

Pre-Case Creation Diagnosis Tips for 725.0/.1 Transmission

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Validity	725.0 & 725.1 TRANSMISSIONS
Reason for change	Updating formatting, information, and remedy

Complaint

This document is intended as a pre-case diagnostic reference for transmission related concerns. It will also ensure that if a case is necessary, all supporting documentation is available.

This should not be used on its own as justification for creating a TIPS case.

Cause

The root cause will vary depending on the complaint.

The goal of this document is to provide diagnostic checks and procedures that may help resolve customer complaints without opening a TIPS case.

Remedy

Before opening a transmission-related TIPS case, the following steps must be performed to ensure all relevant data has been collected and possible remedies (when applicable) have been performed.

Please Note: At minimum, the documents below must be collected before proceeding to ensure the data in its original state when the vehicle arrived is captured.

- Initial Quick Test w/ Freeze frame data
- VGS Control Unit Log
- Initial EEPROM data (.txt format)
- IPR Result (if applicable. See LI27.00-P-073124 - Transmission diagnosis using the Intelligent Predictive Repair (IPR) tool)
- Transmission Heath Page

If the vehicle has previously been repaired for the same concern, note the date, mileage, and TIPS case or RO number, along with a brief description of the prior work performed.

IPR Guidance:

The IPR recommended repair should be completed prior to following any steps in this LI and prior to case creation.

XENTRY Tips

IPR repairs do not require additional warranty approvals or a TIPS case to validate/confirm the results. To ensure efficient case handling, please avoid opening TIPS cases for this reason.

For further information regarding IPR please see the following documents:

LI27.00-P-073124 - Transmission diagnosis using the Intelligent Predictive Repair (IPR) tool

Oil Pan Condition Evaluation:

In some situations, IPR will advise checking the oil pan condition and determining a repair based on the evaluation. Example photos in Xentry can be found in two ways:

- Use the blue hyperlink in the IPR result, and it will take you to the Condition check of transmission oil
- Navigate to Xentry Bluebook > Help for control unit > Condition check of transmission oil

If a different repair than what is recommended by IPR is performed, attaching photo documentation of the complaint vehicle oil pan and the IPR example to the claim is required.

Reproducing the Concern:

Proper evaluation of transmission concerns generally requires the condition to be reproducible. It is recommended to compare the vehicle to a similar model, if available, to help determine whether the shift behavior is characteristic of the drivetrain or uncharacteristic for the vehicle.

If the concern cannot be duplicated:

- A test drive with the customer may assist in understanding and reproducing the complaint.
- The vehicle shift quality should be compared to a known-good vehicle with identical drivetrain and model year.
- Check Shift Quality History (VGS Control Unit > Adaptations > Shift Quality History)

Shift Quality History will show the last 5 noticeable harsh shifts and some of the parameters in which it occurred. You can use this to attempt recreation of the operating conditions and increase likelihood of reproducing the complaint.

Complaint A: Shift Quality

Note: Certain AMG variants may exhibit more firm and noticeable shift behavior as a normal characteristic. Refer to LI27.60-P-075147 for additional information.

1. Perform Valve flushing procedure

2. Perform 5 Torque Converter adaptations in a row

- Allow the vehicle to warm up naturally, DO NOT power brake as it will increase the temperature in the torque converter.

- After the 5th adaptation, collect a screen shot showing all 5 on one page

3. Perform a standstill adaption

- collect a screen shot

Recheck vehicle operation. If the concern has not improved, driving adaptations should be performed to target specific gear shifts.

4. Perform driving adaptations

- Review NAG3 Adaptation Parameters in attachments for required set up and target values during the upshift adaptations and coasting downshift adaptations.
- Parameters will depend on drivetrain configuration and may adapt in difference drive modes, please ensure you follow the correct chart for your vehicle.

(Also located in Startek NG > Passenger Car > Drivetrain tab)

Perform driving adaptations in the below temperature ranges at least 5x each.

- Temperature range 30° - 60°C (86° - 140°F)
- Temperature range 61° - 80°C (141° - 176°F)
- Temperature range > 80°C (>176°F)

5. Lock car to allow sleep at least 10min, restart and road test.

6. Collect a new EEPROM file labelled "After Driving adaptations"

Transmission Health Page:

The Transmission Health page can be used as an indicator of internal transmission condition.

If a clutch or brake element remains Not OK after adaptation attempts and other procedures cannot be brought to OK (green), this may indicate an internal transmission condition requiring further action and diagnosis.

Complaint B: Shudder

These complaints may be associated with the torque converter.

If a shudder is reported, monitor torque converter actual values to determine whether the condition occurs while the converter slip.

With the transmission at operating temperature (above 85°C), actuate the torque converter lock-up function (VGS Control Unit > Actuators) during a test drive with a minimum torque of 200Nm and determine the following:

- Does the shudder change or go away?
- Does the slip speed exceed 50rpm or show erratic values?

Observations should be documented to support further evaluation if required.

Complaint C: Jolting/Shudder (4MATIC Vehicles)

If the vehicle is equipped with N45 or N15/7 All-wheel drive (AWD), see LI27.10-P-075869: Vibration or Jolt when accelerating from the drivetrain

Complaint D: Noise/Vibration

To ensure there is a clear understanding of the customer complaint, collect and document the following information:

- When did the noise start?

XENTRY Tips

- Verify whether any previous repairs or work were performed prior to the onset of the noise.
 - Did the noise occur suddenly, or did it develop progressively over time?
 - Is the vehicle modified? (List and collect photos of any modifications)
 - Under which conditions does the noise occur, and when is it no longer felt/heard? (Note all that apply)
 - Vehicle speed
 - Selected gear
 - Load condition
 - Outside ambient temperature and/or weather conditions
 - Engine and drivetrain temperature
1. Collect a video or sound file of the noise concern, ensure the video is available if requested.
 2. Perform an NVH recording and store the .ppdata file.
- For guidance on how to use this NVH diagnostic tool, see the following resources:

NDTD NVH Presentations

Xentry Portal > StarTek NG > Passenger > Dealer Technical Support > NDTD

Attachments	
File	Description
Instruction_XENTRY CAN Tool KIT3_EN_V2 Star 3 Model 223.pdf	Star3 Models (223, 206...) CAN Trace Instructions
Instruction_XENTRY+CAN+Tool_EN_V4.pdf	CAN Trace Instructions
Common NAG3M Faults.pdf	Common Faults for newer 725.1 NAG3M Transmission
Instruction_XENTRY_SD_Scan_Star2x_P-T4_BR213M_BR167M_EN_V3 1.pdf	725.1 with Star2 (MY24 167, 254) CAN Trace Instructions
NAG3 Driving Adaptation Parameters v1.pdf	NAG3 Driving Adatation Parameters

Disclaimer

NOTE: The information contained in this document is intended for use by trained, professional technicians with the knowledge to properly and safely perform diagnosis and repairs on Mercedes-Benz vehicles, using Mercedes-Benz approved tools and equipment. It informs service technicians about conditions that could occur in certain vehicles and provides information that could assist in proper vehicle diagnosis, service, or repair. It does not indicate that a defect is present in any vehicle referenced in this document nor does it imply warranty coverage. DO NOT assume that a symptom or condition, or a described cause of a symptom or condition, affects any particular vehicle or groups of vehicles, or that a described repair applies to any particular vehicle or groups of vehicles. There can be multiple causes resulting in the same or similar symptoms or conditions described in this document, and trained professional service technicians must use their diagnostic skills to make evaluations on a case-by-case basis. The information contained in this document does not guarantee warranty coverage nor does it extend the vehicle's warranty in any way.

Symptoms
Overall vehicle > Complete vehicle > Modified to
Operation numbers/damage codes

XENTRY Tips

Op. no.	Operation text	Time	Damage code	Note
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