



Dynamic Test of Front and Rear Suspension Coil Springs

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.

1.1.1 Determination of the fatigue life of suspension coil springs in a bench test, simulating vehicle installation conditions.

1.1.2 Determination of coil spring set during the bench test.

1.1.3 Evaluation of the deflection characteristics (chatter, contact between coils, and spring seat contact).

1.2 Applicability. This specification is intended for both coil-over shock and standalone coil springs.

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)
- Spring Drawing

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.

3.1.3 Spring tests are performed on a spring testing machine, available in two versions as in 3.1.3.1 and 3.1.3.2.

3.1.3.1 Straight Deflection. This is the setup of a front straight deflection configuration with original spring seats and insulators. See Figure 1.

3.1.3.2 Circular deflection. This is the setup of a circular deflection configuration with original spring seats and insulators. See Figure 2.

3.1.4 Both types (3.1.3.1 and 3.1.3.2) have the same control unit which allows the machine to shut off.

- a. When a spring breaks.
- b. After a selected number of cycles.

3.1.5 In addition to the subject spring, the original spring seats and insulators as well as a suitable adapter for the installation in the machine are required.

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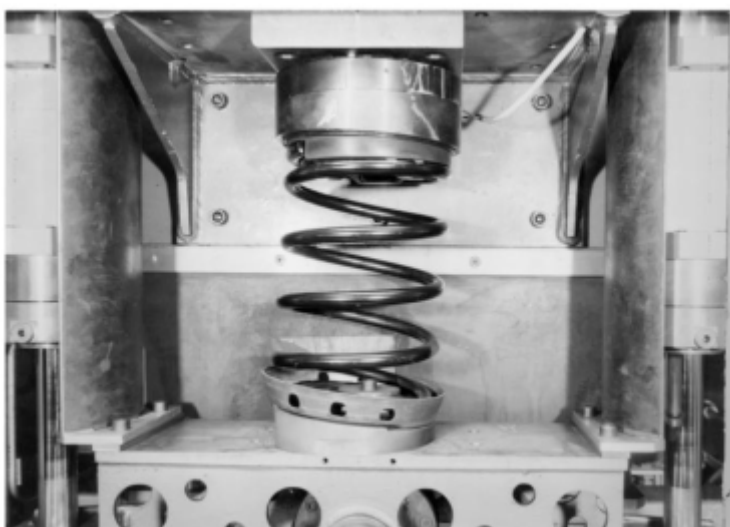


Figure 1: Straight Deflection Setup

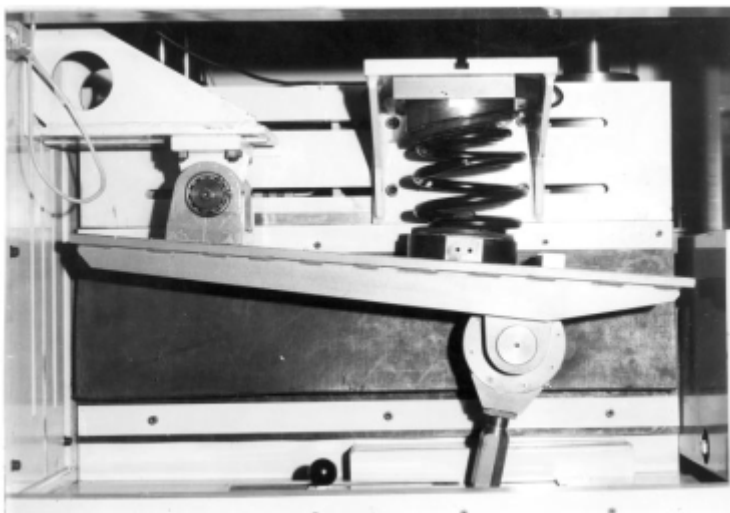


Figure 2: Circular Deflection Setup

3.2 Equipment.

3.2.1 Spring testing machine, reference 1.1.1.

3.2.2 Closed loop hydraulic pulsator with cycle counter, reference 1.1.2.

3.3 Test Vehicle/Test Piece. Coil spring.

3.4 Test Time. Set up time for the test is approximately 3 h. Test length will vary based on specific cycles required by the program

Calendar time: 2 days

Test hours: 24 hours

Coordination hours: 3 hours

3.5 Test Required Information. Not applicable.

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