



Seat Soft Trim to Seat Structure or Seat Wire Frame Retention

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 purpose of this test is to validate the trim cover attachment to seat structure or seat wire frames when using plastic J-retention clips or beaded Duon (an extruded listing) and hog rings.

1.2 Applicability. The test procedure applies to all front and rear seat trim covers that use J-retention clip or beaded Duon (an extruded listing) with hog rings engagement. In addition, there are tests that apply at both ambient and high temperature. All locations as specified in this document are applicable based on vehicle configuration.

1.3 Remarks. This procedure was correlated to durability vehicles as well as warranty returns.

2 References

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

2.1 External Standards/Specifications.

SAE J826

2.2 GM Standards/Specifications.

None

2.3 Additional References.

- Seat Subsystem Technical Specification (SSTS)

3 Resources

3.1 Facilities. A laboratory approved by the General Motors validation or test engineer. An environmental chamber capable of maintaining 80 °C and of suitable size for a trimmed front seat and rear seat back assembly.

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 An Adult Male 95th percentile person (AM95) with a height of 188 cm (6 ft 2 in) $\pm$ 5.1 cm (2 in) and weight of 123 kg (272 lb) $\pm$ 4.5 kg (10 lb).

3.2.2 Rigid fixture capable of mounting a trimmed front or rear seat in its representative vehicle design condition.

3.2.3 Flexible traction coupon with low elongation (i.e., airbag webbing), a width of 100 mm $\pm$ 2 mm, and overall length of 260 mm $\pm$ 10mm. At one end of the length of the coupon there shall be 30 mm of double material. See Figure 1.

Note: If the size of the retainer is smaller than the 100 mm $\pm$ 2 mm coupon, and it is not possible due to the trim cover length to attach a 100 mm $\pm$ 2 mm coupon, the coupon width may be adjusted to match the size of the retainer. In this case, the required engagement retention force shall be adjusted based on the calculation shown in 5.1. Additionally, if the trim cover length allows for the 100 mm $\pm$ 2 mm coupon to be attached across several

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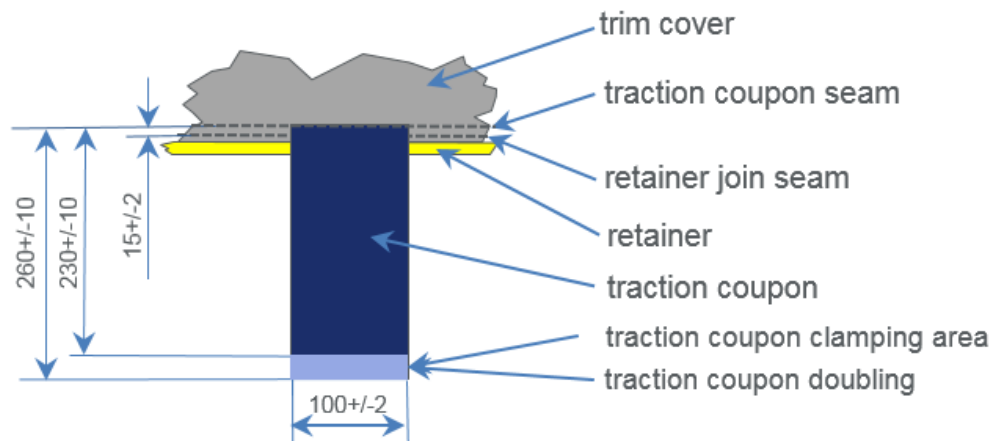
Page 1 of 12



Documents

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retainers that are < 100 mm width, it is recommended to use the 100 mm standard coupon with no adjustment to the engagement retention force criteria.



Note: Dimensions in mm

Figure 1: Cut and Sew Definition of the Flexible Traction Coupon

3.2.4 Environmental Chamber capable of accommodating a complete seat assembly on a fixture and achieving 80 °C.

3.2.5 Force gage capable of 250 N.

3.2.6 Clamp adapter for attaching to the force gage and pulling at the center of the coupon with an evenly distributed load as shown in Figure 2.



Figure 2: Clamping Device used to pull the Coupon with an Evenly Distributed Load

3.2.7 Back Form. An SAE J826 Back Form modified to pivot about the seat's Seat Reference Point (SRP) and to receive added weights.

3.2.8 Weights. Weights as required to add to the Back Form.

3.3 Test Vehicle/Test Piece. Use a fully trimmed seat assembly.

3.4 Test Time.

Calendar time: 4 days

Test time: 2 days

Coordination time: 2 days

3.5 Test Required Information. Obtain the following information from the GM Design Release Engineer or GM Validation Engineer:

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Page 2 of 12



Documents

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- Seating arrangement drawing or seat design position (i.e., recliner design position, fore/aft adjuster travel position, height adjuster position, tilt adjuster position).
- J-retainer location(s) and/or beaded Duon with hog ring location(s) required to meet the retention load.
- Front seat cushion structure with lowest pan hem height and lowest pan tang opening according to the allowable manufacturing tolerance.
- Rear seat back structure with lowest distance of tang edge to trim channel bottom according to the allowable manufacturing tolerance.
- J-retainer and/or beaded Duon drawing.

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

- General Motors Seat Subsystem Validation Engineer (SVE).
- General Motors Seat DRE.
- Test Engineer.
- Test Technician.

4 Procedure

4.1 Preparation.

4.1.1 Seats should be at ambient laboratory temperature and humidity prior to test start.

4.1.2 Check engagement of all retainers (click noises during assembly).

4.1.3 Photograph of the complete seat and the location of each J-retainer or hog ring of the different test locations prior to testing.

4.1.4 Flexible traction coupons shall be sewn to the trim covers according to the Cut and Sew Definition provided in Figure 1 by sewing to the retainer or beaded Duon join seam as shown in Figure 3 through Figure 10.

4.1.5 The following figures show the different coupon locations (with naming) and pull directions:

- Front seat cushion: Figures 3, 4, and 5
- Front seat back: Figure 6
- Rear seat cushion: Figures 7, 8, and 9
- Rear seat back: Figure 10

Figure 3 shows the coupon positions and pull direction at the front of the front seat cushion. Front seat cushion shall have two locations on the front of the seat cushion (Figure 3) defined as Front Seat Cushion 1 on the left side (FSC1) and Front Seat Cushion 2 on the right side (FSC2). On each side of the front seat cushion shall be a coupon as shown in Figure 4 defined as Front Seat Cushion 3 (FSC3) on the left side, and Front Seat Cushion 4 (FSC4) on the right side. Finally, the front seat cushion shall have two coupon locations on the lower back side as shown in Figure 5 defined as Front Seat Cushion 5 (FSC5) on the left side, and Front Seat Cushion 6 (FSC6) on the right side.

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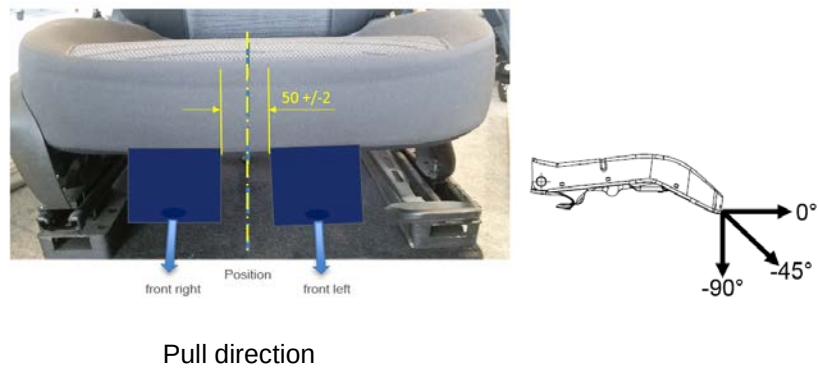
April 2017

Page 3 of 12



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Note: Dimensions in mm

Figure 3: Position and Pull Directions of the Front Seat Cushion Coupons on the Front of the Seat Cushion (FSC1 and FSC2)

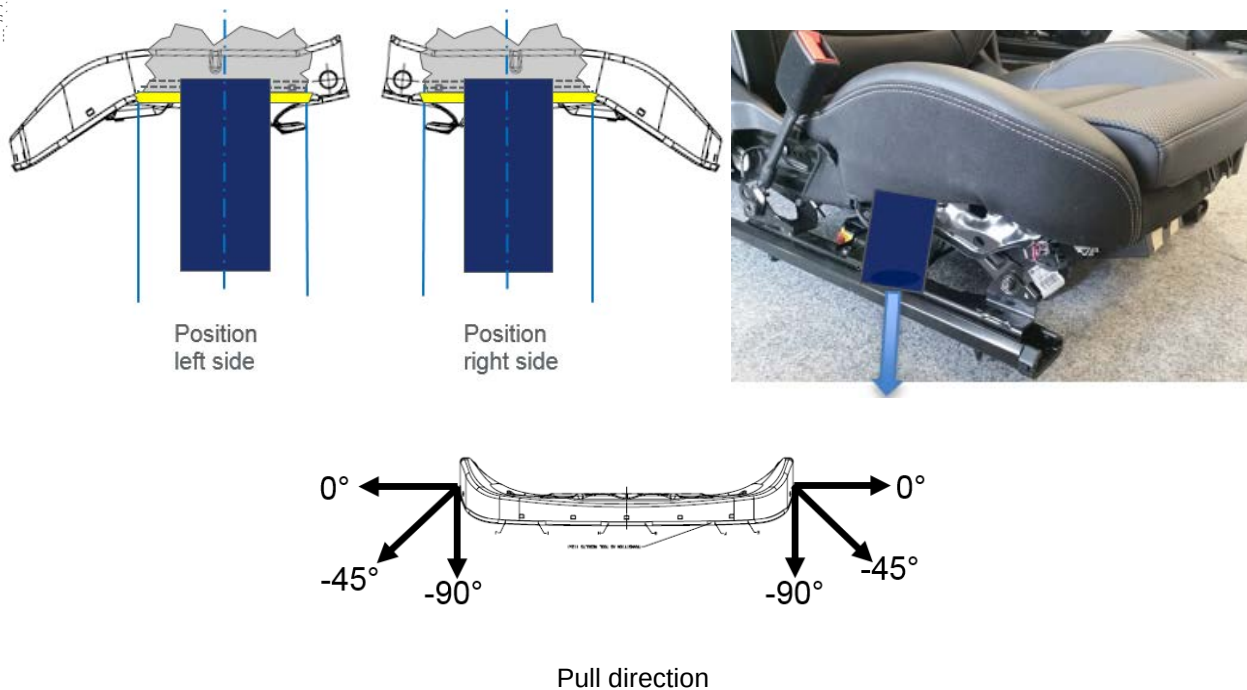


Figure 4: Position and Pull Direction of the Front Seat Cushion Coupons on each Side of the Front Seat Cushion (FSC3 and FSC4)

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Page 4 of 12