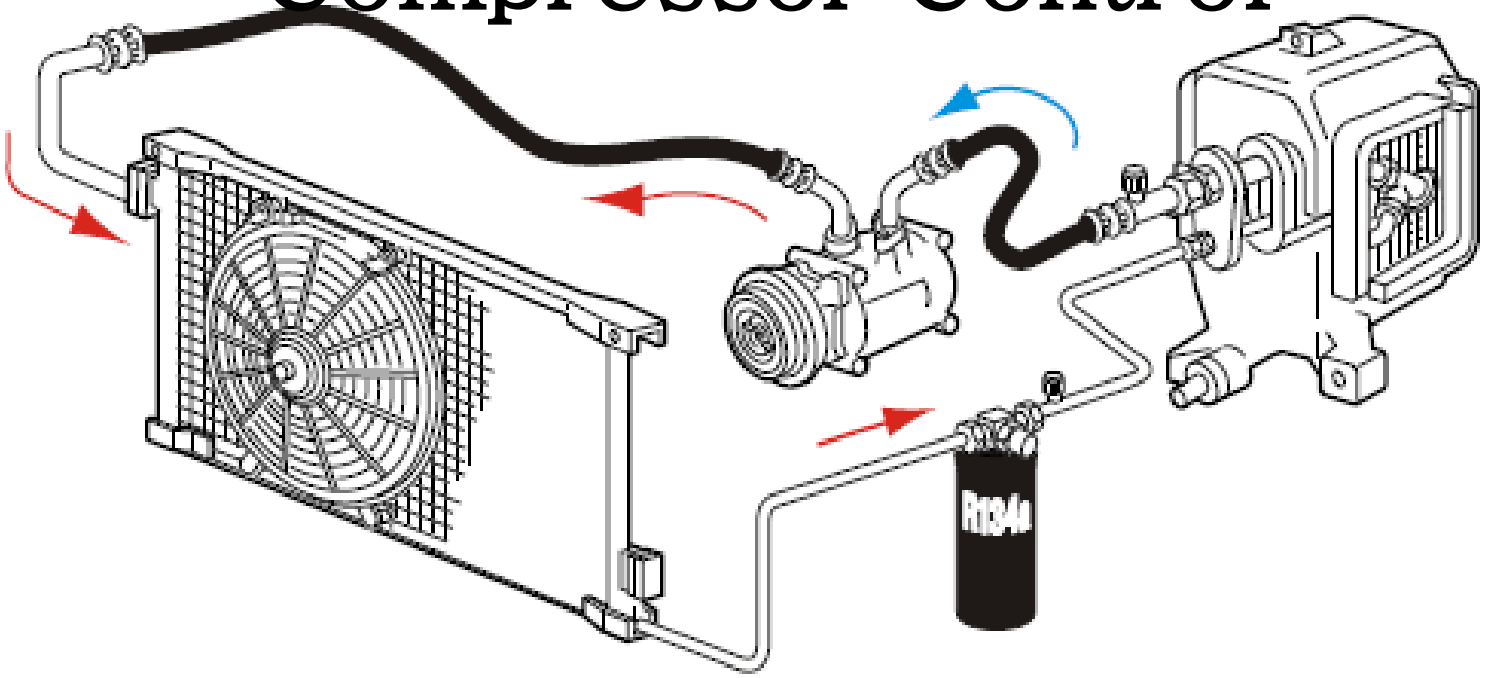
AC & ASESSORIS KENDARAAN

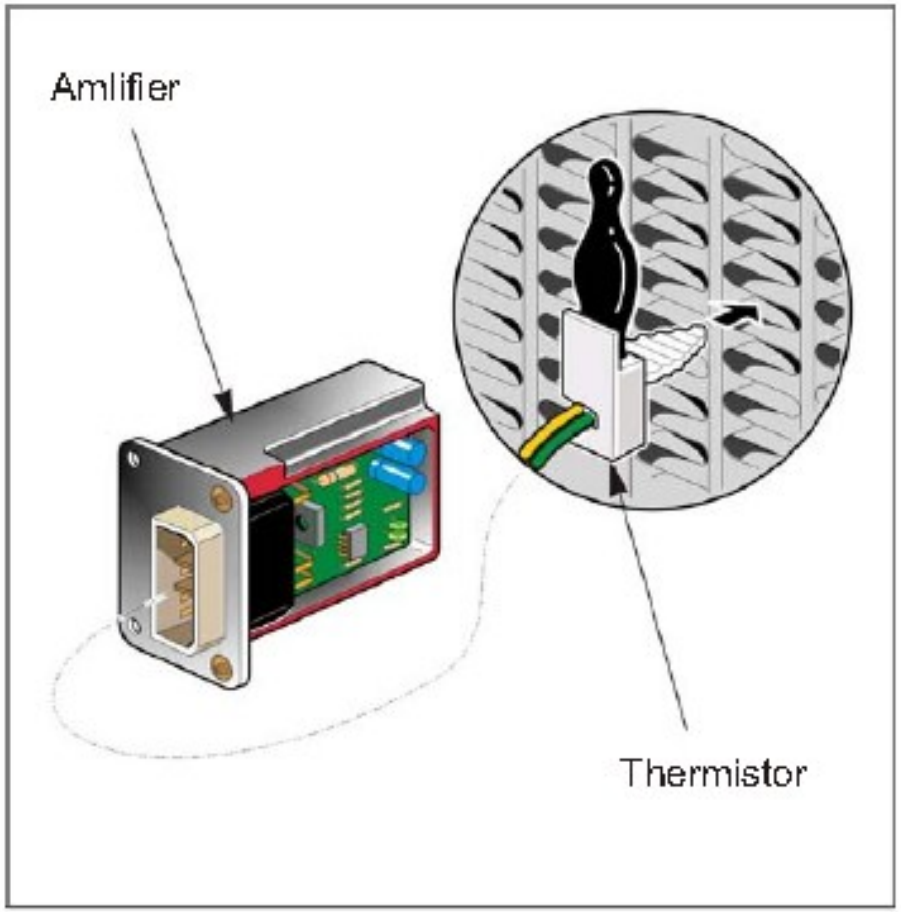
Compressor Control



BUDI WALUYO, MT

Compressor Cycling Controls

➢Thermistor & Amplifier



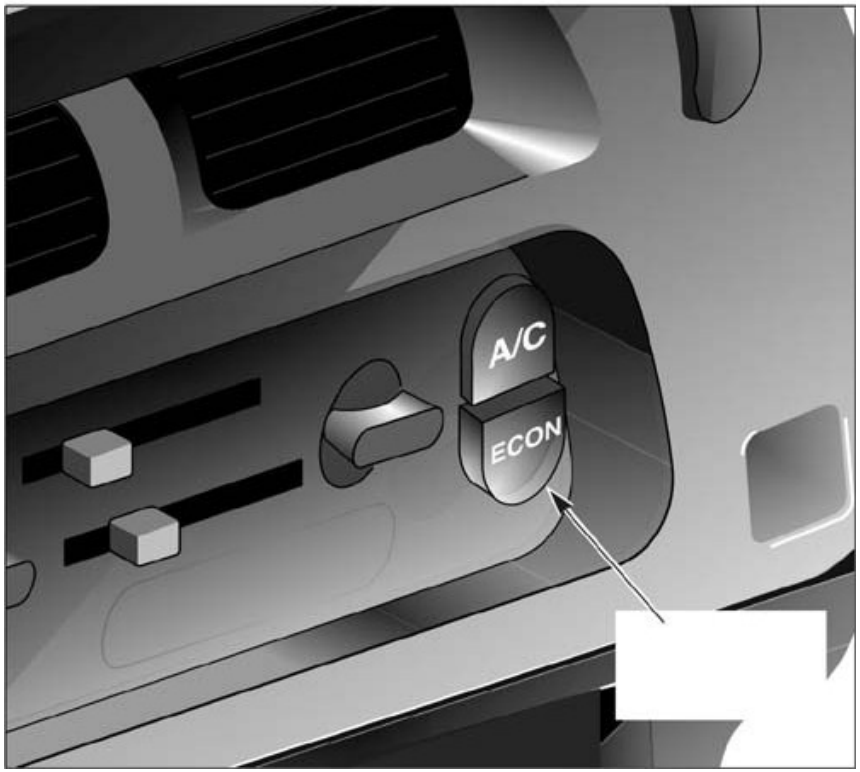
Thermistor

Electrical wiring containing a sensor which is a NTC resistor.
(Negative Temperature Co-efficient).

Amplifier

A small electronic device containing a circuit board and electrical components.
Thermistor resistance is amplified and used to control or switch the A/C clutch on or off.

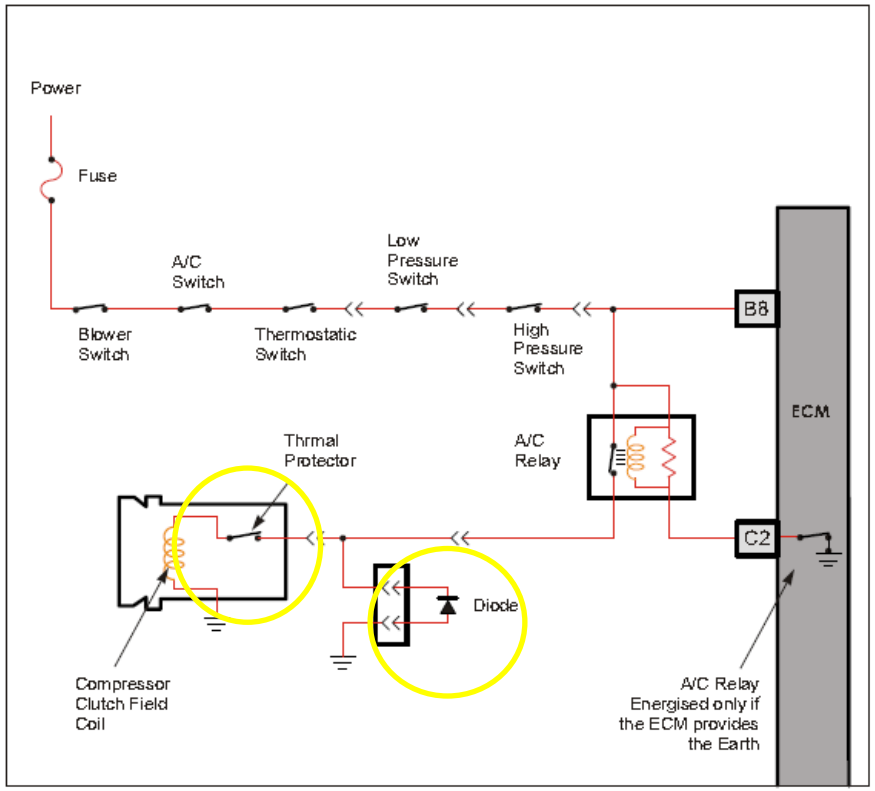
➢Economy mode



This function is normally associated with the use of a thermistor amplifier. In economy (ECON) mode the compressor cut out temperature is set higher than a normal A/C mode. This means the compressor stays on for a lesser time, decreasing engine load and improving fuel economy and engine performance.

Protection Devices

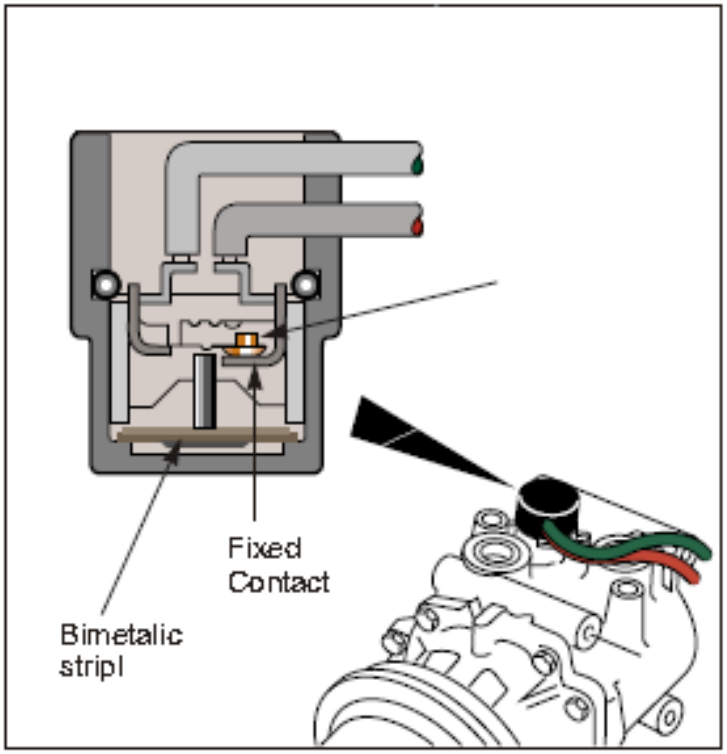
❑Clutch Diode



The clutch coil is an electromagnet with a strong magnetic field when current is applied.

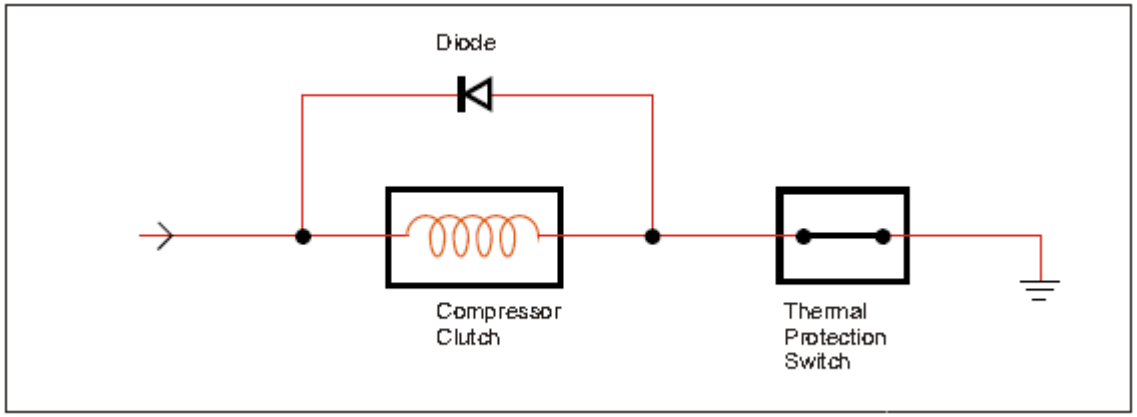
This magnet field is constant as long as the clutch is applied. When the power is removed the magnetic field collapses and creates high voltage spikes. These spikes are harmful to the ECM and must be prevented

❑ Thermal protection switch

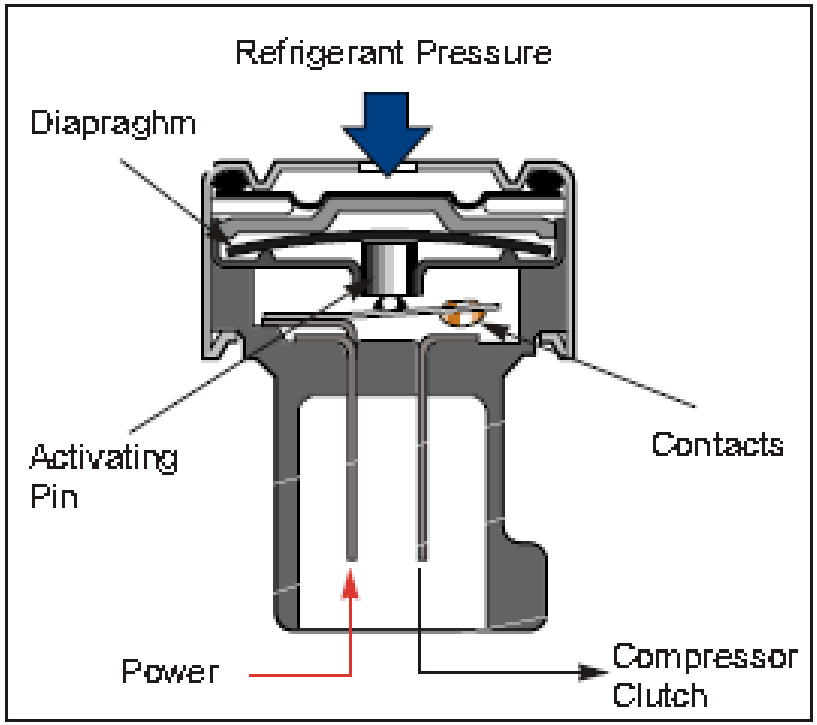


This switch senses the compressor case temperature and once this case temperature reaches a predetermined figure the electrical circuit to the compressor clutch is interrupted.

As the thermal protection switch is connected in series with the compressor clutch once the compressor case temperature lowers to a predetermined figure the compressor clutch is then re-energized.



❑ Refrigerant Pressure Switches



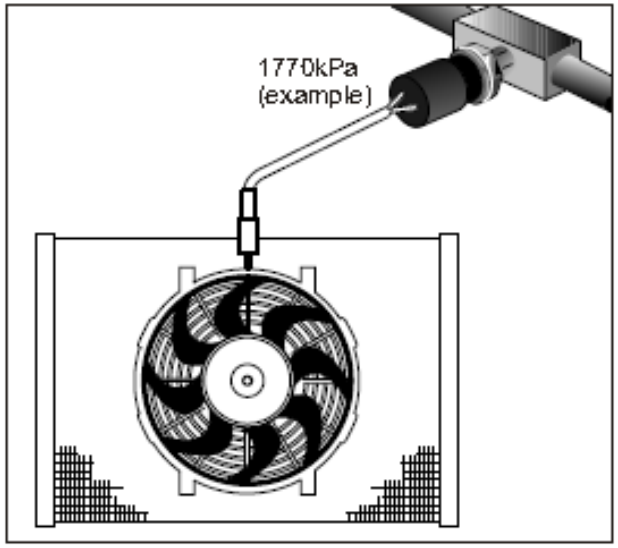
Low pressure

Used to interrupt the electrical circuit to the compressor clutch. If the refrigerant pressure is too low or a problem exists in the A/C refrigerant system. (refer diagram).

High pressure

The power supply is interrupted when the refrigerant pressure is too high or a problem exists in the A/C refrigerant system.

❑ Condenser fan control



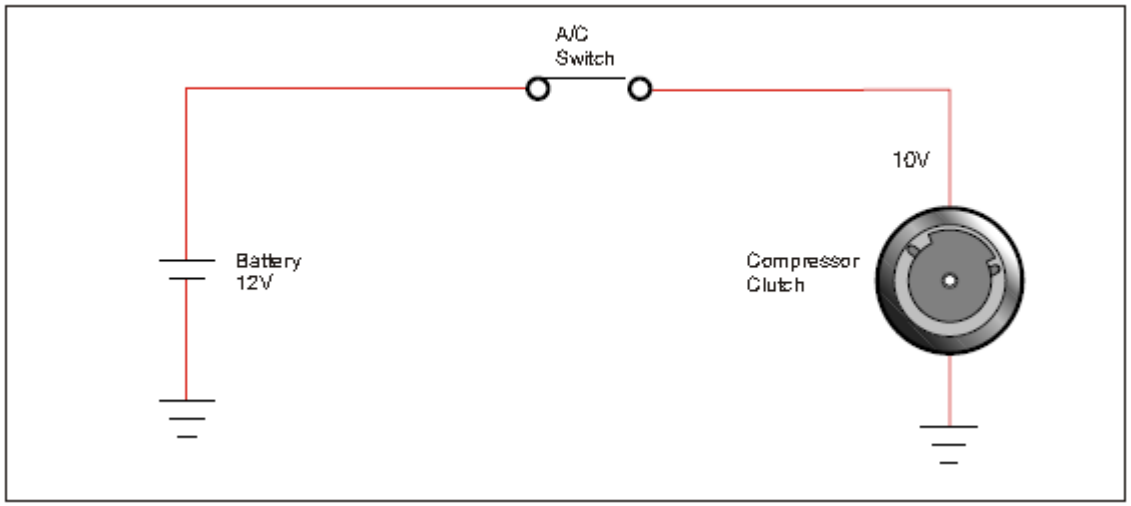
Medium pressure
Used to engage the condenser fan at a pre-determined refrigerant pressure.

Example: Condenser fan high speed activation at 1770kPa refrigerant pressure.

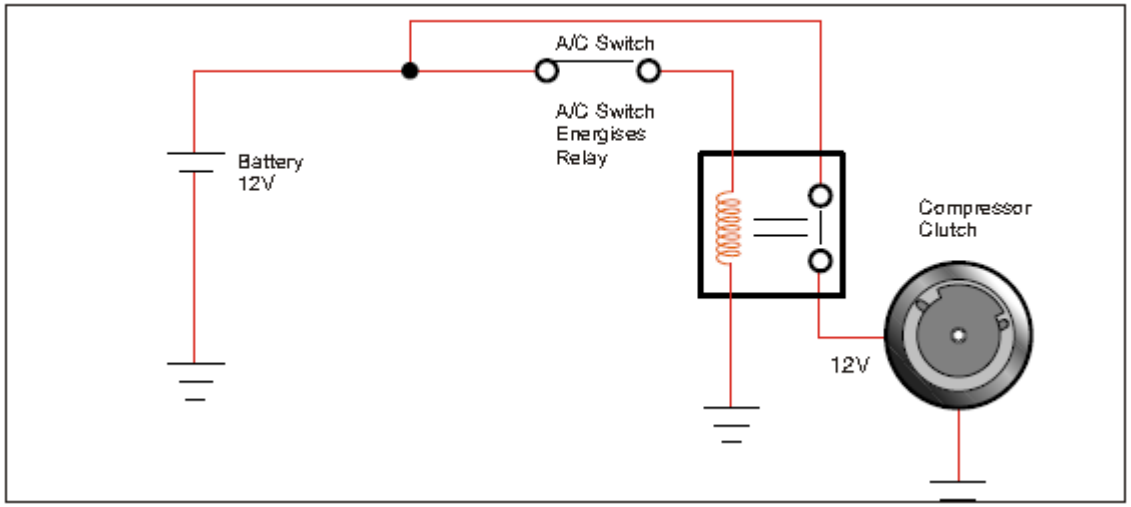
These switches can be individual or a combination of the two or even three pressure ranges.

❑ Relays

Without Relay



With Relay



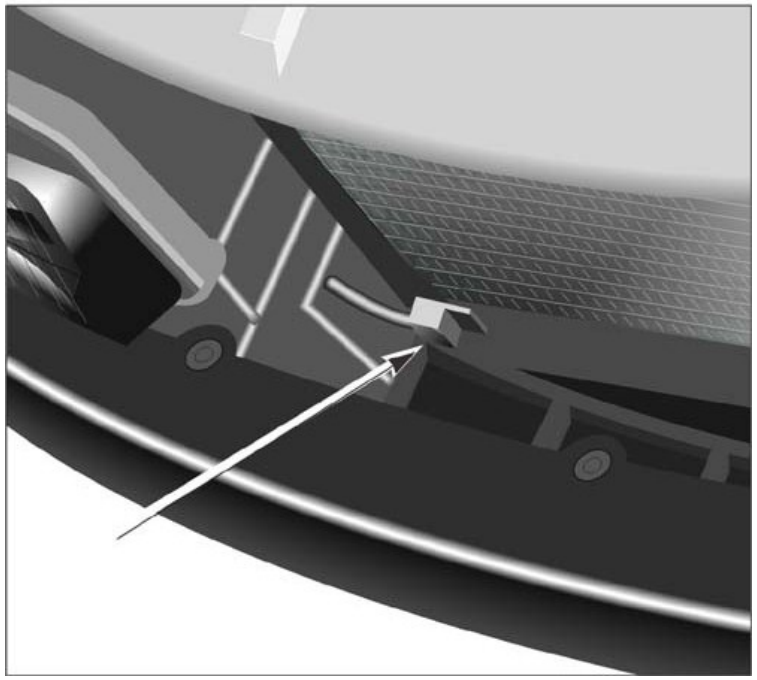
Sensors

❖Sunload

The sunload sensor is a photochemical diode (PCD) located on top of the dashboard. This sensor sends a signal to the electrical climate control module (ECCM) indicating the strength of the sunlight (sunload) which influences the vehicle interior temperature.

If the sunload is high as signaled by the sunload sensor the ECCM will activate the highest blower fan speed and maximum cooling to compensate for this additional radiated heat load. Likewise, if the sunload is low (cloud cover) as sensed by the sunload sensor, the ECCM will reduce the blower fan speed and the system will not operate at maximum cooling.

❖Ambient temperature sensor



The ambient temperature sensor is a negative coefficient resistor (NTC) with low voltage input. The sensor alters resistance depending on the ambient air temperature surrounding it.

The sensor is located in the ambient air stream normally behind the bumper bar or front grille area. This sensor is used to monitor the outside temperature and is interconnected to a visual display in the instrument panel.

MATUR NUWUN