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Coding Information

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Title: Eaton Transmission Stuck In Gear (mis-shift) During 8 - 7 Downshift

Applies To: LT/RH/Lonestar/Prostar with Eaton EN3, EC3, or EA3 Automated Manual Transmissions

CHANGE LOG

Please refer to the change log text box below for recent changes to this article:

9/19/2018- Advantage Gear Engagement released to Service Ranger 4 on 9/18/2018, Eaton call center code is no longer required to obtain Advantage Gear Engagement
 9/11/2018- Clarified driver symptoms (dash notifications) and fault logging criteria
 9/7/2018- Replaced Enhanced Gear Engagement solution with new, open Navistar Tech Service Case and request; Advantage Gear Engagement.
 Clarified items listed under Symptoms header, added OCC Severity Rating & part numbers for XY Shifter and transmission harness

DESCRIPTION

This document will guide technician or reader through diagnostic repair steps for trucks equipped with Eaton AMT (Automated Manual Transmission) that have a driver symptom of transmission shift symptoms or Health Report / On Command Connection data displaying SPN 781 FMI 7.

SYMPTOM(s)

Diagnostic Trouble Code & On Command Connection (OCC) Severity Rating:

DTC	Eaton Fault Code	Description	OCC Severity Rating
SPN 781 FMI 7	FC 73	Failed to Engage Gear	Service Immediately

Fault Criteria:

The Transmission Control Module (TCM) triggers SPN 781 FMI 7 active after 5 consecutive failed gear engagement attempts. The fault goes inactive after a successful gear engagement.

Dashboard Indicator Light(s):

- SPN 781 FMI 7 is triggered active
 - Cluster fault- "Check Transmission" (gear light with exclamation mark)
 - 3 long beeps

- "Check Transmission" message timeout after 5 seconds
- Gear display may flash current or target gear
- Display indicated a flashing "R", "1" or "2" during the engagement attempt

Driver Observations or Concerns:

- Dash Indicators (listed above)
- Transmission may not complete a shift into gear
- Transmission may have time delay of greater than 1.5 - 2 seconds on 8-7 downshift
- Transmission may struggle to engage gear during the 8-7 downshift causing roadspeed loss
- Sticking in gear or failure to shift
- Engine may not crank
- Delayed gear engagement from Neutral to Forward or Reverse Gear
- Intermittent stuck in gear, failure to shift (indicated gear flashing)

NOTE: The flashing gear display indicates the desired target gear while the transmission is attempting to complete the shift

SPECIAL TOOL(s) / SOFTWARE

Tool Description	Tool Number	Comments	Instructions
Eaton ServiceRanger 4			

SERVICE PARTS INFORMATION

Kit Description	Part Number	Quantity Required
XY Shifter	K-4223RX	1
Transmission Harness Kit Gen 2 ECA	FULK4295	1

DIAGNOSTIC STEP(s)

Step	Action	Decision
#1	DIAGNOSTIC: Review driver symptom and health report. Are any symptoms or DTC present?	Yes. Proceed to Step #2
		No. Disregard this article

Step	Action	Decision

#2	DIAGNOSTIC: 1. Connect with Service Ranger 4 2. Download Service Activity Report (SAR) and CLICK "SEND TO EATON" 3. Go to "Configuration" 4. Select "Engine" on the left hand side 5. Review the programable parameter labled, "Engine Calibration"	Yes. Proceed to Step #3
		No. -Set to Advantage Gear Engagement -Update TECU Software Level to 556990

Does "Engine Calibration" parameter read Advantage Gear Engagement?

Step	Action	Decision
#3	DIAGNOSTIC: Review repair history Have the XY Shifter or Transmission Harness been replaced and is the TECU Software Level current?	Yes. Open Navistar Tech Service Case (This option will also be chosen if the vehicle is a comeback for shifting symptom or SPN 781 FMI 7)
		No. -Replace XY Shifter -Replace Transmission Harness -Update TECU Software Level to 556990 -Verify Parameter is set to Advantage Gear Engagement

WARRANTY INFORMATION

Warranty Claim Coding:

Refer to the [Warranty Coding Manual](#) for Group and Noun Codes.

Standard Repair Time(s):

Refer to the [SRT Manual](#) for Repair Times

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