

Installation Manual

1958 CHEVROLET BEL AIR
1958 CHEVROLET BISCAYNE
1958 CHEVROLET CAPRICE
1958 CHEVROLET DELRAY
1958 CHEVROLET IMPALA

DOCUMENT #1-1038

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Congratulations...

You have just purchased the highest quality, best performing A/C system ever designed for your 1958 Chevrolet Implala.

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 During the installation you might find the opportunity to repair or upgrade non-working or out of date components.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

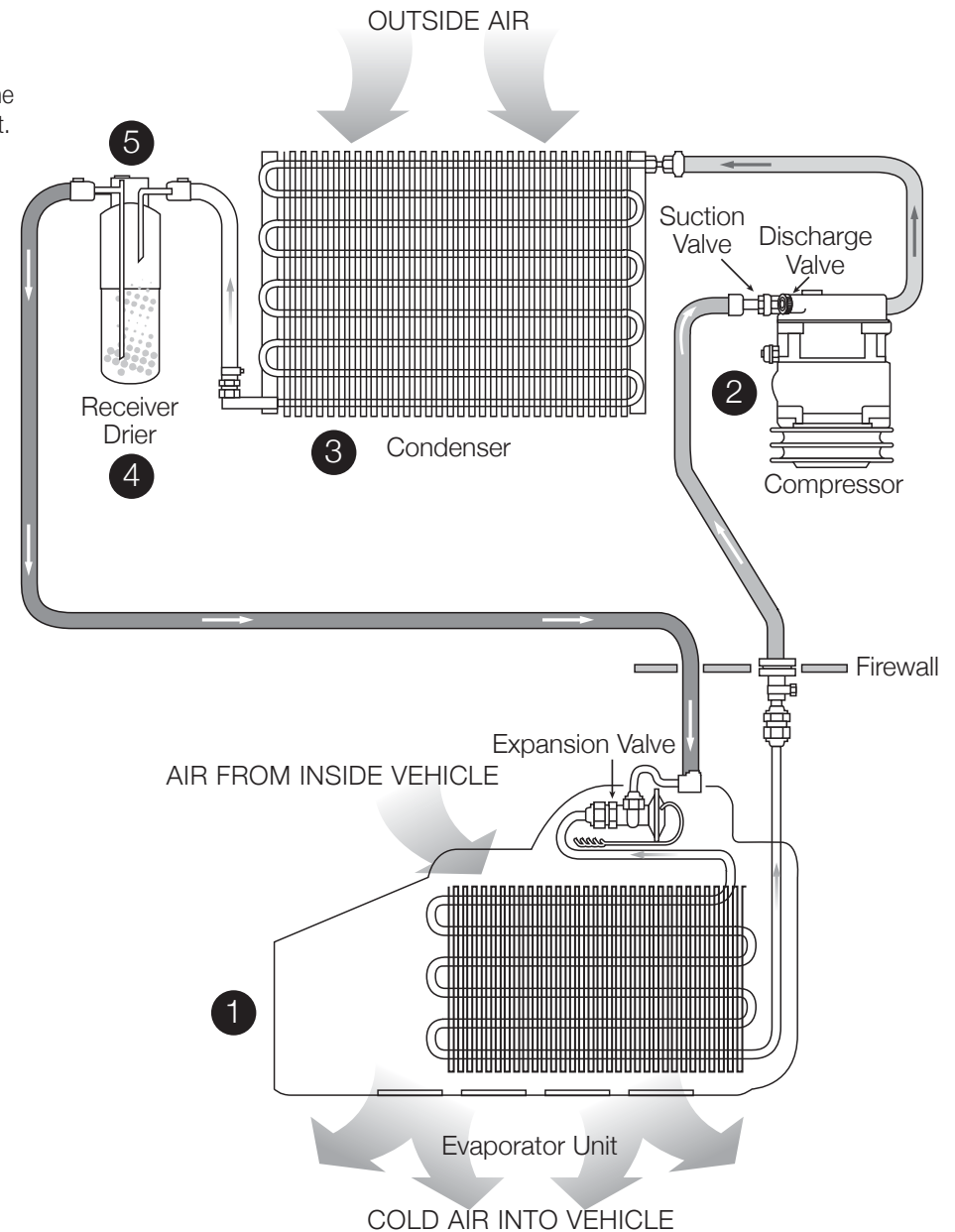
- ☐ Fittings: Use one or two drops of mineral oil (supplied with your kit) on ALL rubber o-rings, threads and where o-rings seat in fittings. Do not use thread tape or sealants.
- ☐ Measure twice (or more), cut once
- ☐ **Should you have any technical questions, or feel you have defective components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

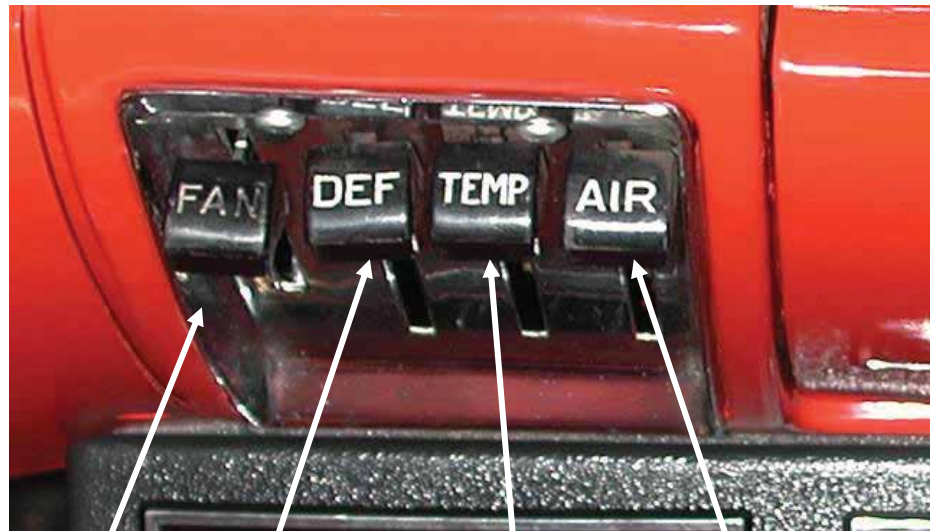


**“PERFECT FIT SERIES”
IN-DASH
HEAT/ COOL/ DEFROST
1958 CHEVROLET IMPALA**

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 TEMPURATURE NON FUNCTIONAL
DOOR

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 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.



DRAIN RADIATOR AND DISCONNECT BATTERY GROUND CABLE

Remove Glove box door and glove box. Discard glove box. Retain original hardware.

Remove 4 screws located under the control head.

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

Located on the firewall in the engine compartment.

Disconnect control cable and electrical wire to the blower motor. Around perimeter of the housing remove (6) nuts that hold the air box to the firewall.

Disconnect the heater hoses from the heater and the thermostat.

Remove and discard the blower box and original hardware.

Disconnect the cable from the thermostat. Remove and discard the thermostat from the firewall.

Remove and discard the defrost flex hoses.

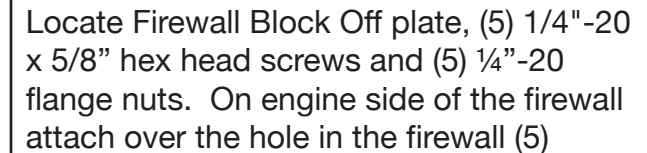
Remove the (4) screws that attach the heater box to the inside of the firewall behind the glove box.

Remove heater from car and discard.

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

1 Original Blower Switch

Attach Face / Heat cable to the left lever. Using (1) push nut, original screw and cable clip. **NOTE: Cable sleeve is at the end of the cable clip.**





Locate the air inlet block off and (4) #10 x ¾" tek screws. Attach over the hole using the #10 screws.

Locate the wire harness from the unit box and attach the harness to the blower switch. Reinstall the control head using the original mounting hardware.



Locate original wire harness that was attached to the blower switch. Cut brown wire at the connector. Attach (1) ¼" male spade connector to the wire. Attach red / white striped wire from blower switch to the brown wire from original harness. Refer to the wiring diagram on page 5.

Locate Evaporator, and defrost duct, and place on bench. Attach the defrost duct to back of the unit using (2) #10 screws. Line up with the u-clips on the back of unit.

Set the evaporator on the floor of the car. Attach control cable to door crank arm in the 3rd hole from the door pivot. Attach to the cable mounting bracket using (1) #8 screw. Route the harness across the top of the evaporator. Attach wire harness to the micro switches, thermostat and the blower motor. Refer to the diagram.



Lift unit up behind the glove box and insert the refrigerant and heater tubes through the firewall block off. Attach the upper bracket to the air box using (2) #14 x ¾" tek screws. **NOTE: THE UNIT MUST BE LEVEL WITH THE BOTTOM OF THE INSTRUMENT PANEL AND CENTERD IN THE HOLES IN THE FIREWALL.**

Insert the temperature control cable and the clutch wire through the grommet in the firewall block off. The black wire from the motor connection plug needs to be grounded to the body. Use (1) #10 tek screw as shown.

Locate in the hardware sack kit (1) ¼"-20 x 1" hex bolt and flange nut.

Holding unit against the firewall, match drill through the lower support bracket a ¼" dia. hole. Insert the ¼" bolt and use the nut on the engine side.





Locate in the unit box (2) 2ft 2" diameter flex hose. Cut each to 16" long. Attach the hoses to the defrost outlets on the defrost / heat duct and route to the original defrost diffuser. Secure using (1) #8 x 3/8" pan head screw.





Locate in the hardware sack kit the (2) remote rectangle louver assemblies, and the #10 x $\frac{3}{4}$ " hex head tek screws. Mount the (2) remote rectangle louver assemblies in desired location of dash.

Locate in the hardware sack kit the (2) remote round louver assemblies, and the #10 x $\frac{3}{4}$ " hex head tek screws. Mount the (2) remote round louver assemblies in desired location of dash.



Locate 2" dia flex hose from the unit box and attach to the unit.



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

Locate and install Glove Box that is supplied with the unit. Attach using the original hardware.

Reinstall the original glove box door using original hardware.

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

Drain and remove the radiator and fan shroud.

Locate the Condenser, (2) right condenser mounting brackets, (2) left condenser mounting brackets, and (8) #10 x $\frac{3}{8}$ " hex head screws. Attach brackets to the condenser as shown.





Turn condenser assembly over.

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 using the Liquid Tube to position and attach using (2) #10 screws as shown.

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

Loosen the (4) radiator mounting bolts.

Locate condenser horizontally using the right brackets as shown in picture to the right.

The condenser mounting will slide between the radiator and core support.

Tighten the original radiator bolts.

Locate in the condenser box (1) liquid tube and (1) discharge tube.

Loosely attach to the drier and condenser as shown. Using the tubes locate and drill (1) 11/16" diameter hole for the liquid tube, and (1) 13/16" diameter hole for the discharge tube.

Reinstall the tubes using (2) #6 o-rings for the liquid tube and (2) #8 o-rings for the discharge tube. Use a few drops of mineral oil at each fitting.





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

Locate the fittings on the radiator core support. Locate #6 liquid hose. Attach 45 deg. fitting to bulkhead fitting at the radiator core support. 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 #8 Refrigerant Hose Assembly attach to the core support 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.



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 all fittings securely.

Locate the Hi / Low pressure switch kit. Attach switch and harness to the drier using a few drops of mineral oil. Route the (2) white wires through the existing grommet as shown above. Route wires along the discharge hose and connect (1) to the compressor and (1) to the blue wire from the thermostat.

Locate water valve, and (3) worm gear clamps from the hardware sack kit.

Cut 6" of heater hose from the RETURN line (hose that is attached to the water pump). Attach to bottom heater hose connection and the water valve using the (3) clamps provided. The SUPPLY line attaches to the intake manifold at the engine.

Set temperature control lever to the coldest position. Attach the cable to water valve. Adjust cable so that water valve is in the off position.

Reattach the battery cables using original hardware. Reinstall the anti freeze to the cooling system.





**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.

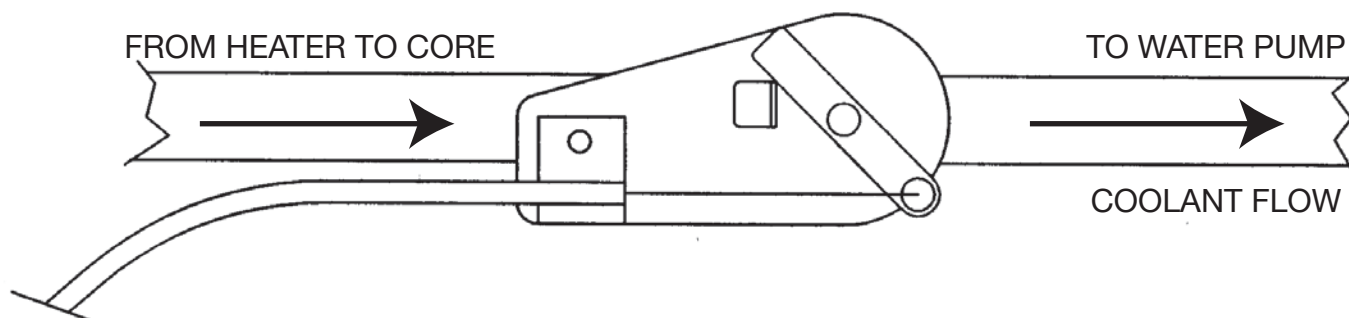
IMPORTANT!

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!**

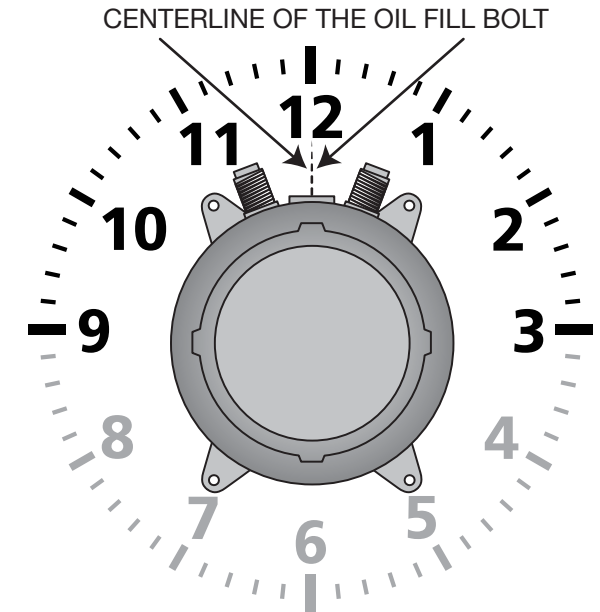
RECOMMENDED TEST CONDITIONS: (After system has been fully charged and tested for basic operation)

- 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

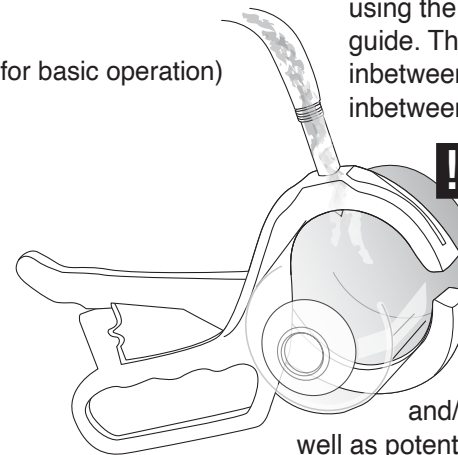
ACCEPTABLE OPERATING PRESSURE RANGES:

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.

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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.



