



## Clutchless Compressor Testing and Diagnosis

- You must have the clt compressor tester, (eg [here](#)) a good quality multimeter capable of measuring frequency, and diagnostic equipment capable of accessing the climate control and engine management systems. Without these you cannot correctly check and diagnose faults on systems using these compressors.
- Connect gauges and check to see that there is some refrigerant in the system.
- The first thing that you must check on these compressors is the front coupling is in good condition. This means that the coupling does not free wheel, the centre only turns when the engine is running, and if applicable and the centre nut is tight / not missing. These faults will not produce a fault code.
- If these prove to be in order, then you must access the climate control and engine management systems and check for fault codes. Note the codes and check the system accordingly. The most common are those relating to low pressure (switch failure) or output stage (compressor failure). The pressure switch fault will either be lack of refrigerant or the pressure switch. The compressor fault can be a number of things. The first thing to do is eliminate the compressor. In order to do this you must use the clt. Connect the clt to the battery and the compressor; connect the simulator to the loom end. Failure to do this will produce a fault code and render the a/c inoperative. Start the car and turn on the ac. Using the clt, raise the input level until you see three or four dots on the clt. This will open the solenoid on the rear of the compressor allowing refrigerant to enter the pump; you will then see some movement on your gauges. If there is no change in the pressures, then the valve is faulty and a new compressor will be required. If the compressor works and there is some cooling, raise the input level on the clt so that the high side pressure rises sufficiently to operate the cooling fans. Both fans must operate, if one or both do not operate, then this problem must be rectified.
- You must now check the output from the climate control unit. You must do this even if the valve has been diagnosed as faulty. Disconnect the clt from the compressor and the wiring loom and re-connect the plug to the compressor. Connect your multimeter to the back of the compressor plug.



- On the multimeter, select volts. Start the engine and turn on the a/c. The multimeter should read between 4.0 volts and 10.5 volts. On the multimeter, select frequency, you should have a reading that indicates a frequency is present; the value can vary depending on load and engine speed. If the voltage reading is greater than 10.5 volts (13.5/14.0 volts normal battery voltage) then the control unit is faulty and must be replaced when a new compressor is fitted. Failure to change the control unit when it is faulty will damage the new compressor and invalidate any warranty.