

# DESCRIPTION AND OPERATION

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## COOLING FAN

### DESCRIPTION

#### General

The electrically powered cooling fan is mounted on the front of the radiator and works in conjunction with the cooling fan mounted on the front of the engine. Operation of the cooling fan is controlled by the Engine Control Module (ECM). The ECM determines cooling fan operating strategy after receiving inputs of Engine Coolant Temperature (ECT) from the ECT sensor, and requests for extra engine cooling from the Automatic Temperature Control (ATC) ECU via the K bus.

For more information on ATC operation, refer to the ***Automatic Temperature Control (ATC)*** or ***Automatic Temperature Control – Comfort*** section of this manual.

👉 **AUTOMATIC TEMPERATURE CONTROL (ATC).**

👉 **AUTOMATIC TEMPERATURE CONTROL (ATC) – COMFORT.**

### OPERATION

#### Power Distribution

Feed from the positive battery terminal (C0192) is supplied to maxi fuse 61, fuse 12, and fuse 53 of the passenger compartment fuse box (C0632) on an R wire. Fuse 12 (C0586) provides a constant battery feed to the ATC ECU (C1630) on an RP wire. Maxi fuse 61 (C0581) provides a constant battery feed to the cooling fan control unit (C0005) on an RU wire.

Fuse 53 (C0583) provides a constant battery feed to the ignition switch (C0099 on Td6 vehicles, C0028 on V8 vehicles) by an R wire. When the ignition switch is turned to the 'ignition' position, current flows across the switch (C0099 on Td6 vehicles, C0028 on V8 vehicles) to fuse 34 of the passenger compartment fuse box (C0585) on a G wire. Fuse 34 (C0587) provides an ignition feed to the ATC ECU (C1629) on a GY wire.

#### Cooling Fan – Td6

Operation of the cooling fan is controlled by the ECM. The ECM monitors Engine Coolant Temperature (ECT) to determine fan speed. The ECM (C0606) provides a feed to the ECT sensor (C0169) on an SU wire. The ECT sensor is a Negative Temperature Coefficient (NTC) sensor. By measuring the voltage returned on an NG wire, the ECM can determine engine coolant temperature.

When the ATC ECU engages the A/C compressor clutch, the ATC ECU (C1629) informs the ECM (C0331) via the K bus on a WRY wire that cooling fan operation is required. The ATC ECU also informs the ECM of the speed to drive the motor. For more information on A/C operation, refer to the ***Automatic Temperature Control (ATC)*** or ***Automatic Temperature Control (ATC) – Comfort*** section of this manual.

 **AUTOMATIC TEMPERATURE CONTROL (ATC).**

 **AUTOMATIC TEMPERATURE CONTROL (ATC) – COMFORT.**

The ECM (C0331) now provides a feed to the cooling fan control unit (C0005) on a BG wire. This is used by the control unit to regulate the supply voltage from maxi fuse 61 of the passenger compartment fuse box (C0581) on an RU wire.

## Cooling Fan – V8

Operation of the cooling fan is controlled by the ECM. The ECM also monitors Engine Coolant Temperature (ECT) to determine fan speed. The ECM (C0606) provides a feed to the ECT sensor (C0169) on a YG wire. The ECT sensor is a Negative Temperature Coefficient (NTC) sensor. By measuring the voltage returned on an NO wire, the ECM can determine engine coolant temperature.

When the ATC ECU engages the Air Conditioning (A/C) compressor clutch, the ATC ECU (C1629) informs the ECM (C0331) via the K bus on a WRY wire that cooling fan operation is required. The ATC ECU also informs the ECM of the speed to drive the motor. For more information on A/C operation, refer to the ***Automatic Temperature Control (ATC)*** or ***Automatic Temperature Control (ATC) – Comfort*** section of this manual.

 **AUTOMATIC TEMPERATURE CONTROL (ATC).**

 **AUTOMATIC TEMPERATURE CONTROL (ATC) – COMFORT.**

The ECM (C0331) now provides a feed to the cooling fan control unit (C0005) on a BG wire. This is used by the control unit to regulate the supply voltage from maxi fuse 61 of the passenger compartment fuse box (C0581) on an RU wire.