



Manual Seat Height and Tilt Adjuster 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.

Note: All stated values are valid unless otherwise specified for example in the Subsystem Technical Specification (SSTS).

1.1 Purpose. This test procedure is to evaluate the seat height adjuster durability performance for manually operated seat adjuster.

1.2 Applicability. This procedure applies to all GM passenger cars, light duty and medium duty trucks.

1.3 Remarks. The verification of the manual seat height and tilt adjusters is a durability test to simulate lifetime usage. Any damage occurring shall be assessed individually on the basis of relevance. If damage occurs in newly developed seats, correlations shall be ascertained between the durability test and the field (determine collective loading in vehicle).

2 References

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

2.1 External Standards/Specifications.

SAE J726

2.2 GM Standards/Specifications.

GMW14264

2.3 Additional References.

Subsystem Technical Specification (SSTS)

3 Resources

3.1 Facilities. An approved GM certified test lab with an adequate bed plate or equivalent work surface necessary for mounting the test sample and associated test fixtures appropriate for the procedure to be run.

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 Mounting Fixture. Provide support of the seat system including rigid mounting blocks or equivalent simulating the floor attachment points to mount the seat system in the body position on a bed plate.

3.2.2 Climate Chamber. It shall be capable of the temperature range from -40 °C to 90 °C.

3.2.3 Operation Device.

3.2.4 Force Measuring Device.

3.2.5 Displacement Measuring Device. (e.g., X/Y recorder.)

GM Confidential

© Copyright 2014 General Motors Company All Rights Reserved

December 2014

Page 1 of 6

3.3 Test Vehicle/Test Piece. Complete trimmed seat subsystem. An appropriate seat subsystem consisting of all components necessary to qualify as complete for the model and trim level specified by the Design Release Engineer (DRE).

3.4 Test Time. Not applicable.

Calendar time: days

Test hours: hours

Coordination hours: hours

3.5 Test Required Information. Not applicable.

3.6 Personnel/Skills. The following individuals are necessary to complete this test procedure:

3.6.1 General Motors Design Release Engineer.

3.6.2 General Motors Validation Engineer.

3.6.3 Testing organization's Test Engineer.

3.6.4 Testing organization's Test Technician.

4 Procedure

4.1 Preparation.

4.1.1 Visual Inspection. The Design Release Engineer shall visually inspect the seat assembly for correct part numbers, quality of frame welds, proper fit and assembly, and the presence of all required parts.

4.1.2 Mounting. Mount the seat subsystem on the appropriate model mounting blocks. Include mounting spacers if specified for installation. If the seat is not in the heaviest complete seat version, additional loads have to be added to simulate the heaviest version with a correct weight distribution.

The slide angle on the adaptation has to be within 0.25 degrees difference to the specified angle. The seat anchorage points of the adaptation are to be within 0.2 mm deviance to the specified points.

4.1.3 Adjustment Setting. If so equipped, set all adjustments of the seat in design position.

4.2 Conditions.

4.2.1 Environmental Conditions. The durability test may be performed at room temperature or temperatures representative of vehicle profile. Validation Engineer to use engineering judgment based on materials used.

The test shall be performed mostly at room conditions $+23\text{ }^{\circ}\text{C} \pm 3\text{ }^{\circ}\text{C}$, $50\% \pm 5\%$ Relative Humidity (RH). Some cycles shall be done at $+60\text{ }^{\circ}\text{C} \pm 3\text{ }^{\circ}\text{C}$, $80\% \pm 5\%$ RH and $-15\text{ }^{\circ}\text{C} \pm 3\text{ }^{\circ}\text{C}$. For number of cycles at each temperature, refer to Table 1.

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.

The seat is subjected to load using a test dummy shaped similarly to an H point dummy using only the bottom panel. The applied load is $105\text{ kg} \pm 0.5\text{ kg}$ for a single or split (60/40) seat and $150\text{ kg} \pm 0.5\text{ kg}$ for full width seats. Seventy-five percent (75%) of the load shall be in the rear, 25% on the front area of the seat. The test dummy should be secured with a load strap to prevent it from falling off. For passive adjusters, a force application connection in the H point position has to be fitted.

4.3 Instructions.

4.3.1 General. The requirements are based on the mounting position in the vehicle. A test of the requirements is only permitted after a minimum of five operation cycles.

4.3.1.1 Pre/Post Testing. Before and after test, the release and operating efforts of the seat height and tilt adjusters are to be measured at room conditions (see above), but also at $+80\text{ }^{\circ}\text{C} \pm 3\text{ }^{\circ}\text{C}$, $50\% \pm 5\%$ RH and $-35\text{ }^{\circ}\text{C} \pm 3\text{ }^{\circ}\text{C}$. The release effort of passive adjusters is to be measured in the center of the area where the user handles the release lever with a load of $105\text{ kg} \pm 0.5\text{ kg}$ for a single or split (60/40) seat and $150\text{ kg} \pm 0.5\text{ kg}$ for full width seats applied and without load. For passive adjusters the upward force has to be measured in most up and most down position. With active adjusters, the operating effort has to be measured in the center of the area where the user handles the lever from end stop to end stop keeping 10 mm distance to the actual stop with a load of $105\text{ kg} \pm 0.5\text{ kg}$ for a single or split (60/40) seat and $150\text{ kg} \pm 0.5\text{ kg}$ for full width seats applied and

GM Confidential

© Copyright 2014 General Motors Company All Rights Reserved

December 2014

Page 2 of 6