



Steering Wheel Bending (Push/Pull) Fatigue 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. The steering wheel is exposed to bending load in driving operation. A particularly high load is applied by the driver when repositioning himself in the seat. The purpose of this test is to determine the effect of this load applied on the steering wheel.

1.2 Applicability. Steering wheels of the entire vehicle range.

1.3 Remarks. Not applicable.

2 References

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

2.1 External Standards/Specifications.

None

2.2 GM Standards/Specifications.

GMW14095 GMW14096

2.3 Additional References.

Steering Wheel Drawing

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.

3.2.1 Clamping fixture with steering shaft (see Figure 1).

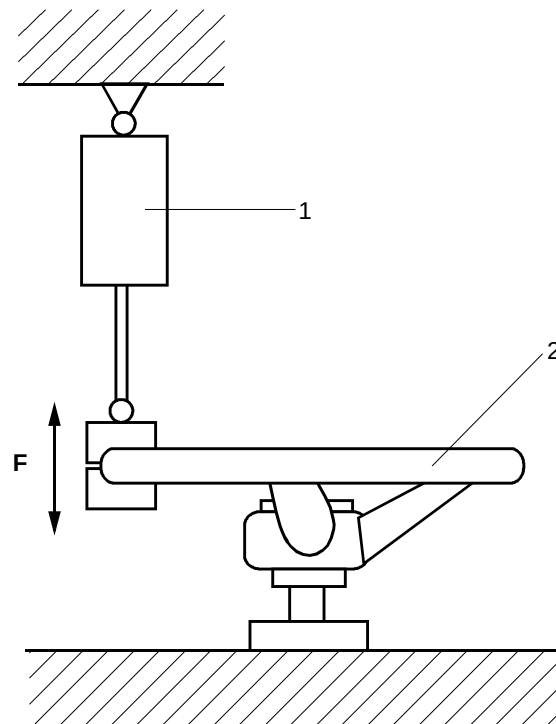


Figure 1: Test Setup

Legend for Figure 1:

1 = Actuation Cylinder

2 = Steering Wheel Assembly

F = Force

3.2.2 Pneumatic or hydraulic cylinder with manual or automatic force control and linear deflection measurement.

3.3 Test Vehicle/Test Piece. Test the steering wheel with trim parts and horn control assembly.

3.4 Test Time. Listed times are average.

Calendar time: 2 d

Test time: 1 h

Coordination time: Not applicable

Setup time: 30 minutes

Inspect and report: 1 h

3.5 Test Required Information. Not applicable.

3.6 Personnel/Skills. Test technician familiar with test facilities and equipment.

4 Procedure

4.1 Preparation.

4.1.1 The steering wheel assembly, including driver airbag (live or inert)/horn pad, and steering shaft shall be installed on the clamping fixture. The fastener shall be tightened with the minimum specified torque.

4.1.2 The cylinder shall be installed to apply a force parallel to the steering shaft axis.

4.1.3 The clamp from cylinder to the steering wheel outer ring shall fit against the outer most surface diameter and radius. The clamp shall fit firmly without crimping or breaking outer membrane.

4.2 Conditions.

4.2.1 Environmental Conditions. The test shall be performed at ambient temperature $+23\text{ }^{\circ}\text{C} \pm 5\text{ }^{\circ}\text{C}$.