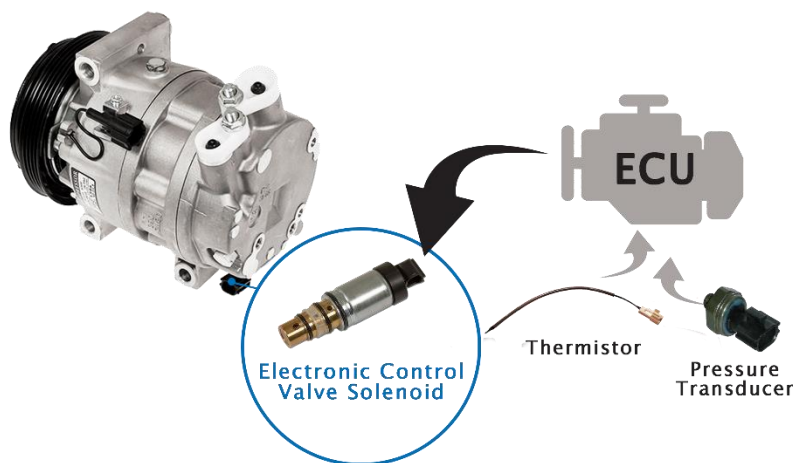


Electronically Controlled “Clutchless” / Variable Drive Compressors

Many air conditioning systems, such as Lexus, Cadillac, Chrysler and others, have been fitted with a new type of compressor. These compressors are commonly called “Clutchless” compressors.

The control unit interaction is a major change in compressor control. The control unit uses a PWM (pulse width modulated) signal to the compressor control solenoid to vary the output level of the compressor. We have had mechanical control valves on the older V-5 and V-7 compressors that ramped up or ramped down the compressor function based solely on suction line pressures. The ability of this new control unit to consider evaporator temperature, engine rpm, high side pressure, accelerator pedal position, and ambient temperature when deciding to increase or decrease refrigerant flow from the compressor makes this system completely interactive.



The control unit on these compressors will reduce swash plate angle to 2% when not activated by showing almost equal suction and discharge pressures. With the compressor shaft turning and pressures almost equal, many technicians assume the compressor is defective and will mistakenly want to replace it. This constant rotation of the compressor shaft created a need to perform different diagnostic tests before replacing the compressor.

Electronic control valves utilize a solenoid and by pass channel in the rear of the compressor to balance the refrigerant pressure between the discharge chamber and crankcase to provide a swash plate angle from 3% to 100%.

These compressors also have a constant circulation of filtered lubricant whenever the engine is running. This places an increased importance on having a proper level of clean, quality lubricant in the system at all times.

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