Installation Manual

1961-62 CHEVROLET BEL AIR
1961-62 CHEVROLET BISCAYNE
1961-62 CHEVROLET IMPALA

DOCUMENT #1-1040

CLASSIC AUTO AIR

Congratulations...

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

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 During the installation you might find the opportunity to repair or upgrade non-working or out of date components.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

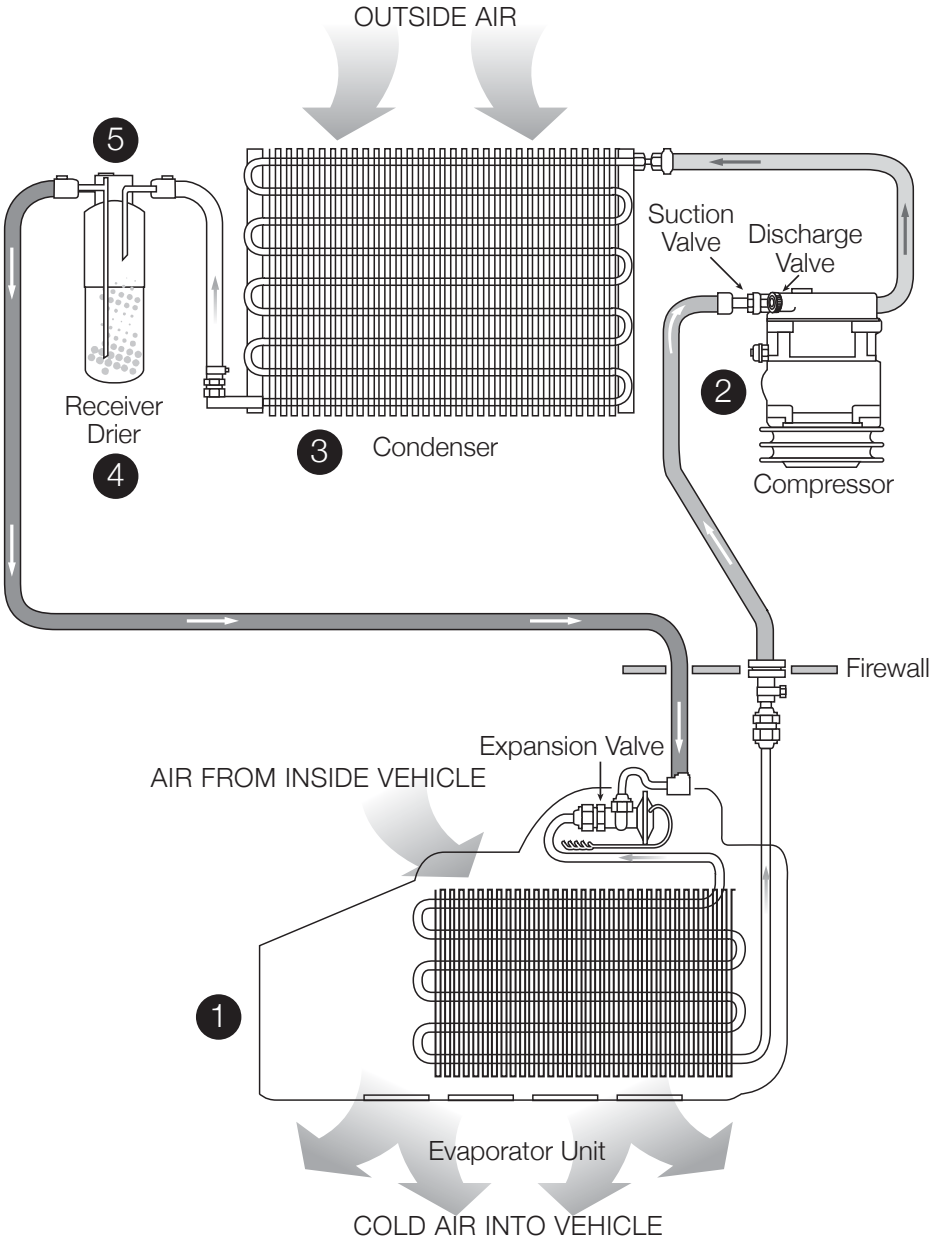
- ☐ Fittings: Use one or two drops of mineral oil (supplied with your kit) on ALL rubber o-rings, threads and where o-rings seat in fittings. Do not use thread tape or sealants.
- ☐ Measure twice (or more), cut once
- ☐ **Should you have any technical questions, or feel you have defective components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

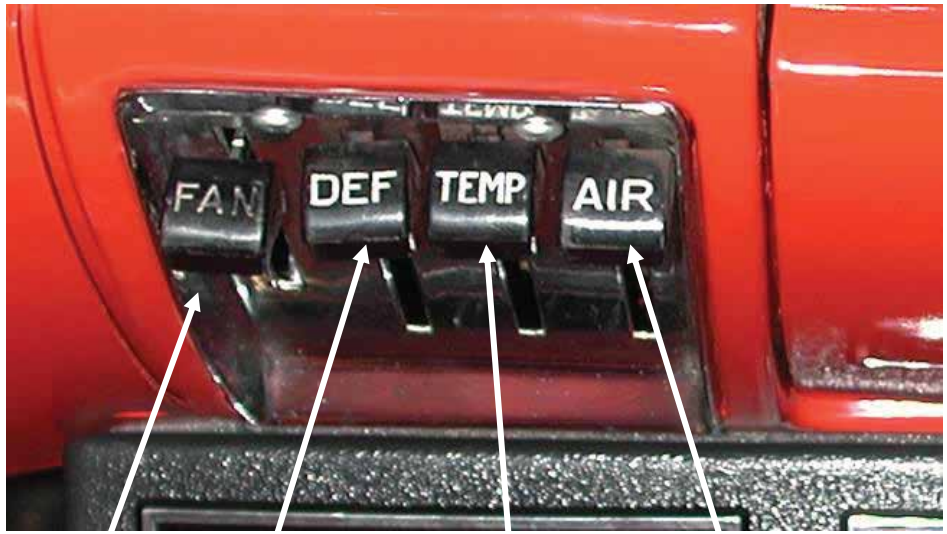


The air conditioning system in your vehicle is comprised of a compressor, condenser, expansion valve, receiver/drier, and evaporator. Refrigerant (also known as Freon) is compressed in the compressor. In the condenser, gas is cooled to a liquid state and travels to the expansion valve. As the liquid 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
1961-62 CHEVROLET IMPALA

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.



FAN FACE/ HEAT DOOR TEMPURATURE FACE/ DEFROST

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 and the glove box. Discard glove box.

Retain original hardware.

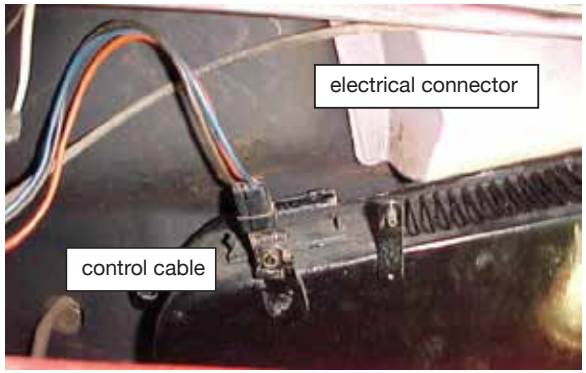
DRAIN RADIATOR AND DISCONNECT BATTERY GROUND CABLE.

Removal of original Heater Assembly can be accomplished by disconnecting the control cables.

Remove heater hoses from engine and also jumper hose from heater coil to the water valve.

Around perimeter of the housing remove (7) nuts that hold the air box to the firewall.
Also remove the screw that attaches blower to the housing.

Remove and discard heater air box and the original hardware.



Locate behind glove box opening the control cable and resistor connector.

Remove the cable, and disconnect electrical connector.

Carefully remove and retain the control knobs.

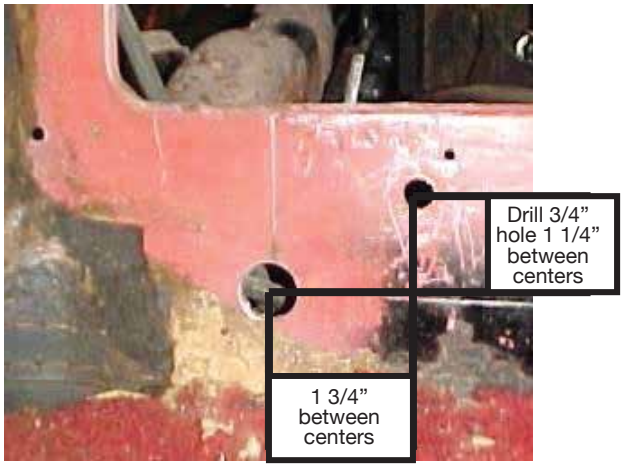
Remove (4) screws located under the control head.

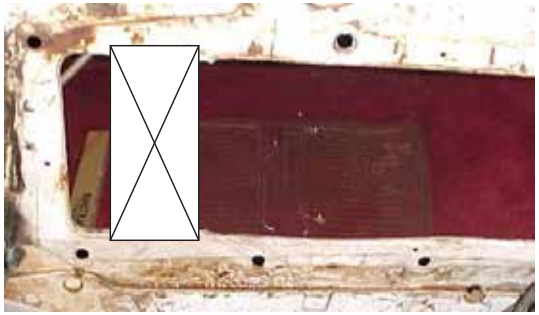
Remove control head and disconnect the electrical connector. Set the control head aside for modification and reinstall.

Located on driver's side of the heater box is a screw that retains the heater box.

Remove and discard.

Remove the entire heater box and discard.





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

On engine side of firewall cut off and discard dividers from the firewall opening.

Remove hood, passenger side hood hinge and the blower motor assembly.

Discard the blower motor assembly and retain original hardware.

Locate inlet block off plate from the unit box.

Attach over inlet hole on the firewall using original screws.

Reinstall hood latch and hood using original hardware.

All modifications to the vehicle are complete. We will now begin installation of the system.

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

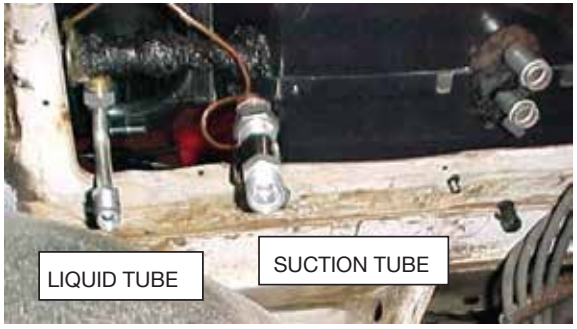
Place evaporator on the bench and attach Distribution assembly onto the evaporator using (4) #10 x 5/8” pan head screws.

NEXT STEP SHOWN FROM ENGINE SIDE

Locate evaporator and the firewall stud bracket.

Place evaporator on floor of the vehicle. Place firewall stud bracket through (3) holes at bottom of the opening.
Lift unit up and behind the glove box opening.

Insert (2) upper rear Evaporator mounting studs through the original holes as shown. Attach using (2) ¼” – 20 flange nuts provided.



Locate in the hardware sack kit the blower support brace, (2) #8 x 3/8” pan head screw and (1) ¼”-20 x 5/8” hex head screw and (1) ¼”-20 flange nut.

Attach end to bottom edge of the dashboard using the ¼”-20 x 5/8 screw and flange nut, through the existing hole.

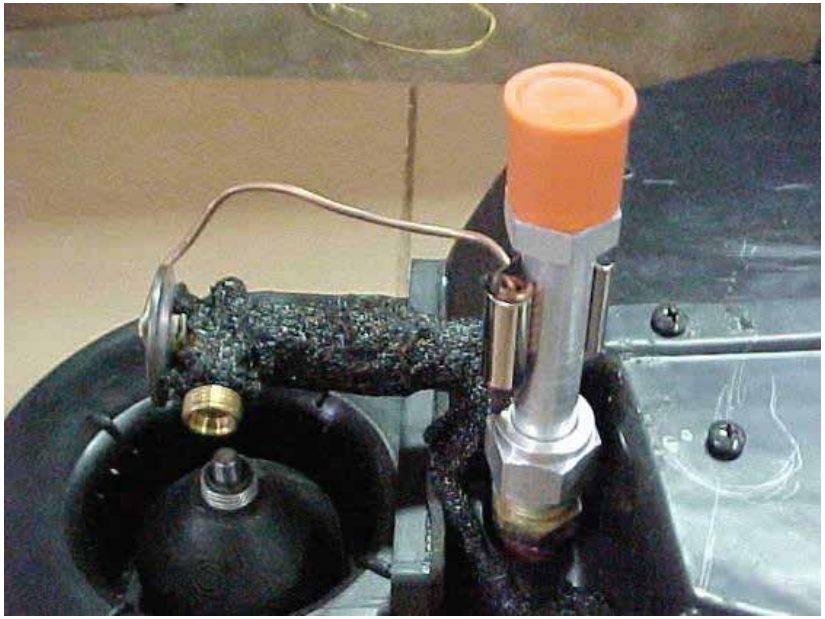
Attach to the blower motor using (2) #8 x 3/8” pan head screws.

Locate in the hardware sack kit (1) ¼”-20 x 5/8” hex head screw and (1) ¼”-20 flange nut.

Attach brace on left side of evaporator through hole in the instrument panel.

Locate in the hardware sack kit the following components.

Suction Tube
Liquid Tube
TXV Bulb Clamp
Refrigerant Tape
(1)#6 o-ring
(1) #10 o-ring



Install liquid line onto the Expansion valve (TXV) as shown. Use #6 o-ring and (2) drops of mineral oil on the o-ring and tighten securely. Install the Suction Tube to the outlet to the unit as shown. Use #10 o-ring and (2) drops of mineral oil on the o-ring and tighten securely.

Locate Sensing Coil attached to the TXV and utilizing Bulb Clamp, attach to the Suction Tube.

CAUTION: THE SYSTEM WILL NOT FUNCTION PROPERLY IF THE SENSING COIL IS NOT CLAMPED IN THE CORRECT POSITION. SEE PICTURE.

Wrap Suction Tube and Sensing Coil with refrigerant tape provided. Be sure that all of the exposed metal is covered.

Locate the Firewall Block Off plate, (5) ¼”-20 flange nuts and (2) #10 x ¾” hex head tek screws.

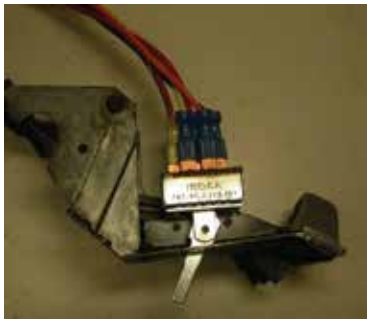
On engine side of firewall attach over hookup tubes from the evaporator using (5) flange nuts and (2) #10 Tek screws.

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

Locate 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.



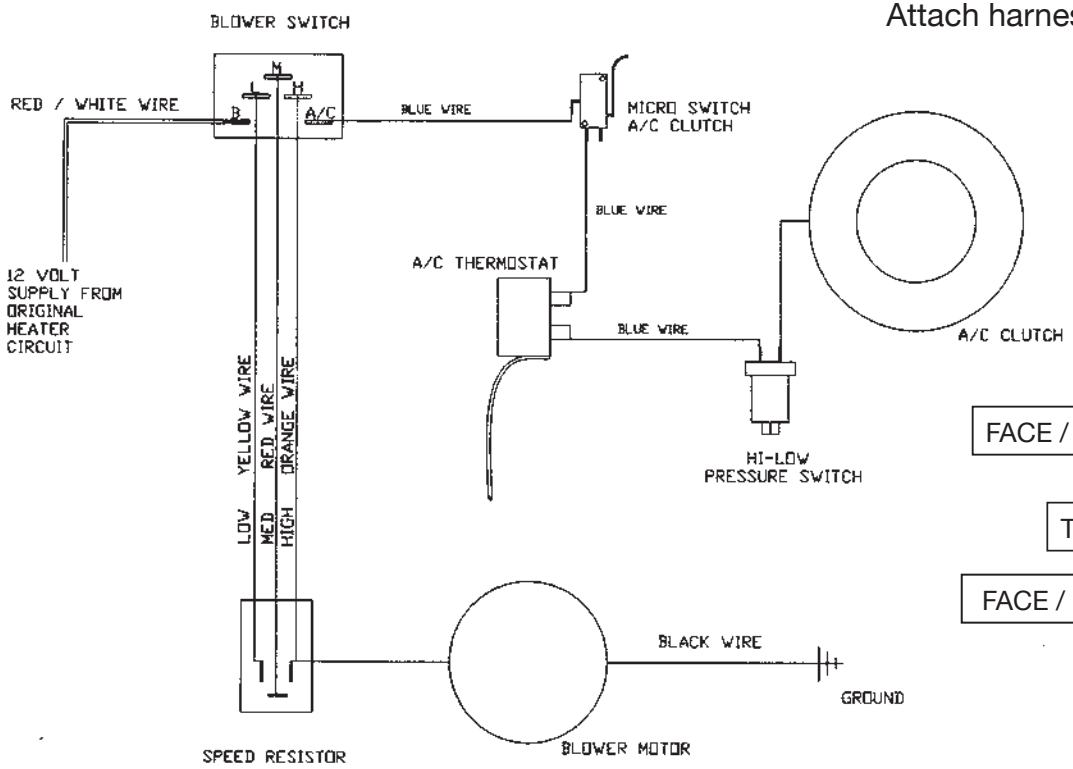
Locate in the control sack kit the blower switch, blower switch bracket, (3) 3/16” push nut, and (2) #6 x 3/8” pan head Philips screws.

Attach blower switch to the switch bracket using (2) #6 x 3/8” pan head screws.

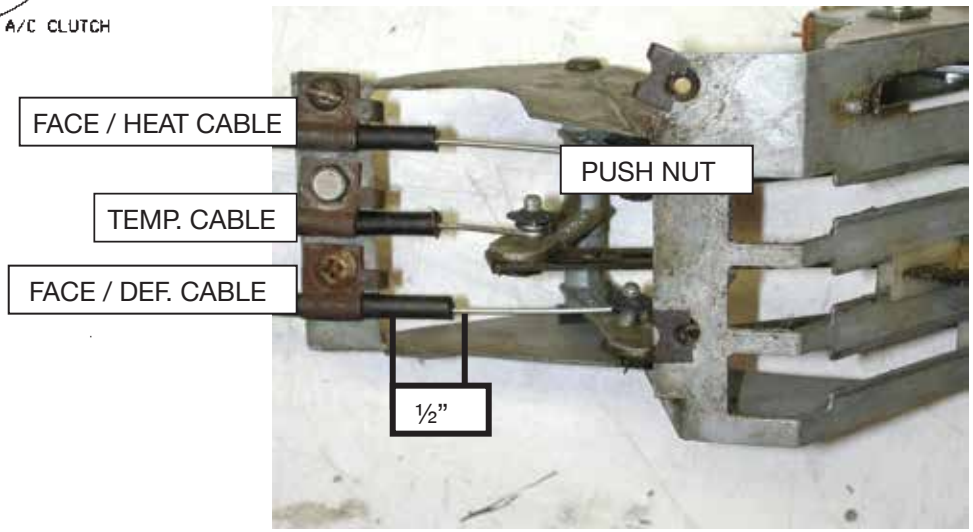
Attach assembly to original control head using the original hardware.

Locate wire harness from the control sack kit.

Attach harness to blower motor according to the wiring diagram.



Wiring Diagram



Locate in the control sack kit (2) SHORT control cables, (1) LONG Temperature control cable, and (3) 3/16” push nuts.

Attach temperature control cable using original hardware to the center control arm and (1) 3/16” push nut. NOTE: Cable sleeve is 1/2” from the cable clip bracket.

Attach Face / Heat cable to the top lever. Using (1) push nut, original screw and cable clip. NOTE: Cable sleeve is 1/2” from cable clip bracket.

Attach the Face / Defrost cable to the bottom lever. Using (1) push nut, and the original screw and cable clip. NOTE: The cable sleeve is 1/2” from cable clip bracket.

Locate the Center Duct Assembly and (2) #8 x ½” pan head screws.

Attach Face / Defrost cable to front of the duct assembly using (1) #8 screw. Cable is located in 2nd hole from end of the crank arm.

Attach Face / Heat cable to door on side of the center duct assembly using (1) #8 screw.

Cable is located in 2nd hole from pivot of the crank arm.

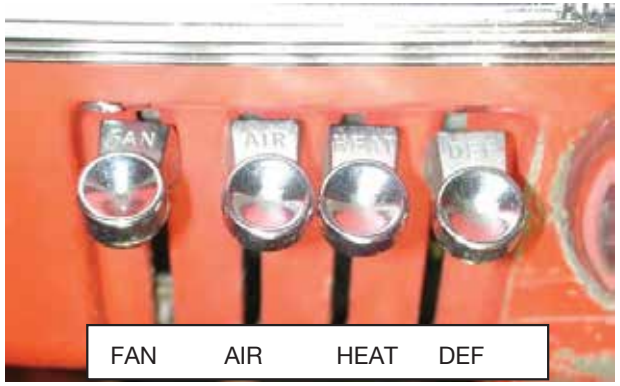
Locate in the hardware sack kit the remote louver with the hole in top, and (2) #10 x ¾” hex head tek screws.

Locate original wire harness that was attached to the blower switch. Cut the connector off. Attach (1) ¼” male spade connector to the red wire.

Place duct assembly and control assembly on floor of the car.

Attach red / white striped wire from the blower switch to red wire from the original harness.

Insert light socket back into the control head.



Reinstall control head using original hardware.

Reinstall the original control knobs.

Route main harness across front of unit 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 blower motor using (1) #10 x ¾ “ hex head Tek screw.

REFER TO THE WIRING DRAWING FOR PROPER CONNECTIONS.

Route temperature cable behind center ducts and through hole above the unit. Attach this cable to the water valve.

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

Locate behind glove box the cross brace. Route wire harness inside the brace. Tywrap in place.

Reinstall control head using original hardware.

Locate Glove Box and (2) #14 x ¾” tek screws.

Install glove box behind the opening. Attach using (2) #14 screws.

Reinstall glove box door. Attach using only the (2) center screws.

Locate in the hardware sack kit the (4) remote louver assemblies, and the #10 x ¾” hex head tek screws.

Mount the (2) remote louver assemblies with 2.5” dia flex hose desired location of center dash.

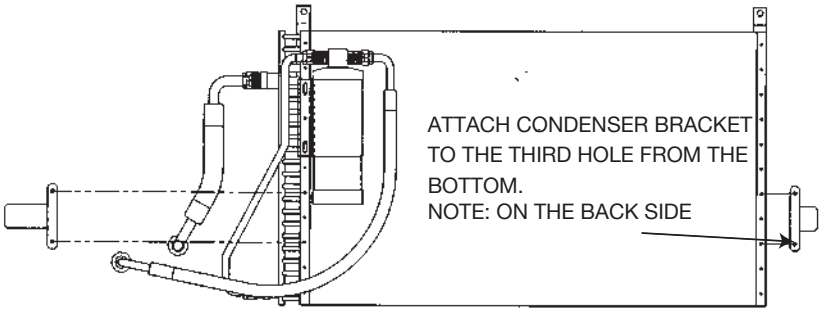
Mount the (2) remote louver assemblies with 2” dia flex hose desired location of Driver side and Passenger side of dash.

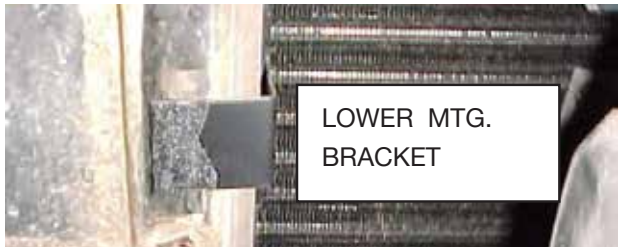
Locate (2) blue wires with 3/16” female connectors from the a/c harness. Attach to Micro-Switch on side of the center face duct. Refer to the wiring diagram.

Locate 2“ Dia. flex hose, (1) piece 36” long. Attach to face duct over the side outlet. Route above and behind instrument cluster and down to the driver’s louver.

Locate the Drivers Louver Mounting Plate and (2) ¼”-20 x 5/8” screw and flange nuts.

Attach mounting plate to bottom of the instrument panel using ¼”-20 hardware.





Locate drivers louver, and (2) #10 x ¾" tek screws. Attach louver to mounting plate. **Caution: Carefully check under Instrument Panel for all cables, electrical harness, or Flex hoses that might interfere with safe operation of the vehicle.**

Locate the Unit Cover and (3) #10 x 5/8 pan head screws. Attach cover to unit as shown.

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

Drain and remove the radiator and fan shroud.

Locate the Condenser, (2) upper condenser mounting brackets, and (4) #10 x 3/8" hex head screws. Attach brackets to the condenser as shown. NOTE: BRACKETS ON BACK SIDE

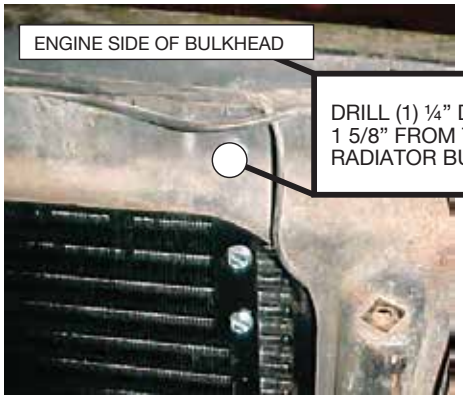
Locate the Filter / Drier, Drier Mounting Bracket, Aluminum Liquid tube, (2) #6 o-rings, and (2) #10 x 3/8" hex head screws. Install Filter drier to condenser on third hole from top as to allow the Liquid Tube to attach as shown. Install a few drops of mineral oil to the o-ring fittings, and secure.

Locate lower right condenser bracket, (2) #10 x 3/8" hex head screws. Attach bracket to condenser on third hole from the bottom on back side of condenser. Carefully place Condenser Assembly through the Radiator Mounting Bulkhead as shown.

Top (2) condenser mounting brackets will need a hole drilled in the top of the radiator bulkhead.

Locate condenser horizontally using lower left bracket as shown in the picture to the right.

Drill (1) ¼" dia. hole for each of the brackets, 1 5/8" from top of the radiator bulkhead. Attach brackets using (2) ¼-20 X 5/8 hex head bolts and flange nuts.



Locate in the condenser kit the lower right condenser mounting and (2) #10 x 3/8" hex head screws. Attach bracket to condenser on third hole from the bottom.

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

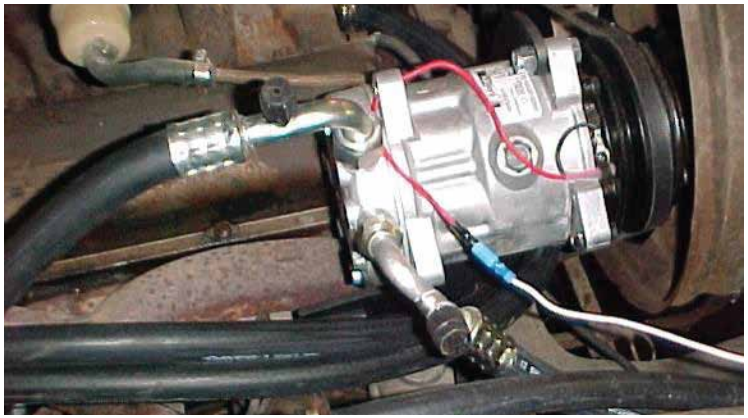
Supply line from engine is attached to the lower heater hookup tube. Cut 6" off end of RETURN LINE and install the water valve using (3) worn gear clamps as shown above.

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

Remove battery and the battery tray. Retain original hardware.

Drill (1) 5/8" dia. hole below the battery tray.

Drill (1) 7/8" dia. hole below the battery tray.



Locate discharge hose with the bulkhead fitting, and (1) #8 o-ring. Attach hose to condenser using the #8 o-ring and a few drops of mineral oil. Insert bulkhead fitting through 7/8” dia hole that was drilled below the battery tray.

Locate liquid hose with the bulkhead fitting and (1) #6 o-ring. Attach 90 deg. end to outlet from the filter/drier using the #6 o-ring and a few drops of mineral oil. Insert bulkhead end through 5/8” dia hole previously drilled in the radiator bulkhead.

Locate Hi/Low pressure switch and wire harness from the condenser kit. Using a few drops of mineral oil, attach the switch to top of the filter/drier.
Route two white wires over behind passenger side light assembly and out through the existing grommet.

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

Locate fittings on the bulkhead.

Locate #8 Refrigerant Hose attach to bulkhead fitting using (1) #8 o-ring and a few drops of mineral oil. Route other end with service port to compressor and attach using (1) #8 o-ring and a few drops of mineral oil. Route (1) of the white wires along with the #8 refrigerant hose. Attach to the compressor clutch. Other white wire attaches to Blue Clutch wire from the thermostat.

Locate the #6 liquid hose. Attach straight end to bulkhead fitting below the battery tray. Route along inner fender and attach to #6 fitting at the firewall. Attach using (2) #6 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.

Reinstall battery tray, 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.

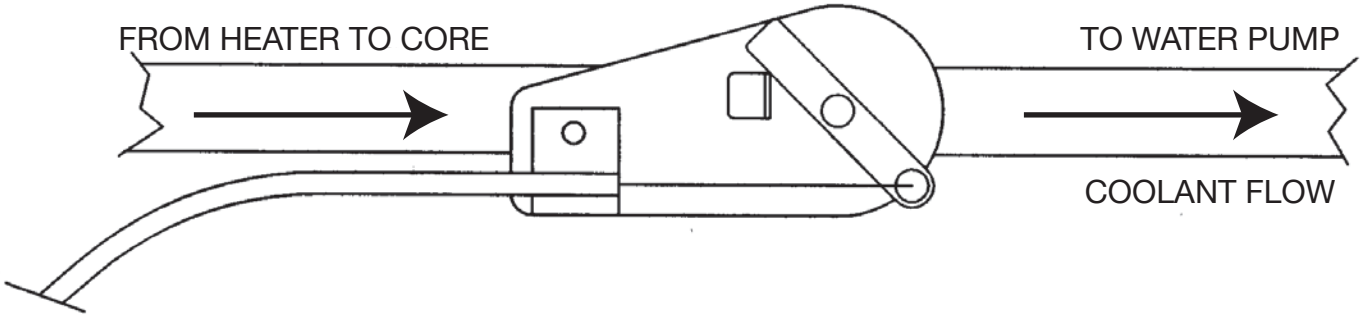
IMPORTANT!

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

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!**

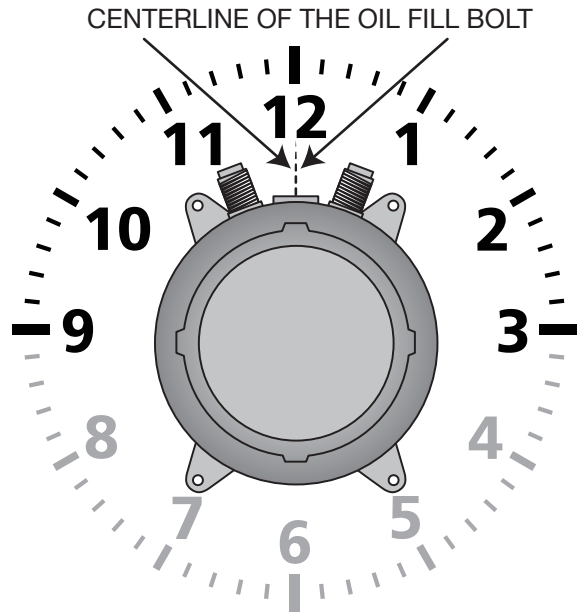
RECOMMENDED TEST CONDITIONS: (After system has been fully charged and tested for basic operation)

- 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

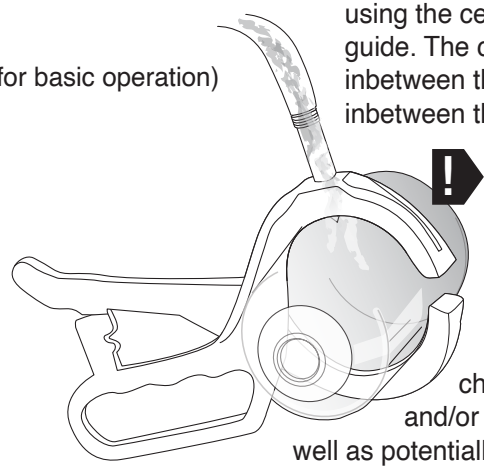
ACCEPTABLE OPERATING PRESSURE RANGES:

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:

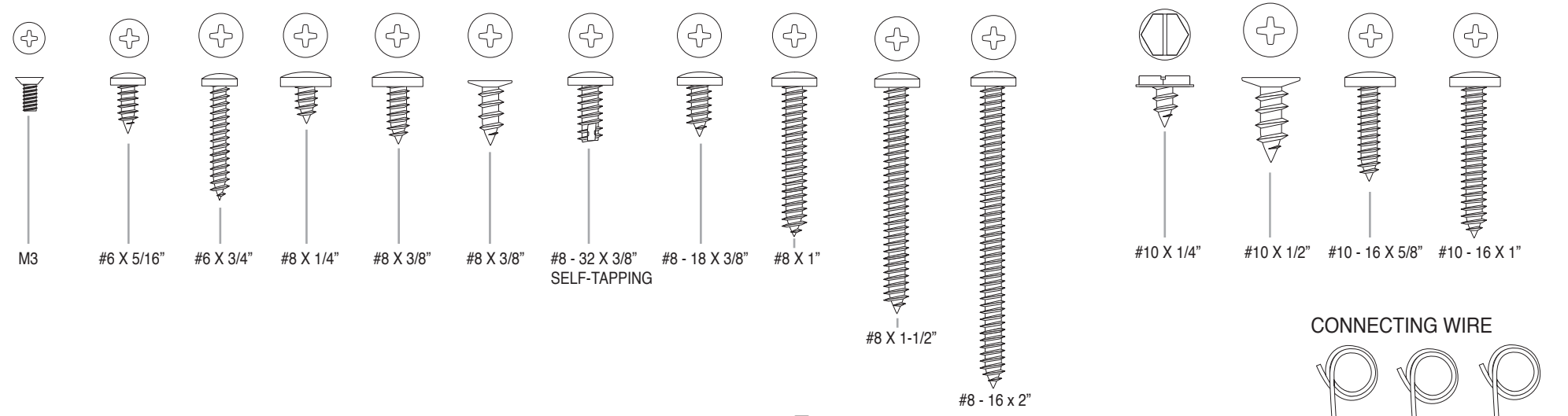
This is often misdiagnosed as a problem for the system not cooling properly. If you have a noisy compressor it is due to improper charging of refrigerant. An overcharged (more than 24 oz or 1.5 lbs R134A) compressor can cause rattling. If charged with pure liquid there is a high probability you have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

SCAN QR code
with your mobile camera

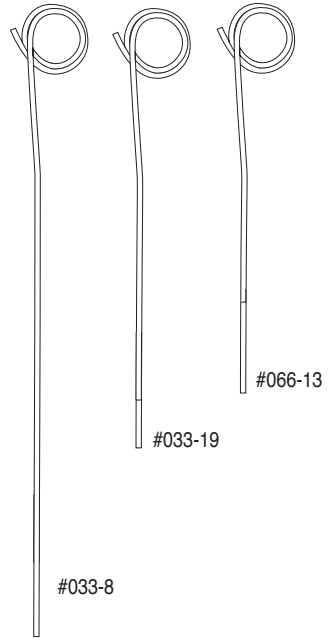
Get the technical support you want the moment you need it, with no wait times. Simply **SCAN** the **QR code** and be directly taken to our support section to troubleshoot all things A/C.

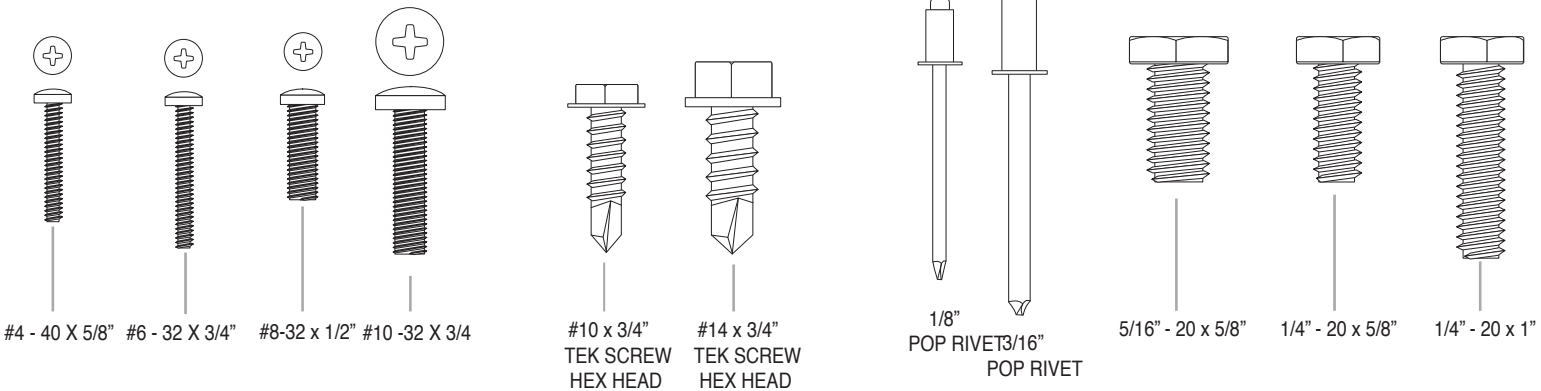
Classic Auto Air Hardware Reference Guide

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.)

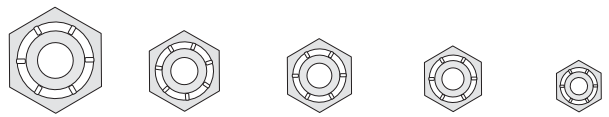


CONNECTING WIRE

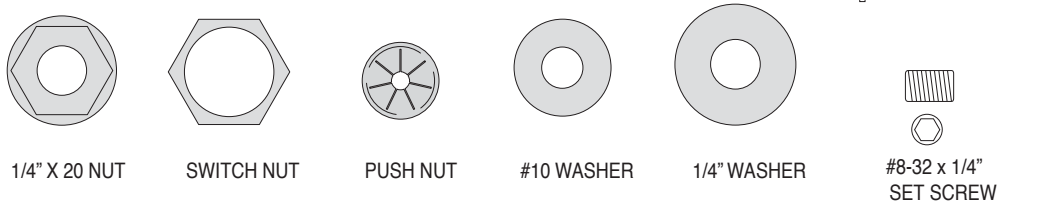




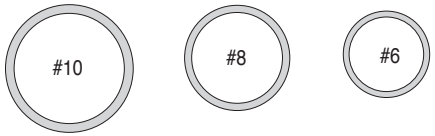
LOCK NUTS

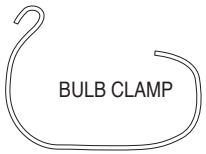


NUTS AND WASHERS

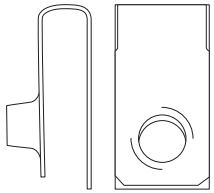


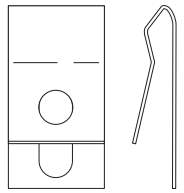
ORINGS

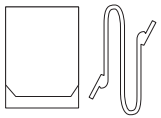


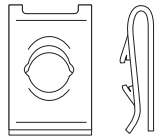


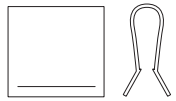
CLIPS



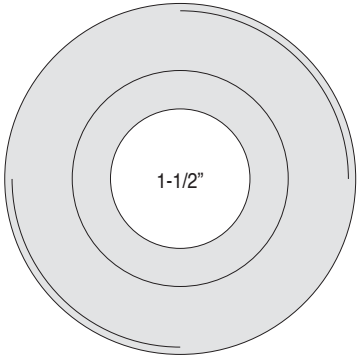


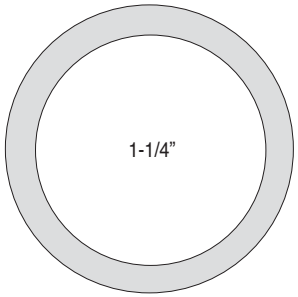


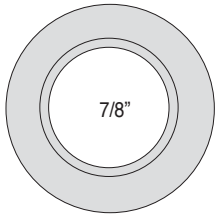




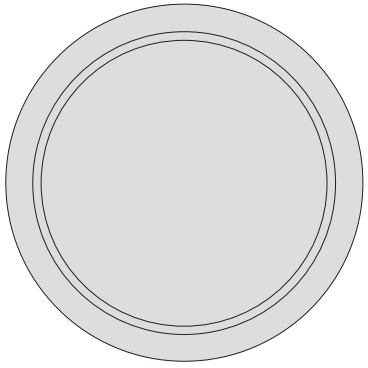
GROMMETS

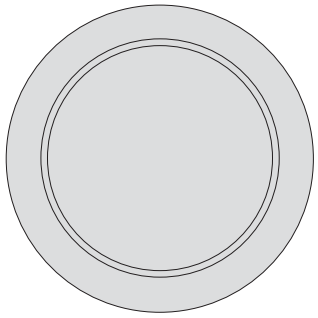


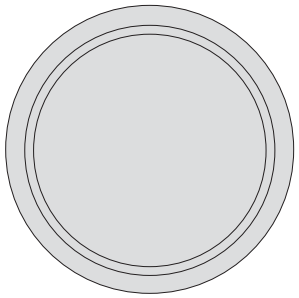


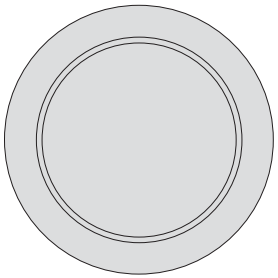


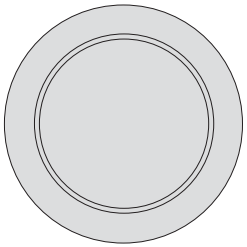
HOLE PLUGS

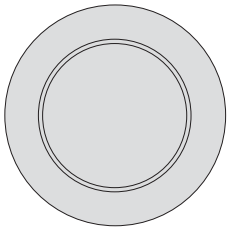


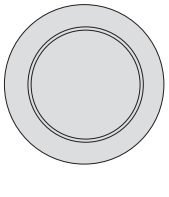












HOSE CLAMPS