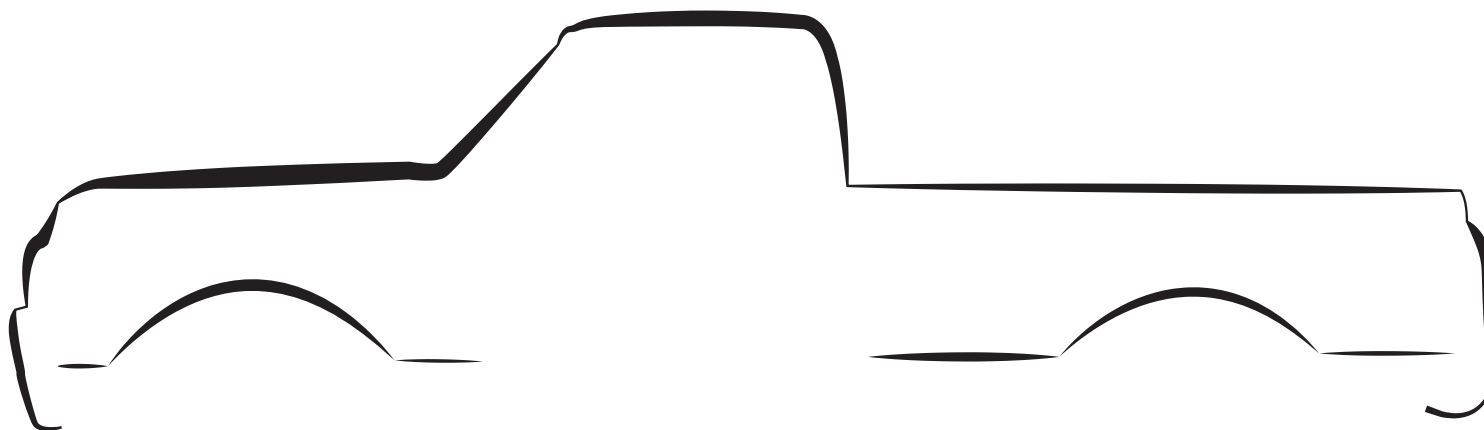




Installation Manual

1967-72 Chevrolet Pickup

1967-72 Chevrolet Suburban

DOCUMENT #20-3033

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Congratulations...

You have just purchased the highest quality, best performing A/C system ever designed for your 1967-72 Chevrolet Pickup.

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 During the installation you might find the opportunity to repair or upgrade non-working or out of date components.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

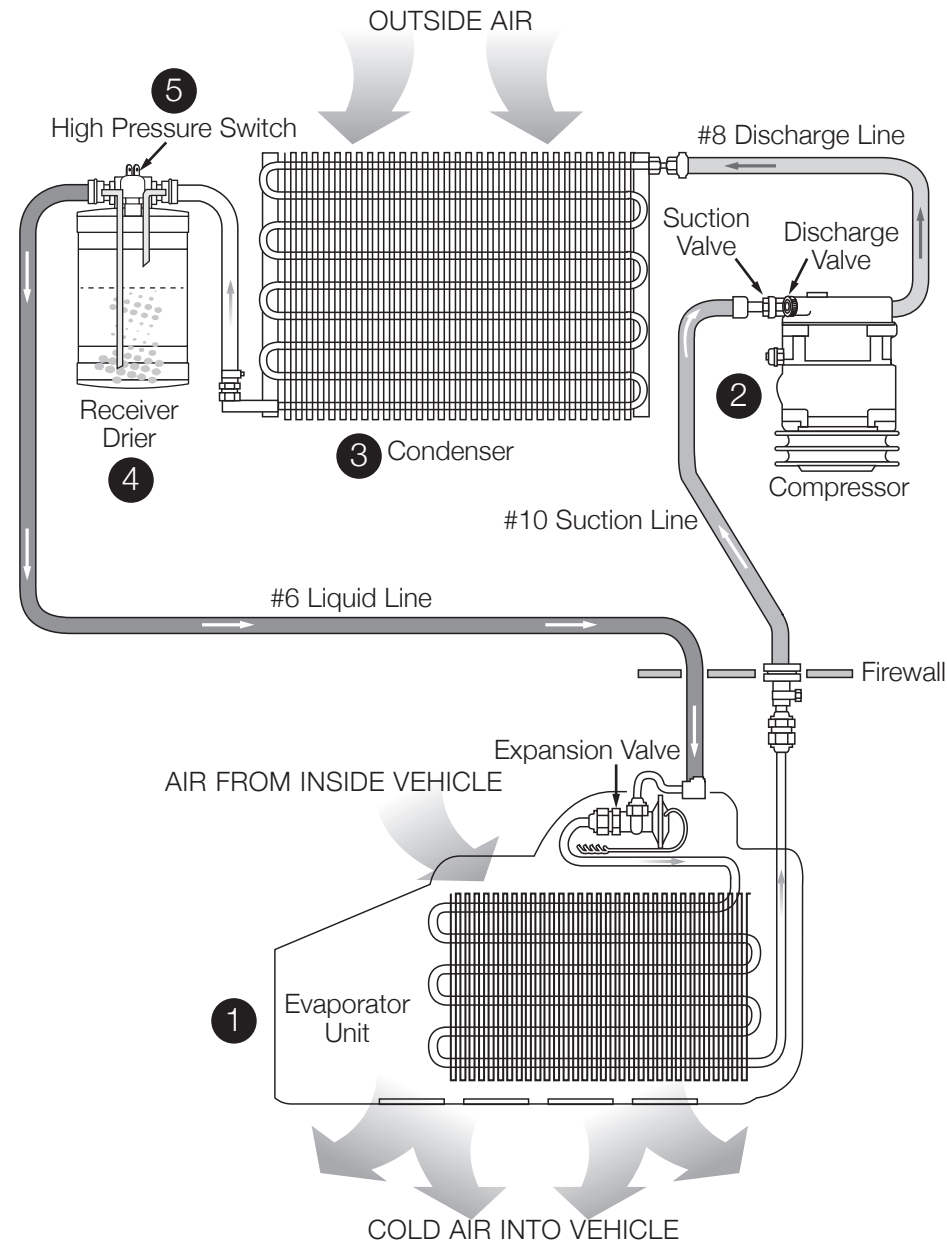
- ☐ Fittings: Use one or two drops of mineral oil (supplied with your kit) on ALL rubber o-rings, threads and rear of bump for o-ring where female nut rides. Do not use thread tape or sealants.
- ☐ Measure twice (or more), cut once
- ☐ **Should you need help, we have an extensive support section on our website. You can access it directly by turning to the troubleshooting section at the back of this manual and scanning the QR code with your smartphone.**

YOU CAN NOW BEGIN THE INSTALLATION...

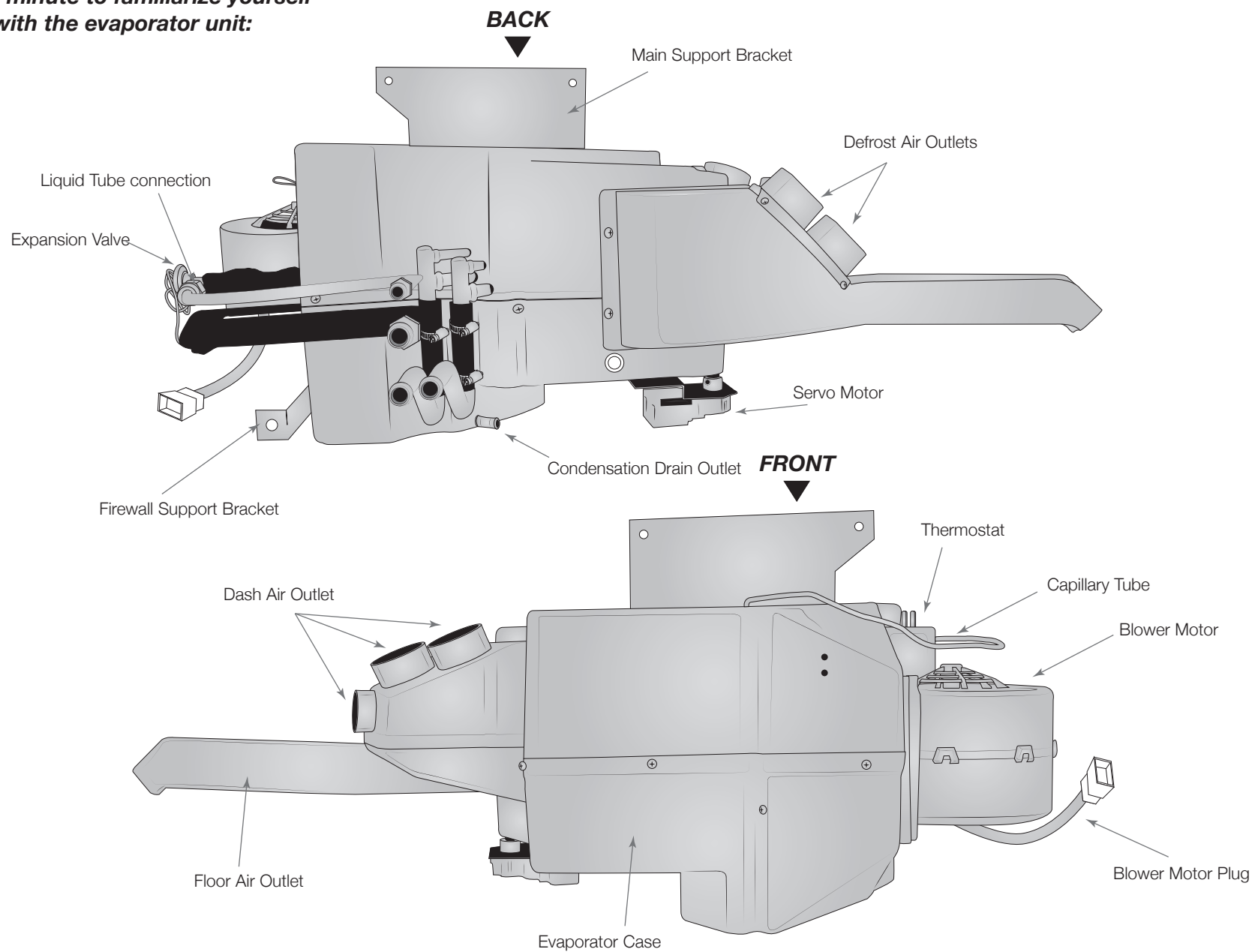
A Basic Overview of Automotive A/C....

- ❶ **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.
- ❷ **Compressor:** The compressor pumps and circulates the refrigerant through the system.
- ❸ **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.
- ❹ **Receiver/Drier:** The drier not only dries refrigerant, it also filters the refrigerant and stores it under certain operating conditions.
- ❺ **High Pressure Switch:** A pressure switch is used to shut down the system if high or low pressure is detected, basically it acts as a safety switch.

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

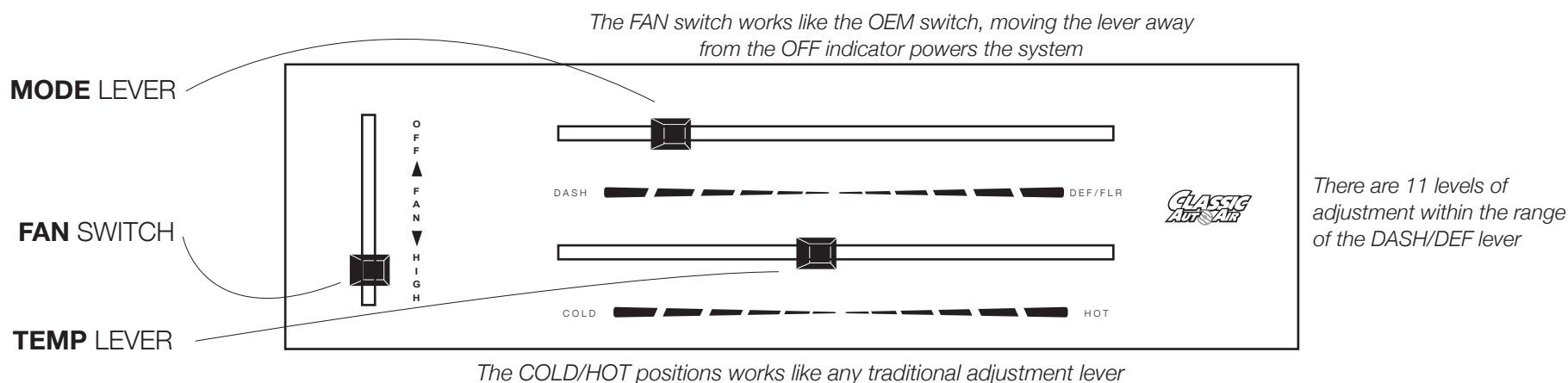


**Take a minute to familiarize yourself
with the evaporator unit:**



Control & Operating Instructions

Your new **Smart Series A/C** system offers complete comfort capabilities in virtually every driving condition. This includes temperature control in all of the modes. This system also provides the ability to blend the air between Face, Heat, and Defrost modes simultaneously. To illustrate the various ways you can adjust the airflow direction and temperature - we've provided these handy illustrations and chart to show exactly how you can adjust your **Smart Series A/C** for maximum comfort...



DASH

DEF/FLOOR

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

COLD

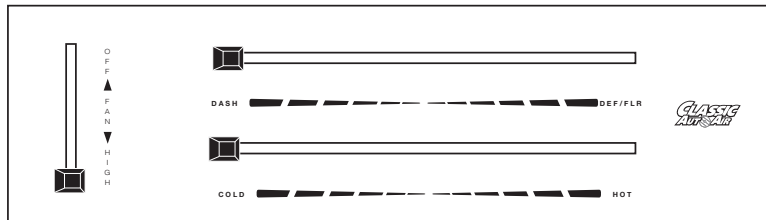
HOT

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

OPERATION

- Function Test, Steps 1 and 2

1



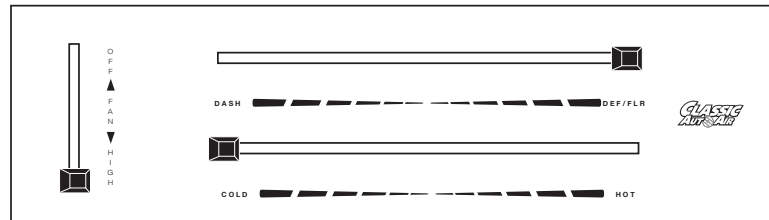
Move FAN knob to HIGH
Move MODE knob to DASH
Move TEMP knob to COLD



AIR OUT OF DASH VENTS



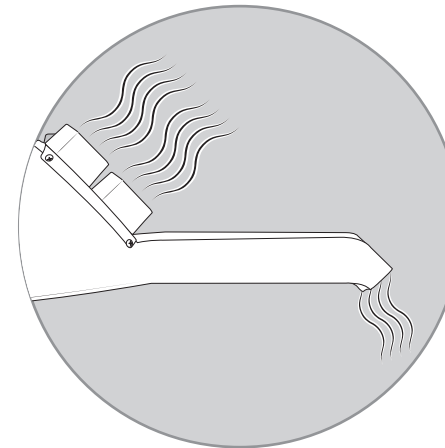
2



Move MODE knob to DEFROST/FLOOR



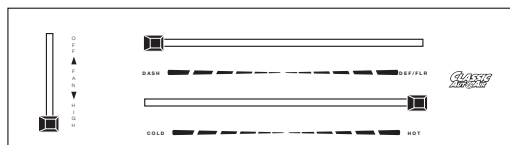
AIR OUT OF DEFROST/FLOOR VENTS



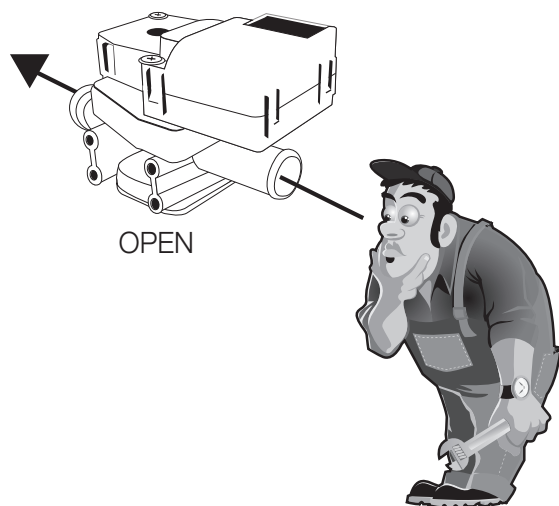
OPERATION

• Function Test, Steps 3 and 4

3



Move TEMP knob to HOT

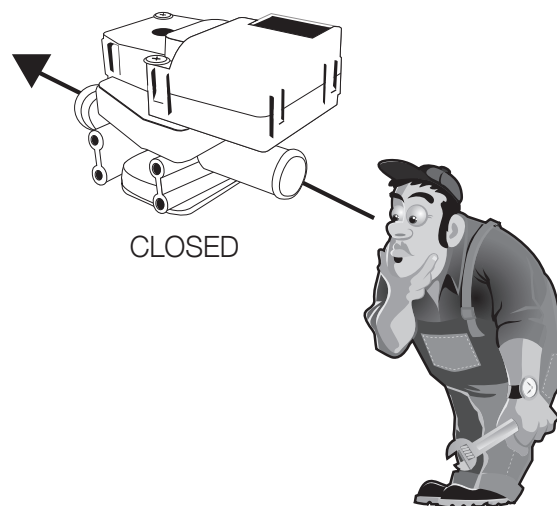


You will be able to see through water valve passage

4



Move TEMP knob to COLD



You will NOT be able to see through water valve passage

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

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

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

Moving to the engine compartment:

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

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

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

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

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

FIGURE 7

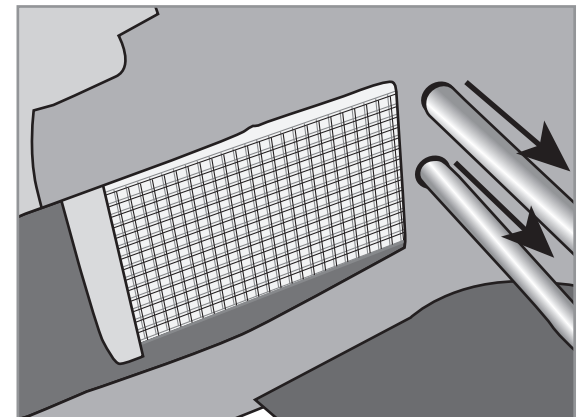
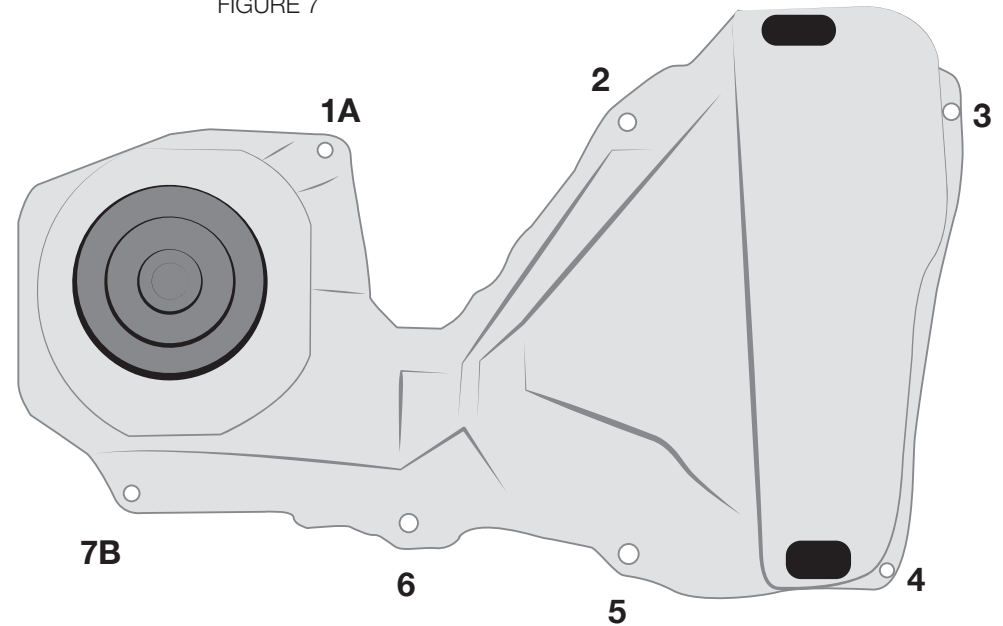


FIGURE 8



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

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

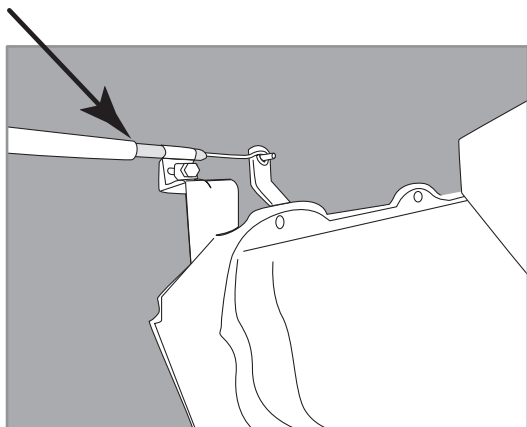
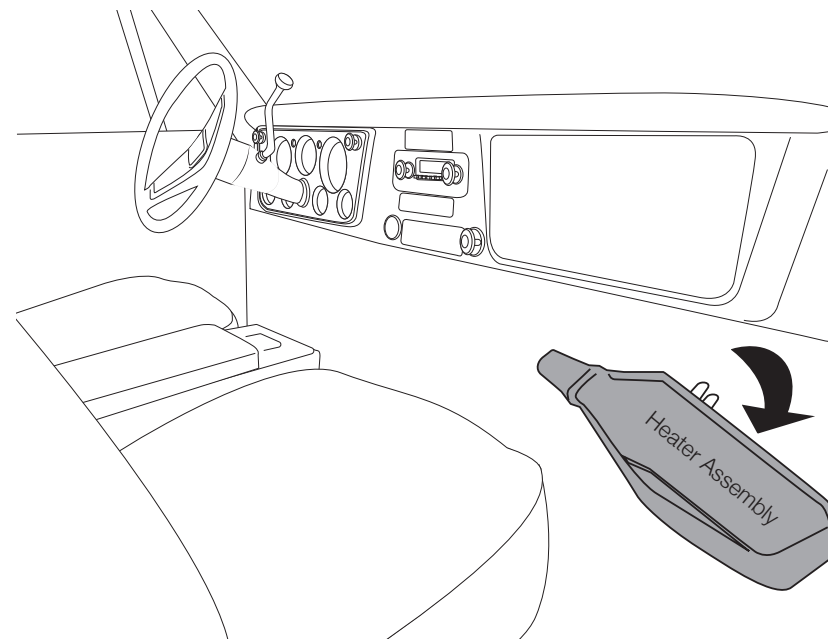


FIGURE 2

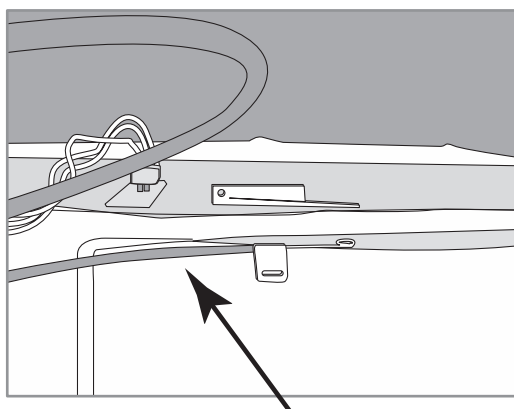


FIGURE 3

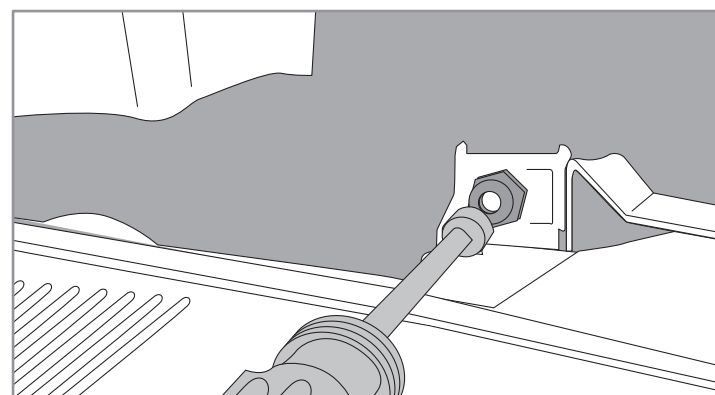
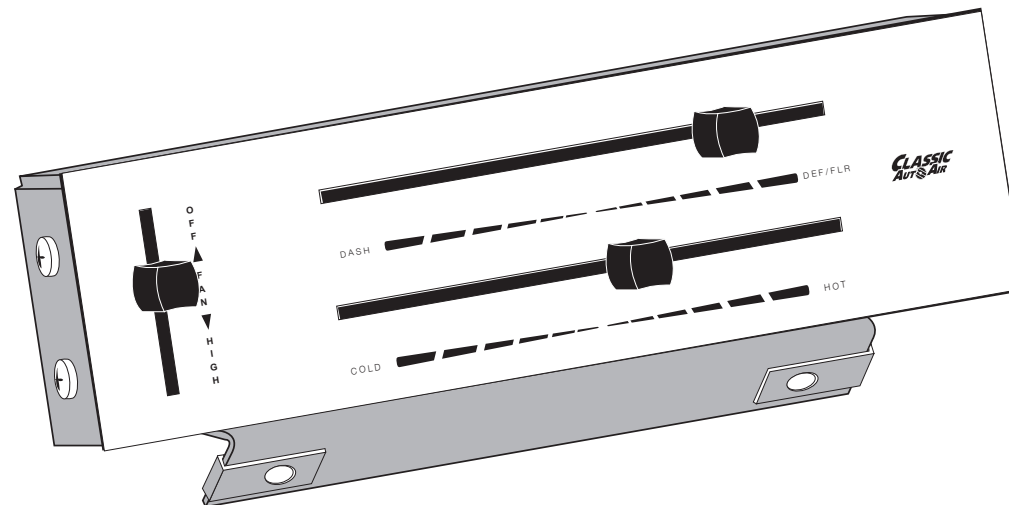


FIGURE 4

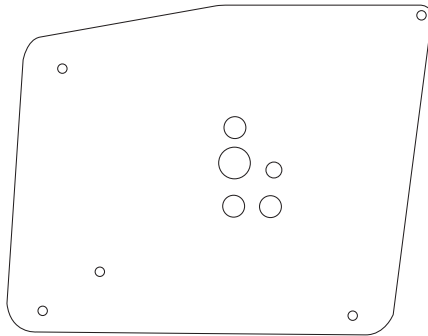
THESE ARE THE PARTS YOU WILL FIND IN BAG KIT A
(D.E.R. Controller)



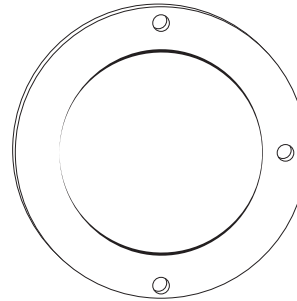
D.E.R. Control
PN#16-3033

THESE ARE THE PARTS YOU WILL FIND IN BAG KIT B

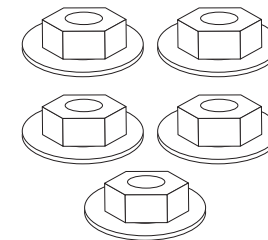
You will use all of these parts and hardware during the next series of installation steps.



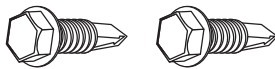
*Firewall Block Off
PN#10-1033-2*



*Fresh Air Inlet Block Off
PN#10-1033-3*



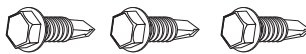
Flange Nuts



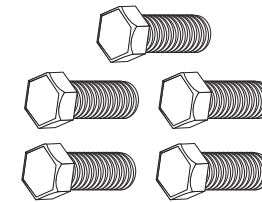
Two #14 - 16 x 3/4" Tek Screws



Two #10 x 5/8" Phillips Screws

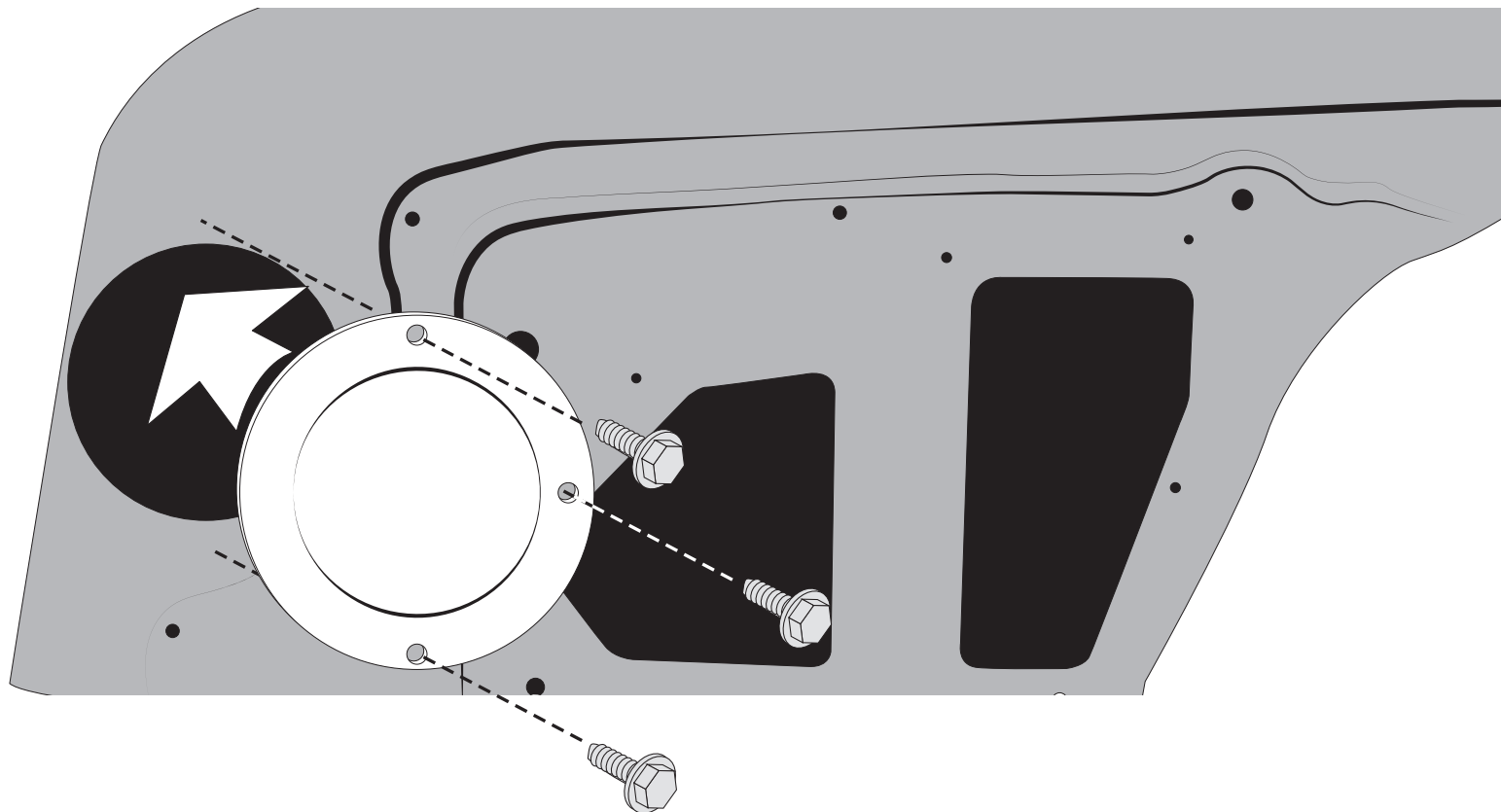


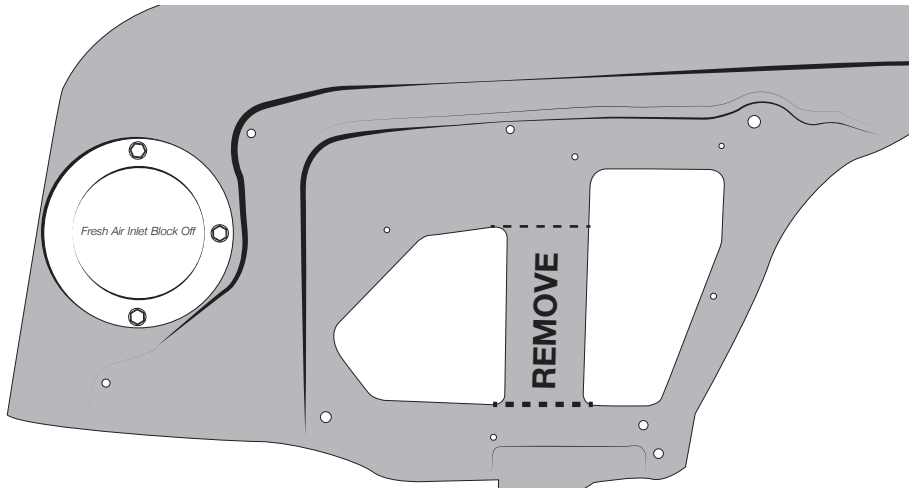
Three #10 - 16 x 3/4" Tek Screws



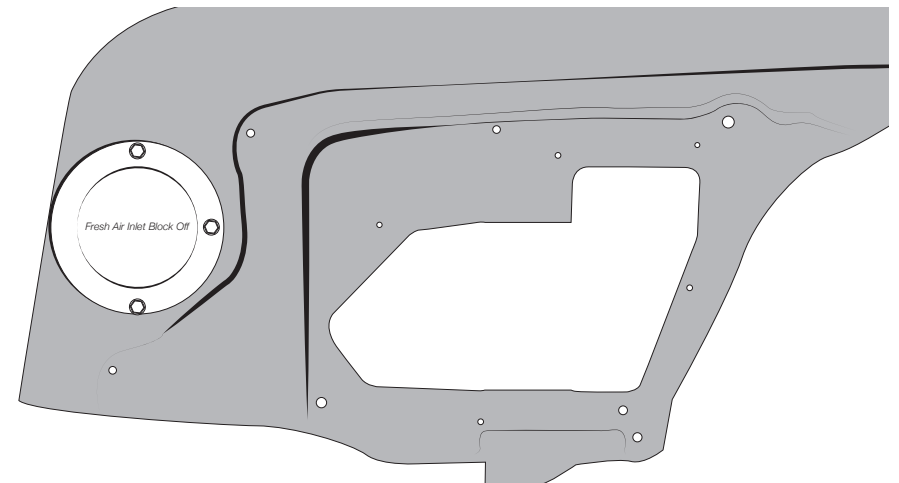
Five 1/4 - #20 x 5/8" Bolts

Within the engine compartment area, Install Fresh Air inlet block-off PN# 10-1033-3 (from Bag Kit B) over the OEM fan opening. Attach using (3) #10-16 x 3/4 Tek Screws.

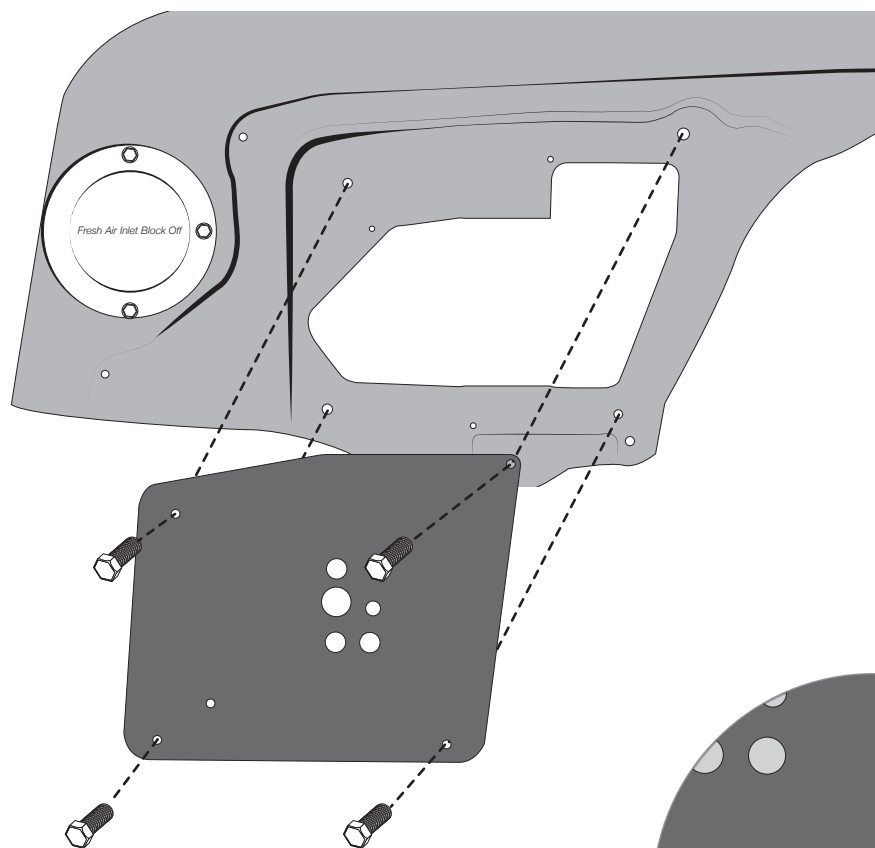


1

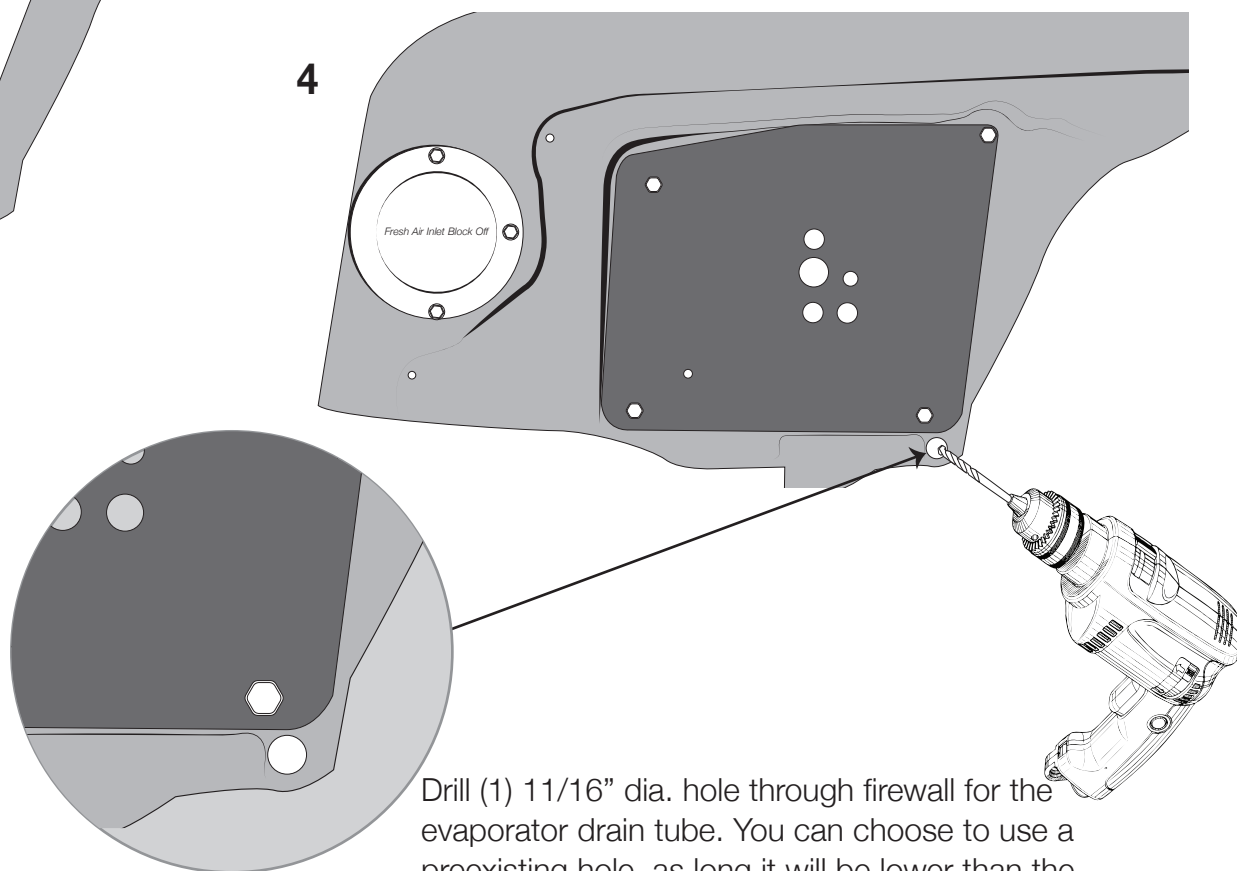
After Fresh Air Inlet Block off plate is installed you will need to cut the firewall. Both openings will need to merge and become one. Cut out middle section as shown.

2

The opening in your firewall should look like this now.

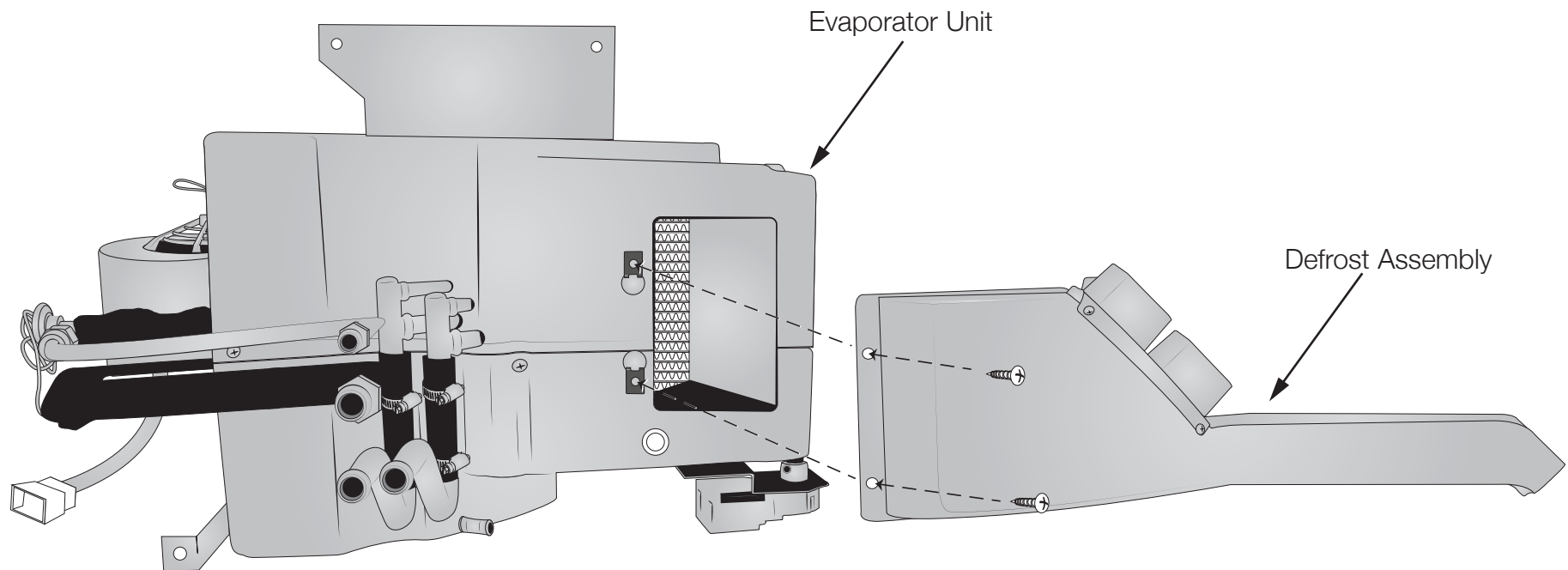
3

Attach Firewall Block Off Plate PN# 10-1033-2 to firewall using Four 1/4 - #20 x 5/8" bolt and (4) Flanged Nuts provided in Bag Kit B.

4

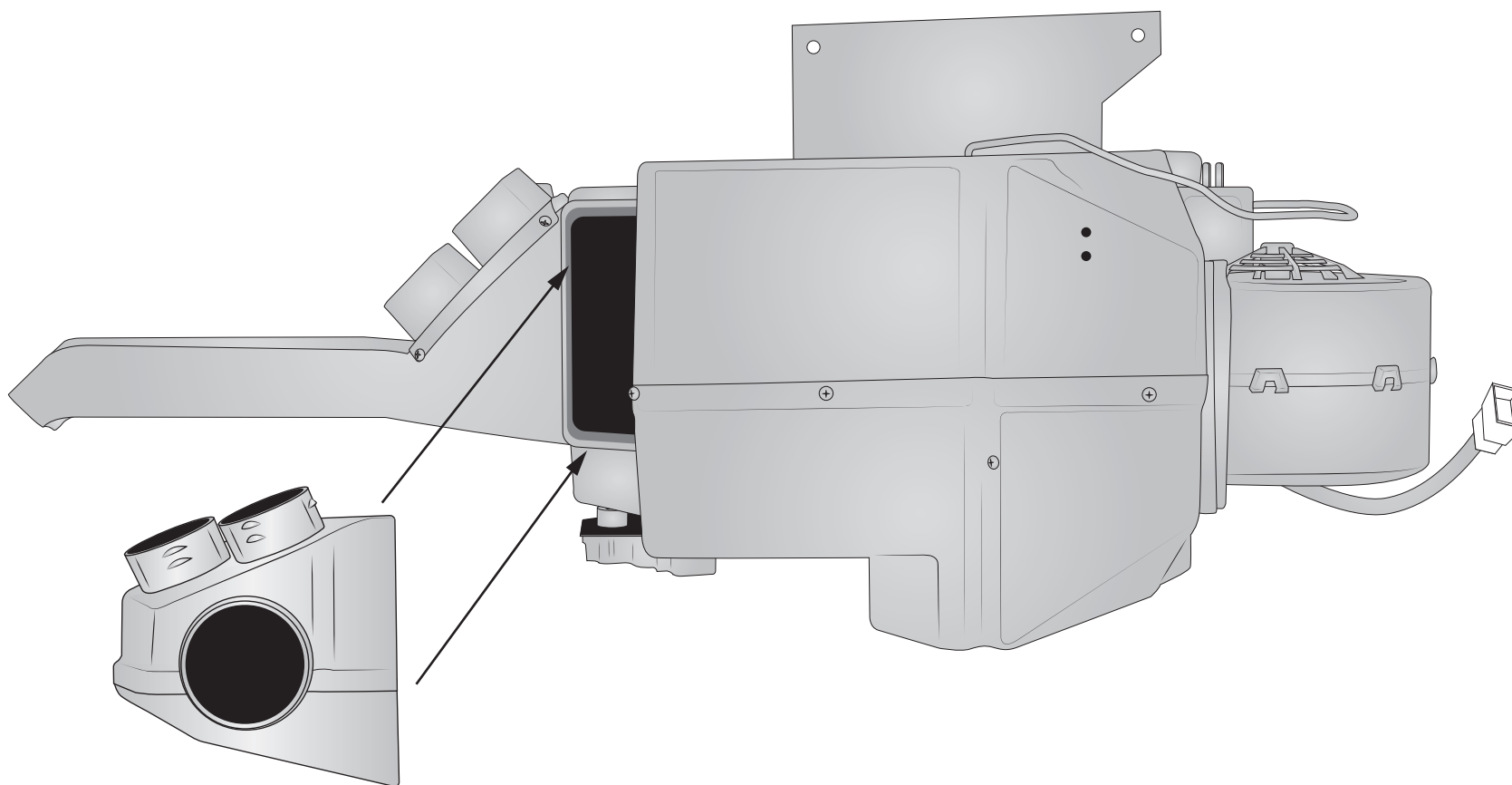
Drill (1) 11/16" dia. hole through firewall for the evaporator drain tube. You can choose to use a preexisting hole, as long it will be lower than the drain tube nipple when installed.

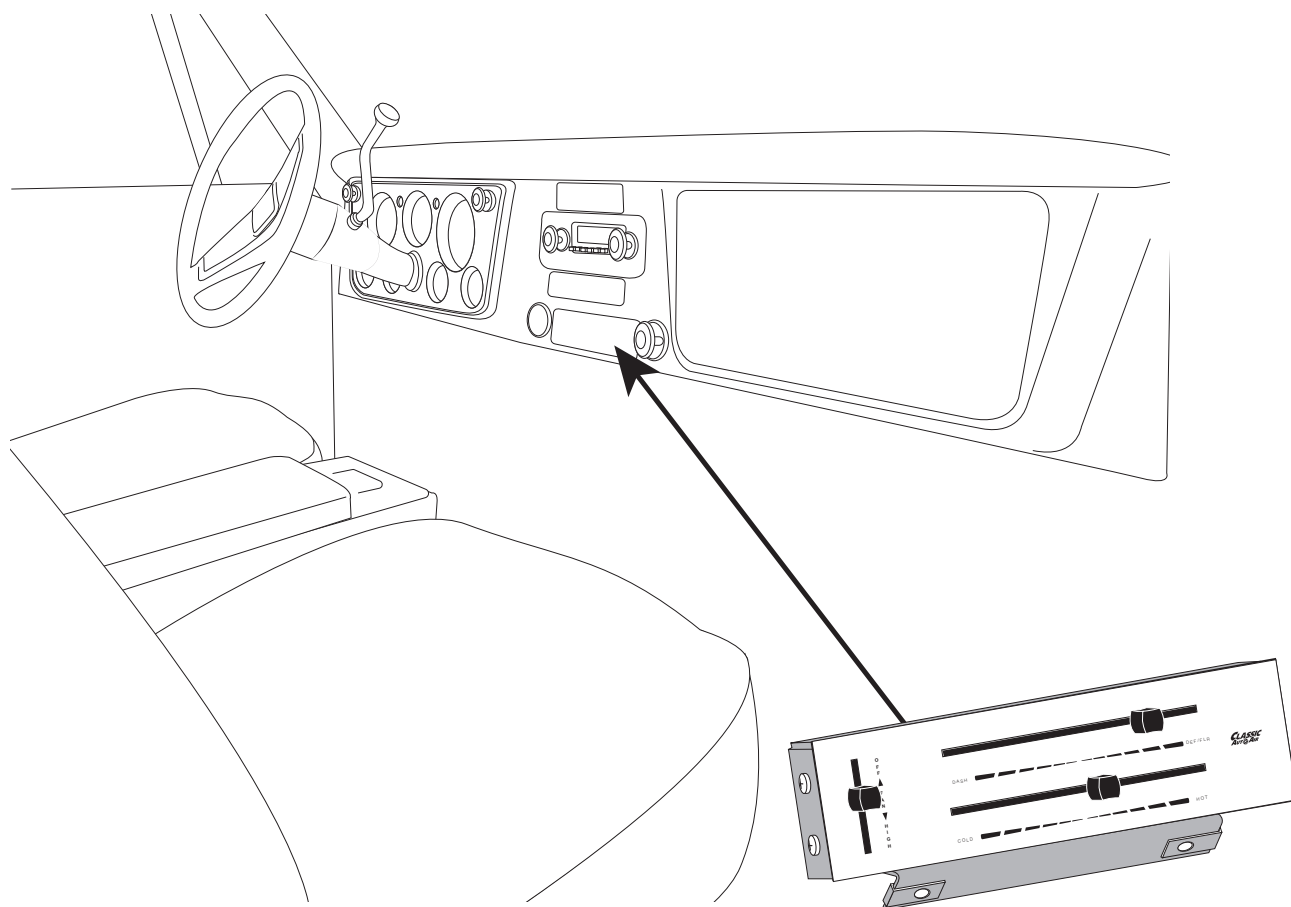
Remove Evaporator Unit and Defrost Assembly from box. The Defrost Assembly is pre-installed using Two #10 x 5/8" Phillips Screws.



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

Pre-installed Face Duct Assembly

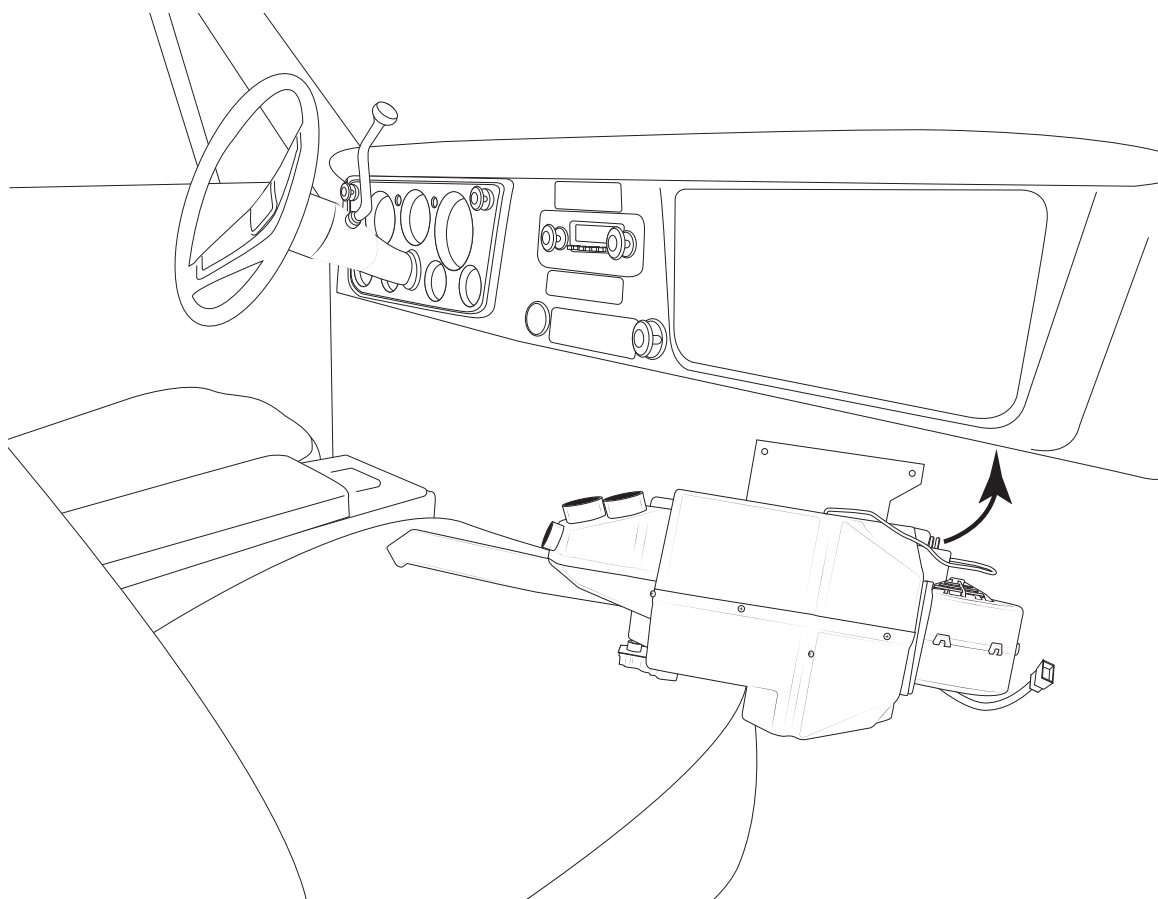
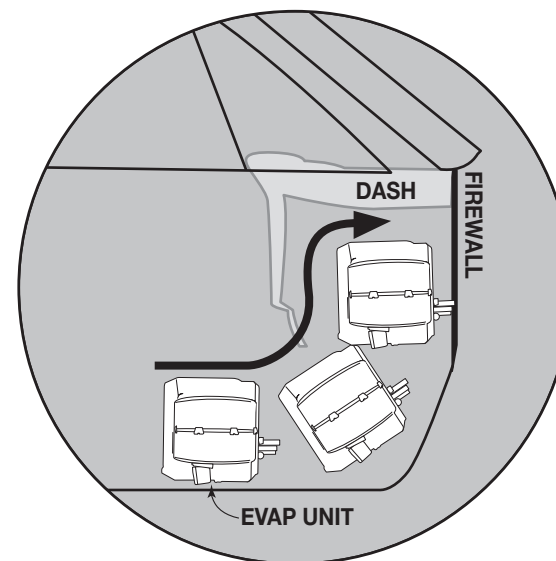




Install D.E.R. at this time using original mounting hardware.

NOTE: Two people are needed for this step!

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

**1**

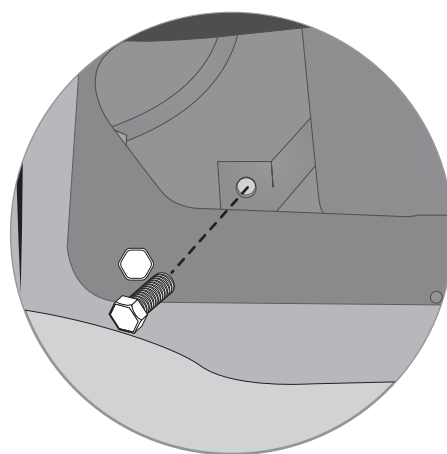
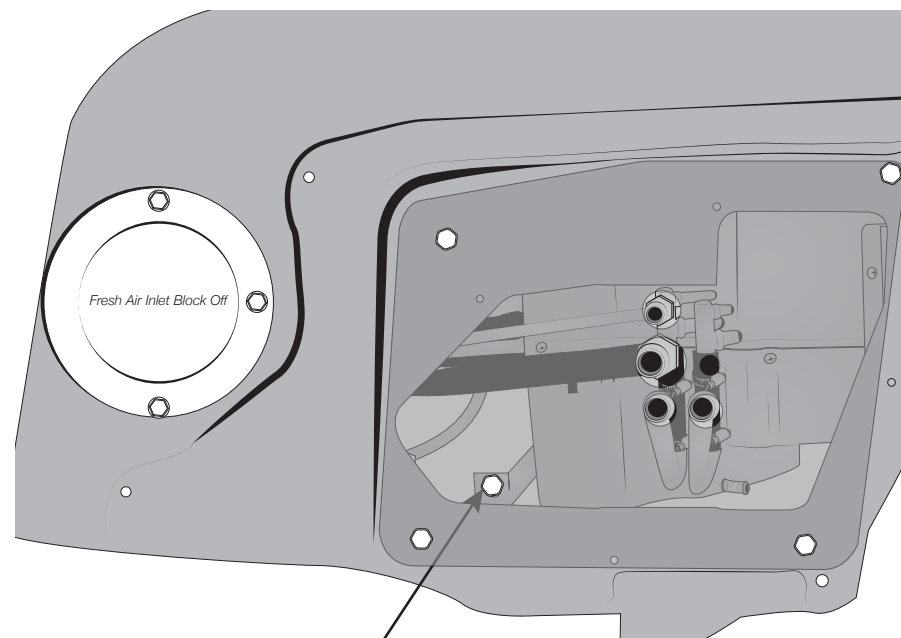
Installing the evaporator will require attention and detail. The tubes will need to be inserted through the block off plate

FIGURE 17

- 1 Locate the unit and slide in behind glovebox opening and the firewall. Insert the hookup tubes through the firewall block off. This will require some finesse.

Holding the unit in a level position, and using the tubes to locate the unit side to side.

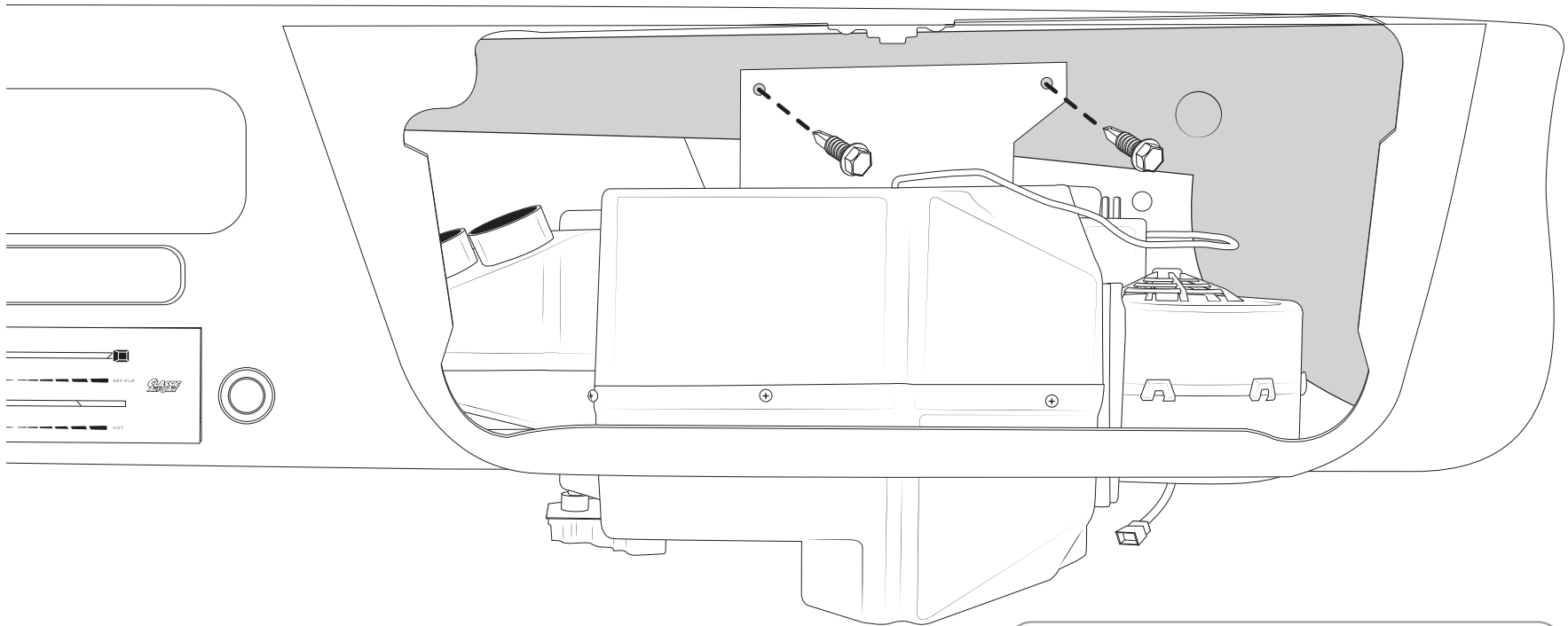
NOTE: Two people are needed for this step!



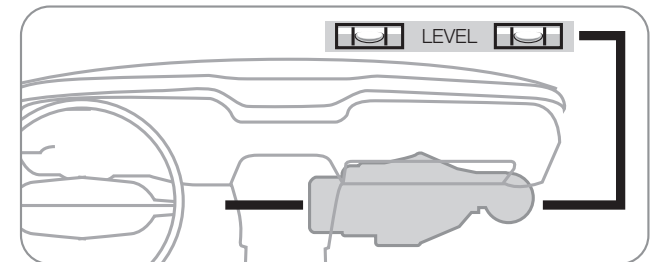
Using the last 1/4 - #20 x 5/8" bolt and Flanged nut provided in Bag Kit B Attach evaporator bracket to firewall block off plate.

LEAVE LOOSE AT THIS TIME.

NOTE: Two people are needed for this step!

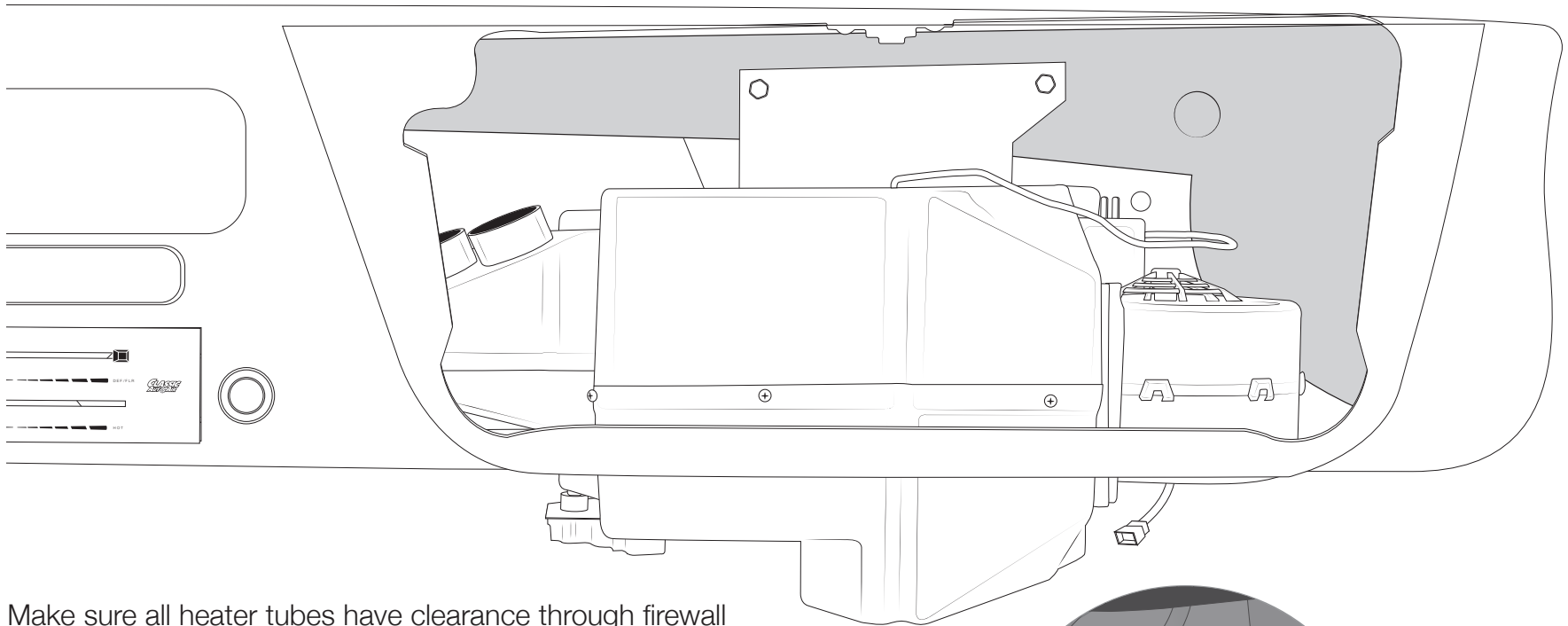


- 2** Attach through top unit support into the fresh air duct behind the glove box opening. Use Two #14 - 16 x 3/4" Tek Screws from Bag Kit B.



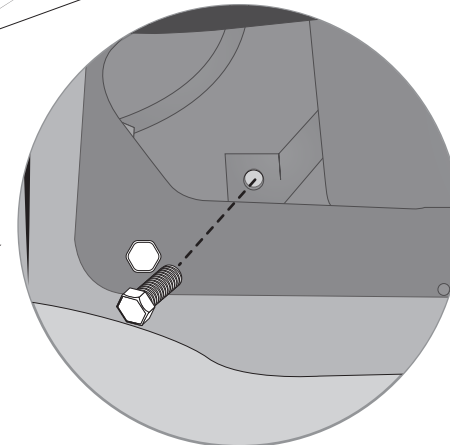
Be sure to align the evaporator unit level with the bottom of dash as shown above, with a small degree of tilt toward the back to allow proper drain of condensation.

NOTE: Two people are needed for this step!



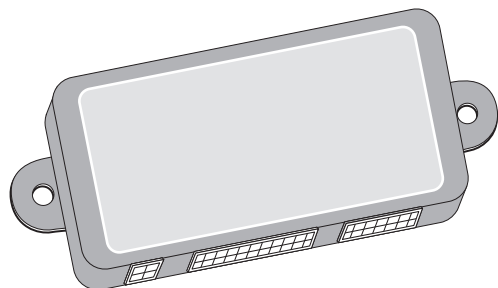
- 3** Make sure all heater tubes have clearance through firewall and thermostat on evaporator and expansion valve are not pressed against the cowl before you tighten all bolts.

- 4** Now tighten the last 1/4 - #20 x 5/8" bolt on the firewall block off plate.

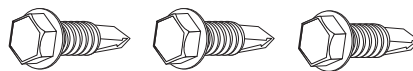


THESE ARE THE PARTS YOU WILL FIND IN BAG KIT C

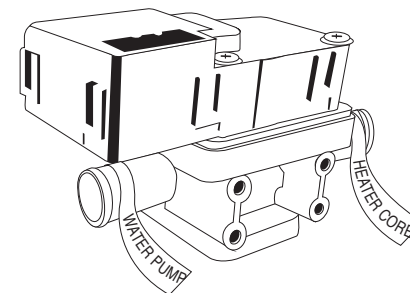
You will use all of these parts and hardware during the next series of installation steps.



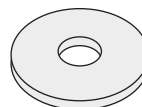
ECU
16-2500



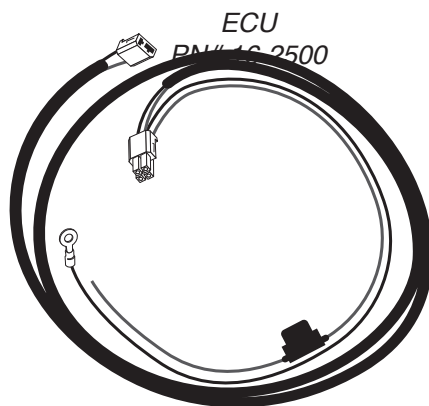
Three #10 - 16 x 3/4" Tek Screws



Electronic Water Control Valve
PN# 16-1023



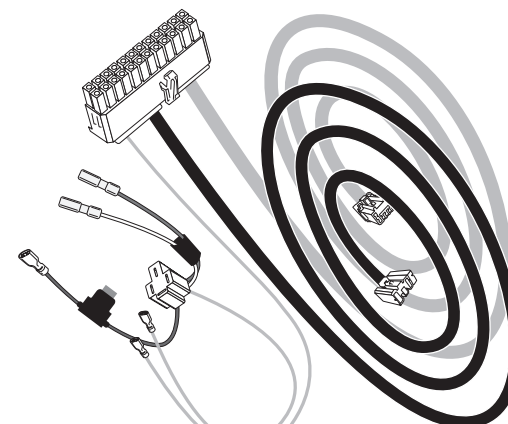
Firewall Grommet



HARNESS POWER SUPPLY
0125-5



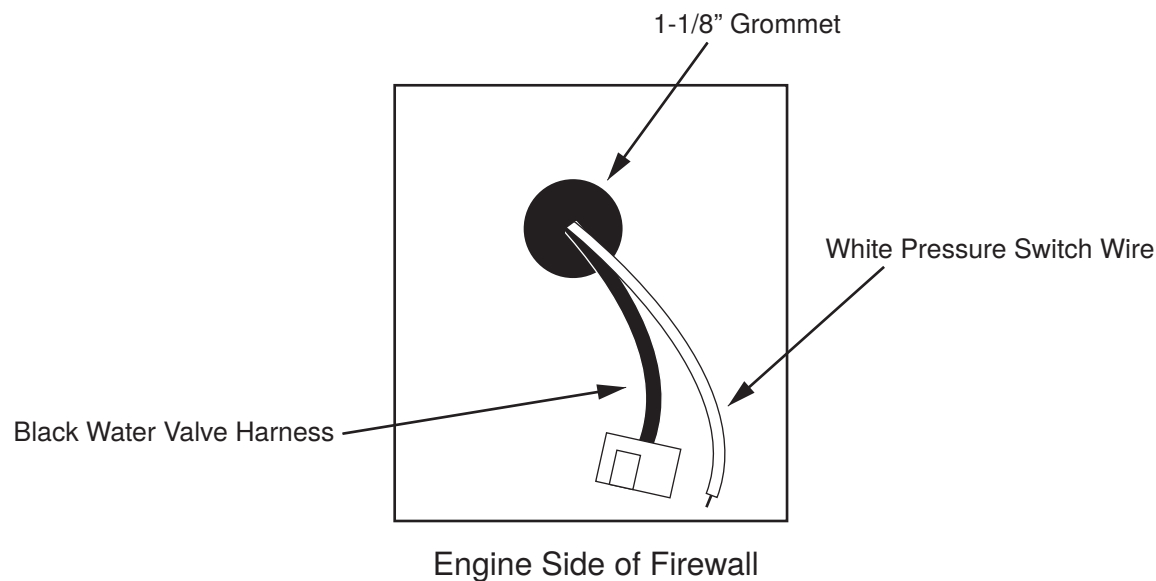
Relay
30-13373



HARNESS
0125-20R3A

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

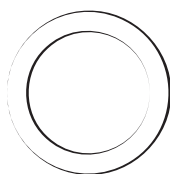
- Install the output (servo) wire harness according to the wire diagram.
- Drill a 1-1/8 inch hole in firewall or firewall block off plate.
- Run the black water valve harness and white pressure switch wire through the 1-1/8 inch hole in the firewall.
- Wrap the 1-1/8 inch grommet around the wires and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

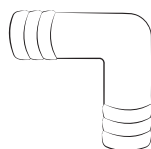
You will use all of these parts and hardware during the next series of installation steps.



Cap Plug



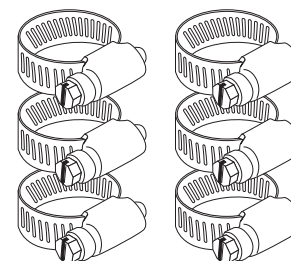
Clear Plastic Drain Tube



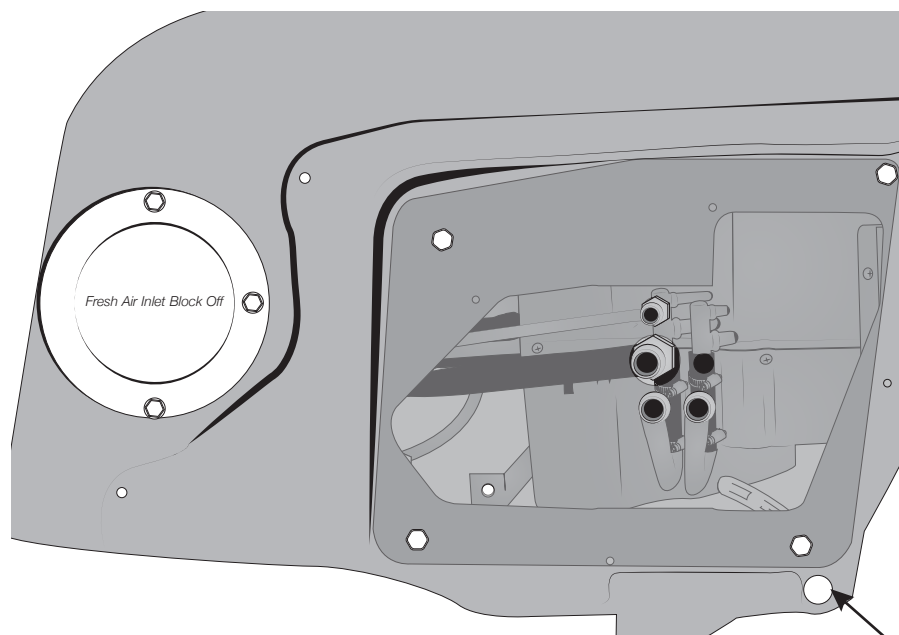
90 Degree Elbow



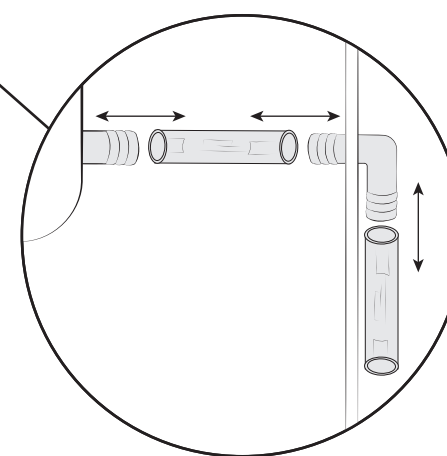
Refrigerant Tape

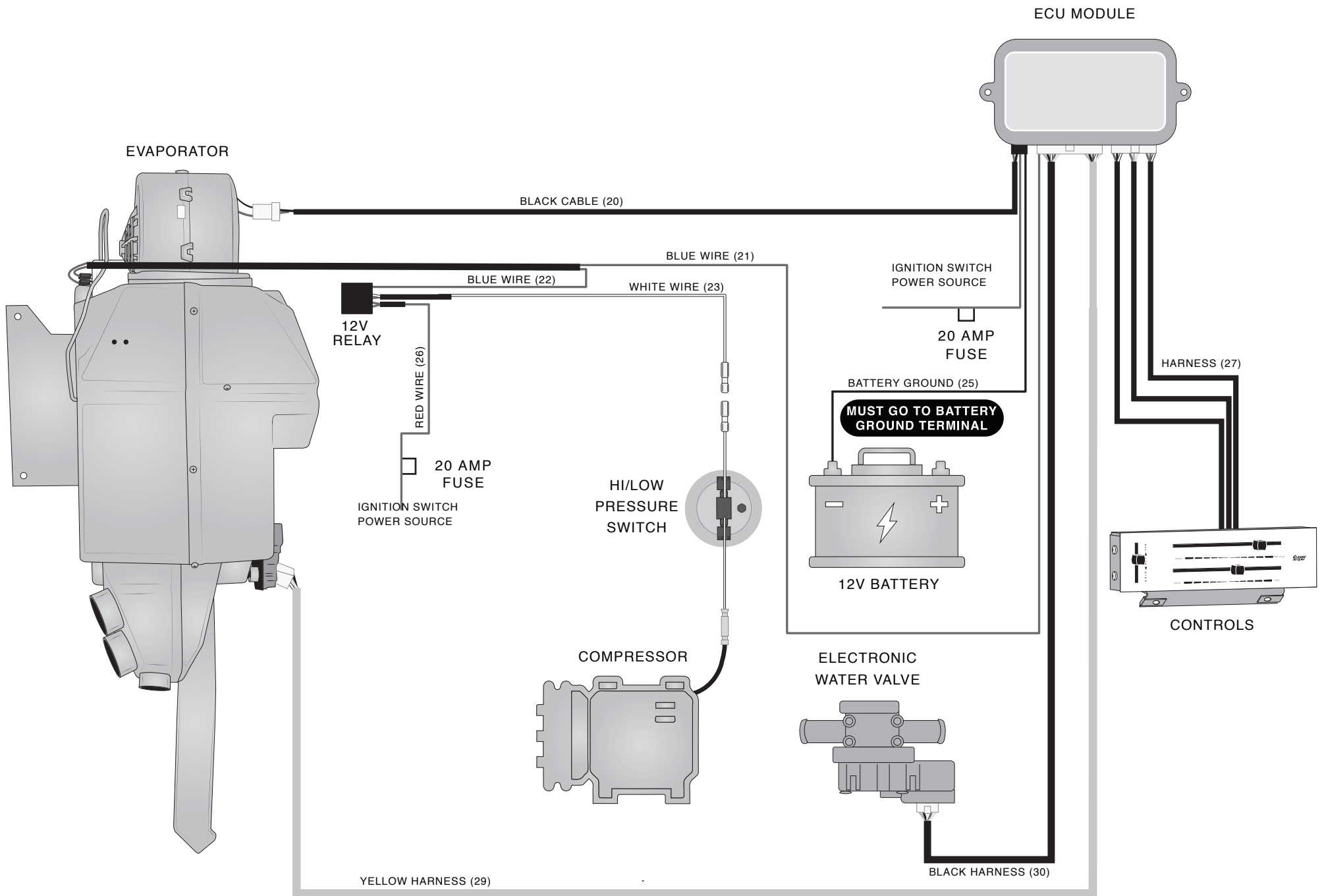


Six Worm Gear Clamps



Feed Drain tube that is Bag Kit D though the 11/16" hole you drilled earlier.





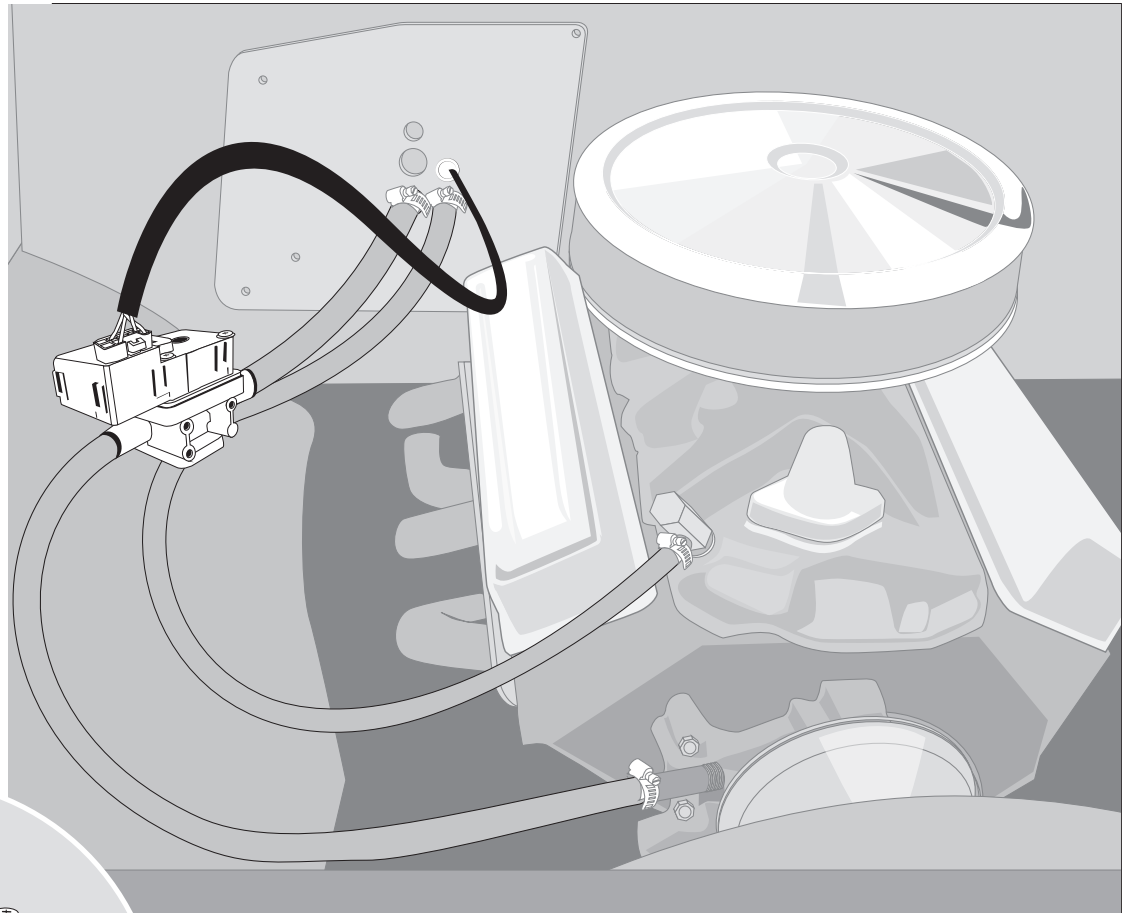
IMPORTANT NOTICE: PROPER INSTALLATION OF WATER VALVE

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

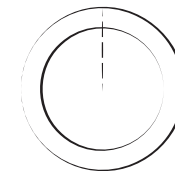
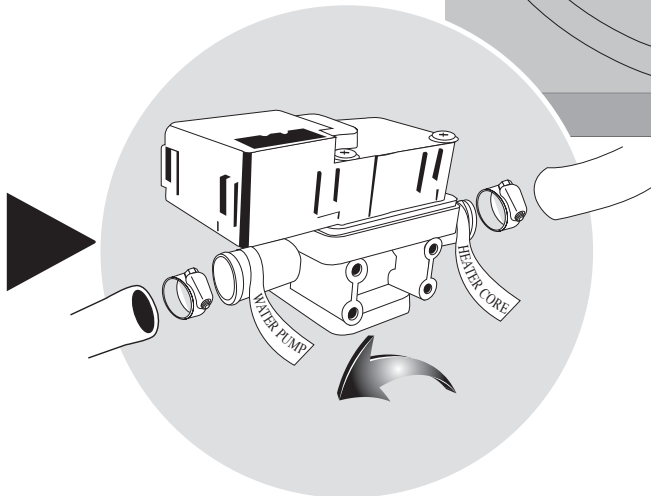
The **right** heater tube connection on firewall will be routed to the water connection on intake manifold using 5/8" dia. heater hose with the supplied worm gear clamp.

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

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



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

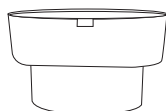


Make a slit (cut) in the 3/4" cap plug,
then feed harness through.

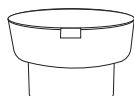
THESE ARE THE PARTS YOU WILL FIND IN BAG KITS E, F, and G

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

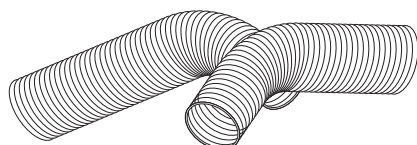
Bag E



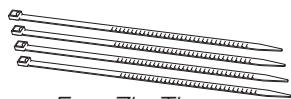
*Passenger Defrost Adapter
PN# 2-1033-2*



*Driver Defrost Adapter
PN# 2-1025-3*

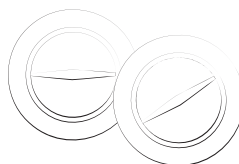


Two Duct Hoses, 2" I.D.

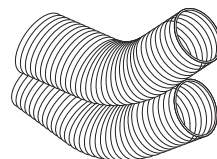


Four Zip-Ties

Bag F



*Two Louver, Ball, Chrome / 2" HA
PN# 06-2006-11-8*



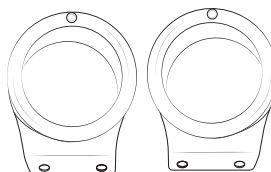
Two Duct Hoses, 2" I.D.



Four Zip-Ties

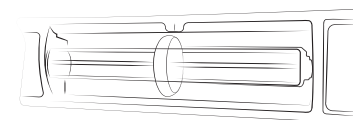


*Two Astro Louver, Ball, Chrome
Upgrade Option*



*Two Astro Ball Housing
PN# 2-0210
Upgrade Option*

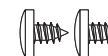
Bag G



*Louver, Center, OEM
PN# 67-7000592*



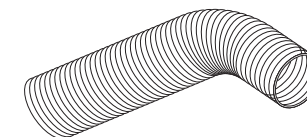
*Hose, Adapter, Center
PN# 0020-35*



Two #8 x 3/8" Phillips Screws



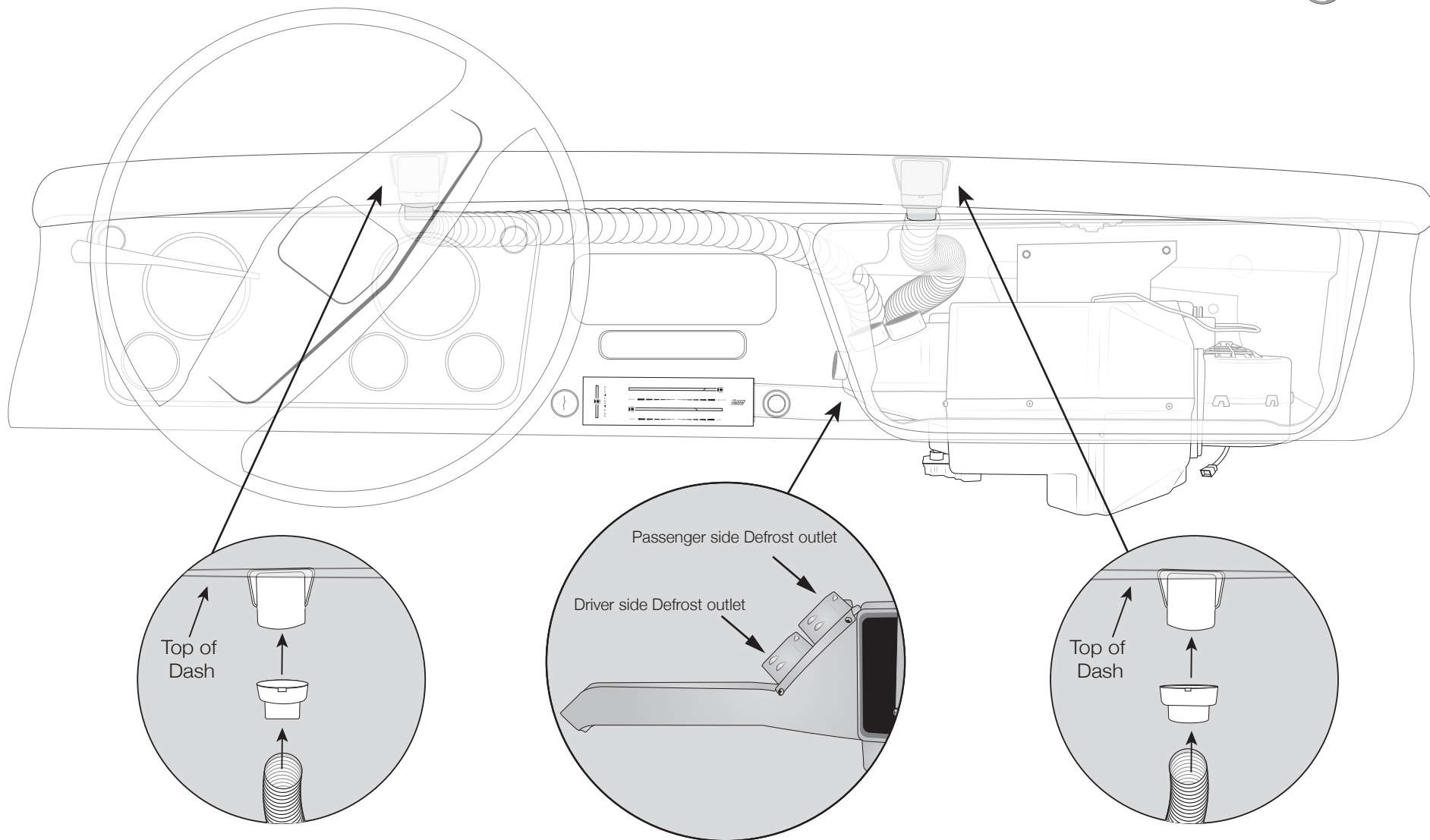
Two 1/4-20 x 5/8" Phillips Screws



One Duct Hoses, 2.5" I.D.



Two Zip-Ties

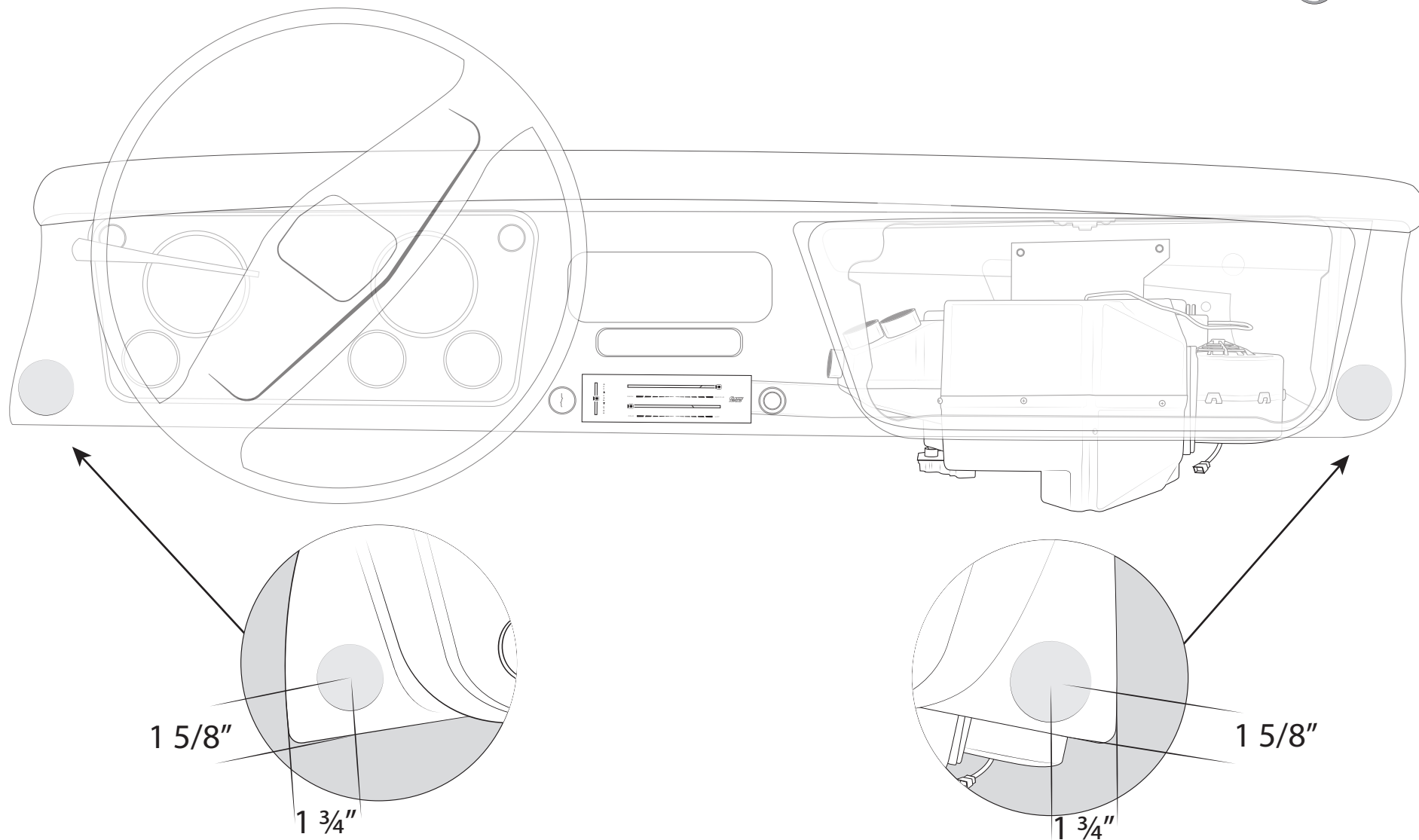


Attach driver side defrost adapter to the factory driver side defrost vent. Attach hose from defrost vent on evaporator to the adapter at this time. Secure with Zip-tie. **Note Driver's side adapter is round.**



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

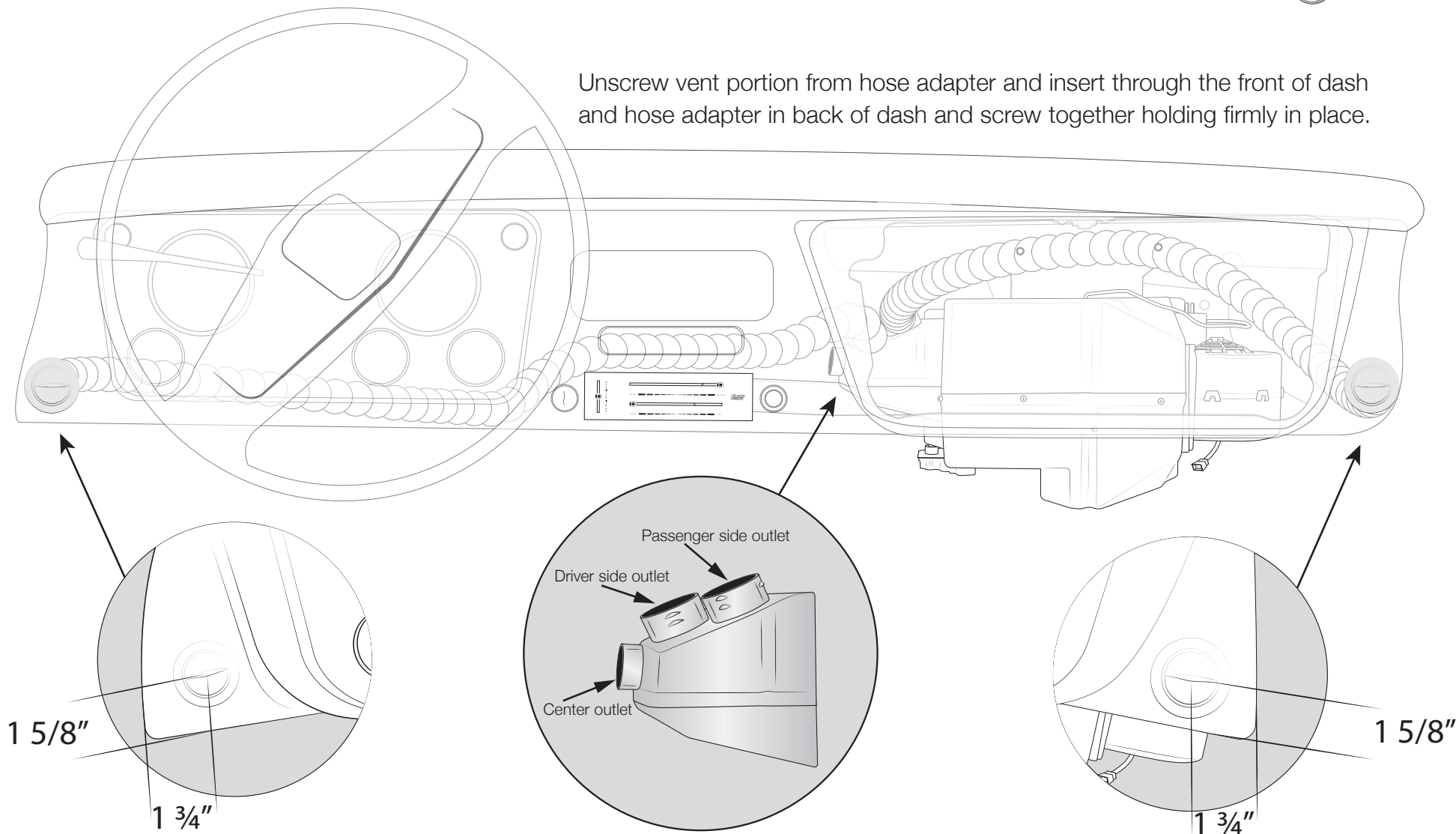
Attach passenger side defrost adapter to the factory passenger side defrost vent. Attach hose from defrost vent on evaporator to the adapter at this time. Secure with Zip-tie. **Note passenger's side adapter is oval.**



On drivers side of instrument panel.
Using a 2 1/4" dia hole saw locate and drill a
hole as shown.

On the passenger side next to glove box.
Using a 2 1/4" dia. hole saw locate and cut a
hole as shown.

Unscrew vent portion from hose adapter and insert through the front of dash and hose adapter in back of dash and screw together holding firmly in place.



1 5/8"

1 3/4"

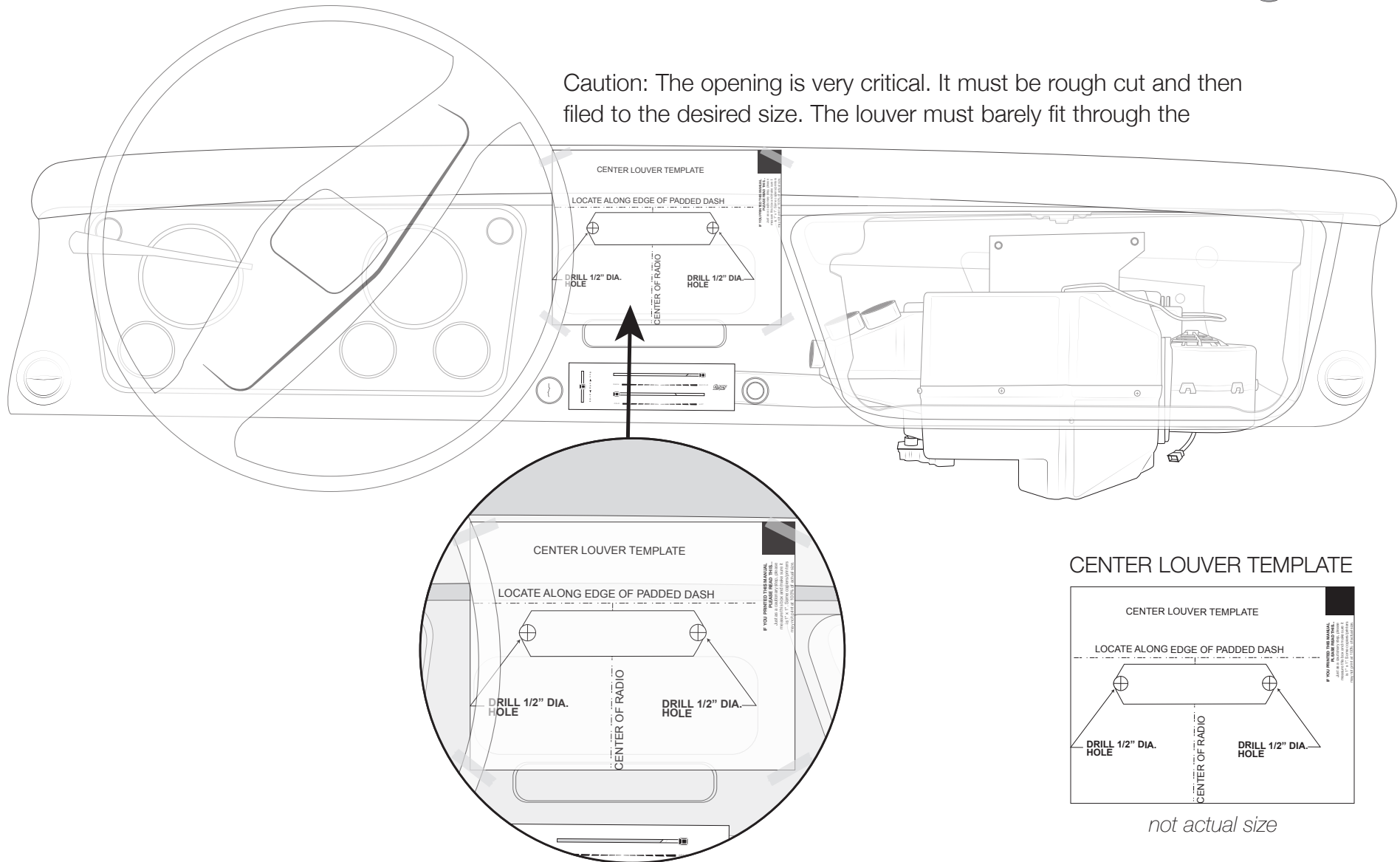
Locate 2" dia. Ball Louver with the 2" dia hose adapter. And install in the hole previously cut. Route duct hose as shown and secure with zip ties.



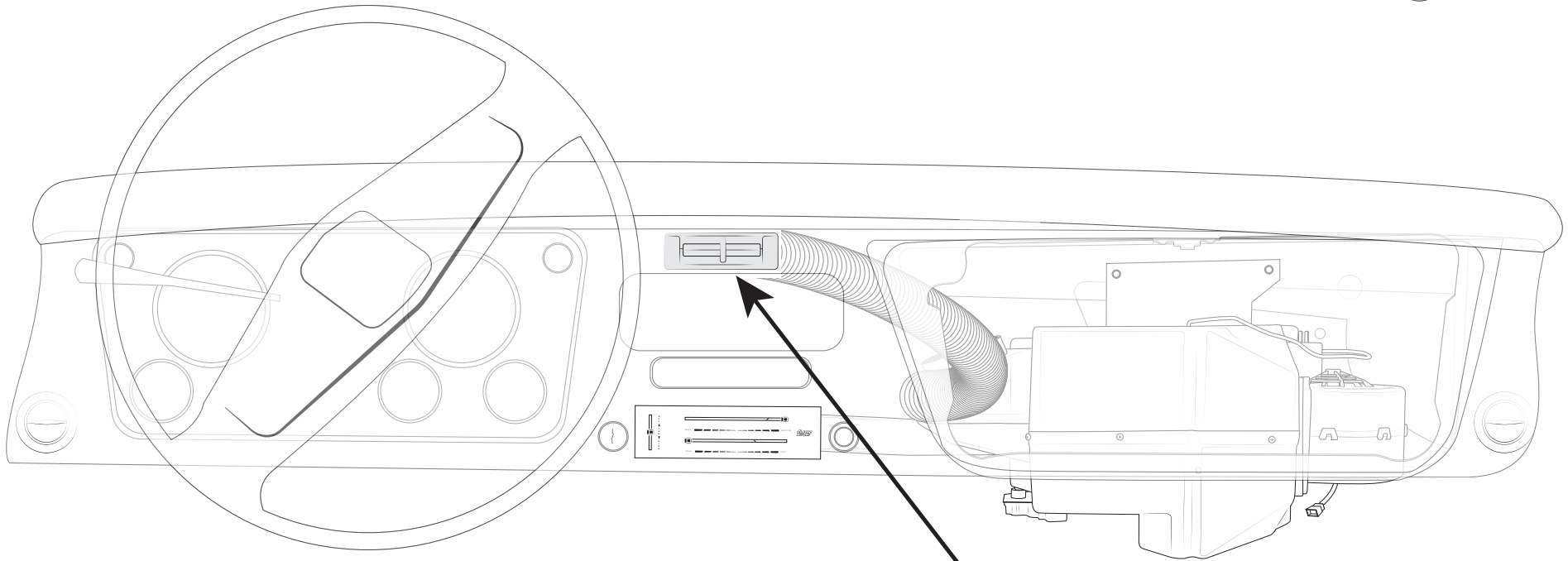
The smoother the route of the flex hoses the better the airflow.

Locate a 2" dia. Ball Louver with 2" dia hose adapter. And install in the hole previously cut. Route duct hose as shown and secure with zip ties.

Caution: The opening is very critical. It must be rough cut and then filed to the desired size. The louver must barely fit through the

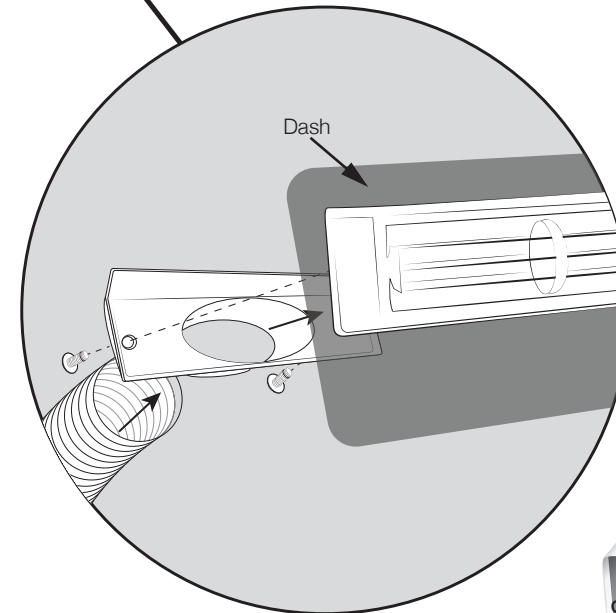


It is necessary to cut a hole in the instrument panel above the radio opening for the center louver. Locate in the instructions the center louver template. Use the template by taping template to the instrument panel. Carefully follow directions on template.

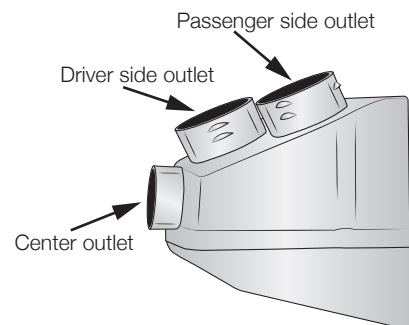


Install louver through the opening and attach using center louver hose adapter over the backside of louver.

Locate in the kit (1) piece of 2 ½" diameter flex hose 2 ft long, cut to 18". Attach to the center louver adapter using (2) #8 x 3/8" pan head screws. Attach hose adapter to the center louver with two 1/4-20 phillips screws.



Check Duct Hose
For Object Such As
Wipers



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

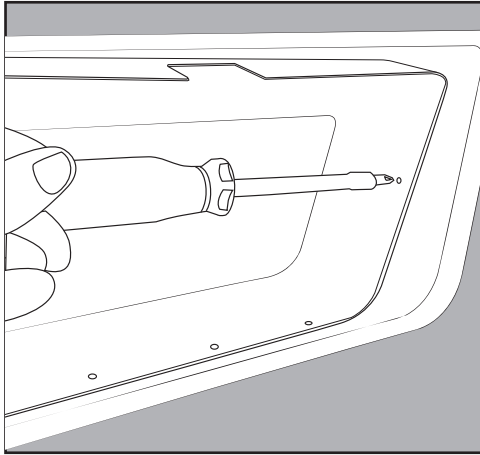


FIGURE 32

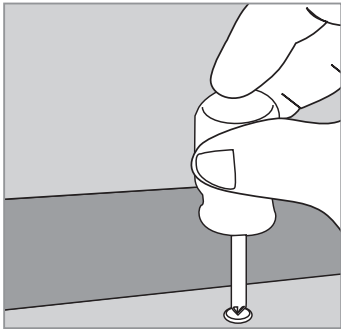
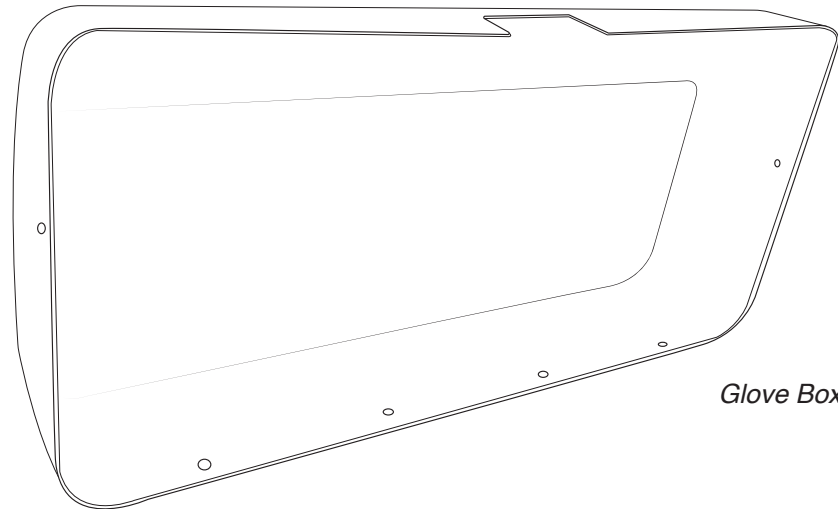


FIGURE 33

Locate the new glove box provided in kit. Install using original hardware (see figure 32-33).

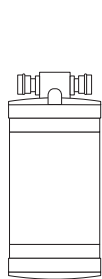
Caution: Carefully check under the instrument panel for all cables, electrical harness, or flex hose that might interfere with the safe operation of the vehicle. Make sure that you cycle the windshield wipers to insure proper clearance of mechanism.

*Glove Box Insert*

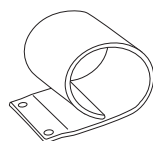
This completes the interior portion of the **Smart Series A/C** installation process. This is a good time to make a final check that all the controls still move freely and that nothing is loose or hanging down.

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

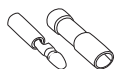
THESE ARE THE PARTS YOU WILL NEED FOR THE ENGINE COMPARTMENT INSTALLATION



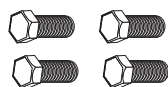
Drier



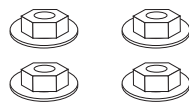
Drier Bracket

Splice and
Bullet Connector

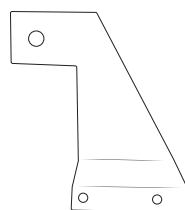
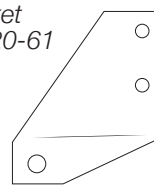
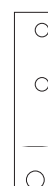
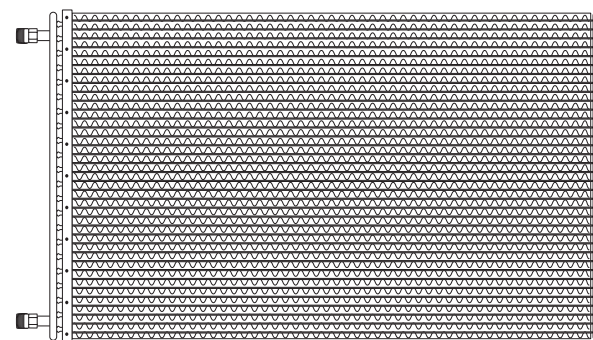
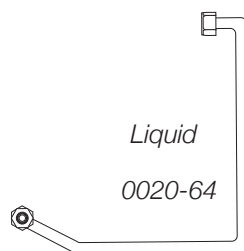
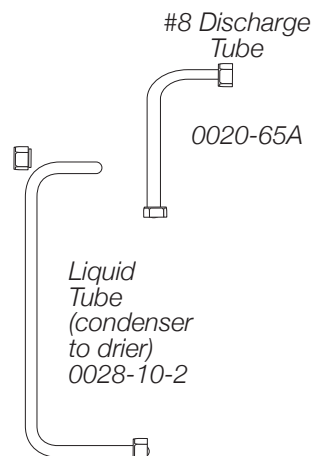
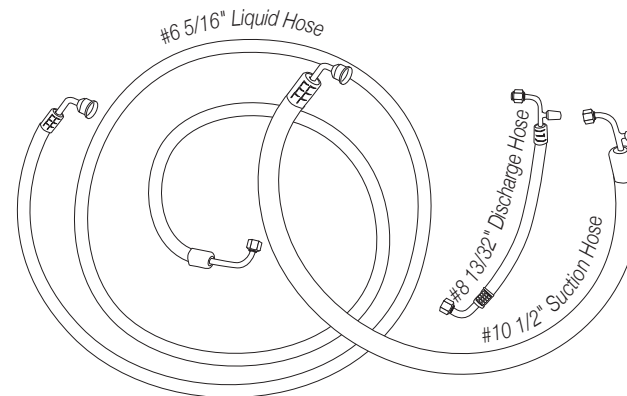
Ten #10 - 20 x 1/4" Screws



Four #1/4 x 5/8" Bolts

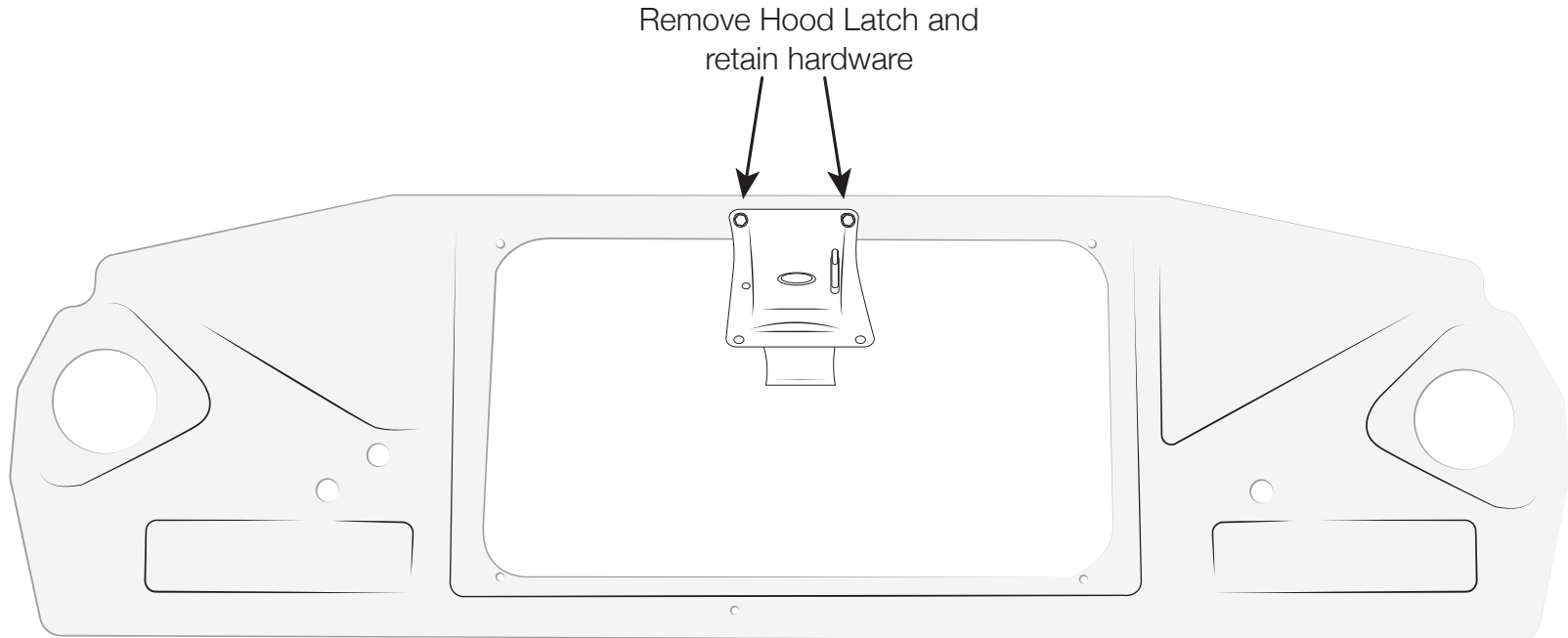


Four #1/4 Flange Nuts

Pressure Switch and harness,
Bag of O-rings and Mineral Oil TubeCondenser
Bracket
PN#0020-60Condenser
Bracket
PN#0020-61Two Washers
PN# 0020-66Condenser
Bracket
PN#0020-62Condenser
Bracket
PN#0020-63Condenser
PN#11-1042Liquid
0020-64Liquid
Tube
(condenser
to drier)
0028-10-2#8 Discharge
Tube
0020-65A

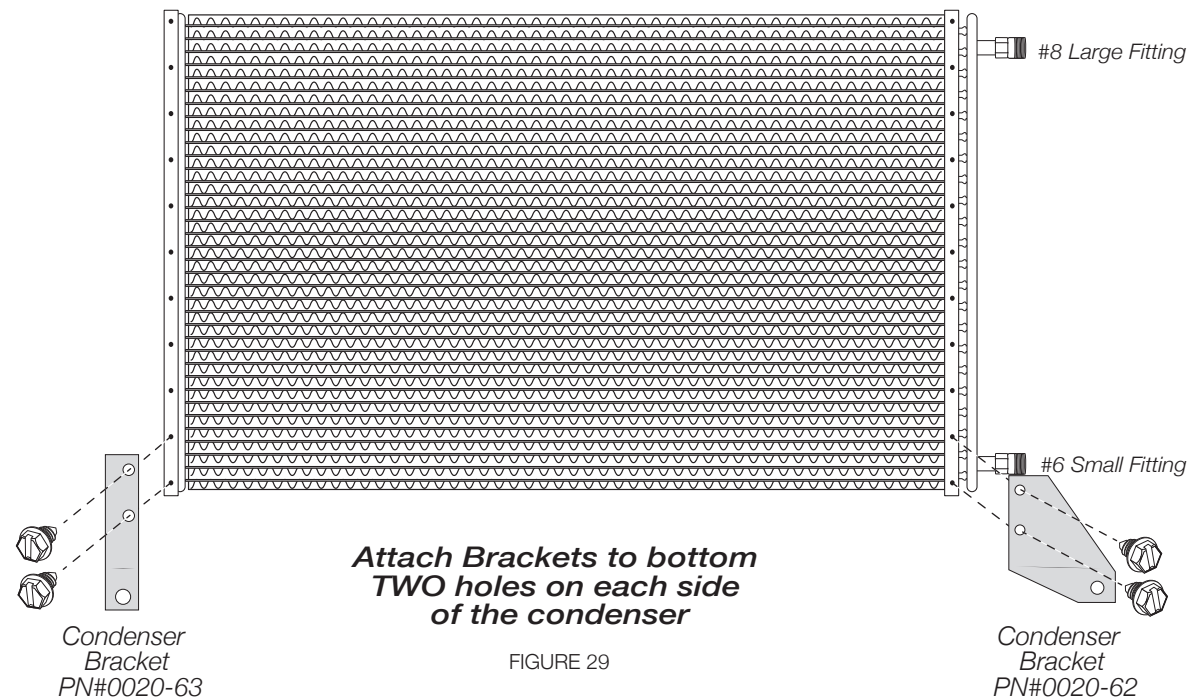
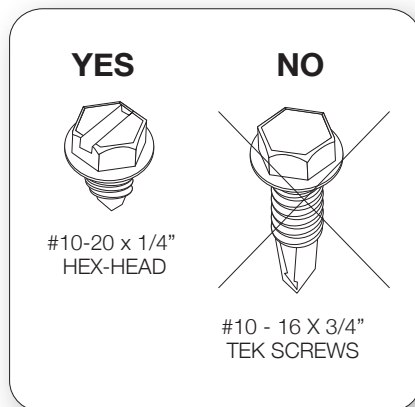
Three Refrigerant Hoses

At this time you will want to disconnect the battery and drain radiator. Remove the hood latch and retain the hardware for reinstallation.



CONDENSER PREPARATION. You can perform most of the following steps on a clean flat surface like a workbench. Lay the condenser down so that both hose connections are on the **RIGHT SIDE** (the larger connection will be on top).

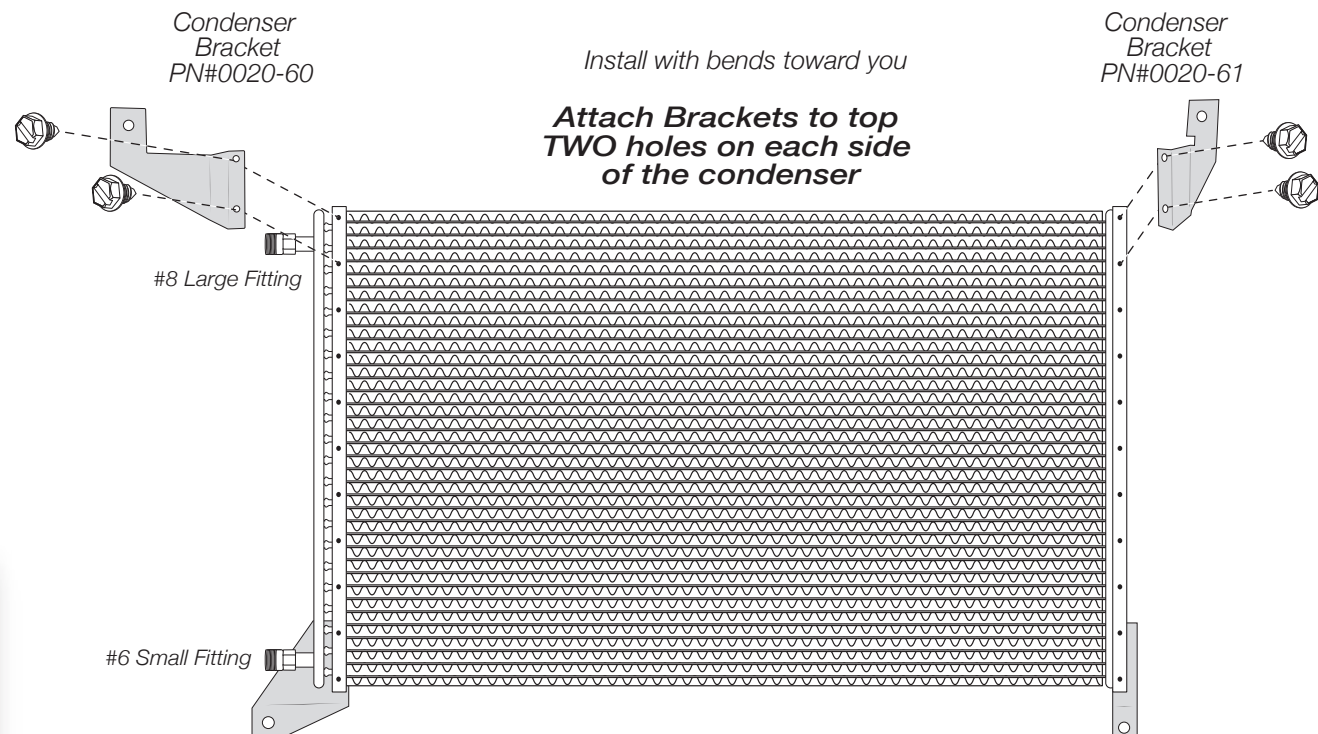
Locate condenser, Condenser Bracket PN#0020-62, Condenser Bracket PN#0020-63, and (4) #10 - 20 x 1/4" Screws. Attach brackets to the coil as shown.



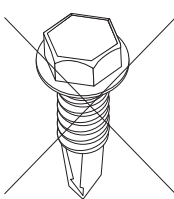
Install with bends toward you

CONDENSER PREPARATION. Lay the condenser down so that both hose connections are on the **LEFT SIDE** (the larger connection will be on top).

Locate condenser, Condenser Bracket PN#0020-60, Condenser Bracket PN#0020-61, and (4) #10 - 20 x 1/4" Screws. Attach brackets to the coil as shown.

**YES**

#10-20 x 1/4"
HEX-HEAD

NO

#10 - 16 X 3/4"
TEK SCREWS

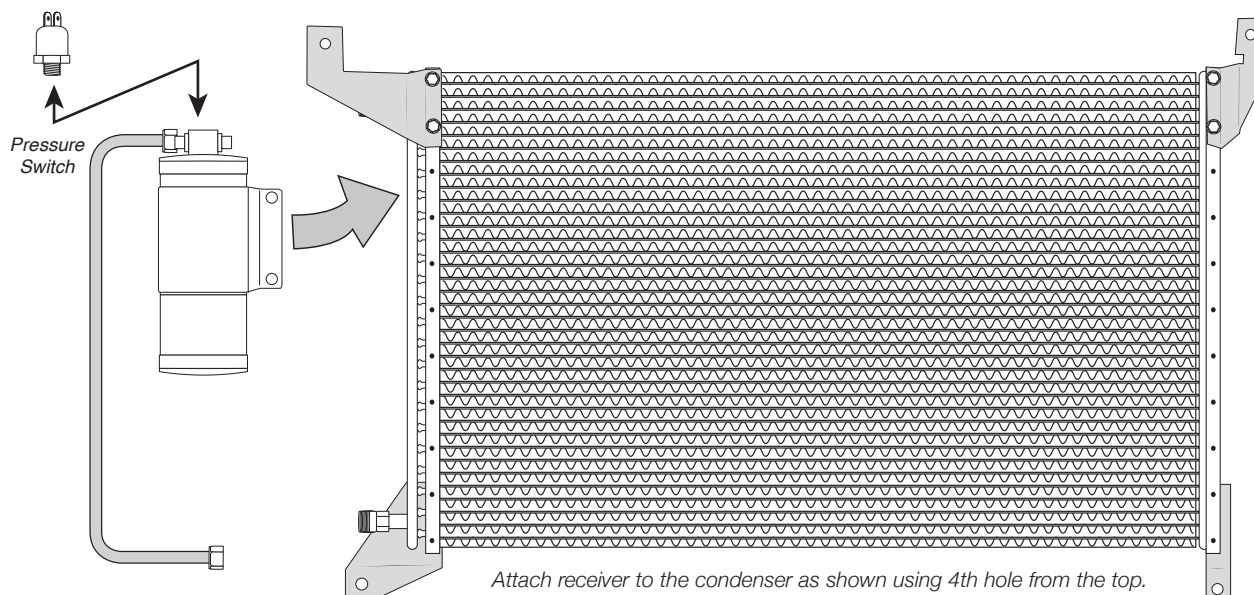
DRIER AND CONDENSER PREPARATION. Lay the condenser down so that both hose connections are on the **LEFT SIDE** (the larger connection will be on top). The drier is conveniently mounted on the left hand side of the condenser.

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).



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

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



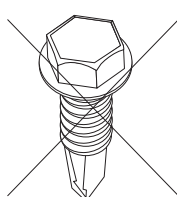
Attach receiver to the condenser as shown using 4th hole from the top.
Use a few drops of mineral oil at the o-ring connections.

YES



#10-20 x 1/4"
HEX-HEAD

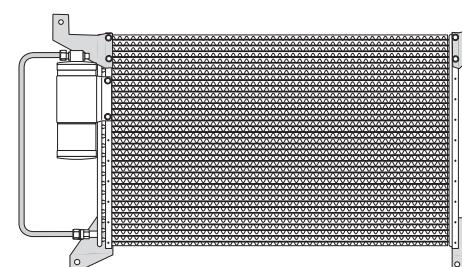
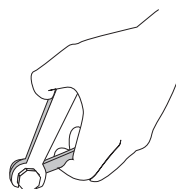
NO

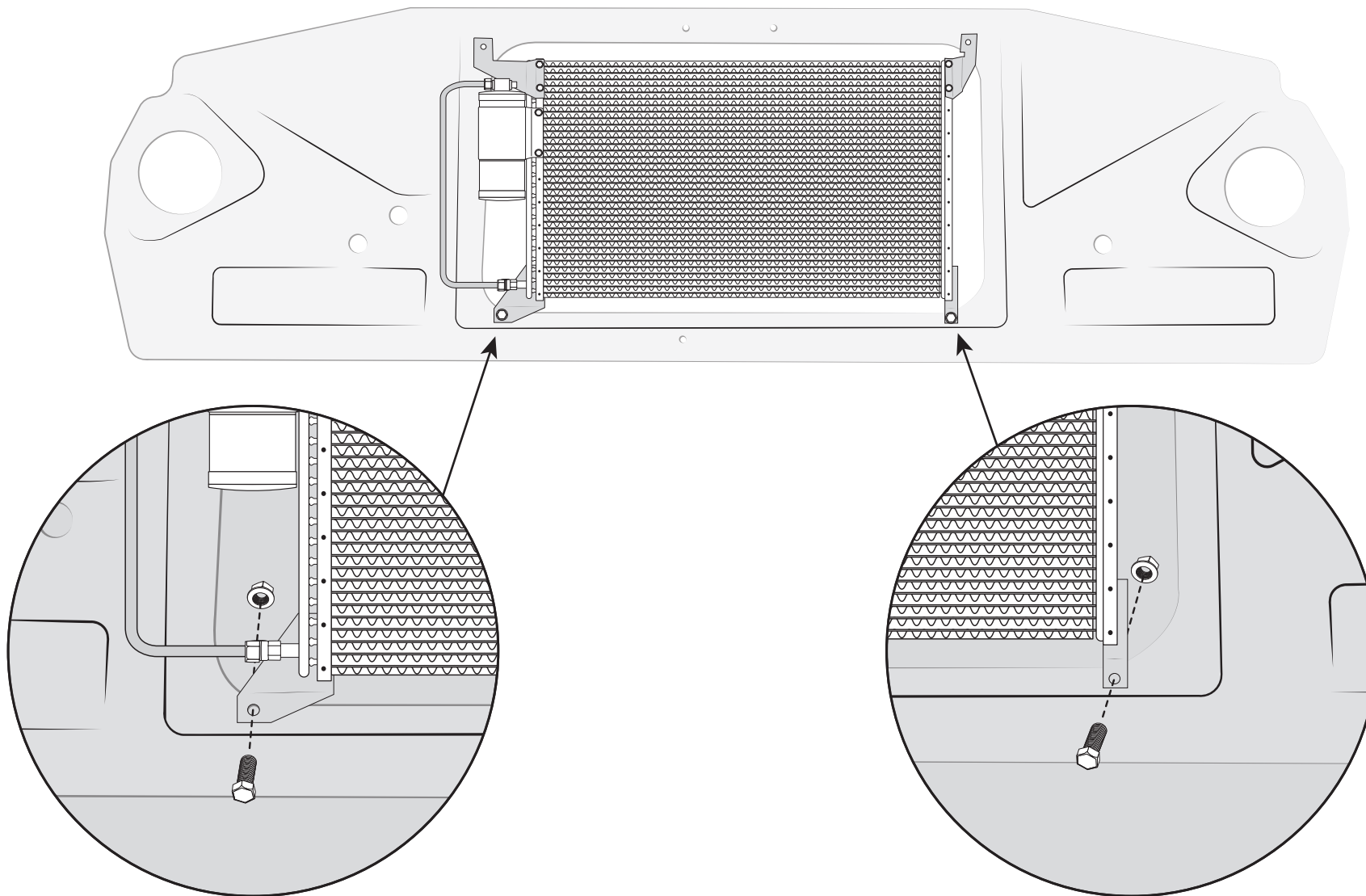


#10 - 16 X 3/4"
TEK SCREWS



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



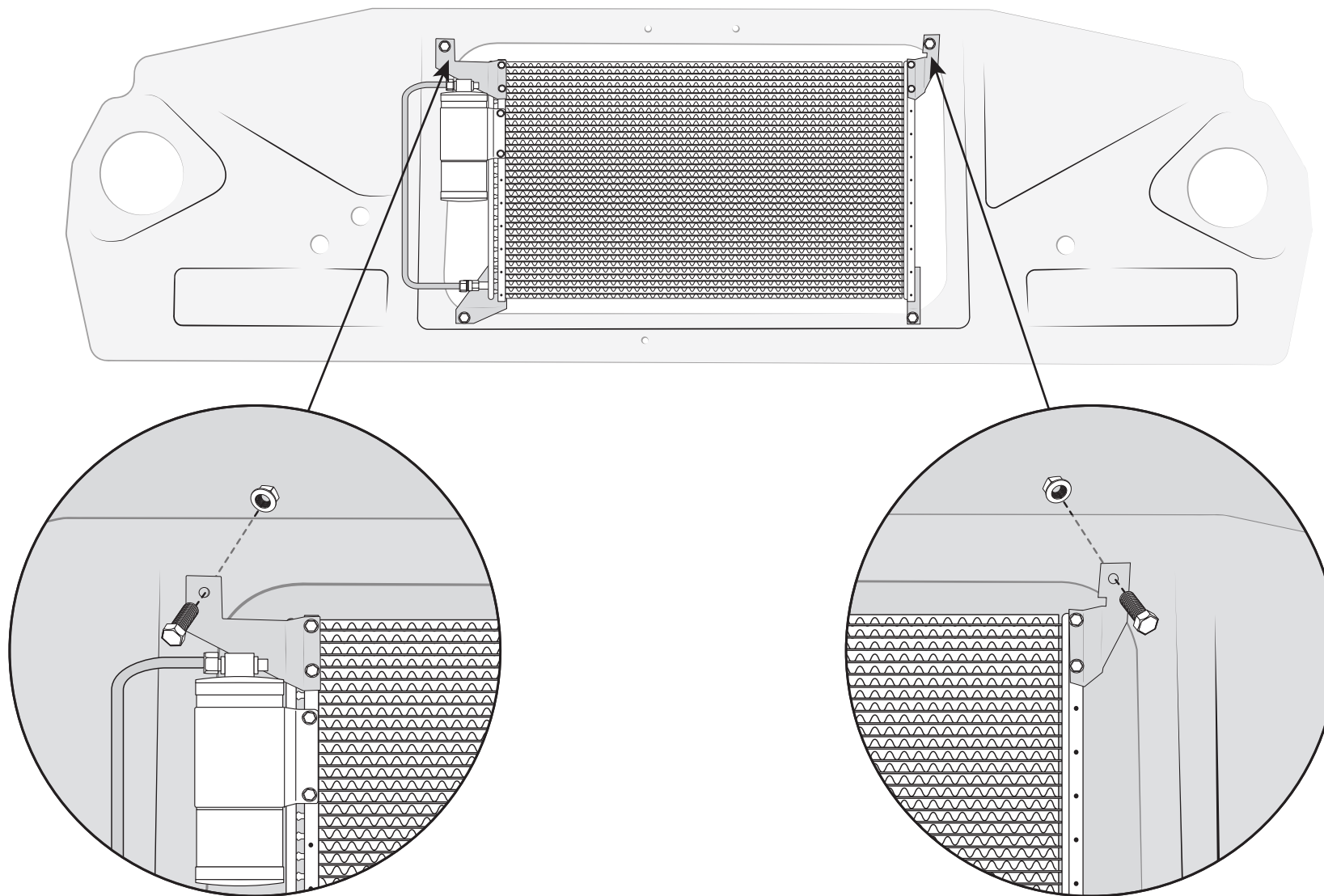


Locate the Passenger lower mounting bracket, (1) ¼"-20 x 5/8" hex head screw, and (1) ¼"-20 flange nut. Attach to the condenser and core support as shown.

Leave loose for mockup.

Locate Drivers lower mounting bracket, (1) ¼"-20 x 5/8" hex head screw, and (1) ¼"-20 flange nut. Attack bracket to the condenser and core support as shown.

Leave loose for mockup.

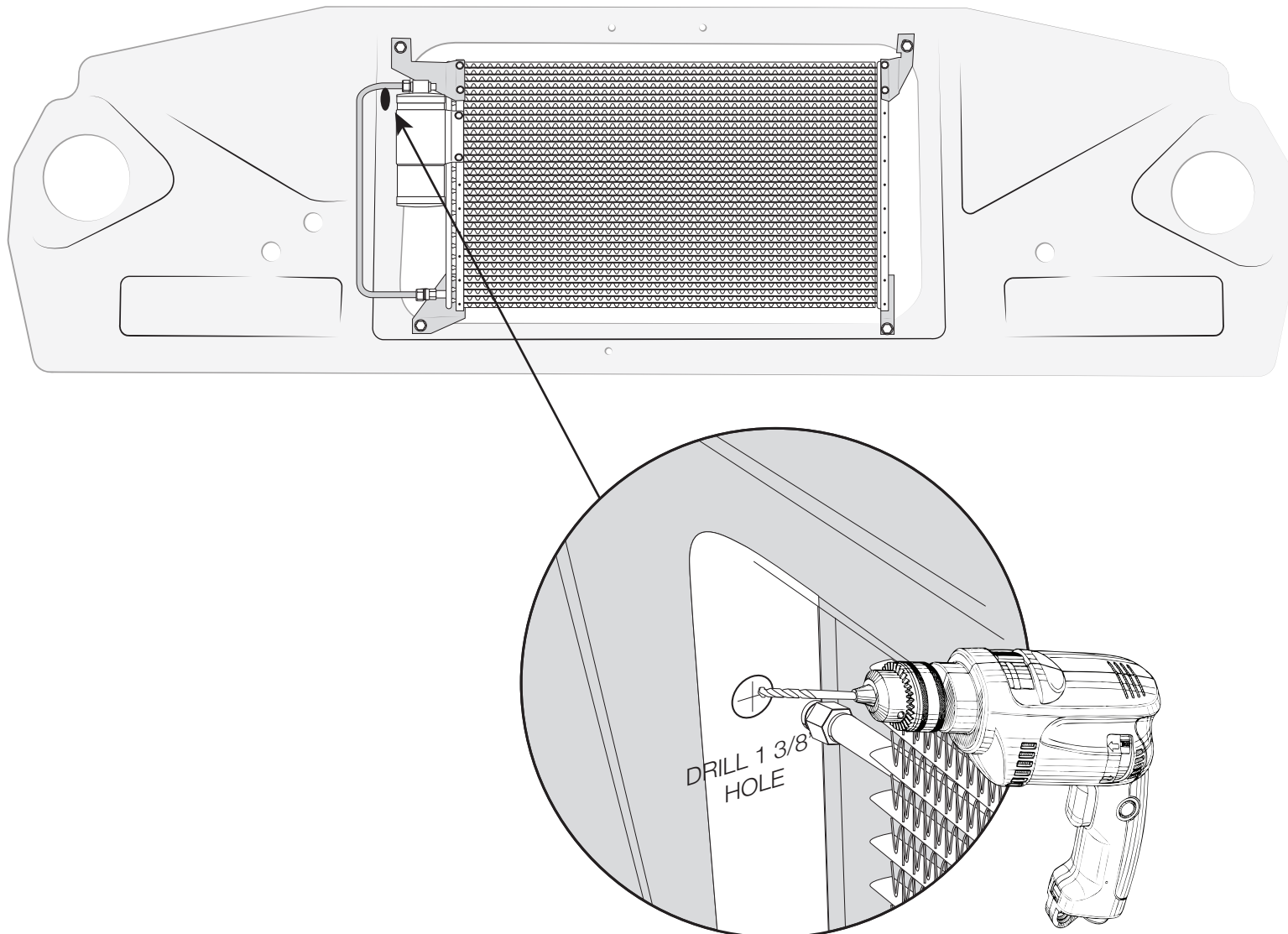


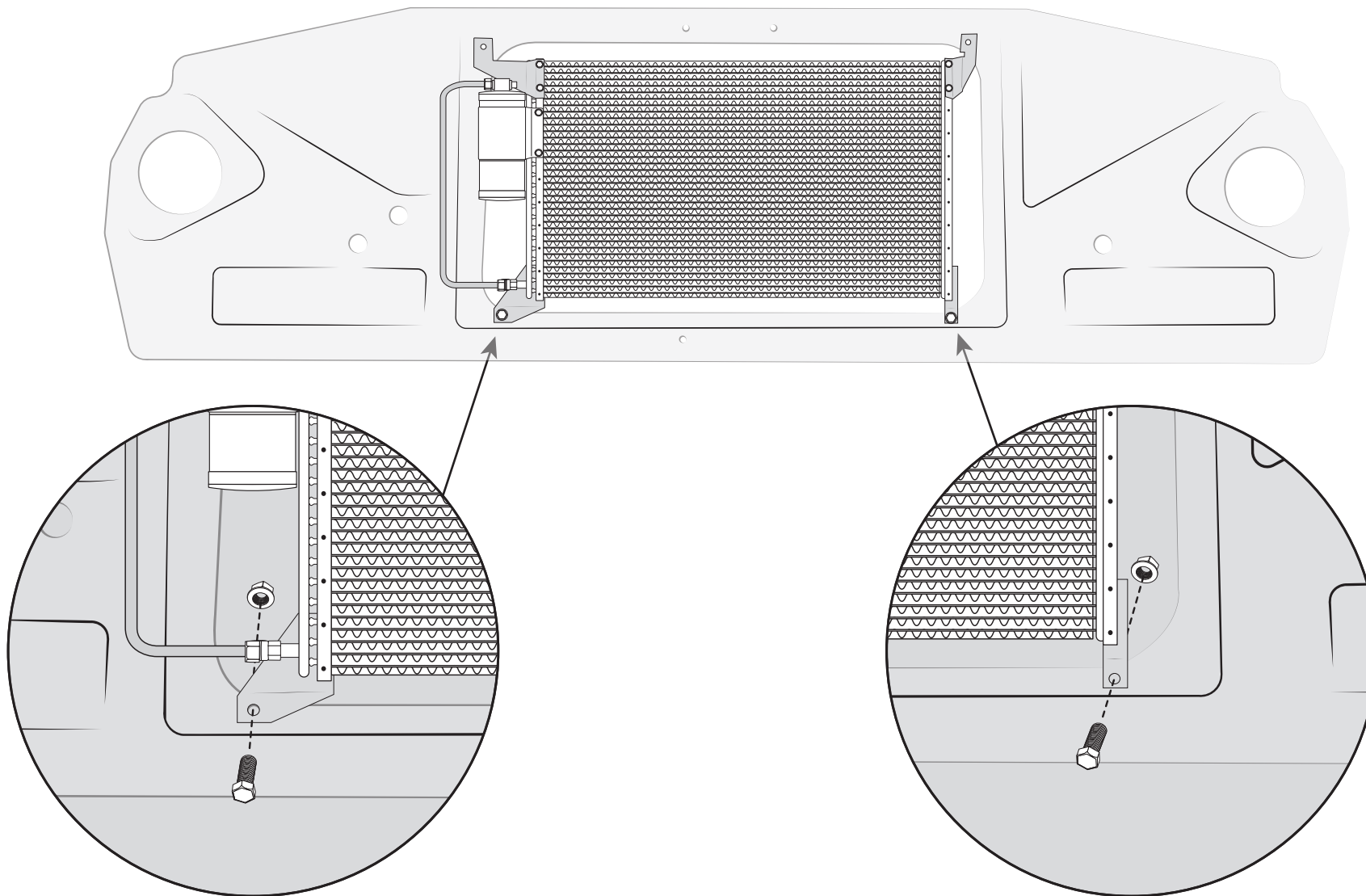
Locate the passenger upper mounting bracket, (2) #10 x ½" hex head screw, (1) ¼"-20 x 5/8" hex head screw, and (1) ¼"-20 flange nut. Attach to the condenser and core support as shown. **Leave loose for mockup.**

Locate upper drivers mounting bracket, (2) #10 x ½" hex head screws, (1) ¼"-20 x 5/8" hex head screw, and (1) ¼"-20 flange nut. Attach bracket to the condenser and core support as shown. **Leave loose for mockup.**

It is necessary to drill a 1 3/8" (*one and three eights*) hole directly in line with the upper #8 large tube connection.

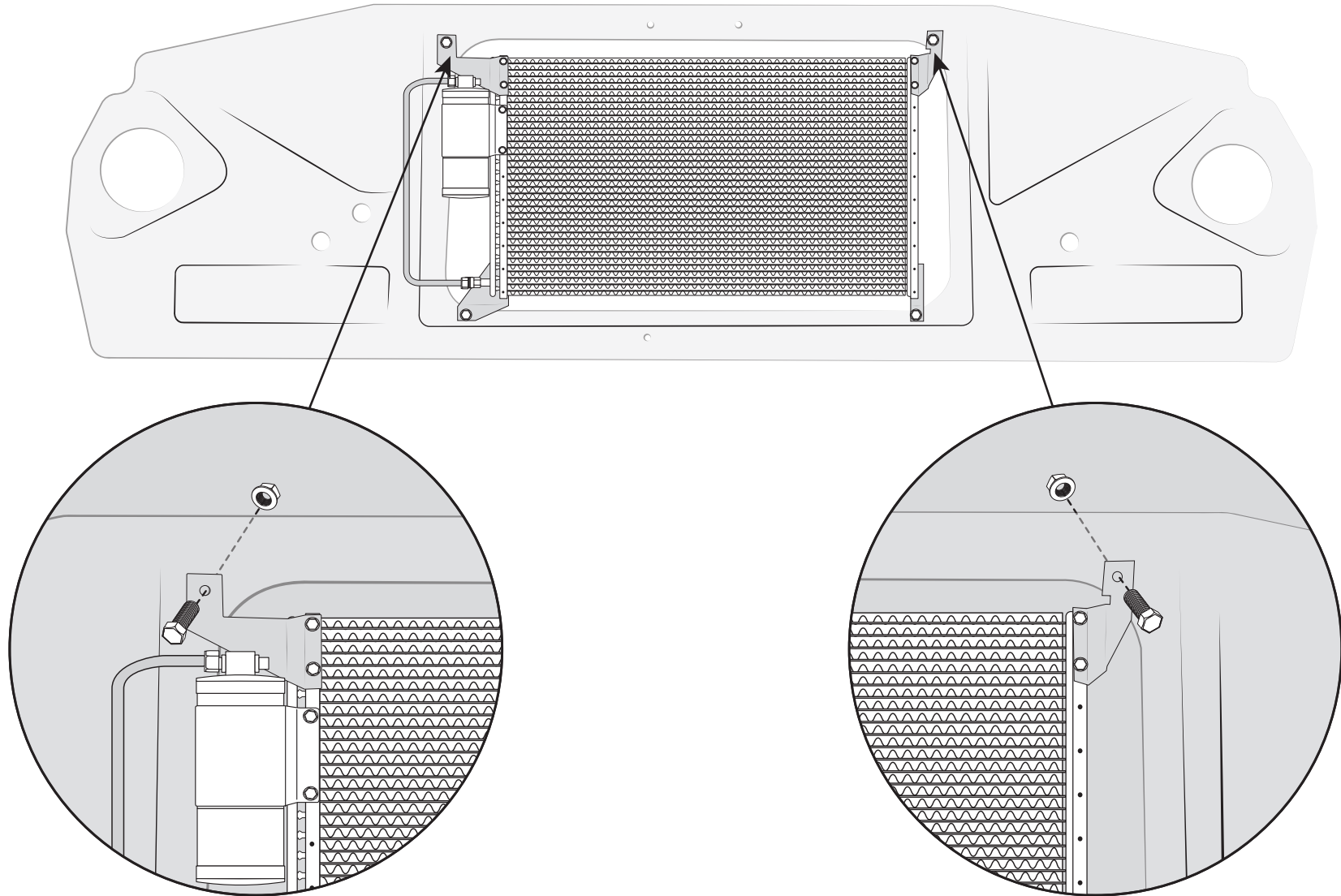
Place condenser in place and locate the hole. Remove condenser assembly and drill hole.





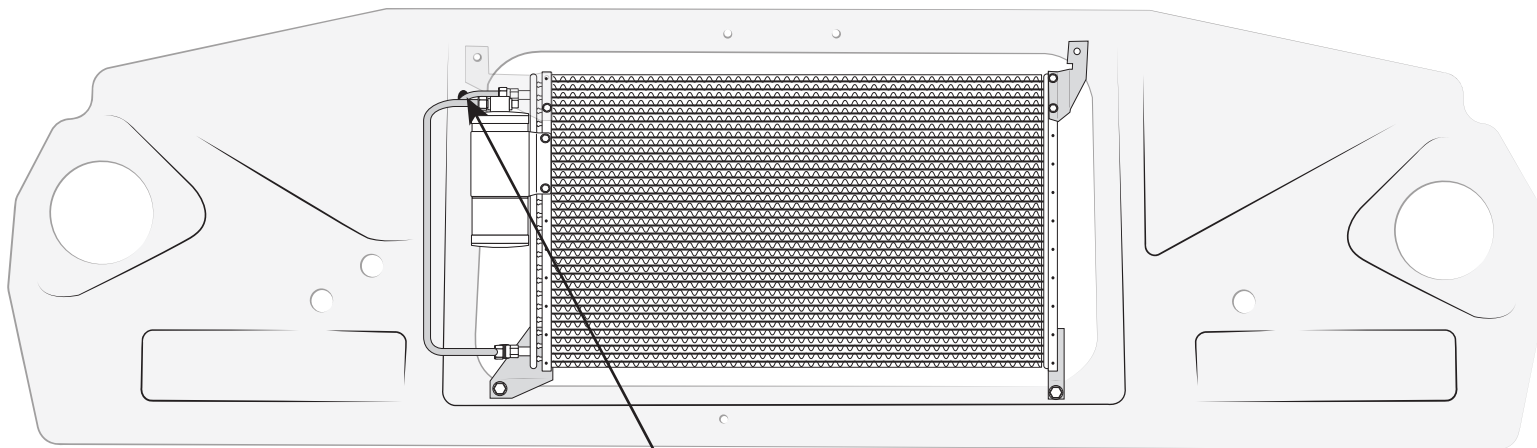
Locate the Passenger lower mounting bracket, (1) ¼"-20 x 5/8" hex head screw, and (1) ¼"-20 flange nut. Attach to the condenser and core support as shown. Tighten securely.

Locate Drivers lower mounting bracket, (1) ¼"-20 x 5/8" hex head screw, and (1) ¼"-20 flange nut. Attack bracket to the condenser and core support as shown. Tighten securely.



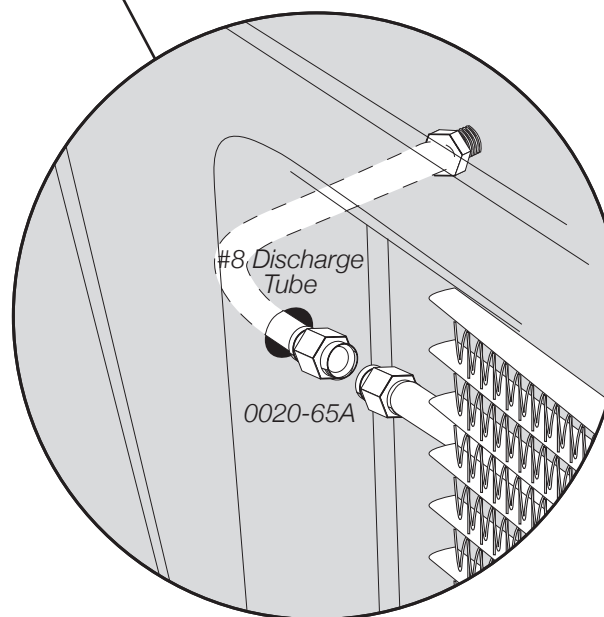
Locate the passenger upper mounting bracket, (1) ¼"-20 x 5/8" hex head screw, and (1) ¼"-20 flange nut. Attach to the condenser and core support as shown. Tighten securely.

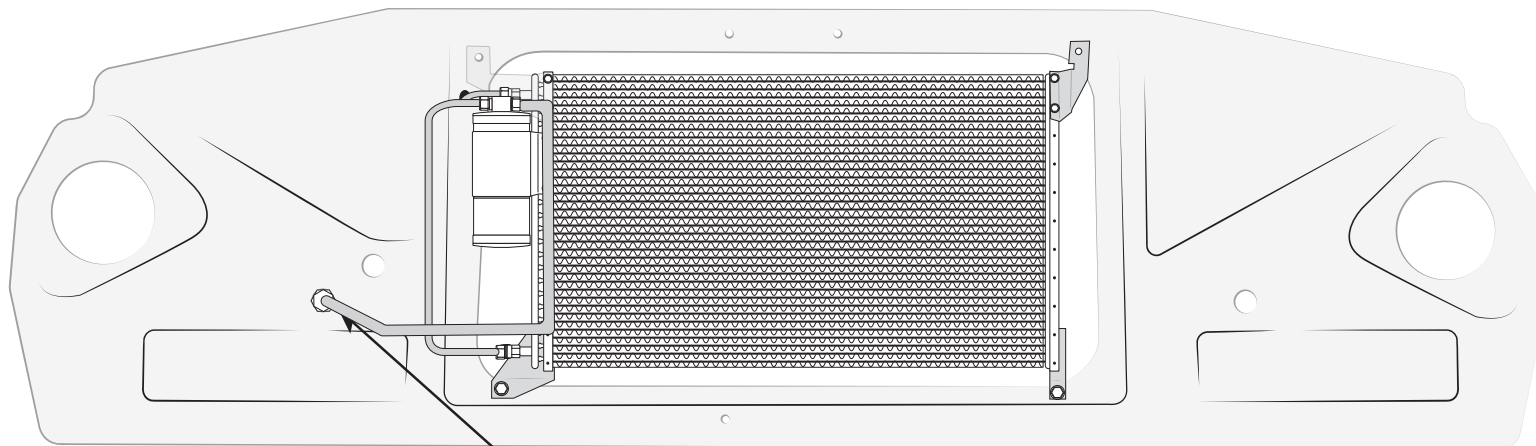
Locate upper drivers mounting bracket, (1) ¼"-20 x 5/8" hex head screw, and (1) ¼"-20 flange nut. Attach bracket to the condenser and core support as shown. Tighten securely.



Locate #8 discharge tube pn# 0020-65A and (1) #8 oring.

Insert tube between battery radiator, Then through the 1 3/8" hole you drilled and attach to the (1) #8 o-ring and a few drops of mineral oil.

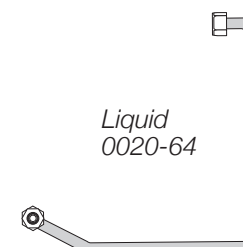
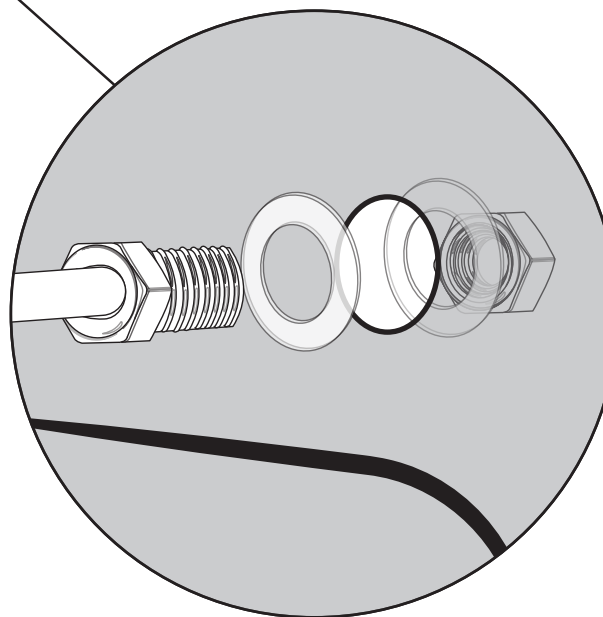




Locate #6 liquid tube pn# 0020-64 and (1) #6 oring.

Insert tube behind and under battery box attach to the (1) #6 o-ring and a few drops of mineral oil.

Washers will hold #6 liquid tube pn# 0020-64 in place by tightening nuts against core support.



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:

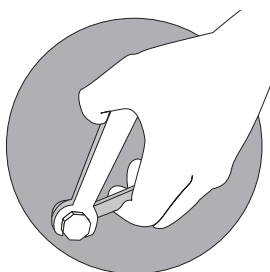
Based on PASSENGER or DRIVERS SIDE compressor mounting see illustrations for routing.

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.

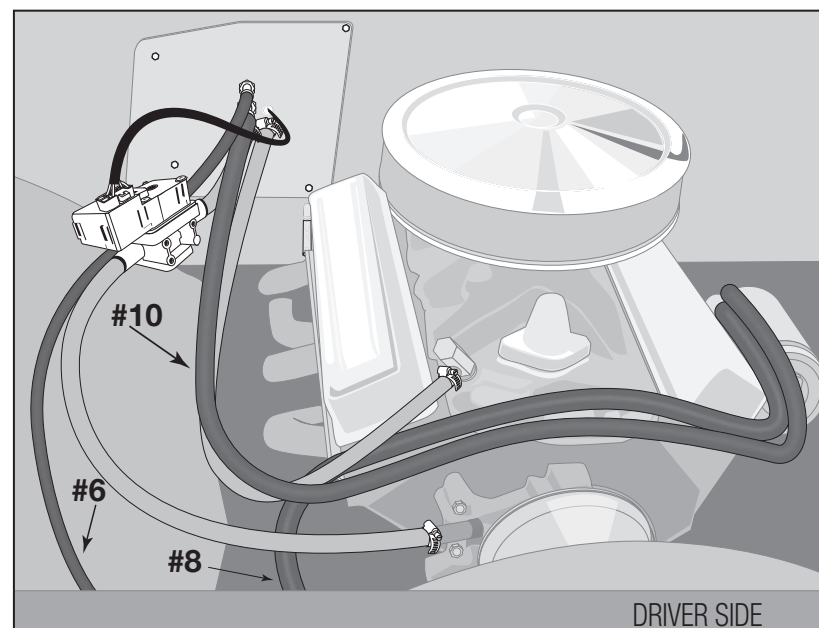
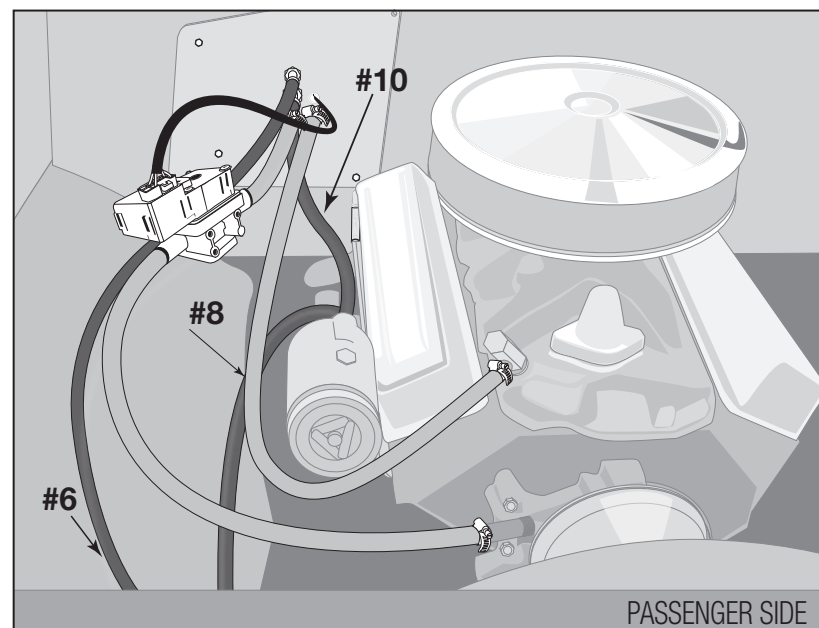
The #6 (**SMALLEST**) refrigerant hose. Route behind fender and to the connection on firewall. Attach using two #6 o-ring and a few drops of mineral oil.

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



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

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

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



- 1) Your radiator/cooling system is an integral part of your new system. Please insure that you have a 50/50 mix of distilled water and antifreeze. The heater coil **MUST** be purged (cycle heater control valve) to make sure no water, without antifreeze, is in the heater coil before you charge the A/C system.
- 2) Evacuate the system for 45 minutes (minimum).
- 3) **Your new compressor MUST be hand-turned 15-20 revolutions before and after charging with liquid. Failure to do this may cause the reed valves to become damaged** (this damage is NOT covered by your warranty).
- 4) Your new system requires 134a refrigerant. It will require 1.5 lbs (or 24 oz).
- 5) Your new compressor comes charged with oil - NO additional oil is needed.
- 6) Insure that the new belt is tight.
- 7) **DO NOT CHARGE SYSTEM WITH LIQUID REFRIGERANT!**

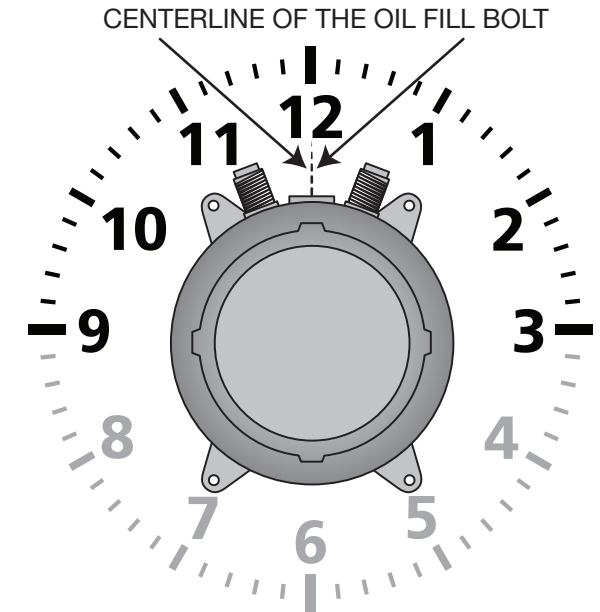
RECOMMENDED TEST CONDITIONS: (After system has been fully charged and tested for basic operation)

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

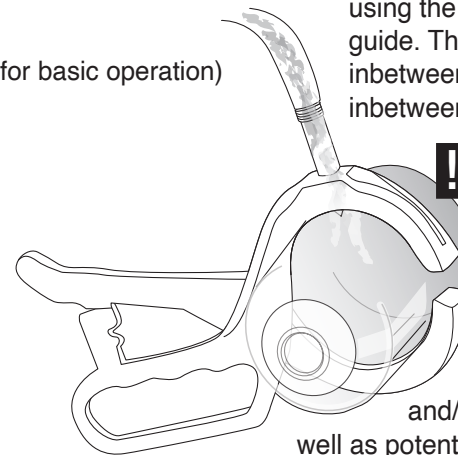
ACCEPTABLE OPERATING PRESSURE RANGES:

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

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



CAUTION! When mounting your compressor and/or adjusting the belt use caution. Mount by using the centerline of the oil fill plug as your guide. The compressor can **ONLY** be mounted inbetween the 9 to 3 positions. **DO NOT** mount inbetween the 4 to 8 positions.



Do NOT tilt, shake or turn refrigerant can upside-down OR use a charging station to install refrigerant while the engine is running. Doing so will direct liquid refrigerant into the compressor piston chamber, causing damage to reed valves and/or pistons and/or other components, as well as potentially seizing the compressor. Allow a minimum of 30 minutes for liquid to "boil off." You must hand turn the compressor hub (not the pulley) a minimum of 15 complete revolutions prior to starting the engine with the clutch engaged.

as well as potentially seizing the compressor. Allow a minimum of 30 minutes for liquid to "boil off." You must hand turn the compressor hub (not the pulley) a minimum of 15 complete revolutions prior to starting the engine with the clutch engaged.

TROUBLESHOOTING GUIDE

TEST CONDITIONS USED TO DETERMINE SYSTEM OPERATION

(THESE TEST CONDITIONS WILL SIMULATE THE AFFECT OF DRIVING THE VEHICLE AND GIVE THE TECHNICIAN THE THREE CRITICAL READINGS THAT THEY WILL NEED TO DIAGNOSE ANY POTENTIAL PROBLEMS).

- B. CONNECT GAUGES OR SERVICE EQUIPMENT TO HIGH/LOW CHARGING PORTS.
- C. PLACE BLOWER FAN SWITCH ON MEDIUM.
- D. CLOSE ALL DOORS AND WINDOWS ON VEHICLE.
- E. PLACE SHOP FAN IN FRONT OF CONDENSER.
- F. RUN ENGINE IDLE UP TO 1500 RPM.

ACCEPTABLE OPERATING PRESSURE RANGES (R134A TYPE)

- 1. HIGH-SIDE PRESSURES (150-275 PSI) **Note- general rule of thumb is two times the ambient (daytime) temperature, plus 15-20%.*
- 2. LOW-SIDE PRESSURES (10-25 PSI in a steady state).

CHARGE AS FOLLOWS: R134A = 24 OZ.
NO ADDITIONAL OIL IS NECESSARY IN OUR NEW COMPRESSORS.

TYPICAL PROBLEMS ENCOUNTERED IN CHARGING SYSTEMS

NOISY COMPRESSOR. A noisy compressor is generally caused by charging a compressor with liquid or overcharging

- A. If the system is overcharged both gauges will read abnormally high readings. This is causing a feedback pressure on the compressor causing it to rattle or shake from the increased cylinder head pressures. System must be evacuated and re-charged to exact weight specifications.
- B. Heater control valve installation - Installing the heater control valve in the incorrect hose. Usually when this occurs the system will cool at idle then start to warm up when raising the RPM's of the motor. THE HEATER CONTROL IS A DIRECTIONAL VALVE; MAKE SURE THE WATER FLOW IS WITH THE DIRECTION OF THE ARROW. As the engine heats up that water transfers the heat to the coil, thus overpowering the a/c coil. A leaking or

faulty valve will have a more pronounced affect on the unit's cooling ability. Installing the valve improperly (such as having the flow reversed) will also allow water to flow through, thus inhibiting cooling. Check for heat transfer by disconnecting hoses from the system completely. By running down the road with the hoses looped backed through the motor, you eliminate the possibility of heat transfer to the unit.

- C. Evaporator freezing - Freezing can occur both externally and internally on an evaporator core. External freeze up occurs when the coil cannot effectively displace the condensation on the outside fins and the water forms ice (the evaporator core resembles a block of solid ice), it restricts the flow of air that can pass through it, which gives the illusion of the air not functioning. The common cause of external freezing is the setting of the thermostat and the presence of high humidity in the passenger compartment. All door and window seals should be checked in the event of constant freeze-up. A thermostat is provided with all units to control the cycling of the compressor.
- D. Internal freeze up occurs when there is too much moisture inside the system. The symptoms of internal freeze up often surface after extended highway driving. The volume of air stays constant, but the temperature of the air gradually rises. When this freezing occurs the low side pressure will drop, eventually going into a vacuum. At this point, the system should be checked by a professional who will evacuate the system and the drier will have to be changed.
- E. Inadequate airflow to condenser - The condenser works best in front of the radiator with a large supply of fresh air. Abnormally high pressures will result from improper airflow. Check the airflow requirements by placing a large capacity fan in front of the condenser and running cool water over the surface. If the pressures drop significantly, this will indicate the need for better airflow.
- F. Incorrect or inadequate condenser capacity - Incorrect condenser capacity will cause abnormally high head pressures. A quick test that can be performed is to run cool water over the condenser while the system is operating, if the pressures decrease significantly, it is likely a airflow or capacity problem.
- G. Expansion valve failure - An expansion valve failure is generally caused by dirt or debris entering the system during assembly. If an expansion valve fails it will be indicated by abnormal gauge readings. A valve that is blocked will be indicated by high side that is unusually high, while the low side will be unusually low or may even go into a vacuum. A valve that is stuck open will be indicated by both the high and low pressures rising to unusually high readings, seeming to move toward equal readings on the gauges.
- H. Restrictions in system - A restriction in the cooling system will cause abnormal readings on the gauges. A high-side restriction (between the compressor and the drier inlet) will be indicated by the discharge gauges reading excessively high. These simple tests can be performed by a local shop and can help determine the extent of the systems problem.

Trouble Shooting Your Classic Auto Air A/C System

PROBLEM: system is not cooling properly

ISSUE: cold at idle, warmer when raising engine RPM's

Make sure the Water Valve is positioned correctly

The water valve is a directional valve and should be installed with the arrow pointing towards the water pump, it should be connected to the heater hose that runs from the heater core to the water pump. If the water valve is connected to the incorrect hose it allows water to circulate through the system via the heater core over powering the cooling effect of the A/C coil, (normally the air conditioning is functioning properly).

Step 1: Check placement of the water valve, correct if needed. (In some cases changing the location of the water valve may not fix the above problem.) Continue to next step.

Step 2 If changing the location of the water valve does not rectify the issue, then possibly the water valve is permanently damaged and may need to be replaced. To check the integrity of the water valve completely remove the water hoses for the heater core and "loop" together. (This will remove the heater system completely from the possibilities) If the system now cools, replace the water valve

Verify Adequate Air Flow to Condenser

For an air conditioning system to function properly there has to be adequate airflow across the condenser. The function of the condenser is to dissipate heat, without proper airflow your system will not cool correctly in the cabin of your vehicle.

Step 1: connect gauges to a/c hoses. The pressures should be: with the ambient temp is 90, low side pressures should be between 10-25 psi, high side pressures should be between 150-275 psi

Step 2: IF the low side pressures are normal and the high side pressures are high then there might be an airflow issue, continue to next step.

To test air flow to Condenser do the following three tests:

1. Place a piece of paper on the condenser with the car in idle and see if paper is held in place.
2. With car in idle, attach gages, and place a large capacity fan in front of

the condenser. What happens to the pressures?

3. With car still in idle and gages attached, pour water down the front of the condenser. What happens to the pressures?

If the paper is held in place you are at least getting some air flow. If the high side decreases during test 2 & 3 then your condenser is not getting enough air which is causing your system to not cool properly. To correct this issue you will need a more powerful mechanical fan.

Step 3: Confirm correct Refrigerant charge in System

All of our systems should be charged with 24 oz or 1.5 lbs of R134A Refrigerant only. If overcharged you will need to evacuate the system and recharge with the correct amount.*

What measurements mean:

Low Temp and High Pressure seem to be equal...

You have a malfunctioning expansion valve that is stuck open.

High Side is extremely high and Low Side is extremely low (possibly into vacuum)...

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

*Compressor Concerns:

This is often misdiagnosed as a problem for the system not cooling properly. If you have a noisy compressor it is due to improper charging of refrigerant. An overcharged (more than 24 oz or 1.5 lbs R134A) compressor can cause rattling. If charged with pure liquid there is a high probability you have bent reed valves that are causing tapping sound.

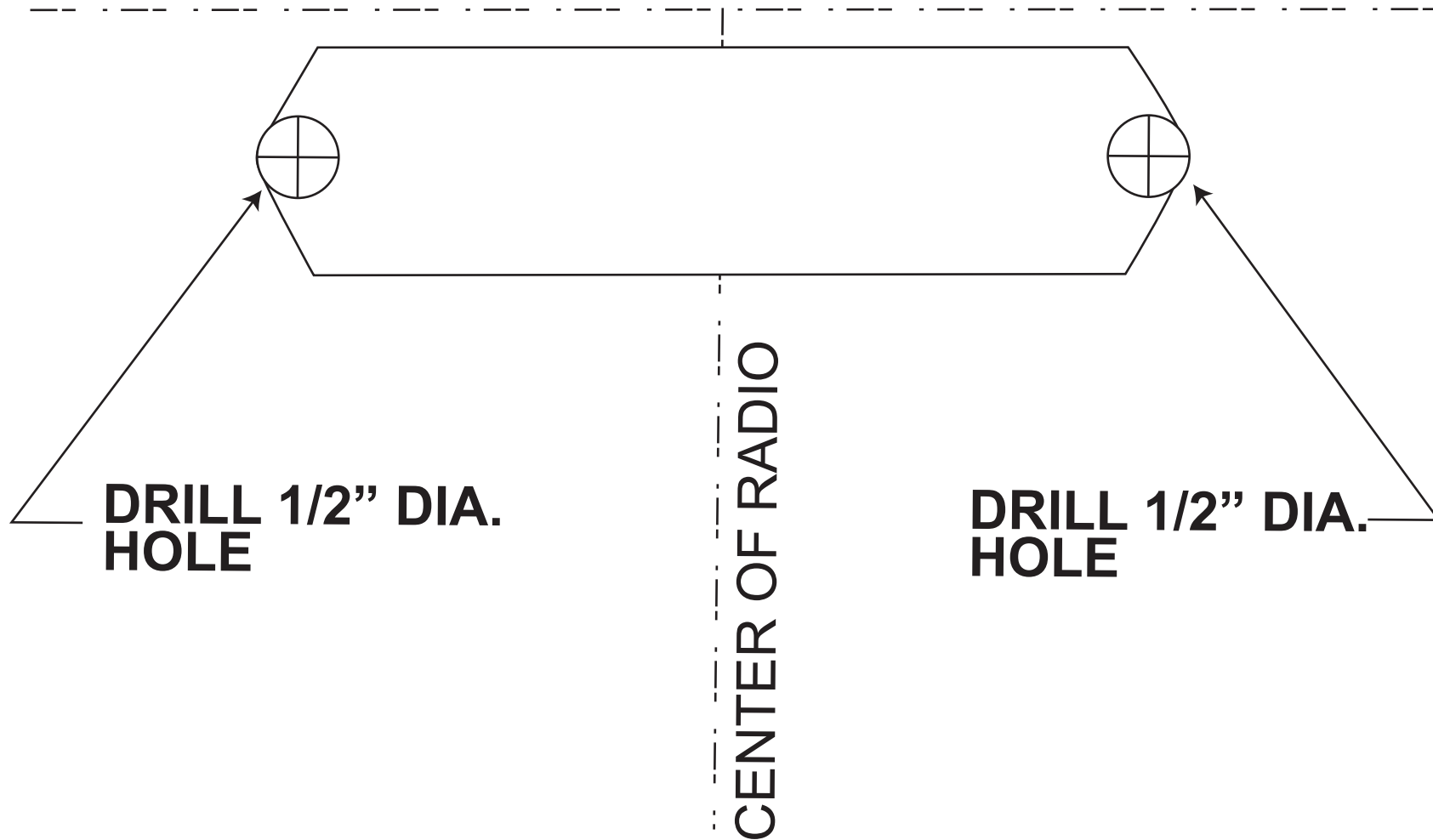
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