

# ***Installation Manual***

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## ***1964-66 FORD THUNDERBIRD***

DOCUMENT #1-1076

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 During the installation you might find the opportunity to repair or upgrade non-working or out of date components.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

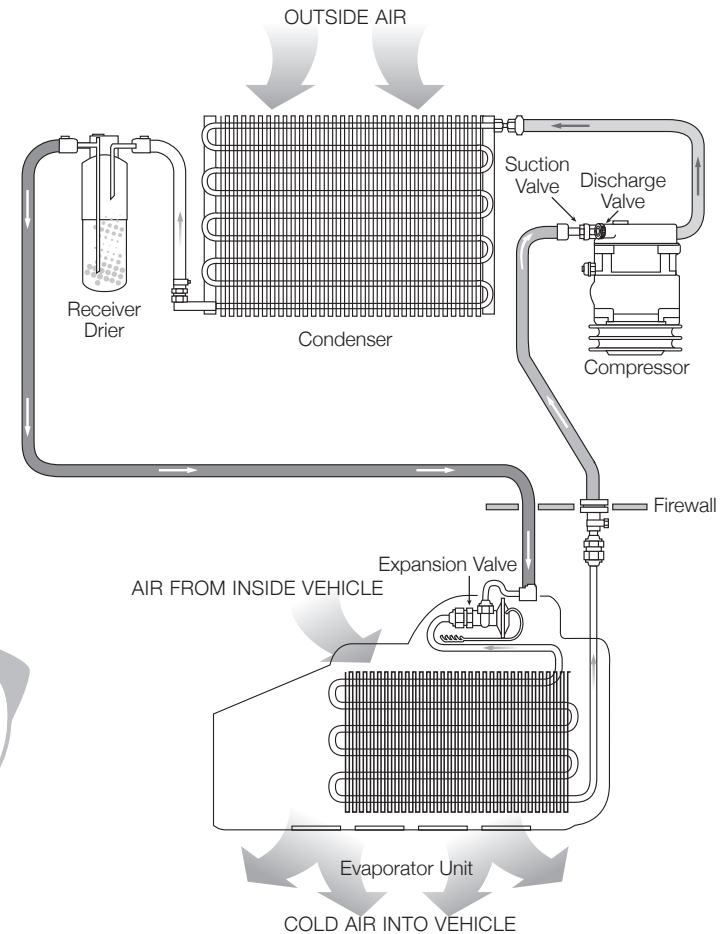
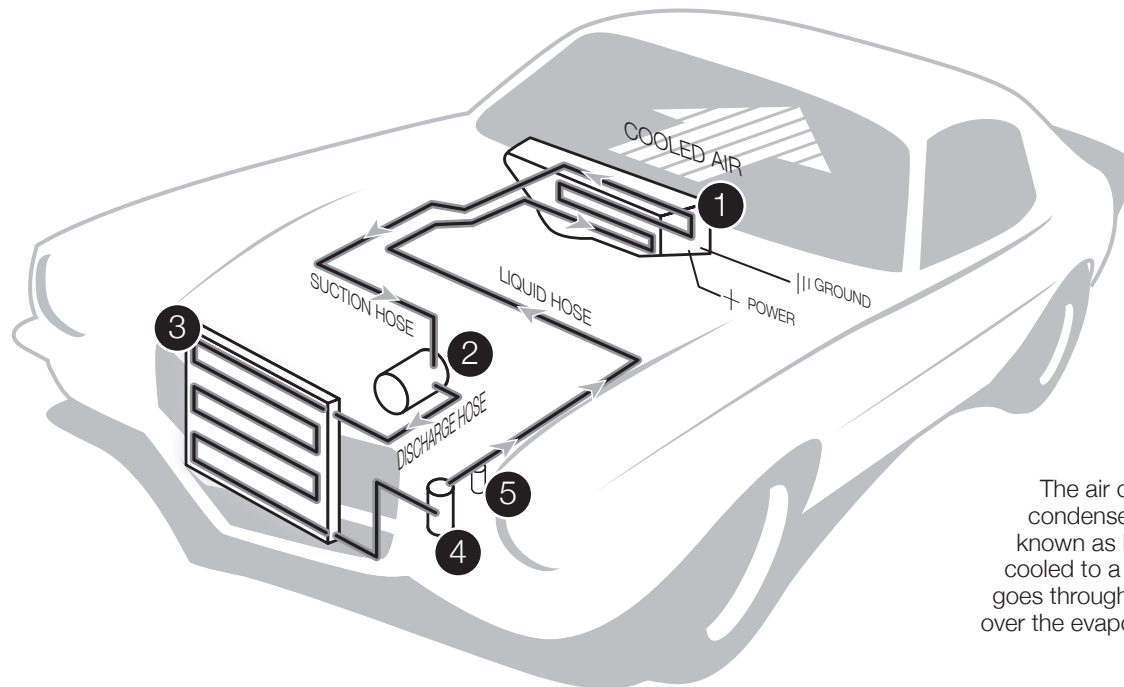
## Procedures, During Installation:

- ☐ 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.

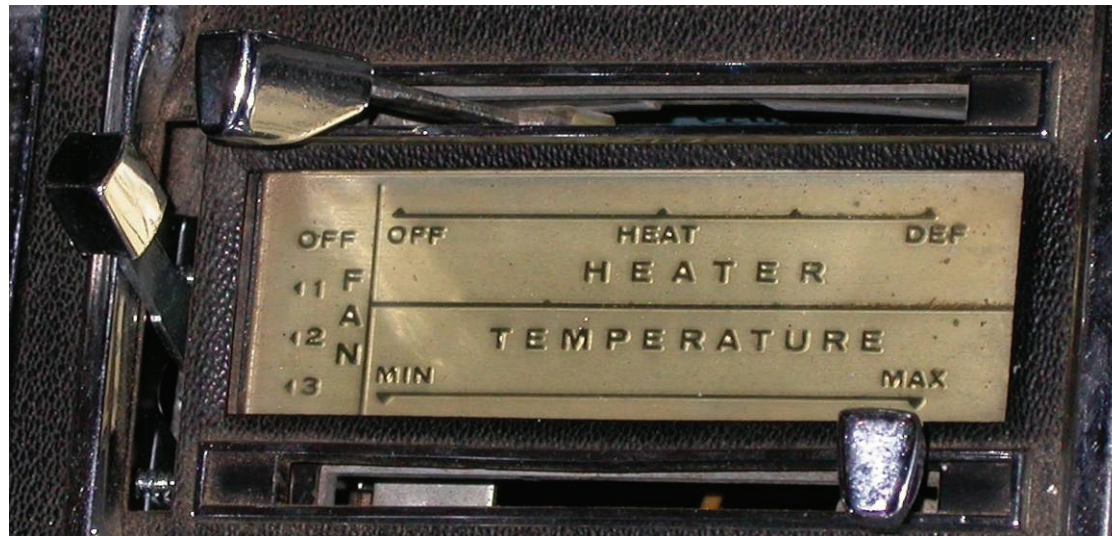


The air conditioning system in your car is comprised of a compressor, condenser, expansion valve, receiver/drier, and evaporator. Refrigerant (also known as Freon) is compressed in the compressor. In the condenser, gas is cooled to a liquid state and travels to the expansion valve. As the liquid refrigerant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



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 HOTTEST temperature position. As the lever is PUSHED to the LEFT the temperature of the discharged air will FALL to the COLDEST 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 chrome trim strip along passengers dash panel just under the "Thunderbird" emblem.

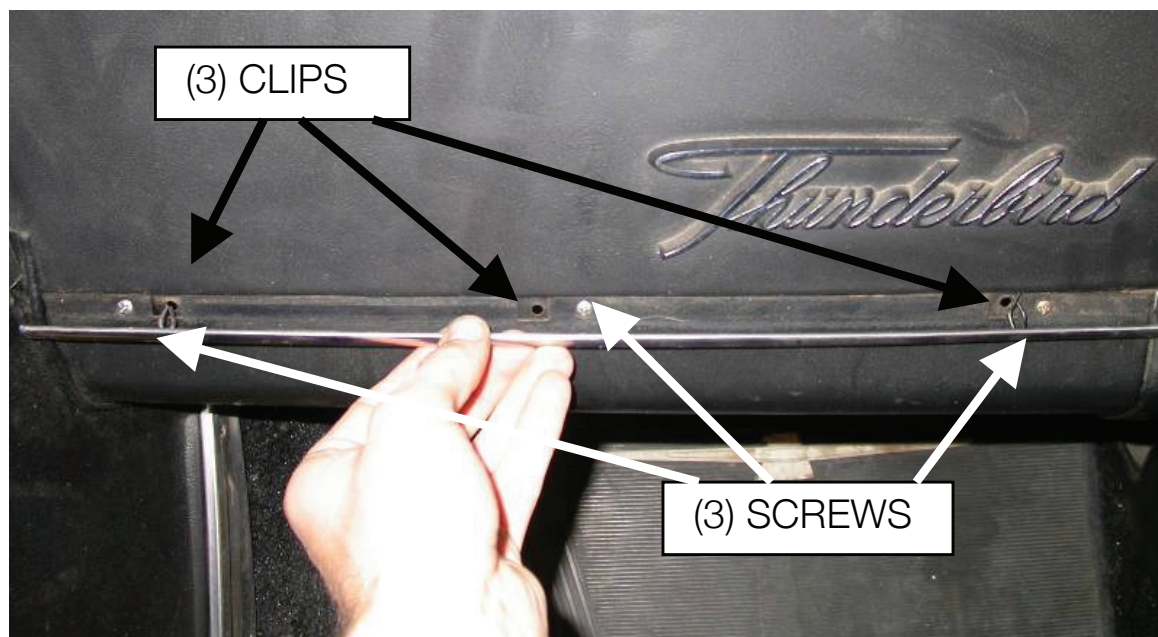
Remove (3) screws behind the trim. Retain original hardware.

Remove and retain screws along console that holds the lower dash panel.

Remove and retain the screw near the door.

Remove screws along the trim on the console.

Remove trim and retain original hardware.





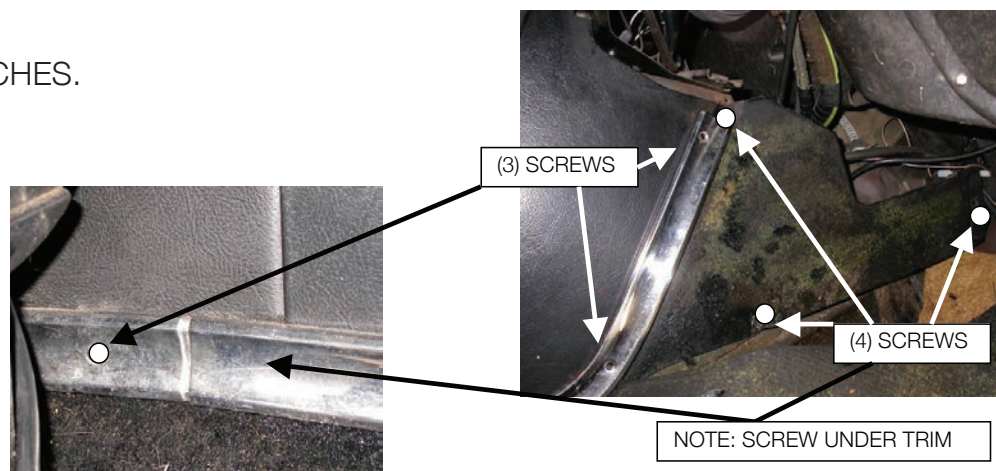
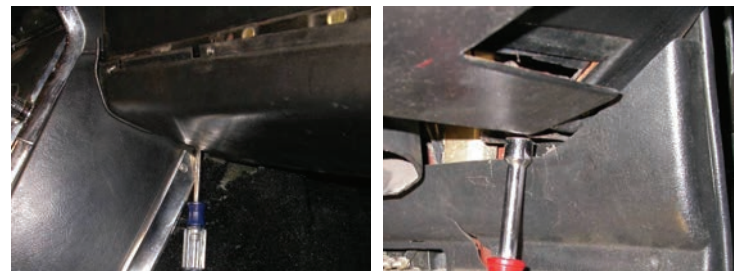
Remove (4) screws that hold the console panel.

Remove radio knobs and the heater control knobs.

Retain for later reinstallation.

Remove (6) screws that hold the center console cover. NOTE: (2) of the screws are under arm rest.

NOTE: LABEL WIRES TO THE WINDOW AND DOOR SWITCHES.





Remove (4) screws that hold controls in the dash.

Remove cables from back of the control head. Retain original hardware for the cable clamps.

Disconnect wiring from the switch and light.

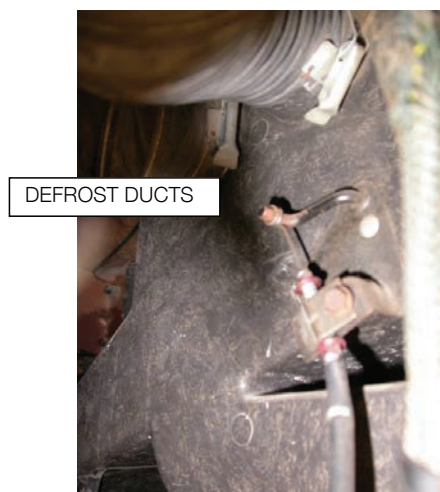
Remove and retain the control head.

Remove control cable from fresh air inlet box on passenger side of the heater.

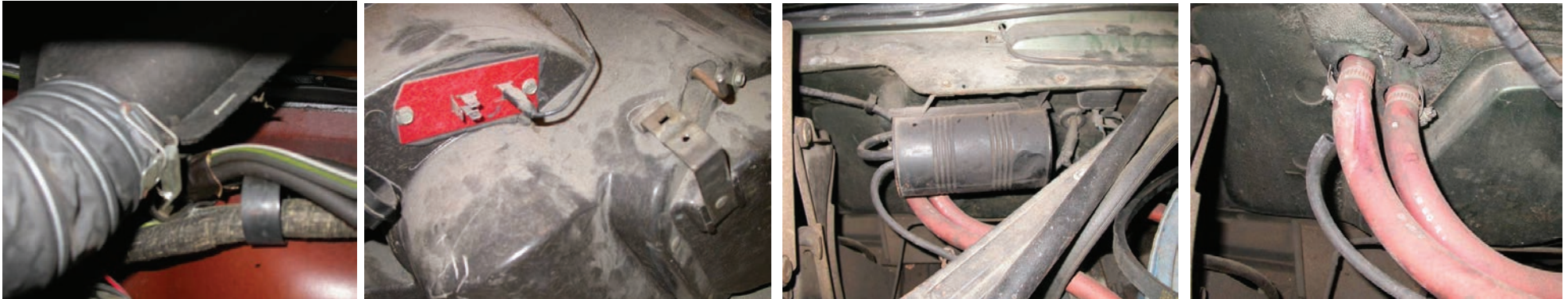
Also remove screw that attaches air inlet housing the body.

Remove control cable from center of heater box next to the defrost ducts. Discard the cable.

Remove the defrost duct hoses and discard.







Defrost attachment to diffusers typical drivers and passenger side.

Disconnect electrical plug from resistor on the heater box.

Remove and discard door control cable.

Located along firewall in the engine compartment, is a vacuum canister.

Remove and set aside for later reinstallation. Retain original hardware.

Disconnect heater hoses from heater coil.



Remove blower access cover from the firewall. Retain cover and the original hardware.

Remove (3) nuts from the heater mounting studs.

(2) around the heater motor opening.

(1) behind throttle pedal.

CAREFULLY REMOVE THE HEATER ASSEMBLY. DISCARD.

Locate the air inlet blockoff plate, and (4) #10 x 3/4" Tek Screws.

Attach block off to inlet hole as shown in picture

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 the evaporator using (4) #10 x 5/8" pan head screws.

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

Insert heater hoses and a/c tubes through hole in the firewall.

On engine side of firewall attach evaporator to the firewall through the original heater mounting hole using (1) 1/4"-20 x 1" bolt and flat washer.

LEAVE LOOSE AT THIS TIME

Install original bolt into the front brace. This will hold unit in place while you attach the blower support brace.

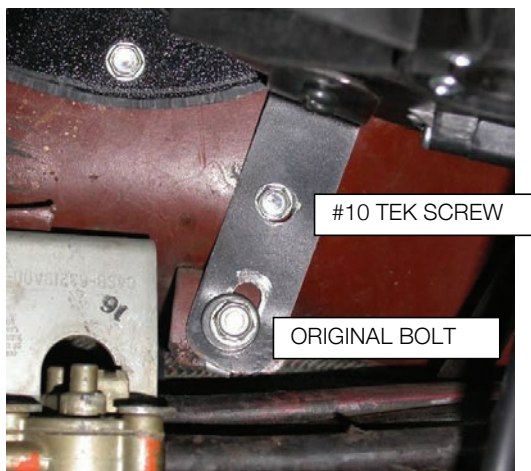
LEAVE LOOSE AT THIS TIME

Attach blower support brace to the original air inlet tab. Use the original screw.

LEAVE LOOSE AT THIS TIME

Locate (1) #10 x 3/4" tek screw. Attach the support brace to the air inlet using the #10 screw.

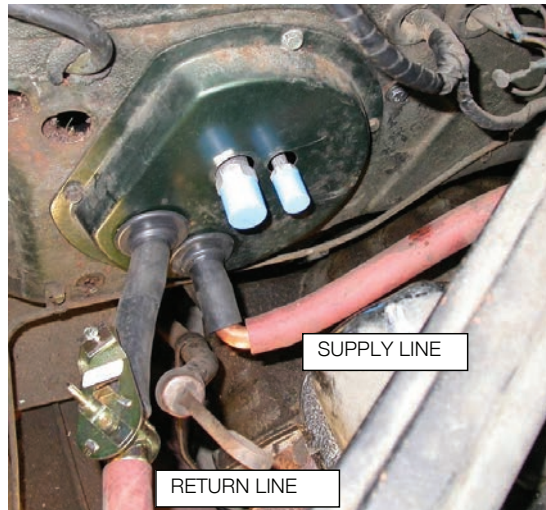
Level unit and Tighten (3) previous mounting points



#10 TEK SCREW

ORIGINAL BOLT





Locate original service cover, and drill template on the last page of instructions.

Drill out the holes per the template.

Install (2) heater hose grommets as shown.

Install service cover inserting heater hoses through the grommets and a/c tubes through the holes.

Attach using the original hardware.

Locate 90 deg hose splice and the water valve.

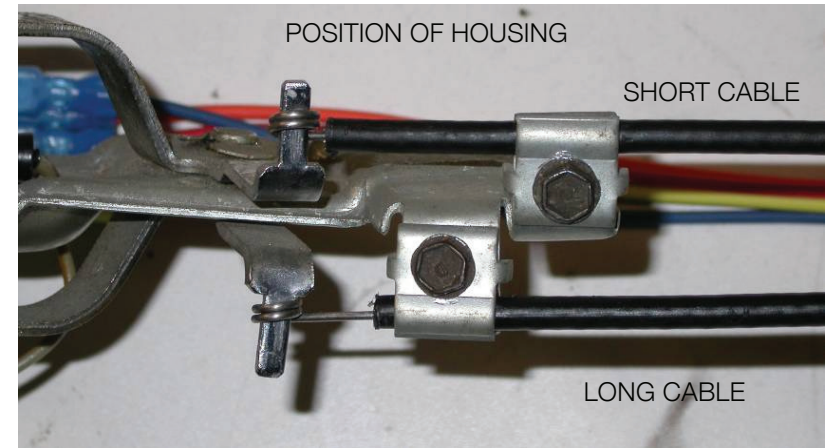
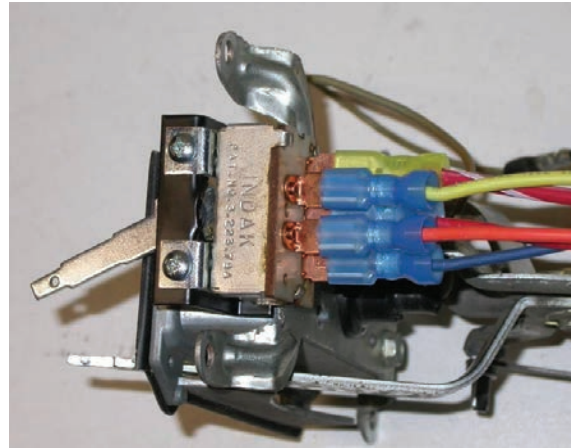
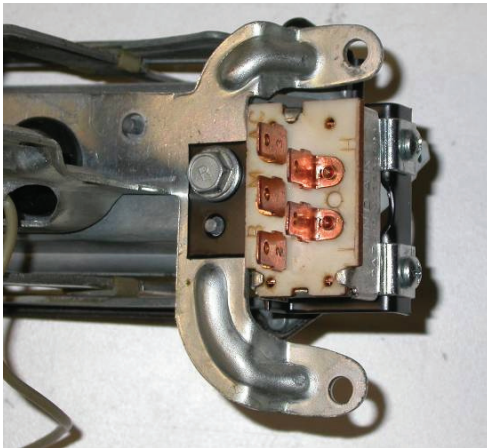
Attach supply hose from the engine to the 90 deg. Splice. Return line to the engine will attach to the water valve.

On the interior of car drill (1)  $\frac{3}{4}$ " hole directly across from drain nipple located on bottom of evaporator unit.

Install 6" piece of drain tube through the hole previously drilled

Locate the original control head.

Remove and discard original switch. Retain the hardware.



Locate blower switch assembly provided in the kit.

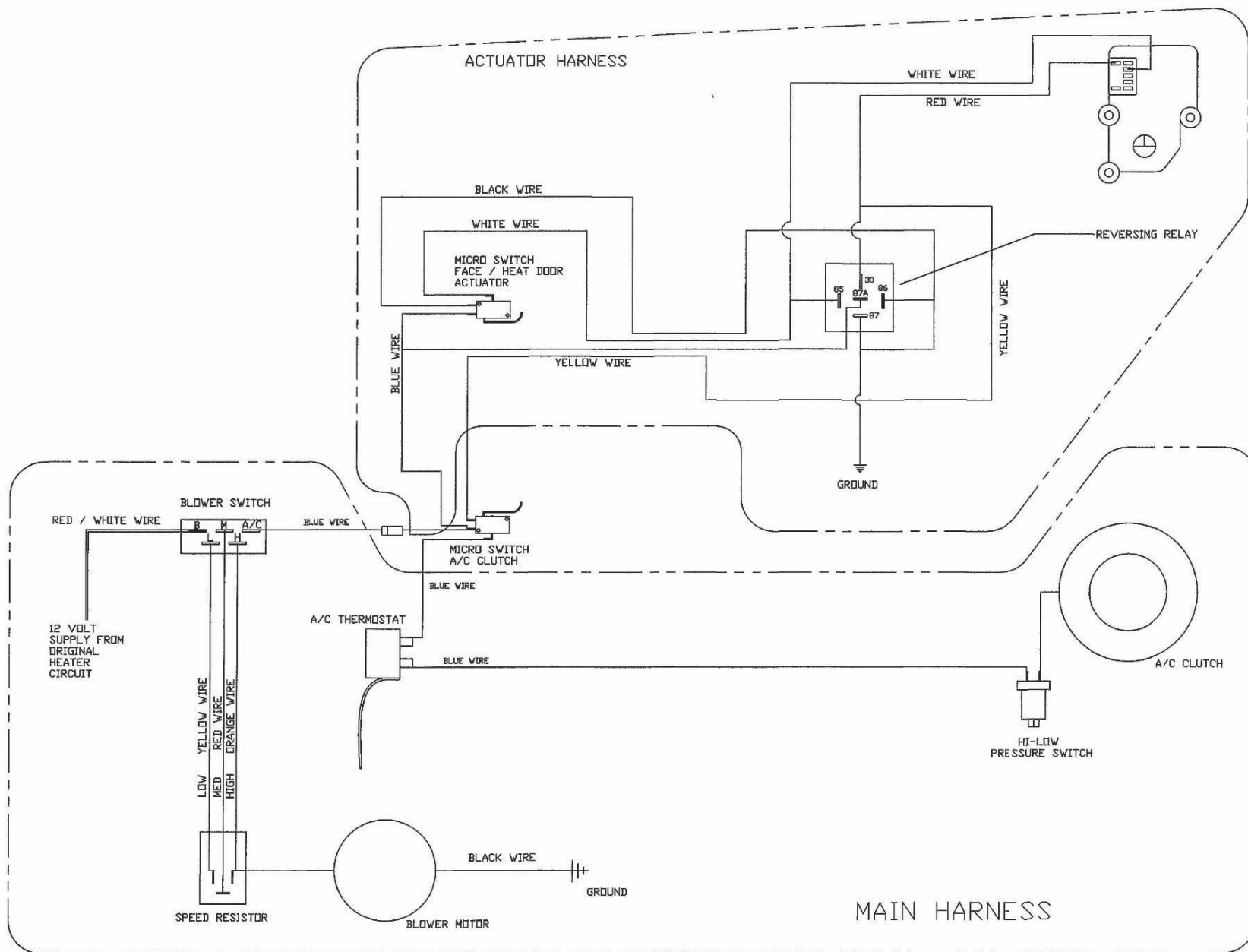
Attach switch using the original hardware,

Locate wire harness supplied in the kit.

Attach harness to blower switch; refer to wiring diagram on the next page.

Locate (2) control cables from the kit.

Using original cable clip and hardware attach short cable the top control lever.







NOTE: When lever is in far right position cable housing will touch the pin.

Using original cable clip and hardware attach longest of the control cables to the bottom lever.

Insert electrical wiring and control cables into the center console.

Plug the control head light wires together.

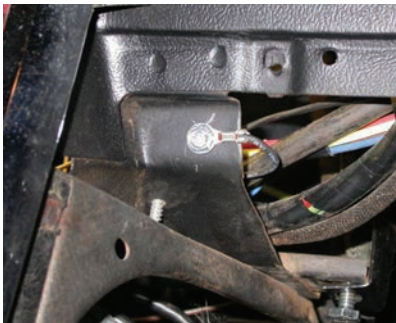
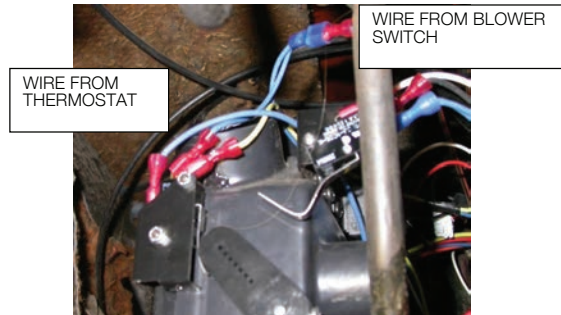
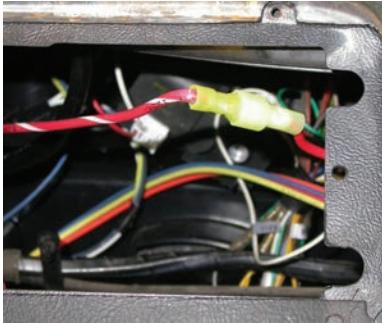
Slide control head into place. Attach using the original hardware.

Route wire harness across 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 orange wire with bullet connector that was attached to the original blower motor. Cut off the connector and add a 1/4" male spade connector.

Plug red/white wire from a/c wire harness to this wire. This is your power wire for the system.

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

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

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

Refer to the wiring diagram.

Locate black wire with a ring terminal that is attached to the relay on the duct.

Attach this wire to metal on the dash using (1) #10 tek screw.

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

Insert cable offset into 2nd 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 the 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 longest of the control cables across back of the evaporator and out through original heater mounting hole. Attach to the water valve.

Adjust cable so that when temp lever is all the way to the right the water valve is closed.

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

Locate (4) #8 worm gear clamps. Attach to water valve and the 90 deg. Splice.

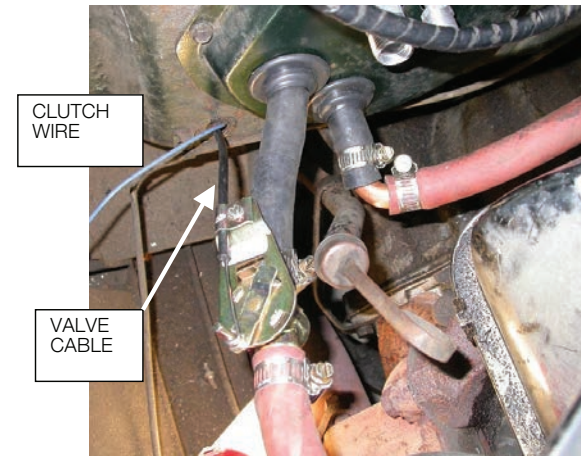
Locate (2) 1 1/8" dia cap plugs and install over holes where original heater hoses hooked to the heater.

Locate in the kit (2) defrost hose adapter, and (4) #8 x 3/8" pan head screws.

Locate 2" dia x 3ft. flex hose and cut (1) piece 16" long and (1) piece 20" long.

Attach 16" hose to defrost hose adapter without the retaining clips using the #8 screws.

Attach 20" hose to the remaining adaptor.







Slide 16" hose assembly over passenger defrost diffuser and route hose over top of the unit and attach other end to the rear defrost air outlet on the duct assembly.

Slide 20" hose assembly over drivers side defrost diffuser and route hose to front air outlet on the duct assembly.

Locate 2" dia x 3ft. flex hose and (2) tywraps.

Cut (2) pieces 14" long and attach to outlets on the distribution duct.

These will route through opening in the instrument panel.

Locate 2 1/2" dia x 2ft. flex hose and cut (2) pieces 14" long.

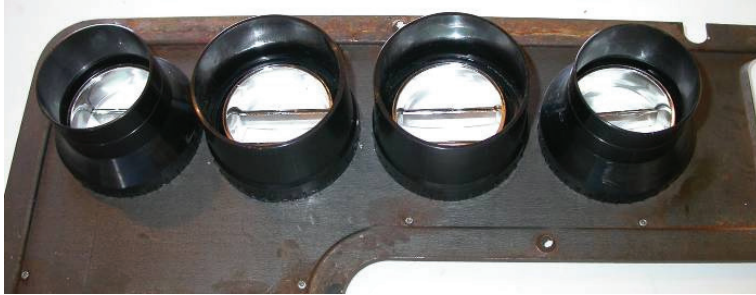
Slide over front outlets on the distribution duct.

Remove 1/4" of material from both sides of opening.

Locate original center trim panel and the "Template CENTER TRIM PANEL".

Carefully cut (4) 2 1/2" dia holes.





Install (4) round louvers on to the panel.

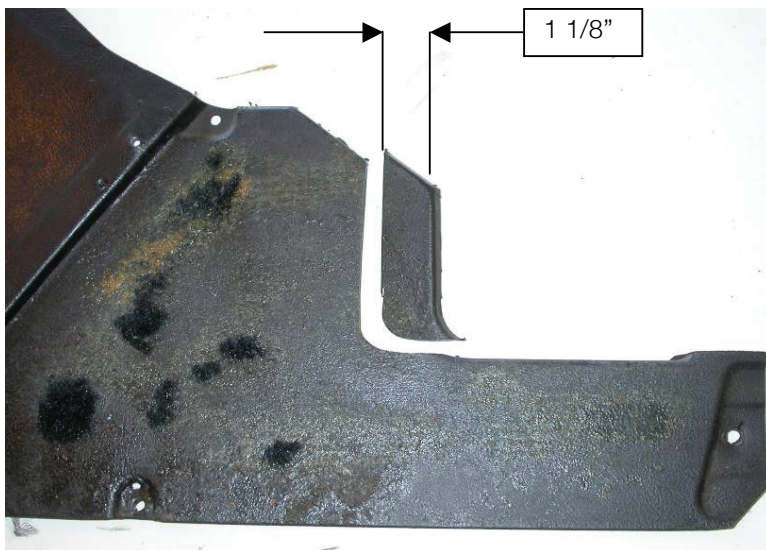
There are (2) of the louvers that have a 2" hose adapter. These go on the outer holes.

The (2) louvers with 2 ½" hose adapters go in the center 2 holes.

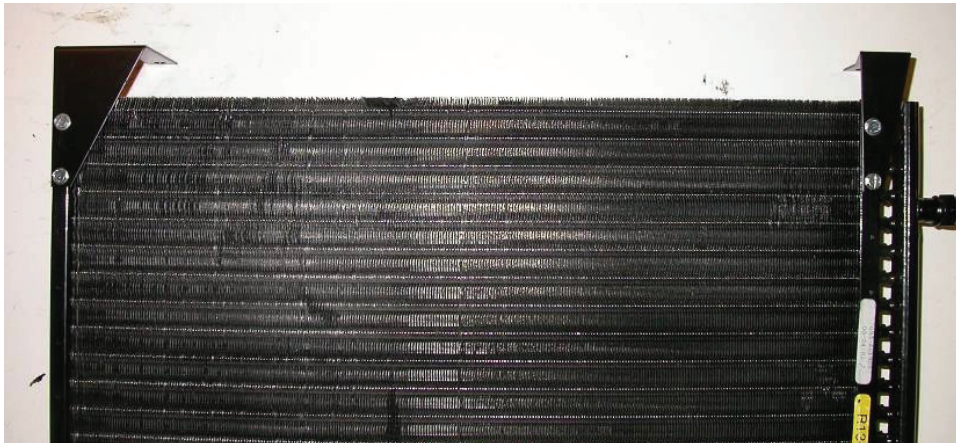
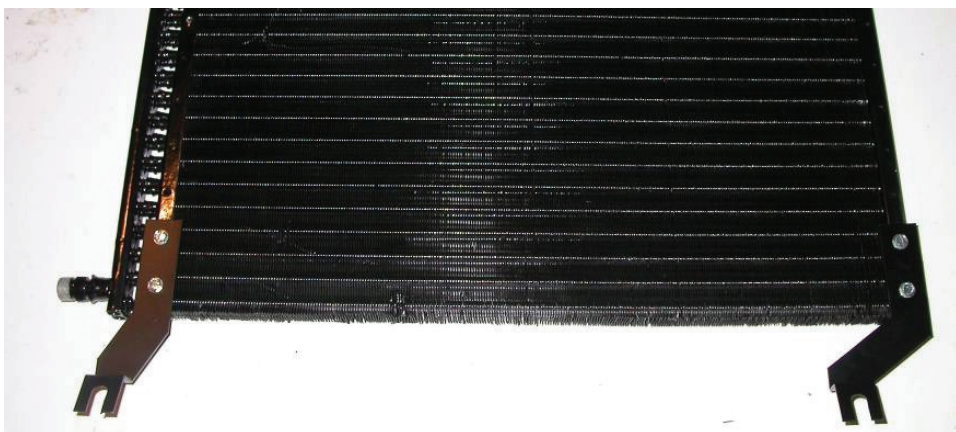
Install center trim panel attach (4) flex duct hoses to the hose adapters using (4) #8 x 3/8" pan head Phillips screws.

Locate the original passenger side console cover.

Carefully trim 1 1/8" as shown.







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.

Reinstall all remaining console and dash trim panels using original hardware.

Install the compressor drive kit at this time.

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

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.

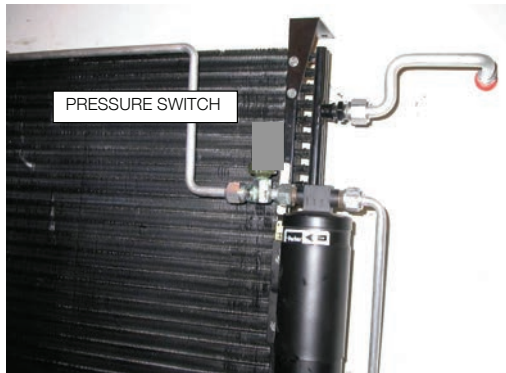
Place condenser on the bench with fittings on the left side.

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 the #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 the condenser using an o-ring and a few drops of mineral oil.

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

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

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

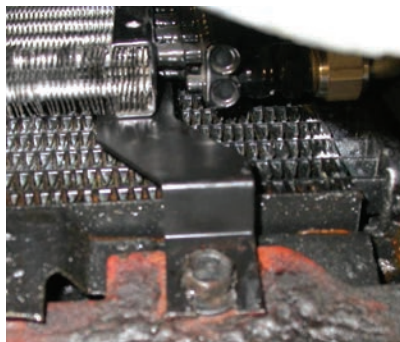
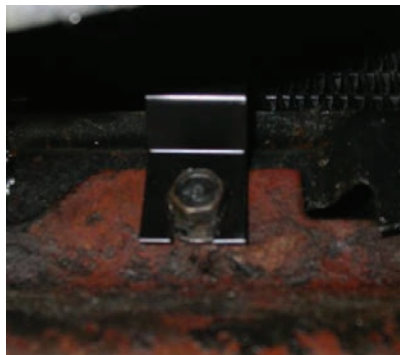
Slide condenser between radiator and the radiator support. Let hang on the upper brackets.

Install pressure switch on filter drier. Attach the electrical boot to the pressure switch, route white wires across the discharge tube. Tywrap the 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 3/4" 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.

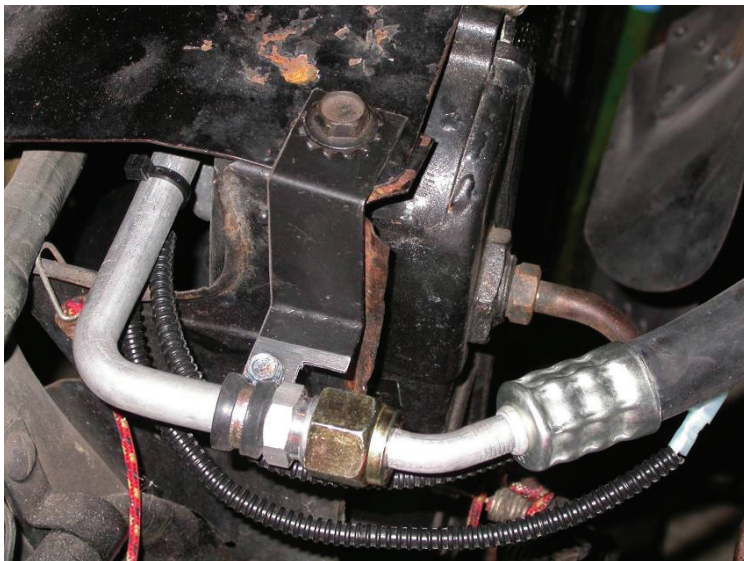
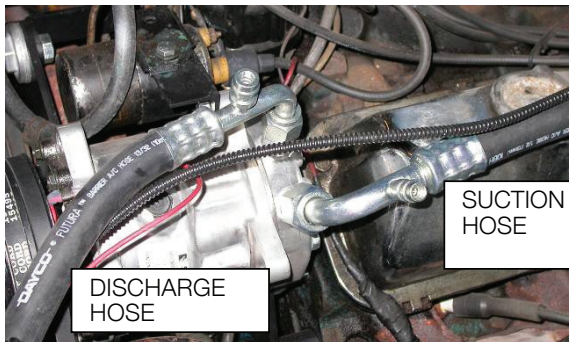
Locate #10 suction hose and (2) #10 o-rings. Attach hose to fitting on the block off and end with the service port to the compressor.



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







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

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

Reinstall the 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 the bracket using #10 screw.

Locate (2) white wires tywrapped 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.

**CAUTION: CHECK AROUND ENGINE TO BE SURE THAT THERE IS NOTHING THAT WILL INTERFERE WITH SAFE OPERATION OF THE VEHICLE.**



**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!

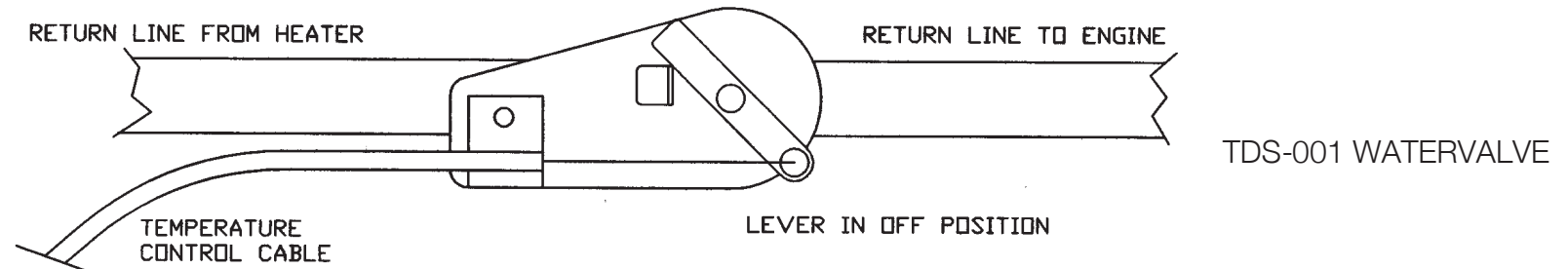
CAUTION: WATER VALVE MUST BE INSTALLED PER THE INSTRUCTIONS.

This data sheet covers the proper installation of the "Temperature Control Water Valve" that is supplied in your Air Conditioning , 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.



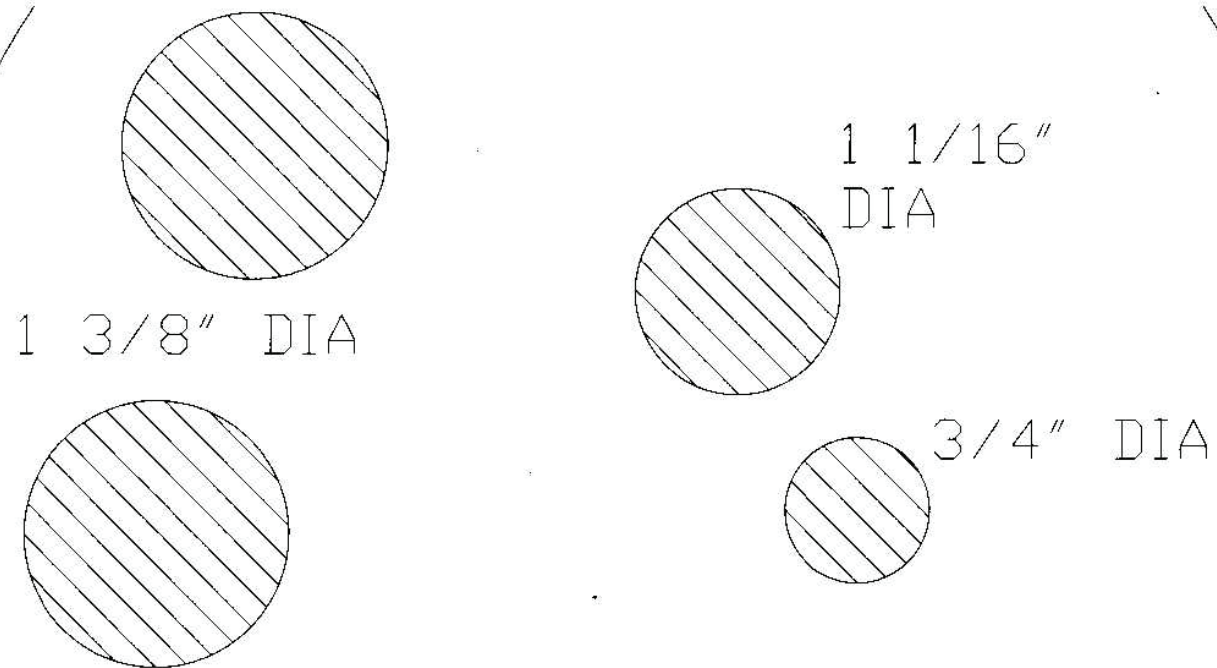
CAUTION: WATER VALVE MUST BE INSTALLED ON HEATER LINE ROUTED TO WATER PUMP.

**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**



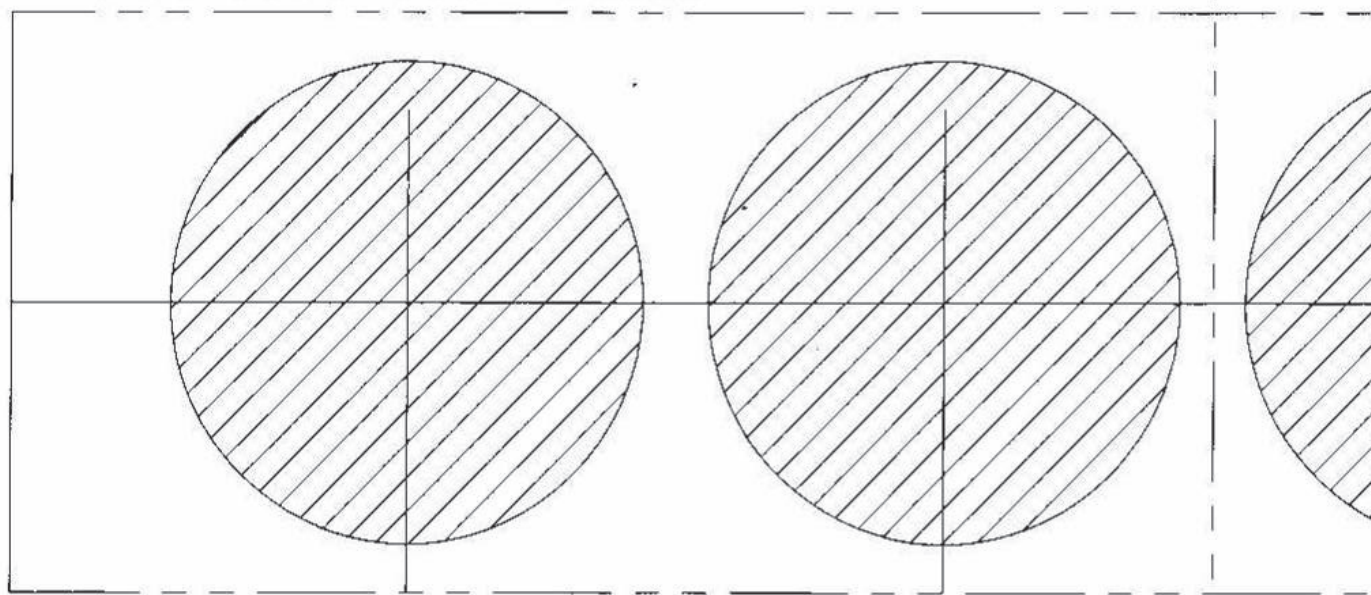
CUT ALONG LINE



TEMPLATE MOTOR COVER



CUT OUT THIS LINE



TEMPLATE CENTRE  
TRIM PANEL





CUT OUT THIS LINE

