Installation Manual

1957 CHEVROLET 150 SEDAN
1957 CHEVROLET 210 SEDAN
1957 CHEVROLET BEL AIR
1957 CHEVROLET NOMAD
1957 CHEVROLET TRI-5

DOCUMENT #1-1037

Congratulations...

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

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 During the installation you might find the opportunity to repair or upgrade non-working or out of date components.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

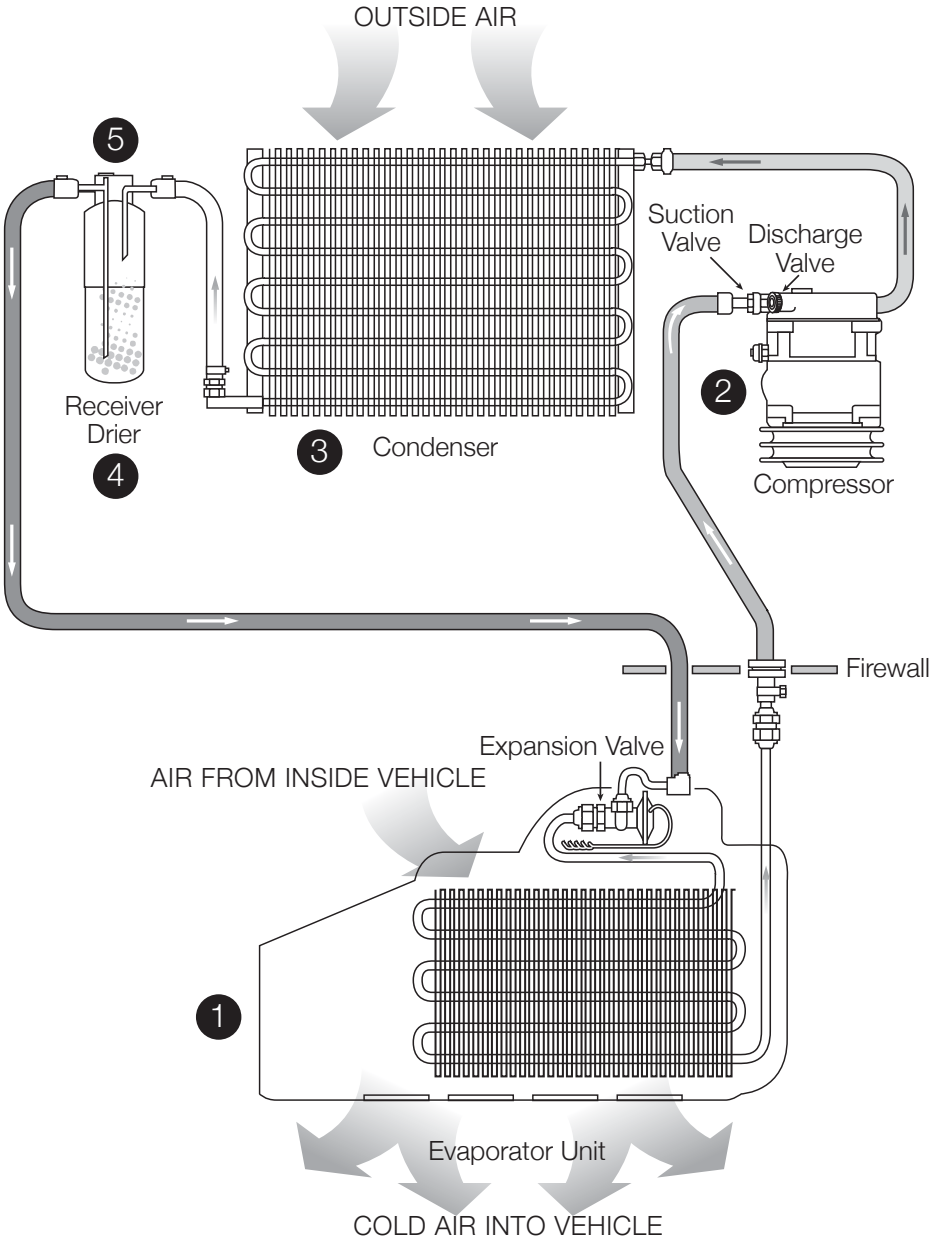
- ☐ Fittings: Use one or two drops of mineral oil (supplied with your kit) on ALL rubber o-rings, threads and where o-rings seat in fittings. Do not use thread tape or sealants.
- ☐ Measure twice (or more), cut once
- ☐ **Should you have any technical questions, or feel you have defective components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

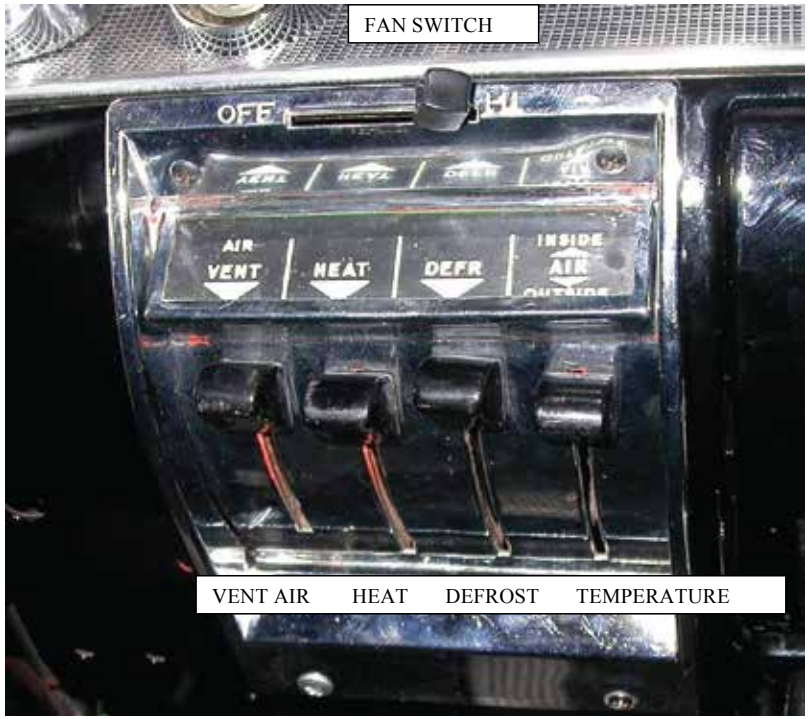


The air conditioning system in your vehicle is comprised of a compressor, condenser, expansion valve, receiver/drier, and evaporator. Refrigerant (also known as Freon) is compressed in the compressor. In the condenser, gas is cooled to a liquid state and travels to the expansion valve. As the liquid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

“PERFECT FIT SERIES”
IN-DASH
HEAT/ COOL/ DEFROST
1957 CHEVROLET SEDAN
WITH DELUXE CONTROLS

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.
This system also provides DEHUMIDIFICATION in the defrost mode and the ability to blend the air between Face, Heat, and Defrost 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.

“PERFECT FIT”
IN-DASH
HEAT/ COOL/ DEFROST
1957 CHEVROLET SEDAN

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.
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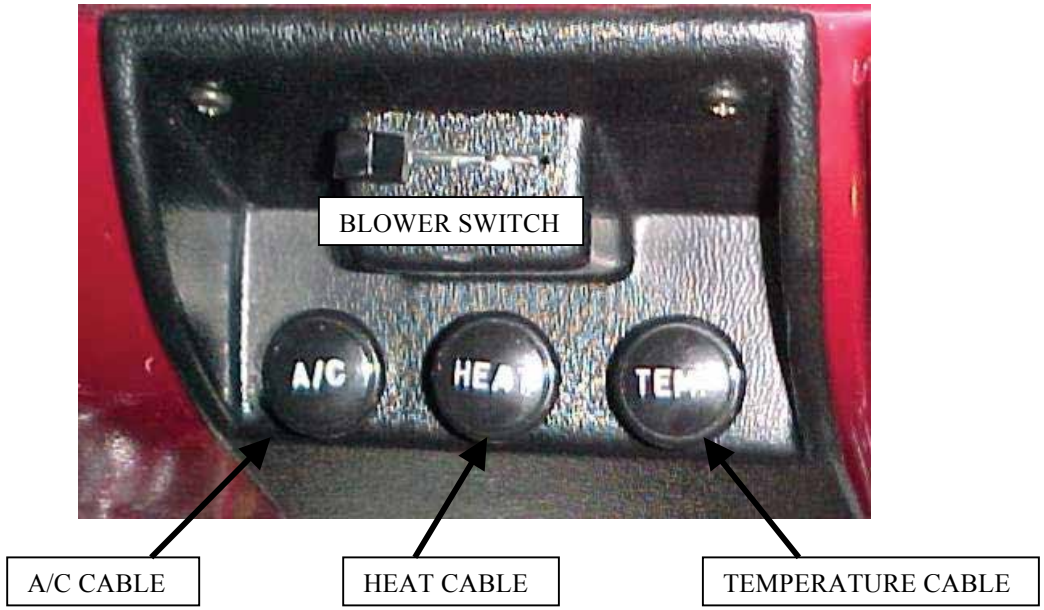

THE PICTURE YOU SEE ABOVE SHOWS THE CONTROLS IN THE DEFROST MODE. THIS MEANS THAT THE AIR WILL BE DISTRIBUTED THROUGH THE DEFROST OUTLETS. THIS ALSO HAS THE TEMPERATURE LEVER IN THE COLD POSITION. WITH THE CONTROLS IN THIS POSITION YOU WILL GET THE AIR THROUGH THE DEFROST OUTLETS WITH THE COMPRESSOR ON

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.

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HEAT / DEFROST DOOR CONTROL: When the Control Knob is pushed in the air is distributed to the defrost and the drivers and passenger outlets. When the knob is pulled out the air will go to the floor. The knob can be moved any position from the in position to all of the way out. This will give blend between the defrost and the heat outlets.

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

NOTE: THE HEAT / DEFROST DOOR CONTROL AND THE FACE DOOR CONTROL MUST BE PULLED OUT IN ORDER TO HAVE A/C.

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

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

Locate the glove box.

Remove the glove box door and glove box. Discard glove box and retain all of the original hardware.

CAUTION: DISCONNECT BATTERY CABLES

Locate battery next to the radiator, remove and retain original hardware.

DRAIN RADIATOR

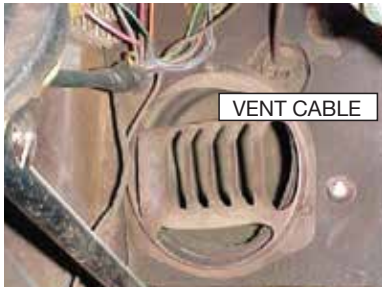
The next few steps are for the deluxe heater.

Remove the heater hoses from the heater core and water valve.
Discard the original hose clamps.

Remove and discard original water valve. Retain original hardware.

Locate in hardware sack kit the water valve cover plate. Attach using original hardware.

Remove (3) screws as shown. Discard hardware.



Located on both sides of blower you will find the heater box retaining brackets.

Remove and retain these brackets . The blower assembly can now be removed and discarded.

NOTE: Retain heater box retainer brackets.

Locate behind the glove box opening the Heat / Defrost cable. Disconnect the cable and discard hardware.

Located on top of the heater box is the electrical resistor connection. Disconnect wiring.

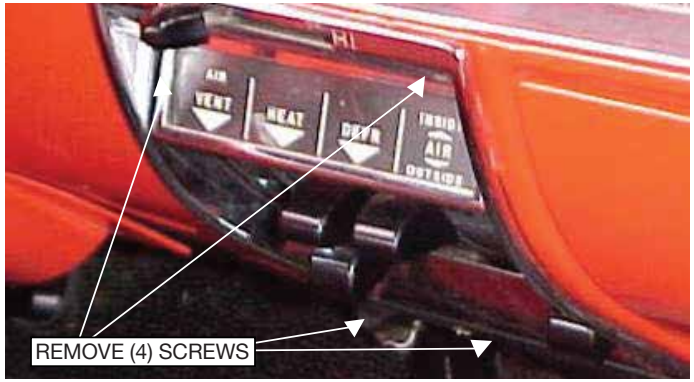
Located under the heater box and around edge to the top (4) screws. Remove and discard hardware.

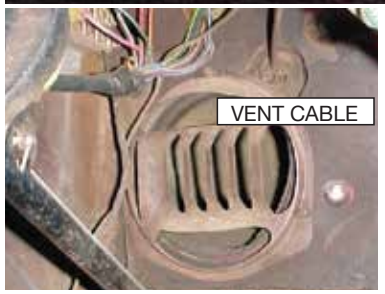
Remove the Heater Box Assembly and discard.

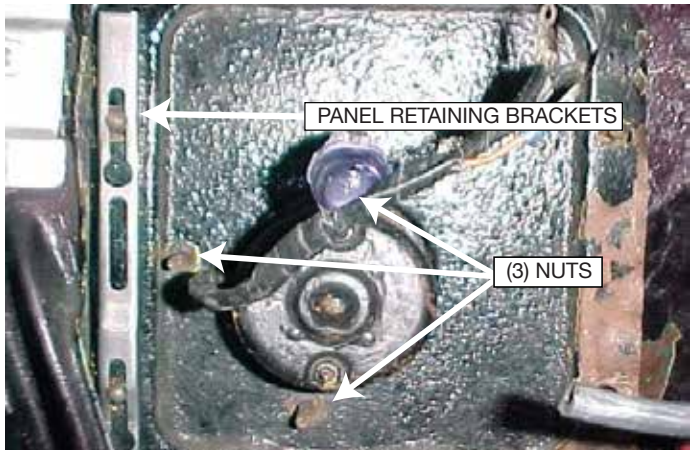
NOTE: FOLLOWING STEPS ARE TYPICAL DRIVERS AND PASSENGERS SIDE OF VEHICLE. VEHICLES EQUIPT WITH DELUXE CONTROLS DO NOT REMOVE DRIVERS CABLE.

Located in the engine compartment and under fender behind hood hinge spring is the Fresh Air cable.

Disconnect cable and retain hardware.







Locate the control head. Remove the control. Retain control and original hardware. **NOTE: When removing the control head identify the power wire to the switch. Label this wire. The electrical in the new unit will attach to this wire.**

Locate in the Control Sack Kit (2) Vent Cable Assemblies, and (4) #10 x ¾" tek screws.

Insert new cable through the hole that original control cables routed through above the air inlet.

The cable will attach under the hood to the fresh air door using original hardware.

The other end of cable attaches to under side of the instrument panel. Use (2) of the #10 tek screws. **Note: Attach drivers side now. The passenger side will set on floor and be attached after new system is installed.**

NOTE: STANDARD HEATER ONLY

Unscrew original passenger side vent cable from under the dash. Let cable set on floor of the car. Retain original hardware.

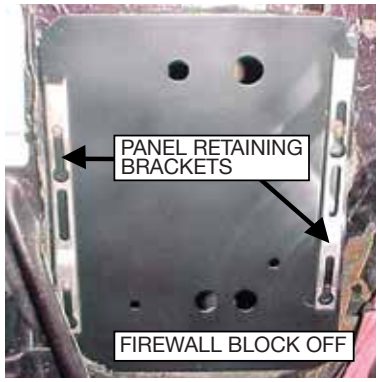
Locate behind glove box opening the Heat / Defrost cable. Disconnect the cable and discard hardware.

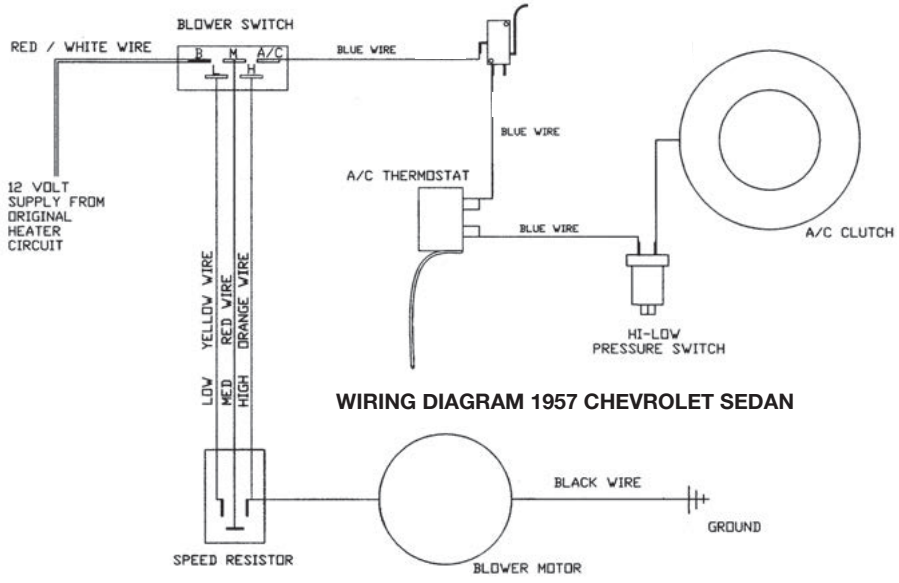
Located on top of the heater box is the electrical resistor connection. Disconnect wiring.

Locate under the hood and on firewall the heater blower motor assembly.

Remove (3) nuts around motor discard original hardware. Cut electrical wires.

Remove and discard heater assembly.





WIRING DIAGRAM 1957 CHEVROLET SEDAN

Remove the Panel Retaining Brackets and retain. Remove and discard Panel.

Remove and discard the original Control Assembly.

Remove and retain original hardware.

NOTE: When removing the control head identify power wire to the switch. Label this wire. The electrical in the new unit will attach to this wire.

ALL MODIFICATIONS TO THE VEHICLE ARE COMPLETE YOU CAN NOW BEGIN INSTALLING YOUR CLASSIC AIR "PERFECT FIT SERIES".

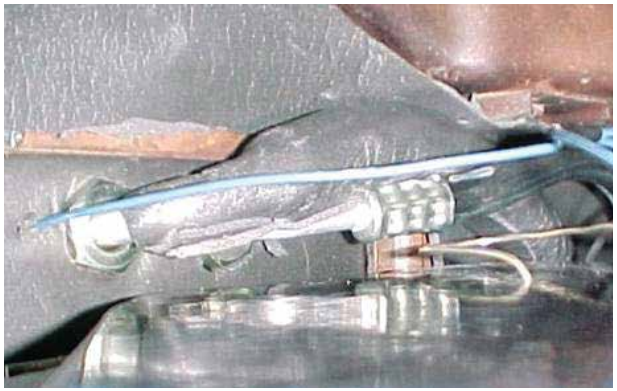
Locate the Firewall Block off Plate.

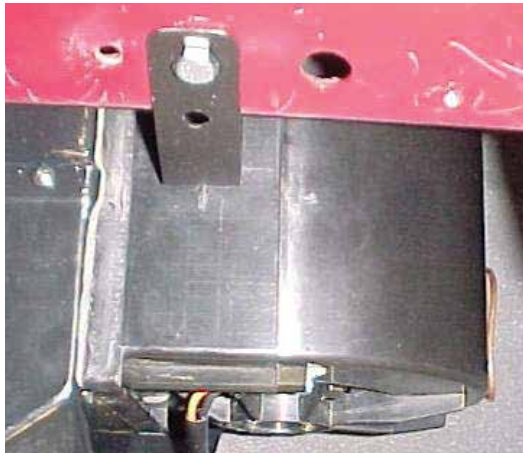
Attach over the hole in firewall using original Panel Retaining Brackets.

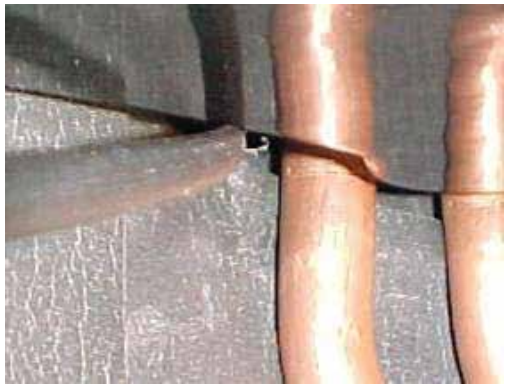
Locate the Evaporator and set on a bench.

Locate the Wire Harness supplied in kit and install onto the unit as shown in diagram below.

Place evaporator on floor of the car. Locate blue wire from the thermostat and route through hole to left of the large hole in the block off plate.







Raise Evaporator into position. Insert Heater Tube hookups through holes, and also studs on the mounting brackets through the firewall Block off Plate and attach using (4) ¼-20 Flange Nuts.

Locate above the Evaporator (2) bulk head fittings. Remove the nuts and o-rings. Insert these through (2) holes and attach with nuts and o-rings from engine side of block off plate.
Located on front of the blower motor is the Support Bracket.

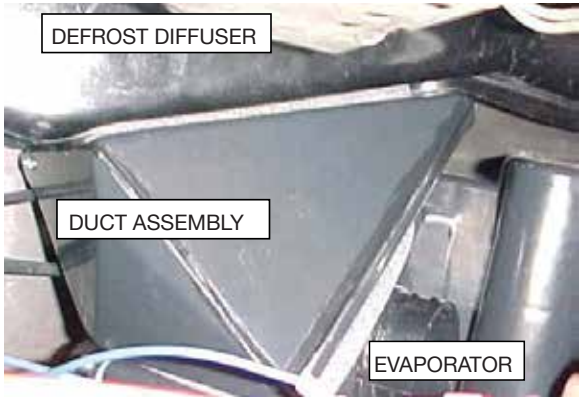
Attach bracket through the exiting hole using (1) ¼” – 20 x 5/8” hex head screw and flange nut.

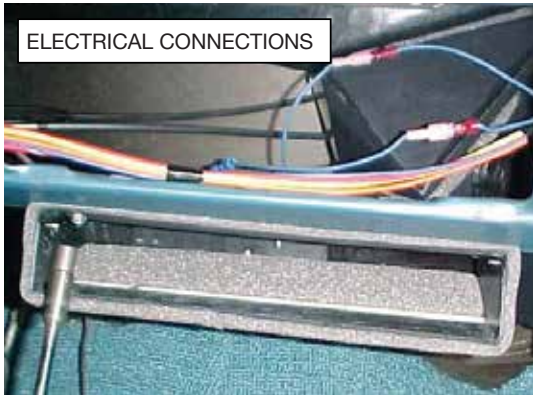
Locate in the hardware sack kit (2) #10 x ¾” hex washer head tek screws.

Reattach kick panel vent knob as shown.
Locate in the Hardware Sack Kit (1) 9” clear drain hose.

Drill (1) 11/16” dia. hole through firewall under evaporator and over to the left approximately 3” and lower than the drain nipple as shown.

Insert through hole and onto the drain nipple. Locate longest of the control cables supplied in kit. Push through hole in firewall block off just to left of the heater tubes. Let cable hang in place.





Locate the face duct assembly, and (1) #10 x 5/8” pan head screw.

Locate next longest of the control cables supplied in kit. Attach to the Face / Defrost door using (1) #10 x 5/8” pan head screw. **NOTE: CABLE INSERTS INTO THE 3rd HOLE FROM THE CENTER OF THE DOOR.**

Locate shortest of the control cables supplied in kit. Attach to the Face / Heat door using (1) #10 x 5/8” pan head screw. **NOTE: CABLE INSERTS INTO 3rd HOLE FROM THE CENTER OF THE DOOR**.

Locate the Center Duct Assembly.

Set on floor under the glove box opening.

Locate the control cable that connects to Defrost / Face door.

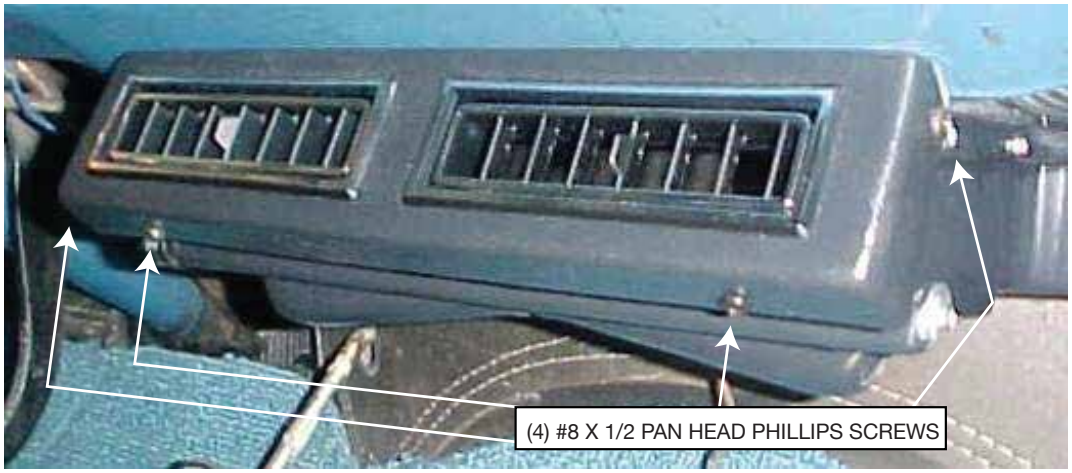
Insert cable between evaporator and the firewall.

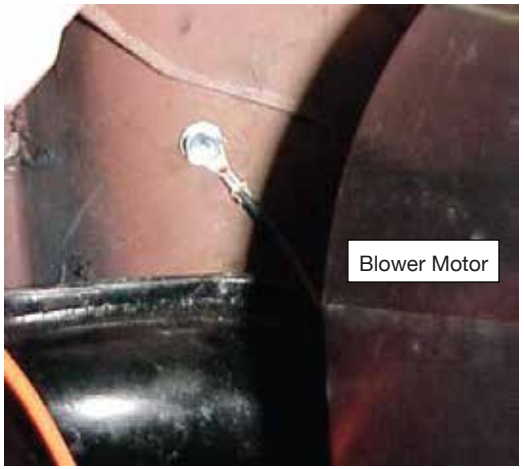
Attach the Center Duct Assembly to the Evaporator. Be sure that the defrost duct is aligned with original defrost diffuser.

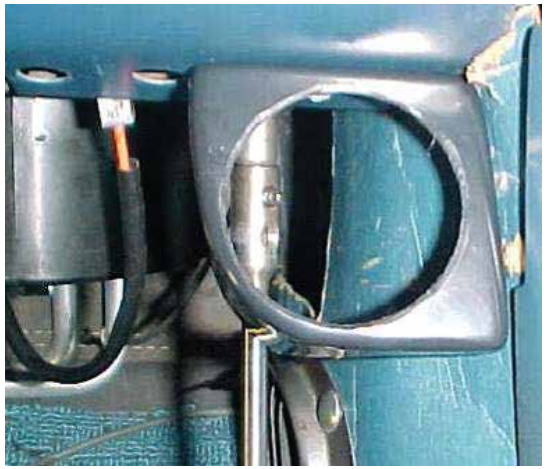
Locate in the hardware sack kit (2) #10 x ¾” hex head tek screws.

Attach Duct Assembly to bottom of the dash as shown.

Connect blue wires from micro switch to the wire harness as shown.







Locate the Center Louver Assembly.

Locate in the hardware sack kit (4) #8 x ½” pan Head Phillips Screws.

0n passenger side of dash, above the blower, locate Black Ground wire from the blower motor.
Secure to body using (1) #10 x ¾” hex head tek screw.

Locate the Side Ball Louver and (2) #10 x ¾” hex head tek screws.

Remove ball assembly from housing. Attach housing top to under side of the dash as shown.

Reinstall ball louver, locate the 2” dia. flex hose 36”. Cut 30” of hose and attach it to the Center Duct outlet as shown.

Route hose over to Passenger side Ball Louver and attach it to hose adaptor on the back.

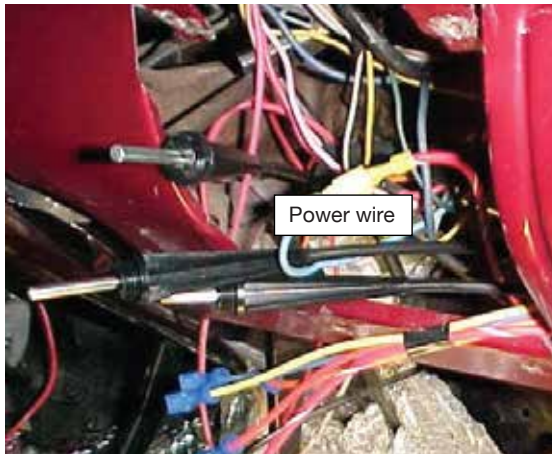
Locate in the hardware sack kit the Drivers Side Ball Louver Assembly, and (2) #10 x ¾” hex head tek screws.

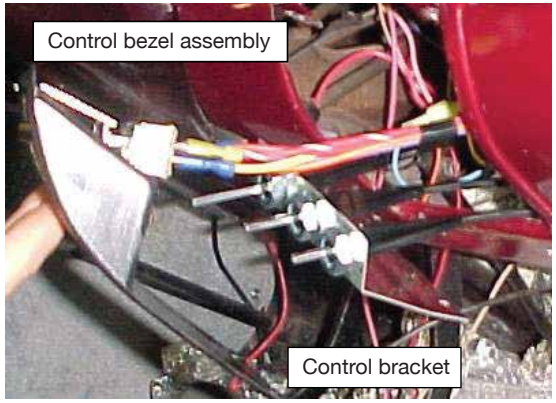
Remove ball assembly from housing. Attach housing top to under side of the dash as shown. Reinstall ball louver.

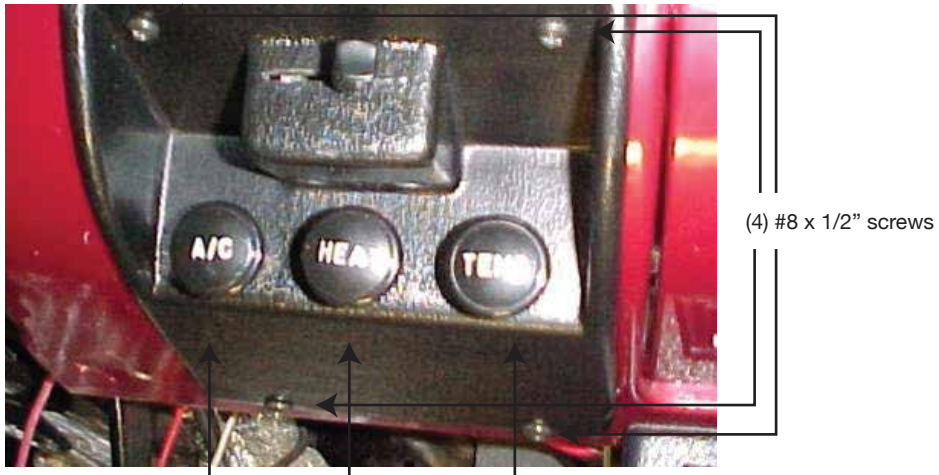
Located on back side of Center Duct Assembly is the hose adaptor for drivers side louver.

Cut 42” of 2” dia. flex hose. Attach it over the hose adaptor and route over and behind instruments and attach on to Drivers Ball Louver Assembly. Locate behind control opening find the (3) cables and the wire harness. Pull through the opening.

Attach the red / white power wire to wire identified from the original blower switch.







STANDARD HEATER CONTROL.

Locate in the Control Sack Kit the lower control switch mounting bracket. Locate (3) Push Pull cables behind control head.

Insert cable attached to the Defrost / Face door through center hole and attach with nut provided. Tighten securely.

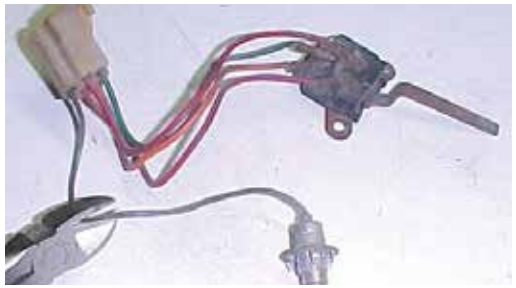
Insert shortest of the cables that is attached to Heat / Face door through left hole and attach with nut provided. Tighten securely.

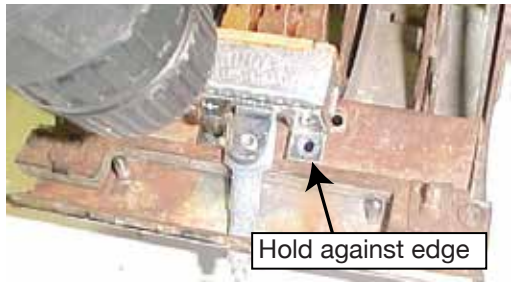
Insert last cable that is hooked to the water valve through right hole and attach with nut provided. Tighten securely.

Locate the Control Cover Bezel, (3) Cable Knobs and (4) #8 x ½" pan head Phillips screws. Attach the wire harness to the blower switch per the wiring diagram.

Place Control bezel over the cable shafts and up into place. Attach to the Instrument panel through top holes using (2) #8 x ½" pan head phillips screws.

Aline the control cable mounting bracket to lower holes in the control bezel. Attach to the lower edge of instrument panel using (2) #8 x ½" pan head phillips screws. Attach Control Knobs to the control shafts as shown above. Tighten securely using an allen wrench.





DELUXE HEATER CONTROLS

Locate the original control head. Remove blower switch and the original cables. Retain the original cable clips.

The light bulb assembly from original blower switch will be used. Cut the wire at plug and attach (1) ¼" male spade connector. Attach bulb assembly to the original wire harness.

Locate in the control sack kit the Blower Switch, and (2) #6 pan head screws.

Insert blower switch through face bezel and locate in the center and against the edge as shown.

Drill (2) 1/8" dia. holes and attach using the #6 screws.

Locate in the control sack kit the Black Blower Switch knob. Attach to the switch as shown.

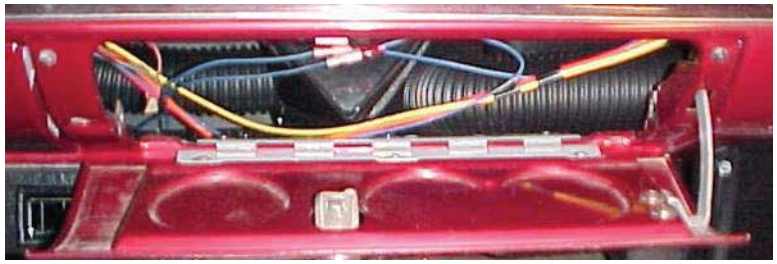
Holding control head at the opening in the instrument panel, attach the cables. Insert cable attached to the Defrost / Face door to lever labeled DEFROST. Attach using original hardware and push nut provided. Tighten securely.

Insert shortest of the cables that is attached to Heat / Face door to lever labeled HEAT. Attach using original hardware and push nut provided. Tighten securely.

Insert last cable that is hooked to the water valve to right lever. Attach with original hardware and push nut provided. Tighten securely.

Attach wire harness to the blower switch per the Wiring Diagram.

Reinstall original control head using the original hardware.



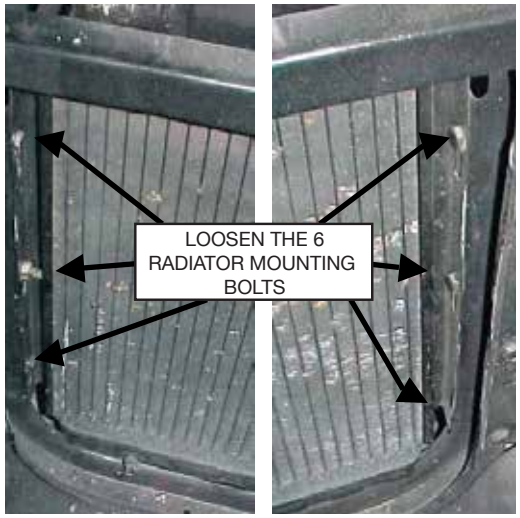
Locate Glove Box provided in the kit, original glove box door and hardware. Attach glove box door using original hardware.

Insert glove box through opening as shown.

Attach using (2) original screws one on both sides.

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

NOTE: THIS INSTALL IS CORRECT FOR A 283CID V8 ENGINE, WITH ALTERNATOR CONVERSION ON DRIVERS SIDE OF VEHICLE.
IF YOUR VEHICLE IS EQUIPTED WITH A DIFFERENT ENGINE PACKAGE IT WILL BE NECESSARY TO ROUTE THE HOSES DIFFERENT.



Locate the radiator bulkhead hole template. Tape the template to the bulkhead as shown.Carefully drill the (1) 5/8” dia. hole and the ¾” dia hole.

Locate the Condenser supplied in kit, (2) Mounting Brackets Left, (2) Mounting Brackets Right, and (8) #10 x 1/4” hex head screws. Attach left and right brackets 4th hole from the top, and 4th hole from the bottom.

Turn the condenser over. Locate the Liquid Tube (Condenser to Drier), Liquid Tube (Receiver to Bulkhead), Discharge Tube, (3) #6 o-rings, (1) #8 o-ring, Receiver Drier, the Drier Mounting bracket, and (2) #10 x 3/8” hex head screws.

Attach components listed above to the condenser. Install all tubes with o-rings and a few drops of mineral oil.

Place the Condenser Assembly in front of the radiator and insert the mounting brackets between the radiator and the radiator mounting brackets.

Use the liquid and suction tubes to set the height of the condenser. Install the bulkhead nuts and tighten securely.

Tighten the radiator mounting bolts.

Locate the Hi / Low Pressure safety switch. Attach switch to the port on top of the drier using a few drops of mineral oil. Tighten securely.

Route wires through to the engine compartment. Route the wires along discharge hose to the compressor. Connect the clutch wire to one of the White wires. The other White wire route along suction hose and attach to blue clutch wire coming from the thermostat.

Locate the Suction tube, tube support bracket, clamp, and #10 x ½ screw and nut. Attach support bracket to the bottom unit stud. Attach tube to the #10 fitting on the blockoff using (1) #10 o-ring and a few drops of mineral oil. Clamp other end of the tube to the support bracket using the #10 screw and nut.

Locate the Long Liquid Tube and (2) #6 o-rings. Attach one end to #6 fitting on the blockoff. Route tube allong inner fender and attach other end to the #6 fitting on the radiator bulkhead using (1) #6 o-ring and a few drops of minerall oil.

Locate Discharge Hose and (2) #8 o-rings. Attach using a few drops of mineral oil.

The 90 deg. end with service port goes on compressor and other end is connected to fitting at the bulkhead.

Locate the Suction Hose, and (2) #10 o-rings. Attach using a few drops of mineral oil.

The 90 deg. end goes on compressor as shown. Straight end will attach to #10 fitting from the Evaporator.

Locate in the hardware sack kit a Water Valve, and (3) #10 worm gear clamps. Cut off 6” of the heater hose return line. Attach the water valve between the cut off piece and the return line using the worm gear clamps supplied. Attach temperature cable to the water valve.

The supply line attaches to the outboard heater tube, see TDS for info.

Reinstall Battery and the battery box using the 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.

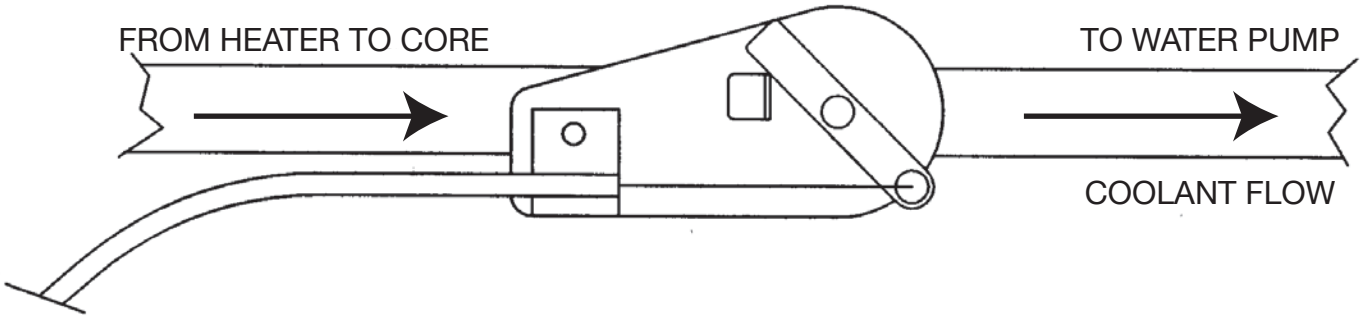
IMPORTANT!

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

New A/C System Preparation... A MUST READ!

Please read through these procedures before completing this new A/C system charging operation.
A licensed A/C technician should be utilized for these procedures to insure that your new system will perform at it's peak, and that your compressor will not be damaged.

1) Your radiator/cooling system is an integral part of your new system. Please insure that you have a 50/50 mix of distilled water and antifreeze. The heater coil **MUST** be purged (cycle heater control valve) to make sure no water, without antifreeze, is in the heater coil before you charge the A/C system.
2) Evacuate the system for 45 minutes (minimum).
3) **Your new compressor MUST be hand-turned 15-20 revolutions before and after charging with liquid. Failure to do this may cause the reed valves to become damaged** (this damage is NOT covered by your warranty).
4) Your new system requires 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) Insure that the new belt is tight.
7) **DO NOT CHARGE SYSTEM WITH LIQUID REFRIGERANT!**

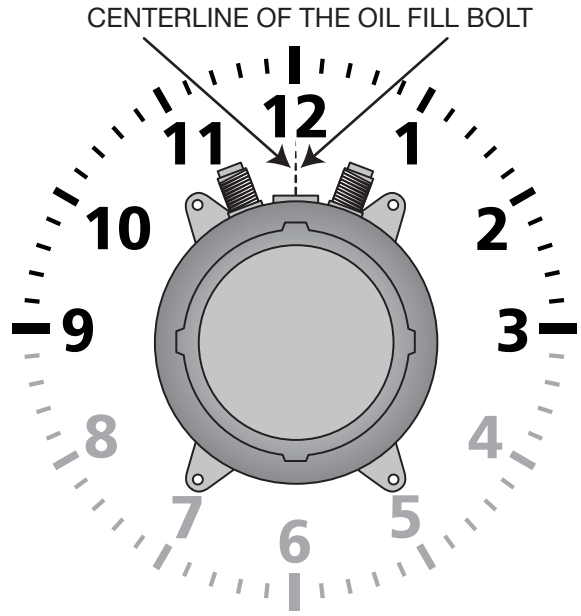
RECOMMENDED TEST CONDITIONS: (After system has been fully charged and tested for basic operation)

- Determine the temperature outside of the car
- Connect gauges or service equipment to high/low charging ports
- Place blower fan switch on medium
- Close all doors and windows on vehicle
- Place shop fan directly in front of condenser
- Run engine idle up to approx. 1500 rpm

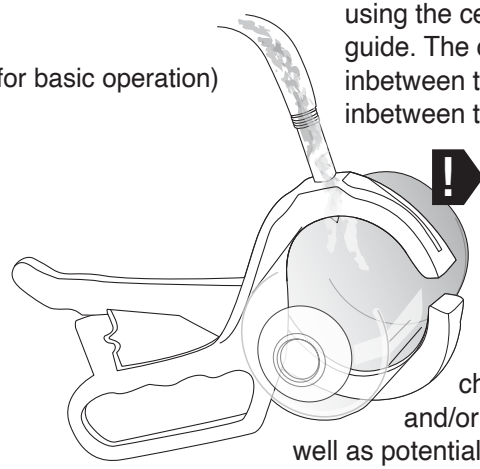
ACCEPTABLE OPERATING PRESSURE RANGES:

1. HIGH-SIDE PRESSURES (150-275 PSI)
2. LOW-SIDE PRESSURES (10-25 PSI in a steady state)

Readings above are based on an ambient temperature of 90˚ with an adequate airflow on condenser



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

TROUBLESHOOTING GUIDE

TEST CONDITIONS USED TO DETERMINE SYSTEM OPERATION

(THESE TEST CONDITIONS WILL SIMULATE THE AFFECT OF DRIVING THE VEHICLE AND GIVE THE TECHNICIAN THE THREE CRITICAL READINGS THAT THEY WILL NEED TO DIAGNOSE ANY POTENTIAL PROBLEMS).

B. CONNECT GAUGES OR SERVICE EQUIPMENT TO HIGH/LOW CHARGING PORTS.

C. PLACE BLOWER FAN SWITCH ON MEDIUM.

D. CLOSE ALL DOORS AND WINDOWS ON VEHICLE.

E. PLACE SHOP FAN IN FRONT OF CONDENSER.

F. RUN ENGINE IDLE UP TO 1500 RPM.

ACCEPTABLE OPERATING PRESSURE RANGES (R134A TYPE)

1. HIGH-SIDE PRESSURES (150-275 PSI) **Note- general rule of thumb is two times the ambient (daytime) temperature, plus 15-20%.*
2. LOW-SIDE PRESSURES (10-25 PSI in a steady state).

CHARGE AS FOLLOWS: R134A = 24 OZ.
NO ADDITIONAL OIL IS NECESSARY IN OUR NEW COMPRESSORS.

TYPICAL PROBLEMS ENCOUNTERED IN CHARGING SYSTEMS

NOISY COMPRESSOR. A noisy compressor is generally caused by charging a compressor with liquid or overcharging

A. If the system is overcharged both gauges will read abnormally high readings. This is causing a feedback pressure on the compressor causing it to rattle or shake from the increased cylinder head pressures. System must be evacuated and re-charged to exact weight specifications.

B. Heater control valve installation - Installing the heater control valve in the incorrect hose. Usually when this occurs the system will cool at idle then start to warm up when raising the RPM's of the motor. THE HEATER CONTROL IS A DIRECTIONAL VALVE; MAKE SURE THE WATER FLOW IS WITH THE DIRECTION OF THE ARROW. As the engine heats up that water transfers the heat to the coil, thus overpowering the a/c coil. A leaking or faulty valve will have a more pronounced affect on the unit's cooling ability. Installing the valve improperly (such as having the flow reversed) will also allow water to flow through, thus inhibiting cooling. Check for heat transfer by disconnecting hoses from the system completely. By running down the road with the hoses looped backed through the motor, you eliminate the possibility of heat transfer to the unit.

C. Evaporator freezing - Freezing can occur both externally and internally on an evaporator core. External freeze up occurs when the coil cannot effectively displace the condensation on the outside fins and the water forms ice (the evaporator core resembles a block of solid ice), it restricts the flow of air that can pass through it, which gives the illusion of the air not functioning. The common cause of external freezing is the setting of the thermostat and the presence of high humidity in the passenger compartment. All door and window seals should be checked in the event of constant freeze-up. A thermostat is provided with all units to control the cycling of the compressor.

D. Internal freeze up occurs when there is too much moisture inside the system. The symptoms of internal freeze up often surface after extended highway driving. The volume of air stays constant, but the temperature of the air gradually rises. When this freezing occurs the low side pressure will drop, eventually going into a vacuum. At this point, the system should be checked by a professional who will evacuate the system and the drier will have to be changed.

E. Inadequate airflow to condenser - The condenser works best in front of the radiator with a large supply of fresh air. Abnormally high pressures will result from improper airflow. Check the airflow requirements by placing a large capacity fan in front of the condenser and running cool water over the surface. If the pressures drop significantly, this will indicate the need for better airflow.

F. Incorrect or inadequate condenser capacity - Incorrect condenser capacity will cause abnormally high head pressures. A quick test that can be performed is to run cool water over the condenser while the system is operating, if the pressures decrease significantly, it is likely a airflow or capacity problem.

G. Expansion valve failure - An expansion valve failure is generally caused by dirt or debris entering the system during assembly. If an expansion valve fails it will be indicated by abnormal gauge readings. A valve that is blocked will be indicated by high side that is unusually high, while the low side will be unusually low or may even go into a vacuum. A valve that is stuck open will be indicated by both the high and low pressures rising to unusually high readings, seeming to move toward equal readings on the gauges.

H. Restrictions in system - A restriction in the cooling system will cause abnormal readings on the gauges. A high-side restriction (between the compressor and the drier inlet) will be indicated by the discharge gauges reading excessively high. These simple tests can be performed by a local shop and can help determine the extent of the systems problem.

Trouble Shooting Your Classic Auto Air A/C System

PROBLEM: system is not cooling properly
ISSUE: cold at idle, warmer when raising engine RPM's

Make sure the Water Valve is positioned correctly

The water valve is a directional valve and should be installed with the arrow pointing towards the water pump, it should be connected to the heater hose that runs from the heater core to the water pump. If the water valve is connected to the incorrect hose it allows water to circulate through the system via the heater core over powering the cooling effect of the A/C coil, (normally the air conditioning is functioning properly).

Step 1: Check placement of the water valve, correct if needed. (In some cases changing the location of the water valve may not fix the above problem.) Continue to next step.

Step 2 If changing the location of the water valve does not rectify the issue, then possibly the water valve is permanently damaged and may need to be replaced. To check the integrity of the water valve completely remove the water hoses for the heater core and "loop" together. (This will remove the heater system completely from the possibilities) If the system now cools, replace the water valve

Verify Adequate Air Flow to Condenser

For an air conditioning system to function properly there has to be adequate airflow across the condenser. The function of the condenser is to dissipate heat, without proper airflow your system will not cool correctly in the cabin of your vehicle.

Step 1: connect gauges to a/C hoses. The pressures should be: with the ambient temp is 90, low side pressures should be between 10-25 psi, high side pressures should be between 150-275 psi

Step 2: IF the low side pressures are normal and the high side pressures are high then there might be an airflow issue, continue to next step.

To test air flow to Condenser do the following three tests:

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

If the paper is held in place you are at least getting some air flow. If the high side decreases during test 2 & 3 then your condenser is not getting enough air which is causing your system to not cool properly. To correct this issue you will need a more powerful mechanical fan.

Step 3: Confirm correct Refrigerant charge in System

All of our systems should be charged with 24 oz or 1.5 lbs of R134A Refrigerant only. If overcharged you will need to evacuate the system and recharge with the correct amount.*

What measurements mean:

Low Temp and High Pressure seem to be equal...

You have a malfunctioning expansion valve that is stuck open.

High Side is extremely high and Low Side is extremely low (possibly into vacuum)...

There is a blockage in the system. Remove hoses and blow compressed air through in both directions. If pressures don't change its possible that your expansion valve is stuck closed and would have to be replaced.

*Compressor Concerns:

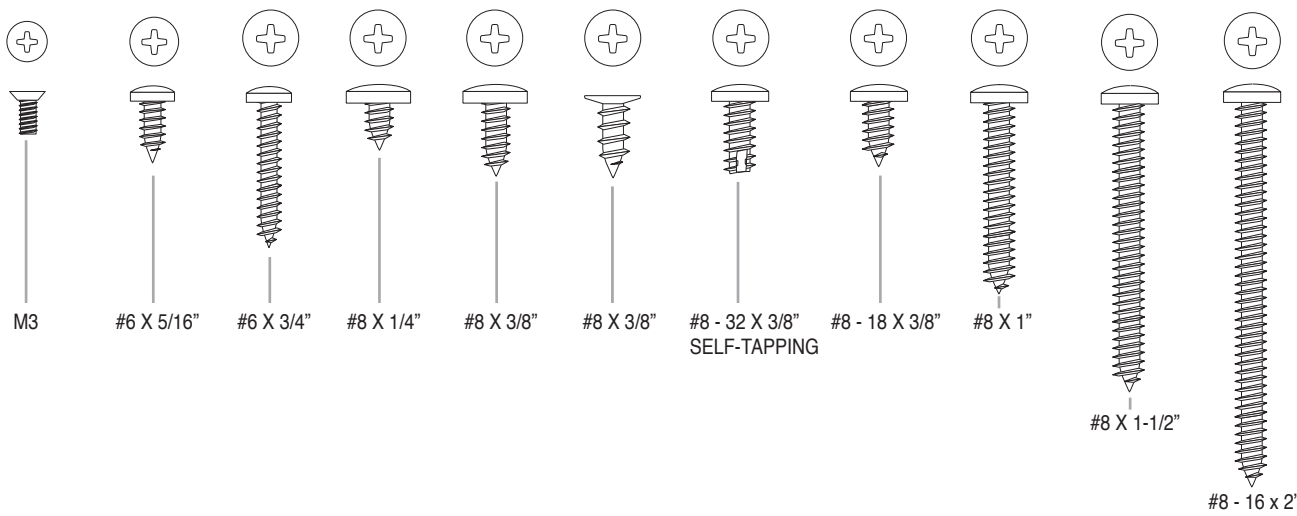
This is often misdiagnosed as a problem for the system not cooling properly. If you have a noisy compressor it is due to improper charging of refrigerant. An overcharged (more than 24 oz or 1.5 lbs R134A) compressor can cause rattling. If charged with pure liquid there is a high probability you have bent reed valves that are causing tapping sound.

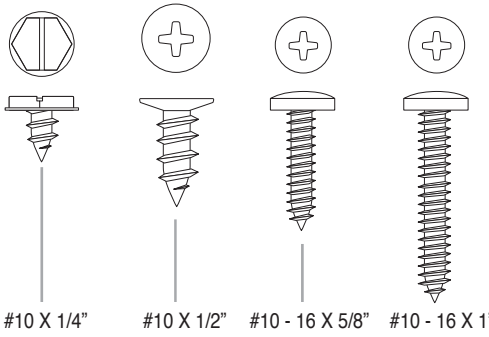
SCAN QR code
with your mobile camera

Get the technical support you want the moment you need it, with no wait times. Simply **SCAN** the **QR code** and be directly taken to our support section to troubleshoot all things A/C.

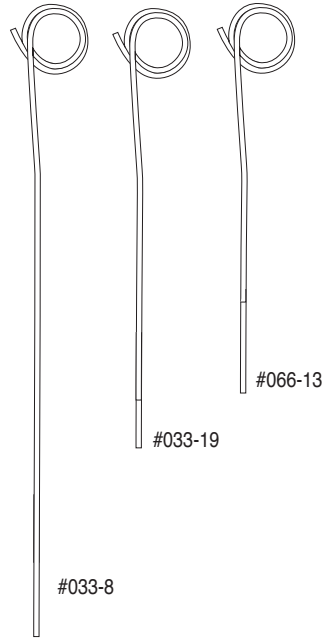
Classic Auto Air Hardware Reference Guide

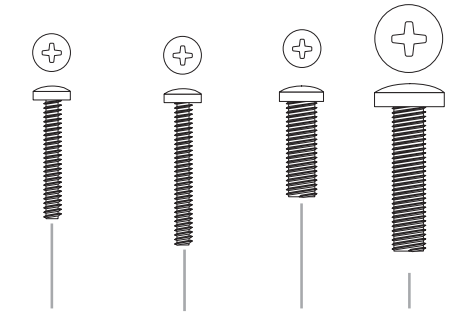
This is our basic line-up of hardware. No single kit will not contain all of these, but you can use this guide to match-up hardware for shape and size (all of these are actual size.)

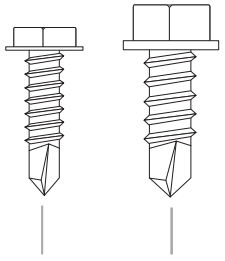


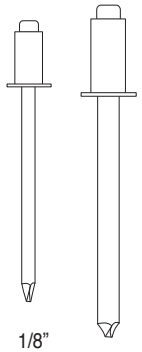


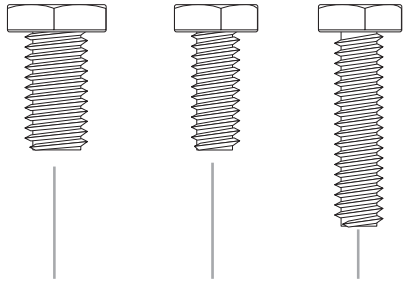
CONNECTING WIRE



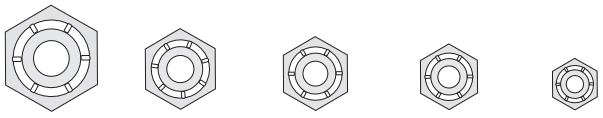






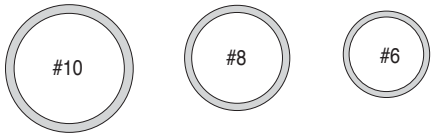


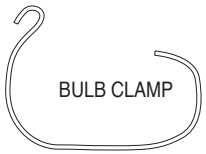
LOCK NUTS



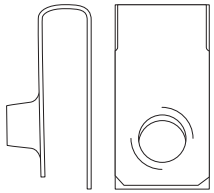
NUTS AND WASHERS

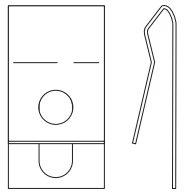
ORINGS

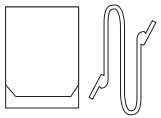


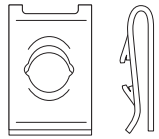


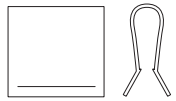
CLIPS



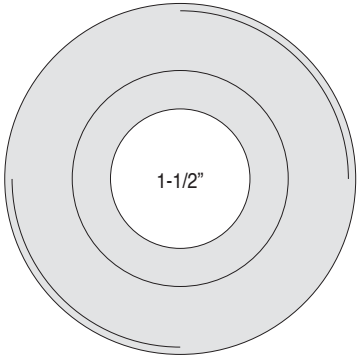


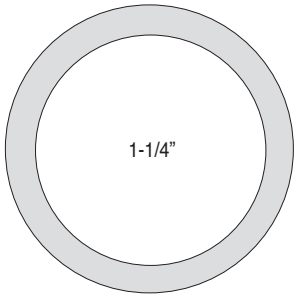


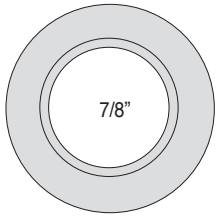




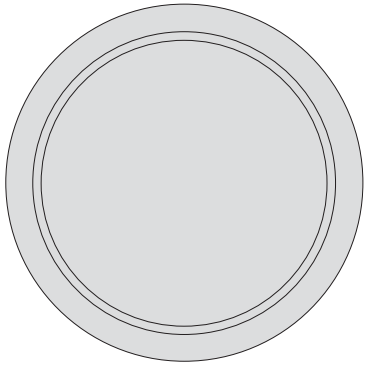
GROMMETS

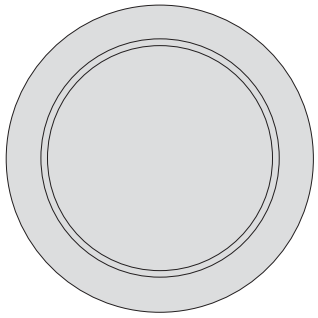


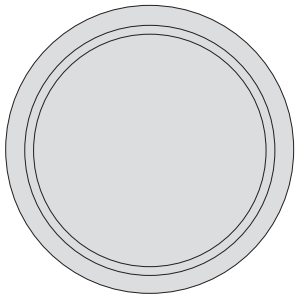


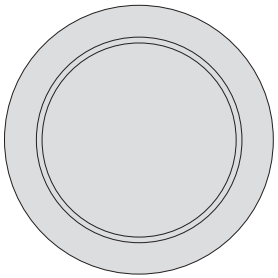


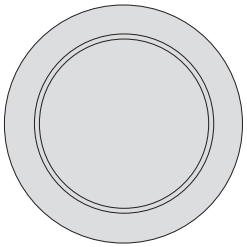
HOLE PLUGS

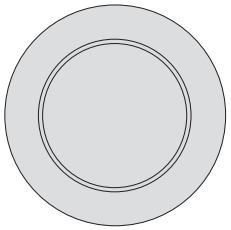


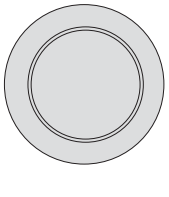




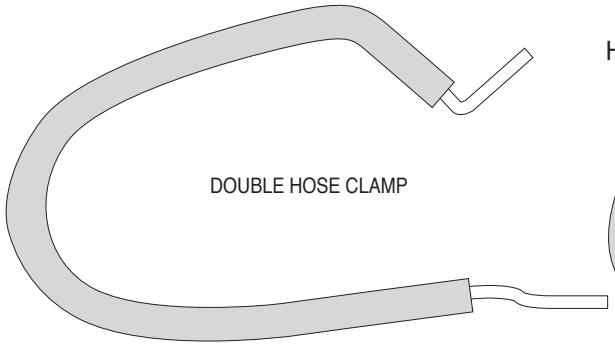


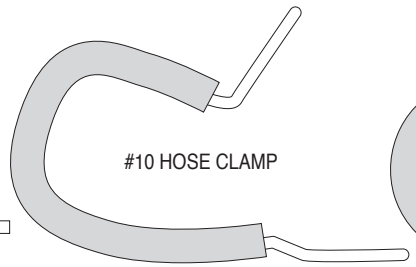


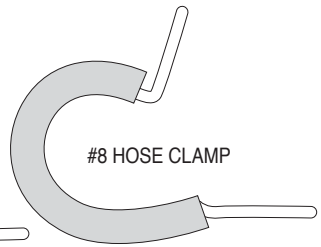


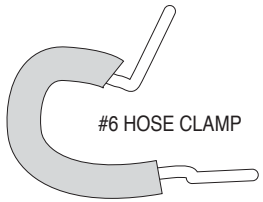


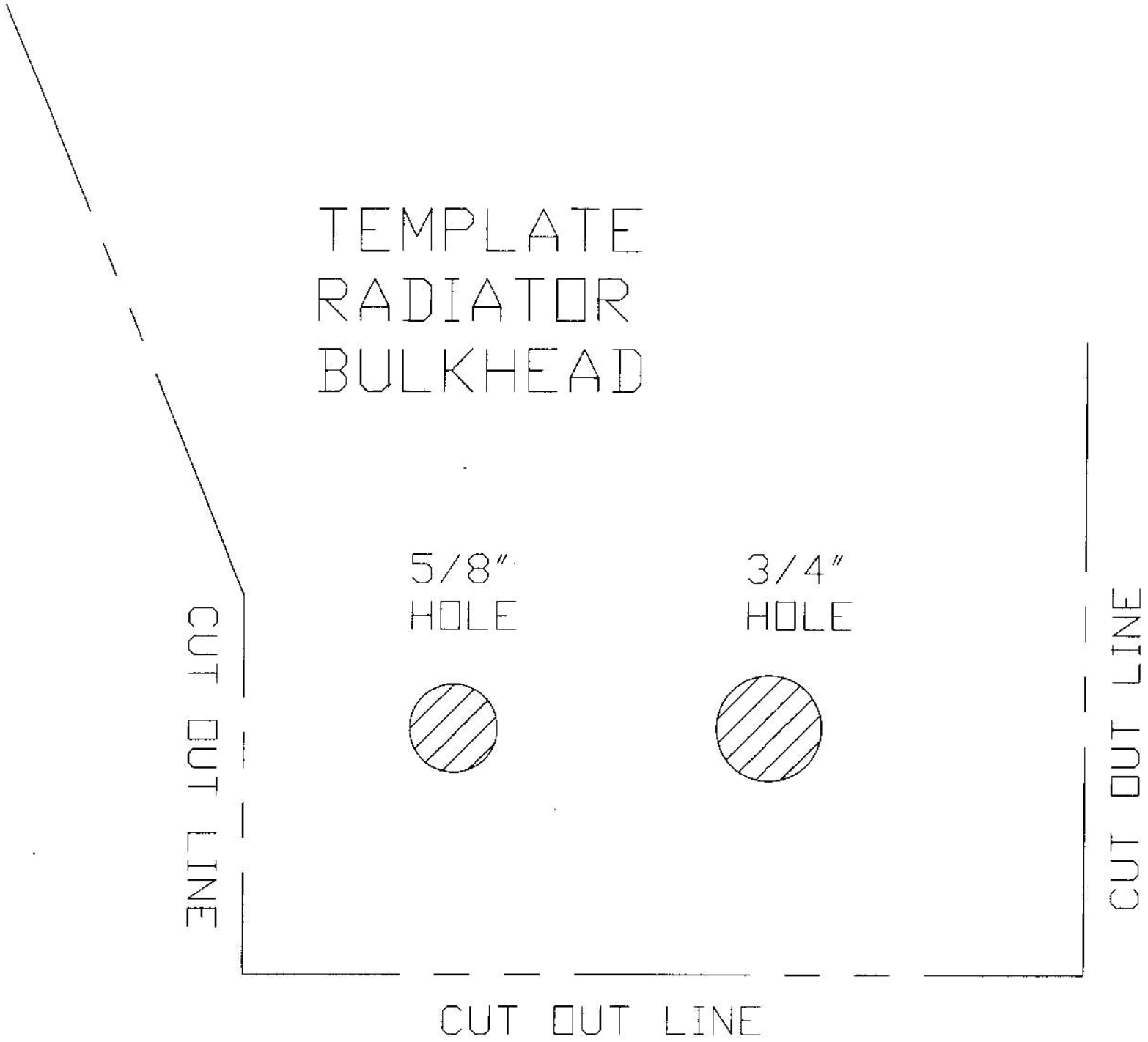
HOSE CLAMPS










TEMPLATE
RADIATOR
BULKHEAD
5/8"
HOLE
3/4"
HOLE
CUT OUT LINE
CUT OUT LINE
CUT OUT LINE