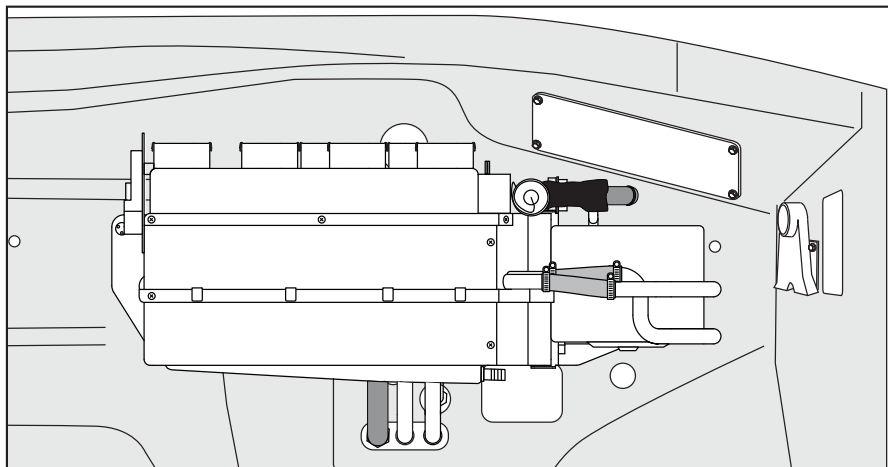
Installation - Evaporator



NOTE: Two people are needed for this step for easy installation.



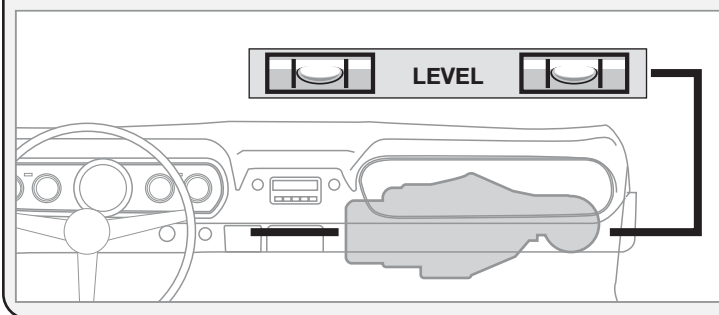
- Installing the complete evaporator unit under the dash will go much easier with the help of a friend. One person can take the unit within the car and place it at the firewall making sure to have the mounting bolts and tube assemblies go through the holes in the firewall.



Interior, Passenger Side - Firewall



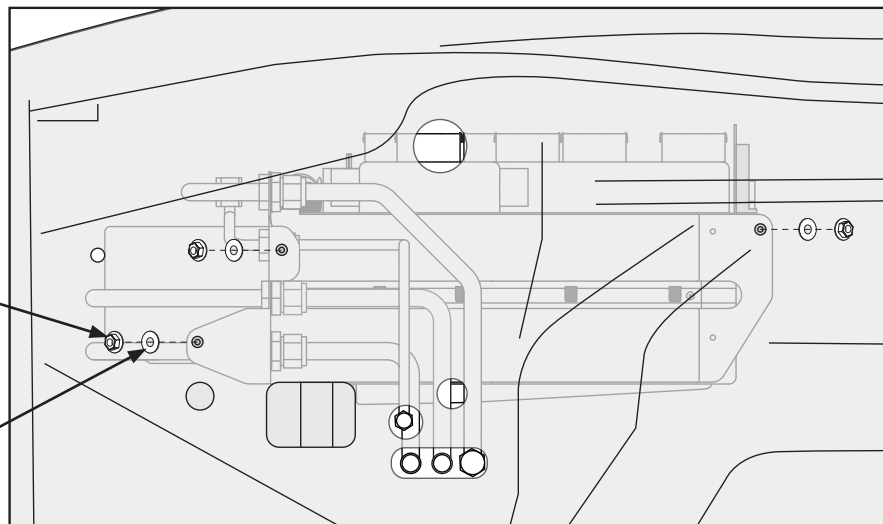
Be sure to align the evaporator unit level with the bottom of instrument panel (assuming the vehicle is sitting level) as shown below, but with a small degree of tilt toward the back to allow proper drain of condensation.



- Another person, on the engine side, can then loosely install (3) flat washers and (3) 1/4"-20 flange nuts onto the (3) studs coming through the firewall.
- Once the evaporator is securely set, tighten all flange nuts.

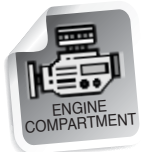
1/4"-20 Flange Nuts (3)

Flat Washer (3)

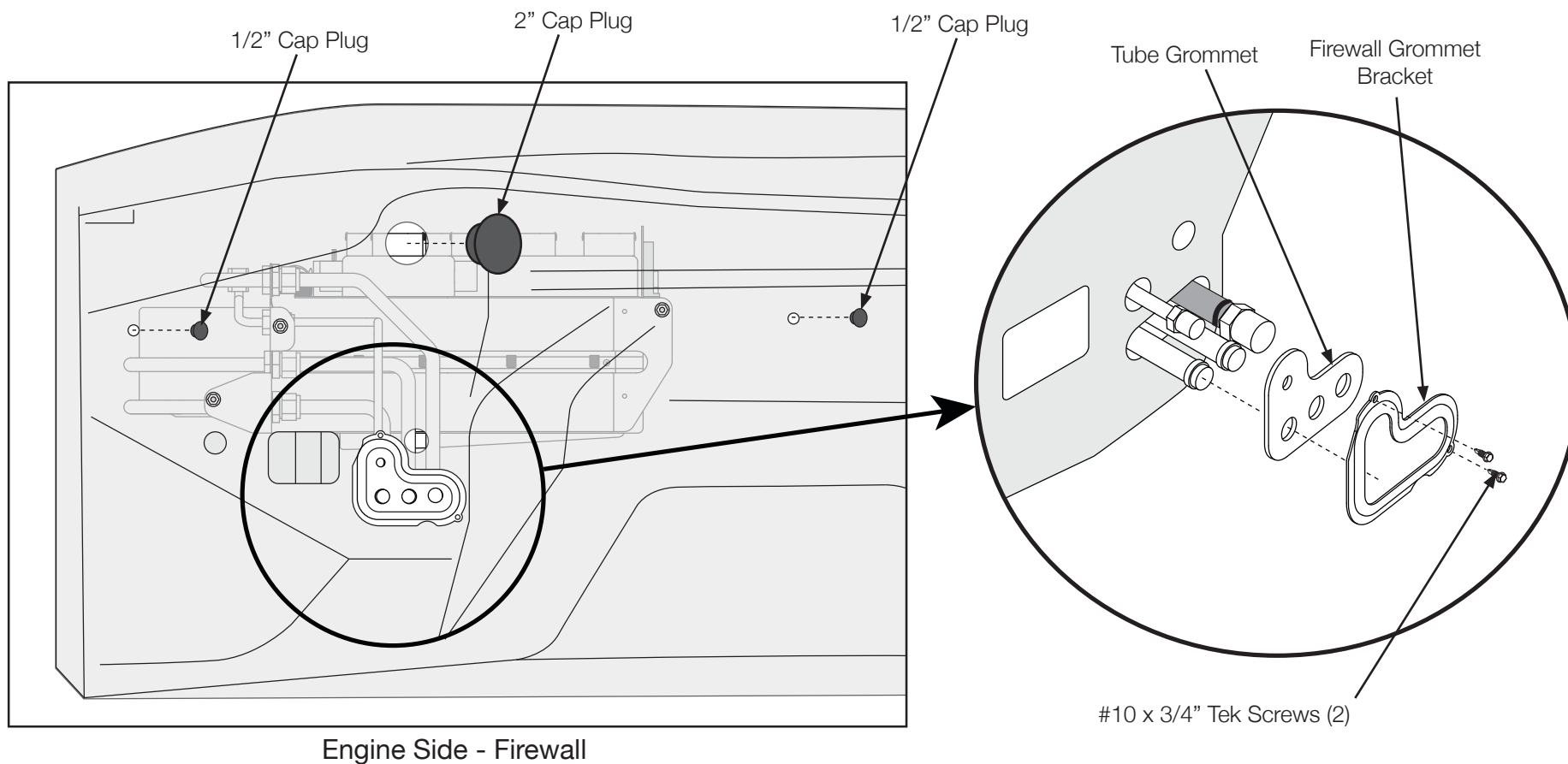


Engine Side - Firewall

Installation - Tube Grommet, Cap Plugs



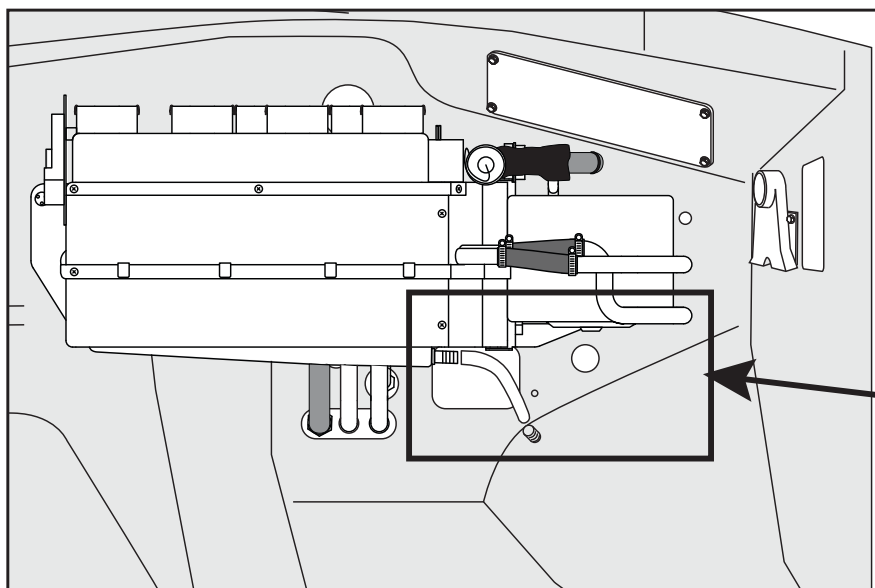
- Install the tube grommet over the evaporator tubes and secure to the firewall using firewall grommet bracket and (2) #10 x 3/4" Tek screws.
- Install (2) 1/2" cap plugs into drilled out 1/2" holes in firewall as shown.
- Install 2" cap plug into 2" factory hole in firewall as shown.



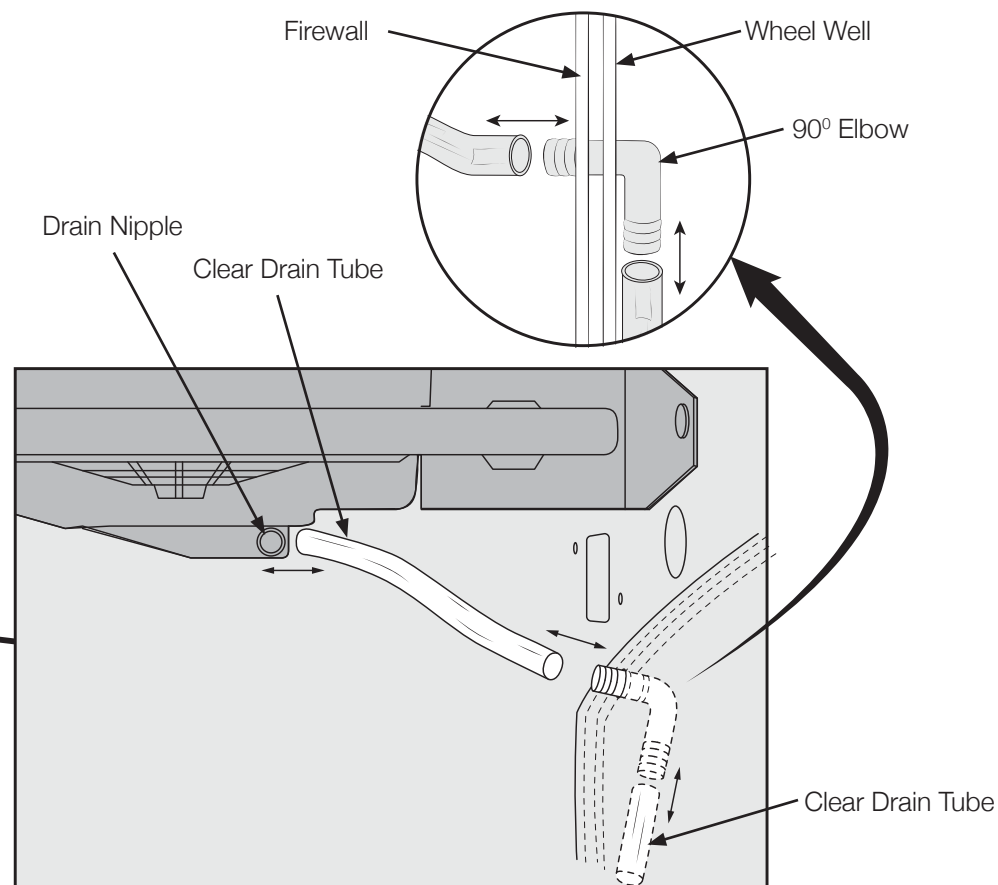
Installation - Drain Tube



- Cut the Clear Drain Tube provided to a length that will reach the hole in the firewall and wheel well from the drain nipple on the evaporator. Attach one end to the drain nipple on the evaporator
- Insert the 90 degree elbow through the firewall and wheel well and connect the cut drain tube to it and the remaining drain tube to the outside end of the elbow.



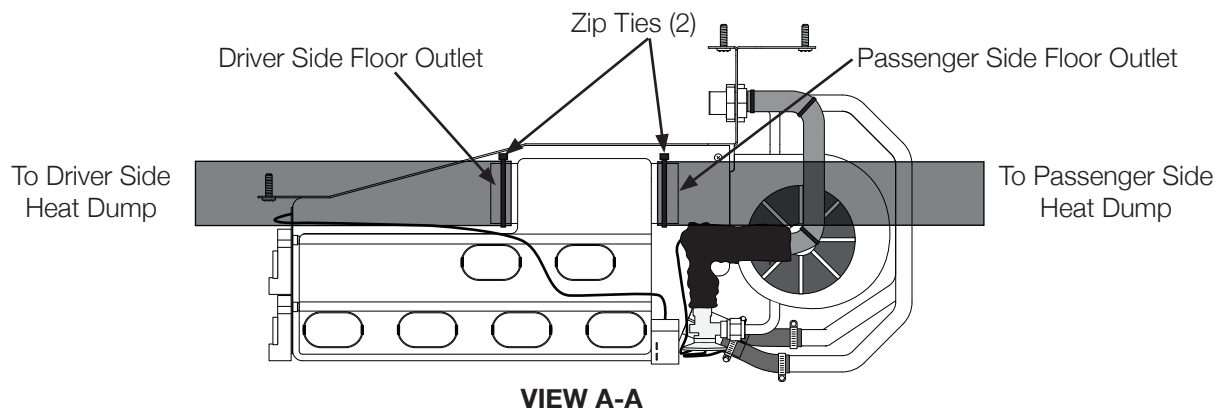
Interior, Passenger Side - Firewall



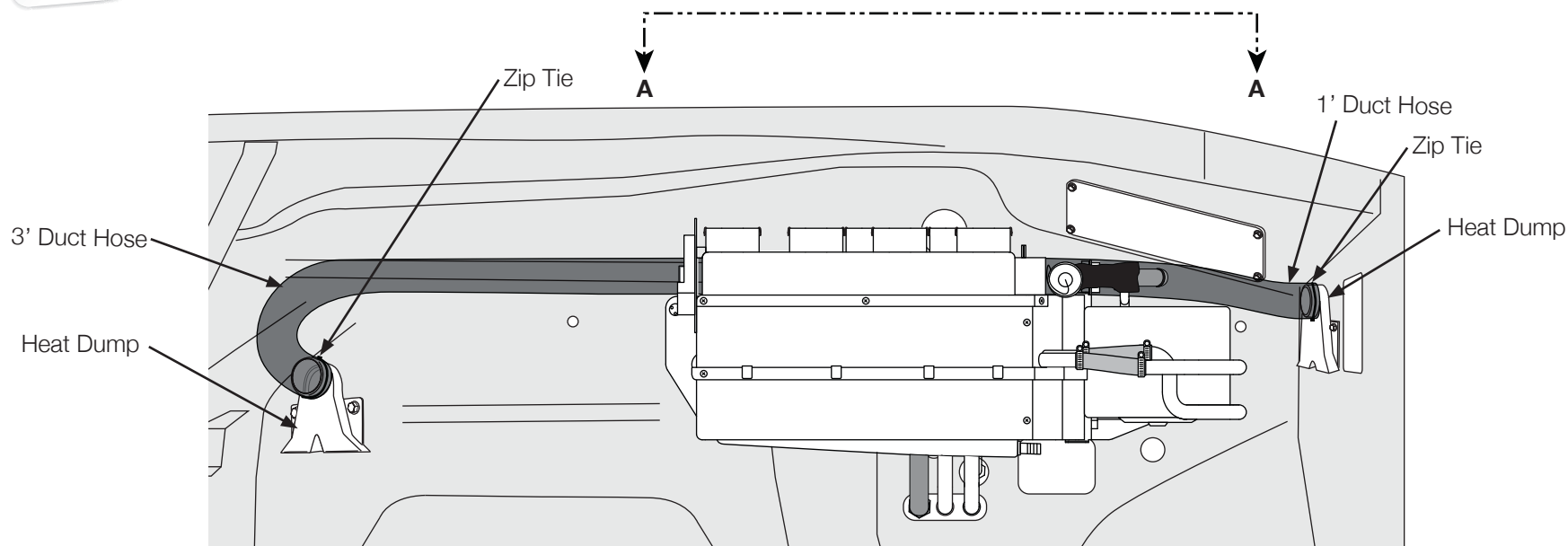
Installation - Floor Heat Ducts



- Attach the 3' long duct hose to the driver side heat dump and the driver side floor outlet on the evaporator.
- Attach the 1' long duct hose to the passenger side heat dump and the passenger side floor outlet on the evaporator.
- Secure both hoses at both ends with provided zip-ties.

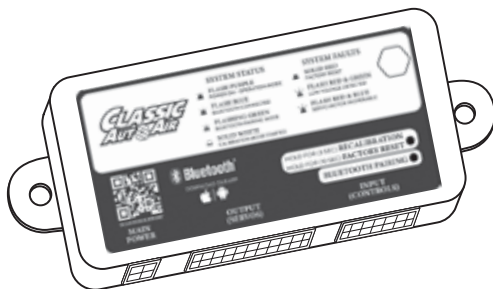


The smoother the route of the flex hoses, the better the airflow.



THESE ARE THE PARTS YOU WILL FIND IN BAG KIT C

You will use all of these parts and hardware during the next series of installation steps.



ECU
Part# 16-2500



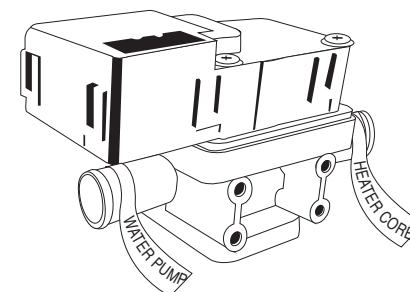
#10-16 x 3/4" HWH Tek Screws (Qty. 3)
Part# 10B75HW3Z



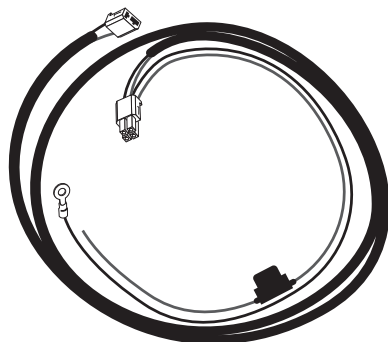
#10 x 3/4" O.D. Flat Washer (Qty. 2)
Part# 10N75WFES



1-1/8" Grommet, Firewall
Part# G4



Electronic Water Valve
Part# 16-1023



Harness, Power Supply
Part# 0125-5R1



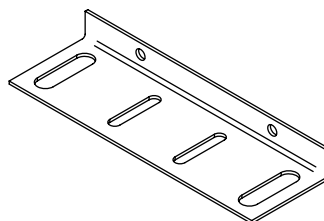
#10-32 Nylock Nut (Qty. 2)
Part# 10FNNEZ



M5 Nut (Qty. 2)
Part# MN2



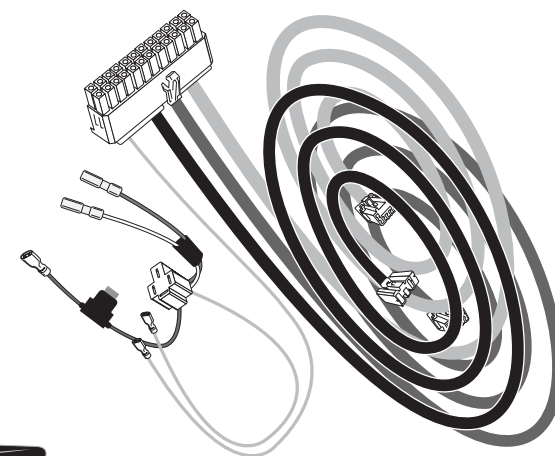
#10-32 X 3/4" Machine Screw (Qty. 2)
Part# 10F75PPHZ



Mounting Bracket, Factory Computer
Part# 0132-25



Relay
Part# 30-13373



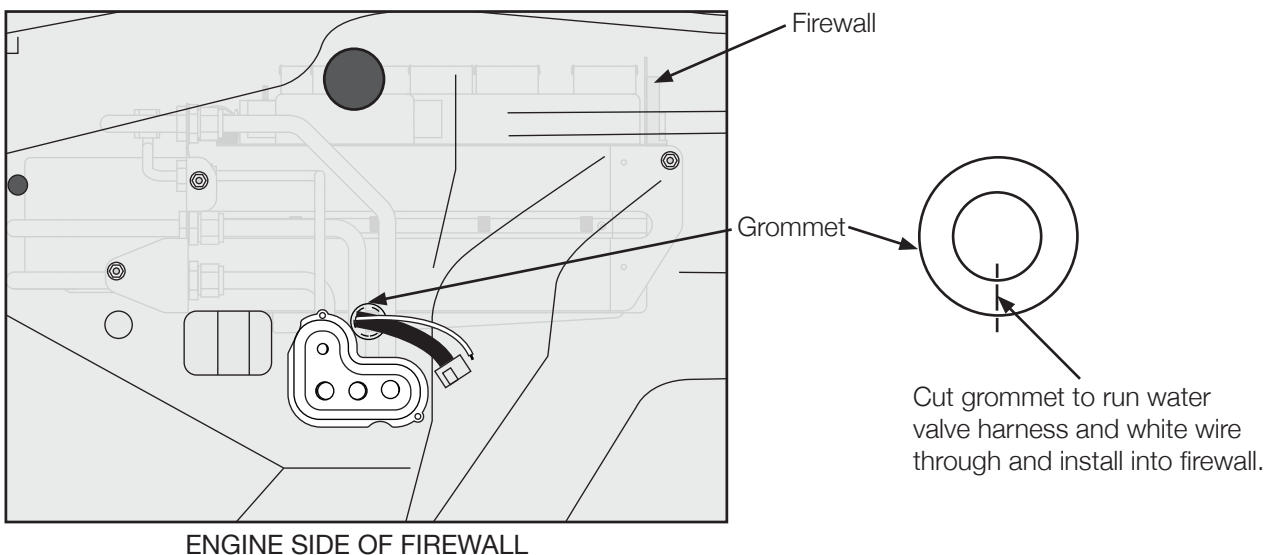
Harness, Output (Servo)
Part# 0125-7A

Installation - Electrical

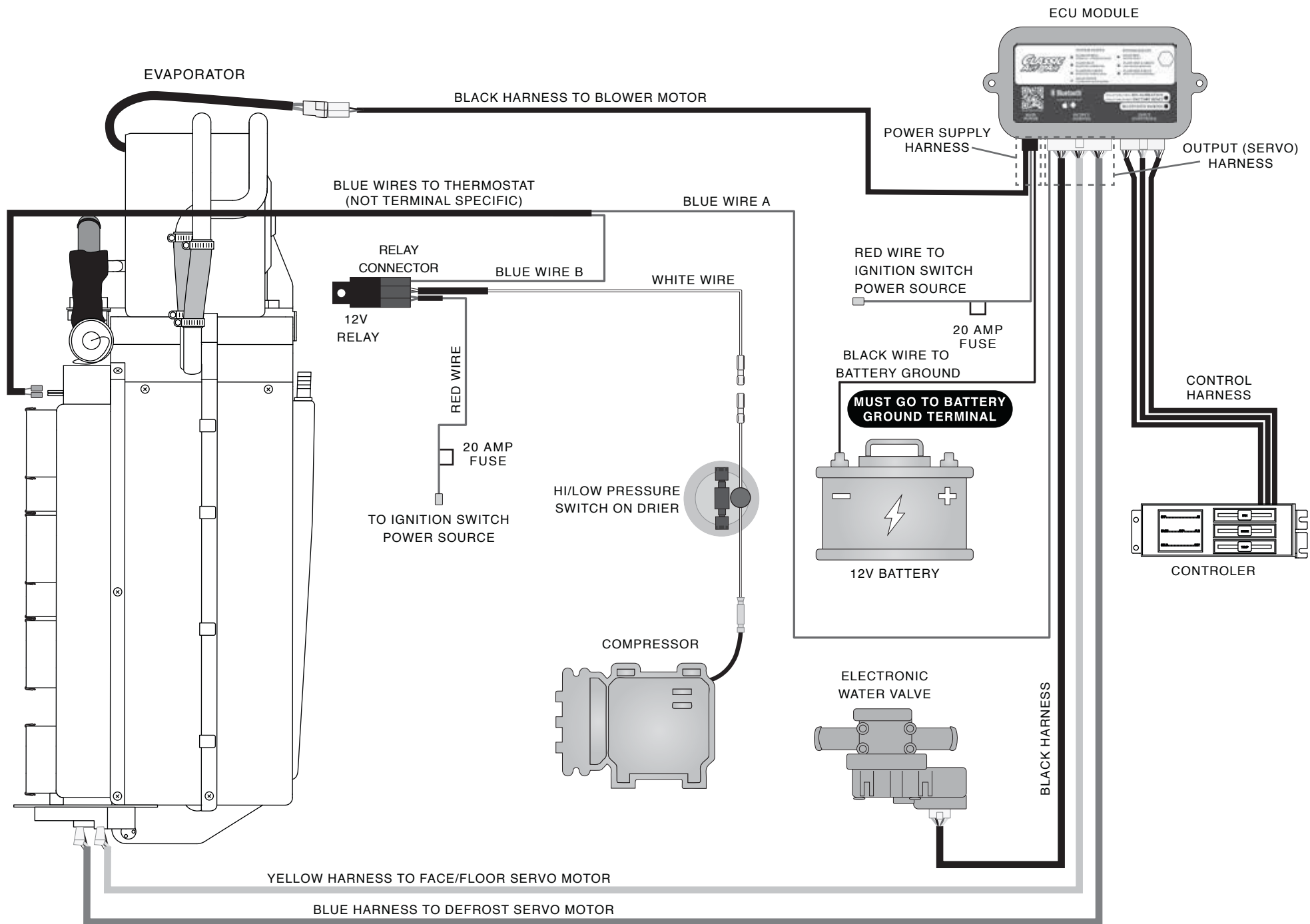


The following harness installation instructions are shown in the wiring diagram on the following page.

- Install the Output (3 Servo) Harness according to wire diagram on next page.
- Cut a slice in the provided grommet to run the black water valve harness and white wire through and install grommet into the 1-1/8" hole in the firewall (See figure below).



- Install Power Supply Harness according to wire diagram.
- Mount the ECU with (2) #10-16 x 3/4" HWH Tek screws.
- Secure the Relay with the remaining Tek screw.

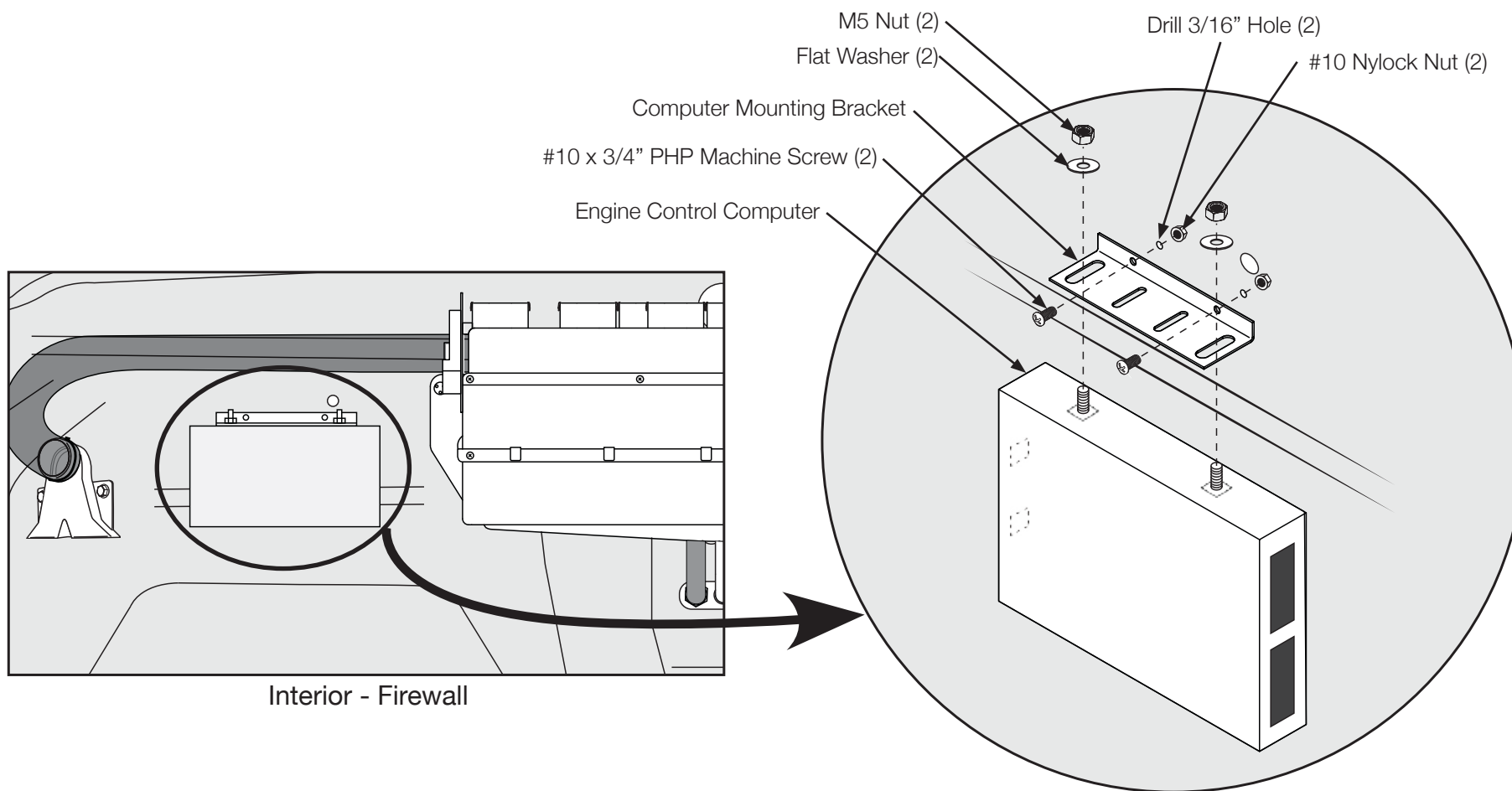


Installation - Electrical



- Using computer mounting bracket as a guide, place the bracket approximately as shown and drill (2) 3/16" diameter holes through the firewall.
- Mount the bracket to the firewall using (2) #10 x 3/4" PHP machine screws and (2) #10 Nylock nuts.
- Install and secure the engine control computer to the bracket, in the preferred orientation shown, using (2) Flat washers and (2) M5 nuts.

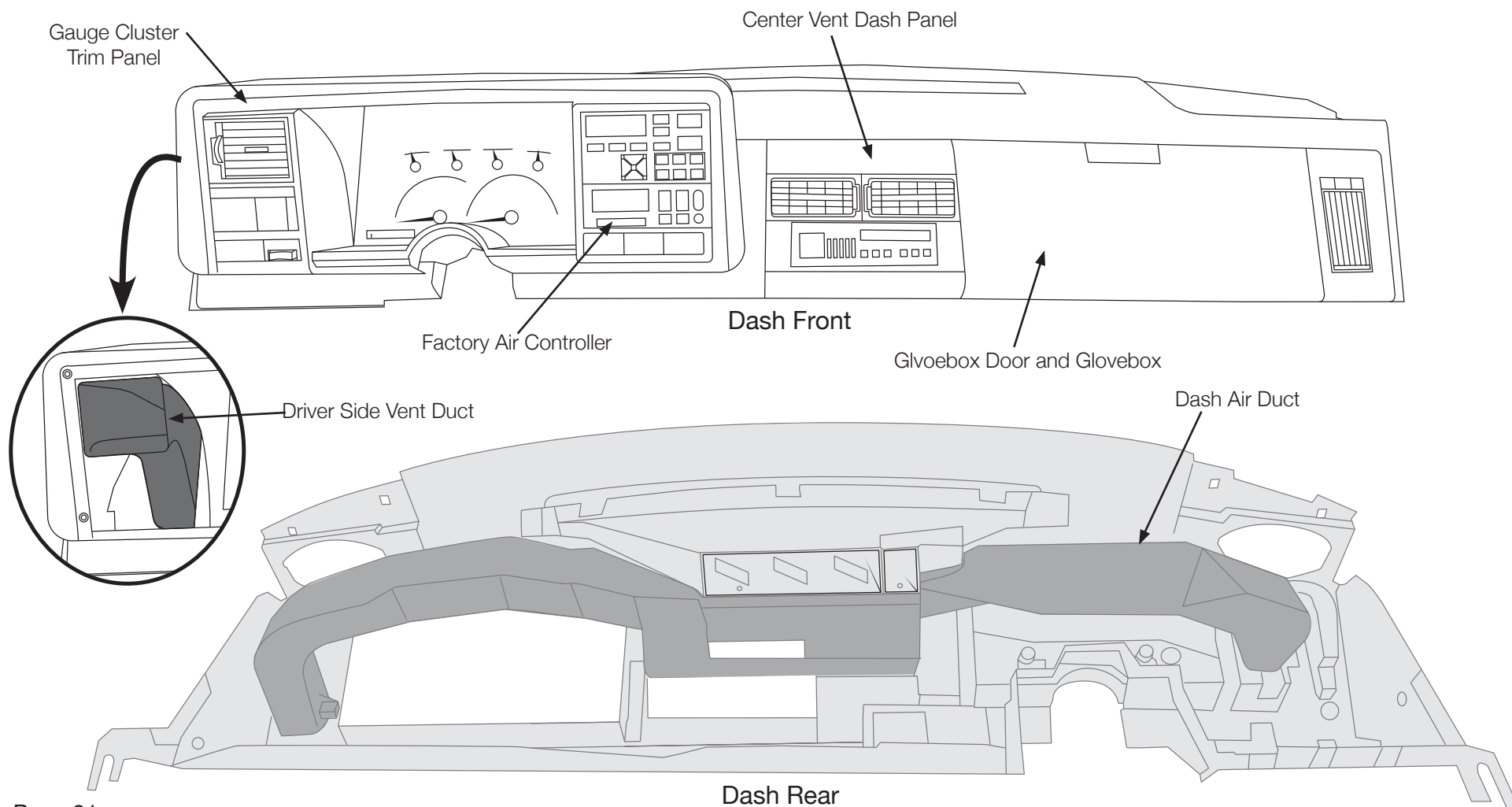
Note: The bracket allows for the control computer to be mounted using OEM removable stud clips in any orientation.



Install Prep - Dash

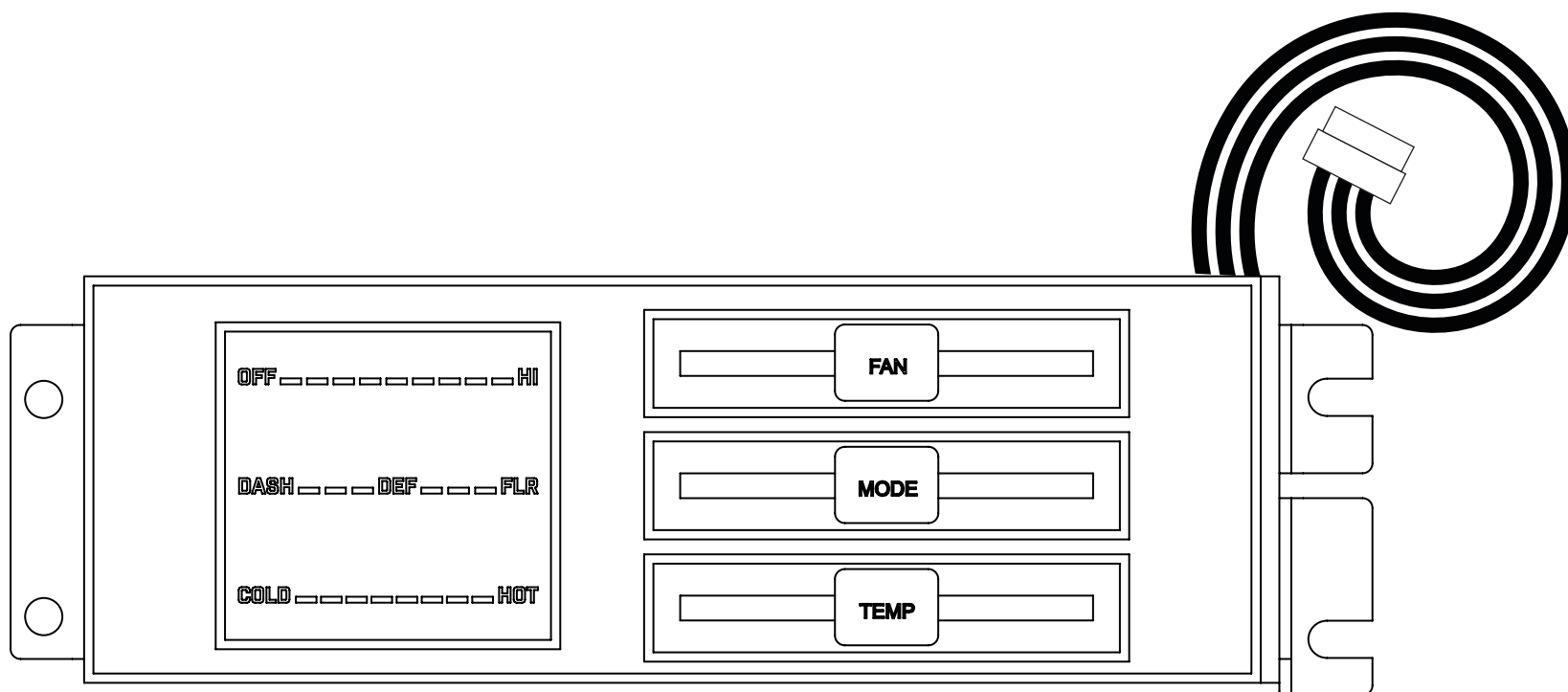


- Remove gauge cluster trim panel and set aside for reinstall.
- Remove driver side vent duct and discard.
- Remove original factory air controller and discard but retain hardware for new controller.
- Remove center vent dash panel and set aside for reinstall.
- Remove glovebox and glovebox door and set both aside for reinstall
- Remove dash air duct and discard but retain hardware.



THESE ARE THE PARTS YOU WILL FIND IN THE CONTROL BOX

You will use all of these parts and hardware during the next series of installation steps.

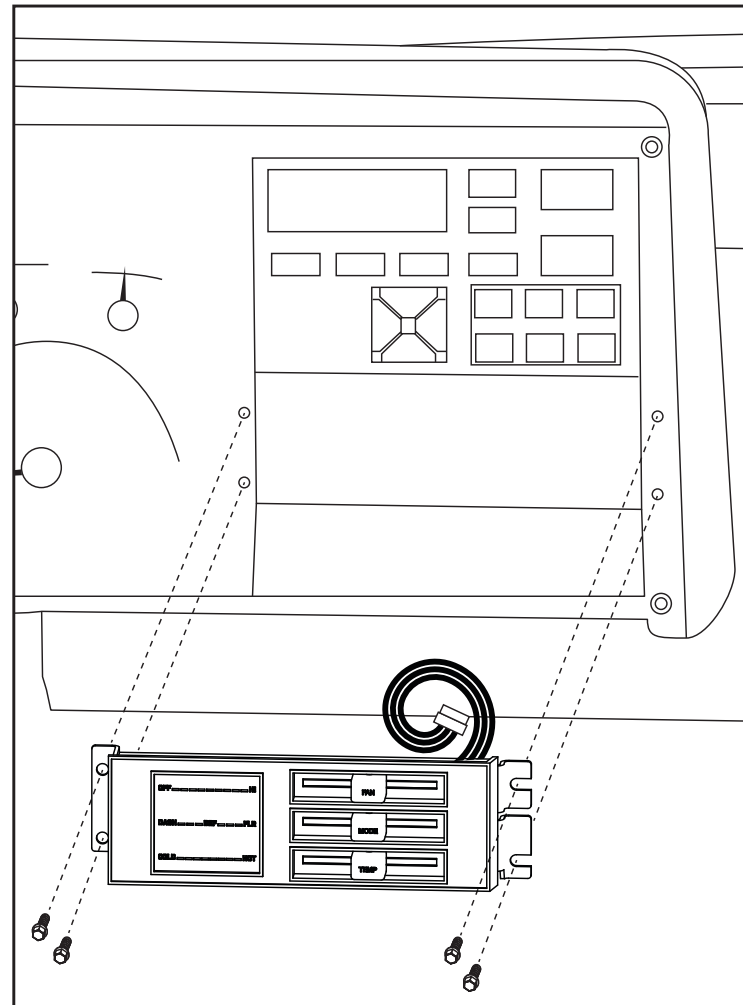


D.E.R. Control
Part# 16-4097

Installation - Control Box

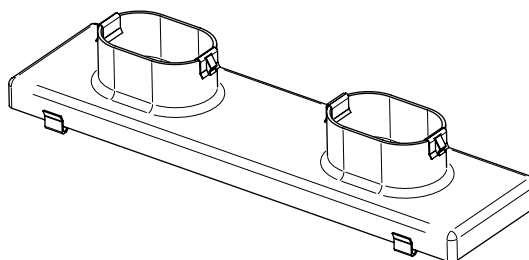


- Install new control box assembly into original dash location using original hardware.

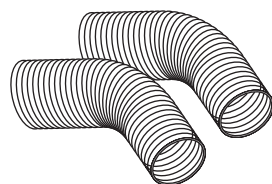


THESE ARE THE PARTS YOU WILL FIND IN BAG KIT D

You will use all of these parts and hardware during the next series of installation steps.



Hose Adapter Assembly, Center Vent
Part# 2-3097FA-4



Duct Hose, 2" I.D., 2' L (Qty. 2)
Part# 2-1013

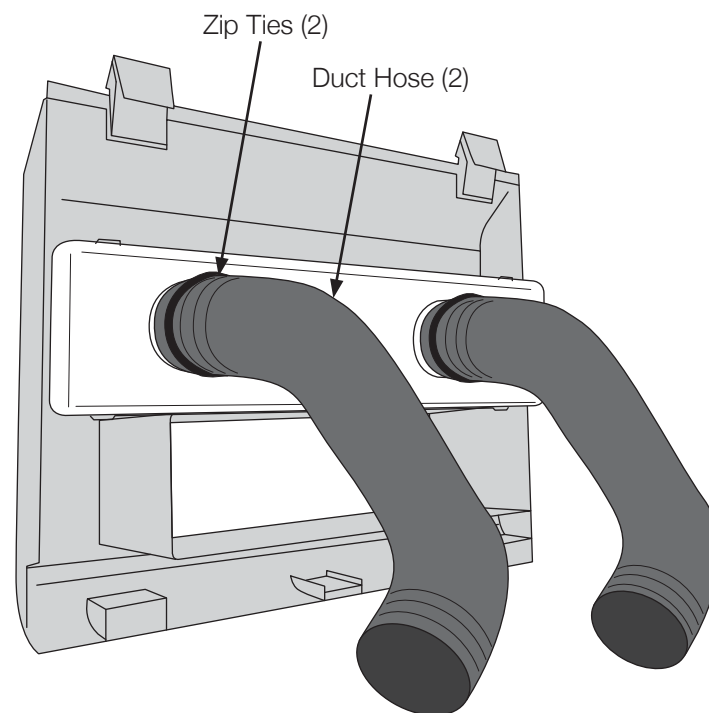
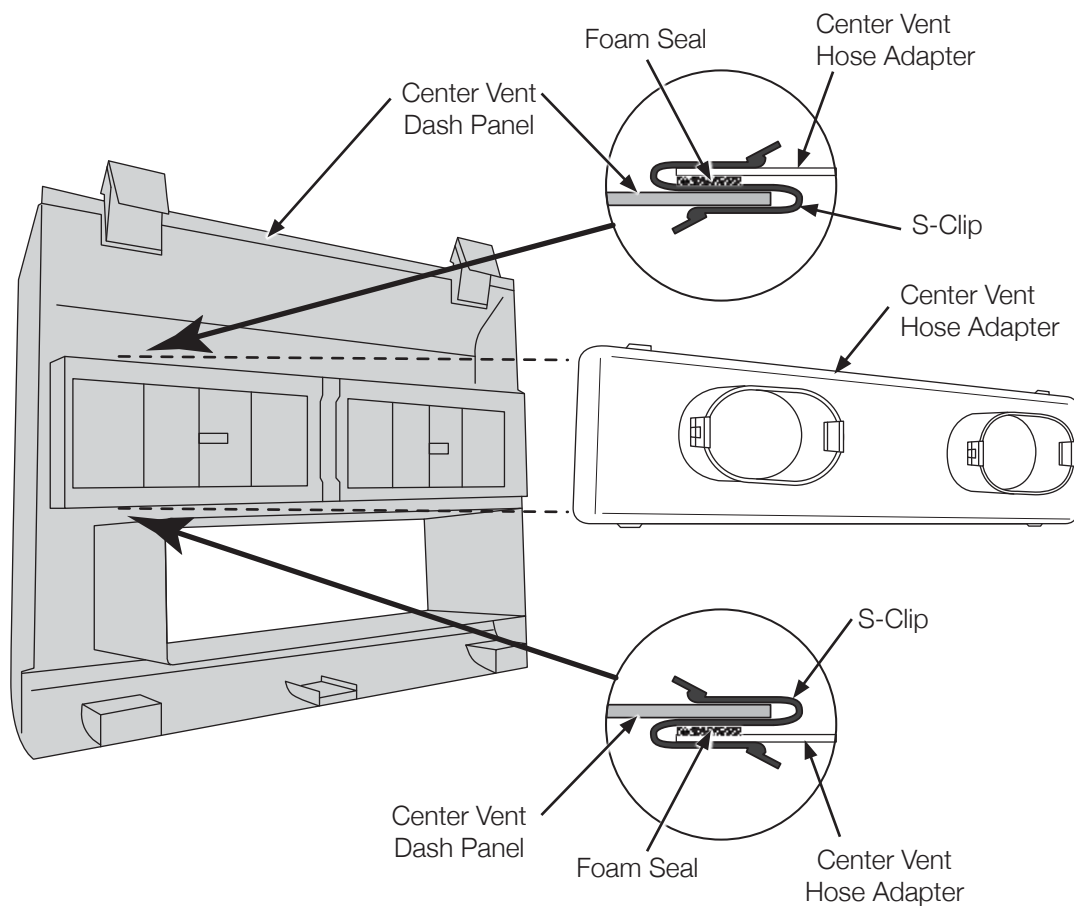


6" Zip-Tie (Qty. 2)
Part# AL-08-40-0-M

Installation - Center Vents

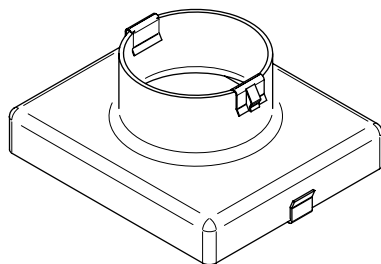


- Install center vent hose adapter onto center vent dash panel using attached S-clips.
- Attach and secure 2' duct hose to each adapter opening with provided zip ties.
- Reinstall center vent dash panel onto dash.

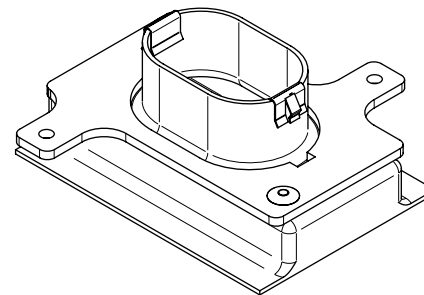


THESE ARE THE PARTS YOU WILL FIND IN BAG KIT E

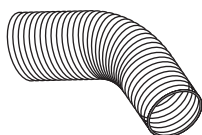
You will use all of these parts and hardware during the next series of installation steps.



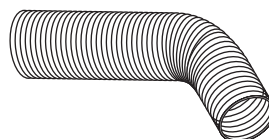
Hose Adapter Assembly, Driver Vent
Part# 2-3097FA-2



Hose Adapter Assembly, Passenger Vent
Part# 2-3097FA-3



Duct Hose, 2" I.D., 2' L
Part# 2-1013



Duct Hose, 2" I.D., 4' L
Part# 2-1013



6" Zip-Tie (Qty. 2)
Part# AL-08-40-0-M

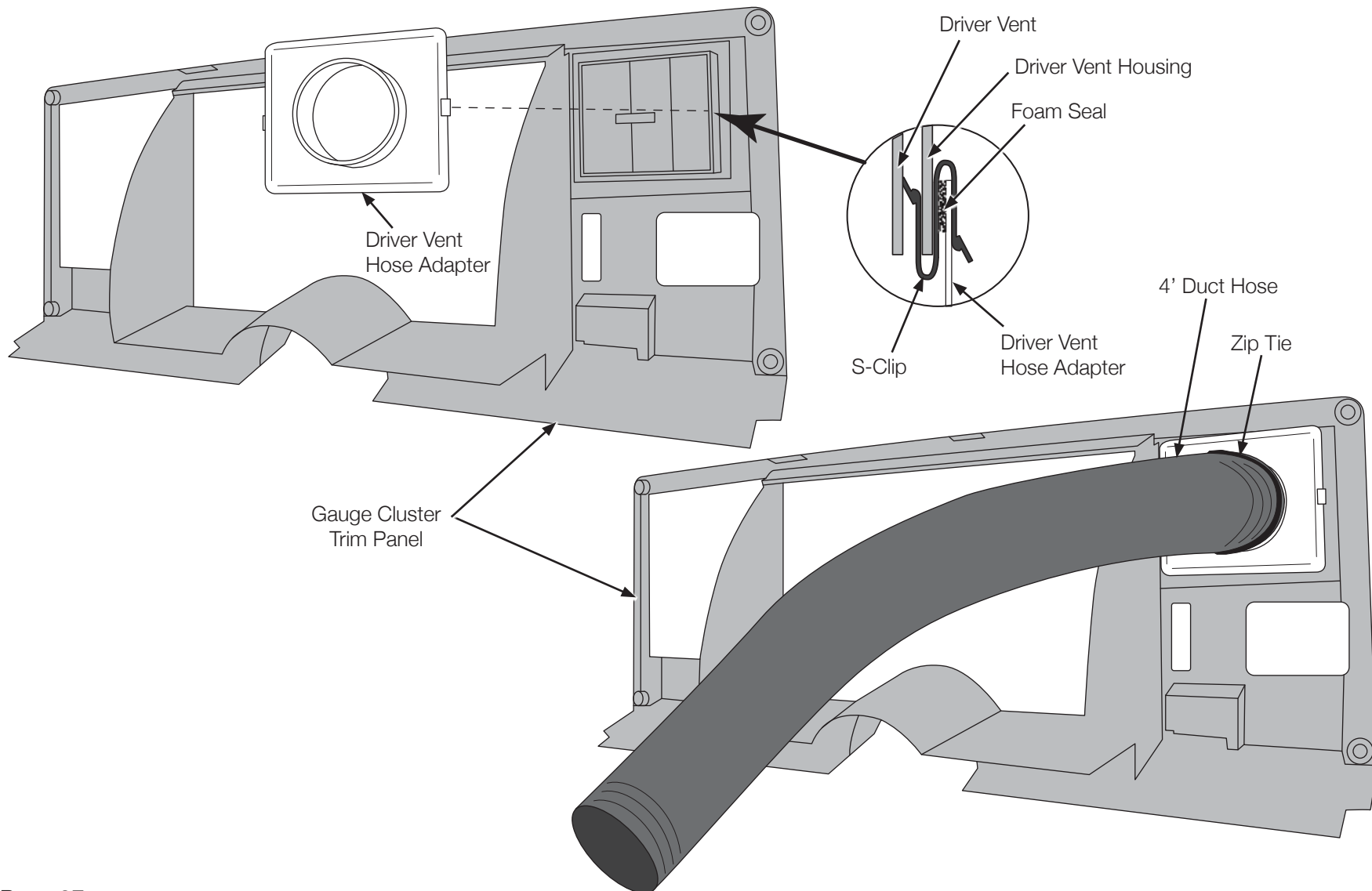
Installation - Driver & Passenger Vents



- Install driver side vent hose adapter onto gauge cluster trim panel as shown using attached S-clips.

NOTE: Be sure to clip the vent adapter to the housing of the vent and **NOT** on the vent itself or the vent will not move freely.

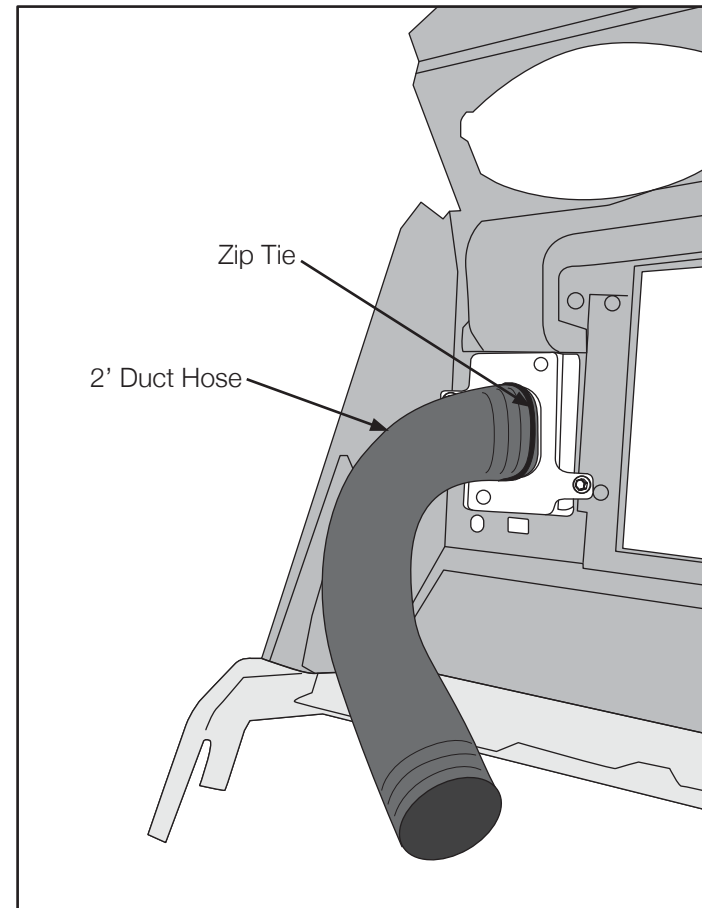
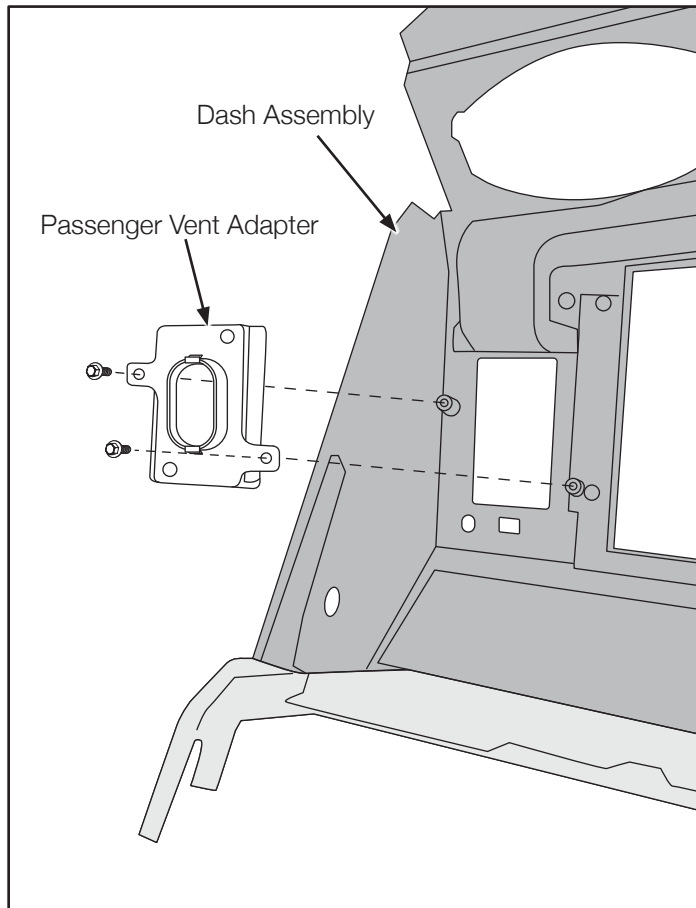
- Attach and secure the 4' duct hose to adapter opening with provided zip tie.
- Reinstall gauge cluster trim panel onto dash.



Installation - Driver & Passenger Vents

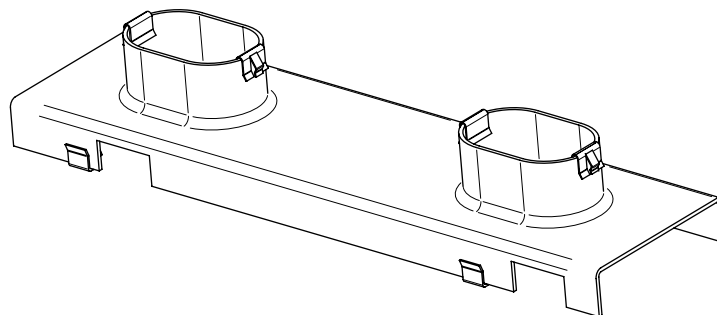


- Install passenger side vent hose adapter onto back of dash as shown using original factory hardware.
- Attach and secure the 2' duct hose to adapter opening with provided zip tie.

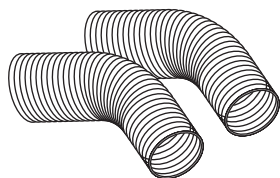


THESE ARE THE PARTS YOU WILL FIND IN BAG KIT F

You will use all of these parts and hardware during the next series of installation steps.



Hose Adapter Assembly, Defrost
Part# 2-3097FA-1



Duct Hose, 2" I.D., 2' L (Qty. 2)
Part# 2-1013



6" Zip-Tie (Qty. 2)
Part# AL-08-40-0-M

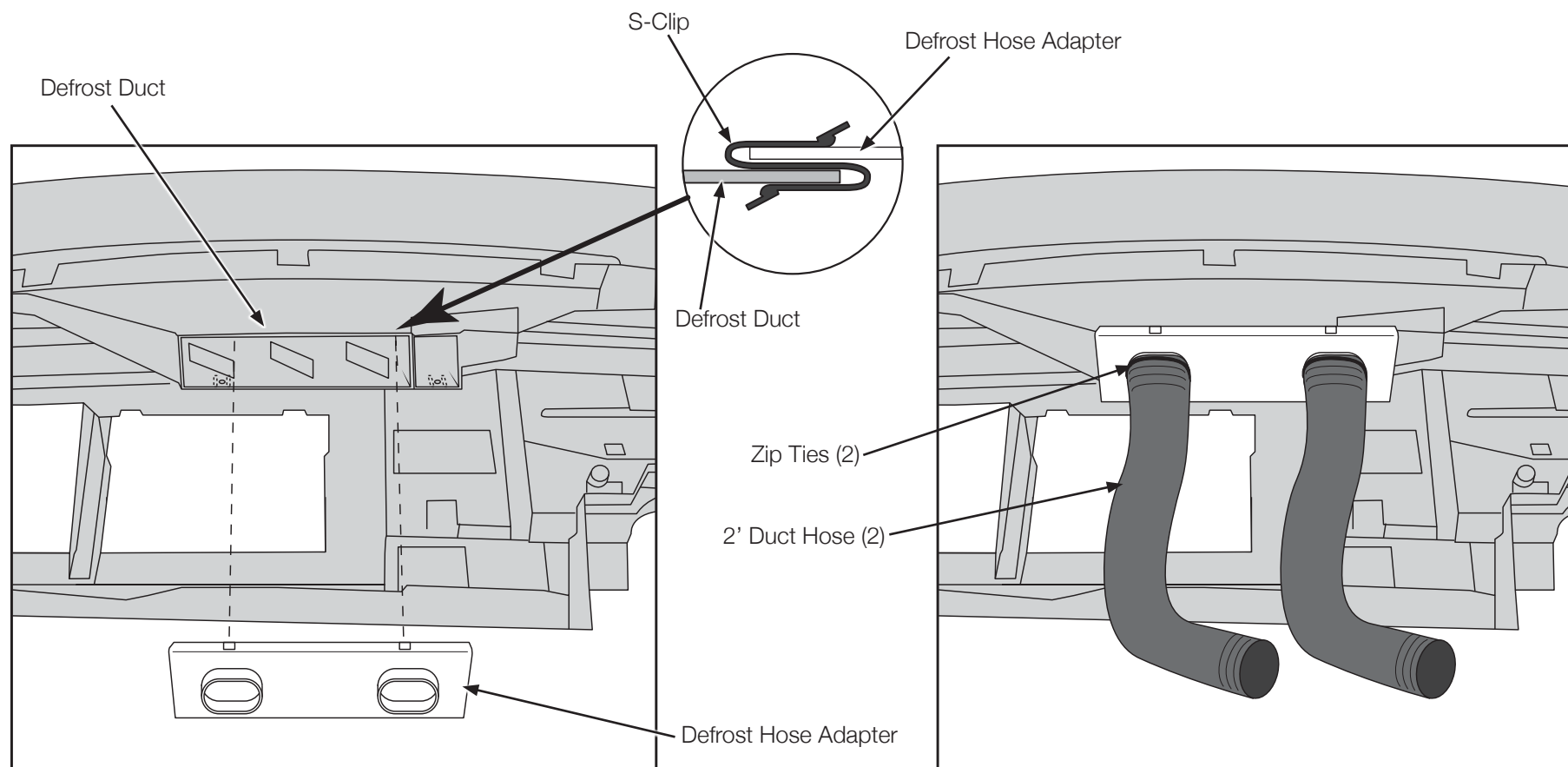
Installation - Defrost Vents



- Install defrost hose adapter onto defrost duct as shown using attached S-clips.

NOTE: Be sure cut notches face bottom of adapter when installing.

- Attach and secure 2' duct hose to each adapter opening with provided zip ties.
- Reinstall dash assembly into the vehicle.

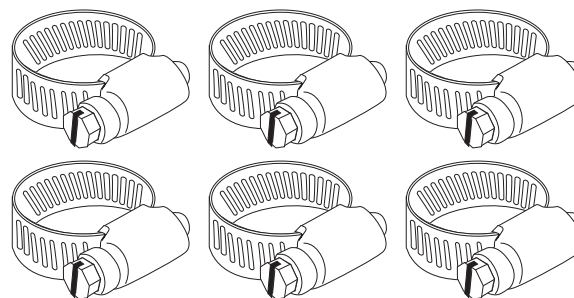


THESE ARE THE PARTS YOU WILL FIND IN BAG KIT G

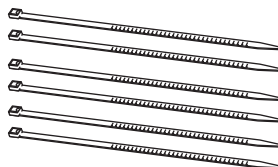
You will use all of these parts and hardware during the next series of installation steps.



Refrigerant Tape
Part# Q-201



#10 Worm Gear Clamp (Qty. 6)
Part# 6274-IDEAL

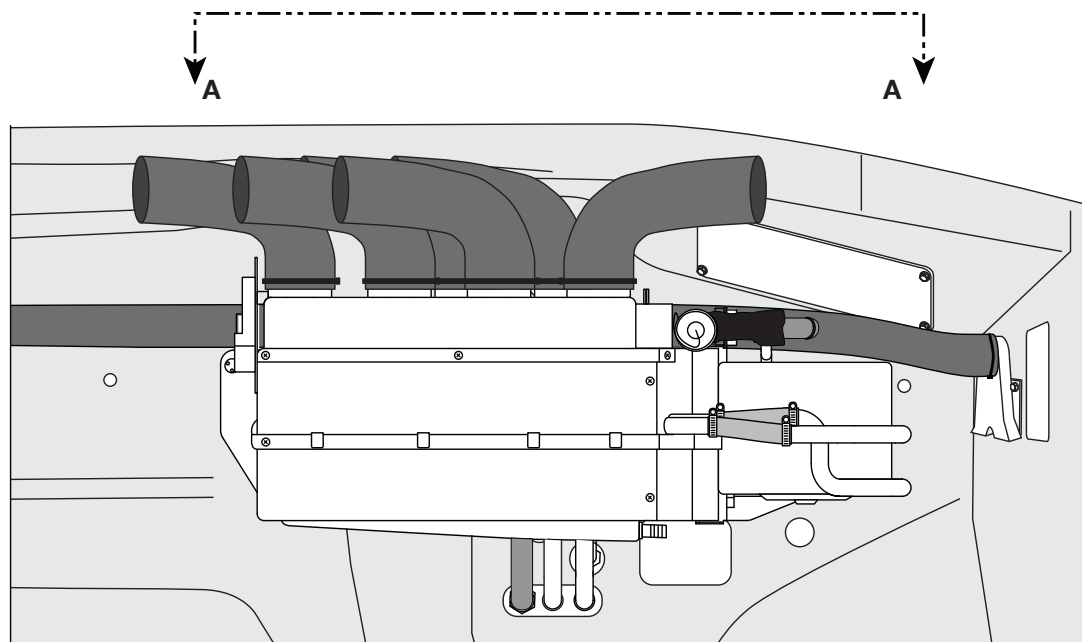
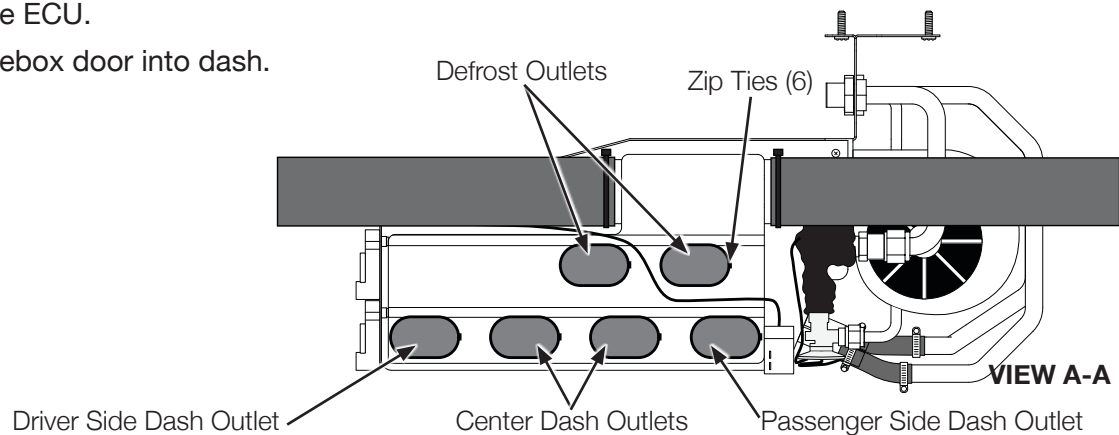


6" Zip-Tie (Qty. 6)
Part# AL-08-40-0-M

Installation - Duct Hoses



- Attach and secure duct hoses from defrost duct to the evaporator defrost outlets with provided zip ties.
- Attach and secure duct hose from driver vent adapter to the evaporator driver side dash outlet with provided zip ties.
- Attach and secure duct hoses from center vent adapter to the evaporator center dash outlets with provided zip ties.
- Attach and secure duct hose from passenger vent adapter to the evaporator passenger side dash outlet with provided zip ties.
- Plug control harness into the ECU.
- Reinstall glovebox and glovebox door into dash.



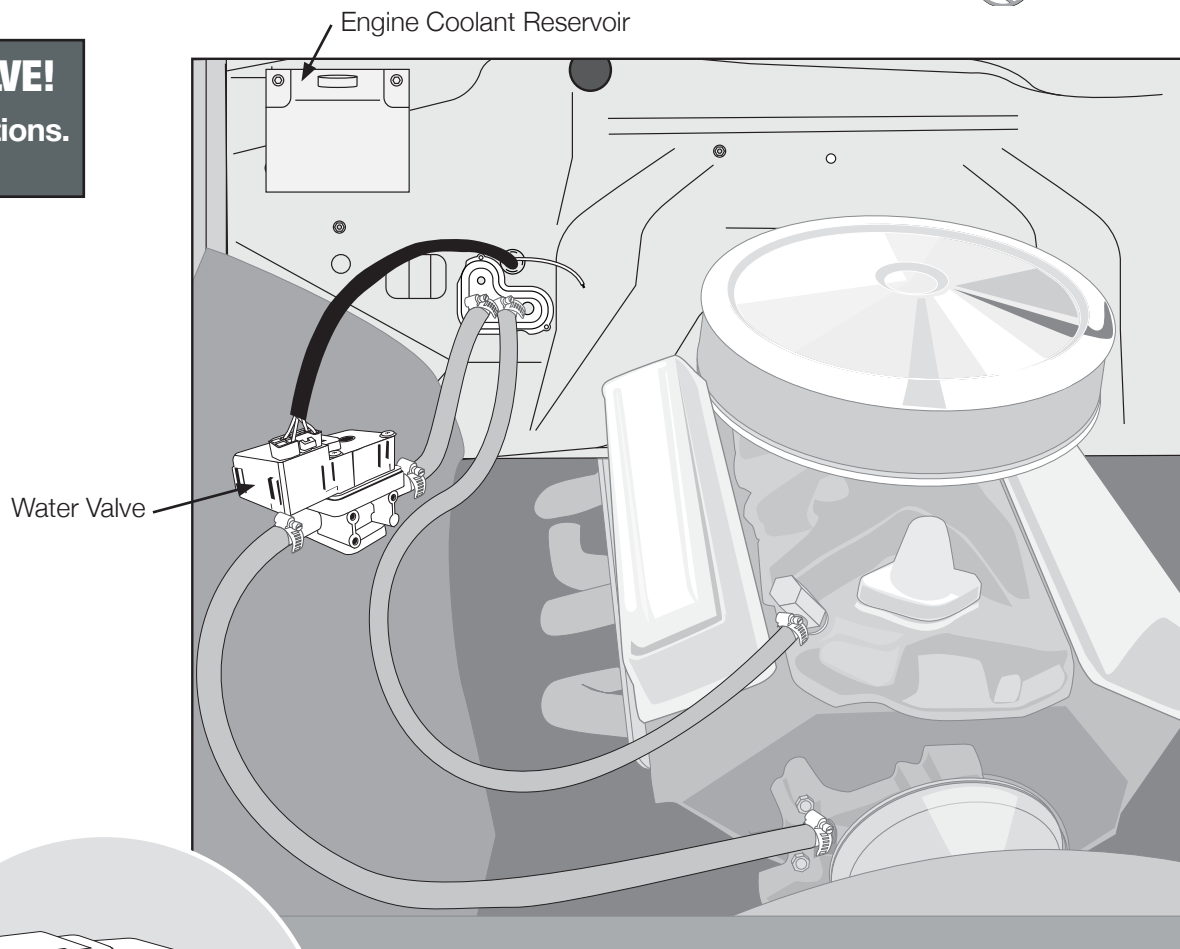
Installation - Water Valve



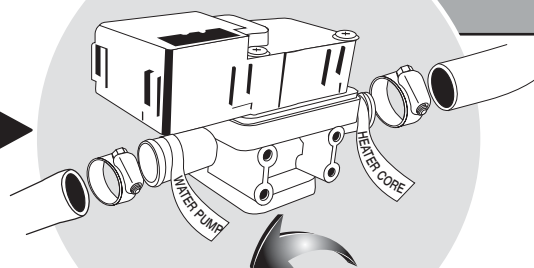
NOTE: PROPER INSTALLATION OF WATER VALVE!

Your water valve **MUST** be installed per these instructions.
If not, your system will not work properly

- The **Right** heater tube connection on firewall will be routed to the water connection on intake manifold using 5/8" dia. heater hose and (2) supplied worm gear clamps.
- The **Left** heater tube connection on the firewall will be routed to the water valve connection labeled HEATER CORE, using a 6" piece of 5/8" dia. heater hose attached with (2) supplied worm gear clamps.
- Connect the remaining outlet on water valve labeled WATER PUMP to the water pump using 5/8" dia. heater hose with the (2) supplied worm gear clamps.
- Apply refrigerant tape where needed to seal firewall.
- **NOTE:** Time to install the compressor kit. Included in your box is a premium compressor kit with all the parts you'll need to install the compressor. This kit includes easy to follow instructions specifically written for your engine. Once you've installed the complete compressor kit, continue on to the next step.

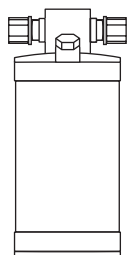


**FOLLOW THESE
TAGS... CHECK IT
TWICE BEFORE
PROCEEDING!**

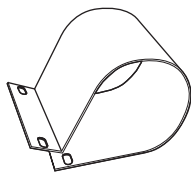


THESE ARE THE PARTS YOU WILL FIND AS PART OF THE CONDENSER KIT

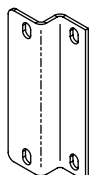
You will use all of these parts and hardware during the next series of installation steps.



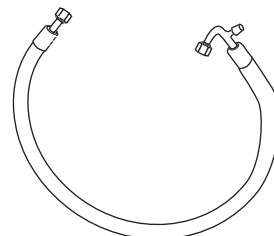
Drier
Part# 12-1008



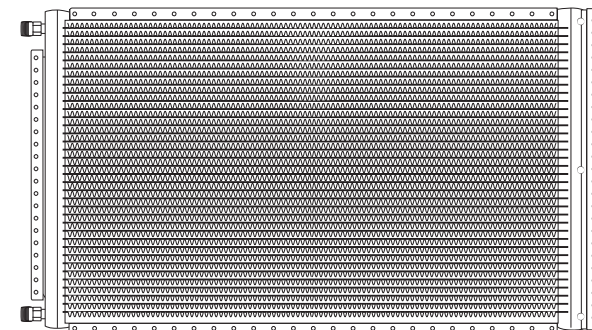
Drier Bracket
Part# 19-1003



Drier Bracket Riser
Part# 0130-57



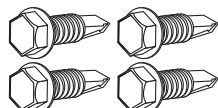
#10 (1/2") Refrigerant Hose, Suction
Part# 0132-92



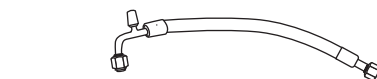
Condenser
Part# 11-1117



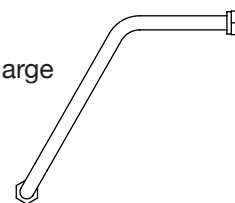
#10 X 1/4" Hex Hd. Screw (Qty. 6)
Part# 10B25SHBZ



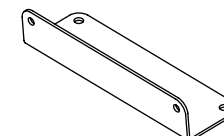
#10 x 3/4" Tek Screws (Qty. 4)
Part# 10B75HW3Z



#8 (13/32") Refrigerant Hose, Discharge
Part# 0132-91



Tube, Discharge
Part# 0132-17



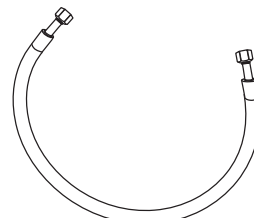
Lower Mounting Bracket,
Condenser
Part# 0132-13



3/8" I.D. Grommet
Part# G1



1/2" I.D. Grommet
Part# G2



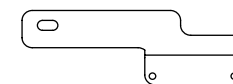
#6 (5/16") Refrigerant Hose, Liquid
Part# 0132-93



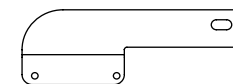
Tube, Liquid
Part# 0132-16



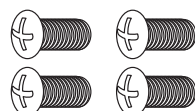
Tube, Liquid
Part# 0132-15R1



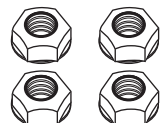
Upper Left Mounting Bracket,
Condenser
Part# 0132-11R1



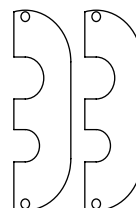
Upper Right Mounting Bracket,
Condenser
Part# 0132-12



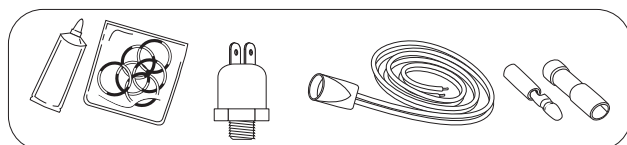
#8-32 X 1/2" Machine Screw (Qty. 4)
Part# 18C50PPHZ



#10-32 Nylock Nut (Qty. 4)
Part# 10FNNEZ



Tube Clamp Bracket
Part# 0132-14 (Qty. 2)



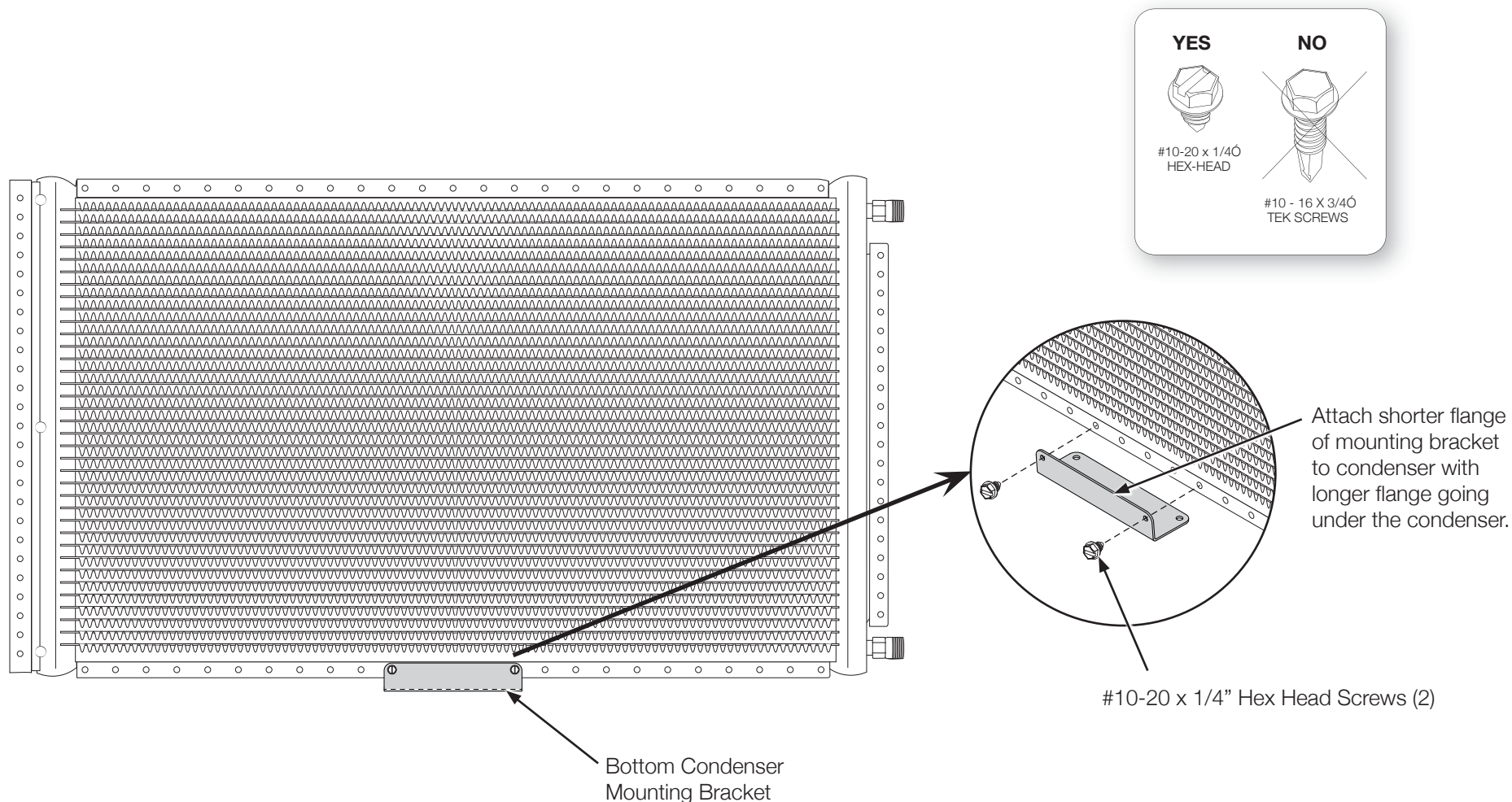
Hi/Low Pressure Switch Kit
Part# 16-1007

Install Prep



- Remove original grill, hood latch and condenser. Retain all original hardware.
- Place the condenser on a clean, flat surface and orient it so both tube fittings are facing to the right and the larger #8 fitting is at the top.
- Locate and install the bottom mounting bracket to the bottom center of the condenser (there should be 10 empty holes on either side of the bracket) and secure with (2) #10-20 x 1/4" Hex Head Screws as shown.

NOTE: Make sure the bracket's shorter flange is attached to the condenser and the longer flange is going under the condenser as shown. Also, make sure to use the #10 x 1/4" Hex Head Screws and NOT the Tek Screws.



Install Prep

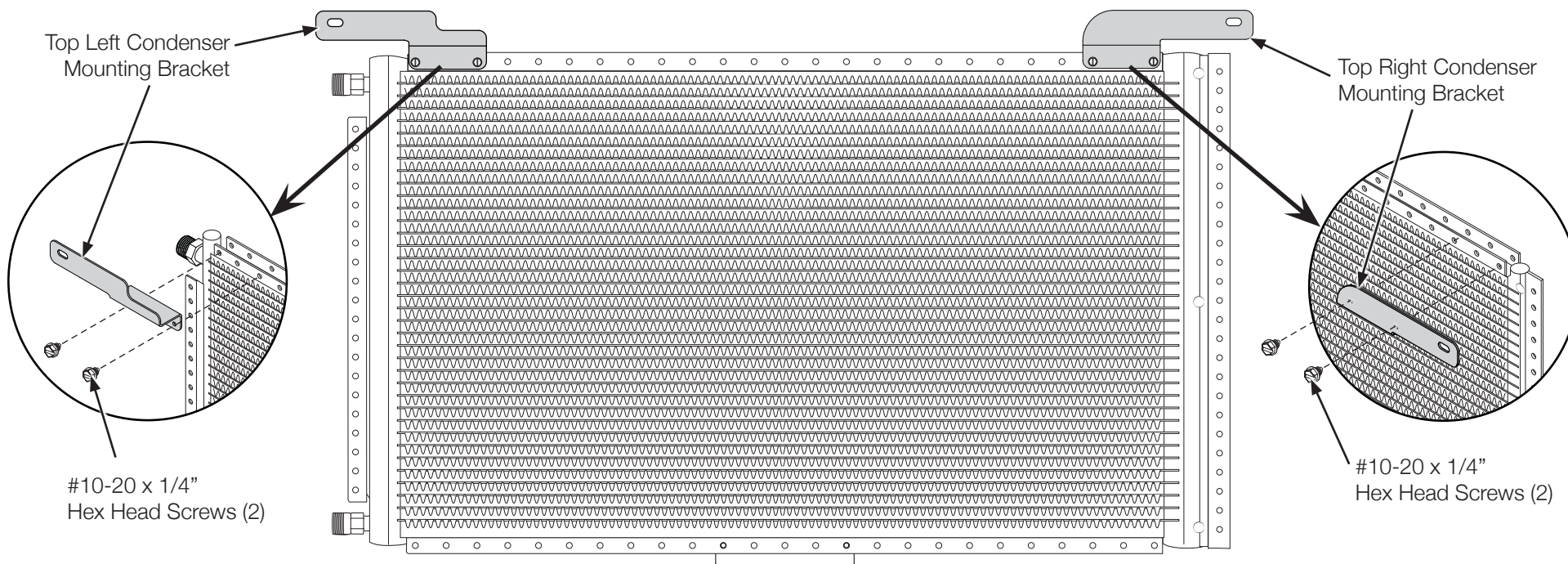
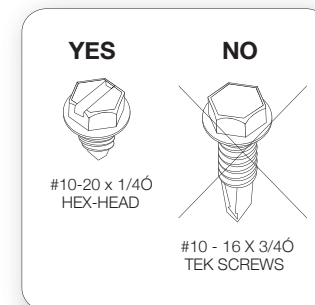


- Turn the condenser over so the tube fittings are facing toward the right and the larger #8 fitting is at the top.
- Locate and install the top left mounting bracket to the condenser using the left side top row holes and secure the bracket with (2) #10-20 x 1/4" Hex Head Screws as shown.

NOTE: Make sure the bracket is oriented as shown. Also, make sure to use the #10 x 1/4" Hex Head Screws and NOT the Tek Screws.

- Locate and install the top right mounting bracket to the condenser using the right side top row holes and secure the bracket with (2) #10-20 x 1/4" Hex Head Screws as shown.

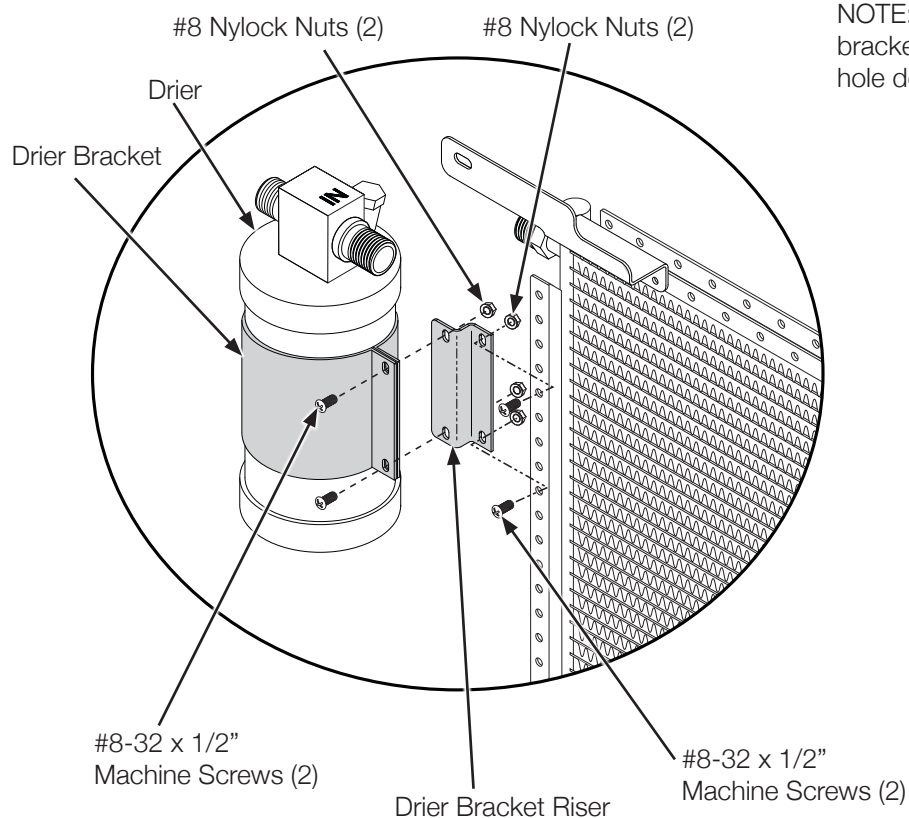
NOTE: Make sure the bracket is oriented as shown. Also, make sure to use the #10 x 1/4" Hex Head Screws and NOT the Tek Screws.



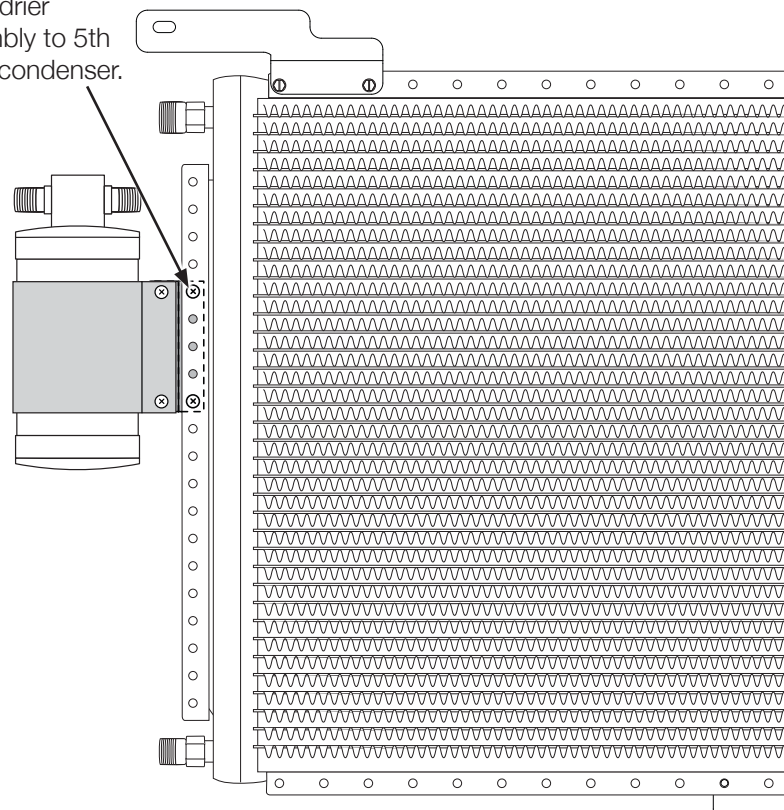
Installation - Drier



- Install the drier bracket around the drier
- Locate and attach drier riser bracket to the drier bracket as shown using (2) #8-32 x 1/2" machine screws and (2) #8 nylock nuts. Make sure the bracket is oriented as shown so the rounded corner flange is attached behind the drier bracket and the second flange is going away from the drier bracket.
- Install and secure the drier to the condenser with the top hole of the drier bracket riser behind the 5th hole down on the left side of the condenser with (2) #8-32 x 1/2" machine screws and (2) #8 nylock nuts as shown.



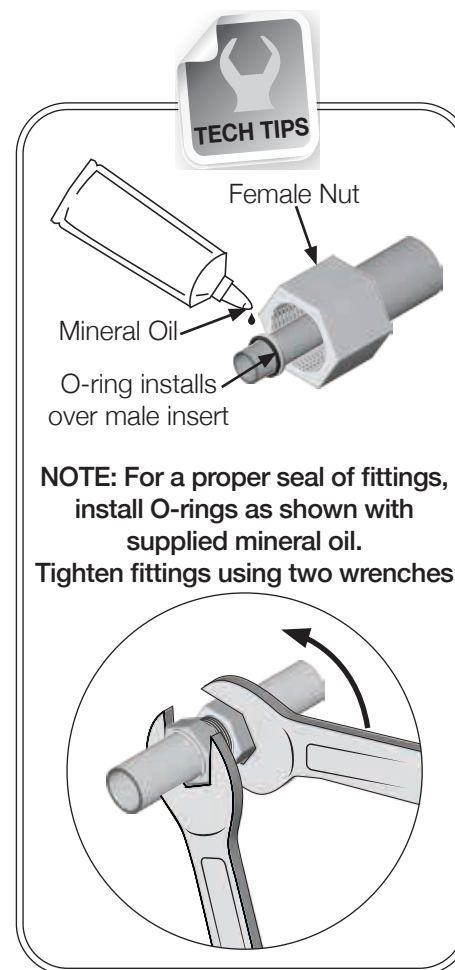
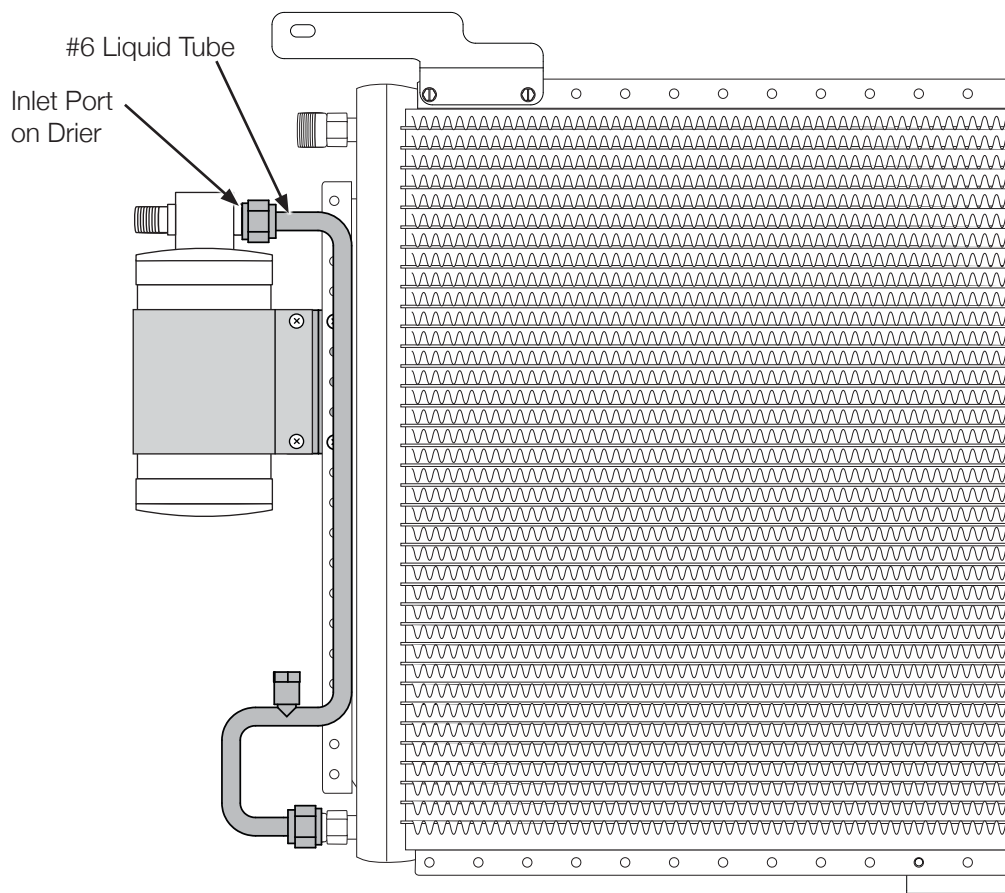
NOTE: Mount drier bracket assembly to 5th hole down on condenser.



Installation - Liquid Tube



- Install #6 liquid tube from the lower #6 liquid connection on the condenser to the inlet port on the drier as shown with a #6 O-ring and a few drops of mineral oil.

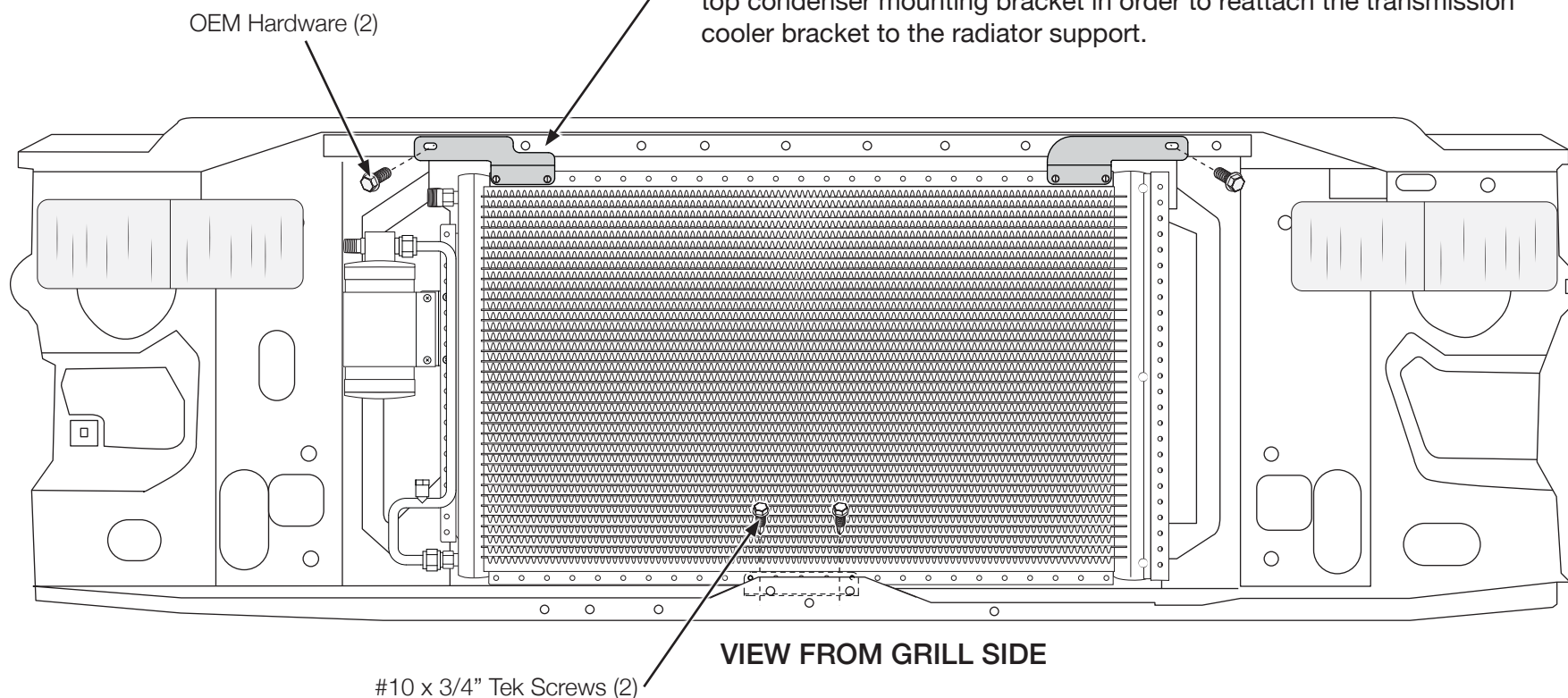


Installation - Condenser



- Install the condenser assembly into the radiator support bulkhead, oriented so the fittings face the passenger side. Secure using the original factory hardware.
- Secure the bottom mounting bracket of the condenser to the radiator support bulkhead using (2) #10 x 3/4" Tek screws.

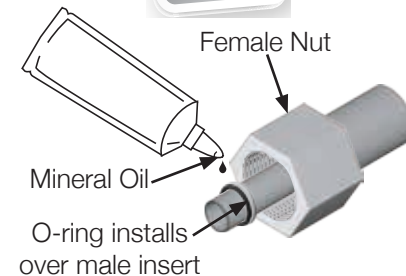
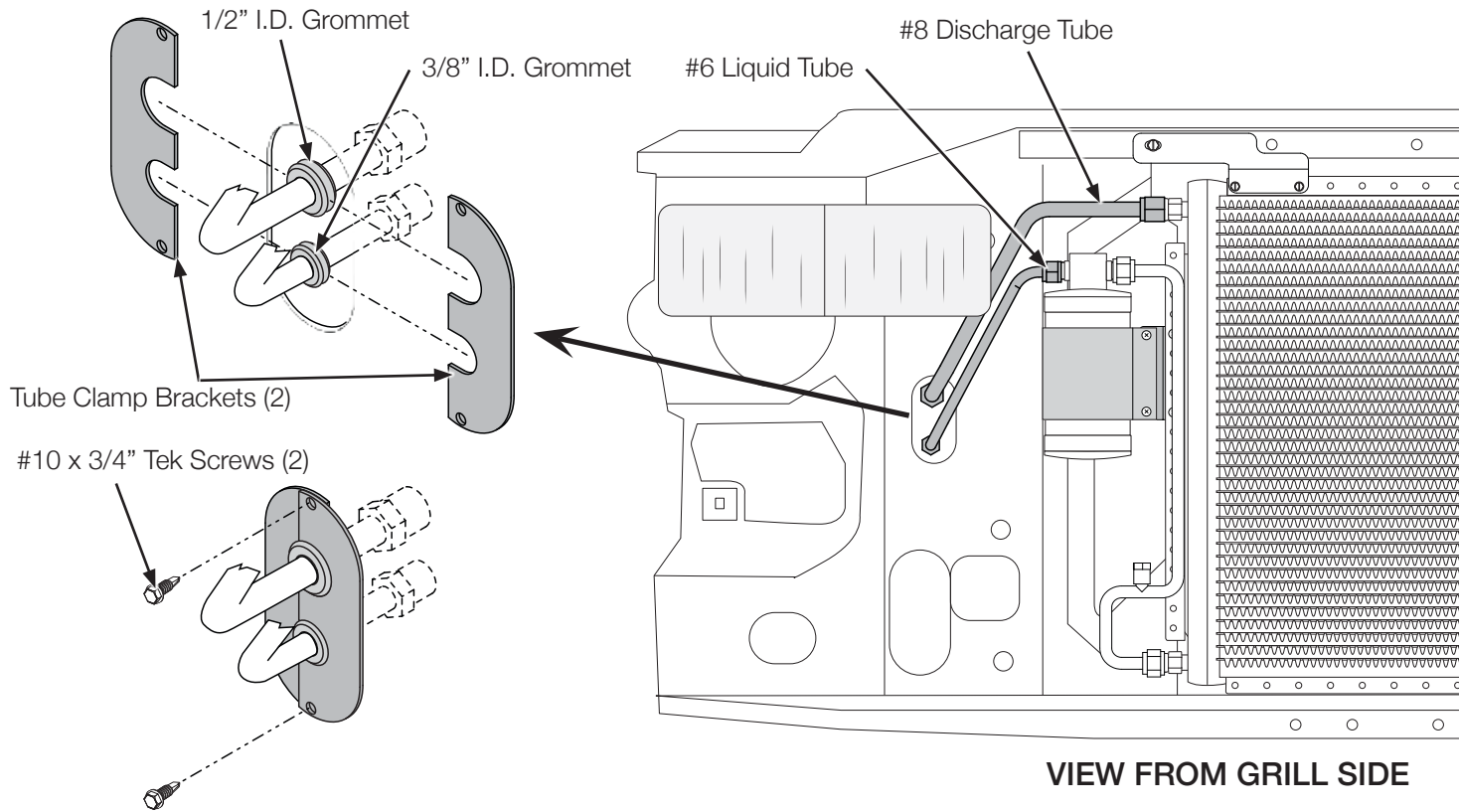
NOTE: If you have a transmission cooler mounted in front of the condenser, you will need to drill a clearance hole in the passenger side top condenser mounting bracket in order to reattach the transmission cooler bracket to the radiator support.



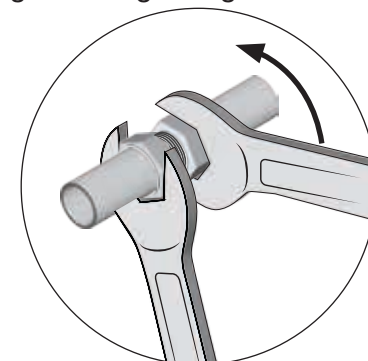
Installation - Liquid and Discharge Tube



- Install the #8 discharge tube into the opening in the radiator support and place behind the headlight and attach end to discharge connection on condenser as shown using #8 O-ring and a few drops of mineral oil.
- Install the #6 liquid tube into the opening in the radiator support and attach end to outlet port on the drier as shown using #6 O-ring and a few drops of mineral oil.
- Slice the 3/8" I.D. grommet and install onto the liquid tube at the radiator support opening.
- Slice the 1/2" I.D. grommet and install onto the discharge tube at the radiator support opening.
- Slide (2) tube clamp brackets into grommet grooves as shown and secure to the radiator support using (2) #10 x 3/4" Tek screws.



NOTE: For a proper seal of fittings, install O-rings as shown with supplied mineral oil. Tighten fittings using two wrenches



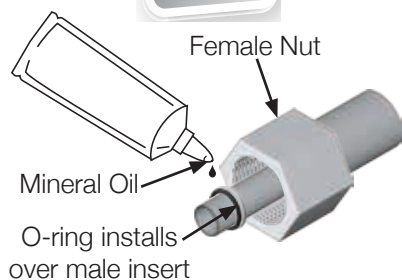
Installation - Refrigerant Hoses



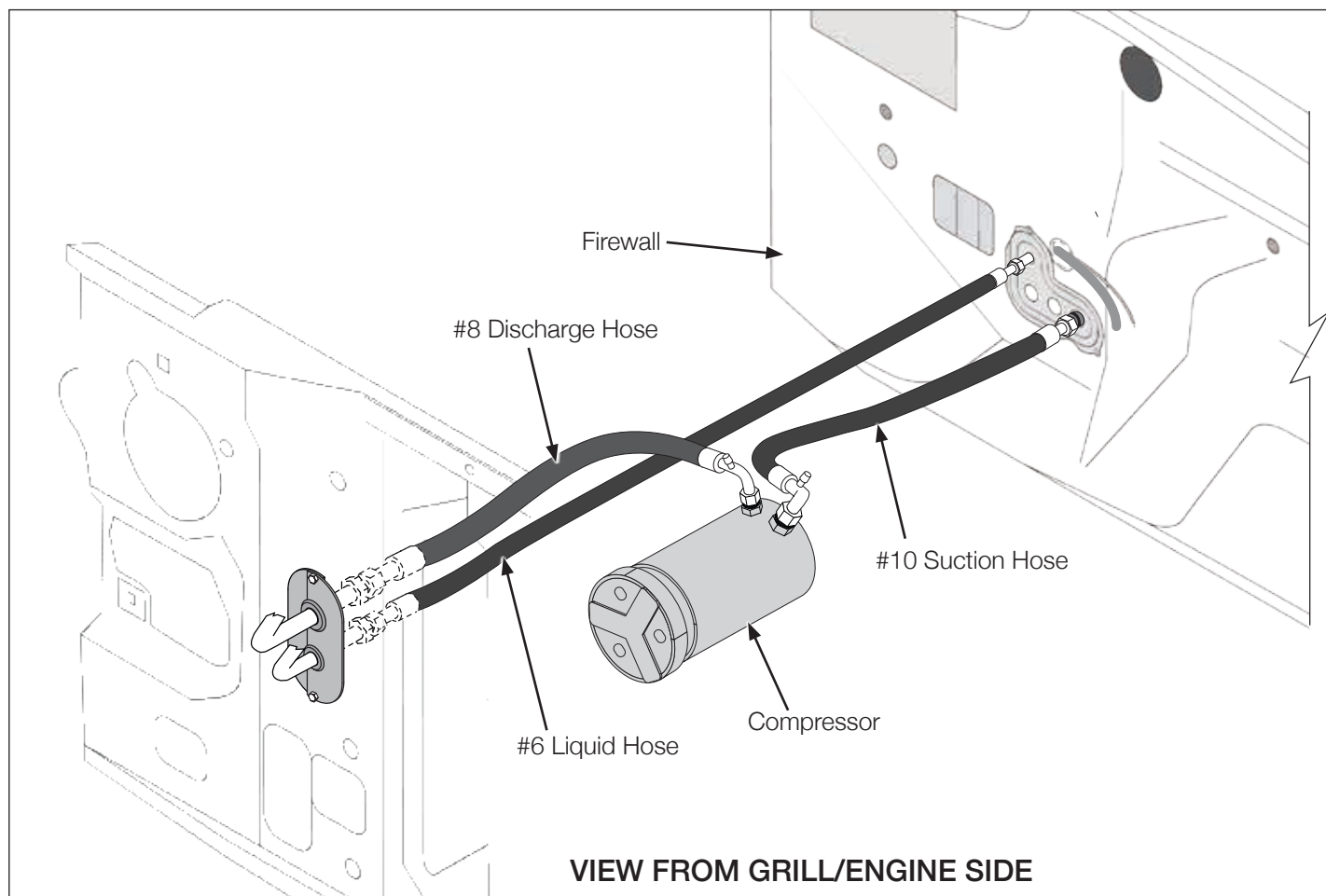
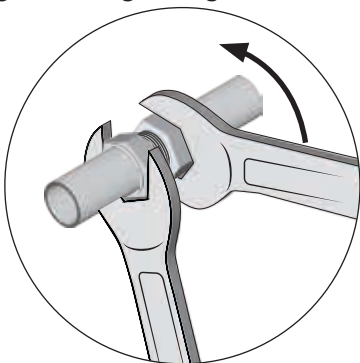
- Attach the #6 (5/16") liquid hose straight end to the #6 liquid tube with a #6 O-ring and a few drops of mineral oil.
- Attach the other end of the #6 (5/16") liquid hose to the liquid tube connection from the evaporator at the firewall with a #6 O-ring and a few drops of mineral oil.
- Attach the #8 (13/32") discharge hose straight end to the #8 discharge tube with a #8 O-ring and a few drops of mineral oil.
- Attach the other end of the #8 (13/32") discharge hose (with service port) to the compressor with a #8 O-ring and a few drops of mineral oil.
- Attach the #10 (1/2") suction hose 135 degree end with the service port to the compressor with a #10 O-ring and a few drops of mineral oil.
- Attach the #10 (1/2") suction hose straight end to the suction tube connection from the evaporator at the firewall with a #10 O-ring and a few drops of mineral oil.



TECH TIPS



NOTE: For a proper seal of fittings, install O-rings as shown with supplied mineral oil. Tighten fittings using two wrenches

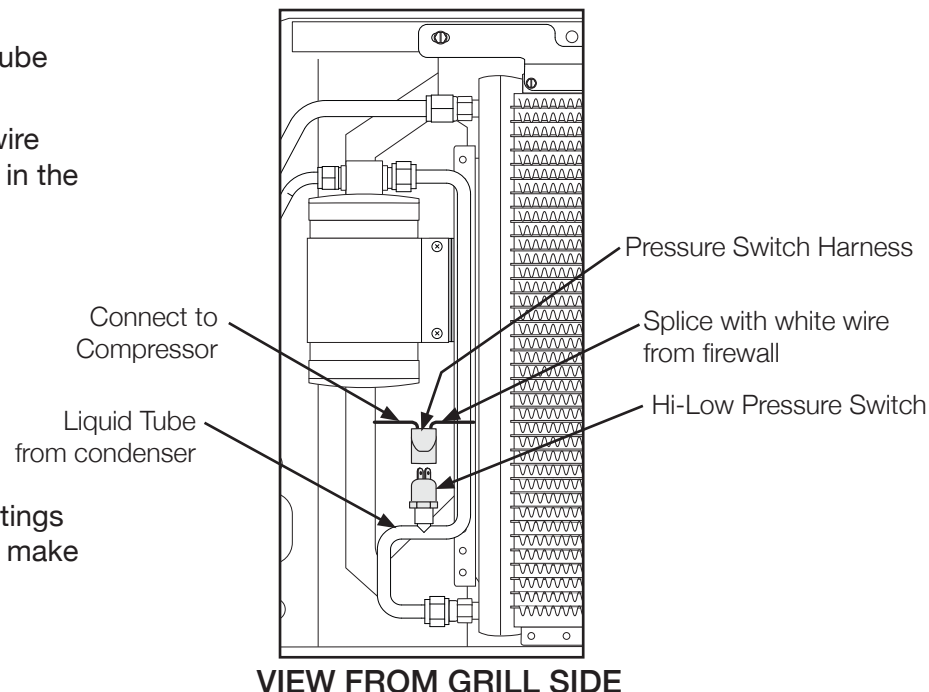


VIEW FROM GRILL/ENGINE SIDE

Installation - Hi/Low Pressure Switch



- Screw the Hi-Low pressure switch into the service port on the liquid tube coming from the condenser.
- Splice one white wire from the pressure switch harness to the white wire coming through the firewall from the main harness using the connectors in the Hi-Low Switch Kit.
- Connect the other white wire from the pressure switch harness to the compressor wiring using the connectors in the Hi-Low Switch Kit.
- Plug the pressure switch harness into the switch.
- Reinstall original engine coolant reservoir, grill, and hood latch using original hardware.
- FINAL STEPS: Take a look around at your installation and check all fittings and bolts for tightness, check the heater hose clamps for tightness, and make sure nothing is routed in a way to obstruct any moving parts.
- You can refill the radiator and reconnect the battery at this time.



You've just completed the installation of your new A/C system.
The very final step is to fully charge and test your new system.

On the next page you'll find specifications for proper final preparation for your A/C technician.

New A/C System Preparation... A MUST READ!



Please read through these procedures before completing this new A/C system charging operation. A licensed A/C technician should be utilized for these procedures to insure that your new system will perform at it's peak, and that your compressor will not be damaged.

- 1) Your radiator/cooling system is an integral part of your new system. Please insure that you have a 50/50 mix of distilled water and antifreeze. The heater coil **MUST** be purged (cycle heater control valve) to make sure no water, without antifreeze, is in the heater coil before you charge the A/C system.
- 2) Evacuate the system for 45 minutes (minimum).
- 3) Your new compressor **MUST** be hand-turned 15-20 revolutions before and after charging with liquid. Failure to do this may cause the reed valves to become damaged (this damage is NOT covered by your warranty).
- 4) Your new system requires 134a refrigerant. It will require 1.5 lbs (or 24 oz).
- 5) Your new compressor comes charged with oil - NO additional oil is needed.
- 6) Insure that the new belt is tight.
- 7) **DO NOT CHARGE SYSTEM WITH LIQUID REFRIGERANT!**

RECOMMENDED TEST CONDITIONS:

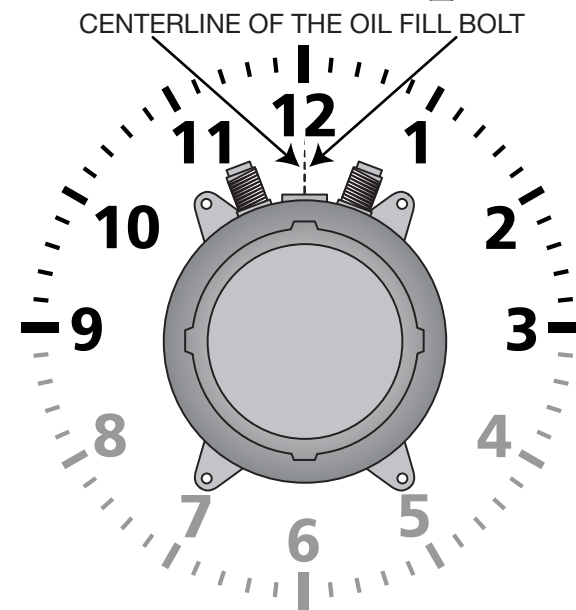
(After system has been fully charged and tested for basic operation)

- Determine the temperature outside of the car
- Connect gauges or service equipment to high/low charging ports
- Place blower fan switch on medium
- Close all doors and windows on vehicle
- Place shop fan directly in front of condenser
- Run engine idle up to approx. 1500 rpm

ACCEPTABLE OPERATING PRESSURE RANGES:

- HIGH-SIDE PRESSURES (150-275 PSI)
- LOW-SIDE PRESSURES (10-25 PSI in a steady state)

Readings above are based on an ambient temperature of 90° with an adequate airflow on condenser



CAUTION! When mounting your compressor and/or adjusting the belt use caution. Mount by using the centerline of the oil fill plug as your guide. The compressor can **ONLY** be mounted inbetween the 9 to 3 positions. **DO NOT** mount inbetween the 4 to 8 positions.

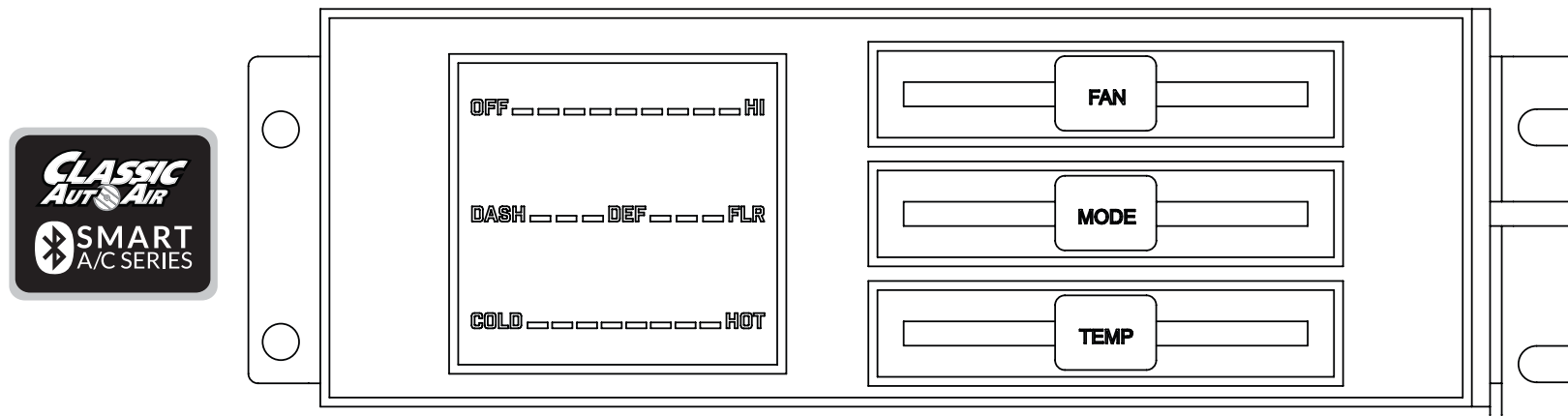
Do NOT tilt, shake or turn refrigerant can upside-down OR use a charging station to install refrigerant while the engine is running. Doing so will direct liquid refrigerant into the compressor piston chamber, causing damage to reed valves and/or pistons and/or other components, as well as potentially seizing the compressor. Allow a minimum of 30 minutes for liquid to "boil off." You must hand turn the compressor hub (not the pulley) a minimum of 15 complete revolutions prior to starting the engine with the clutch engaged.

Operations



Control & Operating Instructions

Your new Smart Series A/C system offers complete comfort capabilities in virtually every driving condition. This includes Hot and Cold temperature control in all of the modes. This system also provides the ability to blend the air between Dash, Floor, and Defrost modes simultaneously. To illustrate the various ways you can adjust the airflow direction and temperature - we've provided these handy illustrations and chart to show exactly how you can adjust your Smart Series A/C for maximum comfort...



There are 11 levels of adjustment within the range of the DASH - DEF - FLOOR lever



MODE	DASH					DEF					FLR				
POSITION	Dash A/C 100%	Dash A/C 80% Defrost 20%	Dash A/C 60% Defrost 40%	Dash A/C 40% Defrost 60%	Dash A/C 20% Def 80%	Defrost 100%	Floor Defrost 20%	Floor Defrost 40%	Floor Defrost 60%	Floor Defrost 80%	Floor Defrost 100%				
COMPRESSOR	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON

TEMP	COLD										HOT
VALVE POSITION	CLOSED - 0%	OPEN - 10%	OPEN - 20%	OPEN - 30%	OPEN - 40%	OPEN - 50%	OPEN - 60%	OPEN - 70%	OPEN - 80%	OPEN - 90%	OPEN - 100%
COMPRESSOR	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	OFF

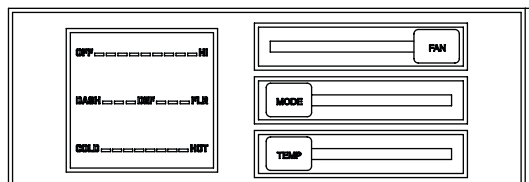
Operations



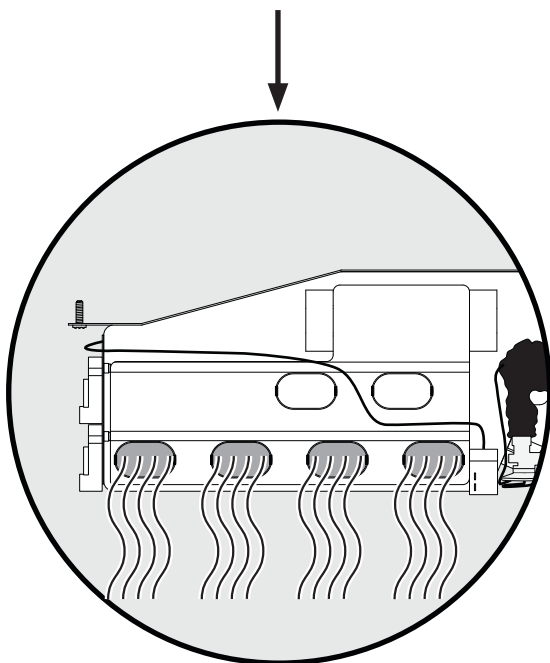
Control & Operating Instructions

To start operations, move the FAN knob right to HIGH.

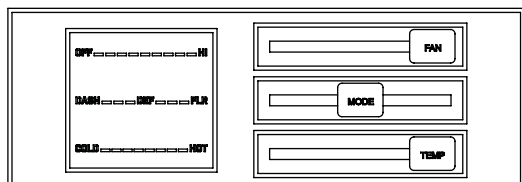
AIR OUT OF DASH VENTS



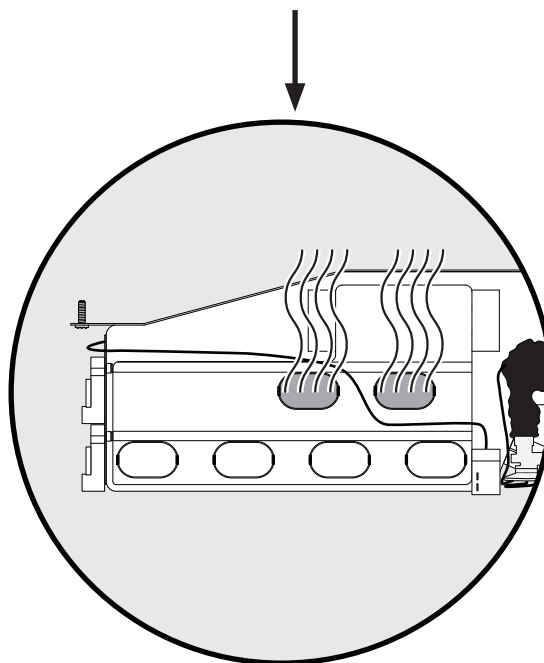
Move MODE knob to DASH
Move TEMP knob to COLD



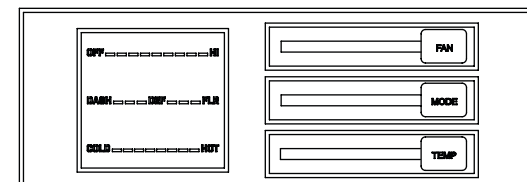
AIR OUT OF DEFROST VENTS



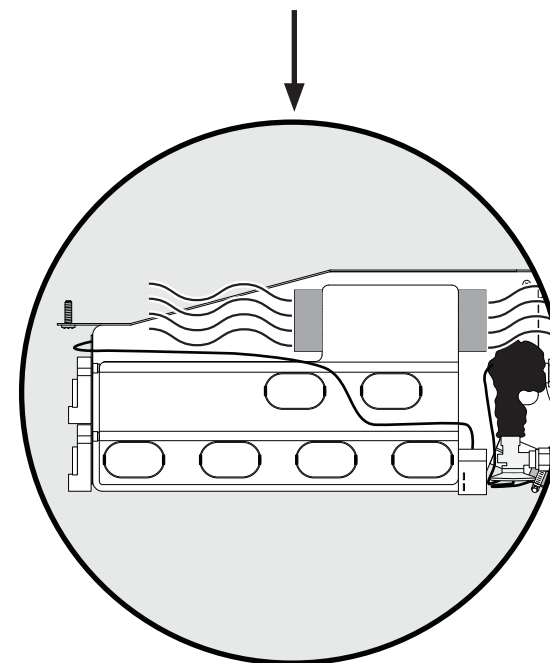
Move MODE knob to DEF
Move TEMP knob to HOT



AIR OUT OF FLOOR VENTS



Move MODE knob to FLR
Move TEMP knob to HOT



TROUBLESHOOTING GUIDE



TEST CONDITIONS USED TO DETERMINE SYSTEM OPERATION

(These test conditions will simulate the affect of driving the vehicle and give the technician the three critical readings that they will need to diagnose any potential problems).

- 1) Connect gauges or service equipment to high/low charging ports.
- 2) Place blower fan switch on medium.
- 3) Close all doors and windows on vehicle.
- 4) Place shop fan in front of condenser.
- 5) Run engine idle up to 1500 rpm.

ACCEPTABLE OPERATING PRESSURE RANGES (R134A TYPE)

- 1) HIGH-SIDE PRESSURES (150-275 PSI) *Note- general rule of thumb is two times the ambient (daytime) temperature, plus 15-20%.
- 2) LOW-SIDE PRESSURES (10-25 PSI in a steady state).

CHARGE AS FOLLOWS: R134A = 24 OZ.

NO ADDITIONAL OIL IS NECESSARY IN OUR NEW COMPRESSORS.

TYPICAL PROBLEMS ENCOUNTERED IN CHARGING SYSTEMS

NOISY COMPRESSOR:

- A. A noisy compressor is generally caused by charging a compressor with liquid or overcharging. If the system is overcharged both gauges will read abnormally high readings. This is causing a feedback pressure on the compressor causing it to rattle or shake from the increased cylinder head pressures. System must be evacuated and re-charged to exact weight specifications.
- B. Heater control valve installation - Installing the heater control valve in the incorrect hose. Usually when this occurs the system will cool at idle then start to warm up when raising the RPM's of the motor. THE HEATER CONTROL IS A DIRECTIONAL VALVE; MAKE SURE THE WATER FLOW IS WITH THE DIRECTION OF THE ARROW. As the engine heats up that water transfers the heat to the coil, thus overpowering the a/c coil. A leaking or faulty valve will have a more pronounced affect on the unit's cooling ability. Installing the valve improperly (such as having the flow reversed) will also allow water to flow through, thus inhibiting cooling. Check for heat transfer by disconnecting hoses from the system completely. By running down the road with the hoses looped backed through the motor, you eliminate the possibility of heat transfer to the unit.

- C. Evaporator freezing - Freezing can occur both externally and internally on an evaporator core. External freeze up occurs when the coil cannot effectively displace the condensation on the outside fins and the water forms ice (the evaporator core resembles a block of solid ice), it restricts the flow of air that can pass through it, which gives the illusion of the air not functioning. The common cause of external freezing is the setting of the thermostat and the presence of high humidity in the passenger compartment. All door and window seals should be checked in the event of constant freeze-up. A thermostat is provided with all units to control the cycling of the compressor.
- D. Internal freeze up occurs when there is too much moisture inside the system. The symptoms of internal freeze up often surface after extended highway driving. The volume of air stays constant, but the temperature of the air gradually rises. When this freezing occurs the low side pressure will drop, eventually going into a vacuum. At this point, the system should be checked by a professional who will evacuate the system and the drier will have to be changed.
- E. Inadequate airflow to condenser - The condenser works best in front of the radiator with a large supply of fresh air. Abnormally high pressures will result from improper airflow. Check the airflow requirements by placing a large capacity fan in front of the condenser and running cool water over the surface. If the pressures drop significantly, this will indicate the need for better airflow.
- F. Incorrect or inadequate condenser capacity - Incorrect condenser capacity will cause abnormally high head pressures. A quick test that can be performed is to run cool water over the condenser while the system is operating, if the pressures decrease significantly, it is likely a airflow or capacity problem.
- G. Expansion valve failure - An expansion valve failure is generally caused by dirt or debris entering the system during assembly. If an expansion valve fails it will be indicated by abnormal gauge readings. A valve that is blocked will be indicated by high side that is unusually high, while the low side will be unusually low or may even go into a vacuum. A valve that is stuck open will be indicated by both the high and low pressures rising to unusually high readings, seeming to move toward equal readings on the gauges.
- H. Restrictions in system - A restriction in the cooling system will cause abnormal readings on the gauges. A high-side restriction (between the compressor and the drier inlet) will be indicated by the discharge gauges reading excessively high. These simple tests can be performed by a local shop and can help determine the extent of the systems problem.

TROUBLESHOOTING GUIDE



PROBLEM - SYSTEM IS NOT COOLING PROPERLY. COLD AT IDLE, WARMER WHEN RAISING ENGINE RPM'S:

Make sure the Water Valve is positioned correctly

The water valve is a directional valve and should be installed with the arrow pointing towards the water pump, it should be connected to the heater hose that runs from the heater core to the water pump. If the water valve is connected to the incorrect hose it allows water to circulate through the system via the heater core over powering the cooling effect of the A/C coil, (normally the air conditioning is functioning properly).

Step 1: Check placement of the water valve, correct if needed. (In some cases changing the location of the water valve may not fix the above problem.) Continue to next step.

Step 2: If changing the location of the water valve does not rectify the issue, then possibly the water valve is permanently damaged and may need to be replaced. To check the integrity of the water valve completely remove the water hoses for the heater core and "loop" together. (This will remove the heater system completely from the possibilities) If the system now cools, replace the water valve

Verify Adequate Air Flow to Condenser

For an air conditioning system to function properly there has to be adequate airflow across the condenser. The function of the condenser is to dissipate heat, without proper airflow your system will not cool correctly in the cabin of your vehicle.

Step 1: Connect gauges to A/C hoses. The pressures should be with the ambient temp is 90; low side pressures should be between 10-25 psi, high side pressures should be between 150-275 psi.

If the low side pressures are normal and the high side pressures are high then there might be an airflow issue, continue to next step.

Step 2: Test air flow to Condenser using the following three tests:

1. Place a piece of paper on the condenser with the car in idle and see if paper is held in place.
2. With car in idle, attach gages, and place a large capacity fan in front of the condenser. What happens to the pressures?
3. With car still in idle and gages attached, pour water down the front of the condenser. What happens to the pressures?

If the paper is held in place you are at least getting some air flow. If the high side decreases during test 2 & 3 then your condenser is not getting enough air which is causing your system to not cool properly. To correct this issue you will need a more powerful mechanical fan.

Step 3: Confirm correct Refrigerant charge in system.

All of our systems should be charged with 24 oz or 1.5 lbs of R134A Refrigerant only. If overcharged you will need to evacuate the system and recharge with the correct amount.*

What measurements mean:

Low Temp and High Pressure seem to be equal...

You have a malfunctioning expansion valve that is stuck open.

High Side is extremely high and Low Side is extremely low (possibly into vacuum)...

There is a blockage in the system. Remove hoses and blow compressed air through in both directions. If pressures don't change its possible that your expansion valve is stuck closed and would have to be replaced.

PROBLEM - COMPRESSOR CONCERNS:

This is often misdiagnosed as a problem for the system not cooling properly. If you have a noisy compressor it is due to improper charging of refrigerant. An overcharged (more than 24 oz or 1.5 lbs R134A) compressor can cause rattling. If charged with pure liquid there is a high probability you have bent reed valves that are causing tapping sound.

SCAN QR code
with your mobile camera

Get the technical support you want the moment you need it, with no wait times. Simply **SCAN** the **QR code** and be directly taken to our support section to troubleshoot all things A/C.

