Installation Manual

1961-63 FORD THUNDERBIRD

DOCUMENT #1-1075

Congratulations...

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

Congratulations! ! You have just purchased the highest quality, best performing A/C system ever designed for your Classic Car. To obtain the high level of performance and dependability our systems are known for, pay close attention to the following instructions.

Before beginning the installation check the box for the correct components.

Evaporator

Face Duct Assembly

Inlet Air Block Off Assembly

Firewall Block Off Assembly

Flex Hose 2”dia. x 3ft.

Flex Hose 2”dia. x 4ft x 2ea..

Flex Hose 2 ½”dia. x 2 ft.

Sack Kit Louver

Sack Kit Hardware

Sack Kit Control

Glove Box

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 During the installation you might find the opportunity to repair or upgrade non-working or out of date components.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

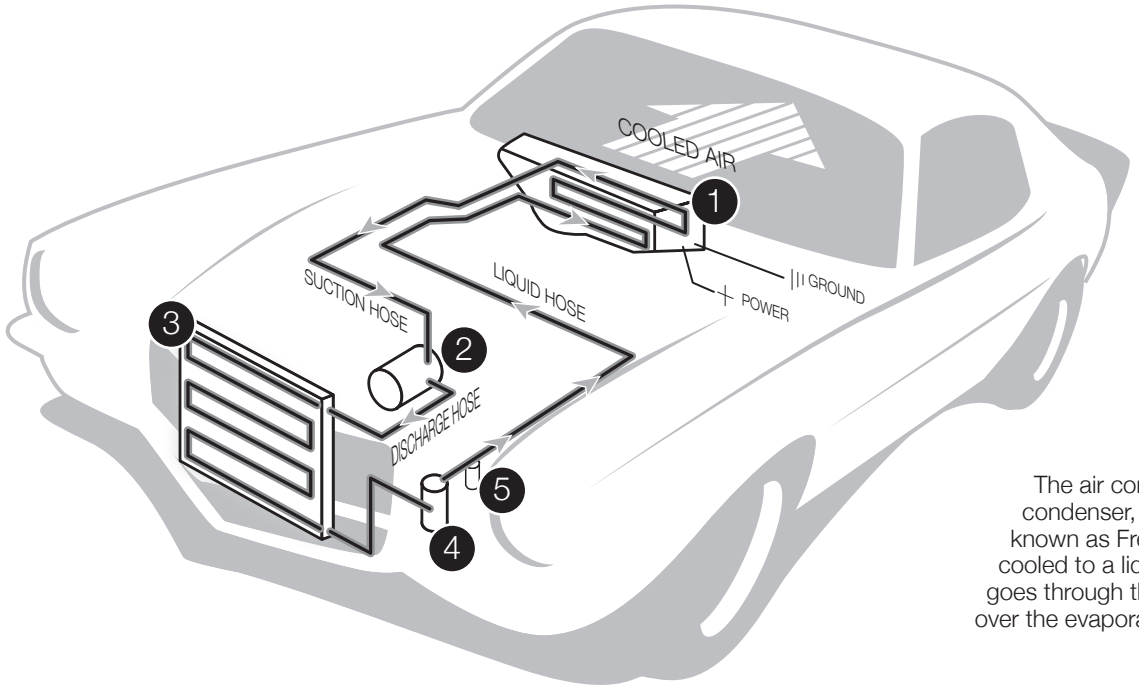
- ☐ Fittings: Use one or two drops of mineral oil (supplied with your kit) on ALL rubber o-rings, threads and where o-rings seat in fittings. Do not use thread tape or sealants.
- ☐ Measure twice (or more), cut once
- ☐ **Should you have any technical questions, or feel you have defective components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

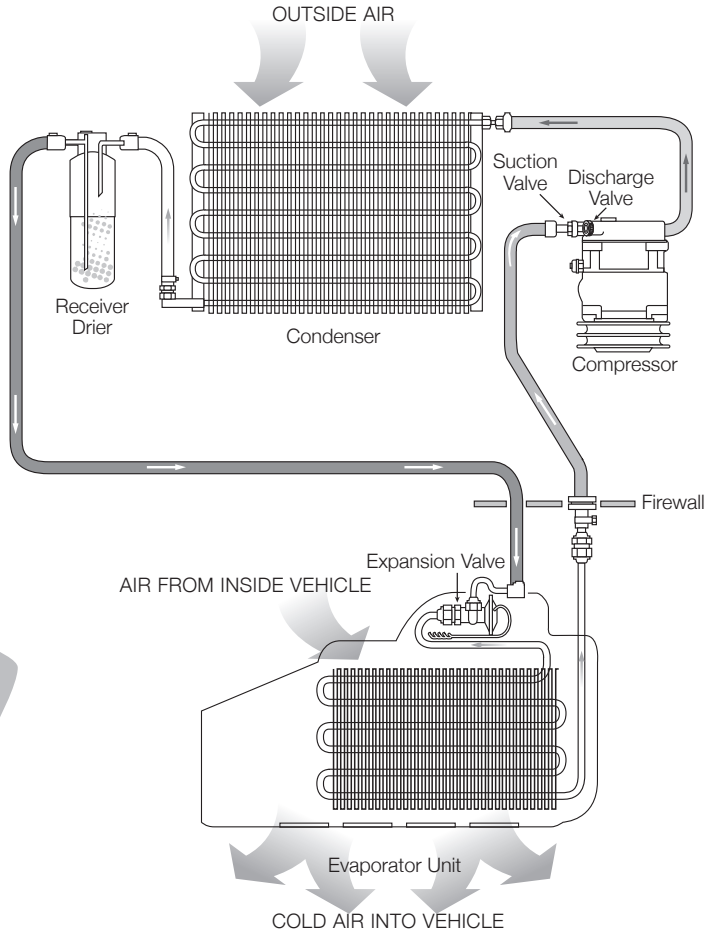
CAUTION: DISCONNECT BATTERY GROUND CABLE

YOU CAN NOW BEGIN THE INSTALLATION...

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

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 car 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

“PERFECT FIT SERIES”
IN-DASH
HEAT/ COOL/ DEFROST

CONTROL & OPERATING INSTRUCTIONS

The controls on your new “Perfect Fit” system. Offers complete comfort capabilities in virtually every driving condition. This includes Temperature control in all of the modes.

THE PICTURE YOU SEE SHOWS THE CONTROLS IN THE HEAT MODE. THIS MEANS THAT THE AIR WILL BE DISTRIBUTED THROUGH THE HEATER OUTLETS. THIS ALSO HAS THE TEMPERATURE LEVER IN THE COLDEST POSITION. WITH THE CONTROLS IN THIS POSITION YOU WILL GET THE AIR THROUGH THE HEATER OUTLETS AND THE OUTLET TEMPERATURE AT THE COLDEST POSSIBLE DEGREE.

CAUTION: ALL OF THE OUTSIDE VENTS MUST BE CLOSED WHEN THE SYSTEM IS IN THE A/C MODE. THIS WILL ALLOW THE A/C SYSTEM TO FUCTION AT ITS MAXIMUM PERFORMANCE LEVEL.

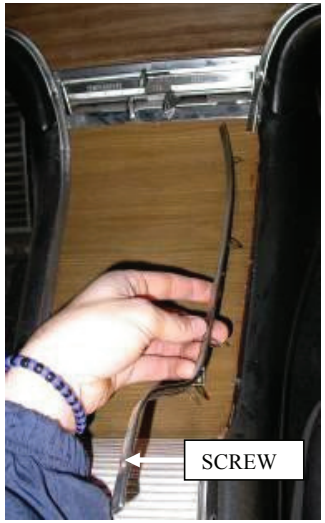
THE FOLLOWING SUMMARY WILL DESCRIBE EACH OF THE CONTROL LEVERS FUNCTION.

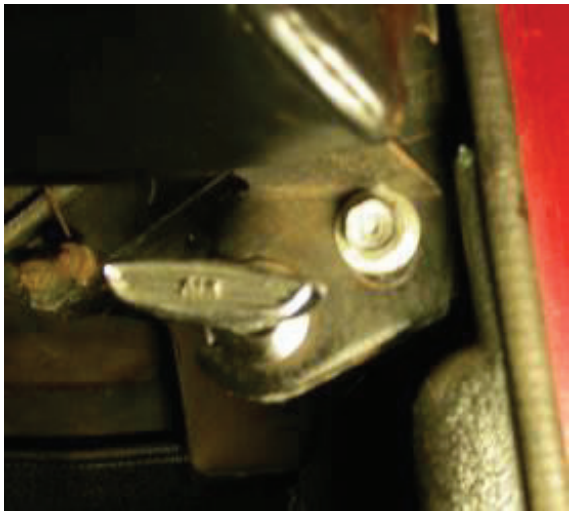
FAN SPEED SWITCH: There are 3 speeds plus Off. When the switch is in the off position it will disconnect the 12V power to the Blower Motor and the A/C Clutch. This will shut down the entire system. When the switch is moved to any of the blower speeds 1, 2 or 3 there is 12V supplied to the Micro-Switch that is mounted on the Defrost Duct.

FACE / DEFROST / HEAT DOOR CONTROL: When the Control Knob is pushed all the way to the LEFT the air is distributed to the FACE outlets. In the FACE position the compressor is engaged. When the knob is pushed to the MIDDLE of the controls the air will go to the DEFROST outlets. In the Defrost position the compressor clutch is engaged for dehumidification. When the knob is pushed all the way to the RIGHT the air will go to the HEAT outlets.

TEMPERATURE CONTROL: The Temperature Knob as shown is at the COLDEST temperature position. As the lever is PUSHED to the LEFT the temperature of the discharged air will RISE to the HOTTEST point.

Note: The temperature lever will function in any of the modes.





Disconnect battery ground cable. Drain radiator. Remove the top radiator cover panel. Retain original hardware.

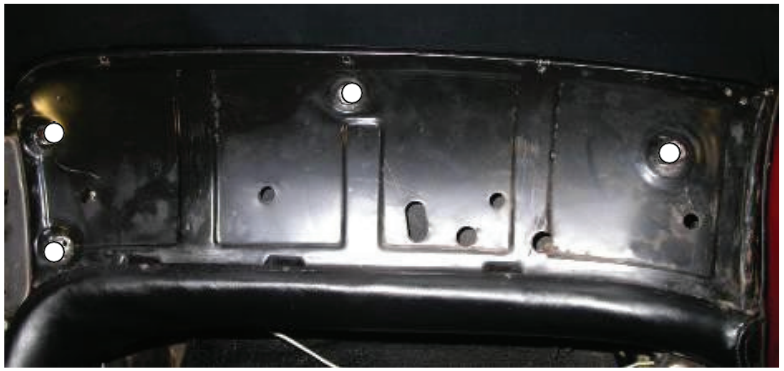
Carefully remove (1) screws along the console trim. Retain original hardware. Carefully remove chrome trim strips along both sides of the console.

Remove chrome trim around the trim panel. The strips attach just like the console. Retain strips and original hardware.

Located on passenger side of the dash is a trim plate, remove and retain trim plate and hardware.

Located on passenger side, on bottom of the dash cover pad is the fresh air door cable.

Disconnect cable and let the cable set on the floor.



Remove (4) mounting bolts that hold the panel to the dash.

Remove (2) mounting bolts on drivers side of the center mounting plate.

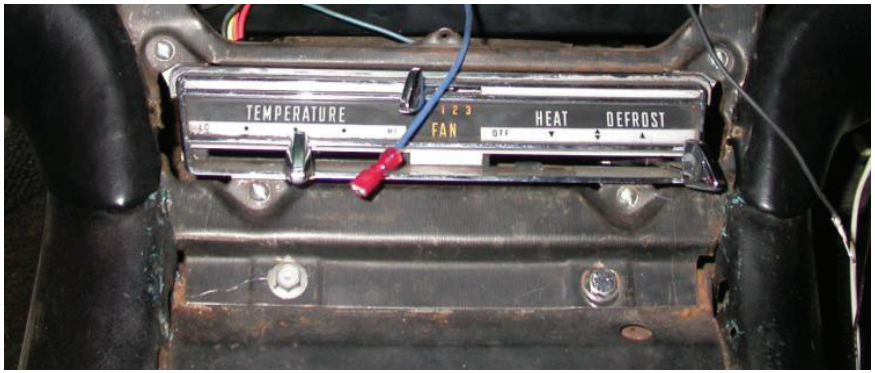
Remove (2) mounting bolts on the bottom of center mounting plate.

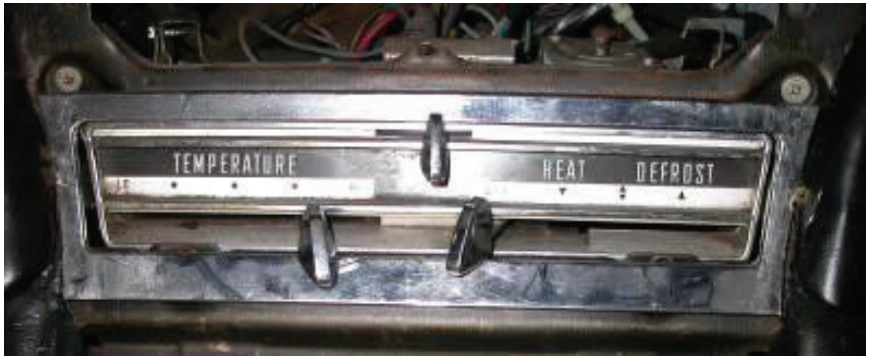
Retain all original hardware.

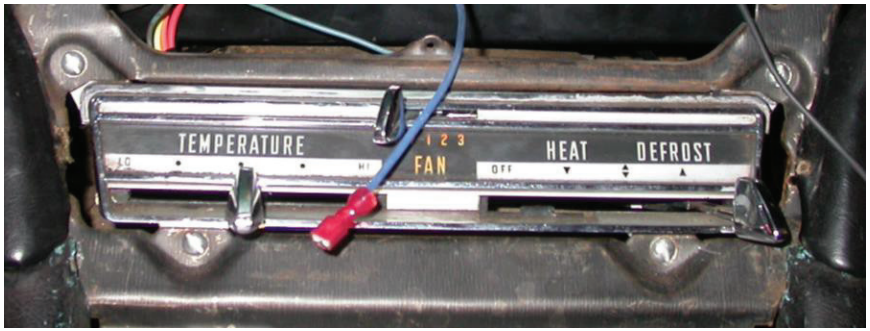
Disconnect control cables on both sides of the control head. Retain screws and the clips.

Disconnect electrical plug from back of the switch.
There is a ground wire attached to the controls. Remove and discard screw.

Carefully remove lights from the control head.







Carefully snap off chrome frame around the control head.

Retain for reinstallation.

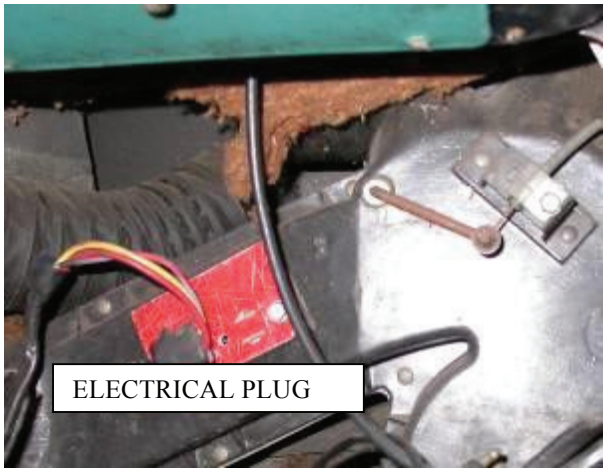
Remove (4) screws holding the control head to the center mounting plate.

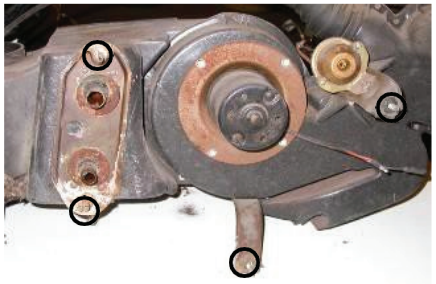
Remove center-mounting plate and retain hardware.

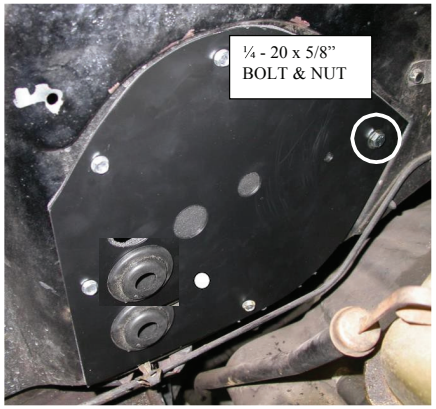
Disconnect electrical harness from the heater box.

Drain radiator. Disconnect heater hoses at the firewall.

It is recommended that you replace the heater hose from the engine at this time.


ELECTRICAL PLUG





Remove blower motor access cover and remove (4) nuts that attach the heater box to the firewall. Next picture shows location of the nuts. Retain original screws discard the nuts.

CAREFULLY REMOVE HEATER ASSEMBLY FROM UNDER THE DASH. DISCARD HEATER ASSEMBLY.

Locate air inlet flange assembly directly above the passenger kick panel.

Remove (4) screws and discard the inlet flange.

Locate in the kit the inlet block off plate. Attach plate to the inlet hole using (4) #10 tek screws supplied.

Locate the firewall block off plate.

Attach over blower access hole using (1) ¼" – 20 bolt and nut through the original heater mounting hole.

Other (4) screws are the original cover fasteners.

Match drill holes into the firewall that the heater hoses will pass through. (1 3/8" dia)

Install grommets over the holes.

Locate the drain tube template on last page of the instructions.

Tape template on the firewall. Locate the original heater-mounting hole. Align template to this hole and along bend in the firewall.

Drill a ¾" diameter hole as shown.

Locate wire harness that was attached to the controls.

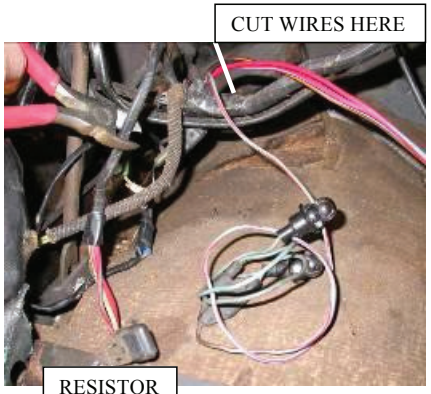
Peel tape back all the way to the junction. Separate the light wire. Cut switch wires at the junction.

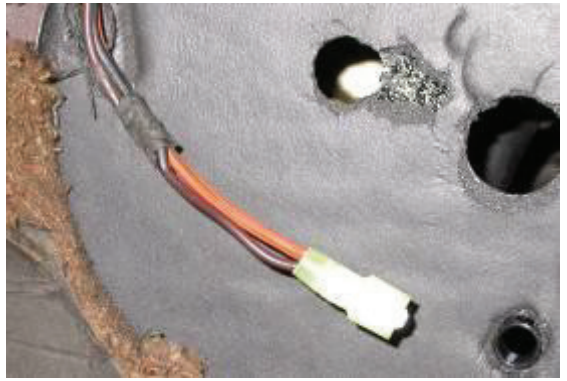
Also cut off the resistor wires and plug.

Locate wire assembly that was attached to the blower motor.

Cut the black wire off.

Remove the bullet connector and attach (1) ¼" male spade connector. Both wires will be crimped into the same connector.





Locate original control head assembly.

Remove and discard the vacuum switch assembly.

Using an allen wrench carefully remove the blower switch knob. Retain knob.

Remove and discard original blower switch and screw.

Locate blower switch mounting template from last page of the instructions.

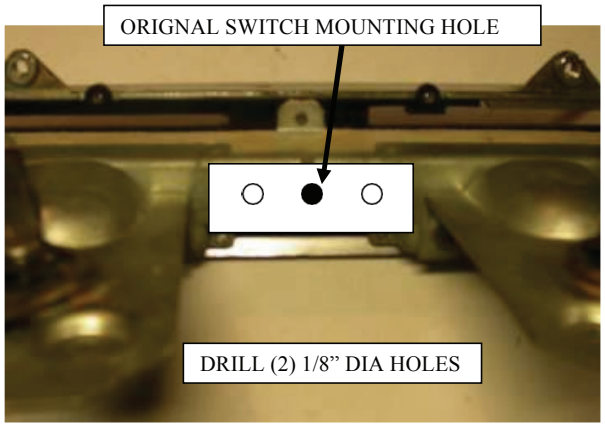
Tape template over back of the control head. Locate template over the original switch-mounting hole.

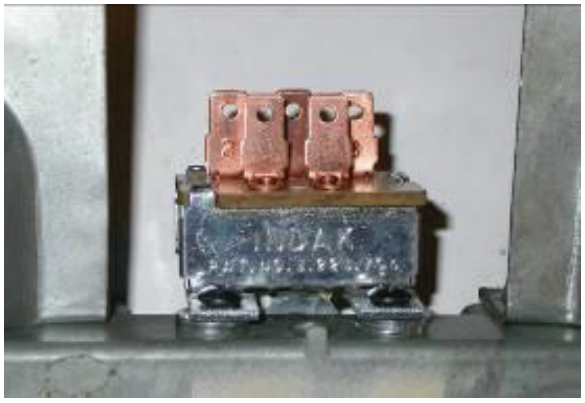
Drill (2) 1/8” diameter holes as shown.

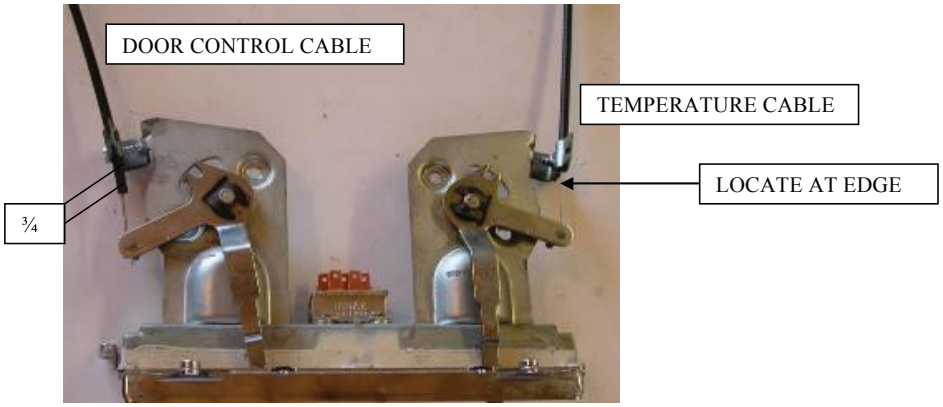
Locate the blower switch, (2) #6 x 3/8” pan head screw and (4) flat washers.

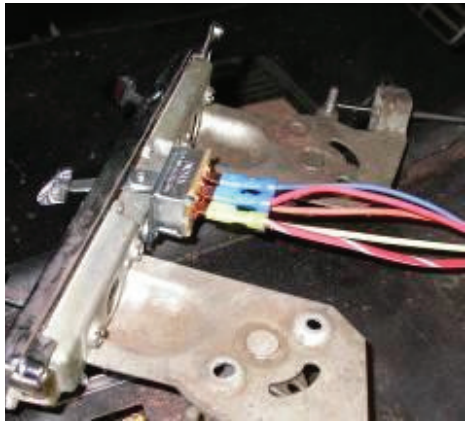
Attach the switch to back of the control assembly using #6 screws and (2) flat washers as spacers per screw.

Install original switch knob onto new switch.









Locate (2) control cables and (2) 3/16” push nuts supplied in the kit.

LONGEST of the cables is the temperature control cable. Lay control assembly on the bench as shown in the picture below. Attach this cable to right control lever using original cable clip, screw and push nut.
Cable housing is located along edge of the bracket.

SHORTEST of the cables is the door control cable. Lay control assembly on the bench as shown in the picture above. Attach this cable to left control lever using the original cable clip, screw and push nut.

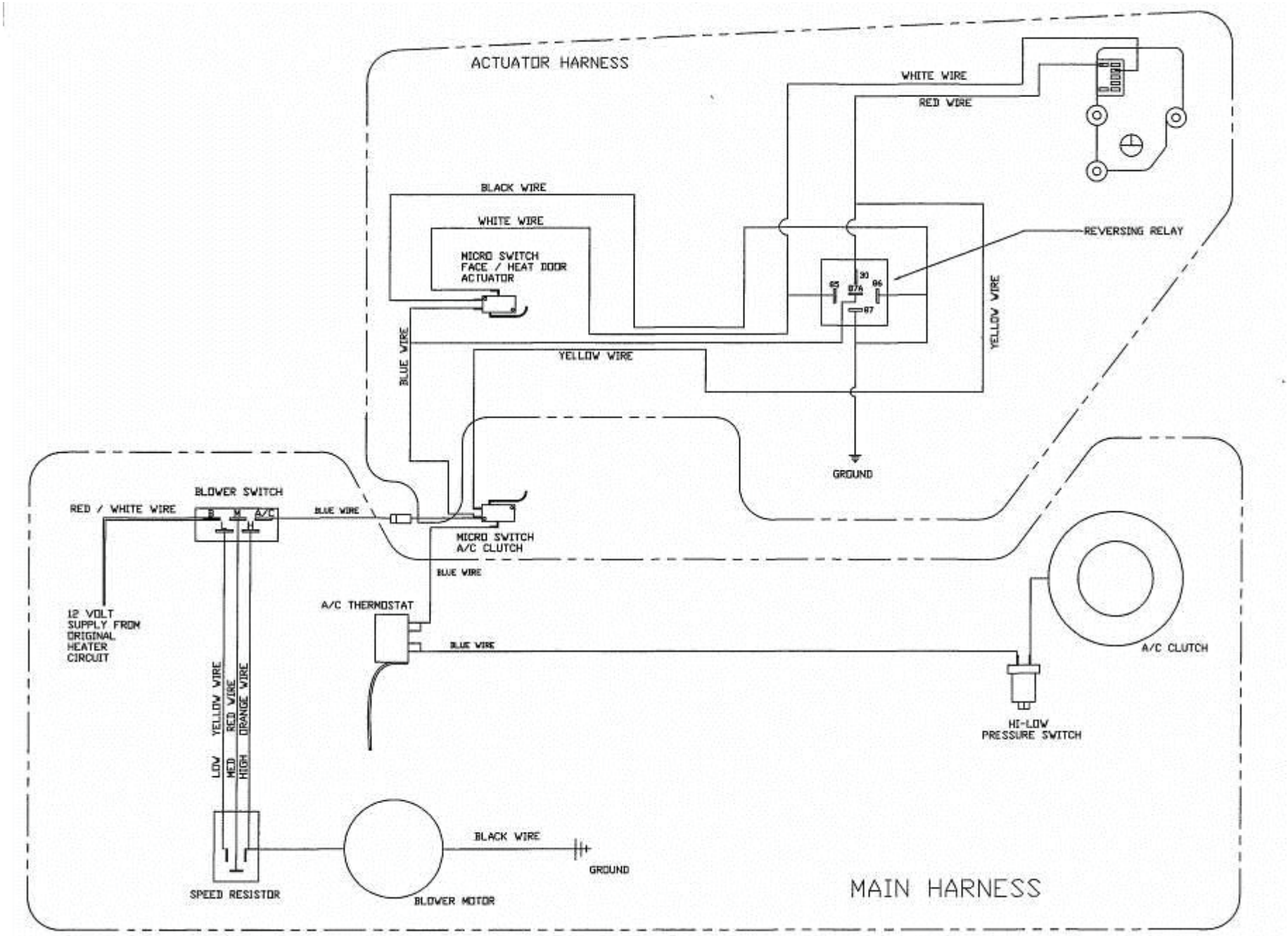
Cable housing is located ¾” past edge of the bracket.

Place control assembly in the car with the cables routed as per the picture to the right.

Reinstall lights to the control head.

Locate the wire harness from the kit.

Attach harness to the blower switch per wiring diagram on the next page. Connect red /white striped wire to the original blower power wire.


ACTUATOR HARNESS
WHITE WIRE
RED WIRE
BLACK WIRE
WHITE WIRE
MICRO SWITCH
FACE / HEAT DOOR
ACTUATOR
REVERSING RELAY
85
30
87A
86
87
YELLOW WIRE
BLUE WIRE
YELLOW WIRE
GROUND
BLOWER SWITCH
RED / WHITE WIRE
B
M
H
A/C
BLUE WIRE
MICRO SWITCH
A/C CLUTCH
BLUE WIRE
12 VOLT
SUPPLY FROM
ORIGINAL
HEATER
CIRCUIT
A/C THERMOSTAT
BLUE WIRE
A/C CLUTCH
HI-LOW
PRESSURE SWITCH
LOW
MED
HIGH
YELLOW WIRE
RED WIRE
ORANGE WIRE
SPEED RESISTOR
BLACK WIRE
GROUND
BLOWER MOTOR
MAIN HARNESS

Locate the evaporator, Air Distribution Duct assembly and (4) #10 x 5/8” pan head screws.

Place evaporator on the bench and attach Distribution assembly onto evaporator using (4) #10 x 5/8” pan head screws.

Locate (2) 2” diameter flex hose, (2) hose adapters and (8) #8 X 3/8 pan head screws.

Cut (1) piece 16” long, (1) piece 20” long and attach them to the hose adapters using (2) pan head screws.

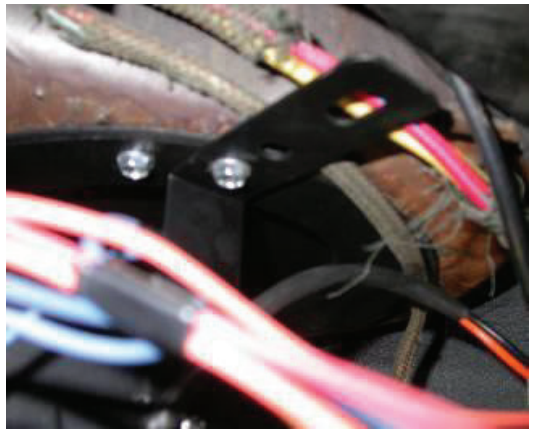
Attach 16” hose to rear defrost outlet using #8 screws.

Attach 20” hose to front defrost outlet using #8 screws.

Locate the evaporator. Slide evaporator under the instrument panel and up into place.

Follow directions on the next page for proper install.

(2) ON TOP AND (2) ON BOTTOM



Insert a/c tubes and heater hoses through the firewall cover plate.

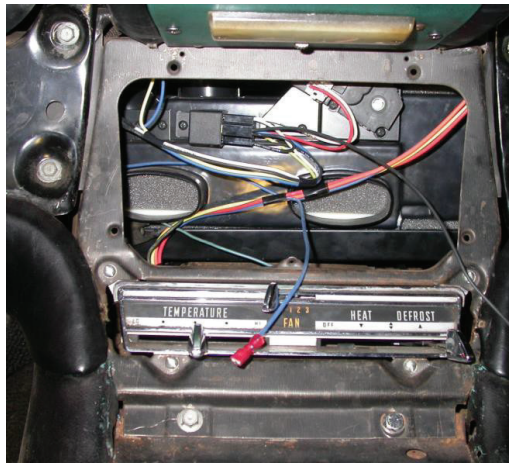
Locate (1) ¼”- 20 x 5/8” hex head bolt.
Attach evaporator rear mounting bracket to the block off using the 1/4” bolt.

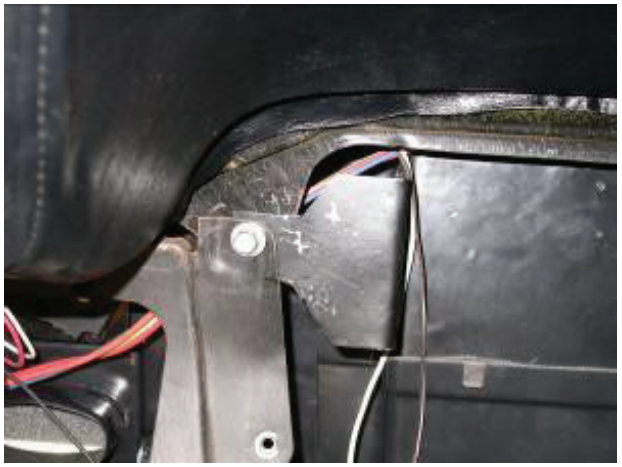
Attach mounting bracket on the blower to edge of the air inlet block off using (1) #10 x ¾” tek screw.

Reinstall center-mounting plate using original screws. Attach (2) left and bottom (2) screws at this time.

Reattach control head using the original hardware.

Loosely attach front evaporator mounting bracket through center mounting plate and into dash using (1) of the original bolts.





Route short defrost flex hose over top of the evaporator and push over the defrost diffuser. Longest defrost flex hose routes over to the drivers defrost diffuser.

Locate ground wire from the servo motor assembly and (1) #8 x 3/8” screw and nut.

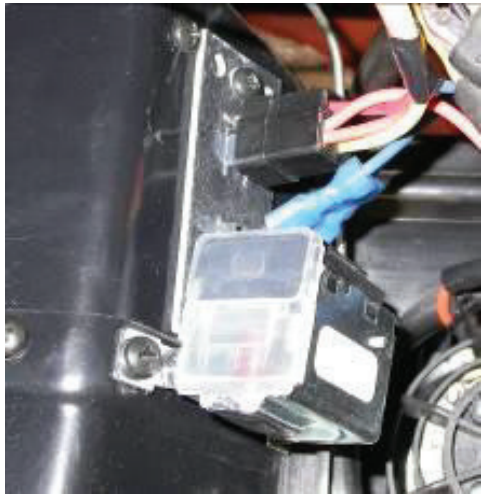
Attach ground wire to center mounting plate at the recessed hole.

Route wire harness over top of the evaporator to the blower motor.

Attach connectors to the motor, thermostat, and resistor.

Refer to electrical diagram.

Attach ground wire from blower connector to the body using (1) #10 tek screw.



Locate (2) blue wires along the wire harness. Route wires to side of the duct assembly.

Attach blue wire from blower switch to pigtail on the micro switch.

Attach blue wire from thermostat to open terminal on the left micro switch.

Refer to the wiring diagram.

Route the short cable under distribution duct and around to the Heat / Face door.

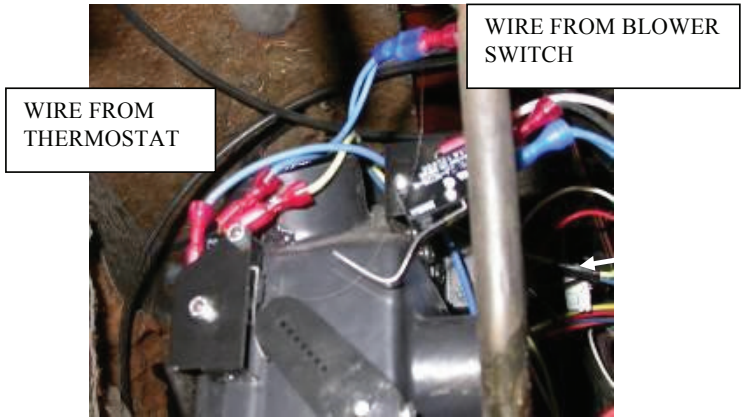
Insert cable offset into 4th hole from pivot of the door. Attach cable flag to the bracket using (1) #8 x 3/8” pan head screw.

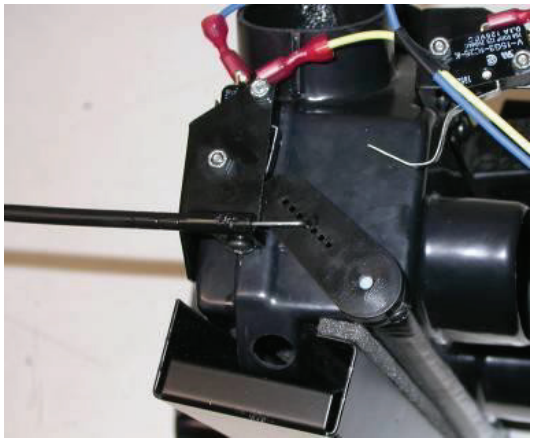
Check adjustment of the door by moving control lever from left to right. Be sure that when lever is in the center that the micro switch on the right is depressed.

Route the longest of the control cables across back of the evaporator and out through grommet in the firewall block off.

Route blue wire from the thermostat over top of the blower and out through same hole as the cable.

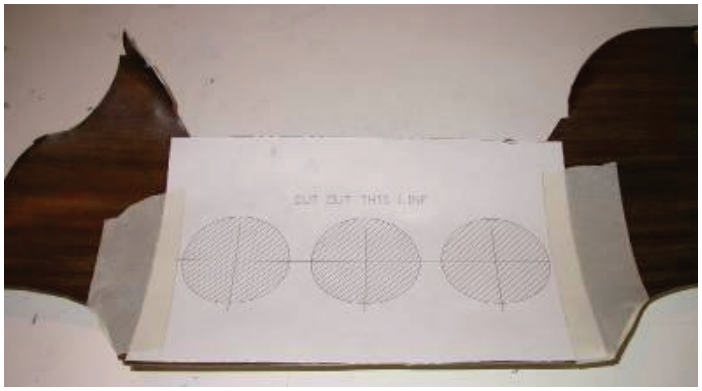
Install 6” piece of drain tube through the hole previously drilled.





Reinstall passenger side dash panel using original hardware.

It is necessary to remove the bolt holding the front evaporator bracket. This bolt goes through the panel, bracket and into threaded part of the dash.
Locate the louver cutout template.



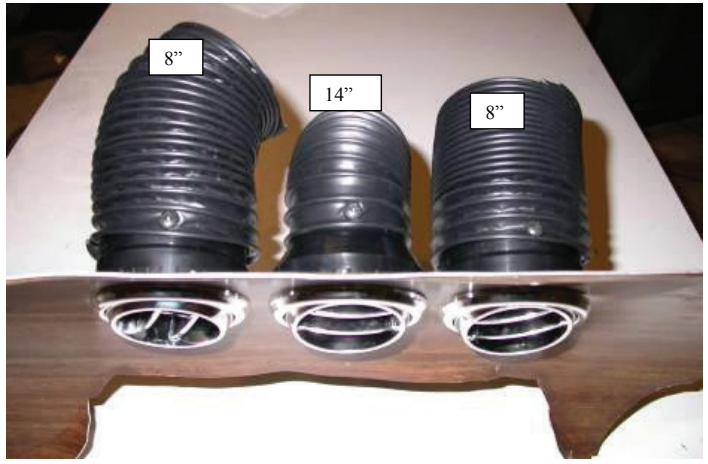
Tape template to center of the trim panel.

Carefully cut out (3) holes. Using a 2 ½” diameter hole saw.

Locate (2) ball louvers with 2 ½” dia hose adapters.

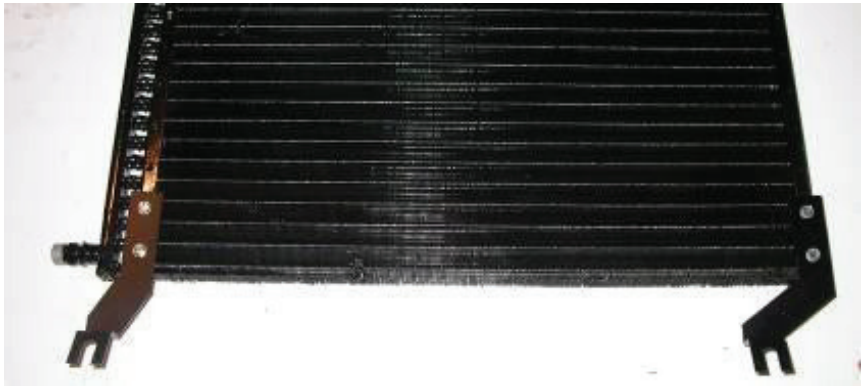
Locate (1) ball louver with 2” hose adapter.

Attach 2” louver through the center hole. The 2 ½” louvers attach through outside holes.



Locate 2 ½” dia flex hose x 1ft. and cut (2) pieces 8” long.

Slide over the 2 ½” hose adaptor and attach using (2) #8 x 3/8” pan head screws



Refer to page 2 and reinstall trim panel and all of the trim.

Reach behind center trim panel and route the 2” flex hose back and attach to the open hose adaptor on distribution duct. Use ty wrap to secure hose.

Reach behind center trim panel and attach 2 ½” flex hose to outlets on front of the duct.

Caution: Carefully check under the Instrument Panel for all cables, electrical harness, or Flex Hoses that might interfere with the safe operation of the vehicle.

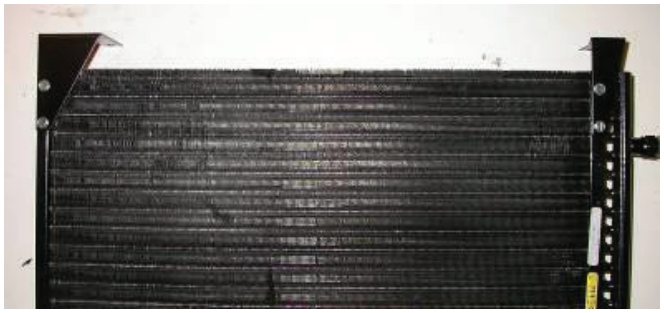
Install the compressor drive kit at this time.

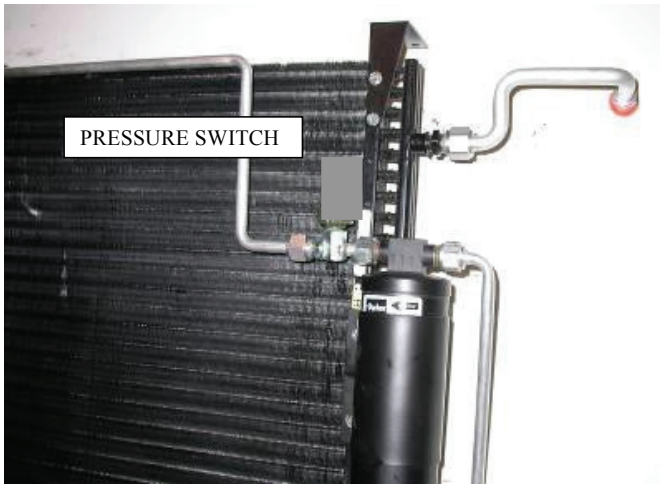
The engine compartment components should be installed at this time. Carefully follow the electrical diagram provided on page 9.

Locate following components from the condenser kit. Condenser, (2) top condenser mounting bracket, (2) bottom condenser mounting brackets and (8) #10 x 3/8” screws.

Place condenser on the bench with fittings on the left side.

Attach bottom condenser brackets to bottom hole of the condenser. Using the #10 screws.





Turn condenser over so that fittings are on the right side.

Attach top condenser brackets to top hole of the condenser, using #10 screws.

Locate the drier, drier mounting bracket, pressure switch, (1) #6 liquid tube (short),(1) liquid tube (long), (4) #6 o-rings and (2) #10 x 3/8” hex screws.

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

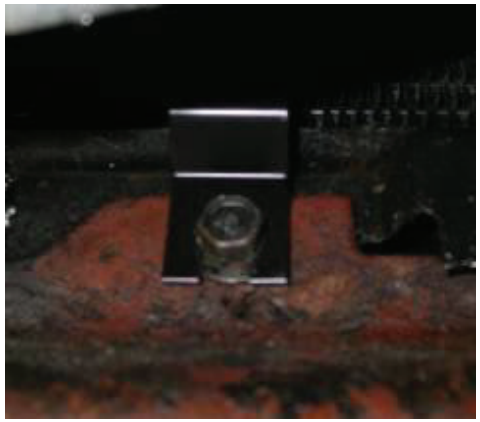
Attach short liquid tube to #6 fitting on condenser using o-ring and a few drops of mineral oil. Other end attaches to the to the drier inlet.

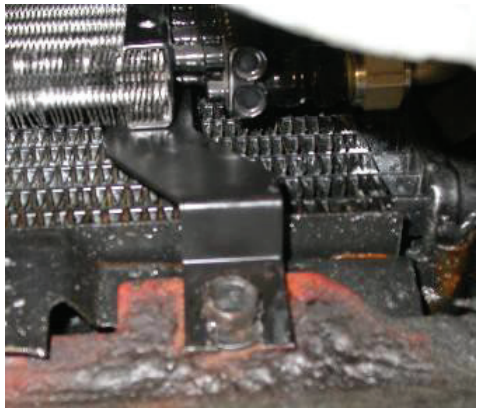
Use the tube to locate drier and mounting bracket. Attach using #10 screws.

Attach long liquid tube to the drier using a #6 o-ring and a few drops of mineral oil.

Slide condenser between radiator and the radiator bulkhead. Let condenser hange on the upper brackets.

Install pressure switch on filter drier. Attach the electrical boot to the pressure switch, route white wires across the discharge tube. Tywrap wires to the tube.





Locate left bottom condenser mounting bracket and slide into the bottom radiator mounting bolt.

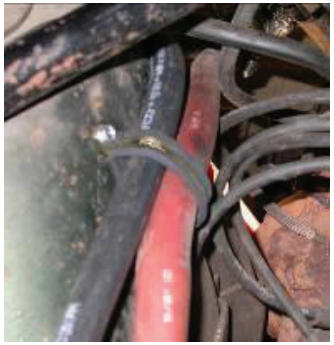
Attach right bottom condenser mounting bracket over the 5/16” bolt.

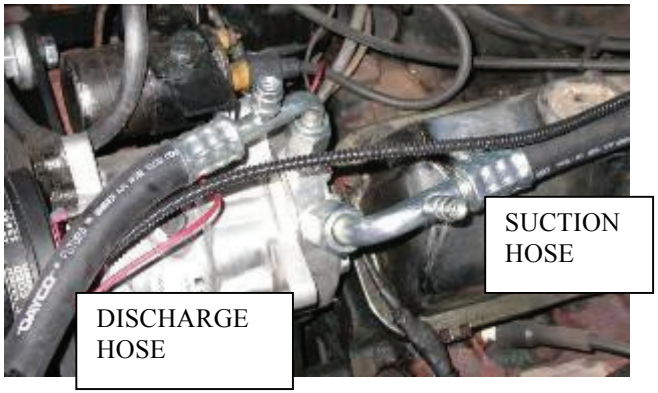
Tighten the condenser bolts.

Locate (1) 3/8” tube clamp and (1) #10 x ¾” tek screw.

Attach liquid tube to the radiator support using clamp and screw.

REINSTALL RADIATOR FAN AND SPACER USING THE ORIGINAL HARDWARE.





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

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

When routing liquid hose attach hose and the return heater hose to the shock tower using (1) double clamp and a #10 tek screw.

When routing suction hose tywrap the hose to the body brace beside the air cleaner.

Locate #8 discharge hose and (2) #8 o-ring. Attach end of hose with 45 deg fitting to the condenser fitting and the end with the service port to the compressor.

Reinstall top radiator cover panel using original hardware.

Locate discharge tube support bracket, #8 hose clamp and (1) #10 x 3/8” pan head screw.

Attach bracket to top radiator cover panel. Also attach clamp over discharge tube and onto bracket using the #10 screw.

Locate (2) white wires tywraped to the discharge tube. Route along the discharge hose. Cut one of the wires and attach female bullet connector provided and plug into the compressor clutch wire.
Other wire route along suction hose and connect to blue clutch wire from the thermostat.

Attach water valve to lower hose from the evaporator using (2) worm gear clamps. Other end of water valve attaches to the return line to the motor.

Attach control cable to the water valve. Be sure that temperature lever has full travel and that the valve closes completely.

Short hose connects to supply line from the motor.

**THE ENGINE COMPARTMENT OF YOUR SYSTEM IS COMPLETE.
THE UNIT IS READY FOR EVACUATION AND CHARGING.**

THIS SHOULD BE DONE BY A QUALIFIED AND CERTIFIED AIR CONDITIONING TECHNICIAN.

NOTE: COMPRESSOR IS SUPPLIED WITH THE CORRECT OIL CHARGE. DO NOT ADD OIL TO SYSTEM.

134a SYSTEMS 24 oz OF REFRIGERANT
Recommend that power fuse is 25amp minimum

Congratulations you have completed the install of your CLASSIC AUTO AIR “Perfect Fit Series” system.

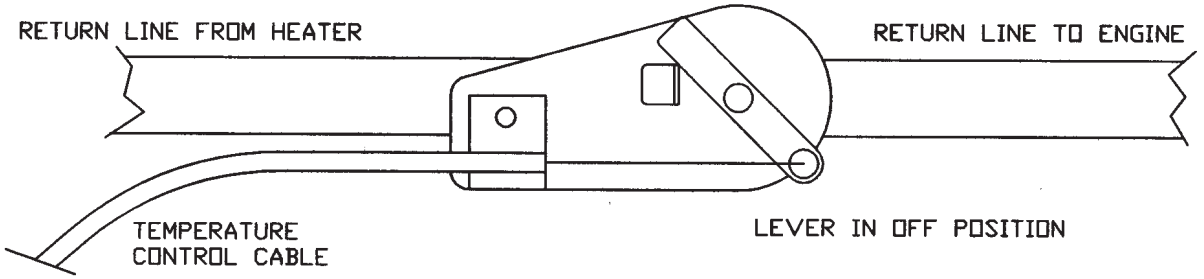
IMPORTANT!

CAUTION: WATER VALVE MUST BE INSTALLED PER THE INSTRUCTIONS.

This data sheet covers the proper instalation of the “Temperature Control Water Valve” that is supplied in your Air Condioning , Heating, and Defrost unit. Classic Auto Air has done extensive testing on the correct method to install the water valve in order to get a repeatable and progressive temperature control.

It is necessary to locate the “Supply Line” from the engine on the vehicle and route a hose directly to the heater connection.
NOTE: The supply line will be coming from the engine block after the water has passed through and absorbed heat from the engine. Typically it is located next to the return radiator hose from the engine to the top of the radiator.

Locate the “Return Line” from the heater connection. Cut 6” of 5/8” dia. heater hose and attach it to the inlet side of the water valve. Attach this assembly to the return heater connection. Attach a heater hose from the outlet side of the water valve and route to the return connection on engine. NOTE: The return connection is typically located on the water pump.

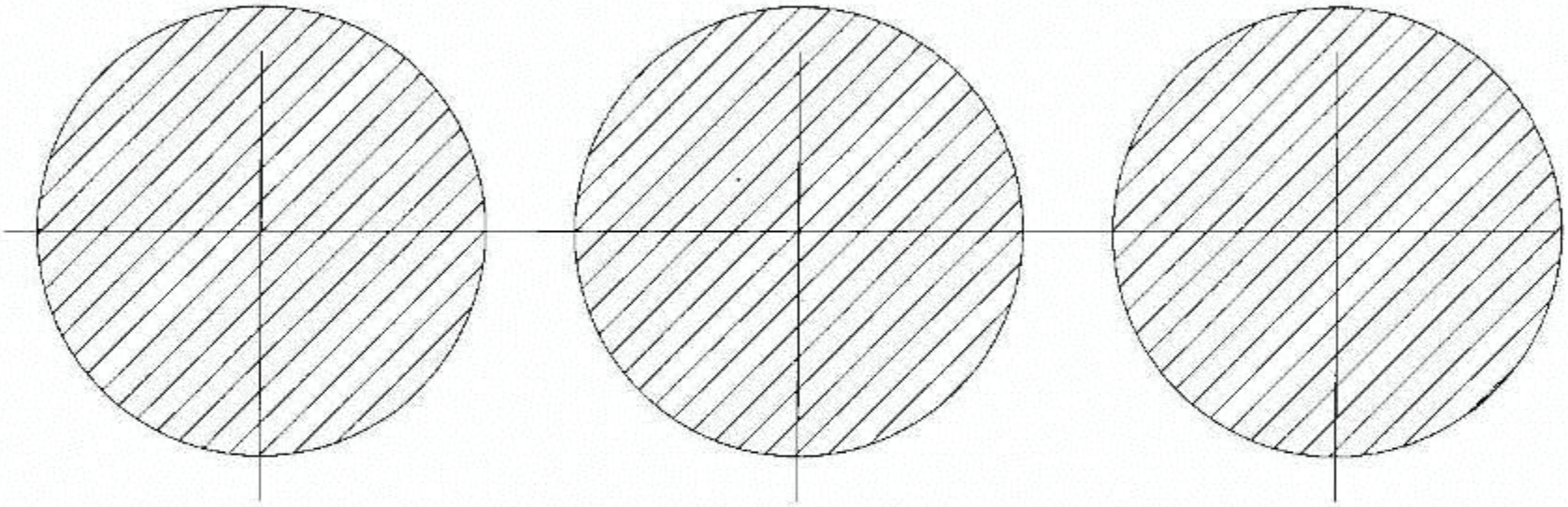


TDS-001 WATERVALVE

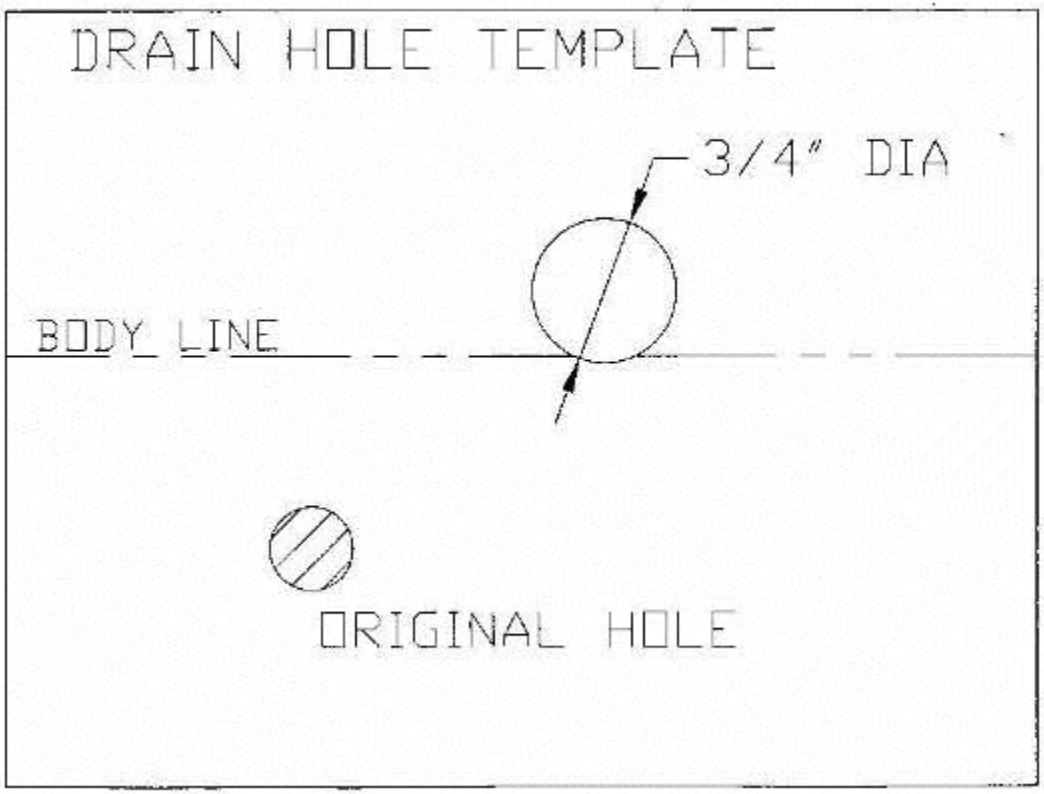
CAUTION: WATER VALVE MUST BE INSTALLED ON HEATER LINE ROUTED TO WATER PUMP.

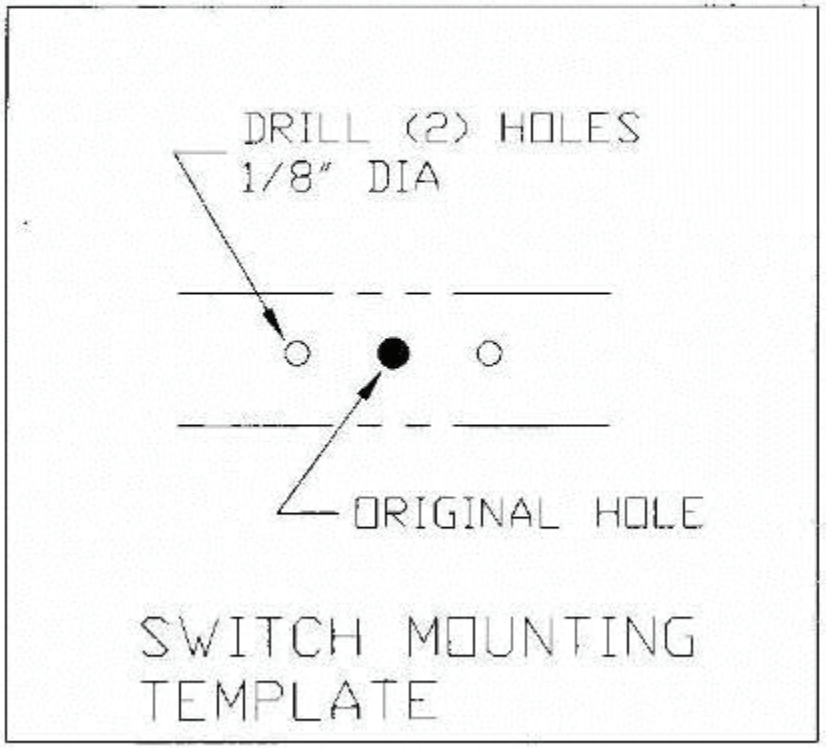
NOTE: COMPRESSOR PURCHASED WITH KIT IS SUPPLIED WITH THE CORRECT OIL CHARGE. DO NOT ADD OIL TO SYSTEM.
134A SYSTEMS 24 oz OF REFRIGERANT
Recommend that power fuse is 25amp minimum

CUT OUT THIS LINE



TEMPLATE CENTRE TRIM PANEL


DRAIN HOLE TEMPLATE
3/4" DIA
BODY LINE
ORIGINAL HOLE


DRILL (2) HOLES
1/8" DIA
ORIGINAL HOLE
SWITCH MOUNTING
TEMPLATE