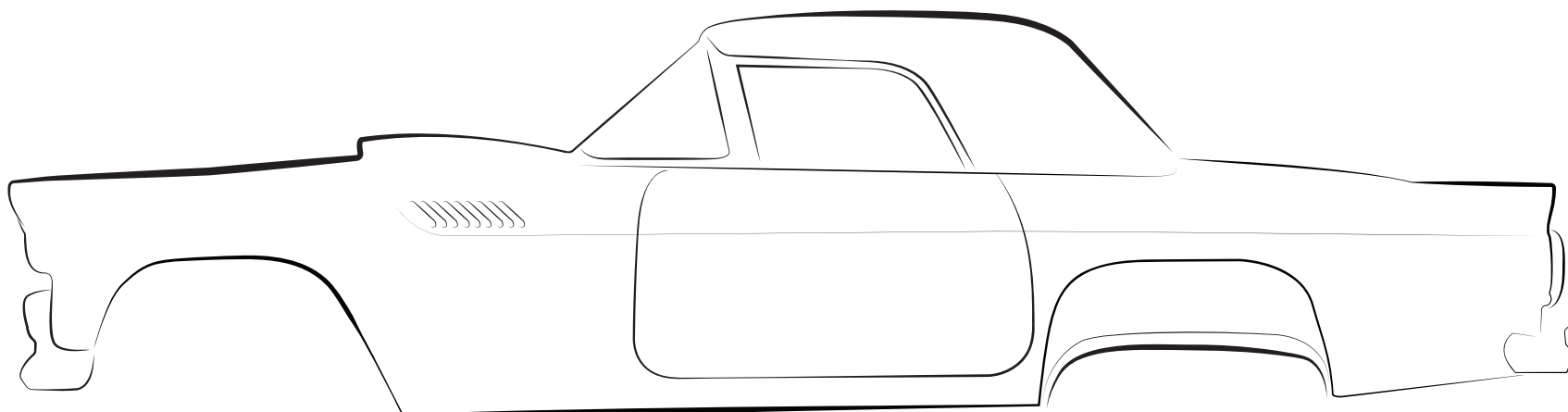




Installation Manual

1955-57 FORD THUNDERBIRD

DOCUMENT #1-3074

©2026 ClassicAutoAir / 01.26





Congratulations...

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

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 During the installation you might find the opportunity to repair or upgrade non-working or out of date components.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

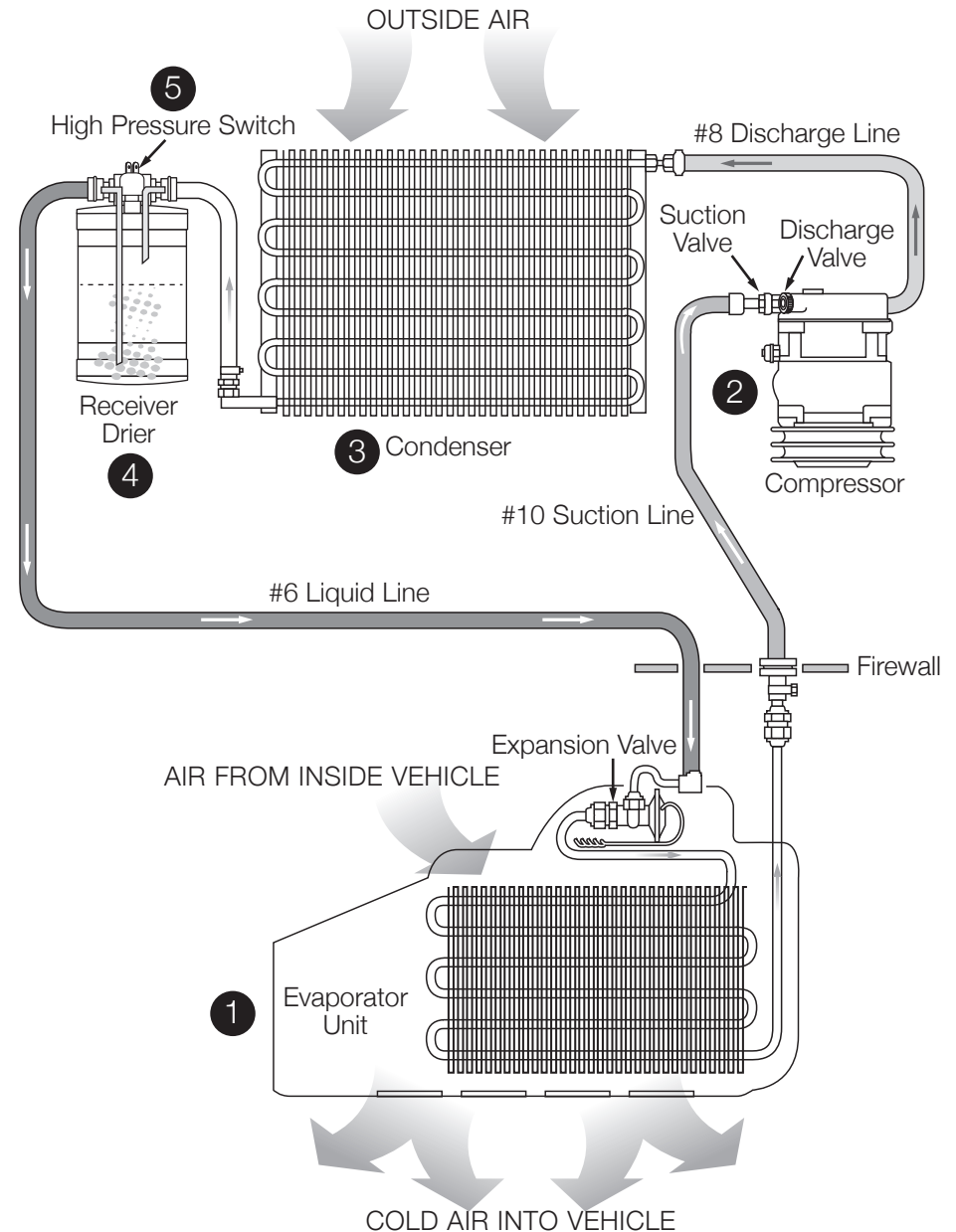
- ☐ Fittings: Use one or two drops of mineral oil (supplied with your kit) on ALL rubber o-rings, threads and where o-rings seat in fittings. Do not use thread tape or sealants.
- ☐ Measure twice (or more), cut once
- ☐ **Should you have any technical questions, or feel you have defective components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

CAUTION: DISCONNECT BATTERY GROUND CABLE
YOU CAN NOW BEGIN THE INSTALLATION...

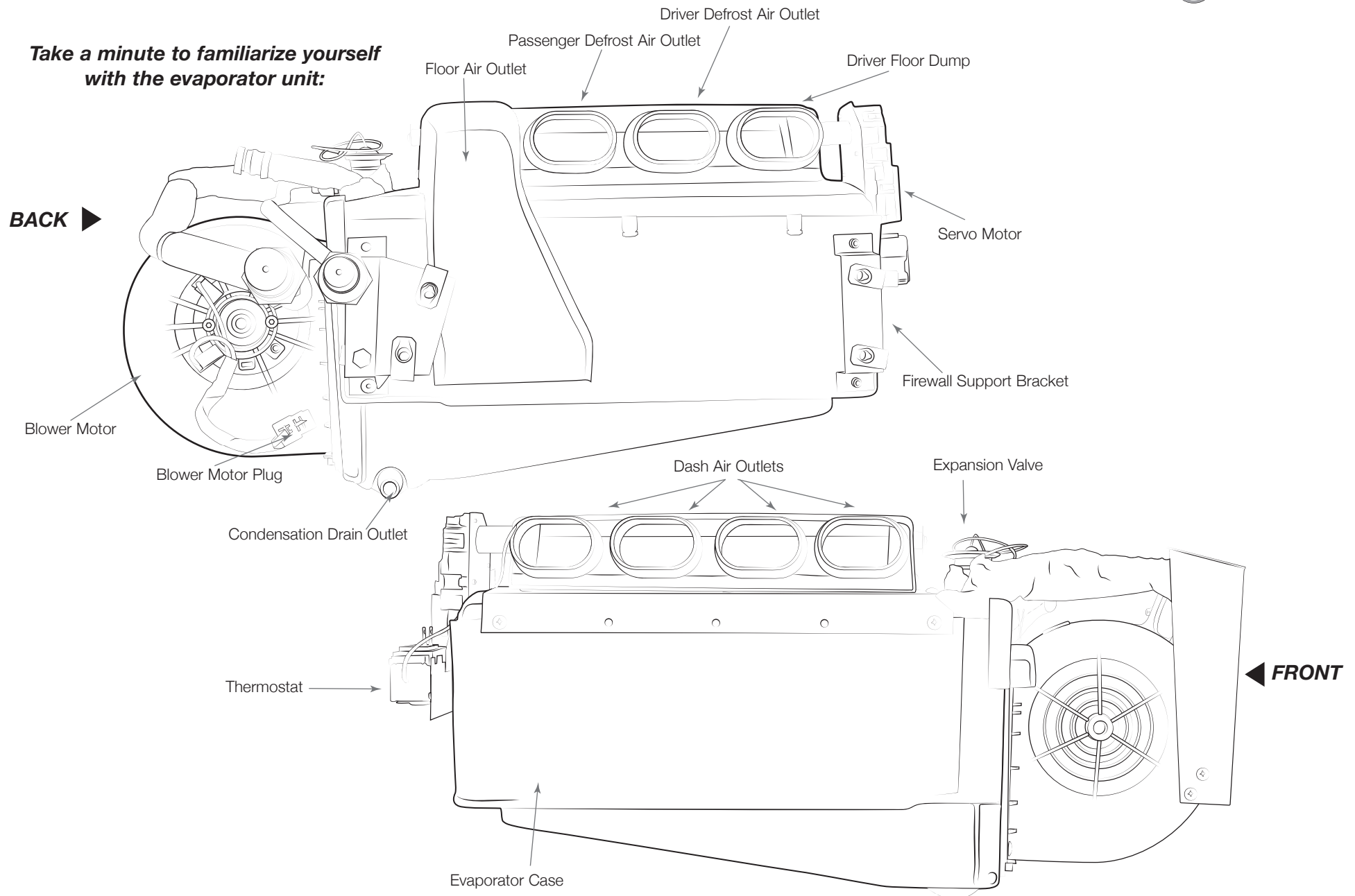
A Basic Overview of Automotive A/C....

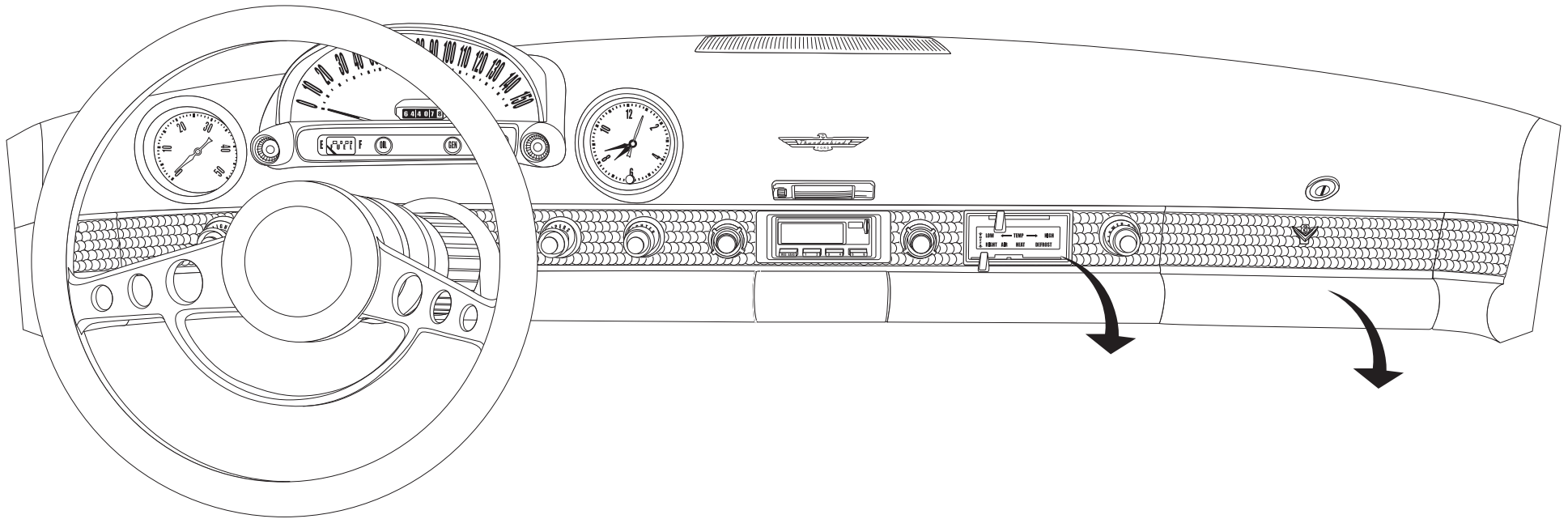
- ❶ **Evaporator with Blower Fan:** In order to remove the heat from the air in the vehicle, the A/C evaporator allows the refrigerant to absorb the heat from the air passing over it. The blower fan moves cool air out into the car interior.
- ❷ **Compressor:** The compressor pumps and circulates the 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.



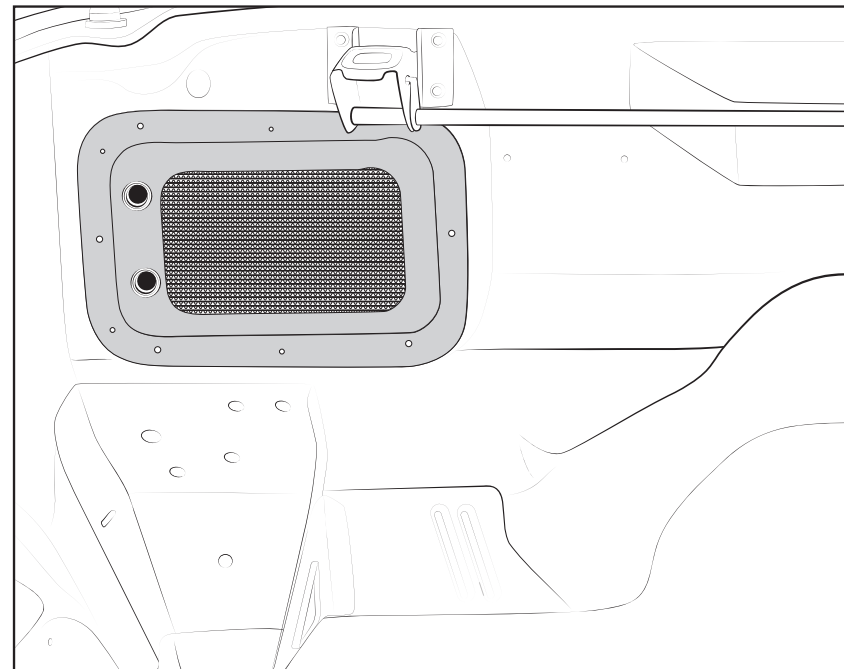
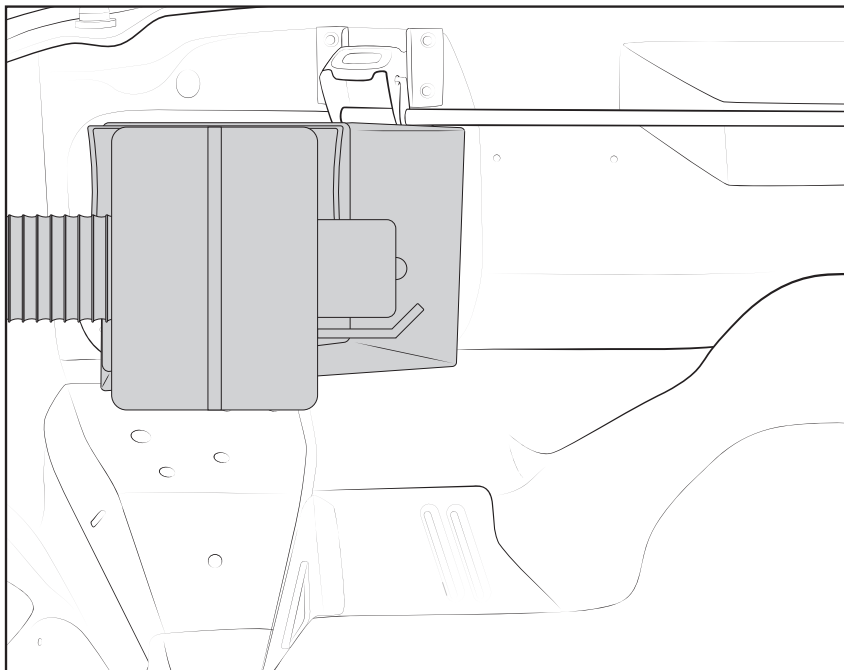
**Take a minute to familiarize yourself
with the evaporator unit:**





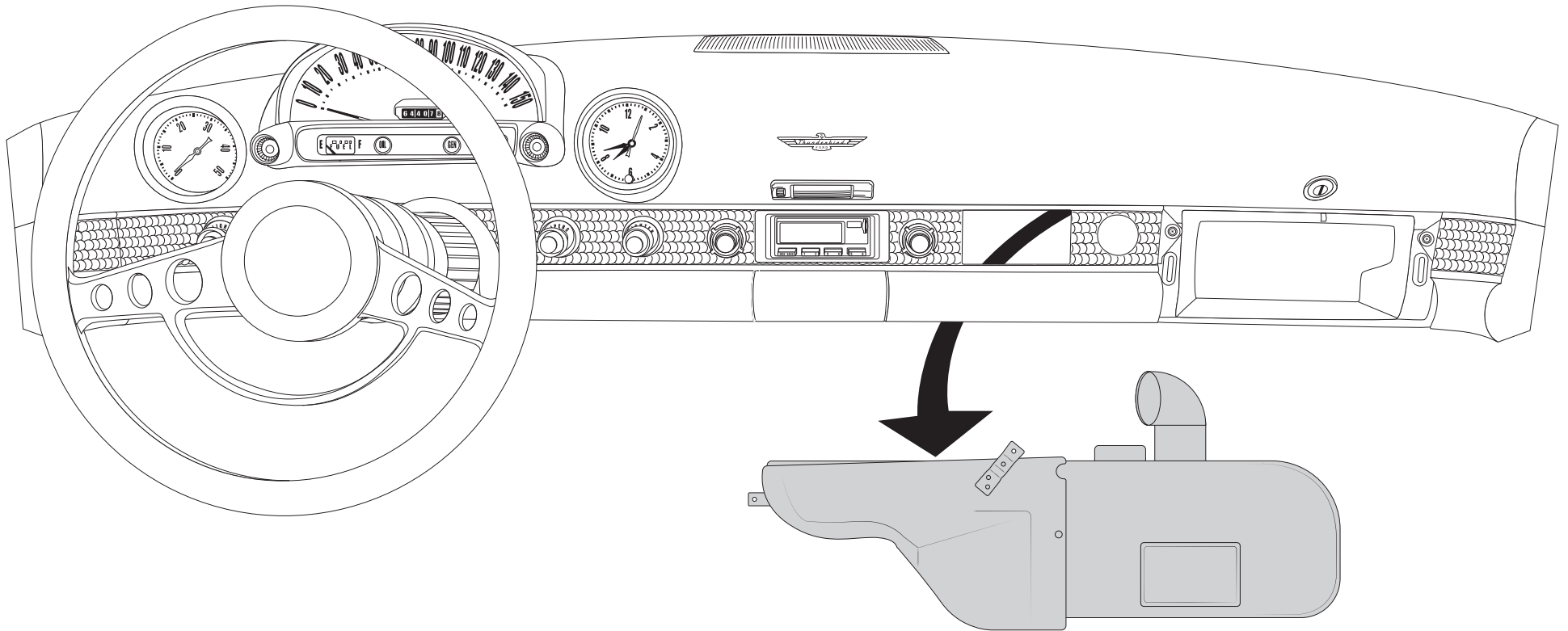
1. Disconnect battery ground cable and drain radiator.
2. Remove glove box door and glove box. Retain original hardware for re-installation later.
3. Remove tubular support brace from behind glove box opening. Retain nuts and washers from firewall mounting point. Discard support brace and hardware from passenger side mounting point.
4. Remove blower switch. Retain knob, trim bezel and center retaining nut. Discard blower switch.
5. Disconnect the control cables from heater box/control assembly and discard. Remove control assembly and set aside for modification. Retain all original hardware.

CAUTION: MAKE SURE RADIATOR IS DRAINED AND HEATER HOSES DISCONNECTED



1. Disconnect air inlet duct and the flexible adapter. Retain the duct, flex adapter and all of its original hardware. This will be used again with new plenum.
2. Remove screws around perimeter of the heater frame, and remove heater assembly.
3. Remove (4) screws that hold the coil to the housing, and retain the housing. Discard screws and heater coil.
4. Remove water valve and discard. You will need to bypass the "T" fitting that connects the vacuum lines between the water valve and wiper motor. Connect the vacuum source to the wiper motor directly.

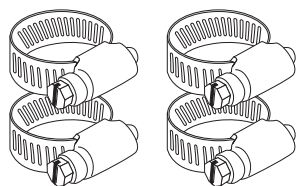




1. Remove defrost / heat duct and defrost duct hoses and discard.
2. Remove heater assembly from behind the glove box and discard.

THESE ARE THE PARTS YOU WILL FIND IN BAG KIT A

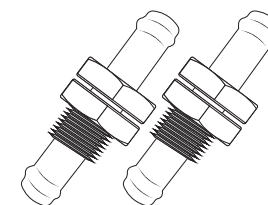
You will use all of these parts and hardware during the next series of installation steps.



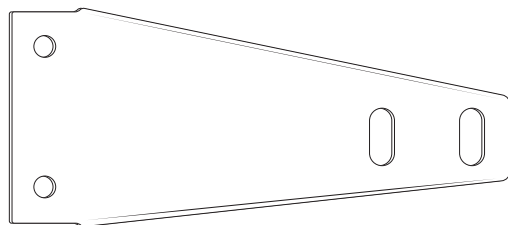
Four Worm Gear Clamps



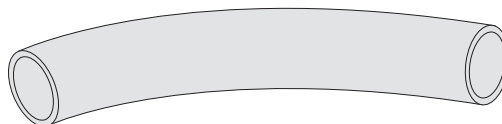
Two 1/4 - #20 x 5/8" Bolts



*Bulkhead Heater Fitting
0027-52*



*Bracket
0075-5*

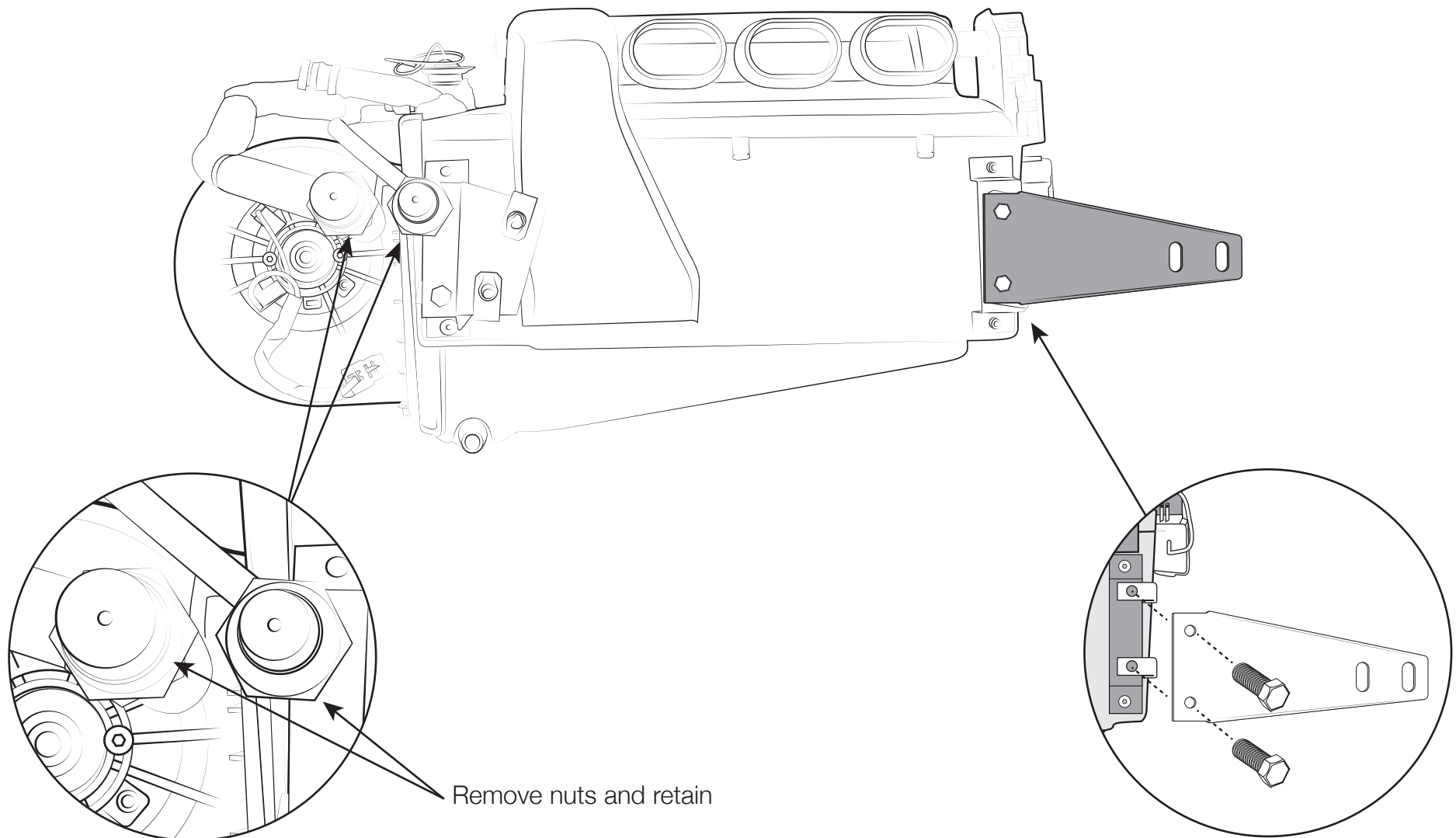


*Heater Hose
5/8" DIA. 8"*

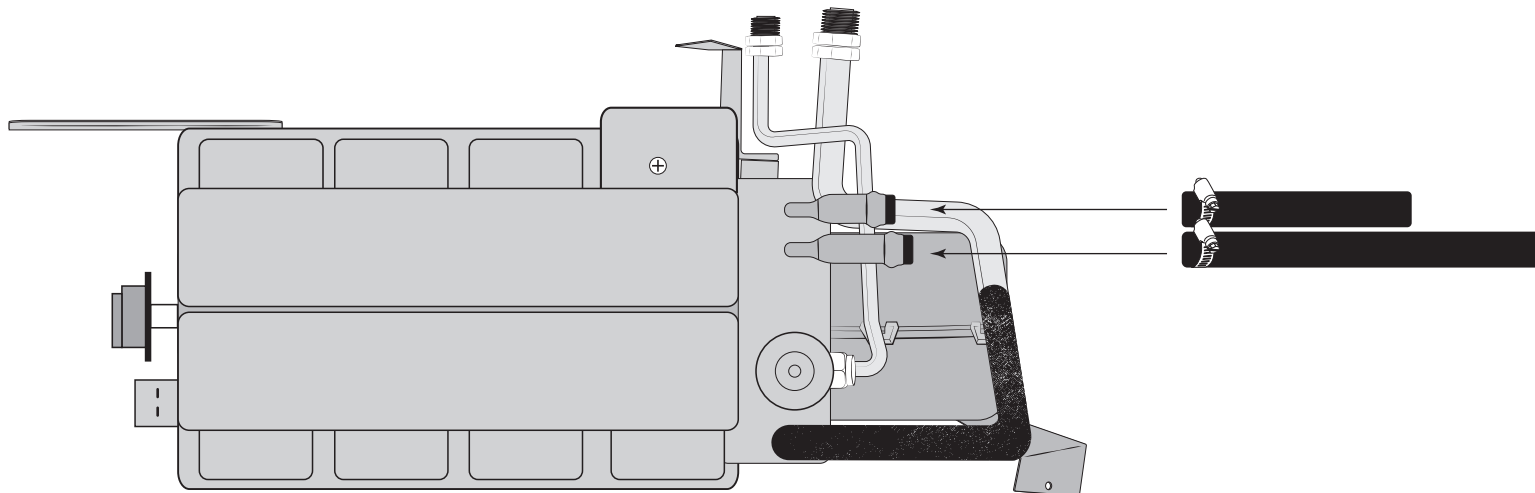


*Heater Hose
5/8" DIA. 12"*

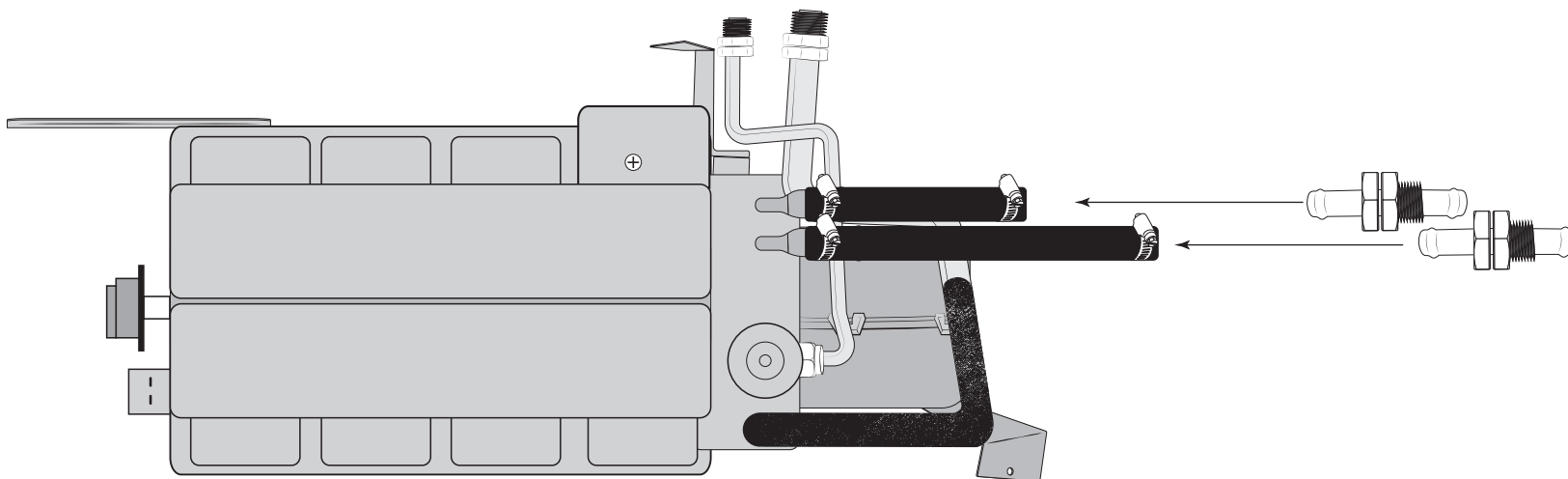
Installation of mounting bracket will be done on the back side of the unit. Locate rear unit mounting bracket and (2) 1/4"-20 x 5/8" hex head bolts from **BAG KIT A**.



Attach 8" heater hose to the short heater port and attach the 12" heater hose to the long heater port with worm gear clamps from **BAG KIT A**.



Attach bulkhead heater fitting to the other end of both heater hoses. Secure with worm gear clamps from **BAG KIT A**.



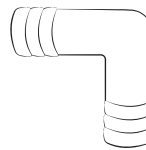
TOP VIEW OF EVAPORATOR

THESE ARE THE PARTS YOU WILL FIND IN BAG KIT B

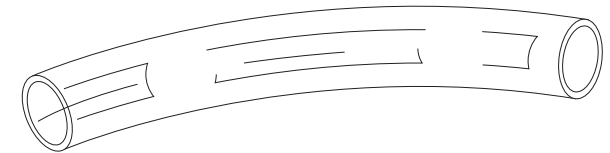
You will use all of these parts and hardware during the next series of installation steps.



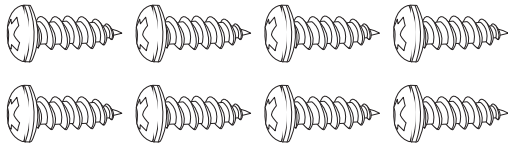
Two 1/4 - #20 x 5/8" Bolts



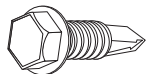
90 Degree Elbow



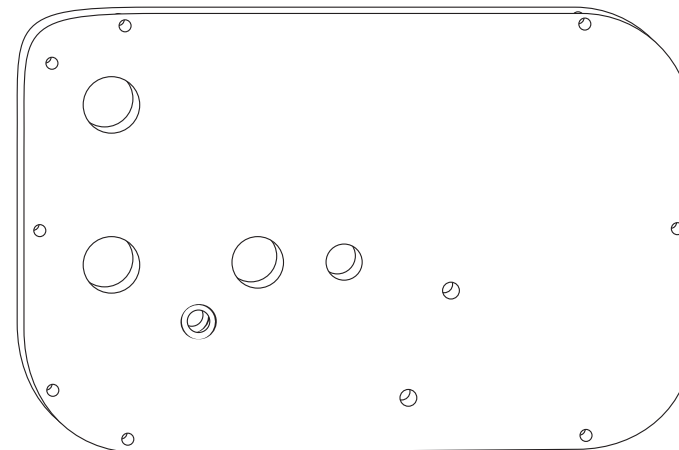
Clear Plastic Drain Tube



*Eight Phillips Black Screw
#10-16 x 3/4*

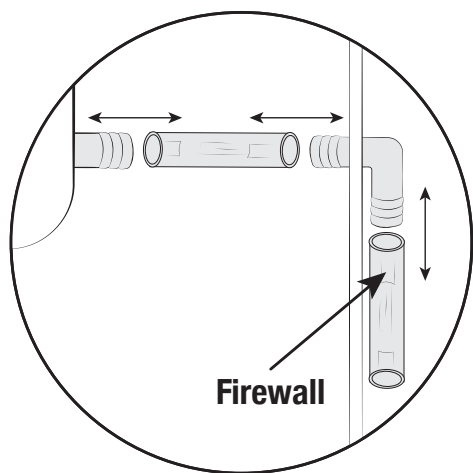
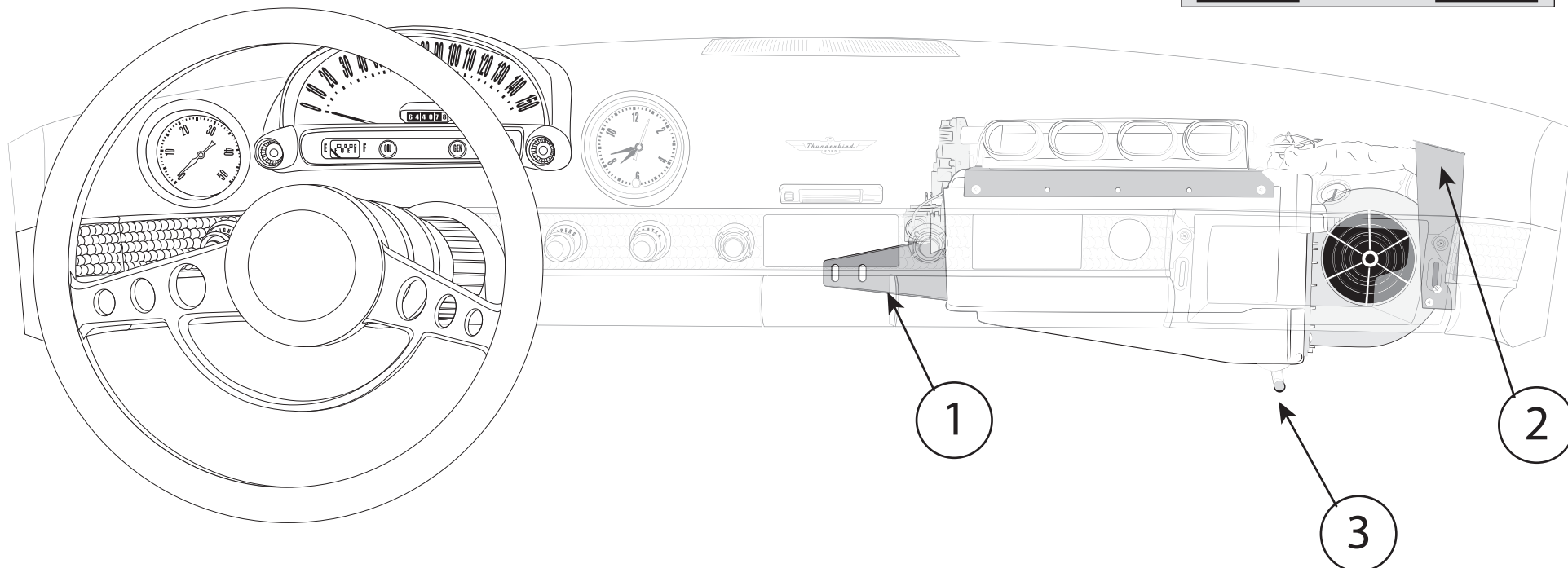


One #10 - 16 x 3/4" Tek Screws



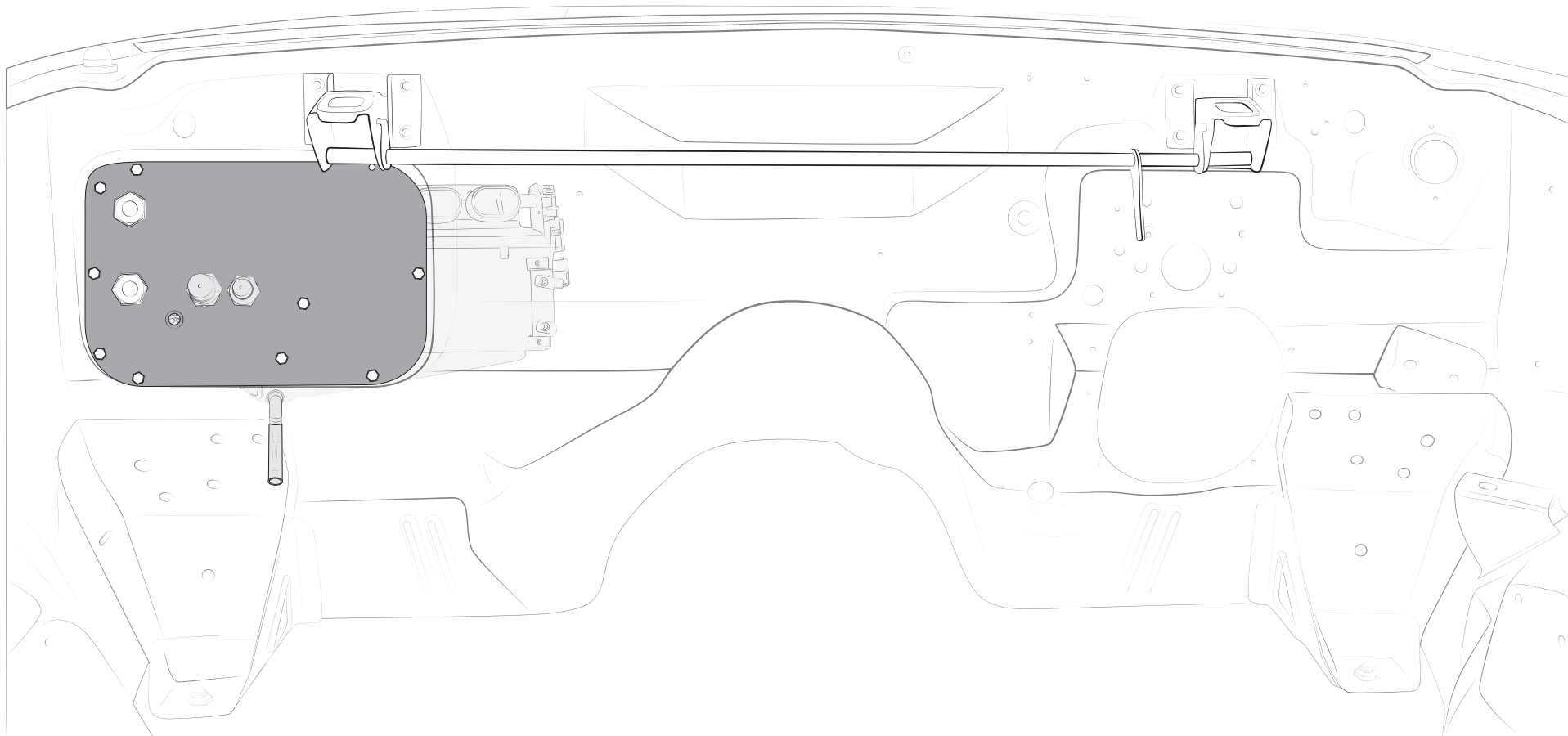
*Firewall Block Off
PN# 10-1074-1*

Use parts from **BAG KIT B.**



1. Roll the evaporator up and under the dash. Holding unit level, secure to the factory brace mounting point of the firewall. Attach bracket with original factory hardware.
2. Make sure evaporator is level and attach blower support bracket using tek screw.
3. Locate Drain nipple on Evaporator and drill a 3/4" hole below the nipple on the firewall. This will allow condensation to drain properly. Attach drain tube as shown. All condensation will now drain out into the engine bay.

Use parts from **BAG KIT B.**



1. Feed A/C tubes through the block off plate and replace nuts.
2. Feed heater fittings through block off plate, and replace nuts.
3. Attach block off plate to the rear evaporator support bracket using (2)1/4-20 5/8 bolts.
4. Attach block off plate to firewall using (8)#10 5/8 screws.

THESE ARE THE PARTS YOU WILL FIND IN CONTROL BAG

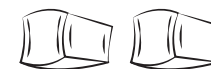
You will use all of these parts and hardware during the next series of installation steps.



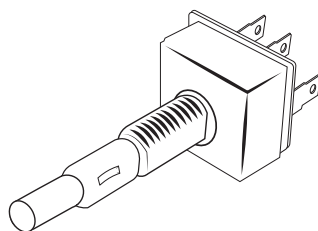
Controller Sticker
CAA-0118-58



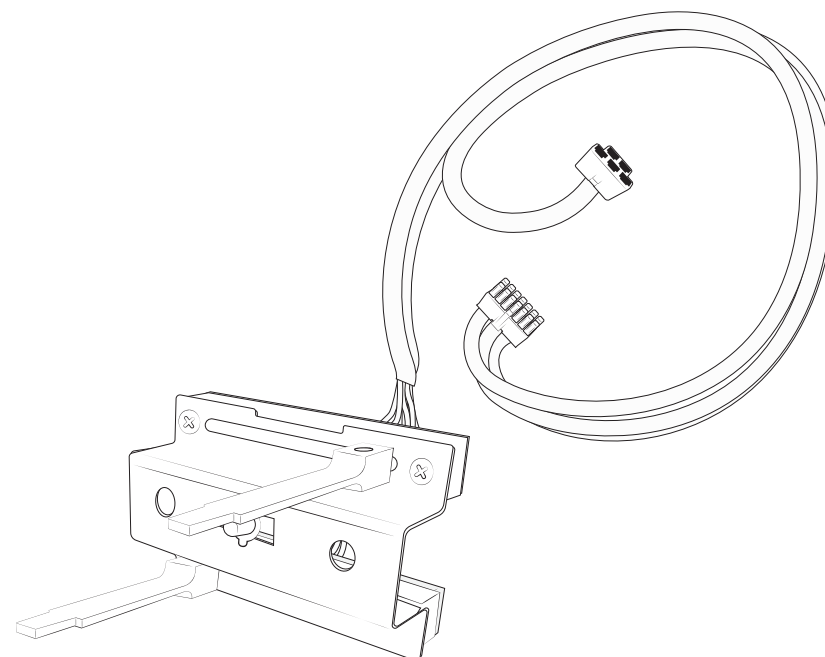
Switch Nuts



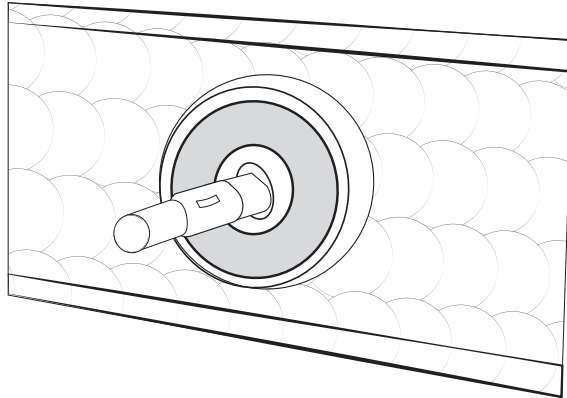
2 Knobs



Blower Switch

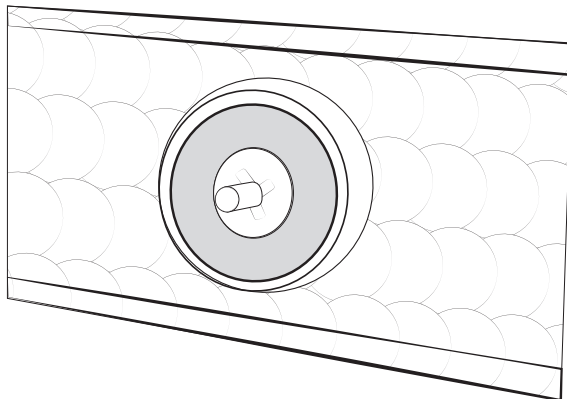


Slide Arm Assembly

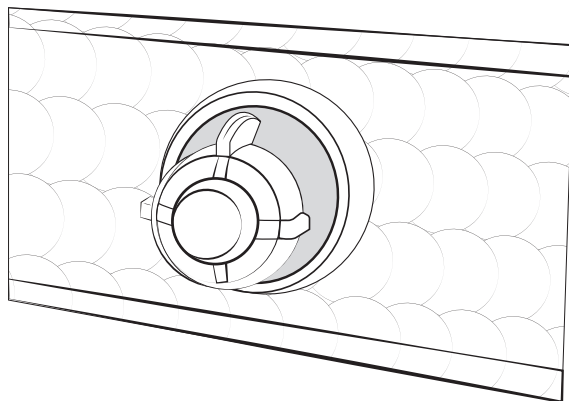


Locate the blower switch assembly and (2) switch nut. Insert into the original blower switch hole and attach using the switch nut.

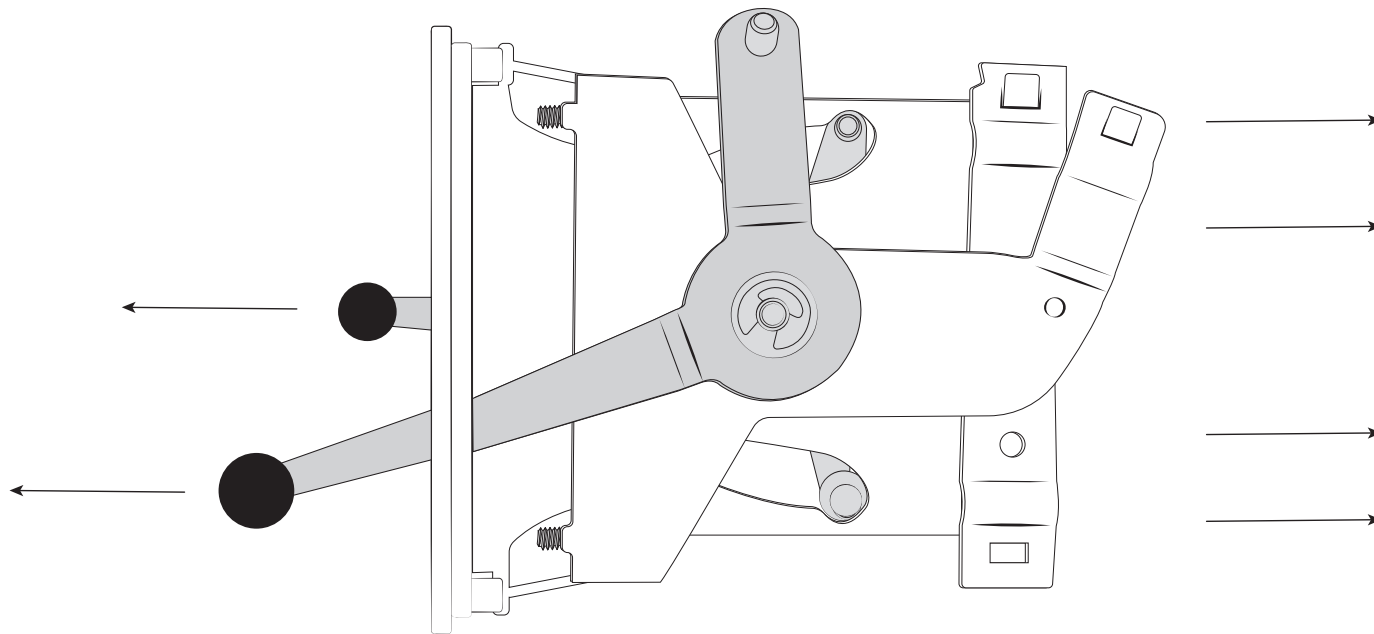
NOTE: SWITCH SHOULD BE INSTALLED SO THAT SWITCH NUT IS AT THE END OF THE SHAFT.



Locate the original switch bezel and shaft nut. Slide over the switch shaft. Reinstall knob, tighten securely

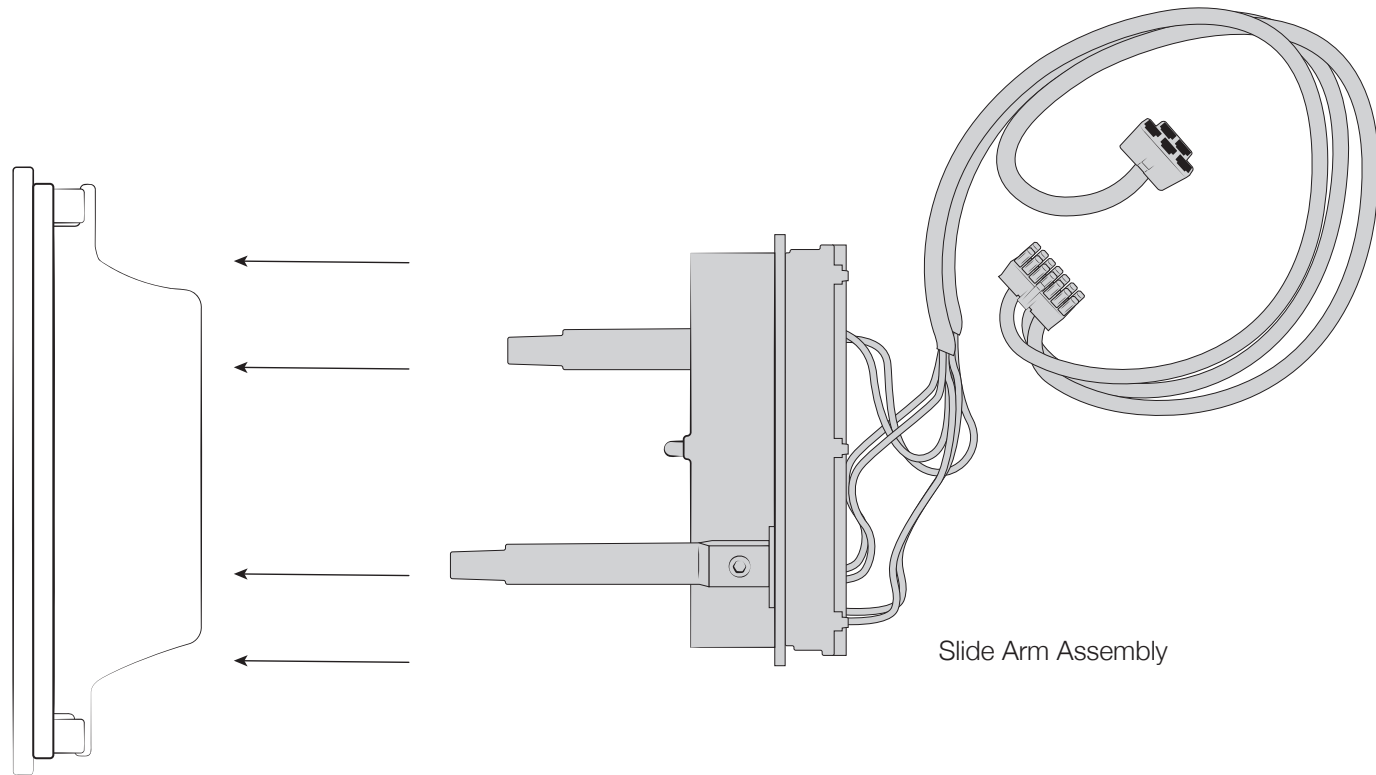


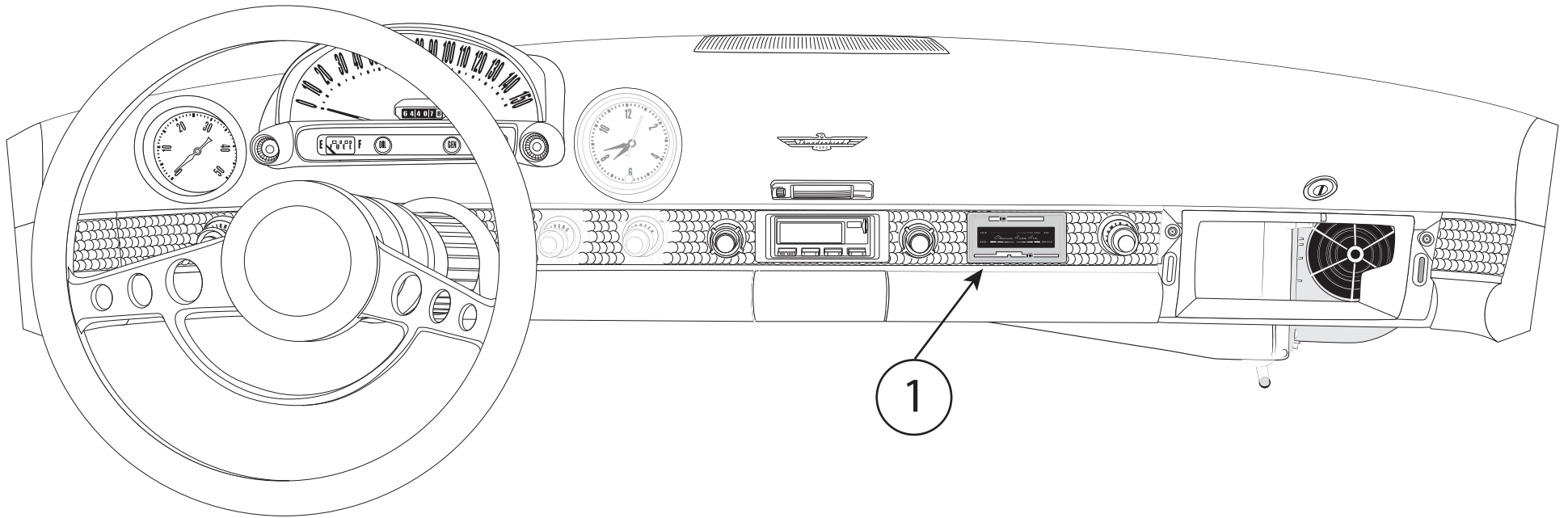
Remove original knobs. Remove original lever assembly from control head. Retain original hardware.



Slide the arm assembly into control head. Be sure to allow the bulb to come through the center hole.

Note: The Temp control potentiometer (White,Purple,and Brown wires) should be on top.

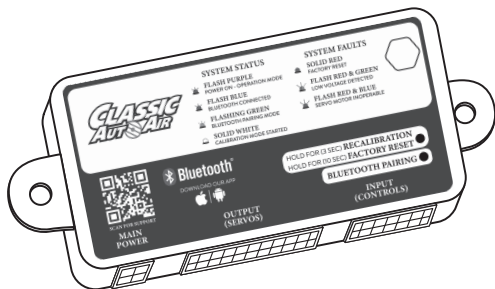




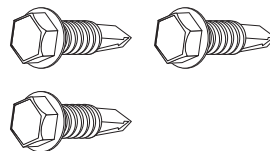
1. Install your controller back into the OEM slot.

THESE ARE THE PARTS YOU WILL FIND IN BAG KIT C

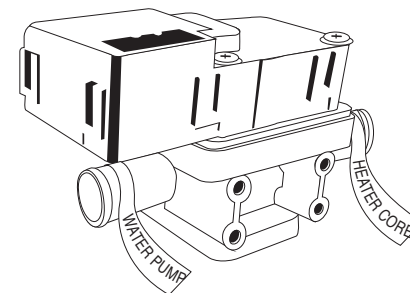
You will use all of these parts and hardware during the next series of installation steps.



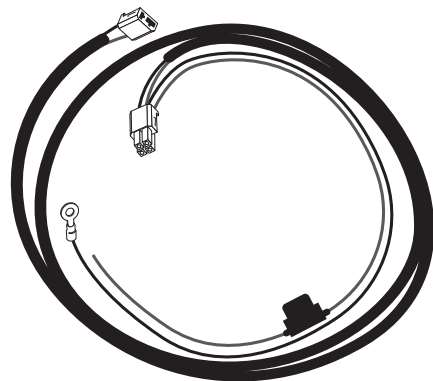
ECU
16-2500



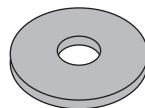
Three #10 - 16 x 3/4" Tek Screws



Electronic Water Control Valve
PN# 16-1023



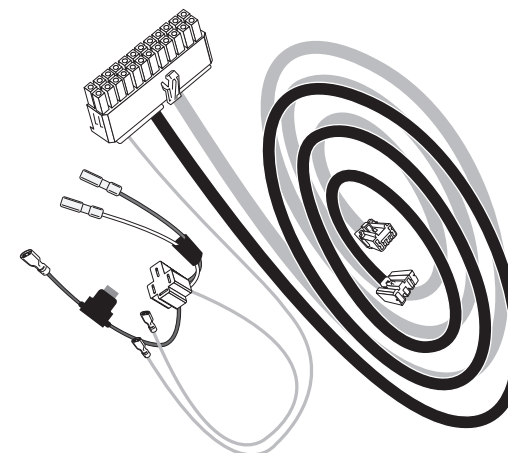
HARNESS POWER SUPPLY
0125-5R1



Firewall Grommet



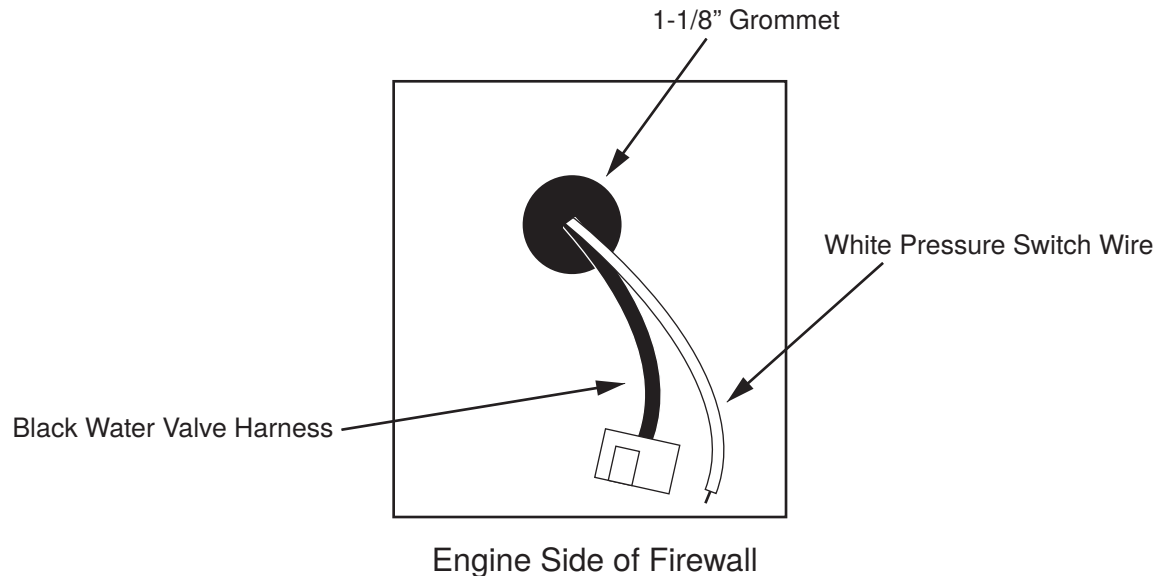
Relay
30-13373



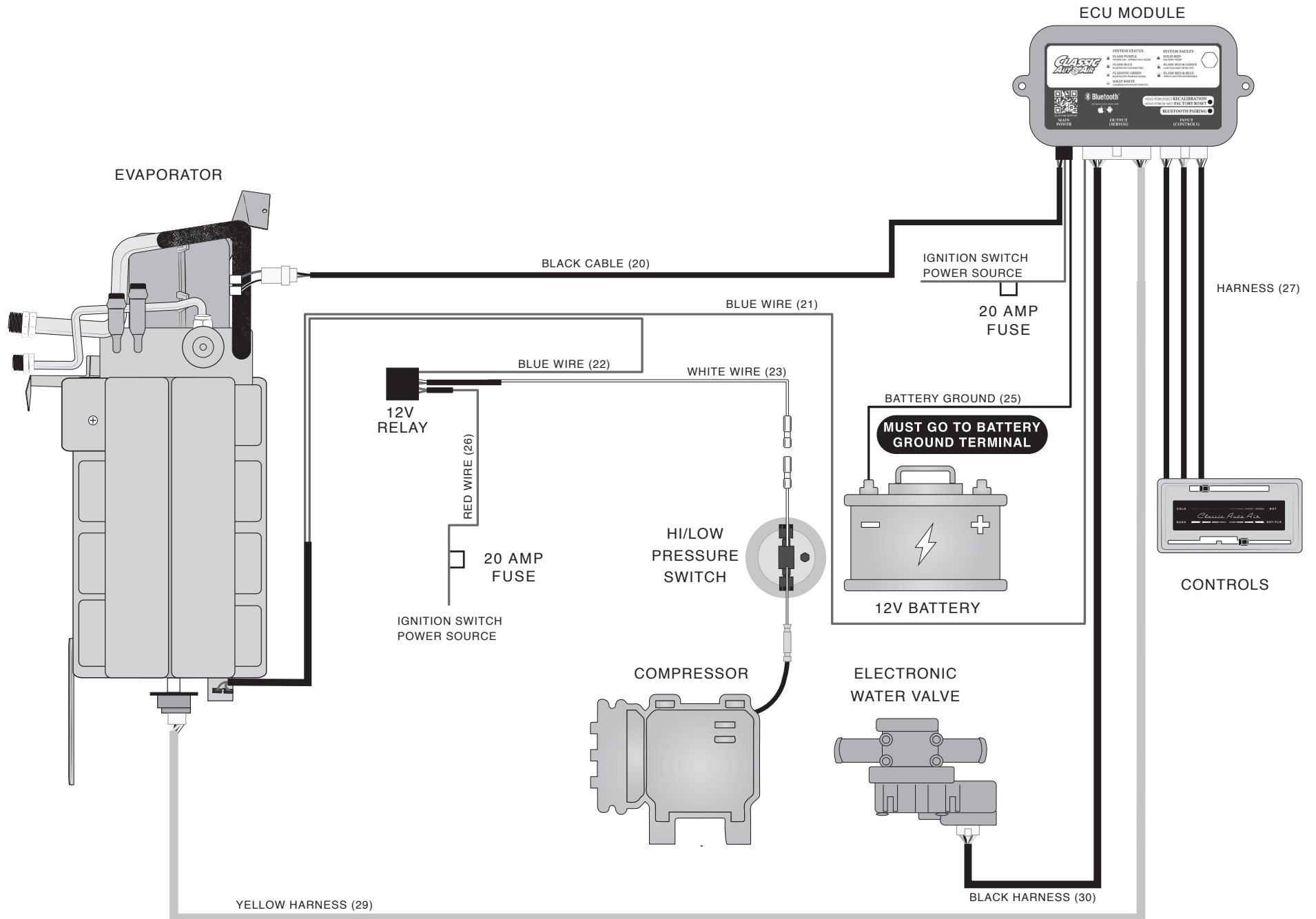
HARNESS
0125-20R3A

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.



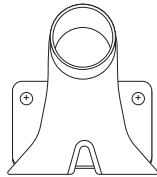
- Install the power supply wire harness according to the wire diagram.
- Mount the ECU with (2) #10-16 x 3/4" Tek screws.
- Secure the relay with the remaining #10-16 x 3/4" Tek screw.



THESE ARE THE PARTS YOU WILL FIND IN BAG KITS D and E

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

Bag D



0045-24



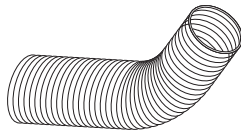
Defrost Adapter Reducers
PN# 2-1025-3



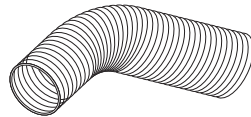
U-Type Fastener



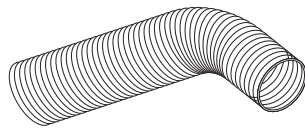
Five Zip-Ties



One Duct Hose, 2" I.D.
6' Length

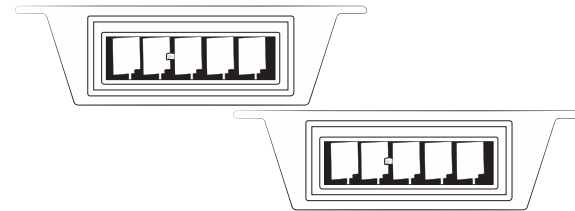


One Duct Hose, 2" I.D.
2' Length

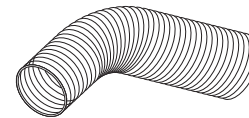


One Duct Hose, 2" I.D.
4' Length

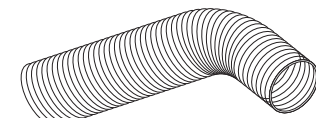
Bag E



Underdash Louver Assembly
PN#2-1038



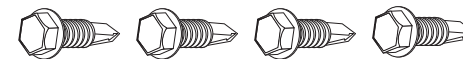
One Duct Hose, 2" I.D.
3' Length



One Duct Hose, 2" I.D.
4' Length



Four Zip-Ties

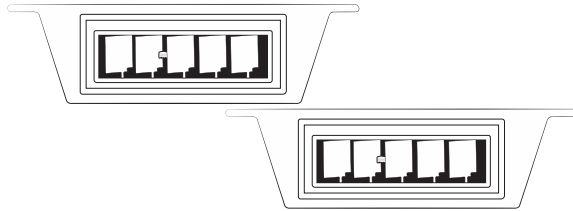


Four 10x3/4 Tek Screws

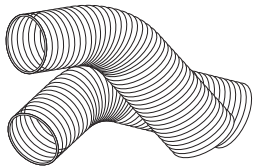
THESE ARE THE PARTS YOU WILL FIND IN BAG KITS F and G

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

Bag F



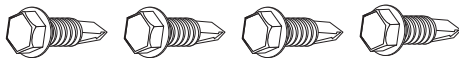
*Underdash Louver Assembly
PN#2-1038*



*Two Duct Hoses, 2" I.D.
2' Length*

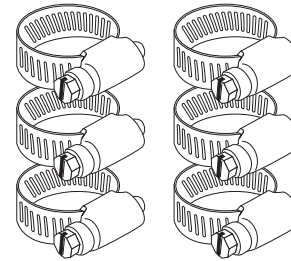


Four Zip-Ties



Four 10x3/4 Tek Screws

Bag G



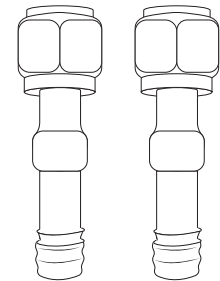
Six Worm Gear Clamps



Two O-Rings #10

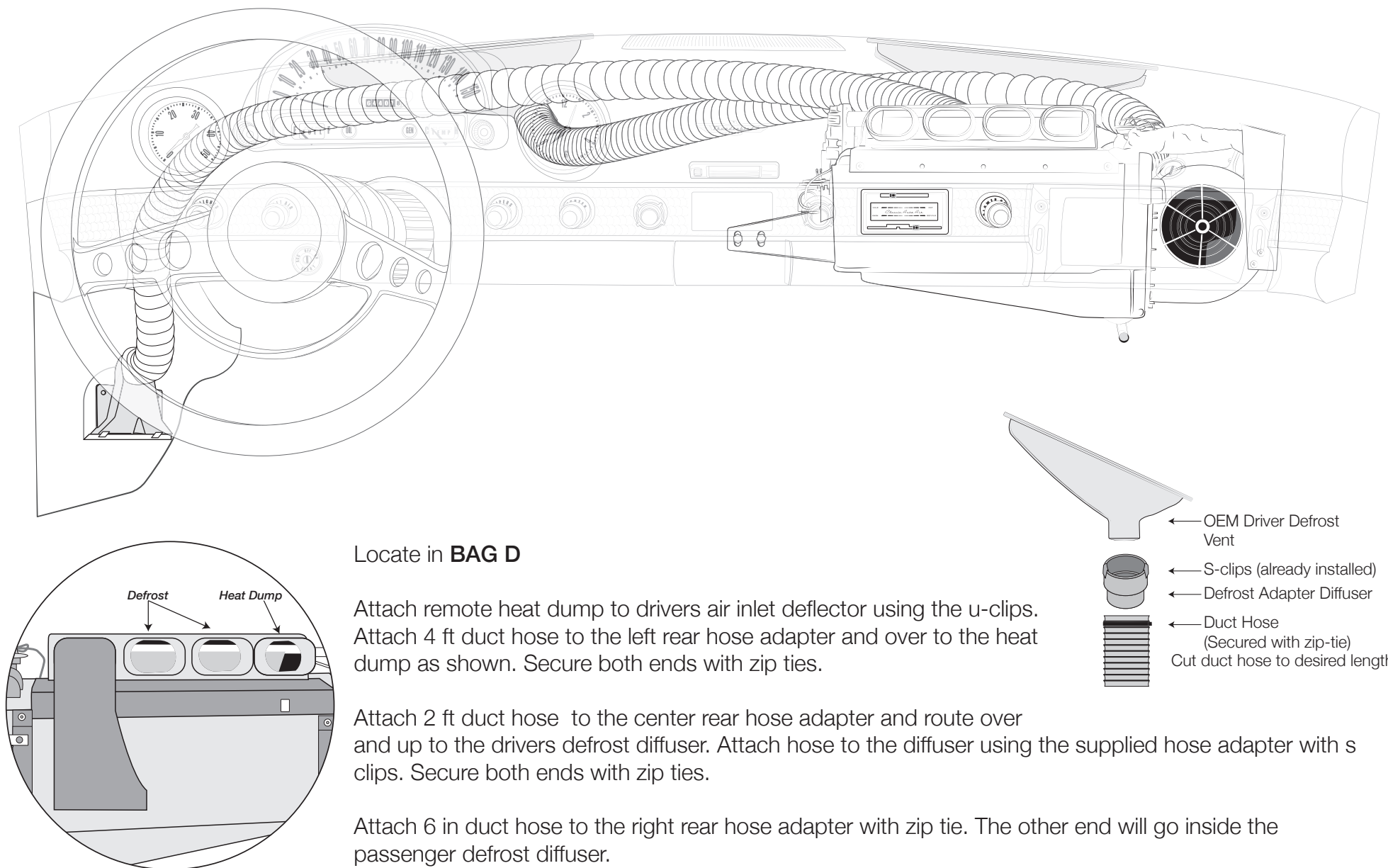


Refrigerant Tape



Two Heater Fittings 5/8 DIA.

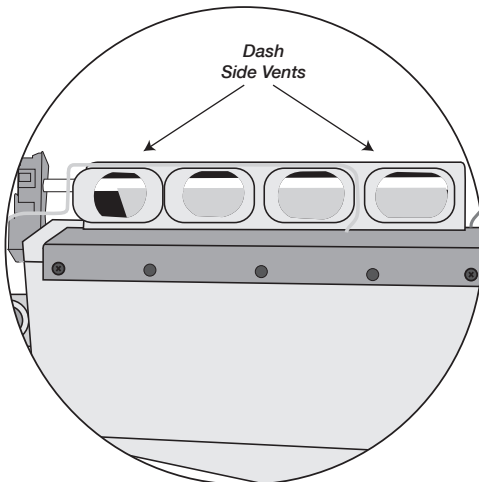
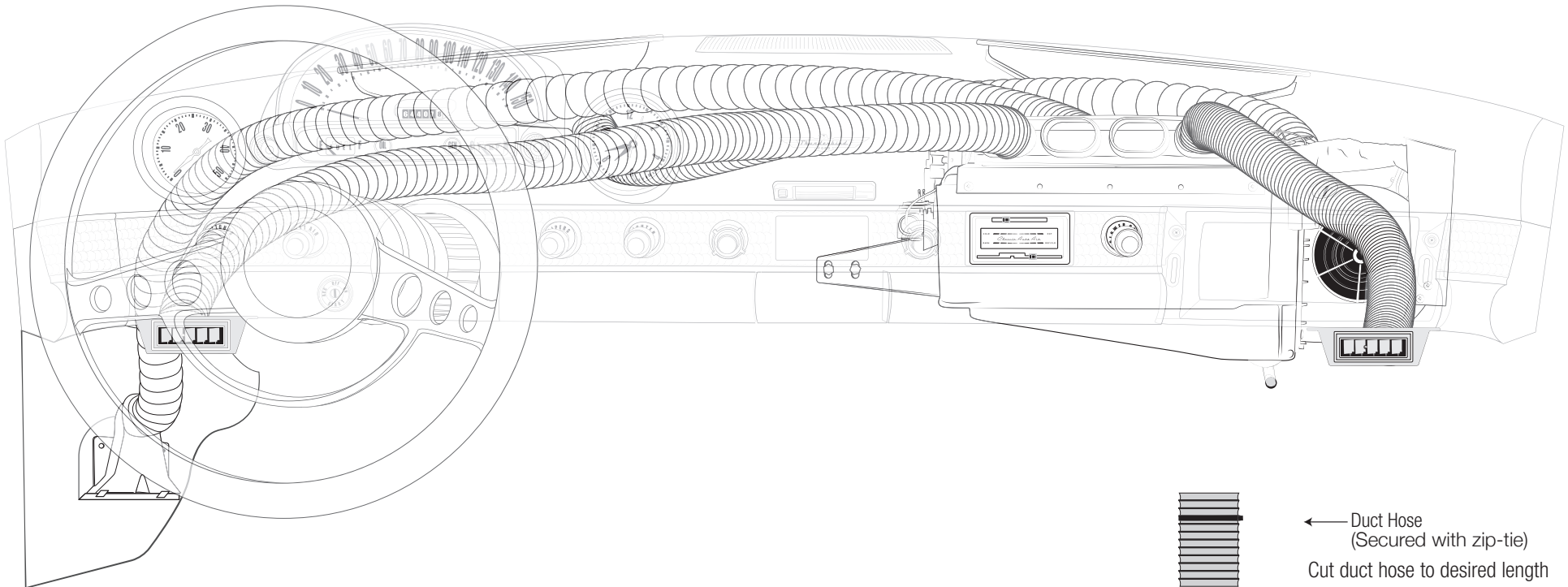
Watch For Moving Wiper Arms



Watch For Moving Wiper Arms



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



← Duct Hose
(Secured with zip-tie)
Cut duct hose to desired length



← Dash Louver Bezel

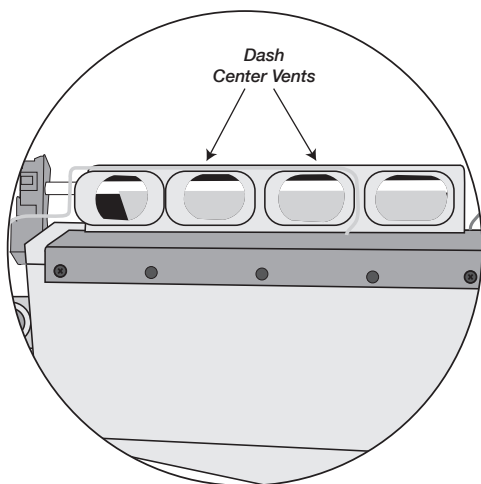
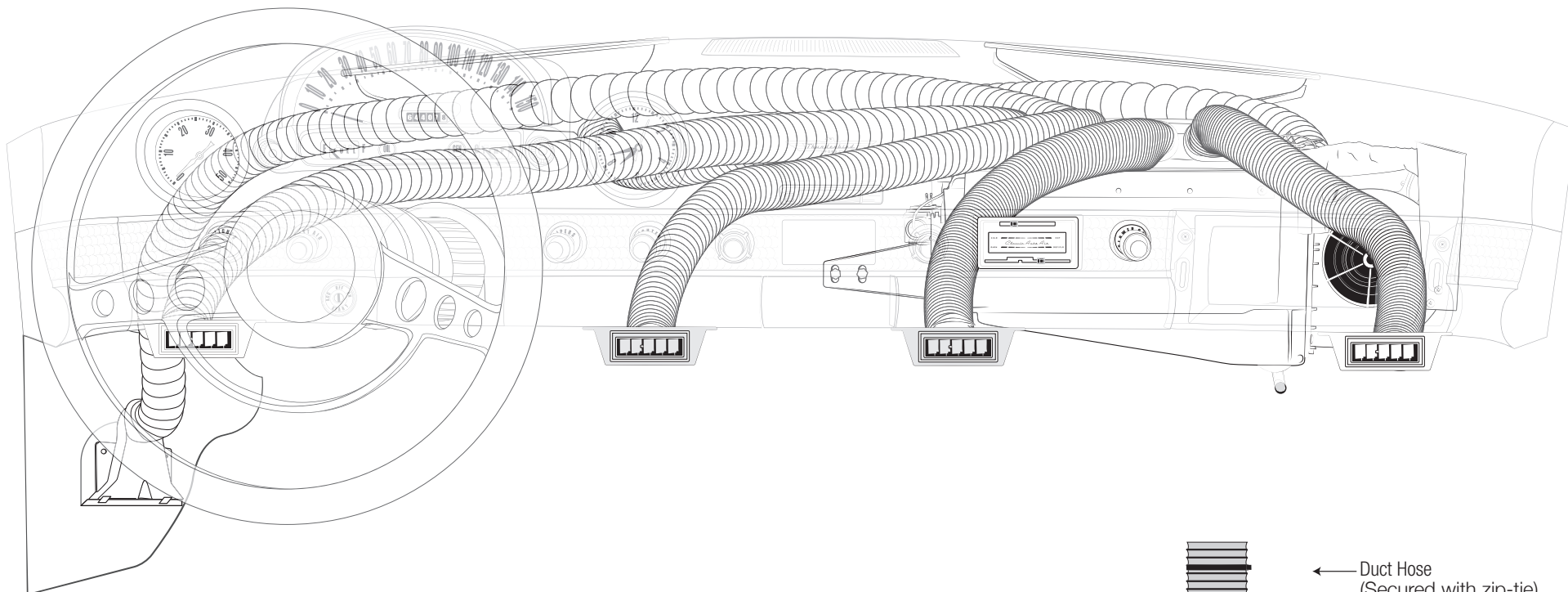
Locate in **BAG E** Louvers, and (4) #10 x $\frac{3}{4}$ tek screws.
Attach to dash in desired locations.

Attach 4 ft duct hose to left hose adapter and route to driver side louver. Secure both ends with zip ties.

Attach 3 ft duct hose to right hose adapter and route to passenger side louver. Secure both ends with zip ties.



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



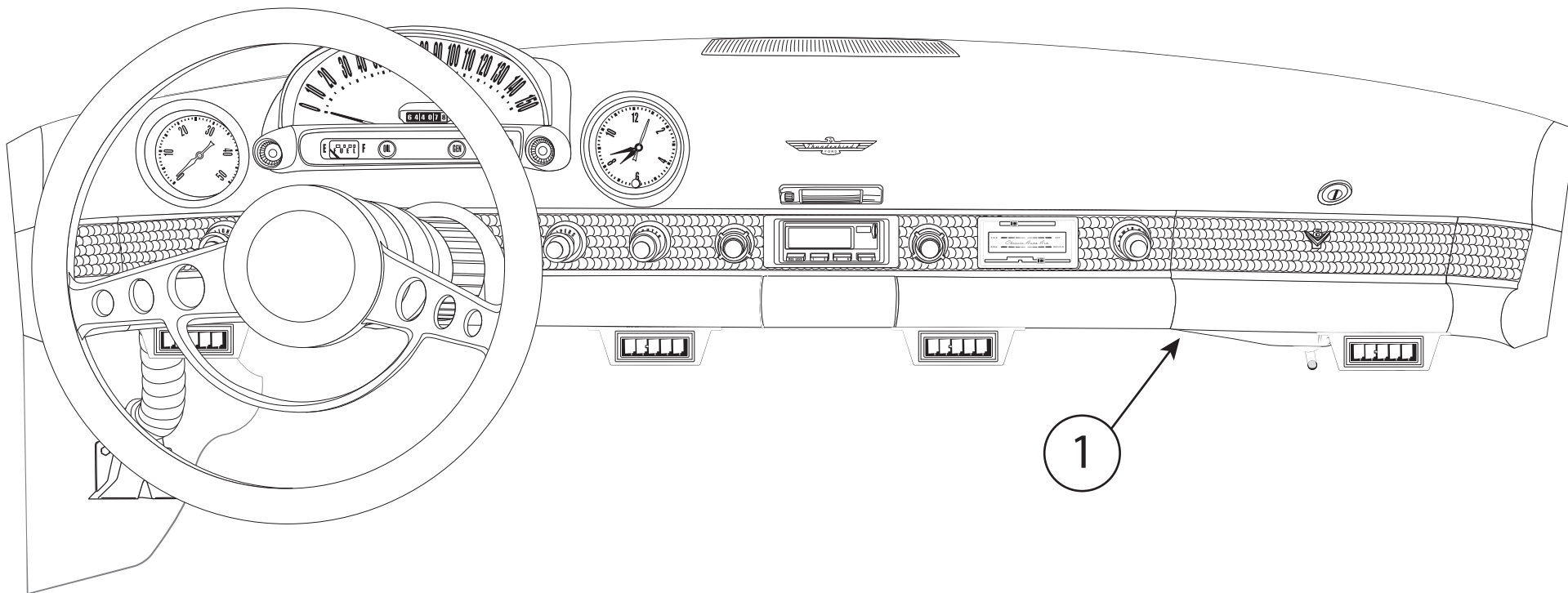
← Duct Hose
(Secured with zip-tie)
Cut duct hose to desired length



← Dash Louver Bezel

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

Attach a piece of duct hose from the unit to the back of each louver, and secure both ends with zip ties.

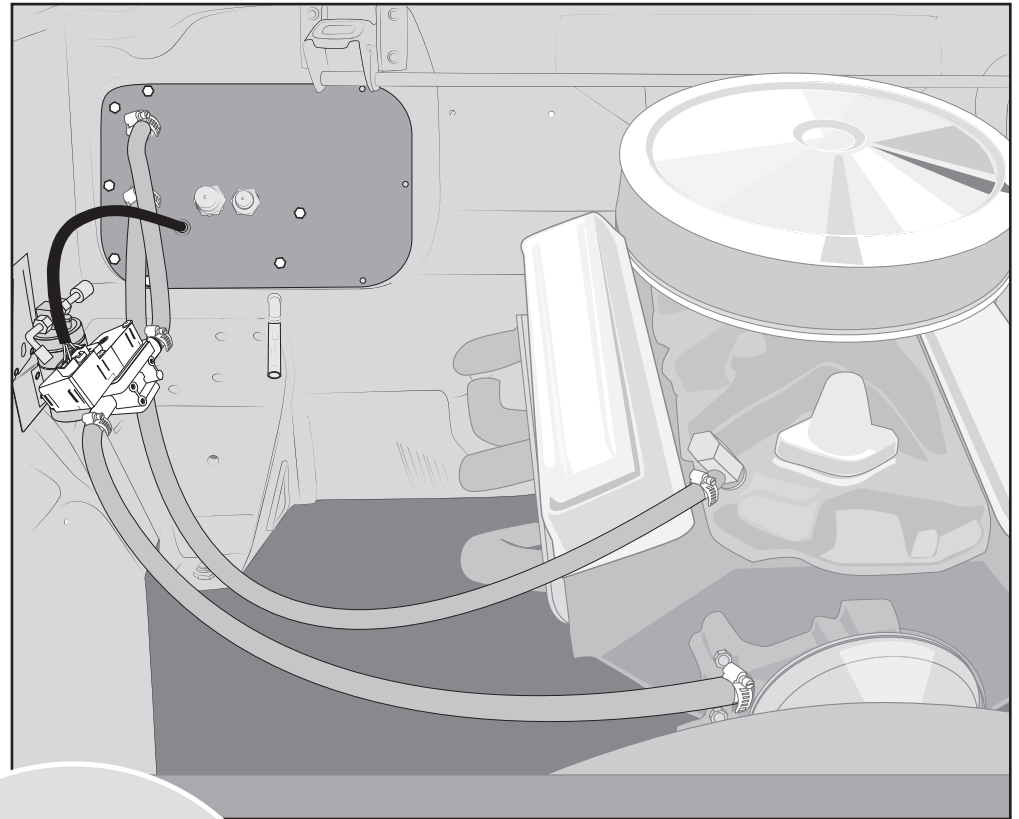


1. Install Glove Box into the opening. Reinstall Glove Box Door using the original hardware.

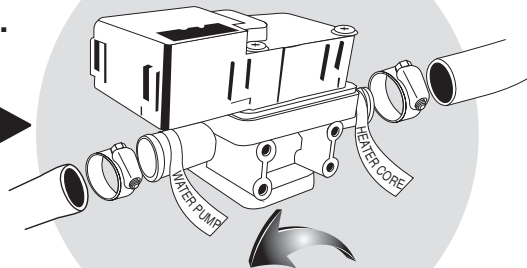
IMPORTANT NOTICE: PROPER INSTALLATION OF WATER VALVE

- The driver side heater connection on the firewall will be routed to the water connection on the intake manifold using 5/8" dia. heater hose, (1) 5/8" barb fitting, and (2) provided worm gear clamps.
- The passenger side heater connection on the firewall will be routed to the electronic water valve connection labeled HEATER CORE using 6 inches of 5/8" dia. heater hose, (1) 5/8" barb fitting, and (2) provided worm gear clamps.
- The remaining water valve connection labeled WATER PUMP will be routed to the water pump using 5/8" dia. heater hose and (2) supplied worm gear clamps.
- Apply refrigerant tape where needed to seal the firewall.

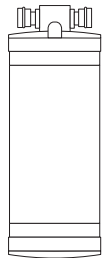
NOTE: It is time to install the compressor. Included in your box is a premium compressor mount kit with all the parts you'll need to install the compressor. This kit includes easy to follow instructions specifically written for your engine. Once you've installed the compressor, continue on to the next page.



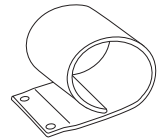
**FOLLOW THESE
TAGS... CHECK IT
TWICE BEFORE
PROCEEDING!**



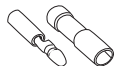
THESE ARE THE PARTS YOU WILL NEED FOR THE ENGINE COMPARTMENT INSTALLATION



Drier



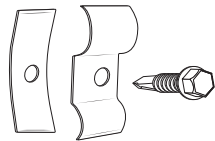
Drier Bracket



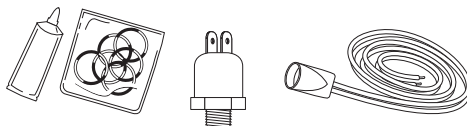
*Splice and
Bullet Connector*



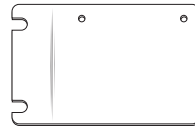
Eight #10 x 1/4" Screws



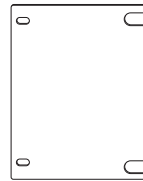
*Tube Support Bracket
PN#19-151*



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



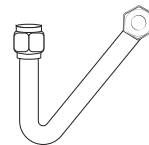
*Drier Bracket
PN#0075-55*



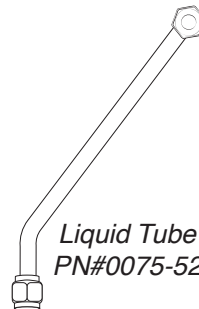
*Condenser Bracket
PN#0075-50*



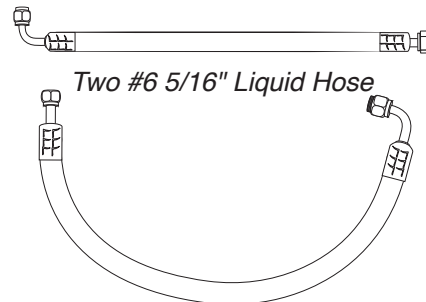
*Condenser Bracket
PN#0075-51*



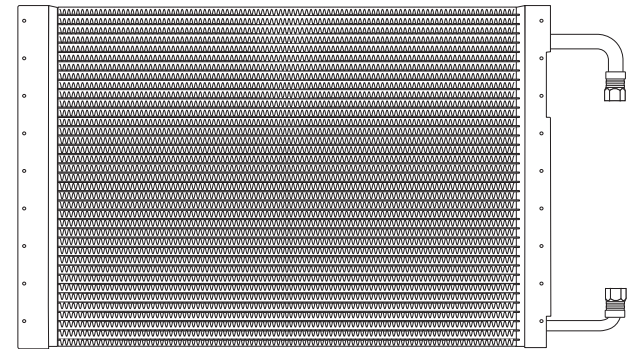
*Liquid Tube
PN#0075-53*



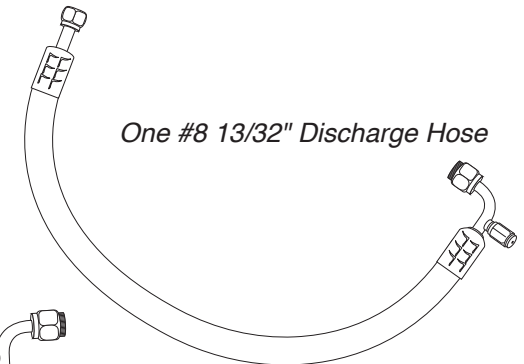
*Liquid Tube
PN#0075-52*



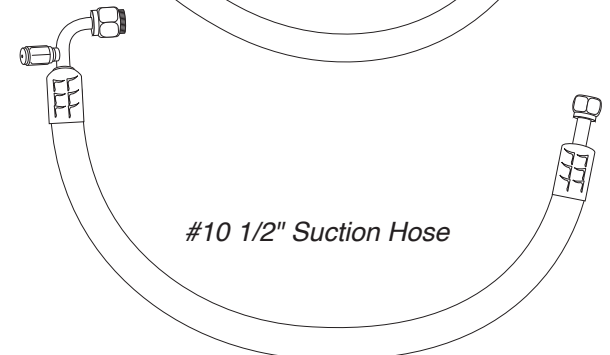
Two #6 5/16" Liquid Hose



*Condenser
PN# 11-1087*



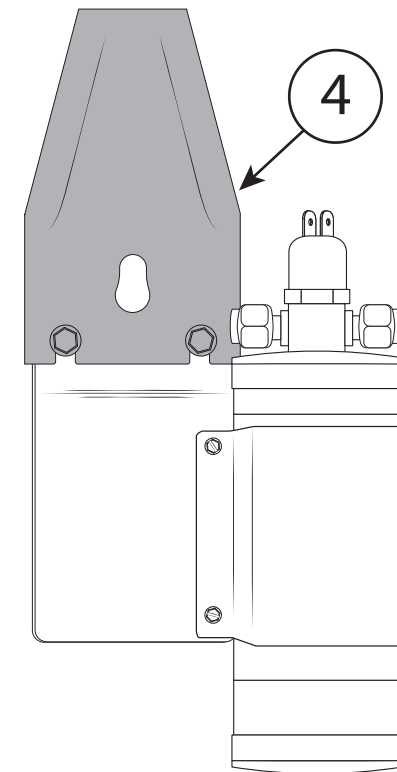
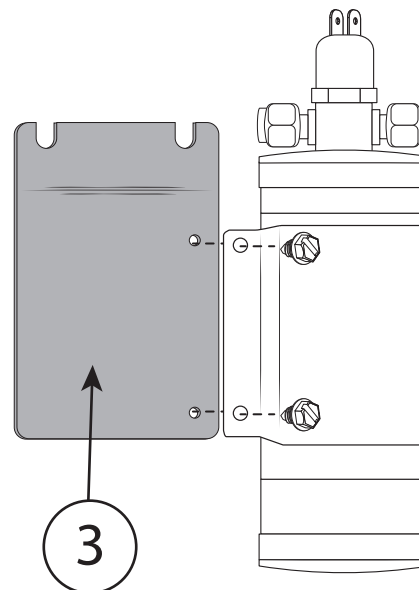
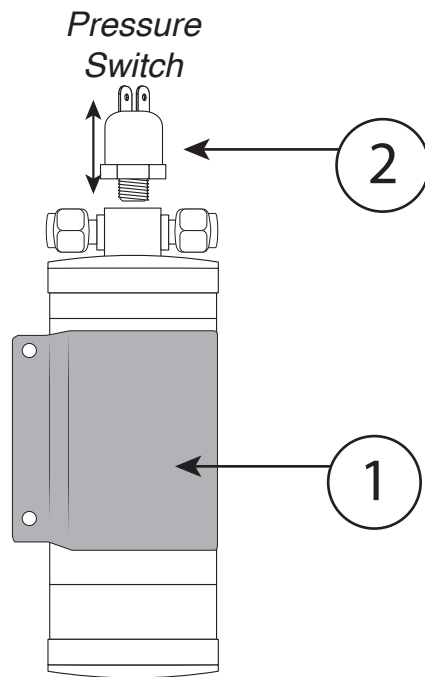
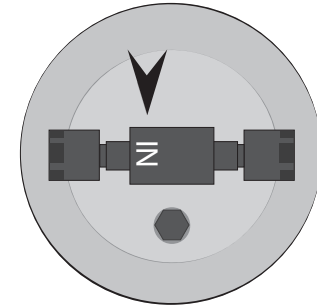
One #8 13/32" Discharge Hose



#10 1/2" Suction Hose

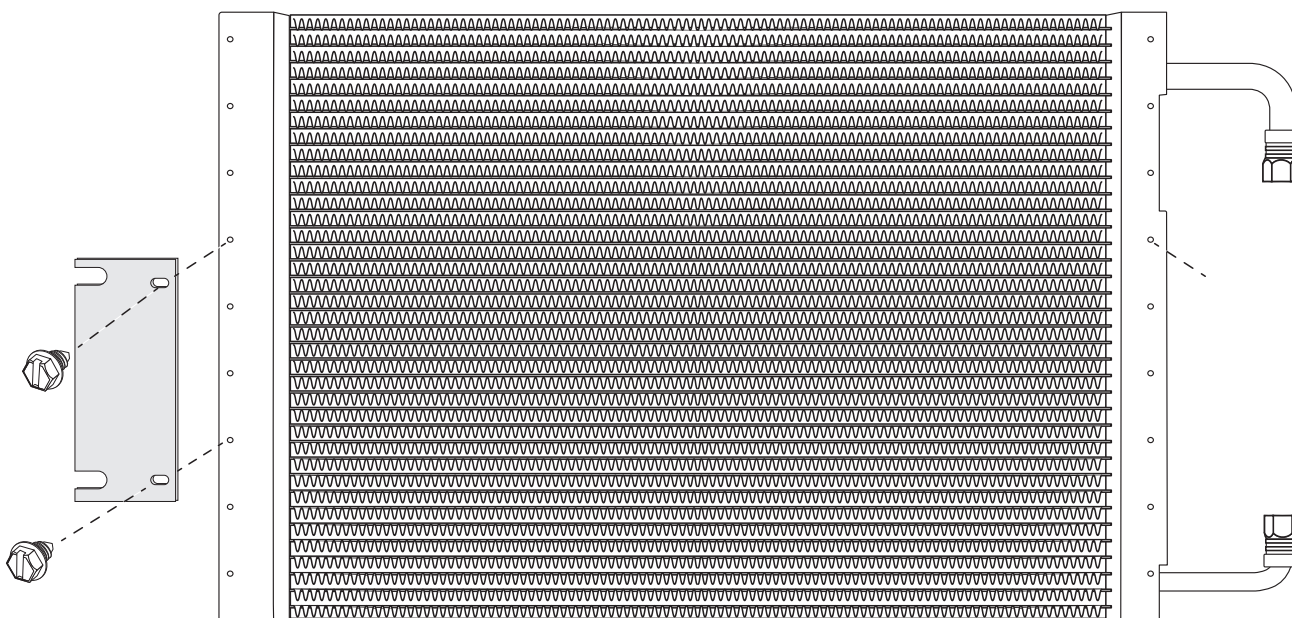
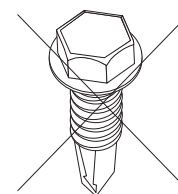


1. First insert the drier into the drier mounting bracket.
2. **PRESSURE SWITCH:** Screw the high-pressure switch into the port on the top of the drier. Go ahead and plug the pressure switch harness into the switch at this time (black electrical boot with two long white wires).
3. Mount Drier Bracket PN #0075-55 to Drier Assembly as shown using (2) #10 x 1/4" hex head screws.
4. Moving to the engine bay at this time. On the OEM blower bracket, loosen the existing bolts and slide the drier assembly into position behind the bracket, ensuring proper alignment. Once positioned correctly, tighten all fasteners to securely mount the drier assembly underneath the blower bracket.

DRIER TOP VIEW

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).

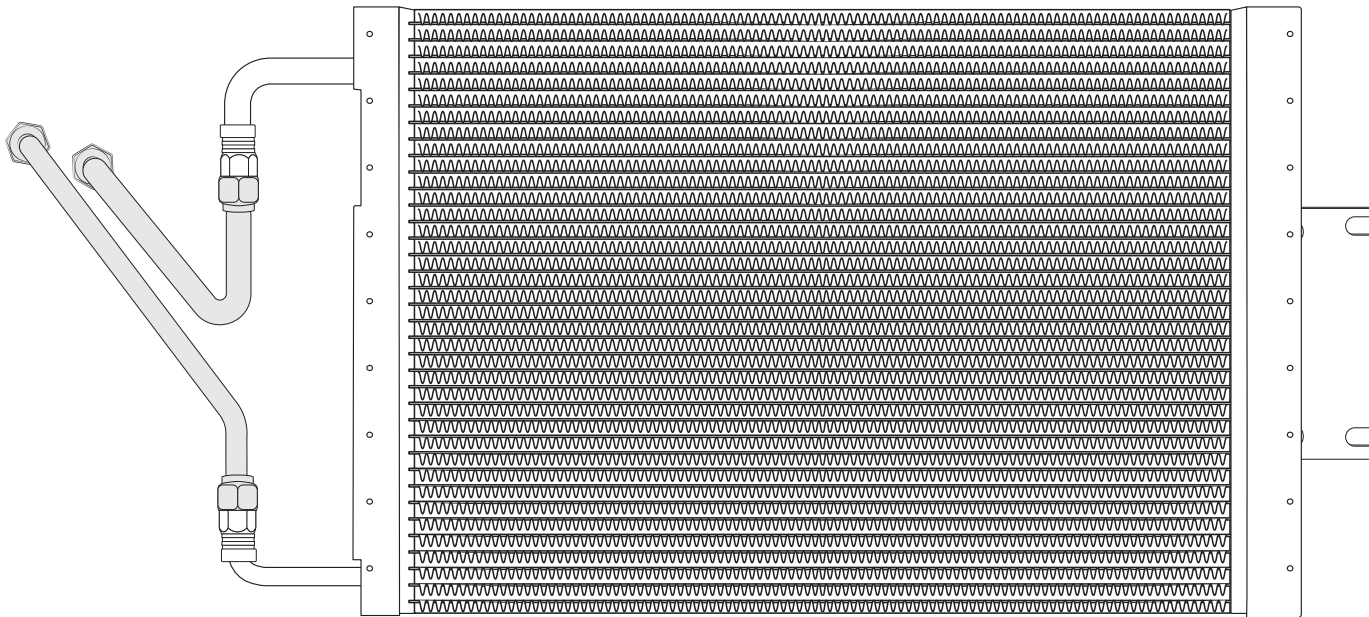
Attach Condenser Bracket using (2) #10 - 20 x 1/4" Screws. Attach bracket to 3rd hole from bottom of the condenser as shown.

**YES**#10-20 x 1/4"
HEX-HEAD**NO**#10 - 16 X 3/4"
TEK SCREWS

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

Locate following components from the condenser kit: Discharge tube (1) #8 o-ring, liquid tube (1) #6 O-ring and (2) #10 x 1/4" hex head screws..

Attach discharge tube to #8 fitting on the condenser using #8 o-ring and a few drops of mineral oil.

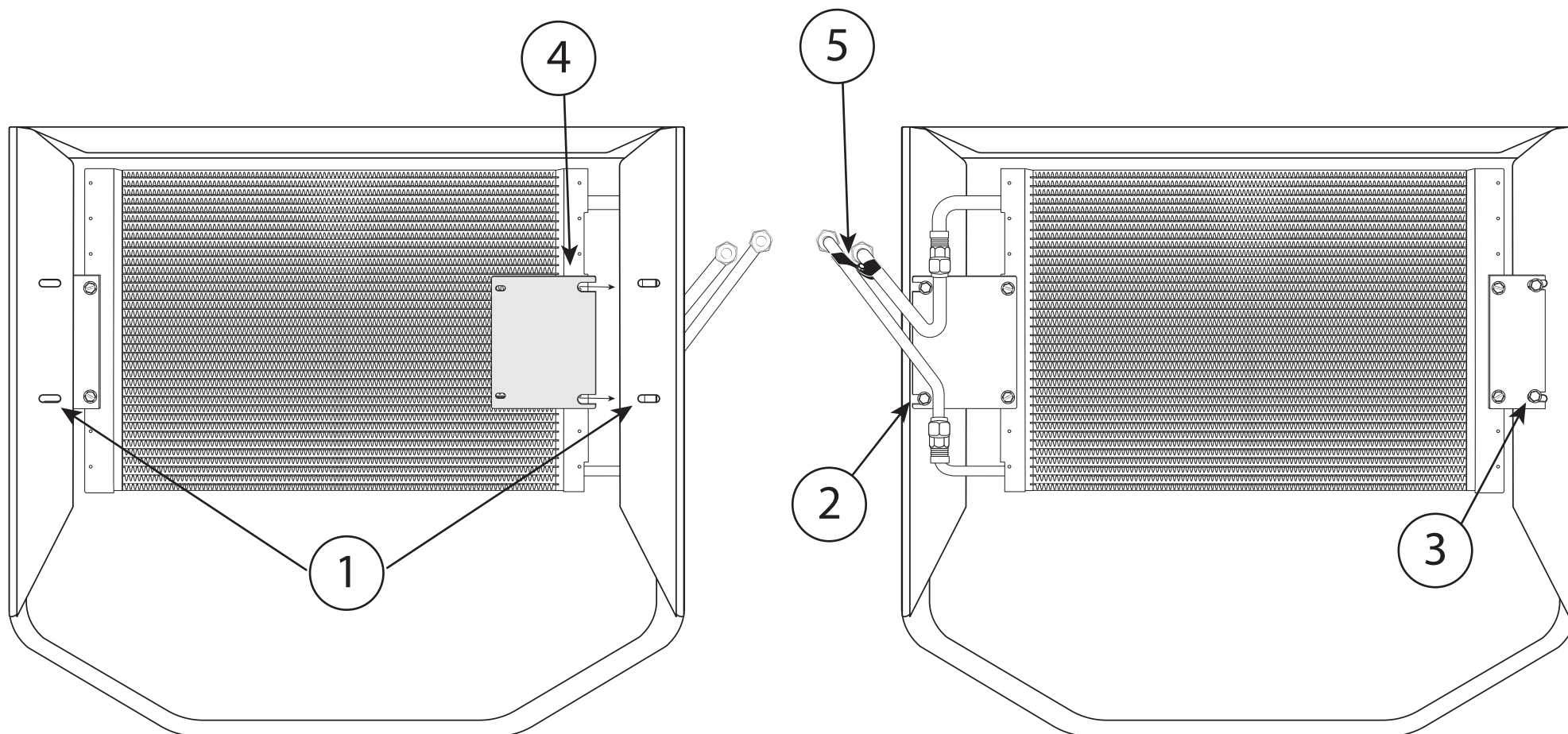


Reminder...
Use two
wrenches to
tighten o-ring
fittings



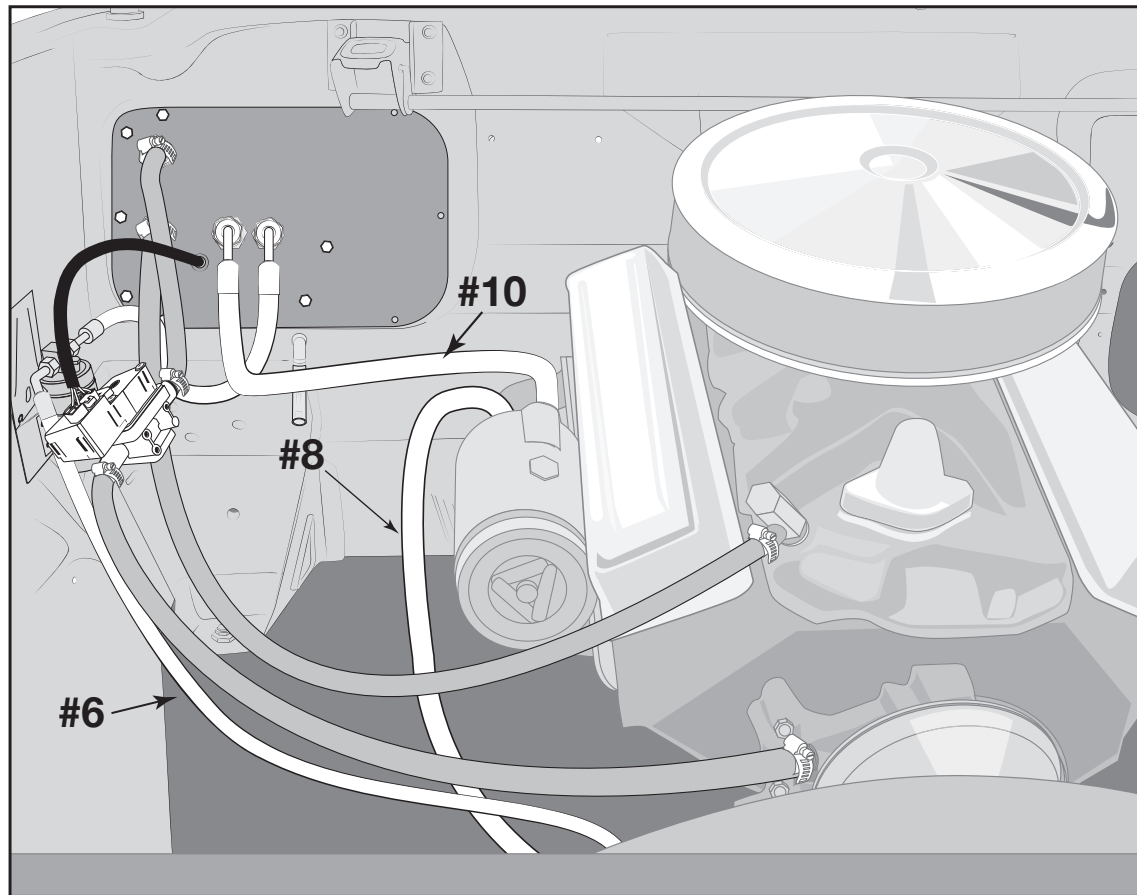
35 Remove Radiator and set aside.

1. Loosely attach (4) 5/16" -18 x 1/2" bolt to the radiator support from the grill side.
2. Carefully rotate condenser into position. Hook the tube assemblies through opening on passenger side.
3. Slide condenser left side bracket into the 5/16" bolts.
4. Slide right side bracket over 5/16" bolts and attach the bracket to condenser using (2) #10 x 1/4" hex head screw. Tighten 5/16" condenser bolts using a long extension through the grill.
5. Locate the condenser tube support bracket. Attach bracket to the condenser tubes as shown. Radiator can be re-install at this time.



View Towards Front End

View Towards Firewall

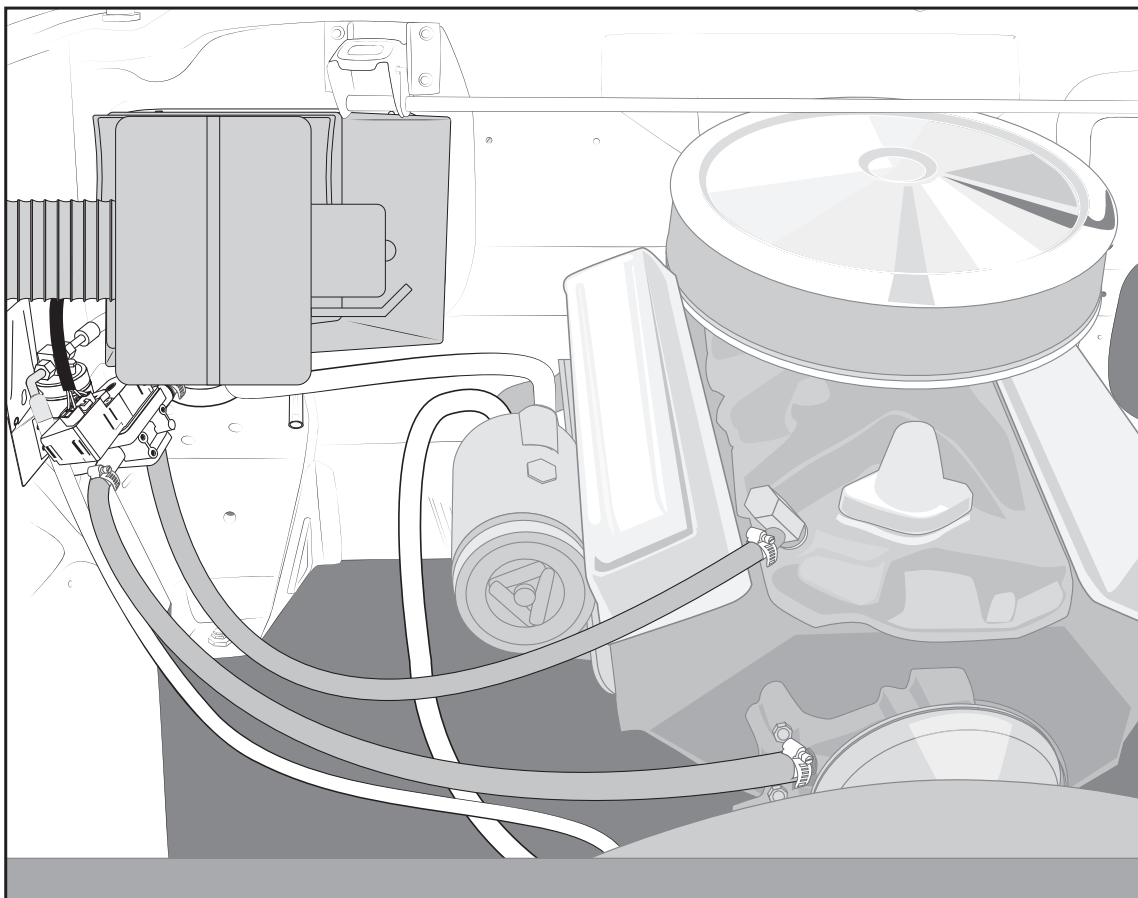


Locate short #6 liquid tube and (2) #6 o-rings. Attach hose between #6 fitting on block off and the drier.

Locate long #6 liquid hose and (2) #6 o-rings. Attach hose between drier and fitting on the condenser.

Locate #10 suction hose and (2) #10 o-rings. Attach hose to fitting on block off and end with the service port to the compressor.

Locate #8 discharge hose and (2) #8 o-ring. Attach hose to condenser fitting and the end with the service port to the compressor.



Locate the new air plenum. Slide plenum over the refrigerant hoses and attach using original hardware. Install flexible duct between the blower and the plenum.

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 R134A 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!**

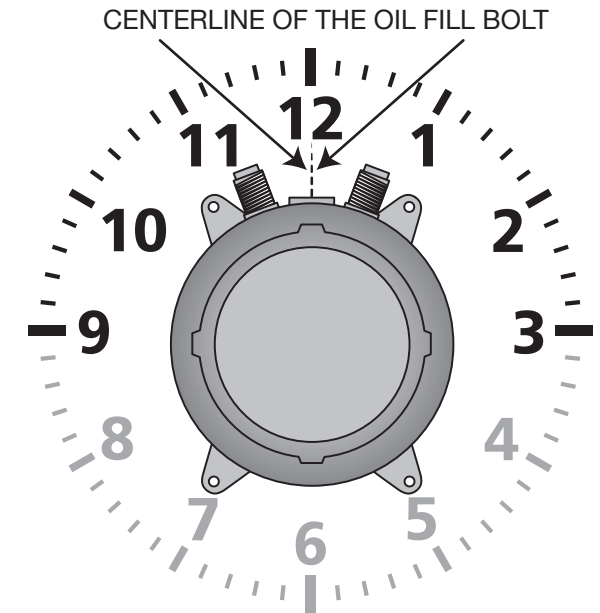
RECOMMENDED TEST CONDITIONS: (After system has been fully charged and tested for basic operation)

- 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

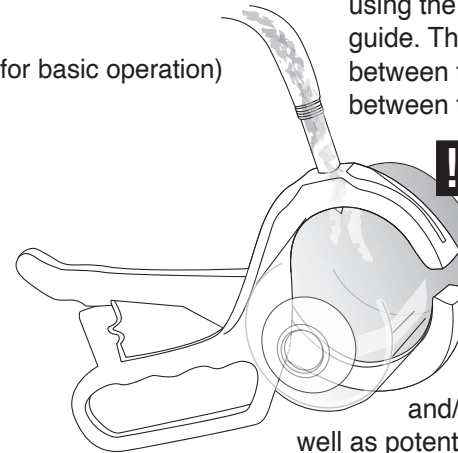
ACCEPTABLE OPERATING PRESSURE RANGES:

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.

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.



