

CHRYSLER 62TE**P0706 TRANSMISSION RANGE SENSOR RATIONALITY**

COMPLAINT: A 2018 Grand Caravan comes into the shop with a P0706 code for a Transmission Range Sensor Rationality problem. This sensor has four wires going to it with reference voltage in each of them being supplied by the PCM/TCM. These four wires are called the C1, C2, C3 and C4 circuits (figures 1 and 2).

A scan tool provides a PID showing the open and closed status for each of these circuits. The sensor is designed in such a way as to close these circuits by grounding them in a set sequence (figure 3).

Take the C1 circuit for example. This wire will be grounded, closing the circuit in Park and Neutral only. All the other ranges will be open (Figure 4).

CAUSE: When each of these circuits were inspected, it was discovered that the C2 circuit always remained open. It should be grounded in all ranges except OD and 3. This typically would indicate that the wire to the sensor is broken preventing the circuit from being grounded. A bad connection would be another possibility. After inspecting the C2 circuit, it was discovered that there was something wrong with the sensor itself. This required pulling the unit and valve body to gain access to this sensor. It was then discovered that the retaining tab that holds the circuit housing to the detent plate was missing. Figures 5 and 6 show the location of this retaining tab.

The retaining tab is designed to hold the circuit housing in place, so the circuit fingers seen in figure 2 maintains tension contact to the detent plate. When this tab is broken, it compromises the tension for any one of these circuit fingers. In this case, it happened to be the C2 circuit (figures 7 and 8).

CORRECTION: Replace the Transmission Range Sensor.

The day after this problem was discovered, another shop called ATSG with a similar problem. It was discovered that they too had a broken retaining tab. This makes it an important part to be inspected during the build process. This will avoid missing it and then face the undesirable extra work to remedy this problem.

ATSG would like to thank Ed from Affordable Transmission for sharing this information with us.

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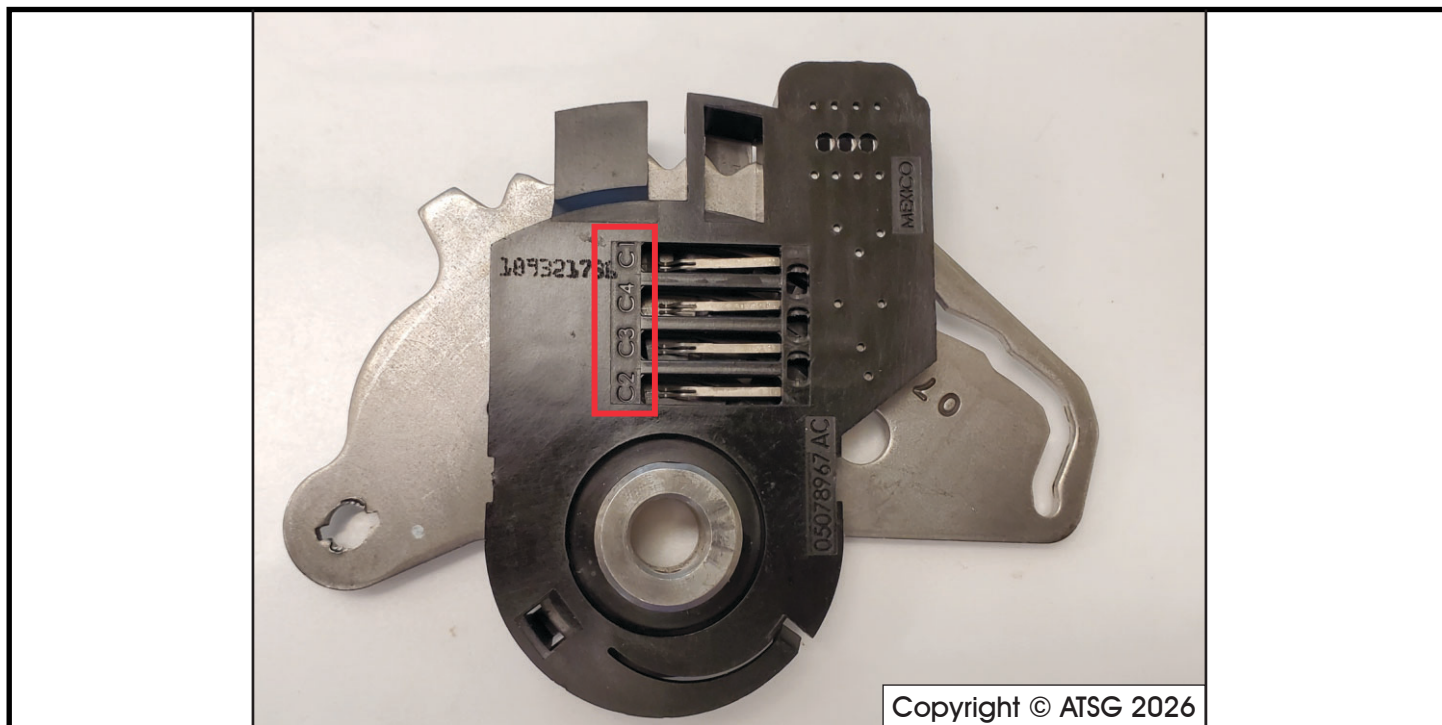


Figure 1

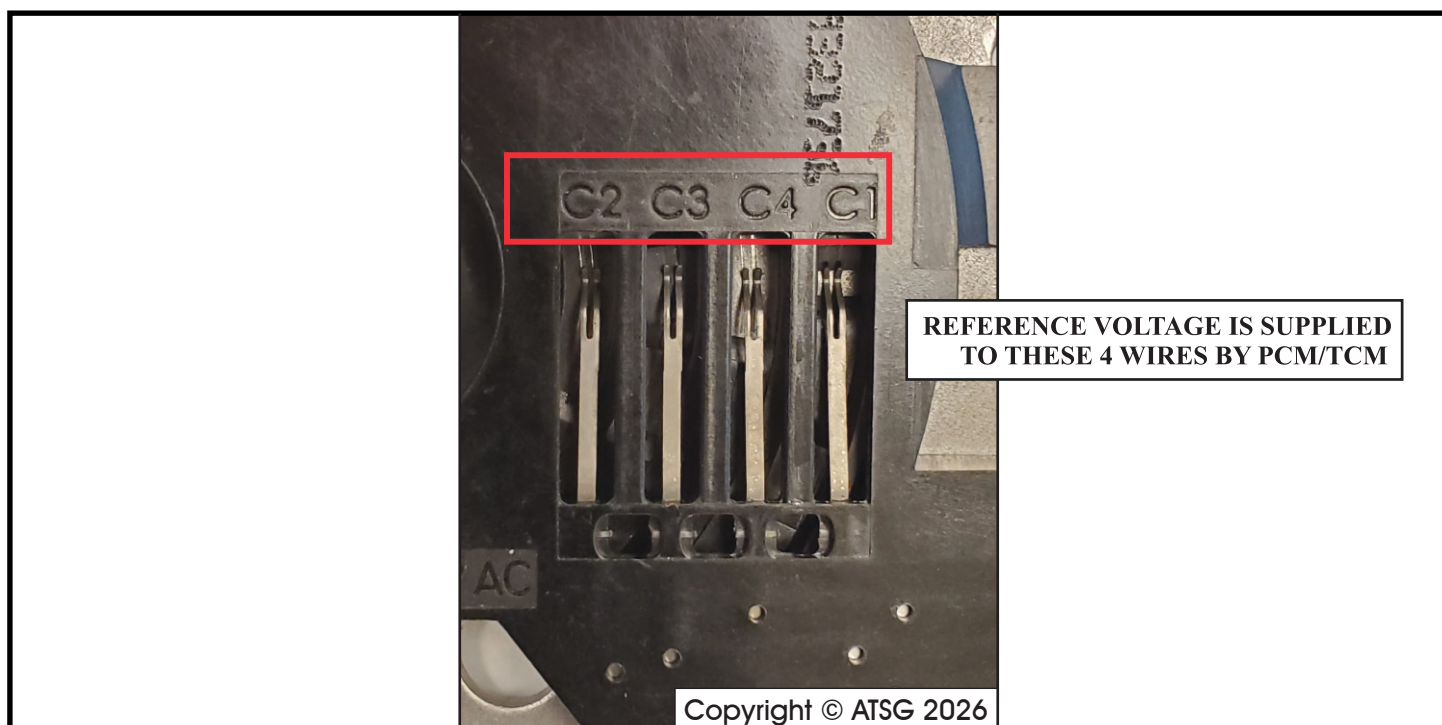


Figure 2

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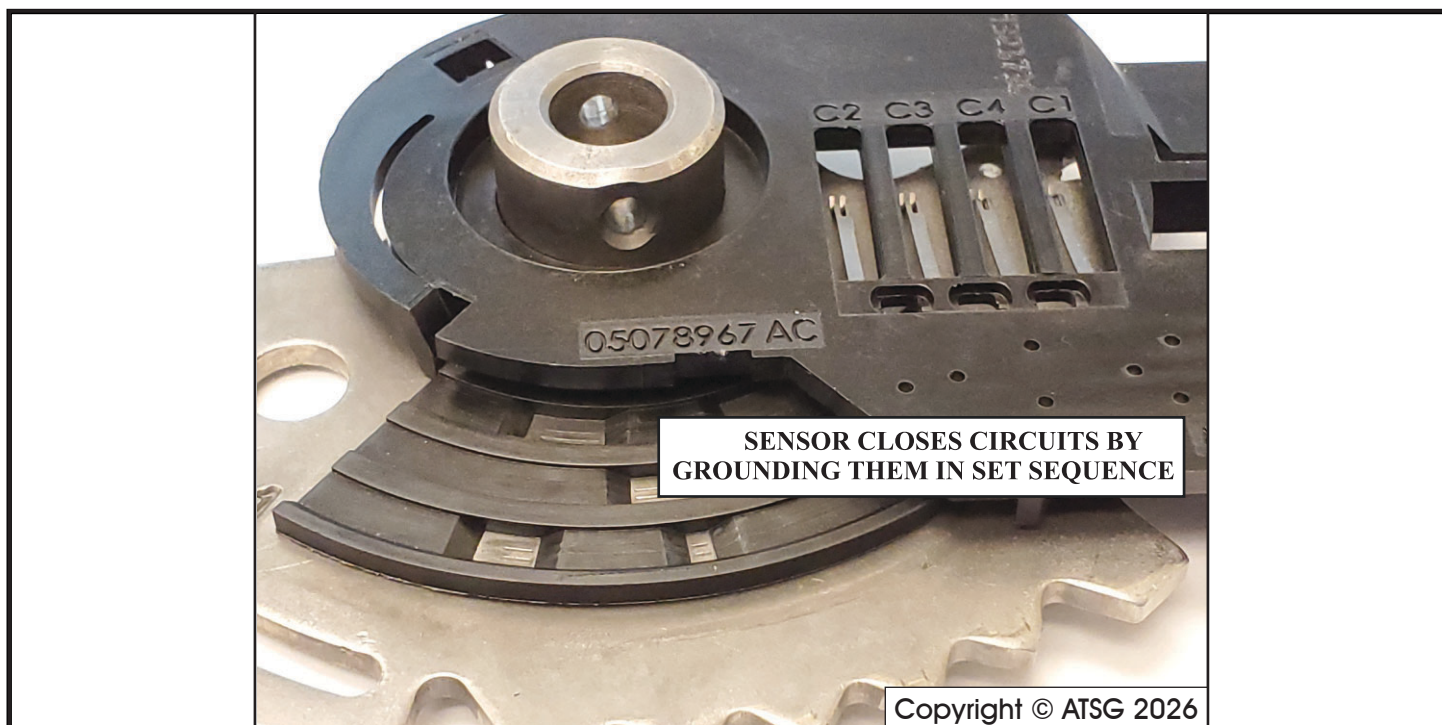


Figure 3

SLP	C1 (T41)	C2 (T42)	C3 (T3)	C4 (T4)
P	Closed	Closed	Closed	Open
R	Open	Closed	Open	Open
N	Closed	Closed	Open	Closed
OD	Open	Open	Open	Closed
3	Open	Open	Closed	Open
1	Open	Closed	Closed	Closed

Figure 4

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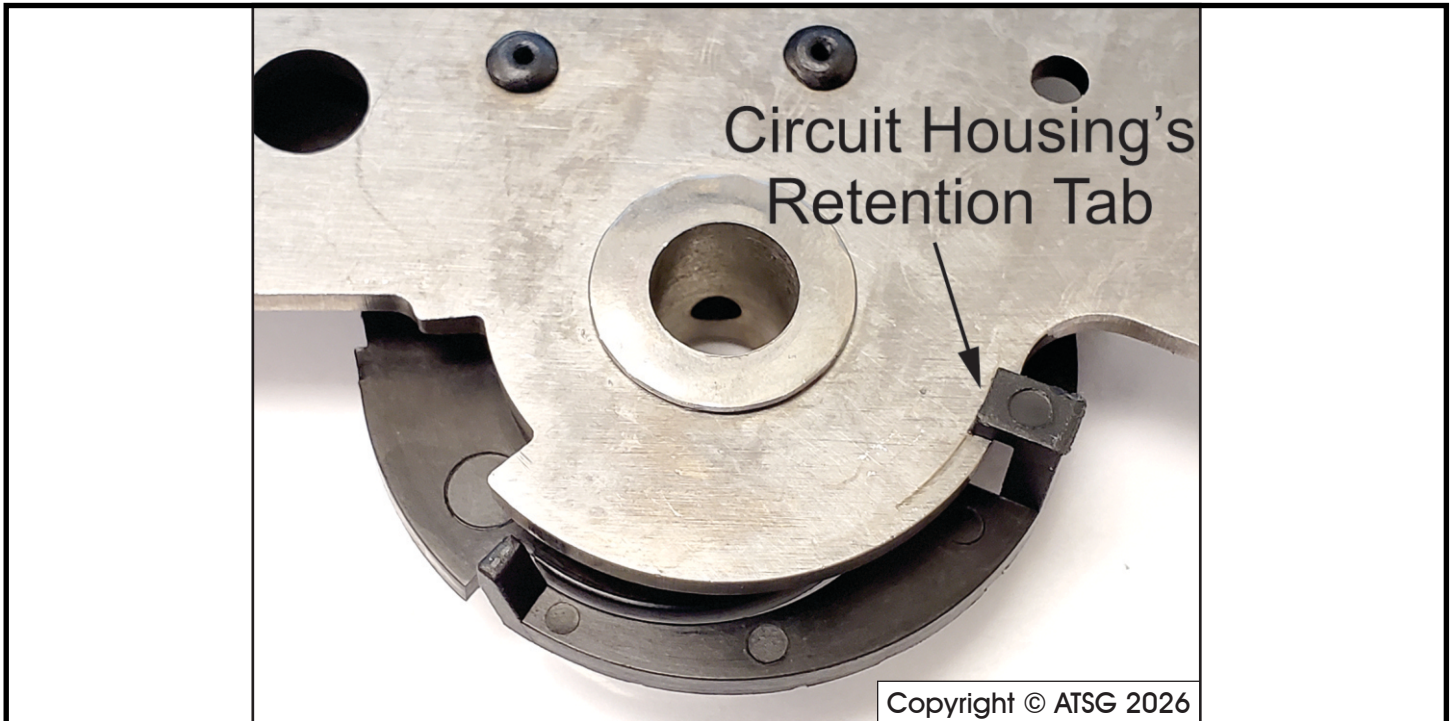


Figure 5

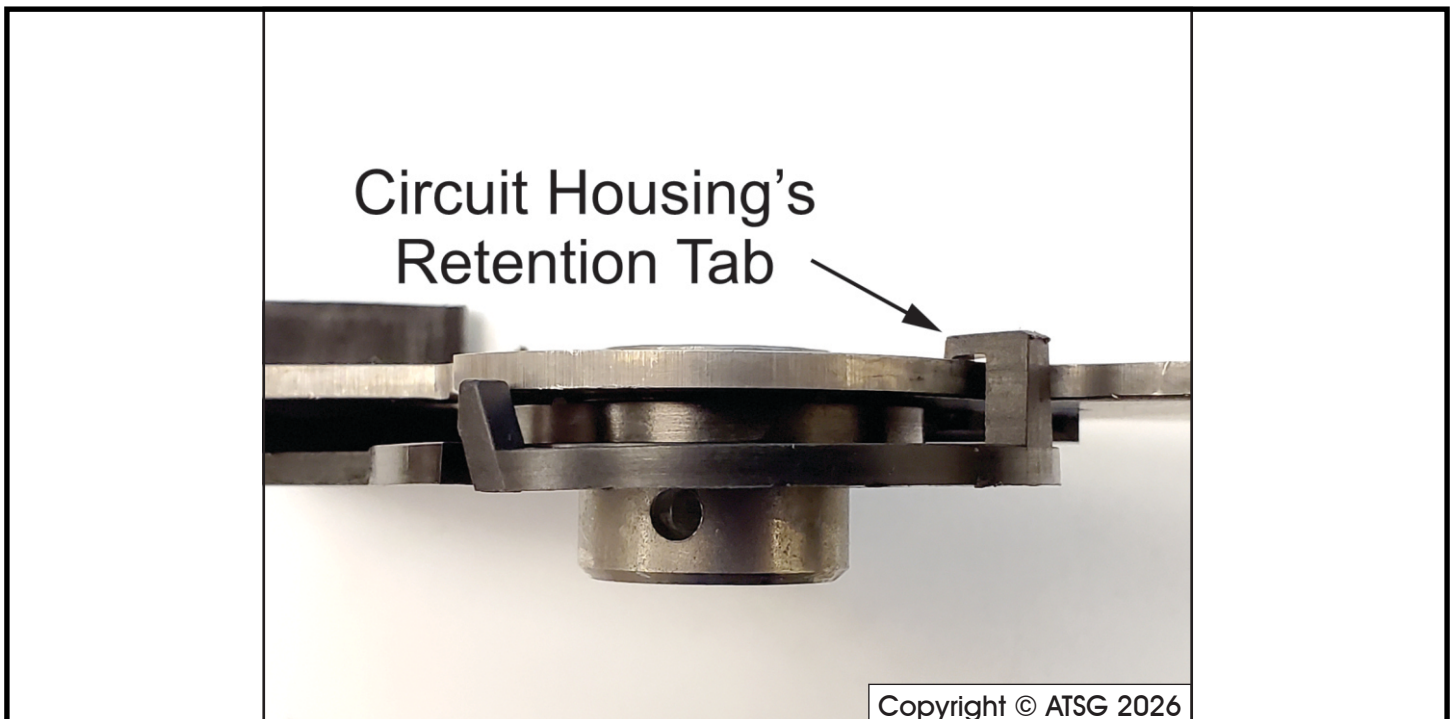


Figure 6

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Figure 7

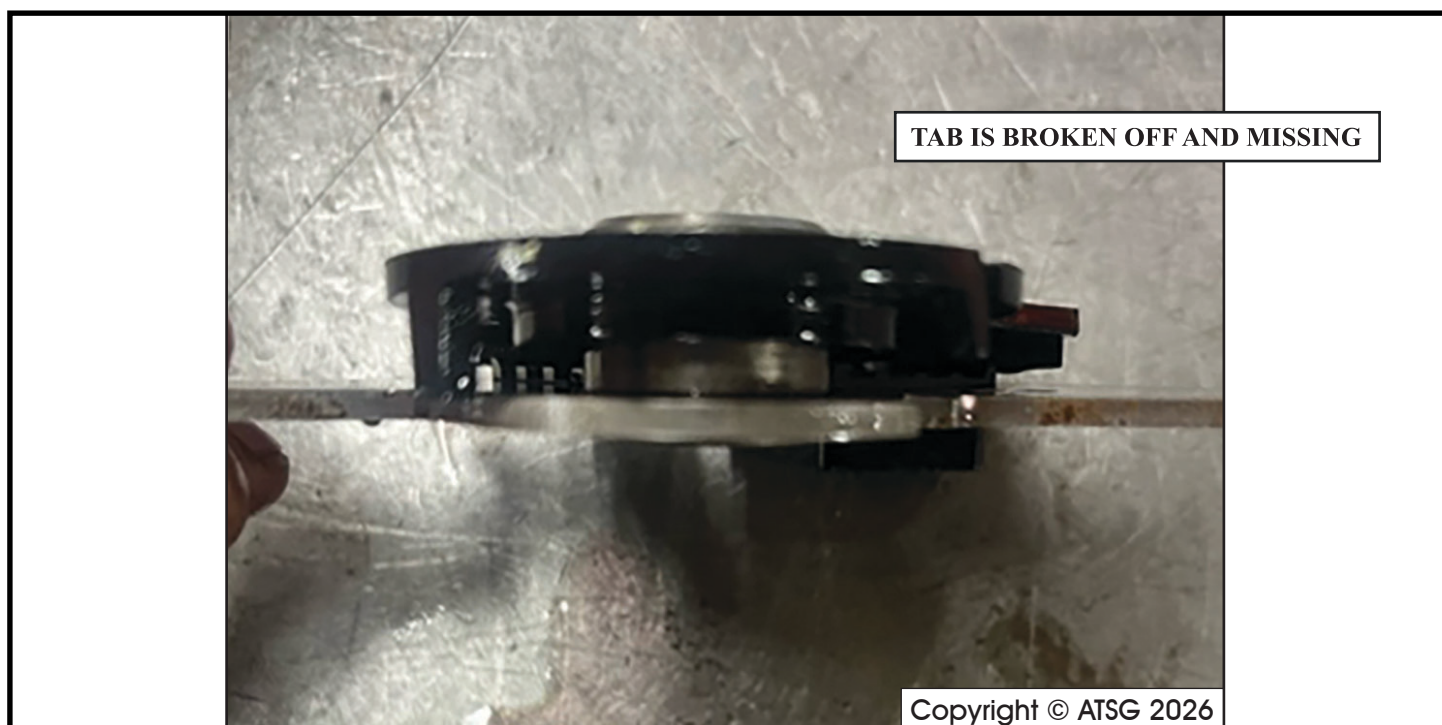


Figure 8