53.1 DESCRIPTION OF FLASH CODE 54

The SAE J1587 equivalent code for Flash Code 54 is p 84/12.

Flash Code 54 indicates that during engine operation the vehicle speed that is measured by the Vehicle Speed Sensor (VSS) is less than the expected value for the current engine speed/conditions.

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This diagnostic condition is typically an open sensor signal circuit. In a system without VSS Anti-tampering, the code is logged when the rpm >1500 and PW >15° and vehicle speed < 3 mph. With or without VSS Anti-tampering, mph will be limited if the code is logged.

NOTE:
Code will not be logged for the first five hours of ECM/ECU life (total engine hours).

The following procedure will troubleshoot Flash Code 54.

53.2.1 Check Vehicle Speed Sensor Circuit

Begin troubleshooting by taking the vehicle for a test drive with an assistant.

1. View the diagnostic tool; select Vehicle Speed.
   [a] If mph reads 0 (zero), or stays steady with the vehicle in motion, go to step 2.
   [b] If speed appears correct, refer to section 53.2.6.

2. Identify the speed sensor type - type one or type two.
   □ The type one sensor is a magnetic pickup and may be located in one of the following locations: transmission tail shaft, wheel rim, mechanical speedometer cable. If you have a type one sensor, verify with diagnostic tool signal type - magnetic. Go to step 3.
   □ The type two sensor communicates with square wave input and output signals and requires the ECM/ECU to be configured correctly. If you have a type two sensor, verify with diagnostic tool signal type - switched. Refer to section 53.2.7.

3. With ignition off, disconnect the Vehicle Interface Harness (VIH) connector.

4. Measure resistance of VSS circuit across VIH connector pins, V-17 and V-18. See Figure 53-1.
   [a] If the resistance measurement is less than 50 Ω, refer to section 53.2.2.
   [b] If the resistance measurement is greater than 3,000 Ω or open, refer to section 53.2.3.
   [c] If the resistance measurement is between 50 and 3,000 Ω, refer to section 53.2.4.
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53.2.2 Check for Short and VSS Connectors

Perform the following steps to check for short.

1. Disconnect VSS connector.

2. Measure resistance between VIH connector terminals V-17 and V-18. See Figure 53-1.
   
   [a] If the resistance measurement is less than or equal to 1,000 Ω, the signal wire V-17 or return wire V-18, are shorted together. Repair the short; refer to section 53.2.7.1.

   [b] If the resistance measurement is greater than 1,000 Ω or open, go to step 3.

3. Measure resistance of VSS across Vehicle Speed Sensor connector pins. See Figure 53-1.
   
   [a] If the resistance measurement is less than 50 Ω, go to step 4.

   [b] If the resistance measurement is greater than 3,000 Ω or open, go to step 4.

   [c] If the resistance measurement is between 50 and 3,000 Ω, check the terminals at the ECM/ECU VIH connector for bent, corroded, and unseated pins or sockets, on both the ECM/ECU and harness sides. If there is no damage, refer to section 53.2.6. If there is damage, repair and refer to section 53.2.7.1.

4. Check terminals at the VSS connectors (both sensor side and harness side) for bent, corroded, and unseated pins or sockets.

   [a] If the terminals and connectors are not damaged, replace the VSS. Refer to section 53.2.7.1.