

REPORT NUMBER: SNCAP-TRC-2009-003

**NEW CAR ASSESSMENT PROGRAM (NCAP)
SIDE IMPACT TEST**

**FORD MOTOR COMPANY
2010 FORD MUSTANG 2-DOOR CONVERTIBLE
NHTSA NUMBER: FA0200**

**PREPARED BY:
TRANSPORTATION RESEARCH CENTER INC.
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Test Date: September 11, 2009

Report Date: October 27, 2009

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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Approval Date:

October 27, 2009

FINAL REPORT ACCEPTANCE BY OCWS:

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

Date: _____

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16. Abstract This 55/28 km/h 90° Moving Deformable Barrier NCAP Side Impact Test was conducted on the subject vehicle, a 2010 Ford Mustang 2-door Convertible 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 September 11, 2009. The impact velocity of the Moving Deformable Barrier (MDB) was 62.1 km/h, and the ambient temperature at the struck (Driver's) side of the target vehicle at the time of impact was 21.1°. The target vehicle's post-test maximum crush was 186 mm at Level 2. The test or target vehicle's performance is given below (with FIR filter): <table border="0"> <thead> <tr> <th></th> <th style="text-align: center;"><u>Front SID HIII</u></th> <th></th> <th style="text-align: center;"><u>Rear SID HIII</u></th> </tr> </thead> <tbody> <tr> <td>Left Upper Rib Acceleration:</td> <td style="text-align: center;">46.6</td> <td>g's</td> <td style="text-align: center;">51.4</td> </tr> <tr> <td>Left Lower Rib Acceleration:</td> <td style="text-align: center;">41.0</td> <td>g's</td> <td style="text-align: center;">44.6</td> </tr> <tr> <td>Lower Spine Acceleration:</td> <td style="text-align: center;">44.7</td> <td>g's</td> <td style="text-align: center;">58.4</td> </tr> <tr> <td>Thoracic Trauma Index, (TTI):</td> <td style="text-align: center;">45.6</td> <td>g's</td> <td style="text-align: center;">54.9</td> </tr> <tr> <td>Pelvis Acceleration (PEV):</td> <td style="text-align: center;">42.0</td> <td>g's</td> <td style="text-align: center;">42.7</td> </tr> </tbody> </table> The door 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 side impact event.					<u>Front SID HIII</u>		<u>Rear SID HIII</u>	Left Upper Rib Acceleration:	46.6	g's	51.4	Left Lower Rib Acceleration:	41.0	g's	44.6	Lower Spine Acceleration:	44.7	g's	58.4	Thoracic Trauma Index, (TTI):	45.6	g's	54.9	Pelvis Acceleration (PEV):	42.0	g's	42.7
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17. Key Words New Car Assessment Program (NCAP) Side Impact Side Impact Hybrid III Dummy (SID HIII) Occupant Side Impact Protection		18. Distribution Statement <u>Copies of this report are available from:</u> National Highway Traffic Safety Administration Technical Reference Division 1200 New Jersey Ave, SE Washington, DC 20590																									
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SECTION 1

PURPOSE AND TEST PROCEDURE

PURPOSE

This side impact test was conducted as part of the FY 2010 New Car Assessment Program Side Impact Test Program, sponsored by the National Highway Traffic Safety Administration (NHTSA), under Contract No. DTNH22-03-D-02005. The purpose of this test was to generate comparative side impact performance in a 2010 Ford Mustang 2-door Convertible. The side impact test was conducted in accordance with the Office Crashworthiness Standard's Laboratory Test Procedure dated January 2002.

TEST PROCEDURE

The side impact test was conducted in accordance with the Laboratory Test Procedure for New Car Assessment Program Side Impact Testing dated January 2002 and the corresponding Transportation Research Center Inc. (TRC Inc.) procedures. The procedures for receiving, inspection, testing, and reporting of test results are described in the test procedures and are not repeated in this report.

TRC Inc. does not endorse or certify products. The manufacturer's name appears solely for identification purposes.

SECTION 2

SUMMARY OF TEST RESULTS

A 2010 Ford Mustang 2-door Convertible was impacted on the left side by a Moving Deformable Barrier (MDB) which was moving forward in a 27° crabbed position to the monorail at a velocity of 62.1 km/h (38.6 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 Transportation Research Center Inc. in East Liberty, Ohio on September 11, 2009.

One (1) real-time motion picture camera and nine (9) high-speed digital motion picture cameras were used to document the impact event. The pre-test and post-test conditions were recorded by one (1) real-time motion picture camera. Camera locations and pertinent camera information are documented in the data sheets. Pre-test and post-test photographs of the test vehicle, the moving deformable barrier (MDB), and the side impact dummies (SID/HIIs) are included in Appendix A.

Two 50th percentile adult male SID/HIIs were placed in the driver and left rear passenger designated seating positions according to instructions specified in the Laboratory Test Procedure for New Car Assessment Program Side Impact Testing dated January 2002. The SID/HIIs were instrumented in the following locations:

- Left Upper Rib (LUR) uniaxial accelerometer (Y-axis primary and redundant)
- Left Lower Rib (LLR) uniaxial accelerometer (Y-axis primary and redundant)
- Lower Thoracic Spine (T12) uniaxial accelerometer (Y-axis primary and redundant)
- Upper Spine (T01) uniaxial accelerometer (Y-axis primary and redundant)
- Pelvic (PEV) section uniaxial accelerometer (Y-axis)
- Head Center of Gravity (CG) triaxial accelerometers (X, Y and Z axes; primary and redundant)
- Upper Neck (NEK) triaxial force and moment load cell (Fx, Fy, Fz, Mx, My, Mz)

The test vehicle was instrumented with twenty-one (21) structural accelerometers and the MDB was instrumented with five (5) accelerometers and two (2) contact switches on the bumper to compare left side to right side bumper impact timing. All data channels were recorded with a fully self-contained onboard Kayser Threde Data Acquisition System. The data was digitally sampled at 10,000 samples per second and processed per Appendix V of the Test Procedure.

The driver SID/HIII, Serial No. 001, and left rear passenger SID/HIII, Serial No. 002, were calibrated prior to this test.

Appendix A contains the still photograph prints. Appendix B contains the SID/HIII, vehicle, and MDB response data traces. Appendix C contains the SID/HIII configuration and performance verification data.

The occupant data is summarized below:

ATD position	HIC	T ¹	T ²	TTI (G's)	Peak Pelvis (G's)
Driver	77.9	43.7	79.7	45.6	42.0
Passenger	1191.3	63.4	72.6	54.9	42.7

Supplemental Restraint Information

Restraint Type	Left Front (Driver)		Left Rear Passenger	
	Installed	Deployed	Installed	Deployed
Front Airbag	Yes	No	No	N/A
Side Torso Airbag	No	N/A	No	N/A
Side Torso/Head Airbag	Yes	Yes	No	N/A
Side Head Curtain Airbag	No	N/A	No	N/A

The test data can be found on the NHTSA website at www.nhtsa.dot.gov.

TEST NOTES

The driver dummy's redundant left lower spine (T12) Y-axis acceleration data channel recorded questionable data throughout the event.

The vehicle rear floorpan above axle y-axis acceleration data channel recorded questionable data throughout the event.

The vehicle left lower A-pillar post, y-axis acceleration data channel exceeded the full scale value at 6.6 milliseconds and the data is questionable thereafter.

The vehicle left mid A-Pillar post y-axis acceleration data channel exceeded the full scale value at 11 milliseconds and the data is questionable thereafter.

The vehicle left lower B-Pillar post y-axis acceleration data channel exceeded its full scale value at 6.1 milliseconds and recorded questionable data thereafter.

SECTION 3
OCCUPANT AND VEHICLE INFORMATION

DATA SHEET NO. 1

GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle: 2010 Ford Mustang
 Test Program: NCAP Side Impact

NHTSA No.: FA0200
 Test Date: 9/11/09

TEST VEHICLE INFORMATION AND OPTIONS

Make	Ford	Driver Front Airbag	Yes
Model Year	2010	Driver Side Airbag	No
Model	Mustang	Driver Head / Torso Airbag	Yes
Body Style	2-door convertible	Driver Curtain Airbag	No
NHTSA No.	FA0200	Driver Knee Airbag	No
VIN	1ZVBP8EN0A5132880	Rear Pass. Front Airbag	No
Color	Red	Rear Pass. Side Airbag	No
Delivery Date	8/28/09	Rear Pass. Head Airbag	No
Odometer Reading	175 miles	Rear Pass. Curtain Airbag	No
Dealer	Geo Walker Ford Inc.	Rear Pass. Knee Airbag	No
Transmission	Automatic	Load Limiters	No
Final Drive	Rear wheel drive	Anti-lock Brakes	Yes
Type /No. of Cylinders	V6	All-Wheel Drive	No
Engine Displacement	4.0L	Pretensioners	Yes
Engine Placement	Longitudinal	Air Conditioning	Yes
Roof Rack	No	Tilt Wheel	Yes
Sunroof / T-Top	No	Power Seats	Yes
Tinted Glass	Yes	Power Windows	Yes
Traction Control	No	Power Steering	Yes
Power Brakes	Yes	AM/FM CD	Yes
Front Disc	Yes	Automatic Door Locks	Yes
Rear Disc	Yes	Other – Leather Seats	Yes
Does owner's manual provide instructions to turn off automatic door locks?			Yes

DATA FROM CERTIFICATION LABEL

Manufactured By	Ford Motor Company	GVWR (kg)	2091
Date of Manufacture	7/09	GAWR Front (kg)	1007
		GAWR Rear (kg)	1089

TEST VEHICLE SEAT TYPE AND CAPACITY

Measured Parameter	Front	Mid	Rear	Total
Type of Seats	Bucket	N/A	Bench	
Designated Seating Capacity (DSC)	2	0	2	4
Type of Seat Back	Adjustable	N/A	Fixed	
(A) Capacity Wt. (VCW) (kg)				301
(B) DSC x 68.08 kg				272
(A-B) Cargo Wt. (RCLW) (kg)				29

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

Test Vehicle: 2010 Ford Mustang
 Test Program: NCAP Side Impact

NHTSA No.: FA0200
 Test Date: 9/11/09

TEST VEHICLE AXLE WEIGHTS

	Units	As Delivered (UVW)			As Tested (ATW)			Fully Loaded		
		Front	Rear	Total	Front	Rear	Total	Front	Rear	Total
Left	kg	447.6	393.8		484.8	457.8		482.0	480.6	
Right	kg	423.6	395.0		444.4	460.0		426.0	470.2	
Ratio	%	52.5	47.5		50.3	49.7		48.8	51.2	
Totals	kg	871.2	788.8	1660.0	929.2	917.8	1847.0	908.0	950.8	1858.8

TARGET TEST WEIGHT CALCULATION

Measured Parameter	Units	Value
(A) Total Delivered Weight (UVW)	kg	1660.0
(B) Weight of 2 P572M ATDs	kg	164.2
(C) Rated Cargo/Luggage Weight (RCLW)	kg	29.0
(A+B+C) Vehicle Target Weight (TVTW)	kg	1853.2

TEST VEHICLE ATTITUDES AND CG

	Units	LF	RF	LR	RR	CG(aft of front axle)
As Delivered	mm	729	725	754	754	1290
As Tested	mm	715	715	730	732	1349
Fully Loaded	mm	710	708	719	722	

GENERAL TEST VEHICLE DATA

Measurement Description	Units	Value
Total Vehicle Length at Left Side	mm	4535
Total Vehicle Length at Centerline	mm	4745
Total Vehicle Length at Right Side	mm	4535
Weight of Ballast in Cargo Area	kg	0
Weight of Vehicle Components Removed	kg	Not Recorded
Amount of Stoddard Solvent in Fuel Tank	liters	56.4

Vehicle parts removed to make Target Vehicle Test Weight: Tail lights, rear deck liner, rear spoiler, rear bumper fascia and trim, rear bumper foam

TEST VEHICLE VERTICAL IMPACT LINE DATA

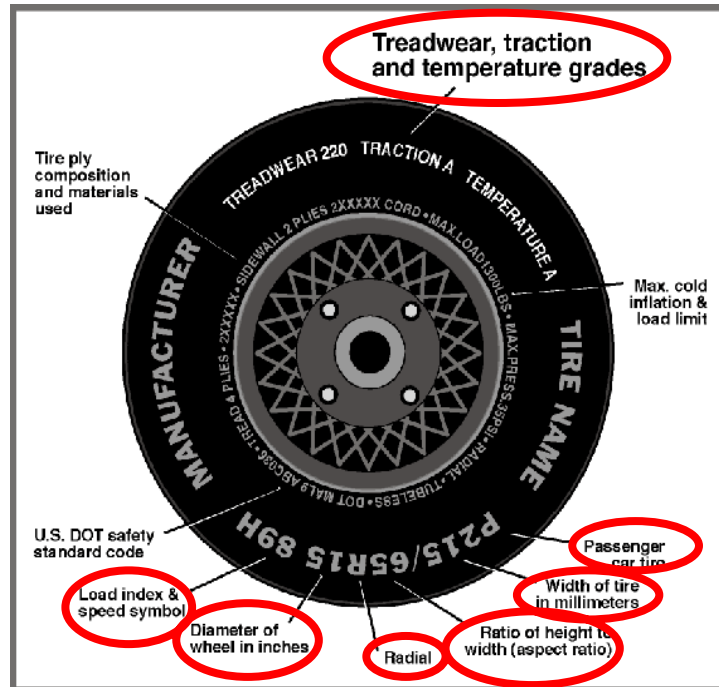
Measurement Description	Units	Value
Test Vehicle Wheel Base	mm	2715
Vertical Impact Reference Line Aft of Front Axle	mm	419.5
Actual Impact Point Aft of Front Axle	mm	405.5
Impact Point Difference	mm	14

DATA SHEET NO. 1 (CONTINUED)

GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle: 2010 Ford Mustang
 Test Program: NCAP Side Impact

NHTSA No.: FA0200
 Test Date: 9/11/09



DATA FROM TIRE PLACARD

Measured Parameter	Front	Rear
Maximum Tire Pressure (kPa)	220	220
Cold / Test Pressure (kPa)	220	220
Recommended Tire Size	P235/50R18	P235/50R18
Tire Size on Vehicle	P235/50R18	P235/50R18
Tire Manufacturer	Pirelli	Pirelli
Tire Model	Zero Nero	Zero Nero
Load Index & Speed Symbol	97W	97W
Treadwear	400	400
Traction Grade	AA	AA
Temperature Grade	A	A
Tire Plies Sidewall	2 polyester	2 polyester
Tire Plies Tread	2 Polyester, 2 steel, 1 nylon	2 Polyester, 2 steel, 1 nylon
Tire Material	Steel, nylon, and polyester	Steel, nylon, and polyester
DOT Safety Code Right	N9 4W H367	N9 4W H367
DOT Safety Code Left	N9 4W H367	N9 4W H367

DATA SHEET NO. 2

SEAT, SEAT BELT, STEERING WHEEL ADJUSTMENT AND FUEL SYSTEMS

DATA

Test Vehicle: 2010 Ford Mustang
 Test Program: NCAP Side Impact

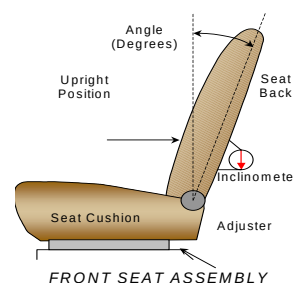
NHTSA No.: FA0200
 Test Date: 9/11/09

SEAT BACK ANGLE POSITION

The seat back angle was measured relative to the rocker sill. The headrest was in the full up position and an inclinometer was placed on the outboard headrest post.

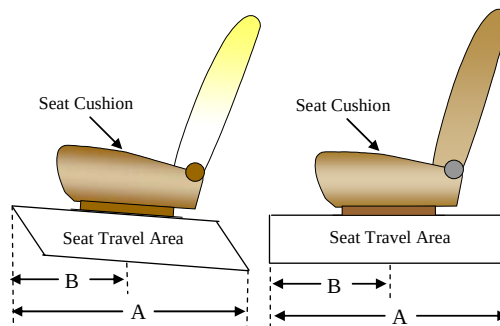
SEAT BACK ANGLE`

	Degrees	Detent
Driver Seat with Seated Dummy	12.7°	N/A
Front Passenger Seat	13.1°	N/A
Rear Seat – Struck Side	Fixed	N/A
Rear Seat – Non-Struck Side	Fixed	N/A



SEAT FORE/AFT POSITIONS

For all seats (driver & passenger, power & manual seat tracks): Position the seat in the mechanical mid-position. Reference points are to be scribed on the seat and the seat track. The total seat travel is measured and the seat is then positioned in place.



SEAT FORE/AFT POSITIONING

	Total Fore/Aft Travel (mm)	Placed in Detent # or Position (mm)
Driver Seat with Seated Dummy	240	120
Front Passenger Seat	N/A	N/A
Rear Seat – Struck Side	Fixed	N/A
Rear Seat – Non-Struck Side	Fixed	N/A

SEAT BELT UPPER ANCHORAGE

	Total No. of Positions	Placed in Position No.
Driver Seat	Fixed	N/A
Rear Seat	Fixed	N/A

Position number one is the uppermost adjustment position.

DATA SHEET NO. 2 (CONTINUED)

SEAT, SEAT BELT, STEERING WHEEL ADJUSTMENT AND FUEL SYSTEMS

DATA

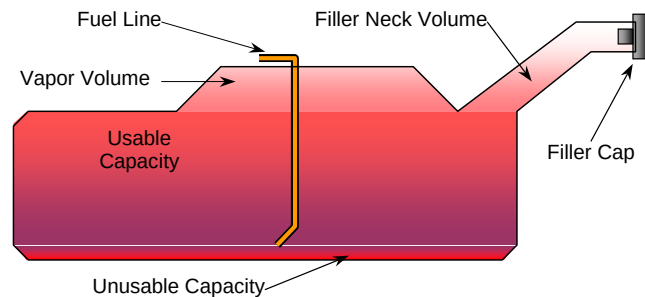
Test Vehicle: 2010 Ford Mustang
Test Program: NCAP Side Impact

NHTSA No.: FA0200
Test Date: 9/11/09

FUEL TANK CAPACITY

	Liters
Usable Capacity of "Standard Tank"	60.6
Usable Capacity of "Optional" Tank	N/A
92-94% of Usable Capacity	55.8 - 57.0
Actual Amount of Solvent used	56.4
1/3 of Usable Capacity	20.2

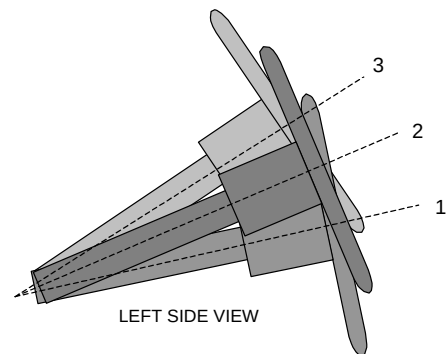
The electric fuel pump operates for 2 seconds to pressurize the fuel system following the actuation of the ignition. If no attempt has been made to start the engine within 2 seconds following ignition actuation the fuel pump will shut off. The fuel pump operates continuously while the engine is running. If the engine stalls the fuel pump is deactivated. Also, a fuel pump shut-off switch is provided, designed to stop fuel flow to the engine if the vehicle sustains an impact above a certain magnitude.



VEHICLE FUEL TANK ASSEMBLY

STEERING COLUMN ADJUSTMENT

Steering wheel and column adjustments are made so that the steering wheel hub is at the geometric center of the locus it describes when moved through its full range of motion. An aluminum plate is placed across the rim of the steering wheel, an inclinometer is placed on the plate and the angle is measured.



STEERING COLUMN ASSEMBLY

STEERING COLUMN POSITIONS

	Degrees	Fore/Aft Position, mm
Lowermost, Position No. 1	20.0	N/A
Geometric Center, Position No. 2	21.9	N/A
Uppermost, Position No. 3	23.9	N/A
Telescoping Steering Wheel Travel	No Feature	N/A
Test Position	21.9	N/A

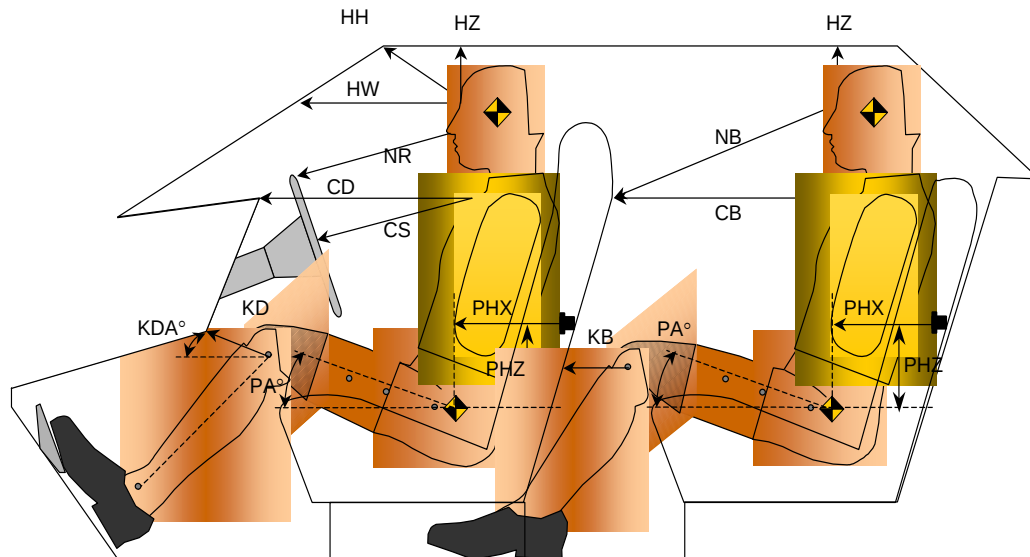
DATA SHEET NO. 3

DUMMY LONGITUDINAL CLEARANCE DIMENSIONS

Test Vehicle: 2010 Ford Mustang
 Test Program: NCAP Side Impact

NHTSA No.: FA0200
 Test Date: 9/11/09

Dummy Temperature at Time of Impact: 20.6



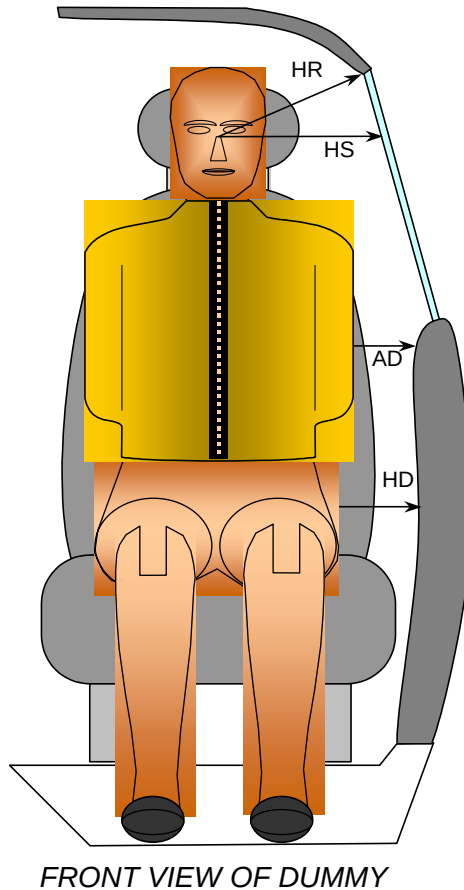
Code	Measurement Description	Driver S/N 001		Passenger S/N 002	
		Length (mm)	Angle (°)	Length (mm)	Angle (°)
HH	Head to Header	390			
HW	Head to Windshield	535			
HZ	Head to Roof	180		150	
NR/NB	Nose to Rim or Seatback	430		500	
CD/CB	Chest to Dash or Seatback	532		428	
CS	Chest to Steering Wheel	330			
KDL/KDAL KBL/KBAL	Left Knee to Dash or Seatback	75	31.7	15	0
KDR/KDAR KBR/KBAR	Right Knee to Dash or Seatback	75	31.7	15	0
PA	Pelvic Angle		24.2		33.9
PHX	H-Point to Striker (X-Axis)	535		310	
PHZ	H-Point to Striker (Z-Axis)	238		324	
SA	Seat Back Angle		12.7		16.6

DATA SHEET NO. 4

DUMMY LATERAL CLEARANCE DIMENSIONS

Test Vehicle: 2010 Ford Mustang
Test Program: NCAP Side Impact

NHTSA No.: FA0200
Test Date: 9/11/09



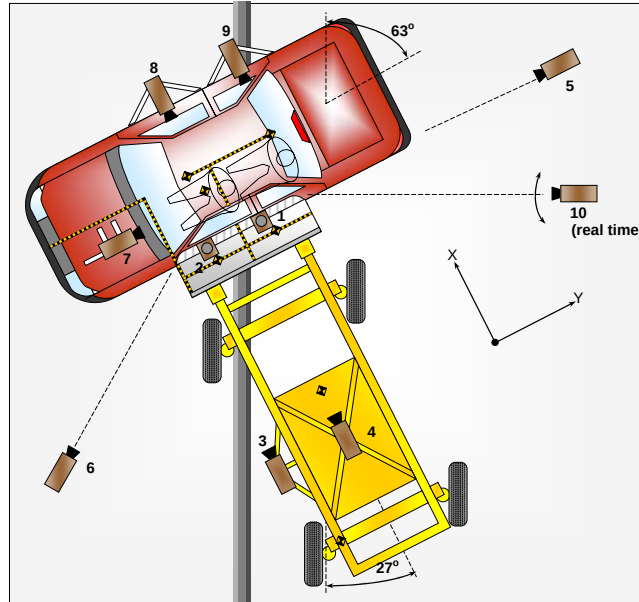
Code	Measurement Description	Units	Driver S/N 001	Passenger S/N 002
HR	Head to Side Header	mm	210	235
HS	Head to Side Window	mm	269	378
AD	Arm to Door (L: lower U: upper)	mm	L: 135 U: 130	L: 41 U: 54
HD	H-Point to Door	mm	140	131

DATA SHEET NO. 5

CAMERA AND INSTRUMENTATION DATA

Test Vehicle: 2010 Ford Mustang
 Test Program: NCAP Side Impact

NHTSA No.: FA0200
 Test Date: 9/11/09



REFERENCE: (from Point of Impact for X and Y; from Ground for Z):
 +X= Forward of MDB, +Y= Rear of vehicle, +Z= Down

No.	Camera View	Location (mm)			Lens (mm)	Frame Speed (fps)
		X	Y	Z		
1	Overhead Wide	250	---	-5750	12.5	1000
2	Overhead Tight	370	---	-5750	25	1000
3	Onboard Cart at MDB left edge	-2400	---	-1100	8.5	1000
4	Onboard cart centerline at struck side	-2400	---	-1110	8.5	1000
5	Vehicle Rear at contact plane	0	10500	-1020	16	1000
6	Left Side Oblique	-3760	-3500	-1020	16	1000
7	Onboard vehicle hood at Driver Dummy	550	-300	-1270	25	1000
8	Onboard vehicle door at Driver Dummy	1700	920	-1120	12.5	1000
9	Onboard vehicle door at Rear Passenger Dummy	1700	1220	-1150	12.5	1000
10	Panning/ Documentary				Zoom	30

*All measurements accurate to ± 6 mm

INSTRUMENTATION

	Number of Channels
Driver and Rear Pass. Dummies	43
Vehicle Structure	21
Moving Deformable Barrier	5
Contact Switches	2
Total No. of Data Channels	71

¹Measurement not recorded

DATA SHEET NO. 6

VEHICLE ACCELEROMETER DATA

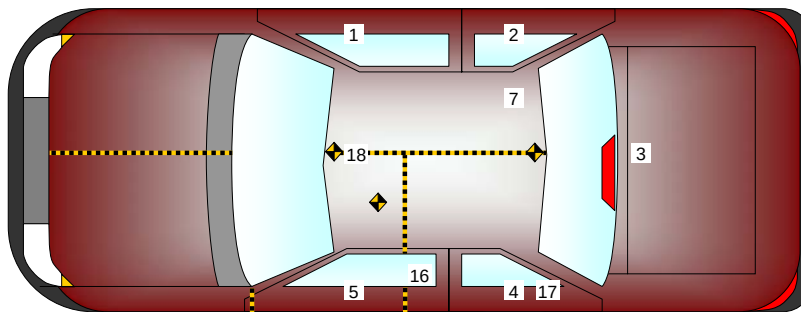
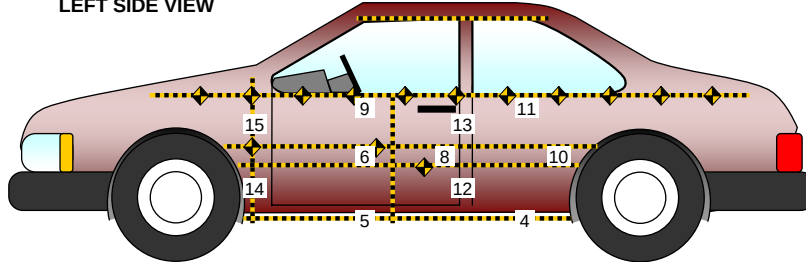
Test Vehicle: 2010 Ford Mustang

NHTSA No.: FA0200

Test Program: NCAP Side Impact

Test Date: 9/11/09

LEFT SIDE VIEW



Loc. No.	Accelerometer Location	Measurements (mm)		
		X	Y	Z
1	Right Sill at Front Seat	2895	670	282
2	Right Sill at Rear Seat	2135	693	260
3	Rear Floorpan Above Axle	1220	0	612
4	Left Sill at Rear Seat	2163	-693	165
5	Left Sill at Front Seat	2865	-670	271
6	Left Front Door C/L	--- ¹	--- ¹	--- ¹
7	Rear Occupant Compartment	2071	500	516
8	Left Front Door Mid-Rear	--- ¹	--- ¹	--- ¹
9	Left Front Door Upper C/L	--- ¹	--- ¹	--- ¹
10	Left Rear Door Mid-Rear	--- ¹	--- ¹	--- ¹
11	Left Rear Door Upper C/L	--- ¹	--- ¹	--- ¹
12	Left Lower B-Post	2115	-735	591
13	Left Middle B-Post	2050	-735	844
14	Left Lower A-Post	3292	-791	450
15	Left Middle A-Post	3295	-785	830
16	Front Seat Track	2470	-573	248
17	Rear Seat Track or Structure	1932	-560	580
18	Vehicle CG	2665	0	320

¹Door Accelerometers were not required.

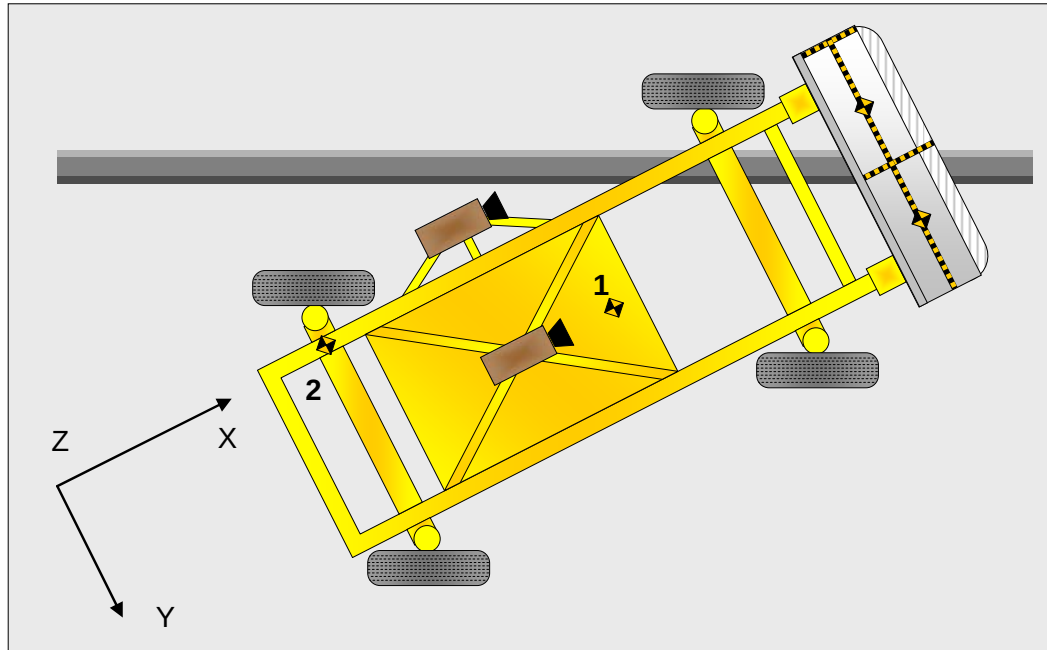
Reference Points: X - Test Vehicle Rear Bumper (+ forward)
Y - Test Vehicle Centerline (+ to right)
Z - Ground Plane (+ up)

DATA SHEET NO. 7

MDB DATA

Test Vehicle: 2010 Ford Mustang
 Test Program: NCAP Side Impact

NHTSA No.: FA0200
 Test Date: 9/11/09



Loc. No.	Accelerometer Location	Measurements (mm)		
		X	Y	Z
1	MDB CG	1855	0	-520
2	MDB Rear	412	-677	-625

Reference Points:
 X - Test Vehicle Rear Bumper (+ forward)
 Y - Test Vehicle Centerline (+ to right)
 Z - Ground Plane (+ down)

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	1104

MDB WEIGHTS

	Units	Front Axle	Rear Axle	Total
Left	kg	372.0	308.8	
Right	kg	411.6	275.2	
Ratio	%	57.3	42.7	
Totals	kg	783.6	584.0	1367.6

DATA SHEET NO. 8**POST TEST OBSERVATIONS**

Test Vehicle: 2010 Ford Mustang
 Test Program: NCAP Side Impact

NHTSA No.: FA0200
 Test Date: 9/11/09

TEST DUMMY INFORMATION AND CONTACT POINTS

Description	Front Seat SID/HIII	Rear Seat SID/HIII
Dummy Type / Serial No.	SID/HIII / 001	SID/HIII / 002
Head Contact	Head rest	Side header
Upper Torso Contact	Side seat airbag	Interior side panel
Lower Torso Contact	Side seat airbag	Interior side panel
Left Knee Contact	None	None
Right Knee Contact	None	None

POST TEST DOOR OPENING AND SEAT TRACK INFORMATION

Description	Left Front (Driver)	Left Rear Passenger
Locked/Unlocked Doors	Unlocked	Not Applicable
Left Side Door Opening	Jammed and latched	Not Applicable
Right Side Door Opening	Remained closed and operational	Not Applicable
Seat Movement	None	None
Seat Back Failure	None	None

POST TEST STRUCTURAL OBSERVATIONS

Critical Areas of Performance	Observations and Conclusions
Pillar Performance	Did not separate from vehicle
Sill Separation	Did not separate from vehicle
Windshield Damage	None
Window Damage	Left front and left rear shattered
Other Notable Effects	None

SUPPLEMENTAL RESTRAINT SYSTEM INFORMATION

Restraint Type	Left Front (Driver) Occupant Location 01		Left Rear (Passenger) Occupant Location 04	
	Installed	Operated	Installed	Operated
Front Airbag	Yes	No	No	N/A
Side Torso Airbag	No	N/A	No	N/A
Head Airbag	No	N/A	No	N/A
Head/Torso Side Airbag	Yes	Yes	No	N/A
Curtain Airbag	No	N/A	No	N/A
Seat Belt Pretensioner	Yes	Unknown	No	N/A
Seat Belt Load Limiter	No	N/A	No	N/A

DATA SHEET NO. 8 (Continued)

POST TEST OBSERVATIONS

Test Vehicle: 2010 Ford Mustang
Test Program: NCAP Side Impact

NHTSA No.: FA0200
Test Date: 9/11/09

SPEED AND IMPACT DATA

Measured Parameter	Units	Requirement	Value
Trap No. 1 Velocity (Primary)	km/h	61.1 to 62.7	62.1
Trap No. 2 Velocity (Redundant)	km/h	61.1 to 62.7	62.1
MDB CL to Target Vehicle CL	degrees	88.5 to 91.5	90.0

IMPACT TARGET DATA

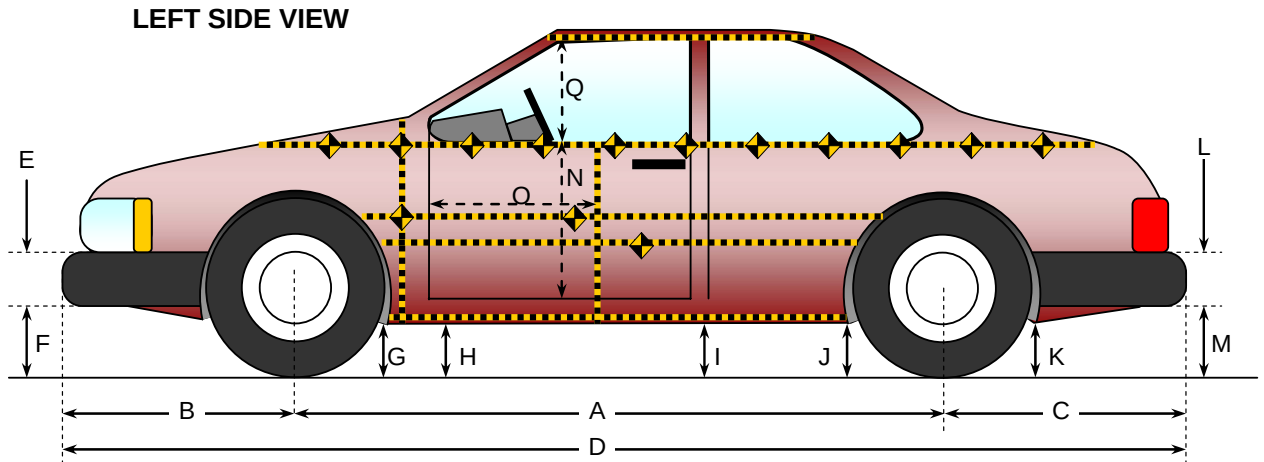
Measured Parameter	Units	Requirement	Primary Value	Redundant
Horizontal Offset	mm	+/- 50	14 mm left	11 mm left
Vertical Offset	mm	+/- 20	5 mm up	3 mm up

DATA SHEET NO. 9

VEHICLE PROFILE MEASUREMENTS

Test Vehicle: 2010 Ford Mustang
 Test Program: NCAP Side Impact

NHTSA No.: FA0200
 Test Date: 9/11/09



All Measurements in mm

Code	Measurement Description	Pre-Test	Post-Test	Difference
A	Wheelbase	2715	2715	0
B	Front Axle to Front Surface of Vehicle	911	950	-39
C	Rear Axle to Rear Surface of Vehicle	1119	1095	24
D	Total Length at Centerline	4745	4760	-15
E	Front Bumper Thickness	114	114	0
F	Front Bumper Bottom to Ground	403	427	-24
G	Sill Height at Front Wheel Well	233	248	-15
H	Sill Height at Front Door Leading Edge	205	250	-45
I	Sill Height at "B" Pillar	240	294	-54
J1	Sill Height at Rear Wheel Well	150	198	-48
J2	Pinch Weld Height at Rear Wheel Well	242	297	-55
K	Sill Height Aft of Rear Wheel Well	---- ¹	---- ¹	---- ¹
L	Rear Bumper Thickness	183	183	0
M	Rear Bumper Bottom to Ground	---- ¹	---- ¹	---- ¹
N	Sill Height to Window Bottom Sill	---- ²	---- ²	---- ²
O	Front Door Leading Edge to Impact CL	520	520	0
P	Rear Door Trailing Edge to Impact CL	---- ²	---- ²	---- ²
Q	Front Window Opening	354	390	-36
R	Right Side Length	4535	4550	-15
S	Left Side Length	4535	4520	15
T	Vehicle Width at "B" Post	1496	1430	66
	Maximum Width	1880	1855	25

¹Rear bumper fascia was removed to achieve test weight.

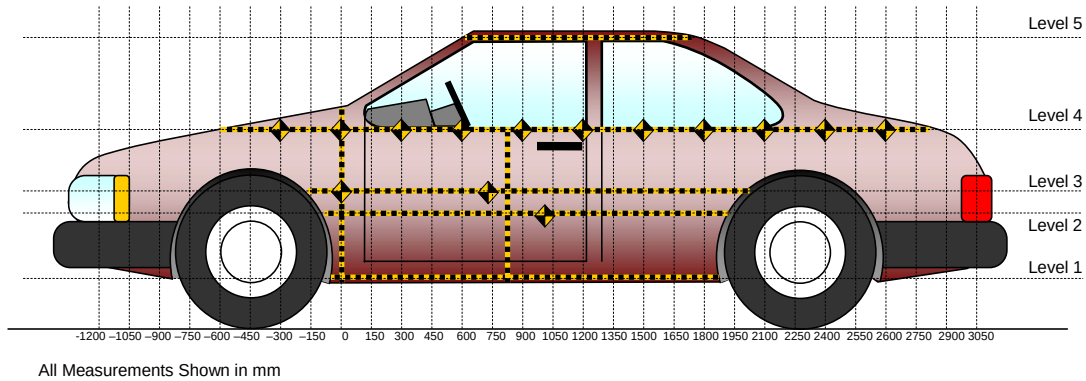
²Test vehicle was a 2-door.

DATA SHEET NO. 10

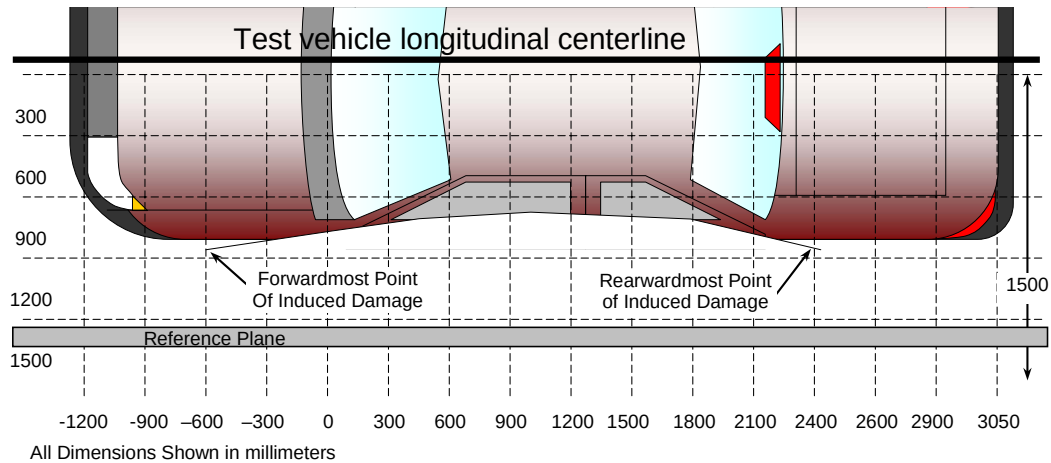
VEHICLE EXTERIOR CRUSH MEASUREMENTS

Test Vehicle: 2010 Ford Mustang
 Test Program: NCAP Side Impact

NHTSA No.: FA0200
 Test Date: 9/11/09



LEFT SIDE VIEW



TOP VIEW

Measurements are taken with vehicle in the as tested condition.
 All measurements below in mm.

MAXIMUM EXTERIOR STATIC CRUSH

Level	Measurement Description	Maximum Exterior Static Crush	Distance From Impact	Height Above Ground
5	Window Top	19	1050	1240
4	Window Sill	104	1500	925
3	Mid Door	140	1800	643
2	Occupant H-Point	186	300	495
1	Sill Top	18	750 & 900	270
Maximum Penetration			186	

DATA SHEET NO. 10 (CONTINUED)

VEHICLE EXTERIOR CRUSH MEASUREMENTS

Test Vehicle: 2010 Ford Mustang
Test Program: NCAP Side Impact

NHTSA No.: FA0200
Test Date: 9/11/09

	Pre-Test					Post-Test					Difference				
	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
-900															
-750															
-600															
-450															
-300															
-150			-925					-902					23		
0	-876	-916	-913	-811		-874	-835	-862	-814		2	81	51	-3	
150	-868	-907	-914	-821		-866	-757	-821	-837		2	150	93	-16	
300	-869	-907	-914	-830	-790	-861	-721	-797	-839	-801	8	186	117	-9	-11
450	-863	-909	-914	-838	-751	-850	-869	-846	-824	-764	13	40	68	14	-12
600	-864	-912	-915	-846	-712	-847	-838	-821	-806	-725	17	74	94	40	-13
750	-864	-914	-916	-852	-675	-846	-819	-797	-791	-688	18	95	119	61	-13
900	-864	-916	-916	-856	-641	-846	-812	-790	-783	-654	18	104	126	73	-13
1050	-862	-918	-916	-860	-625	-847	-813	-781	-766	-644	15	105	135	94	-19
1200	-861	-919	-916	-864	-617	-850	-819	-790	-762	-633	11	100	126	102	-16
1350	-859	-921	-915	-867	-616	-851	-843	-800	-782	-631	8	78	115	85	-15
1500	-856	-919	-913	-869	-629	-853	-851	-821	-765	-644	3	68	92	104	-15
1650	-852	-916	-944	-874	-632	-854	-757	*	-805	-645	-2	159	*	69	-13
1800	-849	-914	-922	-880	-643	-854	-823	-782	-798	-655	-5	91	140	82	-12
1950			-932	-882	-647			-867	-849	-661			65	33	-14
2100				-880	-654				-865	-668				15	-14
2250				-877	-662				-866	-671				11	-9
2400				-871					-859					12	
2550				-862					-852					10	
2700				-851					-845					6	

Reference plane is parallel to test vehicle longitudinal centerline.

Given measurements = Reference plane to car body

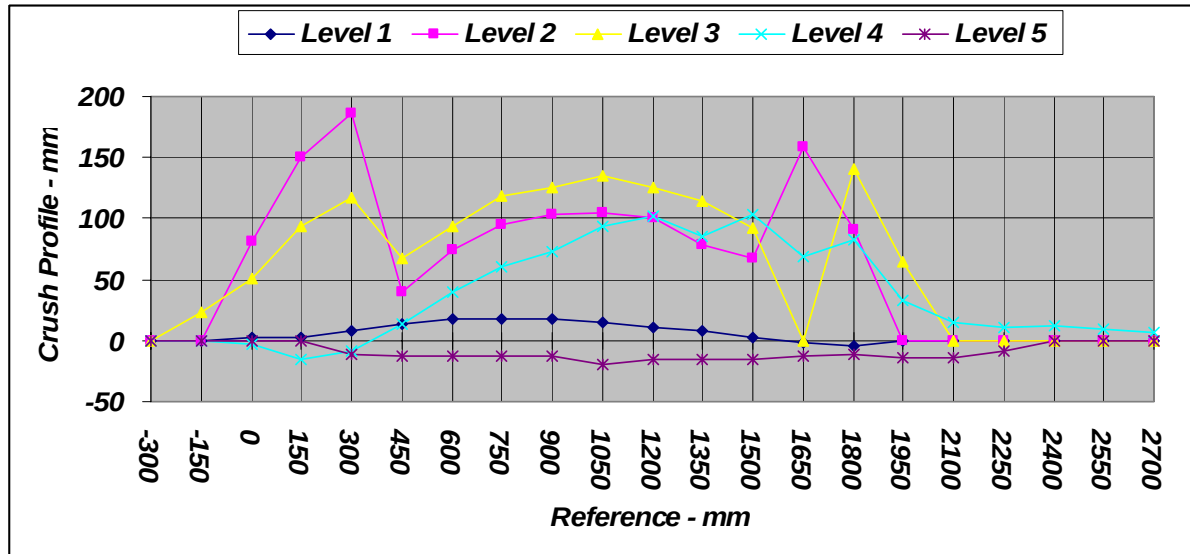
* Denotes missing point

DATA SHEET NO. 10 (CONTINUED)

VEHICLE EXTERIOR CRUSH MEASUREMENTS

Test Vehicle: 2010 Ford Mustang
Test Program: NCAP Side Impact

NHTSA No.: FA0200
Test Date: 9/11/09



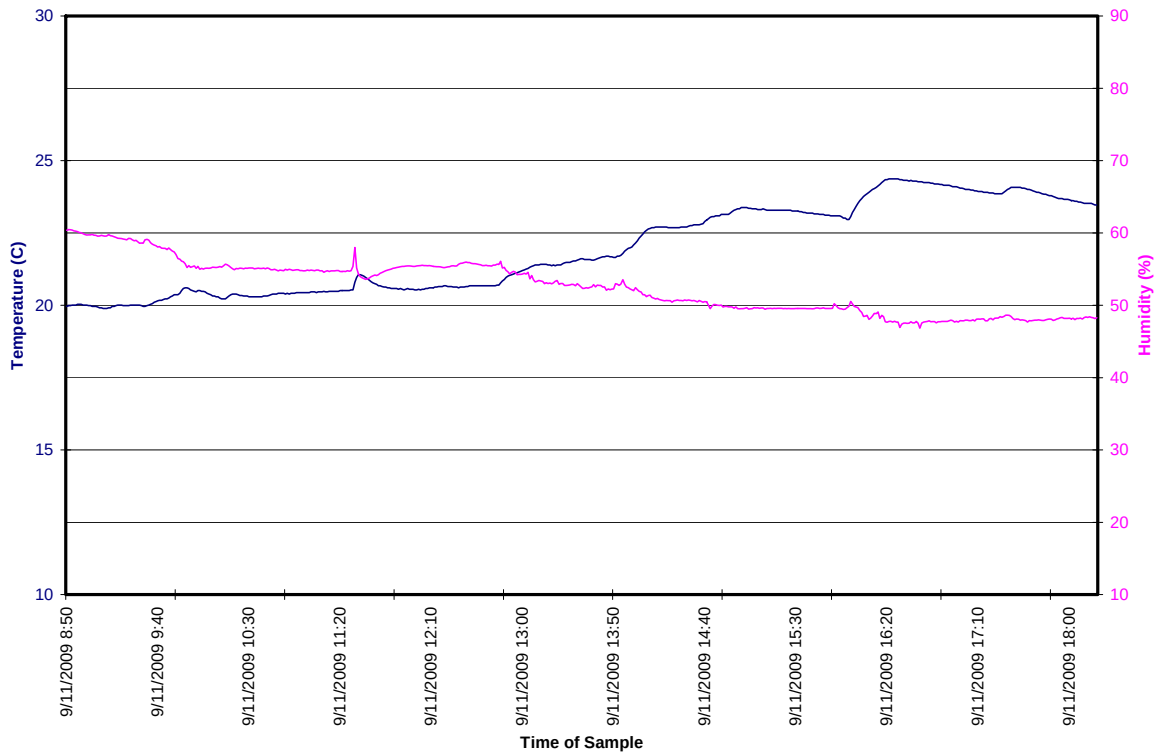
DATA SHEET NO. 11

DUMMY/VEHICLE TEMPERATURE STABILIZATION DATA

Test Vehicle: 2010 Ford Mustang
Test Program: NCAP Side Impact

NHTSA No.: FA0200
Test Date: 9/11/09

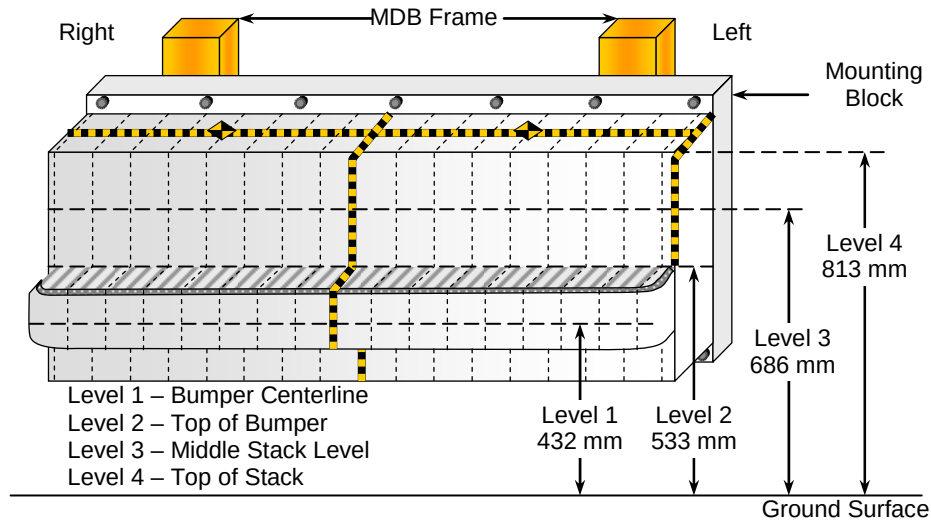
2010 FORD MUSTANG LEFT SIDE IMPACT AT 62 KM/H, Test Time: 16:03



DEFORMABLE BARRIER HONEYCOMB FACE STATIC CRUSH

Test Vehicle: 2010 Ford Mustang
Test Program: NCAP Side Impact

NHTSA No.: FA0200
Test Date: 9/11/09



DEFORMABLE BARRIER STATIC CRUSH

Stack	Distance Right of Center									C/L	Distance Left of Center								
Level	800	700	600	500	400	300	200	100	0	100	200	300	400	500	600	700	800		
1	-267	-270	-270	-248	-230	-208	-186	-170	-162	-155	-149	-149	-158	-186	-184	-176	-170		
2 ¹	-198	-195	-185	-162	-144	-123	-107	-97	-90	-84	-78	-79	-85	-99	-98	-108	-116		
3	-134	-134	-136	-85	-63	-47	-38	-35	-35	-35	-39	-49	-68	-108	-131	-134	-142		
4	-137	-133	-108	-74	-54	-32	-36	-43	-49	-61	-72	-85	-103	-135	-163	-160	-177		

All measurements were recorded using TRC Inc.'s FARO Arm with a tolerance of + 0.1 mm.

¹ Top Bumper measurements are collected at 560 mm to eliminate post-test measurement point obstruction by the bumper element.

SUMMARY OF FMVSS 301 DATA

Test Vehicle: 2010 Ford Mustang
 Test Program: NCAP Side Impact

NHTSA No.: FA0200
 Test Date: 9/11/09

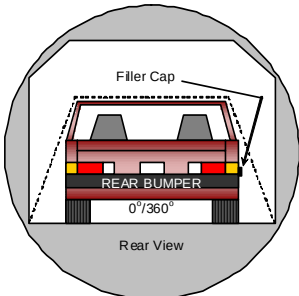
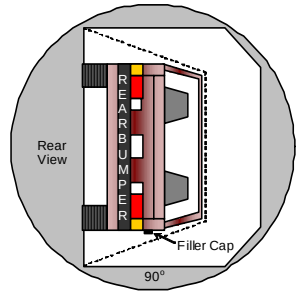
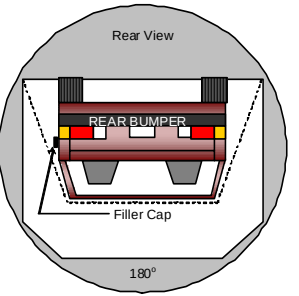
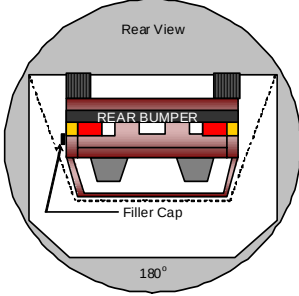
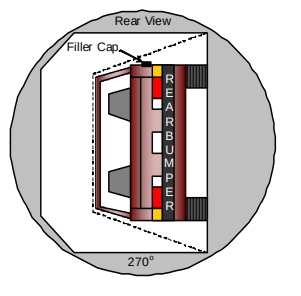
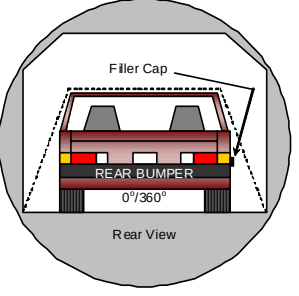
FMVSS 301 FUEL SYSTEM INTEGRITY POST IMPACT DATA

Rollover Start Time: 17:40

Stoddard Solvent Spillage Measurements

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

FMVSS 301 STATIC ROLLOVER DATA

			1. The specified fixture rollover rate for each 90° of rotation is 60 to 180 seconds. 2. The position hold time at each position is 300 seconds (minimum). 3. Details of Stoddard Solvent spillage locations: None	
0° to 90°		90° to 180°		
				
180° to 270°		270° to 360°		

Test Phase	Rotation Time (sec.)	Hold Time (sec.)	Spillage Collection Time (min)	Spillage (oz.)	Spillage Collection Time (min)	Spillage (oz.)	Spillage Collection Time (min)	Spillage (oz.)
0° to 90°	120	300	First 5	0	Sixth	0	Seventh	0
90° to 180°	120	300	First 5	0	Sixth	0	Seventh	0
180° to 270°	120	300	First 5	0	Sixth	0	Seventh	0
270° to 360°	120	300	First 5	0	Sixth	0	Seventh	0

APPENDIX A
PHOTOGRAPHS

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Figure A-1 Pre-Test Front View of Test Vehicle

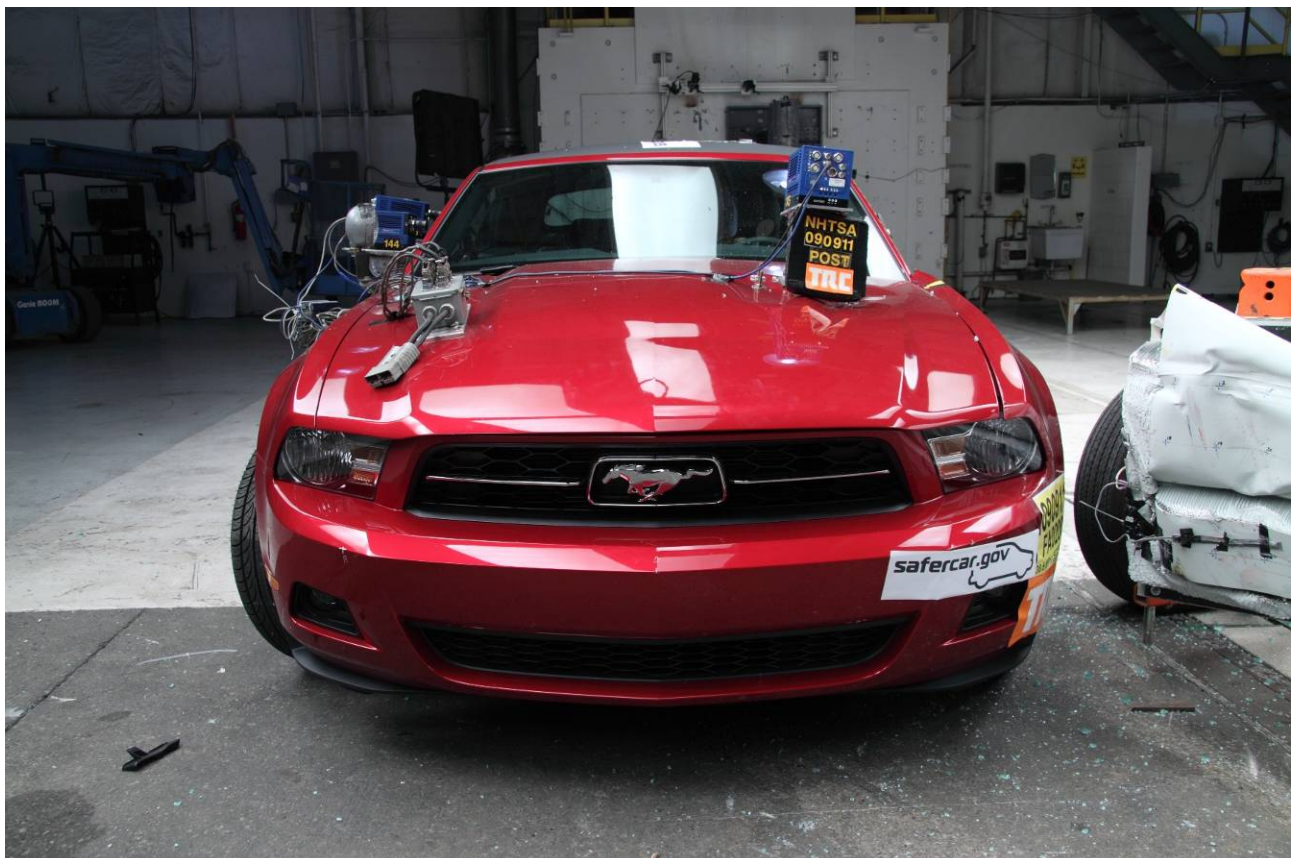


Figure A-2 Post-Test Front View of Test Vehicle



Figure A-3 Pre-Test Left Front View of Test Vehicle



Figure A-4 Post-Test Left Front View of Test Vehicle



Figure A-5 Pre-Test Impacted Side View of Test Vehicle



Figure A-6 Post-Test Impacted Side View of Test Vehicle



Figure A-7 Pre-Test Left Rear View of Test Vehicle



Figure A-8 Post-Test Left Rear View of Test Vehicle



Figure A-9 Pre-Test Rear View of Test Vehicle



Figure A-10 Post-Test Rear View of Test Vehicle



Figure A-11 Pre-Test Right Rear View of Test Vehicle



Figure A-12 Post-Test Right Rear View of Test Vehicle



Figure A-13 Pre-Test Right Side View of Test Vehicle



Figure A-14 Post-Test Right Side View of Test Vehicle



Figure A-15 Pre-Test Right Front View of Test Vehicle



Figure A-16 Post-Test Right Front View of Test Vehicle

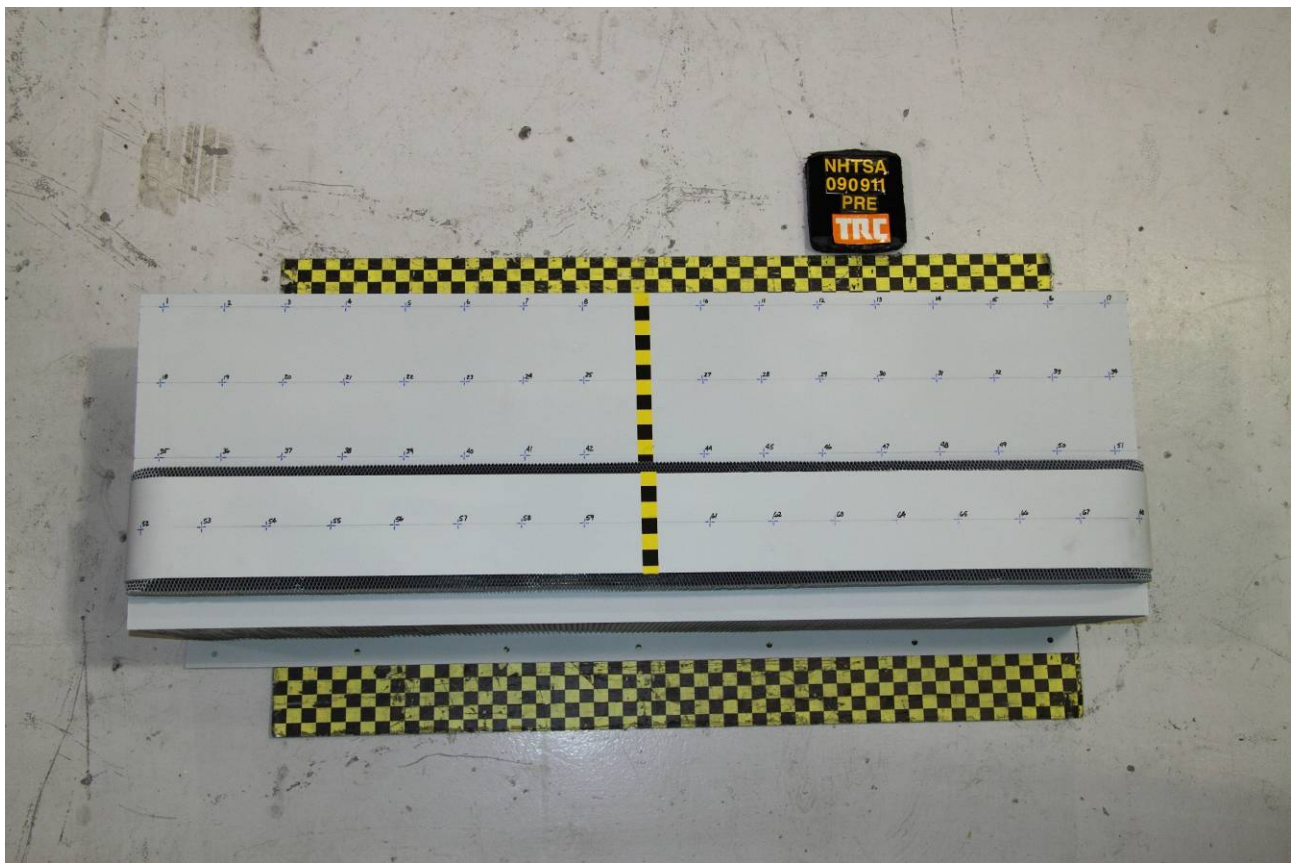


Figure A-17 Pre-Test Frontal View of Impactor Face



Figure A-18 Post-Test Frontal View of Impactor Face



Figure A-19 Pre-Test Left Side View of Impactor Face



Figure A-20 Post-Test Left Side View of Impactor Face



Figure A-21 Pre-Test Right Side View of Impactor Face

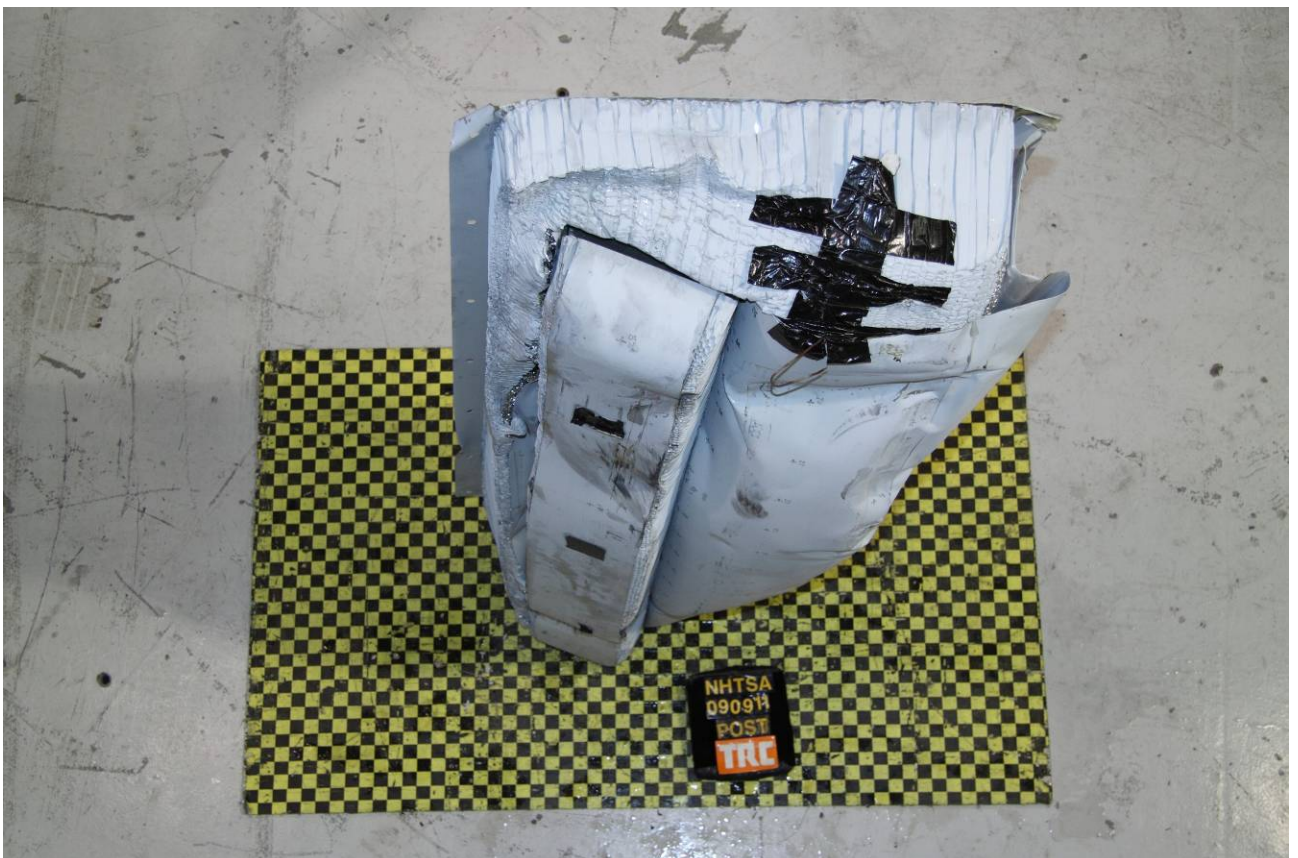


Figure A-22 Post-Test Right Side View of Impactor Face

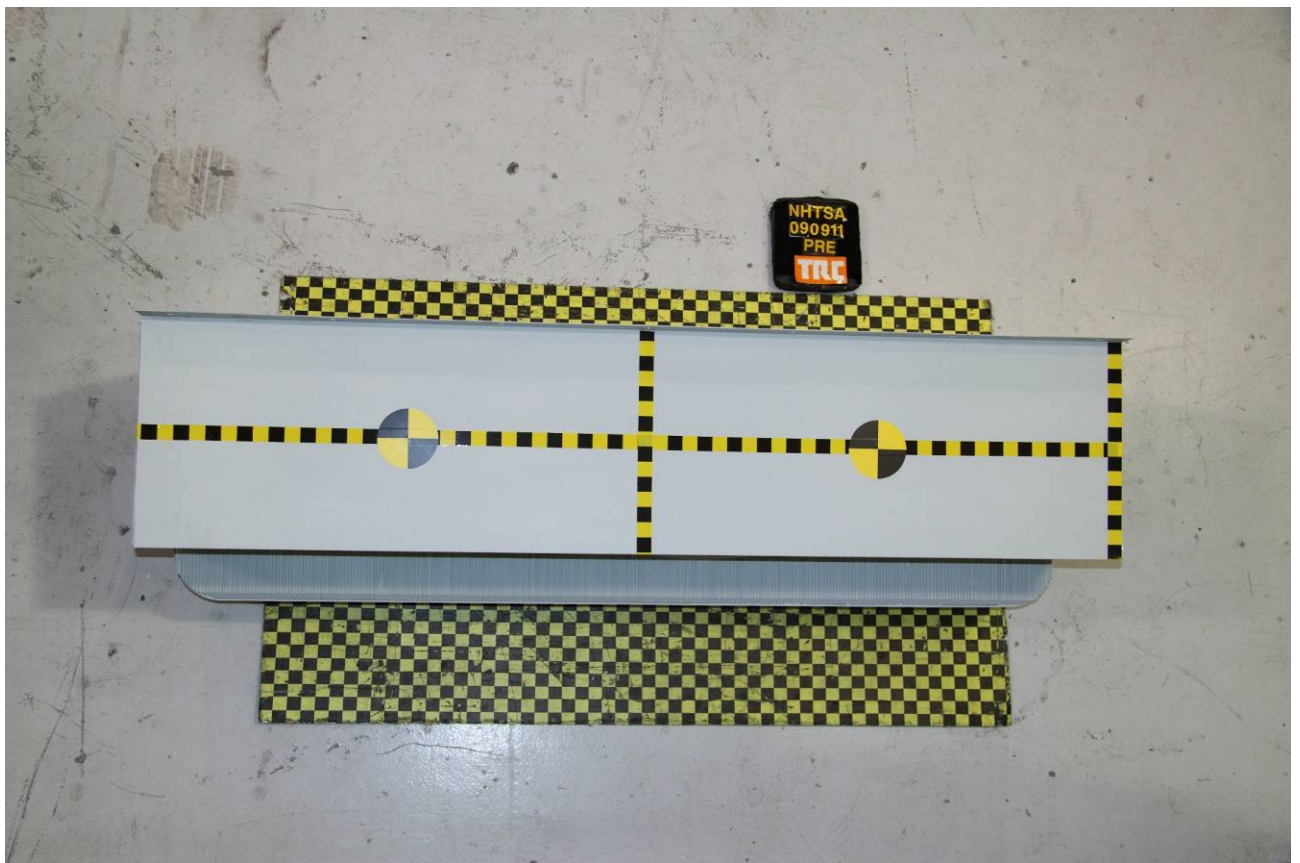


Figure A-23 Pre-Test Top View of Impactor Face

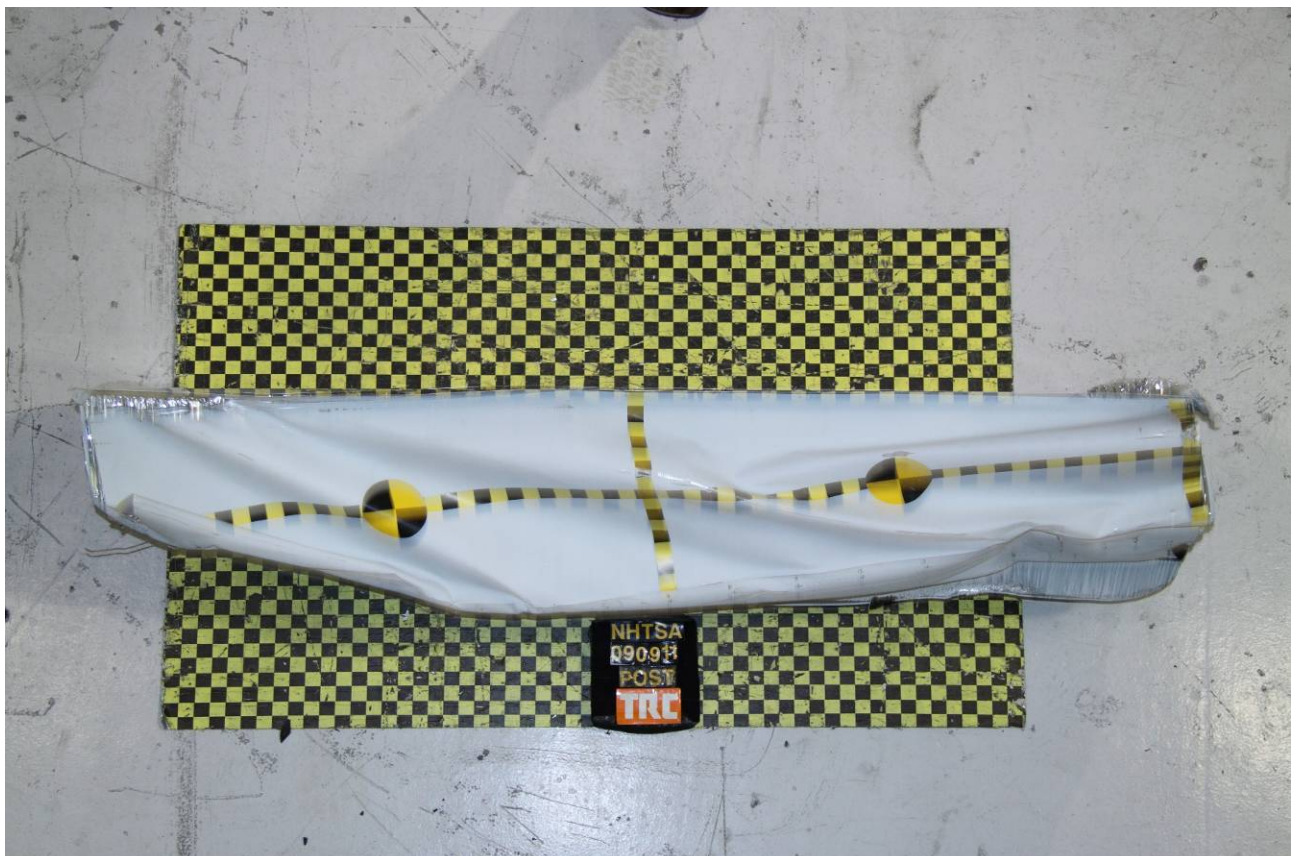


Figure A-24 Post-Test Top View of Impactor Face



Figure A-25 Pre-Test Left Side View of Impactor



Figure A-26 Post-Test Left Side View of Impactor



Figure A-27 Pre-Test Right Side View of Impactor



Figure A-28 Post-Test Right Side View of Impactor



Figure A-29 Pre-Test Top View of Impactor



Figure A-30 Post-Test Top View of Impactor



Figure A-31 Pre-Test Left Side Overall View of Impactor



Figure A-32 Post-Test Left Side Overall View of Impactor



Figure A-33 Pre-Test Right Side Overall View of Impactor



Figure A-34 Post-Test Right Side Overall View of Impactor



Figure A-35 Pre-Test View of MDB Showing Contact Switches in Place



Figure A-36 Post-Test View of MDB Showing Contact Switches in Place



Figure A-37 Pre-Test Overhead View of MDB Aligned with Vehicle

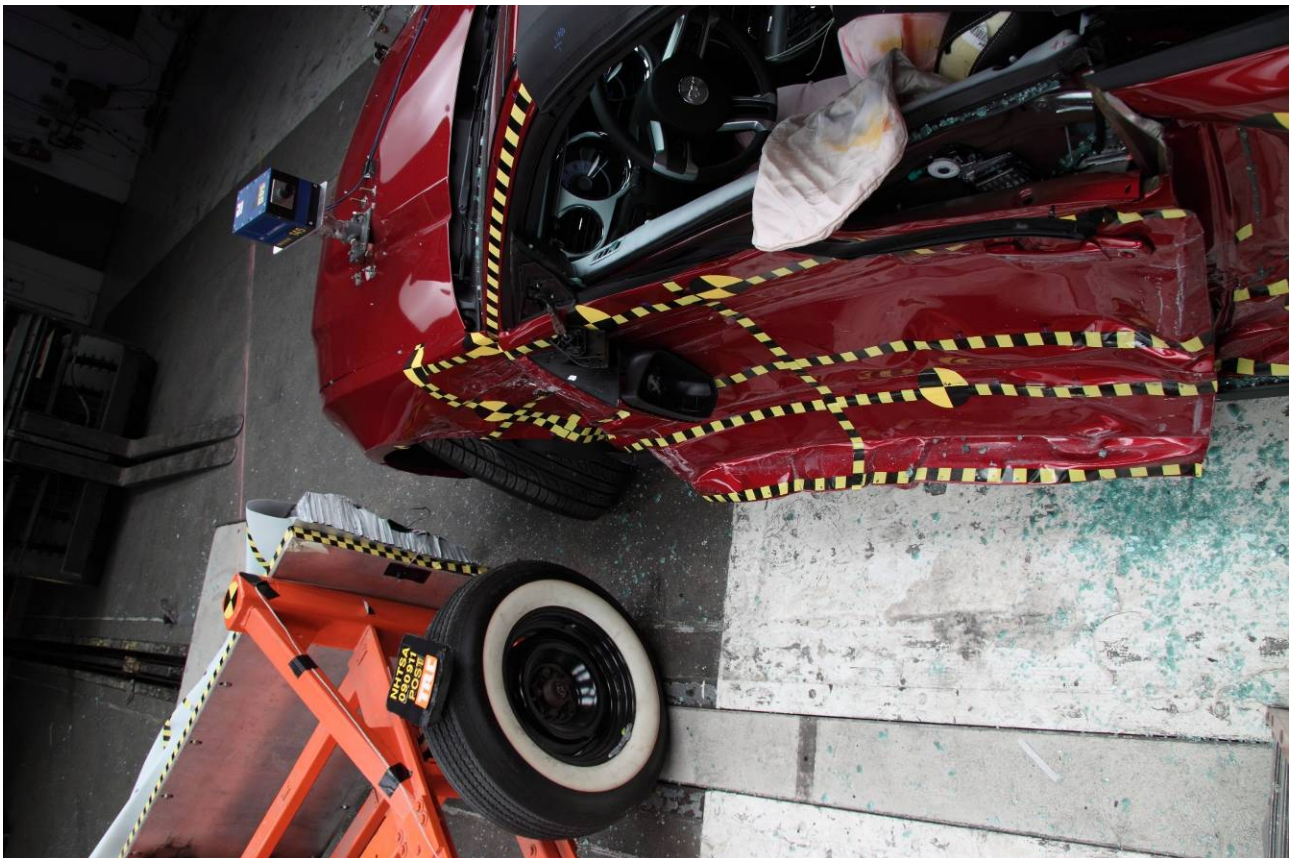


Figure A-38 Post-Test Overhead View of MDB and Vehicle



Figure A-39 Pre-Test Right Occupant Compartment View of Front SID HIII



Figure A-40 Post-Test Right Occupant Compartment View of Front SID HIII



Figure A-41 Pre-Test Right Occupant Compartment View of Rear SID HIII



Figure A-42 Post-Test Right Occupant Compartment View of Rear SID HIII



Figure A-43 Pre-Test Left View of Front SID HIII



Figure A-44 Post-Test Left View of Front SID HIII



Figure A-45 Pre-Test Left View of Front SID HIII and Belt Position

Intentionally Left Blank



Figure A-46 Pre-Test Left View of Front SID HIII and Door Clearance



Figure A-47 Post-Test Left View of Front SID HIII and Door Clearance



Figure A-48 Pre-Test Left View of Rear SID HIII

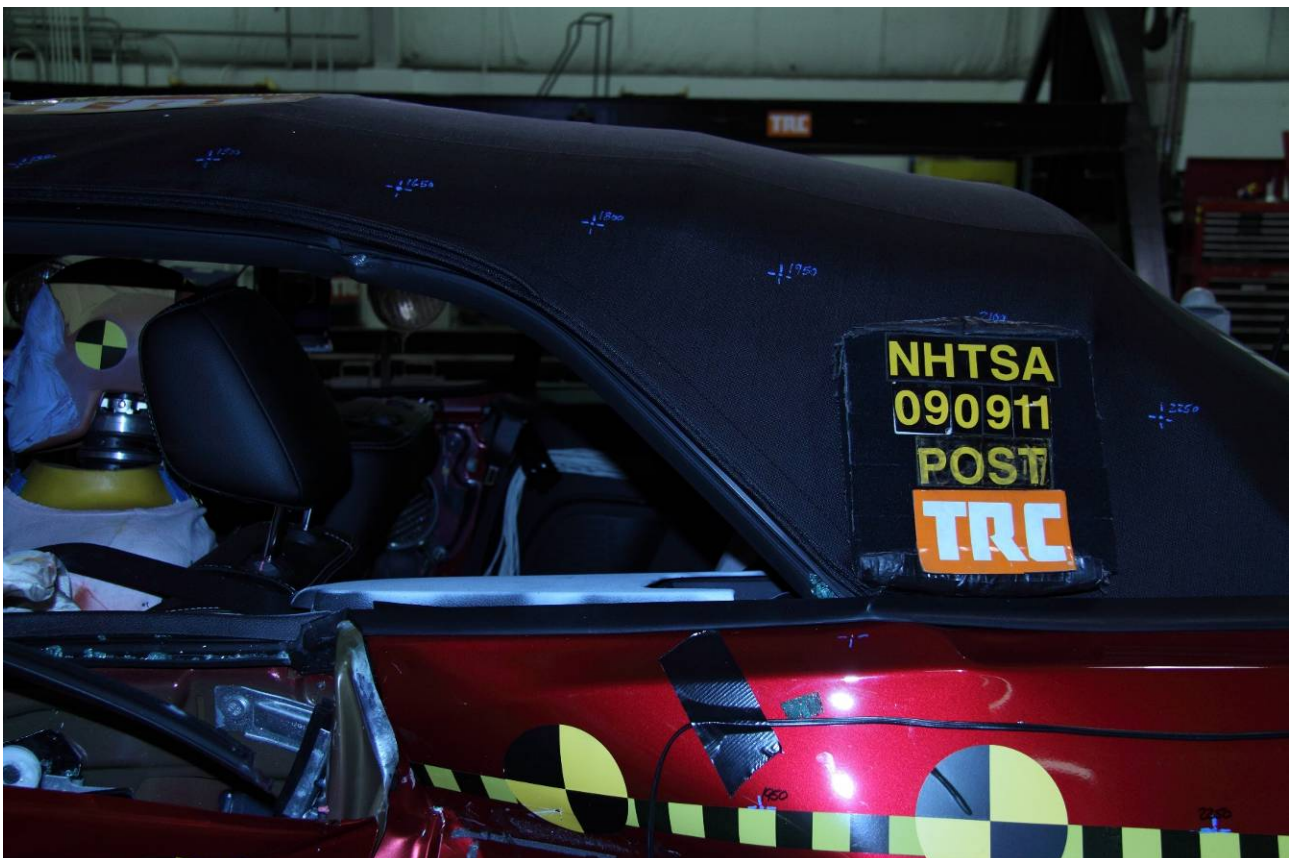


Figure A-49 Post-Test Left View of Rear SID HIII



Figure A-50 Pre-Test Left View of Rear SID HIII and Belt Position

Intentionally Left Blank



Figure A-51 Pre-Test Left View of Rear SID HIII and Door Clearance



Figure A-52 Post-Test Left View of Rear SID HIII and Door Clearance



Figure A-53 Pre-Test Interior of Front Door



Figure A-54 Post-Test Interior of Front Door Showing SID HIII Impact Locations

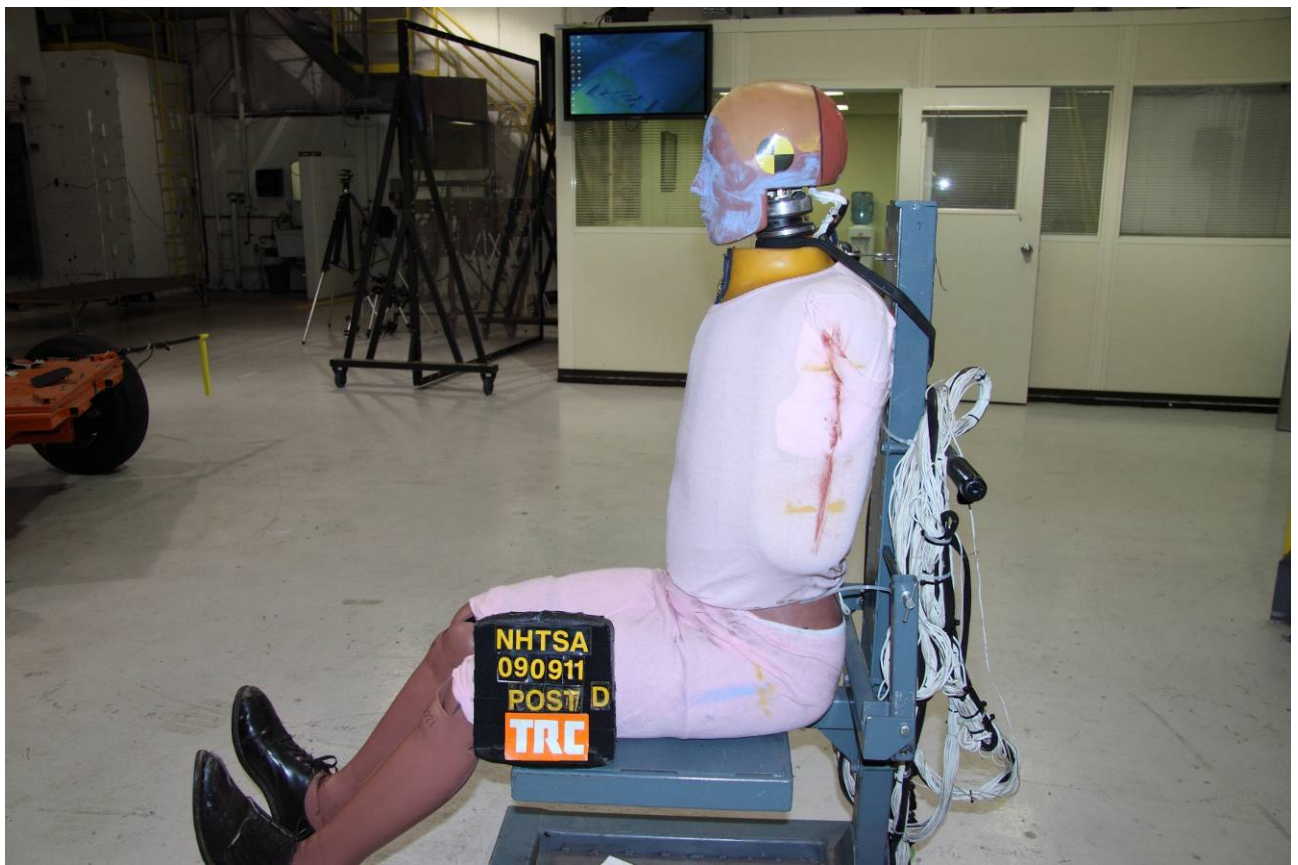


Figure A-55 Post-Test Front SID HIII Contact – View 1



Figure A-56 Post-Test Front SID HIII Contact – View 2



Figure A-57 Post-Test Front SID HIII Contact – View 3

Intentionally Left Blank



Figure A-58 Pre-Test Interior of Rear Side Panel



Figure A-59 Post-Test Interior of Rear Side Panel

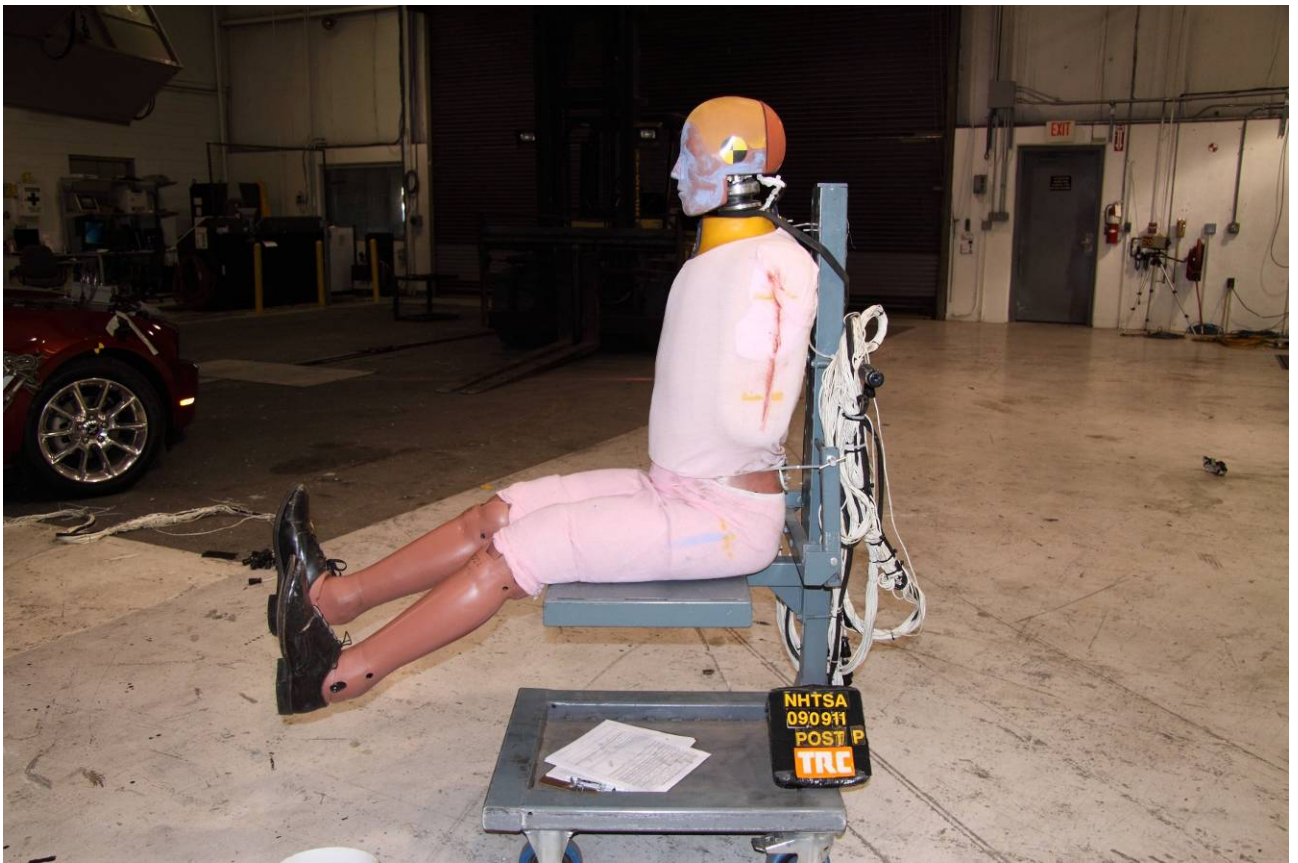


Figure A-60 Post-Test Rear SID HIII Contact – View 1



Figure A-61 Post-Test Rear SID Contact – View 2



Figure A-62 Post-Test Rear SID HIII Contact – View 3



Figure A-63 Post-Test Rear SID HIII Contact – View 4



Figure A-64 Pre-Test Left Side View of MDB with Impactor Face in Position



Figure A-65 Post-Test Left Side View of MDB with Impactor Face in Position



Figure A-66 Pre-Test Primary Impact Point View

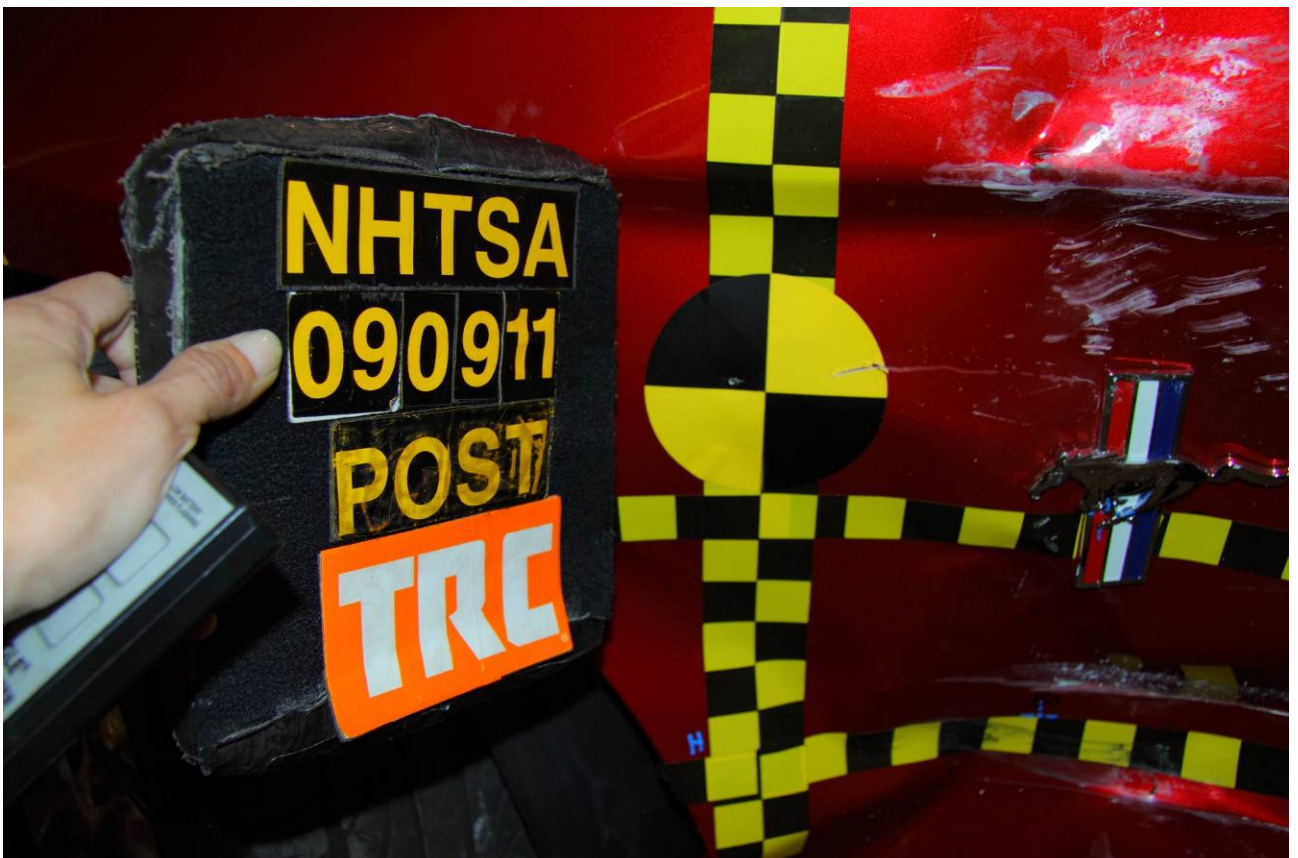


Figure A-67 Post-Test Primary Impact Point View



Figure A-68 Pre-Test Right Side View of MDB with Impactor Face in Position



Figure A-69 Post-Test Right Side View of MDB with Impactor Face in Position



Figure A-70 Pre-Test Secondary Impact Point View



Figure A-71 Post-Test Secondary Impact Point View



Figure A-72 Pre-Test Overhead View of MDB with Impactor Face in Position



Figure A-73 Pre-Test Vehicle Certification Label View



Figure A-74 Pre-Test Vehicle Recommended Tire Pressure Label View



Figure A-75 Post-Test Light Trap Digital Readout – View 1



Figure A-76 Post-Test Light Trap Digital Readout – View 2



Figure A-77 Post-Test Light Trap Digital Readout – View 3



Figure A-78 Impact Event

Intentionally Left Blank



Figure A-79 Pre-Test Fuel Cap



Figure A-80 Post-Test Fuel Cap



Figure A-81 FMVSS 301 Rollover View at 90°



Figure A-82 FMVSS 301 Rollover View at 180°



Figure A-83 FMVSS 301 Rollover View at 270°



Figure A-84 FMVSS 301 Rollover View at 360°

APPENDIX B
SID/HIII, VEHICLE AND MDB RESPONSE DATA

Data Plot	LIST OF DATA PLOTS PROVIDED IN THE TEST REPORT	Page
B-1	Driver Upper Rib Primary Y	B-5
B-1	Driver Lower Rib Primary Y	B-5
B-1	Driver Lower Spine Primary Y	B-5
B-1	Driver Pelvis Y	B-5
B-2	Driver Upper Rib Redundant Y	B-6
B-2	Driver Lower Rib Redundant Y	B-6
B-2	Driver Lower Spine Redundant Y ¹	B-6
B-3	Passenger Upper Rib Primary Y	B-7
B-3	Passenger Lower Rib Primary Y	B-7
B-3	Passenger Lower Spine Primary Y	B-7
B-3	Passenger Pelvis Y	B-7
B-4	Passenger Upper Rib Redundant Y	B-8
B-4	Passenger Lower Rib Redundant Y	B-8
B-4	Passenger Lower Spine Redundant Y	B-8

¹Reference Test Notes on page 3 of this report

The following additional data plots for this test can be obtained from the Research and Development section of the NHTSA website. The website can be found at:

www.nhtsa.dot.gov.

Data Plot	LIST OF DATA PLOTS (CONTINUED)
	Driver Head X Primary
	Driver Head Y Primary
	Driver Head Z Primary
	Driver Head X Redundant
	Driver Head Y Redundant
	Driver Head Z Redundant
	Driver Upper Neck Force X
	Driver Upper Neck Force Y
	Driver Upper Neck Force Z
	Driver Upper Neck Moment X
	Driver Upper Neck Moment Y
	Driver Upper Neck Moment Z
	Driver Upper Rib Primary Y
	Driver Upper Rib Redundant Y
	Driver Lower Rib Primary Y
	Driver Lower Rib Redundant Y
	Driver Lower Spine Y
	Driver Lower Spine Redundant Y
	Driver Pelvis Y
	Left Rear Passenger Head X Primary
	Left Rear Passenger Head Y Primary
	Left Rear Passenger Head Z Primary
	Left Rear Passenger Head X Redundant
	Left Rear Passenger Head Z Redundant
	Left Rear Passenger Upper Neck Force X
	Left Rear Passenger Upper Neck Force Y
	Left Rear Passenger Upper Neck Force Z
	Left Rear Passenger Upper Neck Moment X
	Left Rear Passenger Upper Neck Moment Y
	Left Rear Passenger Upper Neck Moment Z
	Left Rear Passenger Upper Rib Primary Y
	Left Rear Passenger Upper Rib Redundant Y

Data Plot	LIST OF DATA PLOTS (CONTINUED)
	Left Rear Passenger Lower Rib Primary Y
	Left Rear Passenger Lower Rib Redundant Y
	Left Rear Passenger Lower Spine Primary Y
	Left Rear Passenger Lower Spine Redundant Y
	Left Rear Passenger Pelvis Y
	Vehicle Right Sill at Front Seat X
	Vehicle Right Sill at Front Seat Y
	Vehicle Right Sill at Front Seat Z
	Vehicle Right Sill at Rear Seat X
	Vehicle Right Sill at Rear Seat Y
	Vehicle Right Sill at Rear Seat Z
	Vehicle Rear Floor Above Axle X
	Vehicle Rear Floor Above Axle Y
	Vehicle Rear Floor Above Axle Z
	Vehicle Left Sill at Front Seat Y
	Vehicle Left Sill at Rear Seat Y
	Vehicle Right Rear Occupant Compartment Y
	Vehicle Left A-Post Lower Y
	Vehicle Left A-Post Middle Y
	Vehicle Left B-Post Lower Y
	Vehicle Left B-Post Middle Y
	Vehicle Left Front Seat Track Y
	Vehicle Left Rear Seat Track Y
	Vehicle CG X
	Vehicle CG Y
	Vehicle CG Z
	MDB CG X
	MDB CG Y
	MDB CG Z
	MDB Rear X
	MDB Rear Y
	MDB Right Bumper Contact
	MDB Left Bumper Contact

NHTSA

Test Lab: CTF

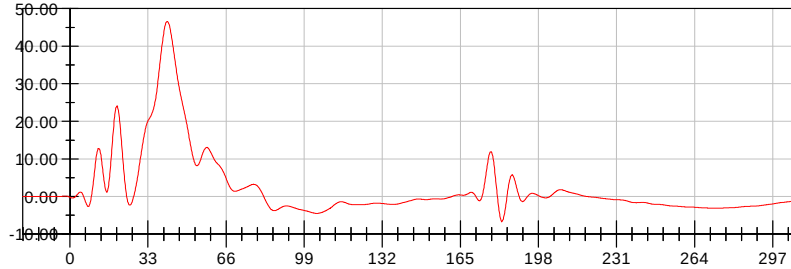
Test Number: 090911 (FA0200)

Position #1 SID H3 Dummy (001)

Position #4 SID H3 Dummy (002)

Test Date: 09/11/2009

DRIVER UPPER RIB Y-AXIS ACCELERATION (g) vs. Time [ms]



<Max>

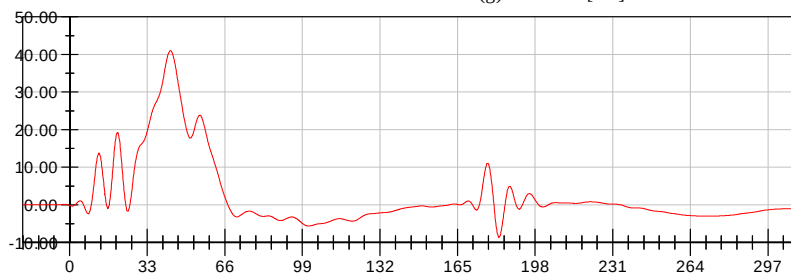
46.62 g at 41.20 ms

<Min>

-6.74 g at 182.50 ms

FIR_100

DRIVER LOWER RIB Y-AXIS ACCELERATION (g) vs. Time [ms]



<Max>

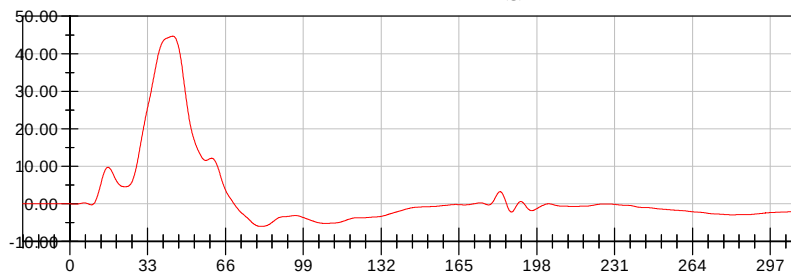
41.03 g at 43.10 ms

<Min>

-8.70 g at 182.50 ms

FIR_100

DRIVER LOWER SPINE Y-AXIS ACCELERATION (g) vs. Time [ms]



<Max>

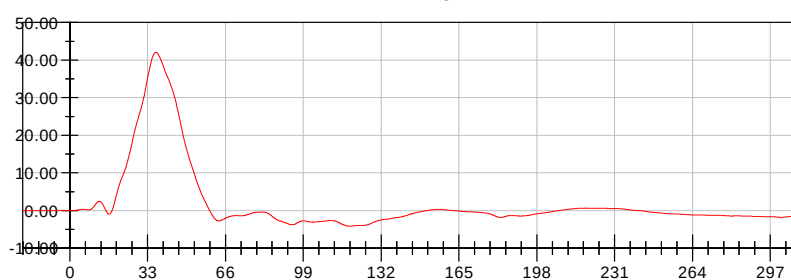
44.71 g at 43.70 ms

<Min>

-6.01 g at 81.20 ms

FIR_100

DRIVER PELVIS Y-AXIS ACCELERATION (g) vs. Time [ms]



<Max>

42.04 g at 36.30 ms

<Min>

-4.12 g at 118.70 ms

FIR_100



NHTSA

Test Lab: CTF

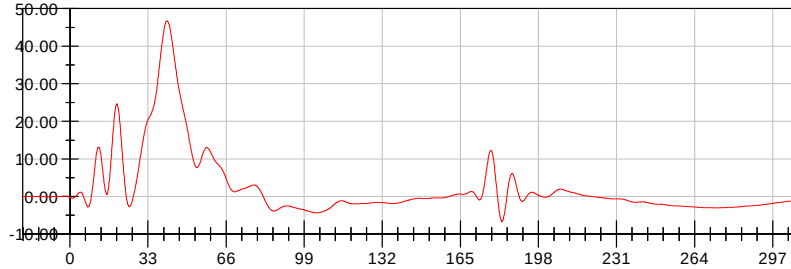
Test Number: 090911 (FA0200)

Position #1 SID H3 Dummy (001)

Position #4 SID H3 Dummy (002)

Test Date: 09/11/2009

DRIVER UPPER RIB Y-AXIS REDUNDANT ACCELERATION (g) vs. Time [ms]



<Max>

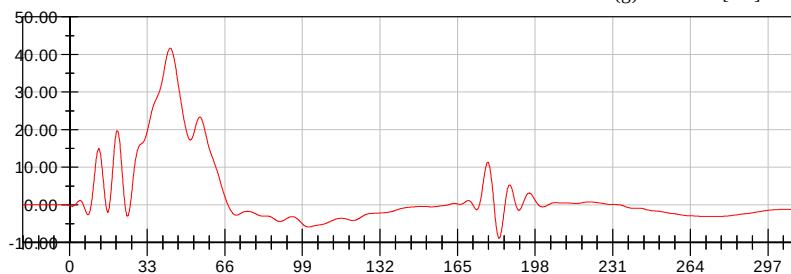
46.77 g at 41.20 ms

<Min>

-6.73 g at 182.50 ms

FIR_100

DRIVER LOWER RIB Y-AXIS REDUNDANT ACCELERATION (g) vs. Time [ms]



<Max>

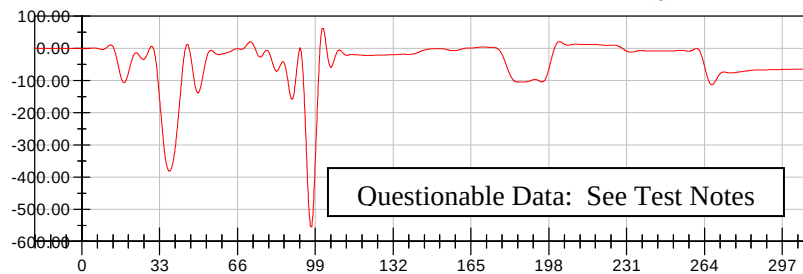
41.65 g at 42.50 ms

<Min>

-8.95 g at 182.50 ms

FIR_100

DRIVER LOWER SPINE Y-AXIS REDUNDANT ACCELERATION (g) vs. Time [ms]



<Max>

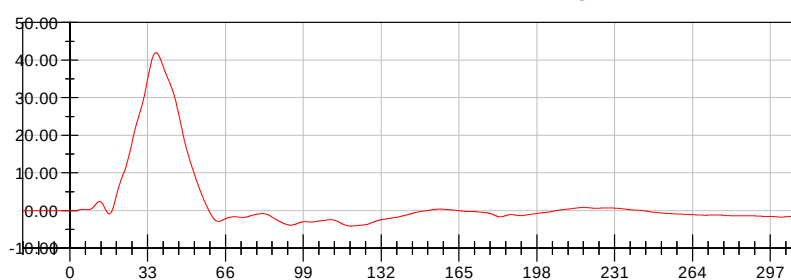
62.24 g at 101.90 ms

<Min>

-555.20 g at 97.50 ms

FIR_100

DRIVER PELVIS Y-AXIS REDUNDANT ACCELERATION (g) vs. Time [ms]



<Max>

41.98 g at 36.80 ms

<Min>

-4.09 g at 119.40 ms

FIR_100



NHTSA

Test Lab: CTF

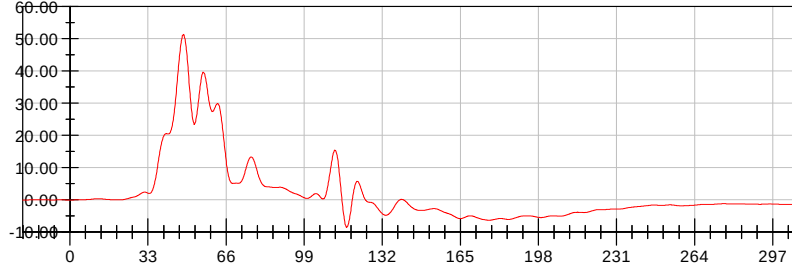
Test Number: 090911 (FA0200)

Position #1 SID H3 Dummy (001)

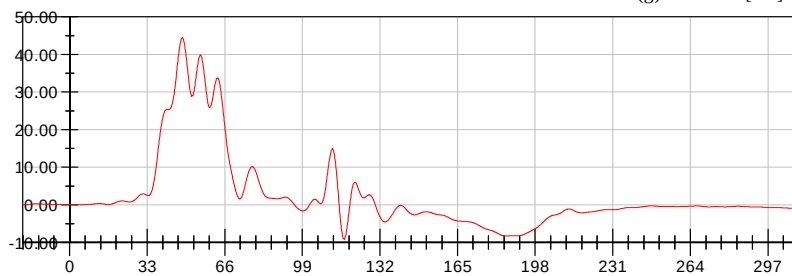
Position #4 SID H3 Dummy (002)

Test Date: 09/11/2009

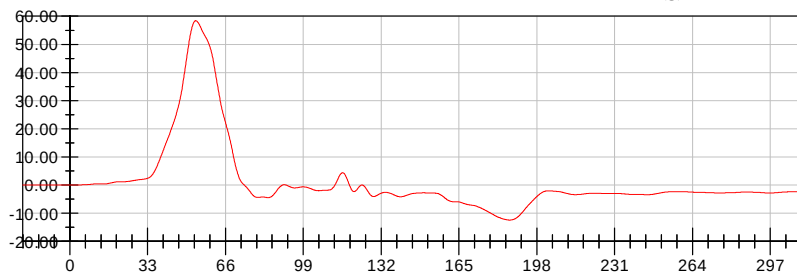
LEFT REAR PASSENGER UPPER RIB Y-AXIS ACCELERATION (g) vs. Time [ms]



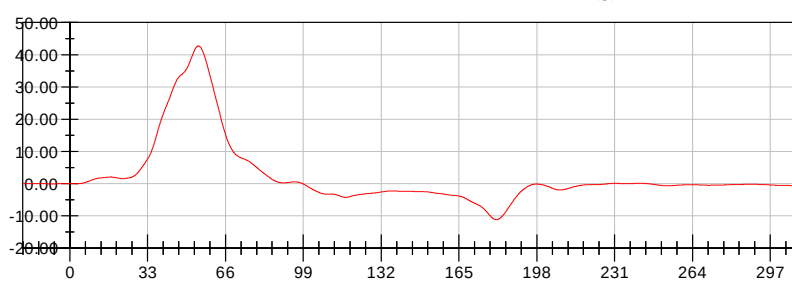
LEFT REAR PASSENGER LOWER RIB Y-AXIS ACCELERATION (g) vs. Time [ms]



LEFT REAR PASSENGER LOWER SPINE Y-AXIS ACCELERATION (g) vs. Time [ms]



LEFT REAR PASSENGER PELVIS Y-AXIS ACCELERATION (g) vs. Time [ms]



NHTSA

Test Lab: CTF

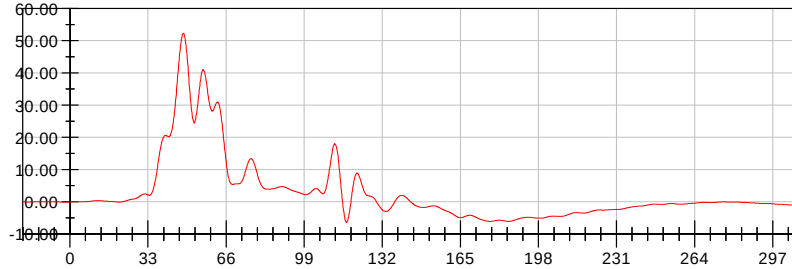
Test Number: 090911 (FA0200)

Position #1 SID H3 Dummy (001)

Position #4 SID H3 Dummy (002)

Test Date: 09/11/2009

LEFT REAR PASSENGER UPPER RIB Y-AXIS REDUNDANT ACCELERATION (g) vs. Time [ms]



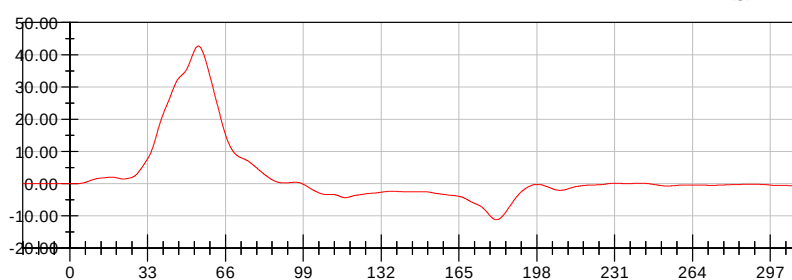
LEFT REAR PASSENGER LOWER RIB Y-AXIS REDUNDANT ACCELERATION (g) vs. Time [ms]



LEFT REAR PASSENGER LOWER SPINE Y-AXIS REDUNDANT ACCELERATION (g) vs. Time [ms]



LEFT REAR PASSENGER PELVIS REDUNDANT Y-AXIS ACCELERATION (g) vs. Time [ms]



APPENDIX C
DUMMY CALIBRATION DATA

CALIBRATION TEST RESULTS

PRE-TEST

SID/HIII: 001

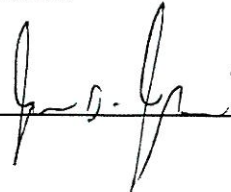
Transportation Research Center Inc.
572F SID Dummy
External Dimensions
Serial No. 001 Calibration No. 03

Test Parameter	Dimension	Specification	Results	Pass
Seated Height	SH	889.0 - 909.3 mm	902 mm	Yes
Rib Height	RH	501.7 - 520.7 mm	515 mm	Yes
Hip Pivot Height	HP	99.1 REF mm	99.1 mm	
Knee Pivot From Backline	KH	510.5 - 525.8 mm	519 mm	Yes
Knee Pivot From Floor	KV	490.2 - 505.5 mm	497 mm	Yes
Hip Width	HW	355.6 - 391.2 mm	384 mm	Yes
Top Rib Width From C/L	RW-1	165.1 - 180.3 mm	176 mm	Yes
Bottom Rib Width From C/L	RW-2	165.1 - 180.3 mm	175 mm	Yes
Difference Between Top & Bottom Rib Width from C/L		<= 2.5 mm	1.0 mm	Yes

Technician



Approved





Transportation Research Center Inc.

Left Lateral Head Drop

SID-HIII Serial No. 001 Certification No. 3-1

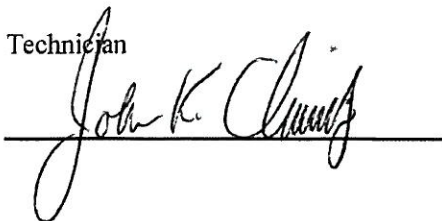
Test Date: 7/2/2009

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.6 °C	21.8 °C	Yes
Relative Humidity	10 - 70 %	53 %	Yes
Peak Head Resultant Acceleration	120 - 150 g	135.2 g	Yes
Peak Head Longitudinal Acceleration	(-15) - 15 g	-6.1 g	Yes
Is Head Resultant Acceleration Curve Unimodal Within 15% of Peak?	Yes	Yes	Yes

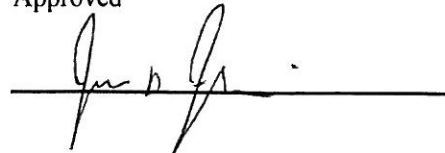
Test meets specifications.

Comments:

Technician



Approved

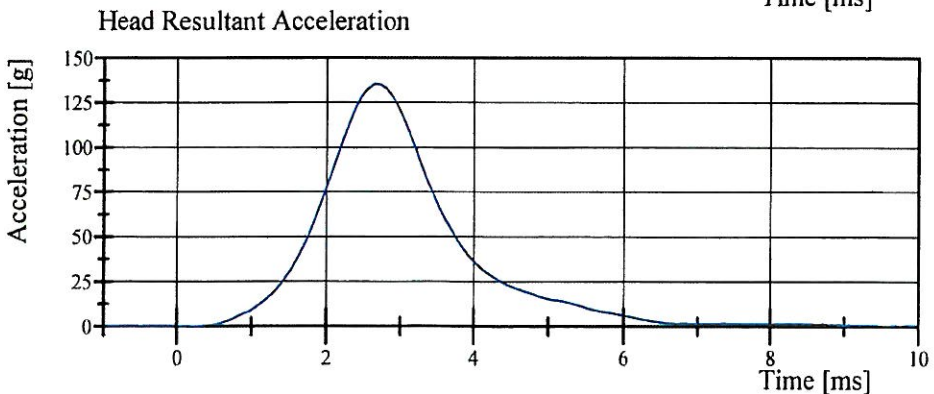
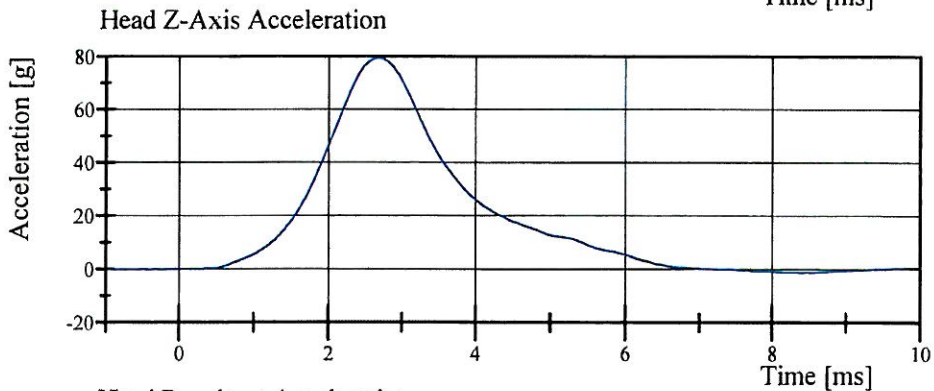
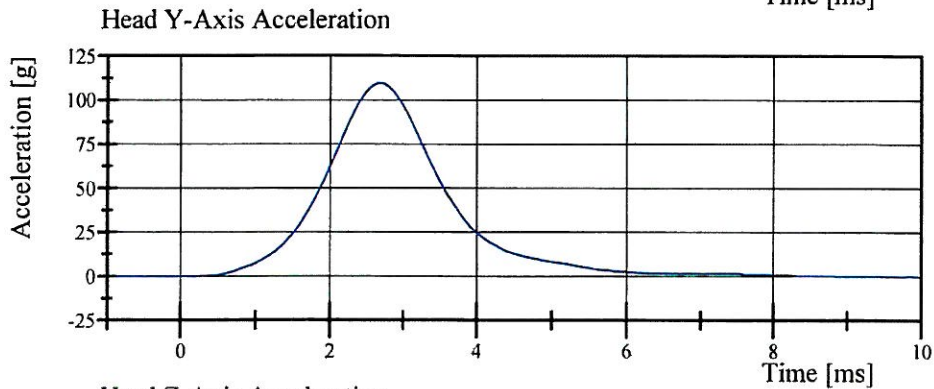
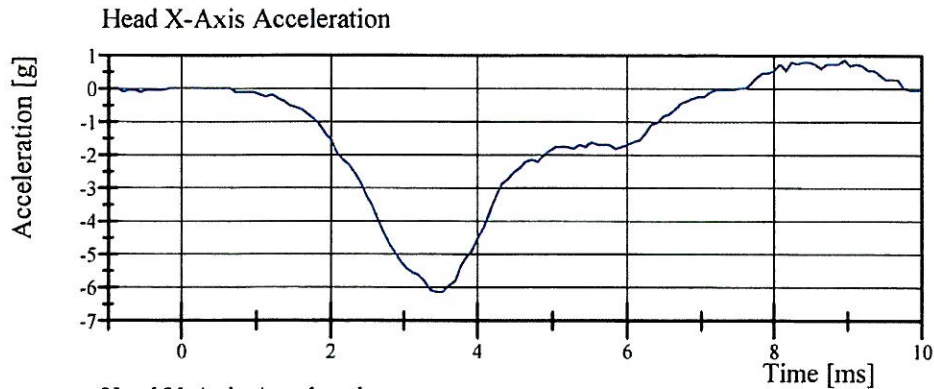


Transportation Research Center Inc.

Left Lateral Head Drop

SID-HIII Serial No. 001 Certification No. 3-1

Test Date: 7/2/2009



Transportation Research Center Inc.

Left Lateral Neck

SID-HIII Serial No. 001 Certification No. 3-1

Test Date: 7/2/2009

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.7 °C	Yes
Relative Humidity	10 - 70 %	51 %	Yes
Pendulum Velocity	(-6.89) - (-7.13) m/s	-6.927 m/s	Yes
Pendulum Integrated Velocity Change at 10 ms	1.96 - 2.55 m/s	2.480 m/s	Yes
Pendulum Integrated Velocity Change at 20 ms	4.12 - 5.10 m/s	4.759 m/s	Yes
Pendulum Integrated Velocity Change at 30 ms	5.73 - 7.01 m/s	6.579 m/s	Yes
Pendulum Integrated Velocity Change at 40 to 70 ms	6.27 - 7.64 m/s	7.227 m/s	Yes
Total Head D-Plane Rotation	(-66) - (-82) °	-68.6 °	Yes
Total Head D-Plane Rotation Time to 0° after Peak Rotation	58 - 67 ms	58.6 ms	Yes
Total Neck Occipital Condyle Moment	73 - 88 N·m	84.9 N·m	Yes
Total Neck Occipital Condyle Moment Time to 0 N·m after Peak Moment	49 - 64 ms	54.2 ms	Yes
Time from Peak Moment to Peak Rotation	2 - 16 ms	9.5 ms	Yes

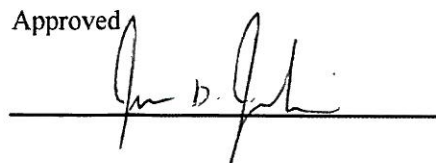
Test meets specifications.

Comments:

Technician



Approved

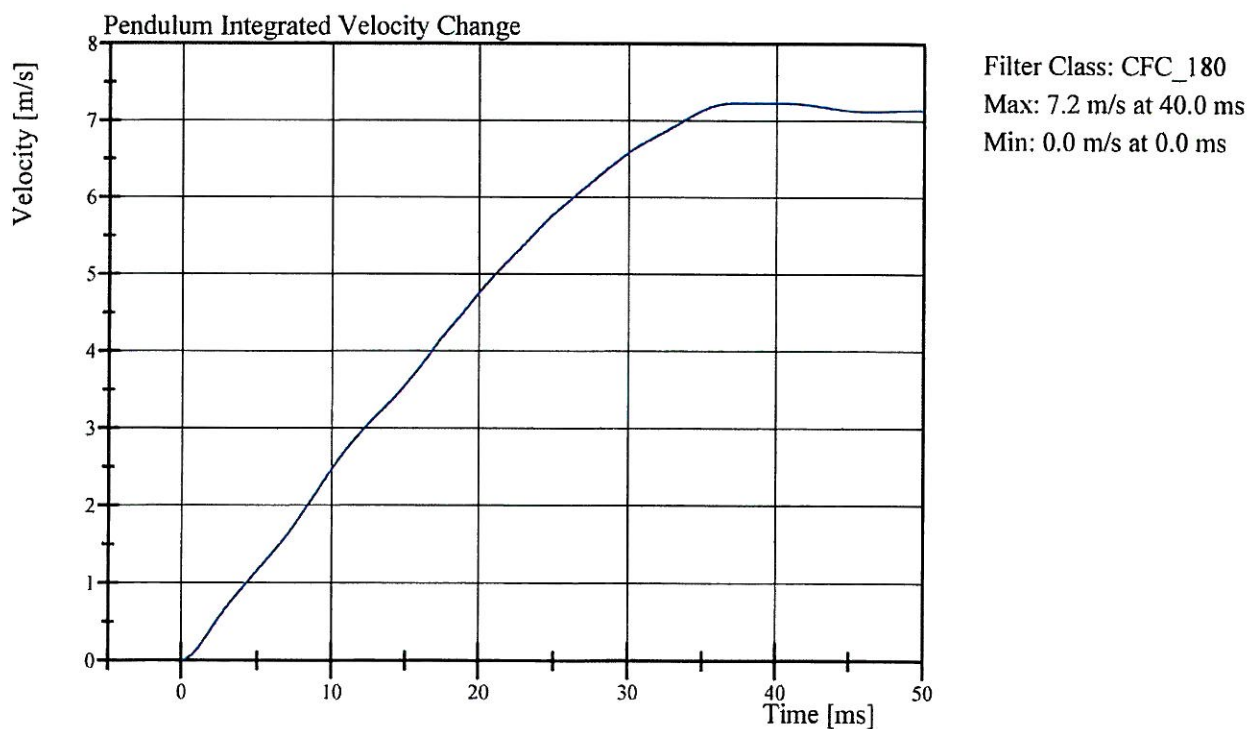
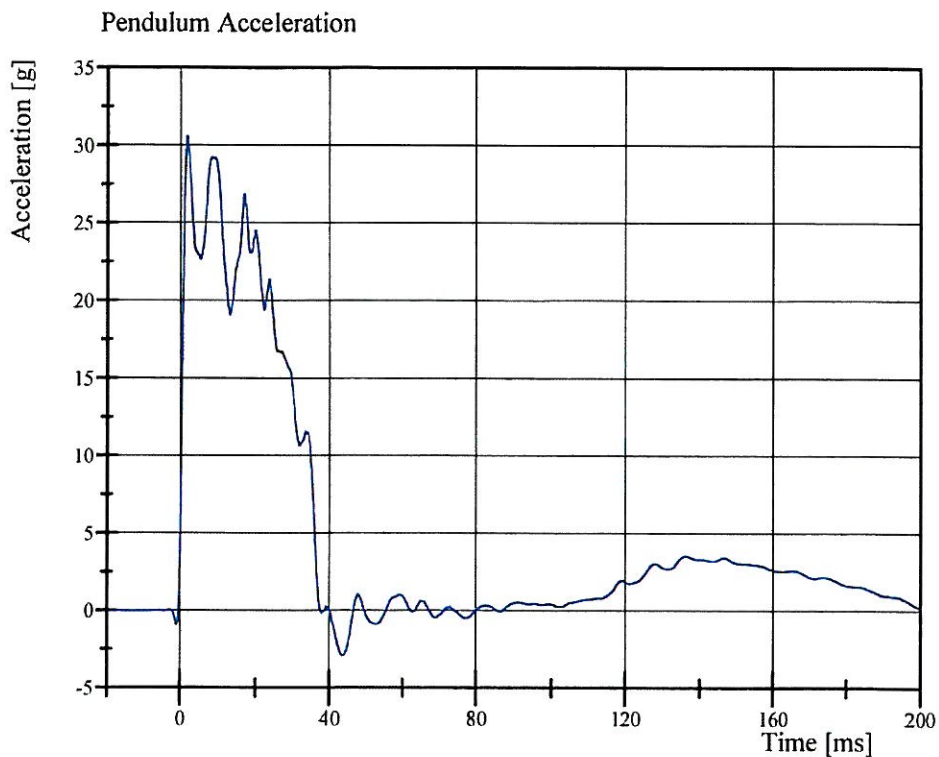


Transportation Research Center Inc.

Left Lateral Neck

SID-HIII Serial No. 001 Certification No. 3-1

Test Date: 7/2/2009



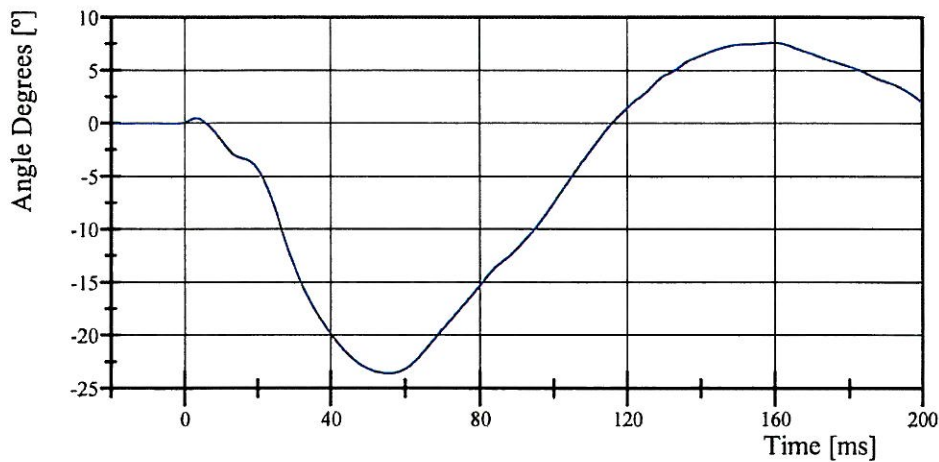
Transportation Research Center Inc.

Left Lateral Neck

SID-HIII Serial No. 001 Certification No. 3-1

Test Date: 7/2/2009

Pot Rotation at the Base of Neck

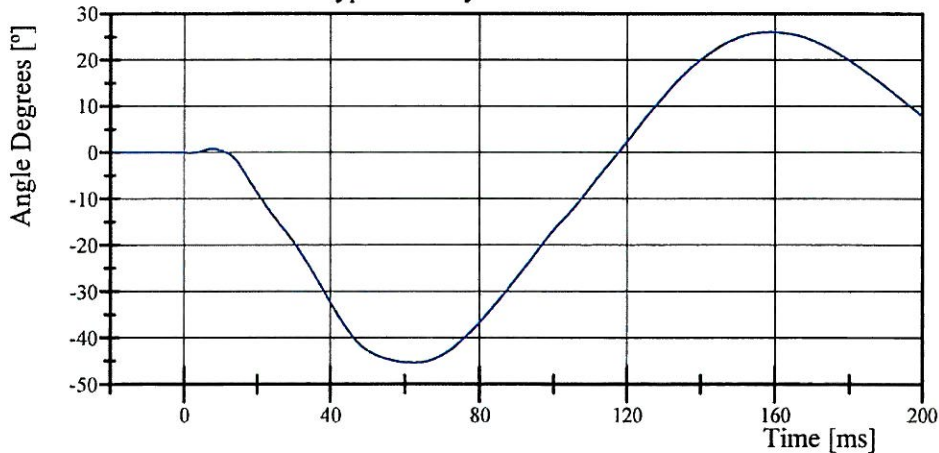


Filter Class: CFC_60

Max: 7.6 ° at 159.5 ms

Min: -23.6 ° at 55.8 ms

Head Rotation at Occypital Condyles

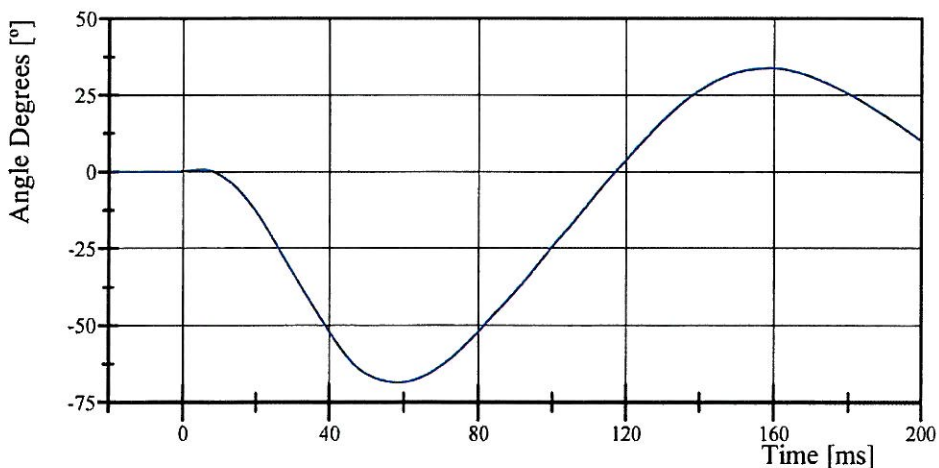


Filter Class: CFC_60

Max: 26.1 ° at 158.7 ms

Min: -45.4 ° at 62.4 ms

Total Head D-Plane Rotation



Filter Class: CFC_60

Max: 33.7 ° at 159.1 ms

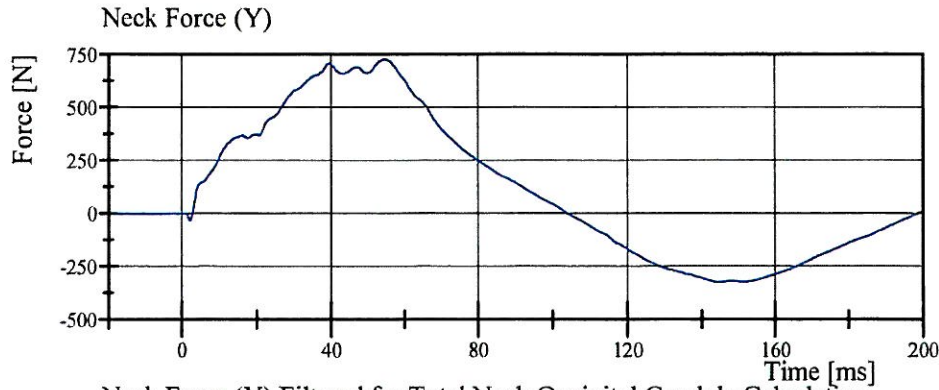
Min: -68.6 ° at 58.6 ms

Transportation Research Center Inc.

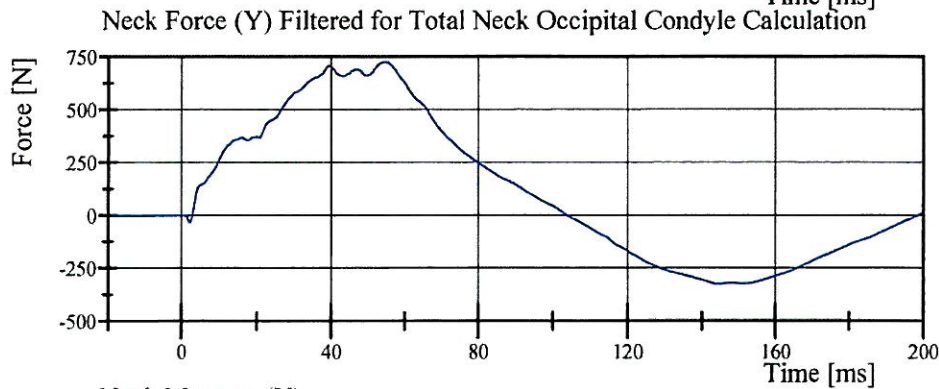
Left Lateral Neck

SID-HIII Serial No. 001 Certification No. 3-1

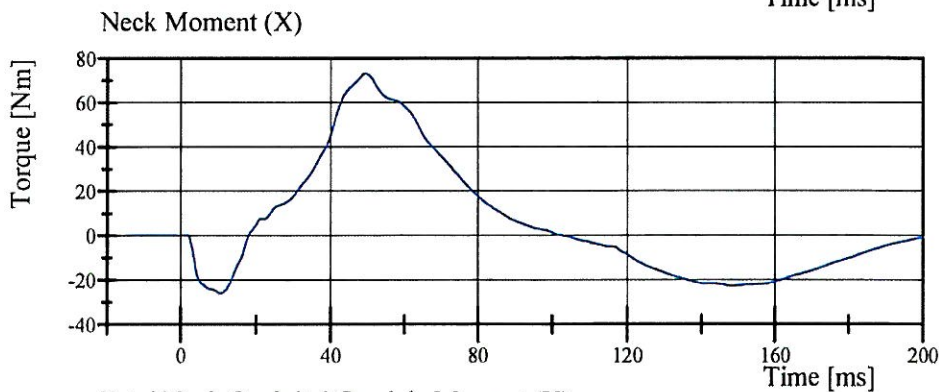
Test Date: 7/2/2009



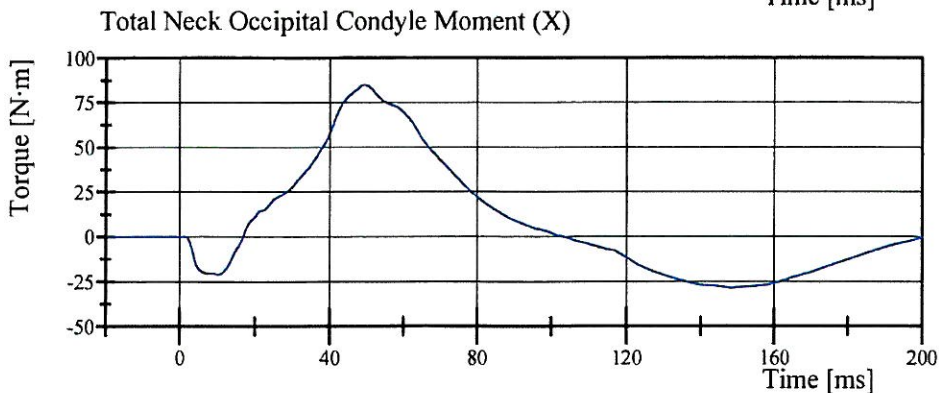
Filter Class: CFC_1000
Max: 727.3 N at 54.6 ms
Min: -324.9 N at 144.3 ms



Filter Class: CFC_600
Max: 726.8 N at 54.7 ms
Min: -324.5 N at 144.4 ms



Filter Class: CFC_600
Max: 73.1 Nm at 49.1 ms
Min: -26.0 Nm at 10.5 ms



Filter Class: CFC_600
Max: 84.9 N·m at 49.0 ms
Min: -28.4 N·m at 148.2 ms

Transportation Research Center Inc.

6.10 m/s Thoracic Shock Absorber Compression
SID-HIII Serial No. 001 Certification No. 3-2
Test Date: 7/2/2009

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.5 °C	21.5 °C	Yes
Relative Humidity	10 - 70 %	51 %	Yes
Maximum Force at Test Velocity	3,745 - 4,439 N	4,112.1 N	Yes
Maximum Displacement at Test Velocity	33.36 - 39.57 mm	38.875 mm	Yes

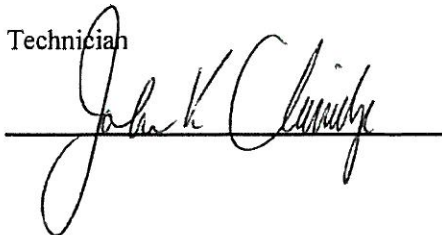
Test meets specifications.

Comments:

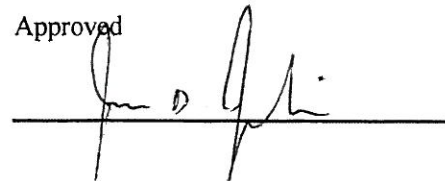
Actual Impactor Velocity (m/s): 6.096

Damper Setting: 7.5

Technician



Approved

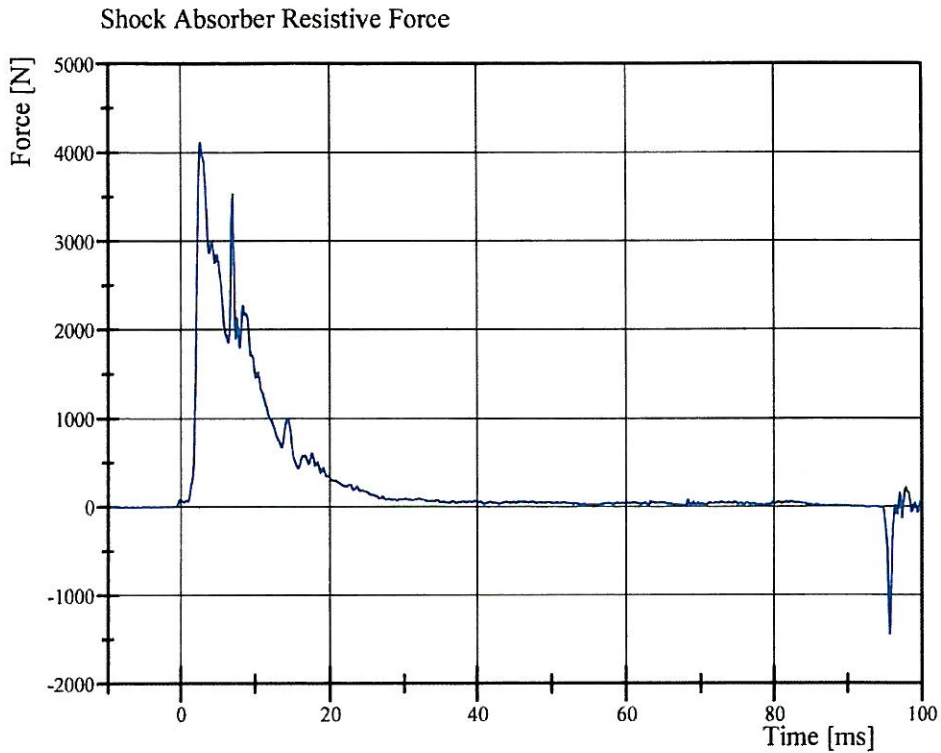


Transportation Research Center Inc.

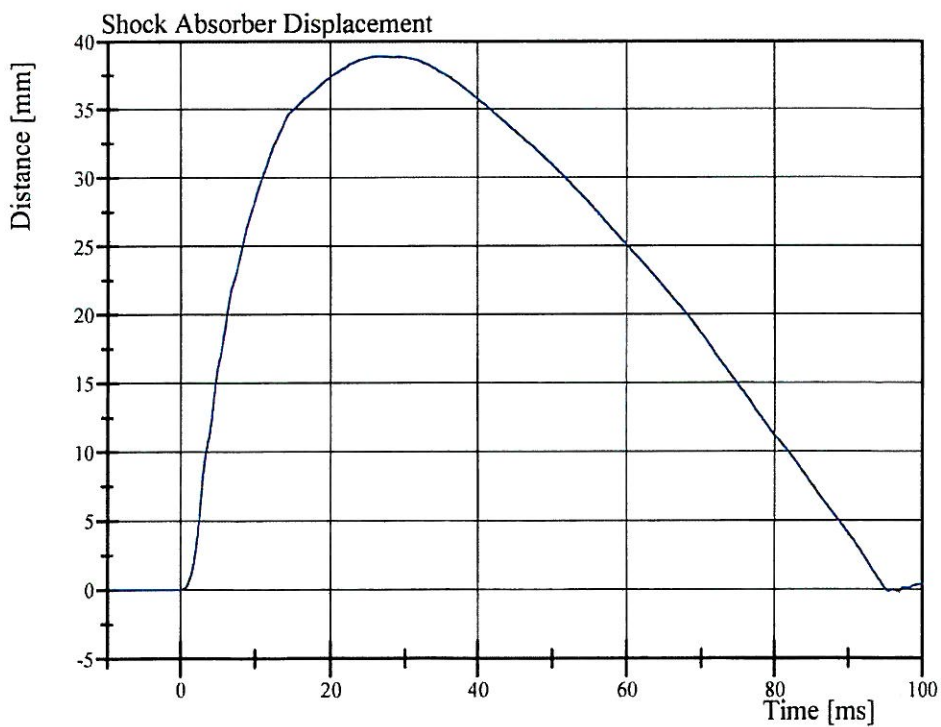
6.10 m/s Thoracic Shock Absorber Compression

SID-HIII Serial No. 001 Certification No. 3-2

Test Date: 7/2/2009



Filter Class: CFC_1000
Max: 4,112.1 N at 2.6 ms
Min: -1,438.6 N at 95.8 ms



Filter Class: CFC_1000
Max: 38.9 mm at 26.6 ms
Min: -0.1 mm at 96.7 ms

Transportation Research Center Inc.

4.27 m/s Thoracic Shock Absorber Compression

SID-HIII Serial No. 001 Certification No. 3-1

Test Date: 7/2/2009

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.5 °C	21.6 °C	Yes
Relative Humidity	10 - 70 %	51 %	Yes
Maximum Force at Test Velocity	1,749 - 2,114 N	1,773.9 N	Yes
Maximum Displacement at Test Velocity	31.69 - 37.25 mm	37.175 mm	Yes

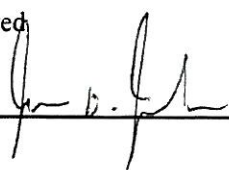
Test meets specifications.

Comments:

Actual Impactor Velocity (m/s): 4.283

Damper Setting: 7.5

Technician 

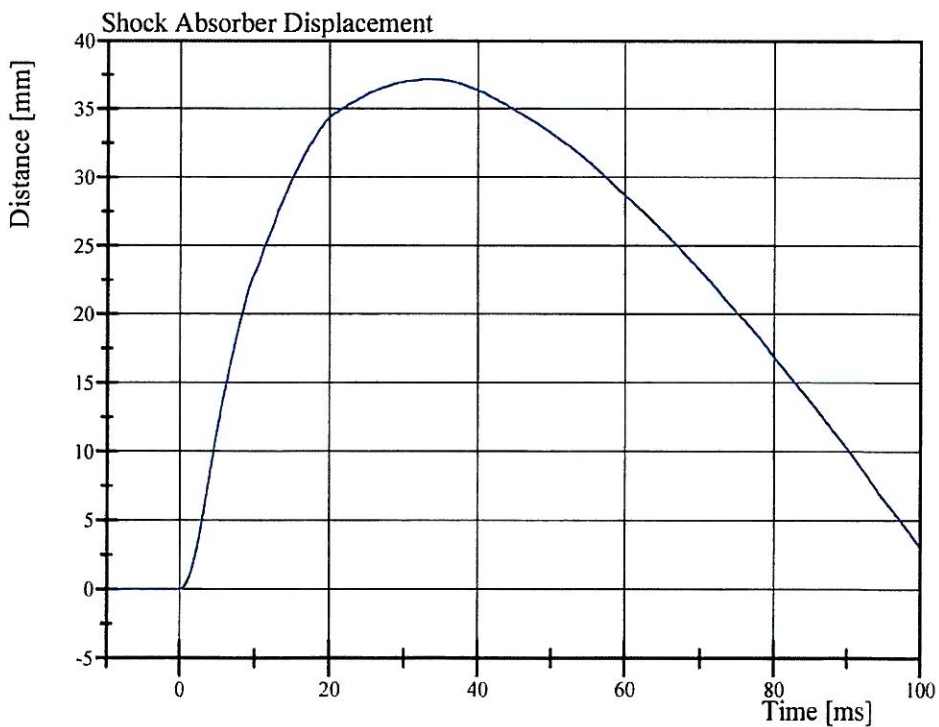
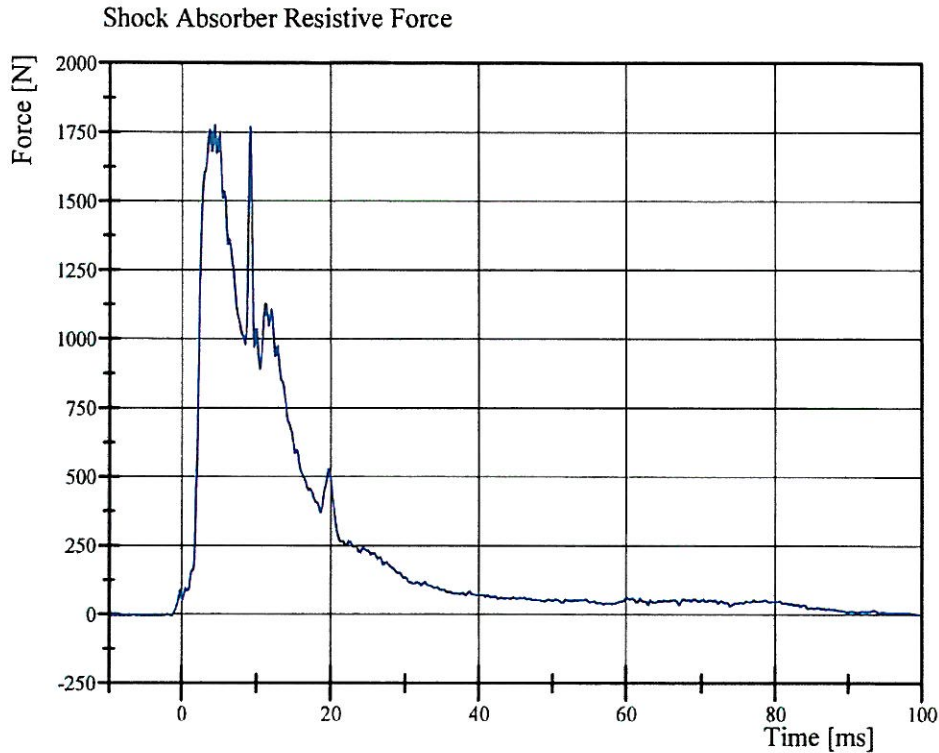
Approved 

Transportation Research Center Inc.

4.27 m/s Thoracic Shock Absorber Compression

SID-HIII Serial No. 001 Certification No. 3-1

Test Date: 7/2/2009



Transportation Research Center Inc.

3.05 m/s Thoracic Shock Absorber Compression

SID-HIII Serial No. 001 Certification No. 3-1

Test Date: 7/2/2009

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.5 °C	21.6 °C	Yes
Relative Humidity	10 - 70 %	50 %	Yes
Maximum Force at Test Velocity	856 - 1,146 N	955.8 N	Yes
Maximum Displacement at Test Velocity	30.2 - 35.19 mm	35.015 mm	Yes

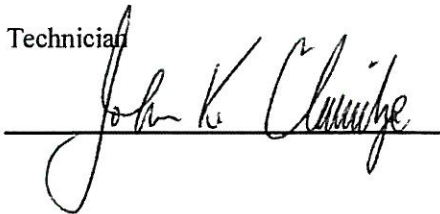
Test meets specifications.

Comments:

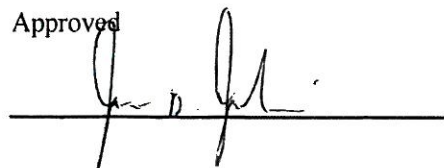
Actual Impactor Velocity (m/s): 3.076

Damper Setting: 7.5

Technician



Approved



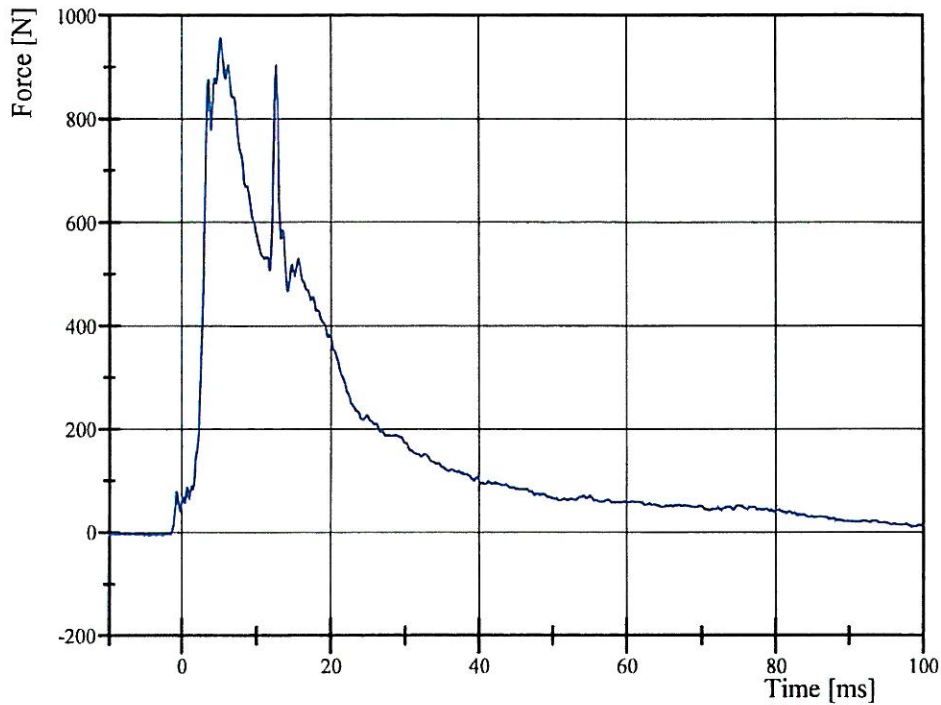
Transportation Research Center Inc.

3.05 m/s Thoracic Shock Absorber Compression

SID-HIII Serial No. 001 Certification No. 3-1

Test Date: 7/2/2009

Shock Absorber Resistive Force

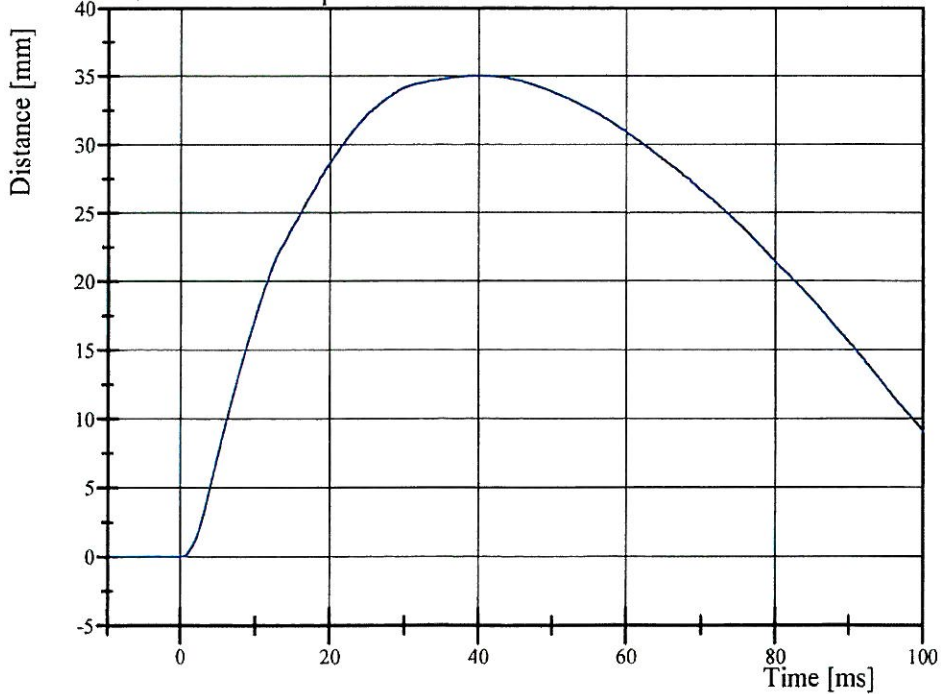


Filter Class: CFC_1000

Max: 955.8 N at 5.2 ms

Min: -5.4 N at -9.9 ms

Shock Absorber Displacement



Filter Class: CFC_1000

Max: 35.0 mm at 39.6 ms

Min: -0.0 mm at -10.0 ms

Transportation Research Center Inc.

Left Lateral Thorax

SID-HIII Serial No. 001 Certification No. 3-2

Test Date: 7/9/2009

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.6 °C	21.7 °C	Yes
Relative Humidity	10 - 70 %	50 %	Yes
Impactor Velocity	4.27 - 4.33 m/s	4.313 m/s	Yes
Upper Rib Lateral Acceleration	37 - 46 g	42.9 g	Yes
Lower Rib Lateral Acceleration	37 - 46 g	42.7 g	Yes
Lower Spine Lateral Acceleration	15 - 22 g	20.1 g	Yes

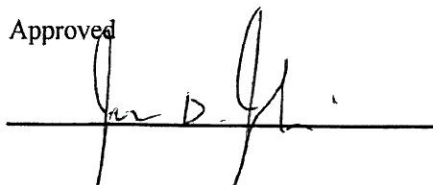
Test meets specifications.

Comments:

Technician



Approved

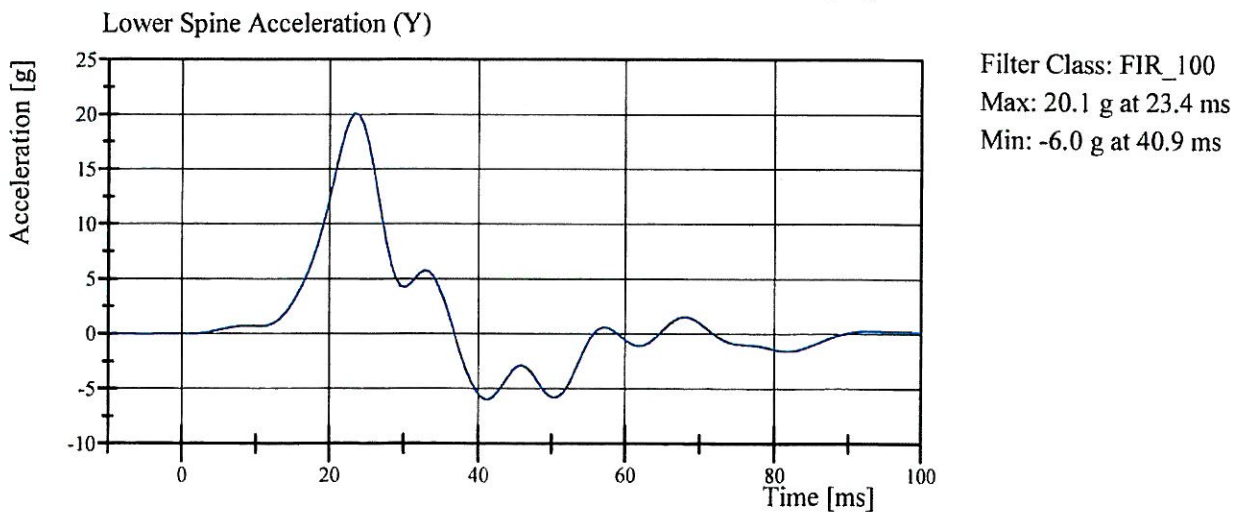
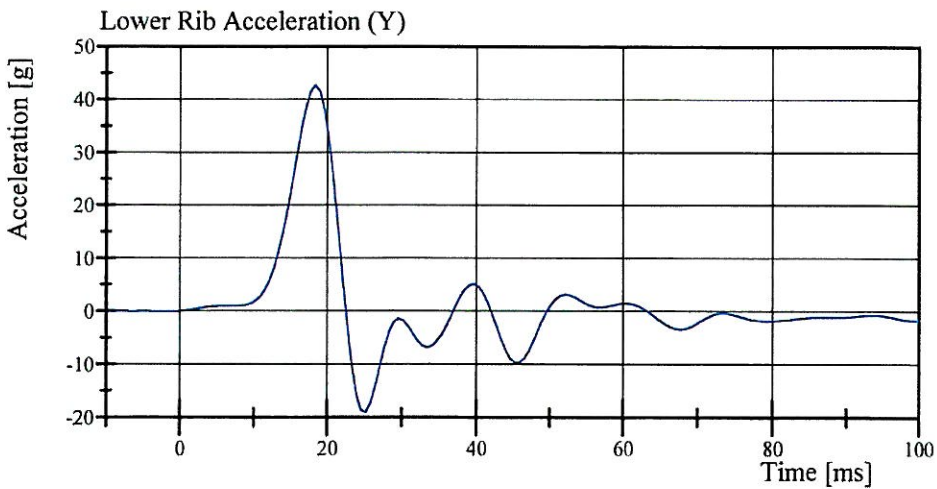
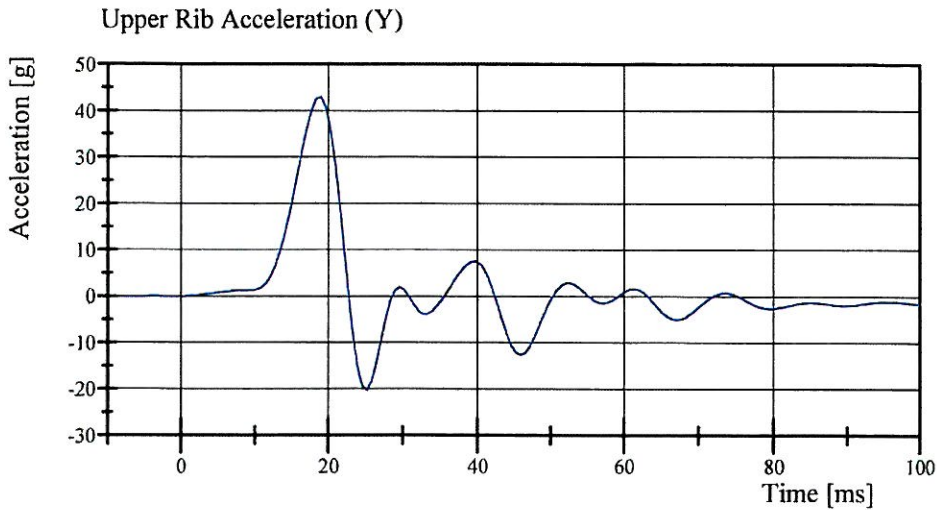


Transportation Research Center Inc.

Left Lateral Thorax

SID-HIII Serial No. 001 Certification No. 3-2

Test Date: 7/9/2009



Transportation Research Center Inc.

Abdomen Compression

SID-HIII Serial No. 001 Certification No. 3-4

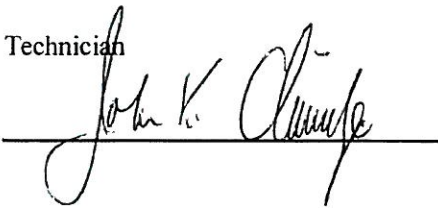
Test Date: 7/8/2009

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.5 °C	21.7 °C	Yes
Relative Humidity	10 - 70 %	44 %	Yes
Probe Force within Corridor	Yes	Yes	Yes
Probe Velocity	6.35 - 8.89 mm/s	7.745 mm/s	Yes

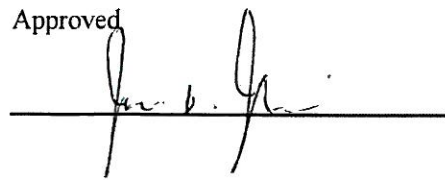
Test meets specifications.

Comments:

Technician



Approved

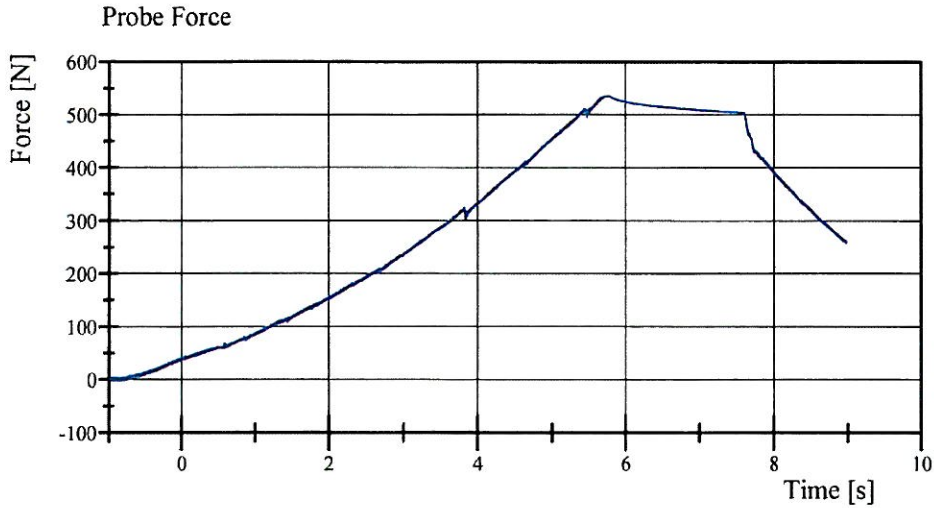


Transportation Research Center Inc.

Abdomen Compression

SID-HIII Serial No. 001 Certification No. 3-4

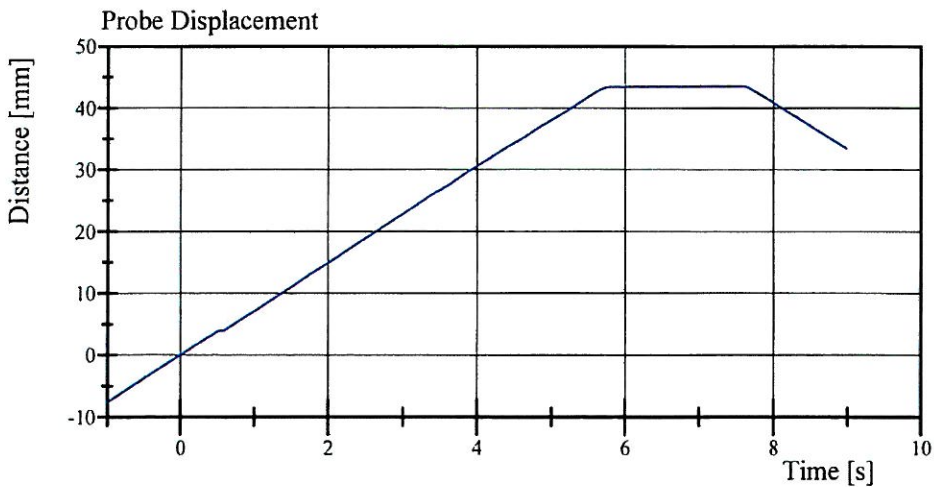
Test Date: 7/8/2009



Filter Class: CFC_600

Max: 535.4 N at 5.7 s

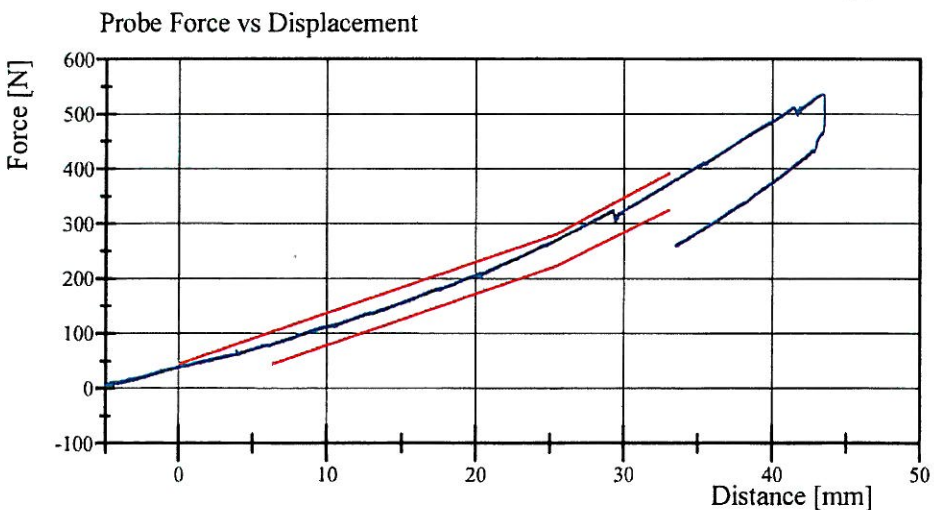
Min: -2.8 N at -0.8 s



Filter Class: CFC_180

Max: 43.5 mm at 7.6 s

Min: -7.7 mm at -1.0 s



Filter Class: CFC_600

Max: 535.4 N at 43.4 mm

Min: -3.2 N at -7.8 mm

TRANSPORTATION RESEARCH CENTER INC.

LUMBAR FLEXION TEST

SID PART 572B

CAL DATE: 02-Jul-09

TRC, INC.

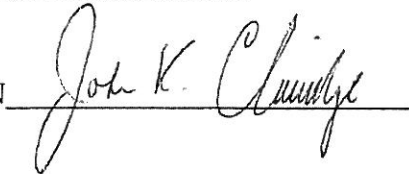
TEST NO: TOFL-01

572B SN 001 TORSO FLEX CAL 03

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	18.9 – 25.6° C	21.7 °C
RELATIVE HUMIDITY	10 – 70 %	52 %
FORCE AT 0 DEG. FLEXION	-27 – 27 N	0 N
FORCE AT 20 DEG OF FLEXION	98 – 151 N	132.5 N
FORCE AT 30 DEG OF FLEXION	151 – 205 N	188.0 N
FORCE AT 40 DEG OF FLEXION	205 – 258 N	225.5 N
NET RETURN ANGLE AFTER 3 MINUTES	< 12 °	5.9 °

TEST MEETS SPECIFICATIONS

TECHNICIAN



Transportation Research Center Inc.

Left Lateral Pelvis

SID-HIII Serial No. 001 Certification No. 3-1

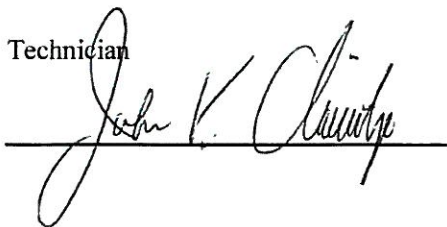
Test Date: 7/9/2009

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.5 °C	21.7 °C	Yes
Relative Humidity	10 - 70 %	49 %	Yes
Impactor Velocity	4.27 - 4.33 m/s	4.322 m/s	Yes
Pelvis Lateral Acceleration Duration above 20g	3 - 7 ms	6.4 ms	Yes
Pelvis Lateral Acceleration	40 - 60 g	46.2 g	Yes
Is Acceleration Curve Unimodal Above 20g?	Yes	Yes	Yes

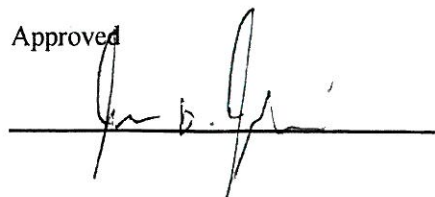
Test meets specifications.

Comments:

Technician



Approved

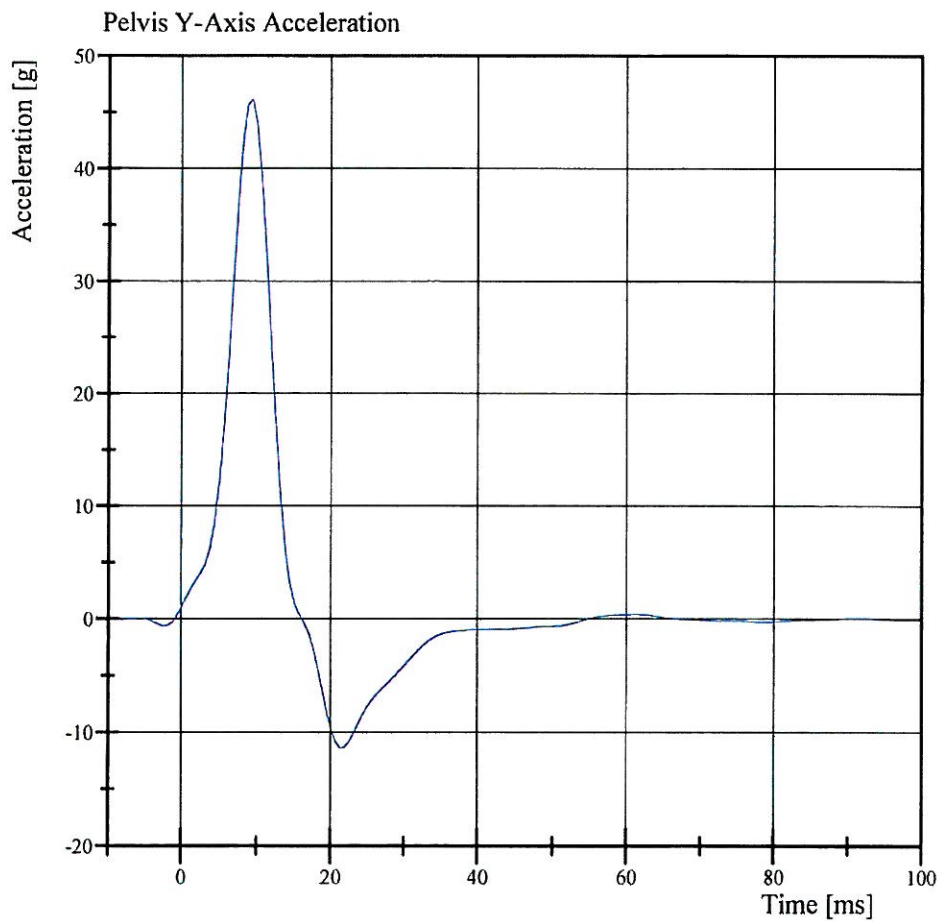


Transportation Research Center Inc.

Left Lateral Pelvis

SID-HIII Serial No. 001 Certification No. 3-1

Test Date: 7/9/2009



Filter Class: FIR_100

Max: 46.2 g at 9.4 ms

Min: -11.4 g at 21.3 ms

CALIBRATION TEST RESULTS

POST-TEST

SID/HIII: 001

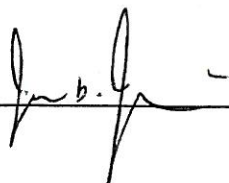
Transportation Research Center Inc.
572F SID Dummy
External Dimensions
Serial No. 001 Calibration No. 04

Test Parameter	Dimension	Specification	Results	Pass
Seated Height	SH	889.0 - 909.3 mm	902 mm	Yes
Rib Height	RH	501.7 - 520.7 mm	515 mm	Yes
Hip Pivot Height	HP	99.1 REF mm	99.1 mm	
Knee Pivot From Backline	KH	510.5 - 525.8 mm	520 mm	Yes
Knee Pivot From Floor	KV	490.2 - 505.5 mm	498 mm	Yes
Hip Width	HW	355.6 - 391.2 mm	383 mm	Yes
Top Rib Width From C/L	RW-1	165.1 - 180.3 mm	176 mm	Yes
Bottom Rib Width From C/L	RW-2	165.1 - 180.3 mm	175 mm	Yes
Difference Between Top & Bottom Rib Width from C/L		<= 2.5 mm	1.0 mm	Yes

Technician



Approved





Transportation Research Center Inc.

Left Lateral Head Drop

SID-HIII Serial No. 001 Certification No. 4-1

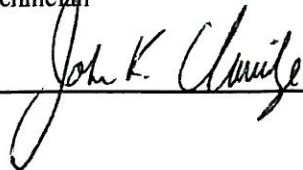
Test Date: 9/23/2009

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.6 °C	21.6 °C	Yes
Relative Humidity	10 - 70 %	52 %	Yes
Peak Head Resultant Acceleration	120 - 150 g	147.7 g	Yes
Peak Head Longitudinal Acceleration	(-15) - 15 g	5.1 g	Yes
Is Head Resultant Acceleration Curve Unimodal Within 15% of Peak?	Yes	Yes	Yes

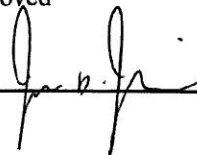
Test meets specifications.

Comments:

Technician



Approved

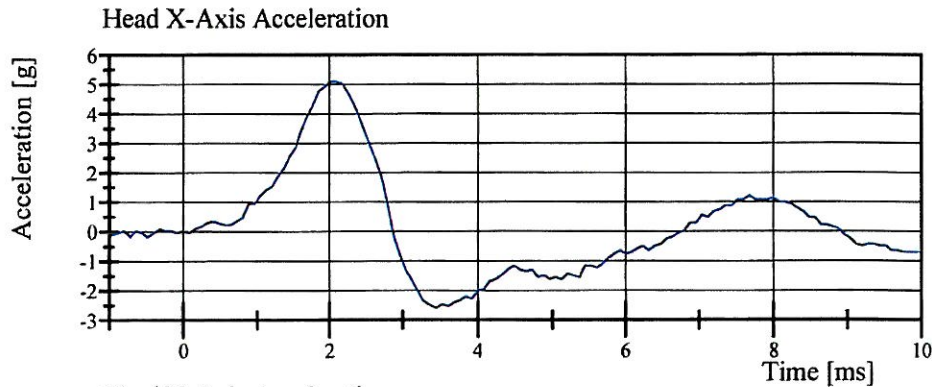


Transportation Research Center Inc.

Left Lateral Head Drop

SID-HIII Serial No. 001 Certification No. 4-1

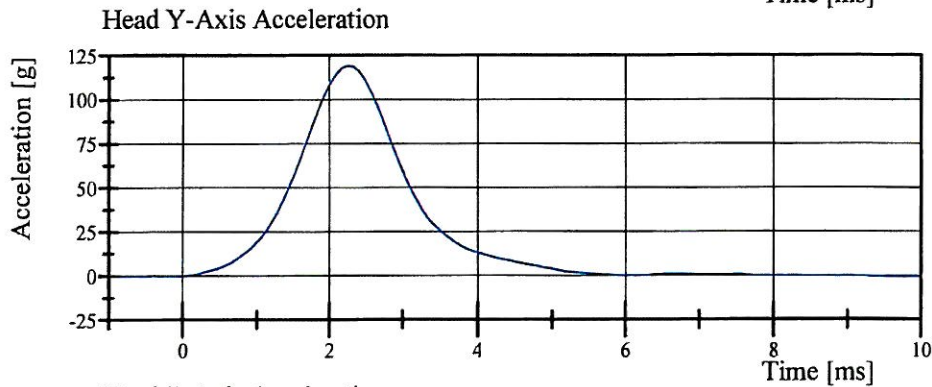
Test Date: 9/23/2009



Filter Class: CFC_1000

Max: 5.1 g at 2.0 ms

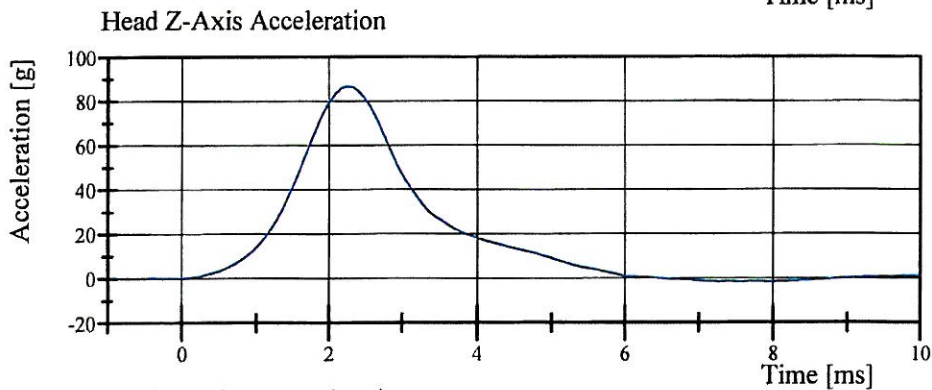
Min: -2.6 g at 3.4 ms



Filter Class: CFC_1000

Max: 119.4 g at 2.2 ms

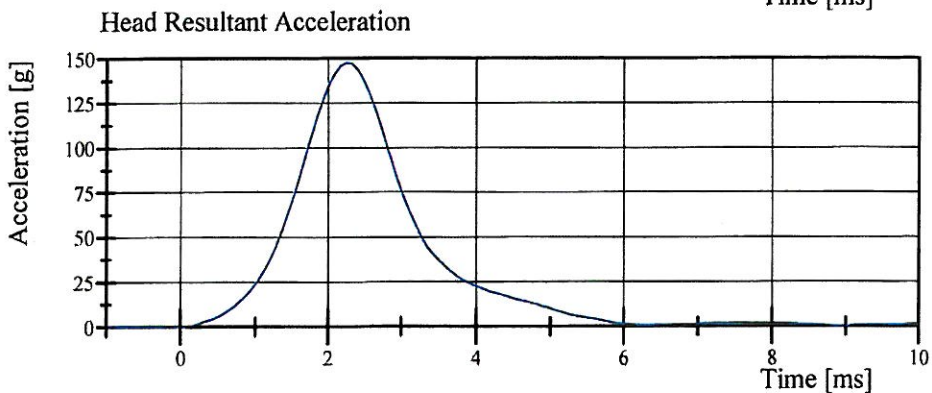
Min: -0.5 g at 10.0 ms



Filter Class: CFC_1000

Max: 86.8 g at 2.2 ms

Min: -1.5 g at 7.3 ms



Filter Class: CFC_1000

Max: 147.7 g at 2.2 ms

Min: 0.0 g at -1.0 ms

Transportation Research Center Inc.

Left Lateral Neck

SID-HIII Serial No. 001 Certification No. 4-3

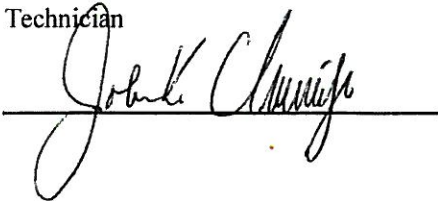
Test Date: 9/24/2009

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.6 °C	Yes
Relative Humidity	10 - 70 %	54 %	Yes
Pendulum Velocity	(-6.89) - (-7.13) m/s	-6.941 m/s	Yes
Pendulum Integrated Velocity Change at 10 ms	1.96 - 2.55 m/s	2.370 m/s	Yes
Pendulum Integrated Velocity Change at 20 ms	4.12 - 5.10 m/s	4.718 m/s	Yes
Pendulum Integrated Velocity Change at 30 ms	5.73 - 7.01 m/s	6.676 m/s	Yes
Pendulum Integrated Velocity Change at 40 to 70 ms	6.27 - 7.64 m/s	7.250 m/s	Yes
Total Head D-Plane Rotation	(-66) - (-82) °	-74.6 °	Yes
Total Head D-Plane Rotation Time to 0° after Peak Rotation	58 - 67 ms	59.4 ms	Yes
Total Neck Occipital Condyle Moment	73 - 88 N·m	86.7 N·m	Yes
Total Neck Occipital Condyle Moment Time to 0 N·m after Peak Moment	49 - 64 ms	53.9 ms	Yes
Time from Peak Moment to Peak Rotation	2 - 16 ms	9.7 ms	Yes

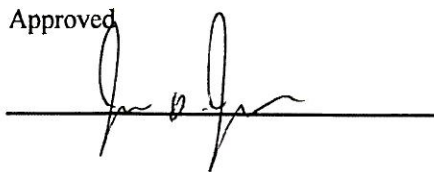
Test meets specifications.

Comments:

Technician



Approved

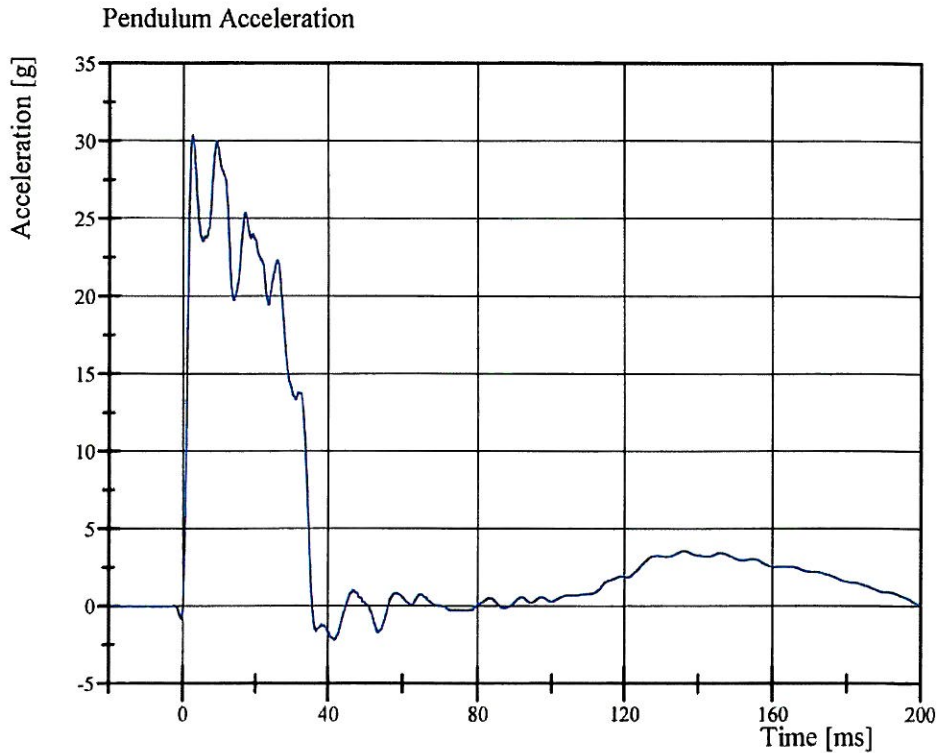


Transportation Research Center Inc.

Left Lateral Neck

SID-HIII Serial No. 001 Certification No. 4-3

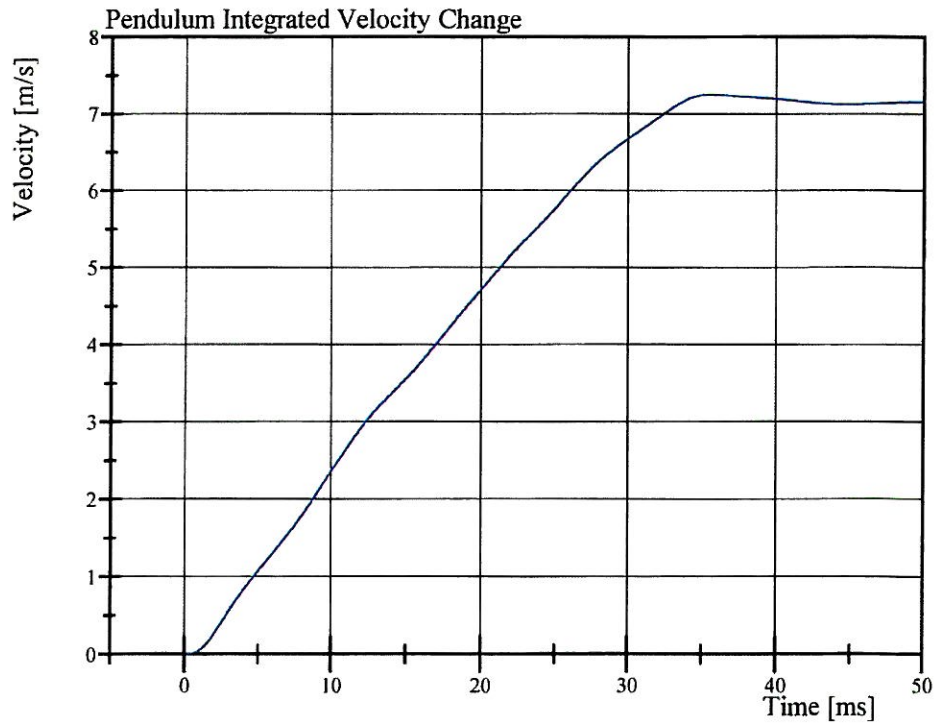
Test Date: 9/24/2009



Filter Class: CFC_180

Max: 30.4 g at 2.5 ms

Min: -2.2 g at 41.7 ms



Filter Class: CFC_180

Max: 7.2 m/s at 35.6 ms

Min: 0.0 m/s at 0.0 ms

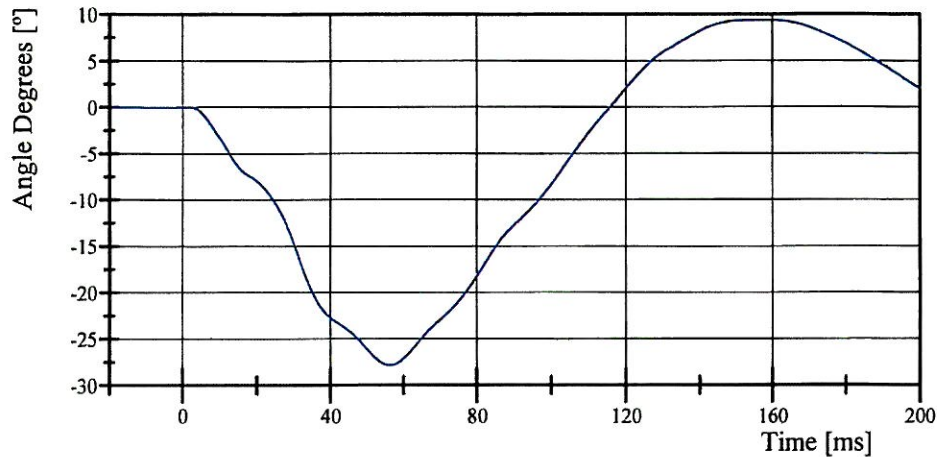
Transportation Research Center Inc.

Left Lateral Neck

SID-HIII Serial No. 001 Certification No. 4-3

Test Date: 9/24/2009

Pot Rotation at the Base of Neck

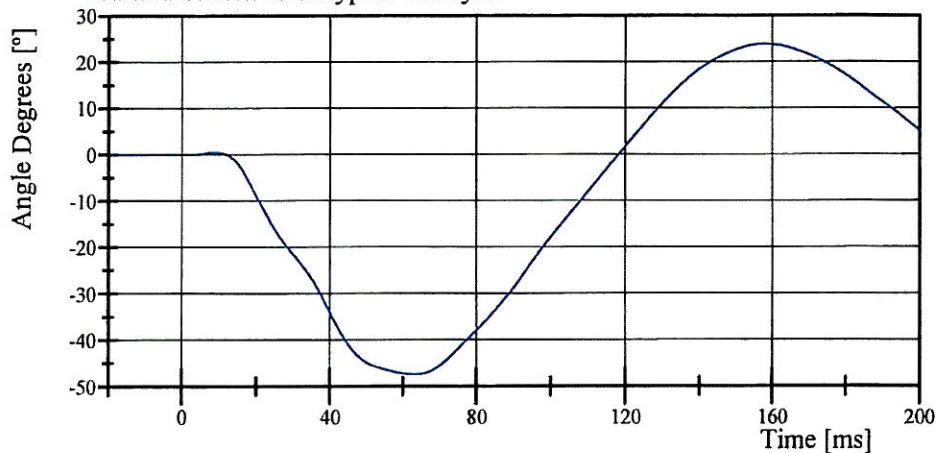


Filter Class: CFC_60

Max: 9.4 ° at 157.8 ms

Min: -27.8 ° at 56.2 ms

Head Rotation at Occypital Condyles

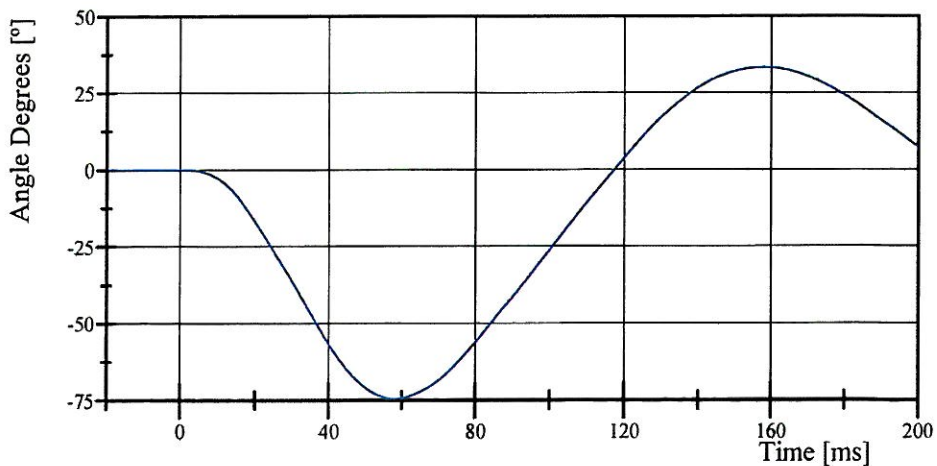


Filter Class: CFC_60

Max: 23.9 ° at 157.8 ms

Min: -47.4 ° at 63.3 ms

Total Head D-Plane Rotation



Filter Class: CFC_60

Max: 33.3 ° at 157.8 ms

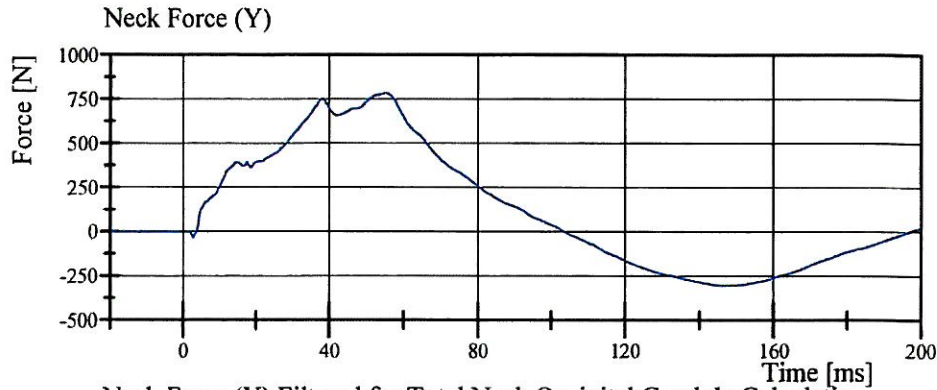
Min: -74.6 ° at 57.8 ms

Transportation Research Center Inc.

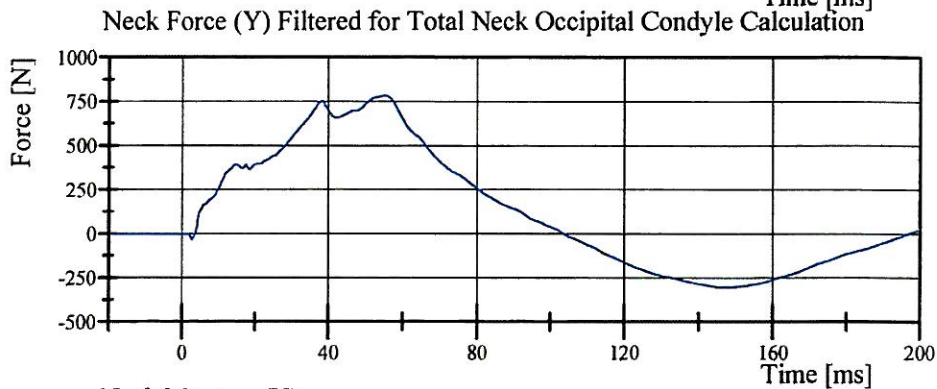
Left Lateral Neck

SID-HIII Serial No. 001 Certification No. 4-3

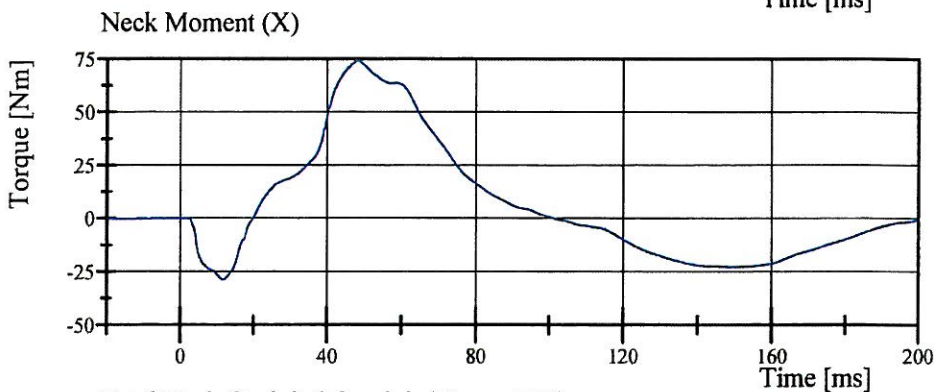
Test Date: 9/24/2009



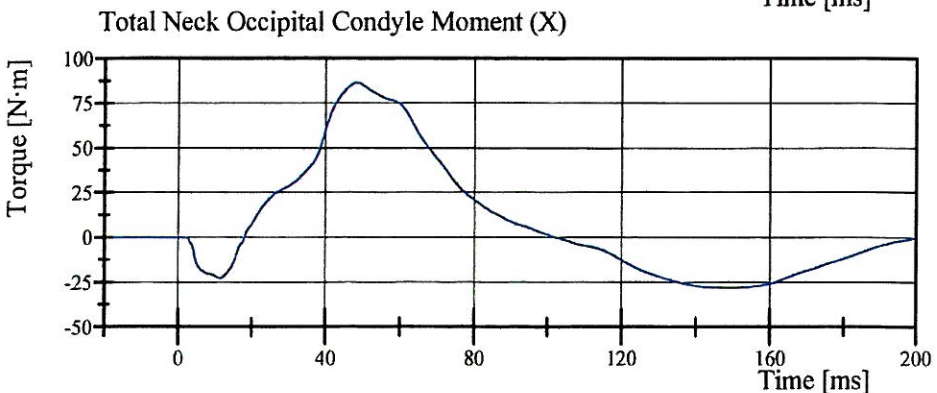
Filter Class: CFC_1000
Max: 785.5 N at 54.9 ms
Min: -302.9 N at 146.6 ms



Filter Class: CFC_600
Max: 785.0 N at 55.0 ms
Min: -302.5 N at 146.6 ms



Filter Class: CFC_600
Max: 74.2 Nm at 48.1 ms
Min: -28.7 Nm at 11.7 ms



Filter Class: CFC_600
Max: 86.7 N·m at 48.2 ms
Min: -28.1 N·m at 148.5 ms

Transportation Research Center Inc.

6.10 m/s Thoracic Shock Absorber Compression

SID-HIII Serial No. 001 Certification No. 4-2

Test Date: 9/24/2009

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.5 °C	21.7 °C	Yes
Relative Humidity	10 - 70 %	55 %	Yes
Maximum Force at Test Velocity	3,706 - 4,394 N	4,077.2 N	Yes
Maximum Displacement at Test Velocity	33.34 - 39.54 mm	39.068 mm	Yes

Test meets specifications.

Comments:

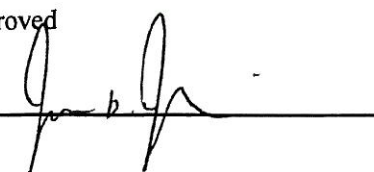
Actual Impactor Velocity (m/s): 6.067

Damper Setting: 7.5

Technician



Approved



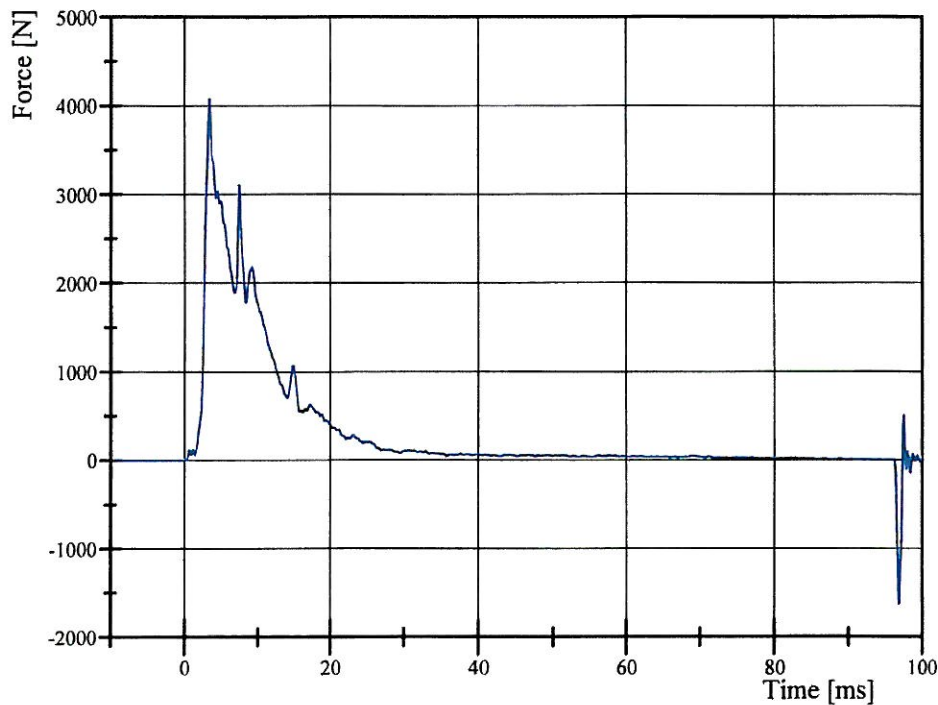
Transportation Research Center Inc.

6.10 m/s Thoracic Shock Absorber Compression

SID-HIII Serial No. 001 Certification No. 4-2

Test Date: 9/24/2009

Shock Absorber Resistive Force



Filter Class: CFC_1000

Max: 4,077.2 N at 3.4 ms

Min: -1,620.4 N at 96.9 ms

Shock Absorber Displacement



Filter Class: CFC_1000

Max: 39.1 mm at 27.4 ms

Min: -0.1 mm at 97.0 ms

Transportation Research Center Inc.

4.27 m/s Thoracic Shock Absorber Compression

SID-HIII Serial No. 001 Certification No. 4-1

Test Date: 9/24/2009

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.5 °C	21.6 °C	Yes
Relative Humidity	10 - 70 %	54 %	Yes
Maximum Force at Test Velocity	1,757 - 2,124 N	1,776.2 N	Yes
Maximum Displacement at Test Velocity	31.7 - 37.26 mm	37.182 mm	Yes

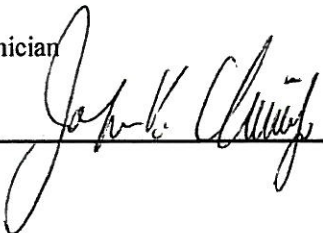
Test meets specifications.

Comments:

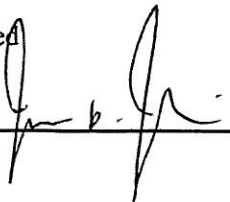
Actual Impactor Velocity (m/s): 4.293

Damper Setting: 7.5

Technician



Approved



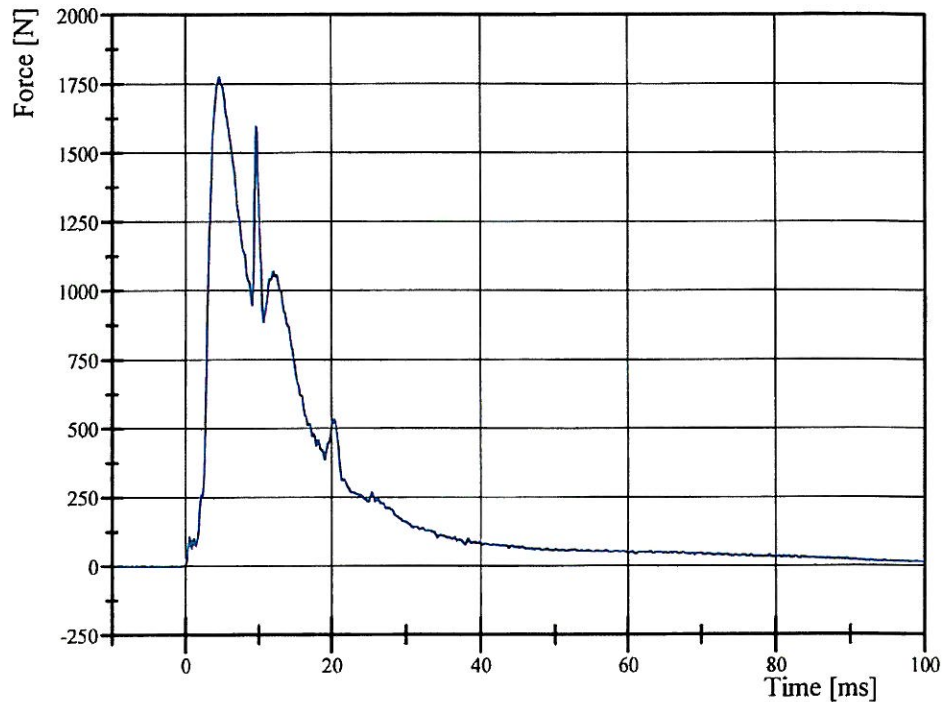
Transportation Research Center Inc.

4.27 m/s Thoracic Shock Absorber Compression

SID-HIII Serial No. 001 Certification No. 4-1

Test Date: 9/24/2009

Shock Absorber Resistive Force

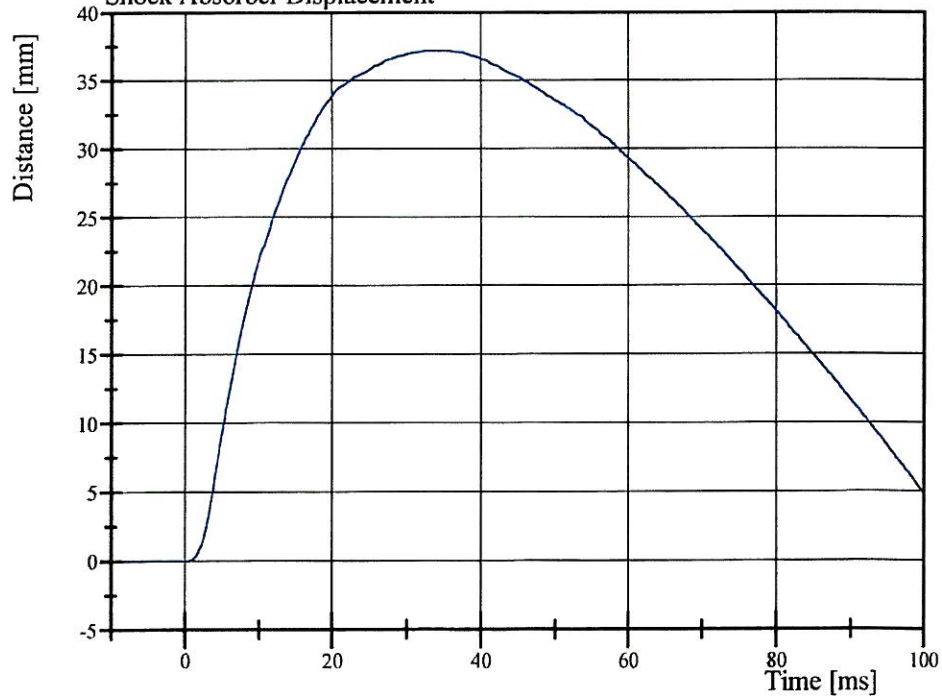


Filter Class: CFC_1000

Max: 1,776.2 N at 4.6 ms

Min: -2.0 N at -5.2 ms

Shock Absorber Displacement



Filter Class: CFC_1000

Max: 37.2 mm at 33.8 ms

Min: -0.0 mm at -9.6 ms

Transportation Research Center Inc.

3.05 m/s Thoracic Shock Absorber Compression

SID-HIII Serial No. 001 Certification No. 4-1

Test Date: 9/24/2009

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.5 °C	21.7 °C	Yes
Relative Humidity	10 - 70 %	54 %	Yes
Maximum Force at Test Velocity	856 - 1,145 N	921.4 N	Yes
Maximum Displacement at Test Velocity	30.2 - 35.19 mm	34.770 mm	Yes

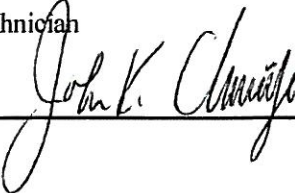
Test meets specifications.

Comments:

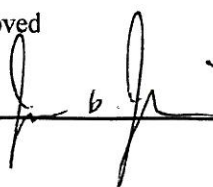
Actual Impactor Velocity (m/s): 3.075

Damper Setting: 7.5

Technician



Approved



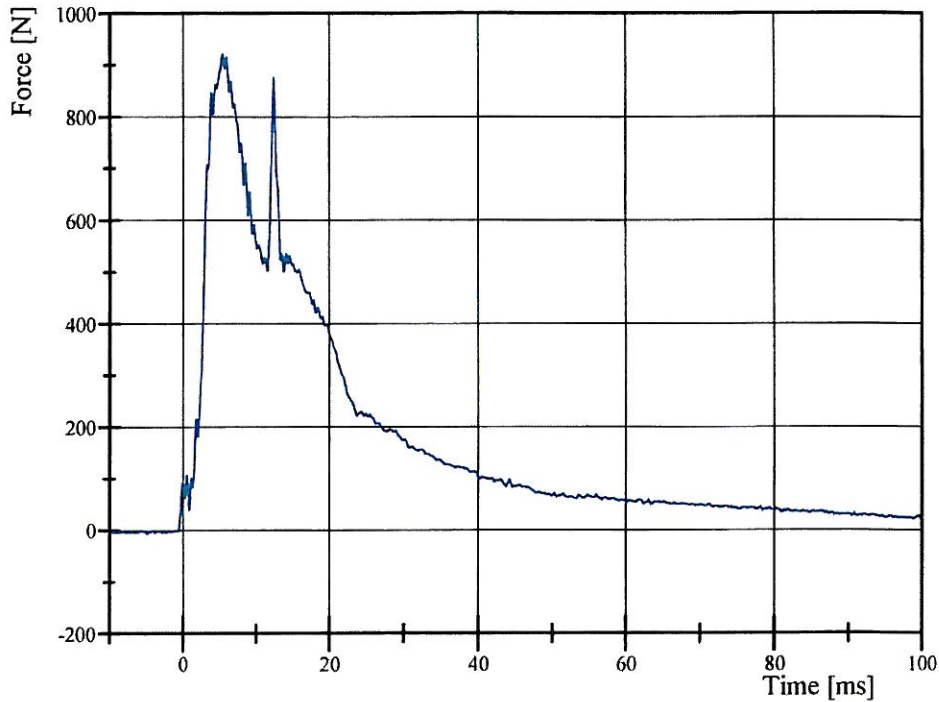
Transportation Research Center Inc.

3.05 m/s Thoracic Shock Absorber Compression

SID-HIII Serial No. 001 Certification No. 4-1

Test Date: 9/24/2009

Shock Absorber Resistive Force

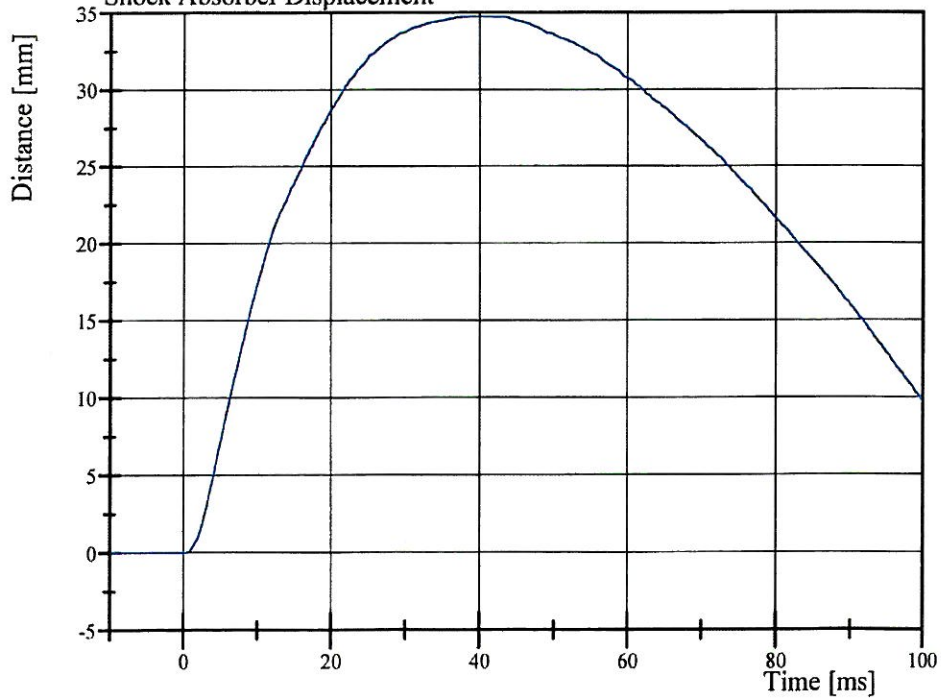


Filter Class: CFC_1000

Max: 921.4 N at 5.3 ms

Min: -5.4 N at -5.0 ms

Shock Absorber Displacement



Filter Class: CFC_1000

Max: 34.8 mm at 40.0 ms

Min: -0.0 mm at -9.0 ms

Transportation Research Center Inc.

Left Lateral Thorax

SID-HIII Serial No. 001 Certification No. 4-2

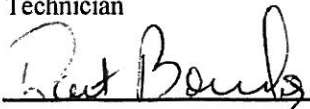
Test Date: 9/28/2009

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.6 °C	21.8 °C	Yes
Relative Humidity	10 - 70 %	45 %	Yes
Impactor Velocity	4.27 - 4.33 m/s	4.283 m/s	Yes
Upper Rib Lateral Acceleration	37 - 46 g	42.0 g	Yes
Lower Rib Lateral Acceleration	37 - 46 g	41.5 g	Yes
Lower Spine Lateral Acceleration	15 - 22 g	19.6 g	Yes

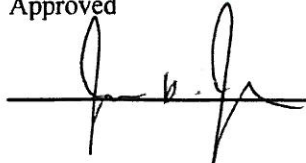
Test meets specifications.

Comments:

Technician



Approved



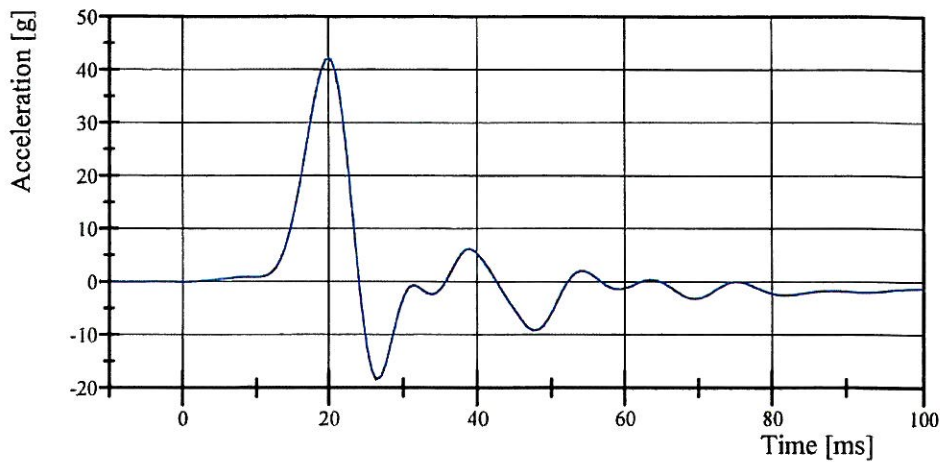
Transportation Research Center Inc.

Left Lateral Thorax

SID-HIII Serial No. 001 Certification No. 4-2

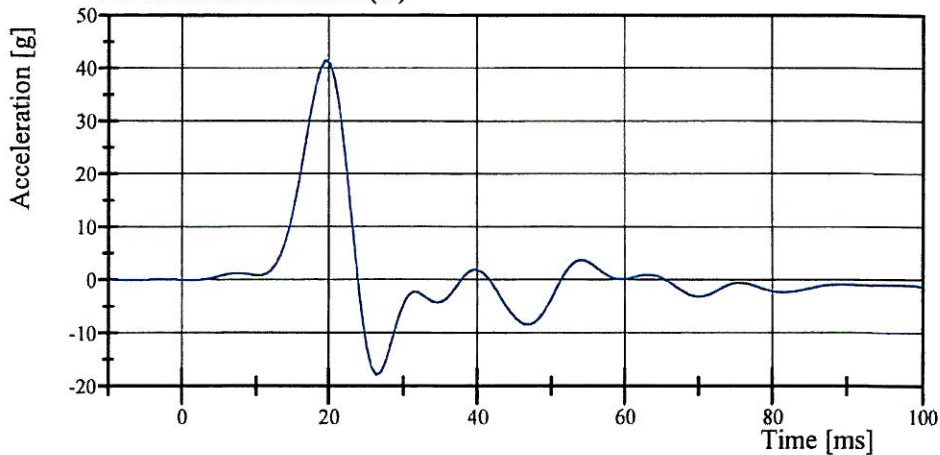
Test Date: 9/28/2009

Upper Rib Acceleration (Y)



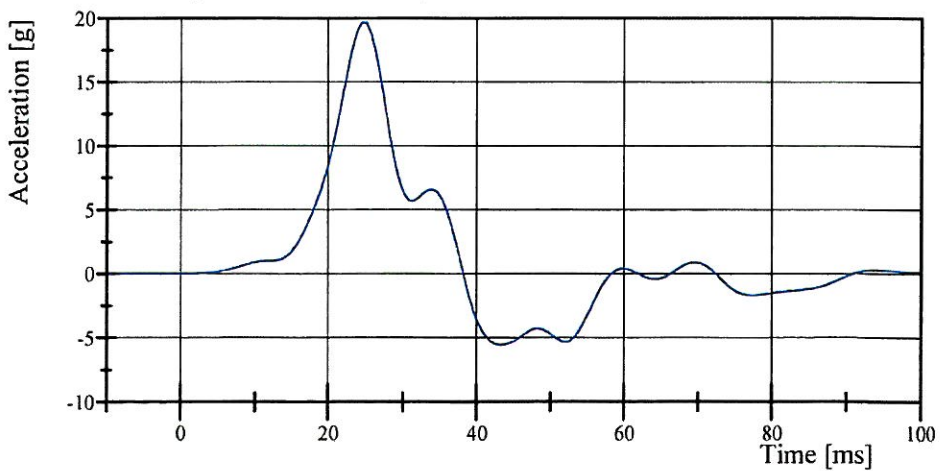
Filter Class: FIR_100
Max: 42.0 g at 20.2 ms
Min: -18.5 g at 26.5 ms

Lower Rib Acceleration (Y)



Filter Class: FIR_100
Max: 41.5 g at 19.6 ms
Min: -17.9 g at 26.5 ms

Lower Spine Acceleration (Y)



Filter Class: FIR_100
Max: 19.6 g at 24.6 ms
Min: -5.6 g at 43.4 ms

Transportation Research Center Inc.

Abdomen Compression

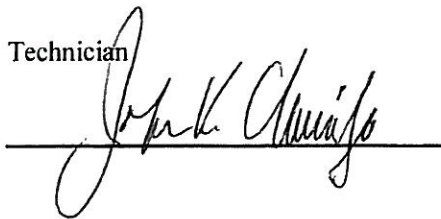
SID-HIII Serial No. 001 Certification No. 4-3

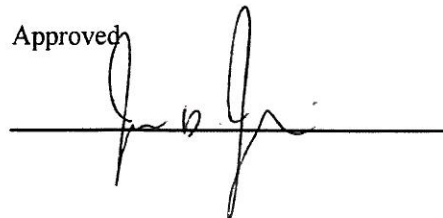
Test Date: 9/22/2009

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.5 °C	21.7 °C	Yes
Relative Humidity	10 - 70 %	54 %	Yes
Probe Force within Corridor	Yes	Yes	Yes
Probe Velocity	6.35 - 8.89 mm/s	7.828 mm/s	Yes

Test meets specifications.

Comments:

Technician


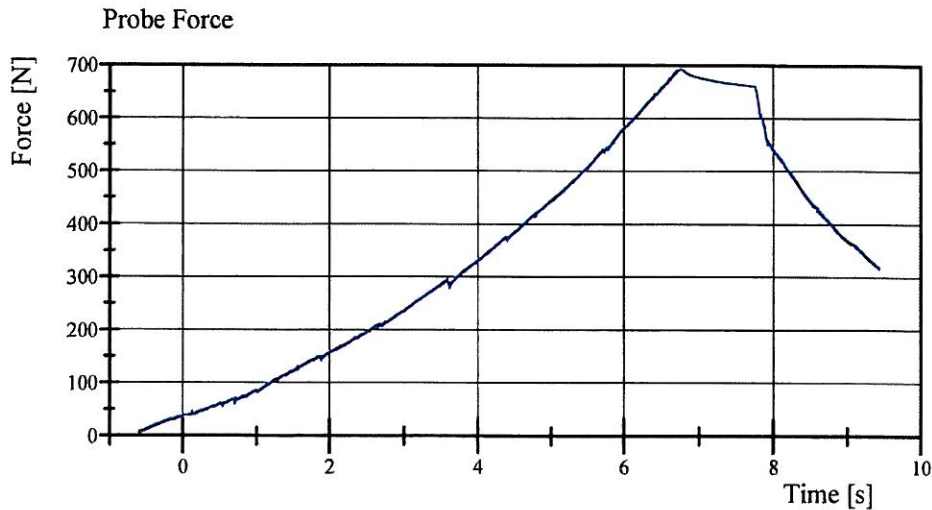
Approved


Transportation Research Center Inc.

Abdomen Compression

SID-HIII Serial No. 001 Certification No. 4-3

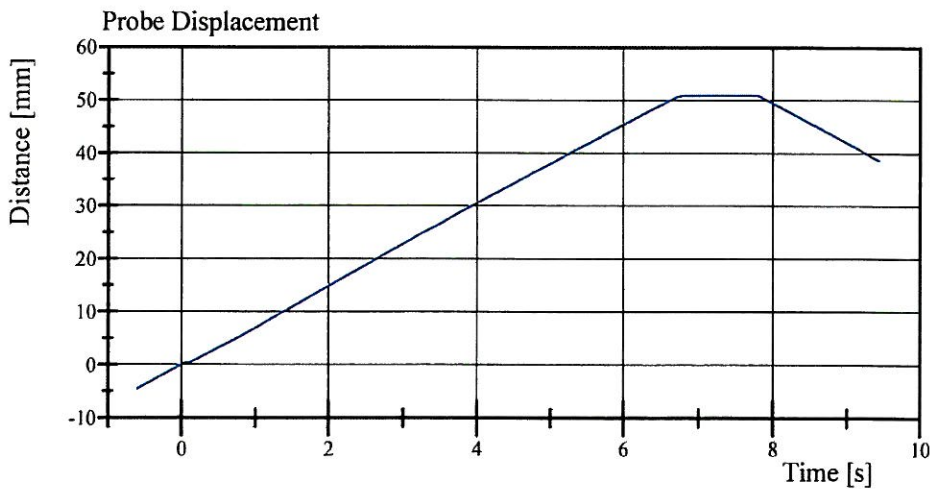
Test Date: 9/22/2009



Filter Class: CFC_600

Max: 693.3 N at 6.8 s

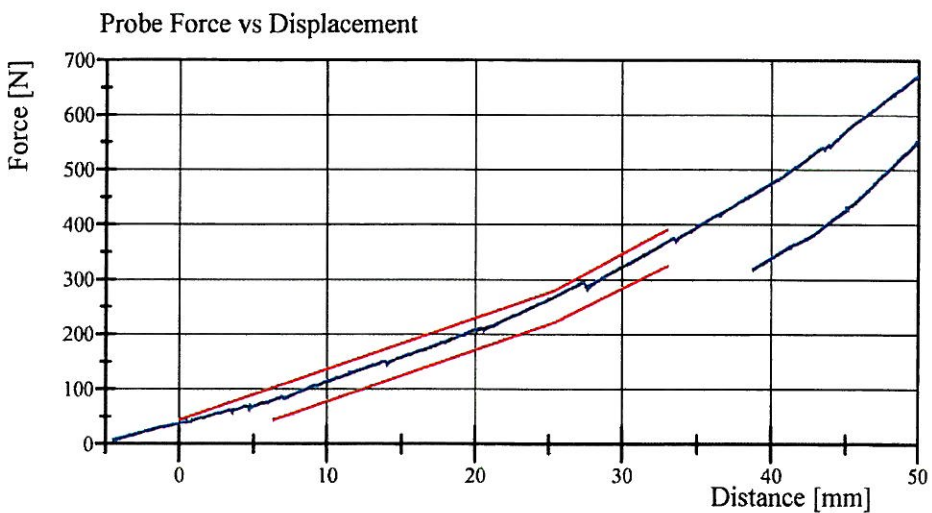
Min: 4.8 N at -0.6 s



Filter Class: CFC_180

Max: 51.0 mm at 7.8 s

Min: -4.5 mm at -0.6 s



Filter Class: CFC_600

Max: 693.3 N at 50.9 mm

Min: 4.8 N at -4.5 mm

TRANSPORTATION RESEARCH CENTER INC.

LUMBAR FLEXION TEST

SID PART 572B

CAL DATE: 21-Sep-09

TRC, INC.

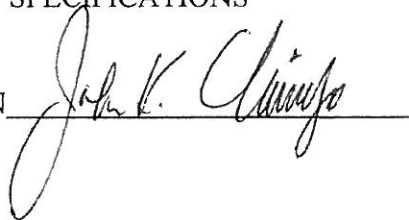
TEST NO: TOFL-01

572B SN 001 TORSO FLEX CAL 04

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	18.9 – 25.6° C	21.6 °C
RELATIVE HUMIDITY	10 – 70 %	53 %
FORCE AT 0 DEG. FLEXION	-27 – 27 N	0 N
FORCE AT 20 DEG OF FLEXION	98 – 151 N	134.5 N
FORCE AT 30 DEG OF FLEXION	151 – 205 N	191.0 N
FORCE AT 40 DEG OF FLEXION	205 – 258 N	228.5 N
NET RETURN ANGLE AFTER 3 MINUTES	< 12 °	6.3 °

TEST MEETS SPECIFICATIONS

TECHNICIAN



Transportation Research Center Inc.

Left Lateral Pelvis

SID-HIII Serial No. 001 Certification No. 4-1

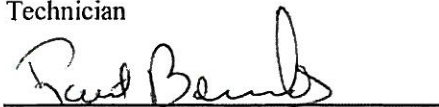
Test Date: 9/28/2009

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.5 °C	21.7 °C	Yes
Relative Humidity	10 - 70 %	49 %	Yes
Impactor Velocity	4.27 - 4.33 m/s	4.302 m/s	Yes
Pelvis Lateral Acceleration Duration above 20g	3 - 7 ms	6.2 ms	Yes
Pelvis Lateral Acceleration	40 - 60 g	46.3 g	Yes
Is Acceleration Curve Unimodal Above 20g?	Yes	Yes	Yes

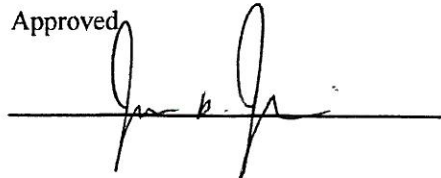
Test meets specifications.

Comments:

Technician



Approved

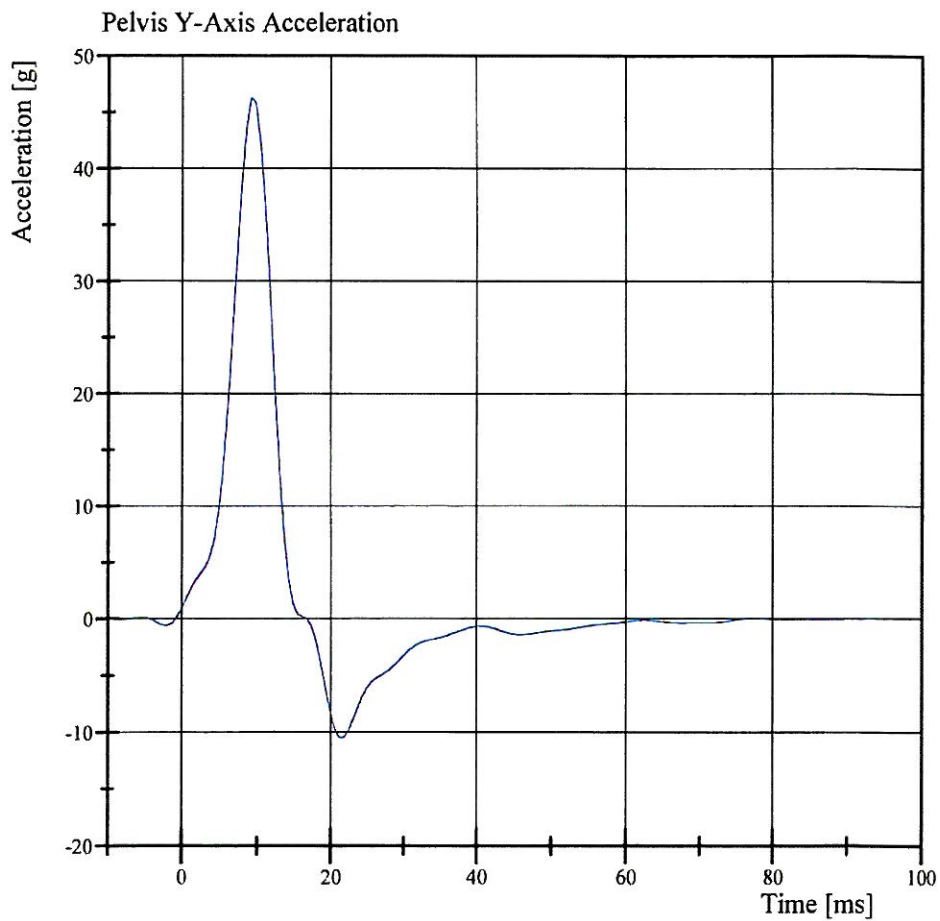


Transportation Research Center Inc.

Left Lateral Pelvis

SID-HIII Serial No. 001 Certification No. 4-1

Test Date: 9/28/2009



Filter Class: FIR_100
Max: 46.3 g at 9.3 ms
Min: -10.5 g at 21.7 ms

CALIBRATION TEST RESULTS

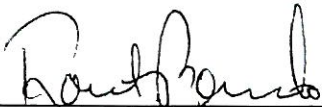
PRE-TEST

SID/HIII: 002

Transportation Research Center Inc.
572F SID Dummy
External Dimensions
Serial No. 002 Calibration No. 04

Test Parameter	Dimension	Specification	Results	Pass
Seated Height	SH	889.0 - 909.3 mm	907 mm	Yes
Rib Height	RH	501.7 - 520.7 mm	512 mm	Yes
Hip Pivot Height	HP	99.1 REF mm	99.1 mm	
Knee Pivot From Backline	KH	510.5 - 525.8 mm	517 mm	Yes
Knee Pivot From Floor	KV	490.2 - 505.5 mm	500 mm	Yes
Hip Width	HW	355.6 - 391.2 mm	380 mm	Yes
Top Rib Width From C/L	RW-1	165.1 - 180.3 mm	176 mm	Yes
Bottom Rib Width From C/L	RW-2	165.1 - 180.3 mm	175 mm	Yes
Difference Between Top & Bottom Rib Width from C/L		<= 2.5 mm	1.0 mm	Yes

Technician



Approved





Transportation Research Center Inc.

Left Lateral Head Drop

SID-HIII Serial No. 002 Certification No. 4-1

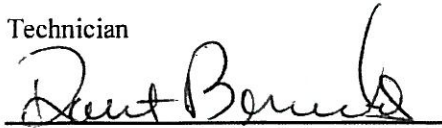
Test Date: 7/6/2009

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.6 °C	21.6 °C	Yes
Relative Humidity	10 - 70 %	50 %	Yes
Peak Head Resultant Acceleration	120 - 150 g	136.6 g	Yes
Peak Head Longitudinal Acceleration	(-15) - 15 g	10.8 g	Yes
Is Head Resultant Acceleration Curve Unimodal Within 15% of Peak?	Yes	Yes	Yes

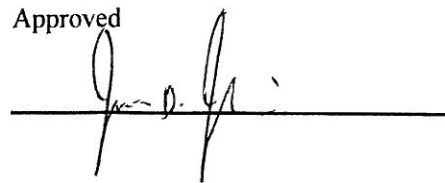
Test meets specifications.

Comments:

Technician



Approved



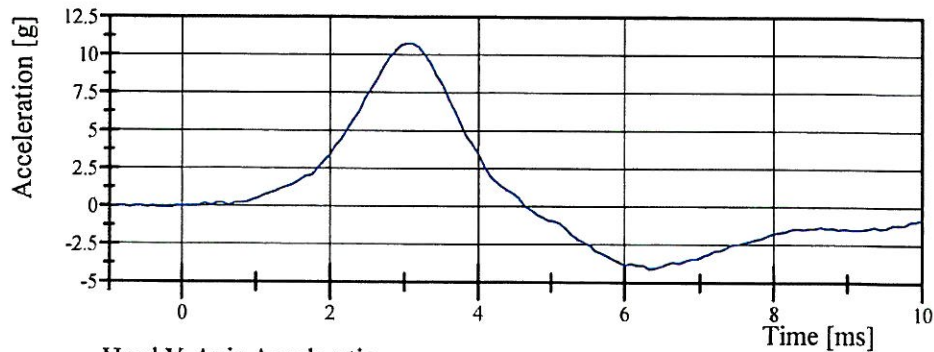
Transportation Research Center Inc.

Left Lateral Head Drop

SID-HIII Serial No. 002 Certification No. 4-1

Test Date: 7/6/2009

Head X-Axis Acceleration

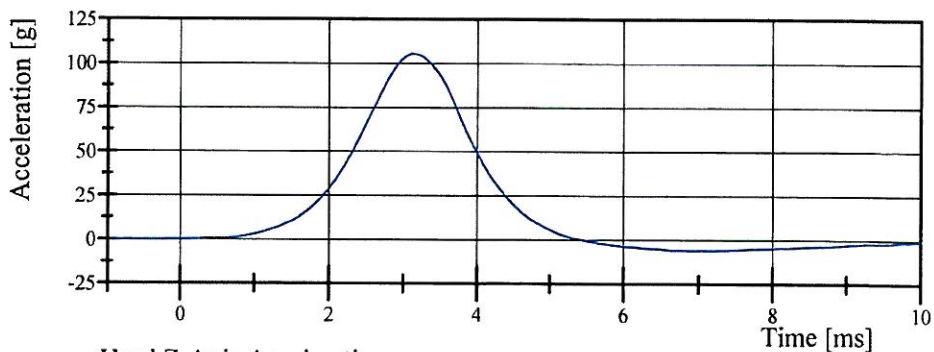


Filter Class: CFC_1000

Max: 10.8 g at 3.0 ms

Min: -4.1 g at 6.3 ms

Head Y-Axis Acceleration

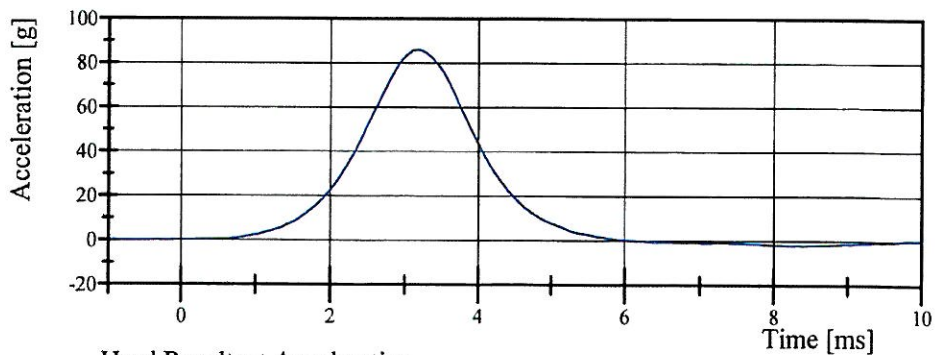


Filter Class: CFC_1000

Max: 105.5 g at 3.1 ms

Min: -5.9 g at 7.0 ms

Head Z-Axis Acceleration

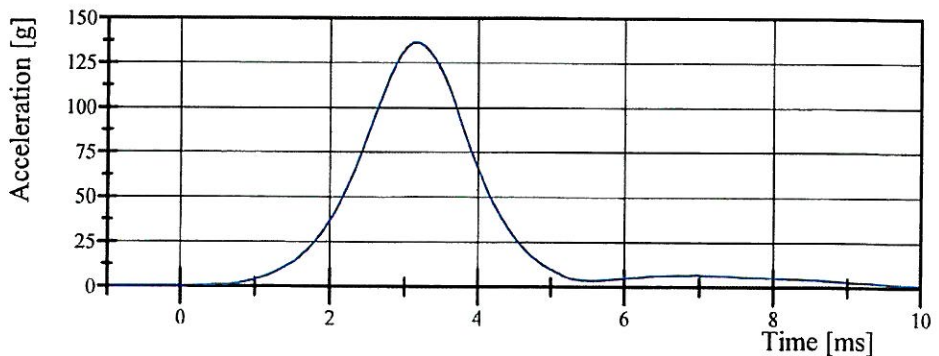


Filter Class: CFC_1000

Max: 86.1 g at 3.2 ms

Min: -2.0 g at 8.2 ms

Head Resultant Acceleration



Filter Class: CFC_1000

Max: 136.6 g at 3.2 ms

Min: 0.0 g at -0.2 ms

Transportation Research Center Inc.

Left Lateral Neck

SID-HIII Serial No. 002 Certification No. 4-2

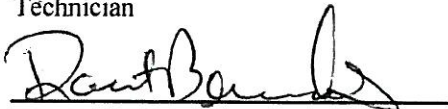
Test Date: 7/7/2009

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.7 °C	Yes
Relative Humidity	10 - 70 %	46 %	Yes
Pendulum Velocity	(-6.89) - (-7.13) m/s	-7.020 m/s	Yes
Pendulum Integrated Velocity Change at 10 ms	1.96 - 2.55 m/s	2.278 m/s	Yes
Pendulum Integrated Velocity Change at 20 ms	4.12 - 5.10 m/s	4.534 m/s	Yes
Pendulum Integrated Velocity Change at 30 ms	5.73 - 7.01 m/s	6.366 m/s	Yes
Pendulum Integrated Velocity Change at 40 to 70 ms	6.27 - 7.64 m/s	7.344 m/s	Yes
Total Head D-Plane Rotation	(-66) - (-82) °	-73.0 °	Yes
Total Head D-Plane Rotation Time to 0° after Peak Rotation	58 - 67 ms	61.1 ms	Yes
Total Neck Occipital Condyle Moment	73 - 88 N·m	86.2 N·m	Yes
Total Neck Occipital Condyle Moment Time to 0 N·m after Peak Moment	49 - 64 ms	52.7 ms	Yes
Time from Peak Moment to Peak Rotation	2 - 16 ms	8.2 ms	Yes

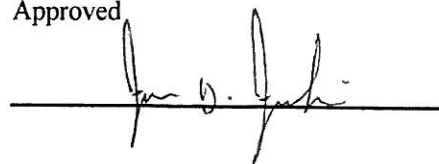
Test meets specifications.

Comments:

Technician



Approved

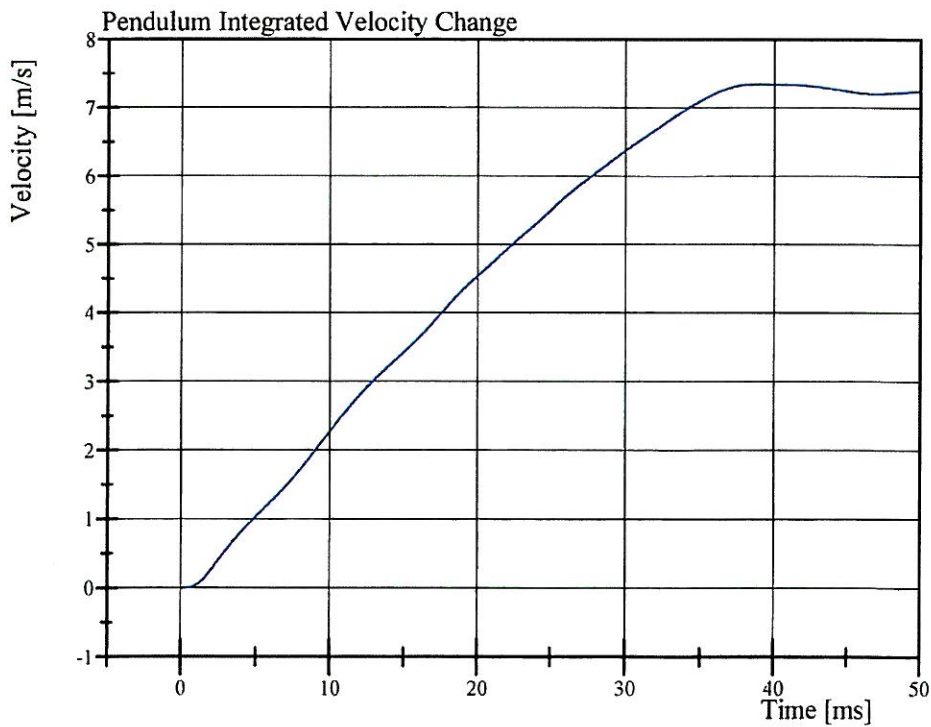
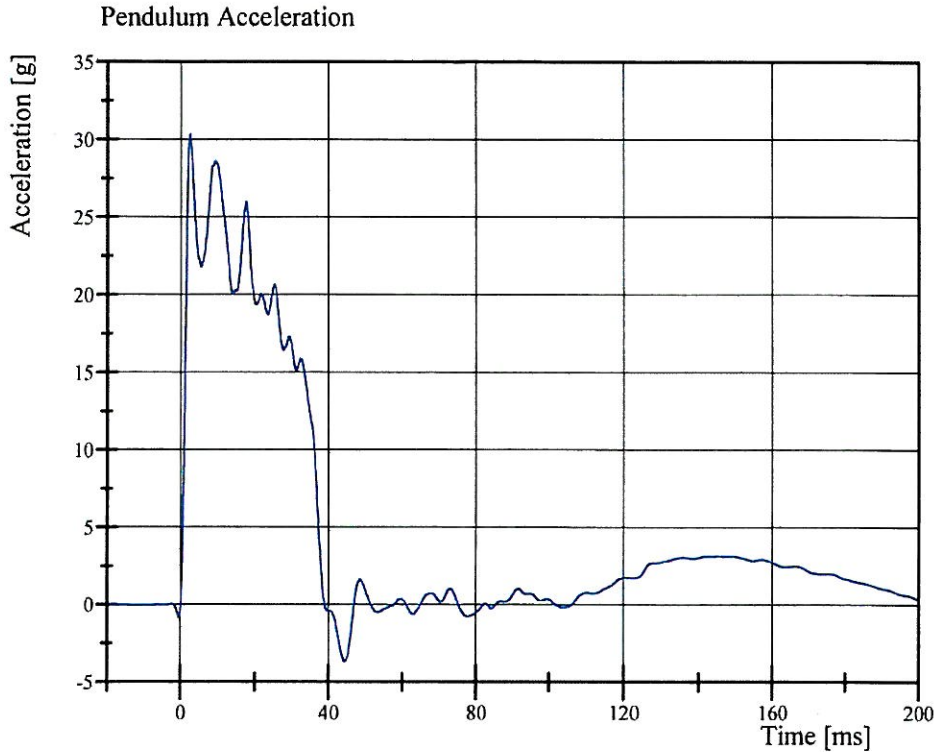


Transportation Research Center Inc.

Left Lateral Neck

SID-HIII Serial No. 002 Certification No. 4-2

Test Date: 7/7/2009



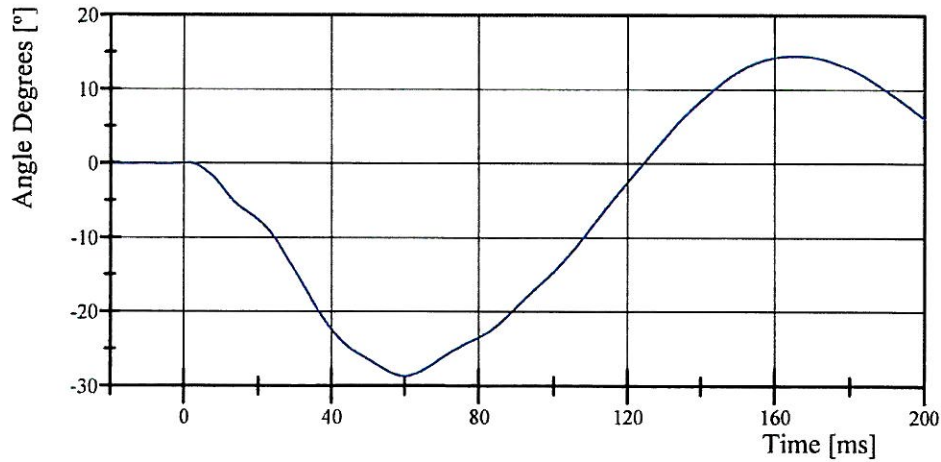
Transportation Research Center Inc.

Left Lateral Neck

SID-HIII Serial No. 002 Certification No. 4-2

Test Date: 7/7/2009

Pot Rotation at the Base of Neck

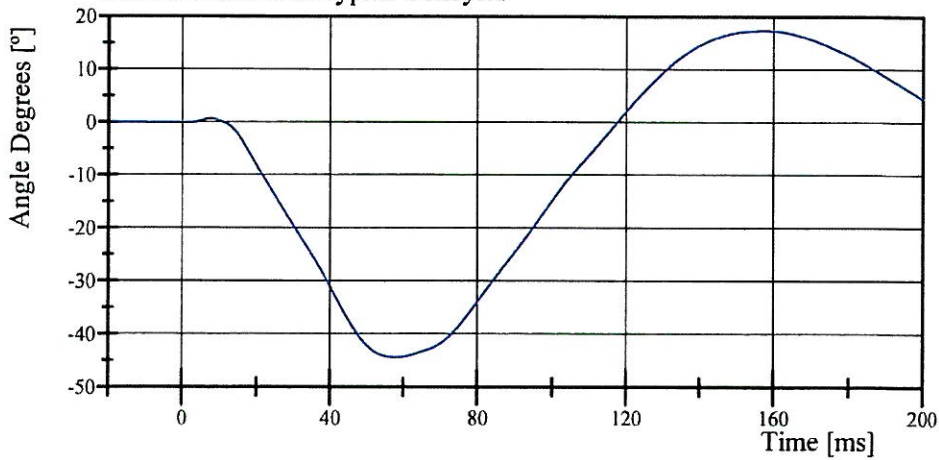


Filter Class: CFC_60

Max: 14.6 ° at 165.6 ms

Min: -28.7 ° at 60.1 ms

Head Rotation at Occypital Condyles

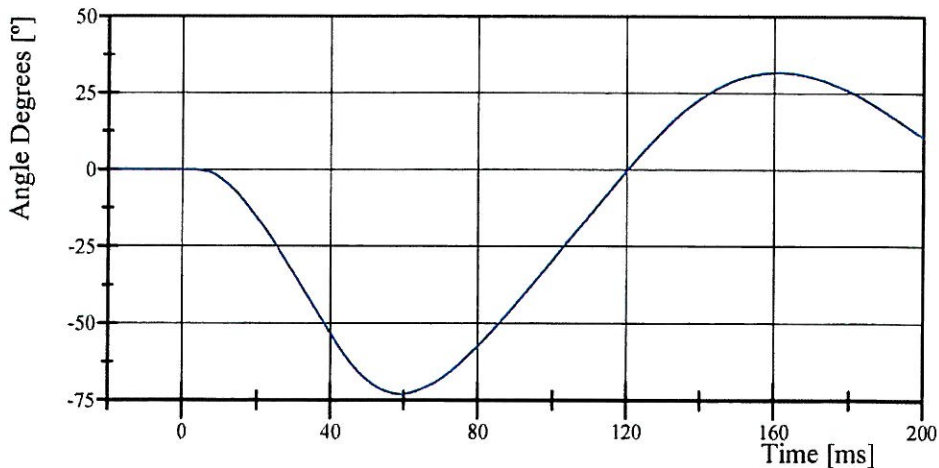


Filter Class: CFC_60

Max: 17.4 ° at 157.5 ms

Min: -44.4 ° at 58.0 ms

Total Head D-Plane Rotation



Filter Class: CFC_60

Max: 31.7 ° at 161.4 ms

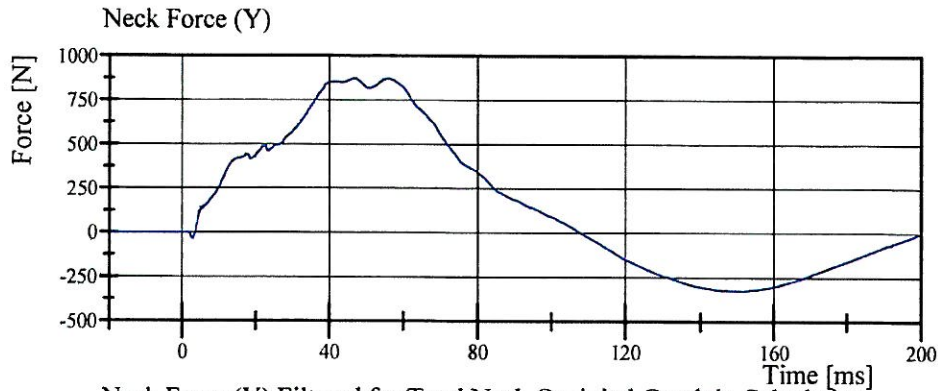
Min: -73.0 ° at 59.2 ms

Transportation Research Center Inc.

Left Lateral Neck

SID-HIII Serial No. 002 Certification No. 4-2

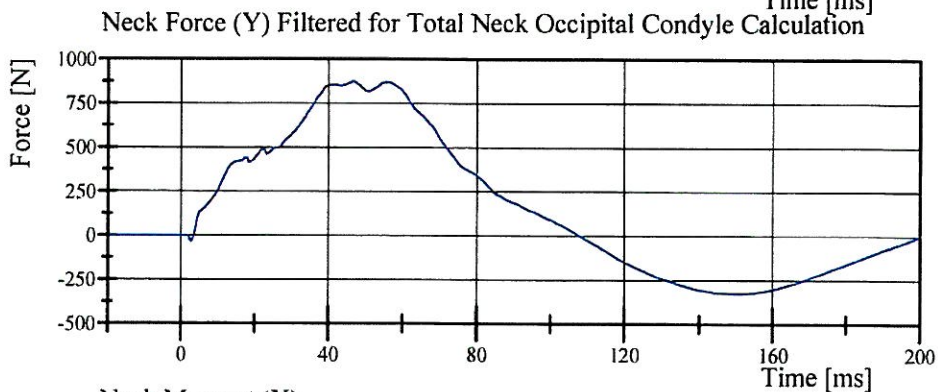
Test Date: 7/7/2009



Filter Class: CFC_1000

Max: 875.5 N at 46.6 ms

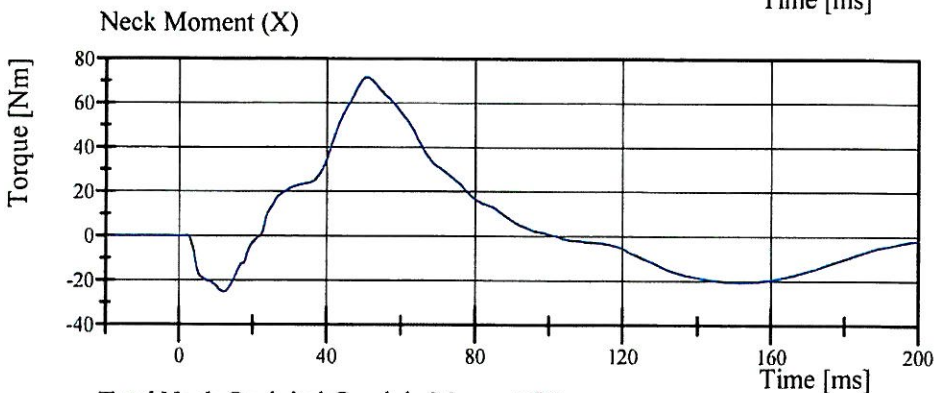
Min: -324.9 N at 151.2 ms



Filter Class: CFC_600

Max: 875.0 N at 46.7 ms

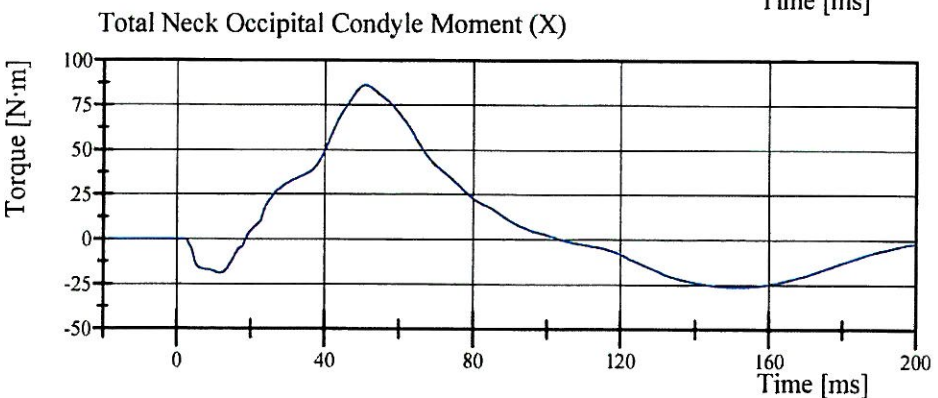
Min: -324.7 N at 151.4 ms



Filter Class: CFC_600

Max: 71.7 Nm at 51.0 ms

Min: -25.1 Nm at 12.1 ms



Filter Class: CFC_600

Max: 86.2 N·m at 51.0 ms

Min: -26.4 N·m at 151.0 ms

Transportation Research Center Inc.

6.10 m/s Thoracic Shock Absorber Compression

SID-HIII Serial No. 002 Certification No. 4-2

Test Date: 7/8/2009

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.5 °C	21.5 °C	Yes
Relative Humidity	10 - 70 %	45 %	Yes
Maximum Force at Test Velocity	3,706 - 4,395 N	4,251.7 N	Yes
Maximum Displacement at Test Velocity	33.34 - 39.54 mm	38.178 mm	Yes

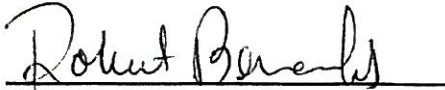
Test meets specifications.

Comments:

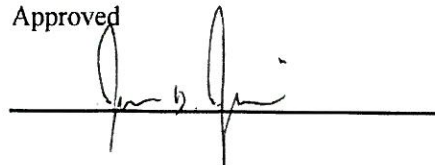
Actual Impactor Velocity (m/s): 6.067

Damper Setting: 7.5

Technician



Approved

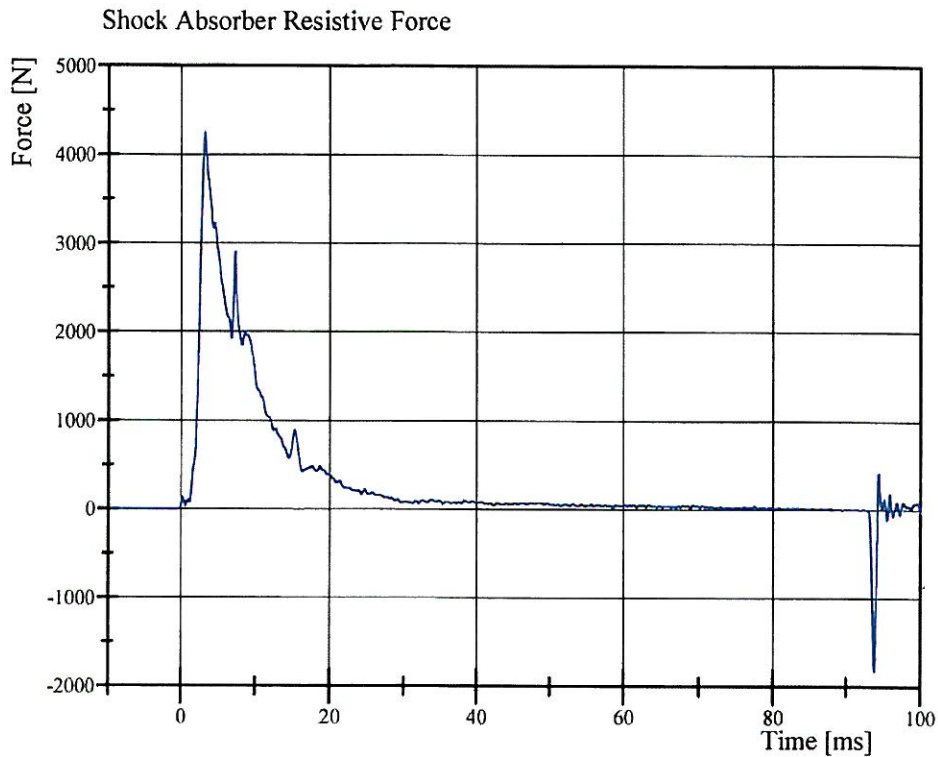


Transportation Research Center Inc.

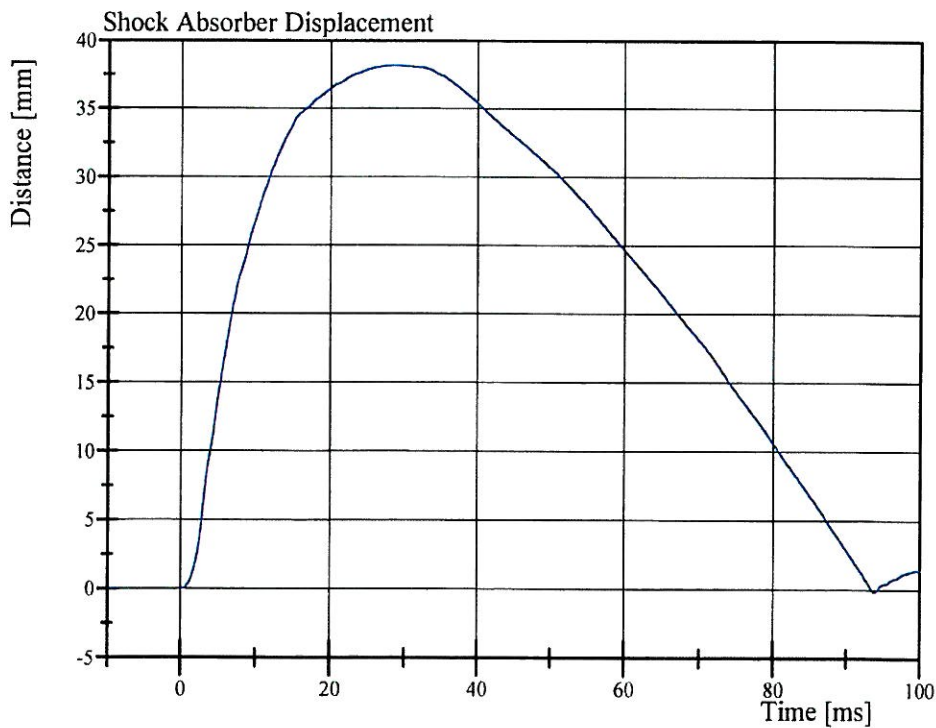
6.10 m/s Thoracic Shock Absorber Compression

SID-HIII Serial No. 002 Certification No. 4-2

Test Date: 7/8/2009



Filter Class: CFC_1000
Max: 4,251.7 N at 3.3 ms
Min: -1,817.5 N at 93.8 ms



Filter Class: CFC_1000
Max: 38.2 mm at 28.8 ms
Min: -0.1 mm at 93.8 ms

Transportation Research Center Inc.

4.27 m/s Thoracic Shock Absorber Compression

SID-HIII Serial No. 002 Certification No. 4-1

Test Date: 7/8/2009

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.5 °C	21.5 °C	Yes
Relative Humidity	10 - 70 %	45 %	Yes
Maximum Force at Test Velocity	1,753 - 2,119 N	1,914.2 N	Yes
Maximum Displacement at Test Velocity	31.7 - 37.25 mm	36.679 mm	Yes

Test meets specifications.

Comments:

Actual Impactor Velocity (m/s): 4.288

Damper Setting: 7.5

Technician

Roset Bonavides

Approved

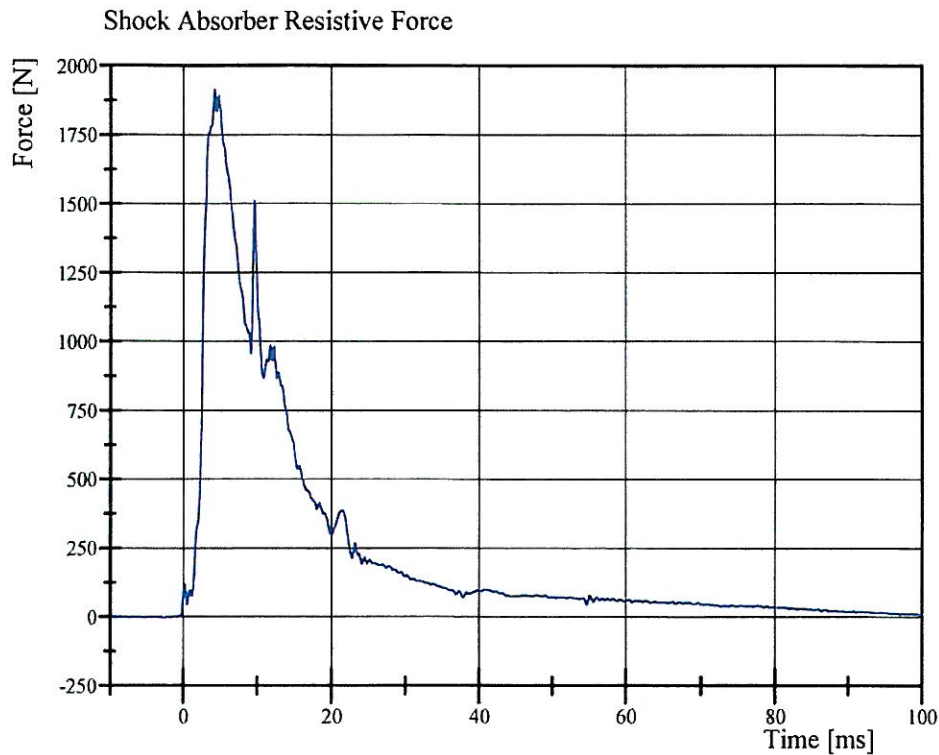
Jim D. John

Transportation Research Center Inc.

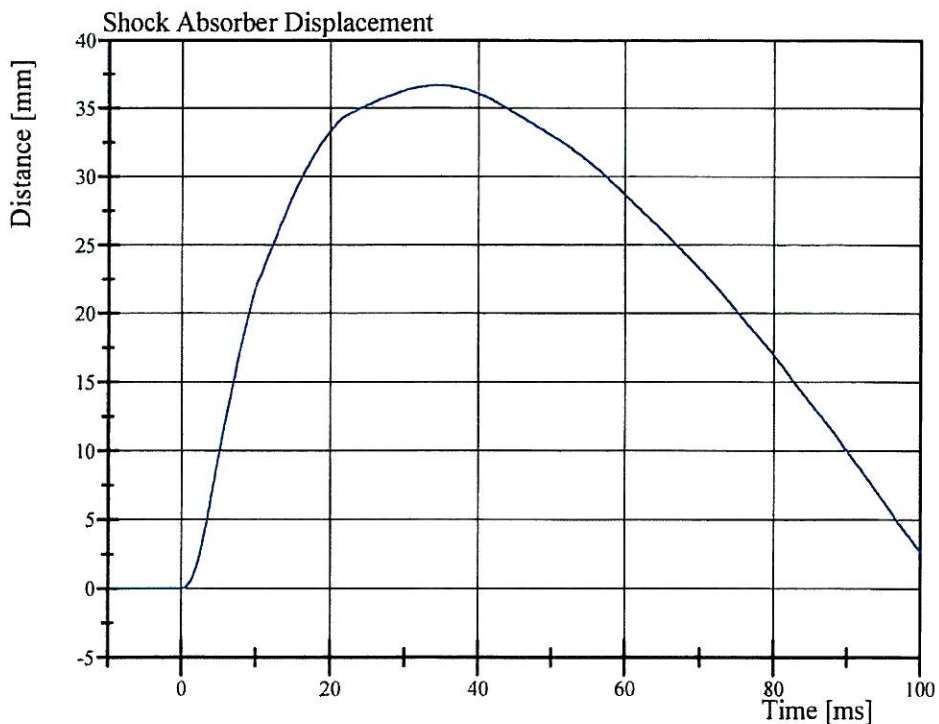
4.27 m/s Thoracic Shock Absorber Compression

SID-HIII Serial No. 002 Certification No. 4-1

Test Date: 7/8/2009



Filter Class: CFC_1000
Max: 1,914.2 N at 4.2 ms
Min: -3.0 N at -7.4 ms



Filter Class: CFC_1000
Max: 36.7 mm at 34.4 ms
Min: -0.0 mm at -9.4 ms

Transportation Research Center Inc.

3.05 m/s Thoracic Shock Absorber Compression

SID-HIII Serial No. 002 Certification No. 4-1

Test Date: 7/8/2009

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.5 °C	21.6 °C	Yes
Relative Humidity	10 - 70 %	45 %	Yes
Maximum Force at Test Velocity	856 - 1,146 N	921.7 N	Yes
Maximum Displacement at Test Velocity	30.2 - 35.19 mm	34.301 mm	Yes

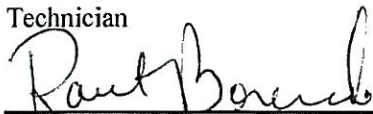
Test meets specifications.

Comments:

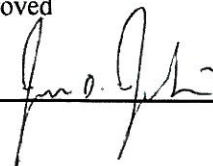
Actual Impactor Velocity (m/s): 3.076

Damper Setting: 7.5

Technician



Approved

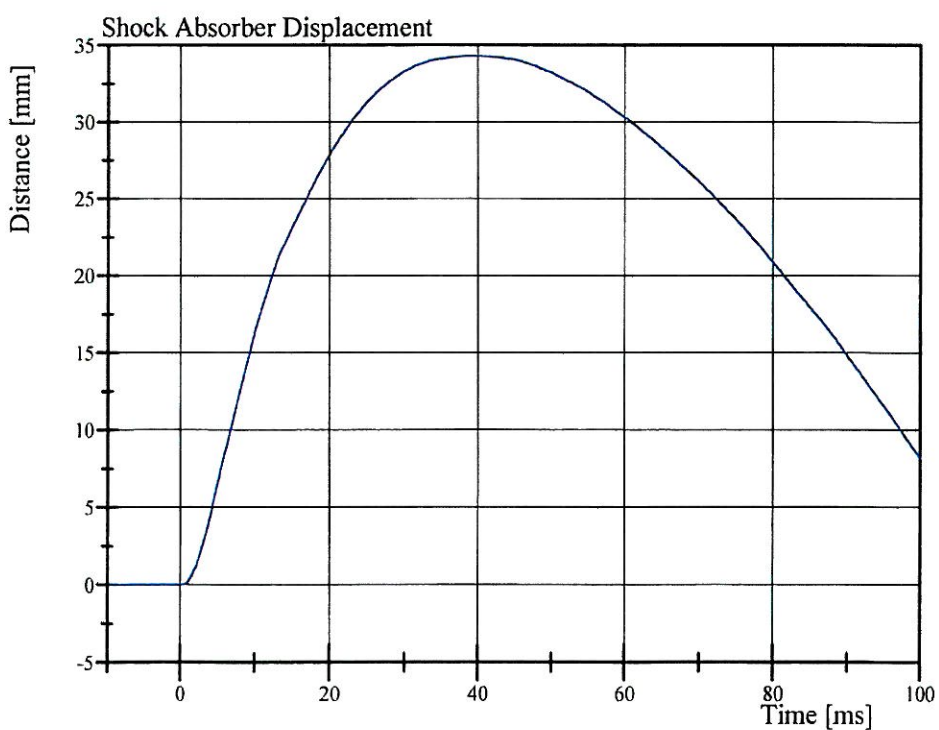
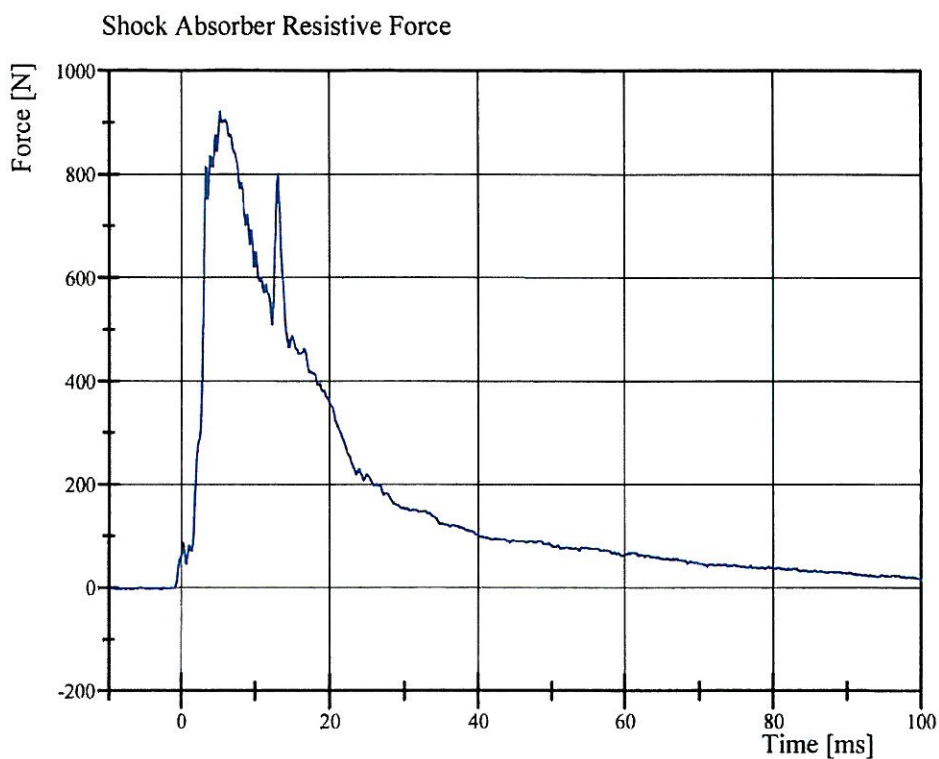


Transportation Research Center Inc.

3.05 m/s Thoracic Shock Absorber Compression

SID-HIII Serial No. 002 Certification No. 4-1

Test Date: 7/8/2009



Transportation Research Center Inc.

Left Lateral Thorax

SID-HIII Serial No. 002 Certification No. 4-1

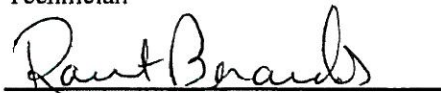
Test Date: 7/9/2009

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.6 °C	21.6 °C	Yes
Relative Humidity	10 - 70 %	47 %	Yes
Impactor Velocity	4.27 - 4.33 m/s	4.310 m/s	Yes
Upper Rib Lateral Acceleration	37 - 46 g	43.2 g	Yes
Lower Rib Lateral Acceleration	37 - 46 g	42.1 g	Yes
Lower Spine Lateral Acceleration	15 - 22 g	21.4 g	Yes

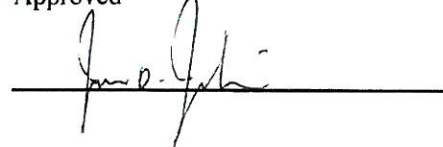
Test meets specifications.

Comments:

Technician



Approved

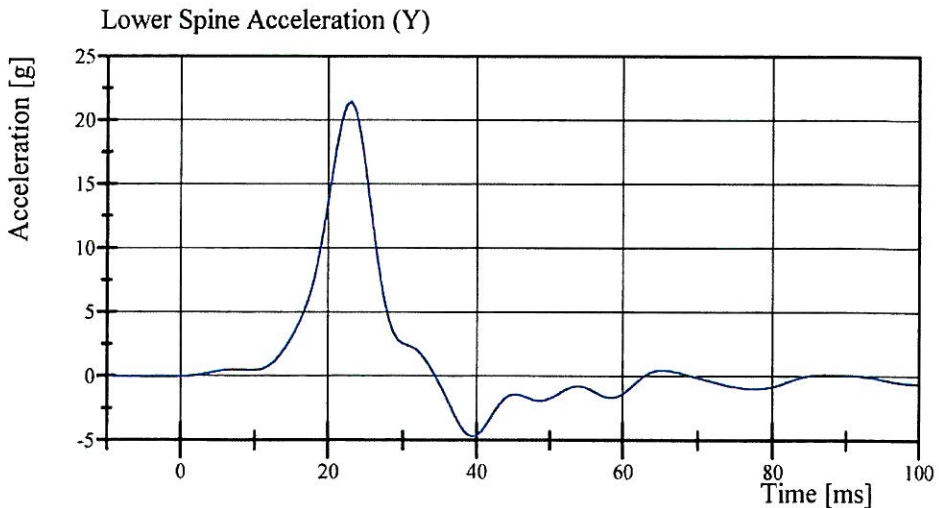
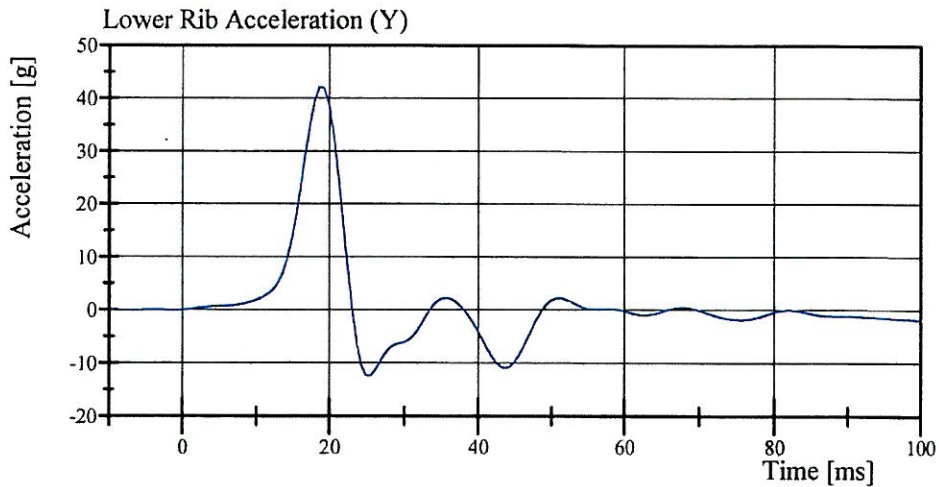
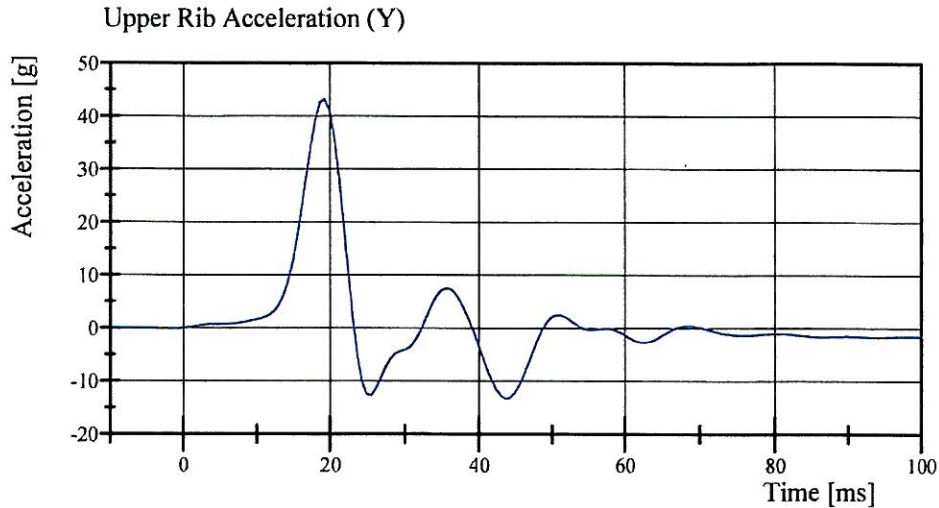


Transportation Research Center Inc.

Left Lateral Thorax

SID-HIII Serial No. 002 Certification No. 4-1

Test Date: 7/9/2009



Transportation Research Center Inc.

Abdomen Compression

SID-HIII Serial No. 002 Certification No. 4-2

Test Date: 7/8/2009

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.5 °C	21.5 °C	Yes
Relative Humidity	10 - 70 %	42 %	Yes
Probe Force within Corridor	Yes	Yes	Yes
Probe Velocity	6.35 - 8.89 mm/s	7.747 mm/s	Yes

Test meets specifications.

Comments:

Technician



Approved



Transportation Research Center Inc.

Abdomen Compression

SID-HIII Serial No. 002 Certification No. 4-2

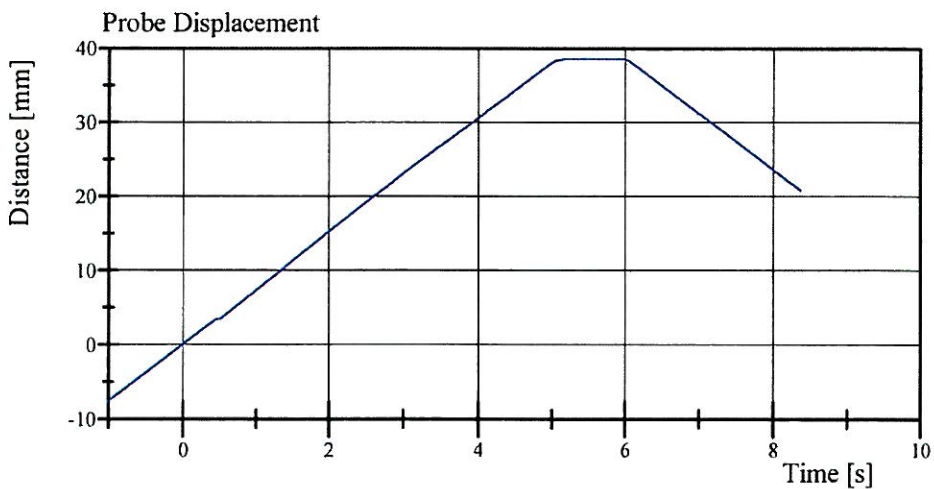
Test Date: 7/8/2009



Filter Class: CFC_600

Max: 422.5 N at 5.1 s

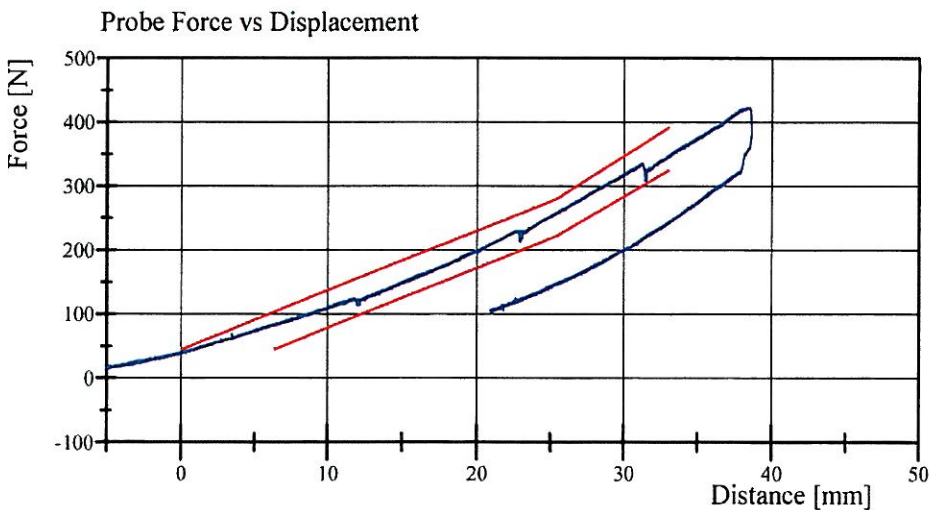
Min: 3.7 N at -1.0 s



Filter Class: CFC_180

Max: 38.6 mm at 6.0 s

Min: -7.6 mm at -1.0 s



Filter Class: CFC_600

Max: 422.5 N at 38.5 mm

Min: -2.6 N at -12.9 mm

TRANSPORTATION RESEARCH CENTER INC.

LUMBAR FLEXION TEST

SID PART 572B

CAL DATE: 09-Jul-08

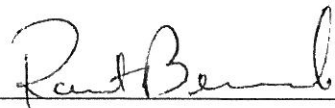
TRC, INC.

TEST NO: TOFL-01

572B SN 002 TORSO FLEX CAL 04

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	18.9 – 25.6° C	21.2 °C
RELATIVE HUMIDITY	10 – 70 %	42 %
FORCE AT 0 DEG. FLEXION	-27 – 27 N	0 N
FORCE AT 20 DEG OF FLEXION	98 – 151 N	140 N
FORCE AT 30 DEG OF FLEXION	151 – 205 N	199 N
FORCE AT 40 DEG OF FLEXION	205 – 258 N	231N
NET RETURN ANGLE AFTER 3 MINUTES	< 12 °	7.6 °

TEST MEETS SPECIFICATIONS

TECHNICIAN 

Transportation Research Center Inc.

Left Lateral Pelvis

SID-HIII Serial No. 002 Certification No. 4-1

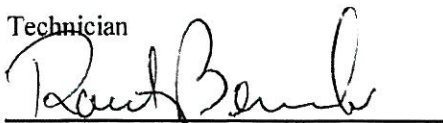
Test Date: 7/9/2009

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.5 °C	21.6 °C	Yes
Relative Humidity	10 - 70 %	48 %	Yes
Impactor Velocity	4.27 - 4.33 m/s	4.313 m/s	Yes
Pelvis Lateral Acceleration Duration above 20g	3 - 7 ms	5.7 ms	Yes
Pelvis Lateral Acceleration	40 - 60 g	49.0 g	Yes
Is Acceleration Curve Unimodal Above 20g?	Yes	Yes	Yes

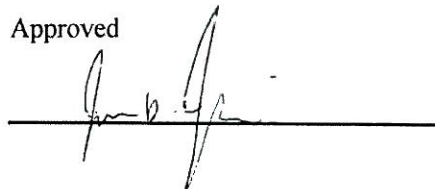
Test meets specifications.

Comments:

Technician



Approved

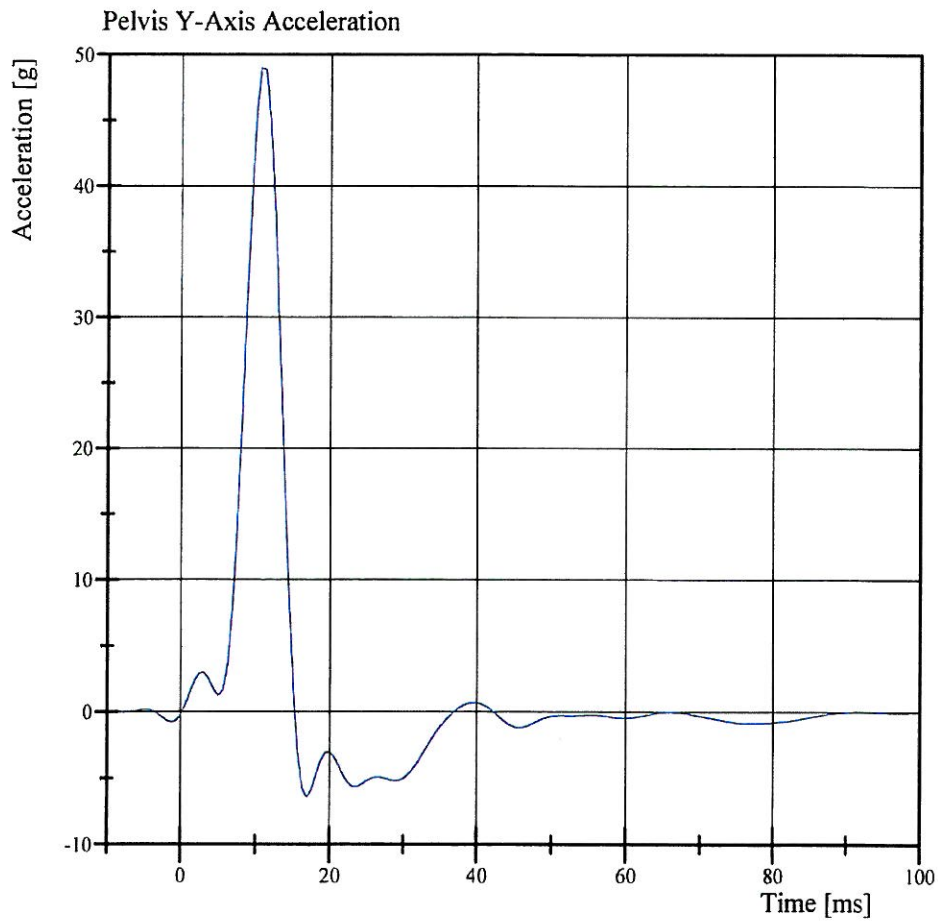


Transportation Research Center Inc.

Left Lateral Pelvis

SID-HIII Serial No. 002 Certification No. 4-1

Test Date: 7/9/2009



Filter Class: FIR_100
Max: 49.0 g at 10.7 ms
Min: -6.4 g at 17.0 ms

CALIBRATION TEST RESULTS

POST-TEST

SID/HIII: 002

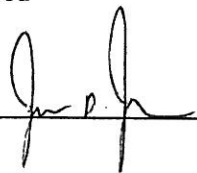
Transportation Research Center Inc.
572F SID Dummy
External Dimensions
Serial No. 002 Calibration No. 05

Test Parameter	Dimension	Specification	Results	Pass
Seated Height	SH	889.0 - 909.3 mm	907 mm	Yes
Rib Height	RH	501.7 - 520.7 mm	513 mm	Yes
Hip Pivot Height	HP	99.1 REF mm	99.1 mm	
Knee Pivot From Backline	KH	510.5 - 525.8 mm	519 mm	Yes
Knee Pivot From Floor	KV	490.2 - 505.5 mm	501 mm	Yes
Hip Width	HW	355.6 - 391.2 mm	382 mm	Yes
Top Rib Width From C/L	RW-1	165.1 - 180.3 mm	175 mm	Yes
Bottom Rib Width From C/L	RW-2	165.1 - 180.3 mm	175 mm	Yes
Difference Between Top & Bottom Rib Width from C/L		<= 2.5 mm	0.0 mm	Yes

Technician



Approved





Transportation Research Center Inc.

Left Lateral Head Drop

SID-HIII Serial No. 002 Certification No. 5-1

Test Date: 9/22/2009

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.6 °C	21.7 °C	Yes
Relative Humidity	10 - 70 %	54 %	Yes
Peak Head Resultant Acceleration	120 - 150 g	143.9 g	Yes
Peak Head Longitudinal Acceleration	(-15) - 15 g	7.7 g	Yes
Is Head Resultant Acceleration Curve Unimodal Within 15% of Peak?	Yes	Yes	Yes

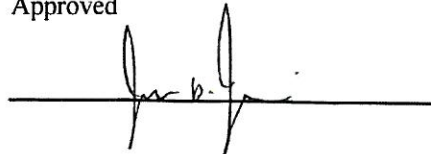
Test meets specifications.

Comments:

Technician



Approved

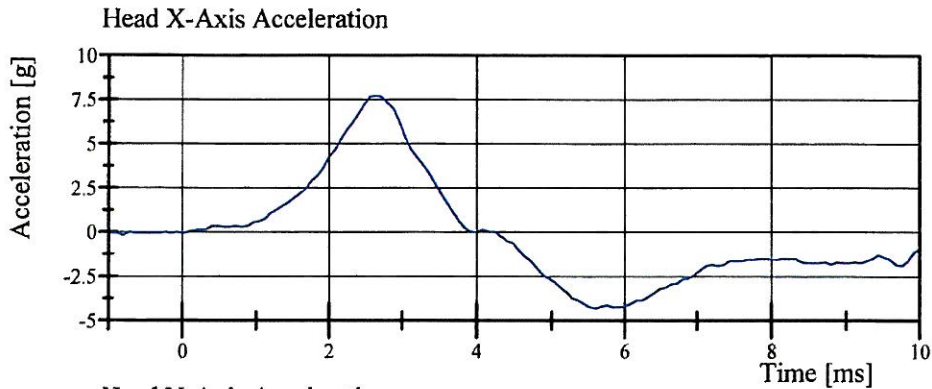


Transportation Research Center Inc.

Left Lateral Head Drop

SID-HIII Serial No. 002 Certification No. 5-1

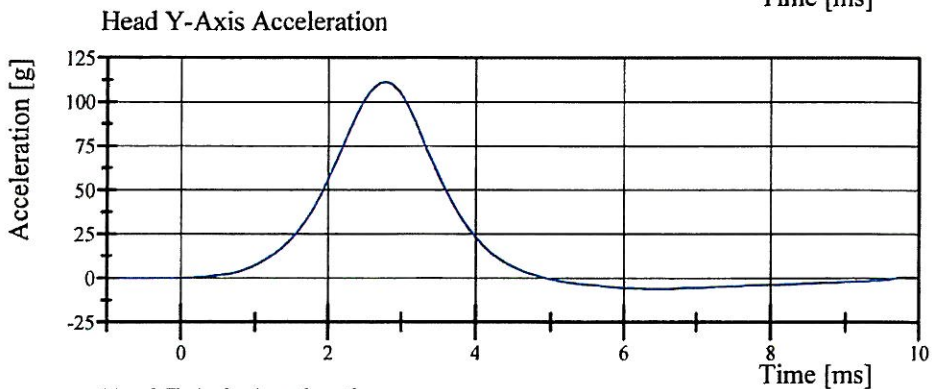
Test Date: 9/22/2009



Filter Class: CFC_1000

Max: 7.7 g at 2.6 ms

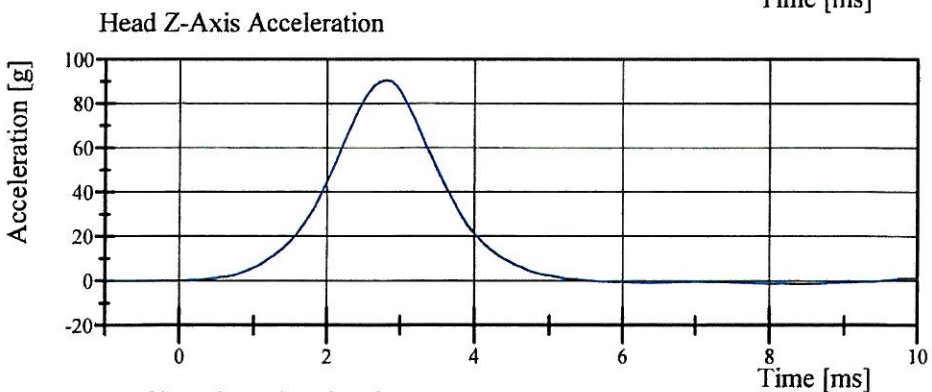
Min: -4.3 g at 5.6 ms



Filter Class: CFC_1000

Max: 111.5 g at 2.8 ms

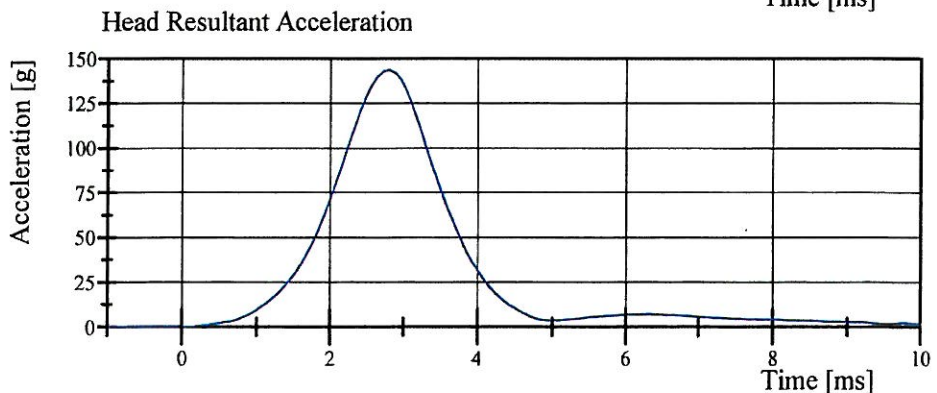
Min: -6.1 g at 6.3 ms



Filter Class: CFC_1000

Max: 90.7 g at 2.8 ms

Min: -1.4 g at 8.5 ms



Filter Class: CFC_1000

Max: 143.9 g at 2.8 ms

Min: 0.0 g at -1.0 ms

Transportation Research Center Inc.

Left Lateral Neck

SID-HIII Serial No. 002 Certification No. 5-5

Test Date: 9/23/2009

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.5 °C	Yes
Relative Humidity	10 - 70 %	52 %	Yes
Pendulum Velocity	(-6.89) - (-7.13) m/s	-7.013 m/s	Yes
Pendulum Integrated Velocity Change at 10 ms	1.96 - 2.55 m/s	2.220 m/s	Yes
Pendulum Integrated Velocity Change at 20 ms	4.12 - 5.10 m/s	4.529 m/s	Yes
Pendulum Integrated Velocity Change at 30 ms	5.73 - 7.01 m/s	6.284 m/s	Yes
Pendulum Integrated Velocity Change at 40 to 70 ms	6.27 - 7.64 m/s	7.350 m/s	Yes
Total Head D-Plane Rotation	(-66) - (-82) °	-73.9 °	Yes
Total Head D-Plane Rotation Time to 0° after Peak Rotation	58 - 67 ms	58.1 ms	Yes
Total Neck Occipital Condyle Moment	73 - 88 N·m	87.8 N·m	Yes
Total Neck Occipital Condyle Moment Time to 0 N·m after Peak Moment	49 - 64 ms	51.4 ms	Yes
Time from Peak Moment to Peak Rotation	2 - 16 ms	8.5 ms	Yes

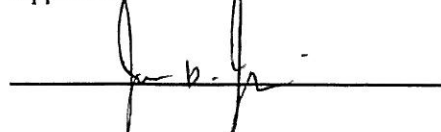
Test meets specifications.

Comments:

Technician



Approved

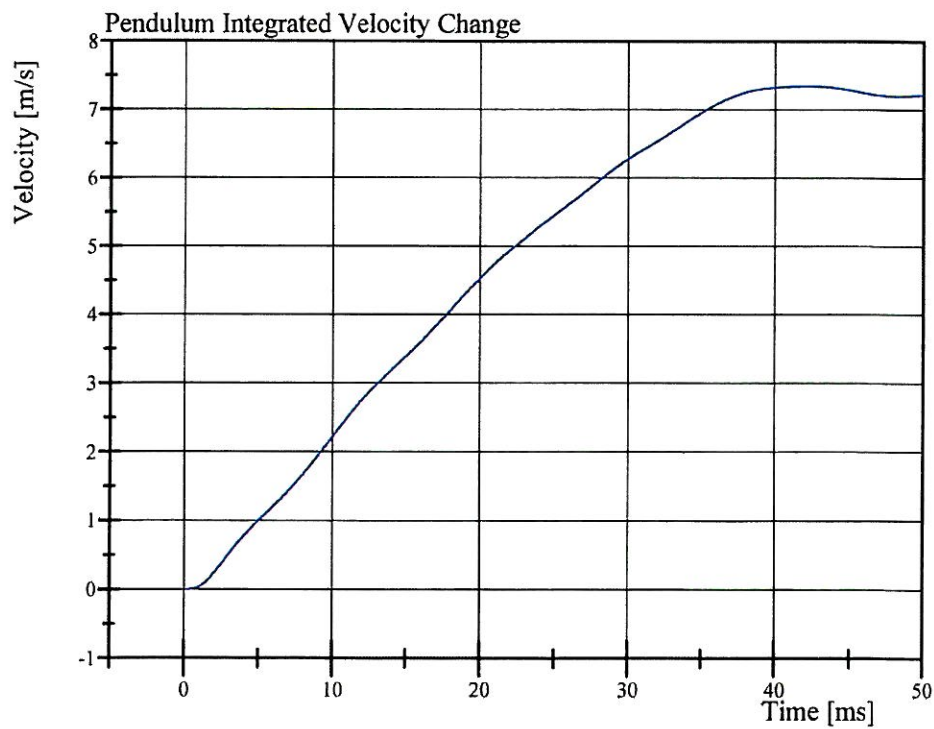
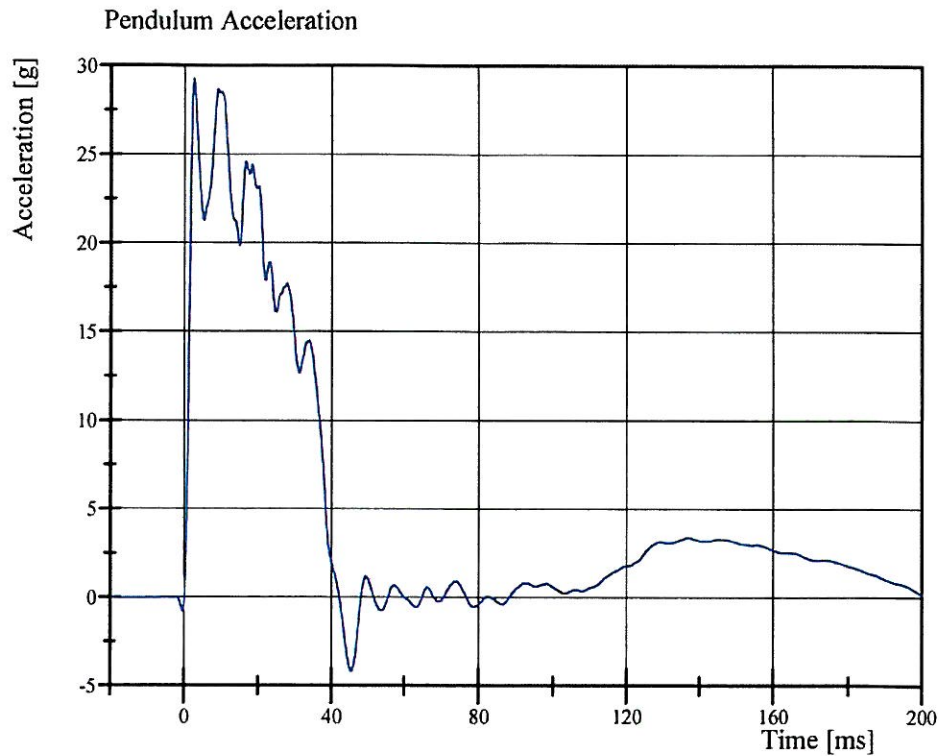


Transportation Research Center Inc.

Left Lateral Neck

SID-HIII Serial No. 002 Certification No. 5-5

Test Date: 9/23/2009



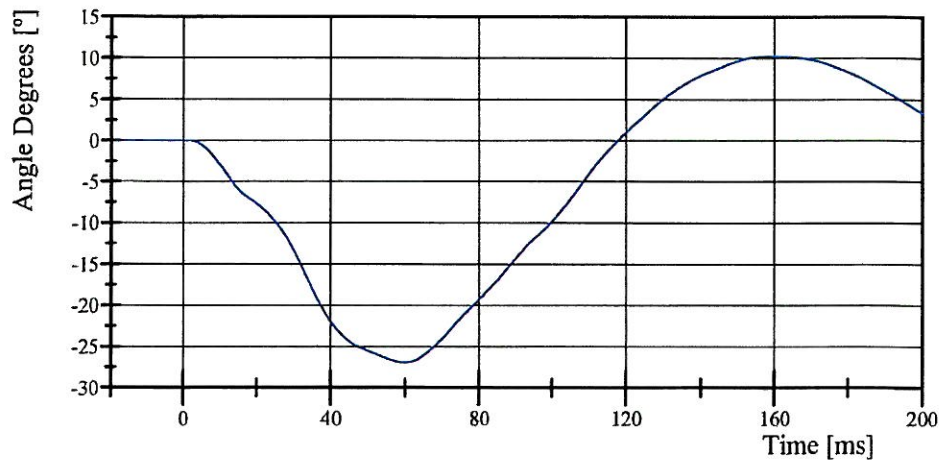
Transportation Research Center Inc.

Left Lateral Neck

SID-HIII Serial No. 002 Certification No. 5-5

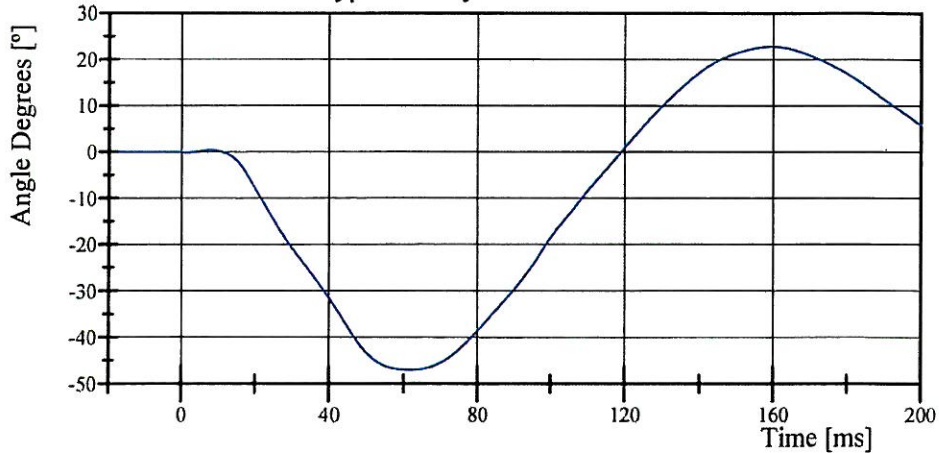
Test Date: 9/23/2009

Pot Rotation at the Base of Neck



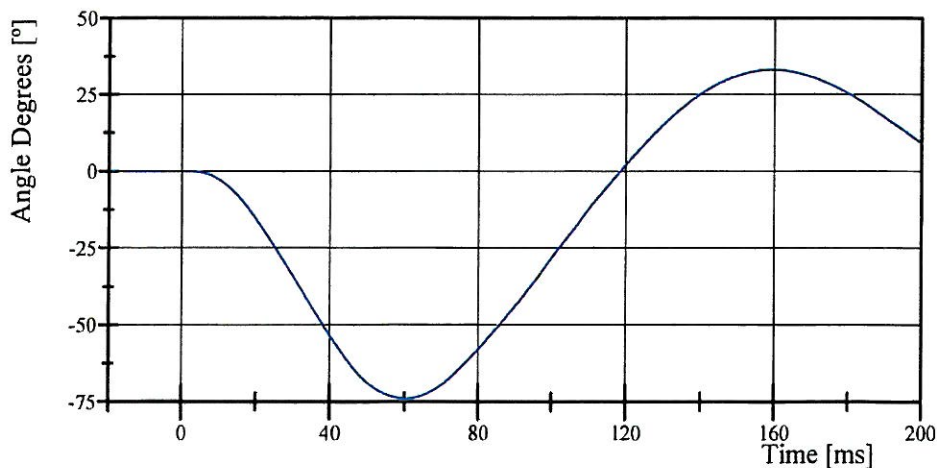
Filter Class: CFC_60
Max: 10.3 ° at 159.0 ms
Min: -26.9 ° at 59.9 ms

Head Rotation at Occypital Condyles



Filter Class: CFC_60
Max: 22.8 ° at 159.6 ms
Min: -47.0 ° at 61.8 ms

Total Head D-Plane Rotation



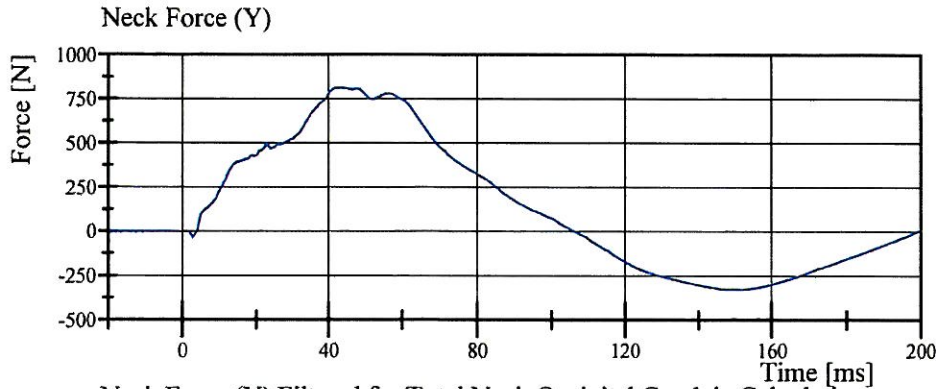
Filter Class: CFC_60
Max: 33.1 ° at 159.4 ms
Min: -73.9 ° at 60.4 ms

Transportation Research Center Inc.

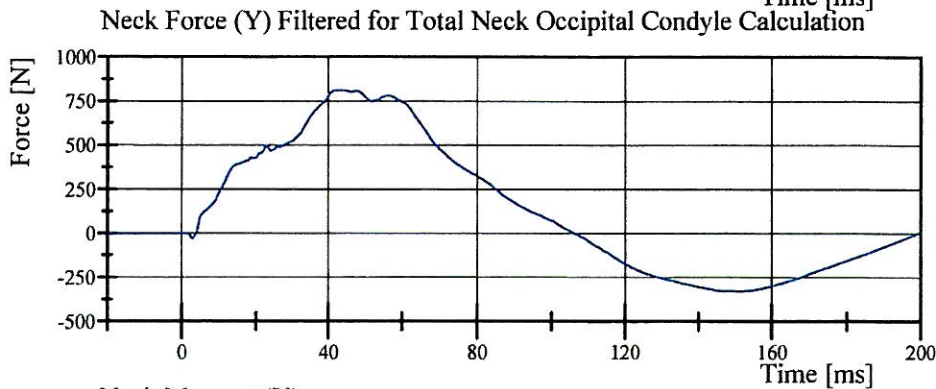
Left Lateral Neck

SID-HIII Serial No. 002 Certification No. 5-5

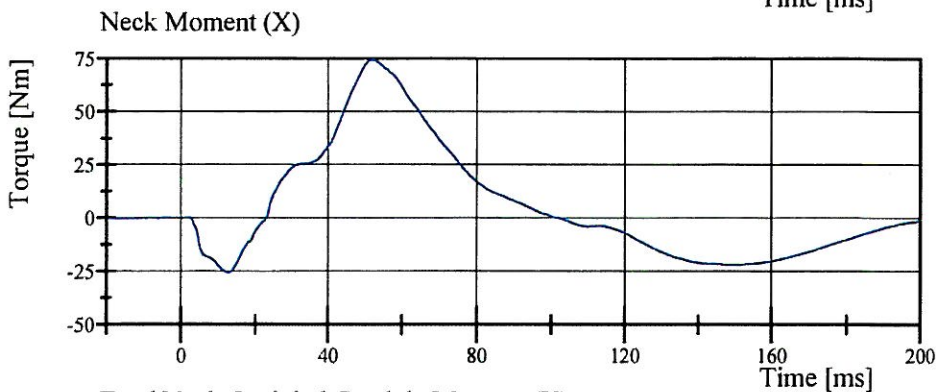
Test Date: 9/23/2009



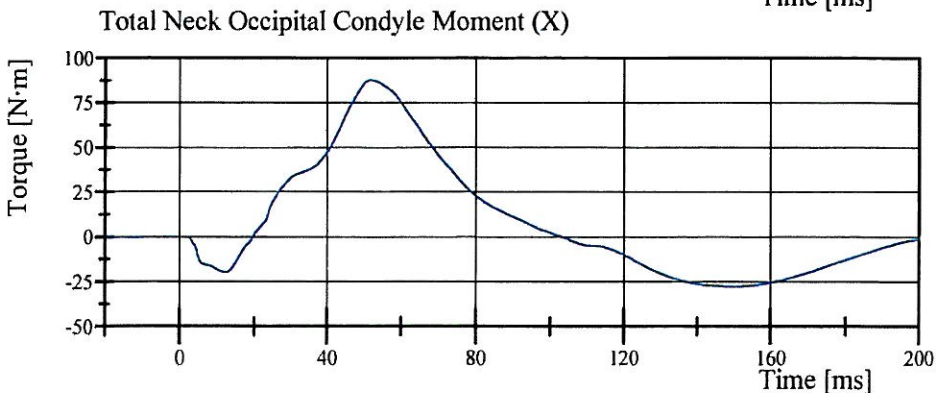
Filter Class: CFC_1000
Max: 814.1 N at 43.1 ms
Min: -327.5 N at 150.2 ms



Filter Class: CFC_600
Max: 813.4 N at 43.2 ms
Min: -327.3 N at 151.9 ms



Filter Class: CFC_600
Max: 74.5 Nm at 51.9 ms
Min: -25.8 Nm at 12.6 ms



Filter Class: CFC_600
Max: 87.8 N·m at 51.9 ms
Min: -27.7 N·m at 149.7 ms

Transportation Research Center Inc.

6.10 m/s Thoracic Shock Absorber Compression

SID-HIII Serial No. 002 Certification No. 5-9

Test Date: 9/24/2009

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.5 °C	21.6 °C	Yes
Relative Humidity	10 - 70 %	55 %	Yes
Maximum Force at Test Velocity	3,719 - 4,409 N	4,381.1 N	Yes
Maximum Displacement at Test Velocity	33.35 - 39.55 mm	38.366 mm	Yes

Test meets specifications.

Comments:

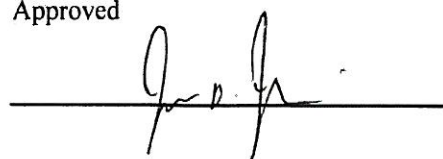
Actual Impactor Velocity (m/s): 6.077

Damper Setting: 7.5

Technician



Approved



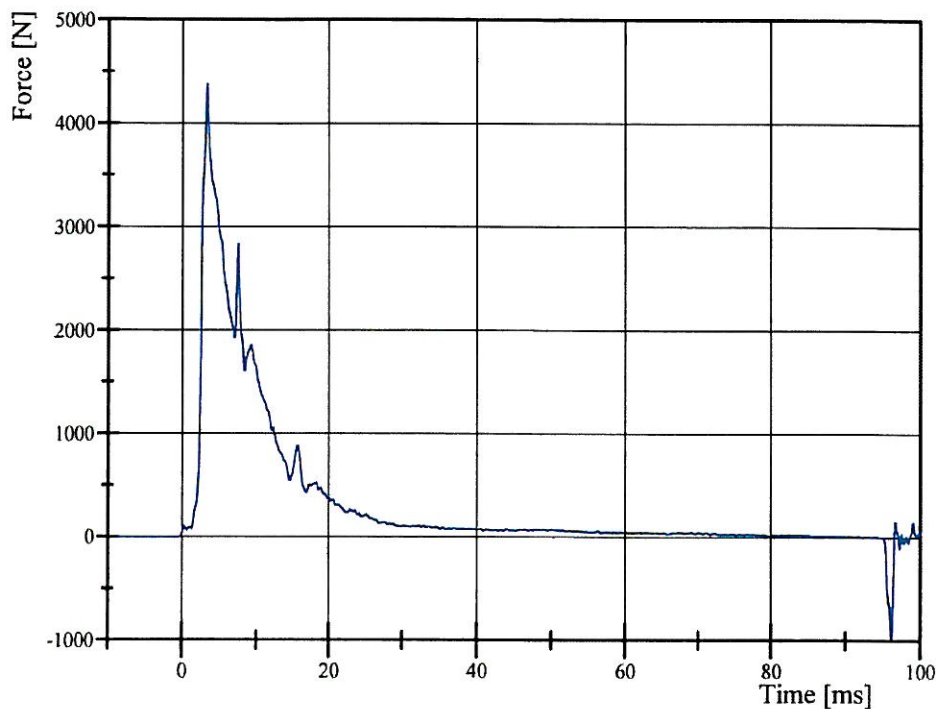
Transportation Research Center Inc.

6.10 m/s Thoracic Shock Absorber Compression

SID-HIII Serial No. 002 Certification No. 5-9

Test Date: 9/24/2009

Shock Absorber Resistive Force

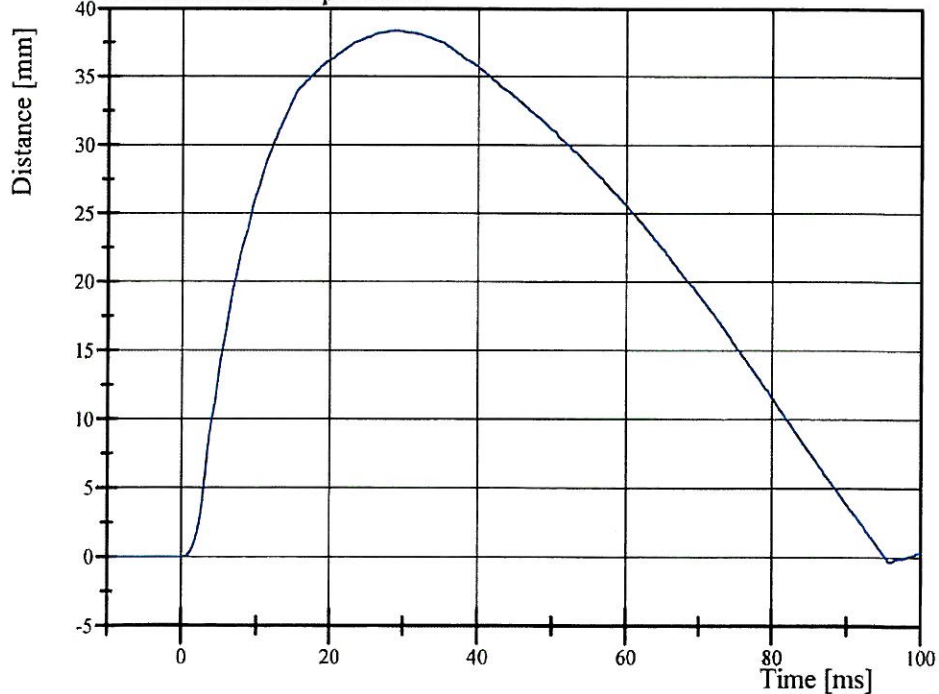


Filter Class: CFC_1000

Max: 4,381.1 N at 3.3 ms

Min: -985.3 N at 96.2 ms

Shock Absorber Displacement



Filter Class: CFC_1000

Max: 38.4 mm at 28.8 ms

Min: -0.3 mm at 95.9 ms

Transportation Research Center Inc.

4.27 m/s Thoracic Shock Absorber Compression

SID-HIII Serial No. 002 Certification No. 5-1

Test Date: 9/24/2009

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.5 °C	21.6 °C	Yes
Relative Humidity	10 - 70 %	54 %	Yes
Maximum Force at Test Velocity	1,759 - 2,126 N	1,899.2 N	Yes
Maximum Displacement at Test Velocity	31.71 - 37.26 mm	36.472 mm	Yes

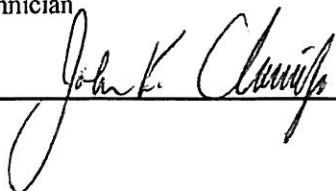
Test meets specifications.

Comments:

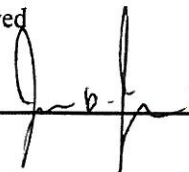
Actual Impactor Velocity (m/s): 4.295

Damper Setting: 7.5

Technician



Approved



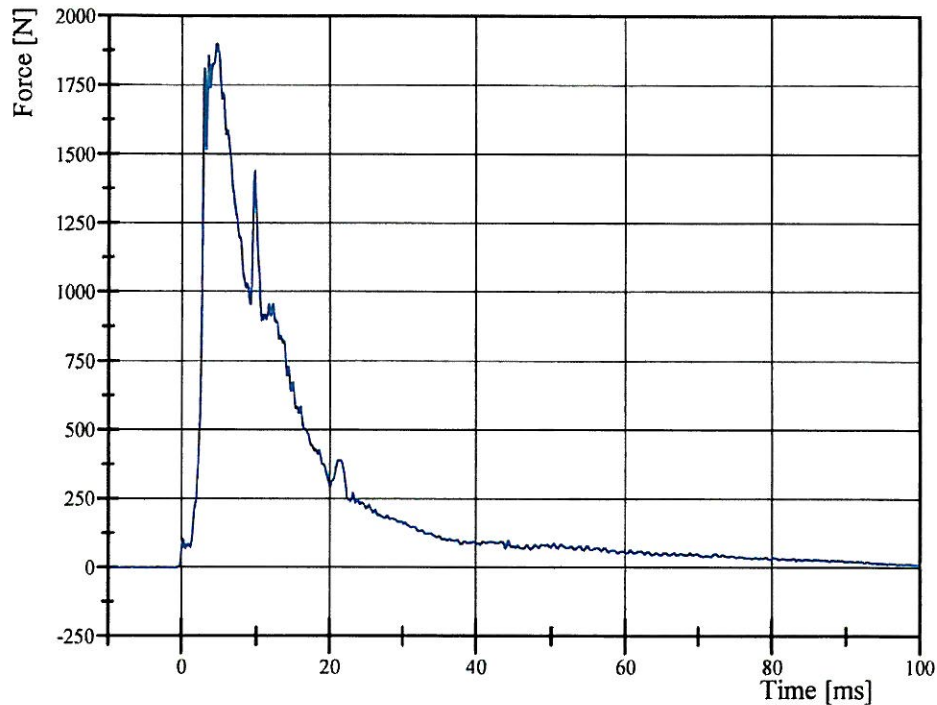
Transportation Research Center Inc.

4.27 m/s Thoracic Shock Absorber Compression

SID-HIII Serial No. 002 Certification No. 5-1

Test Date: 9/24/2009

Shock Absorber Resistive Force

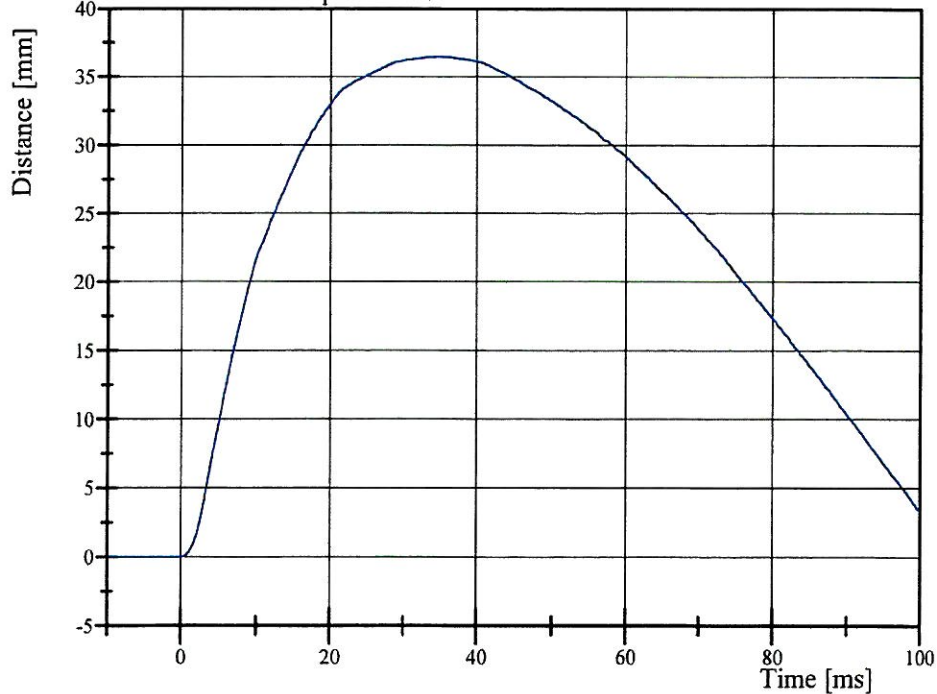


Filter Class: CFC_1000

Max: 1,899.2 N at 4.7 ms

Min: -2.5 N at -9.1 ms

Shock Absorber Displacement



Filter Class: CFC_1000

Max: 36.5 mm at 34.3 ms

Min: -0.0 mm at -7.0 ms

Transportation Research Center Inc.

3.05 m/s Thoracic Shock Absorber Compression

SID-HIII Serial No. 002 Certification No. 5-2

Test Date: 9/24/2009

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.5 °C	21.7 °C	Yes
Relative Humidity	10 - 70 %	55 %	Yes
Maximum Force at Test Velocity	856 - 1,146 N	1,014.3 N	Yes
Maximum Displacement at Test Velocity	30.2 - 35.19 mm	34.042 mm	Yes

Test meets specifications.

Comments:

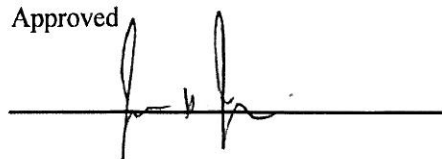
Actual Impactor Velocity (m/s): 3.076

Damper Setting: 7.5

Technician



Approved



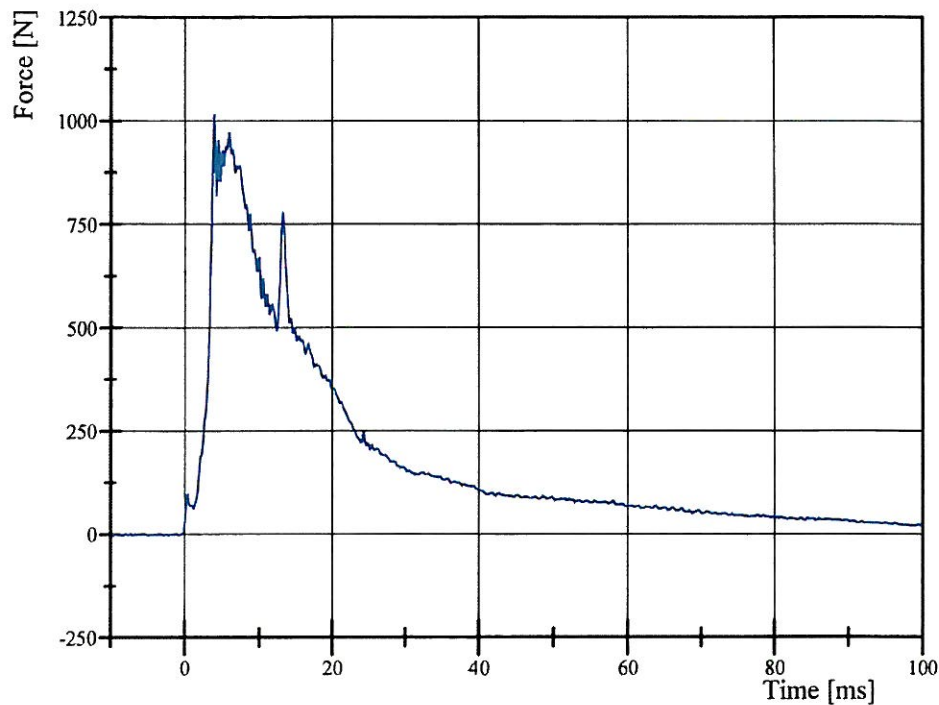
Transportation Research Center Inc.

3.05 m/s Thoracic Shock Absorber Compression

SID-HIII Serial No. 002 Certification No. 5-2

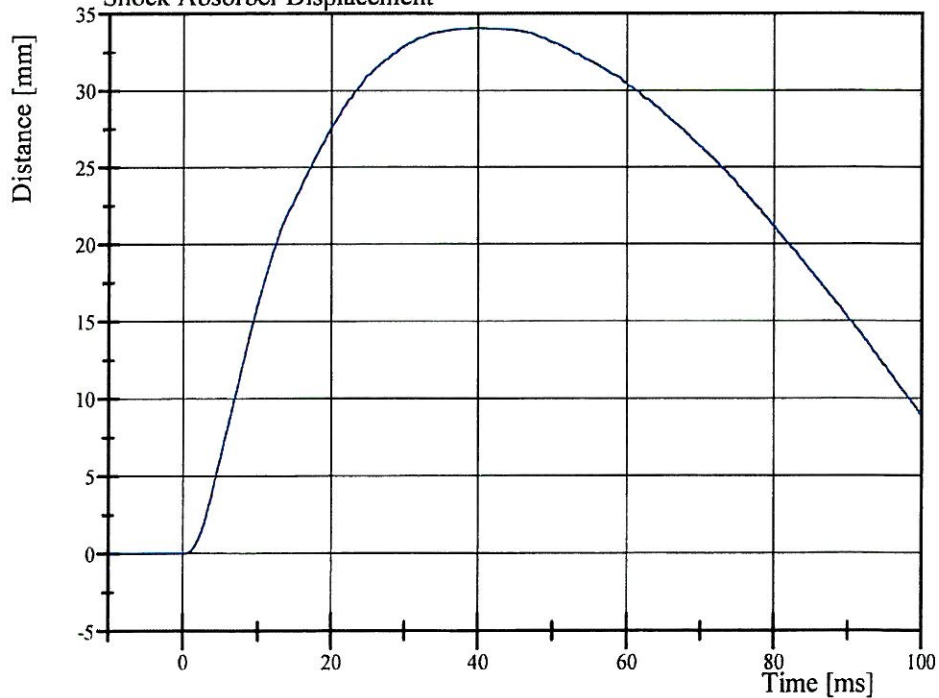
Test Date: 9/24/2009

Shock Absorber Resistive Force



Filter Class: CFC_1000
Max: 1,014.3 N at 3.9 ms
Min: -3.7 N at -9.6 ms

Shock Absorber Displacement



Filter Class: CFC_1000
Max: 34.0 mm at 39.3 ms
Min: -0.0 mm at -5.1 ms

Transportation Research Center Inc.

Left Lateral Thorax

SID-HIII Serial No. 002 Certification No. 5-5

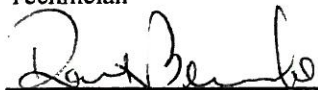
Test Date: 9/28/2009

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.6 °C	21.7 °C	Yes
Relative Humidity	10 - 70 %	54 %	Yes
Impactor Velocity	4.27 - 4.33 m/s	4.272 m/s	Yes
Upper Rib Lateral Acceleration	37 - 46 g	41.6 g	Yes
Lower Rib Lateral Acceleration	37 - 46 g	38.4 g	Yes
Lower Spine Lateral Acceleration	15 - 22 g	20.0 g	Yes

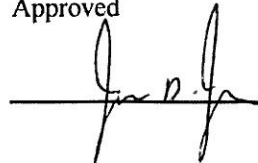
Test meets specifications.

Comments:

Technician



Approved



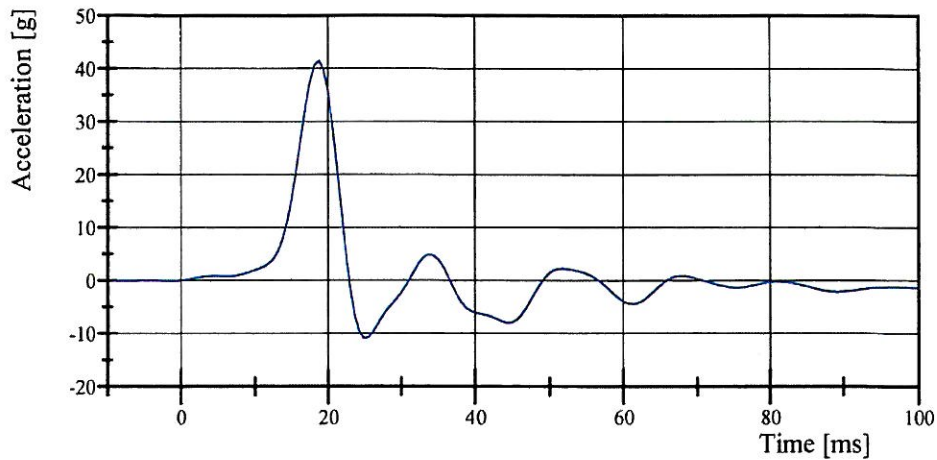
Transportation Research Center Inc.

Left Lateral Thorax

SID-HIII Serial No. 002 Certification No. 5-5

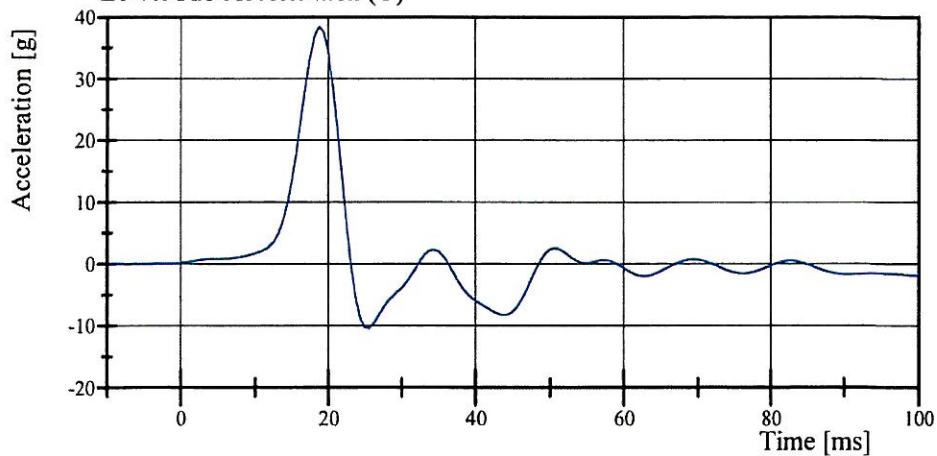
Test Date: 9/28/2009

Upper Rib Acceleration (Y)



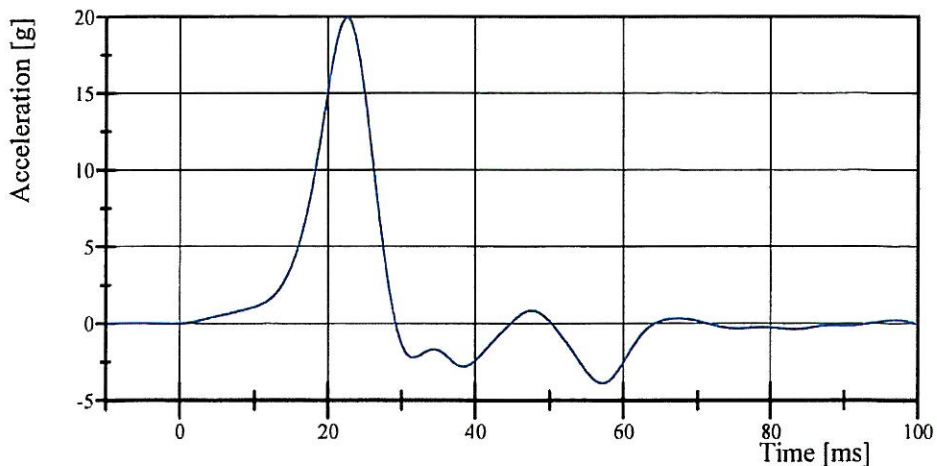
Filter Class: FIR_100
Max: 41.6 g at 18.7 ms
Min: -10.9 g at 25.0 ms

Lower Rib Acceleration (Y)



Filter Class: FIR_100
Max: 38.4 g at 18.7 ms
Min: -10.4 g at 25.6 ms

Lower Spine Acceleration (Y)



Filter Class: FIR_100
Max: 20.0 g at 22.5 ms
Min: -3.9 g at 56.9 ms

Transportation Research Center Inc.

Abdomen Compression

SID-HIII Serial No. 002 Certification No. 5-3

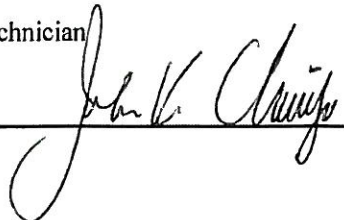
Test Date: 9/22/2009

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.5 °C	21.7 °C	Yes
Relative Humidity	10 - 70 %	54 %	Yes
Probe Force within Corridor	Yes	Yes	Yes
Probe Velocity	6.35 - 8.89 mm/s	7.716 mm/s	Yes

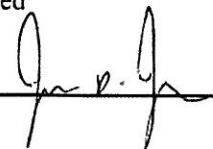
Test meets specifications.

Comments:

Technician



Approved

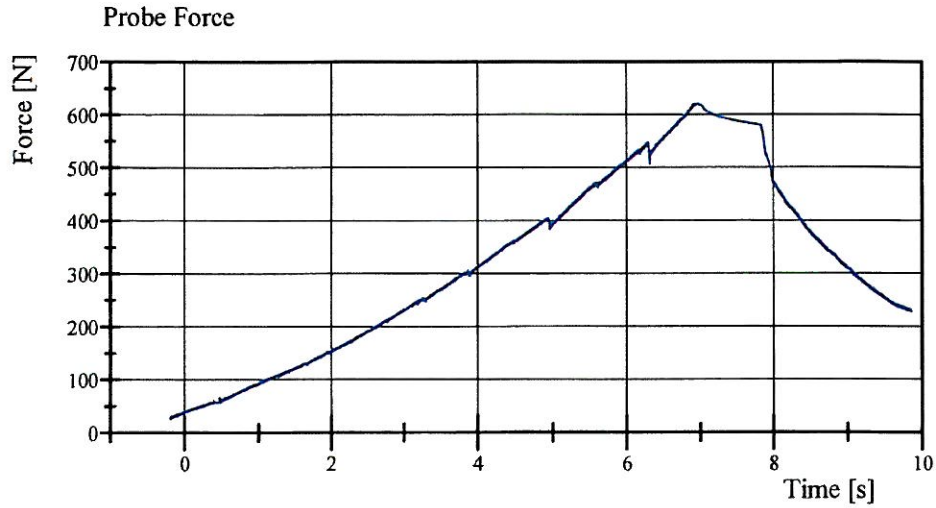


Transportation Research Center Inc.

Abdomen Compression

SID-HIII Serial No. 002 Certification No. 5-3

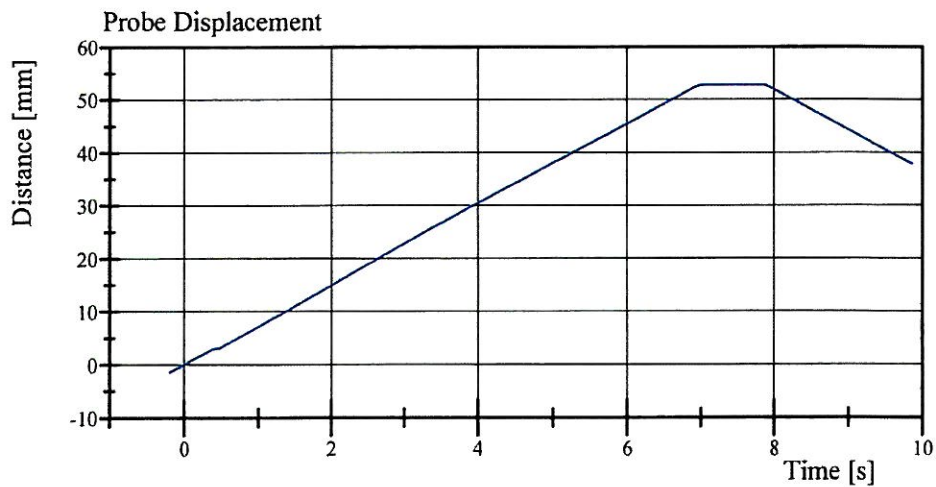
Test Date: 9/22/2009



Filter Class: CFC_600

Max: 621.0 N at 7.0 s

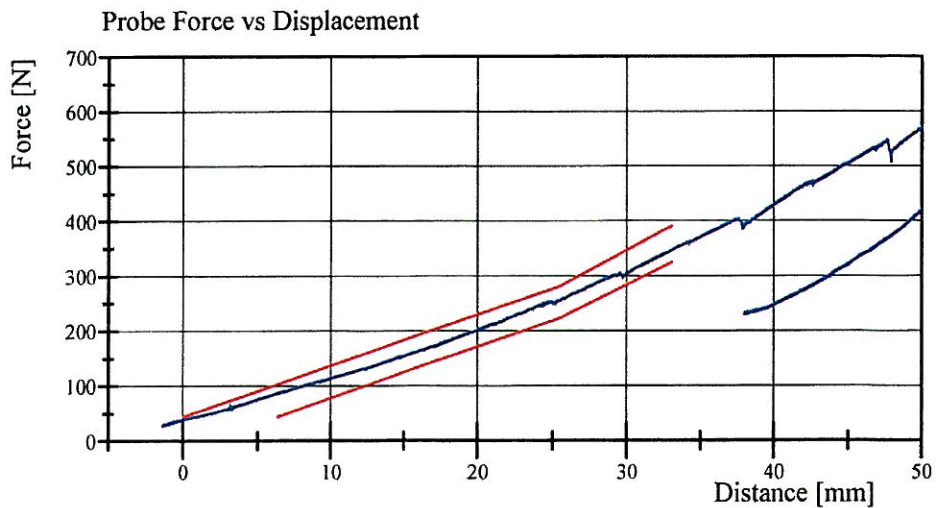
Min: 27.0 N at -0.2 s



Filter Class: CFC_180

Max: 52.9 mm at 7.8 s

Min: -1.4 mm at -0.2 s



Filter Class: CFC_600

Max: 621.0 N at 52.7 mm

Min: 27.0 N at -1.4 mm

TRANSPORTATION RESEARCH CENTER INC.

LUMBAR FLEXION TEST

SID PART 572B

CAL DATE: 09-Sep-09

TRC, INC.

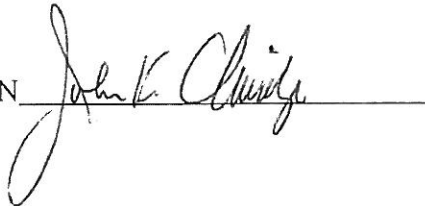
TEST NO: TOFL-01

572B SN 002 TORSO FLEX CAL 05

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	18.9 – 25.6° C	21.6 °C
RELATIVE HUMIDITY	10 – 70 %	54 %
FORCE AT 0 DEG. FLEXION	-27 – 27 N	0 N
FORCE AT 20 DEG OF FLEXION	98 – 151 N	142 N
FORCE AT 30 DEG OF FLEXION	151 – 205 N	200 N
FORCE AT 40 DEG OF FLEXION	205 – 258 N	234N
NET RETURN ANGLE AFTER 3 MINUTES	< 12 °	7.8 °

TEST MEETS SPECIFICATIONS

TECHNICIAN



Transportation Research Center Inc.

Left Lateral Pelvis

SID-HIII Serial No. 002 Certification No. 5-1

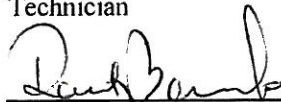
Test Date: 9/28/2009

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.5 °C	21.6 °C	Yes
Relative Humidity	10 - 70 %	53 %	Yes
Impactor Velocity	4.27 - 4.33 m/s	4.317 m/s	Yes
Pelvis Lateral Acceleration Duration above 20g	3 - 7 ms	5.6 ms	Yes
Pelvis Lateral Acceleration	40 - 60 g	55.4 g	Yes
Is Acceleration Curve Unimodal Above 20g?	Yes	Yes	Yes

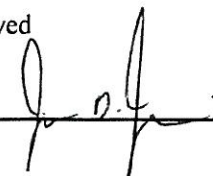
Test meets specifications.

Comments:

Technician



Approved

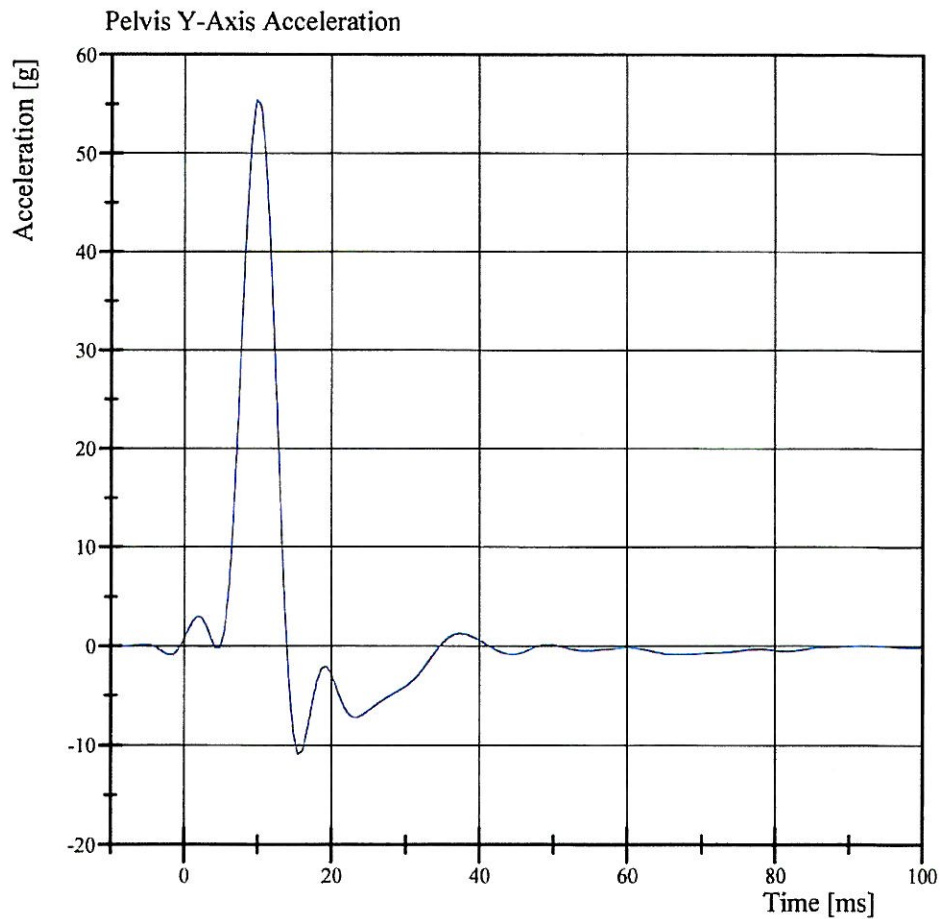


Transportation Research Center Inc.

Left Lateral Pelvis

SID-HIII Serial No. 002 Certification No. 5-1

Test Date: 9/28/2009



Filter Class: FIR_100
Max: 55.4 g at 9.8 ms
Min: -10.9 g at 15.5 ms