

Installation Manual

1967 CHEVROLET BEL AIR
1967 CHEVROLET BISCAYNE
1967 CHEVROLET CAPRICE
1967 CHEVROLET IMPALA

DOCUMENT #1-2045

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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

Heater Duct Assembly

Inlet Air Block Off Assembly

Firewall Block Off Assembly

Flex hose 2" dia. (4) 2', (1) 4', (1) 52"

Sack Kit Hardware (2)

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 During the installation you might find the opportunity to repair or upgrade non-working or out of date components.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

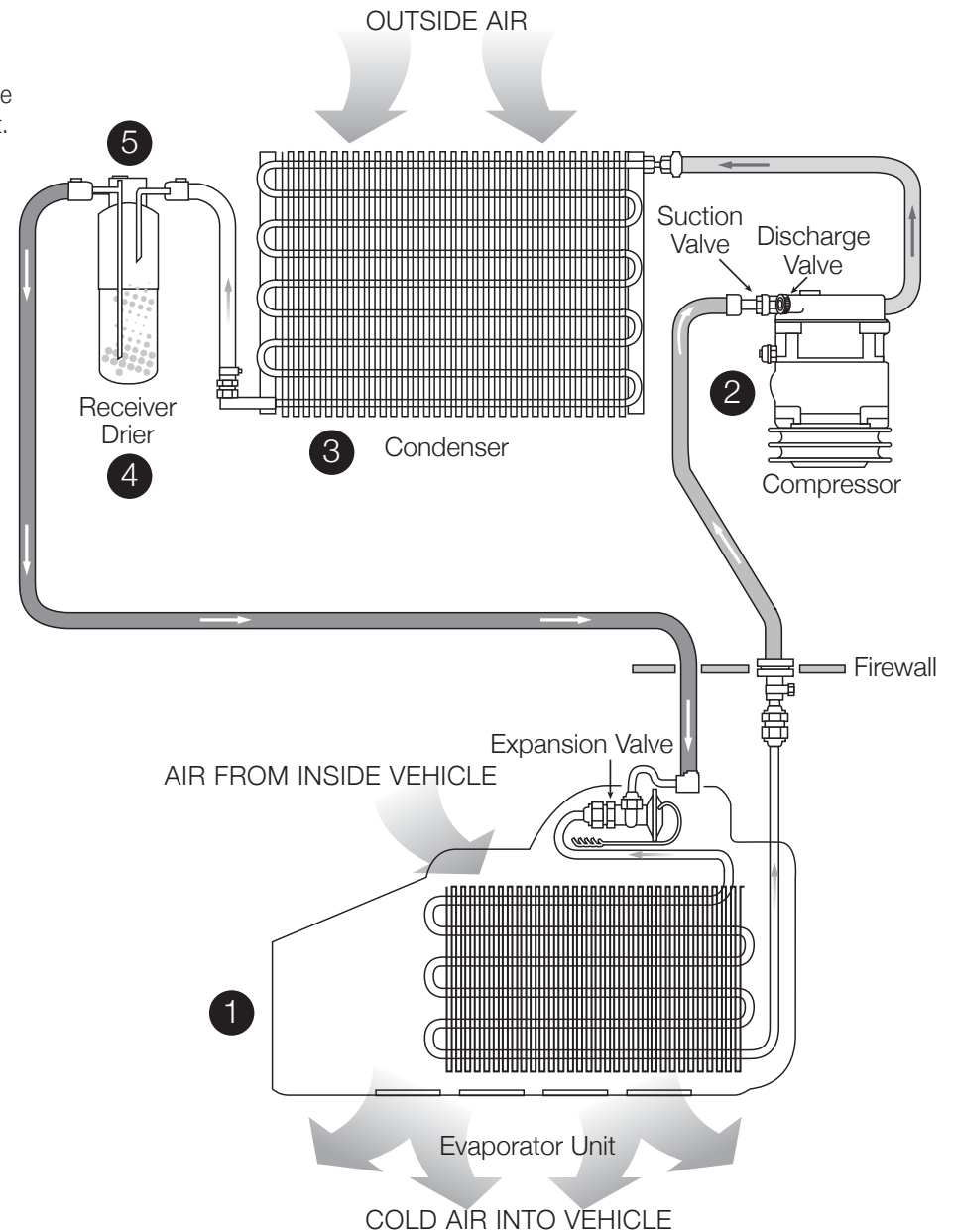
- ☐ Fittings: Use one or two drops of mineral oil (supplied with your kit) on ALL rubber o-rings, threads and where o-rings seat in fittings. Do not use thread tape or sealants.
- ☐ Measure twice (or more), cut once
- ☐ **Should you have any technical questions, or feel you have defective components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

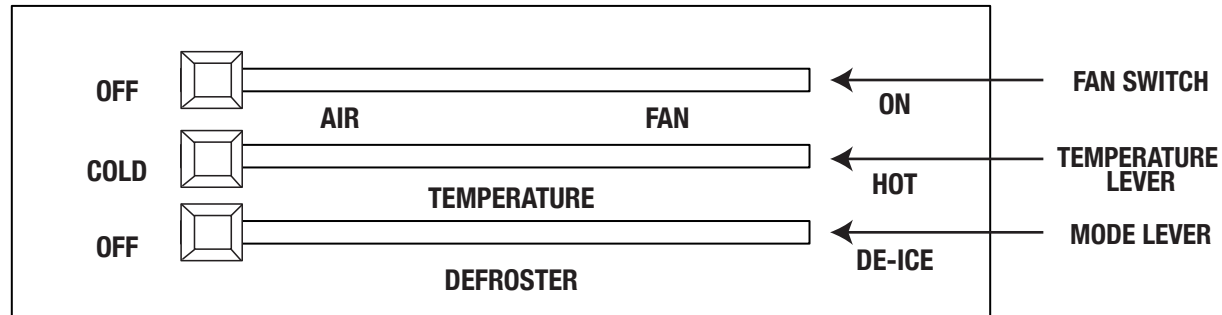
The air conditioning system in your vehicle is comprised of a compressor, condenser, expansion valve, receiver/drier, and evaporator. Refrigerant (also known as Freon) is compressed in the compressor. In the condenser, gas is cooled to a liquid state and travels to the expansion valve. As the liquid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

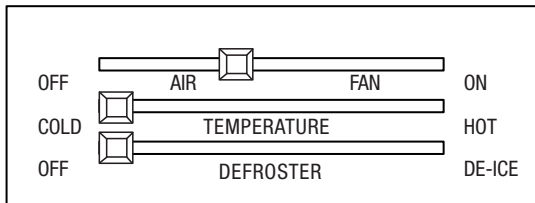
Your new Perfect Fit-Elite system offers complete comfort capabilities in virtually every driving condition. This includes temperature control in all of the modes. This system also provides the ability to blend the air between Face, Heat, and Defrost modes.



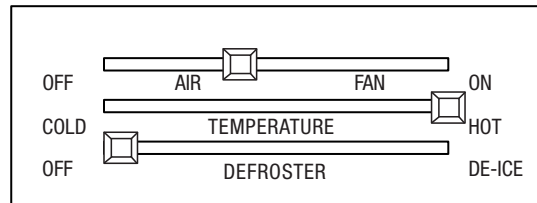
The top lever operates the blower switch in 3 speeds: LOW, MEDIUM AND HIGH

The center lever operates the TEMP controls (COLD to HOT) blend in between positions

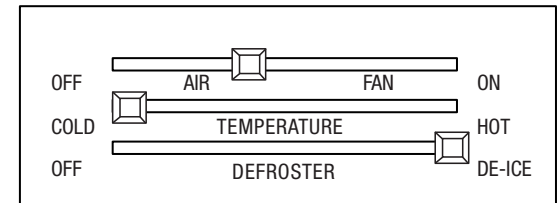
The lower lever operates the MODE controls (DASH, DEFROST, FLOOR) blend in between positions



This picture depicts the unit in full COLD (A/C) position and the air in the DASH position.

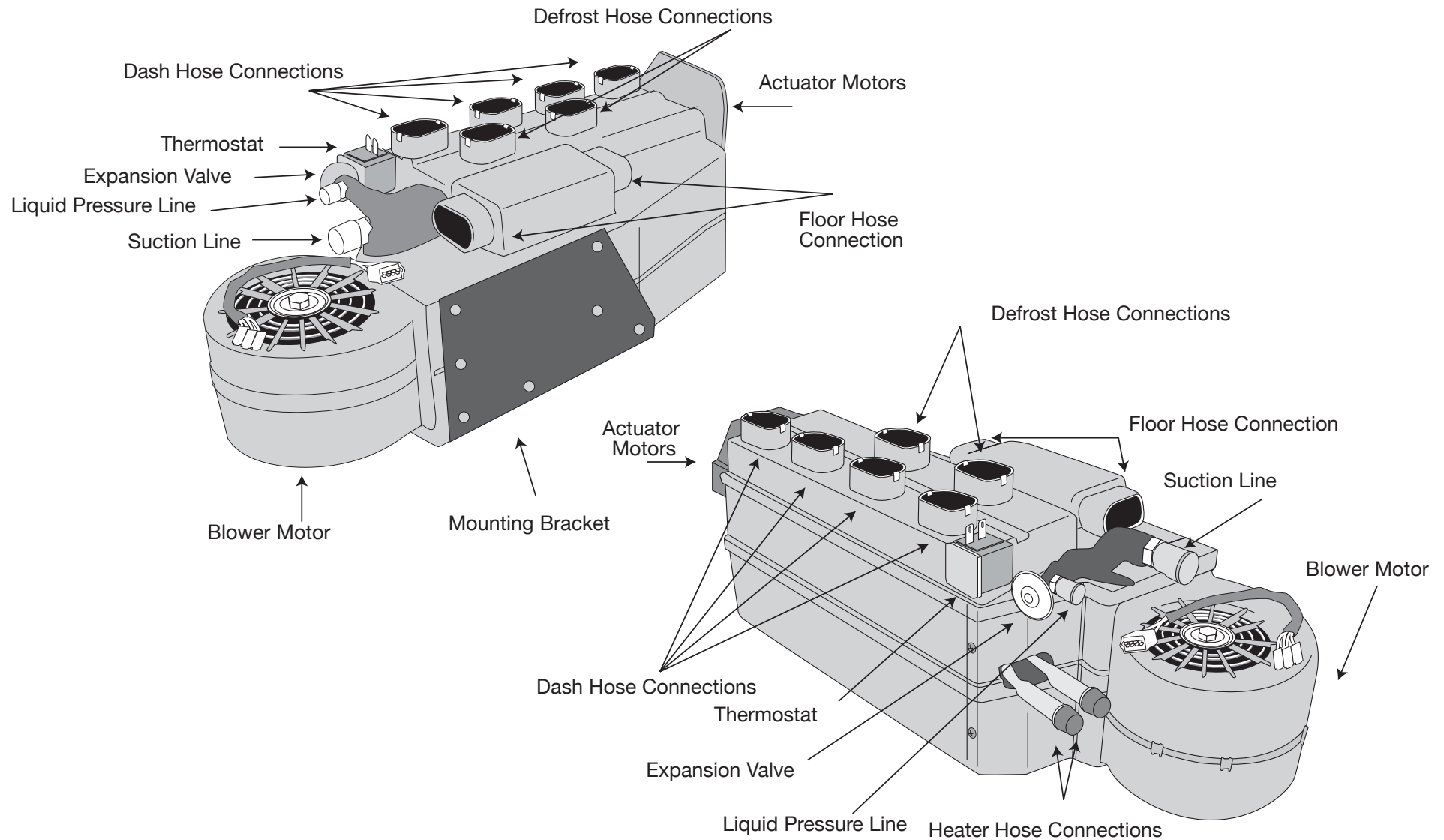


This picture depicts the unit in full HOT (A/C) position and the air in the DASH position.



This picture depicts the unit in full COLD(A/C) position and the air in the DEFROST position.

Take a minute to familiarize yourself
with the evaporator unit:





Remove Glove box door, glove box, retain glove box and original hardware. Remove radio, set aside for reinstall. Retain original hardware.

Remove screws from the fresh air door control bracket. Retain original hardware.

Let cable assembly drop the floor.

Disconnect battery and remove.

Remove the hood. Retain original hardware.

The bolts for the inner fender liner must be removed and retained. Remove the passenger's front wheel.



BOLTS INNER FENDER



BOLTS AROUND
WHEEL OPENING.

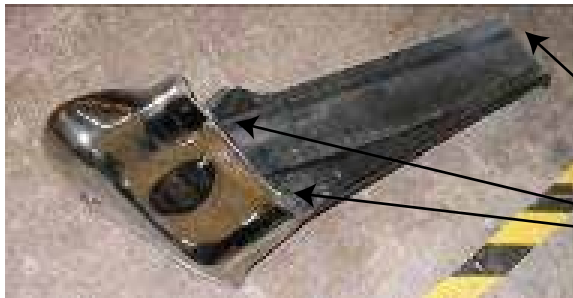


BOLTS ON TOP OF
FENDER LINER



Carefully remove the following components as shown in the pictures below.
Retain all components and original hardware.

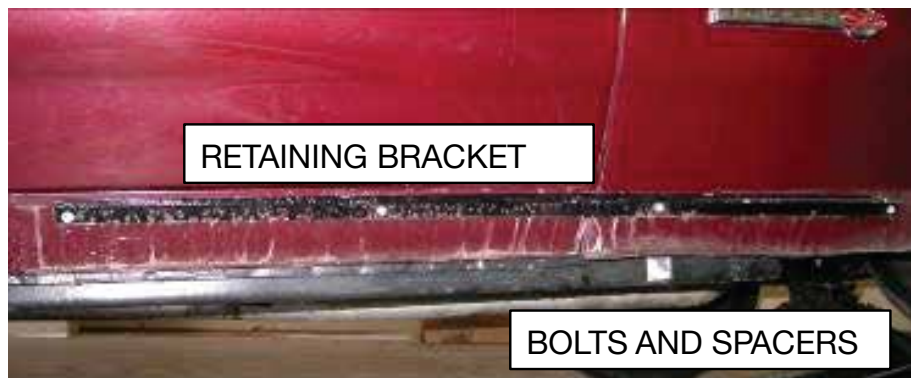
Remove the corner bumper assembly. The bolts are located as shown in the picture.





The body trim needs to be removed along the lower side as shown.

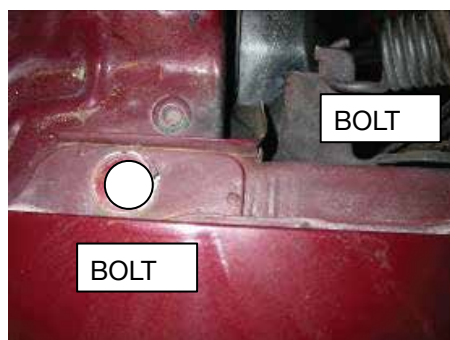
Carefully snap off the trim. Caution: do not scratch paint.



After removing trim the retaining bracket next to the front wheel well needs to be removed. Retain the bracket and original hardware.

There are bolts and spacers located under the fender that fasten the fender. Remove these and retain hardware.

CAUTION: FENDER IS INSTALLED WITH SPACERS FROM THE FACTORY. MAKE NOTE OF QUANTITY FOR REINSTALLATION.



Remove the (2) body bolts located next to the hood hinge.

Retain bolts and spacers.

Remove the body bolt behind the passenger door. Retain the original hardware and spacers.

Remove and retain the (4) bolts on the radiator bulkhead.





Remove fender and set aside for later reinstallation.

Remove the blower and housing assembly. Discard and retain (2) screws that are above and below the blower motor.

Locate the air inlet block off from the kit.

Using the original hardware attach over inlet hole.

Reinstall the fender, body trim, corner bumper assembly, turn signal assembly and the light bezel.

DRAIN COOLANT FROM RADIATOR.

Remove Heater hoses from heater coil at firewall. Disconnect electrical plug at resistor. Pull heater assembly away from the firewall. Disconnect the (2) control cables from the box. Discard the heater and the mounting hardware.





Locate wire assembly that plugged into the original blower switch. Cut all but the brown wire as far back as you can. Cut the brown wire at the plug. And attach a male insulated spade connector.

Remove the (4) screws along the top of the instrument bezel. Retain hardware. Carefully snap the bottom of the bezel away from the instrument panel.



Remove the (4) screws that attach the control head mounting bracket. Retain original hardware. Remove control head. Retain original hardware.

CONTROL MODIFICATIONS:

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

- (1) Original Blower Switch
- (2) Heat Cable
- (3) Temp Cable

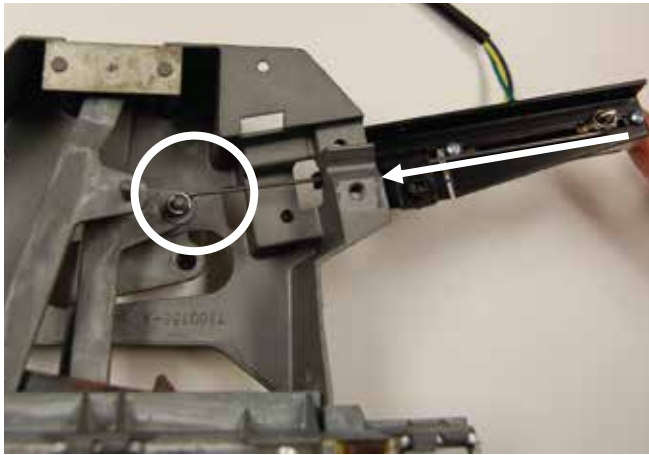


Attach Blower Switch assembly on to control head using the original hardware.

As shown in picture it is necessary to rotate the assembly and slide over the screw that will be under the switch. This screw will need to be tightened with a wrench. Locate in the control sack kit the Connecting Wire and (1) 3/16" push nut. Hook the wire through blower switch hole in the lever and then over the Control Lever. Use push nut to hold the connecting wire.

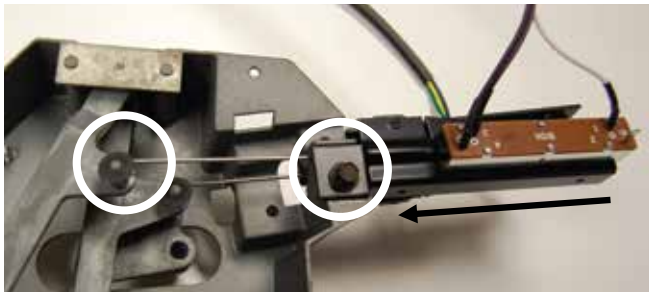


The next process is as simple as connecting cables to your OEM control head, placing control head upside down.



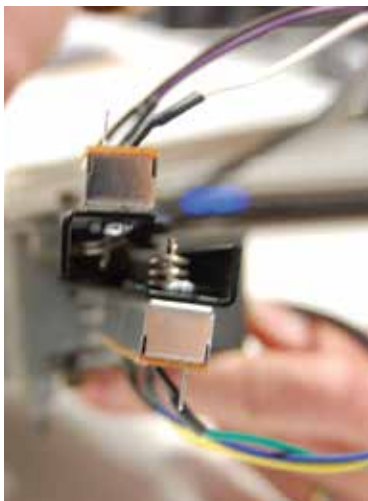
CONNECTIONS ARE FROM UNDERSIDE OF CONTROL HEAD

Locate your E-Z Wire harness (green harness) from your control sack kit . Insert cable integrator labeled MODE CONTROL (green, yellow, blue wires) and attach to the bottom arm of your OEM control head. Place loop over post and attach with (1) push nut provided. Next attach (1) cable clip provided to control bracket and tighten on OEM control head where the OEM cable was attached previously. Make certain the cable integrator is flush with OEM control head assembly as shown.



Locate your E-Z Wire harness (green harness) from your control sack kit . Insert cable integrator labeled TEMP CONTROL (purple, brown, white wires) and attach to the middle arm of your OEM control head. Place loop over post and attach with (1) push nut provided. Next attach (1) cable clip provided to control bracket and tighten on OEM control head where the OEM cable was attached previously. Make certain the cable integrator is flush with OEM control head assembly as shown.

Make certain that the control integrators are not interfering with each other and located upside down from each other as shown below.



Attach Wire Harness supplied in kit to the blower switch.

REFER TO THE WIRING DIAGRAM ON LAST PAGE FOR PROPER WIRING CONNECTIONS

Reinstall control head, mounting bracket, and instrument bezel, using original hardware.



Locate in the hardware sack kit the heater distribution assembly, and (2) #10 x 3/4" screws.

Attach assembly above the center of the doghouse just where the firewall meets the dog house. Pre drill 1/8" diameter hole. Attach assembly using the #10 screws.



Remove the original defrost distribution assembly. Discard the assembly and original hardware.

Locate in the hardware sack kit (2) defrost diffusers.

Attach to the drivers and passengers outlets as shown.

The s-clips attach to the metal lip.

Locate on the last page of the instructions a template. Cut out as shown.



Tape the template to the firewall as shown in the picture.

Notch the corner of the heater opening, and drill (2) 7/8" diameter holes.





Using a pair of pliers flatten the lip of the opening under the 7/8" holes.

Locate in the hardware sack kit (2) heater bulkheads.

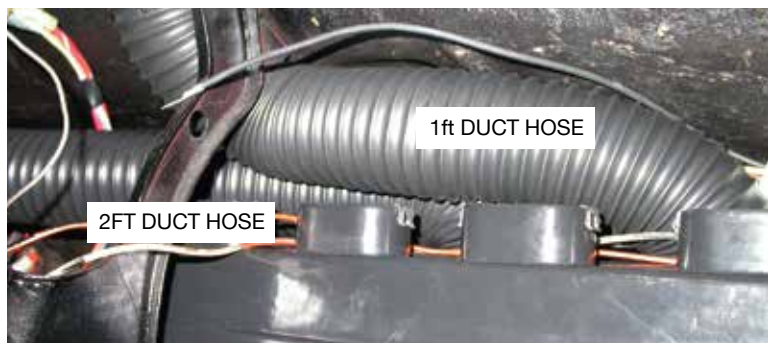
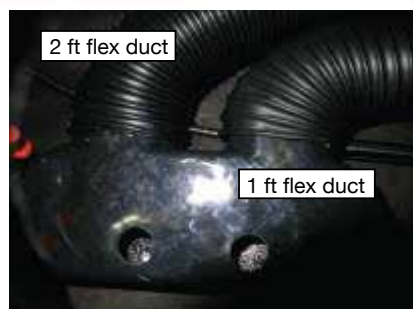
Insert bulkheads from the inside of the car. Attach with nuts, tighten nuts.

Locate the (2) 5/8" diameter heater hoses provided in kit. Locate (2) worm gear clamps from the hardware sack kit.

The longest heater hose attaches to the fitting on right using (1) of the worm gear supplied.

The shortest heater hose attaches to the fitting on left using (1) of the worm gear clamps.





Locate the evaporator, (1) 1ft of 2" diameter flex duct, (1) 2ft. of 2" diameter flex duct, and (2) ty-raps.

Place unit on bench and attach the 2ft duct to the left hose adaptor using (1) ty-rap.

Attach the 1ft duct to the right hose adaptor using (1) ty-rap. As shown in picture on next page.

The next step is to install the evaporator into the car. The picture to the right shows the unit from the front. Note the 2ft duct lays over the top of the unit as it is installed.

Lift unit up and behind the instrument panel. The picture on next page shows the engine side of the firewall. The (2) studs insert into the original heater mounting holes. Attach using (2) 1/4"-20 flange nuts provided in the hardware sack kit.

Attach the flex duct from the heater outlets to the distribution assembly. As shown.

Locate in the kit (1) 2ft 2" diameter flex hose and (1) 2" diameter flex hose.

Attach the 2ft hose from the left defrost outlet to the drivers side defrost diffuser. Attach to diffuser using (1) #8 x 3/8" pan head screw.

Attach the 1ft hose from the right defrost outlet to the passenger side defrost diffuser. Attach to diffuser using (1) #8 x 3/8" pan head screw.

Route the temperature control cable along the firewall and out the large hole as shown in the picture to the left.



Locate in the hardware sack kit (1) #10 x 3/4" tek screw.

Located under the glove box opening the front support bracket. Using the #10 screw attach to the bottom of the instrument panel.

Route wire harness across the unit and plug the 4 pin connector into the blower motor.

Attach the (2) blue wires from the harness to the top of the thermostat. The blue wire without the connector, route over the top of the unit and out next to the temp cable.



Locate (1) #10 tek screw from the hardware sack kit.
Attach ground wire from the motor plug to the body.

Locate the white plug with (2) wires that is attached to the harness. Plug this into the micro switch on the side of the unit.



Attach the heat/ defrost cable to the unit as shown.

Insert the cable wire into the cam and attach the cable housing to the bracket using (1) #8 x 3/8 pan head screw. Tighten securely.

Route the heater hoses that were attached to the bulkheads, and attach to the heater fittings on the front of the unit.

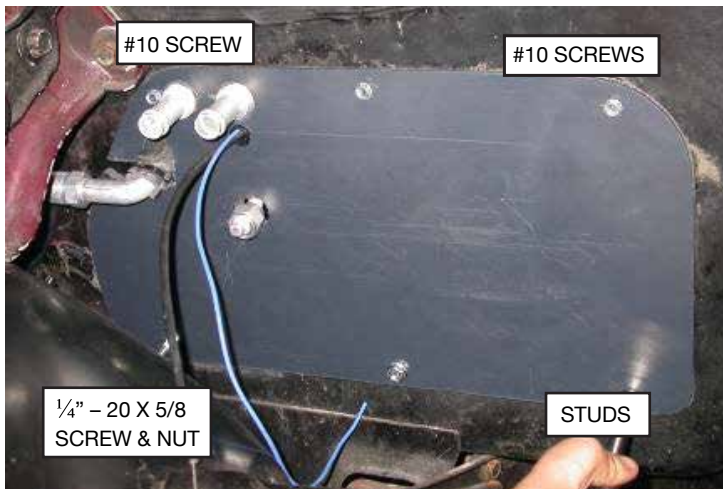
Attach using (2) worm gear clamps provided.

Locate the firewall blockoff, (1) 1/4"-20 x 5/8 hex head screw, (3) 1/4"-20 flange nuts, and (3) #10 x 3/4 " tek screws.



Insert the Blue clutch wire and the Temp control cable through the 1/2" plastic grommet in the firewall blockoff. Slide the blockoff over the suction tube, heater bulkheads, and insert the liquid tube through the hole in the bulkhead.

The blockoff will slide over the studs at the bottom of the mounting bracket.



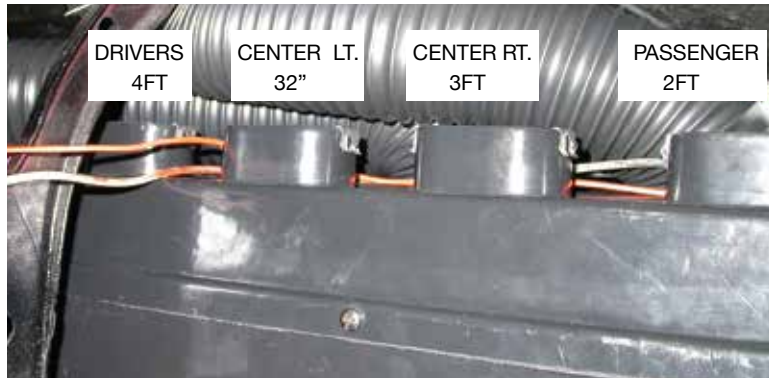
Attach blockoff using the flange nuts at bottom, (3) #10 tek screws across the top, and (1) 1/4" bolt and nut from the inside of firewall on the bottom left. Seal around a/c hoses using the insulation tape supplied.



Locate in the hardware sack kit the (4) remote louver assemblies, and the #10 x 3/4" hex head tek screws.



Mount the (4) remote louver assemblies in desired location of dash. Locate 2" dia flex hose from the unit box and attach to the unit.



Locate (4) pieces of the 2" flex duct from the unit box. (1) 4ft, (1) 3ft cut the duct to 32", (1) 3ft, and (1) 2ft.

Attach the hoses as shown and route to the dash louvers.

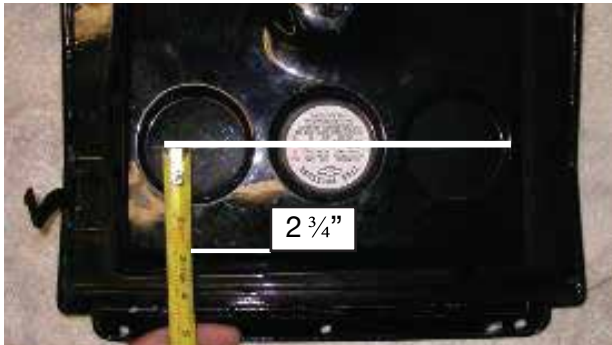
Reattach the fresh air door cable using original hardware.

Locate 6" piece of drain tube.

Just to the right of the unit below the drain tube nipple. Drill (1) 13/16" diameter hole and insert the drain tube.

NOTE: HOLE MUST BE BELOW THE DRAIN TUBE NIPPLE TO ALLOW PROPER CONDENSATION DRAIN.





Locate the glove box door and carefully locate a line 2 $\frac{3}{4}$ " from the edge of the door back.

Locate the glove box from the unit box and (3) #10 x $\frac{3}{4}$ " tek screws. Attach glove box to door with top edge along the line previously marked. Use the (3) screws supplied.



Reinstall glove box door using original hardware.

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



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

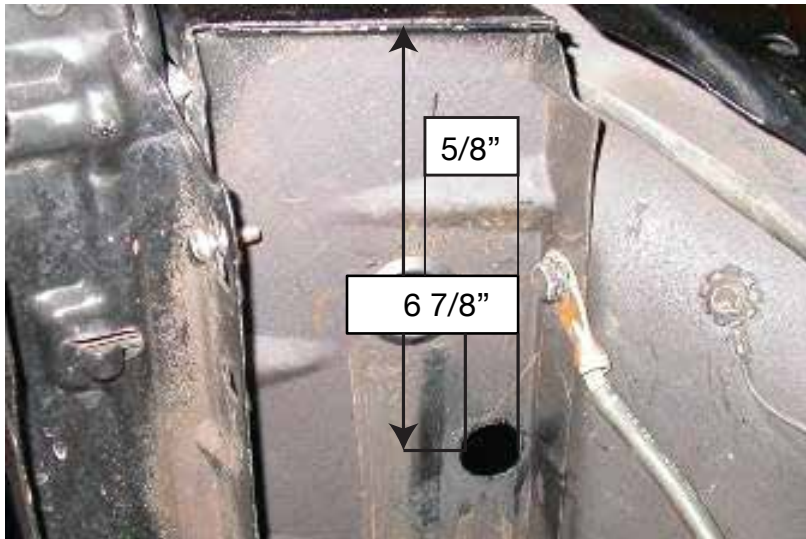
Attach the Temperature cable to the water valve using the cable clip supplied on the water valve.

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



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

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



There needs to be a 1" hole for the discharge tube to come through the radiator support.

Locate on the passenger side of the radiator support. The center of the hole to be drilled. Drill a 1" hole to the dimensions as shown.

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

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

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

Locate the Condenser, (2) right condenser mounting brackets (short), and (4) #10 x 1/4" hex head screws.

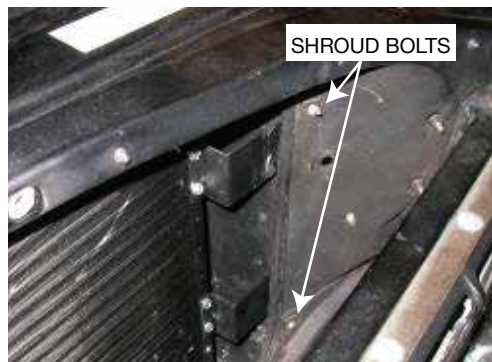
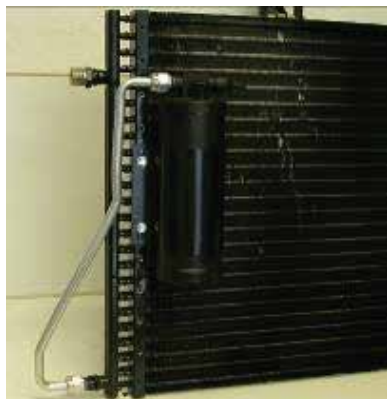
Attach (1) bracket to the condenser 3rd hole from the top as shown.

Attach the other bracket 4th hole from the bottom as shown

Remove and retain the (5) bolts that attach the hood latch assembly.

Remove hood latch and set aside.

Loosen the radiator shroud bolts. These bolts are located on both sides of the radiator opening.





Slide condenser down in front of radiator. Insert the brackets between the shroud and the radiator bulkhead.

Locate the Condenser, (1) left condenser mounting bracket (long), and (2) #10 x 3/8" hex head screws. Slide bracket between shroud and the radiator bulkhead. Attach (1) bracket to the condenser 4th hole from the bottom as shown. Attach the bracket to the condenser using the #10 screws.



Locate the #8 discharge tube, and (1) #8 o-ring. Route tube through the hole and attach to condenser using the o-ring and a few drops of mineral oil. Insert top bracket between shroud and the radiator bulkhead. Attach bracket to the condenser in the top hole as shown. Attach the bracket to the condenser using the #10 screws.

Slide condenser assembly to the left and up and down so that the tube comes through the hole in the center. Tighten shroud to clamp brackets to radiator bulkhead.

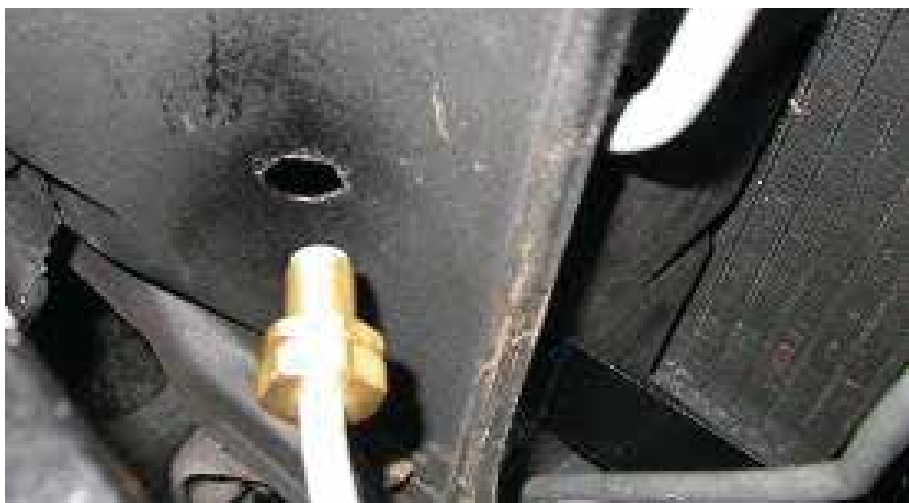
Locate the #6 liquid tube and (1) #6 o-ring. Loosely attach tube to drier. Using the other end locate and drill (1) hole 11/16" diameter.

Insert the bulkhead fitting through the hole and attach using the nut provided. Tighten fitting and bulkhead securely.

Locate Hi-Low pressure switch ,electrical boot and attach to top of the receiver drier using a few drops of mineral oil. Route wires through the hole along the discharge tube.

Reinstall hood latch assembly using original hardware.

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





NOTE: THIS INSTALL IS CORRECT FOR A 350CID V8 ENGINE, WITH ALTERNATOR 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 #10 refrigerant hose. Attach 90 deg. end without the service port to #10 fitting at the firewall. Attach using (1) #10 o-ring and a few drops of mineral oil. Route the hose inside the fender forward and out between the battery and fender liner. Attach the end with the service fitting to the compressor using (1) #10 o-ring and a few drops of mineral oil. Tighten securely.

Locate the liquid hose, and (2) #6 o-rings. Attach the 90 deg. fitting with the male threads to the firewall. Use (1) #6 o-ring and a few drops of mineral oil. Route hose inside the fender forward around the battery and connect the end with the 45deg. fitting to the liquid fitting on the radiator core support. Attach using #6 o-ring and a few drops of mineral oil. Tighten securely.

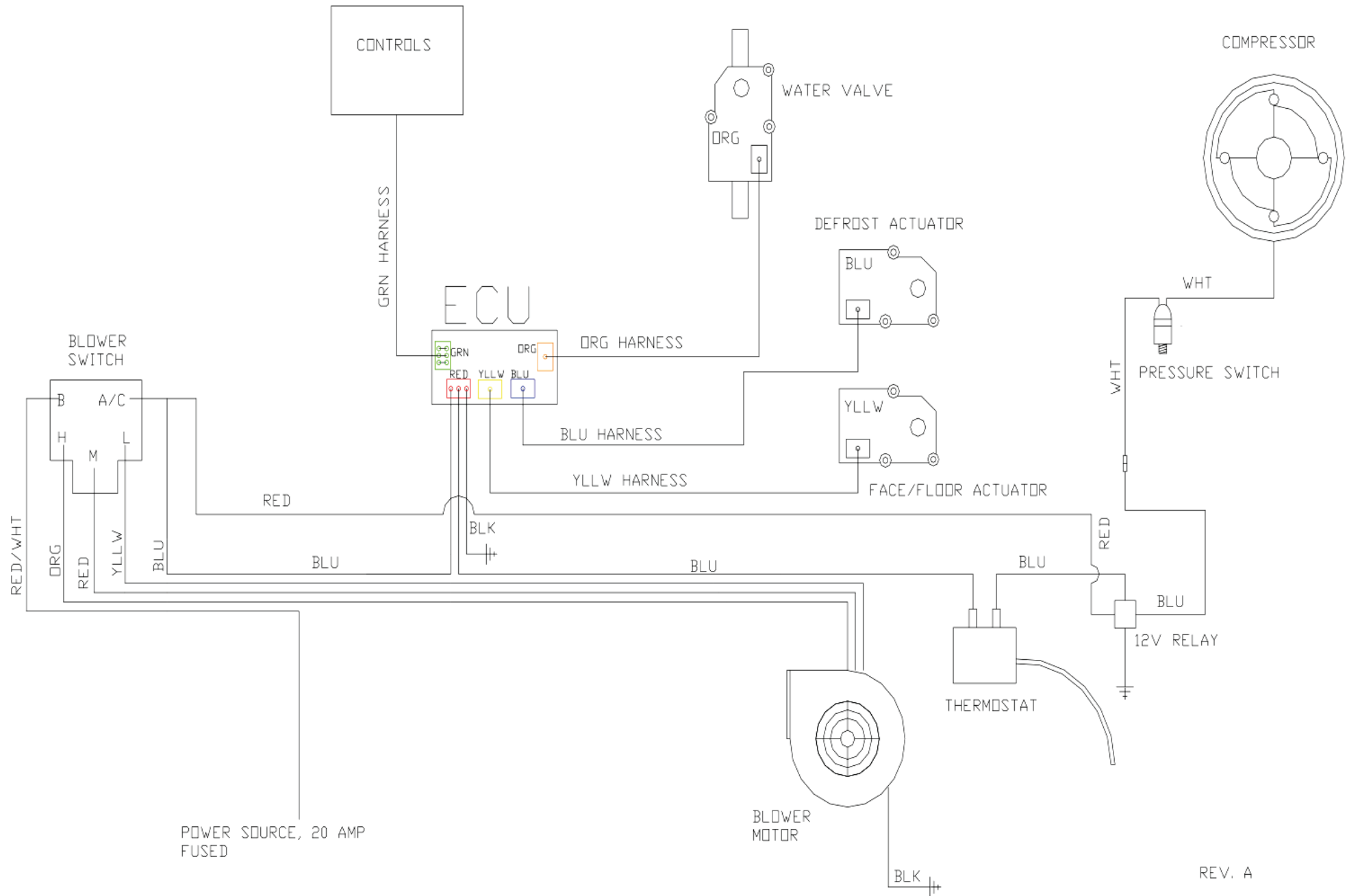
Locate the #8 discharge hose and (2) #8 o-rings. Attach the end with the straight fitting to the discharge tube from the condenser using (1) #8 o-ring and a few drops of mineral oil. Attach #8 refrigerant hose with service port end to the compressor using (1) #8 o-ring and a few drops of mineral oil. Tighten securely.

Reinstall hood, battery tray and battery, using original hardware. Refill radiator. Carefully check the hood alignment for proper fit.

ELECTRICAL WIRING

The wiring of our ELITE series has been simplified. We have taken several steps to ensure easy connection of all actuators to state of the art ECU board that will control all heat, A/C and defrost functions.

1. First locate the 3 wiring harnesses from the control sack kit each harness is color coded (yellow, blue, orange)
2. Locate the ECU on the evaporator unit.
3. Locate the BLUE wiring harness and plug on end into the color correct connection on the ECU, plug other end into correct color coded actuator on evaporator
4. Locate the YELLOW wiring harness and plug on end into the color correct connection on the ECU, plug other end into correct color coded actuator on evaporator
5. Locate the ORANGE wiring harness and plug on end into the color correct connection on the ECU, plug other end into correct color coded actuator on the water valve(refer to page 10 for correct water valve installation)
6. Locate your control harness (GREEN) plug the connector to the ECU in the correct color coded plug
7. Locate the main power wiring harness (refer to wiring diagram for specific details pg 10)
8. Plug the RED connection into the RED coded plug on the ECU





**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.

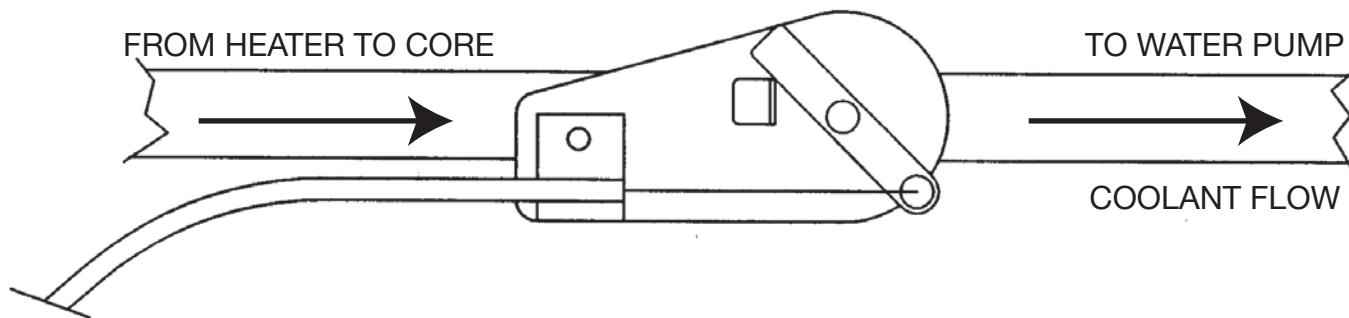
IMPORTANT!

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!**

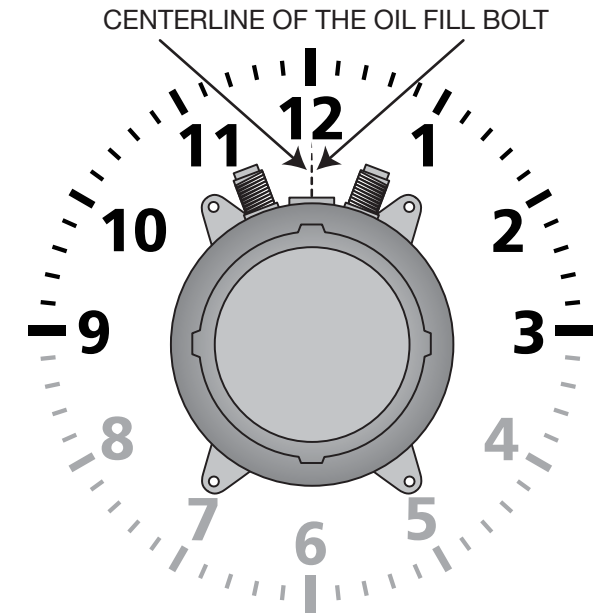
RECOMMENDED TEST CONDITIONS: (After system has been fully charged and tested for basic operation)

- 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

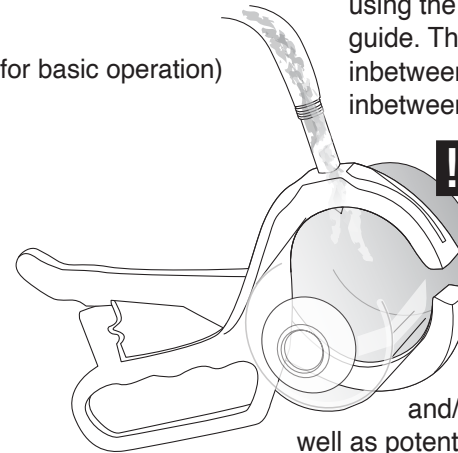
ACCEPTABLE OPERATING PRESSURE RANGES:

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)...

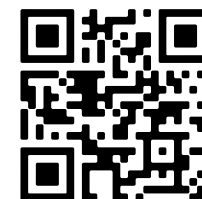
There is a blockage in the system. Remove hoses and blow compressed air through in both directions. If pressures don't change its possible that your expansion valve is stuck closed and would have to be replaced.

*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

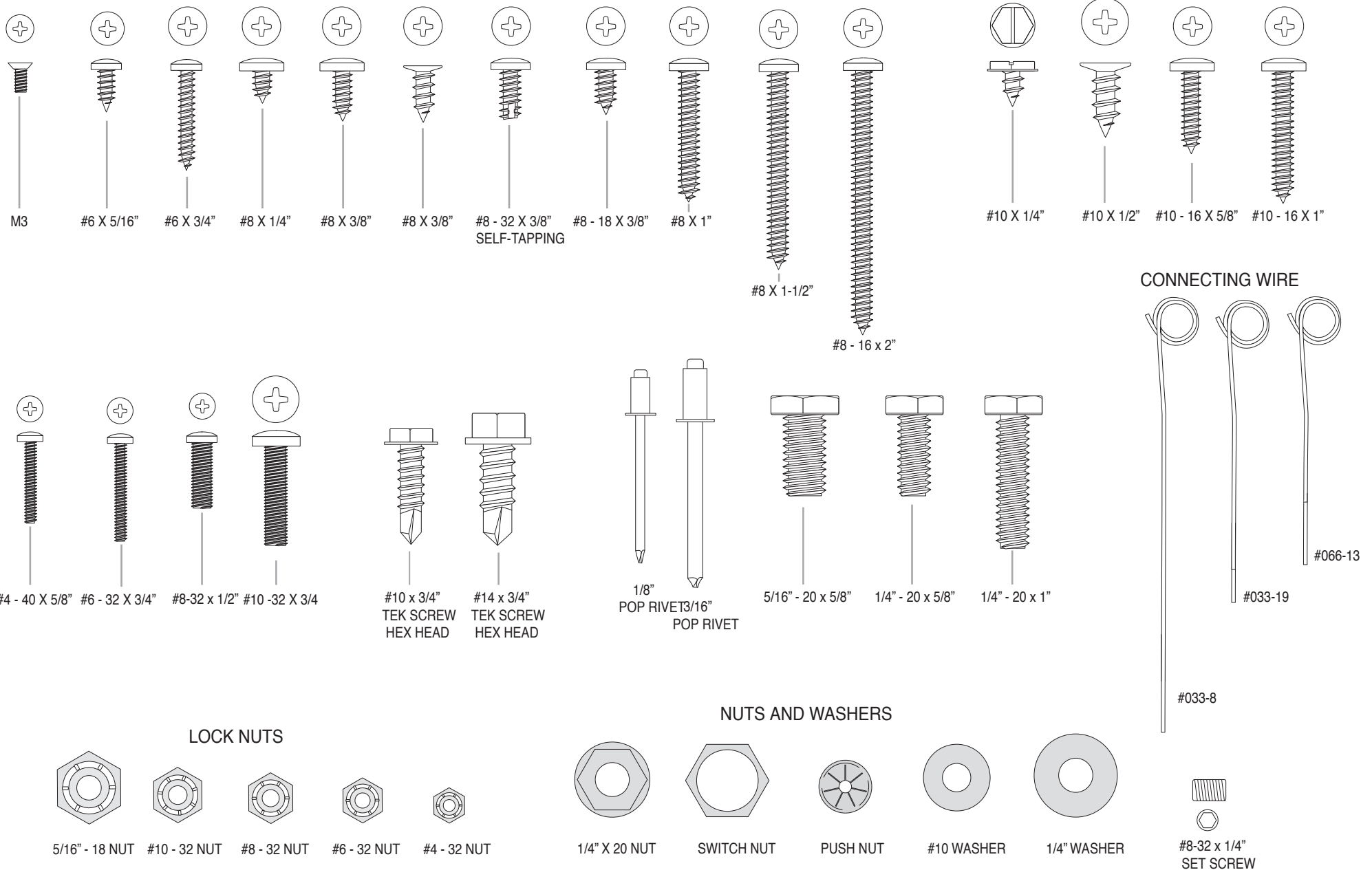
Get the technical support you want the moment you need it, with no wait times. Simply **SCAN** the **QR code** and be directly taken to our support section to troubleshoot all things A/C.



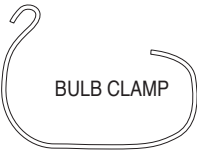
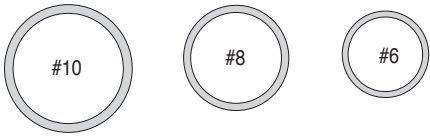


Classic Auto Air Hardware Reference Guide

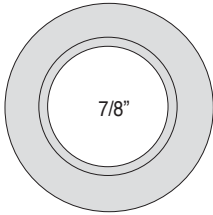
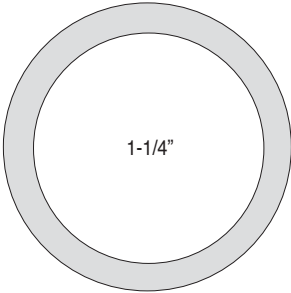
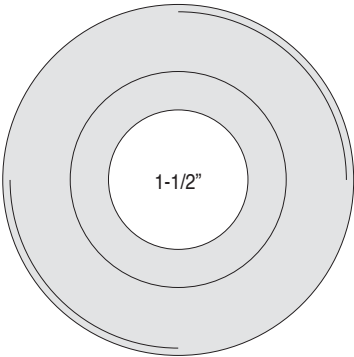
This is our basic line-up of hardware. No single kit will not contain all of these, but you can use this guide to match-up hardware for shape and size (all of these are actual size.)



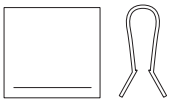
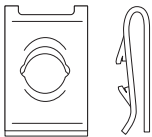
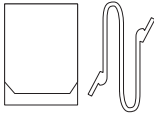
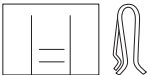
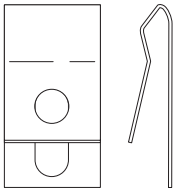
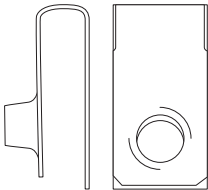
ORINGS



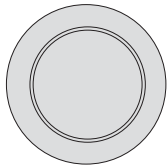
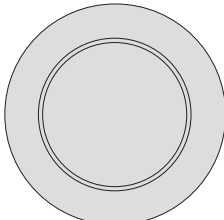
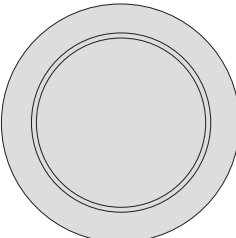
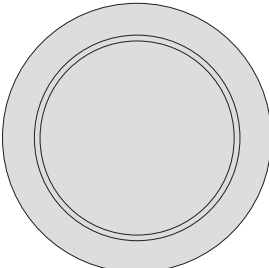
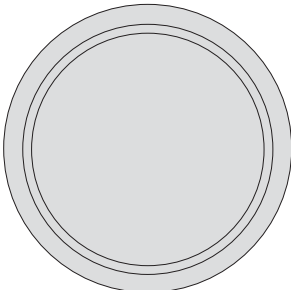
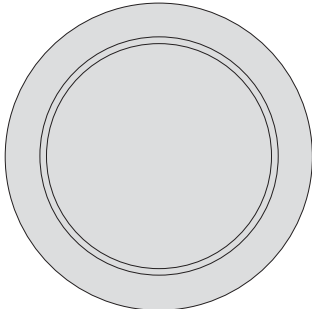
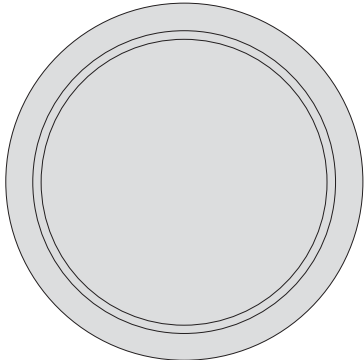
GROMMETS



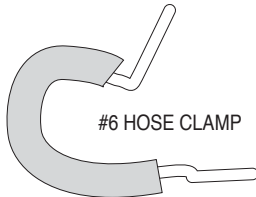
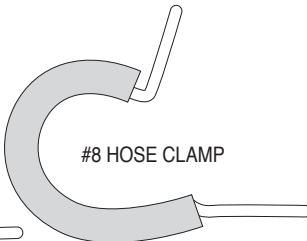
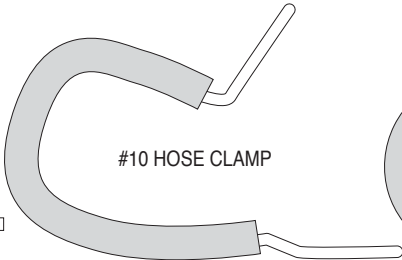
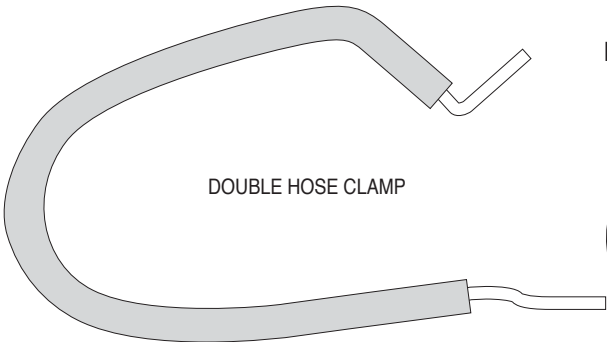
CLIPS



HOLE PLUGS



HOSE CLAMPS



**IF YOU PRINTED THIS MANUAL
PLEASE READ THIS...**

Just as a cautionary step, please
measure this box and make sure it
is 1" x 1". Some copiers/printers
may not print at 100% of actual size.

