

Transmission Mounted Vehicle Speed  
Signal Rotor Specification—  
SAE J1377 JUN84

SAE Recommended Practice  
Approved June 1984

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# TRANSMISSION MOUNTED VEHICLE SPEED SIGNAL ROTOR SPECIFICATION—SAE J1377 JUN84

## SAE Recommended Practice

Developed by the Electric Speedometer and Tachometer Subcommittee and approved by the Speedometer and Tachometer Committee June 1984.

**1. Scope**—This SAE Recommended Practice covers the transmission output shaft mounted signal rotor and sensor mounting hole used for electronic speed sensing on Class 6, 7, and 8 highway vehicles.

**2. Purpose**—To standardize the number of discontinuities sensed (such as teeth or slots) per revolution of the transmission output shaft.

**3. Electronic Speed Sensing**—A gear, stamping or milled disc with discontinuities that are sensed by a sensor, usually a magnetic sensor consisting of a coil of wire—suitably terminated—wound around a cylindrical magnet and encased in a metal housing, may be used as a vehicle speed signal source.

The vehicle speed signal may then be used to activate electronic speedometers, cruise controls, vehicle speed limiting devices, and other components requiring vehicle speed information.

**4. Transmission Signal Rotor**—The signal rotor shall have 16 teeth or discontinuities, and shall turn at the same speed as the transmission output shaft. The eccentricity of the sensed portion of the signal rotor shall not exceed 0.25 mm total indicated runout. When magnetic sensors are

used, the signal rotor, gear, disc, or stamping in the transmission shall have teeth, slots, holes, and other discontinuities and shall be a low carbon, low remanence ferrous or magnetic material, such as cast iron or steel. The discontinuities shall be at least 3 mm deep. It is desirable for the discontinuities and the metal separating them to be of approximately equal size. The discontinuity size or rotor face width shall be no smaller than 3 mm wide.

**5. Sensor Mounting Hole**—The hole for the magnetic sensor shall be a  $\frac{1}{4}$  in 16 UNF thread. The axis of the hole shall be perpendicular to the sensed surface of the transmission gear, disc, or signal rotor, and shall be positioned so as to center the sensor over the discontinuities being sensed. The external surface around the speed sensor mounting hole shall be flat and smooth for a diameter sufficient to accommodate a locknut. The requirement for sealing in transmission lubricant should be negotiated between the user and the transmission and sensor suppliers. SAE Hydraulic Tube fitting O-ring seals are suggested. See SAE J514 and J515. (Reference nominal tube size  $\frac{1}{2}$  in.)

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