



Subjective Rating of Gear Noise (Manual Transmission)

1 Scope

Note: Nothing in this standard supersedes applicable laws and regulations.

Note: In the event of conflict between the English and domestic language, the English language shall take precedence.

1.1 Purpose. Subjective rating of manual transmission gear noise while driving according to GM Subjective Rating Scale (GMW14264).

1.2 Foreword. This standard was formerly known as GME R-7B-1 and VET006.

1.3 Applicability. This standard is applicable for testing all FWD, AWD and RWD transmission.

2 References

Note: Only the latest approved standards are applicable unless otherwise specified.

2.1 External Standards/Specifications.

None

2.2 GM Standards/Specifications.

GMW14264

3 Resources

The test facilities and equipment shall be operable and shall have a valid calibration level.

3.1 Facilities. Public roads or proving ground.

3.2 Equipment.

3.2.1 Sensors for transmission oil temperature and ambient temperature.

3.2.2 Attached tachometer and speedometer.

3.2.3 Writing material.

3.3 Test Vehicle/Test Piece.

3.3.1 New Transmission, assembled according to specification.

3.3.2 The engine type and the vehicle equipment must correspond to the release.

3.4 Test Time.

Calendar time: 3 days

Technician/Mechanical hours 9 hours

Preparation/documentation hours: 3 hours

3.5 Test Required Information. Possible sources are:

- SOR
- VTS (Vehicle Technical Specifications)
- SSTS (Sub System Technical Specifications)
- ADV Plan
- VCRI
- Application Engineer
- Development Groups
- Drawings

3.6 Personnel/Skills. Evaluator shall be qualified to rate manual transmissions subjectively concerning gear noise by using Subjective Rating Scale according to GMW14264.

4 Procedure

4.1 Preparation.

4.1.1 Install new transmission/transaxle.

4.1.2 Check fuel, engine oil, cooling fluid, tire pressure and transmission oil level.

4.1.3 Ballast vehicle with 1 to 2 persons or if required maximum weight.

4.1.4 Prepare data sheet.

4.1.5 Drive until transmission temperature reaches +50 °C min.

4.2 Conditions.

4.2.1 Environmental Conditions. Test shall be performed on a dry, smooth surface.

4.2.2 Test Conditions. Deviations from the requirements of this standard shall have been agreed upon. Such requirements shall be specified on component drawings, test certificates, reports, etc.

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4.3 Instructions.

4.3.1 The gear noise shall be rated subjectively in each gear in the driving ranges from (1000 to 4000) min⁻¹ regarding transmission gear noise at part load – drive and coast.

4.3.2 For this purpose, the vehicle shall be driven slowly through the speed range to be evaluated and the gear noise shall be rated according to the GMW14264.

The reverse gear shall be rated accordingly.

4.3.3 Gear noise at idle shall be evaluated with engaged clutch and shifter in neutral position.

The difference between transmission noise and the total noise level can be determined by engaging and disengaging the clutch.

4.3.4 If transmission oil temperature exceeds +170 °C, terminate test.

5 Data

5.1 Calculations. Record the following data (the Test Engineer may require additional data):

1. Oil temperature
2. Ambient temperature
3. Engine type / engine km.

5.2 Interpretation of Results. The assessment of the gear noise shall be taken from SSTs/VTS.

5.3 Test Documentation.

5.3.1 Transmission Data. Record name and number of all parts removed or installed (gear, reduction and overall ratio, type of oil and quantity), cell and transmission numbers, test hours on part and on transmission, together with reason part was eventually removed.

5.3.2 Comment. Report a detailed comment of the transmission performance and of individual components.

5.3.3 Rating. Record test rating of transmission as a whole (for evaluation criteria, see paragraph 5.2).

6 Safety

This Engineering Standard may involve safety requirements for hazardous materials, the method of operations and equipment. This standard does not propose to address all the safety issues associated with its use. It is the responsibility of the user of this standard to ensure compliance with all appropriate safety and health practices. This would include any specific training that may be required. The safety and health standards include site specific rules and procedures, corporate rules and procedures, and Government Standards. Contact shall be made with the appropriate site Safety and Health personnel for further direction and guidance in these matters.

7 Notes

7.1 Glossary. Not applicable.

7.2 Acronyms, Abbreviations, and Symbols. Not applicable.

8 Coding System

This standard shall be referenced in other documents, drawings, etc., as follows:

Test to GMW15642

9 Release and Revisions

This standard was originated in JUL 2007. It was first approved by GM Powertrain in May 2011. It was first published in May 2011.

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1	MAY 2011	Initial publication.

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