1961 CADILLAC A/C SYSTEM

around 50% of Cadillacs during the '50's and '60's were equipped with a/c. It was, and still is, a well designed system that allows fairly easy access and removal of any, or all, of the system for servicing or repair. Minor changes in the a/c units from year to year took place but had the same results - [redacted] cold, filtered air delivered to the interior of the car. It was the last thing I had to do to complete the process of having everything operating correctly as it would have over sixty years ago. Most old a/c systems, and indeed new ones, end up failing at some stage. The most common problem are leaks. and they can occur anywhere. If you are considering your a/c system getting an overhaul then expect thousands to be spent, and once you start you have to persist to the end. And, at the end, you will be glad you did. First thing I suggest is to test the a/c box via the dash switch. If no air flow is felt through one or all of the modes - vent, normal or recirculating, then the vacuum actuators at the a/c box will need replacing. It is also very important that the colour coded hoses behind the dash are in order and not misplaced. Removal

of the a/c box is easy enough and can be done and put back in a day. With the box out you will be able to see exactly how air is directed through its passages to the evaporator and heater. Your manual shows this but it is not clear until you see it yourself. Now for the leaks: a/c needs very high pressure and low pressure. And leaks ultimately occur. Hoses, connections, compressor internals, and clutch, by-pass valve diaphragms and actuator, condenser, expansion valve, evaporator. Least likely the dehydrator/drier. An a/c professional can check the system for leaks. Some are obvious: refrigerant oil spattered about the place in the area around the cowl, at the compressor clutch or at hose connections. Leaks not detected then undergo 'trace leak' testing and require more time to test. While the 'trace' test is reliable, it is not infallible as a pin hole leak can eschew detection. And that requires manual attention. A pin hole leak may be present in a hose or even in a metal line - as i discovered. Once an analysis is done then sourcing of parts is required. However, it is at this point that a choice is made: go ahead or abandon the whole bother!

So i went ahead and decided to breathe life into the old freeway queen. Many months sourcing the parts, and, preferably n.o.s. - guaranteed to fit! And i had an annoying leak in the hot gas valve! The so-called repair kit was a dud. The rubber diaphragms were of a different rubber to the originals and thus leaked! Old ones were put back and the final leak solved. ~~Yaay~~ You must note that the old freon refrigerant is out of use and 134a is now the common supply. The molecules are different to freon and tend to degrade old rubber hoses so hoses must be replaced wherever possible. A new compressor is required that handles the new gas. WARNING: be sure that the compressor matches your original because some were early production while others were mid production and the mounting brackets changed! You must also replace the fan clutch and, to be more sure, the water pump thermostat. And, note, a/c cars had a heavier hub in the water pump. So if your car has had a pump replacement at some point you may not know if the correct hub has been used. When everything is installed where deemed necessary (i replaced everything) it is then very important to adjust the by-pass valve screw to the specification in the manual. It must be exact (200 psi head pressure)

because if it is not then the evaporator may freeze and be permanently damaged. With the system operating correctly the temperature at egress at the vents should be between 6° to 10° depending on conditions. To check to see things are normal the metal line back to the compressor should be cold. If it is not then do not operate otherwise damage to the compressor will occur and a further investigation is needed. When all said and done it is a delicate system and much can be learned from it which greatly assists us in knowing, and diagnosing, problems that tend to occur not just with a/c but with many aspects of these beautiful cars. I hope this experience may be of use to others. I can now enjoy cool driving in summer with the windows up!