



805 13th Street North
Humboldt, IA 50548
1-800-806-5312

TECH TIPS

AP Air's Recommended Retrofit Procedures for R134a and Freeze 12 Refrigerant

Inadequate cab cooling has led to numerous factors, when combined, they will severely affect the air conditioning performance. Corrective actions have been taken, resulting in acceptable cooling in high humidity areas when combined with 100 degree Fahrenheit ambient temperatures. To maximize cooling performance inside the cab area the following procedures are recommended in order to provide maximum cooling.

1. Remove refrigerant with an approved recovery/recycling station to verify correct refrigerant charge.
2. Inspect and clean the outside of the condenser with compressed air or pressure washer in the opposite direction of normal air flow. Make sure the radiator is clean also, if air can't flow through the radiator it won't flow through the condenser.
3. Inspect the cab air filter(s), make sure the filter(s) are clean and have no visible holes that would allow dirt to enter the air box. Clean the filter by carefully tapping it and then directing compressed air, maximum pressure 100 psi, in the opposite direction of normal air flow.
4. Verify that heater control valve is operating properly or heater manual shut off valves are completely closed. Leaking heater valves allow hot coolant to flow through the heater core resulting in warm air duct temperatures.
5.
Remove old compressor, replace with a new R134a compatible compressor or flush the old compressor and fill with new Pag or Ester oil depending on manufacturers recommendations. If you are installing a new compressor make sure to check the air gap on the clutch and also make sure the voltage going to the coil is a minimum of 12 volts. After installation of the compressor it is important to turn the compressor 10 times by hand, this will remove any oil that might have become trapped on the top of the pistons. Since most new compressors come with oil it is still important to check the oil level in the compressor; new or old.
6. Remove the filter drier and expansion valve and discard. Flush the entire system with a suitable flush tool that operates on pressurized air, this works quickly and effectively for removing refrigerant oil and debris that is left in the system, never run flush through the filter drier or expansion valve, and always make sure you blow plenty of shop air through the system after flushing to make sure all of the excess flush has been removed. Flushing the system is very important for compressor life and the reliability of the system.
7. Clean the exterior of the evaporator, they collect dirt & dust from the condensation that collects on the outside of the evaporator. It is also important to make sure all the seals around the evaporator are there and in useable condition, the evaporator will not cool the air if the air goes around it instead of going through it.



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8. Inspect the hoses for cracks, wear marks or any visible signs of leakage. Original R12 style hoses may leak the new R134a refrigerant due to the smaller size of the R134a molecules compared to R12. The new R134a hose has a barrier that will not allow the refrigerant to escape through the pores in the hose. Replace the old hoses if necessary, if you do install new hoses make sure you flush them before installation, they may contain foreign material from the manufacturing process.
9. Now you can start reassembling the A/C system, make sure to replace all the o-rings with new o-rings that are suitable for the use of R134a refrigerant, also it is important to lubricate all the o-rings during reassembly. If your system has flare type fittings, a copper flare gasket is available to prevent the possibility of leaks, also it is just as important to lubricate all your flare fittings during assembly; which helps prevent leaks.
10. After replacing all the necessary components double check all your fittings and connections to make sure they are all tight. Now you will need to vacuum the system to remove any air or moisture that is currently trapped in the system before you can charge your system with refrigerant. Make sure you have a vacuum pump that is capable of reaching at least 29 in./Hg (29 inches of vacuum), which is the amount of vacuum it takes to boil the moisture out of your system. Run the vacuum pump for at least 1 hour, depending on the size of the system. When you are done vacuuming the system hold a vacuum on the system; this is a good way to check the system for leaks before charging.
11. Charge the system with the recommended amount of R134a refrigerant; which is usually about 90% of the manufacturers recommended amount of R12 refrigerant. After you have charged the system check the temperature of the air coming out of the ducts; it should be at least 30 degrees cooler than the outside air temperature. Now turn the thermostatic switch until the compressor clutch disengages, this will tell you if the thermostatic switch is working properly, if the compressor clutch does not disengage then you may have a defective thermostatic switch or a wiring problem.