Endurant Family Transmission Information Bulletin Book TRIB0900

June 2025

AUTOMATED TRANSMISSION™ TECHNOLOGIES

BACKED BY Roadranger SUPPORT

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TAIB-0868

Endurant Transmission 8-Bolt Bottom PTO Information

Date: January 29, 2018

Updated:

Issue Description:

Endurant transmissions require a new type of PTO, previous models are not compatible.

Chelsea PTOs are available. Please contact the local Chelsea distributor for additional information. Chelsea PTOs use an O-ring seal installed into a groove on the PTO mounting flange included with the PTO kit.

Chelsea (O-ring groove)

Muncie PTOs are now available and will begin shipping product the week of January 29, 2018. Please contact the local Muncie distributor for additional information. Muncie PTOs use a seal plate gasket at the PTO mounting flange which is included with the PTO kit.

Muncie (seal plate gasket)

Note: Chelsea and Muncie PTOs do not require shimming due to improved tolerance requirements at the mounting flange surfaces of both the transmission and PTO housing.

Contact PTO supplier directly if additional information is required:

- Chelsea customer support: 1-888-744-8785
- Muncie customer support: 1-800-367-7867

Note: For additional PTO information reference the Eaton PTO Information Guide TRIG2600: PTO Installation Guide.

Affected Models/Population

- Endurant Transmissions
- 8-Bolt Bottom PTO

Warranty Information:

Informational only, not a transmission product issue.

The material contained in this bulletin is product improvement information. Eaton Corporation is not committed to, or liable for, canvassing existing products.

Change Log

Date	Description
01/29/2018	Document created.

FSUD: 2567

TAIB-0869

Vehicle Electrical System Maintenance for Automated Transmissions

Date: June 18, 2018

Updated:

Issue Description:

An important requirement of an Eaton Automated Transmission is a properly operating vehicle electrical system to ensure expected transmission performance and maximum vehicle uptime. An effective maintenance schedule and accurate testing of the vehicle electrical system is required to support a consistent and properly operating system. Proper vehicle electrical system maintenance and testing can assist in reduced vehicle downtime, unnecessary troubleshooting and misdiagnosis causing unnecessary replacement of electrical components. Eaton Automated Transmission Products require reliable batteries, cables, wiring and connections to operate as expected.

The transmission is part of a complete vehicle system (body, chassis, electrical, air, engine, etc.). The engine, air and electrical system are the primary systems required to support transmission operation. The engine and air systems require stringent routine maintenance schedules to avoid the high cost of a failure. The vehicle electrical system, especially the batteries, is often overlooked or taken for granted and typically does not have a routine maintenance schedule.

Typical Signs a Vehicle Electrical System Requires Maintenance

- High counts of active or inactive fault codes in vehicle Electronic Control Modules (ECMs) that require high current for normal operation.
- Transmission shift performance complaints with or without fault codes setting.
- Vehicle complaint still evident after replacement of transmission electronic components. The replaced component may appear to repair the issue in the short term but the vehicle may return with the same issue. This may be attributed to:
    - An intermittent issue with the batteries, cables, wiring or connections
    - A battery charger connected during the repair, masking an issue with the batteries ability to hold a charge

Note: If a vehicle has to be “jump started” or the batteries are charged prior to a repair, weak batteries may be the cause of the overall issue.

Affected Models/Population

Automated Transmissions

Field Strategy:

- Load test batteries to ensure they provide good electrical power to all components on the vehicle at routine maintenance intervals. It is important that battery load testing is done according to battery manufacturer requirements, load test equipment manufacturer recommendations, and industry standards such as Truck Maintenance Council (TMC) Repair Practices (RPs).
- Maintenance-free batteries require routine maintenance, many battery supplies recommend replacement every 18-24 months. Newer vehicles have higher electrical system load requirements. Batteries must be load tested and the battery cable connections inspected and cleaned during regularly scheduled maintenance.

Note: If vehicle was out of operation for nay length of time, ensure the batteries still meet battery manufacturer requirements, load test equipment manufacturer recommendations, and industry standards such as TMC RPs.

- Check for corroded Maxi fuses in the +Vbatt harnesses
- Check fusible links that may not be carrying the full 12 volts under load
- Inspect and clean corroded battery cables
- Inspect and tighten loose battery connections and ground connections
  - Battery cables are being stacked on the battery posts. Incorrect stacking of the battery cables may result in corrosion that may not be apparent unless the cable is removed
  - Starter connections: the positive and negative starter cable should be cleaned and tightened
- Inspect and clean engine and cab grounds

Advantages:

- Vehicle Owner: Maximize truck uptime, reduce maintenance cost, and late loads - increase customer satisfaction
- Dealers: Decreased Chargebacks - Improves Dealer and Customer bottom line and increased customer satisfaction

Resources for Vehicle Electrical System Maintenance and Testing:

Truck Maintenance Council (TMC) Repair Practices (RPs)

- RP 129 Heavy-Duty Vehicle Cranking and Charging Troubleshooting
- RP 132B Battery Charging, Testing, and Handling
- RP 169 Road Service Diagnostic Evaluation Process
- RP 803A Pre-Service Vehicle Inspection
- RP 1406 Basic Electrical / Electronic Diagnostic Procedure

Note: TMC RPs can only be accessed by TMC members via TMC CONNECT.

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Change Log

Date	Description
06/18/2018	Document created.

FSUD: 2616

TAIB-0873

Endurant Mechatronic Transmission Module Replacement

Date: June 18, 2018

Updated:

Issue Description:

When a new Mechatronic Transmission Module (MTM) is installed the new MTM serial number must be entered into the Transmission Control Module (TCM) using ServiceRanger. If it is not entered, and a future repair or warranty decision requires Service Activity Report data analysis, it is very difficult and time consuming for the Eaton Cummins Automated Transmission Technologies engineering and Eaton warranty groups to find the information needed to resolve the matter.

When an MTM is replaced, several calibrations must be performed in order for calibration specific fault codes to clear and vehicle performance to be optimized. When this does not occur fault codes are set and the technician may perform unnecessary troubleshooting.

Containment/Corrective Action:

The following steps are being done to alert and inform RFM and customers:

- Create FSUD and Service Bulletin
- Improve MTM Letter

Affected Models/Population

Endurant Transmissions

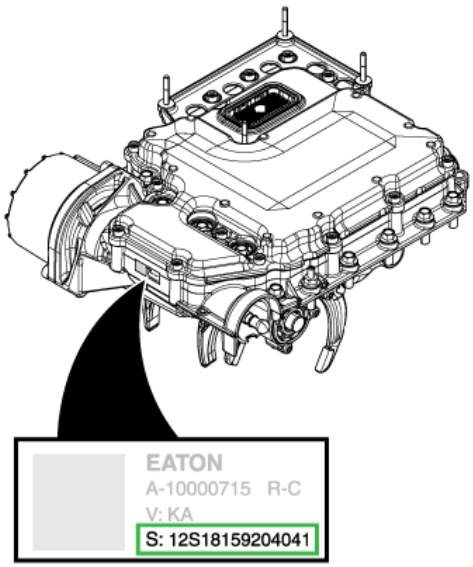
Field Strategy:

Step A: Create a Service Activity Report with ServiceRanger

Note: If a Service Activity Report (SAR) was already created during this service event, go to Step B.

Step B: Mechatronic Transmission Module Removal and Installation

1. Record the new Mechatronic Transmission Module (MTM) serial number.



2. Reference TRSM0950 Service Manual and perform Mechatronic Transmission Module (MTM) Removal and Installation Procedures.

Step C: TCM Initialization

1. Key on with engine off.

Note: Vehicle display may indicate a flashing “F”, “CC”, or service transmission message.

2. Connect ServiceRanger.
3. Go To “Configuration”.
4. Select “Identification”.
5. In the “Current MTM Serial Number” parameter “New Value” field, enter the new MTM serial number recorded in Step B.
6. Select “Apply” and follow on-screen prompts.

Step D: TCM Calibration

1. Key on with engine running.
2. Allow air pressure to build to governor cut-off.
3. Connect ServiceRanger.
4. Go To “Service Routines”.
5. Select “Start” Clutch Calibration and follow on-screen prompts.
6. Select “Start” Rail Calibration and follow on-screen prompts.
7. Key off and wait 1 minute.
8. Key on with engine off.
9. Connect ServiceRanger.
10. Go to “Fault Codes”.
    - If an active fault code set, refer to TRTS0950 Troubleshooting Guide.
    - If no active fault code set, “Clear Eaton Faults” and follow on-screen prompts.
11. Disconnect ServiceRanger.
12. Key off.

Warranty Information:

Informational only.

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Change Log

Date	Description
07/30/2018	Document created.

FSUD: 2636

TAIB-0875

Endurant Transmission Oil Discoloration

Date: September 4, 2018

Updated:

Issue Description:

Customers may observe the Endurant transmission oil is discolored or dark at low mileage.

The discoloration is due to friction material particles in the transmission oil from the Inertia Brake (wet) and two synchronizers.

- The friction material particles in the oil are normal and not an indication of premature wear of friction material components.
- The friction material particles are small enough that they do not impact the reliability of the transmission components (i.e. gears, bearings and seals).
- The discoloration or staining of internal metal components and surfaces is also normal.

Containment/Corrective Action:

No corrective action required, discoloration of the transmission oil is normal.

Note: The transmission oil change interval for a Linehaul vocation is 5 years or 750,000 miles (1200,000 km).

Affected Models/Population:

Endurant Transmissions

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Change Log

Date	Description
09/04/2018	Document created.

FSUD: 2555

TAIB-0876

Transmission Low Air Pressure and/or Clutch Temperature Display Messages

Date: September 17, 2018

Updated: October 2, 2023

Issue Description:

Customers may experience a low transmission air pressure and/or clutch temperature message during low speed maneuvering or stop and go traffic situations.

- Low transmission air pressure message: This issue may be induced by a vehicle air system not functioning properly resulting in the inability to achieve or maintain operating air pressure. Low air pressure may be induced by excessive use or cycling of the service brake, exhausting the vehicle air supply.
- Clutch temperature message: This issue may be induced by “two footing” the service brake and accelerator pedal simultaneously causing the clutch not to fully close, inducing a clutch slip and increasing clutch temperature.

Fault codes that may set during these events:

- Transmission Air Supply Pressure: FC215 SPN 37 FMI 18
- Clutch Temperature: FC815 SPN 5939 FMI 15 and/or 16

Containment/Corrective Action:

Driver recommendations:

- Ensure the vehicle air system is operating per OEM requirements.
- Allow the vehicle air system to reach normal operating range, 99 (106 at the Air Brake Tanks for Navistar) to 130 PSI (6.8 to 9.0 Bar), prior to selecting a gear from neutral.
    - Navistar with SW update to:
        - (A4 Controller) 5516062 and/or OEM supplied air line reroute instructions / Transmission normal operating range is 99-130 PSI -or-
        - (A5 Controller) 5516372 / Service Release -or-
        - (A5 Controller) 5516374 / Service Release or greater and/or OEM supplied air line reroute instructions / Transmission normal operating range is 99-130 PSI.
- Avoid “two footing” the service brake and accelerator pedal.
- Avoid using the accelerator pedal to hold the vehicle on a hill - depress and hold the service brake until movement is required.
- During operation on a grade, rely on Hill Start Aid (HSA) when transitioning from the service brake pedal to the accelerator pedal.
- During low speed maneuvering, select the lowest available start gear (1st or R1) and rely on Urge to Move and Creep Mode to assist in moving the vehicle at engine idle without having to apply the accelerator pedal.

Note: For additional information on how to operate the transmission refer to Driver Instructions TRDR0950 and GET 2 KNOW videos.

Recommendations when messages are displayed:

• Low transmission air message - allow the vehicle air system to reach normal operating range (100 PSI or above / 106 at the Air Brake Tanks for Navistar) and then continue operation. For optimal performance, the transmission requires 99 to 130 PSI (6.8 to 9.0 Bar).

- Navistar with SW update to:
  - (A4 Controller) 5516062 and/or OEM supplied air line reroute instructions / Transmission normal operating range is 99-130 PSI -or-
  - (A5 Controller) 5516372 / Production -or-
  - (A5 Controller) 5516374 / Service Release or greater and/or OEM supplied air line reroute instructions / Transmission normal operating range is 99-130 PSI.

Note: Transmission software version 5516024 includes enhancements that prevent Fault Code 215 from setting while transmission is in Neutral mode.

- Non-Navistar Chassis: With software version 5516024 and above, if the driver attempts to select a non-neutral mode before transmission air pressure reaches 80 PSI, the transmission will prevent gear engagement and Fault Code 215 will set Active.
- Navistar Chassis: At initial key on with software version 5516024 and above, if a driver attempts to select a non-neutral mode before transmission air pressure reaches 90 PSI, and the air brake tanks reach 106 PSI, the transmission will prevent gear engagement. The 106 PSI minimum on a Navistar chassis matches the tractor protection valve (OEM Requirement). If chassis air pressure falls below 106 PSI (Key on normal operation) the transmission will continue to shift until a minimum of 75 PSI is reached (see Item A / Degraded Performance).
- Navistar with SW update to:
  - (A4 Controller) 5516062 and/or OEM supplied air line reroute instructions / Transmission normal operating range is 99-130 PSI -or-
  - (A5 Controller) 5516372 / Production -or-
  - (A5 Controller) 5516374 / Service Release or greater and/or OEM supplied air line reroute instructions / Transmission normal operating range is 99-130 PSI.

Update: As a vehicle enhancement Navistar will have work instructions to reroute the airline that feeds the transmission air tank, reference I-Know article IK1300192.

SW update to 5516062 (A4 Controller) or 5516374 (A5 Controller) or greater is also required. The combination of rerouting the air line and a SW update will allow the transmission to obtain a gear from neutral at 95 PSI.

- As of 04/14/2023 Navistar production changed their rerouting of the air line feeding the Endurant Transmission.
- Navistar trucks built from 04/14/2023 to November 2023 will need a SW update to 5516062 (A4 Controller) or 5516374 (A5 Controller / Service Release 10/02/2023) to allow the Endurant Transmission to obtain a gear from neutral at 95 PSI.
- ETA for Navistar production to change to 5516372 SW is November 2023. 5516372 production SW supports the Endurant Transmission logic change.
- After air line reroute and/or SW update, key off, drain primary, secondary, and transmission air tanks. Close air tank drains, restart engine and allow the transmission to “learn” the air system configuration (Transmission Logic / transmission is now tied to the secondary tank) as the compressor builds air pressure.

Air line rerouting and/or SW update to the Endurant Transmission is considered an enhancement / non-warrantable thru Eaton / ECJV / Navistar.

Note: Transmission and Air Brake Tanks can be monitored in SR4 / Data Monitor.

Link	Source	Parameter	Description	Value
J1939	Body Controller	117	Brake primary pressure	**117**
J1939	Body Controller	118	Brake secondary pressure	**116**
J1939	Transmission	520524	Line Pressure Feedback	**130.68**

- Clutch temperature message - safely and immediately discontinue the operation that is being performed which is causing the clutch to overheat. Depress and hold the service brake or set vehicle parking brake and idle the engine until the message is no longer indicated and then continue normal operation. Ensure the engine is allowed to idle, shitting off the engine prolongs the condition.

  Note: Transmission software version 5516024 includes enhancements that allow the transmission to continue operation when Fault Code 815 sets. Fallback mode of the Fault Code will still disable some transmission functionality such as launching in a higher start gear and Urge to Move. The driver will continue to be notified of a Clutch Abuse event via a dash message and audible tone. A software update to 5516024 for Fault Code 815 is considered a non-warrantable issue.

NOTICE: In most cases the transmission will recover from the induced events outlines above and towing of the vehicle is not required. In extreme cases depending on truck operation, the air system requirement for air consumption may be higher than the standard compressor (18.7 CFM) can produce. In those cases, a higher CFM (37.4) compressor is available for aftermarket purchase (customer pay) or as an option in the OEM Databook. See your Navistar representative for details.

Note: If the transmission low air and/or clutch temperature condition no longer exists some OEM displays may require the driver to manually clear the message with older cluster software versions. Refer to OEM guidelines regarding the display message reset procedure.

Navistar is offering a dash cluster software update with 6024 transmission SW update that has changed the warning displays. Reference Navistar iKNow article (IK0800550).

- Transmission Air Supply Low - Least Severe:
  - Requirements to set dash response: Engine Running, Trans Current Gear Neutral, Shift device Neutral, Vehicle Not Moving, and Transmission Air Pressure < 90 PSI or Brake Tank Pressure < 106 PSI.
  - With SW update to 5516062 (A4 Controller) or 5516374 (A5 Controller) or greater and OEM supplied air line reroute instructions / Transmission Air Pressure < 90 PSI or Brake Tank Pressure < 95 PSI.
  - Dash response was: “Transmission Air Pressure Low Warning” with driver acknowledgment now “System Air Pressure Low” and does not require the driver to manually clear the message

- Transmission Air Supply Low - Moderately Severe Level:
  - Requirements to set dash response: Vehicle Stopped, Neutral Mode, Shift Device Not Neutral, and Trans Air Pressure < 90 PSI or Brake Tank Pressure < 106 PSI or Vehicle moving and Trans Air Tank Pressure < 85 PSI or Trans in Non-Neutral Mode and Trans Air Pressure < 85 PSI.
  - With SW update 5516062 (A4 Controller) or 5516374 (A5 Controller) or greater and OEM supplied air line reroute instructions / Transmission Air Pressure < 90 PSI or Brake Tank Pressure < 95 PSI.
  - New dash response “System Air Pressure Low Gear Change Not Allowed”
- Transmission Air Supply Low - Most Severe Level:
  - Requirements to set dash response: Engine Running, Vehicle Moving, and Trans Air Pressure < 75 PSI.
  - New dash response: System Air Pressure Low Transmission Disabled
- Clutch Abuse - Moderately Severe Level:
  - Requirements to set dash response: Clutch plate temperature estimated > 210 C
  - Dash response was: “Clutch Temp High - Function Limited” now “Clutch Temp High”
- Clutch Abuse - Most Severe Level:
  - Requirements to set dash response: Clutch plate temperature estimated > 235 C
  - Dash response was: “Clutch Temp Over Limit Allowed” now “Clutch Overheated Allow Clutch to Cool”

Refer to OEM guidelines regarding the display message reset procedure.

Affected Models/Population:

- Endurant Transmissions

Warranty Information:

Informational only.

Item A:

Endurant Installation Guide link, go to Section 6: Pneumatic System Requirements.

Section 6: Pneumatic System Requirements

Supply Pressure

WARNING: This is a safety requirement. To maintain transmission functionality, the vehicle system shall have the air compressor OFF set no higher than 130psig (9.0bar). Failure to limit transmission air supply pressure below 130psig (9.0bar) has the potential to increase vehicle stopping distance due to the transmissions inability to disengage the driveline, which may result in serious injury or death.

WARNING: This is a safety requirement. To prevent transmission damage the vehicle system shall have a pressure relief valve in the supply system set no higher that 150psig (10.3bar). Failure to limit transmission air supply pressure below 150psig (10.3bar) has the potential to increase vehicle stopping distance due to the transmission inability to disengage the driveline, which may result in serious injury or death.

For optimal performance, the Eaton Endurant transmission requires a nominal air supply operating range between 99 PSI (6.8 bar) and 130 PSI (9.0 bar). Air supply outside this range can result in degraded or complete loss of transmission shift capabilities. The following figure summaries the significant thresholds for various air supply pressures.

NOTICE: Actions taken by the Endurant transmission in response to air supply pressures are not symmetrical and vary depending on if air supply pressure is increasing or decreasing such as a transmission functionality allowed above 90 PSI (5.9 bar) but not degraded until below 80 PSI (5.5 bar).

Pressure Range Description	Bar	Ref. PSI	Response
Transmission Function Permitted	5.9	90	System Low Air Warning turns off. Gear engagement permitted.
Lower Operating Range	6.8	99	
Upper Operating Range	9.0	130	
Transmission Low Air Notification	5.5	80	(SPN-37 FMI-18): Transmission low pressure warning turns ON. Transmission remains functional at degraded performance (e.g. Non-N modes prohibited and upshifts not allowed; downshifts will continue)
Transmission Low Air Warning	5.2	75	(SPN-37 FMI-1): Transmission low pressure warning continues, system will then attempt to disengage driveline when or if it becomes appropriate.

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Change Log

Date	Description
10/02/2023	Added references to Navistar iKNow article IK1300192 to reroute transmission air line feed and/or transmission SW update to allow the transmission to engage a gear from neutral at 95 PSI where previously at 106 PSI on a Navistar chassis.

FSUD: 2651

TAIB-0877

Software Download Process of SW-18187-P (5516009 or 5516010)

Date: October 1, 2018

Updated:

Issue Description:

Updating Transmission Control Module (TCM) software to 5516009 or 5516010 requires additional file downloads; a total of 5 compared to a typical download of 2 files (Monitor and TCM). These additional file downloads are required to support product security enhancements. 5 key switch cycles and “OK” button prompts are required as part of the download process.

Note: Reference TAIB-0882: DAVIE4 Required for Software Updates and Configuration Changes When Connected to a PACCAR 12-Speed Transmission (PACCAR AMT)

- Ensure the vehicle batteries are properly charged.
  - If equipped, ensure the Low Voltage Disconnect (LVD) does not activate due to low battery voltage during the software download process.
- Ensure to close the vehicle cab doors and, if equipped, disable any telematics system to limit activity on the vehicle data link.
- Ensure the computer performing the software download remains properly powered or charged and the communication adapter remains connected.
- Ensure timely execution of the 5 key switch cycles and “OK” button prompts. Each file download may vary in time and duration.

NOTICE: Complete and timely execution of all on-screen prompts are required during the software download process, explicitly the key switch cycles and “OK” button prompts.

Note: A failed software download typically occurs due to not following the key switch cycles and “OK” button prompts, disconnection of the communication adapter, an issue with the computer performing the download or low vehicle battery voltage. If the download failed, contact Eaton at 1-800-826-HELP (4357) for assistance, in most cases the TCM can be recovered from a failed software download.

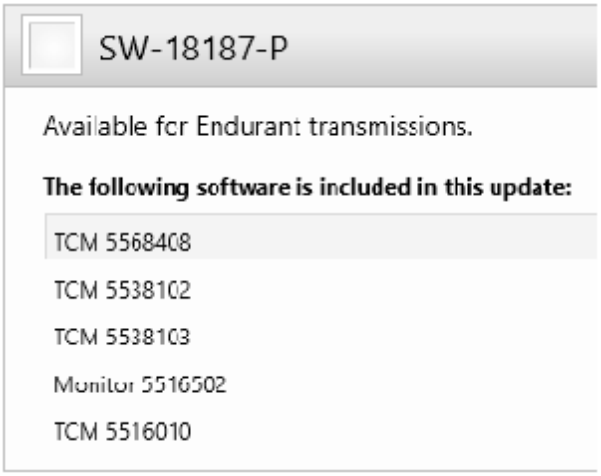
After a successful download of 5516009 or 5516010, previous software versions are not available.

Affected Models/Population:

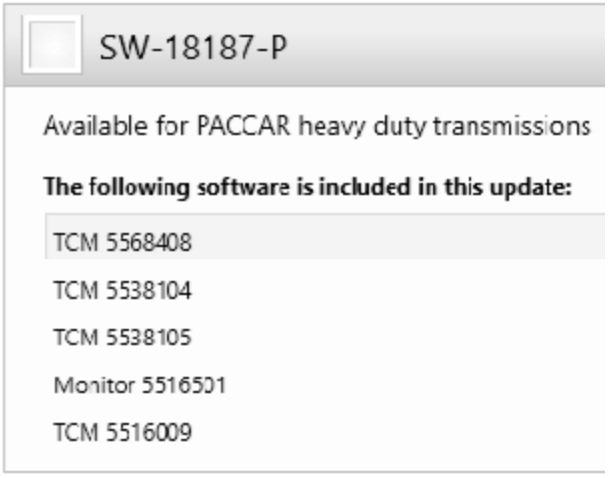
Endurant Transmission (5516010)

PACCAR Transmissions (5516009)

Endurant

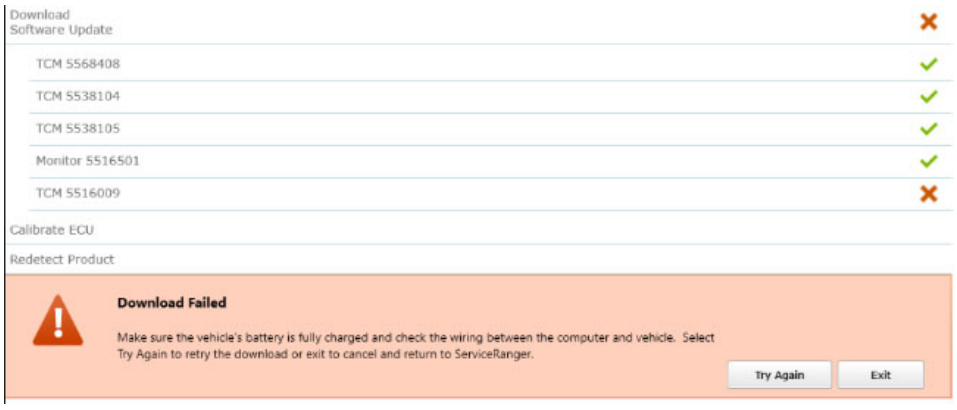


PACCAR



Note: This software package includes five different continuous downloads, each with a key switch cycle and “OK” button prompt. Promptly follow on-screen prompts to avoid a failed download.

- If the “Connection Failed” prompt appears:
  - Follow recovery instructions
- If the “Download Completed Successfully” prompt appears:
  - No additional action is required, process complete.
- If the “Download Failed” prompt appears:
  - Take a screenshot of the error message (example below). The steps required to recover the ECU vary based on the error message indicated. Go to Recover Instructions With Screenshot.



- If the “Download Failed” prompt appears and a screenshot of the error message is not available:
  - Go to Recover Instructions without Screenshot.

Recovery Instructions with Screenshot:

Disconnect ServiceRanger, key off and remove battery power to TCM and wait 30 seconds. After 30 seconds, reconnect battery power to TCM, key on and connect ServiceRanger.

General Instructions:

1. Key on.

2. Connect ServiceRanger.

3. When prompted, select “Recover ECU”.

4. From the Product Family dropdown, select “Endurant” or “PACCAR”.

5. From the Model dropdown, select the transmission model.

6. From the ECU dropdown, select “TCM - Endurant” or “TCM - PACCAR”.

7. From the Hardware dropdown, Download Recovery phases 1 through 3 consecutively until a “Download Completed Successfully” prompt appears. Ensure Recovery Package SW-18187-P is selected.

8. Complete download by updating to newest Software Version; for PACCAR reference 2020-FSUD-4168, Service Bulletin TAIB-0882.

9. Verify Engine calibrations in TCM settings are corrected as fault codes 206 & 215 may set active during this procedure.

Select the appropriate step based on the failed software download:

Failed software download:	Go to:
5568408	Step A
5538102 5538103 5538104 5538105	Step B
Monitor software 5516501 Monitor software 5516502	Step C
TCM software 5516009 TCM software 5516010	Step D

Step A: Recovering from failed download of 5568408 software:

1. Key on.
2. Connect ServiceRanger.
3. When prompted, select “Recover ECU”.
4. From the Product Family dropdown, select “Endurant” or “PACCAR”.
5. From the Model dropdown, select the transmission model.
6. From the ECU dropdown, select “TCM - Endurant” or “TCM - PACCAR”.
7. From the Hardware dropdown, select “Gen 4 ECU - Gen 4 ECU”.
8. From the Available Updates, select “SW-18187-P”.

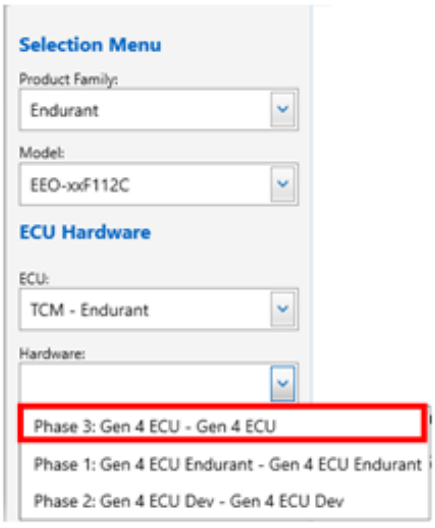
   Note: Selecting this option downloads the following versions:

Endurant Software Version	PACCAR Software Version
5568408	5568408
5538102	5538104
5538103	5538105
5516010	5516009

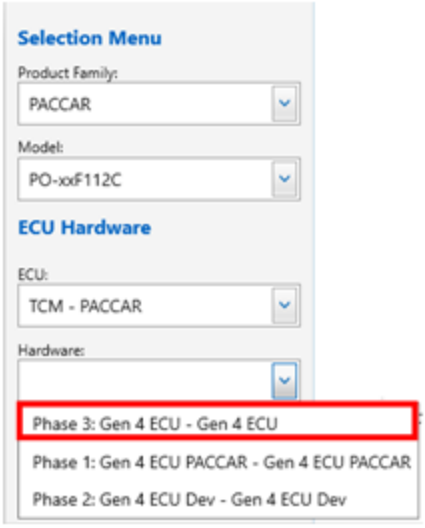
9. From the Connect to Vehicle prompt, select “Ok”.
10. Go to Programming.
11. From the Available Updates, select “SW-18187-P”. Process complete.

    Note: Selecting this option downloads the Monitor software.

Endurant



PACCAR



Step B: Recovering from failed download of 5538102, 5538103, 5538104 or 5538105 software:

1. Key on.
2. Connect ServiceRanger.
3. When prompted, select “Recover ECU”.
4. From the Product Family dropdown, select “Endurant” or “PACCAR”.
5. From the Model dropdown, select the transmission model.
6. From the ECU dropdown, select “TCM - Endurant” or “TCM - PACCAR”.
7. From the Hardware dropdown, select “Gen 4 ECU Dev - Gen 4 ECU Dev”.
8. From the Available Updates, select “SW-18187-P”.

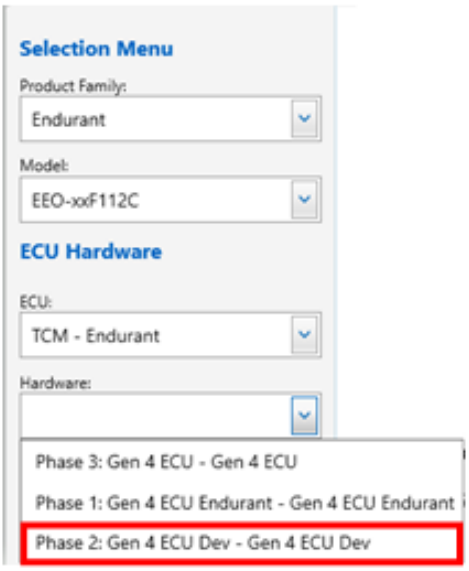
   Note: Selecting this option downloads the following software versions:

Endurant Software Version	PACCAR Software Version
5538102	5538104
5538103	5538105
5516010	5516009

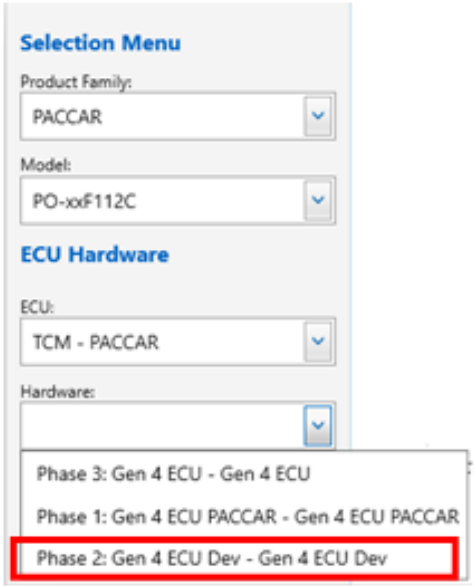
9. From the Connect to Vehicle prompt, select “Ok”.
10. Go to Programming.
11. From the Available Updates, select “SW-18187-P”. Process complete.

    Note: Selecting this option downloads the Monitor software.

Endurant



PACCAR



Step C: Recovering from failed download of 5516501 or 5516502 Monitor software:

1. Key on.

2. Connect ServiceRanger.

3. When prompted, select “Recover ECU”.

4. From the Product Family dropdown, select “Endurant” or “PACCAR”.

5. From the Model dropdown, select the transmission model.

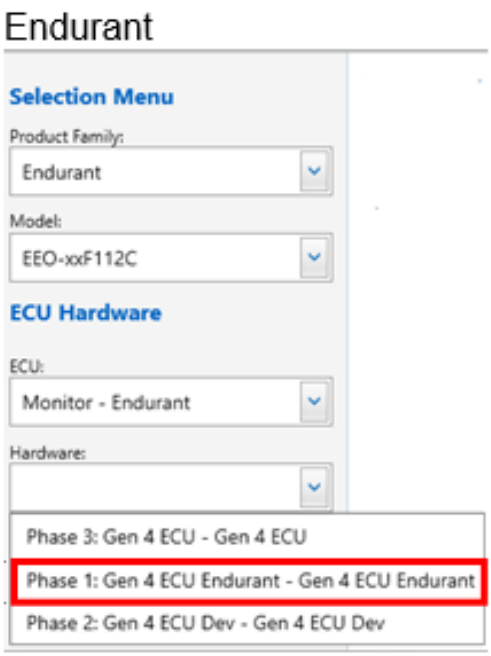
6. From the ECU dropdown, select “Monitor - Endurant” or “Monitor - PACCAR”.

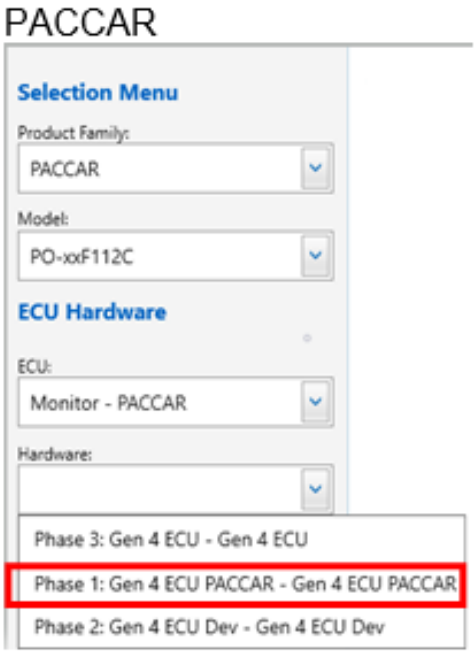
7. From the Hardware dropdown, select “Gen 4 ECU Endurant” or “Gen 4 ECU PACCAR”.

8. From the Available Updates, select “SW-18187-P”.

   Note: Selecting this option downloads the Endurant Monitor software version 5516502 or the PACCAR Monitor software version 5516501.

9. After this download completes, download the Endurant TCM software version 5516010 or PACCAT TCM software version 5516009, go to Step D.



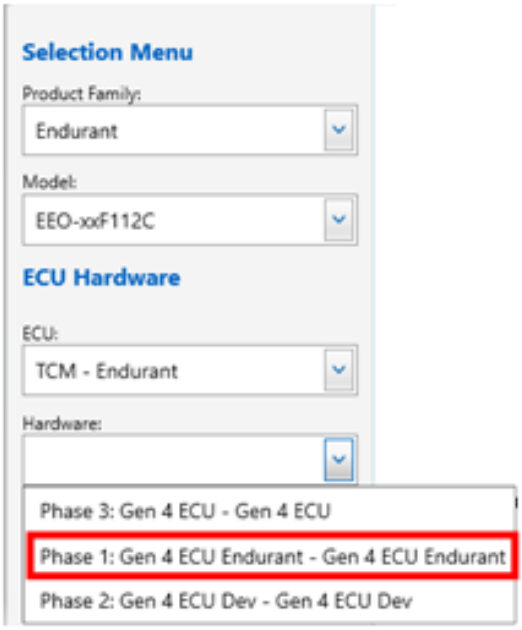


Step D: Recovering from failed download of 5516009 or 5516010 TCM software:

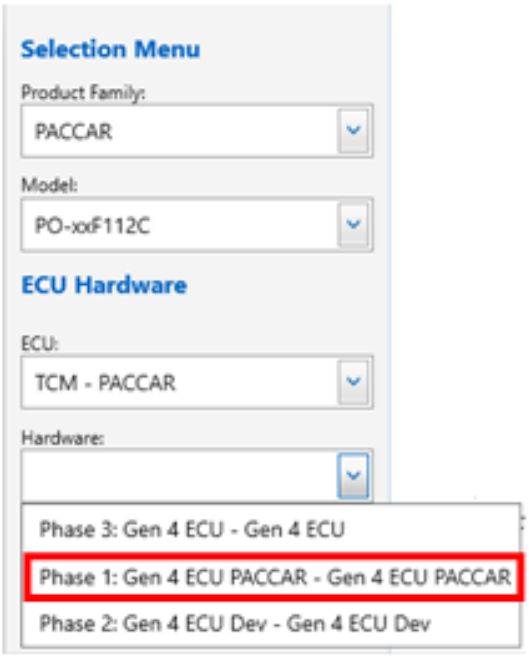
1. Key on.
2. Connect ServiceRanger.
3. When prompted, select “Recover ECU”.
4. From the Product Family dropdown, select “Endurant” or “PACCAR”.
5. From the Model dropdown, select the transmission model.
6. From the ECU dropdown, select “TCM - Endurant” or “TCM - PACCAR”.
7. From the Hardware dropdown, select “Gen 4 ECU Endurant” or “Gen 4 ECU PACCAR”.
8. From the Available Updates, select “SW-18187-P”. Process complete.

Note: Selecting this option downloads the Endurant TCM software version 5516010 or the PACCAR TCM software version 5516009.

Endurant



PACCAR



Recovery Instructions without Screenshot:

Disconnect ServiceRanger, key off and remove battery power to TCM and wait 30 seconds. After 30 seconds reconnect battery power to TCM, key on and connect ServiceRanger.

Step A: Recovering from failed download of 5568408 software:

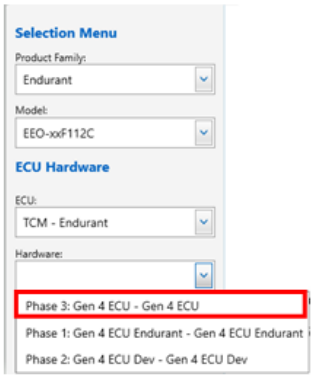
1. Key on.
2. Connect ServiceRanger.
3. When prompted, select “Recover ECU”.
4. From the Product Family dropdown, select “Endurant” or “PACCAR”.
5. From the Model dropdown, select the transmission model.
6. From the ECU dropdown, select “TCM - Endurant” or “TCM - PACCAR”.
7. From the Hardware dropdown, select “Gen 4 ECU - Gen 4 ECU”.
8. From the Available Updates, select “SW-18187-P”.

   Note: Selecting this option downloads the following versions:

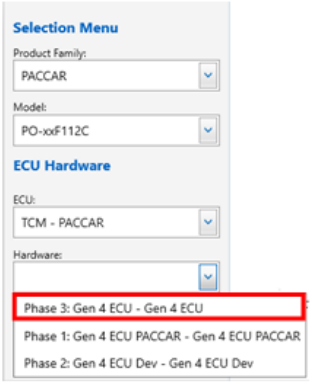
Endurant Software Version	PACCAR Software Version
5568408	5568408
5538102	5538104
5538103	5538105
5516010	5516009

9. From the Connect to Vehicle prompt, select “Ok”.
10. Go to Programming.
11. From the Available Updates, select “SW-18187-P”.
    a. If the Download Completed Successfully, process complete.
    b. If the Download Failed, 5568408 has already been installed successfully, go to Step B.

Endurant



PACCAR



Step B: Recovering from failed download of 5538102, 5538103, 5538104 or 5538105 software:

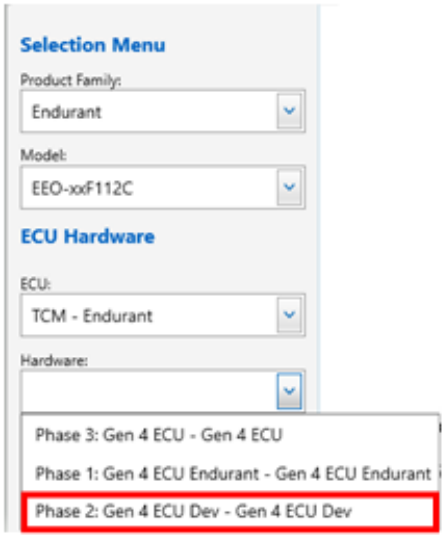
1. Key on.
2. Connect ServiceRanger.
3. When prompted, select “Recover ECU”.
4. From the Product Family dropdown, select “Endurant” or “PACCAR”.
5. From the Model dropdown, select the transmission model.
6. From the ECU dropdown, select “TCM - Endurant” or “TCM - PACCAR”.
7. From the Hardware dropdown, select “Gen 4 ECU Dev - Gen 4 ECU Dev”.
8. From the Available Updates, select “SW-18187-P”.

   Note: Selecting this option downloads the following software versions:

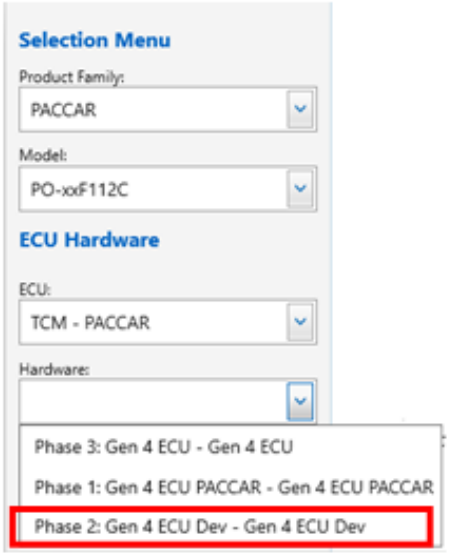
Endurant Software Version	PACCAR Software Version
5538102	5538104
5538103	5538105
5516010	5516009

9. From the Connect to Vehicle prompts, select “Ok”.
10. Go to Programming.
11. From the Available Updates, select “SW-18187-P”.
    a. If the Download Completed Successfully, process complete.
    b. If the Download Failed, 5538102, 5538103, 5538104 or 5538105 has already been installed successfully, go to Step C.

Endurant



PACCAR

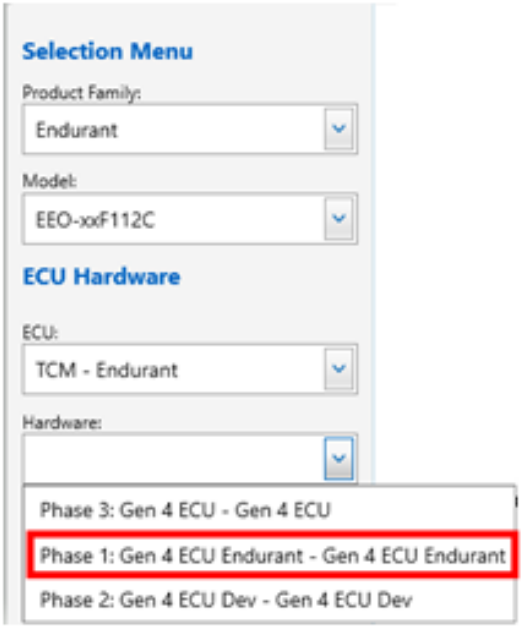


Step C: Recovering from failed download of 5516009 or 5516010 TCM software:

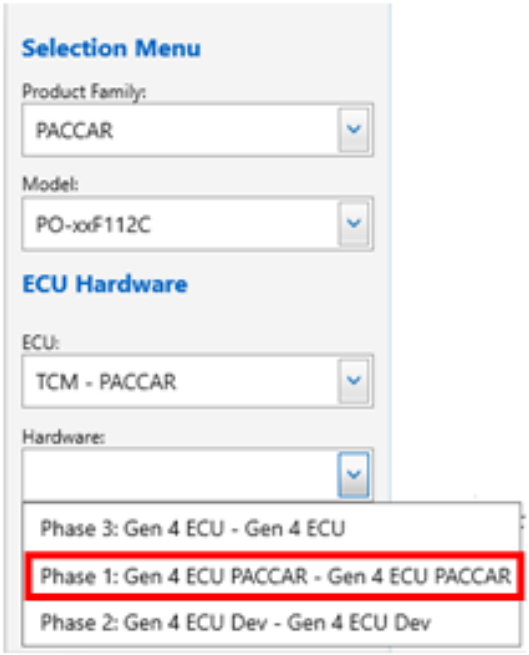
1. Key on.
2. Connect ServiceRanger.
3. When prompted, select “Recover ECU”.
4. From the Product Family dropdown, select “Endurant” or “PACCAR”.
5. From the Model dropdown, select the transmission model.
6. From the ECU dropdown, select “TCM - Endurant” or “TCM - PACCAR”.
7. From the Hardware dropdown, select “Gen 4 ECU Endurant” or “Gen 4 ECU PACCAR”.
8. From the Available Updates, select “SW-18187-P”.
    a. If the Download Completed Successfully, process complete.
    b. If the Download Failed, replace TCM.

    Note: Selecting this option downloads the Endurant TCM software version 5516010 or the PACCAR TCM software version 5516009.

Endurant



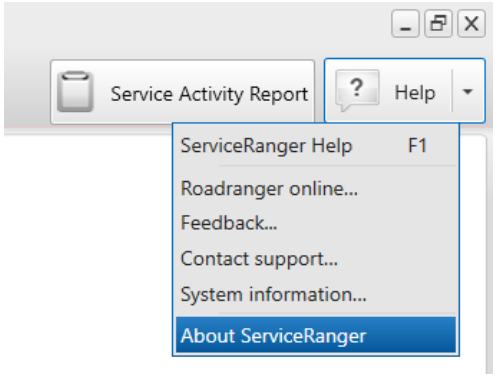
PACCAR

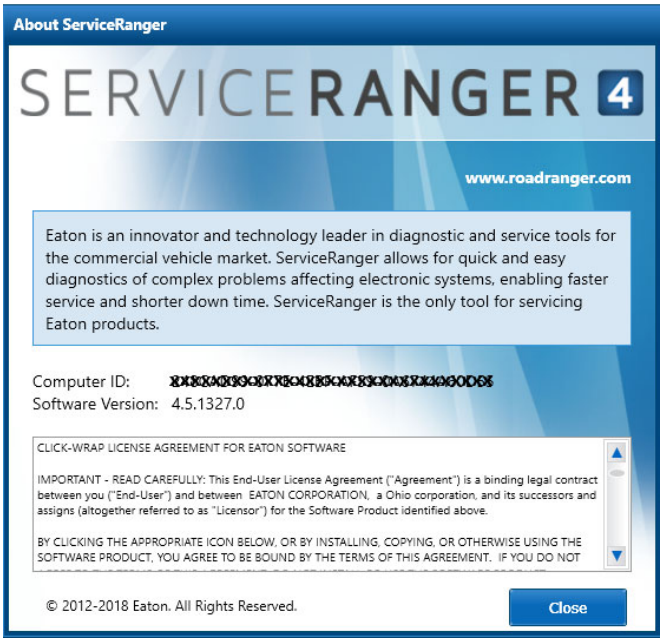


Field Strategy:

The 5516009 and 5516010 software are in ServiceRanger Application 4.5.1327 database update version 1807-01-C-2635 at an RFM License and above.

To verify software version open ServiceRanger > select Help > select About ServiceRanger:





The latest ServiceRanger software version is available at the link below:

http://www.roadranger.com/rr/CustomerSupport/Support/ServiceRanger/index.html

Affected Models	Current Release Part Number	New Release Part Number	Date
Endurant Transmissions	5516004 and 5516006 (Navistar)	5516010	07/27/2018
PACCAR Transmissions	5516004 and 5516006 (Navistar)	5516009	07/27/2018

Warranty Information:

Warranty Parts:

- No parts required if download successful.
- TCM kit number based on transmission model (pending inspection).

The material contained in this bulletin is product improvement information. Eaton Corporation is not committed to, or liable for, canvassing existing products.

Change Log

Date	Description
10/01/2018	Document created.

FSUD: 2640

TAIB-0878

Engine Flywheel Housing Requirements and Fault Code 250

Date: May 17, 2021

Updated: October 24, 2023

Issue Description:

Customers may experience Transmission Control Module (TCM) fault codes and transmission performance complaints after replacing the engine, engine flywheel housing, clutch, transmission, or the engine flywheel was resurfaced.

TCM may report fault codes:

Fault Code	SPN	FMI	Description
250	33	7	Linear Clutch Actuator Position
250	33	9	Linear Clutch Actuator Position

The Endurant Transmission requires a specific engine flywheel housing to ensure the correct Split Dimension. The Split Dimension is the distance from the engine flywheel machined surface to the engine flywheel housing where the transmission clutch housing attaches. See Cummins TSB190160.

1. Eaton and ECJV recommend referencing the OEM and/or engine manufacturers procedures for flywheel reuse criteria.

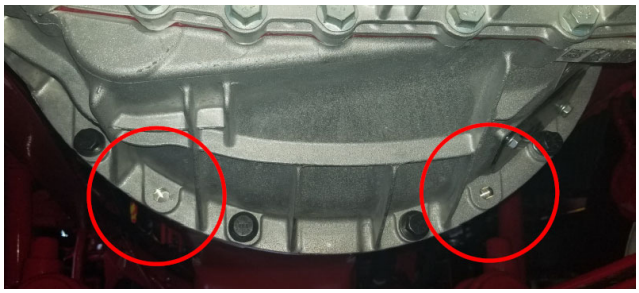
   This notice was added to the clutch installation procedure (CLMT4309 EN-US) August 2022 and the Endurant Service Manual (TRSM0960) September 2023:

   CAUTION: Follow all OEM and/or engine manufacturer flywheel inspection and machining procedures. Failure to follow OEM and/or engine manufacturer flywheel procedures may result in the Clutch Cover not properly attaching or seating to the flywheel, causing:

- Fault Code 250 to set Active - “CC” in display and may not complete a Clutch Calibration
  - Endurant XD Service Manual received the same statement October 2023.
  - Cummins and Detroit Diesel have published guidelines for resurfacing flywheels, see attached service bulletins.

2. A caution was added to the Clutch Service Procedure to the Endurant Family Service Manuals TRSM0950 / TRSM0960 September 2022.
    a. SAE J617 #1 flywheel housing minimum requirement (Transmission to Engine Flywheel Housing) is 12 fasteners. Endurant was launched with 16 fasteners (PACCAR required 4 additional fasteners). Some customers (DTNA / VOLVO)may notice “Missing” fasteners. Cummins released an SAE Split difference flywheel housing (12 holes) while the Endurant clutch housing remained at 16 fastener hole capacity. The SAE for a #1 flywheel housing minimum requirement is 12 fasteners.

Not Required (Transmission housing has additional holes at 1, 5, 7, and 11 o’clock)

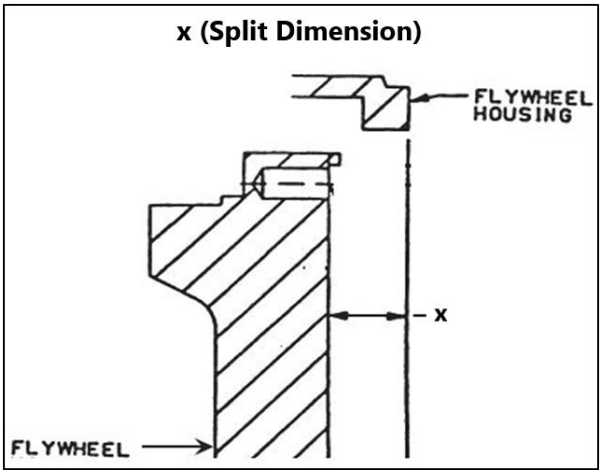


Affected Models/Population:

- Endurant HD / XD Transmissions
- PACCAR Transmissions

Field Strategy:

- If the engine or engine flywheel housing requires replacement, contact the OEM and/or engine manufacturer to identify the engine flywheel housing part number based on the transmission model.
- To verify the correct engine flywheel housing is installed, measure the Split Dimension, and reference the chart below. See Cummins TSB190160 attached in 2019-FSUD-2774.
- Fault Code 250 may also be set if the incorrect clutch release bearing is installed. Reference TRSM0950 for release bearing dimensions.
- Fault Code 250 may also be set if a replacement transmission has the incorrect input shaft dimension. Reference TRSM0950 for input shaft dimensions and service transmission identification.
- Fault Code 250 may also set if a flywheel was just machined.
    a. Eaton and ECJV recommends referencing the OEM and/or engine manufacturers procedures for flywheel reuse criteria
    b. Clutch cover may not fully seat or properly attach to the flywheel. Refer to the OEM and/or engine manufacturer.



Endurant and PACCAR Transmissions				
OEM	Engine	x (Split Dimension)		Details
		mm	in	
Navistar	A26	65.70-67.59	2.59-2.66	66.645mm (+/- 0.9445)
Navistar	X15	65.70-67.59	2.59-2.66	
PACCAR*	MX13/15	65.70-67.59	2.59-2.66	
PACCAR	X15	65.70-67.59	2.59-2.66	
Volvo	X15	59.8	2.35	
DTNA	X15	59.8	2.35	
DTNA	DD13/15	56.63-59.17	2.23-2.33	57.9mm (+/- 1.27)
UltraShift PLUS / Fuller Advantage Automated				
All	All	63.50	2.50	

Note: *PACCAR Transmission

Note: Reference TRSM0950 Endurant Service Manual for the latest Endurant HD Service Manual link and OEM specific service parts.

Warranty Information:

Informational only.

Change Log

Date	Description
10/23/2023	Added references to Cummins and Detroit Diesel Engines flywheel turning specifications.

FSUD: 2774

The material contained in this bulletin is product improvement information. Eaton Corporation is not committed to, or liable for, canvassing existing products.

TAIB-0881

Warranty Guidelines for Software Updates - Endurant Family Transmissions

Date: March 7, 2020

Updated:

Issue Description:

Eaton Cummins Automated Transmission Technologies authorizing non-warrantable software updates on the Endurant Family Transmissions.

Current Process:

Software claims are being submitted for customer complaints, chassis integration, customer configuration parameter changes and/or campaigns that are not authorized by Eaton Cummins Automated Transmission Technlologies. These software updates and subsequent claims are not caused by a defect in material and/or workmanship.

Revised Process:

Any campaign or repair activity to update software that is not expressed, written, directed or approved by Eaton Cummins Automated Transmission Technologies will result in warranty claim denial. This revised process will be implemented on claims with a failure date of April 1, 2020 and forward.

The Endurant Troubleshooting Guides were updated February 2020 removing the direction to update software as part of the Diagnostic Procedure.

Note: Customers must obtain the latest available service documentation. Failure to do so may result in warranty claim denial.

Affected Models/Population:

- Endurant family

Examples of Non-Warrantable Complaints and Fault Code(s):

Note: Any campaign or repair activity for non-warrantable software updates will result in software warranty claim denial.

- Non-warrantable software update examples include, but are not limited to the following:
  - Unauthorized Non-Warrantable Software Update
  - Customer Configurable Parameters in Service Tools
  - TCM Failed Download Due to OEM Service Tool
  - TCM Failed Download During Non-Warrantable Software Update
- Fault Code(s) associated with non-warrantable software update examples include, but are not limited to the following:
  - Primary Shift Device
  - Secondary Shift Device
  - Start Enable Relay
  - Low Air Pressure
  - Transmission Air Supply Pressure Sensor
  - Clutch Abuse
  - Clutch Temperature
  - XBR System State
  - Primary Data Link (J1939 A)
  - Secondary Data Link (J1939 B)
  - Low Battery

The material contained in this bulletin is product improvement information. Eaton Corporation is not committed to, or liable for, canvassing existing products.

Change Log

Date	Description
03/07/2020	Document created.

FSUD: 4167

TAIB-0882

DAVIE4 Required for Software Updates and Configuration Changes When Connected to a PACCAR TX12 and TX18 Transmission

Date: August 10, 2020

Updated: February 1, 2023

Issue Description:

Effective July 30, 2020, ServiceRanger users with BASIC and PRO license levels will no longer have the capability to update software, update calibrations or change configurations when connected to a PACCAR TX12 and TX18 Transmission. This directive is part of an initial contractual agreement with PACCAR to only utilize DAVIE4 when diagnosing a PACCAR TX12 Transmission. All BASIC and PRO users must utilize the PACCAR DAVIE4 tool to communicate with the PACCAR TX12 and TX18 Transmissions.

Note: The ONLY update capability ServiceRanger 4 will still have for PACCAR TX12 Transmission is to update the software version 6009 which makes it compatible with DAVIE4. The PACCAR TX18 SW started productino 12/2022 with 6045 SW and user level capability follows the chart below.

- ServiceRanger will continue to support all Eaton/ECJV products including Endurant & Procision
- Please contact PACCAR for support with DAVIE4

Eaton has been given permission to allow ServiceRanger 4 users with RFM and ENGINEERING license levels to maintain functionality while connected to PACCAR TX12 and TX18 Transmissions with 6045 SW and above. ServiceRanger 4 DB 2301-02-SCB-4493 released 01/31/2023 is required. Please reference user level chart below for more information.

Feature	Basic	Pro	RFM	ENG
View Fault Codes	X	X	X	X
View Configurations	X	X	X	X
Change Configurations			X	X
Update Calibrations			X	X
Update Software			X	X
Service Routines	X	X	X	X
VPA / Snapshot	X	X	X	X

Warranty Information:

Information only.

The material contained in this bulletin is product improvement information. Eaton Corporation is not committed to, or liable for, canvassing existing products.

Change Log

Date	Description
08/10/2020	Document created.

FSUD: 4168

TAIB-0885

Fault Code 511 FMI 7 or 10 and Transmission Service Lamp - Endurant HD and PACCAR TX-12 Transmissions

Date: September 21, 2020

Updated: December 16, 2024

Issue Description:

Customers may experience transmission service lamp on, no gear engagement from Neutral and Fault Code 511 (SPN 5614) FMI 7 or 10, Clutch Engage Solenoid 1 (C4) - Coarse Vent.

Affected Models/Population

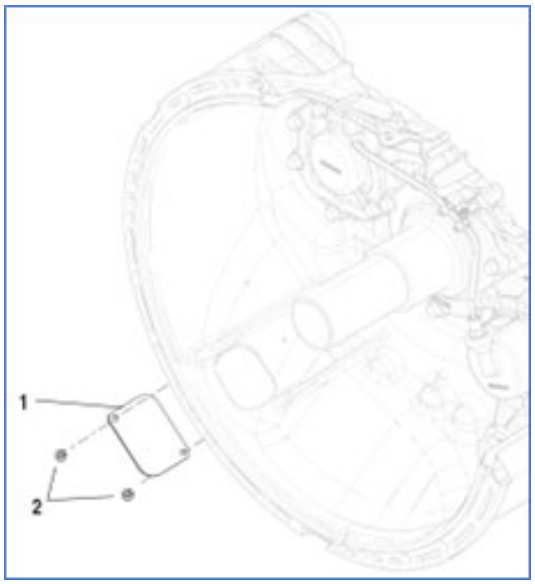
- Endurant HD
- PACCAR TX-12

Field Strategy:

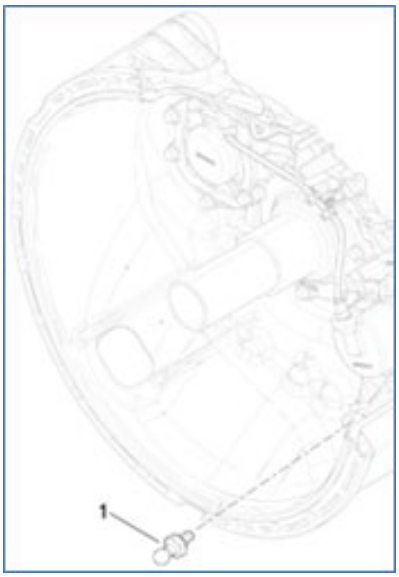
1. Key off.
2. Set vehicle parking brake and chock wheels.
3. Key on with engine off.
4. Connect ServiceRanger.
5. Create a Service Activity Report (SAR).
6. Select “Send to Eaton” - Internet connection required.
7. Go To Programming.
8. Under Software Information, record TCM software part number.
    - If TCM software part number is less than HD 5516024 (TX-12 5516023), go to Step 9.
    - If TCM software part number is equal to or greater than HD 5516024 (TX-12 5516023), go to Step 21.
9. From Available Updates, select SW-23150-P (5516072) and select Confirm.
10. Select Download and follow on-screen prompts.
11. Key off and wait one minute.
12. After waiting one minute, key on with engine running.
13. Allow vehicle air pressure to reach governor cut-off then wait three minutes to allow the auto-clutch calibration to complete.
14. After waiting three minutes, Connect ServiceRanger.

15. Go To Fault Codes and record transmission fault codes.
    - If no transmission fault codes are Active, go to Step 16.
    - If Fault Code 511 FMI 7 or 10 is Active, go to Step 21.
    - If other transmission fault codes are Active, go to Endurant HD Troubleshooting Guide TRTS0950.
16. Road test vehicle for 18 minutes (0.3 of an hour) performing multiple launches from a stop and upshifts.
17. Select Neutral.
18. Set vehicle parking brake and chock wheels.
19. Connect ServiceRanger.
20. Go To Fault Codes and record transmission fault codes.
    - If no transmission fault codes set Active during road test, process complete.
    - If Fault Code 511 FMI 7 or 10 set Active during road test, go to Step 21.
    - If other transmission fault codes set Active during road test, go to Endurant HD Troubleshooting Guide TRTS0950.
21. Key off.
22. Remove two 10mm Clutch Housing Inspection Cover cap screws and cover.

Inspection Cover (1), Cap Screws (2)



Pivot Pin (1)



23. Through the Clutch Housing Inspection Cover, inspect Release Yoke Pivot Pin. Do not remove transmission from vehicle.
    - If Release Yoke Pivot Pin is not broken, go to Step 24.
    - If Release Yoke Pivot Pin is broken, go to TAIB0889 HD Clutch Release System Wear/Damage.

NOTICE: Using a flashlight and pry bar, lightly pry up on the Release Yoke to determine Pivot Pin condition. Do not pry Release Yoke from Pivot Pin.

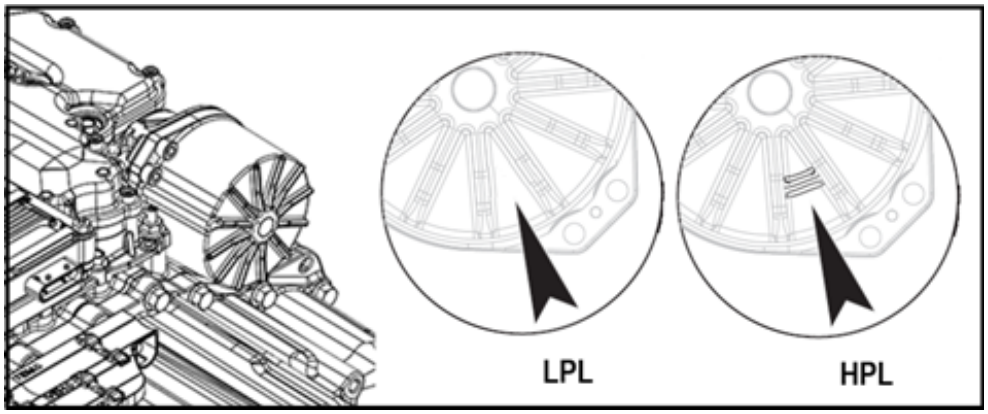
Pivot Pin not broken:

Pivot Pin broken:

24. Re-install Clutch Housing Inspection Cover and two 10mm cap screws, torque to 8.8-10.4 Nm (6-8 lb-ft).

25. Inspect Linear Clutch Actuator (LCA), refer to image below.

- If equipped with an LPL LCA, replace the LCA. Go to Step 26.
  - Refer to Endurant HD Service Manual TRSM0950, LCA service procedure.
- If equipped with an HPL LCA, go to Step 30.



LPL - No raised casting at 5 o'clock position

HPL - Raised casting at 5 o'clock position

26. Key on with engine running, "CC" indicated in display.

27. Allow vehicle air pressure to reach governor cut-off, allow the auto-clutch calibration to complete, "CC" no longer indicated in display.

28. Connect ServiceRanger.

29. Go To Fault Codes and record transmission fault codes.

- If no transmission fault codes are Active, process complete.
- If Fault Code 511 FMI 7 or 10 is Active, go to Step 30.
- If other transmission fault codes are Active, go to Endurant HD Troubleshooting Guide TRTS0950.

30. Was software updated during this process?

- If no, Contact Eaton Cummins Automated Transmission Technologies for further diagnostic instructions.
  - U.S. and Canada Help Line: +1-800-826-4357
  - Mexico Help Line: +52-800-800-6801
- If yes, connect ServiceRanger, create a Service Activity Report, select Send to Eaton and Contact Eaton Cummins Automated Transmission Technologies for further diagnostic instructions.

Another example of a Clutch Housing Inspection Cover removed with a new (not broken) Release Yoke Pivot Pin:

Warranty Information:

If Release Yoke Pivot Pin is found to be broken, refer to TAIB-0889 service strategy and warranty information.

Warranty Parts

- Option 1:
  - No Parts
- Option 2, 3, 4:
  - K-4357 LCA Kit (Endurant)

    or
  - K-4357-PAC LCA Kit (PACCAR)

Warranty Labor

Only one option applies:

Option	Labor Operations:	Hours
1	Diag, Software update, Road test	1.6
2	Diag, Software update, Road test*, Pivot pin inspect, LCA replace, Road test	2.5
3	Diag, Software update, Pivot pin inspect, LCA replace, Road test	2.2
4	Diag, Pivot pin inspect, LCA replace, Road test	1.9

*and Fault Code 511 FMI 7/10 set Active

- Diagnostics (1.0 hour)
- Software Update (0.3 hour)
- Pivot Pin Inspection (0.2 hour)
- LCA R&R (0.4 hour)
- Road Test (0.3 hour)

All warranty claim options:

Repair Order / Claim Text:

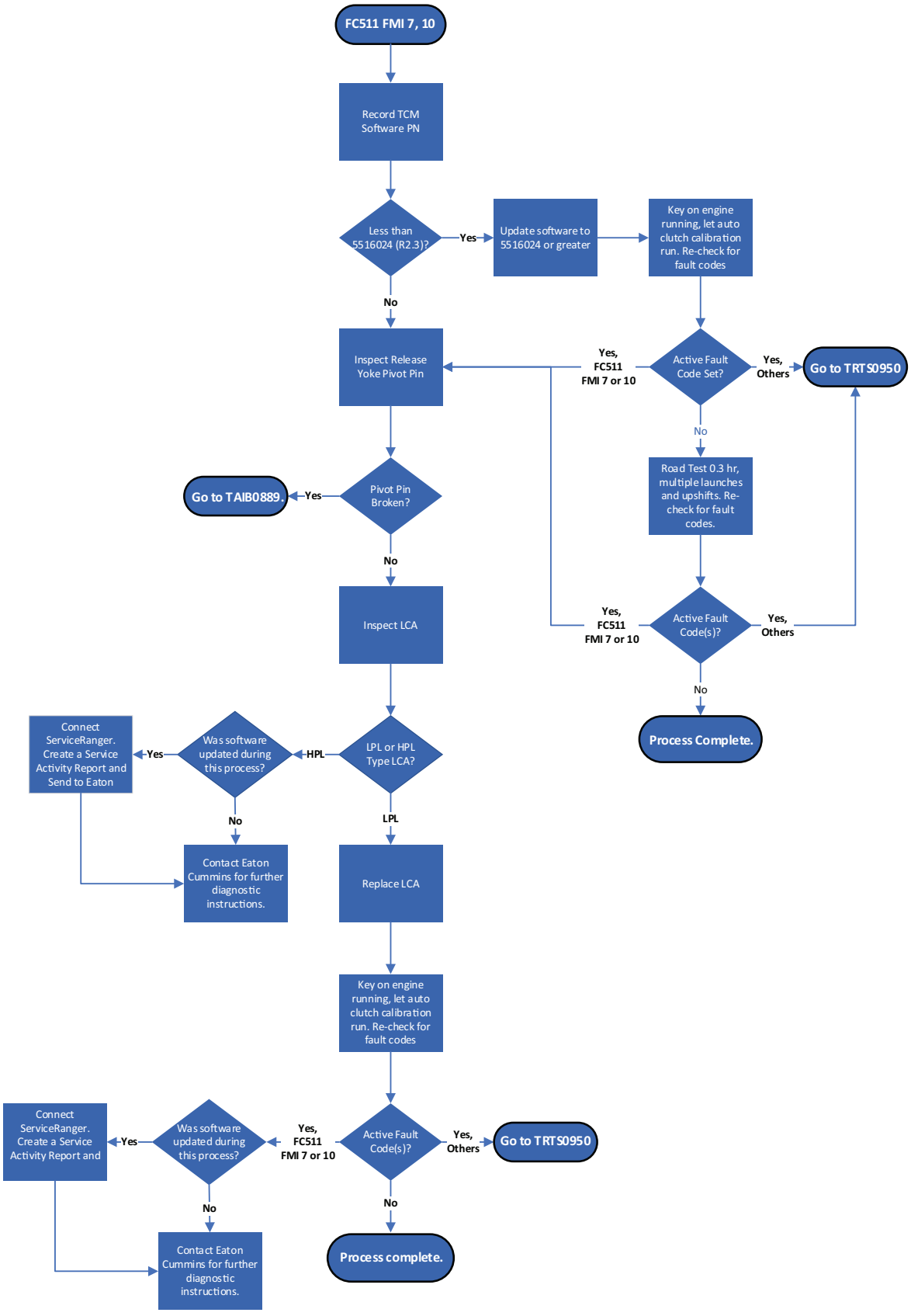
- Claim Text - Enter the following:
  - Primary Casual Part #: A-10000714
  - TAIB-0885

Part Return Instructions:

- Claimed parts are to be returned to the Eaton Warranty Return Center (Galseburg MI.) “Collect” er TMIB0129. Follow packaging instructions per TCWY0600.

Warranty Coverage:

Standard warranty per Model and Vocation as published in the Eaton Cummins Automated Transmission Technologies Warranty Manual ECWY3000.



The material contained in this bulletin is product improvement information. Eaton Corporation is not committed to, or liable for, canvassing existing products.

Change Log

Date	Description
12/16/2024	Updated Issue Description, Repair Strategy and Warranty Information sections. Added procedure process flow.
04/15/2024	Updated warranty parts section, changed references from K-4357 and K-4375-PAC to K-4357R and K-4357R-PAC.
09/21/2020	Document created.

FSUD: 2648

TAIB-0889

Clutch Release System Wear/Damage - Endurant and PACCAR Transmissions

Updated: March 3, 2025

Issue Description:

Over repair/under repair of the Clutch Release System (and/or clutch) due to a lack of troubleshooting wear measurement criteria. For customers experiencing an illuminated transmission service lamp and Fault Code 511 (SPN 5614) FMI 7, 10, refer to TAIB-0885.

Containment/Corrective Action:

Document Clutch Release System and/or Clutch Diaphragm Spring wear troubleshooting measurement criteria and Clutch Release System damage to look for per this TAIB.

Affected Models/Population:

- Endurant HD, XD Transmissions
- PACCAR TX12, TX18 Transmissions

Field Strategy:

If Fault Code 706 SPN 2983 FMI 17 or 18 is set Active or Inactive or you were sent here from TAIB-0885, perform the clutch release system inspection detailed in the Service Strategy section.

Service Strategy:

Reference Endurant HD Automated Transmission Service Manual TRSM0950 for all service procedures.

1. Inspect Input Shaft Pilot Bearing Wear Sleeve for excessive wear.

- If excessive wear is found, inspect the pilot bearing for wear and/or failure.
  - If pilot bearing wear and/or failure is found, replace pilot bearing per OEM guidelines.

Note: Pilot bearing replacement is non-warrantable.

  - If Input Shaft Pilot Bearing Wear Sleeve wear and/or damage is found, replace Input Shaft Pilot Bearing Wear Sleeve.

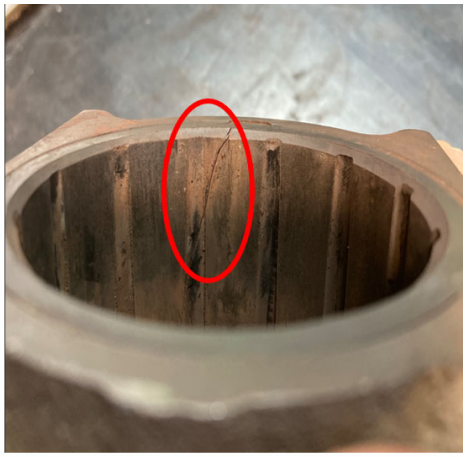
Note: Input Shaft Pilot Bearing Wear Sleeve wear and/or damage is non-warrantable.

  - Go to Step 2.
- If no excessive wear is found, go to Step 2.

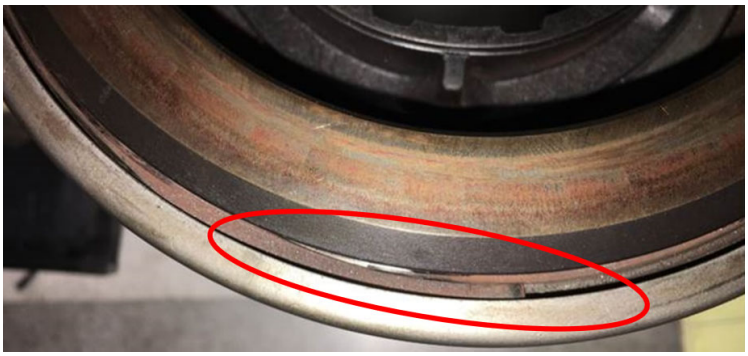
2. Inspect Release Bearing

- If release bearing casting has come into contact with release yoke casting, replace the release bearing, release yoke and the release yoke pivot pin. Go to Step 7.

- If the release bearing inner sleeve is cracked or broken, replace the release bearing. Go to Step 6.



- If the inner wave spring is protruding from the face of the bearing, replace the release bearing. Go to Step 6.



- If the release bearing outer baffle has rotated fully outside of the original staked position, replace the release bearing assembly. Go to Step 6.

New *Partially Rotated (Reuse)* *Rotated (Replace)*



3. Inspect release bearing assembly for wear and/or “divots” on wear pads from rollers. Document the wear measurements in the warranty claim notes.

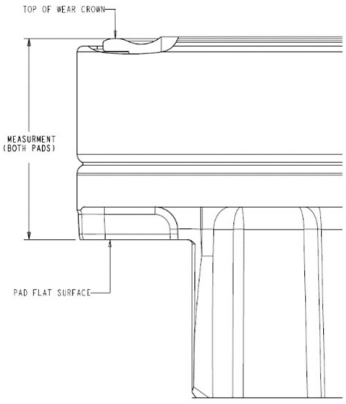
- If wear is found, measure wear with a caliper.


- If wear and/or “divot” measurement exceeds 0.5 mm in depth, replace the Release Bearing assembly. Go to Step 6.
- If wear and/or “divot” measurement is less than 0.5 mm, go to Step 4.

4. Measure Release Bearing assembly for wear.

- Place release bearing assembly on the workbench with the bearing side up.
  - With a pair of vernier calipers, measure from the top of the wear crown to the roller yoke contact area (Not in the release yoke roller divot that was just measured and not in the lowest point of the bearing surface).
  - Equal pressure will need to be applied to the other side of the bearing when making this reading.

Measuring an ISO Bearing



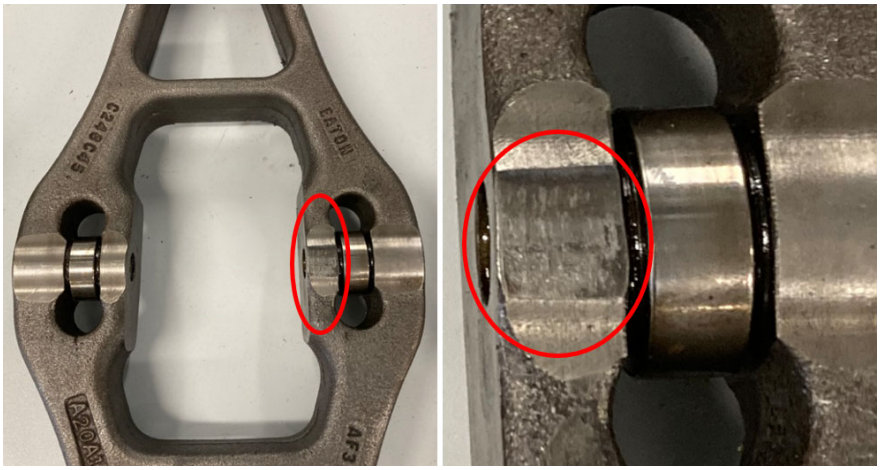
- ISO Bearing (P/N 125969, A-10004340) Minimum Specification is 51.80 mm.
- SAE Bearing (P/N 125968, A-10004341) Minimum Specification is 44.95 mm.
- If bearing is under specification, replace release bearing assembly. Go to Step 6.
- If bearing is within specification, go to Step 5.

5. Place release bearing assembly (bearing side down). With downward pressure rotate the release bearing assembly by hand. New or low hour bearings will have a higher rolling resistance (New seals and new grease).

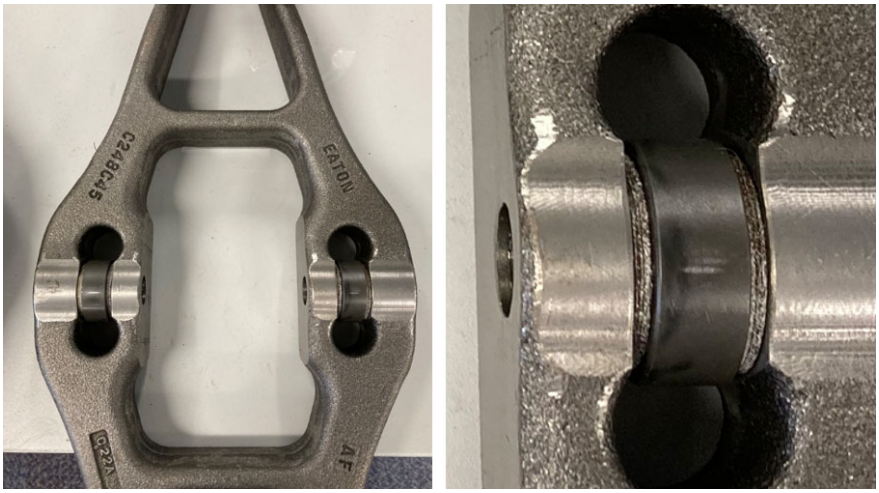
Rotate with pressure *Rotate checking for seal drag*

- If the release bearing is hard to turn (seized or partially seized) replace the release bearing. Go to Step 6.
- If the release bearing shows no signs of seal drag, replace the release bearing. Go to Step 6.
- If the release bearing does not rotate smoothly with downward pressure, replace the release bearing. Go to Step 6.

6. Inspect the release yoke, release yoke pivot pin, release yoke plastic sockets for damage.
   - If the release yoke pivot pin is broken, replace the release yoke pivot pin, release yoke, and the release bearing. Go to Step 7.
   - If release yoke casting has come into contact with release bearing casting, replace the release yoke, release yoke pivot pin, and the release bearing. Go to Step 7.



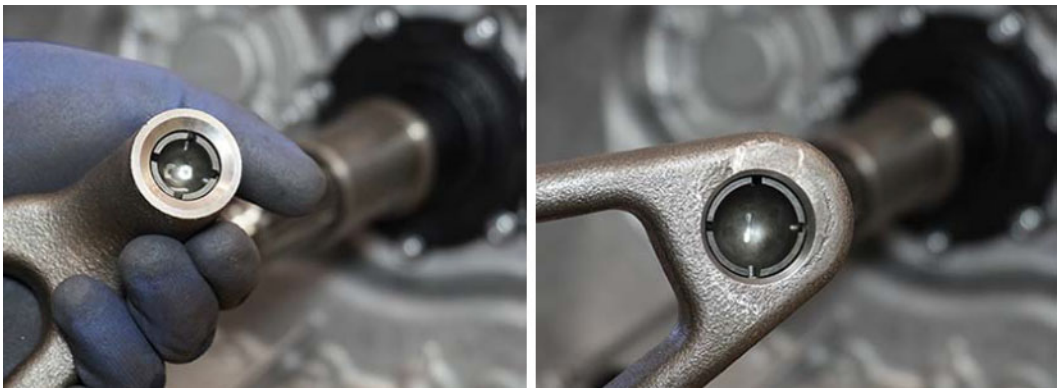
New 125891 Release Yoke



- Inspect release yoke rollers (both sides) for lateral (Fore and Aft) movement and Up and Down Movement. If roller movement is found, replace the release yoke, release yoke pivot pin, and the release bearing. Go to Step 7.

Fore and Aft *Up and Down*

Release Yoke and Plastic Sockets (New)



- If Release Yoke Pivot Pin and/or Release Yoke and/or plastic sockets are damaged, replace Release Yoke Assembly and Release Yoke Pivot Pin. Go to Step 7.
- If no movement is found in both rollers, the release yoke casting has not come into contact with the release bearing casting, and the plastic sockets are not damaged, reuse the release yoke. Go to Step 7.

7. Inspect the Clutch Diaphragm Spring for wear. Reference Eaton CLIB0040.

8. If no observed Clutch Release System and/or Clutch Diaphragm Spring wear is within the acceptable limits found in this FSUD or Eaton Clutch FSUD, continue with troubleshooting as appropriate.

Note: It is highly recommended to implement the new High Preload LCA (HPL LCA), New reduced weight Release Yoke, and Release Yoke Pivot Pin at the time of clutch replacement. The introduction of the HPL LCA and the reduced weight release yoke will improve the clutch release system dynamics between the release yoke, release bearing, and diaphragm spring of the clutch cover (Customer Pay if not found to be warrantable).

Warranty Information:

Warranty Parts (if warrantable):

- (HD) K-4488CL Clutch Service Kit (PACCAR X15 / Paccar MX / Navistar X15 / Navistar A26)
- (HD) K-4494CL Clutch Service Kit (Volvo X15)
- (HD) K-4488CL / K-4488CL-PAC Clutch Service Kit (PACCAR X15 / Paccar MX / Navistar X15 / Navistar A26)
- (HD) K-4496CL Clutch Service Kit (Freightliner / Western Star - Detroit Diesel Engines)
- (HD) K-4512CL Clutch Service Kit (All OEMs with Cummins CNG Engines)
- (HD) K-4514CL / K-4514CL-PAC Clutch Service Kit (MX11 / MX13)
- (XD) K-4544CL Clutch Service Kit (Freightliner / Volvo / Western Star - Cummins Engines)
- (XD) K-4545CL Clutch Service Kit (PACCAR / Navistar - Cummins) or (Navistar A26)
- (XD) K-4557CL Clutch Service Kit (Freightliner / DTNA / Western Star / Volvo - Cummins Engines)
- (XD) K-4558CL Clutch Service Kit (PACCAR / Navistar - Cummins Engines)
- (XD) K-4559CL Clutch Service Kit (Freightliner - Cummins Engines)
- (XD) K-4560CL Clutch Service Kit (PACCAR / Navistar - Cummins) or (Navistar A26)
- (XD) K-4561CL / K-4561CL-PAC Clutch Service Kit (MX11 / MX13)
- (XD) K-4638CL / K-4638CL-PAC Clutch Service Kit (MX11 / MX13)
- K-4553 Release Yoke Assembly Kit
- 10001949 Release Yoke Pivot Pin
- A-10004341 (Previously 125968) Release Bearing (SAE)
- A-10004340 (Previously 125969) Release Bearing (ISO)

Warranty Labor (if found warrantable) (ECWY3000):

- Diagnostics (Up to 1 Hour)
- Transmission R&R (Up to 3.4 hours)
- Release Yoke R&R (Up to 0.1 Hour)
- Release Yoke Pivot Pin R&R (Up to 0.1 Hour)
- Release Bearing R&R (Up to 0.1 hour)
- Test Drive (Up to 0.3 Hour)

Change Log

Date	Description
03/03/02025	Aligned SRT's with ECWY3000.
12/06/2024	Removed Fault Code 512 (SPN 5615) FMI 16. Revised Field Strategy.
07/01/2024	Added XD, XD Pro, and PACCAR TX18, TX18 Pro. Adjusted SRT Times. Updated Warranty Parts list.
04/08/2024	Updated Field and Service Strategy. Updated warranty parts list.
02/19/2024	Updated clutch service kits, release yoke, and release bearing part numbers. Added step 8 advising to replace the LCA, Release Yoke, and Release Yoke Pivot Pin at the time of clutch replacement (Customer Pay).

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FSUD: 4226

TAIB-0991

Transmisison Control Module (TCM) Part Number Change - Endurant HD, PACCAR and Procision MD

Date: March 29, 2021

Updated:

Issue Description:

New content TCM service kits were obsoleted March 1, 2021, for Endurant HD, PACCAR and Procision MD.

Containment/Corrective Action:

REMAN TCM Service Kits were released March 1, 2021.

Affected Models/Population:

- Endurant HD
- PACCAR
- Procision MD

Field Strategy:

Obsolescence of new content TCM part numbers and the release of REMAN TCM part numbers March 1, 2021.

Endurant

Obsoleted Part Number	REMAN Part Number	Core	REMAN Description
K-4398	K-4398R	$500	REMAN TCM ASSY KIT Endurant HD 12-Speed
K-4398-PAC	K-4398R-PAC	$500	
K-4487	K-4487R	$500	REMAN TCM ASSY KIT Endurant HD 11-Speed
K-4487-PAC	K-4487R-PAC	$500	
N/A	K-4517R	$500	REMAN TCM ASSY KIT Endurant HD 12-Speed CNG / Cummins
	K-4517R-PAC		

PACCAR Only

Obsoleted Part Number	REMAN Part Number	Core	REMAN Description
K-4354-PAC	K-4354R-PAC	$500	REMAN TCM ASSY KIT PACCAR 12-Speed

Procision

Obsoleted Part Number	REMAN Part Number	Core	REMAN Description
K-4266	K-4266R	$500	REMAN TCM ASSY KIT (EDCO-XX107A)
K-4269	K-4269R	$500	REMAN TCM ASSY KIT (EDCO-XX107A-P)
K-4274	K-4274R	$500	REMAN TCM ASSY KIT (EDCO-XX107A-B)

Warranty Information:

Not available.

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Change Log

Date	Description
02/29/2021	Document created.

FSUD: 4266

TAIB-0994

Mechatronic Transmission Module (MTM) Loose Rail Cover Cap Screw

Date: April 2, 2021

Updated: May 12, 2025

Issue Description:

Customers may experience a transmission shift issue and transmission service lamp on due to MTM rail cylinder cap screws becoming loose, causing a cylinder to leak air and set Rail B, C and/or D related fault codes.

NOTICE: If the clutch does not release properly, Fault Code 570 (Inertia Brake Solenoid) and/or 706 (Clutch Position Out of Range) may appear along with MTM rail operation and/or solenoid fault codes. Should Fault Code 570 and/or 706 be present, whether Active or Inactive, diagnose these codes first by consulting the Endurant Troubleshooting Guide TRTS0950. Resolving clutch release related fault codes might address rail operation and solenoid fault codes as well.

If **neither** Fault Code 570 **nor** 706 is set, but you observe any of the other fault codes listed below, please proceed with the instructions outlined in the service bulletin.

Fault Code	SPN	Description	FMI
740	6145	Rail B Operation	0, 1
760	6146	Rail C Operation	0, 1, 2, 18
617	5910	Rail C Aft Solenoid	14*
775	6147	Rail D Operation	0, 1

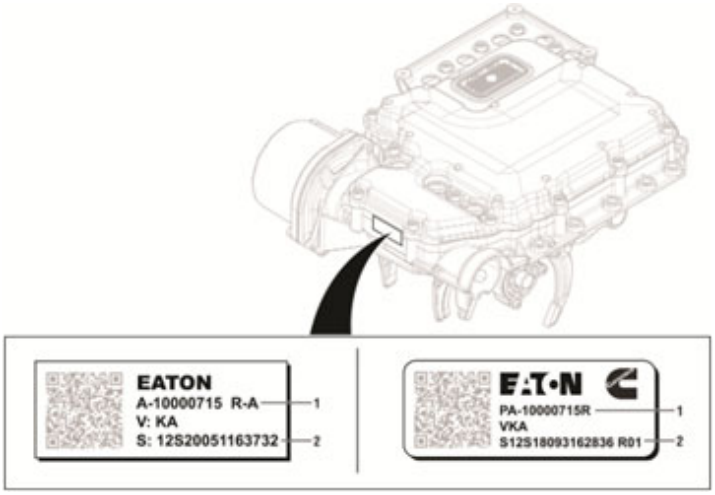
NOTICE: *If Fault Code 617 FMI 14 is set, go to TRTS0950 Endurant HD troubleshooting guide Fault Code 617 FMI 14 fault code isolation procedure prior to performing this service bulletin.

Affected Models/Population:

- MTM part label with Eaton only
- MTM serial number less than 12S22342145012 (12S = 12-speed)
- Endurant HD (12-speed)
  - MTM Part number A-10000715
- PACCAR TX-12 (12-speed)
  - MTM Part Number A-10002594

MTM Part Label:

MTM Part Label Location and Type - Part Number (1), Serial Number (2):



CAUTION: Endurant XD (18-speed) transmission models are not affected by this issue and this document does not apply - Endurant XD MTM serial number example: 18S24013141749 (18S = 18-speed). Performing unnecessary repairs results in component contamination and/or damage.

Field Strategy:

1. Inspect MTM part label - Record label type and MTM Serial Number:
   - If the label type is Eaton and Cummins, this service bulletin does not apply.
   - If the label type is Eaton only and MTM serial number is less than 12S22342145012, go to Step 2.
   - If the label type is Eaton only and MTM serial number is equal to or greater than 12S22342145012, this service bulletin does not apply.
2. Key on with engine off.
3. Connect ServiceRanger.
4. Create a Service Activity Report (SAR).
5. Select “Send to Eaton” - Internet connection required.
6. Compare fault codes in SAR with table below:
   - If any Active or Inactive fault codes and FMIs outlined in table are indicated in the SAR, go to TRSM0950 Endurant HD Service Manual Appendix and perform MTM Rail B, C and D Cylinder Inspection Procedure.

   NOTICE: Service Field Strategy has changed 04/10/2024 to use K-4637 or K-4637-PAC to replace O-rings if any rail cylinder cover O-ring has moved out of its groove and is protruding between cylinder and housing cover.

   - If other Active or Inactive transmission fault codes and FMIs are indicated in the SAR, go to TRTS0950 Endurant HD Troubleshooting Guide, Fault Code Isolation Procedure Index.

Fault Code	SPN	Description	FMI
740	6145	Rail B Operation	0, 1
760	6146	Rail C Operation	0, 1, 2, 18
617	5910	Rail C Aft Solenoid	14*
775	6147	Rail D Operation	0, 1

NOTICE: *If Fault Code 617 FMI 14 is set, go to TRTS0950 Endurant HD troubleshooting guide Fault Code 617 FMI 14 isolation procedure prior to performing this service bulletin.

Warranty Information:

Warranty Parts

- Parts Cleaner (Loctite SF 7063 or equivalent)
- K-4637 or K-4637-PAC, includes:
  - 71232, thread adhesive
  - K-4636, MTM O-ring Kit

NOTICE: As of 08/01/2023, if an MTM is returned with visibly loose rail cylinder cap screws with no fault codes and serial number in Affected Models, claim is subject to denial.

Warranty Labor (ECWY3000)

- Fault Codes in Issue Description:
  - Diagnostics (Up to 1.0 hour)
  - Transmission R&R (Up to 3.4 hours)
  - MTM R&R - (Up to 1.2 hours)
  - MTM Rail Cylinder Service Procedure (Up to 0.8 hour)
  - Road Test (up to 0.3 hour)

General Claim Coding:

Fault codes outlined in Issue Description warranty claim:

- Line Item tab - Repair Line List
  - Primary Casual Part #: Code to failed MTM part number
  - Secondary Casual Part #: N/A
  - Complaint Code: Varies
  - Failure Mode Description: FASTENER LOOSE - RAIL B OR C CYLINDER (TFM-0516)

- Responsibility Code:
  - RTW COMMITMENT (601) for RTW claims
  - Vendor Part (418) for all others
- Part Return Instructions: Per OEM or RTW Instructions

- RMA Claim Coding:
  - Failure Mode Description: FASTENER LOOSE - RAIL B OR C CYLINDER (TFM-0516)
  - RMA PCP#: Code to failed MTM part number
  - RMA SCP#: N/A
  - SCP Failure Mode: N/A

Warranty Coverage:

Standard warranty per Model and Vocation as published in the Eaton Cummins Automated Transmission Technologies Warranty Manual ECWY3000.

Change Log

Date	Description
05/12/2025	Updated MTM part label image, Affect Models and Field Strategy sections.
03/03/2025	Aligned SRT's to ECWY3000.
10/14/2024	Updated Issue Description, added NOTICE to troubleshoot FC570 and FC706, if present, prior to performing this service bulletin (DB).
04/10/2024	Service Field Strategy has changed 04/10/2024 to use O-ring kit K-4637 or K-4637-PAC when Active or Inactive fault codes in table are present.
03/04/2024	Updated Affected Models/Population: added MTM part numbers and CAUTION statement and MTM Part Label image.
09/25/2023	Updated Containment/Corrective Action, Field Strategy, Warranty Information: Parts, Labor and Claim Coding sections.
07/10/2023	Updated Issue Description, added FC 775 SPN 6147 FMI 0, 1

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FSUD: 4277

TAIB-0995

Mis-Installed Mechatronic Transmission Modules (MTMs) on Endurant HD and PACCAR TX-12 Transmissions

Date: November 02, 2021

Updated:

Issue Description:

MTM's are being mis-installed during transmission repair. Instructions for removing and installing MTM's can be found in the Endurant HD service manual (TRSM0950) and must be followed.

- The transmission must be in a horizontal position prior to the MTM Installation procedure. Failure to do so causes the sliding clutches to move out of neutral and not align to the shift yokes. If the shift yokes are not aligned to the sliding clutches, position sensor fault codes set Active and the transmission will not shift out of neutral.
- If the MTM is installed on the transmission and Rail E in the MTM is not aligned with Rail E in the Main Housing, Fault Code 320 (SPN 5942) sets Active and the transmission will not shift out of neutral.
- If the MTM is installed on the transmission and Rail B in the MTM is not aligned with Rail B in the Main Housing, Fault Code 275 (SPN 4219) sets Active and the transmission will not shift out of neutral.
- Rails B, C and D positions can be viewed for proper MTM installation with the PTO cover removed.

Field Strategy:

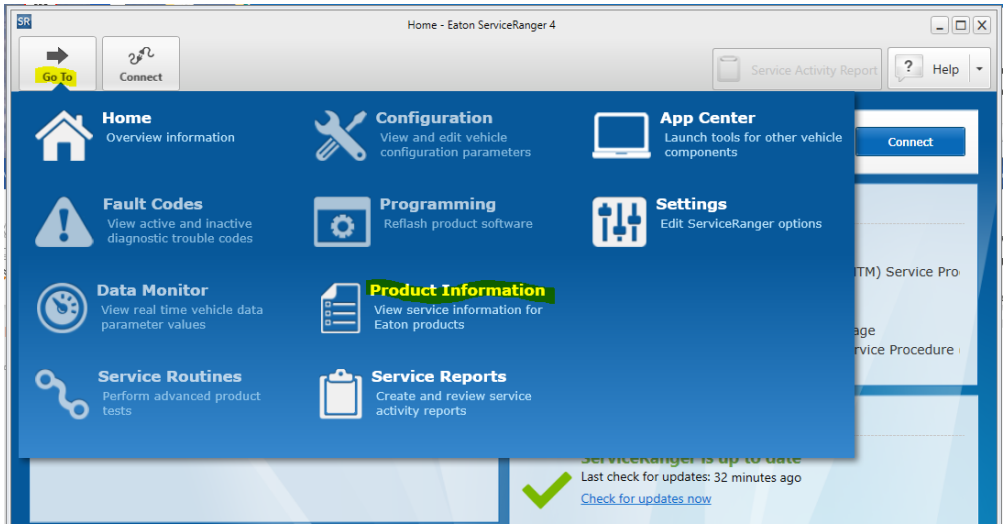
Refer to the published Endurant HD Service Manual (TRSM0950) on eatoncummins.com and ServiceRanger4 (SR4). In addition to the published Service Manual, videos for proper MTM removal and installation are included in the instructions in Product Information Library (PIL) and on SR4.

PIL Link:

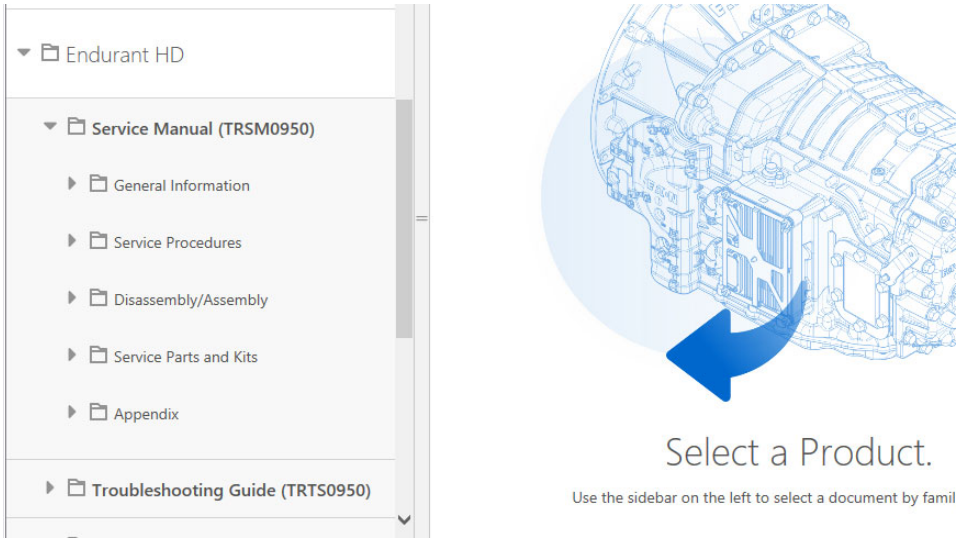
https://productinfo.serviceranger4.com/view-document/TRSM0950/en-us/BABCEIFAC1

Accessing Product Information in SR4:

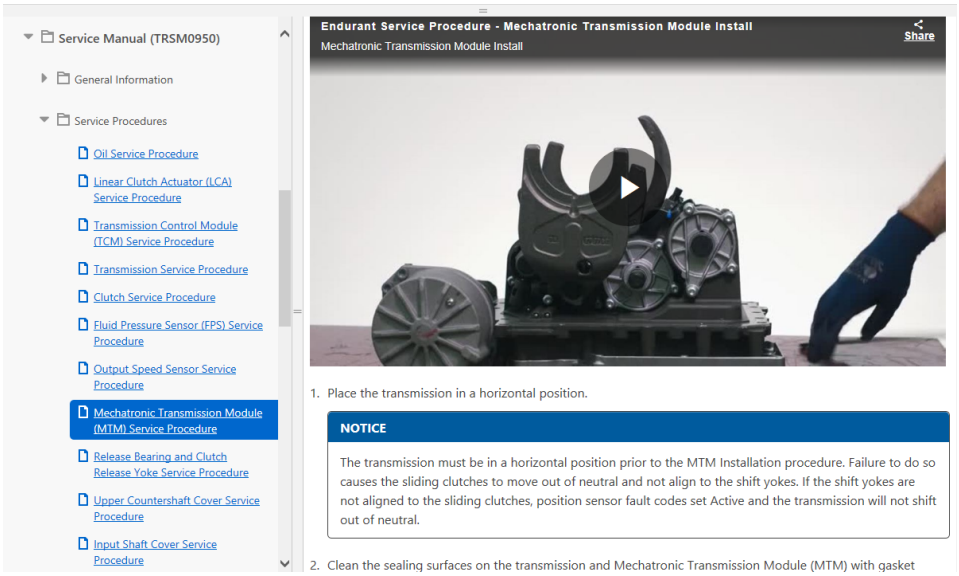
1. From the SR4 Homepage, select "Product Information" under "Go to".



2. Select “Service Manual (TRSM0950)” under “Endurant HD”.



3. Click on the MTM service procedure to access the service instructions and videos.



Note: Only external service videos are available for the Endurant HD and Procision products. Additional videos will be added as they are developed to better assist with transmission service.

Change Log

Date	Description
11/02/2021	Document created.

The material contained in this bulletin is product improvement information. Eaton Corporation is not committed to, or liable for, canvassing existing products.

FSUD: 4337

TAIB-0998

Transmission Engine Calibration and Performance Goal Update - Endurant HD

Date: March 15, 2022

Updated: April 11, 2022

Issue Description:

A new process to change the Performance Goal setting in the Transmission Control Module (TCM) was implemented with TCM software update 5516036 and ServiceRanger4 Software Version 4.11. Previously the Performance Goal was selected as part of the transmission Engine Calibration.

The revised Engine Calibration includes each Performance Goal (i.e., Economy, Performance, Liquid Tanker) and the process to set the Performance Goal now becomes a selectable configuration. This update also removes the Performance Goal description from the Engine Calibration description.

Example below for the Cummins X15:

Previous engine calibration	New engine calibration
TCM software 5516032 or less:	TCM software 5516036 or greater:
- OEM Specific X15 Economy Cal Rev ##-#######	- OEM Specific X15 Cal Rev ##-#######
- OEM Specific X15 Performance Cal Rev ##-#######	
- OEM Specific X15 Tanker Cal Rev ##-#######	

Current Process:

1. Key on.
2. Connect ServiceRanger.
3. Go To “Configuration”.
4. Select “Calibration” tab.
5. From “Other Available Base Calibrations Options” select desired performance goal.
   - OEM Specific X15 Economy Cal Rev ##-#######
   - OEM Specific X15 Performance Cal Rev ##-#######
   - OEM Specific X15 Tanker Cal Rev ##-#######
6. Select “Apply” and follow on-screen prompts.

Current Process:

1. Key on.
2. Connect ServiceRanger.
3. Go To “Configuration”.
4. Select “Options”.
5. From “Primary Performance Goal” New Value dropdown, select desired performance goal:
    - Economy
    - Performance
    - Liquid Tanker
6. Select “Apply” and follow on-screen prompts.

Note: When TCM software is updated from 5516032 or less to 5516036 or greater, ServiceRanger reads the current Performance Goal setting and writes the configuration setting during the software update process. This ensures the vehicle is returned to the customer with the same Performance Goal setting prior to the software update.

Affected Models/Population:

Endurant HD

The revised Engine Calibration and Performance Goal setting process requires both:

- ServiceRanger 4 Software Version 4.11 or greater
- TCM software 5516036 or greater

Warranty Information:

Information only

Note: Only external service videos are available for the Endurant HD and Procision products. Additional videos will be added as they are developed to better assist with transmission service.

Change Log

Date	Description
03/15/2022	Document created.

The material contained in this bulletin is product improvement information. Eaton Corporation is not committed to, or liable for, canvassing existing products.

FSUD: 4363

TAIB-1000

TCM Low Oil Response Configuration Incorrect Setting in DTNA and Volvo/Mack Vehicles - Endurant HD-N

Date: May 16, 2022

Updated: May 19, 2022

Issue Description:

Transmission Control Module (TCM) configuration parameter Low Oil Level Response (ACN 22) incorrectly set to “Locked (No Notification / No Fault Codes)” in DTNA and Volvo/Mack vehicles during Production; correct setting is “Installed, Notification Only”.

Containment/Corrective Action:

Effective 5/16/2022, engineering has provided DTNA and Volvo/Mack with correct Low Oil Level Response configuration setting: “4” = “Installed, Notification Only”.

Affected Models:

- EHD-xxF112C-N

Suspect Population:

- Build date range: All DTNA and Volvo/Mack vehicles built before 5/16/2022

Field Strategy:

If vehicle/transmission is in for service and vehicle was built before 5/16/2022, create a Service Activity Report (SAR) and confirm Low Oil Level Response configuration setting in TCM:

- If SAR indicates Low Oil Level Response is set to “Installed, Notification Only”, test complete.

Correct Setting:

ACN	Description	Current Setting Description
22	Low Oil Level Response	Installed, Notification Only

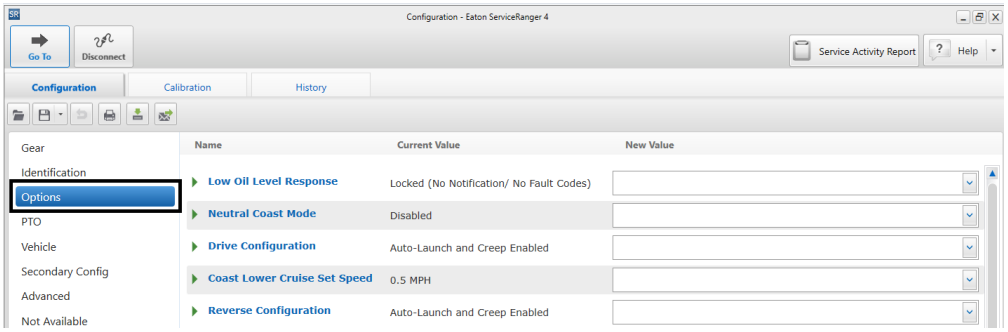
- If SAR indicates Low Oil Level Response is et to “Locked (No Notification / No Fault Codes)”, perform Change Low Oil Level Response Configuration and transmission Oil Level Inspection Procedure below:

Incorrect Setting:

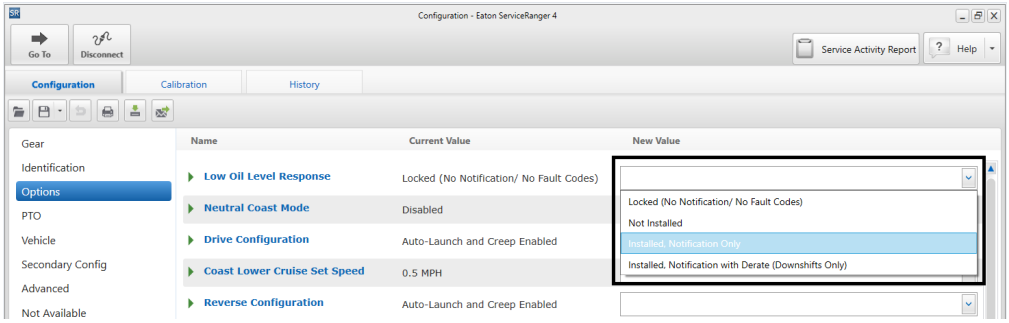
ACN	Description	Current Setting Description
22	Low Oil Level Response	Locked (No Notification / No Fault Codes)

Change Low Oil Level Response Configuration

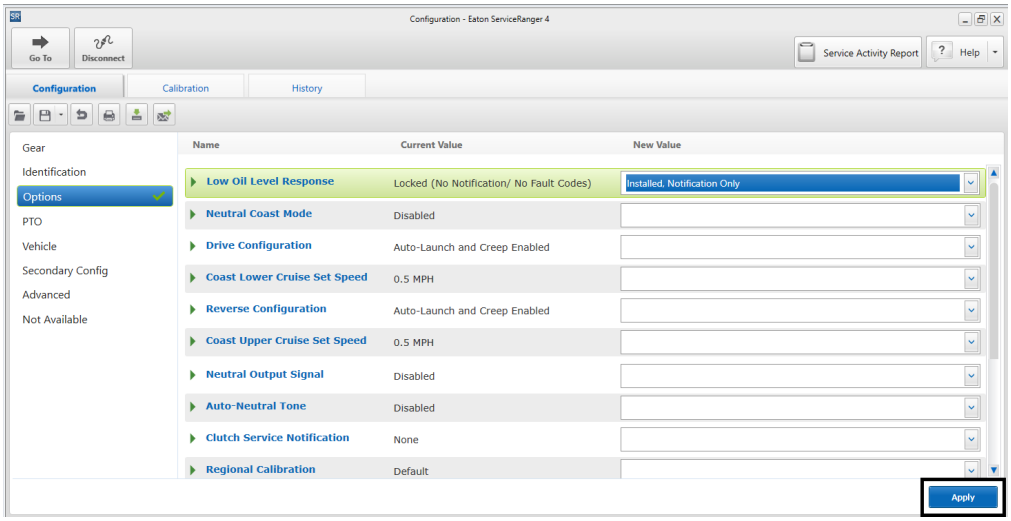
1. Key on.
2. Connect ServiceRanger.
3. Go To “Configuration”.
4. Select “Options”.



5. From the “Low Oil Level Response” New Value drop down:
   a. Select “Installed, Notification Only”.



6. Select “Apply” and follow on-screen prompts.



7. Disconnect ServiceRanger.
8. Key off.
9. Perform Oil Level Inspection Procedure - TRSM0950.

Warranty Information:

Warranty Parts:

- No parts required, software configuration change only.

Warranty Labor:

- Diagnostics (OEM SRT up to 1.0 hour)

Note: Repairing customer/dealer to provide copy of SAR

- Software configuration change (OEM SRT up to 0.5 hour)

Warranty Coverage:

Standard warranty per Model and Vocation as published in the Eaton Cummins Automated Transmission Technologies Warranty Manual ECWY3000 EN-US.

Change Log

Date	Description
05/19/2022	Formatting changes.
05/16/2022	Document created.

The material contained in this bulletin is product improvement information. Eaton Corporation is not committed to, or liable for, canvassing existing products.

FSUD: 4402

TAIB-1001

Mechatronic Transmission Module (MTM) Update

Date: July 1, 2022

Updated: January 8, 2025

Issue Description:

An updated MTM is to be released to production, MTM Type PS-496. Changes include updated solenoids, internal harness, and the addition of an oil temperature sensor. Additionally, remanufactured MTMs were released to be used for all MTM replacements.

Transmission Model	Original MTM Part Number	Original Service Kit Number	New MTM Part Number (Production)	New Service Kit Number
Endurant HD	A-10000715	K-4355 (obsolete) K-4355R (obsolete)	A-10004231(1)	K-4355W(2)
	A-10004202	NA	NA	
Endurant HD (PACCAR)	A-10000715	K-4355-PAC (obsolete) K-4355R-PAC (obsolete)	A-10004231(1)	K-4355W-PAC(2) (E74-1119*)
PACCAR TX-12	A-10002594	K-4356-PAC (obsolete) K-4356R-PAC (obsolete)	A-10004383(1)	K-4356W-PAC(2) (E74-1120*)

(1) PS-496, MTM Type

(2) Kit does not include a Linear Clutch Actuator (LCA), transfer original equipment LCA to replacement MTM - Refer to Endurant HD Parts Book TRPB0950, MTM Kits for additional information.

*PACCAR PN

MTM Part Number	MTM Type
A-10000715	PS-393
A-10002594	
A-10004202	
A-10004231	PS-496
A-10004383	

Affected Models/Population:

- Endurant HD:
  - Navistar, Volvo, DTNA - SOP November 2022
  - Kenworth, Peterbilt - SOP January 2023
- PACCAR TX-12 - SOP January 2023

Field Service Strategy:

Transmission Control Module (TCM) Software:

- Endurant HD
  - TCM software 5516042 or greater is required
  - Navistar, Volvo, DTNA - SOP Q3 2022
  - Kenworth, Peterbilt - SOP Q4 2022
- PACCAR TX-12
  - TCM software 5516045 (2399316) or greater is required

Note: DAVIE4 Toolset Version - 6.10.81 and Content Version - 23.05 is required to update software and change MTM Type.

- Configuration parameter added to TCM software - MTM Type with the following settings:
  - PS-393 (Original)
  - PS-496 (New)
- When TCM software is updated to 5516042 or greater on original equipment units the MTM Type is set to PS-393.

Service Manual (TRSM0950):

- If an original equipment MTM (PS-393) is replaced with an updated MTM (PS-496), the MTM Type configuration must be changed in the TCM with ServiceRanger.
- Updated MTM Service Procedure (Configure MTM Type) includes recording MTM part number, identifying MTM Type, updating software (if necessary) and configuring MTM Type in TCM.
  - Special Instructions section, at the beginning of the procedure, includes a NOTICE for EHD-xxF112C-N transmission models with TCM Software 5516034 to contact Eaton Cummins Automated Transmission Technologies at +1-800-826-4357 for further diagnostic instructions.

Troubleshooting Guide (TRTS0950):

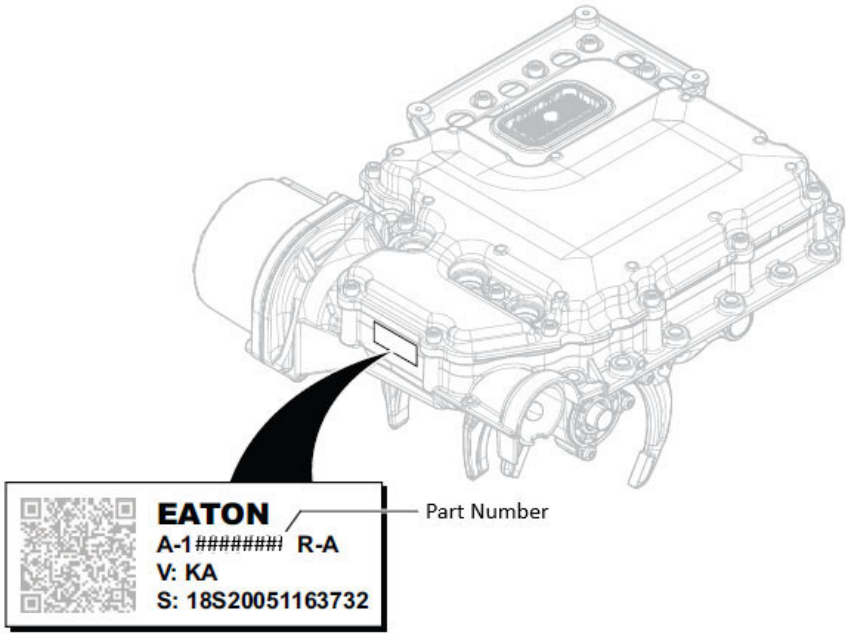
- Updated solenoid and position sensor fault isolation procedures with the following information:
  - Updated 74-Way connector pin locations
  - Updated solenoid resistance values
- Added Fault Code 212 SPN 177 Transmission Oil Temperature.
  - Electrical FMIs only
  - DM53 (Service tool only)
  - No degraded mode

- Updated the following fault codes to support troubleshooting of a mis-configured MTM Type in the TCM:

Fault Code	SPN	FMI	Fault Code Description
200	629	14	TCM Operation 1
275	4219	5	Rail B Position
295	4220	8	Rail C Position
315	5941	8	Rail D Position
320	5942	8	Rail E Position
596	5901	5	Rail B Fore Solenoid (A5)

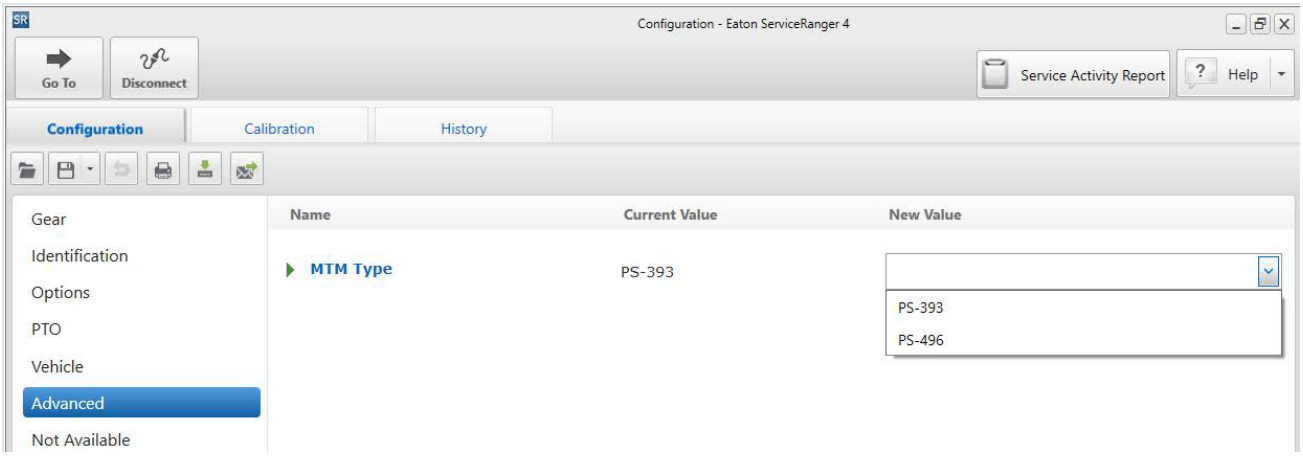
- Procedures include instructions on how to identify MTM Type using MTM part number installed on transmission:

MTM Part Number	MTM Type
A-10000715	PS-393
A-10002594	
A-10004202	
A-10004231	PS-496
A-10004383	



MTM Type Configuration in ServiceRanger:

1. Key on
2. Connect ServiceRanger
3. Go To “Configuration”
4. Select “Advanced”
5. From the New Value dropdown, select MTM Type based on MTM part number.
6. Select “Apply” (lower right) and follow on-screen prompts.



Warranty Information:

- Warranty will cover repairs as part of warrantable repair
- Claim is submitted through normal Warranty channels
- Repairing customer/dealer to provide SAR verifying transmission serial number affected

Warranty Parts:

- MTM and claim associated parts are to be returned per TMIB0129
  - If the transmission model EHD-xxF112C-N and TCM software 5516034, replace TCM*

Warranty Labor:

- Diagnostics (OEM SRT up to 1.0 hour)
- Transmission R&R (OEM SRT or up to 3.4 hours)
- MTM R&R (bench time up to 1.2 hours)
  - *TCM R&R included in MTM R&R
- Software Update and calibration/configuration change (OEM SRT up to 0.3 hour)
  (If required by the software level indicated in the Service Manual)
- Clutch and Rail Calibration after Repair (OEM SRT up to 0.3 hour)
- Test Drive (up to 0.3 hour)

General Claim Coding:

Line Item tab - Repair Line List

- Primary Casual Part #: Code to the failed MTM part number
- Complaint Code: Varies
- Failure Mode Description: Varies per failure
- Responsibility Code:
  - RTW COMMITMENT (601) for RTW claims
  - Varies per failure mode
- Part Return Instructions: Return

RMA Claim Coding:

- RMA PCP#: Code to the returned MTM part number
- PCP Failure Mode: Varies
- RMA SCP#: N/A
- SCP Failure Mode: N/A

Warranty Coverage:

Standard warranty per Model and Vocation as published in the Eaton Cummins Automated Transmission Technologies Warranty Manual ECWY3000 EN-US.

Change Log

Date	Description
01/08/2025	OEM led change in transmission R&R from 4.9 hrs. to 3.4 hrs.
04/12/2024	Removed PS-496 MTM Type service kits.
02/19/2024	Added K-4355W, K-4355W-PAC, K-4356W-PAC
02/14/2024	Obsolete original service kit PNs: K=4355R, K-4355R-PAC, K-4356R-PAC

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FSUD: 4412

TAIB-1003

Updated Service Manual Service Parts and Kits for Clutch, Input Shaft and Transmission Service Units - Endurant HD

Date: September 6, 2022

Updated:

Issue Description:

The Endurant HD service manual (TRSM0950) Service Parts and Kits section has been revised to improve service parts lookup.

Changes include:

- Added Clutch Service Kits look-up table
- Revised Input Shaft and Transmission Service Unit identification tables to include OEM engine compatibility information.

Affected Models/Population:

- Endurant HD

Field Strategy:

Three ways to access the latest Endurant HD Service Parts and Kits information:

A. Link to complete service manual: Endurant HD Transmisison Service Manual TRSM0950.

B. Link to Product Information Library > Service Kits and Parts Index.

C. Eaton Cummins Automated Transmission Technologies website:

1. Navigate to www.eatoncummins.com
2. Select “Products”
3. Select “Transmissions”
4. Scroll down and select “Endurant HD automated transmission”
5. Select “Resources”:
    - Select “Service Manual” document.

    or

    - Select “Service and troubleshooting.....+”
        - Select “Endurant HD Automated Transmission Service Manual”.

Warranty Information:

Information only.

Change Log

Date	Description
09/06/2022	Document created.

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FSUD: 4443

TAIB-1004

Fault Code 760 Rail C Operation or 775 Rail D Operation FMI 15/17

Date: February 3, 2023

Updated: May 07, 2025

Issue Description:

Customers may report intermittently transmission service lamp on while driving and transmission may not shift into Reverse with the following fault codes:

Condition	Fault Code	SPN	FMI	Description
While driving	760	6146	15, 17	Rail C Operation
Shift to reverse	775	6147	15, 17	Rail D Operation

NOTICE: Inspect for a transmission mounted PTO. If transmission is equipped with a PTO, verify proper PTO operation, installation, wiring and configuration in the TCM Fault Code 775 FMI 15, 17 may set Active due to improper PTO operation.

Affected Models/Population:

A4 TCM equipped transmissions:

- Part number 10001705(R)

Endurant HD with TCM software less than or equal to 5516042:

- EEO-xxF112C
- EE-xxF111B
- EHD-xxF112C-N

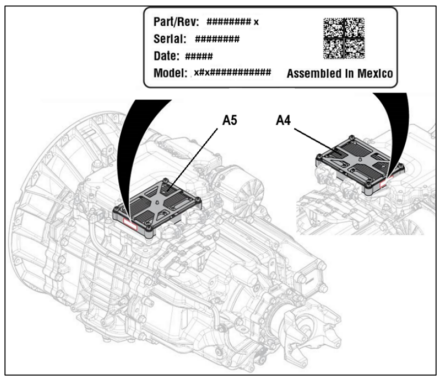
PACCAR TX-12 with TCM software less than 2460355 (R3.5, 5516073):

- PO-xxF112C

Note: If transmission model number is EHD-xxF112C-N with TCM software part number 5516034, contact Eaton Cummins Automated Transmission Technologies for further diagnostic instructions:

- U.S. and Canada Help Line: +1-800-826-4357
- Mexico Help Line: +52-800-800-6801

TCM Identification based part label location or part number:



Field Strategy:

Endurant HD, requires ServiceRanger diagnostic software tool:

Step A: Verify ServiceRanger data release (internet connection required).

1. Locate “SR” icon in system tray, left click icon once (only once) to open ServiceRanger Update Manager.

2. Select the refresh icon in the upper right hand corner to check for updates.

Note: Wait for updates to complete, if necessary.

3. Select “View update history” in lower left corner.

4. Select “Data Update History” tab.

5. Requires data release: 2301-02-SCB-4493 or greater. Go to Step B.

Step B: Verify TCM software part number.

1. Key on with engine off.

2. Connect ServiceRanger.

3. Create a Service Activity Report.

4. Select Send to Eaton (internet connection required).

5. Go To Programming.

6. Record software part number under Software Information - TCM.

- If software part number is less than (<) 5516042, go to Step C.
- If software part number is (=) 5516042, go to Step D.
- If software part number is greater than (>) 5516042, contact Eaton Cummins Automated Transmission Technologies for further diagnostic instructions:
  - U.S. and Canada Help Line: +1-800-826-4357
  - Mexico Help Line: +52-800-800-6801

Step C: Update TCM software.

1. From Available Updates, select SW-23150-P (TCM software 5516072).

2. Select Confirm and follow on-screen prompts. Process complete.

Step D: Verify Calibration.

1. Go To Configuration.

2. Select Calibration tab.

3. Record Current Base Calibration.

4. Refer to Endurant HD and 5516042 Software table below, identify calibration based on OEM, Engine and Transmission Model Number.

- If calibration from table is not applied, in ServiceRanger - locate and select calibration identified on table, select Apply, select Confirm and follow on screen prompts. Process complete.
- If calibration from table is already applied and vehicle came in with software part number 5516042, contact Eaton Cummins Automated Transmission Technologies for further diagnostic instructions:
  - U.S. and Canada Help Line: +1-800-826-4357
  - Mexico Help Line: +52-800-800-6801

Endurant HD and 5516042 Software:

Name - OEM, Engine (Calibration Revision - Part Number)	**Transmission Model**
PACCAR	
PACCAR X15 Cal Rev 33-5542175	EEO-xxF112C
PACCAR X15 2020/1021 Efficiency Series Cal Rev 33-5542176	EE-xxF111B
PACCAR X15 2020/2021 Efficiency Series Cal Rev 33-5542177	EEO-xxF112C
PACCAR X15 2020/2021 X1 Productivity Series Cal Rev 33-5542178	EE-xxF111B
PACCAR X15 2020/2021 X1 Productivity Series Cal Rev 33-5542179	EEO-xxF112C
PACCAR X15 Euro 5 Mexico Cal Rev 33-5542180	EEO-xxF112C
PACCAR X15 Euro 6 Mexico Cal Rev 33-5542181	EEO-xxF112C
Volvo	
Volvo-Mack X15 Cal Rev 33-5542183	EE-xxF111B
Volvo-Mack X15 Cal Rev 33-5542184	EEO-xxF112C
Volvo-Mack X15 2020/2021 Efficiency Series Cal Rev 33-5542185	EE-xxF111B
Volvo-Mack X15 2020/2021 Efficiency Series Cal Rev 33-5542186	EEO-xxF112C
Volvo-Mack X15 2020/2021 X1 Productivity Series Cal Rev 33-5542187	EEO-xxF112C
Freightliner	
Freightliner DD13 Cal Rev 33-5542189	EE-xxF111B
Freightliner DD13 Cal Rev 33-5542190	EEO-xxF112C
Freightliner DD15 2021 Cal Rev 33-5542191	EE-xxF111B
Freightliner DD15 2021 Cal Rev 33-5542192	EEO-xxF112C

Endurant HD and 5516042 Software:

Name - OEM, Engine (Calibration Revision - Part Number)	Transmission Model
Freightliner DD13 2021 Cal Rev 33-5542193	EE-xxF111B
Freightliner DD13 2021 Cal Rev 33-5542194	EEO-xxF112C
Freightliner DD15 Cal Rev 33-5542195	EE-xxF111B
Freightliner DD15 Vocational Cal Rev 33-5542196	EEO-xxF112C
Freightliner X15 2020/2021 Efficiency Series Cal Rev 33-5542197	EE-xxF111B
Frieghtliner X15 2020/2021 Efficiency Series Cal Rev 33-5542198	EEO-xxF112C
Freightliner X15 2020/2021 X1 Productivity Series Cal Rev 33-5542199	EEO-xxF112C
Freightliner X12 Cal Rev 33-5542200	EE-xxF111B
Freightliner X12 Cal Rev 33-5542201	EEO-xxF112C
Freightliner X12 2021 Cal Rev 33-5542202	EE-xxF111B
Freightliner X12 2021 Cal Rev 33-5542203	EEO-xxF112C
Freightliner X12 2021 Productivity Series Cal Rev 33-5542204	EE-xxF111B
Freightliner X12 2021 Productivity Series Cal Rev 33-5542205	EEO-xxF112C
International	
International Motors X15 Cal Rev 33-5542166	EEO-xxF112C
International Motors X15 Cal Rev 33-5542165	EE-xxF111B
International Motors A26 Cal Rev 33-5542164	EEO-xxF112C
International Motors A26 Cal Rev 33-5542163	EE-xxF111B
International Motors X15 2020/2021 X1 Productivity Series Cal Rev 33-5542169	EEO-xxF112C
International Motors X15 Performance Series Cal Rev 33-5542170	EEO-xxF112C
International Motors A26 2021 Linehaul Cal Rev 33-5542172	EEO-xxF112C
International Motors A26 2021 Linehaul Cal Rev 33-5542171	EE-xxF111B
International Motors X15 2020/2021 Efficiency Series Cal Rev 33-5542168	EEO-xxF112C
International Motors X15 2020/2021 Efficiency Series Cal Rev 33-5542167	EE-xxF111B
CNG	
PACCAR X12N Cal Rev 33-5542207	EEO-xxF112C-N
Volvo (and Mack) X12N Cal Rev 33-5542208	EEO-xxF112C-N
Freightliner X12N Cal Rev 33-5542209	EEO-xxF112C-N

Field Strategy:

PACCAR TX-12, per PACCAR, requires DAVIE4 diagnostic software tool:

Step A: Verify TCM software part number.

1. Key on with engine off.

2. Connect DAVIE4.

3. Select Drive Recorders, download VPA and Snapshot.

4. Select Software, Click on I-Plane for TCM.

5. Record TCM software value under 1064 Component Group.

- If software part number is less than (<) 2460355, go to Step B.
- If software part number is (=) 2460355, go to Step C.
- If software part number is greater than (>) 2460355, contact PACCAR AMT Support for further diagnostic instructions:
  - Create case in TCS for Transmission Support.

Step B: Update TCM software:

1. Create TCS Technical Assistance Case Category: Transmission Software Support to have ID Card updated with TCM Software 2460355.

2. Update TCM software to 2460355.

Step C: Verify Calibration.

1. Go To Software Tab.

2. Click on I-Plane for TCM.

3. Record value for 1038 Component Group.

4. Refer to PACCAR TX-12 and 2460355 Software table below, identify calibration based on OEM, Engine and Transmission Model Number.

- If calibration from table is not applied, Create TCS Technical Assistance Case Category: Transmission Software Support. Process complete.
- If calibration from table is already applied and vehicle came in with software part number 2460355, contact PACCAR AMT Support for further diagnostic instructions:
  - Create case in TCS for Transmission Support.

PACCAR TX-12 and 2460355 (R3.5, 5516073) Software:

Name - OEM, Engine (Calibration Revision - Part Number)	OEM Part Number	Transmission Model
PACCAR MX11 Cal Rev 02-5544004	2465830	PO-xxF112C
PACCAR MX13 Cal Rev 02-5544005	2465831	PO-xxF112C
PACCAR MX11 2021 Cal Rev 02-5544006	2465832	PO-xxF112C
PACCAR MX13 2021 Cal Rev 02-5544007	2465833	PO-xxF112C
PACCAR MX11 2023-2024 Cal Rev 02-5544008	2465834	PO-xxF112C
PACCAR MX13 2023-2024 Cal Rev 02-5544009	2465835	PO-xxF112C
PACCAR PX9 2024 Cal Rev 02-5544010	2465836	PO-xxF112C

Warranty Information:

- Claim is submitted through normal Warranty channels
- Repairing customer / dealer to provide Service Activity Report verifying VIN, transmission serial number and fault codes.

Warranty Parts:
No Parts

Warranty Labor:

- Diagnostics (OEM SRT up to 0.7 hour)
- Only one of the following applies:
  - Software update - Step C (OEM SRT up to 0.3 hour)
  - Calibration / Configuration update - Step D (OEM SRT up to 0.3 hour)
- Road test (OEM SRT up to 0.3 hour)

Warranty Coverage:
Standard warranty per Model and Vocation as published in the Eaton Cummins Automated Transmission Technologies Warranty Manual ECWY3000 EN-US

Change Log

Date	Description
05/07/2025	Updated Issue Description section to include PTO information.
02/17/2025	Added International calibrations to HD table.
01/02/2025	Updated Field Strategy to include PACCAR TX-12 DAVIE4 instructions.
08/21/2024	Add FC760 FMI 15/17. Updated Field Strategy, Step B, included information from Procedure C and removed Procedure C.

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FSUD: 4488

TAIB-1006

MTM Solenoid Fault Codes and Vehicle Air System Contamination

Date: April 6, 2023

Updated: May 21, 2025

Issue Description:

Customers are reporting transmission service lamp on with one or more solenoid valve fault codes. During fault code isolation troubleshooting procedure no fault may be found and leads to Mechatronic Transmission Module (MTM) replacement.

During the MTM warranty return inspection process, engineering identified contamination in the MTM housing air inlet, passages, and internal components, and determined the source of contamination is from the vehicle air system.

MTM air passages and internal components contaminated by the vehicle air system results in sticking Rail Solenoid valves causing incomplete shifts and setting Active Rail Solenoid fault codes.

Fault Codes associated with vehicle air system contamination:

Fault Code	SPN	Description	FMI
596	5901	Rail B Fore Solenoid (A5)	7, 17, 31
597*	5909	Rail B Aft Solenoid (A1)	7*, 17*, 31
616	5902	Rail C Fore Solenoid (C1)	7, 14, 15, 17, 31
617**	5910	Rail C Aft Solenoid (B1)	7, 14**, 15, 17, 31
636	5903	Rail D Fore Solenoid (C2)	7, 14, 15, 17, 31
637	4216	Rail D Aft Solenoid (B3)	7, 14, 15, 17, 31
740	6145	Rail B Operation	7, 16, 17

* If Endurant XD or PACCAR TX-18 and Fault Code 597 SPN 5909 FMI 7 or 17 is set, contact Eaton Cummins Automated Transmission Technologies help line for further diagnostic instructions:

- US and Canada: +1-800-826-4357
- Mexico: +52-800-800-6801

**If Endurant HD or PACCAR TX-12 and Fault Code 617 SPN 5910 FMI 14 is set, go to troubleshooting guide TRTS0950 Fault Code 617 Fault Code Isolation Procedure.

CAUTION: Before removing the MTM, create a Service Activity Report (SAR) and select “Send to Eaton” (internet connection required) and ensure one or more Fault Code (table above) is present. If no associated Fault Code is present, this document does not apply. Filing a claim without an associated Fault Code present or without an SAR will result in a rejected warranty claim.

Containment/Corrective Action:

Effective immediately, MTM's with solenoid valve fault codes (table above) with amber contamination, moisture, and / or carbon particulates from the vehicle air system found in the MTM inlet screen will be considered non-warrantable.

If an MTM inlet does not show contamination but has a suspected vehicle air system contamination fault code, warranty determination is pending and will be confirmed upon the return and inspection of the MTM.

Note: Do not remove the MTM Cover.

Refer to Vehicle Maintenance Recommendations regarding transmission vehicle air system requirements to ensure proper air supply and air quality to the transmission.

Affected Models/Population:

- Endurant HD
- PACCAR TX-12
- Endurant XD / XD PRO
- PACCAR TX-18 / TX-18 PRO

Field Strategy:

1. Key on engine off.

2. Connect ServiceRanger.

3. Create a Service Activity Report (SAR).

4. Select "Send to Eaton".

5. Record the transmission fault codes, FMI's, occurrences, and timestamps.

6. Compare SAR fault codes with fault codes in table - Issue Description:

    - If one or more SAR fault codes are in the table, go to Step 7.
        - If Endurant HD or PACCAR TX-12 and Fault Code 617 FMI 14 is set, go to troubleshooting guide TRTS0950 Fault Code 617 Isolation Procedure.
        - If Endurant XD or PACCAR TX-18 and Fault Code 597 FMI 7 or 17 is set, contact help line for further diagnostic instructions.
    - If other transmission related fault codes are set, go to TRTS0950 - Fault Code Isolation Procedure Index.

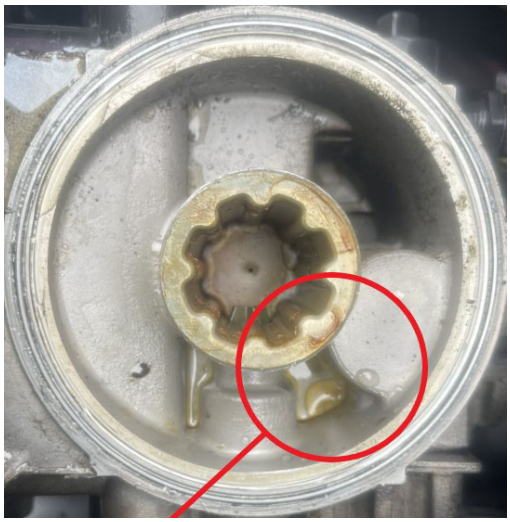
7. Refer to OEM and/or air system manufacturer guidelines and remove vehicle air system Air Dryer Cartridge.

8. Inspect and record condition of the cartridge and mounting surface for oil and/or debris and compare to Air Dryer Cartridge images below.

    - If no contamination is found, record findings in the warranty claim, go to Step 9.
    - If contamination is found, record findings in the warranty claim, go to Step 9.

Air Dryer Cartridge:
Contamination Indicated:

Air Dryer Cartridge (continued):
No Contamination Indicated:



Note: Moisture (Water) droplets found on the cartridge base is normal.

9. Refer to OEM guidelines and remove the vehicle air supply line at the MTM.

10. Inspect vehicle air supply line and MTM air inlet port for contamination and compare MTM Air Inlet Port images below.

- If no contamination is found at the MTM air inlet, recommend MTM replacement. Warranty determination is pending and will be confirmed upon the return and inspection of the MTM.
- If contamination* is found, recommend MTM replacement - Non-Warrantable Repair.

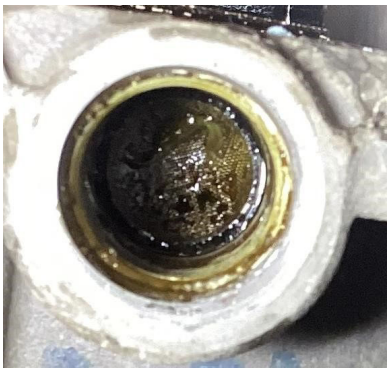
Note: Do not remove the MTM Cover.

NOTICE: *Eaton Cummins Automated Transmission Technologies recommends inspection and repair of the vehicle air system to correct the source of contamination. Refer to OEM and/or vehicle air system manufacturer maintenance guidelines to ensure proper air system operation, i.e. drain water from air tanks, replace air system filters and cartridges. Refer to Vehicle Maintenance Recommendations in transmission service manual.

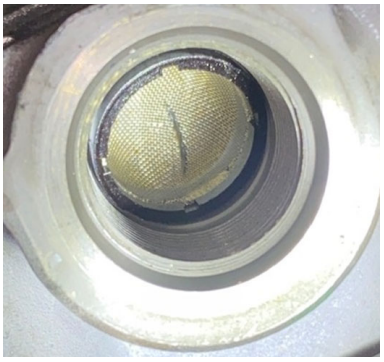
MTM Air Inlet Port:

Vehicle air system contamination Indicated:

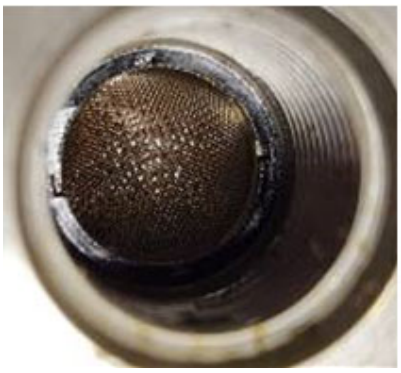
Amber Contamination and Moisture



Amber Contamination



Moisture / Rust



Carbon Particles

No contamination Indicated:

45 months in service

New

Warranty Information:

Contamination from the vehicle's air supply is not a warrantable repair and is considered secondary damage. Warranty covers defects in materials and/or workmanship. Reference Eaton Cummins Automated Transmission Technologies Warranty Manual ECWY3000.

- Claim is submitted through normal Warranty channels.
- Repairing customer / dealer to provide SAR verifying VIN, transmission serial number and fault codes.

CAUTION: Before performing service on the MTM, create a Service Activity Report (SAR) and select "Send to Eaton" (internet connection required) and ensure at least one of the associated Fault Codes are present. If no associated Fault Code is present, this document does not apply. Filing a claim without an associated Fault Code present or without an SAR will result in a rejected warranty claim.

Warranty Parts:

• If vehicle air system contamination is present - Non-Warrantable Repair.

- Refer to OEM and repair/maintain vehicle air system
- Recommend replacement of MTM
- Refer to Vehicle Maintenance Recommendations

• If the MTM inlet does not show contamination but has a suspected vehicle air system contamination fault code, warranty determination is pending and will be confirmed upon the return and inspection of the MTM.

Warranty Labor (ECWY3000):

If **no** vehicle air system contamination is present:

- Diagnostics (Up to 1.0 hour)
- Air Dryer Inspection (Remove Cartridge / Up to 0.5 hour)
- Transmission R&R (Up to 3.4 hours)
- MTM R&R (Up to 1.2 hours)
- Software Update and calibration/configuration (Up to 0.3 hour) *
  - *If required by the software level indicated in the Service Manual
- Test Drive (Up to 0.3 hour)

Warrantable (Pending Inspection) General Claim Coding:

Line Item tab - Repair Line List

- Primary Casual Part # Use MTM Assembly Number
- Secondary Casual Part #: N/A
- Complaint Code: Varies
- Failure Mode Description: ROOT CAUSE UNDER INVESTIGATION - SUPPLIER (TFM-0517)
- Responsibility Code:
  - RTW COMMITMENT (601) for RTW claims
  - Unknown (417) for all others

Non-Warrantable General Claim Coding:

- Line Item tab - Repair Line List
  - Primary Casual Part # INTERFACE
  - Secondary Casual Part #: N/A
  - Complaint Code: Varies
  - Failure Mode Description: AIR SUPPLY CONTAMINATION (TFM-0043)
  - Responsibility Code: Rejected Claim (414)

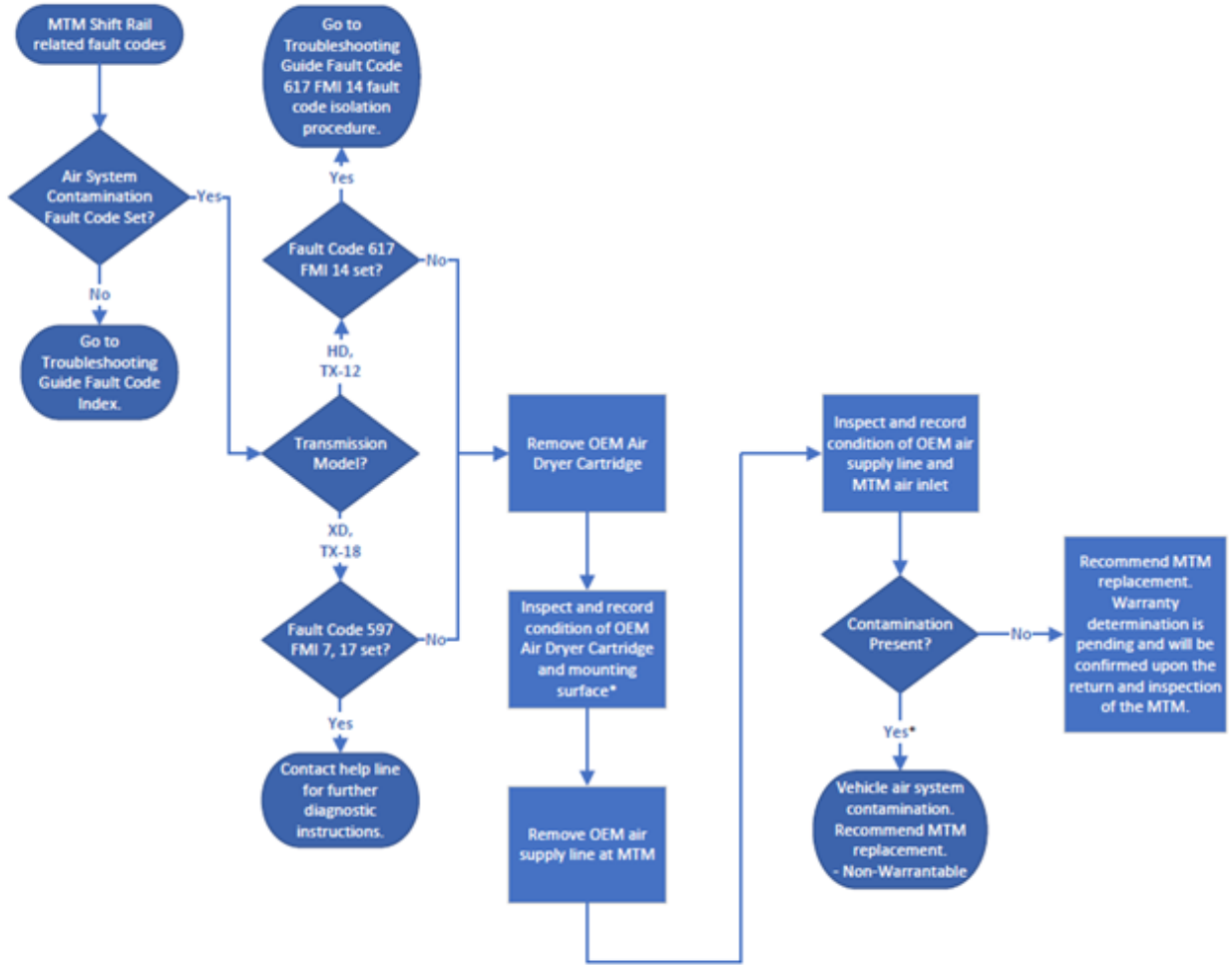
Part Return Instructions:

Return all parts per Eaton Cummins Automated Transmission Technologies Warranty Manual ECWY3000

Warranty Coverage:

Reference Eaton Cummins Automated Transmission Technologies Warranty Manual ECWY3000.

TAIB-1006 Process Flow



***NOTICE:** Eaton Cummins Automated Transmission Technologies recommends inspection and repair of the vehicle air system to correct the source of contamination. Refer to OEM and/or vehicle air system manufacturer maintenance guidelines to ensure proper air system operation, i.e., drain water from air tanks, replace air system filters and cartridges.

Change Log

Date	Description
05/21/2025	Updated Issue Description, Containment Corrective Action, Field Strategy, Warranty Sections and Process Flow.
05/09/2025	Updated Field Strategy. Updated process flow.
03/03/2025	Aligned SRT's with ECWY3000.
02/04/2025	Removed Clutch and Rail Calibration after Repair (OEM SRT up to 0.3 hour)
02/03/2025	Updated Process Flow to review transmission snapshot data. Added Appendix.
01/08/2025	OEM led change in transmission R&R from 4.9 hrs. to 3.4 hrs.
09/25/2024	Added not under fault code table for FC 597.
03/18/2024	Further clarification for step 12.
03/05/2024	Added additional caution under fault codes. Added images for normal valve exhaust.
10/16/2023	Updated Field Strategy section contamination inspection process, Inertia Brake component replacement decisions with black substance contamination and Warranty Parts section.
09/18/2023	Added reference to TAIB-0994 to field strategy. Added Endurant XD / XD-PRO and PACCAR TX-18 / TX-18-PRO to the affected population. Added statement that moisture (water) droplets found within the air dryer base is normal.
09/11/2023	Updated non-warrantable and warrantable images. Updated Step 14, 15 and related caution.
08/21/2023	Moved air cartridge inspection before MTM air inlet inspection. Added images and identified as non-warrantable/warrantable. Updated Warranty Information section.
06/26/2023	Added FMI 7 and 17 to fault code table, restructured contamination criteria, added contaminated air dryer pictures, and added air dryer inspection time.

The material contained in this bulletin is product improvement information. Eaton Corporation is not committed to, or liable for, canvassing existing products.

FSUD: 4512

TAIB-1007

Transmission Service Units and MTM Aftermarket Parts - Endurant HD

Date: April 19, 2023

Updated: July 10, 2023

Issue Description:

To support aftermarket parts supply, additional Endurant HD transmission service units and Mechatronic Transmission Modules (MTMs) have been released for service parts.

- Transmission Service Units (minus MTM) - Aftermarket Parts

- Model: EEO-xxF112C / Service Unit PN: TN-H04-75RR
  - Input Shaft PN: A-10001529 (10001336); Based on a TN-H04-12R
  - Hard Lock Bearing Design
  - Equipped with a Dual PTO Rear Housing - 4 Bolt PTO Cover
  - Serial Number (SN): ZJ####### (“J” Added) / ZR####### (“R” Added).

CAUTION: TN-H04-75RR service units with Serial Numbers starting with ZJ and ZR do not support Dual PTO (4 Bolt) operation. If a 4 Bolt PTO is installed, it may result in transmission component and/or PTO damage.

Note: For Dual PTO compatible service units, refer to TRPB0950 Service Kits and Parts Index.

- MTMs - Aftermarket Parts

- MTM Type: PS-393
  - Includes High Pre-Load LCA: A-10004457
  - PN: A-10004202
- Service Kit PN: K-4614R

Affected Models / Population:

Endurant HD

Field Strategy:

Transmission Service Units and MTMs are to be placed in the Aftermarket Parts supply network and available to fulfill orders as needed.

- Transmission Service Units: Refer to Endurant HD Service Manual TRSM0950 Transmission Service Unit, Reman or Complete, Part Number Identification to ensure the TN-H04-75RR (based on TN-H04-12R) is compatible to the vehicle application.

CAUTION: Ensure to install the correct service unit based on the current input shaft installed in your transmission and OEM - Engine. Failure to install the correct service unit may result in engine and/or transmission component damage.

Note: To request a Transmission Service Unit TN-H04-75RR, contact Eaton Cummins Automated Transmission Technologies at +1-800-826-4357.

- MTMs: Available through regular channels. Refer to TRSM0950 MTM Service Procedure to properly install MTM. After completing MTM Service Procedure and Transmission Installation, complete Configure MTM Type and Perform Transmission Service Routines.

Warranty Information:

Information only.

Change Log

Date	Description
07/10/2023	Addition of ZR####### Service Transmissions.

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FSUD: 4518

TAIB-1008

Transmission Control Module (TCM) Software Does Not Notify the Driver of a Low Oil Level Condition

Date: May 16, 2023

Updated: February 10, 2025

Issue Description:

During a transmission low lubrication pressure event, older TCM software does not set a fault code, activate the transmission service light, or display a fault message indicating a low lubrication pressure event occurred. This may lead to internal transmission damage due to insufficient lubrication.

Note: For units with the Oil Level Response configuration set to “Notification with Derate (Downshifts only)”, regardless of the software level, the TCM sets the fault code and notifies the driver of a low lubrication pressure event.

Containment/Corrective Action:

New TCM software was released to Production and Service in February 2024 at all OEMs.

Affected Models:

Eaton Cummins Endurant HD, XD

- EEO-xxF112C
- EE-xxF111B
- EHD-xxF112C-N
- EXD-xxF118D
- EXDP-xxF118D

PACCAR TX-12, TX-18

- PO-xxF112C
- P-xxF111B
- PXD-xxF118D
- PXDP-xxF118D

Suspect Population:

Endurant HD, HD-N, XD
All vehicles with the following TCM software versions:

- Endurant A4 TCM software version less than 5516072
- Endurant A5 TCM software version less than 5516372

PACCAR TX-12, TX-18
All vehicles with the following TCM software versions:

- PACCAR A4 TCM software version less than 5516071
- PACCAR A5 TCM software version less than 5516371

Field Strategy:
If the vehicle is in for service and the transmission has experienced internal damage because of a suspected low oil condition, contact Eaton Cummins Automated Transmission Technologies at +1-800-826-4357 for warranty coverage consideration.

Warranty Information:
Not Applicable - Information Only

Change Log

Date	Description
02/10/2025	Updated Issue Description and Suspect Population.
03/13/2024	Updated Field Strategy
10/16/2023	Changed Warranty Labor time allowed from 1hr to o.3 hrs for SAR retrieval when only software configuration change is performed. Published OEM SRT for obtaining SAR is 0.3 hrs. Ref. ECWY3000.
05/16/2023	Document created.

The material contained in this bulletin is product improvement information. Eaton Corporation is not committed to, or liable for, canvassing existing products.

FSUD: 4524

TAIB-1010

Single PTO Transmission Service Units built with Dual (4-Bolt) PTO Rear Housings

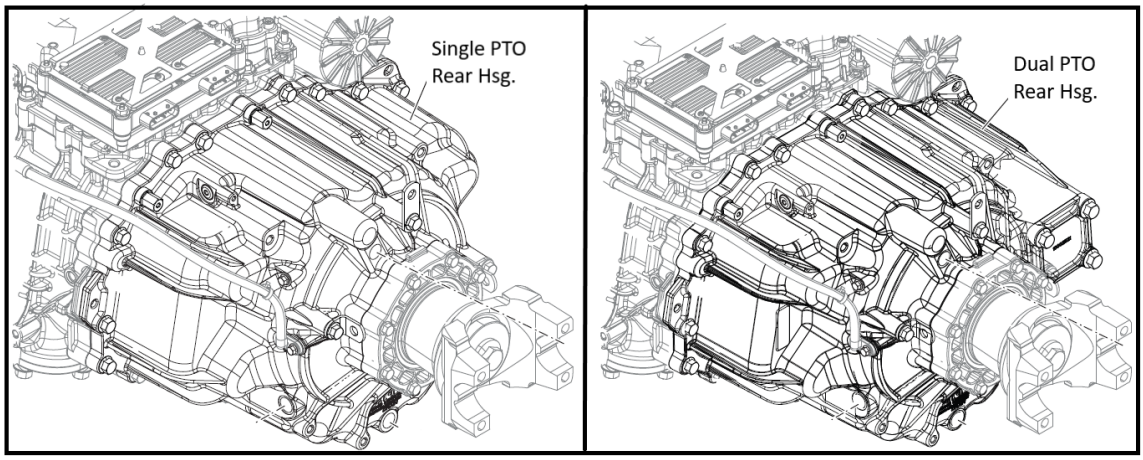
Date: January 16, 2024

Updated:

Issue Description:

Some Single PTO transmission service units are built with Dual (4-Bolt) PTO Rear Housings. These units are based on a Single PTO model and do not include the internal components to support 4-Bolt PTO operation. If a 4-Bolt PTO is installed, PTO and/or transmission component damage will occur.

Single PTO and Dual (4-Bolt) PTO Rear Housing identification:



Affected Models/Population:

Endurant HD Single PTO Transmission Service Units:

Transmission Model	TN Number - Part Number	Serial Number Prefix
EEO-18F112C	TN-H04-75RR	PR
		RR
		ZJ
		ZR
	TN-H04-12R	RU

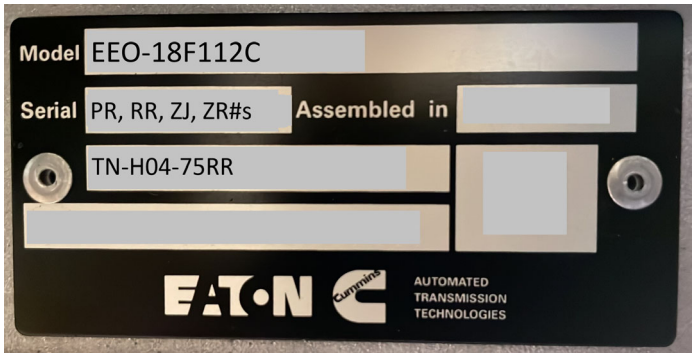
Field Strategy:

Refer to TRSM0950 Transmission Service Unit, Reman or Complete, Part Number Identification to determine the correct Single PTO or Dual PTO transmission service unit part number.

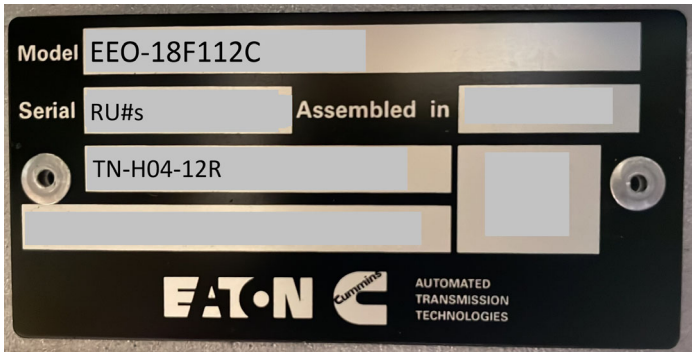
Locate transmission tag on clutch housing and record TN#. If the transmission tag indicates TN-H04-75RR or TN-H04-12R and the rear housing is equipped with a 4-Bolt PTO opening, do not install a 4-Bolt PTO.

CAUTION: Do not install a 4-Bolt PTO on to a TN-H04-75RR or TN-H04-12R Single PTO transmission service unit equipped with a Dual (4-Bolt) Rear Housing. These service units do not include the internal components to support 4-Bolt PTO operation. If a 4-Bolt PTO is installed, PTO and/or transmission component damage will occur.

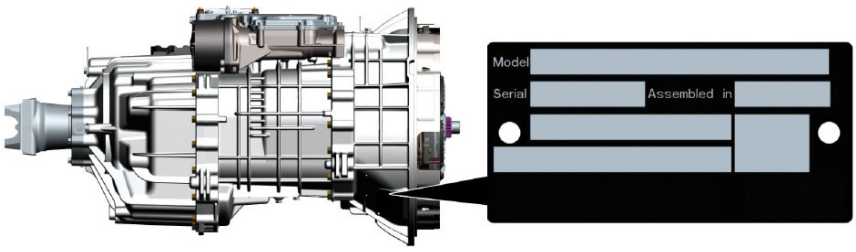
TN-H04-75RR transmission tag example:



TN-H04-12R transmission tag example:



Transmission tag location:



Warranty Information:

Warranty coverage is not provided for component damage resulting from installing a 4-Bolt PTO on a TN-H04-12R or TN-H04-75RR, Single PTO transmission service unit equipped with a Dual PTO Rear Housing.

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FSUD: 4593

TAIB-1011

TCM Recovery Procedure

Date: March 4, 2024

Updated: March 19, 2024

Issue Description:

This procedure is designed to recover a Transmission Control Module (TCM) that became inoperative due to an interruption during a software update. When ServiceRanger is connected the following prompt is displayed:

Containment/Corrective Action:

In most cases, an inoperable TCM is caused by an interruption during a software update. The following conditions are required to ensure an uninterrupted successful TCM software update:

- Vehicle batteries are properly charged.
  - If equipped, do no activate the Low Voltage Disconnect (LVD).
- Limit activity on the vehicle data link.
  - Close vehicle cab doors.
  - Disable any telematic systems.
- Do not turn off the computer performing the software programming.
- Maintain secure connections: USB connection between computer and communication adapter (No Wi-Fi or Bluetooth®), and communication adapter and vehicle diagnostic connector.
- Timely execution of all on-screen prompts: Key switch cycles and “OK” button prompts.

Affected Models:

- Endurant HD
- Endurant XD

Field Strategy:

If the TCM became inoperable due to an interruption during the software update and the “Recover ECU” prompt is indicated, perform the following procedure.

A. Verify ServiceRanger Version

1. Open ServiceRanger (vehicle connection not required).

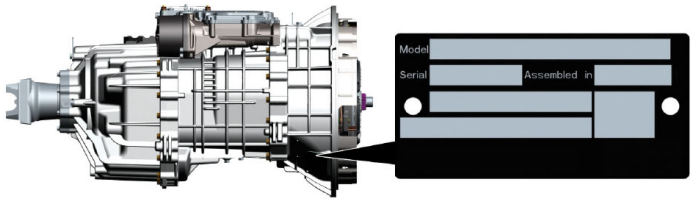
2. Go To “Settings”.

3. Select “License”.

- If version is 4.11.1206 or greater, go to Step B.
- If version is less than 4.11.1206, refer to RRMT0041 and update to latest version. Go to Step B.

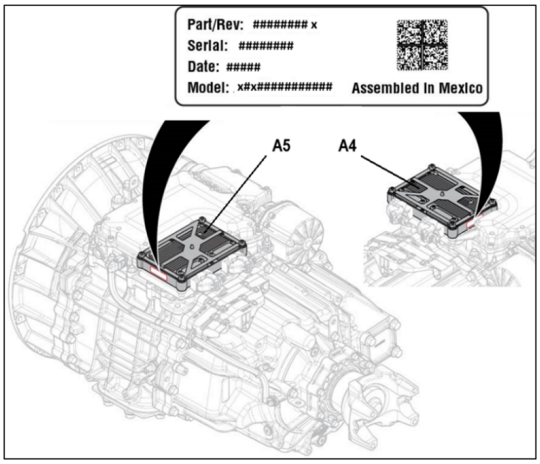
B. Locate and record the following information prior to recovering the TCM:

1. Transmission Model Number



2. Locate TCM Part Label on TCM housing and determine TCM Type.

- If no part label present on the out-board side, TCM Type is A4.
- If part label present on the out-board side, TCM Type is A5.

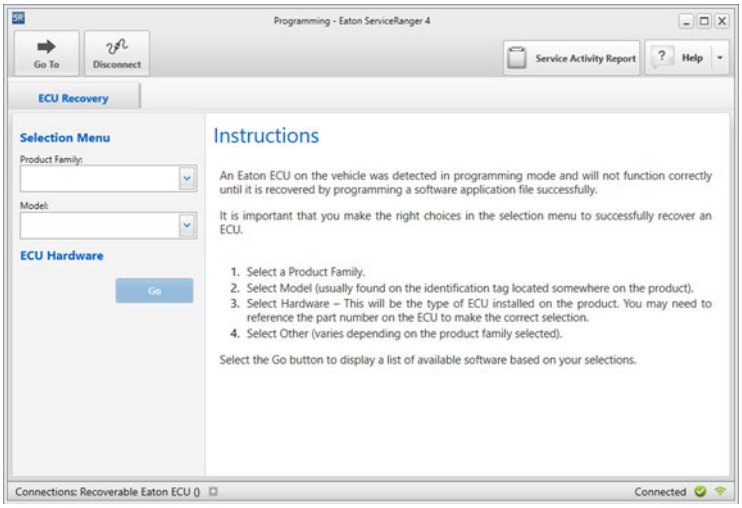


TCM Type	Part / Rev
A4	10001705
A5	10003852

C. Go to Recover ECU.

Recover ECU:

1. Key on with engine off.
2. Connect ServiceRanger.
3. Select “Recover ECU”, go to Step 4.

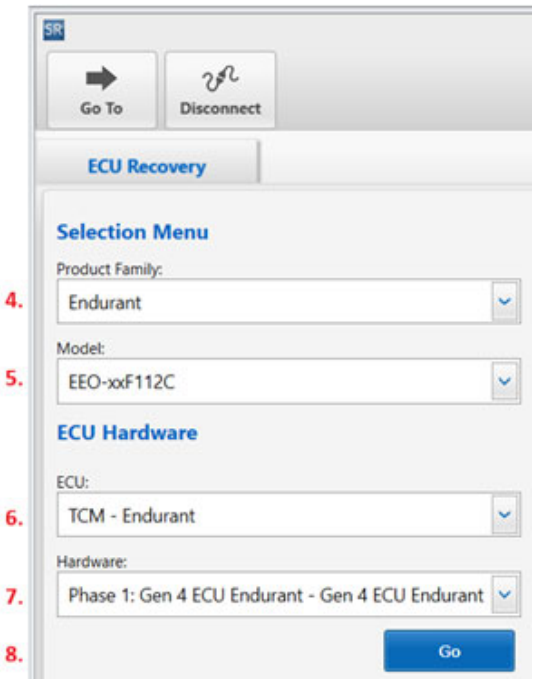


Note: Transmission Model and TCM Type recorded at the beginning of this procedure are required for Steps 5 and 7.

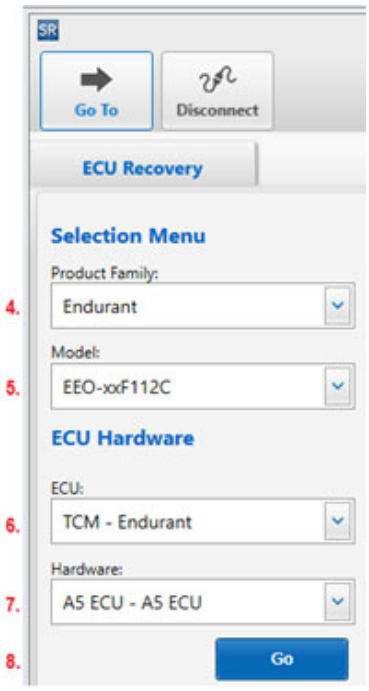
4. From Product Family dropdown, select “Endurant”.
5. From Model dropdown, select transmission model (example EEO-xxF112C).
6. From ECU dropdown, select “TCM - Endurant”.

7. From Hardware dropdown, based on TCM Type, select:
    - A4 TCM Type: “Phase 1: Gen 4 ECU Endurant”
    - A5 TCM Type: “A5 ECU - A5 ECU”
8. Select “Go”.
    - If A4 TCM Type, go to Step 9.
    - If A5 TCM Type, go to Step 11.

A4 - TCM Type:



A5 - TCM Type:



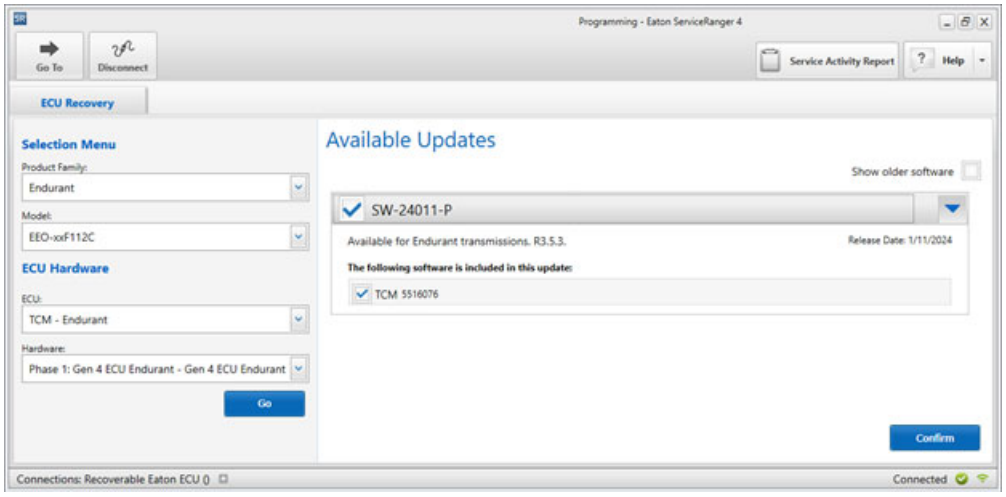
A4 TCM Type:

9. Select “SW-24011-P” from the Available Updates.

- If SW-24011-P is not indicated, select “Show older software”.

Note: This option downloads TCM software version 5516076.

10. Select “Confirm”. Go to Step 13.



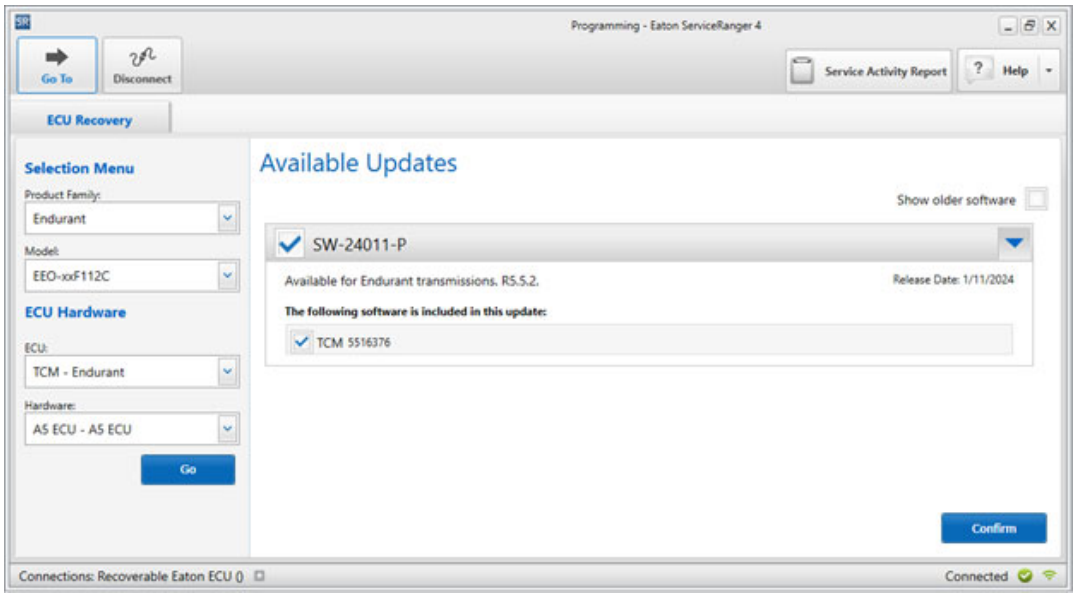
A5 TCM Type:

11. Select “SW-24011-P” from the Available Updates.

- If SW-24011-P is not indicated, select “Show older software”.

Note: This option downloads software version 5516376.

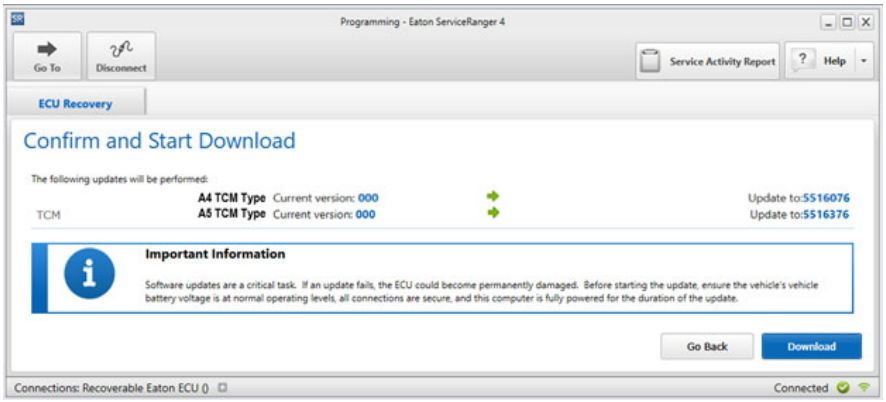
12. Select “Confirm”. Go to Step 13.



NOTICE: The following conditions are required to ensure an uninterrupted successful TCM software update:

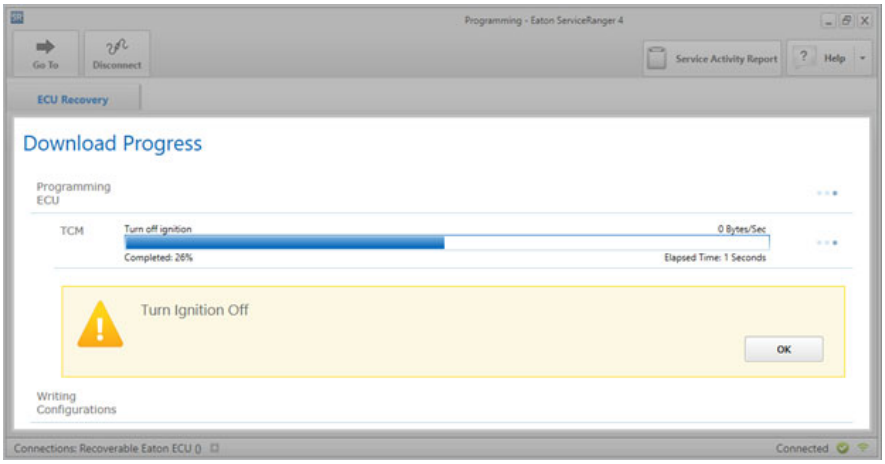
- Vehicle batteries are properly charged.
  - If equipped, do not activate the Low Voltage Disconnect (LVD).
- Limit activity on the vehicle data link.
  - Close vehicle cab doors.
  - Disable any telematic systems.
- Do not turn off the computer performing the software programming.
- Maintain secure connections: USB connection between computer and communication adapter (No Wi-Fi or Bluetooth®), and communication adapter and vehicle diagnostic connector.
- Timely execution of all on-screen prompts: Key switch cycles and “OK” button prompts.

13. Select “Download” and follow on-screen prompts.

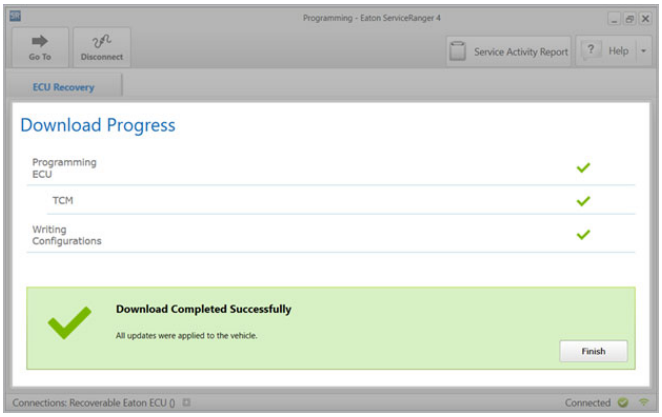


14. When “Turn Ignition Off” prompt is indicated, key off and wait one minute.

15. After waiting one minute, select “OK” and follow on-screen prompts.



16. Confirm “Download Completed Successfully” prompt appears:
    - If “Download Completed Successfully”, go to Step 17.
    - If “Download Failed”, contact Eaton Cummins Automated Transmission Technologies for further diagnostic instructions.
        - U.S. and Canada Help Line: +1-800-826-4357
        - Mexico Help Line: +52-800-800-6801



17. Select “Finish”.

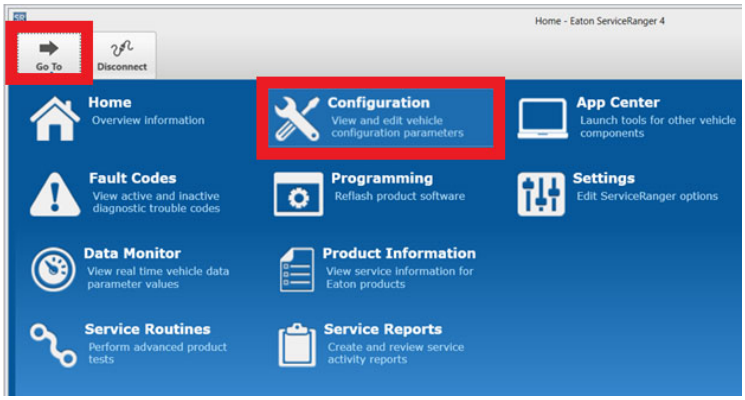
Note: ServiceRanger automatically disconnects and reconnects to TCM.

18. Go to Verify Engine Calibration.

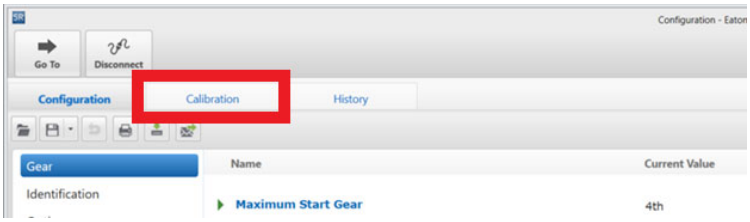
Note: In some cases, the engine may not crank due to the engine calibration not configured in the TCM. The engine calibration is specific to the vehicle make/OEM, engine model, and engine EPA model year.

Verify Engine Calibration:

1. Go To “Configuration”.

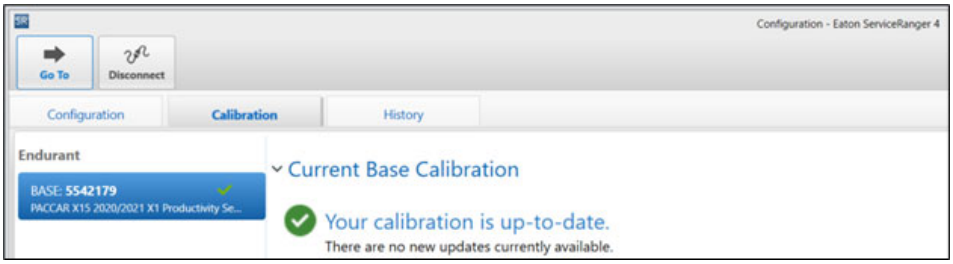


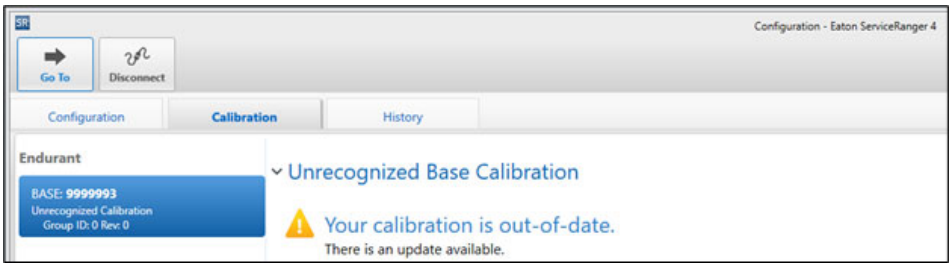
2. Select “Calibration” tab.



3. Record status of Base Calibration:

- If “Your calibration is up-to-date”, go to Check for Active Fault Codes.
- If “Your calibration is out-of-date”, contact Eaton Cummins Automated Transmission Technologies for further diagnostic instructions:
  - U.S. and Canada Help Line: +1-800-826-4357
  - Mexico Help Line: +52-800-800-6801





Check for Active Fault Codes:

1. Key off and wait 1 minute.
2. After waiting 1 minute, key on with engine off.
3. Go To “Fault Codes”.
    - If an Active fault code is set, go to respective troubleshooting procedure.
        - Endurant HD Troubleshooting Guide TRTS0950
        - Endurant XD Troubleshooting Guide TRTS0960
    - If no Active fault code set, select “Clear Eaton Faults” and follow on-screen prompts.
4. Disconnect ServiceRanger.
5. Key off.
6. Process complete.

Warranty Information:

Warranty is not provided for performing the TCM Recovery Procedure.

Warranty Labor:

No labor

Warranty Parts:

No parts

The material contained in this bulletin is product improvement information. Eaton Corporation is not committed to, or liable for, canvassing existing products.

FSUD: 4611

TAIB-1012

Service Activity Report Required for ALL Automated Transmissions and Advantage Automated Series and Advantage Automated ECA Clutch Warranty

Date: March 25, 2024

Updated:

Issue Description:

Eaton Corporation (Eaton) and Eaton Cummins Automated Transmission Technologies (Eaton Cummins) continues to have a focus on improving out warranty adjudication process. As our products become more integrated, we need to leverage data to ensure that the root cause is identified, and the failure is verified for warranty claims. In situations where the failure is not obvious or has the appearance of another failure, having the Service Activity Report (SAR) data available for the Call Center and warranty adjudication processes are a key element to getting the vehicle repaired and warranty claim processed while driving corrective actions implementation in a timely fashion.

Current Process:

Review the failure Automated Transmission or Clutch product and determine from the failed components or Service Activity Report (SAR) data (if available from the ServiceRanger tool).

Revised Process:

Eaton Corporation and Eaton Cummins Automated Transmission Technologies are deploying the Service Activity Report requirement (via ServiceRanger) within the Snapshot (data analysis tool inside the SAR) to assist in identifying root cause of a failure. This data must be sent to using the ServiceRanger or Davie service tools.

Starting April 1, 2024, Eaton and Eaton Cummins will require a Service Activity Report (SAR) to be captured and electronically sent by the Eaton ServiceRanger or Davie tools for warranty claims adjudication on the following transmission and clutch families.

Affected Models/Population:

- Automated Transmission Families
  - Endurant Transmission Family
  - UltraShift PLUS Family
  - Fuller Automated Advantage Family
- Clutch Families
  - Advantage Automated series clutch (for the Eaton Cummins Endurant Transmission Family)
  - Advantage Automated ECA Clutch (for the UltraShift PLUS and Fuller Automated Advantage Families)
  - UltraShift DM Clutch

Contact:

Scott Wurtsbaugh

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FSUD: 4601

TAIB-1014

Transmission Harsh Shifts and Grinding Noise due to Main Drive Gear - Endurant HD, PACCAR TX-12

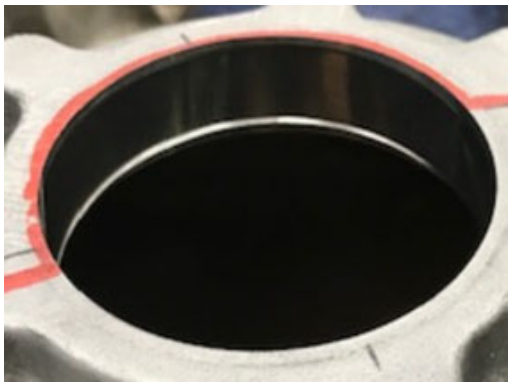
Date: June 03, 2024

Updated: March 3, 2025

Issue Description:

Customer may report harsh shifts and transmission grind noise due to broken main drive gear teeth. Countershaft bearings may prematurely wear into bearing bores resulting in countershafts moving away from the main shaft causing gear teeth tip loading on the main drive gear and mating countershaft gears.

Countershaft Bearing Bore Wear (Clutch Housing / Main Housing):



Broken main drive gear teeth:

Affected Models/Population:

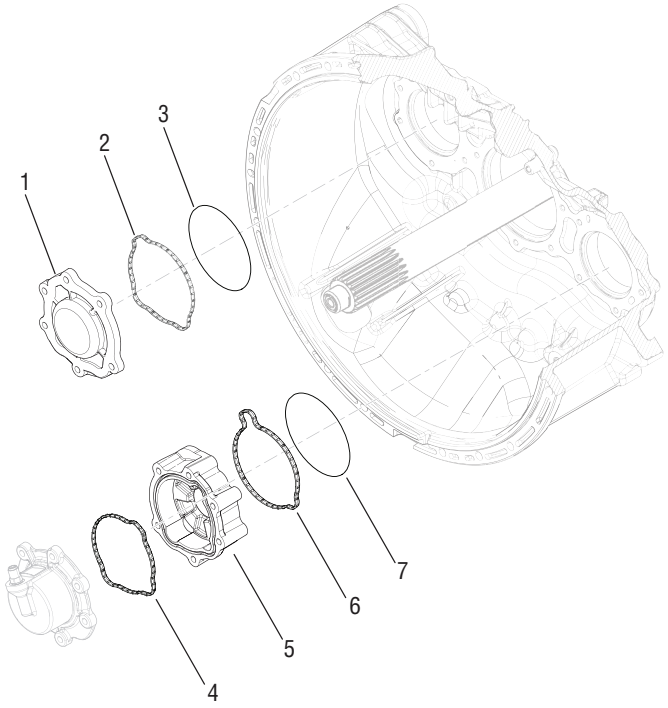
- Endurant HD
  - EEO-xxF112C
  - EEO-xxF112C-N
- PACCAR TX-12
  - PO-xxF112C

Containment/Corrective Action:

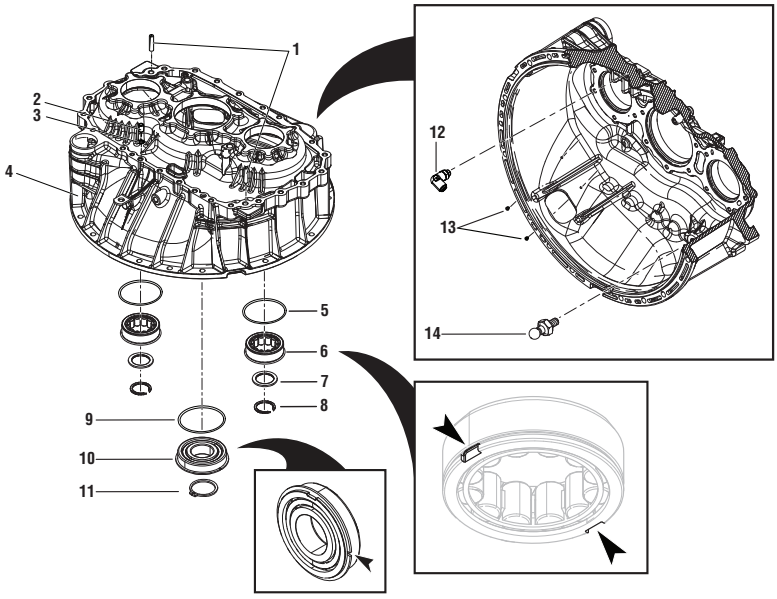
Interim and Permanent Correction Action (ICA and PCA):

- Before correction actions:
  - Transmission start of production thru Serial Number Z0076112
- ICA 1
  - Serial Number Z0076113 thru Z0182048
  - O-rings added to aft side of countershaft bearings (Clutch Housing and Main Housing).
- ICA 2*
  - Serial Number Z0182049 thru Z0279833
  - O-rings added to fore side of countershaft bearings.
  - Upper Countershaft cover change (Item 1 changed to accept Item 3 additional O-ring) and Inertia Brake Housing change (Item 5 changed to accept Item 7 additional O-ring).
- PCA**
  - Serial Number Z0278934 and beyond
  - Added Hard Lock Design to Clutch Housing, Countershaft and Input Shaft bearings and covers, and Oil Pump.

ICA 2*



PCA**



K-4653 (Hard Lock Bearing Design)

	Description	P/N	QTY			Description	P/N	QTY
1	Main Housing to Clutch Housing Dowel Pins	5575522	2		8	Counter Shaft Snap Ring	4302082	2
2	I-Brake Main Housing to Clutch Housing Dowel	10001181	1		9	Input Shaft Bearing O-ring*	10003862	1
3	I-Brake Main Housing to Clutch Housing O-ring	13834	1		10	Input Shaft Ball Bearing (NSS)*	10004584	1
4	Clutch Housing Assembly*	S-3250	1		11	Input Shaft Snap Ring	10000624	1
5	Countershaft Bearing O-ring*	5568511	2		12	Inertia Brake Air Line Fitting*	10001240	1
6	Countershaft Bearing*	10000649	2		13	Serial Tag Rivets (NSS) (1/8x5/16)	X-13-229	2
7	Lower and Upper Counter-shaft Flat Washer	10001532	2		14	Release Yoke Pivot Pin	10001949	1

* Part of Clutch Housing Assembly, S-3250

Note: The Main Shaft End-Play procedure is required if the Clutch Housing is replaced. One of three Main Shaft Selective Washers are required to adjust end-play, Part Numbers: 10000555, 10001759, 10001760.

Note: K-4653's built before June 15th, 2023, were manufactured with non hard-lock Input Shaft Bearing (10000552).

Note: Use A-10004579 Inertia Brake Housing and A-10004580 Upper Countershaft Cover (also found in K-4654) when using K-4653.

Note: Use A-10004581 Input Shaft Cover (Also found in K-4657) when using K-4653.

Field Strategy:

If the Main Drive Gear has broken gear teeth (Must Have Picture Verification):

- Option 1 - Contact Eaton Cummins for a no charge Reman Service Unit.

- Option 2 - If dealer cannot accept a no charge service unit, dealer to repair transmission. Minimum parts required:

  - Clutch Housing Kit - Hard Lock Design
    - K-4653 / K-4653-PAC
  - Clutch housing Countershaft Bearing Kit - Hard Lock Design
    - K-4652 / K-4652-PAC
  - Counterhshaft Cover Kit - Hard Lock Design
    - K-4654 / K-4654-PAC (Upper Cover and Inertia Brake Housing)
  - Input Shaft Cover Kit - Hard Lock Design
    - K-4657 / K-4657-PAC
  - Oil Pump Kit - Hard Lock Design (one based on PTO configuration)
    - Single PTO - A-10004577
    - Dual PTO - A-10004583

    NOTICE: Main Housing is not to be replaced.

Note: Replace with Reman Service Unit if the cost of parts and labor exceeds $12,500. Contact Eaton Cummins to document decision in warranty claim.

CAUTION: Ensure to install the correct service unit based on the current input shaft installed in your transmission and OEM - Engine. Failure to install the correct service unit may result in engine and/or transmission component damage.

Warranty Information:

No Charge Service Unit - Transmission Replacement

- Warranty Parts

- No charge Reman Service Unit TN-H04-xxR

- Warranty Labor (ECWY3000)

- Diagnostics (Up to 1 hour)
- Transmission R&R (Up to 3.4 hours)
- MTM R&R (Up to 1.2 hours)
- Transmission Parts Swap (Up to 1 hour)
  - Release Bearing
  - Release Yoke
  - Output Yoke
  - Output Speed Sensor
  - LCA
  - Fluid Pressure Sensor
- Road Test (Up to 0.3 hour)

Transmission Repair - Overhaul

- Warranty Parts

- Clutch Housing Kit - Hard Lock Design
  - K-4653 / K-4653-PAC
- Clutch Housing Countershaft Bearing Kit - Hard Lock Design
  - K-4652 / K-4652-PAC
- Countershaft Cover Kit - Hard Lock Design
  - K-4654 / K-4654-PAC (Upper Cover and Inertia Brake Housing)
- Input Shaft Cover Kit - Hard Lock Design
  - K-4657 / K-4657-PAC
- Oil Pump Kit - Hard Lock Design
  - Single PTO - A-10004577
  - Dual PTO - A-10004583

Note: Additional warranty parts may be required based on failure.

or

- Reman Service unit TN-H04-xxR based on cost analysis recorded in warranty claim***.

- Warranty Labor (ECWY3000) Transmission Repair - Overhaul:

  - Diagnostics (Up to 1 hour)
  - Transmission R&R (Up to 3.4 hours)
  - Additional Labor based on repair strategy:
    - Transmission Overhaul (Up to 5.2 hours) Includes MTM R&R
    - Complete Overhaul (Up to 8.1 hours) Includes MTM and Rear Housing R&R
  - Road test 0.3 hour

or

- Warranty Labor (ECWY3000) ***Transmission Replacement:

  - Diagnostics (Up to 1 hour)
  - Transmission R&R (Up to 3.4 hours)
  - MTM R&R (Up to 1.2 hours)
  - Transmission Parts Swap (Up to 1 hour)
    - Release Bearing
    - Release Yoke
    - Output Yoke
    - Output Speed Sensor
    - LCA
    - Fluid Pressure Sensor
  - Road Test (Up to 0.3 hour)

  Note: Only one of the above will apply.

General Claim Coding

Line Item Tab - Repair Line List

- Primary Casual Part #: 10000694 HOUSING - CLUTCH
- Secondary Casual Part #: N/A
- Complaint Code: Varies
- Failure Mode Description: CLUTCH HOUSING COUNTERSHAFT BEARING BORE WEAR (TFM-0321)
- Responsibility Code:
  - RTW COMMITMENT (601) for RTW claims
  - DESIGN (402) for all others
- Part Return Instructions: Per OEM or RTW Instructions

RMA Claim Coding

- RMA PCP#: 10000694 HOUSING - CLUTCH
- PCP Failure Mode: CLUTCH HOUSING COUNTRERSHAFT BEARING BORE WEAR (TFM-0321)
- RMA SCP#: N/A
- SCP Failure Mode: N/A

Warranty Coverage:

Warranty will not cover proactive repairs.

Standard warranty per Model and Vocation as published in the Eaton Cummins Automated Transmission Technologies Warranty Manual ECWY3000.

Change Log

Date	Description
03/03/2025	Aligned SRT's with ECWY3000.
02/19/2025	Removed clutch and rail calibration warranty labor.
09/03/2024	Added reference to warranty manual ECWY3000 under Warranty Coverage.
06/07/2024	Updated Issue Description, Affected Models, Containment Correction Action, Field Strategy and Warranty Information.
06/03/2024	Document created.

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FSUD: 4197

TAIB-1015

Fault Code 215 FMI 0, 1, 2, 18 Transmission Air Supply Pressure Sensor - Endurant HD, XD, PACCAR TX-12, TX-18

Date: August 8, 2024

Updated: March 11, 2025

Issue Description:

Customers may report transmission service lamp on with Fault Code 215: Transmission Air Supply Pressure Sensor (TASPS), SPN 37, with FMI 0, 1, 2, 18

Affected Models/Population:

- Transmissions equipped with MTM Type PS-490 and PS-496:

Transmission Model	MTM PN	MTM Type
Endurant HD	A-10004231, A-10004356	PS-496
PACCAR TX-12	A-10004383	PS-496
Endurant XD / Pro	A-10003241	PS-490
PACCAR TX-18 / Pro	A-10004258	PS-490

- MTM Serial Number less than:
  - 12S24052173658 - HD/TX-12
  - 18S24053082751 - XD/TX-18

Field Strategy:

Procedure A:

Create a Service Activity Report

1. Key on.
2. Connect ServiceRanger.
3. Create a Service Activity Report.
4. Select Send to Eaton (internet connection required).
5. Go to Procedure B.
    a. Identify MTM information with ServiceRanger or MTM Parts Label.

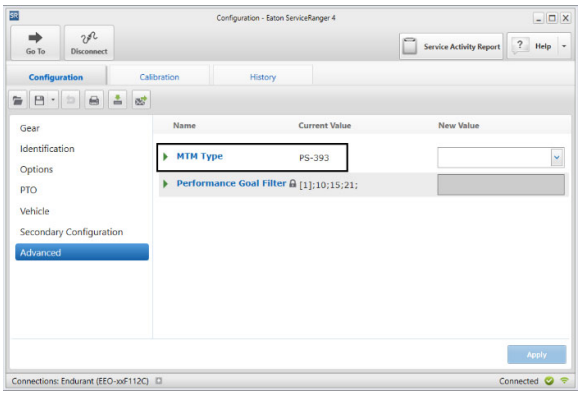
Procedure B:

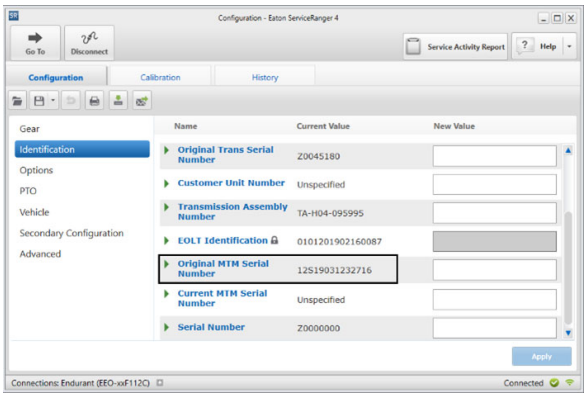
Identify MTM Type and MTM Serial Number with ServiceRanger:

1. Select “Configuration”.
2. Select “Advanced” and record MTM Type - Current Value:

MTM Type	Action
PS-393	This service bulletin does not apply. Go to the respective transmission model troubleshooting guide and complete Fault Code Isolation Procedure: Endurant HD, TRTS0950 or Endurant XD, TRTS0960.
PS-490	Go to Step 3.
PS-496	

3. Select “Identification” and record Original MTM Serial Number - Current Value (based on transmission 12S=HD/TX-12, 18S=XD/TX-18):
    - If greater than or equal to 12S25035064558, 18S25036075335, this service bulletin does not apply. Go to the respective transmission model troubleshooting guide and complete Fault Code Isolation Procedure: Endurant HD, TRTS0950 or Endurant XD, TRTS0960.
    - If less than 12S25035064558, 18S25036075335, go to Procedure C.





or

Identify MTM Type and MTM Serial Number with MTM Parts Label:

1. Record MTM Part Number and Serial Number.

2. MTM Part Number:

MTM Part Number	MTM Type	Action
A-10000715	PS-393	This service bulletin does not apply. Go to the respective transmission model troubleshooting guide and complete Fault Code Isolation Procedure: Endurant HD, TRTS0950 or Endurant XD, TRTS0960.
A-10004202		
A-10002594		
A-10004231	PS-496	Go to Step 3.
A-10004356		
A-10004383		
A-10003241	PS-490	
A-10004258		

3. MTM Serial Number (based on transmission 12S=HD/TX-12, 18S=XD/TX-18):

- If greater than or equal to 12S25035064558, 18S25036075335, this service bulletin does not apply. Go to the respective transmission model troubleshooting guide and complete Fault Code Isolation Procedure: Endurant HD, TRTS0950 or Endurant XD, TRTS0960.
- If less than 12S25035064558, 18S25036075335, go to Procedure C.

Procedure C:

Special Instructions:

- TASPS replacement can be performed with transmission in-chassis
- Drain vehicle air system / tanks and MTM air supply line to MTM prior to performing procedure

Special Tools:

- Transmission service manual Endurant HD, TRSM0950 or Endurant XD, TRSM0960
- T45 Torx standard drive bit
- 24mm thinned walled deep socket
  - Socket width (OD) not to exceed 30.5mm
  - Socket internal depth min 50mm, deep socket required to prevent sensor connector damage
- Torque Wrench, Nm (lb.-in)
- Black Permanent Marker

Parts List:

Part Description	Part Number	Qty
TASPS (Sensor)	10005053	1
MTM Cover Seal*	10005055	1
MTM Cover Cap Screw*	10005056-MP4	4-Pack
Output Yoke Retainer Bolt**	10000949	1

* Only required if damaged or lost during repair.

** Only required if additional access clearance is required for in-chassis repairs.

Prepare vehicle work area:

1. Key off.
2. Set vehicle parking brake and chock wheels.
3. Drain vehicle air system / tanks and MTM air supply line.

CAUTION: Drain vehicle air system / tanks and MTM air supply line prior to removing TASPS. Failure to drain vehicle air system may result in component damage and/or personal injury.

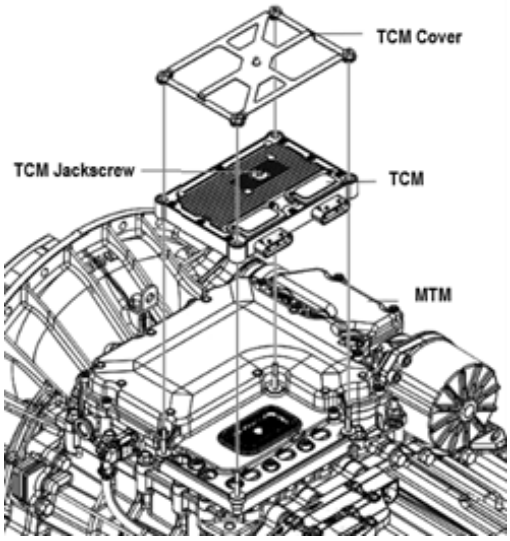
4. Clean work area and MTM surfaces with shop air to ensure no debris enters MTM system during procedure. Go to Procedure D.

CAUTION: Ensure work area and MTM is free of debris. Failure to clean work area may result in component damage due to debris entering the MTM system.

CAUTION: Follow all recommended service literature instructions. Failure to follow all instructions may result in component damage and/or personal injury.

Procedure D:

Remove Transmission Control Module (TCM). Go to respective transmission model service manual: Endurant HD TRSM0950, TCM or Endurant XD TRSM0960, TCM.



1. Unscrew 4 TCM Cover nuts (10 or 13 mm) and remove TCM Cover.
2. Unscrew TCM 7 mm Jackscrew. Lift and remove TCM from MTM.

   NOTICE: Do not allow contamination into connectors on TCM or MTM.
3. Inspect TCM Seal for damage. Go to Procedure E.

   NOTICE: Replace TCM Seal if damaged.

Note: If additional access clearance is required for transmission in-chassis repair, remove Output Yoke. Go to respective transmission model service manual: Endurant HD TRSM0950, Output Yoke or XD TRSM0960, Output Yoke.

Procedure E:

Remove MTM Cover

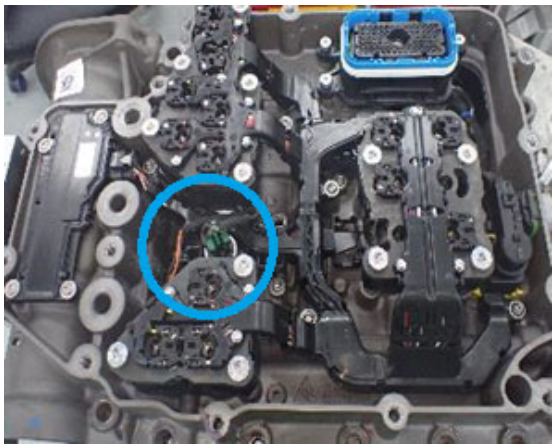
1. Remove 16 MTM Cover to MTM Housing T45 cap screws.

2. Remove MTM Cover.

   NOTICE: Do not allow contamination into MTM.

3. Inspect MTM Cover O-ring, press in place seal, for damage.
   a. If no damage, go to Step 4.
   b. If damaged, replace MTM or O-ring if available.

4. Locate the TASPS.



5. Inspect 3-Way TASPS Connector, confirm connector is properly seated and latched.
   a. If connector is properly seated and latched, go to Step 6.
   b. If connector is not properly seated or latched, record findings and go to Step 6.

6. Inspect 3-Way TASPS Connector wires, confirm wires are not damaged and terminals are properly seated/locked into connector.
   a. If wires are damaged and/or terminals not properly seated/locked into connector, record findings and replace MTM.
   b. If no wire damage and terminals are properly seated/locked in connector, go to Step 7.
7. Carefully disconnect the 3-Way TASPS Connector by moving the retaining clip aside and gently pulling on the connector.

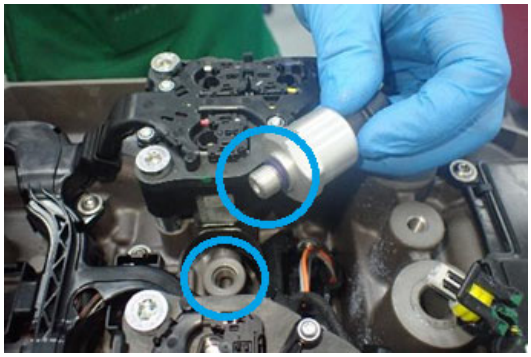
Note: Ensure yellow connector seal and white terminal clip remains on the harness side of 3-Way TASPS connector.

8. Using hand tools, remove TASPS using a 24mm thinned walled deep socket.

   NOTICE: Ensure vehicle air system / tanks and MTM air supply line have been drained.

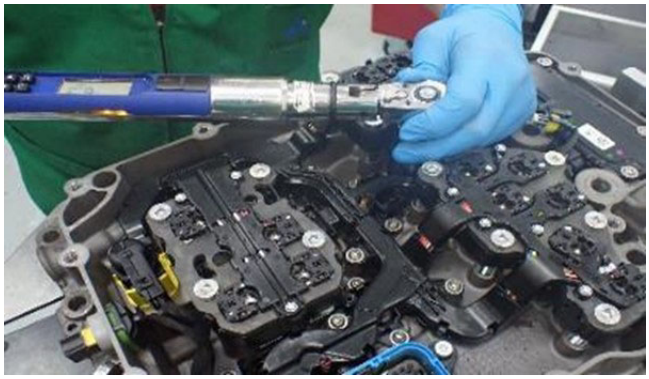
   NOTICE: Do not allow contamination into MTM.

9. Inspect removed TASPS and MTM side of TASPS threaded opening, ensure O-ring came out with sensor and opening is free of debris.



10. Inspect new TASPS and ensure O-ring is installed.
11. Inspect MTM side of TASPS threaded opening and ensure opening is free of debris.

12. Install replacement TASPS and torque to 10 Nm (89 lb.-in).



13. Carefully connect 3-Way TASPS Connector, ensure connector is seated and latched. Go to Procedure F.

Procedure F:

Install MTM Cover

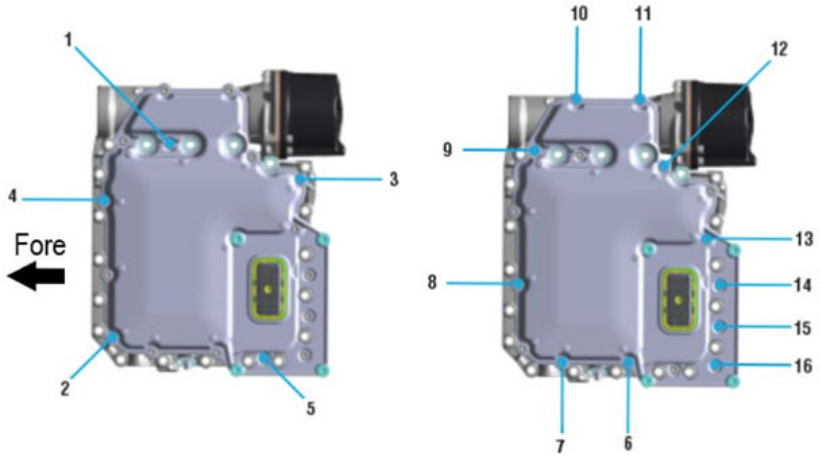
1. Inspect MTM Cover O-ring, press in place seal, ensure O-ring properly seated in groove and wipe clean with a lint free cloth.

   NOTICE: Do not allow contamination into MTM.

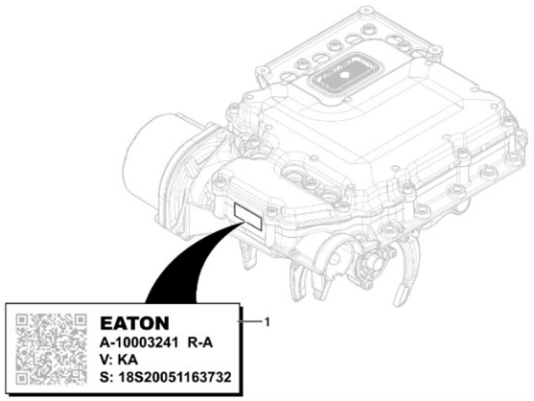
2. Inspect MTM Housing, cover sealing surface, wipe clean with a lint free cloth.
3. Install MTM Cover to MTM Housing.

4. Install 16 MTM Cover to MTM Housing T45 cap screws.
5. Torque MTM Cover cap screws 1 through 5 and 6 through 16 to 23-27 Nm (17-19 ft-lb) as shown in the torque sequence below.

CAUTION: Follow the MTM Cover cap screw torque specification and sequence as shown. Failure to follow torque specification and sequence may cause an improper seal between the cover and housing, resulting in water ingestion.



6. Re-torque MTM Cover cap screws 1 through 16 to 23-27 Nm (17-19 ft-lb) in a crisscross pattern.
7. Locate MTM parts label (1).



8. Using a permanent black marker, place a dot on the MTM parts label as indicated below. Go to Procedure G.

Procedure G:

Install Transmission Control Module (TCM). Go to respective transmission model service manual: Endurant HD TRSM0950, TCM or Endurant XD TRSM0960, TCM.

1. Install TCM Seal on TCM 74-Way Harness Connector.

   NOTICE: Replace TCM Seal if damaged.

   NOTICE: DO not allow contamination into connectors on TCM or MTM.

2. Align TCM to MTM 74-Way Harness Connector and TCM studs, then install TCM.
3. Torque TCM 7mm Jackscrew to 3.0-4.0 Nm (26.6-35.4 lb.-in).
4. Install TCM Cover over 4 TCM studs and torque 4 TCM Cover Nuts to 8.8-10.4 Nm (78-92 lb.-in) in a crisscross pattern. Go to Procedure H.

Note: If sensor was replaced in-chassis and Output Yoke was removed, replace Output Yoke Retainer Bolt. Go to respective transmission model service manual: Endurant HD TRSM0950, Output Yoke or XD TRSM0960, Output Yoke.

Procedure H:

- If sensor was replaced with transmission in-chassis, process complete.
- If sensor was replaced with transmission removed from chassis, Go to respective transmission model service manual: Endurant HD TRSM0950, Transmission or XD TRSM0960, Transmission and complete all steps.

Warranty Information:

Warranty Parts:

- TASPS 10005053

- If necessary:

  - MTM Cover O-ring: 10005055
  - MTM Cover Cap Screws: 10005056-MP4

- If repair in-chassis and additional access is required:

  - Output Yoke Retainer Bolt: 10000949

Warranty Labor (ECWY3000):

- Sensor replaced with transmission in-chassis is required:

  - Diagnostics (Up to 1.0 hour)
  - TASPS R&R (Up to 1.5 hour)
  - Verify Repair Road Test (Up to 0.3 hour)
  - If additional access is required:
    - Output Yoke R&R (Up to 1.0 hour)
    - If equipped, PTO R&R (Up to 1.0 hour)

General Claim Coding

- Line Item tab - Repair Line List

- Primary Casual Part #: 10005053 (SENSOR, AIR PRESSURE)
- Secondary Casual Part #: N/A
- Complaint Code: Varies
- Failure Mode Description: AIR PRESSURE SENSOR-APS-READING INCORRECT PRESSURE (TFM-0530)
- Responsibility Code:
  - RTW COMMITMENT (601) for RTW claims
  - Vendor Part (418) for all others
- Part Return Instructions: Per OEM or RTW Instructions

Change Log

Date	Description
03/11/2025	Updated Field Strategy with new MTM serial numbers.
02/17/2025	Updated Warranty Labor section.
08/08/2024	Updated affected MTM serial numbers and Field Strategy.
08/07/2024	Converted RRMT to Service Bulletin.

The material contained in this bulletin is product improvement information. Eaton Corporation is not committed to, or liable for, canvassing existing products.

FSUD: 4552

TAIB-1016

Endurant Release Bearing A-10004341 (SAE)

Date: June 24, 2024

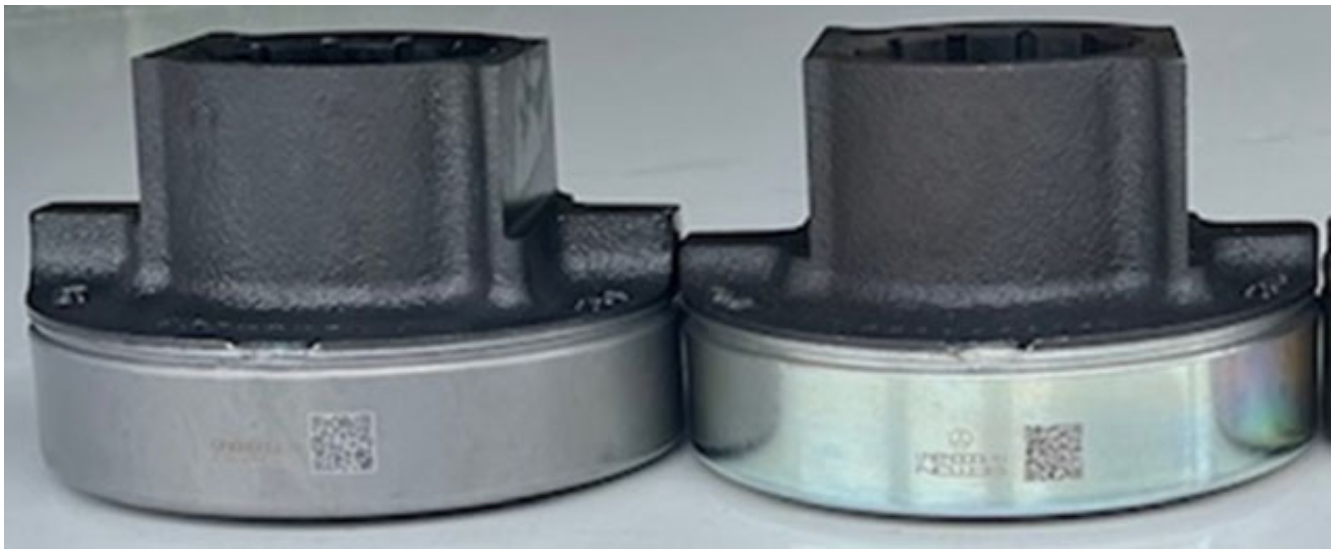
Updated:

Issue Description:

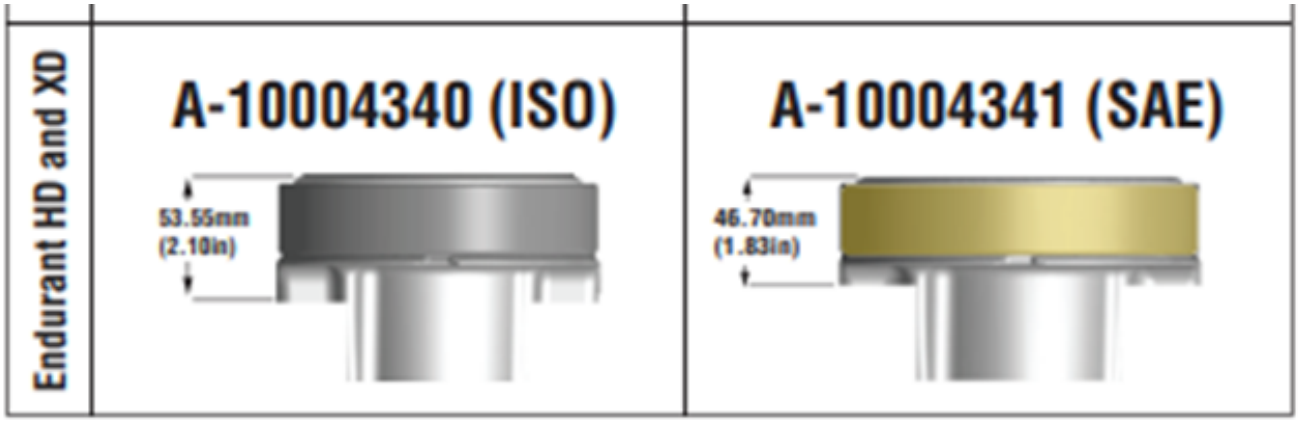
1,960 A-10004341 SAE Release Bearings were produced off color (Not Gold / Zinc Plated).

Customer Photo:

A-10004340 (ISO / Silver) *A-10004341 (SAE / Not Gold / Zinc Plated)*



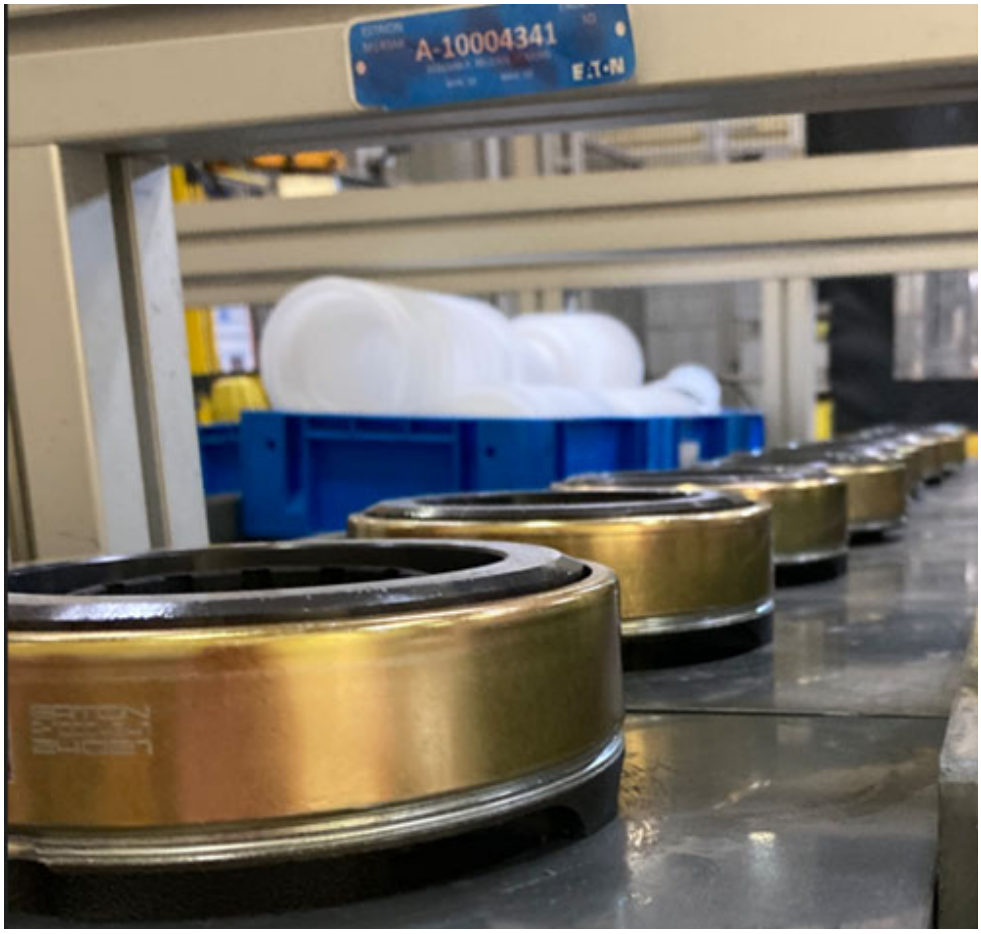
TRSM0950 / TRSM0960:



Containment / Corrective Action:

All A-10004341 SAE release bearings have the proper gold zinc color.

June 4, Eaton Production Line:



Affected Models / Populations:

1,960 A-10004341 SAE Release Bearings were produced off color June 12, 2023 through July 21, 2023 (supplier production Dates).

Field Strategy:

A-10004341's produced off color meet functionality and print specifications.

Warranty Information:

None, information only.

Warranty Parts:

None, information only.

Warranty Labor:

None, information only.

Change Log

Date	Description
06/24/2024	Document published.

The material contained in this bulletin is product improvement information. Eaton Corporation is not committed to, or liable for, canvassing existing products.

FSUD: 4653

TAIB-1018

Engine Won’t Crank and Double Asterisks in Gear Display - Endurant HD

Date: February 3, 2023

Updated: April 02, 2025

Issue Description:

Customers may experience engine won’t crank and double asterisks (**) in gear display. Additionally, ServiceRanger may not connect to the TCM (No Eaton products detected).

Affected Models/Population:

TCM Information:

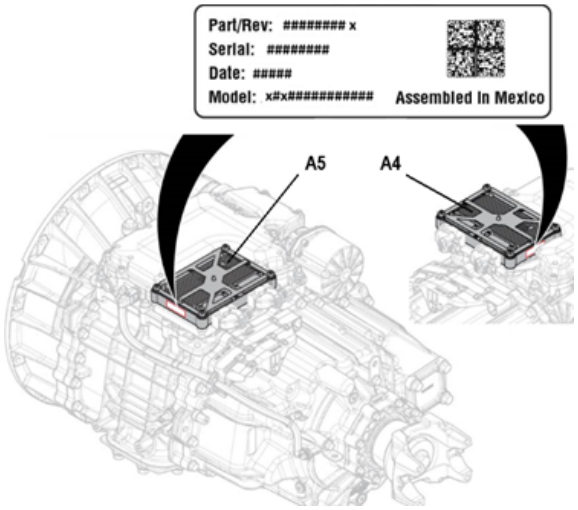
- A4 TCM - Part Number: 10001705 (R)
- TCM Software: 5516076

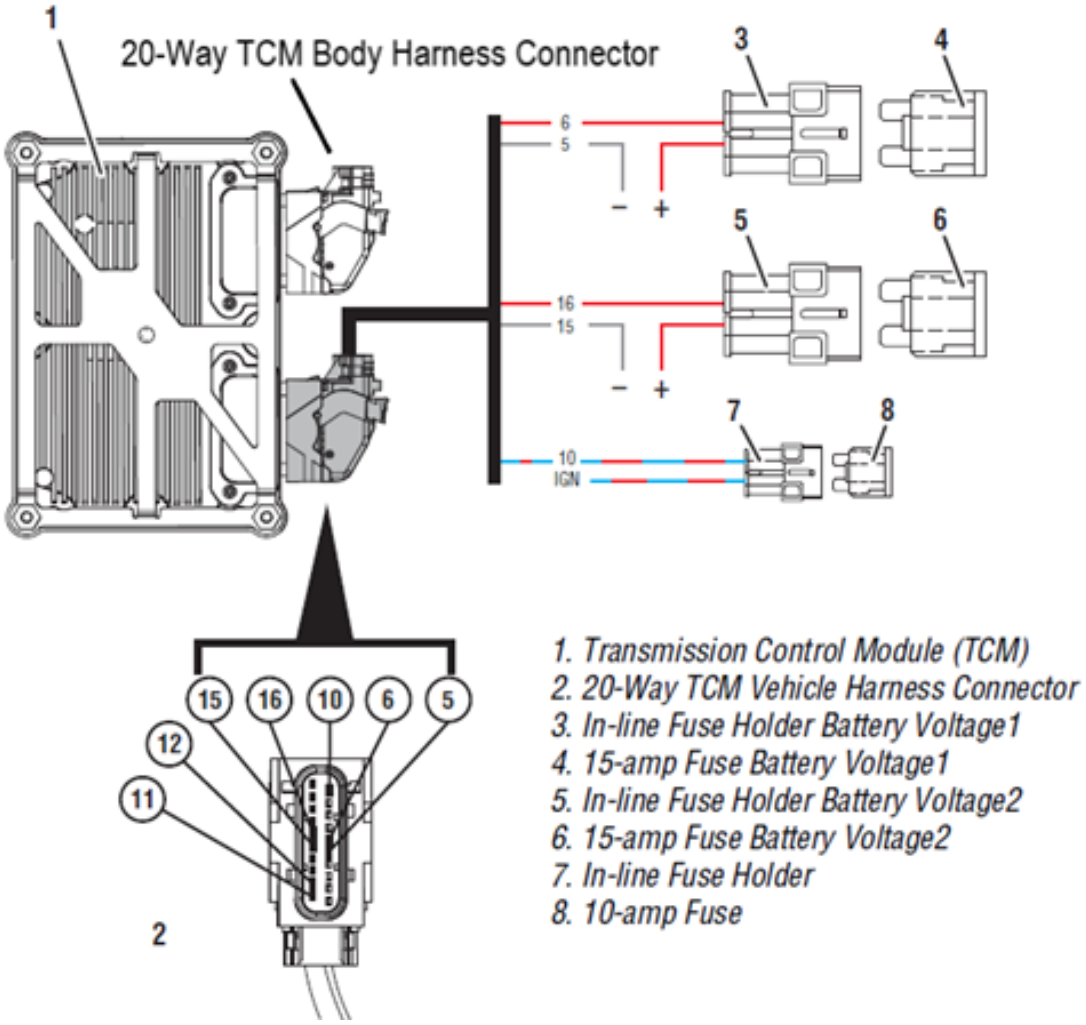
Transmission Models:

- EEO-xxF112C
- EE-xxF111B
- EHD-xxF112C-N

Component Identification:

A4 TCM can be identified by the TCM Part Label - in-board side:





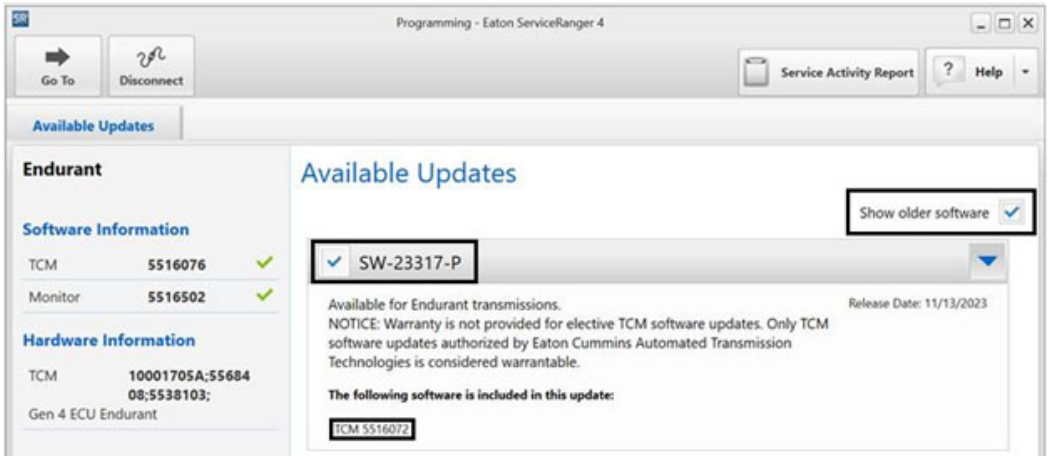
1. Transmission Control Module (TCM)
2. 20-Way TCM Vehicle Harness Connector
3. In-line Fuse Holder Battery Voltage1
4. 15-amp Fuse Battery Voltage1
5. In-line Fuse Holder Battery Voltage2
6. 15-amp Fuse Battery Voltage2
7. In-line Fuse Holder
8. 10-amp Fuse

Field Strategy:

1. Set vehicle parking brake and chock wheels.
2. Key off.
3. Disconnect both 2-Way TCM Vehicle and Body Harness Connectors from the TCM by depressing the lock tab and lifting lever.
4. Wait 10 minutes.

5. After waiting 10 minutes, connect both 20-Way TCM Vehicle and Body Harness Connectors.
6. Attempt to crank and start engine.
   - If engine cranks and starts, key off and go to Step 8.
   - If engine won't crank and (**) in gear display, key off and go to Step 7.
7. Go to Endurant HD Troubleshooting guide TRTS0950, perform Power-Up Sequence and record all readings.
   - If readings were out of range and/or damage was found, repair per OEM guidelines. If engine cranks and starts, process complete.
   - If readings are in range, engine still won't crank and (**) in gear display, key off and go to Step 17.
8. Key on with engine off.

9. Connect ServiceRanger.
10. Create a Service Activity Report.
11. Select “Send to Eaton” (internet connection required).
12. Go To Programming.
13. Under Software Information, record TCM software part number.
    - If 5516076, go to Step 14.
    - If less than or equal to 5516072, go to Step 17.
14. Select “Show older software”.



15. Select “SW-23317-P” (5516072) and select “Confirm”.
16. Select “Download” and follow on-screen prompts. Process complete.
17. Contact Eaton Cummins Automated Transmission Technologies for further diagnostic instructions:
    - U.S. and Canada Help Line: +1-800-826-4357
    - Mexico Help Line: +51-800-800-6801

Warranty Information:

Warranty Parts:

- If an OEM power supply issue was found during the Power Up Sequence test, no parts.
- If no OEM power supply issue and TCM was recovered, update TCM software to 5516072, no parts.

Warranty Labor:

- If an OEM power supply issue was found during the Power-Up Sequence test, no labor, refer to OEM.
- If no OEM power supply issue, and TCM was recovered, update software to 5516072.
  - Diagnostics: 1.0 hour
  - Software Update: 0.3 hour

Warranty Coverage:

Standard warranty per Model and Vocation as published in the Eaton Cummins Automated Transmission Technologies Warranty Manual ECWY3000 EN-US

Change Log

Date	Description
04/02/2025	Updated Field Strategy section, software package number.
01/17/2025	Created service bulletin TAIB-1018.

The material contained in this bulletin is product improvement information. Eaton Corporation is not committed to, or liable for, canvassing existing products.

FSUD: 4631

TAIB-1019

LCA Service / Reset Procedure - Endurant HD and XD, PACCAR TX-12 and TX-18

Date: February 4, 2025

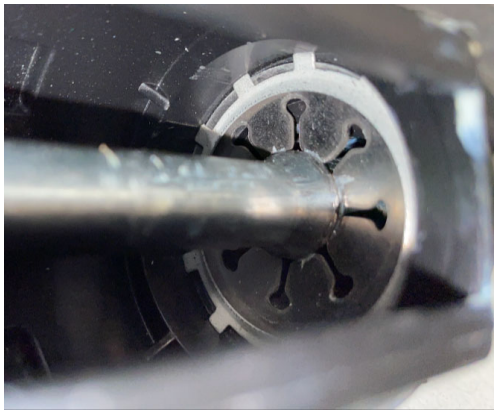
Updated:

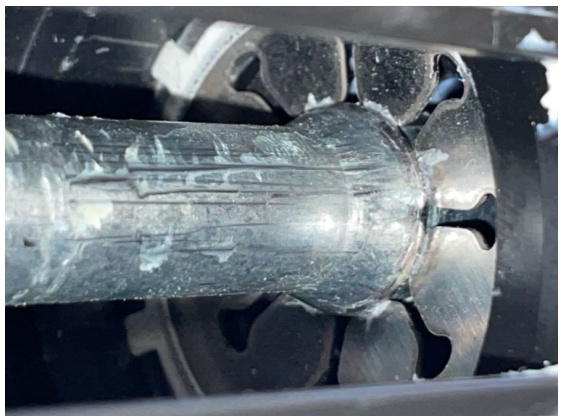
Issue Description:

Customers may report difficulties in locking the Linear Clutch Actuator (LCA) into the service/reset position. This issue may be caused by the single locking ring and push rod retainer coming out of position, which in turn prevents the actuator from locking into the reset position.

Note: This issue does not impact the transmission during normal operation and is only observed during an LCA service event.

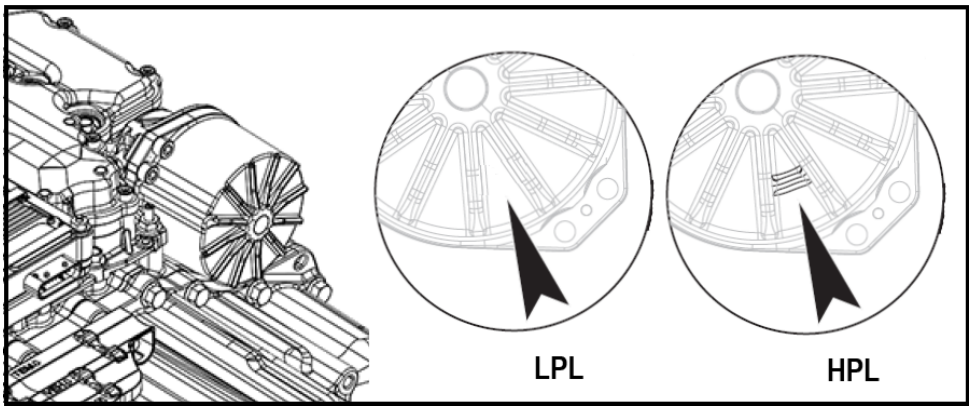
Additionally, the LCA may not have been fully locked into the reset position due to not being fully compressed during the LCA reset procedure. Picture below indicates a properly reset LCA, locking ring tabs fully locked into the push rod.





Affected Models/Population:

- High Pre-Load (HPL) type LCA (raised casting at 5 o'clock position) with a single locking ring retainer.



12-Speed: HPL LCA Part Number A-10004457

	Endurant HD	**PACCAR TX-12**
Transmission Serial # - less than	< Z0448899	< Z0447997
Build date - less than	< 12/04/2024	< 11/28/2024
MTM Type	PS-496	PS-496
MTM Part Number	A-10004231	A-10004383
MTM Serial Number - less than	<12S24317065512	< 12S24324165133

18-Speed: HPL LCA Part Number A-10004462

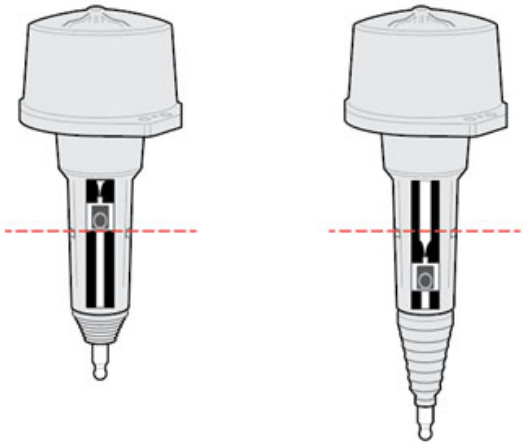
	Endurant XD	**PACCAR TX-18**
Transmission Serial # - less than	< Z0448172	< Z0447022
Build date - less than	< 12/04/2024	< 11/28/2024
MTM Type	PS-490	PS-490
MTM Part Number	A-10003241	A-10004258
MTM Serial Number - less than	< 18S24331144158	< 18S24300073723

Field Strategy:

In cases where the LCA cannot be locked into the reset position:

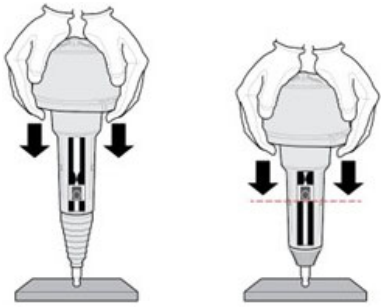
1. Inspect the LCA locking ring retainer:
   - If the LCA locking ring retainer is out of position, replace LCA.
   - If the LCA locking ring retainer is in place, go to Step 2.
2. Re-perform the LCA reset procedure and ensure the LCA push-rod is fully compressed during procedure.

Locked in Reset Position *Not Locked in Reset Position*



3. Place LCA push rod on a clean, flat surface. Tightly grasp LCA housing with both hands and push down on push rod to lock LCA into the reset position.

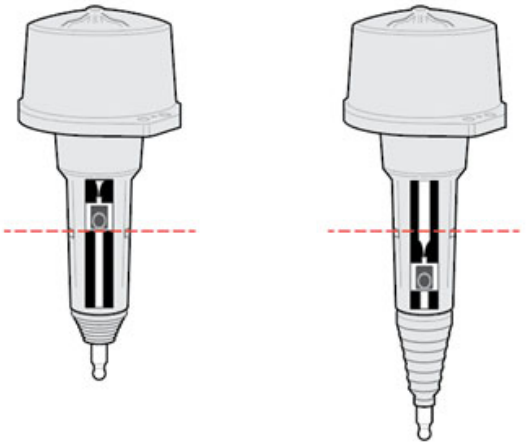
CAUTION: A large amount of force is required to lock the LCA into the reset position. Failure to tightly grasp the LCA housing with both hands while pushing down on push rod may cause unintended movement resulting in personal injury and/or component damage.



4. Inspect LCA to determine next steps, reference images below:
    - If LCA remains locked in the reset position, install LCA.
    - If LCA does not remain locked in the reset position, replace LCA.

CAUTION: Do not drop LCA. Dropping LCA may cause the LCA to unlock resulting in personal injury and/or component damage.

Locked in Reset Position *Not Locked in Reset Position*



NOTICE: Refer to the respective transmission mode service manual for all service procedure information:

- Endurant HD - TRSM0950
- Endurant XD - TRSM0960

Warranty Information:

Warranty Parts:

- No parts if LCA locks into the reset position.
- Parts only required if:
  - If the LCA locking ring retainer is out of position.
  - If the LCA locking ring retainer is in position but cannot be locked in the reset position after re-performing the reset procedure.

Transmission Model	Service Kit Number
Endurant HD	K-4357R
PACCAR TX-12	K-4357R-PCA
Endurant XD	K-4576
PACCAR TX-18	K-4576-PAC

Warranty Labor:

No additional labor.

Change Log

Date	Description
02/04/2025	Created service bulletin TAIB-1019.

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FSUD: 4696

Change Log

Date	Description
June 2025	Added TAIB-1012.
May 2025	Added Index. Updated TAIB-1004. Updated TAIB-1006. Updated TAIB-0994.
April 2025	Updated TAIB-1018
March 2025	Updated TAIB-1015. Updated TAIB-0889. Updated TAIB-1014. Updated TAIB-0994. Updated TAIB-1006.
February 2025	Updated TAIB-1006. Added TAIB-1019. Updated TAIB-1008. Updated TAIB-1004. Updated TAIB-1015. Updated TAIB-1014.
January 2025	Document created and published.

Note: Features and specifications listed in this document are subject to change without notice and represent the maximum capabilities of the software and products with all options installed. Although every attempt has been made to ensure the accuracy of information contained within, Eaton makes no representation about the completeness, correctness or accuracy and assumes no responsibility for any errors or omissions. Features and functionality may vary depending on selected options.

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