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Cruise Control

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Cruise control (also called speed control) is a combination of electrical and mechanical components designed to maintain a constant, set vehicle speed without driver pressure on the accelerator pedal. Major components of a typical cruise control system the main components are described below.

Servo unit. The servo unit attaches to the throttle linkage through a cable or chain. The servo unit controls the movement of the throttle by receiving a controlled amount of vacuum from a control module. Some systems use a stepper motor and do not use engine vacuum. Computer or cruise control module. This unit receives inputs from the brake switch, throttle position (TP) sensor, and vehicle speed sensor. It operates the solenoids or stepper motor to maintain the set speed. Speed set control. A speed set control is a switch or control located on the steering column, steering wheel, dash, or console. Many cruise control units feature coast, accelerate, and resume functions. Safety release switches. When the brake pedal is depressed, the cruise control system is disengaged through use of an electrical or vacuum switch, usually located on the brake pedal bracket.

Most vehicle manufacturers warn in the owner manual that cruise control should not be used when it is raining or if the roads are slippery. Cruise control systems operate the throttle and, if the drive wheels start to hydroplane, the vehicle slows, causing the cruise control unit to accelerate the engine.

When the engine is accelerated and the drive wheels are on a slippery road surface, vehicle stability will be lost and might possibly cause a crash. The purpose of a radar cruise control system is to give the driver more control over the vehicle by keeping an assured clear distance behind the vehicle in front. If the vehicle in front slows, the radar cruise control detects the slowing vehicle and automatically reduces the speed of the vehicle to keep a safe distance. Then if the vehicle speeds up, the radar cruise control also allows the vehicle to increase to the preset speed. This makes driving in congested areas easier and less tiring. It uses forward-looking radar to sense the distance to the vehicle in front and maintains an assured clear distance. This type of cruise control system works within the following conditions, namely, speeds from 30 to 161 km/h and designed to detect objects as far away 150 m.

The cruise control system is able to sense both distance and relative speed. Radar cruise control systems use long-range radar to detect faraway objects in front of the moving vehicle. Some systems use a short-range radar and/ or infrared or optical cameras to detect distances for when the distance between the moving vehicle and another vehicle in front is reduced. The radar frequencies can be 76 to 77 GHz (long-range radar) and 24 GHz (short-range radar). A new feature the researchers are working on now is eco-adaptive cruise control. The cruise control on your auto can ease a long trip and keep you out of trouble by preventing you from speeding, if you have set it at the legal speed limit. As new cars are being outfitted with GPS, a predictive eco-cruise control system will also be able to save fuel and reduce emissions, and is being fine-tuned for intelligent vehicle capability.