GM	WORLDWIDE ENGINEERING STANDARDS	Test Procedure	GMW14154

Laboratory Evaluation of Seat Belt Buckle Latching and Retractor Extraction Sounds

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. This procedure describes a laboratory method for evaluating the loudness of the audible click produced when inserting the latchplate into the buckle of the seat belt system and the audible noise produced when the seat belt retractor is extracted.

1.2 Applicability. Passenger vehicles and on-road vehicles equipped with seat belt buckles.

1.3 Remarks. The noise of the seat belt buckle during latching is evaluated using the Zwicker loudness method. This evaluation is intended to ensure that the audible click produced when inserting the latchplate into the seat belt buckle gives the customer adequate feedback that the latchplate is securely engaged in the buckle. In addition, this evaluation is intended to ensure that the sound produced when extracting the webbing from the seat belt retractor is not excessively loud.

2 References

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

2.1 External Standards/Specifications.

None

2.2 GM Standards/Specifications.

GMW14155

2.3 Additional References. None.

3 Resources

3.1 Facilities. Test room, see GMW14155.

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. See GMW14155.

3.3 Test Vehicle/Test Piece.

- Seat belt buckle and latchplate.
- Seat belt retractor.
- Test material shall be representative of design intent.
- Sample size shall be in accordance with good statistical practices.

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3.4 Test Time.

Calendar time:	1 to 2 days
Test time:	1 to 2 hours
Coordination time:	1 to 2 hours

3.5 Test Required Information. Not applicable.

3.6 Personnel/Skills. See GMW14155.

4 Procedure

4.1 Preparation. General preparation, see GMW14155.

4.1.1 Mount the microphone and preamp on the microphone stand.

4.1.2 Connect the preamplifier to the microphone power supply via an extension cable.

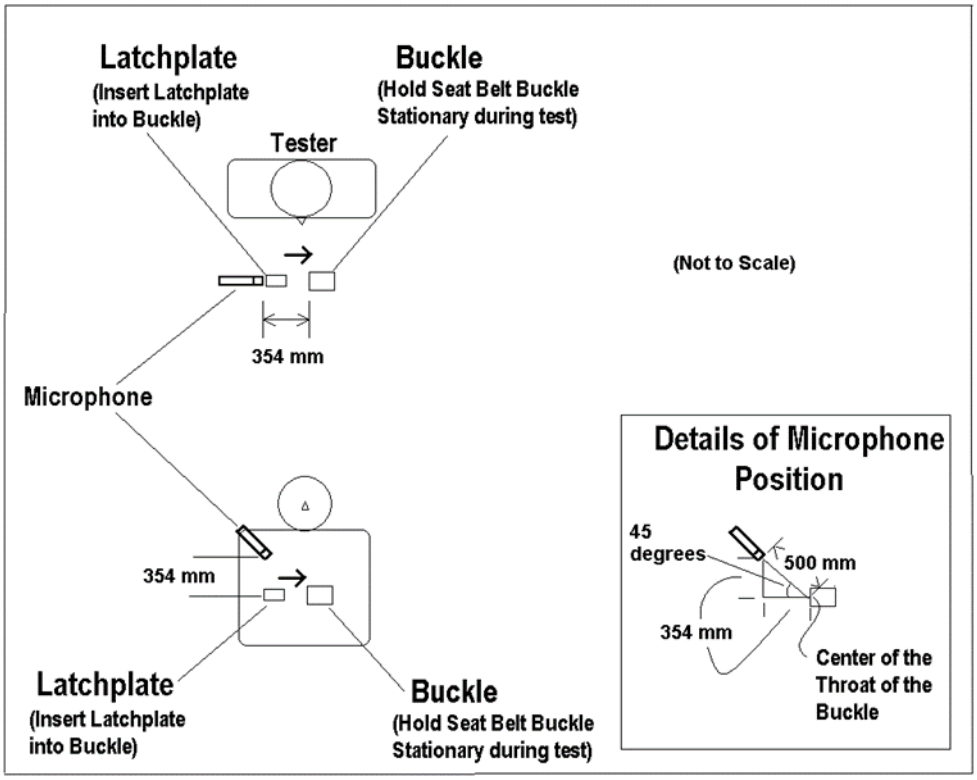
4.1.3 Calibrate the microphone, power supply and digital recording system as described in Master Procedure GMW14155.

4.1.4 Position the microphone so that it is pointed towards the test piece at a distance of 500 mm on a 45 degree angle to the horizontal plane (see Figure 1 and Figure 2). The horizontal and vertical distances are both 354 mm.

Note: The microphone location was chosen so as to be close to the test piece but not in danger of being struck during the manual operation of the test piece.

The tolerance for all microphone position distances is ± 20 mm.

Figure 1: Microphone Location and Test Setup - Buckle Operation



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