

MTM Transmission Air Supply Pressure Sensor Repair Procedure

Date: September 6, 2023

NOTICE: Perform this entire procedure only if sent here by the Roadranger Call Center.

Affected Models

Transmissions equipped with MTM Type: **PS-490**, **PS-496**:

Transmission Model	MTM PN	МТМ Туре
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

Special Instructions:

- Procedure 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 30.5 mm
 - Socket internal depth min 50 mm, deep socket required to prevent sensor connector damage
- Torque Wrench, Nm (lb-in)
- Black Permanent Marker

Parts List:

- TASPS supplied by Roadranger Call Center
- If additional access clearance is required for transmission in-chassis repair:
 - Output Yoke Retainer Bolt: 10000949 (qty 1)

Field Strategy:

Procedure A:

Create a Service Activity Report and Identify MTM Type.

- **1.** Key on.
- 2. Connect ServiceRanger.
- **3.** Create a Service Activity Report.
- **4.** Select Send to Eaton (internet connection required).
- **5.** Go To Service Reports.
- 6. From the "Viewing": drop down, select "Configuration".
- 7. Select "Advanced":
 - a. If MTM Type Current Value indicates **PS-393**, go to the respective transmission model troubleshooting guide and complete Fault Code Isolation Procedure: <u>Endurant HD, TRTS0950</u> or <u>Endurant XD, TRTS0960</u>
 - b. If MTM Type Current Value indicates **PS-490** or **PS-496**, go to **Procedure B**.

MTM Type can also be identified by the MTM part number located on MTM part label (1):



Procedure B:

Prepare vehicle and work area.

- 1. Key off.
- **2.** Set vehicle parking park and chock wheels.
- 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.
- Clean work area and MTM surfaces with shop air to ensure no debris enters MTM system during procedure. Go to Procedure C.

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 C:

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



- 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.
- Inspect TCM Seal for damage. Go to Procedure D.
 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, <u>Output Yoke</u> or XD TRSM0960, <u>Output Yoke</u>.

Procedure D: 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 E.**



Procedure E: 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 ftlb) 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 in 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 F**.



Procedure F:

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

- 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 7 mm 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 criss-cross pattern. Go to **Procedure G**.

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, <u>Output Yoke</u> or XD TRSM0960, <u>Output Yoke</u>.

Procedure G:

- If sensor was replaced with transmission in-chassis, process complete.
- If sensor was replaced with transmission removed from chassis, after re-installation, **Perform Transmission Service Routines** outlined below.

Perform Transmission Service Routines

- **1.** Key on with engine running.
- 2. Allow air pressure to build to governor cut-off.
- **3.** Connect ServiceRanger.
- 4. Go To "Service Routines".
- Select "Start" Clutch Calibration and follow on-screen prompts.
 NOTICE: Complete Clutch Calibration prior to performing Rail Calibration. Failure to complete Clutch Calibration first results in an unsuccessful Rail Calibration.
- 6. Select "Start" Rail Calibration and follow on-screen prompts.
- 7. Key off and wait 1 minute.
- 8. After waiting 1 minute, key on with engine off.
- **9.** Connect ServiceRanger.
- 10.Go To "Fault Codes".
 - a. If an Active fault code sets, contact Eaton Cummins Automated Transmission Technologies at +1 800-826-4357 for further diagnostic instructions.
 - b. If **no** Active fault codes set, select "Clear Eaton Faults", and follow on-screen prompts.
- **11.**Disconnect ServiceRanger.
- 12. Key off. Process Complete.

MTM Special Instructions

Change Log

Date	Description
9/11/2023	Updated procedure D step 7 Note and E5 Caution
9/6/2023	Document published

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