

# DT12 Range Detent Diagnostic

## TSB-26-001-DDC

Creation Date: 2025-09-09

Engine or Vehicle Affected:

▶DT12

### Description of Revisions:

- 09/09/2025 – Initial release
- 04/03/2026 – Added figure reference for Detent Types.
- 04/17/2026 – Metadata update.

### General Information

Some DT12 shifting complaints may be corrected by installing the updated Range Detents.

Complaint may be described as:

The transmission shifts into neutral when attempting a range up or down shift (complaint may be a 5 to 7 shift, 6 to 8 shift or any other shift combination where a low-to-high range is required).

A grinding noise.

### Parts Table

Table 1, Parts Table

Part Number	Part Description	Quantity
A9602670874	Split Detent	2

Table 1, Parts Table

### Repair Procedure

1. Obtain a driving log file of the vehicle going through all the gears.

👉 **Note:** The CPC5 SPN 521063/14 fault code (active or inactive) may also be present in the log.

2. Navigate to the 'Identification' screen, under 'Stored Data'. Look in 'TCM 22-22-21' for reversing events (events counter is usually greater than 30 and as high as 700). See [1](#), and chart the log file to identify range 'hang-up/intermediate' position. See [2](#). Does the events counter read 0 or does the chart show the range in an intermediate position?

Common	Standard	Audit Trail	Compare Configuration	Engine Totals	NOx Binning	Rating	Stored Data	
							Number of unintended displacement in split position Lo, sensor-based	0
							Number of unintended displacement in split position Hi, speed-based	0
							Number of rattling events on range group shifts to Hi position	0
							Number of rattling events on range group shifts to Lo position	2
							Number of reversing events on range group shifts to Hi position	171
							Number of reversing events on range group shifts to Lo position	146
							Number of leakages in range Hi position	0
							Number of leakages in range Lo position	0
							Number of colliding dogs events range Hi at vehicle standstill	0
							Number of colliding dogs events range Lo at vehicle standstill	6
							Number of sticking events in range Hi at vehicle movement	0
							Number of sticking events in range Lo at vehicle movement	0
							Sum of average force on range group shifts to Hi position	350100 N
							Sum of average force on range group shifts to Lo position	334584 N
							Sum of maximum force on range group shifts to Hi position	920423 N
							Sum of maximum force on range group shifts to Lo position	1129058 N
							Number of solenoid valve activations range Hi	6574
							Number of solenoid valve activations range Lo	7279
							Number of range group shifts to Hi w/o sufficient air supply	918
							Number of range group shifts to Lo w/o sufficient air supply	609
							Overall number of range group shifts to Hi position	1042
							Overall number of range group shifts to Lo position	1034

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Fig. 1, Range Reversing Events



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A. TCM5 2313 Desired Gear from CAN D. TCM5 2306 Split Actuator Actual  
 B. TCM5 1F1B Gear Information Actual Position  
 Gear  
 E. TCM5 2309 Range Actuator Actual  
 C. CPC5 AS: Actual Engine Speed Position  
 Fig. 2, Monitored Instruments

a. Yes; see and continue trouble shooting.

b. No; go to step 3.

3. Remove and inspect the detents. See . Is the detent type with the red X installed (see Fig. 3)?

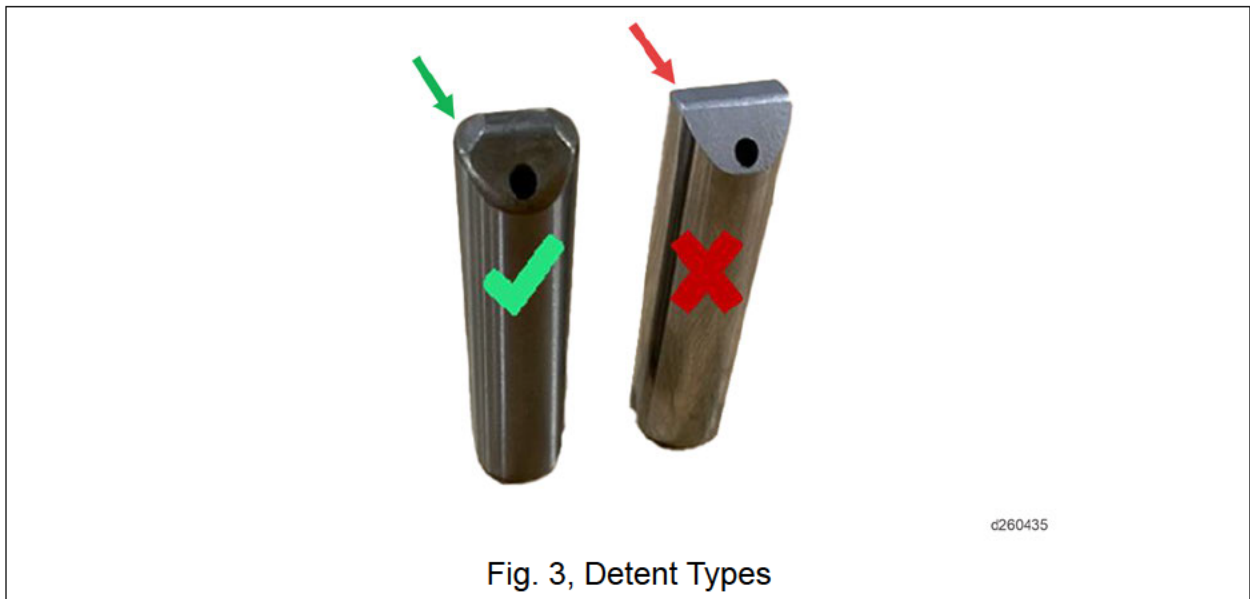


Fig. 3, Detent Types

- a. Yes; replace both detents and [go to step 4](#).
  - b. No; reinstall the equipped detents and [go to step 4](#). See .
4. Remove the range piston cylinder. see .
5. After removing the range piston cylinder, actuate the range piston by repeatedly pulling and pushing on the piston (by hand) to confirm that the detents are seated on the rod. The rod should not move freely or easily when pulling and pushing the range piston by hand. Does the range piston rod move freely?
- a. Yes; replace the transmission. See .
  - b. No; see to continue trouble shooting.

**Warranty.**

Normal in-warranty procedures apply.

**NOTE:**

Component Code / VMRS = 026-010-093 - CATCH BOLT - DETENT, SHIFT

Component Code / VMRS = 026-015-002 - ASSEMBLY - COMPLETE, AUTOMATED TRANSMISSION

**Note:**

- REPLACE
- 026-010-093
- 026-015-002
- C04
- C08
- F07
- F12
- F15
- F16
- F18
- F22
- F26
- F35
- F36
- T01
- W05
- W12
- W13
- W14
- W15
- W16
- W17
- W18
- Y12

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