

PET RESTRAINT SYSTEM

TEST RESULTS

Tests conducted for

Company of Animals

TEST NUMBERS: CA 2001-3

Testing date: September 23, 2020

Child Passenger Protection Research Program
University of Michigan Transportation Research Institute
2901 Baxter Road, Ann Arbor MI 48109

LABORATORY TEST PROCEDURE for FMVSS 213 Child Restraint Systems

The Office of Vehicle Safety Compliance (OVSC) provides contractor laboratories with Laboratory Test Procedures as guidelines for obtaining compliance test data. The data are used to determine if a specific vehicle or item of motor vehicle equipment meets the minimum performance requirements of the subject Federal Motor Vehicle Safety Standard (FMVSS). The purpose of these OVSC Laboratory Test Procedures is to present a uniform testing and data recording format, and provide suggestions for the use of specific equipment and procedures

GENERAL REQUIREMENTS

The test procedures, methods, and associated equipment are based on the requirements of the following documents to the extent referenced herein. 49 CODE OF FEDERAL REGULATIONS (CFR) 571 FEDERAL MOTOR VEHICLE SAFETY STANDARDS (FMVSS)

- FMVSS 213 - Child Restraint Systems
- FMVSS 209 - Seat Belt Assemblies
- FMVSS 302 - Flammability of Interior Materials
- FMVSS 225 - Child Restraint Anchorage Systems

TEST METHODS

The tests were performed on an impact sled located at the UM Transportation Research Institute. The sled operates on a rebound principle, achieving a desired velocity change by reversing its direction during the impact event. The crash pulse is trapezoidal in shape and is similar to that of a small automobile. Sled velocity is monitored immediately before and after impact to compute the overall change in velocity. The FMVSS 213 corridor is shown as a shaded area on the sled deceleration plot when appropriate, and peak deceleration is reported.

The test data are digitized on-line and analyzed on a workstation. All test signals are filtered according to the requirements of SAE J-211, and signal output conforms to the SAE J-1733 sign convention. Photographic equipment includes high-speed (1000 frames per second) digital video cameras from both side and overhead or forward directions. The strobe flash corresponds to time-zero on the plots.

**PET RESTRAINT SYSTEM
TEST DATA SUMMARY**

Test Number: **CA 2003**
Test Date: September 23, 2020

SET-UP

Product Description:

31.8 kg (70-lb) surrogate dog restrained by a Company of Animals pet harness secured with the vehicle lap & shoulder belts routed through the rear belt loop on the harness

Frontal impact
FMVSS 213 standard seat
48 km/h (30 mph), 20 g

RESULTS

Velocity	48.7 km/h	(30.3 mph)
Peak Acceleration	24.3 g	
Forward 'Muzzle' excursion	823 mm	(32.4 in)
Lap belt load	5100 N	(1147 lbf)
Shoulder belt load	7364 N	(1656 lbf)

Comments

The harness remained intact and limited the forward motion of the dog dummy. The adjuster on the right side of the harness slipped about 100 mm but the left side adjuster slipped less than 30 mm. There was some fraying of stitching and webbing but all the stitched junctions held. At the end of the test, the dog dummy was still on the test bench.

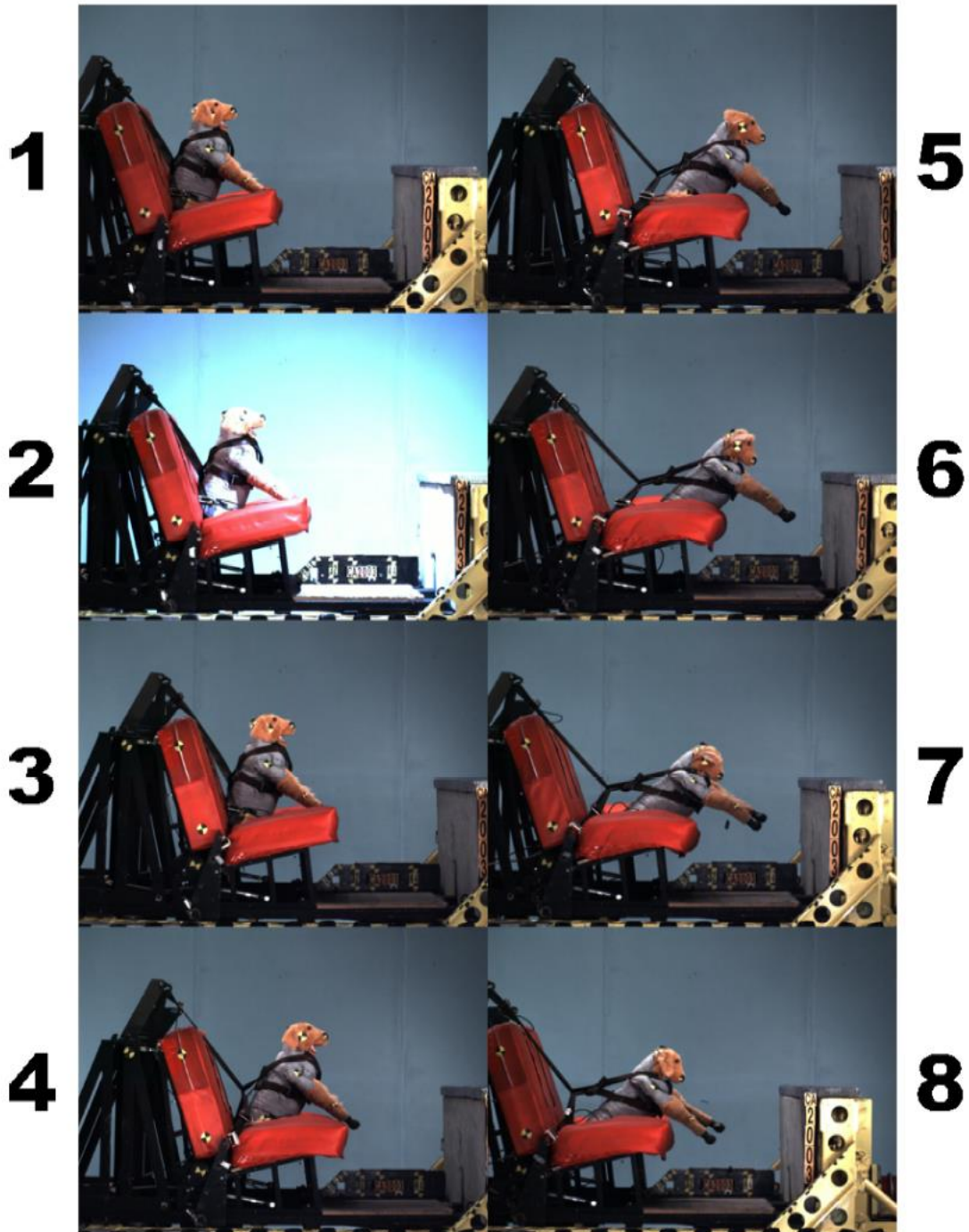


ca200303.JPG



ca200304.JPG

CA2003





ca2003A03.JPG



ca2003A04.JPG



ca2003A07.JPG



Results

CA2003

Nominal = 30 mph/ 20 g Pressures: 117.4/1078
Actual[P] = 48.7 km/h (30.3 mph) (78.7%) Plateau Avg.= -21.3 G; Peak = -24.3 G

Dummy: Dog Dummy (70 lb, 31.8 kg)
Buck: FMVSS 213 Buck

Buck Weight: 1880

Company of Animals Dog Harness
Secured with Vehicle Lap and Shoulder Belt

Sled Summary

Sled Pulse Duration = 75.2 ms

Sled Plateau Average Level = -21.3 G

Sled Decel Peak = -24.3 G

Efficiency = $V_{out} / V_{in} = 21.4 / 27.3 = 78.7\%$

Sled Delta V = 48.7 kph (30.3 mph)

Stopping Dist. (est) = .540 m

Belt Loads

Lap Belt Load -14.8 N (-3.3 lb) @ 158 ms

Shoulder Belt Load -8.7 N (-2.0 lb) @ 205 ms

5099.8 N (1146.5 lb) @ 73 ms

7364.2 N (1655.5 lb) @ 81 ms

09/23/2020

