

Installation Manual

***1947- Early 1955 Chevrolet Pickup
1947-55 Suburban, Panel Delivery Truck***

DOCUMENT #20-3029

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Congratulations...

You have just purchased the highest quality, best performing A/C system ever designed for your Chevrolet Pickup, Suburban, Panel Delivery Truck.

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 During the installation you might find the opportunity to repair or upgrade non-working or out of date components.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

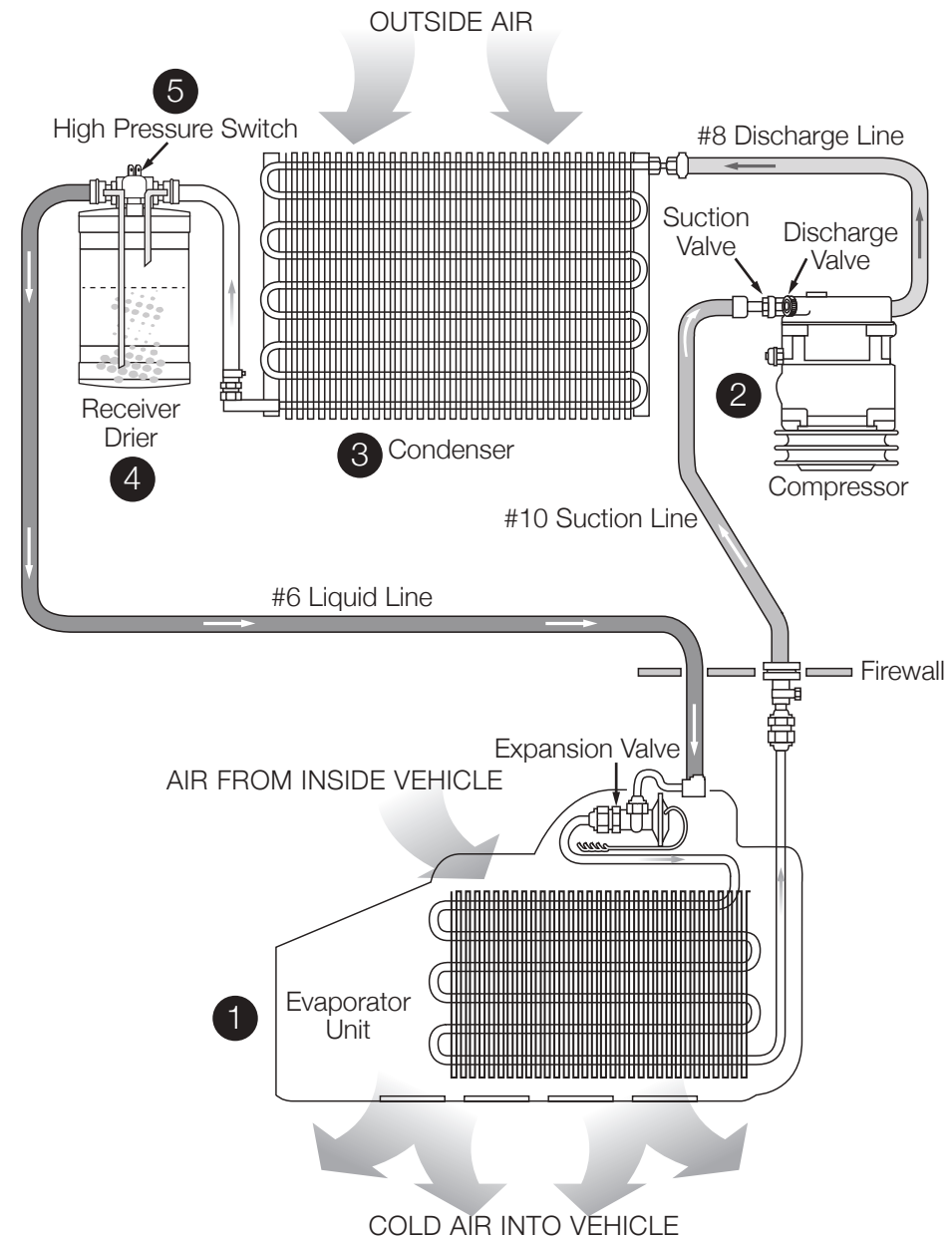
- ☐ Fittings: Use one or two drops of mineral oil (supplied with your kit) on ALL rubber o-rings, threads and where o-rings seat in fittings. Do not use thread tape or sealants.
- ☐ Measure twice (or more), cut once
- ☐ **Should you have any technical questions, or feel you have defective components (or missing items), call us immediately, we will be glad to assist you.**

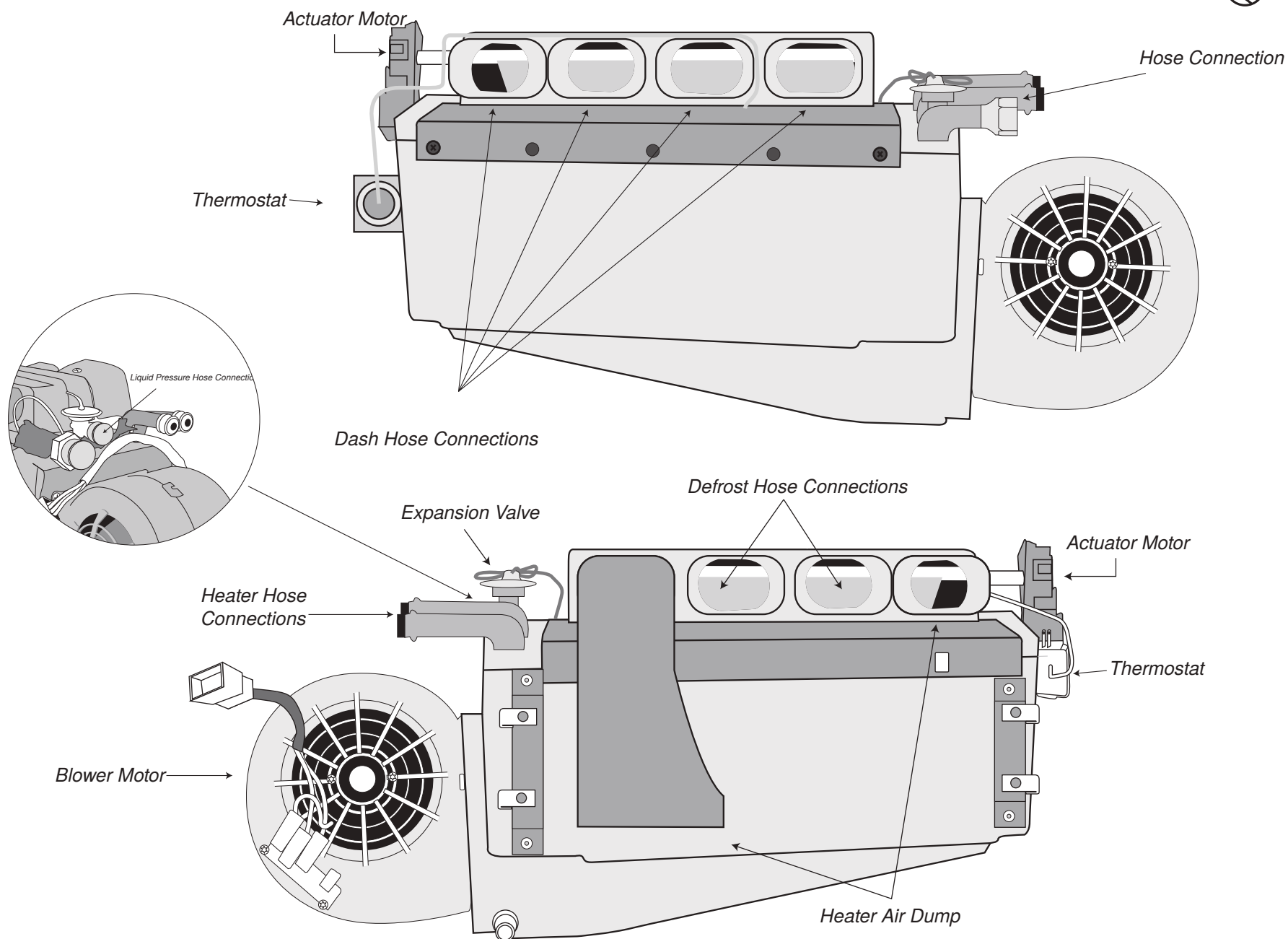
YOU CAN NOW BEGIN THE INSTALLATION...

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

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

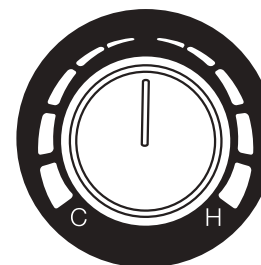
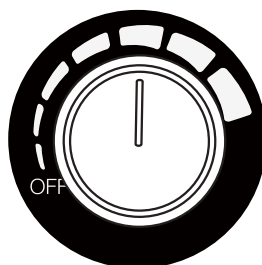
The air conditioning system in your vehicle is comprised of a compressor, condenser, expansion valve, receiver/drier, and evaporator. Refrigerant (also known as Freon) is compressed in the compressor. In the condenser, gas is cooled to a liquid state and travels to the expansion valve. As the liquid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





Control & Operating Instructions

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



FAN	POSITON	MODE			VALVE POSTION	
SPEED		DASH	DEFROST/FLOOR	COMPRESSOR	HEATER VALVE	COMPRESSOR
0%	1	100%	0%	ON	CLOSED - COLD	ON
10%	2	90%	10%	ON	VARIABLE	ON
20%	3	80%	20%	ON	VARIABLE	ON
30%	4	70%	30%	ON	VARIABLE	ON
40%	5	60%	40%	ON	VARIABLE	ON
50%	6	50%	50%	ON	VARIABLE	ON
60%	7	40%	60%	ON	VARIABLE	ON
70%	8	30%	70%	ON	VARIABLE	ON
80%	9	20%	80%	ON	VARIABLE	ON
90%	10	10%	90%	ON	VARIABLE	ON
100%	11	0%	100%	ON	OPEN - HOT	OFF

OPERATION

• Steps 1 thru 3

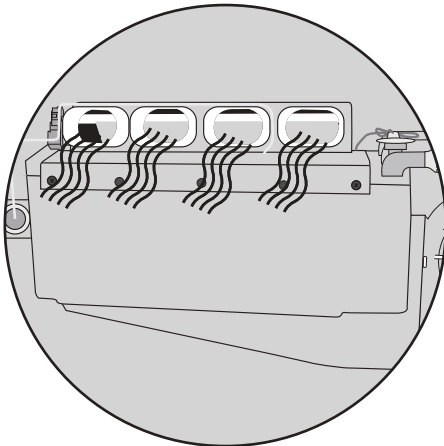
1



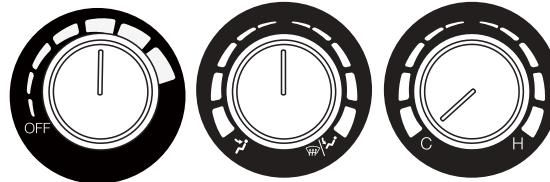
Move FAN knob to HIGH
Move MODE knob to DASH



AIR OUT OF DASH VENTS



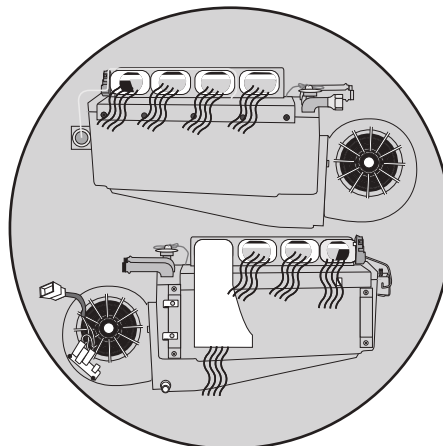
2



Move MODE knob to UP



AIR OUT OF ALL VENTS
(50/50)



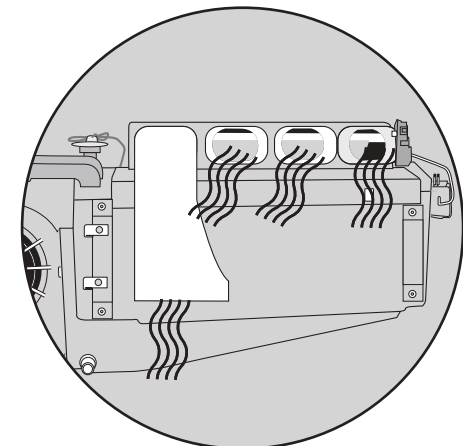
3



Move MODE knob to FLOOR/DEFROST



AIR OUT OF FLOOR/DEFROST VENTS



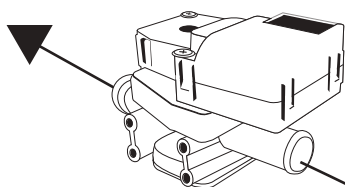
OPERATION

• Steps 4 and 5

4



Move TEMP knob to HOT

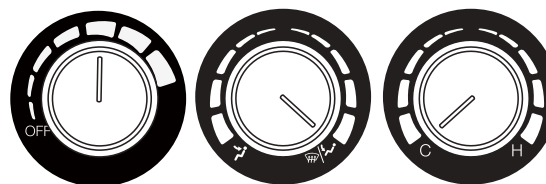


OPEN

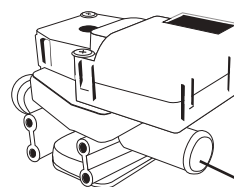


You will be able to see thru water valve passage

5



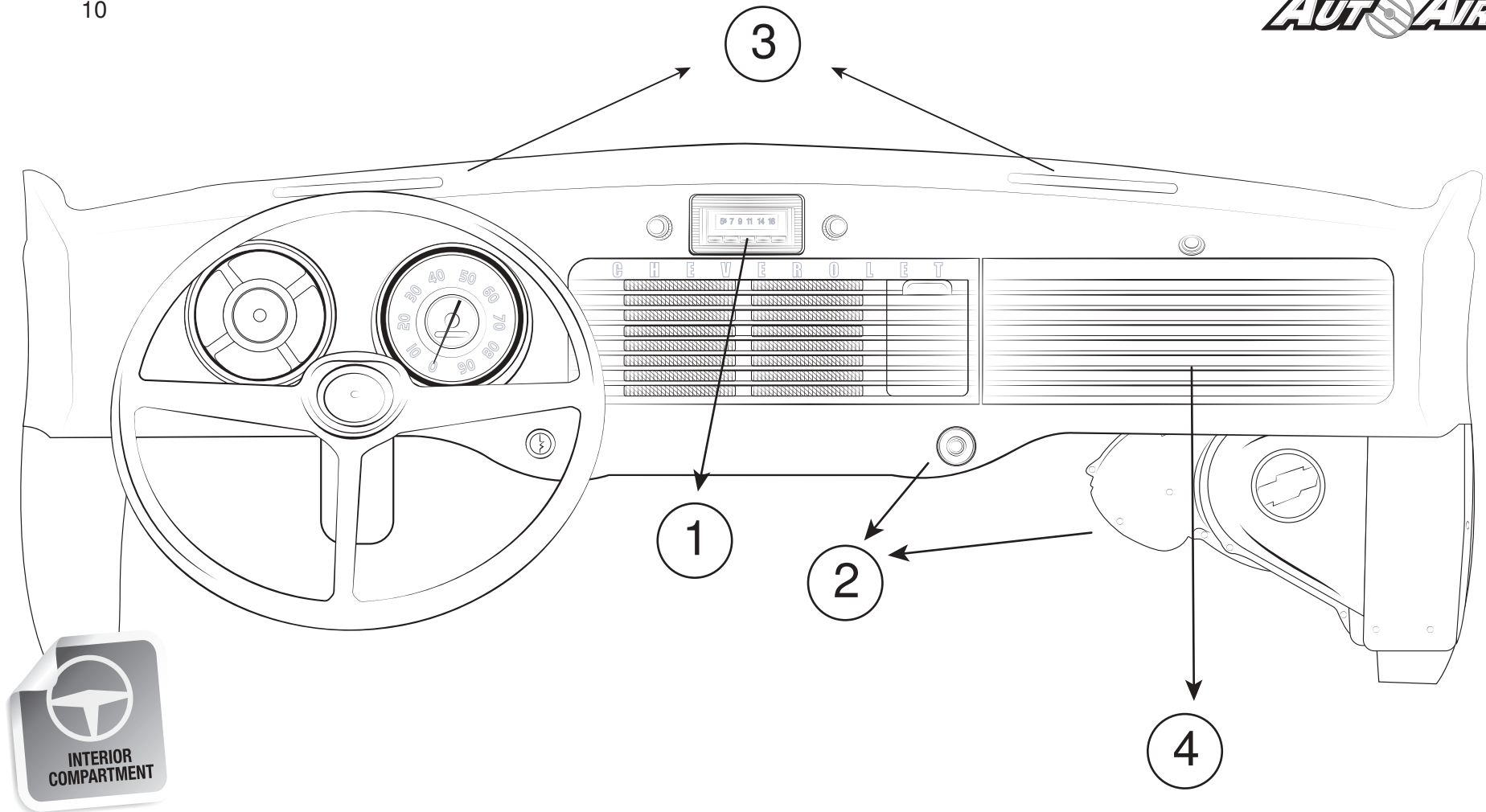
Move TEMP knob to COLD



CLOSED

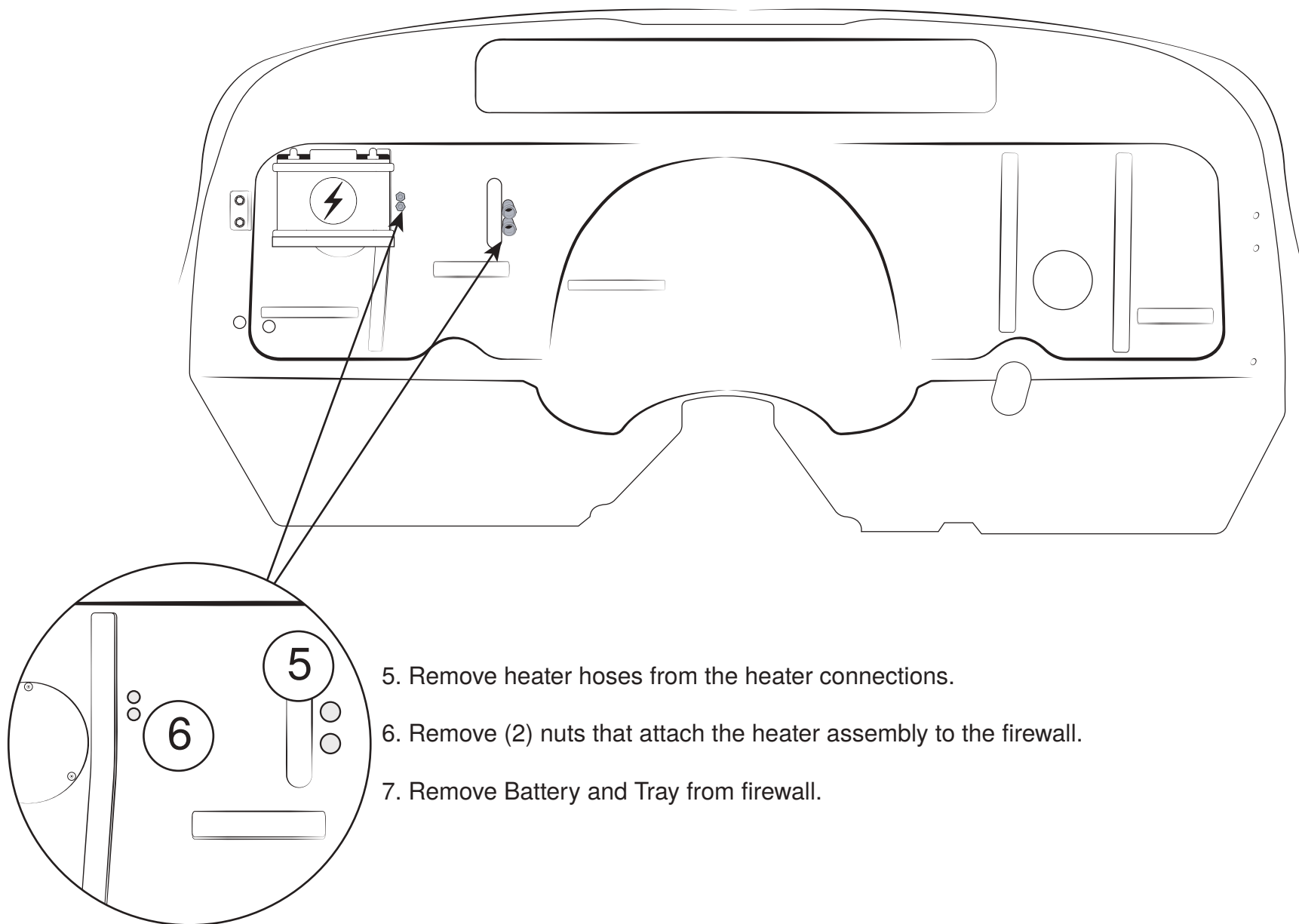


You will NOT be able to see thru water valve passage



- (1) Remove radio and keep hardware for reinstall.
- (2) Remove Heater controls (original blower switch). There are various heater assemblies available with this series truck.
- (3) Disconnect defrost duct work. If the truck that you have is equipped with the optional Defrost blower and distribution hoses, and ducts. Remove the flex duct and discard. The defrost diffusers may be used if they are in good condition. If they are not we have provided TWO diffusers in the kit.
- (4) Remove the Glove box door, and remove glove box. Retain glove box door and all original hardware. Discard the glove box housing.

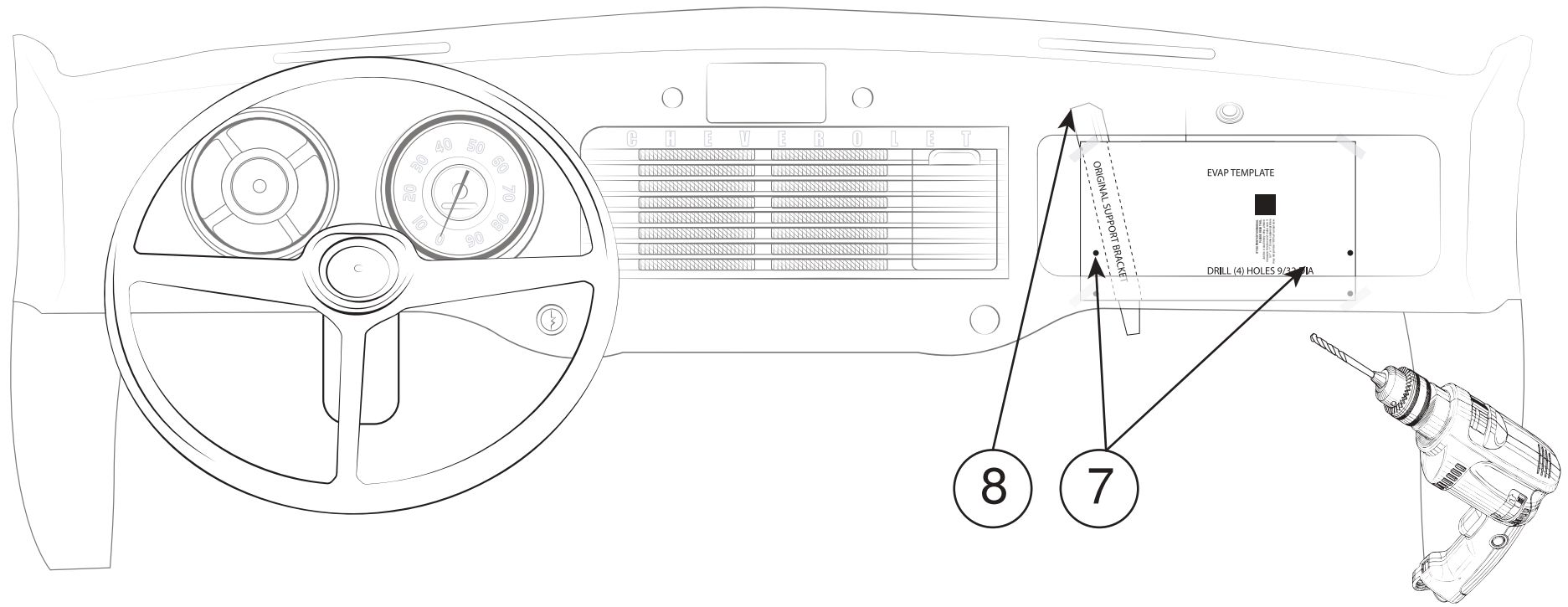
NOTE: On Engine side of firewall



5. Remove heater hoses from the heater connections.

6. Remove (2) nuts that attach the heater assembly to the firewall.

7. Remove Battery and Tray from firewall.



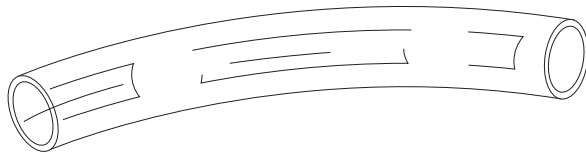
7. On the firewall looking through the glove box opening. We will be drilling the (4) mounting holes for the evaporator.

8. Locate the firewall template and tape to the firewall. Locate using the firewall stiffener. These holes will be located from the top edge of the firewall stiffener. It may be necessary to carefully pull back the insulation on the firewall.

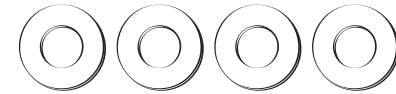
CAUTION: TAKE EXTRA CARE THAT THE HOLES ARE PROPERLY LOCATED. THIS WILL INSURE A SMOOTH

THESE ARE THE PARTS YOU WILL FIND IN BAG KIT A

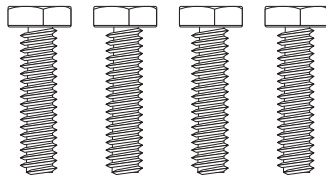
You will use all of these parts and hardware during the next series of installation steps.



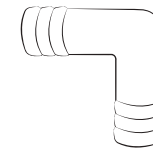
Clear Plastic Drain Tube



25NWSAB
1/4" washers

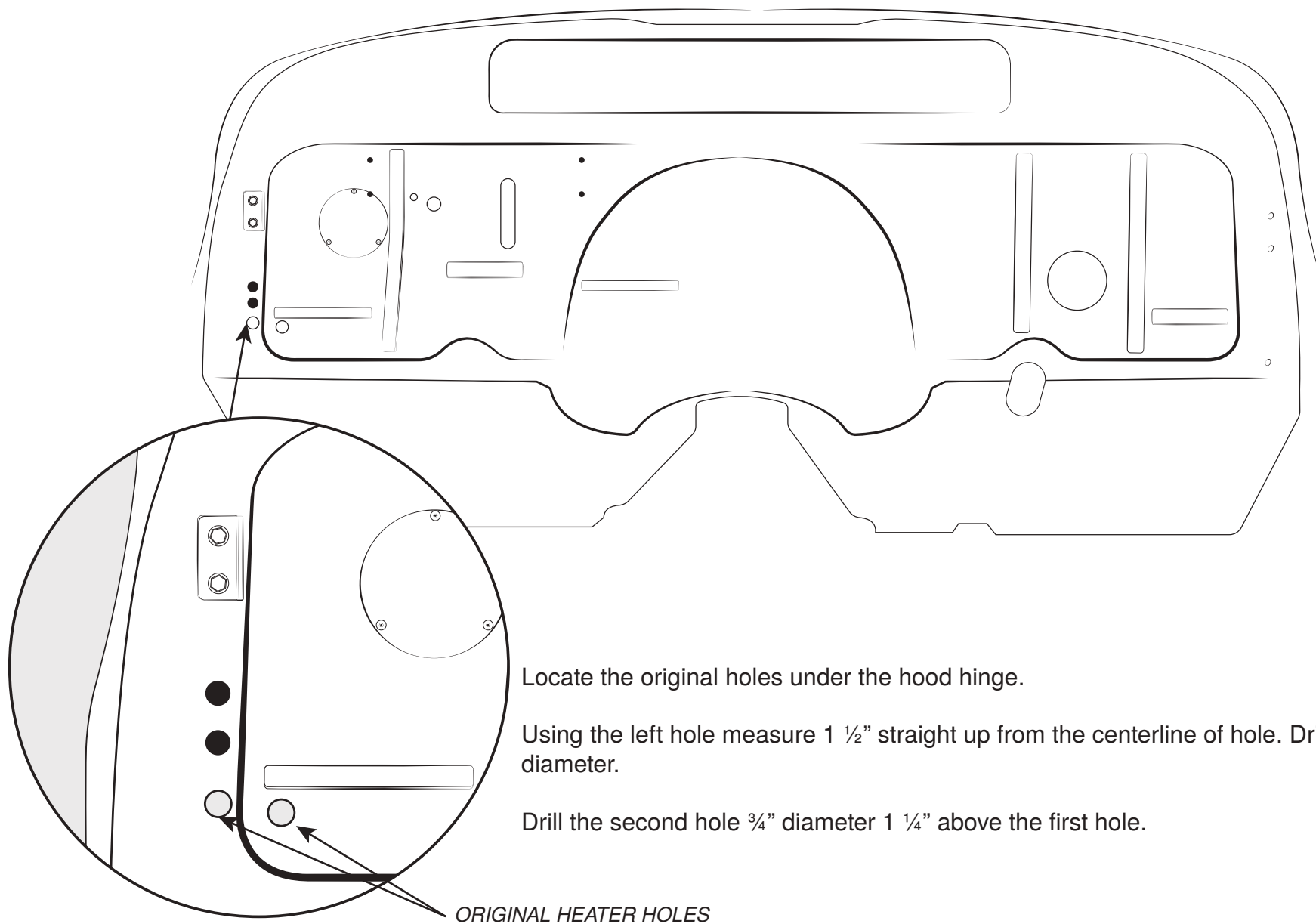


25C100HHB5Z
1/4-20 x 1" Bolts



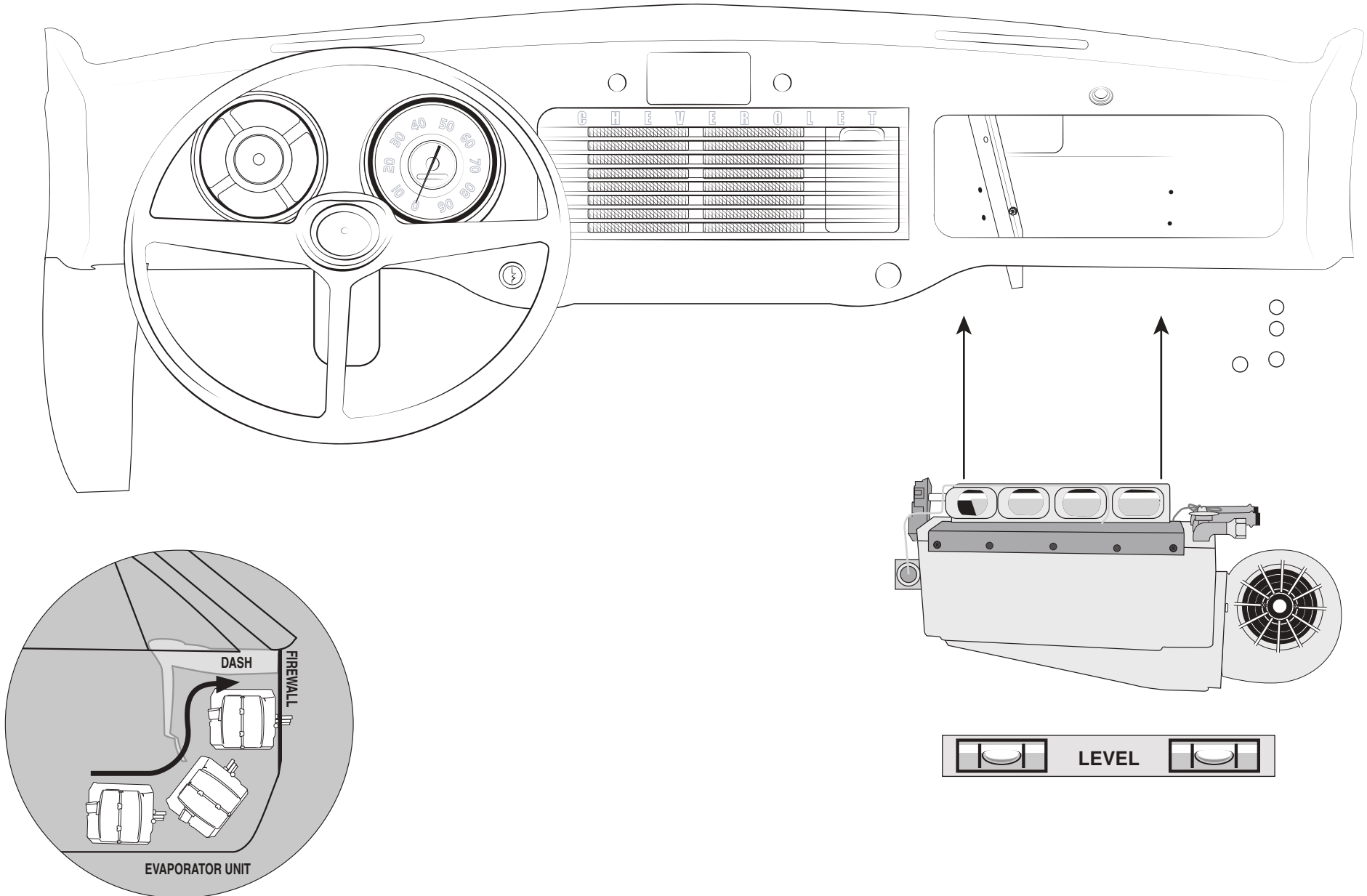
90 Degree Elbow

NOTE: On Engine side of firewall

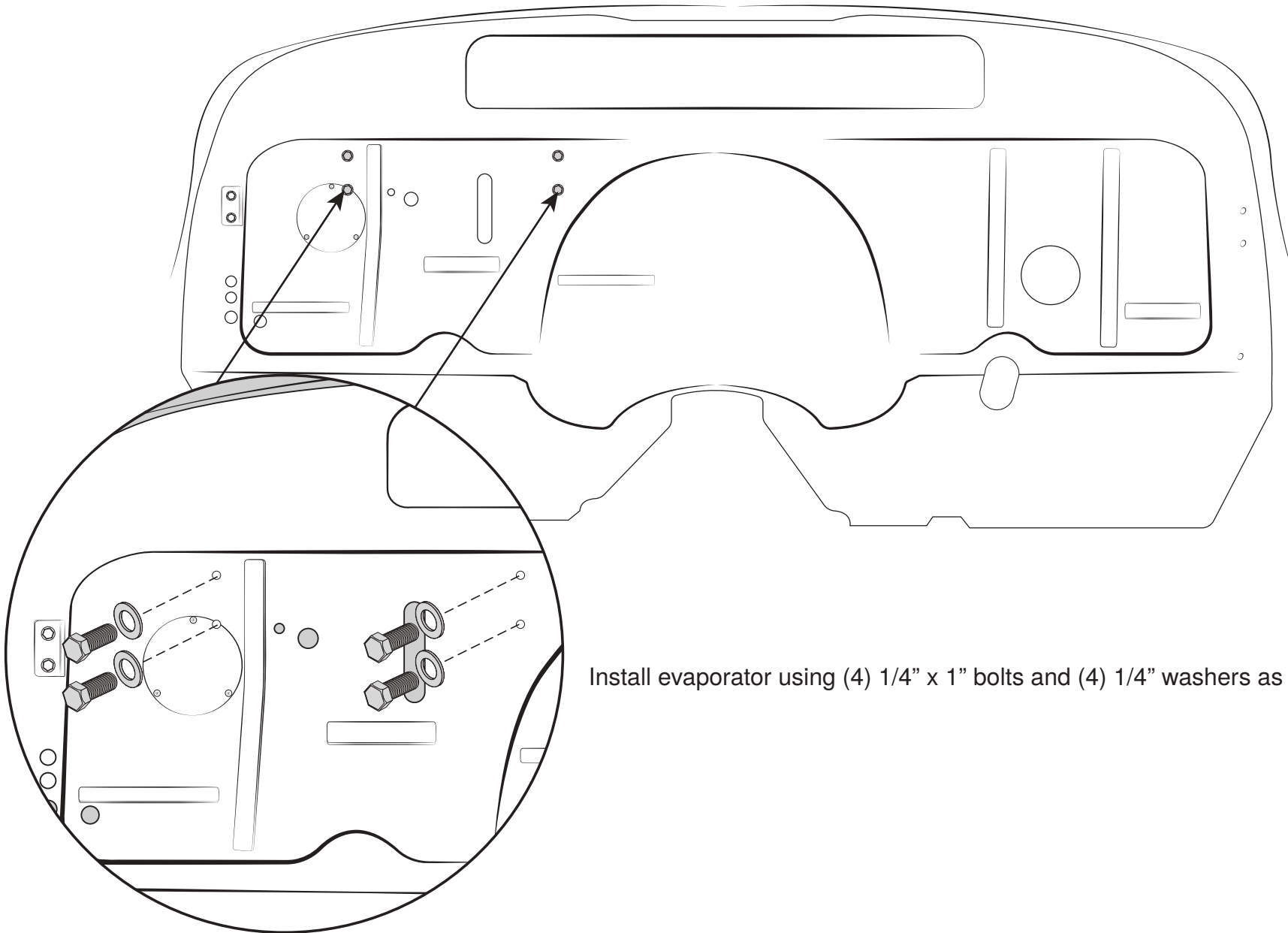


NOTE: Two people are needed for this step!

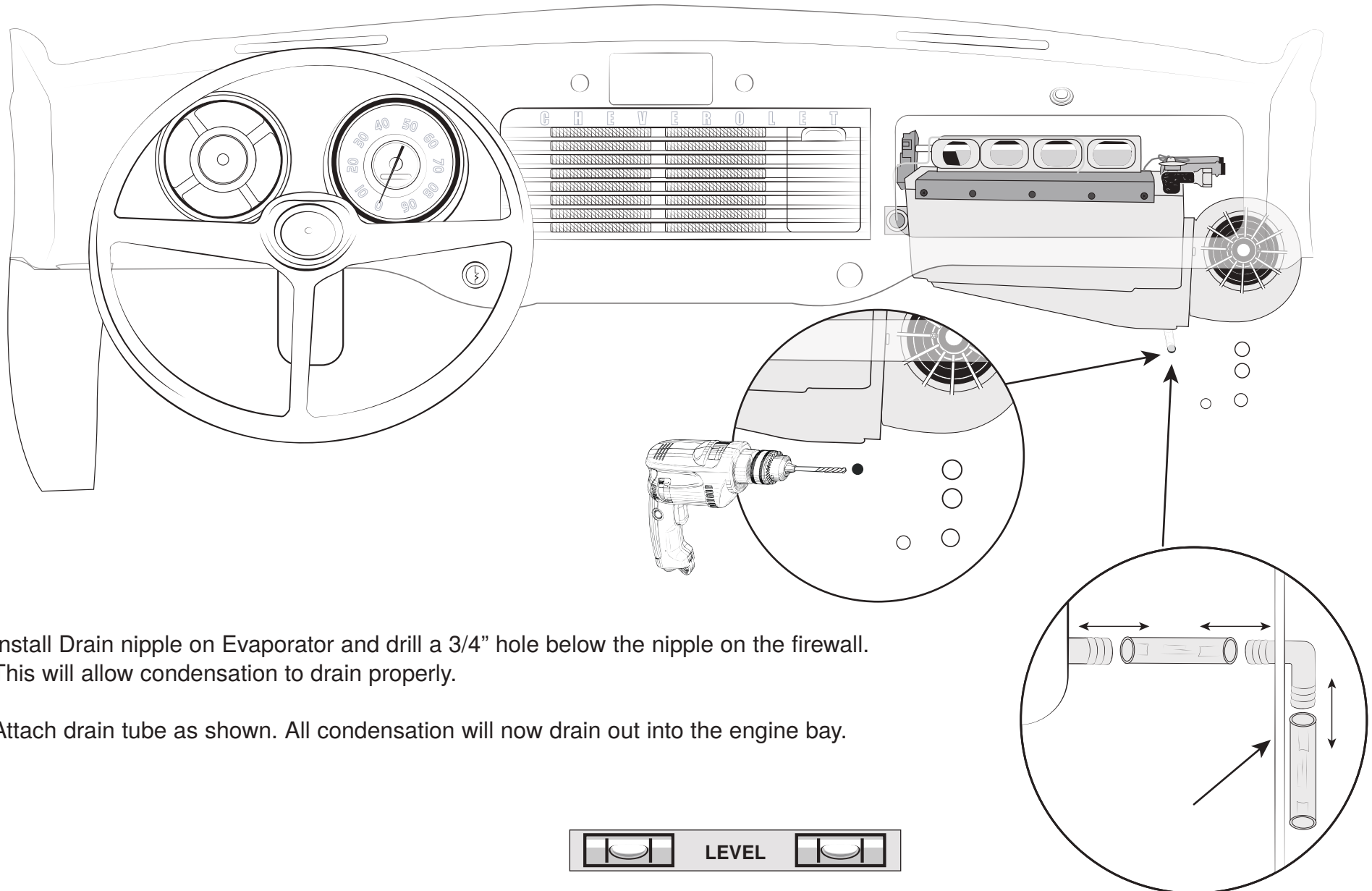
Place evaporator unit on floor panel. Roll unit up behind glovebox opening.



NOTE: Two people are needed for this step!



Install evaporator using (4) 1/4" x 1" bolts and (4) 1/4" washers as shown.

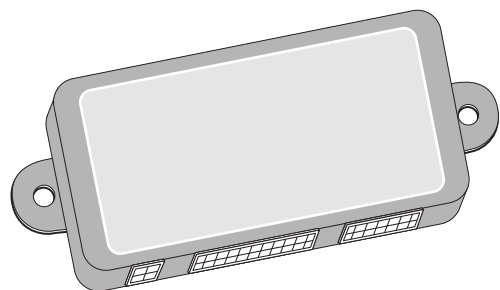


Install Drain nipple on Evaporator and drill a 3/4" hole below the nipple on the firewall.
This will allow condensation to drain properly.

Attach drain tube as shown. All condensation will now drain out into the engine bay.

THESE ARE THE PARTS YOU WILL FIND IN BAG KIT B

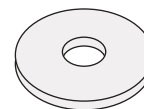
You will use all of these parts and hardware during the next series of installation steps.



ECU
PN# 16-2500



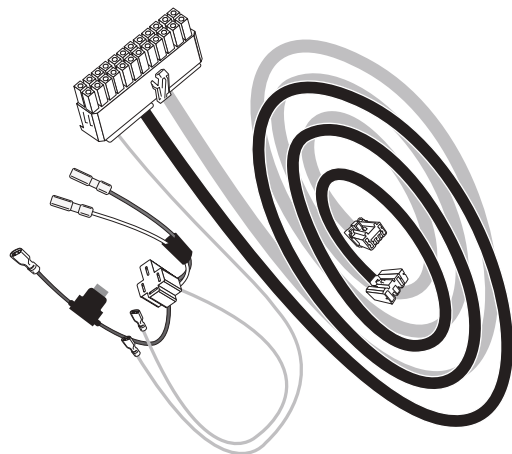
Three #10 - 16 x 3/4" Tek Screws



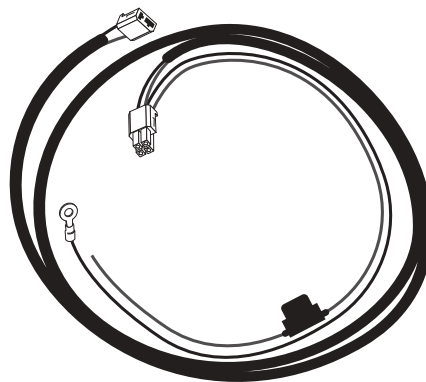
Firewall Grommet



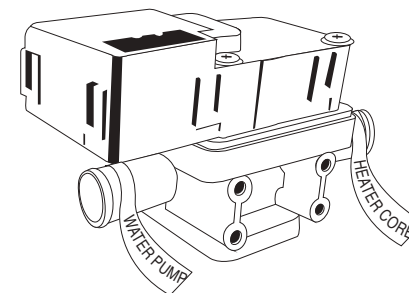
Relay
PN# 30-13373



HARNESS
0125-20A



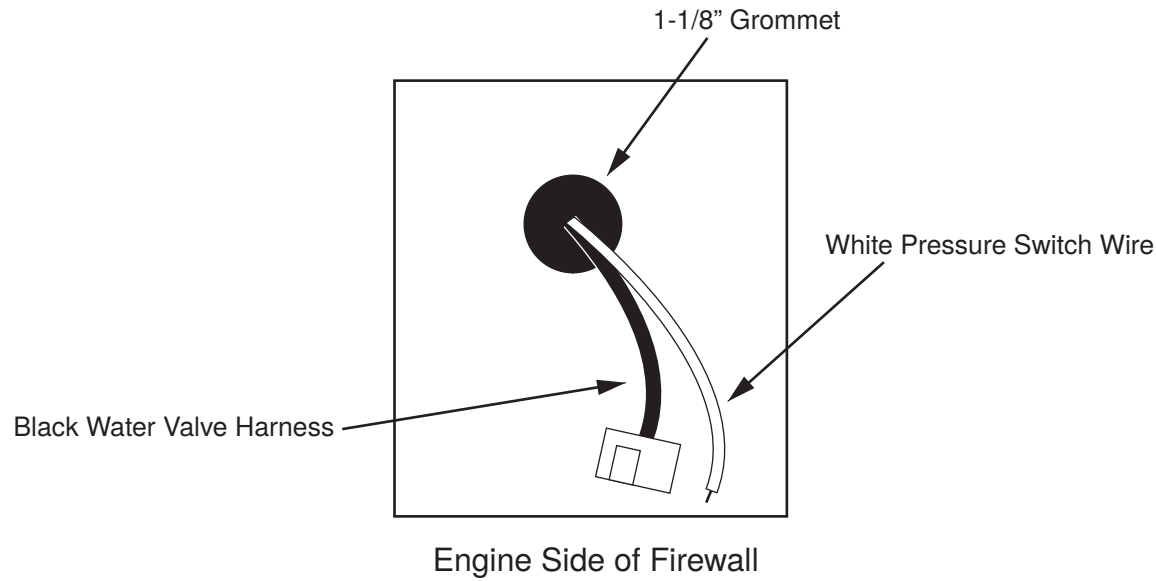
HARNESS POWER SUPPLY
0125-5



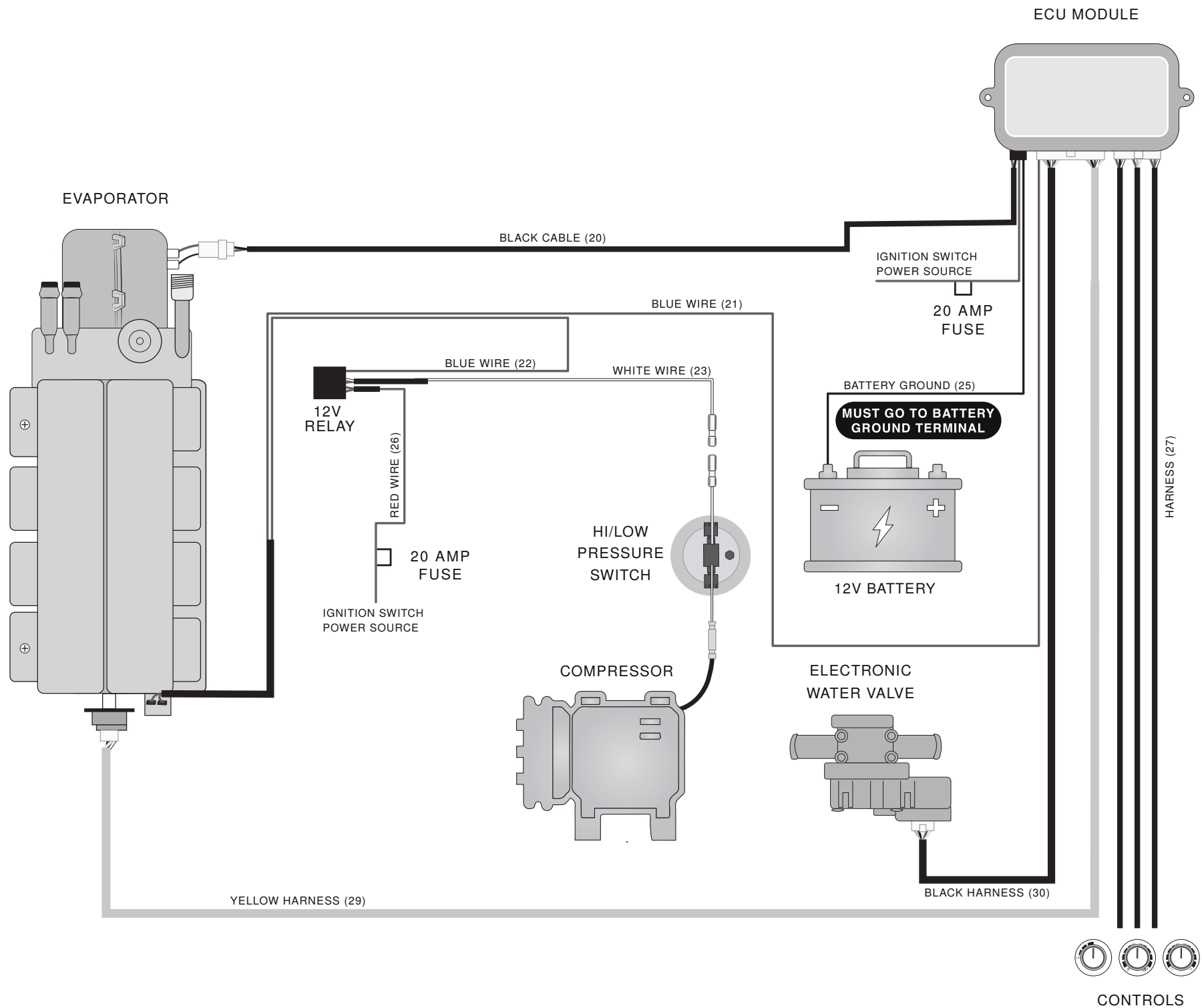
Electronic Water Control Valve
PN# 16-1023

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

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

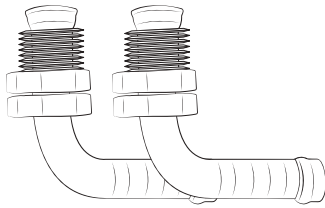


- Install the power supply wire harness according to the wire diagram.
- Mount the ECU with (2) #10-16 x 3/4" Tek screws.
- Secure the relay with the remaining #10-16 x 3/4" Tek screw.

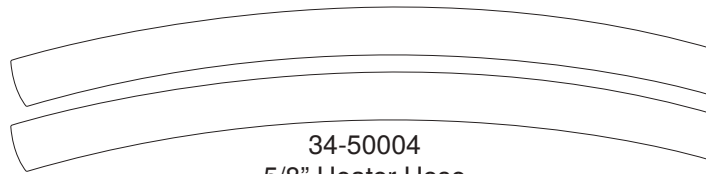


THESE ARE THE PARTS YOU WILL FIND IN BAG KIT C

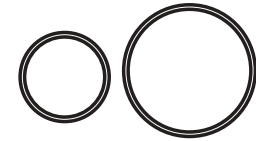
You will use all of these parts and hardware during the next series of installation steps.



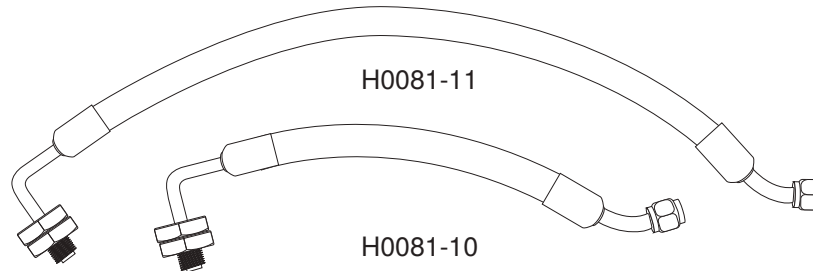
0027-53
90 Degree Heater
Hose Fittings
(2)



34-50004
5/8" Heater Hose
(2)

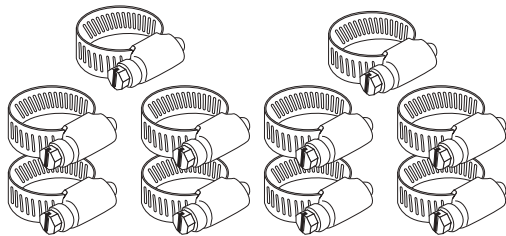


O-rings

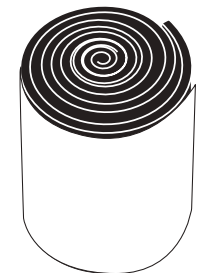


H0081-11

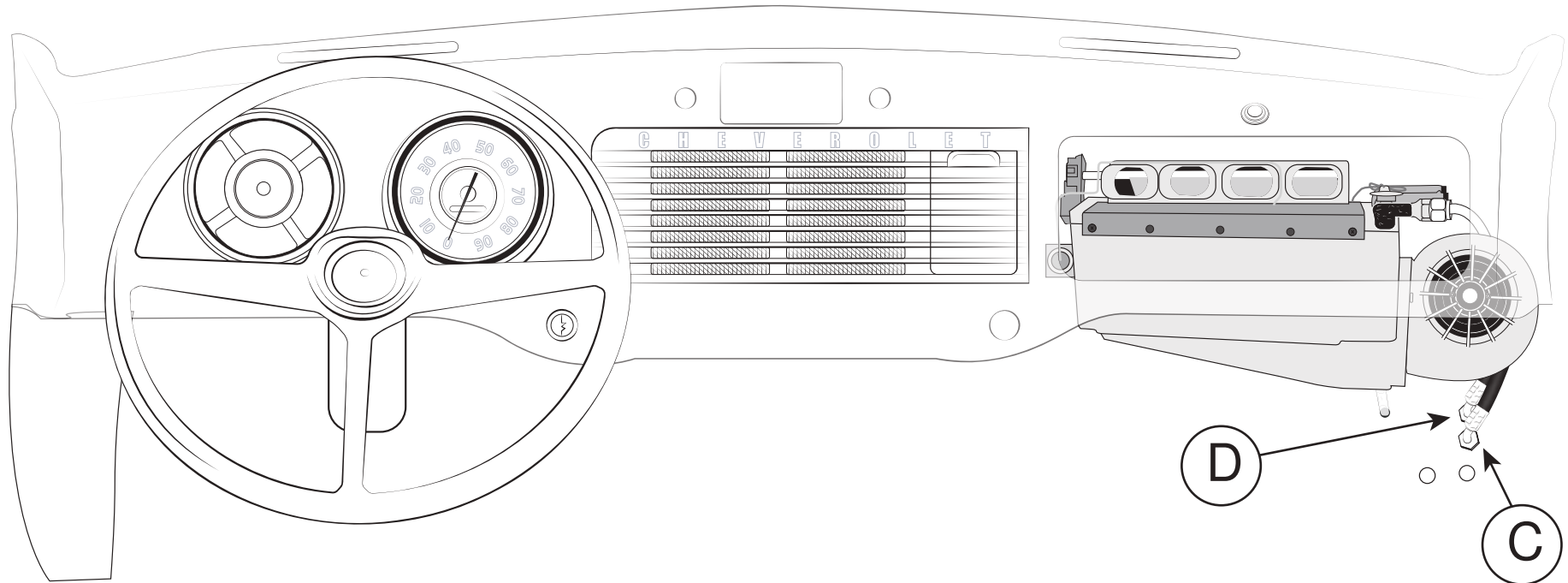
H0081-10



Ten Worm Gear Clamps



Refrigerant Tape

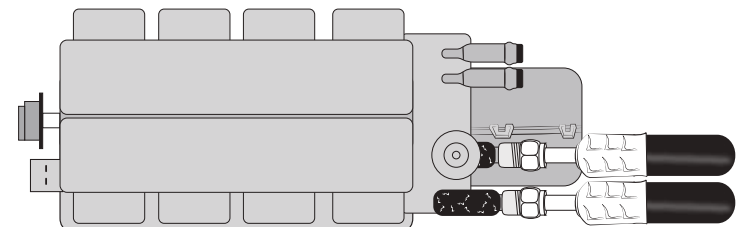


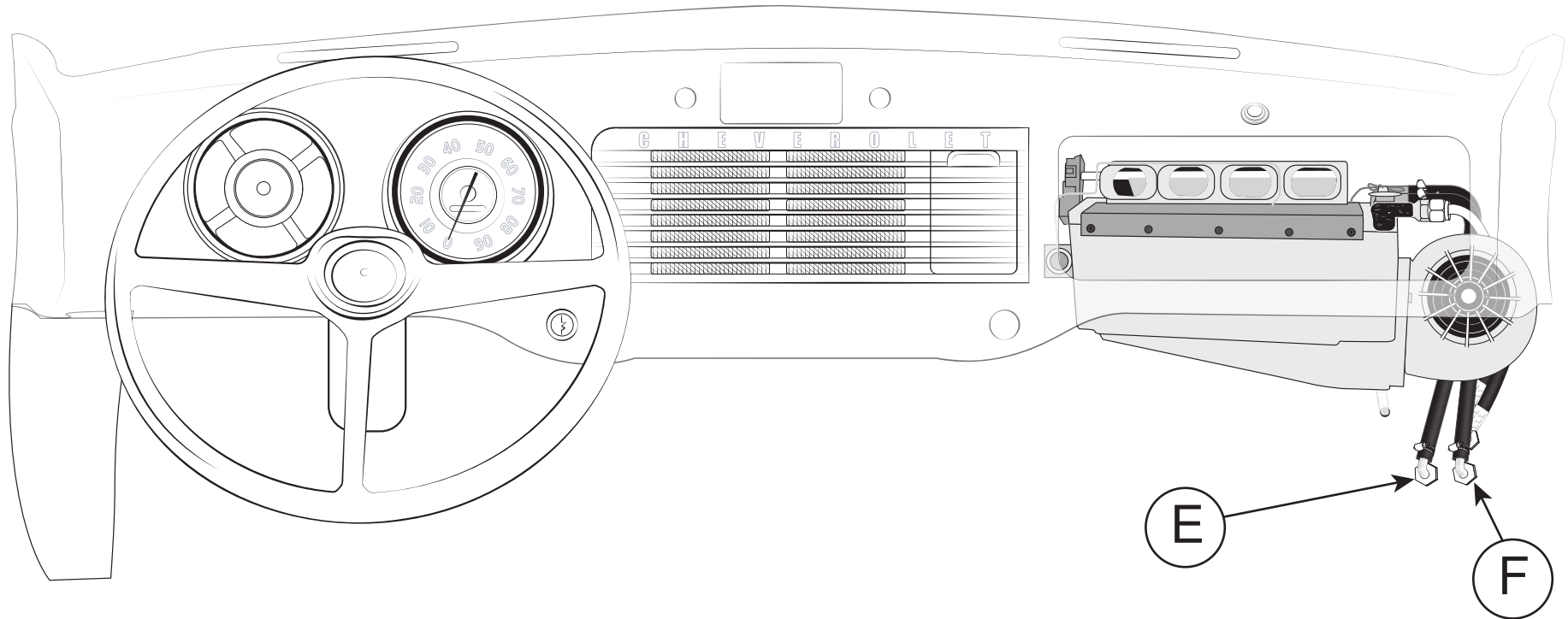
Install (C) the #10 suction hose to the unit using o-ring and mineral oil. Route #10 suction hose to the bottom drilled hole on the firewall. Insert fitting into 1" hole previously drilled. Attach A/C hose bulkhead fitting nut securely on the engine side of firewall.

Install (D) the #6 liquid hose to the unit using o-ring and mineral oil. Route #6 liquid hose to the top drilled hole on the firewall. Insert fitting into 3/4" hole previously drilled.

Attach A/C hose bulkhead fitting nut securely on the engine side of firewall

Wrap suction and Liquid fitting with Refrigerant Tape.

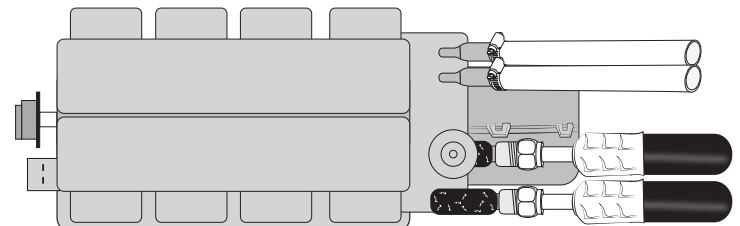




Next insert 90 degree bulkhead fitting (E) into original heater hole in firewall. Secure nut on engine side. Next insert 90 degree bulkhead fitting (F) into original heater hole in firewall. Secure nut on engine side.

Cut both 5/8" heater hoses to length. Attach to 5/8" heater connections with clamp.

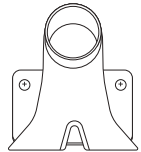
Attach (E) and (F) heater hose to 90 degree fittings previously installed on firewall and attach with clamps.



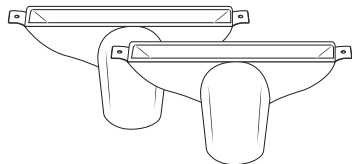
THESE ARE THE PARTS YOU WILL FIND IN BAGS D,E,F

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

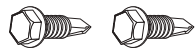
BAG D



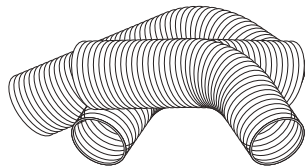
Heat Dump



Defrost Difusers



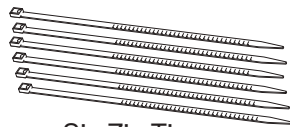
Two #10 - 16 x 3/4" Tek Screws



Three Duct Hoses, 2" I.D.

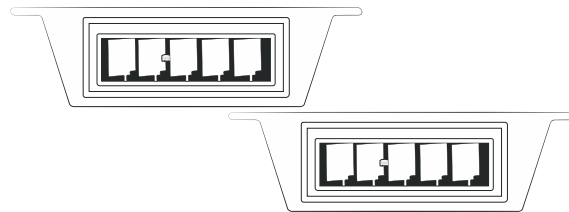


Four #10 - 10 x 5/8" Phillips Screws

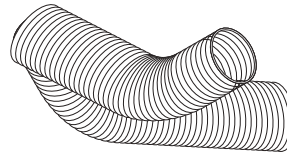


Six Zip-Ties

BAG E



Underdash Louver Assembly
PN#2-1038



Two Duct Hoses, 2" I.D.

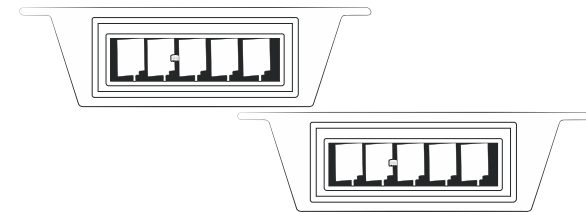


Four #10 - 16 x 3/4" Tek Screws

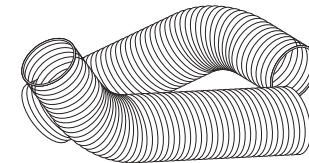


Four Zip-Ties

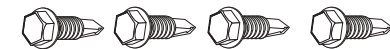
BAG F



Underdash Louver Assembly
PN#2-1038



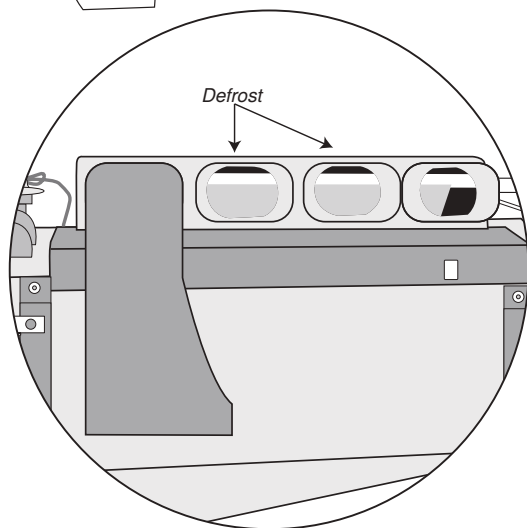
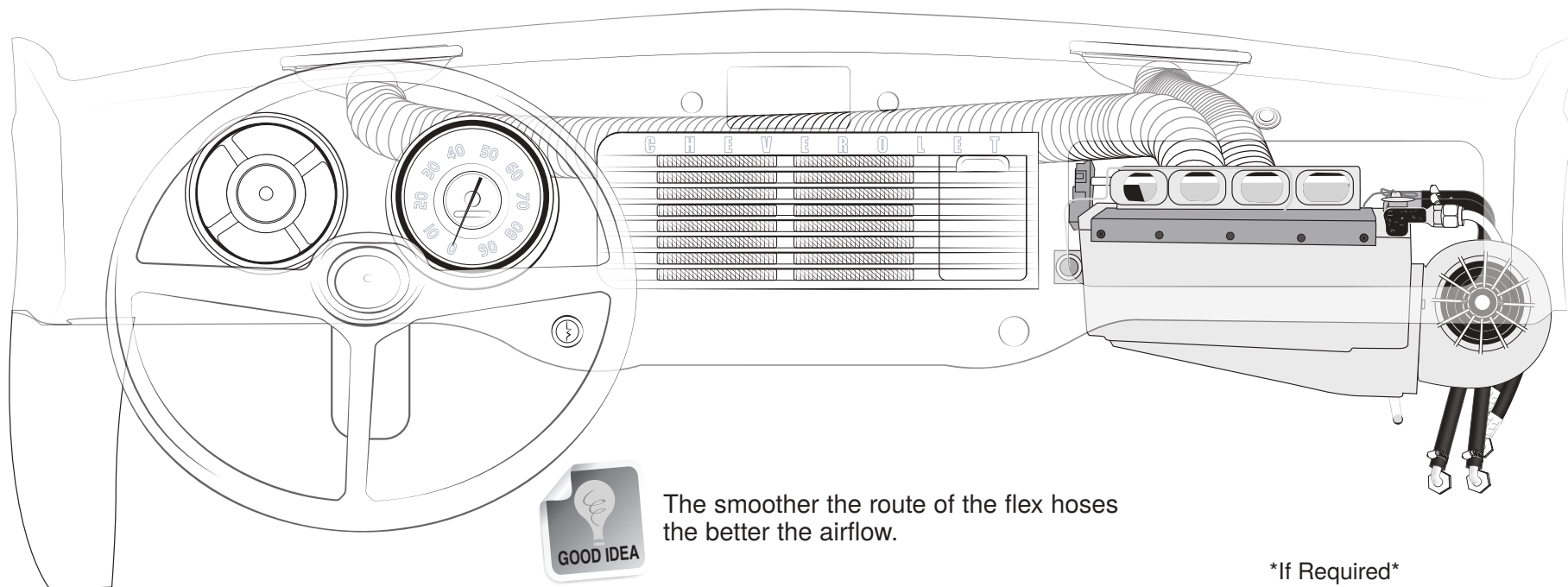
Two Duct Hoses, 2" I.D.



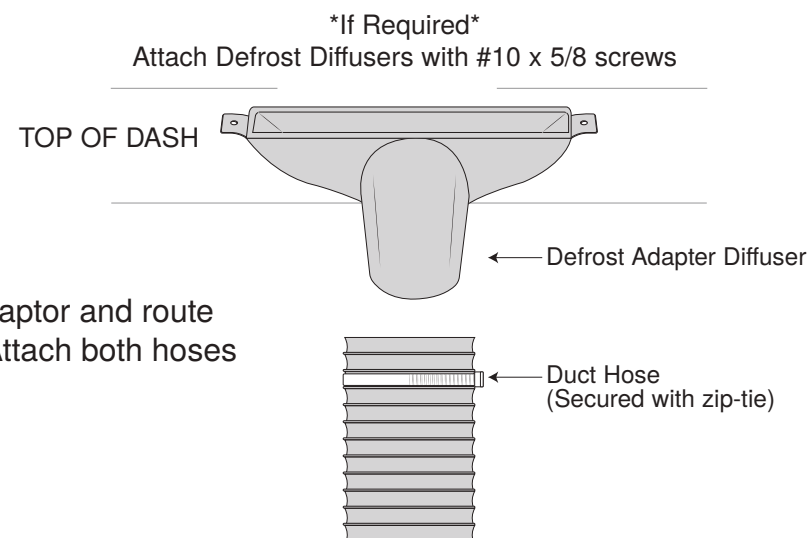
Four #10 - 16 x 3/4" Tek Screws

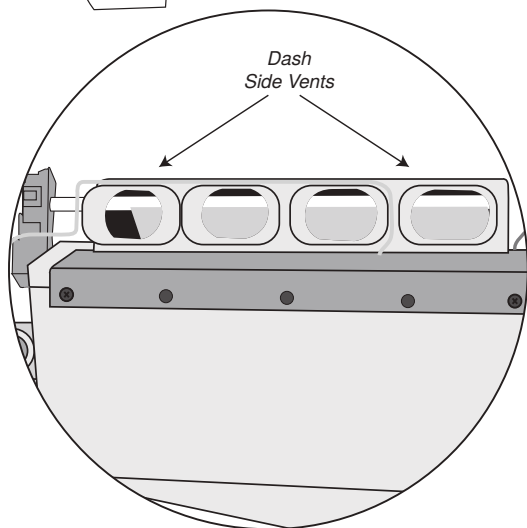
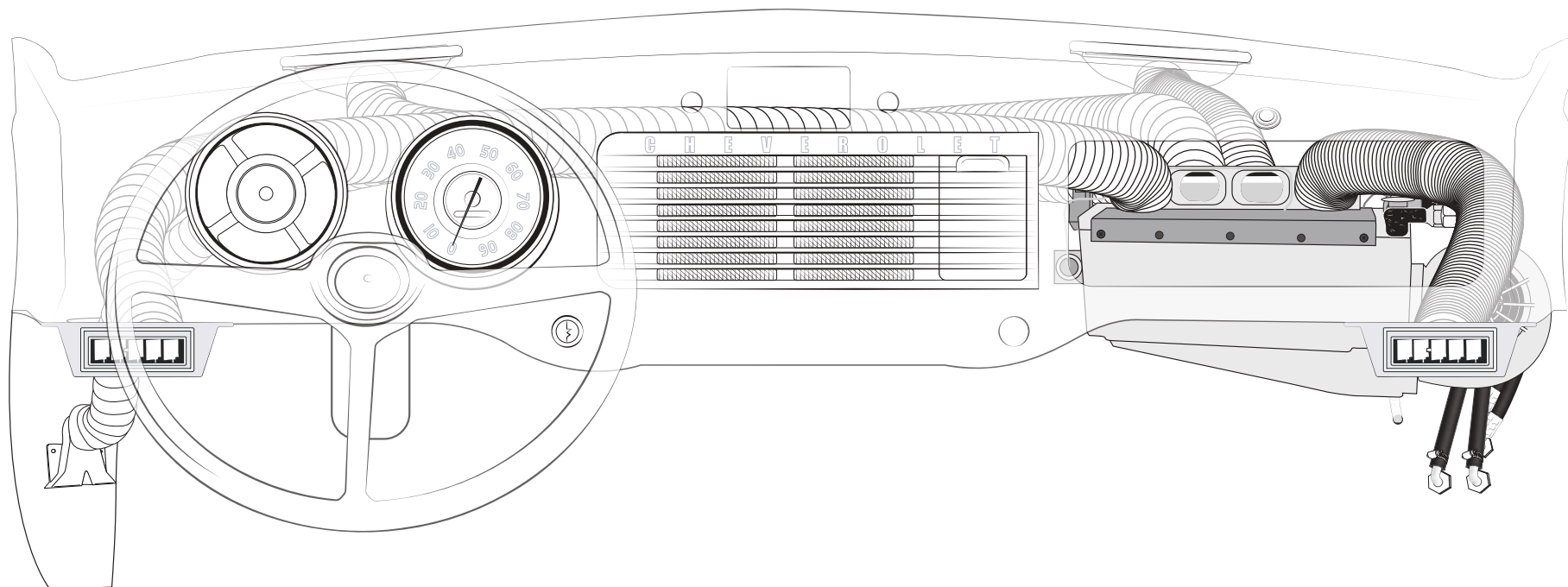


Four Zip-Ties



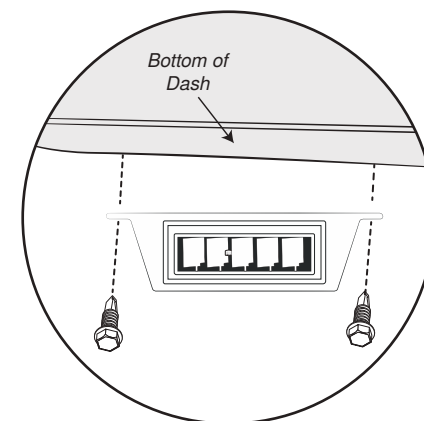
Attach duct hose to the center rear hose adaptor and route over and up to the drivers defrost diffuser. Attach both hoses to the diffusers using a ty-wrap.

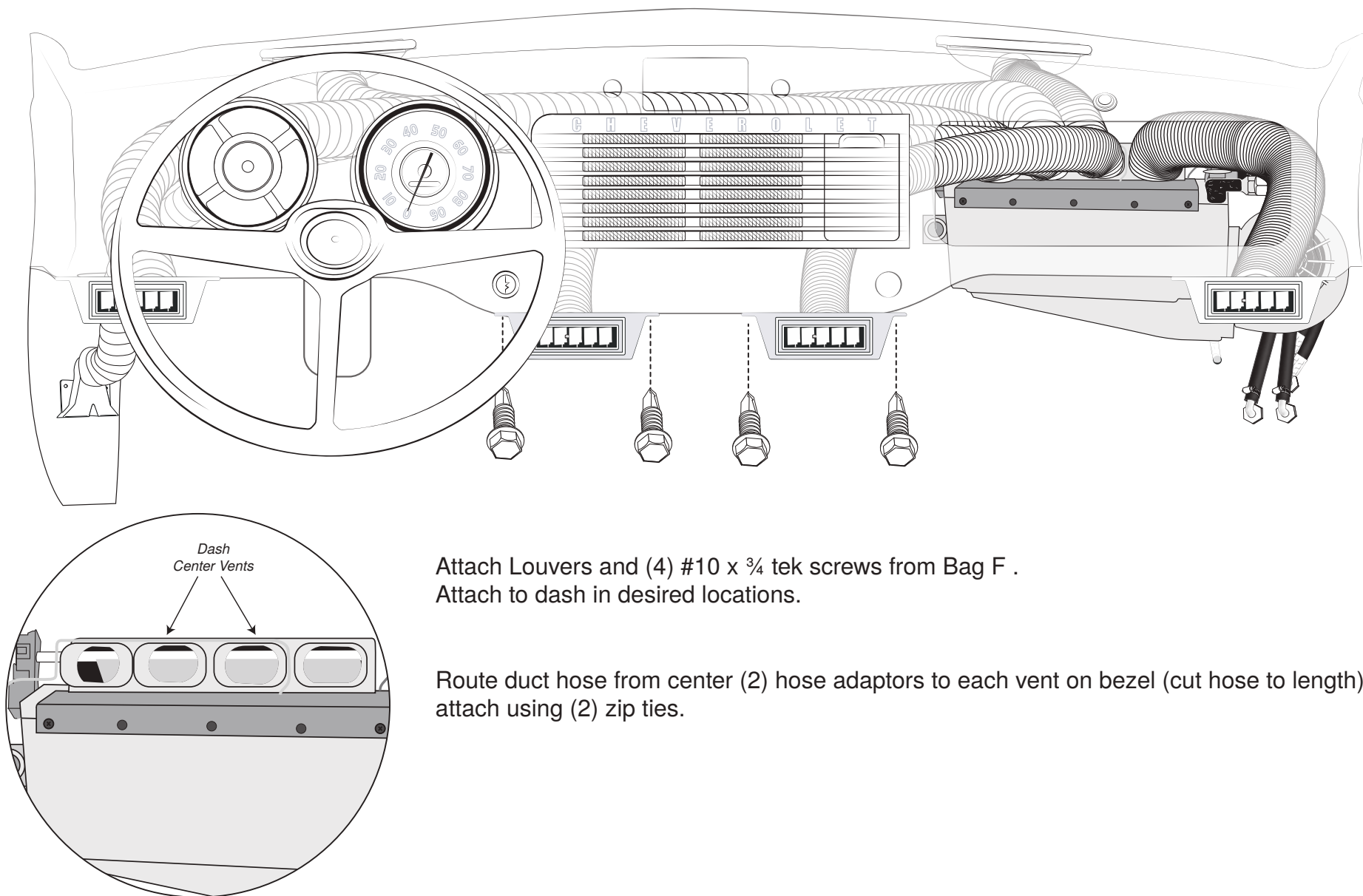




Attach Louvers from Bag E using (4) #10 x $\frac{3}{4}$ tek screws.
Attach to dash in desired locations.

Route duct hose from Left & Right hose adapters to each vent.
(Cut hose to length) Attach using (2) Zip Ties.



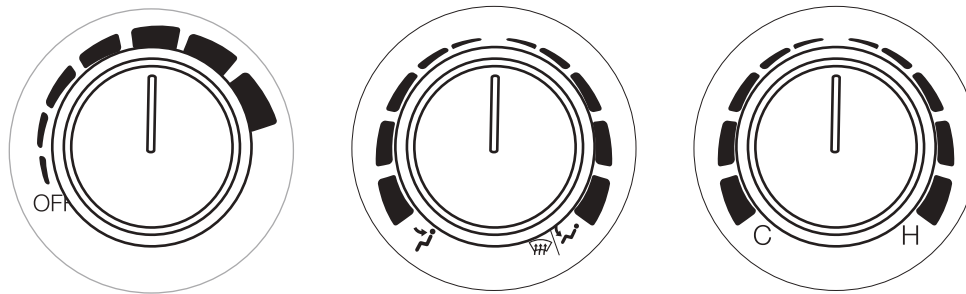


Attach Louvers and (4) #10 x $\frac{3}{4}$ tek screws from Bag F .
Attach to dash in desired locations.

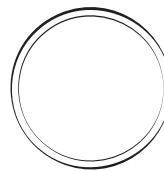
Route duct hose from center (2) hose adaptors to each vent on bezel (cut hose to length)
attach using (2) zip ties.

THESE ARE THE PARTS YOU WILL FIND IN BAG KIT G

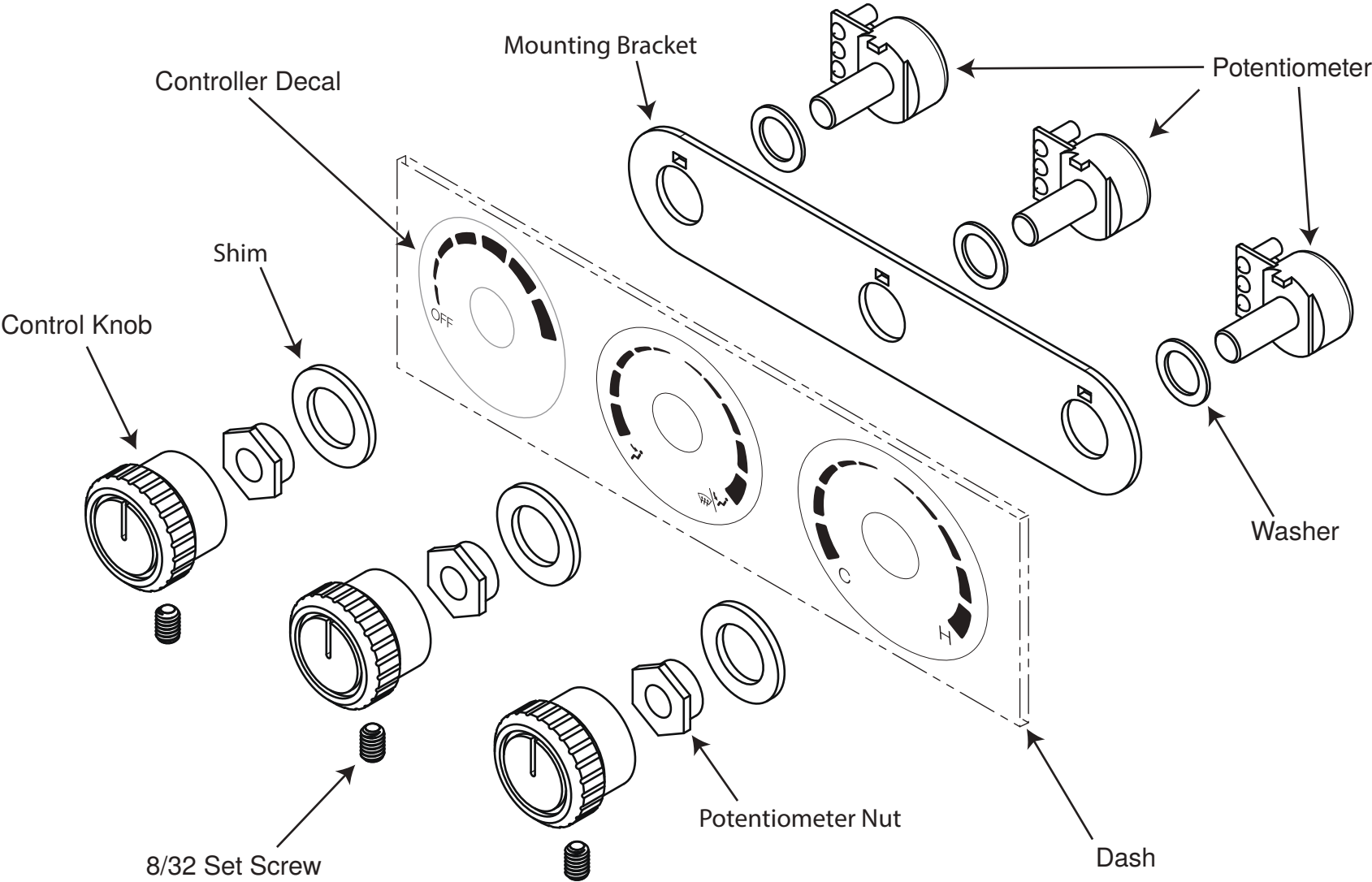
You will use all of these parts and hardware during the next series of installation steps.

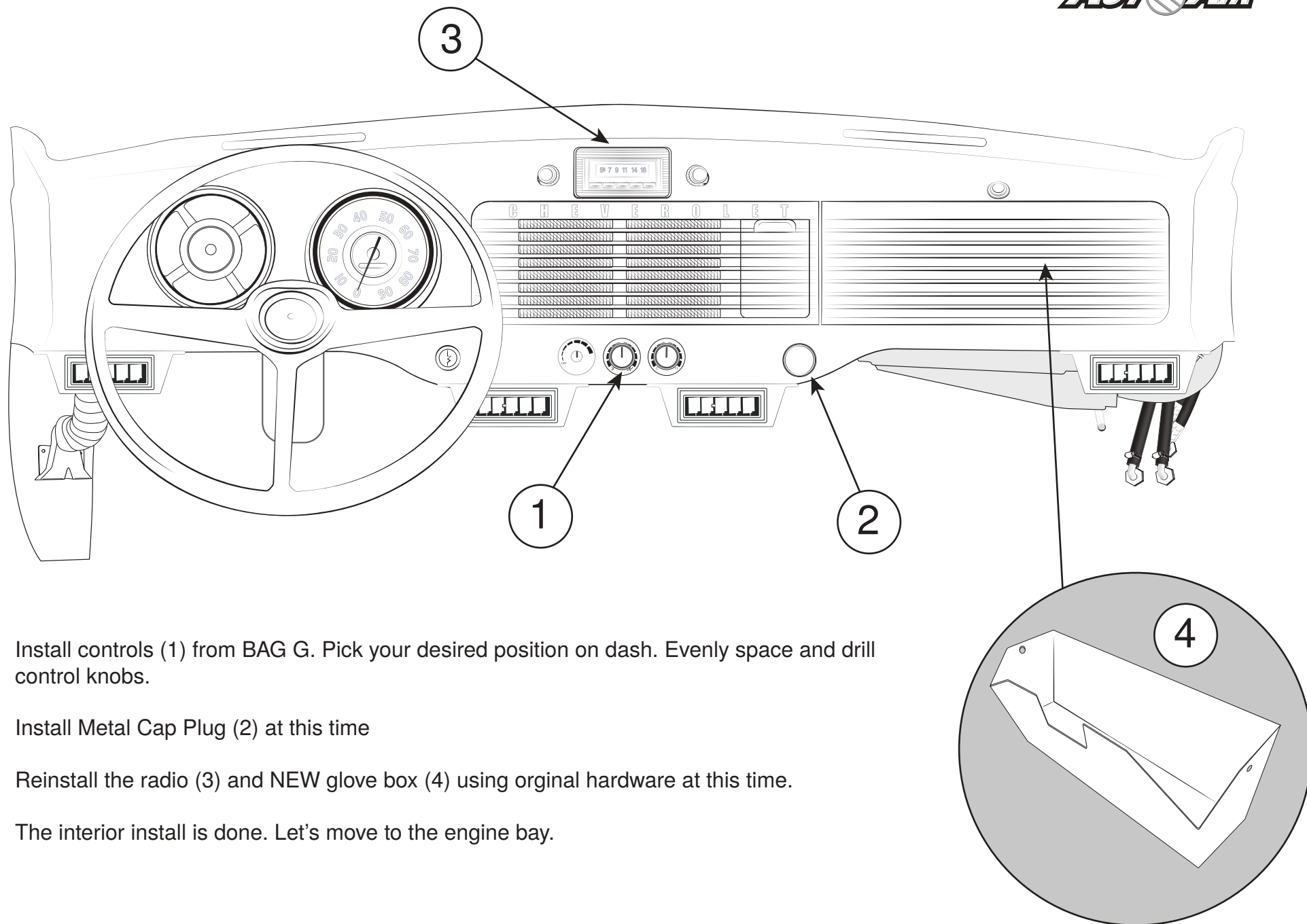


16-4029V



METAL CAP PLUG
SR-7/8METAL





Install controls (1) from BAG G. Pick your desired position on dash. Evenly space and drill control knobs.

Install Metal Cap Plug (2) at this time

Reinstall the radio (3) and NEW glove box (4) using original hardware at this time.

The interior install is done. Let's move to the engine bay.

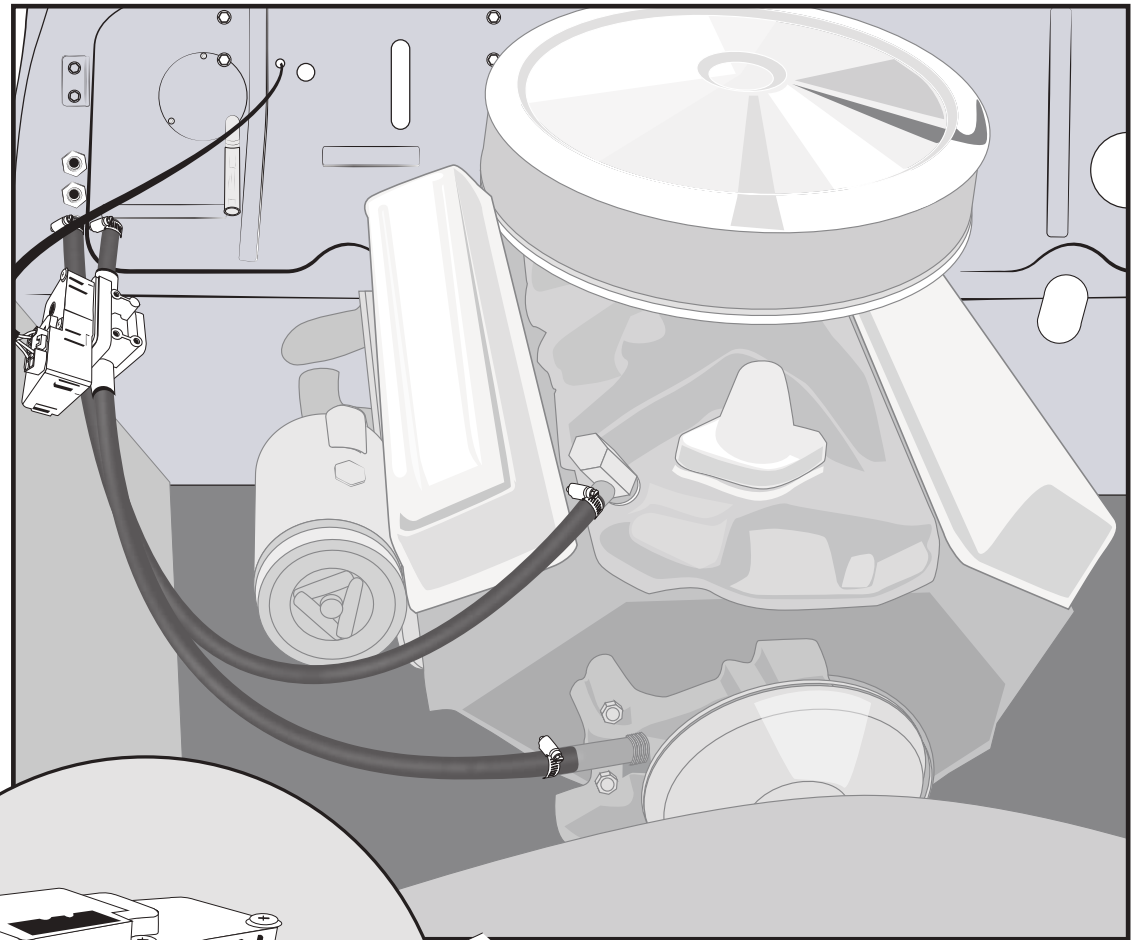
IMPORTANT NOTICE: PROPER INSTALLATION OF WATER VALVE

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

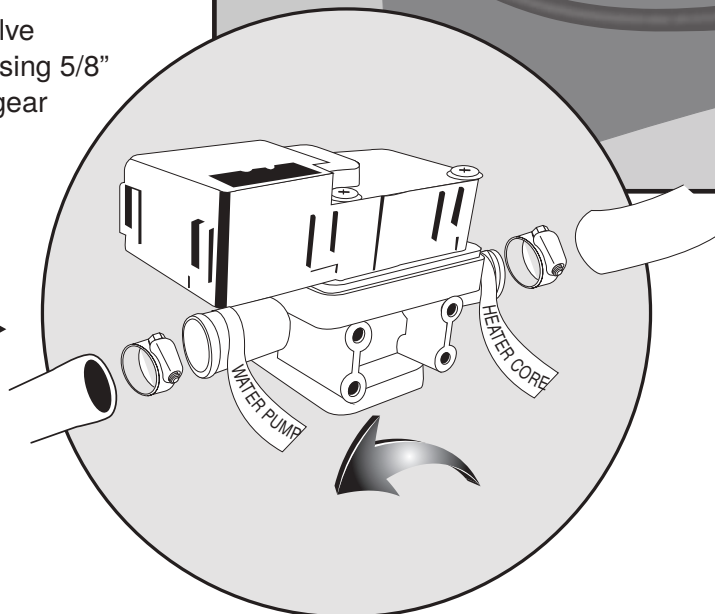
The **lower** heater tube connection on firewall will be routed to the water connection on intake manifold using 5/8" dia. heater hose with the supplied worm gear clamp.

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.

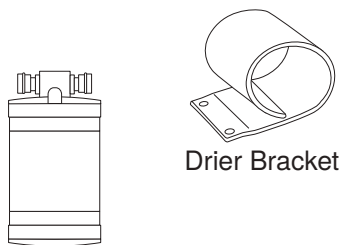
Connect the remaining outlet on water valve labeled **water pump** to the water pump using 5/8" dia. heater hose with the supplied worm gear



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



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



Drier Bracket

Drier



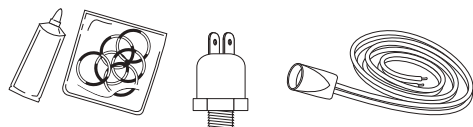
Splice and
Bullet Connector



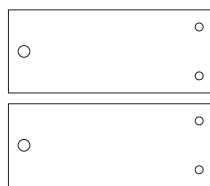
Eight #10 x 1/4" Screws



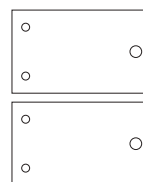
Four Zip-Ties



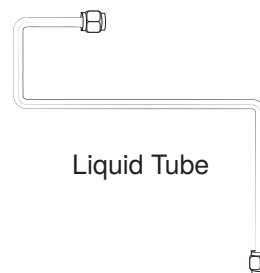
Pressure Switch and harness,
Bag of O-rings and Mineral Oil Tube



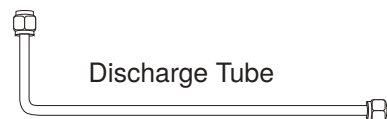
0031-8
Condenser Brackets



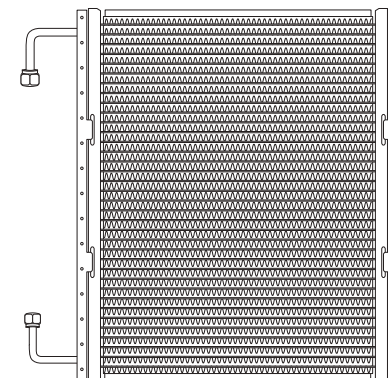
0031-9
Condenser Brackets



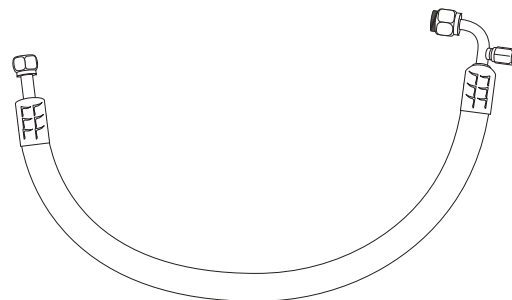
Liquid Tube



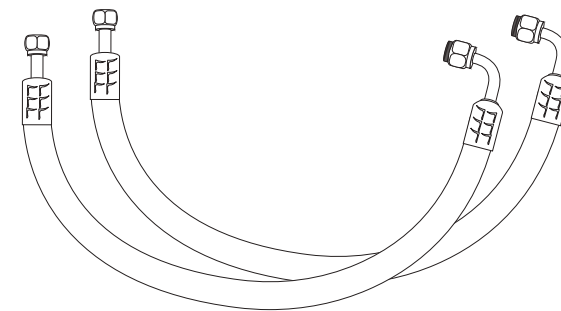
Discharge Tube



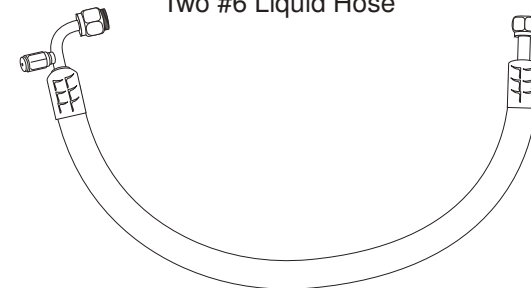
Condenser
PN# 11-1046



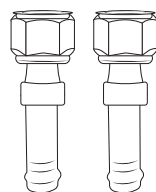
#8 Discharge Hose



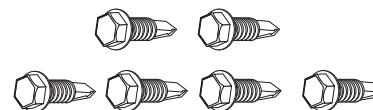
Two #6 Liquid Hose



#10 1/2" Suction Hose



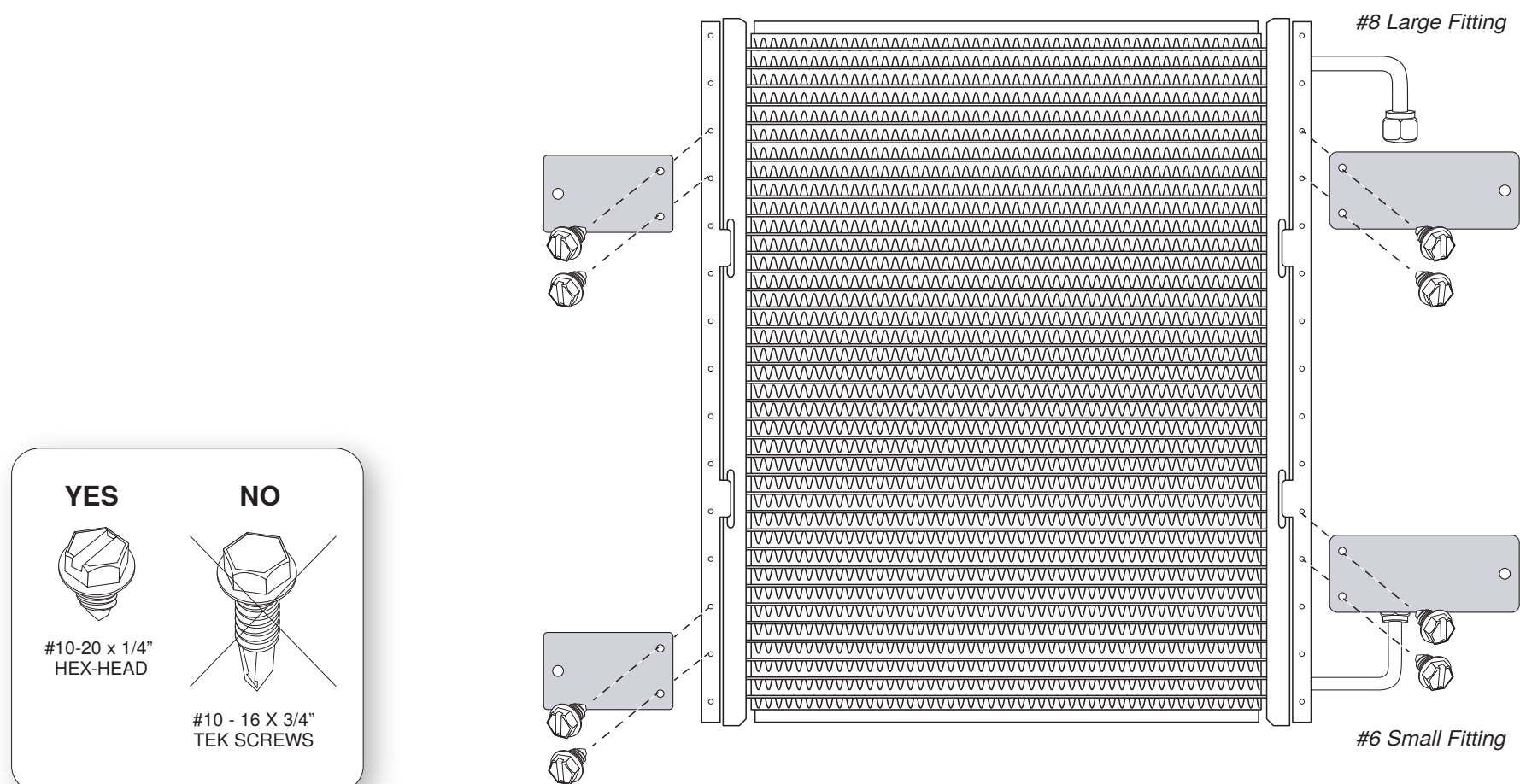
14-1100



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

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).

Attach Condenser Brackets using (8) #10 - 20 x 1/4" Screws. Attach brackets to the condenser as shown.

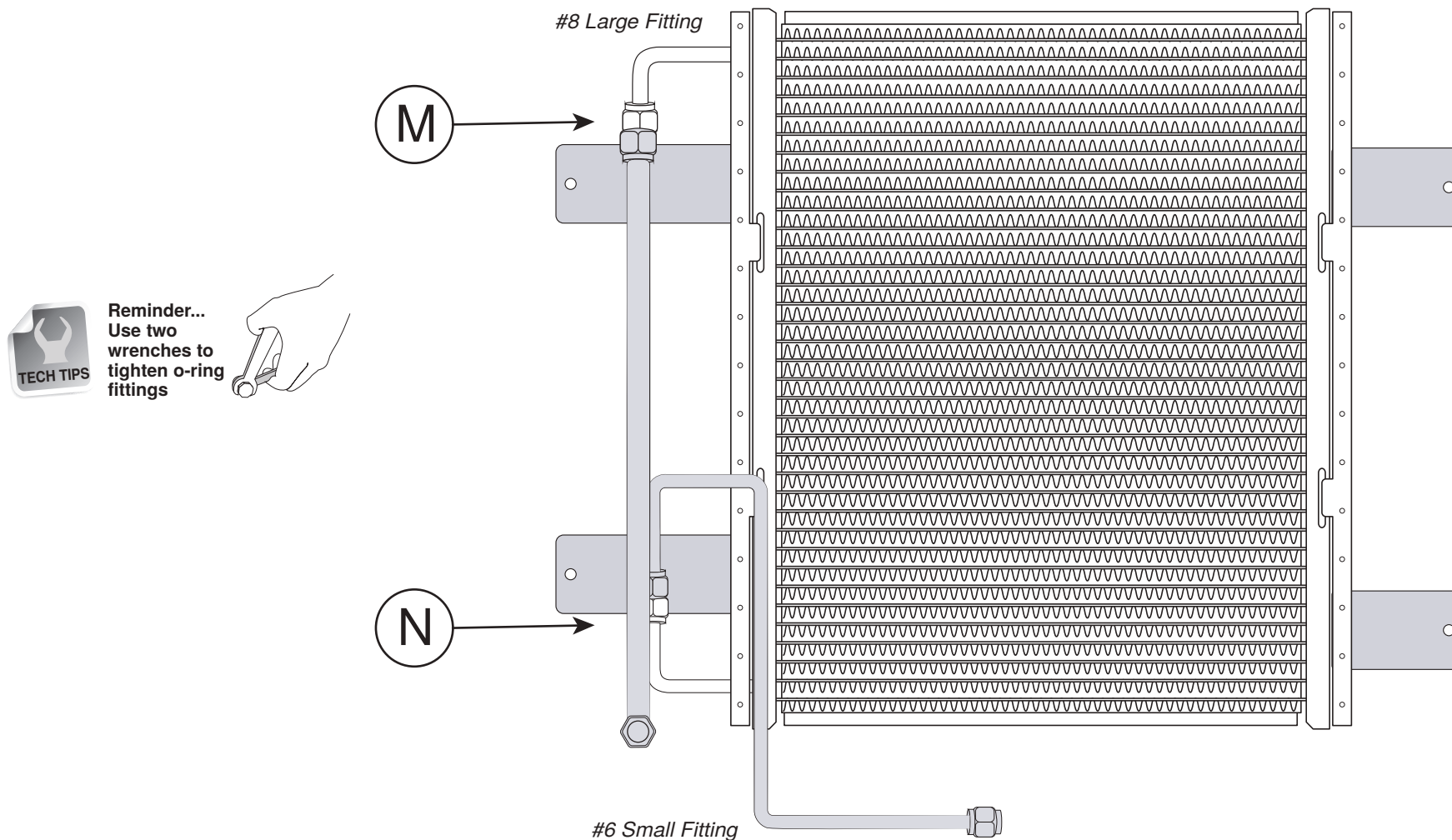


DRIER AND CONDENSER PREPARATION. Lay the condenser down so that both hose connections are on the **LEFT SIDE** (the larger connection will be on top).

Attach Discharge tube (**M**)

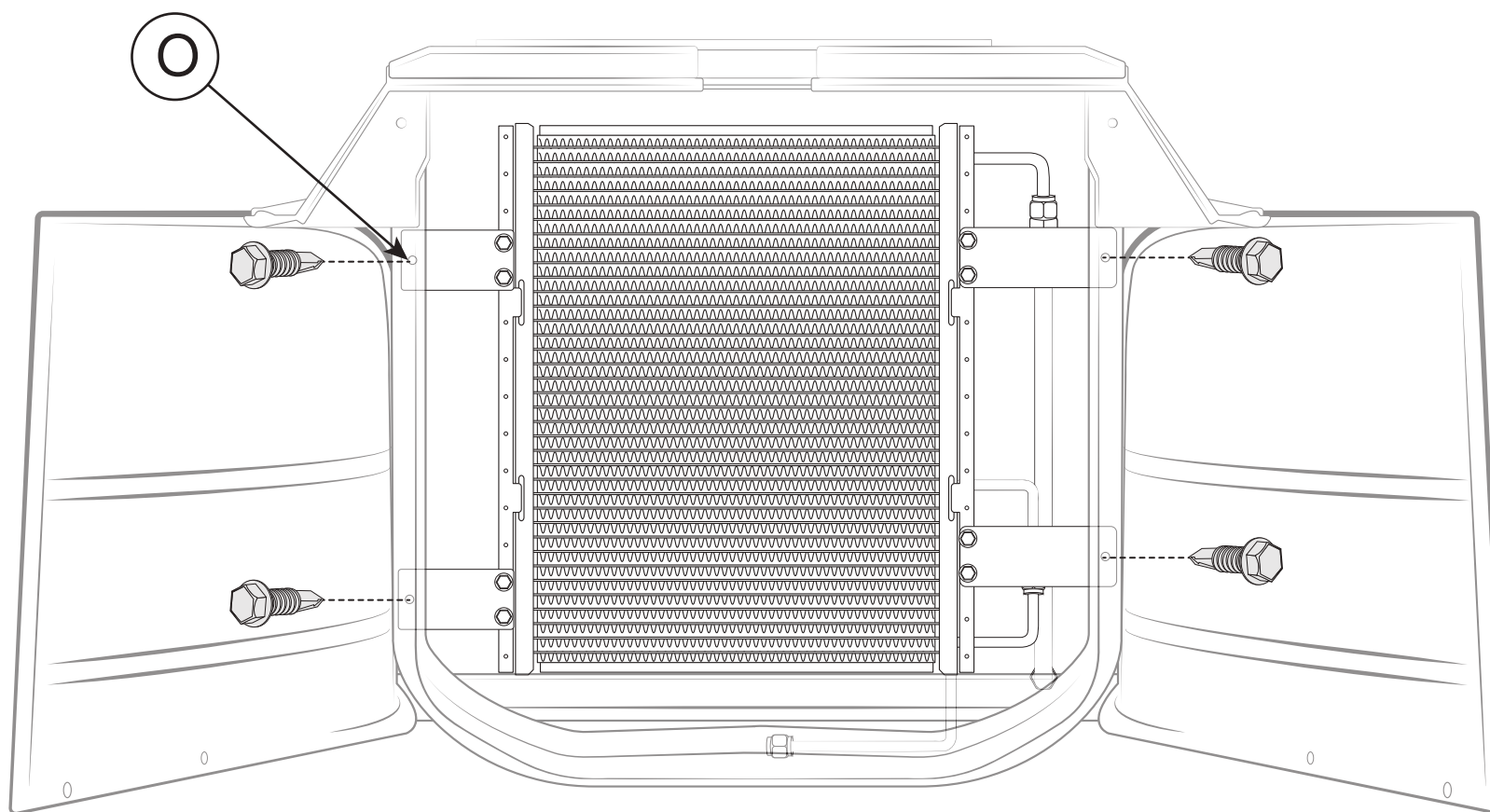
Attach Liquid Tube (**N**)

Tubes (**M**) & (**N**) will dictate location of the Drier on next page.

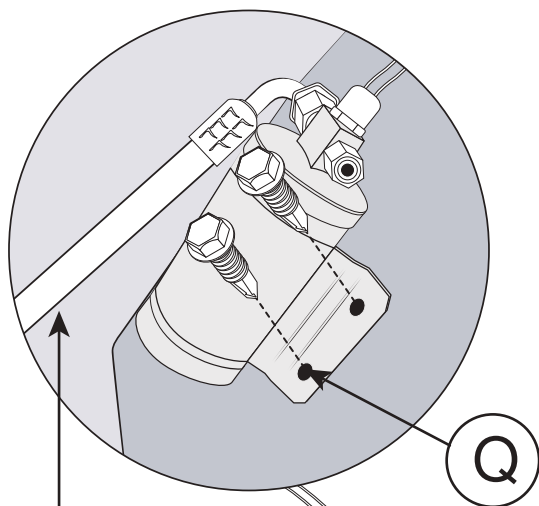


Place condenser assembly inside of radiator mounting frame as shown. Brackets should be inside of frame.

(O) Match Drill the condenser mounting brackets (4) to the radiator mounting flange using (4) #10 x $\frac{3}{4}$ tek screws.

**CAUTION:**

IF VEHICLE IS EQUIPPED WITH A (4) BLADE FAN IT IS NECESSARY TO UPGRADE TO A (6) BLADE FAN.



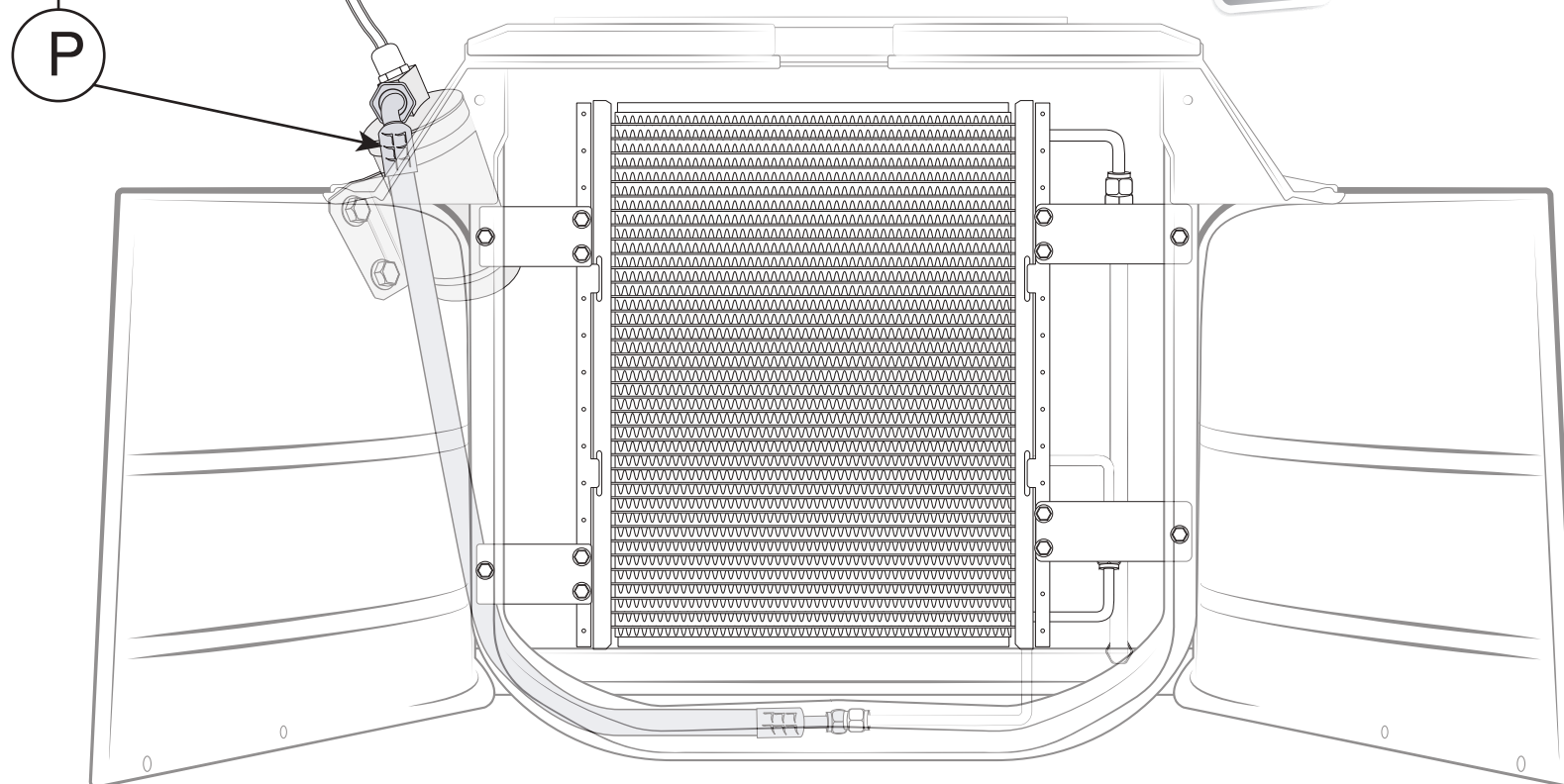
Attach the **(P)** Liquid Hose Assemblies, the shortest hose assembly routes from the liquid tube under the condenser up in front of condenser and attaches to the inlet side of the drier. Use #6 o-ring and a few drops of mineral oil on all fittings.

Mount Drier with Mounting Bracket **(Q)** and Two #10 x $\frac{3}{4}$ tek screws from the parts supplied. Attach the drier assembly to the body on the Passenger side as shown.

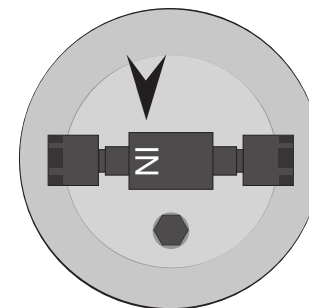
PRESSURE SWITCH: Screw the high-pressure switch into the port on the top of the drier. Go ahead and plug the pressure switch harness into the switch at this time (black electrical boot with two long white wires).



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

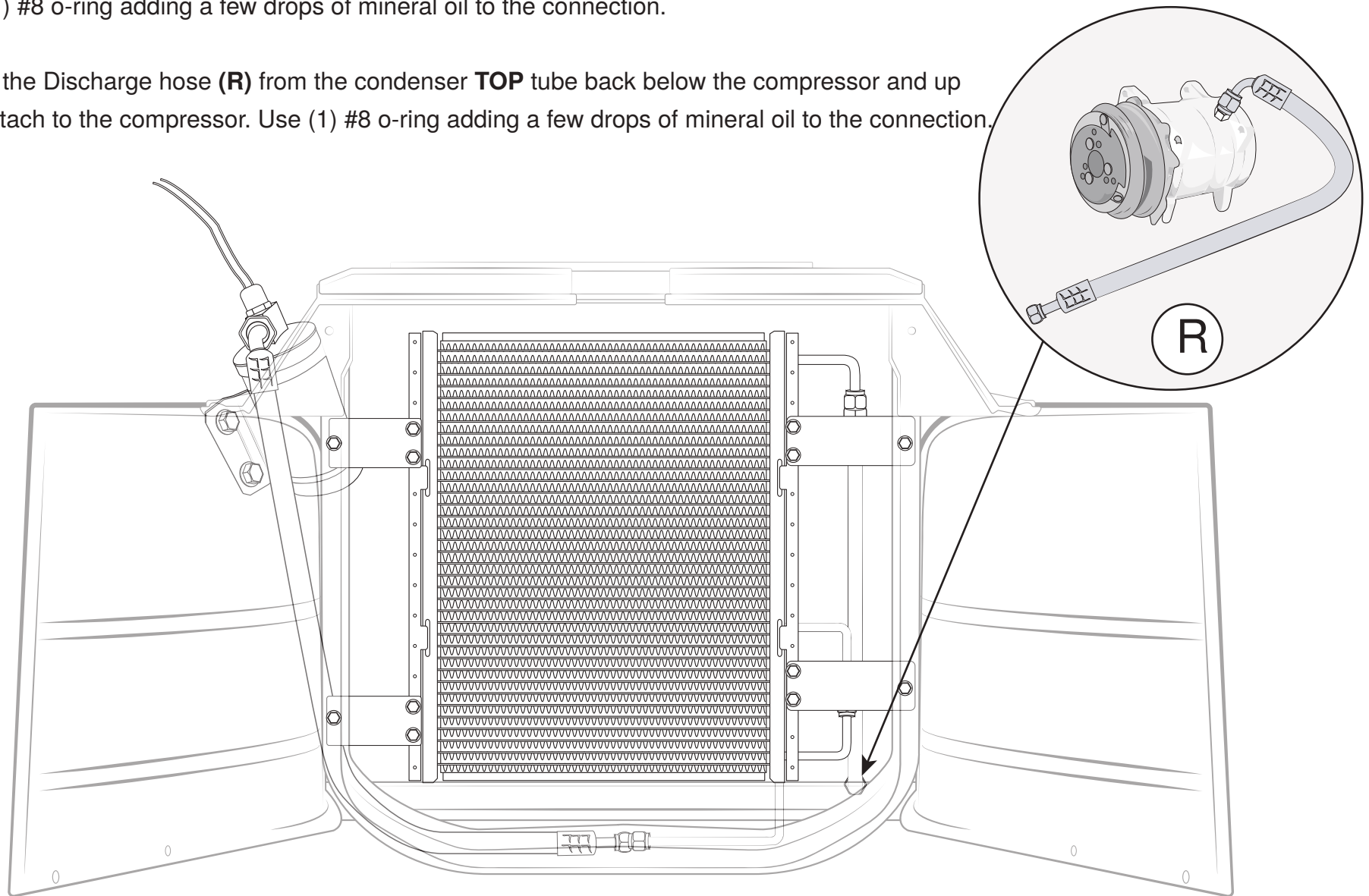


DRIER TOP VIEW



Install the Discharge Hose Assembly (**R**) and attach to the condenser tube coming from **TOP** port.
Use (1) #8 o-ring adding a few drops of mineral oil to the connection.

Route the Discharge hose (**R**) from the condenser **TOP** tube back below the compressor and up and attach to the compressor. Use (1) #8 o-ring adding a few drops of mineral oil to the connection.



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.

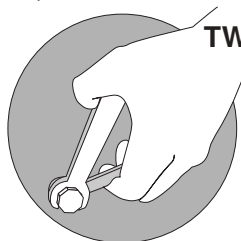
The #10 (**LARGEST**) refrigerant hose. Attach end with service fitting to the compressor using (1) #10 o-ring and a few drops of mineral oil. Attach other end to #10 fitting at the firewall. Attach using one #10 o-ring and a few drops of mineral oil. Tighten securely.

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

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

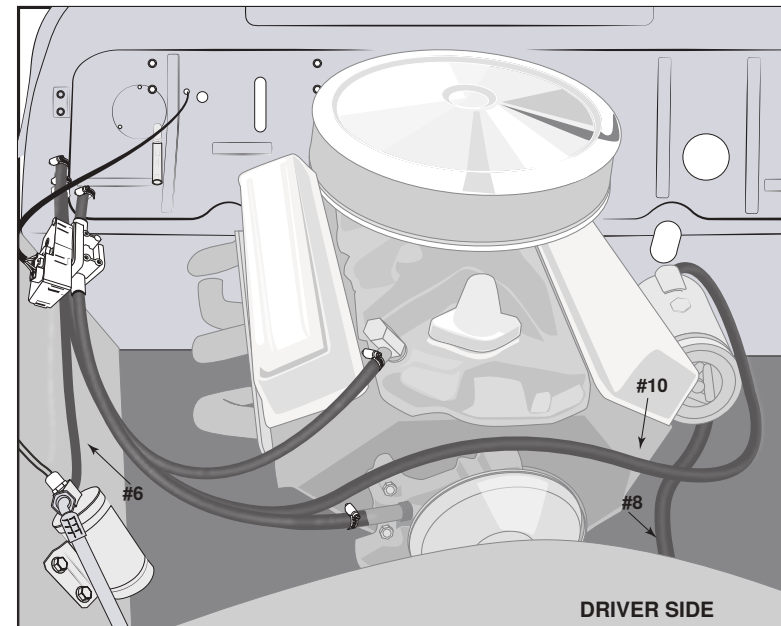
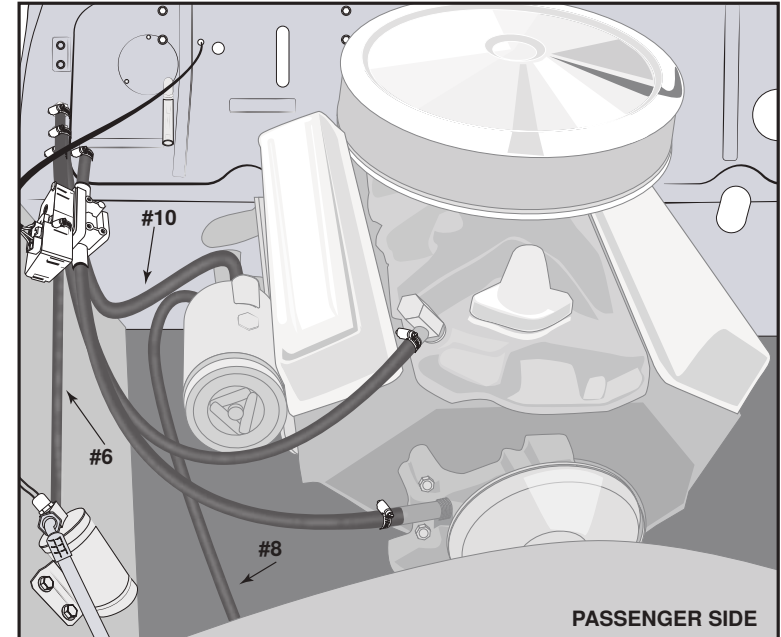
NOTE: THE SUPPLY LINE FROM THE ENGINE WILL BE HOOKED TO THE TOP FITTING USING A WORM GEAR CLAMP.

Reinstall the radiator, the correct fan and Bulkhead support cover



TWO WRENCH METHOD

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



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

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

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



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

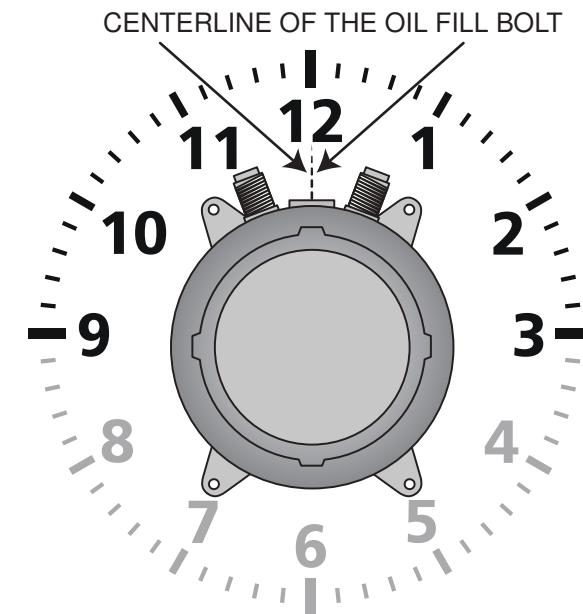
RECOMMENDED TEST CONDITIONS: (After system has been fully charged and tested for basic operation)

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

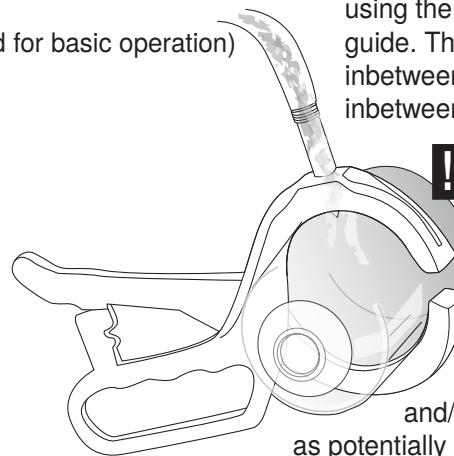
ACCEPTABLE OPERATING PRESSURE RANGES:

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

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



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



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

TROUBLESHOOTING GUIDE

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

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

ACCEPTABLE OPERATING PRESSURE RANGES (R134A TYPE)

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

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

TYPICAL PROBLEMS ENCOUNTERED IN CHARGING SYSTEMS

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

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

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

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

Trouble Shooting Your Classic Auto Air A/C System

PROBLEM: system is not cooling properly

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

Make sure the Water Valve is positioned correctly

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

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

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

Verify Adequate Air Flow to Condenser

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

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

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

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

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

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

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

Step 3: Confirm correct Refrigerant charge in System

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

What measurements mean:

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

You have a malfunctioning expansion valve that is stuck open.

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

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

*Compressor Concerns:

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

SCAN QR code
with your mobile camera

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



● ●

ORIGINAL SUPPORT BRACKET

MATCH UP DOTTED LINE

MATCH UP DOTTED LINE

EVAP TEMPLATE

DRILL (4) HOLES

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





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MATCH UP DOTTED LINE

EVAP TEMPLATE

DRILL (4) HOLES 9/32 DIA



