



Installation Manual

1967-1968 Mustang ***1967-1968 Cougar***

DOCUMENT #20-3026

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Congratulations...

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

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 During the installation you might find the opportunity to repair or upgrade non-working or out of date components.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

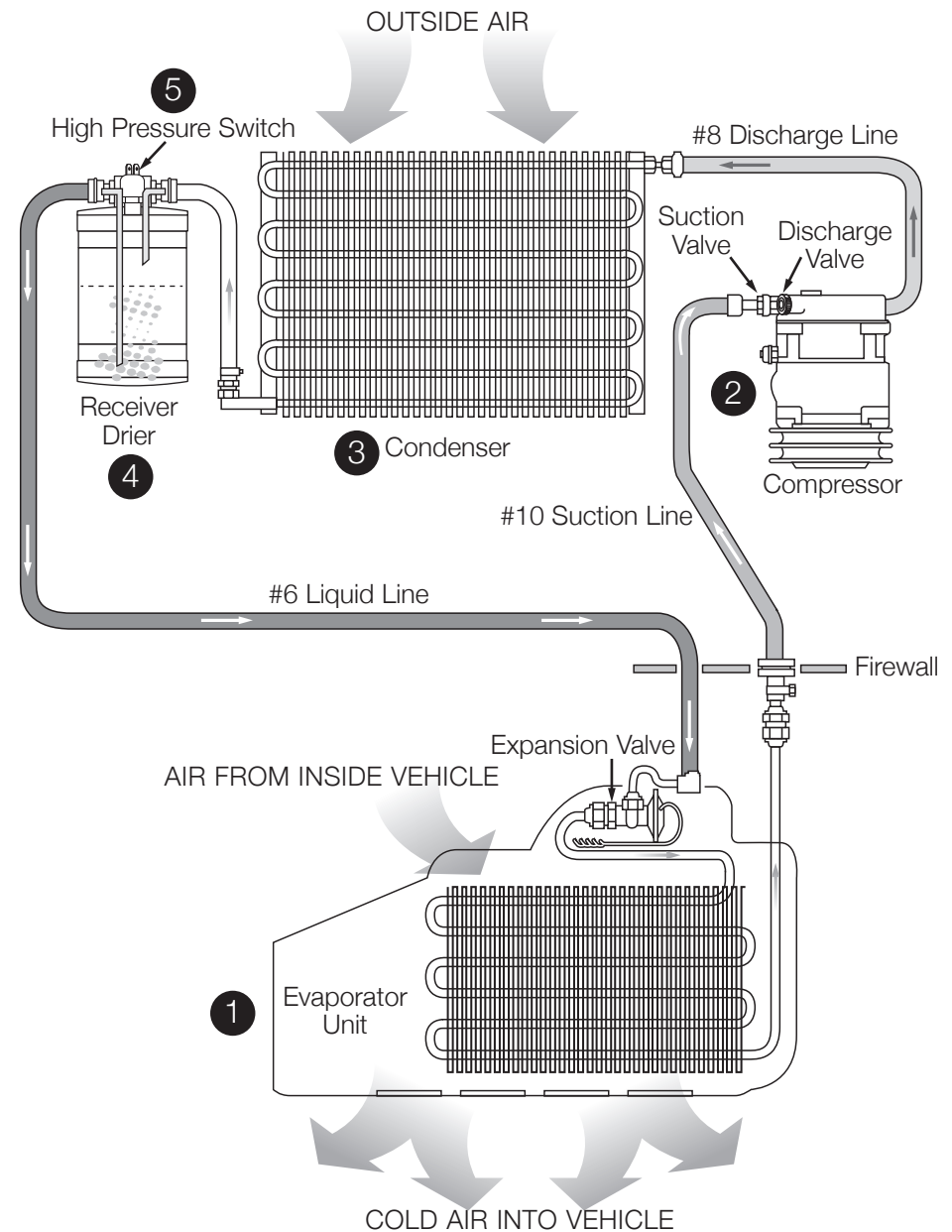
- ☐ Fittings: Use one or two drops of mineral oil (supplied with your kit) on ALL rubber o-rings, threads and rear of bump for o-ring where female nut rides. Do not use thread tape or sealants.
- ☐ Measure twice (or more), cut once
- ☐ **Should you have any technical questions, or feel you have defective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

YOU CAN NOW BEGIN THE INSTALLATION...

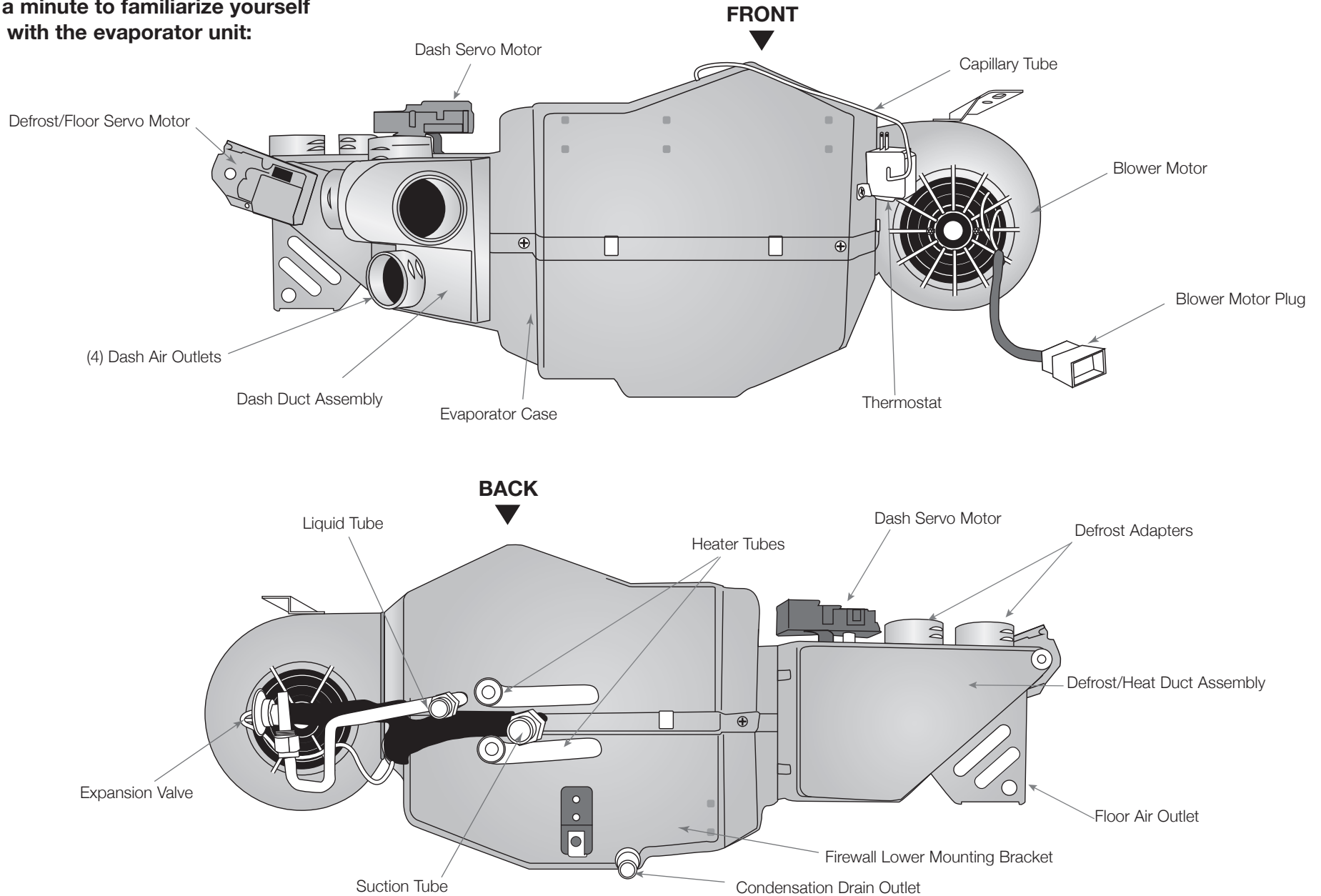
A Basic Overview of Automotive A/C....

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

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



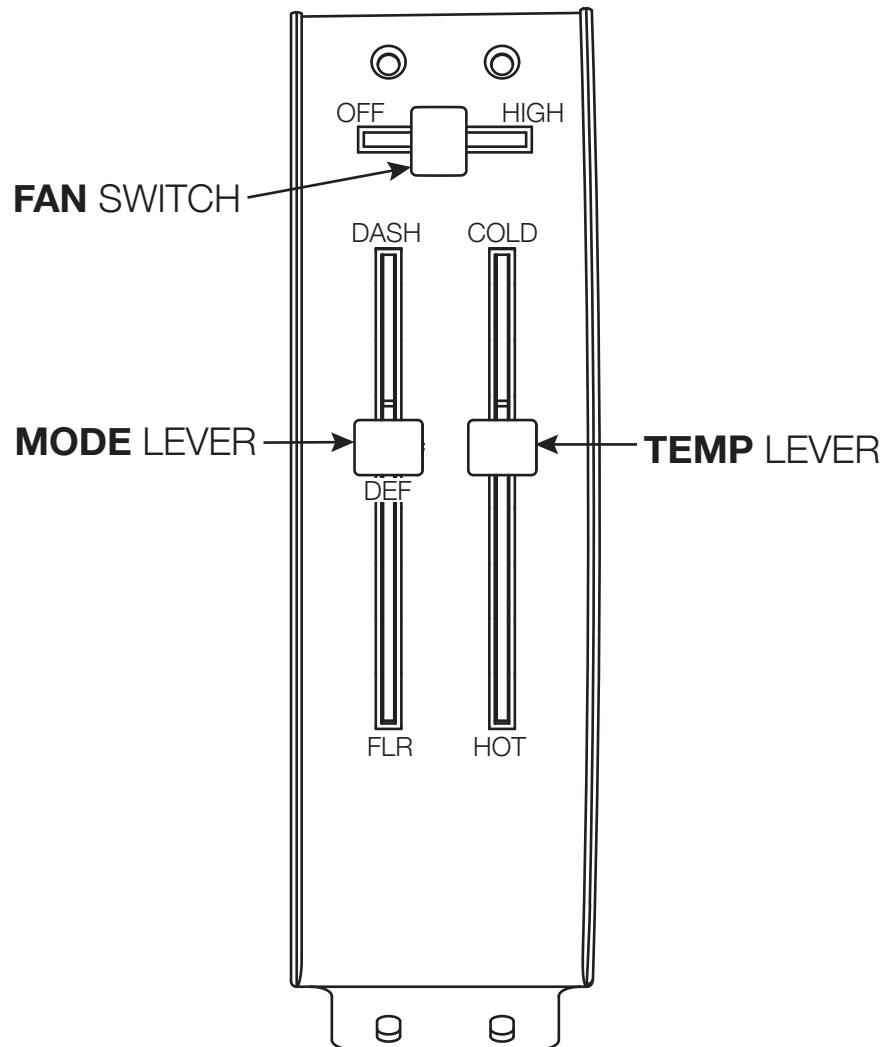
Take a minute to familiarize yourself
with the evaporator unit:





Control & Operating Instructions

Your new **Smart 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 A/C Series** for maximum comfort...

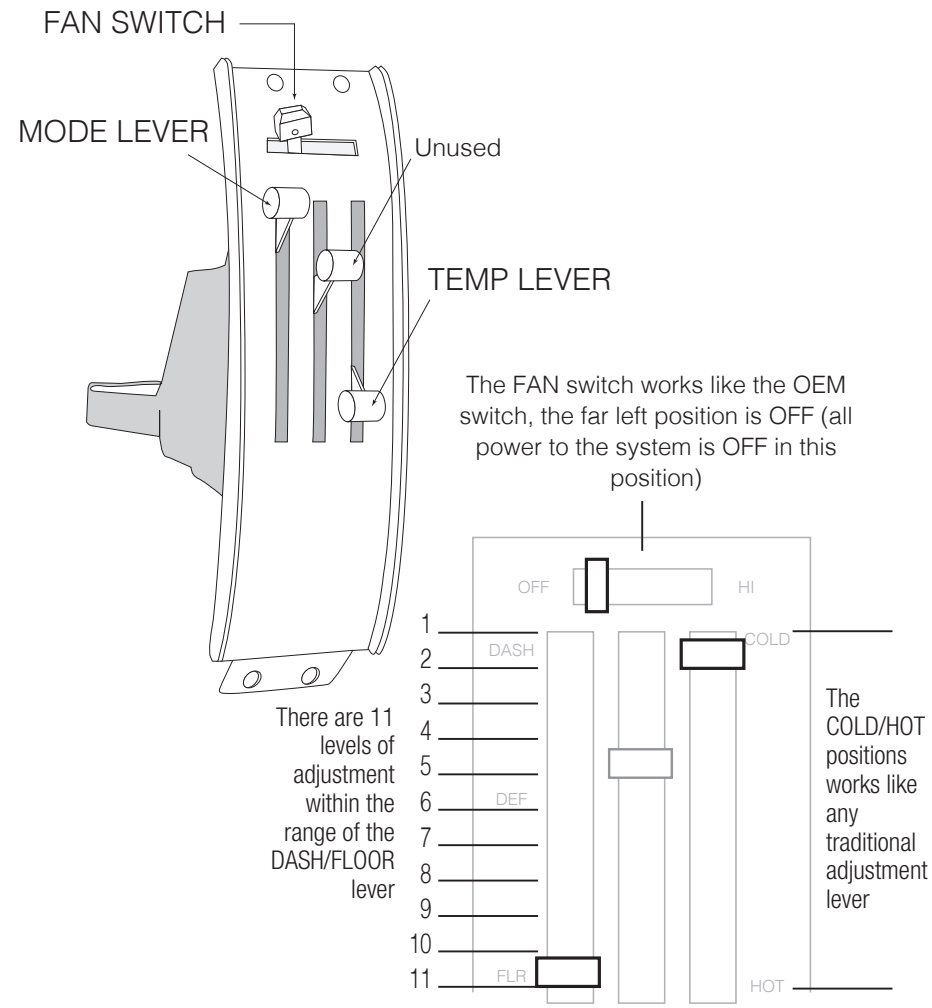


POSITION	MODE	COMPRESSOR	VALVE POSITION	COMPRESSOR
1	Dash A/C 100%	ON	CLOSED - 0%	ON
2	Dash A/C 80% Defrost 20%	ON	OPEN - 10%	ON
3	Dash A/C 60% Defrost 40%	ON	OPEN - 20%	ON
4	Dash A/C 40% Defrost 60%	ON	OPEN - 30%	ON
5	Dash A/C 20% Defrost 80%	ON	OPEN - 40%	ON
6	Defrost 100%	ON	OPEN - 50%	ON
7	Floor Defrost 20% 80%	ON	OPEN - 60%	ON
8	Floor Defrost 40% 60%	ON	OPEN - 70%	ON
9	Floor Defrost 60% 40%	ON	OPEN - 80%	ON
10	Floor Defrost 80% 20%	ON	OPEN - 90%	ON
11	Floor 100%	ON	OPEN - 100%	OFF



Control & Operating Instructions

Your new **Smart 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 A/C Series** for maximum comfort...



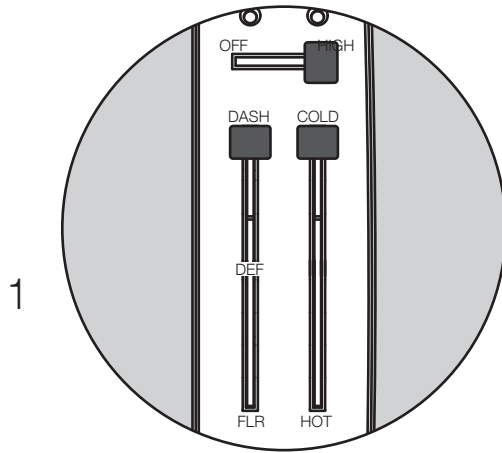
POSITION	MODE	COMPRESSOR
1	Dash A/C 100%	ON
2	Dash A/C 80% Defrost 20%	ON
3	Dash A/C 60% Defrost 40%	ON
4	Dash A/C 40% Defrost 60%	ON
5	Dash A/C 20% Defrost 80%	ON
6	Defrost 100%	ON
7	Floor Defrost 20% 80%	ON
8	Floor Defrost 40% 60%	ON
9	Floor Defrost 60% 40%	ON
10	Floor Defrost 80% 20%	ON
11	Floor 100%	ON

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

NOTE: When the TEMP lever is in the "FULL COLD" position (TOP), the compressor is ON, no matter what position the MODE lever is in (think of it as a compressor-override function)

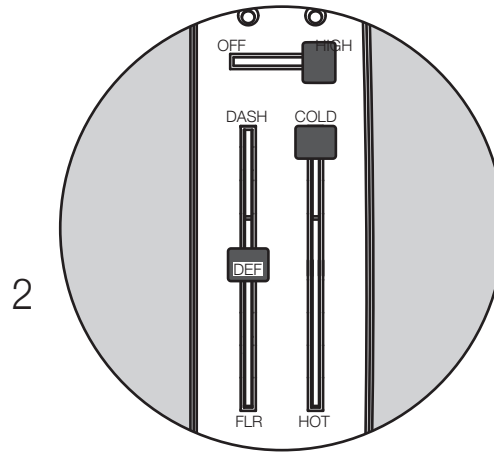
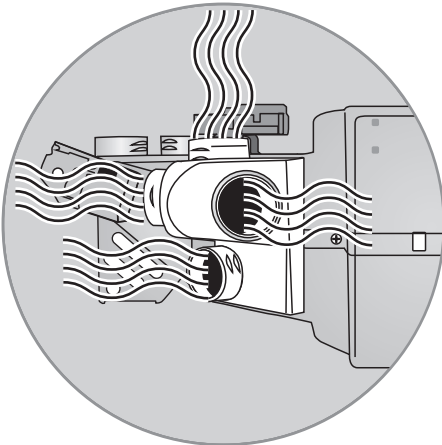
OPERATION

- Function Test, Steps 1 thru 3



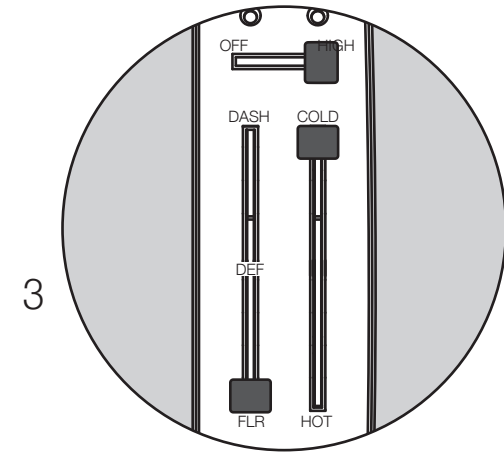
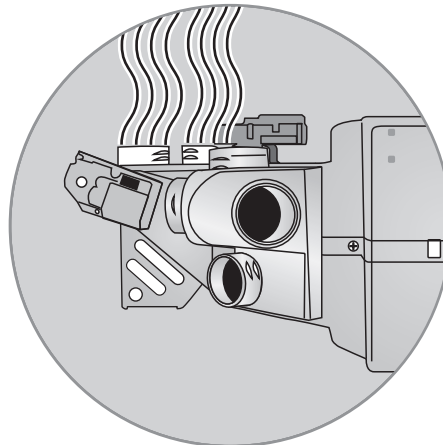
Move FAN knob to HIGH
Move MODE knob to DASH

AIR OUT OF DASH VENTS



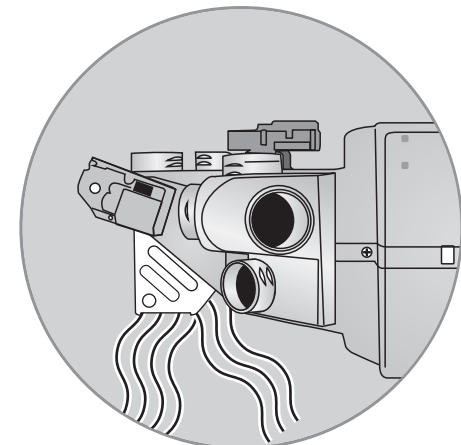
Move MODE knob to DEF

AIR OUT OF DEFROST VENTS

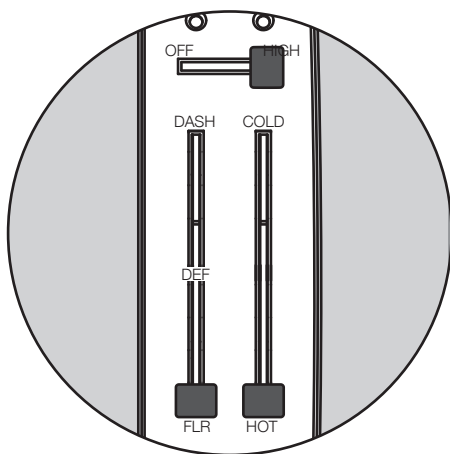


Move MODE knob to FLOOR

AIR OUT OF FLOOR VENTS



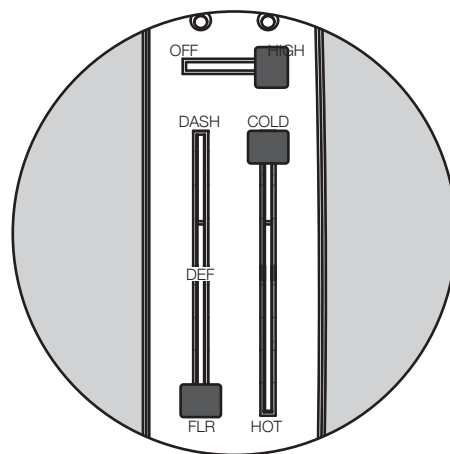
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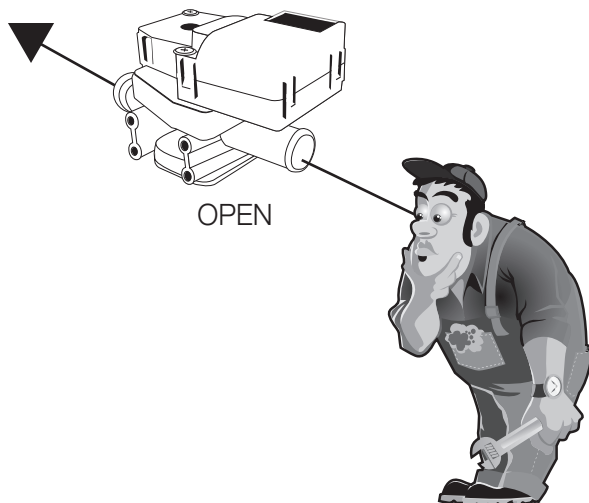
Move TEMP knob to HOT



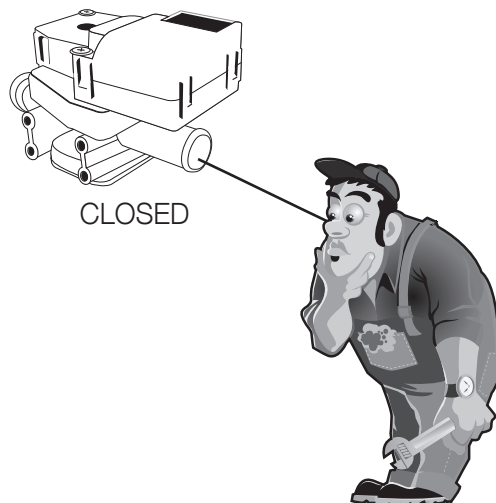
5



Move TEMP knob to COLD



You will be able to see thru water valve passage



You will NOT be able to see thru water valve passage

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

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

NOTE: IF DURING ANY OF THESE STEPS YOU DO NOT GET THE CORRECT OUTCOME, PLEASE CALL TECH SUPPORT BEFORE INSTALLING INTO VEHICLE.



Remove Glovebox, Console (if equipped) Radio and Bezel, and set them aside for reinstall later (See figure 1).

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

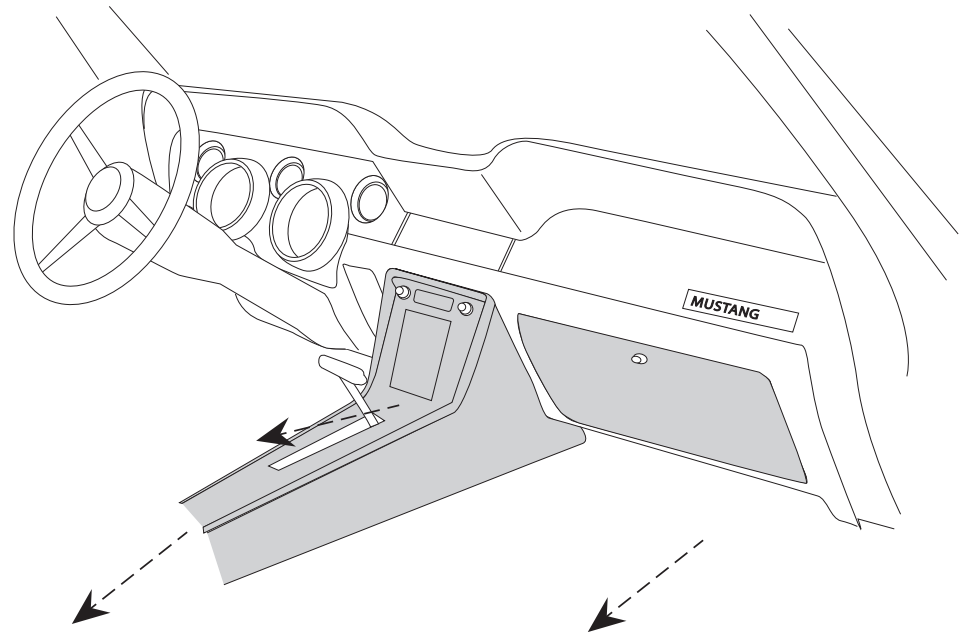


FIGURE 1



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

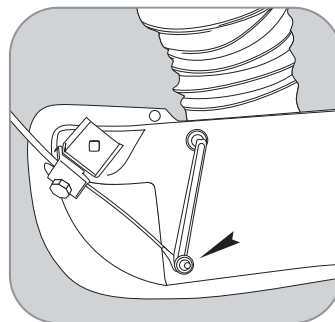


FIGURE 2

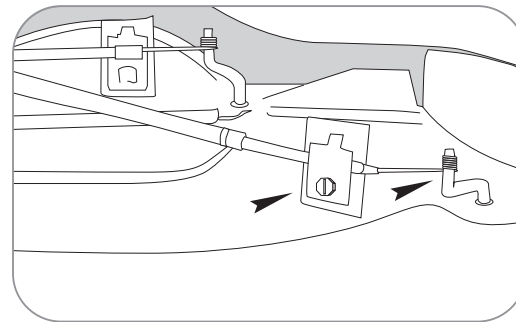


FIGURE 3

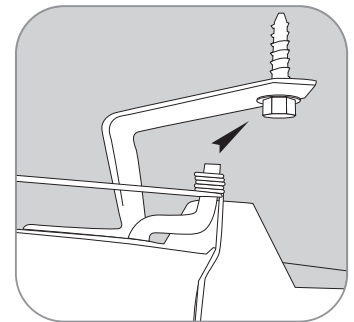


FIGURE 4

Locate blower motor on the firewall (Passenger Side) in the engine compartment. Remove all 4 nuts around blower. Also disconnect the electrical connector from the blower motor (see figure 5A). Cut wires at grommet in firewall.

DRAIN COOLANT FROM RADIATOR and store safely to reuse or recycle accordingly. Cut heater hose approximately 1" from firewall (see figure 5B). Also, to prevent forgetting to refill the coolant when the installation is completed, do not put the cap back into place - instead put the cap to the side and cover radiator hole with a clean rag or something similar (this will help prevent you from starting the engine without coolant at the end of the installation).

Located on the drivers side lower dash is a fresh air vent assembly. Remove this unit and set aside (it will not be reinstalled, see figure 7, and NOTE below).

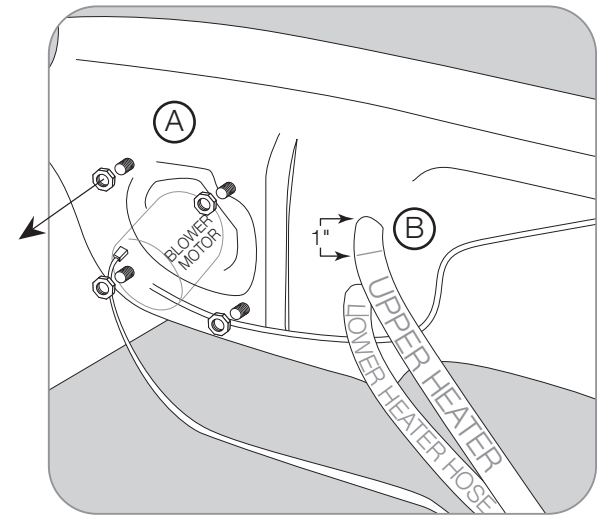


FIGURE 5

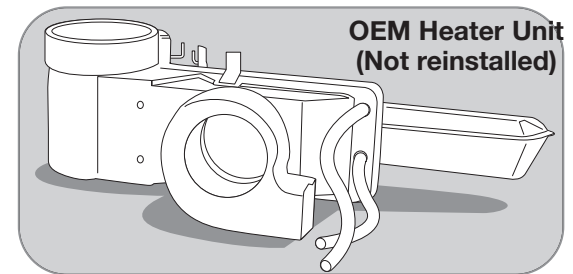


FIGURE 6

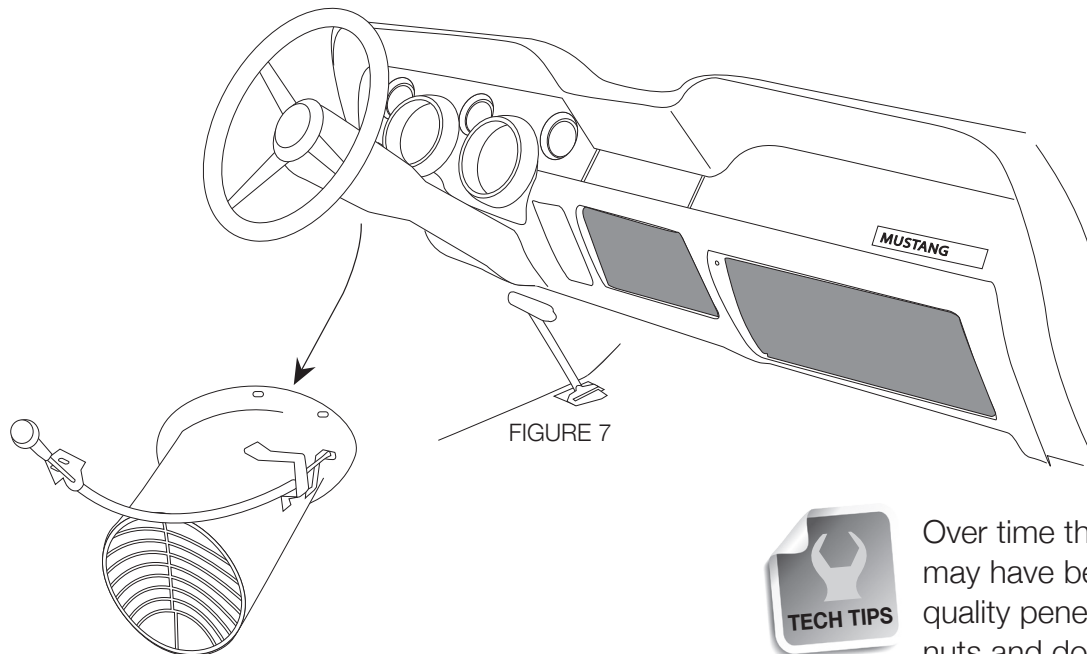


FIGURE 7



Over time the nuts that hold the OEM fresh air vent assembly may have become rusty or fused to the studs. Use a good quality penetrating spray to help the process of removing the nuts and don't over-stress the studs.

Remove The Heater Control Head From The Dash.

1) There are four OEM screws that hold your control head to the dash, two on the lower side and two on the upper. Remove and retain these screws. Remove the control head assembly and discard (see figure 8).

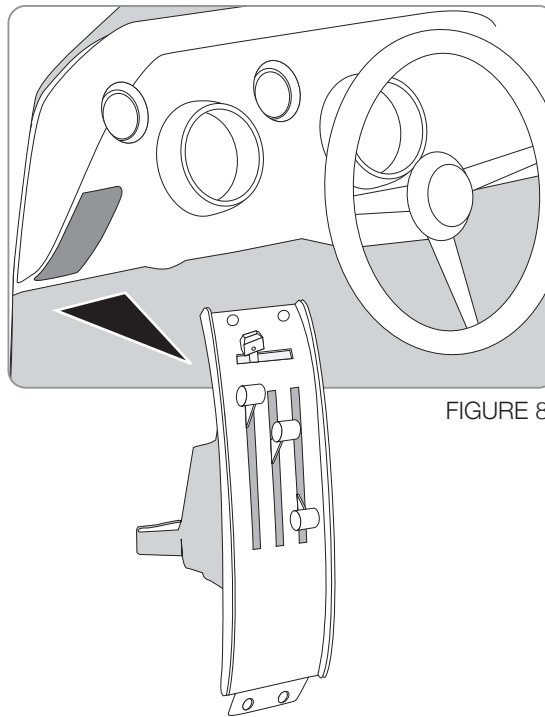
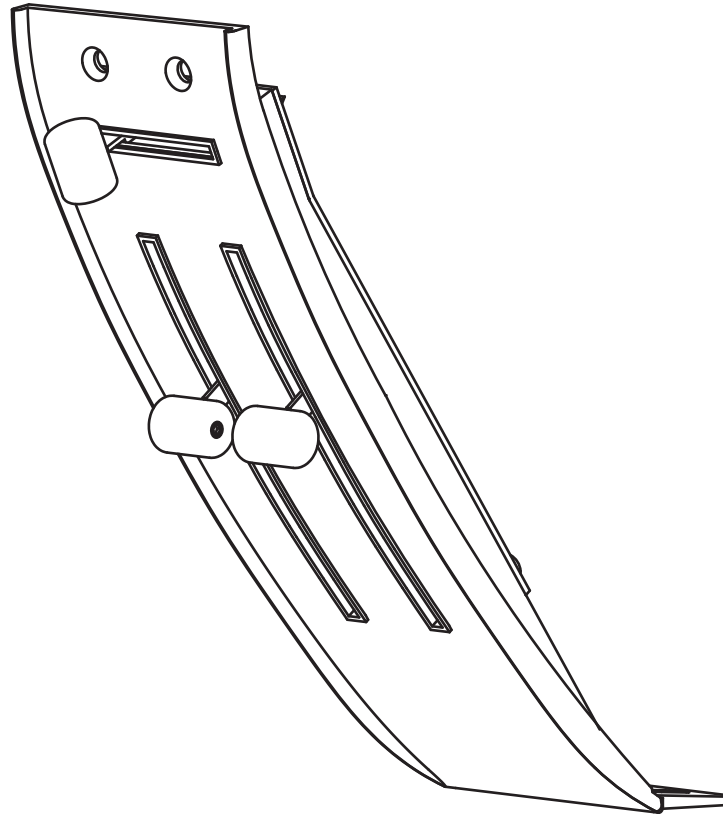


FIGURE 8



THESE ARE THE PARTS YOU WILL FIND IN BAG KIT A

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

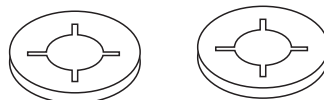
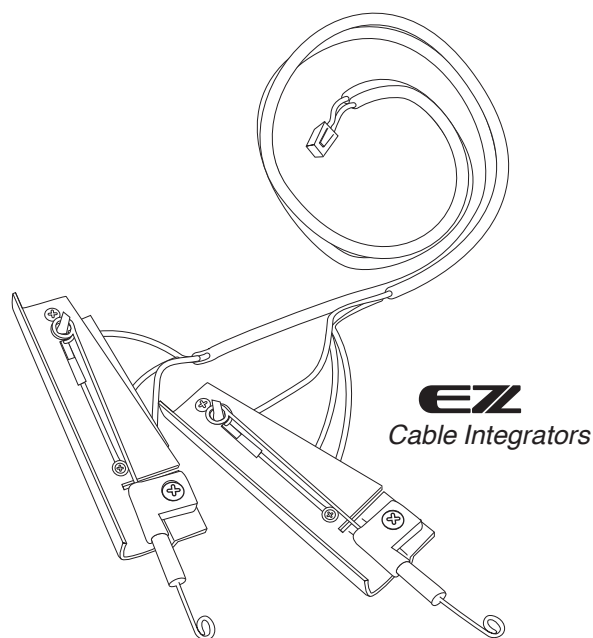


Controller
PN#16-4026V

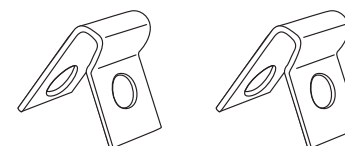
NOTE: Illustrations NOT shown actual size

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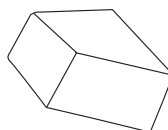
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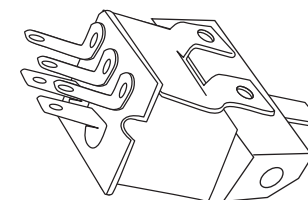
Two Pushnuts



Two - Cable Clips
PN# 25-1015



Blower Switch Knob
PN# 0132-33C



Blower Switch Assembly
PN#16-2026-1

NOTE: Illustrations NOT shown actual size

Remove The Heater Control Head From The Dash.

1) There are four OEM screws that hold your control head to the dash, two on the lower side and two on the upper. Remove and retain these screws. Remove the control head assembly (see figure 8).

2) Remove the OEM blower switch knob. Retain the screw, you will use it again shortly. Remove the control cables and the original blower switch and set aside (these will not be reused, see figure 9).

3) Attach the new blower switch assembly (PN# 16-2026-1) to control panel with OEM screw (see figure 10),

4) Attach new knob to blower switch (PN# 0132-33C)

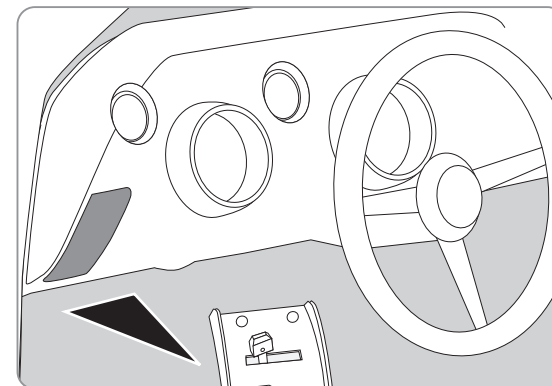


FIGURE 8

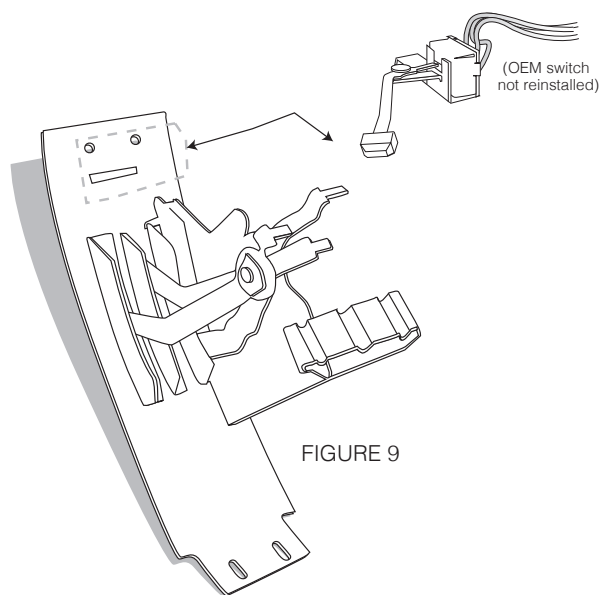


FIGURE 9

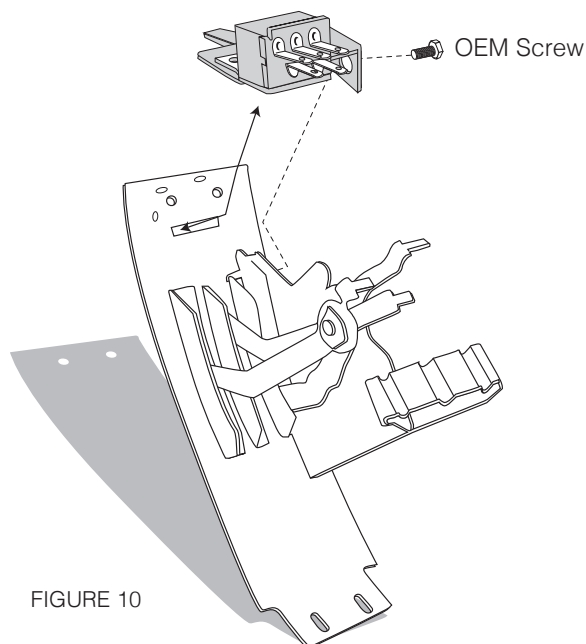


FIGURE 10

Preparing the EZ Cable Integrators for

installation: First place a cable clip over the ends of the **EZ Integrators** (see figure 10). Test fit these on the final mounting location to make sure you have the cable clips installed in the correct direction so that the integrators can be mounted flush with edge of control head. Prepare both integrators the same way. It is very important that you place the cable clips over the end of the integrators very securely and evenly. Place the cable clip over the end, press it firmly into place (using needle-nose pliers is recommended).

Place the loop ends of the integrators over the levers (as shown in figure 11).

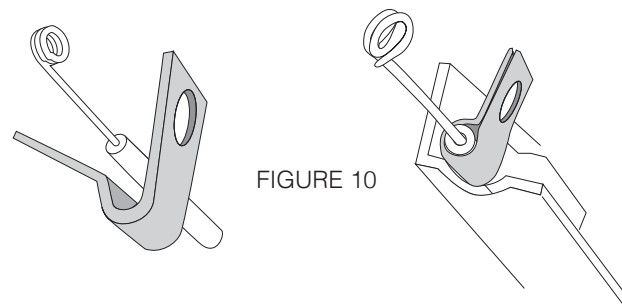


FIGURE 10

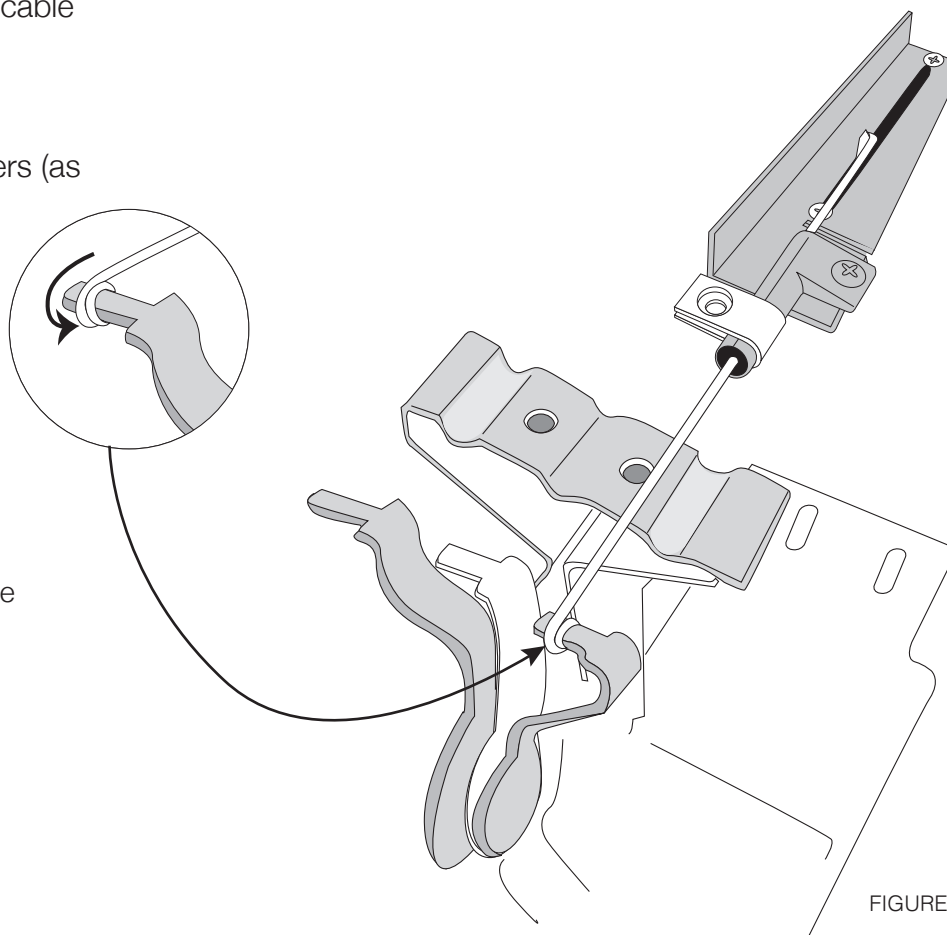


FIGURE 11

NOTE: The clips will match and fit into the curved outer grooves of your OEM attachment pedestal

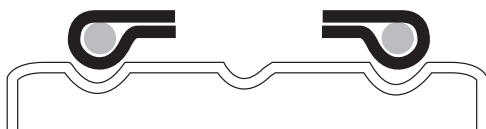


FIGURE 12

Next, attach the **EZ Cable Integrators** to the body of the control head, as shown to the right and secure with the OEM screws. The loop ends of the integrator wires will be secured with push nuts (see figure 13).

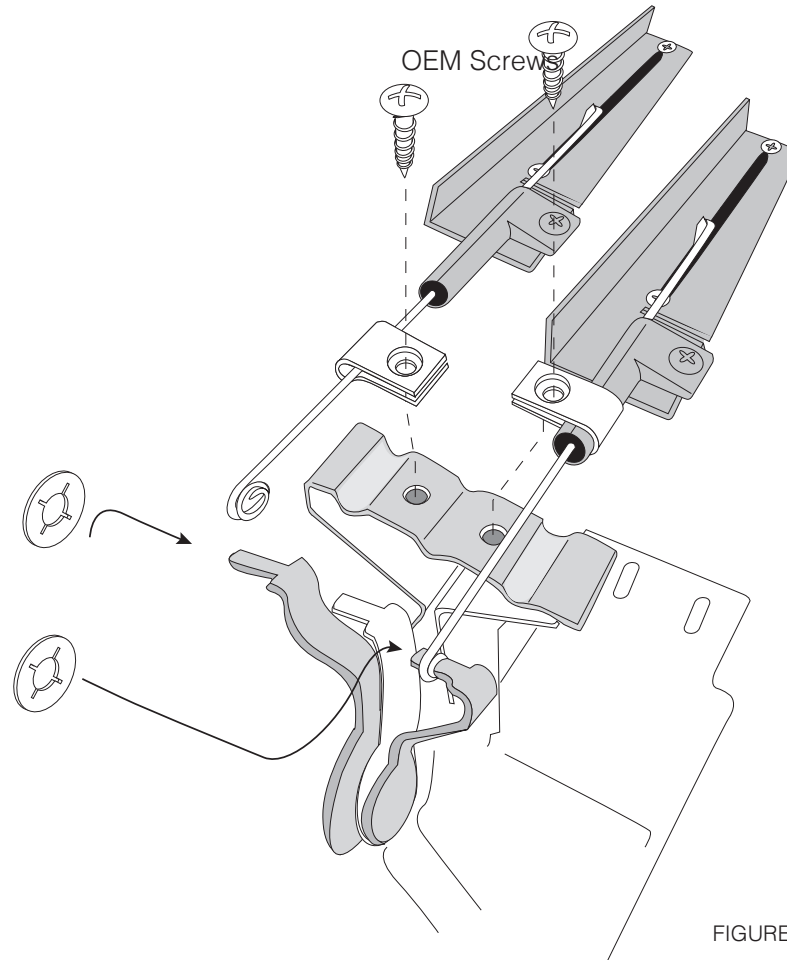
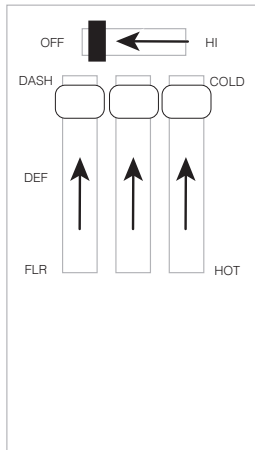


FIGURE 13

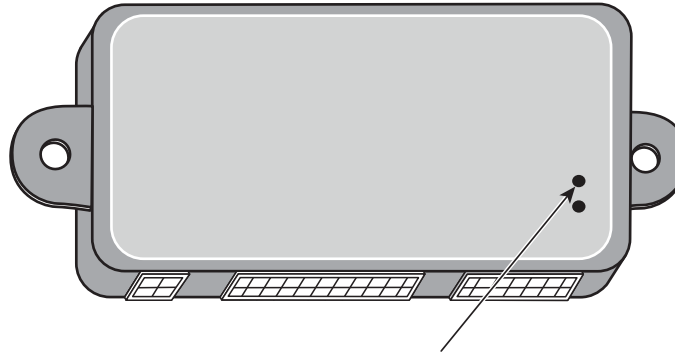
19

1



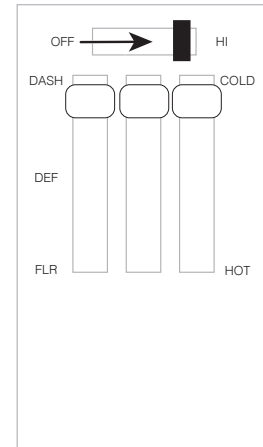
- A) Start with all your levers UP or to the LEFT.
B) Power your ignition on.

2



- A) Using a paper clip, insert into the hole and hold the calibration button until the FAN pulses.

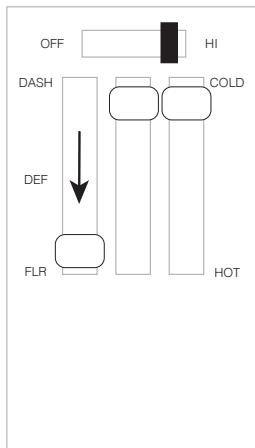
3



Move Fan to HI

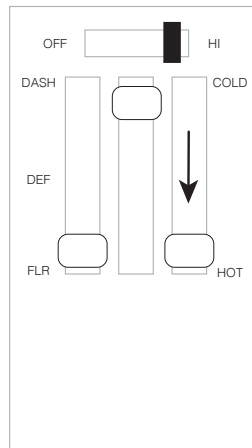
- B) Release when you hear the fan!

4



Move LEFT lever DOWN to FLR

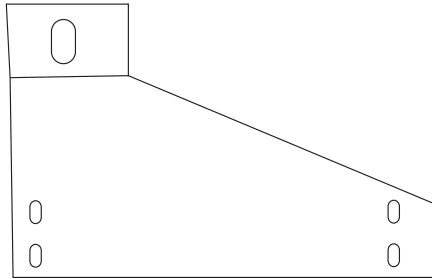
5



- A) Move RIGHT lever DOWN to HOT
B) Wait until purple LED flashes
C) Calibration is complete.

THESE ARE THE PARTS YOU WILL FIND IN BAG KIT B

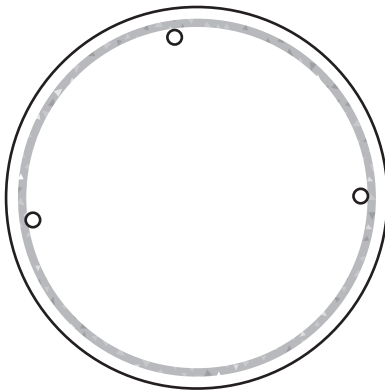
You will use all of these parts and hardware during the next series of installation steps.



Evaporator Support Bracket
PN# 0022-4



One 1/2" Washer



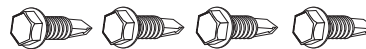
Fresh Air Inlet Block Off
PN# 10-1025-2



One J-Clip



Two 1/4 - #20 x 5/8" Bolts



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



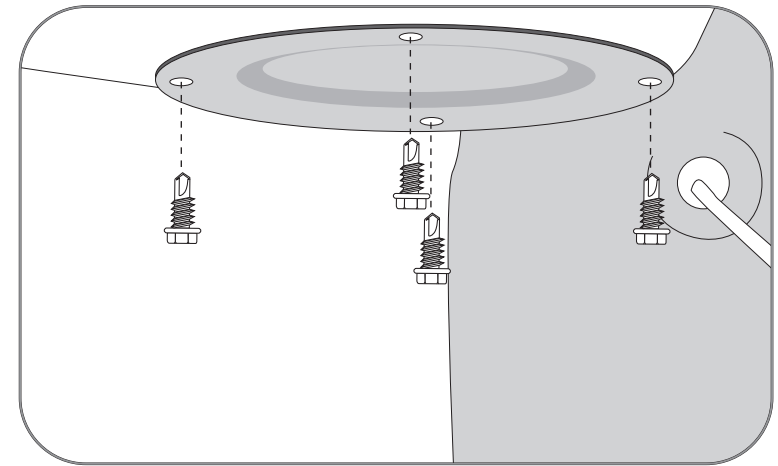
Four #10 - 10 x 5/8" Phillips Screws

Locate the Fresh Air inlet block off from bag kit B. Install over hole in inlet cowl as shown on the passenger side (see figure A). Attach with three #10 - 16 x 3/4" Tek Screws.

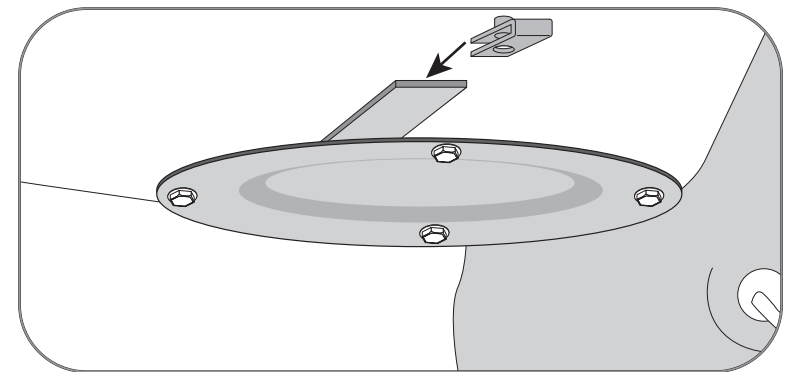
The second Fresh Air Block off is for the Drivers side inlet cowl. We recommend discarding factory air cowl assembly and install supplied block-off. If you wish to keep the option of fresh air then discard supplied block off.

NOTE: Your OEM fresh air cowl is controlled by an under dash mounted push/pull cable. Make certain that the cable and door are in good working condition and will fully block air coming from the outside of vehicle. Failure to have a correctly operating fresh air door will greatly effect cooling on the interior of your vehicle in extreme weather conditions.

Locate the mounting tab location as shown and attach the 1/4" 20 J-clip supplied (see figure B).



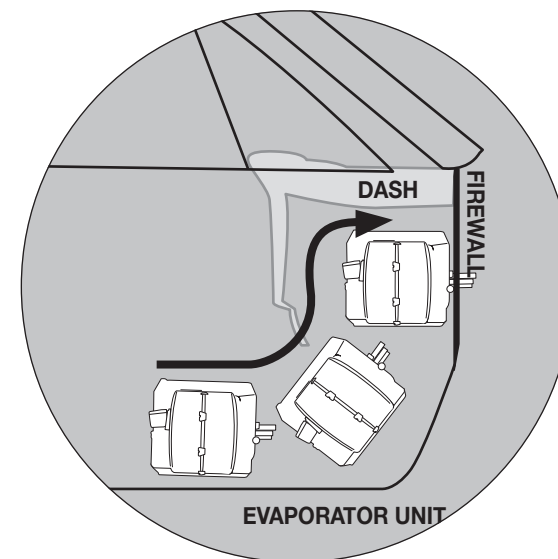
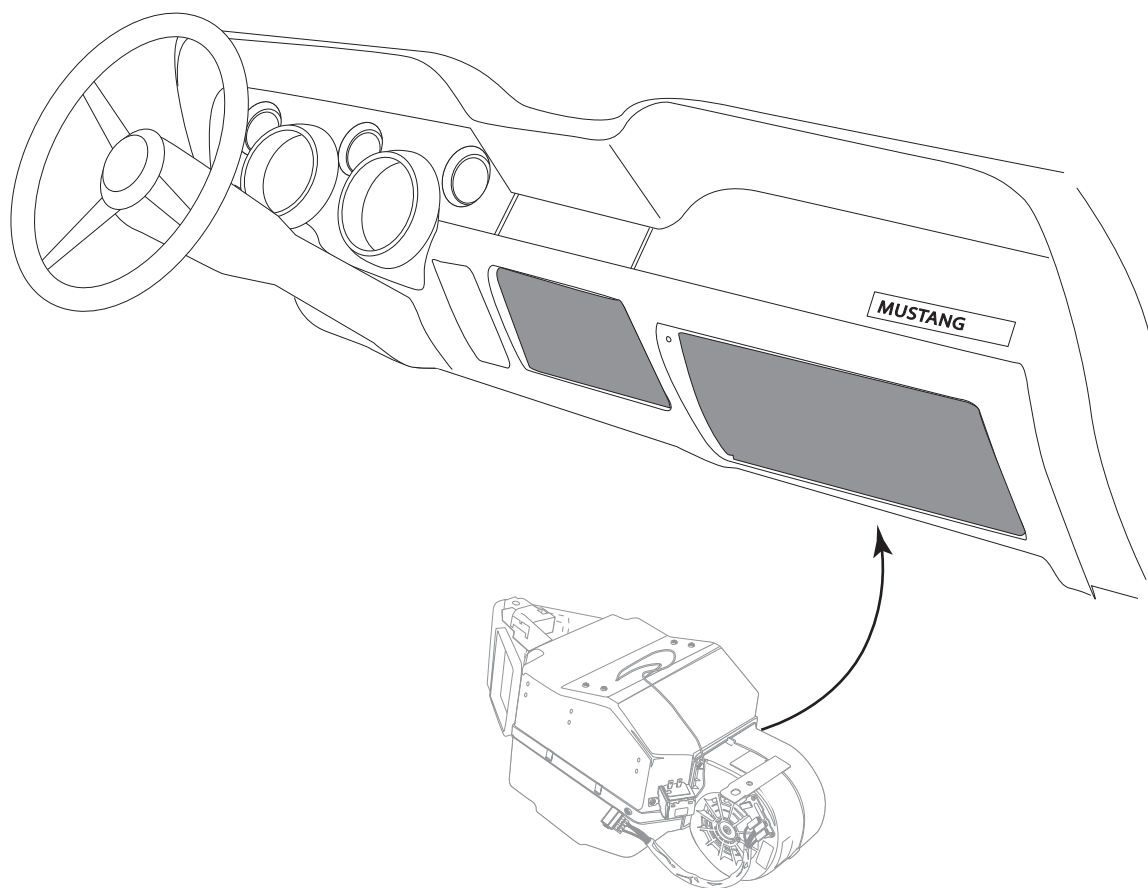
A



B

NOTE: Two people are needed for this step!

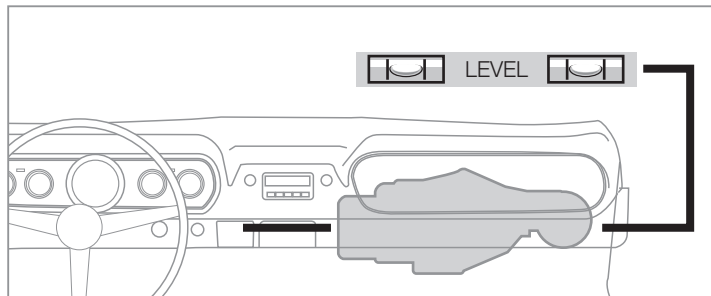
Place evaporator unit on floor panel. Roll unit up behind glovebox opening, inserting tubes through large opening in firewall.



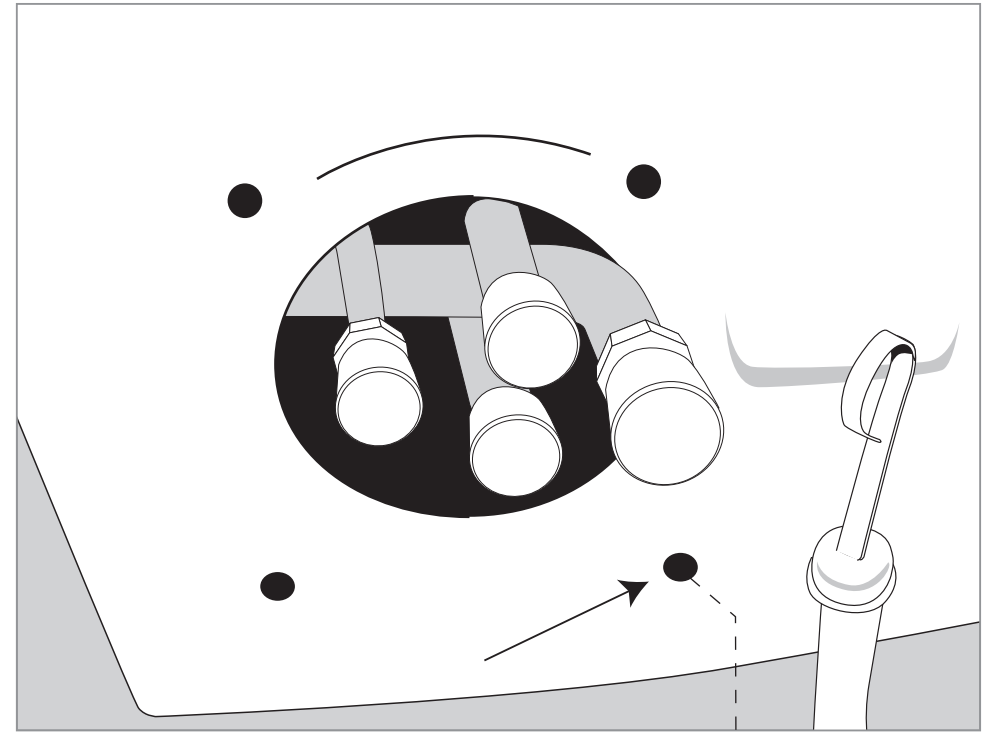
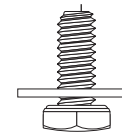
ONE PERSON ON THE INTERIOR HOLDING EVAPORATOR UNIT IN PLACE:

In bag kit B locate one 1/4" washer and 1/4-20 x 5/8" bolt. Attach to lower mounting bracket through lower OEM hole as shown.

NOTE: Leave bolt loose at this time.



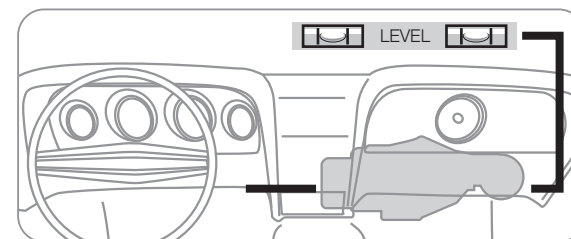
Be sure to align the evaporator unit level with the bottom of instrument panel (assuming the vehicle is sitting level) as shown above, but with a small degree of tilt toward the back to allow proper drain of condensation.

**FIGURE 22**

1/4 - #20 x 5/8" bolts and
a 1/4" washer

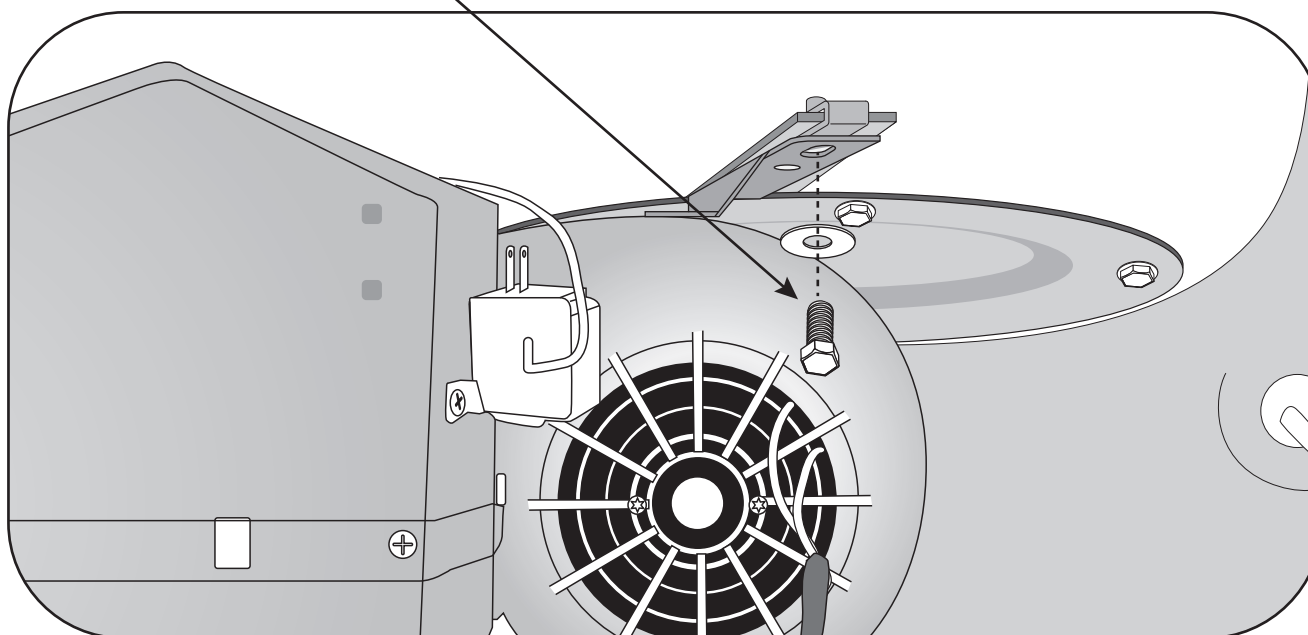
In bag kit B locate one 1/4" washer 1/4-20 x 5/8" bolt. Attach blower motor bracket to J-Clip previously installed.

NOTE: Leave bolt loose at this time.



Be sure to align the evaporator unit level with the bottom of instrument panel as shown above

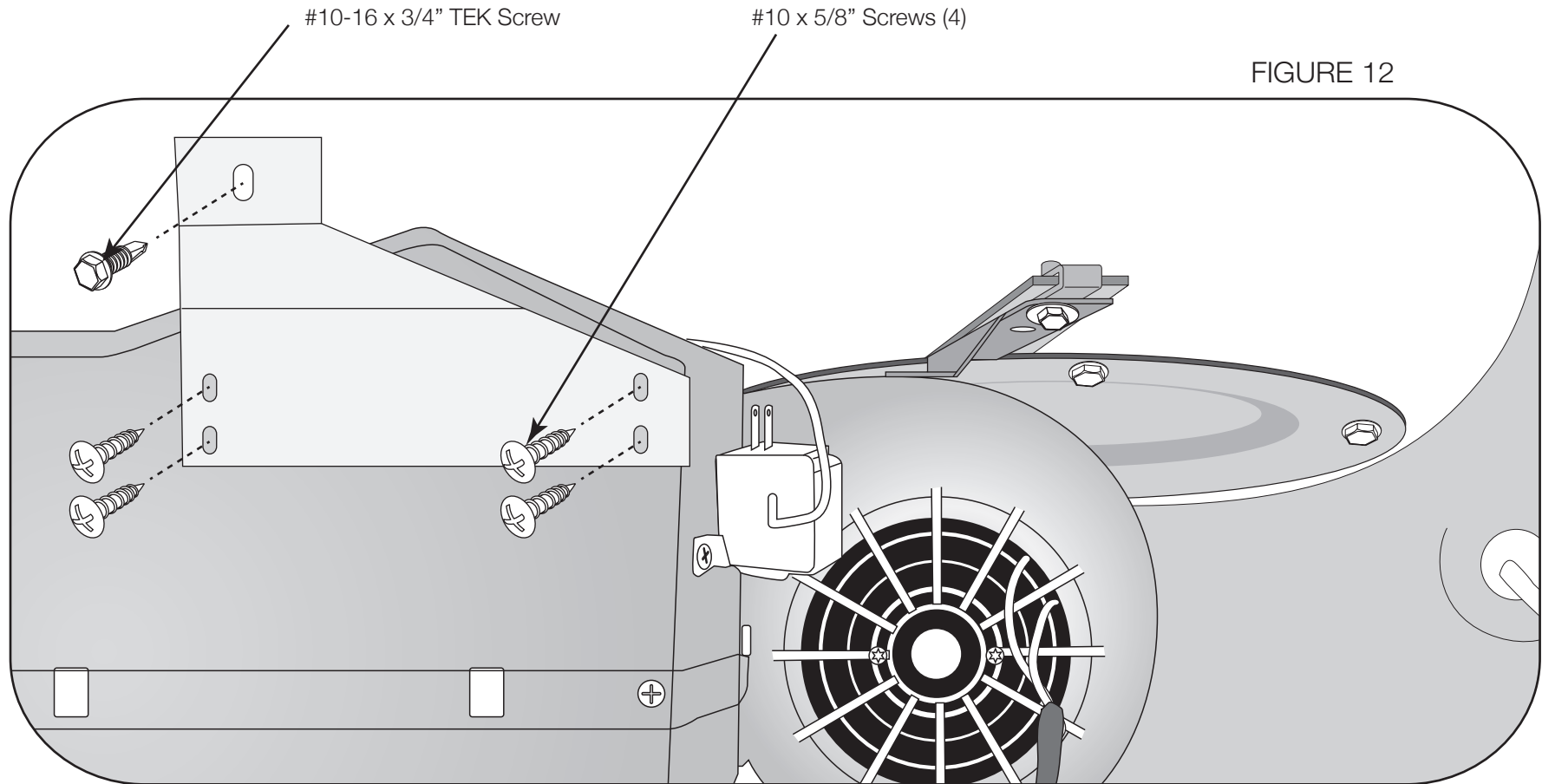
1/4-20 x 5/8" bolt and washer



Locate evaporator mounting bracket from bag kit B (PN #0022-4) Attach to evaporator with four #10 x 5/8" screws. USE HAND POWERED SCREWDRIVER The Bracket is slotted to allow adjustment for proper tilting of unit toward firewall for condensation drainage. Once proper angle is found use one #10-16 x 3/4" TEK screw and fasten to interior cowl.

LEVEL UNIT WITH BOTTOM EDGE OF DASH AND TIGHTEN ALL BOLTS.

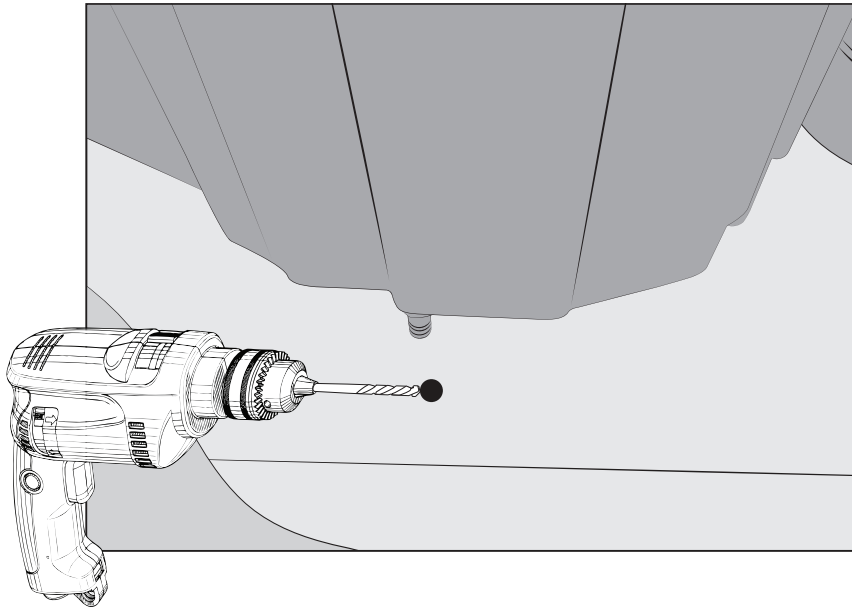
FIGURE 12



Installing the Drain tube

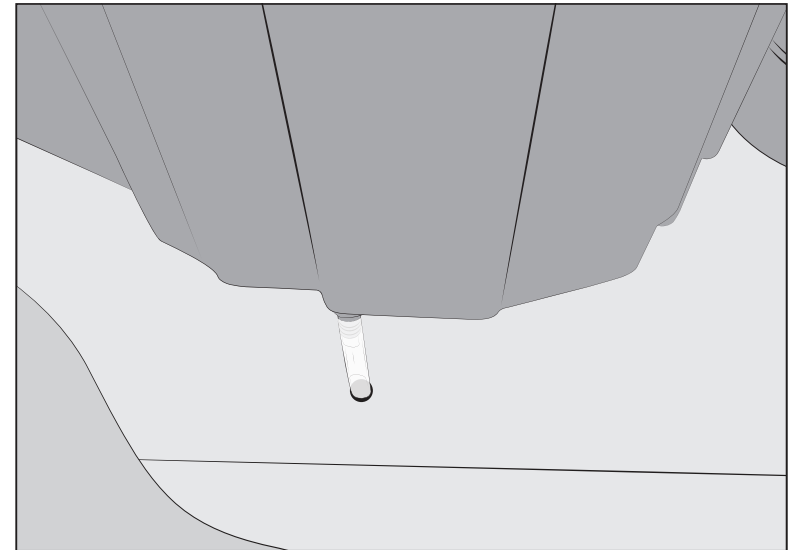


THIS IS FROM INSIDE THE VEHICLE!



Mount Evaporator level to firewall.

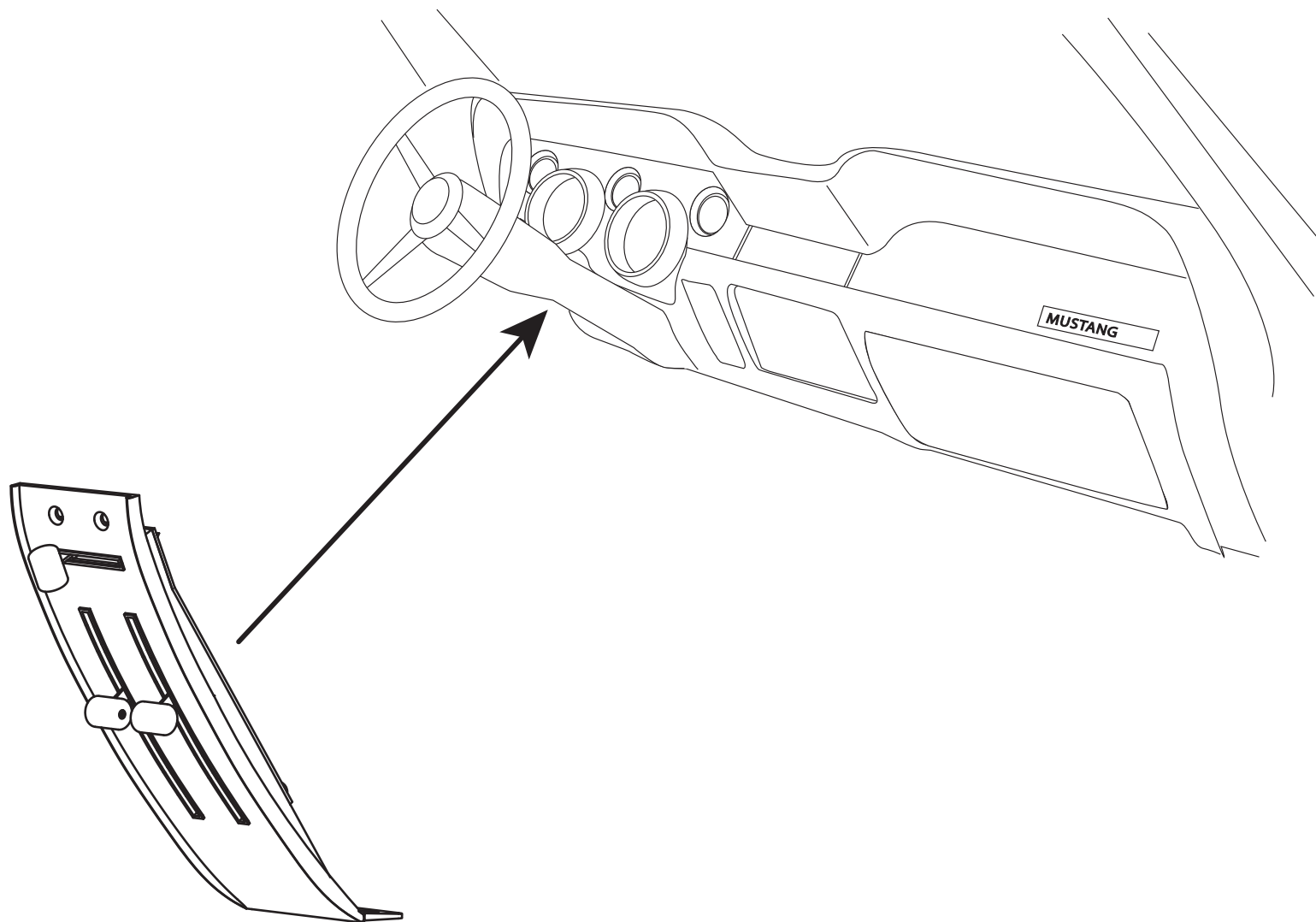
Locate Drain nipple on Evaporator and drill a 3/4" hole below the nipple on the firewall. This will allow condensation to drain properly.



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

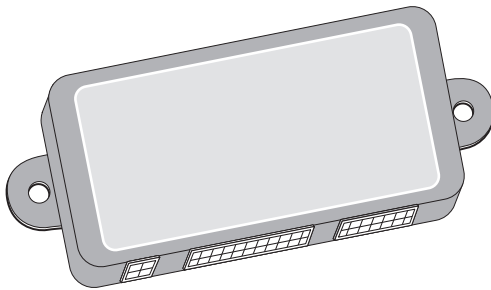
All condensation will now drain out into the engine bay.

Mount controls into dash using OEM hardware.

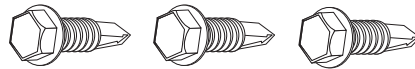


THESE ARE THE PARTS YOU WILL FIND IN BAG KIT C

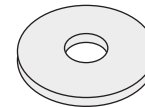
You will use all of these parts and hardware during the next series of installation steps.



ECU
PN# 16-2500



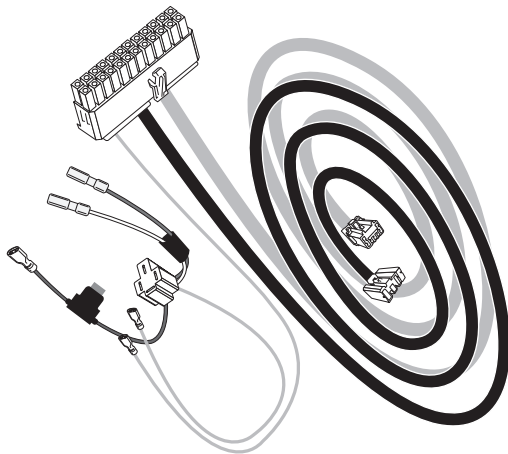
Three #10 - 16 x 3/4" Tek Screws



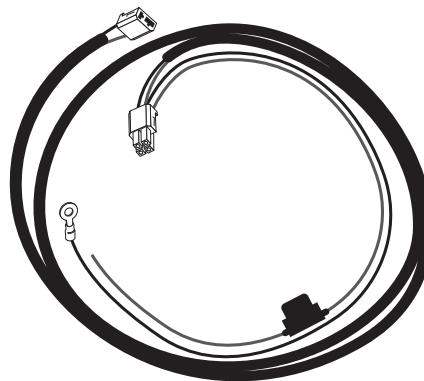
Firewall Grommet



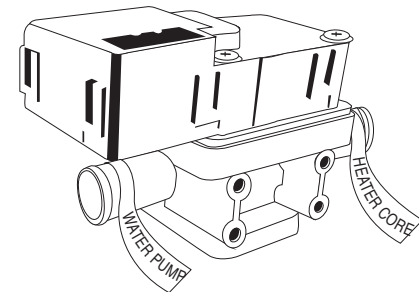
Relay
PN# 30-13373



Servo Output Harness
PN# 0125-6R3A



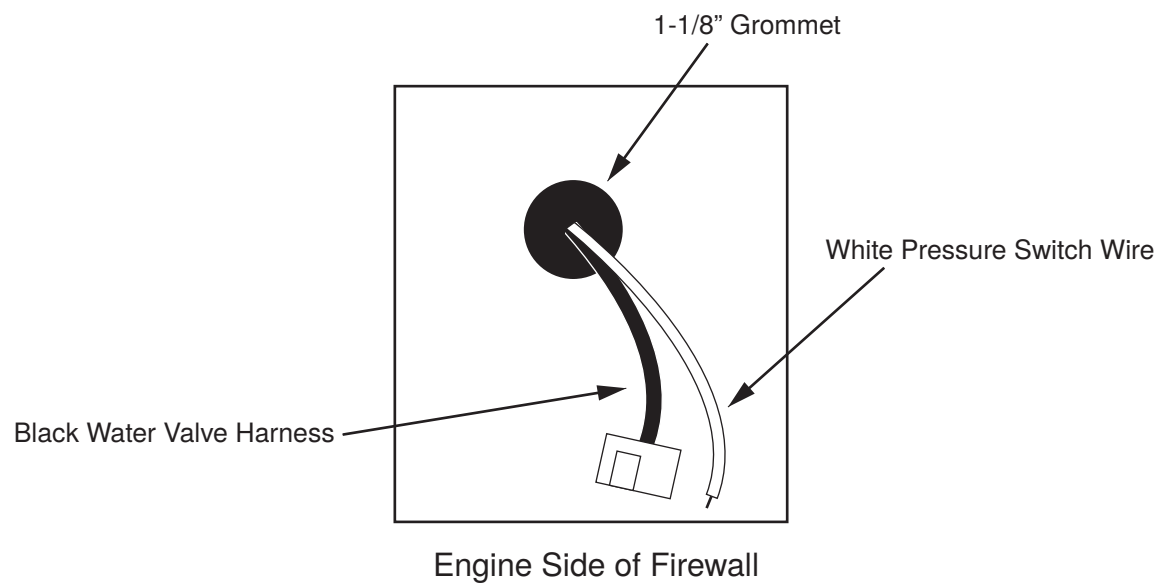
Harness Power Supply
PN# 0125-5R1



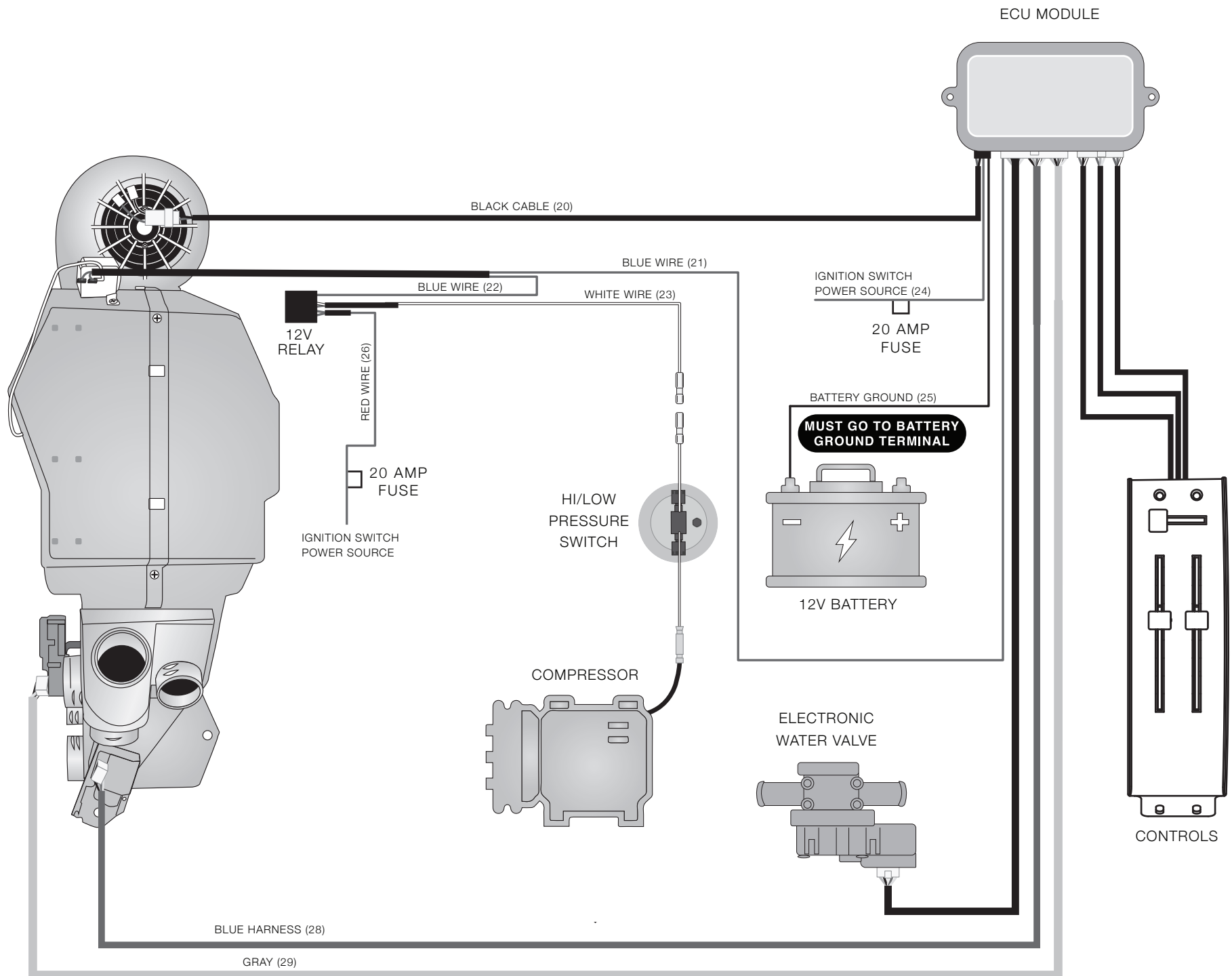
Electronic Water Control Valve
PN# 16-1023

NOTE: The following wire harness installation steps are shown in the wiring diagram on the next page.

- Install the output (servo) wire harness according to the wire diagram.
- Drill a 1-1/8 inch hole in firewall or firewall block off plate.
- Run the black water valve harness and white pressure switch wire through the 1-1/8 inch hole in the firewall.
- Wrap the 1-1/8 inch grommet around the wires and insert into the hole.

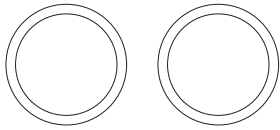


- Install the power supply wire harness according to the wire diagram.
- Mount the ECU with (2) #10-16 x 3/4" Tek screws.
- Secure the relay with the remaining #10-16 x 3/4" Tek screw.

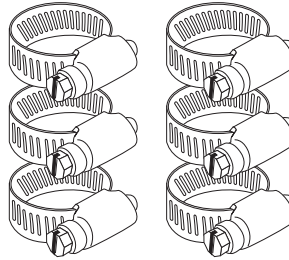


THESE ARE THE PARTS YOU WILL FIND IN BAG KIT D

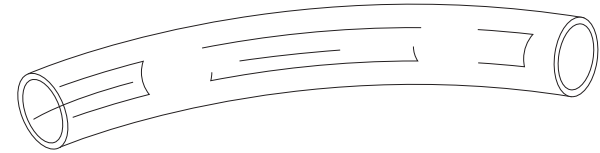
You will use all of these parts and hardware during the next series of installation steps.



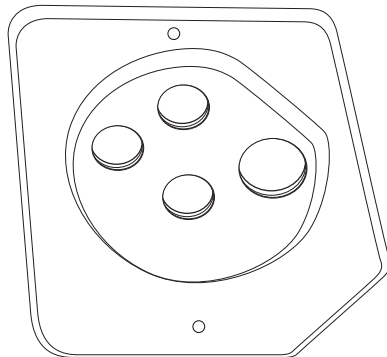
Two 1" Cap Plugs



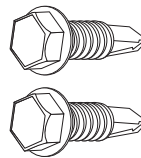
Six Worm Gear Clamps



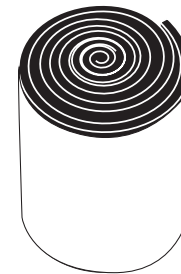
Clear Plastic Drain Tube



Firewall Block Off
PN# 10-1025-1



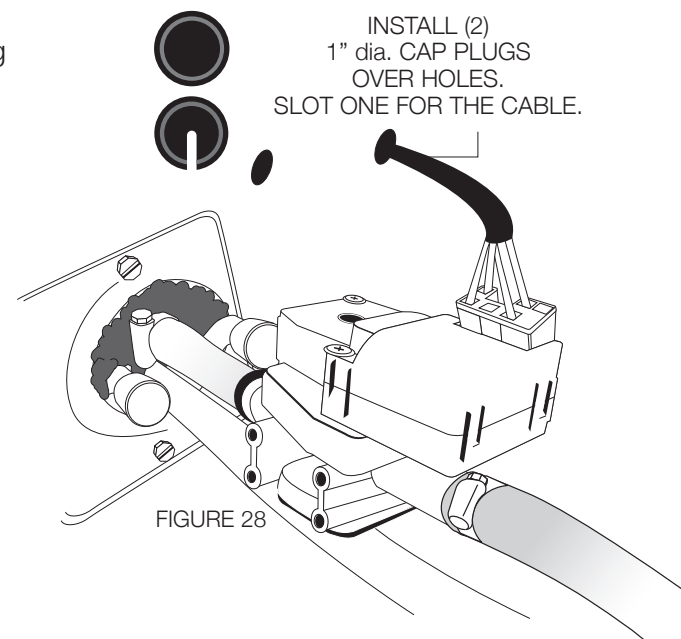
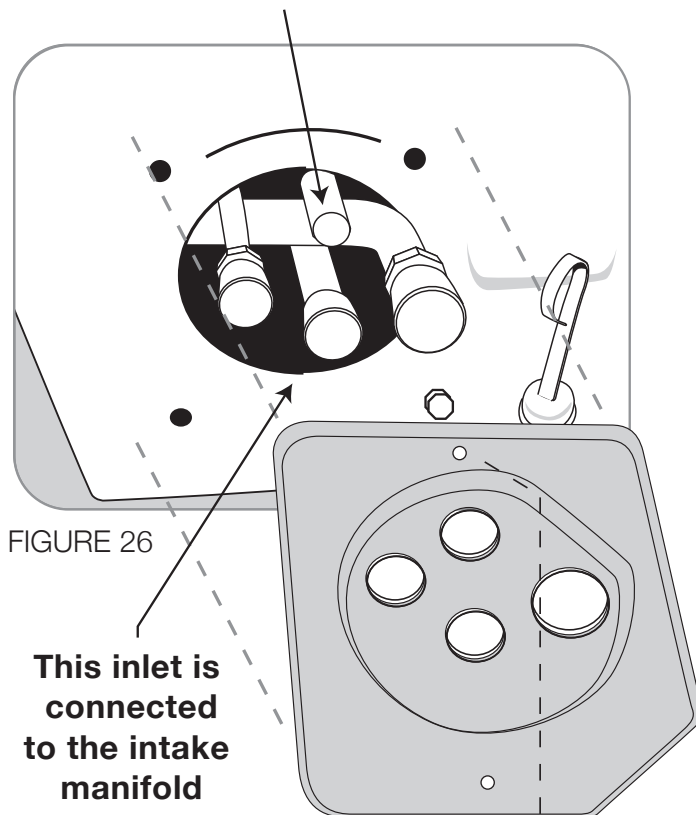
Two #10 - 16 x 3/4" Tek Screws



Refrigerant Tape

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 Two #10 - 16 x 3/4" Tek screws.

Water valve hose connects to this connection



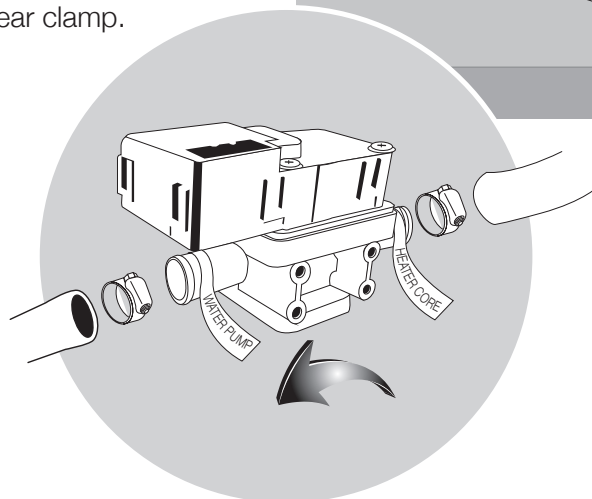
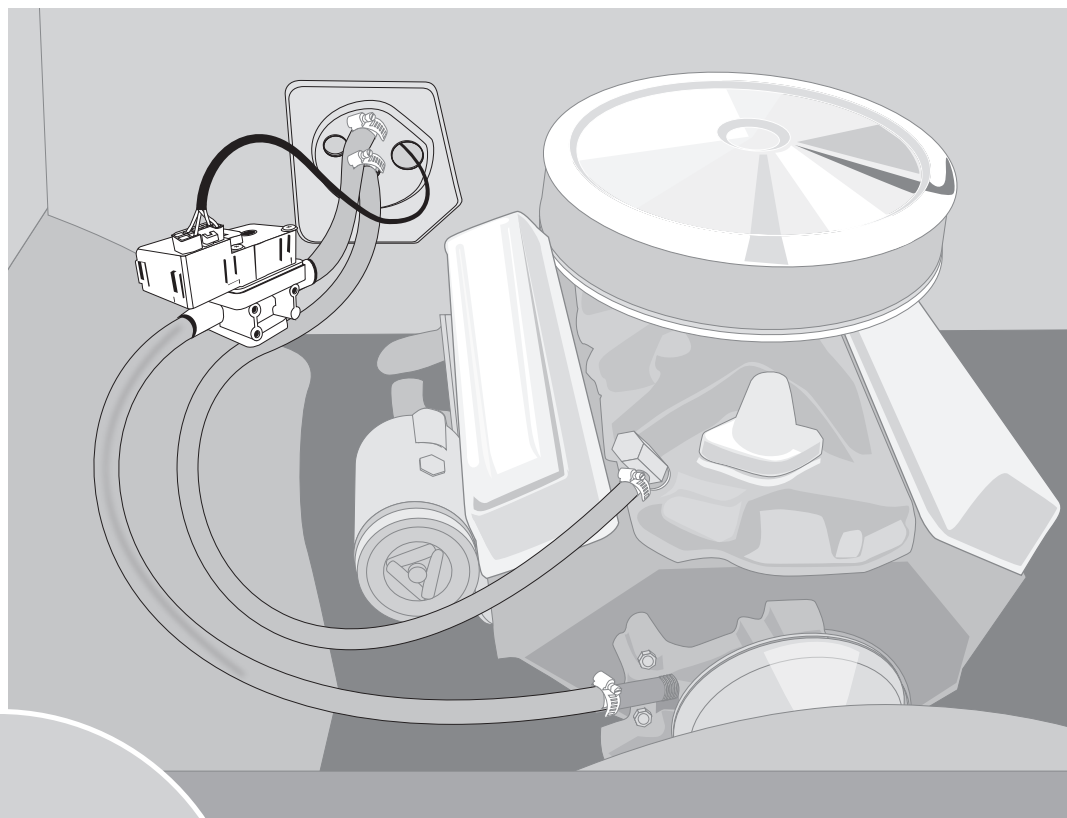
IMPORTANT NOTICE: PROPER INSTALLATION OF WATER VALVE

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.

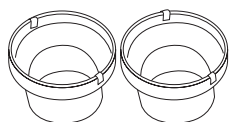


**FOLLOW THESE
TAGS... CHECK IT
TWICE BEFORE
PROCEEDING!**

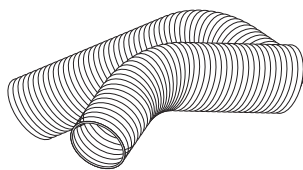
THESE ARE THE PARTS YOU WILL FIND IN BAG KITS E, F, and G

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

Bag E



Two Defrost Adapter Reducers
PN# 2-1025-3

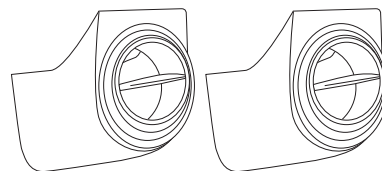


Two Duct Hoses, 2" I.D.

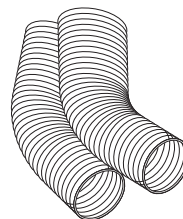


Four Zip-Ties

Bag F



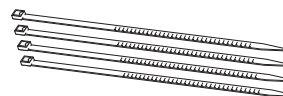
Driver & Passenger Side Louver Ball Assemblies
PN# 2-1026-2



Two Duct Hoses, 2" I.D.

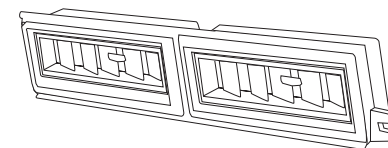


Four #10 - 16 x 3/4" Tek Screws

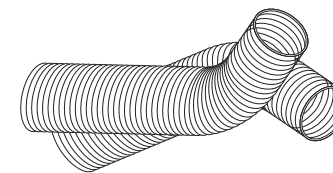


Four Zip-Ties

Bag G



Center Dash Vent
PN# 2-1026-3



Two Duct Hoses, 2" I.D.



Four Zip-Ties

Illustrations NOT shown actual size

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

Locate and route the duct hoses upward toward the OEM defrost vent, using the included defrost adapter reducers to make the connection (see figure 30). Push adapters onto defrost vent from below. Attach the flex hose to the defrost adapter using zip-ties.

The face duct assembly (Bag B) comes with pre-attached s-clips which allow you to install it onto the evaporator unit quickly and securely (see figure 31). The other end of the duct hoses are installed over the defrost/heat duct assembly outlets (see figure 32).

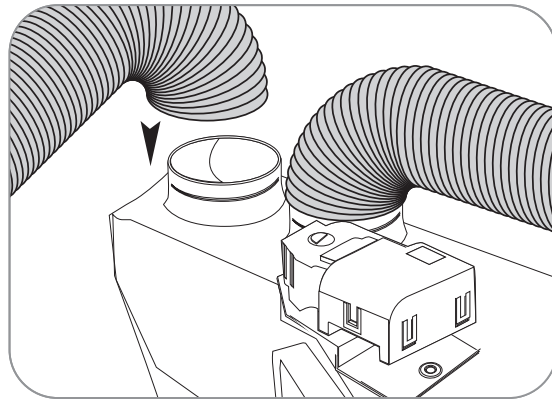


FIGURE 32

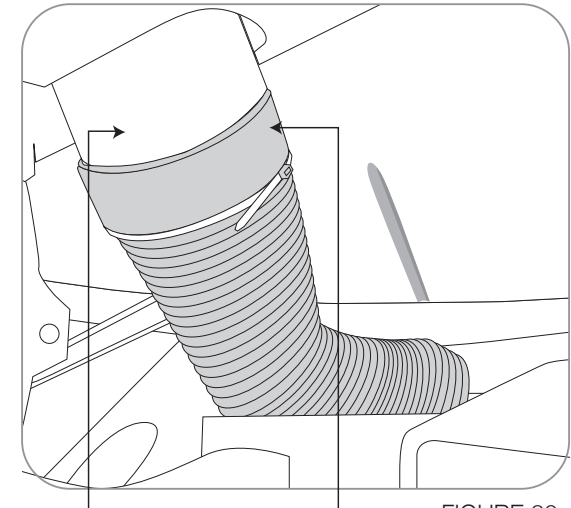
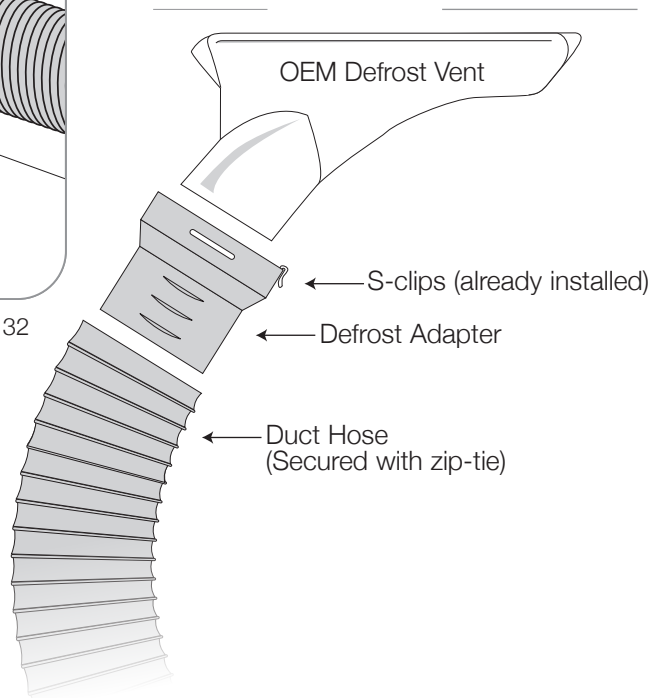
OEM Defrost
VentDefrost Adapter
Reducer

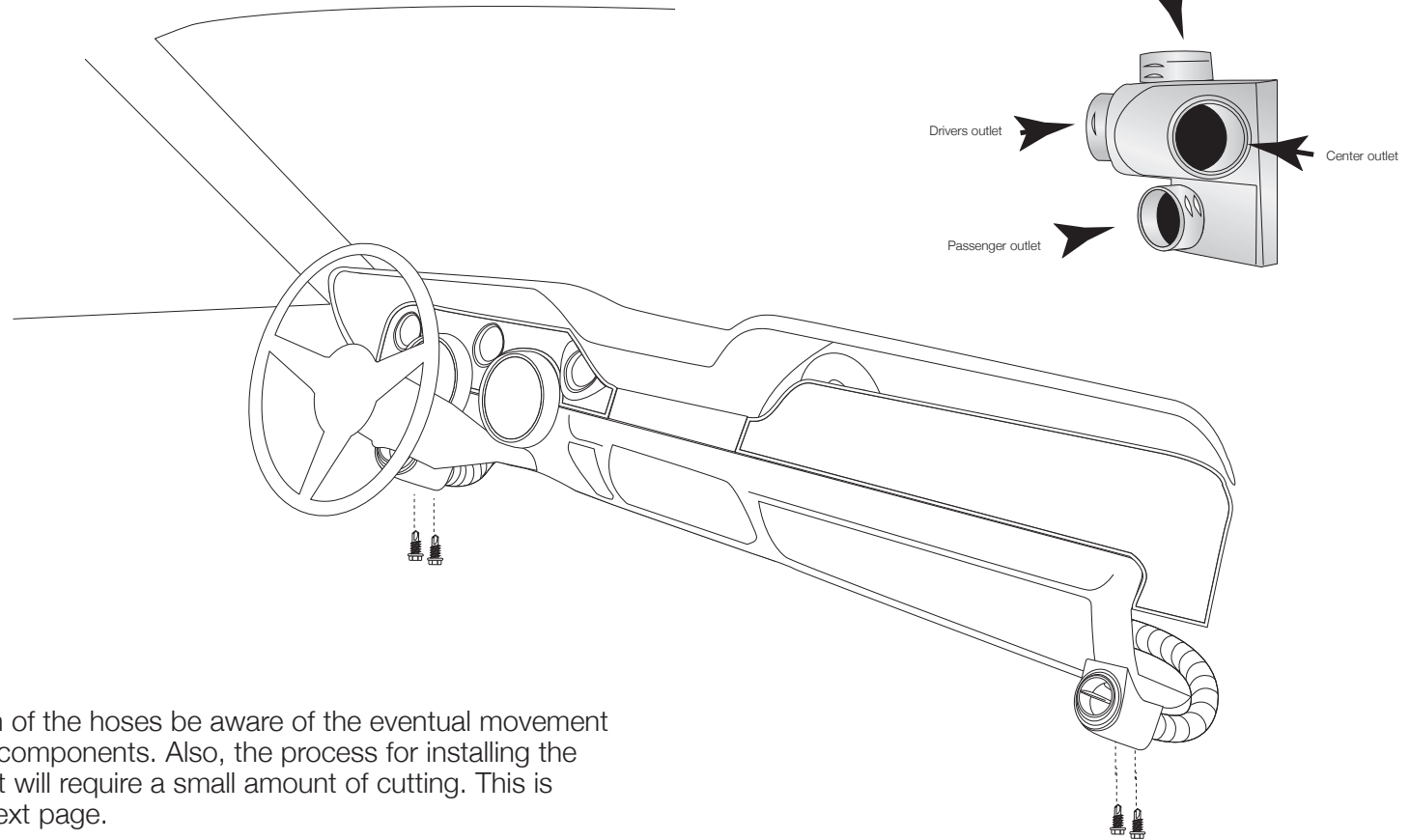
FIGURE 30

Bag Kit F: Attach a louver ball assembly to the bottom edge of instrument panel as shown below. Use two #10 - 16 x 3/4" Tek screws through the louver ball assembly (be careful not to strip the head of the screws). Repeat the same process for the louver ball assembly on the passenger side using two #10 - 16 x 3/4" Tek screws.

Route supplied flex hoses as shown below. Take your time and route them so they don't become kinked or torn.



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. Also, the process for installing the center louver vent will require a small amount of cutting. This is outlined on the next page.

Bag Kit G: Installing the center louver vent requires a small amount of cutting to the dash support. Using a 3/8" socket reach to the backside of the dash and remove ALL the nuts holding the trim bezel in place (see figure 33). In the center of the dash above where the radio was, is a removable plate. First, carefully remove the "A/C delete" face off the dash (this will not be reused).

In order for your new center louver to fit into the dash, some metal must be removed from the dash support area that is behind the trim plate you removed, as indicated by the dotted lines in figure 34. The center support and about 1/4" of inch from the left and right sides will need to be removed. We recommend removing metal a bit at a time (a file is handy for this), using the new center louver to test the opening. Once the opening is large enough to fit the louver, you can install it by first setting the left side of the louver into the opening and aligning the tabs on the louver with the posts on the backside of the dash trim (drivers side). Then press the entire louver into place (which will be held fully in place when you reinstall the passenger-side trim). You can now attach the two flex hoses to the back of the louver, (see figure 34). Secure the hoses with the included zip-ties.

The louver is firmly held into place by the trim panels, so once the trim panel is reinstalled this part of the dash modification will be completed.

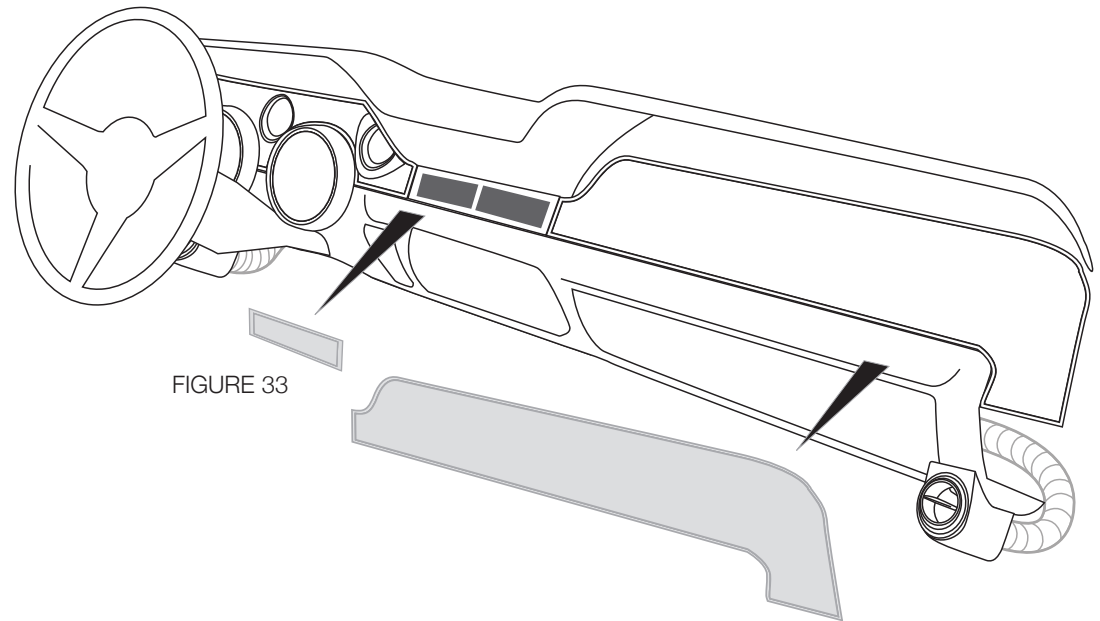
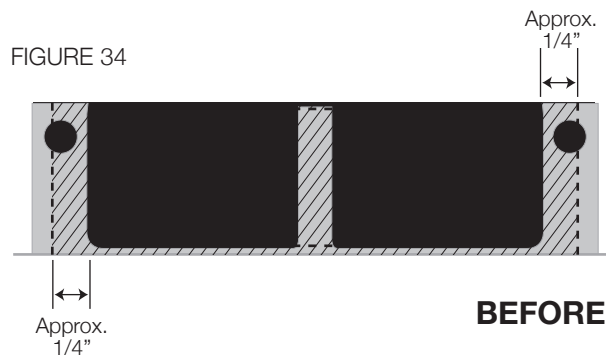
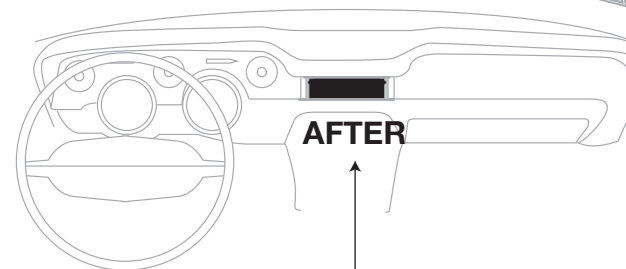


FIGURE 33

**BEFORE****AFTER**

You can reinstall the glove box at this time. If your vehicle was equipped with a center console (which you removed earlier), you may need to modify it (see figure 36) before re-installing. Test fit your particular console before cutting.

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

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

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

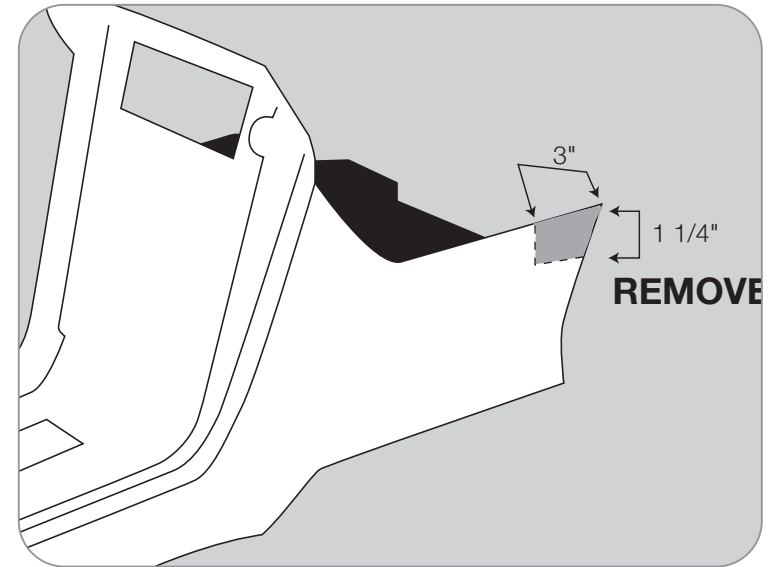
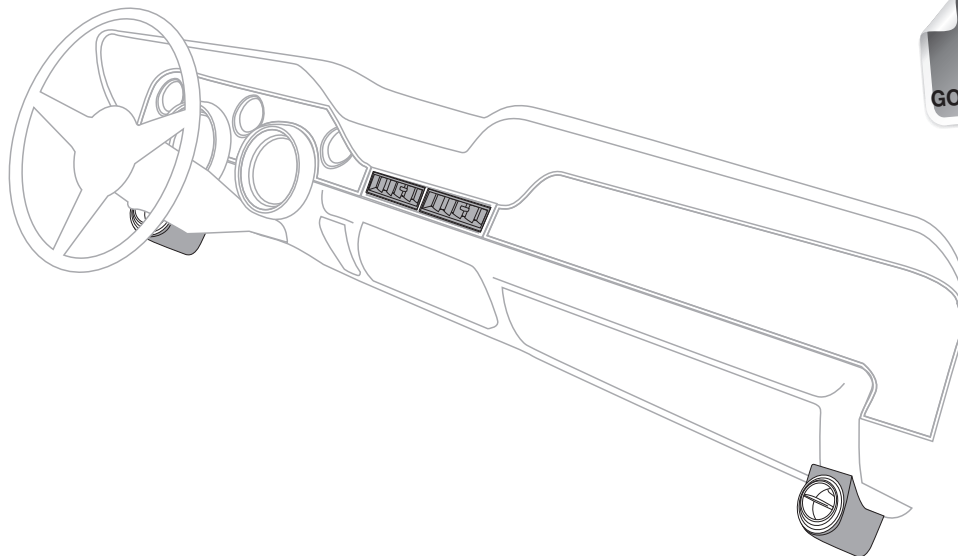


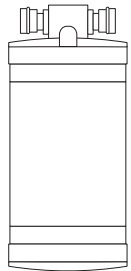
FIGURE 36



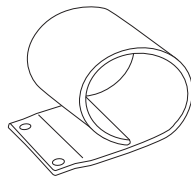
Retaining all the non-reinstalled OEM parts is a good idea, but that's your choice.

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

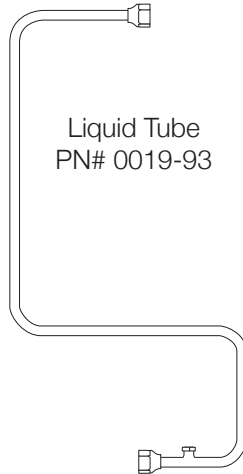
You'll find all of these parts within the main box



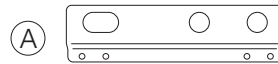
Drier
PN# 12-1008



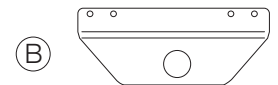
Drier Bracket
PN# 19-1003



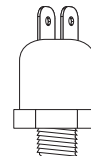
Liquid Tube
PN# 0019-93



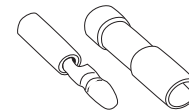
Condenser Brackets
PN# 0019-53



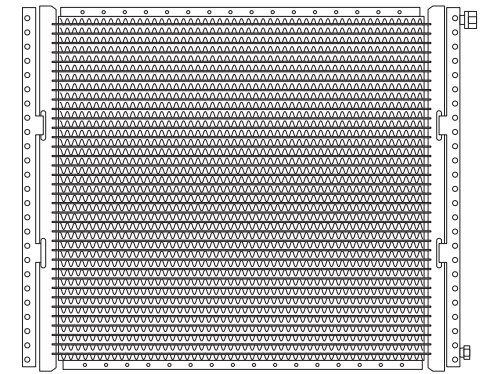
Condenser Brackets
PN# 0019-100



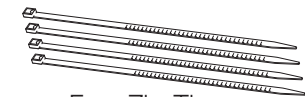
Pressure Switch



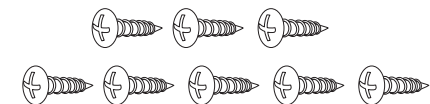
Splice and
Bullet Connector



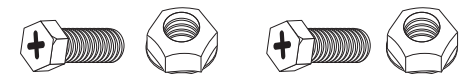
Condenser
PN# 11-1093



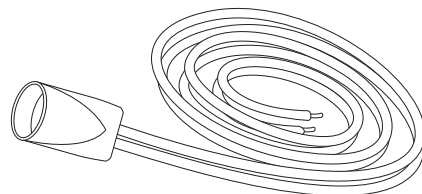
Four Zip-Ties



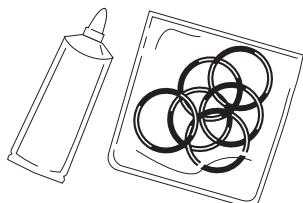
Eight #10 - 20 x 5/8" Screws



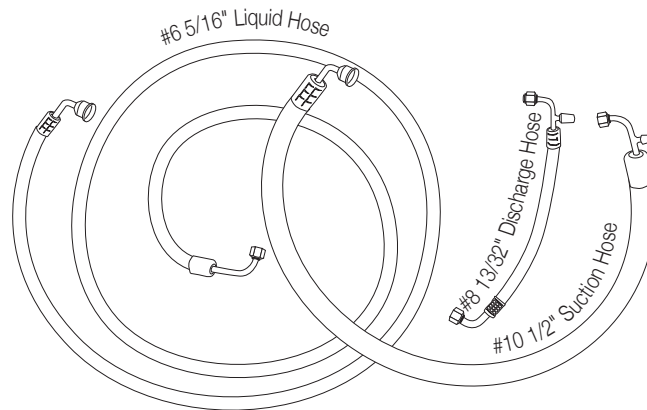
Two #8 - 20 x 5/8" Bolts and Lock Nuts



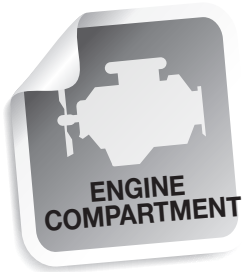
Pressure Switch Harness



Bag of O-rings and Mineral Oil Tube



Three Refrigerant Hoses



ENGINE COMPARTMENT INSTRUCTIONS

**STEP ONE: IF YOU HAVE NOT DONE SO ALREADY,
DISCONNECT THE BATTERY.**

STEP TWO: During the next steps you'll be installing the condenser, drier, and routing the pressure switch wire and the A/C lines. Since much of this is installed in the OEM location for the condenser, you'll need to remove the center grill section, horn(s), and latch support assembly (See figure 37). Be sure to retain all the mounting screws – you'll reinstall these pieces in the exact reverse order with the OEM screws.

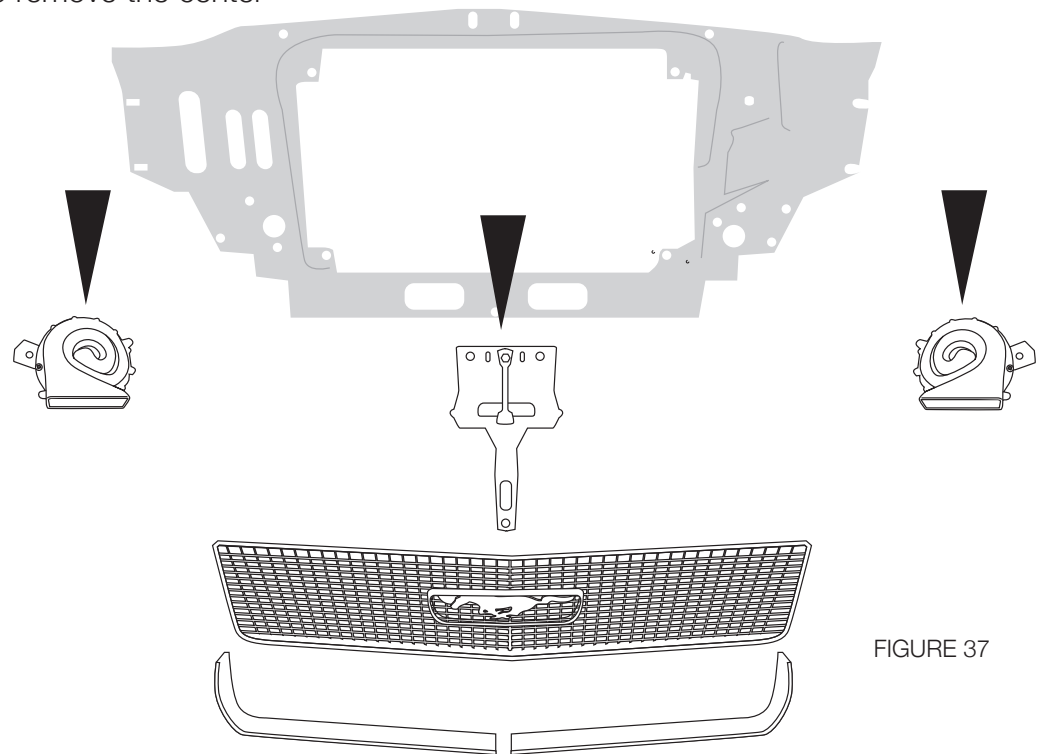


FIGURE 37

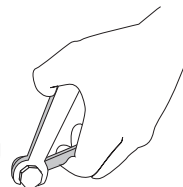
STEP THREE: DRIER AND CONDENSER PREPARATION. You can perform most of the following steps on a clean flat surface like a workbench. Lay the condenser down so that both hose connections are on the right side (the larger connection will be on top). The drier is conveniently mounted on the right hand side 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 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 components combined it will be easy to find the correct place to attach the drier bracket to the condenser with the included #8-20 x 5/8" bolts and lock nuts (attach drier and bracket from the back of the condenser). Tighten all connections once proper location is set.

STEP FOUR: Screw the high-pressure switch into the port at the lower end of 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).

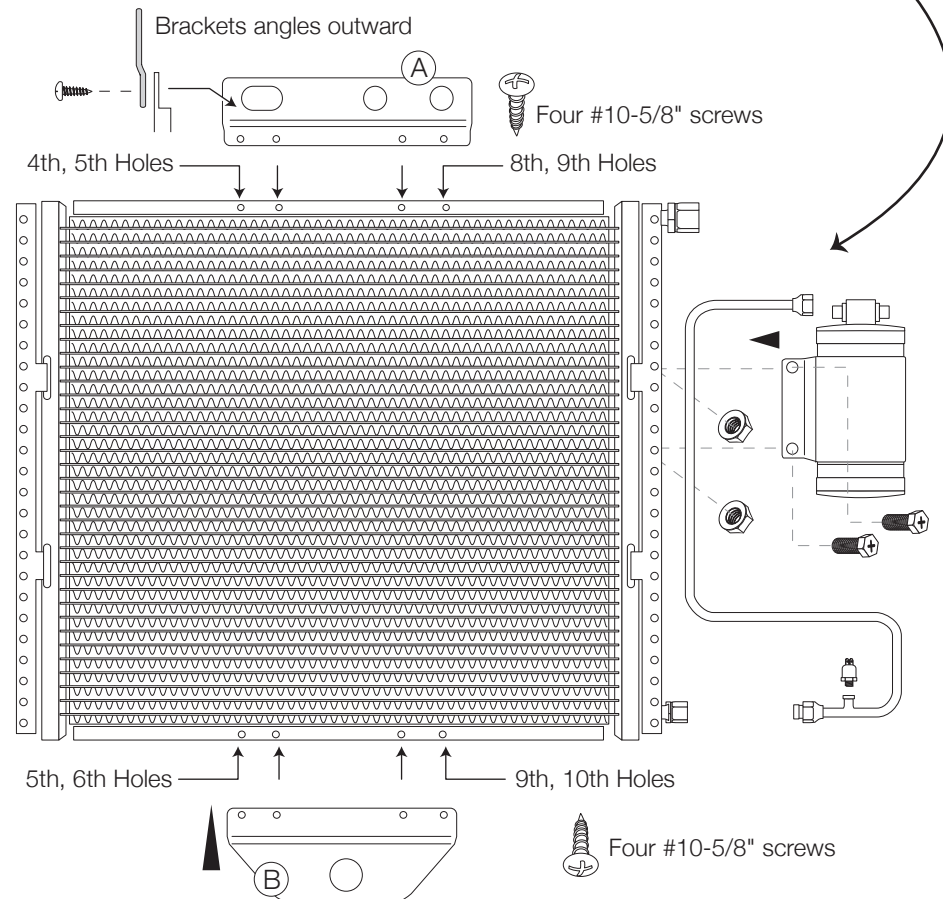
STEP FIVE: Install the upper condenser bracket (A) using four #10 - 20 x 5/8" screws in the 4th, 5th, 8th and 9th holes on the condenser from the left, be sure the bend on the bracket is facing towards you. Next, attach the lower bracket (B) using four #10-20 x 5/8" screws in the 5th, 6th, 9th and 10th hole from the left hand side. This bracket has a large hole that corresponds to the OEM latch support previously removed from the vehicle.



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



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



STEP SIX: Your OEM radiator support was designed to support a A/C condenser and conveniently has two small indentations on the drivers side core support (see figure 38, aftermarket core supports may or may not have these indentations). Locate these two small indentations and drill a 1 3/8" hole thru each (be sure to check for any obstructions before drilling, and remove any sharp burrs from the drilling before continuing, see figure 38), then the area between the two holes will be easy to remove (example figure 39). You'll route the discharge hose to the compressor will go thru this hole, as well as the liquid hose and the wiring harness plug for the high-pressure switch.

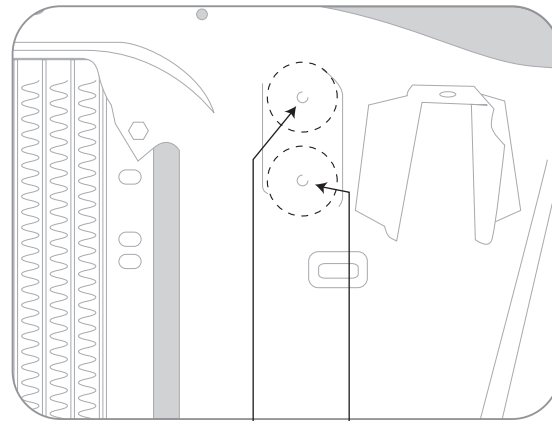
STEP SEVEN: Place the condenser/drier unit into place, locating it so that the holes in the condenser brackets align with the holes in the core support used to attach the hood latch (it will rest on the lower radiator core brace, see figure 40).



TECH TIPS

If you want to verify that you have the correct indentations in sight before drilling, place fit the condenser into it's final location. Also, the

holes on the upper bracket are larger than needed to allow for small adjustments. The condenser is held in place when the hood latch is reinstalled at a later time.



Drill two 1 3/8" holes

FIGURE 39

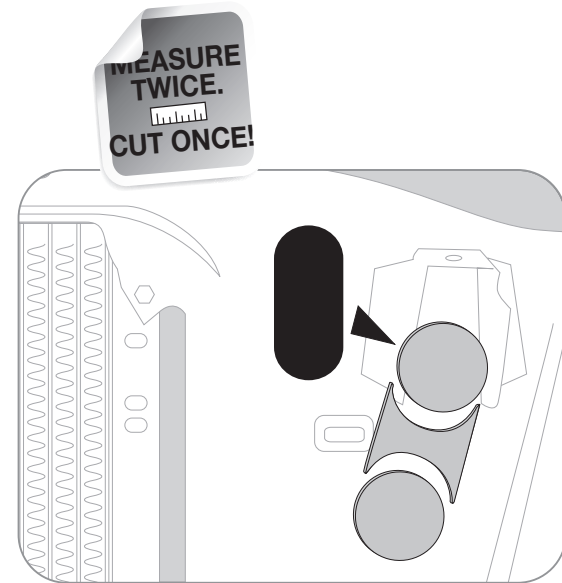


FIGURE 38

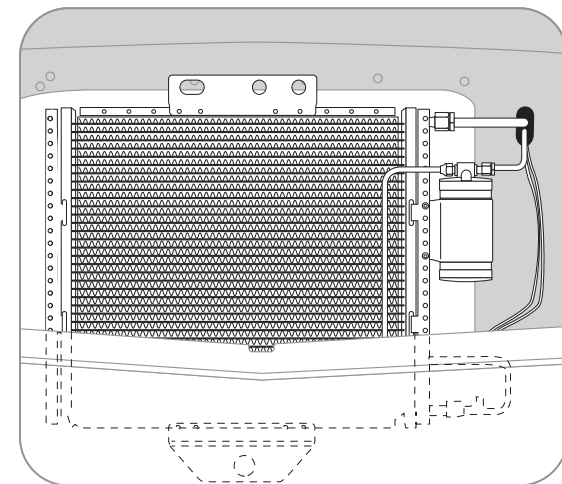


FIGURE 40

Connecting the Hoses



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

CONNECTING THE HOSES:

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

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

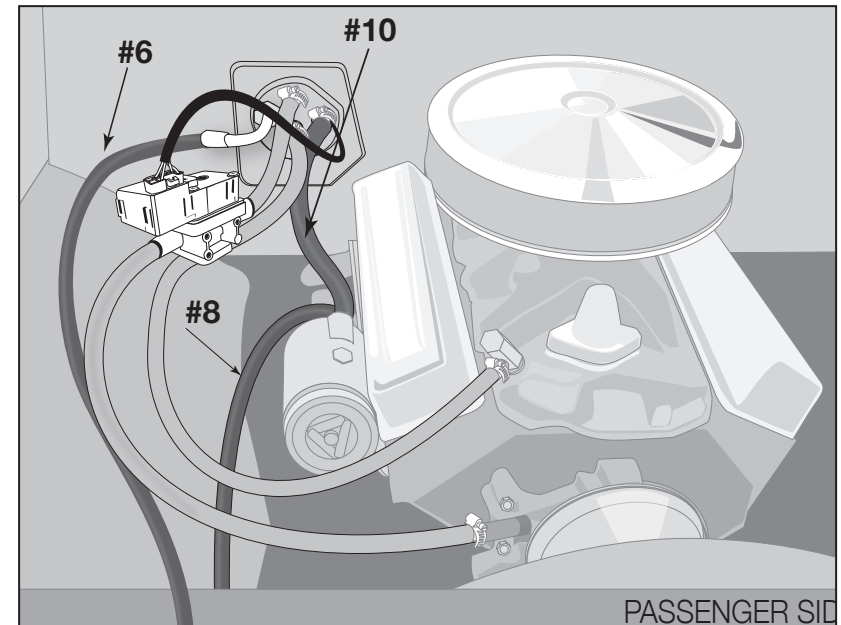
The #6 (**SMALLEST**) refrigerant hose. Route behind fender and to the connection on firewall. Attach using two #6 o-ring and a few drops of mineral oil.

The #8 (**MEDIUM**) refrigerant Hose. Route behind fender and to the connection on compressor. Attach using two #6 o-ring and a few drops of mineral oil.

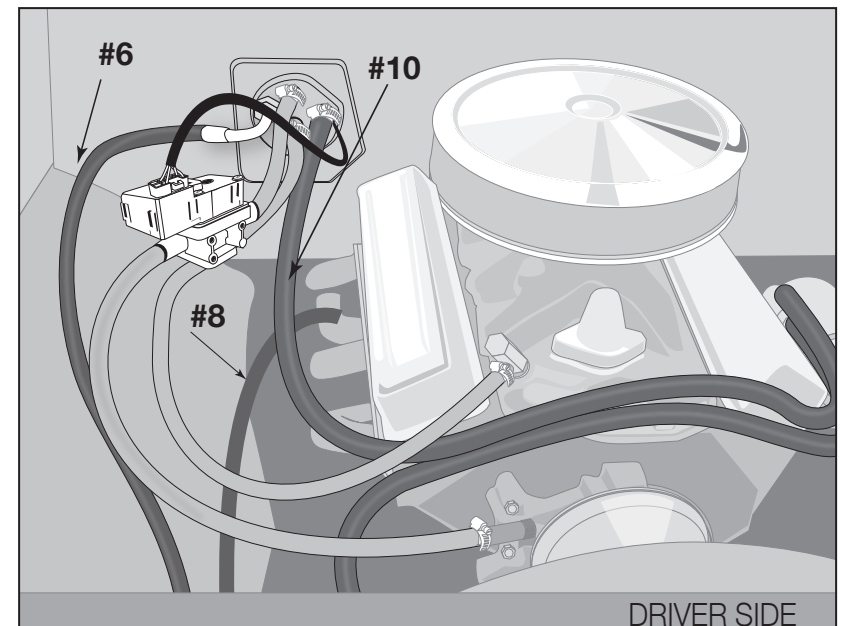
TWO WRENCH METHOD



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



PASSENGER SIDE



DRIVER SIDE



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

Please read through these procedures before completing this new A/C system charging operation.

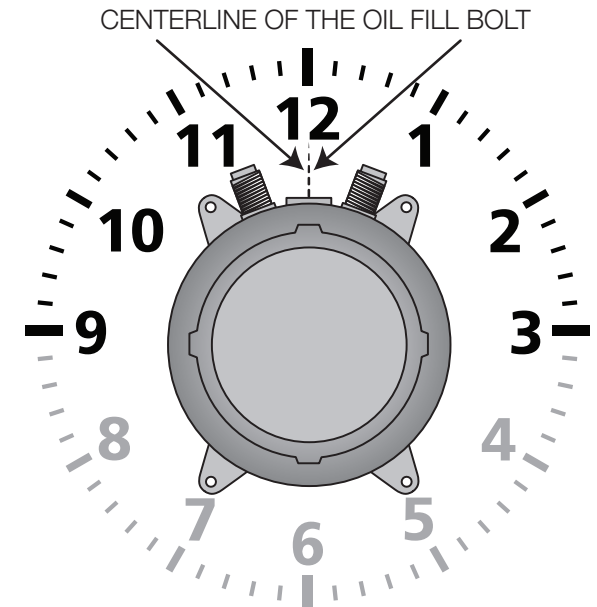
A licensed A/C technician should be utilized for these procedures to insure that your new system will perform at it's peak, and that your compressor will not be damaged.

- 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!**

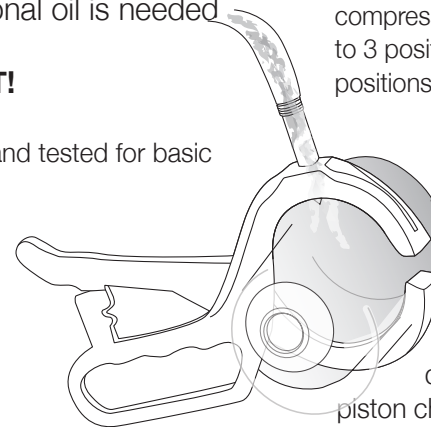
RECOMMENDED TEST CONDITIONS: (After system has been fully charged and tested for basic operation)

- 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:



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. **This can cause compressor failure.**



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

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)...

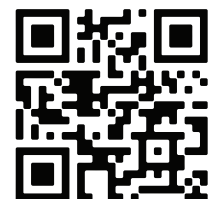
There is a blockage in the system. Remove hoses and blow compressed air through in both directions. If pressures don't change its possible that your expansion valve is stuck closed and would have to be replaced.

*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.

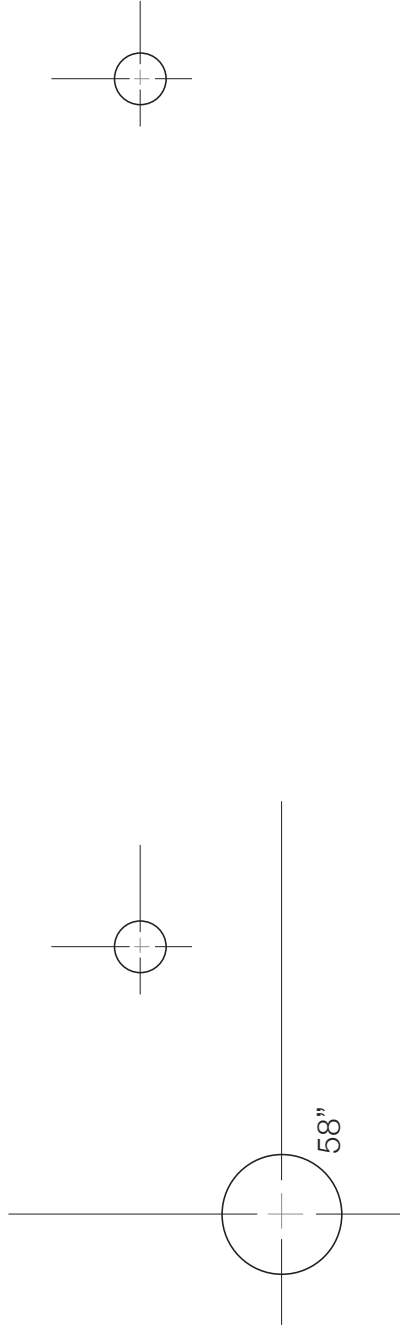
SCAN QR code
with your mobile camera

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.



**IF YOU PRINTED THIS MANUAL
PLEASE READ THIS...**

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



Note: bottom of template is parallel with floor pan —



