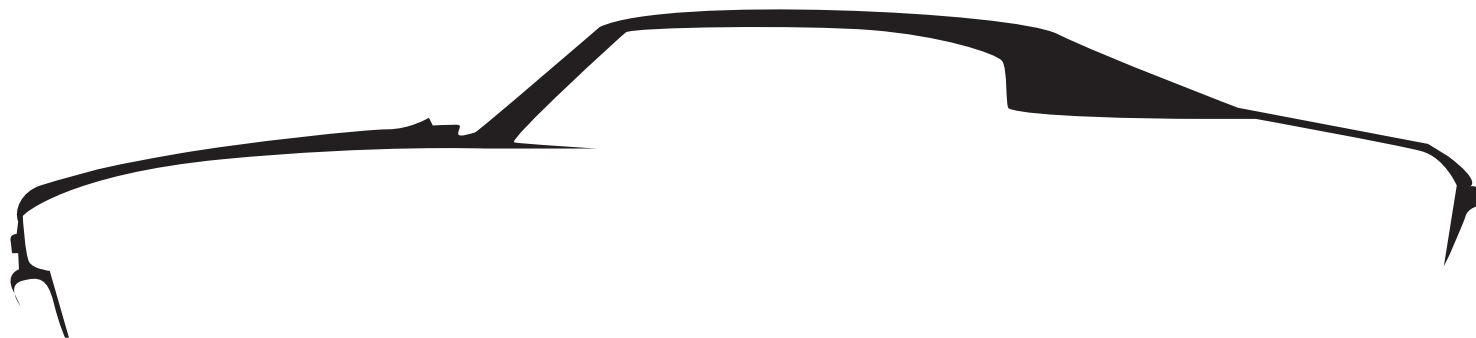




Installation Manual

**1970-1972 Chevelle / Malibu /
EL Camino** *Factory Air*

DOCUMENT #1-3050FA

©2024 Classic Auto Air / 04.24





Congratulations...

You have just purchased the highest quality, best performing
A/C system ever designed for your
1970-1972 Chevelle / Malibu / El Camino.

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.

Again, thank you from our entire staff.



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. We have a 5 stage check process to make sure you have everything you'll need.
- ☐ **If your vehicle has been or is being modified, some procedures will need to be adjusted to fit your particular application.**
- ☐ 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 During the installation you might find the opportunity to repair or upgrade non-working or out of date components.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.
- ☐ SAFETY FIRST: Wear eye protection while drilling/cutting, deburr sharp edges, and never get in a hurry or force a part.
- ☐ Tools: Your installation only requires the basic tools everyone has in their garage, nothing exotic or specific to A/C or Heat equipment.

Procedures, During Installation:

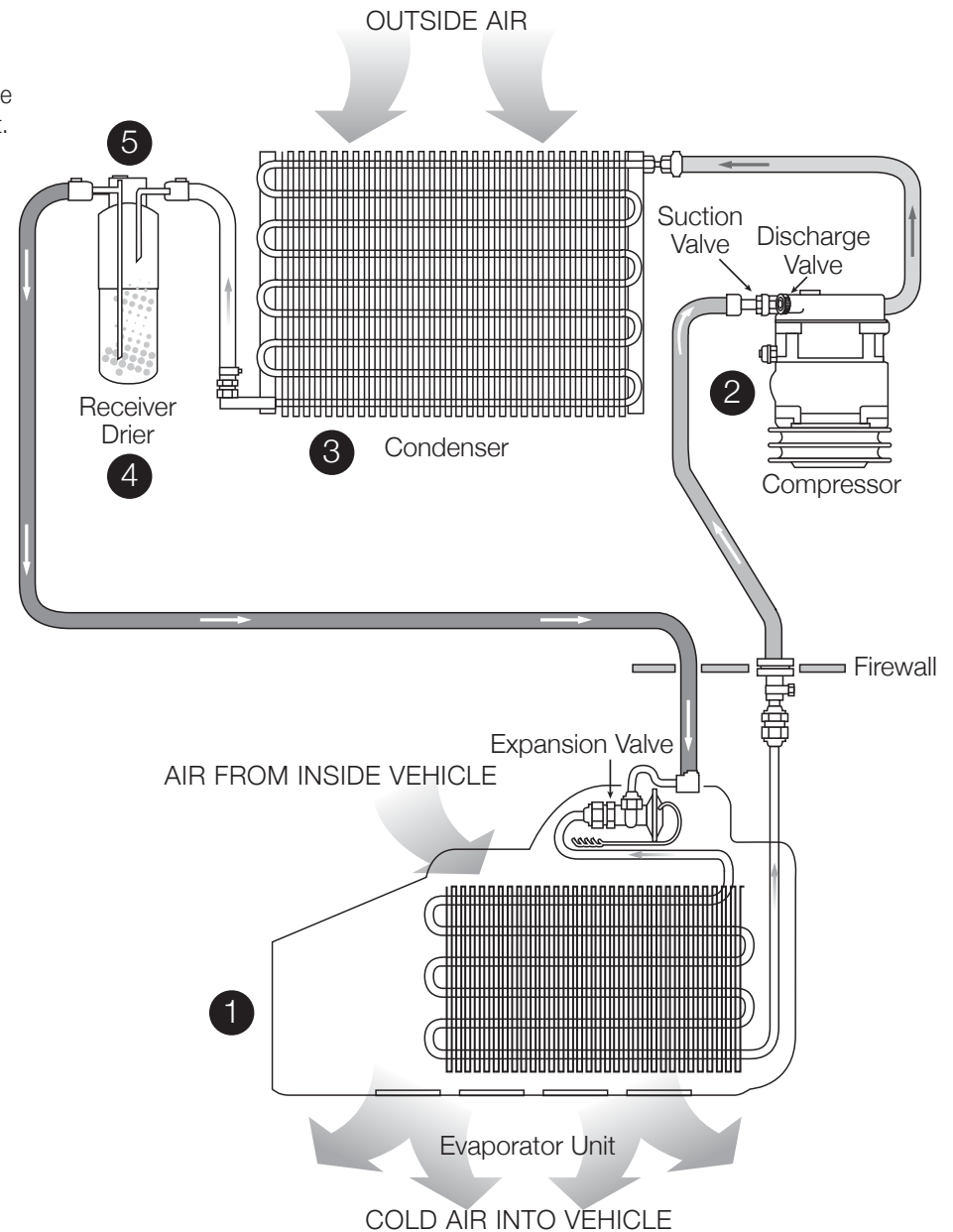
- ☐ Fittings: Use one or two drops of mineral oil (supplied with your kit) on ALL rubber o-rings, threads and rear of bump for o-ring where female nut rides. Do not use thread tape or sealants.
- ☐ Measure twice (or more), cut once
- ☐ **Should you have any technical questions, or feel you have defective components (or missing items), call us immediately, we will be glad to assist you. Our toll-free number is listed on every page, we're here to help!**

YOU CAN NOW BEGIN THE INSTALLATION...

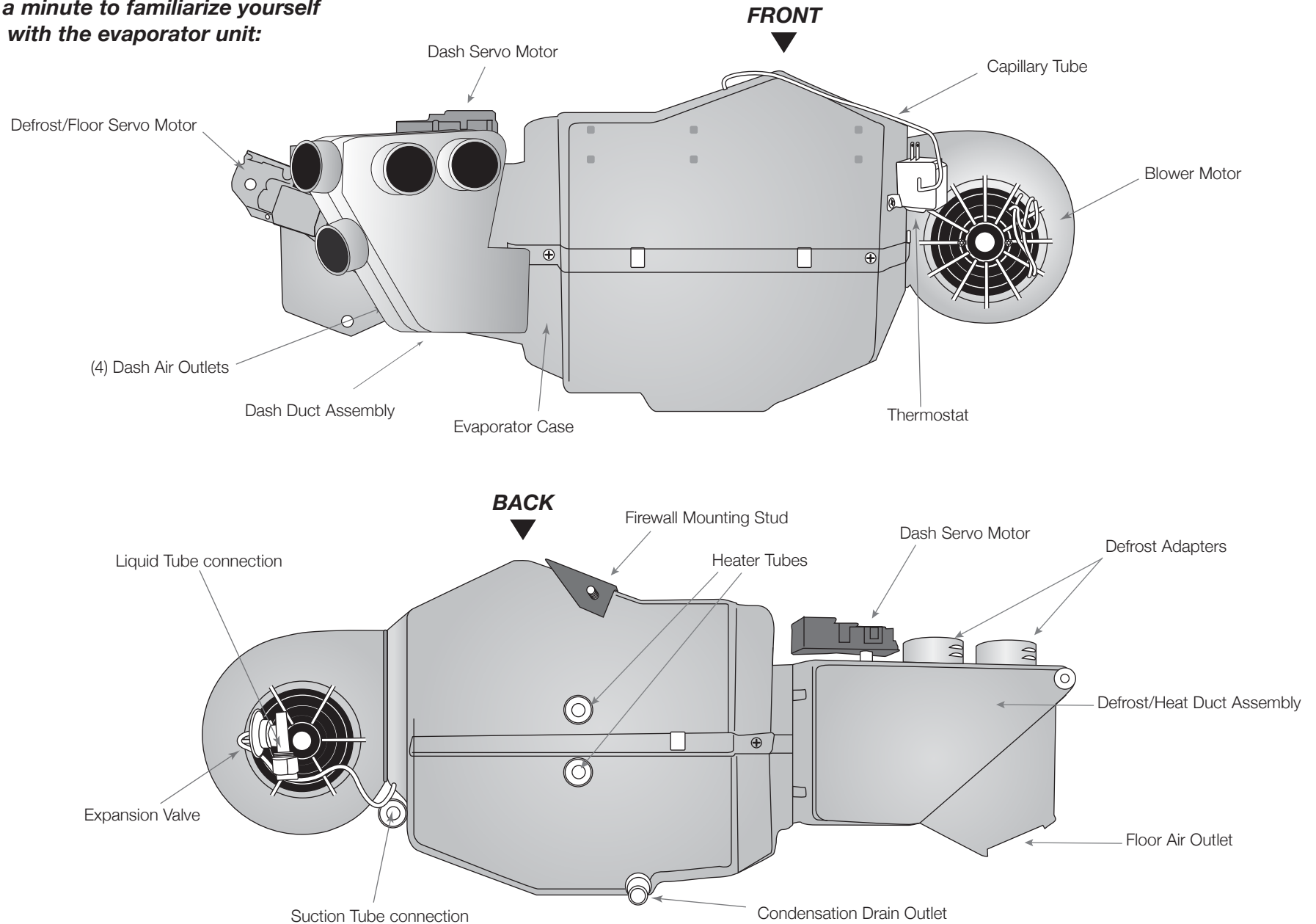
A Basic Overview of Automotive A/C....

- 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.

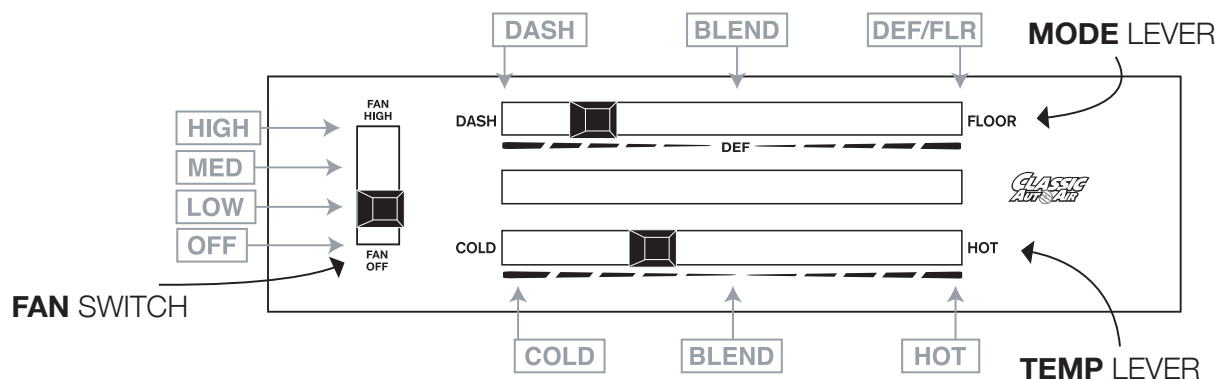


**Take a minute to familiarize yourself
with the evaporator unit:**



Control & Operating Instructions

Your new **Smart Series A/C** system offers complete comfort capabilities in virtually every driving condition. This includes temperature control in all of the modes. This system also provides the ability to blend the air between Face, Heat, 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 lever

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

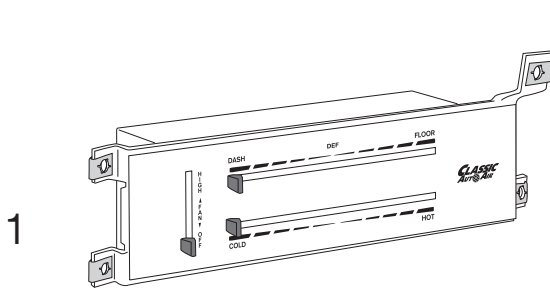
MODE	DASH										DEF/FLR
POSITION	Dash A/C 100%	Dash A/C 90% Def/Floor 10%	Dash A/C 80% Def/Floor 20%	Dash A/C 70% Def/Floor 30%	Dash A/C 60% Def/Floor 40%	Dash A/C 50% Def/Floor 50%	Dash 40% Defrost 60%	Dash 30% Defrost 70%	Dash 20% Defrost 80%	Dash 10% Defrost 90%	Floor 100%
COMPRESSOR	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON

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

FAN	LEFT				RIGHT
BLOWER	OFF	LOW	MED	HIGH	

OPERATIONS

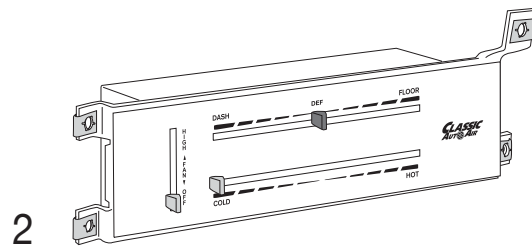
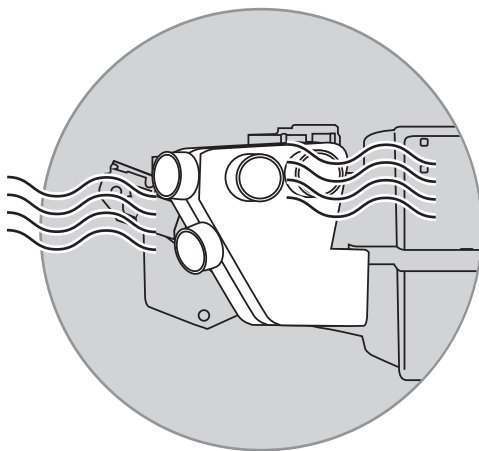
• Steps 1 thru 3



Move **FAN** knob to **HIGH**
Move **MODE** knob to **DASH**
Move **TEMP** knob to **COLD**



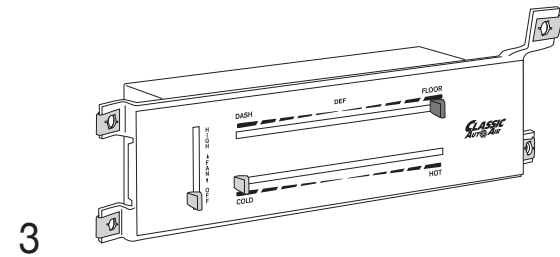
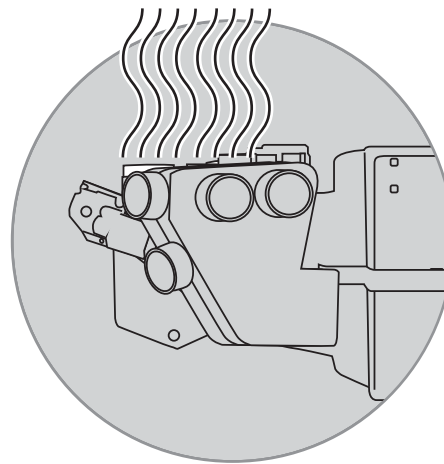
AIR OUT OF DASH VENTS



Move **MODE** knob to **DEFROST**



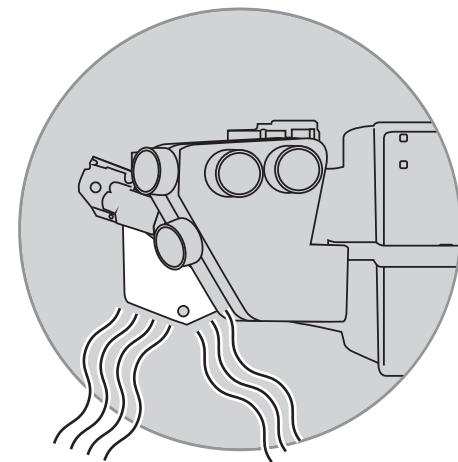
AIR OUT OF DEFROST VENTS



Move **MODE** knob to **FLOOR**

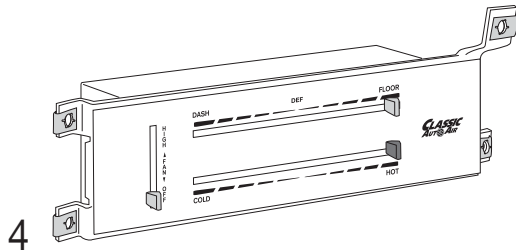


AIR OUT OF FLOOR VENTS

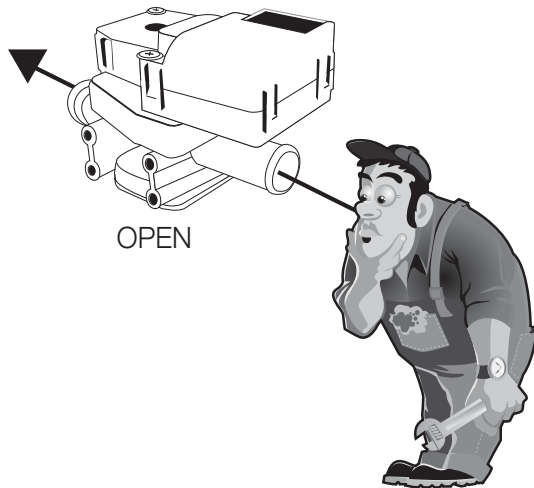


OPERATIONS

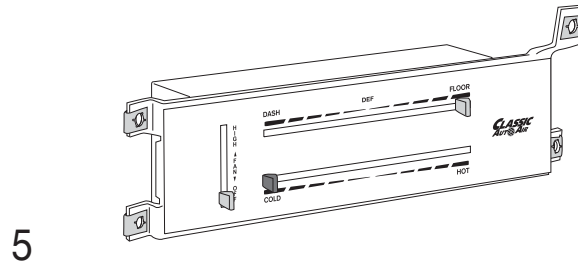
• Steps 4 and 5



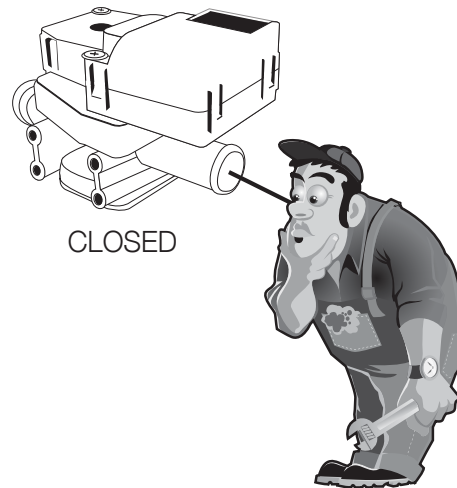
Move **TEMP** knob to **HOT**



You will be able to see through water valve passage



Move **TEMP** knob to **COLD**



You will NOT be able to see through water valve passage

Return all wiring harnesses, water valve, and ECU to their originally bags/boxes (this keeps them organized for future installation steps).

Your controls are now fully calibrated to your unit. Please refer to the next steps in your installation manual for installing the system in your vehicle.

NOTE: IF DURING ANY OF THESE STEPS YOU DO NOT GET THE CORRECT OUTCOME, PLEASE CALL TECH SUPPORT BEFORE INSTALLING INTO VEHICLE.
1(866)435-7801



Remove console, radio and radio bezel (optional), and set them aside for reinstall later (see figure 1). You will also need to remove the dash pad, which can be done by removing the 6 screws from under the front edge of the pad.

The removal of the Original A/C Assembly can be accomplished by disconnecting three control cables. One is attached to the Heat/Defrost door (see figure 2). One is attached to the Temperature door, and one is attached to the Vent / Heat door (see figure 3). Disconnect the electrical harness from the assembly. Also remove attachment screw located in front of the air inlet (see figure 4).

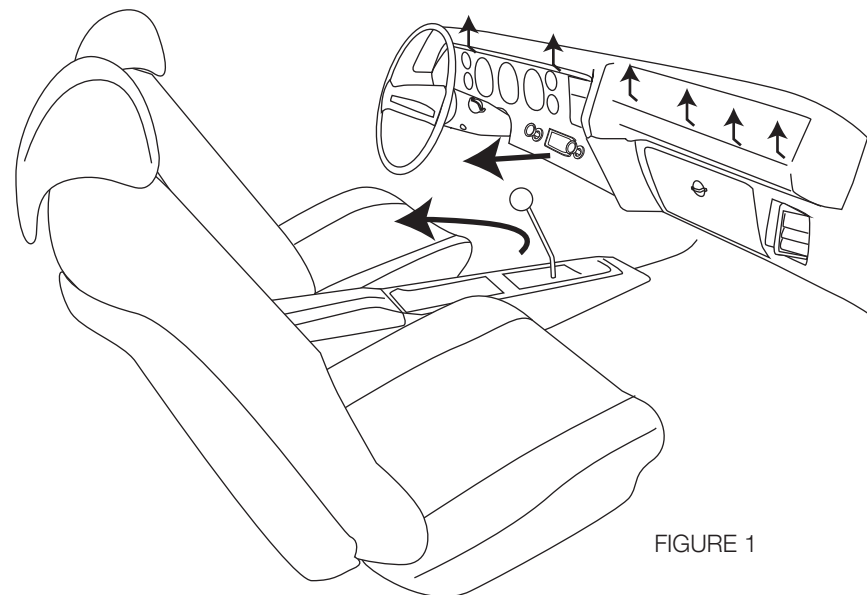


FIGURE 1



When retaining parts it's a good idea to store parts in a zip lock bag, labeled with info where the parts came from and what size/type of tool is needed to reinstall.

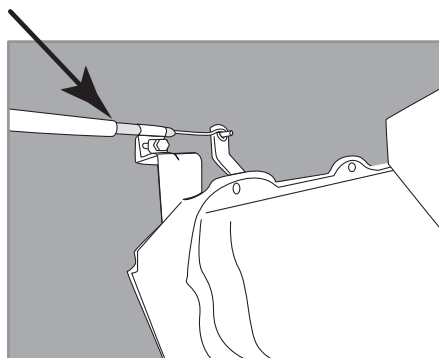


FIGURE 2

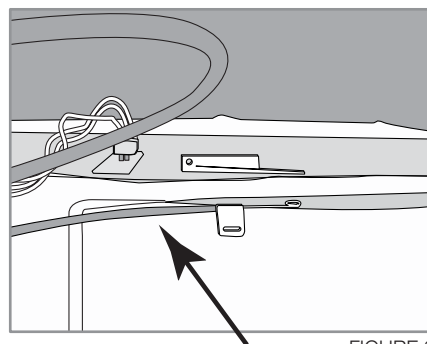
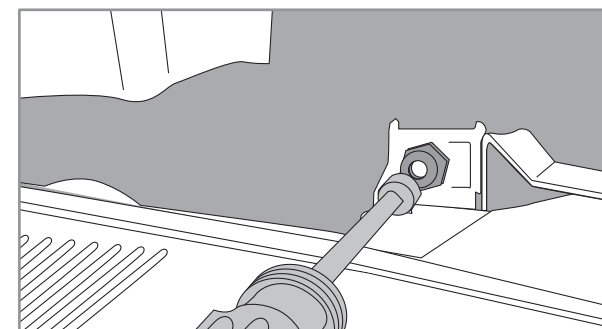
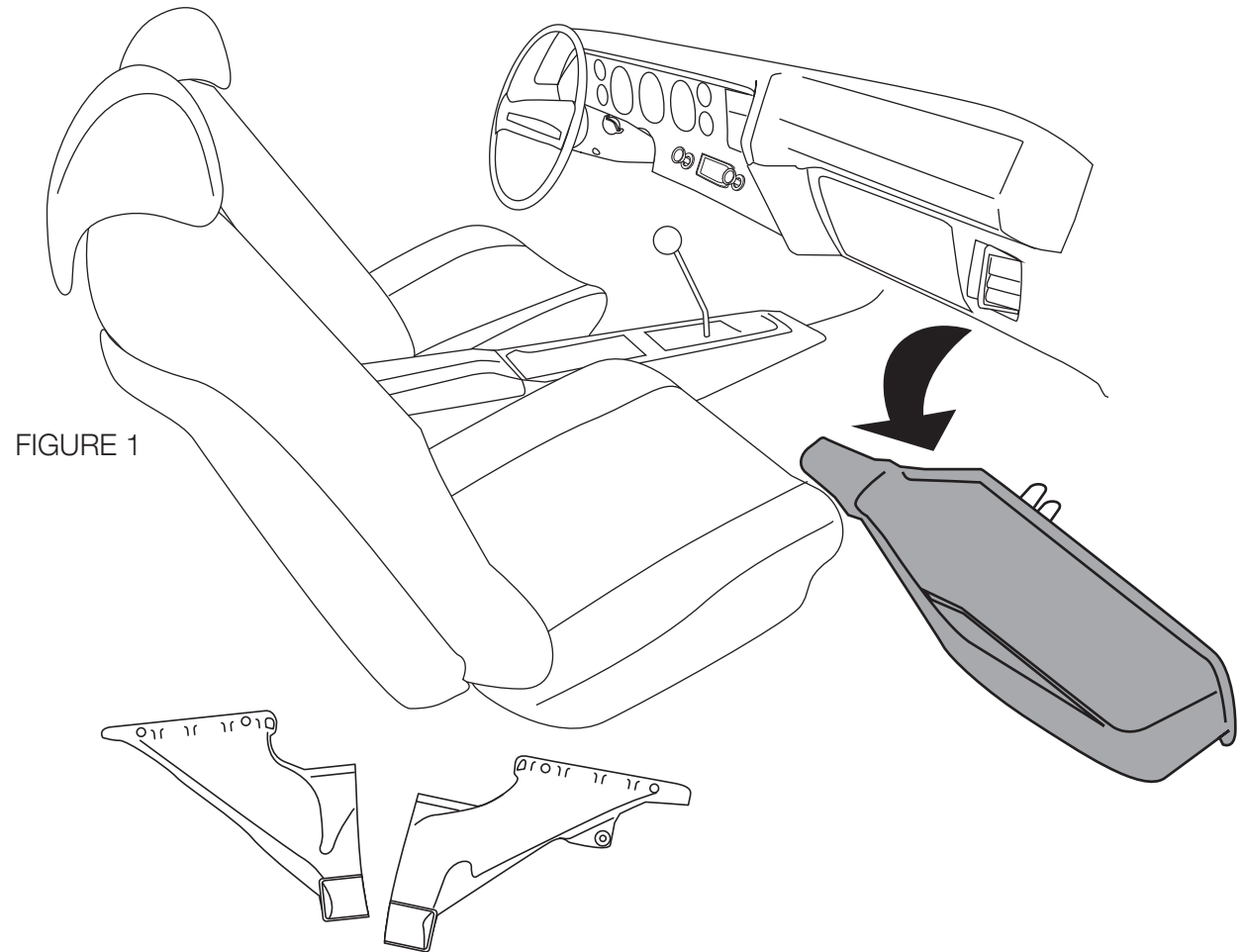


FIGURE 3



Remove the original defrost duct This is accomplished by removing four screws at the top of the dash.(retain hardware) It will be easiest to cut the defrost duct in half to remove it. You are going to utilize the left and right sides in later steps.



BAG KIT E: Place defrost duct on work bench. We've included templates for modifying both sides of the duct... cut out and tape the templates in place over the duct. Cut the defrost duct into two pieces as indicated, discarding the lower half. Using the $\frac{1}{4}$ " x $\frac{1}{2}$ " open cell foam we've included, apply foam over the ends of the duct edge before installing the appropriate adapters. Pre-Drill duct with a $\frac{5}{32}$ " drill bit on both sides of the duct. Attach the adapter to the duct using two #10 x $\frac{5}{8}$ PHP screws (figure 22

Install back into vehicle with OEM Hardware

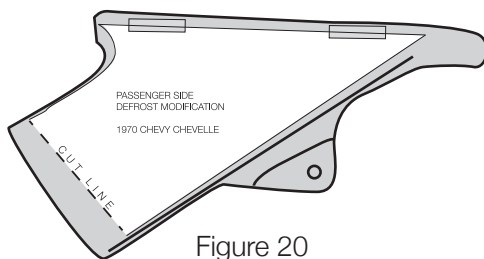
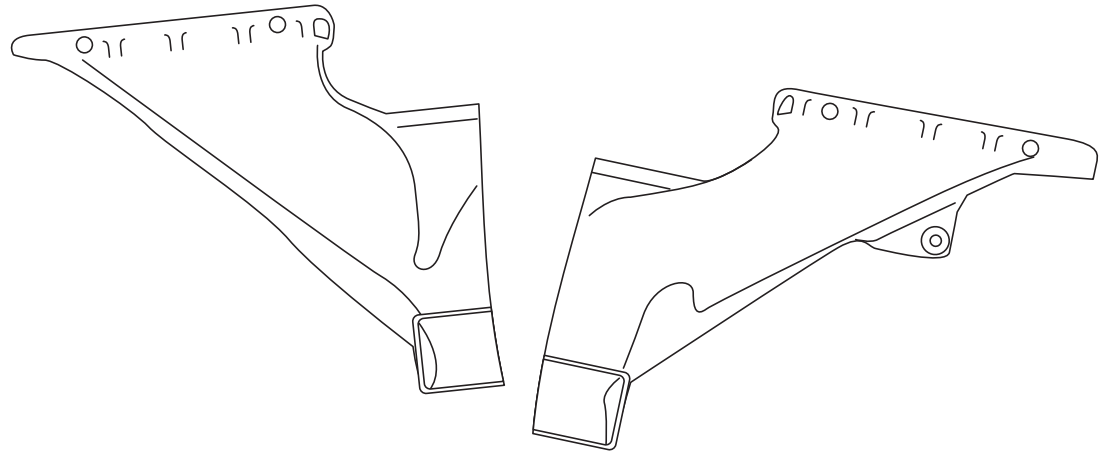


Figure 20

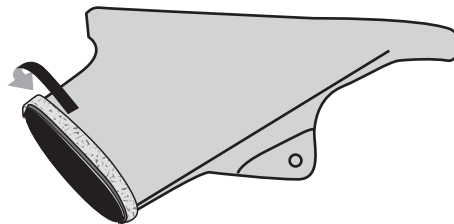


Figure 21

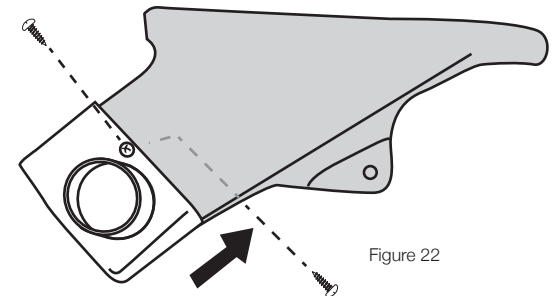


Figure 22

Foam tape, all the way around the edge

Locate the Fresh Air cowl blocks-offs from bag kit F and attach to backside of factory louver with the supplied S-clips. (Simply pushing the block off onto flange will secure).(see Figure 8)

Remove the passenger kick panel and retain the hardware.

Remove the vacuum motor only from the inlet door assembly (see figure 17). Position the door in the closed position so that outside air will not enter the cabin. This is to NECESSARY to provide clearance for the evaporator to be mounted later.

Reinstall passenger kick panel, slight trimming may be necessary.

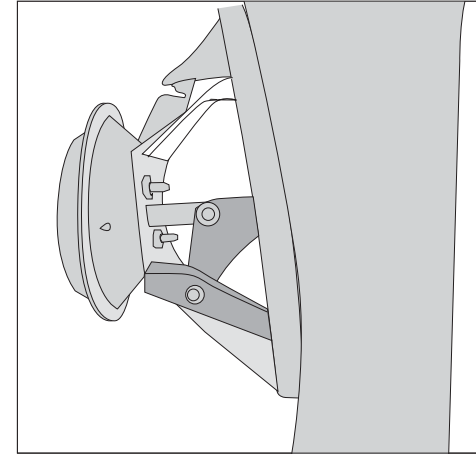


FIGURE 17

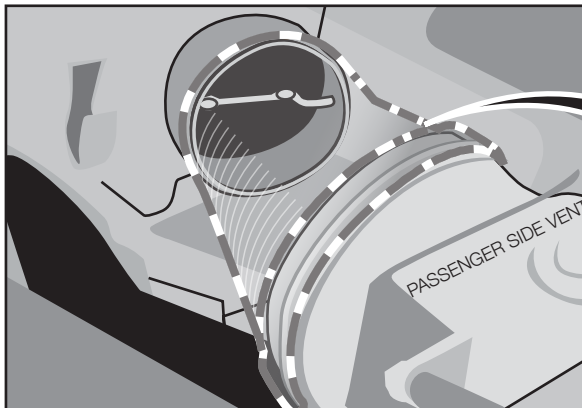
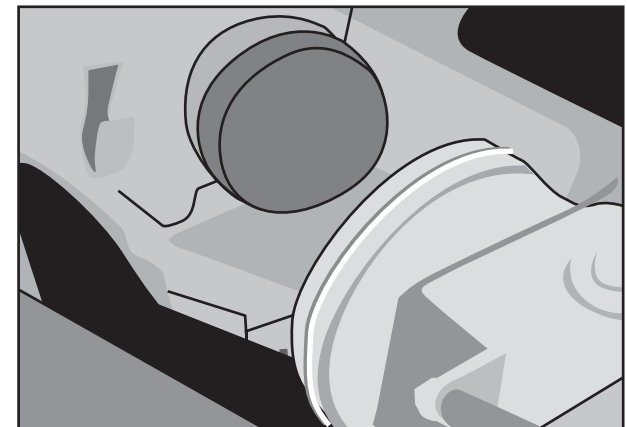


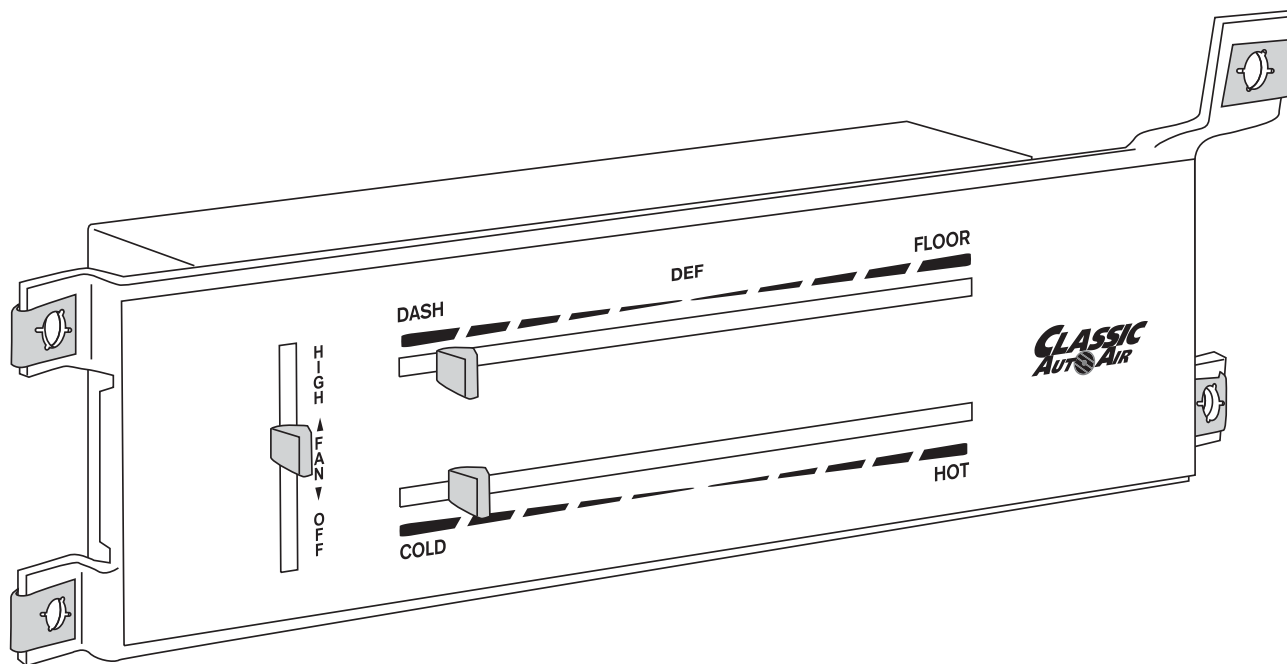
FIGURE 7

FIGURE 8



THESE ARE THE PARTS YOU WILL FIND IN CONTROL BOX

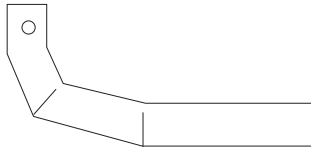
You will use all of these parts and hardware during the next series of installation steps.



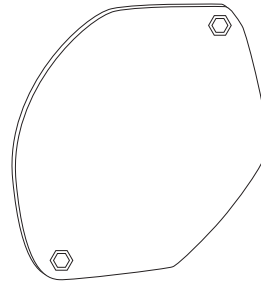
*D.E.R. Control
PN#16-4050*

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.

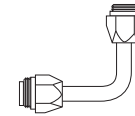


*Evaporator Dash Support Bracket
PN#0044-1*



*Fresh Air Inlet Block Off
PN#10-1048-2*

*Liquid Tube
PN#0034-9*



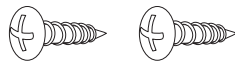
*Suction Tube
PN#0034-10*



One Flange Nut



#6 and #10 O-rings



Two #10 - 10 x 5/8" Phillips Screws



Refrigerant Tape

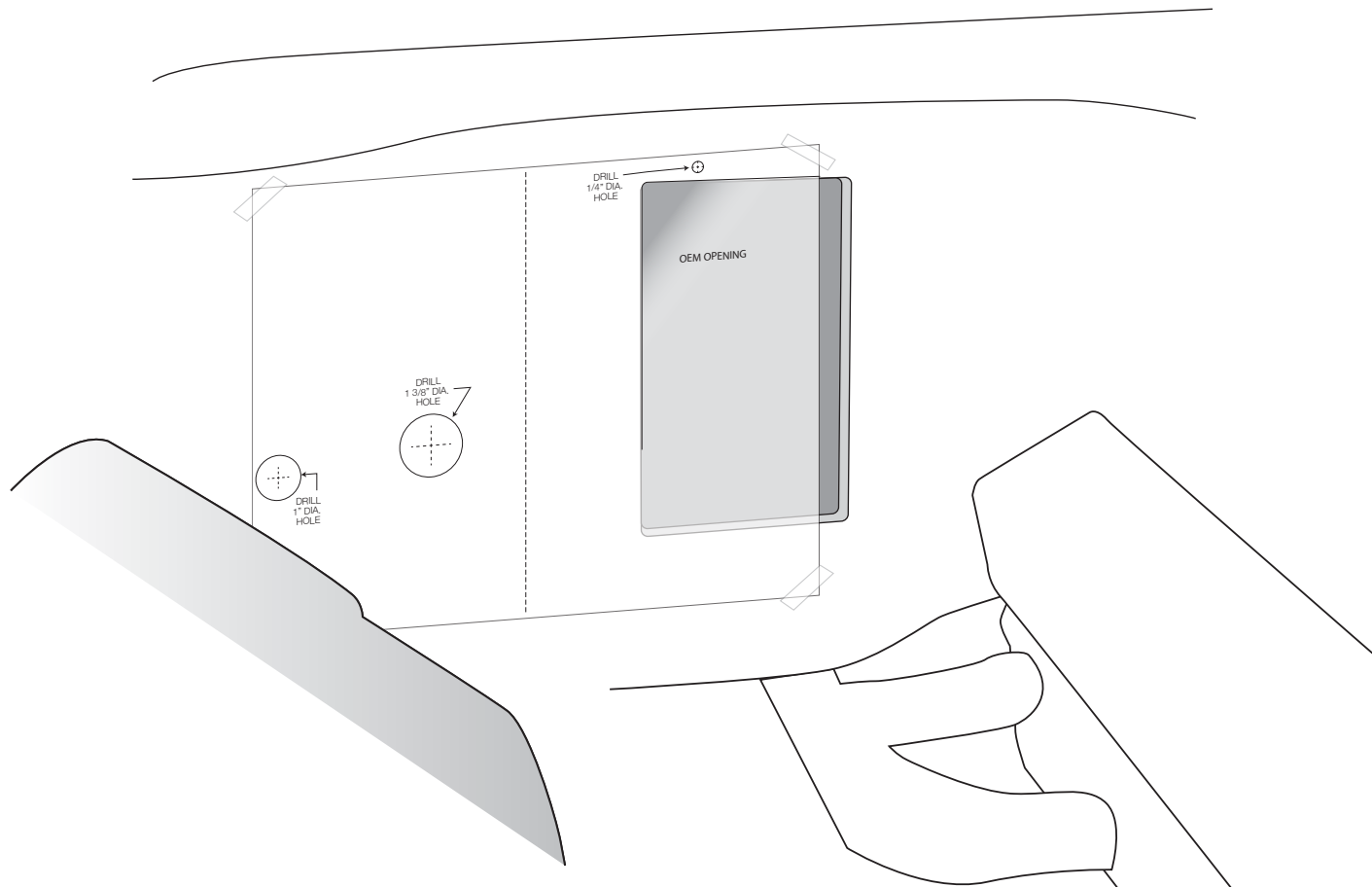


One Bulb Clamp

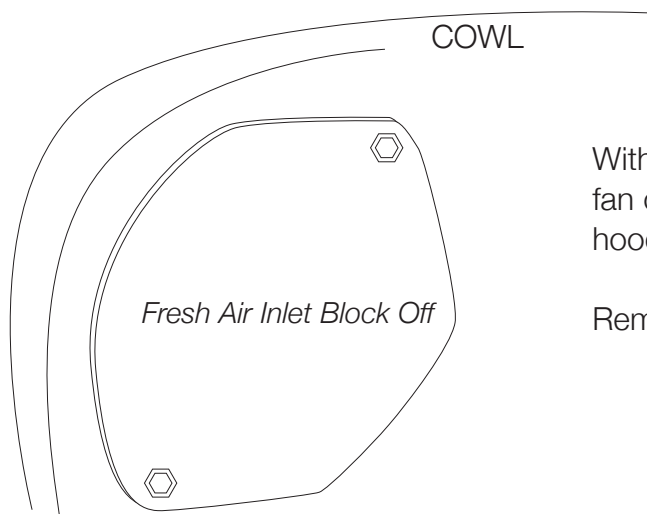
Locate the original wiring harness that supplied power to the original heater motor. GM normally used a brown wire for power. After the removal of the wire, and vacuum harness there will be a hole in the firewall. Within the OEM fuse box upgrade the factory HEATER fuse with a 20 amp fuse **(VERY IMPORTANT)**.

Locate the included template, piece it together from the two pages. Align the template with the upper left hand corner of the large OEM rectangular opening. Mark and drill the holes for the liquid and suction tubes.

Follow directions on the templates and drill the holes for the evaporator.



**You can now begin
installing your Classic Air
SMART SERIES A/C System.**



Within the engine compartment area, Install Fresh Air inlet block-off over the OEM fan opening using the original screws (it will also tuck in behind the edge of the hood hinge... tip: leave the hinge loose for now....)

Remove evaporator unit from box and place on a flat work surface.

NOTE: Two people are needed for this step!

First remove two OEM retainer bolts (see figure 13). One person can carefully flex the dash outward while another person slides the evaporator unit behind the glove box. Place evaporator on floor panel. Roll unit up behind the glove box opening, inserting tubes thru the large hole in firewall.

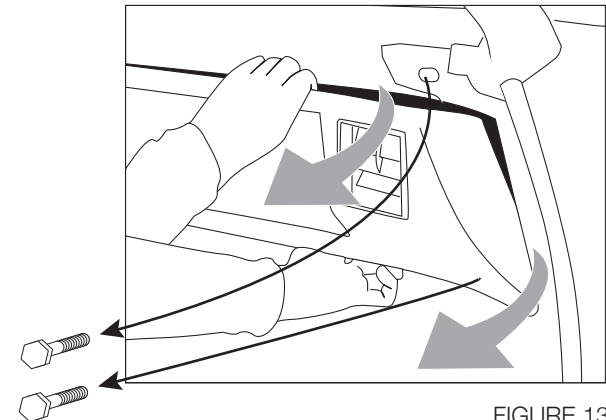
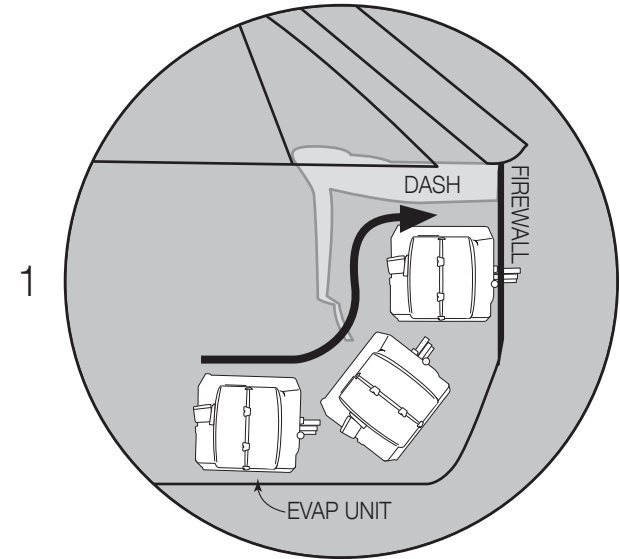
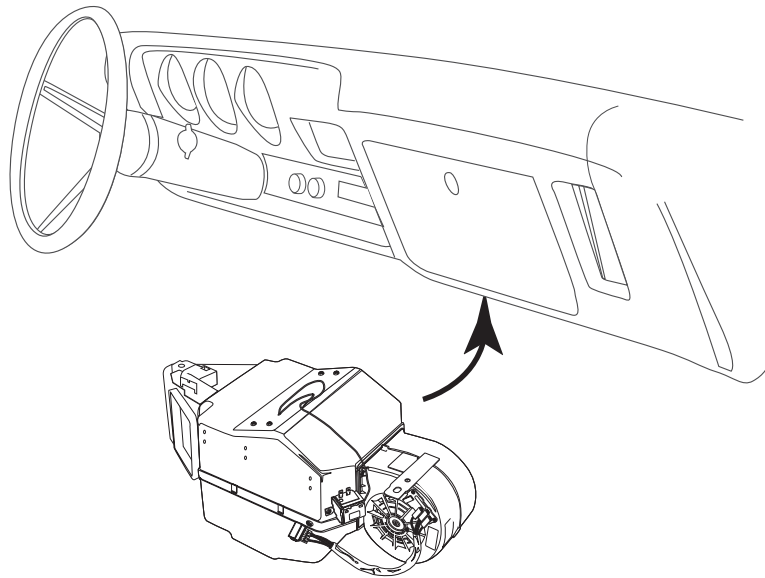


FIGURE 13

FIGURE 17

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 “roll” up and under the dash while the other person can be ready at the firewall area with the included flange nut to secure the unit in place (see figure 8). Now the unit will be easy to level and secure. Leave flange nut loose at this time.

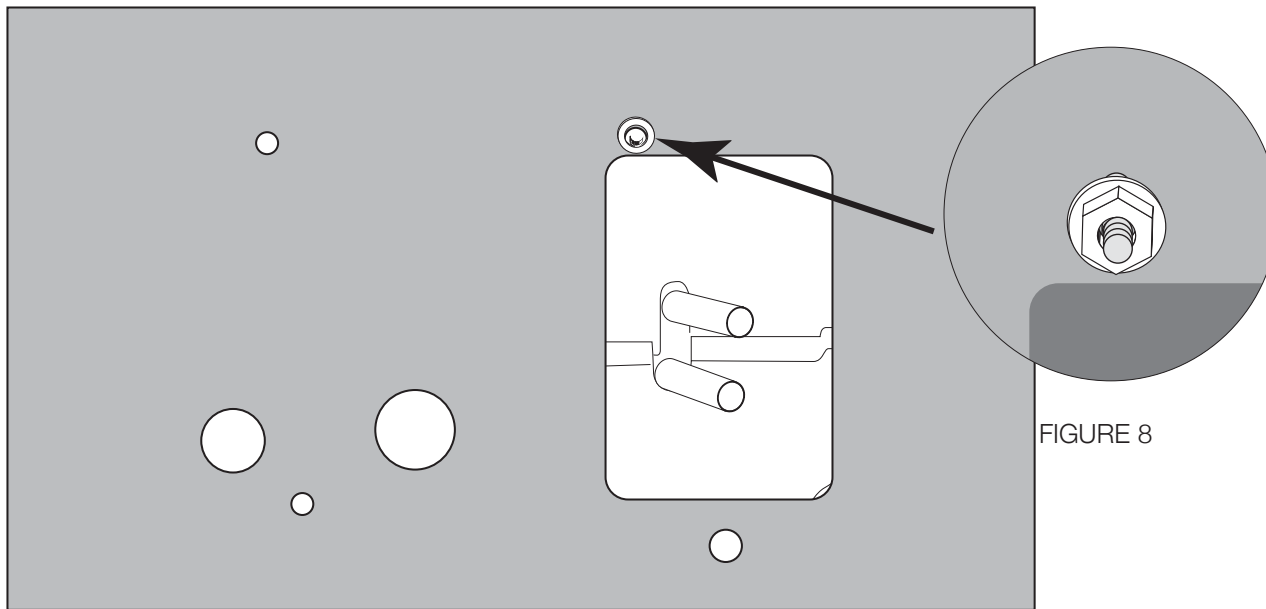
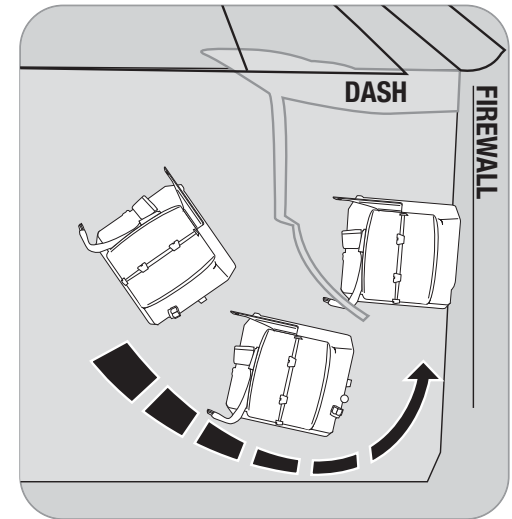


FIGURE 8

Locate the dash support bracket. Attach the dash support bracket to the evaporator by removing the case screw, positioning the bracket in place, and re-inserting the screw into the case (see figure 16). *Do not tap into the other holes on the evaporator for any reason. Also, use a screwdriver and hand-power. Do not over-tighten so you don't strip the holes.* Secure the other end of the bracket between the dash support bracket, and tighten (see figure 17).

FIGURE 16

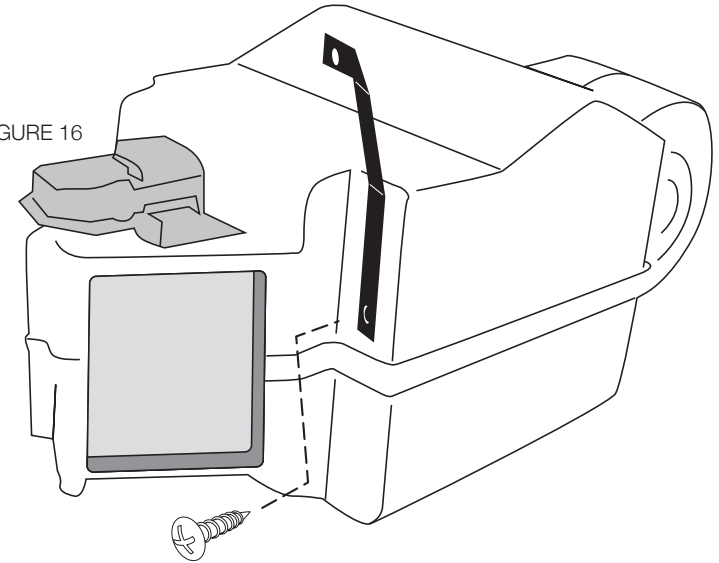
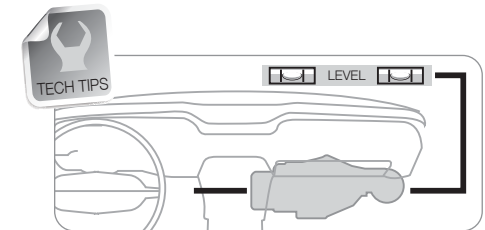
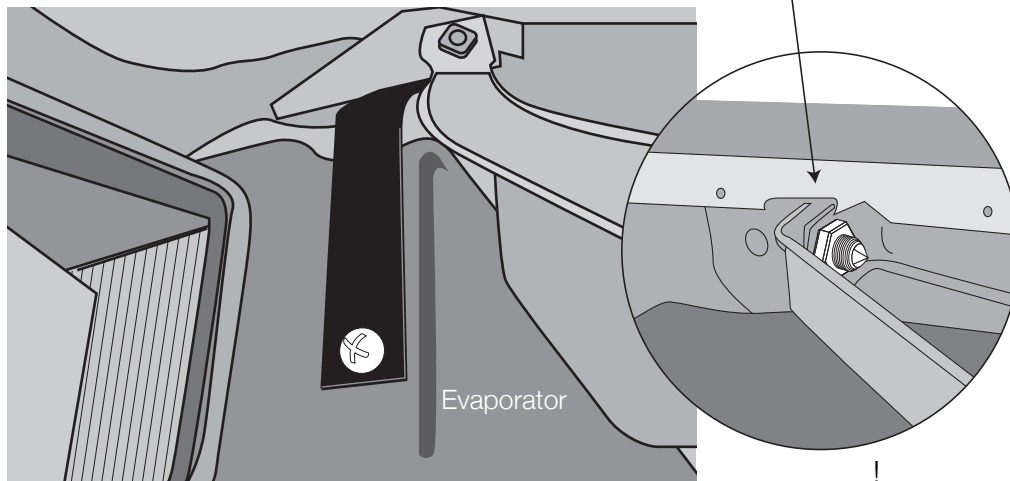


FIGURE 17

Attach bracket between air plenum bracket, secure with OEM hex bolt



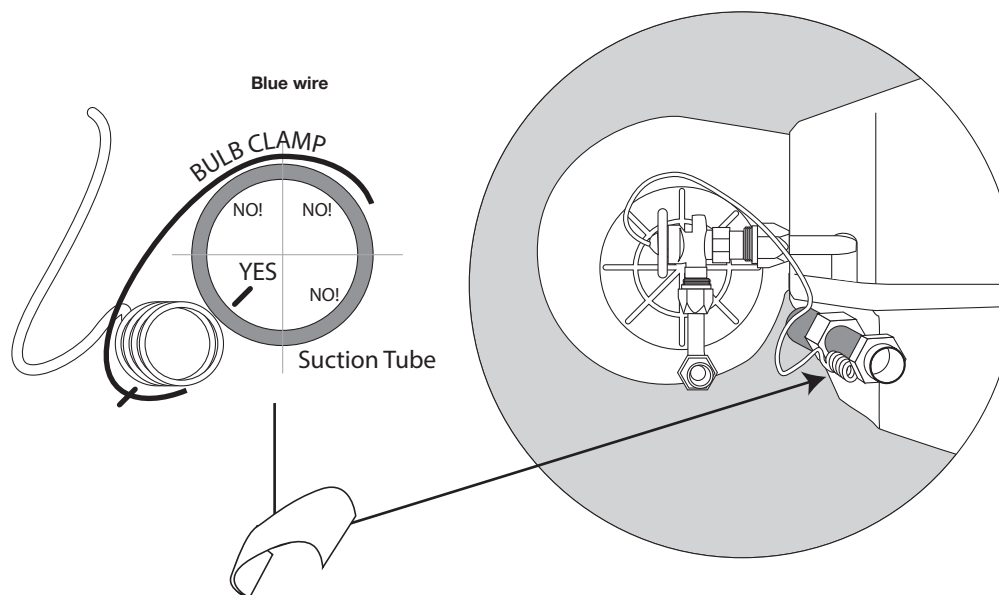
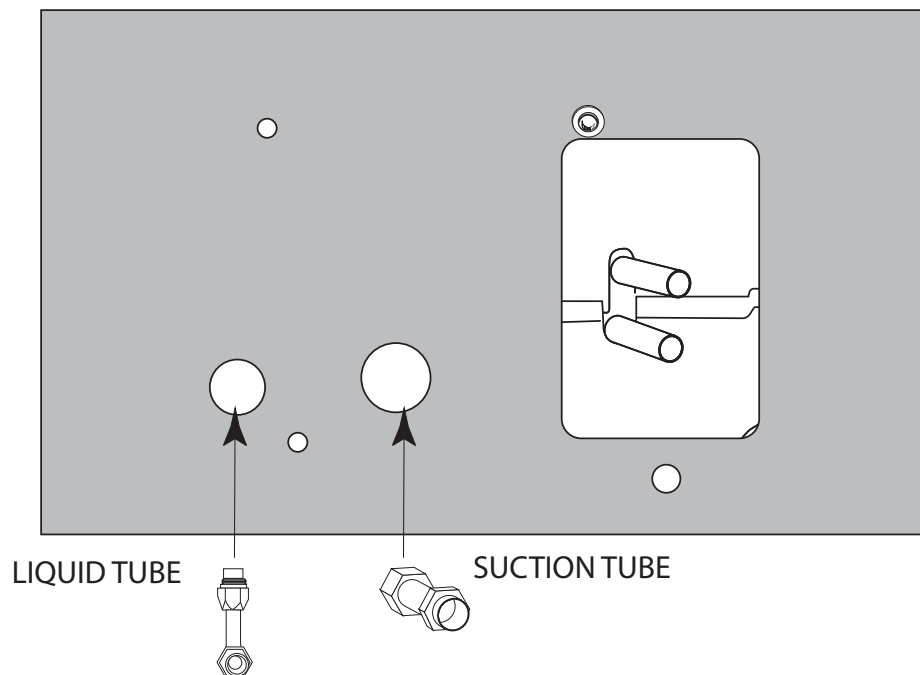
Install Liquid tube onto the Expansion valve (TXV) as shown. Use #6 o-ring and (2) drops of mineral oil on the o-ring and tighten securely.

Install Suction Tube to the coil outlet on the unit as shown. Use #10 o-ring and (2) drops of mineral oil on the o-ring and tighten securely.

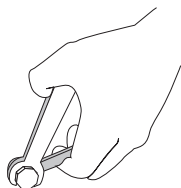
We've included a bulb clamp, Which you will use to attach coil to the Suction Tube as shown below.

CAUTION: YOUR SYSTEM WILL NOT FUNCTION PROPERLY IF THE SENSING COIL IS NOT CLAMPED IN THE CORRECT POSITION. SEE THE DIAGRAM BELOW.

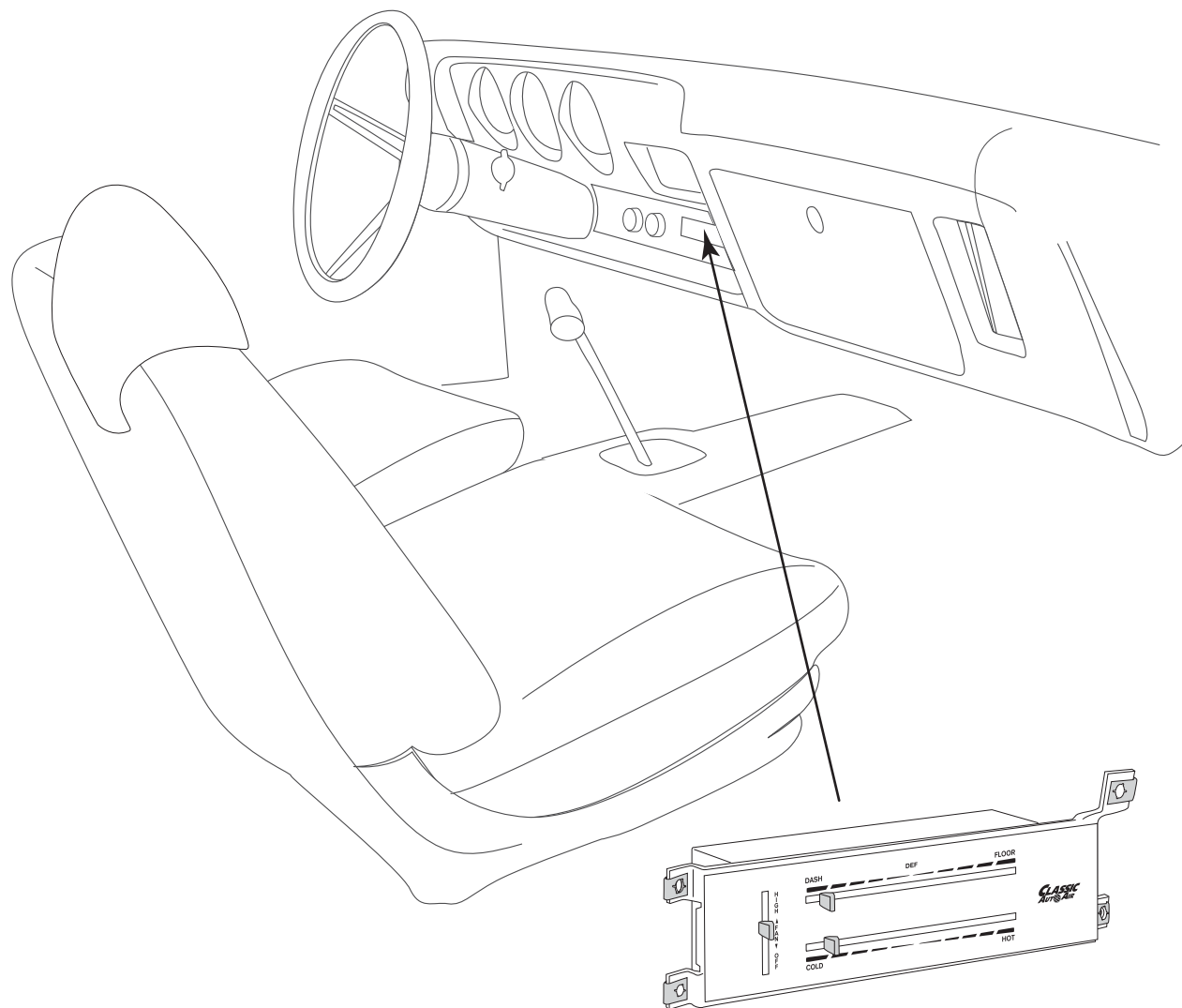
Once the sensing coil is installed, wrap suction tube and coil with refrigerant tape. Be sure that all of the exposed metal is covered.



Reminder...
Use two
wrenches to
tighten o-ring
fittings

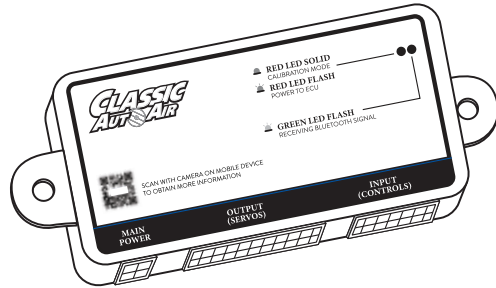


Install controls into dash using OEM hardware.

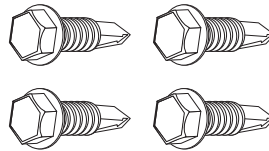


THESE ARE THE PARTS YOU WILL FIND IN BAG KIT C

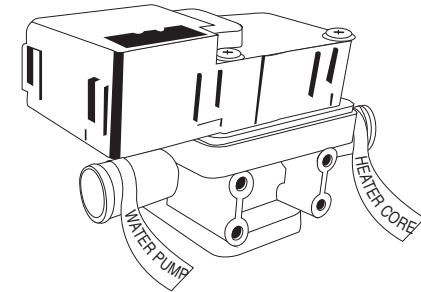
You will use all of these parts and hardware during the next series of installation steps.



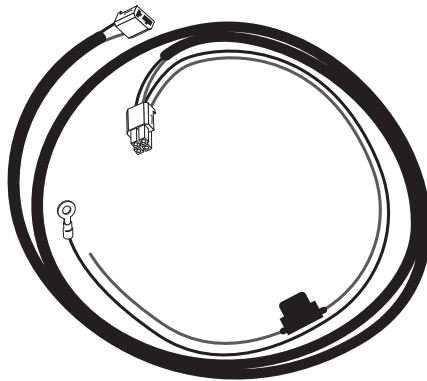
*ECU
16-2500*



Four #10 - 16 x 3/4" Tek Screws



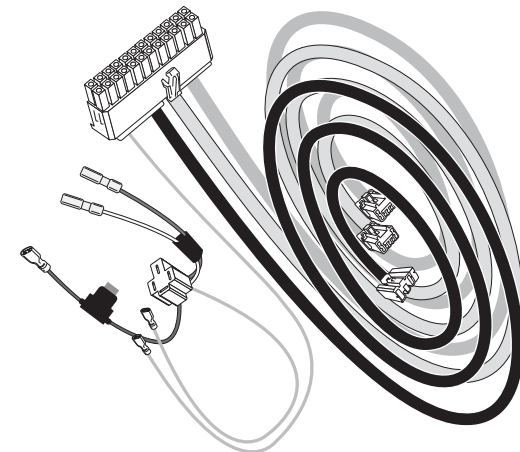
*Electronic Water Control Valve
PN# 16-1023*



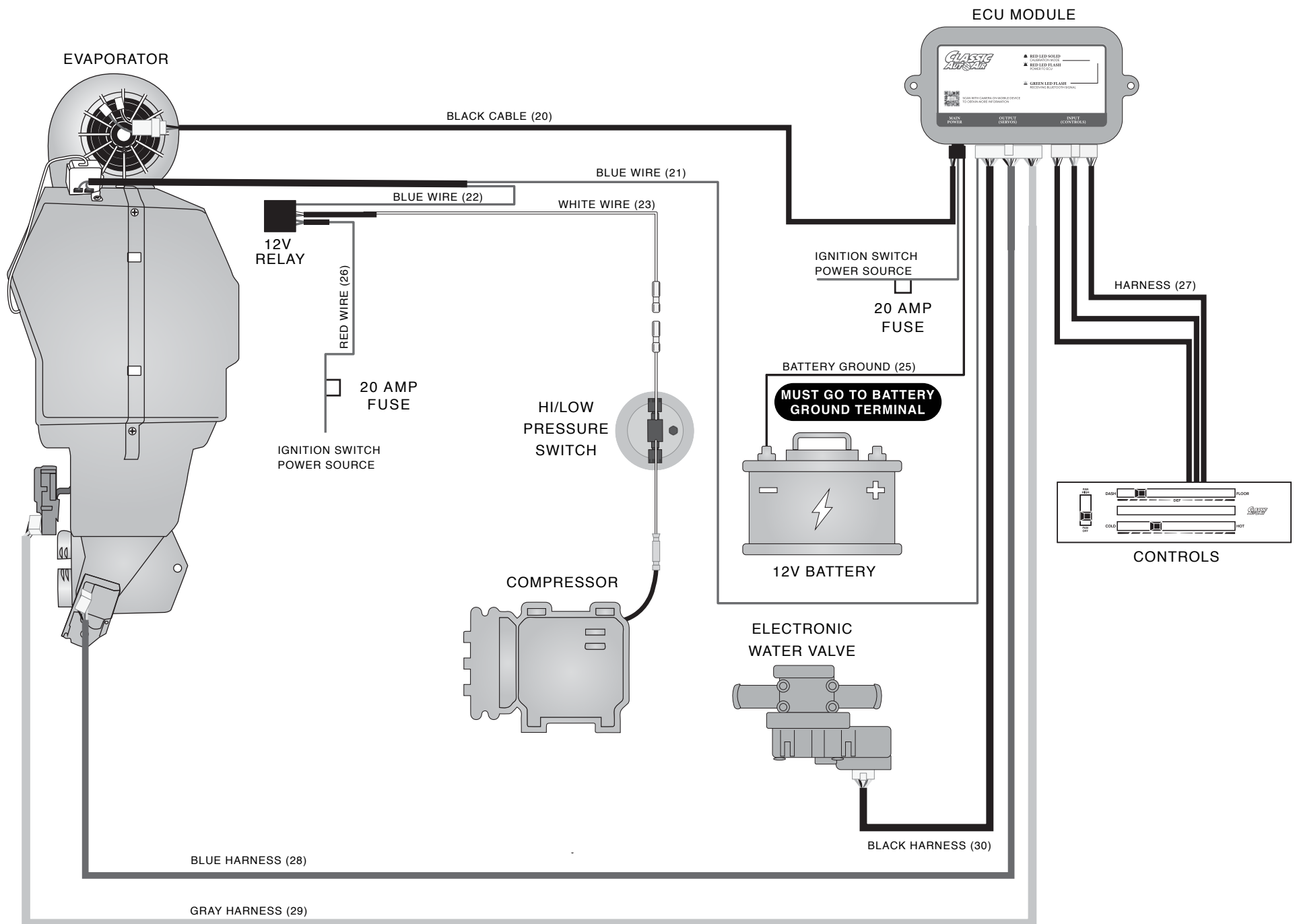
*HARNESS POWER SUPPLY
0125-5*



*Relay
30-13373*

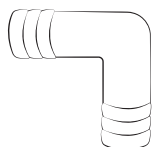


*HARNESS
0125-6A*



THESE ARE THE PARTS YOU WILL FIND IN BAG KIT D

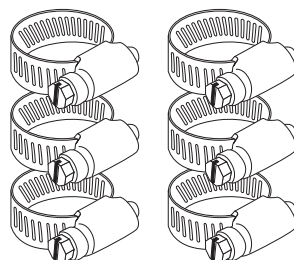
You will use all of these parts and hardware during the next series of installation steps.



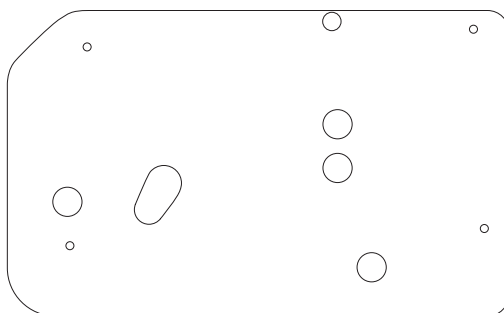
90 Degree Elbow



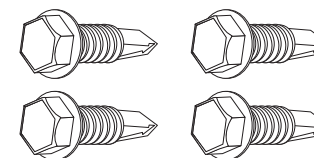
Clear Plastic Drain Tube



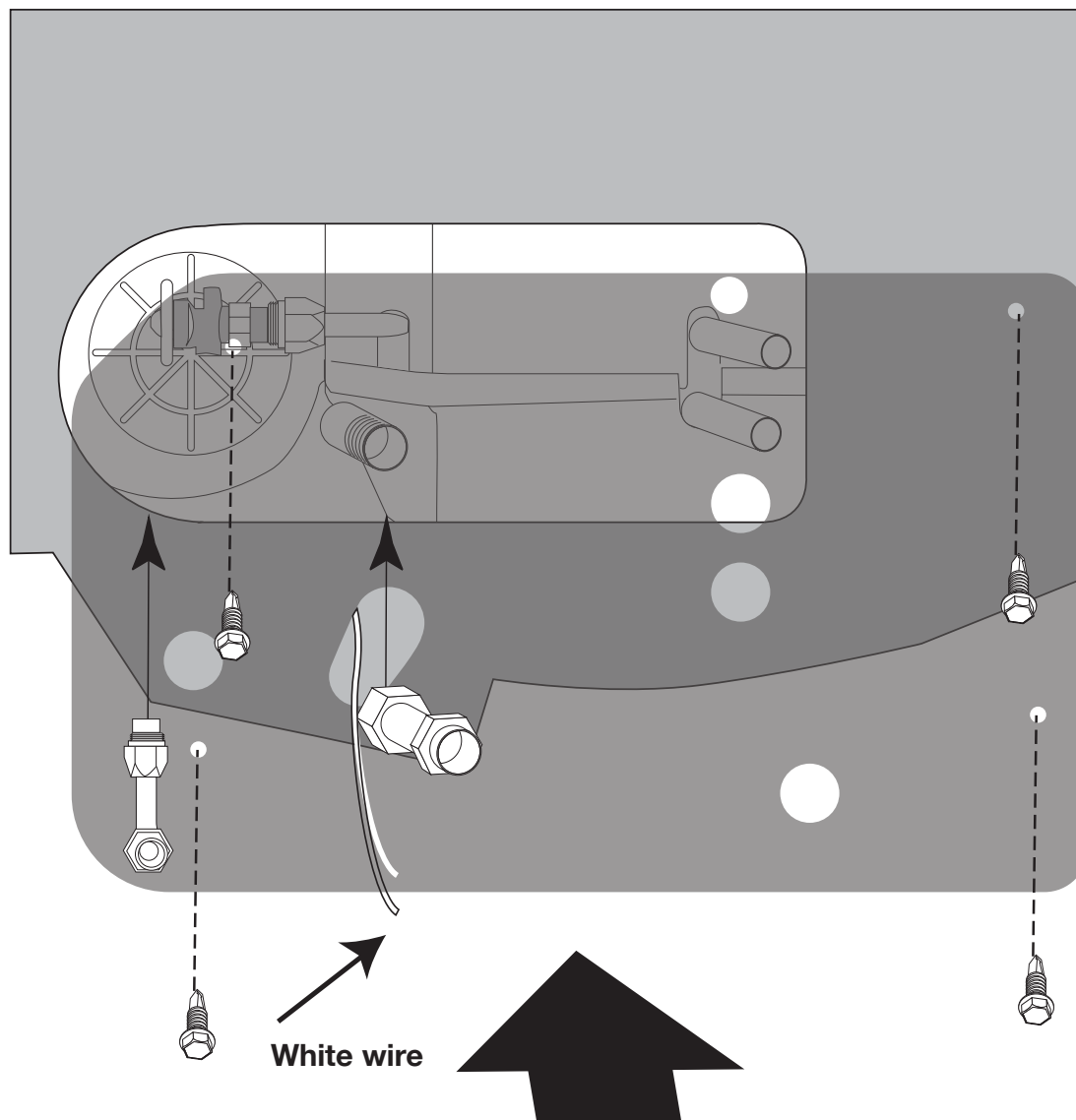
Six Worm Gear Clamps



Firewall Block Off
PN#10-2055FA-1

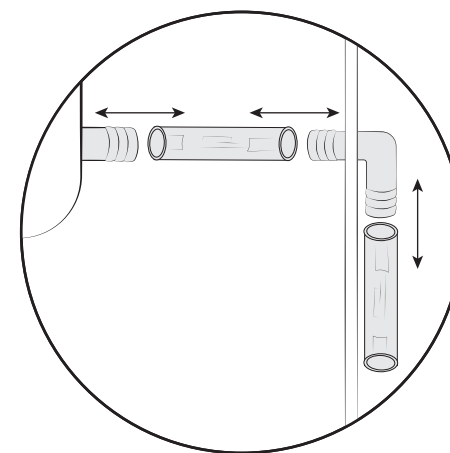


Four #10 - 16 x 3/4" Tek Screws



In **Bag Kit D** you'll find the firewall block off. Install this over the hose connections coming thru the firewall within the engine compartment. Attach with six #10 - 16 x 3/4" Tek screws.

Match drill drain tube hole.



**Feed drain tube thru the hole.
90 degree elbow to complete the intallation.**

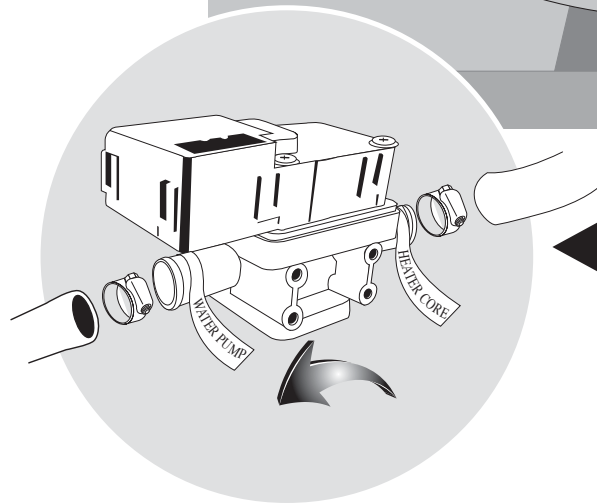
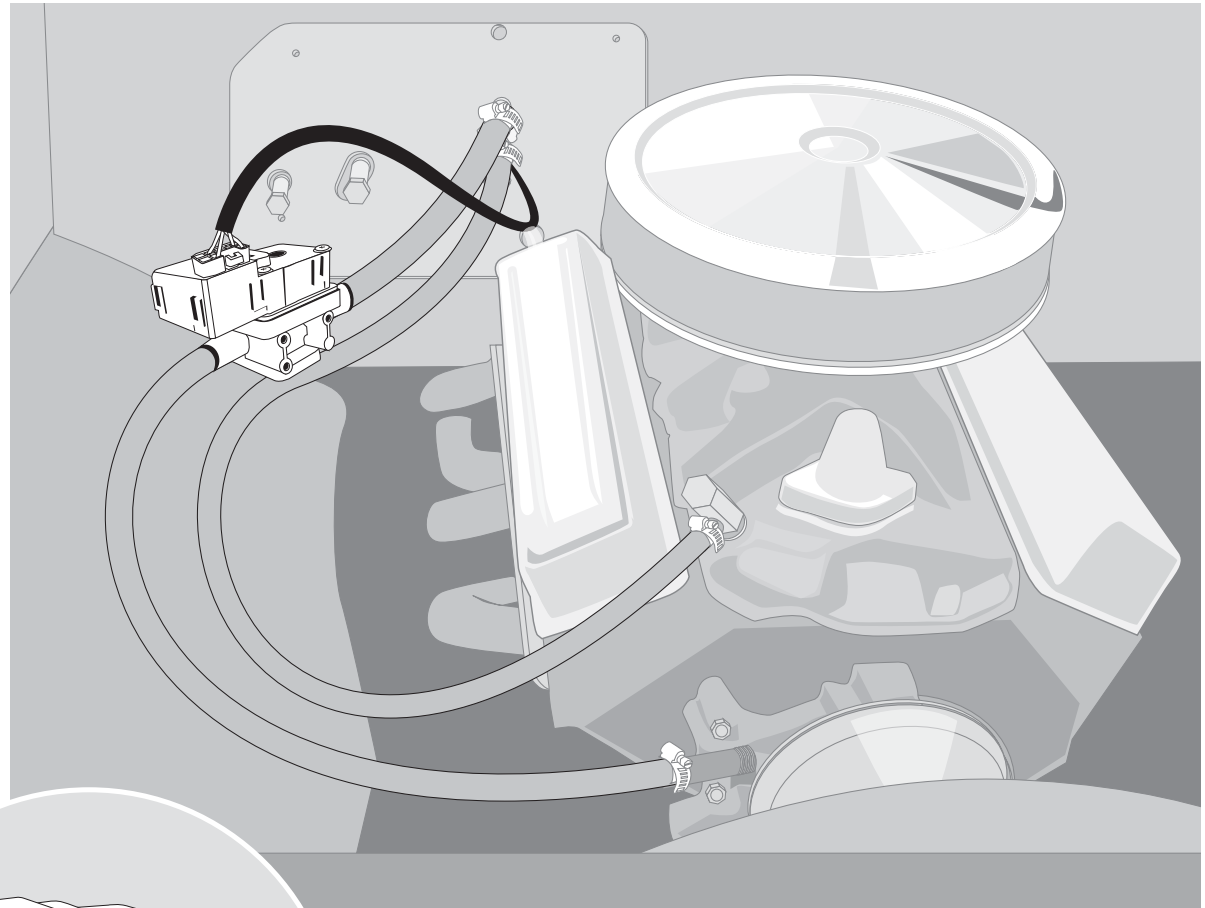
IMPORTANT NOTICE: PROPER INSTALLATION OF WATER VALVE

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

The **lower** heater tube connection on firewall will be routed to the water connection on intake manifold using 5/8" dia. heater hose with the supplied worm gear clamp.

The **upper** heater tube connection on the firewall will be routed to the water valve connection labeled **heater core**, using a 6" piece of 5/8" heater hose attached with supplied worm gear clamp.

Connect the remaining outlet on water valve labeled **water pump** to the water pump using 5/8" dia. hose with the supplied worm gear clamp.

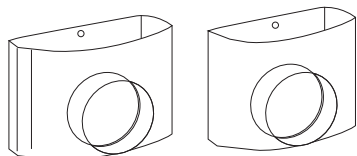


**FOLLOW THESE
TAGS... CHECK IT
TWICE BEFORE
PROCEEDING!**

THESE ARE THE PARTS YOU WILL FIND IN BAG KITS E, F, and G

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

Bag E

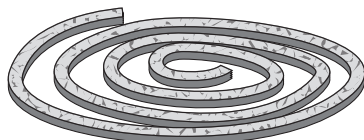


Defrost Adaptor
Left
PN#0044-3

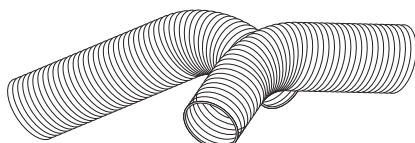
Defrost Adaptor
Right
PN#0044-3



Four #10 - 10 x 5/8" Phillips Screws



Foam Tape

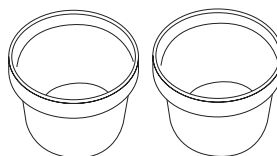


Two Duct Hoses, 2" I.D.

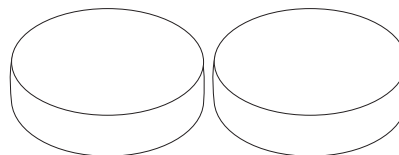


Four Zip-Ties

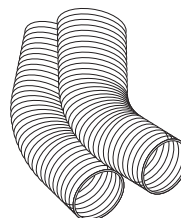
Bag F



Two Louver Adaptors
PN#2-1050-4



Two Fresh Air Block Off Plates
2-1050-5

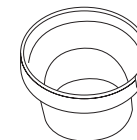


Two Duct Hoses, 2" I.D.

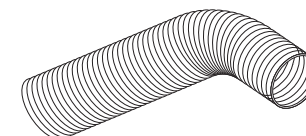


Four Zip-Ties

Bag G



Center Louver Adaptor
PN#2-1050-4



One Duct Hoses, 2" I.D.



Two Zip-Ties

**NOTE ALL HOSES MAY NEED TO BE TRIMMED.
NO HOSES OF EXACT LENGTH ARE INCLUDED.**

**Bag Kit E. The following steps are for left and right
Defrost Diffusers...**

Locate and route the duct hoses from the defrost/heat duct assembly upward toward defrost vents. Attach the flex hose to the defrost diffuser using zip-ties. The other end of the duct hose is installed over the defrost/heat duct assembly outlets on main unit (see figures 23 and 24).

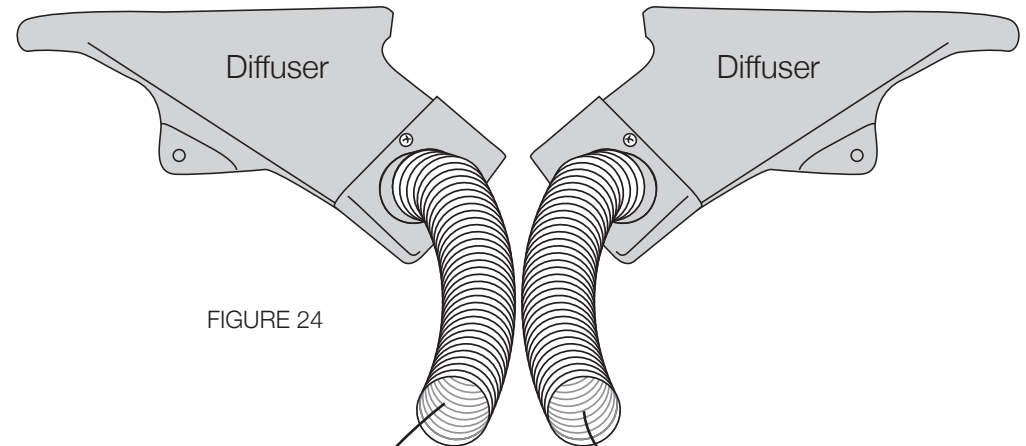
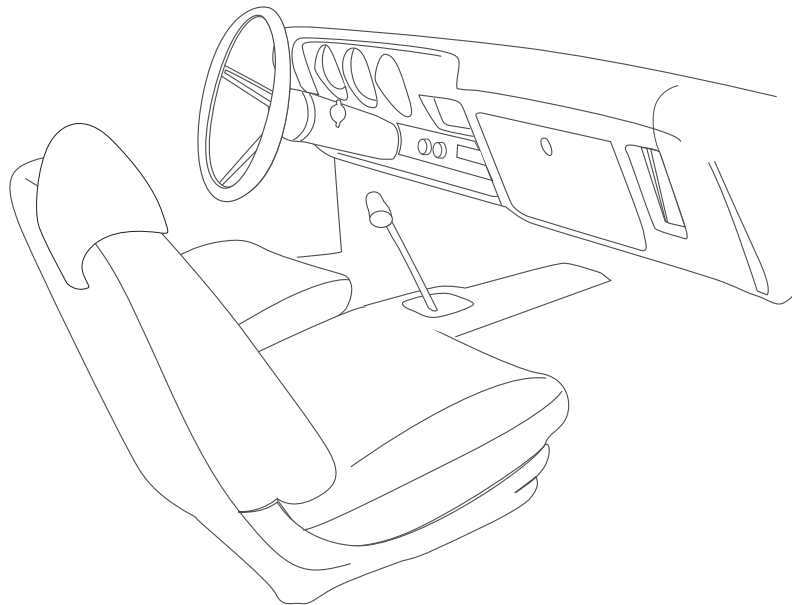


FIGURE 24

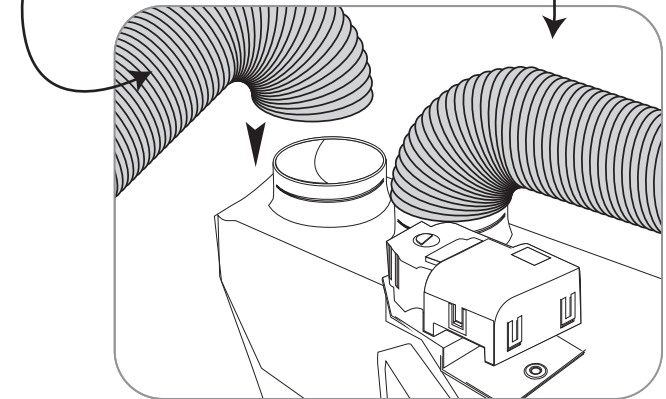


FIGURE 23

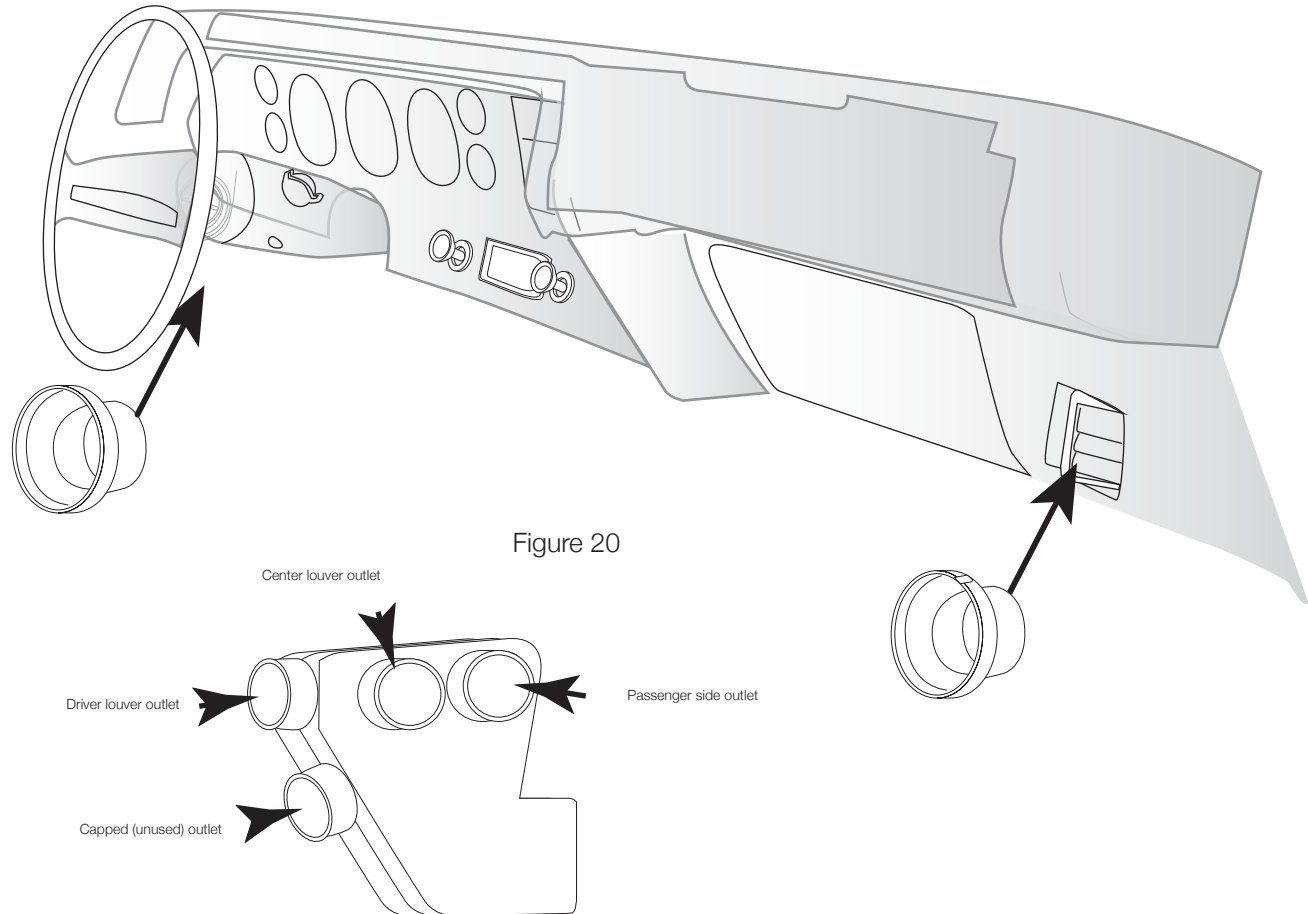
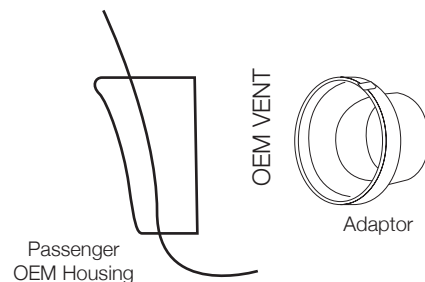
Locate Drivers louver adapter (ROUND) from bag kit F and attach to backside of factory louver with the supplied S-clips. (Simply pushing the adapter onto flange will secure the adapter to the louver)

Route the supplied flex hose from drivers louver adapter to DASH DUCT labeled Drivers side(- see Figure 20) It may be necessary to cut flex hose shorter to be certain optimal air flow is achieved.

Secure all hose connections with tywraps.

Next Locate Passenger louver adapter (ROUND) from bag kit F and attach to backside of factory louver with the supplied S-clips. (Simply pushing the adapter onto flange will secure the adapter to the louver) It may be necessary to trim approx. 1" off of the flange.

Route the supplied flex hose from drivers louver adapter to DASH DUCT labeled Passenger side (see Figure 20) It may be necessary to cut flex hose shorter to be certain optimal air flow is achieved.



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



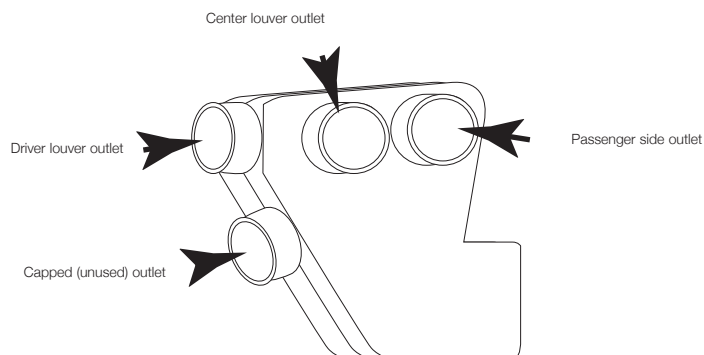
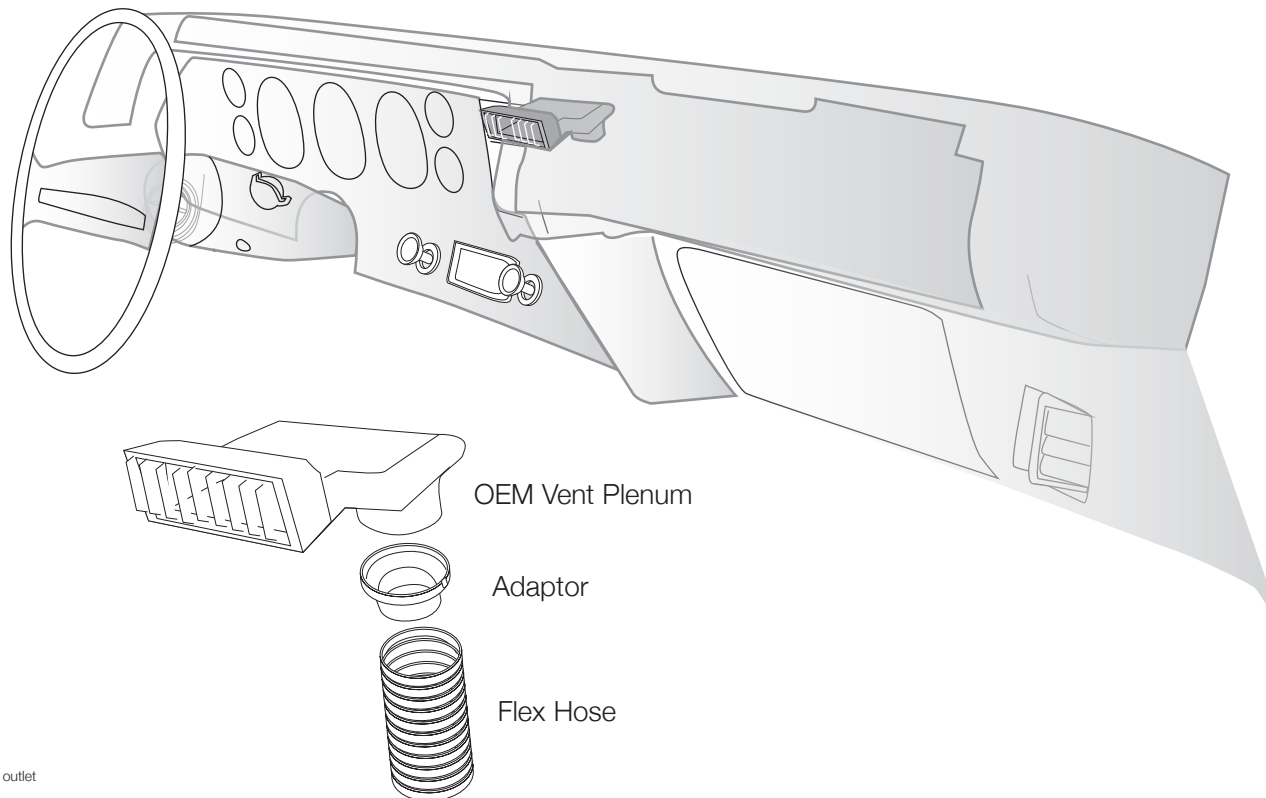
During installation of the hoses be aware of the eventual movement of the wiper arm components.

Bag Kit G: Route last hose to the OEM center louver (see figure 26). We've included a center louver adapter, which you will push over the opening on the OEM air plenum (Take your time and route so it won't become kinked or torn).

During installation of the hoses be aware of the eventual movement of the wiper arm components.

Reinstall dash pad using the OEM hardware.

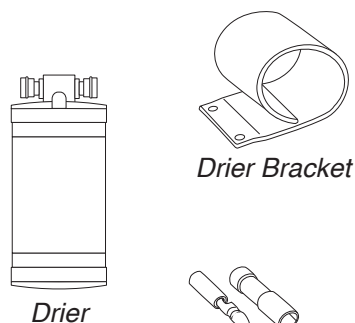
FIGURE 26



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

THESE ARE THE PARTS YOU WILL NEED FOR THE ENGINE COMPARTMENT INSTALLATION

You'll find all of these parts within the main box

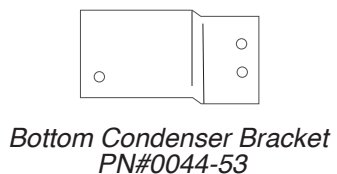


Drier Bracket

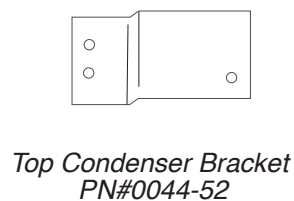
Drier



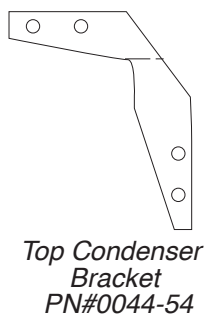
*Splice and
Bullet Connector*



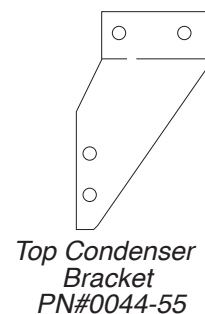
*Bottom Condenser Bracket
PN#0044-53*



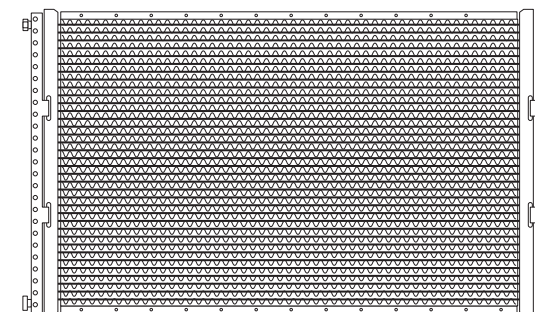
*Top Condenser Bracket
PN#0044-52*



*Top Condenser
Bracket
PN#0044-54*



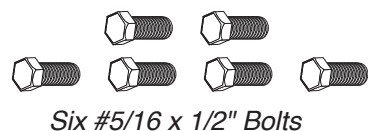
*Top Condenser
Bracket
PN#0044-55*



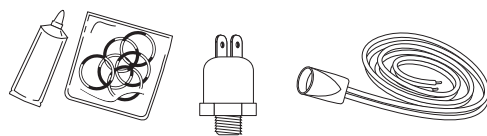
*Condenser
PN#11-1039*



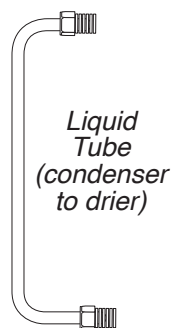
Ten #10 - 20x3/8" Screws



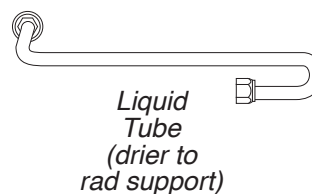
Six #5/16 x 1/2" Bolts



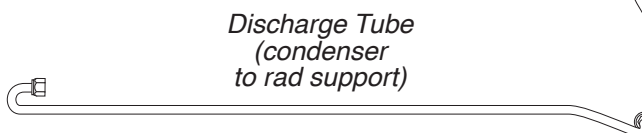
*Pressure Switch and harness,
Bag of O-rings and Mineral Oil Tube*



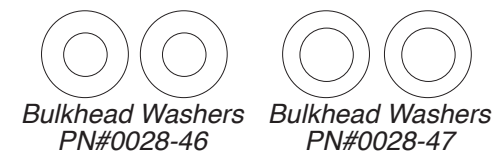
*Liquid
Tube
(condenser
to drier)*



*Liquid
Tube
(drier to
rad support)*

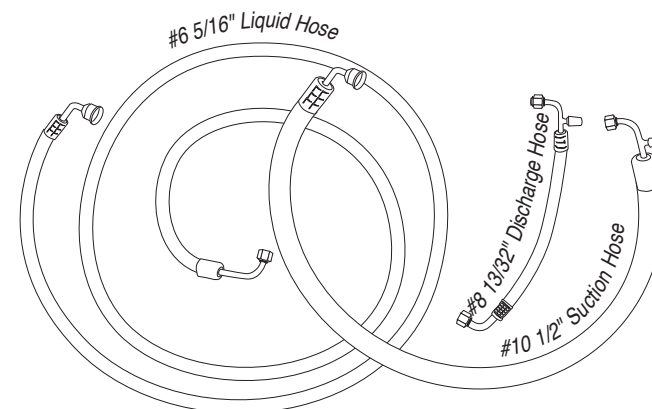


*Discharge Tube
(condenser
to rad support)*



*Bulkhead Washers
PN#0028-46*

*Bulkhead Washers
PN#0028-47*



Three Refrigerant Hoses

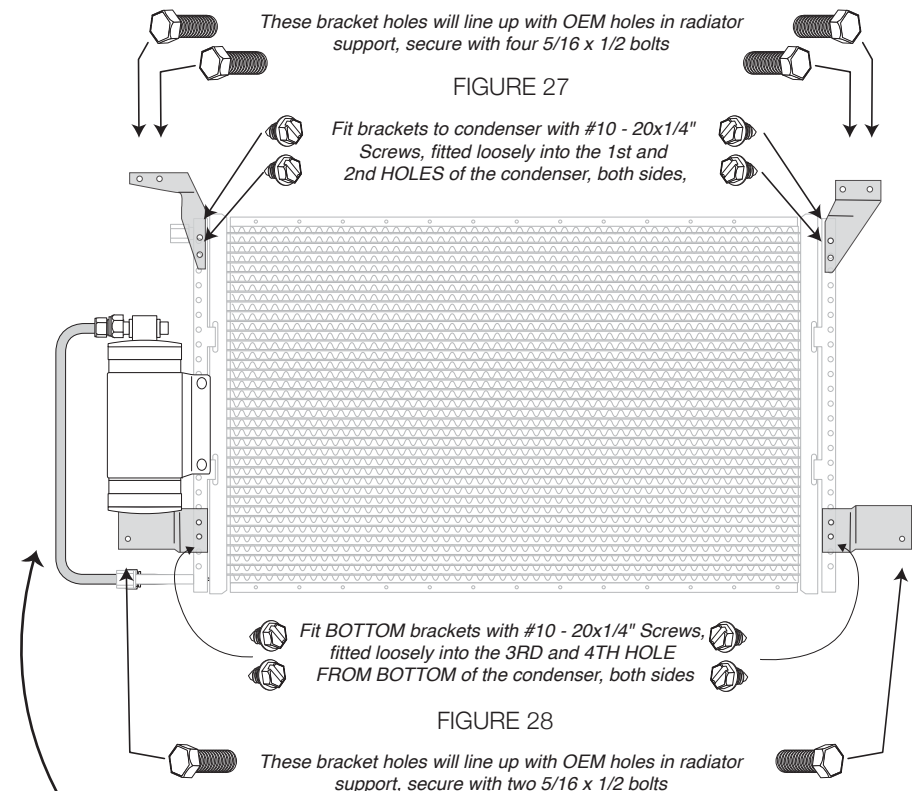
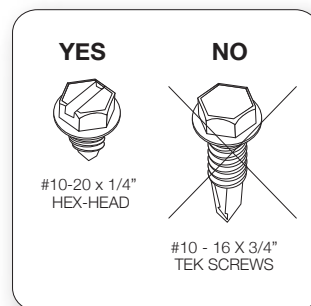
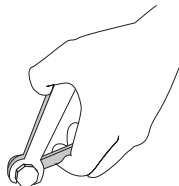
DRIER AND CONDENSER PREPARATION. You can perform most of the following steps on a clean flat surface like a workbench. Lay the condenser down so that both hose connections are on the left side (the larger connection will be on top). The drier is conveniently mounted on the left hand side of the condenser. First insert the drier into the drier mounting bracket. Attach the drier liquid tube to the drier and also to the connection on the condenser (tighten connections at either end using supplied o-rings on both ends and a few drops of mineral oil to each o-ring). With these two combined it will easy to find the correct place to attach the drier bracket to the condenser with the included #10-20 x 1/4" screws (attach drier and bracket from the front of the condenser).

BRACKETS: Install the upper condenser brackets using four #10 - 20 x 1/4" screws in the top two holes on each side (see figure 27). Next, attach the lower brackets using the 3rd and 4th bottom two holes, with the same size screws (see figure 28). These brackets have a bend that will face away from you.

The outer ends of the brackets, top and bottom, will be secured to the radiator support, using the threaded OEM holes already there with the included 5/16 x 1/2 bolts.

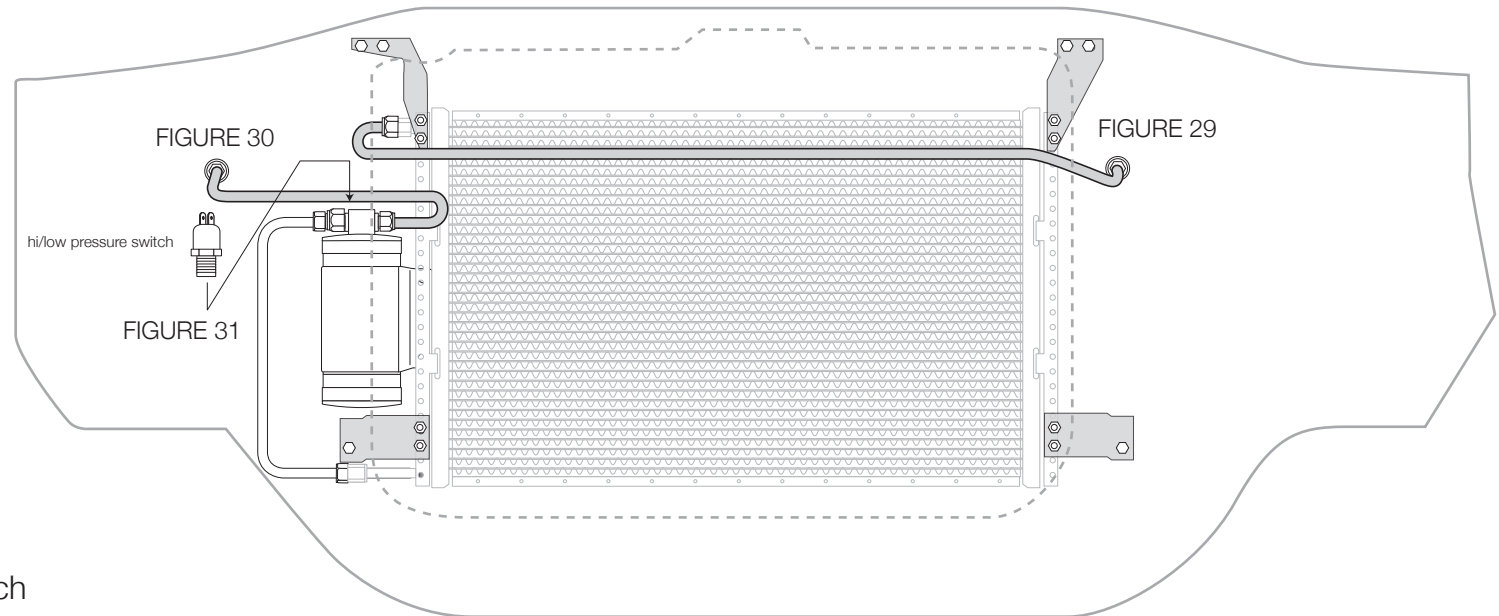


Reminder...
Use two
wrenches to
tighten o-ring
fittings



You can easily find the correct position for mounting the drier to the condenser by using the drier liquid tube as a gauge.

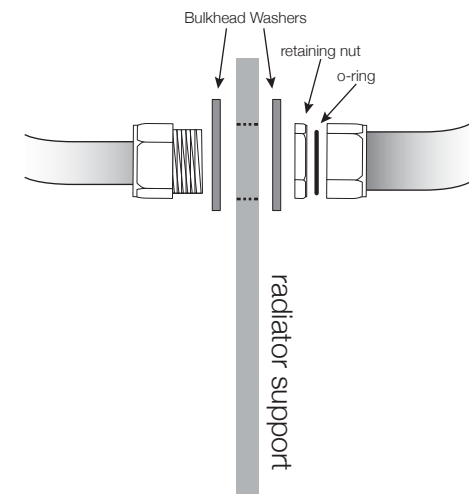
Route discharge line from top of condenser to hole in support (see figure 29). Locate two discharge bulkhead flat washers. Slide one flat washer over bulkhead fitting and insert the bulkhead fitting through existing hole on driver's side of the bulkhead. Attach bulkhead nut on engine side of the bulkhead.



Locate the liquid bulkhead tube and one #6 o-ring. Attach liquid tube to the drier using one #6 o-ring and few drops of lubricating oil and a $\frac{3}{4}$ " open end wrench (see figure 30). Attach bulkhead fitting on the liquid tube to original hole on passenger side of the bulkhead. Use one bulkhead flat washer on each side of the bulkhead.

PRESSURE SWITCH: Screw the high-pressure switch into the port on the top of the drier (see figure 31). Go ahead and plug the pressure switch harness into the switch at this time (black electrical boot with two long white wires).

Route the two white wires through the grommet along with #6 refrigerant hose.



Install the compressor kit. Included was a premium compressor kit with all the parts you'll need to install the compressor. This kit includes instructions specifically written for your engine. Once you've installed the complete compressor kit, continue on to connecting the hoses.

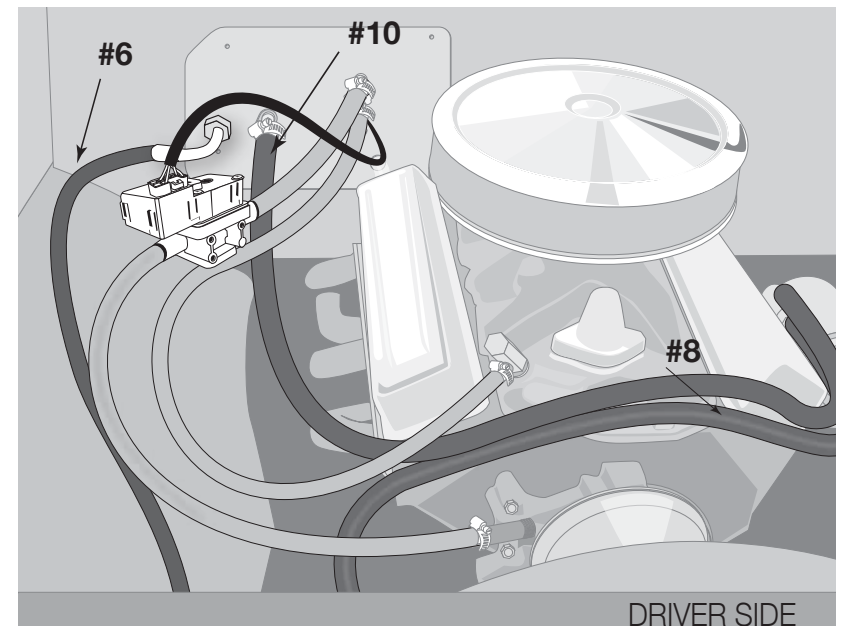
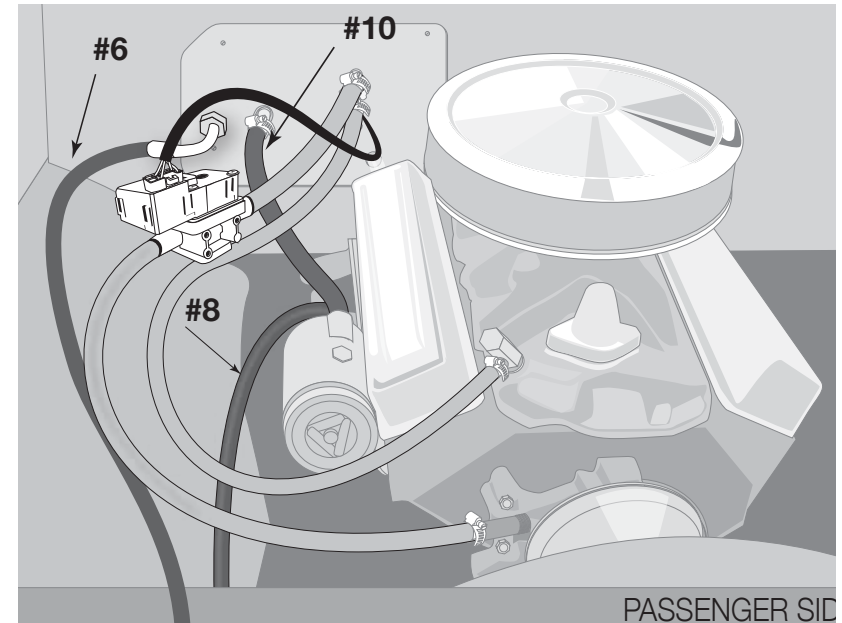
CONNECTING THE HOSES:

Based on PASSENGER or DRIVERS SIDE compressor mounting see illustrations for routing.

The #10 (**LARGEST**) refrigerant hose. Attach end with service fitting to the compressor using (1) #10 o-ring and a few drops of mineral oil. Attach other end to #10 fitting at the firewall. Attach using one #10 o-ring and a few drops of mineral oil. Tighten securely.

The #6 (**SMALLEST**) refrigerant hose. Route behind fender and to the connection on firewall. Attach using two #6 o-ring and a few drops of mineral oil.

The #8 (**MEDIUM**) refrigerant Hose. Attach end with service fitting to the compressor using (1) #8 o-ring and a few drops of mineral oil. Attach other end to #8 condenser tube. Attach using one #8 o-ring and a few drops of mineral oil. Tighten securely.



TWO WRENCH METHOD



Reminder...
Use two
wrenches to
tighten o-ring
fittings

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!**

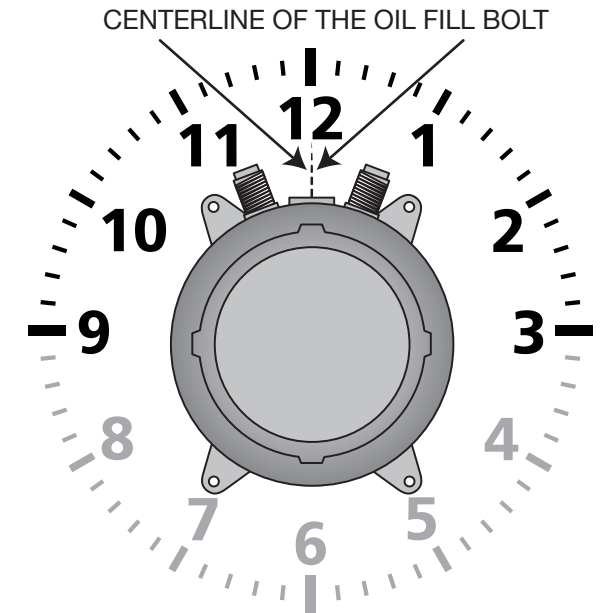
RECOMMENDED TEST CONDITIONS: (After system has been fully charged and tested for basic operation)

- 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

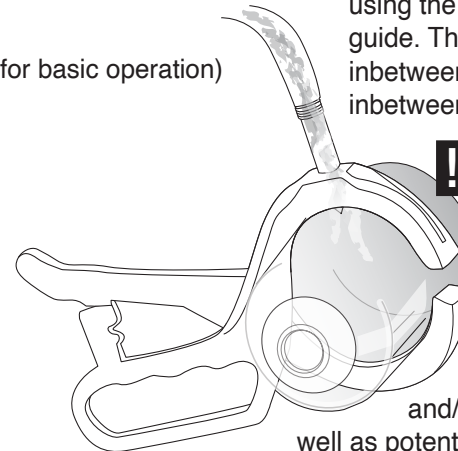
ACCEPTABLE OPERATING PRESSURE RANGES:

1. HIGH-SIDE PRESSURES (150-275 PSI)
2. 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.

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).

- B. CONNECT GAUGES OR SERVICE EQUIPMENT TO HIGH/LOW CHARGING PORTS.
- C. PLACE BLOWER FAN SWITCH ON MEDIUM.
- D. CLOSE ALL DOORS AND WINDOWS ON VEHICLE.
- E. PLACE SHOP FAN IN FRONT OF CONDENSER.
- F. 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 noisy compressor is generally caused by charging a compressor with liquid or overcharging

- A. 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.

Trouble Shooting Your Classic Auto Air A/C System

PROBLEM: system is not cooling properly

ISSUE: 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

Step 2: 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.

To test air flow to Condenser do 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.

*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

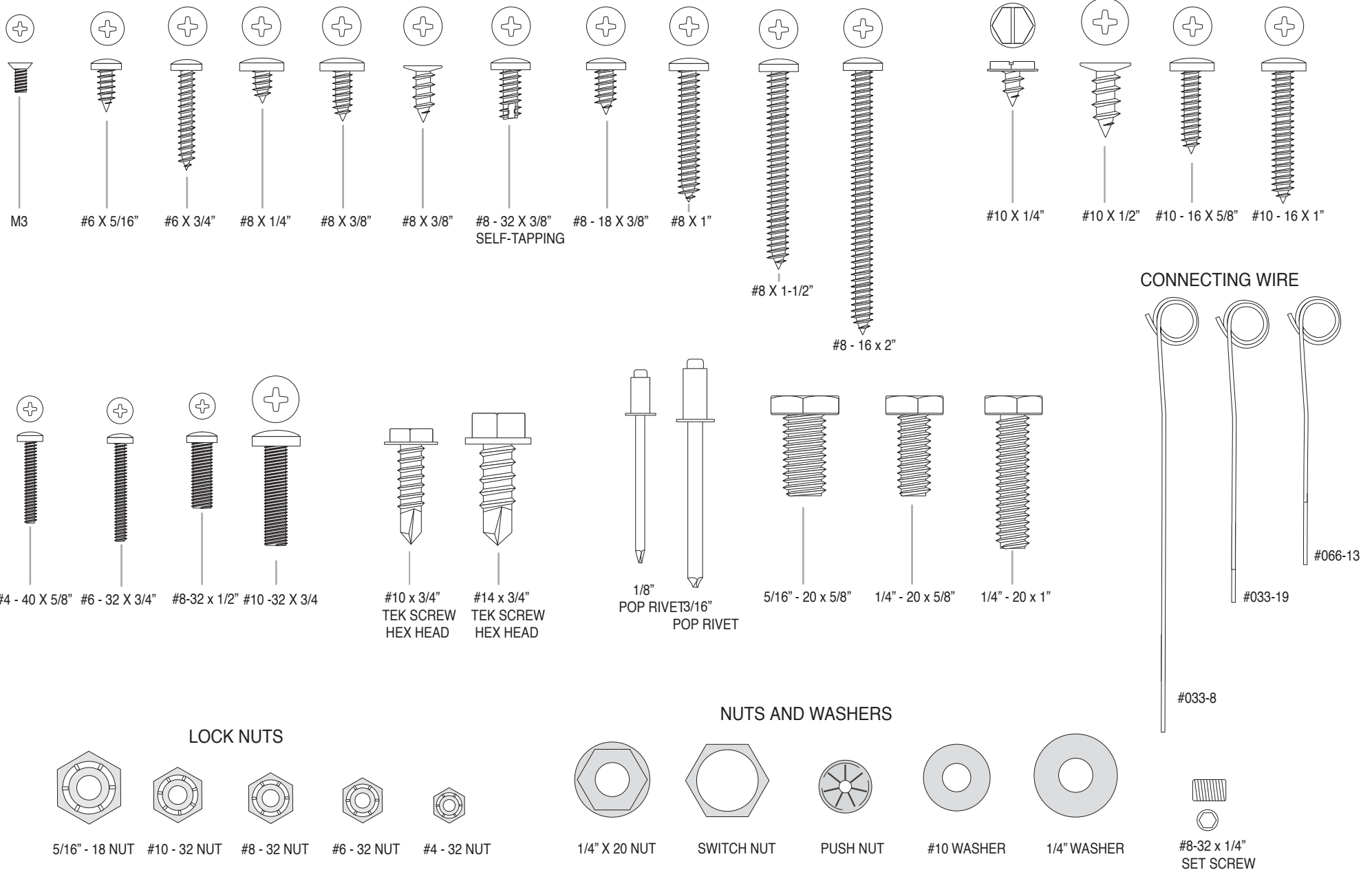
Get the technical support you want the moment you need it, with no wait times. Simply **SCAN** the **QR code** and be directly taken to our support section to troubleshoot all things A/C.



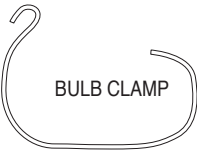
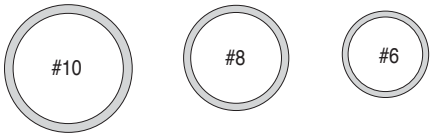


Classic Auto Air Hardware Reference Guide

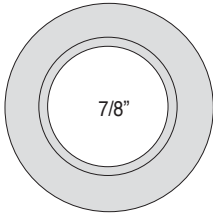
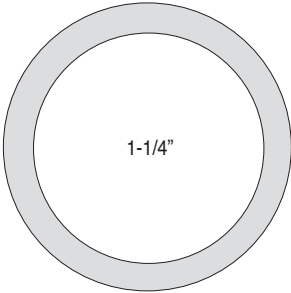
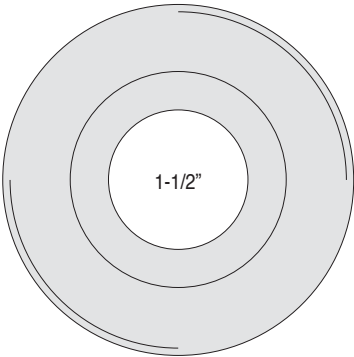
This is our basic line-up of hardware. No single kit will not contain all of these, but you can use this guide to match-up hardware for shape and size (all of these are actual size.)



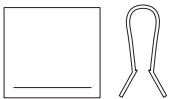
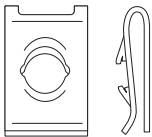
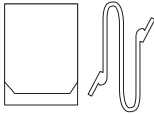
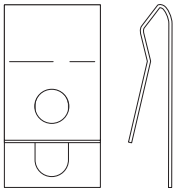
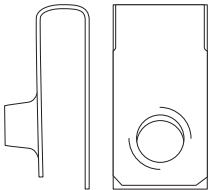
ORINGS



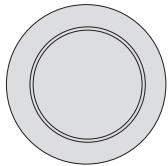
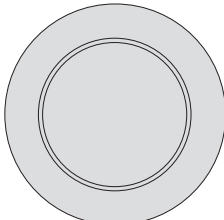
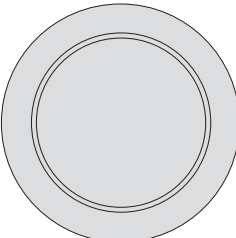
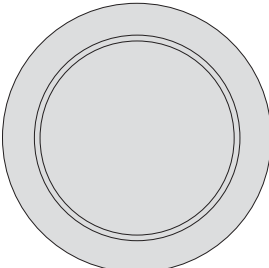
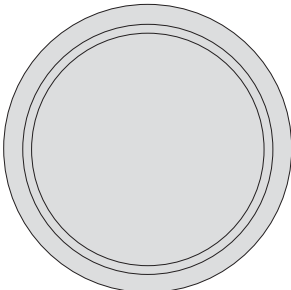
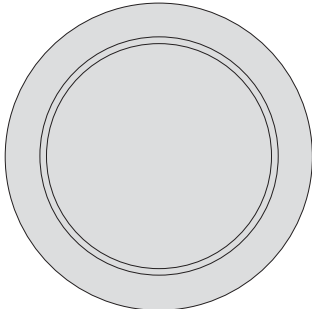
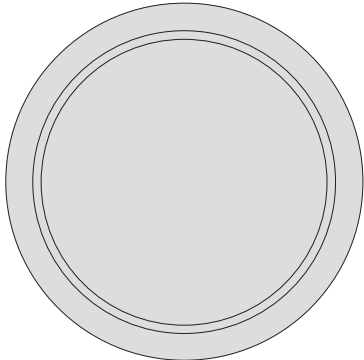
GROMMETS



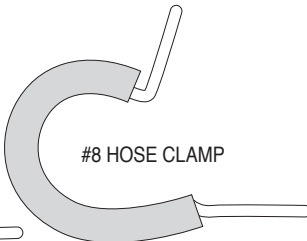
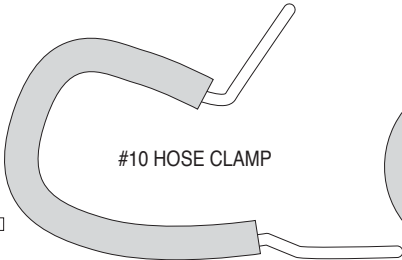
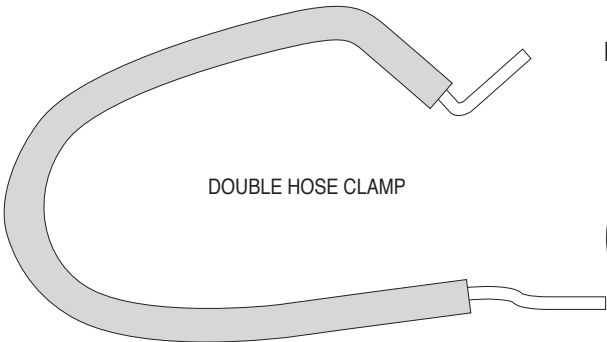
CLIPS



HOLE PLUGS



HOSE CLAMPS



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LOCATE ALONG DEFROST OUTLET

DRIVERS SIDE
DEFROST MODIFICATION
1970 CHEVY CHEVELLE

CUT LINE

LOCATE ALONG DEFROST OUTLET

PASSENGER SIDE
DEFROST MODIFICATION
CHEVY CHEVELLE

CUT LINE

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DRILL
1/4" DIA.
HOLE



OEM OPENING

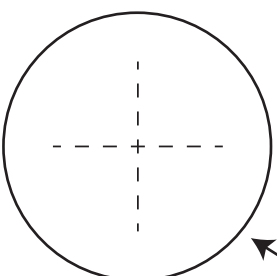
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DRILL
1 3/8" DIA.
HOLE



DRILL
1" DIA.
HOLE

