

Active Grille Shutter - Overview

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The active grille shutter system is primarily used to improve fuel economy by reducing aerodynamic drag while the vehicle is moving. It is also used to shorten engine warm-up time, which increases engine efficiency and provides faster heat delivery to the vehicle cabin. The active grille shutter actuator receives position commands from the PCM, via the LIN

The active grille shutter system is comprised of a set of shutter blinds, linkage hardware, and an actuator.

The active grille shutter system carries out a self-calibration sequence whenever the engine is started, fully opening and closing the shutters before being positioned to the desired opening position as requested by the PCM. It will also be active in HEV, during plug-in charging, to provide air flow for HEV cabin climate conditioning and component cooling, when the vehicle is stationary.

In HEV vehicles, the desired active grille shutter position request is transmitted by the SOBDMC and received by the PCM, the PCM will sent the appropriate control signal to the active grille shutter actuator.

A vehicle may be fitted with a single or a dual active grille shutter hardware system depending on vehicle type, front end packaging and underhood/powertrain hardware components installed. Each system uses a separate active grille shutter motor that can be controlled independently, depending on system requirements, and also provides its own diagnostic status to the PCM for monitoring.

The lower active grille shutter system is controlled in the traditional sense, which is to modulate air flow to the underhood powertrain components and accessories. The upper active grille shutter system is dedicated to thermal management of the turbocharger CAC as well as the radiator.
