Compressor and Cooling Fan Operating Conditions

The Engine Control Module (ECM) controls the compressor and cooling fan operation in response to signals received from the refrigerant pressure sensor, evaporator temperature sensor and engine coolant temperature sensor, either directly or on the CAN Bus from the instrument pack. The refrigerant pressure can be low, medium or high, the system operating characteristics applicable for each condition is shown in the following table:

A/C Compressor On/ Off	Refrigerant Pressure Sensor Operating Range	Action
Off	MED range	Air Con MED limit reached, cooling fans switched to High speed.
Off	NORMAL range	Normal Condition, Low fan speed - no additional action
Off	HIGH range	COMPRESSOR NOT ALLOWED TO BE TURNED ON, cooling fans at high speed
Off	LOW range	COMPRESSOR NOT ALLOWED TO BE TURNED ON*
On	MED range	Air Con MED limit reached, cooling fans to High speed
On	NORMAL range	Standard condition, low fan speed - no additional action
On	HIGH range	AIR CON COMPRESSOR MUST BE DISENGAGED IMMEDIATELY, cooling fans set to High speed.
On	LOW range	AIR CON COMPRESSOR MUST BE DISENGAGED IMMEDIATELY*

* With pressure below the low pressure limit, the cooling fans will always be off unless air conditioning is running whilst evaporator temperature drops below minimum. If evaporator temperature drops below minimum, the cooling fans are required to prevent cabin temperature cycling.

The engine management system also drives fan speed based on engine temperature. A faster cooling fan request from either the engine cooling control or the A/C system will override another slow cooling fan speed request.