

FINAL REPORT NUMBER: SINCAP-TRC-13-005

**NEW CAR ASSESSMENT PROGRAM (NCAP)
MOVING DEFORMABLE BARRIER SIDE IMPACT TEST**

**Chrysler Group LLC
2013 Jeep Compass Sport FWD
NHTSA NUMBER: QD0300**

**PREPARED BY:
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Report Date: January 11, 2013

FINAL REPORT

**PREPARED FOR:
U.S. DEPARTMENT OF TRANSPORTATION
National Highway Traffic Safety Administration
Office of Crashworthiness Standards
Mail Code: NVS-111
1200 New Jersey Ave, SE, Room W43-410
Washington, D.C. 20590**

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Prepared By: ILO Project Operations Team

Approved By: _____

Approval Date: _____

FINAL REPORT ACCEPTANCE BY OCWS:

Division Chief, New Car Assessment Program
NHTSA, Office of Crashworthiness Standards

Date: _____

COTR, New Car Assessment Program
NHTSA, Office of Crashworthiness Standards

Date: _____

Technical Report Documentation Page

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16. Abstract This 55/28 km/h 90° Moving Deformable Barrier NCAP Side Impact Test was conducted on the subject 2013 Jeep Compass Sport FWD MPV in accordance with the specifications of the Office of Crashworthiness Standards Test Procedure for the generation of consumer information on vehicle side crash protection. This test was conducted by Transportation Research Center Inc. in East Liberty, Ohio, on November 19, 2012. The impact velocity of the Moving Deformable Barrier (MDB) was 61.53 km/h, and the ambient temperature at the struck (left) side of the target vehicle at the time of impact was 22° C. The target vehicle post-test maximum crush was 195 mm at Level 2. The test vehicle's performance was as follows: Driver ATD (ES-2re) <table border="1"> <thead> <tr> <th>Measurement Description</th><th>Units</th><th>IARV</th><th>Result</th></tr> </thead> <tbody> <tr> <td>Head Injury Criteria (HIC₃₆)</td><td>NA</td><td>1000</td><td>94</td></tr> <tr> <td>Maximum Thoracic Rib Deflection</td><td>mm</td><td>44</td><td>18.4</td></tr> <tr> <td>Total Abdominal Force</td><td>N</td><td>2500</td><td>1220.8</td></tr> <tr> <td>Pubic Symphysis Force</td><td>N</td><td>6000</td><td>1854.2</td></tr> </tbody> </table> Passenger ATD (SID-IIs) <table border="1"> <thead> <tr> <th>Measurement Description</th><th>Units</th><th>IARV</th><th>Result</th></tr> </thead> <tbody> <tr> <td>Head Injury Criteria (HIC₃₆)</td><td>NA</td><td>1000</td><td>274</td></tr> <tr> <td>Resultant Lower Spine Acceleration</td><td>g's</td><td>82</td><td>62.8</td></tr> <tr> <td>Total Pelvic Force (sum of acetabular and iliac forces)</td><td>N</td><td>5525</td><td>5262.4</td></tr> <tr> <td>Maximum Thoracic Rib Deflection</td><td>mm</td><td>38*</td><td>28.7</td></tr> <tr> <td>Maximum Abdominal Rib Deflection</td><td>mm</td><td>45*</td><td>14.2</td></tr> </tbody> </table> * Proposed IARV The doors on the struck side of the vehicle did not separate from the body at the hinges or latches and the opposite doors did not open during the side impact event.				Measurement Description	Units	IARV	Result	Head Injury Criteria (HIC ₃₆)	NA	1000	94	Maximum Thoracic Rib Deflection	mm	44	18.4	Total Abdominal Force	N	2500	1220.8	Pubic Symphysis Force	N	6000	1854.2	Measurement Description	Units	IARV	Result	Head Injury Criteria (HIC ₃₆)	NA	1000	274	Resultant Lower Spine Acceleration	g's	82	62.8	Total Pelvic Force (sum of acetabular and iliac forces)	N	5525	5262.4	Maximum Thoracic Rib Deflection	mm	38*	28.7	Maximum Abdominal Rib Deflection	mm	45*	14.2
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17. Key Words New Car Assessment Program (NCAP) Side Impact MDB ES-2re SID-IIs		18. Distribution Statement Copies of this report are available from: National Highway Traffic Safety Administration Technical Information Services Division, NPO-411 1200 New Jersey Ave, SE Washington, DC 20590 e-mail: tis@nhtsa.dot.gov FAX: 202-493-2833																																													
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SECTION 1
TEST PURPOSE AND PROCEDURE

TEST PURPOSE AND PROCEDURE

This moving deformable barrier side impact test was conducted as part of the MY 2013 New Car Assessment Program Side Impact Test Program, sponsored by the National Highway Traffic Safety Administration (NHTSA), under Contract No. DTNH22-09-D-00125. The purpose of this test is to generate comparative side impact performance in a 2013 Jeep Compass Sport FWD MPV. The side impact test was conducted in accordance with the Office of Crashworthiness Standard's Laboratory Test Procedure dated September 2012.

SECTION 2

SUMMARY OF TEST RESULTS

A 2013 Jeep Compass Sport FWD MPV was impacted on the left (driver's) side by a Moving Deformable Barrier (MDB) which was moving forward in a 27° crabbed position to the tow road guidance system at a velocity of 61.53 km/h (38.23 mph). The target vehicle was stationary and was positioned at an angle of 63° to the line of forward motion. The side impact test was conducted by the Transportation Research Center Inc. in East Liberty, OH, on November 19, 2012. Pre-test and post-test photographs of the test vehicle and the MDB and the dummies (ES-2-re and SID-IIs) are included in this report.

Dummies were placed in the driver and left rear designated seating positions according to instructions specified in the OCWS Side Impact Laboratory Test Procedure, dated September 2012. The side impact event was documented by 10 cameras. Camera locations are included in this report.

The dummies were instrumented in the following manner:

DRIVER ATD (ES-2re)

Primary and redundant head CG tri-axial accelerometers

Chest upper rib, middle rib, and lower rib y-axis displacement potentiometers

Abdomen forward, middle, and rear y-axis load cells

Lower spine (T12) tri-axial accelerometers

Pubic symphysis y-axis load cell

PASSENGER ATD (SID-IIs)

Primary and redundant head CG triaxial accelerometers

Chest upper rib, middle rib, and lower rib y-axis displacement potentiometers

Abdomen upper rib and lower rib y-axis displacement potentiometers

Lower spine (T12) tri-axial accelerometers

Acetabulum and iliac wing y-axis load cells

APPENDIX B contains the vehicle and dummy response data. Dummy configuration and performance verification data can be found in APPENDIX C of this report.

Dummy injury readings were recorded as follows:

Measurement Description	Driver ATD (ES-2-re)		
	Units	Threshold	Result
Head Injury Criteria (HIC ₃₆)	N/A	1000	94
Maximum Thoracic Rib Deflection	mm	44	18.4
Combined Abdominal Force	N	2500	1220.8
Pubic Symphysis Force	N	6000	1854.2

Measurement Description	Passenger ATD (SID-IIs)		
	Units	Threshold	Result
Head Injury Criteria (HIC ₃₆)	N/A	1000	274
Lower Spine (T12) Resultant Acceleration	G	82	62.8
Total Pelvic Force (sum of acetabular and iliac forces)	N	5525	5262.4
Maximum Thoracic Rib Deflection	mm	38*	28.7
Maximum Abdominal Rib Deflection	mm	45*	14.2

* Proposed IARV

Supplemental Restraint Information is given below:

Restraint Type	Left Front (Driver) Occupant Location 1		Left Rear (Passenger) Occupant Location 4	
	Mounted	Deployed	Mounted	Deployed
Front Airbag	Yes	No		
Side Curtain Airbag	Yes	Yes	Yes	Yes
Side Torso Airbag	No	NA	No	NA
Knee Airbag	No	NA	No	NA
Seat Belt Pretensioner	Yes	Yes	No	NA
Seat Belt Load Limiter	No	No	No	NA
Other	NA	NA	NA	NA

GENERAL COMMENTS

All doors remained closed throughout the test. No fuel spillage occurred during the impact or the static rollover test which followed. Injury values for both ATDs were within the established performance thresholds. The restraint system performed as expected.

SECTION 3
OCCUPANT AND VEHICLE INFORMATION

DATA SHEET NO. 1

GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle: 2013 Jeep Compass Sport FWD MPV
 Test Program: NCAP Side Impact

NHTSA No.: QD0300
 Test Date: 11/19/12

TEST VEHICLE INFORMATION AND OPTIONS

NHTSA No.	QD0300	Traction Control System (TCS)	Yes
Model Year	2013	Auto-Leveling System	No
Make	Jeep	Automatic Door Locks (ADL)	Yes
Model	Compass Sport	Power Window Auto-Reverse	Yes
Body Style	MPV	Other Optional Feature	None
VIN	1C4NJCBA0DD100348	Driver Frontal Airbag	Yes
Body Color	Gray	Driver Curtain Airbag	Yes
Odometer Reading (miles)	20	Driver Head/Torso Airbag	No
Engine Displacement (L)	2.0	Driver Torso Airbag	No
Type/No. Cylinders	4	Driver Torso/Pelvis Airbag	No
Engine Placement	Transverse	Driver Pelvis Airbag	No
Transmission Type	Automatic	Driver Knee Airbag	No
Transmission Speeds	CVT	Rear Passenger Curtain Airbag	Yes
Overdrive	Yes	Rear Pass. Head/Torso Airbag	No
Final Drive	Front Wheel	Rear Passenger Torso Airbag	No
Roof Rack	Yes	Rear Pass. Torso/Pelvis Airbag	No
Sunroof / T-Top	No	Rear Passenger Pelvis Airbag	No
Running Boards	No	Driver Seat Belt Pretensioner	Yes
Tilt Steering Wheel	Yes	Rr. Pass. Seat Belt Pretensioner	No
Power Seats	No	Driver Load Limiter	No
Anti-Lock Brakes (ABS)	Yes	Rear Passenger Load Limiter	No
		Other Safety Restraint	None

Does owner's manual provide instructions to turn off automatic door locks?

Yes

DATA FROM CERTIFICATION LABEL

Manufactured By	Chrysler Group LLC	GVWR (kg)	2012
Date of Manufacture	JUL 12	GAWR Front (kg)	1080
Vehicle Type	MPV	GAWR Rear (kg)	1044

VEHICLE SEATING AND CAPACITY WEIGHT INFORMATION

Measured Parameter	Front	Rear	Third	Total
Designated Seating Capacity (DSC)	2	3	N/A	5
Capacity Weight (VCW) (kg)				419.0
DSC x 68.04 (kg)				340.2
Cargo Weight (RCLW) (kg)				78.8

VEHICLE SEAT TYPE

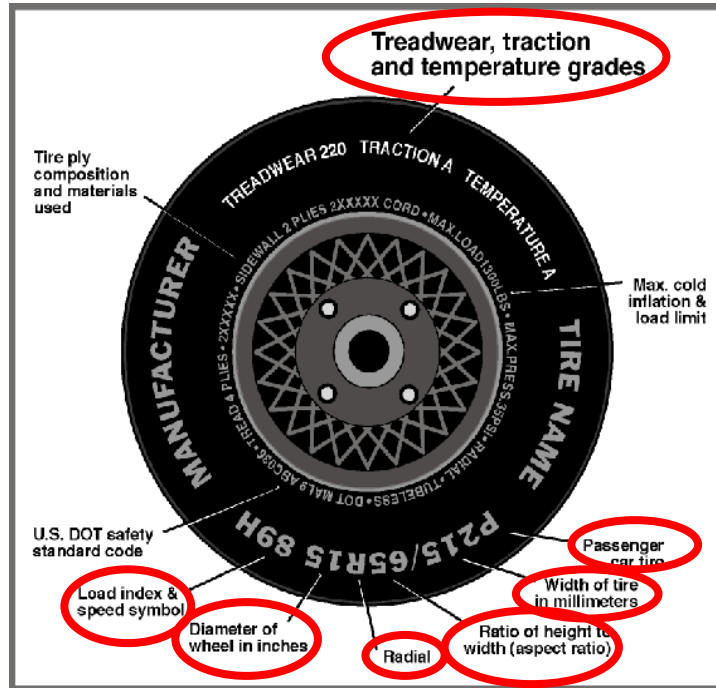
Seating Location	Type of Seat Pan				Type of Seat Back		
	Bucket	Bench	Split Bench	Contoured	Fixed	Adjustable	
						w/ Lever	w/ Knob
Front Seat	Yes	No	No		No	Yes	No
Rear or Second Row Seat	No	No	Yes	Yes	Yes	No	No
Third Row Seat	N/A	N/A	N/A	N/A	N/A	N/A	N/A

DATA SHEET NO. 1 (CONTINUED)

GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle: 2013 Jeep Compass Sport FWD MPV
 Test Program: NCAP Side Impact

NHTSA No.: QD0300
 Test Date: 11/19/12



DATA FROM TIRE PLACARD

Measured Parameter	Front	Rear
Maximum Tire Pressure (kPa)	300	300
Cold Pressure (kPa)	220	220
Recommended Tire Size	P215/60R17	P215/60R17
Tire Size on Vehicle	P215/60R17	P215/60R17
Tire Manufacturer	Firestone	Firestone
Tire Model	Affinity Touring	Affinity Touring
Treadwear	500	500
Traction Grade	A	A
Temperature Grade	B	B
Tire Plies Sidewall	1	1
Tire Plies Body	3	3
Load Index/Speed Symbol	95T	95T
Tire Material	Polyester & Steel	Polyester & Steel
DOT Safety Code Left	8XNV AFB 2212	8XNV AFB 2212
DOT Safety Code Right	8XNV AFB 2212	8XNV AFB 2212

DATA SHEET NO. 1 (CONTINUED)

GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle: 2013 Jeep Compass Sport FWD MPV
 Test Program: NCAP Side Impact

NHTSA No.: QD0300
 Test Date: 11/19/12

TIRE PRESSURES

	Units	LF	RF	LR	RR
As Delivered	kPa	220	220	220	220
Tire Placard	kPa	220	220	220	220
Owner's Manual	kPa	220	220	220	220
As Tested	kPa	221	221	221	221

MDB TIRE SPECIFICATIONS

	Units	Requirement	LF	RF	LR	RR
Tire Size		P205/75R15	P205/75R15	P205/75R15	P205/75R15	P205/75R15
Tire Pressure	kPa	200 +/- 21	207	207	207	207

TEST VEHICLE AXLE WEIGHTS

	Units	As Delivered (UVW)			As Tested (ATW)			Fully Loaded		
		Front Axle	Rear Axle	Total	Front Axle	Rear Axle	Total	Front Axle	Rear Axle	Total
Left	kg	433.0	301.4		481.4	370.4		478.6	403.0	
Right	kg	423.2	288.6		439.2	352.4		424.8	363.0	
Ratio	%	59.2	40.8		56.0	44.0		54.1	45.9	
Totals	kg	856.2	590.0	1446.2	920.6	722.8	1643.4	903.4	766.0	1669.4

TARGET TEST WEIGHT CALCULATION

Measured Parameter	Units	Value
Total As Delivered Weight (UVW)	kg	1446.2
Actual Weight of 2 P572 ATDs Used	kg	125
Rated Cargo/Luggage Weight (RCLW)	kg	78.8
Calculated Vehicle Target Weight (TVTW)	kg	1650.0

(A)
 (B)
 (C)
 (A+B+C)

Does the measured As Tested Vehicle Weight lie within the required weight range (i.e. Calculated Test Vehicle Target Weight – 4.5 kg to 9 kg)? ☒ YES ☐ NO

WEIGHT OF BALLAST AND VEHICLE COMPONENTS REMOVED TO MEET TVTW

Component Description	Weight (kg)
Ballast: Steel plate in cargo area	23.6

DATA SHEET NO. 1 (CONTINUED)**GENERAL TEST AND VEHICLE PARAMETER DATA**

Test Vehicle: 2013 Jeep Compass Sport FWD MPV
Test Program: NCAP Side Impact

NHTSA No.: QD0300
Test Date: 11/19/12

TEST VEHICLE ATTITUDE AND CG

Measurement Description	Units	Fully Loaded	As Tested	Meets Requirement***
LF	mm	776	769	Yes
RF	mm	779	770	Yes
RR	mm	775	774	Yes
LR	mm	757	765	Yes
Vehicle CG (Aft of Front Axle)	mm	1075	1157	
Vehicle CG (Left(+)/Right (-) from Longitudinal centerline	mm	+12	+27.5	

***The "As Tested" vehicle attitude measurements must be equal to or within ± 10 mm of the "Fully Loaded" vehicle attitude measurements at each wheel well. Indicate "Yes" or "No" for "Meets Requirement".

DATA SHEET NO. 2

SEAT, SEAT BELT, STEERING WHEEL ADJUSTMENT AND FUEL SYSTEM DATA

Test Vehicle: 2013 Jeep Compass Sport FWD MPV

NHTSA No.: QD0300

Test Program: NCAP Side Impact

Test Date: 11/19/12

SEAT POSITIONING

The driver seat, front center seat (if applicable), and right front passenger's seat should be set to the mid-track, lowest, mid-angle position. The struck-side rear passenger's seat, rear center seat, and non-struck side rear passenger's seats should be set to the rear-most, lowest, mid-angle position.

SCRL ANGLE RANGE

Seat	SCRL(°)		
	Max.	Min.	Mid
Driver Seat	Fixed	N/A	10.0
Front Passenger Seat	Fixed	N/A	12.2
Front Center Seat*	N/A	N/A	N/A
Struck Side Rear Seat	N/A	N/A	9.0
Non-Struck Side Rear Seat	N/A	N/A	9.3
Rear Center Seat*	N/A	N/A	4.8

* If applicable.

SEAT HEIGHT AND ANGLE

Seat	As Tested SCRL Angle (Mid) (°)	As Tested SCRP Height (mm)	SCRP Height Position	SCRP Height (mm)		
				Rearmost	Mid-Fore/Aft	Forward-Most
Driver Seat	10.0	171	Max.	N/A	N/A	N/A
			Mid	158	171	180
			Min.	N/A	N/A	N/A
Front Passenger Seat	12.8	176	Max.	N/A	N/A	N/A
			Mid	164	176	185
			Min.	N/A	N/A	N/A
Front Center Seat*	n/a	n/a	Max.	N/A	N/A	N/A
			Mid	N/A	N/A	N/A
			Min.	N/A	N/A	N/A
Struck Side Rear Seat	Fixed	Fixed	Max.	N/A	N/A	N/A
			Mid	N/A	N/A	N/A
			Min.	N/A	N/A	N/A
Non-Struck Side Rear Seat	Fixed	Fixed	Max.	N/A	N/A	N/A
			Mid	N/A	N/A	N/A
			Min.	N/A	N/A	N/A
Rear Center Seat*	Fixed	Fixed	Max.	N/A	N/A	N/A
			Mid	N/A	N/A	N/A
			Min.	N/A	N/A	N/A

* If applicable.

DATA SHEET NO. 2 (CONTINUED)

SEAT, SEAT BELT, STEERING WHEEL ADJUSTMENT AND FUEL SYSTEM DATA

Test Vehicle: 2013 Jeep Compass Sport FWD MPV
 Test Program: NCAP Side Impact

NHTSA No.: QD0300
 Test Date: 11/19/12

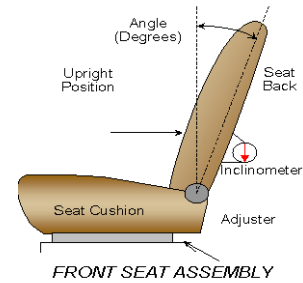
SEAT FORE/AFT POSITION

Seat	Total Fore/Aft Travel		Test Position from Forwardmost Position	
	mm	Detents*	mm	Detent*
Driver Seat	260	39	130	20
Front Passenger Seat	260	39	130	20
Front Center Seat*	N/A	N/A	N/A	N/A
Struck Side Rear Seat	0	Fixed	0	Fixed
Non-Struck Side Rear Seat	0	Fixed	0	Fixed
Rear Center Seat*	0	Fixed	0	Fixed

* If applicable.

SEAT BACK ANGLE ADJUSTMENT

The driver's seat back is positioned to the manufacturer's designated seat back angle. The front center and front passenger's seat backs are positioned in a similar manner as the driver's seat back. The struck side rear seat back is positioned such that the dummy's head is level. The rear center and non-struck side rear outboard seat backs are positioned in a similar manner as the struck-side rear seat back.



Seat	Total Seat Back Angle Range		Test Position from Most Upright	
	Degrees	Detents*	Degrees	Detent*
Driver Seat w/ Seated Dummy	72.4	33	12.9	8
Front Passenger Seat	71.9	33	13.1	8
Front Center Seat*	N/A	N/A	N/A	N/A
Struck Side Rear Seat w/ Seated Dummy	0	Fixed	0	Fixed
Non-Struck Side Rear Seat	0	Fixed	0	Fixed
Rear Center Seat*	0	Fixed	0	Fixed

* If applicable.

DATA SHEET NO. 2 (CONTINUED)**SEAT, SEAT BELT, STEERING WHEEL ADJUSTMENT AND FUEL SYSTEM DATA**

Test Vehicle: 2013 Jeep Compass Sport FWD MPV
 Test Program: NCAP Side Impact

NHTSA No.: QD0300
 Test Date: 11/19/12

SEAT BELT ANCHORAGE ADJUSTMENT

Seat belt anchorages are adjusted with the information provided by the manufacturer on Form No. 1

	Total # of Positions	Placed in Position #
Driver Seat	4	0
Rear Seat	1	Fixed

HEAD RESTRAINT ADJUSTMENT

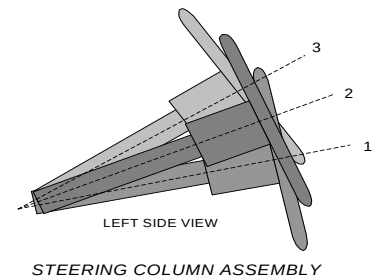
The driver's head restraint is adjusted to the highest and most full forward in-use position. The struck-side rear passenger's head restraint is adjusted to the lowest and most full forward in-use position.

	Total # of Positions	Placed in Position #
Driver Seat	5	1
Rear Seat	1	Fixed

STEERING COLUMN ADJUSTMENT

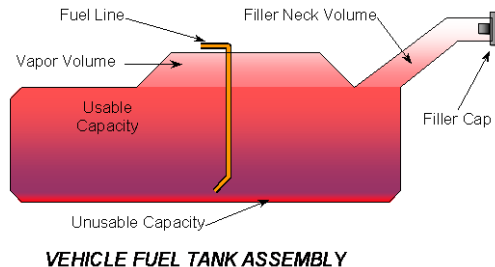
Steering wheel and column adjustments are made so that the steering wheel hub is at the geometric locus it describes when it moves through its full range of motion.

	Degrees	Fore/Aft Position, mm
Lowermost, Position 1	69.1	No feature
Geometric Center, Position 2	66.0	No feature
Uppermost, Position 3	62.9	No feature
Telescoping Steering Wheel Travel		No feature
Test Position	66.0	No feature

**FUEL PUMP**

Describe the fuel pump type, details about how it operates and the location of the fuel filler neck:

The fuel tank is located in front of the rear axle under the rear seat area. The fuel filler neck enters the left rear corner of the fuel tank. The fuel cap is located on the left rear quarter panel. The fuel lines run along the inside of the left frame rail.



DATA SHEET NO. 2 (CONTINUED)**SEAT, SEAT BELT, STEERING WHEEL ADJUSTMENT AND FUEL SYSTEM DATA**Test Vehicle: 2013 Jeep Compass Sport FWD MPVNHTSA No.: QD0300Test Program: NCAP Side ImpactTest Date: 11/19/12**FUEL TANK CAPACITY**

	Liters
Usable Capacity of "Standard Tank" (see Form No. 1)	51.5
Usable Capacity of "Optional" Tank (see Form No. 1)	N/A
Usable Capacity of Standard Tank (see Owner's Manual)	51.5
Usable Capacity of Optional Tank (see Owner's Manual)	N/A
93% of Usable Capacity	47.9
Actual Amount of Solvent Used in Test	47.7
1/3 of Usable Capacity	17.2

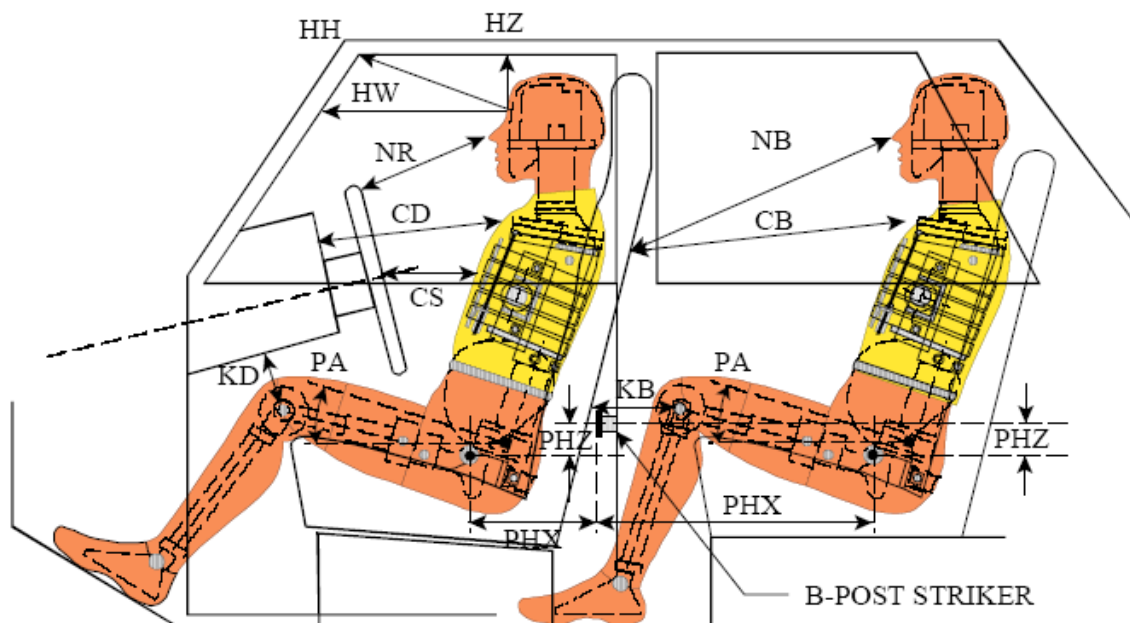
Is the Actual Amount of Solvent Used in the test equal to 93% $\pm$ 1% of the Usable Capacity stated on Form No. 1? ☒ YES ☐ NO

DATA SHEET NO. 3

DUMMY LONGITUDINAL CLEARANCE DIMENSIONS

Test Vehicle: 2013 Jeep Compass Sport FWD MPV
 Test Program: NCAP Side Impact

NHTSA No.: QD0300
 Test Date: 11/19/12



LEFT SIDE VIEW

NOTE: 2-DOOR VEHICLE SHOWN.
 REAR DUMMY PHX & PHZ
 MEASUREMENTS FOR A 4-DOOR
 VEHICLE WOULD USE THE C-POST
 STRIKER AS A REFERENCE POINT

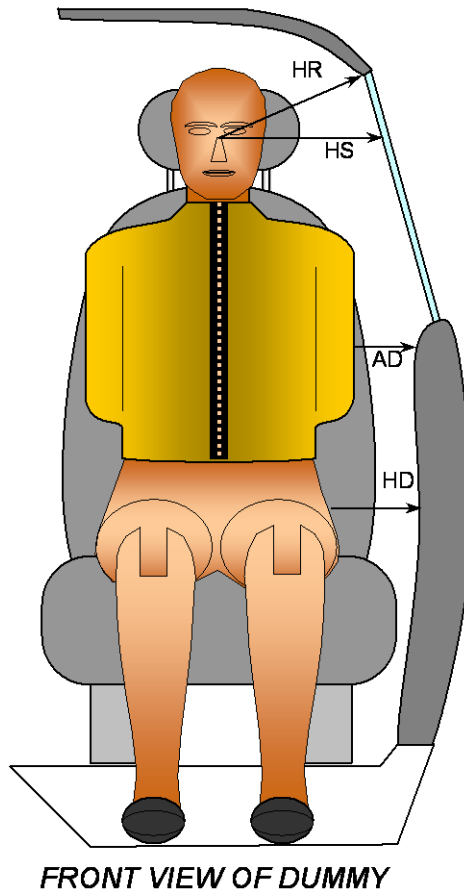
DUMMY LONGITUDINAL CLEARANCE DIMENSION INFORMATION

Driver Code	Pass. Code	Measurement Description	Driver		Passenger	
			Length (mm)	Angle	Length (mm)	Angle
HH		Head to Header	511			
HW		Head to Windshield	693			
HZ	HZ	Head to Roof Liner	191		320	
NR	NB	Nose to Rim/Seat Back	467		506	
CD	CB	Chest to Dash/Seat Back	391		513	
CS		Chest to Steering Wheel	289			
KD(L)/KDA(L)°	KB(L)/KBA(L)°	Left Knee to Dash/Seat Back	146	28.0	301	7.8
KD(R)/KDA(R)°	KB(R)/KBA(R)°	Right Knee to Dash/Seat Back	135	31.0	294	7.4
PAX°	PAX°	Pelvic Tilt Angle X		0.2		0.3
	PHY°	Pelvic Tilt Angle Y				16.0
PHX	PHX	Hip Point to Striker (X-Axis)	189		138	
PHZ	PHZ	Hip Point to Striker (Z-Axis)	122		292	

DATA SHEET NO. 4
DUMMY LATERAL CLEARANCE DIMENSIONS

Test Vehicle: 2013 Jeep Compass Sport FWD MPV
Test Program: NCAP Side Impact

NHTSA No.: QD0300
Test Date: 11/19/12

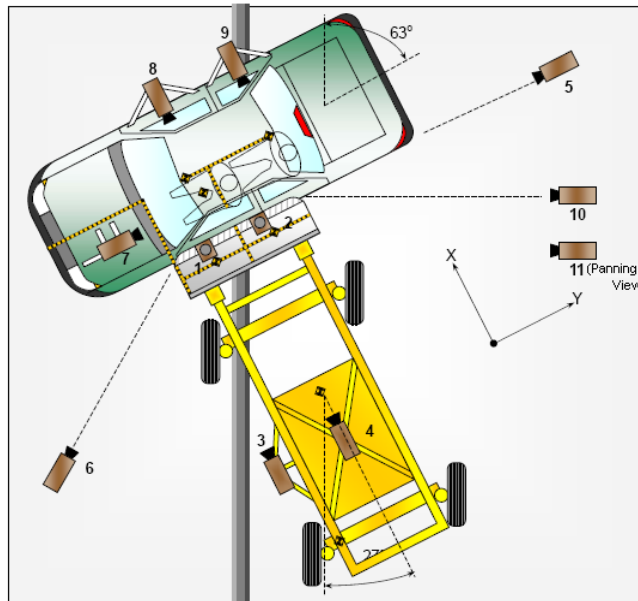


Code	Description	Units	Driver	Passenger
HR	Head to Side Header	mm	166	288
HS	Head to Side Window	mm	354	402
AD	Arm to Door	mm	82	150
HD	H-Point to Door	mm	146	170

DATA SHEET NO. 5
CAMERA AND INSTRUMENTATION DATA

Test Vehicle: 2013 Jeep Compass Sport FWD MPV
 Test Program: NCAP Side Impact

NHTSA No.: QD0300
 Test Date: 11/19/12



CAMERA LOCATIONS AND DATA

No.	Camera View	Coordinates (mm)			Lens Length (mm)	Operating Frame Rate (fps)
		X	Y	Z		
1	Overhead Overall	0	1120	-5723	25	30
2	Overhead Close-up	0	855	-5711	8.5	1000
3	Left Impact Point (MDB)	1709	-812	-832	12.5	1000
4	Side Overall (MDB)	2468	0	-1418	8.5	1000
5	Rear	0	6799	-1346	8.5	1000
6	Left Front	2130	-4646	-1143	12.5	1000
7	Driver Front (OB)				12.5	1000
8	Driver Side (OB)				8.5	1000
9	Passenger Side (OB)				8.5	1000
10	Real-time Left Rear				30.5	30
11	Real-time Inrun				zoom	30

Reference: Impact Point projected to Ground; +X = To Front of MDB +Y = To Right of MDB; +Z = Down

*All measurements accurate to ± 6 mm.

If applicable, explain why camera(s) did not operate as intended:

INSTRUMENTATION

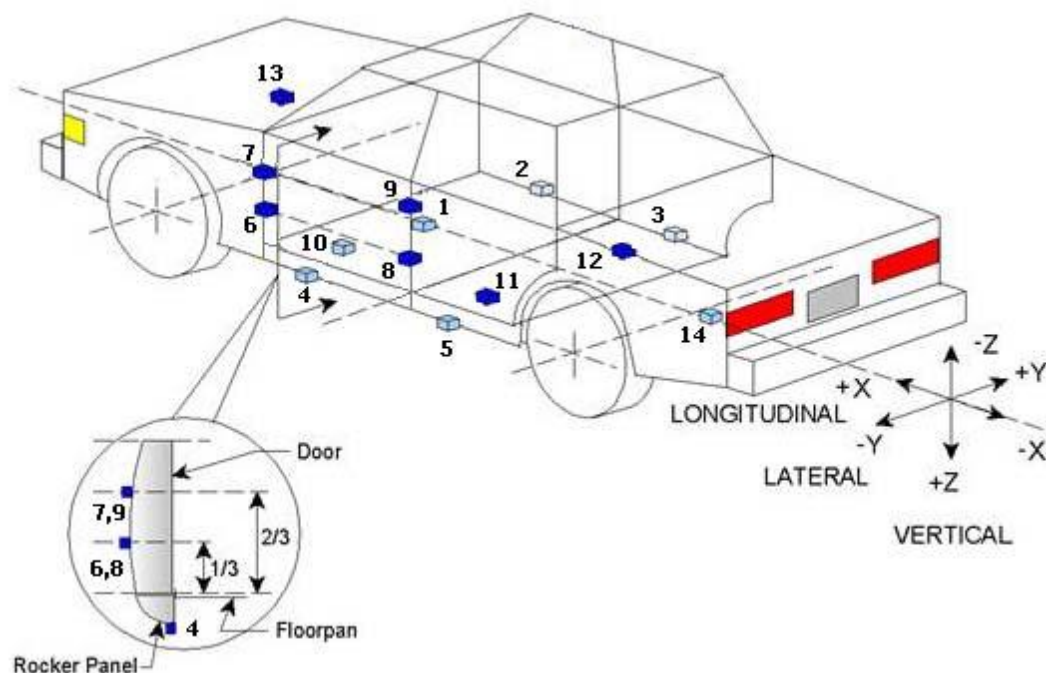
Driver Dummy Channels	16
Passenger Dummy Channels	16
Vehicle Structure Accelerometers	23
MBD Accelerometers	7
TOTAL	62

DATA SHEET NO. 6

TEST VEHICLE ACCELEROMETER LOCATIONS

Test Vehicle: 2013 Jeep Compass Sport FWD MPV
 Test Program: NCAP Side Impact

NHTSA No.: QD0300
 Test Date: 11/19/12



TEST VEHICLE ACCELEROMETER LOCATIONS

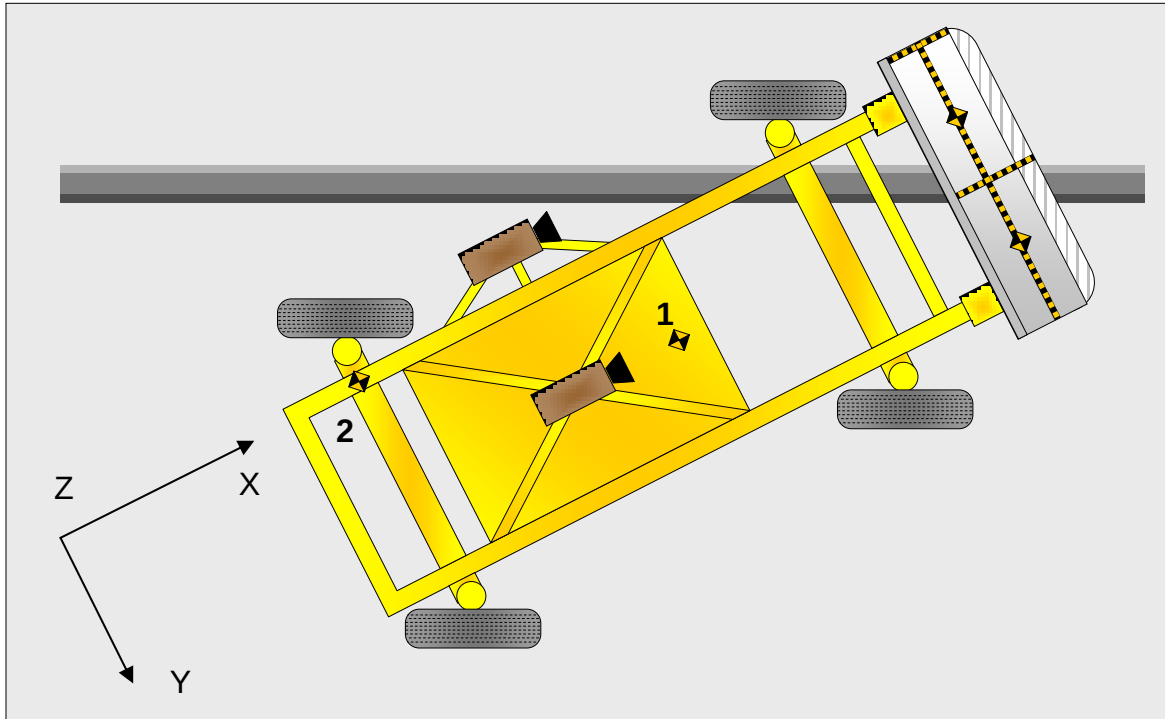
Loc. No.	Accelerometer Location	Coordinates (mm)		
		X	Y	Z
1	Vehicle CG	2855	0	-450
2	Right Sill at Front Seat	3085	650	-355
3	Right Sill at Rear Seat	2150	650	-350
4	Left Sill at Front Door	3095	-650	-348
5	Left Sill at Rear Door	2175	-650	-350
6	A-Post Lower	3460	-780	-597
7	A-Post Middle	3445	-780	-960
8	B-Post Lower	2455	-780	-658
9	B-Post Middle	2425	-780	-980
10	Front Seat Track	2620	-535	-347
11	Rear Seat Structure	1960	-610	-363
12	Right Rear Occ. Compartment	2070	650	-360
13	Engine Block	4190	50	-855
14	Rear Above Axle	1435	0	-550

Reference: X - Rear surface of vehicle (+ forward)
 Y - Vehicle Centerline (+ to right)
 Z - Ground Plane (+ down)

DATA SHEET NO. 7
MDB ACCELEROMETER LOCATIONS

Test Vehicle: 2013 Jeep Compass Sport FWD MPV
 Test Program: NCAP Side Impact

NHTSA No.: QD0300
 Test Date: 11/19/12



MDB ACCELEROMETER LOCATIONS

Loc. No.	Accelerometer Location	Coordinates (mm)		
		X	Y	Z
1	MDB CG	-2260	0	-520
2	MDB Rear	-3703	-677	-625

Reference : X - Face of MDB (+ forward)
 Y - MDB Centerline (+ to right)
 Z - Ground Plane (+ down)

DATA SHEET NO. 8
POST-TEST OBSERVATIONS

Test Vehicle: 2013 Jeep Compass Sport FWD MPV
Test Program: NCAP Side Impact

NHTSA No.: QD0300
Test Date: 11/19/12

TEST DUMMY INFORMATION AND CONTACT POINTS

Dummy Body Part	Front Seat Dummy (ES2-re)	Rear Seat Dummy (SID-IIs)
Face	None	None
Top of Head	None	None
Left Side of Head	SCAB	SCAB
Back of Head	Head Restraint	None
Left Shoulder	Airbag	None
Upper Torso	Door Panel	None
Lower Torso	Door Panel	Door Panel
Left Hip	Door Panel	Door Panel
Left Knee	Door Panel	Door Panel

POST TEST DOOR PERFORMANCE

Description	Struck Side		Non-Struck Side		Rear Hatch/ Other Door
	Front	Rear	Front	Rear	
Remained Closed and Operational	No	No	Yes	Yes	Yes
Total Separation from Vehicle at Hinges or Latches	No	No	No	No	No
Latch or Hinge Systems Pulled Out of Their Anchorages	No	No	No	No	No
Disengaged from Latched Position	No	No	No	No	No
Latch Separated from Striker	No	No	No	No	No
Jammed Shut	Yes	Yes	No	No	No
If Door Opened at Striker, Record Width of Opening at Striker (mm)	N/A	N/A	N/A	N/A	N/A

* Indicate "Yes", "No", or "N/A".

POST TEST SEAT PERFORMANCE

Description	Struck Side		Non-Struck Side	
	Front	Rear	Front	Rear
Seat Movement Along Seat Track	No	No	No	No
Seat Disengagement from Floor pan	No	No	No	No
Seat Back Movement from Initial Position	No	No	No	No
Seat Back Collapse	No	No	No	No

* Indicate "Yes", "No", or "N/A".

POST TEST STRUCTURAL OBSERVATIONS

Critical Areas of Performance	Observations and Conclusions
Pillar Performance	Good
Sill Separation	None
Windshield Damage	None
Side Window Damage	None
Other Notable Effects	None

DATA SHEET NO. 8 (CONTINUED)
POST TEST OBSERVATIONS

Test Vehicle: 2013 Jeep Compass Sport FWD MPV
 Test Program: NCAP Side Impact

NHTSA No.: QD0300
 Test Date: 11/19/12

SUPPLEMENTAL RESTRAINT SYSTEM INFORMATION

Restraint Type	Struck Side (Driver)		Struck Side Rear Passenger	
	Mounted	Deployed	Mounted	Deployed
Front Airbag	Yes	No		
Knee Airbag	No	NA		
Side Curtain Airbag	Yes	Yes	Yes	Yes
Seat Belt Pretensioner	Yes	Yes	No	NA
Seat Belt Load Limiter	No	NA	No	NA
Other	None	NA	None	NA

IMPACT POINT LOCATION DATA

Measured Parameter	Units	Tolerance	Value
Vehicle Wheel Base	mm		2630
Vertical Impact Reference Line (Aft of Front Axle) (Intended Impact Point)	mm		374
Actual Impact Point (Aft of Front Axle)	mm		374
Horizontal Offset (+ forward / - rearward)	mm	+/- 50 of Intended Impact point	0
Vertical Offset (+ down / - up)	mm	+/- 20 of Intended Impact point	-1

DATA SHEET NO. 9
MDB SUMMARY OF RESULTS

Test Vehicle: 2013 Jeep Compass Sport FWD MPV
Test Program: NCAP Side Impact

NHTSA No.: QD0300
Test Date: 11/19/12

MDB SPECIFICATIONS

Measurement Description	Length (mm)
Overall Width of Framework Carriage	1252
Overall Length Including Honeycomb Face	4115
Wheel Base of Framework Carriage	2591
C.G. Location aft of Front Axle	1108

MDB WEIGHTS

	Units	Front Axle	Rear Axle	Total
Left	kg	428.2	256.8	
Right	kg	354.4	328.0	
Ratio	%	57.2	42.7	
Totals	kg	782.6	584.8	1367.4

SPEED AND IMPACT ANGLE DATA

Measured Parameter	Units	Requirement	Value
Trap No. 1 Velocity (Primary)	km/h	61.1 to 62.7	61.53
Trap No. 2 Velocity (Redundant)	km/h	61.1 to 62.7	61.56
MDB CL to Target Vehicle CL	degrees	88.5 to 91.5	90.5
MDB Forward Line of Motion to Target Vehicle CL	degrees	62.5 to 63.5	63.0
MDB Crabbed Angle to MDB Forward Line of Motion	degrees	26 to 28	27.5

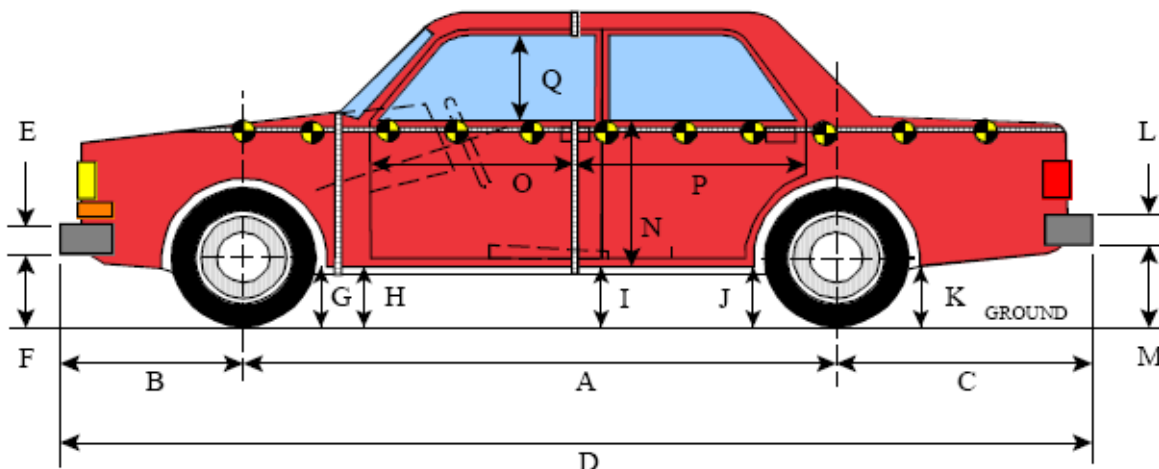
MAXIMUM STATIC CRUSH OF HONEYCOMB IMPACT FACE

Vertical Location			From Centerline		Maximum Crush
Row	Description	Height	Distance	Direction	
A	Center of Bumper	432	800	Left	204
B	Top of Bumper	533	800	Left	170
C	Mid-Level	686	800	Left	147
D	Top of Stack	813	800	Right	207

DATA SHEET NO. 10
TEST VEHICLE PROFILE MEASUREMENTS

Test Vehicle: 2013 Jeep Compass Sport FWD MPV
 Test Program: NCAP Side Impact

NHTSA No.: QD0300
 Test Date: 11/19/12



LEFT SIDE VIEW

All MEASUREMENTS IN (mm) WITH TOLERANCE OF ± 3 mm

VEHICLE PRE- AND POST-TEST MEASUREMENT INFORMATION

Code	Measurement Description	Pre-Test	Post-Test	Difference
A	Wheelbase	2630	2645	-15
B	Front Axle to Front Surface of Vehicle	905	905	0
C	Rear Axle to Rear Surface of Vehicle	915	915	0
D	Total Length at Centerline	4450	4430	20
E	Front Bumper Thickness	80	80	0
F	Front Bumper Bottom to Ground	445	459	-14
G	Sill Height at Front Wheel Well	247	270	-23
H	Sill Height at Front Door Leading Edge	284	313	-29
I	Sill Height at B-Pillar	272	338	-66
J1	Sill Height at Rear Wheel Well	225	285	-60
J2	Pinch Weld Height at Rear Wheel Well	222	272	-50
K	Sill Height Aft of Rear Wheel Well	340	405	-65
L	Rear Bumper Thickness	80	80	0
M	Rear Bumper Bottom to Ground	460	520	-60
N	Sill Height to Window Bottom Sill	835	750	85
O	Front Door Leading Edge to Impact CL	720	705	15
P	Rear Door Trailing Edge to Impact CL	1225	1167	58
Q	Front Window Opening	415	415	0
R	Right Side Length	4190	4210	-20
S	Left Side Length	4190	4205	-15
T	Vehicle Width at B Pillar	1320	1279	41

DATA SHEET NO. 11

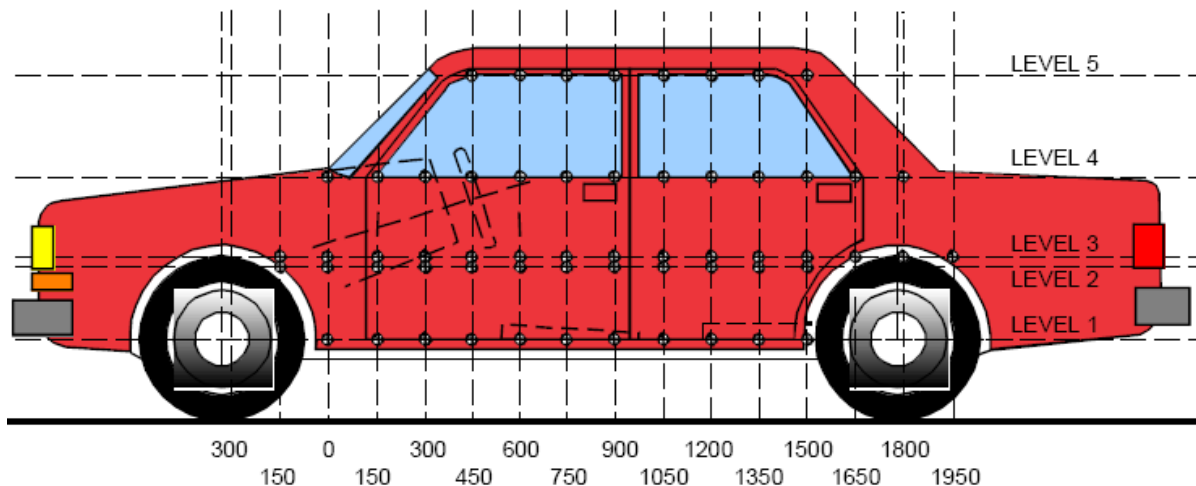
TEST VEHICLE EXTERIOR CRUSH MEASUREMENTS

Test Vehicle: 2013 Jeep Compass Sport FWD MPV

NHTSA No.: QD0300

Test Program: NCAP Side Impact

Test Date: 11/19/12



LEFT SIDE VIEW

MAXIMUM EXTERIOR CRUSH MEASUREMENTS

Level	Measurement Description	Height Above Ground	Maximum Exterior Static Crush	Distance From Impact
1	Sill Top	405	116	1200
2	Driver Hip Point	660	195	900
3	Mid-Door	720	189	750
4	Window Sill	1063	106	1350
5	Window Top	1567	6	1350

NOTE: The above measurements should be taken along the vertical impact reference line. Vehicle measurements forward of the vertical impact reference line are negative.

DATA SHEET NO. 11 (CONTINUED)

TEST VEHICLE EXTERIOR CRUSH MEASUREMENTS

Test Vehicle: 2013 Jeep Compass Sport FWD MPV
 Test Program: NCAP Side Impact

NHTSA No.: QD0300
 Test Date: 11/19/12

EXTERIOR CRUSH MEASUREMENTS AT EACH LEVEL

	Pre-Test					Post-Test					Difference				
	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
-900	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-750	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-450	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-150	0	0	0	790	0	0	0	0	796	0	0	0	0	-6	0
0	0	894	899	808	0	0	907	884	809	0	0	-13	15	-1	0
150	844	885	886	823	0	791	791	802	822	0	53	94	84	1	0
300	846	879	879	835	0	751	758	778	820	0	95	121	101	15	0
450	847	881	881	844	0	748	746	728	827	0	99	135	153	17	0
600	848	882	883	851	0	744	722	712	828	0	104	160	171	23	0
750	850	883	885	854	0	737	704	696	827	0	113	179	189	27	0
900	850	885	886	857	621	741	690	704	827	622	109	195	182	30	-1
1050	850	885	886	860	637	738	727	730	828	636	112	158	156	32	1
1200	850	885	887	861	640	734	760	765	788	636	116	125	122	73	4
1350	849	884	887	861	639	754	719	712	755	633	95	165	175	106	6
1500	849	883	886	861	638	767	713	698	775	633	82	170	188	86	5
1650	847	884	887	860	637	774	718	702	788	633	73	166	185	72	4
1800	845	895	901	870	636	832	749	736	802	631	13	146	165	68	5
1950	0	0	904	880	634	0	0	873	810	628	0	0	31	70	6
2100	0	0	0	880	628	0	0	0	861	624	0	0	0	19	4
2250	0	0	0	878	621	0	0	0	865	619	0	0	0	13	2
2400	0	0	0	875	605	0	0	0	865	604	0	0	0	10	1
2550	0	0	0	868	0	0	0	0	862	0	0	0	0	6	0
2700	0	0	0	856	0	0	0	0	855	0	0	0	0	1	0
2850	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

NOTE: Pre-test measurements are taken when the vehicle is in the "As Tested" weight condition.

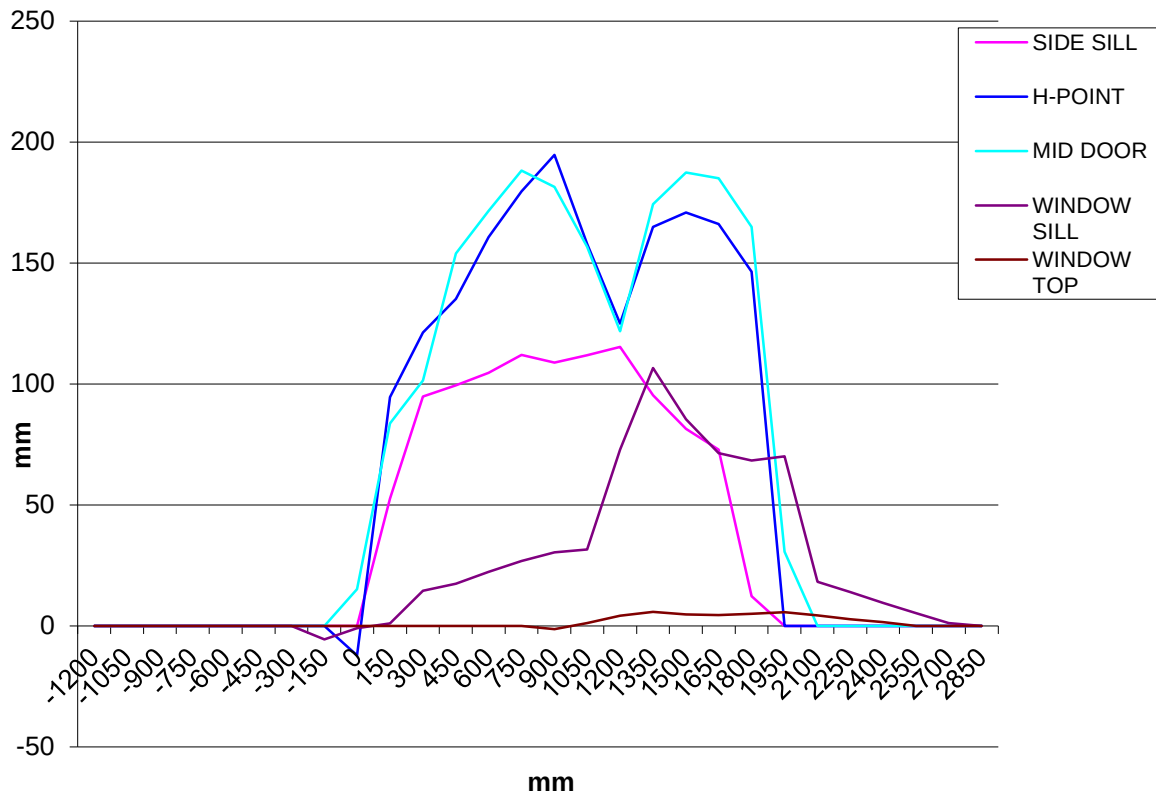
Vehicle measurements forward of the vertical impact reference line are negative. The crush profile grid is established prior to the test based on an estimated impact point.

DATA SHEET NO. 11 (CONTINUED)

TEST VEHICLE EXTERIOR CRUSH MEASUREMENTS

Test Vehicle: 2013 Jeep Compass Sport FWD MPV
Test Program: NCAP Side Impact

NHTSA No.: QD0300
Test Date: 11/19/12

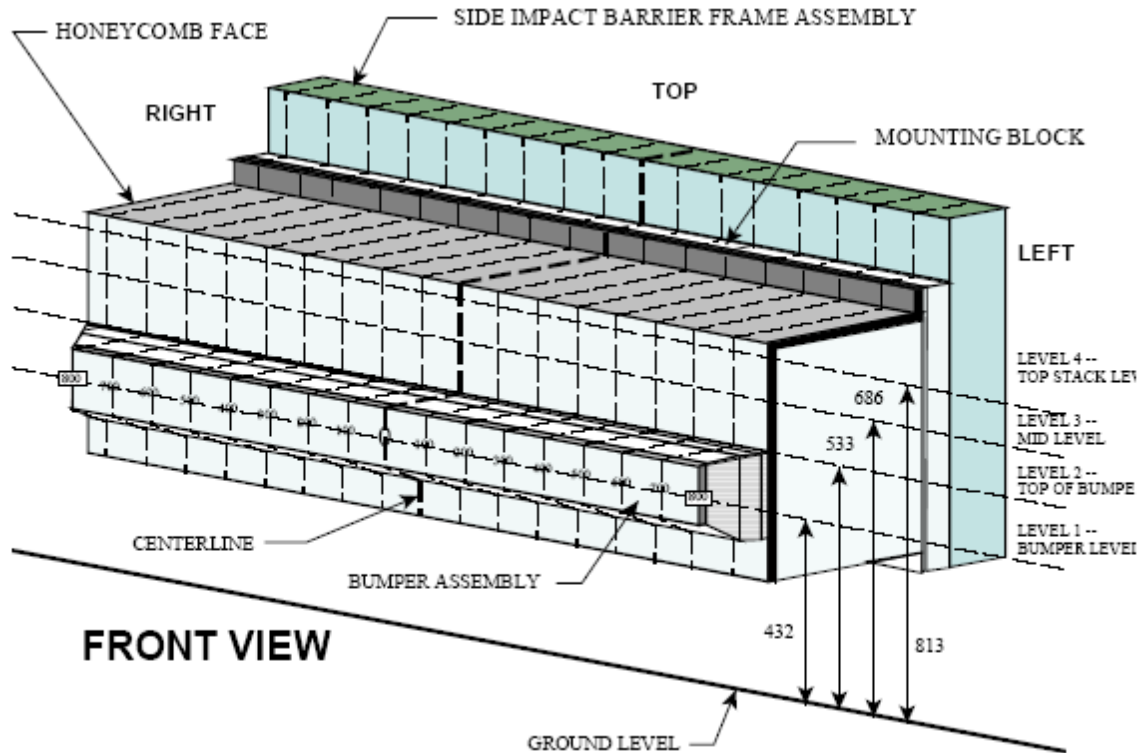


DATA SHEET NO. 12

MDB EXTERIOR STATIC CRUSH MEASUREMENTS

Test Vehicle: 2013 Jeep Compass Sport FWD MPV
Test Program: NCAP Side Impact

NHTSA No.: QD0300
Test Date: 11/19/12



NOTE: Dimensions are shown in millimeters, mm

DEFORMABLE BARRIER STATIC CRUSH

Stack Level	Distance Right of Center								C/L	Distance Left of Center							
	800	700	600	500	400	300	200	100		0	100	200	300	400	500	600	700
1	-58	-37	-35	-45	-68	-106	-119	-87	-69	-69	-65	-73	-81	-91	-105	-147	-204
2	-57	-66	-52	-49	-60	-85	-98	-76	-53	-40	-38	-42	-49	-61	-86	-135	-170
3	-118	-117	-107	---	---	---	---	---	---	-97	-98	-100	-101	-102	-106	-119	-147
4	-207	-199	-192	-182	-174	-173	-172	-172	-172	-172	-172	-171	-172	-172	-172	-180	-176

DATA SHEET NO. 13
FMVSS NO. 301 STATIC ROLLOVER RESULTS

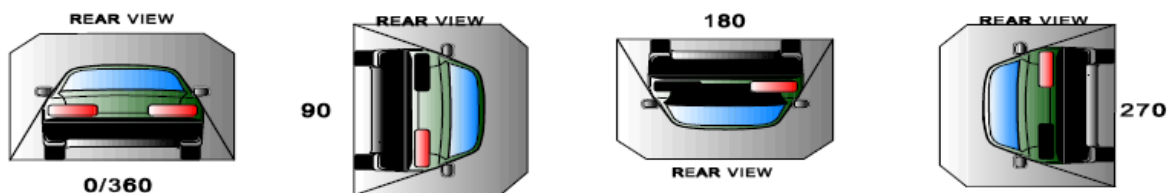
Test Vehicle: 2013 Jeep Compass Sport FWD MPV
 Test Program: NCAP Side Impact

NHTSA No.: QD0300
 Test Date: 11/19/12

Test Time: 15:20 **Temperature:** 22

- A. From impact until vehicle motion ceases: 0 oz.
 (Maximum allowable is 1 ounce)
- B. For the 5 minute period after motion ceases: 0 oz.
 (Maximum allowable is 5 ounces)
- C. For the following 25 minutes: 0 oz.
 (Maximum allowable is 1 ounce/minute)
- D. Spillage Details: None

FMVSS 301 STATIC ROLLOVER DATA



ROLLOVER SOLVENT COLLECTION TIME TABLE IN SECONDS

Test Phase	Rotation Time	Hold Time	Total Time
0 to 90	120	300	420
90 to 180	120	300	840
180 to 270	120	300	1260
270 to 360	120	300	1680

FMVSS NO. 301 ROLLOVER SPILLAGE TABLE

Test Phase	First 5 Minutes	Sixth Minute	Seventh Minute	Eighth Minute
0 to 90	0	0	0	N/A
90 to 180	0	0	0	N/A
180 to 270	0	0	0	N/A
270 to 360	0	0	0	N/A

ROLLOVER SOLVENT SPILLAGE LOCATION TABLE

Test Phase	Spillage Location
0 to 90	None
90 to 180	None
180 to 270	None
270 to 360	None

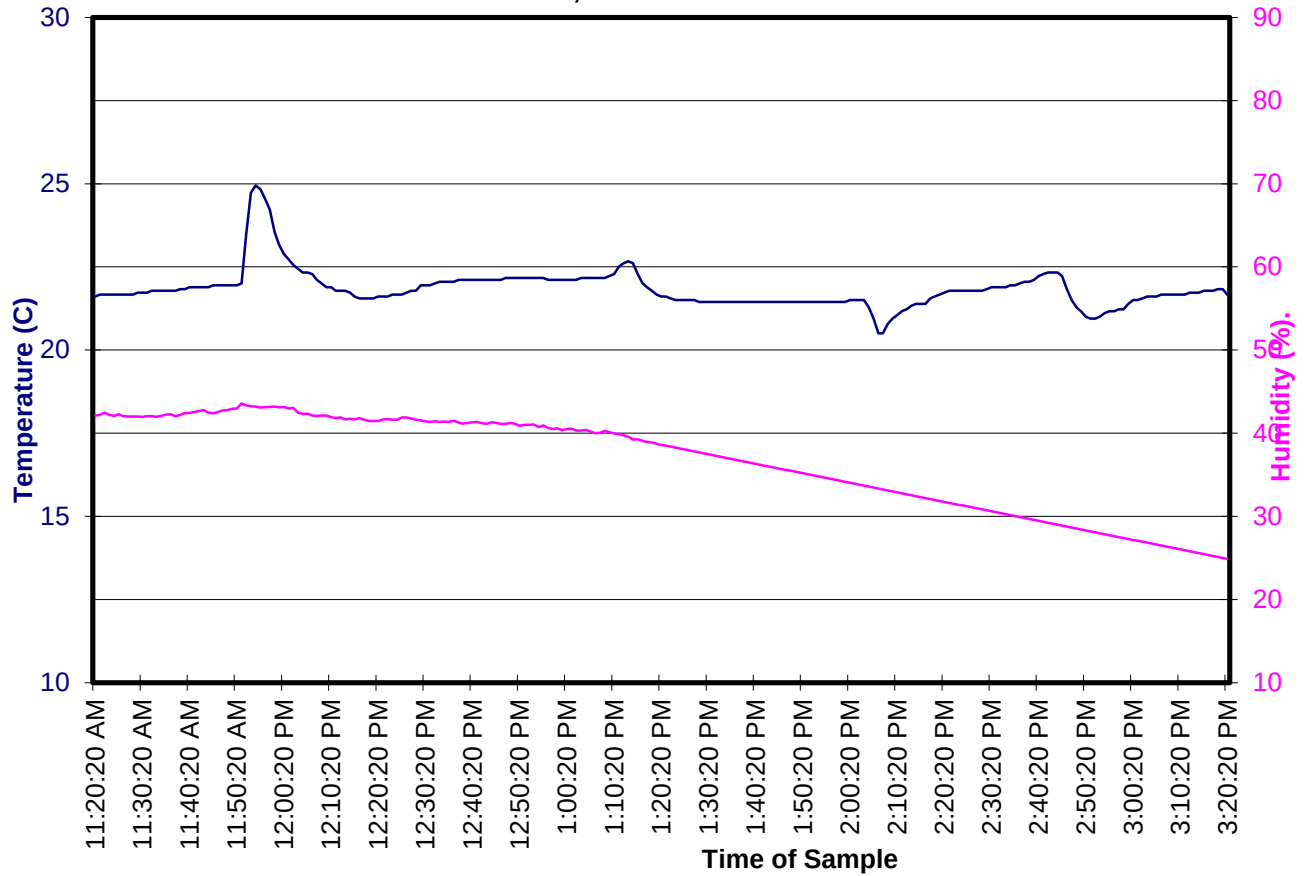
DATA SHEET NO. 14

DUMMY/VEHICLE TEMPERATURE AND HUMIDITY STABILIZATION DATA

Test Vehicle: 2013 Jeep Compass Sport FWD MPV
Test Program: NCAP Side Impact

NHTSA No.: QD0300
Test Date: 11/19/12

QD0300 Moving Deformable Barrier into 2013 Jeep Compass Sport FWD
121119; Test Time 15:20



APPENDIX A
PHOTOGRAPHS

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098	FMVSS No. 301 Static Rollover 180 Degrees	A-54
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100	FMVSS No. 301 Static Rollover 360 Degrees	A-55
101	Impact Event	A-56
102	Monroney Label	A-56
103	Driver Head Restraint Use and Adjustment Information from Vehicle Owner's Manual	A-57
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001 As-Delivered Right Front $\frac{3}{4}$ View of Test Vehicle



002 As-Delivered Left Rear $\frac{3}{4}$ View of Test Vehicle



003 Pre-Test Front View of Test Vehicle



004 Post-Test Front View of Test Vehicle



005 Pre-Test Left Front $\frac{3}{4}$ View of Test Vehicle



006 Post-Test Left Front $\frac{3}{4}$ View of Test Vehicle



007 Pre-Test Left Side View of Test Vehicle



008 Post-Test Left Side View of Test Vehicle



009 Pre-Test Left Rear $\frac{3}{4}$ View of Test Vehicle



010 Post-Test Left Rear $\frac{3}{4}$ View of Test Vehicle



011 Pre-Test Rear View of Test Vehicle



012 Post-Test Rear View of Test Vehicle



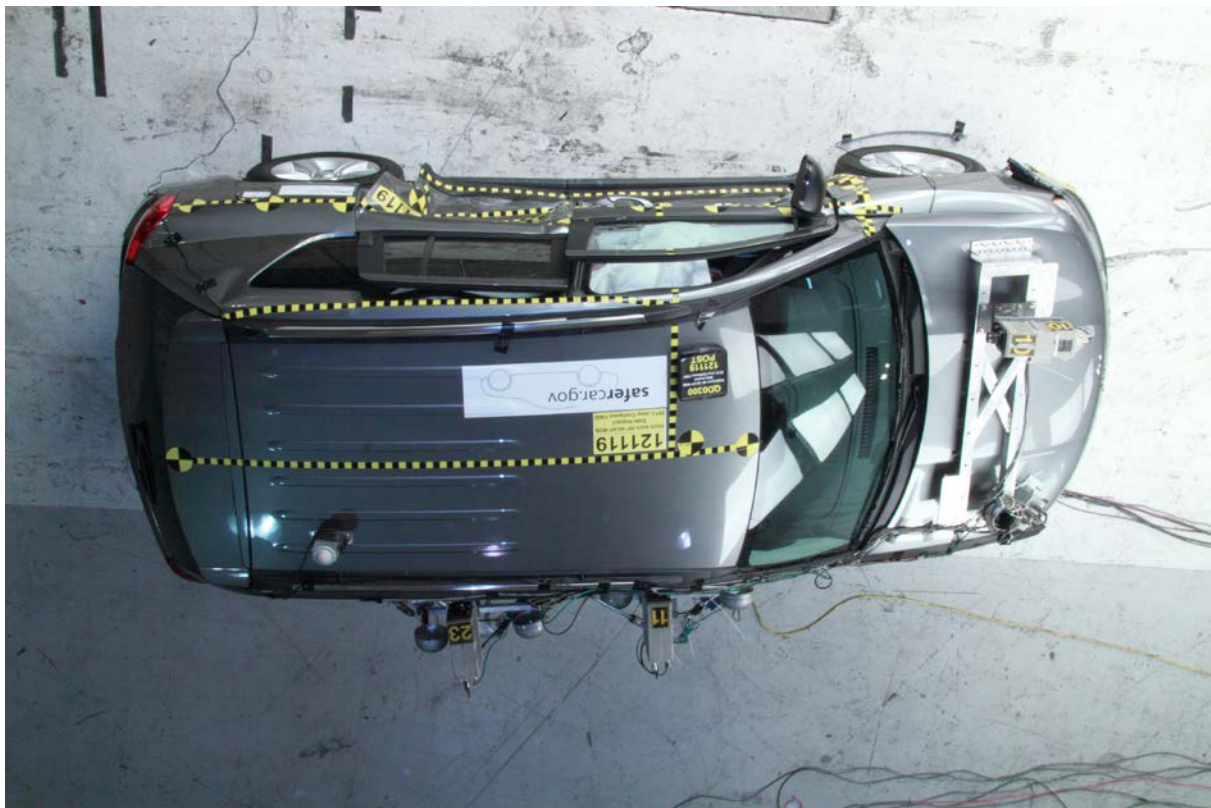
013 Pre-Test Right Side View of Test Vehicle



014 Post-Test Right Side View of Test Vehicle



015 Pre-Test Overhead View of Test Area



016 Post-Test Overhead View of Test Area



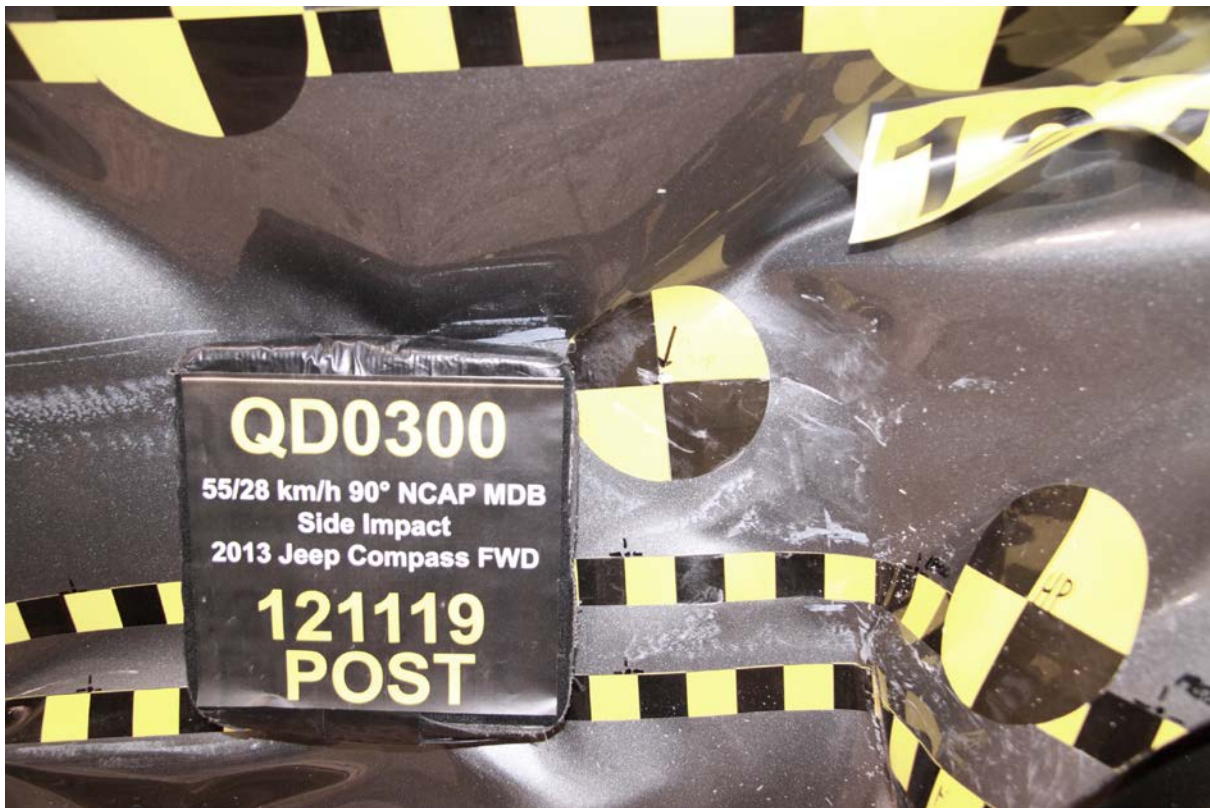
017 Pre-Test Left Side View of MDB Positioned Against Side of Test Vehicle



018 Pre-Test Right Side View of MDB Positioned Against Side of Test Vehicle



019 Pre-Test Close-up View of Impact Point Target



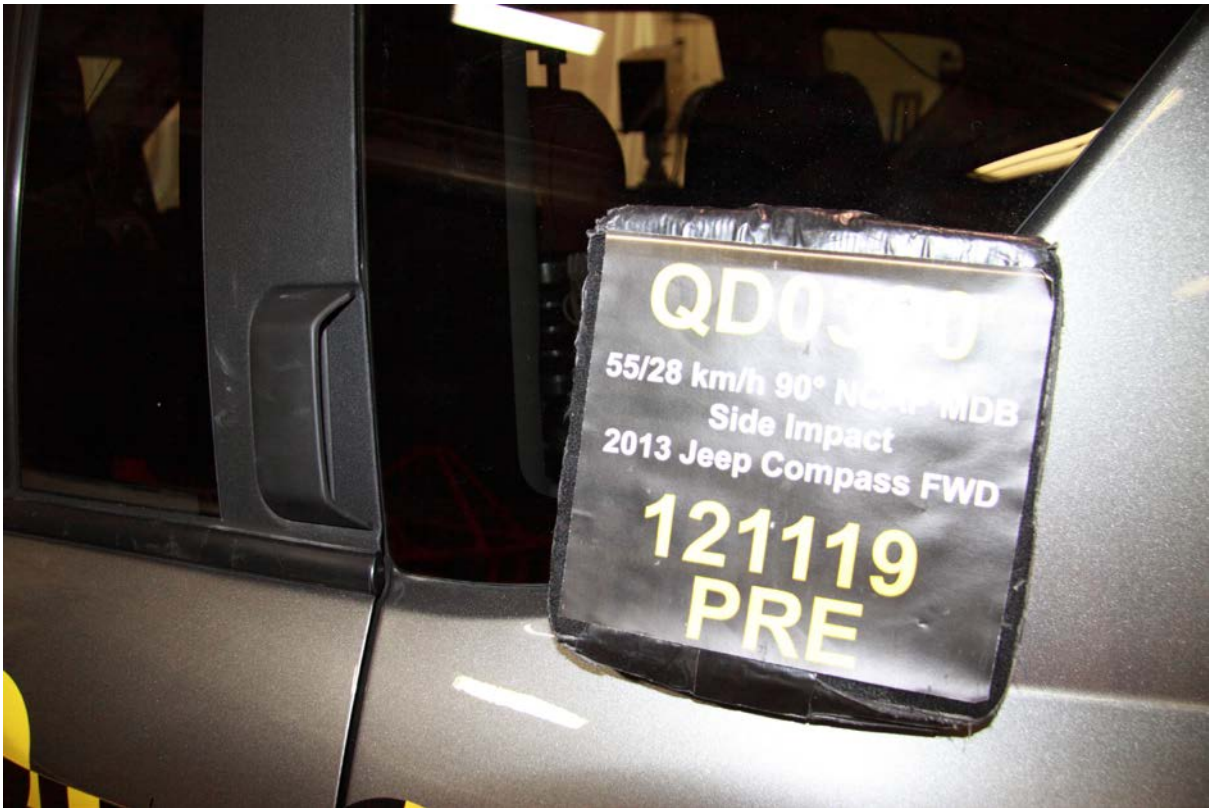
020 Post-Test Close-up View of Impact Point Target



021 Pre-Test Left Front Door Latch Close-up



022 Post-Test Left Front Door Latch Close-up



023 Pre-Test Left Rear Door Latch Close-up



024 Post-Test Left Rear Door Latch Close-up



025 Pre-Test Front Close-up View of Driver Dummy



026 Post-Test Front Close-up View of Driver Dummy



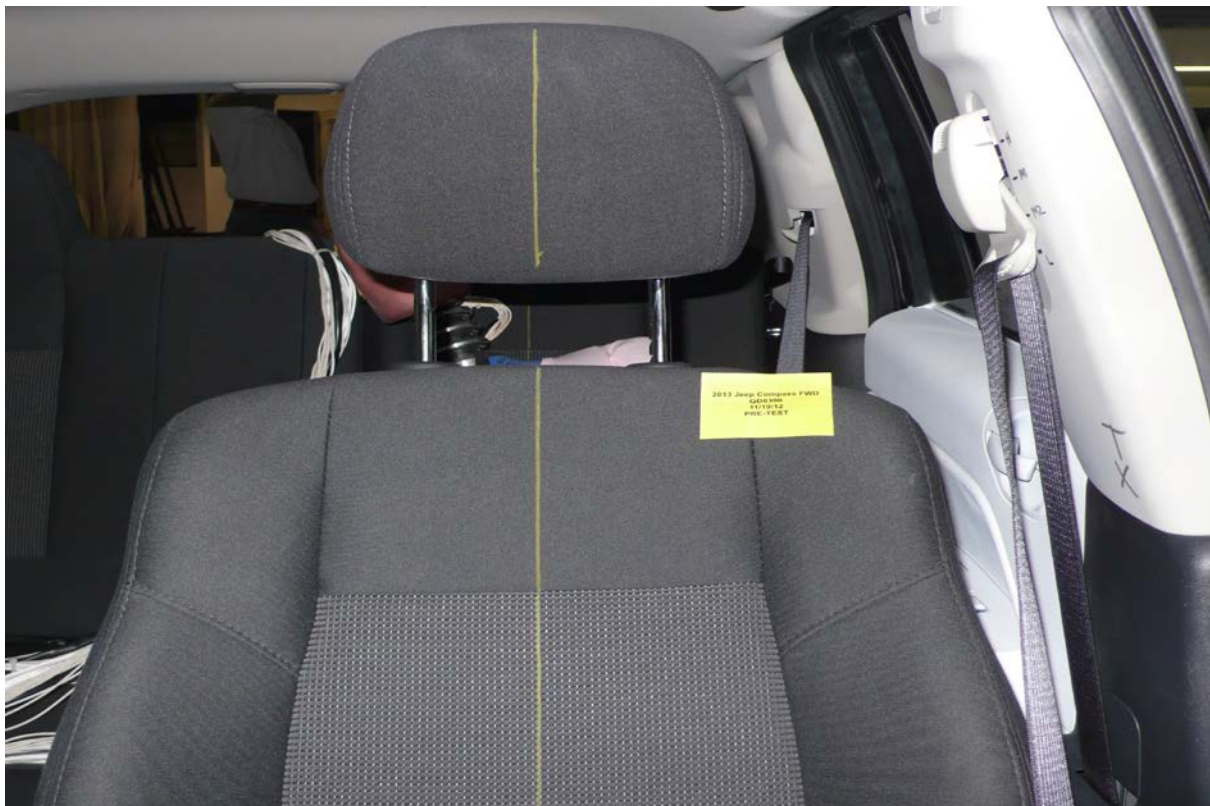
027 Pre-Test Left Side View of Driver Dummy Showing Belt and Chalking



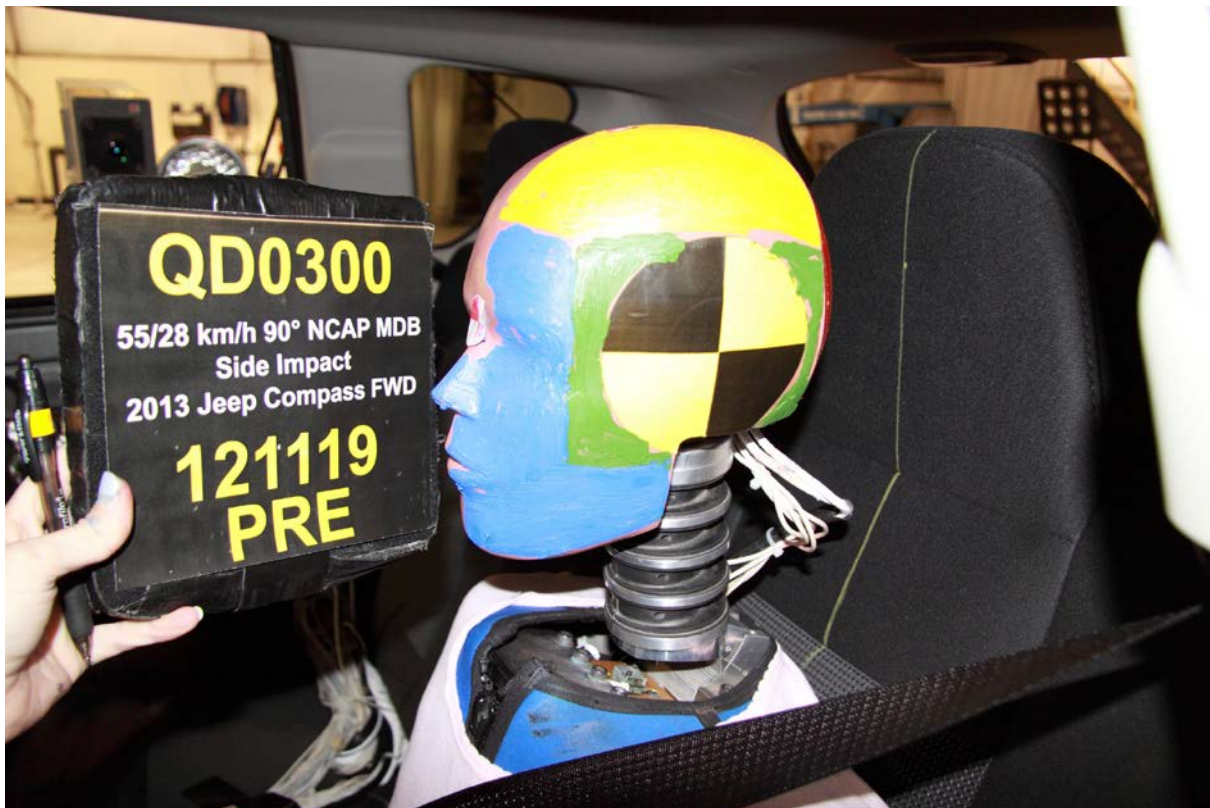
028 Pre-Test Left Side View of Driver Dummy Shoulder and Door Top



029 Post-Test Left Side View of Driver Dummy Shoulder and Door Top



030 Pre-Test Frontal View of Driver Seat Back Prior to Dummy Positioning



031 Pre-Test Frontal View of Driver Dummy Head and Shoulders in Relation to Head Restraint



032 Pre-Test Frontal View of Driver Seat Pan Prior to Dummy Positioning



033 Pre-Test Overhead View of Driver Dummy Thighs on Seat Pan



034 Pre-Test Placement of Driver Dummy Feet



035 Pre-Test View of Belt Anchorage for Driver Dummy



036 Pre-Test Left Side View of Steering Wheel



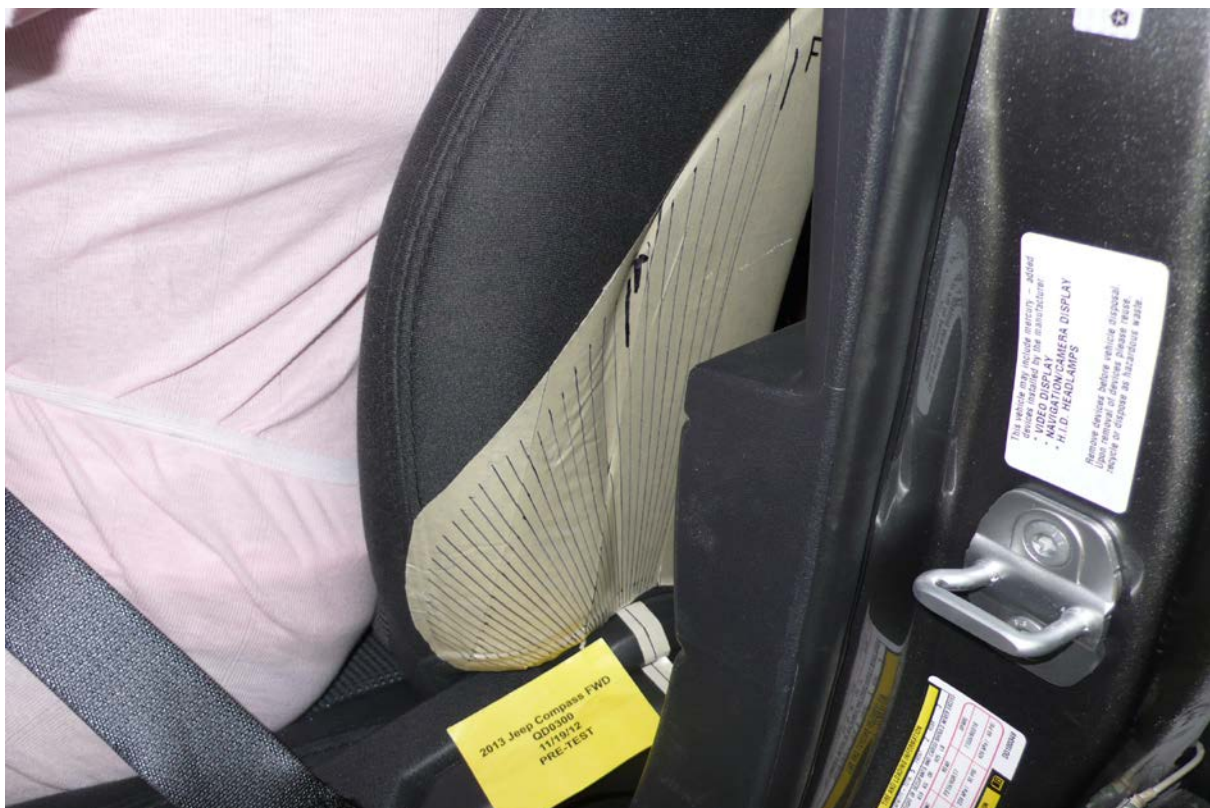
037 View of Disengaged Parking Brake



038 Pre-Test View of Parking Brake



039 Pre-Test Close-Up Left Side View of Driver Seat Track



040 Pre-Test Close-Up Left Side View of Driver Seat Back



041 Pre-Test Close-Up View of Driver Seat Back or Head Restraint



042 Pre-Test Driver Dummy and Door Clearance View



043 Post-Test Driver Dummy and Door Clearance View



044 Pre-Test Right Side View of Driver Dummy and Front Seat of Occupant Compartment



045 Post-Test Right Side View of Driver Dummy and Front Seat of Occupant Compartment



046 Pre-Test Driver Inner Door Panel View



047 Post-Test Driver Inner Door Panel View



048 Post-Test Driver Dummy Close-Up Head Contact with Vehicle View



049 Post-Test Driver Dummy Close-Up Head Contact with Side Airbag View



050 Post-Test Driver Dummy Close-Up Torso Contact with Vehicle Interior View



051 Post-Test Driver Dummy Close-Up Torso Contact with Side Airbag View



052 Post-Test Driver Dummy Close-Up Pelvis Contact View

PHOTO NOT APPLICABLE

053 Post-Test Driver Dummy Close-Up Pelvis Contact with Side Airbag View



054 Post-Test Driver Dummy Close-Up Knee Contact View



055 Pre-Test Left Side View of Passenger Dummy Showing Belt and Chalking



056 Pre-Test Left Side View of Passenger Dummy Shoulder and Door Top View



057 Post-Test Left Side View of Passenger Dummy Shoulder and Door Top View



058 Pre-Test Frontal View of Rear Passenger Seat Back Prior to Dummy Positioning



059 Pre-Test Frontal View of Rear Passenger Dummy Head and Shoulders in Relation to Head Restraint



060 Pre-Test Overhead View of Rear Passenger Seat Pan Prior to Dummy Positioning



061 Pre-Test Overhead View of Rear Passenger Dummy Thighs on Seat Pan



062 Pre-Test View of Rear Passenger Dummy Neck Showing Position of Adjustable Neck Bracket



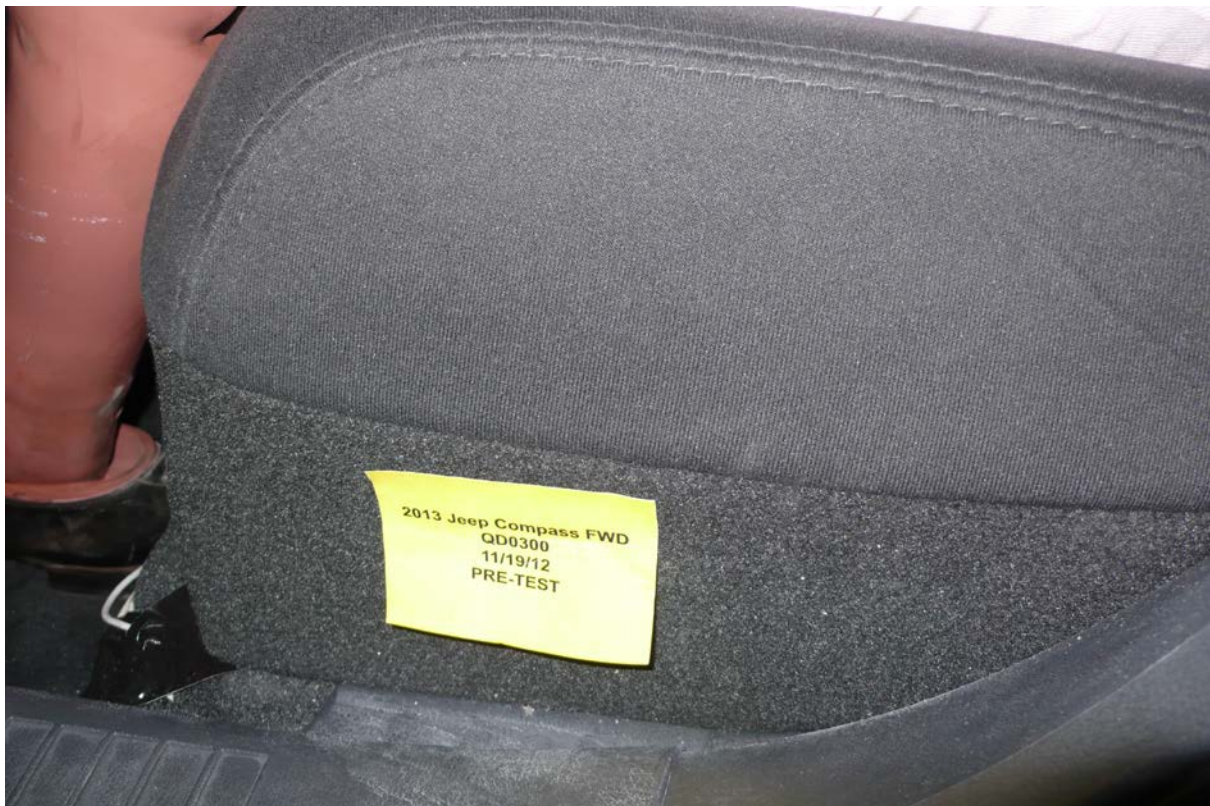
063 Pre-Test View of Rear Passenger Dummy Head Showing Dummy Head is Level



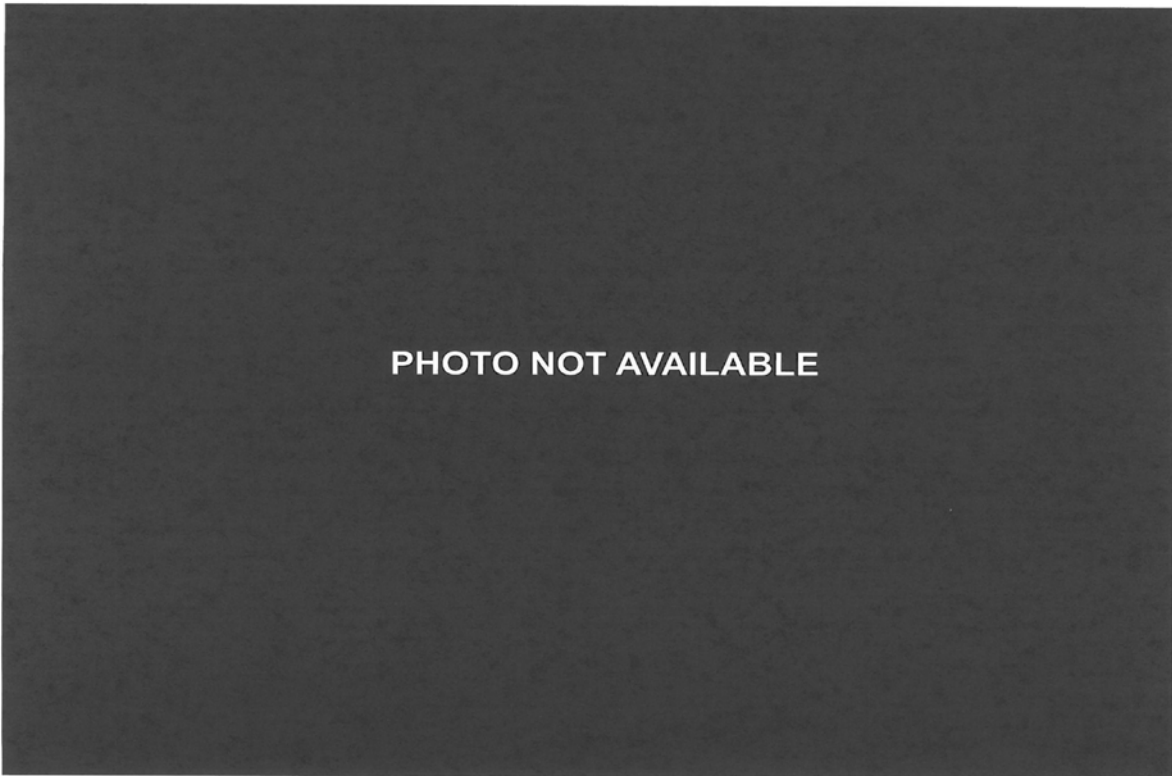
064 Pre-Test Placement of Rear Passenger Dummy Feet



065 Pre-Test View of Belt Anchorage for Rear Passenger Dummy



066 Pre-Test Close-Up Left Side View of Rear Passenger Seat Track



067 Pre-test Close-Up Left Side View of Rear Passenger Seat Back



068 Pre-Test Close-Up View of Rear Passenger Seat Back or Head Restraint



069 Pre-Test Passenger Dummy and Door Clearance View



070 Post-Test Passenger Dummy and Door Clearance View



071 Pre-Test Right Side View of Rear Passenger Dummy and Rear Seat Occupant Compartment



072 Post-Test Right Side View of Rear Passenger Dummy and Rear Seat Occupant Compartment



073 Pre-Test Passenger Inner Door Panel View



074 Post-Test Passenger Inner Door Panel View



075 Post-Test Rear Passenger Dummy Close-Up Head Contact with Vehicle View



076 Post-Test Rear Passenger Dummy Close-Up Head Contact with Side Airbag View



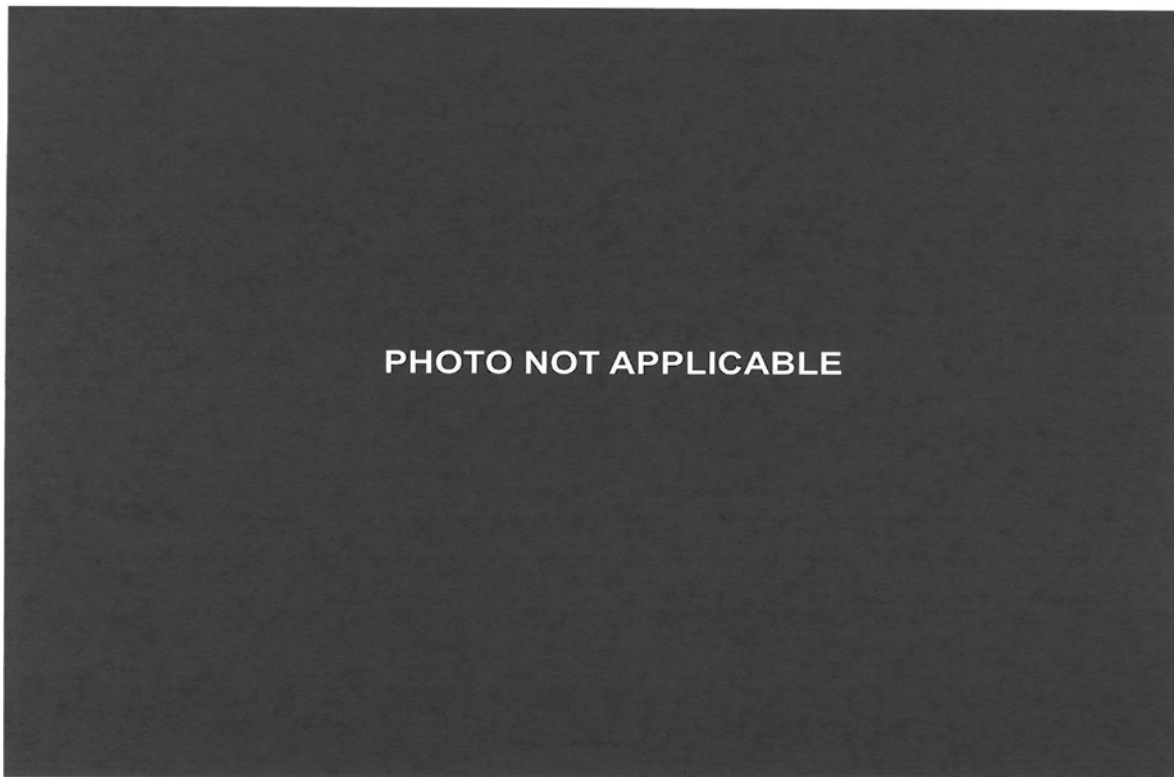
077 Post-Test Rear Passenger Dummy Close-Up Torso Contact with Vehicle Interior View



078 Post-Test Rear Passenger Dummy Close-Up Torso Contact with Side Airbag View



079 Post-Test Rear Passenger Dummy Close-Up Pelvis Contact View



080 Post-Test Rear Passenger Dummy Close-Up Pelvis Contact with Side Airbag View



081 Post-Test Rear Passenger Dummy Close-Up Knee Contact View



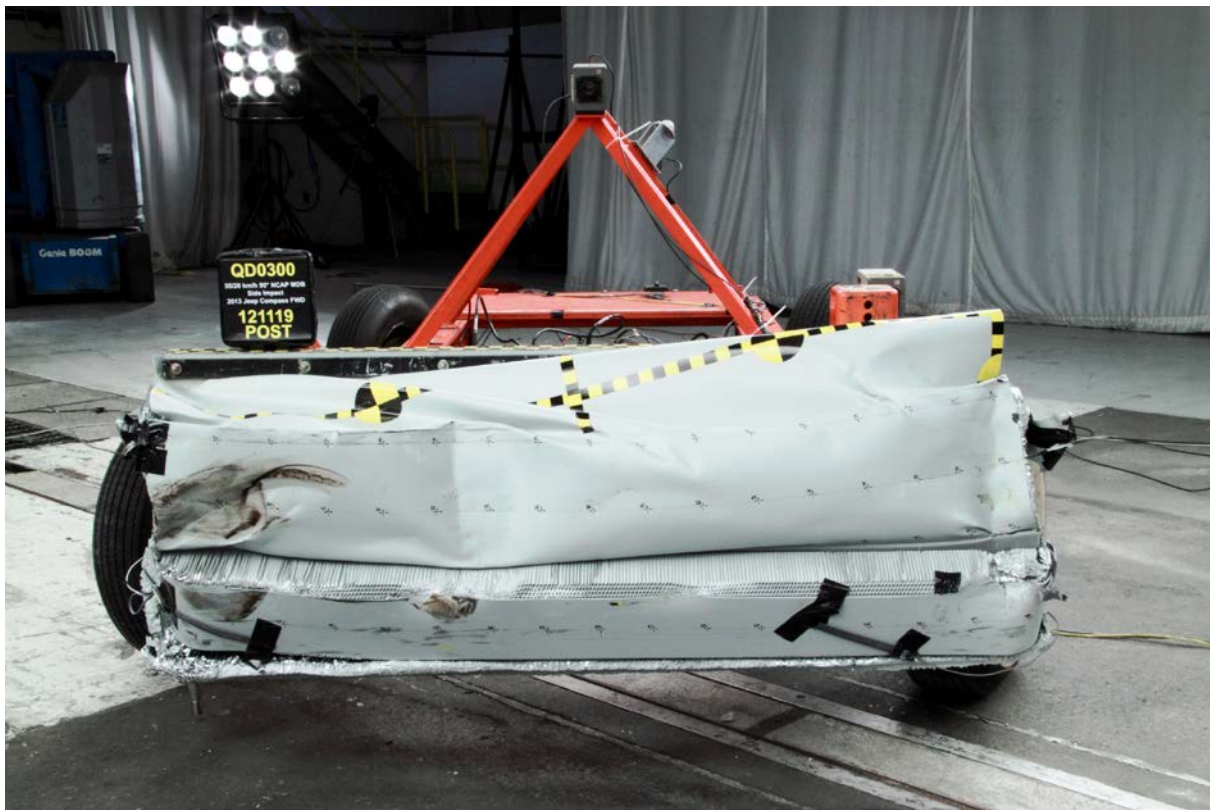
082 Pre-Test View of Fuel Filler Cap or Fuel Filler Neck



083 Post-Test View of Fuel Filler Cap or Fuel Filler Neck



084 Pre-Test Front View of MDB Impactor Face



085 Post-Test Front View of MDB Impactor Face



086 Pre-Test Top View of MDB Impactor Face



087 Post-Test Top View of MDB Impactor Face



088 Pre-Test Left Side View of MDB Impactor Face



089 Post-Test Left Side View of MDB Impactor Face



090 Pre-Test Right Side View of MDB Impactor Face



091 Post-Test Right Side View of MDB Impactor Face



092 Close-Up View of Vehicle Certification Label



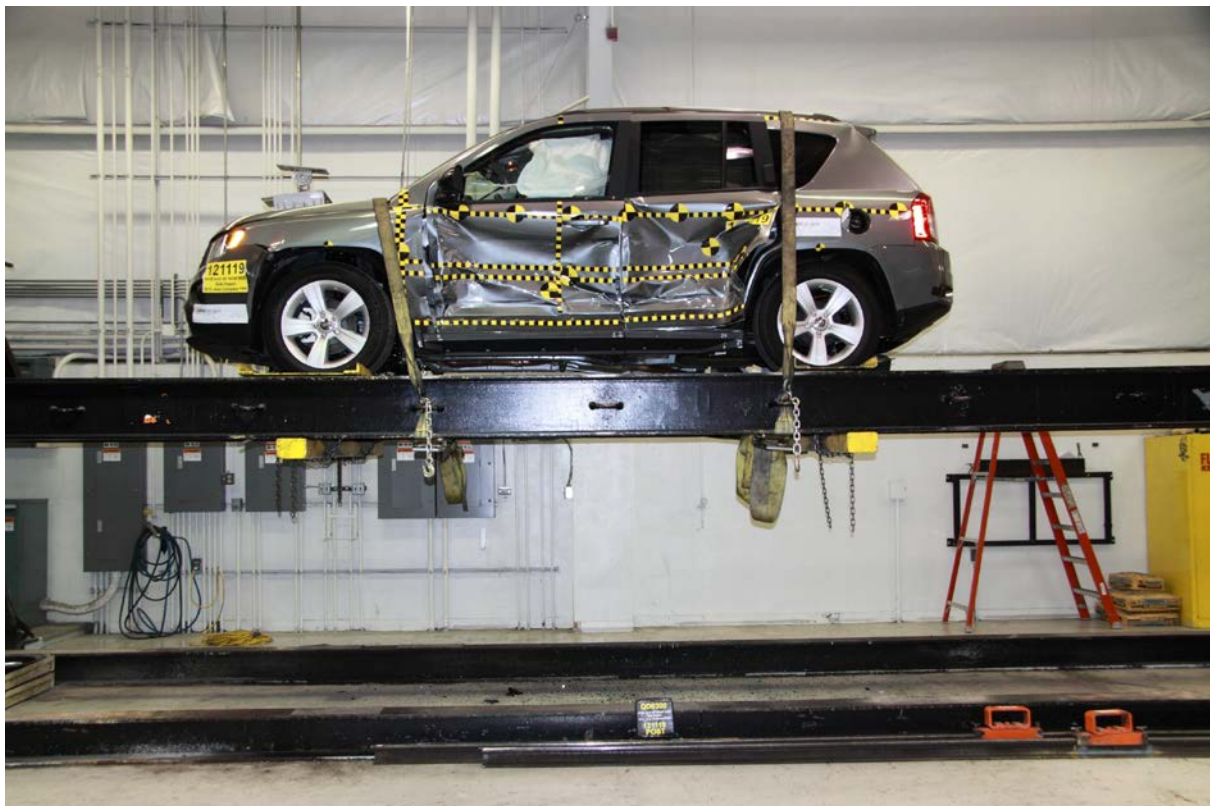
093 Close-Up View of Vehicle Tire Information Placard or Label



094 Pre-Test Ballast View



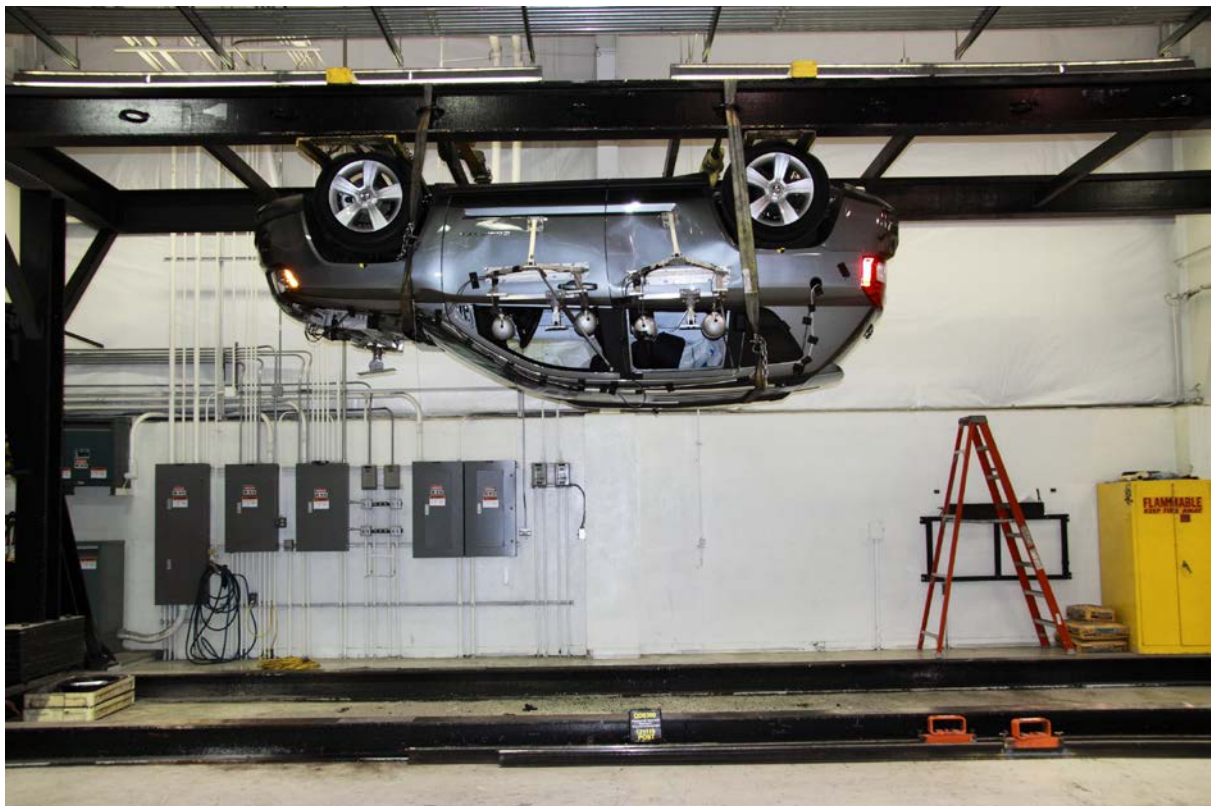
095 Post-Test Primary Speed Trap Read-Out



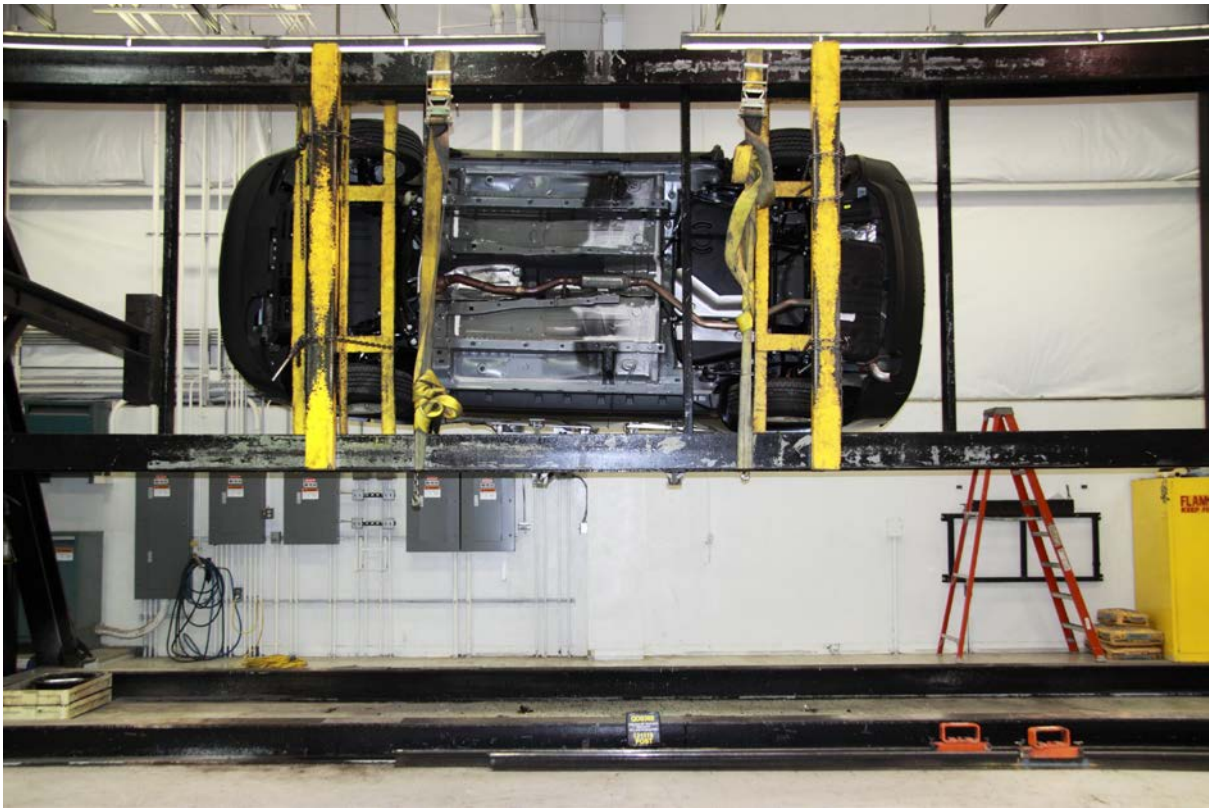
096 FMVSS No. 301 Static Rollover 0 Degrees



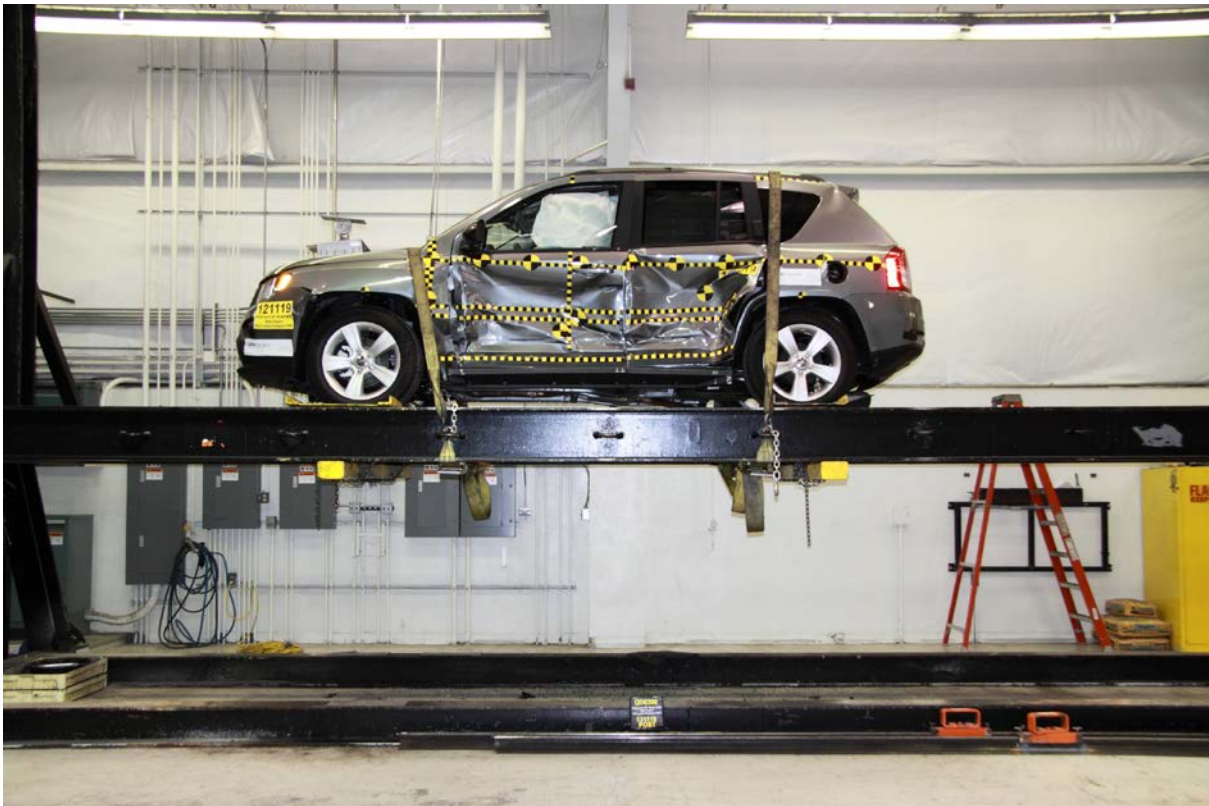
097 FMVSS No. 301 Static Rollover 90 Degrees



098 FMVSS No. 301 Static Rollover 180 Degrees



099 FMVSS No. 301 Static Rollover 270 Degrees



100 FMVSS No. 301 Static Rollover 360 Degrees



101 Impact Event

**2013 MODEL YEAR
COMPASS SPORT FWD**

For more information visit: www.jeep.com
or call 1-877-IAM-JEEP

Chrysler Group LLC

THIS VEHICLE IS MANUFACTURED TO MEET SPECIFIC UNITED STATES REQUIREMENTS. THIS VEHICLE IS NOT MANUFACTURED FOR SALE OR REGISTRATION OUTSIDE OF THE UNITED STATES.

MANUFACTURER'S SUGGESTED RETAIL PRICE OF THIS MODEL INCLUDING DEALER PREPARATION

Base Price: \$19,395

JEOP COMPASS SPORT FWD
 Exterior Color: Mineral Gray Metallic Clear Coat Exterior Paint
 Interior Color: Dark Slate Gray Interior Cloth
 Interior: Premium Cloth Bucket Seats
 Engine: 2.0-Liter 16 DOHC 16-Valve Dual VVT Engine
 Transmission: Continuously Variable Transmission (T)

STANDARD EQUIPMENT (includes items added by optional equipment)

FUNCTIONAL/SAFETY FEATURES
 Advanced Multistage Front Airbags
 Supplemental Side-Curtain Front and Rear Airbags
 Active Head Restraints
 Front Passenger Seat Belt Alert
 Electronic Roll Mitigation
 Speed Control
 Anti-Lock Front Disc / Rear Drum Brakes
 Brake Assist
 Hill Start Assist (not available with CVT (T))
 Power Windows with Driver's One-Touch-Down Feature
 Speed Sensitive Power Locks
 Keyless Entry
 Illuminated Entry
 Sentry Key® Theft Deterrent System
 Rear Window Defogger
 Rear Window Wiper / Washer
 INTERIOR FEATURES
 Air Conditioning
 Rear 60 / 40 Folding Seat
 Outside Temperature Display in Cluster
 Rearview Day / Night Mirror
 Uncommon® 100 AM/FM/COMP3
 Audio Jack Input for Mobile Devices
 4 Speakers
 12-Volt Auxiliary Power Outlet
 Map / Compass Reading Lamps
 Illuminated Cup Holders
 Tire Pressure Monitor with Warning Lamp
 The Steering Column
 Passenger Assist Handles
 Interior Removable / Rechargeable Lamp
 Luxury Front and Rear Floor Mats
 Sliding Armrest

EXTERIOR FEATURES
 Sliding Sun Vents with Mirrors
 Full-Length Floor Console
 18-inch x 6.5-inch Aluminum Wheels
 P255/70R18 80W All Season Tires
 Premium Fog Lamps
 Halogen Headlamps
 Power Heated Mirrors with Manual Fold-Away
 Solar Control Glass
 Deep Tint Sunscreen Glass
 Compact Spare Tire
 120-Amp Alternator
 Liftgate Door with Fixed Glass
 Bright Side Roof Rails

OPTIONAL EQUIPMENT

Customer Preferred Package 24A
 Continuously Variable Transmission (T) \$1,100
 Hill Start Assist \$395
 AutoStart® Automatic Transmission
 17-inch x 6.5-inch Aluminum Wheels
 P215/60R17 85W All Season Touring Tires
 Tirestone Brand Tires

DESTINATION CHARGE \$925

TOTAL PRICE: *\$21,815

WARRANTY COVERAGE
 5-year or 100,000-mile Powertrain Limited Warranty.
 3-year or 36,000-mile Basic Limited Warranty.
 Roadside assistance, certain restrictions apply.
 Ask Dealer for a copy of the limited warranties or see your owner's manual for details.

**5 YEAR/100,000 MILE
POWERTRAIN WARRANTY**

Assembly Plant/Port of Entry: BELVIDERE, ILLINOIS, U.S.A.
 VIN: 1C4ALUBA2D0100048 4-DOOR, 4753

EPA DOT Fuel Economy and Environment

Fuel Economy
24 MPG
 combined city/hwy 22 city 28 highway
 4.2 gallons per 100 miles

Small SUV 2WD range from 16 to 32 MPG. The best vehicle rates 112 MPG.

You Save \$600 in fuel costs over 5 years
 compared to the average new vehicle.

Fuel Economy & Greenhouse Gas Rating (tailpipe only)
 Annual fuel cost **\$2,200**
 This vehicle emits 188 grams CO2 per mile. The best emits 6 grams per mile (tailpipe only). Producing and distributing fuel also creates emissions from power plants and refineries.

Smog Rating (tailpipe only)
 6 (Best)

Actual results may vary for many reasons, including driving conditions and how you drive and maintain your vehicle. Fuel economy may vary between 23 MPG and cost \$11,600 to fuel over 5 years. Cost estimates are based on 15,000 miles per year at \$3.58 per gallon. MPGe is related to gasoline gallon equivalent. Vehicle emissions are a significant cause of climate change and smog.

fuel economy.gov
 Calculate your real-world estimates and compare vehicles.

***GOVERNMENT 5-STAR SAFETY RATINGS**

Overall Vehicle Score Not Rated
 Based on the combined ratings of frontal, side, and rollover. Should ONLY be compared to other vehicles of similar size and weight. Safety concerns: visit www.safercar.gov or call 1-888-327-4236 for more details.

Frontal Crash	Driver Passenger	Not Rated
Based on the risk of injury in a frontal impact. Should ONLY be compared to other vehicles of similar size and weight.		
Side Crash	Front seat Rear seat	Not Rated Not Rated
Based on the risk of injury in a side impact.		
Rollover	★★★★	
Based on the risk of rollover in a single-vehicle crash.		

Star ratings range from 1 to 5 stars (★★★★) with 5 being the highest.
 Source: National Highway Traffic Safety Administration (NHTSA)
www.safercar.gov or 1-888-327-4236

The safety ratings above are based on Federal Government tests of particular vehicles equipped with certain features and options. The performance of this vehicle may differ.

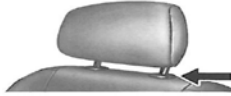
PARTS CONTENT INFORMATION
 FOR VEHICLES IN THIS CLASSLINE:
 U.S./CANADIAN PARTS CONTENT: 72 %
 NOTE: PARTS CONTENT DOES NOT INCLUDE FINAL ASSEMBLY, DISTRIBUTION, OR OTHER NON-PARTS COSTS.
 FOR THIS VEHICLE:
 FINAL ASSEMBLY POINT:
 BELVIDERE, ILLINOIS, U.S.A.
 COUNTRY OF ORIGIN:
 ENGINE: UNITED STATES
 TRANSMISSION: MEXICO

102 Monroney Label

Active Head Restraints — Front Seats

Active Head Restraints are passive, deployable components, and vehicles with this equipment cannot be readily identified by any markings, only through visual inspection of the head restraint. The head restraint will be split in two halves, with the front half being soft foam and trim, the back half being decorative plastic. When AHRS deploy during a rear impact, the front half of the head restraint extends forward to minimize the gap between the back of the occupant's head and the AHRS. This system is designed to help prevent or reduce the extent of injuries to the driver and front passenger in certain types of rear impacts. Refer to "Occupant Restraints" in "Things To Know Before Starting Your Vehicle" for further information.

To raise the head restraint, pull upward on the head restraint. To lower the head restraint, press the push button, located at the base of the head restraint, and push downward on the head restraint.



Push Button

For comfort the Active Head Restraints can be tilted forward and backward. To tilt the head restraint closer to the back of your head, pull forward on the bottom of the head restraint. Push rearward on the bottom of the head restraint to move the head restraint away from your head.



Active Head Restraint (Normal Position)



Active Head Restraint (Tilted Position)

NOTE:

- The head restraints should only be removed by qualified technicians, for service purposes only. If either of the head restraints require removal, see your authorized dealer.
- In the event of deployment of an Active Head Restraint, refer to "Occupant Restraints/Resetting Active Head Restraints (AHR)" in "Things To Know Before Starting Your Vehicle" for further information.

WARNING!

- Do not place items over the top of the Active Head Restraint, such as coats, seat covers or portable DVD players. These items may interfere with the operation of the Active Head Restraint in the event of a collision and could result in serious injury or death.
- Active Head Restraints may be deployed if they are struck by an object such as a hand, foot or loose cargo. To avoid accidental deployment of the Active Head Restraint ensure that all cargo is secured, as loose cargo could contact the Active Head Restraint during sudden stops. Failure to follow this warning could cause personal injury if the Active Head Restraint is deployed.

Parent topic: [Head Restraints](#)

Related information

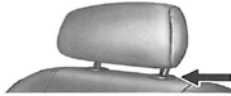
2012 Acura

103 Driver Head Restraint Use and Adjustment Information from Vehicle Owner Manual

Active Head Restraints — Front Seats

Active Head Restraints are passive, deployable components, and vehicles with this equipment cannot be readily identified by any markings, only through visual inspection of the head restraint. The head restraint will be split in two halves, with the front half being soft foam and trim, the back half being decorative plastic. When AHRS deploy during a rear impact, the front half of the head restraint extends forward to minimize the gap between the back of the occupant's head and the AHRS. This system is designed to help prevent or reduce the extent of injuries to the driver and front passenger in certain types of rear impacts. Refer to "Occupant Restraints" in "Things To Know Before Starting Your Vehicle" for further information.

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Parent topic: [Head Restraints](#)

Related information

2012 Acura

104 Left Rear Passenger Head Restraint Use and Adjustment Information from Vehicle Owner Manual

APPENDIX B
VEHICLE AND DUMMY RESPONSE DATA PLOTS

TABLE OF DATA PLOTS

Driver & Passenger Dummy Instrumentation Plots

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1	Driver Head Acceleration (X) Primary vs. Time	B-5
2	Driver Head Acceleration (Y) Primary vs. Time	B-5
3	Driver Head Acceleration (Z) Primary vs. Time	B-5
4	Driver Head Resultant Acceleration Primary vs. Time	B-5
5	Driver Upper Thorax Rib Deflection (Y) vs. Time	B-6
6	Driver Middle Thorax Rib Deflection (Y) vs. Time	B-6
7	Driver Lower Thorax Rib Deflection (Y) vs. Time	B-6
8	Driver Thorax Rib Deflection Maximum vs. Time	B-6
9	Driver Anterior Abdominal Force (Y) vs. Time	B-7
10	Driver Middle Abdominal Force (Y) vs. Time	B-7
11	Driver Posterior Abdominal Force (Y) vs. Time	B-7
12	Driver Total Abdominal Force (Y) vs. Time	B-7
13	Driver Pubic Symphysis Force (Y) vs. Time	B-8
14	Passenger Head Acceleration (X) vs. Time Primary	B-8
15	Passenger Head Acceleration (Y) vs. Time Primary	B-8
16	Passenger Head Acceleration (Z) vs. Time Primary	B-8
17	Passenger Head Resultant Acceleration Primary vs. Time	B-9
18	Passenger Lower Spine T12 Acceleration (X) vs. Time	B-9
19	Passenger Lower Spine T12 Acceleration (Y) vs. Time	B-9
20	Passenger Lower Spine T12 Acceleration (Z) vs. Time	B-9
21	Passenger Lower Spine T12 Resultant Acceleration vs. Time	B-10
22	Passenger Iliac Force on Impact Side (Y) vs. Time	B-10
23	Passenger Acetabulum Force on Impact Side (Y) vs. Time	B-10
24	Passenger Total Pelvic Force on Impact Side (Y) vs. Time	B-10

The following additional data can be obtained from the Research and Development section of the NHTSA website (<http://www.nhtsa.dot.gov>)

Additional Driver & Passenger Dummy Instrumentation Data

Driver Lower Spine T12 Acceleration (X)
Driver Lower Spine T12 Acceleration (Y)
Driver Lower Spine T12 Acceleration (Z)
Passenger Upper Thorax Rib Deflection (Y)
Passenger Middle Thorax Rib Deflection (Y)
Passenger Lower Thorax Rib Deflection (Y)
Passenger Upper Abdomen Rib Deflection (Y)
Passenger Lower Abdomen Rib Deflection (Y)
Driver Head Acceleration Redundant (X)
Driver Head Acceleration Redundant (Y)
Driver Head Acceleration Redundant (Z)
Passenger Head Acceleration Redundant (X)
Passenger Head Acceleration Redundant (Y)
Passenger Head Acceleration Redundant (Z)

Vehicle Instrumentation Data

Vehicle Center of Gravity Acceleration (X)
Vehicle Center of Gravity Acceleration (Y)
Vehicle Center of Gravity Acceleration (Z)
Right Side Sill at Front Seat Acceleration (X)
Right Side Sill at Front Seat Acceleration (Y)
Right Side Sill at Front Seat Acceleration (Z)
Right Side Sill at Rear Seat Acceleration (X)
Right Side Sill at Rear Seat Acceleration (Y)
Right Side Sill at Rear Seat Acceleration (Z)
Left Side Sill at Front Seat Acceleration (Y)
Left Side Sill at Rear Seat Acceleration (Y)
Lower A-Post Acceleration (Y)
Middle A-Post Acceleration (Y)
Lower B-Post Acceleration (Y)
Middle B-Post Acceleration (Y)
Front Seat Track Acceleration (Y)
Rear Seat Structure Acceleration (Y)
Right Rear Occupant Compartment Acceleration (Y)
Engine Block (X)
Engine Block (Y)
Rear Floorpan Above Axle Acceleration (X)
Rear Floorpan Above Axle Acceleration (Y)
Rear Floorpan Above Axle Acceleration (Z)

MDB Instrumentation Data

MDB Center of Gravity Acceleration (X)
MDB Center of Gravity Acceleration (Y)
MDB Center of Gravity Acceleration (Z)
MDB Rear Acceleration (X)
MDB Rear Acceleration (Y)
Left MDB Contact Switch
Right MDB Contact Switch

NHTSA

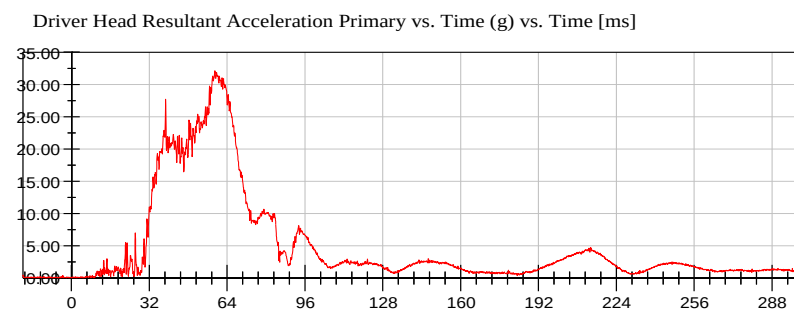
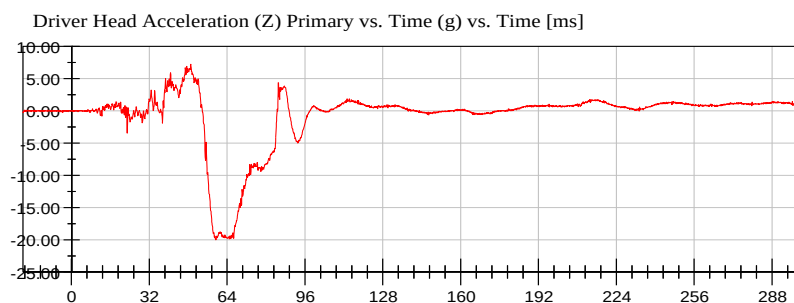
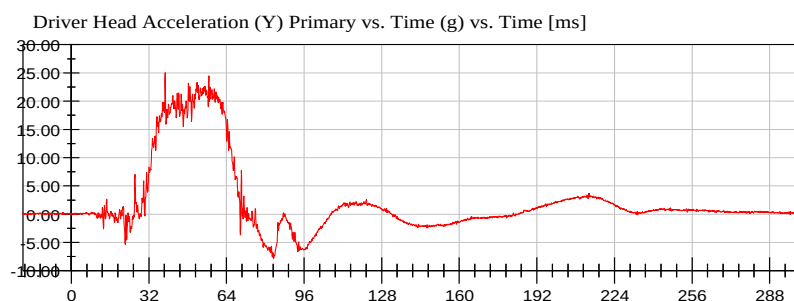
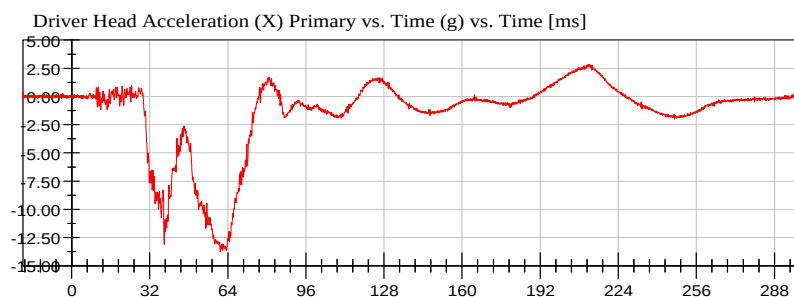
Test Lab: CTF

Test Number: 121119 (QD0300)

Test Date: 11/19/2012

Position #1 ES-2 Dummy with Rib Extension (F030)

Position #4 SID IIs Dummy (305)



NHTSA

Test Lab: CTF

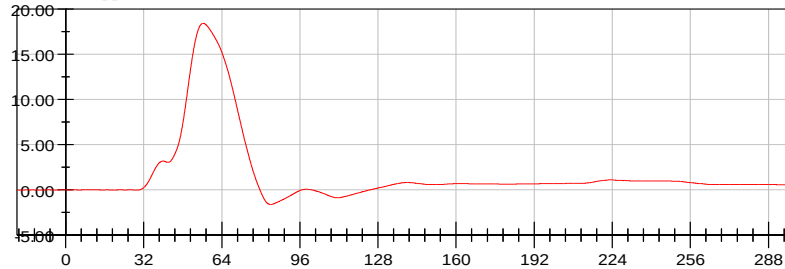
Test Number: 121119 (QD0300)

Test Date: 11/19/2012

Position #1 ES-2 Dummy with Rib Extension (F030)

Position #4 SID IIs Dummy (305)

Driver Upper Thorax Rib Deflection (Y) vs. Time (mm) vs. Time [ms]



<Max>

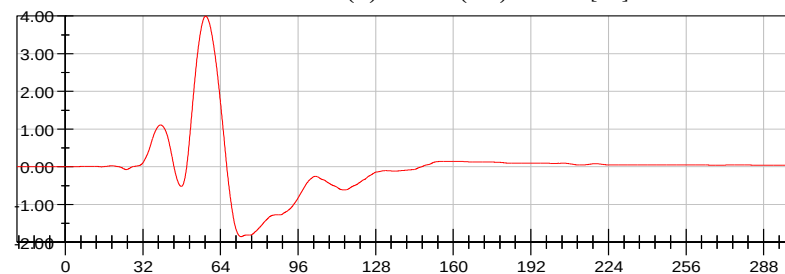
18.43 mm at 56.40 ms

<Min>

-1.61 mm at 84.08 ms

CFC_180

Driver Middle Thorax Rib Deflection (Y) vs. Time (mm) vs. Time [ms]



<Max>

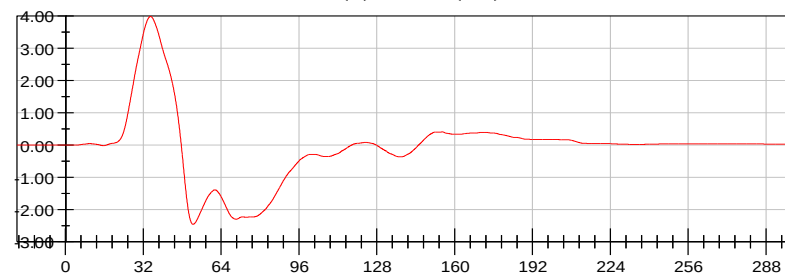
4.00 mm at 57.84 ms

<Min>

-1.86 mm at 72.48 ms

CFC_180

Driver Lower Thorax Rib Deflection (Y) vs. Time (mm) vs. Time [ms]



<Max>

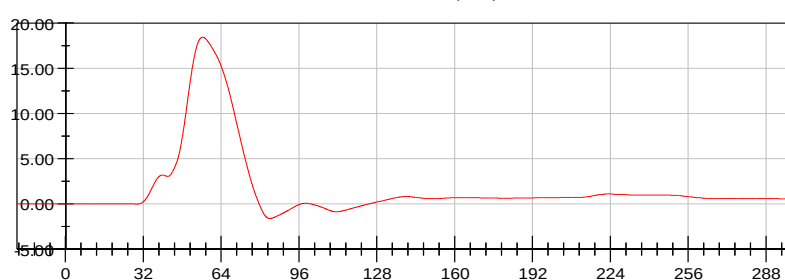
3.99 mm at 34.96 ms

<Min>

-2.46 mm at 52.48 ms

CFC_180

Driver Thorax Rib Deflection Maximum vs. Time (mm) vs. Time [ms]



<Max>

18.43 mm at 56.40 ms

<Min>

-1.61 mm at 84.08 ms

CFC_180



NHTSA

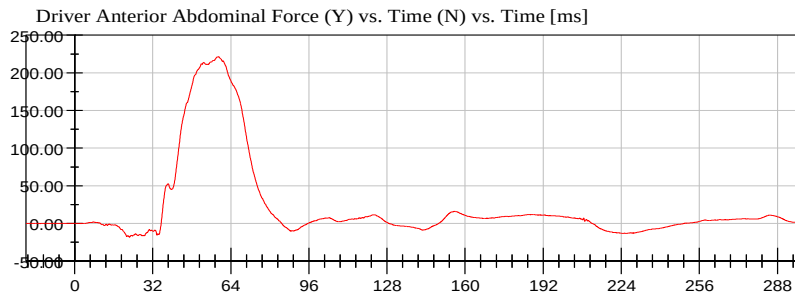
Test Lab: CTF

Test Number: 121119 (QD0300)

Test Date: 11/19/2012

Position #1 ES-2 Dummy with Rib Extension (F030)

Position #4 SID IIs Dummy (305)



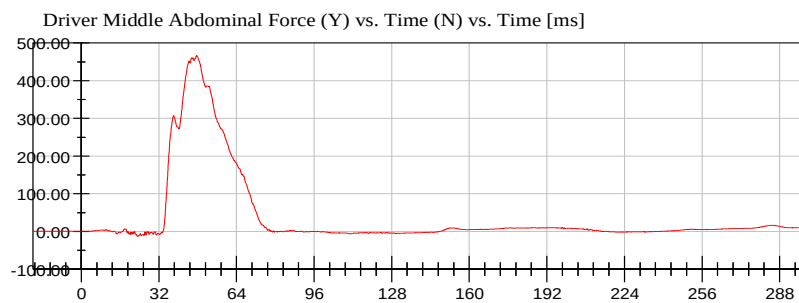
<Max>

221.31 N at 58.96 ms

<Min>

-18.26 N at 22.48 ms

CFC_600



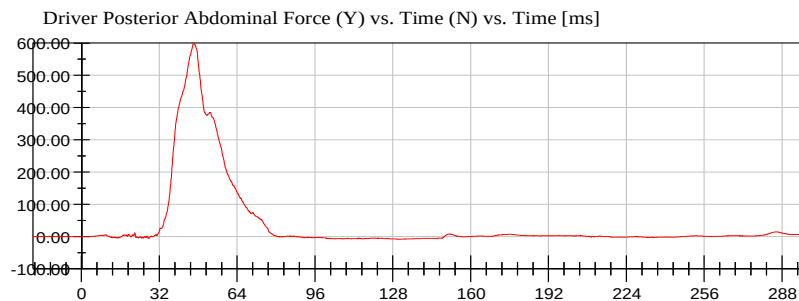
<Max>

466.58 N at 47.52 ms

<Min>

-13.79 N at 23.28 ms

CFC_600



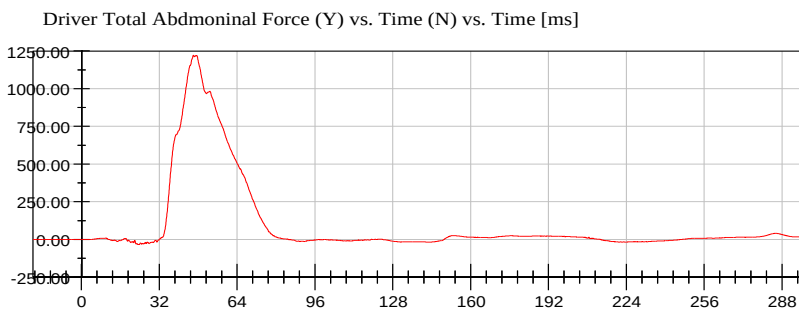
<Max>

600.02 N at 46.08 ms

<Min>

-8.77 N at 130.16 ms

CFC_600



<Max>

1,220.82 N at 46.00 ms

<Min>

-32.82 N at 23.28 ms

CFC_600



NHTSA

Test Lab: CTF

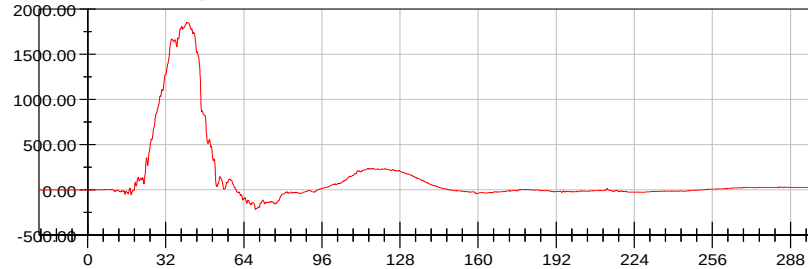
Test Number: 121119 (QD0300)

Test Date: 11/19/2012

Position #1 ES-2 Dummy with Rib Extension (F030)

Position #4 SID IIs Dummy (305)

Driver Pubic Symphysis Force (Y) vs. Time (N) vs. Time [ms]



<Max>

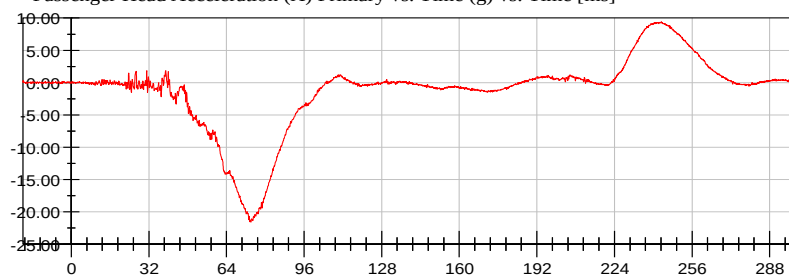
1,854.21 N at 40.72 ms

<Min>

-214.56 N at 68.80 ms

CFC_600

Passenger Head Acceleration (X) Primary vs. Time (g) vs. Time [ms]



<Max>

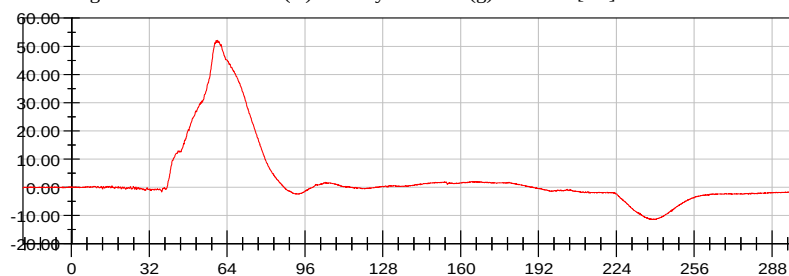
9.43 g at 243.28 ms

<Min>

-21.63 g at 74.00 ms

CFC_1000

Passenger Head Acceleration (Y) Primary vs. Time (g) vs. Time [ms]



<Max>

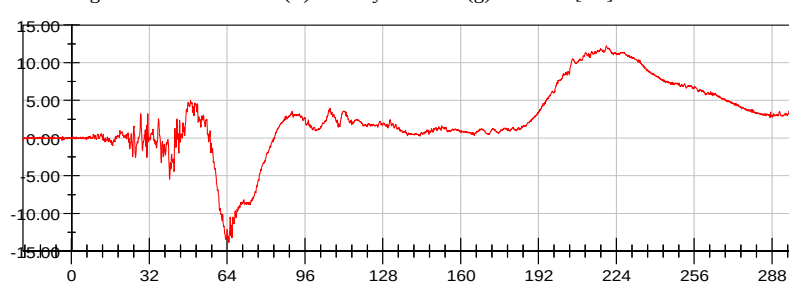
52.13 g at 60.08 ms

<Min>

-11.37 g at 238.08 ms

CFC_1000

Passenger Head Acceleration (Z) Primary vs. Time (g) vs. Time [ms]



<Max>

12.26 g at 219.84 ms

<Min>

-13.87 g at 64.72 ms

CFC_1000



NHTSA

Test Lab: CTF

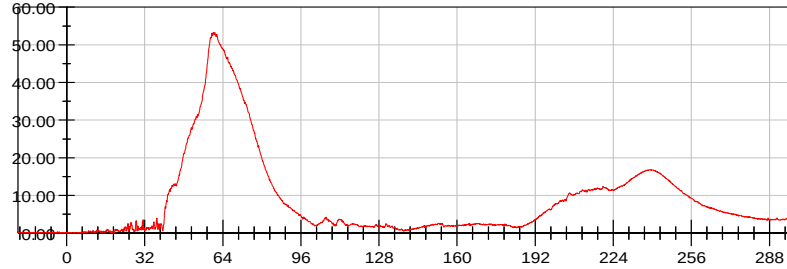
Test Number: 121119 (QD0300)

Test Date: 11/19/2012

Position #1 ES-2 Dummy with Rib Extension (F030)

Position #4 SID IIs Dummy (305)

Passenger Head Resultant Acceleration Primary vs. Time (g) vs. Time [ms]



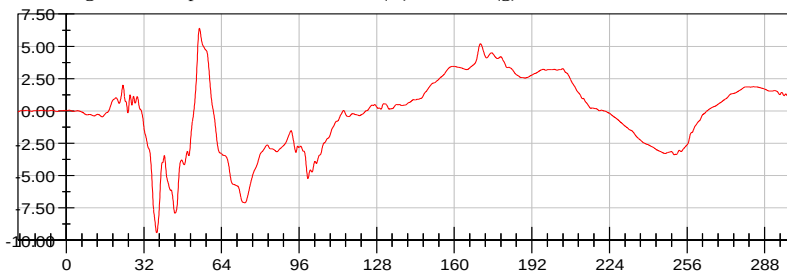
<Max>

53.34 g at 60.08 ms

<Min>

0.04 g at -19.20 ms

Passenger Lower Spine T12 Acceleration (X) vs. Time (g) vs. Time [ms]



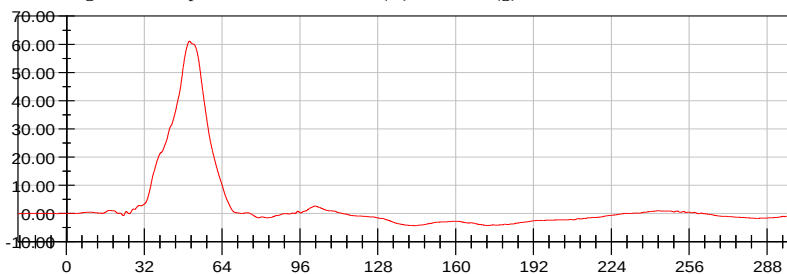
<Max>

6.39 g at 54.88 ms

<Min>

-9.45 g at 37.28 ms

Passenger Lower Spine T12 Acceleration (Y) vs. Time (g) vs. Time [ms]



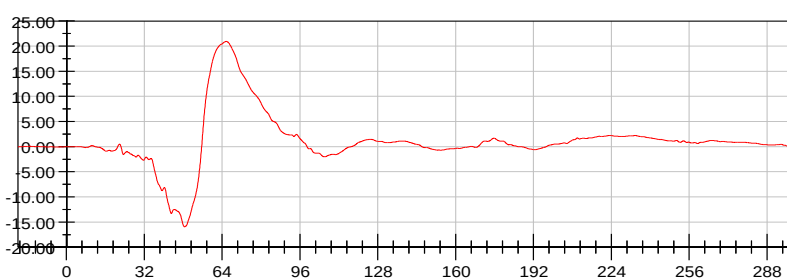
<Max>

61.07 g at 50.56 ms

<Min>

-4.29 g at 143.44 ms

Passenger Lower Spine T12 Acceleration (Z) vs. Time (g) vs. Time [ms]



<Max>

20.93 g at 65.76 ms

<Min>

-15.95 g at 48.56 ms



NHTSA

Test Lab: CTF

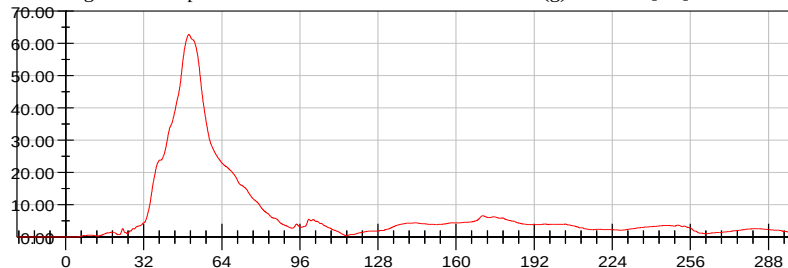
Test Number: 121119 (QD0300)

Test Date: 11/19/2012

Position #1 ES-2 Dummy with Rib Extension (F030)

Position #4 SID IIs Dummy (305)

Passenger Lower Spine T12 Resultant Acceleration vs. Time (g) vs. Time [ms]



<Max>

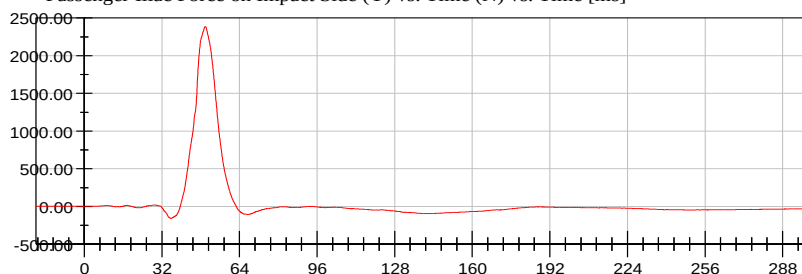
62.77 g at 50.48 ms

<Min>

0.01 g at -18.88 ms

CFC_180

Passenger Iliac Force on Impact Side (Y) vs. Time (N) vs. Time [ms]



<Max>

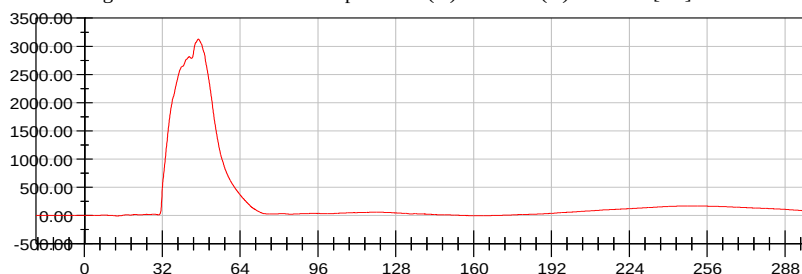
2,385.64 N at 49.92 ms

<Min>

-163.17 N at 35.76 ms

CFC_600

Passenger Acetabulum Force on Impact Side (Y) vs. Time (N) vs. Time [ms]



<Max>

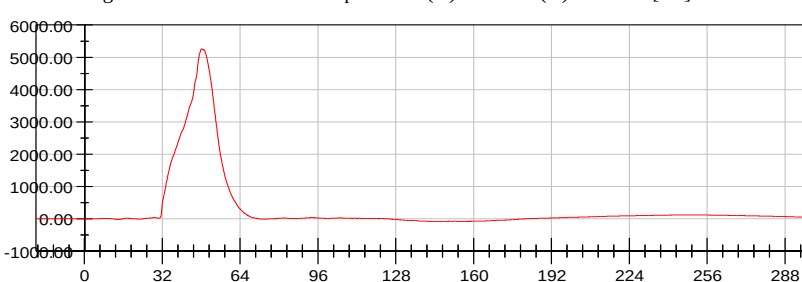
3,127.77 N at 46.80 ms

<Min>

-7.42 N at 13.28 ms

CFC_600

Passenger Total Pelvic Force on Impact Side (Y) vs. Time (N) vs. Time [ms]



<Max>

5,262.42 N at 48.16 ms

<Min>

-81.34 N at 145.20 ms

CFC_600



APPENDIX C
DUMMY PERFORMANCE CALIBRATION TEST DATA

TABLE OF CALIBRATION MEASUREMENTS AND PLOTS

ES-2re (Driver) Dummy

Description

Table 1. External Measurements

Table 2. Head Drop Test

Resultant Head Acceleration (G's) vs. Time (ms)

Head (X) Acceleration (G's) vs. Time (ms)

Head (Y) Acceleration (G's) vs. Time (ms)

Head (Z) Acceleration (G's) vs. Time (ms)

Table 3 Neck Pendulum Test

Pendulum Velocity (m/s) vs. Time (ms)

Flexion Angle (°) vs. Time (ms)

Potentiometer A (°) vs. Time (ms)

Potentiometer B (°) vs. Time (ms)

Potentiometer C (°) vs. Time (ms)

Table 4. Shoulder Impact Test

Impactor Acceleration (G's) vs. Time (ms)

Table 5. Thorax – Upper Rib Drop Test

Upper Rib Displacement @ 459 mm Drop Height (mm) vs. Time (ms)

Upper Rib Displacement @ 815 mm Drop Height (mm) vs. Time (ms)

Table 6. Thorax – Middle Rib Drop Test

Middle Rib Displacement @ 459 mm Drop Height (mm) vs. Time (ms)

Middle Rib Displacement @ 815 mm Drop Height (mm) vs. Time (ms)

Table 7. Thorax – Lower Rib Drop Test

Lower Rib Displacement @ 459 mm Drop Height (mm) vs. Time (ms)

Lower Rib Displacement @ 815 mm Drop Height (mm) vs. Time (ms)

Table 8. Thorax – Full Body Impact Test

Pendulum Acceleration (G's) vs. Time (ms)

Impactor Force (kN) vs. Time (ms)

Upper Rib Displacement (mm) vs. Time (ms)

Middle Rib Displacement (mm) vs. Time (ms)

Lower Rib Displacement (mm) vs. Time (ms)

Table 9. Abdomen Impact Test

Impactor Force (kN) vs. Time (ms)

Total Abdomen Force (kN) vs. Time (ms)

Front Abdomen Force (kN) vs. Time (ms)

Middle Abdomen Force (kN) vs. Time (ms)

Rear Abdomen Force (kN) vs. Time (ms)

Table 10. Lumbar Spine Flexion Test

Pendulum Velocity (m/s) vs. Time (ms)

Spine Flexion Angle (°) vs. Time (ms)

Potentiometer A (°) vs. Time (ms)

Potentiometer B (°) vs. Time (ms)

Potentiometer C (°) vs. Time (ms)

Table 11. Pelvis Impact Test

Pendulum Acceleration (G's) vs. Time (ms)

Impactor Force (kN) vs. Time (ms)

Pubic Symphysis (Y) Force (kN) vs. Time (ms)

TABLE OF CALIBRATION MEASUREMENTS AND PLOTS

SID-IIs (Rear Passenger) Dummy

Description

Table 1. External Measurements

Table 2. Head Drop Test

Resultant Head Acceleration (G's) vs. Time (ms)
Head (X) Acceleration (G's) vs. Time (ms)
Head (Y) Acceleration (G's) vs. Time (ms)
Head (Z) Acceleration (G's) vs. Time (ms)

Table 3. Lateral Neck Pendulum Test

Pendulum Velocity (m/s) vs. Time (ms)
Flexion Angle (°) vs. Time (ms)
Moment About Occipital Condyle (Nm) vs. Time (ms)

Table 4. Shoulder Impact Test

Impactor Acceleration (G's) vs. Time (ms)
Shoulder Displacement (mm) vs. Time (ms)
Upper Spine Acceleration (G's) vs. Time (ms)

Table 5. Thorax (With Arm) Impact Test

Impactor Acceleration (G's) vs. Time (ms)
Shoulder Displacement (mm) vs. Time (ms)
Upper Rib Displacement (mm) vs. Time (ms)
Middle Rib Displacement (mm) vs. Time (ms)
Lower Rib Displacement (mm) vs. Time (ms)
Upper Spine Acceleration (G's) vs. Time (ms)
Lower Spine Acceleration (G's) vs. Time (ms)

Table 6. Thorax (Without Arm) Impact Test

Impactor Acceleration (G's) vs. Time (ms)
Upper Rib Displacement (mm) vs. Time (ms)
Middle Rib Displacement (mm) vs. Time (ms)
Lower Rib Displacement (mm) vs. Time (ms)
Upper Spine Acceleration (G's) vs. Time (ms)
Lower Spine Acceleration (G's) vs. Time (ms)

Table 7. Abdomen Impact Test

Impactor Acceleration (G's) vs. Time (ms)
Upper Abdominal Rib Displacement (mm) vs. Time (ms)
Lower Abdominal Rib Displacement (mm) vs. Time (ms)
Lower Spine Acceleration (G's) vs. Time (ms)

Table 8. Pelvis Plug Quasi-Static Test (Optional*)

Table 9. Pelvis Acetabulum Impact Test

Impactor Acceleration (G's) vs. Time (ms)
Pelvis (Y) Acceleration (G's) vs. Time (ms)
Acetabulum Force (N) vs. Time (ms)

Table 10. Pelvis Iliac Impact Test

Impactor Acceleration (G's) vs. Time (ms)
Pelvis (Y) Acceleration (G's) vs. Time (ms)
Iliac Force (N) vs. Time (ms)

Pre-Test Calibration Sheets
Driver S/N F030

Transportation Research Center Inc.

Left Lateral Head Drop
ES-2re Serial No. F030 Certification No. 10-1
Test Date: 10/23/2012

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.8 °C	Yes
Relative Humidity	10 - 70 %	53 %	Yes
Peak Resultant Acceleration	125 - 155 g	155.0 g	Yes
Peak Longitudinal Acceleration	(-15) - 15 g	5.8 g	Yes
Is Resultant Acceleration Curve Unimodal within 15% of Main Pulse?	Yes	Yes	Yes

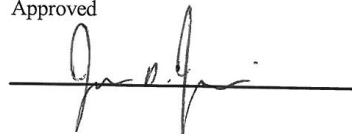
Test meets specifications.

Comments:

Technician



Approved



Specification Source: NHTSA Final Rule 8/15/2008

10.23.2012 12:47:41 359

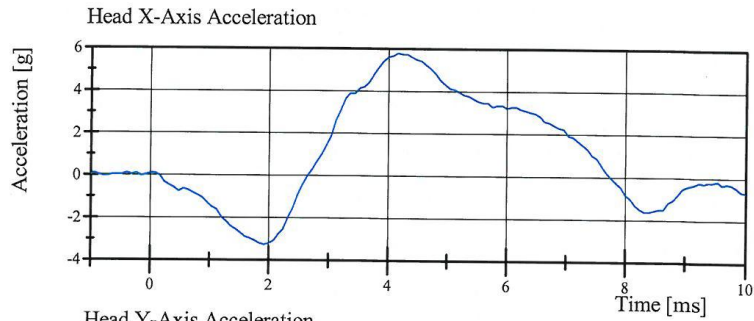


Transportation Research Center Inc.

Left Lateral Head Drop

ES-2re Serial No. F030 Certification No. 10-1

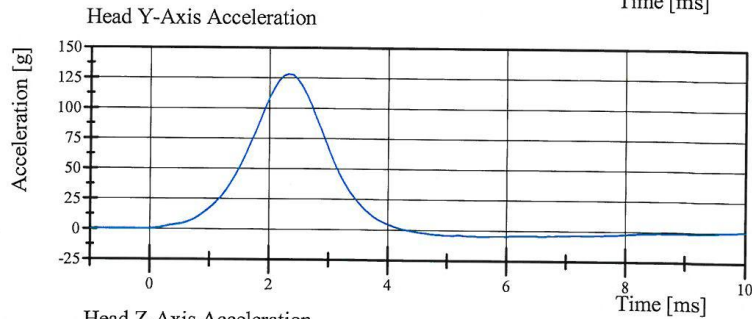
Test Date: 10/23/2012



Filter Class: CFC_1000

Max: 5.8 gn at 4.2 ms

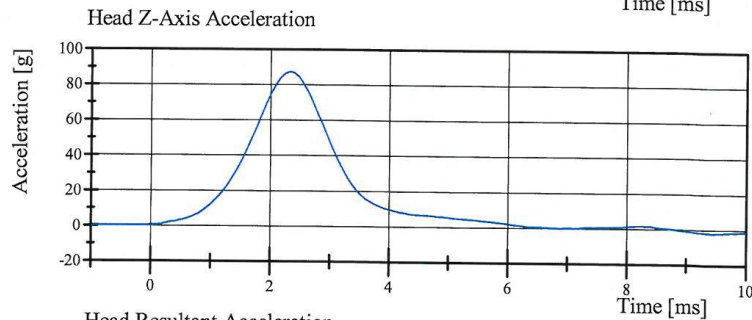
Min: -3.3 gn at 1.9 ms



Filter Class: CFC_1000

Max: 128.2 gn at 2.3 ms

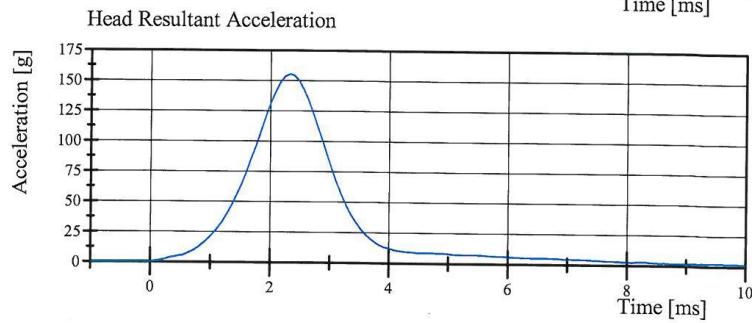
Min: -4.8 gn at 5.5 ms



Filter Class: CFC_1000

Max: 87.2 gn at 2.3 ms

Min: -2.2 gn at 9.4 ms



Filter Class: CFC_1000

Max: 155.0 gn at 2.3 ms

Min: 0.0 gn at -0.5 ms

Specification Source: NHTSA Final Rule 8/15/2008

10.23.2012 12:47:48 359



Transportation Research Center Inc.

Left Lateral Neck

ES-2re Serial No. F030 Certification No. 10-1

Test Date: 10/23/2012

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.3 °C	Yes
Relative Humidity	10 - 70 %	47 %	Yes
Pendulum Integrated Velocity Change within Corridor	Yes	Yes	Yes
Pendulum Velocity	(-3.3) - (-3.5) m/s	-3.36 m/s	Yes
Maximum Headform Flexion			
Peak	(-49) - (-59) deg	-54.4 deg	Yes
Time of Peak	54 - 66 ms	59.7 ms	Yes
Headform Flexion Decay			
- Peak to Zero	53 - 88 ms	65.0 ms	Yes

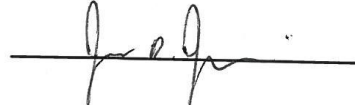
Test meets specifications.

Comments:

Technician



Approved



Specification Source: NHTSA Final Rule 8/15/2008

10.23.2012 11:03:12 1310

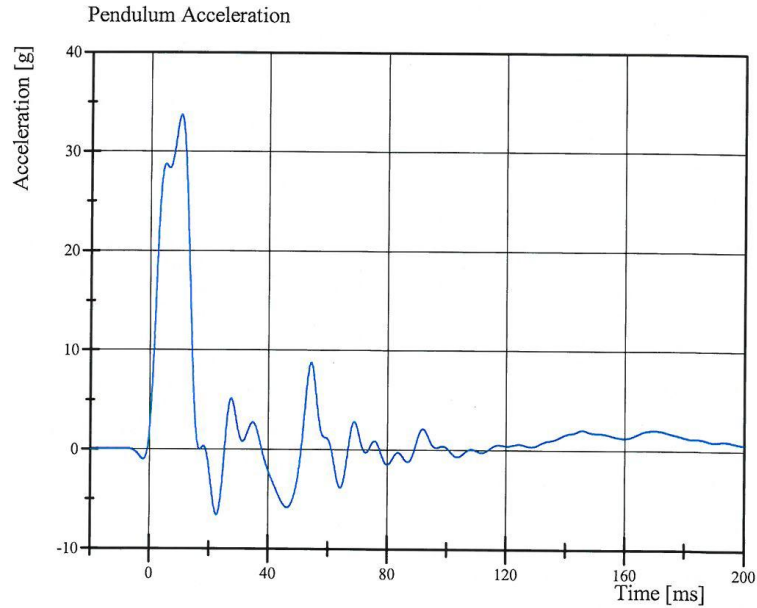


Transportation Research Center Inc.

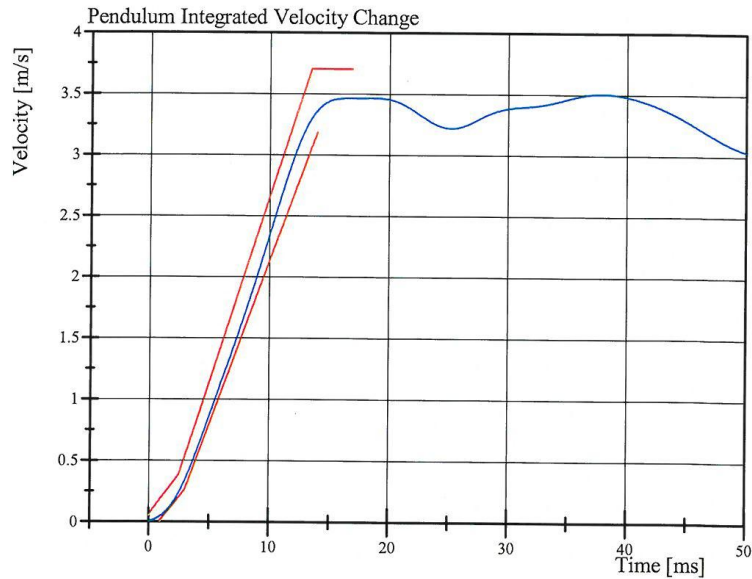
Left Lateral Neck

ES-2re Serial No. F030 Certification No. 10-1

Test Date: 10/23/2012



Filter Class: CFC_60
Max: 33.6 gn at 10.2 ms
Min: -6.7 gn at 22.6 ms



Filter Class: CFC_60
Max: 3.5 m/s at 37.8 ms
Min: 0.0 m/s at 0.0 ms

Specification Source: NHTSA Final Rule 8/15/2008

10.23.2012 11:03:19 1310

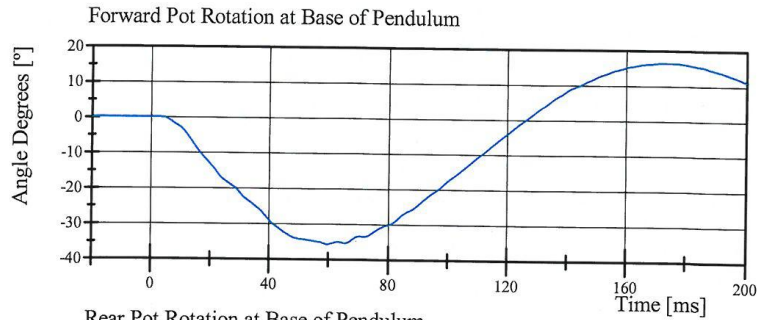


Transportation Research Center Inc.

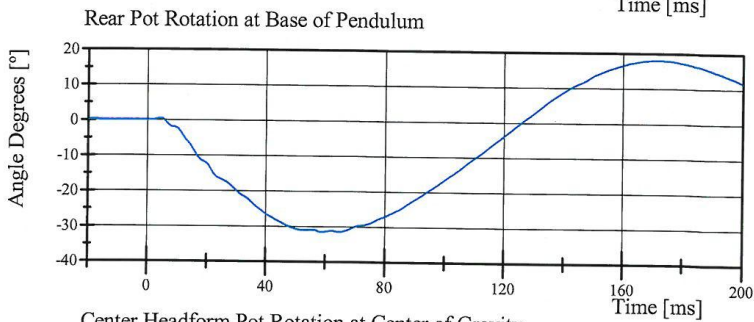
Left Lateral Neck

ES-2re Serial No. F030 Certification No. 10-1

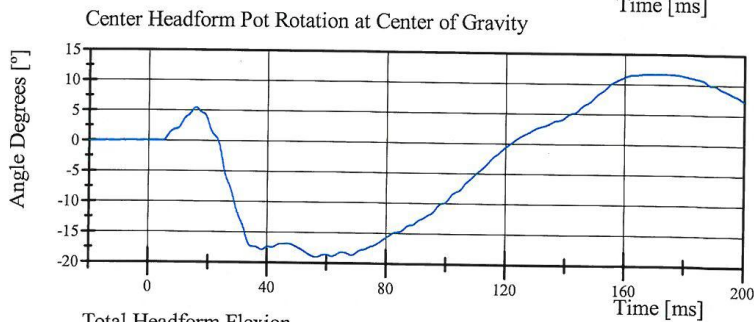
Test Date: 10/23/2012



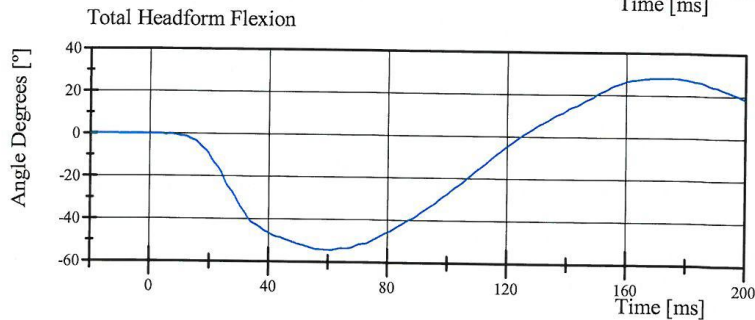
Filter Class: CFC_180
Max: 16.4 ° at 175.0 ms
Min: -35.7 ° at 59.6 ms



Filter Class: CFC_180
Max: 18.0 ° at 171.2 ms
Min: -31.6 ° at 58.9 ms



Filter Class: CFC_180
Max: 11.7 ° at 167.1 ms
Min: -19.1 ° at 56.5 ms



Filter Class: CFC_180
Max: 28.1 ° at 175.0 ms
Min: -54.4 ° at 59.7 ms

Specification Source: NHTSA Final Rule 8/15/2008

10.23.2012 11:03:20 1310



Transportation Research Center Inc.

Left Lateral Shoulder

ES-2re Serial No. F030 Certification No. 10-1

Test Date: 10/23/2012

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.0 °C	Yes
Relative Humidity	10 - 70 %	54 %	Yes
Test Probe Velocity	4.2 - 4.4 m/s	4.33 m/s	Yes
Test Probe Acceleration	(-7.5) - (-10.5) g	-9.51 g	Yes

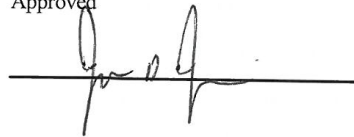
Test meets specifications.

Comments:

Technician



Approved



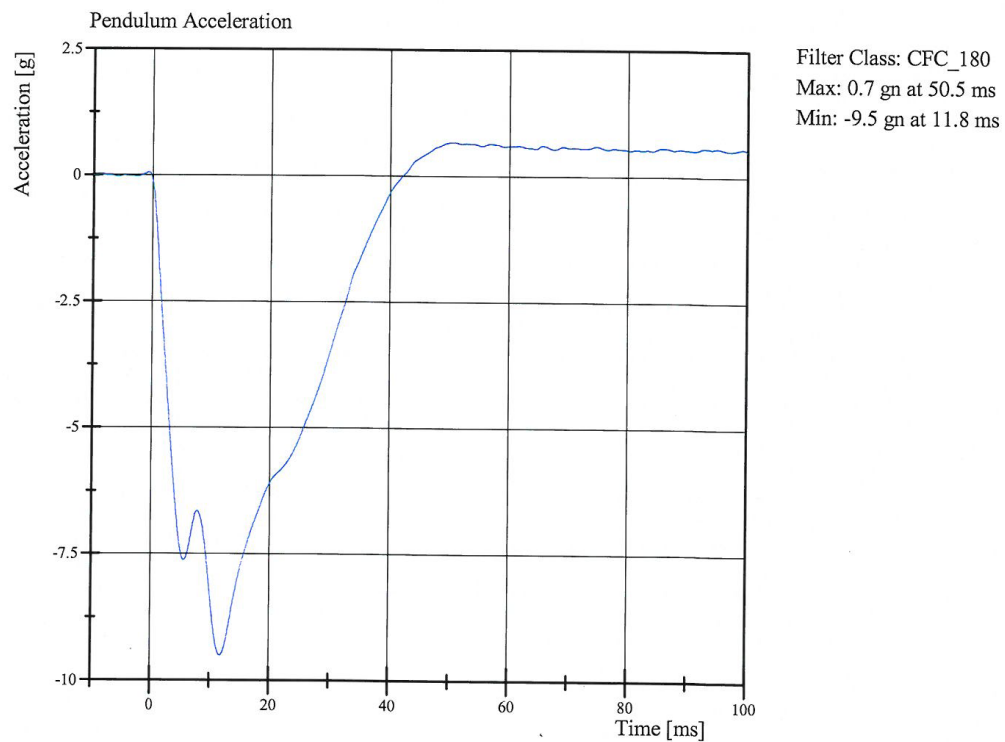
Specification Source: NHTSA final rule 8/15/2008

10.23.2012 13:58:33 567



Transportation Research Center Inc.

Left Lateral Shoulder
ES-2re Serial No. F030 Certification No. 10-1
Test Date: 10/23/2012



Specification Source: NHTSA final rule 8/15/2008

10.23.2012 13:58:39 567



Transportation Research Center Inc.

4.0 m/s Upper Full Rib Module

ES-2re Serial No. F030 Certification No. 10-1

Test Date: 10/23/2012

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.1 °C	Yes
Relative Humidity	10 - 70 %	47 %	Yes
4.0 m/s Test Rib Displacement (807 mm to 823 mm)	46 - 51 mm	48.6 mm	Yes

Test meets specifications.

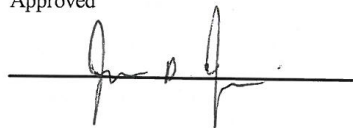
Comments:

Drop Height: 816

Technician



Approved



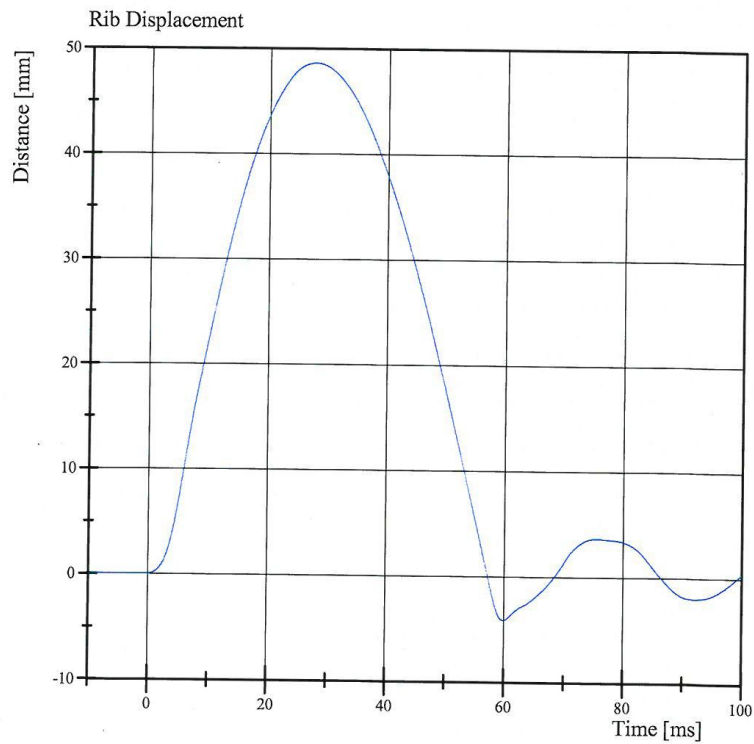
Specification Source: NHTSA Final Rule 8/15/2008

10.23.2012 08:31:00 732



Transportation Research Center Inc.

4.0 m/s Upper Full Rib Module
ES-2re Serial No. F030 Certification No. 10-1
Test Date: 10/23/2012



Filter Class: CFC_180
Max: 48.6 mm at 27.7 ms
Min: -4.2 mm at 59.8 ms

Specification Source: NHTSA Final Rule 8/15/2008

10.23.2012 08:31:07 732



Transportation Research Center Inc.

3.0 m/s Upper Full Rib Module
ES-2re Serial No. F030 Certification No. 10-1
Test Date: 10/23/2012

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.2 °C	Yes
Relative Humidity	10 - 70 %	50 %	Yes
3.0 m/s Test Rib Displacement (454 mm to 464 mm)	36 - 40 mm	37.3 mm	Yes

Test meets specifications.

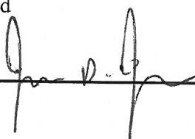
Comments:

Drop Height: 462

Technician



Approved



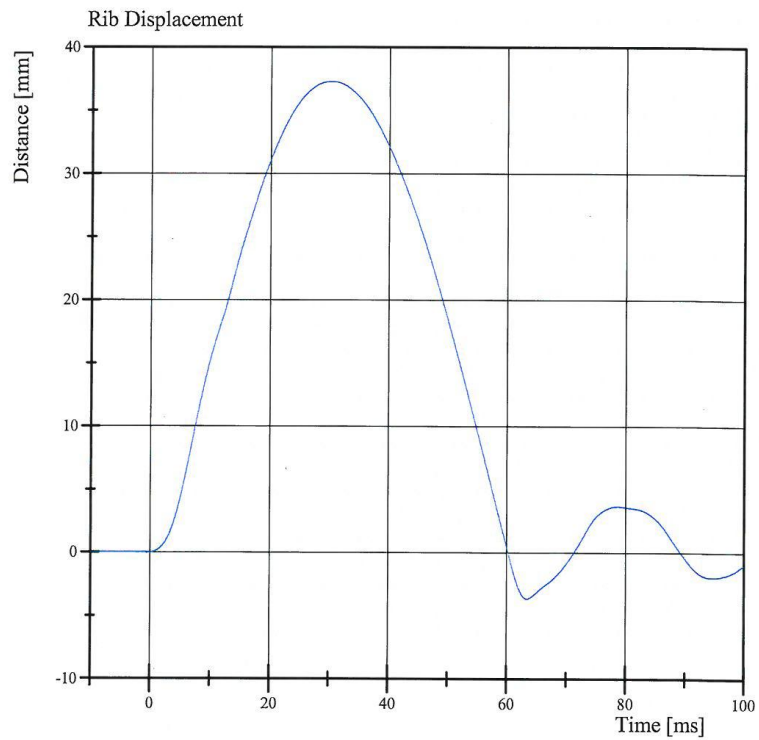
Specification Source: NHTSA Final Rule 8/15/2008

10.23.2012 08:38:03 930



Transportation Research Center Inc.

3.0 m/s Upper Full Rib Module
ES-2re Serial No. F030 Certification No. 10-1
Test Date: 10/23/2012



Filter Class: CFC_180
Max: 37.3 mm at 30.2 ms
Min: -3.7 mm at 63.4 ms

Transportation Research Center Inc.

4.0 m/s Center Full Rib Module

ES-2re Serial No. F030 Certification No. 10-1

Test Date: 10/23/2012

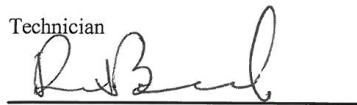
Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.4 °C	Yes
Relative Humidity	10 - 70 %	50 %	Yes
4.0 m/s Test Rib Displacement (807 mm to 823 mm)	46 - 51 mm	48.2 mm	Yes

Test meets specifications.

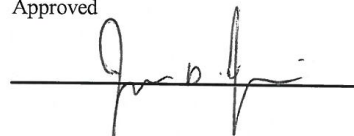
Comments:

Drop Height: 816

Technician



Approved



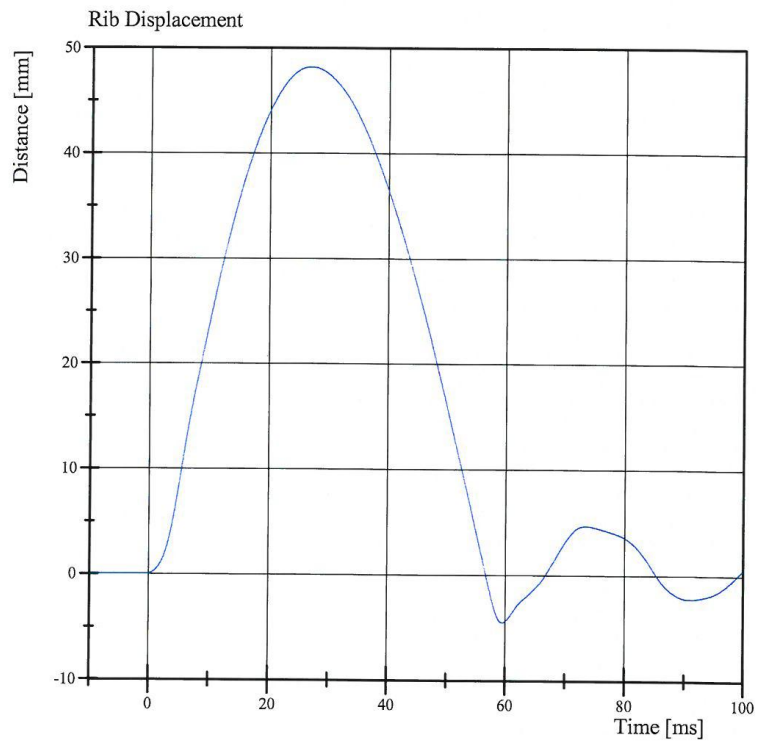
Specification Source: NHTSA Final Rule 8/15/2008

10.23.2012 08:42:40 738



Transportation Research Center Inc.

4.0 m/s Center Full Rib Module
ES-2re Serial No. F030 Certification No. 10-1
Test Date: 10/23/2012



Filter Class: CFC_180
Max: 48.2 mm at 26.8 ms
Min: -4.5 mm at 59.5 ms

Transportation Research Center Inc.

3.0 m/s Center Full Rib Module
ES-2re Serial No. F030 Certification No. 10-1
Test Date: 10/23/2012

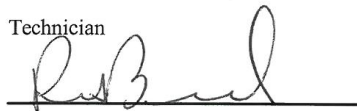
Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.3 °C	Yes
Relative Humidity	10 - 70 %	47 %	Yes
3.0 m/s Test Rib Displacement (454 mm to 464 mm)	36 - 40 mm	37.0 mm	Yes

Test meets specifications.

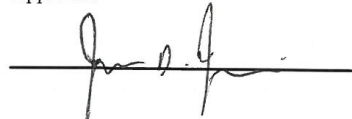
Comments:

Drop Height: 462

Technician



Approved



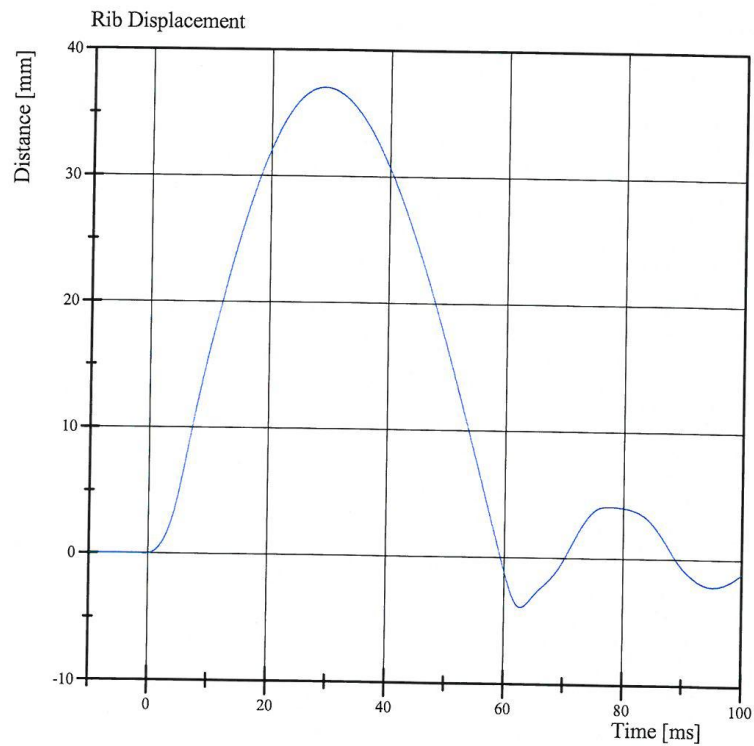
Specification Source: NHTSA Final Rule 8/15/2008

10.23.2012 08:56:11 939



Transportation Research Center Inc.

3.0 m/s Center Full Rib Module
ES-2re Serial No. F030 Certification No. 10-1
Test Date: 10/23/2012



Filter Class: CFC_180
Max: 37.0 mm at 29.0 ms
Min: -3.9 mm at 62.8 ms

Specification Source: NHTSA Final Rule 8/15/2008

10.23.2012 08:56:29 939



Transportation Research Center Inc.

4.0 m/s Lower Full Rib Module

ES-2re Serial No. F030 Certification No. 10-1

Test Date: 10/23/2012

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.1 °C	Yes
Relative Humidity	10 - 70 %	49 %	Yes
4.0 m/s Test Rib Displacement (807 mm to 823 mm)	46 - 51 mm	48.5 mm	Yes

Test meets specifications.

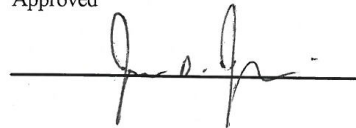
Comments:

Drop Height: 816

Technician



Approved



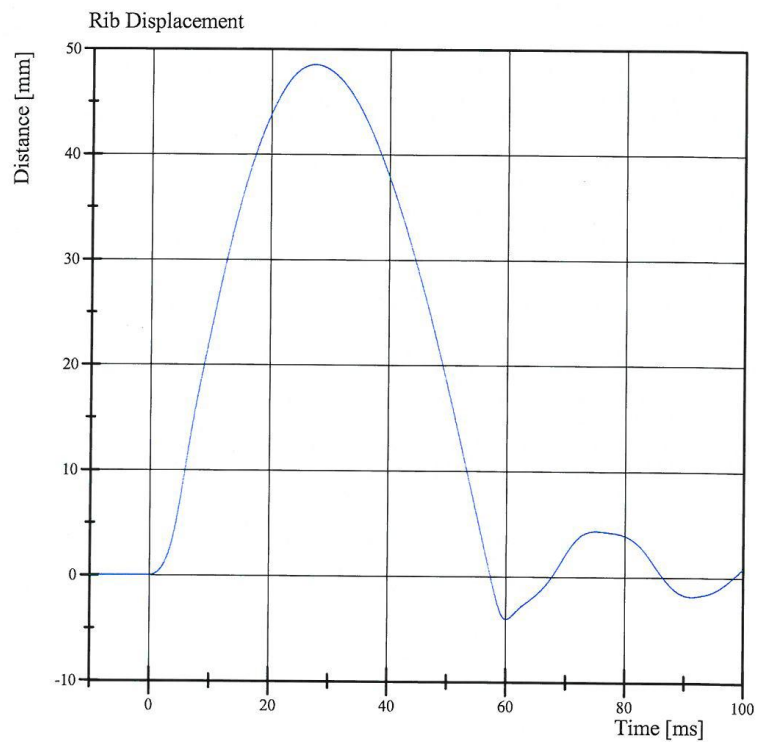
Specification Source: NHTSA Final Rule 8/15/2008

10.23.2012 09:01:52 721



Transportation Research Center Inc.

4.0 m/s Lower Full Rib Module
ES-2re Serial No. F030 Certification No. 10-1
Test Date: 10/23/2012



Filter Class: CFC_180
Max: 48.5 mm at 27.4 ms
Min: -4.0 mm at 60.0 ms

Specification Source: NHTSA Final Rule 8/15/2008

10.23.2012 09:02:00 721



Transportation Research Center Inc.

3.0 m/s Lower Full Rib Module
ES-2re Serial No. F030 Certification No. 10-1
Test Date: 10/23/2012

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.7 °C	Yes
Relative Humidity	10 - 70 %	50 %	Yes
3.0 m/s Test Rib Displacement (454 mm to 464 mm)	36 - 40 mm	37.3 mm	Yes

Test meets specifications.

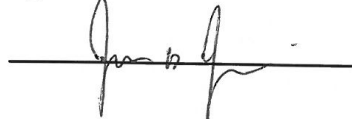
Comments:

Drop Height: 462

Technician



Approved



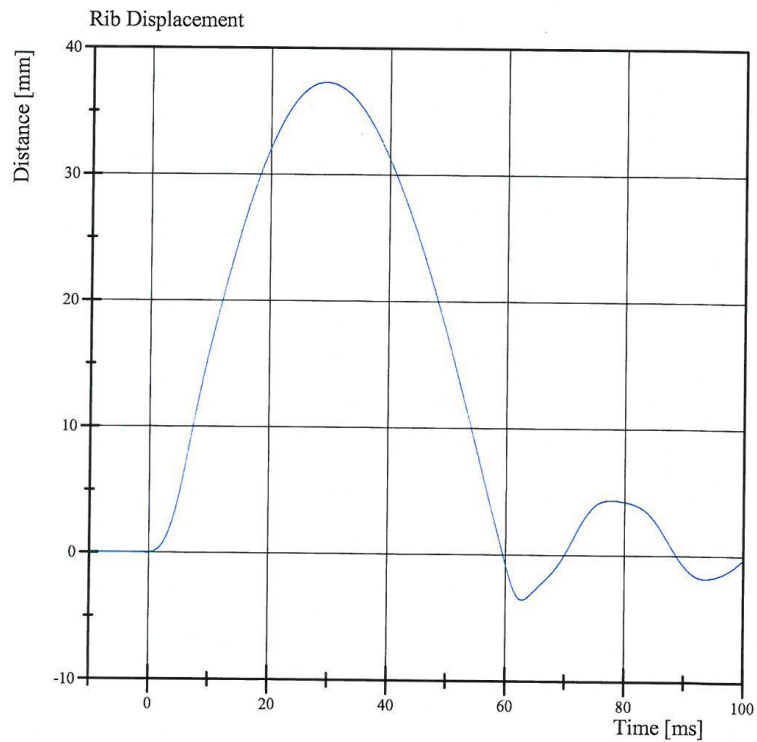
Specification Source: NHTSA Final Rule 8/15/2008

10.23.2012 09:09:27 921



Transportation Research Center Inc.

3.0 m/s Lower Full Rib Module
ES-2re Serial No. F030 Certification No. 10-1
Test Date: 10/23/2012



Filter Class: CFC_180
Max: 37.3 mm at 29.2 ms
Min: -3.6 mm at 62.8 ms

Specification Source: NHTSA Final Rule 8/15/2008

10.23.2012 09:09:34 921



Transportation Research Center Inc.

Left Lateral Thorax

ES-2re Serial No. F030 Certification No. 10-1

Test Date: 10/23/2012

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.3 °C	Yes
Relative Humidity	10 - 70 %	55 %	Yes
Impactor Velocity	5.4 - 5.60 m/s	5.483 m/s	Yes
Peak Impactor Force after 6 ms	(-5,100) - (-6,200) N	-5,441.4 N	Yes
Upper Rib Displacement	34 - 41 mm	37.8 mm	Yes
Center Rib Displacement	37 - 45 mm	40.8 mm	Yes
Lower Rib Displacement	37 - 44 mm	41.8 mm	Yes

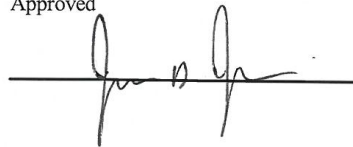
Test meets specifications.

Comments:

Technician



Approved



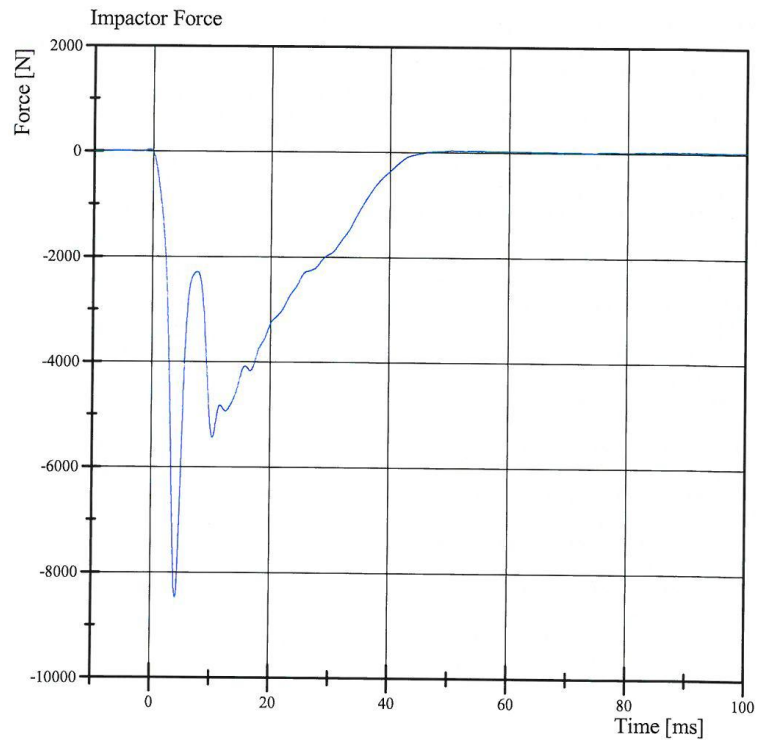
Specification Source: Procedures based on Final Rule dated 8/15/2008.
Polarity in accordance with SAE J211.

10.23.2012 14:08:35 463



Transportation Research Center Inc.

Left Lateral Thorax
ES-2re Serial No. F030 Certification No. 10-1
Test Date: 10/23/2012



Filter Class: CFC_180
Max: 33.1 N at 50.3 ms
Min: -8,491.7 N at 4.2 ms

Specification Source: Procedures based on Final Rule dated 8/15/2008.
Polarity in accordance with SAE J211.

10.23.2012 14:09:11 463

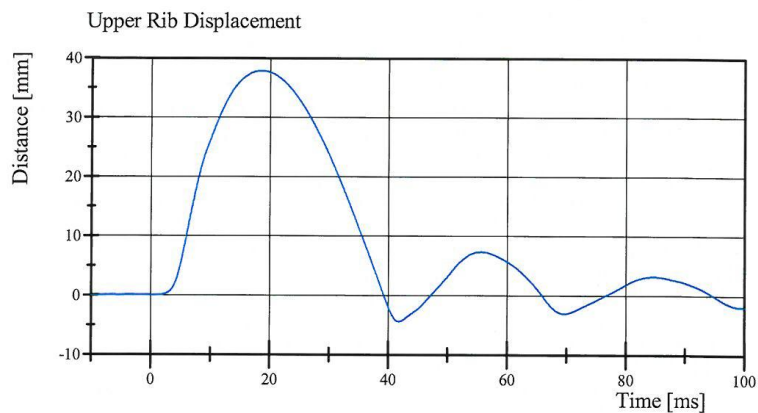


Transportation Research Center Inc.

Left Lateral Thorax

ES-2re Serial No. F030 Certification No. 10-1

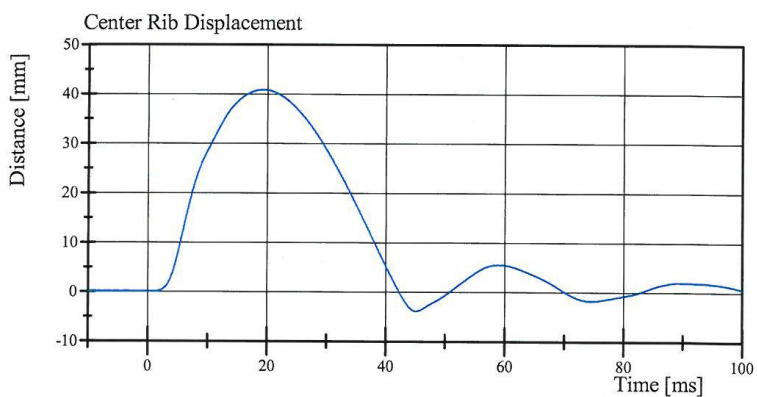
Test Date: 10/23/2012



Filter Class: CFC_180

Max: 37.8 mm at 18.5 ms

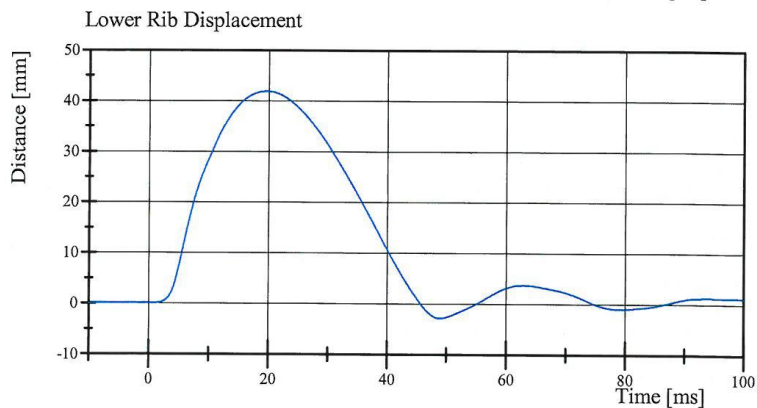
Min: -4.4 mm at 41.8 ms



Filter Class: CFC_180

Max: 40.8 mm at 19.2 ms

Min: -3.9 mm at 45.1 ms



Filter Class: CFC_180

Max: 41.8 mm at 19.6 ms

Min: -2.9 mm at 48.9 ms

Specification Source: Procedures based on Final Rule dated 8/15/2008.
Polarity in accordance with SAE J211.

10.23.2012 14:09:12 463



Transportation Research Center Inc.

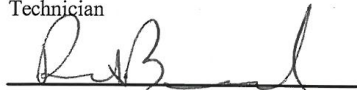
Left Lateral Abdomen
ES-2re Serial No. F030 Certification No. 10-1
Test Date: 10/23/2012

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.6 °C	Yes
Relative Humidity	10 - 70 %	53 %	Yes
Test Probe Velocity	3.9 - 4.1 m/s	3.93 m/s	Yes
Test Probe Force			
Peak	4,000 - 4,800 N	4,124.1 N	Yes
Time of Peak	10.6 - 13.0 ms	11.20 ms	Yes
Total Abdominal Force			
Peak	2,200 - 2,700 N	2,586.1 N	Yes
Time of Peak	10.0 - 12.3 ms	10.08 ms	Yes

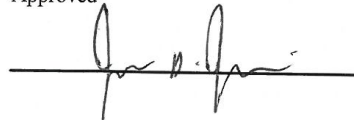
Test meets specifications.

Comments:

Technician



Approved



Specification Source: NHTSA Final Rule 8/15/2008

10.23.2012 15:13:36 578

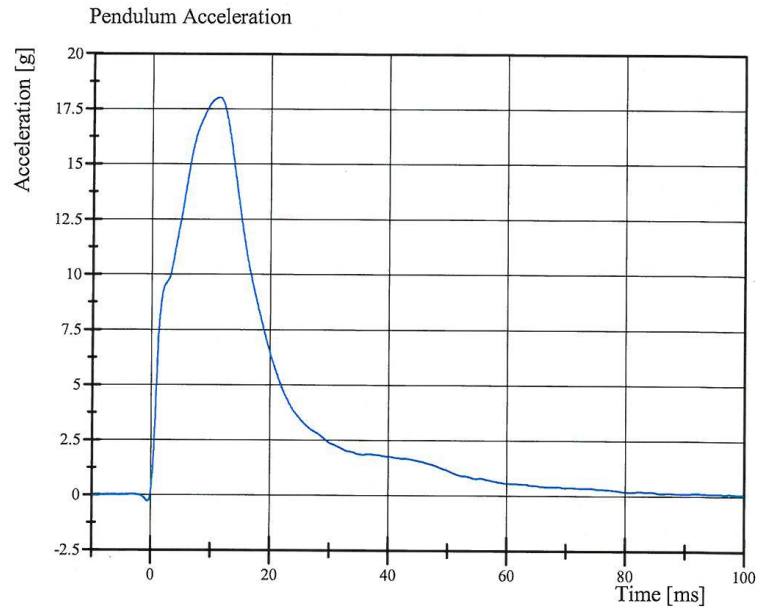


Transportation Research Center Inc.

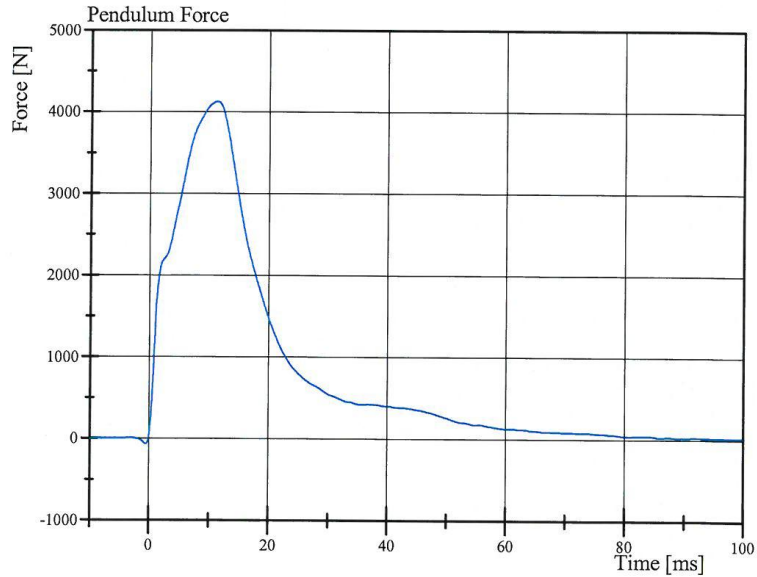
Left Lateral Abdomen

ES-2re Serial No. F030 Certification No. 10-1

Test Date: 10/23/2012



Filter Class: CFC_180
Max: 18.0 gn at 11.2 ms
Min: -0.3 gn at -0.6 ms



Filter Class: CFC_180
Max: 4,124.1 N at 11.2 ms
Min: -68.6 N at -0.6 ms

Specification Source: NHTSA Final Rule 8/15/2008

10.23.2012 15:13:42 578

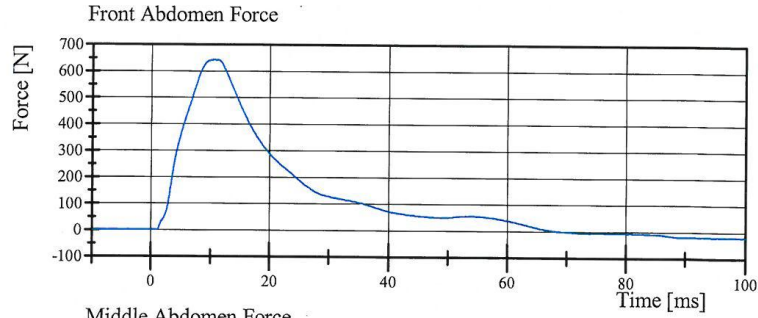


Transportation Research Center Inc.

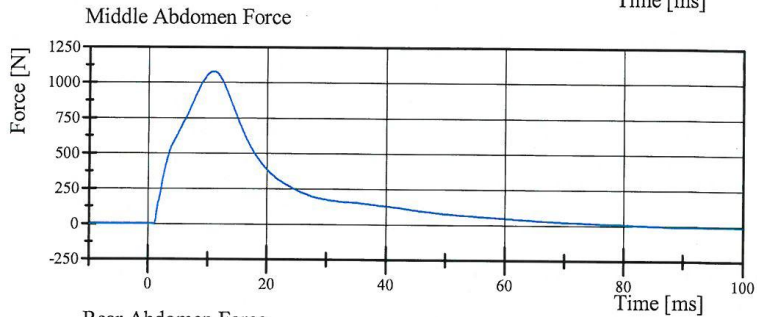
Left Lateral Abdomen

ES-2re Serial No. F030 Certification No. 10-1

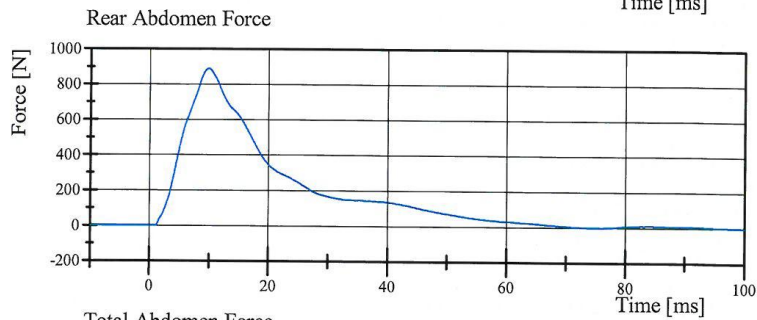
Test Date: 10/23/2012



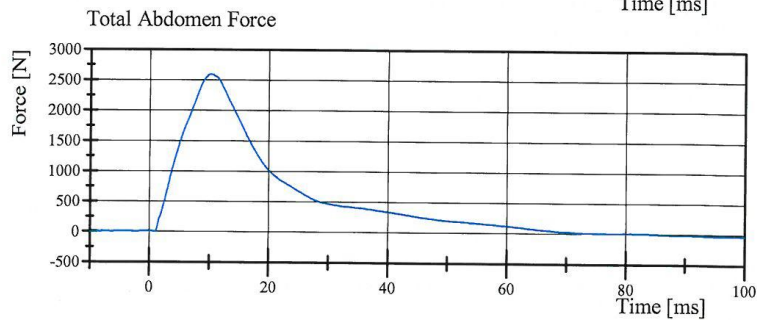
Filter Class: CFC_600
Max: 641.1 N at 10.6 ms
Min: -21.0 N at 99.7 ms



Filter Class: CFC_600
Max: 1,074.3 N at 10.6 ms
Min: -7.9 N at 99.6 ms



Filter Class: CFC_600
Max: 887.4 N at 9.8 ms
Min: -2.6 N at 74.5 ms



Filter Class: CFC_600
Max: 2,586.1 N at 10.1 ms
Min: -30.4 N at 99.7 ms

Specification Source: NHTSA Final Rule 8/15/2008

10.23.2012 15:13:43 578



Transportation Research Center Inc.

Left Lateral Pelvis

ES-2re Serial No. F030 Certification No. 10-1

Test Date: 10/23/2012

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.1 °C	Yes
Relative Humidity	10 - 70 %	54 %	Yes
Test Probe Velocity	4.2 - 4.4 m/s	4.33 m/s	Yes
Test Probe Force			
Peak	4,700 - 5,400 N	5,223.6 N	Yes
Time of Peak	11.8 - 16.1 ms	13.60 ms	Yes
Pubic Symphysis Force			
Peak	(-1,230) - (-1,590) N	-1,355.8 N	Yes
Time of Peak	12.2 - 17.0 ms	14.96 ms	Yes

Test meets specifications.

Comments:

Technician



Approved



Specification Source: NHTSA Final Rule 8/15/2008

10.23.2012 15:22:59 540



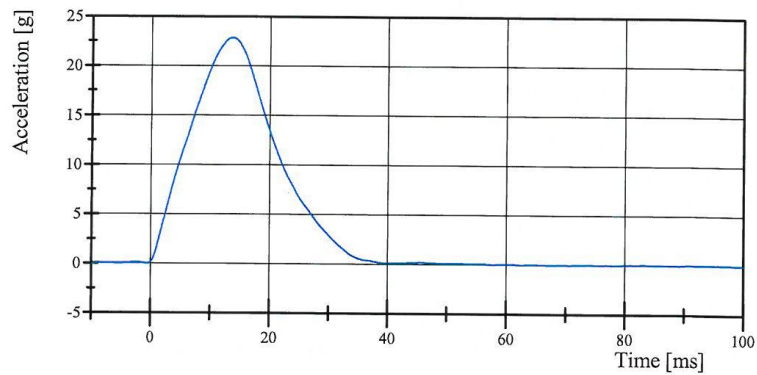
Transportation Research Center Inc.

Left Lateral Pelvis

ES-2re Serial No. F030 Certification No. 10-1

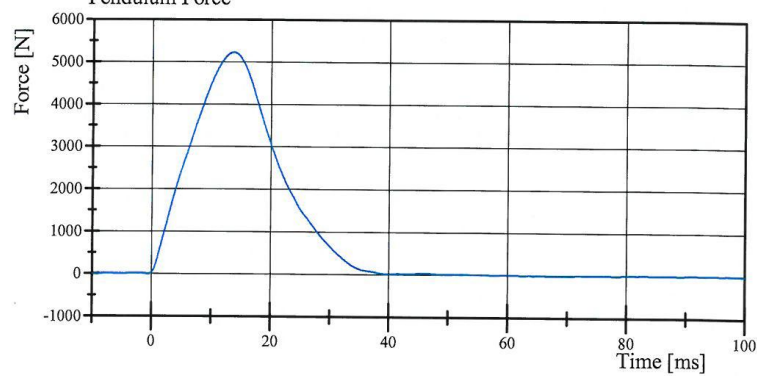
Test Date: 10/23/2012

Pendulum Acceleration



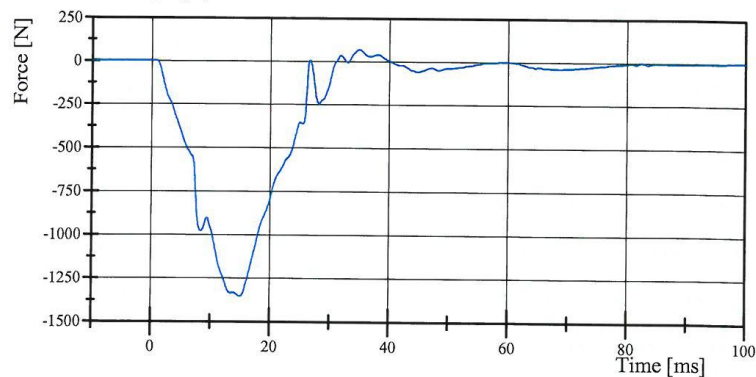
Filter Class: CFC_180
Max: 22.8 gn at 13.6 ms
Min: -0.1 gn at 78.3 ms

Pendulum Force



Filter Class: CFC_180
Max: 5,223.6 N at 13.6 ms
Min: -14.5 N at 78.3 ms

Pubic Symphysis Force



Filter Class: CFC_600
Max: 67.4 N at 34.9 ms
Min: -1,355.8 N at 15.0 ms

Specification Source: NHTSA Final Rule 8/15/2008

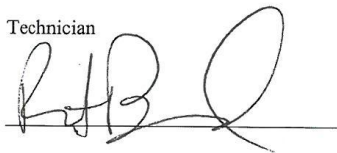
10.23.2012 15:23:06 540



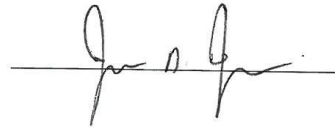
Transportation Research Center Inc.
572U ES-2re Dummy
External Dimensions
Serial No. F030 Calibration No. 10
Date: 10/23/12

Symbol	Description	Specification	Results	Pass
		mm	mm	
1	Sitting Height	900.0 - 918.0	910	Yes
2	Seat to Shoulder Joint	558.0 - 572.0	560	Yes
3	Seat to Lower Face of Thoracic Spine Box	346.0 - 356.0	350	Yes
4	Seat to Hip Joint (center of bolt)	97.0 - 103.0	99	Yes
5	Sole to Seat, Sitting	433.0 - 451.0	447	Yes
6	Head Width	152.0 - 158.0	155	Yes
7	Shoulder/Arm Width	461.0 - 479.0	472	Yes
8	Thorax Width	322.0 - 332.0	325	Yes
9	Abdomen Width	273.0 - 287.0	282	Yes
10	Pelvis Lap Width	359.0 - 373.0	367	Yes
11	Head Depth	196.0 - 206.0	200	Yes
12	Thorax Depth	262.0 - 272.0	268	Yes
13	Abdomen Depth	194.0 - 204.0	200	Yes
14	Pelvis Depth	235.0 - 245.0	240	Yes
15	Back of Buttocks to Hip Joint (center of bolt)	150.0 - 160.0	159	Yes
16	Back of Buttocks to Front of Knee	597.0 - 615.0	604	Yes

Technician



Approved



Baseline 10/07/05



Driver S/N F030

Post-Test Calibration Sheets

Transportation Research Center Inc.

Left Lateral Head Drop
ES-2re Serial No. F030 Certification No. 11-2
Test Date: 11/26/2012

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.1 °C	Yes
Relative Humidity	10 - 70 %	20 %	Yes
Peak Resultant Acceleration	125 - 155 g	148.9 g	Yes
Peak Longitudinal Acceleration	(-15) - 15 g	6.6 g	Yes
Is Resultant Acceleration Curve Unimodal within 15% of Main Pulse?	Yes	Yes	Yes

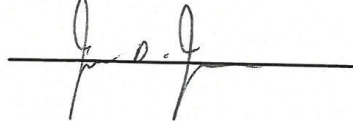
Test meets specifications.

Comments:

Technician



Approved



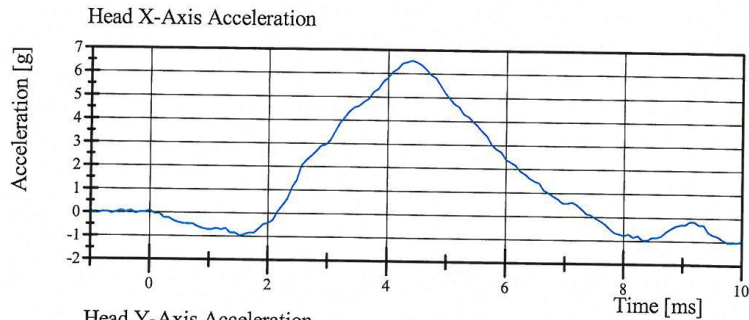
Specification Source: NHTSA Final Rule 8/15/2008

11.26.2012 17:12:18 359

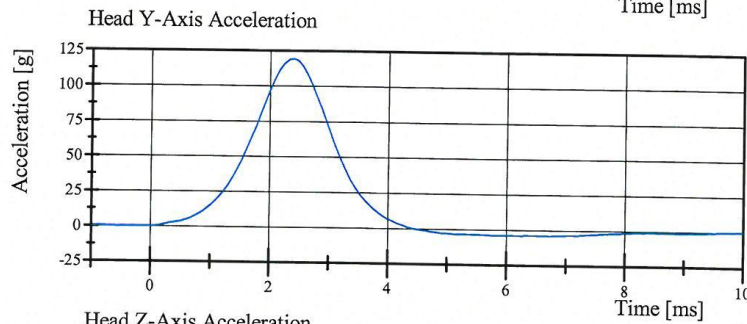


Transportation Research Center Inc.

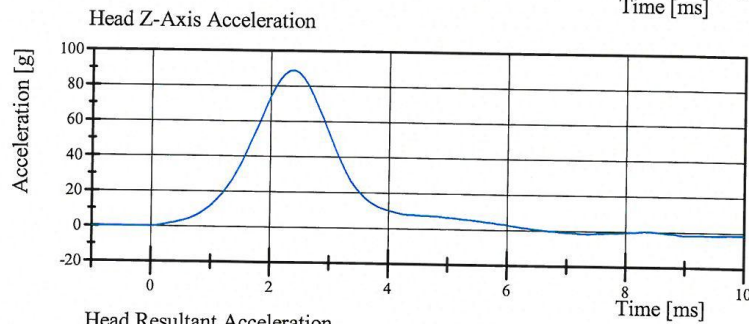
Left Lateral Head Drop
ES-2re Serial No. F030 Certification No. 11-2
Test Date: 11/26/2012



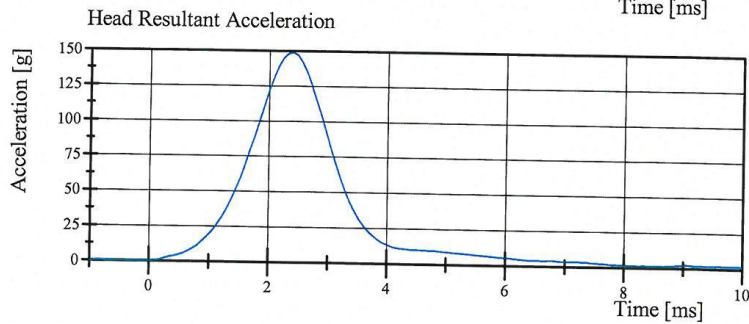
Filter Class: CFC_1000
Max: 6.6 gn at 4.4 ms
Min: -1.0 gn at 9.8 ms



Filter Class: CFC_1000
Max: 119.4 gn at 2.4 ms
Min: -4.0 gn at 6.0 ms



Filter Class: CFC_1000
Max: 88.9 gn at 2.4 ms
Min: -2.0 gn at 9.0 ms



Filter Class: CFC_1000
Max: 148.9 gn at 2.4 ms
Min: 0.0 gn at -0.4 ms

Specification Source: NHTSA Final Rule 8/15/2008

11.26.2012 17:12:25 359



Transportation Research Center Inc.

Left Lateral Neck

ES-2re Serial No. F030 Certification No. 11-1

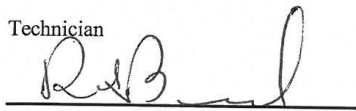
Test Date: 11/26/2012

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.4 °C	Yes
Relative Humidity	10 - 70 %	22 %	Yes
Pendulum Integrated Velocity Change within Corridor	Yes	Yes	Yes
Pendulum Velocity	(-3.3) - (-3.5) m/s	-3.37 m/s	Yes
Maximum Headform Flexion			
Peak	(-49) - (-59) deg	-54.4 deg	Yes
Time of Peak	54 - 66 ms	59.0 ms	Yes
Headform Flexion Decay			
- Peak to Zero	53 - 88 ms	65.6 ms	Yes

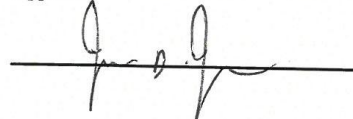
Test meets specifications.

Comments:

Technician



Approved



Specification Source: NHTSA Final Rule 8/15/2008

11.26.2012 14:25:58 1303

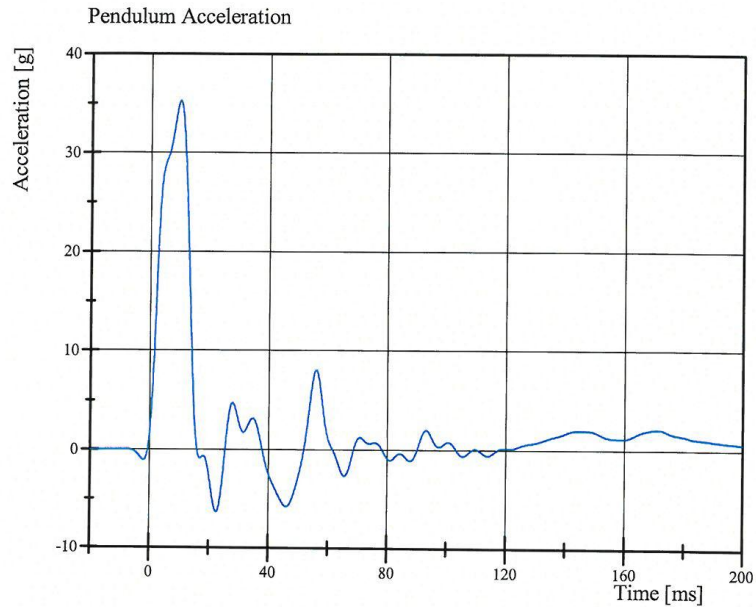


Transportation Research Center Inc.

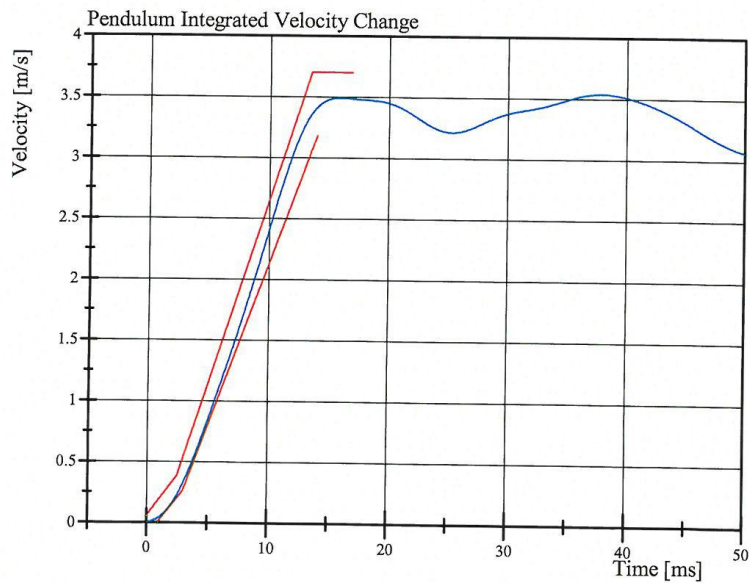
Left Lateral Neck

ES-2re Serial No. F030 Certification No. 11-1

Test Date: 11/26/2012



Filter Class: CFC_60
Max: 35.2 gn at 9.8 ms
Min: -6.4 gn at 22.5 ms



Filter Class: CFC_60
Max: 3.5 m/s at 37.8 ms
Min: 0.0 m/s at 0.0 ms

Specification Source: NHTSA Final Rule 8/15/2008

11.26.2012 14:26:05 1303

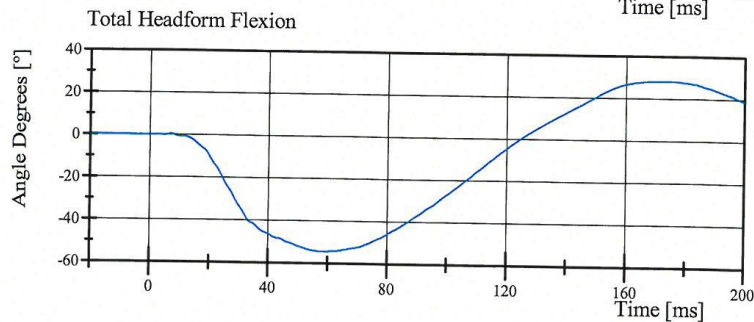
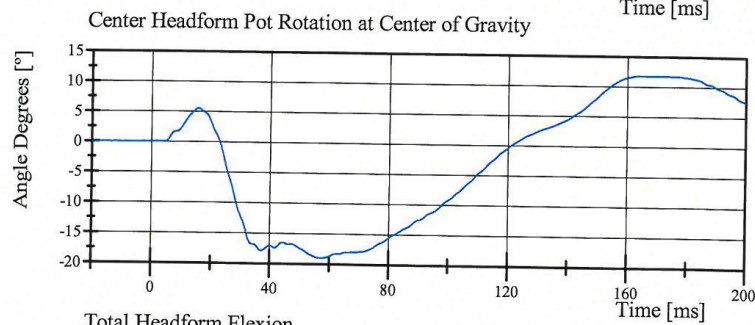
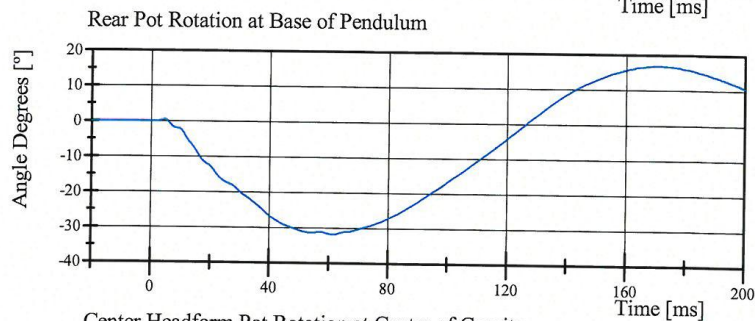
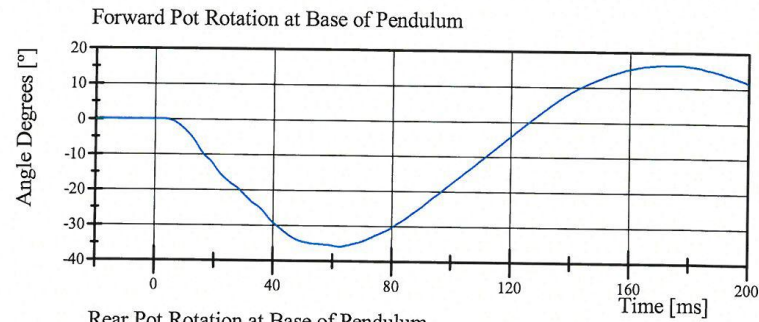


Transportation Research Center Inc.

Left Lateral Neck

ES-2re Serial No. F030 Certification No. 11-1

Test Date: 11/26/2012



Specification Source: NHTSA Final Rule 8/15/2008

11.26.2012 14:26:06 1303



Transportation Research Center Inc.

Left Lateral Shoulder

ES-2re Serial No. F030 Certification No. 11-1

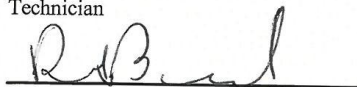
Test Date: 11/26/2012

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.9 °C	Yes
Relative Humidity	10 - 70 %	21 %	Yes
Test Probe Velocity	4.2 - 4.4 m/s	4.33 m/s	Yes
Test Probe Acceleration	(-7.5) - (-10.5) g	-10.37 g	Yes

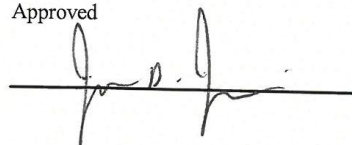
Test meets specifications.

Comments:

Technician



Approved



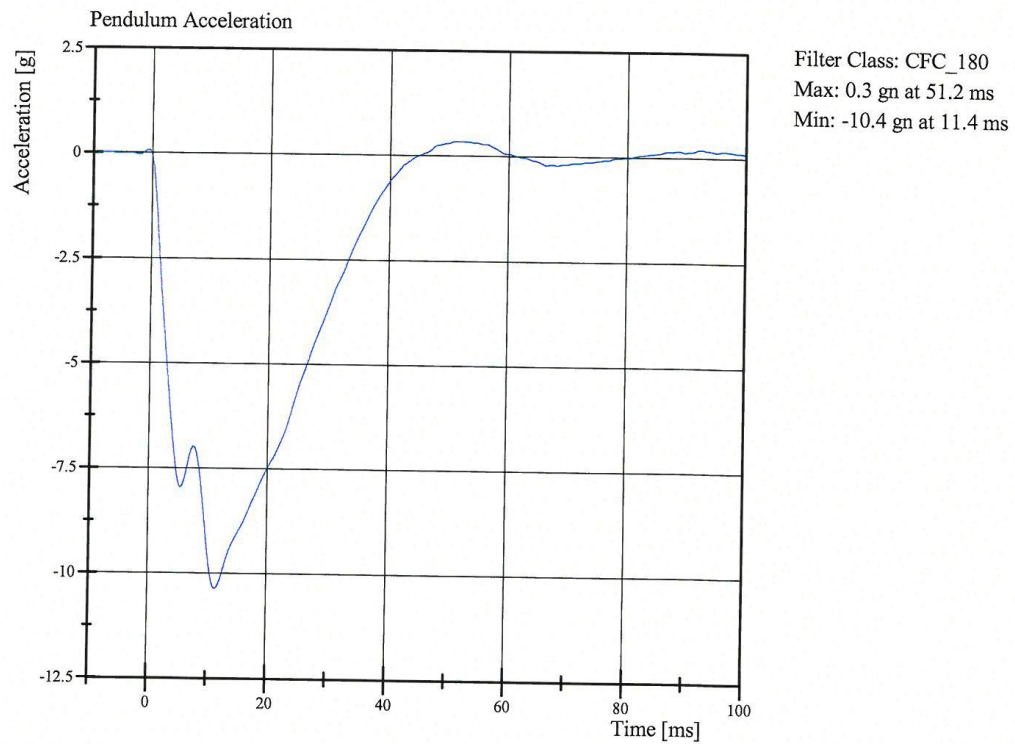
Specification Source: NHTSA final rule 8/15/2008

11.26.2012 15:17:39 507



Transportation Research Center Inc.

Left Lateral Shoulder
ES-2re Serial No. F030 Certification No. 11-1
Test Date: 11/26/2012



Specification Source: NHTSA final rule 8/15/2008

11.26.2012 15:17:45 507



Transportation Research Center Inc.

4.0 m/s Upper Full Rib Module
ES-2re Serial No. F030 Certification No. 11-1
Test Date: 11/26/2012

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.8 °C	Yes
Relative Humidity	10 - 70 %	22 %	Yes
4.0 m/s Test Rib Displacement (807 mm to 823 mm)	46 - 51 mm	48.4 mm	Yes

Test meets specifications.

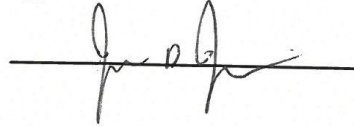
Comments:

Drop Height: 816

Technician



Approved



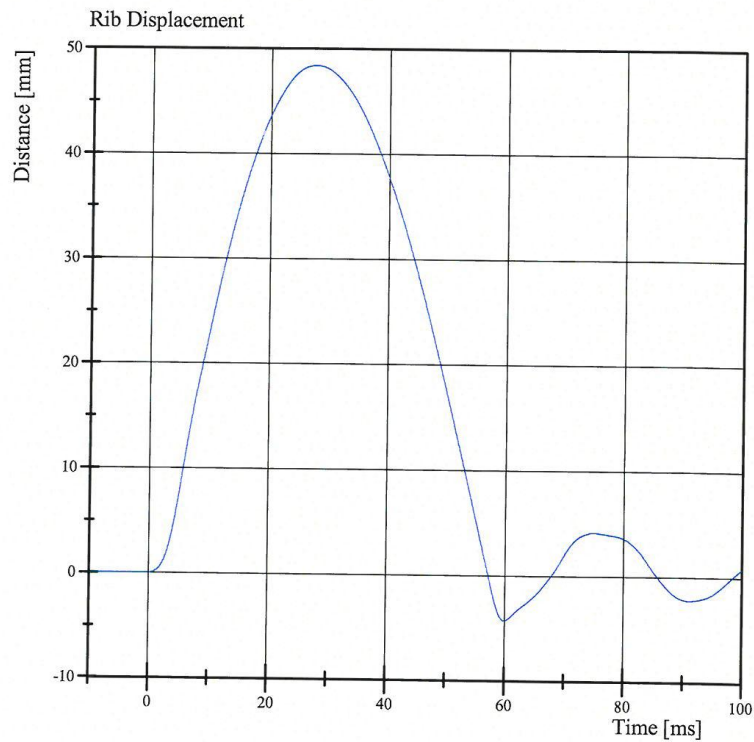
Specification Source: NHTSA Final Rule 8/15/2008

11.26.2012 13:31:45 753



Transportation Research Center Inc.

4.0 m/s Upper Full Rib Module
ES-2re Serial No. F030 Certification No. 11-1
Test Date: 11/26/2012



Filter Class: CFC_180
Max: 48.4 mm at 27.6 ms
Min: -4.3 mm at 59.9 ms

Specification Source: NHTSA Final Rule 8/15/2008

11.26.2012 13:32:00 753



Transportation Research Center Inc.

3.0 m/s Upper Full Rib Module
ES-2re Serial No. F030 Certification No. 11-1
Test Date: 11/26/2012

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.2 °C	Yes
Relative Humidity	10 - 70 %	22 %	Yes
3.0 m/s Test Rib Displacement (454 mm to 464 mm)	36 - 40 mm	36.9 mm	Yes

Test meets specifications.

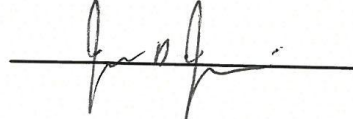
Comments:

Drop Height: 462

Technician



Approved



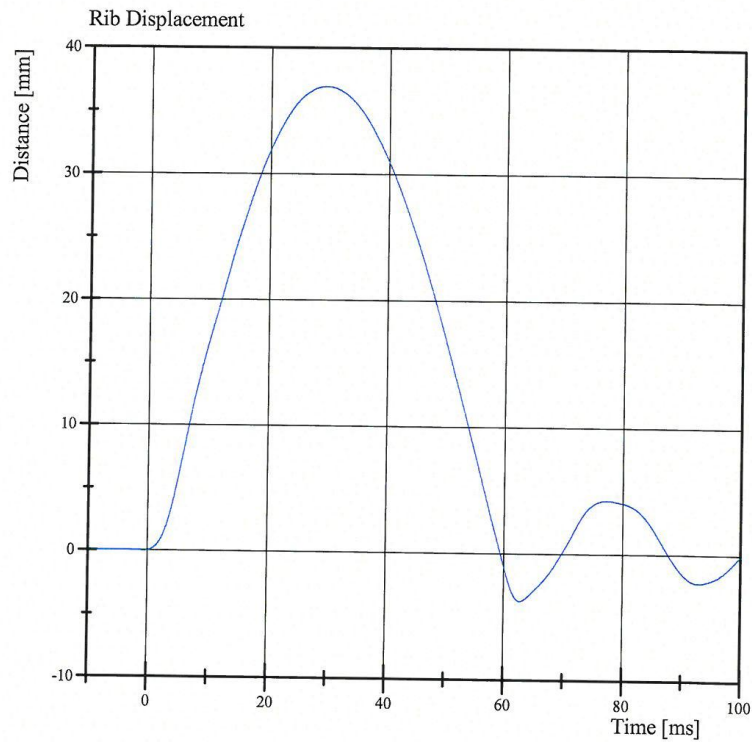
Specification Source: NHTSA Final Rule 8/15/2008

11.26.2012 13:37:35 968



Transportation Research Center Inc.

3.0 m/s Upper Full Rib Module
ES-2re Serial No. F030 Certification No. 11-1
Test Date: 11/26/2012



Filter Class: CFC_180
Max: 36.9 mm at 29.4 ms
Min: -3.7 mm at 62.7 ms

Specification Source: NHTSA Final Rule 8/15/2008

11.26.2012 13:37:44 968



Transportation Research Center Inc.

4.0 m/s Center Full Rib Module
ES-2re Serial No. F030 Certification No. 11-1
Test Date: 11/26/2012

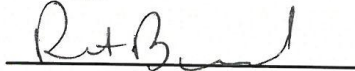
Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.2 °C	Yes
Relative Humidity	10 - 70 %	23 %	Yes
4.0 m/s Test Rib Displacement (807 mm to 823 mm)	46 - 51 mm	47.6 mm	Yes

Test meets specifications.

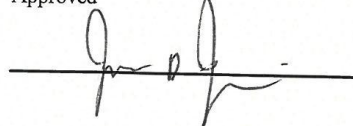
Comments:

Drop Height: 816

Technician



Approved



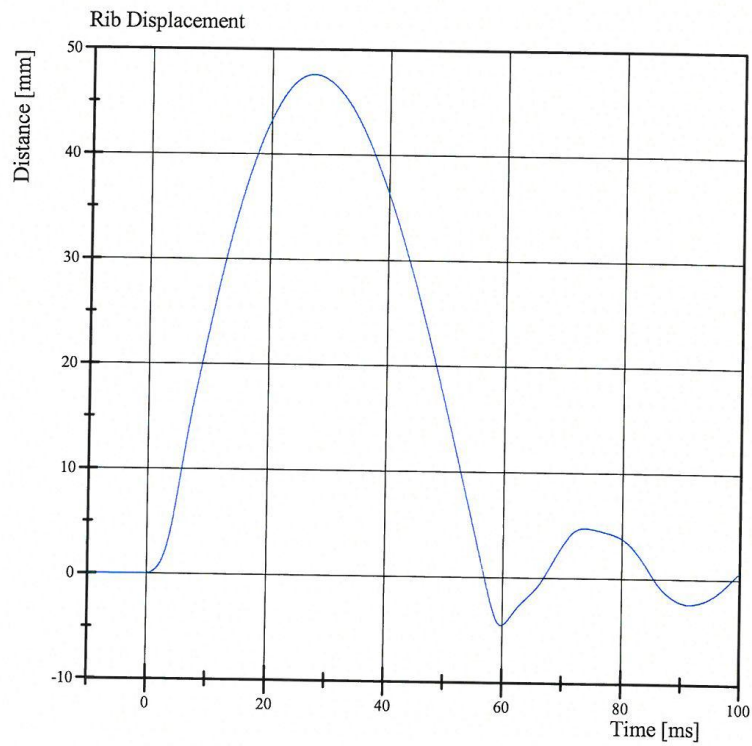
Specification Source: NHTSA Final Rule 8/15/2008

11.26.2012 13:41:00 755



Transportation Research Center Inc.

4.0 m/s Center Full Rib Module
ES-2re Serial No. F030 Certification No. 11-1
Test Date: 11/26/2012



Filter Class: CFC_180
Max: 47.6 mm at 27.0 ms
Min: -4.5 mm at 59.8 ms

Specification Source: NHTSA Final Rule 8/15/2008

11.26.2012 13:41:08 755



Transportation Research Center Inc.

3.0 m/s Center Full Rib Module
ES-2re Serial No. F030 Certification No. 11-1
Test Date: 11/26/2012

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.4 °C	Yes
Relative Humidity	10 - 70 %	22 %	Yes
3.0 m/s Test Rib Displacement (454 mm to 464 mm)	36 - 40 mm	36.5 mm	Yes

Test meets specifications.

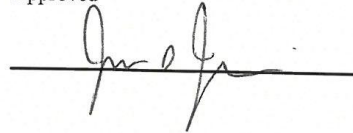
Comments:

Drop Height: 462

Technician



Approved



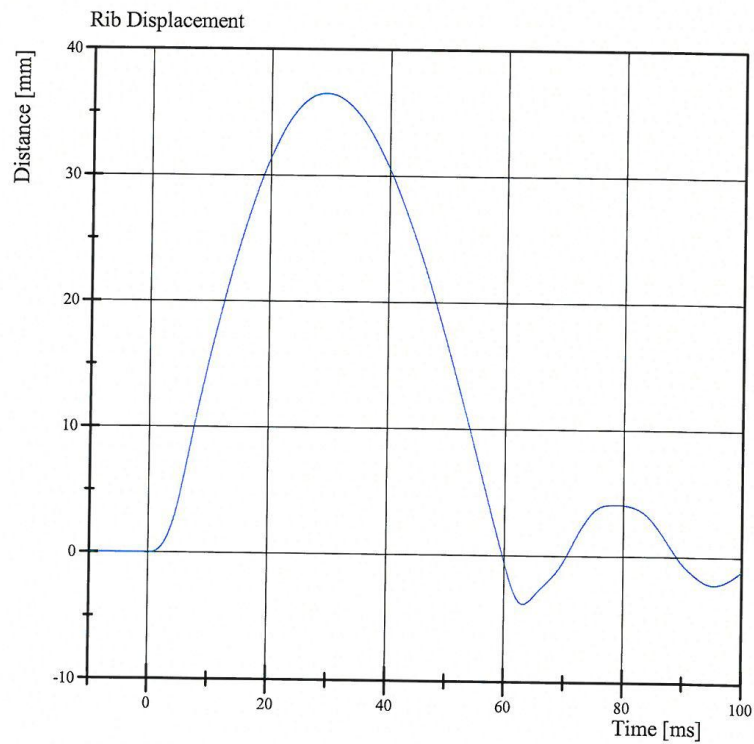
Specification Source: NHTSA Final Rule 8/15/2008

11.26.2012 13:47:55 968



Transportation Research Center Inc.

3.0 m/s Center Full Rib Module
ES-2re Serial No. F030 Certification No. 11-1
Test Date: 11/26/2012



Filter Class: CFC_180
Max: 36.5 mm at 29.2 ms
Min: -3.8 mm at 63.2 ms

Specification Source: NHTSA Final Rule 8/15/2008

11.26.2012 13:48:04 968



Transportation Research Center Inc.

4.0 m/s Lower Full Rib Module

ES-2re Serial No. F030 Certification No. 11-1

Test Date: 11/26/2012

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.5 °C	Yes
Relative Humidity	10 - 70 %	22 %	Yes
4.0 m/s Test Rib Displacement (807 mm to 823 mm)	46 - 51 mm	47.7 mm	Yes

Test meets specifications.

Comments:

Drop Height: 816

Technician



Approved



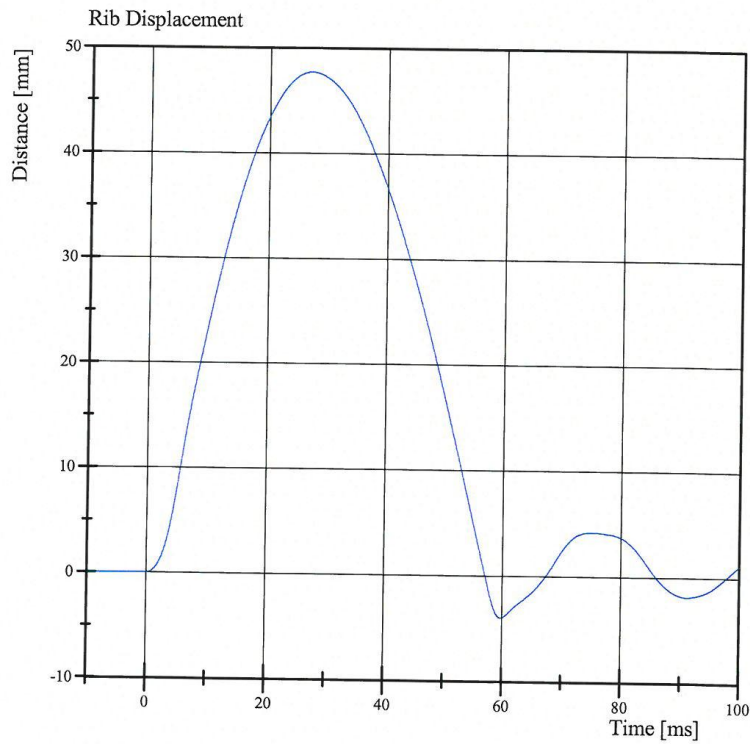
Specification Source: NHTSA Final Rule 8/15/2008

11.26.2012 13:51:05 756



Transportation Research Center Inc.

4.0 m/s Lower Full Rib Module
ES-2re Serial No. F030 Certification No. 11-1
Test Date: 11/26/2012



Filter Class: CFC_180
Max: 47.7 mm at 27.0 ms
Min: -4.0 mm at 59.8 ms

Specification Source: NHTSA Final Rule 8/15/2008

11.26.2012 13:51:13 756



Transportation Research Center Inc.

3.0 m/s Lower Full Rib Module
ES-2re Serial No. F030 Certification No. 11-1
Test Date: 11/26/2012

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.7 °C	Yes
Relative Humidity	10 - 70 %	22 %	Yes
3.0 m/s Test Rib Displacement (454 mm to 464 mm)	36 - 40 mm	36.5 mm	Yes

Test meets specifications.

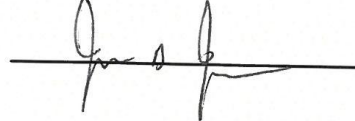
Comments:

Drop Height: 462

Technician



Approved



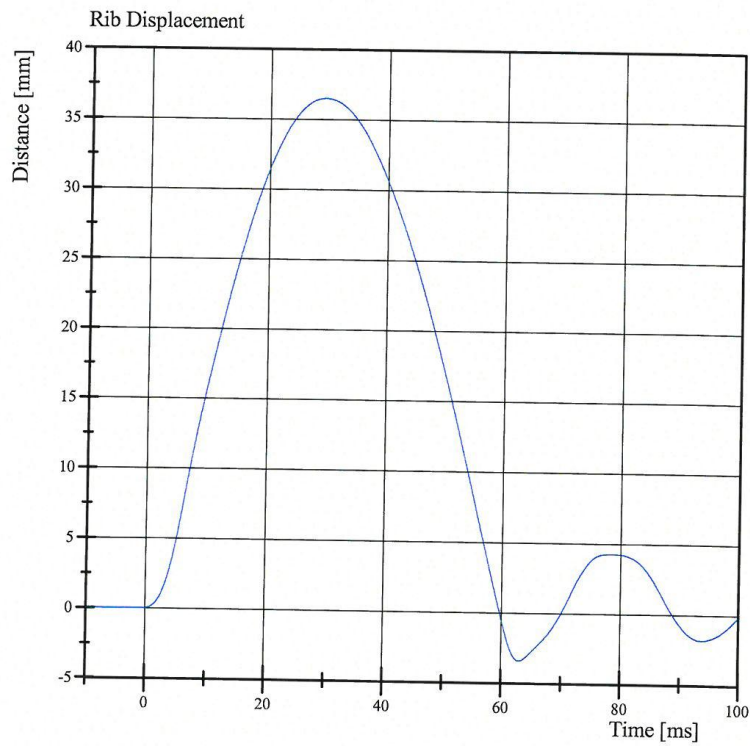
Specification Source: NHTSA Final Rule 8/15/2008

11.26.2012 13:57:04 958



Transportation Research Center Inc.

3.0 m/s Lower Full Rib Module
ES-2re Serial No. F030 Certification No. 11-1
Test Date: 11/26/2012



Filter Class: CFC_180
Max: 36.5 mm at 29.2 ms
Min: -3.4 mm at 63.0 ms

Specification Source: NHTSA Final Rule 8/15/2008

11.26.2012 13:57:27 958



Transportation Research Center Inc.

Left Lateral Thorax

ES-2re Serial No. F030 Certification No. 11-1

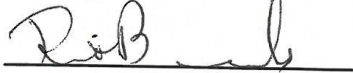
Test Date: 11/26/2012

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.2 °C	Yes
Relative Humidity	10 - 70 %	22 %	Yes
Impactor Velocity	5.4 - 5.60 m/s	5.475 m/s	Yes
Peak Impactor Force after 6 ms	(-5,100) - (-6,200) N	-5,495.0 N	Yes
Upper Rib Displacement	34 - 41 mm	37.2 mm	Yes
Center Rib Displacement	37 - 45 mm	40.8 mm	Yes
Lower Rib Displacement	37 - 44 mm	42.2 mm	Yes

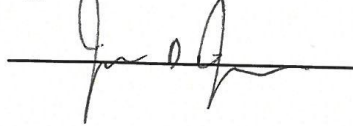
Test meets specifications.

Comments:

Technician



Approved



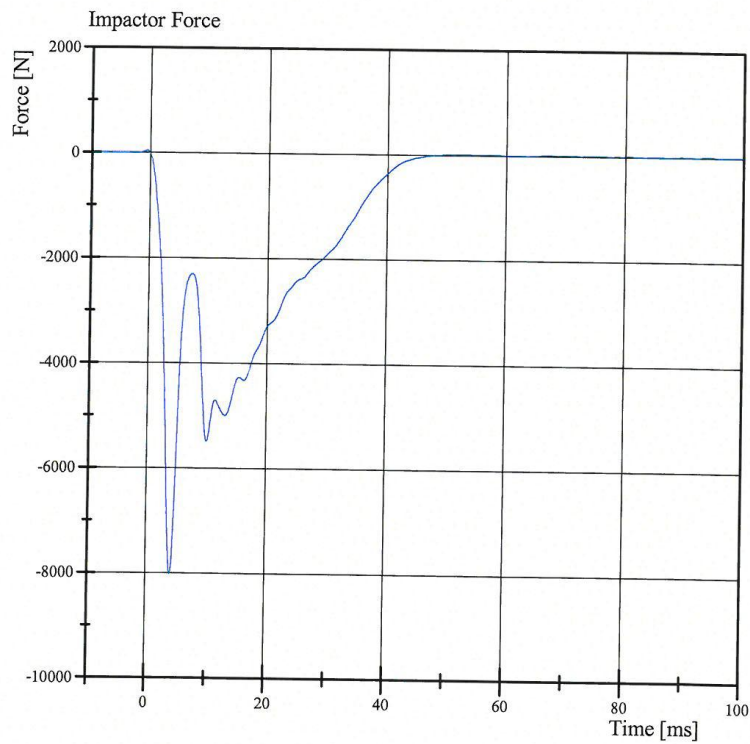
Specification Source: Procedures based on Final Rule dated 8/15/2008.
Polarity in accordance with SAE J211.

11.26.2012 15:25:23 435



Transportation Research Center Inc.

Left Lateral Thorax
ES-2re Serial No. F030 Certification No. 11-1
Test Date: 11/26/2012



Filter Class: CFC_180
Max: 33.8 N at -0.6 ms
Min: -8,032.3 N at 4.1 ms

Specification Source: Procedures based on Final Rule dated 8/15/2008.
Polarity in accordance with SAE J211.

11.26.2012 15:25:30 435



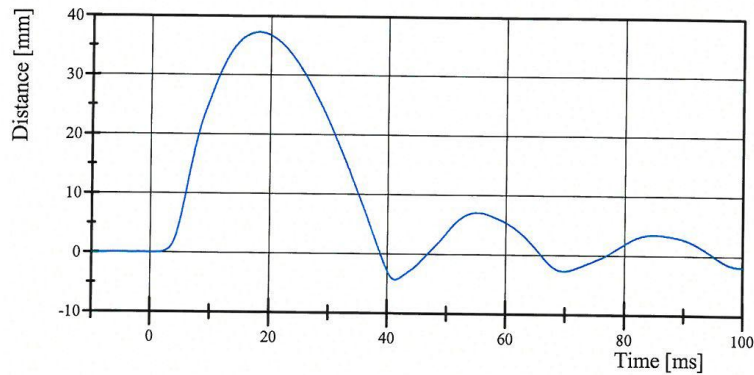
Transportation Research Center Inc.

Left Lateral Thorax

ES-2re Serial No. F030 Certification No. 11-1

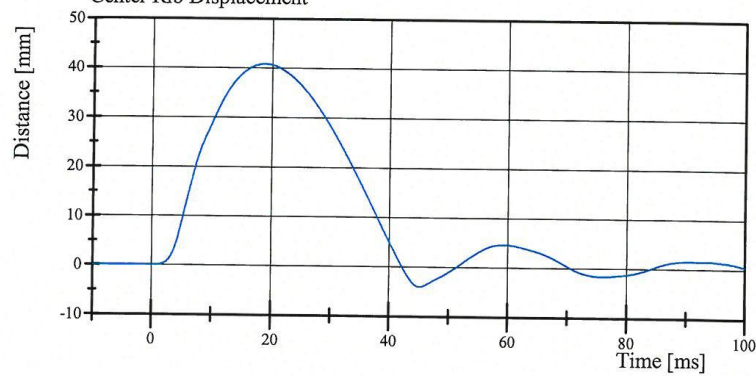
Test Date: 11/26/2012

Upper Rib Displacement



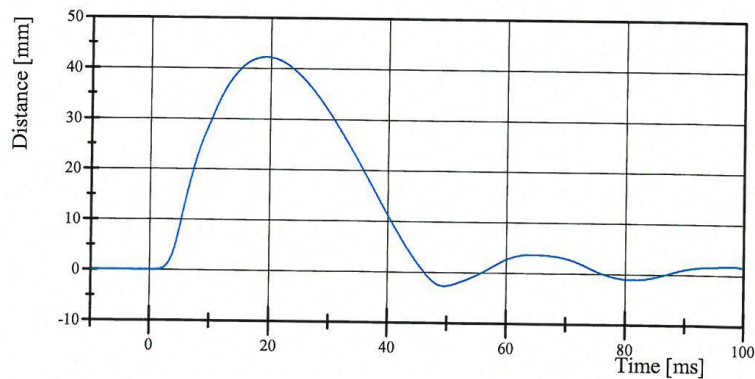
Filter Class: CFC_180
Max: 37.2 mm at 18.1 ms
Min: -4.3 mm at 41.4 ms

Center Rib Displacement



Filter Class: CFC_180
Max: 40.8 mm at 18.7 ms
Min: -4.0 mm at 45.2 ms

Lower Rib Displacement



Filter Class: CFC_180
Max: 42.2 mm at 19.2 ms
Min: -2.7 mm at 49.5 ms

Specification Source: Procedures based on Final Rule dated 8/15/2008.
Polarity in accordance with SAE J211.

11.26.2012 15:25:31 435



Transportation Research Center Inc.

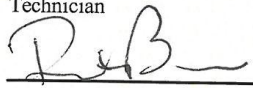
Left Lateral Abdomen
ES-2re Serial No. F030 Certification No. 11-2
Test Date: 11/26/2012

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.3 °C	Yes
Relative Humidity	10 - 70 %	22 %	Yes
Test Probe Velocity	3.9 - 4.1 m/s	3.94 m/s	Yes
Test Probe Force			
Peak	4,000 - 4,800 N	4,173.0 N	Yes
Time of Peak	10.6 - 13.0 ms	10.88 ms	Yes
Total Abdominal Force			
Peak	2,200 - 2,700 N	2,661.1 N	Yes
Time of Peak	10.0 - 12.3 ms	10.24 ms	Yes

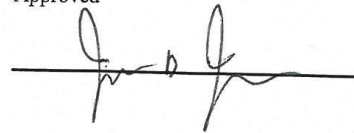
Test meets specifications.

Comments:

Technician



Approved



Specification Source: NHTSA Final Rule 8/15/2008

11.26.2012 16:24:18 602

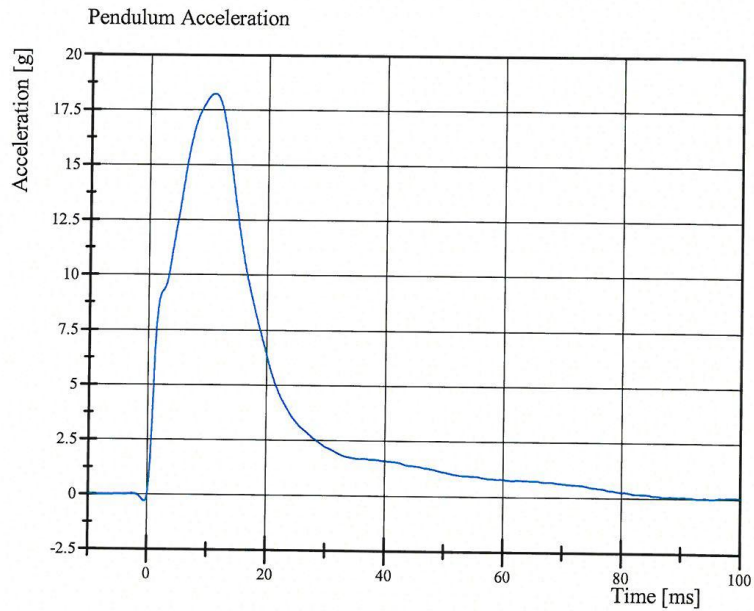


Transportation Research Center Inc.

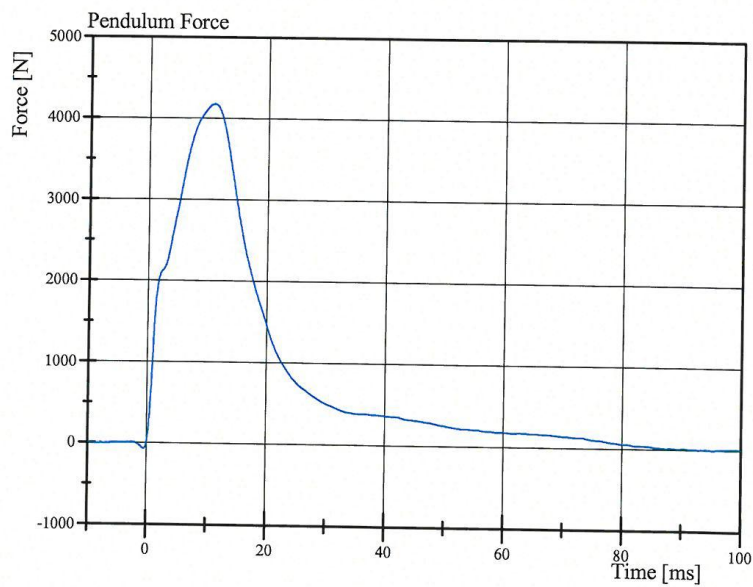
Left Lateral Abdomen

ES-2re Serial No. F030 Certification No. 11-2

Test Date: 11/26/2012



Filter Class: CFC_180
Max: 18.2 gn at 10.9 ms
Min: -0.3 gn at -0.5 ms



Filter Class: CFC_180
Max: 4,173.0 N at 10.9 ms
Min: -70.6 N at -0.5 ms

Specification Source: NHTSA Final Rule 8/15/2008

11.26.2012 16:24:25 602

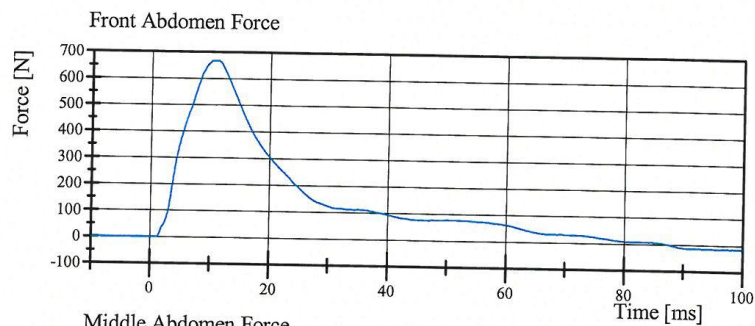


Transportation Research Center Inc.

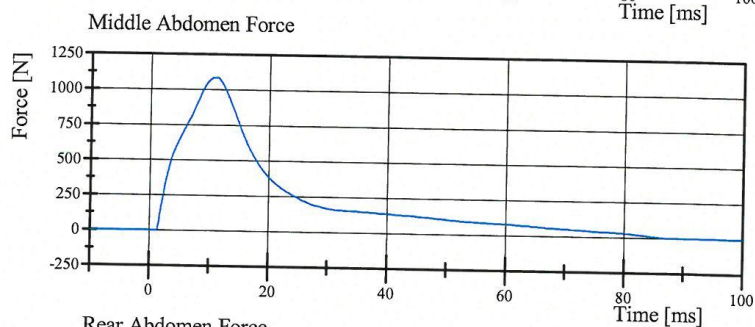
Left Lateral Abdomen

ES-2re Serial No. F030 Certification No. 11-2

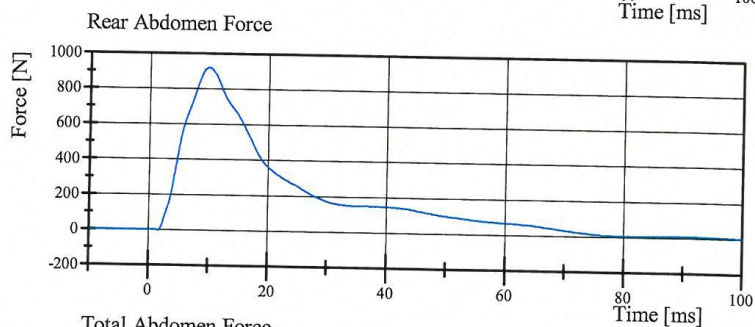
Test Date: 11/26/2012



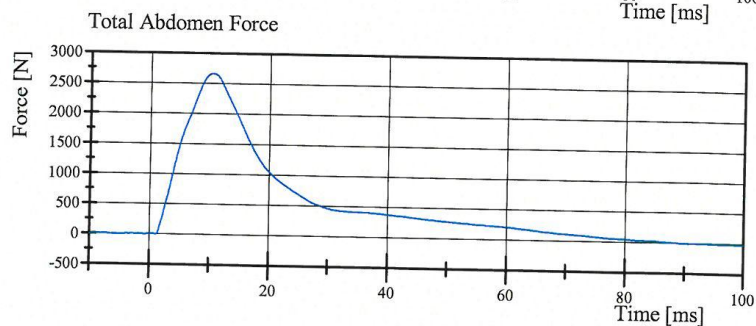
Filter Class: CFC_600
Max: 667.8 N at 11.0 ms
Min: -14.5 N at 96.2 ms



Filter Class: CFC_600
Max: 1,086.8 N at 11.0 ms
Min: -2.7 N at 1.0 ms



Filter Class: CFC_600
Max: 921.1 N at 9.9 ms
Min: -4.7 N at 1.6 ms



Filter Class: CFC_600
Max: 2,661.1 N at 10.2 ms
Min: -15.2 N at 99.8 ms

Specification Source: NHTSA Final Rule 8/15/2008

11.26.2012 16:24:25 602



Transportation Research Center Inc.

Left Lateral Lumbar

ES-2re Serial No. F030 Certification No. 11-1

Test Date: 11/26/2012

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.8 °C	Yes
Relative Humidity	10 - 70 %	22 %	Yes
Pendulum Integrated Velocity Change within Corridor	Yes	Yes	Yes
Pendulum Velocity	(-5.95) - (-6.15) m/s	-6.025 m/s	Yes
Maximum Headform Flexion			
Peak	(-45) - (-55) deg	-49.2 deg	Yes
Time of Peak	39 - 53 ms	45.8 ms	Yes
Headform Flexion Decay			
- Peak to Zero	37 - 57 ms	39.0 ms	Yes

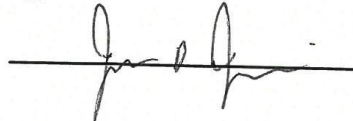
Test meets specifications.

Comments:

Technician



Approved



Specification Source: NHTSA Final Rule 8/15/2008

11.26.2012 14:06:30 576

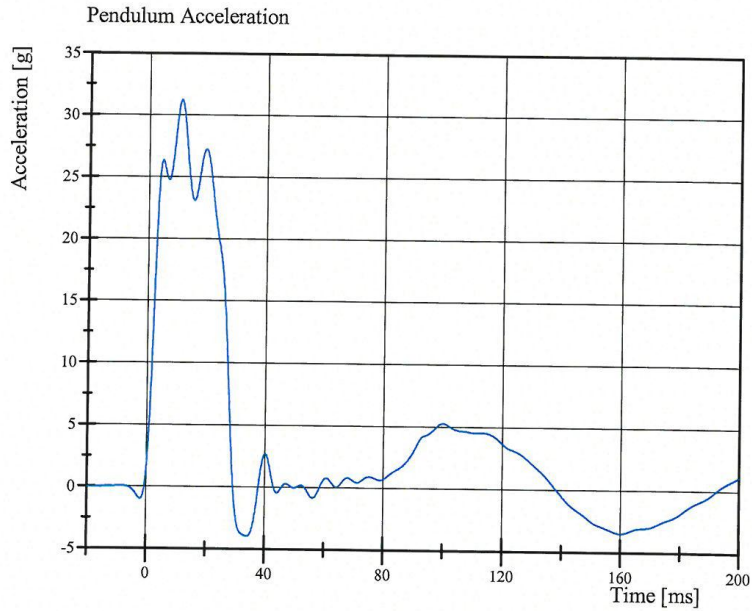


Transportation Research Center Inc.

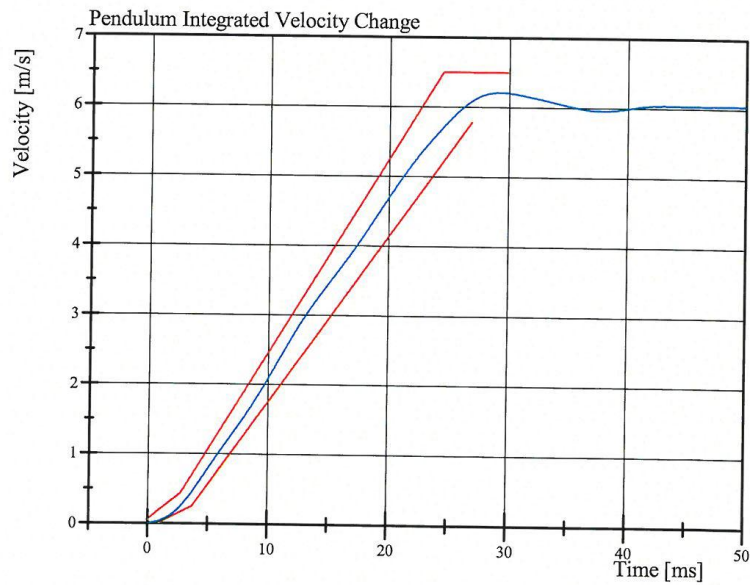
Left Lateral Lumbar

ES-2re Serial No. F030 Certification No. 11-1

Test Date: 11/26/2012



Filter Class: CFC_60
Max: 31.2 gn at 10.8 ms
Min: -4.0 gn at 34.1 ms



Filter Class: CFC_60
Max: 6.2 m/s at 29.2 ms
Min: 0.0 m/s at 0.0 ms

Specification Source: NHTSA Final Rule 8/15/2008

11.26.2012 14:06:38 576

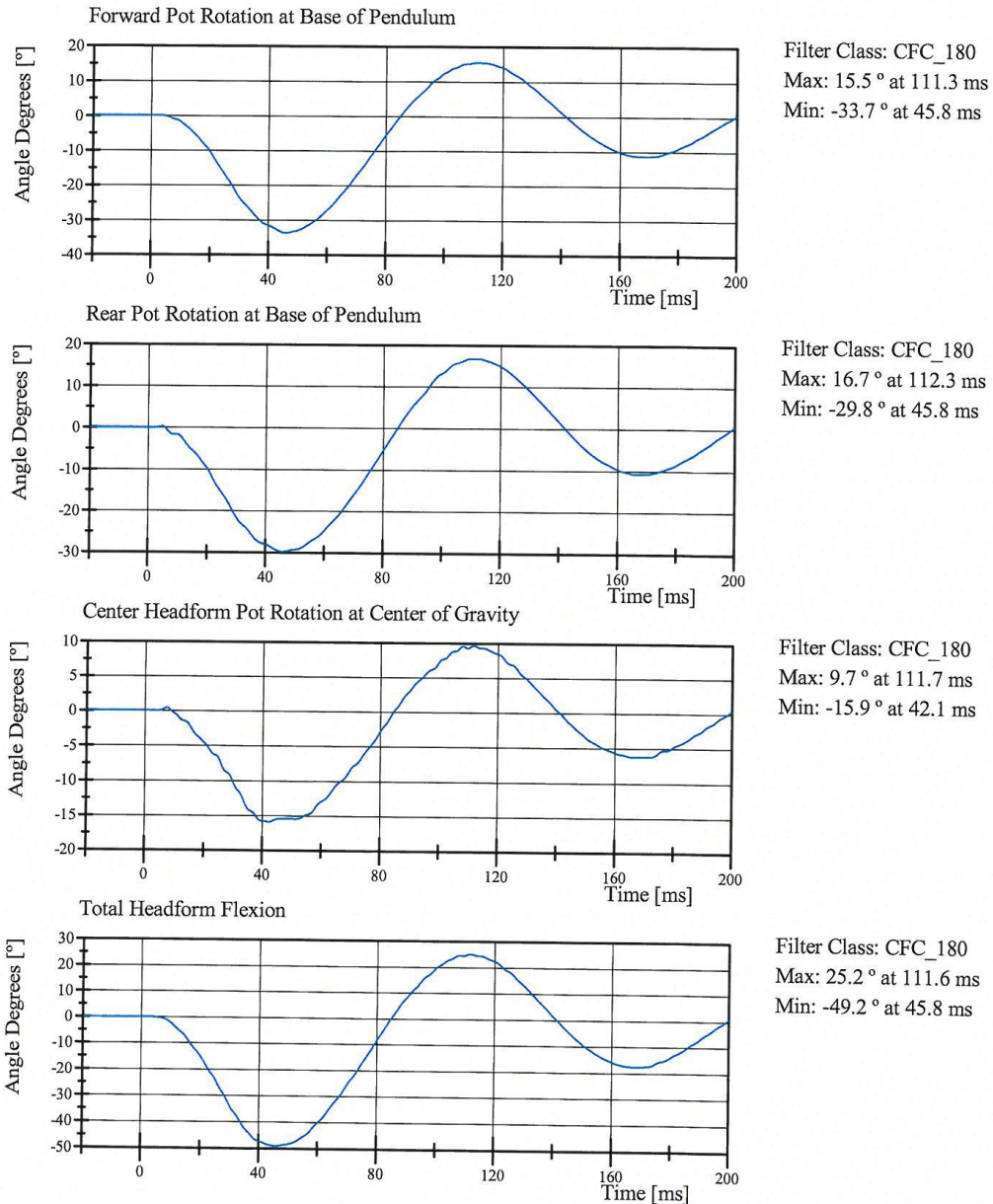


Transportation Research Center Inc.

Left Lateral Lumbar

ES-2re Serial No. F030 Certification No. 11-1

Test Date: 11/26/2012



Specification Source: NHTSA Final Rule 8/15/2008

11.26.2012 14:06:38 576



Transportation Research Center Inc.

Left Lateral Pelvis

ES-2re Serial No. F030 Certification No. 11-2

Test Date: 11/26/2012

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.6 °C	Yes
Relative Humidity	10 - 70 %	21 %	Yes
Test Probe Velocity	4.2 - 4.4 m/s	4.28 m/s	Yes
Test Probe Force			
Peak	4,700 - 5,400 N	5,034.2 N	Yes
Time of Peak	11.8 - 16.1 ms	13.04 ms	Yes
Pubic Symphysis Force			
Peak	(-1,230) - (-1,590) N	-1,250.0 N	Yes
Time of Peak	12.2 - 17.0 ms	13.84 ms	Yes

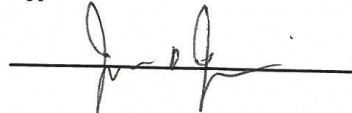
Test meets specifications.

Comments:

Technician



Approved



Specification Source: NHTSA Final Rule 8/15/2008

11.26.2012 16:33:22 561



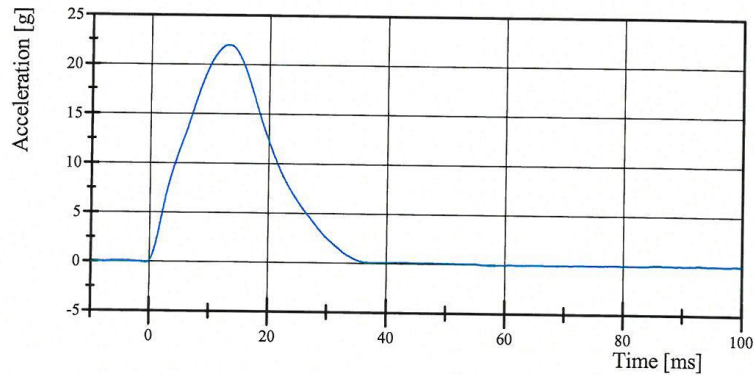
Transportation Research Center Inc.

Left Lateral Pelvis

ES-2re Serial No. F030 Certification No. 11-2

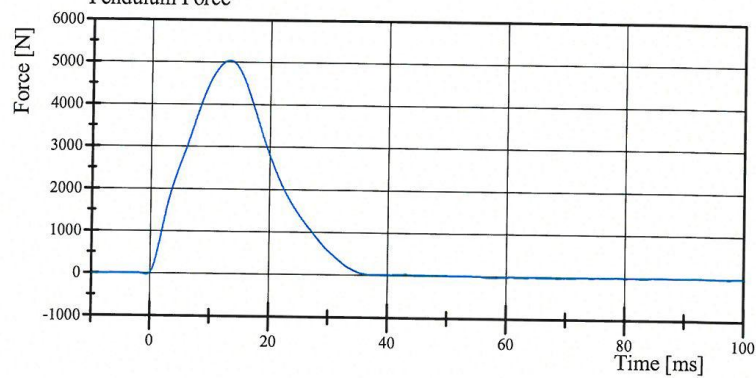
Test Date: 11/26/2012

Pendulum Acceleration



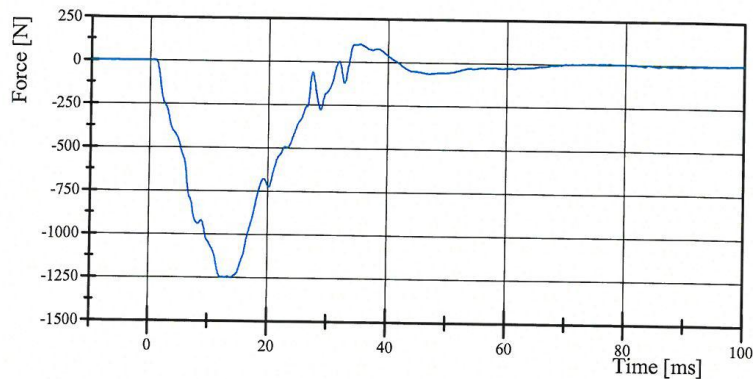
Filter Class: CFC_180
Max: 22.0 gn at 13.0 ms
Min: -0.1 gn at -0.6 ms

Pendulum Force



Filter Class: CFC_180
Max: 5,034.2 N at 13.0 ms
Min: -19.9 N at -0.6 ms

Pubic Symphysis Force



Filter Class: CFC_600
Max: 102.3 N at 35.3 ms
Min: -1,250.0 N at 13.8 ms

Specification Source: NHTSA Final Rule 8/15/2008

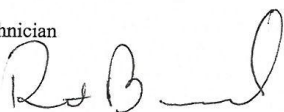
11.26.2012 16:33:28 561



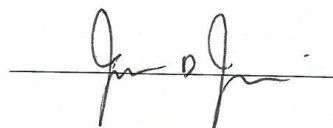
Transportation Research Center Inc.
572U ES-2re Dummy
External Dimensions
Serial No. F030 Calibration No. 10
Date: 10/23/12

Symbol	Description	Specification	Results	Pass
		mm	mm	
1	Sitting Height	900.0 - 918.0	910	Yes
2	Seat to Shoulder Joint	558.0 - 572.0	560	Yes
3	Seat to Lower Face of Thoracic Spine Box	346.0 - 356.0	350	Yes
4	Seat to Hip Joint (center of bolt)	97.0 - 103.0	98	Yes
5	Sole to Seat, Sitting	433.0 - 451.0	447	Yes
6	Head Width	152.0 - 158.0	155	Yes
7	Shoulder/Arm Width	461.0 - 479.0	472	Yes
8	Thorax Width	322.0 - 332.0	325	Yes
9	Abdomen Width	273.0 - 287.0	282	Yes
10	Pelvis Lap Width	359.0 - 373.0	367	Yes
11	Head Depth	196.0 - 206.0	200	Yes
12	Thorax Depth	262.0 - 272.0	268	Yes
13	Abdomen Depth	194.0 - 204.0	200	Yes
14	Pelvis Depth	235.0 - 245.0	240	Yes
15	Back of Buttocks to Hip Joint (center of bolt)	150.0 - 160.0	159	Yes
16	Back of Buttocks to Front of Knee	597.0 - 615.0	604	Yes

Technician



Approved



Baseline 10/07/05



Pre-Test Calibration Sheets
Passenger S/N 305

Transportation Research Center Inc.

Left Lateral Head Drop

SID IIs Serial No. 305 Certification No. 15-1

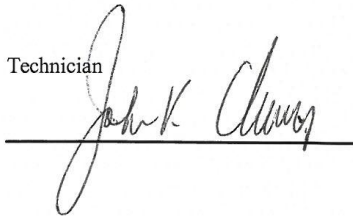
Test Date: 10/23/2012

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.6 °C	21.7 °C	Yes
Relative Humidity	10 - 70 %	50 %	Yes
Peak Head Resultant Acceleration	115 - 137 g	122.3 g	Yes
Peak Head Longitudinal Acceleration	(-15) - 15 g	3.4 g	Yes
Is Head Resultant Acceleration Curve Unimodal within 15% of Peak?	Yes	Yes	Yes

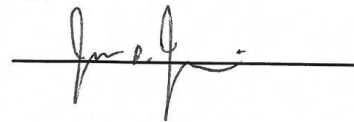
Test meets specifications.

Comments:

Technician



Approved



Specification Source: Procedures based on Final Rule effective 8/24/2009
Polarity in accordance with SAE J211.

10.23.2012 12:19:50 232

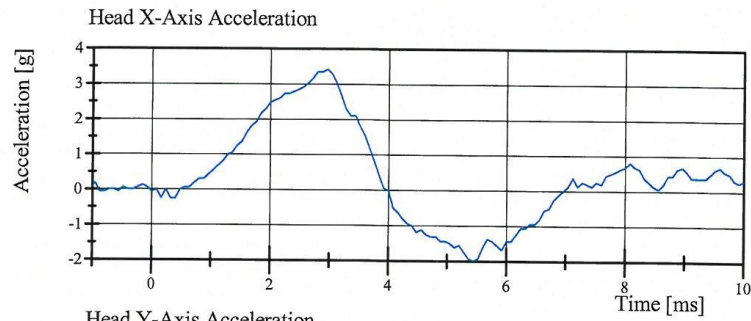


Transportation Research Center Inc.

Left Lateral Head Drop

SID IIa Serial No. 305 Certification No. 15-1

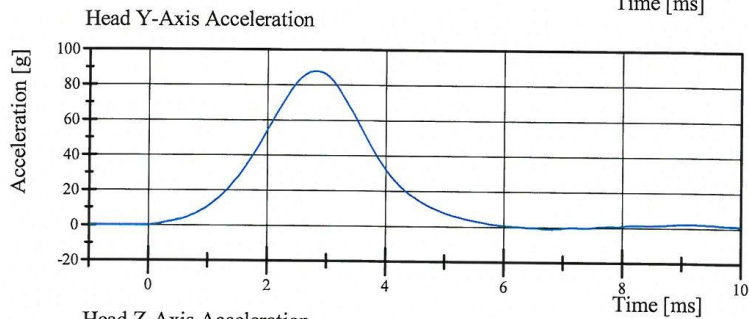
Test Date: 10/23/2012



Filter Class: CFC_1000

Max: 3.4 gn at 3.0 ms

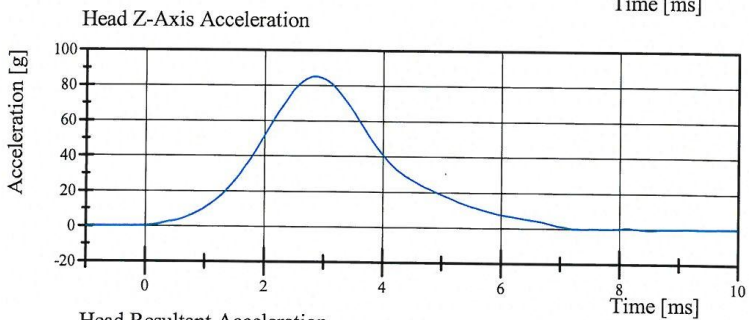
Min: -2.0 gn at 5.4 ms



Filter Class: CFC_1000

Max: 87.9 gn at 2.8 ms

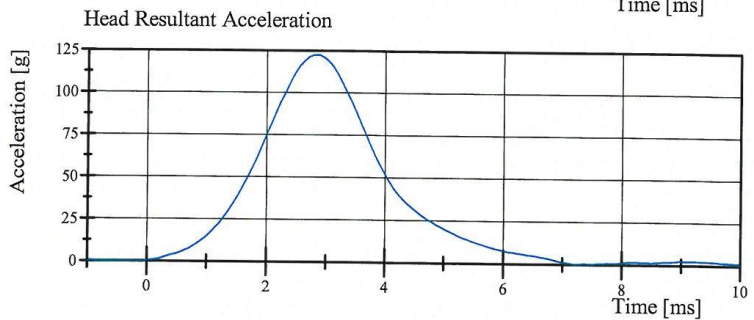
Min: -0.9 gn at 6.8 ms



Filter Class: CFC_1000

Max: 85.1 gn at 2.9 ms

Min: -0.6 gn at 8.6 ms



Filter Class: CFC_1000

Max: 122.3 gn at 2.8 ms

Min: 0.1 gn at -0.2 ms

Specification Source: Procedures based on Final Rule effective 8/24/2009
Polarity in accordance with SAE J211.

10.23.2012 12:20:03 232



Transportation Research Center Inc.

Left Lateral Neck

SID IIs Serial No. 305 Certification No. 15-1

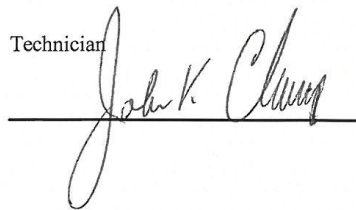
Test Date: 10/23/2012

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.1 °C	Yes
Relative Humidity	10 - 70 %	55 %	Yes
Pendulum Velocity	(-5.51) - (-5.63) m/s	-5.613 m/s	Yes
Pendulum Integrated Velocity			
Change at 10 ms	2.20 - 2.80 m/s	2.629 m/s	Yes
Change at 15 ms	3.30 - 4.10 m/s	3.891 m/s	Yes
Change at 20 ms	4.40 - 5.40 m/s	5.147 m/s	Yes
Change at 25 ms	5.40 - 6.10 m/s	5.775 m/s	Yes
Change at 25 to 100 ms	5.50 - 6.20 m/s	5.778 m/s	Yes
Maximum Headform Flexion occurring between 50ms and 70ms.			
Peak	(-71) - (-81) deg	-71.4 deg	Yes
Time of Peak	50 - 70 ms	62.2 ms	Yes
Total Neck Occipital Condyles Moment	36 - 44 N·m	41.4 N·m	Yes
Total Neck Occipital Condyles Moment			
Decay Time to 0 N·m	102 - 126 ms	121.0 ms	Yes

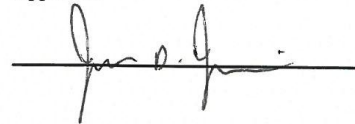
Test meets specifications.

Comments:

Technician



Approved



Specification Source: Procedures based on Final Rule effective 8/24/2009
Polarity in accordance with SAE J211.

10.23.2012 13:00:42 641

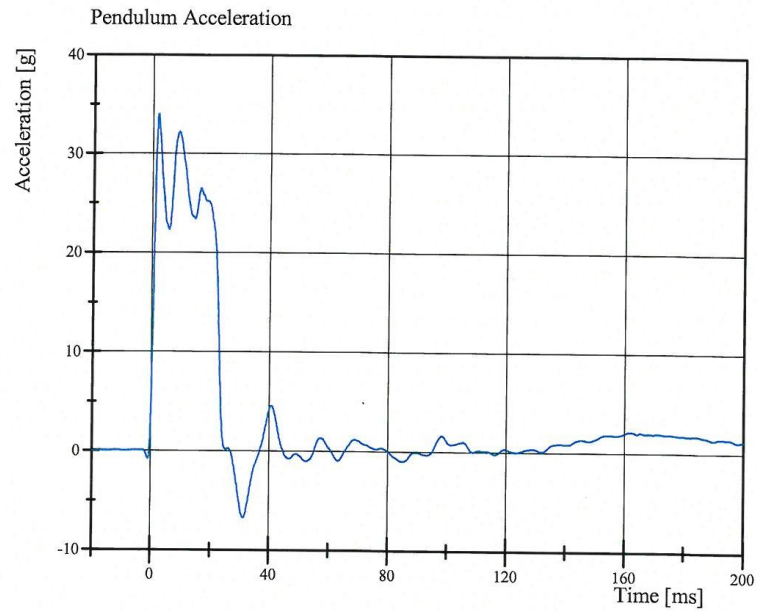


Transportation Research Center Inc.

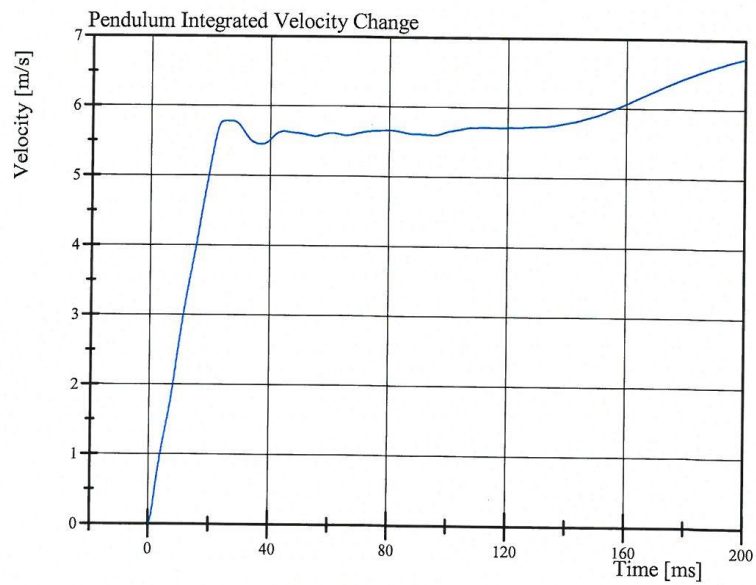
Left Lateral Neck

SID IIs Serial No. 305 Certification No. 15-1

Test Date: 10/23/2012



Filter Class: CFC_180
Max: 34.0 gn at 1.8 ms
Min: -6.8 gn at 31.3 ms



Filter Class: CFC_180
Max: 6.7 m/s at 200.0 ms
Min: 0.0 m/s at 0.0 ms

Specification Source: Procedures based on Final Rule effective 8/24/2009
Polarity in accordance with SAE J211.

10.23.2012 13:01:02 641

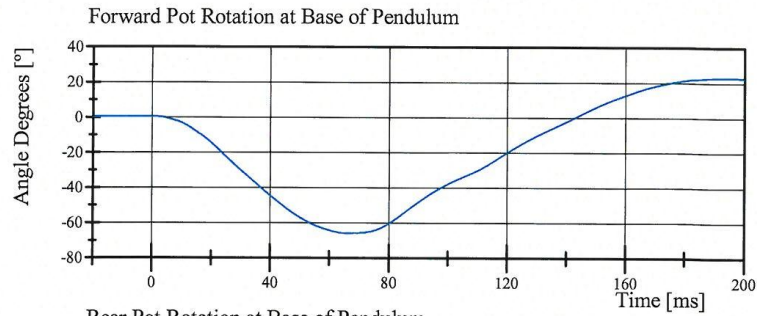


Transportation Research Center Inc.

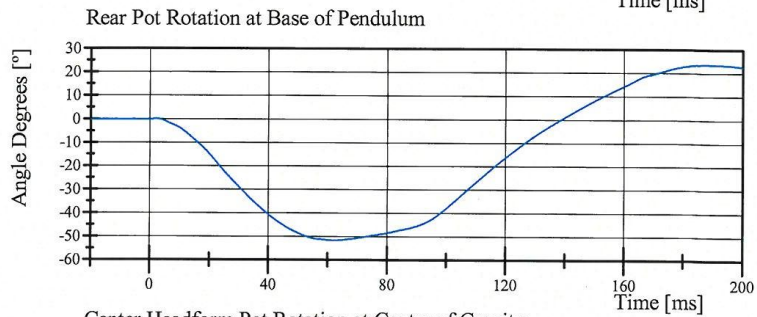
Left Lateral Neck

SID IIs Serial No. 305 Certification No. 15-1

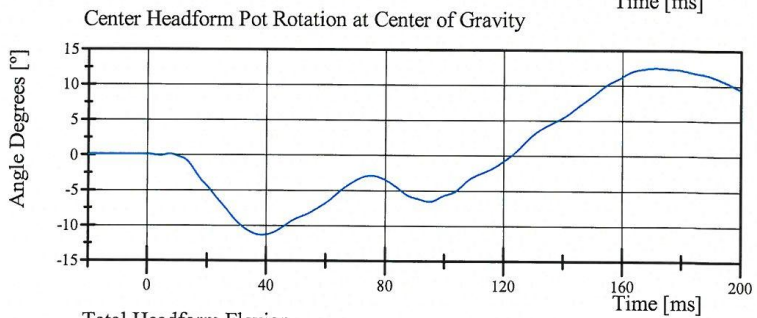
Test Date: 10/23/2012



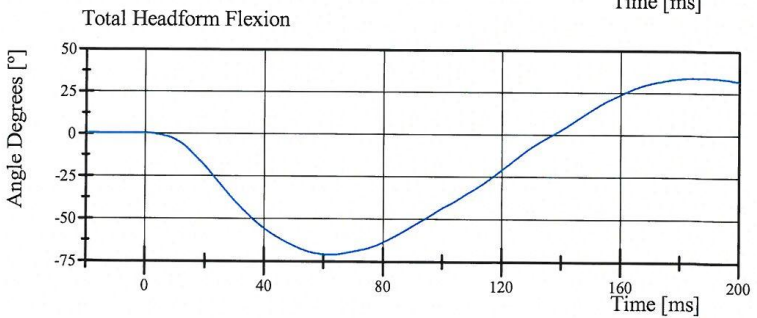
Filter Class: CFC_60
Max: 22.7 ° at 193.9 ms
Min: -66.0 ° at 66.2 ms



Filter Class: CFC_60
Max: 23.6 ° at 187.6 ms
Min: -51.7 ° at 62.2 ms



Filter Class: CFC_60
Max: 12.5 ° at 171.4 ms
Min: -11.4 ° at 38.5 ms



Filter Class: CFC_60
Max: 34.0 ° at 187.9 ms
Min: -71.4 ° at 62.2 ms

Specification Source: Procedures based on Final Rule effective 8/24/2009
Polarity in accordance with SAE J211.

10.23.2012 13:01:03 641

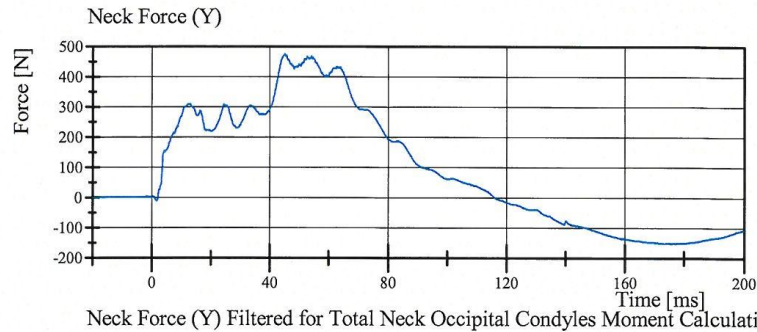


Transportation Research Center Inc.

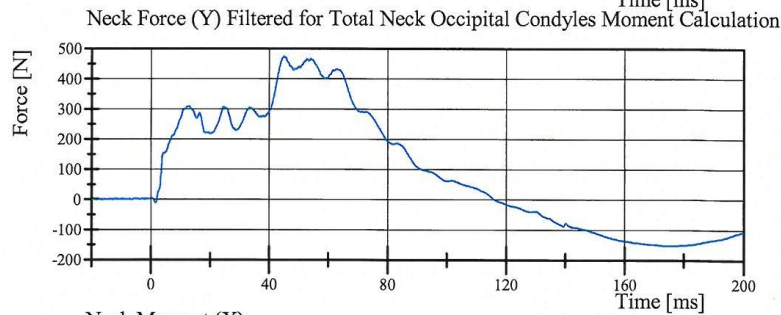
Left Lateral Neck

SID IIa Serial No. 305 Certification No. 15-1

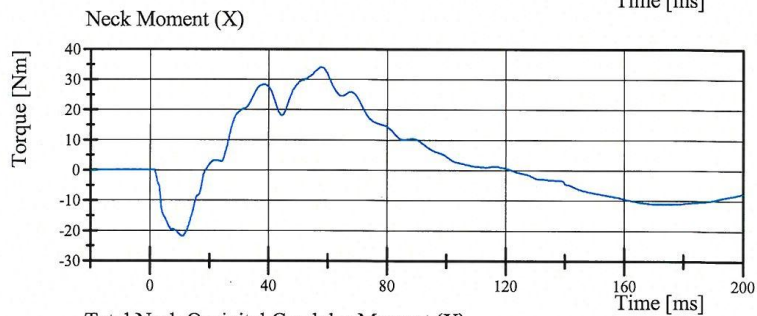
Test Date: 10/23/2012



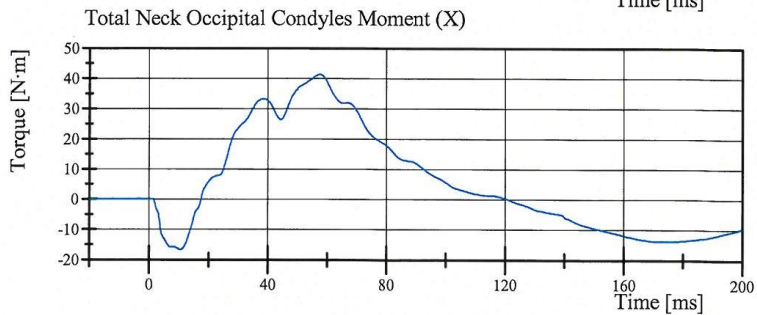
Filter Class: CFC_1000
Max: 474.9 N at 45.0 ms
Min: -152.8 N at 175.4 ms



Filter Class: CFC_600
Max: 473.1 N at 45.0 ms
Min: -152.3 N at 175.5 ms



Filter Class: CFC_600
Max: 34.0 Nm at 57.6 ms
Min: -22.0 Nm at 10.9 ms



Filter Class: Without (Constai
Max: 41.4 N·m at 57.6 ms
Min: -16.8 N·m at 10.6 ms

Specification Source: Procedures based on Final Rule effective 8/24/2009
Polarity in accordance with SAE J2111.

10.23.2012 13:01:04 641



Transportation Research Center Inc.

Left Lateral Shoulder

SID IIs Serial No. 305 Certification No. 15-1

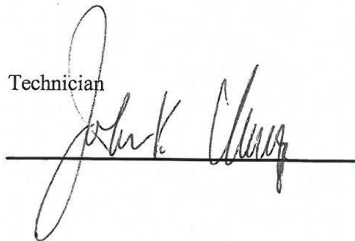
Test Date: 10/23/2012

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.8 °C	Yes
Relative Humidity	10 - 70 %	50 %	Yes
Impactor Velocity	4.2 - 4.4 m/s	4.33 m/s	Yes
Impactor Acceleration	(-13) - (-18) g	-15.7 g	Yes
Shoulder Displacement	28 - 37 mm	29.0 mm	Yes
Upper Spine Lateral Acceleration	17 - 22 g	19.9 g	Yes

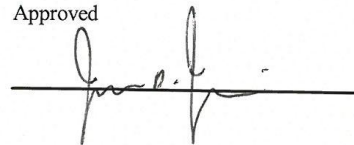
Test meets specifications.

Comments:

Technician



Approved



Specification Source: Procedures based on Final Rule effective 8/24/2009
Polarity in accordance with SAE J211.

10.23.2012 08:49:20 828

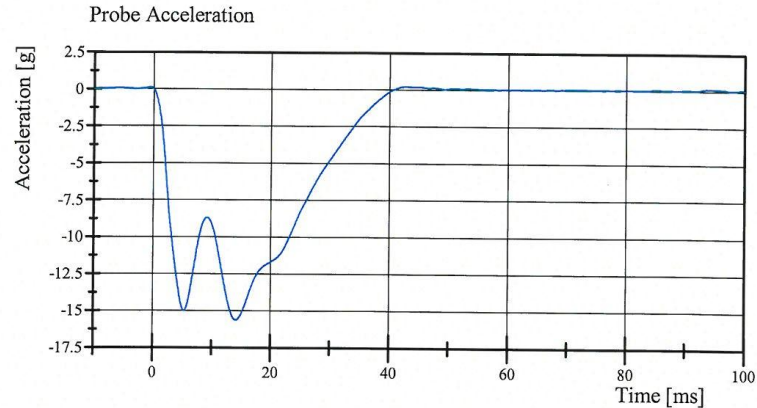


Transportation Research Center Inc.

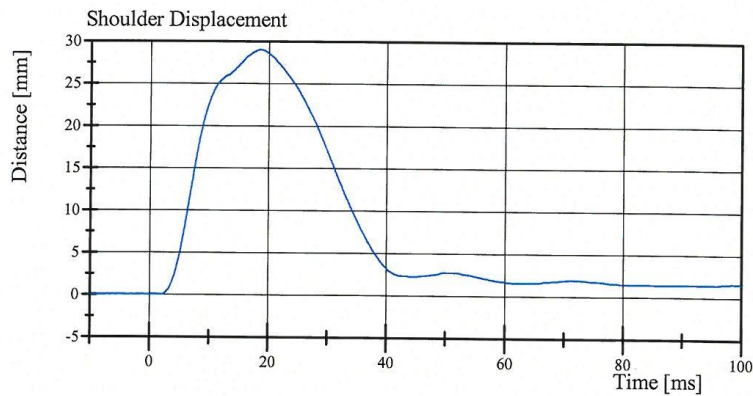
Left Lateral Shoulder

SID II_s Serial No. 305 Certification No. 15-1

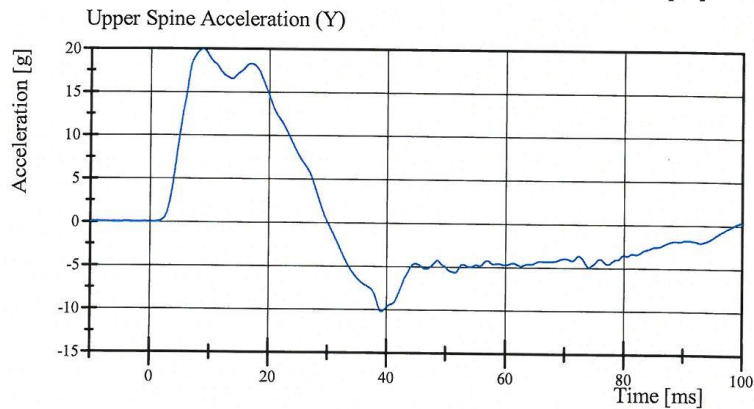
Test Date: 10/23/2012



Filter Class: CFC_180
Max: 0.2 gn at 42.7 ms
Min: -15.7 gn at 14.2 ms



Filter Class: CFC_600
Max: 29.0 mm at 18.5 ms
Min: -0.0 mm at -8.2 ms



Filter Class: CFC_180
Max: 19.9 gn at 8.8 ms
Min: -10.2 gn at 39.1 ms

Specification Source: Procedures based on Final Rule effective 8/24/2009
Polarity in accordance with SAE J211.

10.23.2012 08:49:32 828



Transportation Research Center Inc.

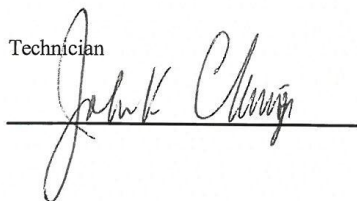
Left Lateral Thorax with Arm
SID IIs Serial No. 305 Certification No. 15-1
Test Date: 10/23/2012

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.9 °C	Yes
Relative Humidity	10 - 70 %	49 %	Yes
Impactor Velocity	6.60 - 6.80 m/s	6.791 m/s	Yes
Impactor Acceleration	(-30) - (-36) g	-34.1 g	Yes
Shoulder Displacement	31 - 40 mm	32.8 mm	Yes
Upper Thorax Rib Displacement	25 - 32 mm	25.8 mm	Yes
Center Thorax Rib Displacement	30 - 36 mm	31.0 mm	Yes
Lower Thorax Rib Displacement	32 - 38 mm	33.8 mm	Yes
Upper Spine Lateral Acceleration	34 - 43 g	39.6 g	Yes
Lower Spine Lateral Acceleration	29 - 37 g	33.8 g	Yes

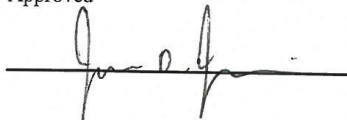
Test meets specifications.

Comments:

Technician



Approved



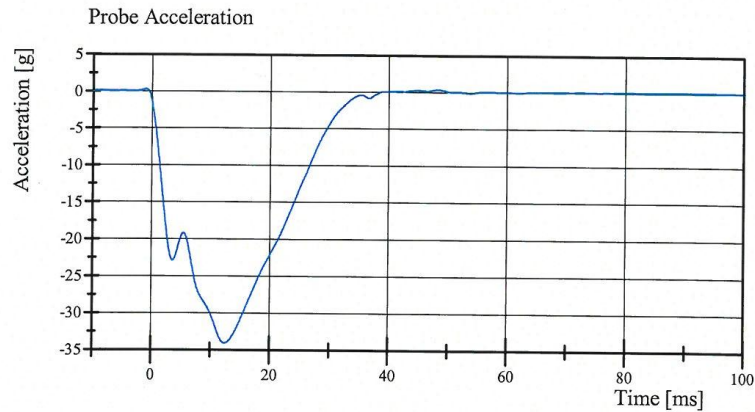
Specification Source: Procedures based on Final Rule effective 8/24/2009
Polarity in accordance with SAE J211.

10.23.2012 09:23:05 626

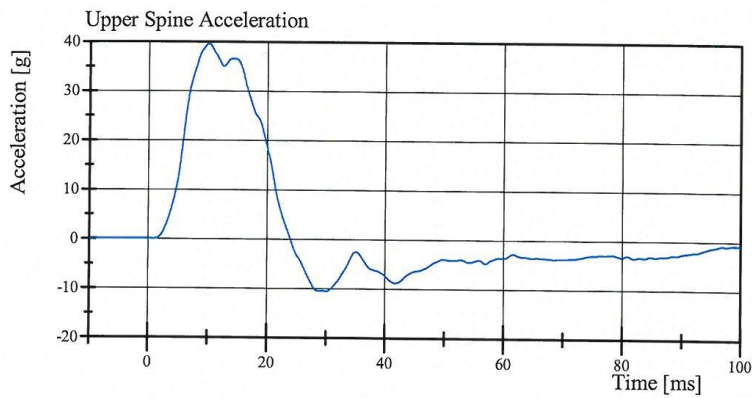


Transportation Research Center Inc.

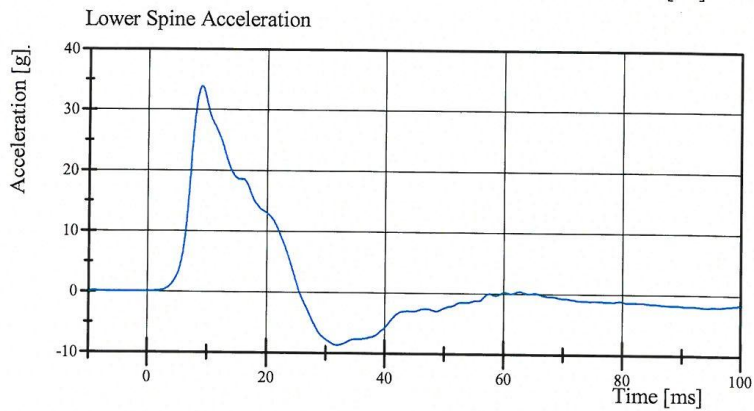
Left Lateral Thorax with Arm
SID II_s Serial No. 305 Certification No. 15-1
Test Date: 10/23/2012



Filter Class: CFC_180
Max: 0.3 gn at 48.3 ms
Min: -34.1 gn at 12.5 ms



Filter Class: CFC_180
Max: 39.6 gn at 10.1 ms
Min: -10.6 gn at 29.9 ms



Filter Class: CFC_180
Max: 33.8 gn at 9.0 ms
Min: -8.8 gn at 31.8 ms

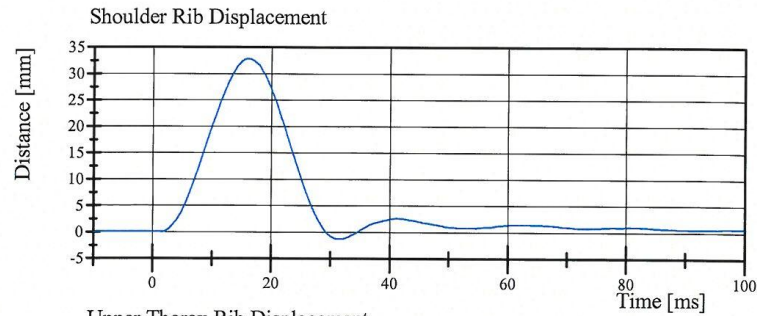
Specification Source: Procedures based on Final Rule effective 8/24/2009
Polarity in accordance with SAE J211.

10.23.2012 09:23:15 626

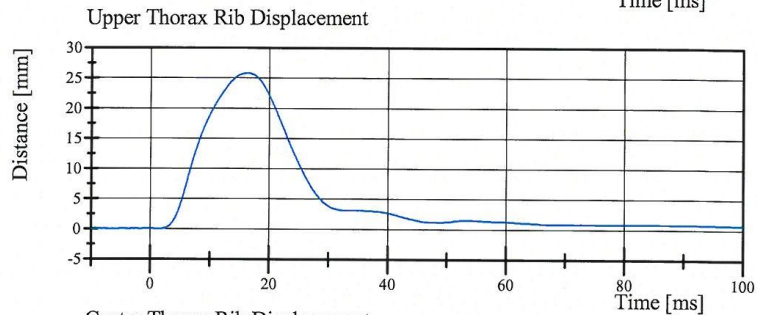


Transportation Research Center Inc.

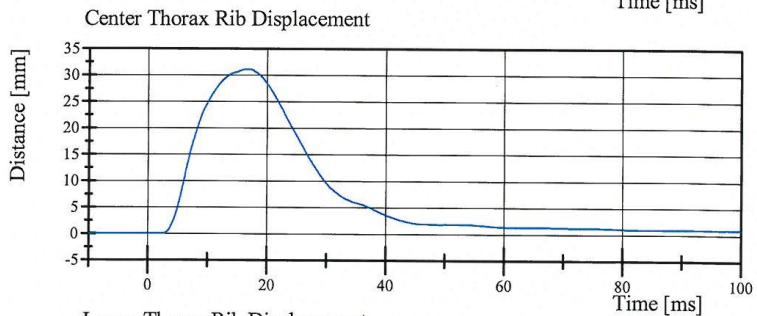
Left Lateral Thorax with Arm
SID II_s Serial No. 305 Certification No. 15-1
Test Date: 10/23/2012



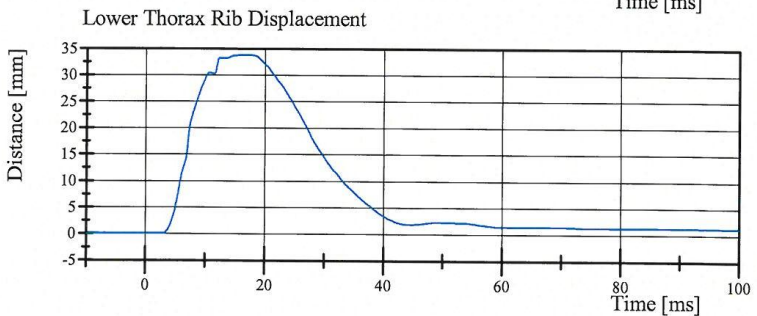
Filter Class: CFC_600
Max: 32.8 mm at 16.0 ms
Min: -1.3 mm at 31.6 ms



Filter Class: CFC_600
Max: 25.8 mm at 16.2 ms
Min: -0.0 mm at 1.7 ms



Filter Class: CFC_600
Max: 31.0 mm at 17.0 ms
Min: -0.0 mm at 2.4 ms



Filter Class: CFC_600
Max: 33.8 mm at 16.5 ms
Min: -0.0 mm at -6.3 ms

Specification Source: Procedures based on Final Rule effective 8/24/2009
Polarity in accordance with SAE J211.

10.23.2012 09:23:15 626



Transportation Research Center Inc.

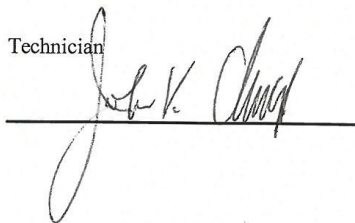
Left Lateral Thorax without Arm
SID IIs Serial No. 305 Certification No. 15-1
Test Date: 10/23/2012

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	20.9 °C	Yes
Relative Humidity	10 - 70 %	47 %	Yes
Impactor Velocity	4.20 - 4.40 m/s	4.384 m/s	Yes
Impactor Acceleration	(-14) - (-18) g	-16.9 g	Yes
Upper Thorax Rib Displacement	32 - 40 mm	34.5 mm	Yes
Center Thorax Rib Displacement	39 - 45 mm	41.3 mm	Yes
Lower Thorax Rib Displacement	35 - 43 mm	39.1 mm	Yes
Upper Spine Lateral Acceleration	13 - 17 g	15.7 g	Yes
Lower Spine Lateral Acceleration	7 - 11 g	10.5 g	Yes

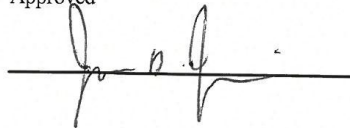
Test meets specifications.

Comments:

Technician



Approved



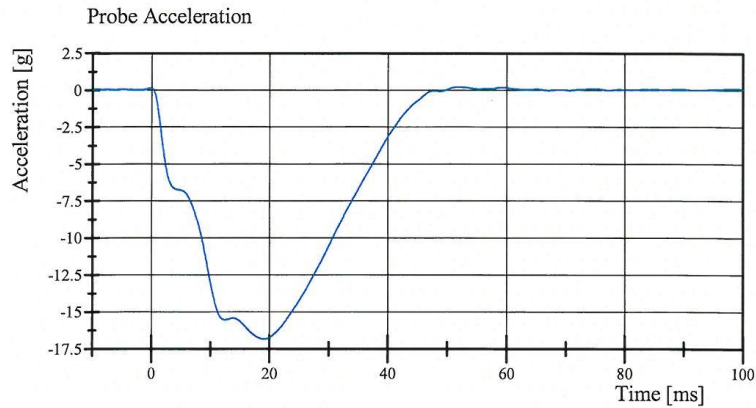
Specification Source: Procedures based on Final Rule effective 8/24/2009
Polarity in accordance with SAE J211.

10.23.2012 10:15:33 844

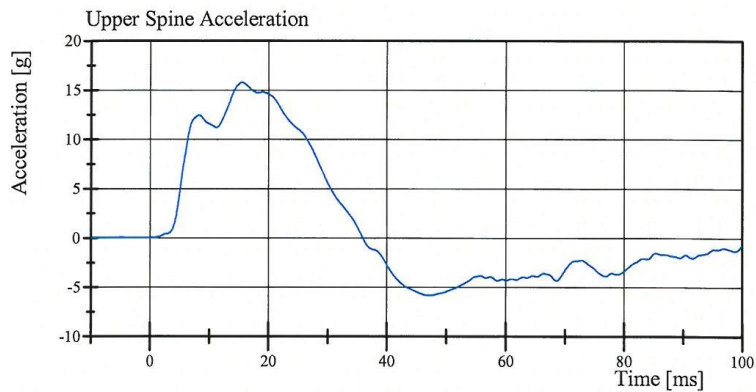


Transportation Research Center Inc.

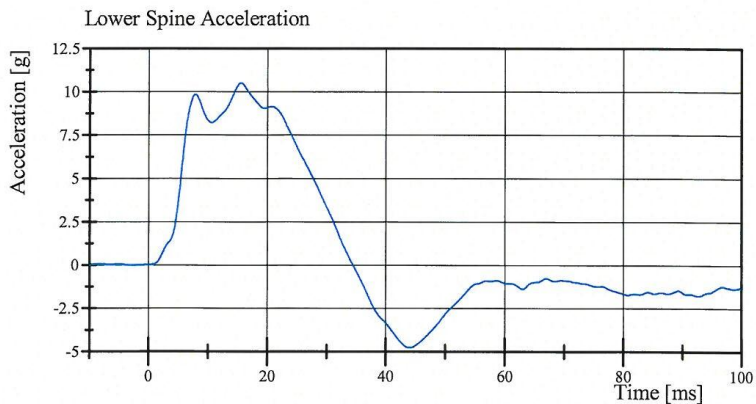
Left Lateral Thorax without Arm
SID II_s Serial No. 305 Certification No. 15-1
Test Date: 10/23/2012



Filter Class: CFC_180
Max: 0.2 gn at 51.8 ms
Min: -16.9 gn at 19.1 ms



Filter Class: CFC_180
Max: 15.7 gn at 15.5 ms
Min: -5.9 gn at 47.2 ms



Filter Class: CFC_180
Max: 10.5 gn at 15.5 ms
Min: -4.8 gn at 44.0 ms

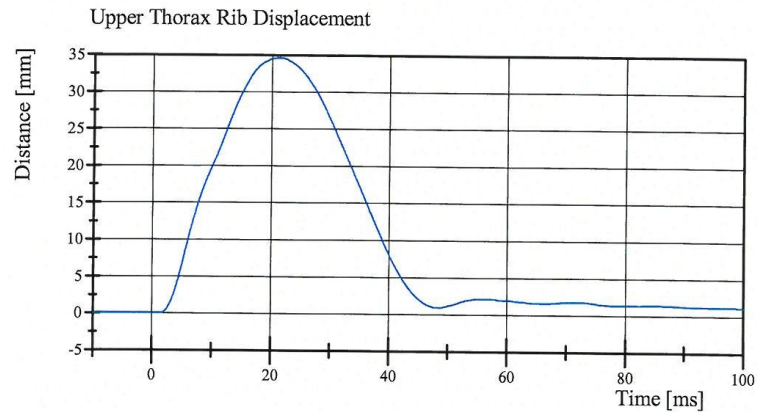
Specification Source: Procedures based on Final Rule effective 8/24/2009
Polarity in accordance with SAE J211.

10.23.2012 10:15:54 844

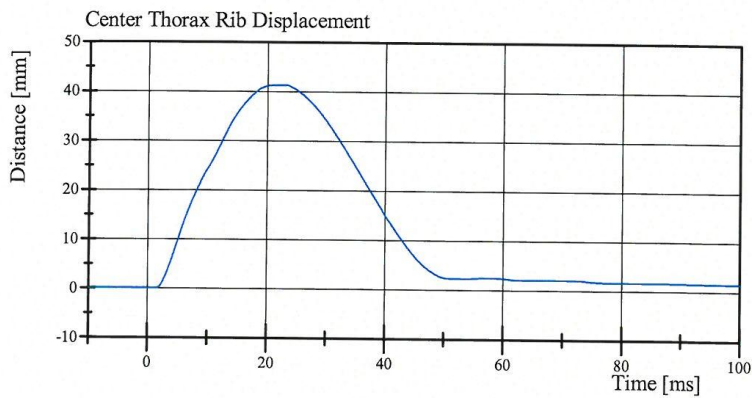


Transportation Research Center Inc.

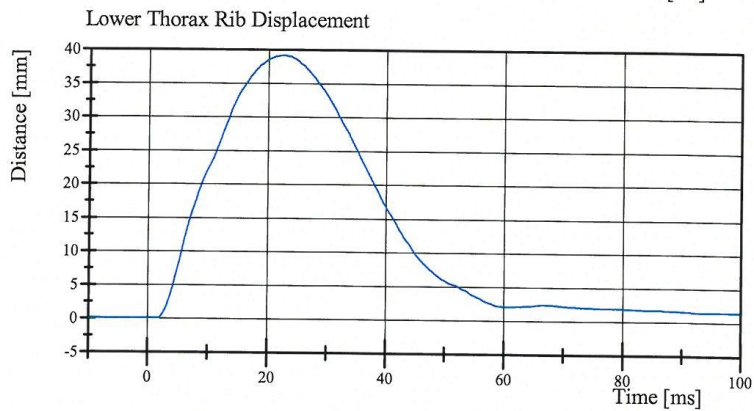
Left Lateral Thorax without Arm
SID IIs Serial No. 305 Certification No. 15-1
Test Date: 10/23/2012



Filter Class: CFC_600
Max: 34.5 mm at 21.2 ms
Min: -0.0 mm at 1.5 ms



Filter Class: CFC_600
Max: 41.3 mm at 22.1 ms
Min: -0.0 mm at 1.4 ms



Filter Class: CFC_600
Max: 39.1 mm at 22.6 ms
Min: -0.0 mm at -3.8 ms

Specification Source: Procedures based on Final Rule effective 8/24/2009
Polarity in accordance with SAE J211.

10.23.2012 10:15:55 844



Transportation Research Center Inc.

Left Lateral Abdomen

SID IIs Serial No. 305 Certification No. 15-1

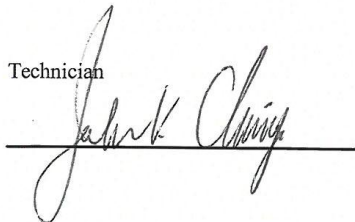
Test Date: 10/23/2012

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.3 °C	Yes
Relative Humidity	10 - 70 %	47 %	Yes
Impactor Velocity	4.2 - 4.4 m/s	4.33 m/s	Yes
Impactor Acceleration	(-12) - (-16) g	-13.6 g	Yes
Upper Abdominal Rib Displacement	36 - 47 mm	38.2 mm	Yes
Lower Abdominal Rib Displacement	33 - 44 mm	38.7 mm	Yes
Lower Spine Lateral Acceleration	9 - 14.0 g	11.34 g	Yes

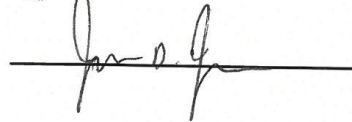
Test meets specifications.

Comments:

Technician



Approved



Specification Source: Procedures based on Final Rule effective 8/24/2009
Polarity in accordance with SAE J211.

10.23.2012 10:38:05 692

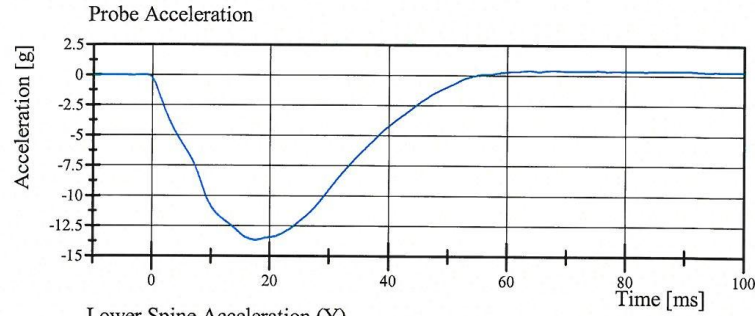


Transportation Research Center Inc.

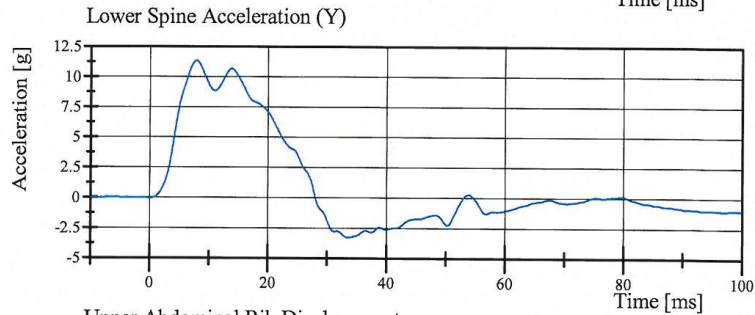
Left Lateral Abdomen

SID IIa Serial No. 305 Certification No. 15-1

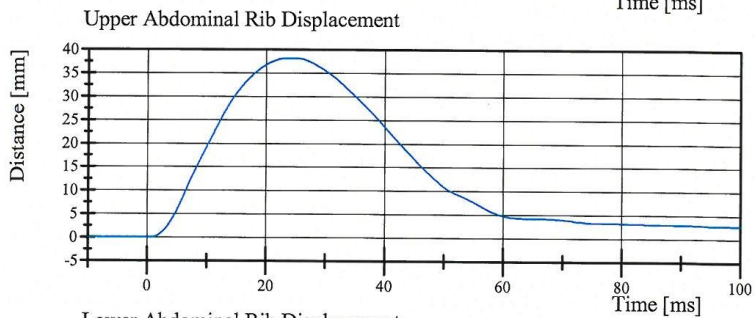
Test Date: 10/23/2012



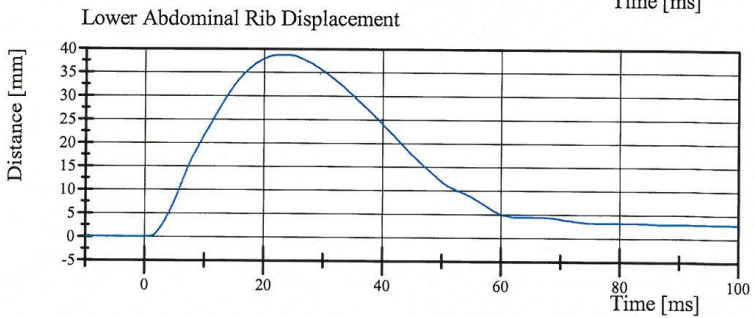
Filter Class: CFC_180
Max: 0.4 gn at 67.7 ms
Min: -13.6 gn at 17.5 ms



Filter Class: CFC_180
Max: 11.3 gn at 7.8 ms
Min: -3.3 gn at 33.5 ms



Filter Class: CFC_600
Max: 38.2 mm at 23.9 ms
Min: -0.0 mm at 0.8 ms



Filter Class: CFC_600
Max: 38.7 mm at 23.4 ms
Min: -0.0 mm at 0.6 ms

Specification Source: Procedures based on Final Rule effective 8/24/2009
Polarity in accordance with SAE J211.

10.23.2012 10:38:35 692



Transportation Research Center Inc.

Left Lateral Pelvis

SID IIs Serial No. 305 Certification No. 15-1

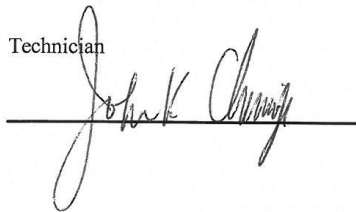
Test Date: 10/23/2012

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.0 °C	Yes
Relative Humidity	10 - 70 %	48 %	Yes
Pendulum Velocity	6.6 - 6.8 m/s	6.68 m/s	Yes
Impactor Acceleration	(-38.0) - (-47.0) g	-41.67 g	Yes
Peak Pelvis Lateral Acceleration after 6ms	34 - 42 g	37.0 g	Yes
Acetabulum Force	3,600 - 4,300 N	3,972.1 N	Yes

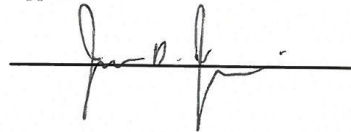
Test meets specifications.

Comments:

Technician



Approved



Specification Source: Procedures based on Final Rule effective 8/24/2009
Polarity in accordance with SAE J211.

10.23.2012 11:11:09 446

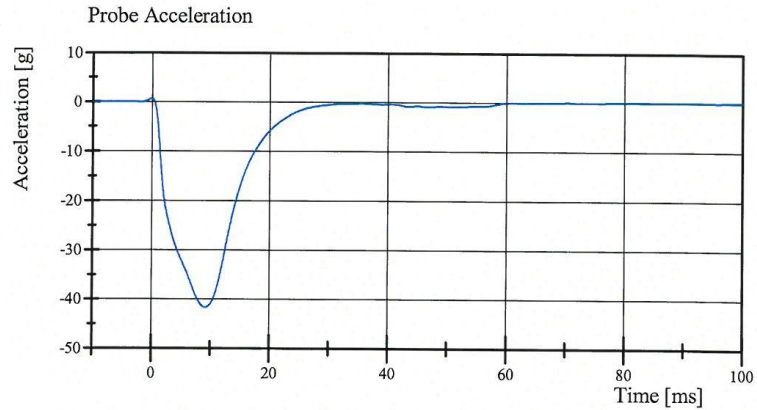


Transportation Research Center Inc.

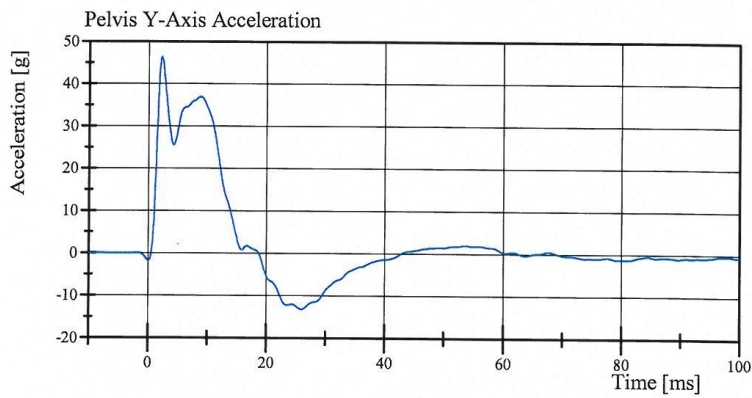
Left Lateral Pelvis

SID IIs Serial No. 305 Certification No. 15-1

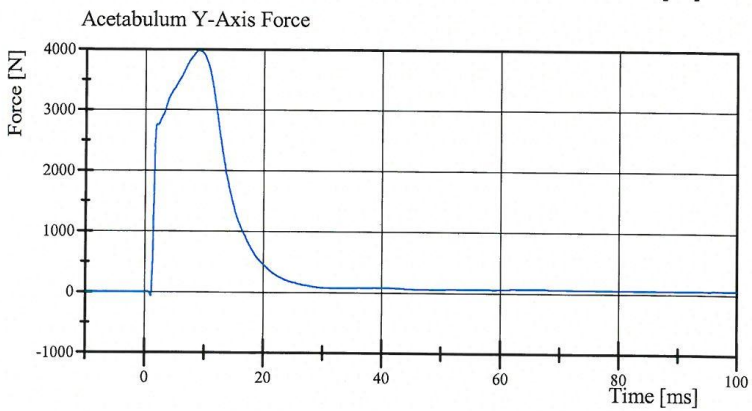
Test Date: 10/23/2012



Filter Class: CFC_180
Max: 0.6 gn at -0.1 ms
Min: -41.7 gn at 9.1 ms



Filter Class: CFC_180
Max: 46.4 gn at 2.2 ms
Min: -13.2 gn at 25.9 ms



Filter Class: CFC_600
Max: 3,972.1 N at 9.0 ms
Min: -63.8 N at 1.0 ms

Specification Source: Procedures based on Final Rule effective 8/24/2009
Polarity in accordance with SAE J211.

10.23.2012 11:11:24 446



Transportation Research Center Inc.

Left Lateral Iliac

SID IIs Serial No. 305 Certification No. 15-4

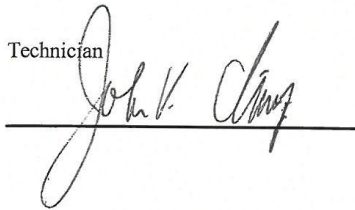
Test Date: 11/1/2012

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.9 °C	Yes
Relative Humidity	10 - 70 %	31 %	Yes
Pendulum Velocity	4.2 - 4.4 m/s	4.33 m/s	Yes
Impactor Acceleration	(-36) - (-45) g	-40.6 g	Yes
Peak Pelvis Lateral Acceleration	28 - 39 g	31.8 g	Yes
Iliac Force	4,100 - 5,100 N	4,878.3 N	Yes

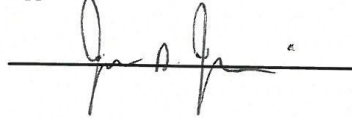
Test meets specifications.

Comments:

Technician



Approved



Specification Source: Procedures based on Final Rule effective 8/24/2009
Polarity in accordance with SAE J211.

11.01.2012 13:22:23 702

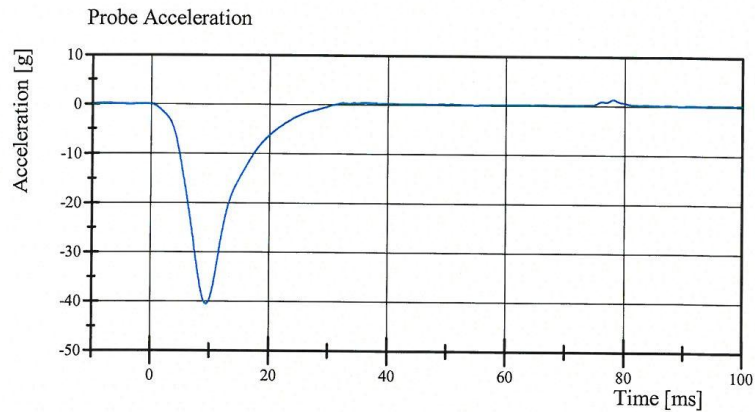


Transportation Research Center Inc.

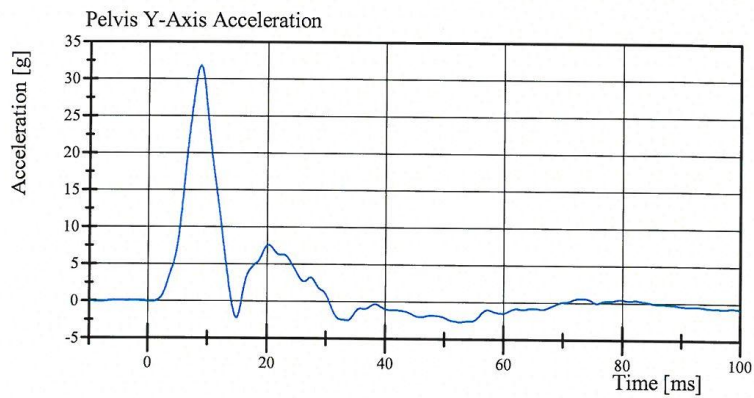
Left Lateral Iliac

SID IIs Serial No. 305 Certification No. 15-4

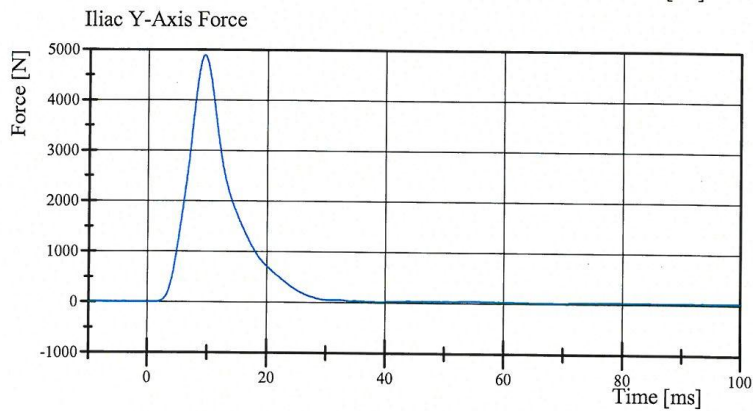
Test Date: 11/1/2012



Filter Class: CFC_180
Max: 1.3 gn at 78.0 ms
Min: -40.6 gn at 9.4 ms



Filter Class: CFC_180
Max: 31.8 gn at 8.7 ms
Min: -2.7 gn at 52.6 ms



Filter Class: CFC_600
Max: 4,878.3 N at 9.4 ms
Min: -0.8 N at -3.9 ms

Specification Source: Procedures based on Final Rule effective 8/24/2009
Polarity in accordance with SAE J211.

11.01.2012 13:22:46 702



Post-Test Calibration Sheets
Passenger S/N 305

Transportation Research Center Inc.

Left Lateral Head Drop

SID IIs Serial No. 305 Certification No. 16-1

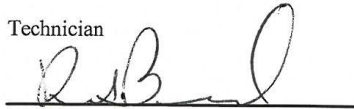
Test Date: 11/26/2012

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.6 °C	21.5 °C	Yes
Relative Humidity	10 - 70 %	20 %	Yes
Peak Head Resultant Acceleration	115 - 137 g	134.5 g	Yes
Peak Head Longitudinal Acceleration	(-15) - 15 g	-2.4 g	Yes
Is Head Resultant Acceleration Curve Unimodal within 15% of Peak?	Yes	Yes	Yes

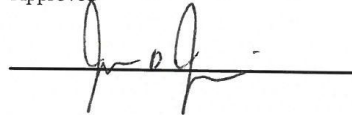
Test meets specifications.

Comments:

Technician



Approved



Specification Source: Procedures based on Final Rule effective 8/24/2009
Polarity in accordance with SAE J211.

11.26.2012 17:36:10 235

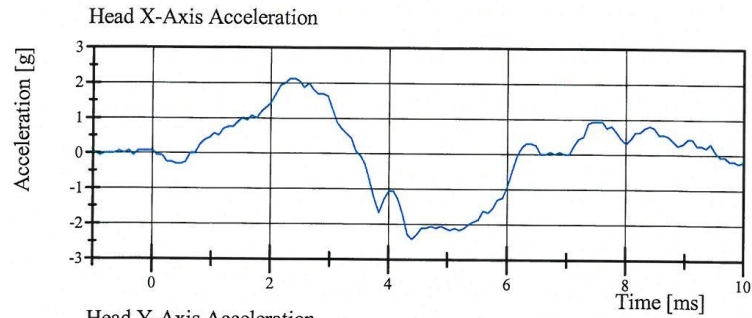


Transportation Research Center Inc.

Left Lateral Head Drop

SID IIs Serial No. 305 Certification No. 16-1

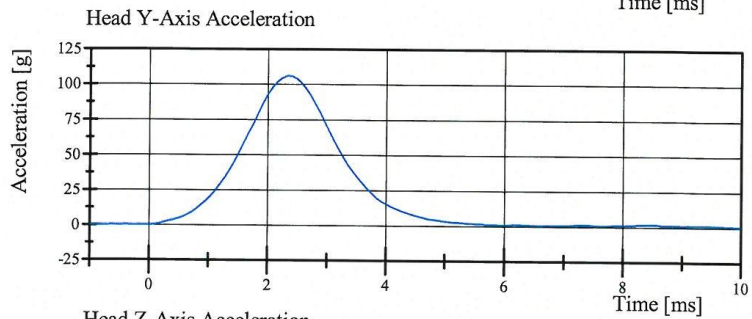
Test Date: 11/26/2012



Filter Class: CFC_1000

Max: 2.1 gn at 2.3 ms

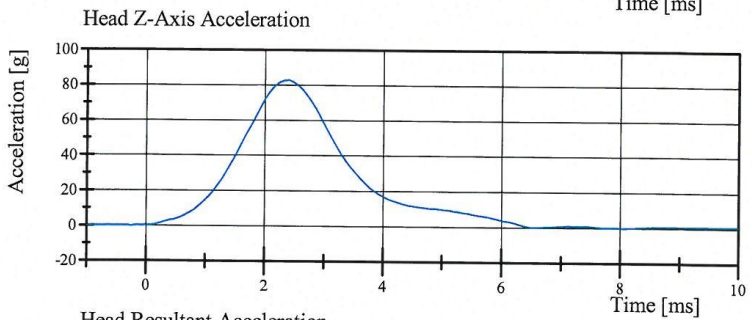
Min: -2.4 gn at 4.4 ms



Filter Class: CFC_1000

Max: 106.2 gn at 2.3 ms

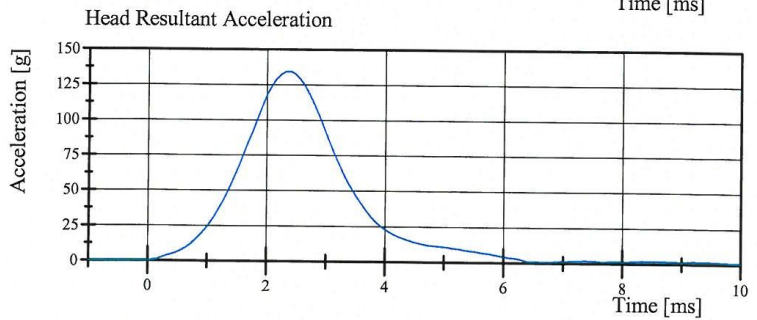
Min: -0.1 gn at -0.7 ms



Filter Class: CFC_1000

Max: 82.8 gn at 2.4 ms

Min: -0.1 gn at -0.2 ms



Filter Class: CFC_1000

Max: 134.5 gn at 2.4 ms

Min: 0.0 gn at -0.8 ms

Specification Source: Procedures based on Final Rule effective 8/24/2009
Polarity in accordance with SAE J211.

11.26.2012 17:36:17 235



Transportation Research Center Inc.

Left Lateral Neck

SID IIs Serial No. 305 Certification No. 16-1

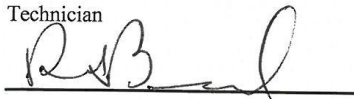
Test Date: 11/27/2012

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.9 °C	Yes
Relative Humidity	10 - 70 %	21 %	Yes
Pendulum Velocity	(-5.51) - (-5.63) m/s	-5.612 m/s	Yes
Pendulum Integrated Velocity			
Change at 10 ms	2.20 - 2.80 m/s	2.485 m/s	Yes
Change at 15 ms	3.30 - 4.10 m/s	3.636 m/s	Yes
Change at 20 ms	4.40 - 5.40 m/s	4.830 m/s	Yes
Change at 25 ms	5.40 - 6.10 m/s	5.742 m/s	Yes
Change at 25 to 100 ms	5.50 - 6.20 m/s	5.753 m/s	Yes
Maximum Headform Flexion occurring between 50ms and 70ms.			
Peak	(-71) - (-81) deg	-77.9 deg	Yes
Time of Peak	50 - 70 ms	65.4 ms	Yes
Total Neck Occipital Condyles Moment	36 - 44 N·m	39.5 N·m	Yes
Total Neck Occipital Condyles Moment			
Decay Time to 0 N·m	102 - 126 ms	121.5 ms	Yes

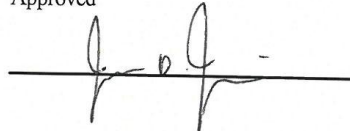
Test meets specifications.

Comments:

Technician



Approved



Specification Source: Procedures based on Final Rule effective 8/24/2009
Polarity in accordance with SAE J211.

11.27.2012 08:38:17 637

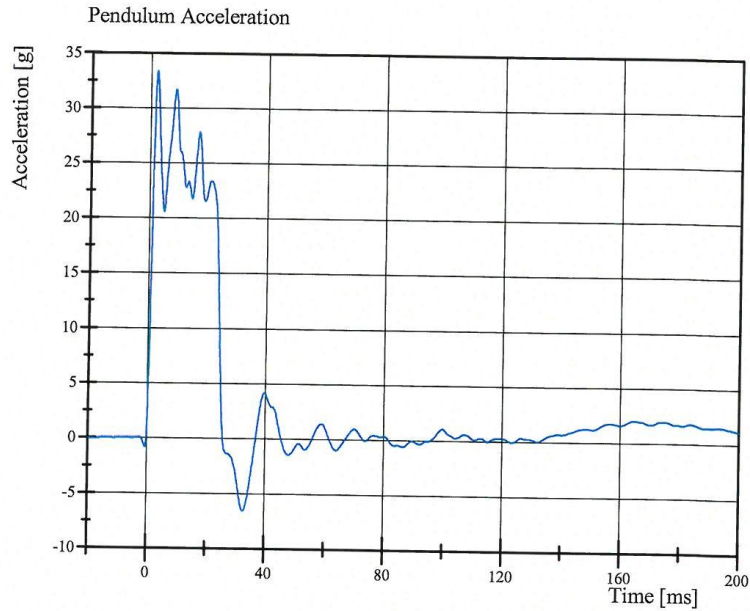


Transportation Research Center Inc.

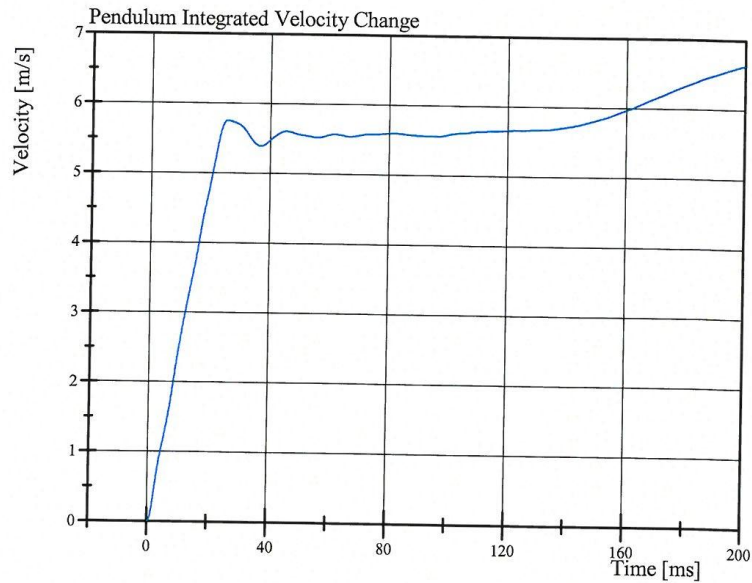
Left Lateral Neck

SID IIs Serial No. 305 Certification No. 16-1

Test Date: 11/27/2012



Filter Class: CFC_180
Max: 33.3 gn at 2.2 ms
Min: -6.6 gn at 32.7 ms



Filter Class: CFC_180
Max: 6.6 m/s at 200.0 ms
Min: 0.0 m/s at 0.0 ms

Specification Source: Procedures based on Final Rule effective 8/24/2009
Polarity in accordance with SAE J211.

11.27.2012 08:38:24 637

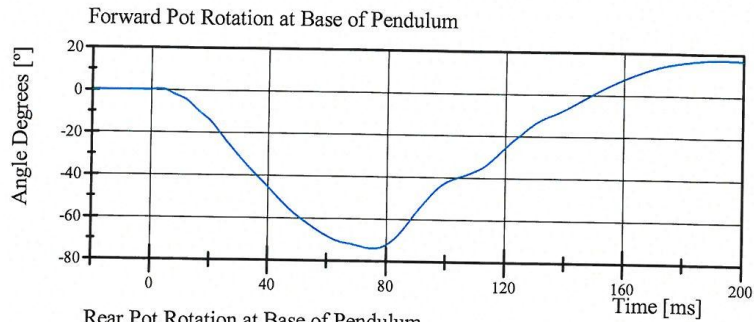


Transportation Research Center Inc.

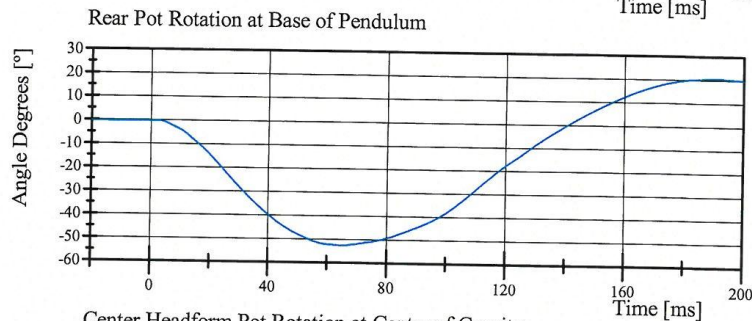
Left Lateral Neck

SID IIs Serial No. 305 Certification No. 16-1

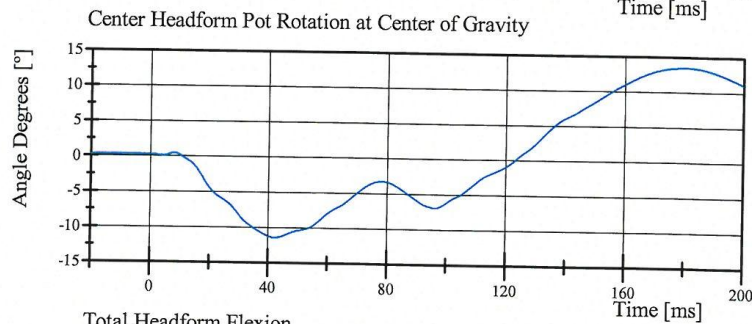
Test Date: 11/27/2012



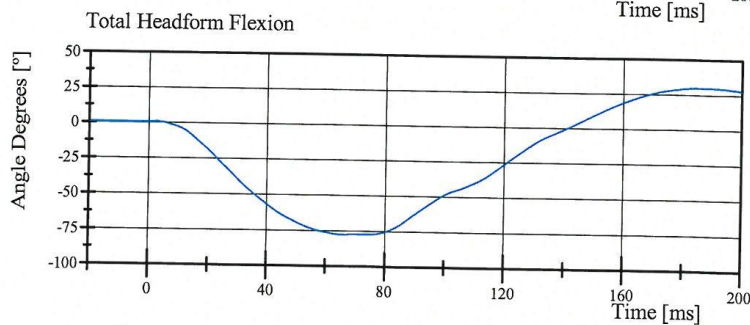
Filter Class: CFC_60
Max: 17.2 ° at 192.9 ms
Min: -74.0 ° at 75.3 ms



Filter Class: CFC_60
Max: 20.6 ° at 189.4 ms
Min: -52.6 ° at 64.9 ms



Filter Class: CFC_60
Max: 13.4 ° at 180.6 ms
Min: -11.5 ° at 42.2 ms



Filter Class: CFC_60
Max: 30.1 ° at 187.0 ms
Min: -77.9 ° at 65.4 ms

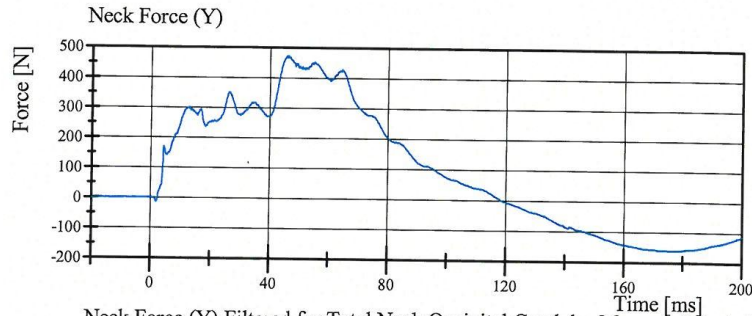
Specification Source: Procedures based on Final Rule effective 8/24/2009
Polarity in accordance with SAE J211.

11.27.2012 08:38:25 637

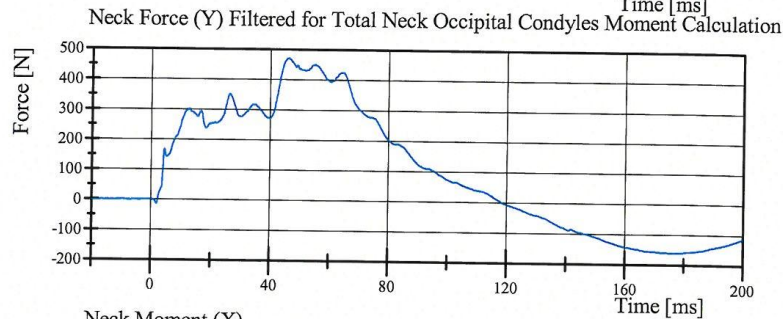


Transportation Research Center Inc.

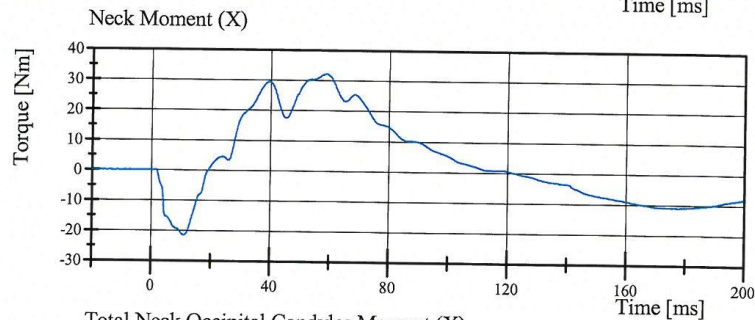
Left Lateral Neck
SID IIs Serial No. 305 Certification No. 16-1
Test Date: 11/27/2012



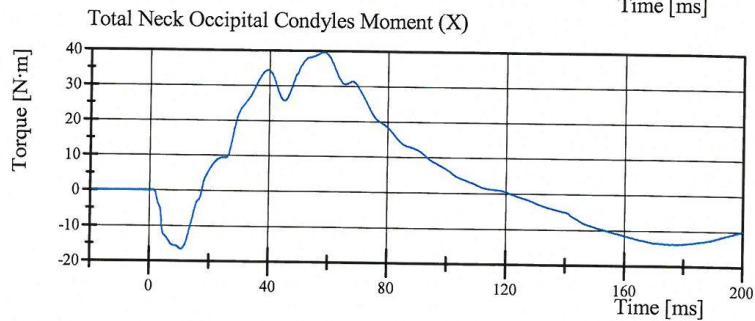
Filter Class: CFC_1000
Max: 473.9 N at 46.1 ms
Min: -161.1 N at 177.0 ms



Filter Class: CFC_600
Max: 471.5 N at 46.1 ms
Min: -160.7 N at 177.0 ms



Filter Class: CFC_600
Max: 32.2 Nm at 58.9 ms
Min: -21.5 Nm at 10.9 ms



Filter Class: Without_(Consta
Max: 39.5 N·m at 58.2 ms
Min: -16.6 N·m at 10.7 ms

Specification Source: Procedures based on Final Rule effective 8/24/2009
Polarity in accordance with SAE J211.

11.27.2012 08:38:25 637



Transportation Research Center Inc.

Left Lateral Shoulder

SID IIs Serial No. 305 Certification No. 16-1

Test Date: 11/26/2012

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.1 °C	Yes
Relative Humidity	10 - 70 %	26 %	Yes
Impactor Velocity	4.2 - 4.4 m/s	4.32 m/s	Yes
Impactor Acceleration	(-13) - (-18) g	-15.8 g	Yes
Shoulder Displacement	28 - 37 mm	30.7 mm	Yes
Upper Spine Lateral Acceleration	17 - 22 g	19.9 g	Yes

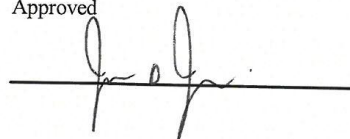
Test meets specifications.

Comments:

Technician



Approved



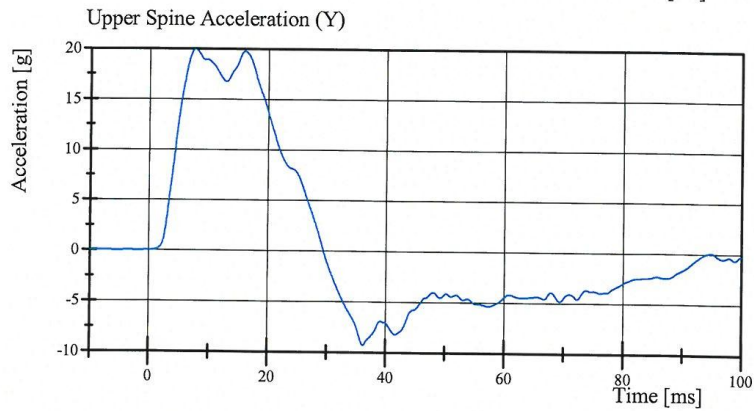
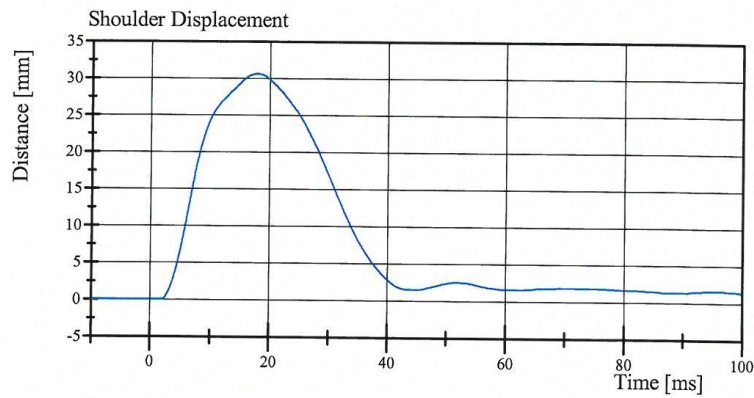
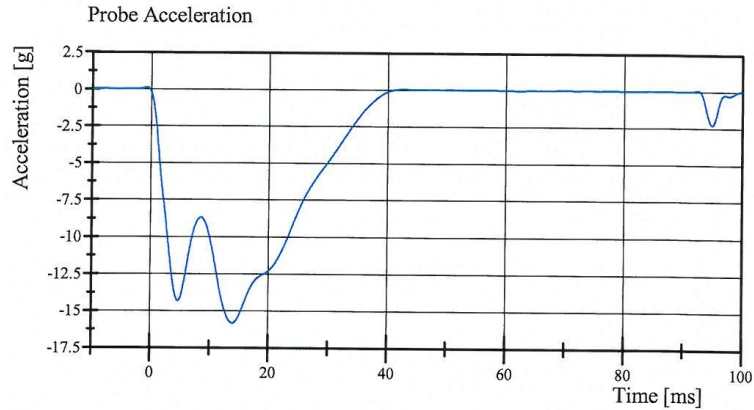
Specification Source: Procedures based on Final Rule effective 8/24/2009
Polarity in accordance with SAE J211.

11.26.2012 18:03:48 818



Transportation Research Center Inc.

Left Lateral Shoulder
SID IIs Serial No. 305 Certification No. 16-1
Test Date: 11/26/2012



Specification Source: Procedures based on Final Rule effective 8/24/2009
Polarity in accordance with SAE J211.

11.26.2012 18:03:55 818



Transportation Research Center Inc.

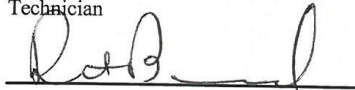
Left Lateral Thorax with Arm
SID IIs Serial No. 305 Certification No. 16-2
Test Date: 11/27/2012

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.8 °C	Yes
Relative Humidity	10 - 70 %	21 %	Yes
Impactor Velocity	6.60 - 6.80 m/s	6.772 m/s	Yes
Impactor Acceleration	(-30) - (-36) g	-33.0 g	Yes
Shoulder Displacement	31 - 40 mm	34.0 mm	Yes
Upper Thorax Rib Displacement	25 - 32 mm	26.7 mm	Yes
Center Thorax Rib Displacement	30 - 36 mm	31.2 mm	Yes
Lower Thorax Rib Displacement	32 - 38 mm	33.5 mm	Yes
Upper Spine Lateral Acceleration	34 - 43 g	39.6 g	Yes
Lower Spine Lateral Acceleration	29 - 37 g	33.0 g	Yes

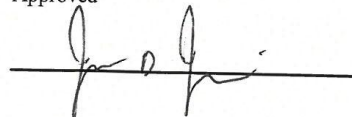
Test meets specifications.

Comments:

Technician



Approved



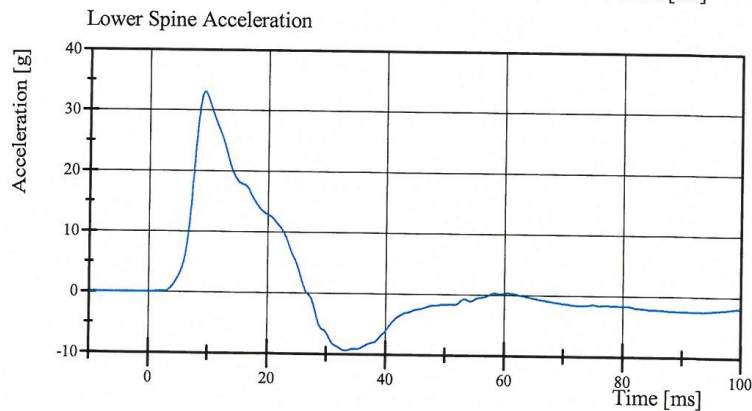
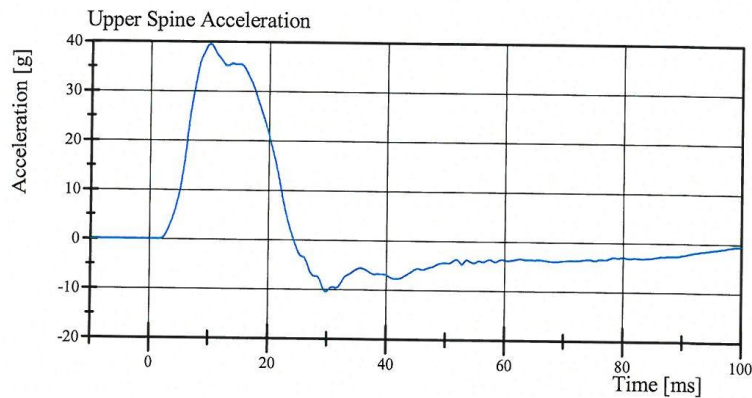
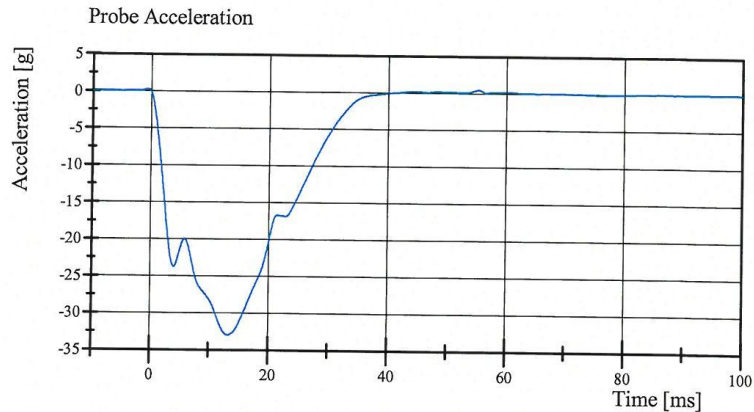
Specification Source: Procedures based on Final Rule effective 8/24/2009
Polarity in accordance with SAE J211.

11.27.2012 08:29:44 642



Transportation Research Center Inc.

Left Lateral Thorax with Arm
SID IIs Serial No. 305 Certification No. 16-2
Test Date: 11/27/2012



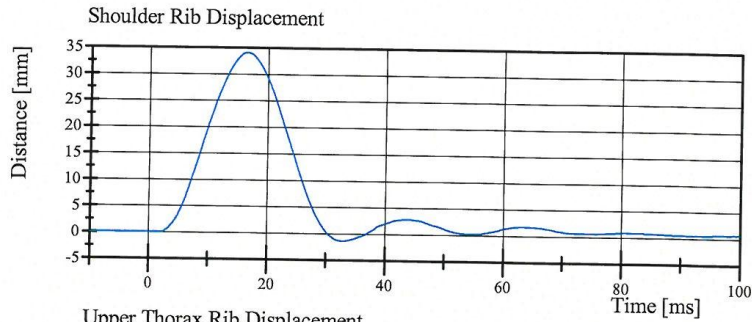
Specification Source: Procedures based on Final Rule effective 8/24/2009
Polarity in accordance with SAE J211.

11.27.2012 08:29:59 642

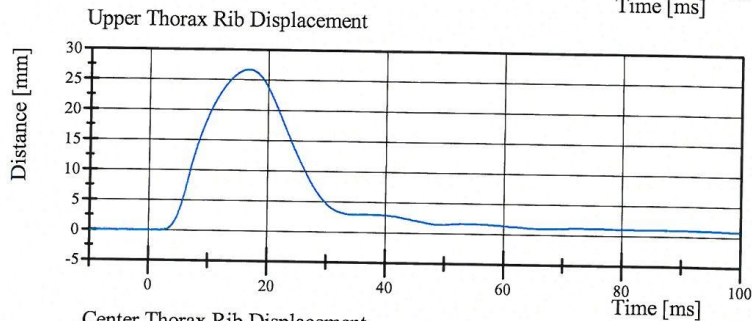


Transportation Research Center Inc.

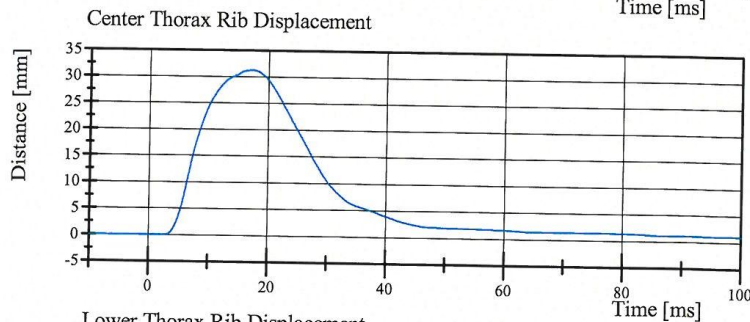
Left Lateral Thorax with Arm
SID IIs Serial No. 305 Certification No. 16-2
Test Date: 11/27/2012



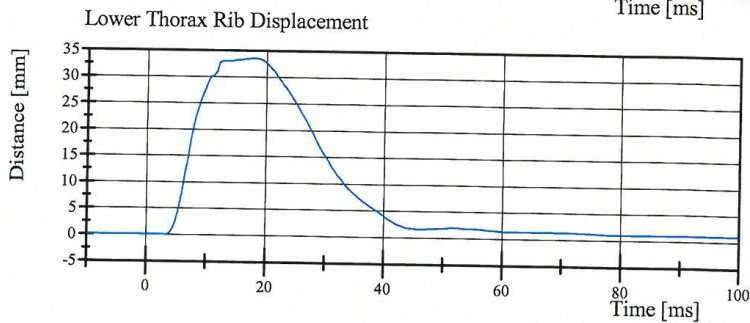
Filter Class: CFC_600
Max: 34.0 mm at 16.5 ms
Min: -1.4 mm at 33.0 ms



Filter Class: CFC_600
Max: 26.7 mm at 16.6 ms
Min: -0.0 mm at 0.4 ms



Filter Class: CFC_600
Max: 31.2 mm at 16.9 ms
Min: -0.0 mm at 0.4 ms



Filter Class: CFC_600
Max: 33.5 mm at 18.0 ms
Min: -0.0 mm at -5.4 ms

Specification Source: Procedures based on Final Rule effective 8/24/2009
Polarity in accordance with SAE J211.

11.27.2012 08:30:00 642



Transportation Research Center Inc.

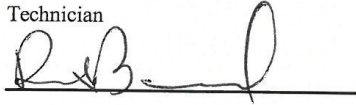
Left Lateral Thorax without Arm
SID IIs Serial No. 305 Certification No. 16-1
Test Date: 11/26/2012

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.7 °C	Yes
Relative Humidity	10 - 70 %	20 %	Yes
Impactor Velocity	4.20 - 4.40 m/s	4.378 m/s	Yes
Impactor Acceleration	(-14) - (-18) g	-16.2 g	Yes
Upper Thorax Rib Displacement	32 - 40 mm	33.2 mm	Yes
Center Thorax Rib Displacement	39 - 45 mm	40.3 mm	Yes
Lower Thorax Rib Displacement	35 - 43 mm	38.7 mm	Yes
Upper Spine Lateral Acceleration	13 - 17 g	15.9 g	Yes
Lower Spine Lateral Acceleration	7 - 11 g	9.7 g	Yes

Test meets specifications.

Comments:

Technician



Approved



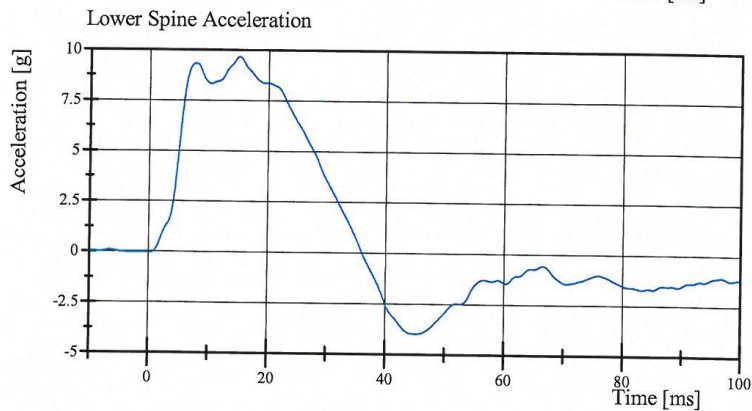
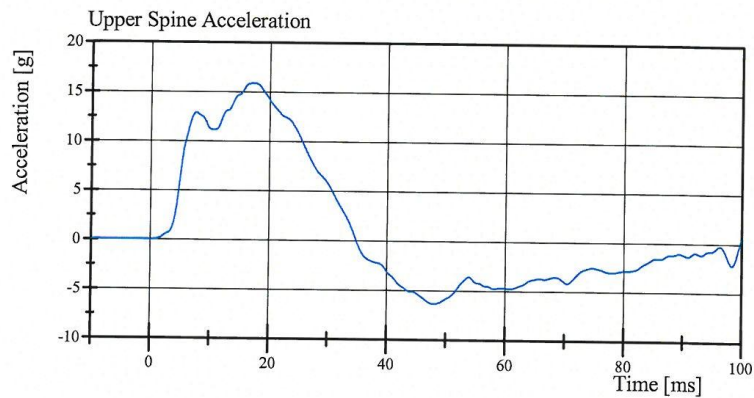
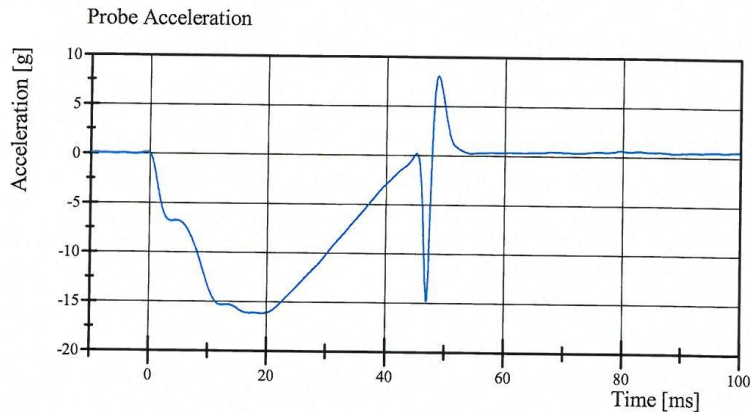
Specification Source: Procedures based on Final Rule effective 8/24/2009
Polarity in accordance with SAE J211.

11.26.2012 18:30:44 808



Transportation Research Center Inc.

Left Lateral Thorax without Arm
SID IIs Serial No. 305 Certification No. 16-1
Test Date: 11/26/2012



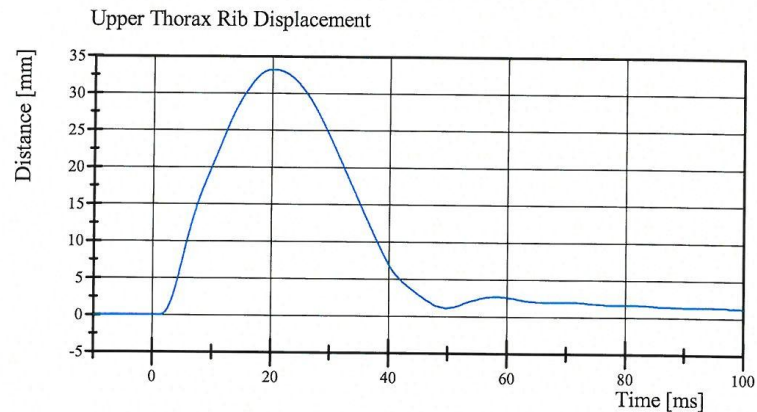
Specification Source: Procedures based on Final Rule effective 8/24/2009
Polarity in accordance with SAE J211.

11.26.2012 18:30:52 808

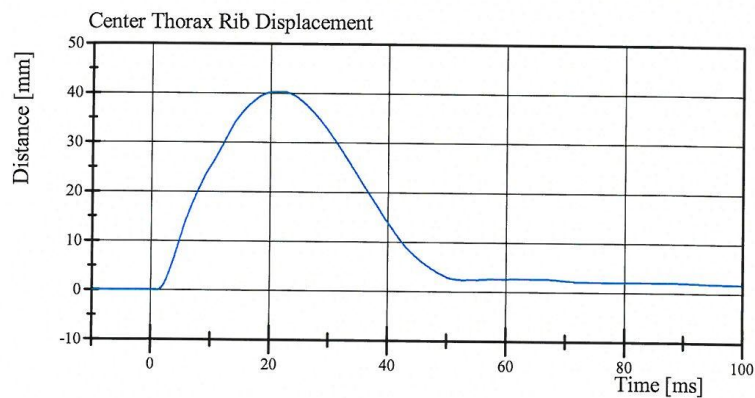


Transportation Research Center Inc.

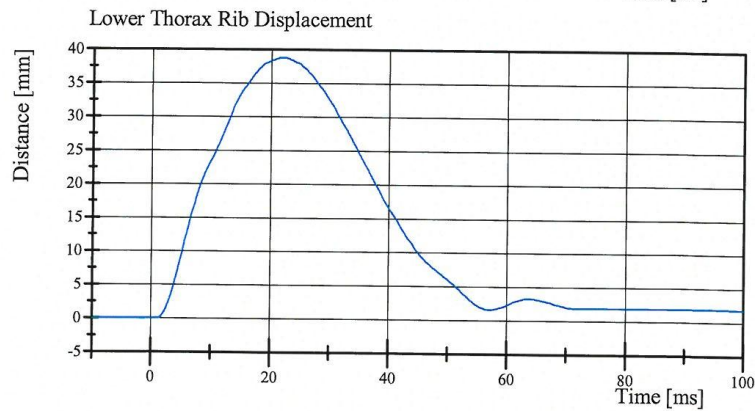
Left Lateral Thorax without Arm
SID IIs Serial No. 305 Certification No. 16-1
Test Date: 11/26/2012



Filter Class: CFC_600
Max: 33.2 mm at 20.2 ms
Min: -0.0 mm at 1.1 ms



Filter Class: CFC_600
Max: 40.3 mm at 21.4 ms
Min: -0.0 mm at 1.0 ms



Filter Class: CFC_600
Max: 38.7 mm at 22.1 ms
Min: -0.0 mm at 1.0 ms

Specification Source: Procedures based on Final Rule effective 8/24/2009
Polarity in accordance with SAE J211.

11.26.2012 18:30:53 808



Transportation Research Center Inc.

Left Lateral Abdomen
SID IIs Serial No. 305 Certification No. 16-1
Test Date: 11/26/2012

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.1 °C	Yes
Relative Humidity	10 - 70 %	20 %	Yes
Impactor Velocity	4.2 - 4.4 m/s	4.32 m/s	Yes
Impactor Acceleration	(-12) - (-16) g	-15.0 g	Yes
Upper Abdominal Rib Displacement	36 - 47 mm	39.8 mm	Yes
Lower Abdominal Rib Displacement	33 - 44 mm	36.3 mm	Yes
Lower Spine Lateral Acceleration	9 - 14.0 g	11.87 g	Yes

Test meets specifications.

Comments:

Technician



Approved



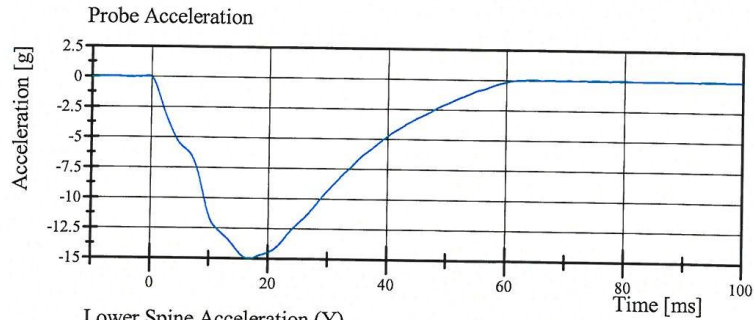
Specification Source: Procedures based on Final Rule effective 8/24/2009
Polarity in accordance with SAE J211.

11.26.2012 18:12:48 647

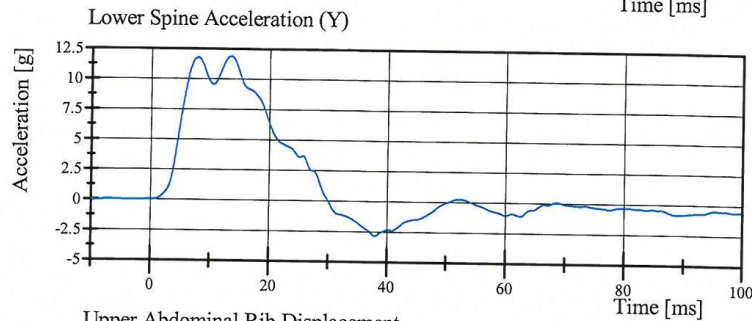


Transportation Research Center Inc.

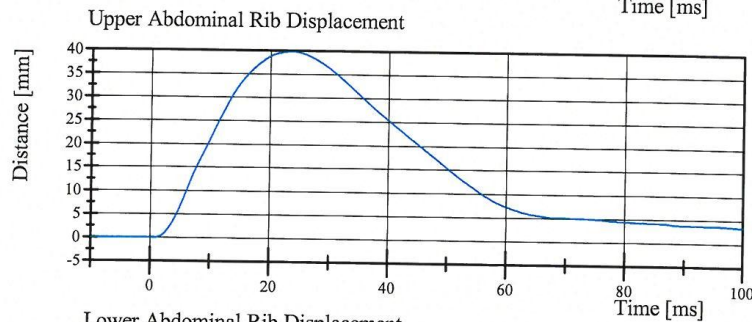
Left Lateral Abdomen
SID IIa Serial No. 305 Certification No. 16-1
Test Date: 11/26/2012



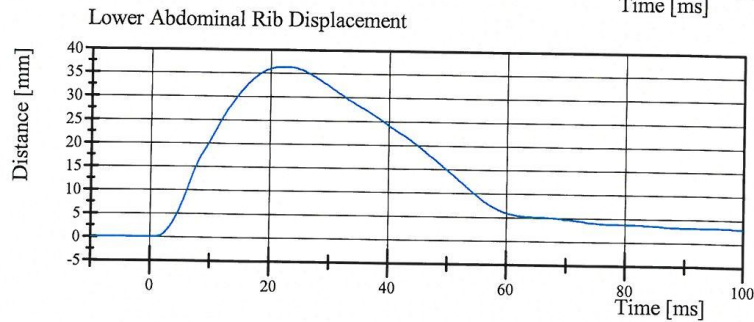
Filter Class: CFC_180
Max: 0.1 gn at 64.3 ms
Min: -15.0 gn at 16.8 ms



Filter Class: CFC_180
Max: 11.9 gn at 13.4 ms
Min: -2.8 gn at 37.9 ms



Filter Class: CFC_600
Max: 39.8 mm at 23.5 ms
Min: -0.0 mm at -8.6 ms



Filter Class: CFC_600
Max: 36.3 mm at 22.6 ms
Min: -0.0 mm at -3.3 ms

Specification Source: Procedures based on Final Rule effective 8/24/2009
Polarity in accordance with SAE J211.

11.26.2012 18:12:55 647



Transportation Research Center Inc.

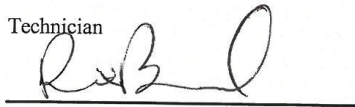
Left Lateral Pelvis
SID IIs Serial No. 305 Certification No. 16-2
Test Date: 11/27/2012

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.2 °C	Yes
Relative Humidity	10 - 70 %	22 %	Yes
Pendulum Velocity	6.6 - 6.8 m/s	6.67 m/s	Yes
Impactor Acceleration	(-38.0) - (-47.0) g	-42.32 g	Yes
Peak Pelvis Lateral Acceleration after 6ms	34 - 42 g	37.2 g	Yes
Acetabulum Force	3,600 - 4,300 N	4,033.7 N	Yes

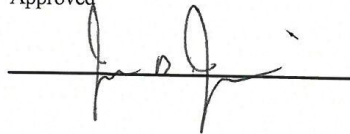
Test meets specifications.

Comments:

Technician



Approved



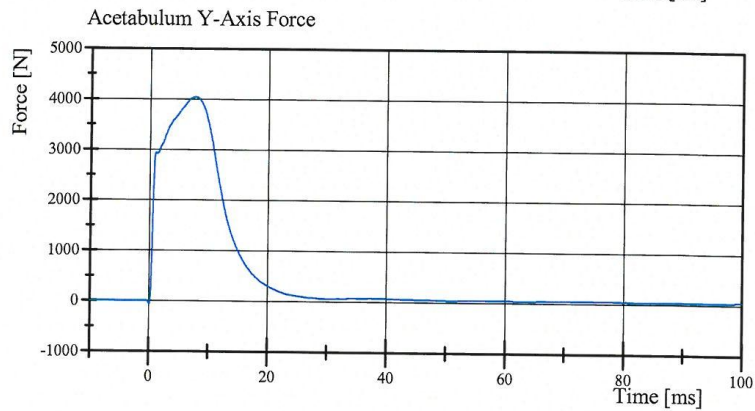
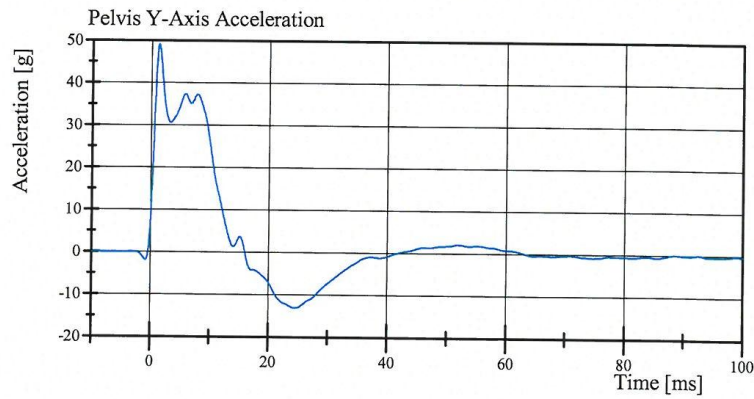
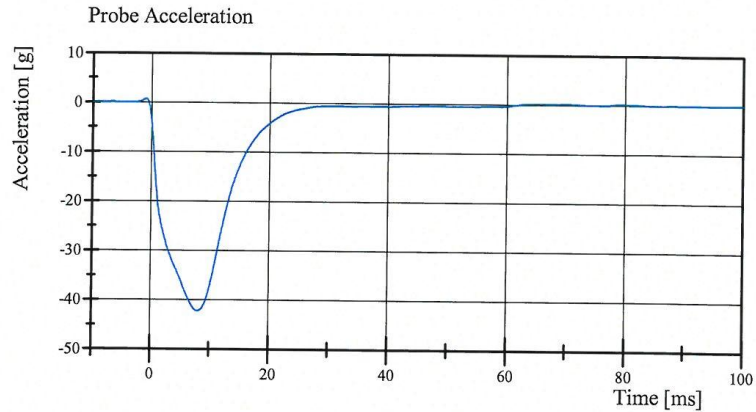
Specification Source: Procedures based on Final Rule effective 8/24/2009
Polarity in accordance with SAE J211.

11.27.2012 09:06:57 462



Transportation Research Center Inc.

Left Lateral Pelvis
SID IIs Serial No. 305 Certification No. 16-2
Test Date: 11/27/2012



Specification Source: Procedures based on Final Rule effective 8/24/2009
Polarity in accordance with SAE J211.

11.27.2012 09:07:04 462



Transportation Research Center Inc.

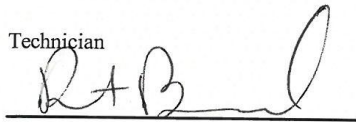
Left Lateral Iliac
SID IIs Serial No. 305 Certification No. 16-2
Test Date: 11/27/2012

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.9 °C	Yes
Relative Humidity	10 - 70 %	20 %	Yes
Pendulum Velocity	4.2 - 4.4 m/s	4.26 m/s	Yes
Impactor Acceleration	(-36) - (-45) g	-41.9 g	Yes
Peak Pelvis Lateral Acceleration	28 - 39 g	34.0 g	Yes
Iliac Force	4,100 - 5,100 N	5,085.4 N	Yes

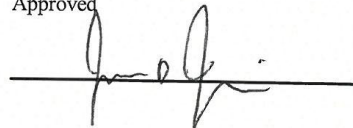
Test meets specifications.

Comments:

Technician



Approved



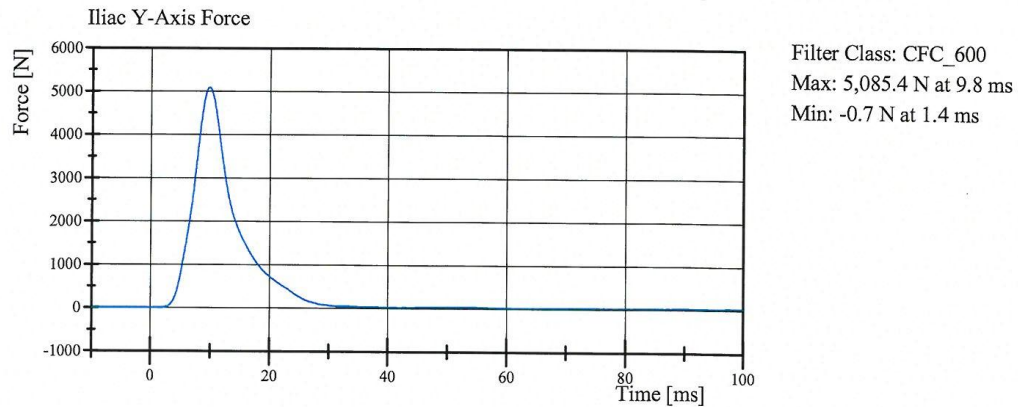
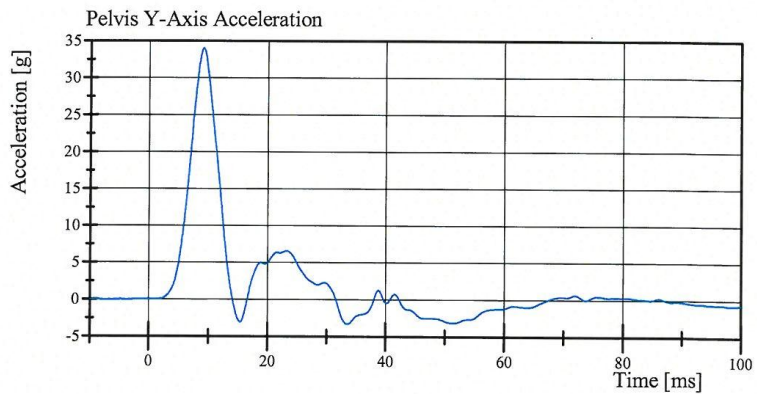
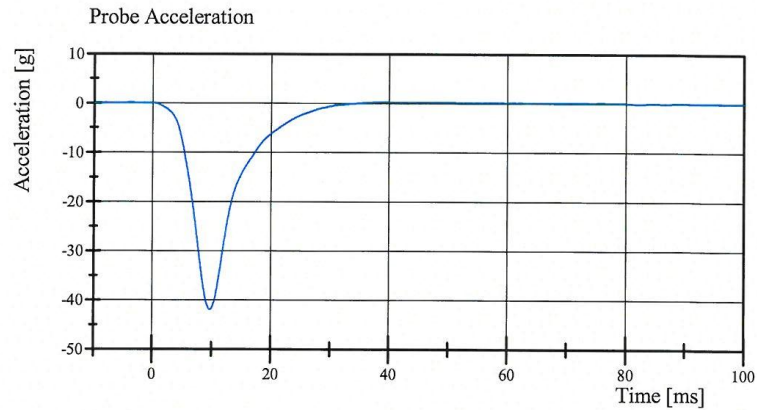
Specification Source: Procedures based on Final Rule effective 8/24/2009
Polarity in accordance with SAE J211.

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Transportation Research Center Inc.

Left Lateral Iliac
SID IIs Serial No. 305 Certification No. 16-2
Test Date: 11/27/2012



Specification Source: Procedures based on Final Rule effective 8/24/2009
Polarity in accordance with SAE J211.

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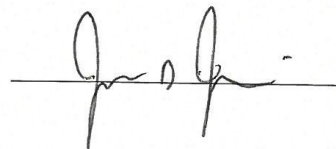
Transportation Research Center Inc.
SIDIIs Dummy - Level D
External Dimensions
Serial No. 305 Calibration No.016

Symbol	Description	Specification	Results	Pass
		mm	mm	
A	Sitting Height	772.0 - 788.0	777	Yes
B	Shoulder Pivot Height	437.0 - 453.0	440	Yes
C	H-Point Height	79.0 - 89.0	84	Yes
D	H-Point from Seat Back	141.0 - 151.0	144	Yes
E	Shoulder Pivot from Backline	97.0 - 107.0	102	Yes
F	Thigh Clearance	119.0 - 135.0	135	Yes
G	Head Breadth	140.0 - 148.0	145	Yes
H	Head Back from Backline	40.0 - 46.0	45	Yes
I	Head Depth	178.0 - 188.0	183	Yes
J	Head Circumference	541.0 - 551.0	544	Yes
K	Buttock to Knee Length	514.0 - 540.0	530	Yes
L	Popliteal Height	343.0 - 369.0	355	Yes
M	Knee Pivot to Floor Height	393.0 - 409.0	402	Yes
N	Buttock Popliteal Length	416.0 - 442.0	430	Yes
O	Chest Depth without Jacket	195.0 - 211.0	203	Yes
P	Foot Length (right)	216.0 - 232.0	220	Yes
P	Foot Length (left)	216.0 - 232.0	220	Yes
Q	Hip Breadth	313.0 - 323.0	314	Yes
R	Arm Length	249.0 - 259.0	253	Yes
S	Knee Joint to seat Back	478.0 - 493.0	481	Yes
V	Shoulder Width (only one arm installed)	341.0 - 357.0	350	Yes
W	Foot Width (right)	78.0 - 94.0	84	Yes
W	Foot Width (left)	78.0 - 94.0	84	Yes
Y	Chest Circumference with Jacket	851.0 - 881.0	867	Yes
Z	Waist Circumference	761.0 - 791.0	780	Yes

Technician



Approved



Revised 9/29/2005



APPENDIX D
TEST EQUIPMENT AND INSTRUMENTATION CALIBRATION DATA

TABLE 1 – Dummy Instrumentation (ES-2re)

			ES-2re S/N F030		
			Serial Number	Manufacturer	Calibration Date
Head Accelerometers		X	P58890	Endevco	28-Sep-12
		Y	P51702	Endevco	28-Sep-12
		Z	P52083	Endevco	28-Sep-12
Thoracic Rib Displacement Potentiometers	Upper	Y	175	FTSS	27-Sep-12
	Middle	Y	174	FTSS	27-Sep-12
	Lower	Y	173	FTSS	27-Sep-12
Abdomen Load Cells	Upper	Y	1441	Denton	28-Sep-12
	Middle	Y	1436	Denton	28-Sep-12
	Lower	Y	1437	Denton	28-Sep-12
Lower Spine Accelerometers (T12)		X	P75728	Endevco	18-Oct-12
		Y	P76187	Endevco	30-Oct-12
		Z	P75515	Endevco	20-Jul-11
Acetabulum Load Cell		Y	N/A	N/A	N/A
Pubic Symphysis Load Cell		Y	457-FY	Denton	28-Sep-12

TABLE 2 – Dummy Instrumentation (SID-IIs)

				SID-IIs S/N 305			
				Serial Number	Manufacturer	Calibration Date	
Head Accelerometers				X	P51719	Endevco	27-Sep-12
				Y	P51272	Endevco	27-Sep-12
				Z	P58862	Endevco	27-Sep-12
Displacement Potentiometers	Shoulder		Y	N/A	N/A	N/A	
	Thoracic Rib	Upper	Y	007	Servo	27-Sep-12	
		Middle	Y	1161	Servo	27-Sep-12	
		Lower	Y	1279	Servo	27-Sep-12	
	Abdominal Rib	Upper	Y	1295	Servo	27-Sep-12	
		Lower	Y	1136	Servo	27-Sep-12	
Lower Spine Accelerometers (T12)				X	P50068	Endevco	28-Sep-12
				Y	P52051	Endevco	28-Sep-12
				Z	P51710	Endevco	28-Sep-12
Acetabulum Load Cell				Y	287-FY	FTSS	27-Sep-12
Iliac Wing Load Cell				Y	103-FY	FTSS	27-Sep-12
Pelvis Plug (struck side)					36407	FTSS	
Pelvis Plug (non-struck side)					N/A	N/A	

TABLE 3 – Vehicle Instrumentation

Vehicle Instrumentation			Serial Number	Manufacturer	Calibration Date
1	Vehicle Center of Gravity	X	P75714	Endevco	8-Oct-12
	Vehicle Center of Gravity	Y	P75733	Endevco	16-Oct-12
	Vehicle Center of Gravity	Z	P75773	Endevco	18-Oct-12
2	Right Sill at Front Seat	X	P74438	Endevco	27-Jul-12
	Right Sill at Front Seat	Y	P74796	Endevco	13-Jun-12
	Right Sill at Front Seat	Z	P76398	Endevco	10-Oct-12
3	Right Sill at Rear Seat	X	P73388	Endevco	19-Jul-12
	Right Sill at Rear Seat	Y	P76336	Endevco	8-Oct-12
	Right Sill at Rear Seat	Z	P74441	Endevco	20-Aug-12
4	Left Sill at Front Door	Y	P75993	Endevco	25-Jul-12
5	Left Sill at Rear Door	Y	P74452	Endevco	26-Jul-12
6	Left A-Post Lower	Y	P74480	Endevco	24-Jul-12
7	Left A-Post Middle	Y	P75240	Endevco	14-Nov-12
8	Left B-Post Lower	Y	P74435	Endevco	17-Jul-12
9	B-Post Middle	Y	P74799	Endevco	20-Aug-12
10	Front Seat Track	Y	P66710	Endevco	8-Nov-12
11	Rear Seat Track or Structure	Y	P78122	Endevco	6-Jul-12
12	Right Rear Occupant Compartment	Y	P74091	Endevco	8-Nov-12
13	Engine Block	X	P75590	Endevco	9-Oct-12
	Engine Block	Y	P76399	Endevco	17-Oct-12
14	Rear Floorpan Above Axle	X	P76339	Endevco	8-Oct-12
	Rear Floorpan Above Axle	Y	P75996	Endevco	10-Sep-12
	Rear Floorpan Above Axle	Z	P69381	Endevco	4-Jun-12

TABLE 4 – MDB Instrumentation

MDB Instrumentation		Serial Number	Manufacturer	Calibration Date
MDB Center of Gravity	X	P76044	Endevco	18-Oct-12
MDB Center of Gravity	Y	P76251	Endevco	6-Jul-12
MDB Center of Gravity	Z	P75726	Endevco	14-Jul-12
Left Frame Rail at Rear Axle Centerline	X	P75111	Endevco	19-Nov-12
Left Frame Rail at Rear Axle Centerline	Y	P75774	Endevco	20-Aug-12