



Installation Manual

1968 Chevelle
1968 Malibu
1968 El Camino

DOCUMENT #1-3049

©2023 Classic Auto Air / 12.23





Congratulations...

**You have just purchased the highest quality, best performing
A/C system ever designed for your
1968 Chevelle 1968 Malibu.**

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- ☐ During the installation you might find the opportunity to repair or upgrade non-working or out of date components.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:

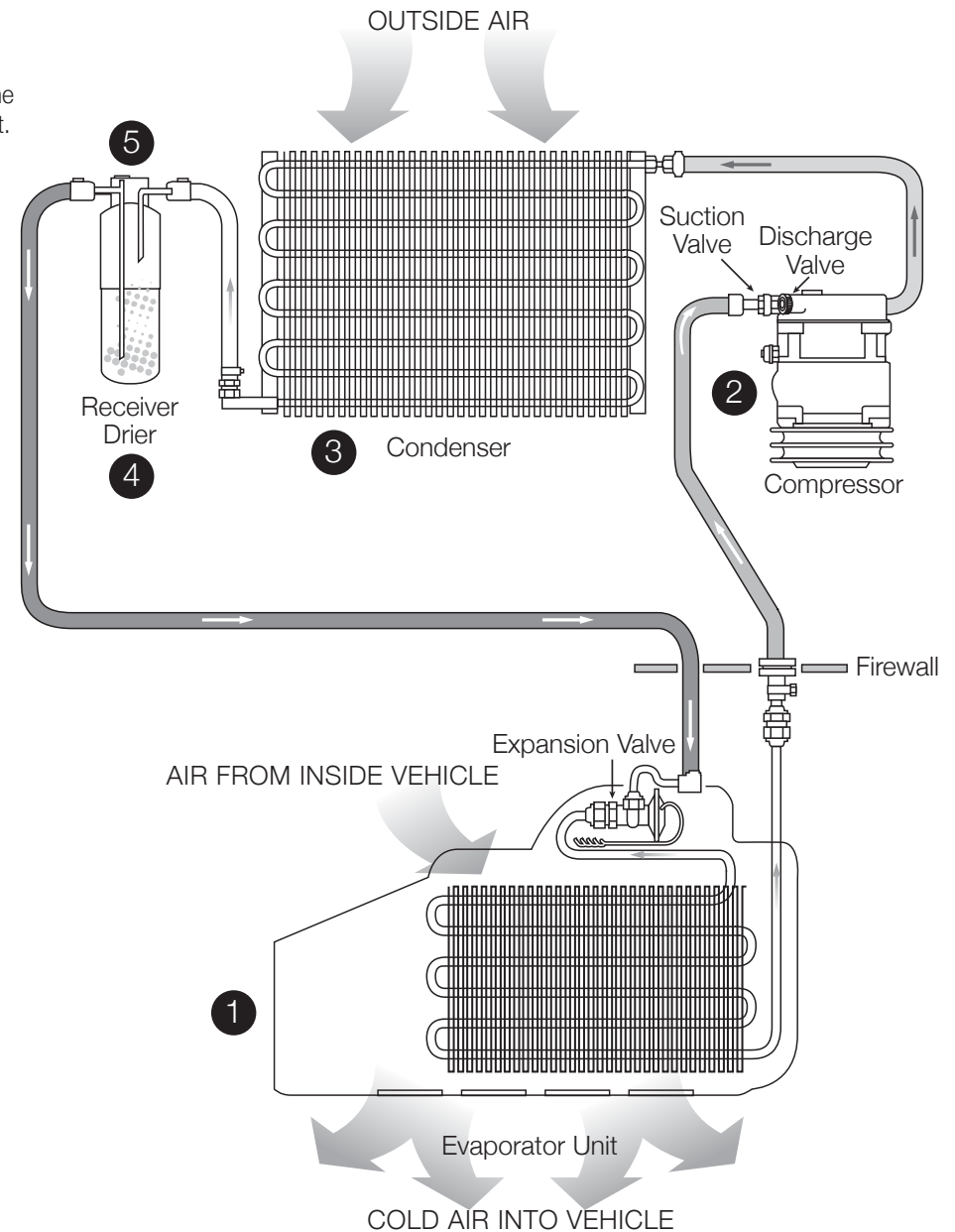
- ☐ Fittings: Use one or two drops of mineral oil (supplied with your kit) on ALL rubber o-rings, threads and rear of bump for o-ring where female nut rides. Do not use thread tape or sealants.
- ☐ Measure twice (or more), cut once
- ☐ **Should you have any technical questions, or feel you have defective 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...

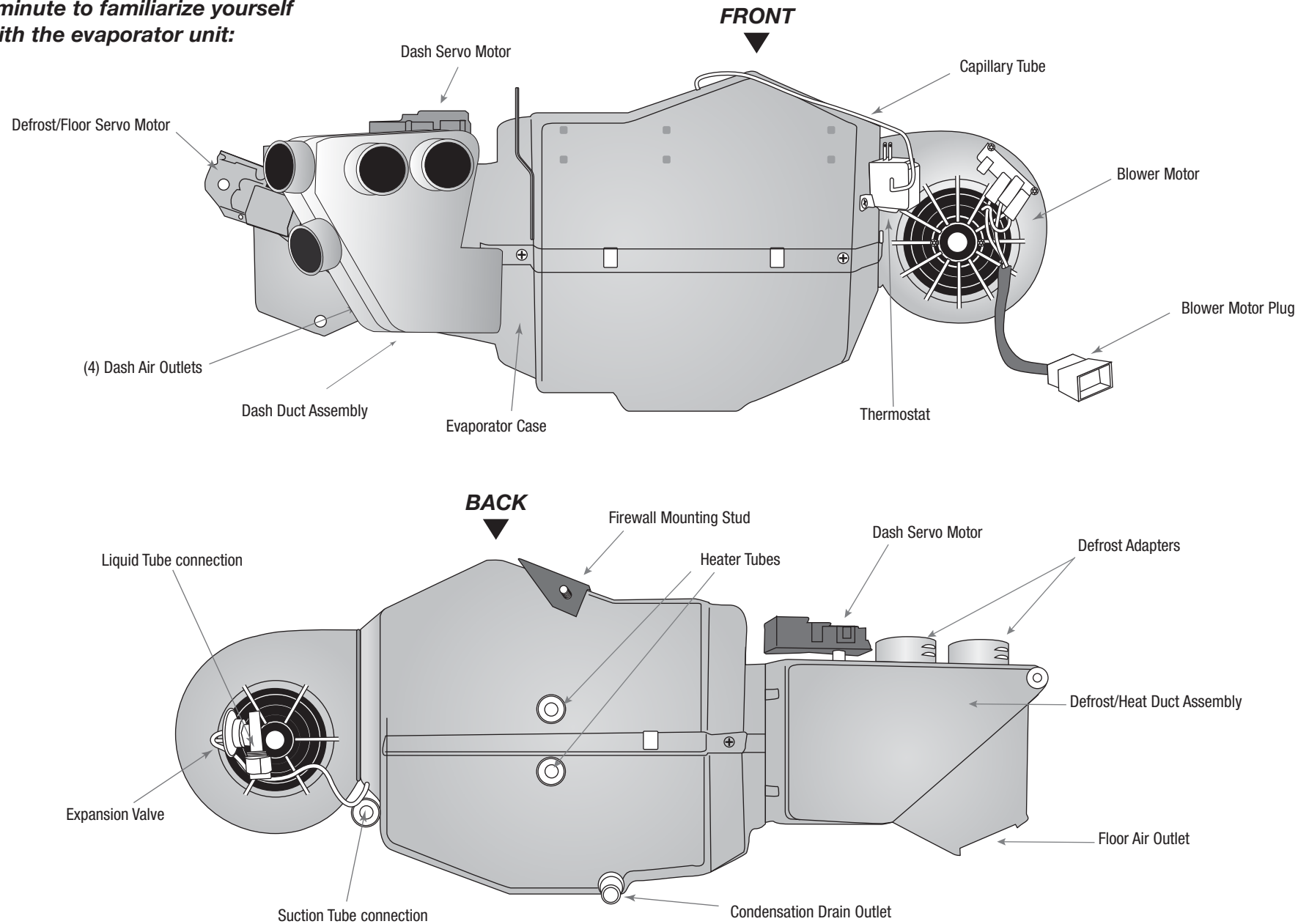
A Basic Overview of Automotive A/C....

- 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.

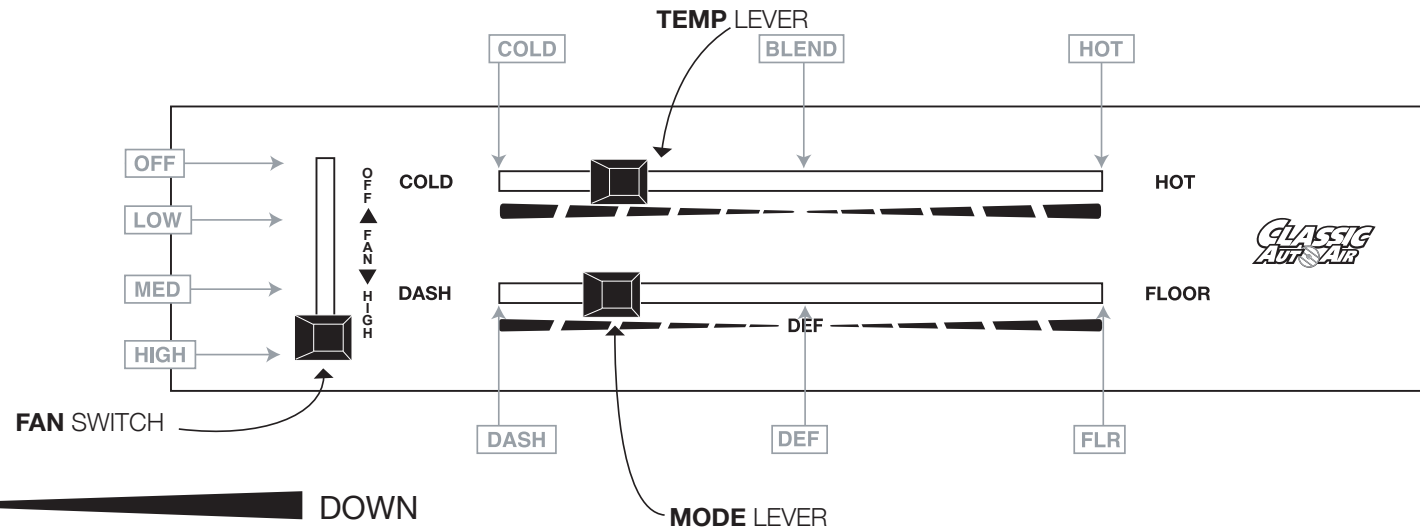


**Take a minute to familiarize yourself
with the evaporator unit:**



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...



FAN

UP

DOWN

BLOWER

OFF

LOW

MED

HIGH

MODE	DASH											FLOOR
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 20% Defrost 80%	Floor 40% Defrost 60%	Floor 60% Defrost 40%	Floor 80% Defrost 20%	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 - FLOOR 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



Remove Glovebox, Console (if equipped), Radio OEM heater controls and defrost duct, set aside for modification and reinstall later (see figure 1).

The removal of the Original Heater 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).

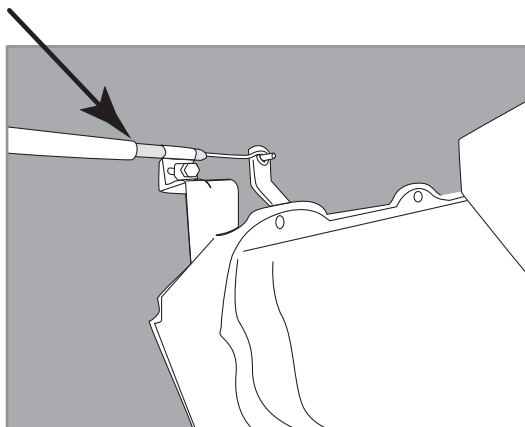
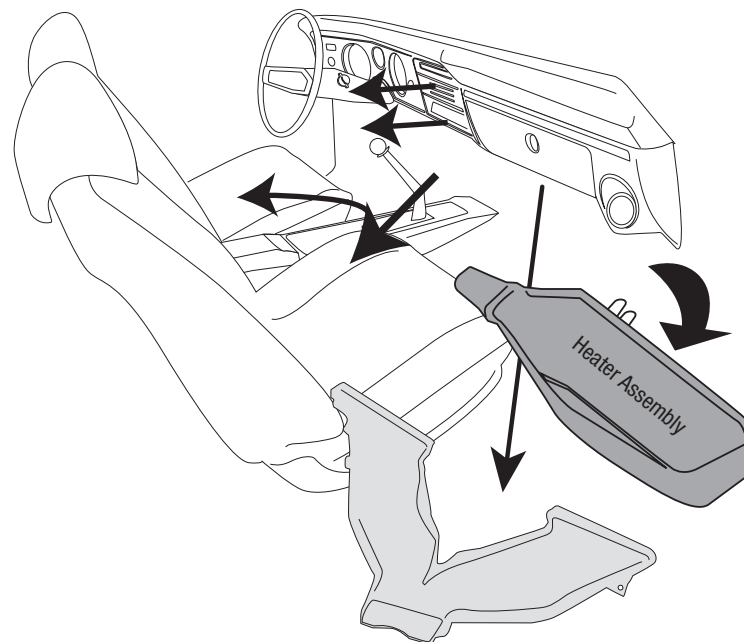


FIGURE 2

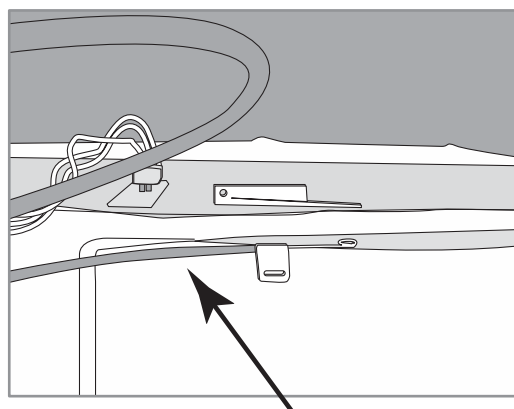


FIGURE 3

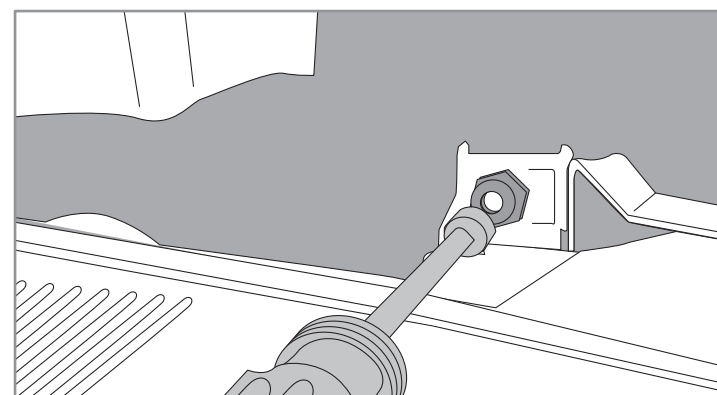


FIGURE 4

Moving to the engine compartment:

In order to remove your heater assembly it is necessary to remove the heater case housing first.

Located on the engine side of the firewall, remove seven (7) bolts around the perimeter of the heater case housing (see Figure 7). Remove the housing (Discard).

NOTE: To remove the two bolts at locations 1A and 7B, it may be necessary to lower the inner fender. Retain these screws.

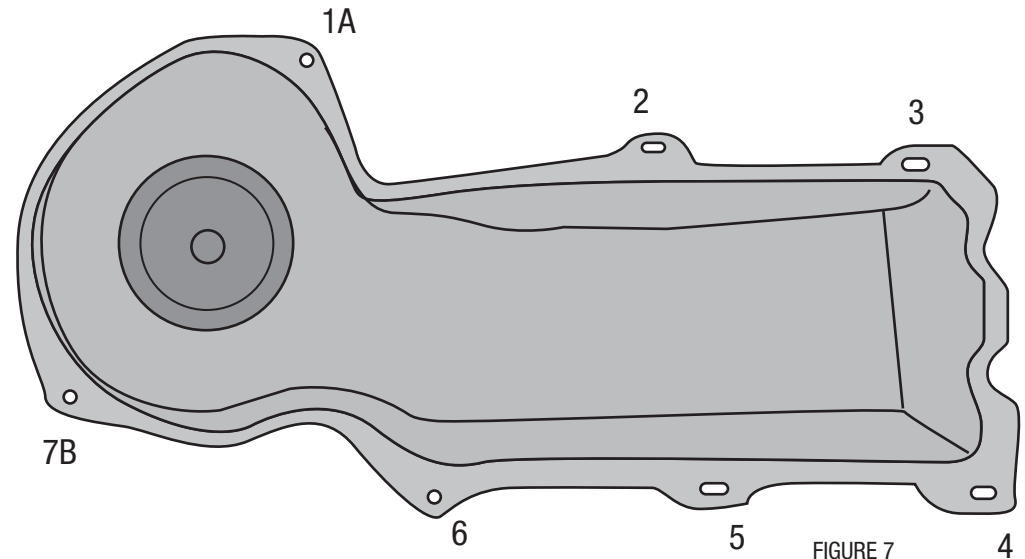


FIGURE 7

Drain coolant from radiator. Remove the heater hoses from heater coil and firewall (see Figure 8).

You will also cut a power lead to the blower motor. This will not be re-used.

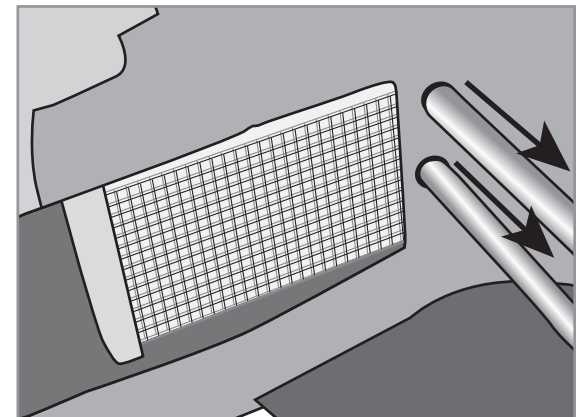
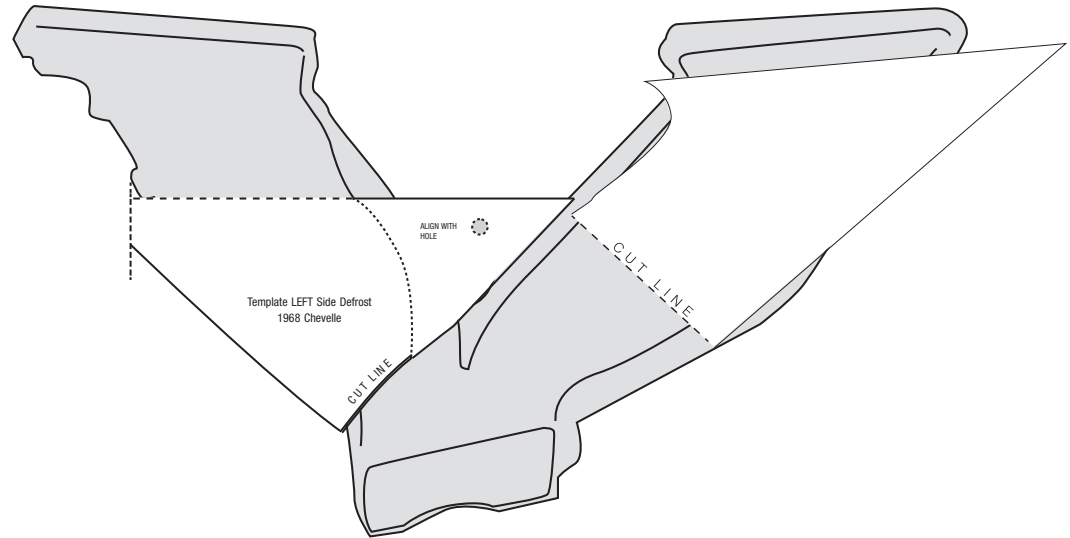


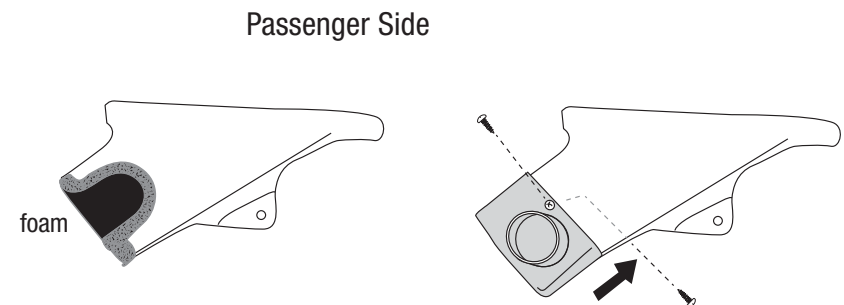
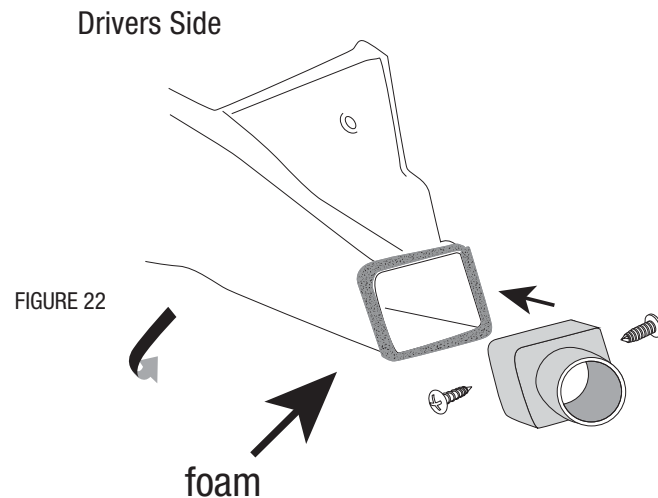
FIGURE 8

BAG KIT E: Remove defrost duct and place on a flat area like a workbench. 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 (adapters used vary depending on year model you have). Secure the adapters with two #10 x $\frac{5}{8}$ screws (see figure 22).

Install back into vehicle with OEM Hardware

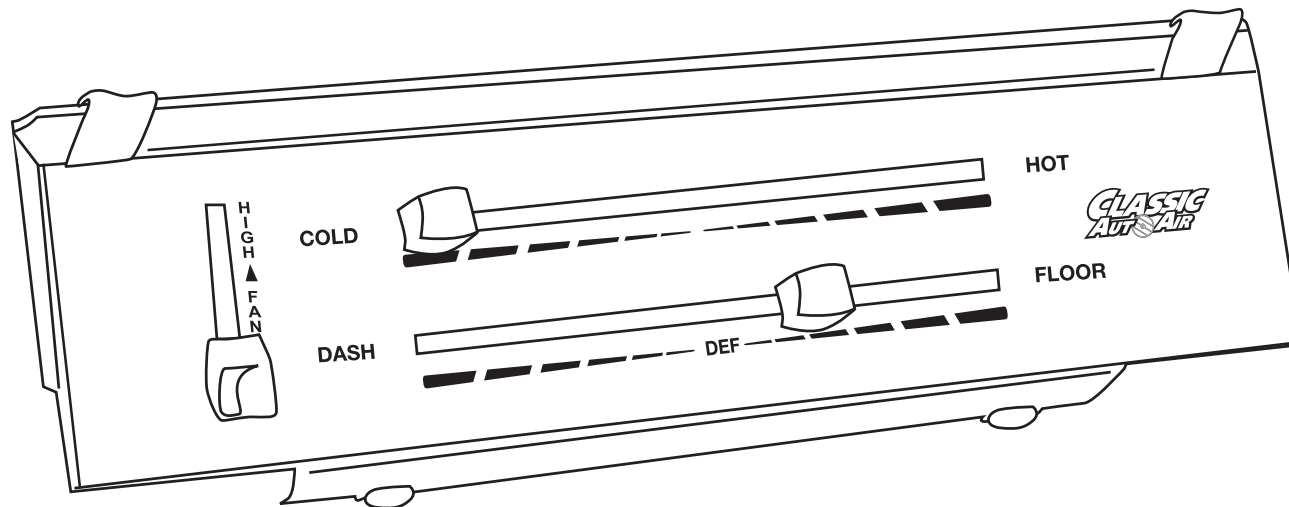


ALERT! GM part# 3906067

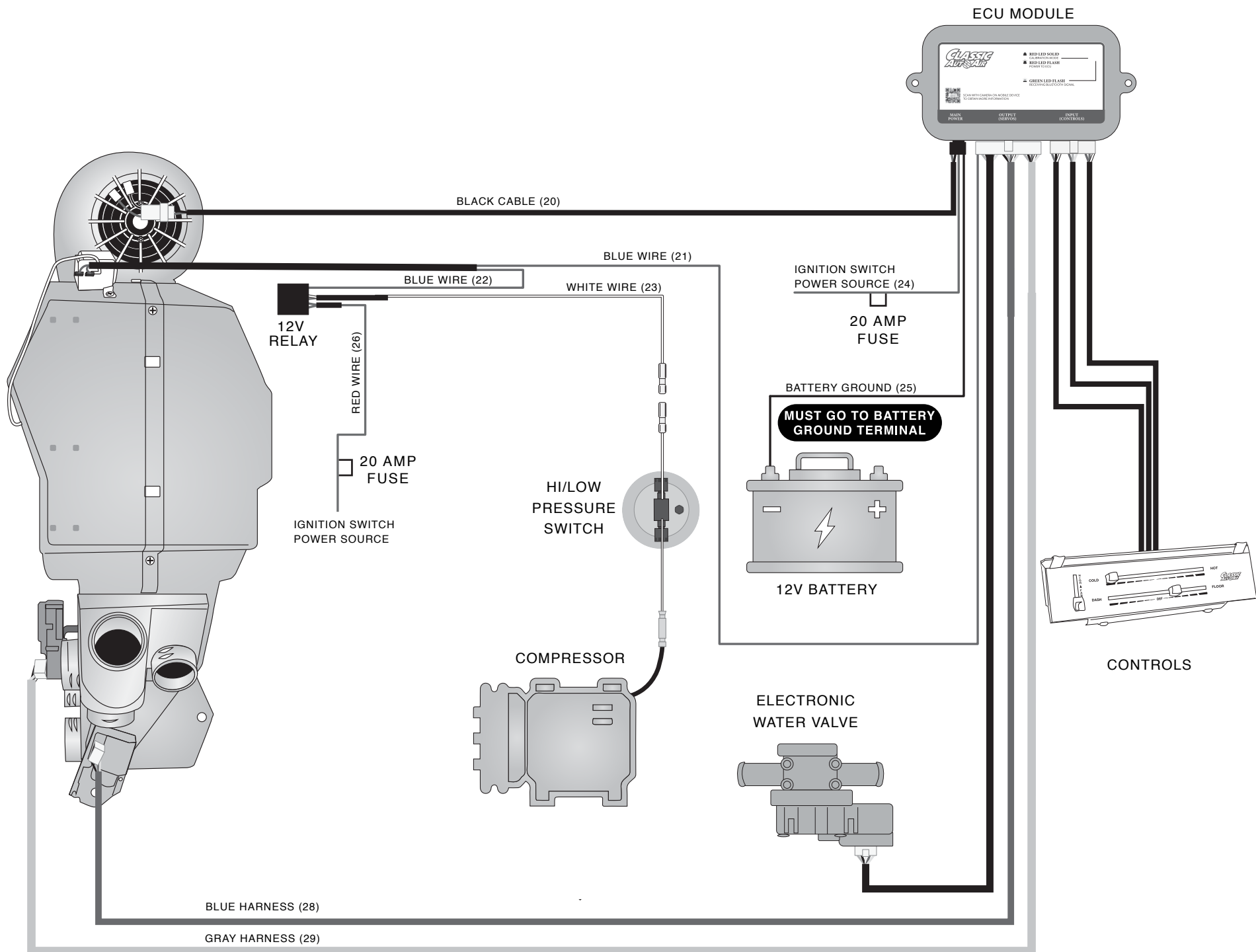


THESE ARE THE PARTS YOU WILL FIND IN CONTROL BOX

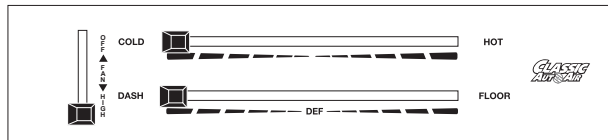
(varies based on your choice of using your factory controls or using our new D.E.R. Controller)



*D.E.R. Control
PN#16-4049*



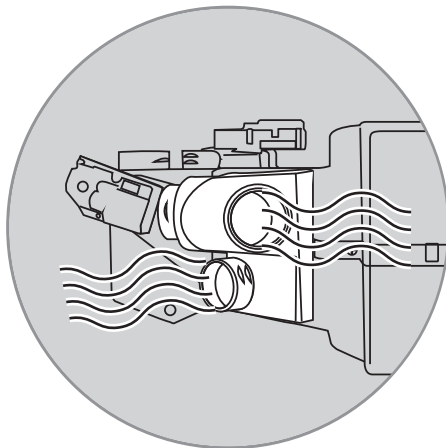
1



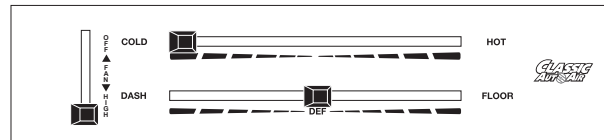
Move FAN knob to HIGH
Move MODE knob to DASH
Move TEMP knob to COLD



AIR OUT OF DASH VENTS



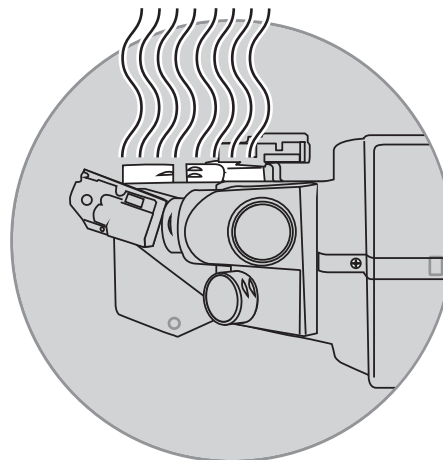
2



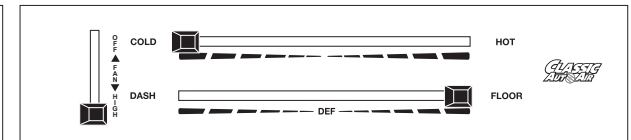
Move MODE knob to DEFROST



AIR OUT OF DEFROST VENTS



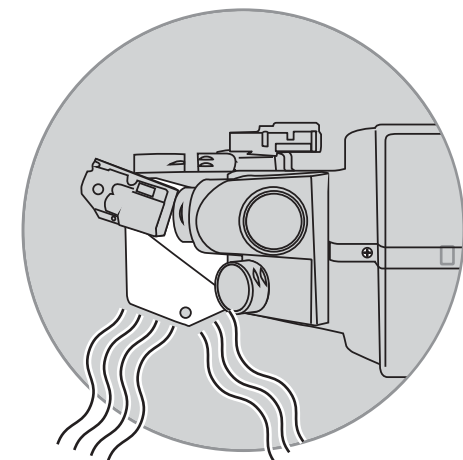
3



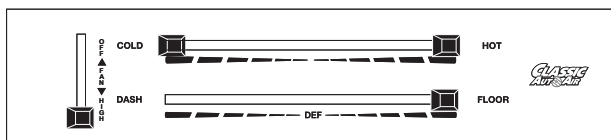
Move MODE knob to FLOOR



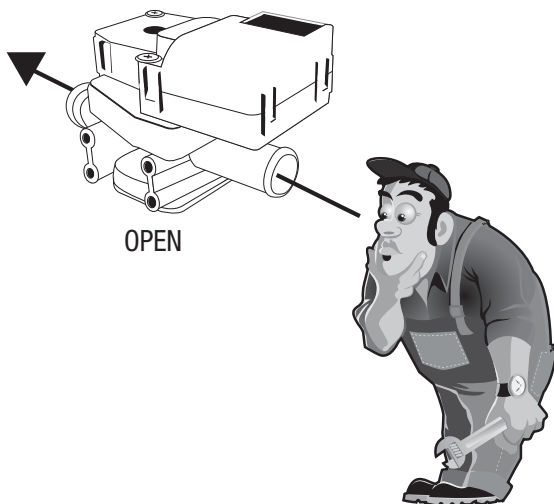
AIR OUT OF FLOOR VENTS



4

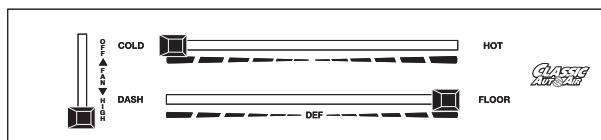


Move TEMP knob to HOT

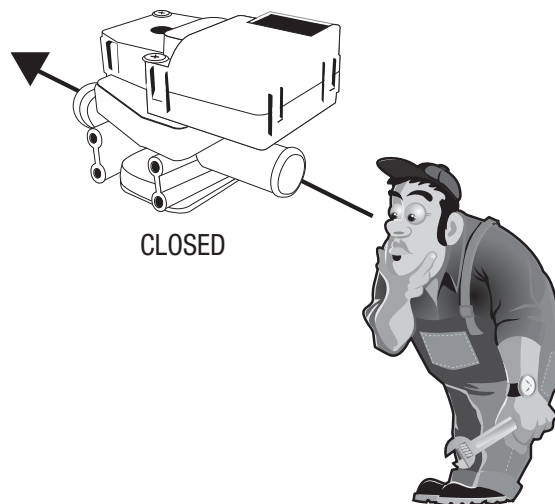


You will be able to see through water valve passage

5



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.

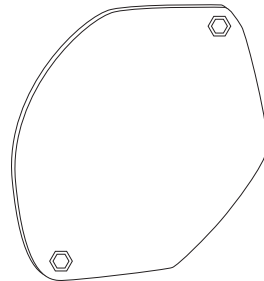
NOTE: IF DURING ANY OF THESE STEPS YOU DO NOT GET THE CORRECT OUTCOME, PLEASE CALL TECH SUPPORT BEFORE INSTALLING INTO VEHICLE.
1(866)435-7801

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.

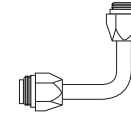


Evaporator Firewall Support Bracket
PN#0023-7



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

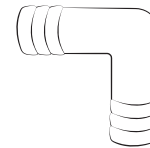
Liquid Tube
PN#0034-9



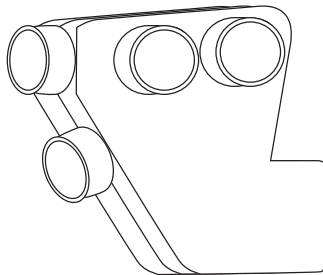
Suction Tube
PN#0034-10



#6 and #10 O-rings



90 Degree Elbow



Face Duct Assembly
PN#2-2050-1
PRE-INSTALLED



Clear Plastic Drain Tube



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



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



Refrigerant Tape



One Bulb Clamp

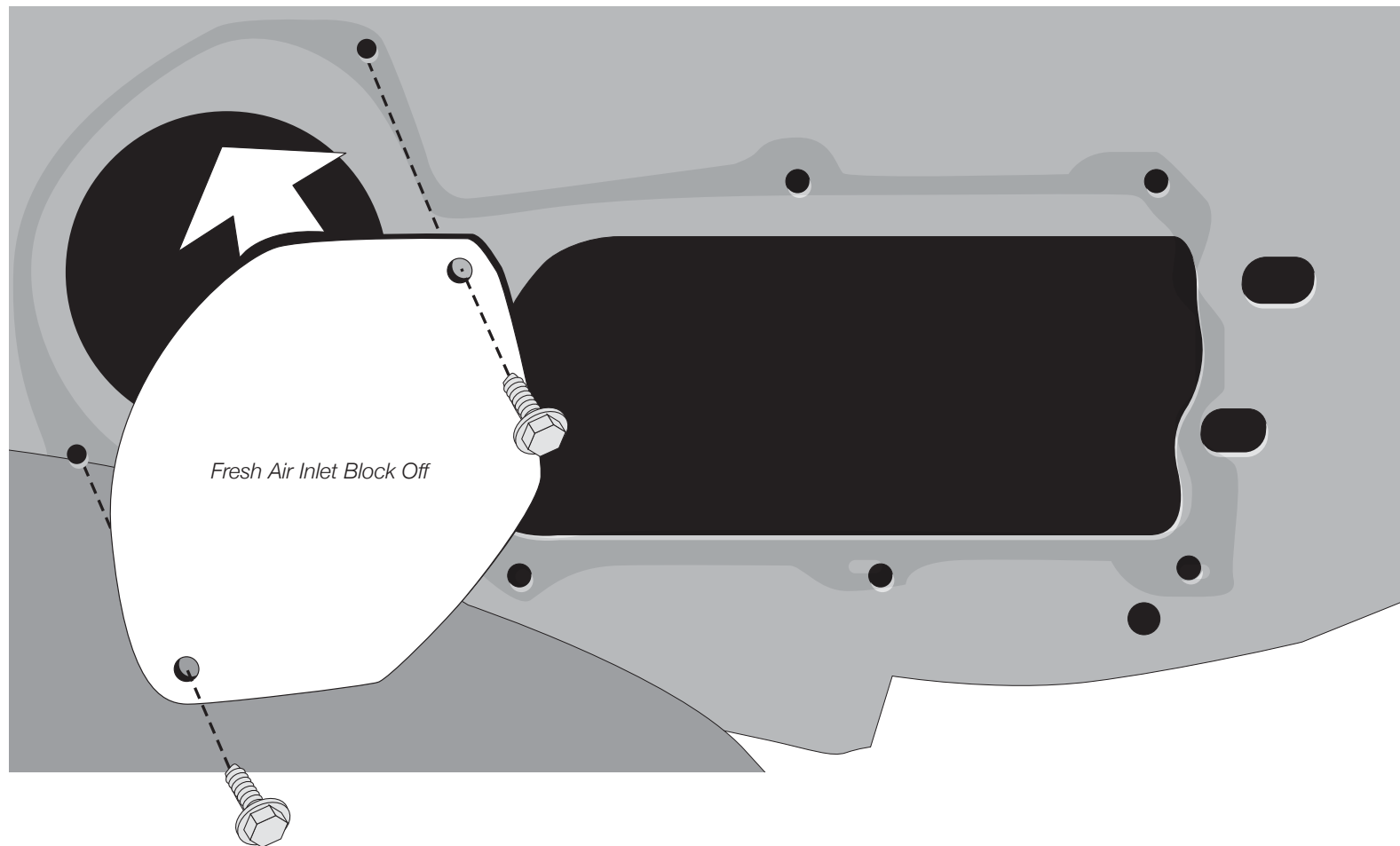


Flange Nut

Within the engine compartment area, Install Fresh Air inlet block-off Pn# 10-1048-2 (from Bag Kit B) over the OEM fan opening using the OEM screws (A1 and B7).

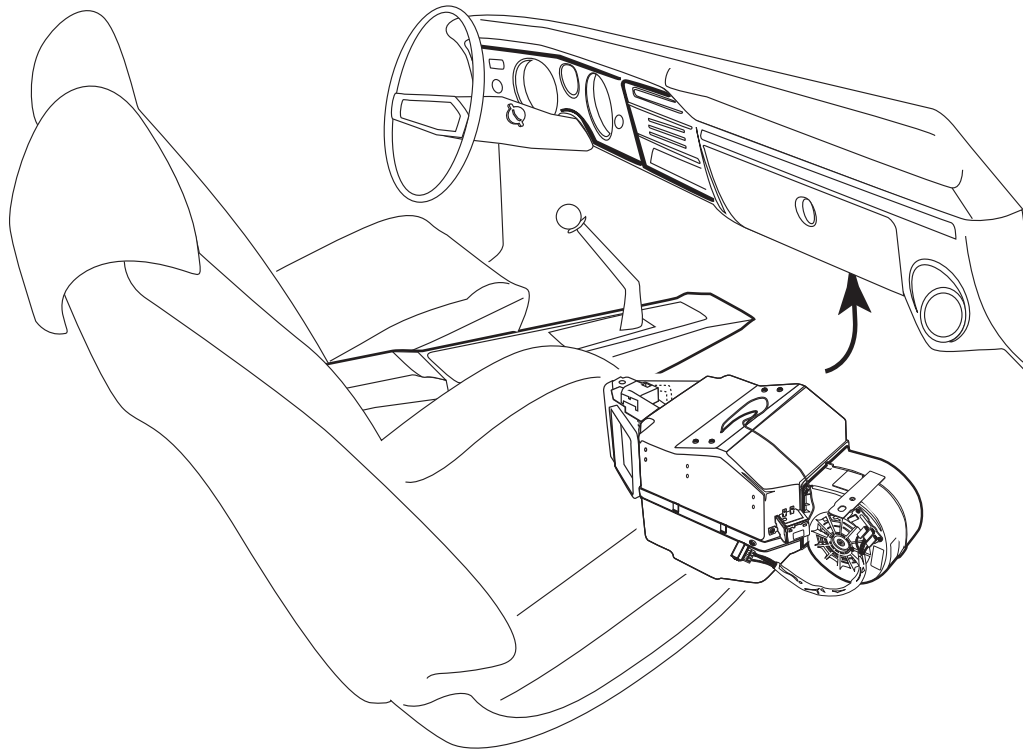
If necessary, reinstall inner fender.

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



NOTE: Two people are needed for this step!

Place evaporator on floor panel. Roll unit up behind the glove box opening, inserting tubes thru the large hole in firewall.



1

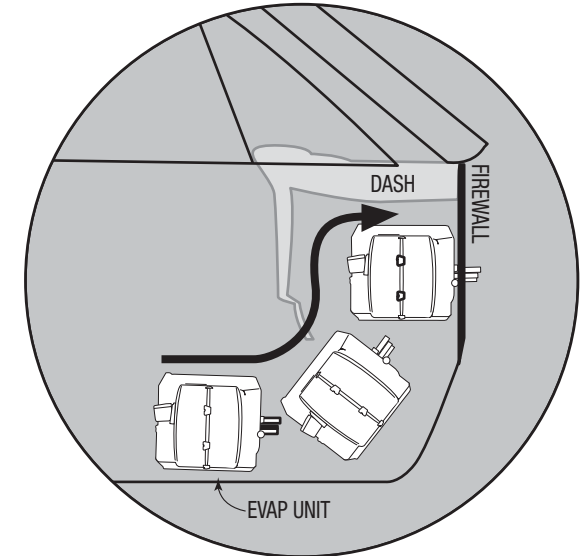


FIGURE 17

Installing the complete evaporator unit under the dash will go much easier with the help of a friend. Once the unit has been rolled up under the dash, one person can hold the unit in place while the other person can be ready at the firewall area with the included flange nut to secure the unit (see figure 17). Leave Flange nut loose to allow leveling of unit in next steps.

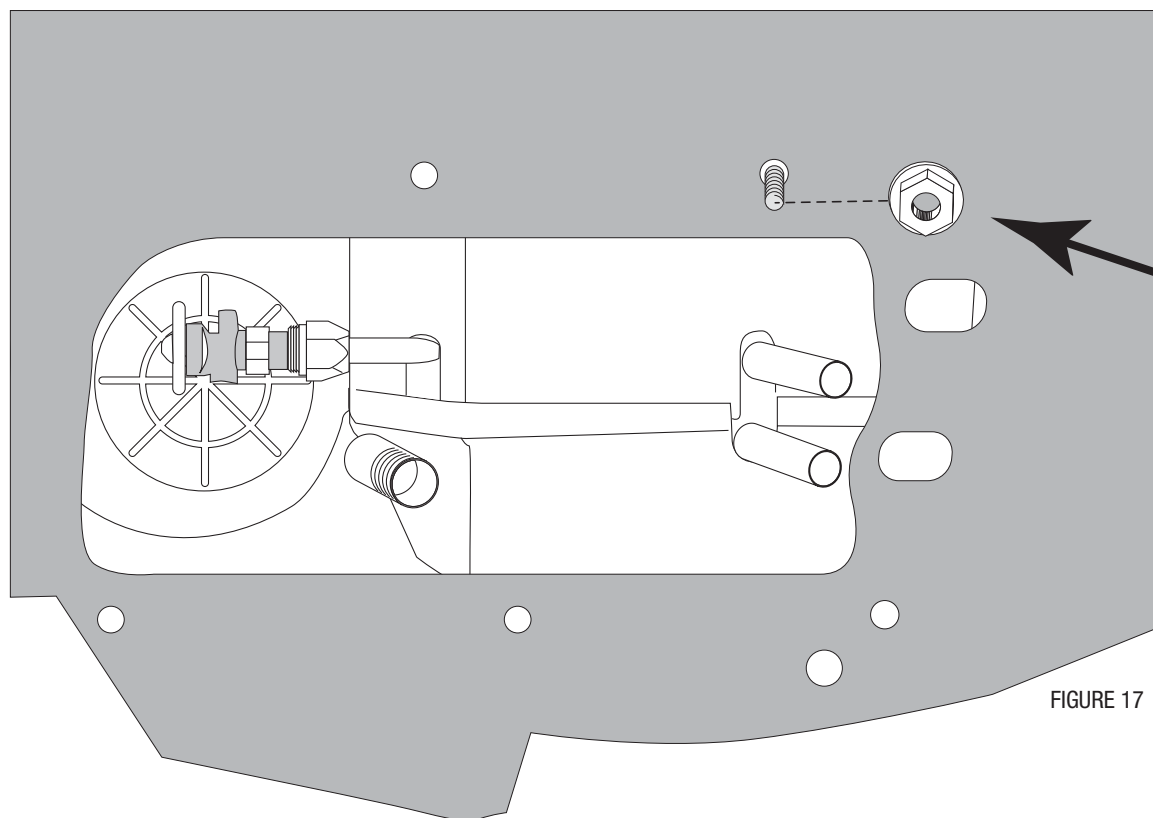
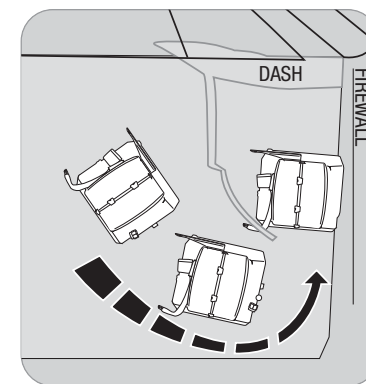


FIGURE 17

Locate the UPPER MOUNTING BRACKET and attach to evaporator unit using two #10 - 16 x 5/8" Phillips screws using a handpowered screwdriver. Level unit with lower edge of dash and attach to cowl with a #10 - 16 x 3/4" Tek Screw (see figure 18-19).

IMPORTANT NOTE: On the side of the main unit you will see several holes for mounting holes... ONLY USE THE ONES ON THE FAR RIGHT FOR THIS BRACKET!

The other mounting point is accomplished by threading a Tek Screw thru the bracket already affixed to the evaporator and into the dash brace that is right above the evaporator unit (see figure 18-19). Make certain the unit is level with lower edge of dash and tighten screws.

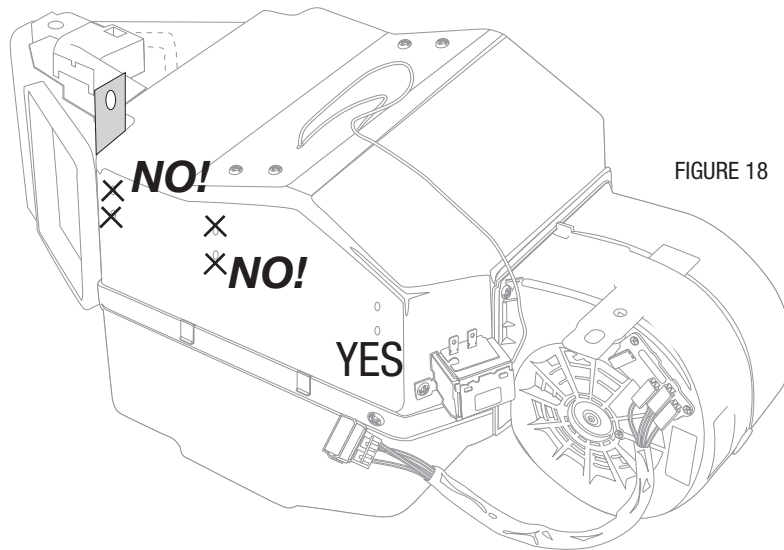
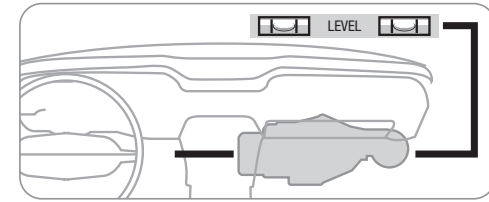


FIGURE 18



Be sure to align the evaporator unit level with the bottom of dash as shown above, with a small degree of tilt toward the back to allow proper drain of condensation.

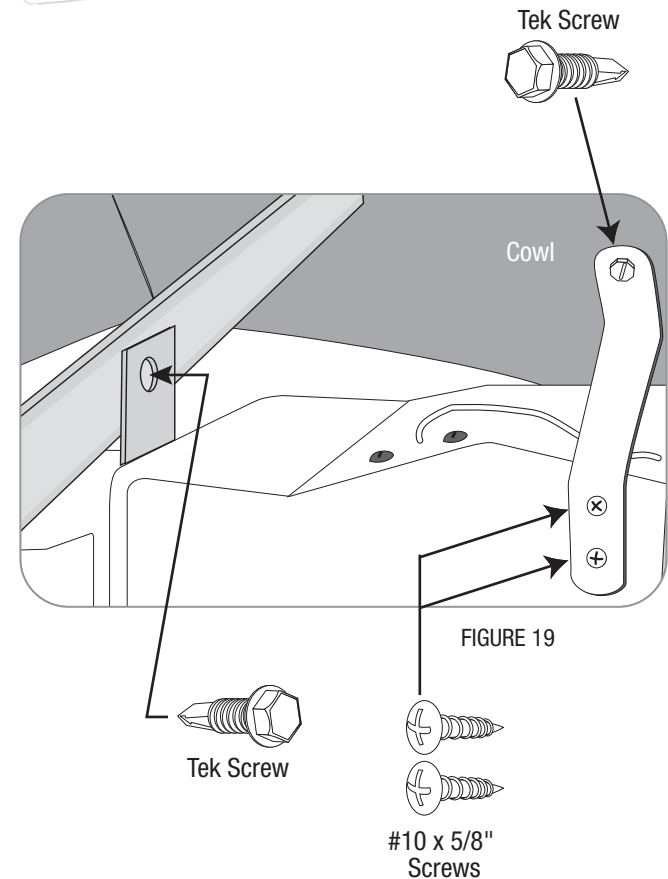


FIGURE 19

#10 x 5/8"
Screws

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

Locate Sensing Coil attached to Expansion valve (TXV) and utilizing Bulb Clamp, attach to the Suction Tube (see figure 20).

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

Wrap Suction Tube and Sensing Coil with the refrigerant tape provided (use approx. 1/2 of the tape). Be sure that all of the exposed metal is covered.

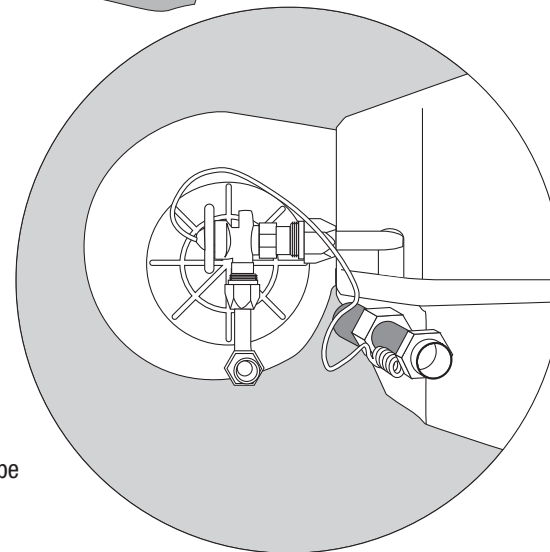
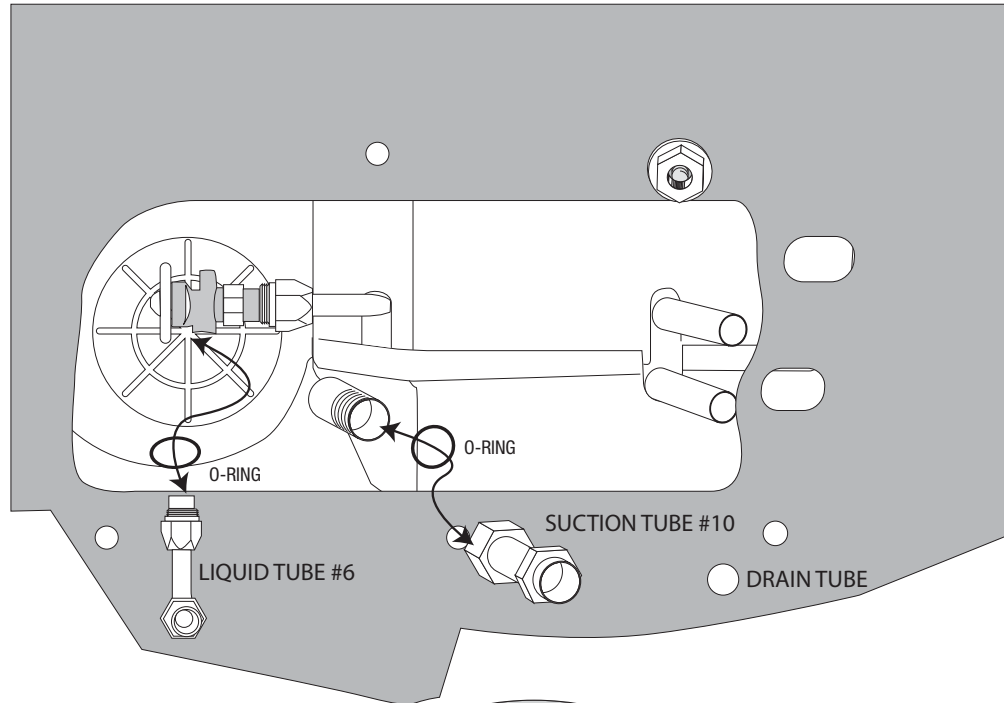
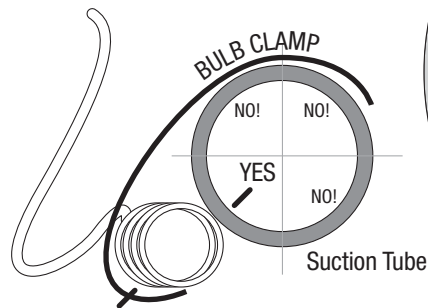
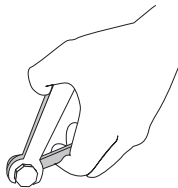


FIGURE 20



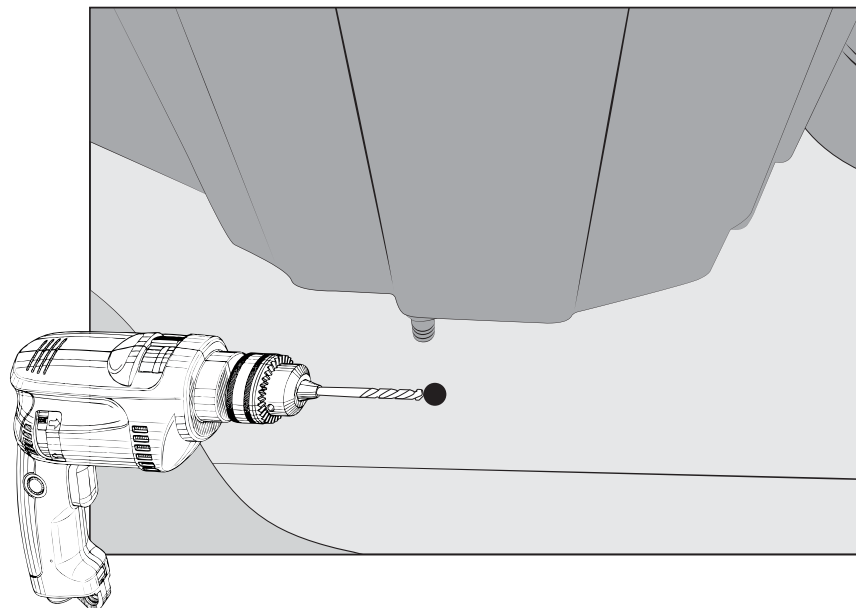
Reminder...
Use two
wrenches to
tighten o-ring
fittings



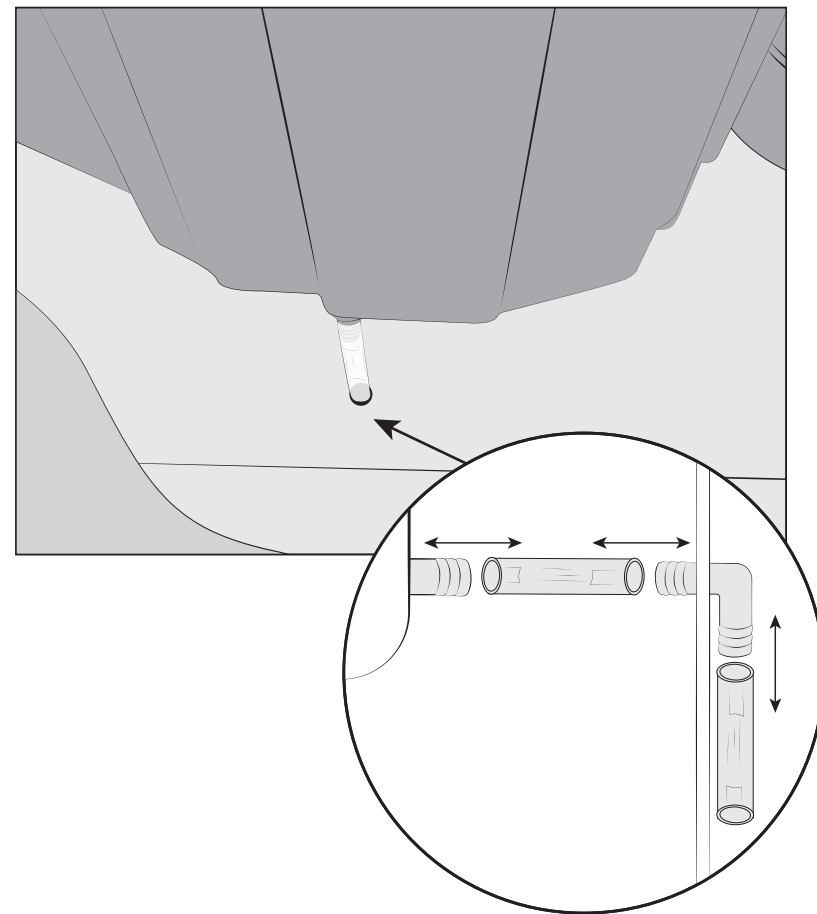
Installing the Drain tube



THIS IS FROM INSIDE THE VEHICLE!



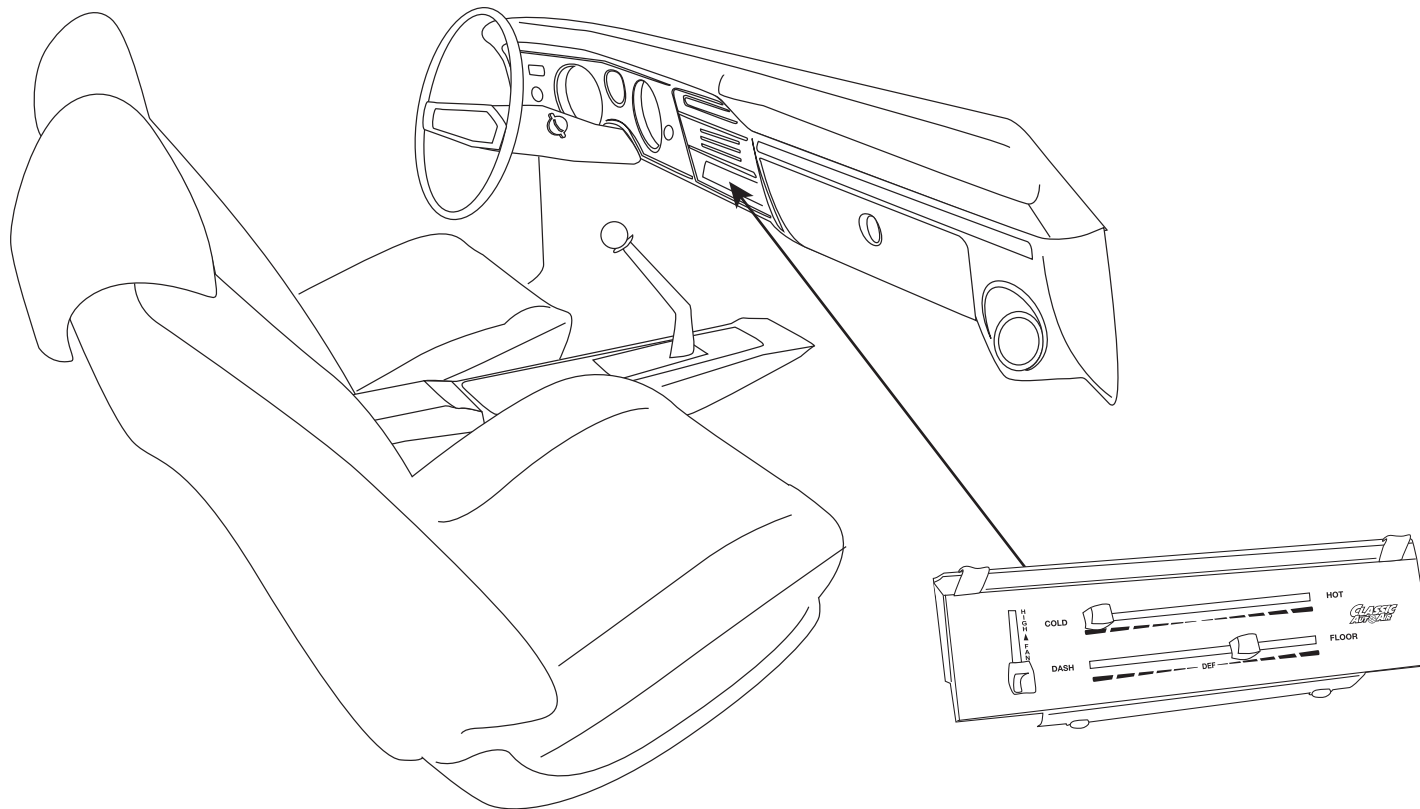
Locate Drain nipple on Evaporator and drill a 3/4" hole below the nipple on the firewall. This will allow condensation to drain properly.



Attach 1/2" clear drain tube to Evaporator nipple and run through 3/4" hole you just drilled.

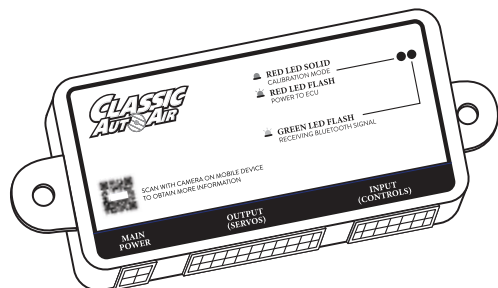
All condensation will now drain out into the engine bay.

Install D.E.R. at this time.

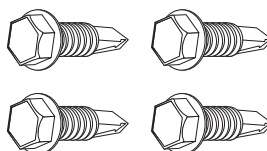


THESE ARE THE PARTS YOU WILL FIND IN BAG KIT C

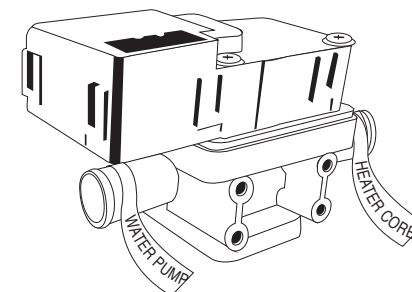
You will use all of these parts and hardware during the next series of installation steps.



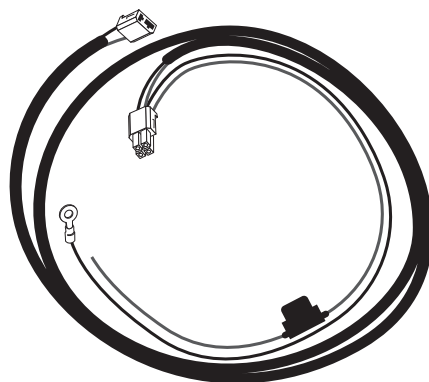
*ECU
16-2500*



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



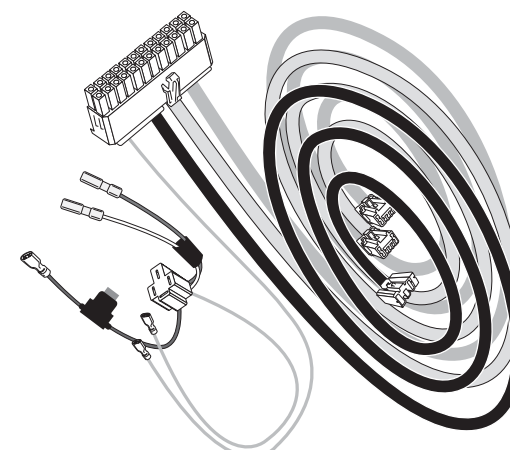
*Electronic Water Control Valve
PN# 16-1023*



*HARNESS POWER SUPPLY
0125-5*



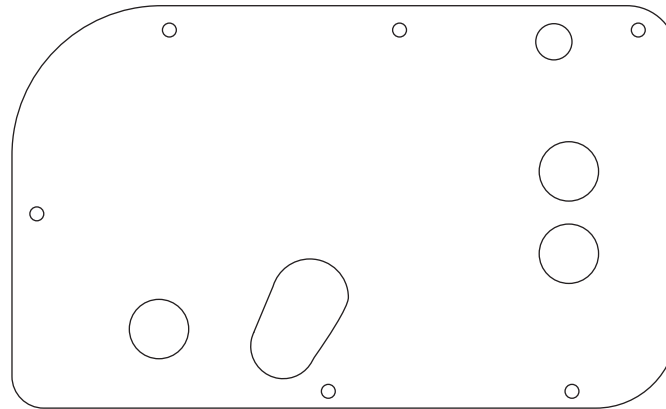
*Relay
30-13373*



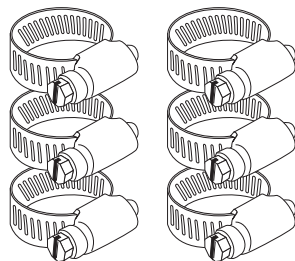
*HARNESS
0125-6A*

THESE ARE THE PARTS YOU WILL FIND IN BAG KIT D

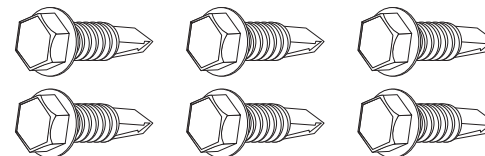
You will use all of these parts and hardware during the next series of installation steps.



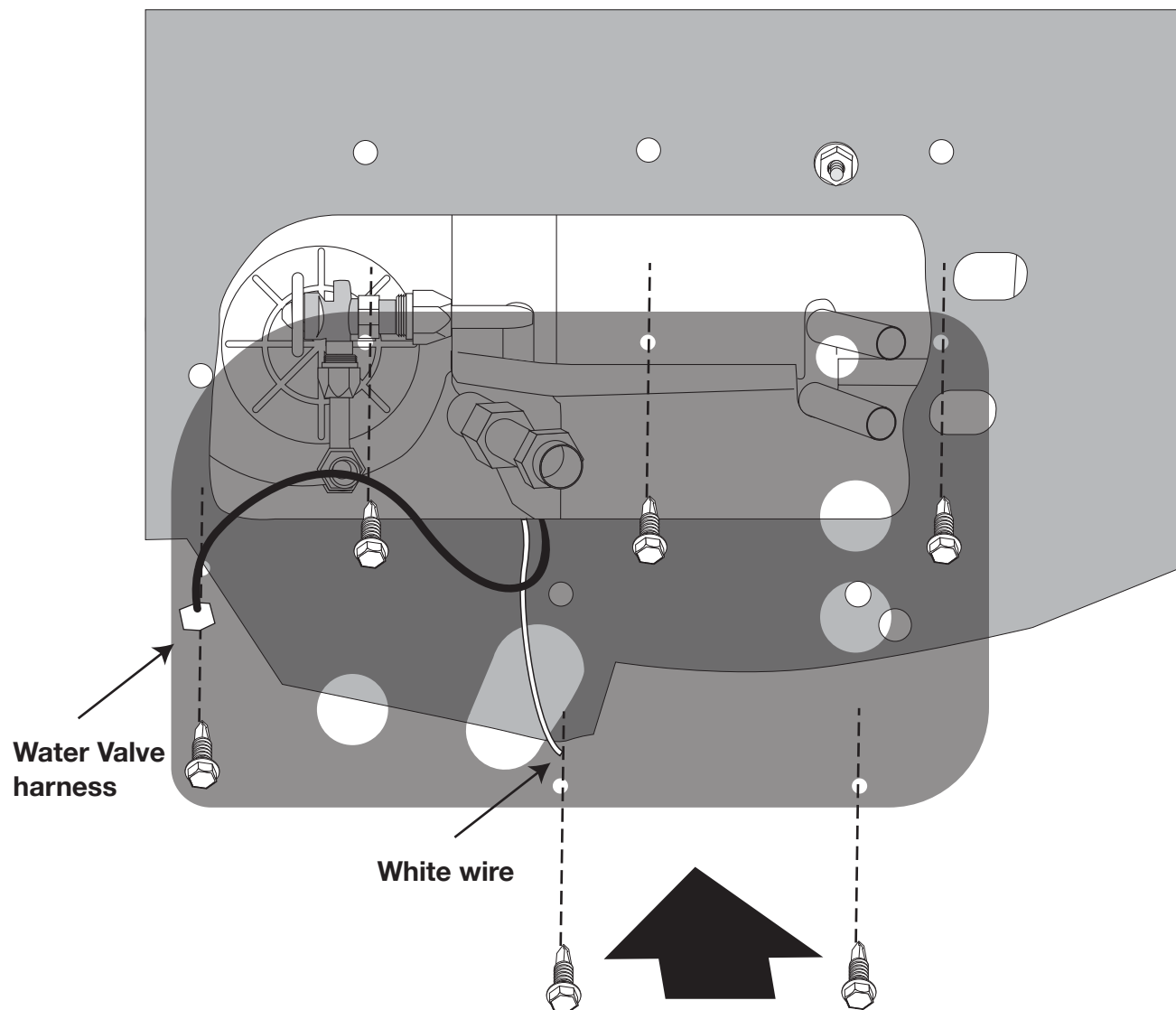
*Firewall Block Off
PN#10-1049-1*



Six Worm Gear Clamps



Six #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.

TIP: Route Water Valve cable thru the block off plate.

The loose white wire from main power harness can be fed thru the same hole (as shown below).

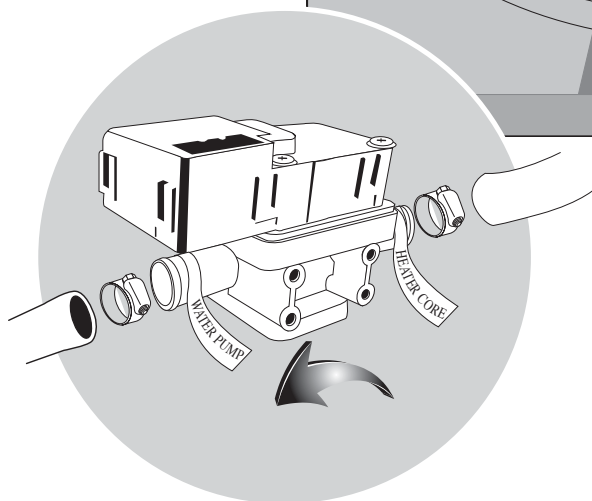
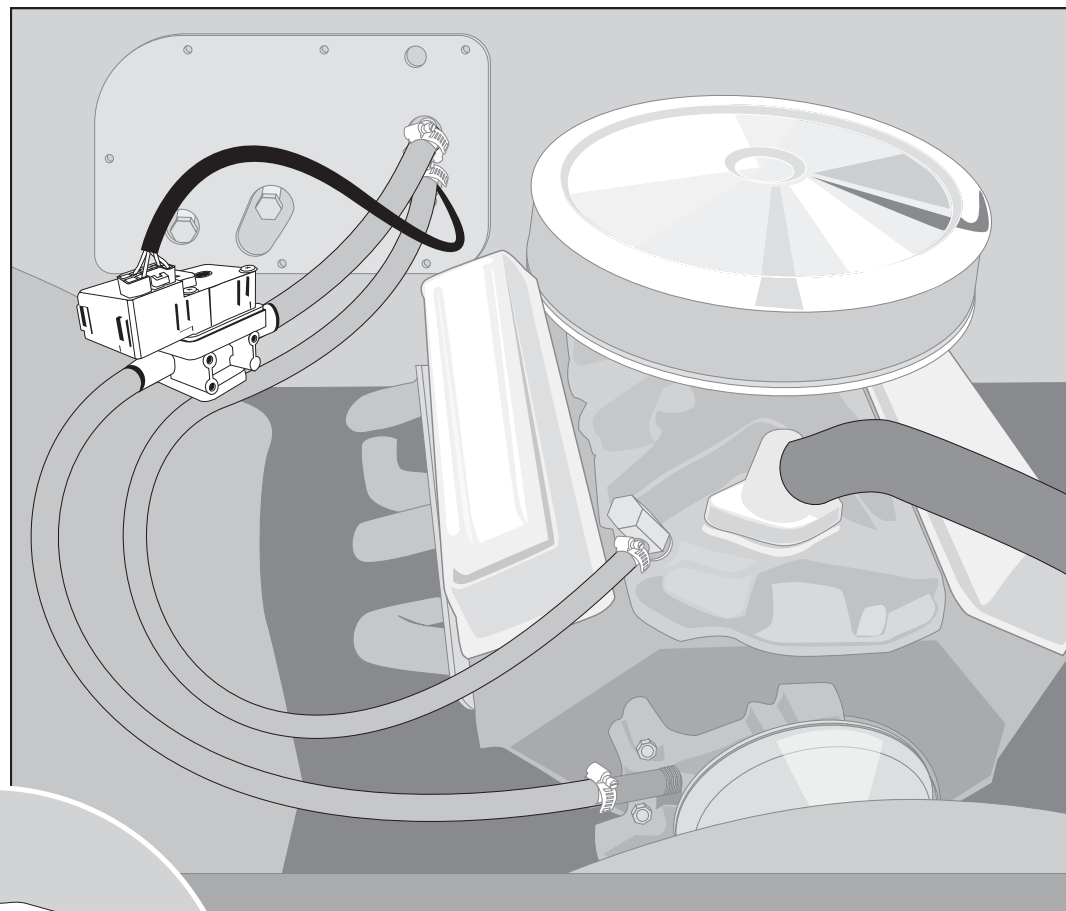
IMPORTANT NOTICE: PROPER INSTALLATION OF WATER VALVE

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. heater hose with the supplied worm gear clamp.

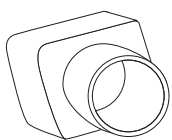


**FOLLOW THESE
TAGS... CHECK IT
TWICE BEFORE
PROCEEDING!**

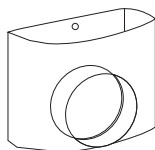
THESE ARE THE PARTS YOU WILL FIND IN BAG KITS E, F, and G

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

Bag E



Defrost Adaptor
Left
PN#0034-14



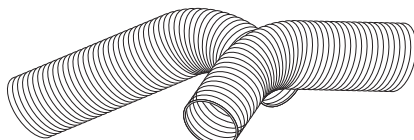
Defrost Adaptor
Right
PN#0034-15A



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



Foam Tape

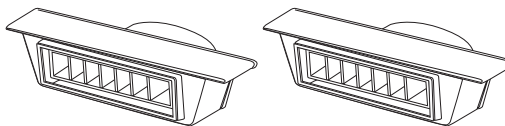


Two Duct Hoses, 2" I.D.



Four Zip-Ties

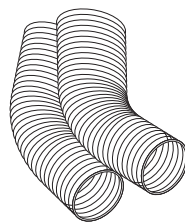
Bag F



Two Lower Dash Louvers
PN#2-1038



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

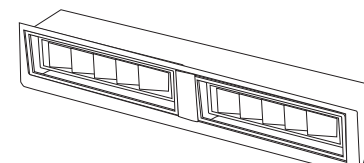


Two Duct Hoses, 2" I.D.



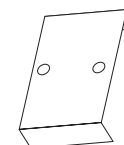
Four Zip-Ties

Bag G

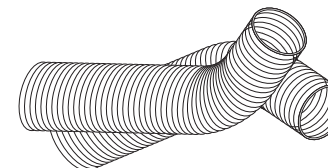


Center Dash Vent Assembly
PN#2-2049-1

Center Vent
Bracket
PN#0034-22



Two #8 x 3/8" Phillips Screws



Two Duct Hoses, 2" I.D.



Four Zip-Ties

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

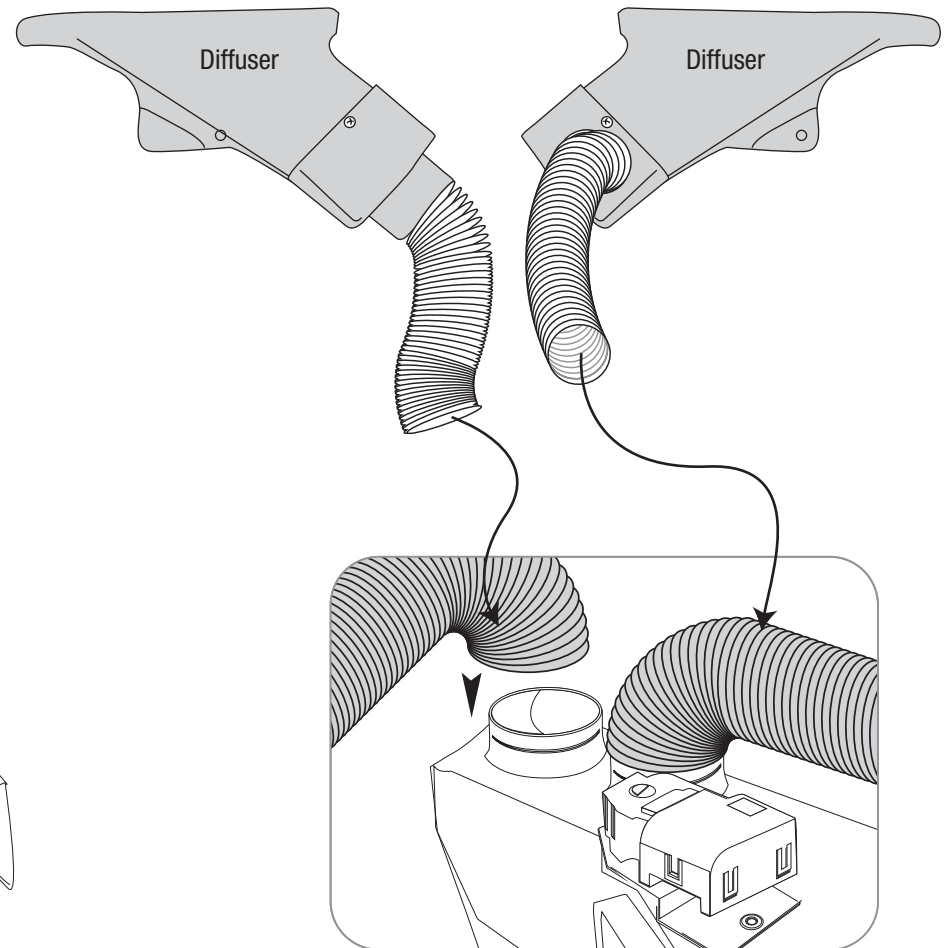
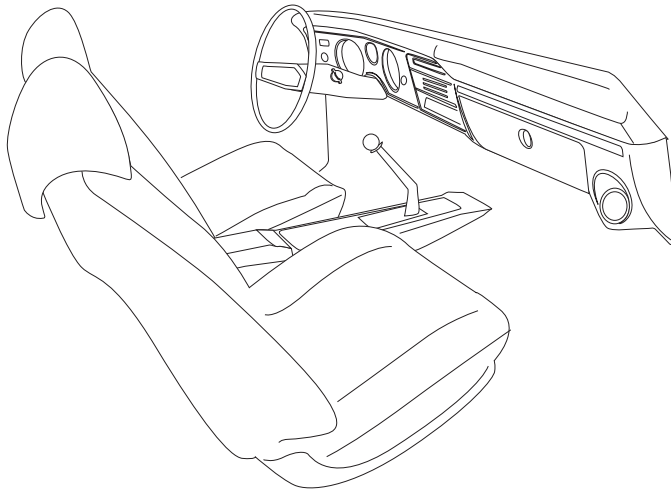


FIGURE 24



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



In order to install the center louvers you'll need to cut out the center upper block off (this space is used for vents on factory air cars). Carefully cut entire center out of the frame, using the vents we've included to test for size. It's best to cut a bit small first, then enlarge slowly (like with a file) until you can get a tight and secure fit for the vents (see figure 25).



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

Insert the new center louver assembly. We've included a bracket to secure the louver to the dash with two #8 x 3/8" screws. Attach the bracket to the backside of the vent assembly and securely tighten from the backside (see figure 26).

Attach duct hoses to the back of the louvers assembly with tywraps and then route to the evaporator. Take your time and route them so they don't become kinked or torn.

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

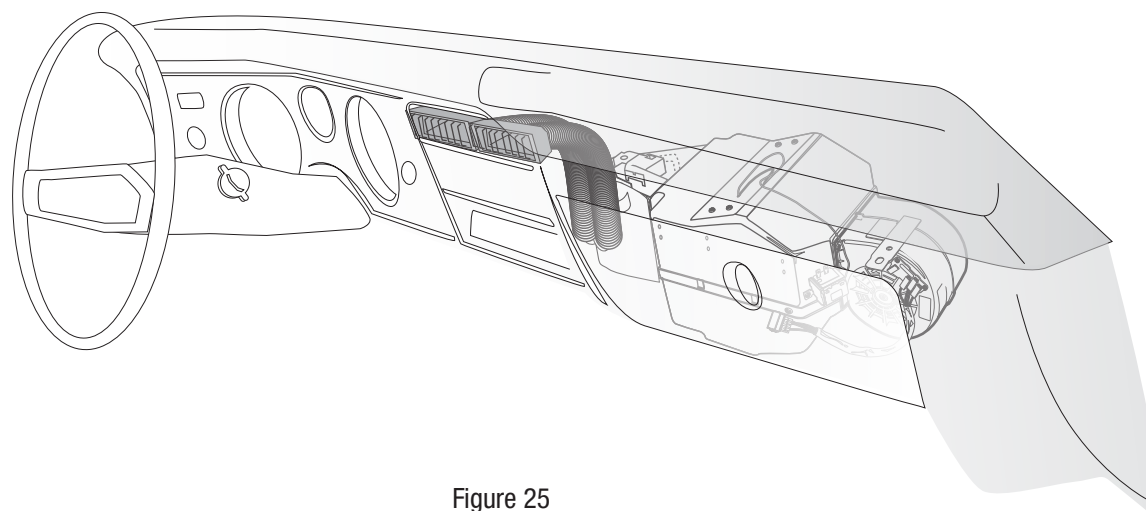


Figure 25

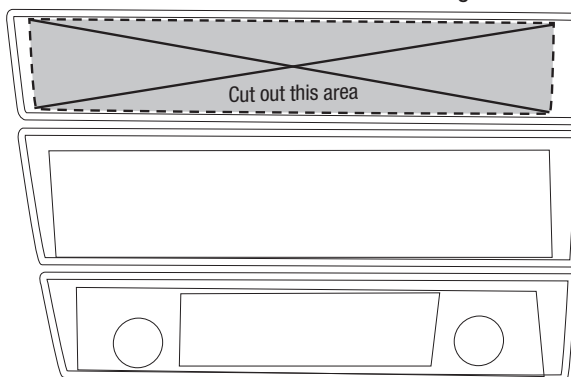


Figure 26

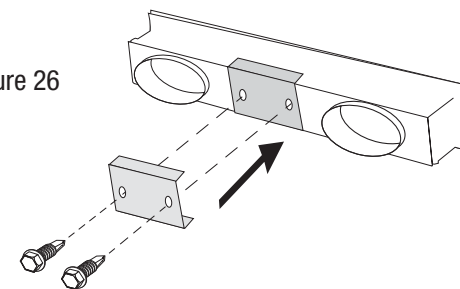
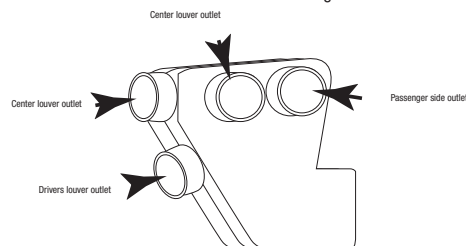


Figure 20



Bag Kit F:

Attach lower dash louvers to the bottom of the dash using the included tek screws. Position the vents so that they won't interfere with any components and so that the driver and passenger will get the best use of the airflow.

Route supplied flex hoses as shown below. Take your time and route them so they don't become kinked or torn. Hoses are secured to the back of the louvers with the included tywraps.



Figure 20

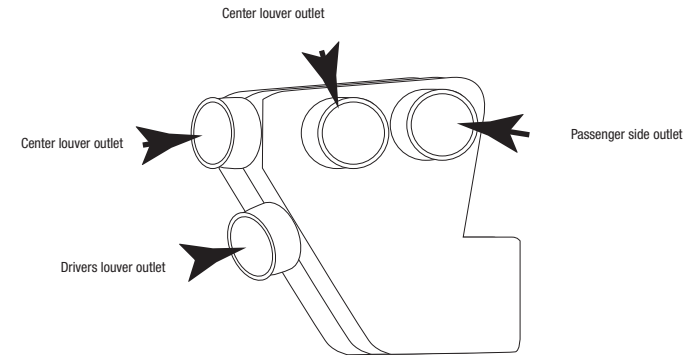
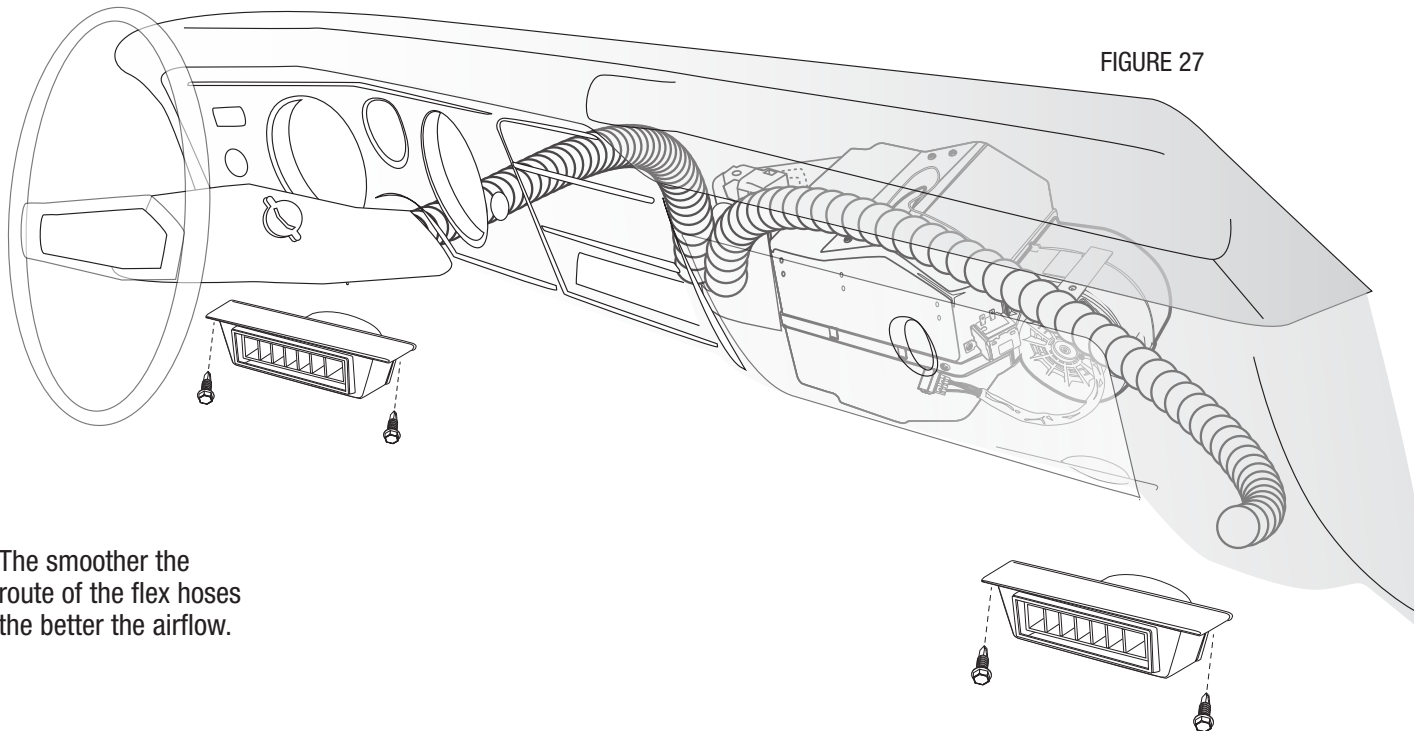


FIGURE 27



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



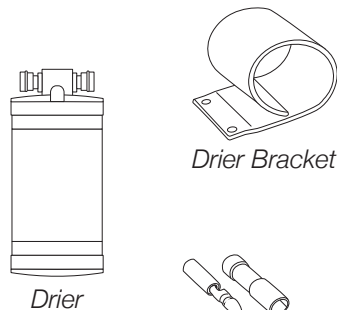
This completes the interior portion of the **Smart Series A/C** installation process. This is a good time to make a final check that all the controls still move freely and that nothing is loose or hanging down.

The interior of your car should look pretty much the same as before you started (or better). Plus you probably got to know the underside of your dash a lot better and might even have repaired or upgraded components that needed attention.

If you have any questions before you move on the final phase of this installation, call us.

Good Job... Let's move on to the major components within the engine compartment....

THESE ARE THE PARTS YOU WILL NEED FOR THE ENGINE COMPARTMENT INSTALLATION ON A SMALL BLOCK 1968 CHEVELLE

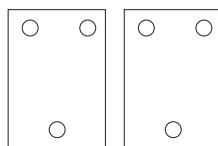


Drier Bracket

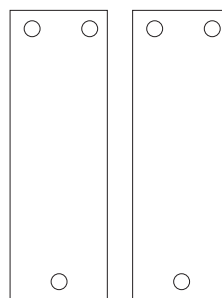
Drier



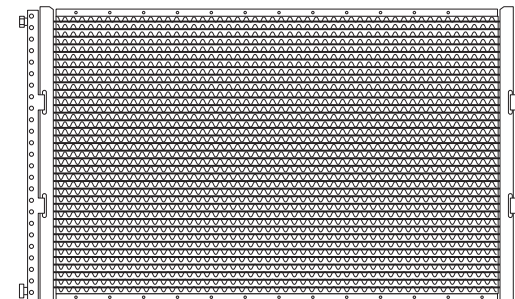
*Splice and
Bullet Connector*



*Two Condenser
Brackets
PN#0031-8*



*Two Condenser
Brackets
PN#0031-9*



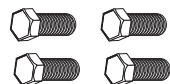
*Condenser
PN#11-1041*



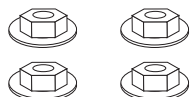
*Two Bulkhead
Grommets*



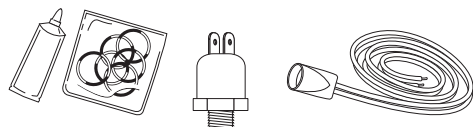
Ten #10 - 20 x 1/4" Screws



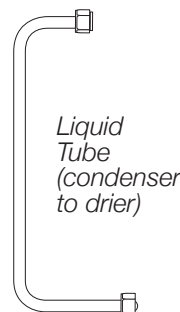
Four #1/4 x 5/8" Bolts



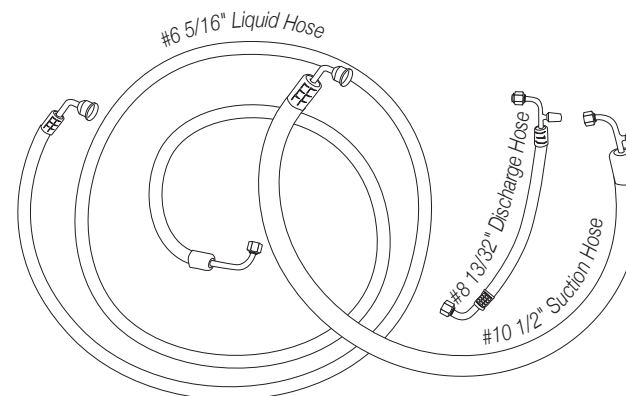
Four #1/4 Flange Nuts



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

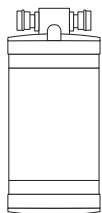


*Liquid
Tube
(condenser
to drier)*

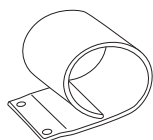


Three Refrigerant Hoses

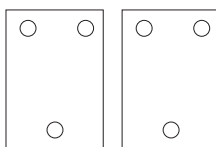
THESE ARE THE PARTS YOU WILL NEED FOR THE ENGINE COMPARTMENT INSTALLATION ON A BIG BLOCK 1968 CHEVELLE



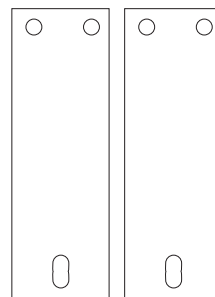
Drier



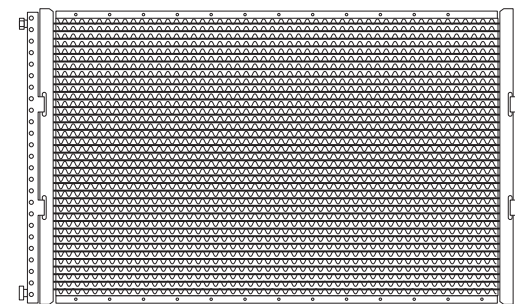
Drier Bracket



Two Condenser Brackets
PN#0031-8



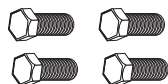
Two Condenser Brackets
PN#0045-54



Condenser
PN#11-1041



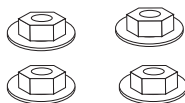
Splice and
Bullet Connector



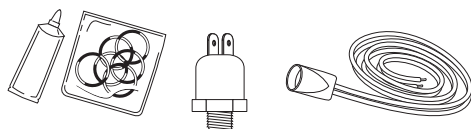
Four 1/4 x 5/8" Bolts



Ten #10 - 20 x 1/4" Screws



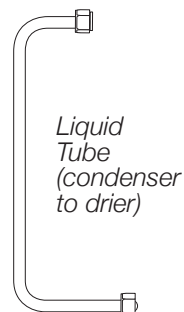
Four 1/4" Flange Nuts



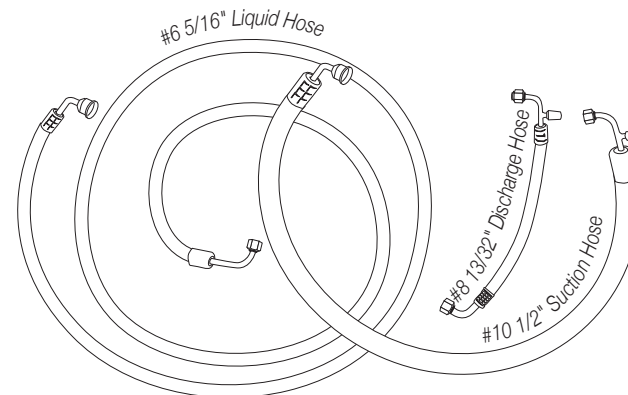
Pressure Switch and harness,
Bag of O-rings and Mineral Oil Tube



Two Bulkhead
Grommets



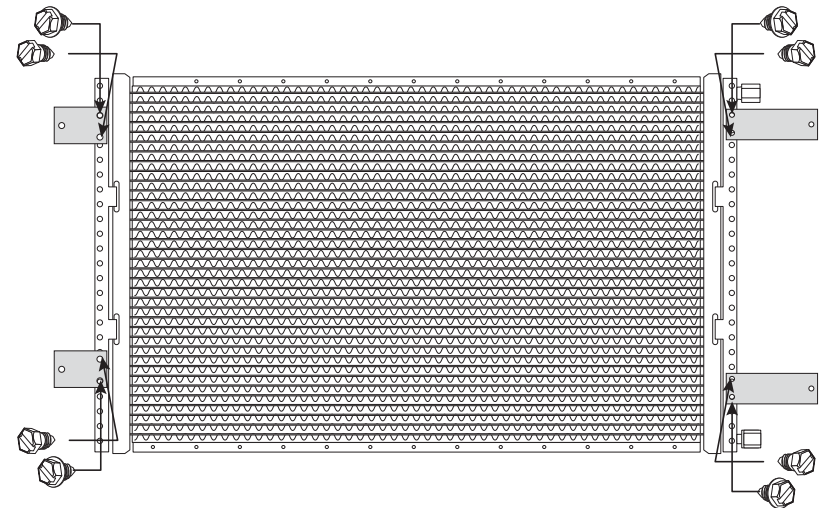
Liquid
Tube
(condenser
to drier)



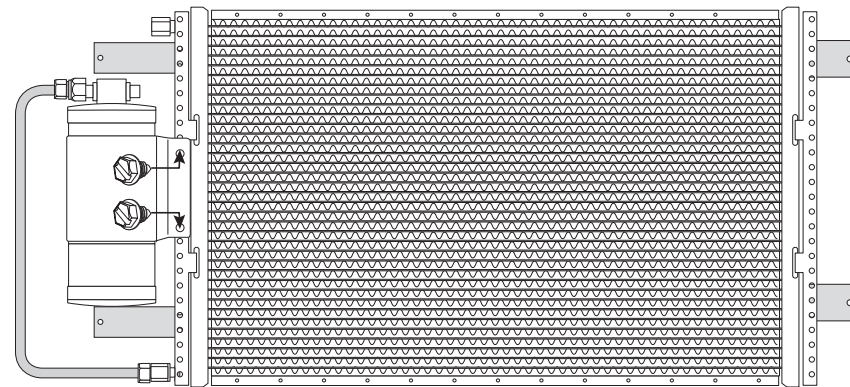
Three Refrigerant Hoses

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 be 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).

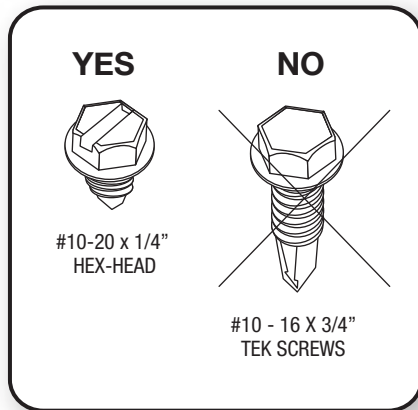
BRACKETS: Install the upper condenser brackets using four #10 - 20 x 1/4" screws as shown in figure 28. Next, attach the lower brackets in the positions shown in figure 29.



#8 Large Fitting

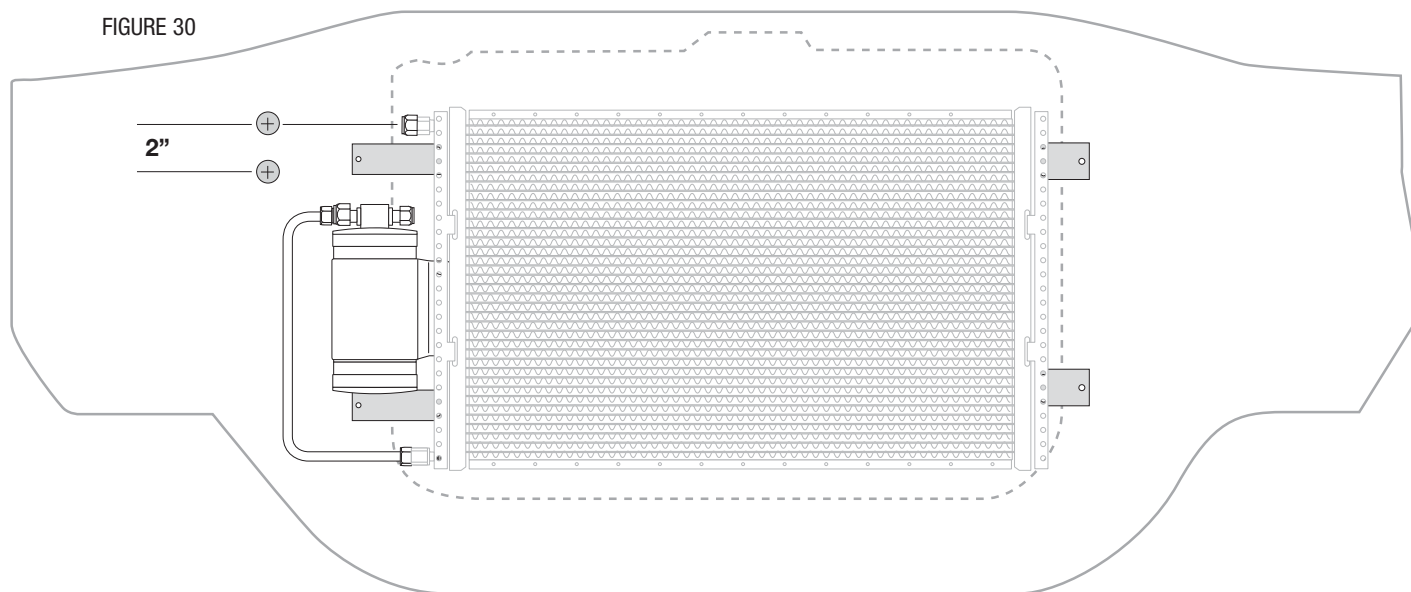


#6 Small Fitting



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

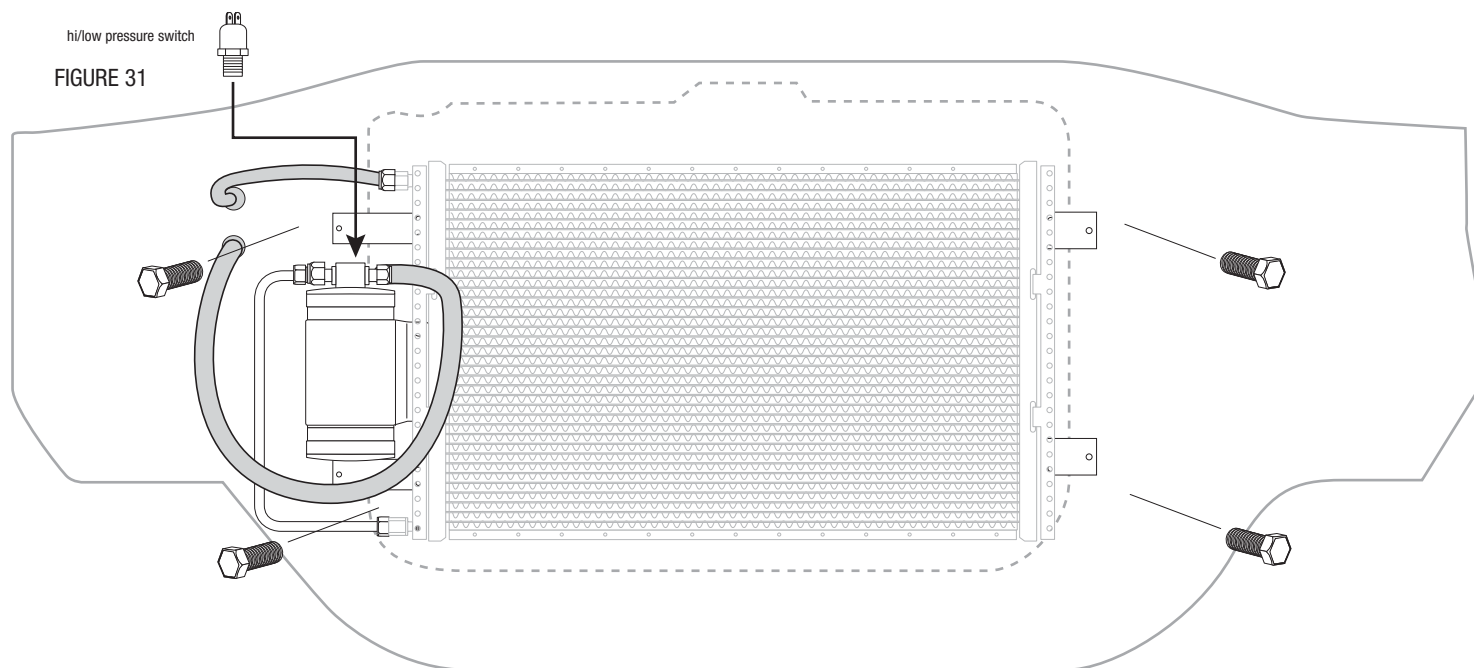
FIGURE 30



For the next series of steps you may need to remove the battery. Carefully place the entire condenser assembly through the radiator bulkhead and position into it's final place. Match drill holes thru the condenser support brackets using a 9/32" drill bit, then fasten loosely with included 1/4 - 20 x 5/8" bolts and flange nuts.

Locate and drill a 1-1/2" hole through the support directly inline with the upper refrigerant fitting on the condenser. The #8 hose will go through this hole, you can use the hose as a guide before you drill also. **THE LOCATION OF THIS HOLE IS IMPORTANT, SO DOUBLE CHECK BEFORE DRILLING.** After drilling, place an included grommet into hole (see figure 30).

Next, drill another 1-1/2" hole approximately 2" below the first hole. Install grommet into this hole also.



Locate the #6 refrigerant hose and one #6 o-ring. Attach hose to the drier using one #6 o-ring and few drops of lubricating oil and a $\frac{3}{4}$ " open end wrench. Route thru lower hole you drilled in the support. Next do the same thing for the #8 refrigerant hose, attaching it to the upper fitting on the condenser and routing thru the upper hole you drilled.

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. One of the wires attaches to white clutch wire from wire harness and the other to the compressor clutch.



TECH TIPS

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



Connecting the Hoses



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.

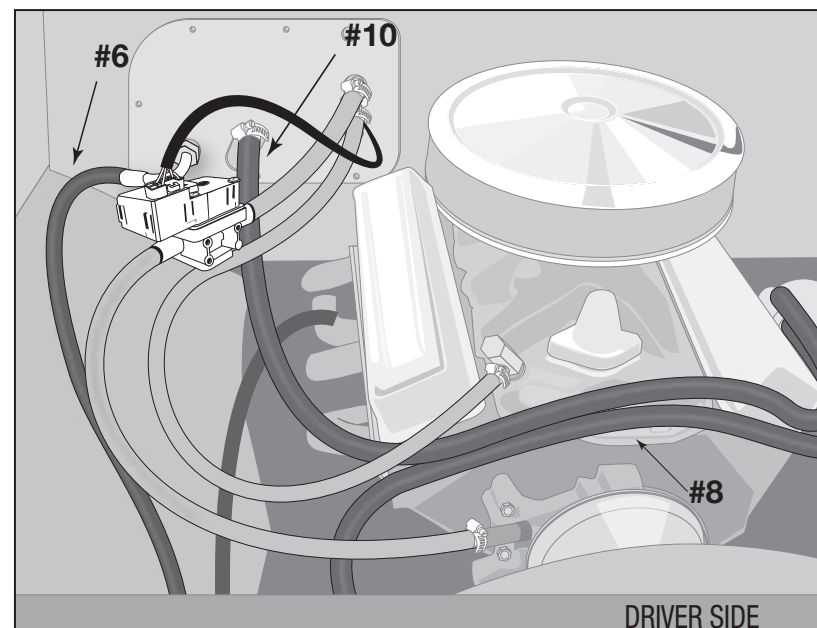
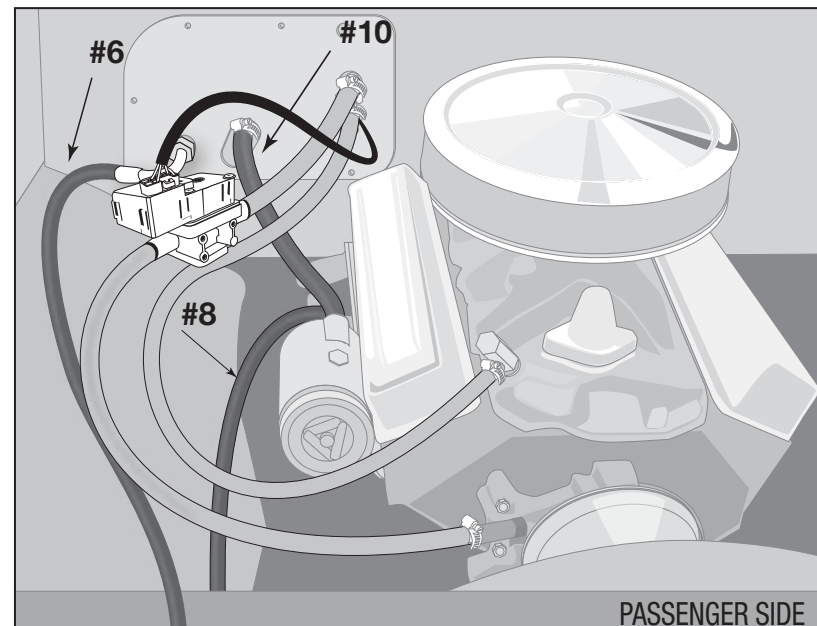
The #6 (**SMALLEST**) refrigerant hose. Route behind fender and to the connection on firewall. Attach using two #6 o-ring and a few drops of mineral oil.

The #8 (**MEDIUM**) refrigerant Hose. Route behind fender and to the connection on compressor. Attach using two #8 o-ring and a few drops of mineral oil.

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!**

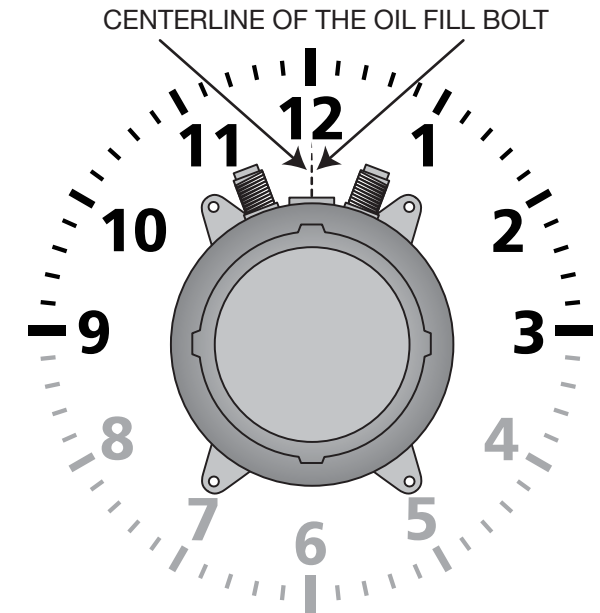
RECOMMENDED TEST CONDITIONS: (After system has been fully charged and tested for basic operation)

- 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

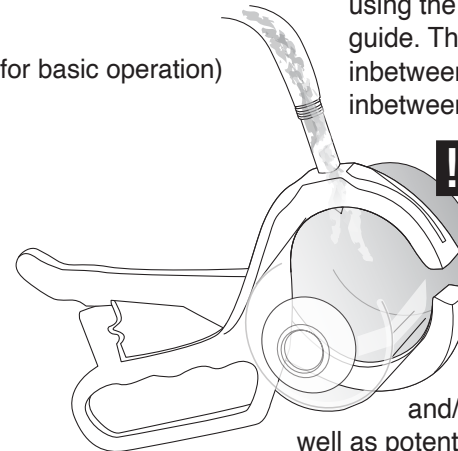
ACCEPTABLE OPERATING PRESSURE RANGES:

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

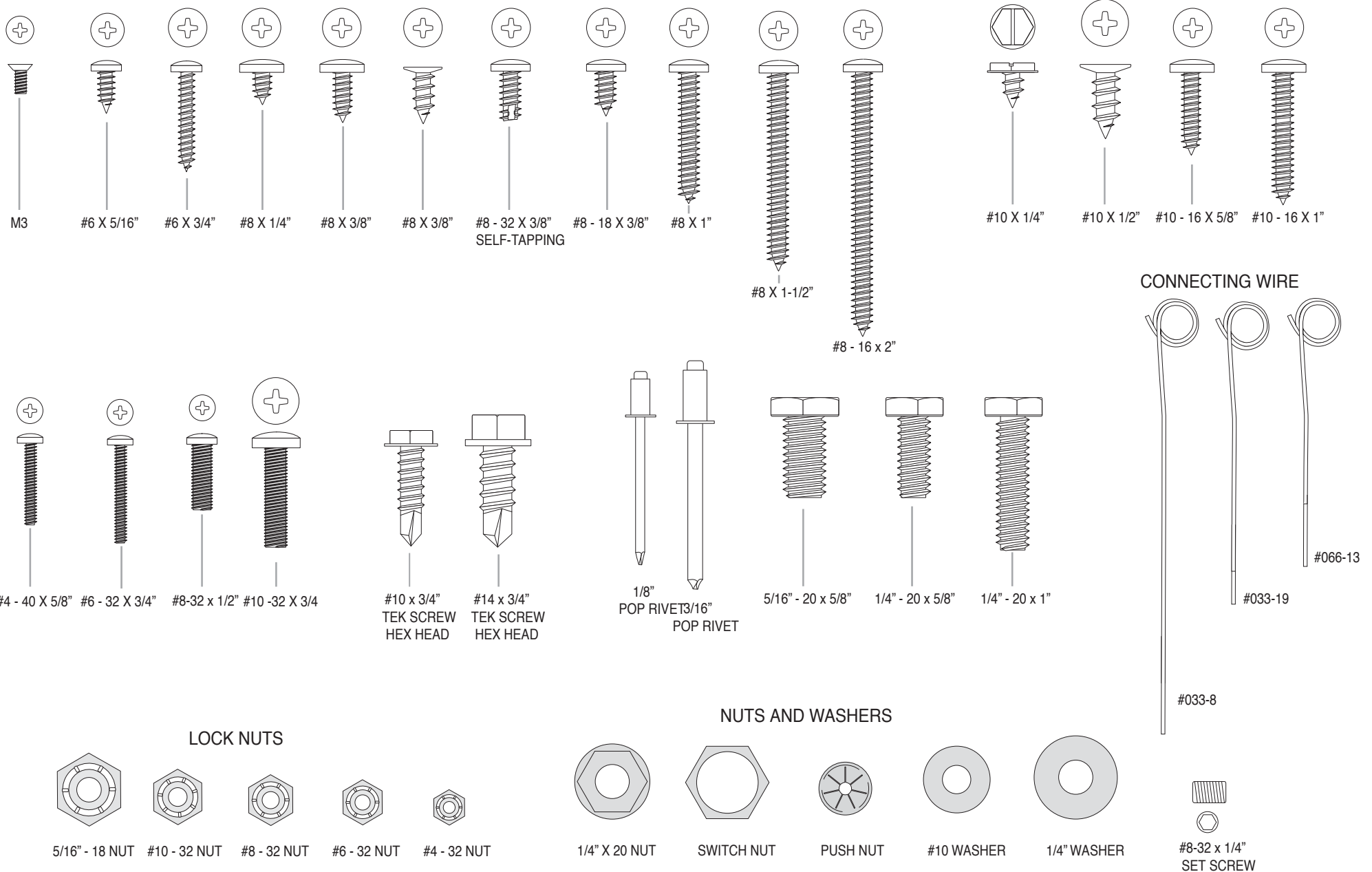
Get the technical support you want the moment you need it, with no wait times. Simply **SCAN** the **QR code** and be directly taken to our support section to troubleshoot all things A/C.



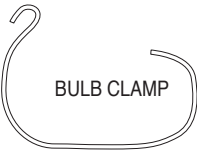
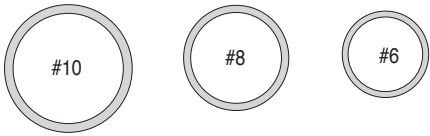


Classic Auto Air Hardware Reference Guide

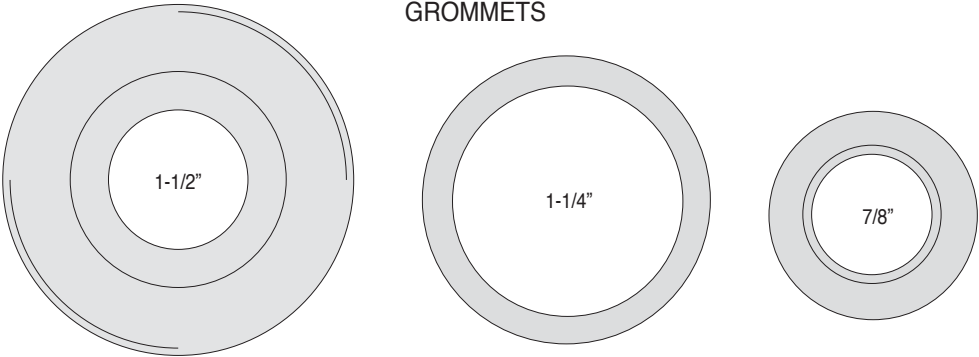
This is our basic line-up of hardware. No single kit will not contain all of these, but you can use this guide to match-up hardware for shape and size (all of these are actual size.)



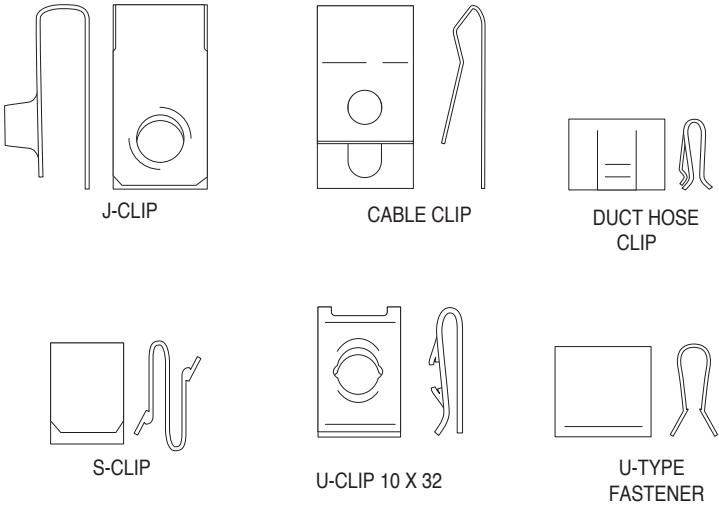
ORINGS



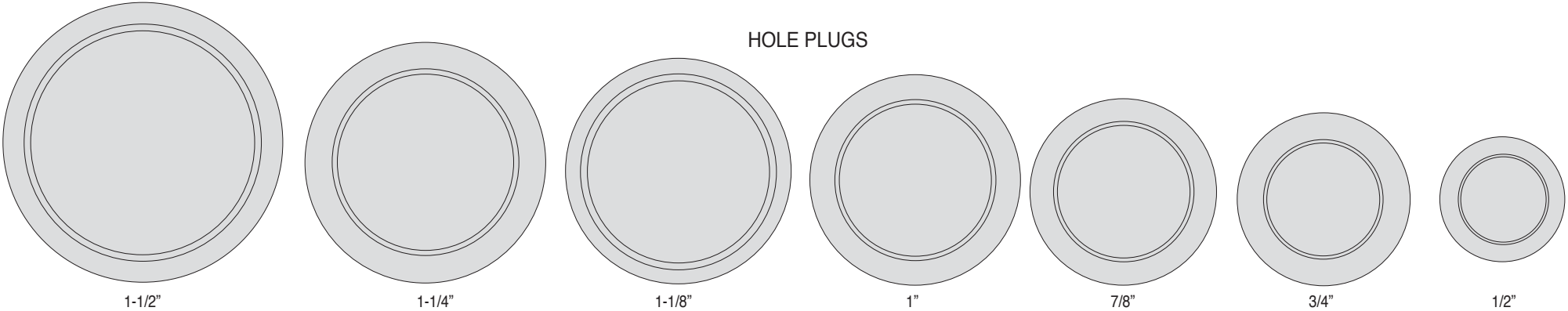
GROMMETS



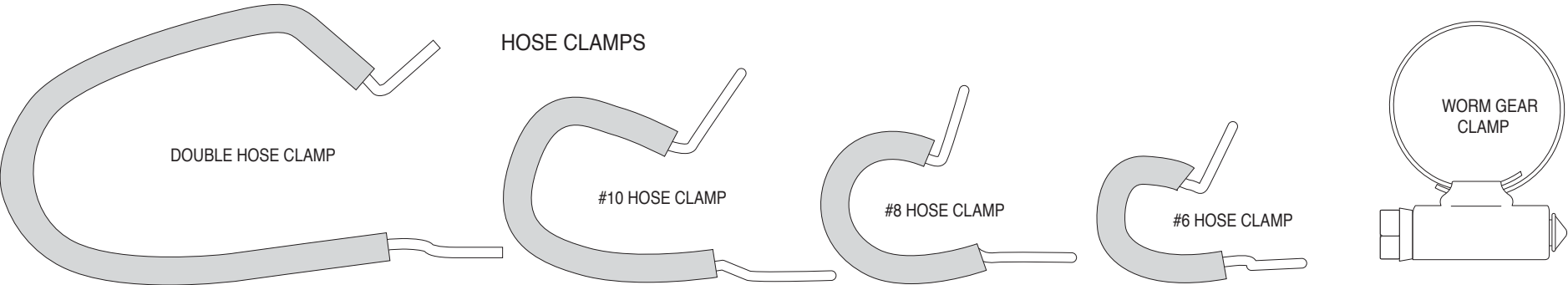
CLIPS



HOLE PLUGS



HOSE CLAMPS



ALIGN WITH EDGE OF DEFROST DUCT

Template Right Side Defrost
1968 Chevelle

CUT EDGE



IF YOU PRINTED THIS MANUAL
PLEASE READ THIS...
Just as a cautionary step, please
measure this box and make sure it
is 1" x 1". Some copiers/printers
may not print at 100% of actual size.



IF YOU PRINTED THIS MANUAL
PLEASE READ THIS...
Just as a cautionary step, please
measure this box and make sure it
is 1" x 1". Some copiers/printers
may not print at 100% of actual size.

GM PART NUMBER
3906067

Template LEFT Side Defrost
1968 Chevelle

CUT LINE

ALIGN WITH
HOLE



