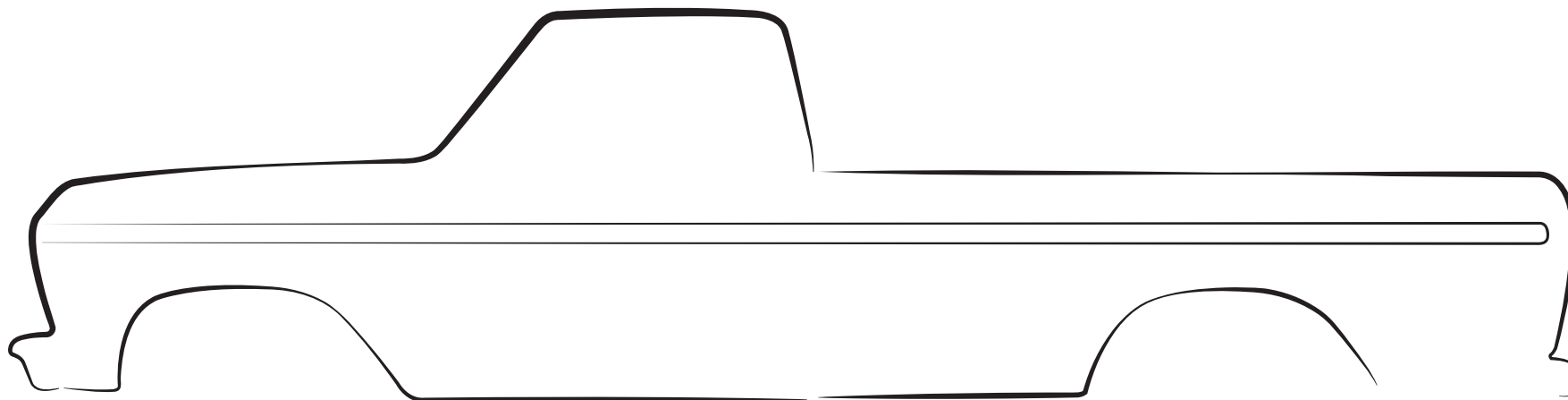




Installation Manual

1967-72 Ford Truck

Document #1-3073

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Congratulations...

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

Thank you from our entire staff.

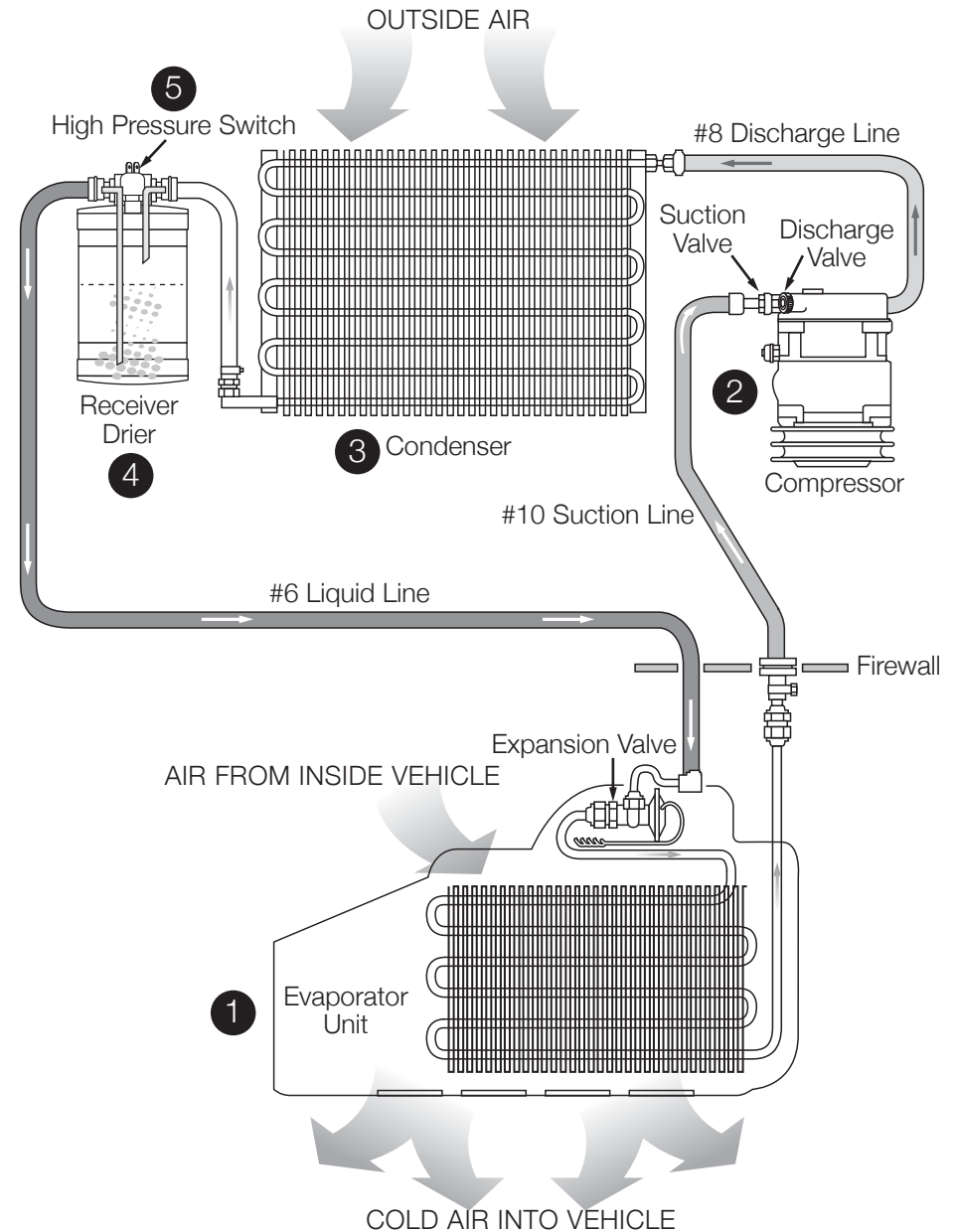
Overview



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.

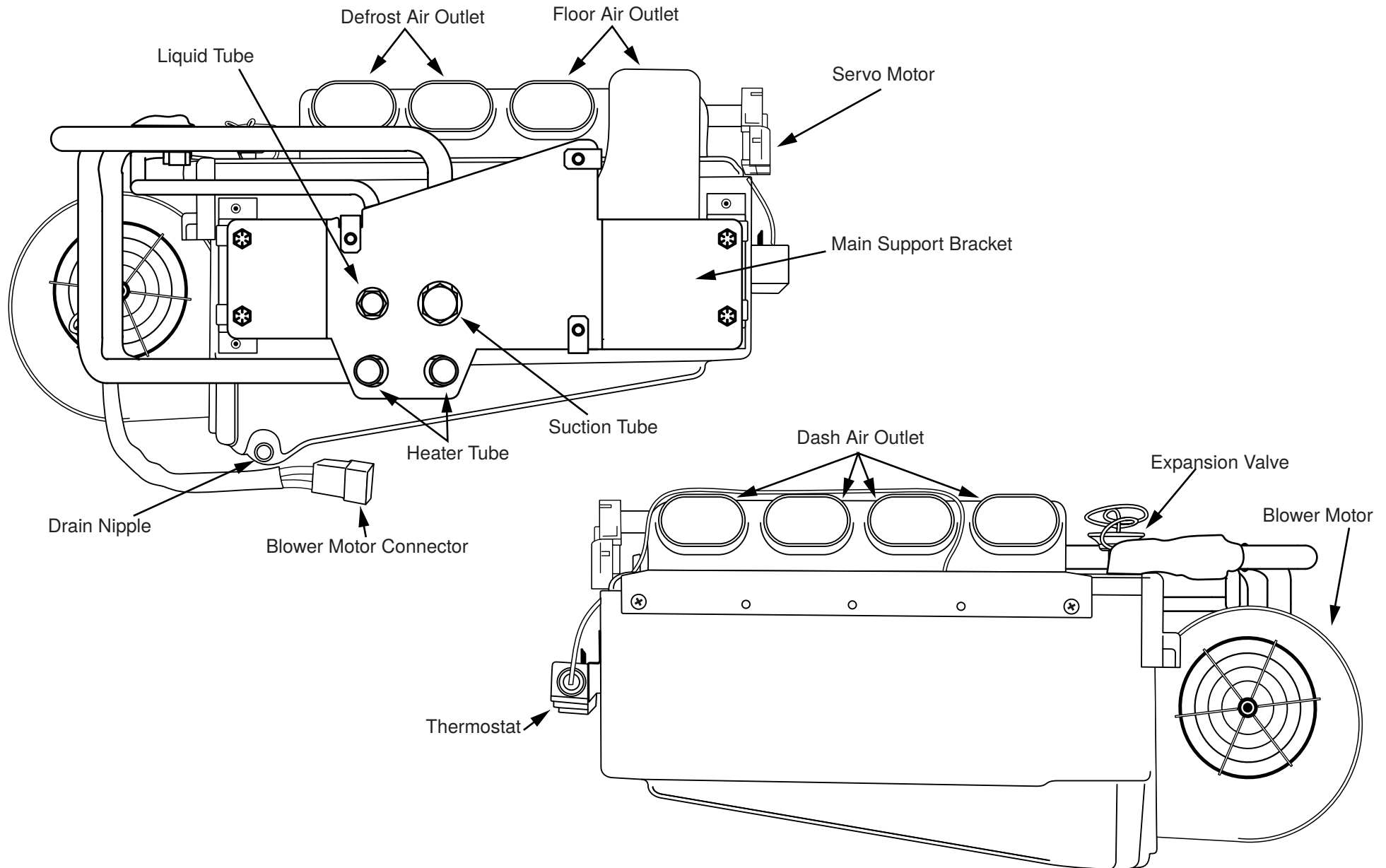
The air conditioning system in your vehicle is comprised of a compressor, condenser, expansion valve, receiver/drier, and evaporator. Refrigerant (also known as Freon) is compressed in the compressor. In the condenser, gas is cooled to a liquid state and travels to the expansion valve. As the liquid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



Overview



First, take a minute to familiarize yourself with the evaporator unit.



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 bagged parts.
- ☐ A basic cleaning of the engine compartment and interior before beginning will make things go more smoothly.
- ☐ Check the condition of the engine mounts. Excessive engine movement can damage hoses to A/C and/or heater.
- ☐ Check the 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.
- ☐ Tools: Your installation only requires the basic tools everyone has in their garage, nothing exotic or specific to A/C or heat equipment.
- ☐ **SAFETY FIRST:** Wear eye protection while drilling/cutting, deburr sharp edges, and never get in a hurry or force a part.

Procedures During Installation:

NOTE: If your vehicle has been or is being modified, some procedures will need to be adjusted to fit your particular application.

- ☐ 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 or missing components, call us immediately. We will be glad to assist you.

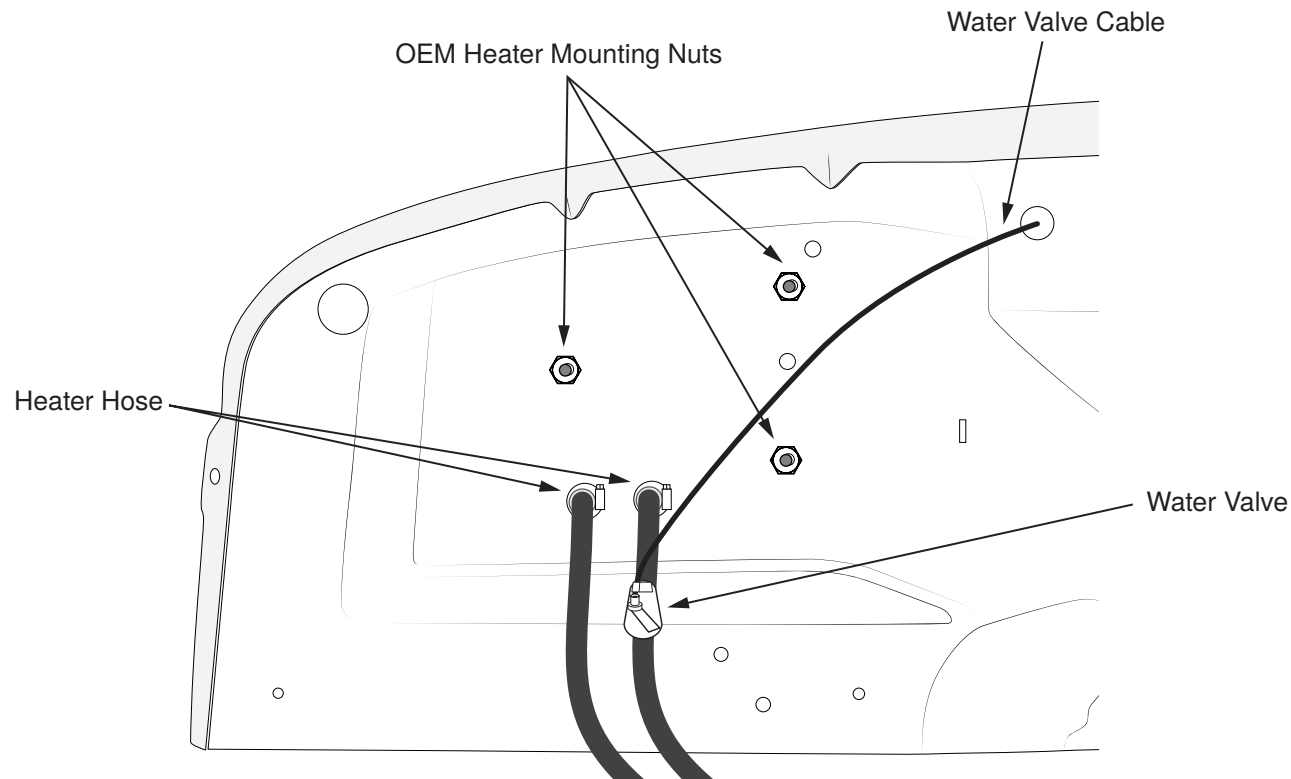
You Can Now Begin The Installation.

Install Prep



WARNING: Before continuing, make sure battery is disconnected and coolant is drained from the radiator. Store safely for reuse or recycle accordingly.

- In the engine compartment, at the firewall, remove 3 nuts from OEM heater mounting bolts.
- Disconnect water valve cable from the valve.
- Remove heater hoses from the heater connections.

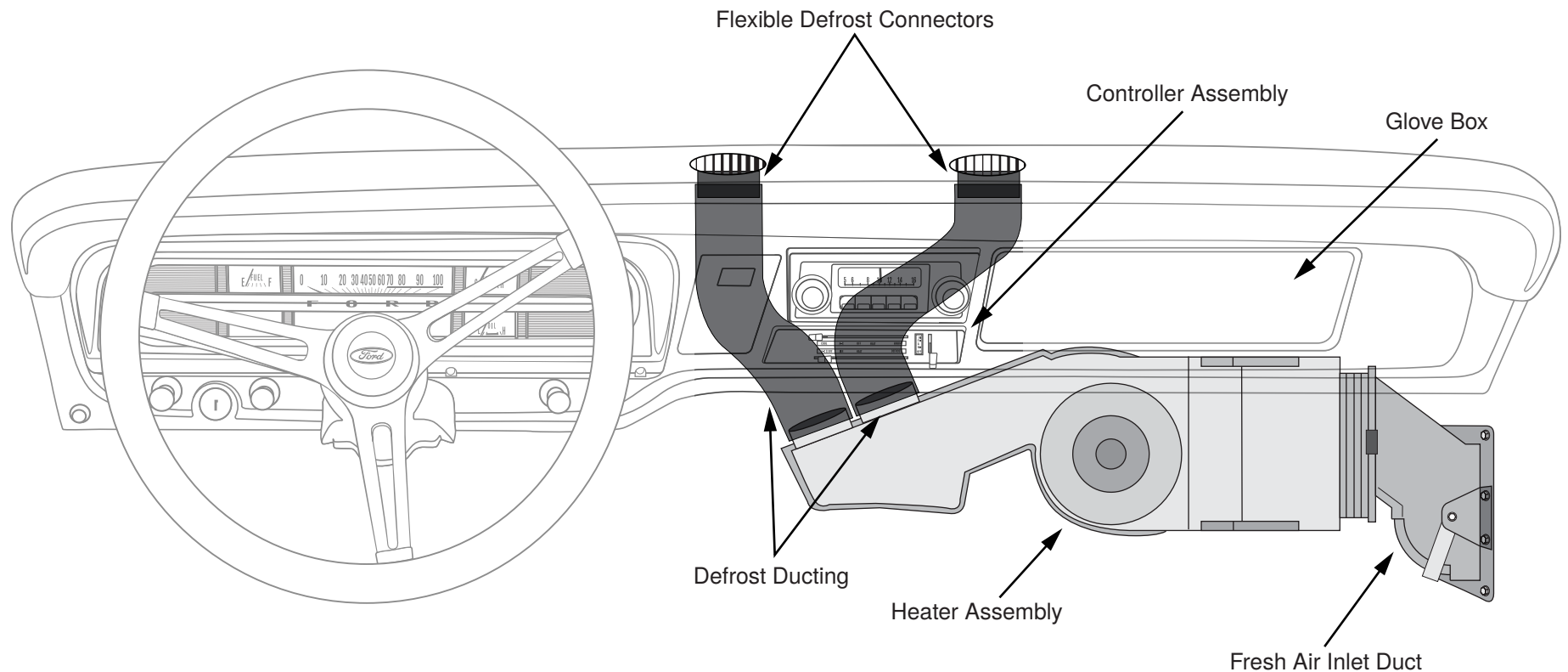


Engine Compartment - Firewall - Passenger Side

Install Prep

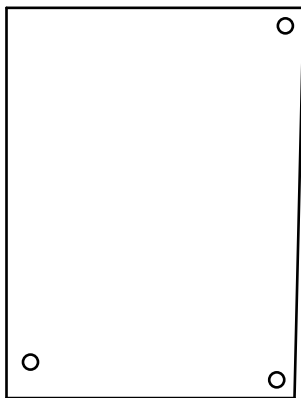


- Remove glove box door and glove box. Retain the glove box door and all original hardware. Discard glove box housing.
- Remove fresh air inlet duct from passenger side kick panel. Retain original hardware. Discard fresh air inlet duct.
- Disconnect all cables and electrical harnesses from the heater assembly and discard.
- Disconnect defrost ducting and retain flexible defrost connectors.
- Disconnect controller assembly and discard.
- Remove heater assembly and discard.

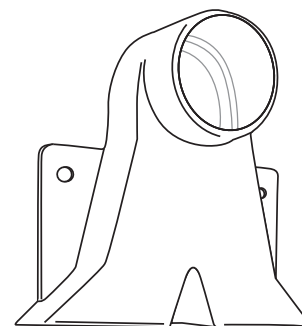


These are the parts you will find in Bag A

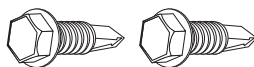
You will use all of these parts and hardware during the next series of installation steps.



Inlet Block Off Assembly (Qty. 1)
Part# 10-3073-1



Heat Dump (Qty. 1)
Part# 0045-24

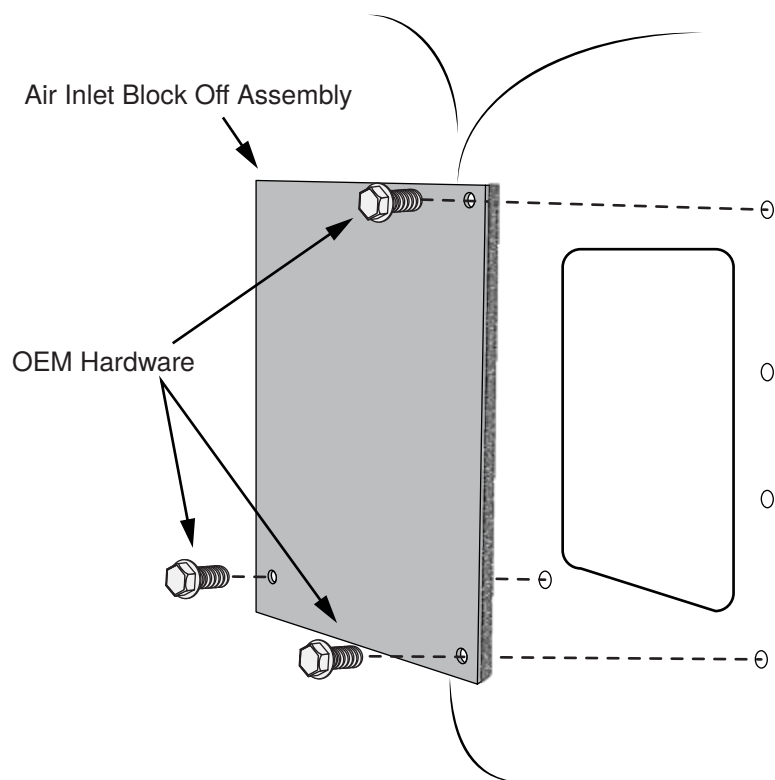


#10-16 x 3/4" Tek Screw (Qty. 2)
Part# 10B75HW3Z

Install Prep

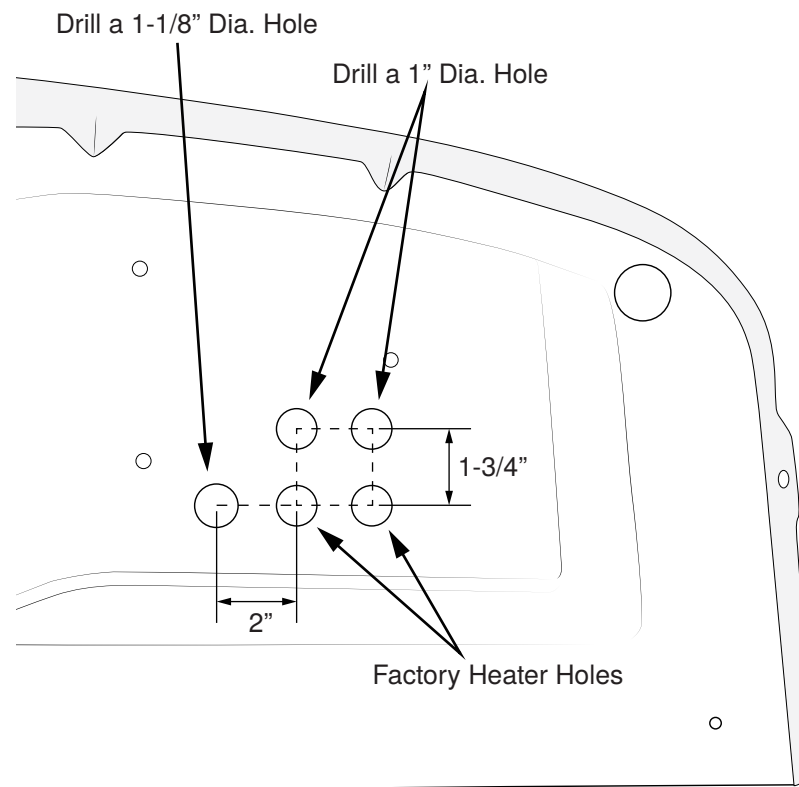


- Install the inlet block off assembly over the air inlet opening using (3) of the original duct screws that were removed earlier. (Figure A)
- From the interior side of the firewall, measure 1-3/4 inches up from the center of the factory heater hole, and drill a 1 inch diameter hole. Repeat for the other heater hole. (Figure B)
- Next, measure 2 inches to the left from the center of the driver side factory heater hole, and drill a 1-1/8 inch diameter hole. (Figure B)



Passenger Side Kick Panel

Figure A



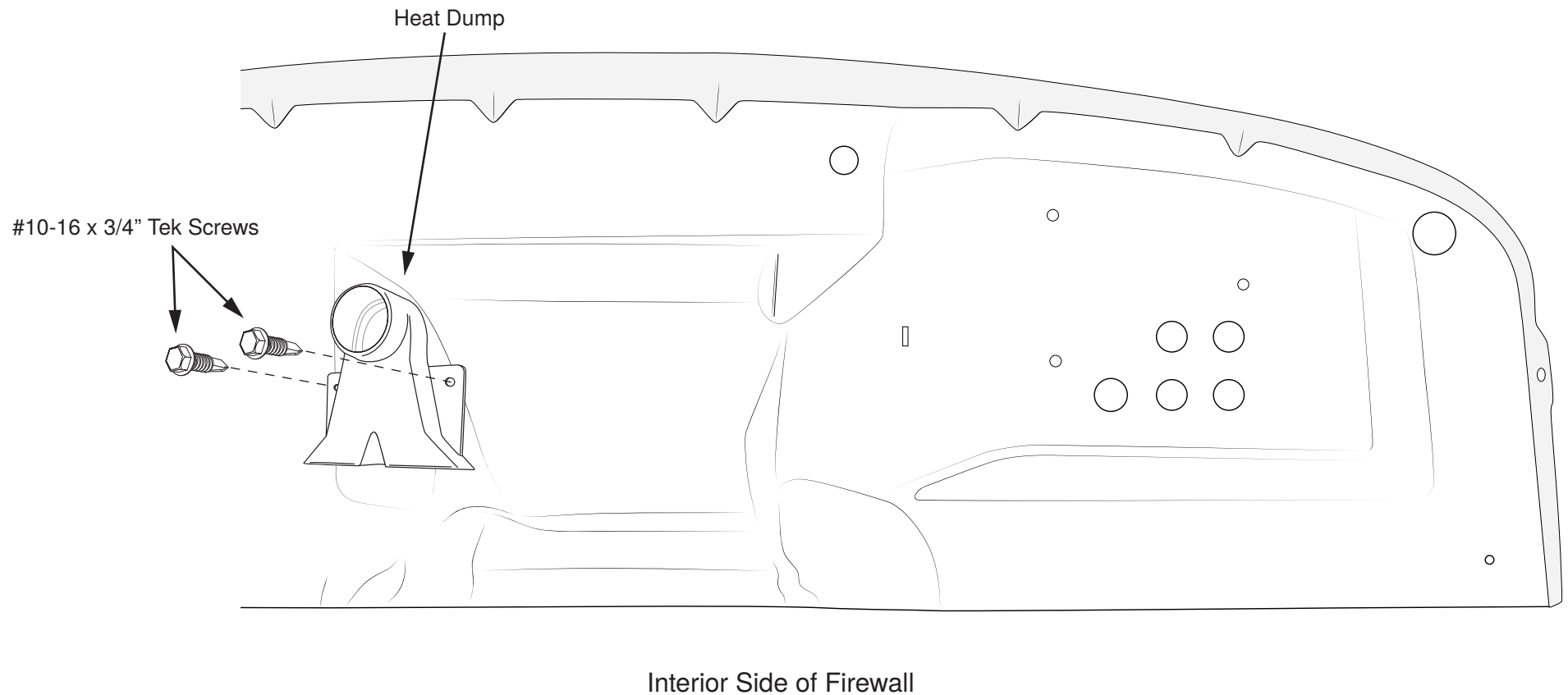
Interior Passenger Side Firewall

Figure B

Install Prep



- Install heat dump to the firewall approximately as shown using (2) #10-16 x 3/4" Tek screws.



These are the parts you will find in Bag B

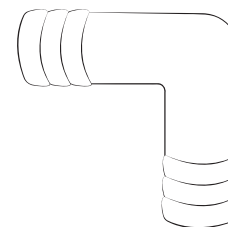
You will use all of these parts and hardware during the next series of installation steps.



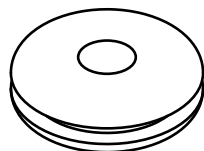
1/4"-20 x 1" Hex Bolt (Qty. 3)
Part# 25C100HHB5Z



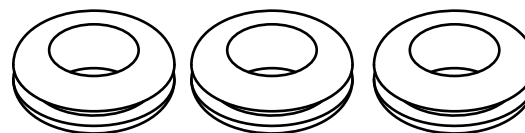
1/4" Flat Washer (Qty. 3)
Part# 25NWSAB



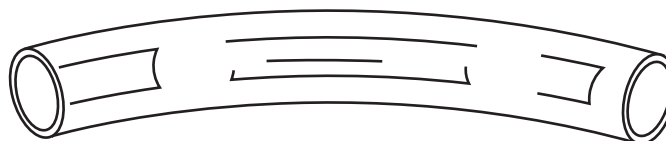
90 Degree Elbow (Qty. 1)
Part# 1875



3/8" ID Grommet (Qty. 1)
Part# G5



5/8" ID Grommet (Qty. 3)
Part# G3155



1/2" ID x 12" Long Drain Tube (Qty. 1)
Part# 31004845

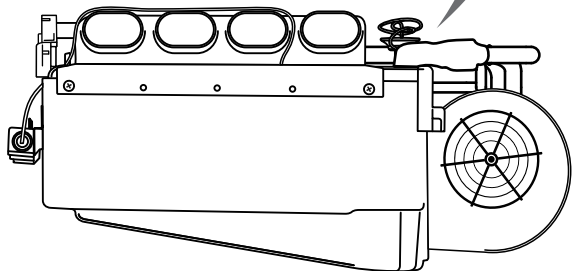
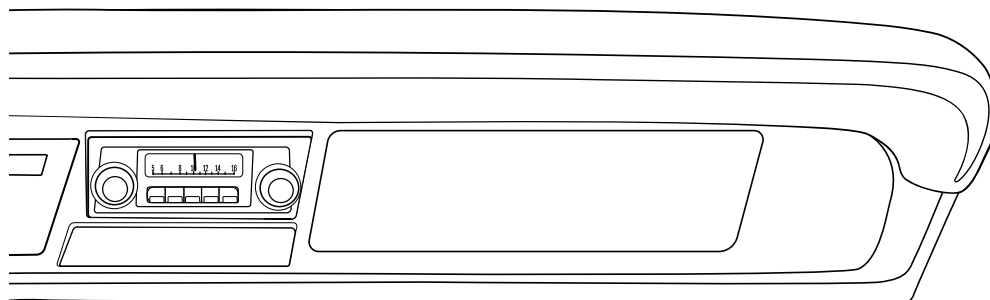
Installation - Evaporator



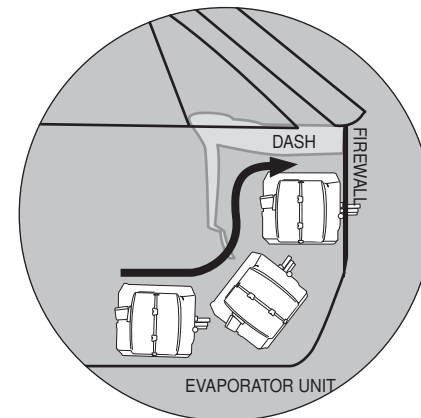
NOTE: Two people are needed for this step for easy installation.

- One person can take the unit within the car and “roll” up and under the dash, making sure to have the tube assemblies go through the holes in the firewall.
- The second person can be at the engine compartment to loosely install the (3) 1/4” flat washers and (3) 1/4”-20 x 1” hex bolts through the firewall, and into the pre-installed J-clips on the main support bracket.

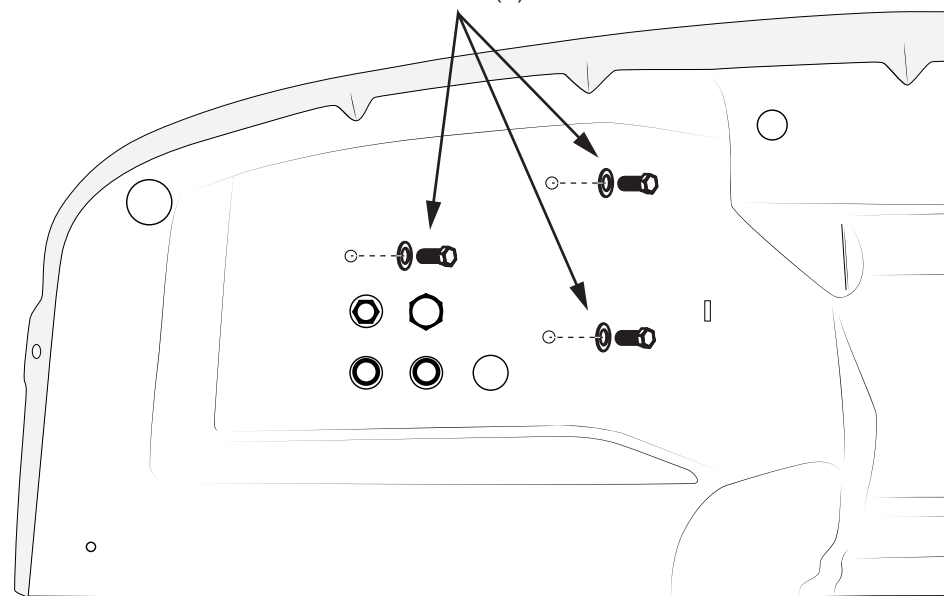
NOTE: Only loosely hand tighten the bolts for now.



Engine Side of Firewall ►



1/4” Flat Washer (3) &
1/4”-20 x 1” Bolt (3)

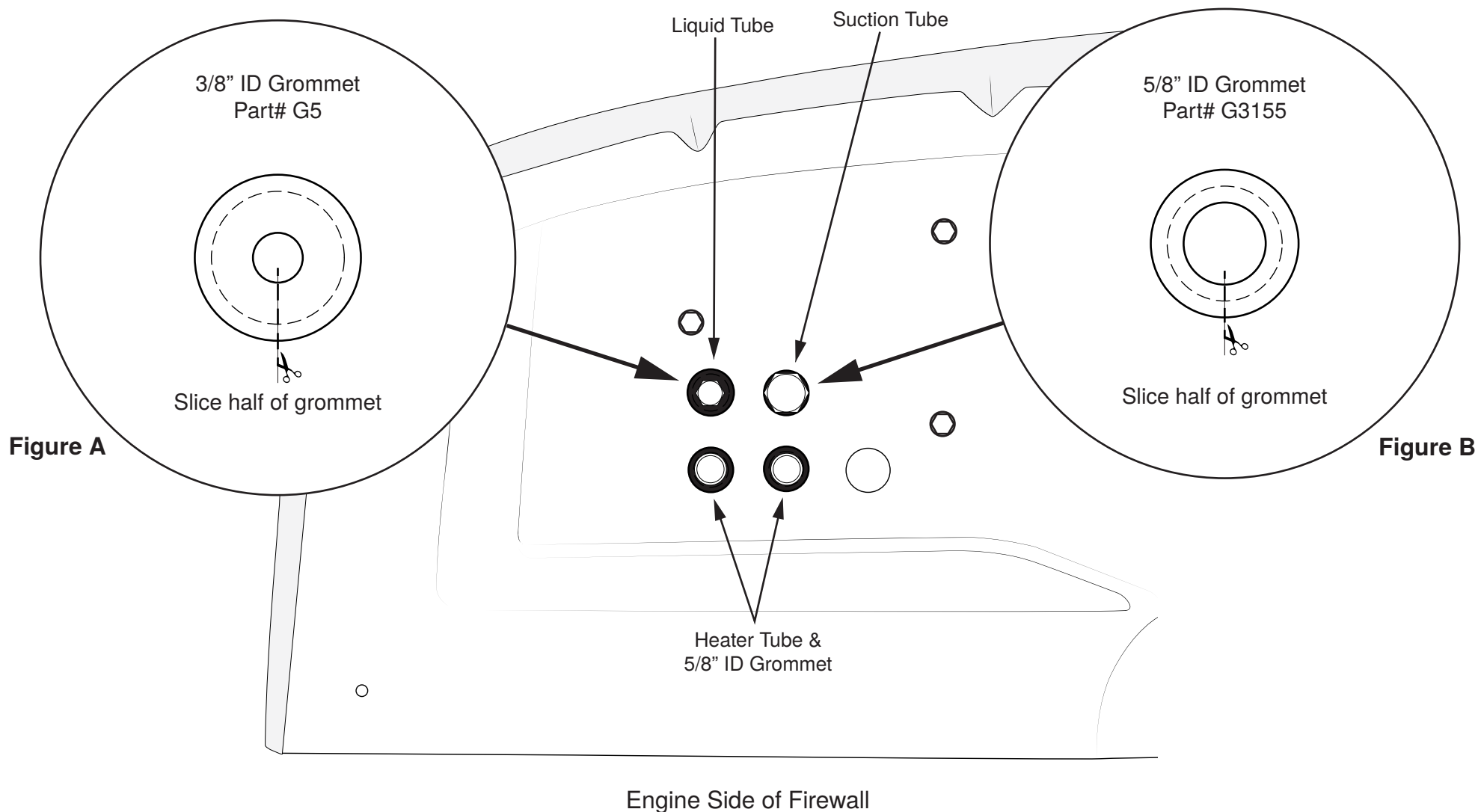


Installation - Grommets



- Slide a 5/8" ID grommet over each bottom heater tube, and insert the grommet into the hole in the firewall.
- Cut a slice in the 3/8" ID grommet and wrap it around the liquid tube, then insert the grommet into the hole in the firewall. (Figure A)
- Cut a slice in the third 5/8" ID grommet and wrap it around the suction tube, then insert the grommet into the hole in the firewall. (Figure B)

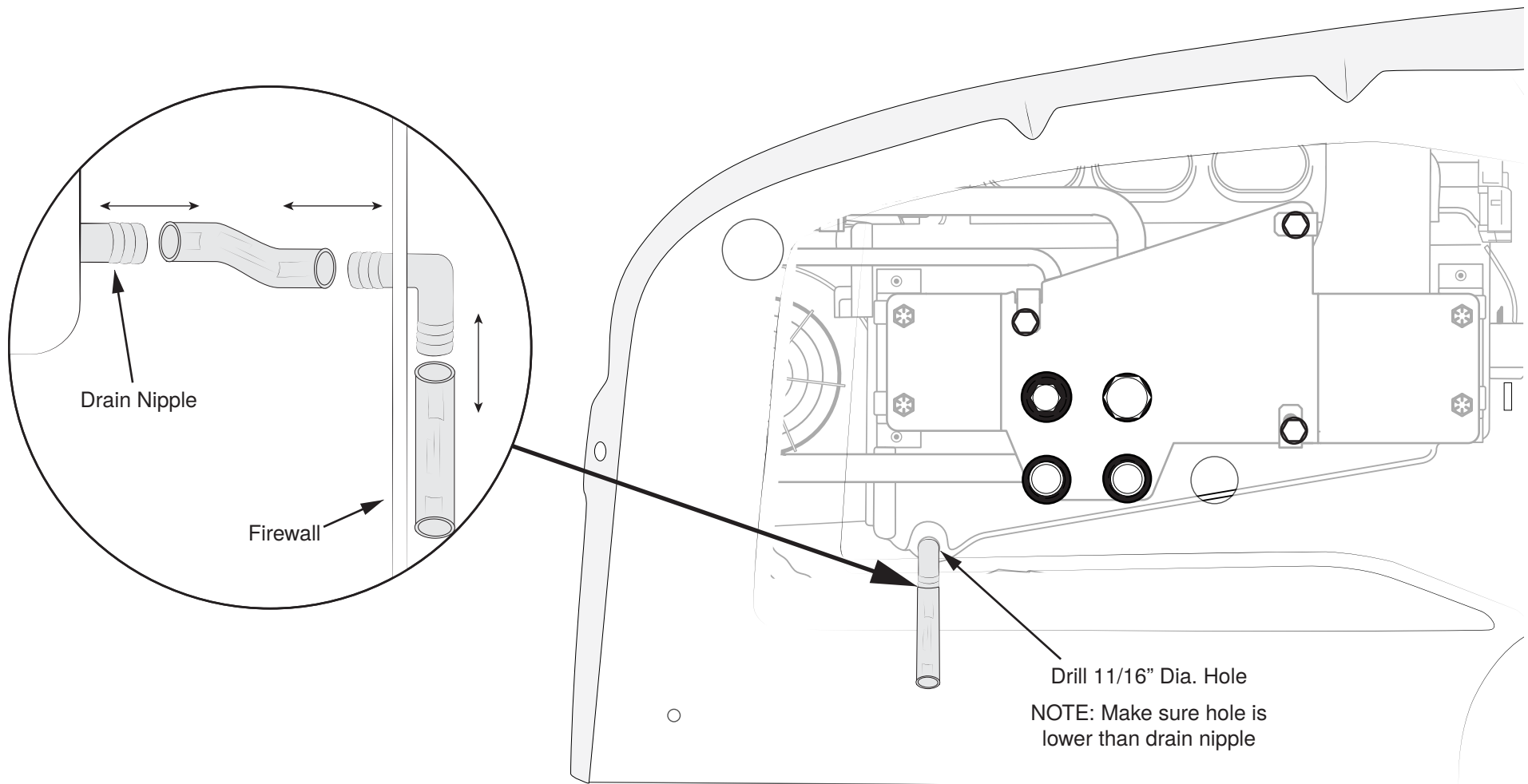
NOTE: Once everything is in place, tighten the (3) previously installed 1/4"-20 x 1" hex bolts.



Installation - Drain Tube



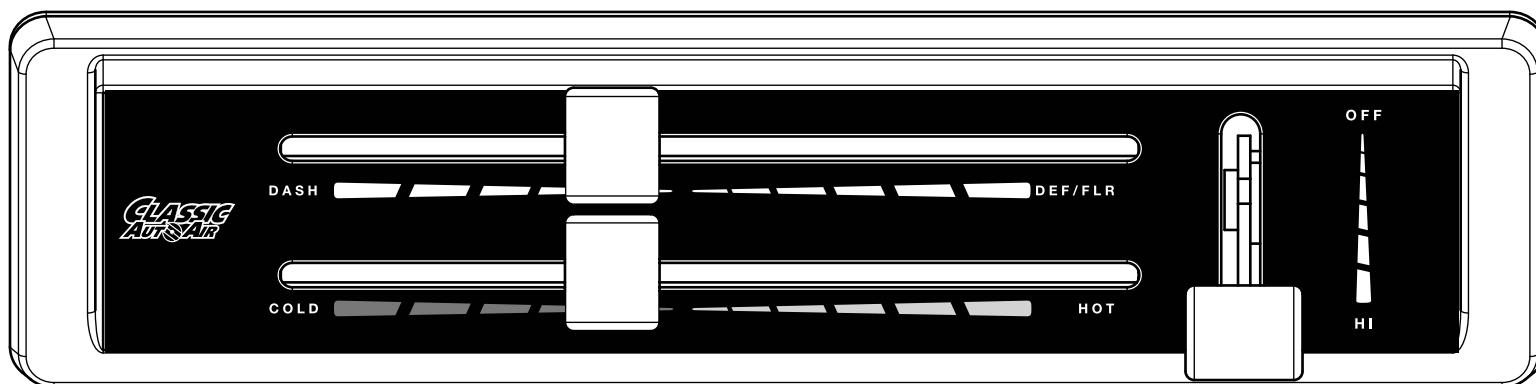
- Drill an 11/16 inch diameter hole in the firewall below the level of the evaporator drain nipple, approximately as shown below.
- Cut the clear drain tube to a length that will reach from the drain nipple to the firewall, and attach to the drain nipple.
- Insert the 90 degree elbow into the hole in the firewall from the engine side, and connect the clear drain tube from the drain nipple.
- Connect the remainder of the clear drain tube to the other side of the 90 degree elbow in the engine compartment.



Engine Side of Firewall

These are the parts you will find in the Control Box

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



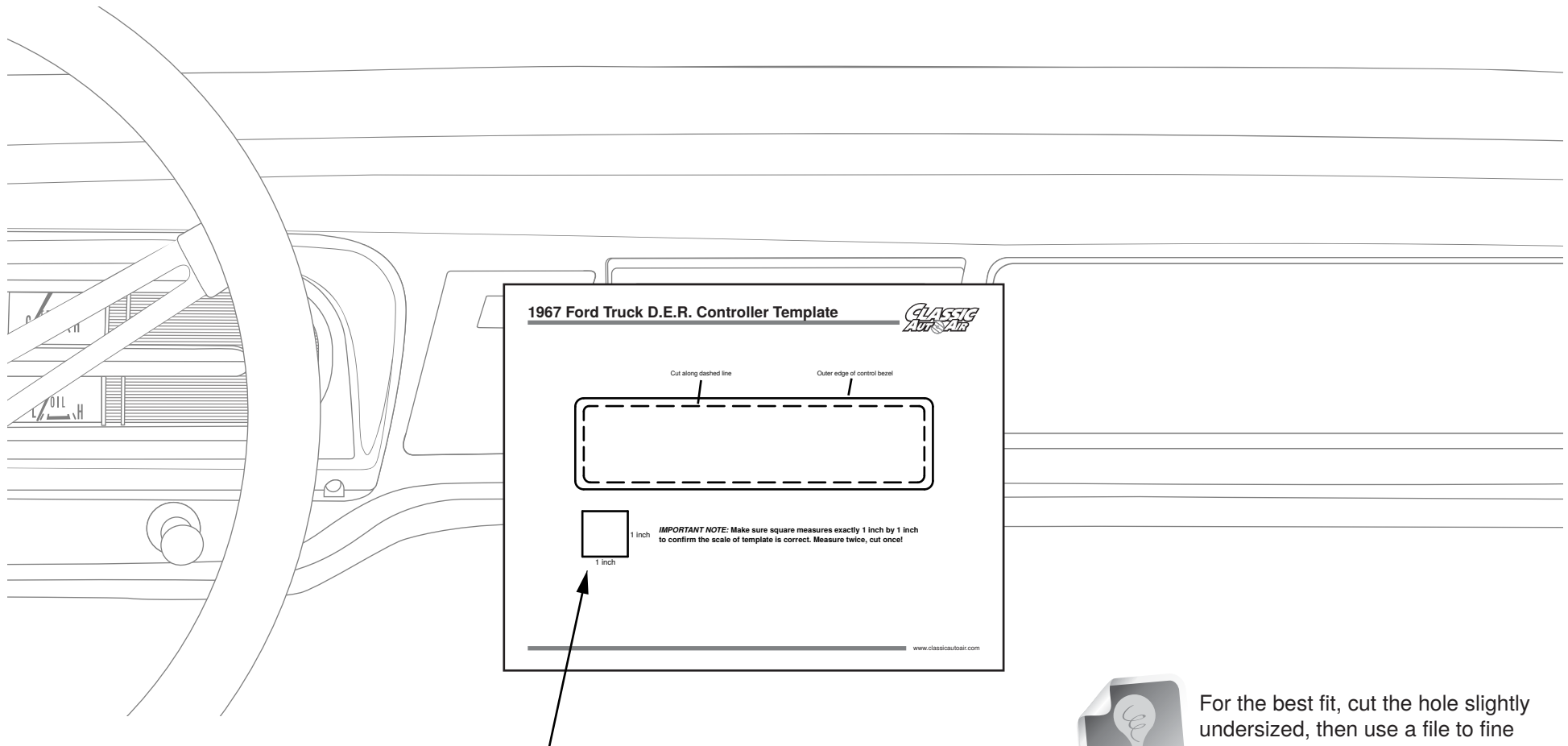
D.E.R. Controller
Part# 16-4073

Install Prep



NOTE: 1967 Ford Truck ONLY

- You will need to use the provided template to cut a hole in the dash for your new D.E.R controller. Locate the template in the back of this manual.
- Locate where you would like your controller to be and tape the template to the dash, then cut along the dotted line on the template.



NOTE: Double check the dimensions of the template by making sure the square on the template measures exactly 1 inch by 1 inch.



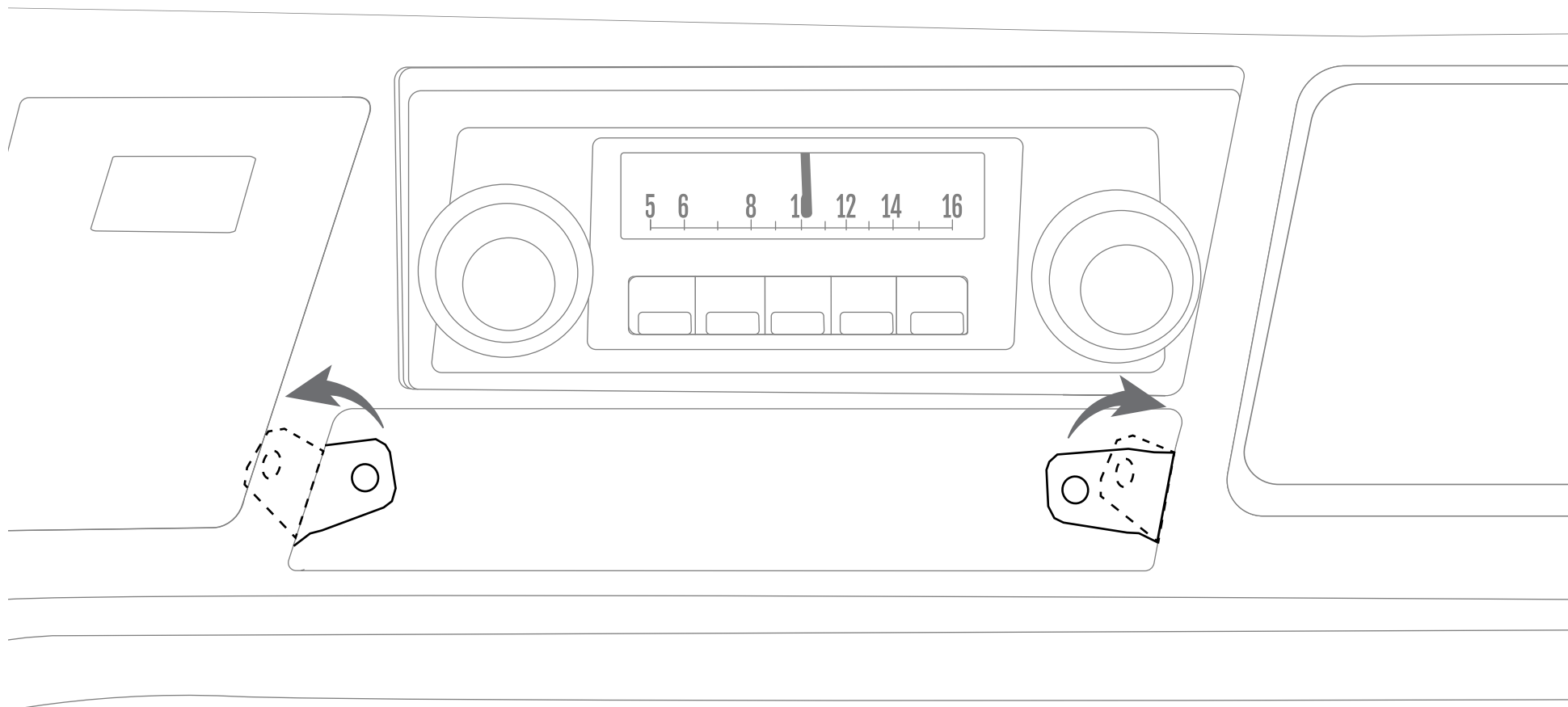
For the best fit, cut the hole slightly undersized, then use a file to fine tune the hole until it is just right.

Install Prep



NOTE: 1968-72 Ford Truck ONLY

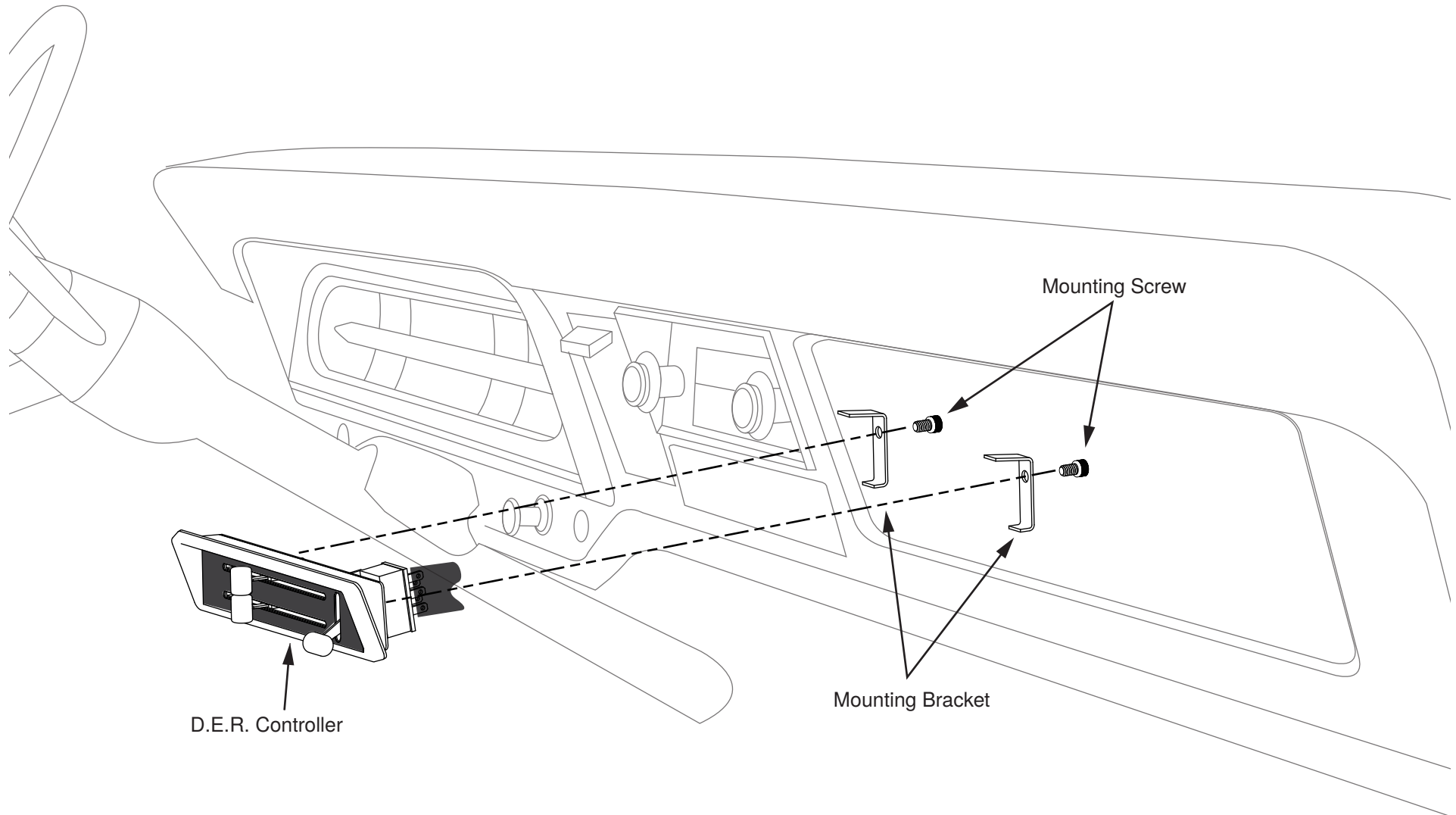
- Bend the factory controller mounting tabs back 90 degrees to provide clearance for the new D.E.R. controller.



Installation - Controller

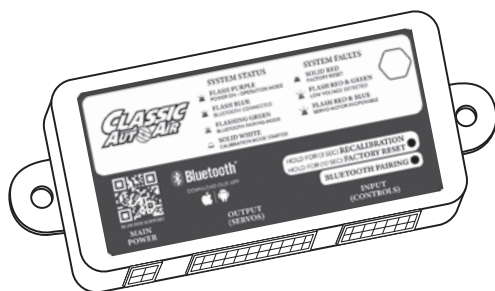


- Insert the controller into the dash and secure with the provided mounting brackets and screws.

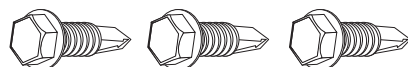


These are the parts you will find in Bag C

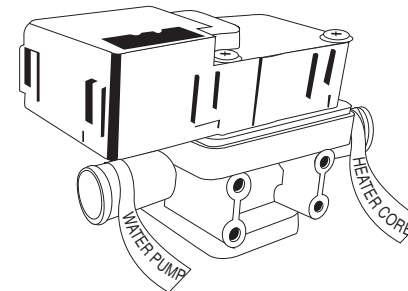
You will use all of these parts and hardware during the next series of installation steps.



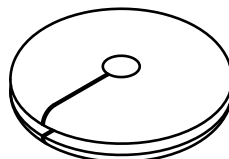
ECU (Qty. 1)
Part# 16-2500



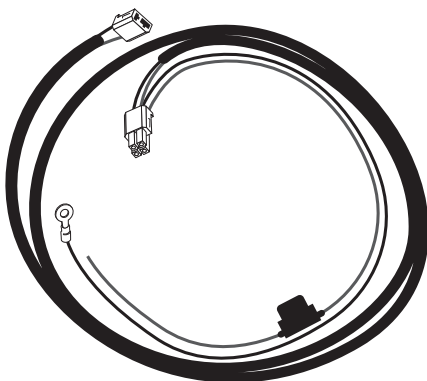
#10-16 x 3/4" Tek Screw (Qty. 3)
Part# 10B75HW3Z



Electronic Water Valve (Qty. 1)
Part# 16-1023



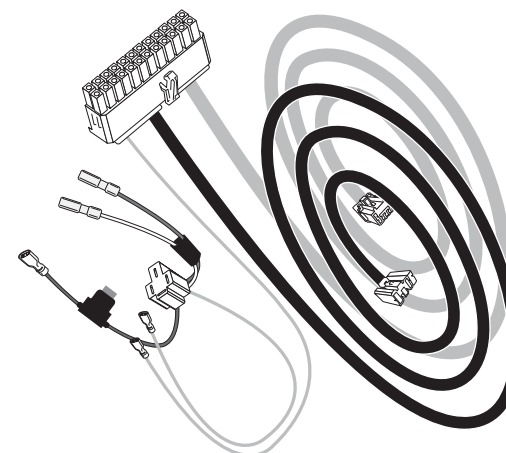
1-1/8" Firewall Grommet (Qty. 1)
Part# G3



Wire Harness, Power Supply (Qty. 1)
Part# 0125-5R1



Relay (Qty. 1)
Part# 30-13373



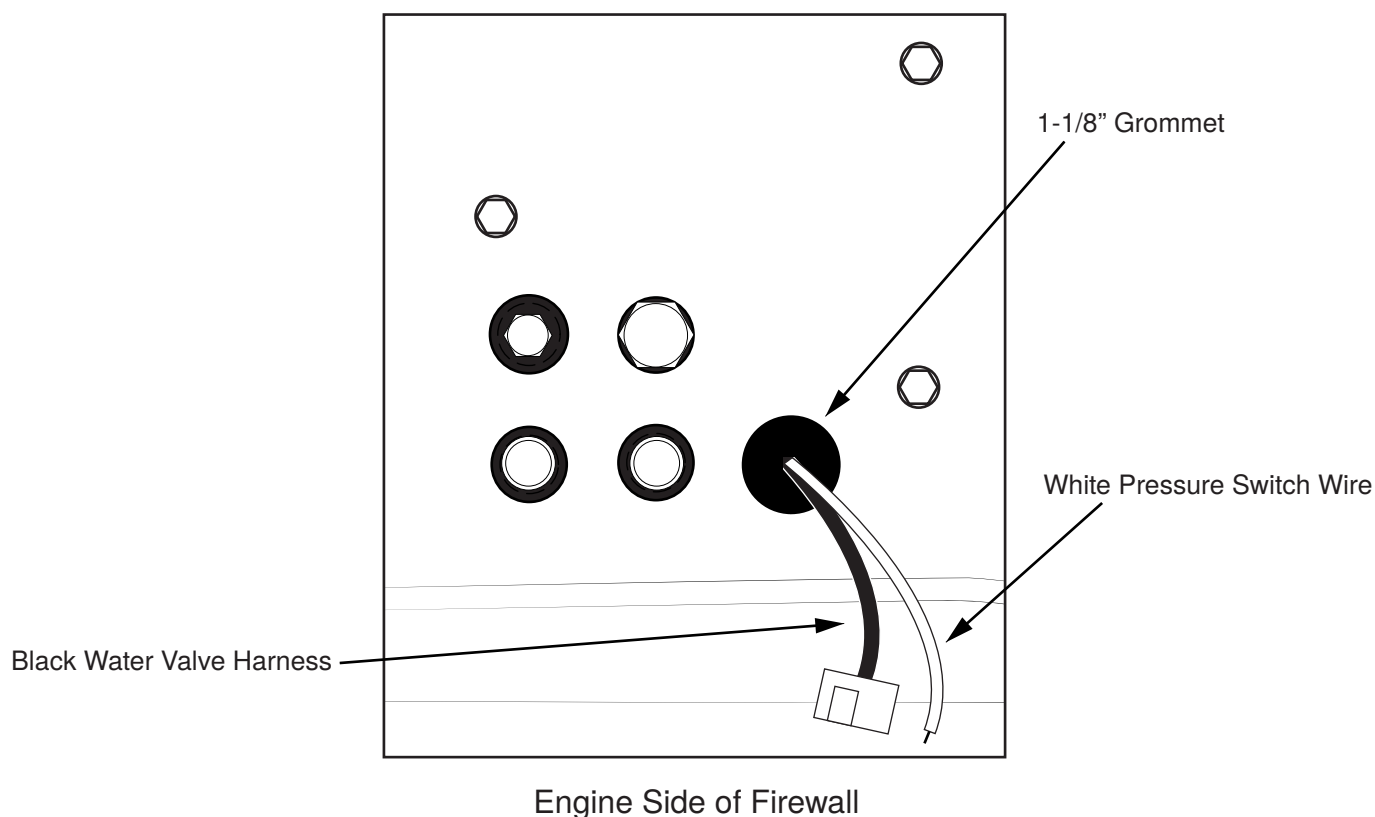
Wire Harness, Output (Servo) (Qty. 1)
Part# 0125-20R3A

Installation - Electrical

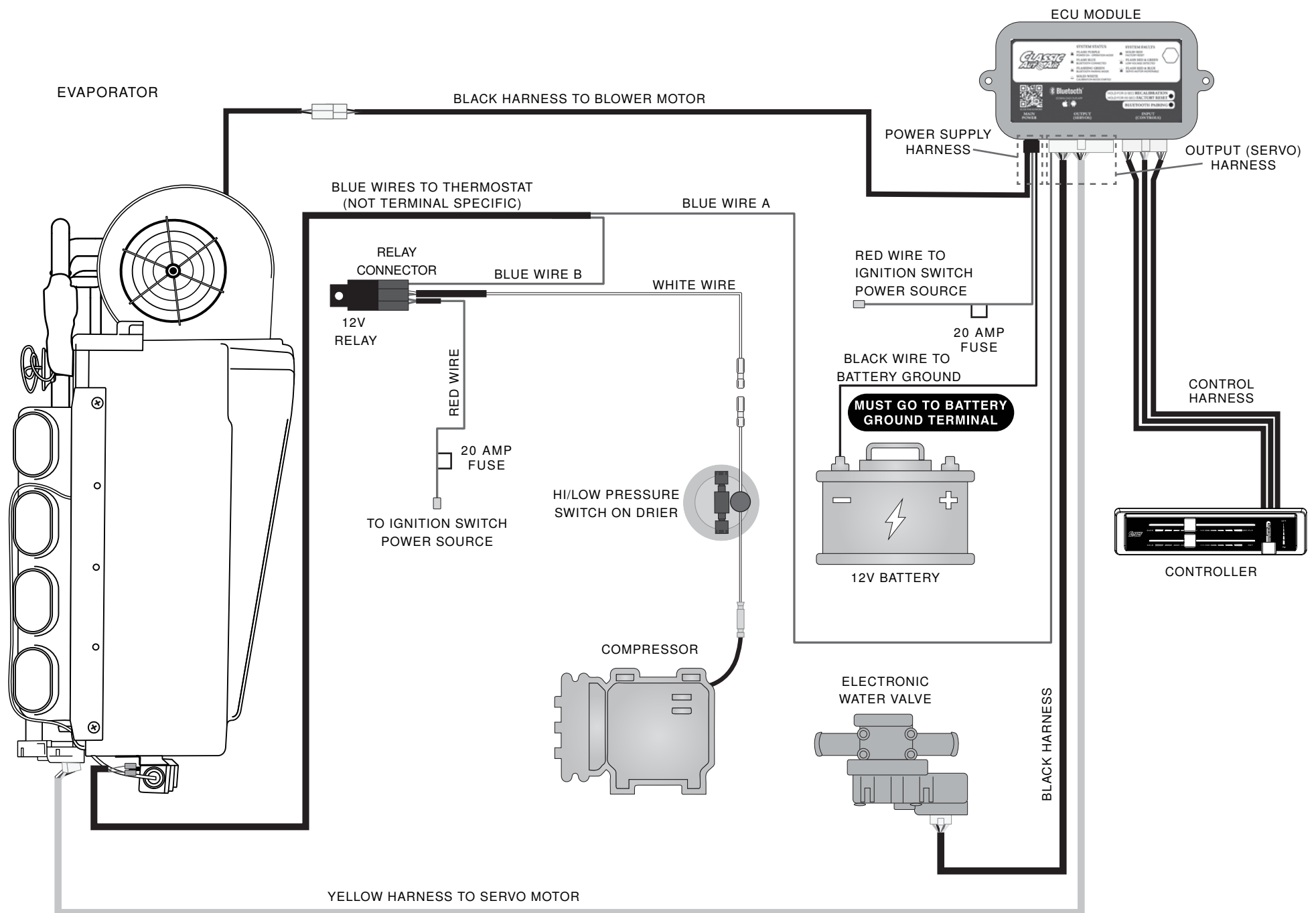


NOTE: The following wire harness installation steps are shown in the wiring diagram on the next page.

- Install the output (servo) wire harness according to the wire diagram.
- 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.

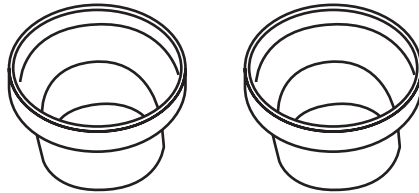


- Install the power supply wire harness according to the wire diagram.
- Connect the controller wire harness to the ECU.
- Mount the ECU with (2) #10-16 x 3/4" Tek screws.
- Secure the relay with the remaining #10-16 x 3/4" Tek screw.

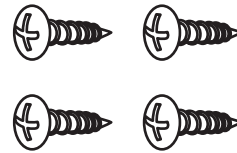


These are the parts you will find in Bag D

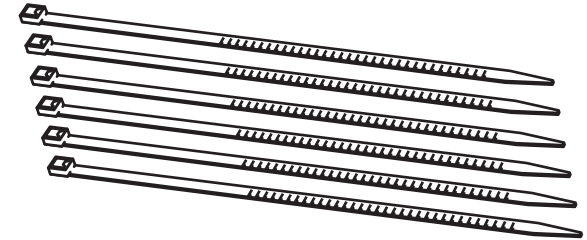
You will use all of these parts and hardware during the next series of installation steps.



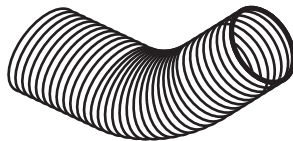
Defrost Adapter (Qty. 2)
Part# 03-1894



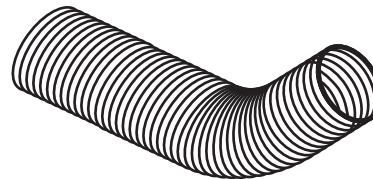
#8-18 x 3/8" PHP Screw (Qty. 4)
Part# 8B37PPBB



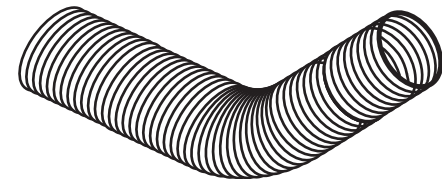
8" Zip Tie (Qty. 6)
Part# AL-08-40-0-M



2" Dia. x 2' Long Duct Hose (Qty. 1)
Part# 2-1013



2" Dia. x 3' Long Duct Hose (Qty. 1)
Part# 2-1013

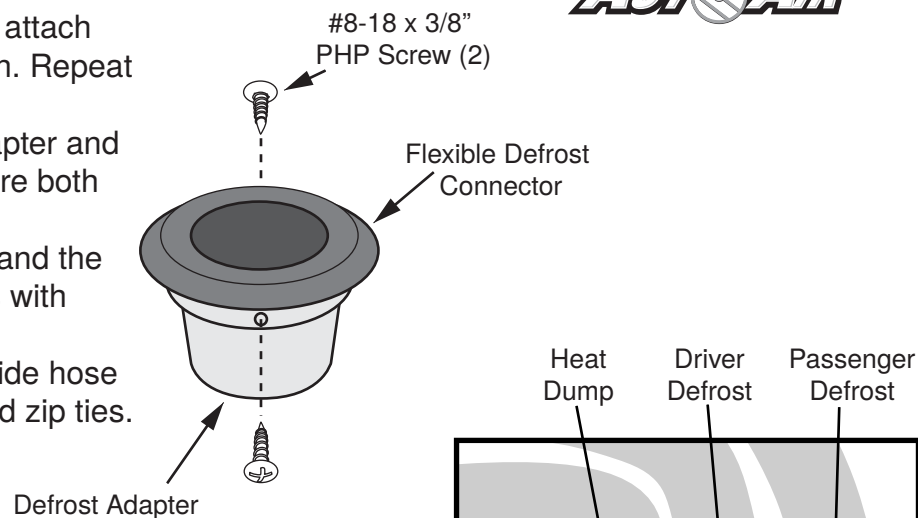


2" Dia. x 4' Long Duct Hose (Qty. 1)
Part# 2-1013

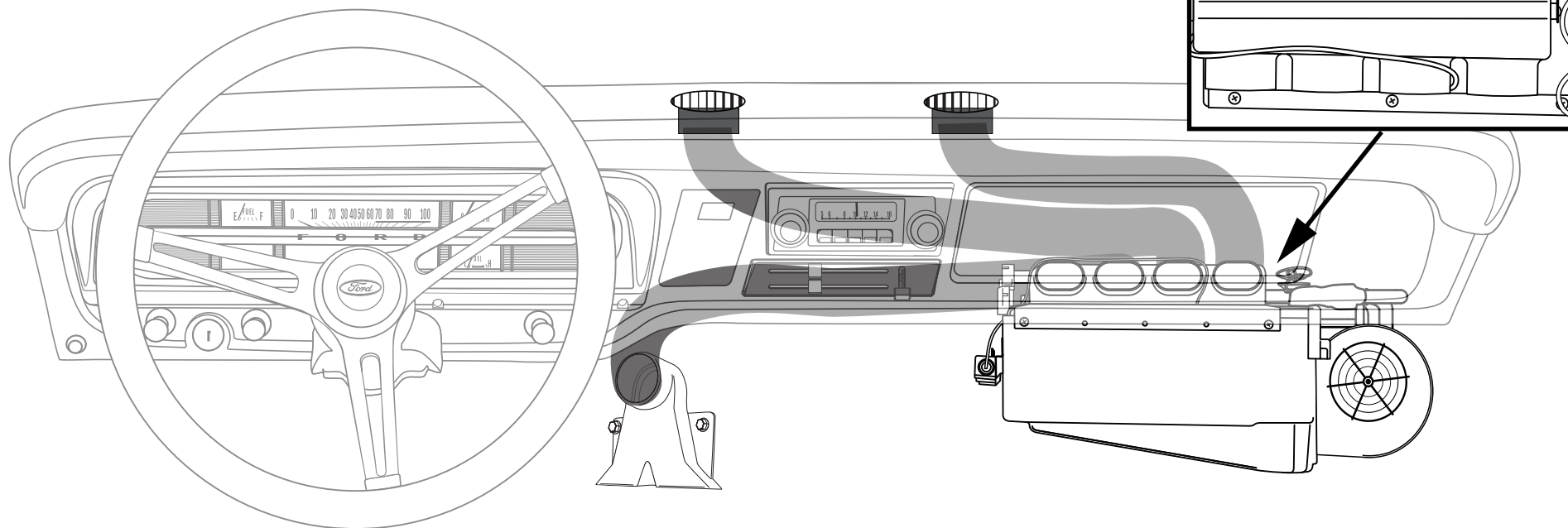
Installation - Defrost



- Insert OEM flexible defrost connector into the defrost adapter and attach using (2) #8-18 x 3/8" PHP screws. Install into defrost opening in dash. Repeat for both defrost adapters.
- Attach the 2 foot long duct hose to the passenger side defrost adapter and the passenger side hose adapter on the back of the evaporator. Secure both ends with provided zip ties.
- Attach the 3 foot long duct hose to the driver side defrost adapter and the middle hose adapter on the back of the evaporator. Secure both ends with provided zip ties.
- Attach the 4 foot long duct hose to the heat dump and the driver side hose adapter on the back of the evaporator. Secure both ends with provided zip ties.



The smoother the route of the duct hose, the better the airflow.

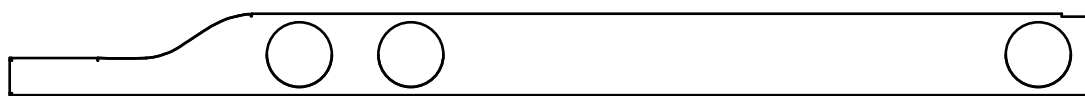


These are the parts you will find in the Vent Panel Box

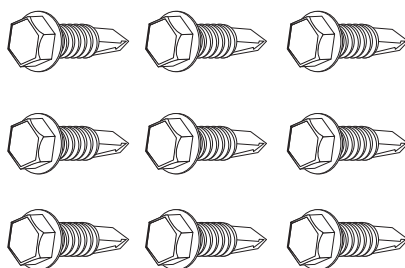
You will use all of these parts and hardware during the next series of installation steps.



Driver Side Vent Panel (Qty. 1)
Part# 0084-29



Passenger Side Vent Panel (Qty. 1)
Part# 0084-28

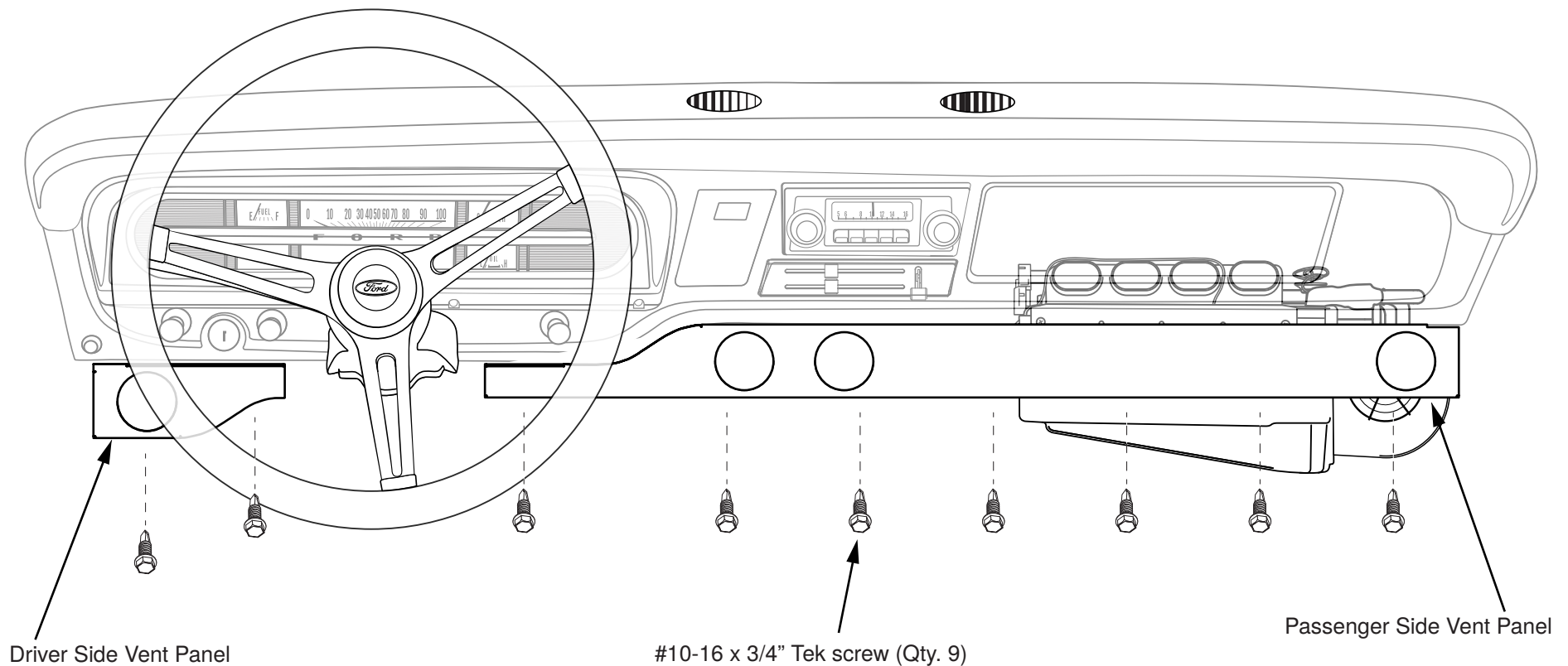


#10-16 x 3/4" Tek screw (Qty. 9)
Part# 10B75HW3Z

Installation - Vent Panels

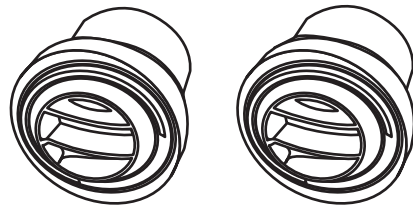


- Mount the passenger side vent panel to the underside of the dash using (7) #10-16 x 3/4" Tek screws.
- Mount the driver side vent panel to the underside of the dash using (2) #10-16 x 3/4" Tek screws.

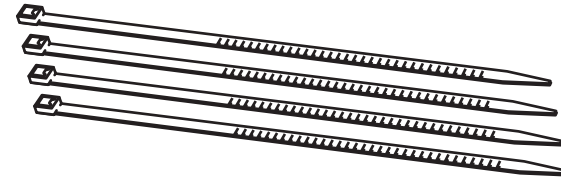


These are the parts you will find in Bag E

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



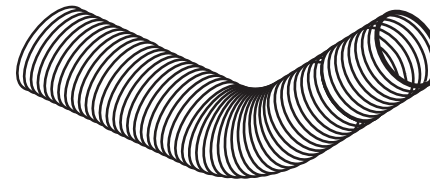
Louver Assembly (Qty. 2)
Part# 2-1006



8" Zip Tie (Qty. 4)
Part# AL-08-40-0-M



2" Dia. x 1' Long Duct Hose (Qty. 1)
Part# 2-1013



2" Dia. x 4' Long Duct Hose (Qty. 1)
Part# 2-1013

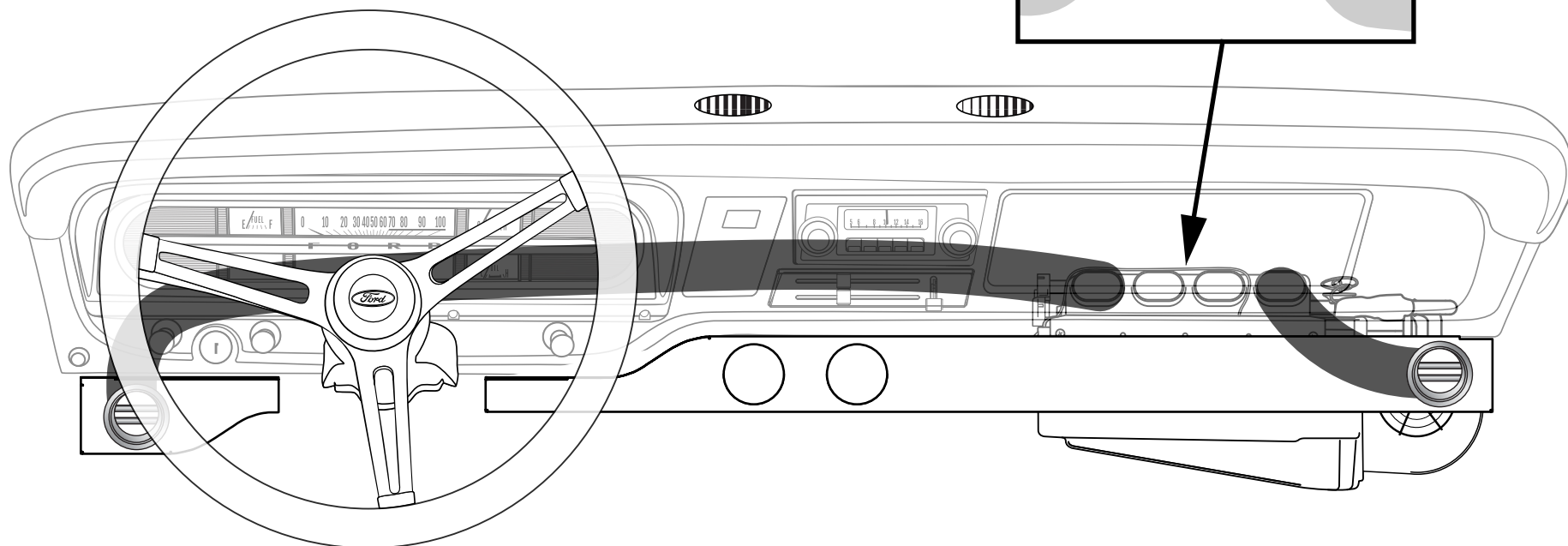
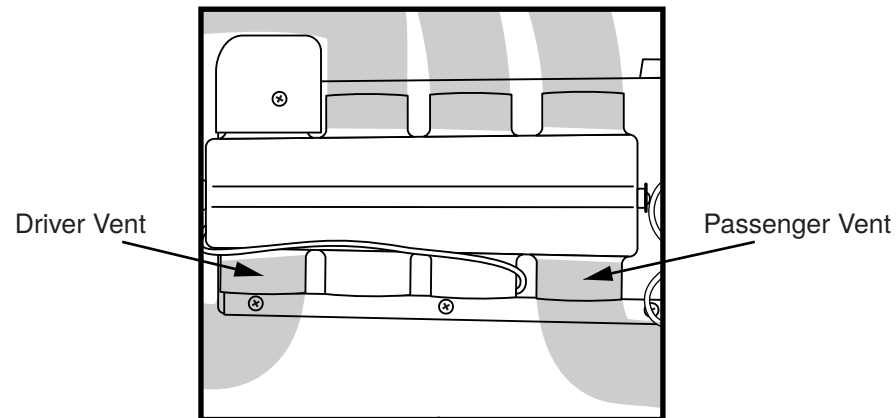
Installation - Dash Vents



- Attach one louver assembly to the driver side vent panel.
- Attach the other louver assembly to the passenger side opening in the passenger side vent panel.
- Attach the 1 foot long duct hose to the passenger side louver assembly and the passenger side hose adapter on the evaporator. Secure both ends with provided zip ties.
- Attach the 4 foot long duct hose to the driver side louver assembly and the driver side hose adapter on the evaporator. Secure both ends with provided zip ties.

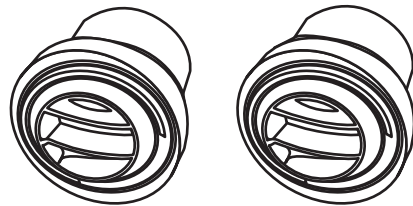


The smoother the route of the duct hose, the better the airflow.

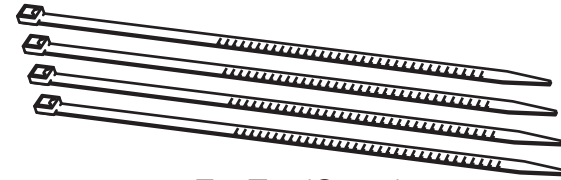


These are the parts you will find in Bag F

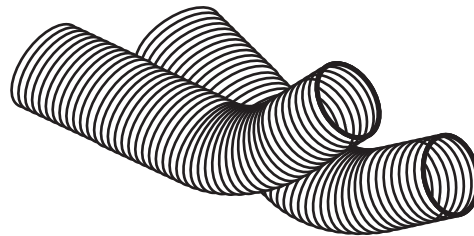
You will use all of these parts and hardware during the next series of installation steps.



Louver Assembly (Qty. 2)
Part# 2-1006



8" Zip Tie (Qty. 4)
Part# AL-08-40-0-M



2" Dia. x 3' Long Duct Hose (Qty. 2)
Part# 2-1013

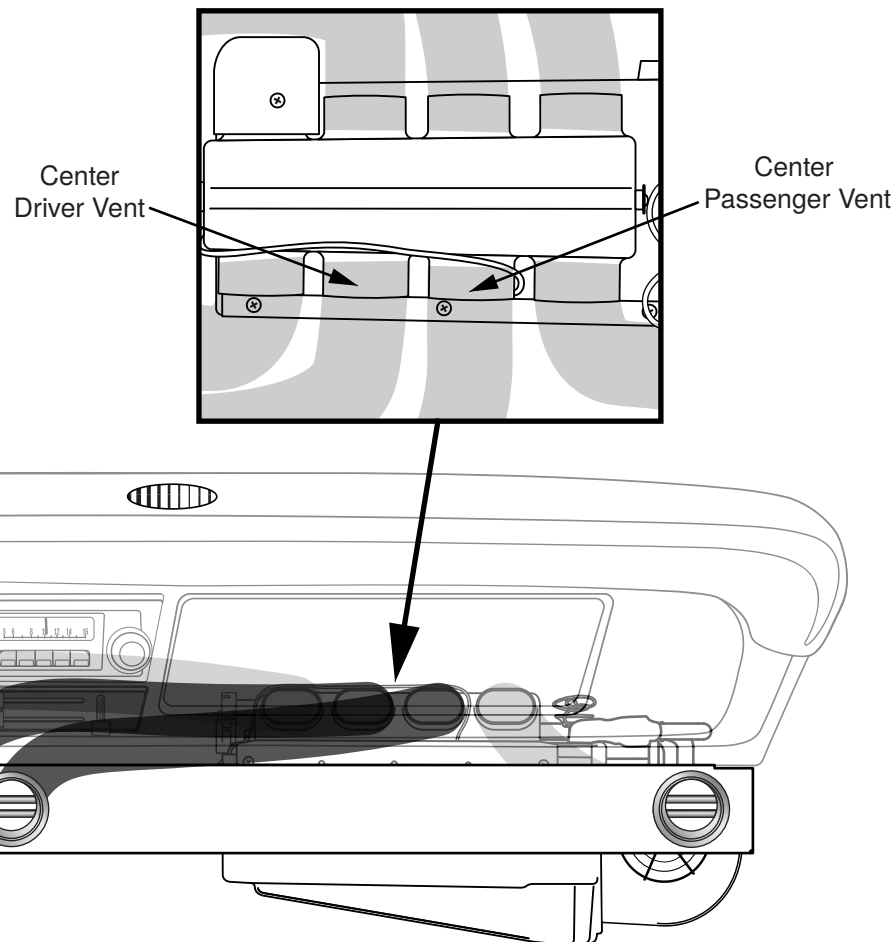
Installation - Dash Vents



- Attach a louver assembly to each opening in the passenger side vent panel.
- Attach one 3 foot long duct hose to the center passenger side louver assembly and the center passenger side hose adapter on the evaporator. Secure both ends with provided zip ties.
- Attach the other 3 foot long duct hose to the center driver side louver assembly and the center driver side hose adapter on the evaporator. Secure both ends with provided zip ties.

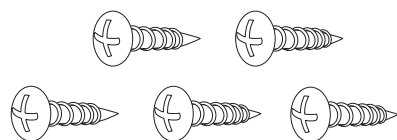


The smoother the route of the duct hose, the better the airflow.



These are the parts you will find in Bag G

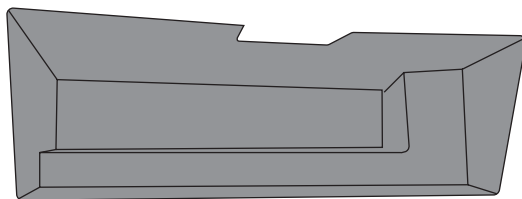
You will use all of these parts and hardware during the next series of installation steps.



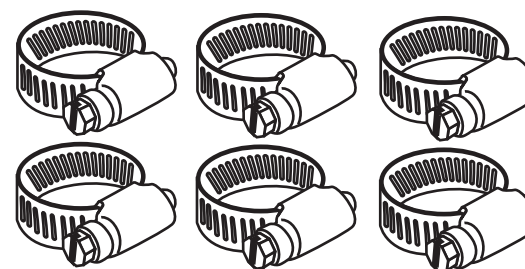
#10-16 x 5/8" PHP Screw (Qty. 5)
Part# 10B62PPBB



1' Long Refrigerant Tape (Qty. 1)
Part# Q-201



Glove Box (Qty. 1)
Part# 0084-3

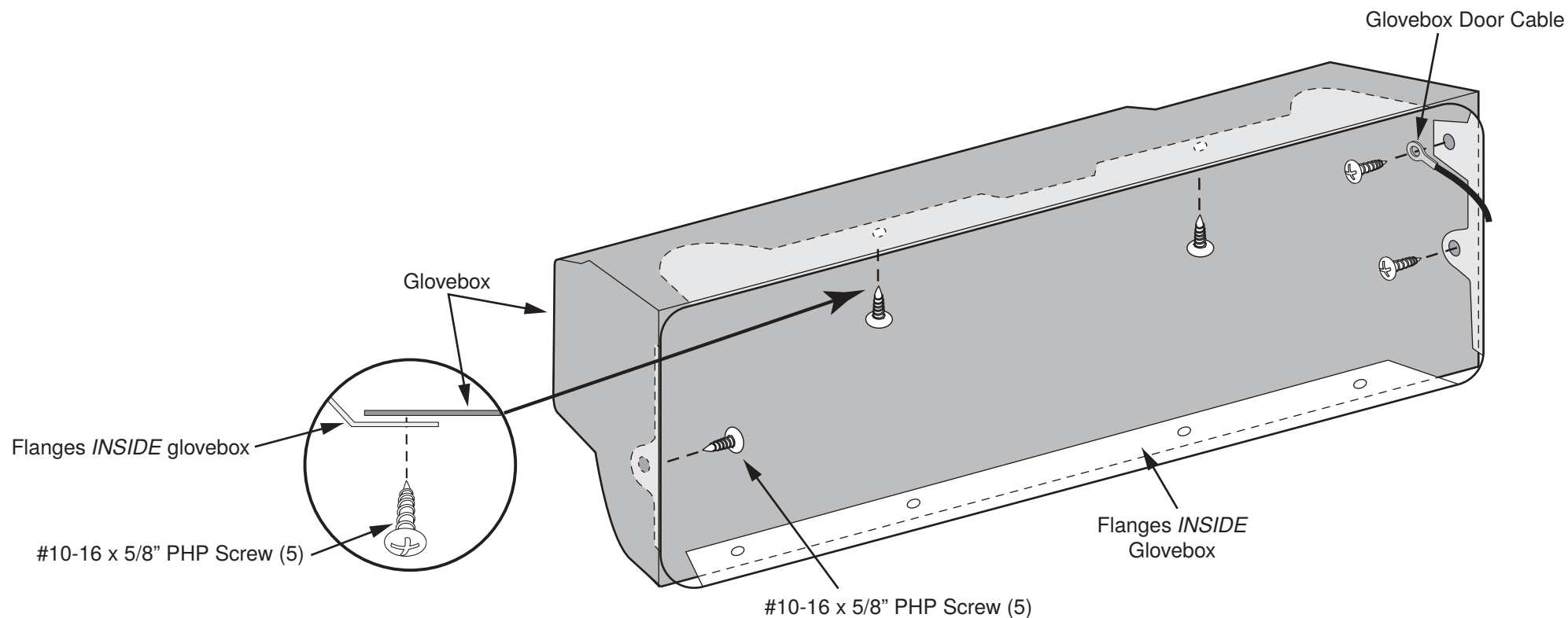


Worm Gear Clamp (Qty. 6)
Part# 6274 IDEAL

Installation - Glovebox



- Install the glovebox in the dash through the glovebox opening. The flanges of the glovebox opening should sit inside the glovebox.
 - Secure glovebox with (5) #10-16 x 5/8" PHP screws through the holes in the flanges and into the glovebox.
- NOTE: Be sure to re-attach the glovebox door cable to the top hole of the passenger side flange.**
- Re-install the glovebox door using the original hardware.



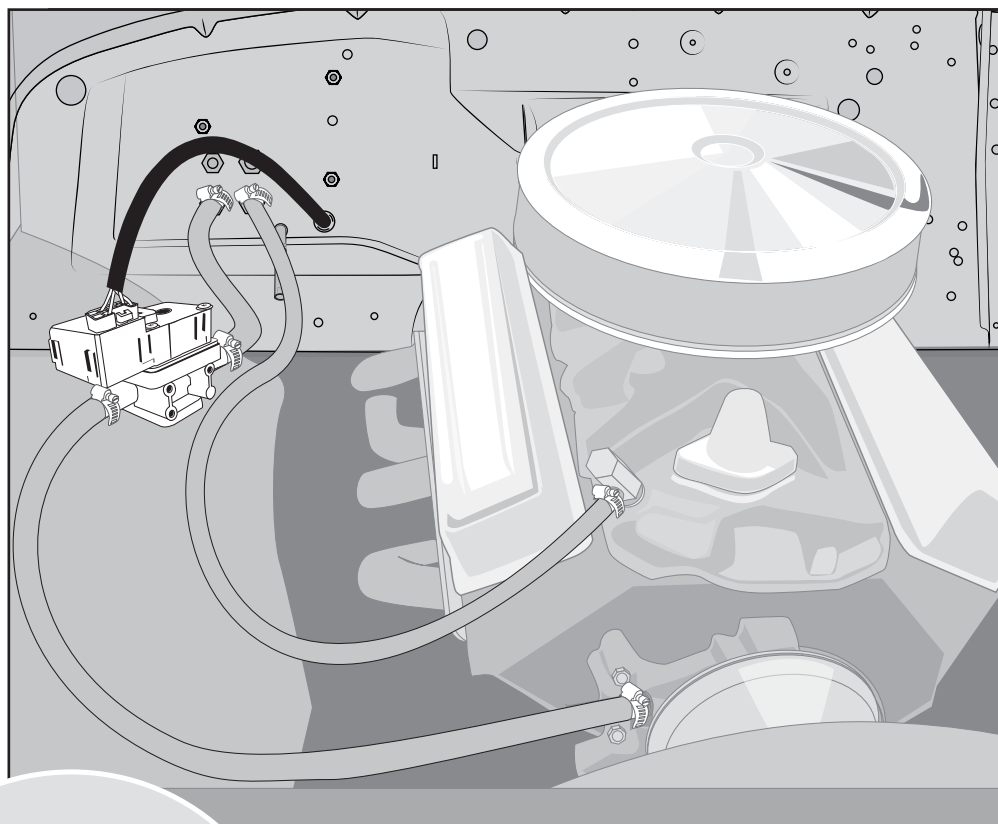
Installation - Water Valve



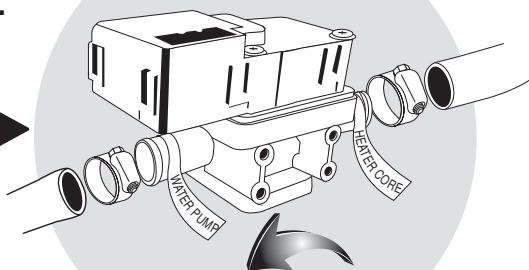
IMPORTANT NOTE:
Your water valve MUST be installed
per these instructions.

- 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 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 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.

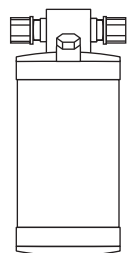


**FOLLOW THESE
TAGS... CHECK IT
TWICE BEFORE
PROCEEDING!**

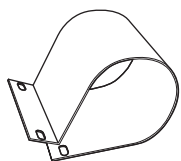


These are the parts you will find as part of the Condenser Kit

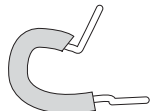
You will use all of these parts and hardware during the next series of installation steps.



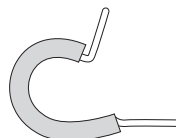
Drier (Qty. 1)
Part# 12-1008



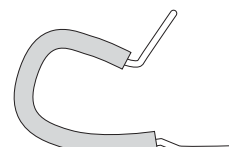
Drier Bracket (Qty. 1)
Part# 19-1003



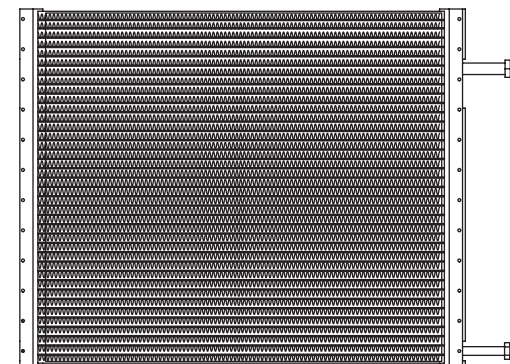
#6 Hose Clamp (Qty. 1)
Part# 14-1095



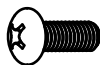
#8 Hose Clamp (Qty. 1)
Part# 14-1096



#10 Hose Clamp (Qty. 1)
Part# S370-16



Condenser (Qty. 1)
Part# 11-1044-926



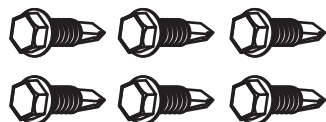
#10-32 x 1/2" PHP
Machine Screw (Qty. 1)
Part# 10F50PPHZ



#10-32 Nylock Nut (Qty. 1)
Part# 10FNNEZ



#10-20 x 1/4" Hex Screw (Qty. 8)
Part# 10B25SHBZ



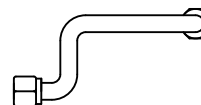
#10-16 x 3/4" Tek Screw (Qty. 6)
Part# 10B75HW3Z



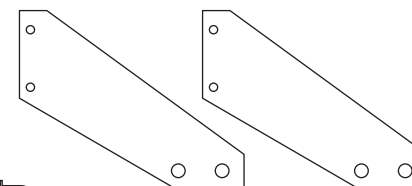
1/4-20" x 5/8" Hex Bolt (Qty. 2)
Part# 25C62HHB5Z



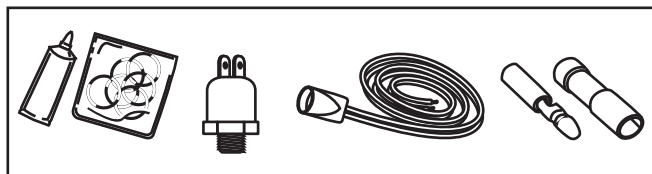
1/4"-20 Flange Nut (Qty. 2)
Part# 25CNFLZ/S



#8 Discharge Tube (Qty. 1)
Part# 0080-51



Lower Condenser Mounting
Bracket (Qty. 2)
Part# 0084-50



High/Low Pressure Switch Kit
Part# 16-1007



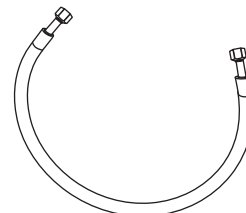
#8 (13/32") Discharge
Refrigerant Hose (Qty. 1)
Part# H0084-54



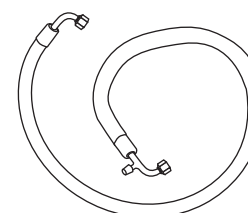
#6 Liquid Tube (Qty. 1)
Part# 0084-52



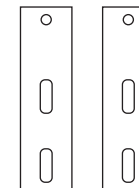
#6 (5/16") Condenser Liquid
Refrigerant Hose (Qty. 1)
Part# H0084-64



#6 (5/16") Evaporator Liquid
Refrigerant Hose (Qty. 1)
Part# H0084-63



#10 (1/2") Suction
Refrigerant Hose (Qty. 1)
Part# H0084-61

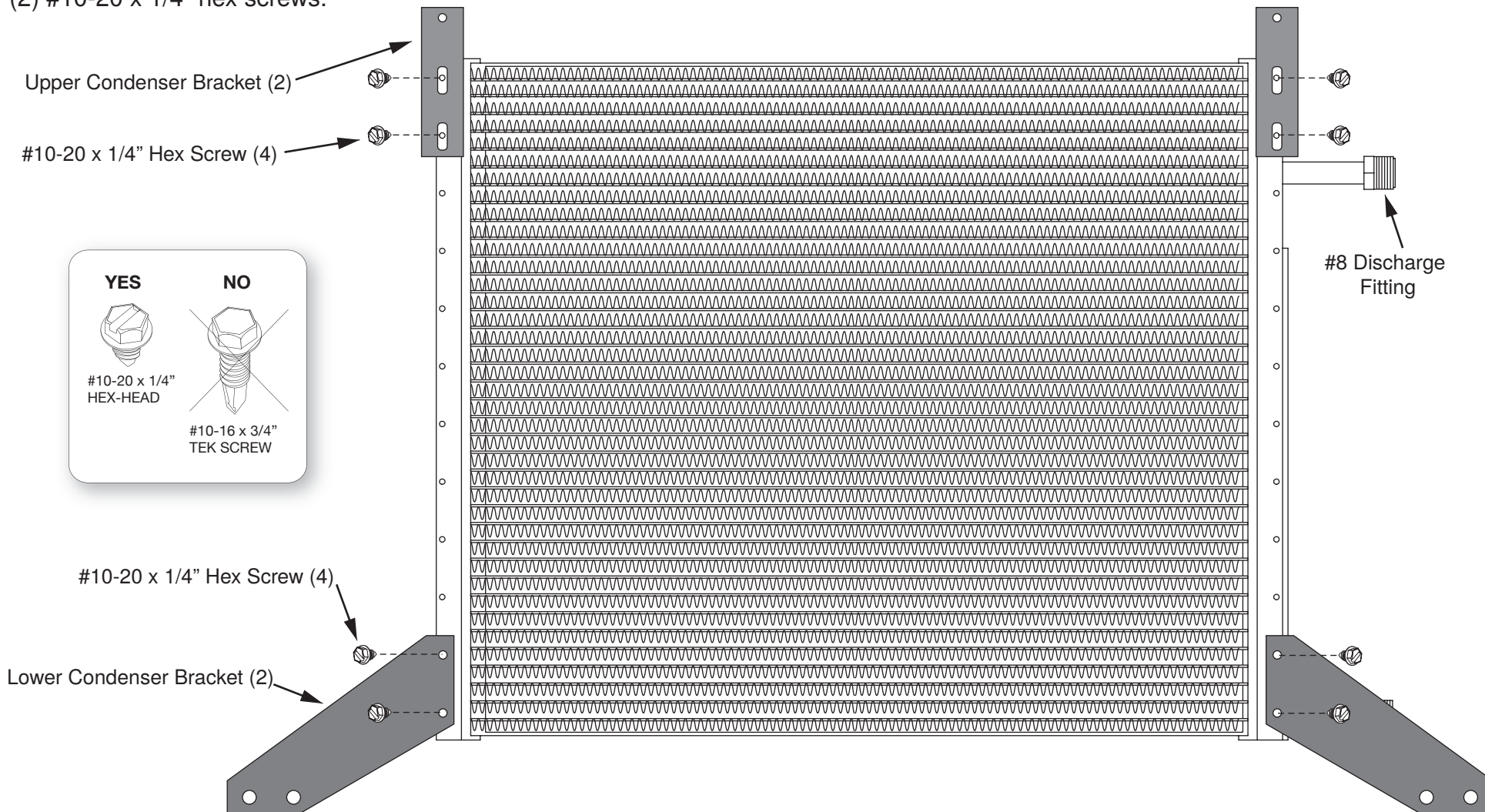


Upper Condenser Mounting
Bracket (Qty. 2)
Part# 0049-50

Install Prep



- Remove original fan, fan shroud, and radiator. Retain all original hardware.
- Place the condenser on a clean, flat surface. Orient it so that the fittings are to the right, and the larger #8 discharge fitting is at the top.
- Install the lower condenser mounting brackets to the condenser using the bottom two holes on each side. Secure each bracket with (2) #10-20 x 1/4" hex screws. **NOTE: Make sure to use the #10-20 x 1/4" hex screws and NOT the Tek screws.**
- Install the upper condenser mounting brackets to the condenser using the top two holes on each side. Secure each bracket with (2) #10-20 x 1/4" hex screws.



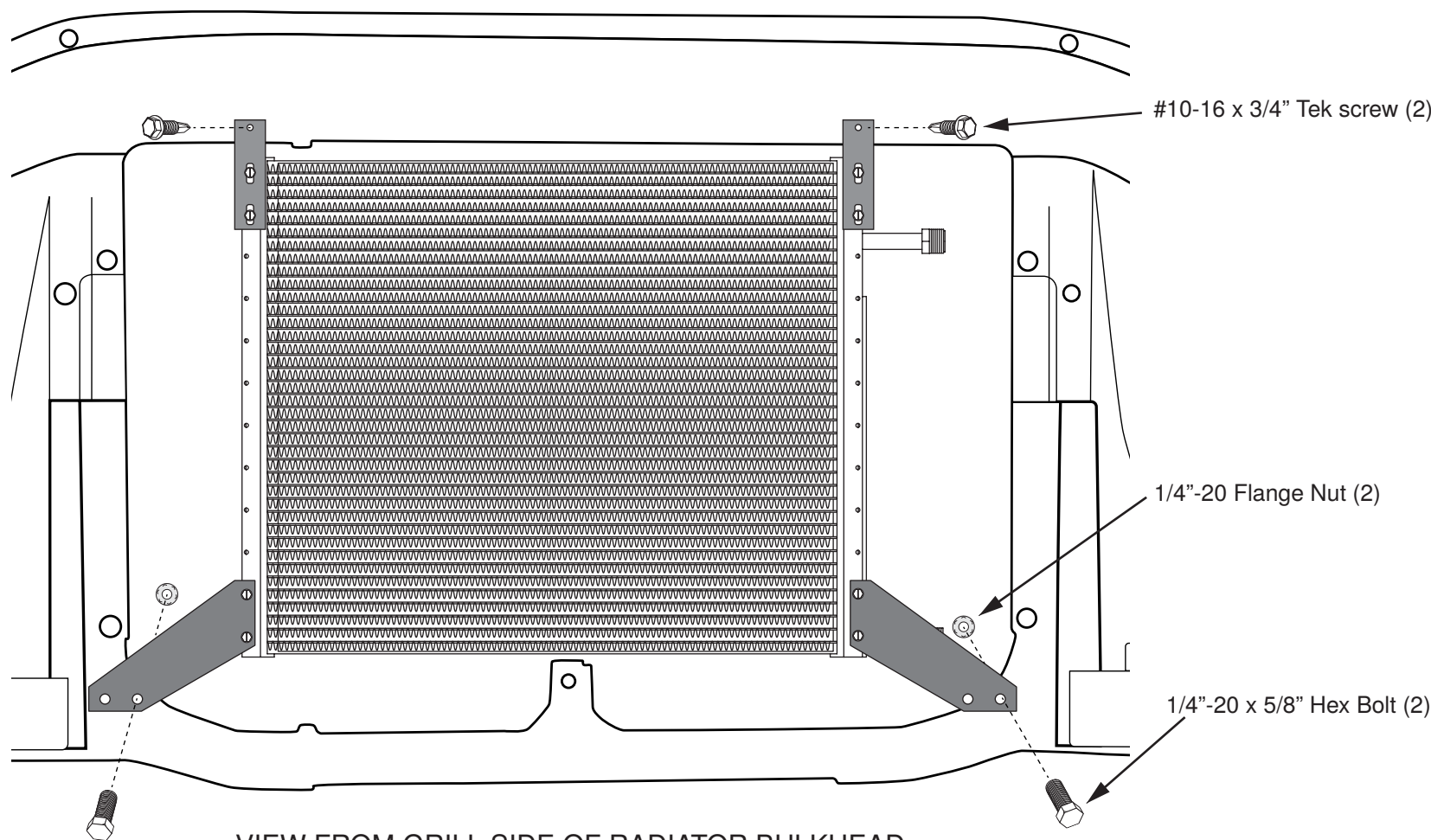
Installation - Condenser



- With the condenser fittings facing the driver side, slide the condenser assembly into the radiator bulkhead opening from the engine side.

NOTE: The mounting brackets will be on the grill side of the radiator bulkhead. The condenser should be mounted using the driver side hole on both lower condenser mounting brackets.

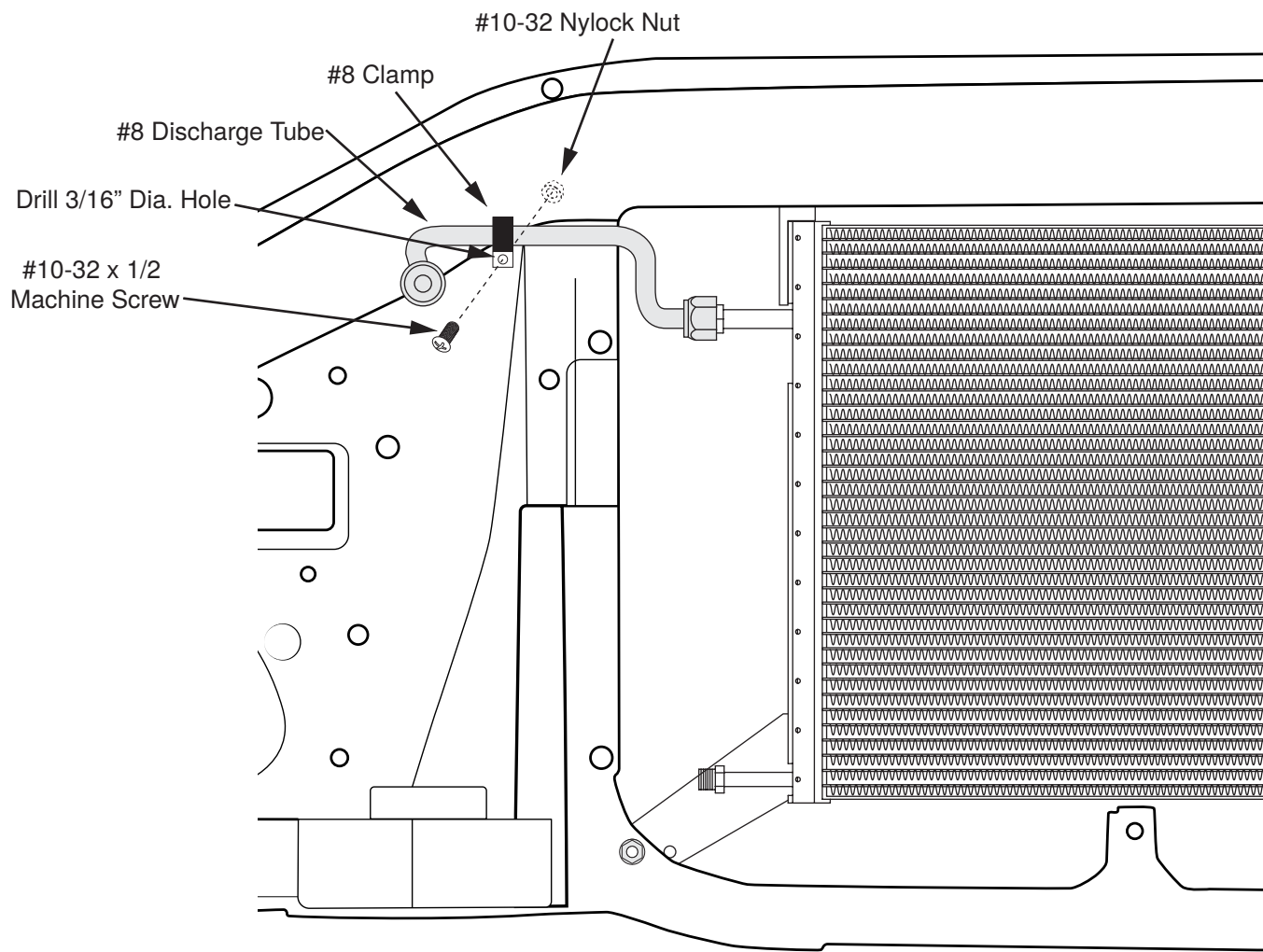
- Secure the lower condenser mounting brackets to the factory holes using (2) 1/4"-20 x 5/8" hex bolts and (2) 1/4"-20 flange nuts.
- Secure the upper condenser mounting brackets to the radiator bulkhead using (2) #10-16 x 3/4" Tek screws.



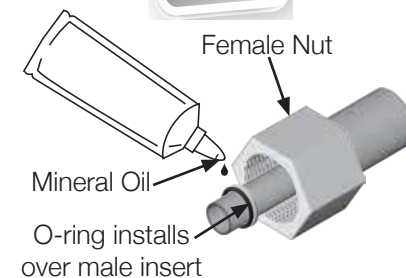
Installation - Discharge Tube



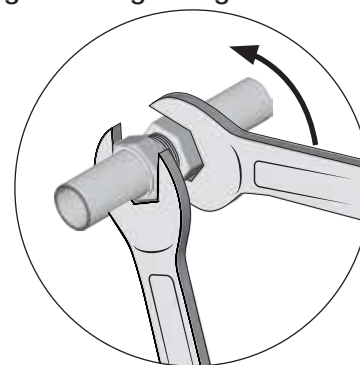
- Attach the #8 discharge tube to the upper condenser fitting as shown with a #8 o-ring and a few drops of mineral oil.
- Using the tube as a guide, position the #8 clamp to secure the tube and match drill a 3/16 inch diameter hole through the clamp tab into the radiator bulkhead.
- Secure the clamp using the #10-32 x 1/2" machine screw and #10-32 nylock nut.



VIEW FROM ENGINE SIDE OF RADIATOR BULKHEAD



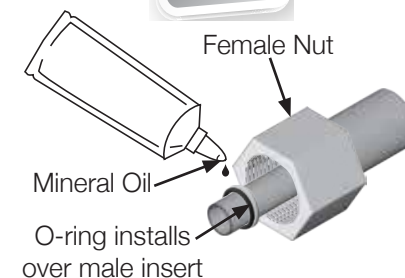
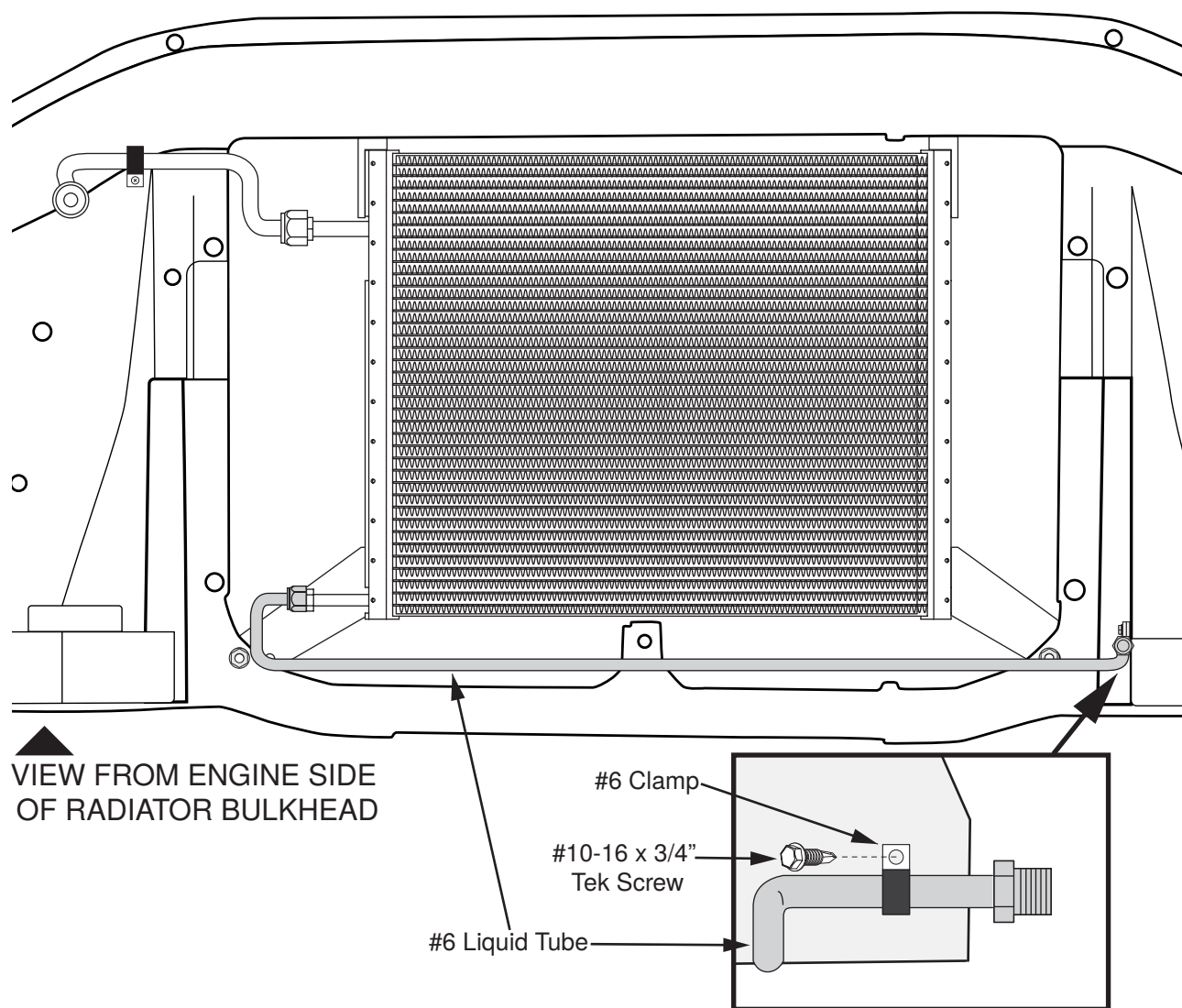
NOTE: For a proper seal of fittings, install O-rings as shown with supplied mineral oil. Tighten fittings using two wrenches



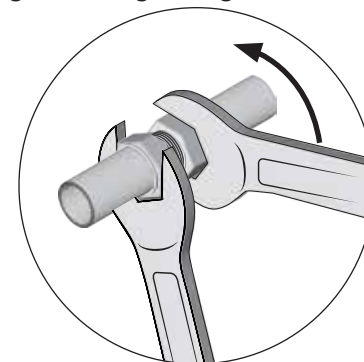
Installation - Liquid Tube



- Attach the #6 liquid tube to the lower condenser fitting as shown with a #6 o-ring and a few drops of mineral oil.
- Using the tube as a guide, position the #6 clamp to secure the tube to the factory radiator support bracket.
- Secure the clamp using (1) #10-16 x 3/4" Tek screw.



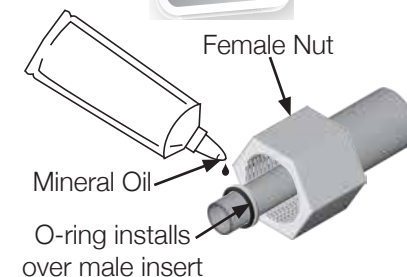
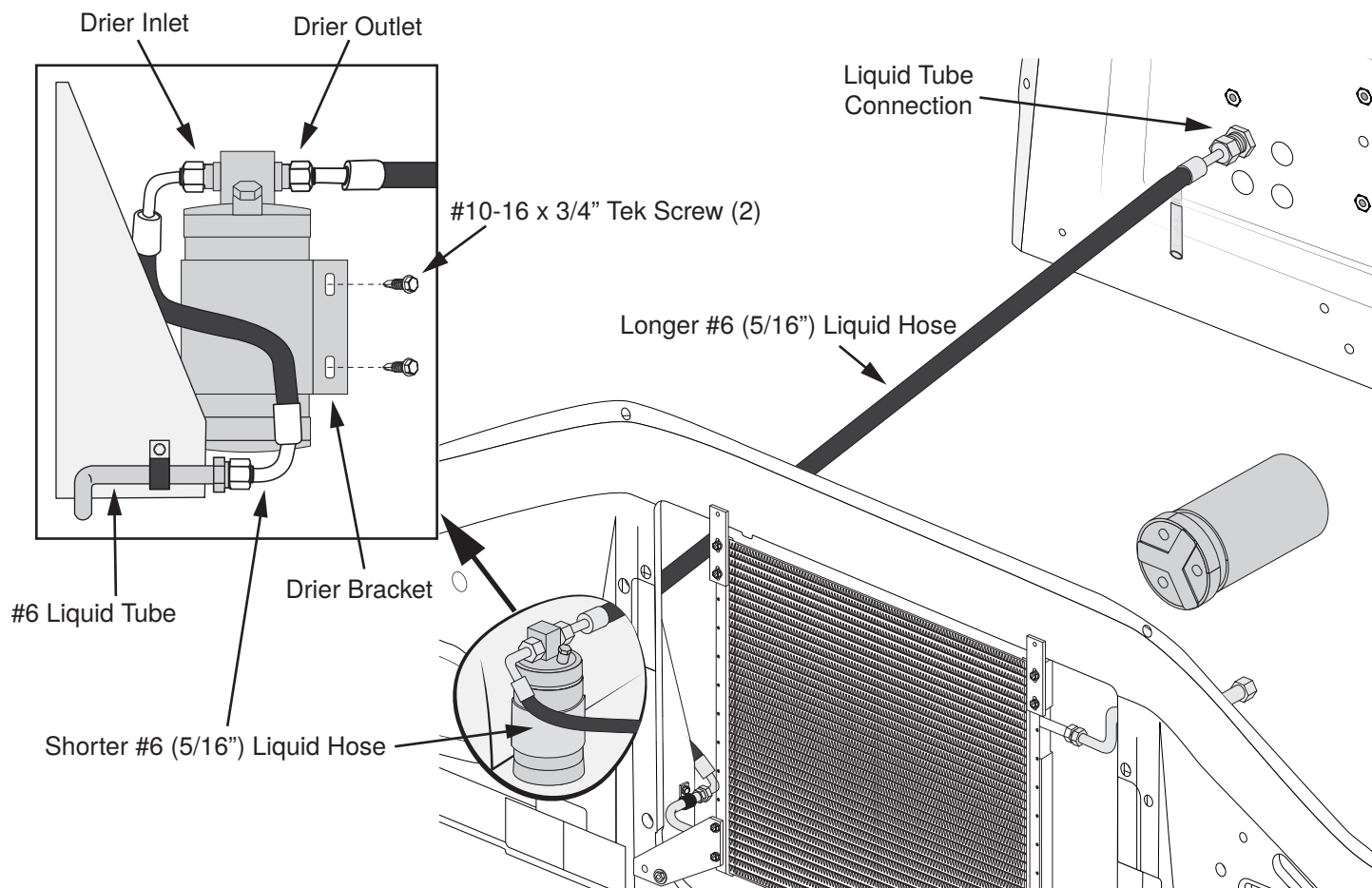
NOTE: For a proper seal of fittings, install O-rings as shown with supplied mineral oil.
Tighten fittings using two wrenches



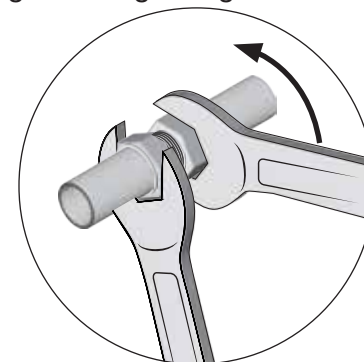
Installation - Liquid Hose



- Loosely attach one end of the shorter #6 (5/16") liquid hose to the #6 liquid tube with a #6 o-ring and a few drops of mineral oil.
- Loosely attach the other end of the hose to the inlet port of the drier with a #6 o-ring and a few drops of mineral oil.
- Loosely attach one end of the longer #6 (5/16") liquid hose to the outlet port of the drier with a #6 o-ring and a few drops of mineral oil.
- Loosely attach the other end of the hose to the liquid tube connection from the evaporator at the firewall with a #6 o-ring and a few drops of mineral oil.
- With the liquid hoses connected, attach the drier to the fender well as shown below, using the drier bracket and (2) #10-16 x 3/4" Tek screws.
- Tighten all liquid hose connections.



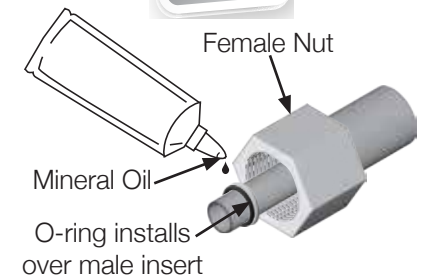
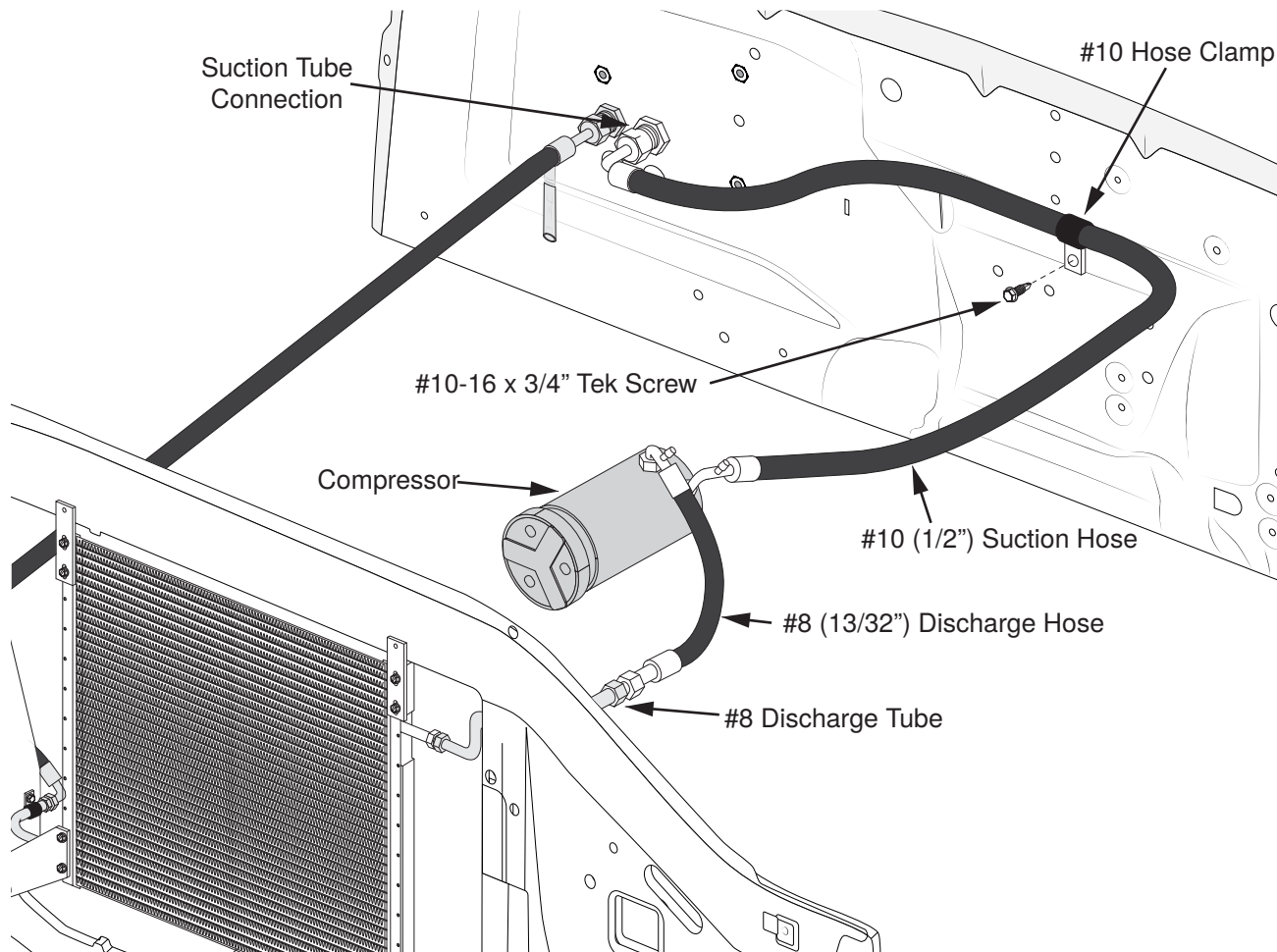
NOTE: For a proper seal of fittings, install O-rings as shown with supplied mineral oil. Tighten fittings using two wrenches



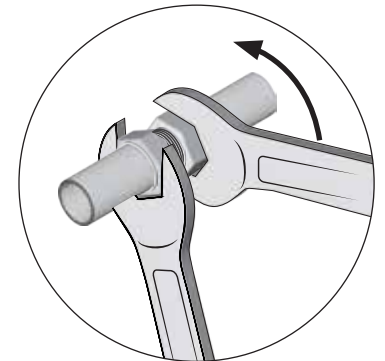
Installation - Discharge & Suction Hoses



- Attach the straight end of the #8 (13/32") discharge hose to the #8 discharge tube with a #8 o-ring and a few drops of mineral oil.
- Attach the other end of the hose to the compressor with a #8 o-ring and a few drops of mineral oil.
- Attach the service port end of the #10 (1/2") suction hose to the compressor with a #10 o-ring and a few drops of mineral oil.
- Attach the other end of the hose to the suction tube connection from the evaporator at the firewall with a #10 o-ring and a few drops of mineral oil.
- Secure the hose to the firewall using the #10 hose clamp and (1) #10-16 x 3/4" Tek screw.



NOTE: For a proper seal of fittings, install O-rings as shown with supplied mineral oil. Tighten fittings using two wrenches



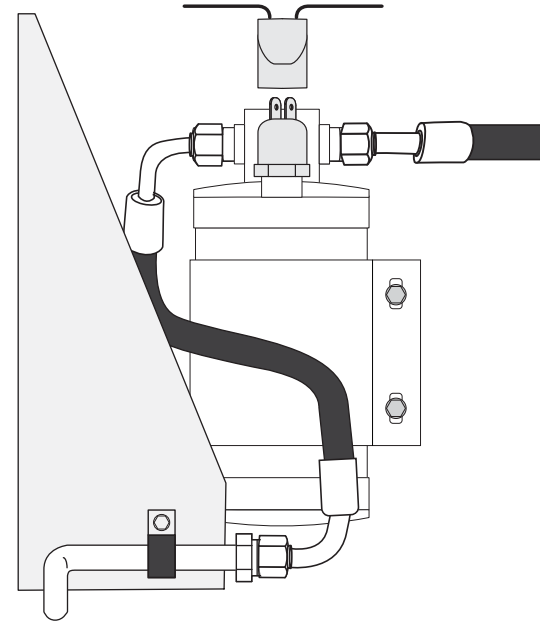
Installation - High/Low Pressure Switch



- Screw the high/low pressure switch into the port on the drier using the supplied o-ring and a few drops of mineral oil.
- Splice one white wire from the pressure switch harness to the white wire coming through the firewall from the output (servo) wire harness using the connectors in the high/low pressure switch kit.
- Connect the other white wire from the pressure switch harness to the compressor wiring using the connectors in the high/low pressure switch kit.
- Plug the pressure switch harness into the high/low pressure switch.
- Reinstall radiator, fan and fan shroud using original hardware.

NOTE: Take a look around at your installation and check all fittings, bolts, and clamps for tightness, and make sure nothing is routed in a way to obstruct any moving parts.

You can refill the radiator and reconnect the battery at this time.



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

On the next pages you'll find specifications for final preparation and operations for your A/C technician.

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 ensure that your new system will perform at it's peak, and that your compressor will not be damaged.

1. Your radiator/heater coil are an integral part of your new system. Please ensure 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. Ensure that the new belt is tight.
7. **DO NOT CHARGE SYSTEM WITH LIQUID REFRIGERANT!**

Recommended Test Conditions:

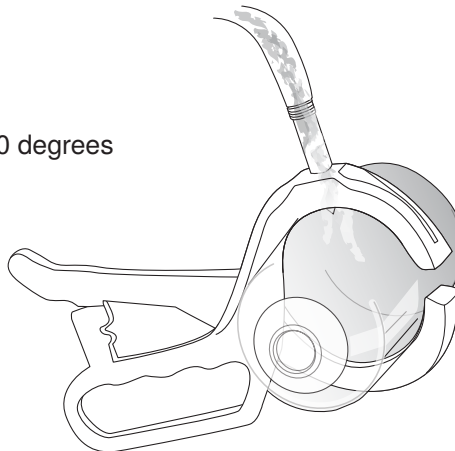
(After system has been fully charged and tested for basic operation)

- 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

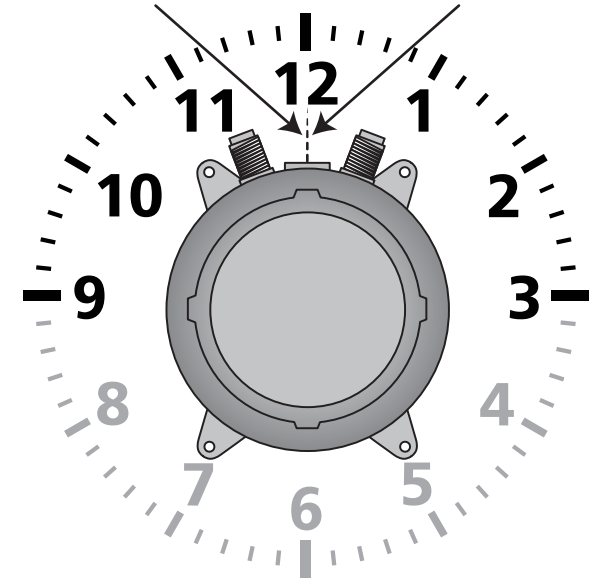
Acceptable Operating Pressure Ranges:

- High Side Pressures (150-275 PSI)*
- Low Side Pressures (10-25 PSI in a steady state)*

*Readings above are based on an ambient temperature of 90 degrees with an adequate airflow on condenser.



CENTERLINE OF THE OIL FILL BOLT



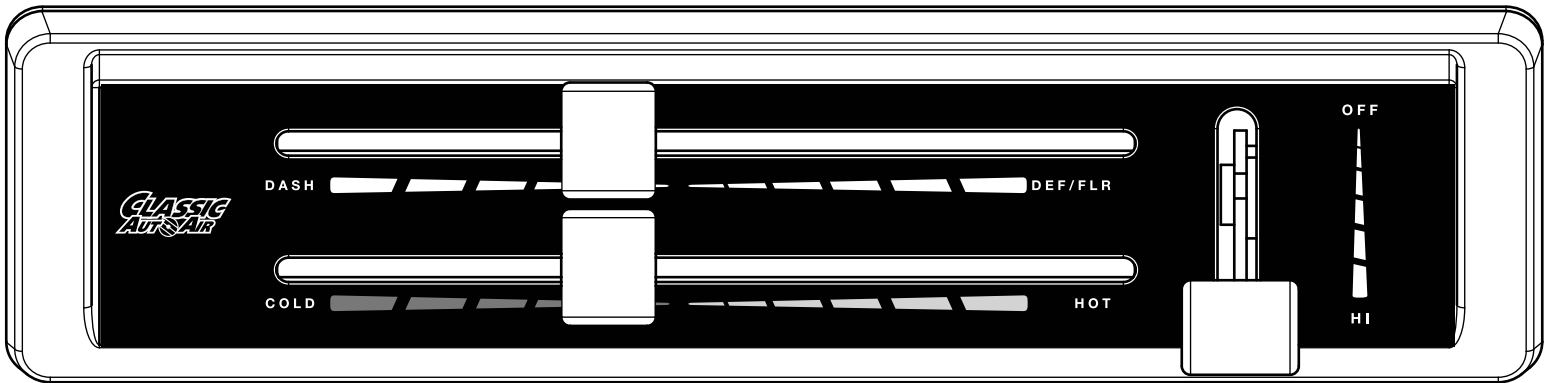
CAUTION! When mounting your compressor and/or adjusting the belt use caution. Mount by using the centerline of the oil fill plug as your guide. The compressor can **ONLY** be mounted in between the 9 to 3 positions. **DO NOT** mount in between the 4 to 8 positions.

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.

Operations



Your new Smart A/C Series system offers complete comfort capabilities in virtually every driving condition. This includes hot and cold temperature control in all of the modes. This system also provides the ability to blend the air between dash, defrost, and floor modes simultaneously. To illustrate the various ways you can adjust the airflow direction and temperature, we've provided this illustration and chart to show exactly how you can adjust your Smart A/C Series system for maximum comfort.



There are 11 levels of adjustment within the range of the mode and temp levers.

MODE	DASH  DEF/FLOOR										
POSITION	Dash A/C 100%	Dash A/C 90% Def/Flr 10%	Dash A/C 80% Def/Flr 20%	Dash A/C 70% Def/Flr 30%	Dash A/C 60% Def/Flr 40%	Dash A/C 50% Def/Flr 50%	Dash A/C 40% Def/Flr 60%	Dash A/C 30% Def/Flr 70%	Dash A/C 20% Def/Flr 80%	Dash A/C 10% Def/Flr 90%	Def/Flr 100%
COMPRESSOR	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON

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

FAN	UP  DOWN			
BLOWER	OFF	LOW	MED	HIGH

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.)

1. Connect gauges or service equipment to high/low charging ports
2. Place blower fan switch on medium
3. Close all doors and windows on the vehicle
4. Place shop fan in front of condenser
5. Run engine idle up to 1500 RPM

Acceptable Operating Pressure Ranges

- High Side Pressures (150-275 PSI) NOTE: General rule of thumb is two times the ambient daytime temperature, plus 15-20%
- Low Side Pressures (10-25 PSI in a steady state)

Typical Problems Encountered In Charging Systems

- **Noisy Compressor**
 - A noisy compressor is generally caused by charging a compressor with liquid or overcharging. If the system is overcharged both gauges will read abnormally high. 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 recharged to exact weight specifications (R134a refrigerant - 1.5 lbs or 24 oz).
- **Incorrect Heater Control Valve Installation**
 - Usually when this occurs the system will cool at idle then start to warm up when raising the RPM of the motor. THE WATER VALVE IS A DIRECTIONAL VALVE; MAKE SURE THE WATER FLOW IS WITH THE DIRECTION OF THE ARROW ON THE VALVE. As the engine heats up, the water transfers the heat to the coil, thus overpowering the A/C coil. A leaking or faulty valve will have a more pronounced effect 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 the heater hoses from the evaporator completely, and "loop" the ends together. By driving down the road with the hoses looped back to the motor, you eliminate the possibility of heat transfer to the evaporator.
- **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). This restricts the flow of air that can pass through it, which prevents the air from flowing through the system and out the vents. A common cause of external freezing is high humidity in the passenger compartment. All door and window seals should be checked in the event of constant freeze up.
 - 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.
- **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 of the condenser. If the pressures drop significantly, this will indicate the need for better airflow.
 - These symptoms can also be caused by inadequate condenser capacity, which can be solved by using a larger condenser.
- **Expansion Valve Failure**
 - An expansion valve failure is generally caused by dirt or debris entering the system during assembly. A valve that is blocked will be indicated by high side pressures that are abnormally high, while the low side pressures are abnormally 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.
- **Restrictions In System**
 - A high side restriction (between the compressor and the drier inlet) will be indicated by the discharge gauges reading excessively high.

Troubleshooting Guide



PROBLEM: System is not cooling properly (Cold at idle, warmer when raising engine RPM)

Make Sure The Electronic 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, overpowering the cooling effect of the A/C coil.

Step 1: Check placement of the water valve and correct if needed. (In some cases, changing the location of the water valve may not fix the above problem. If so, continue to the 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 heater hoses from the heater core and "loop" together. (This will remove the heater system completely from the set up.) If they system now cools, replace the water valve.

Verify Adequate Air Flow To Condenser

The function of the condenser is to dissipate heat, and for it to function properly there has to be adequate airflow across the condenser. Without proper airflow your system will not cool correctly, leaving the air in the cabin of your vehicle too hot.

Step 1: Connect gauges to high/low charging ports. The high side pressures should be between 150-275 PSI, and the low side pressures should be between 10-25 PSI (based off an outside ambient temperature of 90 degrees). If the low side pressures are normal and the high side pressures are high, then there might be an airflow issue. Continue to the next step.

Step 2: Test airflow to the condenser using the following three tests:

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

3. With the car still in idle and the gauges attached, pour water down the front of the condenser. If the paper is held in place, you are getting at least some air flow. If the high side pressures decrease 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.

Confirm Correct Refrigerant Charge In System

All of our systems should be charged with 1.5 lbs (or 24 oz) of R134a refrigerant only. If overcharged you will need to evacuate the system and recharge with the correct amount.

Check For Unusual Pressure Measurements

Certain unusual pressure measurements can indicate specific issues within the system. Attach gauges to the high/low charging ports to get pressure readings.

Step 1: Check for high and low side pressure readings that seem to be equal. This indicates that you have a malfunctioning expansion valve that is stuck open and needs to be replaced.

Step 2: Check for high pressure readings that are extremely high, accompanied by low pressure readings that are extremely low. This indicates that there is a blockage in the system. Remove hoses and blow compressed air through in both directions. If pressures don't change, it is possible that your expansion valve is stuck closed and needs to be replaced.

PROBLEM: Noisy Compressor

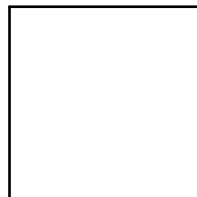
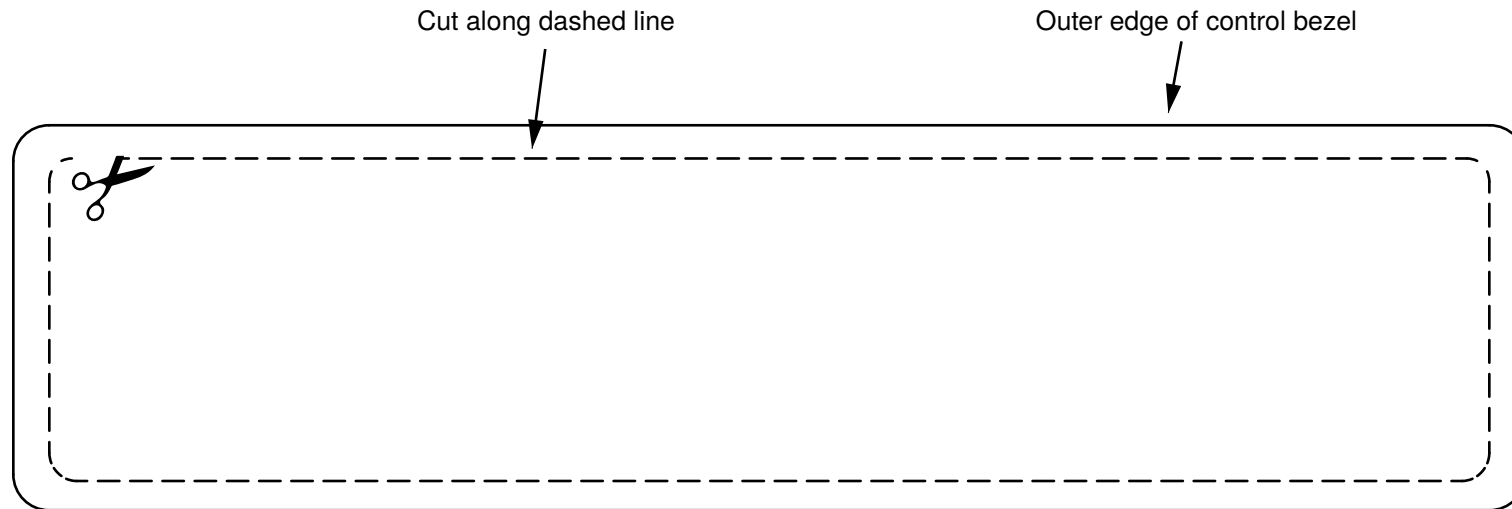
This is often misdiagnosed as a problem for the system not cooling properly. If you have a noisy compressor it is due to improper charging of refrigerant. An overcharged (more than 1.5lbs or 24 oz of R134a refrigerant) compressor can cause rattling. If charged with pure liquid, there is a high probability the reed valves are bent which causes a 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.



1967 Ford Truck D.E.R. Controller Template



1 inch

1 inch

IMPORTANT NOTE: Make sure square measures exactly 1 inch by 1 inch to confirm the scale of template is correct. Measure twice, cut once!