

Installation Manual

1948-52 FORD PICKUP

DOCUMENT #1-3068

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Congratulations...

You have just purchased the highest quality, best performing A/C system ever designed for your Ford 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 During the installation you might find the opportunity to repair or upgrade non-working or out of date components.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. We're here to help!**

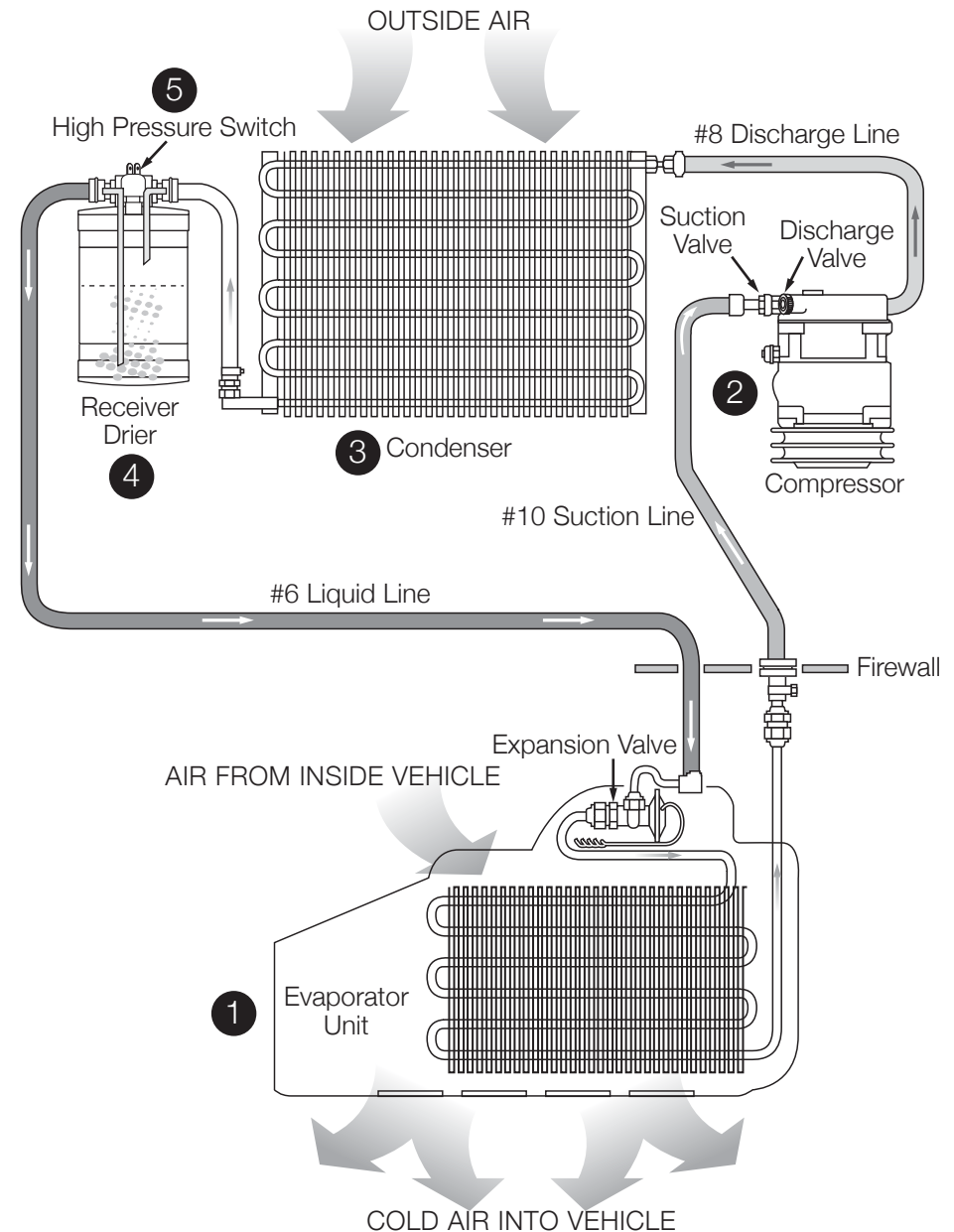
CAUTION: DISCONNECT BATTERY GROUND CABLE, DRAIN THE RADIATOR AND DISCONNECT THE HEATER HOSES FROM HEATER CONNECTIONS ON THE FIREWALL.

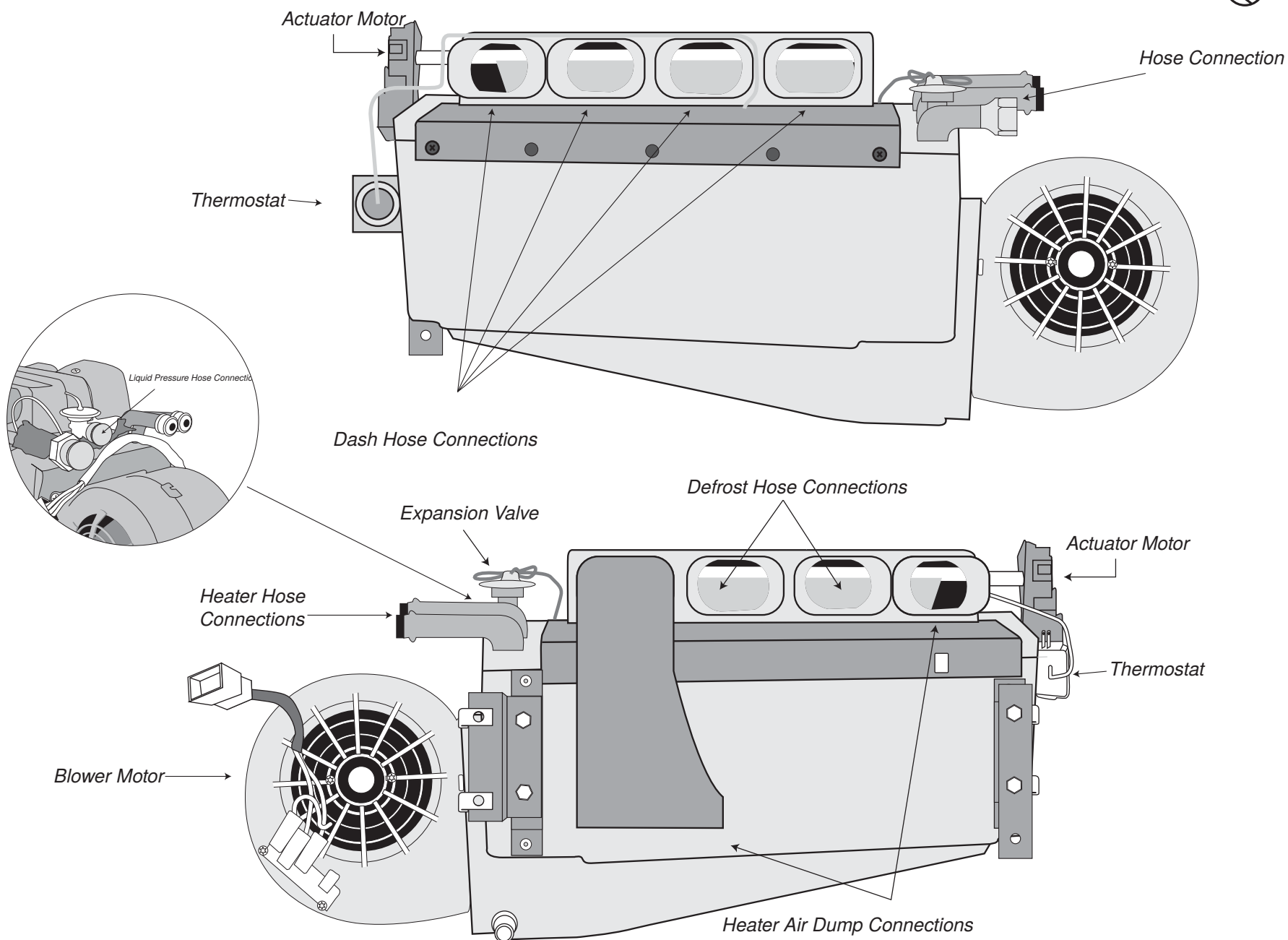
YOU CAN NOW BEGIN THE INSTALLATION...

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.

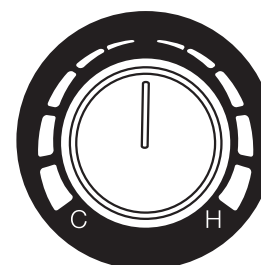
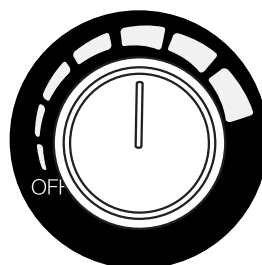
The air conditioning system in your vehicle is comprised of a compressor, condenser, expansion valve, receiver/drier, and evaporator. Refrigerant (also known as Freon) is compressed in the compressor. In the condenser, gas is cooled to a liquid state and travels to the expansion valve. As the liquid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

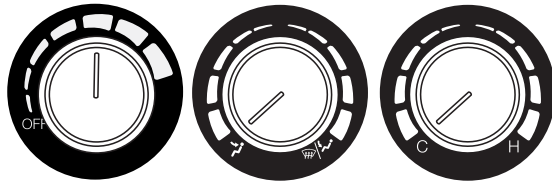


FAN	POSITION	MODE			VALVE POSITION	
SPEED		DASH	DEFROST/FLOOR	COMPRESSOR	HEATER VALVE	COMPRESSOR
0%	1	100%	0%	ON	CLOSED - COLD	ON
10%	2	90%	10%	ON	VARIABLE	ON
20%	3	80%	20%	ON	VARIABLE	ON
30%	4	70%	30%	ON	VARIABLE	ON
40%	5	60%	40%	ON	VARIABLE	ON
50%	6	50%	50%	ON	VARIABLE	ON
60%	7	40%	60%	ON	VARIABLE	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

• Function Test, Steps 1 thru 3

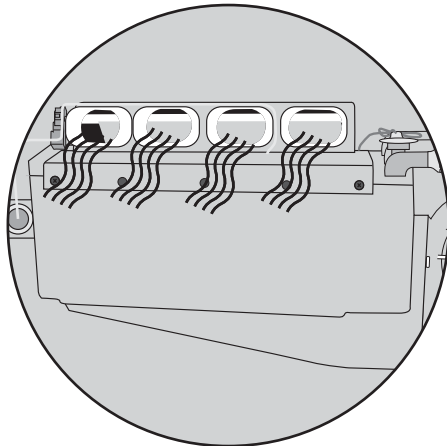
1



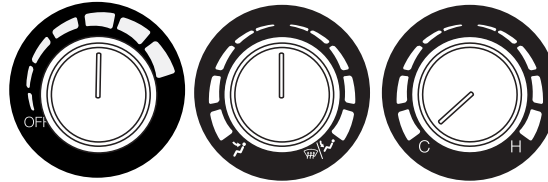
Move FAN knob to HIGH
Move MODE knob to DASH



AIR OUT OF DASH VENTS



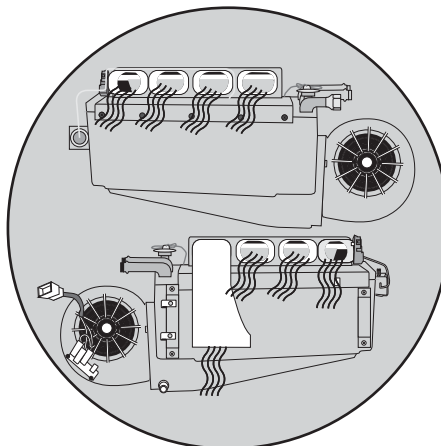
2



Move MODE knob to UP



AIR OUT OF ALL VENTS
(50/50)



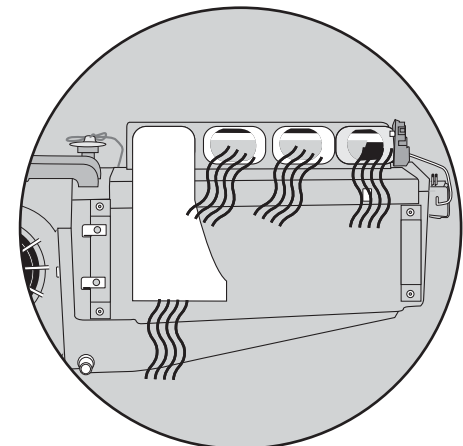
3



Move MODE knob to FLOOR/DEFROST



AIR OUT OF FLOOR/DEFROST VENTS



OPERATION

• Function Test, Steps 4 and 5

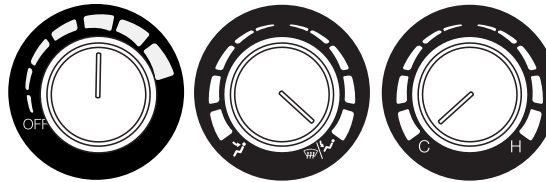
4



Move TEMP knob to HOT



5

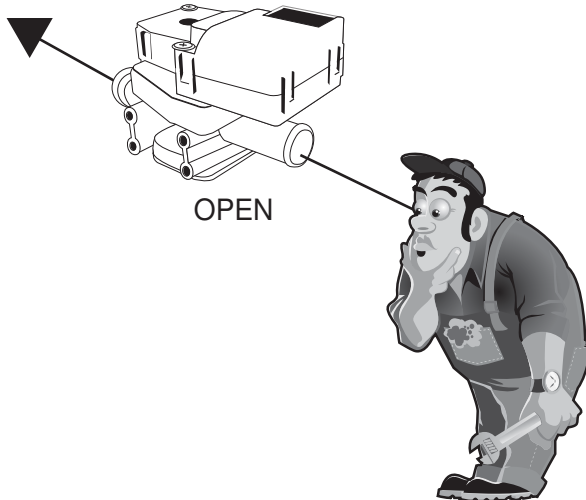


Move TEMP knob to COLD

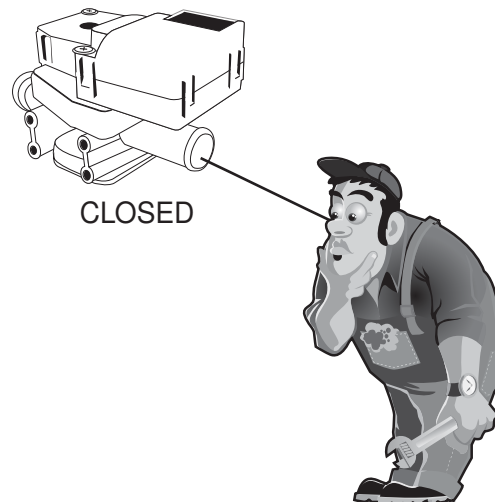


Return all wiring harnesses, water valve, and ECU to their originally bags/boxes (this keeps them organized for future installation steps).

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.



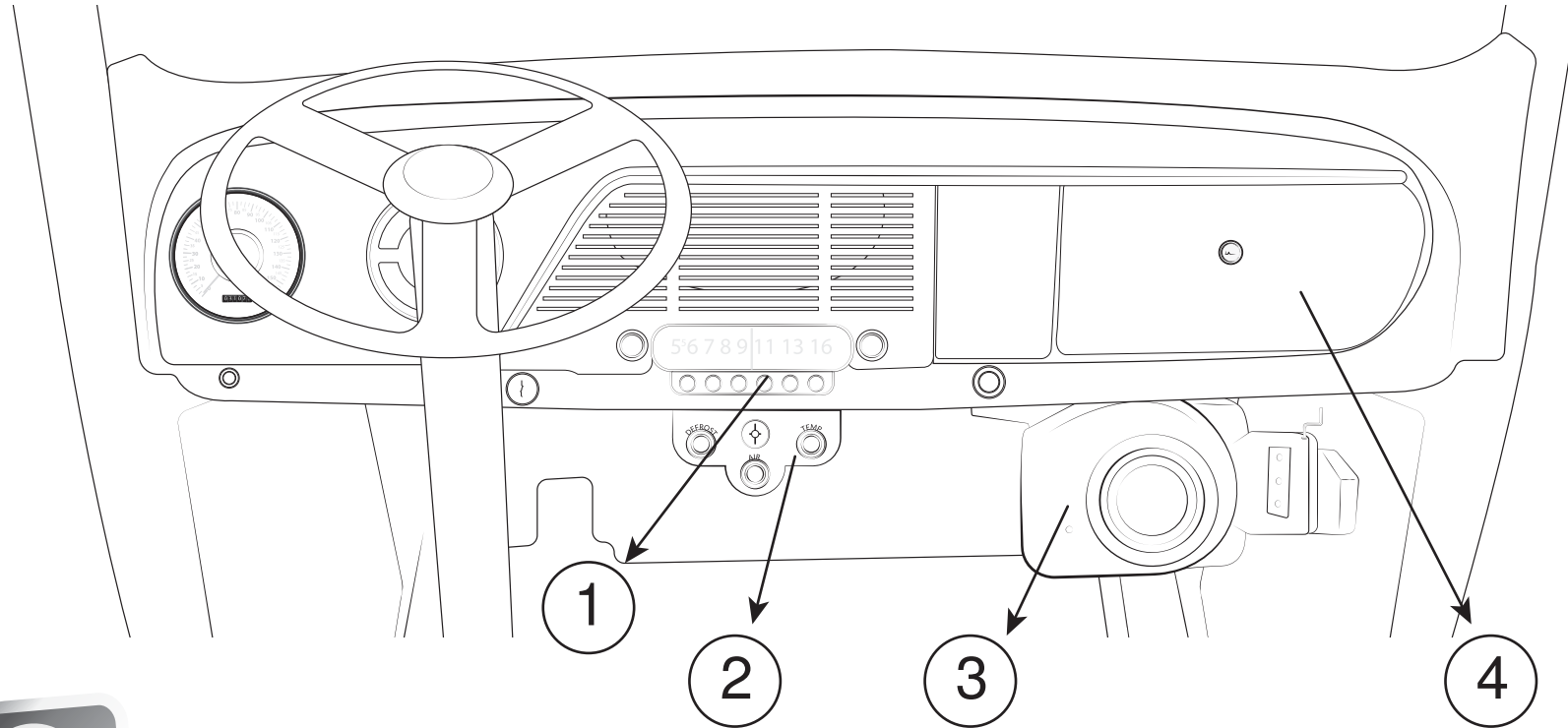
You will be able to see thru water valve passage



You will NOT be able to see thru water valve passage

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

CAUTION: MAKE SURE RADIATOR IS DRAINED AND HEATER HOSES DISCONNECTED

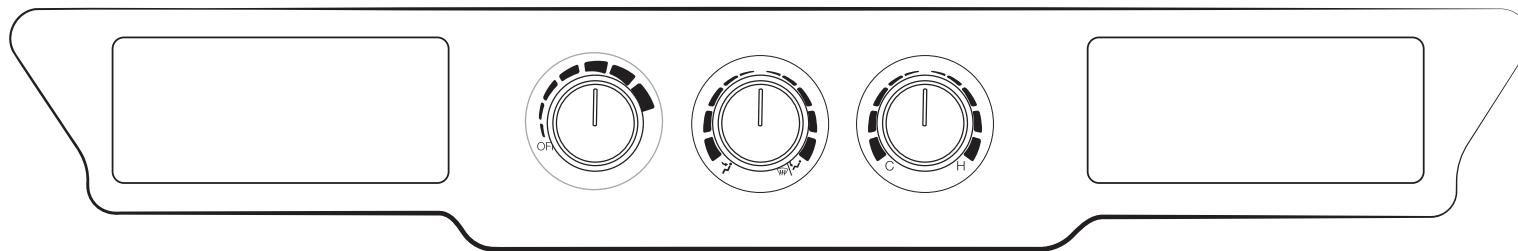


The removal of the Original Heater Assembly is simple.

1. Remove radio and keep hardware for reinstall.
2. Remove Heater controls.
3. Remove interior heater box and Disconnect defrost duct work. *Deluxe Heater Option Shown.*
4. Remove the Glove box door, and remove glove box. Retain glove box door and all original hardware.
Discard the glove box housing.

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.



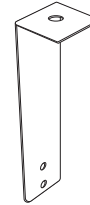
16-3068

THESE ARE THE PARTS YOU WILL FIND IN BAG KIT B

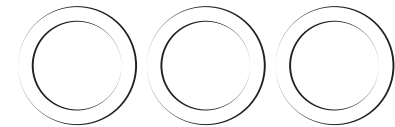
You will use all of these parts and hardware during the next series of installation steps.



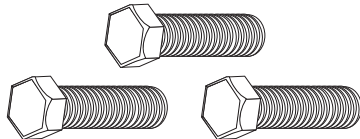
Three 1/4" Washer



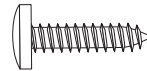
Bracket
0062-1



Three Cap Plugs



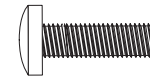
Three #1/4" 20 X 1" Bolts



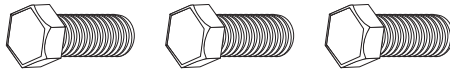
One #10-16 X 5/8" Screw



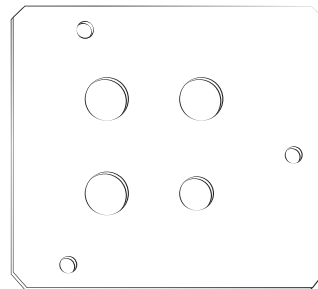
One #10-32 Nylock Nut



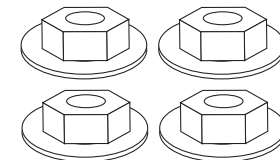
One #10-32 x 1/2" Screw



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

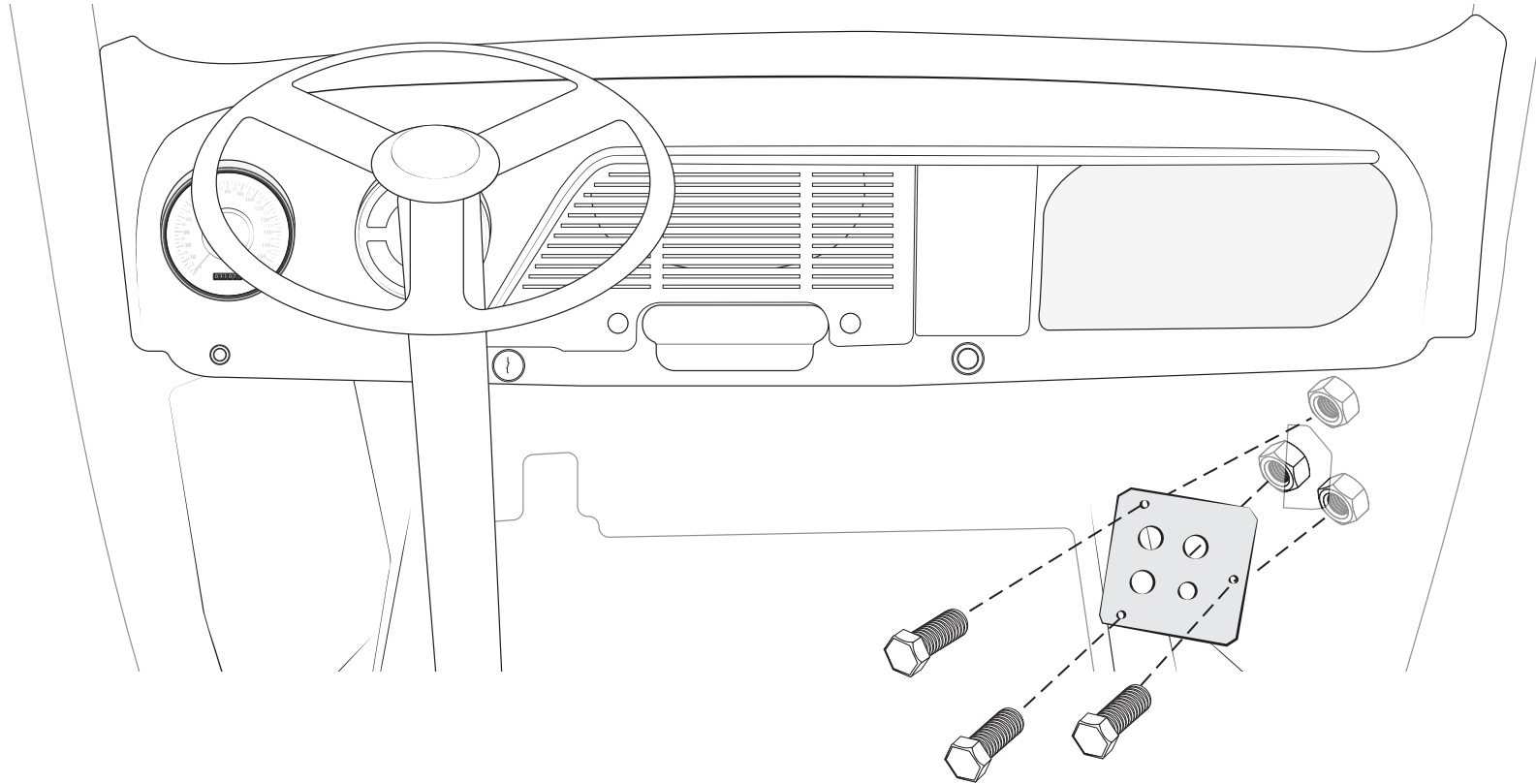


10-1068-1



Four Flange Nuts

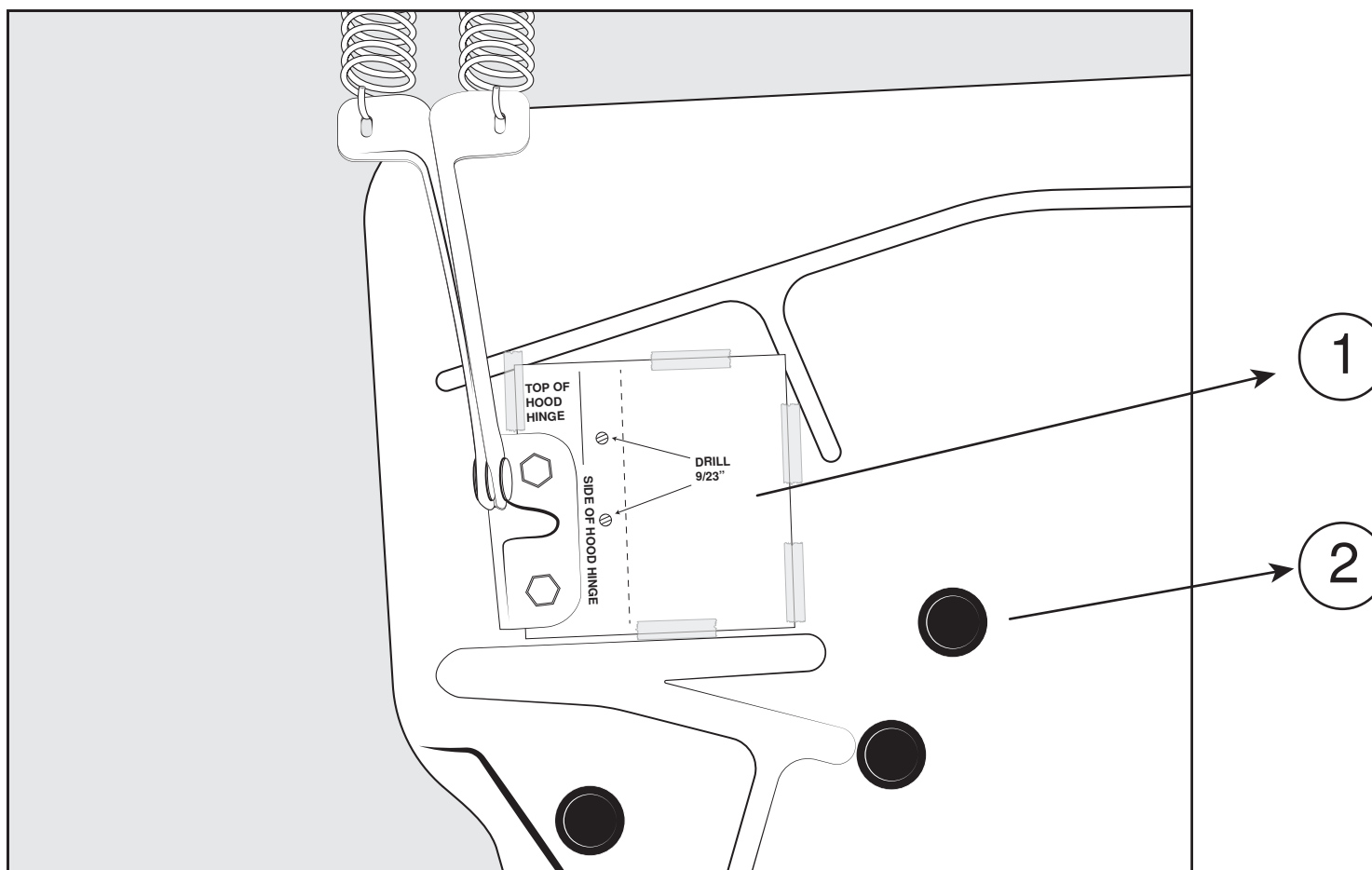
STANDARD HEATER OPTION: KNOCK OUT INLET SECTION ON BODY. DELUXE HEATER OPTION: HOLE WILL ALREADY BE THERE.



To ensure adequate cooling we have designed this kit to use a large evaporator unit. This decision along with the battery mounted on the firewall, therefore this kit is designed for all heater & A/C hoses to be routed in the passenger wheel well.

Align inlet cover plate with hole in kick panel.

Standard heater trucks will need to match drill (3) holes and attach with (3) 1/4-20 x 5/8 bolts & (3) 1/4-20 flange nuts.

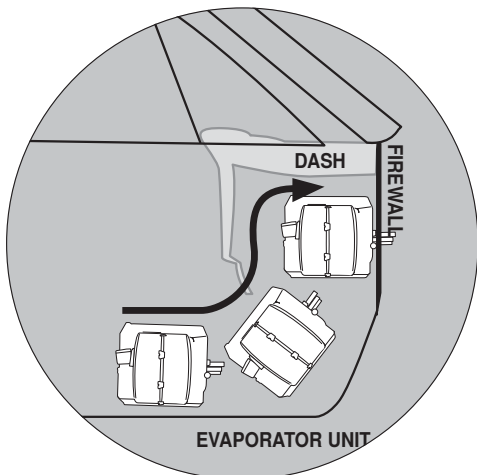
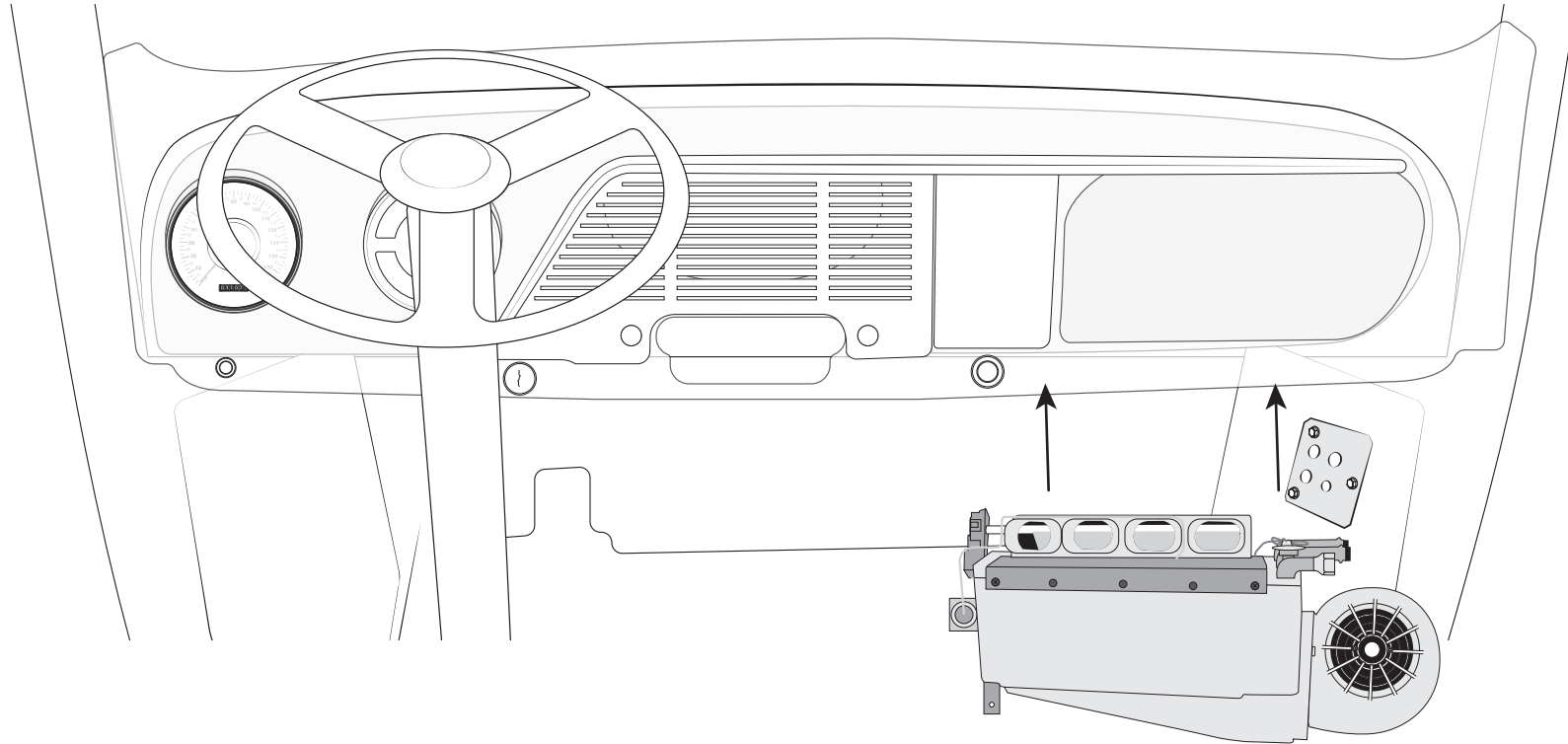


Locate on back of the Installation Instruction a Drill Template. Tape the template on the firewall along the hood hinge as shown.

(1) Drill holes as indicated on template.

(2) Install Three 1 ½" cap plugs

NOTE: Two people are needed for this step!

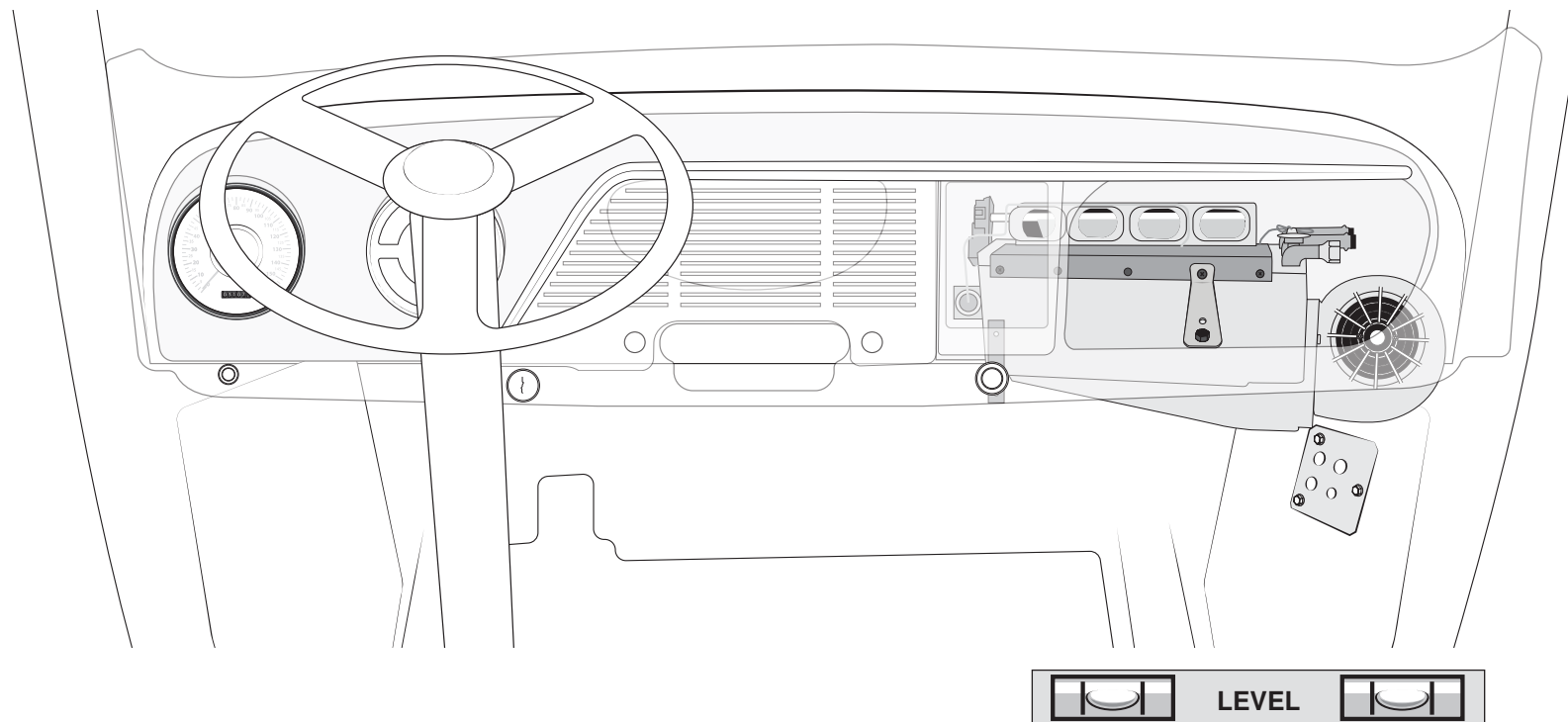


Place evaporator unit on floor panel. Roll unit up behind glove box opening,

One person inside the cab holds the evaporator level in position. The other person in the engine bay will attach the evaporator to the firewall using (2) 1/4-20 x 1" bolts and (2) 1/4 washers in holes previously drilled. (Leave loose at this time)

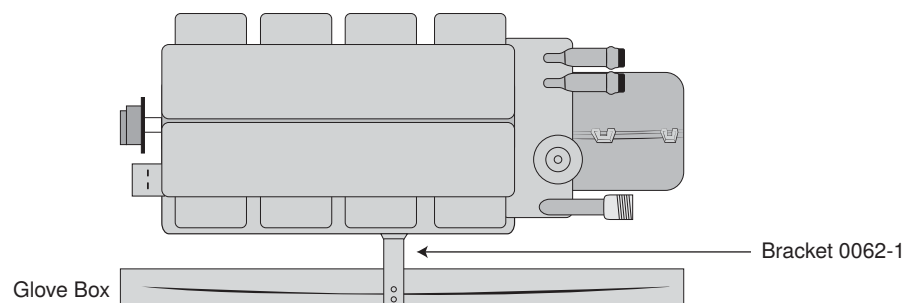


NOTE: Two people are needed for this step!



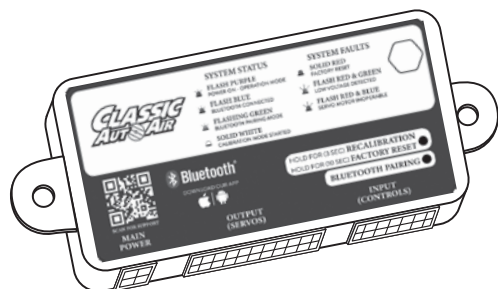
Match drill the rear evaporator bracket and with a person on the engine side attach with (1) 1/4-20 x 5/8 bolts and (1) 1/4 washers and (1) 1/4-20 flange nut.

Attach support bracket 0062-1 to the evaporator with (1) #10-32 x 1/2" Screw, (1) #10-32 Nylock Nut, and (1) #10-16 X 5/8" Screw.

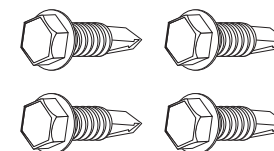


THESE ARE THE PARTS YOU WILL FIND IN BAG KIT C

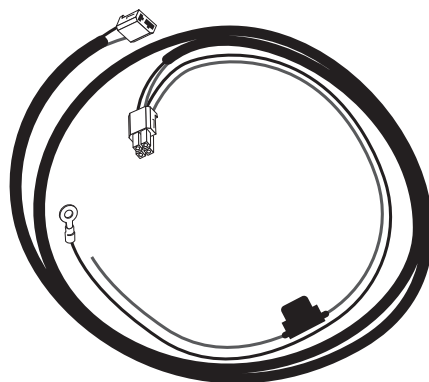
You will use all of these parts and hardware during the next series of installation steps.



ECU
16-2500



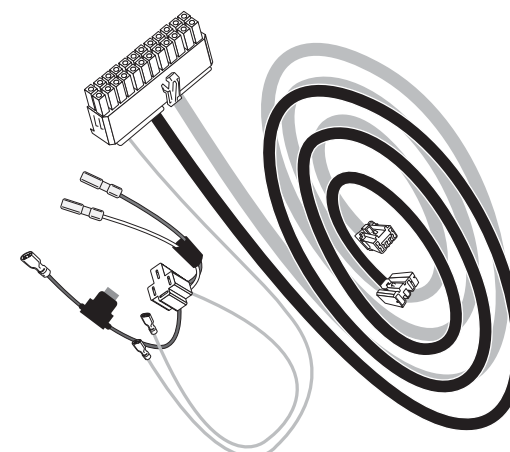
Four #10 - 16 x 3/4" Tek Screws



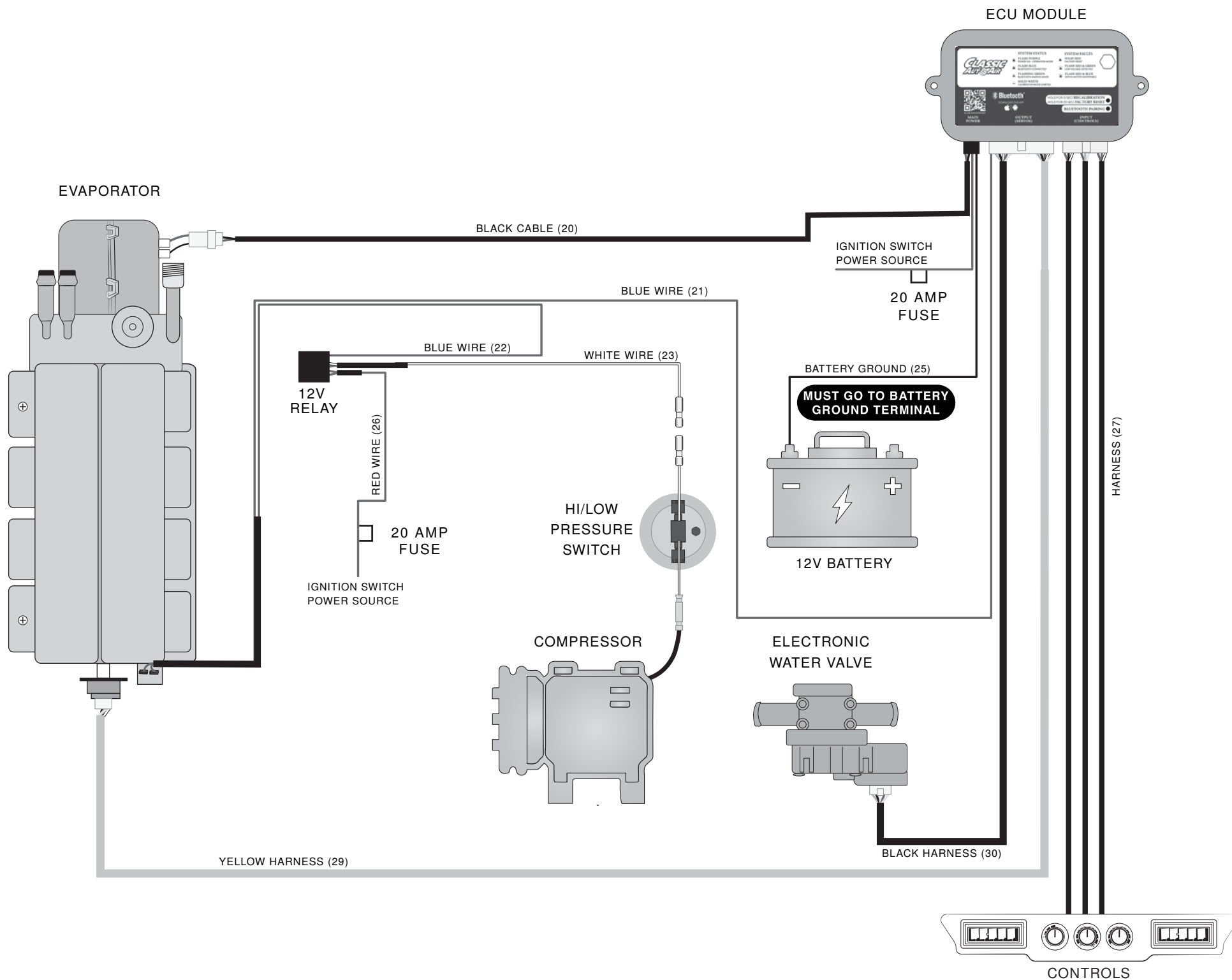
HARNESS POWER SUPPLY
0125-5



Relay
30-13373

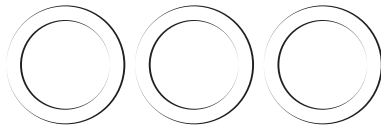


HARNESS
0125-20A

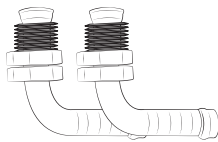


THESE ARE THE PARTS YOU WILL FIND IN BAG KIT D

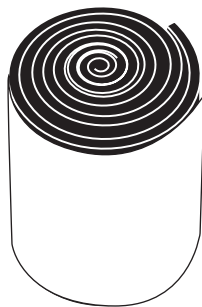
You will use all of these parts and hardware during the next series of installation steps.



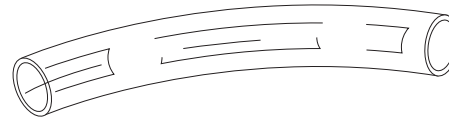
Cap Plug



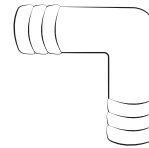
Two Heater Bulkhead Fittings



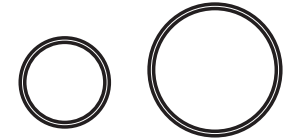
Refrigerant Tape



Clear Plastic Drain Tube

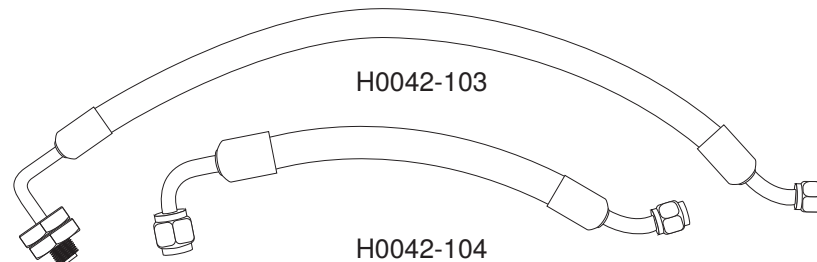


90 Degree Elbow



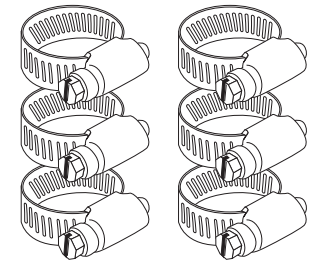
#6
O-ring

#10
O-ring

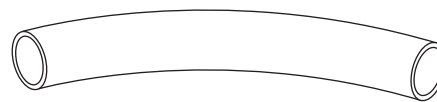


H0042-103

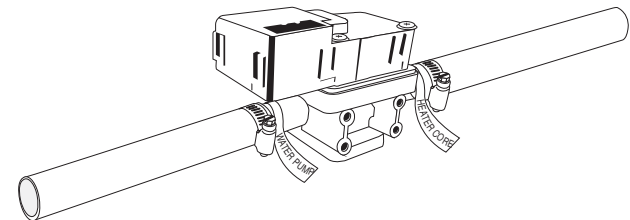
H0042-104



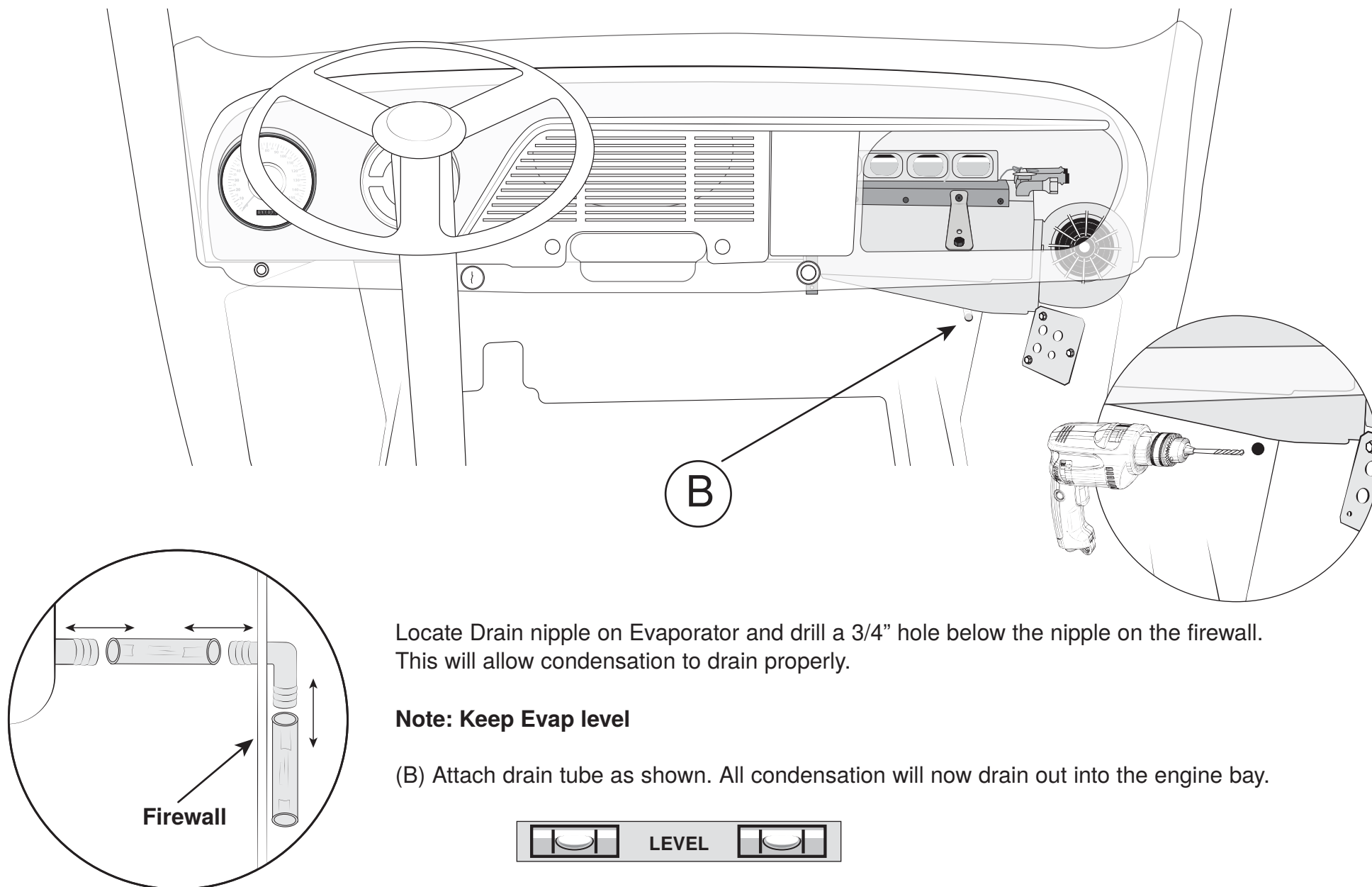
Six Worm Gear Clamps



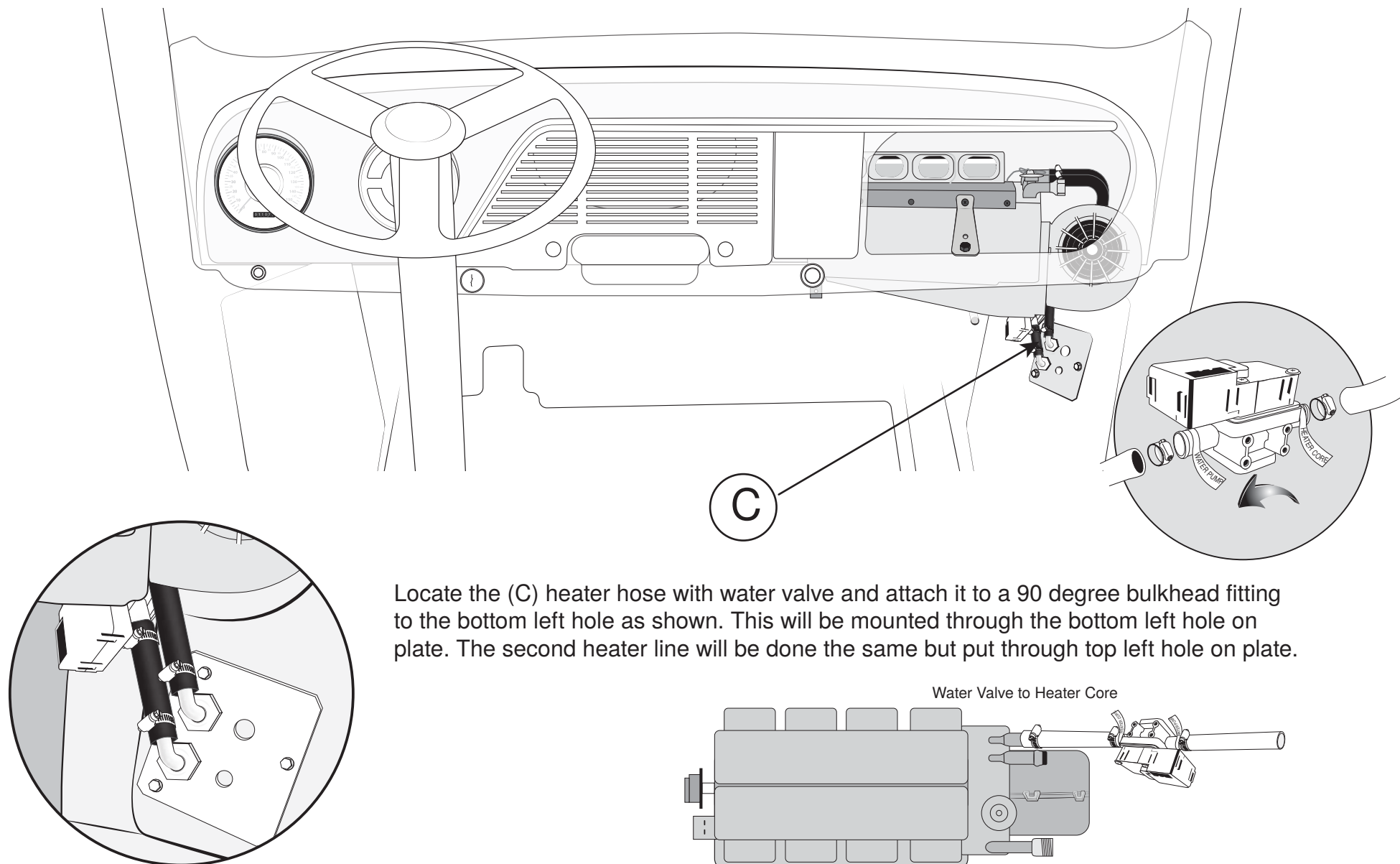
Heater Hose
13"



Heater Hose With Water Valve
Assy

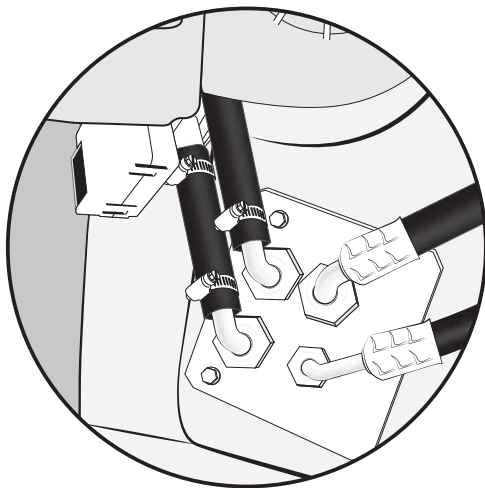
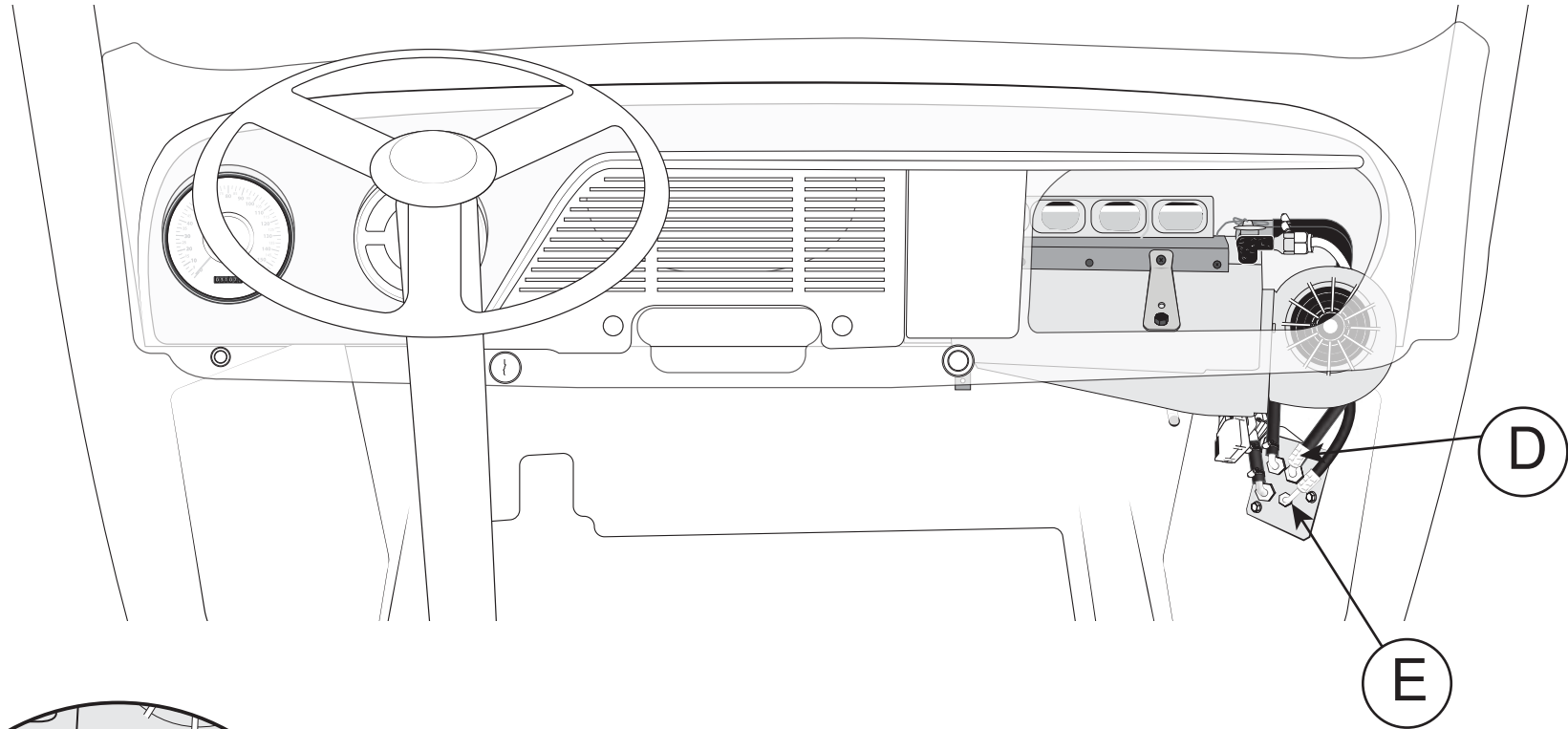


Note: Follow the tags on the Water Valve ... CHECK IT TWICE BEFORE PROCEED-



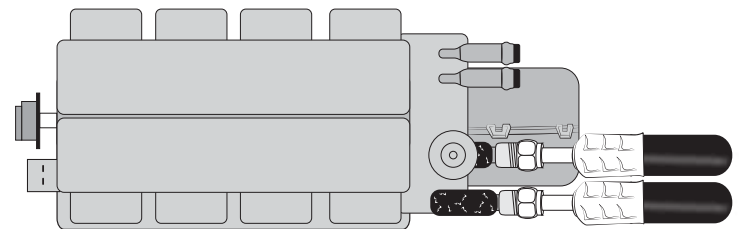
Locate the (C) heater hose with water valve and attach it to a 90 degree bulkhead fitting to the bottom left hole as shown. This will be mounted through the bottom left hole on plate. The second heater line will be done the same but put through top left hole on plate.

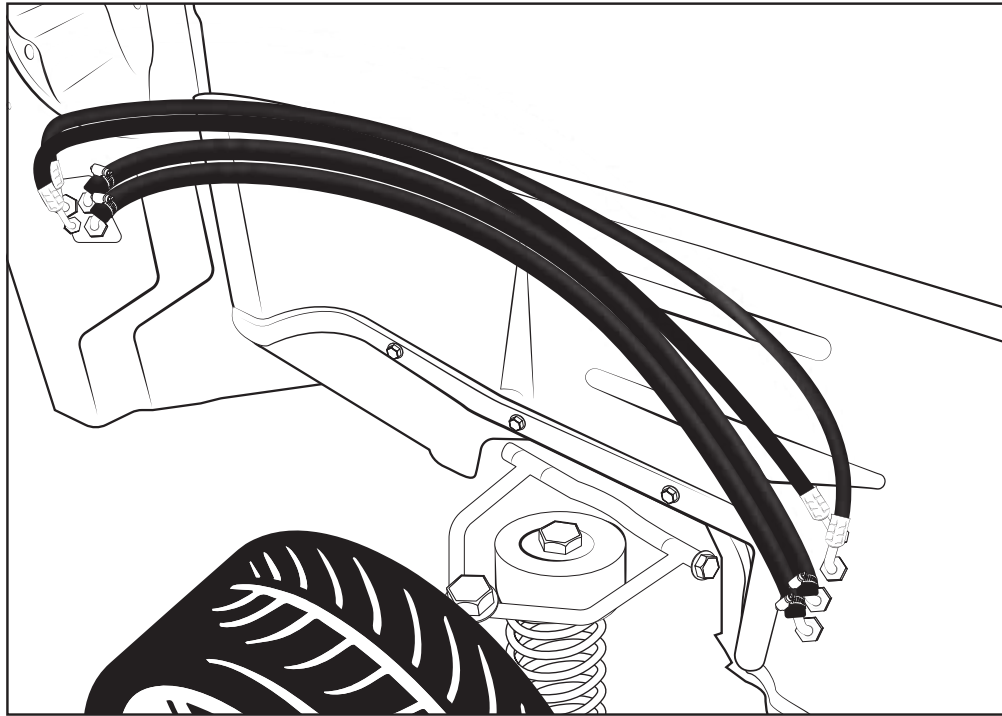
Water Valve to Heater Core



Locating (D) the suction hose and route it to the top hole on right side of plate. Route (E) liquid line to bottom right side of plate as shown. Make sure to use o-rings and a few drops of mineral oil.

Wrap suction and Liquid fitting with Refrigerant Tape.





Remove the front tire and set aside.

Locate in the condenser box the long #10 suction hose with the bulkhead fitting, (1) #6 liquid hose with bulkhead fitting, (2) 90 deg heater fittings, and (2) 90 deg heater bulkhead fittings.

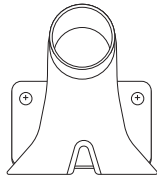
Locate the template at the last page of instructions.

Drill (4) holes to the diameter as stated on the template to the inner fender in front of the shock cover. Insert the fittings through the drilled holes and attach using nuts on the engine side. Tie-wrap the hoses together.

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.

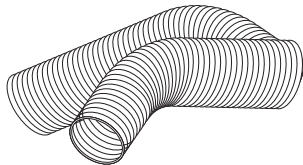
Bag E



0045-24



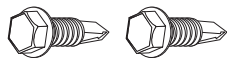
03-1800



Two Duct Hoses, 2" I.D.



Four #6 x 3/8" Phillips Screws

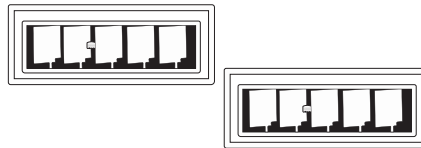


Two #10 Tek Screws

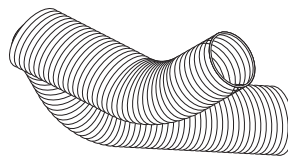


Four Zip-Ties

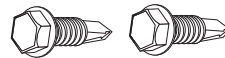
Bag F



Lower Vents
PN# 2-1015



Two Duct Hoses, 2" I.D.

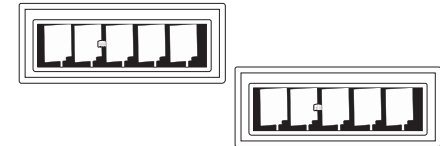


PN# 10B75HW3Z

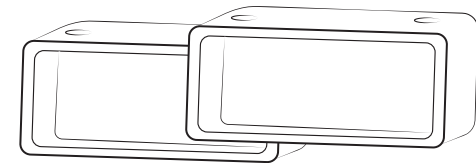


Four Zip-Ties

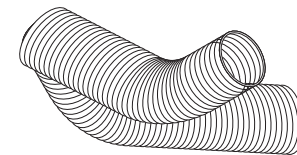
Bag G



Lower Vents
PN# 2-1015



PN# 0062-7



Two Duct Hoses, 2" I.D.



PN# 10B75HW3Z



Four Zip-Ties

If your Pick-Up Does NOT have hose adapters

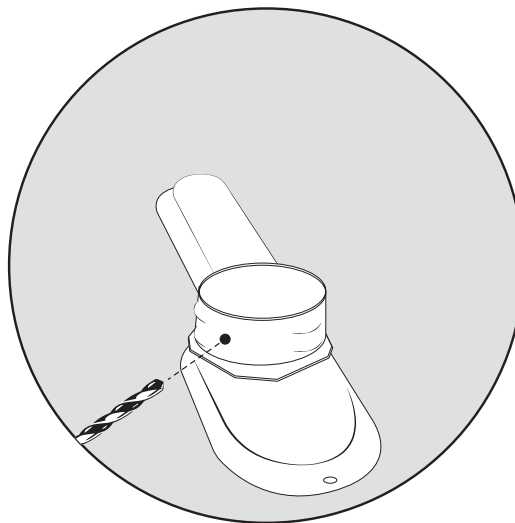
1

Remove the diffuser from the truck and using a pair of pliers bend the tabs outward.

Locate (2) 2" hose adapters from the BAG E.
Place them over the outlet as shown.

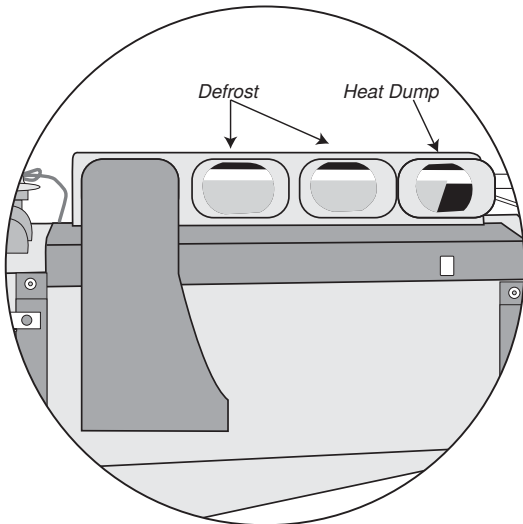
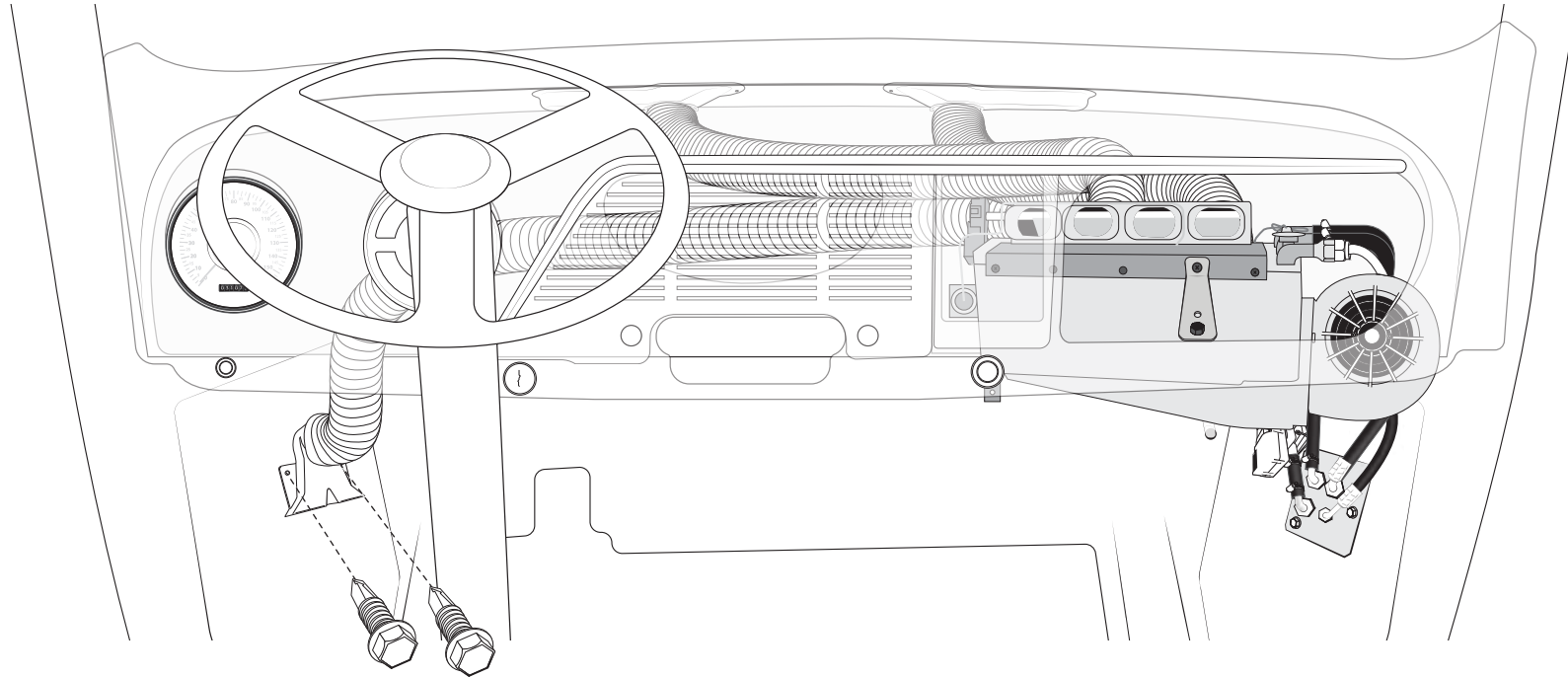
**2**

Drill holes through the plastic and into the metal diffuser.

**3**

Attach with (2) #6 screws as shown.
Reinstall with original hardware.

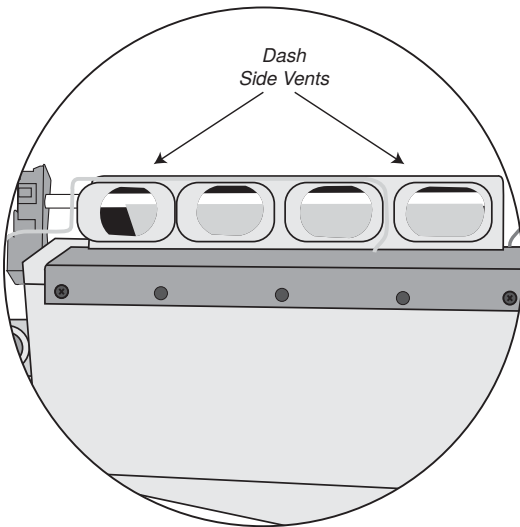
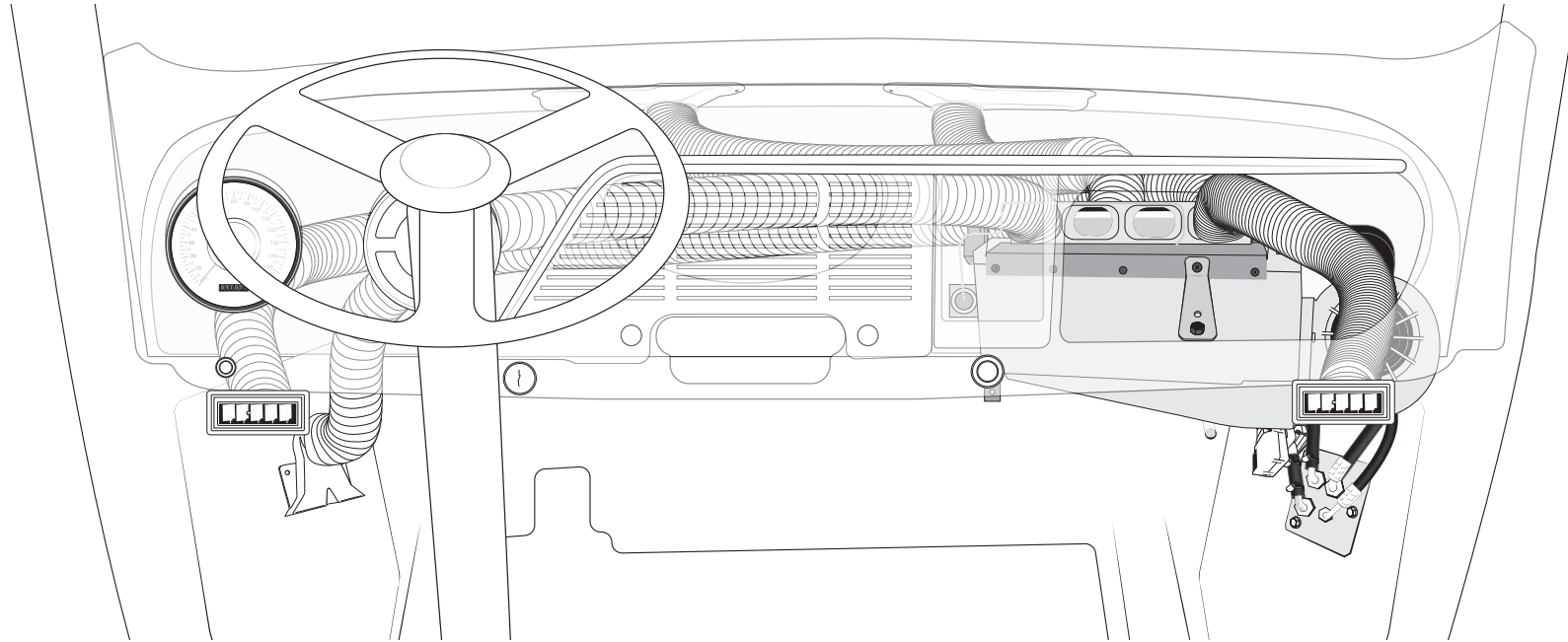




Route duct hose from rear hose adapters to each defrost diffuser. Make certain hoses are clear from any moving parts of windshield wipers.

Attach Driver side heater Dump using (2) #10 Tek screws.

Route duct hose from remaining hose adapter on rear of unit. Attach with (2) Zip-ties.

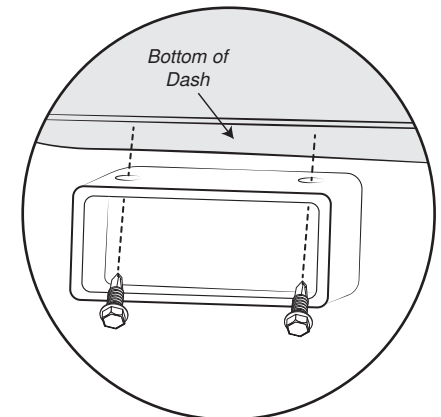


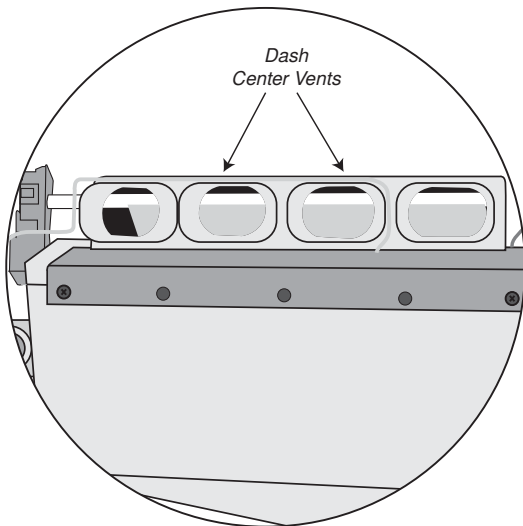
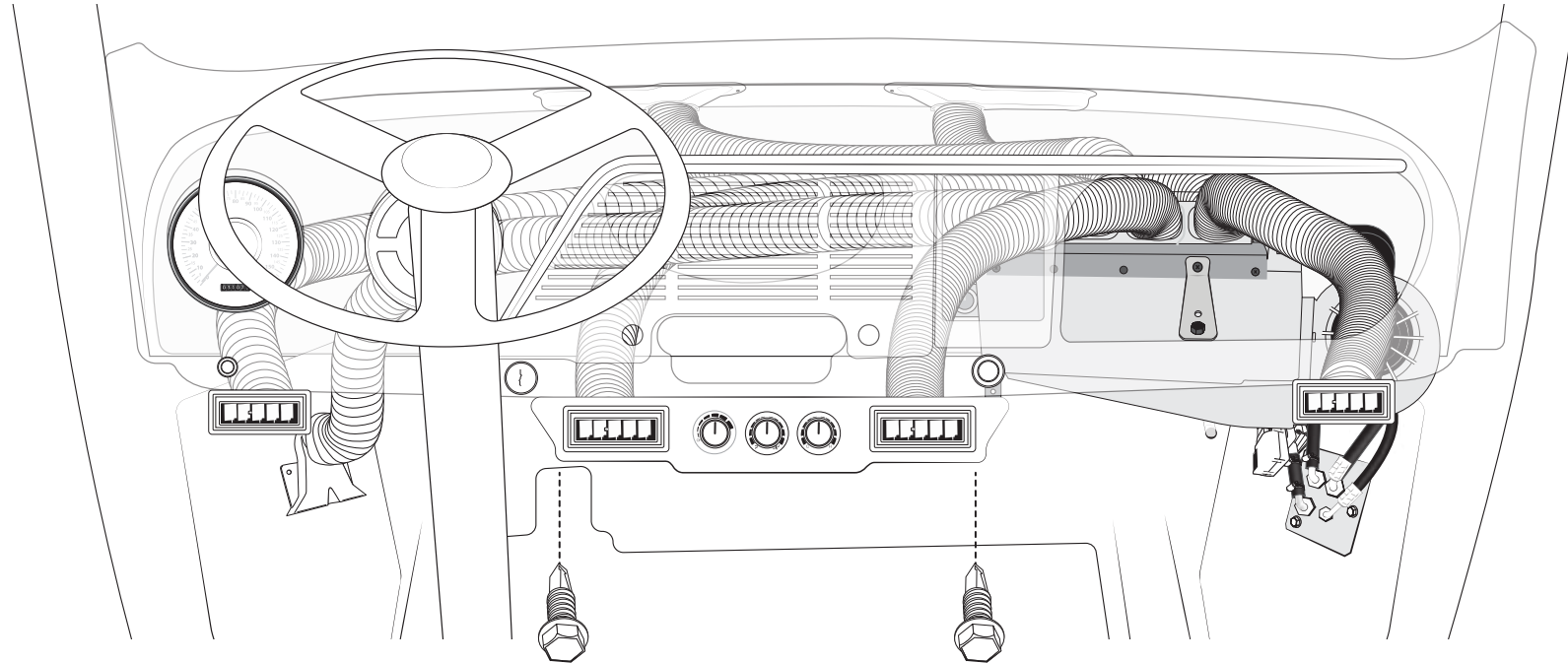
Locate in BAG G Louvers, Louver Bezels and (4) #10 x $\frac{3}{4}$ tek screws.

Attach to dash in desired locations.

NOTE: Housings have to be mounted first, then louvers.

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

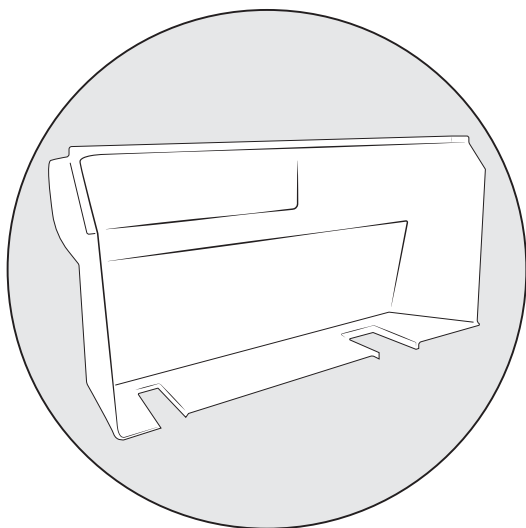
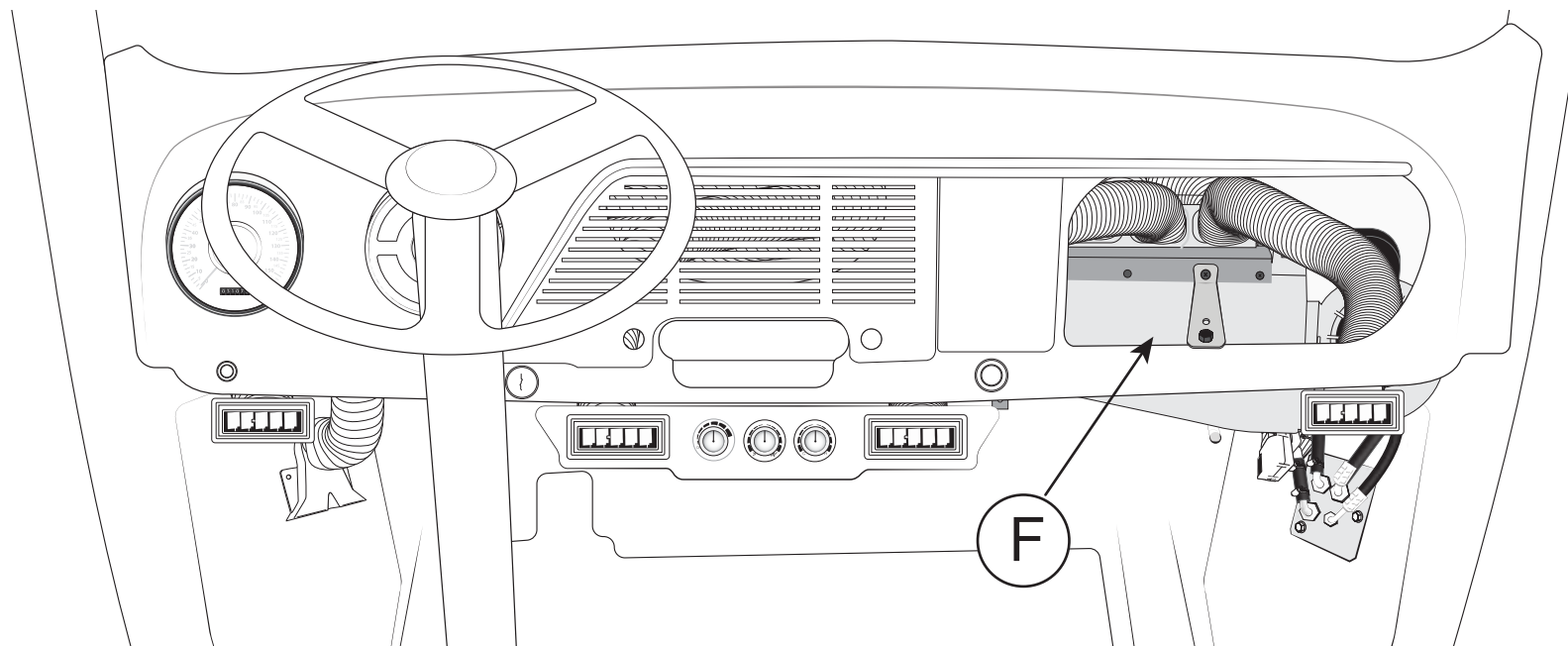




Locate in BAG F Center Louver Assy and (2) #10 x $\frac{3}{4}$ tek screws.
Attach to dash in desired locations.

NOTE: Housing have to be mounted first, then louvers.

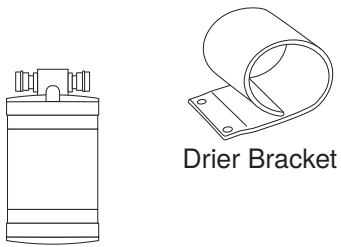
Route duct hose from center (2) hose adapters to each vent on bezel (cut hoes to length)
attach using (2) zip ties.



Locate new Glove Box (F) and loosely install into the opening. Install Glove Box Door using the original hardware. Complete glove box install using the original hardware.

NOTE: Install glove box over the hinges from the door.

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

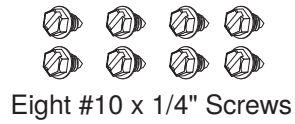


Drier Bracket

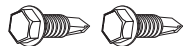
Drier



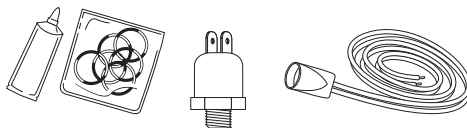
Splice and
Bullet Connector



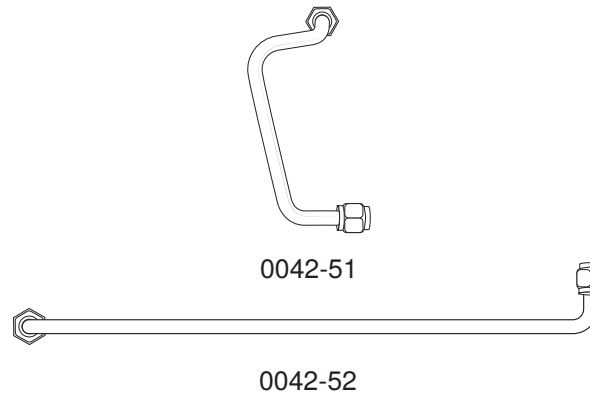
Eight #10 x 1/4" Screws



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

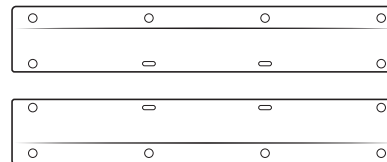


Pressure Switch and harness,
Bag of O-rings and Mineral Oil Tube



0042-51

0042-52



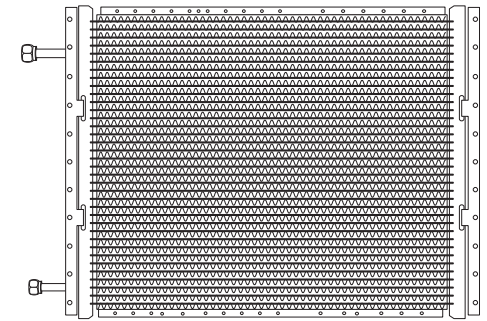
Two 0042-50
Mounting Brackets



Four #1/4" 20 X 5/8" Bolts

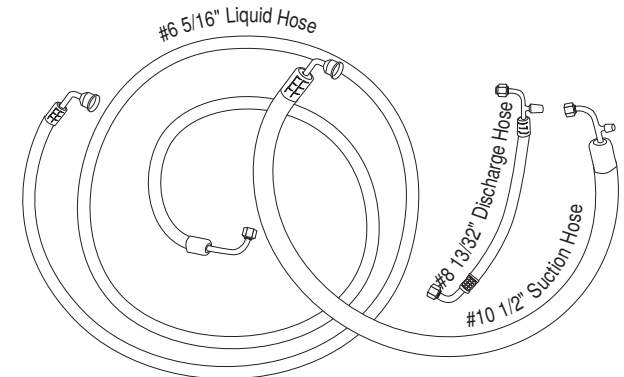


Four #1/4" x 20 Flange Nuts



Condenser
PN# 11-1041

19-151

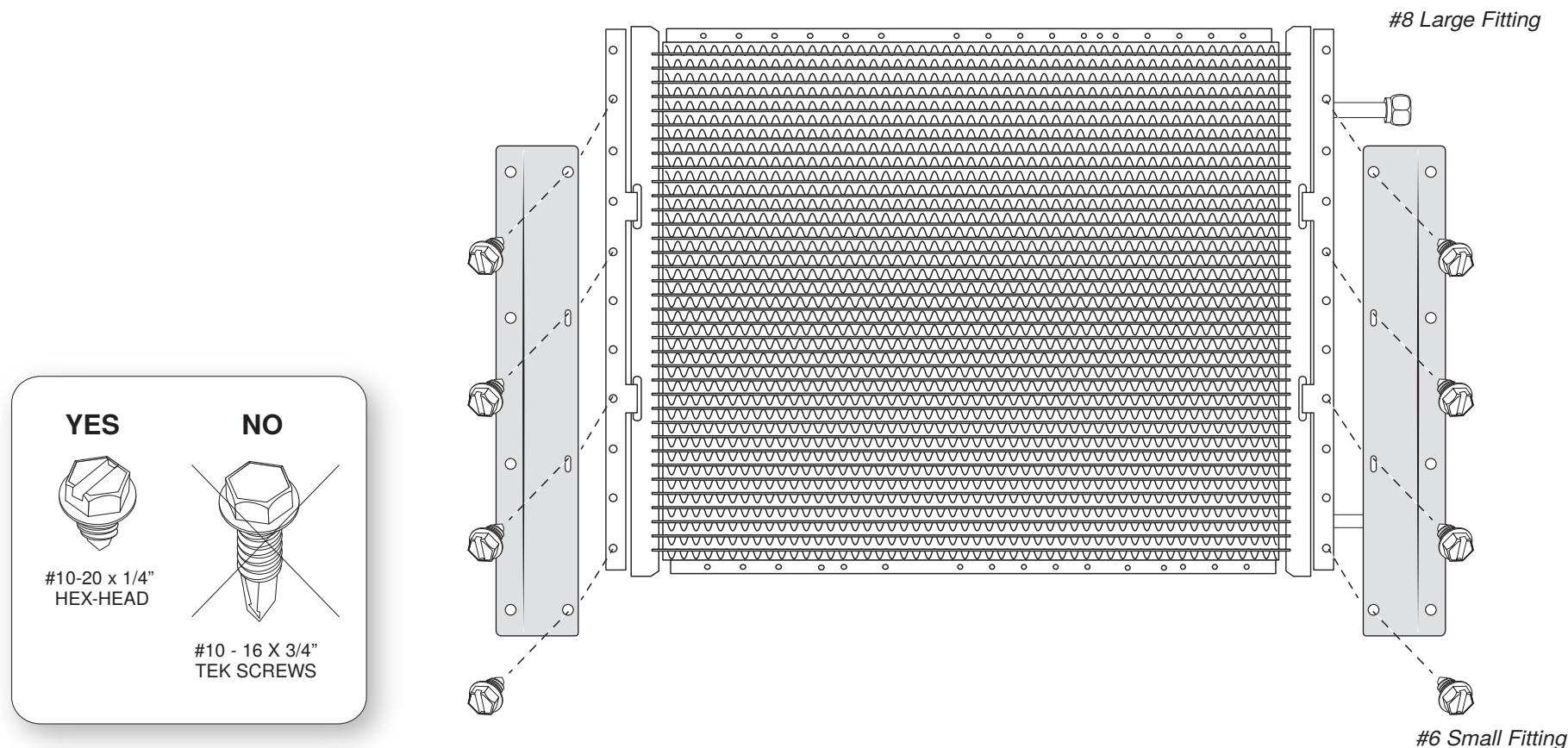


Three Refrigerant Hoses

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.

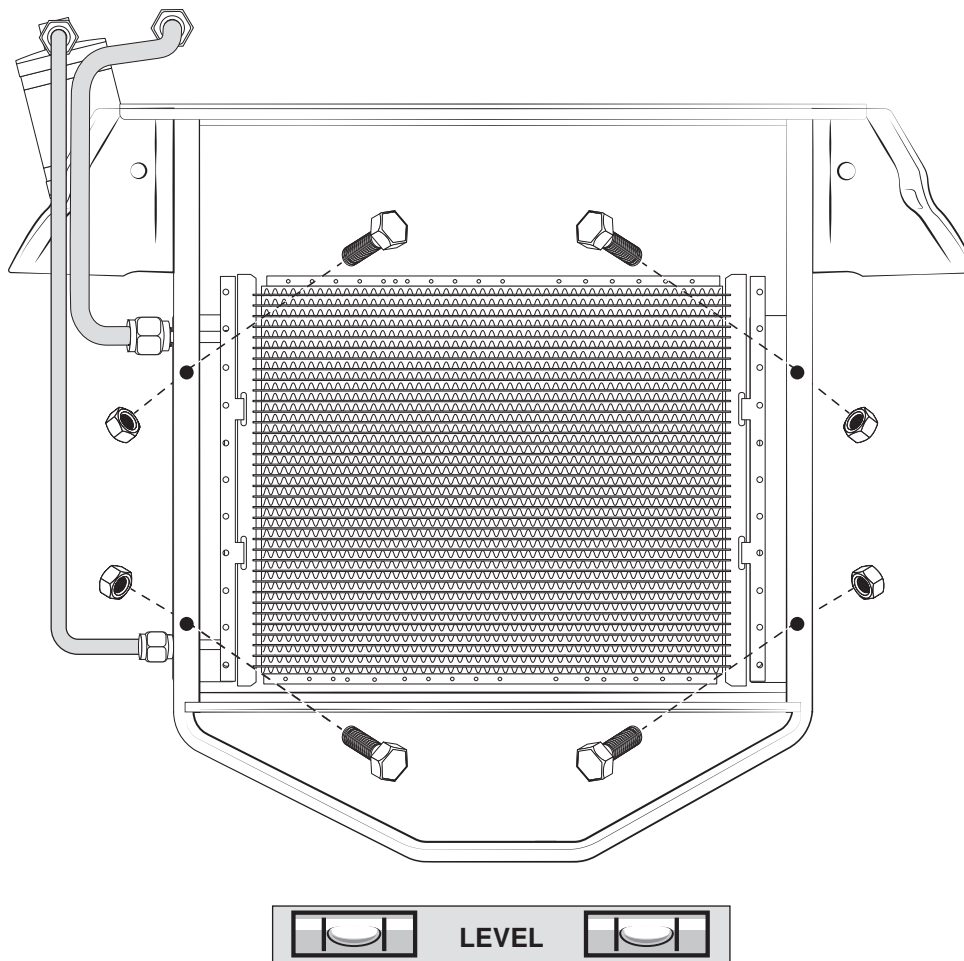
Mount brackets with the slotted side down. The Small bent will be towards you. Attach the brackets



Attach these components on condenser as shown.

Match Drill the condenser mounting brackets to front of the radiator using (4) $\frac{1}{4}$ " – 20 x $\frac{5}{8}$ " hex head screws and $\frac{1}{4}$ " – 20 flange nuts.

Attach Liquid Tube (Condenser to Drier), and Discharge Tube using o-rings and a few drops of mineral oil.



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



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

Connecting the Hoses



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

CONNECTING THE HOSES:

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

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

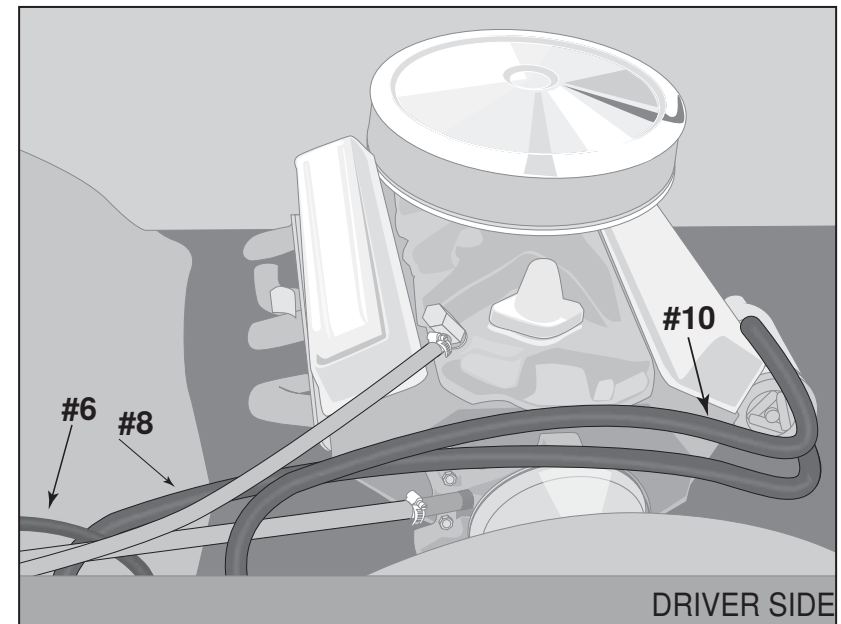
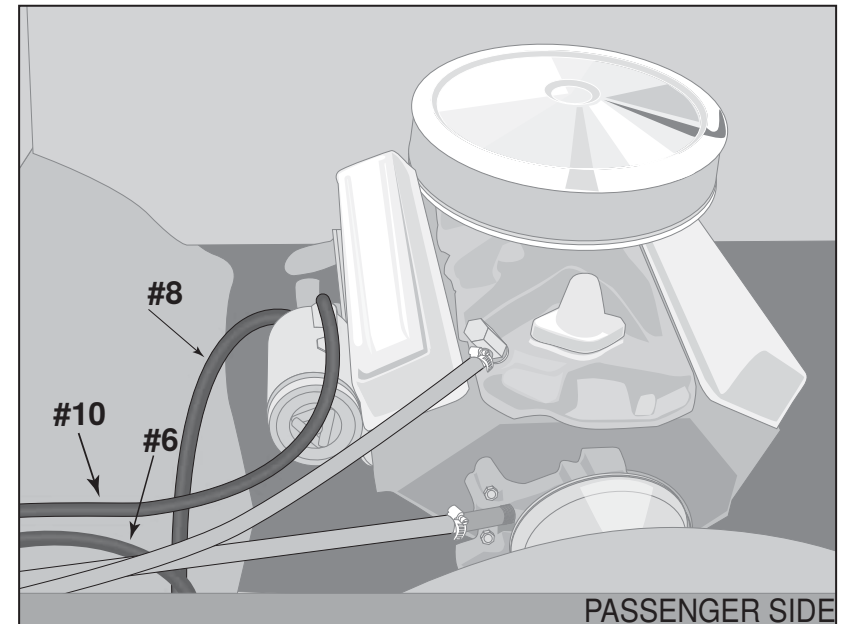
The #6 (**SMALLEST**) refrigerant hose. Route behind fender and to the connection on firewall. Attach using two #6 o-ring and a few drops of mineral oil.

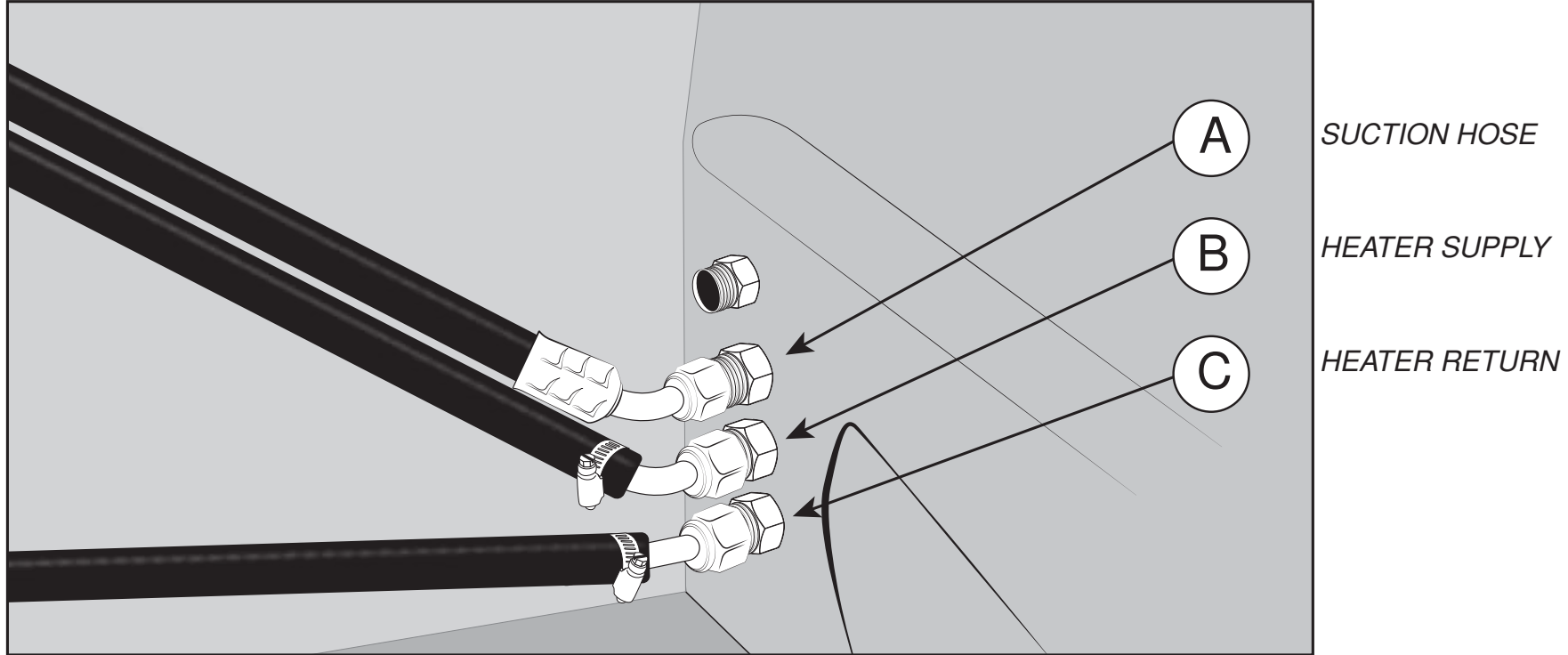
The #8 (**MEDIUM**) refrigerant Hose. Route behind fender and to the connection on compressor. Attach using two #6 o-ring and a few drops of mineral oil.

TWO WRENCH METHOD



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





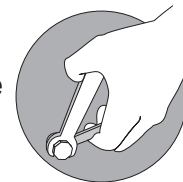
NOTE: THE HEATER SUPPLY (B) LINE FROM THE ENGINE WILL BE HOOKED TO THE FITTING SECOND FROM THE BOTTOM USING THE 45 deg FITTING AND A WORM GEAR CLAMP.

The heater return (C) line attaches to the bottom fitting using the straight fitting and a worm gear clamp. Attach using (2) #10 o-ring and few drops of mineral oil.

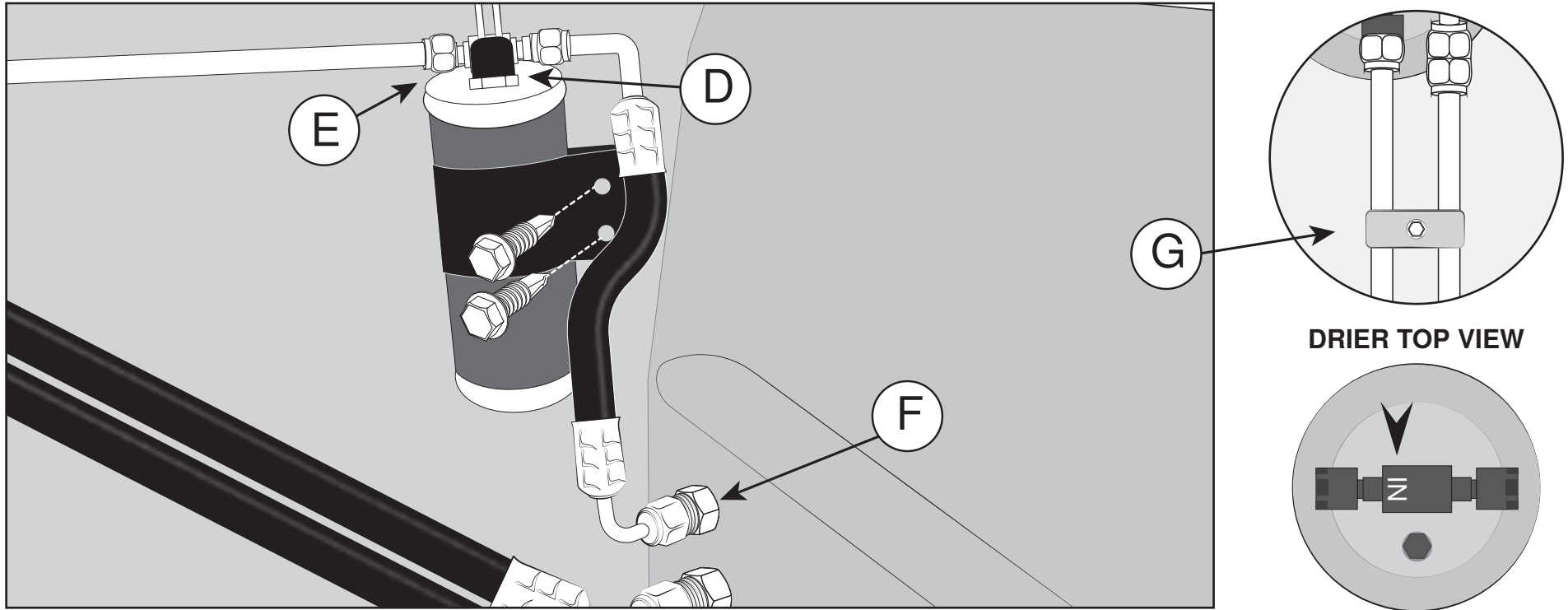
Locate the suction hose (A), the end with out the service port attaches to fitting on inner fender. Route the hose over to the compressor. Cut to length and crimp fitting with service port as required. Attach using (2) #10 o-ring and few drops of mineral oil.

Locate the discharge hose, the end with out service port attach to condenser tube. Route hose over to the compressor. Cut to length and crimp fitting with service port as required. Attach using (2) #8 o-rings.

TWO WRENCH METHOD



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



Locate the Filter / Drier, pressure switch, Mounting bracket and (2) #10 x $\frac{3}{4}$ " tek screws. Attach the pressure switch (D) to drier.

Loosely attach Drier to liquid tube (E) from the condenser. This will position Drier in the side of the fender skirt. Attach using the (2) # 10 x $\frac{3}{4}$ " tek screws.

Attach short liquid hose assembly (F) and (2) #6 o-rings to drier and bulkhead as shown.

There are two white wires attached to the pressure switch route one of them to the compressor clutch and attach a Female bullet connector. Other wire route and attach to clutch wire at the firewall. Secure wires with tie-wraps provided.

Attach tube clamp bracket assembly over the Discharge and Liquid tubes (G) as shown.

DRIER TOP VIEW

TWO WRENCH METHOD



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

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

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

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



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

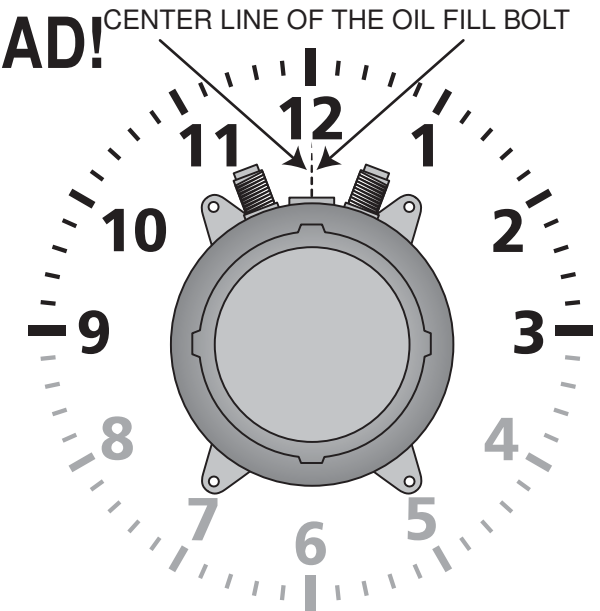
RECOMMENDED TEST CONDITIONS: (After system has been fully charged and tested for basic operation)

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

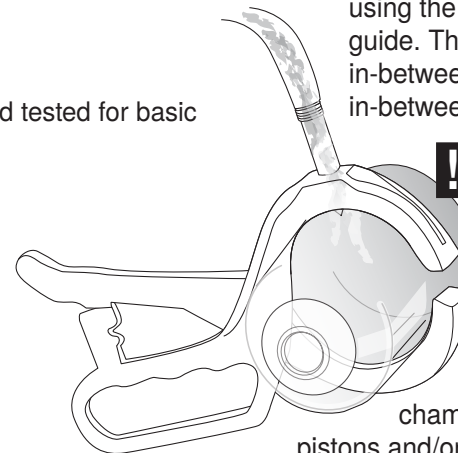
ACCEPTABLE OPERATING PRESSURE RANGES:

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

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



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



Do NOT tilt, shake or turn refrigerant can upside-down OR use a charging station to install refrigerant while the engine is running. Doing so will direct

liquid refrigerant into the compressor piston chamber, causing damage to reed valves and/or pistons and/or other components, as well as potentially seizing the compressor. Allow a minimum of 30 minutes for liquid to "boil off." You must hand turn the compressor hub (not the pulley) a minimum of 15 complete revolutions prior to starting the engine with the clutch engaged.

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.



CUT OUT

**TOP OF
HOOD
HINGE**

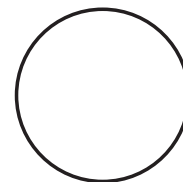
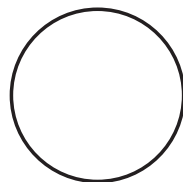
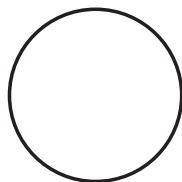
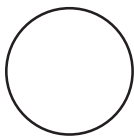
SIDE OF HOOD HINGE



**DRILL
9/23"**

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DRILL 11/16" DIA



DRILL (3) HOLES 15/16" DIA

CUT OUT PERIMETER

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