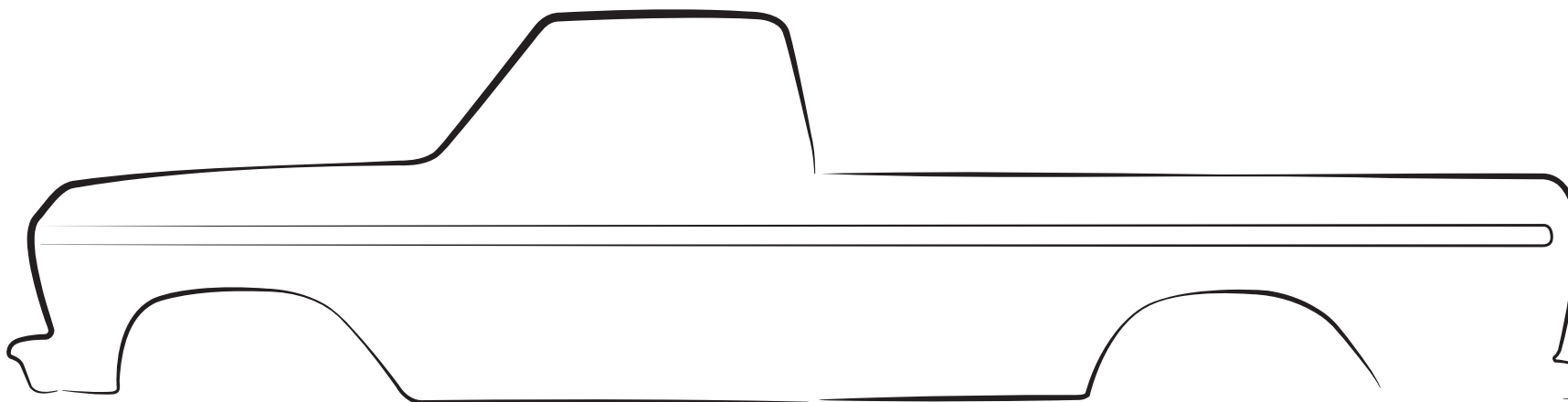




# **Installation Manual**

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**1973-79 Ford Pickup**  
**1978-79 Ford Bronco**

DOCUMENT #1-3095

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# ***Congratulations...***

You have just purchased the highest quality, best performing  
A/C system ever designed for your  
1973-79 Ford Pickup or 1978-79 Ford Bronco.

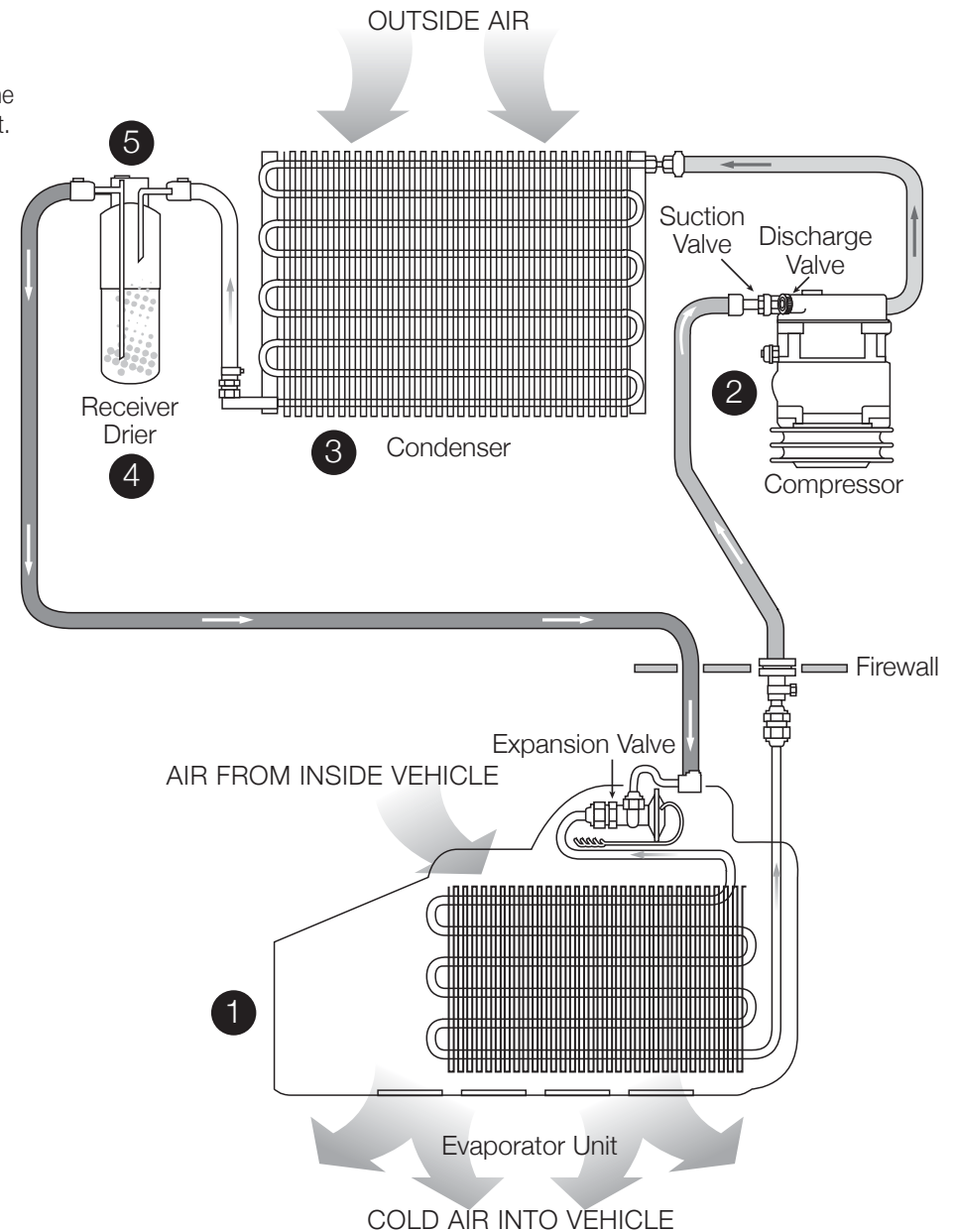
To obtain the high level of performance and dependability our systems are known for, please pay close attention to the following instructions. Our installation steps and procedures are derived from a long history of research and development and the combined experience achieved thru thousands of successful 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.

## 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.





## Check List, Pre-Installation:

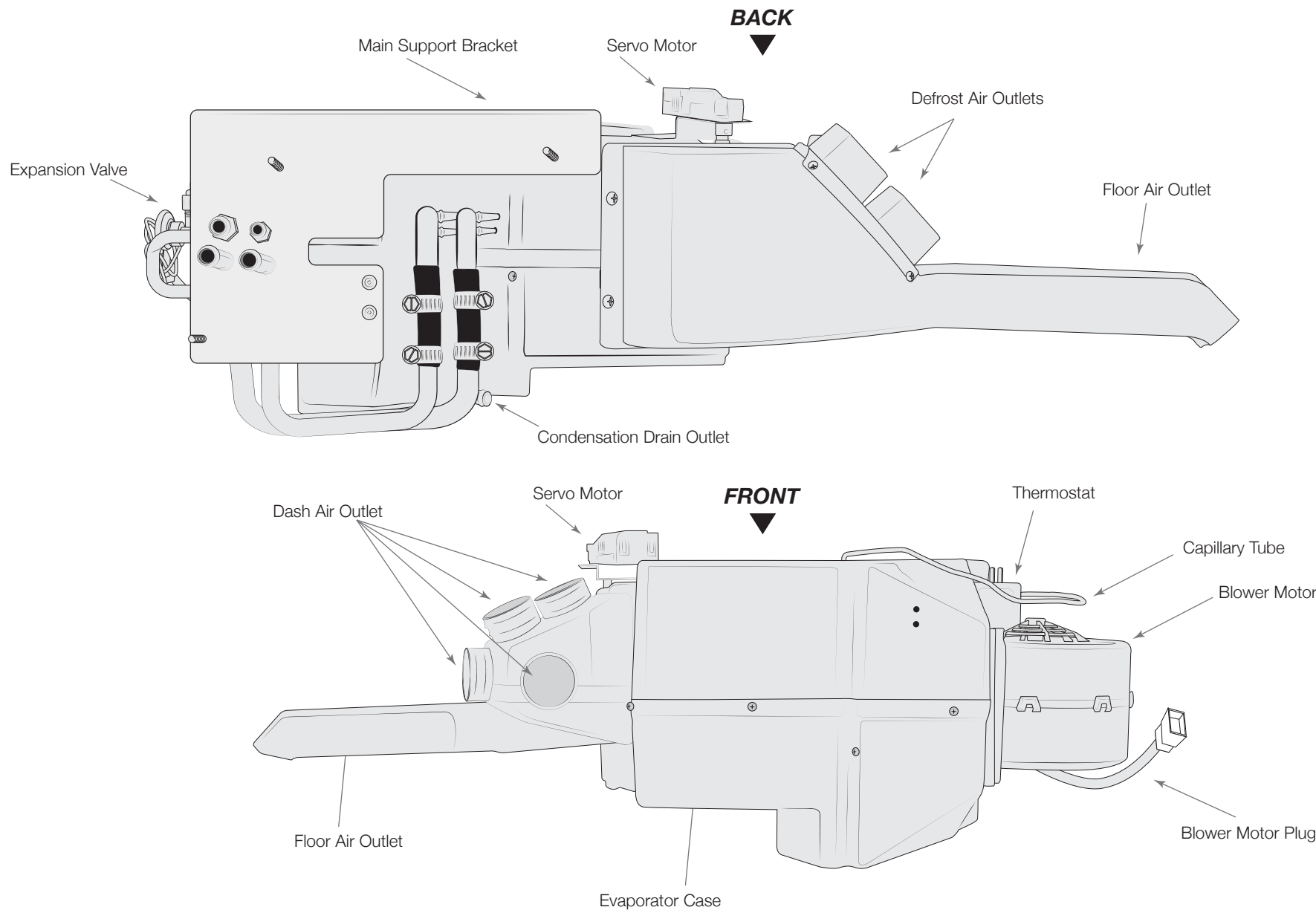
- ☐ Before beginning the installation check the shipping box for the correct components. YOUR BOXED UNIT INCLUDES A LIST OF MAJOR COMPONENTS AND A LIST OF BAGGED PARTS. We have a 5 stage check process to make sure you have everything you'll need.
- ☐ **If your vehicle has been or is being modified, some 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:

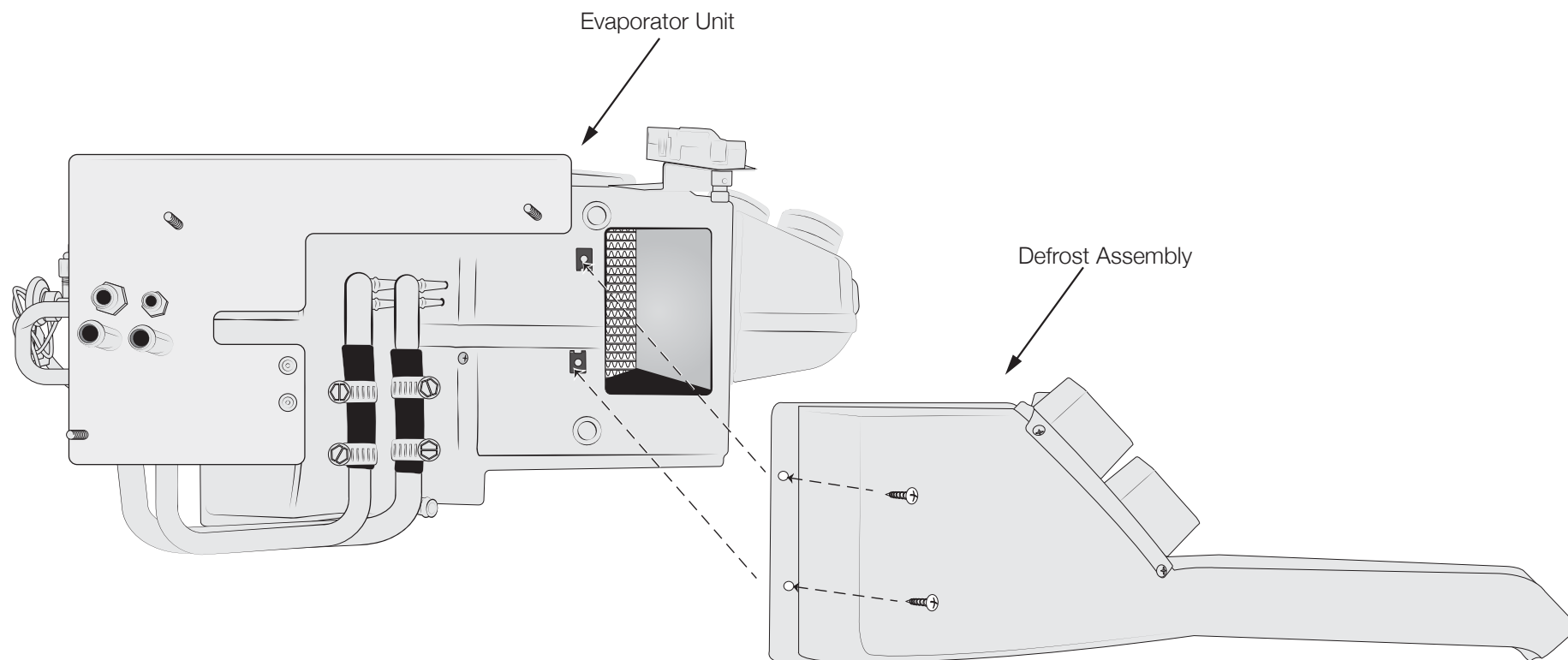
- ☐ Fittings: Use one or two drops of mineral oil (supplied with your kit) on ALL rubber o-rings, threads and rear of bump for o-ring where female nut rides. Do not use thread tape or sealants.
- ☐ Measure twice (or more), cut once
- ☐ **Should you have any technical questions, or feel you have defective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

Take a minute to familiarize yourself  
with the evaporator unit:

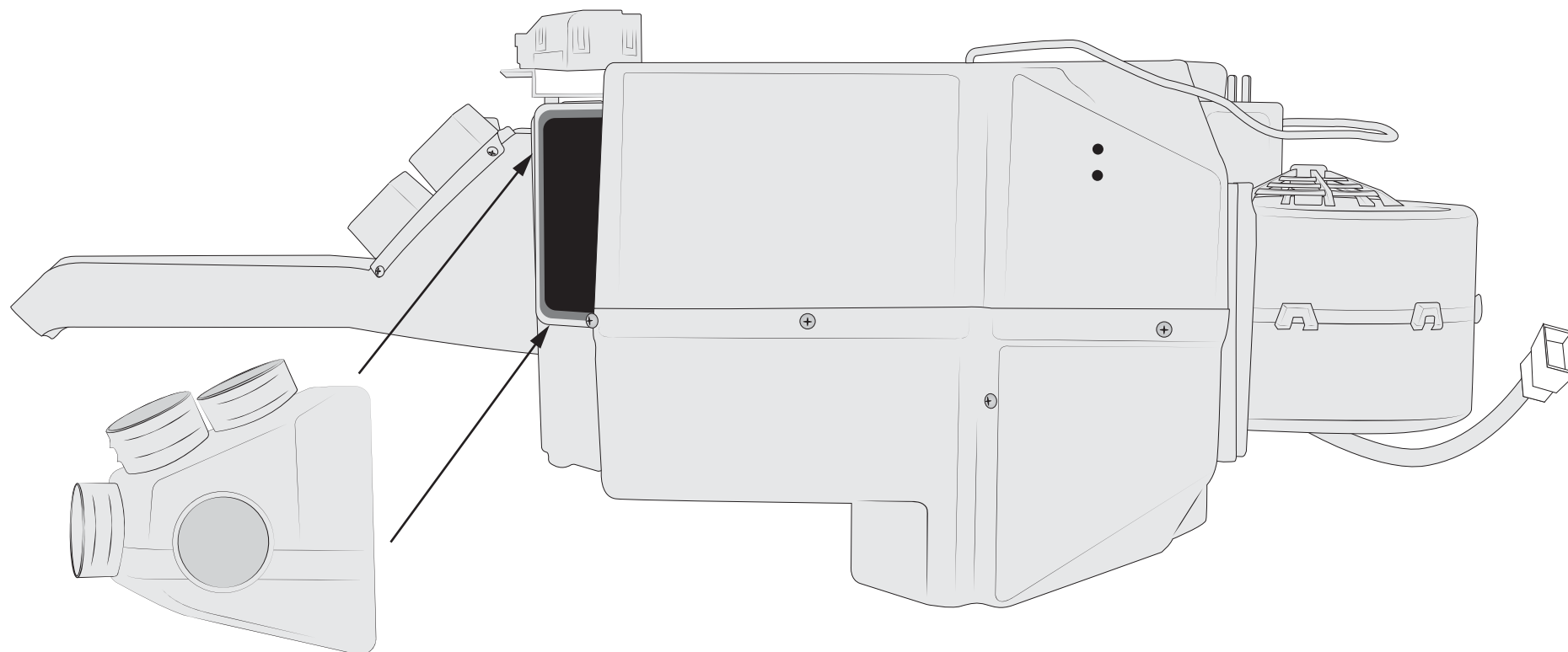


Remove Evaporator Unit and Defrost Assembly from box. The Defrost Assembly is pre-installed using Two #10 x 5/8" Phillips Screws.



**Note:** The Defrost adapter will have slight movement until it is installed, pressure of installation will make it stable.

Pre-installed Face Duct Assembly

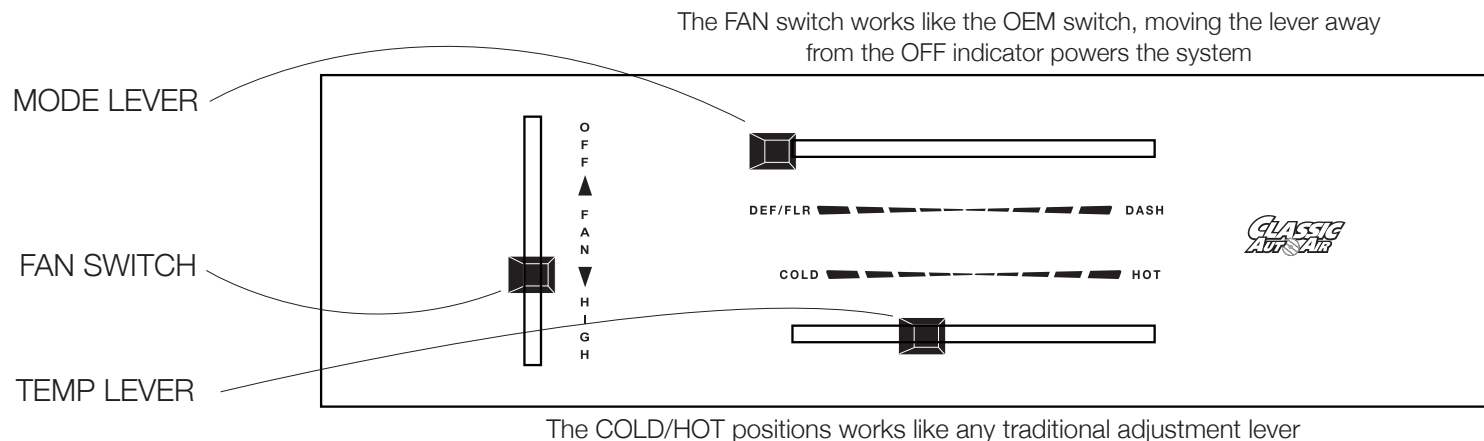




## Control & Operating Instructions

Your new **Smart Series 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** for maximum comfort...



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

DEF/  
FLOOR

DASH

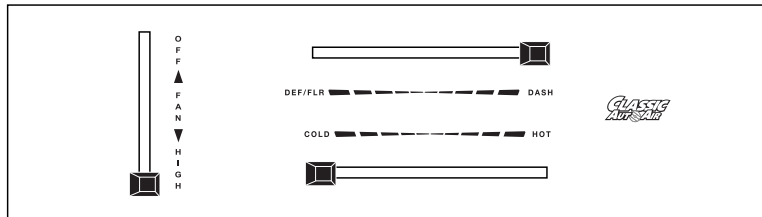
| POSITION   | 1             | 2                            | 3                            | 4                            | 5                            | 6                            | 7                            | 8                            | 9                            | 10                           | 11            |
|------------|---------------|------------------------------|------------------------------|------------------------------|------------------------------|------------------------------|------------------------------|------------------------------|------------------------------|------------------------------|---------------|
| MODE       | Def/ Flr 100% | Dash A/C 10%<br>Def/ Flr 90% | Dash A/C 20%<br>Def/ Flr 80% | Dash A/C 30%<br>Def/ Flr 70% | Dash A/C 40%<br>Def/ Flr 60% | Dash A/C 50%<br>Def/ Flr 50% | Dash A/C 60%<br>Def/ Flr 40% | Dash A/C 70%<br>Def/ Flr 30% | Dash A/C 80%<br>Def/ Flr 20% | Dash A/C 90%<br>Def/ Flr 10% | Dash A/C 100% |
| COMPRESSOR | ON            | ON                           | ON                           | ON                           | ON                           | ON                           | ON                           | ON                           | ON                           | ON                           | ON            |

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         |

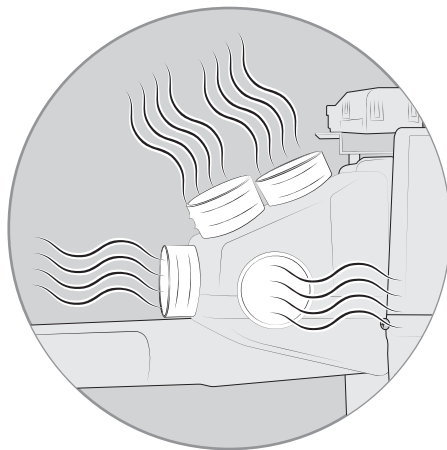
1



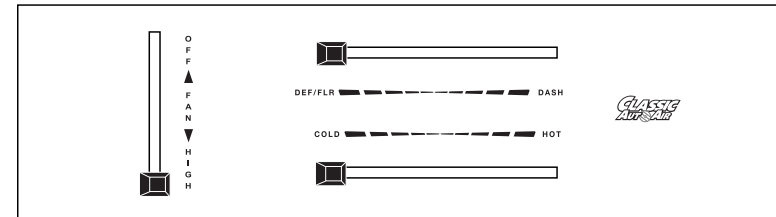
Move FAN knob to HIGH  
Move MODE knob to DASH  
Move TEMP knob to COLD



AIR OUT OF DASH VENTS



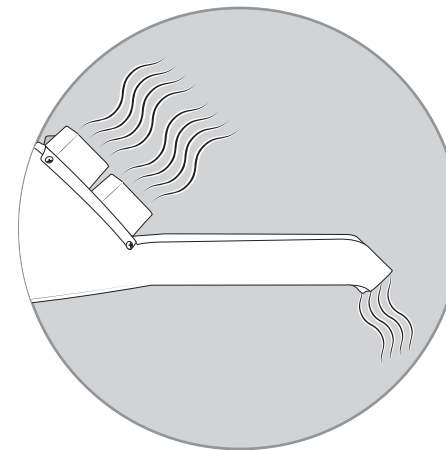
2



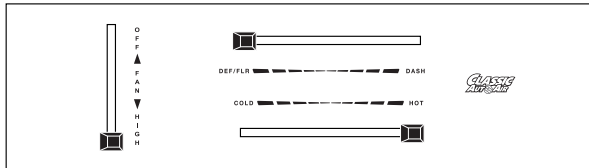
Move MODE knob to DEFROST/FLOOR



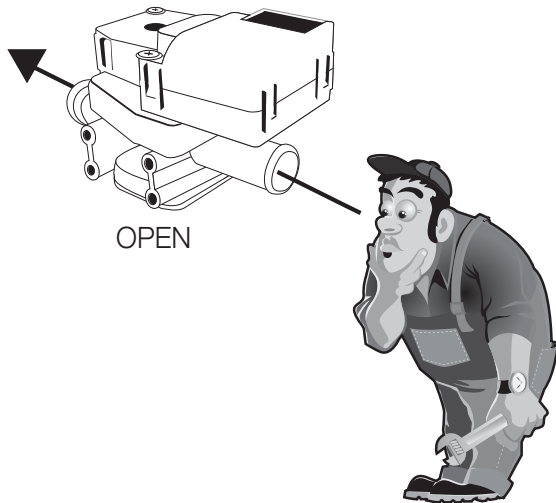
AIR OUT OF DEFROST/FLOOR VENTS



3

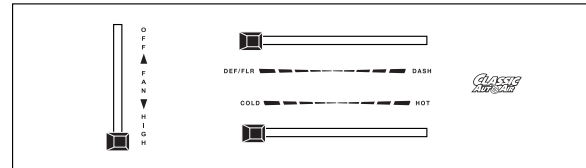


Move TEMP knob to HOT

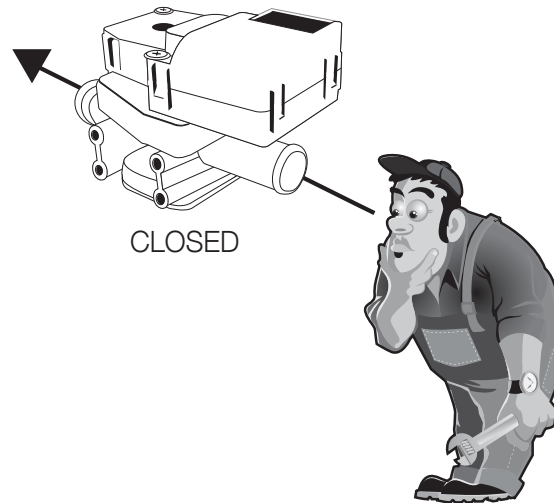


You will be able to see through water valve passage

4



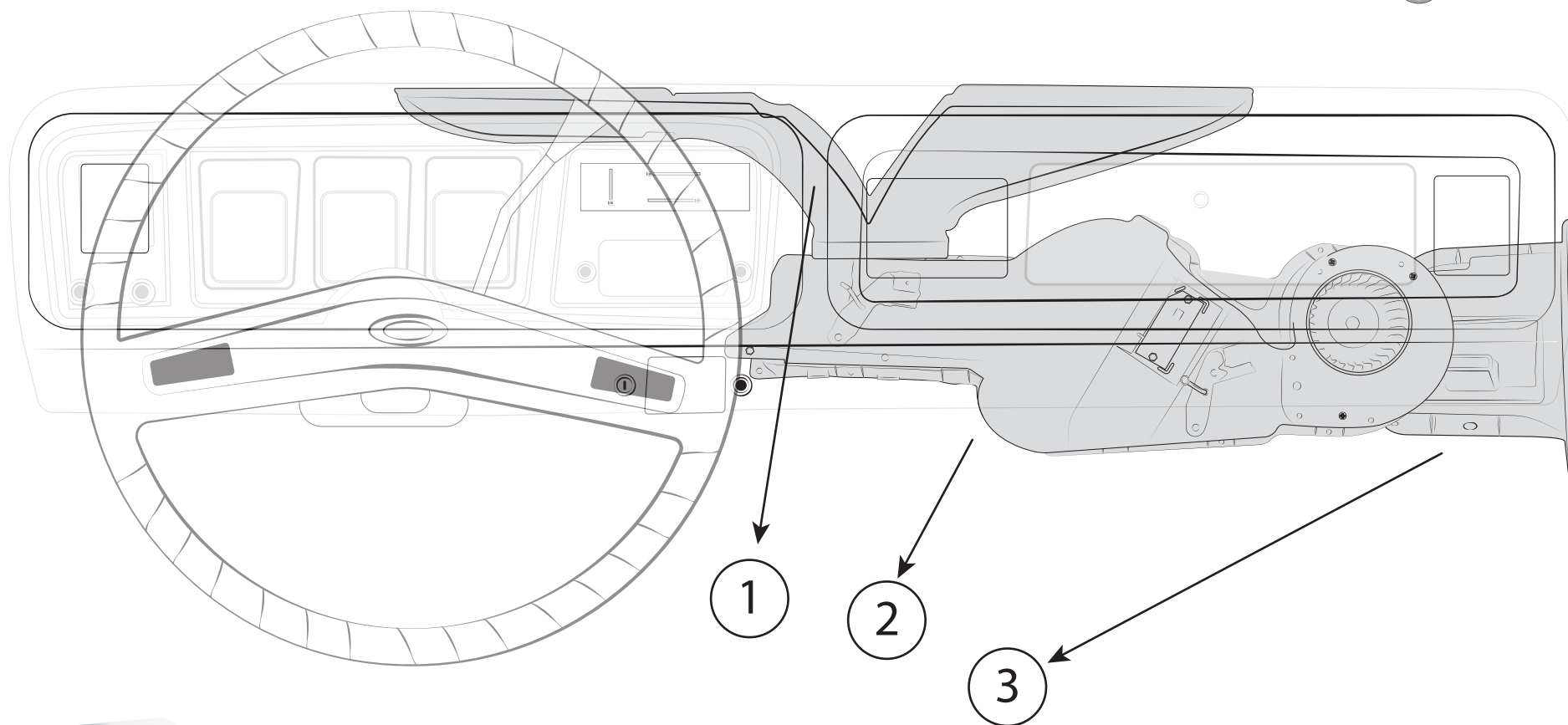
Move TEMP knob to COLD



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).

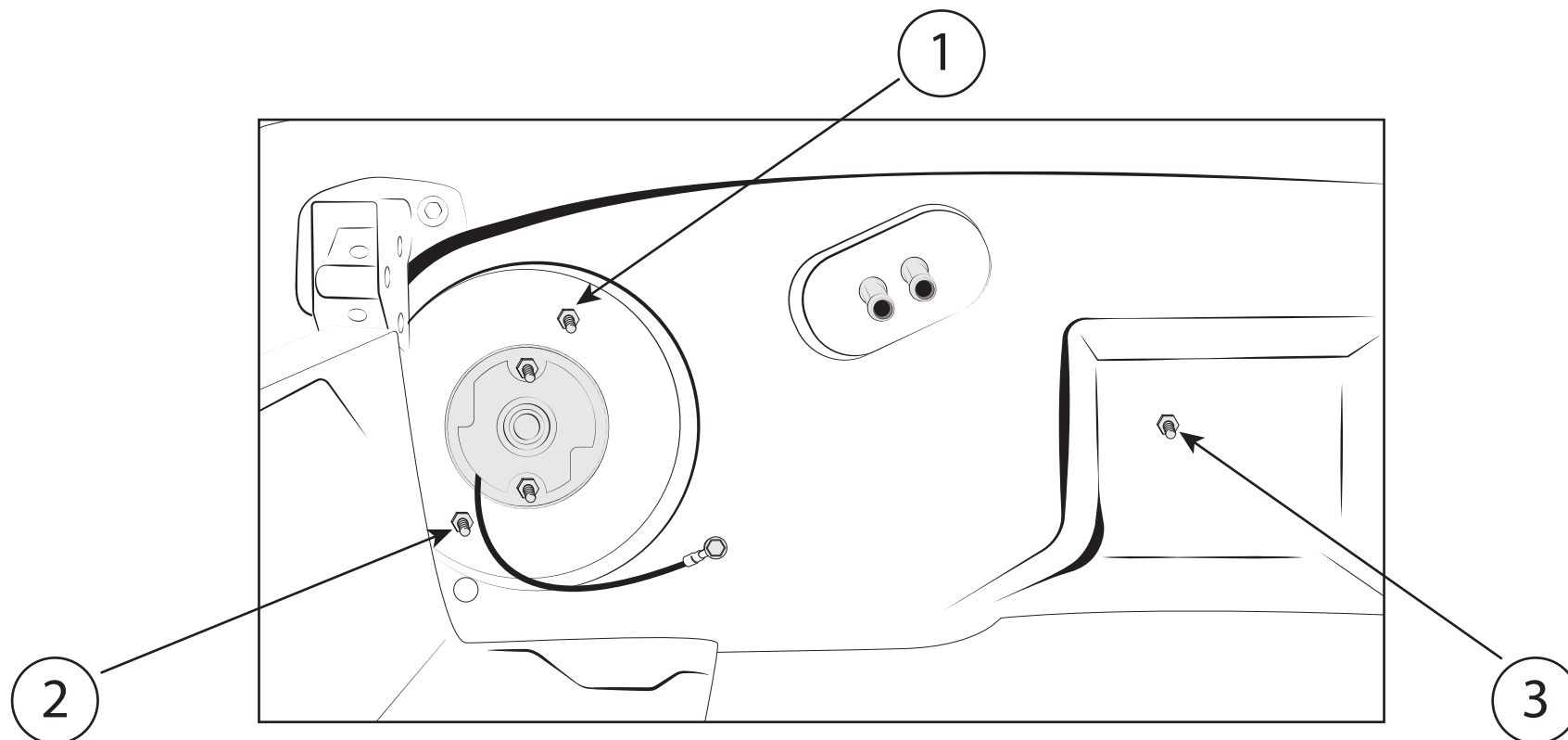
Your controls are now fully calibrated to your unit. Please refer to the next steps in your installation manual for installing the system in your vehicle.



Remove Glovebox, OEM A/C controls and set aside for modification and reinstall later.

The removal of the Original Heater Assembly is simple.

1. Disconnect defrost duct work.
2. Remove interior heater box.
3. Remove attachment screws located in front of the air inlet.



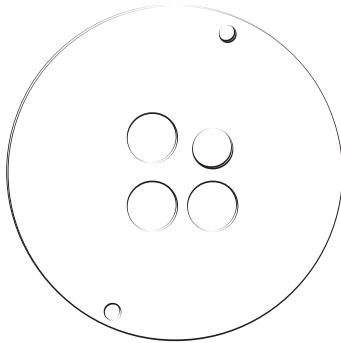
Moving to the engine compartment:

In order to remove your heater assembly it is necessary to remove the 3 nuts holding it to the firewall .

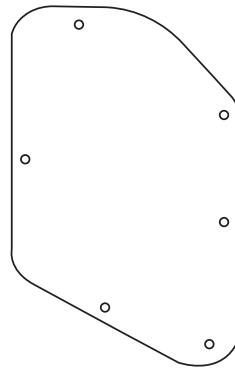
Located on the engine side of the firewall, remove the three bolts, cut heater wiring, and disconnect heater hoses to remove.

## THESE ARE THE PARTS YOU WILL FIND IN BAG KIT B

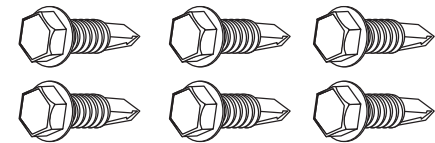
You will use all of these parts and hardware during the next series of installation steps.



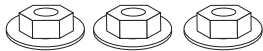
Firewall Block Off  
PN#10-2095-2



Fresh Air Block Off  
PN#10-2095FA-1



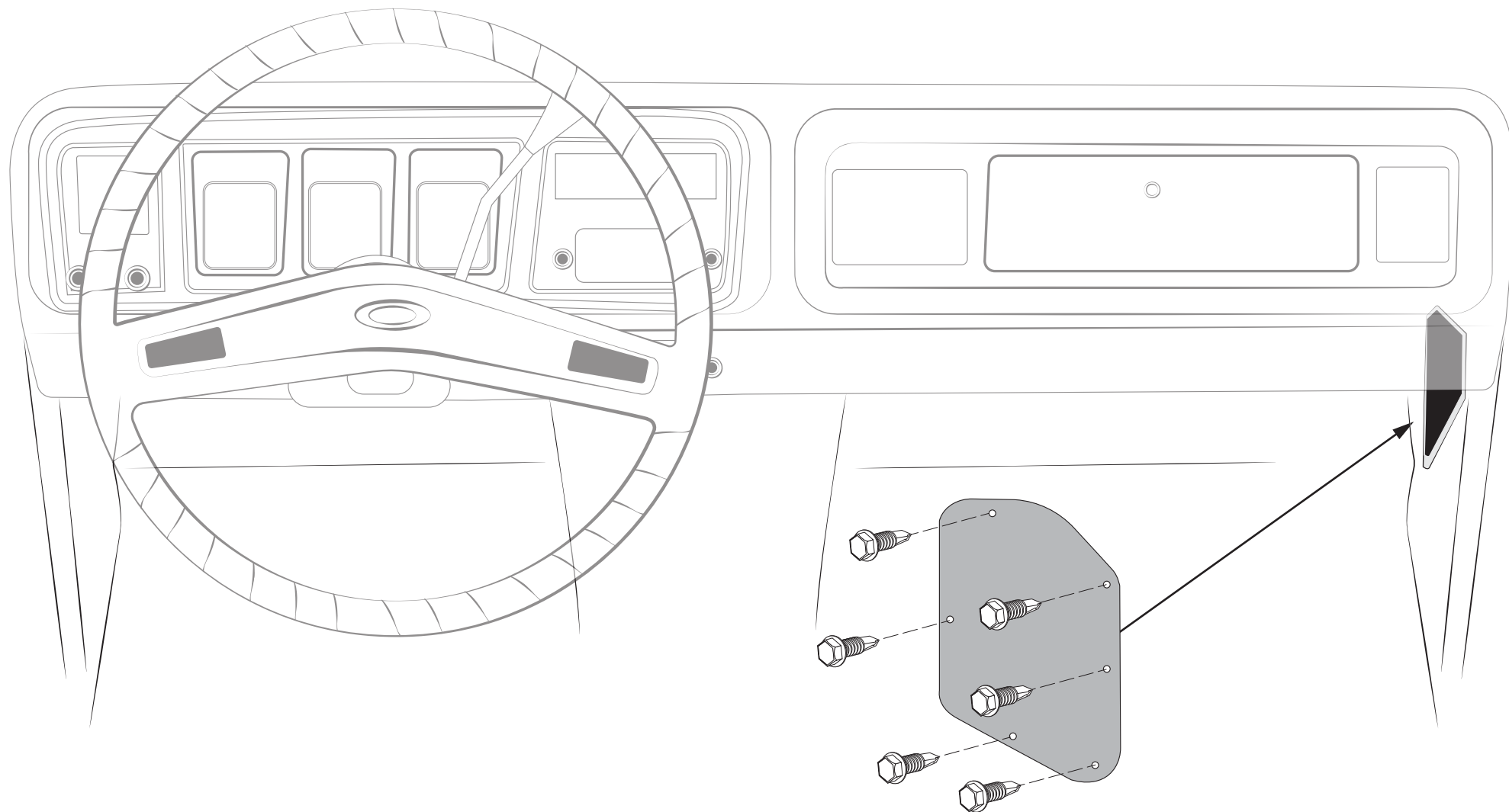
Six #14 - 16 x 3/4" Tek Screws



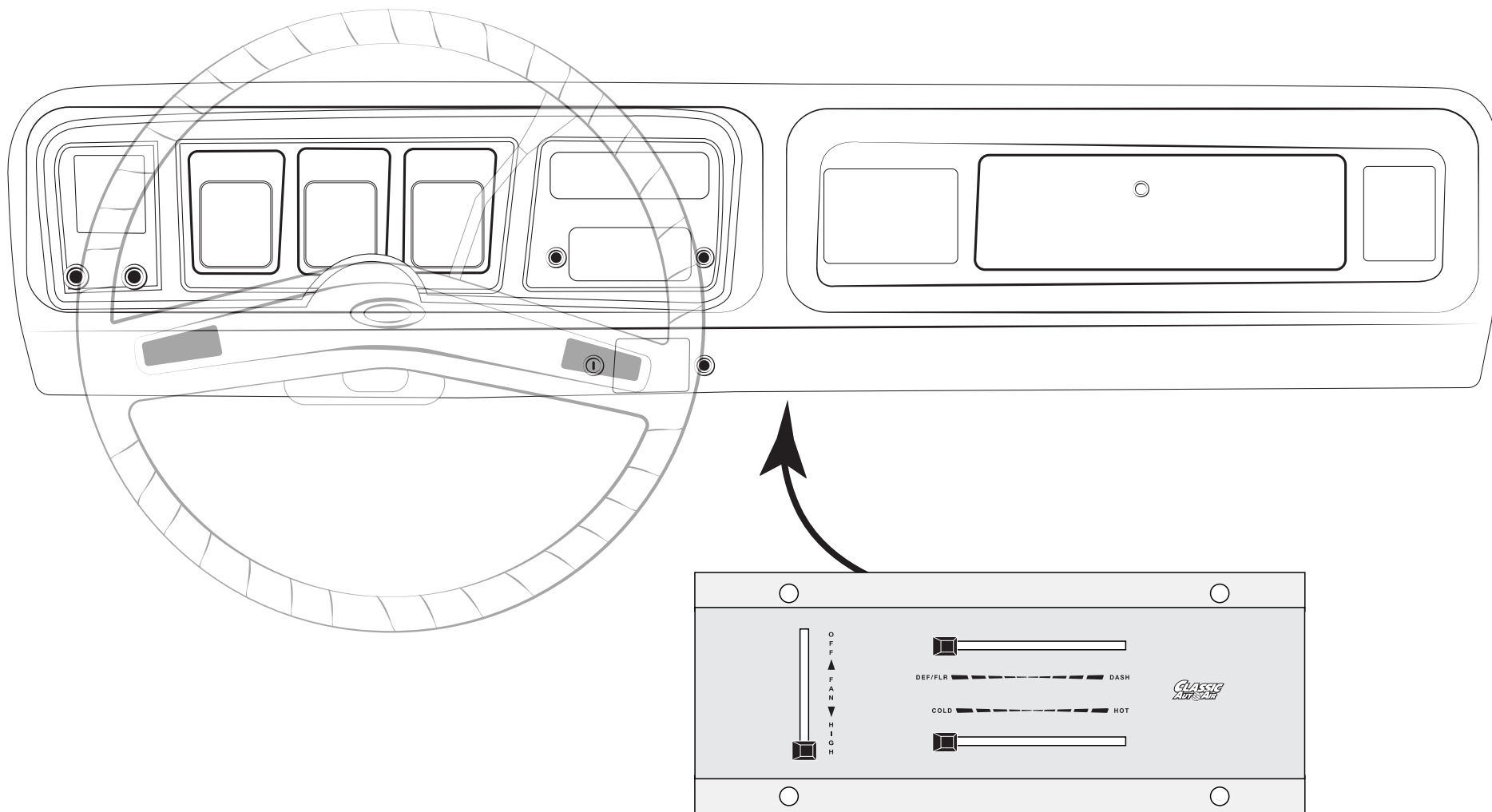
Three Flange Nuts



Two #10 x 5/8" Phillips Screws



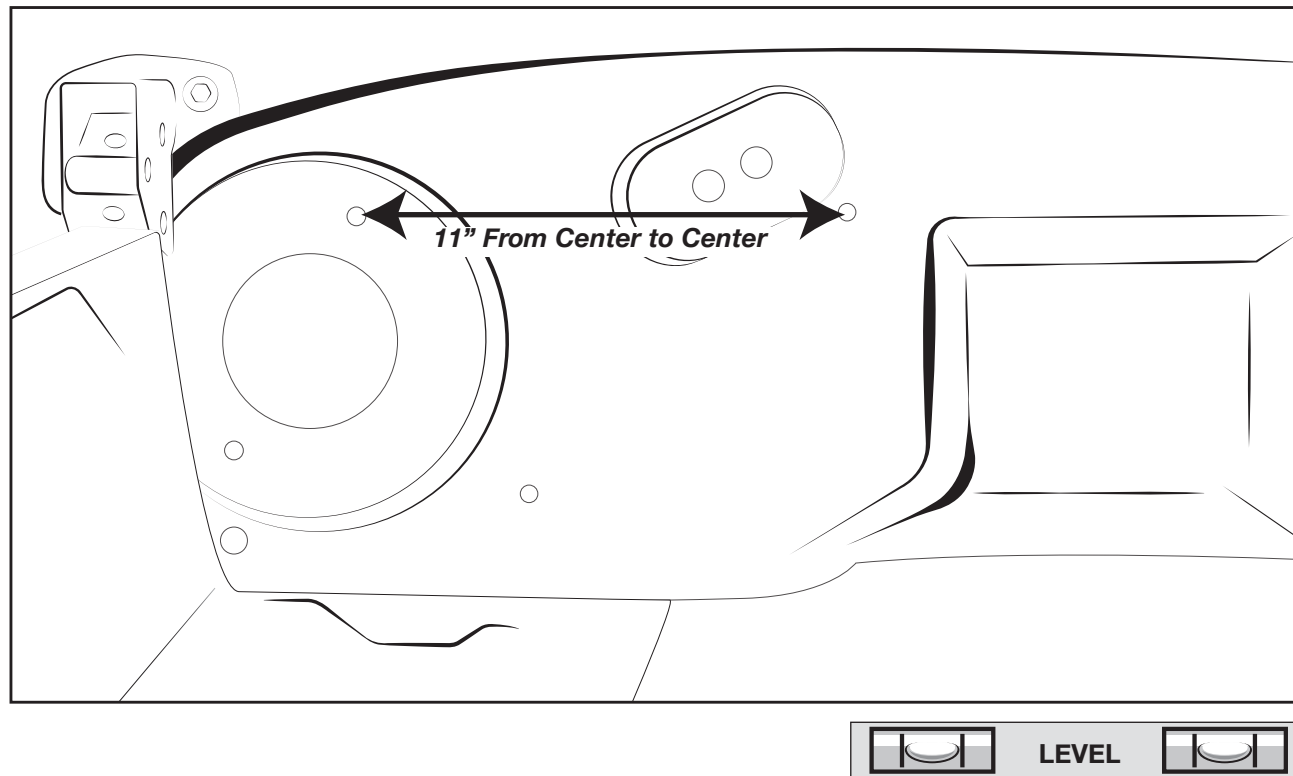
Attach Fresh Air Block Off Plate PN#10-2095FA-1  
to firewall using Six Tek Screws provided in Bag Kit



**Install D.E.R. at this time using original mounting hardware.**

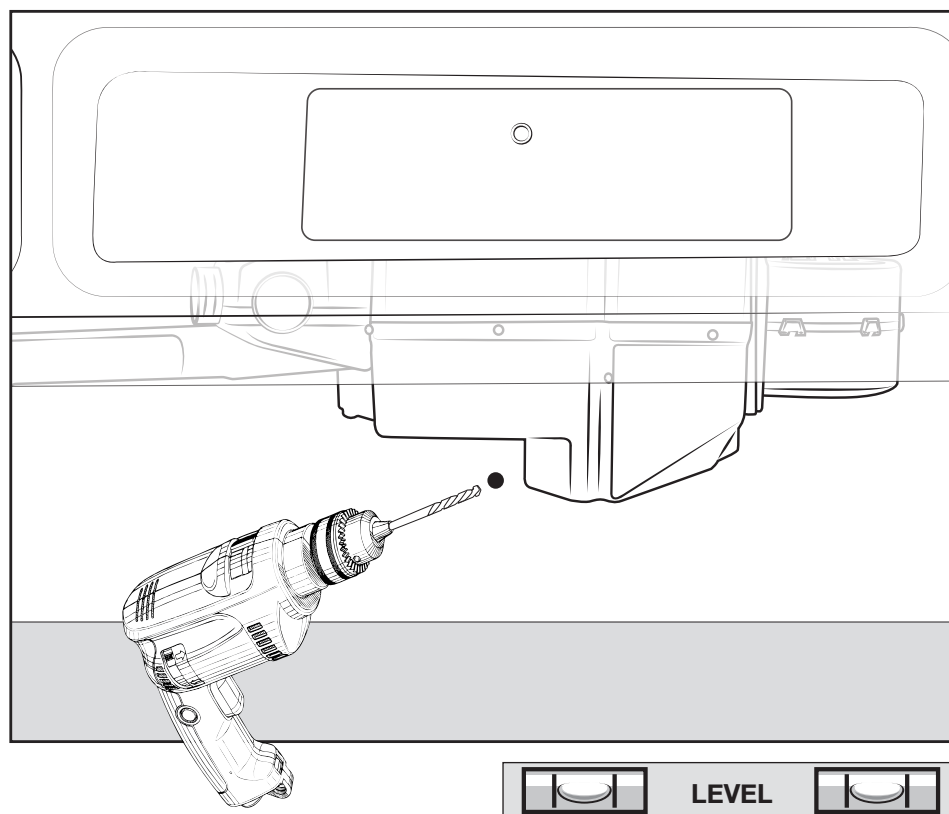


Using the Factory **TOP** hole as a start position drill a 1/4" hole 11" straight across. This should be center to center 11".



**NOTE: Two people are needed for this step!**

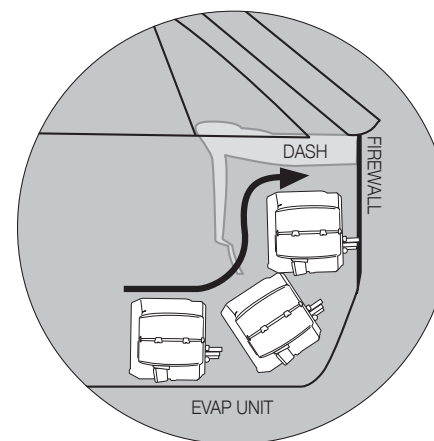
Place evaporator on floor panel. Roll unit up behind the glove box opening, inserting tubes thru the hole in the firewall.



Mount Evaporator level to firewall.

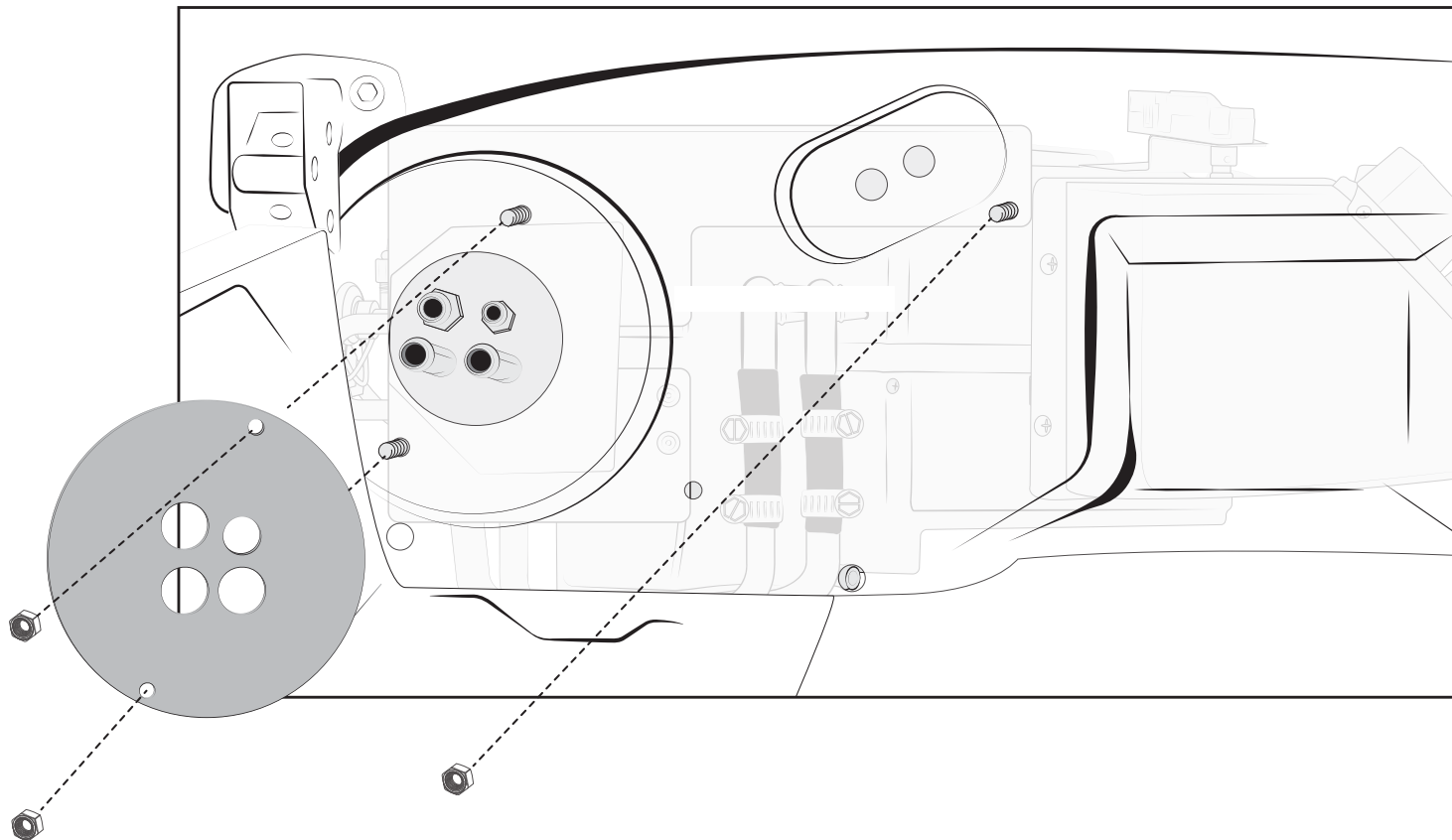
Locate Drain nipple on Evaporator and drill a 3/4" hole below the nipple on the firewall. This will allow condensation to drain properly.

**Note: Keep Evap level**



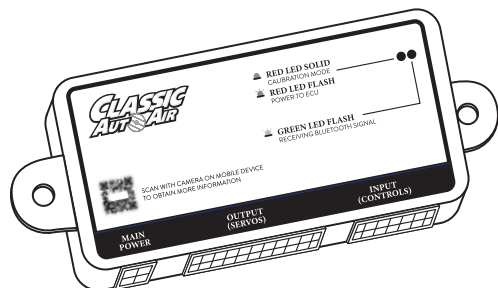
Installing the evaporator will require attention and detail. The tubes will need to be inserted through the firewall hole.

At this point you will need help mounting the evaporator. While one person inside the cab holds the evaporator in position, the other person will be in the engine bay. Use (3) Flange Nuts to mount the unit as shown below.

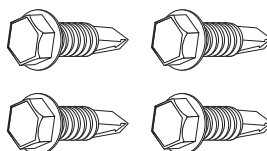


## THESE ARE THE PARTS YOU WILL FIND IN BAG KIT C

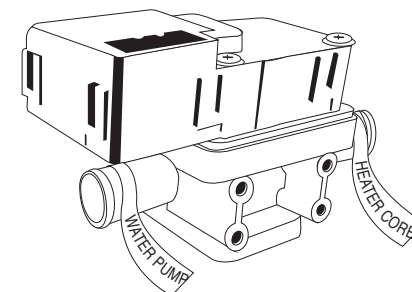
You will use all of these parts and hardware during the next series of installation steps.



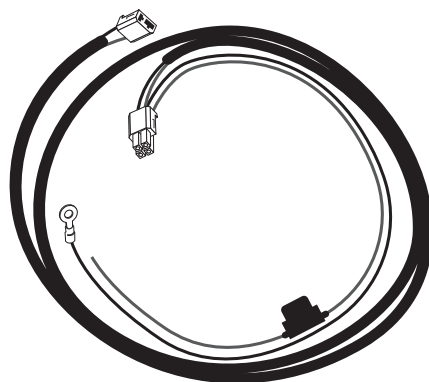
*ECU  
16-2500*



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



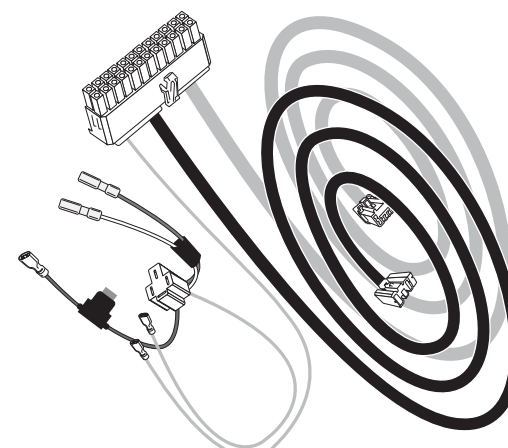
*Electronic Water Control Valve  
PN# 16-1023*



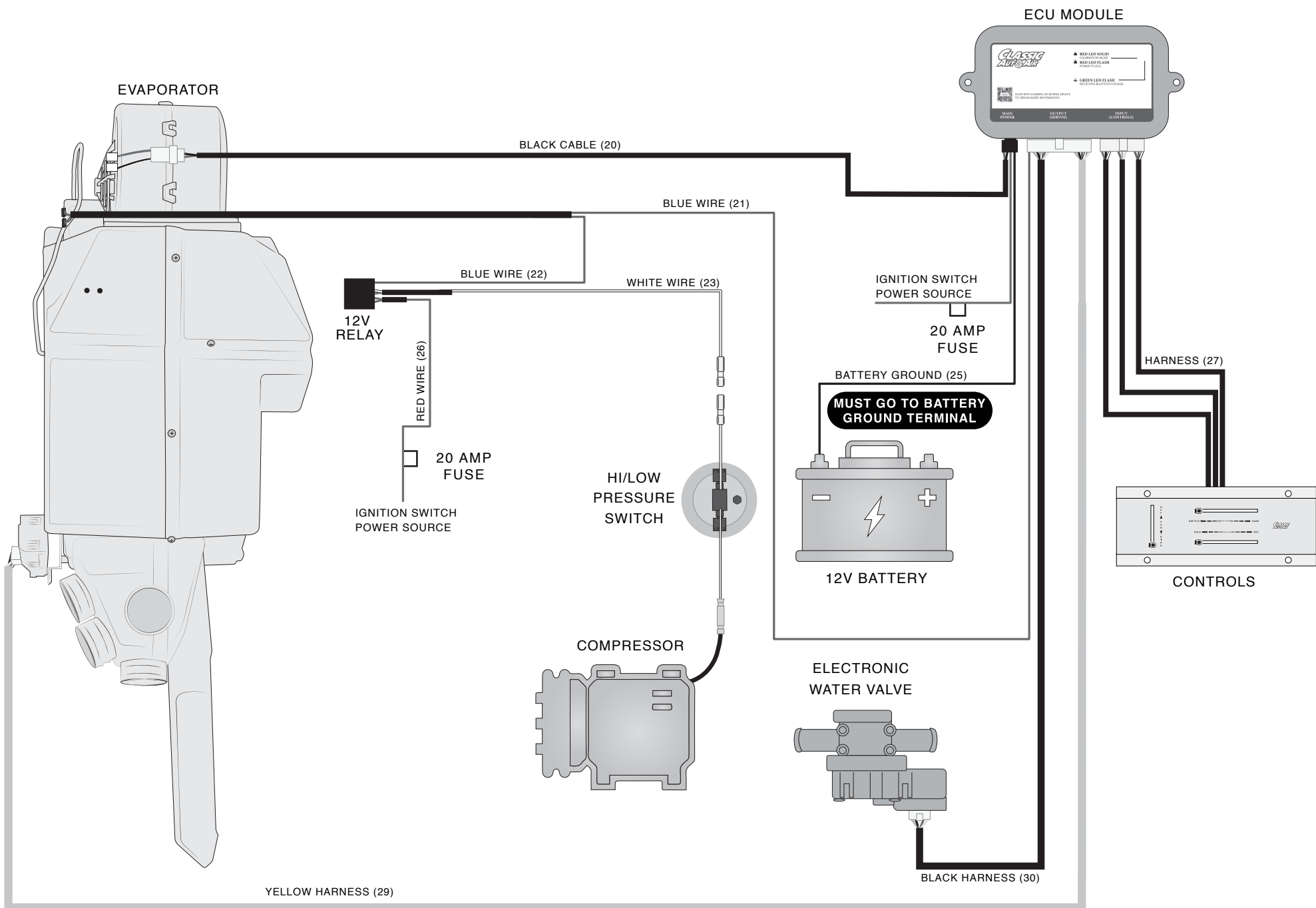
*HARNESS POWER SUPPLY  
0125-5*



*Relay  
30-13373*

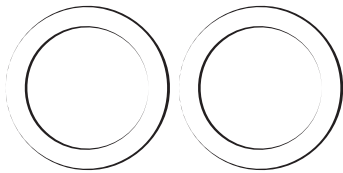


*HARNESS  
0125-20A*

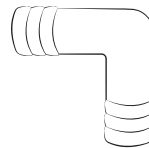


## THESE ARE THE PARTS YOU WILL FIND IN BAG KIT D

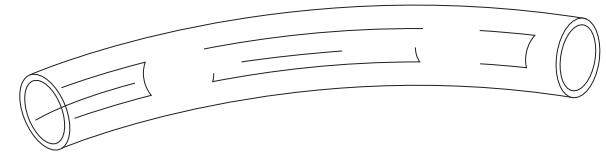
You will use all of these parts and hardware during the next series of installation steps.



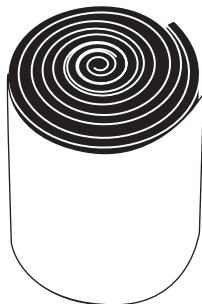
Cap Plug



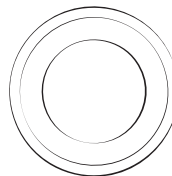
90 Degree Elbow



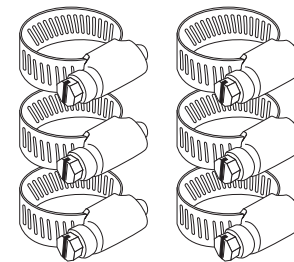
Clear Plastic Drain Tube



Refrigerant Tape

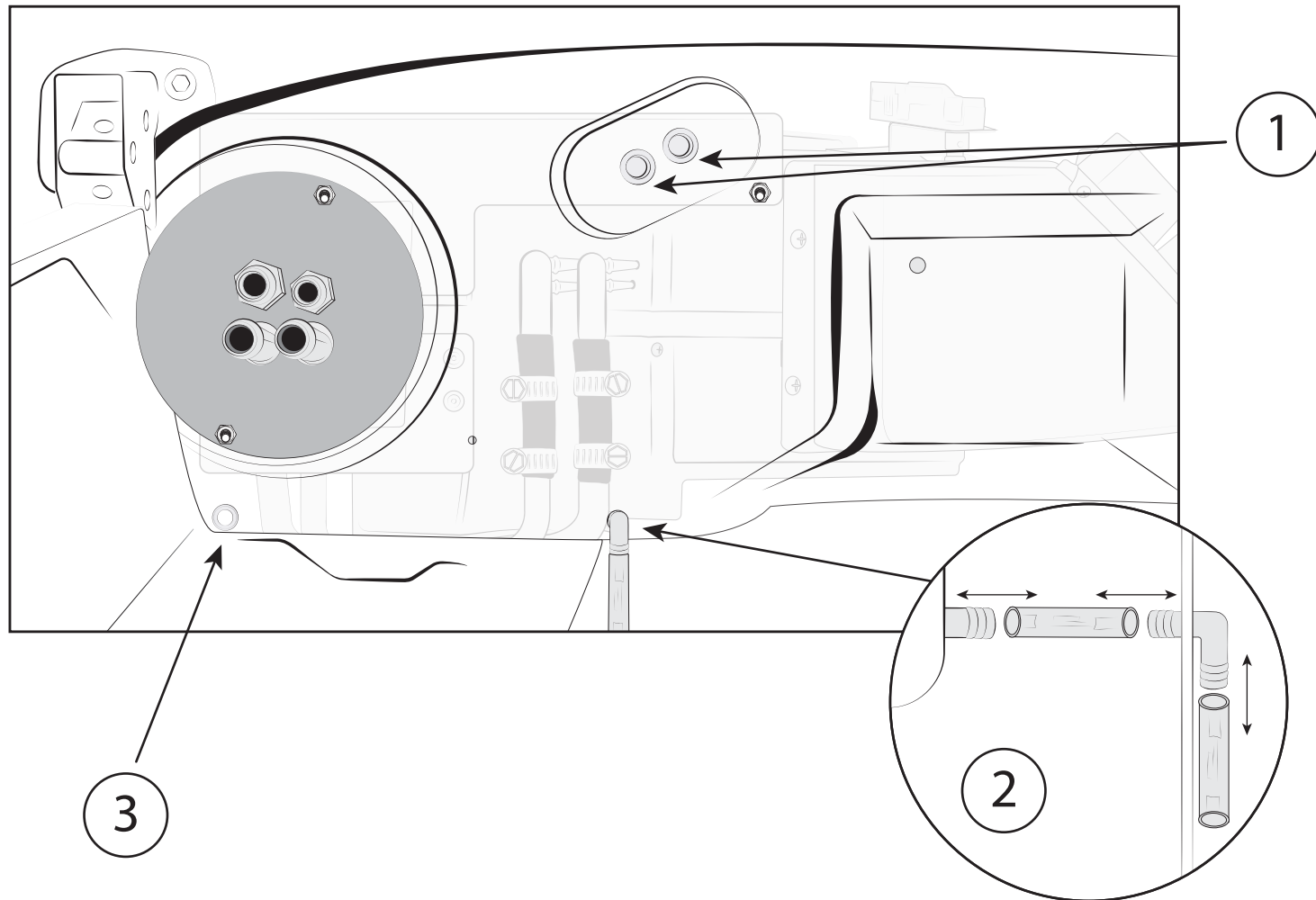


Grommet



Six Worm Gear Clamps

(1) Install the Cap Plugs into the OEM Heater holes. (2) Attach drain tube as shown. (3) insert grommet into hole for water valve harness and white wire to compressor.



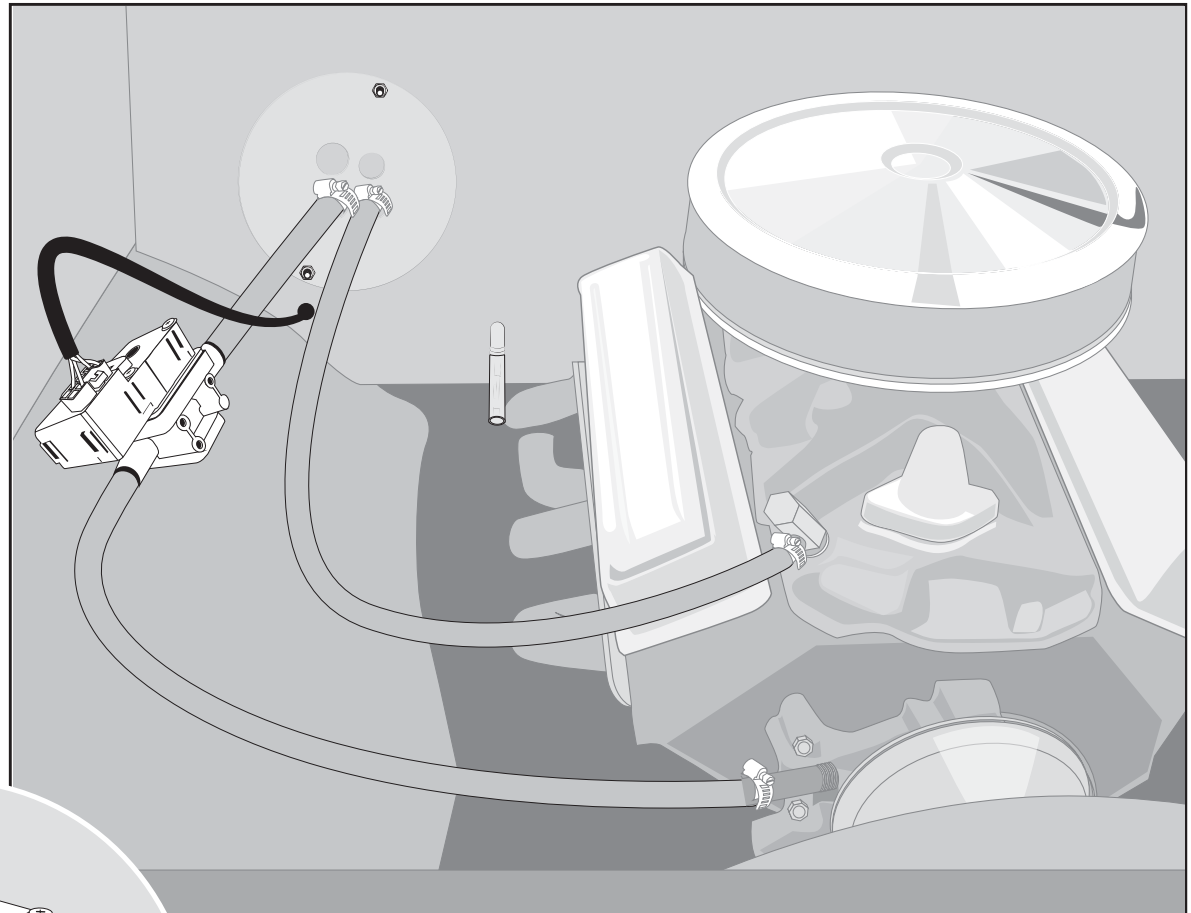
## IMPORTANT NOTICE: PROPER INSTALLATION OF WATER VALVE

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

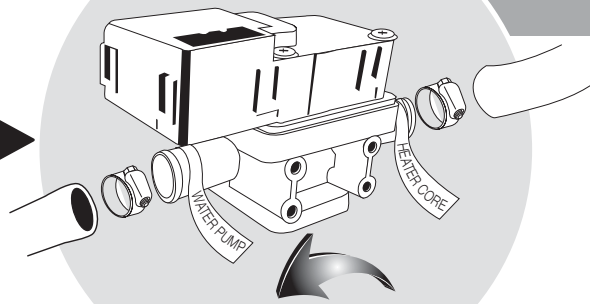
The **Right** heater tube connection on firewall will be routed to the water connection on intake manifold using 5/8" dia. heater hose with the supplied worm gear clamp.

The **Left** heater tube connection on the firewall will be routed to the water valve connection labeled **heater core**, using a 6" piece of 5/8" 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!**

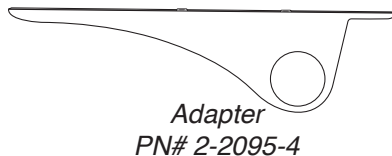




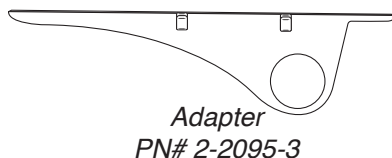
## THESE ARE THE PARTS YOU WILL FIND IN BAG KITS E, F, and G

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

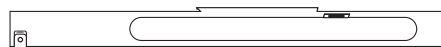
### Bag E



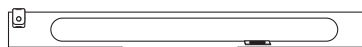
Adapter  
PN# 2-2095-4



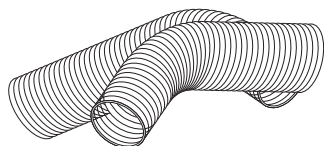
Adapter  
PN# 2-2095-3



Bracket  
PN# 2-2095-1



Bracket  
PN# 2-2095-2



Two Duct Hoses, 2" I.D.

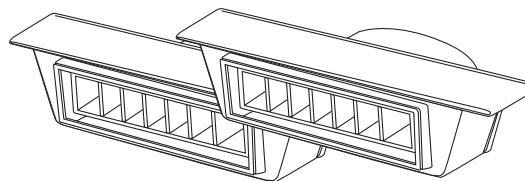


Four #10 - 5/8" Screws

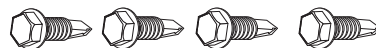


Four Zip-Ties

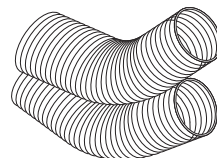
### Bag F



Two Lower Dash Louvers  
PN#2-1038



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

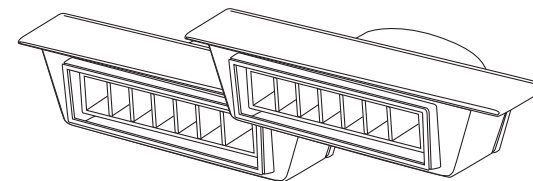


Two Duct Hoses, 2" I.D.



Four Zip-Ties

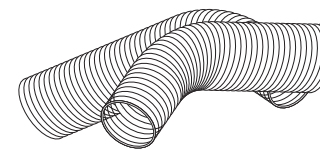
### Bag G



Two Lower Dash Louvers  
PN#2-1038



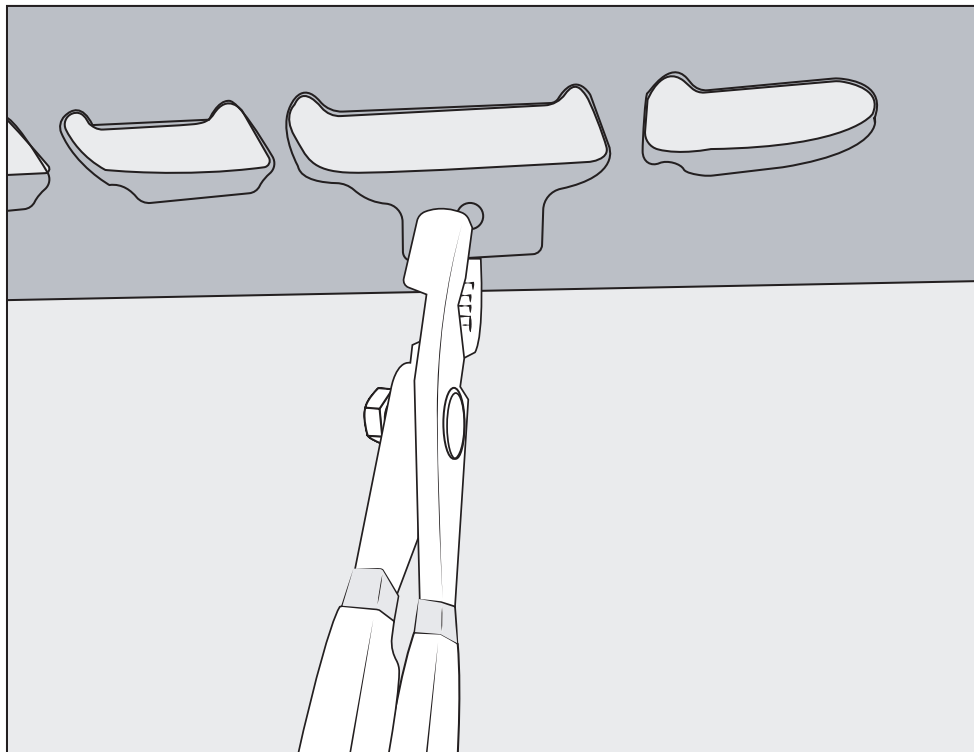
Four #10 - 16 x 3/4" Tek Screws



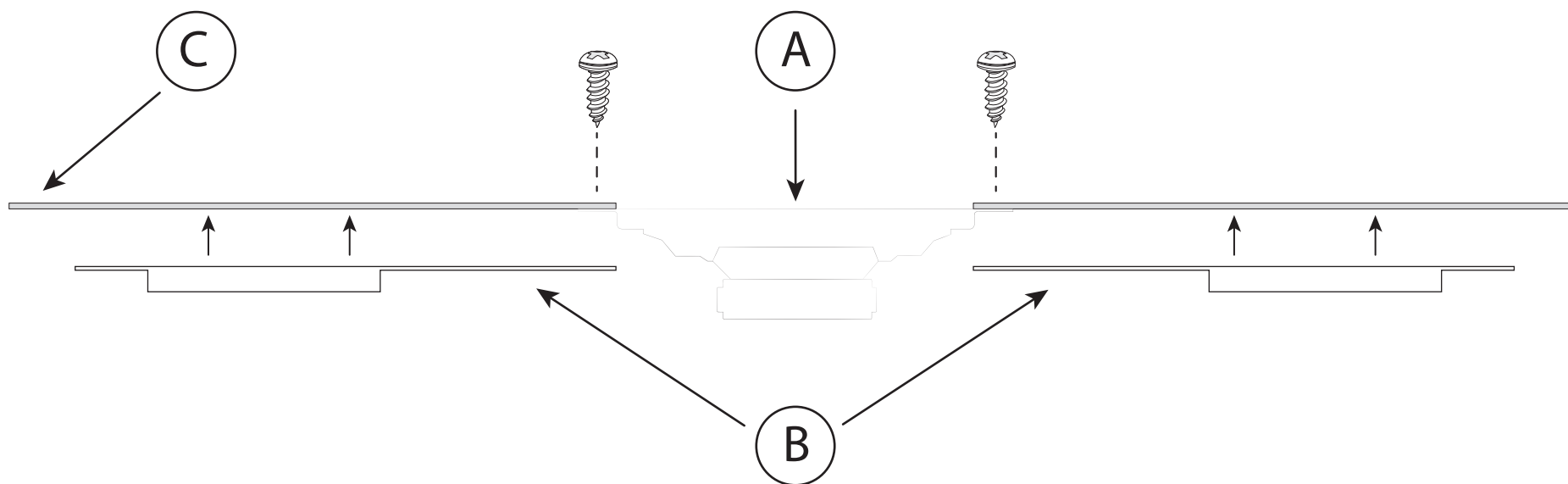
Two Duct Hoses, 2" I.D.



Four Zip-Ties



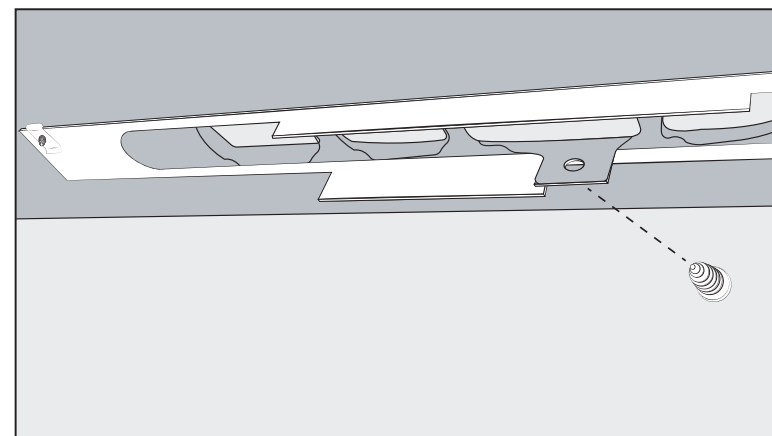
On the original defrost duct mounting tabs a 90 degree **BEND** will need to be made. The new brackets will be mounted using this hole.

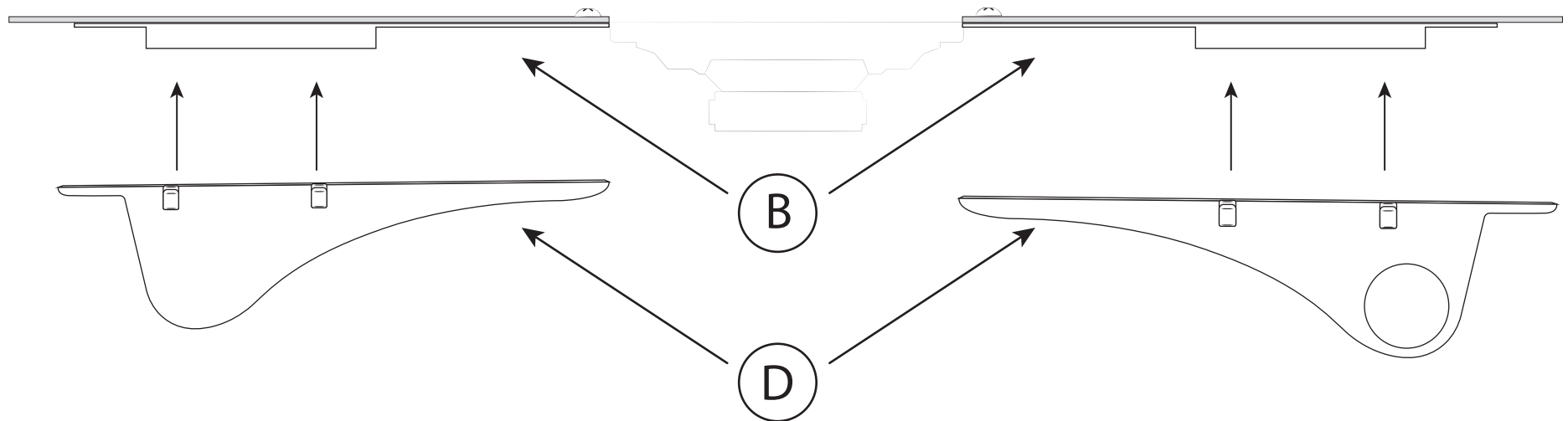


(A) Remove center speaker if equipped. Speaker will have to be mounted in between dash and bracket if it is going to be used.

To mount the Brackets (B) to the Dash (C) a #10 -5/8" Screw will need to be used from the Top of the dash as shown.

To the Right you will see that a #10 -5/8" Screw will need to be used from the back side to mount Brackets (B).

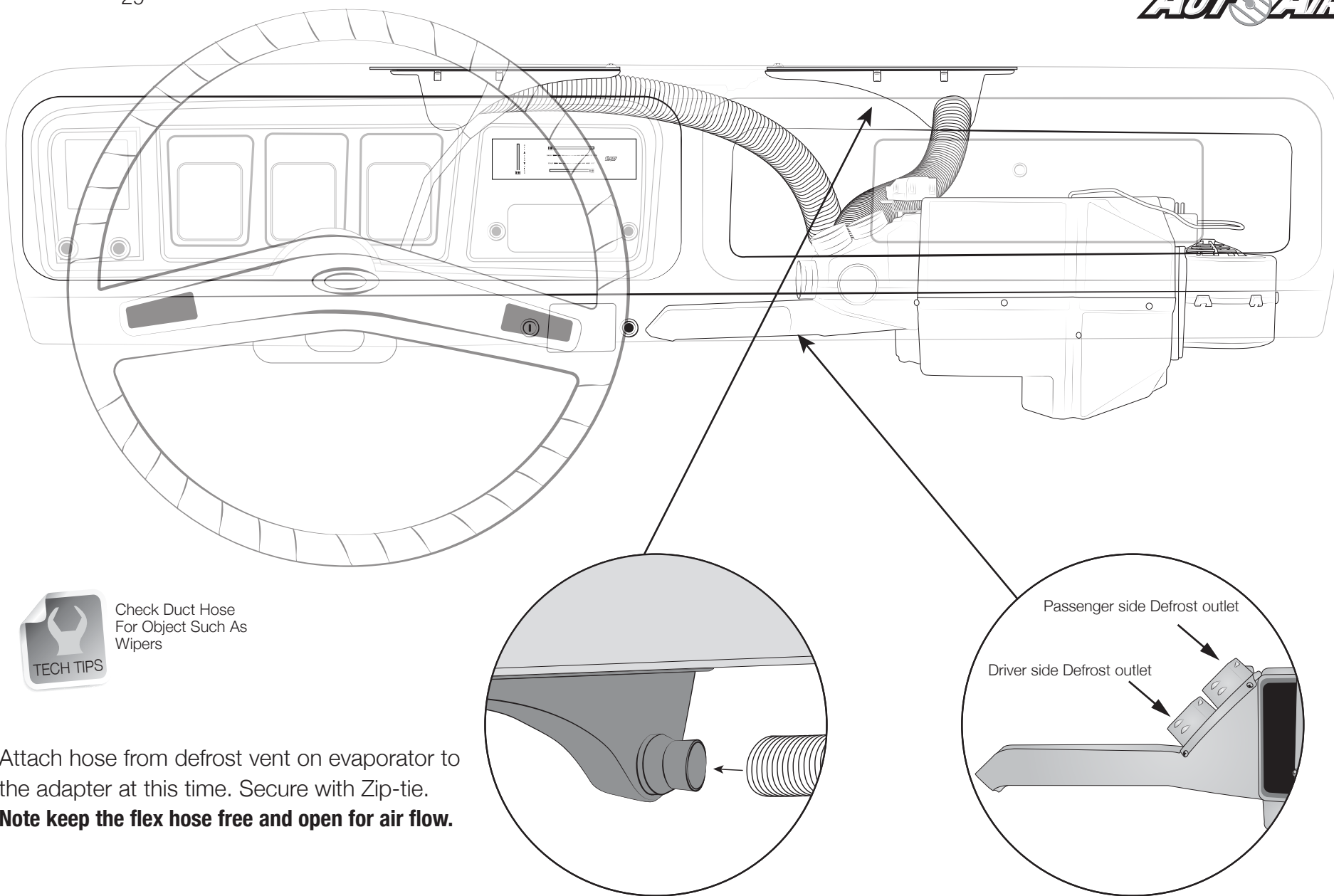


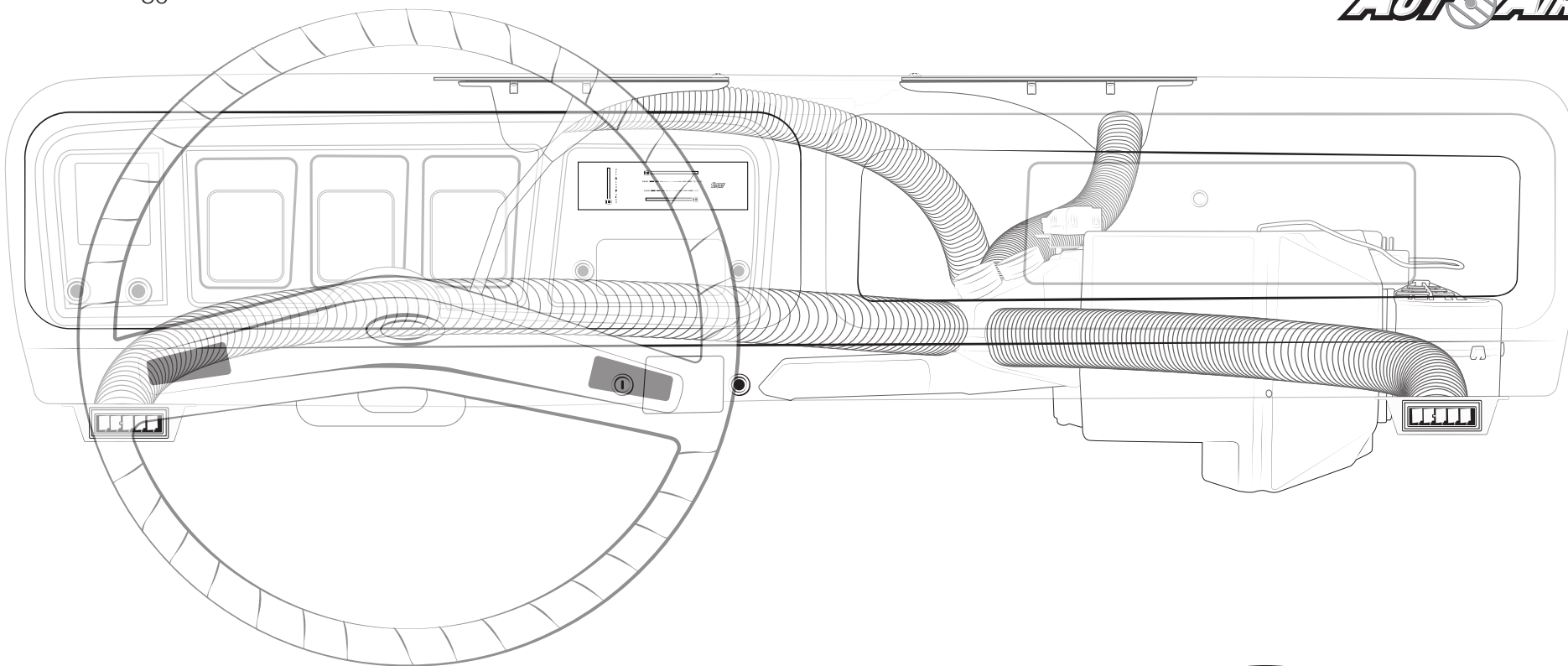


(D) To attach the defrost adapters push on to the already installed Brackets (B) using the s-clips. At this point your defrost adapters should be secured and be ready to have ducting attached.

**Notice the directions of each adapter.**

The Driver side adapter should have duct opening facing the firewall and the Passenger side adapter should have duct opening facing the dash.



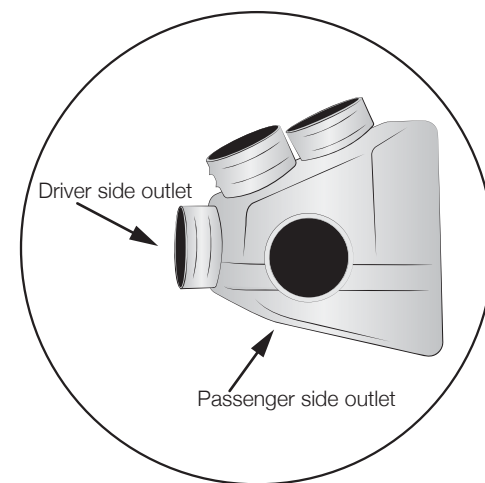


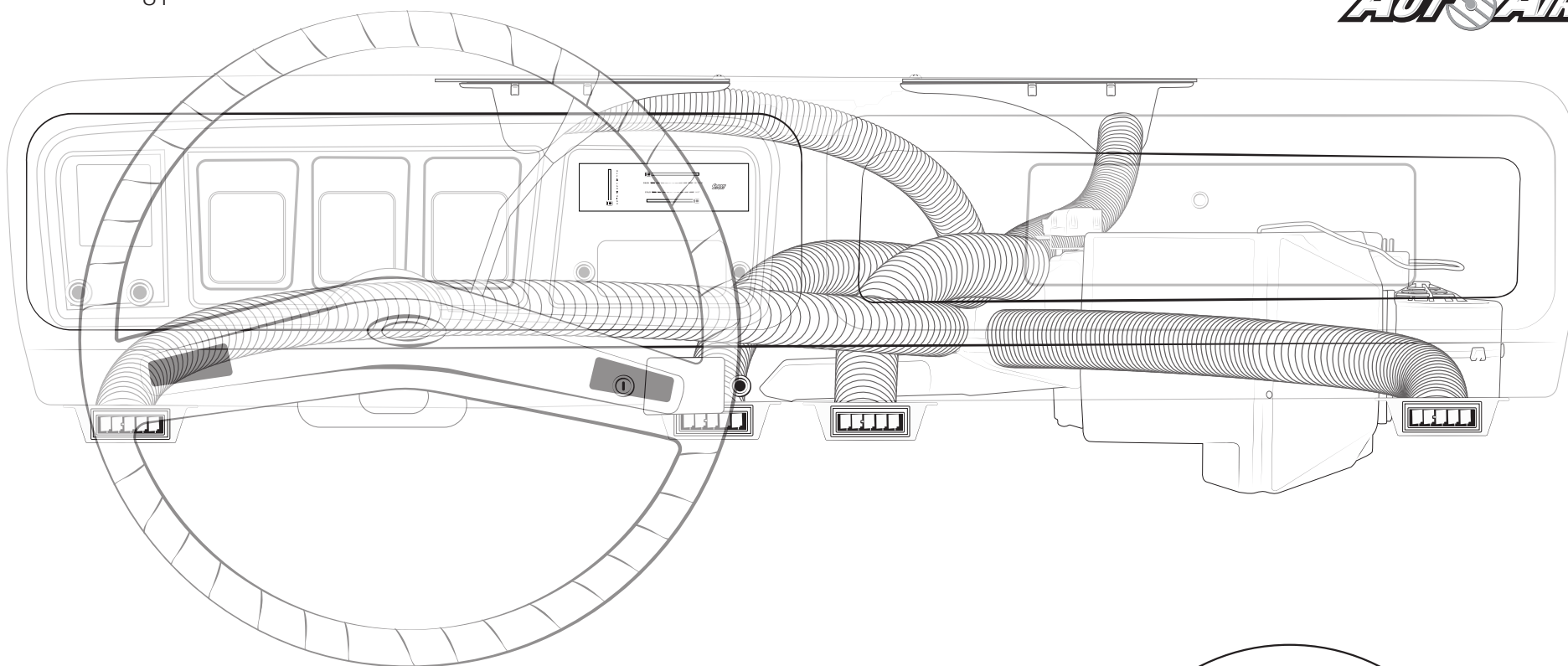
The smoother the route of the flex hoses the better the airflow.

Locate Bag Kit F with the (2) remote louver assemblies, and the #10 x 3/4" hex head tek screws.

Mount the (2) remote louver assemblies in desired location of dash.  
Locate 2" dia flex hose from the unit box and attach to the unit.

**Note keep the flex hose free and open for air flow.**



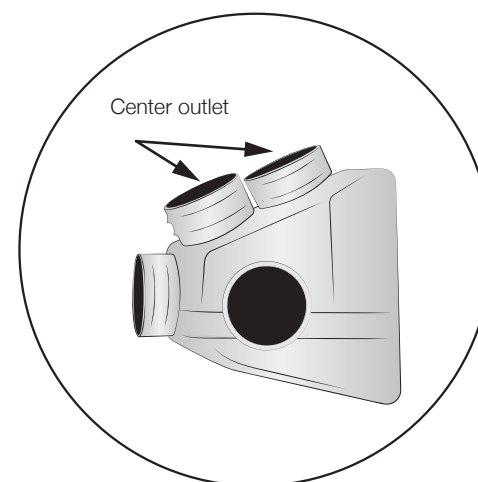


The smoother the route of the flex hoses the better the airflow.

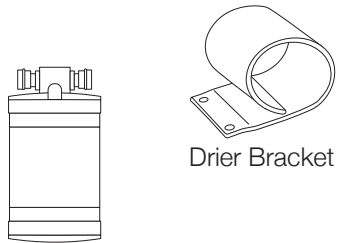
Locate Bag Kit G with the (2) remote louver assemblies, and the #10 x 3/4" hex head tek screws.

Mount the (2) remote louver assemblies in desired location of dash. Locate 2" dia flex hose from the unit box and attach to the unit.

**Note keep the flex hose free and open for air flow.**

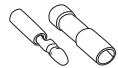


## THESE ARE THE PARTS YOU WILL NEED FOR THE ENGINE COMPARTMENT INSTALLATION



Drier Bracket

Drier



Splice and  
Bullet Connector



Six #10 x 1/4" Screws



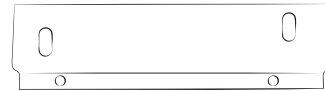
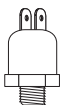
Two #8-32 x 1/2" Bolts



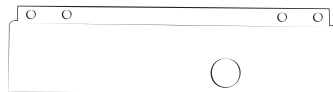
Two #8-32 Nylock Nuts



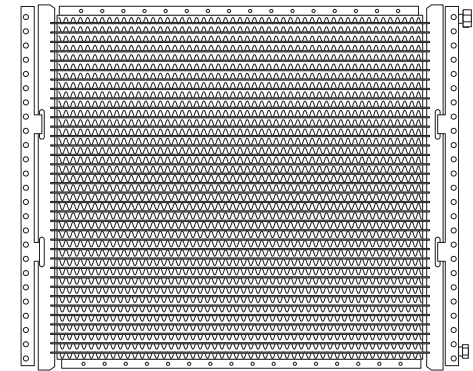
Pressure Switch and harness,  
Bag of O-rings and Mineral Oil Tube



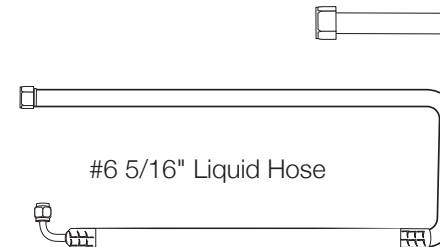
Condenser  
Bracket  
PN#0122-54



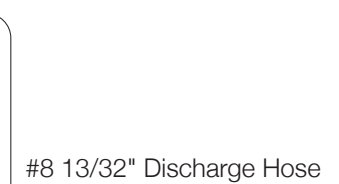
Condenser  
Bracket  
PN#0019-52



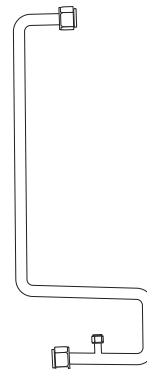
Condenser  
PN# 11-1093



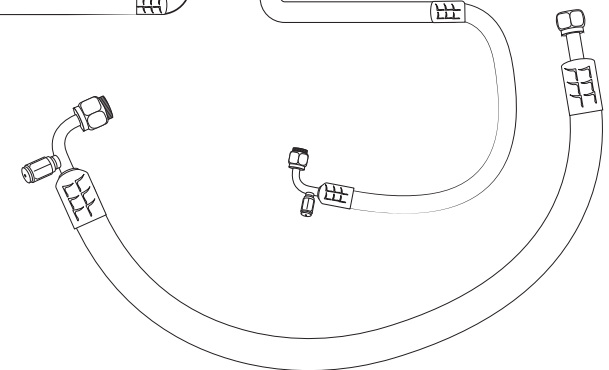
#6 5/16" Liquid Hose



#8 13/32" Discharge Hose



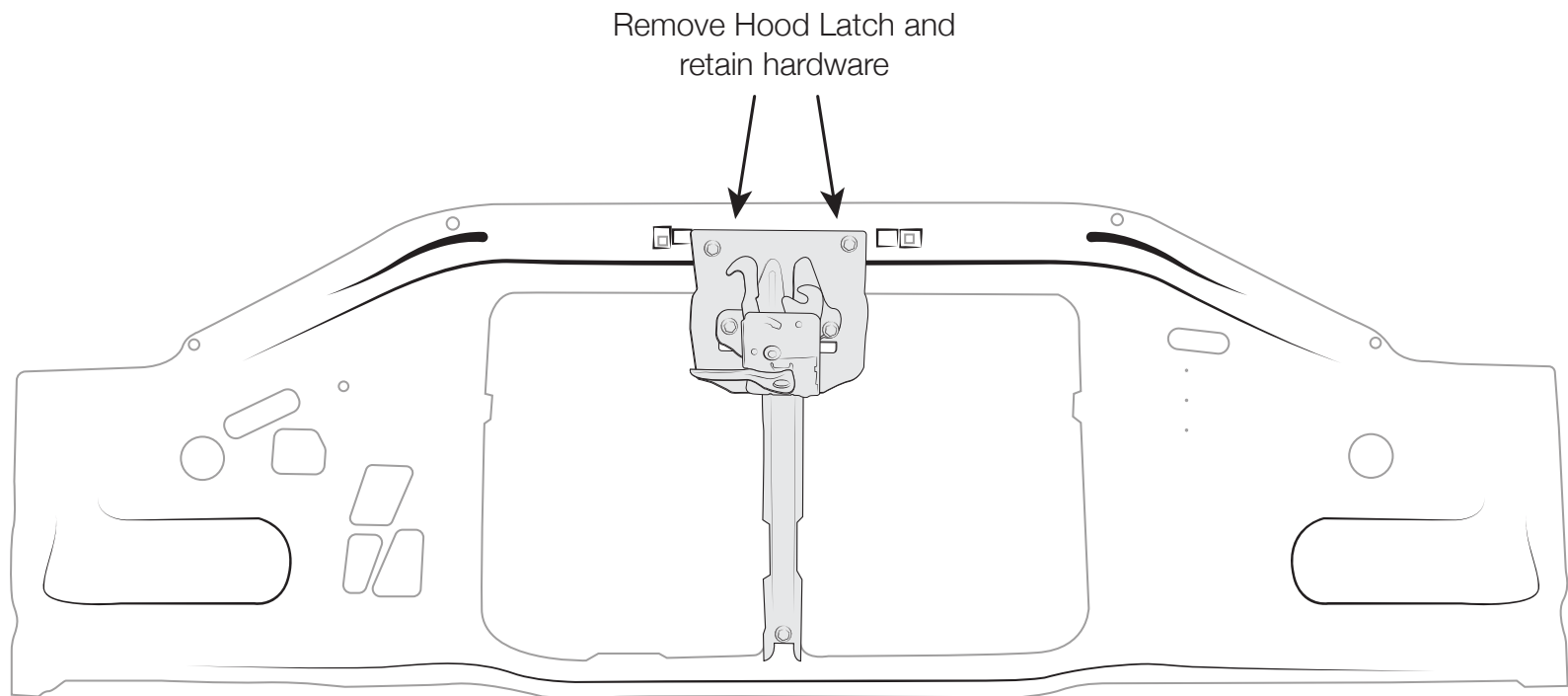
Liquid Tube (condenser to drier)  
PN#0019-93



#10 1/2" Suction Hose

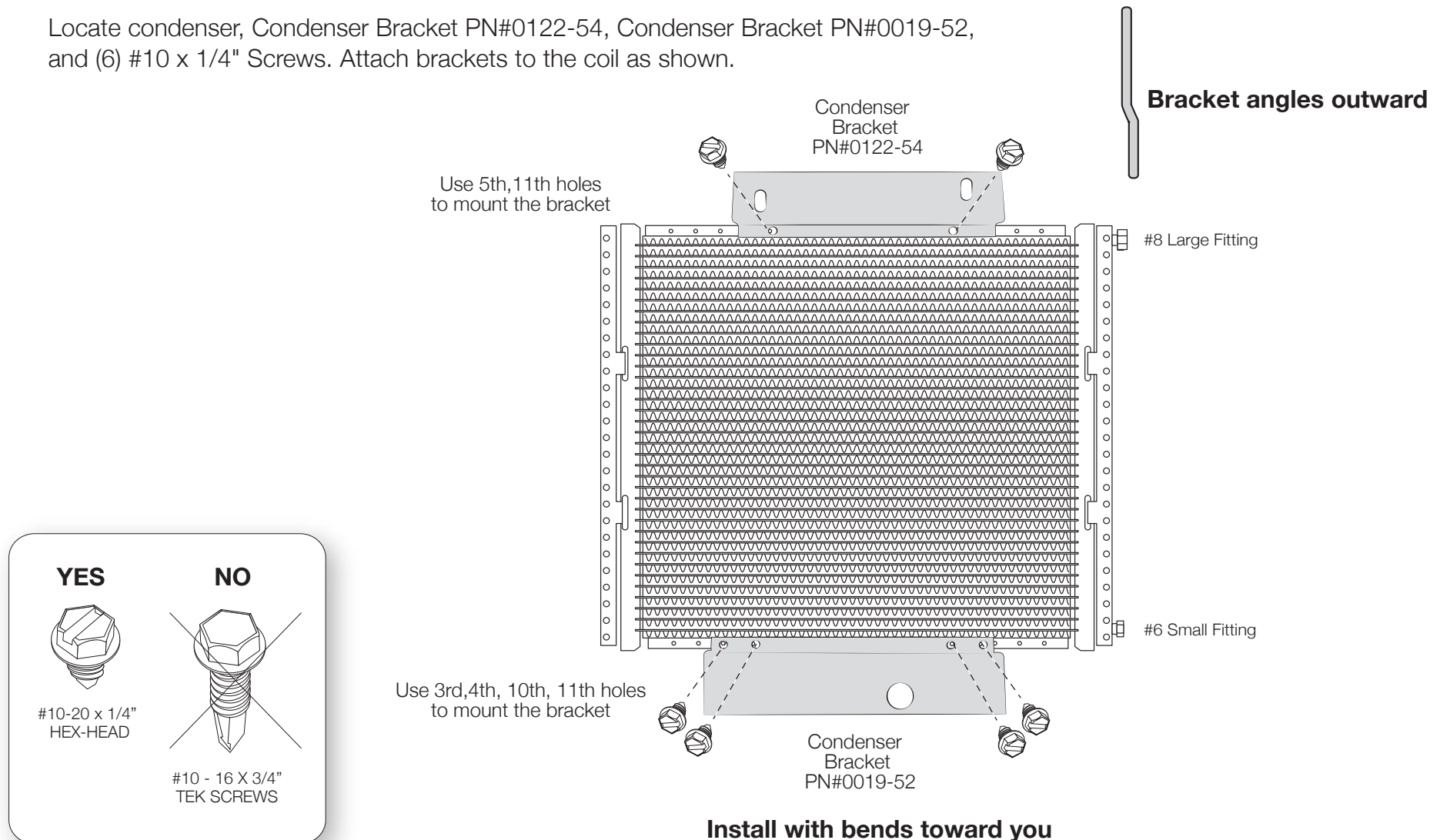


Remove the hood latch and retain the hardware for re-installation.  
Remove grill.



**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 **RIGHT SIDE** (the larger connection will be on top).

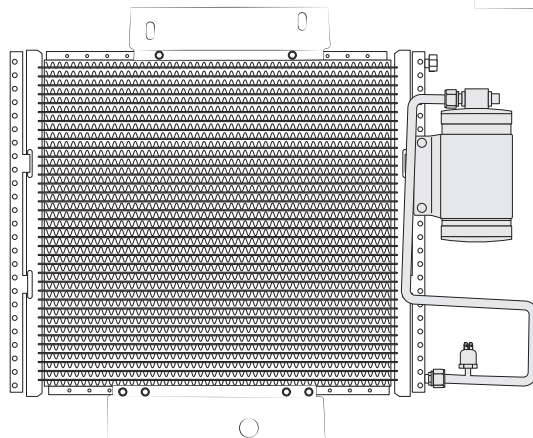
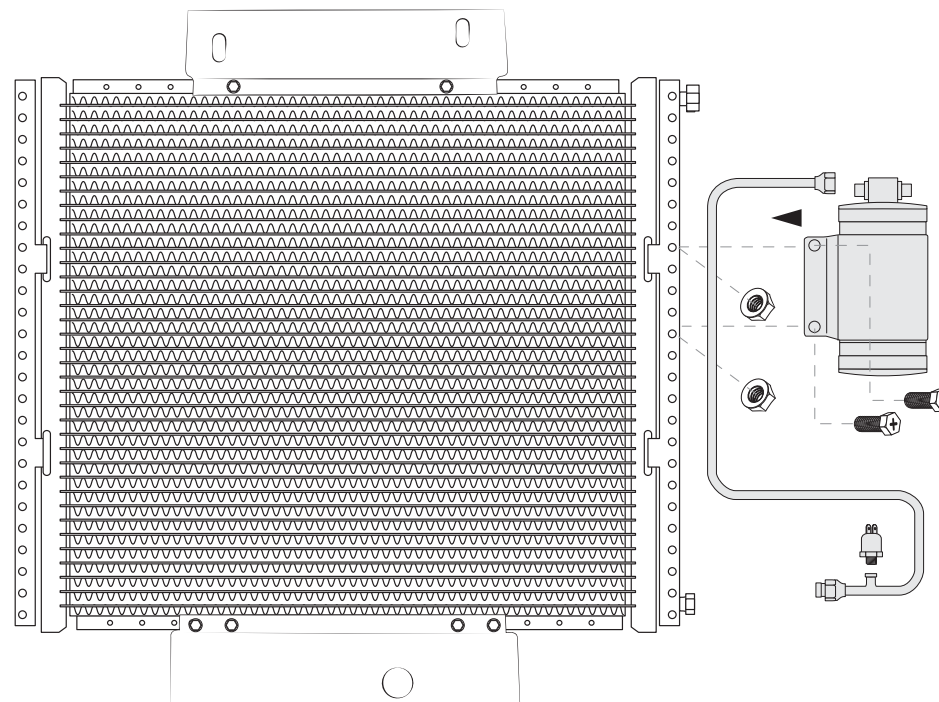
Locate condenser, Condenser Bracket PN#0122-54, Condenser Bracket PN#0019-52, and (6) #10 x 1/4" Screws. Attach brackets to the coil as shown.



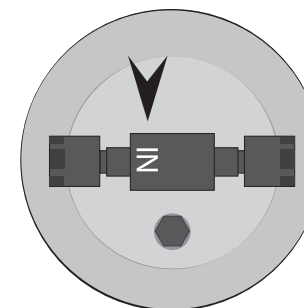
**DRIER AND CONDENSER PREPARATION.** Lay the condenser down so that both hose connections are on the **RIGHT SIDE** (the larger connection will be on top). The drier is conveniently mounted on the left hand side of the condenser.

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 Two #8-32 x 1/2" Bolt screws and Two #8-32 Nylock Nuts (attach drier and bracket from the front of the condenser).

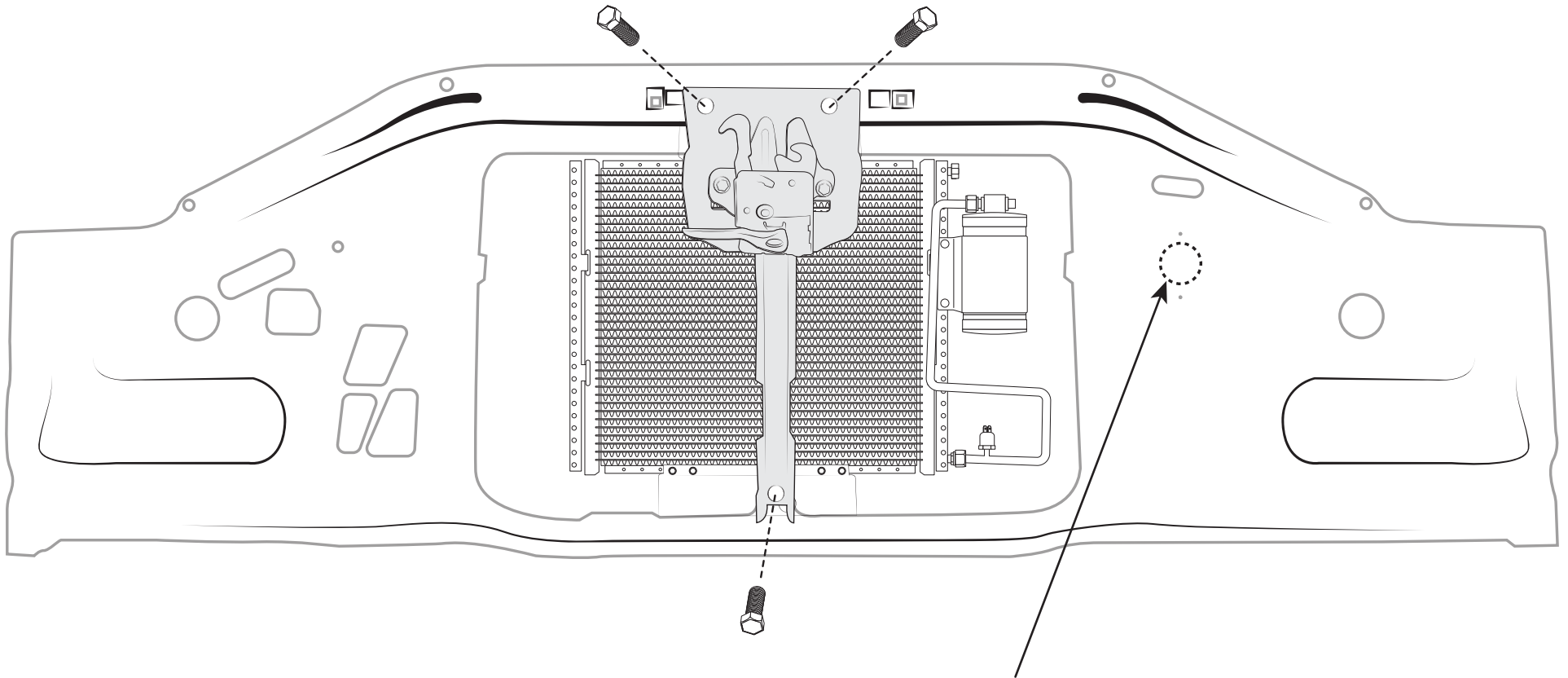
**PRESSURE SWITCH:** Screw the high-pressure switch into the port on the liquid tube. Go ahead and plug the pressure switch harness into the switch at this time (black electrical boot with two long white wires).



**DRIER TOP VIEW**



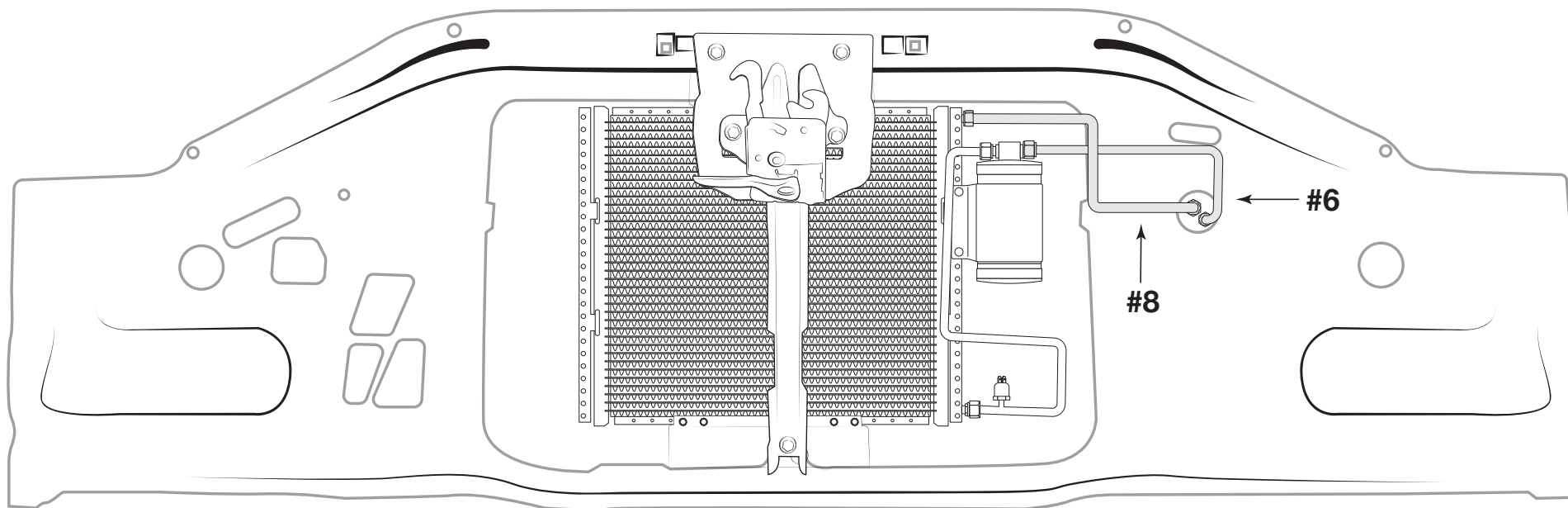
**MOUNTING CONDENSER.** Using the original hardware mount condenser and hood latch at this time. Condenser and hood latch mounting point will line up exactly for easy installation.



**DRILL OUT HOLE**

There are 3 dimples in core support on Driver's side. Use the middle dimple to drill a 3.5" hole to route compressor tubes.

**MOUNTING TUBES.** At this time you can attach the #6 to the Drier and route through the core support as shown. Mount the #8 tube to the TOP port of the condenser and route through the core support as shown.



**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.

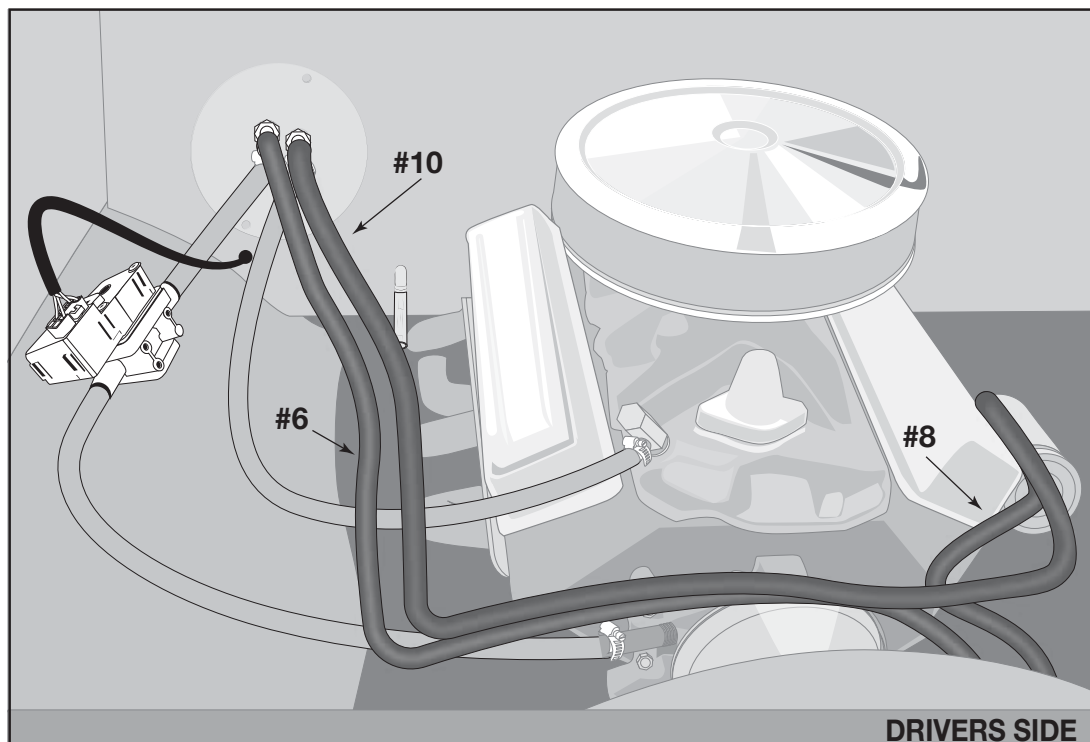
### CONNECTING THE HOSES:

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

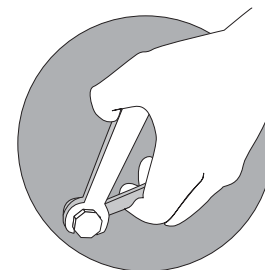
The #10 **(LARGEST)** refrigerant hose. Attach end with service fitting to the compressor using (1) #10 o-ring and a few drops of mineral oil. Attach other end to #10 fitting at the firewall. Attach using one #10 o-ring and a few drops of mineral oil. Tighten securely.

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.



### 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!**

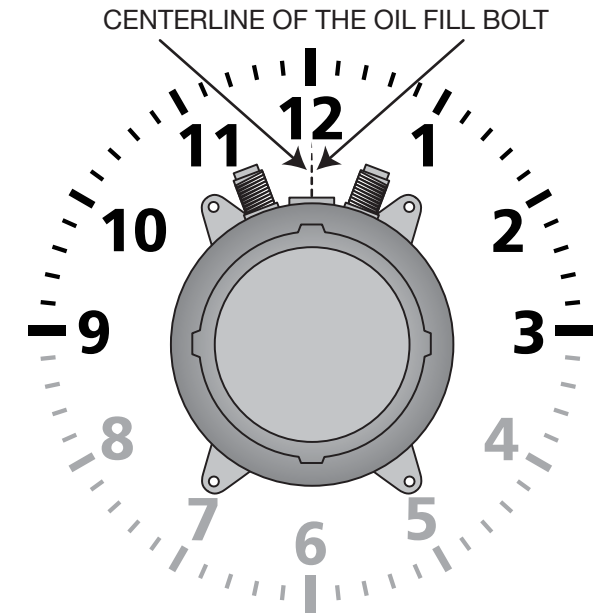
**RECOMMENDED TEST CONDITIONS:** (After system has been fully charged and tested for basic operation)

- 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

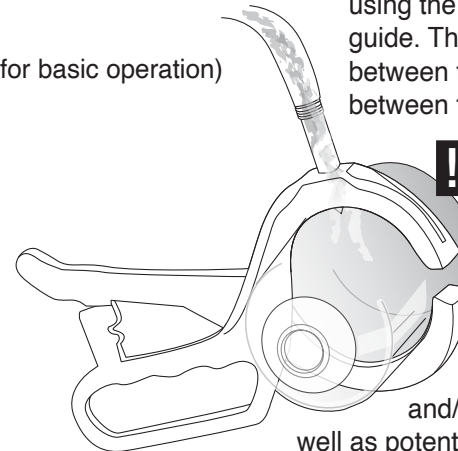
**ACCEPTABLE OPERATING PRESSURE RANGES:**

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 in between the 9 to 3 positions. **DO NOT** mount in between 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.

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

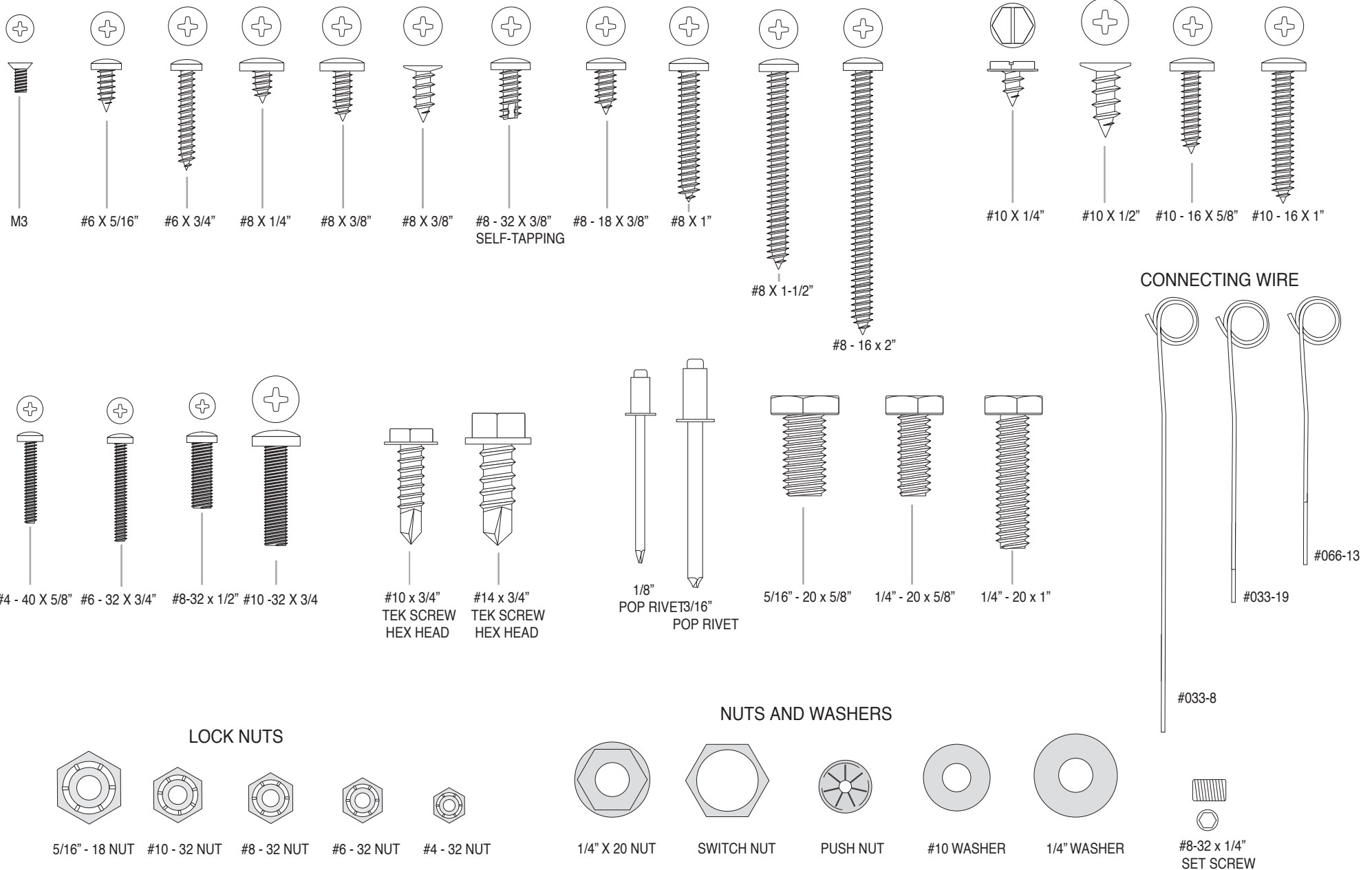
Get the technical support you want the moment you need it, with no wait times. Simply **SCAN** the **QR code** and be directly taken to our support section to troubleshoot all things A/C.



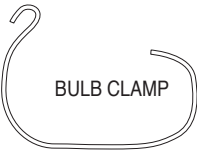
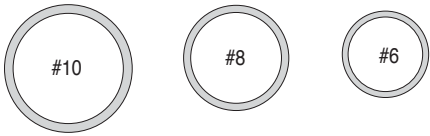


## Classic Auto Air Hardware Reference Guide

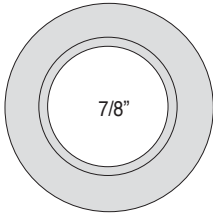
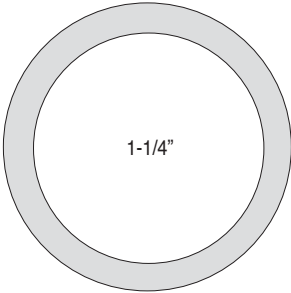
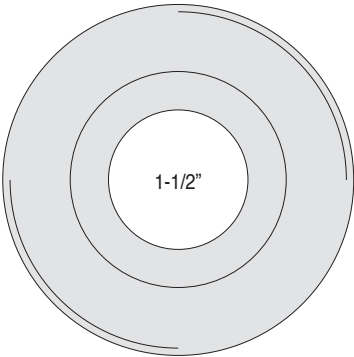
This is our basic line-up of hardware. No single kit will not contain all of these, but you can use this guide to match-up hardware for shape and size (all of these are actual size.)



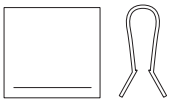
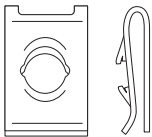
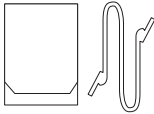
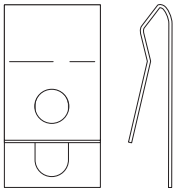
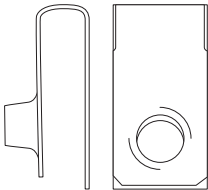
ORINGS



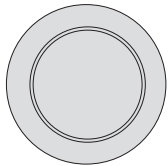
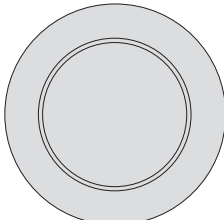
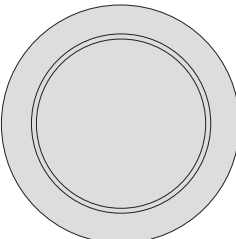
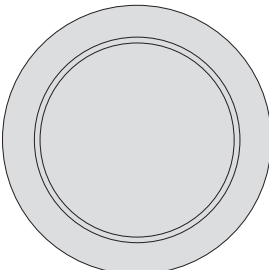
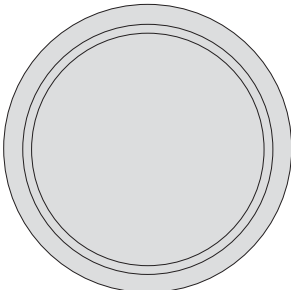
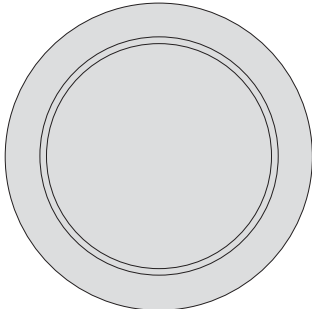
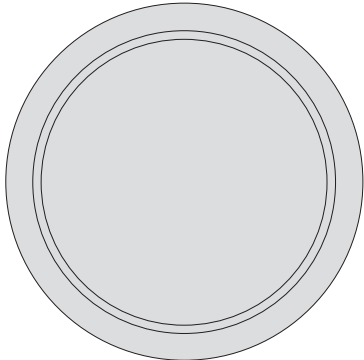
GROMMETS



CLIPS



HOLE PLUGS



HOSE CLAMPS

