SIL
SERVICE INFORMATION LETTER

Allison Transmission

Revisions to this document are noted by a stripe in the left-hand margin

SUBJECT: C171 Software Level – Autodetect Function – Incorrect Trans ID Value

MODELS AFFECTED: 3000 and 4000 Series Product Family Transmissions, B Series Transmissions, T Series Transmissions

Introduction:

DTCs P0702 Transmission Control Hardware Not Determined and P0610 Transmission Control Hardware Incompatible were activated with the introduction of 5th Generation software level C171 in April 2017. This SIL addresses occurrences of DTC P0610 with C171 (and later) level software mated to TID A transmission hardware.

All 3000 and 4000 product variants currently in production worldwide with 4th Generation or 5th Generation controls are at Trans ID (TID) level TID A. The TID level of the transmission is identified on the transmission data tag (nameplate). The release of TID B level transmission hardware is not scheduled for production until the first quarter of 2018.

Reference:

There are two versions of Autodetect logic that learns and locks TID level – dependent upon software level:

Software level C171, released 4/12/2017: Autodetect initiated after first key cycle with sensed transmission connection. TID level locked after three consecutive equivalent TID values, limited to twenty-five key cycles.

Software level C171-1 (and later) released 8/18/2017: Autodetect initiated after first key cycle with sensed transmission connection. TID level locked after fifteen consecutive equivalent TID values, limited to sixty key cycles. This change in logic was implemented to reduce the possibility of mis-identification of TID model by the TCM.

P0702 - Transmission Control Hardware Not Determined (unable to learn and lock transmission hardware TID value)

P0610 - Transmission Control Hardware Incompatible (after TID level learned and locked, subsequent key cycles indicate a difference in locked and current TID value)

Issue:

The Autodetect function will initiate after one key cycle if the TCM senses a connection to the transmission. The TCM senses the connection by verifying the presence of the solenoid valves in the transmission control module.

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Please Note: Allison Transmission Service Information Letters are intended for use by professional, trained technicians, not for the "do-it-yourselfer." They are written to inform those technicians of conditions that may occur on some transmission models (or serial numbers ranges) or to provide information that could assist in the proper servicing of a specific Allison transmission. Properly trained technicians have the equipment, tools, safety instructions, and know how to do a job properly and safely. If a condition is described, do not assume that the Service Information Letter applies to your transmission, or that your transmission has the condition described. Product evolution and information updates are inevitable. Please see your authorized Allison Transmission service dealer or distributor to understand if your particular transmission may benefit from the information contained within the Service Information Letter.

A subsequent disconnect of the TCM from the transmission 20 way connector will not terminate the Autodetect process upon subsequent TCM power-up/key cycles.

If a current production transmission with TID A hardware completes one key cycle while connected to a TCM running C171 level software (thus enabling the Autodetect process), and the transmission is then disconnected from the TCM prior to the TID level locking, the TCM may incorrectly identify the transmission hardware as TID B. Three consecutive key cycles in the disconnected state will incorrectly lock the TID level in the TCM at TID B.

If a current production transmission with TID A hardware completes one key cycle while connected to a TCM running C171-1 level (or later) software (thus enabling the Autodetect process), and the transmission is then disconnected from the TCM prior to the TID level locking, the TCM may incorrectly identify the transmission hardware as TID B. Fifteen consecutive key cycles in the disconnected state will incorrectly lock the TID level in the TCM at TID B.

After the TCM to TID A transmission connection is reestablished, subsequent key cycles will result in a mismatch of current TID level sensed by the TCM and locked TID level. After 5 consecutive key cycles with a sensed mismatch occurring, DTC P0610 will become active.

When DTC P0610 is active, there is no inhibit of transmission function from the operator's perspective other than illumination of the Check Trans Light (CTL). DTC P0610 may be cleared using the shift selector or DOC Service Tool, but clearing the DTC will not address the root cause of the DTC. To resolve the root cause, the correct TID level must be relearned.

Actions to Resolve TID Level and Clear P0610 DTC:

1. Verify the DOC Service Tool level used is V2017.2.0 or later.
2. Verify the TCM is connected to the transmission through the transmission 20 way connector.
3. Using DOC, connect to the transmission using the vehicle diagnostic connector.
4. In the DTC and General Information window, review and note all active and inactive DTCs.
5. Note whether DTC P0702 and/or P0610 are active or inactive.
6. In the DOC Data Monitor screen, note values in the following fields:
    - 6.1 Trans ID Detection Complete
    - 6.2 Learned Trans ID
    - 6.3 Detected Trans ID
7. Using the DOC Action Request menu, execute the **Reset Transmission Identification Learning** command.
8. A window will appear displaying the message **"Reset Transmission Identification Learning successful"**.
9. Open the DOC Data Monitor window. The following values should display:
    - 9.1 Trans ID Detection Complete = No
    - 9.2 Learned Trans ID = Indeterminate
    - 9.3 Detected Trans ID = Indeterminate
10. Disconnect DOC from the vehicle.
11. Execute a minimum of fifteen on and off key cycles to initiate Autodetect - so that the proper TID level can be learned and locked.

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NOTE: If Autodetect of TID does not occur after fifteen key cycles, additional key cycles may be performed.

The key cycle limit for C171 level software is twenty-five key cycles.

The key cycle limit for C171-1 and later level software is sixty key cycles.

NOTE: Hold each 'off' key-state ten seconds minimum and each 'on' key-state five seconds minimum.

12. Reconnect DOC to the vehicle.
13. Open the DOC Data Monitor window – see Figure 1 . Verify the following values:
    13.1 Trans ID Detection Complete = Yes
    13.2 Learned Trans ID = TID level on transmission data tag
    13.3 Detected Trans ID = TID level on transmission data tag
14. In the DTC and General Information Window, execute the **Clear DTC Information button**.
15. A window will appear displaying the message "**Clear DTC Information Request Completed Successfully**". Click the OK button.

NOTE: Execute steps 7 through 14 in the order shown. Clearing the DTC prior to re-learning TID will not clear the DTC from history.

16. Disconnect DOC from the vehicle.
17. If the values defined in step 13 do not display, call Allison Technical Assistance Center at 1–800–252–5283 and open a TAC case.

Warranty: An incorrect Trans ID learned value due to a disconnected vehicle wiring harness does not constitute a defect in materials or workmanship on the part of Allison Transmission.

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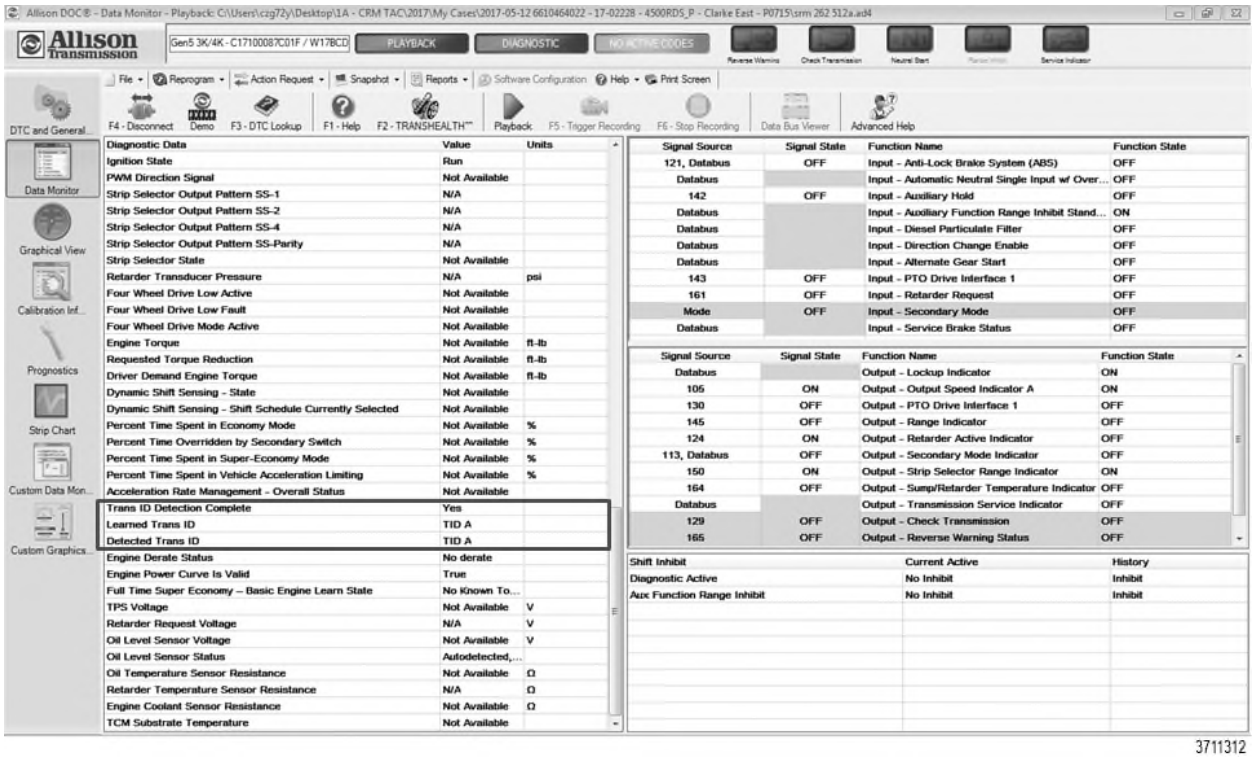

Figure 1. Universal Allison DOC–Data Monitor Screen–TID Values

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