

P0717: INPUT/TURBINE SPEED SENSOR A CIRCUIT NO SIGNAL

OVERVIEW

Severity	:	High
DIY Difficulty Level	:	Intermediate
Repair Cost	:	\$200-\$290
Can I Still Drive?	:	No

What Does The P0717 Code Mean?

When I run across a trouble code P0717, it is because the powertrain control module (PCM) has detected no voltage output from the circuit of the input (or turbine) speed sensor that has been given the designation A. Input and turbine speed sensors are virtually identical in design, and serve the same purpose, but manufacturers use variations in terminology to describe them.

The input/turbine speed sensor is typically a 3-wire, electromagnetic sensor that is used to monitor transmission input speed (identified by the PCM as revolutions per minute or RPMs). The sensor is usually mounted with a bolt/stud or threaded directly into the transmission case. It is normally positioned near the rear of the bell housing (at the transmission input shaft)

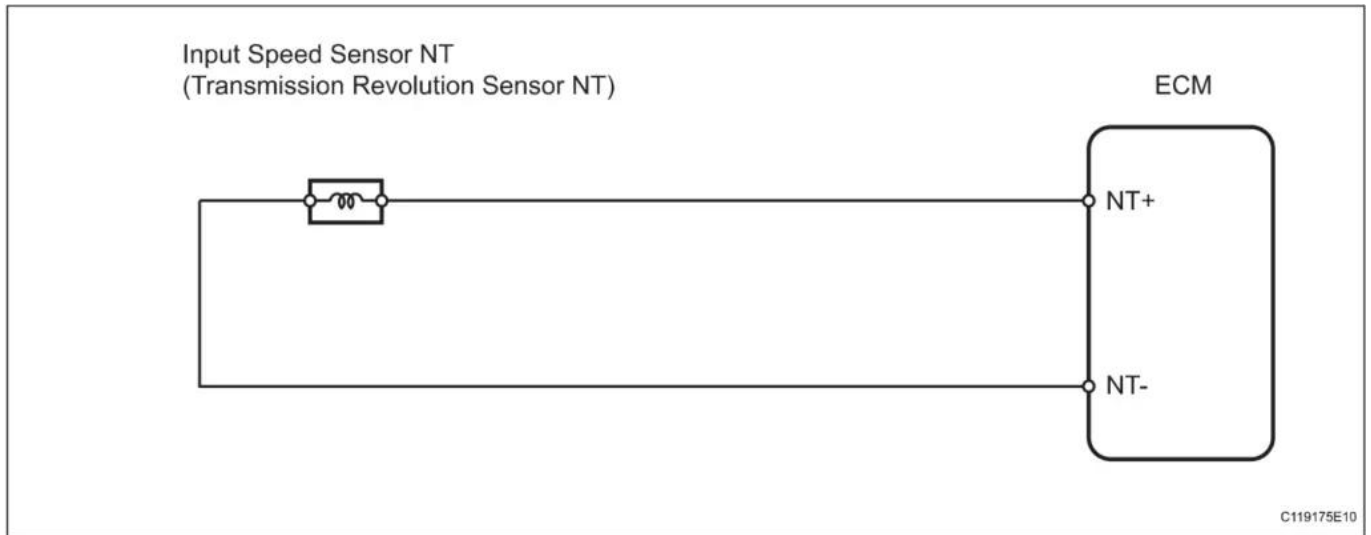
Specially designed grooves (or a notched reluctor wheel) are permanently attached to the transmission main (or input) shaft. As RPMs are transferred from the engine to the transmission, the input shaft (or reluctor wheel) spins and passes in close proximity to the end of the sensor. The steel shaft (or reluctor wheel) completes an electronic/electromagnetic circuit.

The circuit is interrupted as the grooved (or notched) areas pass by the sensor and an electronic pattern is formed. This pattern formation is received by the PCM as a waveform that it is programmed to interpret as transmission input/turbine speed.

In order to determine the desired input RPM speed, transmission input/turbine speed is compared

with engine RPM speed, percentage of engine load, and transmission output speed.

A code P0717 will be stored (and a malfunction lamp may be illuminated) if the actual input/turbine speed, or system circuit voltage, fail to coincide with the desired input/turbine speed or manufacturer's specified voltage.



P0717 wiring diagram

What Are The Symptoms Of The P0717 Code?

The P0717 indicates a complete loss of circuit voltage for the input/turbine speed sensor. Symptoms of a P0717 code may include:

- Intermittent or erratic speedometer (odometer) operation
- Inability of the transmission to shift at all
- Inoperative speedometer and/or odometer
- Erratic or harsh transmission shift points
- A decrease in fuel efficiency

What Are The Potential Causes Of The P0717 Code?

Potential causes for this code to set are:

- A faulty input speed sensor
- Damaged, loose, or shorted wiring and/or connectors in the circuit
- PCM failure or a PCM programming error

How Can You Fix The P0717 Code?

A good starting point is always to check for technical service bulletins (TSB) for your particular

vehicle. Your issue may be a known issue with a known fix put out by the manufacturer and can save you time and money during diagnosis.

A manufacturer's service manual, an advanced diagnostic scanner, a digital volt/ohmmeter (DVOM), and possibly an oscilloscope will be helpful in diagnosing the P0717 code.

Experienced technicians usually begin this diagnosis with a visual inspection of system wiring and connectors. Shorted or open circuits and/or connectors must be repaired or replaced before proceeding. Inspect the battery, battery cables, and cable ends. I would test alternator output at this time.

Now is the time to connect the scanner to the diagnostic port and retrieve all stored codes. Write them down for future reference and make a note of the freeze frame data as well.

If there are input sensor and output sensor codes present, use the scanner data stream to determine which circuit is malfunctioning. In order to retrieve the most accurate data from the scanner, narrow the data stream to include only pertinent information.

Excessive metal debris on magnetic contacts of input and/or output speed sensors can cause sensor malfunctions. When removing the sensor, clean excessive debris from magnetic surfaces before reinstallation. When sensors are removed you will also want to inspect interruption grooves and/or reluctor wheel notches for signs of damage or wear.

You may use the DVOM to test individual sensor resistance and circuit voltage. Follow manufacturer's specifications (found in the service manual or through All Data) and replace sensors that fail to comply with manufacturer's specifications.

Failure to disconnect related controllers, prior to testing resistance or continuity (using the DVOM), may result in controller failure.

If a code P0717 is stored, and all system circuits and sensors are in proper working order and comply with manufacturer's specifications, suspect a faulty PCM or a PCM programming error.

Additional diagnostic notes:

- If input and/or output speed sensors must be removed from the transmission case, use caution. Hot transmission fluid may escape from the opening and burn your skin
- Excessive metallic debris (attracted to the electromagnetic sensor) may cause erratic input/output speed sensor readings
- Make sure that mounting surfaces/threaded holes are clear of debris and obstructions because sensor to reluctor clearance is critical.

Reference Sources

[P0717 Input/Turbine Speed Sensor A Circuit No Signal](#), OBD-Codes.