

Final Report Number: NCAP-TRC-14-003

**New Car Assessment Program (NCAP)
Frontal Barrier Impact Test**

**Chrysler Group LLC
2014 Jeep Cherokee 4-Door MPV
NHTSA Number: M20140302**

**PREPARED BY:
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Report Date: March 20, 2014

FINAL REPORT

**Prepared For:
U. S. DEPARTMENT OF TRANSPORTATION
National Highway Traffic Safety Administration
Office of Crashworthiness Standards
1200 New Jersey Ave, SE Room W43-410
Washington, DC 20590**

Notice

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Prepared By: Impact Laboratory Project Operations Group

Approved By: Jeffery W. Sankey

Approval Date: March 20, 2014

FINAL REPORT ACCEPTANCE BY OCWS:

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

Date _____

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

Date _____

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16. Abstract A 56.0 km/h NCAP Frontal Impact Test was conducted on a 2014 Jeep Cherokee 4-Door MPV in accordance with the specifications of the Office of Crashworthiness Standards Frontal NCAP Laboratory Test Procedure. This test was conducted to obtain data indicant of FMVSS 208, 212, 219 (partial), 301 and foot well intrusion performance. This test was conducted at the Transportation Research Center Inc. in East Liberty, Ohio on January 29, 2014. The impact velocity was 56.42 km/h, and the ambient temperature at the barrier face at the time of impact was 21° C. The target vehicle post-test maximum crush was 528 millimeters at crush zone 4 at right side. The test vehicle's performance is as follows: <table border="1"> <thead> <tr> <th></th> <th colspan="3">Driver ATD</th> <th colspan="3">Passenger ATD</th> </tr> <tr> <th>Measurement Description</th> <th>Units</th> <th>Threshold</th> <th>Result</th> <th>Units</th> <th>Threshold</th> <th>Result</th> </tr> </thead> <tbody> <tr> <td>Head Injury Criteria (HIC₁₅)</td> <td>NA</td> <td>700</td> <td>163</td> <td>NA</td> <td>700</td> <td>291</td> </tr> <tr> <td>Maximum Chest Compression</td> <td>mm</td> <td>63</td> <td>-17.0</td> <td>mm</td> <td>52</td> <td>-14.3</td> </tr> <tr> <td>3ms Chest Clip</td> <td>Gs</td> <td>60</td> <td>45.5</td> <td>Gs</td> <td>60</td> <td>48.1</td> </tr> <tr> <td>Nij</td> <td>NA</td> <td>1</td> <td>0.43</td> <td>NA</td> <td>1</td> <td>0.57</td> </tr> <tr> <td>Neck Tension</td> <td>Newtons</td> <td>4170</td> <td>1911.1</td> <td>Newtons</td> <td>2620</td> <td>1530.2</td> </tr> <tr> <td>Neck Compression</td> <td>Newtons</td> <td>4000</td> <td>-163.2</td> <td>Newtons</td> <td>2520</td> <td>-739.8</td> </tr> <tr> <td>Left Femur Force</td> <td>Newtons</td> <td>10008</td> <td>-3656.0</td> <td>Newtons</td> <td>6805</td> <td>-1358.8</td> </tr> <tr> <td>Right Femur Force</td> <td>Newtons</td> <td>10008</td> <td>-2702.2</td> <td>Newtons</td> <td>6805</td> <td>-1237.2</td> </tr> </tbody> </table>								Driver ATD			Passenger ATD			Measurement Description	Units	Threshold	Result	Units	Threshold	Result	Head Injury Criteria (HIC ₁₅)	NA	700	163	NA	700	291	Maximum Chest Compression	mm	63	-17.0	mm	52	-14.3	3ms Chest Clip	Gs	60	45.5	Gs	60	48.1	Nij	NA	1	0.43	NA	1	0.57	Neck Tension	Newtons	4170	1911.1	Newtons	2620	1530.2	Neck Compression	Newtons	4000	-163.2	Newtons	2520	-739.8	Left Femur Force	Newtons	10008	-3656.0	Newtons	6805	-1358.8	Right Femur Force	Newtons	10008	-2702.2	Newtons	6805	-1237.2
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1: PURPOSE AND SUMMARY OF TEST

PURPOSE

This 56 km/h frontal barrier impact test is part of the Vehicle Barrier Impact Testing Program sponsored by the National Highway Traffic Safety Administration (NHTSA) under Contract No. DTNH22-12-D-00257. The purpose of this test was to obtain vehicle crashworthiness and occupant restraint system performance data for consumer information purposes.

This 56 km/h frontal barrier impact test was conducted in accordance with the Office of Crashworthiness Standards Front NCAP Laboratory Test Procedure dated August 2013.

SUMMARY

A load cell barrier consisting of 36 load cells was impacted by a 2014 Jeep Cherokee 4-Door MPV at a velocity of 56.42 km/h. The test was performed at Transportation Research Center, Inc. on January 29, 2014. Pre- and post-test photographs of the vehicle and dummies can be found in Appendix A.

One real-time camera and 16 high-speed cameras were used to document the frontal barrier impact event. Camera locations and other pertinent camera information can be found in this report.

One Part 572E 50th percentile male anthropomorphic test device (ATD), was placed in the driver seating position and one Part 572O 5th percentile female ATD was placed in the right-front passenger position according to dummy placement instructions specified in the Frontal NCAP Laboratory Test Procedure.

Both ATDs were fully instrumented with head, chest and pelvis tri-axial accelerometers, chest displacement potentiometers, upper neck load cells, right/left femur load cells, and lower leg instrumentation. Seat belt load cells were also on the driver and passenger's lap and shoulder belts to measure dummy torso and pelvic section loading.

The driver (position 1) ATD (Serial No. 037), and the right-front passenger (position 2) ATD (Serial No. 426) were calibrated previous to this test. Certification details, along with instrumentation calibration data, are found in Appendix C of this report.

The 130 channels of data were recorded on an on-board data acquisition system. Appendix B contains the vehicle, load cell barrier and dummy response data traces.

There was 100.0 percent windshield retention and no intrusion into the protected zone of the windshield during the event. There was no Stoddard solvent leakage after the event or during any phase of the static rollover.

The maximum static crush of the vehicle was 528 mm and both the driver and passenger side doors remained closed during the impact event and were operable after the impact.

The driver's visible contact points were as follows: front airbag, headrest, and knee airbag. The passenger's visible contact points were as follows: front airbag, headrest, knee airbag and sun visor.

The occupant data is summarized below:

ATD Position	HIC₁₅	Nij	Neck Tension (N)	Neck Compression (N)	3 ms Chest Clip (Gs)	Chest Disp. (mm)	Left Femur (N)	Right Femur (N)
Driver (50 th Male)	163	0.43	1911.1	-163.2	45.5	-17.0	-3656.0	-2702.2
Passenger (5 th Female)	291	0.57	1530.2	-739.8	48.1	-14.3	-1358.8	-1237.2

2: OCCUPANT AND VEHICLE INFORMATION / DATA SHEETS

DATA SHEET NO. 1**GENERAL TEST AND VEHICLE PARAMETER DATA**

Test Vehicle: 2014 Jeep Cherokee 4-Door MPV
 Test Program: NCAP Frontal Impact

NHTSA No.: M20140302
 Test Date: 1/29/14

TEST VEHICLE INFORMATION

NHTSA No.	M20140302
Model Year	2014
Make	Jeep
Model	Cherokee Sport
Body Style	MPV
VIN	1C4PJMAB0EW121635
Body Color	Red
Odometer Reading (km/mi)	15 mi.
Engine Displacement (L)	2.4
Type/No. Cylinders	4
Engine Placement	Front/Transverse
Transmission Type	Automatic
Transmission Speeds	9
Overdrive	Yes
Final Drive	AWD
Roof Rack	No
Sunroof/T-Top	No
Running Boards	No
Tilt Steering Wheel	Yes
Power Seats	No
Anti-Lock Brakes (ABS)	Yes
Automatic Door Locks (ADLs)	Yes

TEST VEHICLE OPTIONS

Traction Control System (TCS)	Yes
Power Steering	Yes
Power Window Auto-Reverse	Yes
Driver Frontal Airbag	Yes
Driver Curtain Airbag	Yes
Driver Head/Torso Airbag	No
Driver Torso Airbag	No
Driver Torso/Pelvis Airbag	Yes
Driver Pelvis Airbag	No
Driver Knee Airbag	Yes
Front Pass. Frontal Airbag	Yes
Front Pass. Curtain Airbag	Yes
Front Pass. Head/Torso Airbag	No
Front Pass. Torso Airbag	No
Front Pass. Torso/Pelvis Airbag	Yes
Front Pass. Pelvis Airbag	No
Front Pass. Knee Airbag	Yes
Driver Pretensioner	Yes
Driver Load Limiter	Yes
Front Pass. Pretensioner	Yes
Front Pass. Load Limiter	Yes
Other	No

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

Yes

DATA FROM CERTIFICATION LABEL

Manufactured by	Chrysler Group LLC
Date of Manufacture	10/13

GVWR (kg)	2495
GAWR Front (kg)	1273
GAWR Rear (kg)	1273

VEHICLE SEATING AND WEIGHT CAPACITY

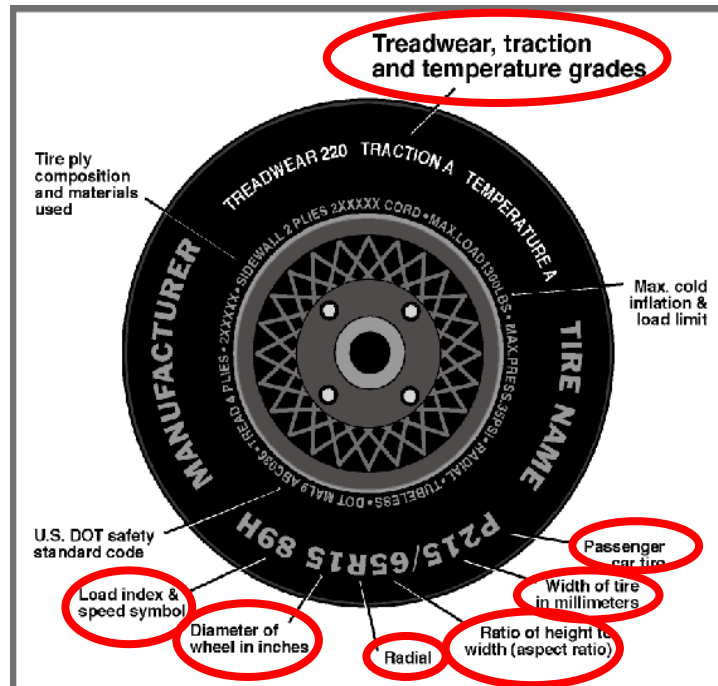
Measured Parameter	Front	Rear	Third	Total
Type of Seats	Bucket	Split Bench	N/A	
Number of Occupants	2	3	N/A	5
Capacity Wt. (VCW) (kg)				453.0
Cargo Wt. (RCLW) (kg)				112.8

DATA SHEET NO. 1 (CONTINUED)

GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle: 2014 Jeep Cherokee 4-Door MPV
 Test Program: NCAP Frontal Impact

NHTSA No.: M20140302
 Test Date: 1/29/14



DATA FROM TIRE PLACARD

Measured Parameter	Front	Rear
Maximum Tire Pressure (kPa)	275	275
Cold / Test Pressure (kPa)	230	230
Recommended Tire Size	225/60R17	225/60R17
Tire Size on Vehicle	225/60R17	225/60R17
Tire Manufacturer	Firestone	Firestone
Tire Model	Destination LE ²	Destination LE ²
Treadwear	520	520
Traction Grade	A	A
Temperature Grade	B	B
Tire Plies Sidewall	2	2
Tire Plies Body	5	5
Load Index/Speed Symbol	102T	102T
Tire Material	Polyester, Steel & Nylon	Polyester, Steel & Nylon
DOT Safety Code Right	W22Y DE3 3613	W22Y DE3 3513
DOT Safety Code Left	W22Y DE3 3513	W22Y DE3 3513

DATA SHEET NO. 1 (CONTINUED)**GENERAL TEST AND VEHICLE PARAMETER DATA**Test Vehicle: 2014 Jeep Cherokee 4-Door MPVNHTSA No.: M20140302Test Program: NCAP Frontal ImpactTest Date: 1/29/14**TEST VEHICLE WEIGHTS**

	Units	As Delivered (UVW) (Axle)			As Tested (ATW) (Axle)		
		Front	Rear	Total	Front	Rear	Total
Left	kg	510.6	400.8		549.8	482.0	
Right	kg	514.4	374.6		541.6	470.6	
Ratio	%	56.9	43.1		53.4	46.6	
Totals	kg	1025.0	775.4	1800.4	1091.4	952.6	2044.0

TARGET TEST WEIGHT CALCULATION

Measured Parameter	Units	Value
Total Delivered Weight (UVW)	kg	1800.4
Weight of 1 P572E ATD & 1 P572O ATD	kg	139.3
Rated Cargo/Luggage Weight (RCLW)	kg	112.8
Vehicle Target Weight (TVTW)	kg	2052.5

TEST VEHICLE ATTITUDES AND CG

	Units	LF	RF	LR	RR	CG (aft of front axle)
As Delivered	mm	795	794	818	819	1163
As Tested	mm	784	787	796	788	1258
Post Test	mm	789	789	791	776	

GENERAL TEST VEHICLE DATA

Measurement Description	Units	Value
Test Vehicle Wheel Base	mm	2700
Total Vehicle Length at Left Side	mm	4408
Total Vehicle Length at Centerline	mm	4620
Total Vehicle Length at Right Side	mm	4418
Weight of Ballast in Cargo Area	kg	44.9
Weight of Vehicle Components Removed	kg	0.0
Amount of Stoddard Solvent in Fuel Tank	liters	55.6

LIST OF COMPONENTS REMOVED TO MEET TEST WEIGHT: None

DATA SHEET NO. 1 (CONTINUED)**GENERAL TEST AND VEHICLE PARAMETER DATA**Test Vehicle: 2014 Jeep Cherokee 4-Door MPVNHTSA No.: M20140302Test Program: NCAP Frontal ImpactTest Date: 1/29/14**TARGET VEHICLE STRUCTURAL MEASUREMENT**

	Elements	Pre-Test (mm)
1	Total Length	4620
2	Total Width	1840
3	Bumper Top Height	665
4	Bumper Bottom Height	565
5	Longitudinal Member Top Height	672
6	Distance Between Longitudinal Members	146
7	Longitudinal Member Width	70
8	Engine Top Height	995
9	Engine Bottom Height	271
10	Engine and Gearbox Width	840
11	Front Bumper-Engine Distance	535
12	Front Shock Absorber Fixing Height	980
13	Bonnet Leading Edge Height	940
14	Front Shock Absorber Fixing Width	1150
15	Front Bumper – Front Axle Distance	995
16	Front Axle – A-Pillar Distance	530
17	A-Pillar – B-Pillar Distance	1030
18	B-Pillar – Rear Axle Distance	1112
19	B-Pillar – C-Pillar Distance	923
20	Roof Sill Bottom Height	1485
21	Roof Sill Top Height	1565
22	Floor Sill Bottom Height	430
23	Floor Sill Top Height	475

DATA SHEET NO. 2

SEAT ADJUSTMENT, FUEL SYSTEM AND STEERING WHEEL DATA

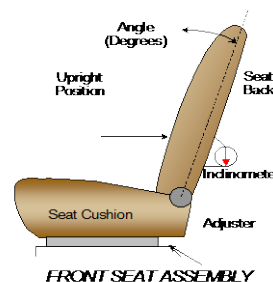
Test Vehicle: 2014 Jeep Cherokee 4-Door MPV
 Test Program: NCAP Frontal Impact

NHTSA No.: M20140302
 Test Date: 1/29/14

NORMAL DESIGN RIDING POSITION

For adjustable driver and passenger seat back. Please describe how to position the inclinometer to measure the seat back angle. Include description of the location of the adjustment latch detent, if applicable.

Inclinometer measurement at the top of the backrest at the seat centerline, according to Form 1 attachment.



	Degree
Driver Seat back angle:	0.1 forward
Passenger Seat back angle:	4.7 rearward

SEAT FORE/AFT POSITIONS

Describe the method used of determining seat for/aft positions.

Driver: Mid position, Positioned according to Form 1

Passenger: Full forward, Positioned according to Form 1

	Total Fore/Aft Travel	Placed in Position No.
Driver Seat	270	9 th notch, mid
Passenger Seat	190	1, full forward

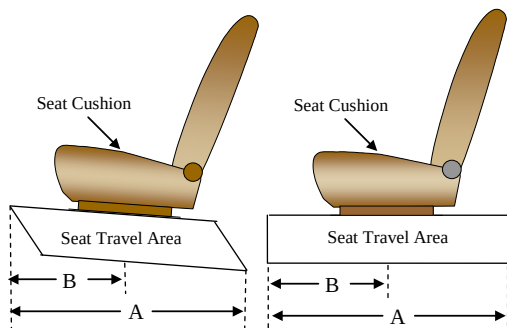
SEAT BELT UPPER ANCHORAGE

Describe the method of positioning seat belt upper anchorages.

Driver: Uppermost, Positioned according to Form 1

Passenger: Uppermost, Positioned according to Form 1

	Total No. of Positions	Placed in Position No.
Driver Seat	4, numbered 0 to 3	0, Uppermost
Passenger Seat	4, numbered 0 to 3	0, Uppermost



DATA SHEET NO. 2 (CONTINUED)

SEAT ADJUSTMENT, FUEL SYSTEM AND STEERING WHEEL DATA

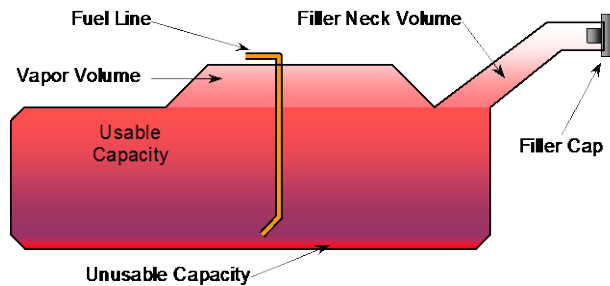
Test Vehicle: 2014 Jeep Cherokee 4-Door MPV
 Test Program: NCAP Frontal Impact

NHTSA No.: M20140302
 Test Date: 1/29/14

FUEL TANK CAPACITY

	Liters
Usable Capacity of "Standard Tank"	59.8
Usable Capacity of "Optional Tank"	59.8
92%-94% of Usable Capacity	55.6
Actual Amount of Solvent Used	55.6
1/3 of Usable Capacity	19.9

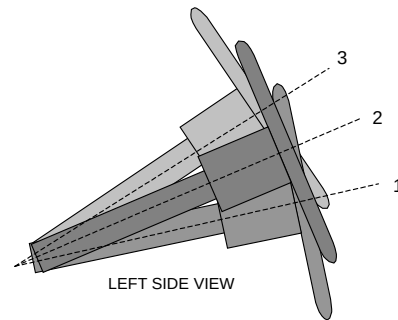
The vehicle is equipped with an electric fuel pump. If ignition key is at "ON" position and engine is not running, the fuel pump operates for 2 seconds. If the engine is running, then the fuel pump will run continuously.



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. Steel square was placed across the rim of the steering wheel, an inclinometer was placed on the plate and the angle was measured. Telescope travel was measured full in and full out and set at the midpoint.



STEERING COLUMN ASSEMBLY

STEERING COLUMN POSITIONS

	Degrees	Fore/Aft Position (mm)
Lowermost Position No. 1	27.2	19
Geometric Center Position No. 2	29.5	19
Uppermost Position No. 3	31.9	19
Telescoping Steering Wheel Travel		38
Test Position	29.5	19

DATA SHEET NO. 3

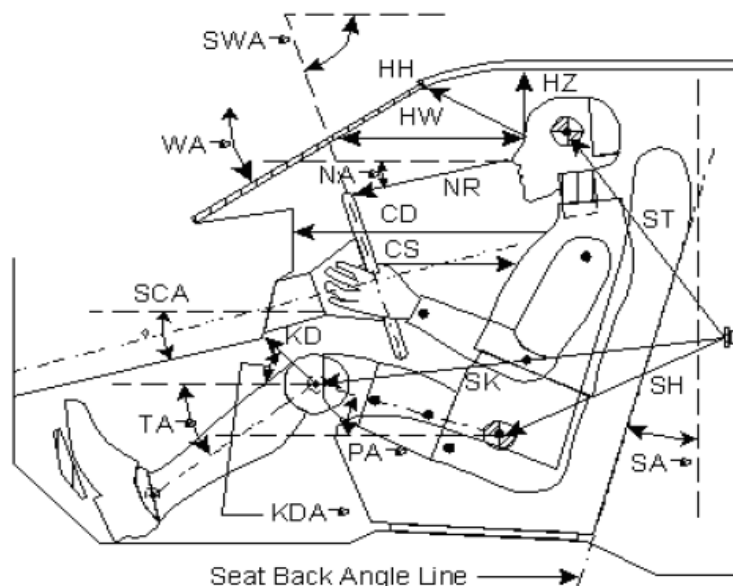
DUMMY LONGITUDINAL CLEARANCE DIMENSIONS

Test Vehicle: 2014 Jeep Cherokee 4-Door MPV

NHTSA No.: M20140302

Test Program: NCAP Frontal Impact

Test Date: 1/29/14



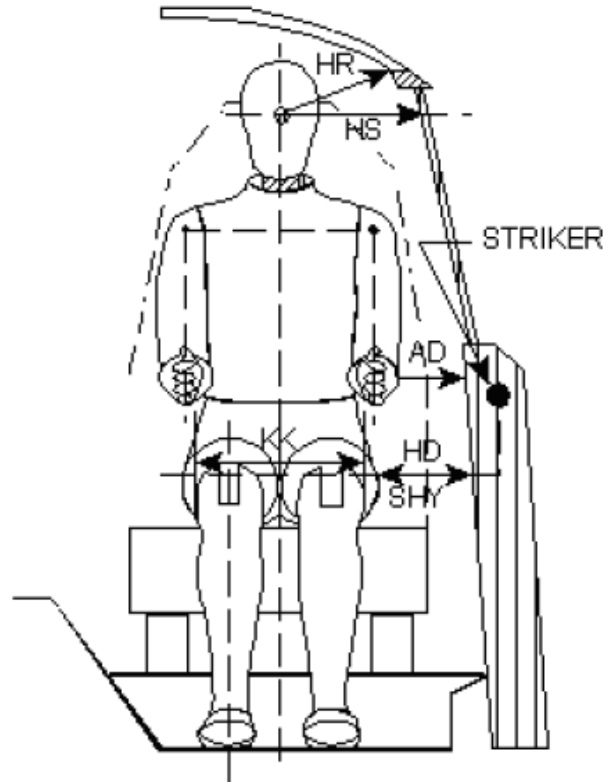
Code	Measurement Description	Driver		Passenger	
		Length (mm)	Angle (°)	Length (mm)	Angle (°)
WA°	Windshield Angle		28.6		
SWA°	Steering Wheel Angle		29.5		
SCA°	Steering Column Angle		60.5		
SA°	Seat Back Angle (on headrest post)		0.1 forward		4.7 rearward
HZ	Head to Roof (Z)	216		265	
HH	Head to Header	403		404	
HW	Head to Windshield	737		780	
NR	Nose to Rim	430	9.2		
CD	Chest to Dash	573		498	
CS	Chest to Steering Hub	341			
RA	Rim to Abdomen	214			
KDL	Left Knee to Dash	204	35.0	137	36.0
KDR	Right Knee to Dash	175	35.0	154	36.0
PA°	Pelvic Angle		21.6		21.5
TA°	Tibia Angle		43.1		63.3
SK	Striker to Knee	525	0.4	593	0.4
ST	Striker to Head	565	85.7	514	38.0
SH	Striker to H-Point	187	33.8	265	14.0

DATA SHEET NO. 4

DUMMY LATERAL CLEARANCE DIMENSIONS

Test Vehicle: 2014 Jeep Cherokee 4-Door MPV
Test Program: NCAP Frontal Impact

NHTSA No.: M20140302
Test Date: 1/29/14



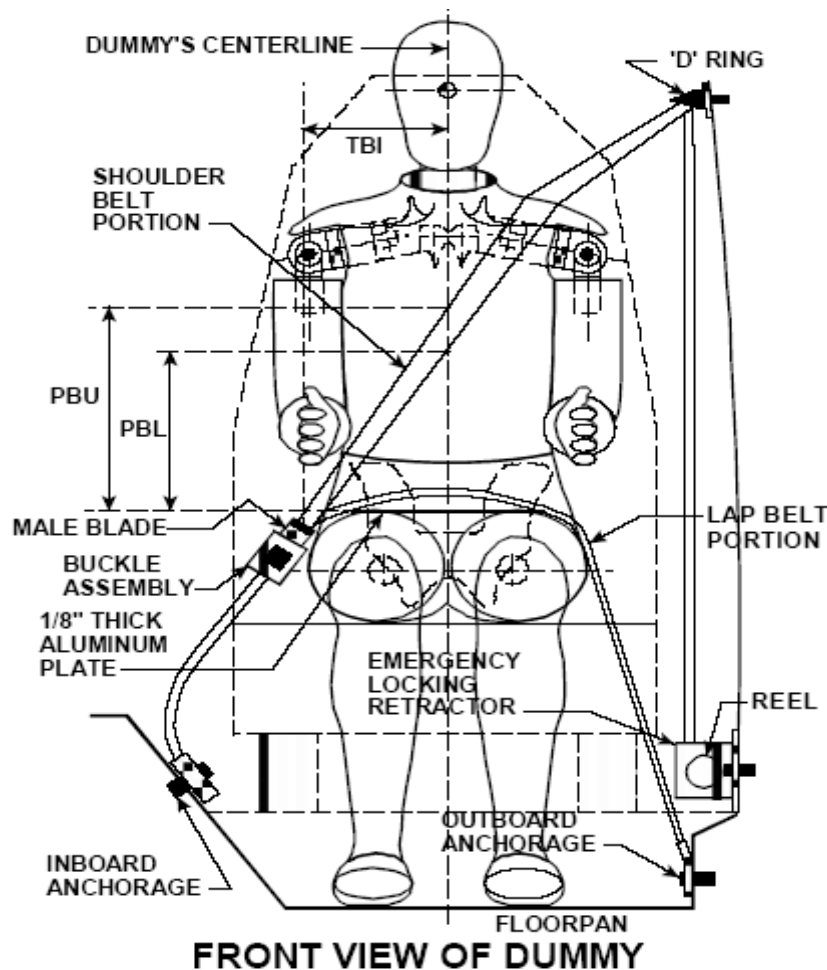
Code	Measurement Description	Driver	Passenger
AD	Arm to Door	118	98
HD	H-Point to Door	155	172
HR	Head to Side Header	237	264
HS	Head to Side Window	367	381
KK	Knee to Knee	295	160
SHY	Striker to H-Point (Y Direction)	248	282
AA	Ankle to Ankle	257	160

DATA SHEET NO. 5

SEAT BELT POSITIONING DATA

Test Vehicle: 2014 Jeep Cherokee 4-Door MPV
 Test Program: NCAP Frontal Impact

NHTSA No.: M20140302
 Test Date: 1/29/14



SEAT BELT POSITIONING MEASUREMENTS

Measurement Description	Units	Driver	Passenger
PBU – Top surface of reference to belt upper edge	mm	385	284
PBL – Top surface of reference to belt lower edge	mm	302	195

BELT LENGTH DATA

Measurement Description	Units	Driver	Passenger
Shoulder belt length as measured on ATD	mm	799	825
Lap belt length as measured on ATD	mm	675	685
Remainder of belt on reel	mm	1071	1062
Total belt length for continuous webbing systems	mm	2545	2572

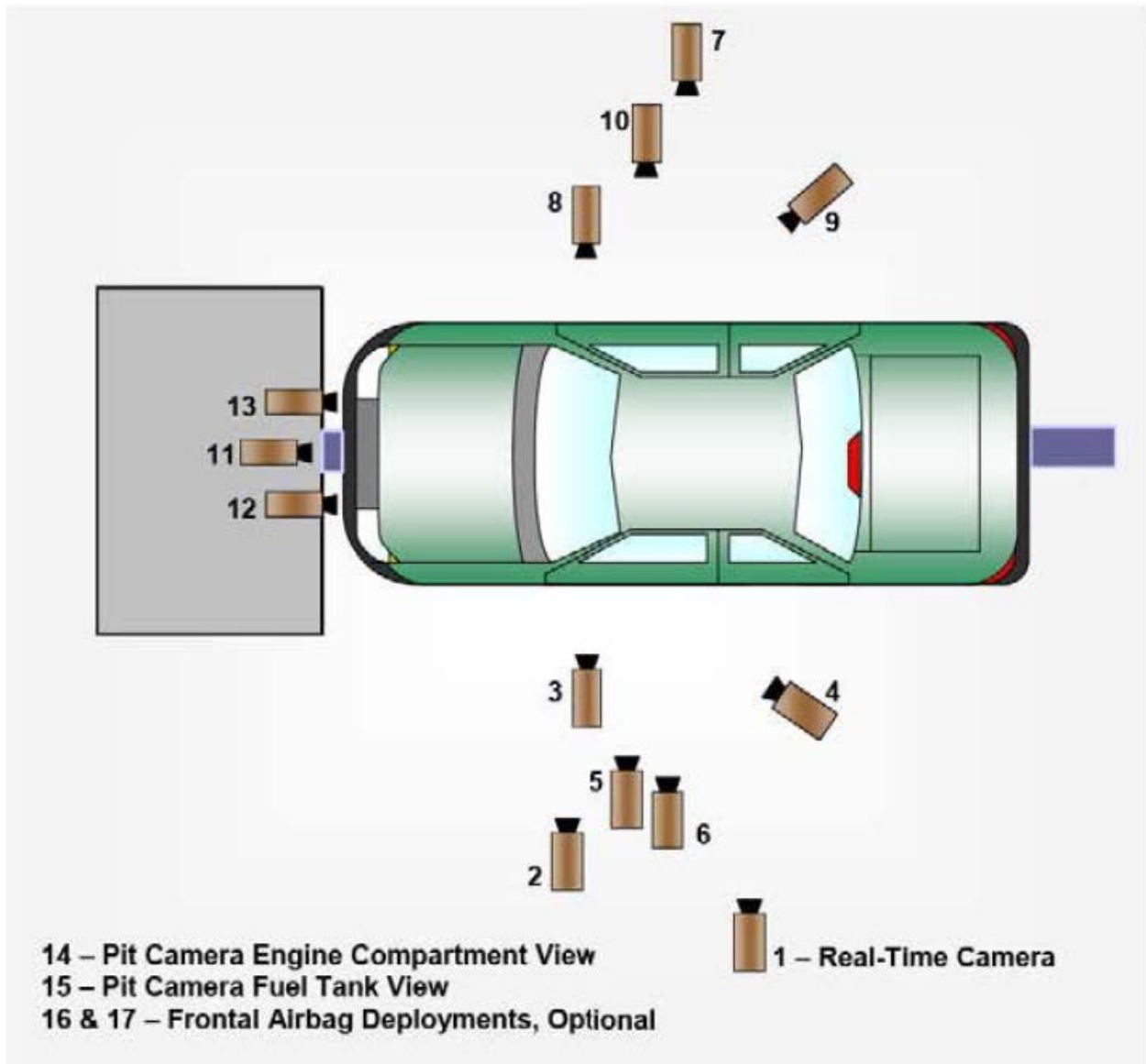
DATA SHEET NO. 6

HIGH SPEED CAMERA LOCATIONS AND DATA

Test Vehicle: 2014 Jeep Cherokee 4-Door MPV
Test Program: NCAP Frontal Impact

NHTSA No.: M20140302
Test Date: 1/29/14

CAMERA POSITIONS FOR FRONTAL IMPACTS



DATA SHEET NO. 6 (CONTINUED)**HIGH SPEED CAMERA LOCATIONS AND DATA**

Test Vehicle: 2014 Jeep Cherokee 4-Door MPV
Test Program: NCAP Frontal Impact

NHTSA No.: M20140302
Test Date: 1/29/14

CAMERA LOCATIONS

No.	Camera View	Location (mm)			Lens (mm)	Frame Speed (fps)
		X	Y	Z		
1	Real-Time Left Overall	-17	-6076	-515	Zoom	30
2	Driver Close-Up	-1553	-6327	-1269	Zoom	1000
3	Left Front Half	-1125	-6109	-1326	Zoom	1000
4	Left Angle	-5182	-2699	-1913	75	1000
5	Steering Column - Top	2100	6225	-1506	50	1000
6	Steering Column – Bottom	-1967	6202	-998	50	1000
7	Right Overall	-2469	5742	-996	8.5	1000
8	Passenger Close-Up	-1797	5874	-1300	75	1000
9	Right Front Half	-5213	3012	-1865	Zoom	1000
10	Right Angle	-1457	5802	-1320	Zoom	1000
11	Windshield	-18	0	-2650	12.5	1000
12	Driver Windshield	7	-448	-2673	16	1000
13	Passenger Windshield	0	385	-2670	16	1000
14	Pit Front	-1576	0	2915	12.5	1000
15	Pit Rear	-3121	0	3029	12.5	1000
16	Onboard Driver Airbag (Optional)				8.5	1000
17	Onboard Passenger Airbag (Optional)				8.5	1000

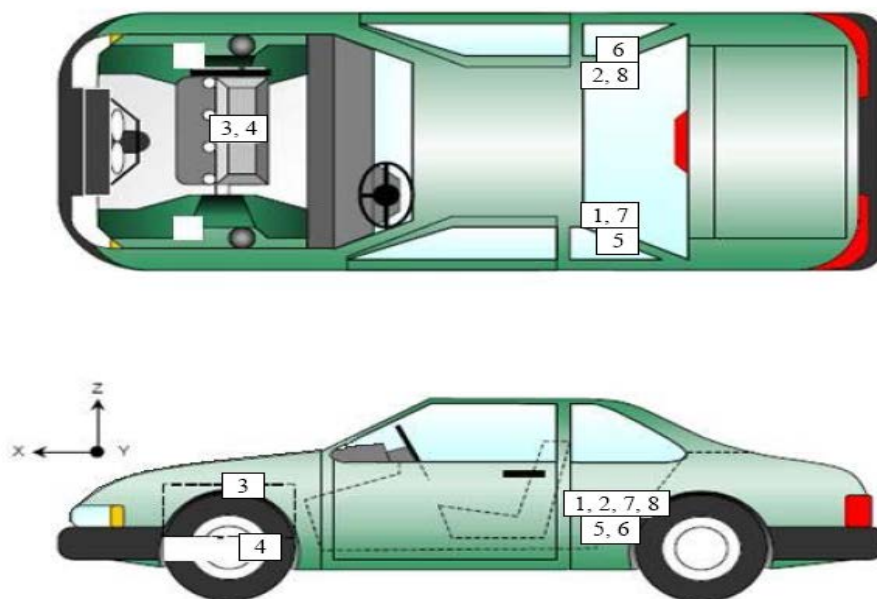
Reference Points: +X – forward of impact plane
+Y – right of monorail center
+Z – into ground

DATA SHEET NO. 7

VEHICLE ACCELEROMETER DATA

Test Vehicle: 2014 Jeep Cherokee 4-Door MPV
 Test Program: NCAP Frontal Impact

NHTSA No.: M20140302
 Test Date: 1/29/14



VEHICLE ACCELEROMETER PRE-TEST LOCATIONS

No.	Camera View	Location (mm)		
		X	Y	Z
1	Left Rear Accelerometer – X Direction	1758	-320	470
2	Right Rear Accelerometer – X Direction	1758	-290	470
3	Engine Top X	3848	280	954
4	Engine Bottom X	3756	175	280
5	Left Rear Accelerometer – Z Direction	1758	-320	470
6	Right Rear Accelerometer – Z Direction	1758	-255	470
7	Left Rear Accelerometer – X Direction Redundant	1763	-255	477
8	Right Rear Accelerometer- X Direction Redundant	1763	-230	468

Reference Points: X – Rear Surface of Vehicle (+ forward)
 Y – Vehicle Centerline (+ to right)
 Z – Ground Plane (+ up)

DATA SHEET NO. 8

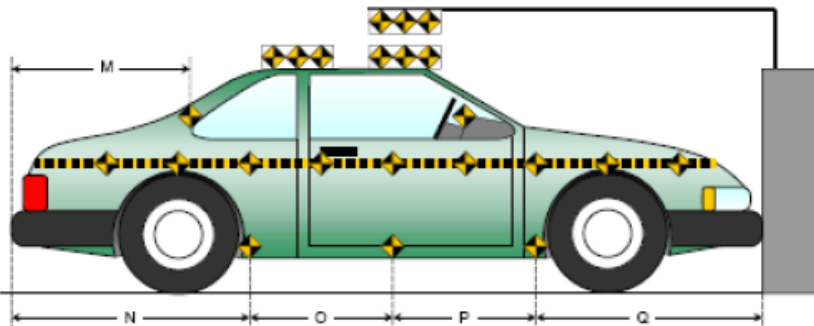
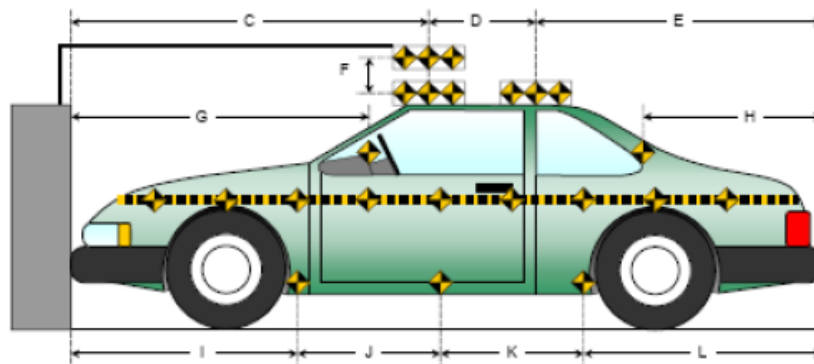
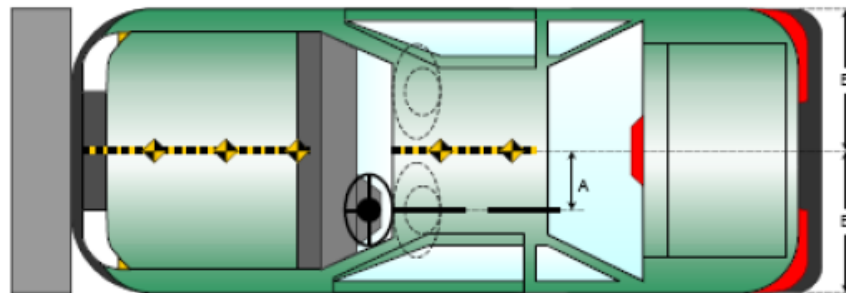
PHOTOGRAPHIC REFERENCE TARGET LOCATIONS

Test Vehicle: 2014 Jeep Cherokee 4-Door MPV
 Test Program: NCAP Frontal Impact

NHTSA No.: M20140302
 Test Date: 1/29/14

Item	Value
A	375
B	920
C	2460
D	610
E	1561
F	190
G	1775
H	1205
I	1078
J	860
K	870
L	1405
M	1206
N	1403
O	870
P	853
Q	1065

All units in
millimeters

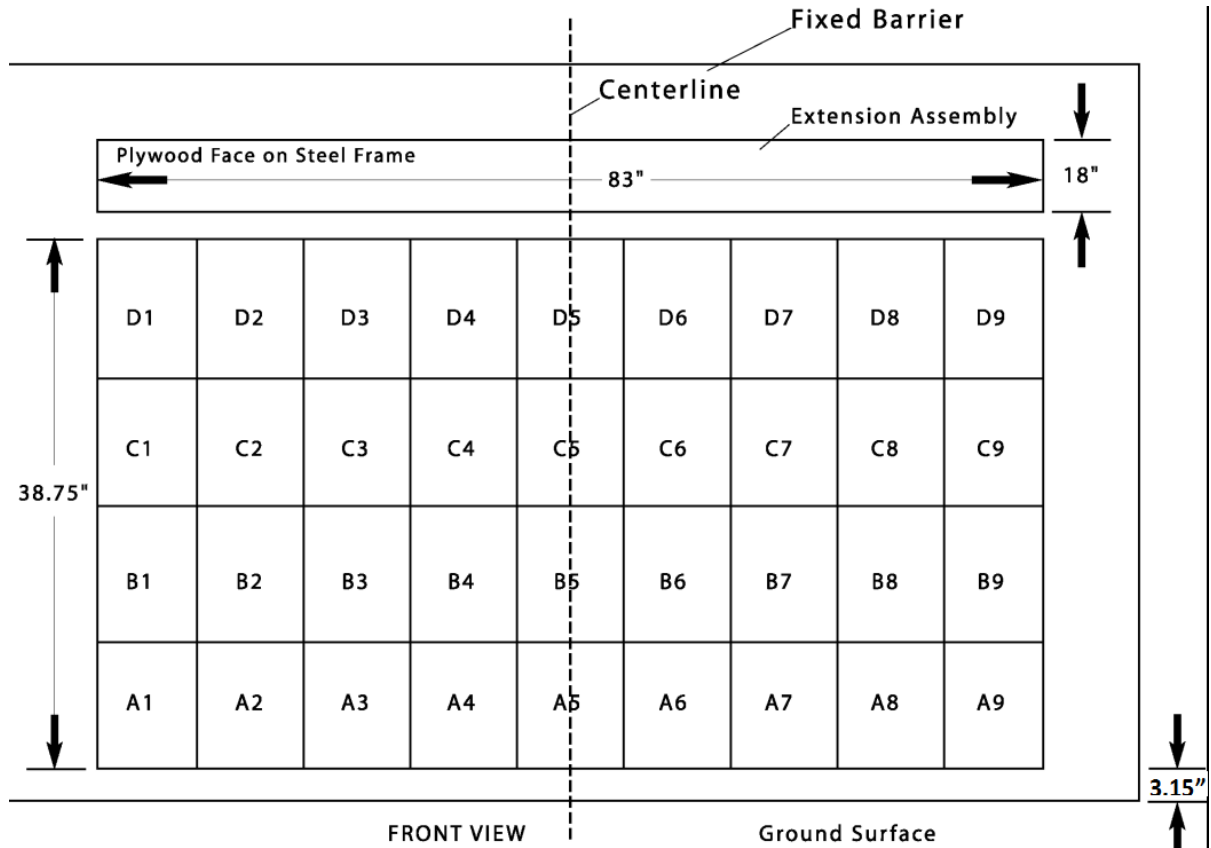


DATA SHEET NO. 9

LOAD CELL LOCATIONS ON FIXED BARRIER

Test Vehicle: 2014 Jeep Cherokee 4-Door MPV
 Test Program: NCAP Frontal Impact

NHTSA No.: M20140302
 Test Date: 1/29/14



DATA SHEET NO. 10

TEST VEHICLE SUMMARY OF RESULTS

Test Vehicle: 2014 Jeep Cherokee 4-Door MPV NHTSA No.: M20140302
Test Program: NCAP Frontal Impact Test Date: 1/29/14

INSTRUMENTATION

Instrumentation	Number of Channels Collected
Driver Dummy Accelerometers	42
Passenger Dummy Accelerometers	42
Vehicle Structure Accelerometers	8
Total	92

CAMERA COVERAGE

Type of Camera	Number Used in this Test
High-Speed Vehicle Onboard	2
High-Speed Offboard	14
Real-Time Panning	1
Total	17

DATA SHEET NO. 11**POST-TEST OBSERVATIONS**

Test Vehicle: 2014 Jeep Cherokee 4-Door MPV

NHTSA No.: M20140302

Test Program: NCAP Frontal Impact

Test Date: 1/29/14

TEST DUMMY INFORMATION AND CONTACT LOCATIONS

Description	Driver	Passenger
Dummy Type / Serial No.	Hybrid III 50th/ 037	Hybrid III 5th/ 426
Head Contact	Front airbag, head restraint, sun visor	Front airbag, head restraint, sun visor
Upper Torso Contact	None	None
Lower Torso Contact	None	None
Left Knee Contact	Knee airbag	Knee airbag
Right Knee Contact	Knee airbag	Knee airbag

DOOR OPENING AND SEAT TRACK INFORMATION

Description	Front	Rear
Locked/Unlocked Doors	Unlocked	Unlocked
Front Door Opening	Remained closed & latched, operational	Remained closed & latched, operational
Rear Door Opening	Remained closed & latched, operational	Remained closed & latched, operational
Seat Track Shift (mm)	None	None
Seat Back Failure	None	None

POST-TEST STRUCTURAL OBSERVATIONS

Critical Areas of Performance	Observations and Conclusions
Windshield Damage	Broken
Window Damage	None
Other Notable Effects	None

VEHICLE REBOUND FROM BARRIER

Measured Parameter	Units	Value
Left Side	mm	1639
Center	mm	1700
Right Side	mm	1639
Average	mm	1659

SUPPLEMENTAL RESTRAINT SYSTEM INFORMATION

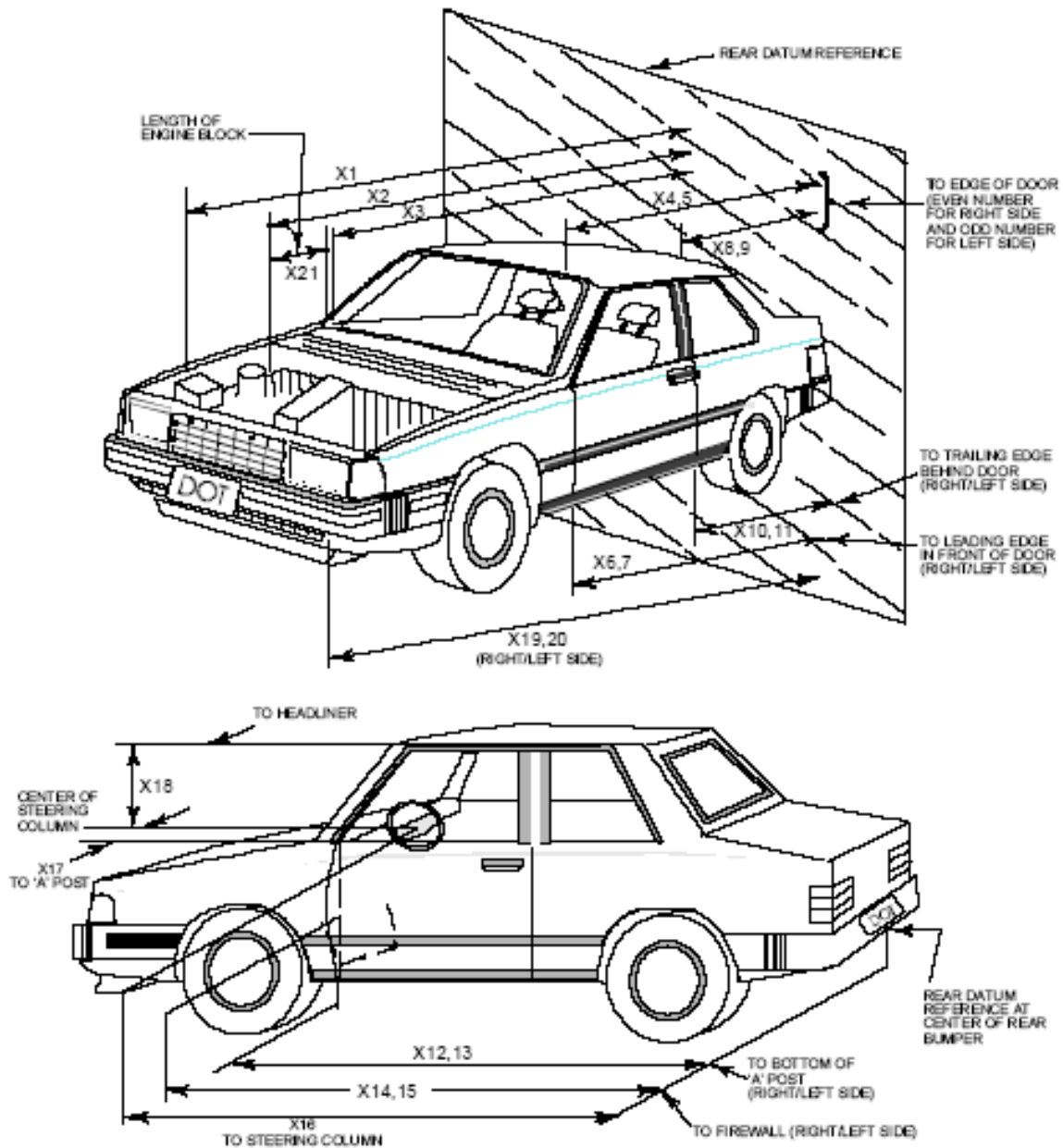
Restraint Type	Driver (Occupant 1)		Passenger (Occupant 2)	
	Installed	Deployed	Installed	Deployed
Front Airbag	Yes	Yes	Yes	Yes
Side Curtain Airbag	Yes	No	Yes	No
Torso/Pelvis Airbag	Yes	No	Yes	No
Pelvis Airbag	No	N/A	No	N/A
Knee Airbag	Yes	Yes	Yes	Yes
Seat Belt Pretensioner	Yes	Yes	Yes	Yes
Seat Belt Load Limiter	Yes	No	Yes	No
Other	N/A	N/A	N/A	N/A

DATA SHEET NO. 12

VEHICLE PROFILE MEASUREMENTS

Test Vehicle: 2014 Jeep Cherokee 4-Door MPV
Test Program: NCAP Frontal Impact

NHTSA No.: M20140302
Test Date: 1/29/14



DATA SHEET NO. 12 (CONTINUED)**VEHICLE PROFILE MEASUREMENTS**

Test Vehicle: 2014 Jeep Cherokee 4-Door MPV
Test Program: NCAP Frontal Impact

NHTSA No.: M20140302
Test Date: 1/29/14

No.	Measurement Description	Pre-Test	Post-Test	Difference
1	Total Length of Vehicle at Centerline	4620	4097	516
2	Rear Surface of Vehicle (RSOV) to Front of Engine	3863	3682	181
3	RSOV to Firewall	3590	3552	38
4	RSOV to Upper Leading Edge of Right Door	3079	3082	-3
5	RSOV to Upper Leading Edge of Left Door	3068	3077	-9
6	RSOV to Lower Leading Edge of Right Door	3076	3072	4
7	RSOV to Lower Leading Edge of Left Door	3071	3058	13
8	RSOV to Upper Trailing Edge of Right Door	2086	2088	-2
9	RSOV to Upper Trailing Edge of Left Door	2074	2082	-8
10	RSOV to Lower Trailing Edge of Right Door	2163	2157	6
11	RSOV to Lower Trailing Edge of Left Door	2158	2149	9
12	RSOV to Bottom of "A" Post-of Right Side	3088	3102	-14
13	RSOV to Bottom of "A" Post-of Left Side	3073	3090	-17
14	RSOV to Firewall, Right Side	3471	3455	16
15	RSOV to Firewall, Left Side	3469	3472	-3
16	RSOV to Steering Column	2678	2704	-26
17	Center of Steering Column to "A" Post	350	346	4
18	Center of Steering Column to Headliner	450	438	12
19	RSOV to Right Side of Front Bumper	4418	4166	252
20	RSOV to Left Side of Front Bumper	4408	4149	259
21	Length of Engine Block	470	470	0
RD	RSOV to Right Side of Dash Panel	2908	2909	-1
CD	RSOV to Center of Dash Panel	2866	2877	-11
LD	RSOV to Left Side of Dash Panel	2903	2907	-4

All Dimensions in mm

DATA SHEET NO. 13

ACCIDENT INVESTIGATION DIVISION DATA

Test Vehicle: 2014 Jeep Cherokee 4-Door MPV
Test Program: NCAP Frontal Impact

NHTSA No.: M20140302
Test Date: 1/29/14

VEHICLE INFORMATION

VIN: 1C4PJMAB0EW121635
Vehicle Size Category: Small SUV 4WD

Wheelbase: 2700
Test Weight (kg): 2044.0

ACCELEROMETER DATA

Accelerometer Locations: As listed on Page 15 of this report.

Cal. Procedure/Interval: TRC procedure / 6 month interval

Integration Algorithm: Trapezoidal

Linearity: > 99%

Impact Velocity (km/h): 56.42

Velocity Change (km/h): 62.6

Time of Separation (ms): 100

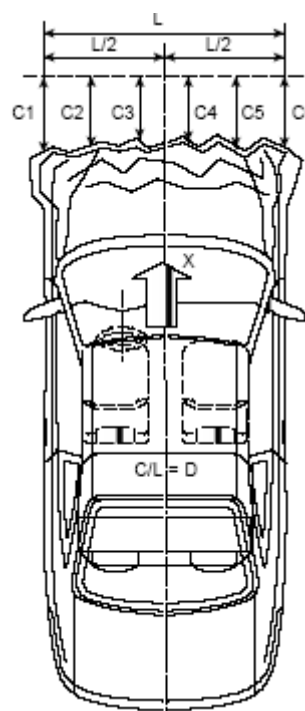
CRUSH PROFILE

Collision Deformation Classification: 12FDEW2

Midpoint of Damage: Centerline

Damage Region Length (mm): 1525

Impact Mode: Frontal



No.	Measurement Description	Units	Pre-Test	Post-Test	Difference
C1	Crush zone 1 at left side	mm	4408	4149	259
C2	Crush zone 2 at left side	mm	4564	4077	487
C3	Crush zone 3 at left side	mm	4608	4096	512
C4	Crush zone 4 at right side	mm	4608	4080	528
C5	Crush zone 5 at right side	mm	4566	4082	484
C6	Crush zone 6 at right side	mm	4418	4166	252
L	C1 to C6	mm	1525	1440	85

DATA SHEET NO. 14

VEHICLE INTRUSION MEASUREMENTS

Test Vehicle: 2014 Jeep Cherokee 4-Door MPV
Test Program: NCAP Frontal Impact

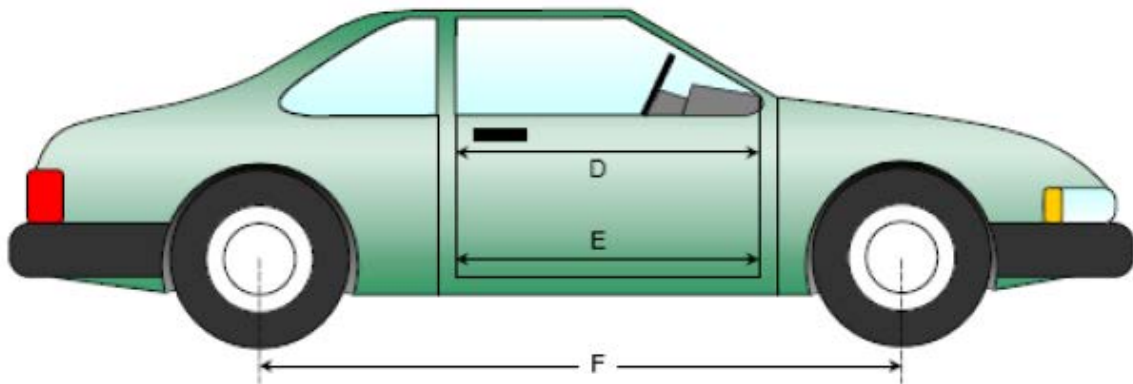
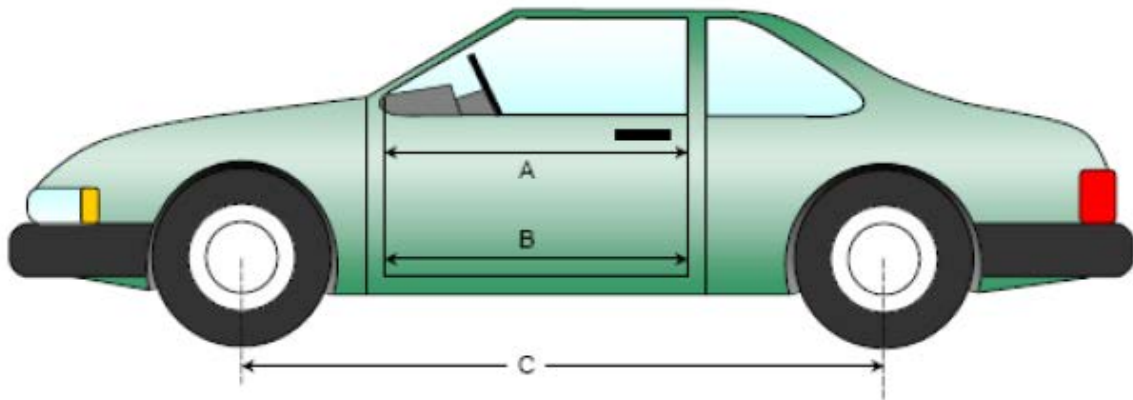
NHTSA No.: M20140302
Test Date: 1/29/14

DOOR OPENING WIDTH

No.	Description	Units	Pre-Test	Post-Test	Difference
A	Left Side Upper	mm	957	950	7
B	Left Side Lower	mm	857	852	5
C	Right Side Upper	mm	957	954	3
D	Right Side Lower	mm	858	856	2

WHEELBASE MEASUREMENTS

No.	Description	Units	Pre-Test	Post-Test	Difference
C	Left Side Wheelbase	mm	2700	2675	25
F	Right Side Wheelbase	mm	2700	2680	20



DATA SHEET NO. 14 (CONTINUED)

VEHICLE INTRUSION MEASUREMENTS

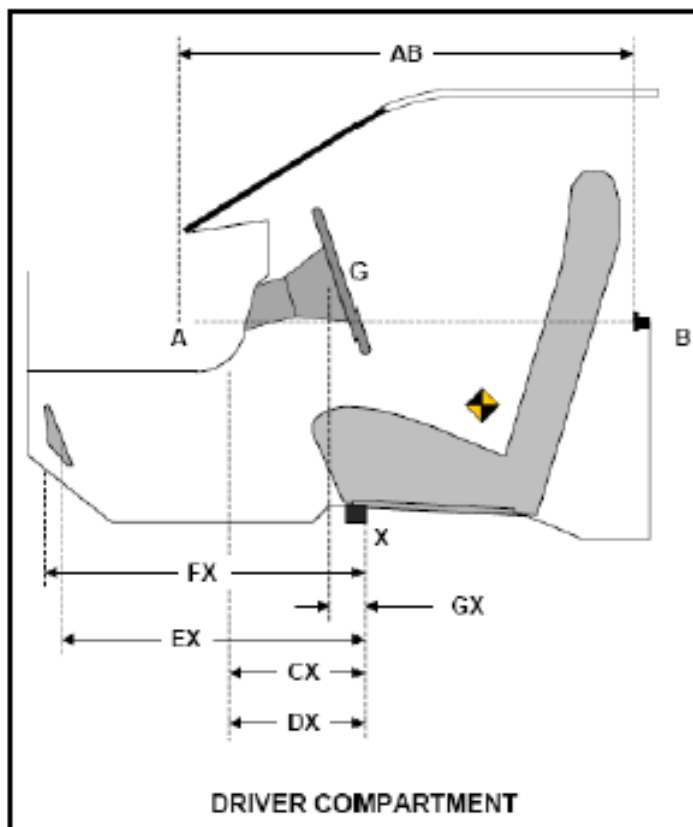
Test Vehicle: 2014 Jeep Cherokee 4-Door MPV
 Test Program: NCAP Frontal Impact

NHTSA No.: M20140302
 Test Date: 1/29/14

DRIVER COMPARTMENT INTRUSION

Item	Description	Units	Pre-Test	Post-Test	Difference
AB	Door Opening (Inside Window Jam)	mm	967	962	5
CX	Left Knee Bolster to X	mm	330	330	0
DX	Right Knee Bolster to X	mm	330	334	-4
EX	Brake Pedal to X	mm	575	552	23
FX	Foot Rest to X	mm	595	590	5
GX	Center of Steering Column Wheel Hub to X	mm	100	135	-35

X = Front of Seat Track (Stationary)



DATA SHEET NO. 15

SUMMARY OF FMVSS 212, 219 (PARTIAL), AND 301 DATA

Test Vehicle: 2014 Jeep Cherokee 4-Door MPV
 Test Program: NCAP Frontal Impact

NHTSA No.: M20140302
 Test Date: 1/29/14

Please provide windshield mounting details.

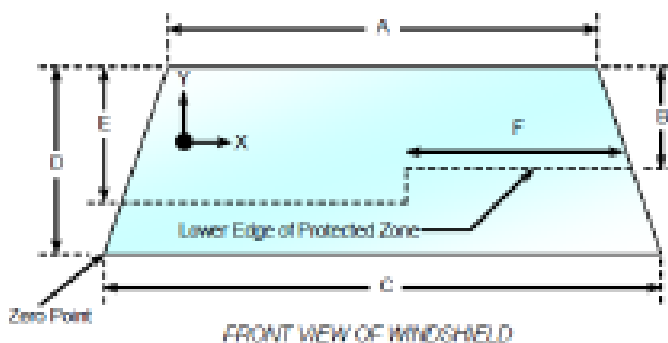
The standard requires that the post-test retention measurement be a minimum of 75% of the pre-test total periphery measurement for vehicle not equipped with occupant passive restraint and 50% for each side of the windshield for vehicle which are equipped with occupant passive restraints.

Temperature of windshield molding during test:

WINDSHIELD PERIPHERY MEASUREMENTS

Measurement	Pre-Test (mm)	Post-Test (mm)	% Retention
Left Side	2215	2215	100
Right Side	2215	2215	100
Total	4300	4300	100

Item	Units	Value
A	mm	1270
B	mm	533
C	mm	1325
D	mm	910
E	mm	530
F	mm	505



AREAS OF PROTECTED ZONE FAILURES

A. Provide coordinates of the area that the protected zone was penetrated more than .25 inches by a vehicle component other than one that is normally in contact with the windshield.

X	Y
NA	NA
NA	NA
NA	NA
NA	NA

B. The inner surface of the windshield was penetrated by the hood support beneath the protected zone.

X	Y
NA	NA
NA	NA
NA	NA
NA	NA

DATA SHEET NO. 15 (CONTINUED)

SUMMARY OF FMVSS 212, 219 (PARTIAL), AND 301 DATA

Test Vehicle: 2014 Jeep Cherokee 4-Door MPV NHTSA No.: M20140302
Test Program: NCAP Frontal Impact Test Date: 1/29/14

FMVSS 301 FUEL SYSTEM INTEGRITY POST IMPACT DATA

Temperature at Time of Impact: 21°C

Test Time: 17:10

Stoddard Solvent Spillage Measurements

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

DATA SHEET NO. 16

FMVSS 301 STATIC ROLLOVER RESULTS

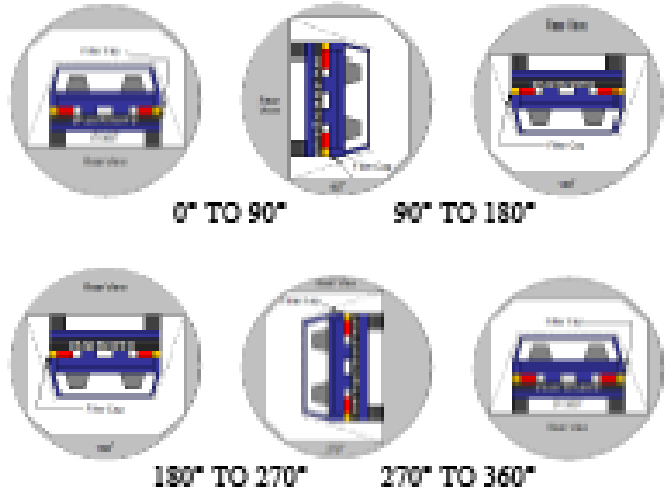
Test Vehicle: 2014 Jeep Cherokee 4-Door MPV

NHTSA No.: M20140302

Test Program: NCAP Frontal Impact

Test Date: 1/29/14

1. The specified fixture rollover rate for each 90° of rotation is 50 to 180 seconds.
2. The position hold time at each position is 300 seconds (minimum).
3. Details of Stoddard Solvent spillage:
None



SOLVENT COLLECTION TIME TABLE IN SECONDS

Test Phase	Rotation Time	Hold Time	Total Time
0° to 90°	90°	330	420
90° to 180°	90°	330	840
180° to 270°	90°	330	1260
270° to 360°	90°	330	1680

FMVSS 301 SPILLAGE TABLE

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

SOLVENT SPILLAGE LOCATION TABLE

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

DATA SHEET NO. 17

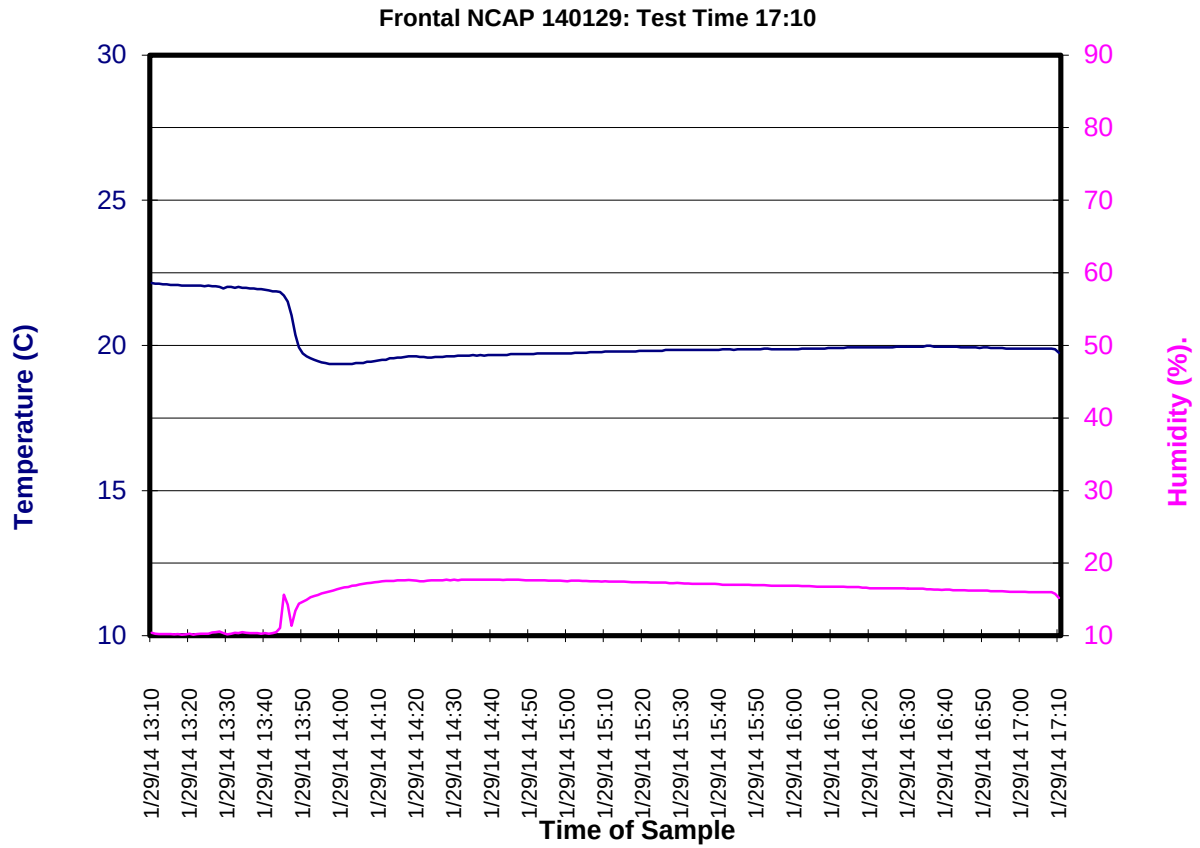
DUMMY/VEHICLE TEMPERATURE STABILIZATION

Test Vehicle: 2014 Jeep Cherokee 4-Door MPV

NHTSA No.: M20140302

Test Program: NCAP Frontal Impact

Test Date: 1/29/14



APPENDIX A
PHOTOGRAPHS

TABLE OF PHOTOGRAPHS

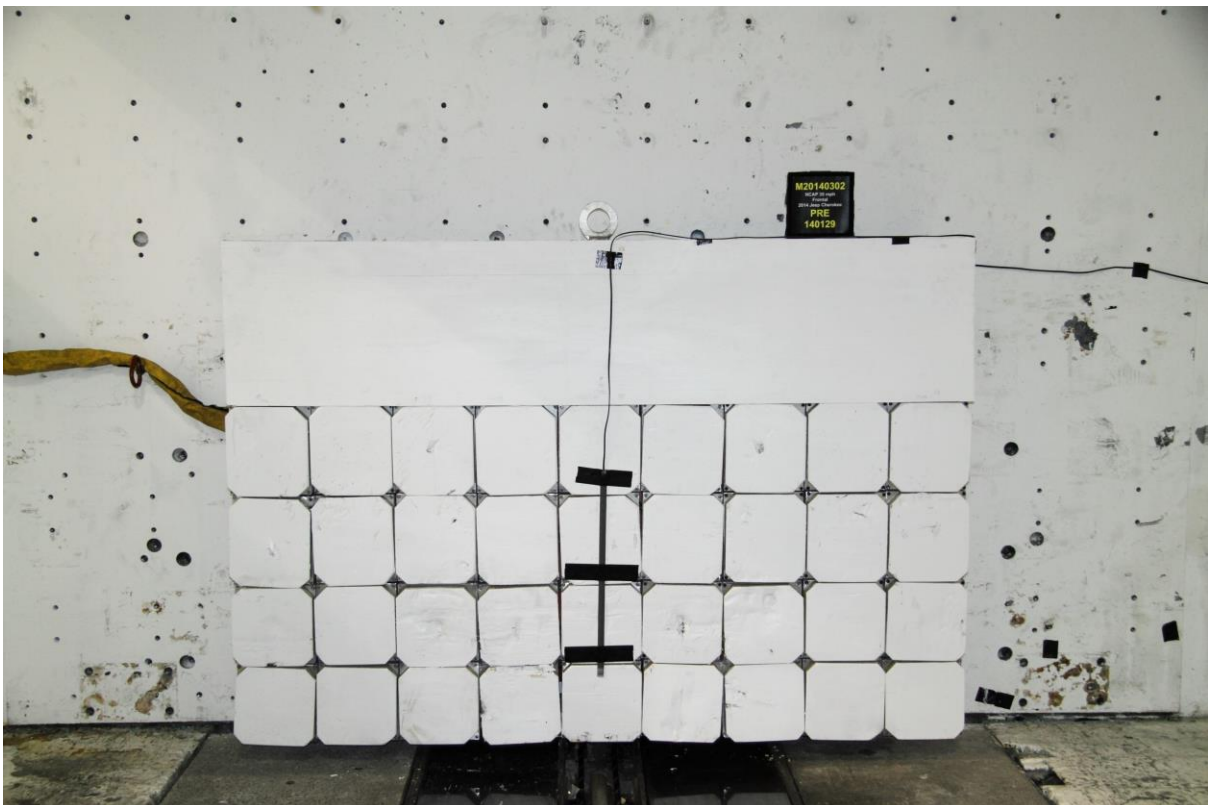
No.	Description	Page
1	Load Cell Location	A-4
2	Load Cell Wall	A-4
3	Manufacturer's Label	A-5
4	Tire Placard	A-5
5	2014 Jeep Cherokee 4-Door MPV Frontal as Delivered	A-6
6	Left Rear 3-4 View, as Received	A-6
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10	Post-Test Left View of Test Vehicle	A-8
11	Pre-Test Right View of Test Vehicle	A-9
12	Post-Test Right View of Test Vehicle	A-9
13	Pre-Test Right Front 3-4 View	A-10
14	Post-Test Right Front 3-4 View	A-10
15	Pre-Test Left Rear 3-4 View	A-11
16	Post-Test Left Rear 3-4 View	A-11
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18	Post-Test Windshield View	A-12
19	Pre-Test Engine Compartment View	A-13
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21	Pre-Test Fuel Filler Cap View	A-14
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52	Pre-Test Passenger Dummy Window View	A-29
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60	Pre-Test Passenger Dummy Feet	A-33
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75	2014 Jeep Cherokee 4-Door MPV Frontal Impact Event	A-41
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001 Load Cell Location



002 Load Cell Wall



003 Manufacturer's Label



004 Tire Placard



005 2014 Jeep Cherokee 4-Door MPV Frontal As Delivered



006 Left Rear 3-4 View, as Received



007 Pre-Test Front View of Test Vehicle



008 Post-Test Front View of Test Vehicle



009 Pre-Test Left View of Test Vehicle



010 Post-Test Left View of Test Vehicle



011 Pre-Test Right View of Test Vehicle



012 Post-Test Right View of Test Vehicle

PHOTO NOT AVAILABLE

013 Pre-Test Right Front 3-4 View



014 Post-Test Right Front 3-4 View



015 Pre-Test Left Rear 3-4 View



016 Post-Test Left Rear 3-4 View



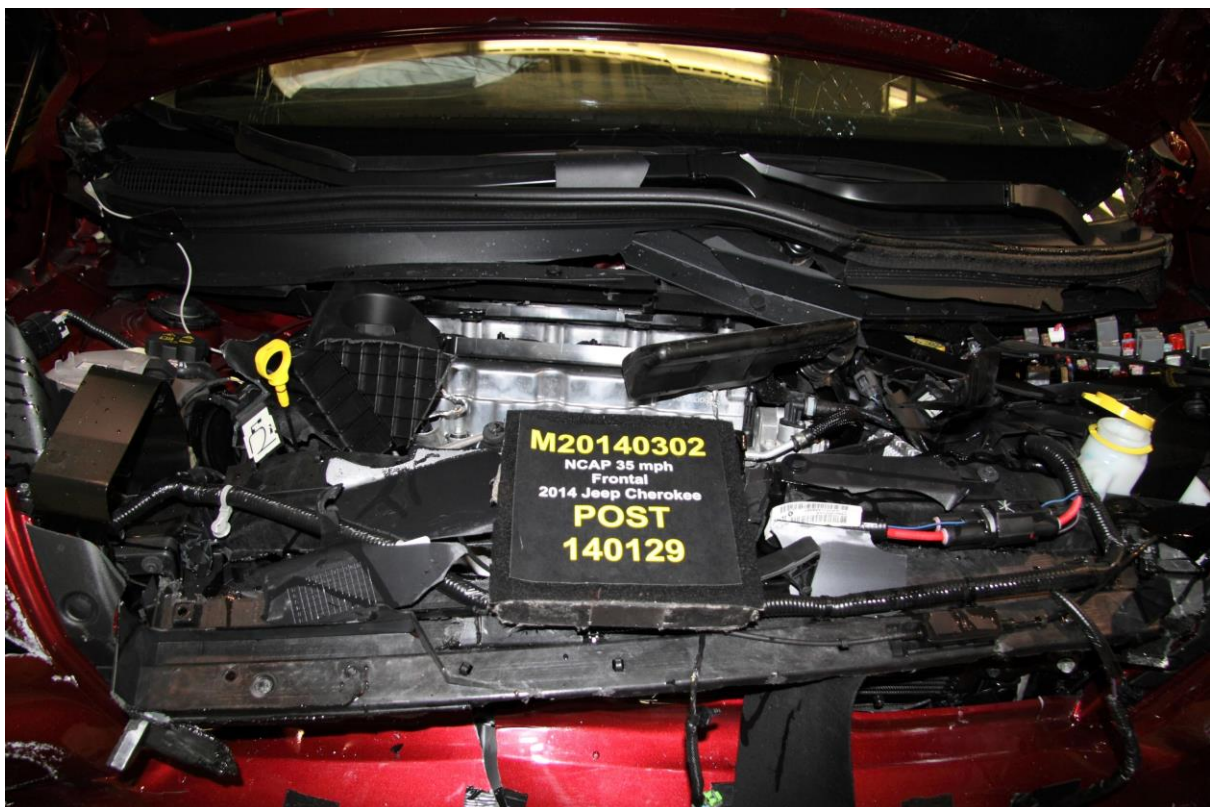
017 Pre-Test Windshield View



018 Post-Test Windshield View



019 Pre-Test Engine Compartment View



020 Post-Test Engine Compartment View



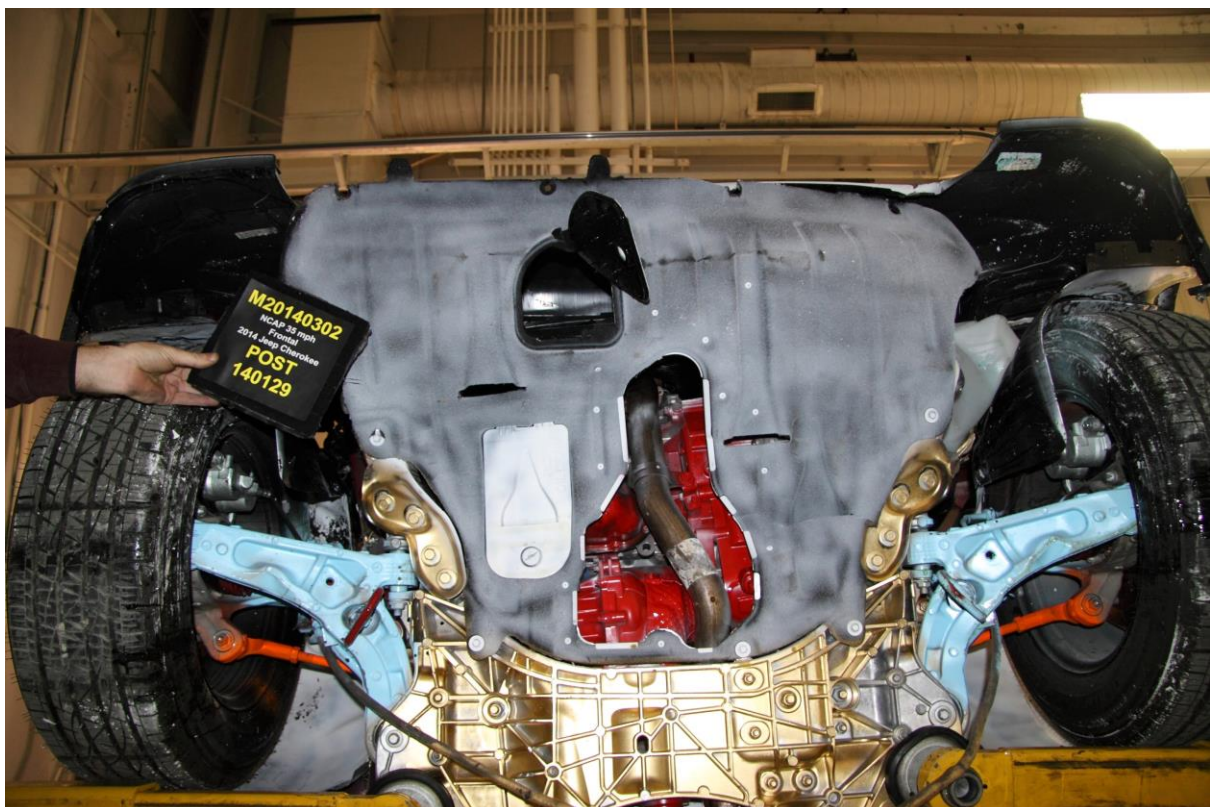
021 Pre-Test Fuel Filler Cap View



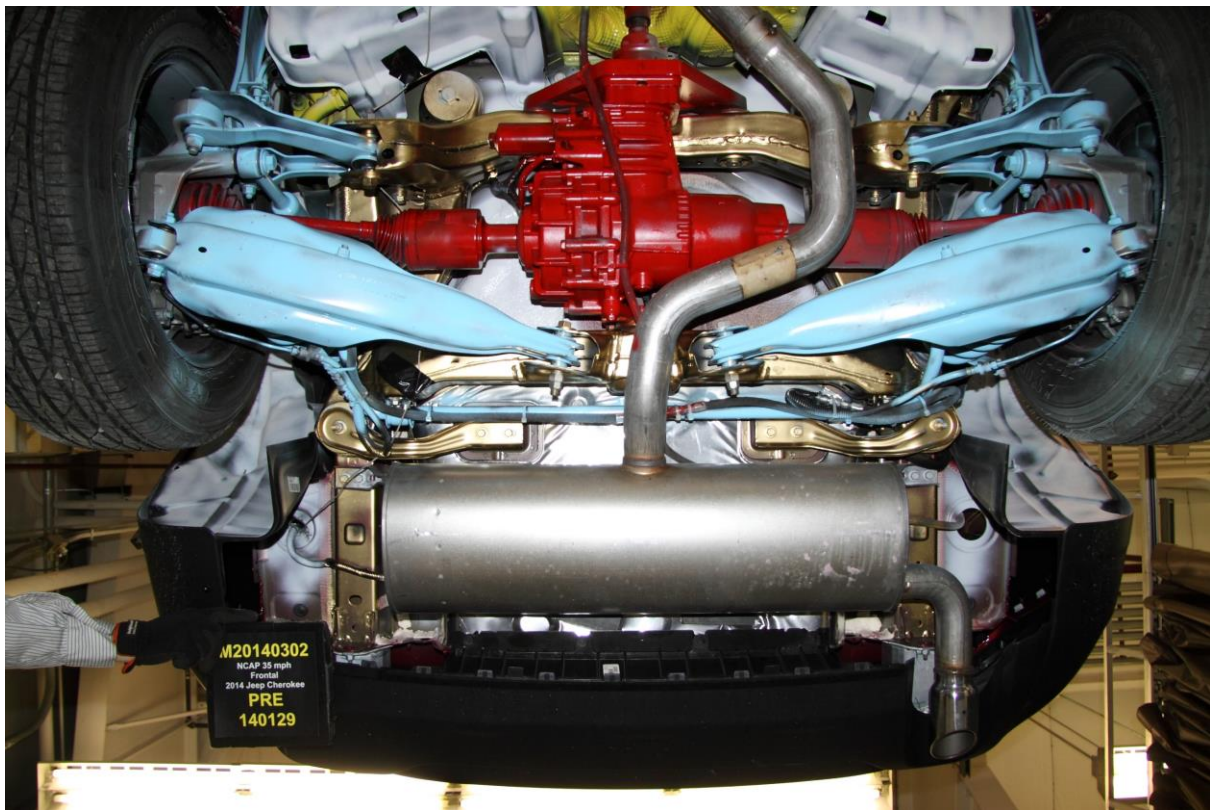
022 Post-Test Fuel Filler Cap View



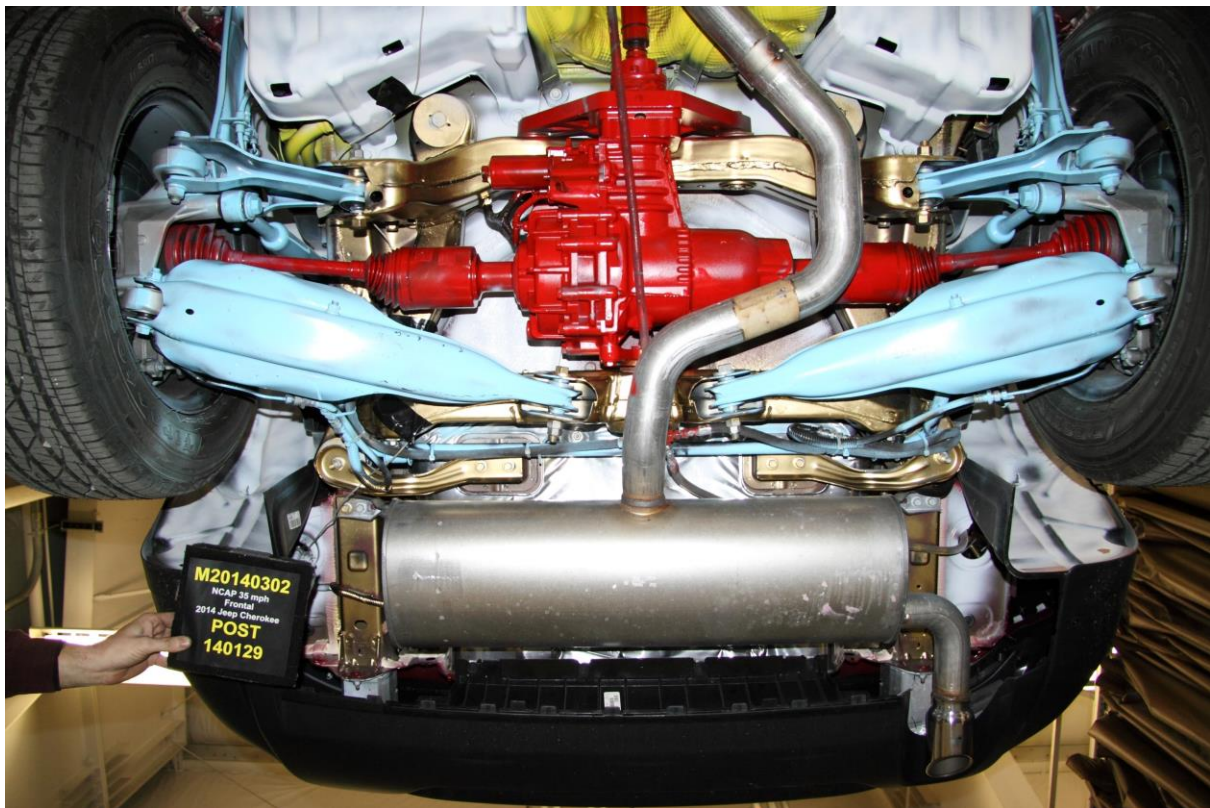
023 Pre-Test Front Underbody View



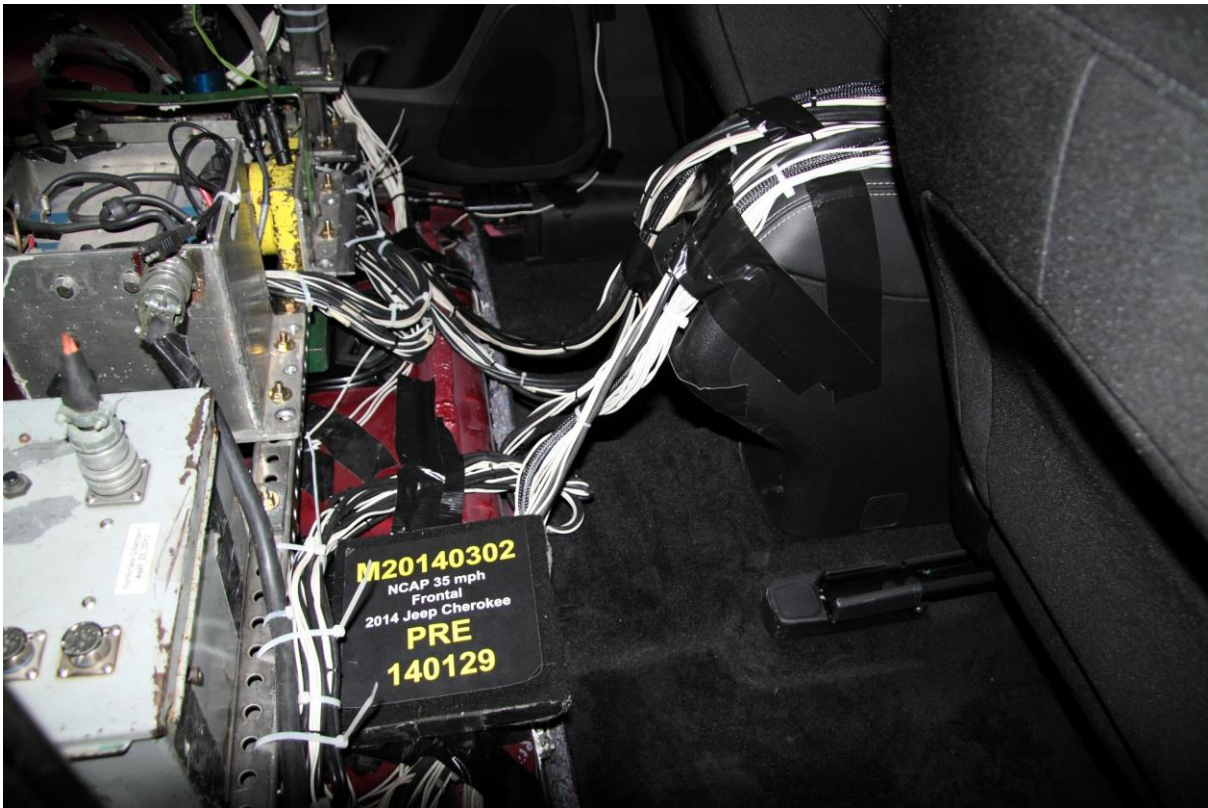
024 Post-Test Front Underbody View



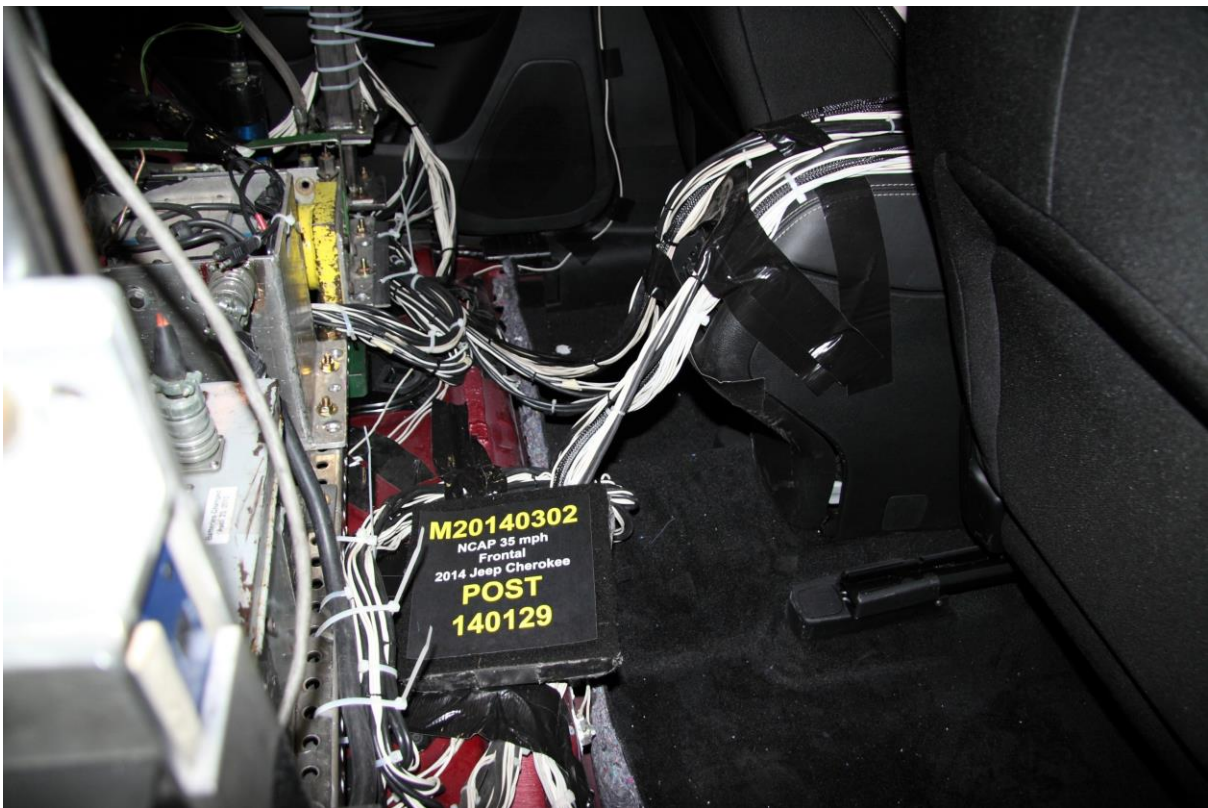
025 Pre-Test Rear Underbody View



026 Post-Test Rear Underbody View



027 Pre-Test Dummy Cable Routing



028 Post-Test Dummy Cable Routing



029 Pre-Test Driver Dummy Front View



030 Post-Test Driver Dummy Front View



031 Pre-Test Driver Dummy Window View



032 Post-Test Driver Dummy Window View



033 Pre-Test Driver Dummy and Vehicle Interior View



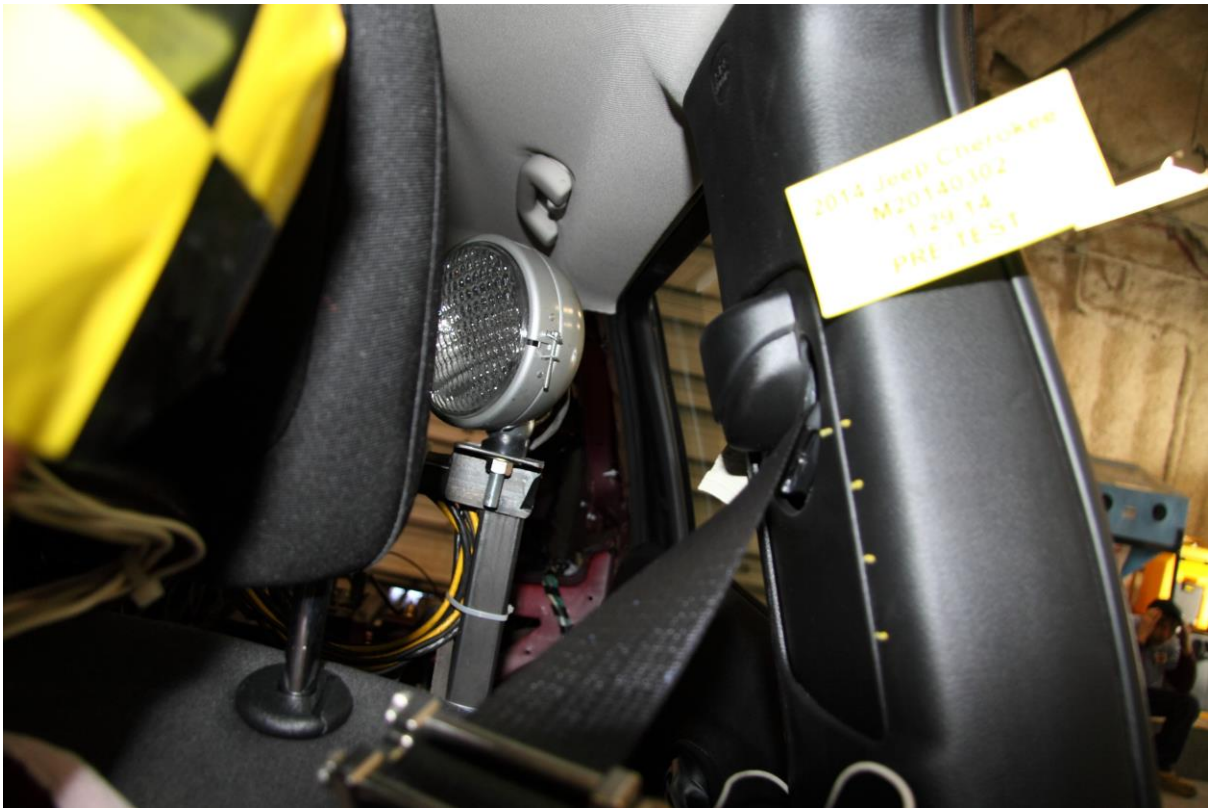
034 Post-Test Driver Dummy and Vehicle Interior View



035 Pre-Test Driver's Seat Fore-Aft Markings



036 Post-Test Driver's Seat Fore-Aft Markings



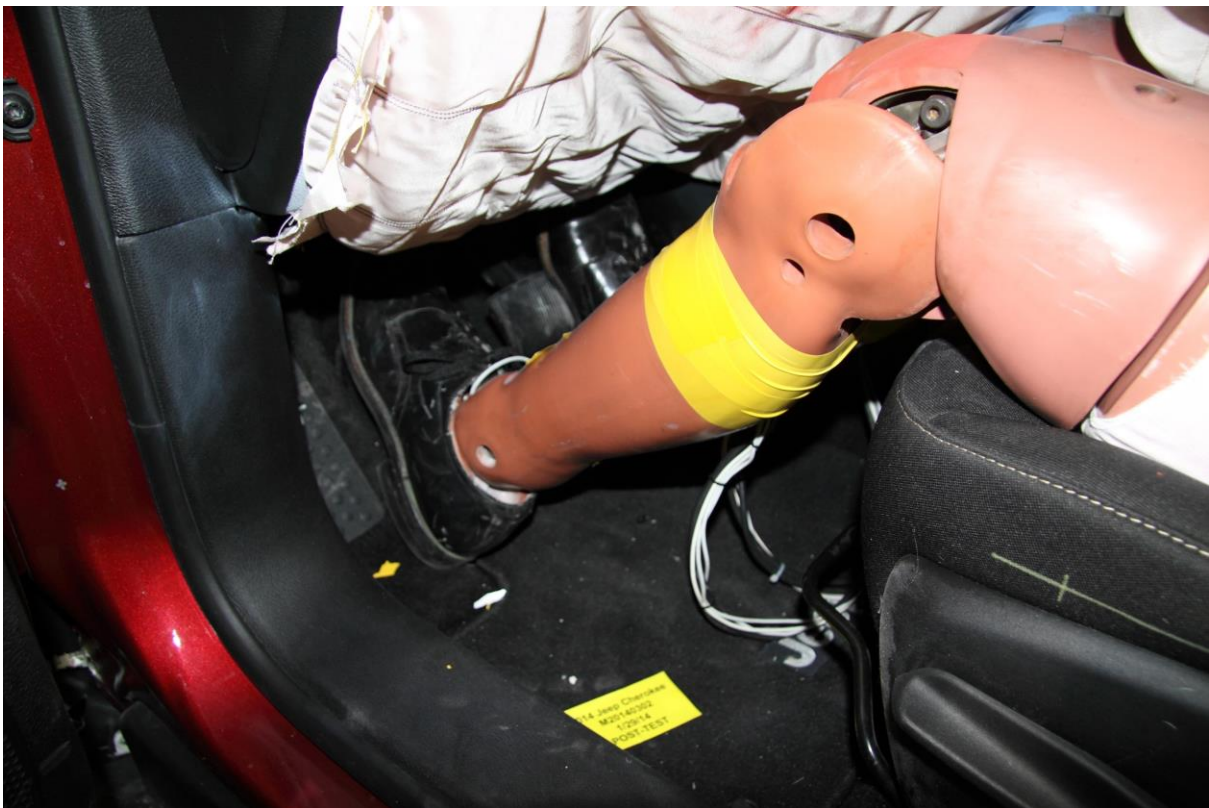
037 Pre-Test View of Belt Anchorage for Driver Dummy



038 Post-Test View of Belt Anchorage for Driver Dummy



039 Pre-Test Driver Dummy Feet



040 Post-Test Driver Dummy Feet



041 Pre-Test Driver's Side Knee Bolster



042 Post-Test Driver's Side Knee Bolster



043 Pre-Test Driver's Side Floorpan



044 Post-Test Driver's Side Floorpan



045 Post-Test Driver Dummy Face



046 Post-Test Driver Dummy Contact With Airbag



047 Post-Test Driver Dummy Contact With Headrest



048 Pre-Test View of the Steering Wheel



049 Post-Test View of the Steering Wheel



050 Pre-Test Passenger Dummy Front View



051 Post-Test Passenger Dummy Front View



052 Pre-Test Passenger Dummy Window View



053 Post-Test Passenger Dummy Window View



054 Pre-Test Passenger Dummy and Vehicle Interior View



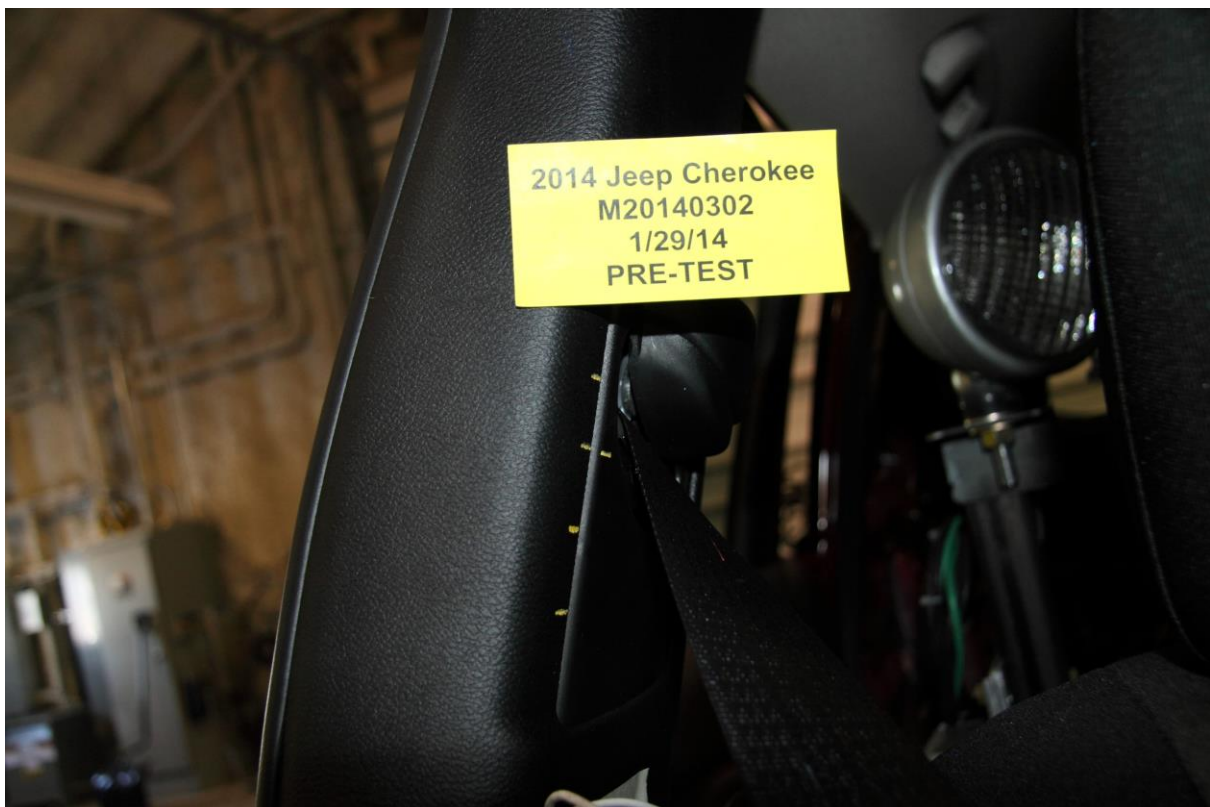
055 Post-Test Passenger Dummy and Vehicle Interior View



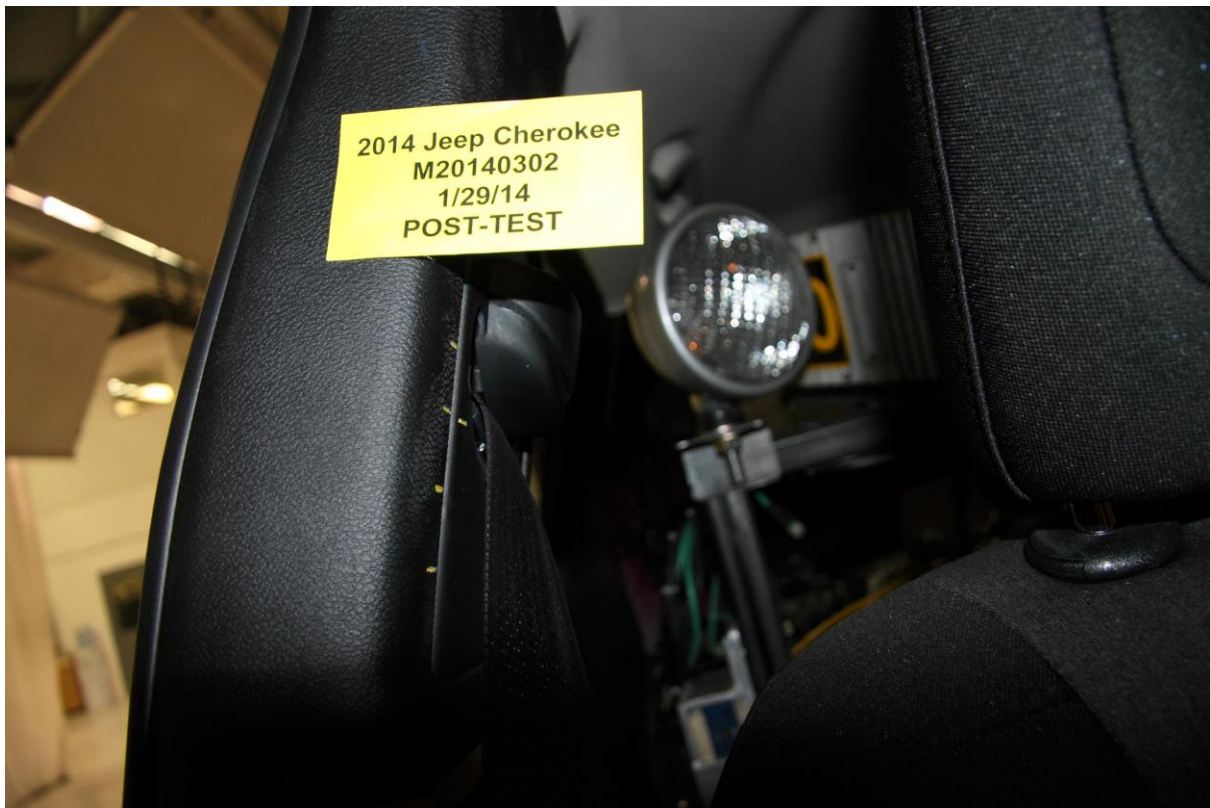
056 Pre-Test Passenger's Seat Fore-Aft Markings



057 Post-Test Passenger's Seat Fore-Aft Markings



058 Pre-Test View of Belt Anchorage for Passenger Dummy



059 Post-Test View of Belt Anchorage for Passenger Dummy



060 Pre-Test Passenger Dummy Feet



061 Post-Test Passenger Dummy Feet



062 Pre-Test Passenger's Side Knee Bolster



063 Post-Test Passenger's Side Knee Bolster



064 Pre-Test Passenger's Side Floorpan



065 Post-Test Passenger's Side Floorpan



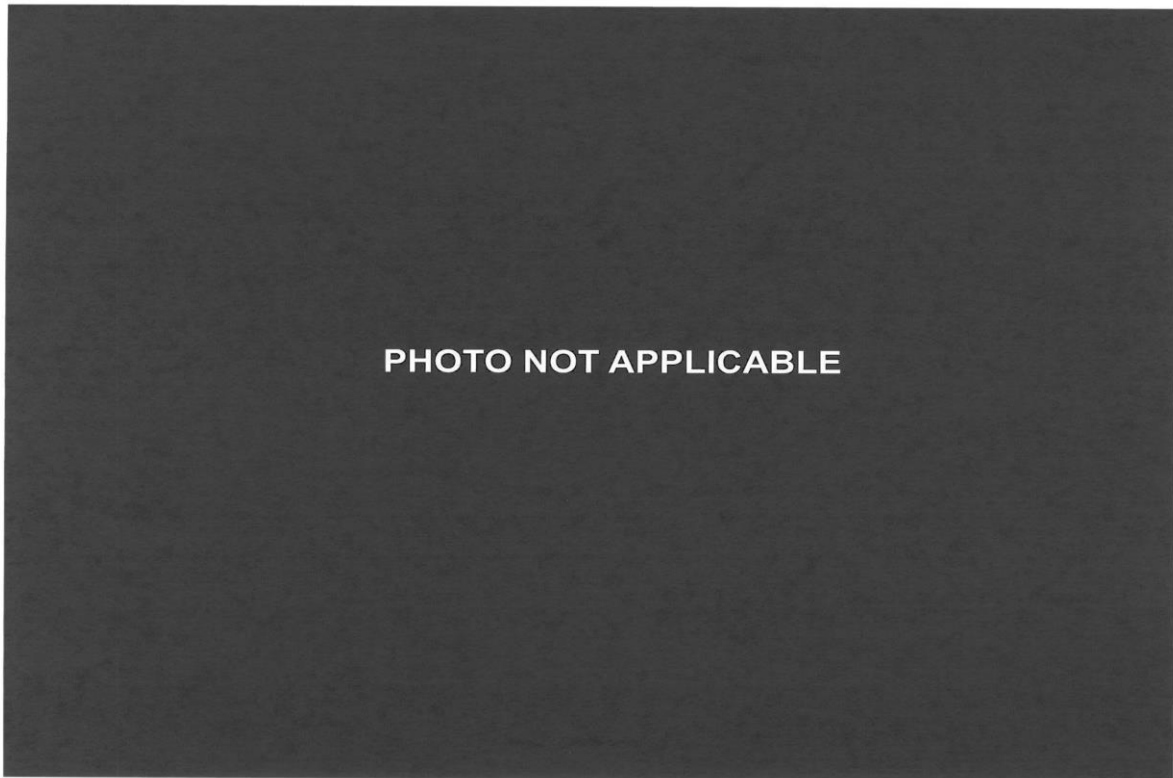
066 Post Test Passenger Dummy Contact With Headrest



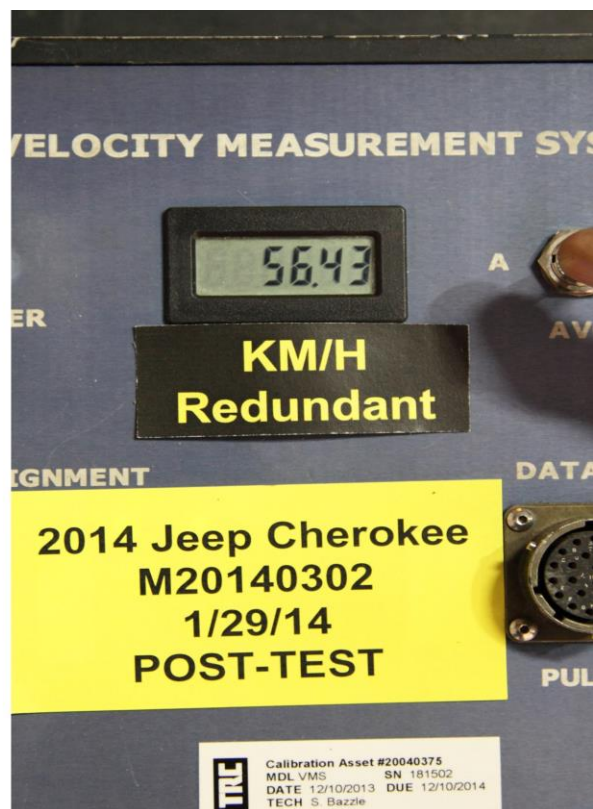
066a Post-Test Passenger Dummy Contact With Airbag



067 Photograph of Ballast Installed in Vehicle



068 Post-Test Stoddard Solvent Spillage Location View, if required



069 Post-Test Speed Trap Read-out



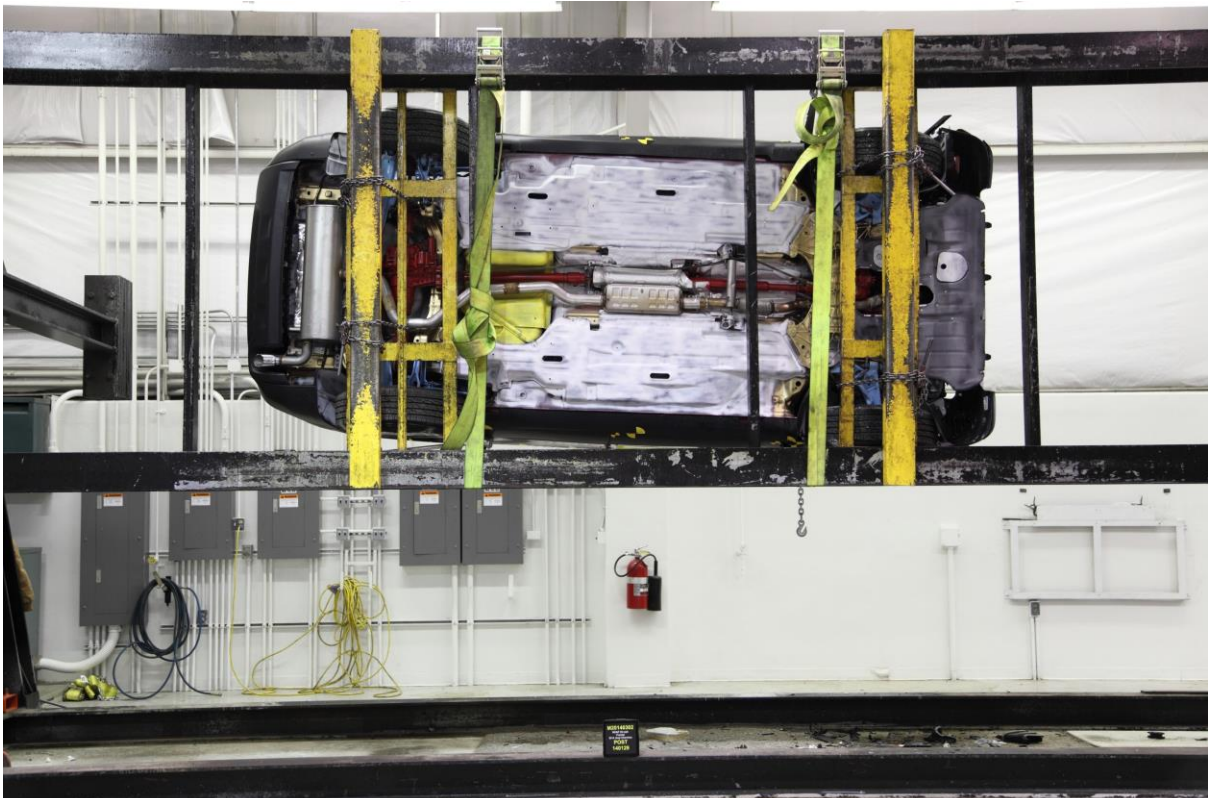
070 Vehicle at 0° on Static Rollover Device



071 Vehicle at 90° on Static Rollover Device



072 Vehicle at 180° on Static Rollover Device



073 Vehicle at 270° on Static Rollover Device



074 Vehicle at 360° on Static Rollover Device



075 2014 Jeep Cherokee MPV Frontal Impact Event

Jeep. 2014 MODEL YEAR CHEROKEE SPORT 4X4

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

Chrysler Group LLC

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

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

Base Price: **\$24,995**

JEOP CHEROKEE SPORT 4X4
Exterior Color: Deep Cherry Red Crystal Pearl Coat Exterior Paint
Interior Color: Morisco - Black Interior Color
Interior: Cloth Low-Back Bucket Seats
Engine: 2.4-Liter I4 MultiAir® Engine
Transmission: 8-Speed Automatic Transmission

STANDARD EQUIPMENT (UNLESS REPLACED BY OPTIONAL EQUIPMENT)

FUNCTIONAL/SAFETY FEATURES

Advanced MultiStage Front Airbags
Supplemental Side-Curtain Front and Rear Airbags
Supplemental Front Seat-Mounted Side Airbags
Driver Inflatable Knee-Bolster Airbag
Passenger Inflatable Knee-Bolster Airbag
Anti-Lock 4-Wheel Disc Brakes
Jeep Active Drive I
Electronic Roll Mitigation
Solex-Terrain System
All-Speed Traction Control
Brake Stability Control
Hill Start Assist
Trailer Sway Damping
Cruise Control
Tire Pressure Monitoring Display

INTERIOR FEATURES

Unconnected 5.0 AM/FM/ST
5.0-Inch Touch Screen Display
Integrated Voice Command with Bluetooth®
Remote SD Card Slot
Audio Jack Input for Mobile Devices
12-Volt Cargo Power Outlet
12-Volt Auxiliary Power Outlet in Instrument Panel
USB Charging Port in Console Bin
Rearview Mirror with Microphone
Power Mirrors
Power Windows with Driver's One-Touch-Down Feature
Manual 6-Way Driver Seat
6-Way Manual Passenger Seat Adjust
Rear 60 / 40 Folding Split Recline Seat

Tilt / Telescope Steering Column
Cluster 3.5-Inch TFT Black and White Display
Electronic Vehicle Information Center
Illuminated Front Cup Holders
Jeep Cargo Management System
EXTERIOR FEATURES
17-Inch x 7.0-Inch Full Face Steel Wheels
225/65R17 BSW All Season Tires
Solar Control Glass
Bi-Function Halogen Projector Headlamps
LED Daytime Running Headlamps
LED Tail Lamps
Bright Exhaust Tip

OPTIONAL EQUIPMENT

Customer Preferred Package 24A

DESTINATION CHARGE

\$995

TOTAL PRICE: * \$25,990

WARRANTY COVERAGE

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

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

EPA DOT Fuel Economy and Environment

Gasoline Vehicle

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

Small SUV 4x4 range from 16 to 30 MPG.
The best vehicle rates 121 MPG.

**You save
\$500
in fuel costs
over 5 years**
compared to the
average new vehicle.

**Annual fuel cost
\$2,200**

Fuel Economy & Greenhouse Gas Rating (tailpipe only)

1 6 10 Best
This vehicle emits 376 grams CO2 per mile. The best emits 3 grams per mile (tailpipe only). Producing and distributing fuel also creates emissions. Learn more at fuelconomy.gov

Smog Rating (tailpipe only)

1 5 10 Best
This vehicle emits 376 grams CO2 per mile. The best emits 3 grams per mile (tailpipe only). Producing and distributing fuel also creates emissions. Learn more at fuelconomy.gov

Actual results will vary for many reasons, including driving conditions and how you drive and maintain your vehicle. The average new vehicle gets 22 MPG and cost \$13,500 to fuel over 5 years. Cost estimates are based on 15,000 miles per year at \$3.50 per gallon. MPG is miles per gasoline gallon equivalent. Vehicle emissions are a significant cause of climate change and smog.

fuelconomy.gov

Calculate personalized estimates and compare vehicles



GOVERNMENT 5-STAR SAFETY RATINGS

This vehicle has not been rated by the government for frontal crash, side crash or rollover risk.

Source: National Highway Traffic Safety Administration (NHTSA)
www.safercar.gov or 1-888-327-4236

PARTS CONTENT INFORMATION

FOR VEHICLES IN THIS COUNTRY:
U.S./CANADIAN PARTS CONTENT: 70 %
NOTE: PARTS CONTENT DOES NOT INCLUDE FINAL ASSEMBLY, DISTRIBUTION, OR OTHER NON-PARTS COSTS.

FOR THIS VEHICLE:
FINAL ASSEMBLY POINT:
TOLEDO, OHIO, U.S.A.
COUNTRY OF ORIGIN:
ENGINE: UNITED STATES
TRANSMISSION: UNITED STATES

Assembly Point/Port of Entry: TOLEDO, OHIO, U.S.A.
VIN: 1C4PJMB06V-121635 LK40N 8953 1029
CHRYSLER 4000 10
FERRARIO AUTO CENTER INC.
215 GOLDEN MILE RD
TOWANOA PA 18848-9027
CHRYSLER 36 4000
FERRARIO AUTO CENTER INC.
215 GOLDEN MILE RD
TOWANOA PA 18848-9027
THIS LABEL IS ADDED TO THIS VEHICLE TO COMPLY WITH FEDERAL LAW. THE LABEL CANNOT BE REMOVED OR ALTERED PRIOR TO DELIVERY TO THE CUSTOMER. FURNISHING
* EXACT MODEL, COLOR, MAKE, YEAR, AND EQUIPMENT MAY VARY. THE PRICE, INCLUDING TAX, IS BASED ON PRICE OF OPTIONS IF PURCHASED SEPARATELY.

076 Monroney Label Photograph

APPENDIX B
VEHICLE AND DUMMY RESPONSE DATA PLOTS

TABLE OF DATA PLOTS

No.	List of Data Plots Provided in the Test Report	Page
1	Driver Head X Acceleration vs. Time Primary	B-6
2	Driver Head Y Acceleration vs. Time Primary	B-6
3	Driver Head Z Acceleration vs. Time Primary	B-6
4	Driver Head Resultant Acceleration vs. Time Primary	B-6
5	Driver Chest X Deflection vs. Time	B-7
6	Driver Chest X Acceleration vs. Time Primary	B-8
7	Driver Chest Y Acceleration vs. Time Primary	B-8
8	Driver Chest Z Acceleration vs. Time Primary	B-8
9	Driver Chest Resultant Acceleration vs. Time Primary	B-8
10	Driver Upper Neck Force X vs. Time	B-9
11	Driver Upper Neck Force Z vs. Time	B-9
12	Driver Upper Neck Moment Y vs. Time	B-9
13	Driver Nij vs. Time	B-10
14	Driver Left Femur Force vs. Time	B-11
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18	Passenger Head Z Acceleration vs. Time Primary	B-12
19	Passenger Head Resultant Acceleration vs. Time Primary	B-12
20	Passenger Chest X Deflection vs. Time	B-13
21	Passenger Chest X Acceleration vs. Time Primary	B-14
22	Passenger Chest Y Acceleration vs. Time Primary	B-14
23	Passenger Chest Z Acceleration vs. Time Primary	B-14
24	Passenger Chest Resultant Acceleration vs. Time Primary	B-14
25	Passenger Upper Neck Force X vs. Time	B-15
26	Passenger Upper Neck Force Z vs. Time	B-15
27	Passenger Upper Neck Moment Y vs. Time	B-15
28	Passenger Nij vs. Time	B-16
29	Passenger Left Femur Force vs. Time	B-17
30	Passenger Right Femur Force vs. Time	B-17

The following additional dummy and vehicle response data can be found in the R & D section of the NHTSA website at: www.nhtsa.dot.gov.

Driver Head Acceleration X Redundant
Driver Head Acceleration Y Redundant
Driver Head Acceleration Z Redundant
Driver Upper Neck Force Y

Driver Upper Neck Moment X
Driver Upper Neck Moment Z
Driver Chest X Acceleration Redundant
Driver Chest Y Acceleration Redundant
Driver Chest Z Acceleration Redundant
Driver Pelvis X Acceleration
Driver Pelvis Y Acceleration
Driver Pelvis Z Acceleration
Driver Left Upper Tibia Moment X
Driver Left Upper Tibia Moment Y
Driver Left Upper Tibia Force Z
Driver Left Lower Tibia Moment X
Driver Left Lower Tibia Moment Y
Driver Left Lower Tibia Force Z
Driver Right Upper Tibia Moment X
Driver Right Upper Tibia Moment Y
Driver Right Upper Tibia Force Z
Driver Right Lower Tibia Moment X
Driver Right Lower Tibia Moment Y
Driver Right Lower Tibia Force Z
Driver Left Foot Fore Z
Driver Left Foot Aft X
Driver Left Foot Aft Z
Driver Right Foot Fore Z
Driver Right Foot Aft X
Driver Right Foot Aft Z
Driver Shoulder Belt Force
Driver Lap Belt Force
Passenger Head Acceleration X Redundant
Passenger Head Acceleration Y Redundant
Passenger Head Acceleration Z Redundant
Passenger Upper Neck Force Y
Passenger Upper Neck Moment X
Passenger Upper Neck Moment Z
Passenger Chest X Acceleration Redundant
Passenger Chest Y Acceleration Redundant
Passenger Chest Z Acceleration Redundant
Passenger Pelvis X
Passenger Pelvis Y
Passenger Pelvis Z
Passenger Left Upper Tibia Moment X

Passenger Left Upper Tibia Moment Y
Passenger Left Upper Tibia Force Z
Passenger Left Lower Tibia Moment X
Passenger Left Lower Tibia Moment Y
Passenger Left Lower Tibia Force Z
Passenger Right Upper Tibia Moment X
Passenger Right Upper Tibia Moment Y
Passenger Right Upper Tibia Force Z
Passenger Right Lower Tibia Moment X
Passenger Right Lower Tibia Moment Y
Passenger Right Lower Tibia Force Z
Passenger Left Foot Fore Z
Passenger Left Foot Aft X
Passenger Left Foot Aft Z
Passenger Right Foot Fore Z
Passenger Right Foot Aft X
Passenger Right Foot Aft Z
Passenger Shoulder Belt Force
Passenger Lap Belt Force
Left Rear Seat Crossmember X
Left Rear Seat Crossmember Z
Right Rear Seat Crossmember X
Right Rear Seat Crossmember Z
Left Rear Seat Crossmember X Redundant
Right Rear Seat Crossmember X Redundant
Vehicle Engine Top X
Vehicle Engine Bottom X
BARRIER LOAD A1
BARRIER LOAD A2
BARRIER LOAD A3
BARRIER LOAD A4
BARRIER LOAD A5
BARRIER LOAD A6
BARRIER LOAD A7
BARRIER LOAD A8
BARRIER LOAD A9
BARRIER LOAD B1
BARRIER LOAD B2
BARRIER LOAD B3
BARRIER LOAD B4
BARRIER LOAD B5

BARRIER LOAD B6
BARRIER LOAD B7
BARRIER LOAD B8
BARRIER LOAD B9
BARRIER LOAD C1
BARRIER LOAD C2
BARRIER LOAD C3
BARRIER LOAD C4
BARRIER LOAD C5
BARRIER LOAD C6
BARRIER LOAD C7
BARRIER LOAD C8
BARRIER LOAD C9
BARRIER LOAD D1
BARRIER LOAD D2
BARRIER LOAD D3
BARRIER LOAD D4
BARRIER LOAD D5
BARRIER LOAD D6
BARRIER LOAD D7
BARRIER LOAD D8
BARRIER LOAD D9

NHTSA

Test Lab: CTF

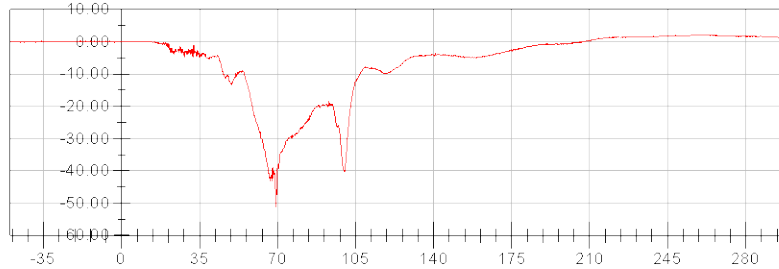
Test Number: 140129 (M20140302)

Test Date: 01/29/2014

Position #1 Hybrid III Mid-Sized Adult Male Dummy (37)

Position #2 Hybrid III Small Adult Female (426)

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



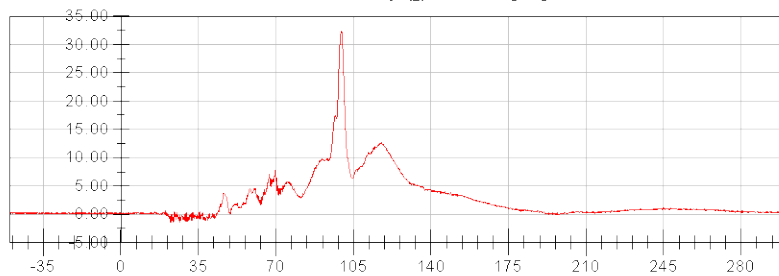
<Max>

2.29 g at 259.84 ms

<Min>

-51.24 g at 69.28 ms

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



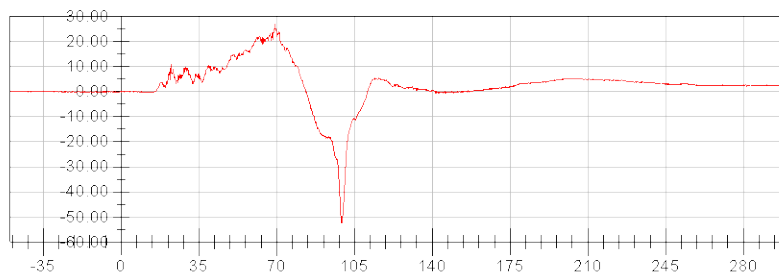
<Max>

32.46 g at 99.52 ms

<Min>

-1.54 g at 22.56 ms

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



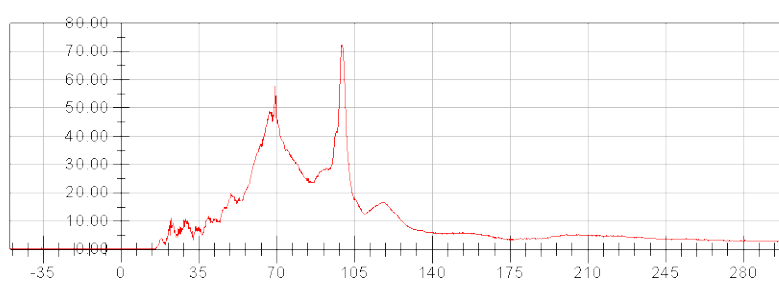
<Max>

26.79 g at 69.12 ms

<Min>

-52.36 g at 99.12 ms

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



<Max>

72.32 g at 99.20 ms

<Min>

0.05 g at -24.64 ms



NHTSA

Test Lab: CTF

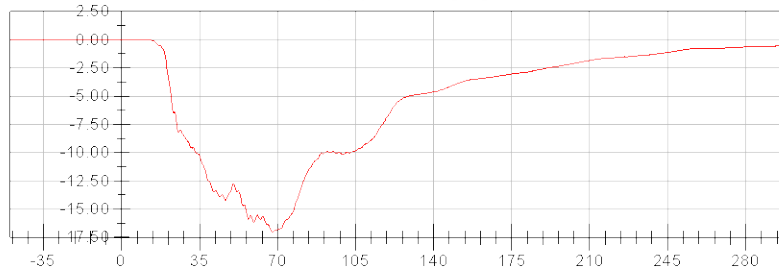
Test Number: 140129 (M20140302)

Test Date: 01/29/2014

Position #1 Hybrid III Mid-Sized Adult Male Dummy (37)

Position #2 Hybrid III Small Adult Female (426)

Driver Chest X Deflection vs. Time (mm) vs. Time [ms]



<Max>

0.00 mm at 6.88 ms

<Min>

-17.02 mm at 67.68 ms

CFC_600



NHTSA

Test Lab: CTF

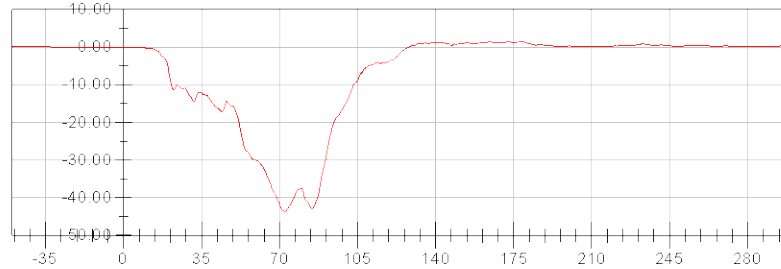
Test Number: 140129 (M20140302)

Test Date: 01/29/2014

Position #1 Hybrid III Mid-Sized Adult Male Dummy (37)

Position #2 Hybrid III Small Adult Female (426)

Driver Chest X Acceleration vs. Time Primary (g) vs. Time [ms]



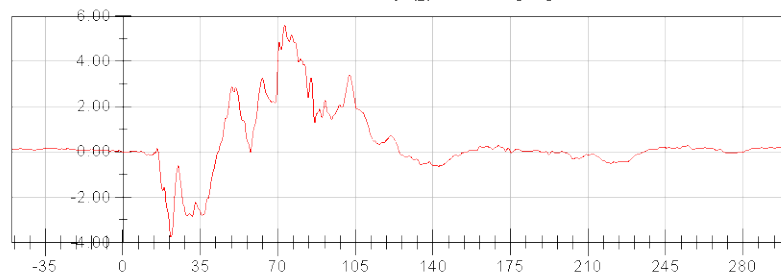
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1.52 g at 178.40 ms

<Min>

-43.69 g at 72.40 ms

Driver Chest Y Acceleration vs. Time Primary (g) vs. Time [ms]



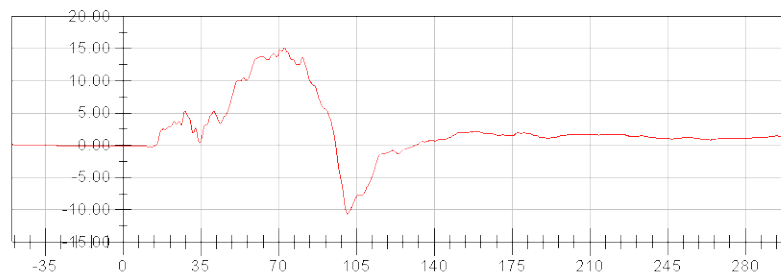
<Max>

5.60 g at 73.04 ms

<Min>

-3.77 g at 21.68 ms

Driver Chest Z Acceleration vs. Time Primary (g) vs. Time [ms]



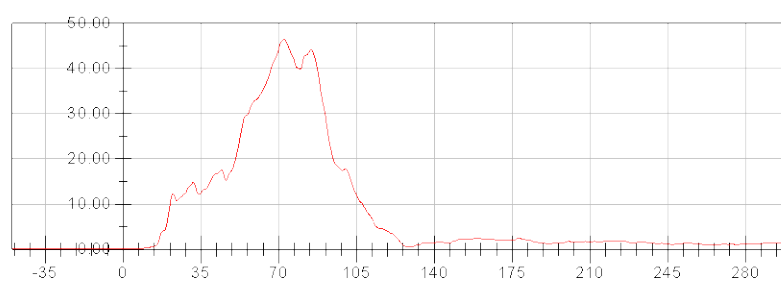
<Max>

15.08 g at 72.48 ms

<Min>

-10.63 g at 100.88 ms

Driver Chest Resultant Acceleration vs. Time Primary (g) vs. Time [ms]



<Max>

46.52 g at 72.48 ms

<Min>

0.11 g at -39.84 ms



NHTSA

Test Lab: CTF

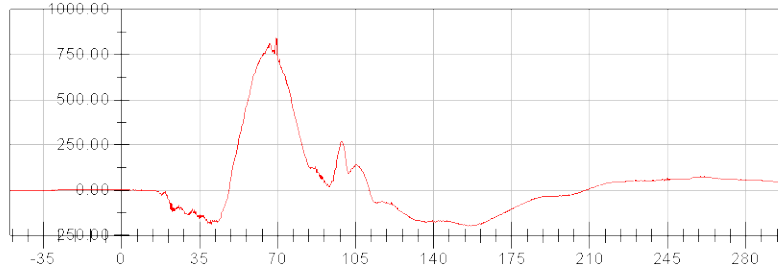
Test Number: 140129 (M20140302)

Test Date: 01/29/2014

Position #1 Hybrid III Mid-Sized Adult Male Dummy (37)

Position #2 Hybrid III Small Adult Female (426)

Driver Upper Neck Force X vs. Time (N) vs. Time [ms]



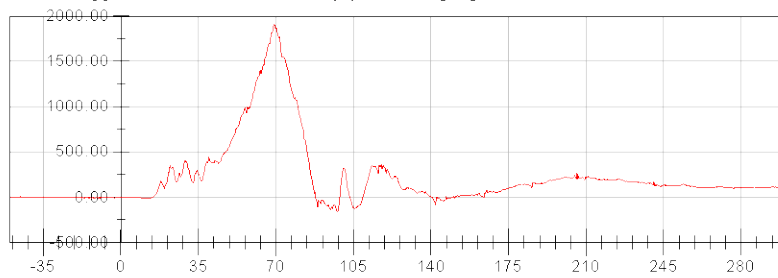
<Max>

844.36 N at 69.36 ms

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-198.86 N at 155.44 ms

Driver Upper Neck Force Z vs. Time (N) vs. Time [ms]



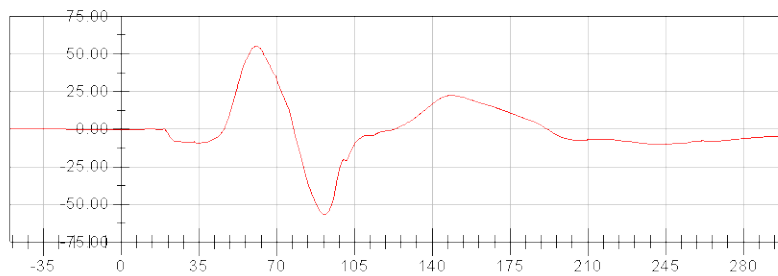
<Max>

1,911.12 N at 69.12 ms

<Min>

-163.18 N at 97.68 ms

Driver Upper Neck Moment Y vs. Time (Nm) vs. Time [ms]



<Max>

55.27 Nm at 60.80 ms

<Min>

-56.60 Nm at 91.60 ms





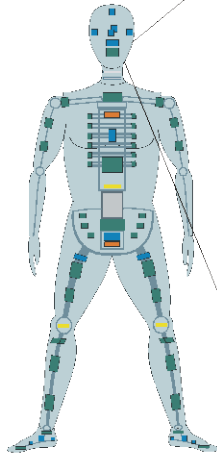
2014 Jeep Cherokee MPV into Load Cell Barrier Neck Injury Predictor (NIJ)

Date: 01/29/2014
Time: 17:16

Customer: NHTSA

Test Number: M20140302

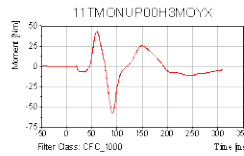
Test Orientation = Frontal
Fzc(Tension) = 6806
Fzc(Compression) = 6160
Myc(Extension) = 135
Myc(Flexion) = 310



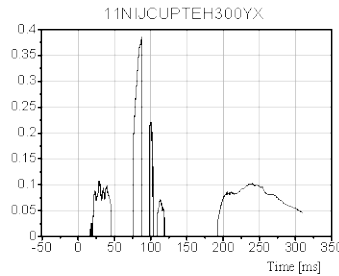
Dummy: HIII 50th Male
Seating Position:

Driver

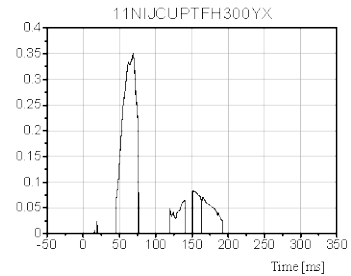
NIJ Source Code: (Fz/Fzc)+(Myc/Myc)



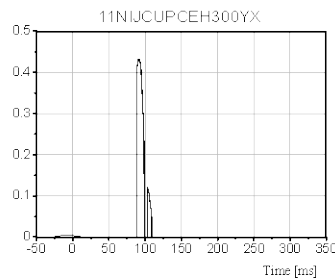
TRC Inc. Test Lab: CTF
Test Number: 140129



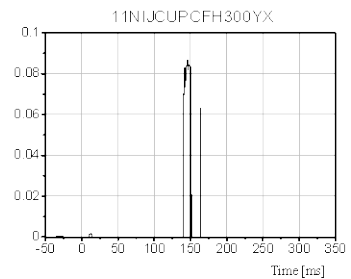
Max [NTE] 0.3860 at 87.68 ms



Max [NTF] 0.3506 at 69.04 ms



Max [NCE] 0.4330 at 90.32 ms



Max [NCF] 0.0869 at 146.08 ms

NHTSA

Test Lab: CTF

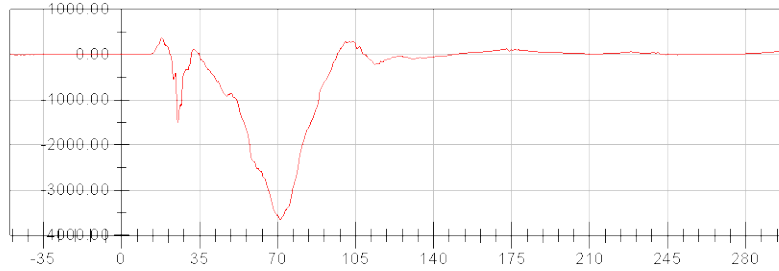
Test Number: 140129 (M20140302)

Test Date: 01/29/2014

Position #1 Hybrid III Mid-Sized Adult Male Dummy (37)

Position #2 Hybrid III Small Adult Female (426)

Driver Left Femur Force vs. Time (N) vs. Time [ms]



<Max>

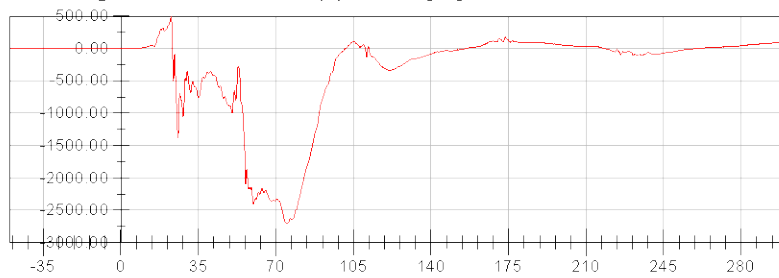
366.10 N at 18.00 ms

<Min>

-3,656.00 N at 71.28 ms

CFC_600

Driver Right Femur Force vs. Time (N) vs. Time [ms]



<Max>

487.38 N at 22.72 ms

<Min>

-2,702.24 N at 74.88 ms

CFC_600



NHTSA

Test Lab: CTF

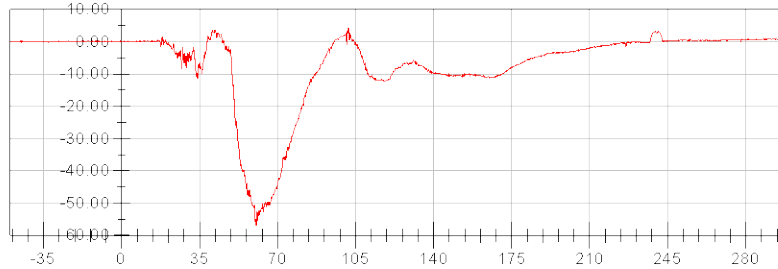
Test Number: 140129 (M20140302)

Test Date: 01/29/2014

Position #1 Hybrid III Mid-Sized Adult Male Dummy (37)

Position #2 Hybrid III Small Adult Female (426)

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



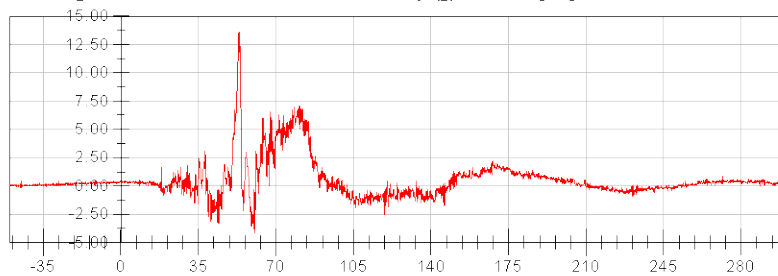
<Max>

4.34 g at 101.76 ms

<Min>

-56.98 g at 60.40 ms

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



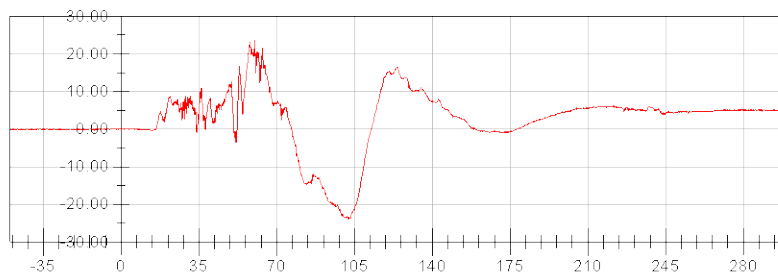
<Max>

13.65 g at 53.36 ms

<Min>

-4.18 g at 60.24 ms

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



<Max>

23.53 g at 60.16 ms

<Min>

-24.04 g at 102.24 ms

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



<Max>

60.07 g at 60.16 ms

<Min>

0.01 g at -49.36 ms



NHTSA

Test Lab: CTF

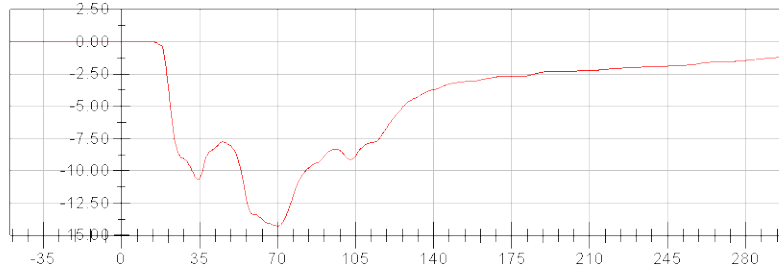
Test Number: 140129 (M20140302)

Test Date: 01/29/2014

Position #1 Hybrid III Mid-Sized Adult Male Dummy (37)

Position #2 Hybrid III Small Adult Female (426)

Passenger Chest X Deflection vs. Time (mm) vs. Time [ms]



<Max>

0.01 mm at 8.72 ms

<Min>

-14.29 mm at 69.84 ms

CFC_600



NHTSA

Test Lab: CTF

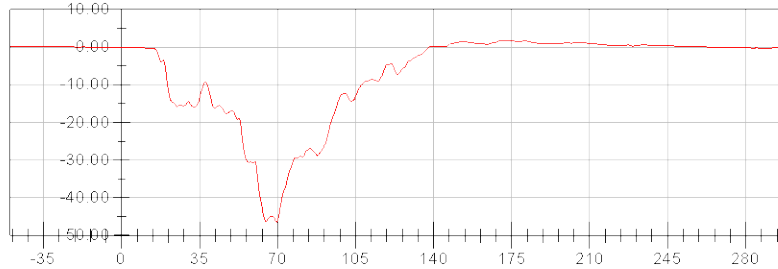
Test Number: 140129 (M20140302)

Test Date: 01/29/2014

Position #1 Hybrid III Mid-Sized Adult Male Dummy (37)

Position #2 Hybrid III Small Adult Female (426)

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



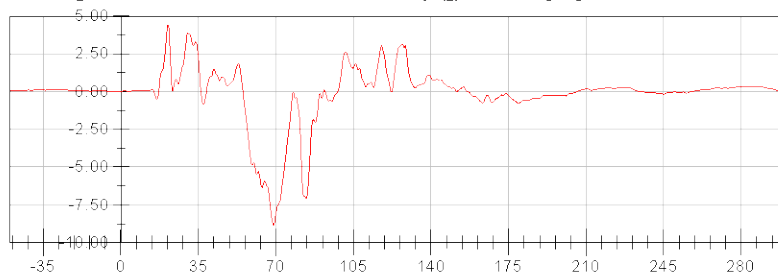
<Max>

1.71 g at 170.00 ms

<Min>

-46.46 g at 69.52 ms

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



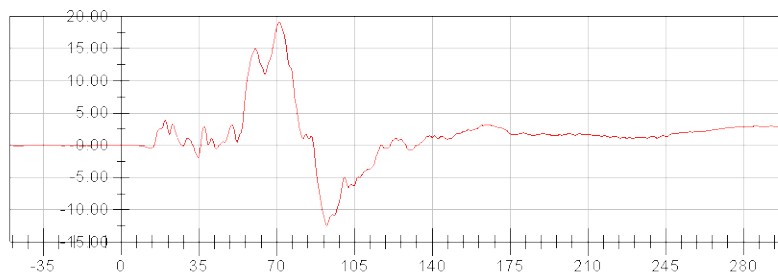
<Max>

4.45 g at 21.28 ms

<Min>

-8.85 g at 68.88 ms

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



<Max>

19.14 g at 71.20 ms

<Min>

-12.44 g at 92.56 ms

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



<Max>

50.44 g at 69.68 ms

<Min>

0.02 g at -2.64 ms



NHTSA

Test Lab: CTF

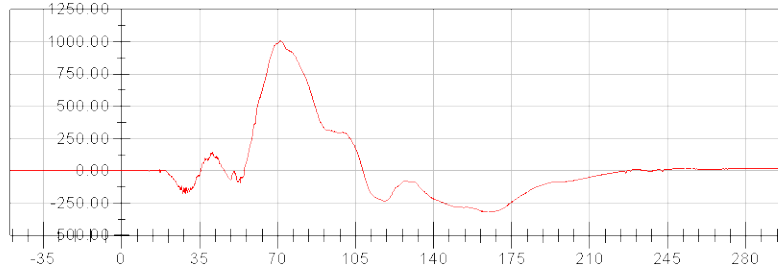
Test Number: 140129 (M20140302)

Test Date: 01/29/2014

Position #1 Hybrid III Mid-Sized Adult Male Dummy (37)

Position #2 Hybrid III Small Adult Female (426)

Passenger Upper Neck Force X vs. Time (N) vs. Time [ms]



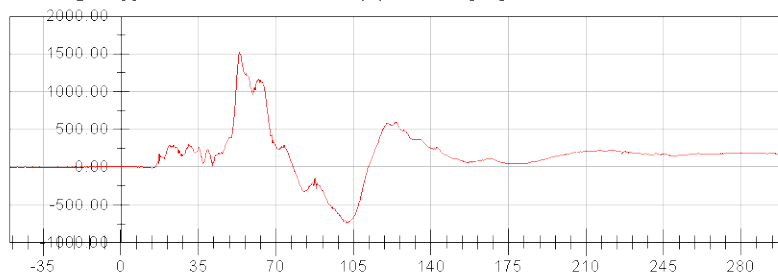
<Max>

1,005.25 N at 71.28 ms

<Min>

-322.30 N at 164.96 ms

Passenger Upper Neck Force Z vs. Time (N) vs. Time [ms]



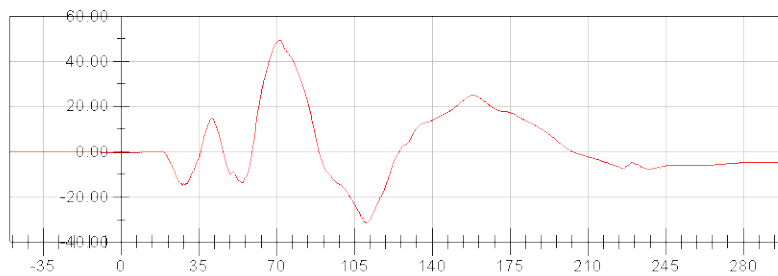
<Max>

1,530.17 N at 53.44 ms

<Min>

-739.78 N at 101.60 ms

Passenger Upper Neck Moment Y vs. Time (Nm) vs. Time [ms]



<Max>

49.40 Nm at 71.28 ms

<Min>

-31.49 Nm at 110.40 ms





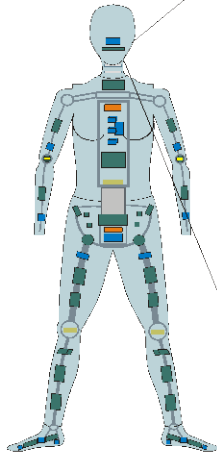
2014 Jeep Cherokee MPV into Load Cell Barrier Neck Injury Predictor (NIJ)

Date: 01/29/2014
Time: 17:16

Customer: NHTSA

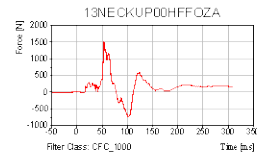
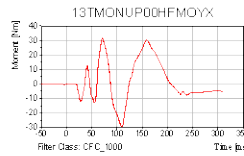
Test Number: M20140302

Test Orientation = Frontal
Fzc(Tension) = 4287
Fzc(Compression) = 3880
Myc(Extension) = 67
Myc(Flexion) = 155

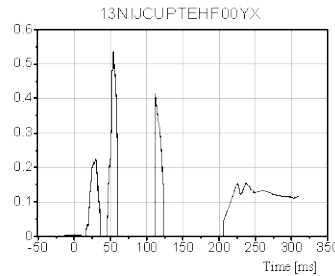


Dummy: HIII 5th Female
Seating Position:
Right Front Passenger

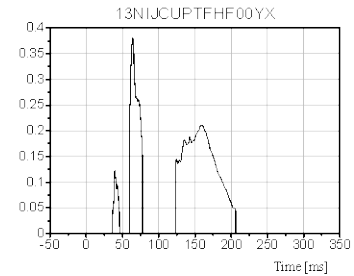
NIJ Source Code: (Fz/Fzc)+(Myc/Myc)



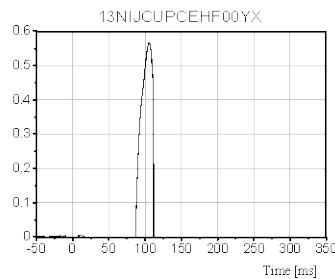
TRC Inc. Test Lab: CTF
Test Number: 140129



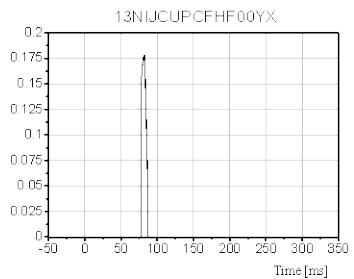
Max [NTE] 0.5364 at 54.00 ms



Max [NTF] 0.3805 at 64.32 ms



Max [NCE] 0.5680 at 105.28 ms



Max [NCF] 0.1786 at 82.08 ms

NHTSA

Test Lab: CTF

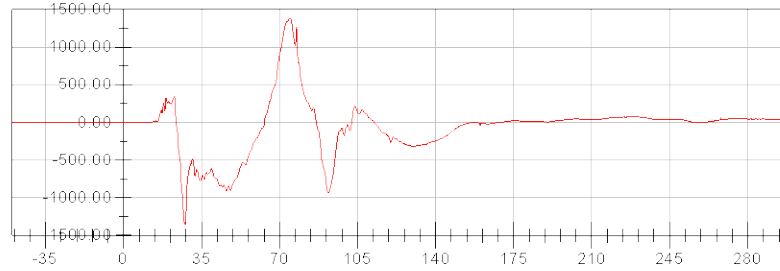
Test Number: 140129 (M20140302)

Test Date: 01/29/2014

Position #1 Hybrid III Mid-Sized Adult Male Dummy (37)

Position #2 Hybrid III Small Adult Female (426)

Passenger Left Femur Force vs. Time (N) vs. Time [ms]



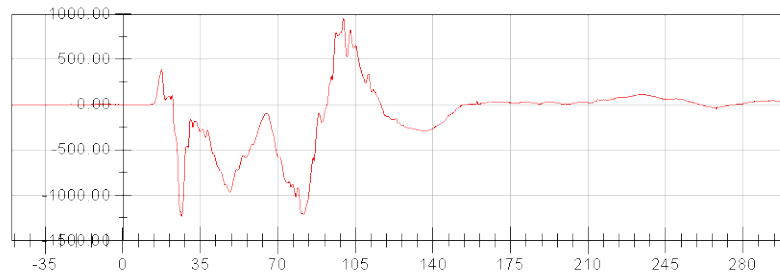
<Max>

1,384.11 N at 74.72 ms

<Min>

-1,358.77 N at 27.68 ms

Passenger Right Femur Force vs. Time (N) vs. Time [ms]



<Max>

955.49 N at 99.52 ms

<Min>

-1,237.24 N at 26.56 ms



APPENDIX C
DUMMY CALIBRATION AND PERFORMANCE VERIFICATION

Pre-Test Calibration Sheets
Driver S/N 037

Transportation Research Center Inc.
572E HIII 50th Male Dummy
External Dimensions
Serial No. 037
Calibration No. 22

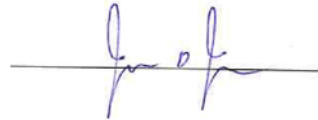
Symbol	Description	Specification	Results	Pass
		mm	mm	
A	Total Sitting Height	878.8 - 889.0	885	Yes
B	Shoulder Pivot Height	505.5 - 520.7	520	Yes
C	H-Point Height	83.8 - 88.9	85	Yes
D	H-Point From Seatback	134.6 - 139.7	138	Yes
E	Shoulder Pivot From Backline	83.8 - 94.0	92	Yes
F	Thigh Clearance	139.7 - 154.9	150	Yes
G	Back Of Elbow To Wrist Pivot	289.6 - 304.8	294	Yes
H	Skull Cap To Backline	40.6 - 45.7	45	Yes
I	Shoulder-Elbow Length	330.2 - 345.4	340	Yes
J	Elbow Rest Height	190.5 - 210.8	200	Yes
K	Buttock Knee Length	579.1 - 604.5	599	Yes
L	Popliteal Height	429.3 - 454.7	440	Yes
M	Knee Pivot Height	485.1 - 500.4	495	Yes
N	Buttock Popliteal Length	452.1 - 477.5	470	Yes
O	Chest Depth	213.4 - 228.6	225	Yes
P	Foot Length	251.5 - 266.7	264	Yes
V	Shoulder Breadth	421.6 - 436.9	428	Yes
W	Foot Breadth	91.4 - 106.7	97	Yes
Y	Chest Circumference	970.3 - 1000.8	987	Yes
Z	Waist Circumference	835.7 - 866.1	865	Yes
AA	Location For Chest Circumference	429.3 - 434.3	430	Yes
BB	Location For Waist Circumference	226.1 - 231.1	230	Yes

Comments:

Technician



Approved



Revised 8/10/12



Transportation Research Center Inc.

Front Head Drop

HIII 50th Serial No. 037 Certification No. 22-1

Test Date: 1/27/2014

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.5 °C	21.1 °C	Yes
Relative Humidity	10 - 70 %	38 %	Yes
Peak Head Resultant Acceleration	225 - 275 g	231.8 g	Yes
Peak Head Lateral Acceleration	(-15) - 15 g	2.4 g	Yes
Is Acceleration Curve Unimodal within 10% of Peak?	Yes	Yes	Yes

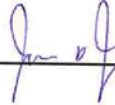
Test meets specifications.

Comments:

Technician



Approved



Specification Source: CFR49 Part 572 Subpart E
with Polarity in accordance with J211

01.27.2014 07:18:14 602

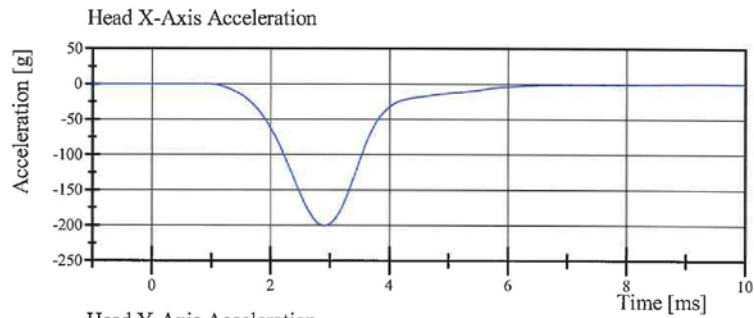


Transportation Research Center Inc.

Front Head Drop

HIII 50th Serial No. 037 Certification No. 22-1

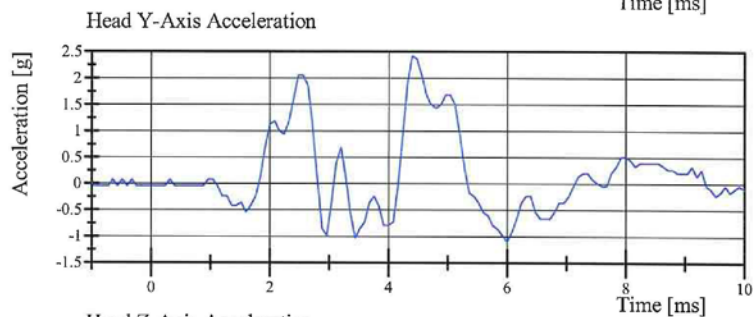
Test Date: 1/27/2014



Filter Class: CFC_1000

Max: 0.2 g at 0.2 ms

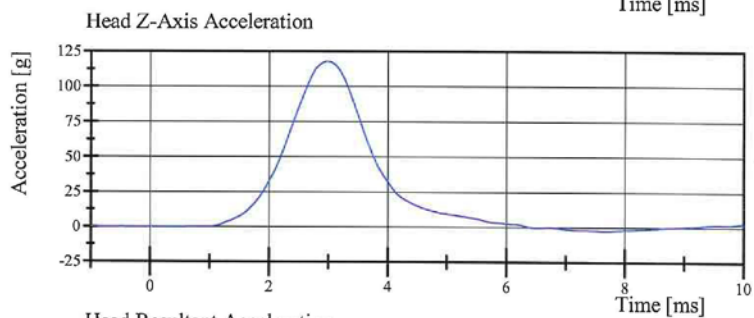
Min: -200.3 g at 2.9 ms



Filter Class: CFC_1000

Max: 2.4 g at 4.4 ms

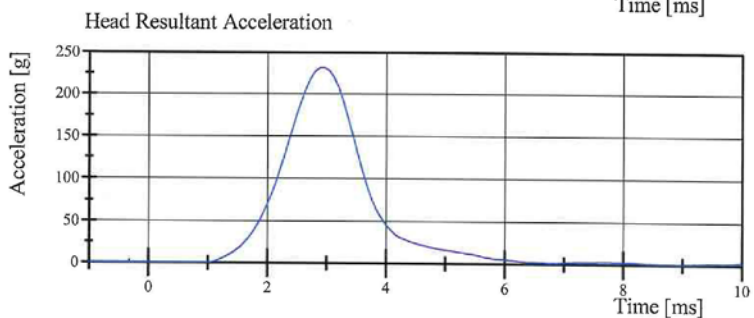
Min: -1.1 g at 6.0 ms



Filter Class: CFC_1000

Max: 117.9 g at 3.0 ms

Min: -2.6 g at 7.7 ms



Filter Class: CFC_1000

Max: 231.8 g at 2.9 ms

Min: 0.1 g at -1.0 ms

Specification Source: CFR49 Part 572 Subpart E
with Polarity in accordance with J211

01.27.2014 07:19:45 602



Transportation Research Center Inc.

Neck Flexion

HIII 50th Serial No. 037 Certification No. 22-1

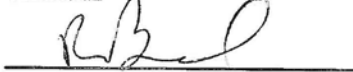
Test Date: 1/27/2014

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.7 °C	Yes
Relative Humidity	10 - 70 %	38 %	Yes
Pendulum Velocity	6.89 - 7.13 m/s	6.955 m/s	Yes
Pendulum Acceleration Decay Crossing -5g	34 - 42 ms	40.4 ms	Yes
Pendulum Acceleration at 10ms	(-22.5) - (-27.5) g	-24.29 g	Yes
Pendulum Acceleration at 20ms	(-17.6) - (-22.6) g	-19.59 g	Yes
Pendulum Acceleration at 30ms	(-12.5) - (-18.5) g	-13.98 g	Yes
Pendulum Acceleration > 30ms	>= (-29.0) g	-13.98 g	Yes
Total Head D-Plane Rotation			
Peak	(-64) - (-78) °	-69.1 °	Yes
Time of Peak	57 - 64 ms	59.8 ms	Yes
Total Head D-Plane Rotation			
Decay to 0°	113 - 128 ms	119.3 ms	Yes
Total Neck Occipital Condyles Moment			
Peak	88 - 108 N·m	100.4 N·m	Yes
Time of Peak	47 - 58 ms	53.2 ms	Yes
Total Neck Occipital Condyles Moment			
Decay to 0 N·m	97 - 107 ms	100.1 ms	Yes

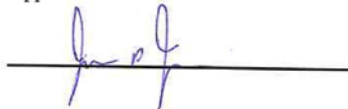
Test meets specifications.

Comments:

Technician



Approved



Specification Source: CFR49 Part 572 Subpart E
with Polarity in accordance with J211

01.27.2014 10:35:03 2948

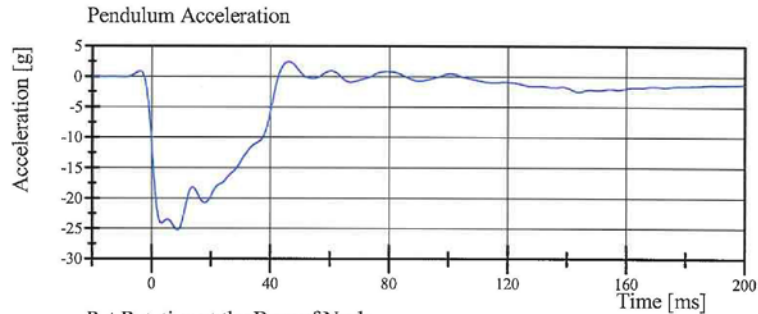


Transportation Research Center Inc.

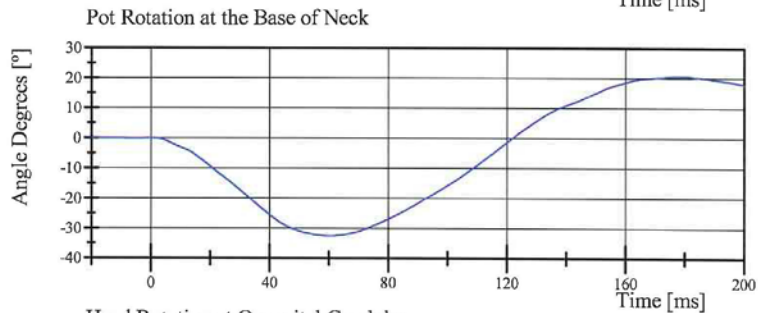
Neck Flexion

HIH 50th Serial No. 037 Certification No. 22-1

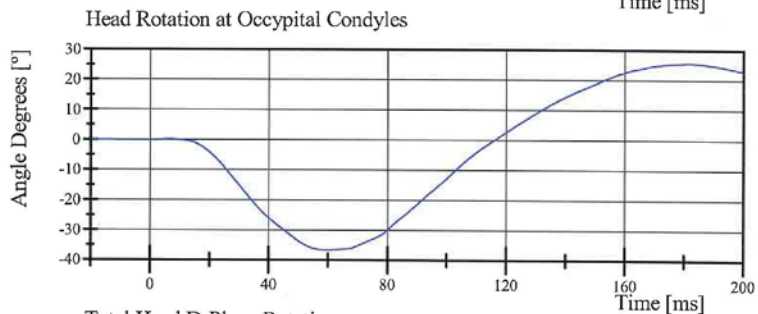
Test Date: 1/27/2014



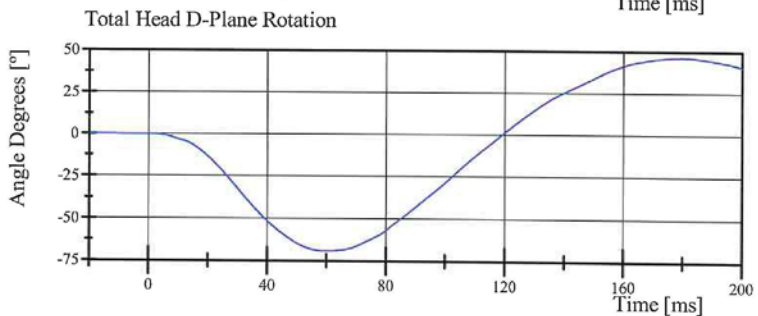
Filter Class: CFC_60
Max: 2.4 g at 46.2 ms
Min: -25.2 g at 8.7 ms



Filter Class: CFC_60
Max: 20.6 ° at 178.5 ms
Min: -32.5 ° at 60.1 ms



Filter Class: CFC_60
Max: 25.5 ° at 181.7 ms
Min: -36.7 ° at 59.4 ms



Filter Class: CFC_60
Max: 46.1 ° at 179.7 ms
Min: -69.1 ° at 59.8 ms

Specification Source: CFR49 Part 572 Subpart E
with Polarity in accordance with J211

01.27.2014 10:35:10 2948

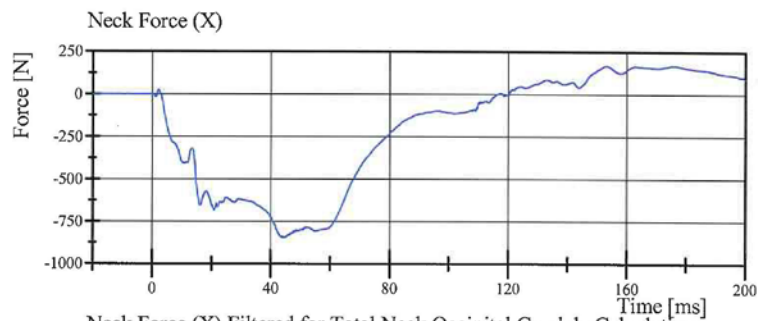


Transportation Research Center Inc.

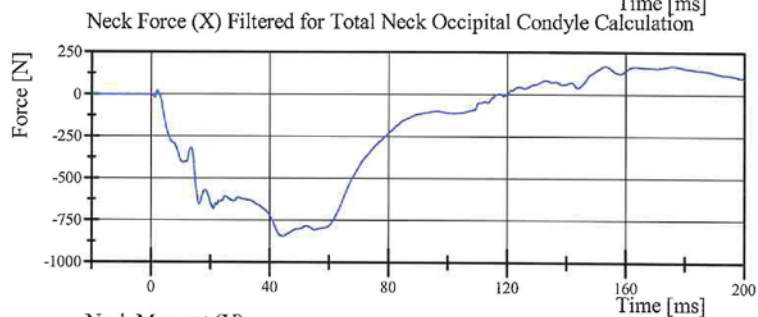
Neck Flexion

HIII 50th Serial No. 037 Certification No. 22-1

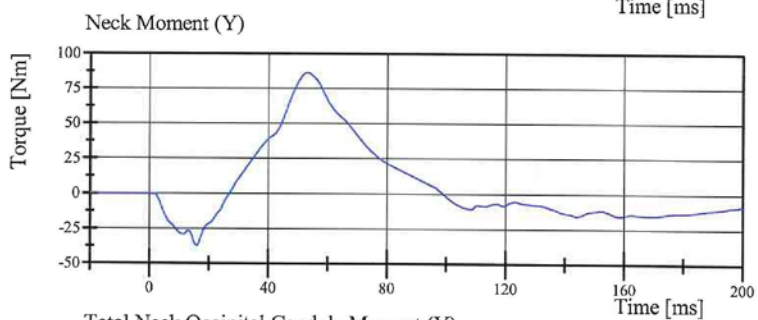
Test Date: 1/27/2014



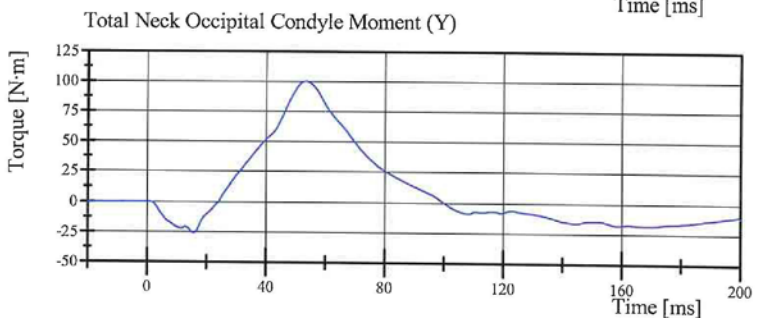
Filter Class: CFC_1000
Max: 168.6 N at 153.1 ms
Min: -847.8 N at 44.2 ms



Filter Class: CFC_600
Max: 168.3 N at 176.5 ms
Min: -844.7 N at 44.3 ms



Filter Class: CFC_600
Max: 86.5 Nm at 53.1 ms
Min: -37.2 Nm at 16.0 ms



Filter Class: Without (Consta
Max: 100.4 N·m at 53.2 ms
Min: -25.9 N·m at 15.7 ms

Specification Source: CFR49 Part 572 Subpart E
with Polarity in accordance with J211

01.27.2014 10:35:11 2948



Transportation Research Center Inc.

Neck Extension

HIII 50th Serial No. 037 Certification No. 22-1

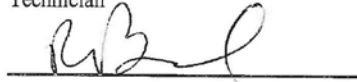
Test Date: 1/27/2014

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.6 °C	Yes
Relative Humidity	10 - 70 %	37 %	Yes
Pendulum Velocity	(-5.95) - (-6.18) m/s	-5.958 m/s	Yes
Pendulum Acceleration Decay Crossing 5g	38 - 46 ms	39.2 ms	Yes
Pendulum Acceleration at 10ms	17.2 - 21.2 g	19.53 g	Yes
Pendulum Acceleration at 20ms	14.0 - 19.0 g	17.06 g	Yes
Pendulum Acceleration at 30ms	11.0 - 16.0 g	13.44 g	Yes
Pendulum Acceleration > 30ms	<= 22.0 g	13.44 g	Yes
Total Head D-Plane Rotation			
Peak	81 - 106 °	95.2 °	Yes
Time of Peak	72 - 82 ms	76.2 ms	Yes
Total Head D-Plane Rotation Decay to 0°	147 - 174 ms	158.2 ms	Yes
Total Neck Occipital Condyles Moment			
Peak	(-53) - (-80) N·m	-68.7 N·m	Yes
Time of Peak	65 - 79 ms	71.2 ms	Yes
Total Neck Occipital Condyles Moment Decay to 0 N·m	120 - 148 ms	143.1 ms	Yes

Test meets specifications.

Comments:

Technician



Approved



Specification Source: CFR49 Part 572 Subpart E
with Polarity in accordance with J211

01.27.2014 11:05:53 3029

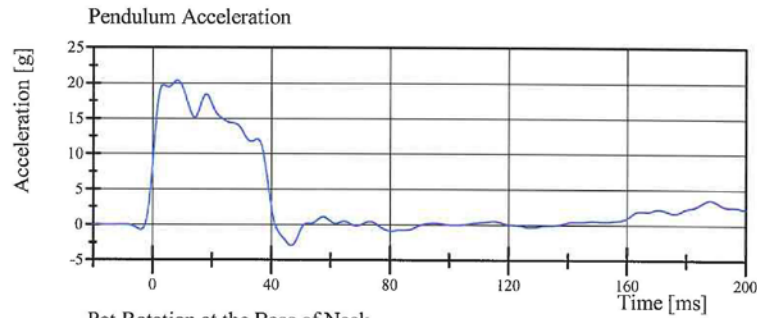


Transportation Research Center Inc.

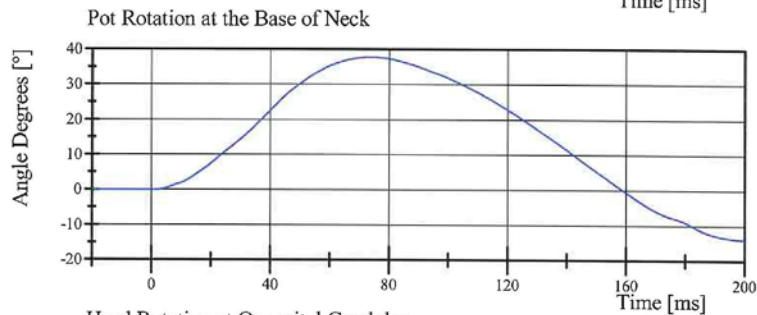
Neck Extension

HIH 50th Serial No. 037 Certification No. 22-1

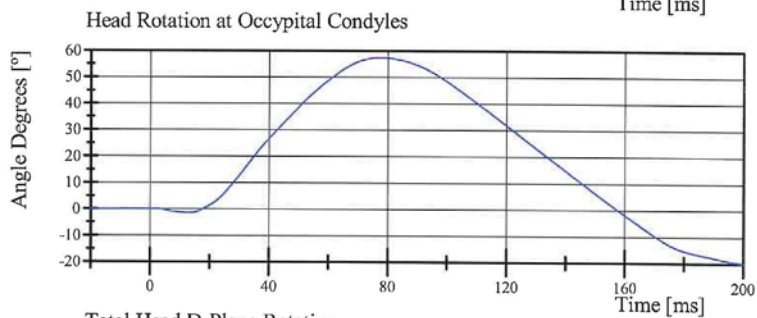
Test Date: 1/27/2014



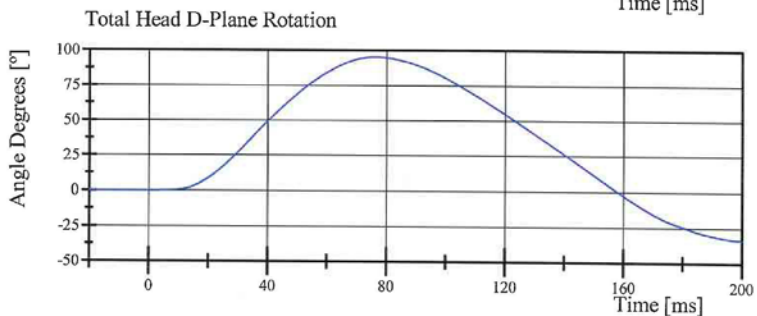
Filter Class: CFC_60
Max: 20.4 g at 8.2 ms
Min: -2.9 g at 46.7 ms



Filter Class: CFC_60
Max: 37.8 ° at 74.1 ms
Min: -14.1 ° at 200.0 ms



Filter Class: CFC_60
Max: 57.6 ° at 77.1 ms
Min: -20.0 ° at 200.0 ms



Filter Class: CFC_60
Max: 95.2 ° at 76.2 ms
Min: -34.0 ° at 200.0 ms

Specification Source: CFR49 Part 572 Subpart E
with Polarity in accordance with J211

01.27.2014 11:06:03 3029

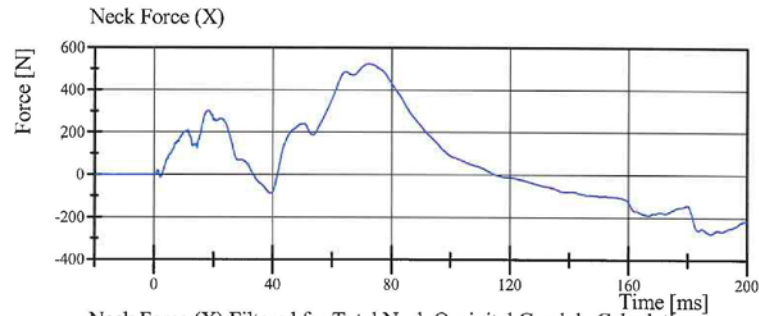


Transportation Research Center Inc.

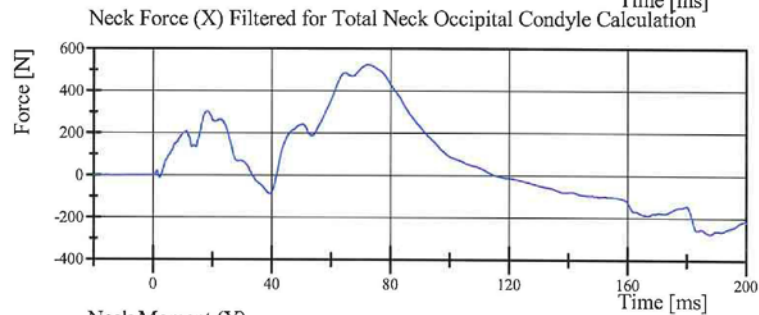
Neck Extension

HIII 50th Serial No. 037 Certification No. 22-1

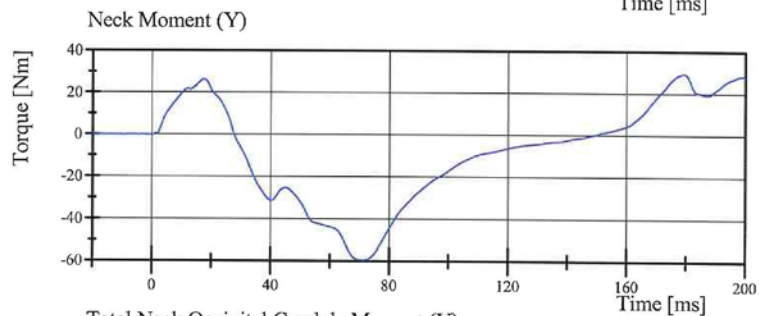
Test Date: 1/27/2014



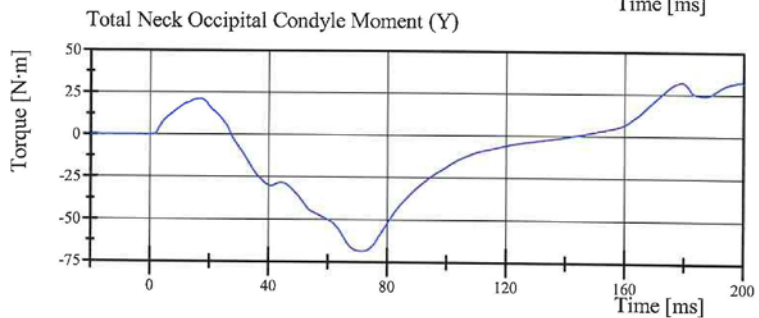
Filter Class: CFC_1000
Max: 525.4 N at 72.1 ms
Min: -278.5 N at 187.8 ms



Filter Class: CFC_600
Max: 524.6 N at 72.2 ms
Min: -278.4 N at 187.8 ms



Filter Class: CFC_600
Max: 29.3 Nm at 179.4 ms
Min: -59.5 Nm at 70.6 ms



Filter Class: Without (Consta
Max: 31.9 N·m at 198.9 ms
Min: -68.7 N·m at 71.2 ms

Specification Source: CFR49 Part 572 Subpart E
with Polarity in accordance with J211

01.27.2014 11:06:04 3029



Transportation Research Center Inc.

Front Thorax

HIII 50th Serial No. 037 Certification No. 22-1

Test Date: 1/27/2014

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.7 °C	Yes
Relative Humidity	10 - 70 %	35 %	Yes
Probe Velocity	6.59 - 6.83 m/s	6.622 m/s	Yes
Probe Force Peak	(-5,160) - (-5,893) N	-5,533.4 N	Yes
Maximum Chest Compression	(-63.5) - (-72.6) mm	-68.44 mm	Yes
Internal Hysteresis	65 - 85 %	73.5 %	Yes

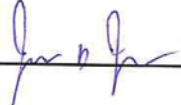
Test meets specifications.

Comments:

Technician



Approved



Specification Source: CFR49 Part 572 Subpart P
with Polarity in accordance with J211

01.27.2014 14:09:59 387

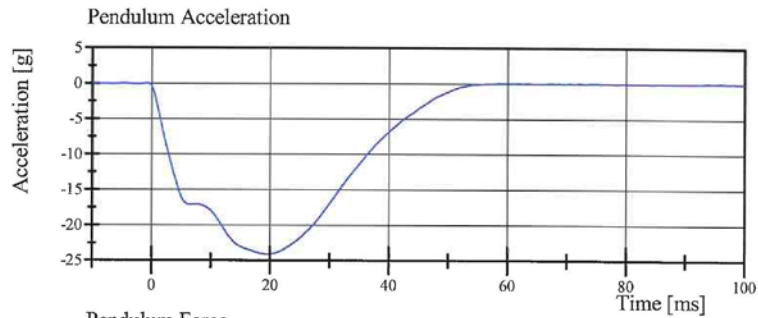


Transportation Research Center Inc.

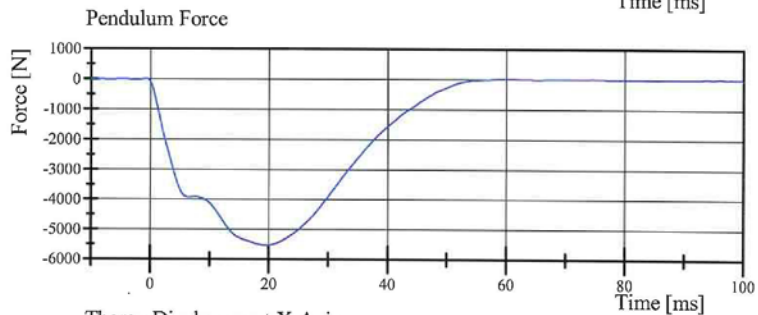
Front Thorax

HIII 50th Serial No. 037 Certification No. 22-1

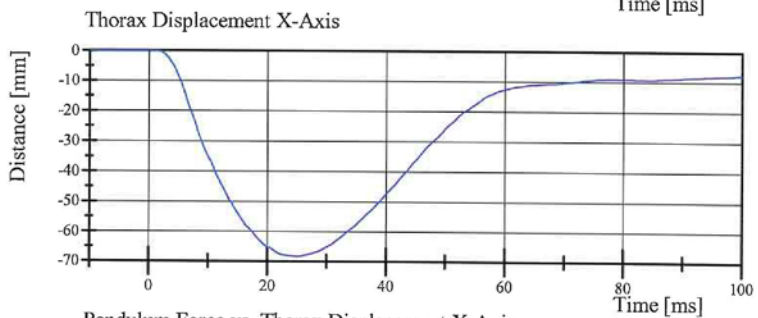
Test Date: 1/27/2014



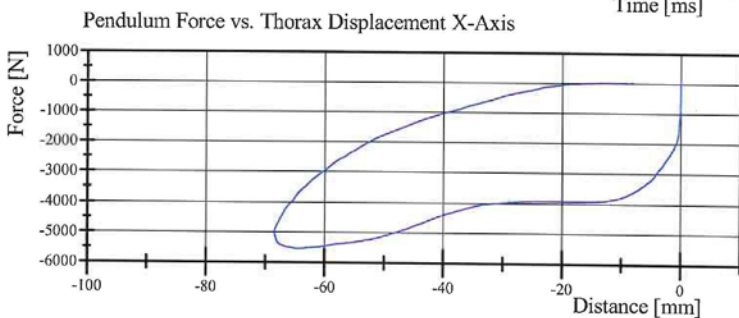
Filter Class: CFC_180
Max: 0.1 g at 59.3 ms
Min: -24.1 g at 19.5 ms



Filter Class: CFC_180
Max: 15.2 N at 59.3 ms
Min: -5,533.4 N at 19.5 ms



Filter Class: CFC_600
Max: 0.0 mm at -2.6 ms
Min: -68.4 mm at 25.1 ms



Filter Class: CFC_180
Max: 15.2 N at -13.0 mm
Min: -5,533.4 N at -64.6 mm

Specification Source: CFR49 Part 572 Subpart P
with Polarity in accordance with J211

01.27.2014 14:10:07 387



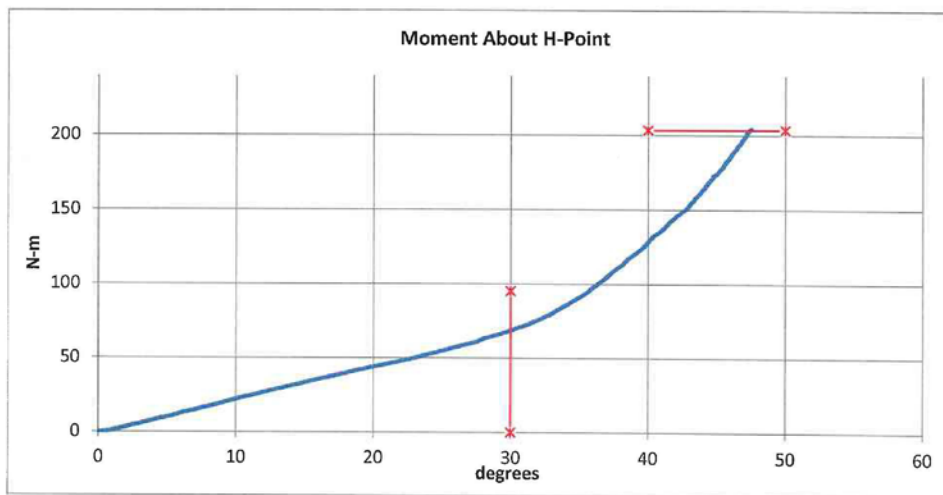
Transportation Research Center Inc.

Hybrid III 50th Male Hip Range of Motion

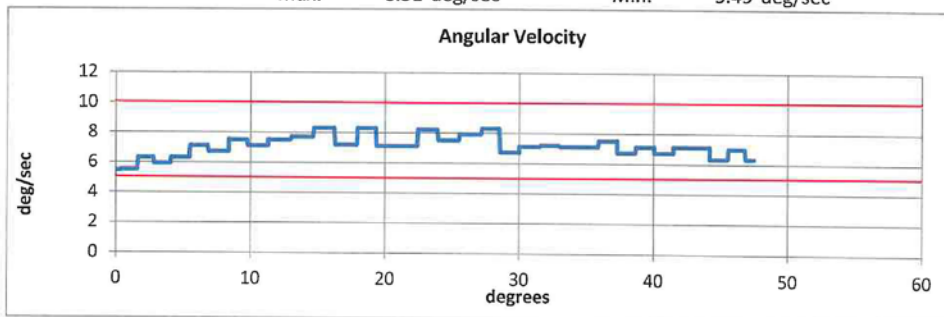


Serial Number: 37 Date: 27-Jan-2014
 Test Number: 1 Time: 8:02
 Comments: Left

TEST PARAMETER	SPECIFICATION	TEST RESULTS
Temperature	18.9 - 25.6	21.4 °C Pass
Humidity	10 - 70	30 % Pass
Moment at 30°	0 ≤ 94.9	68.62 N-m Pass
Angle at 203 Nm	40 - 50	47.51 deg Pass
Average Velocity	5 - 10	7.13 deg/sec Pass



Max: 8.31 deg/sec Min: 5.49 deg/sec



Technician

[Signature]

Approved

[Signature]

Transportation Research Center Inc.

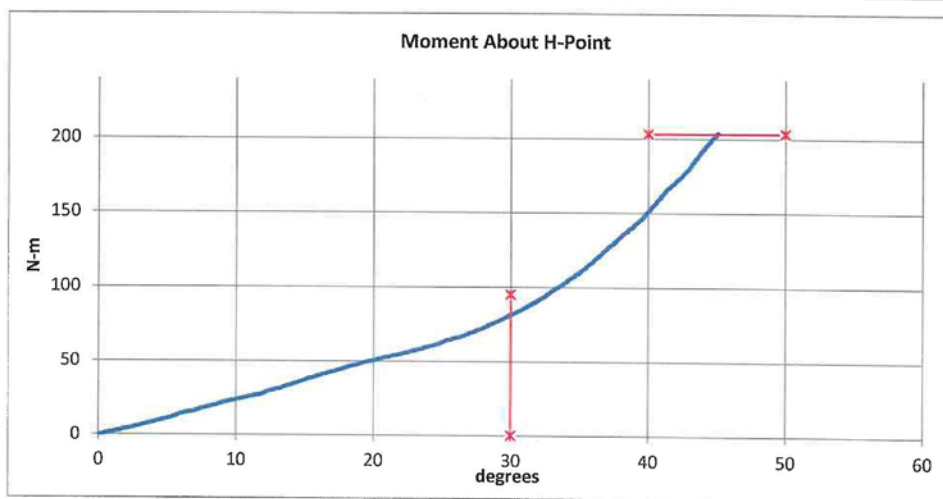
Hybrid III 50th Male Hip Range of Motion



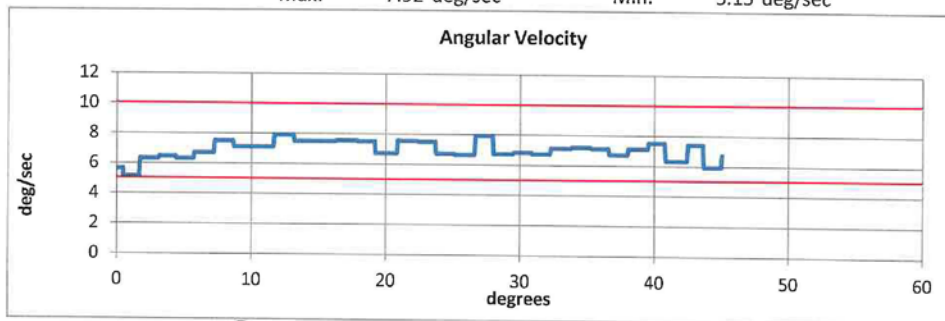
Serial Number: 37
Test Number: 1
Comments: Right

Date: 27-Jan-2014
Time: 8:38

TEST PARAMETER	SPECIFICATION	TEST RESULTS
Temperature	18.9 - 25.6	21.4 °C Pass
Humidity	10 - 70	38 % Pass
Moment at 30°	0 ≤ 94.9	81.5 N-m Pass
Angle at 203 Nm	40 - 50	45.06 deg Pass
Average Velocity	5 - 10	6.97 deg/sec Pass



Max: 7.92 deg/sec Min: 5.15 deg/sec



Technician

[Signature]

Approved

[Signature]

Transportation Research Center Inc.

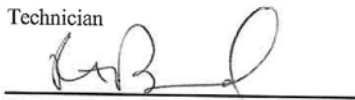
Left Knee Femur Response Test
HIII 50th Serial No. 037 Certification No. 22-1
Test Date: 1/27/2014

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.5 °C	21.1 °C	Yes
Relative Humidity	10 - 70 %	33 %	Yes
Probe Velocity	2.08 - 2.13 m/s	2.099 m/s	Yes
Peak Femur Force	(-4,715.2) - (-5,782.6) N	-5,745.26 N	Yes

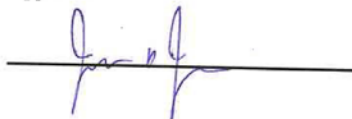
Test meets specifications.

Comments:

Technician



Approved



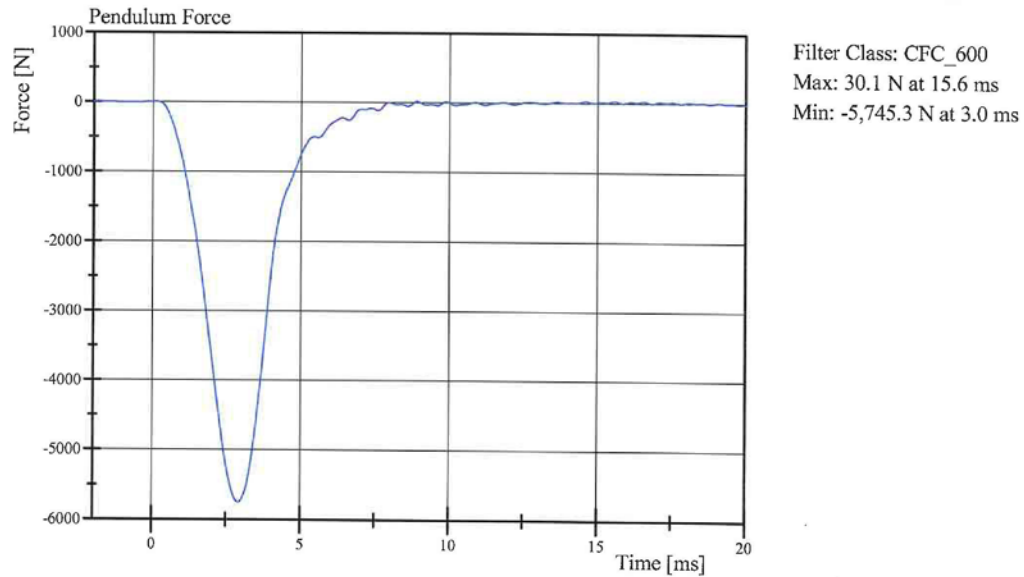
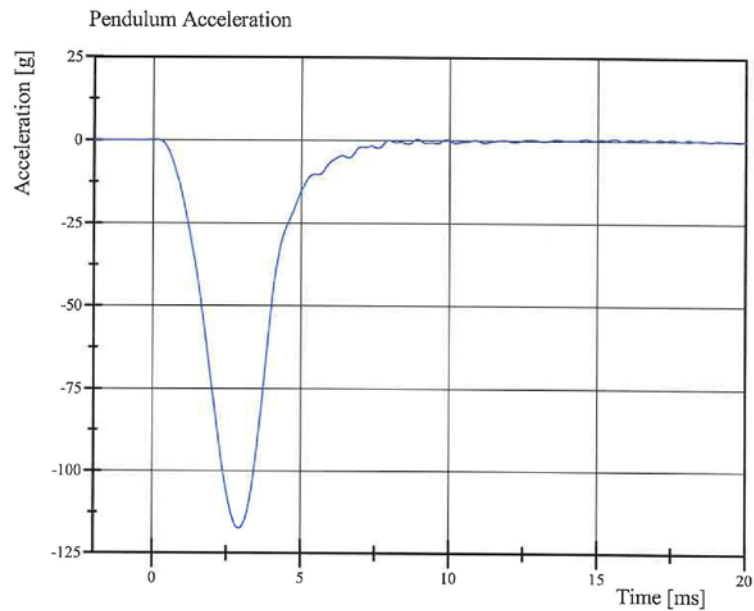
Specification Source: CFR49 Part 572 Subpart E
with Polarity in accordance with J211

01.27.2014 07:41:52 1769



Transportation Research Center Inc.

Left Knee Femur Response Test
HIII 50th Serial No. 037 Certification No. 22-1
Test Date: 1/27/2014



Specification Source: CFR49 Part 572 Subpart E
with Polarity in accordance with J211

01.27.2014 07:41:59 1769



Transportation Research Center Inc.

Right Knee Femur Response Test
HIII 50th Serial No. 037 Certification No. 22-1
Test Date: 1/27/2014

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.5 °C	21.6 °C	Yes
Relative Humidity	10 - 70 %	31 %	Yes
Probe Velocity	2.08 - 2.13 m/s	2.103 m/s	Yes
Peak Femur Force	(-4,715.2) - (-5,782.6) N	-5,778.61 N	Yes

Test meets specifications.

Comments:

Technician



Approved



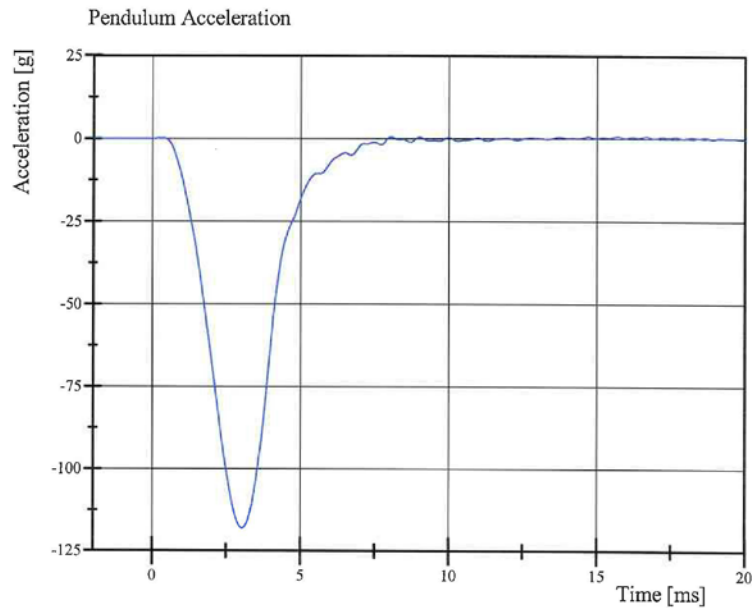
Specification Source: CFR49 Part 572 Subpart E
with Polarity in accordance with J211

01.27.2014 07:50:03 1764

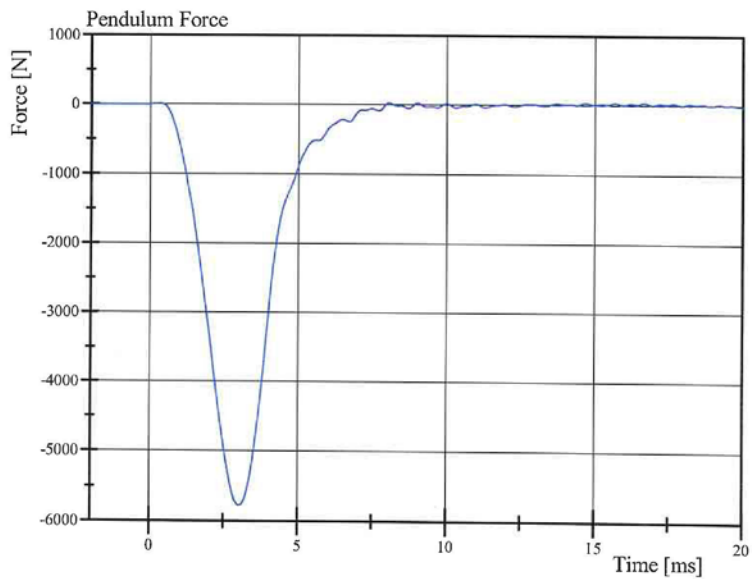


Transportation Research Center Inc.

Right Knee Femur Response Test
HIII 50th Serial No. 037 Certification No. 22-1
Test Date: 1/27/2014



Filter Class: CFC_600
Max: 0.7 g at 15.7 ms
Min: -118.1 g at 3.0 ms



Filter Class: CFC_600
Max: 32.7 N at 15.7 ms
Min: -5,778.6 N at 3.0 ms

Specification Source: CFR49 Part 572 Subpart E
with Polarity in accordance with J211

01.27.2014 07:50:09 1764



Driver S/N 037

Post-Test Calibration Sheets

Transportation Research Center Inc.
572E HIII 50th Male Dummy
External Dimensions
Serial No. 037
Calibration No. 23

Symbol	Description	Specification	Results	Pass
		mm	mm	
A	Total Sitting Height	878.8 - 889.0	885	Yes
B	Shoulder Pivot Height	505.5 - 520.7	520	Yes
C	H-Point Height	83.8 - 88.9	85	Yes
D	H-Point From Seatback	134.6 - 139.7	138	Yes
E	Shoulder Pivot From Backline	83.8 - 94.0	92	Yes
F	Thigh Clearance	139.7 - 154.9	151	Yes
G	Back Of Elbow To Wrist Pivot	289.6 - 304.8	294	Yes
H	Skull Cap To Backline	40.6 - 45.7	45	Yes
I	Shoulder-Elbow Length	330.2 - 345.4	340	Yes
J	Elbow Rest Height	190.5 - 210.8	200	Yes
K	Buttock Knee Length	579.1 - 604.5	600	Yes
L	Popliteal Height	429.3 - 454.7	440	Yes
M	Knee Pivot Height	485.1 - 500.4	495	Yes
N	Buttock Popliteal Length	452.1 - 477.5	470	Yes
O	Chest Depth	213.4 - 228.6	225	Yes
P	Foot Length	251.5 - 266.7	264	Yes
V	Shoulder Breadth	421.6 - 436.9	428	Yes
W	Foot Breadth	91.4 - 106.7	97	Yes
Y	Chest Circumference	970.3 - 1000.8	987	Yes
Z	Waist Circumference	835.7 - 866.1	865	Yes
AA	Location For Chest Circumference	429.3 - 434.3	430	Yes
BB	Location For Waist Circumference	226.1 - 231.1	230	Yes

Comments:

Technician



Approved



Revised 8/10/12



Transportation Research Center Inc.

Front Head Drop

HIII 50th Serial No. 037 Certification No. 23-1

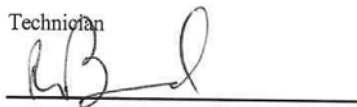
Test Date: 1/31/2014

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.5 °C	21.4 °C	Yes
Relative Humidity	10 - 70 %	38 %	Yes
Peak Head Resultant Acceleration	225 - 275 g	238.9 g	Yes
Peak Head Lateral Acceleration	(-15) - 15 g	-6.8 g	Yes
Is Acceleration Curve Unimodal within 10% of Peak?	Yes	Yes	Yes

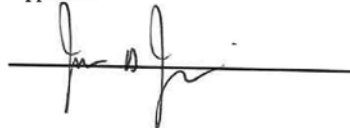
Test meets specifications.

Comments:

Technician



Approved



Specification Source: CFR49 Part 572 Subpart E
with Polarity in accordance with J211

01.31.2014 12:52:32 613

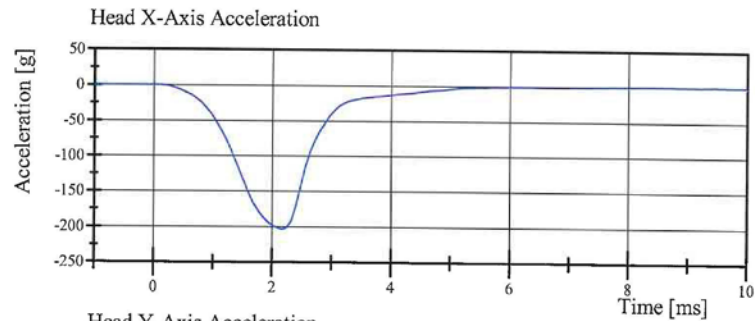


Transportation Research Center Inc.

Front Head Drop

HIII 50th Serial No. 037 Certification No. 23-1

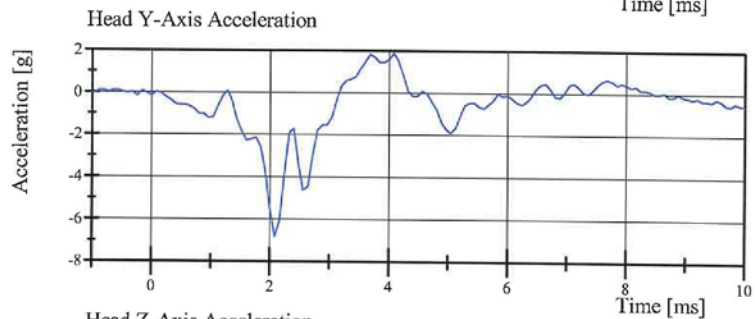
Test Date: 1/31/2014



Filter Class: CFC_1000

Max: 0.1 g at -1.0 ms

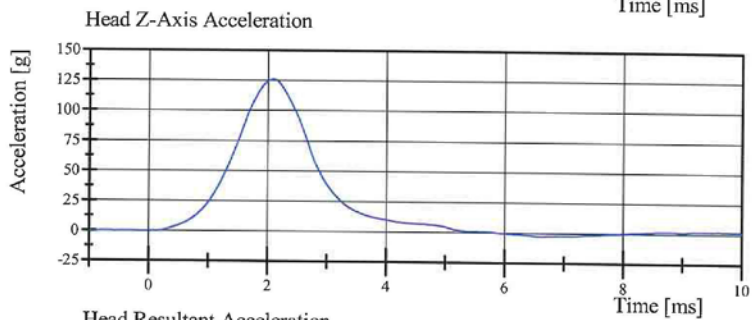
Min: -203.6 g at 2.2 ms



Filter Class: CFC_1000

Max: 1.9 g at 4.1 ms

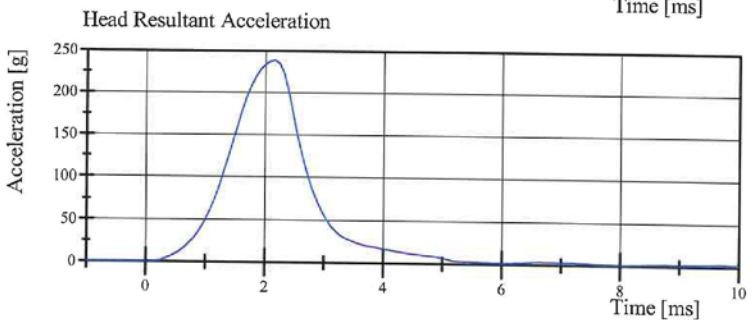
Min: -6.8 g at 2.1 ms



Filter Class: CFC_1000

Max: 126.1 g at 2.1 ms

Min: -2.9 g at 6.6 ms



Filter Class: CFC_1000

Max: 238.9 g at 2.2 ms

Min: 0.0 g at -0.7 ms

Specification Source: CFR49 Part 572 Subpart E
with Polarity in accordance with J211

01.31.2014 12:52:39 613



Transportation Research Center Inc.

Neck Flexion

HIII 50th Serial No. 037 Certification No. 23-1

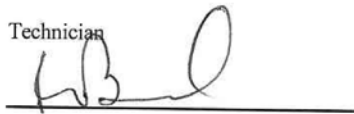
Test Date: 1/31/2014

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.3 °C	Yes
Relative Humidity	10 - 70 %	40 %	Yes
Pendulum Velocity	6.89 - 7.13 m/s	6.955 m/s	Yes
Pendulum Acceleration Decay Crossing -5g	34 - 42 ms	38.1 ms	Yes
Pendulum Acceleration at 10ms	(-22.5) - (-27.5) g	-24.90 g	Yes
Pendulum Acceleration at 20ms	(-17.6) - (-22.6) g	-20.54 g	Yes
Pendulum Acceleration at 30ms	(-12.5) - (-18.5) g	-14.50 g	Yes
Pendulum Acceleration > 30ms	≥ (-29.0) g	-14.50 g	Yes
Total Head D-Plane Rotation			
Peak	(-64) - (-78) °	-72.0 °	Yes
Time of Peak	57 - 64 ms	59.1 ms	Yes
Total Head D-Plane Rotation Decay to 0°	113 - 128 ms	116.6 ms	Yes
Total Neck Occipital Condyles Moment			
Peak	88 - 108 N·m	104.1 N·m	Yes
Time of Peak	47 - 58 ms	50.4 ms	Yes
Total Neck Occipital Condyles Moment Decay to 0 N·m	97 - 107 ms	97.8 ms	Yes

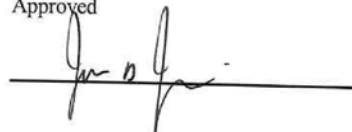
Test meets specifications.

Comments:

Technician



Approved



Specification Source: CFR49 Part 572 Subpart E
with Polarity in accordance with J211

01.31.2014 13:15:36 2947

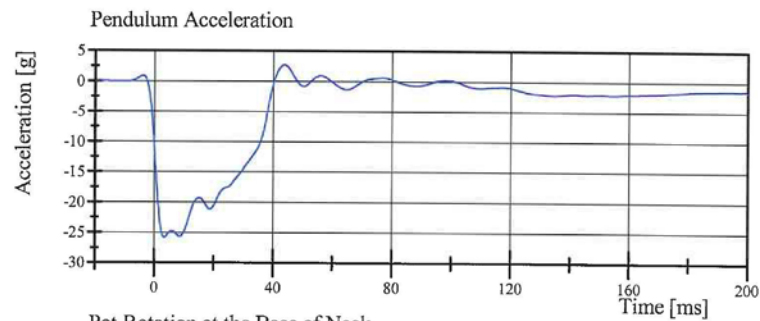


Transportation Research Center Inc.

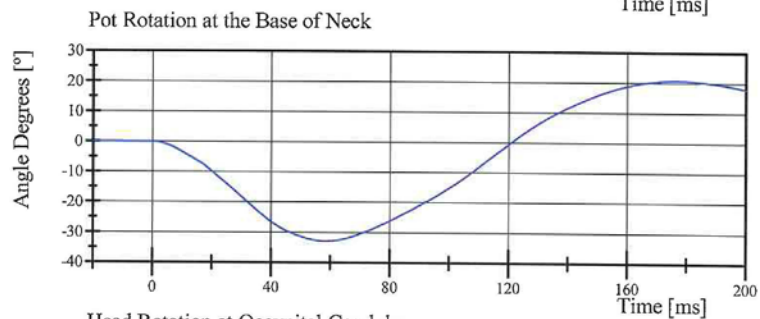
Neck Flexion

HIII 50th Serial No. 037 Certification No. 23-1

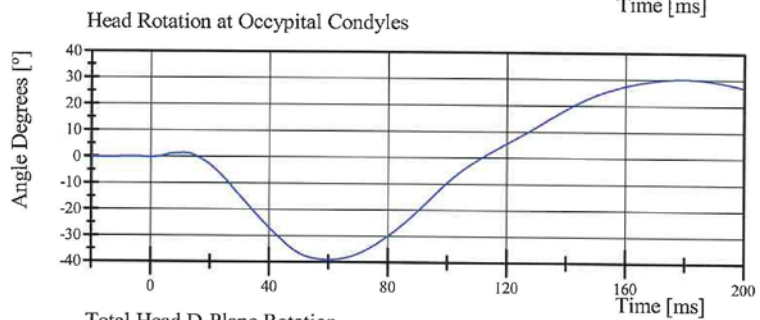
Test Date: 1/31/2014



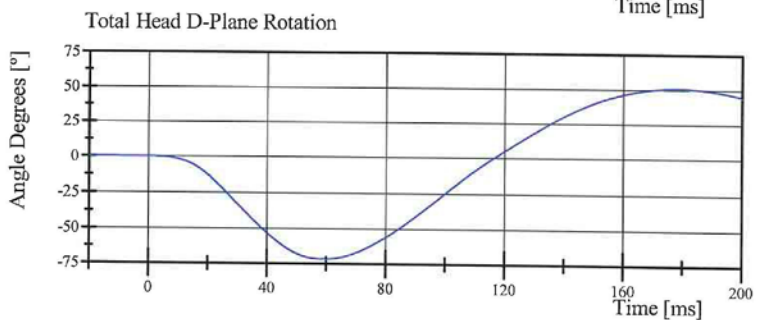
Filter Class: CFC_60
Max: 2.7 g at 43.7 ms
Min: -25.8 g at 3.4 ms



Filter Class: CFC_60
Max: 20.7 ° at 176.2 ms
Min: -32.9 ° at 58.2 ms



Filter Class: CFC_60
Max: 30.0 ° at 179.4 ms
Min: -39.1 ° at 59.8 ms



Filter Class: CFC_60
Max: 50.7 ° at 178.0 ms
Min: -72.0 ° at 59.1 ms

Specification Source: CFR49 Part 572 Subpart E
with Polarity in accordance with J211

01.31.2014 13:15:44 2947

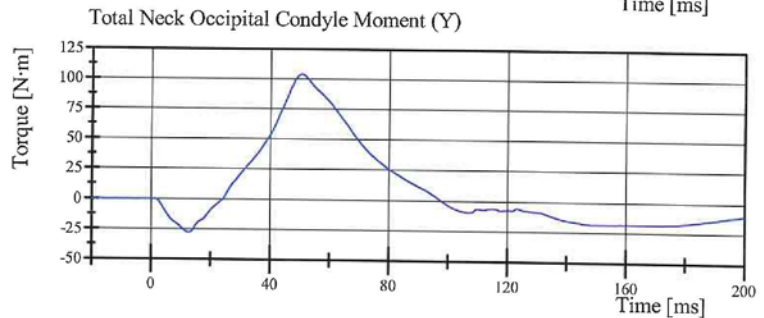
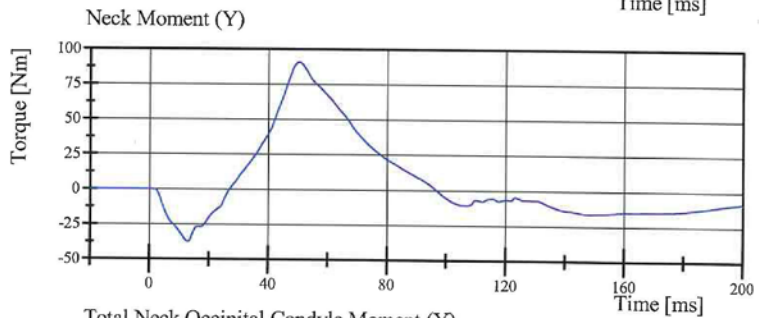
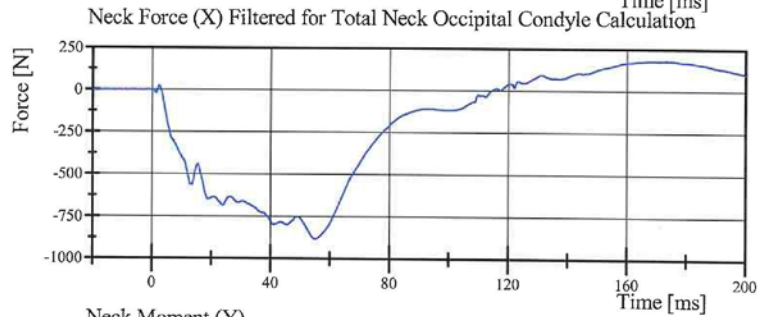
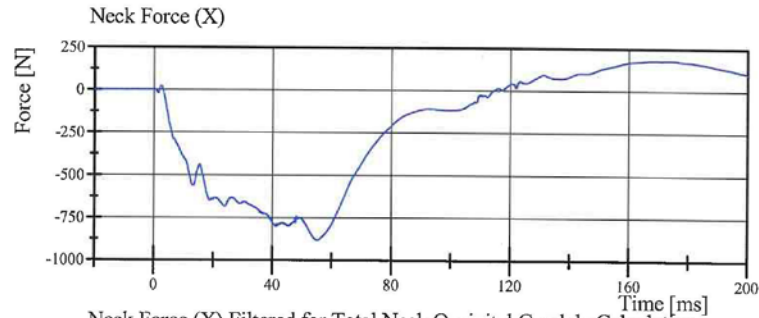


Transportation Research Center Inc.

Neck Flexion

HIII 50th Serial No. 037 Certification No. 23-1

Test Date: 1/31/2014



Specification Source: CFR49 Part 572 Subpart E
with Polarity in accordance with J211

01.31.2014 13:15:45 2947



Transportation Research Center Inc.

Neck Extension

HIII 50th Serial No. 037 Certification No. 23-1

Test Date: 1/31/2014

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.3 °C	Yes
Relative Humidity	10 - 70 %	35 %	Yes
Pendulum Velocity	(-5.95) - (-6.18) m/s	-5.953 m/s	Yes
Pendulum Acceleration Decay Crossing 5g	38 - 46 ms	39.3 ms	Yes
Pendulum Acceleration at 10ms	17.2 - 21.2 g	19.17 g	Yes
Pendulum Acceleration at 20ms	14.0 - 19.0 g	16.60 g	Yes
Pendulum Acceleration at 30ms	11.0 - 16.0 g	13.73 g	Yes
Pendulum Acceleration > 30ms	<= 22.0 g	13.73 g	Yes
Total Head D-Plane Rotation			
Peak	81 - 106 °	97.2 °	Yes
Time of Peak	72 - 82 ms	75.9 ms	Yes
Total Head D-Plane Rotation Decay to 0°	147 - 174 ms	158.8 ms	Yes
Total Neck Occipital Condyles Moment			
Peak	(-53) - (-80) N·m	-70.2 N·m	Yes
Time of Peak	65 - 79 ms	70.8 ms	Yes
Total Neck Occipital Condyles Moment Decay to 0 N·m	120 - 148 ms	143.8 ms	Yes

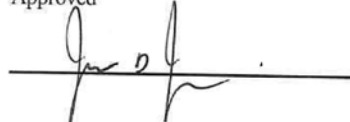
Test meets specifications.

Comments:

Technician



Approved



Specification Source: CFR49 Part 572 Subpart E
with Polarity in accordance with J211

01.31.2014 13:45:23 3030

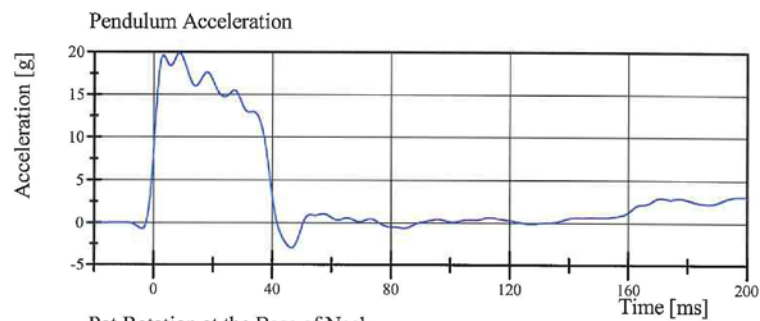


Transportation Research Center Inc.

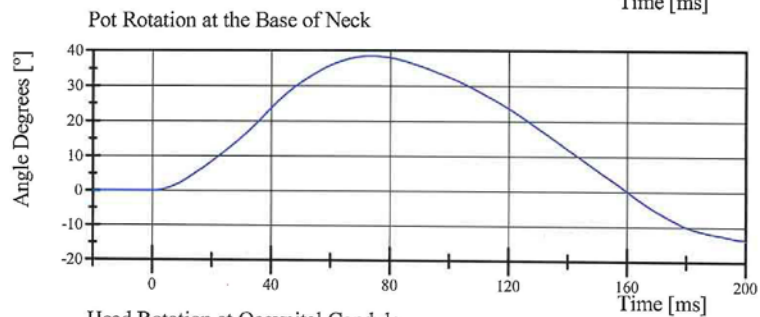
Neck Extension

HIII 50th Serial No. 037 Certification No. 23-1

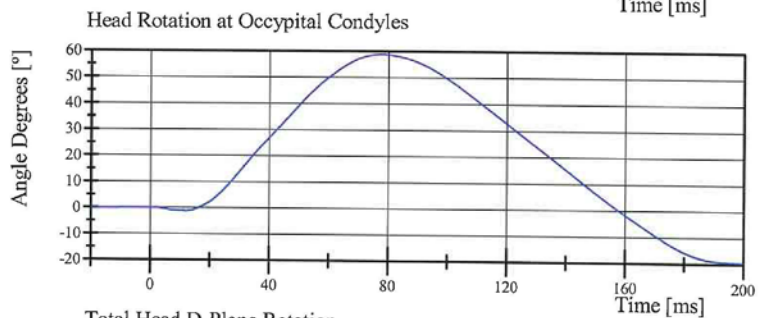
Test Date: 1/31/2014



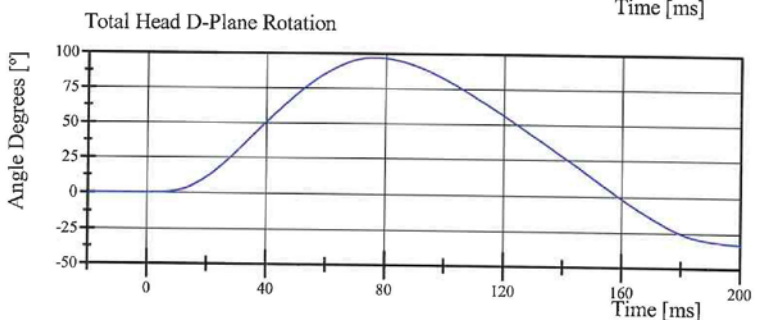
Filter Class: CFC_60
Max: 19.8 g at 8.6 ms
Min: -3.0 g at 46.5 ms



Filter Class: CFC_60
Max: 38.5 ° at 73.5 ms
Min: -13.8 ° at 200.0 ms



Filter Class: CFC_60
Max: 58.8 ° at 77.3 ms
Min: -19.6 ° at 200.0 ms



Filter Class: CFC_60
Max: 97.2 ° at 75.9 ms
Min: -33.4 ° at 200.0 ms

Specification Source: CFR49 Part 572 Subpart E
with Polarity in accordance with J211

01.31.2014 13:45:30 3030

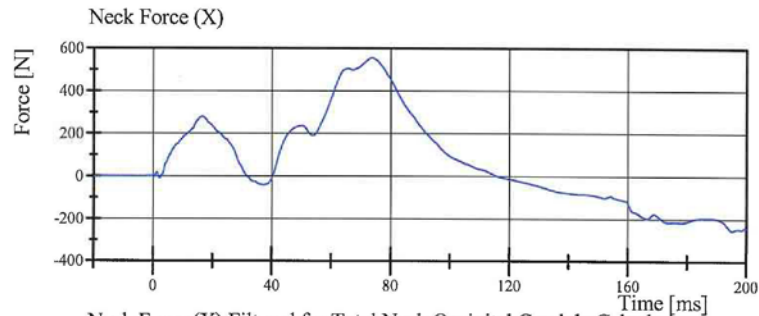


Transportation Research Center Inc.

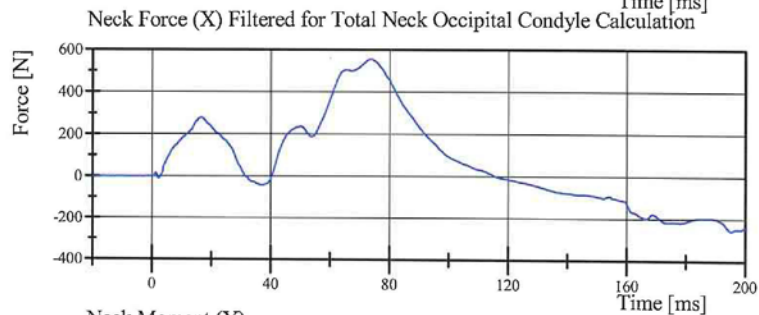
Neck Extension

HIII 50th Serial No. 037 Certification No. 23-1

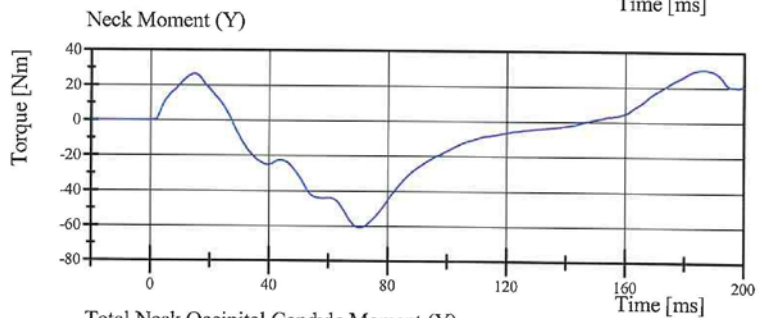
Test Date: 1/31/2014



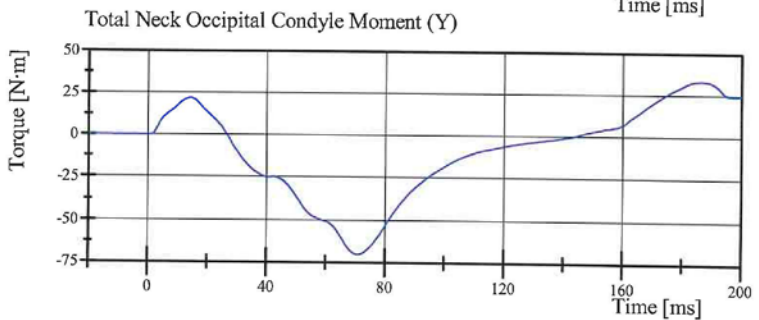
Filter Class: CFC_1000
Max: 555.0 N at 73.6 ms
Min: -257.1 N at 195.4 ms



Filter Class: CFC_600
Max: 554.6 N at 73.7 ms
Min: -256.8 N at 195.3 ms



Filter Class: CFC_600
Max: 29.8 Nm at 186.5 ms
Min: -61.0 Nm at 70.6 ms



Filter Class: Without (Consta
Max: 33.3 N·m at 186.2 ms
Min: -70.2 N·m at 70.8 ms

Specification Source: CFR49 Part 572 Subpart E
with Polarity in accordance with J211

01.31.2014 13:45:31 3030



Transportation Research Center Inc.

Front Thorax

HIII 50th Serial No. 037 Certification No. 23-1

Test Date: 1/31/2014

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.4 °C	Yes
Relative Humidity	10 - 70 %	40 %	Yes
Probe Velocity	6.59 - 6.83 m/s	6.603 m/s	Yes
Probe Force Peak	(-5,160) - (-5,893) N	-5,560.8 N	Yes
Maximum Chest Compression	(-63.5) - (-72.6) mm	-69.04 mm	Yes
Internal Hysteresis	65 - 85 %	72.6 %	Yes

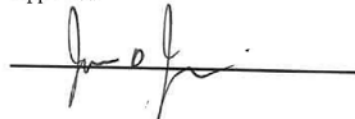
Test meets specifications.

Comments:

Technician



Approved



Specification Source: CFR49 Part 572 Subpart P
with Polarity in accordance with J211

01.31.2014 15:10:17 446

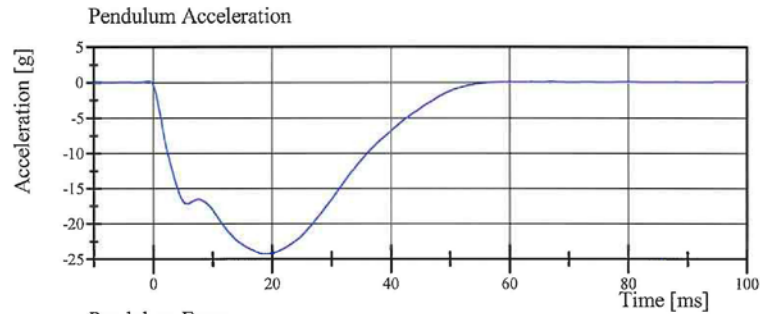


Transportation Research Center Inc.

Front Thorax

HIII 50th Serial No. 037 Certification No. 23-1

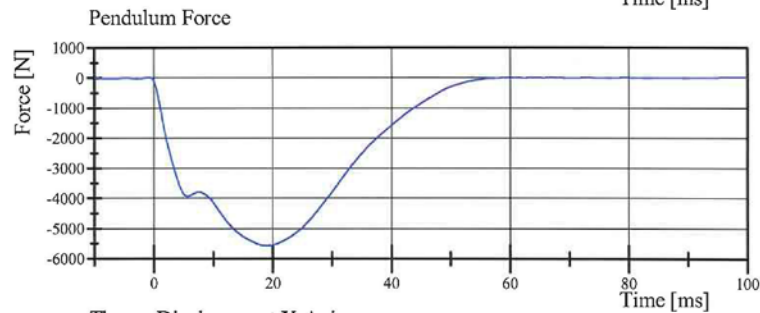
Test Date: 1/31/2014



Filter Class: CFC_180

Max: 0.1 g at -0.8 ms

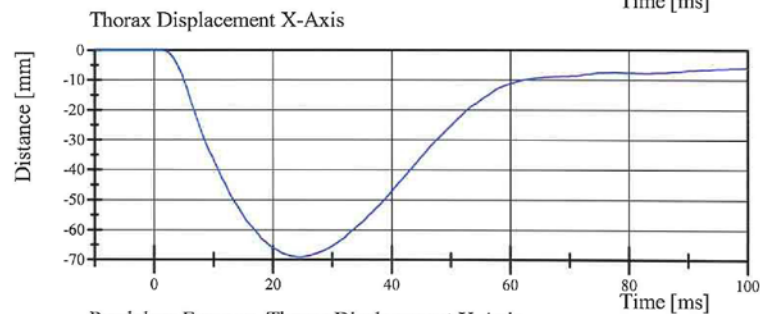
Min: -24.3 g at 19.1 ms



Filter Class: CFC_180

Max: 27.4 N at -0.8 ms

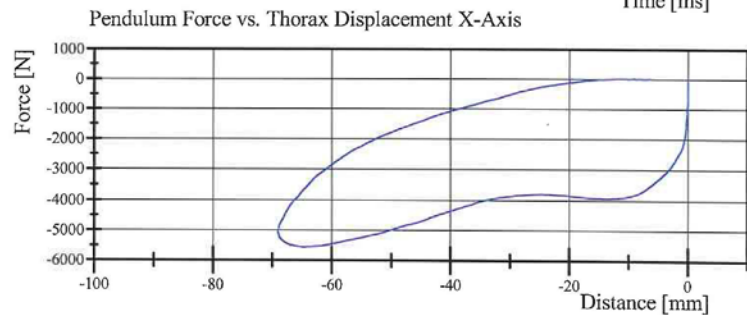
Min: -5,560.8 N at 19.1 ms



Filter Class: CFC_600

Max: 0.0 mm at -7.4 ms

Min: -69.0 mm at 24.6 ms



Filter Class: CFC_180

Max: 27.4 N at -0.0 mm

Min: -5,560.8 N at -64.7 mm

Specification Source: CFR49 Part 572 Subpart P
with Polarity in accordance with J211

01.31.2014 15:10:23 446



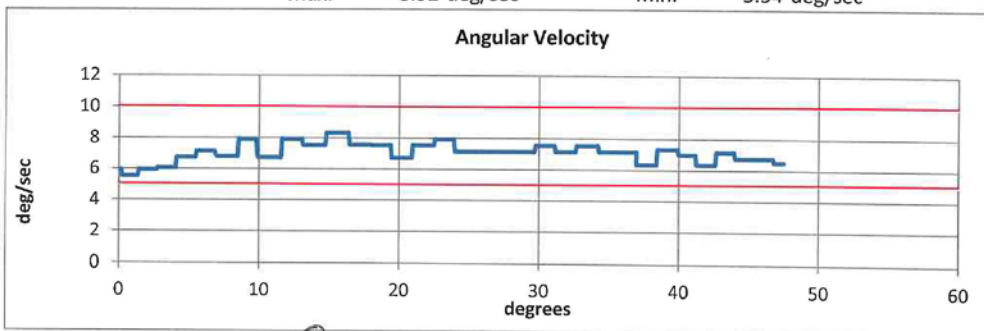
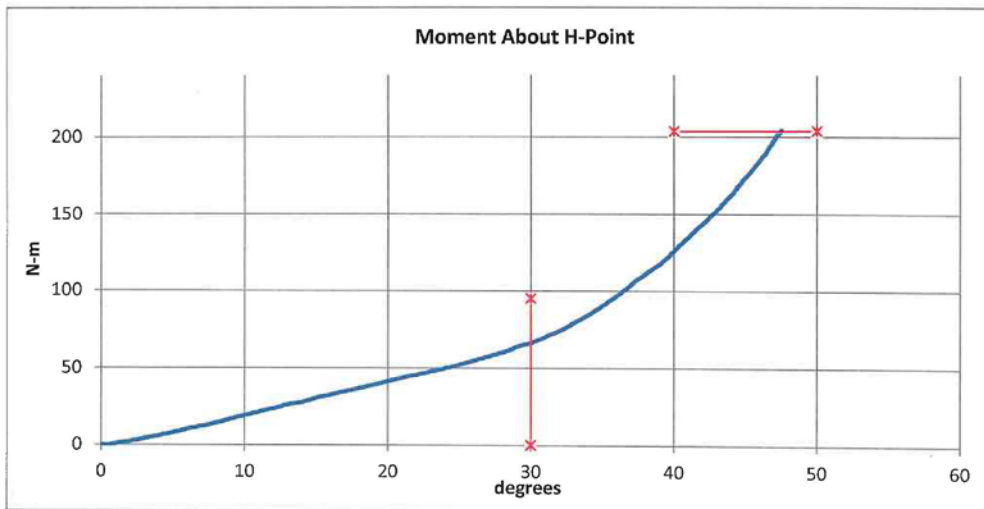
Transportation Research Center Inc.

Hybrid III 50th Male Hip Range of Motion



Serial Number: 37 Date: 31-Jan-2014
 Test Number: 1 Time: 13:00
 Comments: Left

TEST PARAMETER	SPECIFICATION	TEST RESULTS
Temperature	18.9 - 25.6	21.4 °C Pass
Humidity	10 - 70	41 % Pass
Moment at 30°	0 ≤ 94.9	66.38 N-m Pass
Angle at 203 Nm	40 - 50	47.51 deg Pass
Average Velocity	5 - 10	7.06 deg/sec Pass



Technician [Signature]

Approved [Signature]

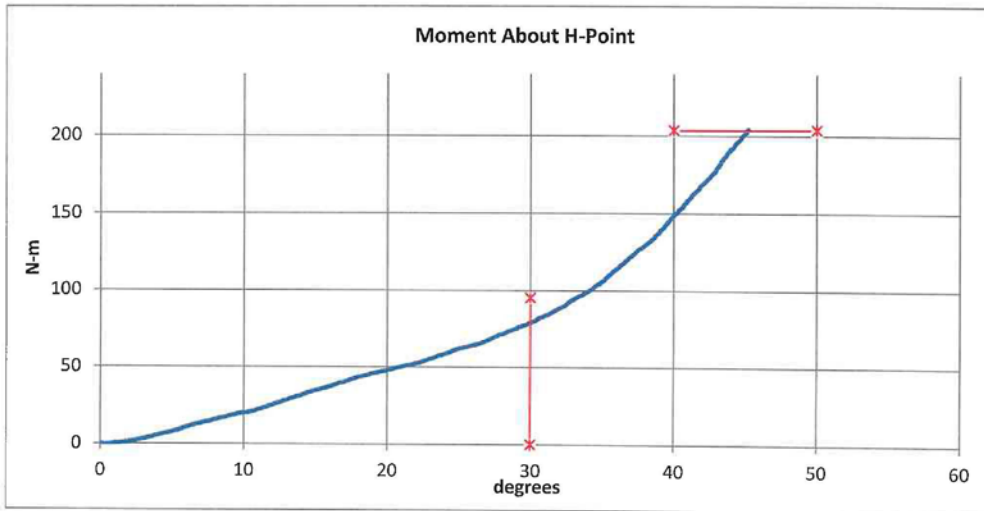
Transportation Research Center Inc.

Hybrid III 50th Male Hip Range of Motion

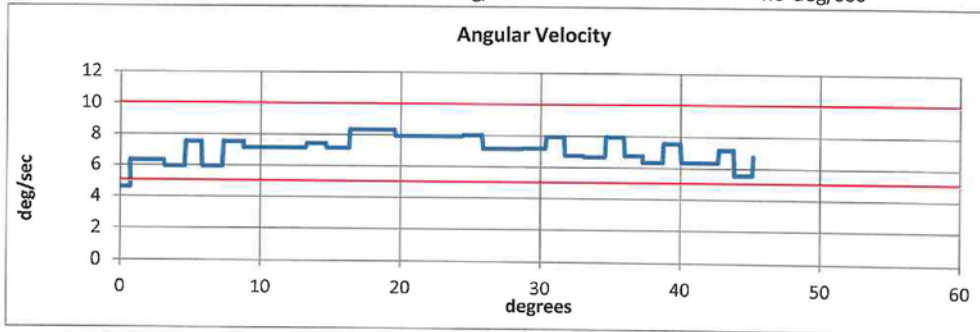


Serial Number: 37 Date: 31-Jan-2014
 Test Number: 1 Time: 14:27
 Comments: Right

TEST PARAMETER	SPECIFICATION	TEST RESULTS
Temperature	18.9 - 25.6	21.4 °C Pass
Humidity	10 - 70	32 % Pass
Moment at 30°	0 ≤ 94.9	78.98 N-m Pass
Angle at 203 Nm	40 - 50	45.21 deg Pass
Average Velocity	5 - 10	7.07 deg/sec Pass



Max: 8.31 deg/sec Min: 4.6 deg/sec



Technician RSB

Approved [Signature]

Transportation Research Center Inc.

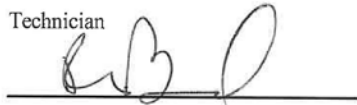
Left Knee Femur Response Test
HIII 50th Serial No. 037 Certification No. 23-1
Test Date: 1/31/2014

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.5 °C	21.4 °C	Yes
Relative Humidity	10 - 70 %	35 %	Yes
Probe Velocity	2.08 - 2.13 m/s	2.117 m/s	Yes
Peak Femur Force	(-4,715.2) - (-5,782.6) N	-5,630.60 N	Yes

Test meets specifications.

Comments:

Technician



Approved



Specification Source: CFR49 Part 572 Subpart E
with Polarity in accordance with J211

01.31.2014 12:41:24 1732

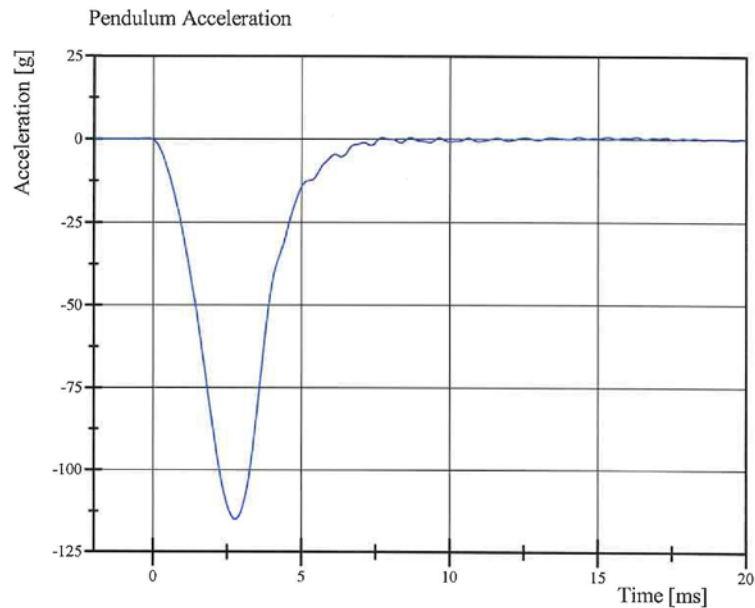


Transportation Research Center Inc.

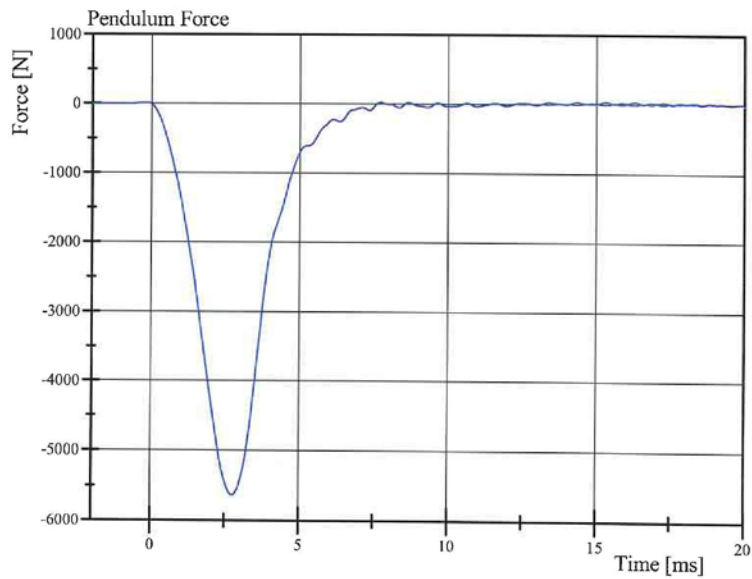
Left Knee Femur Response Test

HIII 50th Serial No. 037 Certification No. 23-1

Test Date: 1/31/2014



Filter Class: CFC_600
Max: 0.7 g at 15.3 ms
Min: -115.1 g at 2.8 ms



Filter Class: CFC_600
Max: 32.6 N at 15.3 ms
Min: -5,630.6 N at 2.8 ms

Specification Source: CFR49 Part 572 Subpart E
with Polarity in accordance with J211

01.31.2014 12:41:30 1732



Transportation Research Center Inc.

Right Knee Femur Response Test
HIII 50th Serial No. 037 Certification No. 23-1
Test Date: 1/31/2014

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.5 °C	21.4 °C	Yes
Relative Humidity	10 - 70 %	36 %	Yes
Probe Velocity	2.08 - 2.13 m/s	2.117 m/s	Yes
Peak Femur Force	(-4,715.2) - (-5,782.6) N	-5,593.76 N	Yes

Test meets specifications.

Comments:

Technician



Approved



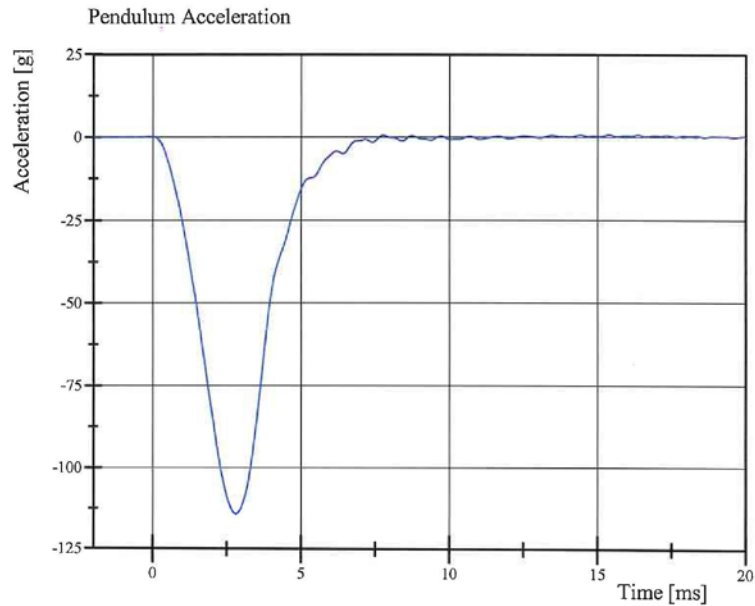
Specification Source: CFR49 Part 572 Subpart E
with Polarity in accordance with J211

01.31.2014 12:44:23 1729

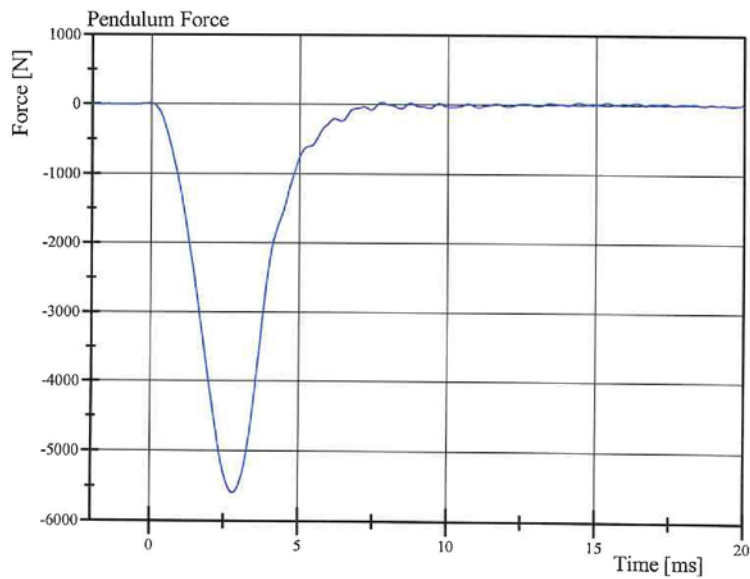


Transportation Research Center Inc.

Right Knee Femur Response Test
HIII 50th Serial No. 037 Certification No. 23-1
Test Date: 1/31/2014



Filter Class: CFC_600
Max: 0.7 g at 15.4 ms
Min: -114.3 g at 2.8 ms



Filter Class: CFC_600
Max: 33.2 N at 15.4 ms
Min: -5,593.8 N at 2.8 ms

Specification Source: CFR49 Part 572 Subpart E
with Polarity in accordance with J211

01.31.2014 12:44:30 1729

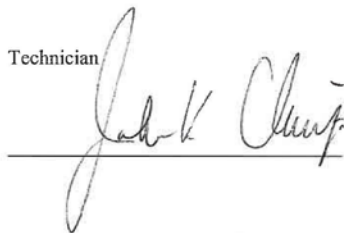


Pre-Test Calibration Sheets
Front Passenger S/N 426

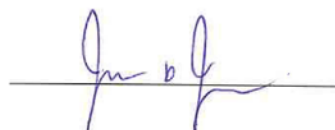
Transportation Research Center Inc.
5720 HIII 5th Dummy
External Dimensions
Serial No. 426 Calibration No. 24

Symbol	Description	Specification	Results	Pass
		mm	mm	
A	Total Sitting Height	774.7 - 800.1	780	Yes
B	Shoulder Pivot Height	431.8 - 457.2	445	Yes
C	Hip Pivot Height	81.3 - 86.3	85	Yes
D	Hip Pivot from Backline	144.8 - 149.8	147	Yes
E	Shoulder Pivot from Backline	68.6 - 83.8	78	Yes
F	Thigh Clearance	119.4 - 134.6	128	Yes
G	Back of Elbow to Wrist Pivot	243.9 - 259.1	250	Yes
H	Head Back to Backline	43.2 - 48.2	45	Yes
I	Shoulder to Elbow Length	276.8 - 297.2	283	Yes
J	Elbow Rest Height	182.8 - 203.2	193	Yes
K	Buttock Knee Length	520.7 - 546.1	533	Yes
L	Popliteal Height	355.6 - 376.0	368	Yes
M	Knee Pivot Height	393.7 - 419.1	411	Yes
N	Buttock Popliteal Length	414.0 - 439.4	435	Yes
O	Chest Depth without Jacket	175.3 - 190.5	183	Yes
P	Foot Length	218.5 - 233.7	222	Yes
R	Buttock to Knee Pivot Length	457.2 - 482.6	473	Yes
S	Head Breadth	137.1 - 147.3	140	Yes
T	Head Depth	177.8 - 188.0	182	Yes
U	Hip Breadth	299.7 - 314.9	306	Yes
V	Shoulder Breadth	350.5 - 365.7	359	Yes
W	Foot Breadth	78.8 - 94.0	83	Yes
X	Head Circumference	528.3 - 548.7	539	Yes
Y	Chest Circumference with Jacket	850.9 - 881.3	865	Yes
Z	Waist Circumference	759.5 - 789.9	773	Yes
AA	Reference Location for Chest Circumference	332.7 - 358.1	345	Yes
BB	Reference Location for Waist Circumference	160.0 - 170.2	165	Yes

Technician



Approved



Revised 8/10/12



Transportation Research Center Inc.

Front Head Drop

HIII 5th Serial No. 426 Certification No. 24-1

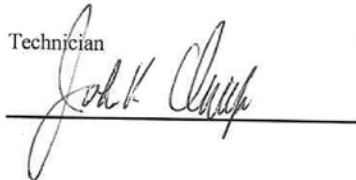
Test Date: 1/27/2014

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.5 °C	21.2 °C	Yes
Relative Humidity	10 - 70 %	32 %	Yes
Peak Head Resultant Acceleration	250 - 300 g	263.5 g	Yes
Peak Head Lateral Acceleration	(-15) - 15 g	-5.3 g	Yes
Is Acceleration Curve Unimodal within 10% of Peak?	Yes	Yes	Yes

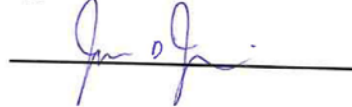
Test meets specifications.

Comments:

Technician



Approved



Specification Source: CFR49 Part 572 Subpart O
with Polarity in accordance with J211

01.27.2014 13:51:57 607

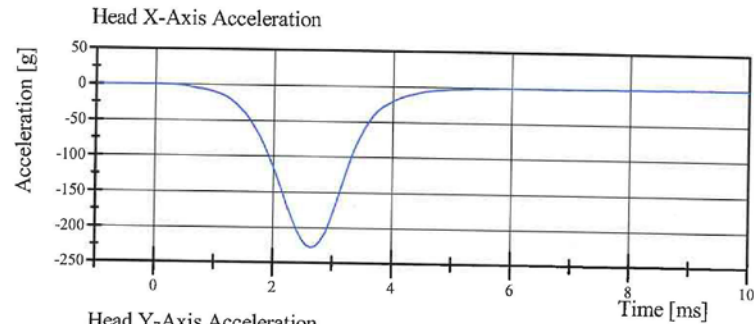


Transportation Research Center Inc.

Front Head Drop

HIII 5th Serial No. 426 Certification No. 24-1

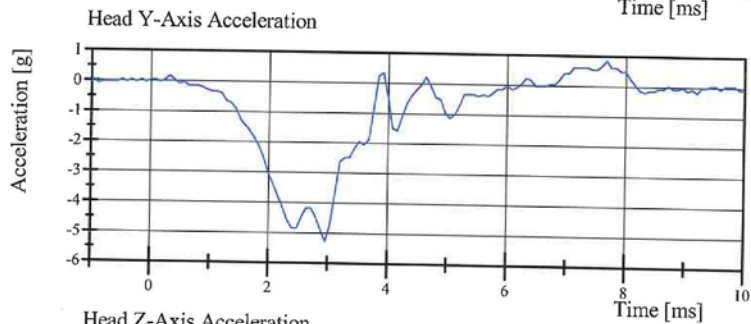
Test Date: 1/27/2014



Filter Class: CFC_1000

Max: 0.3 g at 9.0 ms

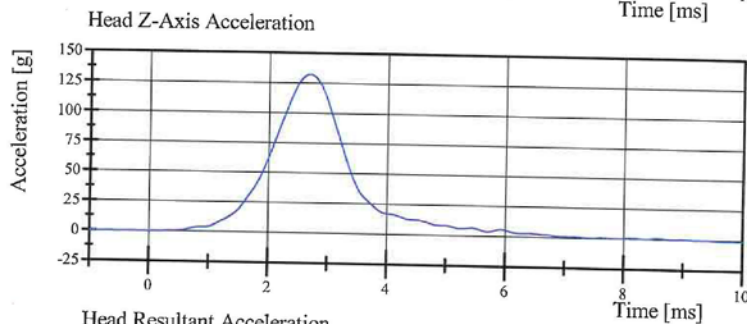
Min: -228.1 g at 2.6 ms



Filter Class: CFC_1000

Max: 0.9 g at 7.7 ms

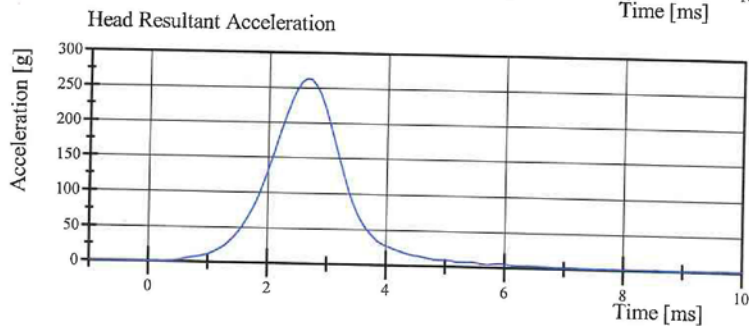
Min: -5.3 g at 3.0 ms



Filter Class: CFC_1000

Max: 132.2 g at 2.7 ms

Min: -1.0 g at 9.7 ms



Filter Class: CFC_1000

Max: 263.5 g at 2.6 ms

Min: 0.0 g at -0.4 ms

Specification Source: CFR49 Part 572 Subpart O
with Polarity in accordance with J211

01.27.2014 13:52:09 607



Transportation Research Center Inc.

Neck Flexion

HIII 5th Serial No. 426 Certification No. 24-1

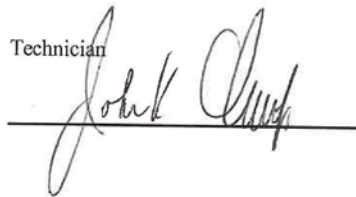
Test Date: 1/27/2014

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.2 °C	Yes
Relative Humidity	10 - 70 %	35 %	Yes
Pendulum Velocity	6.89 - 7.13 m/s	7.012 m/s	Yes
Pendulum Integrated Velocity Change at 10ms	(-2.1) - (-2.5) m/s	-2.43 m/s	Yes
Pendulum Integrated Velocity Change at 20ms	(-4.0) - (-5.0) m/s	-4.75 m/s	Yes
Pendulum Integrated Velocity Change at 30ms	(-5.8) - (-7.0) m/s	-6.72 m/s	Yes
Total Head D-Plane Rotation	(-77) - (-91) °	-79.5 °	Yes
Total Neck Occipital Condyles Moment Between -77° and -91° Rotation	69 - 83 N·m	69.7 N·m	Yes
Total Neck Occipital Condyles Moment Decay to 10 N·m	80 - 100 ms	85.7 ms	Yes

Test meets specifications.

Comments:

Technician



Approved



Specification Source: CFR49 Part 572 Subpart O
with Polarity in accordance with J211

01.27.2014 14:55:56 1713

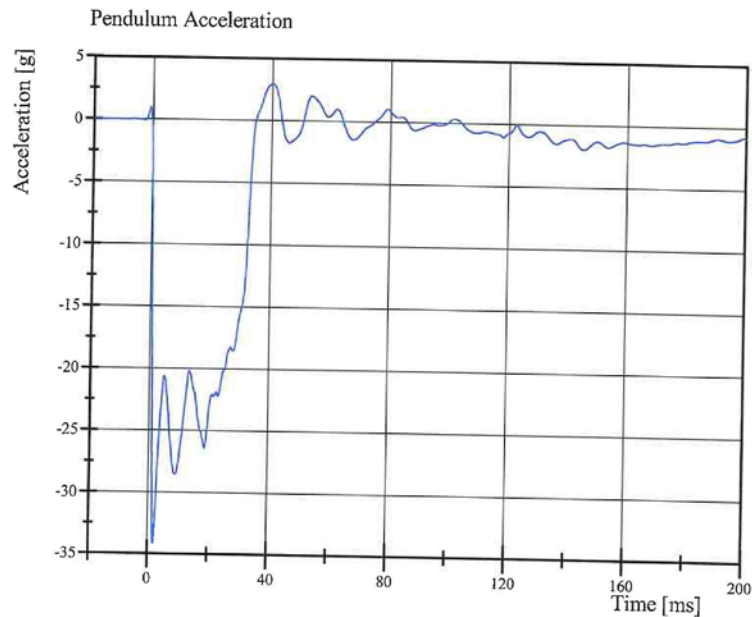


Transportation Research Center Inc.

Neck Flexion

HIII 5th Serial No. 426 Certification No. 24-1

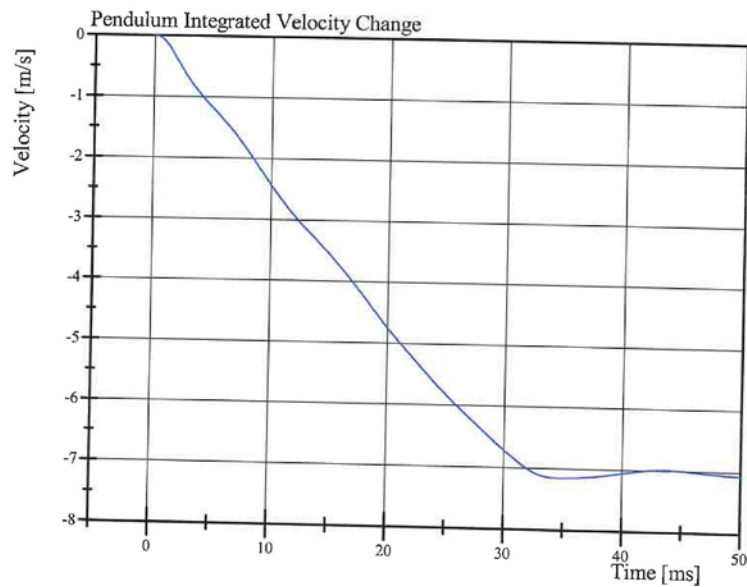
Test Date: 1/27/2014



Filter Class: CFC_180

Max: 3.0 g at 40.1 ms

Min: -34.2 g at 2.0 ms



Filter Class: CFC_180

Max: 0.0 m/s at 0.0 ms

Min: -7.2 m/s at 34.7 ms

Specification Source: CFR49 Part 572 Subpart O
with Polarity in accordance with J211

01.27.2014 14:56:06 1713



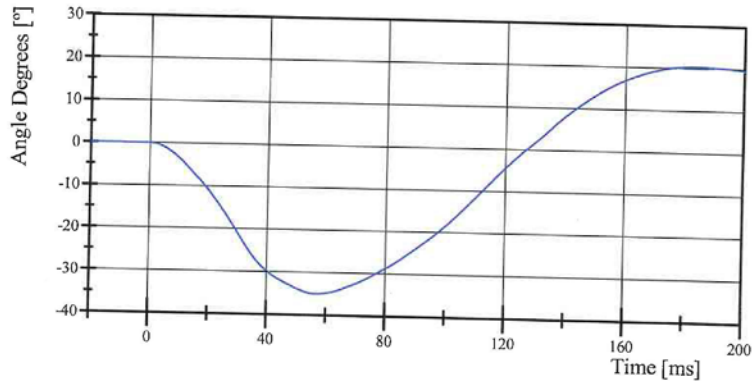
Transportation Research Center Inc.

Neck Flexion

HIII 5th Serial No. 426 Certification No. 24-1

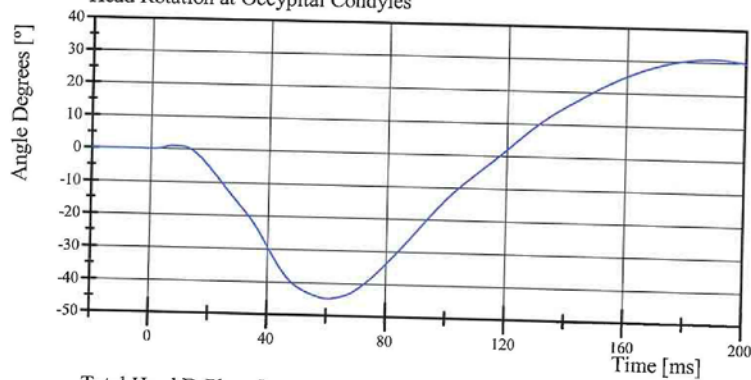
Test Date: 1/27/2014

Pot Rotation at the Base of Neck



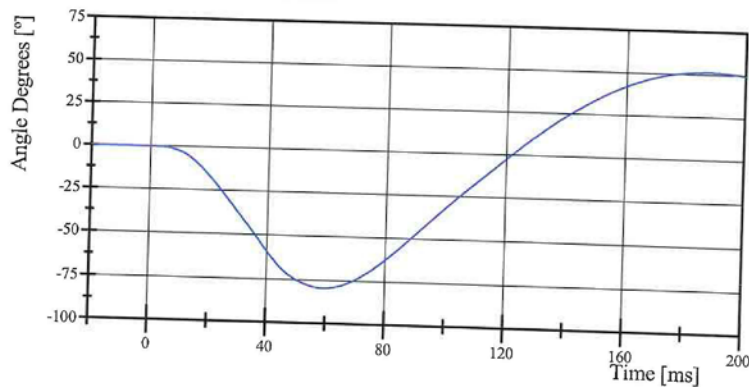
Filter Class: CFC_60
Max: 20.3 ° at 183.3 ms
Min: -34.9 ° at 56.8 ms

Head Rotation at Occypital Condyles



Filter Class: CFC_60
Max: 30.9 ° at 188.9 ms
Min: -44.8 ° at 60.5 ms

Total Head D-Plane Rotation



Filter Class: CFC_60
Max: 51.1 ° at 187.3 ms
Min: -79.5 ° at 59.4 ms

Specification Source: CFR49 Part 572 Subpart O
with Polarity in accordance with J211

01.27.2014 14:56:07 1713

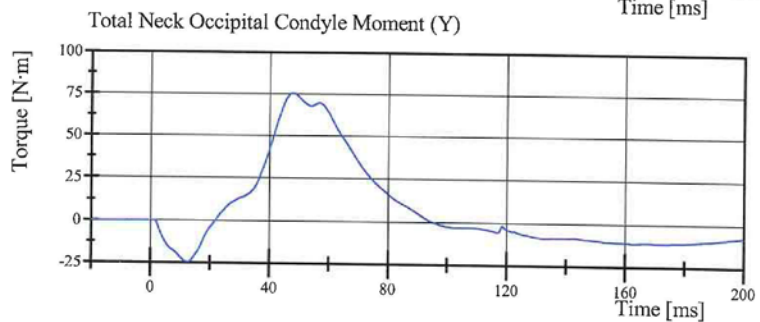
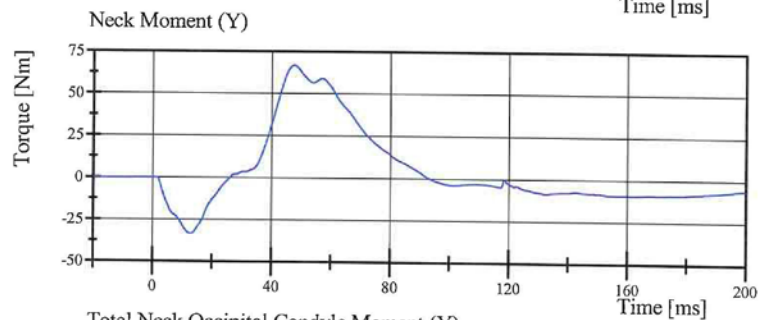
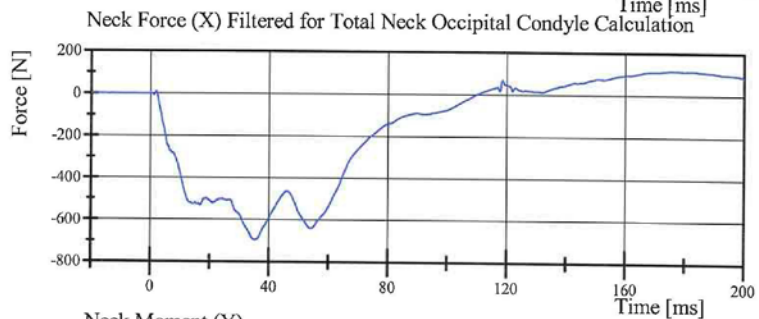
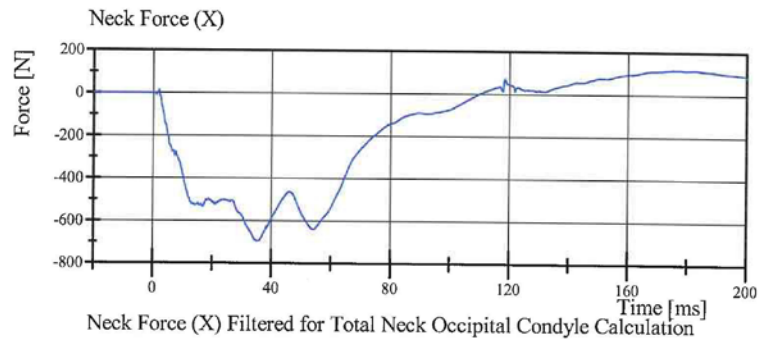


Transportation Research Center Inc.

Neck Flexion

HIII 5th Serial No. 426 Certification No. 24-1

Test Date: 1/27/2014



Specification Source: CFR49 Part 572 Subpart O
with Polarity in accordance with J211

01.27.2014 14:56:07 1713



Transportation Research Center Inc.

Neck Extension

HIII 5th Serial No. 426 Certification No. 24-1

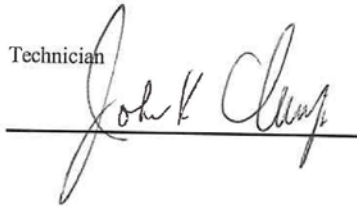
Test Date: 1/27/2014

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.2 °C	Yes
Relative Humidity	10 - 70 %	31 %	Yes
Pendulum Velocity	(-5.95) - (-6.19) m/s	-6.111 m/s	Yes
Pendulum Integrated Velocity Change at 10ms	1.5 - 1.9 m/s	1.89 m/s	Yes
Pendulum Integrated Velocity Change at 20ms	3.1 - 3.9 m/s	3.74 m/s	Yes
Pendulum Integrated Velocity Change at 30ms	4.6 - 5.6 m/s	5.41 m/s	Yes
Total Head D-Plane Rotation	99 - 114 °	109.1 °	Yes
Total Neck Occipital Condyles Moment Between 99° and 114° Rotation	(-53) - (-65) N·m	-57.8 N·m	Yes
Total Neck Occipital Condyles Moment Decay to -10 N·m	94 - 114 ms	103.0 ms	Yes

Test meets specifications.

Comments:

Technician



Approved



Specification Source: CFR49 Part 572 Subpart O
with Polarity in accordance with J211

01.27.2014 15:28:27 1824

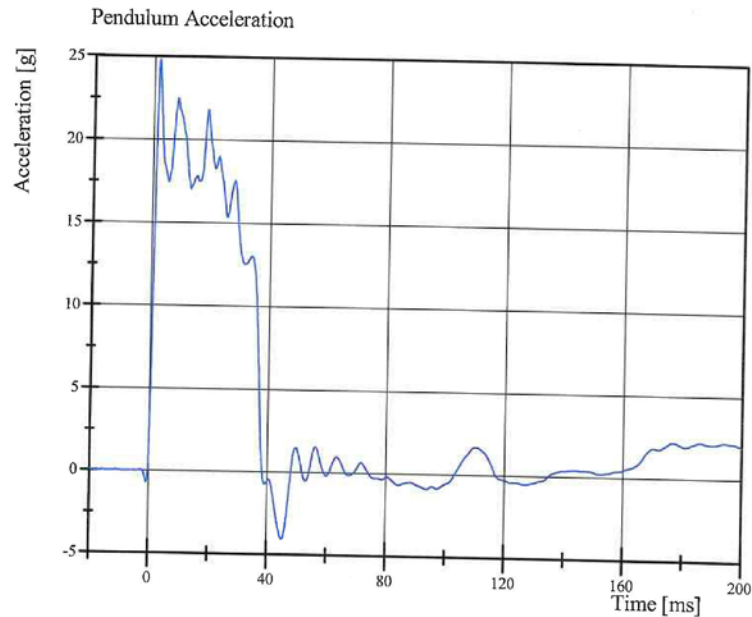


Transportation Research Center Inc.

Neck Extension

HIII 5th Serial No. 426 Certification No. 24-1

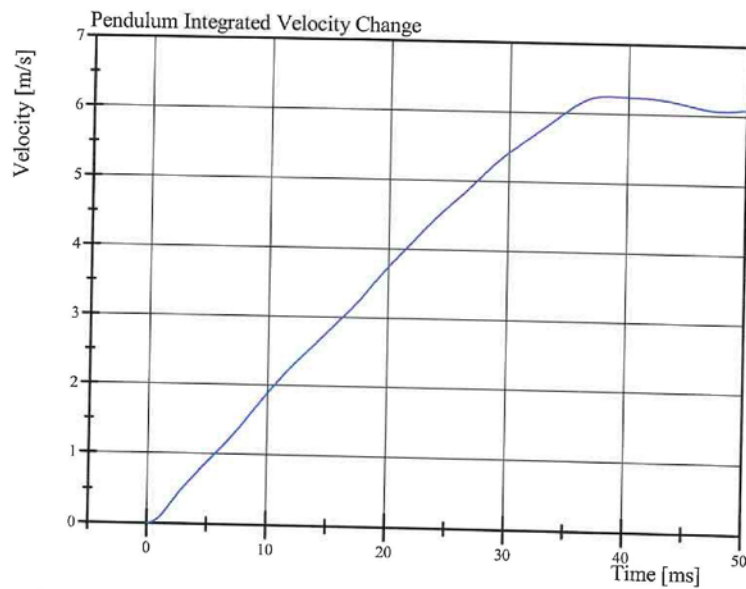
Test Date: 1/27/2014



Filter Class: CFC_180

Max: 24.8 g at 2.0 ms

Min: -4.0 g at 45.2 ms



Filter Class: CFC_180

Max: 6.2 m/s at 38.3 ms

Min: 0.0 m/s at 0.0 ms

Specification Source: CFR49 Part 572 Subpart O
with Polarity in accordance with J211

01.27.2014 15:28:33 1824



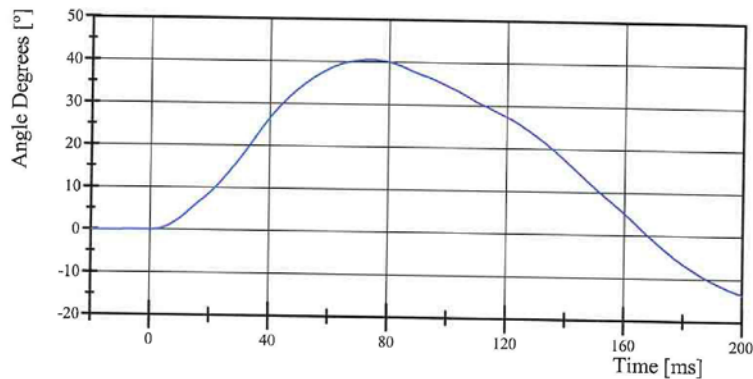
Transportation Research Center Inc.

Neck Extension

HIII 5th Serial No. 426 Certification No. 24-1

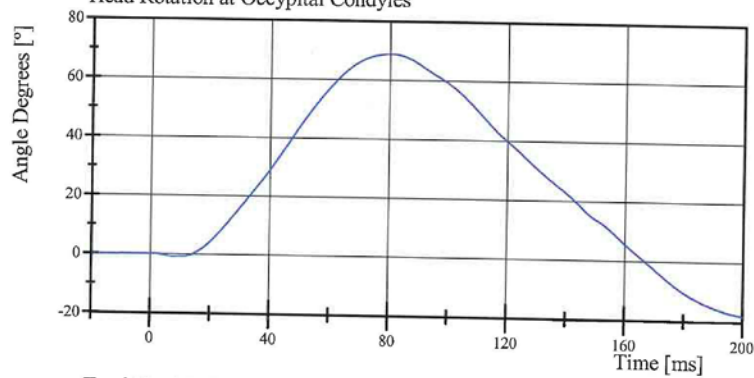
Test Date: 1/27/2014

Pot Rotation at the Base of Neck



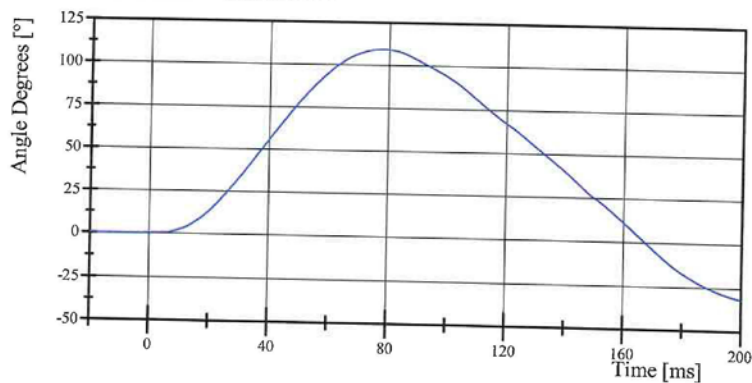
Filter Class: CFC_60
Max: 40.6 ° at 73.7 ms
Min: -13.6 ° at 200.0 ms

Head Rotation at Occypital Condyles



Filter Class: CFC_60
Max: 69.0 ° at 80.3 ms
Min: -18.2 ° at 200.0 ms

Total Head D-Plane Rotation



Filter Class: CFC_60
Max: 109.1 ° at 78.2 ms
Min: -31.8 ° at 200.0 ms

Specification Source: CFR49 Part 572 Subpart O
with Polarity in accordance with J211

01.27.2014 15:28:34 1824

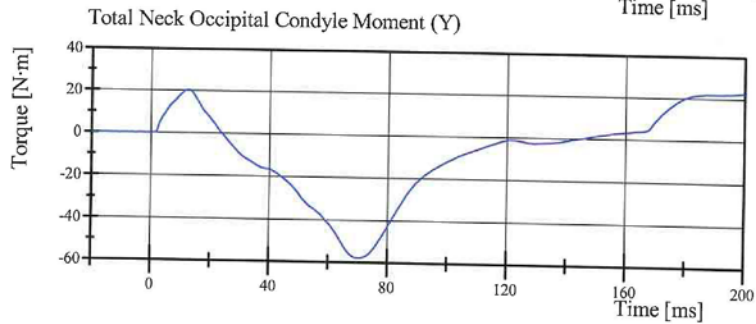
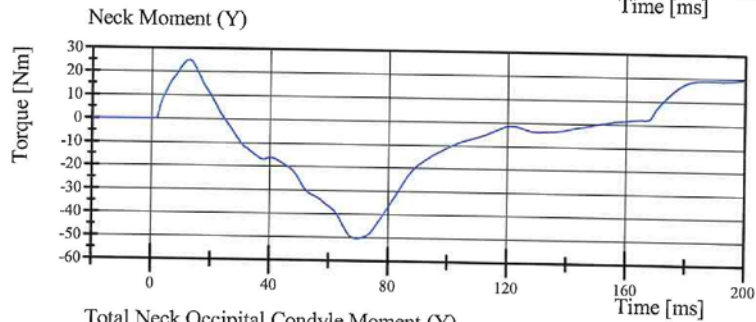
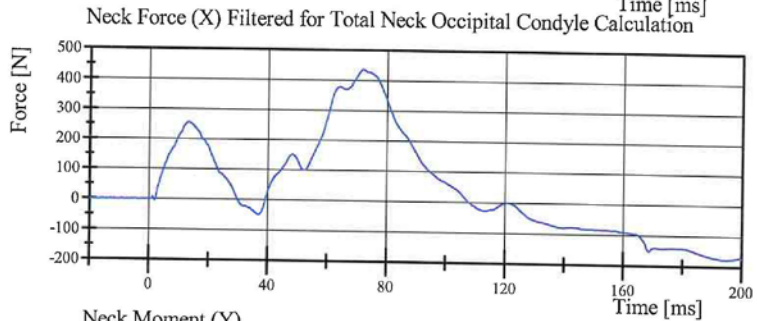
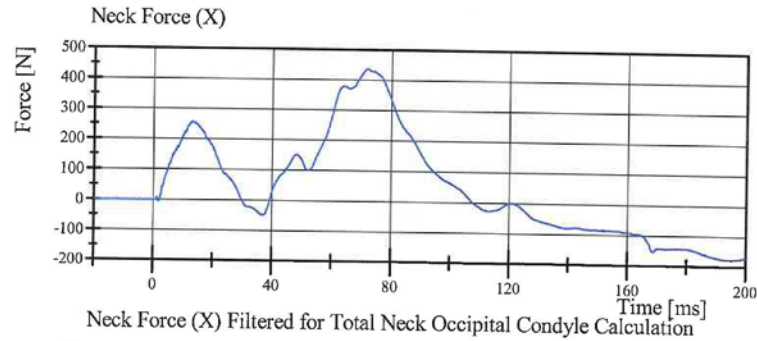


Transportation Research Center Inc.

Neck Extension

IIII 5th Serial No. 426 Certification No. 24-1

Test Date: 1/27/2014



Specification Source: CFR49 Part 572 Subpart O
with Polarity in accordance with J211

01.27.2014 15:28:35 1824



Transportation Research Center Inc.

Front Thorax

HIII 5th Serial No. 426 Certification No. 24-5

Test Date: 1/28/2014

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.2 °C	Yes
Relative Humidity	10 - 70 %	40 %	Yes
Probe Velocity	6.59 - 6.83 m/s	6.592 m/s	Yes
Probe Force Peak Between 50.0 mm and 58.0 mm Chest Deflection	(-3,900) - (-4,400) N	-4,150.2 N	Yes
Probe Force Peak Between 18.0 mm and 50.0 mm Chest Deflection	$\geq$ (-4,600) N	-4,025.8 N	Yes
Maximum Chest Compression	(-50) - (-58) mm	-55.8 mm	Yes
Internal Hysteresis	69 - 85 %	73.4 %	Yes

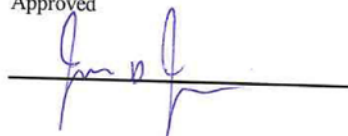
Test meets specifications.

Comments:

Technician



Approved



Specification Source: CFR49 Part 572 Subpart O
with Polarity in accordance with J211

01.28.2014 12:23:07 425

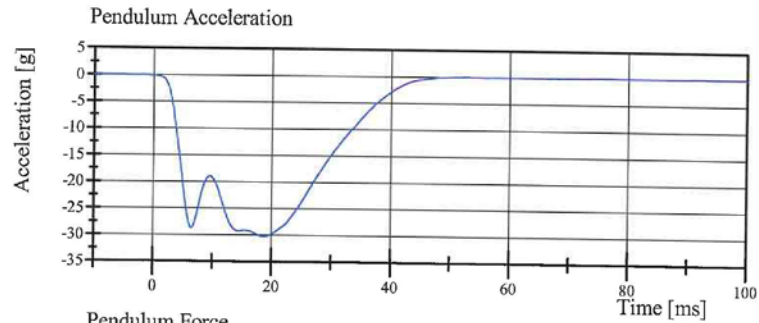


Transportation Research Center Inc.

Front Thorax

HIII 5th Serial No. 426 Certification No. 24-5

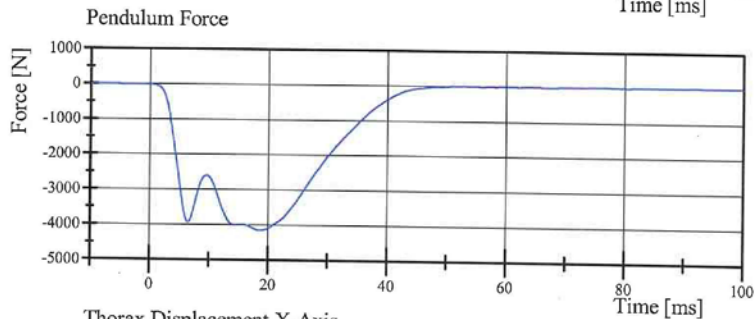
Test Date: 1/28/2014



Filter Class: CFC_180

Max: 0.1 g at 76.7 ms

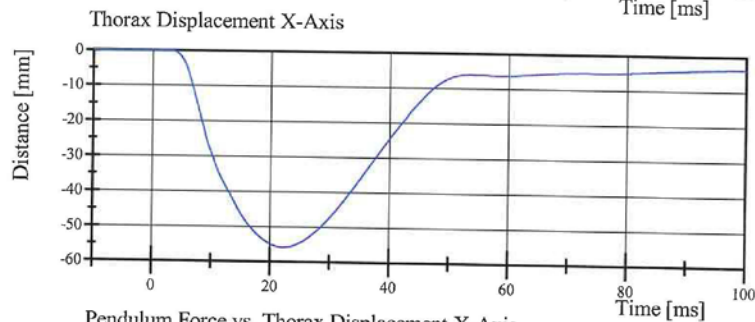
Min: -30.3 g at 18.7 ms



Filter Class: CFC_180

Max: 11.5 N at 76.7 ms

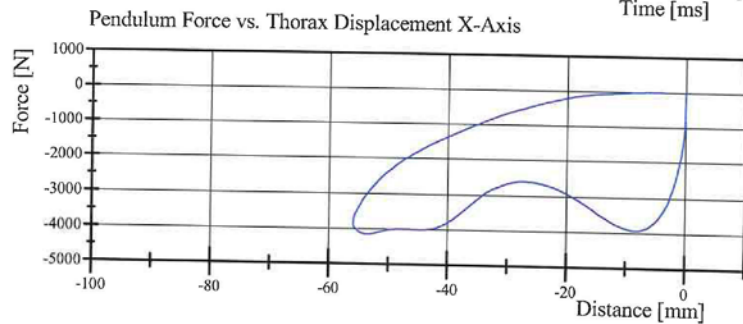
Min: -4,150.2 N at 18.7 ms



Filter Class: CFC_600

Max: 0.0 mm at -5.5 ms

Min: -55.8 mm at 22.1 ms



Filter Class: CFC_180

Max: 11.5 N at -5.1 mm

Min: -4,150.2 N at -53.5 mm

Specification Source: CFR49 Part 572 Subpart O
with Polarity in accordance with J211

01.28.2014 12:23:14 425



Transportation Research Center Inc.

Hybrid III Small Female Torso Flexion



Serial Number: 426

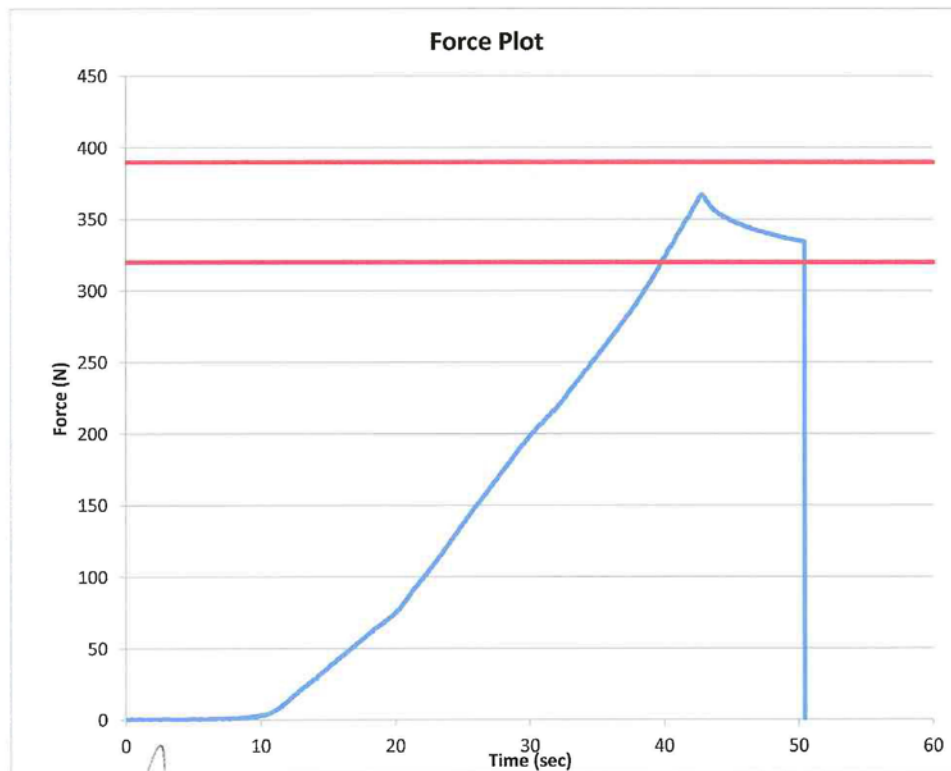
Date: 1/27/2014

Test Number: 1

Time: 11:45

Comments:

TEST PARAMETER	SPECIFICATION		TEST RESULTS		
Temperature	18.9	- 25.6	21.1	°C	Pass
Humidity	10	- 70	40	%	Pass
Average Angular Velocity	0.5	- 1.5	0.93	deg/sec	Pass
Initial Angle	0	- 20	15.09	deg	Pass
Peak Force at 45.26°	320	- 390	367.41	N	Pass
Final Angle	-8	- 8	6.2	deg	Pass



Technician

A handwritten signature in blue ink, appearing to read "John K. [unclear]", written over a horizontal line.

Approved

A handwritten signature in blue ink, appearing to read "John [unclear]", written over a horizontal line.

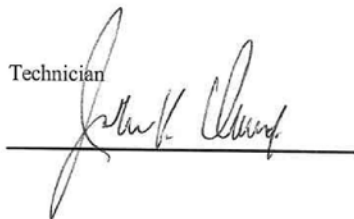
Transportation Research Center Inc.

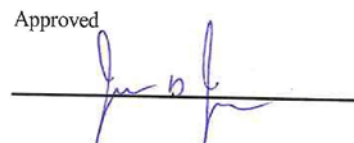
Left Knee Femur Response Test
HIII 5th Serial No. 426 Certification No. 24-1
Test Date: 1/27/2014

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.6 °C	21.1 °C	Yes
Relative Humidity	10 - 70 %	31 %	Yes
Probe Velocity	2.08 - 2.13 m/s	2.113 m/s	Yes
Peak Femur Force	(-3,450) - (-4,060) N	-4,018.8 N	Yes

Test meets specifications.

Comments:

Technician 

Approved 

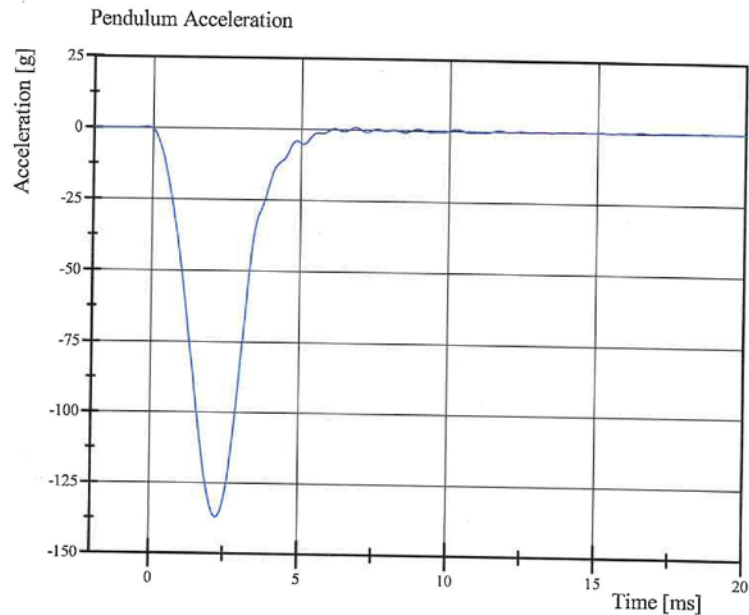
Specification Source: CFR49 Part 572 Subpart O
with Polarity in accordance with J211

01.27.2014 15:30:53 1838

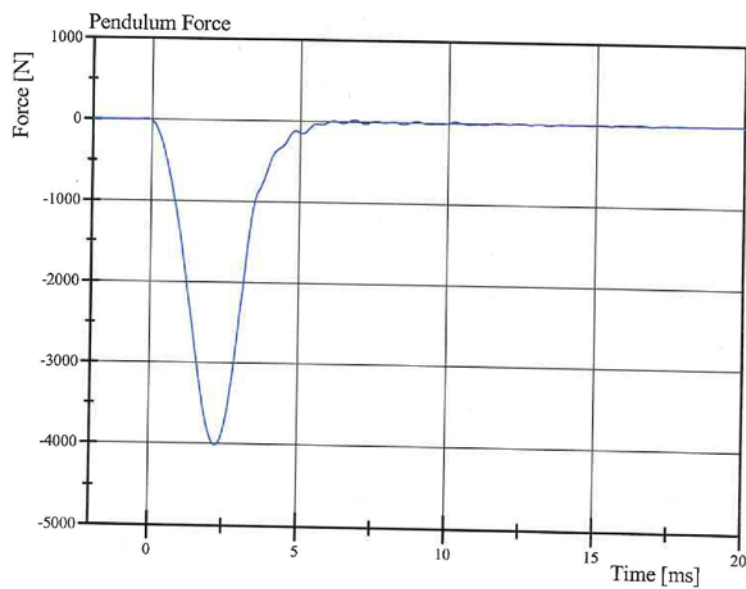


Transportation Research Center Inc.

Left Knee Femur Response Test
HIII 5th Serial No. 426 Certification No. 24-1
Test Date: 1/27/2014



Filter Class: CFC_600
Max: 0.9 g at 6.8 ms
Min: -137.1 g at 2.2 ms



Filter Class: CFC_600
Max: 27.8 N at 6.8 ms
Min: -4,018.8 N at 2.2 ms

Specification Source: CFR49 Part 572 Subpart O
with Polarity in accordance with J211

01.27.2014 15:31:00 1838



Transportation Research Center Inc.

Right Knee Femur Response Test
HIII 5th Serial No. 426 Certification No. 24-1
Test Date: 1/27/2014

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.6 °C	21.4 °C	Yes
Relative Humidity	10 - 70 %	32 %	Yes
Probe Velocity	2.08 - 2.13 m/s	2.098 m/s	Yes
Peak Femur Force	(-3,450) - (-4,060) N	-3,704.5 N	Yes

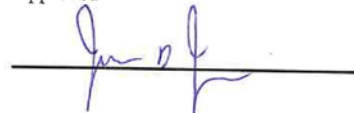
Test meets specifications.

Comments:

Technician



Approved



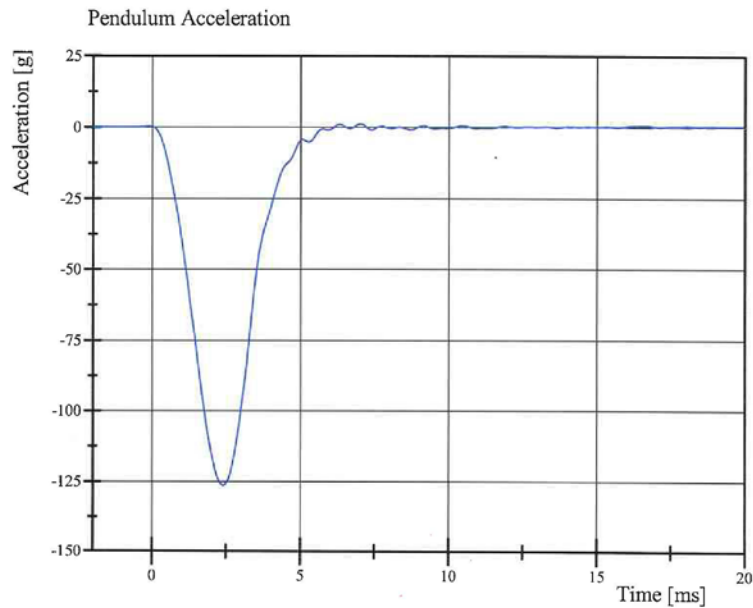
Specification Source: CFR49 Part 572 Subpart O
with Polarity in accordance with J211

01.27.2014 15:38:41 1848

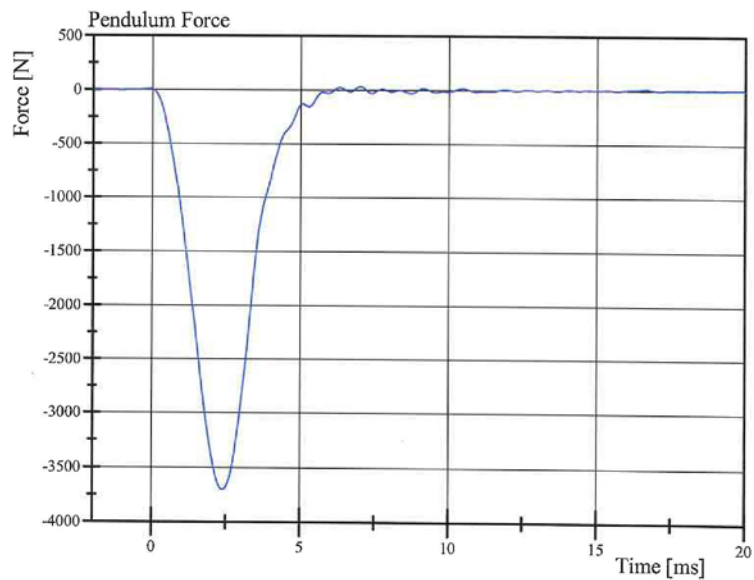


Transportation Research Center Inc.

Right Knee Femur Response Test
HIII 5th Serial No. 426 Certification No. 24-1
Test Date: 1/27/2014



Filter Class: CFC_600
Max: 1.2 g at 7.0 ms
Min: -126.3 g at 2.4 ms



Filter Class: CFC_600
Max: 34.0 N at 7.0 ms
Min: -3,704.5 N at 2.4 ms

Specification Source: CFR49 Part 572 Subpart O
with Polarity in accordance with J211

01.27.2014 15:38:47 1848



Passenger S/N 426
Post-Test Calibration Sheets

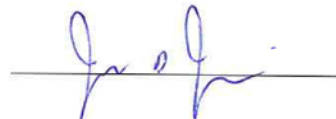
Transportation Research Center Inc.
5720 HIII 5th Dummy
External Dimensions
Serial No. 426 Calibration No. 25

Symbol	Description	Specification	Results	Pass
		mm	mm	
A	Total Sitting Height	774.7 - 800.1	780	Yes
B	Shoulder Pivot Height	431.8 - 457.2	442	Yes
C	Hip Pivot Height	81.3 - 86.3	85	Yes
D	Hip Pivot from Backline	144.8 - 149.8	147	Yes
E	Shoulder Pivot from Backline	68.6 - 83.8	78	Yes
F	Thigh Clearance	119.4 - 134.6	130	Yes
G	Back of Elbow to Wrist Pivot	243.9 - 259.1	250	Yes
H	Head Back to Backline	43.2 - 48.2	45	Yes
I	Shoulder to Elbow Length	276.8 - 297.2	283	Yes
J	Elbow Rest Height	182.8 - 203.2	193	Yes
K	Buttock Knee Length	520.7 - 546.1	533	Yes
L	Popliteal Height	355.6 - 376.0	368	Yes
M	Knee Pivot Height	393.7 - 419.1	410	Yes
N	Buttock Popliteal Length	414.0 - 439.4	435	Yes
O	Chest Depth without Jacket	175.3 - 190.5	183	Yes
P	Foot Length	218.5 - 233.7	222	Yes
R	Buttock to Knee Pivot Length	457.2 - 482.6	473	Yes
S	Head Breadth	137.1 - 147.3	140	Yes
T	Head Depth	177.8 - 188.0	182	Yes
U	Hip Breadth	299.7 - 314.9	306	Yes
V	Shoulder Breadth	350.5 - 365.7	359	Yes
W	Foot Breadth	78.8 - 94.0	83	Yes
X	Head Circumference	528.3 - 548.7	539	Yes
Y	Chest Circumference with Jacket	850.9 - 881.3	865	Yes
Z	Waist Circumference	759.5 - 789.9	773	Yes
AA	Reference Location for Chest Circumference	332.7 - 358.1	345	Yes
BB	Reference Location for Waist Circumference	160.0 - 170.2	165	Yes

Technician



Approved



Revised 8/10/12



Transportation Research Center Inc.

Front Head Drop

IIII 5th Serial No. 426 Certification No. 25-1

Test Date: 1/30/2014

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.5 °C	21.2 °C	Yes
Relative Humidity	10 - 70 %	35 %	Yes
Peak Head Resultant Acceleration	250 - 300 g	266.3 g	Yes
Peak Head Lateral Acceleration	(-15) - 15 g	-5.3 g	Yes
Is Acceleration Curve Unimodal within 10% of Peak?	Yes	Yes	Yes

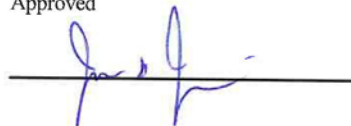
Test meets specifications.

Comments:

Technician



Approved



Specification Source: CFR49 Part 572 Subpart O
with Polarity in accordance with J211

01.30.2014 10:49:25 607

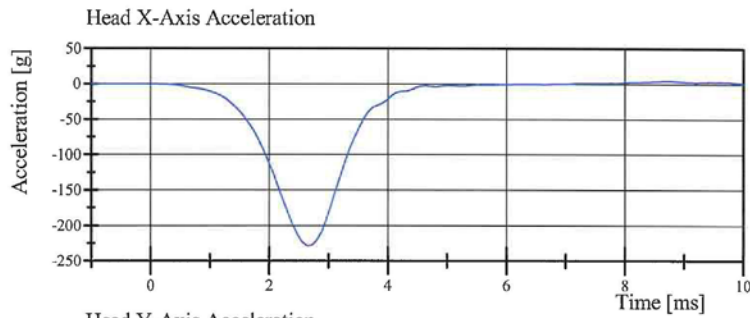


Transportation Research Center Inc.

Front Head Drop

HIII 5th Serial No. 426 Certification No. 25-1

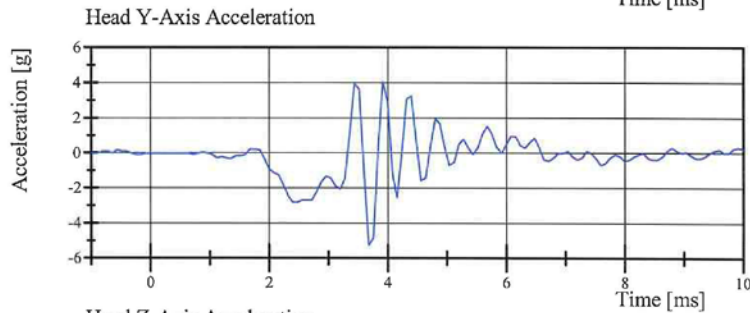
Test Date: 1/30/2014



Filter Class: CFC_1000

Max: 4.0 g at 8.7 ms

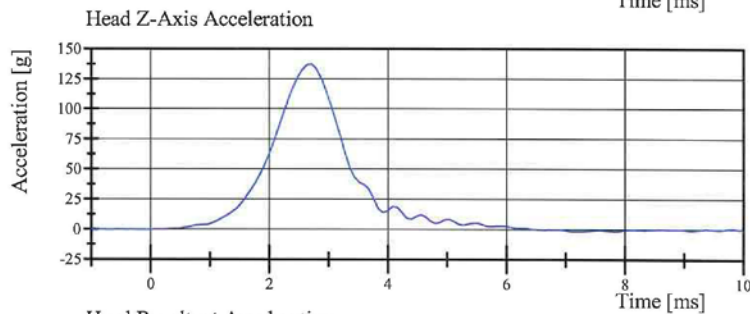
Min: -228.2 g at 2.6 ms



Filter Class: CFC_1000

Max: 4.1 g at 3.9 ms

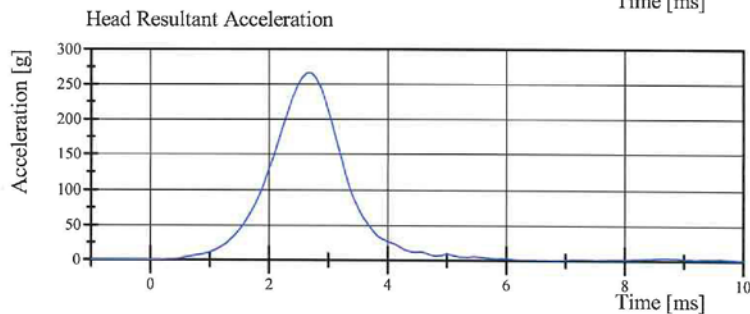
Min: -5.3 g at 3.7 ms



Filter Class: CFC_1000

Max: 137.5 g at 2.7 ms

Min: -1.7 g at 7.1 ms



Filter Class: CFC_1000

Max: 266.3 g at 2.7 ms

Min: 0.1 g at -1.0 ms

Specification Source: CFR49 Part 572 Subpart O
with Polarity in accordance with J211

01.30.2014 10:49:31 607



Transportation Research Center Inc.

Neck Flexion

HIII 5th Serial No. 426 Certification No. 25-3

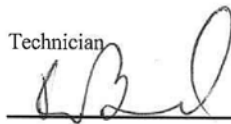
Test Date: 1/31/2014

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.6 °C	Yes
Relative Humidity	10 - 70 %	31 %	Yes
Pendulum Velocity	6.89 - 7.13 m/s	7.024 m/s	Yes
Pendulum Integrated Velocity Change at 10ms	(-2.1) - (-2.5) m/s	-2.47 m/s	Yes
Pendulum Integrated Velocity Change at 20ms	(-4.0) - (-5.0) m/s	-4.77 m/s	Yes
Pendulum Integrated Velocity Change at 30ms	(-5.8) - (-7.0) m/s	-6.84 m/s	Yes
Total Head D-Plane Rotation	(-77) - (-91) °	-81.3 °	Yes
Total Neck Occipital Condyles Moment Between -77° and -91° Rotation	69 - 83 N·m	79.9 N·m	Yes
Total Neck Occipital Condyles Moment Decay to 10 N·m	80 - 100 ms	86.3 ms	Yes

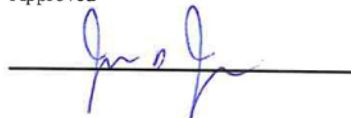
Test meets specifications.

Comments:

Technician



Approved



Specification Source: CFR49 Part 572 Subpart O
with Polarity in accordance with J211

01.31.2014 08:27:19 1714

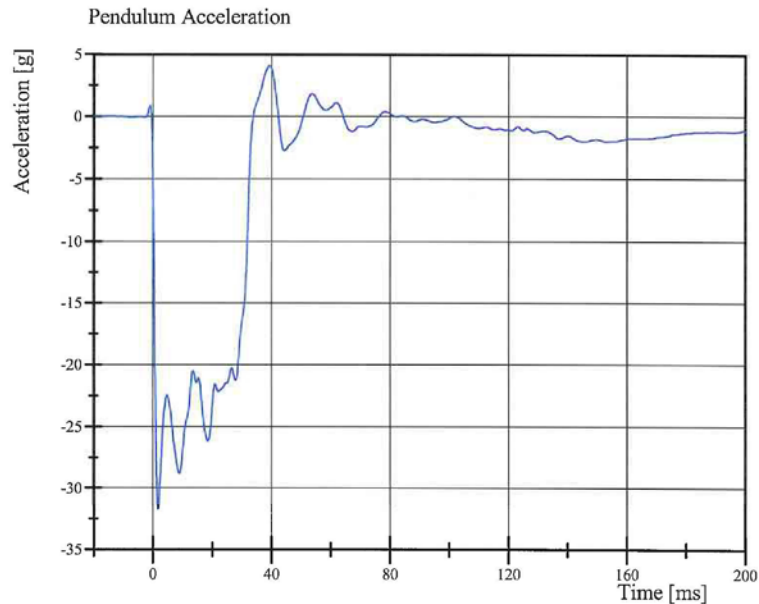


Transportation Research Center Inc.

Neck Flexion

HIII 5th Serial No. 426 Certification No. 25-3

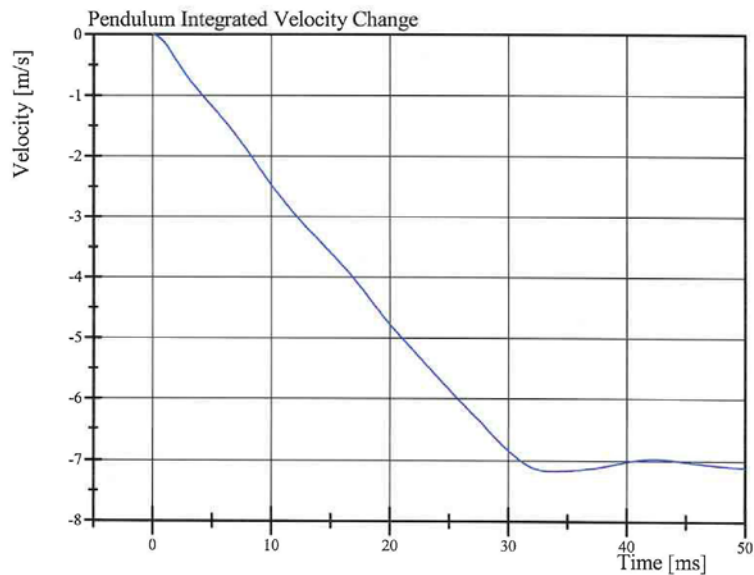
Test Date: 1/31/2014



Filter Class: CFC_180

Max: 4.1 g at 39.5 ms

Min: -31.7 g at 1.8 ms



Filter Class: CFC_180

Max: 0.0 m/s at 0.0 ms

Min: -7.2 m/s at 33.8 ms

Specification Source: CFR49 Part 572 Subpart O
with Polarity in accordance with J211

01.31.2014 08:27:25 1714



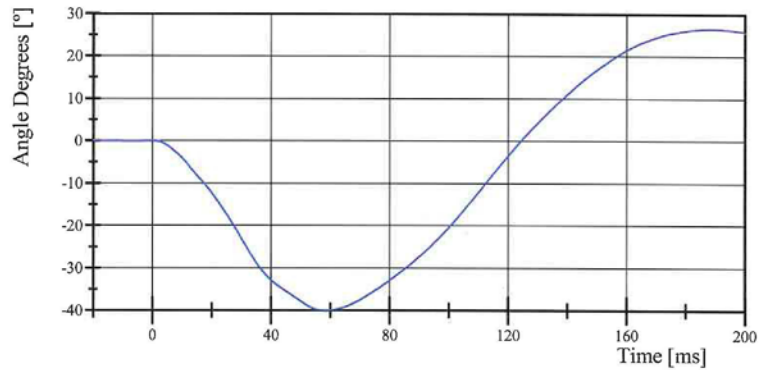
Transportation Research Center Inc.

Neck Flexion

HIII 5th Serial No. 426 Certification No. 25-3

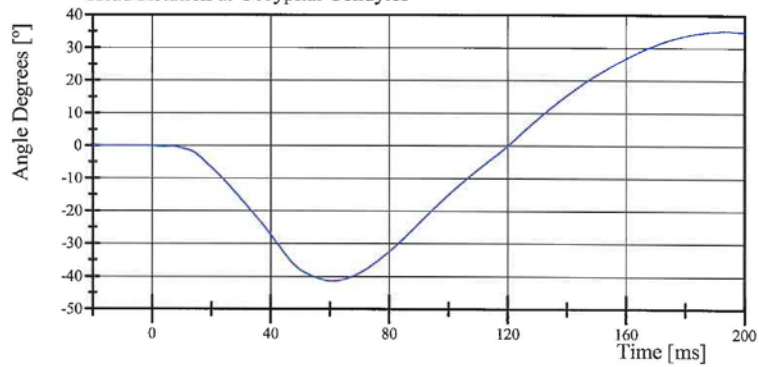
Test Date: 1/31/2014

Pot Rotation at the Base of Neck



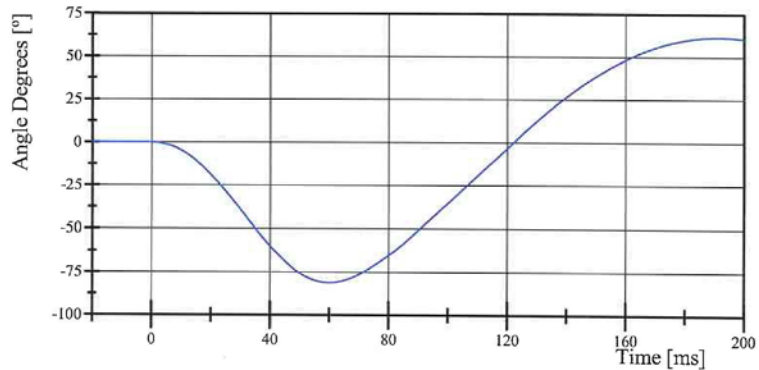
Filter Class: CFC_60
Max: 26.4 ° at 188.5 ms
Min: -39.9 ° at 58.1 ms

Head Rotation at Occypital Condyles



Filter Class: CFC_60
Max: 35.0 ° at 193.7 ms
Min: -41.4 ° at 61.0 ms

Total Head D-Plane Rotation



Filter Class: CFC_60
Max: 61.3 ° at 191.4 ms
Min: -81.3 ° at 60.2 ms

Specification Source: CFR49 Part 572 Subpart O
with Polarity in accordance with J211

01.31.2014 08:27:26 1714

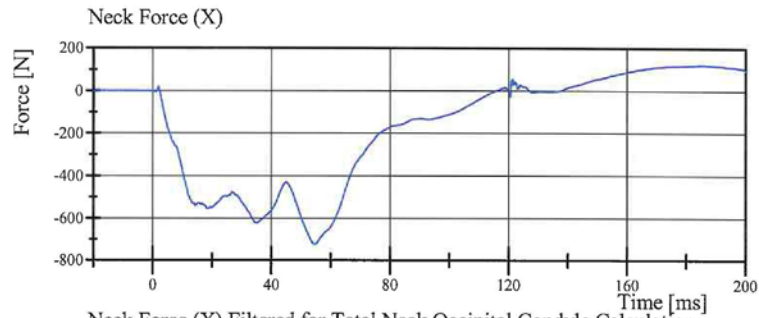


Transportation Research Center Inc.

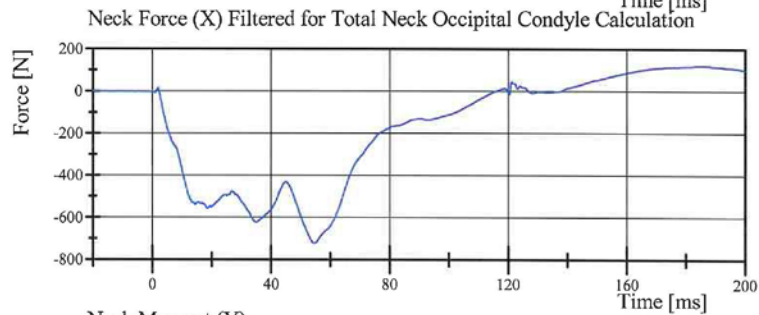
Neck Flexion

HIII 5th Serial No. 426 Certification No. 25-3

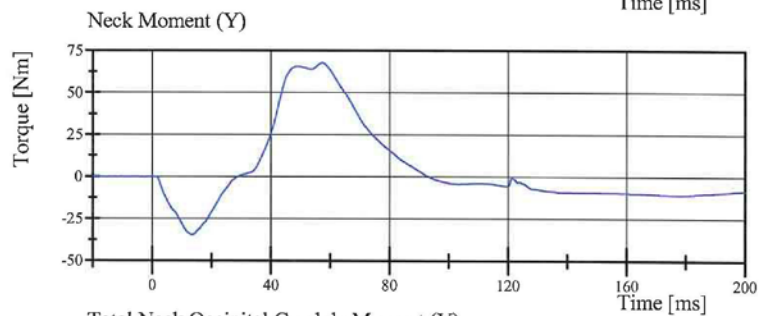
Test Date: 1/31/2014



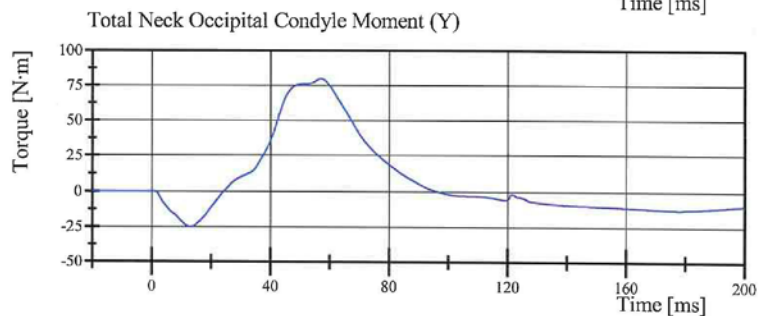
Filter Class: CFC_1000
Max: 120.6 N at 184.5 ms
Min: -722.2 N at 54.5 ms



Filter Class: CFC_600
Max: 120.5 N at 186.1 ms
Min: -722.1 N at 54.6 ms



Filter Class: CFC_600
Max: 67.8 Nm at 57.4 ms
Min: -34.5 Nm at 13.5 ms



Filter Class: Without_(Consta
Max: 79.9 N·m at 57.1 ms
Min: -25.1 N·m at 13.4 ms

Specification Source: CFR49 Part 572 Subpart O
with Polarity in accordance with J211

01.31.2014 08:27:27 1714



Transportation Research Center Inc.

Neck Extension

HIII 5th Serial No. 426 Certification No. 25-1

Test Date: 1/31/2014

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.4 °C	Yes
Relative Humidity	10 - 70 %	37 %	Yes
Pendulum Velocity	(-5.95) - (-6.19) m/s	-6.110 m/s	Yes
Pendulum Integrated Velocity Change at 10ms	1.5 - 1.9 m/s	1.80 m/s	Yes
Pendulum Integrated Velocity Change at 20ms	3.1 - 3.9 m/s	3.56 m/s	Yes
Pendulum Integrated Velocity Change at 30ms	4.6 - 5.6 m/s	5.19 m/s	Yes
Total Head D-Plane Rotation	99 - 114 °	105.2 °	Yes
Total Neck Occipital Condyles Moment Between 99° and 114° Rotation	(-53) - (-65) N·m	-58.7 N·m	Yes
Total Neck Occipital Condyles Moment Decay to -10 N·m	94 - 114 ms	103.4 ms	Yes

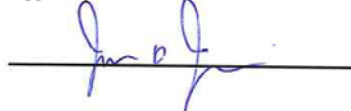
Test meets specifications.

Comments:

Technician



Approved



Specification Source: CFR49 Part 572 Subpart O
with Polarity in accordance with J211

01.31.2014 09:07:57 1828

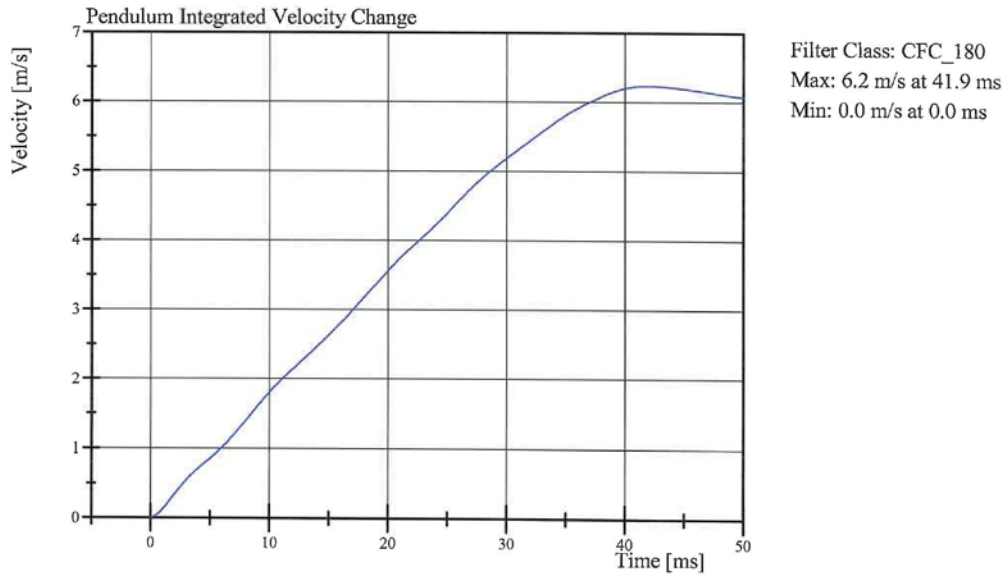
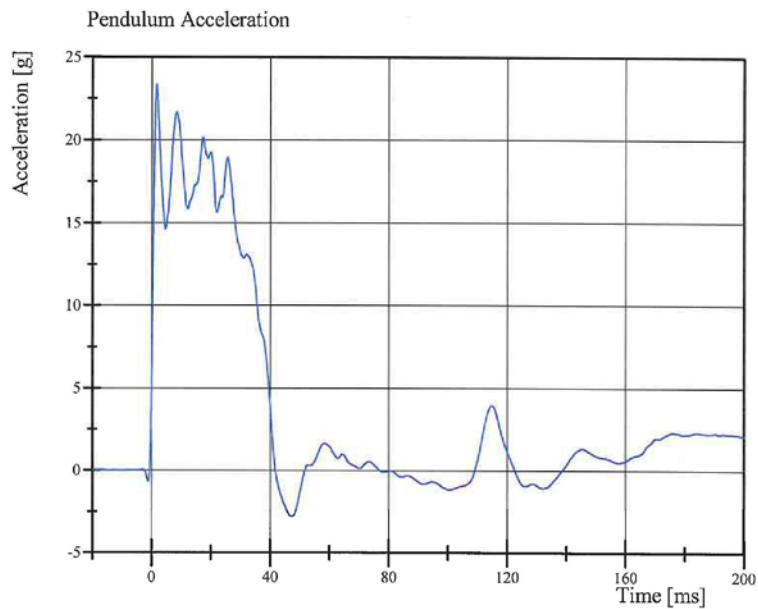


Transportation Research Center Inc.

Neck Extension

HIII 5th Serial No. 426 Certification No. 25-1

Test Date: 1/31/2014



Specification Source: CFR49 Part 572 Subpart O
with Polarity in accordance with J211

01.31.2014 09:08:07 1828



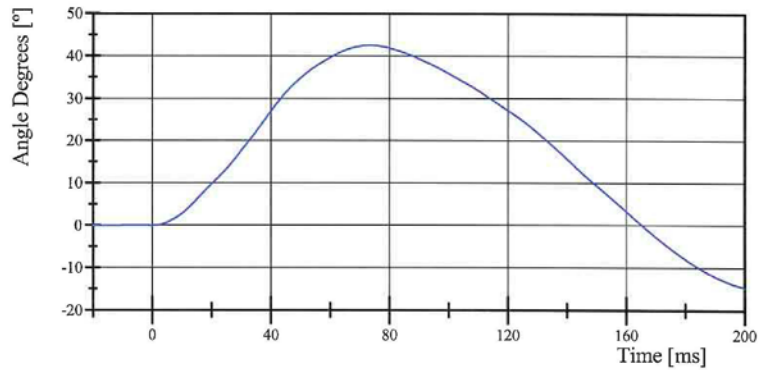
Transportation Research Center Inc.

Neck Extension

HIII 5th Serial No. 426 Certification No. 25-1

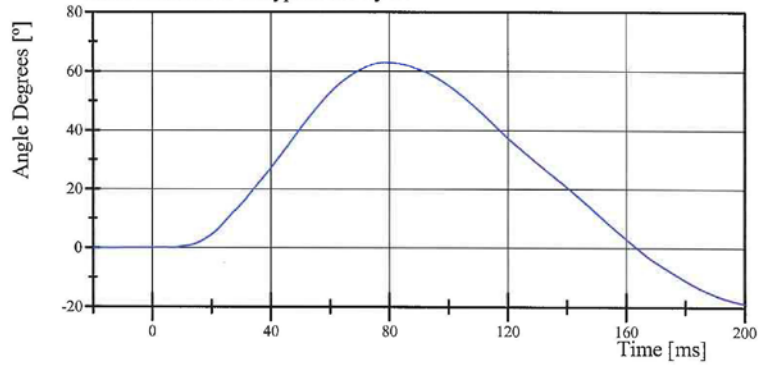
Test Date: 1/31/2014

Pot Rotation at the Base of Neck



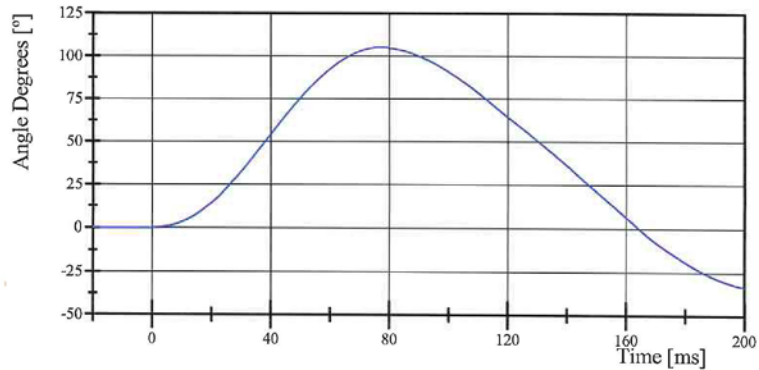
Filter Class: CFC_60
Max: 42.5 ° at 73.6 ms
Min: -14.7 ° at 200.0 ms

Head Rotation at Occypital Condyles



Filter Class: CFC_60
Max: 63.0 ° at 79.1 ms
Min: -18.9 ° at 200.0 ms

Total Head D-Plane Rotation



Filter Class: CFC_60
Max: 105.2 ° at 77.2 ms
Min: -33.6 ° at 200.0 ms

Specification Source: CFR49 Part 572 Subpart O
with Polarity in accordance with J211

01.31.2014 09:08:07 1828

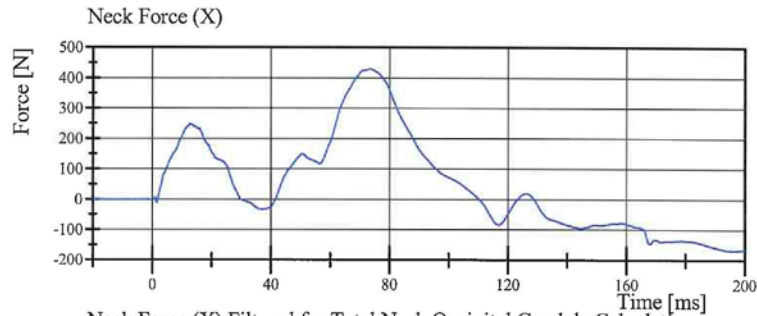


Transportation Research Center Inc.

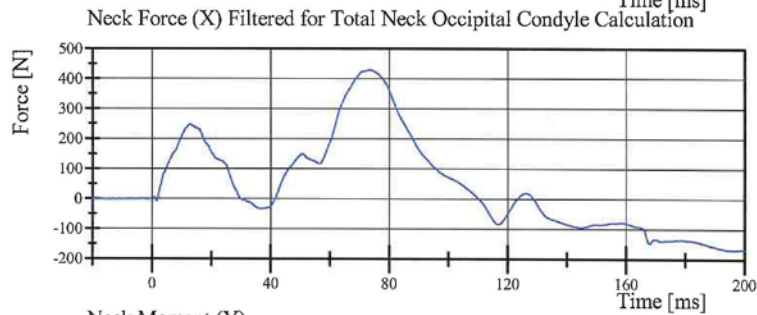
Neck Extension

HIII 5th Serial No. 426 Certification No. 25-1

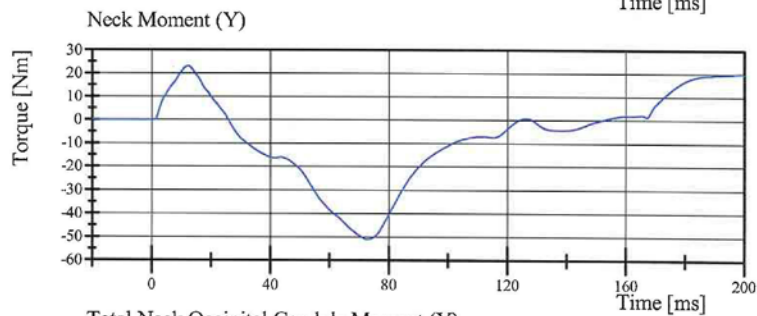
Test Date: 1/31/2014



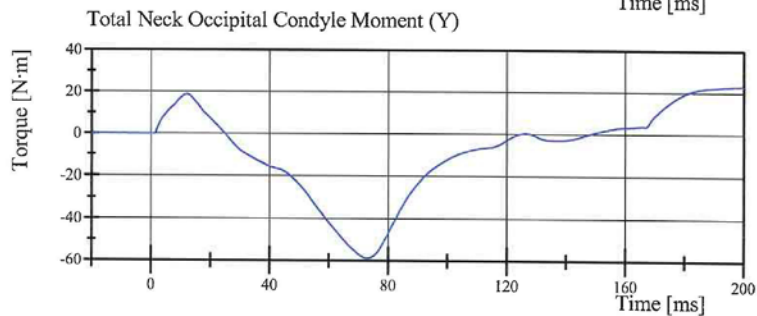
Filter Class: CFC_1000
Max: 430.4 N at 73.6 ms
Min: -170.3 N at 195.9 ms



Filter Class: CFC_600
Max: 430.0 N at 73.7 ms
Min: -169.7 N at 195.9 ms



Filter Class: CFC_600
Max: 23.1 Nm at 12.4 ms
Min: -51.1 Nm at 72.9 ms



Filter Class: Without (Consta
Max: 22.9 N·m at 200.0 ms
Min: -58.7 N·m at 73.0 ms

Specification Source: CFR49 Part 572 Subpart O
with Polarity in accordance with J211

01.31.2014 09:08:08 1828



Transportation Research Center Inc.

Front Thorax

HIII 5th Serial No. 426 Certification No. 25-1

Test Date: 1/30/2014

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.6 °C	Yes
Relative Humidity	10 - 70 %	31 %	Yes
Probe Velocity	6.59 - 6.83 m/s	6.605 m/s	Yes
Probe Force Peak Between 50.0 mm and 58.0 mm Chest Deflection	(-3,900) - (-4,400) N	-4,121.7 N	Yes
Probe Force Peak Between 18.0 mm and 50.0 mm Chest Deflection	$\geq$ (-4,600) N	-3,967.4 N	Yes
Maximum Chest Compression	(-50) - (-58) mm	-55.2 mm	Yes
Internal Hysteresis	69 - 85 %	73.7 %	Yes

Test meets specifications.

Comments:

Technician



Approved



Specification Source: CFR49 Part 572 Subpart O
with Polarity in accordance with J211

01.30.2014 16:03:11 409

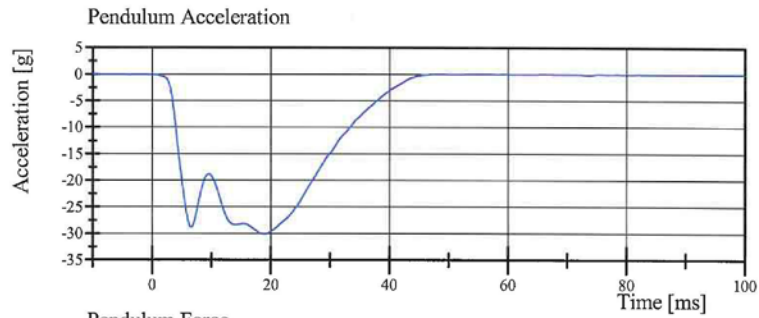


Transportation Research Center Inc.

Front Thorax

HIII 5th Serial No. 426 Certification No. 25-1

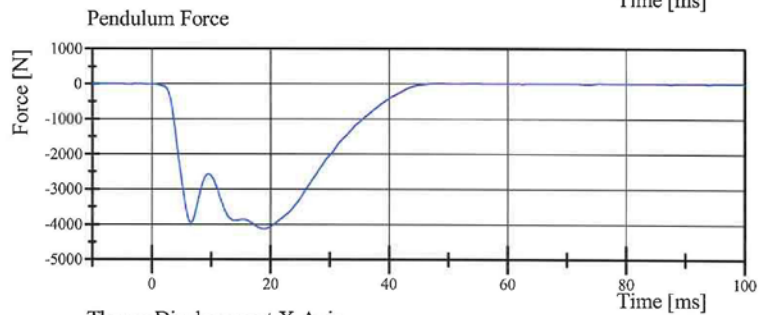
Test Date: 1/30/2014



Filter Class: CFC_180

Max: 0.1 g at 48.7 ms

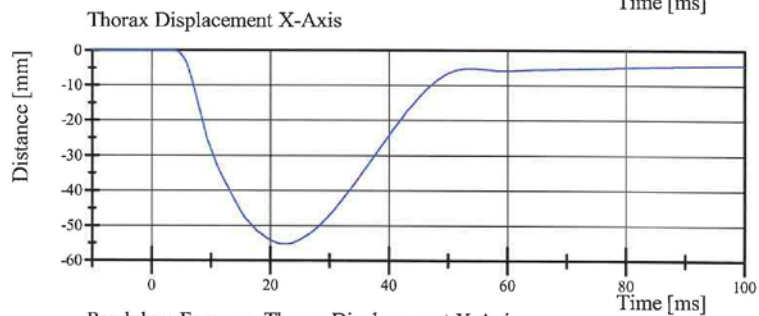
Min: -30.1 g at 18.9 ms



Filter Class: CFC_180

Max: 10.8 N at 48.7 ms

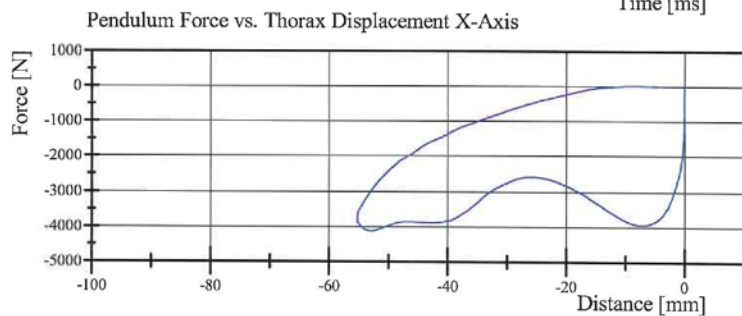
Min: -4,121.7 N at 18.9 ms



Filter Class: CFC_600

Max: 0.0 mm at -4.2 ms

Min: -55.2 mm at 22.4 ms



Filter Class: CFC_180

Max: 10.8 N at -7.8 mm

Min: -4,121.7 N at -52.8 mm

Specification Source: CFR49 Part 572 Subpart O
with Polarity in accordance with J211

01.30.2014 16:03:19 409



Transportation Research Center Inc.

Hybrid III Small Female Torso Flexion



Serial Number: 426

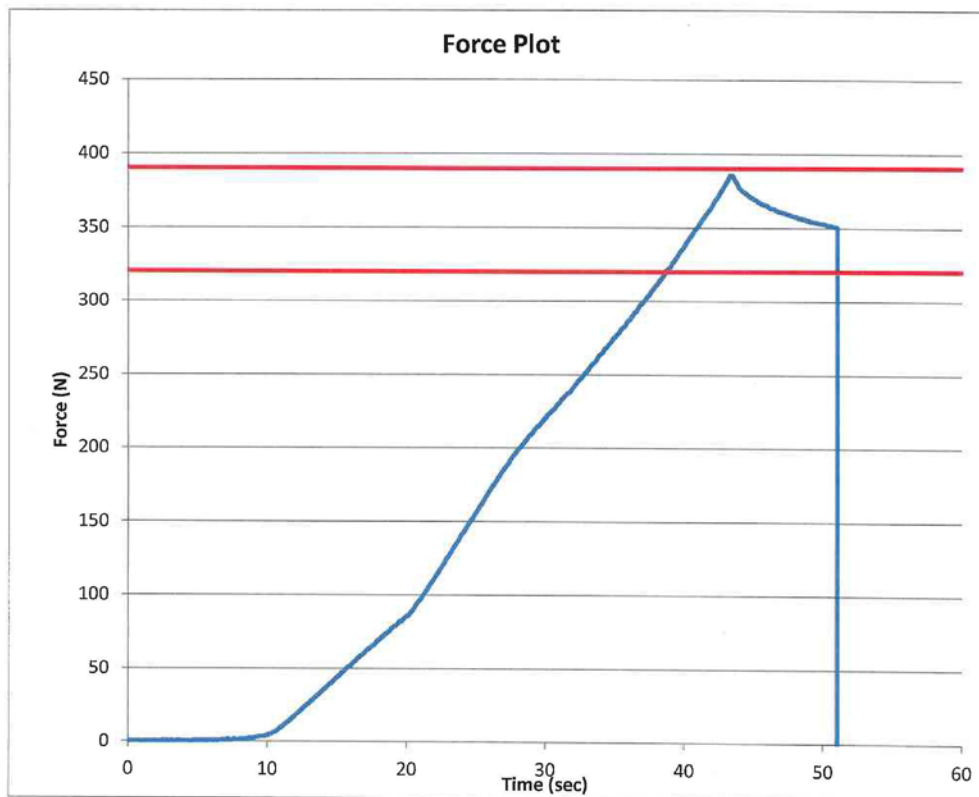
Date: 1/30/2014

Test Number: 1

Time: 11:38

Comments:

TEST PARAMETER	SPECIFICATION	TEST RESULTS
Temperature	18.9 - 25.6	21.8 °C Pass
Humidity	10 - 70	33 % Pass
Average Angular Velocity	0.5 - 1.5	0.89 deg/sec Pass
Initial Angle	0 - 20	14.48 deg Pass
Peak Force at 45.19°	320 - 390	385.44 N Pass
Final Angle	-8 - 8	6.58 deg Pass



Technician

A handwritten signature in blue ink, appearing to be "LB", written over a horizontal line.

Approved

A handwritten signature in blue ink, appearing to be "J. H.", written over a horizontal line.

Transportation Research Center Inc.

Left Knee Femur Response Test
HIII 5th Serial No. 426 Certification No. 25-1
Test Date: 1/30/2014

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.6 °C	21.8 °C	Yes
Relative Humidity	10 - 70 %	40 %	Yes
Probe Velocity	2.08 - 2.13 m/s	2.113 m/s	Yes
Peak Femur Force	(-3,450) - (-4,060) N	-3,732.5 N	Yes

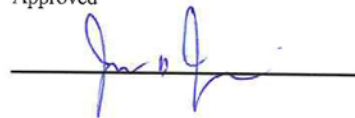
Test meets specifications.

Comments:

Technician



Approved



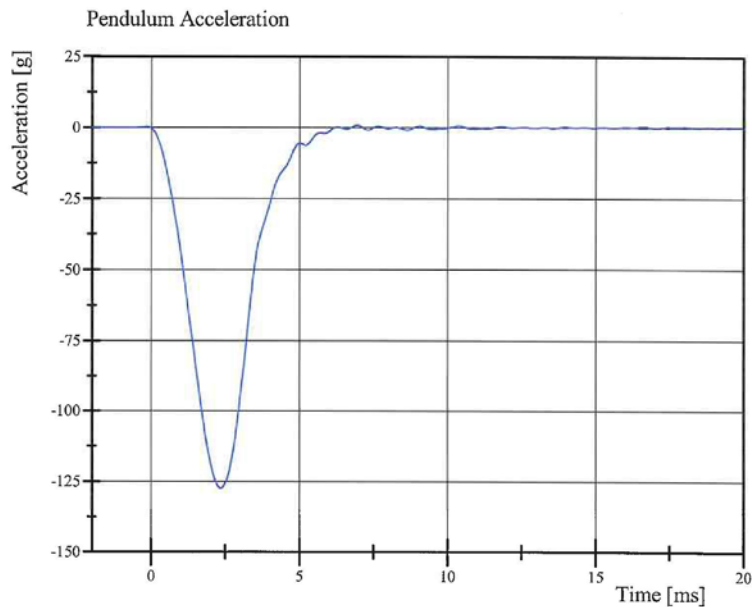
Specification Source: CFR49 Part 572 Subpart O
with Polarity in accordance with J211

01.30.2014 11:06:57 1842

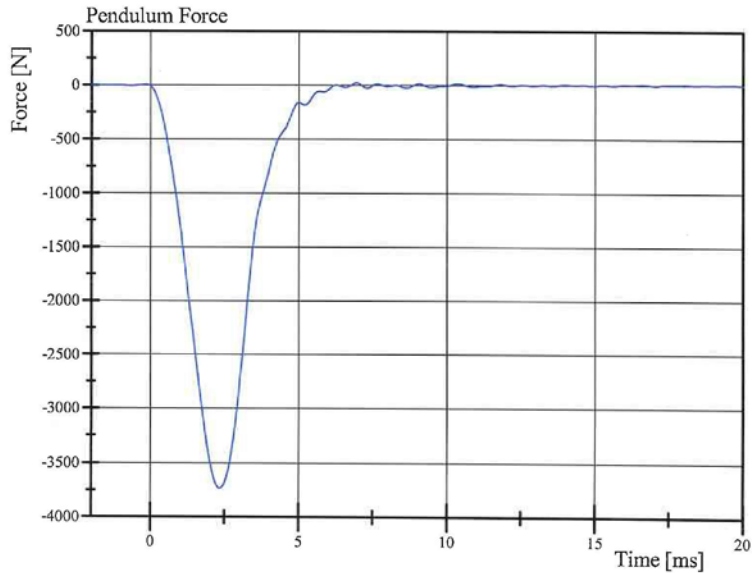


Transportation Research Center Inc.

Left Knee Femur Response Test
HIII 5th Serial No. 426 Certification No. 25-1
Test Date: 1/30/2014



Filter Class: CFC_600
Max: 0.9 g at 7.0 ms
Min: -127.3 g at 2.3 ms



Filter Class: CFC_600
Max: 25.4 N at 7.0 ms
Min: -3,732.5 N at 2.3 ms

Specification Source: CFR49 Part 572 Subpart O
with Polarity in accordance with J211

01.30.2014 11:07:05 1842



Transportation Research Center Inc.

Right Knee Femur Response Test
HIII 5th Serial No. 426 Certification No. 25-1
Test Date: 1/30/2014

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.6 °C	21.4 °C	Yes
Relative Humidity	10 - 70 %	39 %	Yes
Probe Velocity	2.08 - 2.13 m/s	2.119 m/s	Yes
Peak Femur Force	(-3,450) - (-4,060) N	-3,715.1 N	Yes

Test meets specifications.

Comments:

Technician



Approved



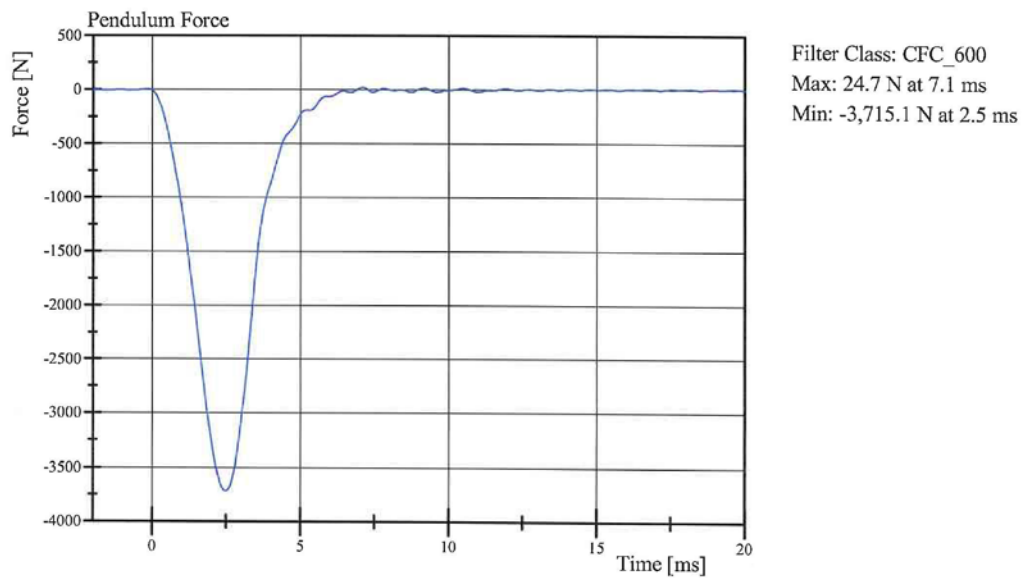
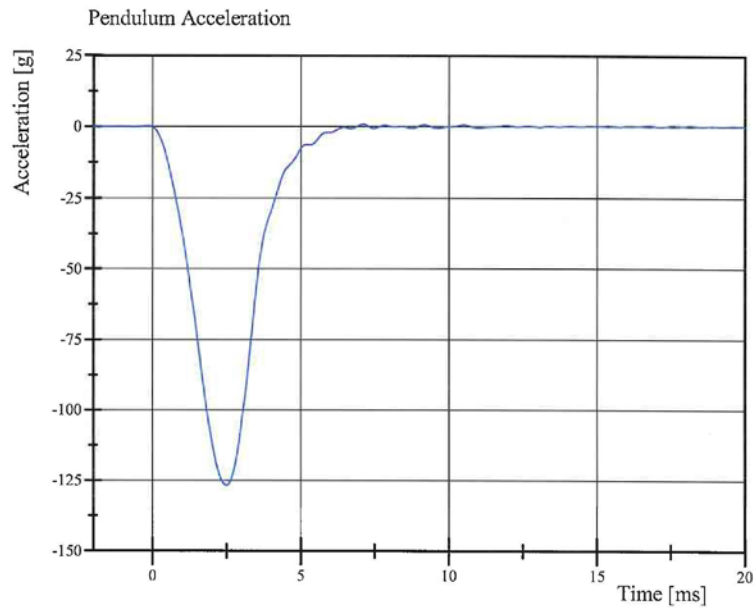
Specification Source: CFR49 Part 572 Subpart O
with Polarity in accordance with J211

01.30.2014 11:13:28 1834



Transportation Research Center Inc.

Right Knee Femur Response Test
HIII 5th Serial No. 426 Certification No. 25-1
Test Date: 1/30/2014



Specification Source: CFR49 Part 572 Subpart O
with Polarity in accordance with J211

01.30.2014 11:13:34 1834

