GM	WORLDWIDE ENGINEERING STANDARDS	Test Procedure	GMW16257

Stabilizer Bar Gripper Bushing Squeak Noise Test

1 Introduction

Note: Nothing in this standard supercedes 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. To determine stabilizer bar bushing noise performance.

1.2 Applicability. This procedure will apply to all passenger cars and light trucks having suspension designs using stabilizer bar assemblies with gripper style bushings.

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 GMW16258

3 Resources

3.1 Facilities. The facility must be adequate to house the equipment to perform the procedure(s).

3.1.1 Calibration. The test facilities and equipment shall be in good working order and shall have a valid calibration label.

3.1.2 Alternatives. Alternative test facilities and equipment may also be used. However, all measuring variables as specified in this standard shall be determined correctly with respect to their physical definition.

3.2 Equipment.

3.2.1 Hot/Cold test chamber with the capability of providing temperatures from -40 °C to 70 °C.

3.2.2 Fixture that simulates the vehicle installation of the stabilizer bar, bushing, and clamp.

3.2.3 Actuator to apply radial load.

3.2.4 Load cell to measure applied radial load.

3.2.5 Torque motor to apply angular rotation.

3.2.6 Rotary Variable Differential Transducer (RVDT) to measure angular rotation.

Note: All instrumentation is to be calibrated as required; record instrumentation details and date of calibration on a data sheet supplied with the test report.

3.3 Test Vehicle/Test Piece. Test must be completed using design intent parts.

3.3.1 Development/Validation Items. A minimum of six (6) samples should be tested for each tested radial preload. To the extent possible, bushing samples should come from a population of mold cavities over time in order to comprehend as many manufacturing variables as possible.

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3.4 Test Time.

Calendar time:	2 weeks
Test hours:	80 hours
Coordination hours:	1 hour

3.5 Test Required Information. Radial preloads supplied by GM responsible engineer.

3.6 Personnel/Skills. The test technician should be familiar with the test machine and the instrumentation required to obtain test data.

4 Procedure

4.1 Preparation.

4.1.1 All samples must be checked to ensure conformance to all print dimensional requirements.

4.1.2 Before testing, the samples should be installed in vehicle design condition including fastener torque and clock angle. Mating parts must have design intent material, dimensions, surface treatments, and coatings.

4.1.3 The stabilizer bar section used for testing shall be from an actual stabilizer bar, and be sectioned from the bushing interface location.

4.2 Conditions.

4.2.1 Environmental Conditions. Reference 4.3.1.

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.

4.3 Instructions. See Appendix A, Figure A1 for graphical test representation. Test applies to gripper style stabilizer bar bushings only.

4.3.1 Phase 1 New Bushing.

4.3.1.1 Place assembled bushings in cold chamber and soak at -20 °C for 2 h.

4.3.1.2 Apply the desired radial preload as supplied by GM Engineering.

4.3.1.3 Cycle the bushing according to the following parameters.

- Angle of Twist: ± 25 degrees
- Frequency: 1 Hz ± 0.1 Hz
- Pre-cycles: 3
- Evaluation Cycles: 4 to 10

4.3.1.4 Release radial preload.

4.3.1.5 Repeat 4.3.1.1 through 4.3.1.4 for temperatures of -30 °C and -40 °C.

4.3.1.6 Soak the bushing at 70 °C for 12 h.

4.3.1.7 Repeat 4.3.1.1 through 4.3.1.5.

4.3.1.8 Repeat 4.3.1, Phase 1. New bushing for varying radial load levels supplied by the responsible GM engineer and as shown in Table A1 of Appendix A, using a new sample for each load level.

4.3.2 Phase 2 Worn Bushing.

4.3.2.1 Wear the bushing according to GMW16258 Bushing Wear Test procedure.

4.3.2.2 Place assembled bushings in cold chamber and soak at -20 °C for 2 h.

4.3.2.3 Apply the desired radial preload.

4.3.2.4 Cycle the bushing according to the following parameters.

- Angle of twist: ± 25 degrees
- Frequency: 1 Hz ± 0.1 Hz
- Pre-cycles: 3
- Evaluation Cycles: 4 through 10

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