

DIAGNOSING A MALFUNCTIONING AIR CONDITIONING SYSTEM

Ultimate efficiency is achieved by balancing pressures, temperatures, and air movement. Failure to maintain this balance will result in overworking some components and starving others. Each has a specific duty to perform, but also relies on the others to do their job properly – they are a team.

The challenge in the air conditioning industry is to keep this team of components working together efficiently. **It is extremely important to take a “cause and effect” look at the system when diagnosing a problem.** For example, if a compressor is changed without finding why it failed will not stop the problem and the compressor will fail permanently. You have a warranty issue that may not be covered.

Knowing how to find the true cause of failure sets the great technicians apart from the average ones.

Before we examine the components of the air conditioning system, we must first identify external influences that it depends on to function properly and many times are over-looked in diagnosing.

Electrical power is required to operate:

- The electromagnetic clutch
- The blower motor
- The pressure switches

It is very important that **all** circuits are tested and functioning properly.

Airflow

Optimal airflow is critical to insure proper change of state at the condenser and the evaporator. Clogged or bent fins will restrict the airflow and create higher than normal pressures. Be sure that they are clean at all times.

When checking a system in the shop it is important to balance the airflow at both the condenser and the evaporator. The condenser will have minimal air pulled in by the radiator fan and it will take longer for condensation to happen. If the blower motor is set at a maximum, the demand for cold refrigerant by the evaporator will be greater than the capability of the condenser to produce. **Always set the blower speed at Low or Medium.**