ORDERING YOUR NEW A/C SYSTEM:
Selecting a Condenser: The most difficult problem is getting one large enough, and can be flowed across it well enough to condense the refrigerant adequately. The condenser has to provide a low resistance path for the condensed liquid to flow so pressure build up can be avoided on the existing refrigerant.

The old vertical vs. horizontal tubes in the condenser comes into play here. Horizontal is best, and a condenser that will fit with the tubes running horizontally is recommended because oil flows with the refrigerant in the system and will settle in the lower loops if the condenser, thereby obstructing the flow of fluid. HFC-134a requires about 20% more capacity; which means with a conventional tube and fin condenser you need about 20% more the size.

The Super Flow condensers give that increase in capacity without additional size. It is 40% more efficient than a comparable size copper tube and fin condenser. That means we can get more capacity with less space; a good thing for hot rods. It must be matched to a compressor of approx 9 cubic inches or slightly less, using a standard aftermarket evaporator.

Air Flow to the condenser is as important as size, the more, the better. Ambient air temp is more important to an air conditioner than it is to a water cooling radiator because when the refrigerant is exposed to temps above approximately 100 deg. F, the chemical expands at a very rapid and disproportionate rate. Water expands at much greater temps than refrigerant because of a high boiling point. So, we put the condenser in front of the radiator or the coolest air stream possible to keep the ambient air flowing over the condenser below or near the century mark as possible.

BASIC COMPRESSOR FACTS: The next most critical part of the a/c system in terms of providing trouble free service is matching the compressor to the system.

Why should a compressor be matched to the system? What are the most common types of compressors? How are they different and how can you tell one from another?

The basic types of compressors are commonly used now on street rods are the Sanden, the York/Tecumseh, The GM/Frigidaire (DAG and R4) and the Ford Nippondenso.

The Sanden Compressor is round with most of its size being its 8 1/2-inches of length, compared to about 5-inches in diameter. Its five or seven cylinders run length wise and it is an axial compressor. Even though it is commonly known as a rotary, it's not. It's very smooth with a minimum amount of torque required to operate it because the load is distributed over multiple short stroke cylinders. Displacement sizes are identified by the numbers on the label on the case. The original # is interpreted as follows:
SD 508 = 5 cylinder/ 8.4 cubic inch, SD 505 = 5 cylinder/ 5.6 cubic inch.

COMPRESSOR CAPACITY IS CRITICAL: The capacity is critical when selecting a compressor. Why? The old saying "a chain is only as strong as its weakest link" comes into play here. The weak link in most street rod a/c systems is the condenser's ability to handle the demands of the other components. These demands are to condense the refrigerant enough to keep the compressor head pressure and corresponding refrigerant temp within the acceptable operating limits (approx twice the ambient temp of the day, plus 15 percent) and to supply the evaporator with adequate refrigerant. If a compressor has too much capacity, the result will be excessive head (internal) pressure and temp, compressor damage and excessive load on the engine. If it has too little, it will suffer inadequate evaporator performance. A compressor of 8 or 8.5 cubic inches of displacement per revolution is ideal for a street rod with the standard size condenser, and an average size aftermarket evaporator (approx 200 cubic inches of coil mass). We would always lean toward a smaller compressor before going to a larger one. Compressor matching makes good sense and will be more crucial with use of the new refrigerant.

SAFETY SWITCHES: Here, we should mention system protection switches. An excessive head-pressure safety switch cuts off the compressor if internal pressure exceeds safe limits and then cuts the compressor back on when the pressure is back down within those limits. A low pressure switch cuts

the compressor off when there is excessive refrigerant loss. A binary switch incorporates both of these protections. A trinary switch incorporates both high and low pressure cut offs with an electric fan engagement signal feature. These switches are great insurance on any system (SEE PAGE # 124)

COMPRESSOR MOUNTING: Another consideration is the way it fits into your available space and how it mounts to the engine. Compressor brackets are available that will fit in most street rods. The radial compressors are easiest to mount, because of their alternator style mounting. They don't shake as much. With this type of bracket, you must have a way to adjust the tension of the driving belt. Sliding the compressor or using the idler pulley mounted on an adjustable eccentric is the simplest way to adjust belt tension. We don't like to use the idler pulley to adjust belt tension (many times you must), try to put it on the slack run of the driving belt. By doing this you will increase the bearing life of the idler by putting less load on it, and reduce belt flop which is always greatest on the slack run of the belt. Universal mounting plates are available for making your own bracket.

SELECTING AN EVAPORATOR: We come to the evaporator as the last major component because most all of the aftermarket evaporators will perform their job without any problems. The major considerations are: APPEARANCE, SIZE (or Fit), and CAPACITY. There are some installation considerations that we will mention.

The evaporator is called that because it absorbs heat from the air inside the car which evaporates the refrigerant. It takes heat from the recirculating cabin air and gives it off to the outside air.

Appearance is always a matter of preference, with the two different types of evaporators being commonly known as under-dash and in-dash. The under-dash is broken down further as box style or slim-line. The slim-line is basically a box style unit with a "slim" set of louvers or outlets attached to the front. The slim-line is usually longer and adaptable to most dashes. An in-dash evaporator is designed to fit behind the dash, with duct hoses carrying air to the louvers, or dash outlets. The tough part is getting one to fit behind the dash in a street rod.

when component size is reduced, compensation for efficiency is necessary. Blower motors can turn faster and evaporator coils can be fed better, but in most cases when component size is reduced, capacity is also reduced. The in-dash evaporator can be built onto any dash shape by selecting the outlet that will fit your vehicle. They can either accent your dash, or be almost invisible.

INSTALLING THE EVAPORATOR: When installing the evaporator, it has to be set in the car with the drain pan and tubes down so the condensation will drain. The evaporator outlets should be positioned so they blow on the driver and passengers directly, under or through the dash when possible. Other locations usually produce disappointing results. The thermostat tube should be inserted at least 4 inches into the evaporator coil, and the blower should always recirculate the cabin air. When your refrigerant hose must go through sheet metal, use either a refrigerant hose grommet or bulkhead fitting. Your drier should always be positioned to produce a "liquid seal" at the pick-up tube (this will be vertical to most driers) When your suction line and liquid line run parallel, they can be tied together. The difference in temp will better help the refrigerant in each line do its job.

An air conditioner has to remove heat faster than it is added to the cabin on the vehicle, so its important to reduce the heat added. Just like reducing weight on a race car so the engine can do more, we reduce heat load in a car by insulating, sealing doors and windows, and tinting the glass. This should be a major step when adding an a/c system to any car, and will determine how well the system satisfies your needs.

This information should give you a basic understanding of automotive air conditioning and aid you in selecting the proper components for your particular vehicle. We encourage you to call us with any questions.

1. Air conditioning is not difficult to install but it is a complex system which must be carefully selected and matched to perform to its maximum potential.
2. Look at the bottom of this page. It has been designed to help you assemble the specifications of your vehicle, engine type, and other details necessary to order properly. Having this information assembled before you order helps keep things on schedule.
3. Based on the Specifications of your vehicle you can probably determine which evaporator is best suited for your car. Just note the Part # and the model.
4. Decide which type of standard or Proline controls you want.
5. Decide which type of louver package you want. Choose from the standard or proline.
6. Note any additional custom features, optional accessories, and other items you may need.

CAR TYPE	BODY STYLE	ENGINE	WATER PUMP	ALTERNATOR	COMPRESSOR
Year_____	Coupe_____	_____	Long_____	Driver Side____	Driver Side____
Make_____	Sedan _____		Short_____	Pass Side_____	Pass Side_____
	Pickup_____				

Was your car equipped with factory air?_____

55-57 CHEVY Radiator Location	COOLING SYSTEM
V8 _____V6_____	Engine Driven Fan_____
	Electric Fan_____

A/C systems are warranted for 3 years from the purchase date.
(this does not cover any defect which is the result of improper installation, improper maintenance, or modification of the unit or any of its components by the purchaser.)