



Hydraulic Shock and Strut Low Temperature Seal Performance 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 simulate a condition where a vehicle is subjected to low ambient temperatures for an extended period of time and is then supported on a hoist with the wheels/suspension unsupported in the full rebound position.

1.2 Applicability. This procedure applies to shock absorbers and strut assemblies.

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

3.1 Facilities. A test stand with a thermal chamber capable of maintaining -40 °C (minimum temperature is program specific).

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. Equipment capable of applying and measuring loads in the axial and lateral directions. Maximum expected axial loads in this test are dependent on shock/strut tuning, but will likely be in the range of 800 N to 6000 N during break-in.

3.3 Test Vehicle/Test Piece. A minimum number of samples to meet the reliability and confidence for validation (i.e., 99% reliability with 50% confidence) should be tested. Typically, at least six samples should be tested.

3.4 Test Time.

Calendar time: 5 days to 7 days

Test hours: 30 hours to 60 hours

Coordination hours: 2 hours to 4 hours

3.5 Test Required Information. Not applicable.

3.6 Personnel/Skills. Operators shall be experienced with using a servo hydraulic testing machines and controls as well as the associated instrumentation. Operator should have skills to accurately record data and assure proper set up for test. Engineer shall have experience and skills needed to properly analyze results from testing and report.

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4 Procedure

4.1 Preparation.

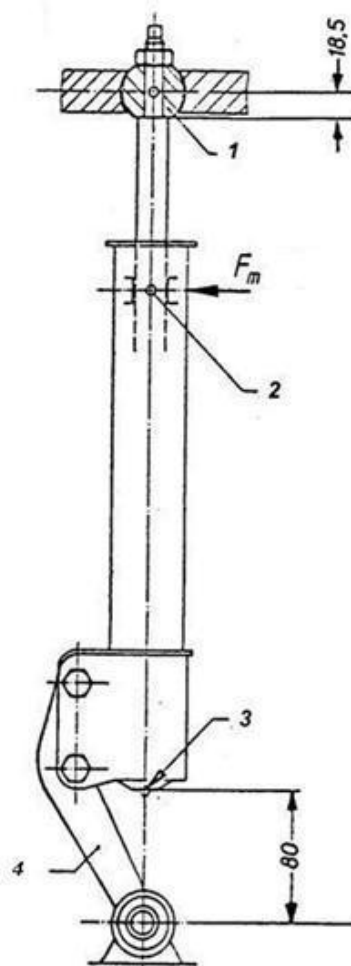
4.1.1 Test is to be performed with dirt shields/dust boots removed.

4.1.2 Condition/break-in sample for 2 minutes by applying a ± 50 mm sinusoidal stroke at 1.91 Hz.

4.1.3 Wipe piston rod to remove any residual fluids.

4.1.4 Weigh and record the mass of the damper as tested to the nearest 0.1 g.

4.1.5 Mount sample to the test stand using rod ends or other fixturing that will not induce a side load or bending moment on the sample (example, spherical joints). See Figure 1 and Figure 2.



Note:
 1 = Ball.
 2 = Center of rod guide.
 3 = Temperature measuring point.
 4 = Adapter.

Dimensions are reference. Use application specific dimensions

Figure 1: Reference Strut

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