

AUTOMATIC VEHICLE SPEED CONTROL—MOTOR VEHICLES

1. PURPOSE:

The purpose of this SAE Recommended Practice is to provide a series of engineering guidelines for the design of an automatic vehicle speed control, and to define the minimum control performance which a device must provide in order to be classified an automatic vehicle speed control.

2. DEFINITION OF AUTOMATIC VEHICLE SPEED CONTROL:

An automatic vehicle speed control is a device capable of maintaining selected vehicle speeds in the presence of changing road load conditions.

3. SCOPE:

This SAE Recommended Practice is intended to apply only to the design of an automatic vehicle speed control. It is not intended to encourage or discourage the installation of automatic vehicle speed controls on any class of vehicles, nor is it intended to influence the requirements of engine speed governors.

4. DESIGN RECOMMENDATIONS:

- 4.1 The speed control shall require a deliberate action of the driver to cause activation and reactivation. Systems reactivated solely by the operation of the accelerator pedal shall include a signal to the driver to indicate reactivation.
- 4.2 The speed control shall be deactivated upon application of the service brakes (depressing the clutch pedal on manual clutch equipped vehicles shall also deactivate the speed control) and shall not reactivate without the deliberate action of the driver.

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- 4.3 When deactivated, the speed control shall have no effect on vehicle operation.
- 4.4 If a speed signal source other than the drivetrain or a driving wheel is used, suitable precautions shall be provided to prevent runaway when a driving wheel loses traction.
- 4.5 An alternate hand-operated deactivation control within the reach of the driver, in addition to the brake, clutch (if so equipped), and ignition key, shall be provided.
- 4.6 The system shall be capable of deactivation or capable of being made inoperative by a control within the reach of the driver under the following conditions:
- 4.6.1 Failure of any power source to the device.
- 4.6.2 Failure of speed signal to the device.
- 4.6.3 Short circuit of electrical leads of the device.
- 4.6.4 Failure of other vehicle components upon which the device is dependent for function.
- 4.7 The device shall not be operable below 20 mph (32 km/h).
- 4.8 The speed control linkage shall be designed and installed to prevent inadvertent interference with normal accelerator control operation under all operating and environmental conditions consistent with the environmental capabilities of the vehicle upon which it is installed.

5. PERFORMANCE REQUIREMENTS:

The automatic vehicle speed control shall regulate the output power of the engine to provide a stable and essentially constant vehicle speed. The following test defines the minimum performance requirements of an automatic vehicle speed control.

- 5.1 Test Conditions: The performance evaluation shall be performed under the following conditions:
- 5.1.1 Ambient temperature of +30–80°F (–1 to +27°C).
- 5.1.2 Altitude not to exceed 2500 ft (760 m) above sea level.
- 5.1.3 Component wind velocity in the direction of travel of the vehicle not to exceed 10 mph (16 km/h).
- 5.1.4 Selected vehicle speed of 40–70 mph (64–113 km/h).
- 5.1.5 Test road shall be hard surfaced and shall include a minimum of one 1/8 mile (200 m) (minimum) grade of –2% and one 1/8 mile (200 m) (minimum) grade of +2%, and shall be at least 5 miles (8 km) long.

- 5.2 Test Vehicle: The vehicle used for performance evaluation shall be capable of a level road 40-70 mph (64-113 km/h) acceleration time of not over 16 s. The vehicle qualification test shall be run in the highest available transmission gear or range. Downshifting is prohibited in meeting this requirement.
- 5.3 Performance Limits: Maximum vehicle speed variation shall not exceed ± 3 mph (5 km/h).

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