Installation Manual

1966-67 CHEVELLE/EL CAMINO

DOCUMENT #1-1048

CLASSIC AUTO AIR

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 During the installation you might find the opportunity to repair or upgrade non-working or out of date components.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

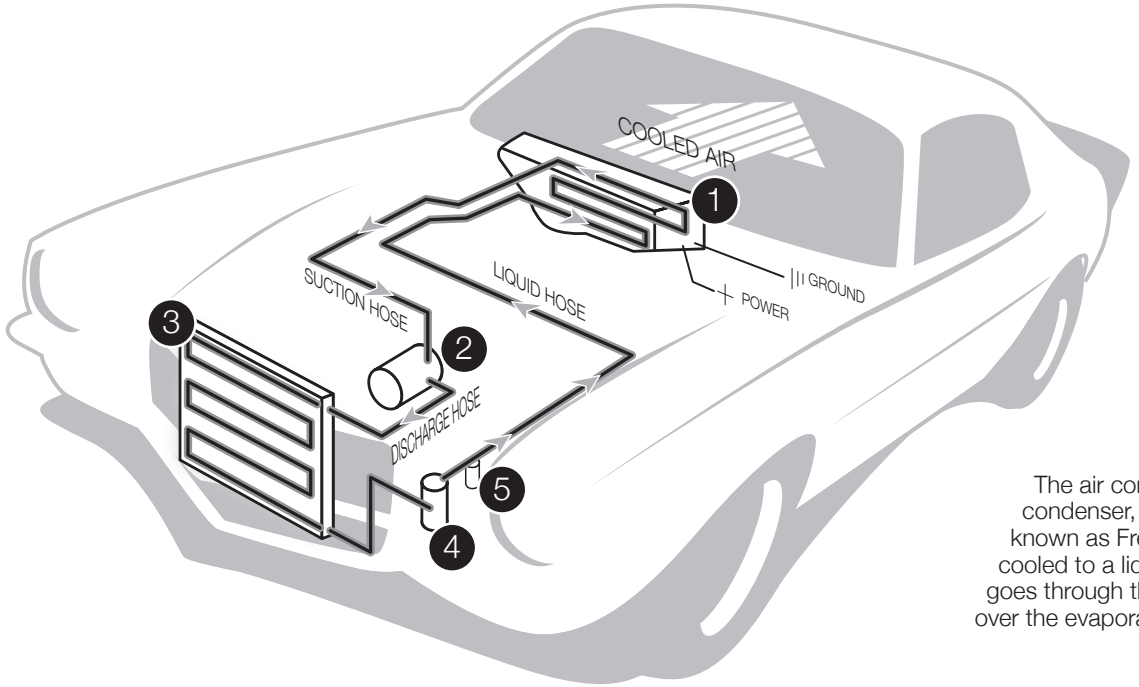
- ☐ Fittings: Use one or two drops of mineral oil (supplied with your kit) on ALL rubber o-rings, threads and where o-rings seat in fittings. Do not use thread tape or sealants.
- ☐ Measure twice (or more), cut once
- ☐ **Should you have any technical questions, or feel you have defective components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

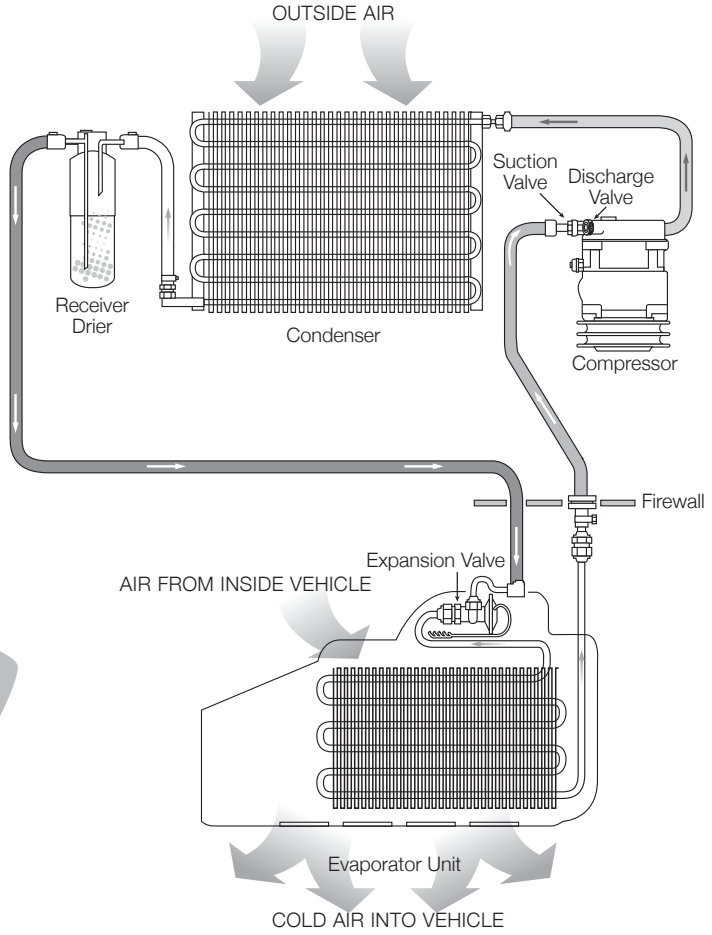
CAUTION: DISCONNECT BATTERY GROUND CABLE

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 main housing.

HEAT / DEFROST DOOR CONTROL: When the Control Knob is PUSHED to the bottom position the air is distributed to the DEFROST outlets and the drivers and passenger outlets. When the knob is PULLED to the TOP the air is distributed to the HEATER outlets. The lever can be moved any position from the top to the bottom. This will give blend between the defrost and the heat outlets.

FACE DOOR CONTROL: When the Control Knob is pushed all the way to the right the air is distributed to the FACE outlets. In this position the Compressor clutch is engaged and you have A/C.

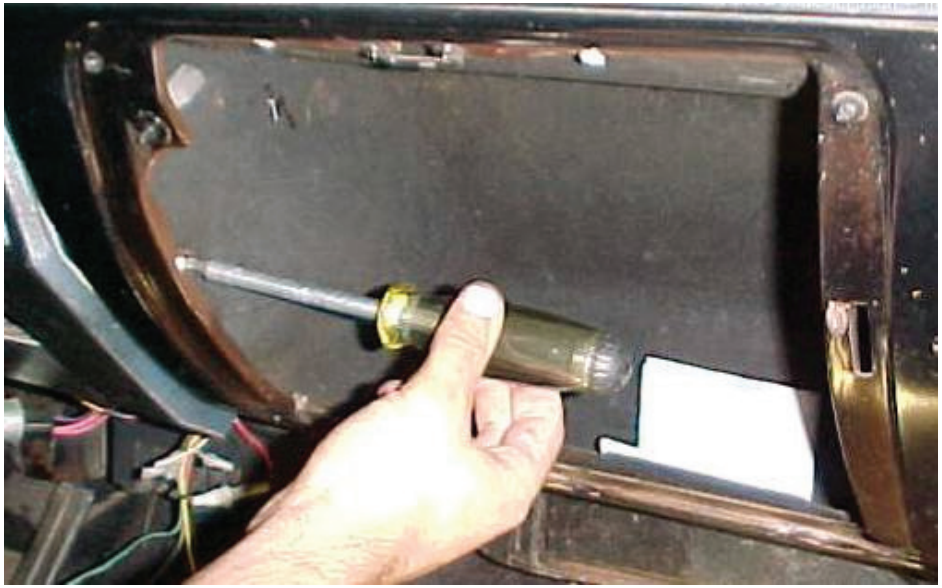
NOTE: THE FACE DOOR LEVER MUST BE IN THE RIGHT POSITION TO HAVE DEHUMIDIFIED DEFROST.

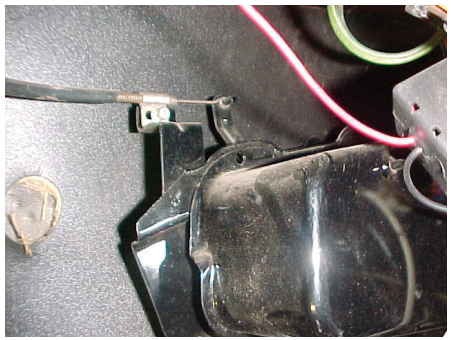
TEMPERATURE CONTROL: The Temperature Knob as shown is in the COLDEST temperature position. As the lever is PUSHED down the temperature of the discharged air will rise to the HOTTEST point.

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

Remove Glove box door, glove box, discard glove box retain original hardware. Remove Radio, set aside for reinstall. Retain original hardware.

Removal of Original Heater Assembly can be accomplished by disconnecting the three control cables. One attached to the Temperature door.



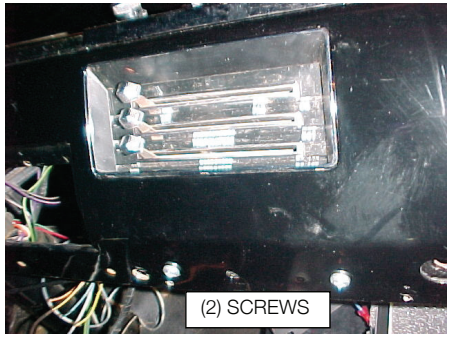


One attached to the Heat / defrost door. This can be found behind heater box next to the throttle cable.

The third cable is located on top of heater next to the defrost ducts.

Disconnect electrical harness at the resistor block.

Remove (2) screws located under the control head.



Remove control head and set aside for modification and reinstall.

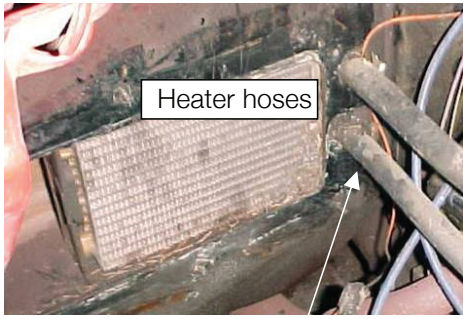
In order to remove the heater assembly, it is necessary to remove the Blower Housing Assembly first.

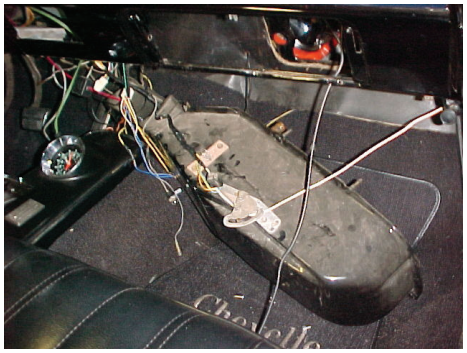
Carefully lift vehicle and place support stands under center of the vehicle as shown.

It is necessary to lower inner fender well on the passenger side. Remove the passenger front tire. Remove and retain (9) bolts from around the inner fender. Lower the inner fender well to gain access to (2) screws above and below the blower motor assembly.

Remove (7) screws around perimeter of the Blower Housing. The (2) screws around blower motor can be accessed from below and between fender well and fender.

Retain (2) screws around blower motor.





Locate the Air Inlet Block Off Plate.
Attach block off behind the Hood Hinge assembly. Use the original hardware.

Reinstall Inner Fender Well using the original hardware. Reinstall front tire and remove the jack and stands.

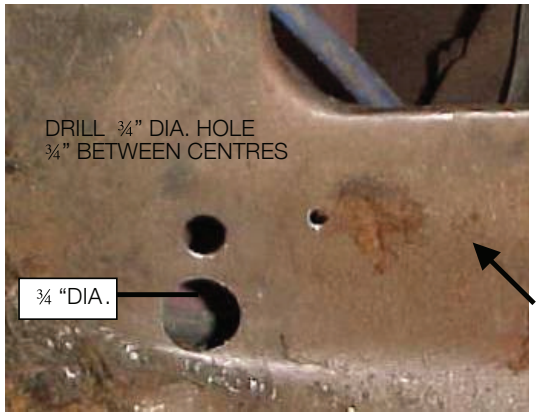
DRAIN COOLANT FROM RADIATOR.
Remove Heater hoses from heater coil at firewall.

Located behind the glove box.
Remove heater assembly and discard.

Locate Defrost Air Duct behind control opening in the instrument panel.
Remove and retain original hardware.

In the back of the instructions there is a template for the Defrost Duct. Tape in place and cut the trim line.

Locate in the hardware sack kit the ¼" x ½" open cell foam. Wrap around the opening as shown.



Locate in the hardware sack kit the Defrost duct adaptor.

Attach over duct as shown using (2) #8 x ½ pan head Phillips screws.

Reinstall defrost duct using original hardware.

Locate behind glove box and on firewall the hole that previously mounted the heater box. Drill (1) ¾" dia. hole for the drain tube as shown.

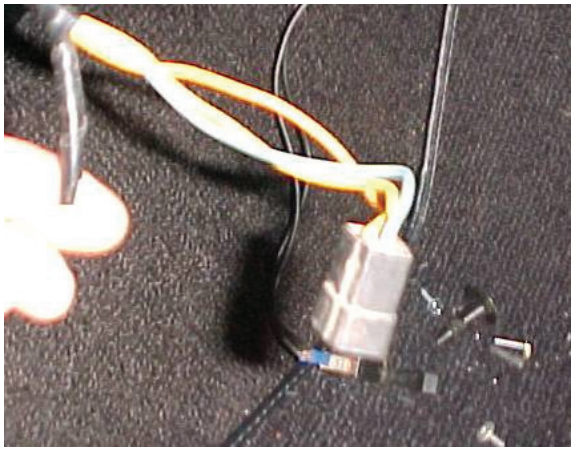
Above radio and in middle of the instrument panel. Cut out the opening for the center louver assembly.

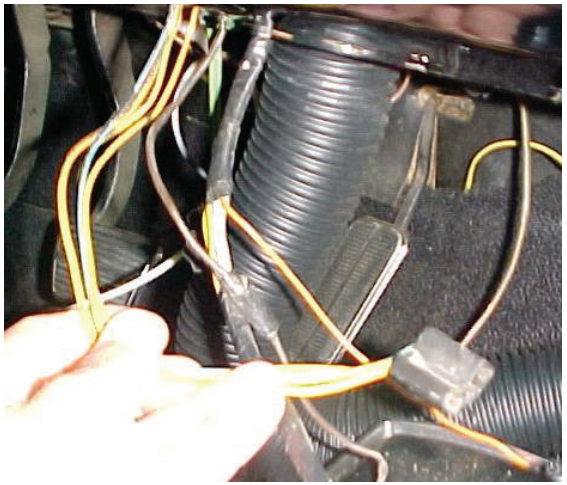
Carefully ruff cut the dash using template as guide.

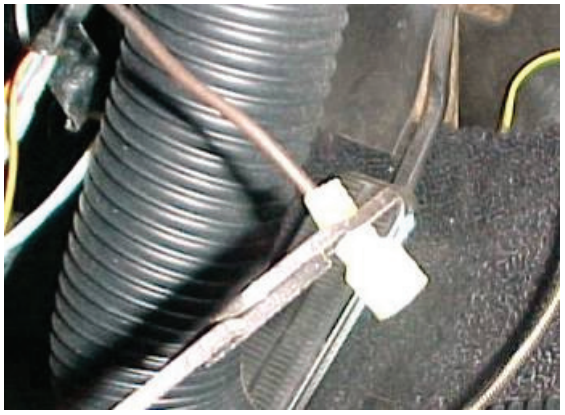
Then go back with a file and open the hole so that louver slides through and snaps in place.

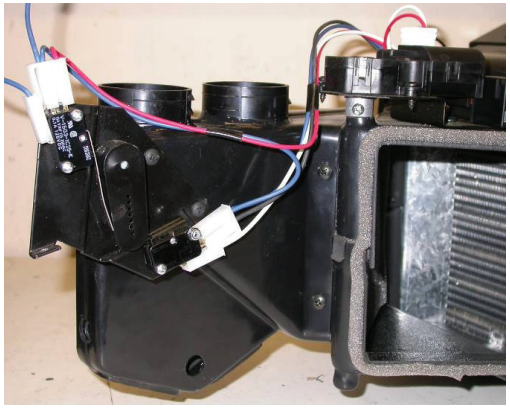
Locate remaining templates from page 25 of instructions.

Cut round holes for outboard louvers and attach the (2) ball louvers through the holes.









Locate behind control opening the original wire harness. Cut off plug to the resistor.

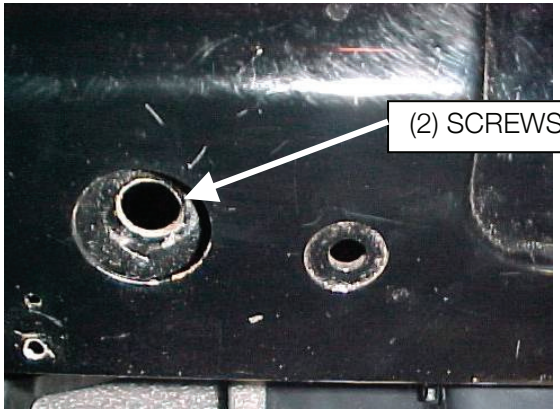
Locate wire harness that was attached to the blower switch. Cut brown wire and attach a Male Spade connector. This is power wire for the a/c unit.

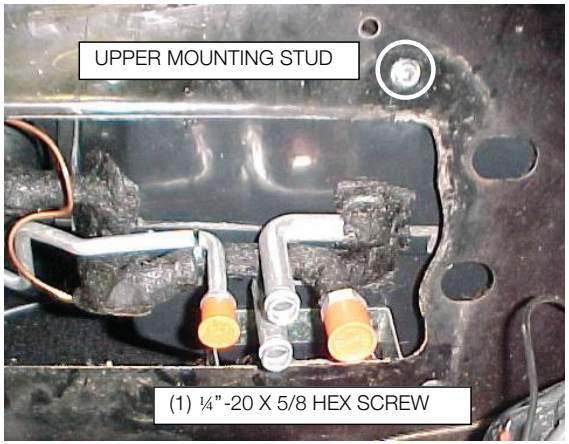
Cut remaining wires from the plug as far back as possible.

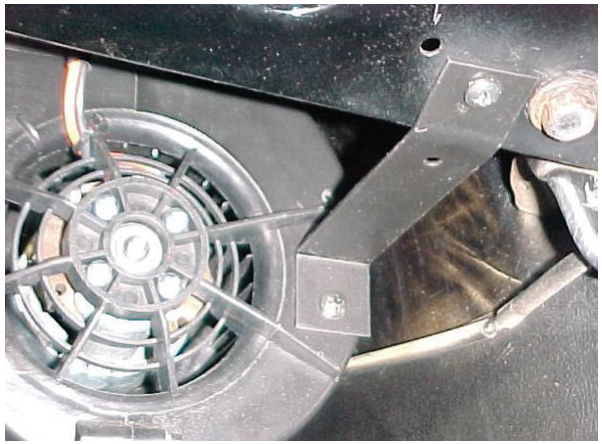
All of the modifications to the vehicle are complete we will now begin the installation of the Unit.

Locate Evaporator, Defrost Duct Assembly and (2) #10 x 5/8” pan head screws. Attach defrost duct to the evaporator using (2) #10 screws. Be sure that s-clips are pushed over outlet on the back side.

Attach wire harness from actuator using the diagram.







Locate Evaporator and defrost assembly. It is necessary to loosen the passenger side of the dash in order to slide evaporator assembly into place.

Located to the right and left of the glove box opening and below the dash are (2) screws that will be removed and retained.

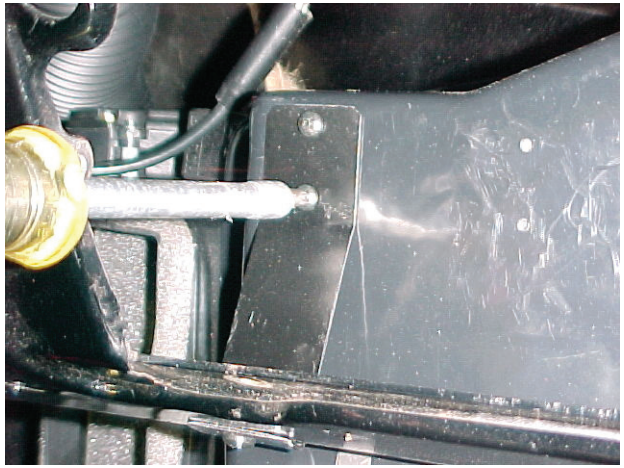
Locate philips head screw next to the passenger door. Remove and retain.

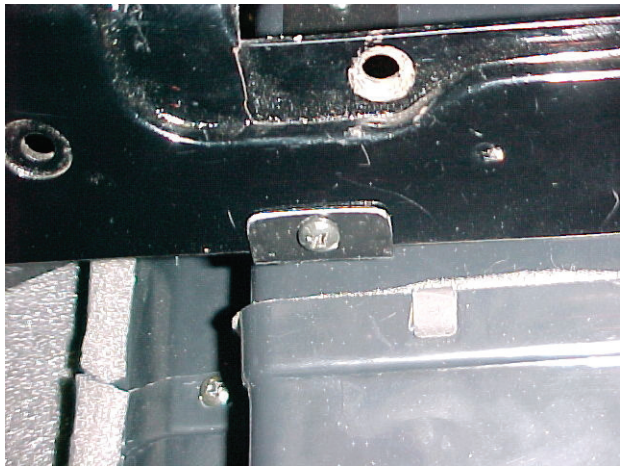
NEXT STEP SHOWN FROM ENGINE SIDE

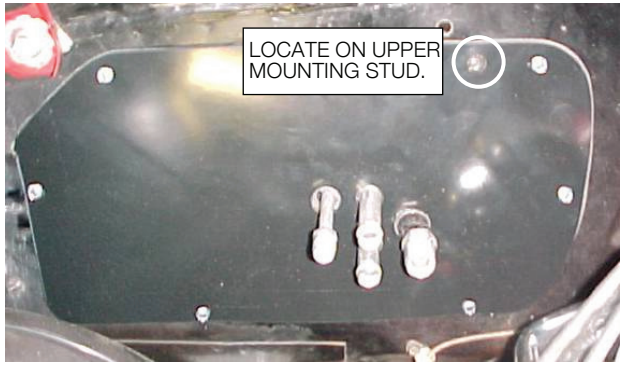
Place evaporator on floor of the vehicle. Lift unit up and behind the glove box opening. It is necessary to carefully pull the bottom of the dash to clear the evaporator.

Insert upper rear Evaporator mounting stud through the original hole as shown. Attach using (1) ¼" – 20 flange nut provided.

Locate in the hardware sack kit (1) ¼" –20 x 5/8" hex head screws. Attach to lower mounting bracket through the existing holes.







Locate in hardware sack kit the blower support brace and (2) #10 x 5/8” pan head screw. Also locate a 1/8” dia drill bit.

Attach to blower motor using (1) #10 x 5/8” pan head screws. Then drill a 1/8” dia hole through brace and into the instrument panel. Attach second #10 x 5/8” pan head screw into the bottom of instrument panel.

Locate in hardware sack kit the left support brace, (1) #10 x 5/8” pan head screw and (2) #8 x 3/8” pan head screws. Also locate a 1/8” dia drill bit.

Using a non powered screw driver attach the brace through the holes provided on the evaporator. Carefully tighten.

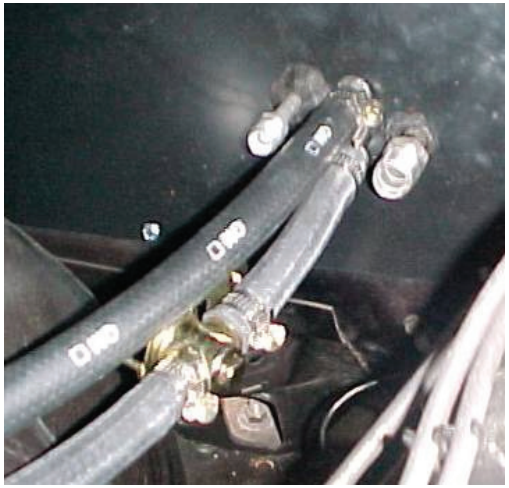
Drill a 1/8” dia. hole through brace and into the lower instrument panel.

Attach brace to the panel using (1) #10 x 5/8” pan head screw.

Reinstall the dash brace, and support screws.

Locate the Firewall Block Off plate, and (7) #10 x ¾” hex head tek screws.

On engine side of the firewall attach over hookup tubes from the evaporator using (7) #10 x ¾” hex washer head Tek screws.



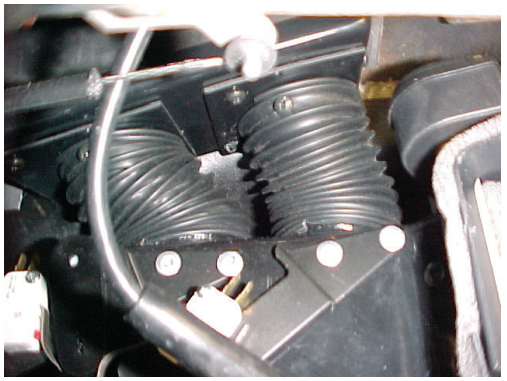
Locate refrigeration tape provided and seal around the hookup tubes.

Locate the Water Valve and (3) worm gear clamps.

Supply line from engine is attached to the upper heater hookup tube. Cut 6” off end of the RETURN LINE and install the water valve using (3) worn gear clamps as shown above.

Note: It is recommended that you replace heater hoses from the engine to the hookup tubes.

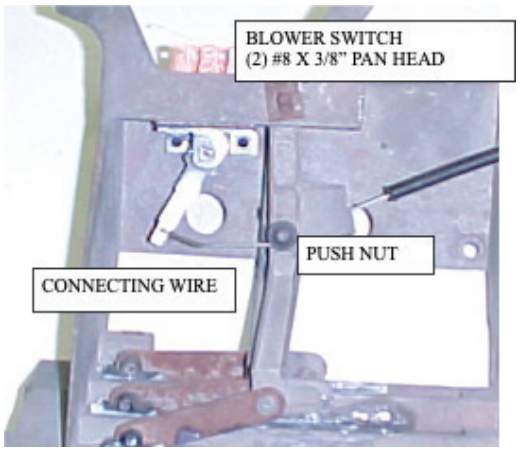
NOTE: THE NEXT FEW STEPS ARE LOCATED BEHIND THE INSTRUMENT PANEL.



Locate the 2” Dia. flex hose (1) piece 12” and
Cut to (2) 5” pieces. Attach to hose adaptors on top of the defrost /heat duct assembly and onto hose adaptors on the defrost duct.

Locate the original control assembly. Remove and discard the following components. Retain all original hardware.

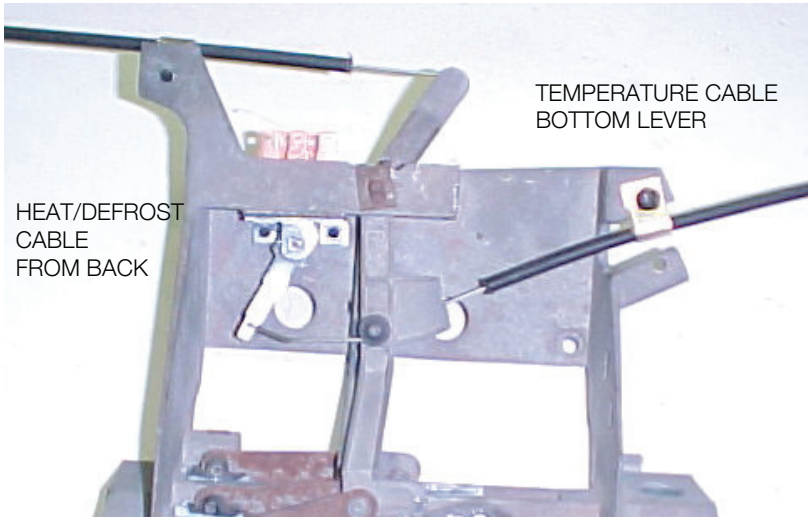
(1) Original Blower Switch
(2) Heat Cable
(3) Temp Cable
(4) Air Shutoff Cable

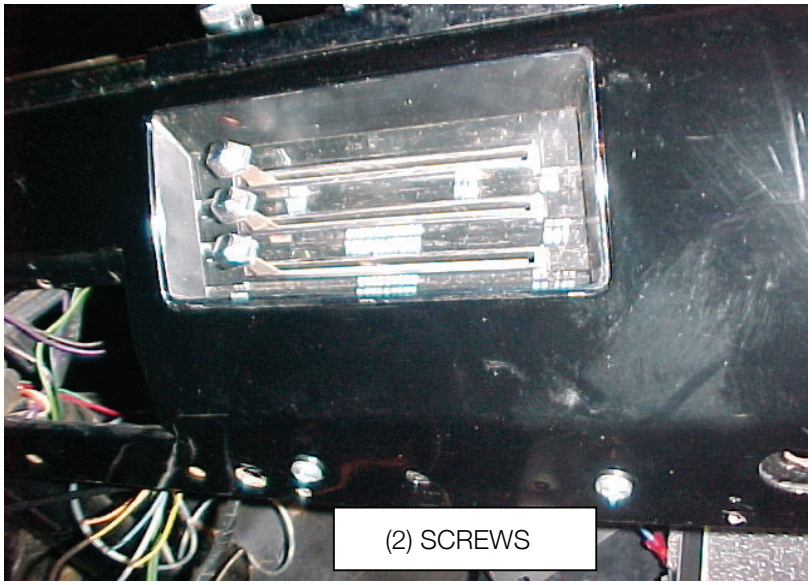


Locate the control head.

Locate in control sack kit the blower switch, switch connecting wire, (1) 3/16” push nut and (2) #8 x 3/8” pan head Philips screws.

Slide the blower switch into position. Attach using (2) #8 x 3/8” pan head screws from underneath the control head.





Hook wire through blower switch hole in the lever and then over to Control Lever. Use push nut to hold the connecting wire.

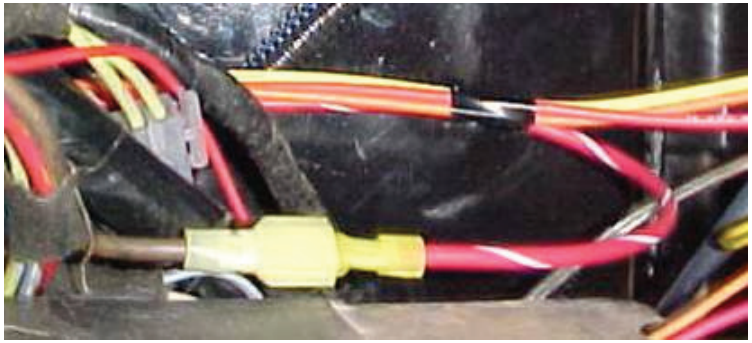
Locate in control sack kit the (SHORT) Heat / Defrost control cable, (LONG) Temperature control cable, (2) 3/16” push nuts and (2) Cable Clips.

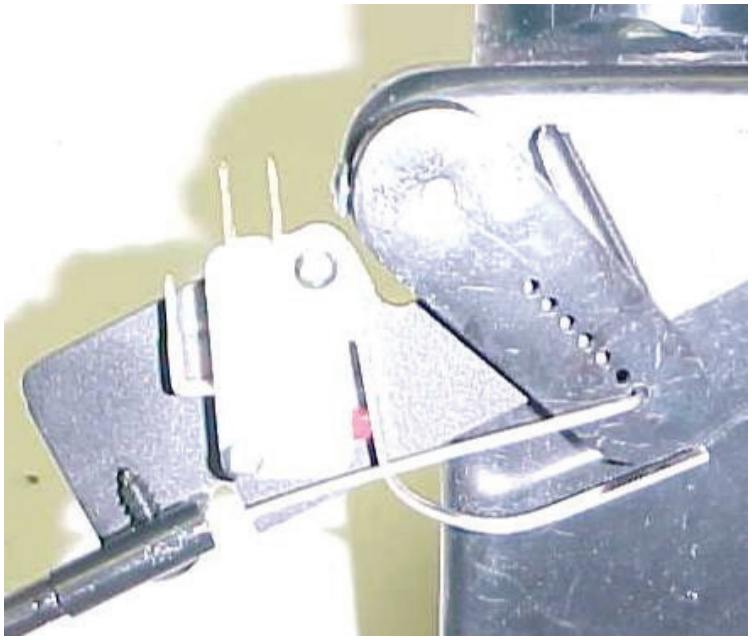
Attach temperature control cable and clip to right side using the original screw and 3/16” push nut. NOTE: cable sleeve is 1/8” from the lever pin.

Attach the Heat / Defrost cable to the left side. Using (1) cable clip, (1) push nut, and the original screw. NOTE: The cable sleeve IS 1/8” from lever pin.

Attach Wire Harness supplied in unit to the blower switch. Reference the wiring diagram.

Reinstall control head using original hardware.





Route electrical assembly to Defrost Duct assembly and hookup the micro switch. Route main harness to the resistor and blower motor. Route blue clutch wire over evaporator and out through hole in firewall above the unit. Secure ground from the electronic actuator and
blower motor using (2) #10 x ¾ “hex head Tek screw.

REFER TO THE WIRING DRAWING ON PAGE 20 FOR PROPER CONNECTIONS

Connect power wire (brown / from the original harness) to Red / White stripe from the new harness supplied.

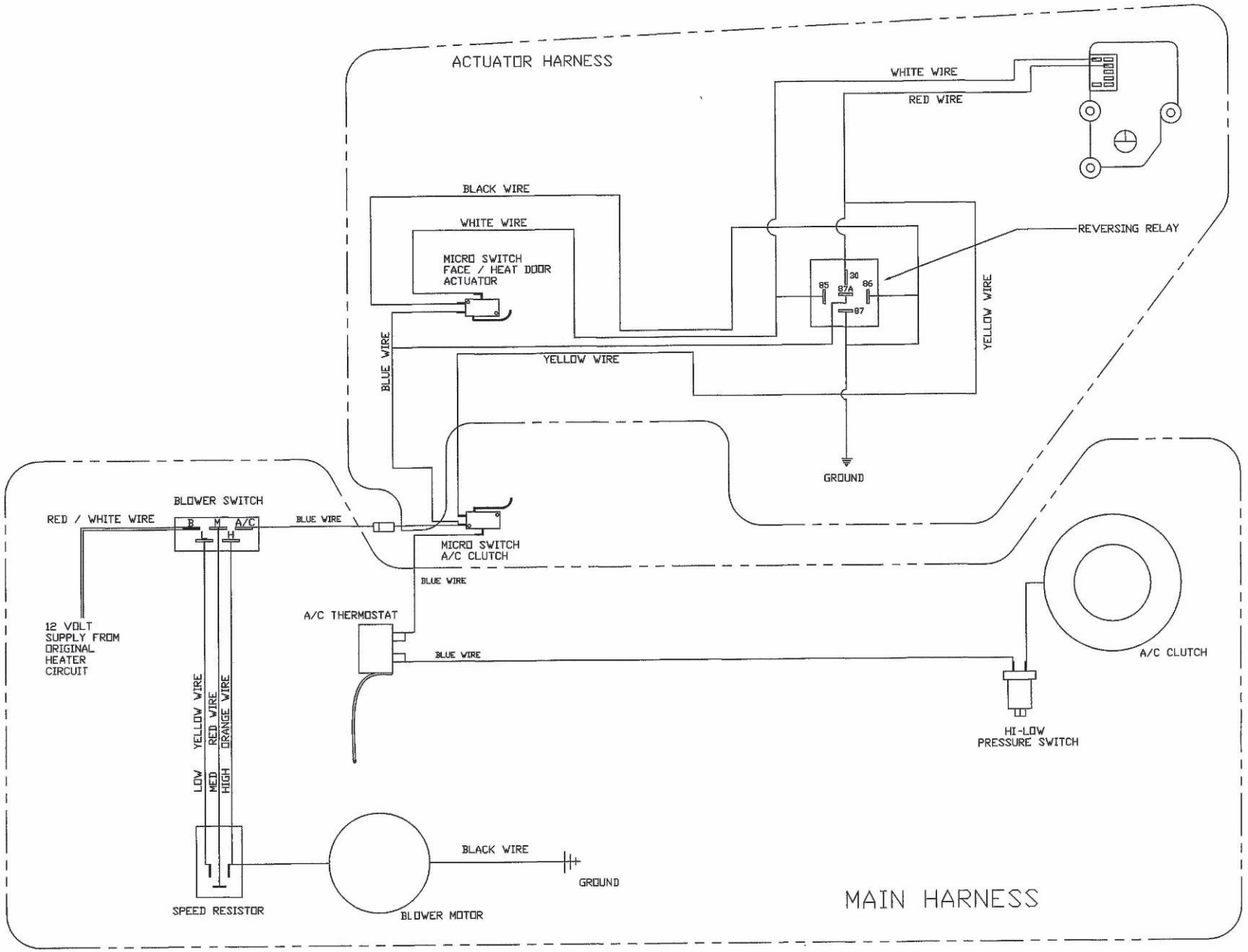
Insert light socket back into the control head.

Route temperature cable in front and over top of the evaporator assembly and out through
hole above the unit. Attach this cable to the water valve.

Set control lever in the Cold position and be sure that the water valve is closed.
Locate insulation tape and seal around cable at firewall.

Route defrost cable and attach to the defrost / heat duct. Insert cable into first hole at the bottom.

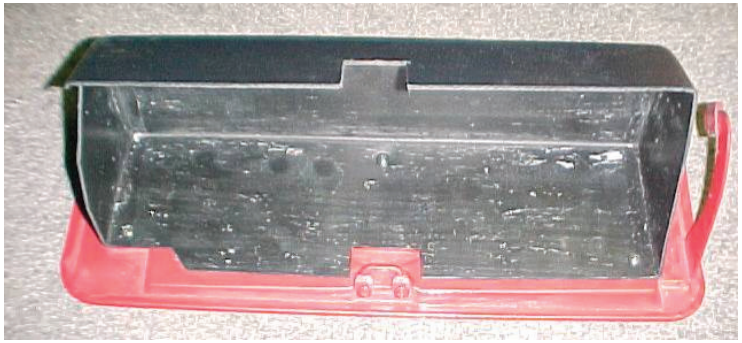
Attach using (1) #8 x 1/2” pan head Phillips screw.


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
A/C
H
BLUE WIRE
MICRO SWITCH
A/C CLUTCH
BLUE WIRE
A/C THERMOSTAT
12 VOLT
SUPPLY FROM
ORIGINAL
HEATER
CIRCUIT
BLUE WIRE
A/C CLUTCH
HI-LOW
PRESSURE SWITCH
LOW
YELLOW WIRE
MED
RED WIRE
HIGH
ORANGE WIRE
BLACK WIRE
GROUND
SPEED RESISTOR
BLOWER MOTOR
MAIN HARNESS

Locate the face duct assembly. Attach to the evaporator outlet using s-clips at top and bottom of the duct.

Locate 2“Dia. flex hose (1) piece 36 long and cut to 32” length. Attach to face duct right outlet. Route above and behind glove box opening, down to passenger ball louver.

Locate 2“Dia. flex hose (1) piece 36” long. Attach to face duct left outlet. Route above and behind instrument cluster and down to the drivers ball louver.

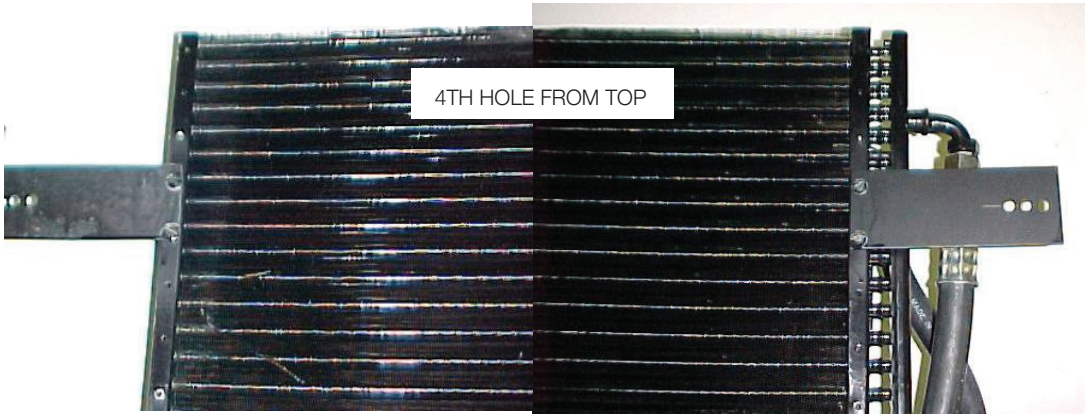


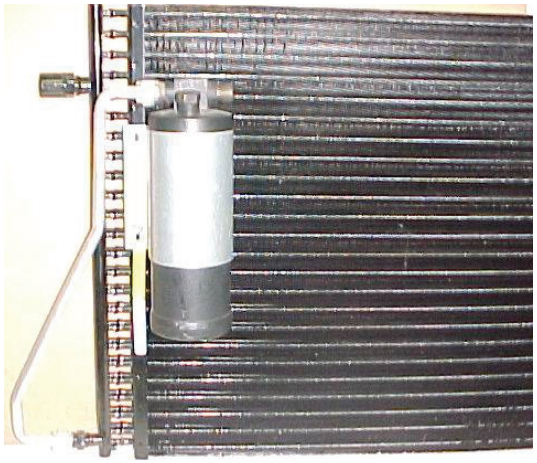
Locate 2“Dia. flex hose) piece 24” long and cut to 16” length. Attach to face duct top outlet. Route straight up and attach to center louver.

Locate in hardware sack kit the Under Dash Louver with 2” oval hose adaptor. Attach it under center of Instrument Panel under controls as shown. Attach using (2)
#10 x 5/8” pan head screws. Also cut 5” of 2” dia. flex hose. Attach flex hose to louver and back to front outlet on the face duct.

Locate Original glove box door and the new Glove Box supplied in kit. Attach to the back side of the door using (3)
#8 x 3/8” pan head screws.

Reinstall the glove box assembly using original hardware.





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

Installation of the interior components is complete. We will now install the under hood portion of the unit.

Drain and remove the radiator and fan shroud.

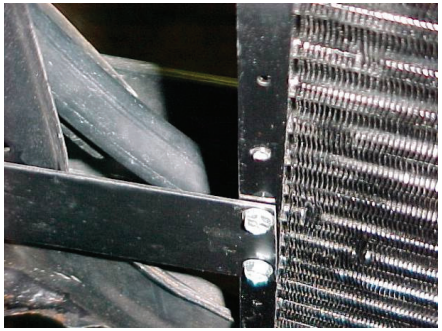
Locate the Condenser, (2) condenser mounting brackets, and (4) #10 x 3/8” hex head screws. Attach brackets to condenser as shown.

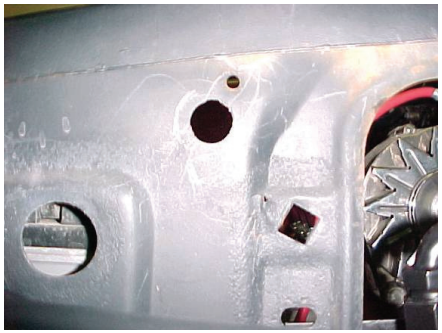
Locate the Receiver / Drier, Drier Mounting Bracket, Aluminum Liquid tube, (2) #6 o-rings, and (2) #10 x 3/8” hex head screws.

Install Receiver drier to condenser as to allow the Liquid Tube to attach as shown.

Install a few drops of mineral oil to the o-ring fittings, and secure.

Remove the battery and set aside. Carefully place Condenser Assembly through the Radiator Mounting Bulkhead as shown.





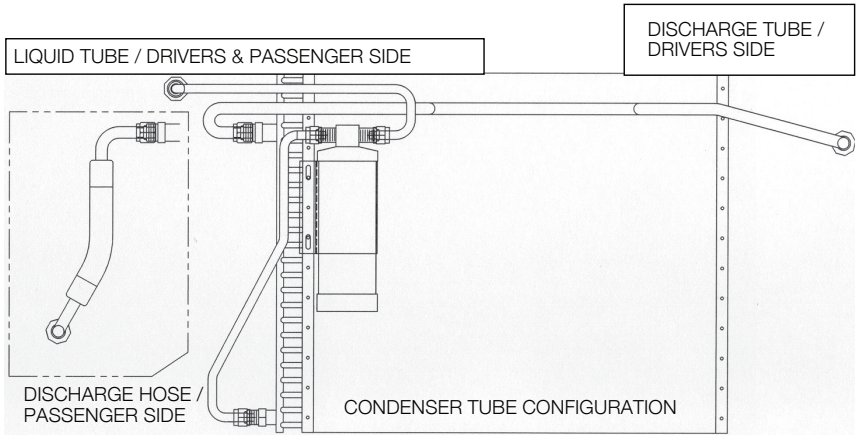
Locate last (2) condenser mounting brackets and (4) #10 x 3/8” hex head screws.

Attach both brackets to condenser on the engine side of bulkhead. Using (2) #10 x 3/8” hex head screws in third hole from the bottom.

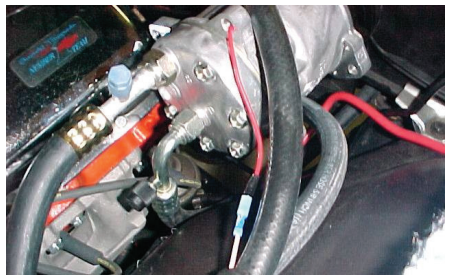
Locate on the bulkhead above the grill, drill (1) 5/8” dia. hole in passenger side bulkhead approximately as shown.

NOTE: VEHICLES EQUIPT WITH DRIVERS SIDE COMPRESSOR MOUNT.

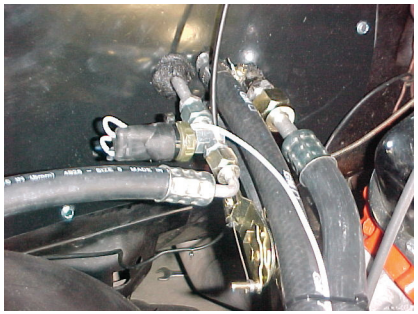
Locate on the bulkhead above the grill, drill (1) 5/8” dia. hole in drivers side bulkhead approximately as shown.



HOSE ROUTING DRIVERS SIDE



HOSE ROUTING PASSENGER SIDE



NOTE: VEHICLES EQUIPT WITH PASSENGERS SIDE COMPRESSOR MOUNT.

Locate on bulkhead below battery tray, drill (1) 5/8” dia. hole in the engine side of the bulkhead approximately as shown.

INSTALL THE COMPRESSOR ADAPTOR KIT AND COMPRESSOR AT THIS TIME PER THE MANUFACTURERS DIRECTIONS.

NOTE: VEHICLES EQUIPT WITH PASSENGER OR DRIVERS SIDE COMPRESSOR MOUNT.

Locate the fitting on the bulkhead. Locate the #8 Refrigerant Hose attach to bulkhead fitting using (1) #8 o-ring and a few drops of mineral oil.

Route other end to compressor and attach using (1) #8 o-ring and a few drops of mineral oil.

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

Install HI / LOW Pressure switch into fitting from the evaporator. Tighten securely.

Route (1) of the white wires along with the #8 refrigerant hose. Attach to the compressor clutch. The other white wire attaches to Blue Clutch wire from the thermostat.

Locate the #6 liquid hose. Attach to bulkhead fitting above the battery area. Route behind fender and up to the pressure switch assembly. Attach using (2) #6 o-ring and a few drops of mineral oil. Reinstall the battery, radiator and fan shroud using original hardware.

**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.

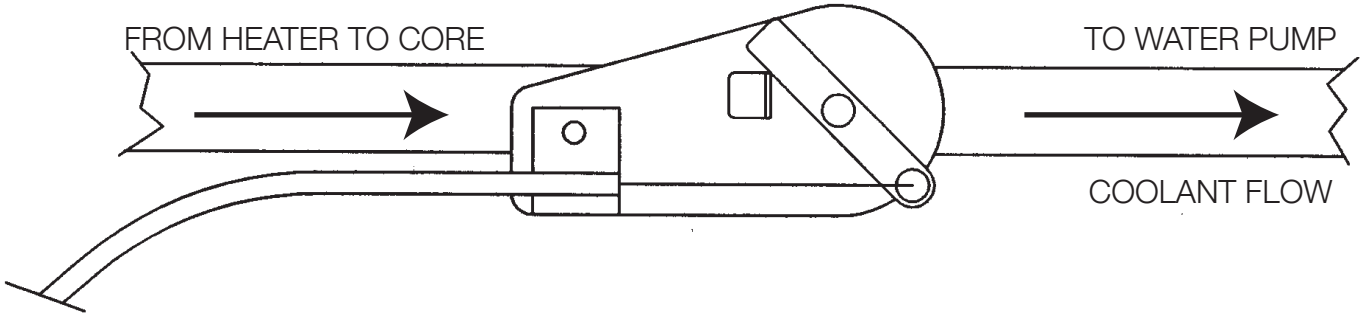
IMPORTANT!

CAUTION: WATER VALVE MUST BE INSTALLED PER THE INSTRUCTIONS.

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.

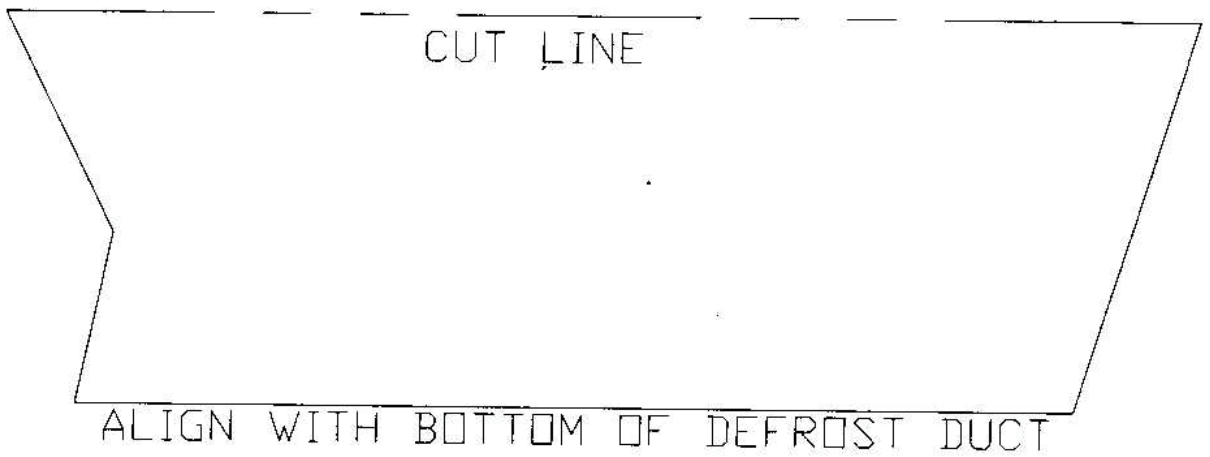
Locate the bottom connection from the evaporator/heater unit off of the firewall and attach a 6” piece of 5/8” dia. heater hose with the supplied hose clamp. Next attach the inlet side of the water valve using another supplied hose clamp, (make sure the arrow on the water valve points toward the engine) Attach a heater hose from the outlet side of the water valve and route to the connection on the water pump.

NOTE: WATER VALVE = WATER PUMP

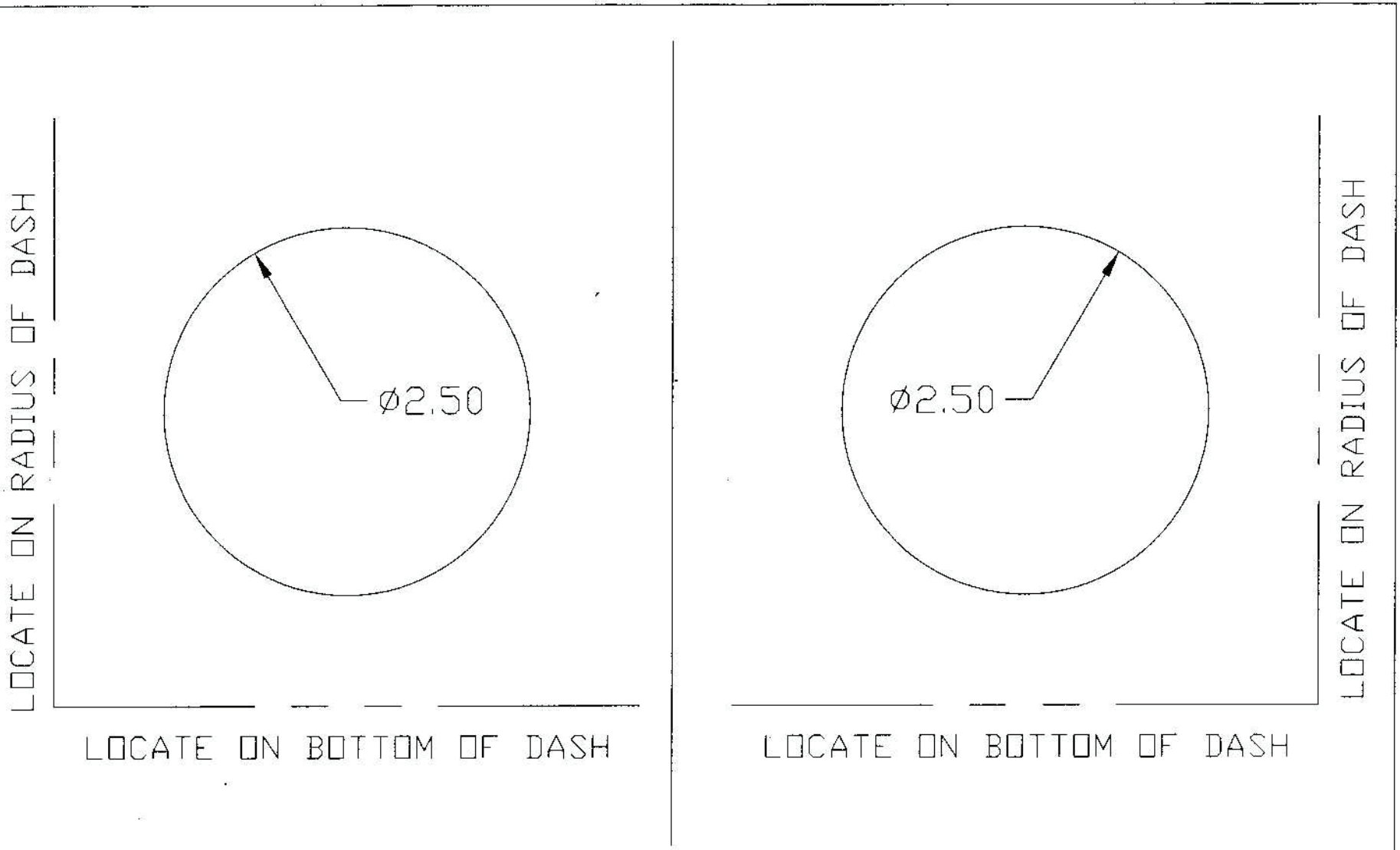


CAUTION: WATER VALVE MUST BE INSTALLED ON HEATER LINE ROUTED TO WATER PUMP.

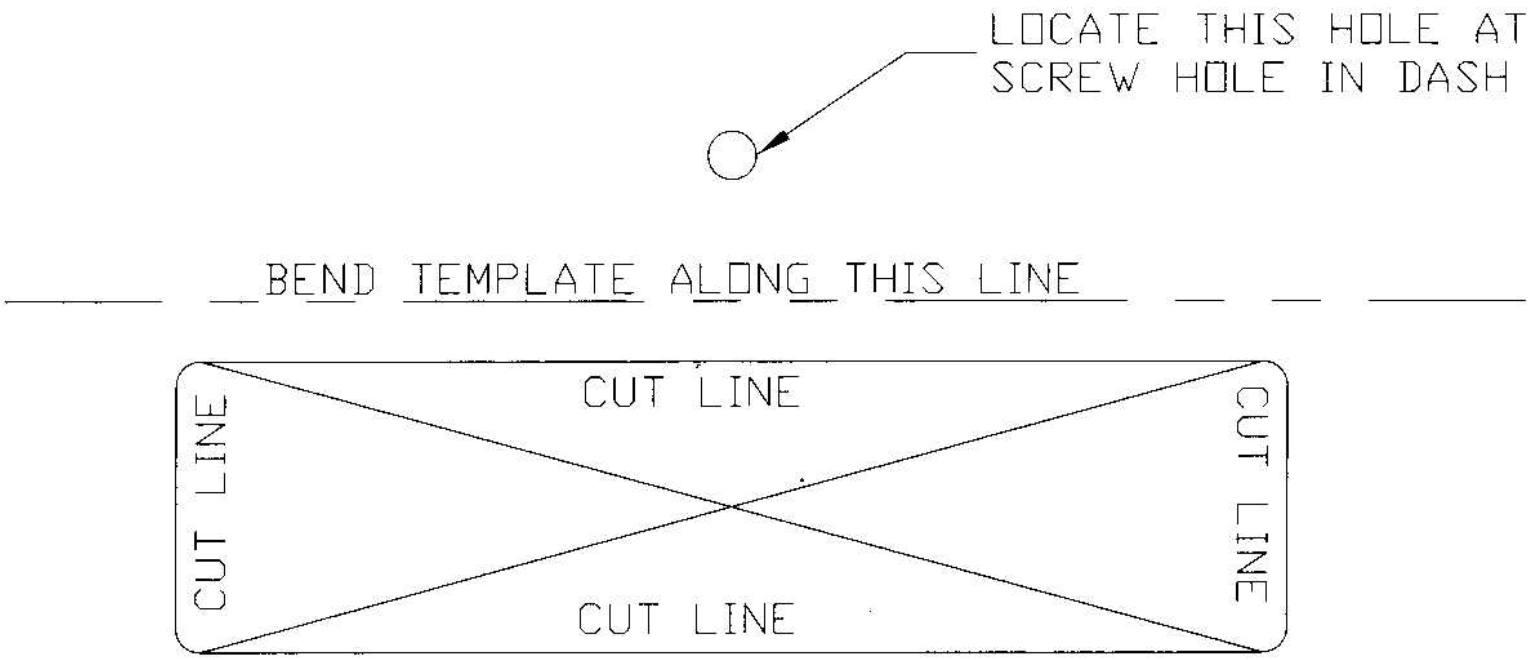
NOTE: COMPRESSOR PURCHASED WITH KIT IS SUPPLIED WITH THE CORRECT OIL CHARGE. DO NOT ADD OIL TO SYSTEM.
134A SYSTEMS 24 oz OF REFRIGERANT
Recommend that power fuse is 25amp minimum



DEFROST MODIFICATION TEMPLATE
1966-67 CHEVELLE



DRIVERS & PASSENGER LOUVER TEMPLATE
1966 - 67 CHEVELLE



CENTRE LOUVER TEMPLATE
1966 - 67 CHEVELLE