

Understanding A/C servicing

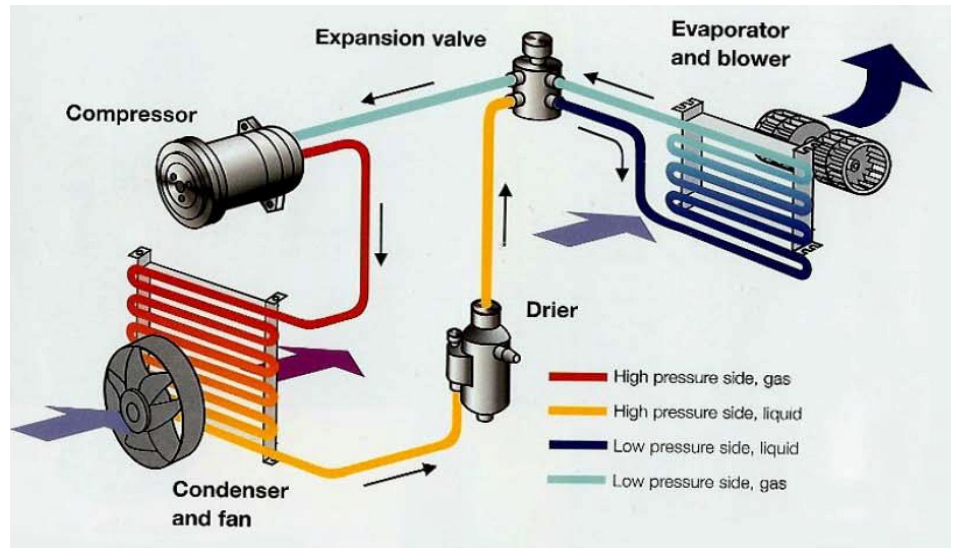
An A/C system not only gives you cool air on a hot day, it will also help clear condensation from your windscreen and increase driver comfort. Texa's Mark Tierney explains the many functions of A/C systems in vehicles, their servicing and the legal permits you need to service them.

Air conditioning is not only for cooling air coming into the vehicle cabin, the air is also cleaned and dried. This proves beneficial in all seasons, as vehicle screens heavy with condensation clear swiftly when a good working air conditioning system is operating. Therefore, in order to ensure a good working air conditioning system, it must be correctly serviced and maintained. Texa UK Ltd offers a range of service stations and pressure test solutions, in order to meet any workshop's requirements.

Vehicle air conditioning systems all work in the same manner. By using specific key components (compressor, condenser, TXV or orifice tube and evaporator) that allows a change of state of the refrigerant from liquid to vapour, and then back again as it circulates around the system. This change of state goes hand in hand with a pressure/temperature change, giving us a high pressure liquid portion of the circuit that is hot, and a low pressure vapour portion of the circuit that is cold. The hot high pressure portion dumps heat outside of the car, so that when the gas returns to the evaporator, inside the cabin, it is colder than when it left. When the cabin air is moist, condensation forms on the surface of the evaporator, making the cabin air drier and reducing condensation on the windscreen. By redirecting this air via the heater matrix, the air can be heated when needed, making the A/C system useful on any day of the year.

Most vehicles use R134a as the refrigerant in the A/C system, but newer ones will use R1234yf. The two systems are not compatible, so if you want to offer servicing A/C at your garage, make sure you purchase a machine that can handle both gasses. There are also different types of lubricating oils, so care must be taken as the wrong type of oil can cause problems. Oil in a conventional A/C system is electrically conductive, while oil in a hybrid A/C system is not. If the wrong oil is used in the hybrid, stray voltage can leave the electric A/C compressor and shock you, or it may confuse sensors to the point that they will shut off the A/C. This will also be true of any vehicle with an electric A/C compressor, such as a start/stop engine.

In order to legally handle either R134a or



R1234YF, you must have a permit. The permit can be obtained by attending and passing a course. These courses are available through????? who should we mention here?

When carrying out a service on a vehicle A/C system, you should ascertain whether there is any refrigerant in the A/C system to begin with. If there is no refrigerant present in the system, you must identify all leaks using OFN (Oxygen Free Nitrogen). This is the only method of pressure testing that should be used. Only when all leaks have been repaired is it possible to refill the A/C system. Refilling a leaking A/C system is not only pointless, it is a waste of your customer's money and your good reputation as a dependable garage.

If the A/C System contains refrigerant, then it is always wise to carry out a system operating test in order to ensure that there are no problems with the system prior to the service. This is achieved by running the A/C system on the vehicle and monitoring the running pressures on the gauges of the machine. By checking the system prior to service will help the technician take the correct course of action.

To proceed with the A/C system service, the following steps must be carried out:

- Recovery/Recycling - remove existing refrigerant from the A/C system and recycle in the service station.
- Vacuum – this allows any moisture inside the

A/C system to boil off, thus ensuring no damage or operating issues with the A/C system. This step can never be rushed or cut short, or there may still be moisture in the system that will cause either poor performance or system damage. Always allow the service station to run this critical step for the full time period.

- Injection - to replace any lubrication oil from the A/C system extracted during recovery and to inject an Ultra Violet (UV) Dye to help identify any possible future leaks on the system.
- Refrigerant Injection - to apply the correct weight of refrigerant specified for the A/C system, ensuring efficient operation.

An automated A/C service stations carries out each of these phases during an A/C service automatically, and also carries out checks in between and during each phase in order to ensure a proper and efficient service for the A/C system. By spending a short time and a small button pressing exercise, it becomes very easy for the technician to carry out a service while also completing other tasks. If the Texa A/C Service Station detects a problem during the vehicle A/C service, the unit will wait at that specific point, warn the technician allowing them to take the necessary course of action, and will wait for a response from the technician before proceeding.

