

## Speedometer Head Calibration

## Calibration

Always calibrate a new speedometer head before installing it. For the speedometer to correctly interpret the signal generated by the magnetic speed sensor, calibrate the speedometer head for the specific drivetrain on the vehicle. Also, calibrate the speedometer head whenever different tires (brand, size, or tread design) are installed.

**NOTE:** Speedometer heads used in conjunction with the VIGIL III system are calibrated at the factory and should never require recalibration. If a speedometer is suspected of being inaccurate, or if the tires are being changed on a vehicle with VIGIL® III, the lightbar module must be recalibrated. See [Section 54.03](#) for further information on VIGIL lightbar calibration procedures.

1. Determine the pulses per mile (PPM) by using the following formula:  

$$\text{Pulses per mile (PPM)} = \text{Tire revolutions per mile} \times \text{Axle ratio} \times \text{Number of teeth on the speedometer spacer gear.}$$
  - 1.1 Look on the sidewall of the tires to find their size, manufacturer, and tread design. Contact the tire dealer or manufacturer to get the revolutions per mile, or revolutions per kilometer for those tires. To convert revolutions per kilometer to revolutions per mile multiply the revolutions per kilometer value by 1.609.
  - 1.2 Find the rear axle ratio on the vehicle specification decal, or on the identification plate attached to the axle housing.
  - 1.3 Calculate the number of pulses per mile (PPM) that are being sent to the speedometer. First, multiply the tire revolutions per mile by the rear axle ratio.

Then, multiply the answer by the number of teeth on the speedometer spacer gear.

Example: Suppose the tire revolutions per mile are 491, the axle ratio is 4.11, and the speedometer spacer gear has 16 teeth. The pulses per mile (PPM) would be:

$$491 \times 4.11 \times 16 = 32288.16 \text{ PPM}$$

**NOTE:** Most transmissions have 16 teeth on the transmission's speedometer spacer gear.

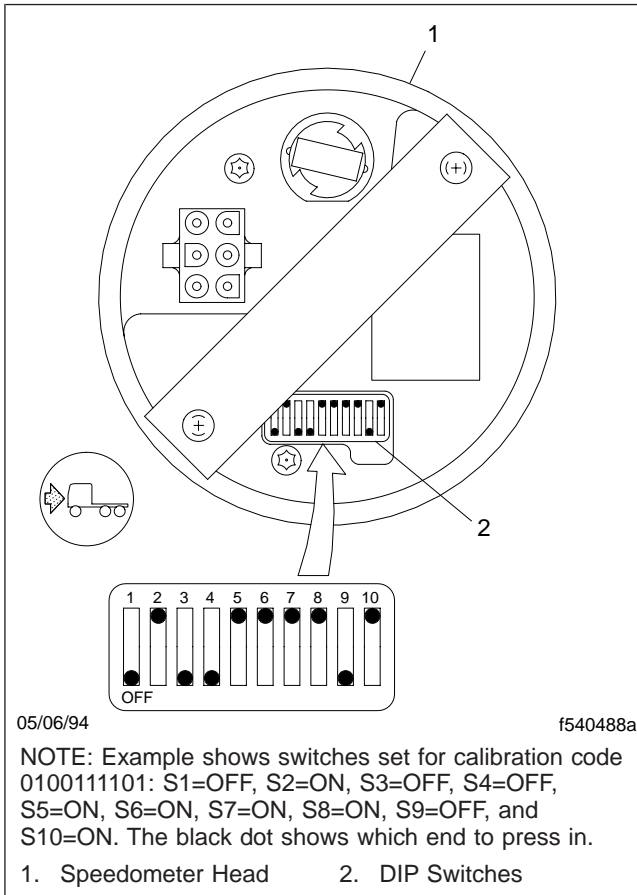
2. Determine the calibration number for the speedometer head by using the following formula:  

$$\text{Calibration number} = \text{Pulses per mile (PPM)} \div 120$$

Use the example from the previous step:  

$$32288.16 \text{ (PPM)} \div 120 = 269.068 \text{ or } 269.$$
 Since the result of the calculation is rounded to the nearest whole number, the speedometer calibration number would be 269. For the speedometer calibration number, see the PPM/120 column in the calibration tables.
3. Once the speedometer calibration number has been calculated, use the speedometer calibration tables to determine the speedometer DIP switch settings. See [Specifications, 400](#).
4. Remove the speedometer head from the dash; see [Subject 100](#) for instructions.
5. Set the positions of the ten rocker (DIP) switches to ON or OFF as indicated by the calibration code. The individual switches are set by depressing the appropriate end of the switch with a suitable tool that isn't likely to break off inside the speedometer (such as a small screwdriver). Pressing in at the top of the switch turns the DIP switch ON. Pressing in at the bottom turns the DIP switch OFF. See [Fig. 1](#).
6. Install the speedometer head; see [Subject 100](#).

## Speedometer Head Calibration



**Fig. 1, Rear View of Speedometer Head**