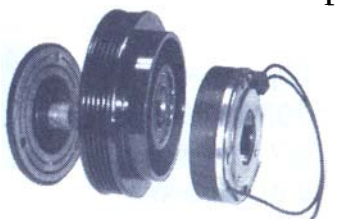
AUTOMOTIVE AIR CONDITIONING REPAIR

Question:

What causes a clutch to fail?

Answer:

A clutch assemble consists of three pieces.



A hub, a pulley, and a field coil.

The field coil creates an electro magnetic force that causes the drive and driven plates of the clutch to energize. This allows the compressor to pump. The field coil electrical is turned on and off by switches that are measuring temperature or pressure, to keep the evaporator from freezing. This action is called cycling.

The pulley, rotating on a bearing on the housing of the compressor, is the drive plate to the clutch assembly. This bearing is rotating all the time the engine is running.

The hub, mounted on the shaft of the compressor, is the driven plate of the clutch assembly. When the clutch coil is energized, the hub plate is drawn into the pulley surface and the unit turns the compressor.

Excessive slippage between the hub and the pulley will scar the surfaces and overheat the assembly.

The overheating of the pulley and hub will overheat the clutch coil and cause it to burn out.

These problems generally happen as results of a binding compressor or high pressures.

Clutch pulley bearings can fail as results of a compressor running to hot. The heat causes the bearing to run hot and melt the grease in the bearing. The result of this causes the bearing to run dry and burn up. This will burn up the clutch coil and the hub as well.

The distance between the drive and driven plates is called air gap. Most require a gap of .025 inches. Improper air gap will cause clutch malfunction.

So, it can be said that heat causes the clutch failure.