



Ignition Hang Tag Evaluation Procedure

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 evaluate vehicle robustness to hang tag conditions resulting in unintended ignition key rotation, ignition key or steering binding or restrictions. The test is subjective and conservative with intent to identify and validate robustness to potential hang tag conditions.

1.2 Applicability. This procedure is applicable to all passenger cars, multi-purpose vehicles and light trucks with keyed ignitions.

1.3 Remarks. This test procedure establishes a common set of tools and methods to be used for evaluating robustness to unintended power mode change due to key tag interference with surrounding components. Modifications to this procedure may be necessary to comprehend the exact conditions for testing to a particular technical specification, regulation, or best practice. The test request will specify the details needed to meet the testing requirements of a particular technical specification, regulation or best practice. The supplier shall work with the GM Design Responsible Engineer to comprehend the requirements.

2 References

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

2.1 External Standards/Specifications.

None

2.2 GM Standards/Specifications.

None

2.3 Additional References.

- CG190 GM Evaluation Report
- Test request (from the GM Design Responsible Engineer)

3 Resources

3.1 Facilities. Not applicable.

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. Rigid key tag approximately 90 mm in length and 40 mm in width (refer to Figure 1). Key tag should have a single key ring, approximately 28 mm inner diameter with wire thickness approximately 2 mm, attached in a way to minimize twist or movement between the key tag and the ring (refer to Figure 1). Suggested tag material is stiff, rigid leather or plastic. The evaluator will also need a camera and tape measure/scale, calipers, torque wrench and inclinometer. Unless otherwise preserved in test facility records, enter equipment information into Data Sheet A1 in Appendix A.

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Figure 1: Example Rigid Key Tag with Ring

3.3 Test Vehicle/Test Piece. The vehicle chosen for the evaluation should be representative with respect to:

- Ignition key type (including key head and slot)
- Ignition lock cylinder and housing (with representative operational system torque, key run position, and detents)
- Steering wheel, column and shroud (with full operational range of tilt and telescope when applicable)
- Steering wheel controls when applicable, e.g., paddle shifter or volume buttons
- Column shifter and multifunction levers when applicable

3.4 Test Time.

Calendar time: 1 day
Test hours: 4 hours
Coordination hours: 4 hours

3.5 Test Required Information. Not applicable.

3.6 Personnel/Skills. Not applicable.

4 Procedure

4.1 Preparation. Assemble rigid key tag directly to ignition key using a single 28 mm diameter key ring. Measure and record the key head width, key head slot width, key ring inner and outer diameters, key tag geometry and ignition switch torque in and out of run on Data Sheet A2 in Appendix A. Measure and record the key angle with an inclinometer in the run position with the column at the in-line position (key angle zero reference is 12:00 noon with clockwise being positive values) on Data Sheet A2 in Appendix A

4.2 Conditions.

4.2.1 Environmental Conditions. Comfort for the evaluator and the person recording the data should be taken into account.

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. Start the vehicle and leave it in run for the duration of the test with the rigid key tag installed directly on the ignition key. The evaluator should place the key tag in various positions with their hand in search of a position where the key tag can be trapped, bind or catch on any surrounding components. Possible hang tag conditions may include, but are not limited to, binding with the following:

- Steering wheel spoke crevice (refer to Figure 2)
- Steering wheel tuck groove (refer to Figure 3)
- Steering wheel control buttons or shift levers (refer to Figures 4a and 4b)
- Pinching between steering wheel and column shroud (refer to Figure 5)

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Figure 2: Hang Tag Condition with Steering Wheel Spoke Crevice



Figure 3: Hang Tag Condition with Steering Wheel Tuck Groove

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