



Installation Manual

1968-1969 Chevelle/Malibu ***Factory Air***

DOCUMENT #1-2092FA

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Congratulations...

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

To obtain the high level of performance and dependability our systems are known for, please pay close attention to the following instructions. Our installation steps and procedures are derived from a long history of research and development and the combined experience achieved thru thousands of successful installations (and feedback from customers like you). Please remember that our #1 goal is that you'll have a successful installation and a system that performs at a very high level for many years to come.

Before starting, read the instructions carefully, from beginning to end, and follow the proper sequence. On the next page you'll find a safety and general checklist that you should read before starting your installation.

Again, thank you from our entire staff.



Check List, Pre-Installation:

- ☐ Before beginning the installation check the shipping box for the correct components. YOUR BOXED UNIT INCLUDES A LIST OF MAJOR COMPONENTS AND A LIST OF BAGGED PARTS. We have a 5 stage check process to make sure you have everything you'll need.
- ☐ **If your vehicle has been or is being modified, some procedures will need to be adjusted to fit your particular application.**
- ☐ A basic cleaning of the engine compartment and interior before beginning will make things go more smoothly.
- ☐ Check condition of engine mounts. Excessive engine movement can damage hoses to A/C and/or heater.
- ☐ Before starting, check vehicle interior electrical functions (interior lights, radio, horn, etc). Make a note of anything that does not work as it's supposed to. During the installation you might find the opportunity to repair or upgrade non-working or out of date components. When you're ready to start the installation, **DISCONNECT THE BATTERY FIRST.**
- ☐ Drain the radiator. Retain the coolant and reuse, or dispose of properly.
- ☐ SAFETY FIRST: Wear eye protection while drilling/cutting, deburr sharp edges, and never get in a hurry or force a part.
- ☐ Tools: Your installation only requires the basic tools everyone has in their garage, nothing exotic or specific to A/C or Heat equipment.

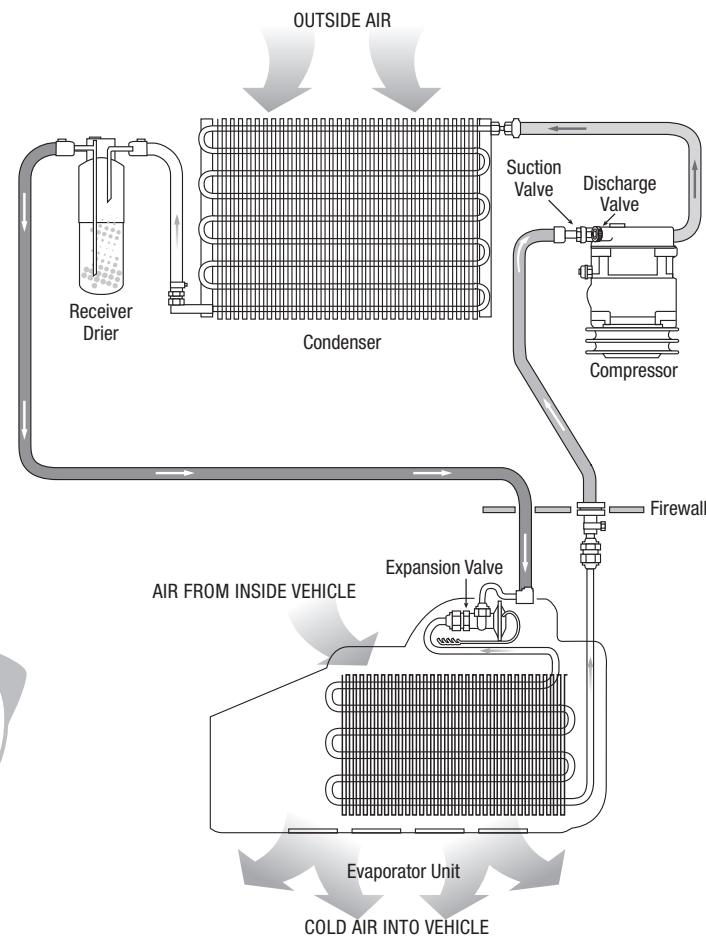
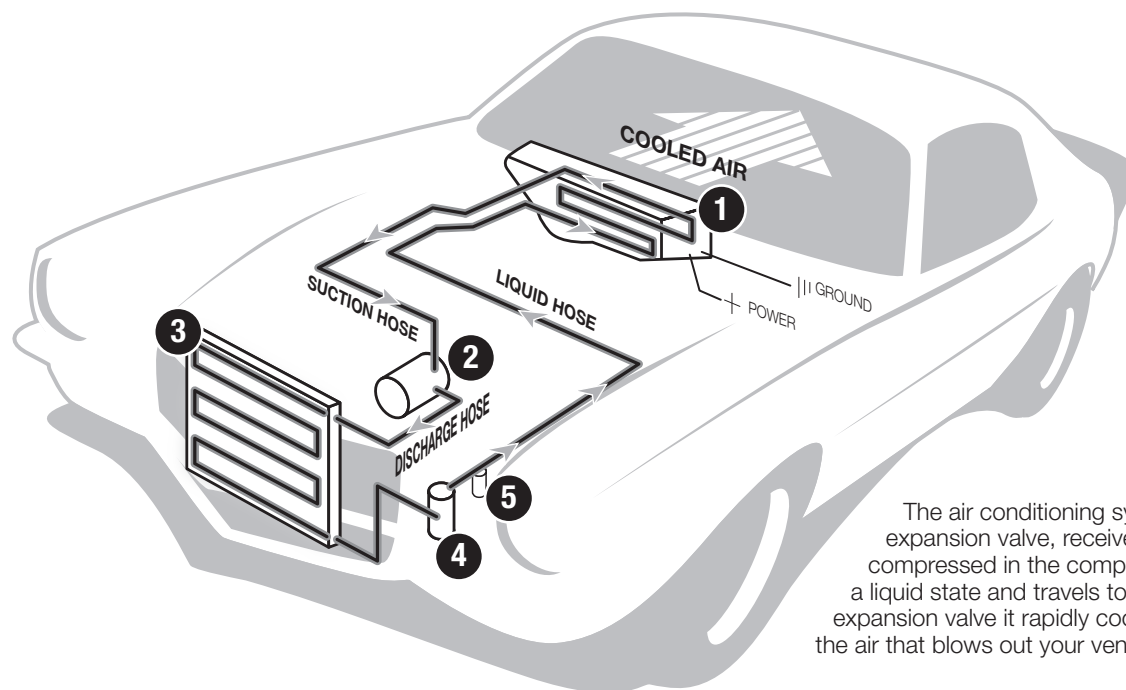
Procedures, During Installation:

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

YOU CAN NOW BEGIN THE INSTALLATION...

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

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



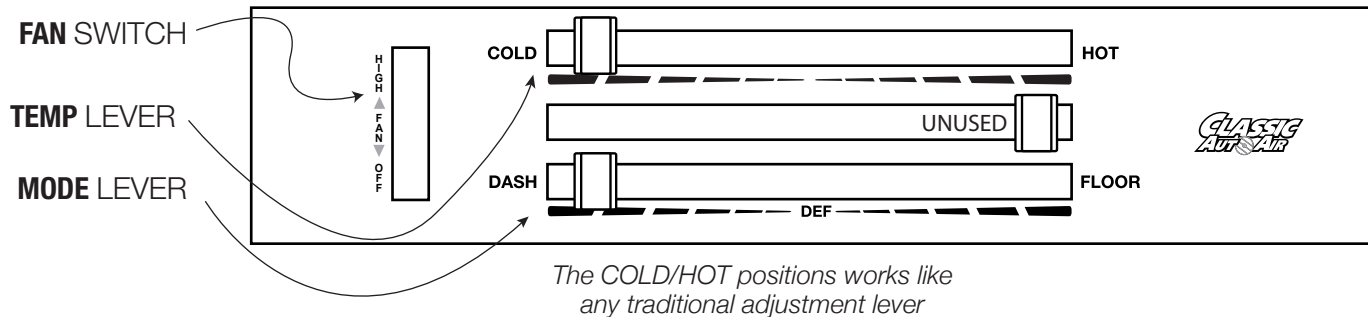
The air conditioning system in your car is comprised of a compressor, condenser, expansion valve, receiver/drier, and evaporator. Refrigerant (also known as Freon) is compressed in the compressor and turns into a gas. In the condenser, this gas is cooled to a liquid state and travels to the expansion 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. The receiver-drier separates gas and liquid.

Control & Operating Instructions

Your new **Perfect Fit-Elite 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 **Perfect Fit-Elite** for maximum comfort...



The FAN switch works like the OEM switch, moving the lever away from the OFF indicator powers the system



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

	DASH					DEF				FLOOR	
Left Lever Position	1	2	3	4	5	6	7	8	9	10	11
Distribution	Face A/C 100%	Face A/C 80%	Face A/C 60%	Face A/C 40%	Face A/C 20%	Defrost 100%	Floor 20%	Floor 60%	Floor 40%	Floor 80%	Floor 100%
		Defrost 20%	Defrost 40%	Defrost 60%	Defrost 80%		Defrost 80%	Defrost 40%	Defrost 60%	Defrost 20%	
Compressor State	ON					ON					



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

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

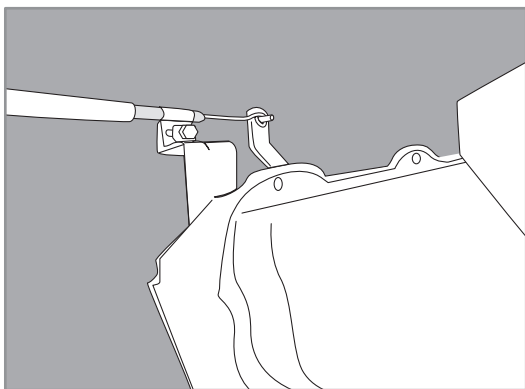
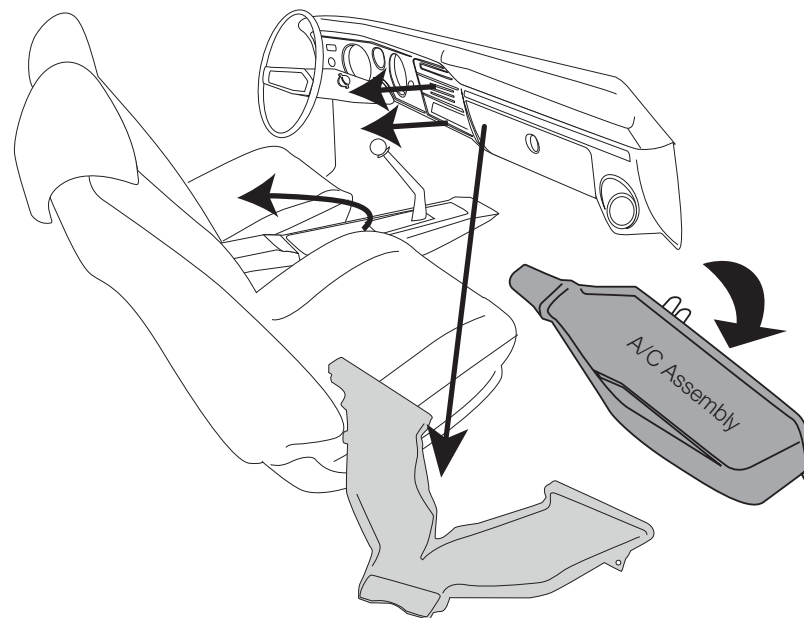


FIGURE 2

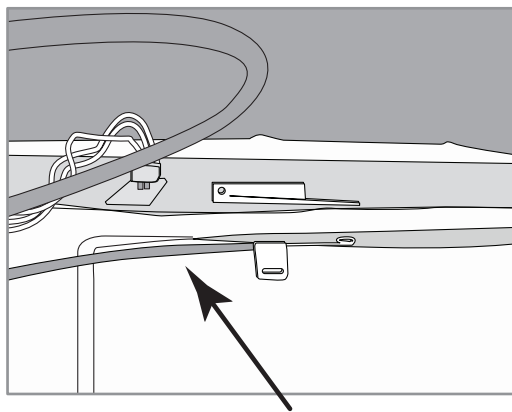


FIGURE 3

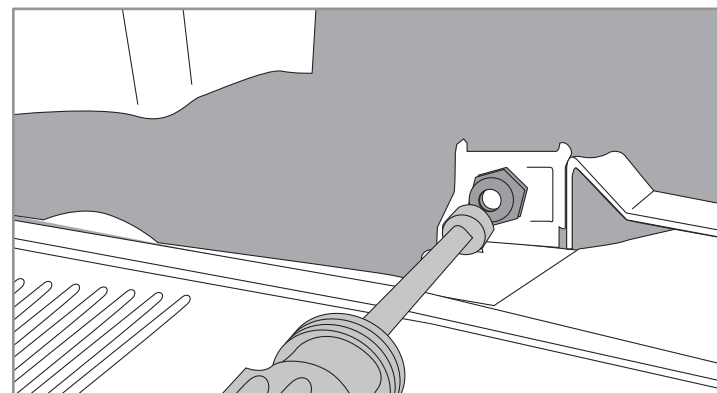
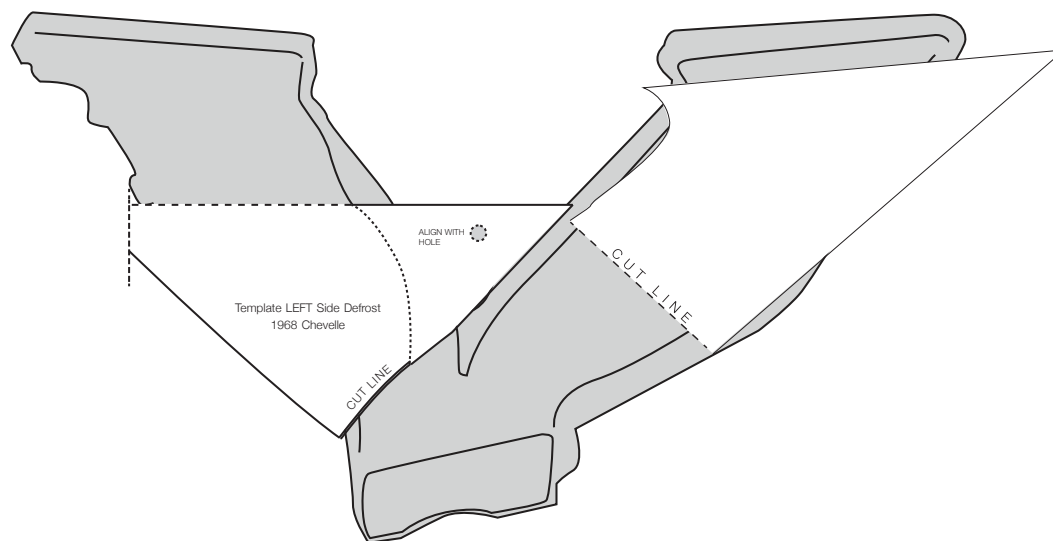


FIGURE 4

BAG KIT E: Remove defrost duct and place on a flat area like a workbench. We've included templates for modifying both sides of the duct... cut out and tape the templates in place over the duct. Cut the defrost duct into two pieces as indicated, discarding the lower half. Using the ¼" x ½" open cell foam we've included, apply foam over the ends of the duct edge before installing the appropriate adapters (adapters used vary depending on year model you have). Secure the adapters with two #8 x 1/2 screws (see figure 22).

Reinstall in dash using OEm hardware.



ALERT! GM part# **3906067**

Drivers Side

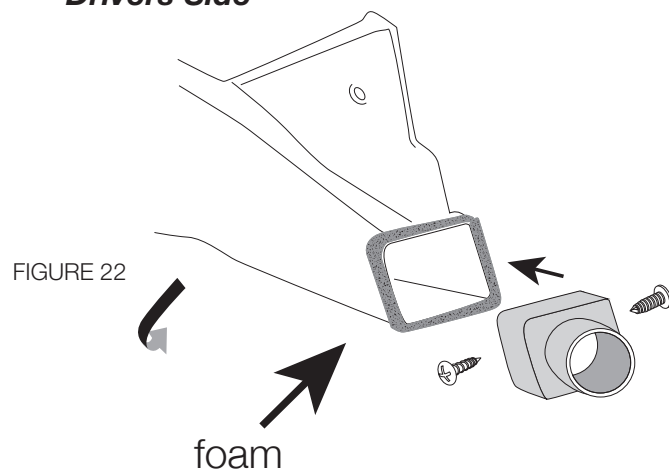
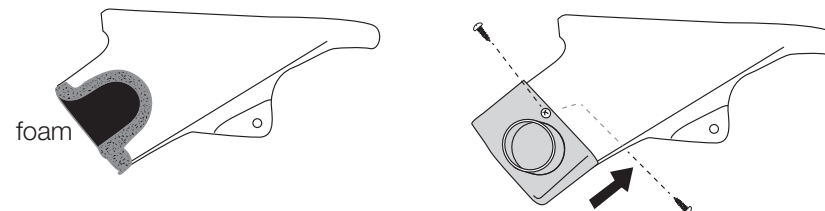


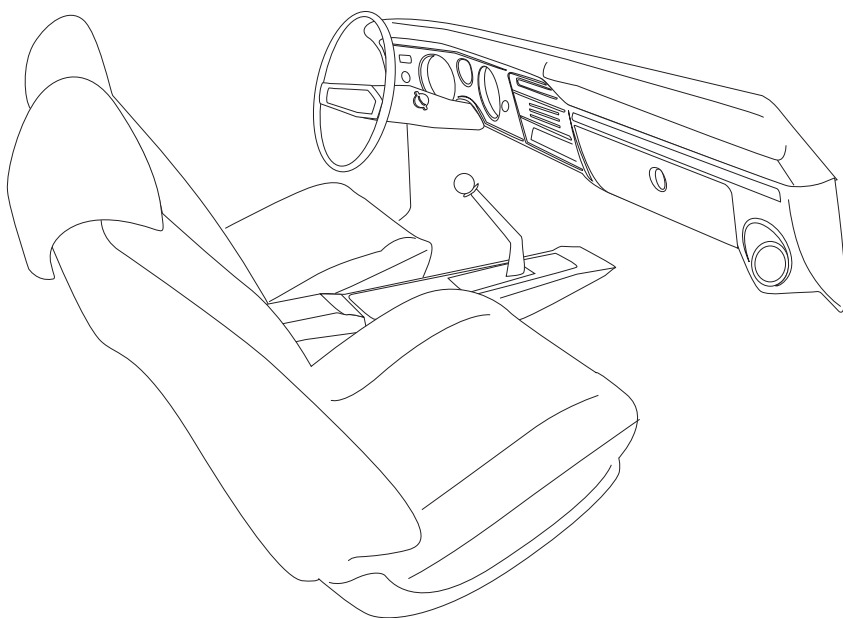
FIGURE 22

Passenger Side

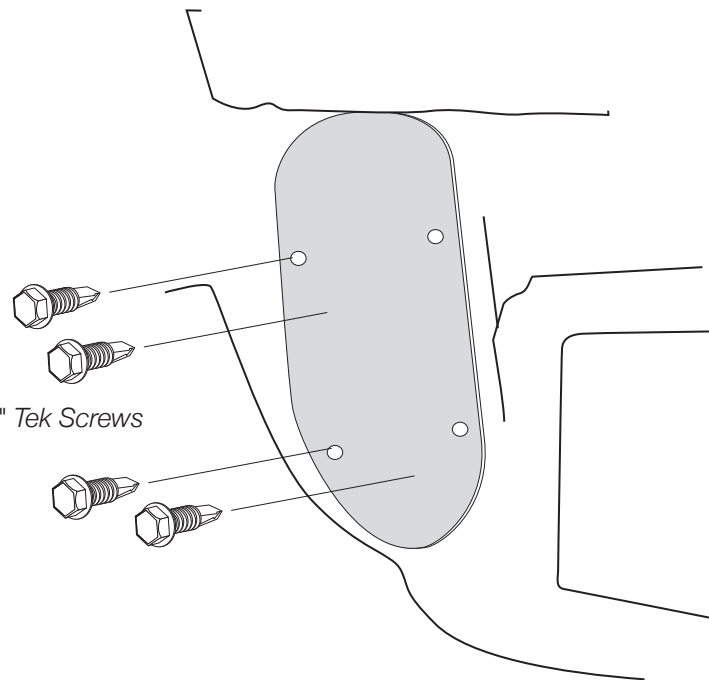


We included 2 ft. of open cell foam. Attach foam to the defrost duct as shown here. Then attach adaptor with two screws.

Locate recirculation door Block off assembly from Bag Kit F and Four #10-16 X 3/4" Tek screws and attach to opening in passenger kick panel.

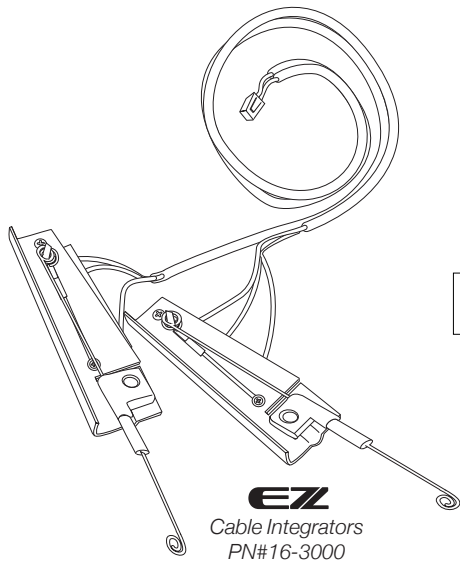


Four #10 - 16 x 3/4" Tek Screws



THESE ARE THE PARTS YOU WILL FIND IN BAG KIT A

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



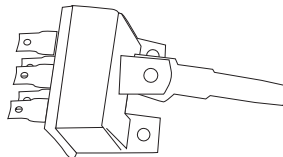
EZ
Cable Integrators
PN#16-3000



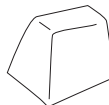
Control Face Sticker
PN#0118-16



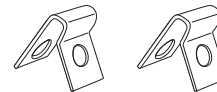
Two Pushnuts



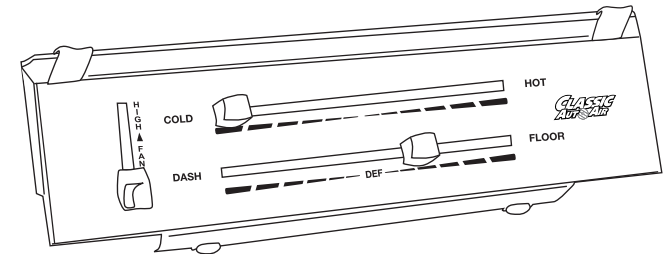
Blower Switch
PN#3T-235



Blower Switch Knob
PN#52535



Two - Cable Clips
PN#25-1015



D.E.R. Control
PN#16-3049

NOTE: Illustrations NOT shown actual size

BLOWER SWITCH INSTALLATION:

1) Remove the control cables, the original blower switch assembly and set aside. These will not be reused, but retain the OEM screws, it will be reused (see figure 6). Remove the OEM vacuum pot, and plug-off the vacuum source either under the dash or at the firewall entry point.

2) Position the new blower switch in the lower original hole location as the OEM switch and attach to control housing with OEM screw.(see figure 7). Then rotate switch until it is flush against the edge (see figure 8).

3) Drill a new hole using a 1/8" bit, and use the remaining OEM screw to secure blower switch.

FIGURE 7

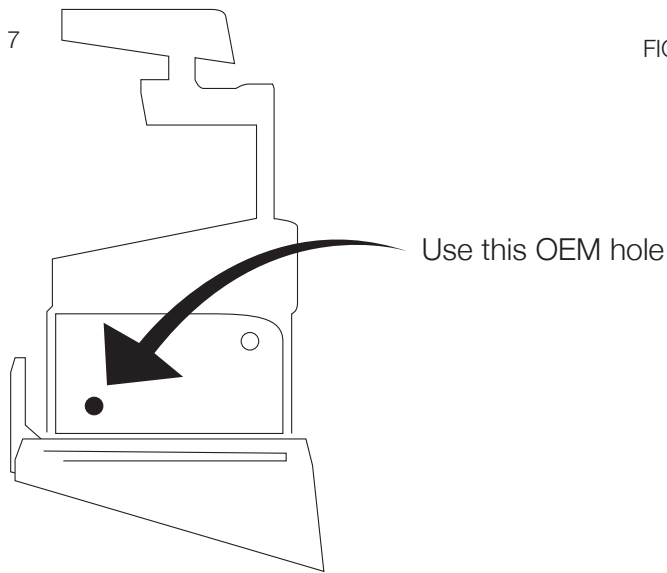


FIGURE 8

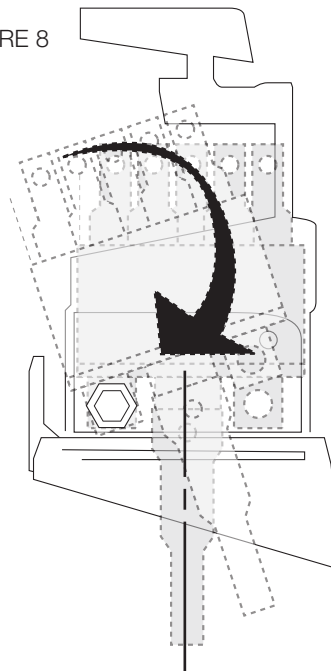


FIGURE 9

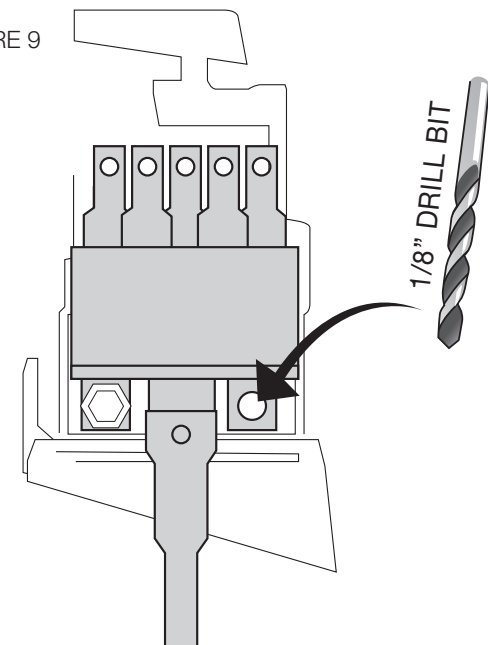
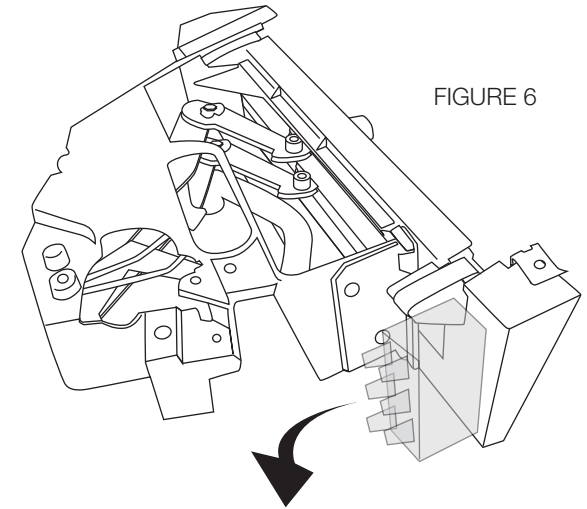


FIGURE 6



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.

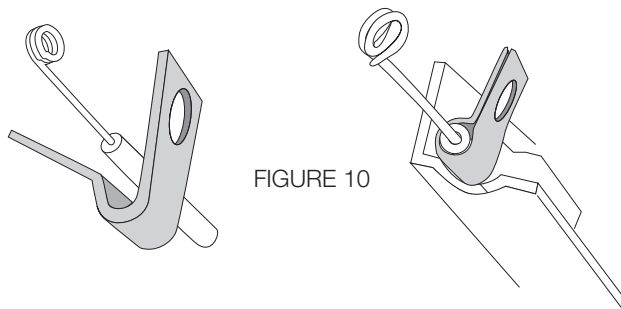


FIGURE 10

Next, attach the **TEMP EZ Cable Integrator** to the control head as shown to the right. The loop ends of the integrator wire will be secured with a push nut (see figures 11 and 12).

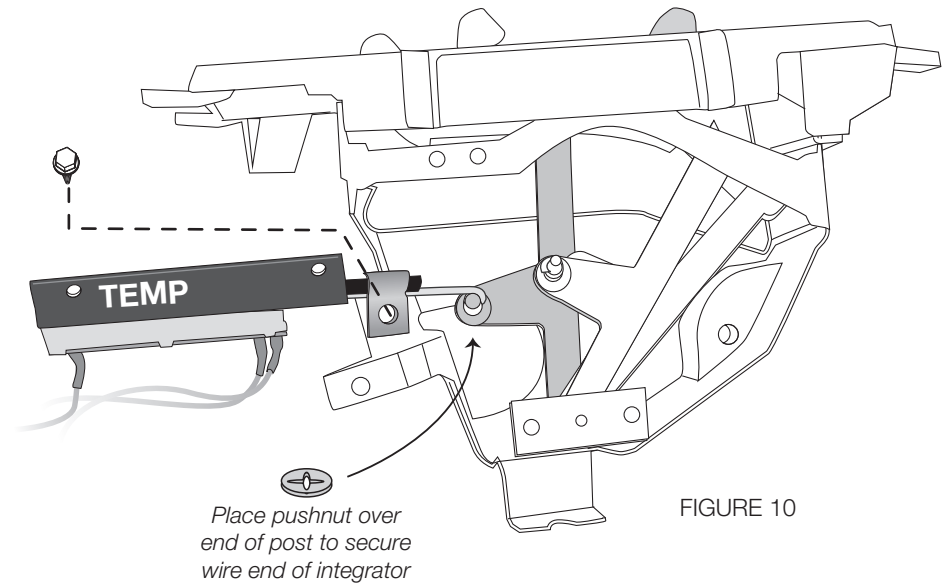
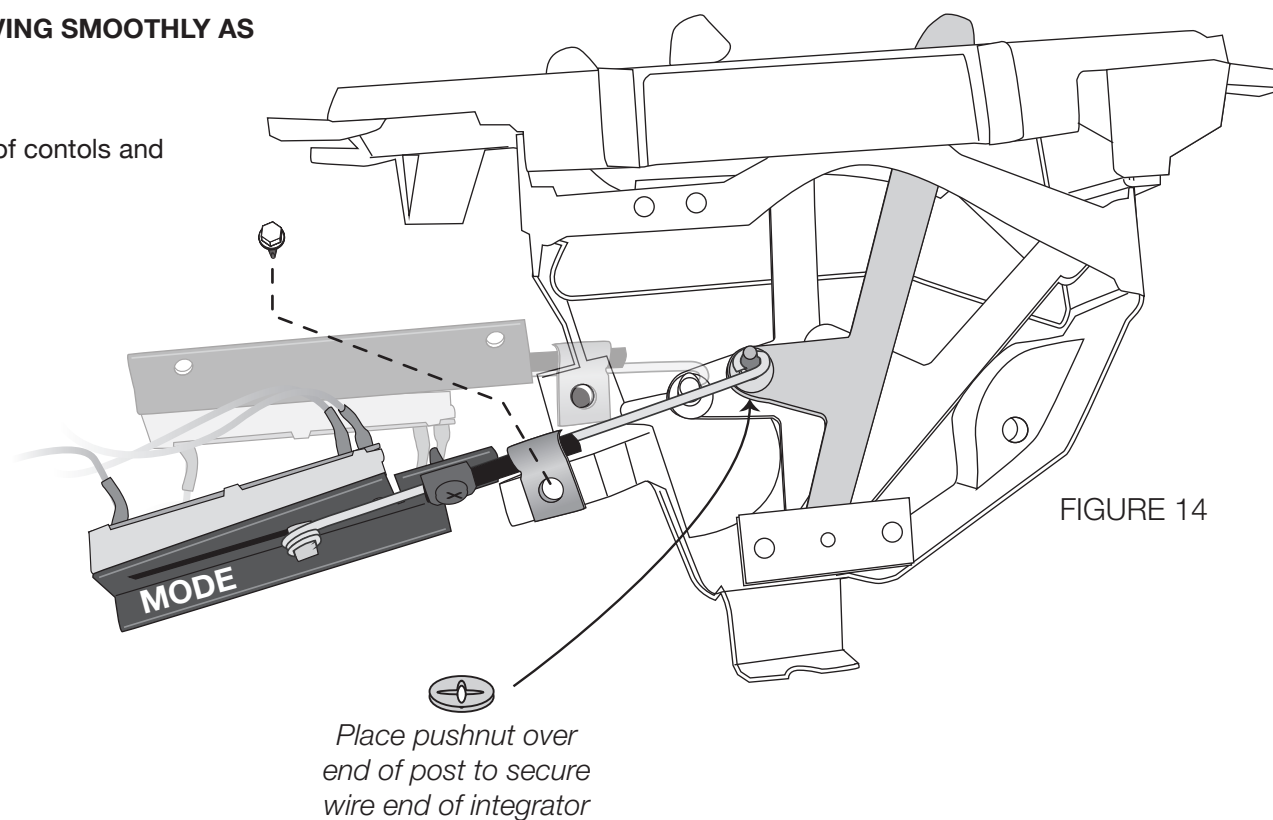


FIGURE 10

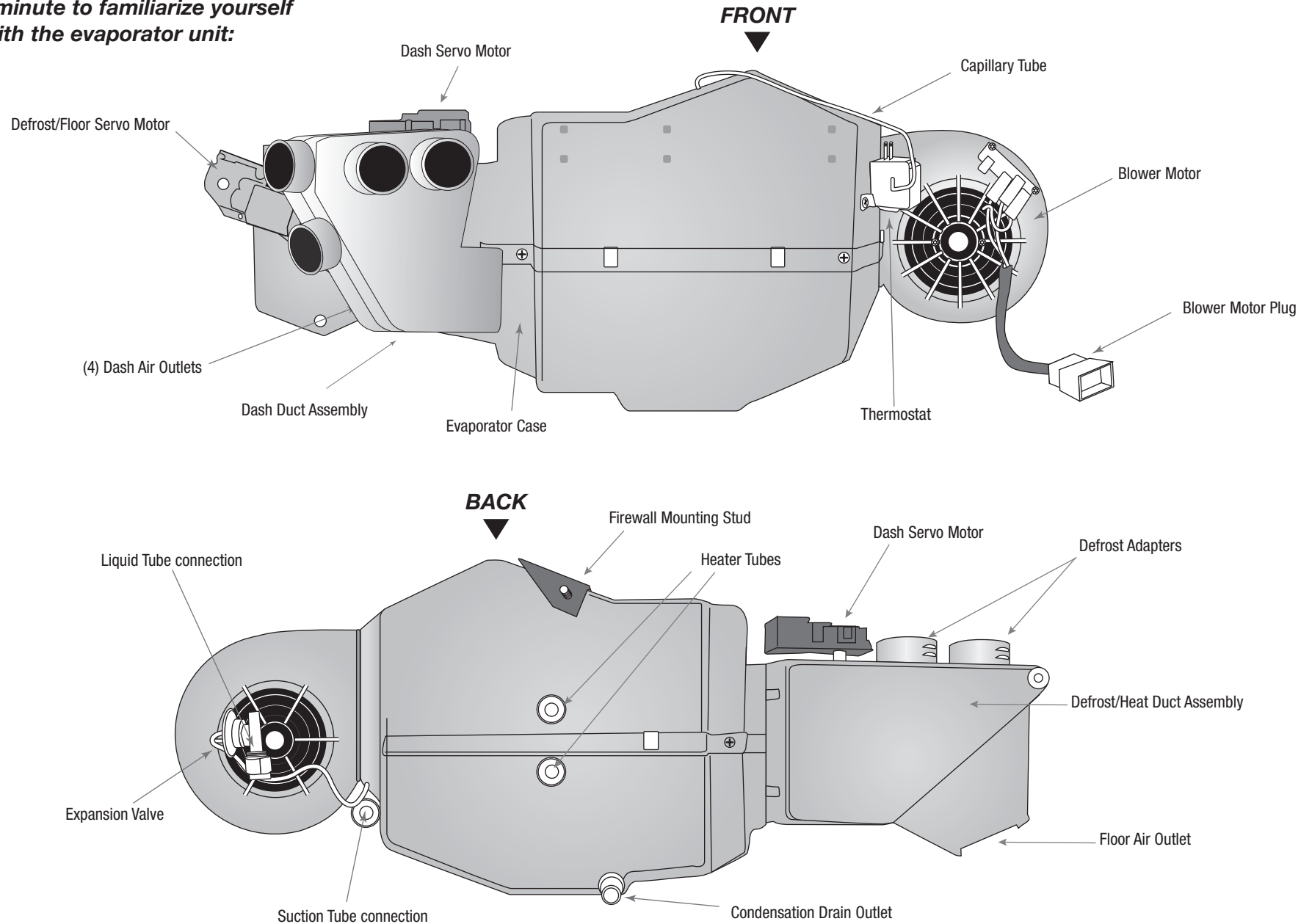
Next, attach the **MODE EZ Cable Integrator** to the control head as shown to the right. The loop ends of the integrator wire will be secured with a push nut (see figure 13 and 14).

CHECK THAT CABLE CLIPS ARE FIRMLY TIGHTENED AND THE CABLE INTEGRATORS ARE MOVING SMOOTHLY AS YOU SLIDE CONTROLS KNOBS.

Affix supplied faceplate sticker to front of controls and reinstall into dash using OEM screws.

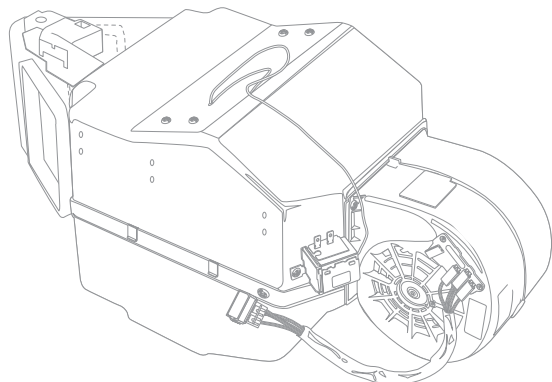


**Take a minute to familiarize yourself
with the evaporator unit:**

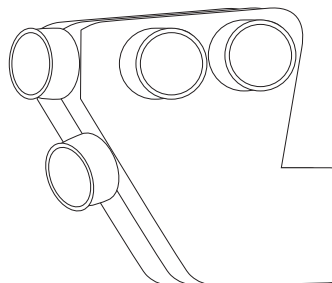


BENCH CALIBRATION & FUNCTION TESTING

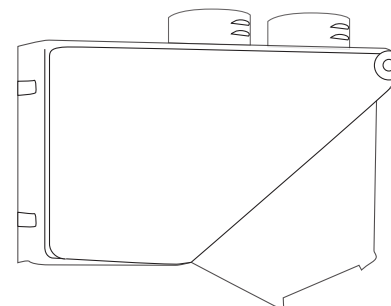
• Items Needed for Bench Calibration



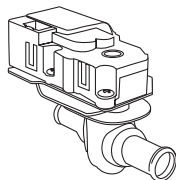
☐ Locate Evaporator Unit from Main Box



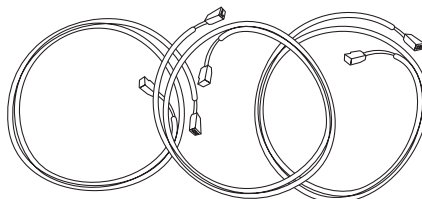
☐ Locate Face Duct Assembly from Bag Kit B



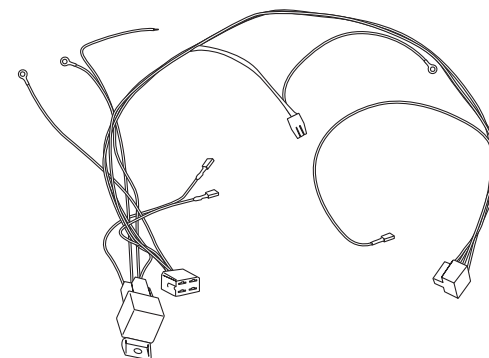
☐ Locate Defrost/Heat Duct Assembly from Bag Kit B



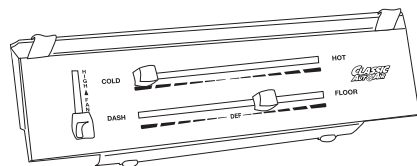
☐ Locate electronic water valve from Bag Kit D



☐ Locate Blue, Yellow, Orange wiring harness from Bag Kit C



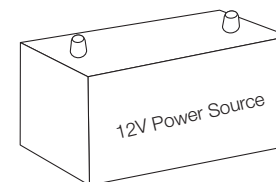
☐ Locate main wiring harness from Bag Kit C



☐ Locate the D.E.R. control in the CONTROL BOX
or modified OEM Controls



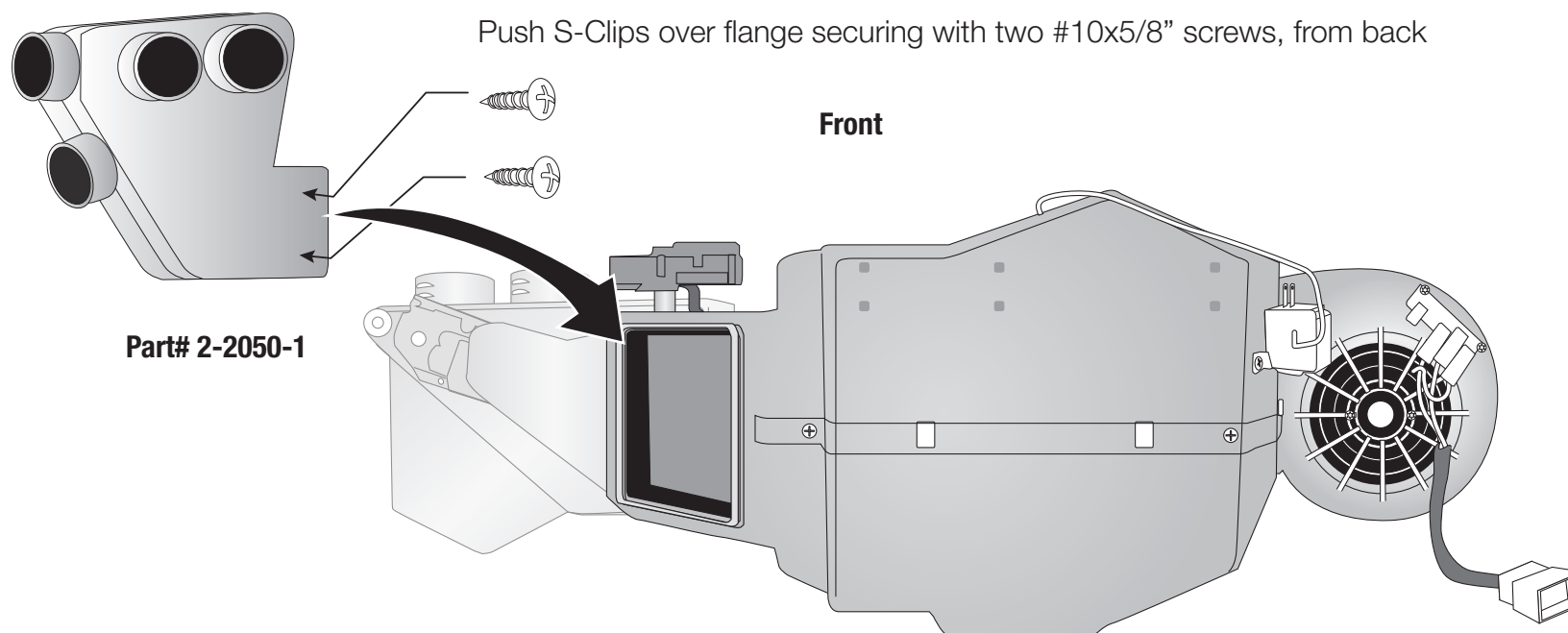
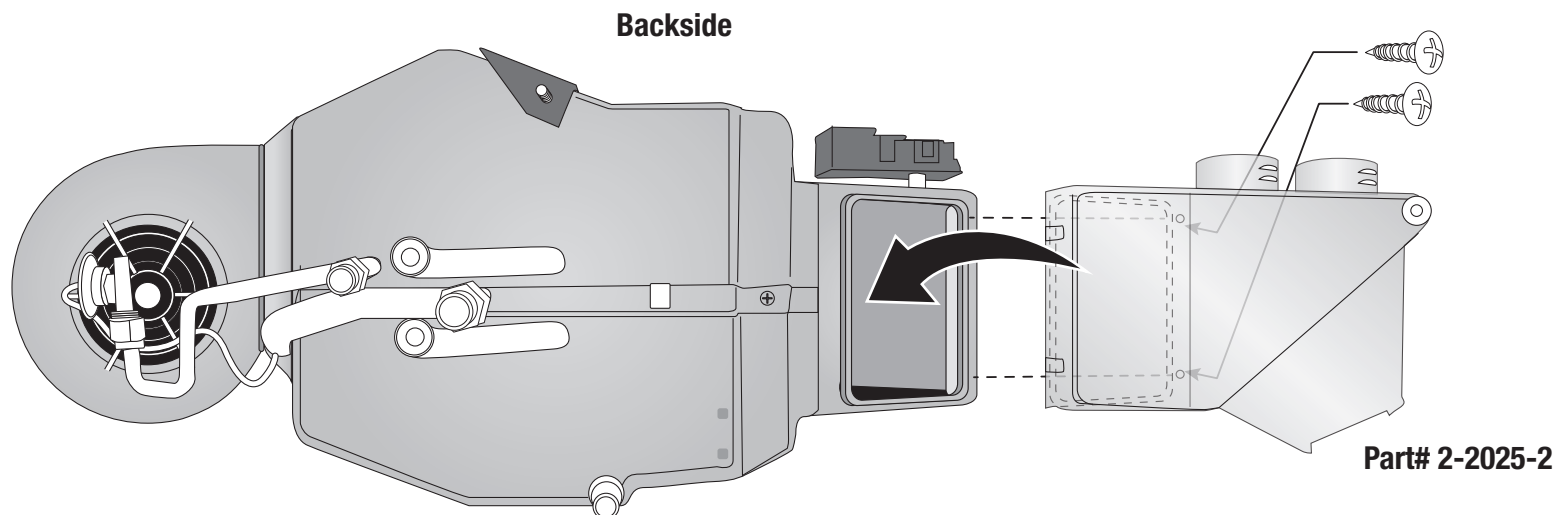
☐ Locate ECU and Calibration Key from Bag Kit C



☐ Acquire a 12V Battery (NOT a battery charger)

BENCH CALIBRATION & FUNCTION TESTING

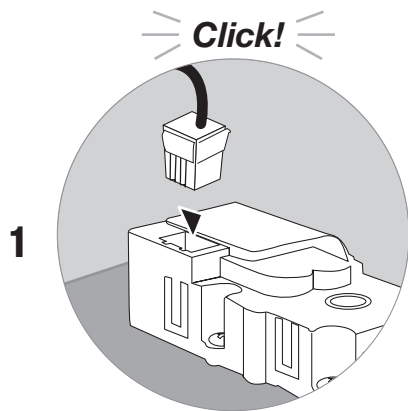
• Install Duct Assemblies



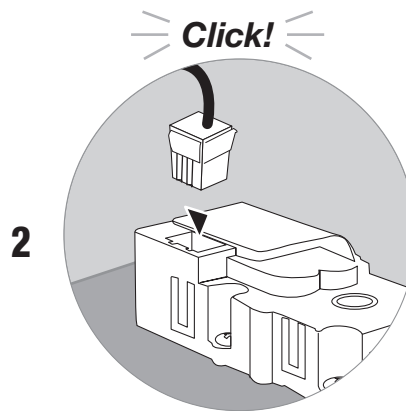
Attach to front outlet securing with pre-installed S-Clips

BENCH CALIBRATION & FUNCTION TESTING

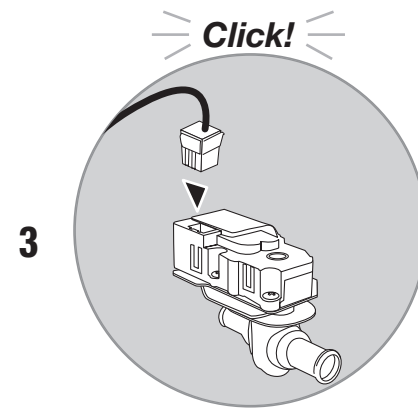
• Wiring Preparation Steps 1 thru 3



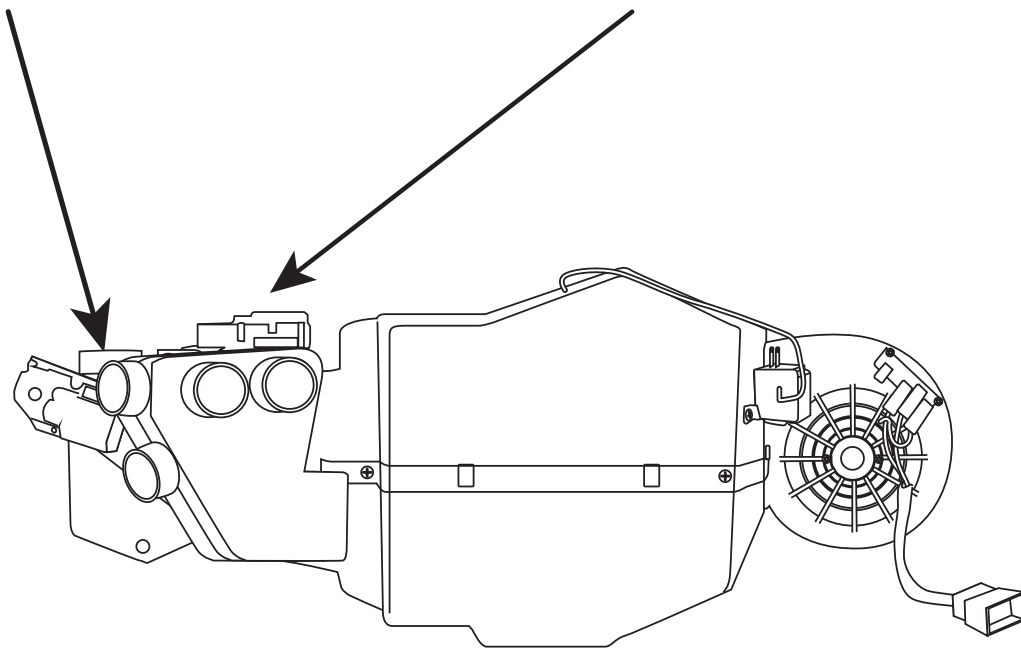
Connect Blue Harness into Defrost/Heat Servo Motor



Connect Yellow Harness into Face/Floor Servo Motor

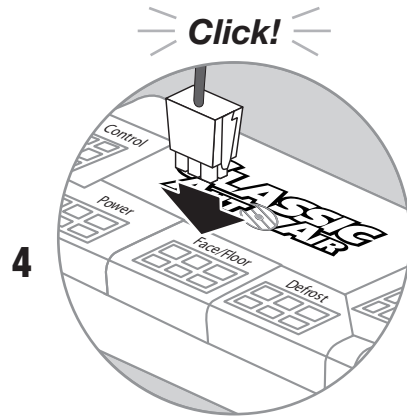


Connect Orange Harness into water valve

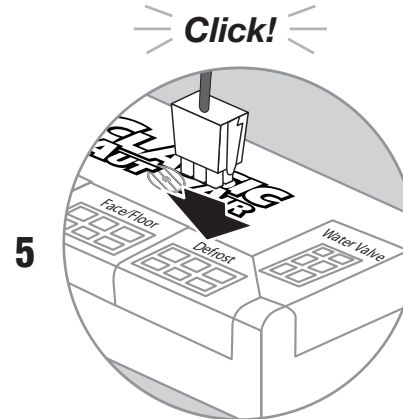


BENCH CALIBRATION & FUNCTION TESTING

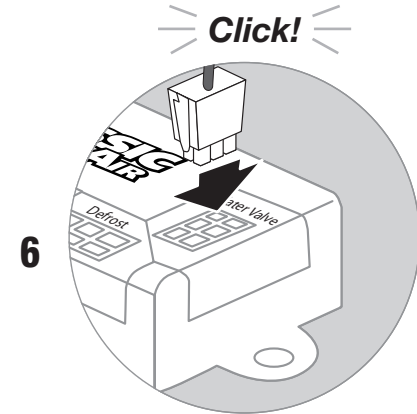
• Wiring Preparation Steps 4 thru 7



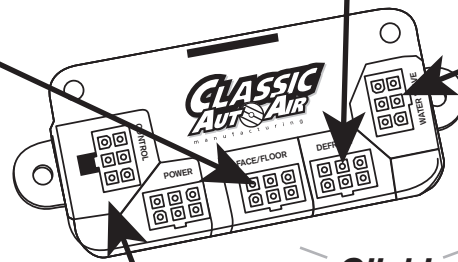
Connect Yellow Harness into Face/Floor Port on ECU



Connect Blue Harness into Defrost/Heat Port on ECU



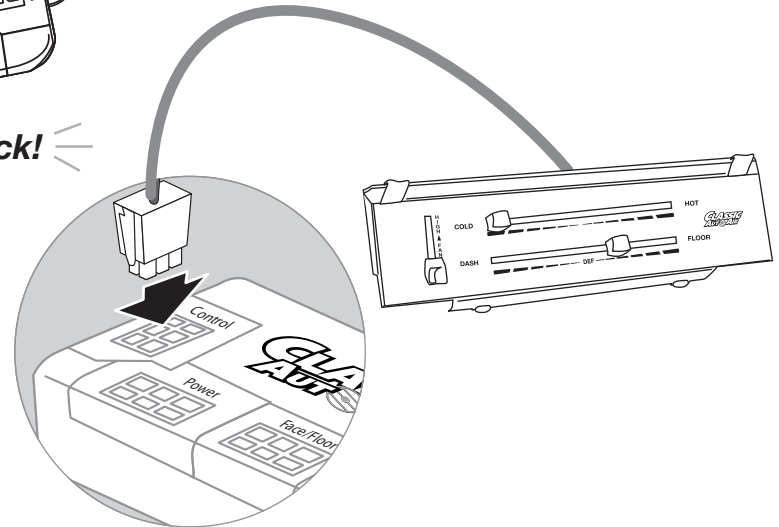
Connect Orange Harness into Water Valve Port on ECU



From your D.E.R.,
Connect Green Harness into
Control Port on ECU

Click!

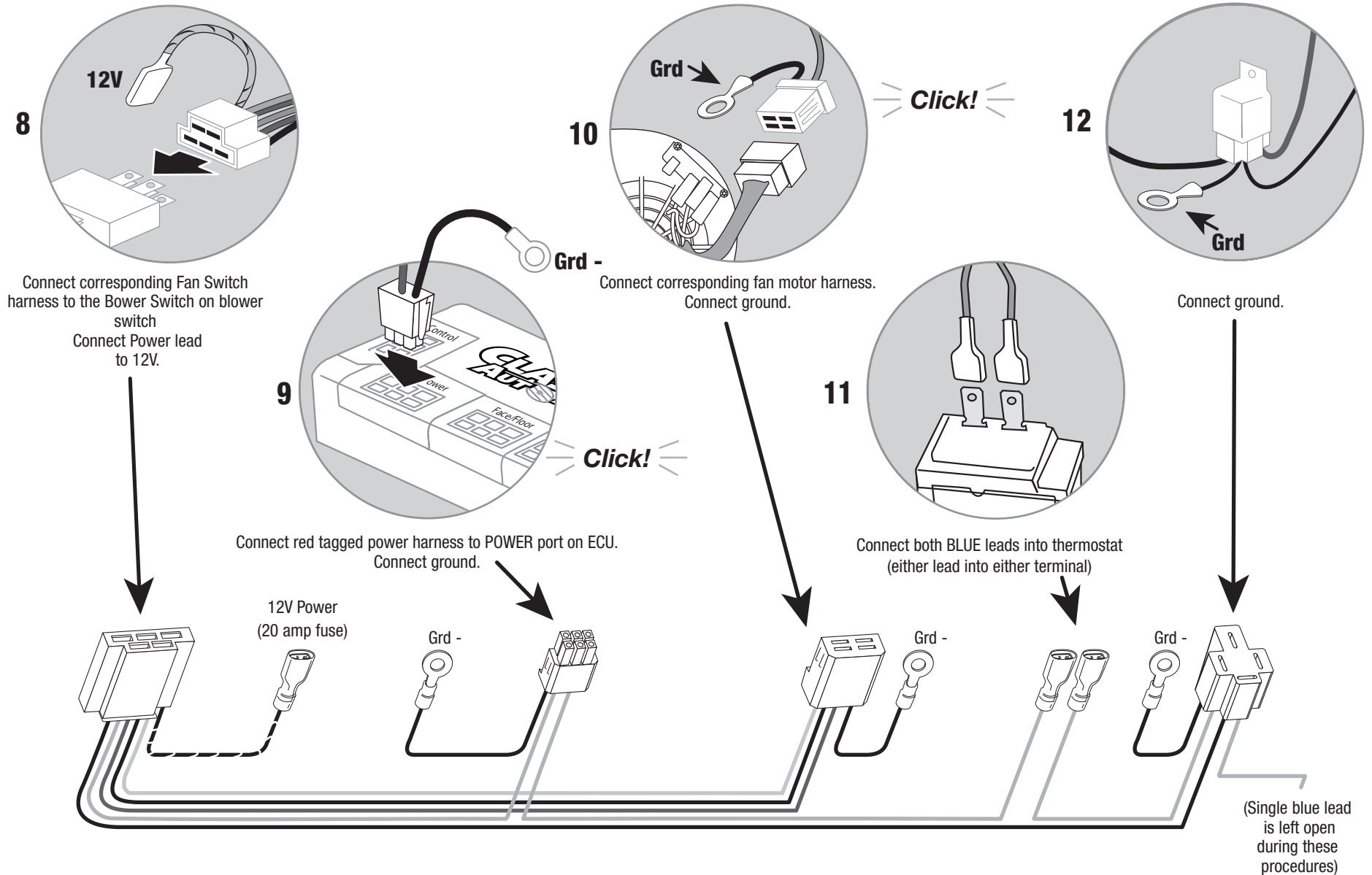
7



CLASSIC AUTO AIR

BENCH CALIBRATION & FUNCTION TESTING

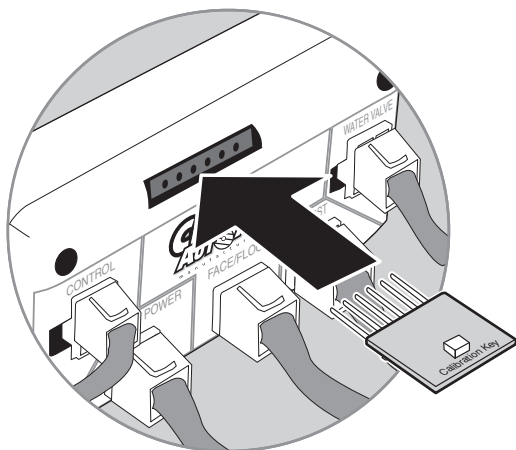
• Wiring Preparation Steps 8 thru 12



BENCH CALIBRATION & FUNCTION TESTING

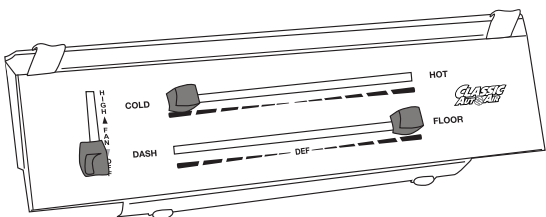
• Calibration, Steps 13 thru 15

13



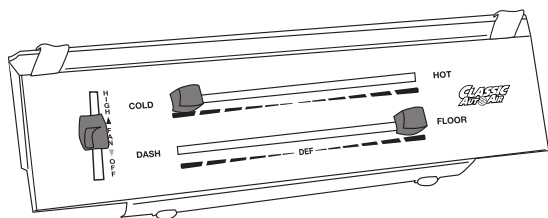
Insert Calibration Key as shown (LED up) into 6-pin connection in ECU

14



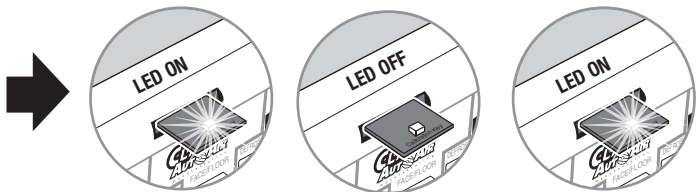
Start by positioning the control knobs as shown:
Fan: Off
Mode: Floor
Temp: Cold

15



Move Fan Knob to Center...

YOU WILL SEE...

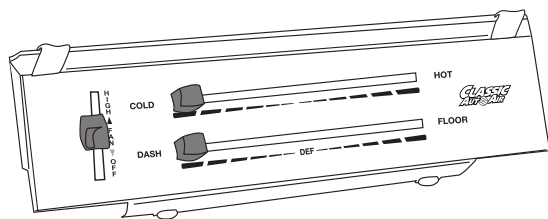


BENCH CALIBRATION & FUNCTION TESTING

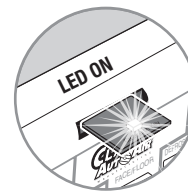
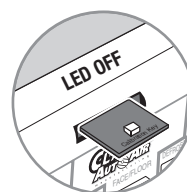
• Calibration, Steps 16 and 17

16

Move MODE knob to DASH
in one motion

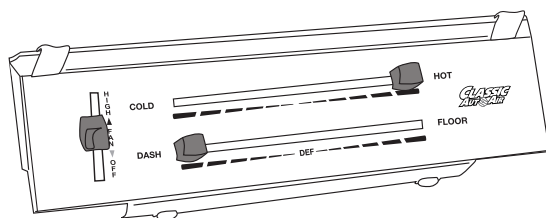


AFTER YOU MOVE THE KNOB YOU WILL SEE...

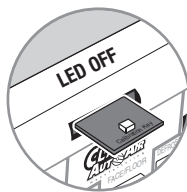


17

Move TEMP knob to HOT
in one motion



AFTER YOU MOVE THE KNOB YOU WILL SEE...

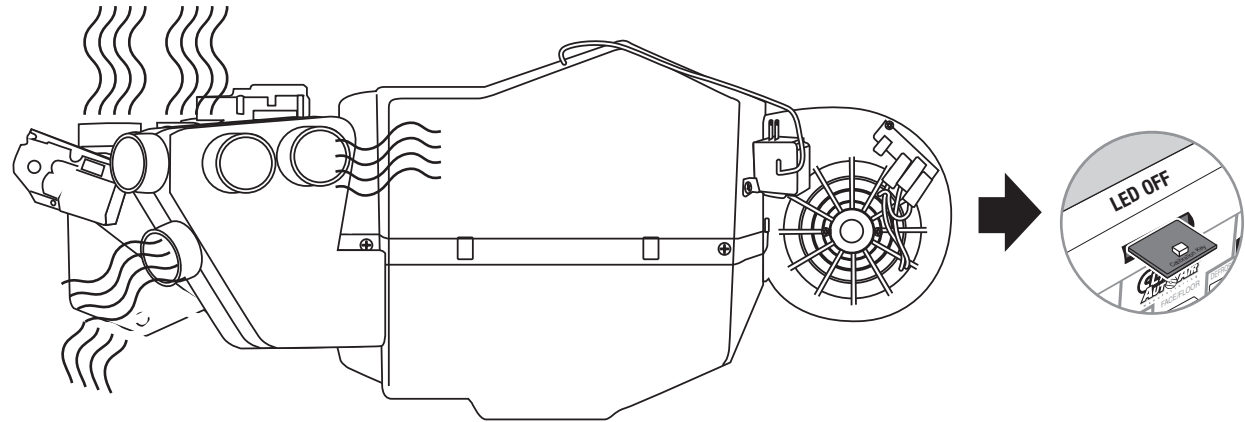


BENCH CALIBRATION & FUNCTION TESTING

• Calibration, Steps 18 thru 20

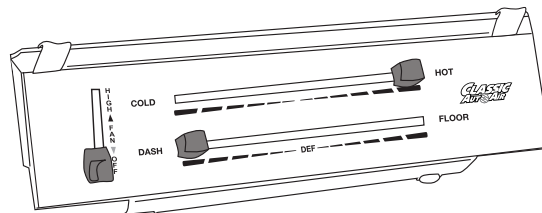
You will be able to hear the internal door(s) move back and forth and feel air coming out of the outlets

18

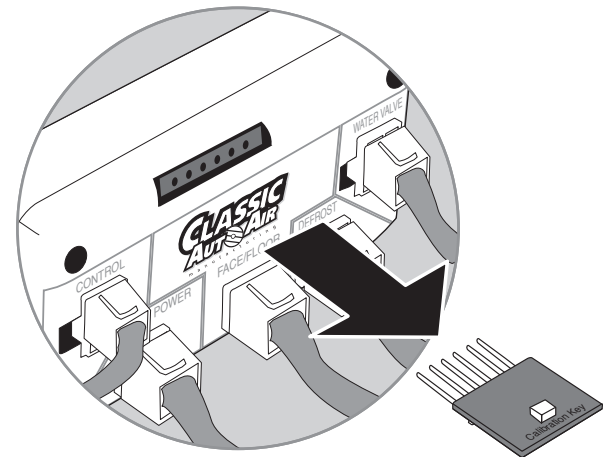


19

Move FAN knob to OFF



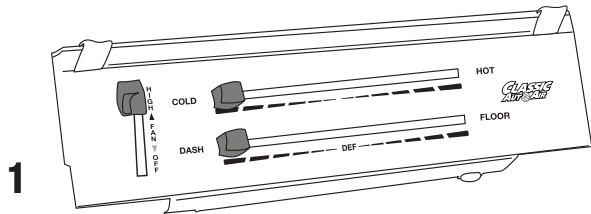
20



**REMOVE CALIBRATION KEY FROM ECU AND
STORE IN A SAFE PLACE**

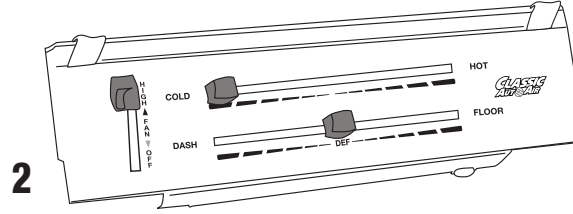
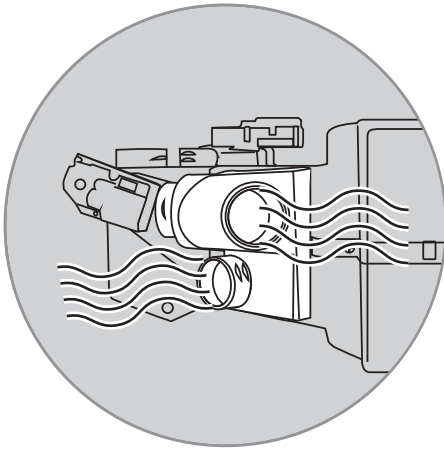
BENCH CALIBRATION & FUNCTION TESTING

• Function Test, Steps 1 thru 3



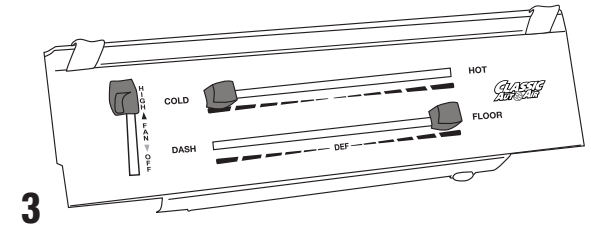
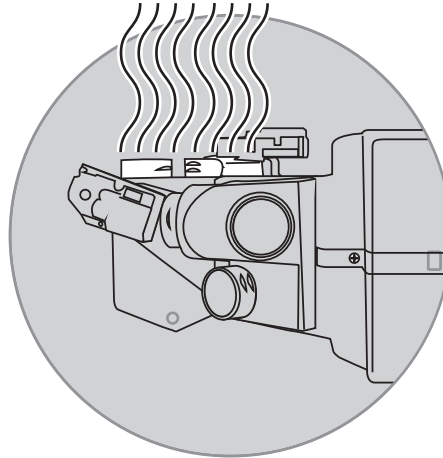
Move FAN knob to HIGH
Move MODE knob to DASH
Move TEMP knob to COLD

AIR OUT OF DASH VENTS



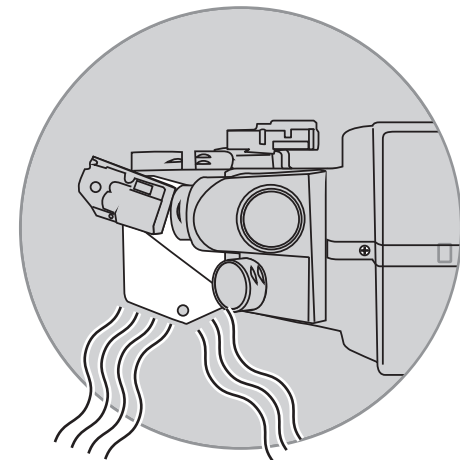
Move MODE knob to DEFROST

AIR OUT OF DEFROST VENTS



Move MODE knob to FLOOR

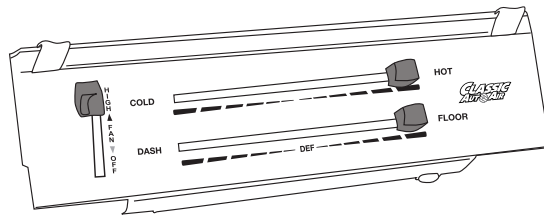
AIR OUT OF FLOOR VENTS



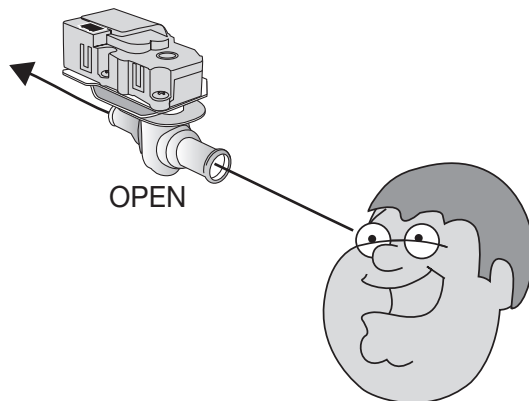
BENCH CALIBRATION & FUNCTION TESTING

• Function Test, Steps 4 and 5

4

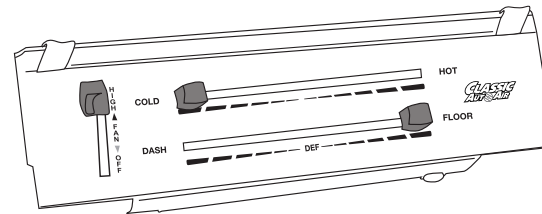


Move TEMP knob to HOT

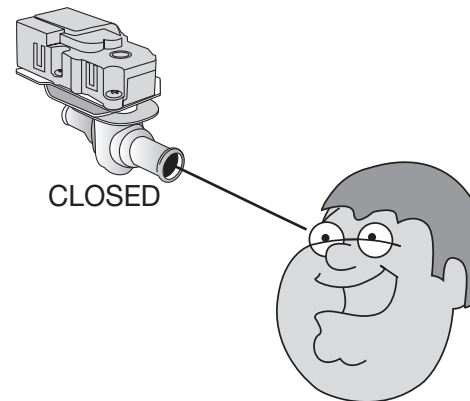


You will be able to see thru water valve passage

5



Move TEMP knob to COLD



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.

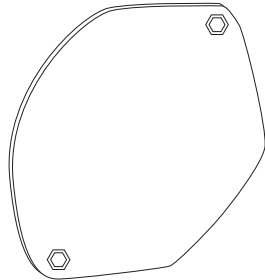
NOTE: IF DURING ANY OF THESE STEPS YOU DO NOT GET THE CORRECT OUTCOME, PLEASE CALL TECH SUPPORT BEFORE INSTALLING INTO VEHICLE.
1(866)435-7801

THESE ARE THE PARTS YOU WILL FIND IN BAG KIT B

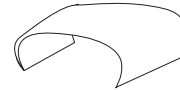
You will use all of these parts and hardware during the next series of installation steps.



Evaporator Firewall Support Bracket
PN#0023-7



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

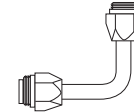


One Bulb Clamp



One Male Spade Connector

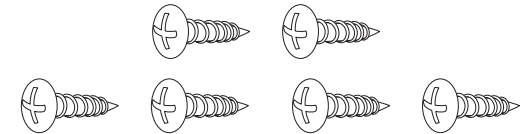
Liquid Tube
PN#0034-9



Suction Tube
PN#0034-10



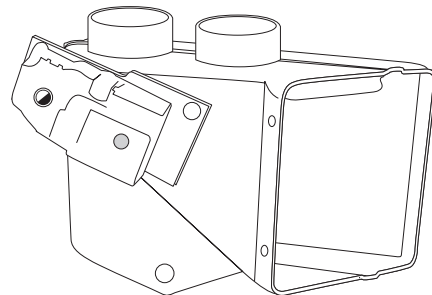
#6 and #10 O-rings



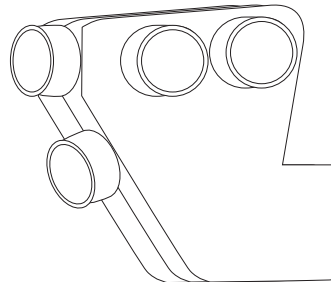
Six #10 - 10 x 5/8" Phillips Screws



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



Defrost/Heat Duct Assembly
PN#2-2025-2



Face Duct Assembly
PN#2-2050-1



Refrigerant Tape



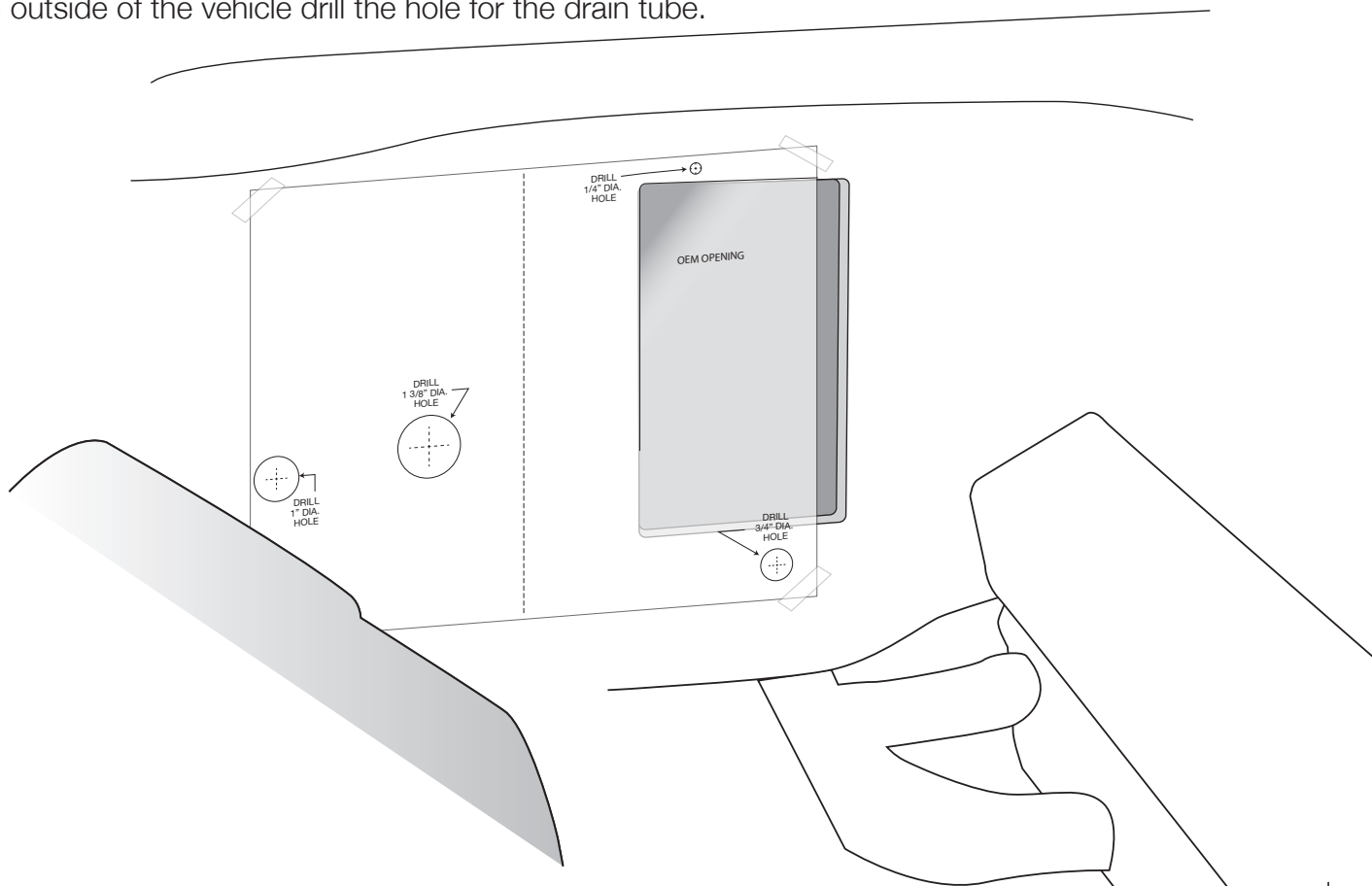
Flange Nut

Illustrations NOT shown actual size

Locate the original wiring harness that supplied power to the original heater motor. GM normally used a brown wire for power. After the removal of the wire, and vacuum harness there will be a hole in the firewall. On the OEM power supply wire attach a 1/4" insulated male spade connector. Within the OEM fuse box upgrade the factory HEATER fuse with a 20 amp fuse (**VERY IMPORTANT**).

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

Follow directions on the templates and drill the holes for the evaporator.
From outside of the vehicle drill the hole for the drain tube.

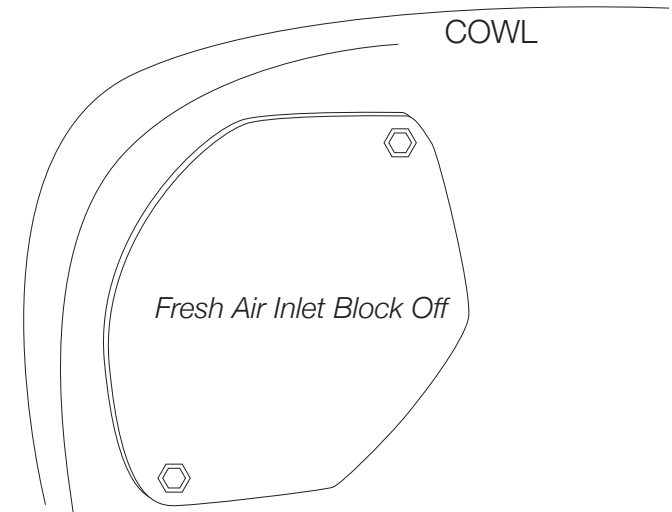


**You can now begin
installing your Classic
Air Perfect Fit Elite
System.**

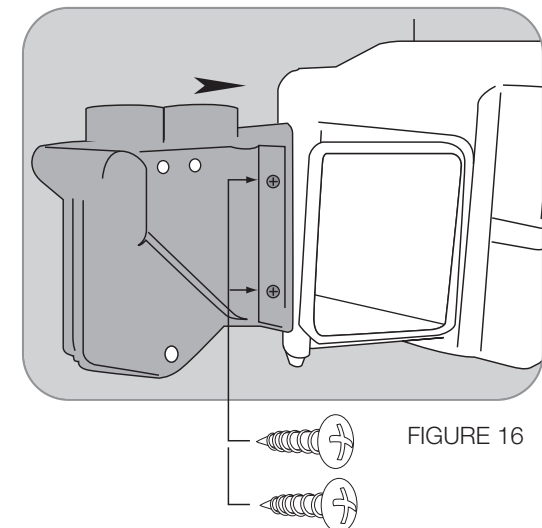
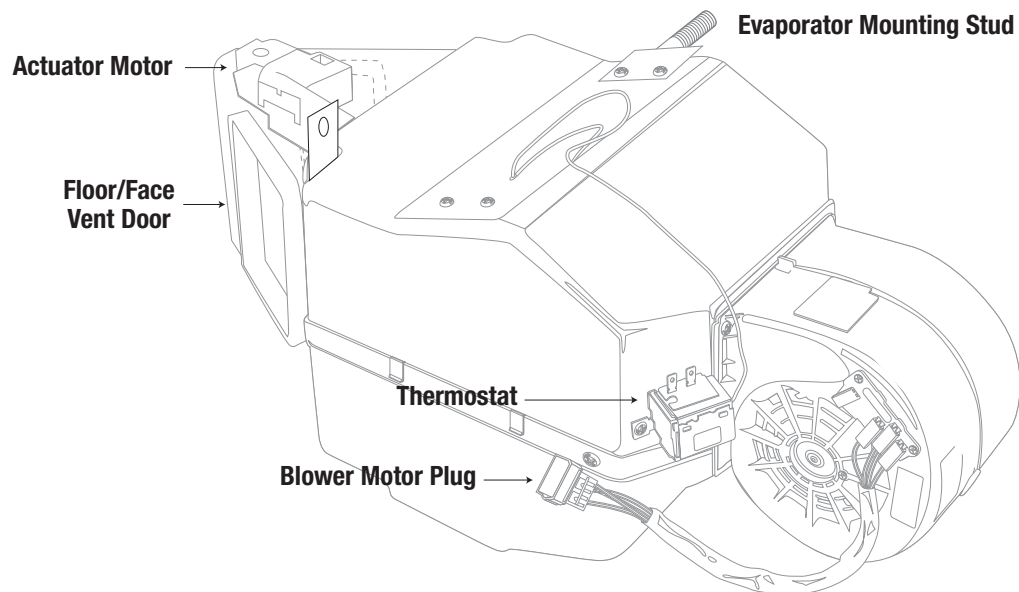
Within the engine compartment area, Install Fresh Air inlet block-off over the OEM fan opening using the original screws (it will also tuck in behind the edge of the hood hinge... tip: leave the hinge loose for now....)

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

Locate the defrost/heat duct assembly and attach to the evaporator using two #10 - 10 x 5/8" Phillips screws (see figure 16). NOTE: Be sure that the s-clips are pushed over rear flange on evaporator.



Take a minute to familiarize yourself with the evaporator unit:



Installing the complete evaporator unit under the dash will go much easier with the help of a friend. One person can take the unit within the car and “roll” up and under the dash while the other person can be ready at the firewall area with the included flange nut to secure the unit in place (see figure 8). Now the unit will be easy to level and secure. Leave flange nut loose at this time.

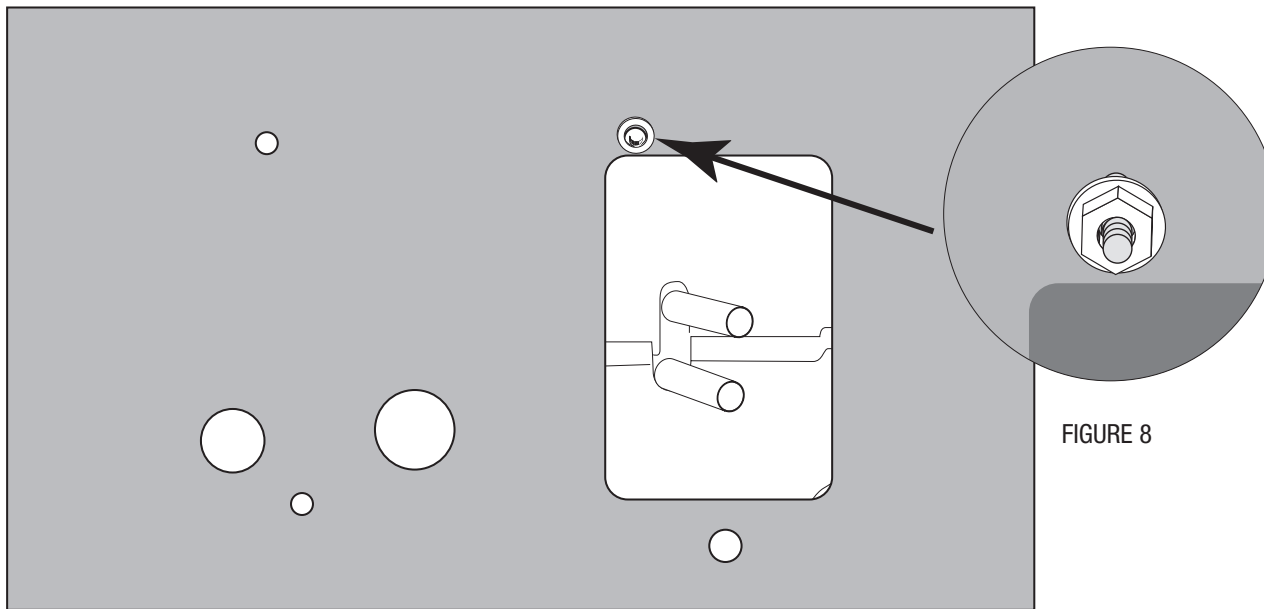
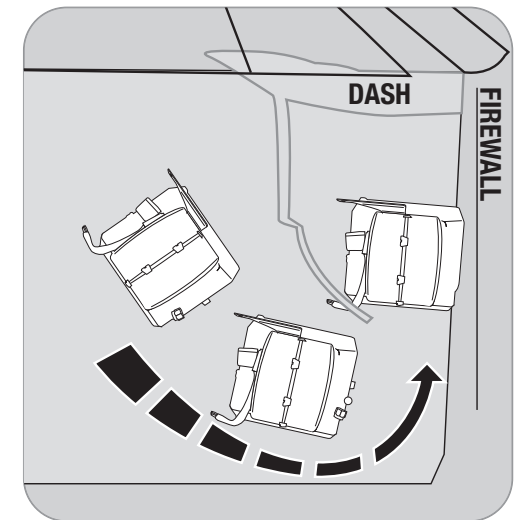
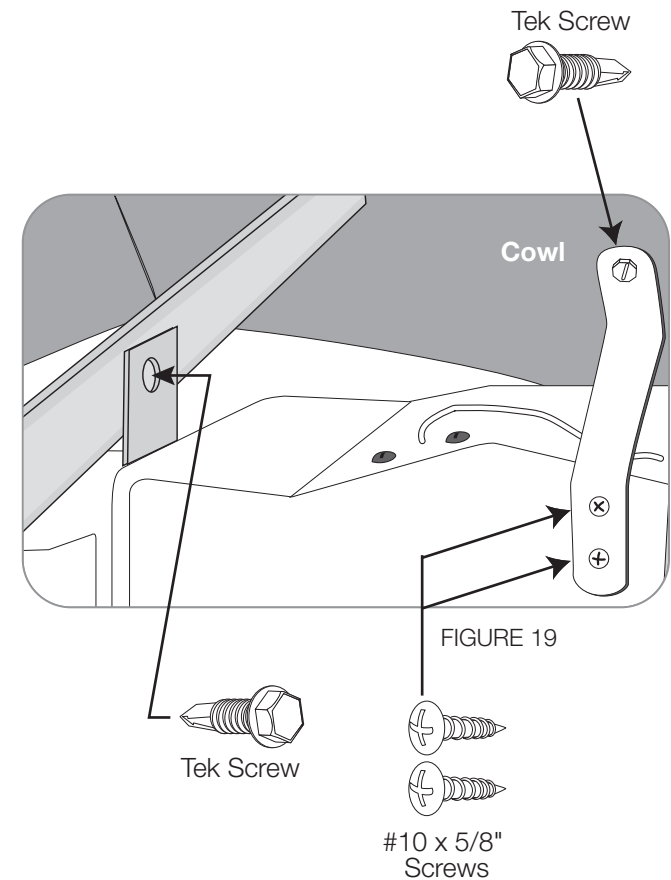
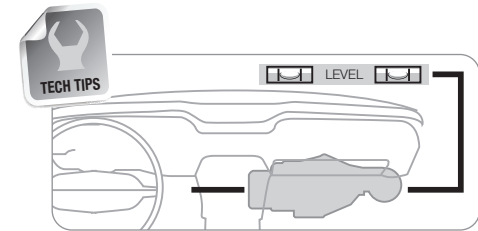
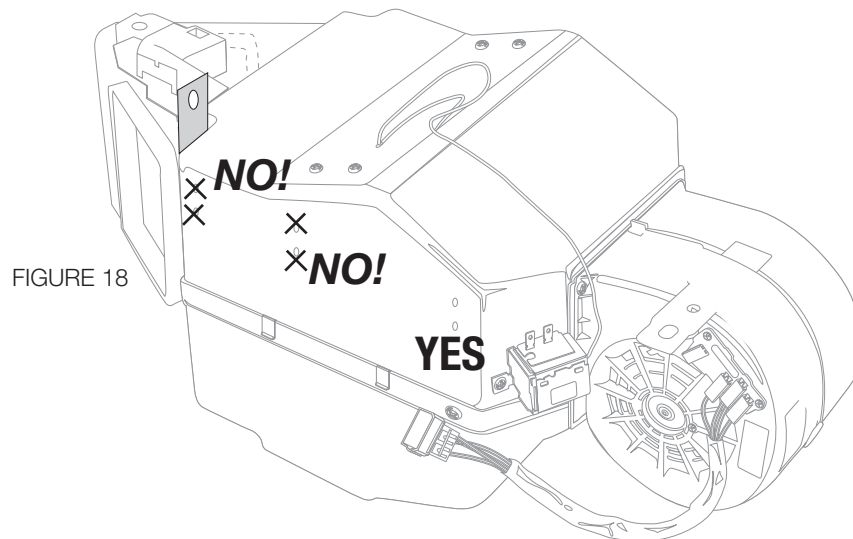


FIGURE 8

Locate the UPPER MOUNTING BRACKET and attach to evaporator unit using two #10 - 10 x 5/8" Phillips screws using a handpowered screwdriver. Level unit with lower edge of dash and attach to cowl with a #10 - 16 x 3/4" Tek Screw (see figure 18-19). **IMPORTANT NOTE: On the side of the main unit you will see several holes for mounting holes... ONLY USE THE ONES ON THE FAR RIGHT FOR THIS BRACKET!**

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



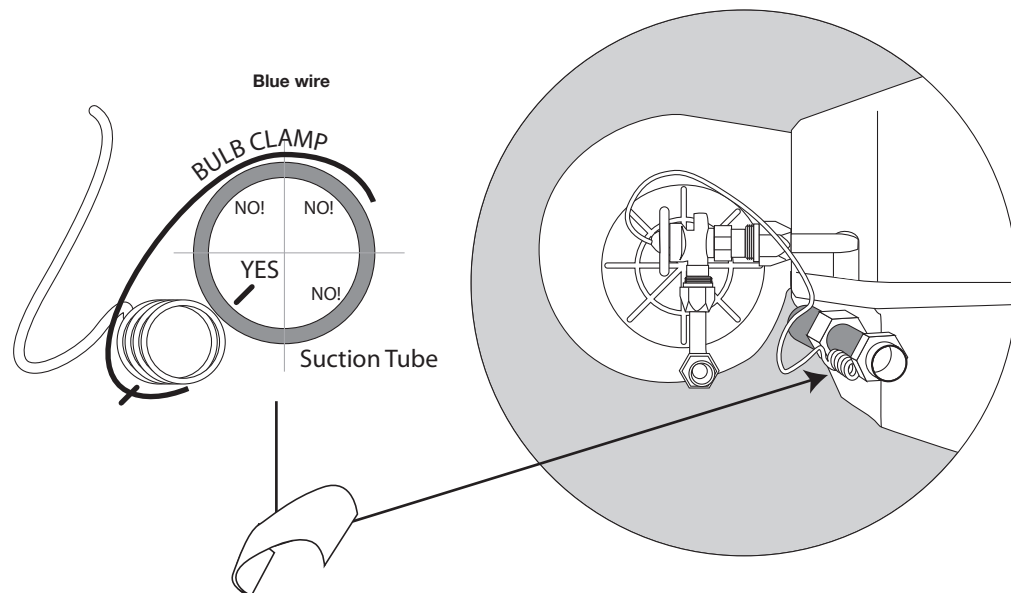
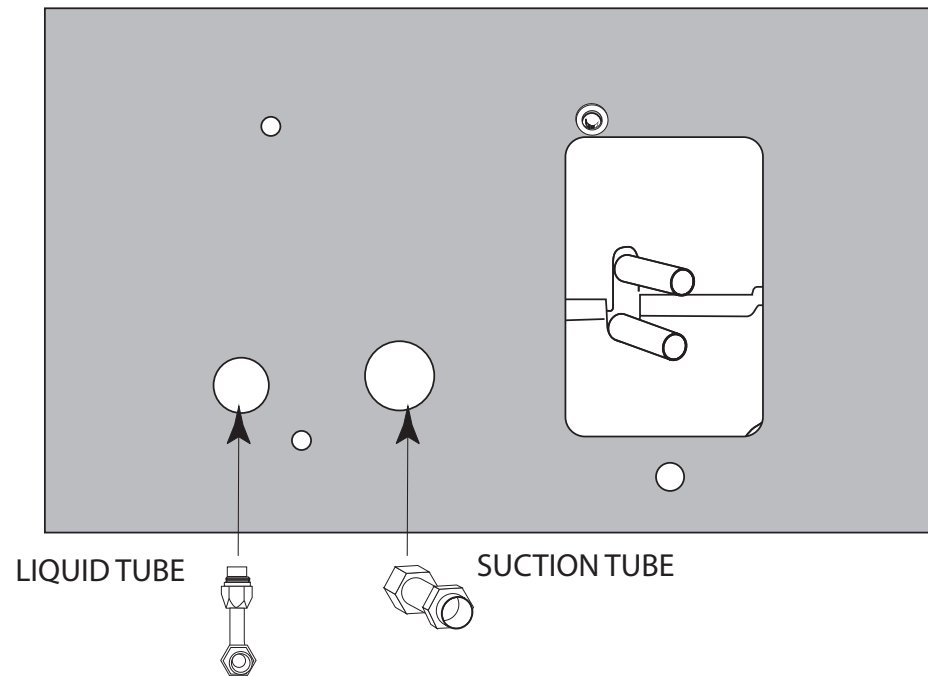
Install Liquid tube onto the Expansion valve (TXV) as shown. Use #6 o-ring and (2) drops of mineral oil on the o-ring and tighten securely.

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

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

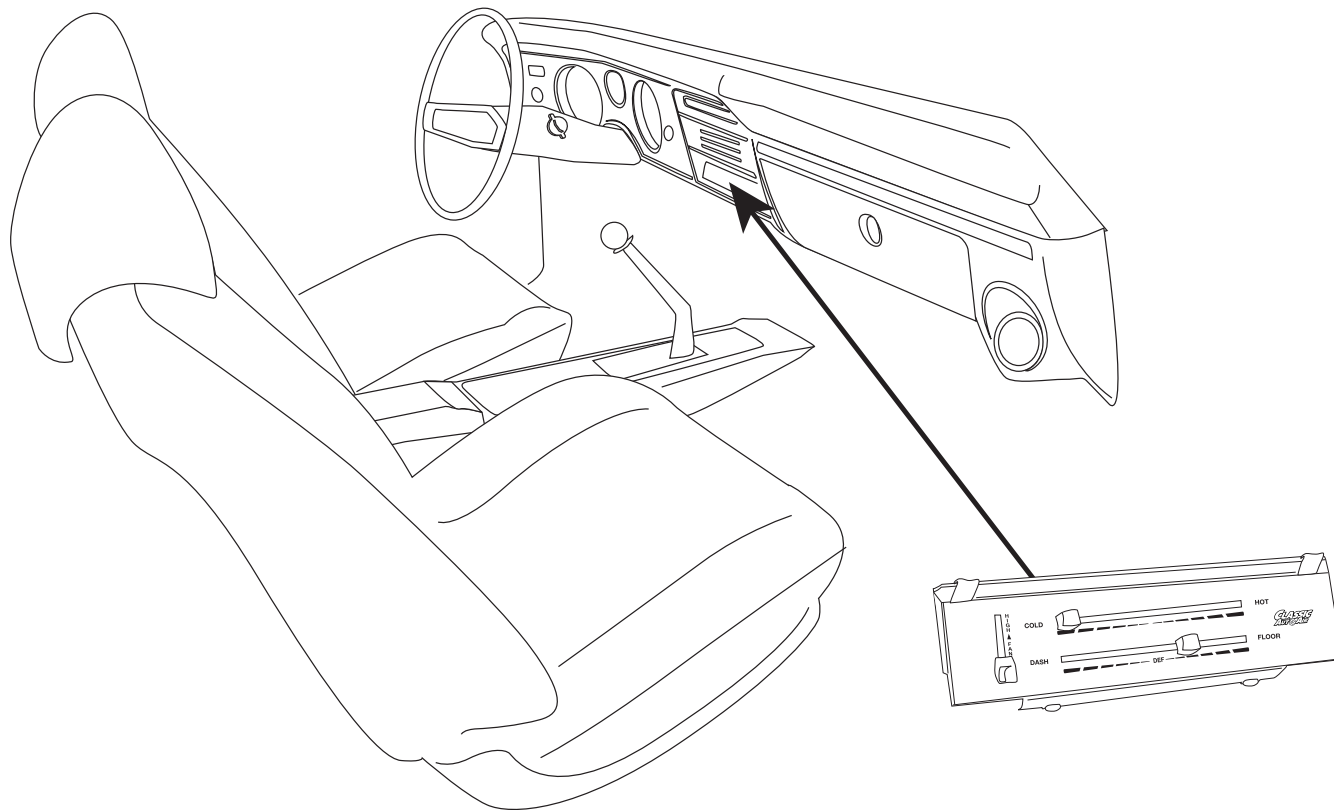
CAUTION: YOUR SYSTEM WILL NOT FUNCTION PROPERLY IF THE SENSING COIL IS NOT CLAMPED IN THE CORRECT POSITION. SEE THE DIAGRAM BELOW.

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



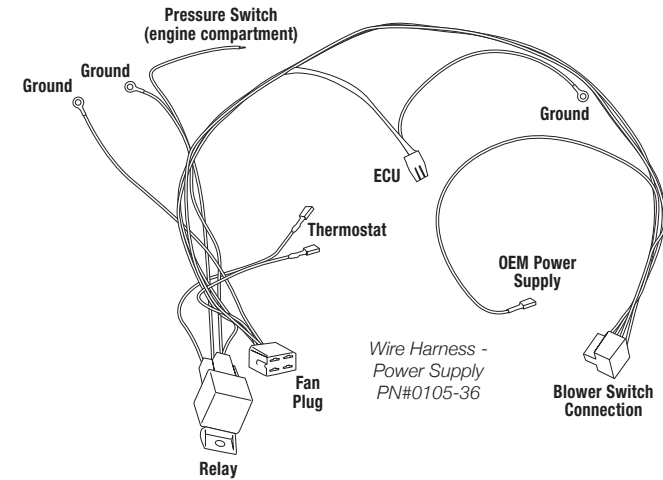
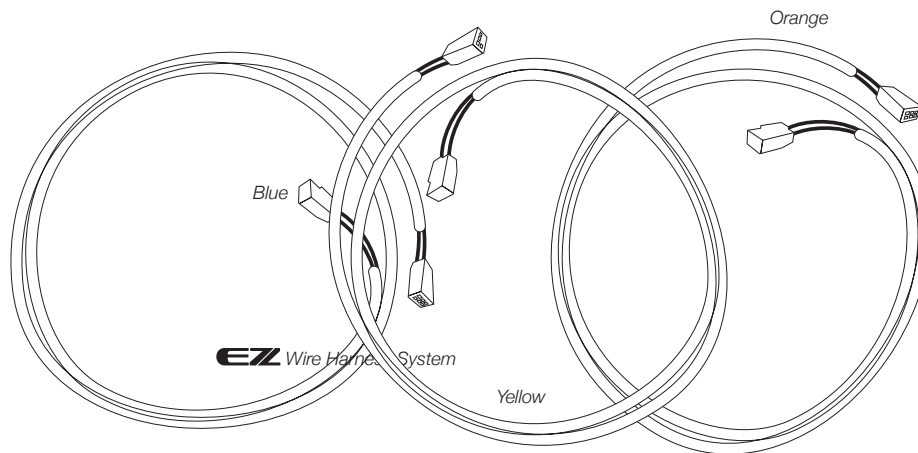
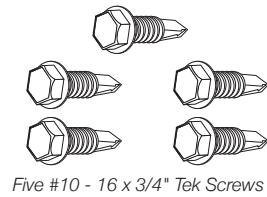
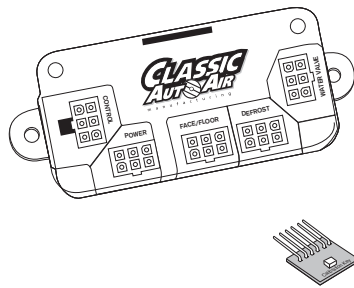
Reminder...
Use two
wrenches to
tighten o-ring
fittings



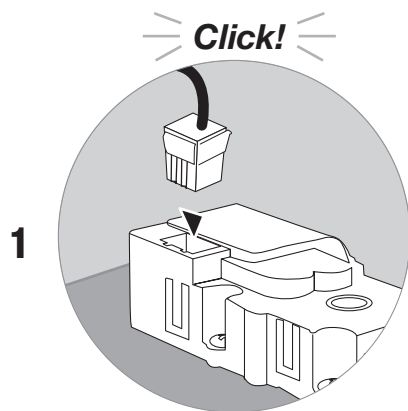


THESE ARE THE PARTS YOU WILL FIND IN BAG KIT D

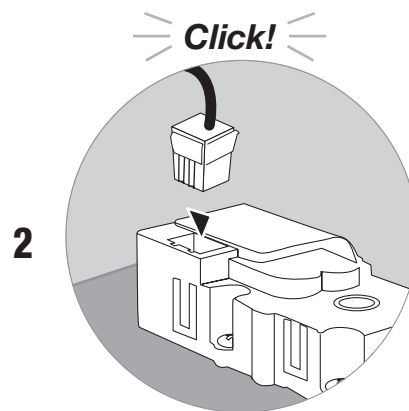
You will use all of these parts and hardware during the next series of installation steps.



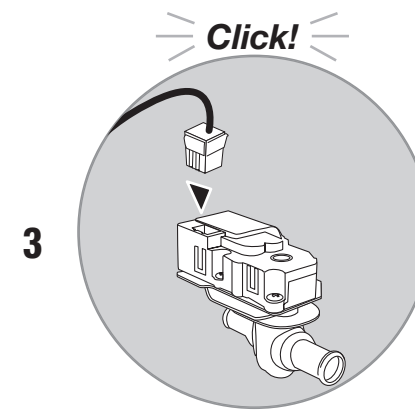
Illustrations NOT shown actual size



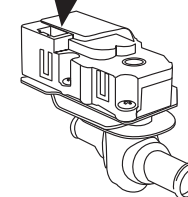
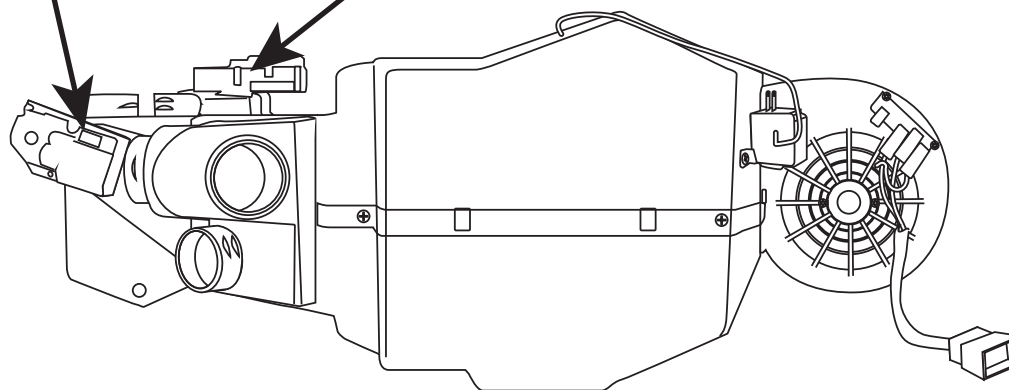
Connect Blue Harness into Defrost/Heat Servo Motor

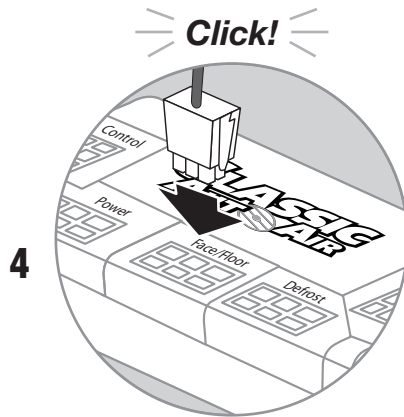


Connect Yellow Harness into Face/Floor Servo Motor

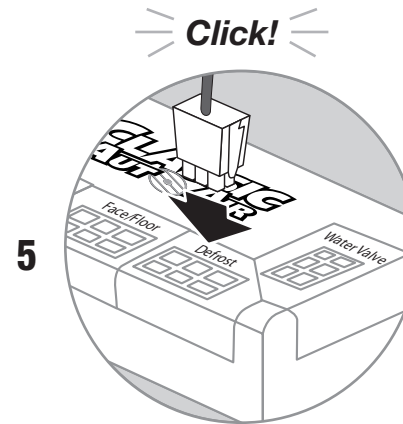


Connect Orange Harness into water valve

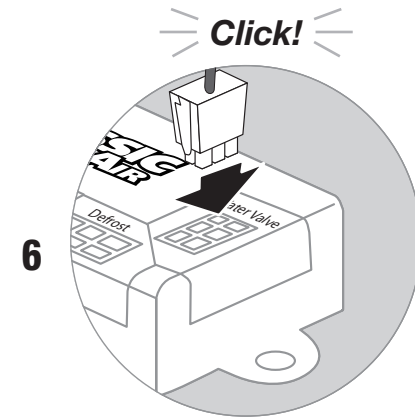




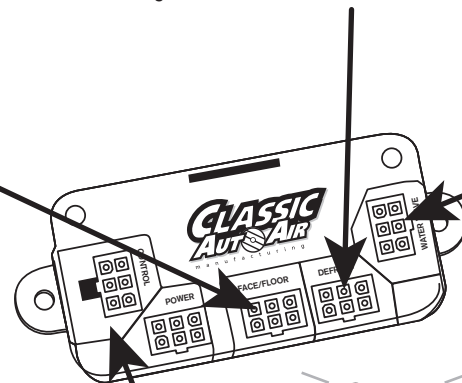
Plug Yellow Harness into Face/Floor Port on ECU



Plug Blue Harness into Defrost/Heat Port on ECU

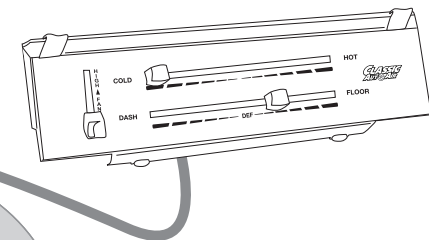
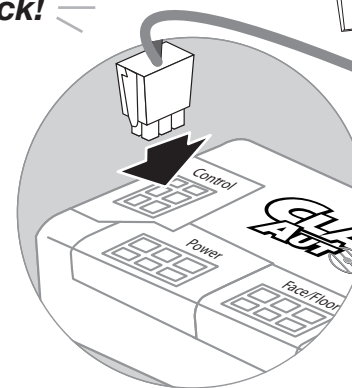


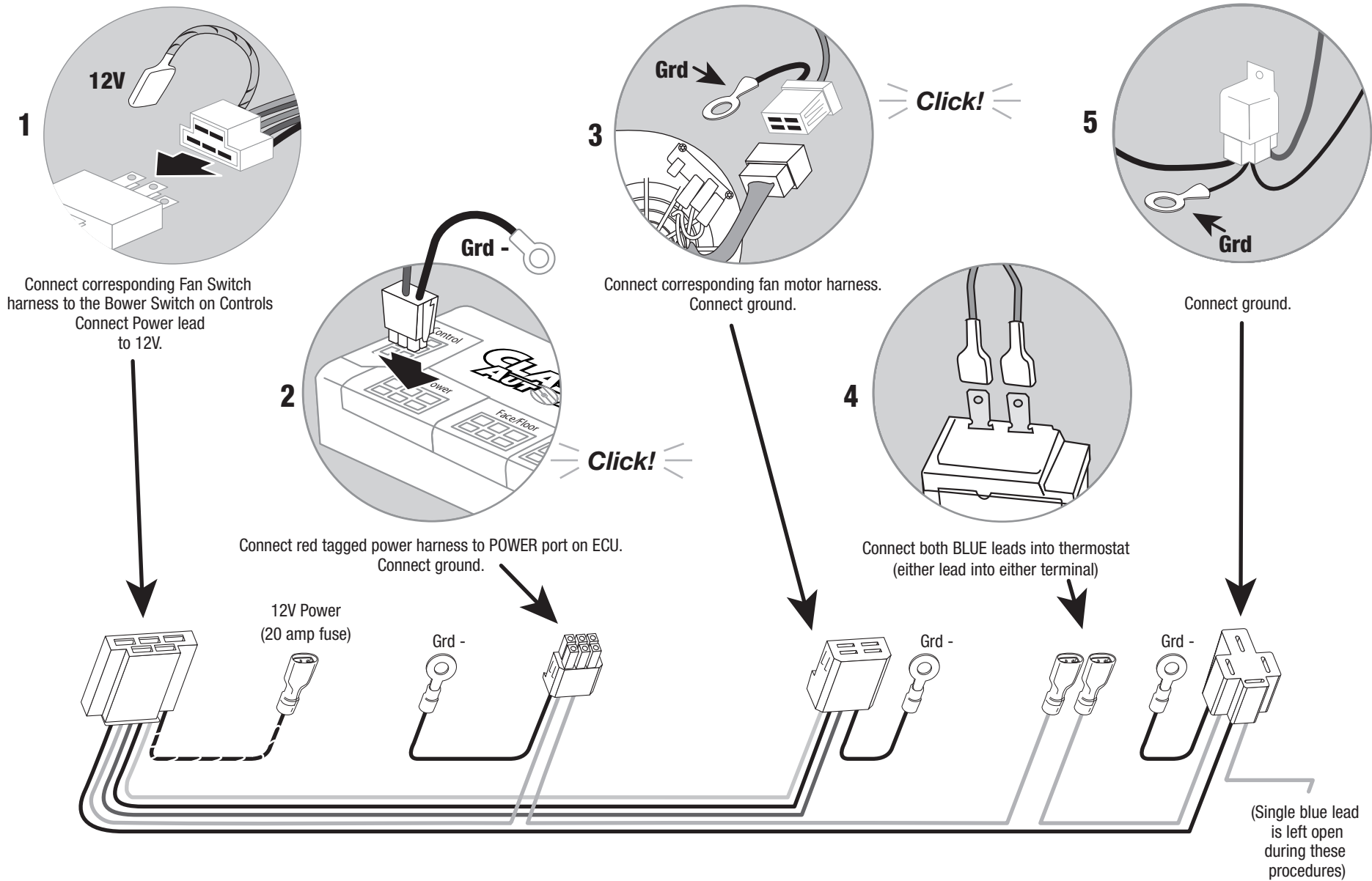
Plug Orange Harness into Water Valve Port on ECU



From your controls
connect Green Harness into
Control Port on ECU

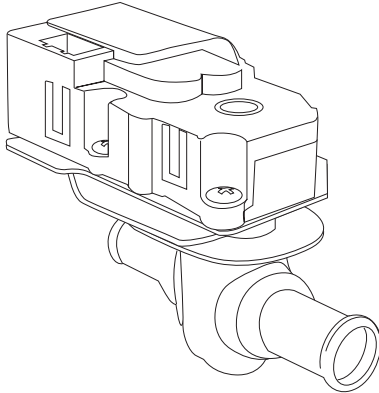
7



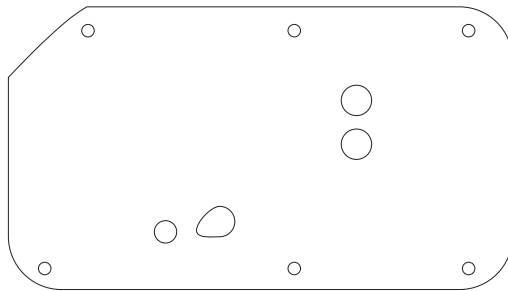


THESE ARE THE PARTS YOU WILL FIND IN BAG KIT C

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



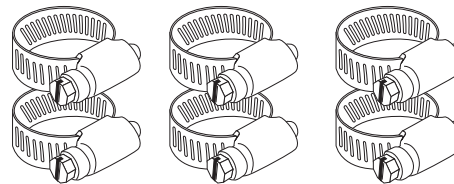
*Electronic Water Control Valve
PN#16-1081-2*



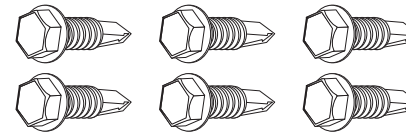
*Firewall Block Off
PN#10-2055FA-1*



Clear Plastic Drain Tube

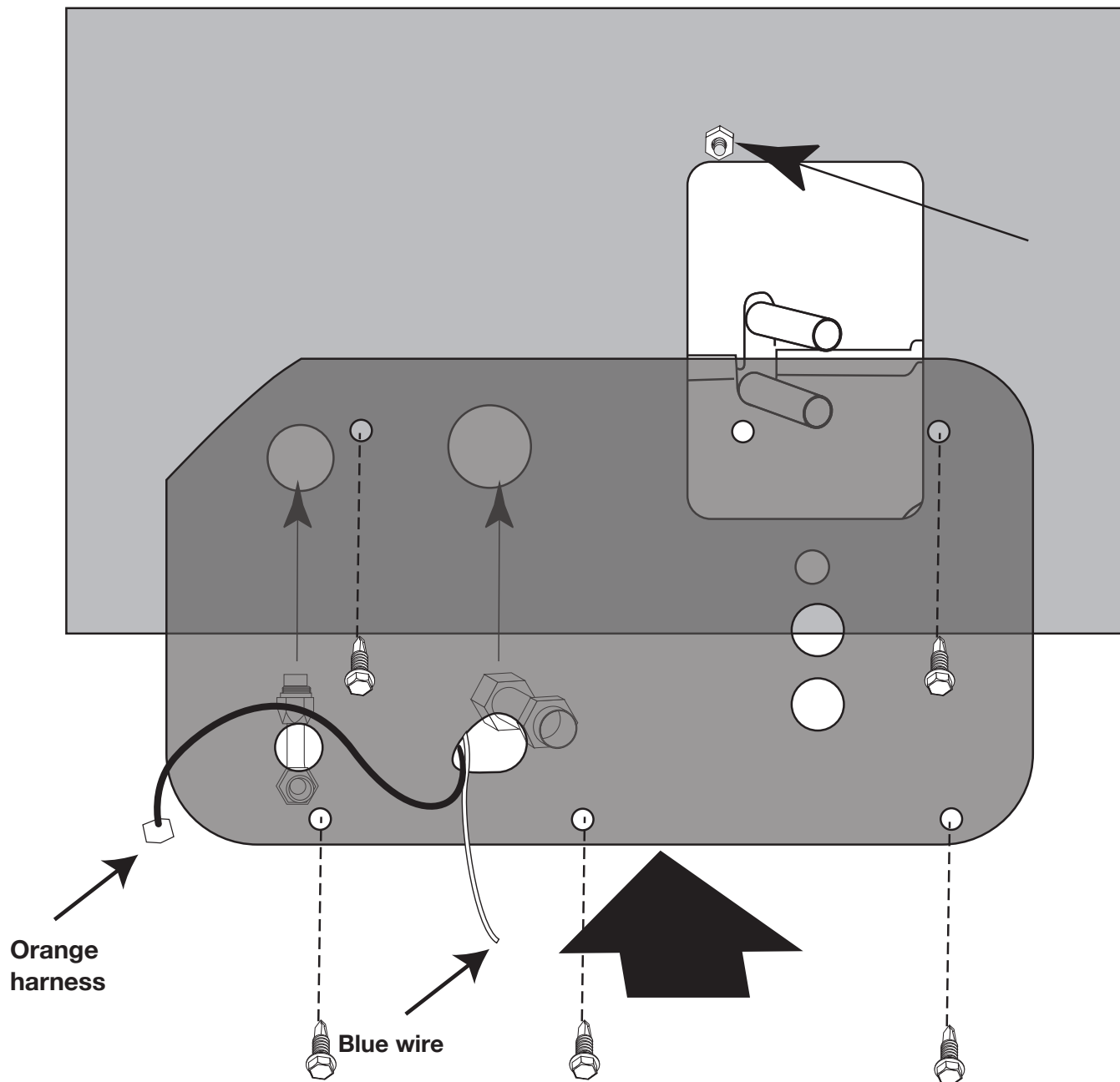


Six Worm Gear Clamps



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

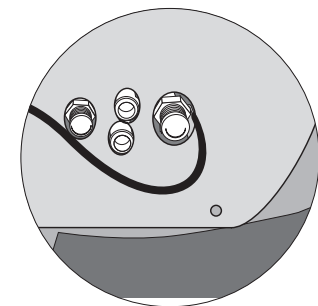
Illustrations NOT shown actual size



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

TIP: Route ORANGE cable thru the block off plate (it will be plugged into the electronic water valve).

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



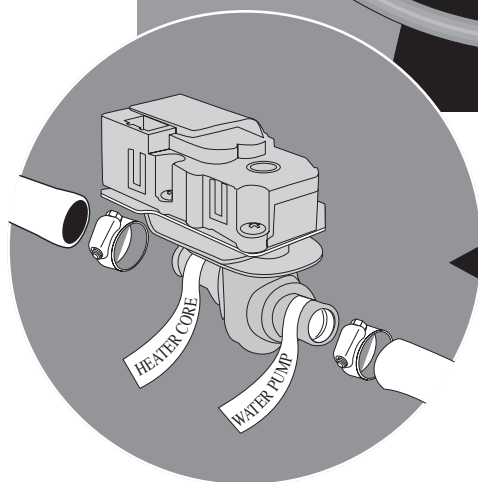
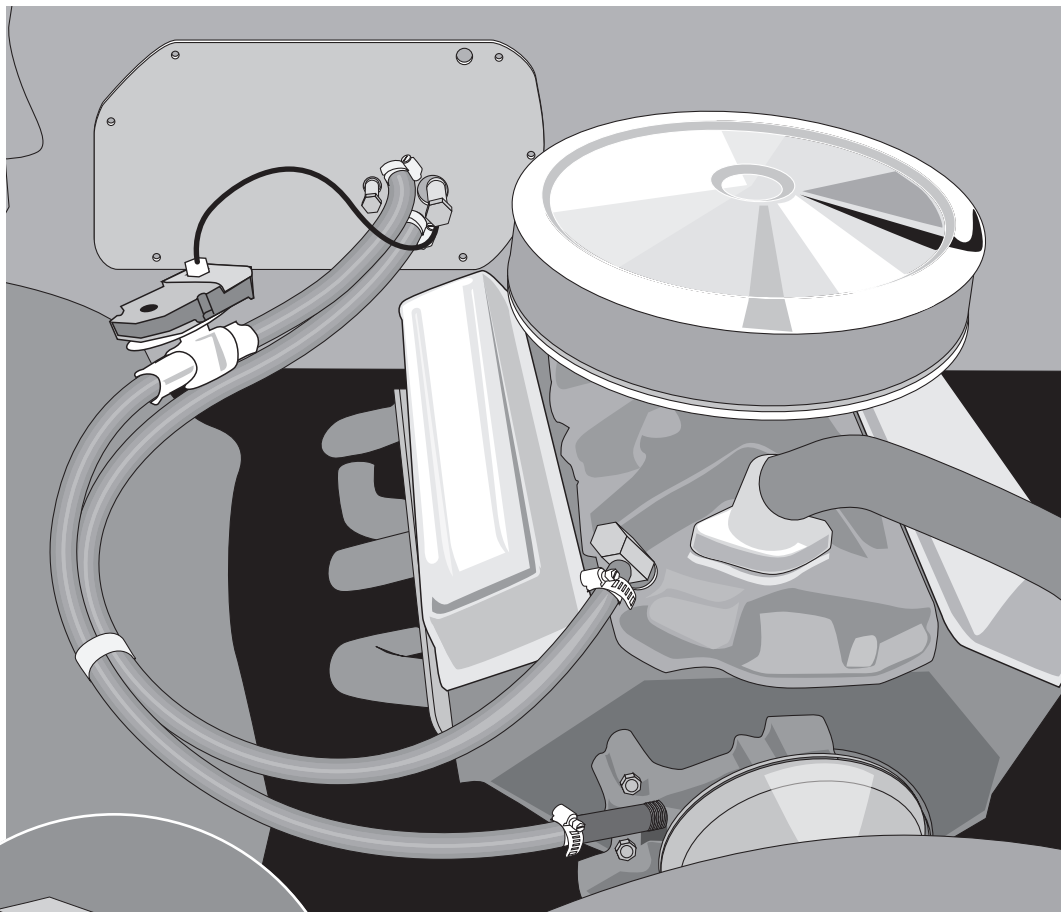
IMPORTANT NOTICE: PROPER INSTALLATION OF WATER VALVE

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

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

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

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

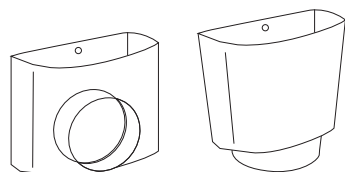


**FOLLOW THESE
TAGS... CHECK IT
TWICE BEFORE
PROCEEDING!**

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

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

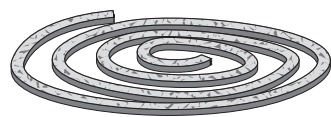
Bag E



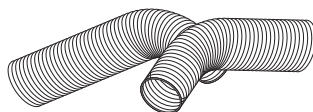
Two Defrost Adaptors
PN#034-15 and 034-14



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



Foam Tape

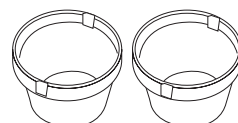


Two Duct Hoses, 2" I.D.

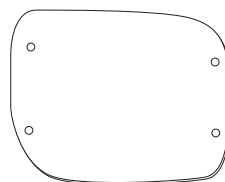


Four Zip-Ties

Bag F



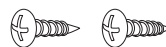
Louver Adaptors PN#2-2093-1



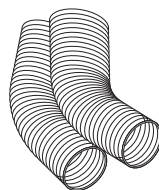
Recirculation
Door Block Off
PN#10-1505-2



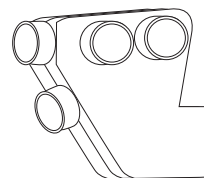
Four #10 - 16 x 3/4" Tek Screws



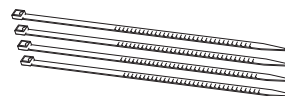
Two #10 - 16 x 5/8" Phillips Screws



Two Duct Hoses, 2" I.D.

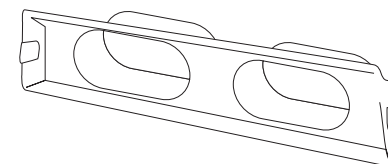


Face/Floor Assembly
PN#2-2050-1

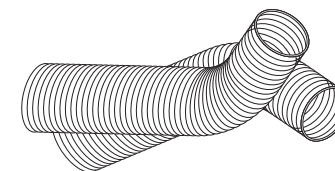


Four Zip-Ties

Bag G



Center Dash Vent Adaptor
PN# 2-1505-1



Two Duct Hoses, 2" I.D.



Four Zip-Ties

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

The defrost duct hoses can now be routed upward and attached to the adapters using the included zip-ties.



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

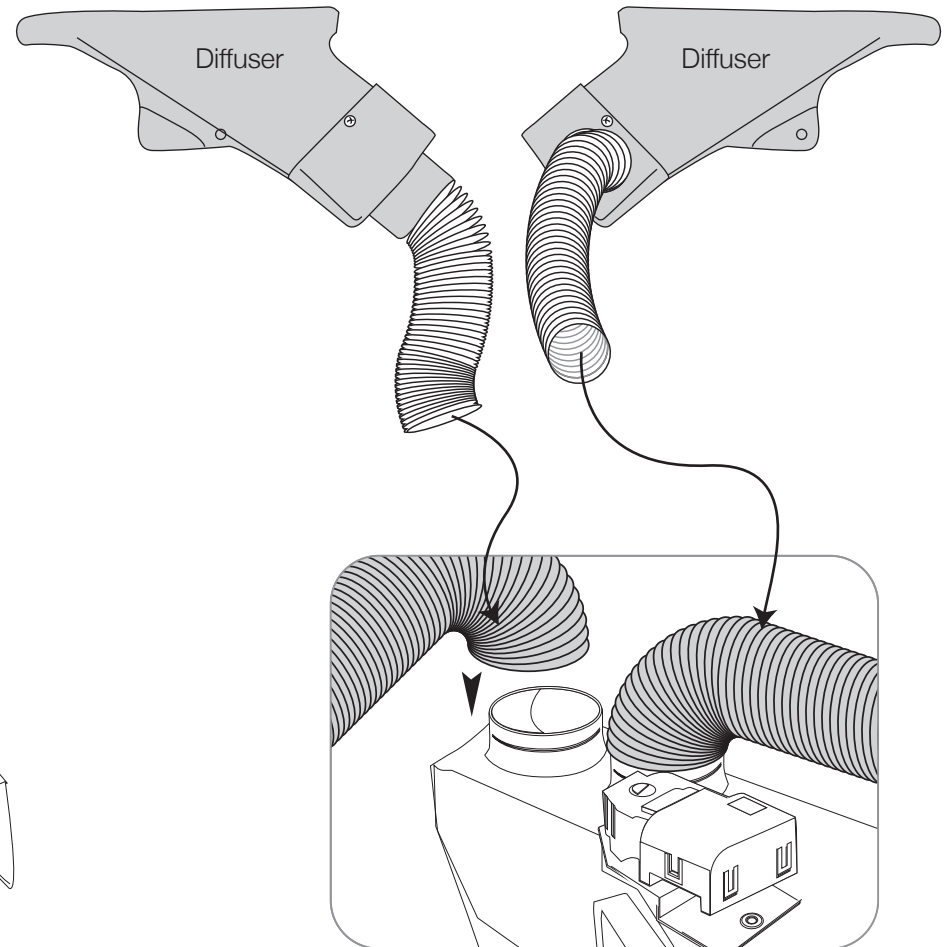
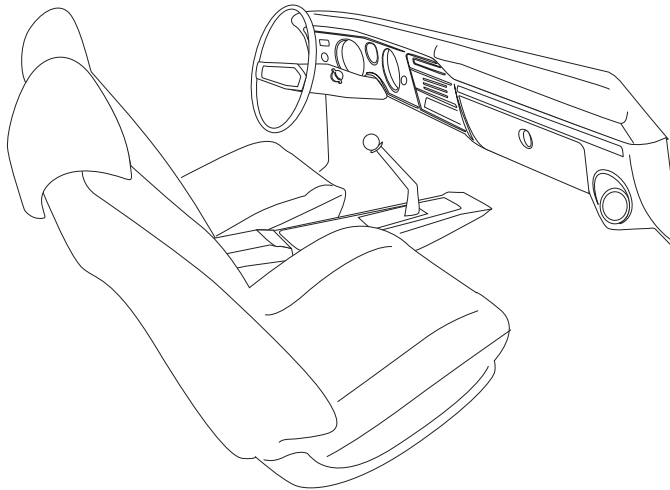


FIGURE 24

Bag Kit F:

Attach louver adaptors to the back side of the OEM louvers, both sides. S-Clips will hold them in place.

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

Figure 20

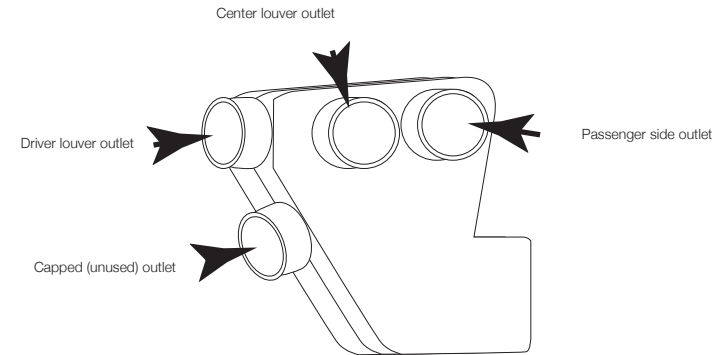
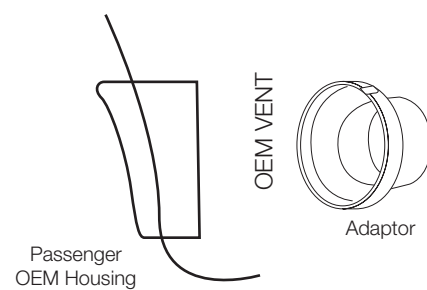
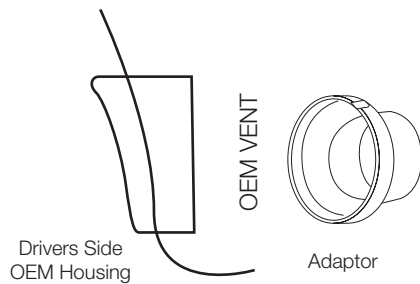
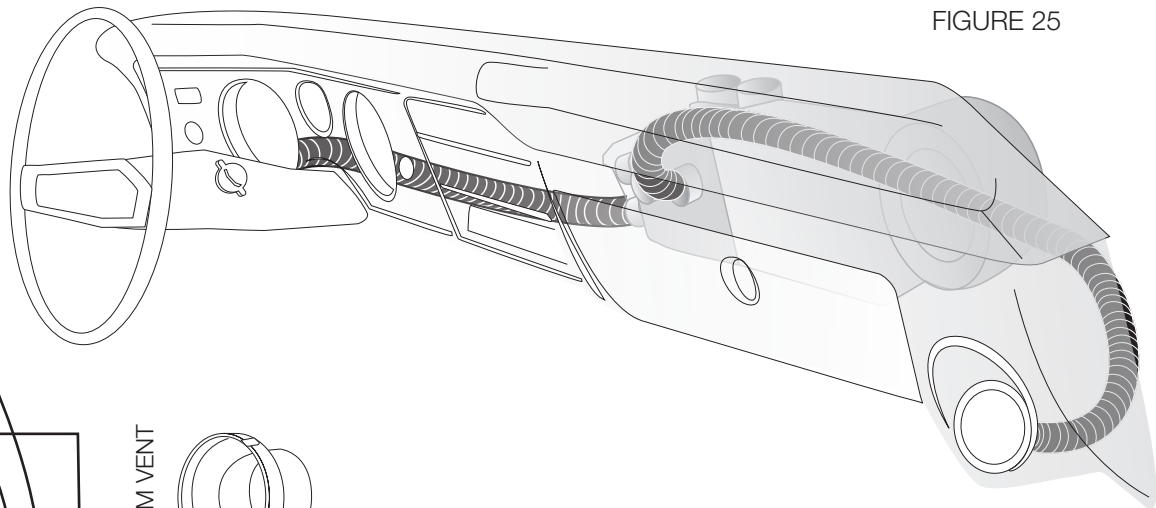


FIGURE 25



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



Bag Kit G: In order to route the duct hoses to your OEM center louver you'll need to attach the adapter to the back of your louver.

Take your time and route the duct hoses so they don't become kinked or torn.

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

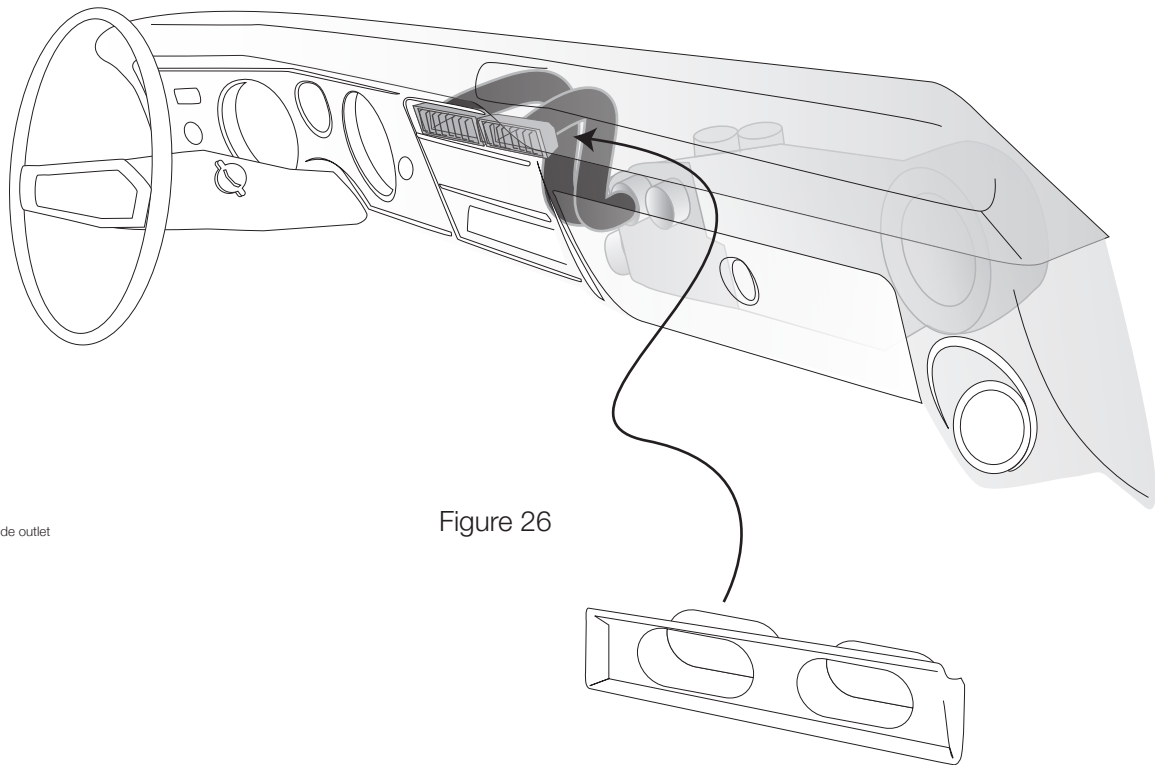
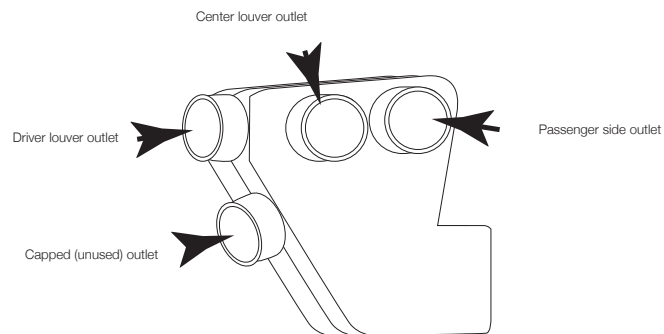
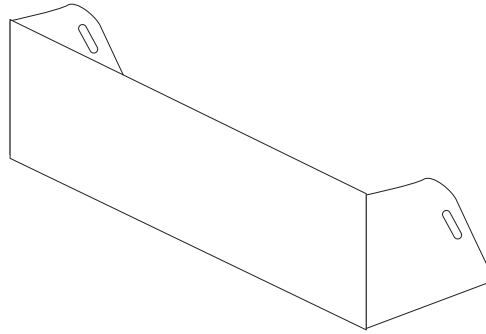


Figure 20



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



We've included a replacement glovebox that you can install at this point. We've included screws, and you'll attach the new glovebox to the OEM glovebox door.

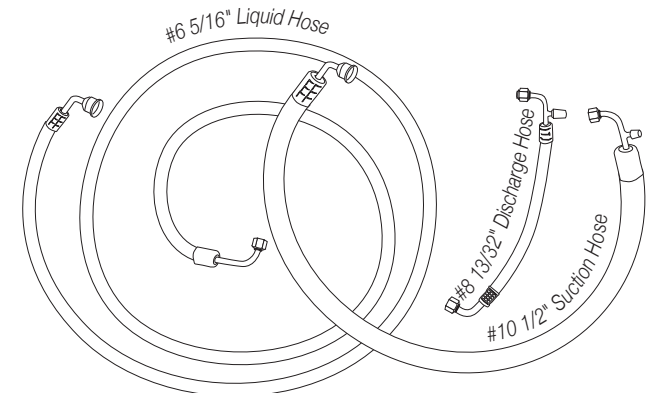
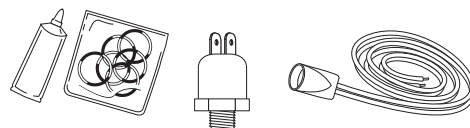
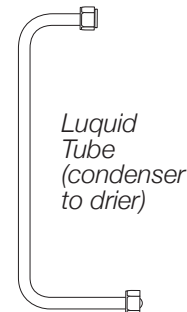
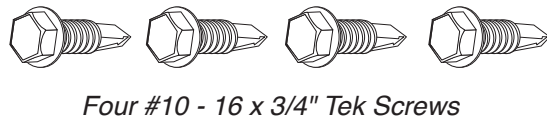
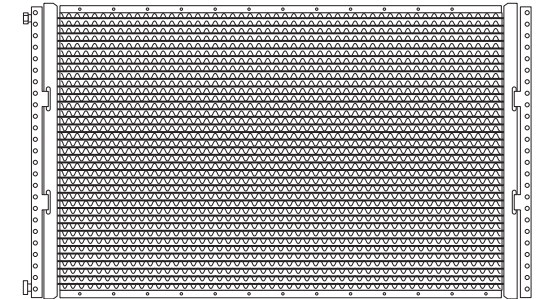
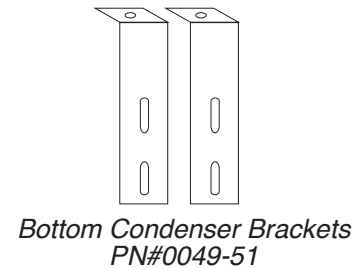
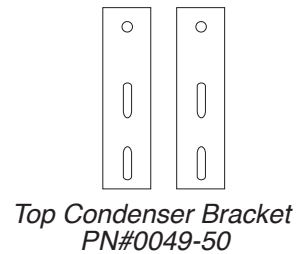
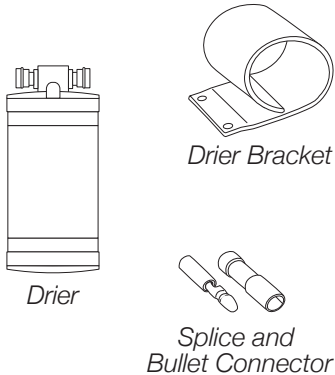
This completes the interior portion of the **PERFECT FIT-ELITE** installation process. This is a good time to make a final check that all the controls still move freely and that nothing is loose or hanging down.

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

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

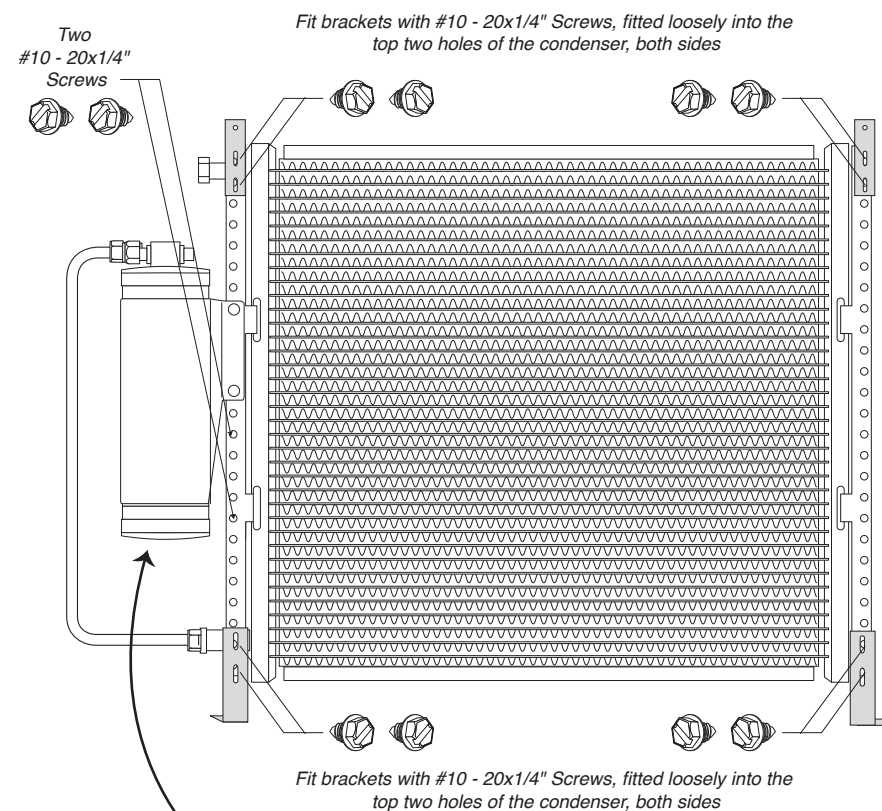
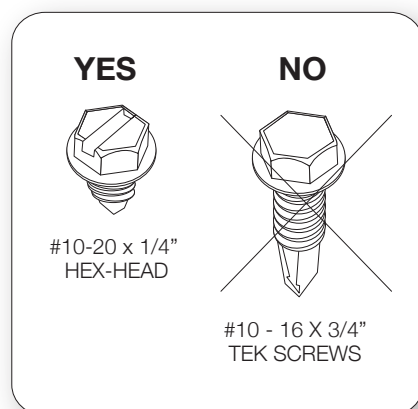
Good Job... Let's move on to the major components within the engine compartment....

THESE ARE THE PARTS YOU WILL NEED FOR THE ENGINE COMPARTMENT INSTALLATION ON A 1969 CHEVELLE



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

BRACKETS: Install the upper condenser brackets using four #10 - 20 x 3/8" screws as shown in figure 28. Next, attach the lower brackets in the positions shown in figure 29.



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

For the next series of steps you may need to remove the battery. Carefully place the entire condenser assembly through the radiator bulkhead and center in opening. Attach condenser to front side of radiator core support using four #10- 16 X 3/4" Tek screws.

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

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

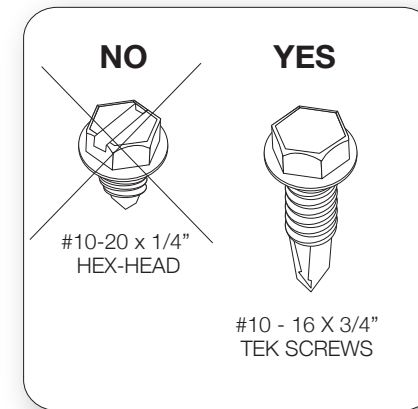
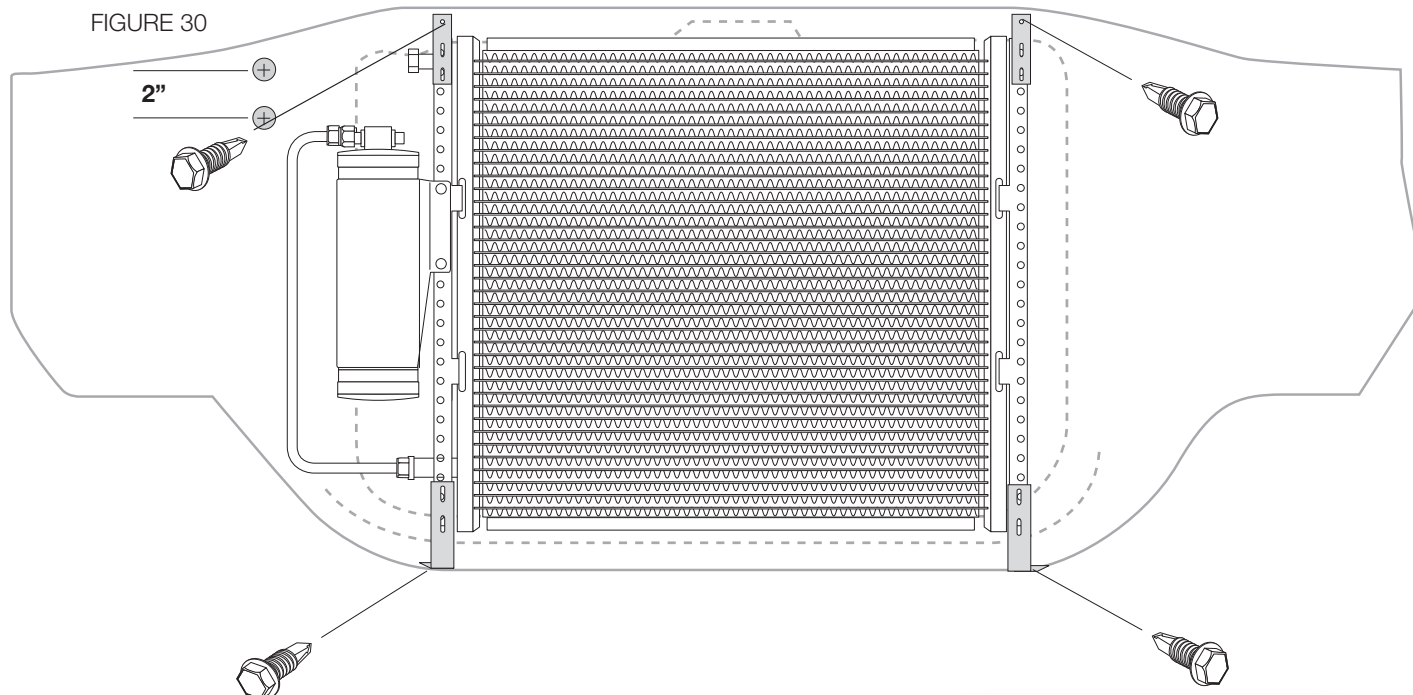
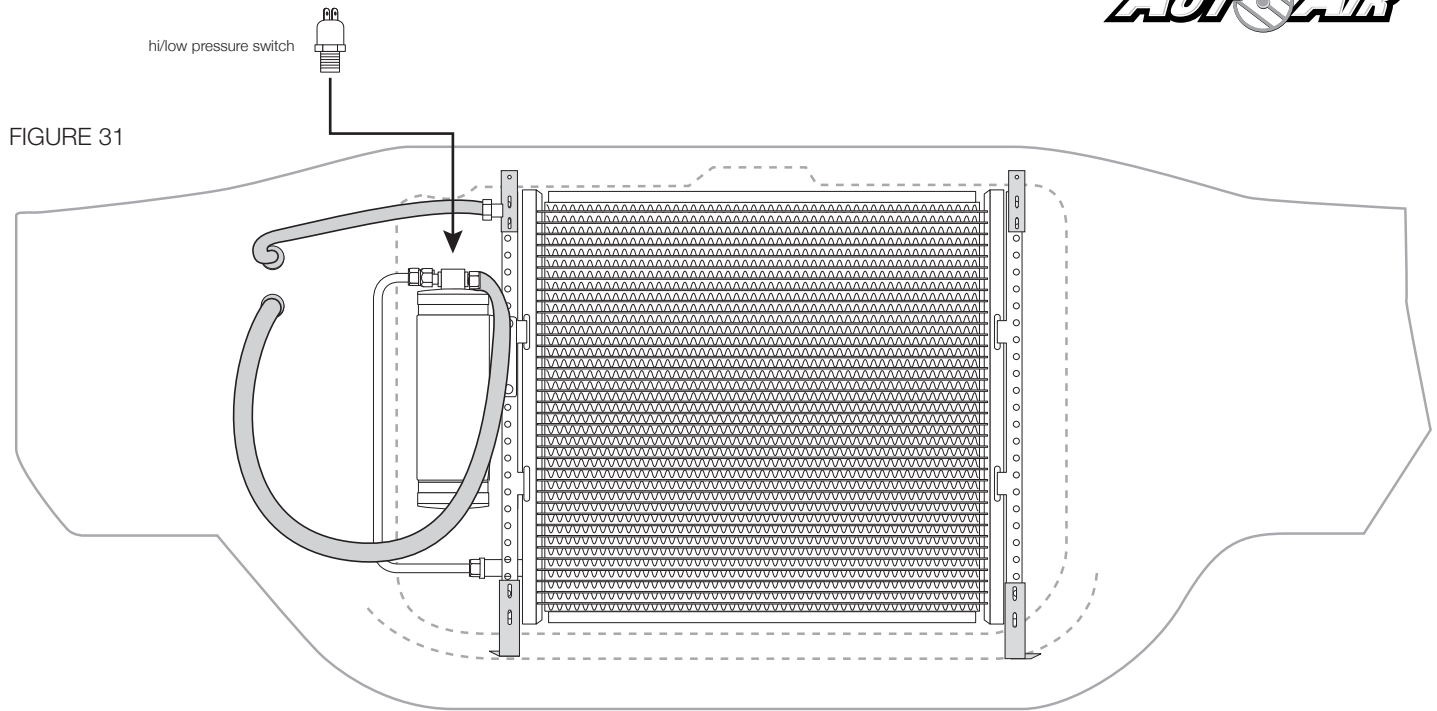


FIGURE 31



Locate the liquid hose and one #6 o-ring. Attach liquid hose to the drier using one #6 o-ring and few drops of lubricating oil. Route thru lower hole you drilled in the support and route to connection on firewall using o-ring and supplied lubricating oil.

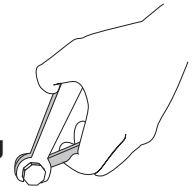
Locate the discharge hose and one #8 o-ring. Attach discharge hose to the condenser using one #8 o-ring and few drops of lubricating oil. Route thru upper hole you drilled in the support and route to connection on compressor using o-ring and supplied lubricating oil.

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

Route the two white wires through the grommet along with #6 refrigerant hose. One of the wires attaches to blue clutch wire from thermostat and the other to the compressor clutch.



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



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.

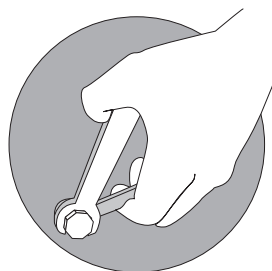
CONNECTING THE HOSES:

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

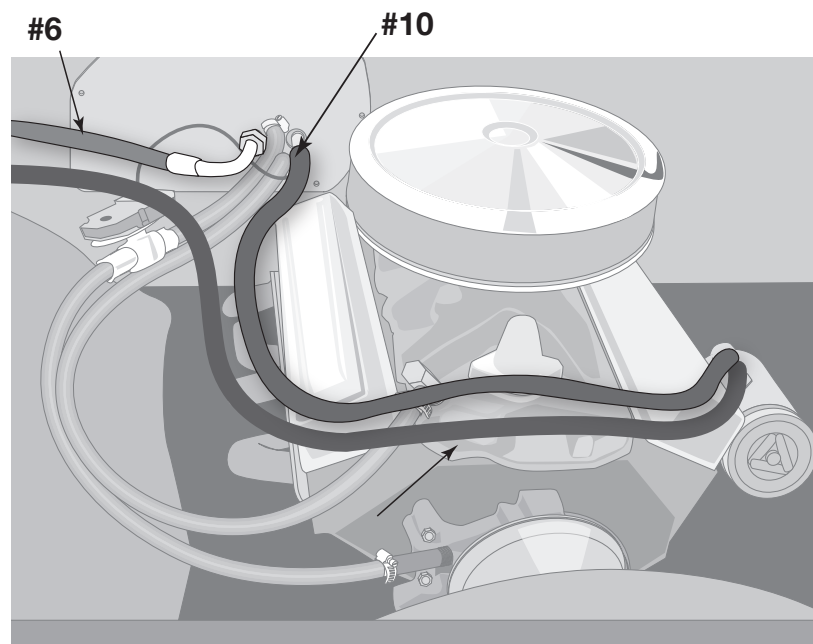
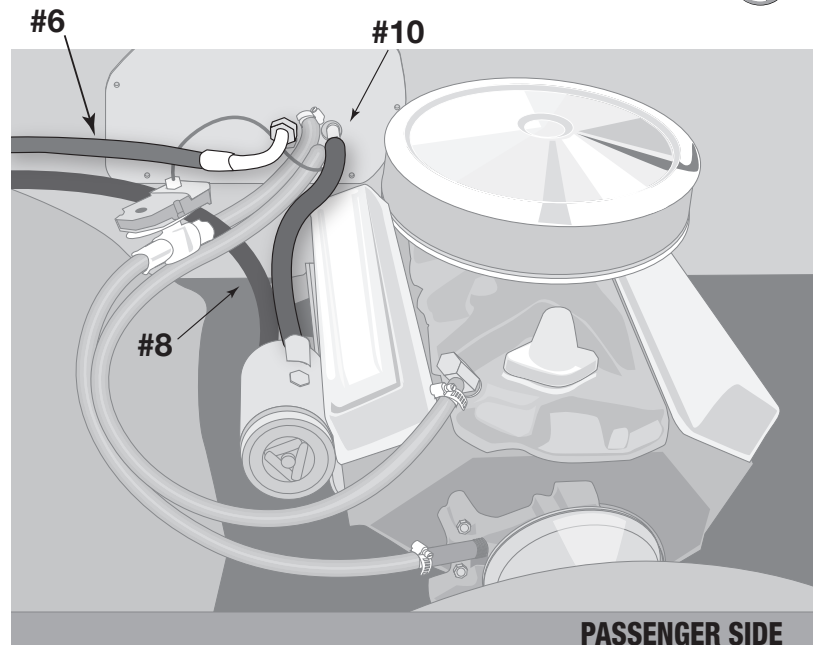
The #10 **(LARGEST)** refrigerant hose. Attach end with service fitting to the compressor using (1) #10 o-ring and a few drops of mineral oil. Attach other end to #10 fitting at the firewall. Attach using one #10 o-ring and a few drops of mineral oil. Tighten securely.

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

The #8 **(MEDIUM)** refrigerant Hose. Attach straight fitting connection to upper connection at condenser and route to the connection on compressor attaching connection with service port. Attach using two #6 o-ring and a few drops of mineral oil.



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





FINAL STEPS: Take a look around at your installation and check all fittings and bolts for tightness, check the heater hose clamps for tightness, and make sure nothing is routed in a way to obstruct any moving parts. **You can refill the radiator and reconnect the battery at this time.**

**WAY TO GO! You've just completed the installation of your new A/C system.
The very final step is to fully charge and test your new system.**

**On the next page you'll find specifications for proper final preparation
for your A/C technician.**

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

Please read thru 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)

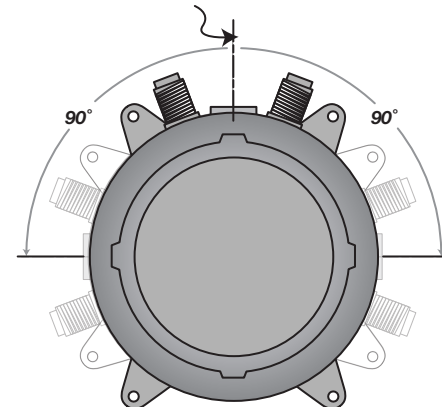
- Determine the temperature outside of the car
- Connect gauges or service equipment to high/low charging ports
- Place blower fan switch on medium
- Close all doors and windows on vehicle
- Place shop fan directly in front of condenser
- Run engine idle up to approx. 1500 rpm

ACCEPTABLE OPERATING PRESSURE RANGES:

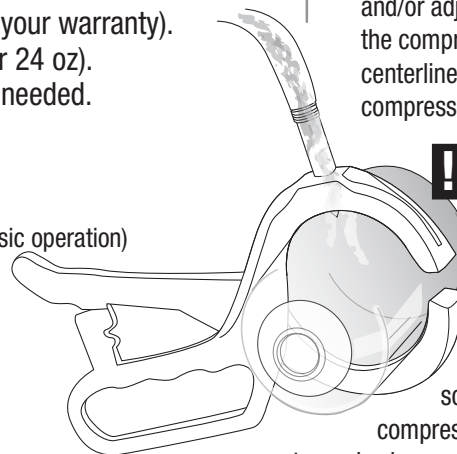
1. HIGH-SIDE PRESSURES (150-275 PSI)
2. LOW-SIDE PRESSURES (10-25 PSI in a steady state)

Readings above are based on an ambient temperature of 90° with an adequate airflow on condenser

CENTERLINE OF THE OIL FILL BOLT



CAUTION! When mounting your compressor and/or adjusting the belt, use caution not to tilt the compressor up to or more than 90° off the centerline of the oil fill plug. 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.

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 24oz or 1.5lbs of R134 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 24oz or 1.5 lbs R134) compressor can cause rattling. If charged with pure liquid there is a high probability you have bent reed valves that are causing tapping sound.

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.

ALIGN WITH EDGE OF DEFROST DUCT

Template Right Side Defrost

CUT EDGE



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GM PART NUMBER
3906067

ALIGN WITH
HOLE



Template LEFT Side Defrost
1968 Chevelle

UT LINE

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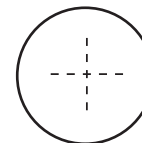
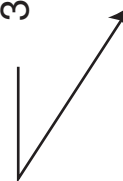


DRILL
1/4" DIA.
HOLE



OEM OPENING

DRILL
3/4" DIA.
HOLE



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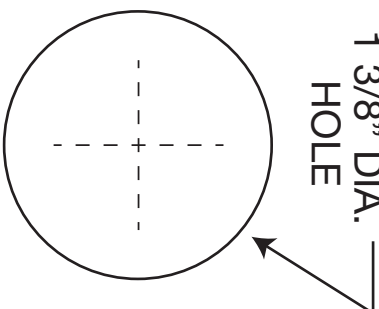
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DRILL
1 3/8" DIA.
HOLE



DRILL
1" DIA.
HOLE

