

Installation Manual

1968 CHEVROLET BEL AIR
1968 CHEVROLET BISCAYNE
1968 CHEVROLET CAPRICE
1968 CHEVROLET IMPALA

DOCUMENT #1-1046

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Congratulations...

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

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

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

Evaporator

Face Duct Assembly

Inlet Air Block Off Assembly

Firewall Block Off Assembly

Flex Hose 2"dia. x 3ft.

Flex Hose 2"dia. x 4ft x 2ea..

Flex Hose 2 ½"dia. x 2 ft.

Sack Kit Louver

Sack Kit Hardware

Sack Kit Control

Glove Box



Check List, Pre-Installation:

- ☐ Before beginning the installation check the shipping box for the correct components. YOUR BOXED UNIT INCLUDES A LIST OF MAJOR COMPONENTS AND A LIST OF BAGGED PARTS. We have a 5 stage check process to make sure you have everything you'll need.
- ☐ **If your vehicle has been or is being modified, some procedures will need to be adjusted to fit your particular application.**
- ☐ A basic cleaning of the engine compartment and interior before beginning will make things go more smoothly.
- ☐ Check condition of engine mounts. Excessive engine movement can damage hoses to A/C and/or heater.
- ☐ Before starting, check vehicle interior electrical functions (interior lights, radio, horn, etc). Make a note of anything that does not work as it's supposed to. During the installation you might find the opportunity to repair or upgrade non-working or out of date components. When you're ready to start the installation, **DISCONNECT THE BATTERY FIRST.**
- ☐ Drain the radiator. Retain the coolant and reuse, or dispose of properly.
- ☐ SAFETY FIRST: Wear eye protection while drilling/cutting, deburr sharp edges, and never get in a hurry or force a part.
- ☐ Tools: Your installation only requires the basic tools everyone has in their garage, nothing exotic or specific to A/C or Heat equipment.

Procedures, During Installation:

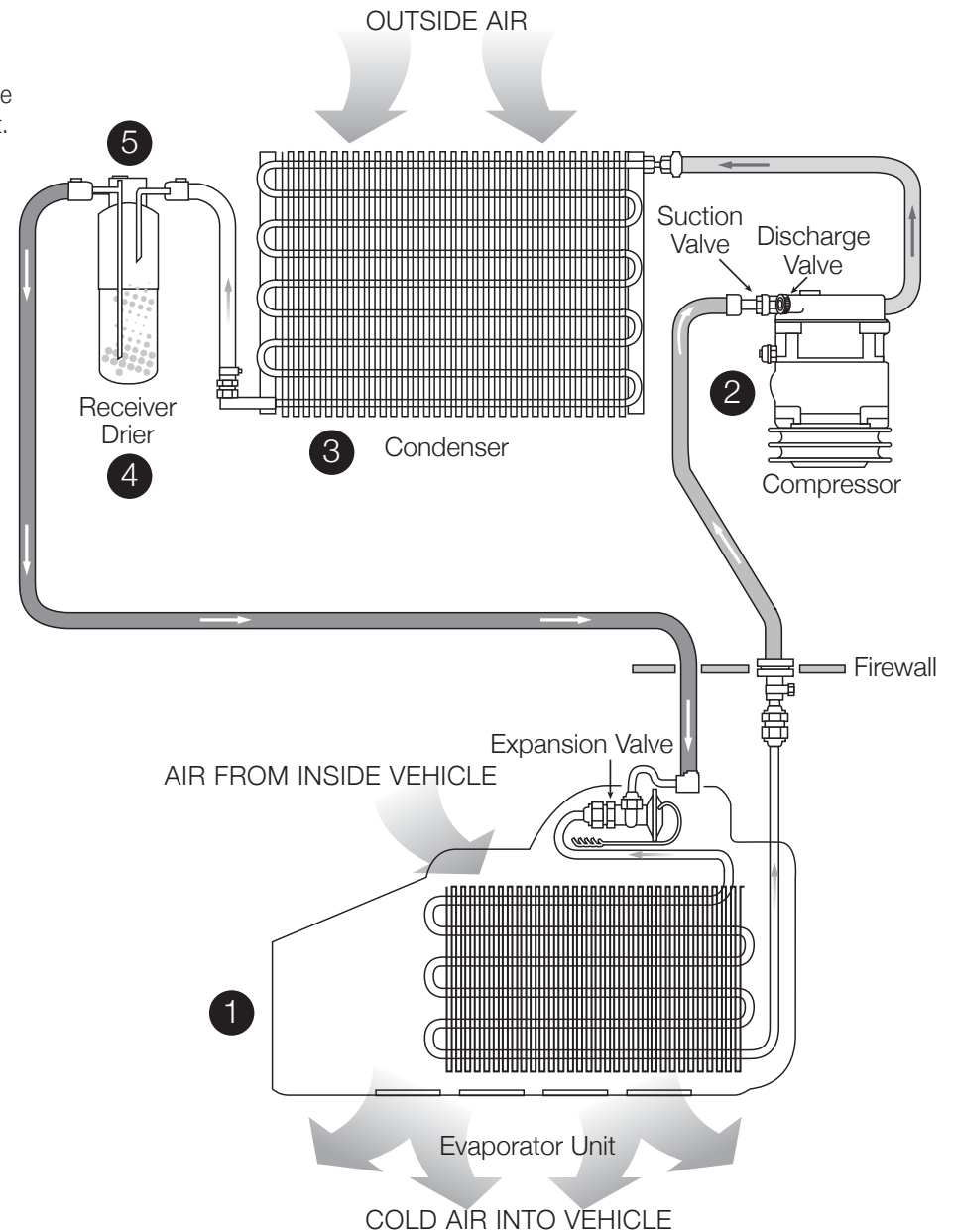
- ☐ Fittings: Use one or two drops of mineral oil (supplied with your kit) on ALL rubber o-rings, threads and where o-rings seat in fittings. Do not use thread tape or sealants.
- ☐ Measure twice (or more), cut once
- ☐ **Should you have any technical questions, or feel you have defective components (or missing items), call us immediately, we will be glad to assist you. Our toll-free number is listed on every page, we're here to help!**

CAUTION: DISCONNECT BATTERY GROUND CABLE
YOU CAN NOW BEGIN THE INSTALLATION...

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

- 1 Evaporator with Blower Fan** In order to remove the heat from the air in the vehicle, the A/C evaporator allows the refrigerant to absorb the heat from the air passing over it. The blower fan moves cool air out into the car interior.
- 2 Compressor** The compressor pumps and circulates the refrigerant through the system.
- 3 Condenser** The condenser is a heat exchanger mounted at the front of the vehicle. Heat drawn out of the interior of the car is expelled here.
- 4 Receiver/Drier** The drier not only dries refrigerant, it also filters the refrigerant and stores it under certain operating conditions.
- 5 High Pressure Switch** A pressure switch is used to shut down the system if high or low pressure is detected, basically it acts as a safety switch.

The air conditioning system in your 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**

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 FUNCTION 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 Face Duct.

FACE / DEFROST / HEAT 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. When the knob is pushed to the MIDDLE of the controls the air will go to the DEFROST outlets. In the Defrost position the compressor clutch is engaged for dehumidification. When the knob is pushed all the way to the LEFT the air will go to the FLOOR outlets. In the FLOOR position the compressor is not disengaged.

TEMPERATURE CONTROL: The Temperature Knob as shown is at the COLDEST temperature position. As the lever is pushed to the RIGHT 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 glove box. Discard glove box. Retain original hardware.

DISCONNECT AND REMOVE BATTERY AND THE BATTERY BOX. RETAIN ORIGINAL HARDWARE.



In order to remove heater assembly. It is necessary to remove Blower Housing Assembly first.

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

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



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

Retain (2) screws around blower motor.

Attach the 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 next to glove box opening is the fresh air control cable.

Remove and retain the mounting screws. Lay cable on the floor for later reinstallation.



Locate on top of heater assembly accessing through glove box opening the resistor connector.

Disconnect the electrical connector. Remove control cable and discard the original hardware.

Pull heater box away from firewall and rotate to remove the control cable on back of the box. Discard the original hardware.

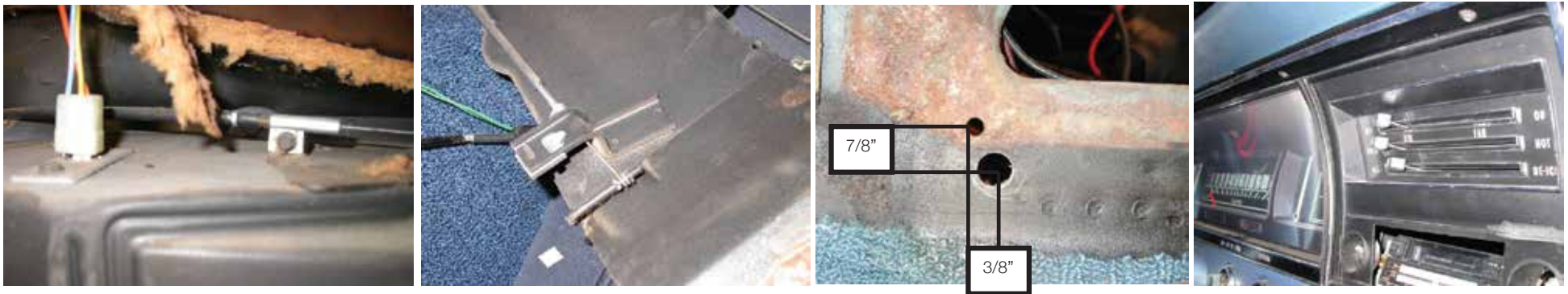
Remove heater box from the vehicle.

Locate behind dash and on firewall the hole that previously mounted heater box.

Drill (1) $\frac{3}{4}$ " dia. hole for drain tube as shown.

Remove (5) attachment screws across top edge of the instrument trim bezel.

Remove and retain the hardware for later reinstallation.



In order to remove control head remove and retain the (2) screws as shown.

Remove the radio, remove and retain the lower (2) nuts that hold the lower bezel.

Remove controls from front of the instrument panel. Disconnect the electrical connection from blower switch.

Place controls on the bench and remove the (2) control cables. Discard cables and retain mounting hardware.

Remove and discard original blower switch. Discard all of the original hardware.





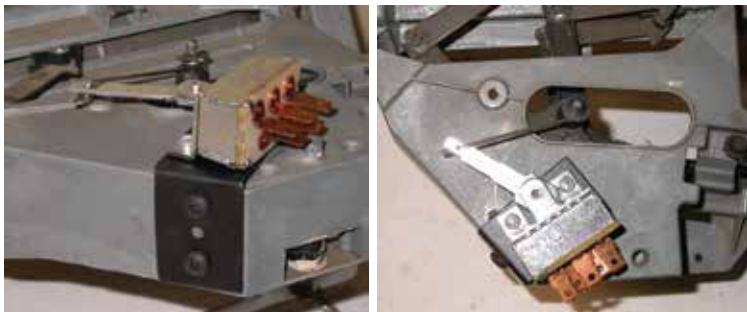
Locate blower switch assembly, and (2) #8 x 3/8" pan head screws. Using the switch assembly as a template. Locate the bracket at edge of control housing, drill (2) holes 7/64" dia. Attach control switch assembly to original control head using (2) #8 x 3/8" pan head screws.

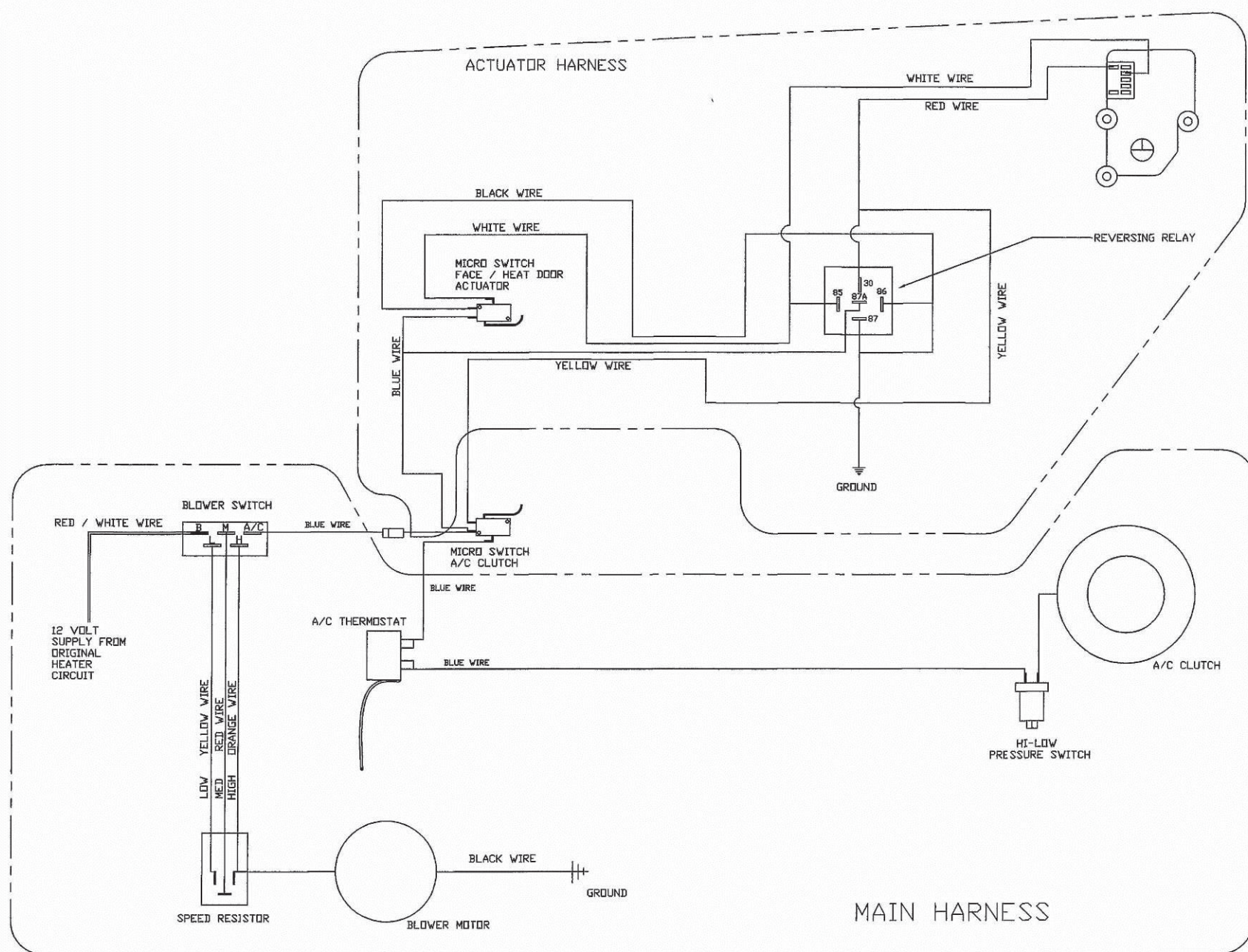
Locate connecting wire and (1) 3/16" push nut. Attach the end of wire with ring to control arm and other end with hook to the blower switch. Secure with 3/16" push nut.

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

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

Attach the (shortest) Face / Heat cable to BOTTOM control arm. Using (1) push nut and original screw and cable clip. NOTE: Cable sleeve is 1 1/2" from the clip.







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



Cut the connector and wires back to main harness. Cut connectors and wires from the original resistor back to main harness.

Drill hole for temperature cable and clutch wire just to the right of firewall pad attachment plug. Located on firewall between the defrost duct and holes for original heater tubes.

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

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



¼" – 20 FLANGE NUT



CAUTION: BE SURE THAT EVAPORATOR IS LEVEL WITH THE BOTTOM OF THE DASH.

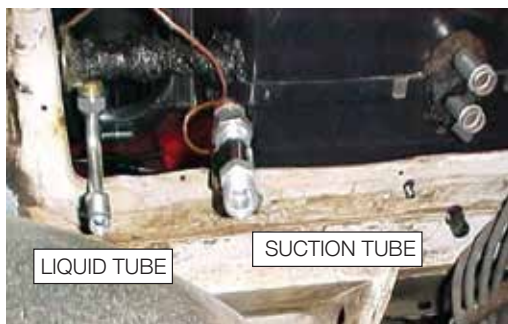
Locate in hardware sack kit (2) #14 x 3/4" tek screws. Attach blower support brace to body using (2) #14 tek screws.

Locate in hardware sack kit the upper evaporator support bracket, (1) 1/4 - 20 X 5/8" screw and flange nut.

Remove pan head screw from the evaporator. Loosely attach support bracket to the unit using same screw. Attach top of bracket to the dash brace through existing hole as shown using 1/4 - 20 screw and flange nut.

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

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

CAUTION: THE SYSTEM WILL NOT FUNCTION PROPERLY IF SENSING COIL IS NOT CLAMPED IN 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, and (6) #10 x 3/4" hex head tek screws. On engine side of the firewall attach over hookup tubes from evaporator using (6) #10 Tek screws. Using refrigerant tape seal around the tubes at firewall block off plate.



Locate and install air distribution assembly using (4) #10 x 5/8" pan head screws. (2) on top and (2) on bottom. Insert defrost plenum into original defrost diffuser.



Reinstall passenger fresh air cable to bottom of dash using original hardware.

Locate in control sack kit the main wire harness. Attach white (4) spade connector to blower motor and (2) blue spade connectors to thermostat.

Locate (1) #10 x 3/4 tek screw and ground the blower ring terminal to body next to the blower support. Route wire harness across top of the unit and over to micro switch on the side of distribution duct. Attach (1) blue wire from thermostat to side of micro-switch and (1) blue wire from blower switch to blue pig tail located next to face / heat door crank arm. Refer to wiring diagram for correct connections.

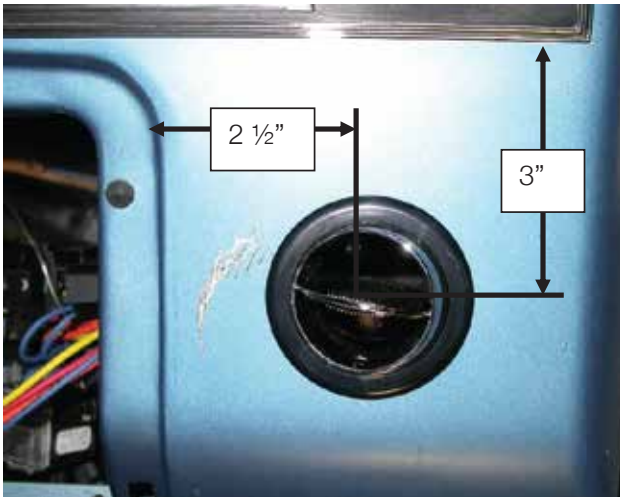
Locate in hardware sack kit (2) Round Ball louver assemblies with 2" hose adaptors, and (2) tywraps Locate 2" dia flex hose that is 4 ft long from the unit box. Cut (1) piece of hose 40", and (1) piece of hose 36". Attach each of the flex hoses to ball louver using a tywrap as shown.



BLUE WIRE FROM SWITCH

BLUE WIRE FROM THERMOSTAT

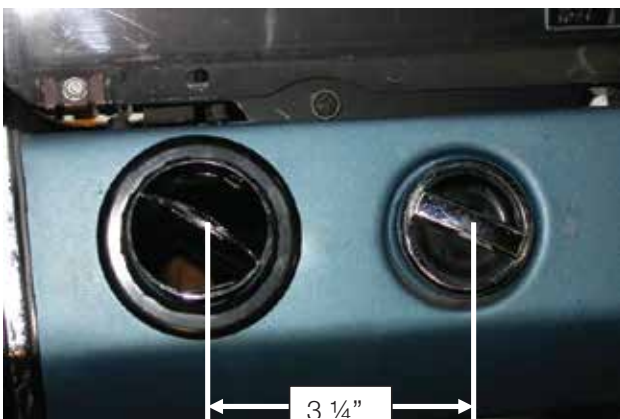




Locate and Drill (1) 2 1/4" dia. hole on right side of glove box. The center of hole will be located vertically 3" from bottom edge of trim as shown. Horizontal location is 2 1/2" from glove box opening. Attach ball louver assembly with 40" piece of duct hose through hole as shown. Route flex hose from right louver to top of distribution assembly.



Locate and Drill (1) 2 1/4" dia. hole on drivers lower part of instrument panel. Center of hole will be located vertically on center line of raised portion of the panel. Horizontal location is 3 1/4" from light switch. Attach ball louver assembly with 36" duct hose through hole as shown. Route flex hose from driver's louver over to left hose adaptor on the air distribution assembly.

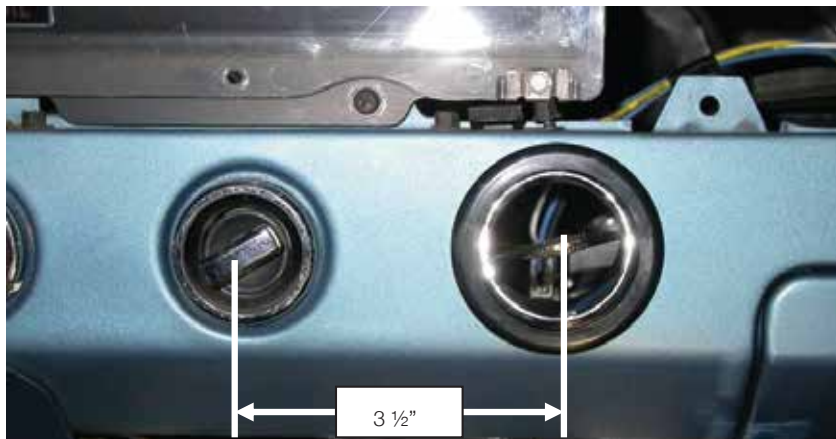


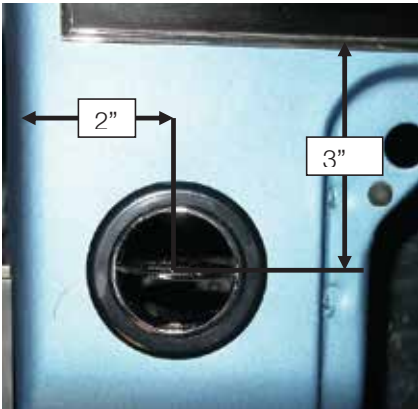
Locate and Drill (1) 2 ¼" dia. hole on drivers lower part of instrument panel to right of cigarette lighter. Center of the hole will be located vertically on center line of raised portion of the panel. Horizontal location is 3 ½" from light switch.

Locate the Ball louver assembly that has 2 to 2 ½" hose adaptor on the end. Attach this ball louver assembly through hole as shown.

Locate in hardware sack kit (1) Round Ball louver with 2 ½" hose adaptor, and (1) tywrap.

Locate 2 ½" dia flex hose that is 1ft long from unit box. Cut the hose 7", and (1) piece of hose 1ft. Attach the 12" flex hose to ball louver using tywrap as shown.

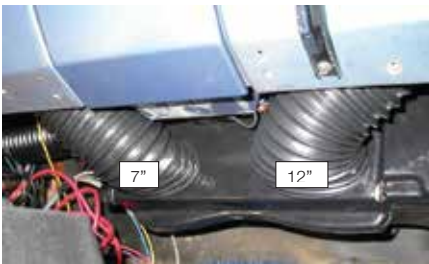




Locate and Drill (1) 2 ¼" dia. hole on left side of glove box. Center of hole will be located vertically 3" from the bottom edge of trim as shown. Horizontal location is 2" from left edge of the panel.

Attach ball louver assembly with 12" piece of duct hose through hole as shown.

Route the 12" flex hose down and attach to right hose adaptor on front of the distribution duct. Attach 7" piece of flex hose to left center ball louver assembly and route down to left hose adaptor on front of the distribution duct.



Reinstall fresh air door cable using original hardware.



Locate the control head, insert cables through opening in the dash.

Route blue wire from thermostat over top of evaporator and out through hole that was previously drilled.

Route the longest cable across top of evaporator and out through hole that was previously drilled. Route short cable back towards the driver.

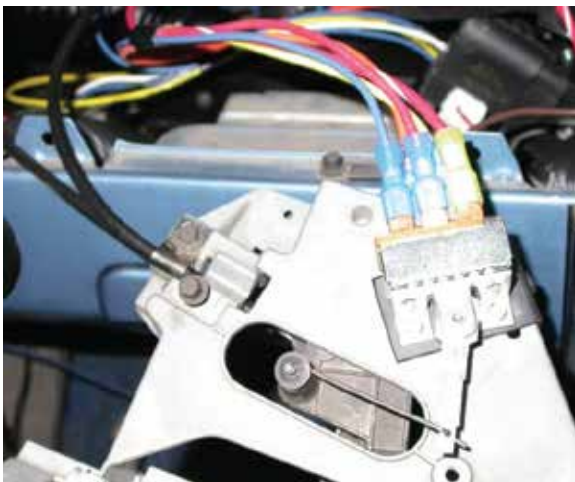


Attach Face / Heat cable to door on side of center duct assembly using (1) #8 screw.

Locate center wire of cable in 3rd hole from pivot of crank arm.

Attach wires to blower switch using the wiring diagram.

Reinstall radio and controls using original hardware.





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

Re-install the trim bezel using (5) attachment screws across top edge of instrument trim bezel.

Locate Glove Box provided in the kit and install using original hardware. Install bottom trim using original hardware.

Reinstall glove box door, attach using original hardware.

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

INSTALL COMPRESSOR ADAPTER KIT AND COMPRESSOR AT THIS TIME PER MANUFACTURERS DIRECTIONS.

Remove fan shroud.

Locate Condenser, (2) left hand and (2) right hand condenser mounting brackets and (8) #10 x 3/8" hex head screws. Attach brackets to condenser, top brackets in the 4th hole from top shown.

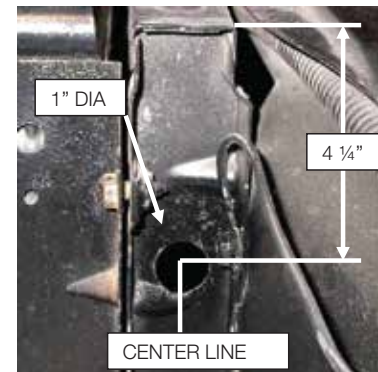


The lower condenser brackets attach to condenser on 3rd hole from the bottom.

Locate Filter / Drier, Drier Mounting Bracket and (2) #10 x 3/8" hex head screws. Install filter drier to condenser on 4th hole from the top.

Remove hood latch assembly retain original hardware. Also loosen the (6) radiator mounting bolts.

Locate on the center and 4 1/4" down on passenger side of the radiator spacer frame. Drill (1) hole 1" diameter. Deburr hole and apply paint over the raw edges. Loosen (4) radiator mounting bolts. The (4) condenser mounting brackets will be clamped between the radiator and the radiator spacer frame.





Carefully insert Condenser Assembly through the Radiator Mounting Bulkhead slide assembly to drivers side see picture below.



Locate Liquid Tube and (2) #6 o-rings. Attach the tube to fitting on condenser and fitting to the drier. Using the o-rings and a few drops of mineral oil. Slide condenser into place and tighten (4) radiator mounting bolts. The top discharge fitting will be inline with hole previously drilled.

Locate Discharge tube and (1) #8 o-ring. Attach the tube to condenser. Feed end through 1" hole as shown. Connect using #8 o-ring and a few drops of mineral oil.

Locate tube support bracket, (1) 5/16-18 x 1/2" hex head bolt, (1) hose clamp, (1) #8 screw and nut. Attach bracket to radiator front and clamp over the tube using hardware provided.



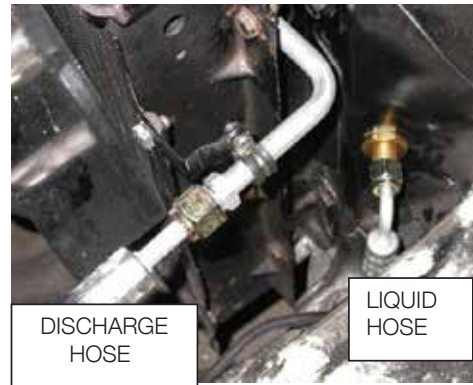
Locate liquid tube and (1) #6 o-ring. Loosely attach the tube to drier. Rotate tube and locate and drill (1) hole 13/16" diameter. Insert bulkhead fitting through hole and tighten securely. Attach to drier using (1) #6 o-ring and a few drops of mineral oil.

Locate Hi / Low pressure switch assembly, and wire harness. Attach Hi / Low switch assembly using a few drops of mineral oil.

Attach wire harness to pressure switch and route wires along discharge hose to compressor. Attach (1) of the wires to clutch. Route other wire along suction hose and connect to blue clutch wire at firewall.

Route Liquid hose Assembly from bulkhead and under battery box. Route inside fender and back to firewall fitting. Attach using (2) o-rings and a few drops of mineral oil.

Attach discharge hose to condenser fitting and route to compressor. Attach using (2) #8 o-rings and a few drops of mineral oil.





Locate Suction Hose Assembly and (2) #10 o-rings.

Attach suction hose end with service port to compressor and other end to fitting at firewall. Use (2) #10 o-rings and a few drops of mineral oil for each fitting.

Locate water valve and (3) worm gear clamps from hardware sack kit. Cut 6" of heater hose from the RETURN HOSE. Attach this piece to top fitting at firewall. The water valve is installed on other end of the 6" piece.

Attach supply line from engine to bottom hose connection. Set control lever in Cold position and be sure that water valve is closed. Locate insulation tape and seal around cable at firewall.

Reinstall battery, battery box, and fan shroud using original hardware.

THE ENGINE COMPARTMENT OF YOUR SYSTEM IS COMPLETE.





**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.

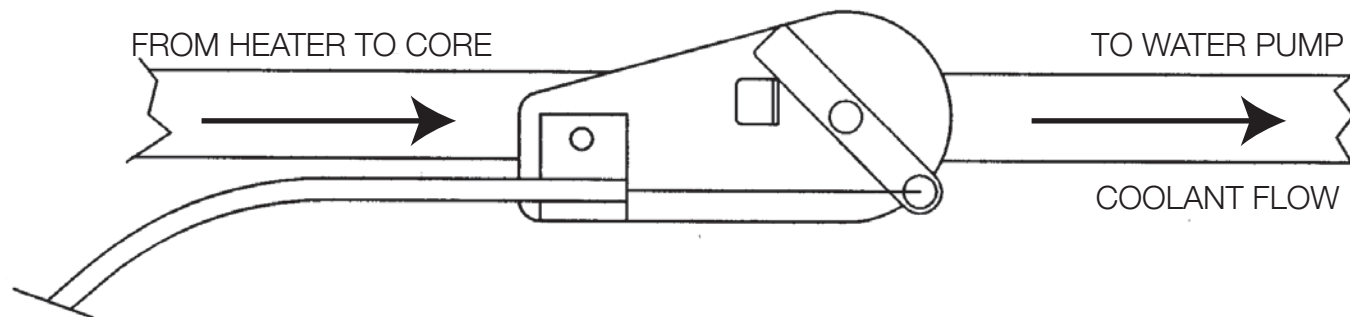
IMPORTANT!

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!**

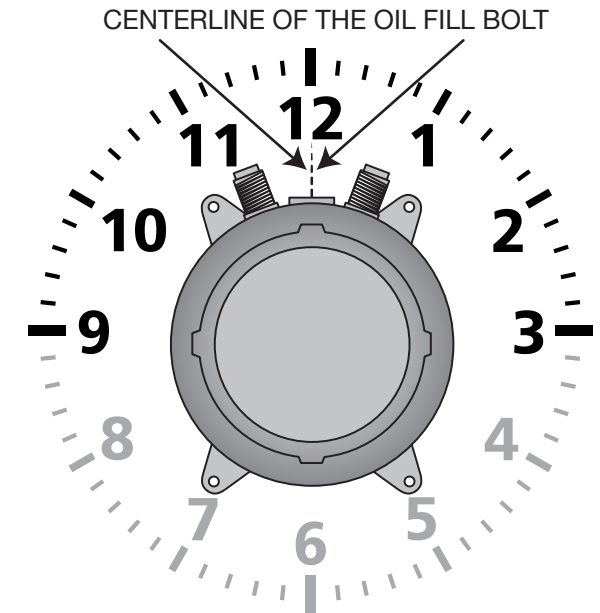
RECOMMENDED TEST CONDITIONS: (After system has been fully charged and tested for basic operation)

- 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

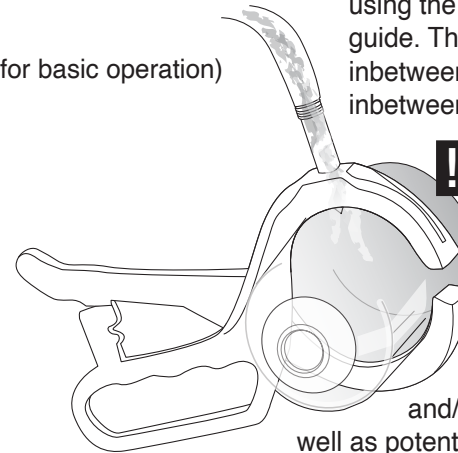
ACCEPTABLE OPERATING PRESSURE RANGES:

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)...

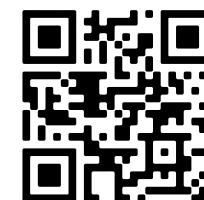
There is a blockage in the system. Remove hoses and blow compressed air through in both directions. If pressures don't change its possible that your expansion valve is stuck closed and would have to be replaced.

*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

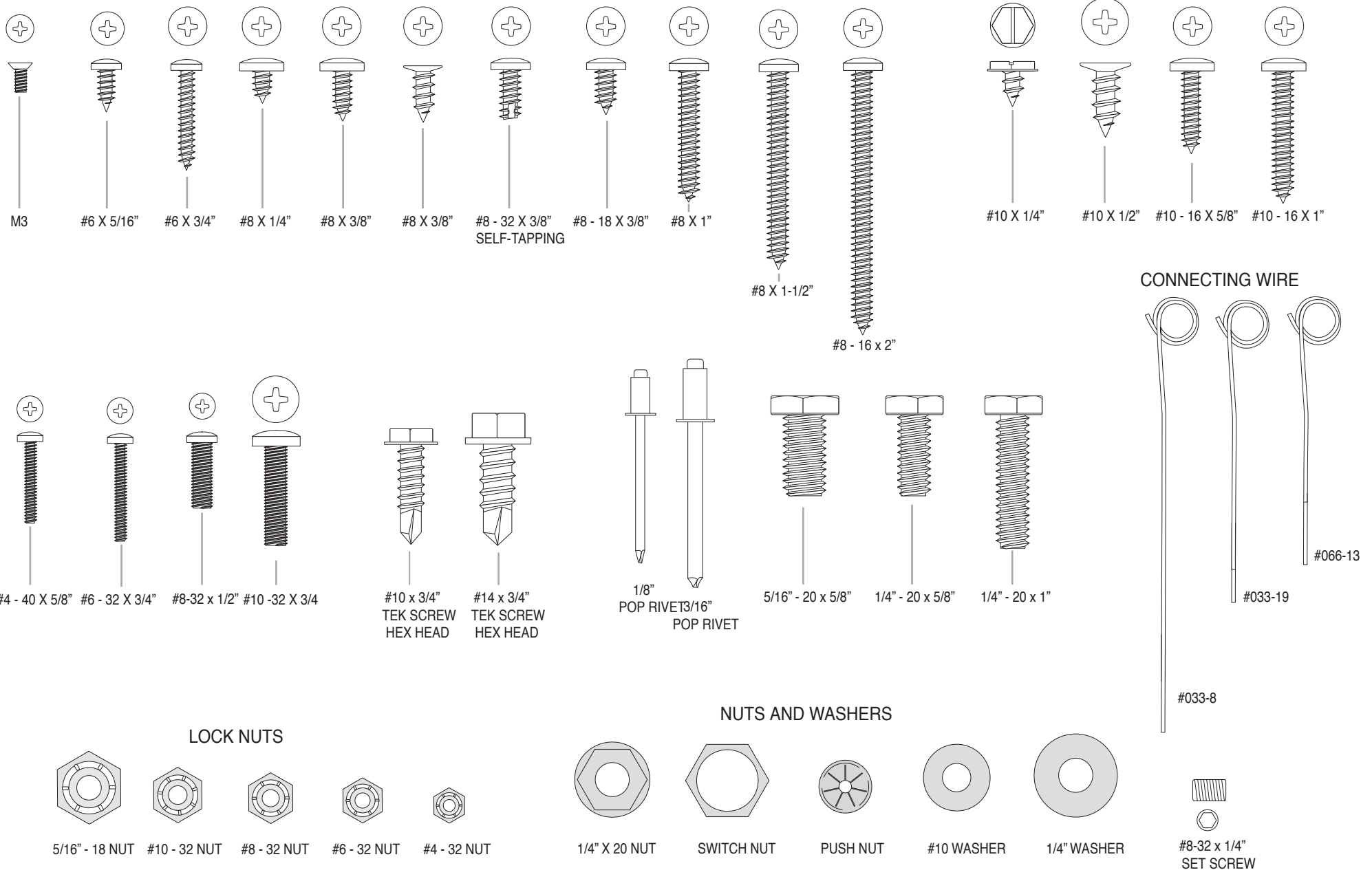
Get the technical support you want the moment you need it, with no wait times. Simply **SCAN** the **QR code** and be directly taken to our support section to troubleshoot all things A/C.



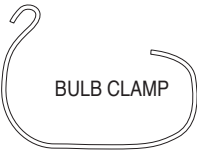
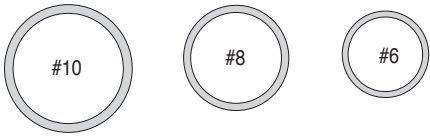


Classic Auto Air Hardware Reference Guide

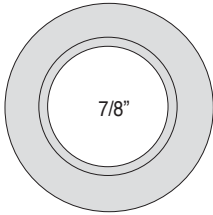
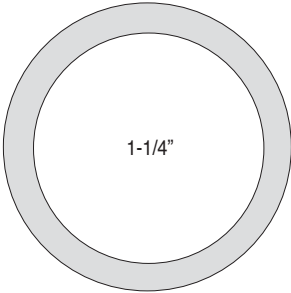
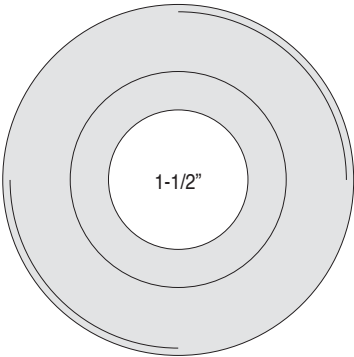
This is our basic line-up of hardware. No single kit will not contain all of these, but you can use this guide to match-up hardware for shape and size (all of these are actual size.)



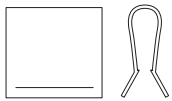
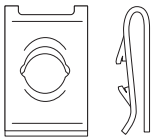
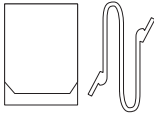
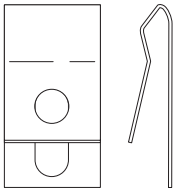
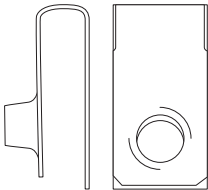
ORINGS



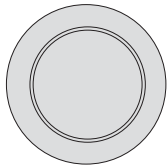
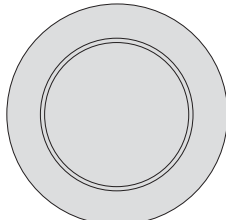
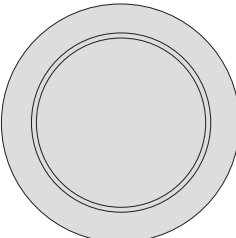
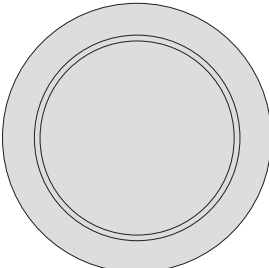
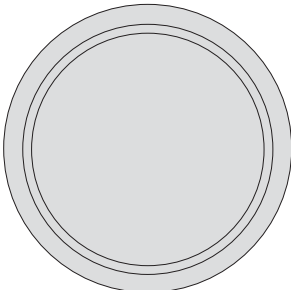
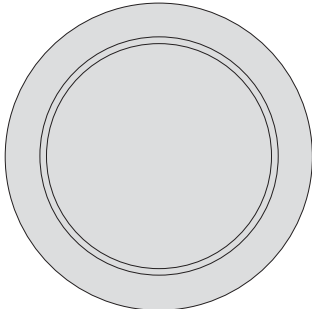
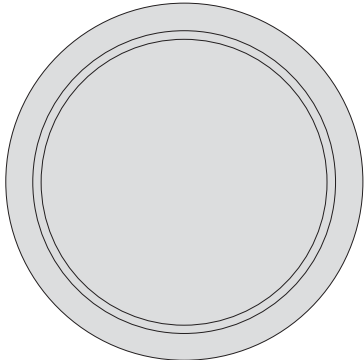
GROMMETS



CLIPS



HOLE PLUGS



HOSE CLAMPS

