



DODGE RWD RE TRANSMISSIONS PUSH-IN TRANSMISSION RANGE SENSOR DIAGNOSIS

CHANGE: At the start of production for the 2002 model year, the Transmission Range Sensor has changed from a screw-in type to a push-in type. The screw-in type had three pins, the push-in type has five pins. The push-in type provides battery voltage or ground on its circuits which would permit starting in Park and Neutral positions only as well as reverse lamp operation. The screw-in type will also convey a drive signal to the PCM. Without this signal the transmission would not shift into fourth gear.

The push-in type provides a Park/Neutral start signal to the starter relay via the PCM as well as operation of the reverse lamps.

The push-in TRS is a “step down resistor” type which provides a full range of manual lever positions to the PCM, (Refer to Figure 1).

The sensor is mounted in the transmission housing near the valve body, just above the pan rail. It's in the same position as the Park/Neutral switch on other transmissions. The TRS contacts a cammed surface on the manual valve lever (Figure 2). The cammed surface translates the rotational motion of the manual lever into the linear motion of the sensor. The cammed surface on the manual lever is comprised of two parts controlling the TRS signal: The insulator portion contacts the switch poppet when the manual lever is not in PARK or NEUTRAL. The manual lever itself contacts the poppet when the lever is in PARK or NEUTRAL; providing a ground for the signal from the starter relay and the JTEC engine controller.

As the switch moves through its linear motion contacts slide across a circuit board which changes the resistance between the range sensing pins of the switch (Figures 3 & 4). A power supply on the instrument cluster provides a regulated voltage signal to the switch. The return signal is decoded by the cluster, which then controls the PRNDL display to correspond with the correct transmission range. A bus message of transmission range is also sent by the cluster. In REVERSE range a second contact set closes the circuit providing power to the reverse lamps.

REASON: The push-in type provides more gear range information than the screw-in type to the PCM as well as a greater degree of accuracy.

PARTS AFFECTED:

- (1) The Transmission Range Sensor because it now pushes into a smooth hole in the case and is retained by a hold down bracket and bolt.
- (2) The case because the push-in style case has no threads for the TRS like the previous design case.
- (3) The detent lever on the valve body is shorter to accommodate the longer TRS as seen in Figure 2.

INTERCHANGEABILITY:

The previous design parts do not interchange with the current design parts, however, Sonnax makes an adapter to fit the early threaded switch into a 2002 and Later case that takes the push-in style. Smedley Transmission Service, (330-264-2251),

The push-in type provides more gear range information than the screw-in type to the PCM as well as a greater degree of accuracy. makes an adapter to allow any 1996 to 2001 case to accept the push-in type of TRS.



DODGE RWD RE TRANSMISSIONS

TRANSMISSION RANGE SENSOR

SERVICE INFORMATION:

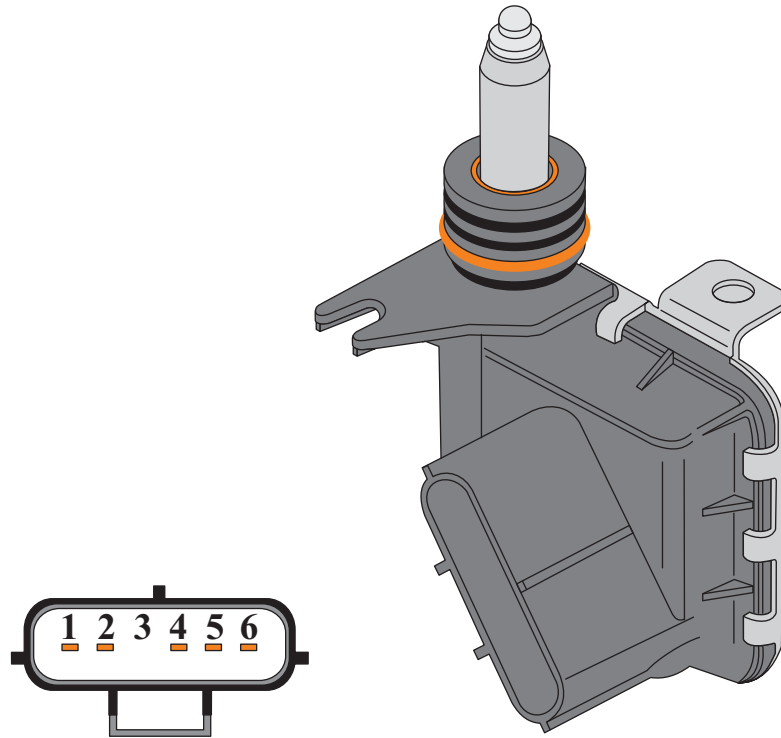
For diagnostic purposes, codes P0705 and P0706 are assigned to this sensor. It has been known that fluid leaks through the sensor and may cause TCC cycling and/or Overdrive cycling. If fluid has seeped into the external harness connector, the sensor will need to be replaced. Otherwise, this sensor can be bench tested as seen in Figure 3. Simply attach an ohm meter to terminals 2 and 5 and carefully depress the plunger to obtain the different gear select positions. The values provided in figure 3 were taken from a known good sensor.

If a case replacement is necessary and all that is available is an early case with the screw-in park/neutral switch, the modified case seen in Figure 5 will accept the later Digital Range Sensor. For more information on this modification contact Smedley Transmission Service at 330-264-2251.

NOTE: Remember to use the correct internal linkage that matches the longer digital sensor as shown in Figure 2.

TRS Part Number.....1-56045489AC

DODGE RWD TRANSMISSION RANGE SENSOR

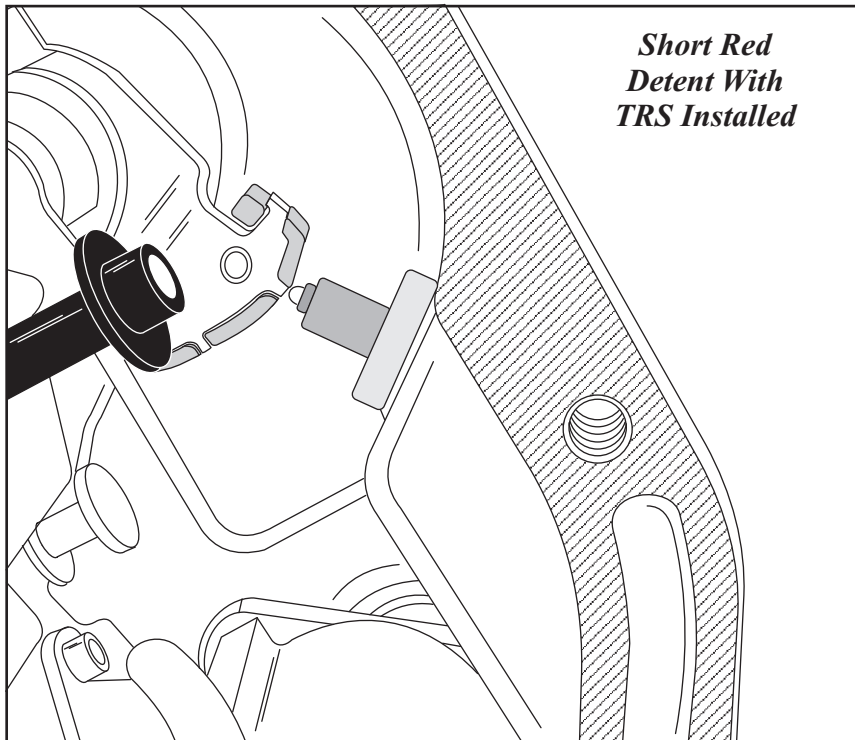
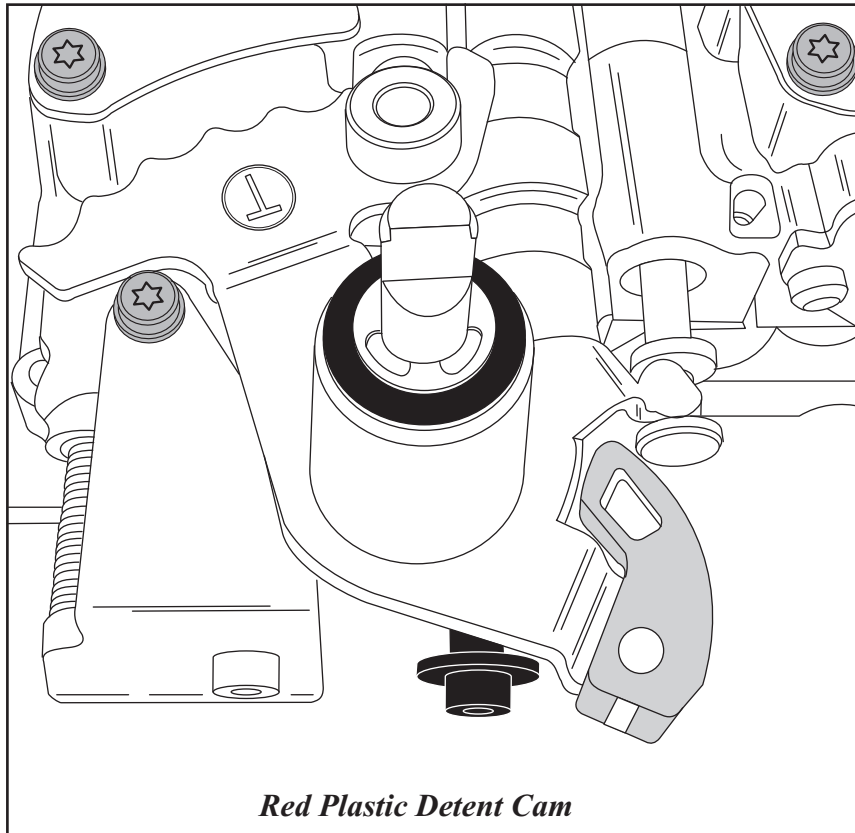


| Cavity | Circuit | Function |
|--------|--------------|---|
| 1 | L10 18WT/GY | Fused Ignition Switch Output (Run) |
| 2 | T117 20DG/YL | Trans Range Sensor Electronic Cluster and Volt Supply |
| 3 | Not used | — |
| 4 | L1 18WT/LG | Backup Lamp Feed |
| 5 | T917 20YL/TN | Trans Range Sensor Electronic Cluster MJX |
| 6 | T41 18YL/DB | Park Neutral Position Switch Sense (T41) |

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Figure 1

DODGE RWD TRANSMISSION RANGE SENSOR

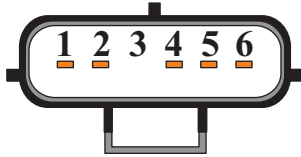


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Figure 2

DODGE RWD TRANSMISSION RANGE SENSOR

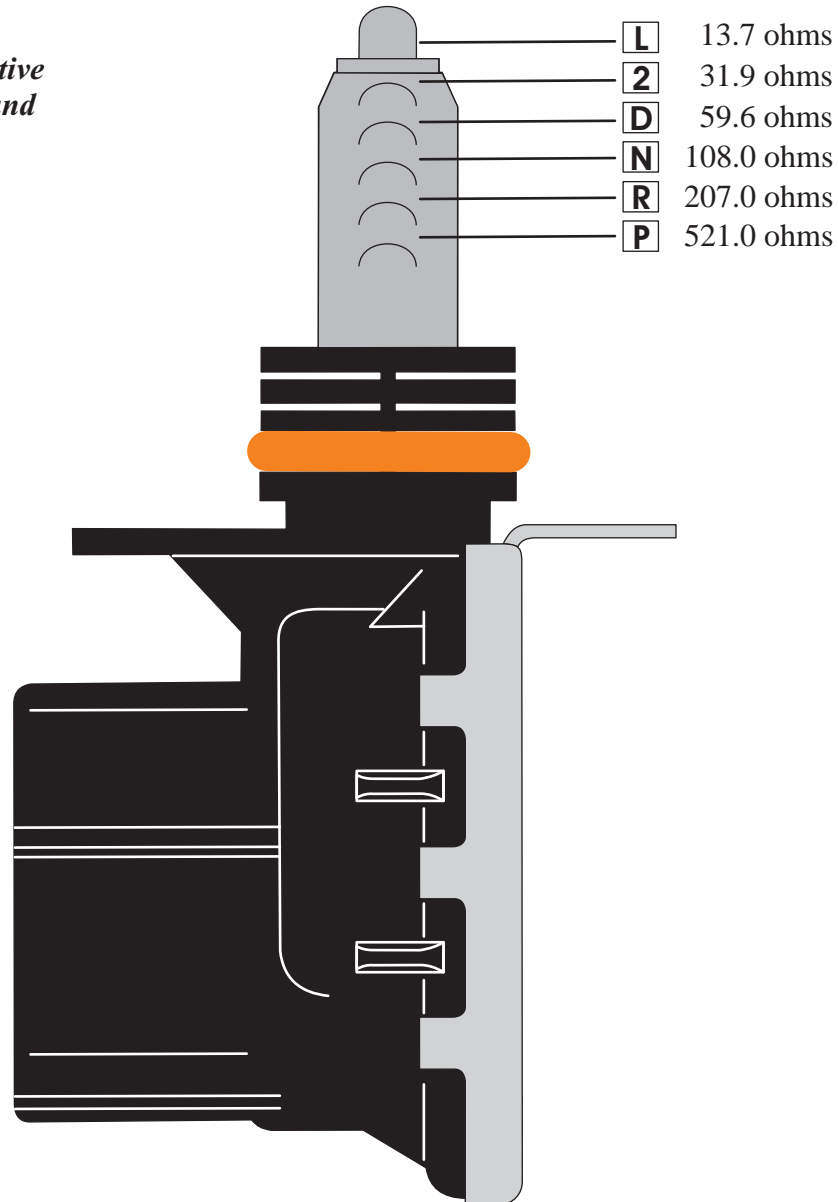
Sensor Connector View



In car voltage test with positive meter lead into terminal 2 and negative lead to ground:

| | |
|----------|-----------|
| L | 0.647 DCV |
| 2 | 1.244 DCV |
| D | 1.903 DCV |
| N | 2.629 DCV |
| R | 3.388 DCV |
| P | 4.213 DCV |

These are average voltage readings taken from a working vehicle.

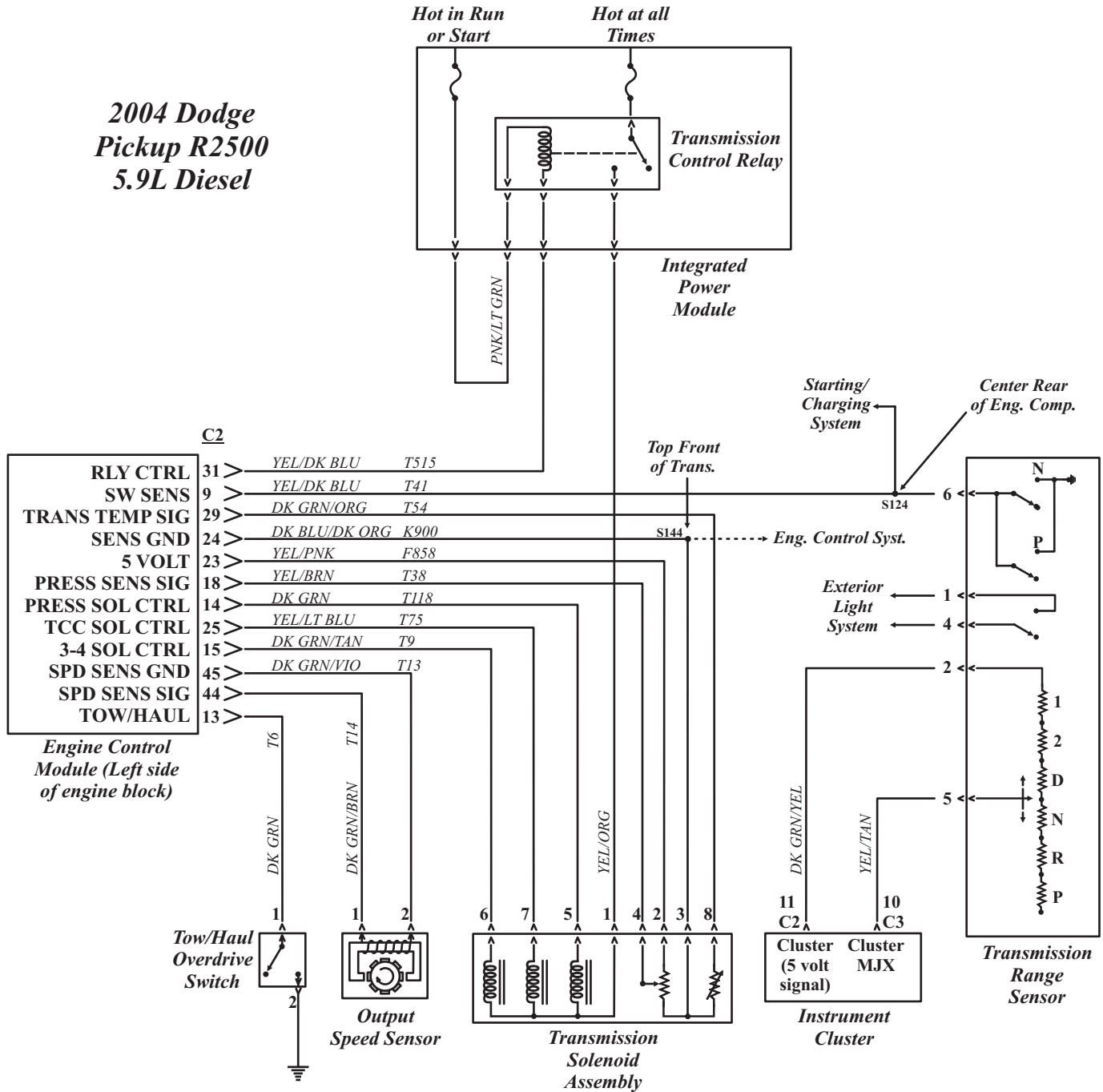


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Figure 3

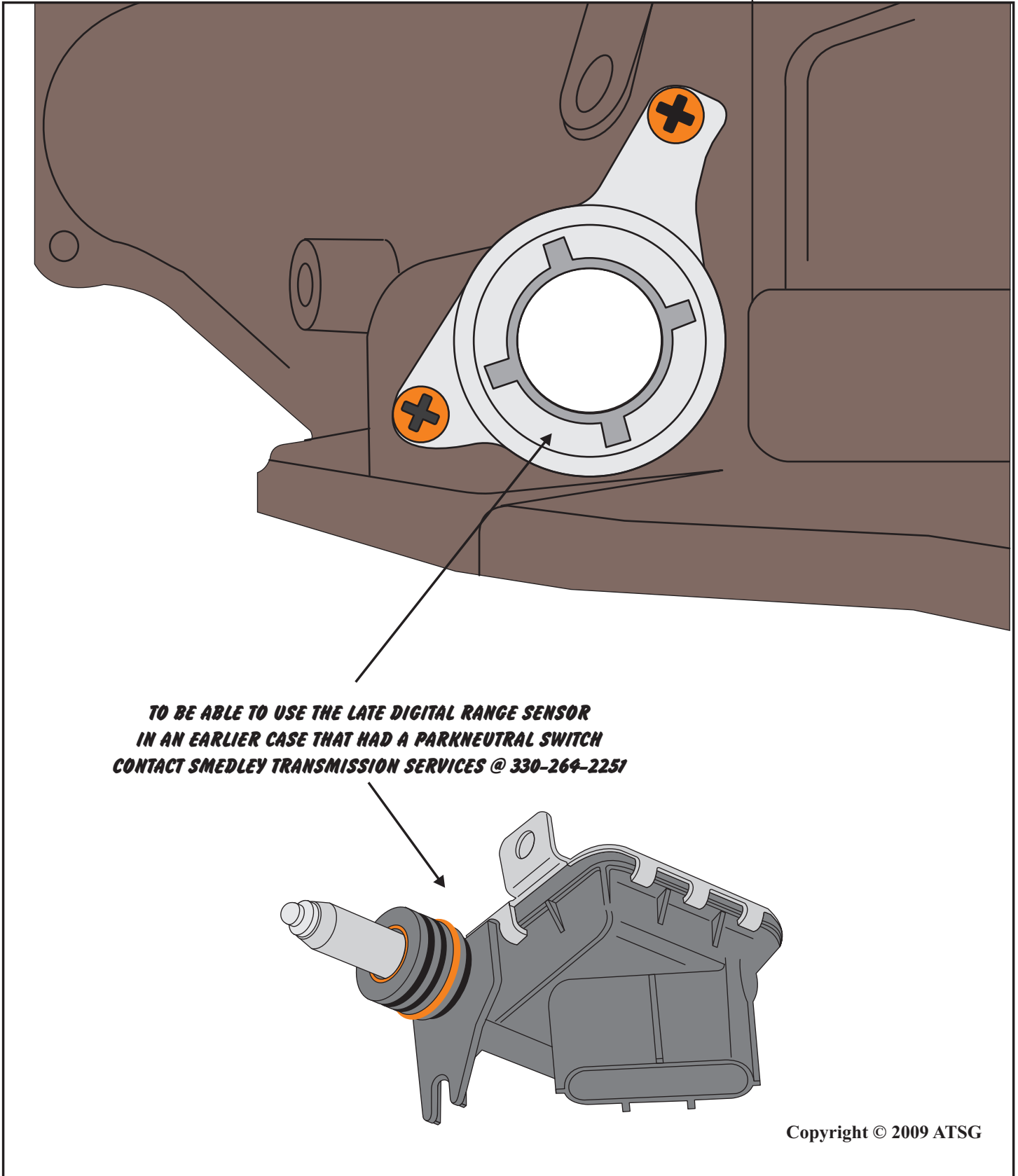
DODGE RWD TRANSMISSION RANGE SENSOR

**2004 Dodge
Pickup R2500
5.9L Diesel**



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Figure 4



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Figure 5