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2008 CHEVROLET Silverado 2500HD Regular Cab OEM Service and Repair Workshop Manual

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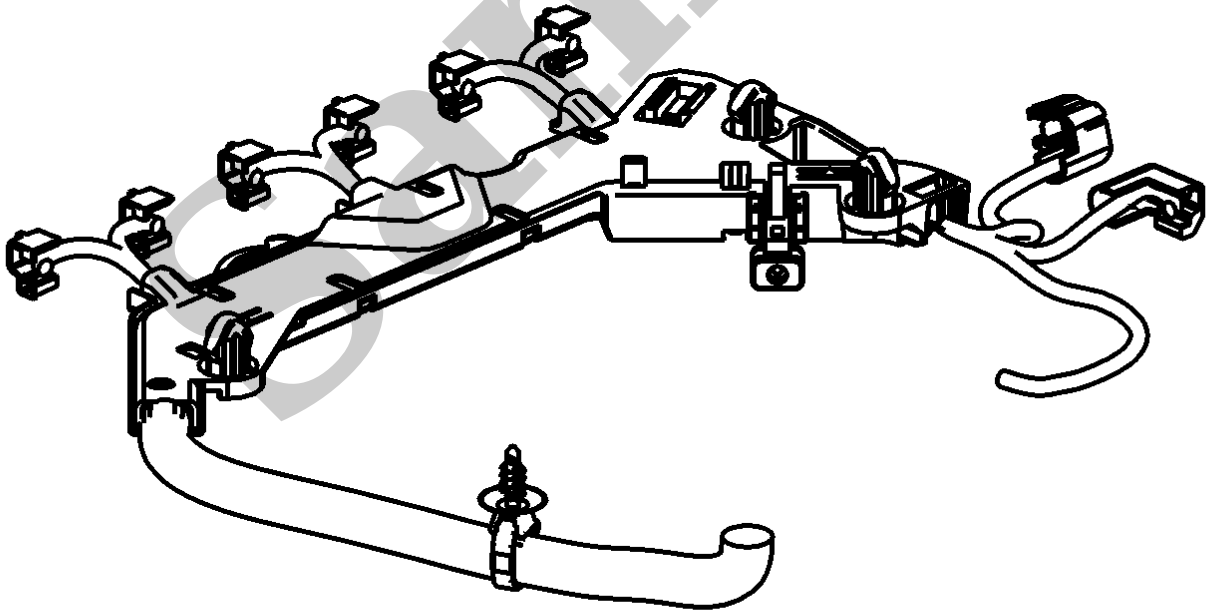
reaction carrier/output internal gear assembly increases, the frequency of the intermediate speed sensor signal increases. The TCM uses the intermediate speed sensor signal along with the input and output speed sensor signals to determine transmission line pressure, shift patterns, torque converter clutch slip speed and the correct gear ratio.

Output Speed Sensor

The output speed sensor assembly is a two wire hall-effect type sensor. The TCM supplies a 9 V signal circuit and a low reference circuit to the output speed sensor. The output speed sensor produces a square wave signal by toggling the 9 V signal circuit low and high based on the leading and trailing edges on the outside diameter of the output carrier assembly. As the rotational speed of the output carrier assembly increases, the frequency of the output speed sensor signal increases. The TCM uses the output speed sensor signal along with the input and intermediate speed sensor signals to determine transmission line pressure, shift patterns, torque converter clutch slip speed and the correct gear ratio.

Transmission Fluid Temperature Sensor



range switches and are used to indicate the gear position the vehicle operator has selected. The IMS switch assembly is mounted on the interior left side of the transmission case.

Park Neutral Position Switch of IMS

The park/neutral position switch indicates to the Engine Control Module (ECM) if the vehicle is in park/neutral or in a drive gear range. With the ignition ON, the ECM provides 12 V on the park/neutral signal circuit to the park/neutral position switch. A separate ground wire from the park/neutral position switch to chassis ground completes the circuit. When the gear shift lever in park or neutral, the switch closes and drops the voltage on the signal circuit to 0 V. In this state the engine will start and run. In reverse or drive range the park/neutral position switch opens, 12 V is then present on the signal circuit which will inhibit engine starting.

Transmission Range Switches of the IMS

The internal mode switch (IMS) indicates to the transmission control module (TCM) which gear position the vehicle operator has selected. The IMS consists of 5 separate hall effect switches. Each hall effect switch is supplied a 9 V reference circuit, and a signal circuit from the TCM. Each signal circuit for each gear selector position will have either a voltage reading of 0.70–0.96 V indicting ON or 1.68–2.38 V indicating OFF. The voltage values on each IMS circuit will change and are dependent on the position of the gear selector. The state of each IMS A/B/C/P/S circuit is displayed on the scan tool.

the shift event to take place. Similarly if the current gear of the vehicle is causing the engine to reach its RPM limits, the Transmission Control Module will upshift or downshift in order to bring the engine back into the appropriate RPM range.

If the driver request a shift and is denied by the TCM, the gear indicator on the driver information center will flash momentarily, indicating that he shift request was denied.

Manual Mode Shifting Operation

1. With the engine running, place the shift lever in the Drive (D) position, the slide the shift lever to the left. The D on the driver information center will change to M followed by the current gear, indicating that the vehicle is in Manual Mode.
2. An upshift can be requested by momentarily pressing the S2R switch, or by pushing the shift lever forward towards the (+) next to the D. If the current operating conditions permit a safe upshift, the number following the M on the driver information center will increase and the transmission will upshift to the next gear.
3. A downshift can be requested by momentarily pressing the S2L switch, or by pulling the shift lever backward towards the (–) next to the D. If the current operating conditions permit a safe downshift, the number following the M on the driver information center will decrease and the transmission will downshift to the next gear.
4. To exit Manual Mode, slide the shift lever back to the right into the Drive position. The driver information center will display a D, indicating the vehicle is no longer in Manual Mode.

4–5–6–7–8 Reverse Clutch Assembly

45678R CLUTCH fluid is exhausted from the 4-5-6-7- 8 reverse clutch assembly through orifice #42. 45678R CLUTCH fluid continues to the 45678R control valve where it is directed thru orifice #30 into EX BACKFILL.

Neutral – Engine Running