



Installation Manual

1969 GTO
1969 Lemans

DOCUMENT #1-3093

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Congratulations...

You have just purchased the highest quality, best performing A/C system ever designed for your 1969 Lemans/GTO.

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 During the installation you might find the opportunity to repair or upgrade non-working or out of date components.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

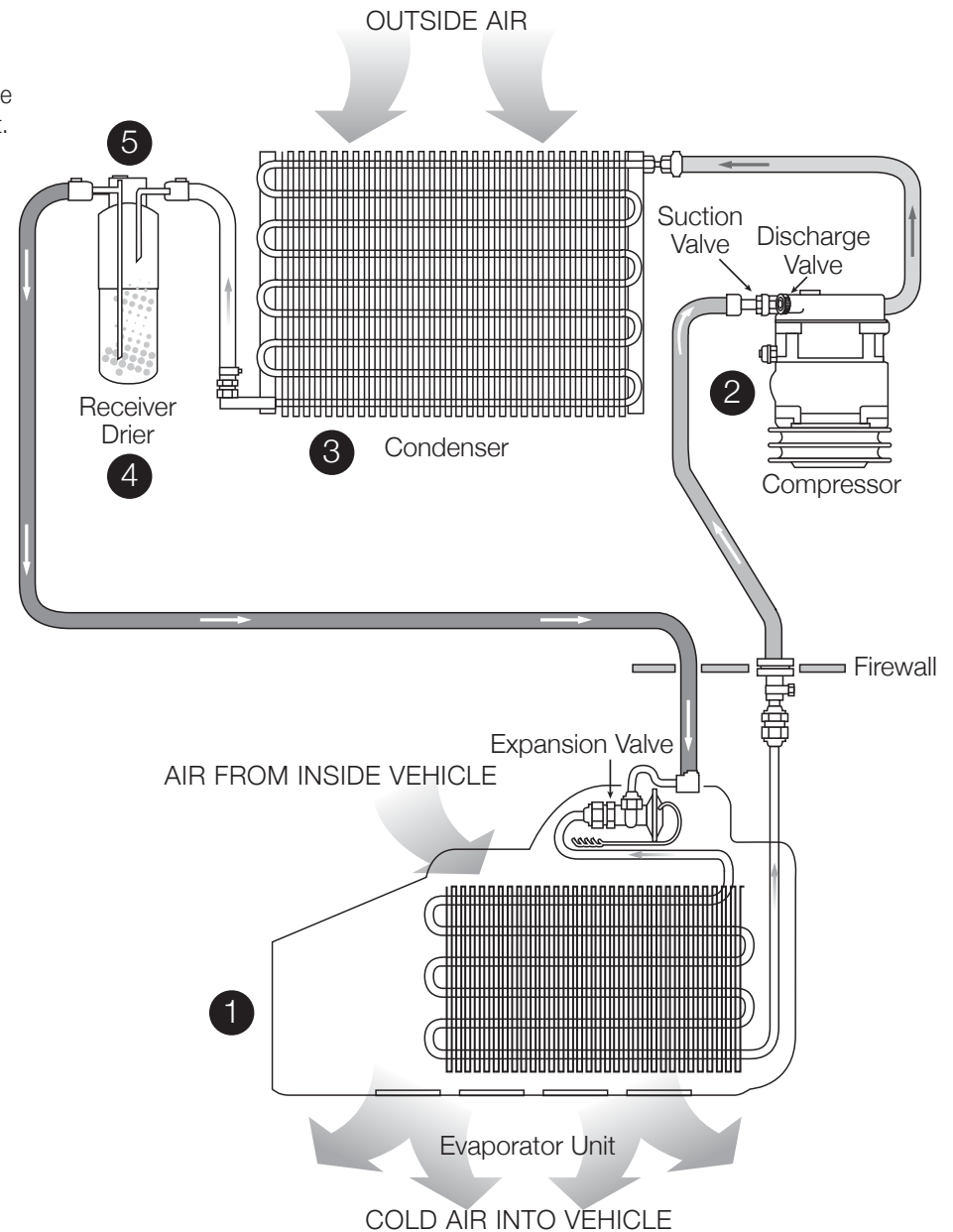
- ☐ Fittings: Use one or two drops of mineral oil (supplied with your kit) on ALL rubber o-rings, threads and rear of bump for o-ring where female nut rides. Do not use thread tape or sealants.
- ☐ Measure twice (or more), cut once
- ☐ **Should you have any technical questions, or feel you have defective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

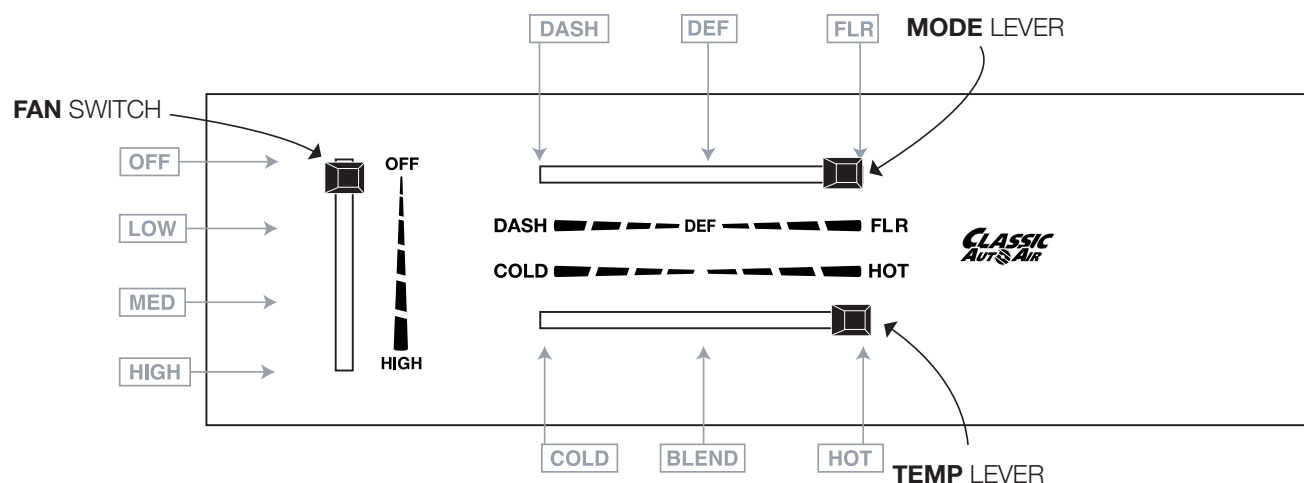
- 1 Evaporator with Blower Fan** In order to remove the heat from the air in the vehicle, the A/C evaporator allows the refrigerant to absorb the heat from the air passing over it. The blower fan moves cool air out into the car interior.
- 2 Compressor** The compressor pumps and circulates the refrigerant 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.



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

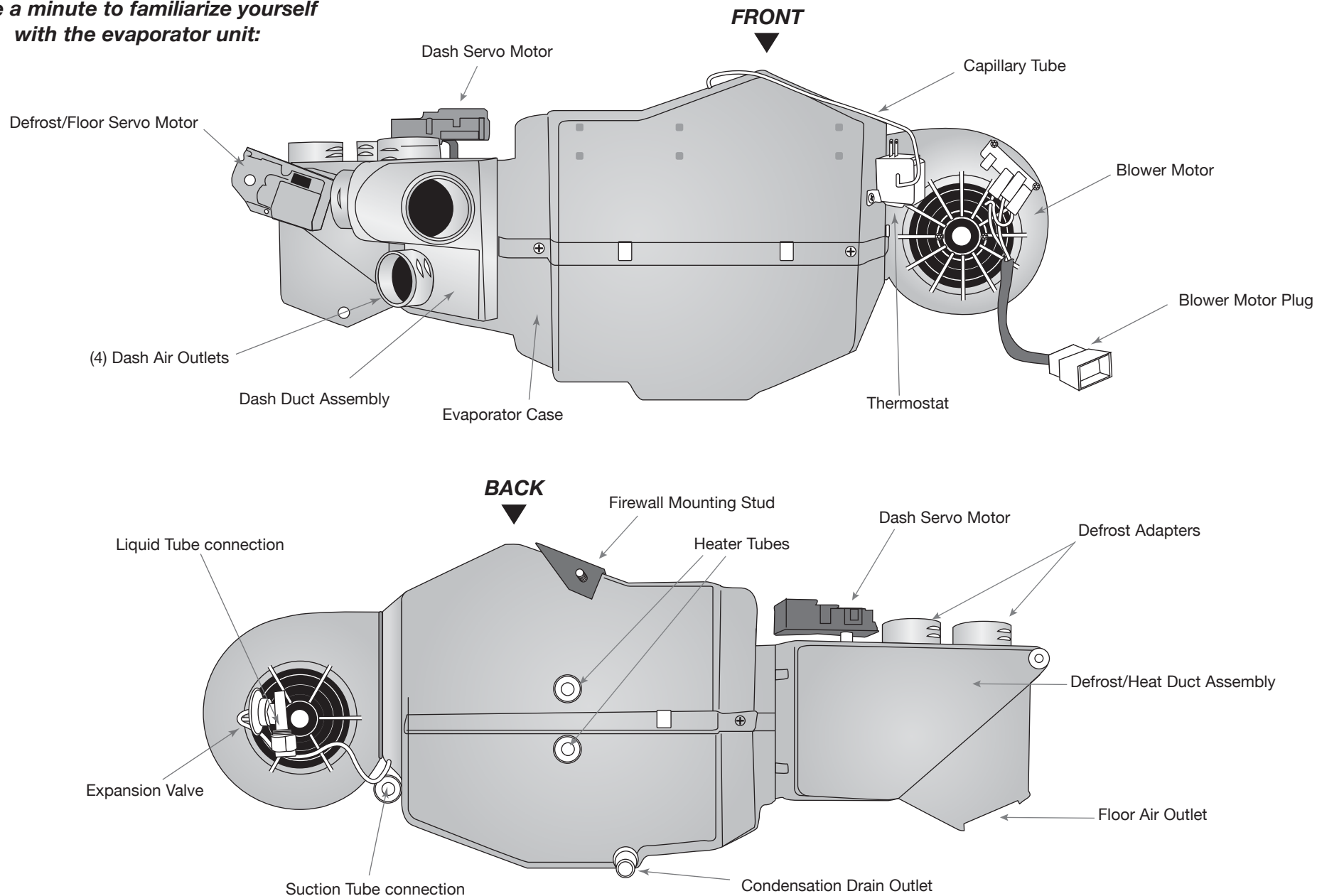
HIGH

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 Defrost 20% 80%	Floor Defrost 40% 60%	Floor Defrost 60% 40%	Floor Defrost 80% 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

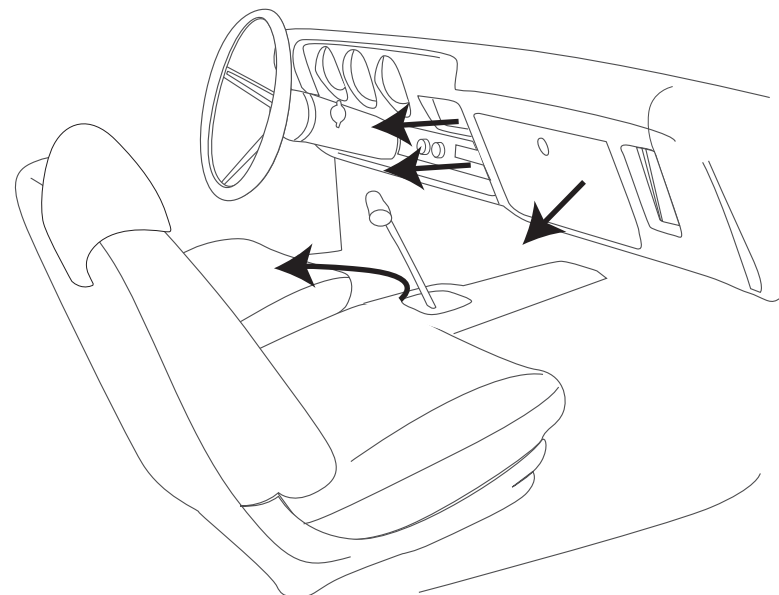
**Take a minute to familiarize yourself
with the evaporator unit:**





Remove glovebox and door, console (optional) radio and bezel, and set them aside for reinstallation later (see figure 1).

The first steps of the removal of the OEM 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 (see figure 3). The third cable is located on top of heater next to defrost duct (see Figure 4).



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.

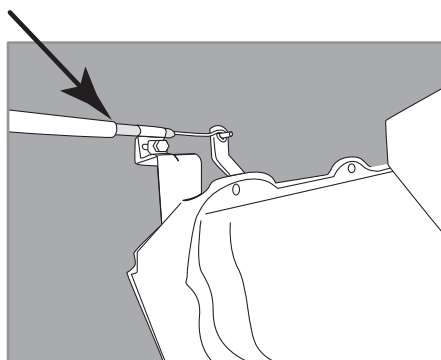


FIGURE 2

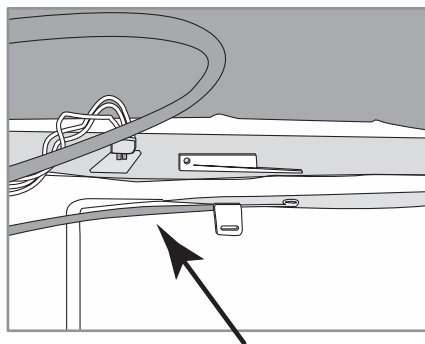


FIGURE 3

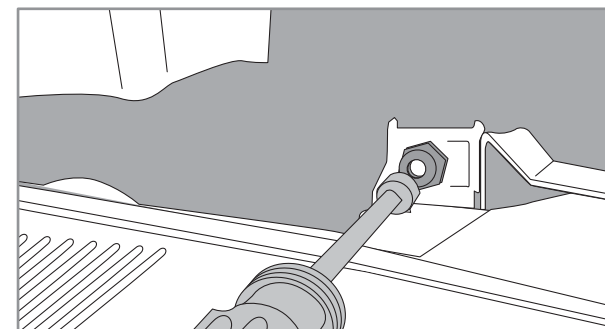


FIGURE 4

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.

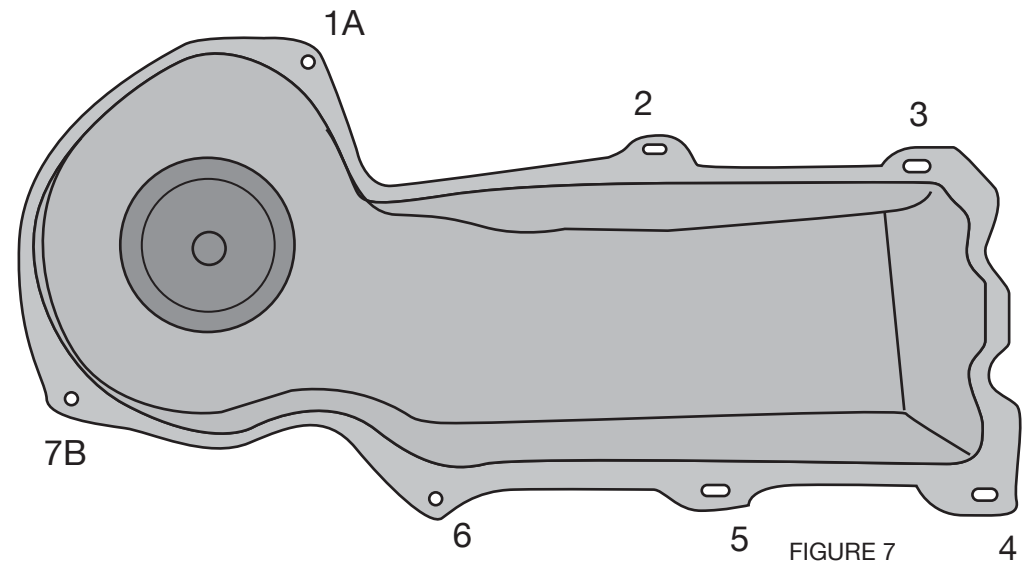


FIGURE 7

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.

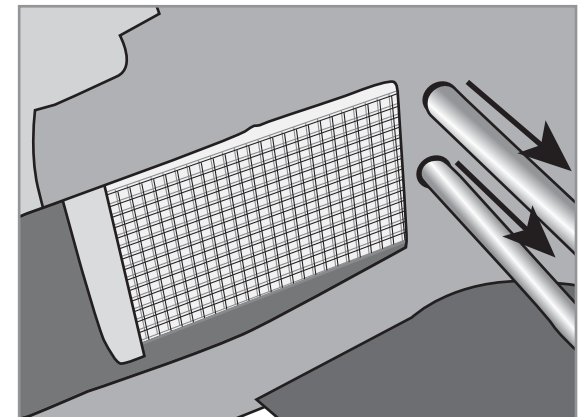
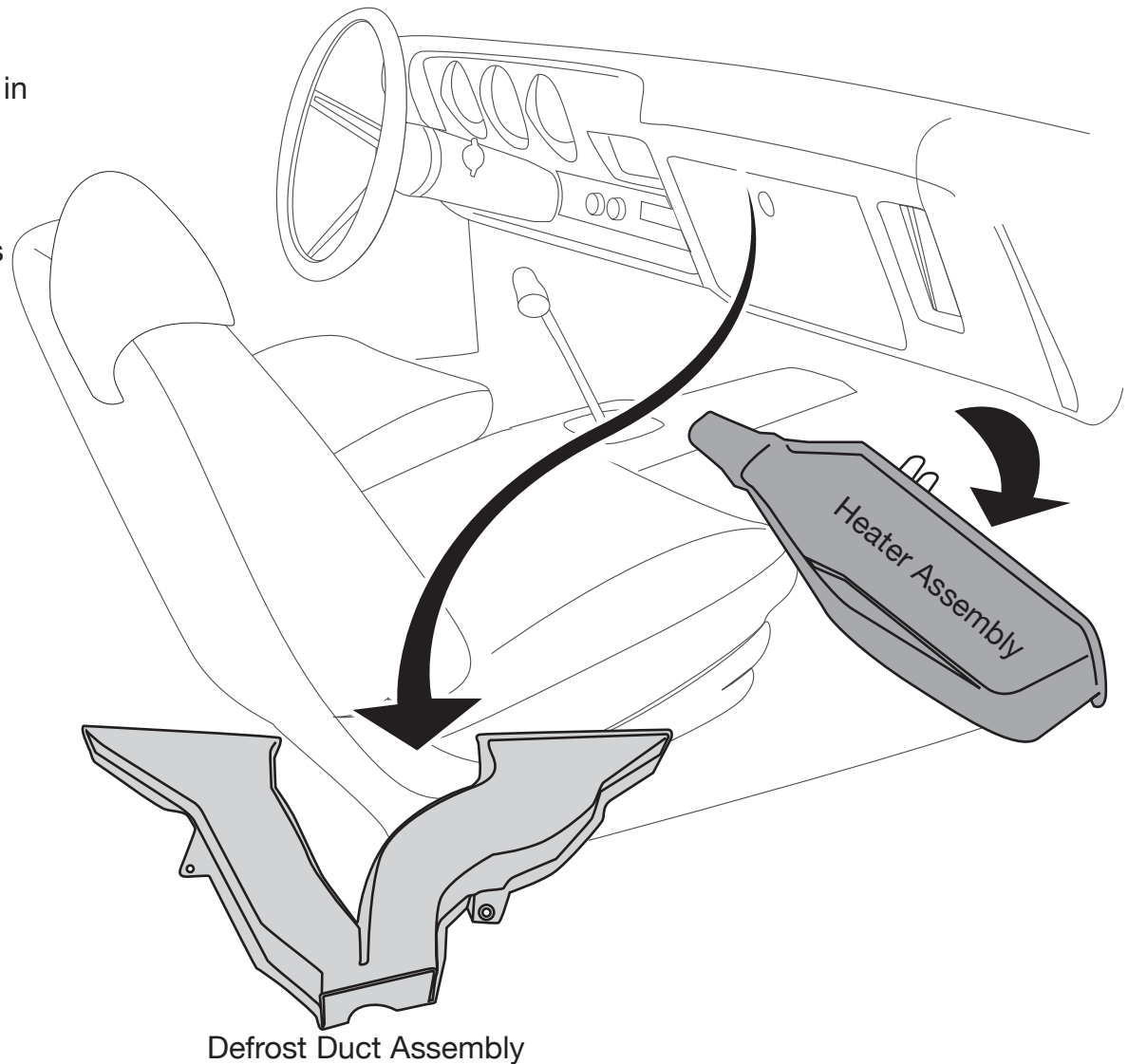


FIGURE 8

You should now be able to remove the heater assembly located behind the dash area. Rotate upward being careful not to drain any coolant left in the heater coil.

The OEM defrost duct is secured with two screws remove both screws from defrost duct and set aside.



Remove The Fresh Air inlet ducting.

Your vehicle was equipped with GM Astro Ventilation, and we're going to use the original vents on the drivers and passenger sides. First, however, we need to remove the plastic duct work that connects the fresh air cowl to the vents (see figure 7).

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)

Fresh Air Block-Off
PN#2-1050-5

Fresh Air Block-Off
PN#2-1050-5

FIGURE 7

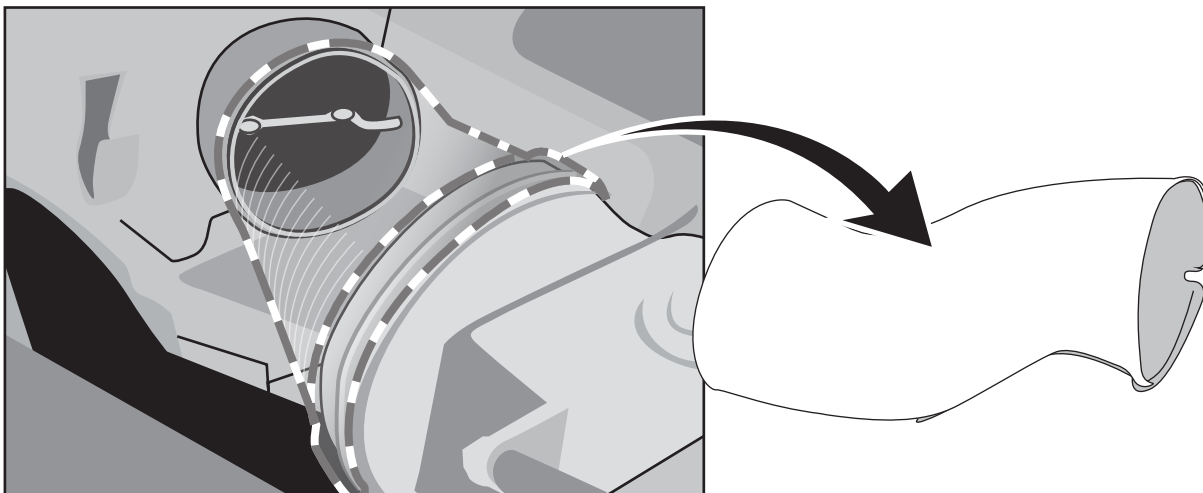
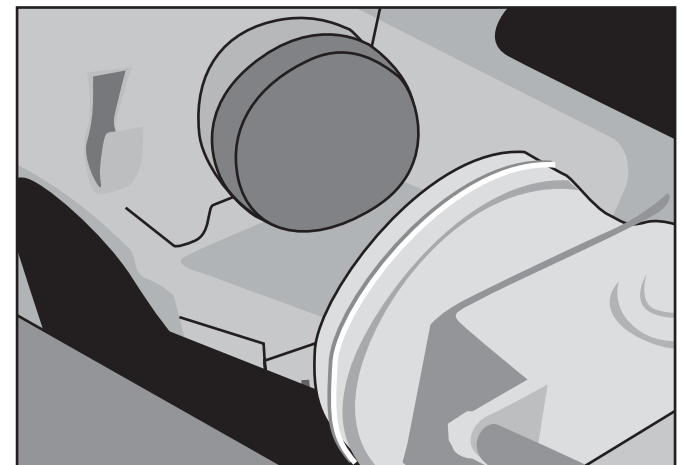
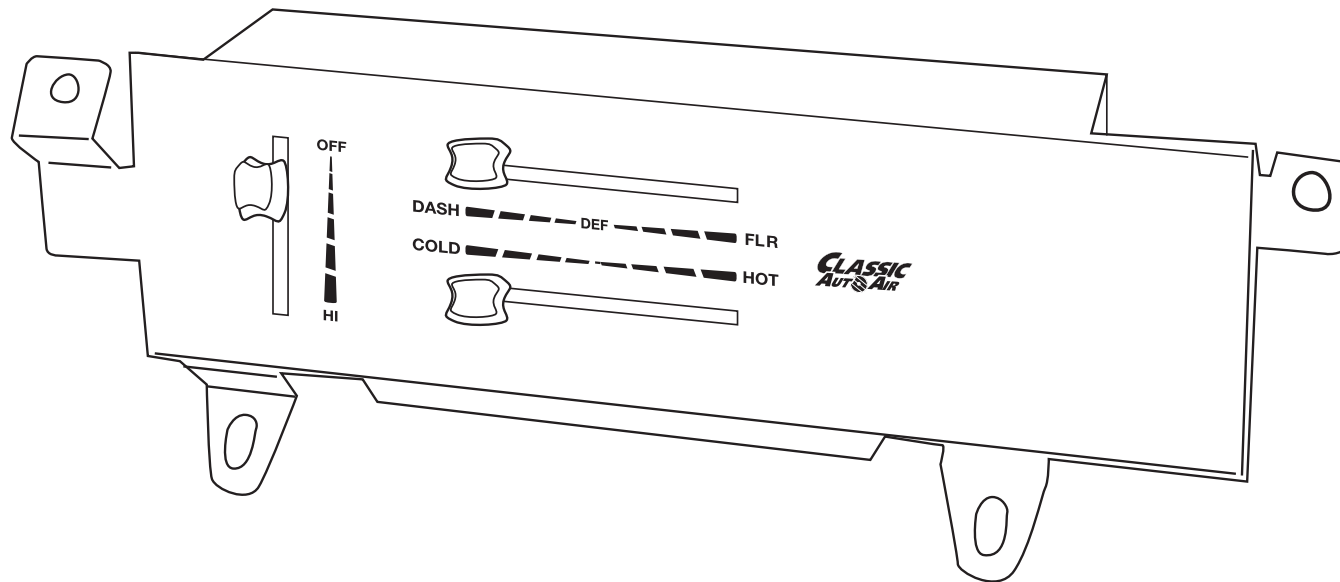


FIGURE 8

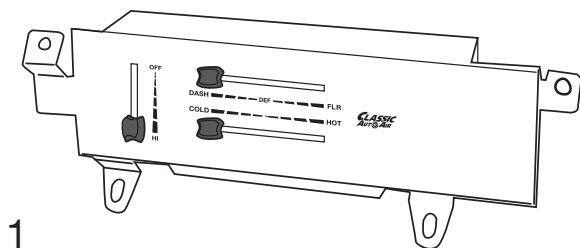


THESE ARE THE PARTS YOU WILL FIND IN THE CONTROL BOX

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



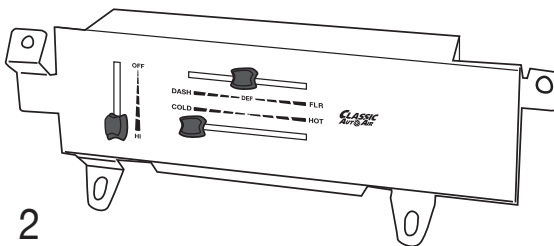
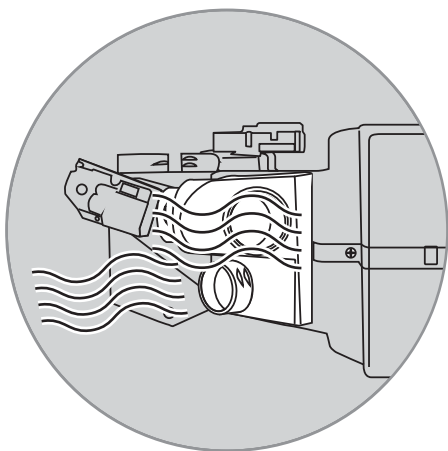
D.E.R.
Part #16-4093



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



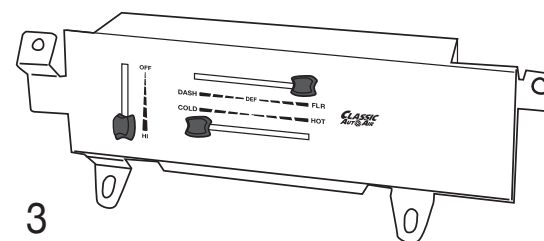
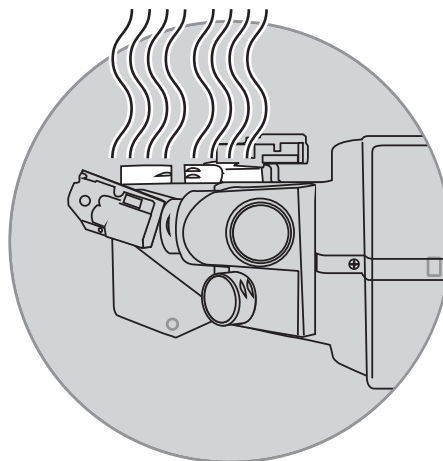
AIR OUT OF DASH VENTS



Move MODE knob to DEF



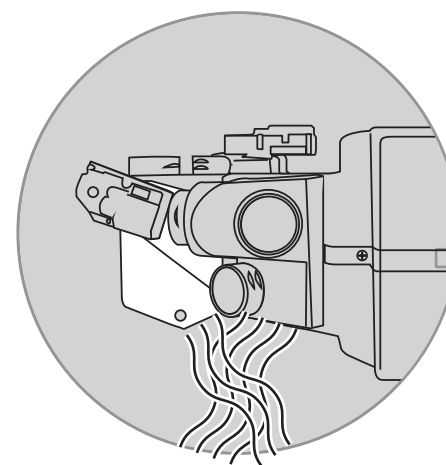
AIR OUT OF DEFROST VENTS

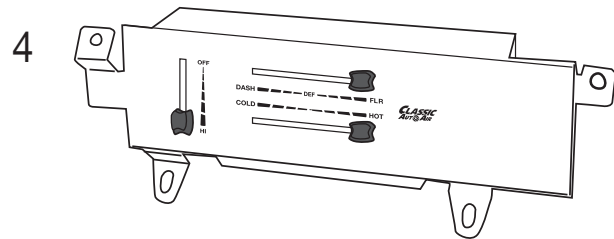


Move MODE knob to FLOOR

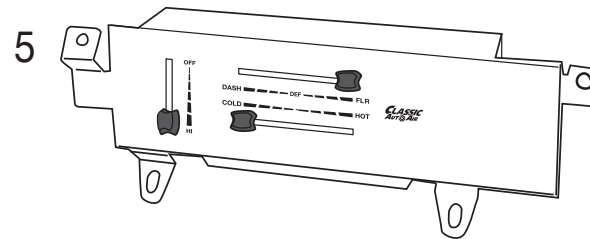


AIR OUT OF FLOOR VENTS





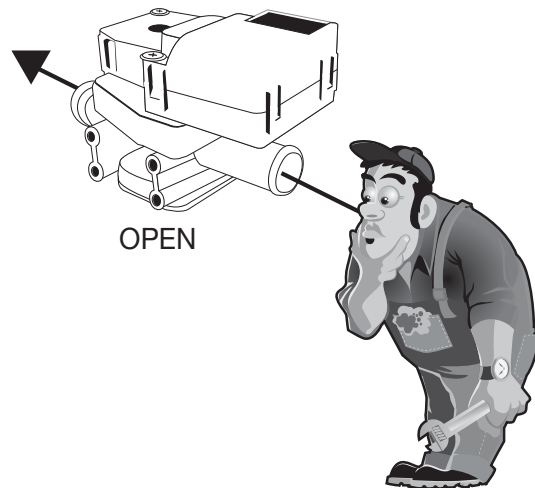
Move TEMP knob to HOT



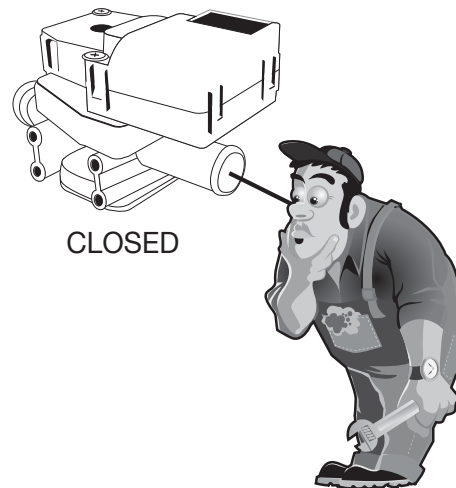
Move TEMP knob to COLD

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.



You will be able to see through water valve passage

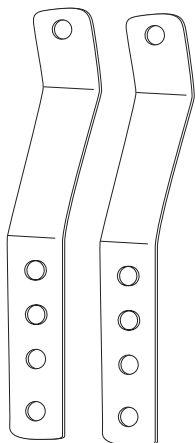


You will NOT be able to see through water valve passage

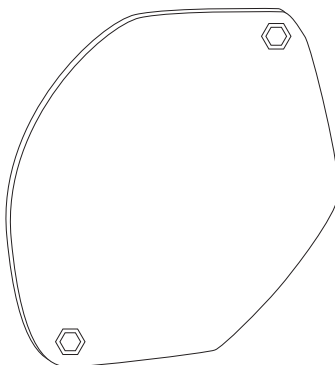
NOTE: IF DURING ANY OF THESE STEPS YOU DO NOT GET THE CORRECT OUTCOME, PLEASE CALL TECH SUPPORT BEFORE INSTALLING INTO VEHICLE.
1(866)435-7801

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.

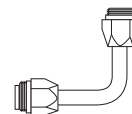


*Two Evaporator Support Brackets
PN#0023-7*



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

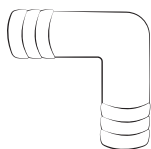
*Liquid Tube
PN#0034-9*



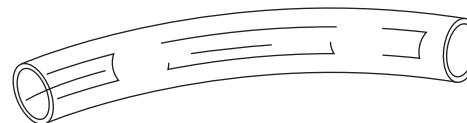
*Suction Tube
PN#0034-10*



#6 and #10 O-rings



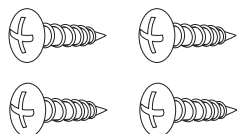
90 Degree Elbow



*Clear Plastic Drain Tube
PN#31004845*



One Bulb Clamp



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



Refrigerant Tape



Flange Nut

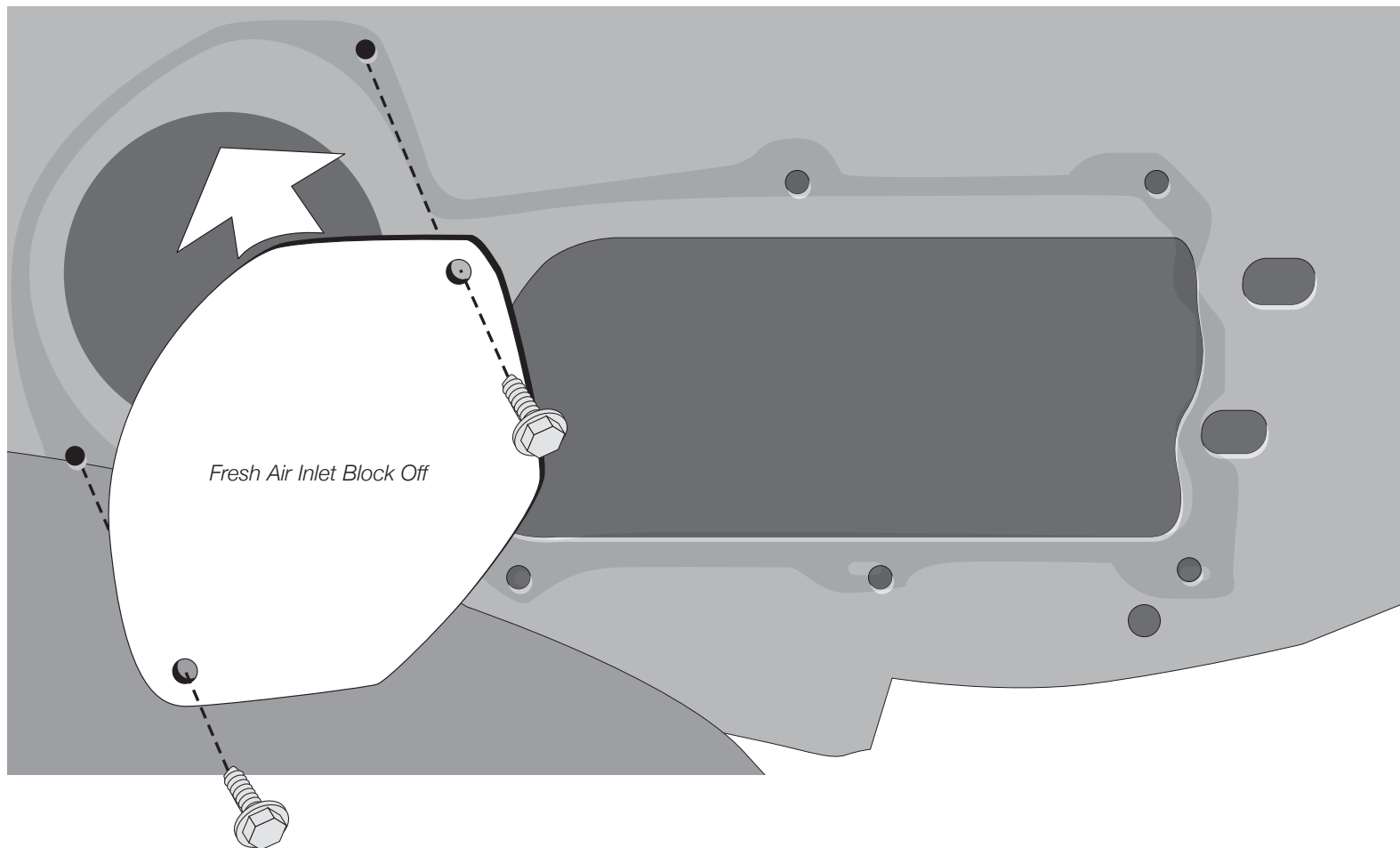


Two #10 - 16 x 3/4" Tek Screws

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.

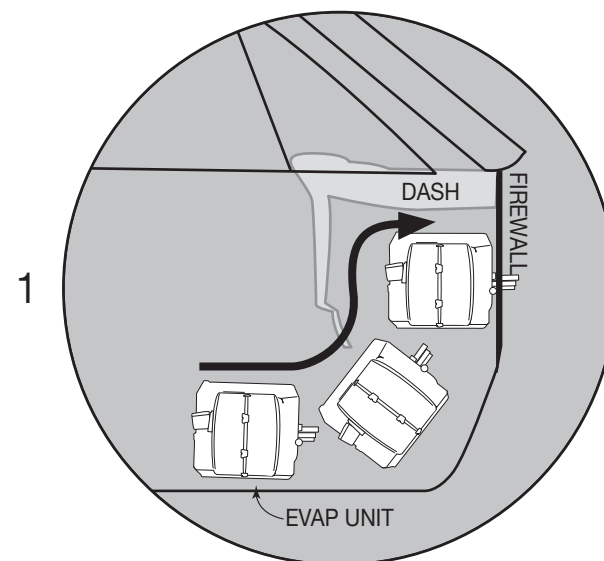
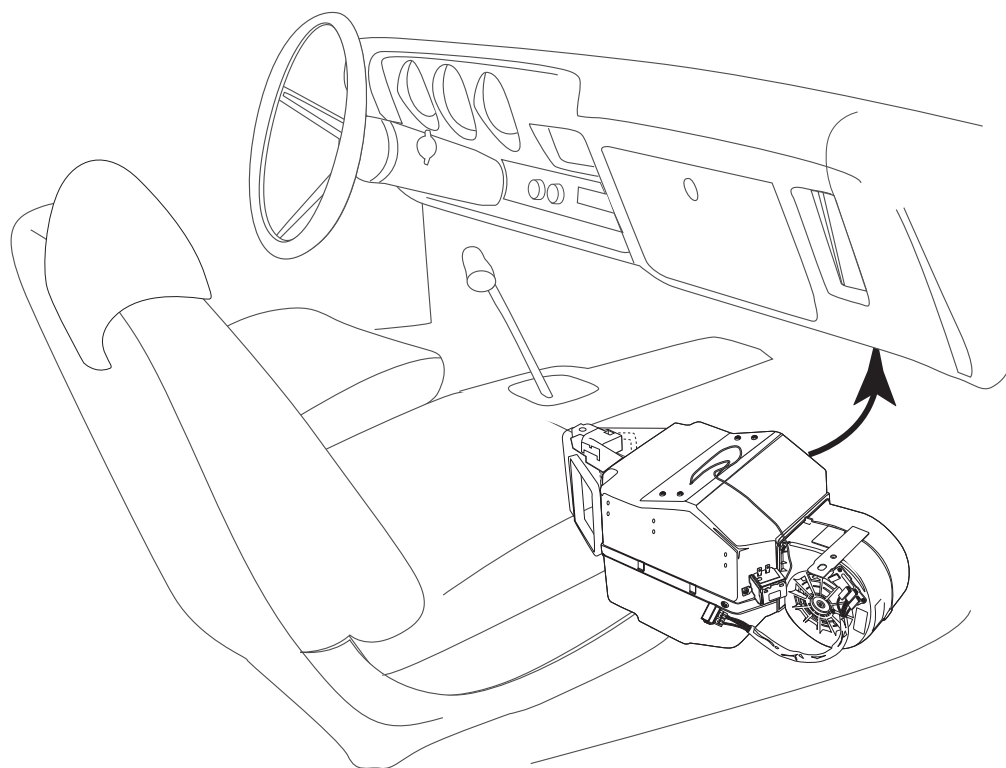


FIGURE 17

Insert upper rear firewall mounting stud through the OEM hole as shown. Located in Bag Kit B attach using one ¼" – 20 flange nut provided.

NOTE: leave nut loose at this time!

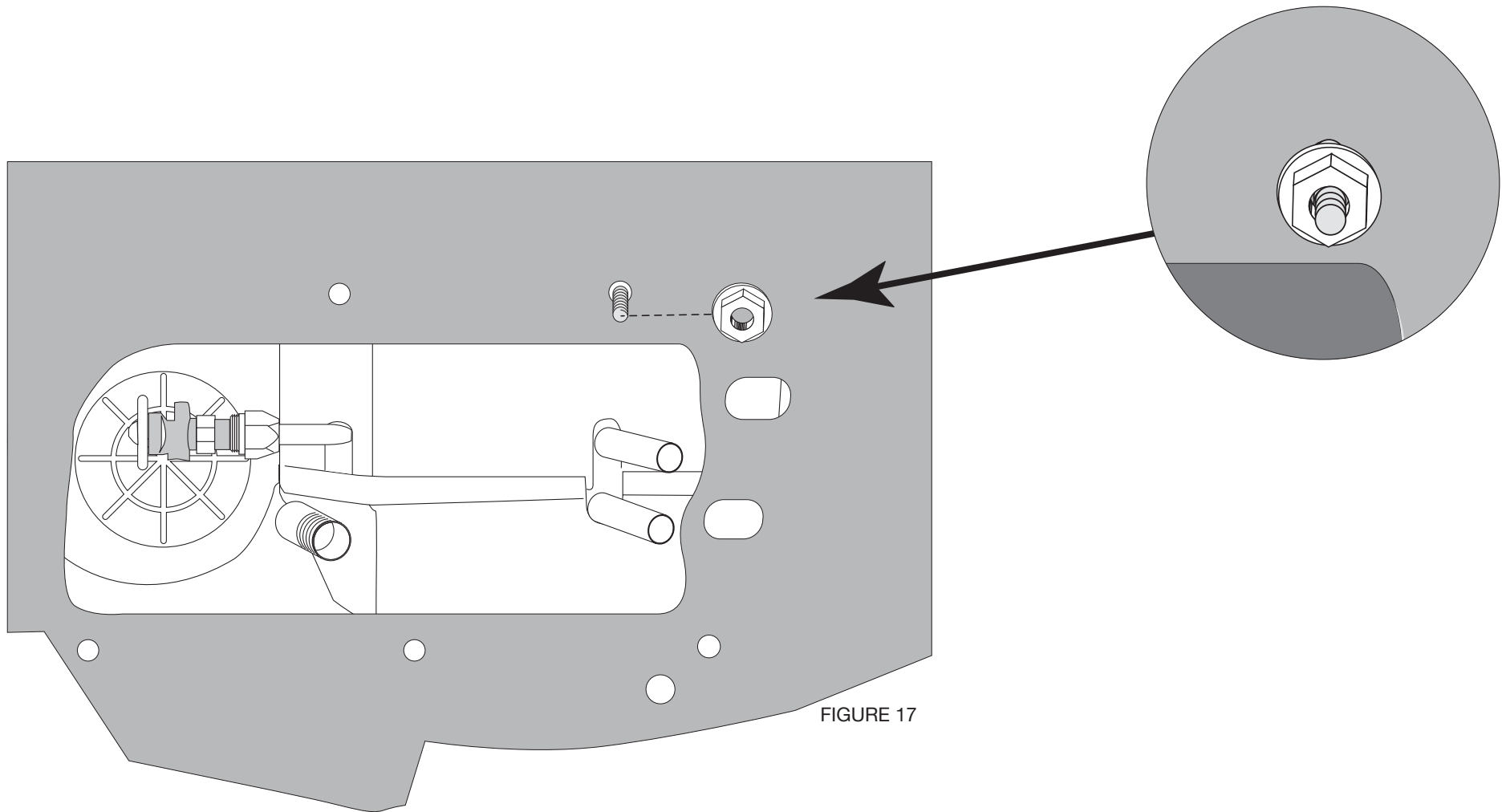
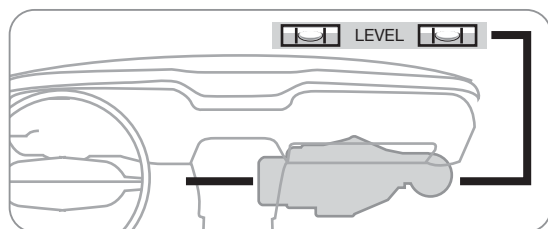
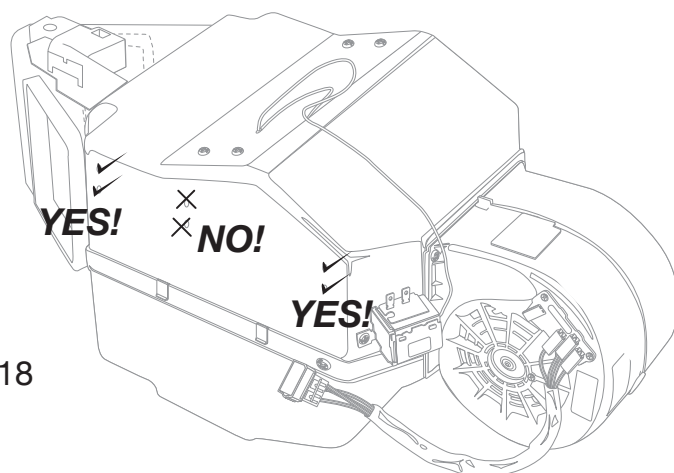


FIGURE 17

Locate in bag kit B the right and left evaporator support brackets (PN#0023-7). Using a non powered screwdriver attach the brackets through the holes provided on the evaporator (see figure 18 for EVAP hole location) using (4) #10 x 5/8" pan head screws provided in bag kit B (see Figure 18). Holding unit level with lower edge of dash attach brackets to the dash cowl panel using (2) #10 x 16 -3/4" Tek screws provided in bag kit B (see Figure 19).

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.

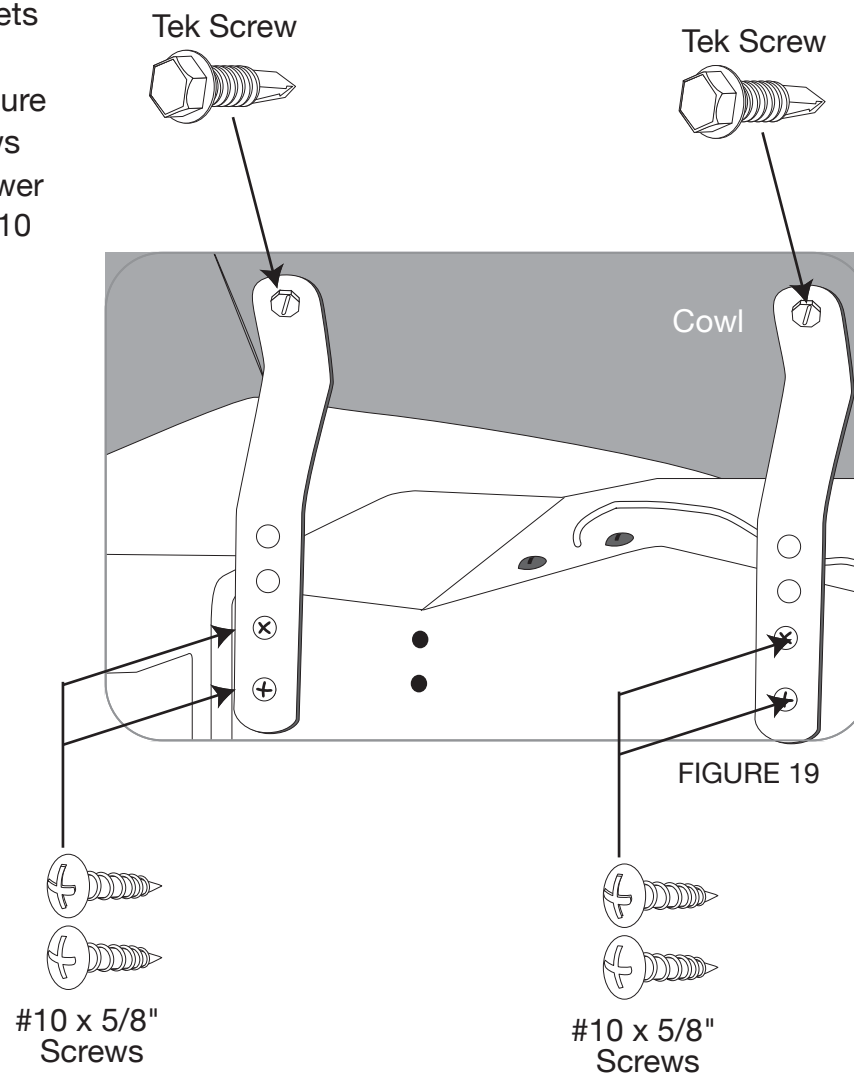


FIGURE 19

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. Be sure that all of the exposed metal is covered.

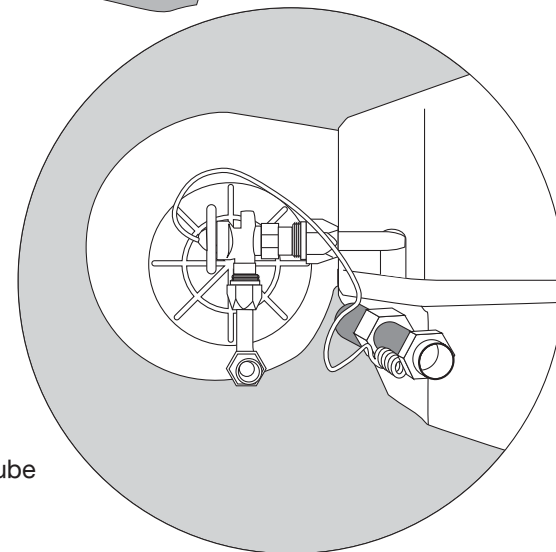
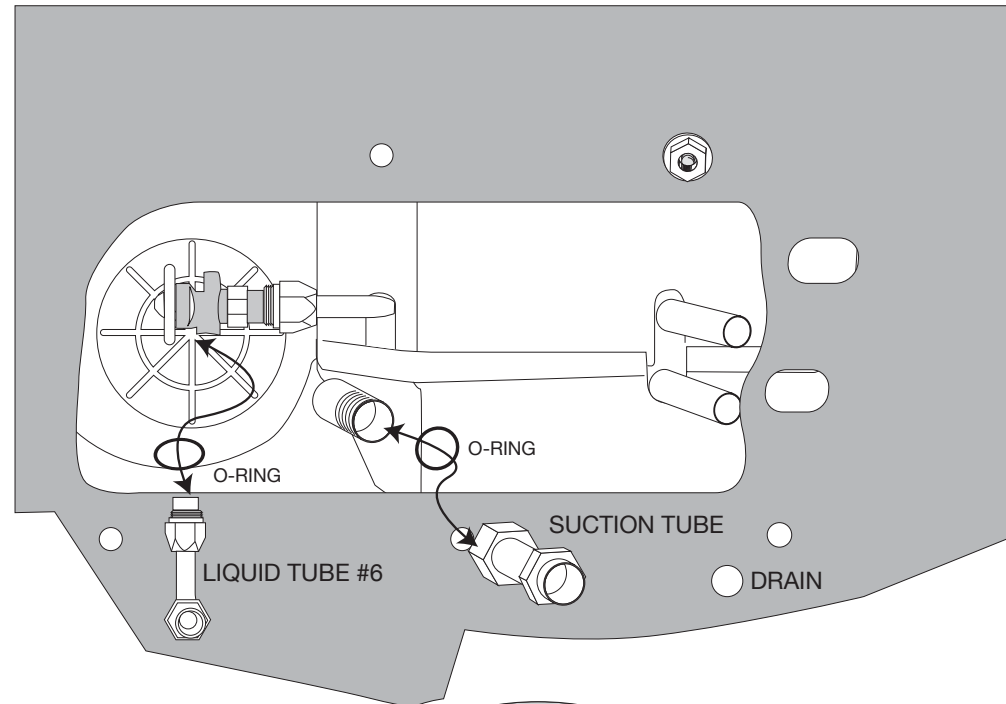
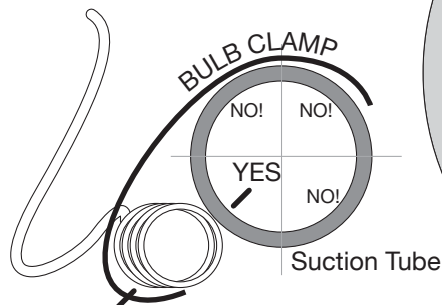
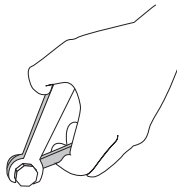


FIGURE 20



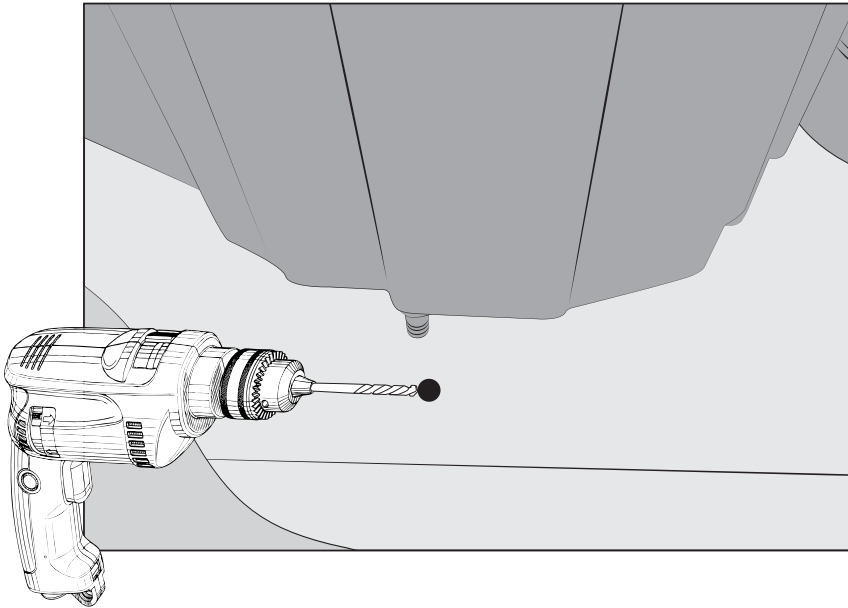
Reminder...
Use two
wrenches to
tighten o-ring
fittings



Installing the Drain tube

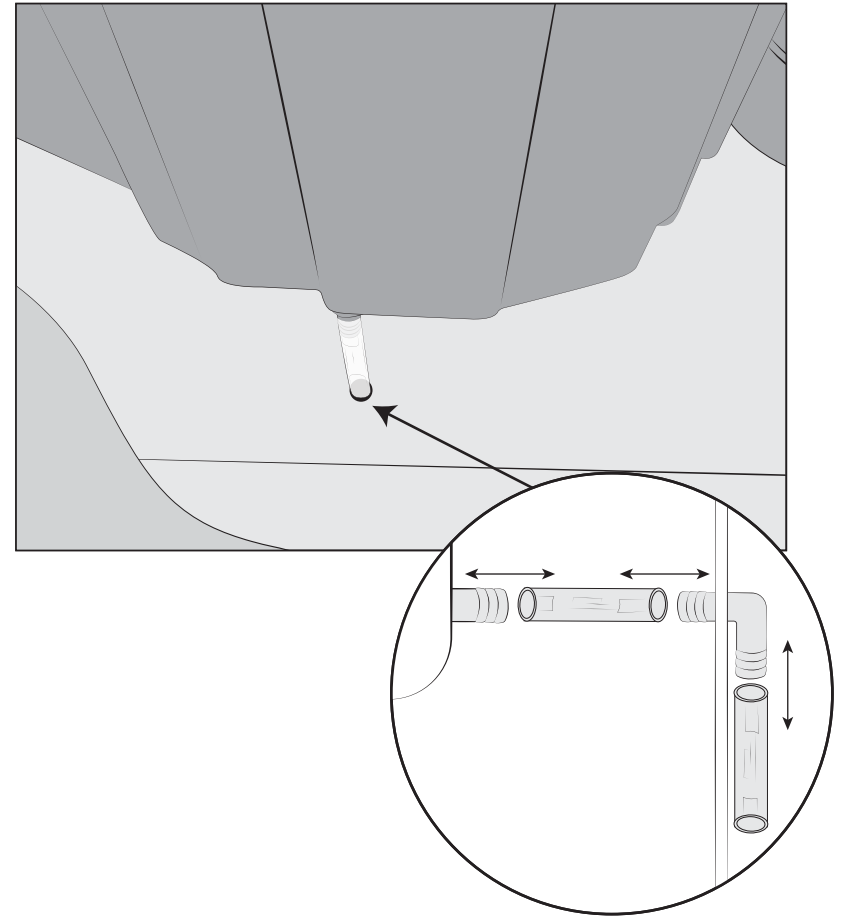


THIS IS FROM INSIDE THE VEHICLE!



Mount Evaporator level to firewall.

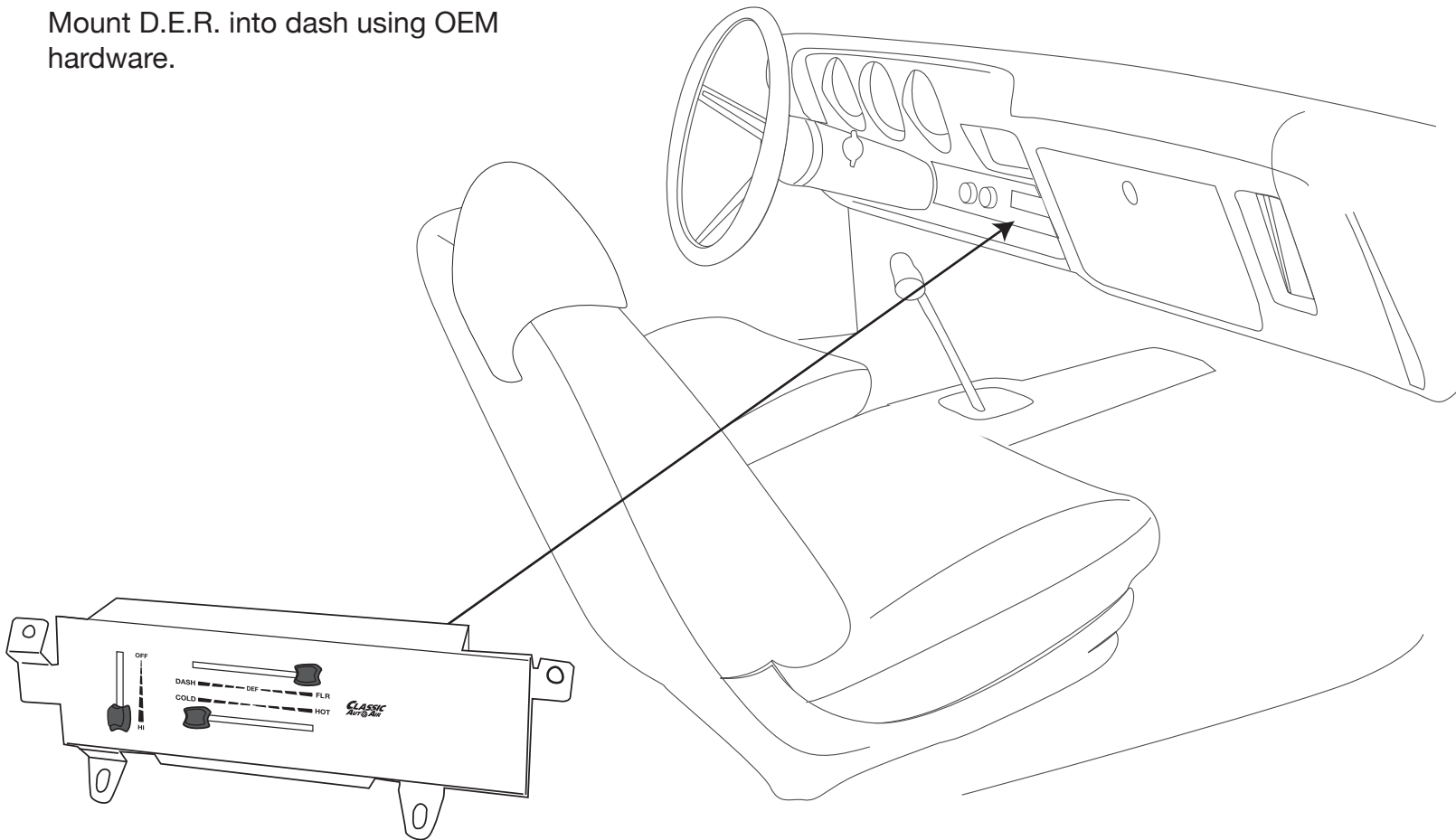
Locate Drain nipple on Evaporator and drill a 3/4" hole below the nipple on the firewall. This will allow condensation to drain properly.



Attach drain tube as shown.

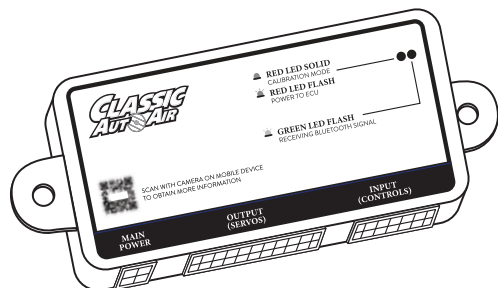
All condensation will now drain out into the engine bay.

Mount D.E.R. into dash using OEM hardware.

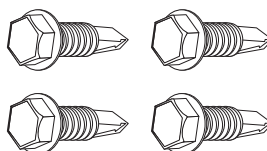


THESE ARE THE PARTS YOU WILL FIND IN BAG KIT C

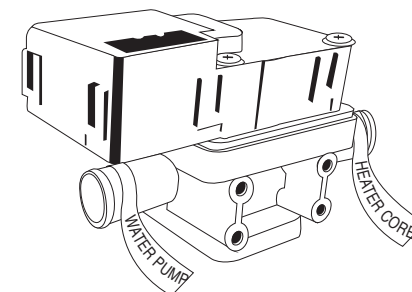
You will use all of these parts and hardware during the next series of installation steps.



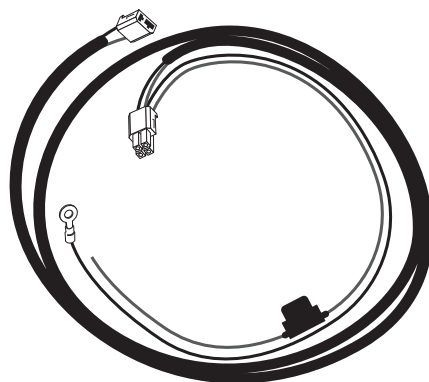
ECU
16-2500



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



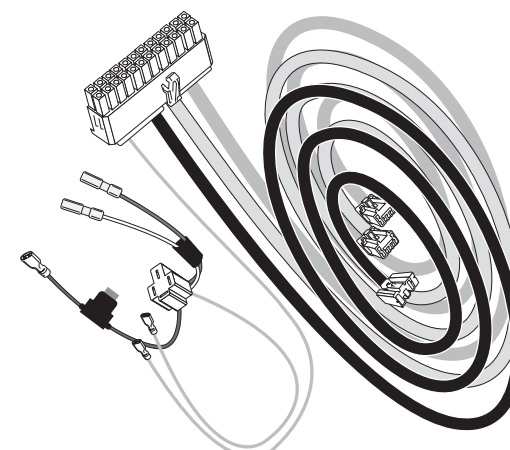
Electronic Water Control Valve
PN# 16-1023



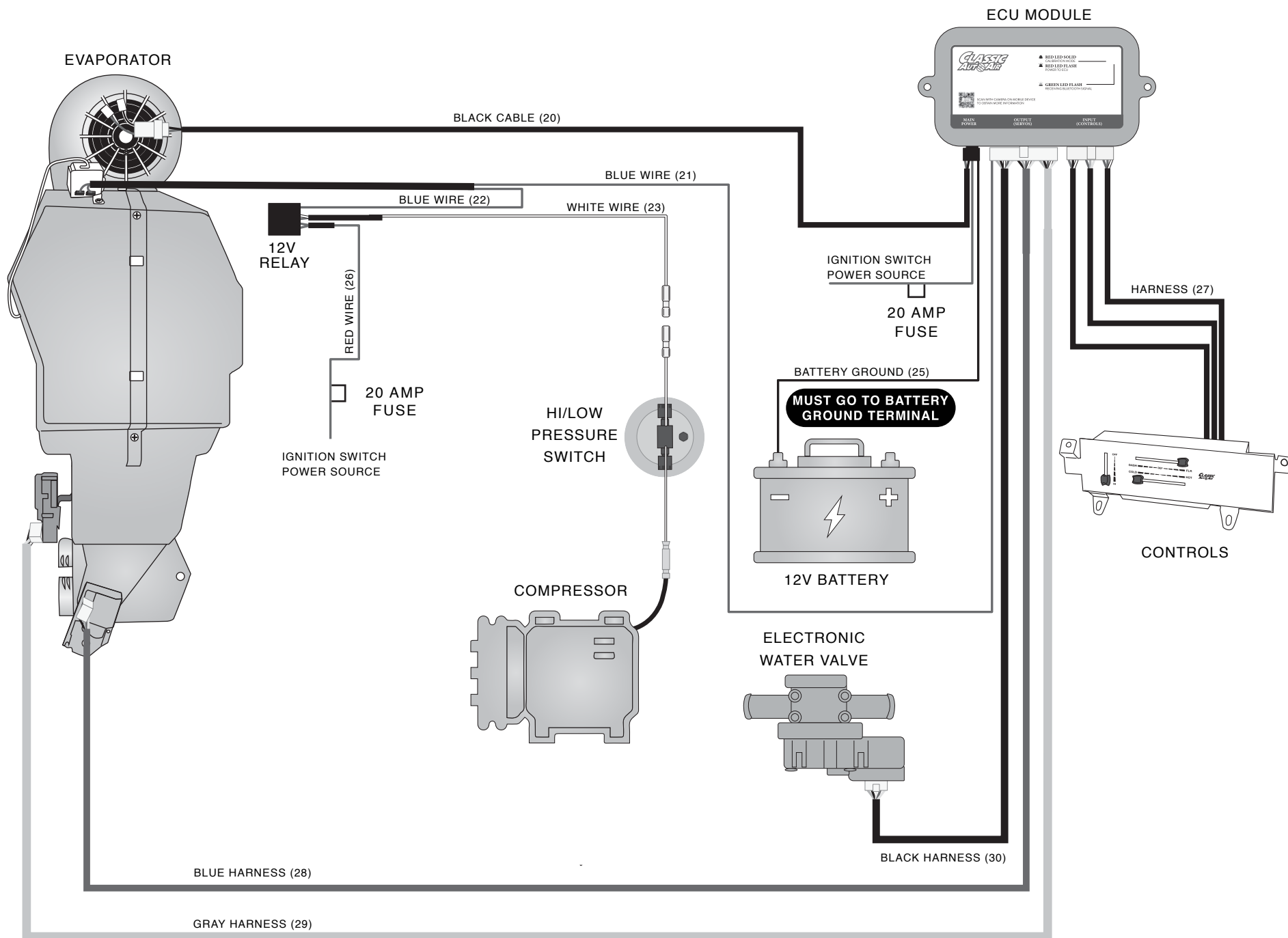
HARNESS POWER SUPPLY
0125-5



Relay
30-13373

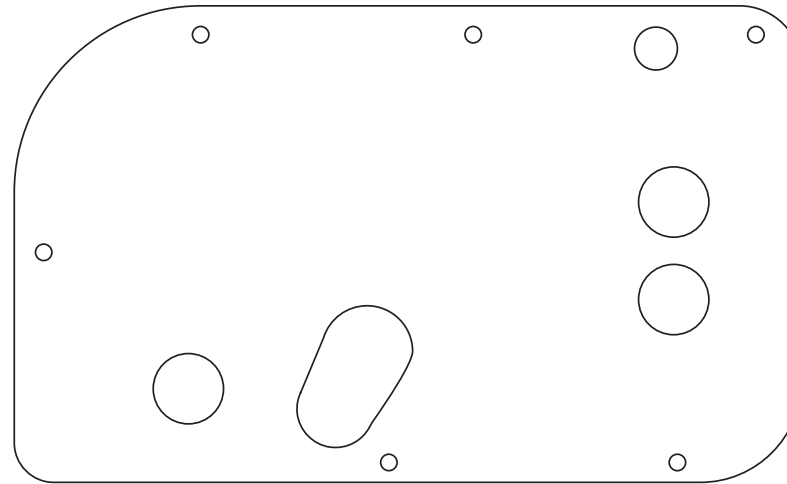


HARNESS
0125-6A

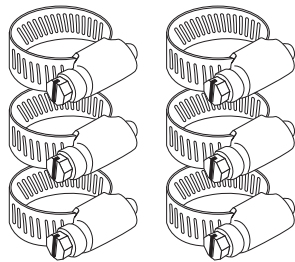


THESE ARE THE PARTS YOU WILL FIND IN BAG KIT D

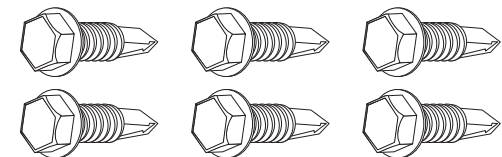
You will use all of these parts and hardware during the next series of installation steps.



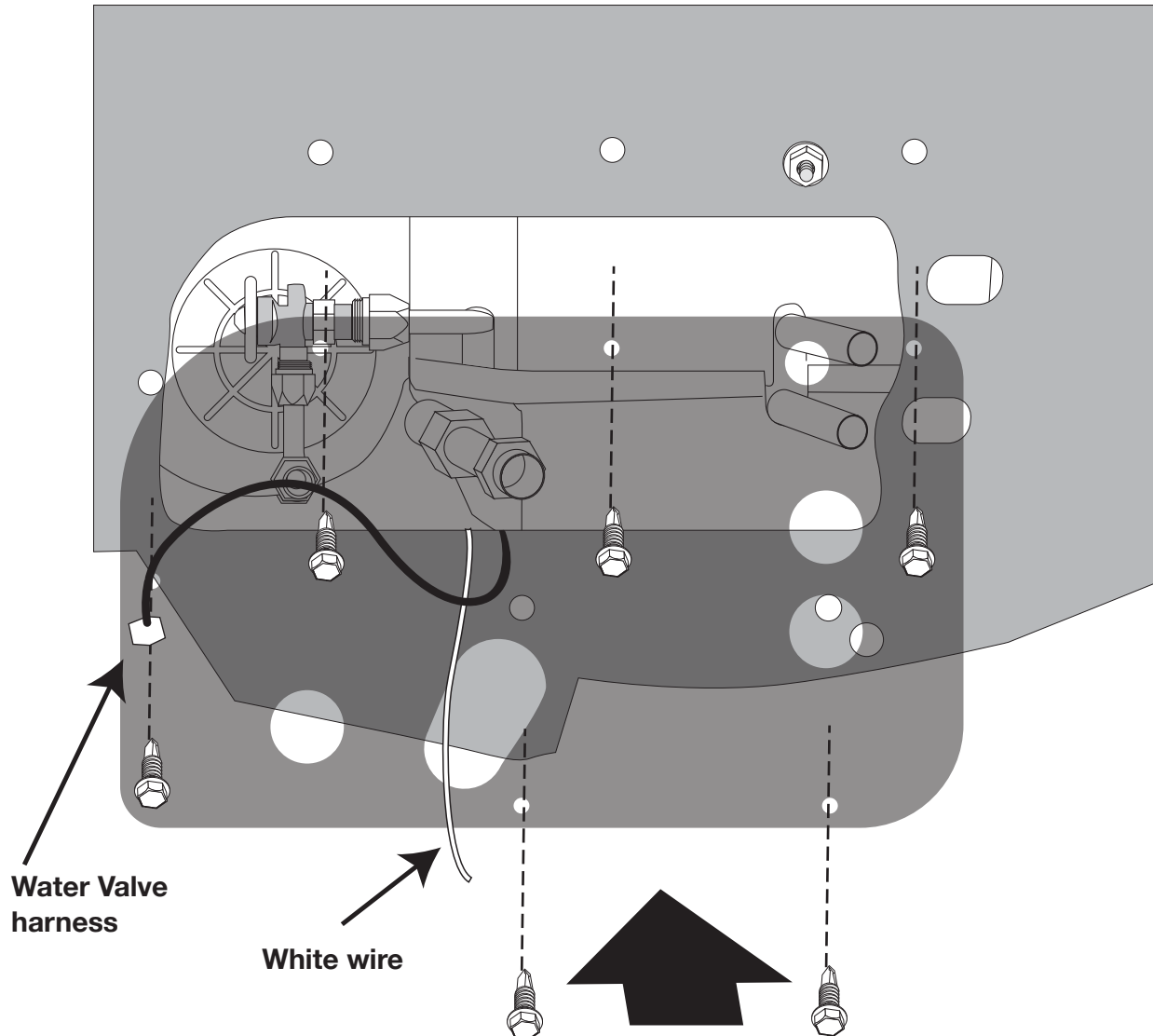
Firewall Block Off
PN#10-1049-1



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).

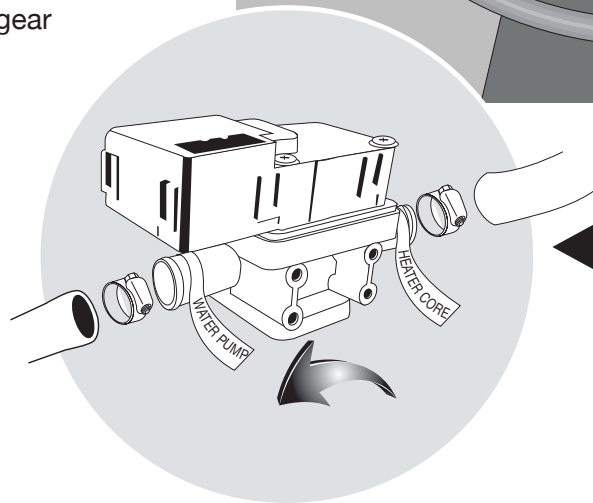
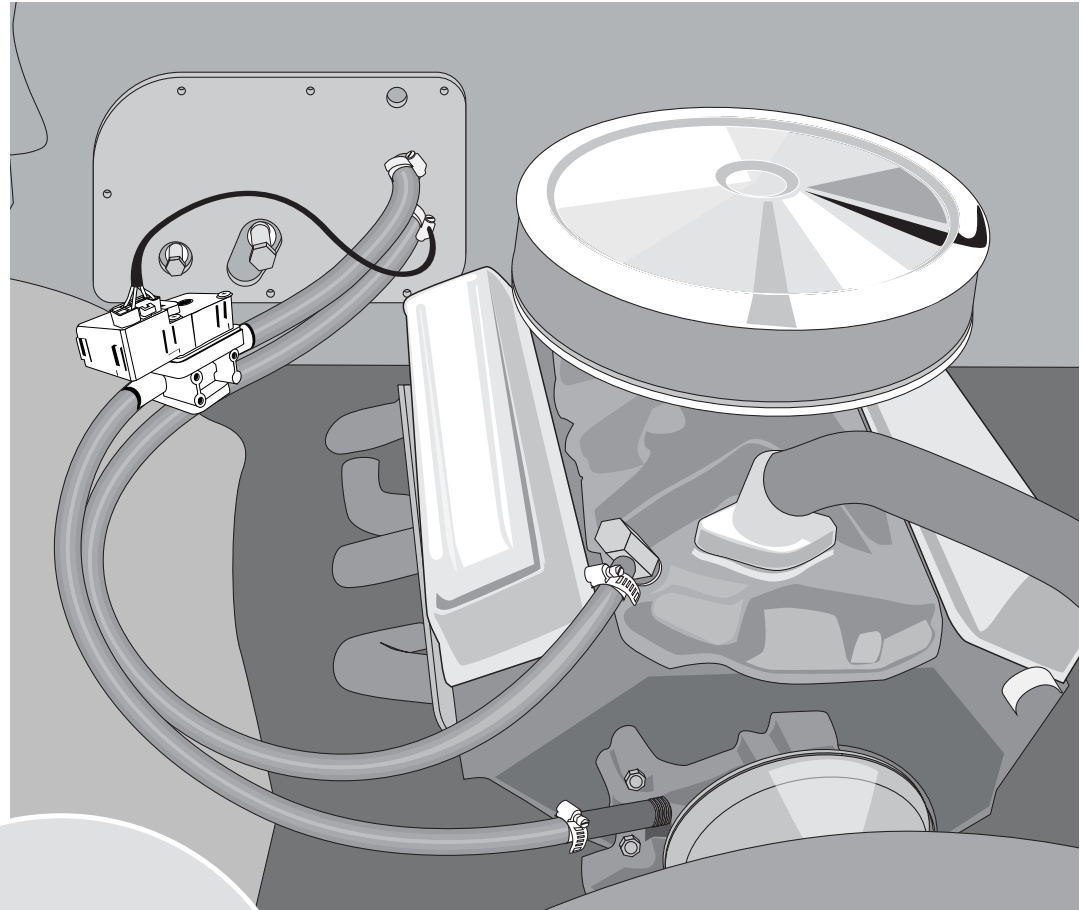
IMPORTANT NOTICE: PROPER INSTALLATION OF WATER VALVE

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.

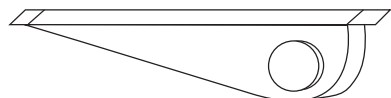


**FOLLOW THESE
TAGS... CHECK IT
TWICE BEFORE
PROCEEDING!**

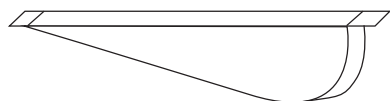
THESE ARE THE PARTS YOU WILL FIND IN BAG KITS E, F, and G

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

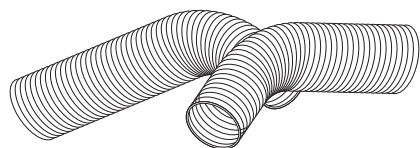
Bag E



*Drivers Defrost Adaptor
PN# 2-2093-1*



*Passenger Defrost Adaptor
PN# 2-2093-2*

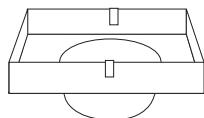


Two Duct Hoses, 2" I.D.

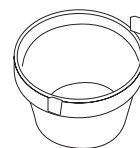


Four Zip-Ties

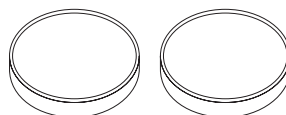
Bag F



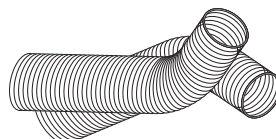
*Driver Adaptor
PN#2-2093-3*



*Passenger
Adaptor
PN#2-2093-4*



*Fresh Air Block Off Covers
PN# 2-1050-5*

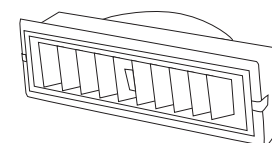


Two Duct Hoses, 2" I.D.

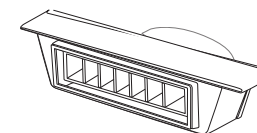


Four Zip-Ties

Bag G



*Center Dash Vent
PN#2-2093-5*



*Lower Louver
(optional)
PN#2-1038*



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



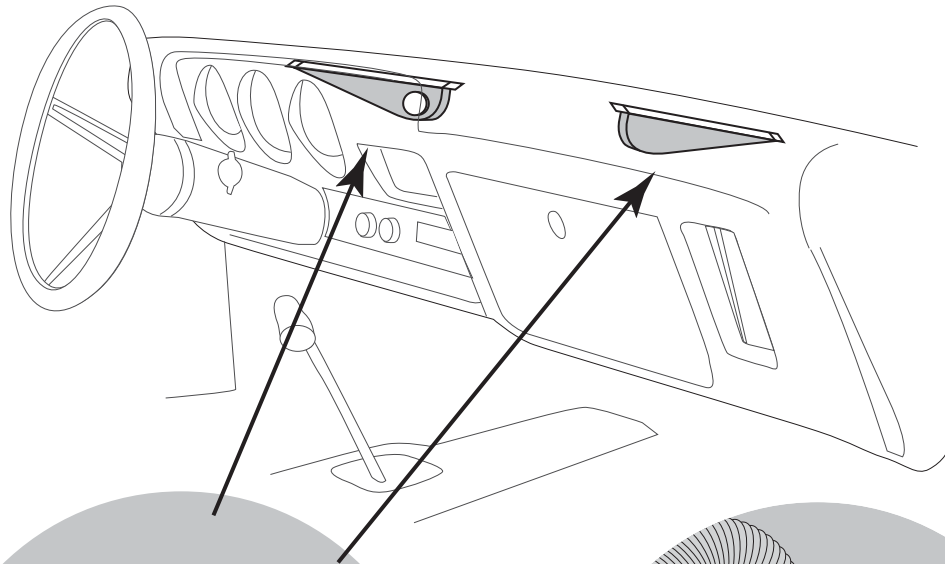
Two Duct Hoses, 2" I.D.



*Cap Plug
PN#DM-2001*



Four Zip-Ties



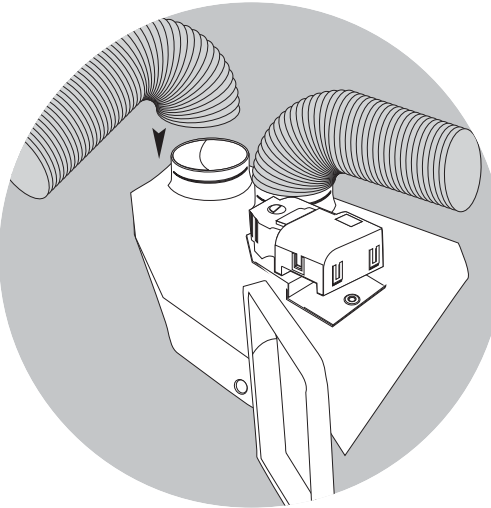
1

TOP OF DASH



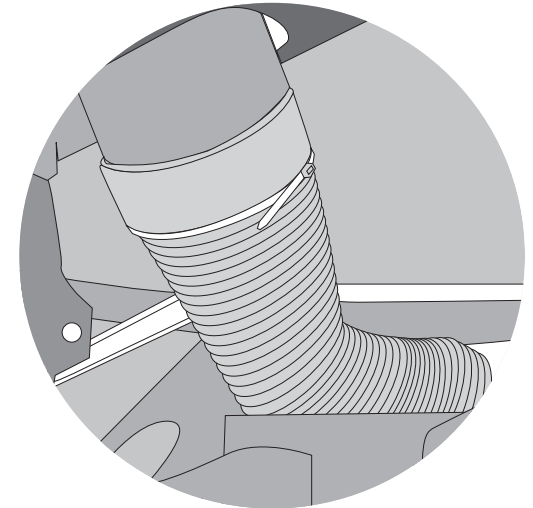
Push defrost adaptors onto lip of dash tab (below defrost vents, inside of dash), S-clips (already installed) will hold the adaptors securely

2



One end of the duct hose is installed over the defrost/heat duct assembly outlets on main unit

3



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.

In order to install the center louver 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 vent we've included to test for size. It's best to cut a bit small first, then enlarge slowly until you can get a tight and secure fit for the vent (see figure 25).

Attach duct hose to the inside of the louver assembly 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

We've also included an **OPTIONAL**, rectangular lower dash louver (Bag Kit G) that can be used to provide extra cooling for the passenger side of your vehicle. If you want to utilize this vent, just mount onto the lower dash using the included tek-screws and route the included flex hose to it. If you decide not to use this louver, **BE SURE TO CAP THE OPEN PORT** of the face assembly with the included cap plug .

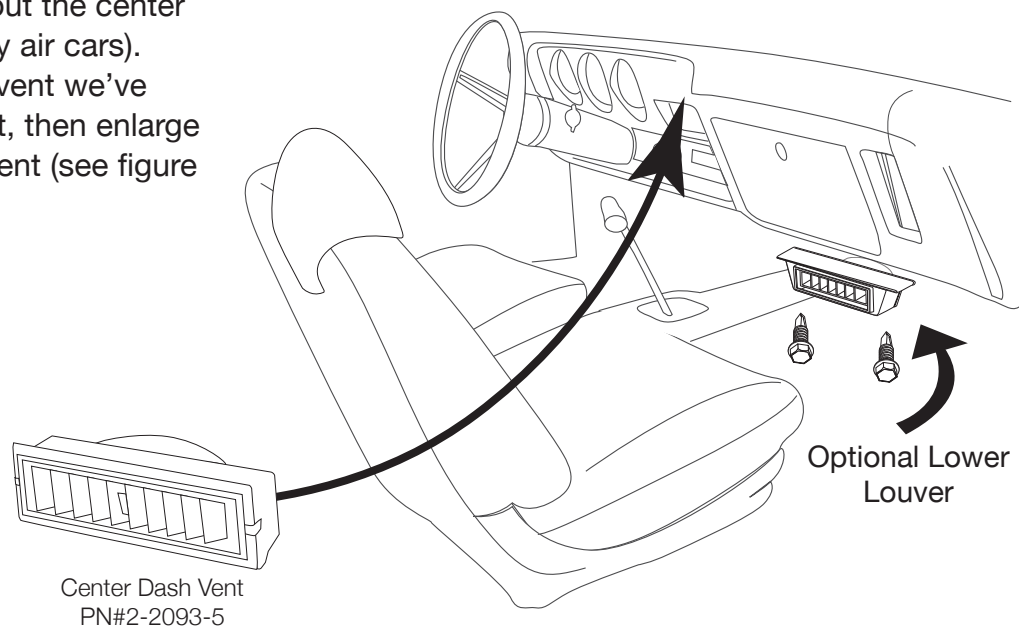
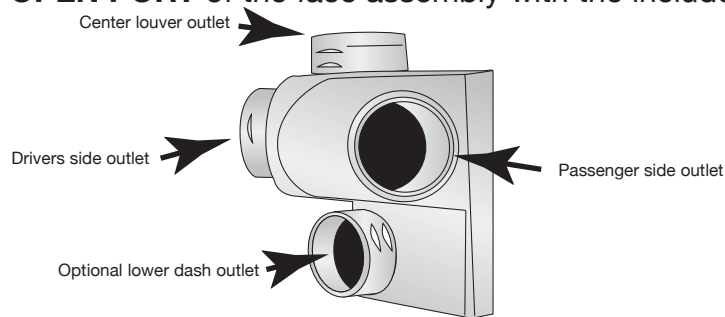
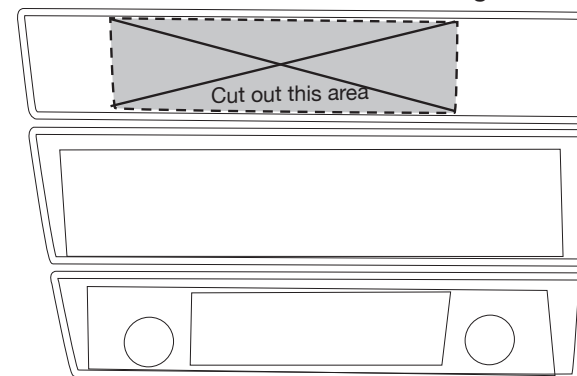


Figure 25



Locate Drivers louver adapter (SQUARE) 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.

Secure all hose connections with tywraps

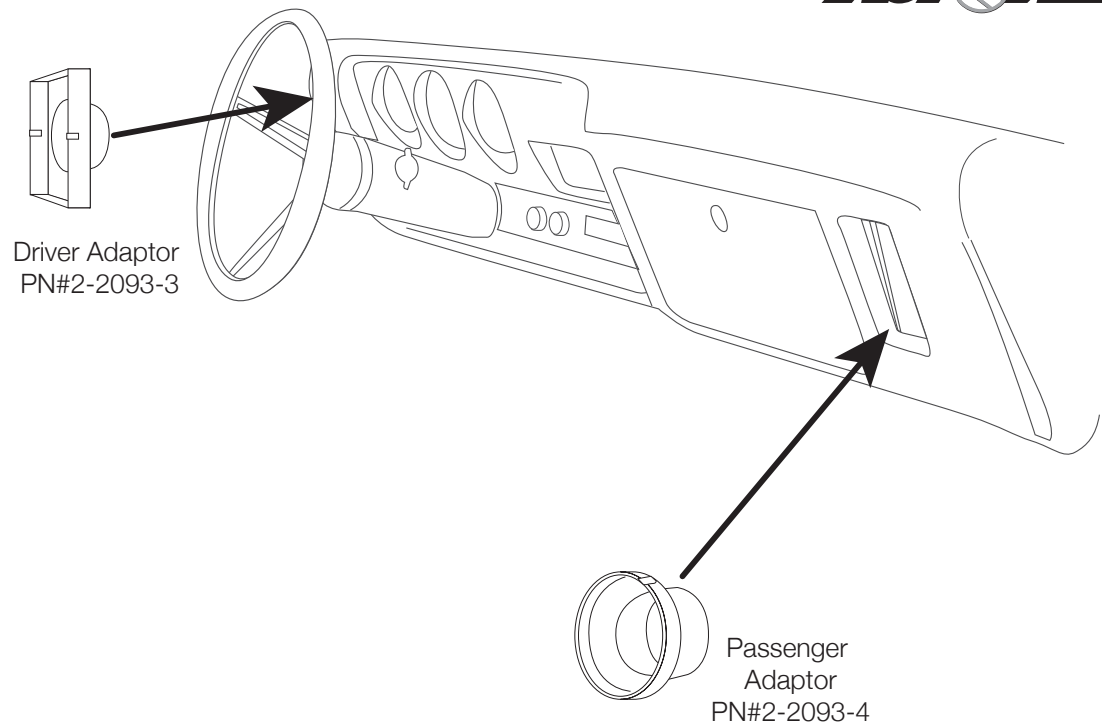
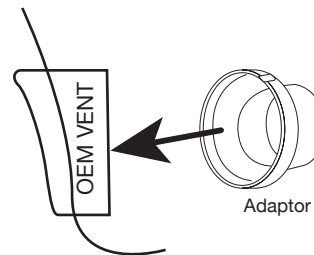
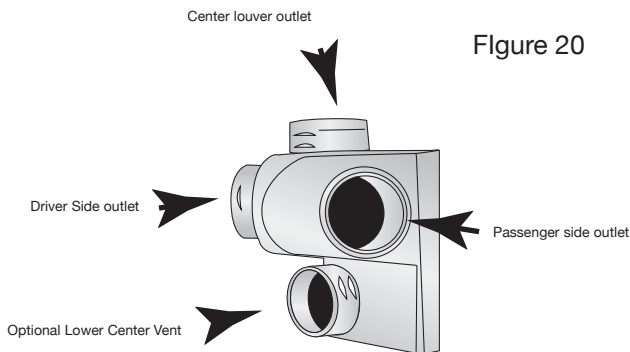


Figure 20

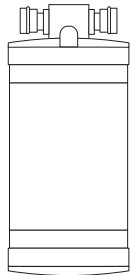


The smoother the route of the flex hoses the better the airflow.

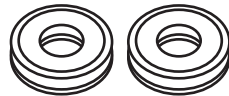


During installation of the hoses be aware of the eventual movement of the wiper arm components.

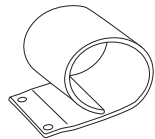
THESE ARE THE PARTS YOU WILL NEED FOR THE ENGINE COMPARTMENT INSTALLATION ON A 1969 Lemans/GTO



Drier

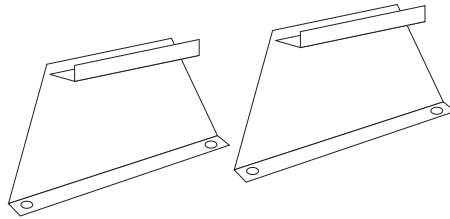


Two 1" Grommets

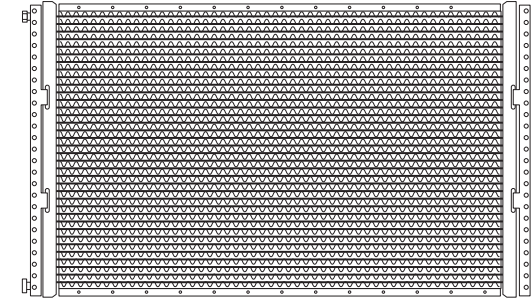
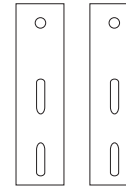


Drier Bracket

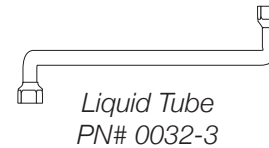
Condenser Bracket
PN# 0066-52



Top Condenser Bracket
PN#0049-50



Condenser
PN#11-1042

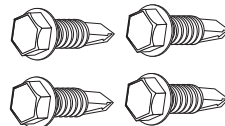


Liquid Tube
PN# 0032-3

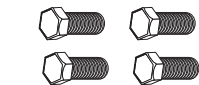


Liquid Tube
PN# 0062-52

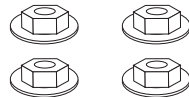
Four #10 - 14 x 3/4" Tek Screws



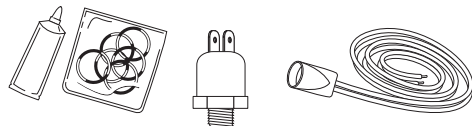
Discharge Tube
PN# 0020-65



Four #1/4 x 5/8" Bolts



Four #1/4 Flange Nuts



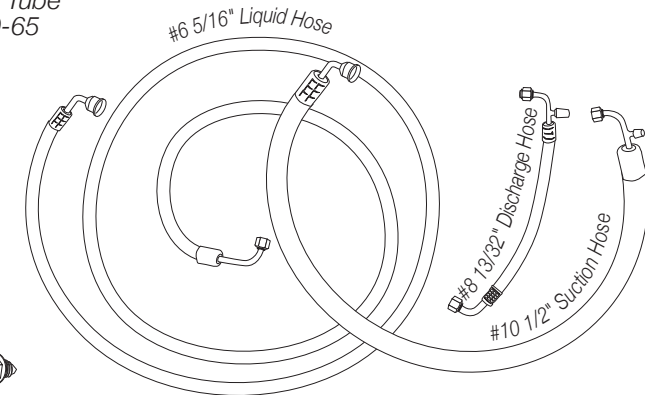
Pressure Switch and harness,
Bag of O-rings and Mineral Oil Tube



Splice and
Bullet Connector



Four #10 - 20x3/8" Screws



Three Refrigerant Hoses

CONDENSER PREPARATION. You can perform the following steps on a clean workbench. Lay the condenser down so that both hose connections are on the right side (the larger connection will be on top) (see figure 28).

BRACKETS: Install the upper condenser brackets using four #10 - 20 x 1/4" screws in the top two holes on each side. LEAVE LOOSE AT THIS TIME

Fit brackets with #10 - 20x1/4" Screws, fitted loosely into the top two holes of the condenser, both sides

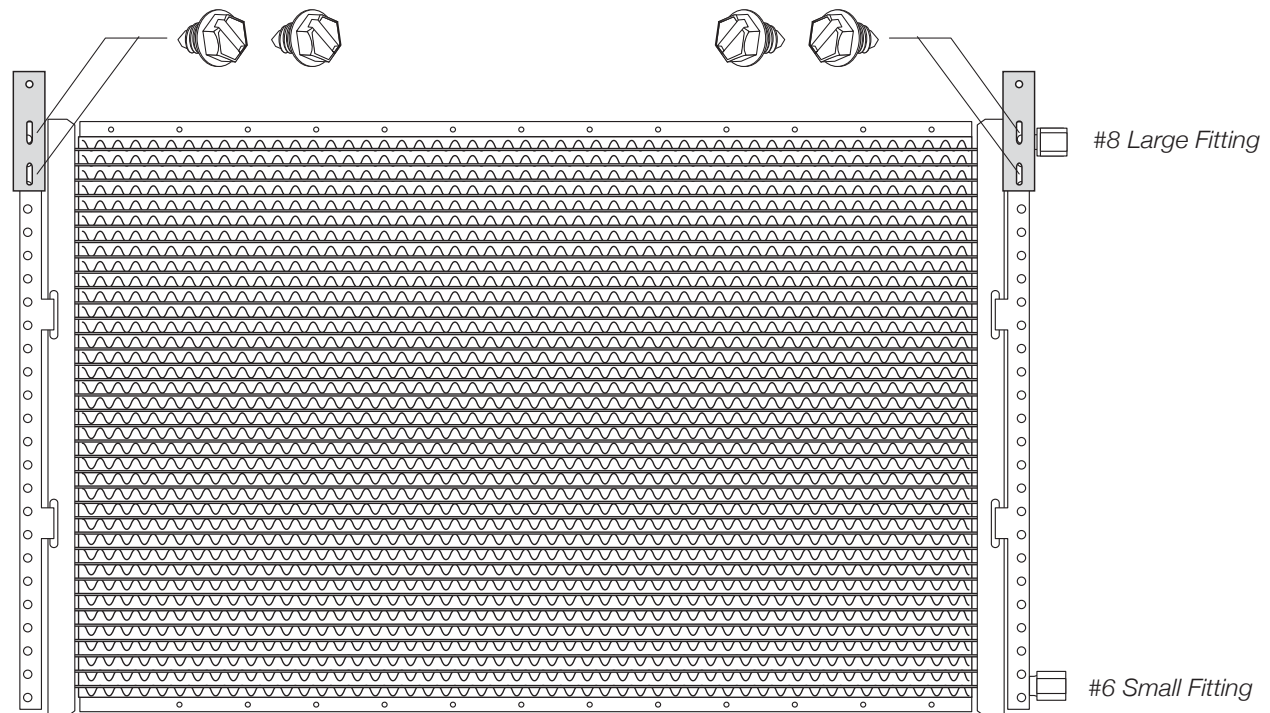
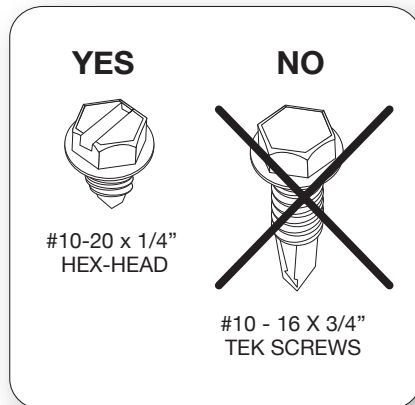


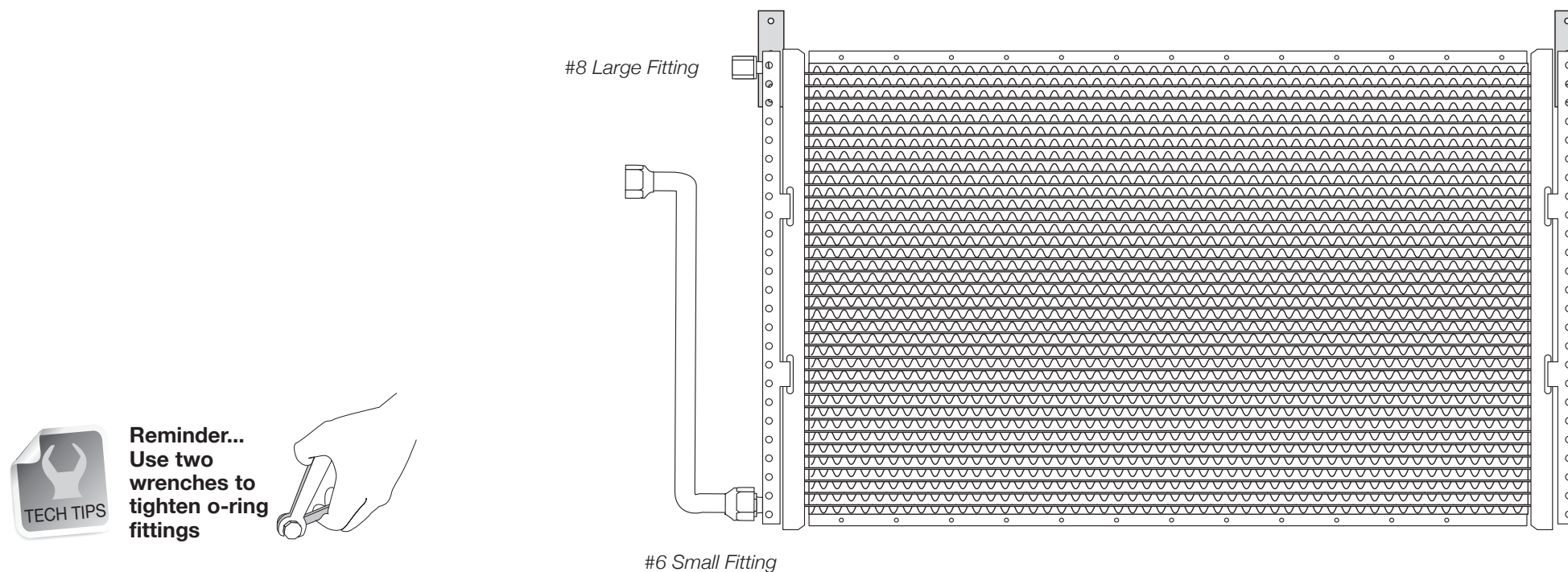
FIGURE 28

CONDENSER PREPARATION. Next lay the condenser down so that both hose connections are on the left side (the larger connection will be on top) (see figure 29).

TUBE: Attach the liquid tube (PN# 0032-3) to the lower connection on the condenser (tighten connection using supplied o-ring and a few drops of mineral oil to o-ring)

Use two wrenches when tightening all o-ring connections. Place one wrench on condenser connection, and tighten other fitting connection with other wrench. Apply equal pressure to both wrenches - this will keep twisting force from damaging condenser parts.

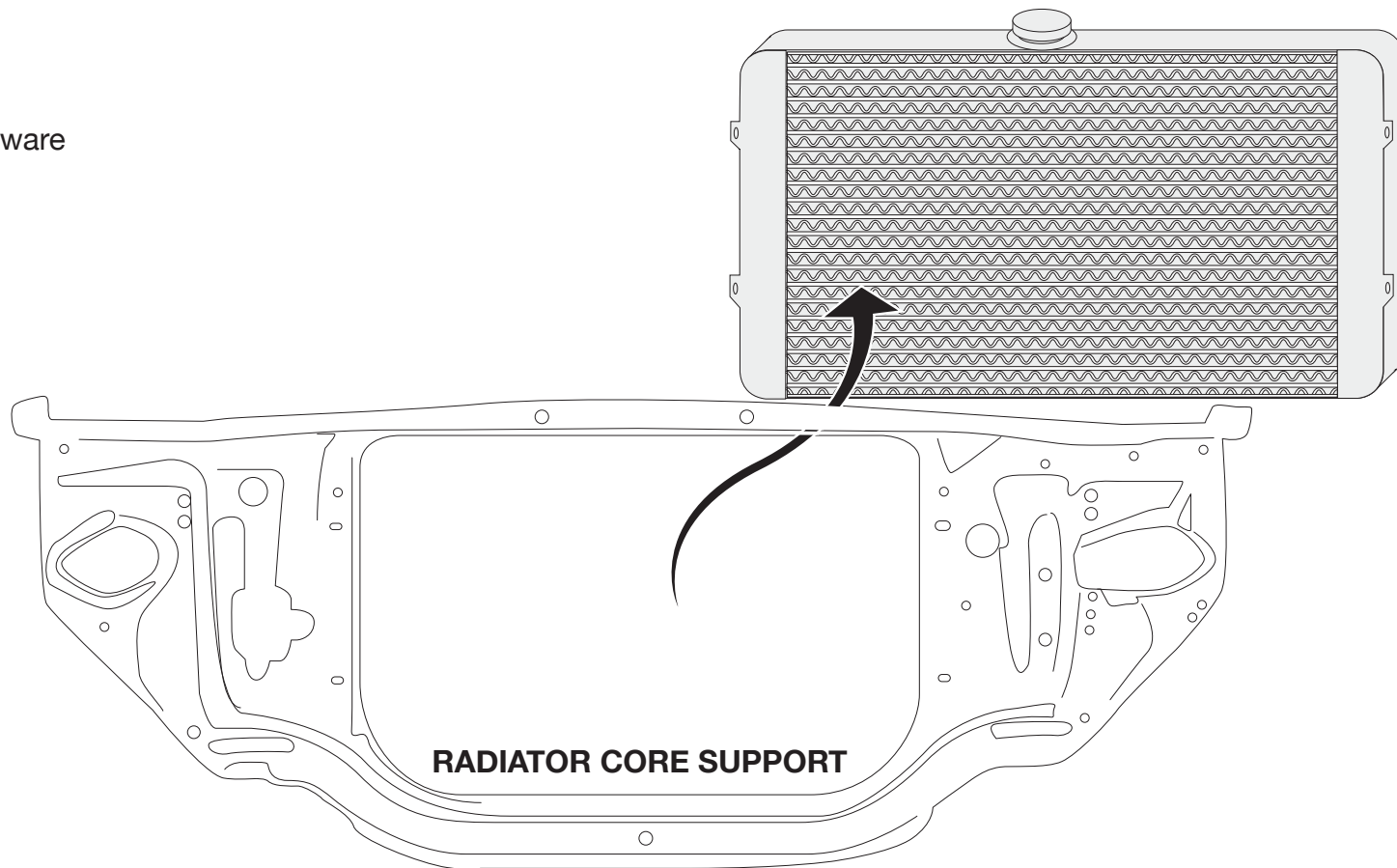
FAILURE TO DO SO WILL DAMAGE CONDENSER.



REMOVE THE FOLLOWING:

- Battery
- Radiator

Retain all hardware



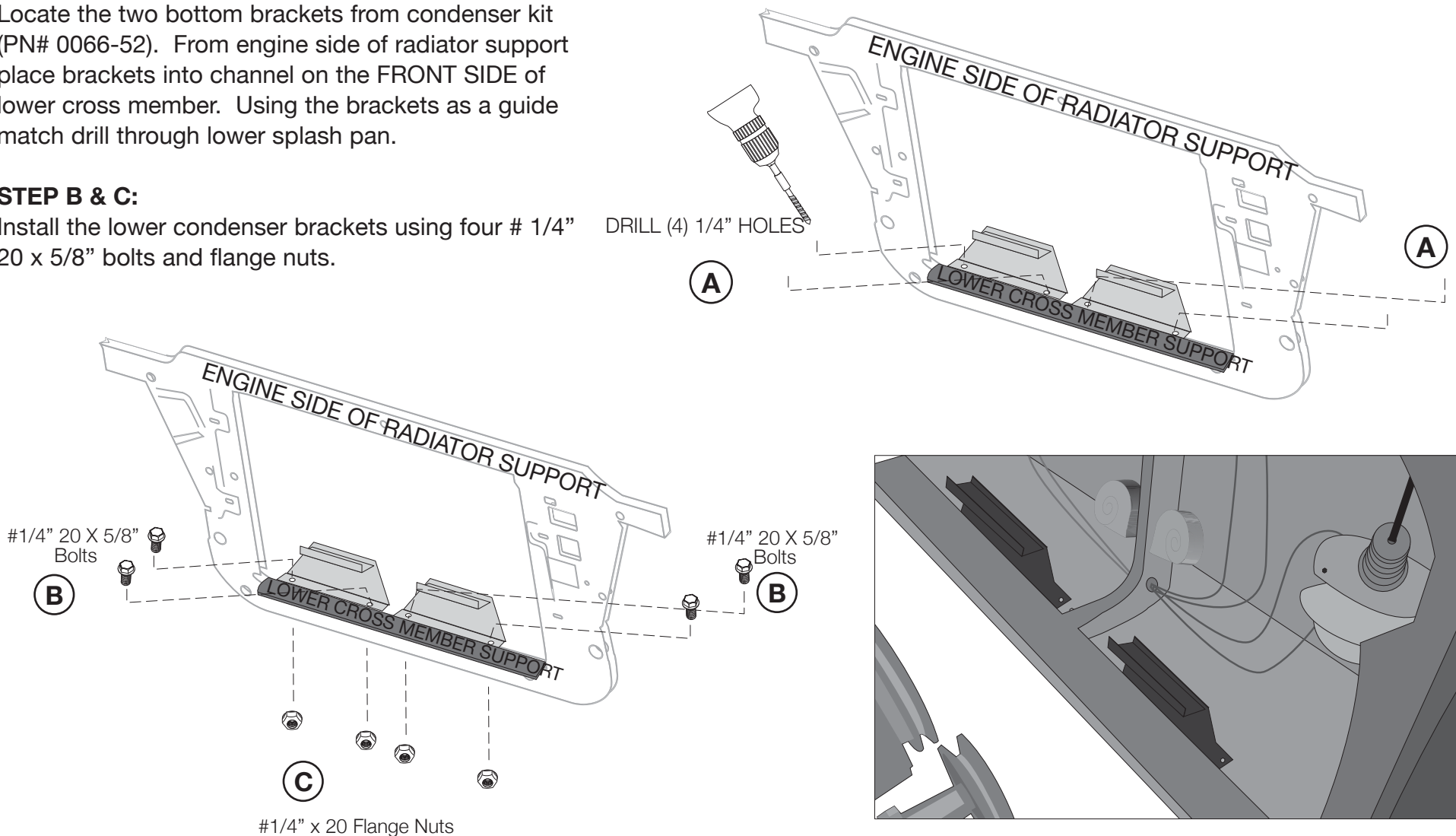
CONDENSER INSTALLATION.**THE FOLLOWING STEPS ARE FROM THE ENGINE SIDE OF CORE SUPPORT****STEP A:**

Locate the two bottom brackets from condenser kit (PN# 0066-52). From engine side of radiator support place brackets into channel on the FRONT SIDE of lower cross member. Using the brackets as a guide match drill through lower splash pan.

STEP B & C:

Install the lower condenser brackets using four # 1/4" 20 x 5/8" bolts and flange nuts.

DRILL (4) 1/4" HOLES



CONDENSER INSTALLATION cont..

STEP D:

Place condenser assembly into lower brackets with connections on passenger side of vehicle.(see Figure 30)

Drill 1" hole in radiator support flange inline with top connection #8 (discharge fitting) on condenser. (see figures 30 & 31)

Next drill 1" hole in radiator support flange inline with liquid tube #6 on condenser

Insert supplied Grommets into holes.
(see figures 30 & 31)

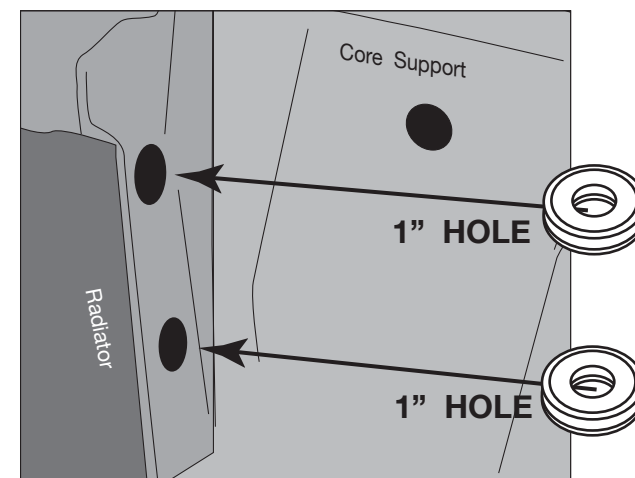


Figure 31
Two 1" Grommets

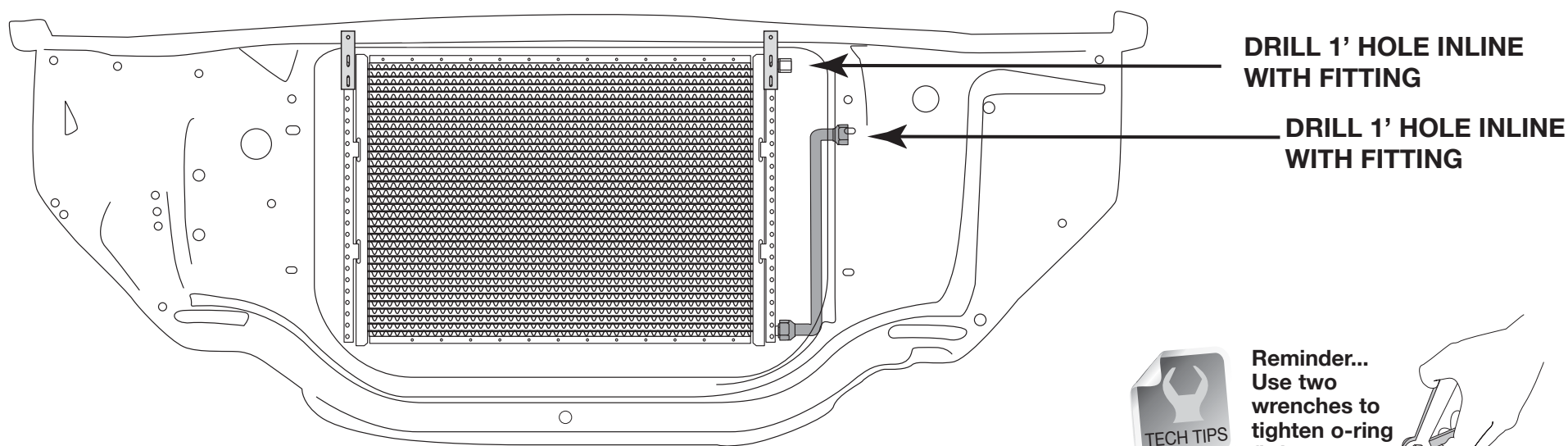
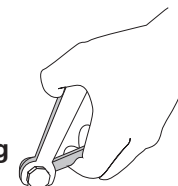


Figure 30

FROM ENGINE SIDE



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



CONDENSER INSTALLATION cont..

Before securing condenser in place locate the Discharge tube (PN#0020-65) and connect to upper condenser connection.(see figure 32). Position condenser to allow tube to clear upper 1" hole previously drilled.(see figure 32)

Next locate Liquid tube (PN#0062-52) and connect to liquid tube connection through radiator core flange.(see figure 33)

Once condenser is in place secure top condenser brackets to core support with two #10x5/8 TEk screws.

Tighten all tube connections using supplied o' rings and mineral oil.

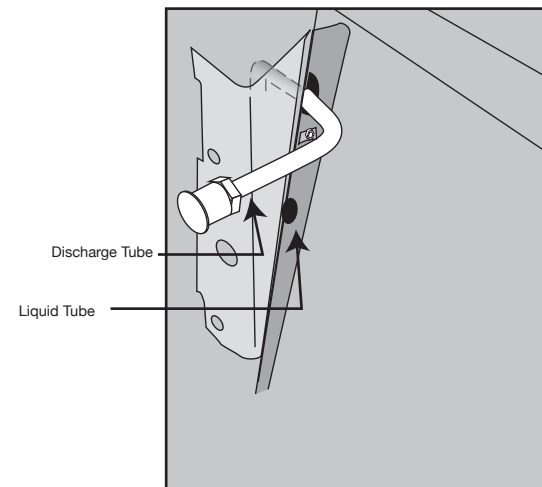


Figure 32

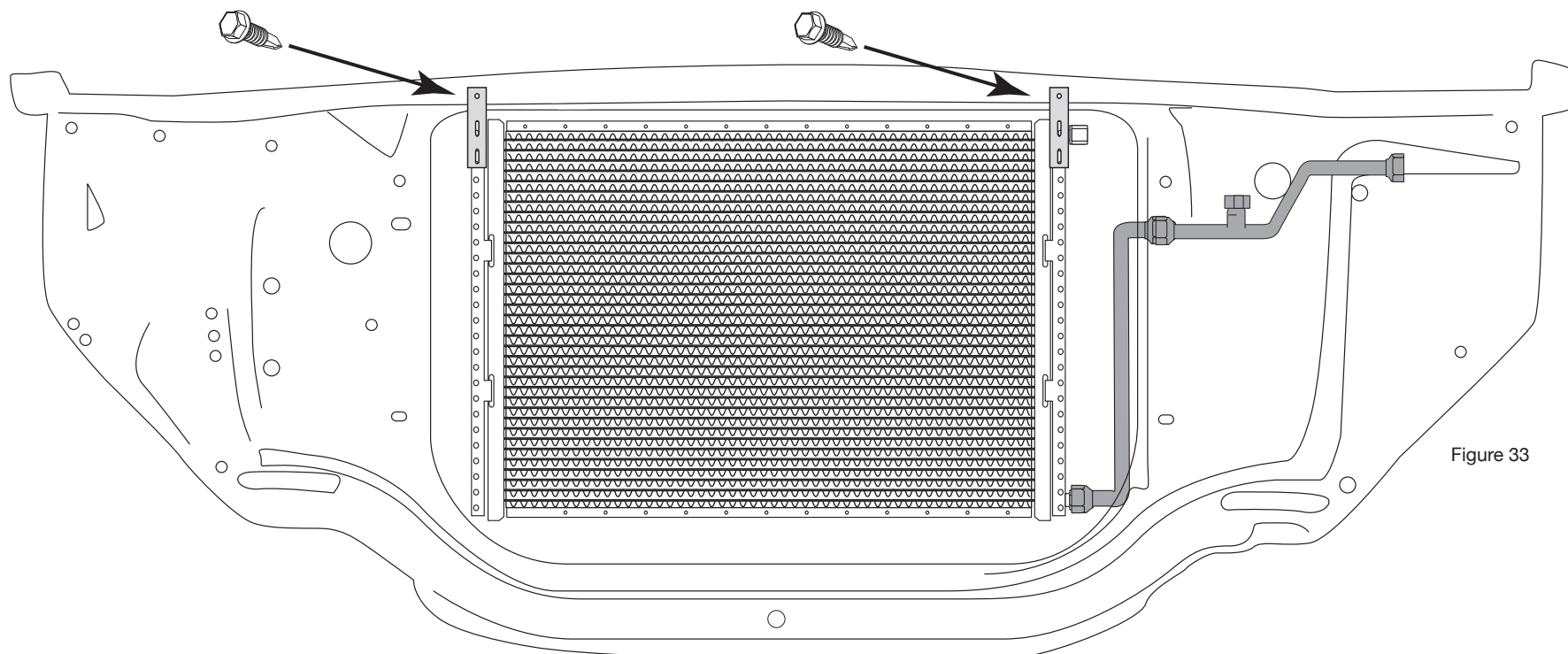


Figure 33

FROM ENGINE SIDE

CONDENSER INSTALLATION cont..

The drier is conveniently mounted on the right hand side of the condenser. First insert the drier into the drier mounting bracket (it's basically a sleeve for the drier). Attach the drier liquid tube to the drier (tighten connections using supplied o-rings on both ends and a few drops of mineral oil to each o-ring)(see Figure 34)

With the two liquid tubes connected it will be easy to find the correct place to attach the drier bracket to the radiator core support with the included #10x3/4 TEK screws. Tighten all connections once proper location is set.

Screw the high-pressure switch into the port on the liquid tube. Go ahead and plug the pressure switch harness into the switch at this time (black electrical boot with two long white wires).(see Figure 34)

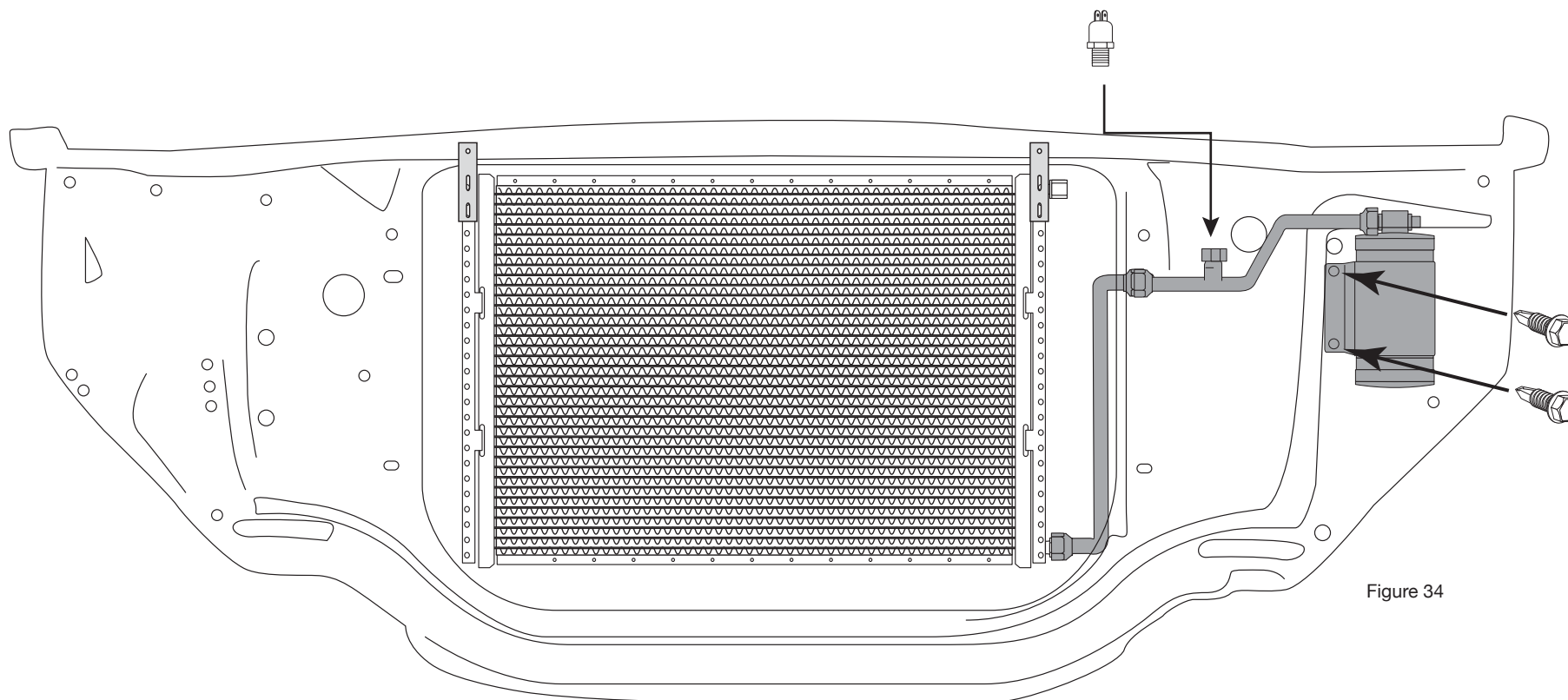


Figure 34

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.

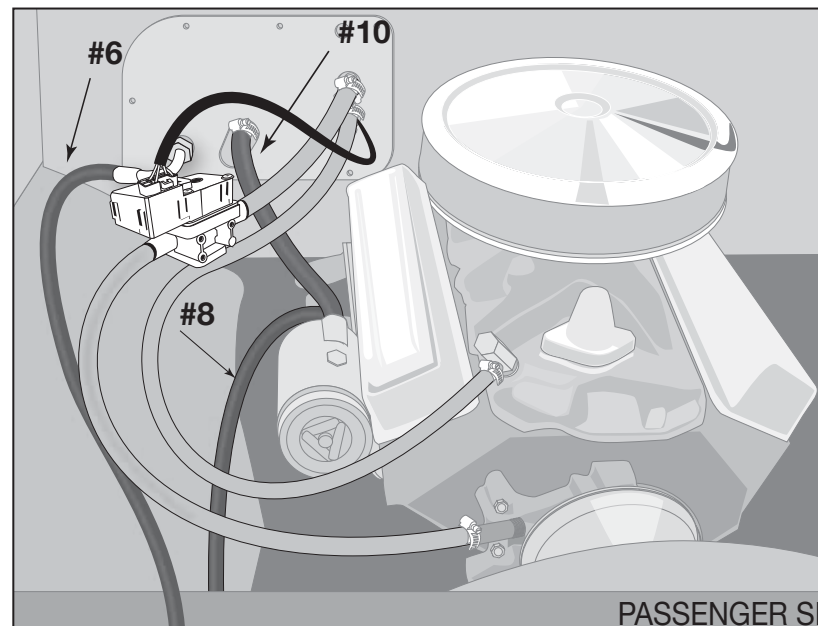
CONNECTING THE HOSES:

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

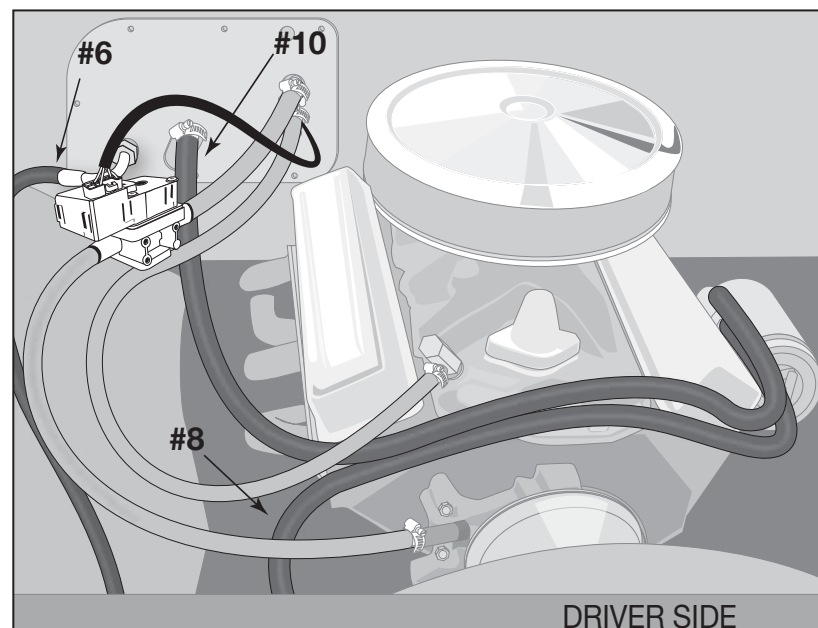
The #10 (**LARGEST**) refrigerant hose. Attach end with service fitting to the compressor using (1) #10 o-ring and a few drops of mineral oil. Attach other end to #10 fitting at the firewall. Attach using one #10 o-ring and a few drops of mineral oil. Tighten securely.

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 across engine and to the connection on compressor. Attach using two #8 o-ring and a few drops of mineral oil.

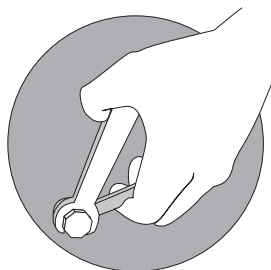


PASSENGER SIDE



DRIVER SIDE

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!**

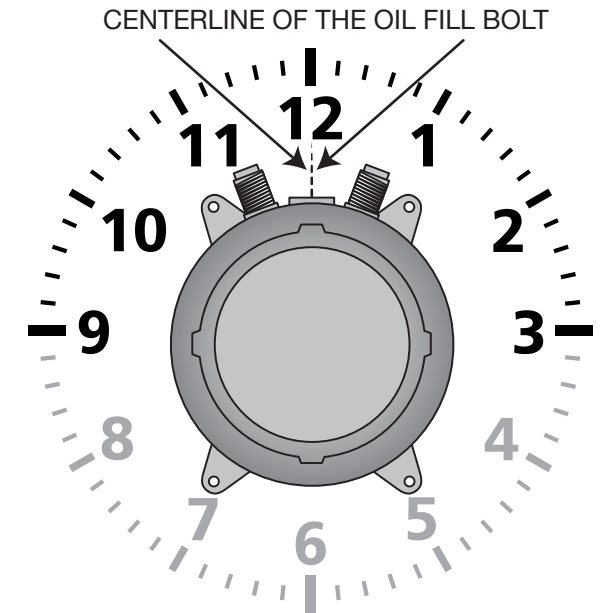
RECOMMENDED TEST CONDITIONS: (After system has been fully charged and tested for basic operation)

- 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

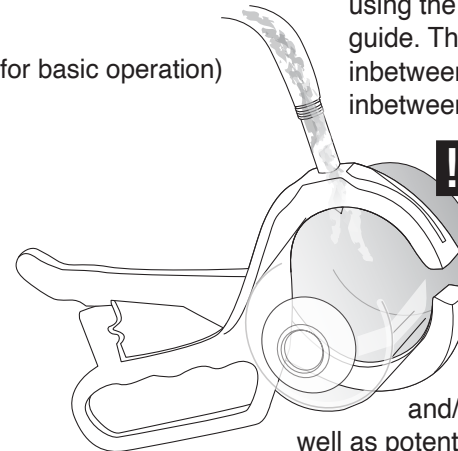
ACCEPTABLE OPERATING PRESSURE RANGES:

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

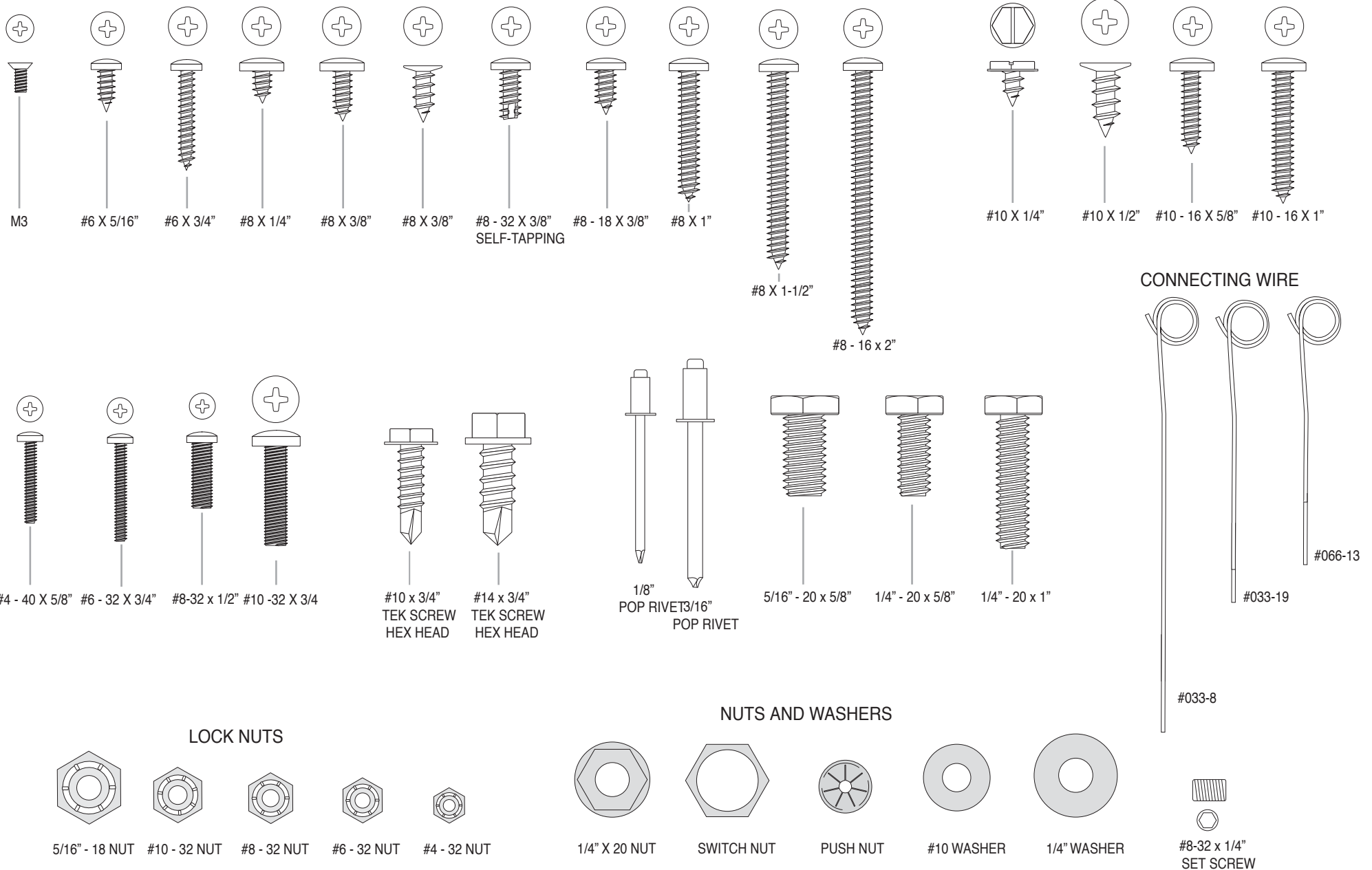
Get the technical support you want the moment you need it, with no wait times. Simply **SCAN** the **QR code** and be directly taken to our support section to troubleshoot all things A/C.



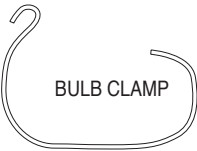
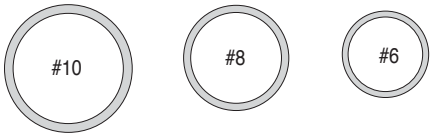


Classic Auto Air Hardware Reference Guide

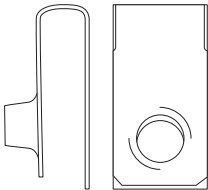
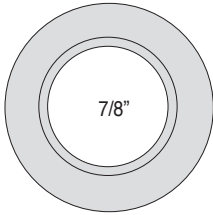
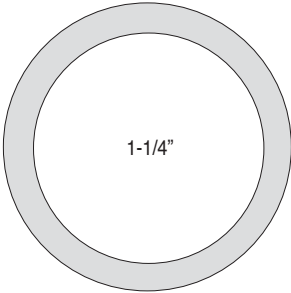
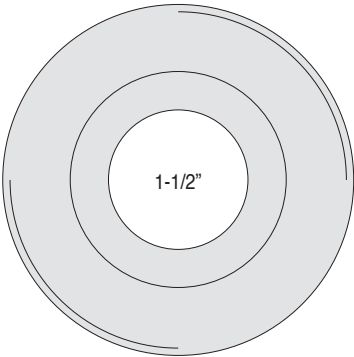
This is our basic line-up of hardware. No single kit will not contain all of these, but you can use this guide to match-up hardware for shape and size (all of these are actual size.)



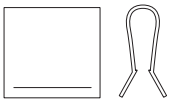
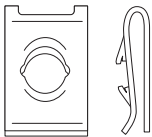
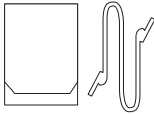
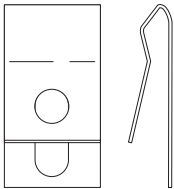
ORINGS



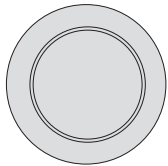
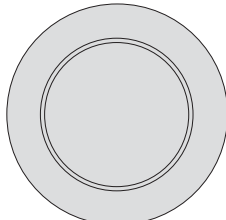
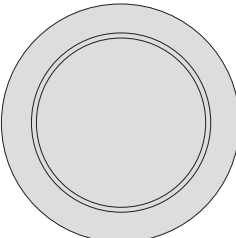
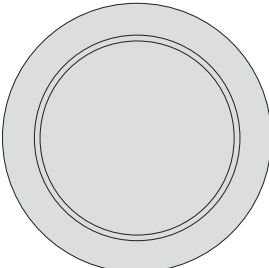
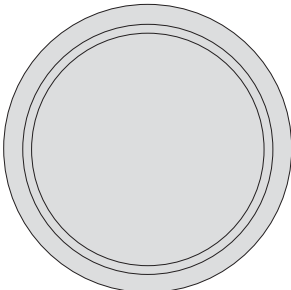
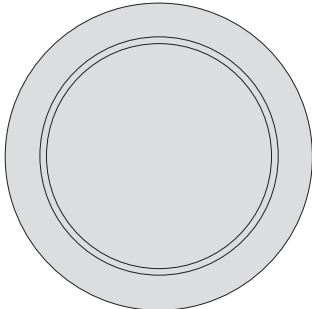
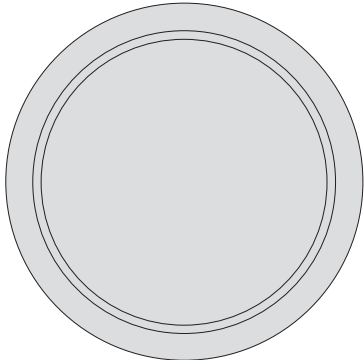
GROMMETS



CLIPS



HOLE PLUGS



HOSE CLAMPS

