



Leaf Spring Lab Stroking Durability

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 the durability characteristics of various leaf springs when stroked through full suspension travel in vehicle geometry position.

1.2 Applicability. All trucks, vans and other vehicles equipped with front and/or rear leaf springs in a Hotchkiss suspension configuration.

1.3 Remarks. The goal is to test the leaf spring in a manner that replicates the installed vehicle geometry and capture, so far as possible, the same failure modes as experienced on the vehicle. It should be noted, however, that this test does not subject the spring to rearward impact loading or twisting. As such, it will not test for spring eye integrity. This test can also be used to determine likely U-bolt tension degradation (strain gauged U-bolts are required to do this).

Note: This test can be performed using a partial vehicle frame, or using test rig fixturing to locate the spring.

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.

- Component Technical Specification (CTS)
- Truck Trailer Manufacturers Association (TTMA), Incorporated, Gainesville, Virginia (www.ttmanet.org) Recommended Practice 32

3 Resources

3.1 Facilities.

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 One (1) mechanical or servo-hydraulic machine with means of controlling and monitoring stroke and load, and the capability of displacing the heaviest truck spring from 10 mm (0.400 in) initial deflection to full jounce (empirical data approach); rebound to jounce (introduces reverse bending to the spring); or by the Truck Trailer Manufacturers Association (TTMA) Recommended Practice 32.

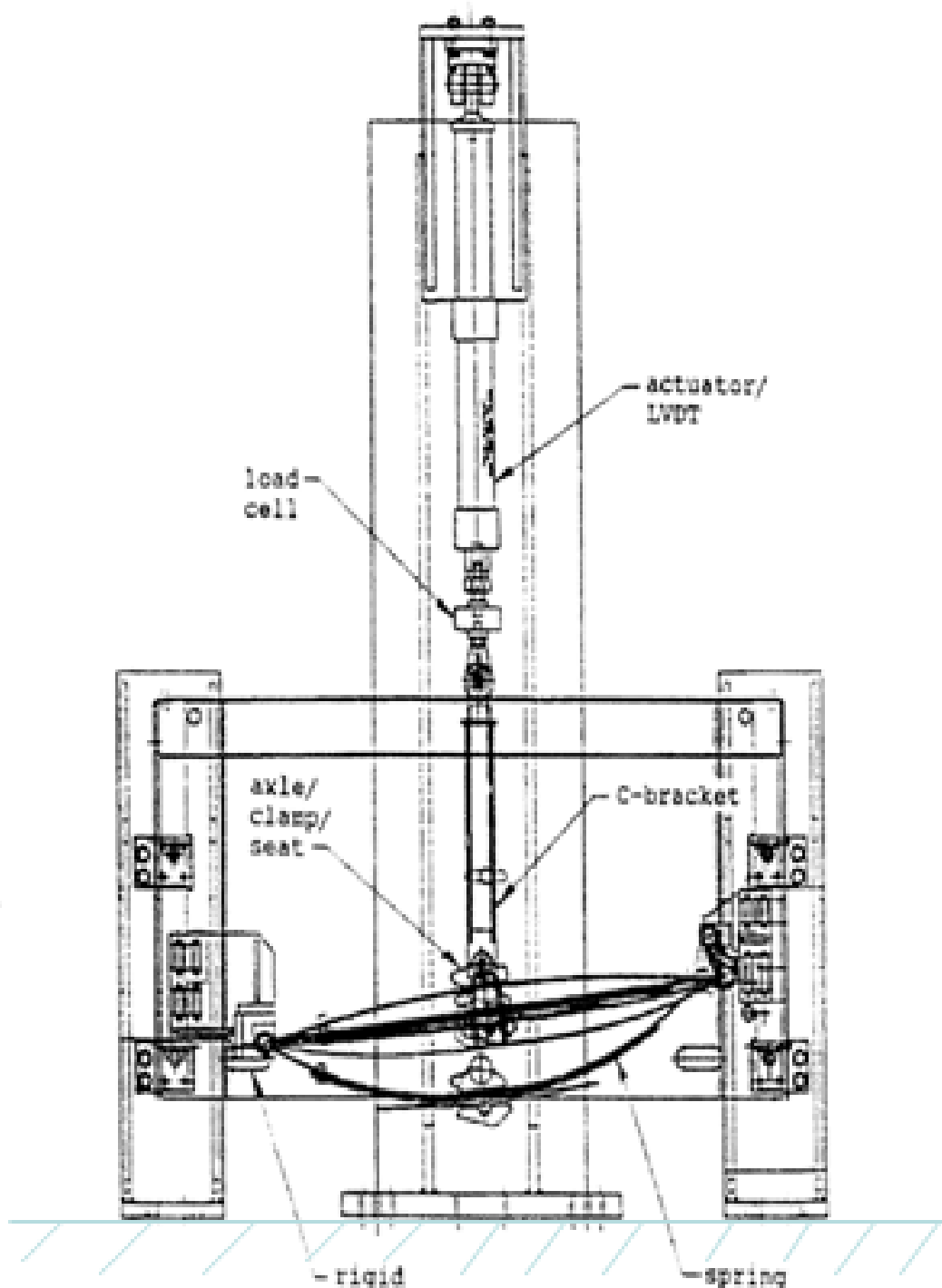
3.2.2. Load frame for static rate test (see Figure 1).

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Note: LVDT = Length Variation Displacement Transducer

Figure 1: Leaf Spring Durability Test Setup

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