

Final Report Number: NCAP-TRC-17-004

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

**FCA US LLC
2017 Jeep Wrangler Unlimited 4DR MPV
NHTSA Number: M20170301**

**PREPARED BY:
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Report Date: January 3, 2016

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**

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Prepared By: ILO Project Operations Group

Approved By: John Shultz

Approval Date: January 3, 2016

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 2017 Jeep Wrangler Unlimited 4DR 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 November 21, 2016. The impact velocity was 56.81 km/h, and the ambient temperature at the barrier face at the time of impact was 21.7° C. The target vehicle post-test maximum crush was 514 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>329</td> <td>NA</td> <td>700</td> <td>384</td> </tr> <tr> <td>Maximum Chest Compression</td> <td>mm</td> <td>63</td> <td>-30.2</td> <td>mm</td> <td>52</td> <td>-26.6</td> </tr> <tr> <td>3ms Chest Clip</td> <td>Gs</td> <td>60</td> <td>45.3</td> <td>Gs</td> <td>60</td> <td>41.0</td> </tr> <tr> <td>Nij</td> <td>NA</td> <td>1</td> <td>0.28</td> <td>NA</td> <td>1</td> <td>0.71</td> </tr> <tr> <td>Neck Tension</td> <td>Newtons</td> <td>4170</td> <td>1225.7</td> <td>Newtons</td> <td>2620</td> <td>1568.7</td> </tr> <tr> <td>Neck Compression</td> <td>Newtons</td> <td>4000</td> <td>-79.5</td> <td>Newtons</td> <td>2520</td> <td>-369.6</td> </tr> <tr> <td>Left Femur Force</td> <td>Newtons</td> <td>10000</td> <td>-3036.1</td> <td>Newtons</td> <td>6800</td> <td>-1382.8</td> </tr> <tr> <td>Right Femur Force</td> <td>Newtons</td> <td>10000</td> <td>-5984.8</td> <td>Newtons</td> <td>6800</td> <td>-1545.6</td> </tr> </tbody> </table>								Driver ATD			Passenger ATD			Measurement Description	Units	Threshold	Result	Units	Threshold	Result	Head Injury Criteria (HIC ₁₅)	NA	700	329	NA	700	384	Maximum Chest Compression	mm	63	-30.2	mm	52	-26.6	3ms Chest Clip	Gs	60	45.3	Gs	60	41.0	Nij	NA	1	0.28	NA	1	0.71	Neck Tension	Newtons	4170	1225.7	Newtons	2620	1568.7	Neck Compression	Newtons	4000	-79.5	Newtons	2520	-369.6	Left Femur Force	Newtons	10000	-3036.1	Newtons	6800	-1382.8	Right Femur Force	Newtons	10000	-5984.8	Newtons	6800	-1545.6
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1: PURPOSE AND SUMMARY OF THE 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 October 2015.

SUMMARY

A 2017 Jeep Wrangler Unlimited 4DR MPV impacted the barrier wall at a velocity of 56.81 km/h. The test was performed at Transportation Research Center, Inc. on November 21, 2016. 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's and the passenger's lap belts to measure dummy 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 100 channels of data were recorded on an on-board data acquisition system. The 288 barrier channels of data were recorded on an off-board high resolution barrier data acquisition system. Appendix B contains the vehicle, load cell barrier and dummy response data traces.

There was 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 514 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 bolster. The passenger's visible contact points were as follows: front airbag, headrest and knee bolster.

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)	329	0.28	1225.7	-79.5	45.3	-30.2	-3036.1	-5984.8
Passenger (5 th Female)	384	0.71	1568.7	-369.6	41.0	-26.6	-1382.8	-1545.6

2: OCCUPANT AND VEHICLE INFORMATION / DATA SHEETS

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

Test Vehicle: 2017 Jeep Wrangler Unlimited 4DR MPV
 Test Program: NCAP Frontal Impact

NHTSA No.: M20170301
 Test Date: 11/21/16

TEST VEHICLE INFORMATION

NHTSA No.	M20170301
Model Year	2017
Make	Jeep
Model	Wrangler Unlimited Sport 4X4
Body Style	4-Door Soft Top
VIN	1C4BJWDG0HL503280
Body Color	Rhino Clearcoat
Odometer Reading (mi)	76
Engine Displacement (L)	3.6
Type/No. Cylinders	V/6
Engine Placement	Front Longitudinal
Transmission Type	Automatic
Transmission Speeds	5 Speed
Overdrive	Yes
Final Drive	4 Wheel Drive
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)	No

TEST VEHICLE OPTIONS

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

No

DATA FROM CERTIFICATION LABEL

Manufactured by	FCA US LLC	GVWR (kg)	2450 (5400 lbs)
Date of Manufacture	9/16	GAWR Front (kg)	1259 (2775 lbs)
		GAWR Rear (kg)	1452 (3200 lbs)

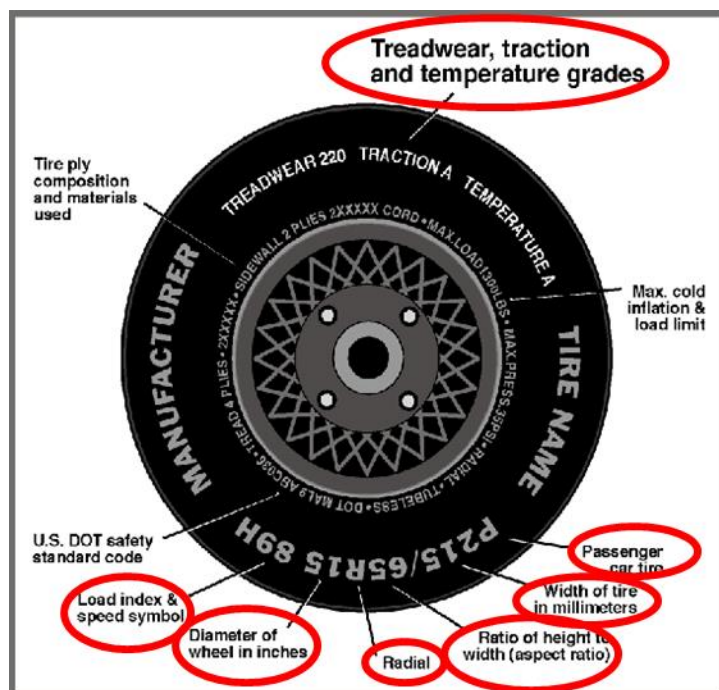
VEHICLE SEATING AND WEIGHT CAPACITY

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)				385
Cargo Wt. (RCLW) (kg)				44.8

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

Test Vehicle: 2017 Jeep Wrangler Unlimited 4DR MPV
 Test Program: NCAP Frontal Impact

NHTSA No.: M20170301
 Test Date: 11/21/16



DATA FROM TIRE PLACARD

Measured Parameter	Front	Rear
Maximum Tire Pressure (kPa)	240	240
Cold / Test Pressure (kPa)	300	300
Recommended Tire Size	P225/75R116	P225/75R116
Tire Size on Vehicle	P225/75R116	P225/75R116
Tire Manufacturer	Goodyear	Goodyear
Tire Model	Wrangler ST	Wrangler ST
Treadwear	340	340
Traction Grade	B	B
Temperature Grade	B	B
Tire Plies Sidewall	2	2
Tire Plies Body	4	4
Load Index/Speed Symbol	104S	104S
Tire Material	Polyester/ steel	Polyester/ Steel
DOT Safety Code Right	M671 EYER 3616	M671 EYER 3616
DOT Safety Code Left	M671 EYER 3616	M671 EYER 3615

DATA SHEET NO. 1 (CONTINUED)**GENERAL TEST AND VEHICLE PARAMETER DATA**Test Vehicle: 2017 Jeep Wrangler Unlimited 4DR MPVNHTSA No.: M20170301Test Program: NCAP Frontal ImpactTest Date: 11/21/16**TEST VEHICLE WEIGHTS**

	Units	As Delivered (UVW) (Axle)			As Tested (ATW) (Axle)		
		Front	Rear	Total	Front	Rear	Total
Left	kg	501.6	448.8		528	504.8	
Right	kg	510.0	454.0		535.4	523.2	
Ratio	%	52.8	47.2		50.9	49.1	
Totals	kg	1011.6	902.8	1914.4	1063.4	1028.0	2091.4

TARGET TEST WEIGHT CALCULATION

Measured Parameter	Units	Value
Total Delivered Weight (UVW)	kg	1914.4
Weight of 1 P572E ATD & 1 P572O ATD	kg	139.3
Rated Cargo/Luggage Weight (RCLW)	kg	44.8
Vehicle Target Weight (TVTW)	kg	2098.5

TEST VEHICLE ATTITUDES AND CG

	Units	LF	RF	LR	RR	CG (aft of front)
As Delivered	mm	888	878	908	903	1386
As Tested	mm	874	864	887	876	1445
Post Test	mm	N/A ¹	724	908	862	

GENERAL TEST VEHICLE DATA

Measurement Description	Units	Value
Test Vehicle Wheel Base	mm	2940
Total Vehicle Length at Left Side	mm	4473
Total Vehicle Length at Centerline	mm	4615
Total Vehicle Length at Right Side	mm	4474
Weight of Ballast in Cargo Area	kg	0.0
Weight of Vehicle Components Removed	kg	57.6
Amount of Stoddard Solvent in Fuel Tank	liters	79.5

LIST OF COMPONENTS REMOVED TO MEET TEST WEIGHT: Left and right OSRV mirrors, rear door panels, regulators and windows, rear speakers, spare tire mounting bracket and rear bumper.

¹ Measurement fall off during impact

DATA SHEET NO. 1 (CONTINUED)**GENERAL TEST AND VEHICLE PARAMETER DATA**Test Vehicle: 2017 Jeep Wrangler Unlimited 4DR MPVNHTSA No.: M20170301Test Program: NCAP Frontal ImpactTest Date: 11/21/16**TARGET VEHICLE STRUCTURAL MEASUREMENT**

	Elements	Pre-Test (mm)
1	Total Length	4615
2	Total Width	1880
3	Bumper Top Height	665
4	Bumper Bottom Height	450
5	Longitudinal Member Top Height	621
6	Distance Between Longitudinal Members	712
7	Longitudinal Member Width	60
8	Engine Top Height	1145
9	Engine Bottom Height	313
10	Engine and Gearbox Width	600
11	Front Bumper-Engine Distance	680
12	Front Shock Absorber Fixing Height	824
13	Bonnet Leading Edge Height	1072
14	Front Shock Absorber Fixing Width	915
15	Front Bumper – Front Axle Distance	750
16	Front Axle – A-Pillar Distance	892
17	A-Pillar – B-Pillar Distance	955
18	B-Pillar – Rear Axle Distance	1090
19	B-Pillar – C-Pillar Distance	745
20	Roof Sill Bottom Height	1668
21	Roof Sill Top Height	1703
22	Floor Sill Bottom Height	540
23	Floor Sill Top Height	586

DATA SHEET NO. 2

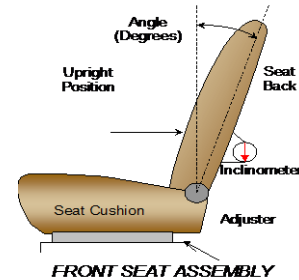
SEAT ADJUSTMENT, FUEL SYSTEM AND STEERING WHEEL DATA

Test Vehicle: 2017 Jeep Wrangler Unlimited 4DR MPV
 Test Program: NCAP Frontal Impact

NHTSA No.: M20170301
 Test Date: 11/21/16

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:	18.2
Passenger Seat back angle:	13.0

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	250mm; 24 notches	11 th ; FF is 0
Passenger Seat	230mm; 24 notches	0

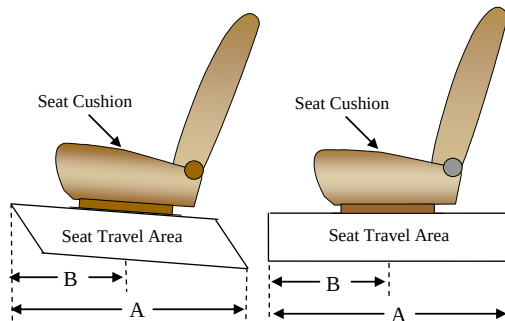
SEAT BELT UPPER ANCHORAGE

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	5, numbered from 0 to 4	4, Uppermost
Passenger Seat	5, numbered from 0 to 4	4, Uppermost



DATA SHEET NO. 2 (CONTINUED)

SEAT ADJUSTMENT, FUEL SYSTEM AND STEERING WHEEL DATA

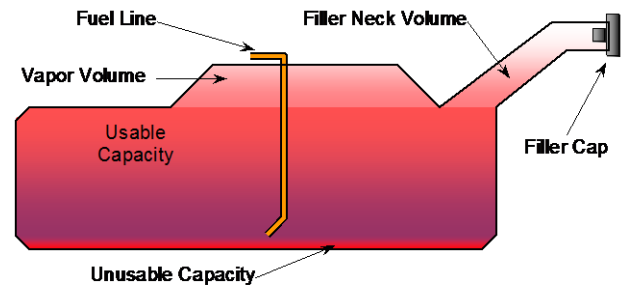
Test Vehicle: 2017 Jeep Wrangler Unlimited 4DR MPV
Test Program: NCAP Frontal Impact

NHTSA No.: M20170301
Test Date: 11/21/16

FUEL TANK CAPACITY

	Liters
Usable Capacity of "Standard Tank"	85.2
Usable Capacity of "Optional Tank"	N/A
92%-94% of Usable Capacity	80.1
Actual Amount of Solvent Used	79.5
1/3 of Usable Capacity	28.4

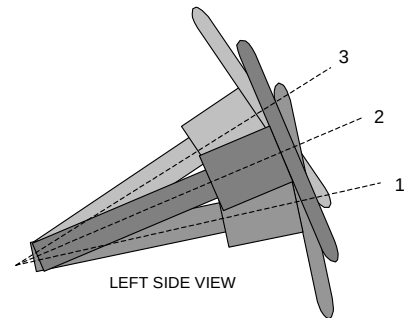
The fuel pump will pump fuel when the ignition is keyed on for approximately 2-3 seconds to prime the system and then shut off. Once the vehicle is started the pump runs continuously until the vehicle is shut off. The engine controller has the ability to sense if the vehicle is in an impact condition and the engine controller will automatically shut-off the fuel pump if such an event has occurred.



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

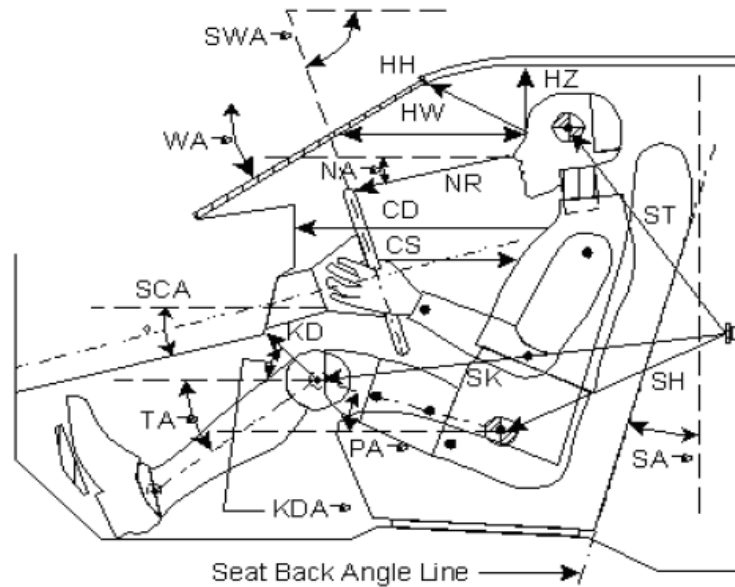
	Degrees	Fore/Aft Position (mm)
Lowermost Position No. 1	19.0	
Geometric Center Position No. 2	22.3	
Uppermost Position No. 3	25.6	
Telescoping Steering Wheel Travel	Fixed	
Test Position	22.3	

DATA SHEET NO. 3

DUMMY LONGITUDINAL CLEARANCE DIMENSIONS

Test Vehicle: 2017 Jeep Wrangler Unlimited 4DR MPV
 Test Program: NCAP Frontal Impact

NHTSA No.: M20170301
 Test Date: 11/21/16



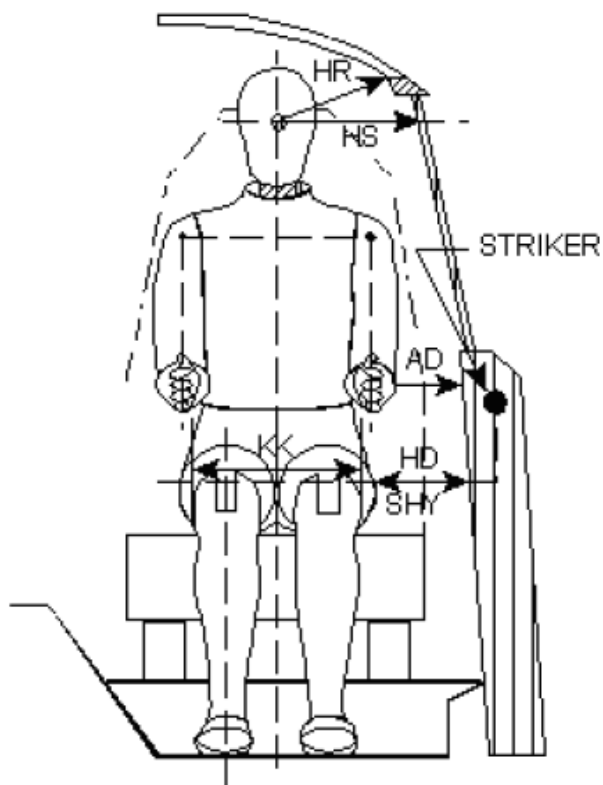
Code	Measurement Description	Driver		Passenger	
		Length (mm)	Angle (°)	Length (mm)	Angle (°)
WA°	Windshield Angle		61.1		
SWA°	Steering Wheel Angle		68.5		
SCA°	Steering Column Angle		21.5		
SA°	Seat Back Angle (on headrest post)		18.2		13.0
HZ	Head to Roof (Z)	281		326	
HH	Head to Header	561		479	
HW	Head to Windshield	625		547	
NR	Nose to Rim	378	12.9		
CD	Chest to Dash	490		318	
CS	Chest to Steering Hub	273			
RA	Rim to Abdomen	183			
KDL	Left Knee to Dash	142	23.2	77	27
KDR	Right Knee to Dash	142	23.2	75	27
PA°	Pelvic Angle		24.6		20.8
TA°	Tibia Angle		49.7		65.5
SK	Striker to Knee	610	1.8	675	2.0
ST	Striker to Head	593	-82.5	580	-69.3
SH	Striker to H-Point	223	18.2	349	5.2

DATA SHEET NO. 4

DUMMY LATERAL CLEARANCE DIMENSIONS

Test Vehicle: 2017 Jeep Wrangler Unlimited 4DR MPV
 Test Program: NCAP Frontal Impact

NHTSA No.: M20170301
 Test Date: 11/21/16



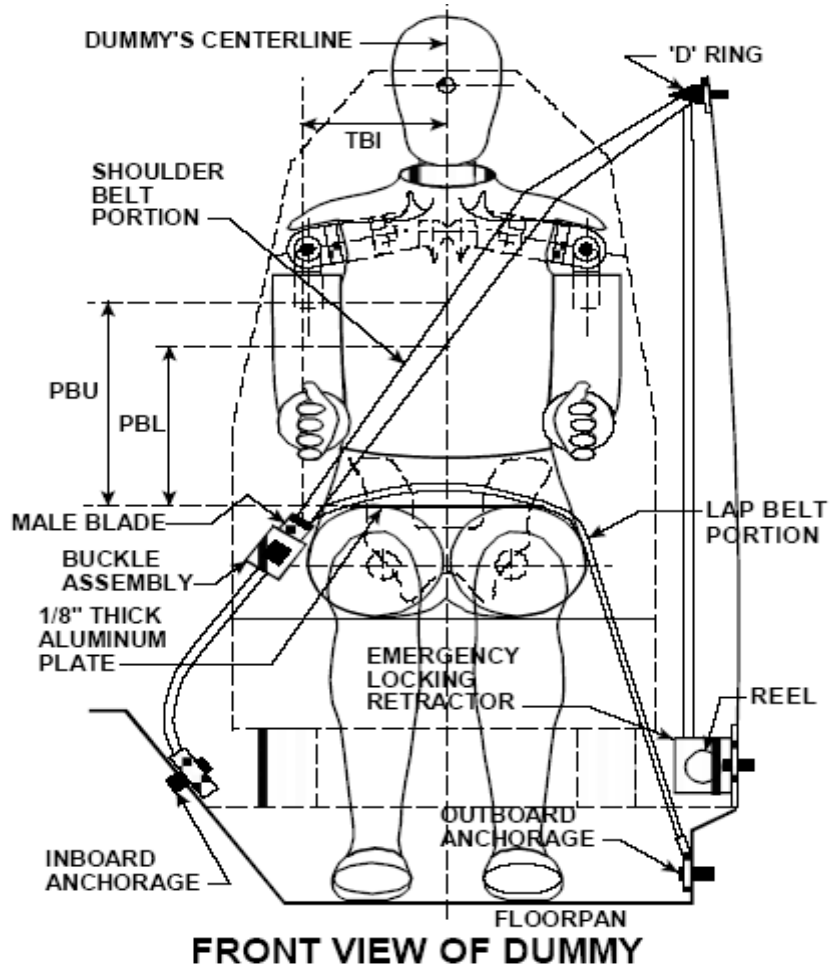
Code	Measurement Description	Driver	Passenger
AD	Arm to Door	23	53
HD	H-Point to Door	126	141
HR	Head to Side Header	232	278
HS	Head to Side Window	344	355
KK	Knee to Knee	306	165
SHY	Striker to H-Point (Y Direction)	175	178
AA	Ankle to Ankle	234	160

DATA SHEET NO. 5

SEAT BELT POSITIONING DATA

Test Vehicle: 2017 Jeep Wrangler Unlimited 4DR MPV
 Test Program: NCAP Frontal Impact

NHTSA No.: M20170301
 Test Date: 11/21/16



SEAT BELT POSITIONING MEASUREMENTS

Measurement Description	Units	Driver	Passenger
PBU – Top surface of reference to belt upper edge	mm	230	277
PBL – Top surface of reference to belt lower edge	mm	280	190

BELT LENGTH DATA

Measurement Description	Units	Driver	Passenger
Shoulder belt length as measured on ATD	mm	805	836
Lap belt length as measured on ATD	mm	601	502
Remainder of belt on reel	mm	1319	1352
Total belt length for continuous webbing systems	mm	2725	2690

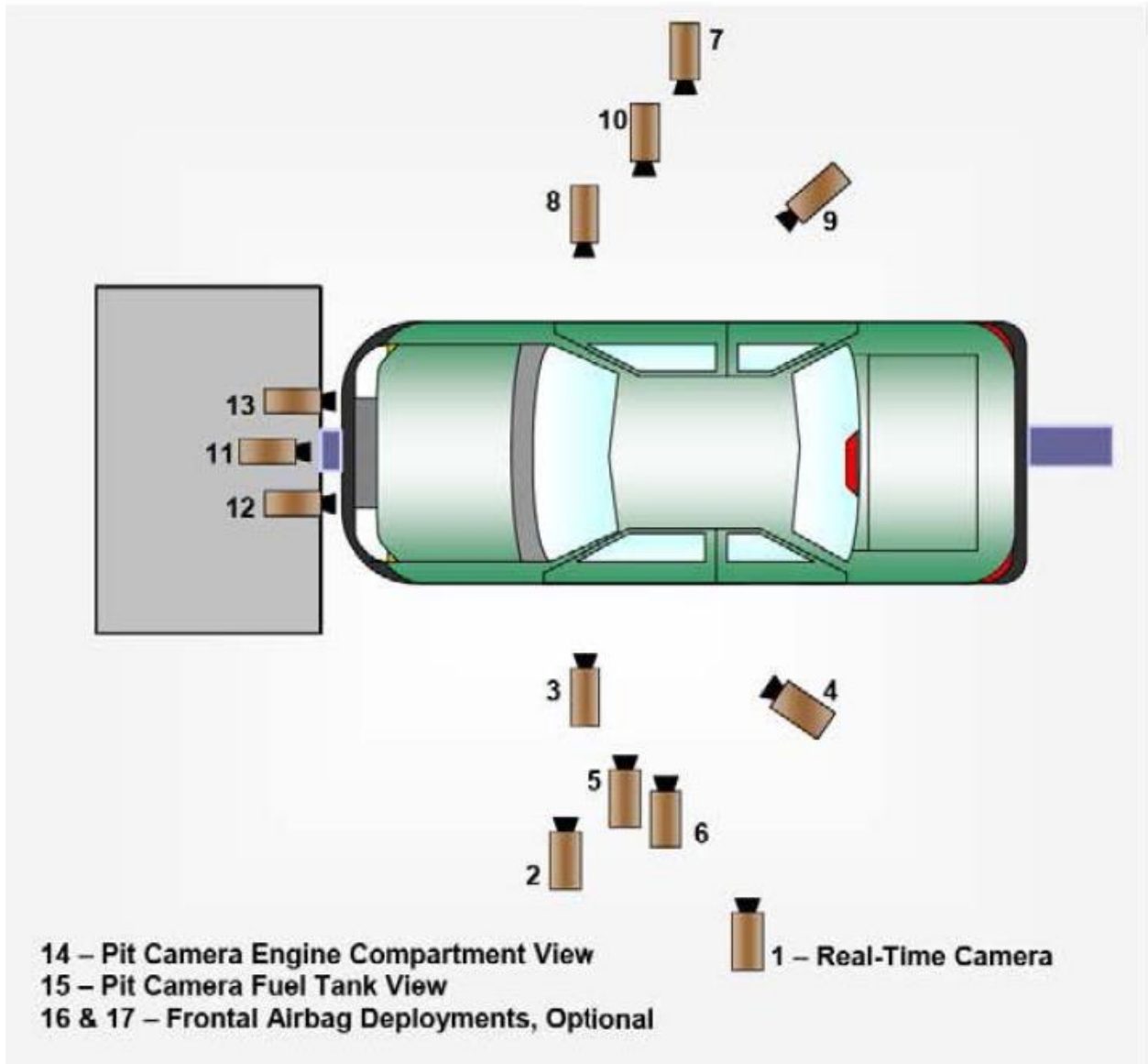
DATA SHEET NO. 6

HIGH SPEED CAMERA LOCATIONS AND DATA

Test Vehicle: 2017 Jeep Wrangler Unlimited 4DR MPV
Test Program: NCAP Frontal Impact

NHTSA No.: M20170301
Test Date: 11/21/16

CAMERA POSITIONS FOR FRONTAL IMPACTS



DATA SHEET NO. 6 (CONTINUED)**HIGH SPEED CAMERA LOCATIONS AND DATA**Test Vehicle: 2017 Jeep Wrangler Unlimited 4DR MPVNHTSA No.: M20170301Test Program: NCAP Frontal ImpactTest Date: 11/21/16**CAMERA LOCATIONS**

No.	Camera View	Location (mm)			Lens (mm)	Frame Speed (fps)
		X	Y	Z		
1	Real-Time Left Overall	620	-5074	1240	Zoom	30
2	Driver Close-Up	1686	-5135	1380	50	1000
3	Left Front Half	1209	-4804	1360	25	1000
4	Left Angle	3987	-2151	2050	35	1000
5	Steering Column - Top	2139	-5254	2420	50	1000
6	Steering Column – Bottom	1825	-4934	1390	50	1000
7	Right Overall	1977	5745	1210	20	1000
8	Passenger Close-Up	1724	5793	1320	50	1000
9	Right Front Half	4184	2407	2030	35	1000
10	Right Angle	1295	5014	1230	28	1000
11	Windshield	0	0	2680	20	1000
12	Driver Windshield	0	-310	2680	25	1000
13	Passenger Windshield	0	470	2680	25	1000
14	Pit Front	1240	0	3077	25	1000
15	Pit Rear	3043	0	3228	12.5	1000
16	Onboard Driver Airbag (Optional)				12.5	1000
17	Onboard Passenger Airbag (Optional)				12.5	1000

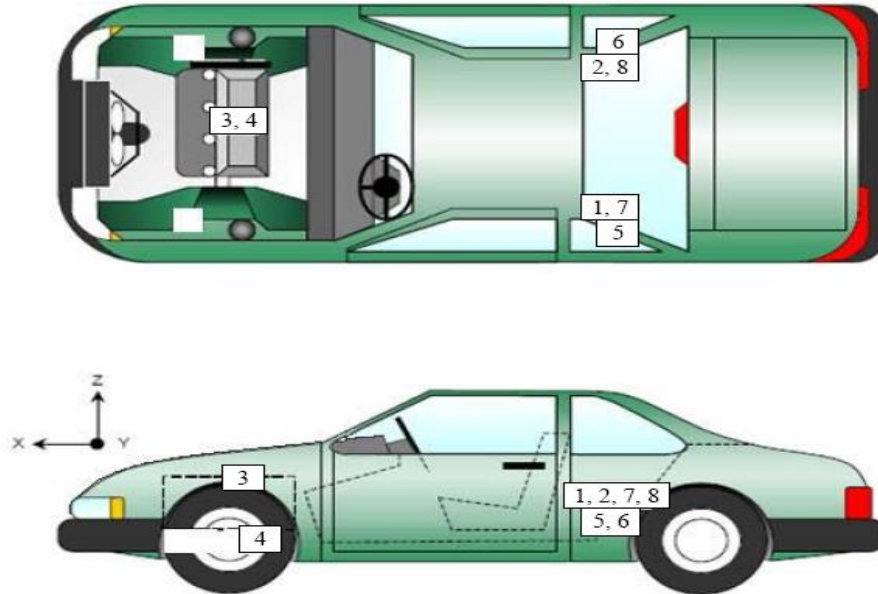
Reference Points: +X – forward of impact plane
+Y – right of monorail center
+Z – into ground

DATA SHEET NO. 7

VEHICLE ACCELEROMETER DATA

Test Vehicle: 2017 Jeep Wrangler Unlimited 4DR MPV
Test Program: NCAP Frontal Impact

NHTSA No.: M20170301
Test Date: 11/21/16



VEHICLE ACCELEROMETER PRE-TEST LOCATIONS

No.	Accelerometer Location	Location (mm)		
		X	Y	Z
1	Left Rear Accelerometer – X Direction	1585	-575	565
2	Right Rear Accelerometer – X Direction	1585	580	567
3	Engine Top X	3524	-147	1105
4	Engine Bottom X	3372	33	350
5	Left Rear Accelerometer – Z Direction	1585	-575	565
6	Right Rear Accelerometer – Z Direction	1585	580	567
7	Left Rear Accelerometer – X Direction Redundant	1585	-550	565
8	Right Rear Accelerometer- X Direction Redundant	1585	555	567

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

DATA SHEET NO. 8

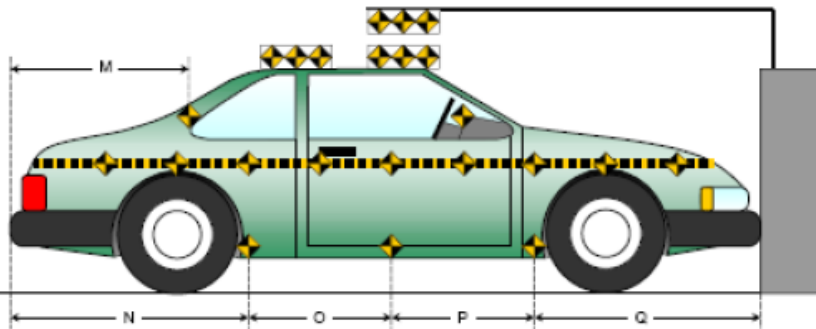
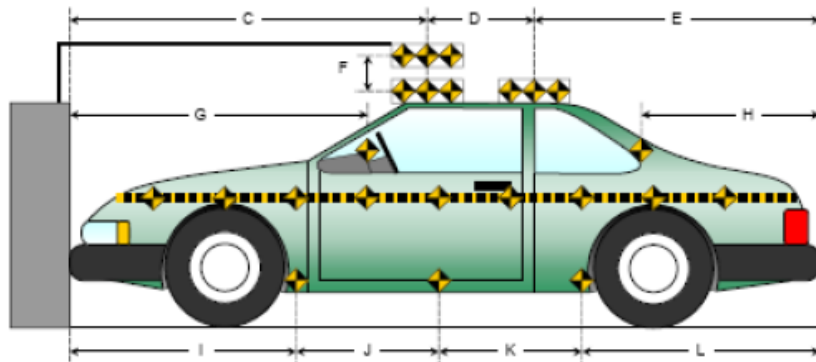
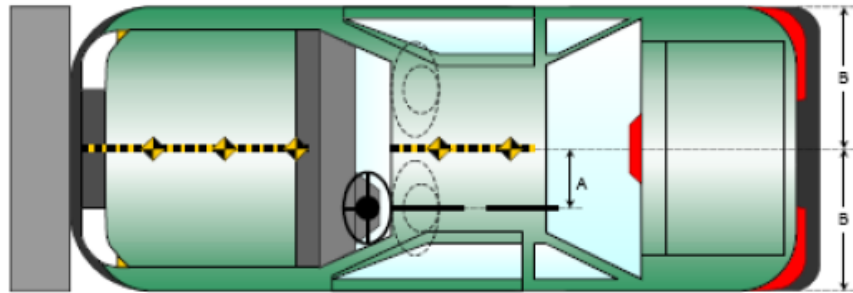
PHOTOGRAPHIC REFERENCE TARGET LOCATIONS

Test Vehicle: 2017 Jeep Wrangler Unlimited 4DR MPV
 Test Program: NCAP Frontal Impact

NHTSA No.: M20170301
 Test Date: 11/21/16

Item	Value
A	N/A
B	940
C	N/A
D	N/A
E	N/A
F	N/A
G	1731
H	1274
I	1410
J	731
K	803
L	1650
M	1278
N	1654
O	802
P	738
Q	1399

All units in millimeters



DATA SHEET NO. 9

LOAD CELL LOCATIONS ON FIXED BARRIER

Test Vehicle: 2017 Jeep Wrangler Unlimited 4DR MPV
 Test Program: NCAP Frontal Impact

NHTSA No.: M20170301
 Test Date: 11/21/16

								Centerline							
A-16	A-15	A-14	A-13	A-12	A-11	A-10	A-09	A-08	A-07	A-06	A-05	A-04	A-03	A-02	A-01
B-16	B-15	B-14	B-13	B-12	B-11	B-10	B-09	B-08	B-07	B-06	B-05	B-04	B-03	B-02	B-01
C-16	C-15	C-14	C-13	C-12	C-11	C-10	C-09	C-08	C-07	C-06	C-05	C-04	C-03	C-02	C-01
D-16	D-15	D-14	D-13	D-12	D-11	D-10	D-09	D-08	D-07	D-06	D-05	D-04	D-03	D-02	D-01
E-16	E-15	E-14	E-13	E-12	E-11	E-10	E-09	E-08	E-07	E-06	E-05	E-04	E-03	E-02	E-01
F-16	F-15	F-14	F-13	F-12	F-11	F-10	F-09	F-08	F-07	F-06	F-05	F-04	F-03	F-02	F-01
G-16	G-15	G-14	G-13	G-12	G-11	G-10	G-09	G-08	G-07	G-06	G-05	G-04	G-03	G-02	G-01
H-16	H-15	H-14	H-13	H-12	H-11	H-10	H-09	H-08	H-07	H-06	H-05	H-04	H-03	H-02	H-01
I-16	I-15	I-14	I-13	I-12	I-11	I-10	I-09	I-08	I-07	I-06	I-05	I-04	I-03	I-02	I-01
J-16	J-15	J-14	J-13	J-12	J-11	J-10	J-09	J-08	J-07	J-06	J-05	J-04	J-03	J-02	J-01
K-16	K-15	K-14	K-13	K-12	K-11	K-10	K-09	K-08	K-07	K-06	K-05	K-04	K-03	K-02	K-01

DATA SHEET NO. 10

TEST VEHICLE SUMMARY OF RESULTS

Test Vehicle: 2017 Jeep Wrangler Unlimited 4DR MPV

NHTSA No.: M20170301

Test Program: NCAP Frontal Impact

Test Date: 11/21/16

INSTRUMENTATION

Instrumentation	Number of Channels Collected
Driver Dummy Accelerometers	44
Passenger Dummy Accelerometers	44
Vehicle Structure Accelerometers	8
Total	96

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: 2017 Jeep Wrangler Unlimited 4DR MPV

NHTSA No.: M20170301

Test Program: NCAP Frontal Impact

Test Date: 11/21/16

TEST DUMMY INFORMATION AND CONTACT LOCATIONS

Description	Driver	Passenger
Dummy Type / Serial No.	Hybrid III 50th/ 037	Hybrid III 5th/ 426
Head Contact	Frontal Airbag, Head Restraint	Frontal Airbag, Head Restraint
Upper Torso Contact	None	None
Lower Torso Contact	None	None
Left Knee Contact	Knee Bolster	Knee Bolster
Right Knee Contact	Knee Bolster	Knee Bolster

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)	0	0
Seat Back Failure	None	None

POST-TEST STRUCTURAL OBSERVATIONS

Critical Areas of Performance	Observations and Conclusions
Windshield Damage	Cracking from corners no separation
Window Damage	None
Other Notable Effects	None

VEHICLE REBOUND FROM BARRIER

Measured Parameter	Units	Value
Left Side	mm	1110
Center	mm	1152
Right Side	mm	1090
Average	mm	1117

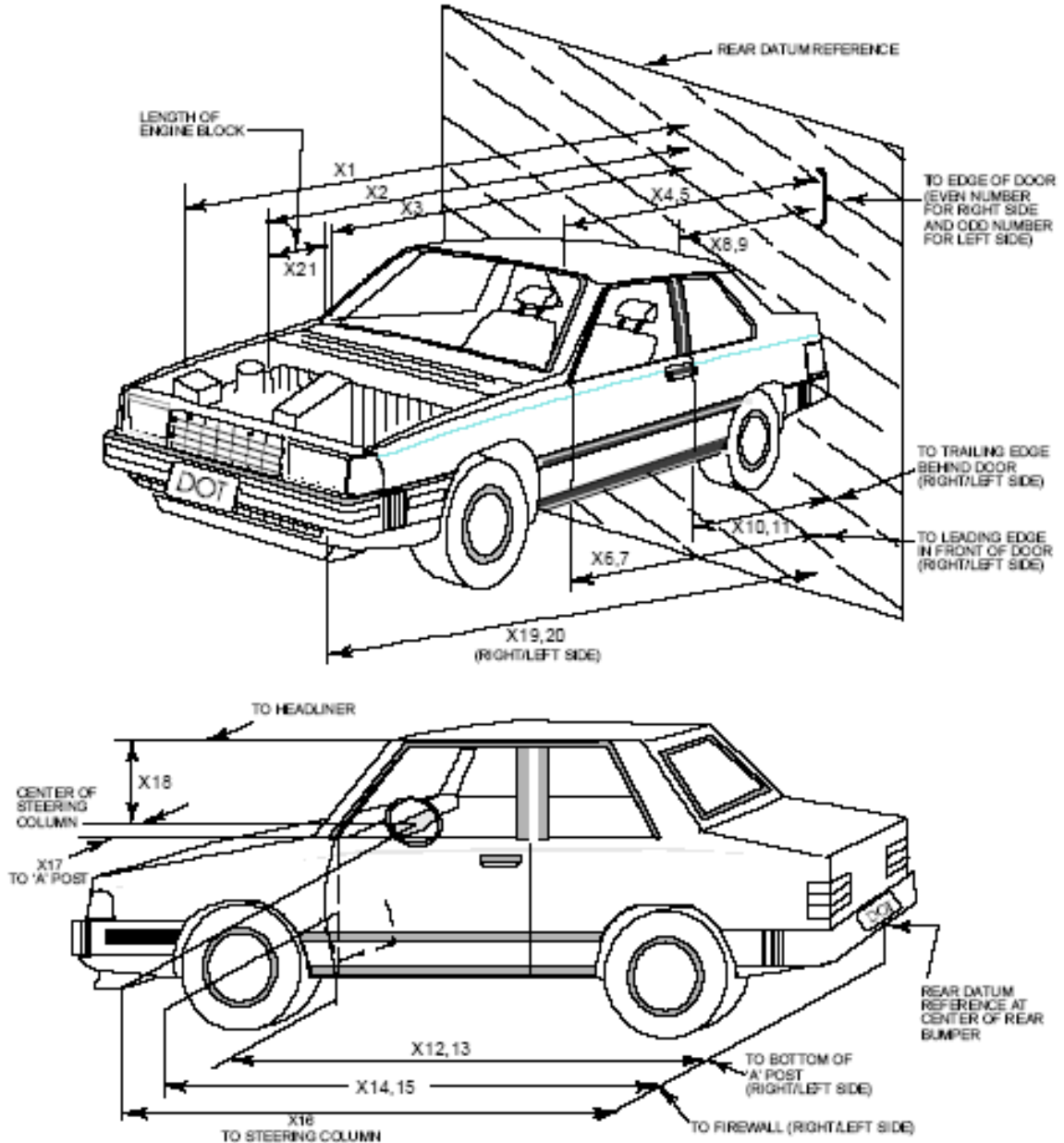
SUPPLEMENTAL RESTRAINT SYSTEM INFORMATION

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

DATA SHEET NO. 12

VEHICLE PROFILE MEASUREMENTS

Test Vehicle: 2017 Jeep Wrangler Unlimited 4DR MPV NHTSA No.: M20170301
Test Program: NCAP Frontal Impact Test Date: 11/21/16



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

Test Vehicle: 2017 Jeep Wrangler Unlimited 4DR MPV
Test Program: NCAP Frontal Impact

NHTSA No.: M20170301
Test Date: 11/21/16

No.	Measurement Description	Pre-Test	Post-Test	Difference
1	Total Length of Vehicle at Centerline	4615	4127	488
2	Rear Surface of Vehicle (RSOV) to Front of Engine	4040	3821	219
3	RSOV to Firewall	3460	--- ¹	--- ¹
4	RSOV to Upper Leading Edge of Right Door	2939	2916	23
5	RSOV to Upper Leading Edge of Left Door	2935	2913	22
6	RSOV to Lower Leading Edge of Right Door	2937	2878	59
7	RSOV to Lower Leading Edge of Left Door	2920	2873	47
8	RSOV to Upper Trailing Edge of Right Door	2066	2043	23
9	RSOV to Upper Trailing Edge of Left Door	2061	2042	19
10	RSOV to Lower Trailing Edge of Right Door	2205	2134	71
11	RSOV to Lower Trailing Edge of Left Door	2190	2128	62
12	RSOV to Bottom of "A" Post-of Right Side	2970	2944	26
13	RSOV to Bottom of "A" Post-of Left Side	2970	2939	31
14	RSOV to Firewall, Right Side	3323	3353	-30
15	RSOV to Firewall, Left Side	3319	3331	-12
16	RSOV to Steering Column	2583	2579	4
17	Center of Steering Column to "A" Post	340	360	-20
18	Center of Steering Column to Headliner	492	580	-88
19	RSOV to Right Side of Front Bumper	4494	4043	451
20	RSOV to Left Side of Front Bumper	4473	4076	397
21	Length of Engine Block	450	387	63
RD	RSOV to Right Side of Dash Panel	2765	2741	24
CD	RSOV to Center of Dash Panel	2720	2704	16
LD	RSOV to Left Side of Dash Panel	2755	2732	23

All Dimensions in mm

¹ Measurement not recorded

DATA SHEET NO. 13

ACCIDENT INVESTIGATION DIVISION DATA

Test Vehicle: 2017 Jeep Wrangler Unlimited 4DR MPV
Test Program: NCAP Frontal Impact

NHTSA No.: M20170301
Test Date: 11/21/16

VEHICLE INFORMATION

VIN: 1C4BJWDG0HL503280
Vehicle Size Category: MPV

Wheelbase: 2940
Test Weight (kg): 2091.4

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): 56.81

Velocity Change (km/h): 65.51

Time of Separation (ms): 135

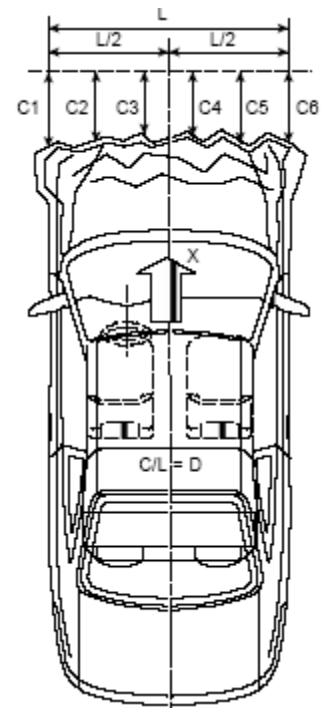
CRUSH PROFILE

Collision Deformation Classification: 12FDEW2

Midpoint of Damage: Centerline

Damage Region Length (mm): 1524

Impact Mode: Frontal



No.	Measurement Description	Units	Pre-Test	Post-Test	Difference
C1	Crush zone 1 at left side	mm	4473	4076	397
C2	Crush zone 2 at left side	mm	4594	4136	458
C3	Crush zone 3 at left side	mm	4559	4053	506
C4	Crush zone 4 at right side	mm	4560	4046	514
C5	Crush zone 5 at right side	mm	4593	4115	478
C6	Crush zone 6 at right side	mm	4474	4043	431
L	C1 to C6	mm	1524	1508	16

DATA SHEET NO. 14

VEHICLE INTRUSION MEASUREMENTS

Test Vehicle: 2017 Jeep Wrangler Unlimited 4DR MPV

NHTSA No.: M20170301

Test Program: NCAP Frontal Impact

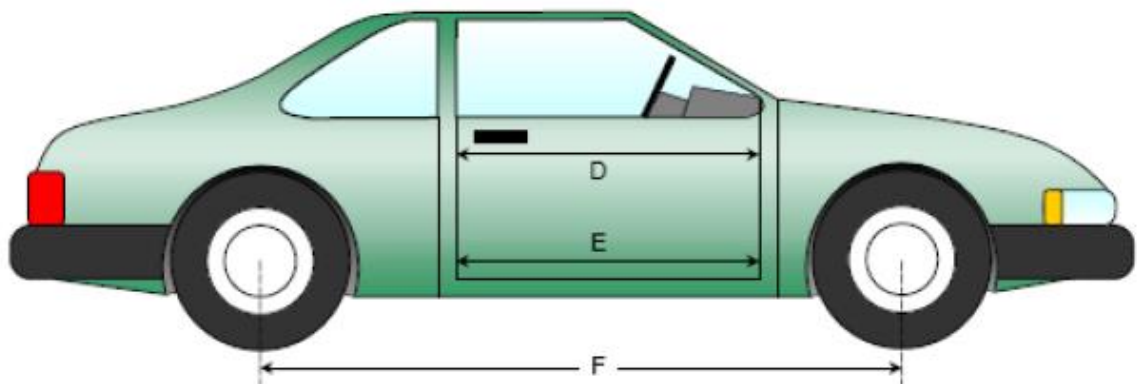
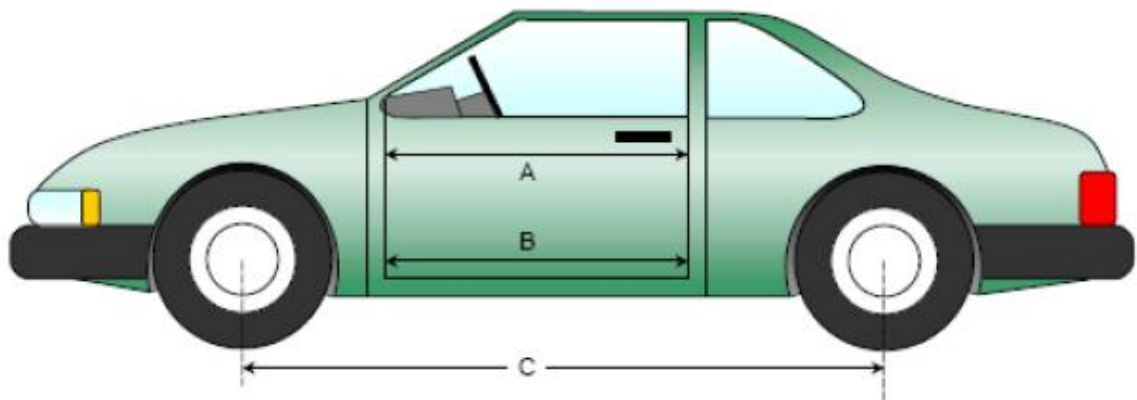
Test Date: 11/21/16

DOOR OPENING WIDTH

No.	Description	Units	Pre-Test	Post-Test	Difference
A	Left Side Upper	mm	900	880	20
B	Left Side Lower	mm	830	817	13
C	Right Side Upper	mm	900	880	20
D	Right Side Lower	mm	830	824	6

WHEELBASE MEASUREMENTS

No.	Description	Units	Pre-Test	Post-Test	Difference
C	Left Side Wheelbase	mm	2940	2866	74
F	Right Side Wheelbase	mm	2940	2885	55



DATA SHEET NO. 14 (CONTINUED)

VEHICLE INTRUSION MEASUREMENTS

Test Vehicle: 2017 Jeep Wrangler Unlimited 4DR MPV

NHTSA No.: M20170301

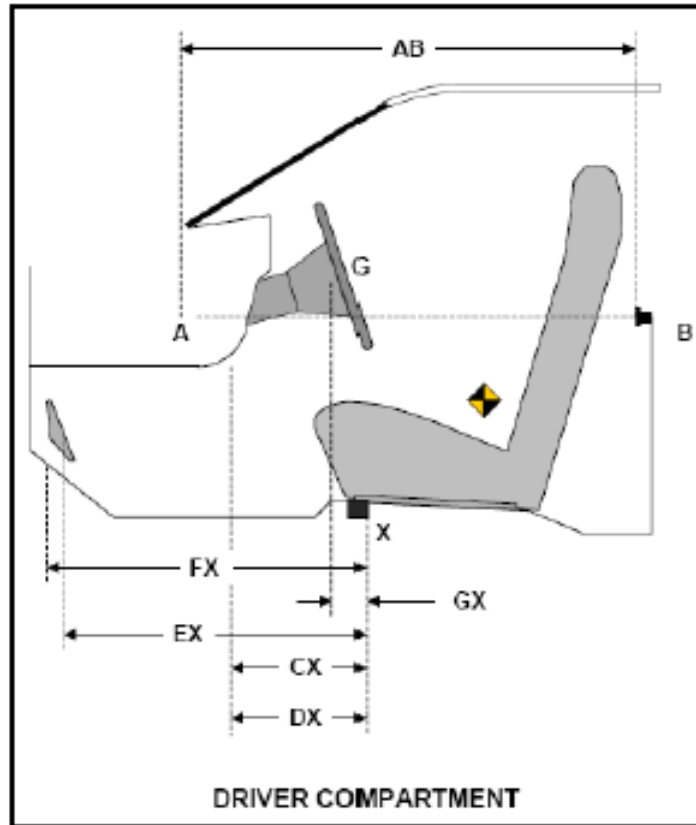
Test Program: NCAP Frontal Impact

Test Date: 11/21/16

DRIVER COMPARTMENT INTRUSION

Item	Description	Units	Pre-Test	Post-Test	Difference
AB	Door Opening (Inside Window Jam)	mm	910	880	30
CX	Left Knee Bolster to X	mm	225	219	6
DX	Right Knee Bolster to X	mm	223	215	8
EX	Brake Pedal to X	mm	465	485	-20
FX	Foot Rest to X	mm	700	650	50
GX	Center of Steering Column Wheel Hub to X	mm	-5	-7	2

X = Front of Seat Track (Stationary)



DATA SHEET NO. 15

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

Test Vehicle: 2017 Jeep Wrangler Unlimited 4DR MPV
 Test Program: NCAP Frontal Impact

NHTSA No.: M20170301
 Test Date: 11/21/16

Please provide windshield mounting details.

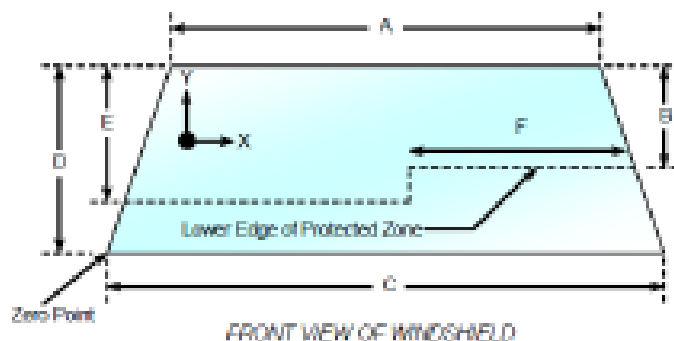
The standard requires that the post-test retention measurement be a minimum of 75% of the pre-test total periphery measurement for vehicle not equipped with occupant passive restraint and 50% for each side of the windshield for vehicle which are equipped with occupant passive restraints.

Temperature of windshield molding during test: 21.7° C

WINDSHIELD PERIPHERY MEASUREMENTS¹

Measurement	Pre-Test (mm)	Post-Test (mm)	% Retention
Left Side	NA	NA	NA
Right Side	NA	NA	NA
Total	NA	NA	NA

Item	Units	Value
A	mm	1335
B	mm	270
C	mm	1420
D	mm	450
E	mm	265
F	mm	595



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

¹ FMVSS 212 not applicable due to vehicle's fold down windshield

DATA SHEET NO. 15 (CONTINUED)

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

Test Vehicle: 2017 Jeep Wrangler Unlimited 4DR MPV

NHTSA No.: M20170301

Test Program: NCAP Frontal Impact

Test Date: 11/21/16

FMVSS 301 FUEL SYSTEM INTEGRITY POST IMPACT DATA

Temperature at Time of Impact: 21.7°C

Test Time: 16:00

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

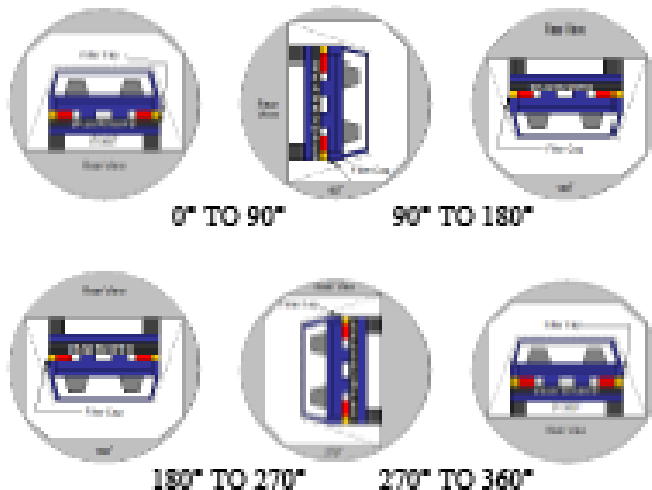
DATA SHEET NO. 16

FMVSS 301 STATIC ROLLOVER RESULTS

Test Vehicle: 2017 Jeep Wrangler Unlimited 4DR MPV
 Test Program: NCAP Frontal Impact

NHTSA No.: M20170301
 Test Date: 11/21/16

1. The specified fixture rollover rate for each 90° of rotation is 60 to 180 seconds.
2. The position hold time at each position is 300 seconds (minimum).
3. Details of Stoddard Solvent spillage:
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	1480

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

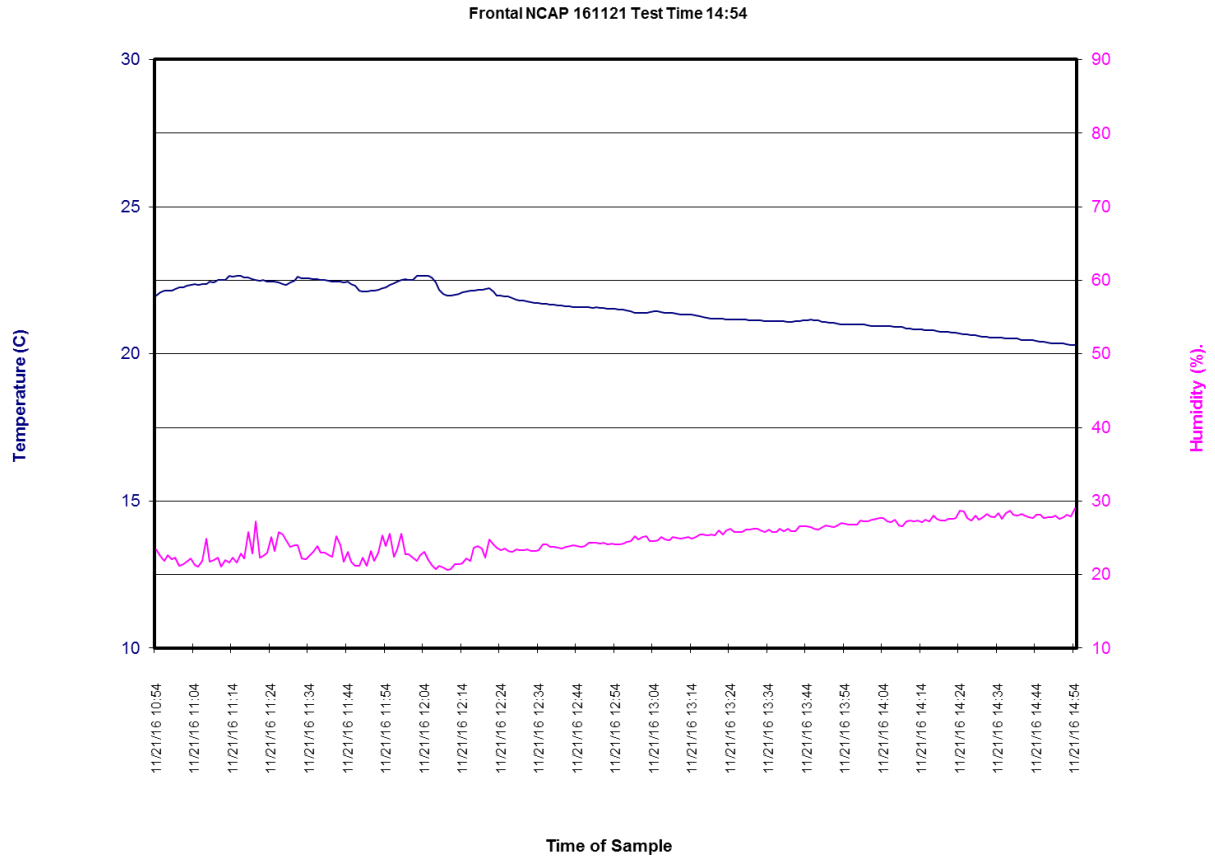
Test Phase	Spillage Location
0° to 90°	None
90° to 180°	None
180° to 270°	None
270° to 360°	None

DATA SHEET NO. 17

DUMMY/VEHICLE TEMPERATURE STABILIZATION

Test Vehicle: 2017 Jeep Wrangler Unlimited 4DR MPV
Test Program: NCAP Frontal Impact

NHTSA No.: M20170301
Test Date: 11/21/16



APPENDIX A
PHOTOGRAPHS

TABLE OF PHOTOGRAPHS

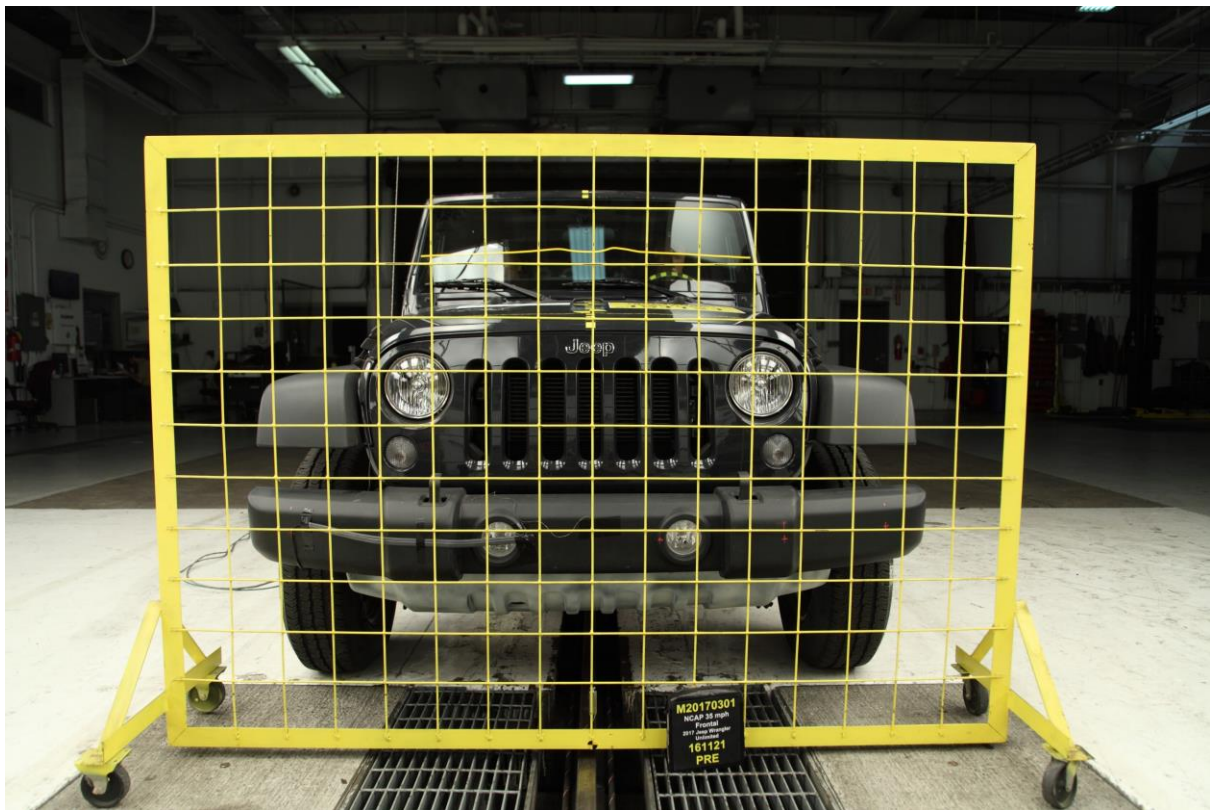
No.	Description	Page
1	Load Cell Location	A-5
2	Pre-Test Load Cell Wall	A-5
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30	Pre-Test Driver Dummy Front View	A-21
31	Post-Test Driver Dummy Front View	A-21

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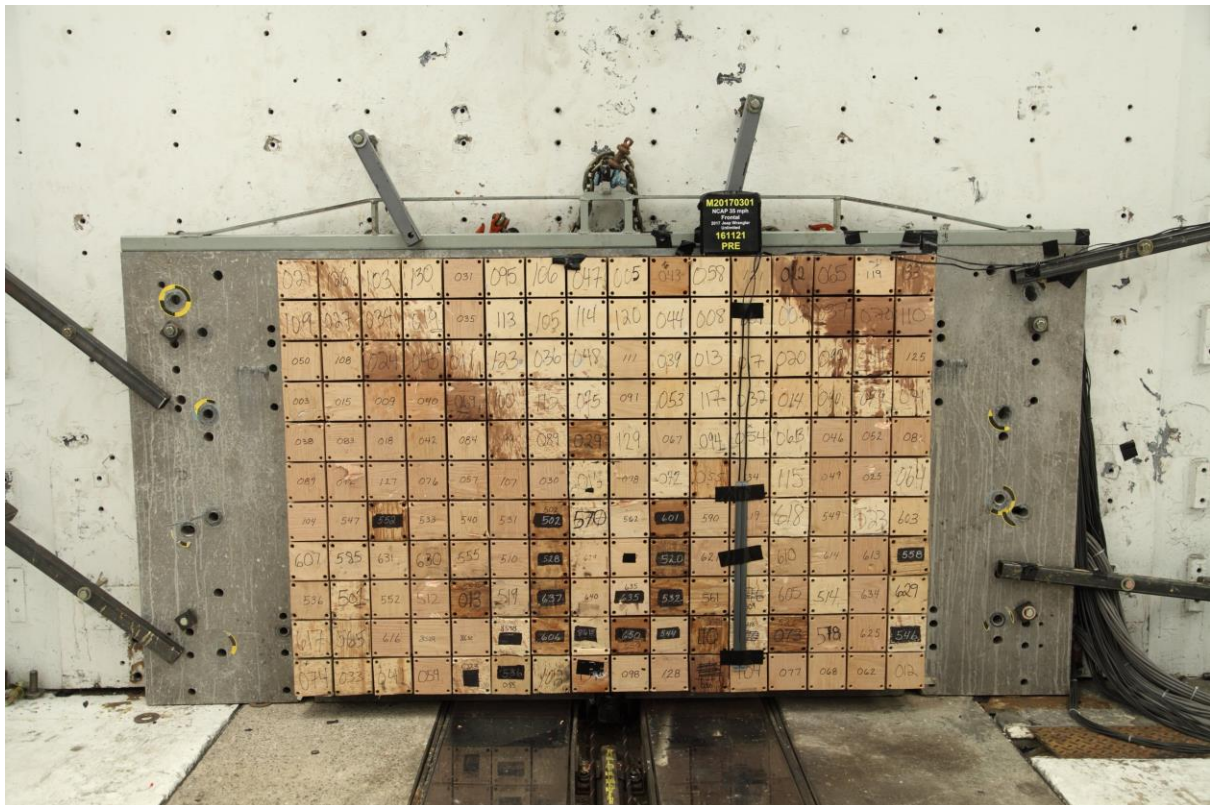
No.	Description	Page
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33	Post-Test Driver Dummy Window View	A-22
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37	Post-Test Driver's Seat Fore-Aft Markings	A-24
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39	Post-Test View of Belt Anchorage for Driver Dummy	A-25
40	Pre-Test Driver Dummy Feet	A-26
41	Post-Test Driver Dummy Feet	A-26
42	Pre-Test Driver's Side Knee Bolster	A-27
43	Post-Test Driver's Side Knee Bolster	A-27
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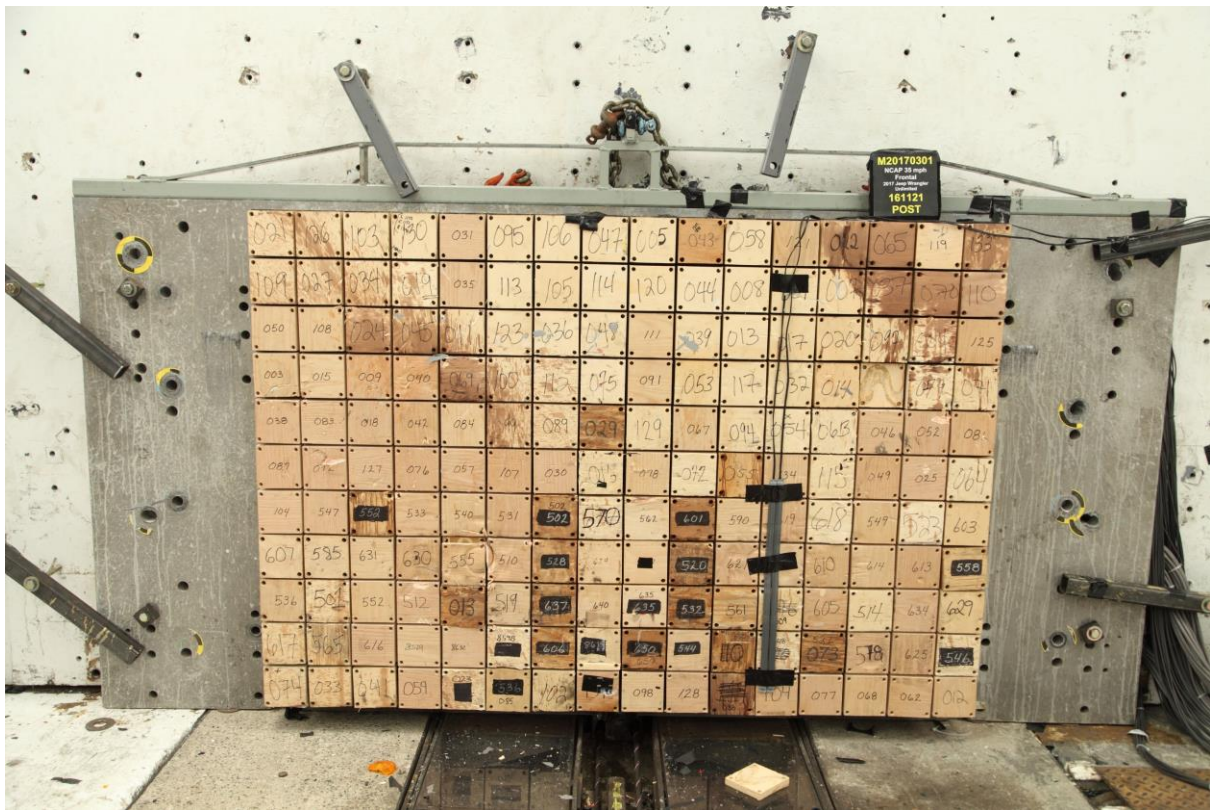
No.	Description	Page
67	Post-Test Passenger Dummy Face	A-40
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79	Monroney Label Photograph	A-46



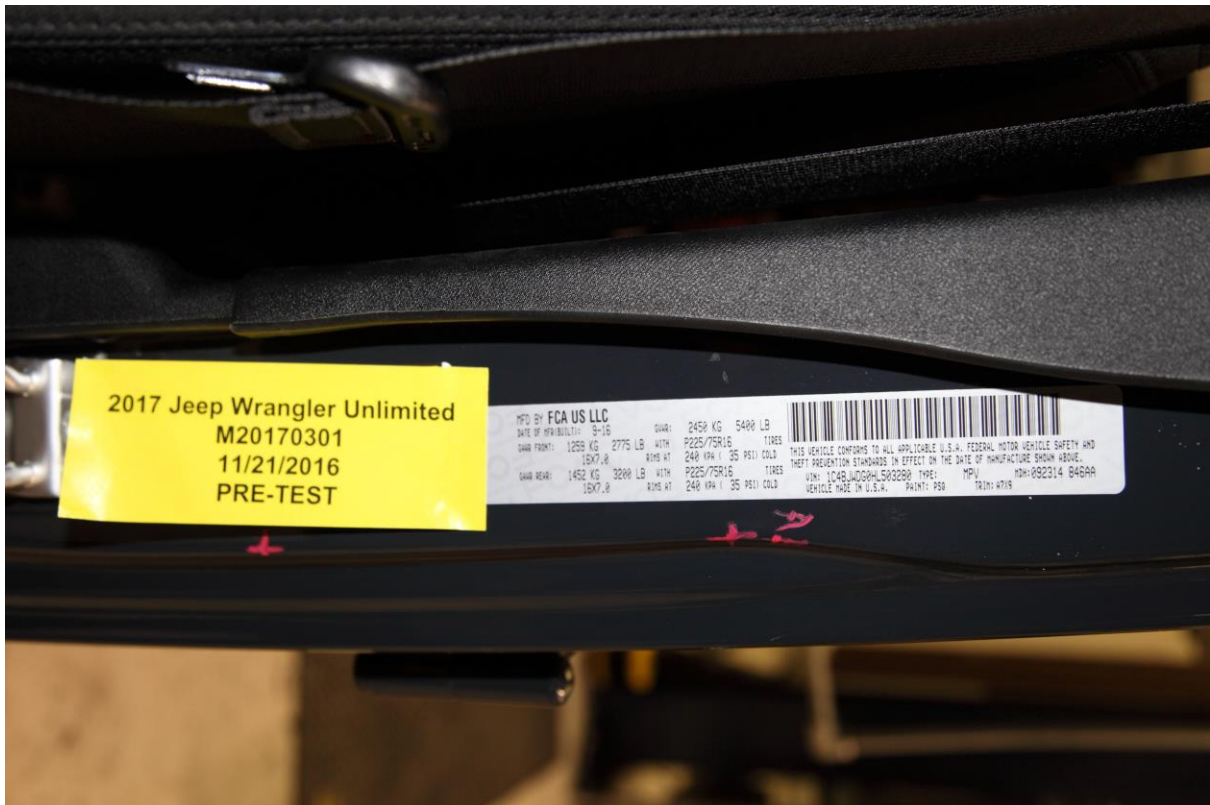
001 Load Cell Location



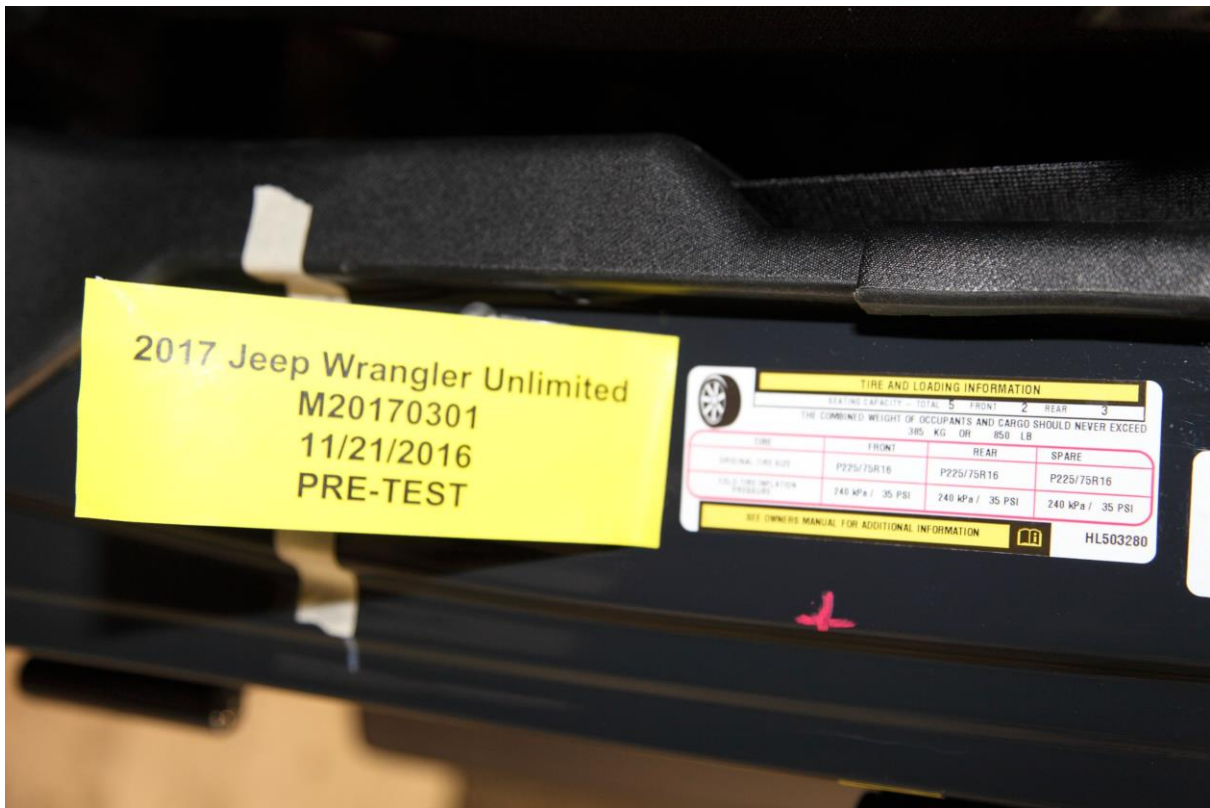
002 Pre-Test Load Cell Wall



003 Post-Test Load Cell Wall



004 Manufacturer's Label



005 Tire Placard

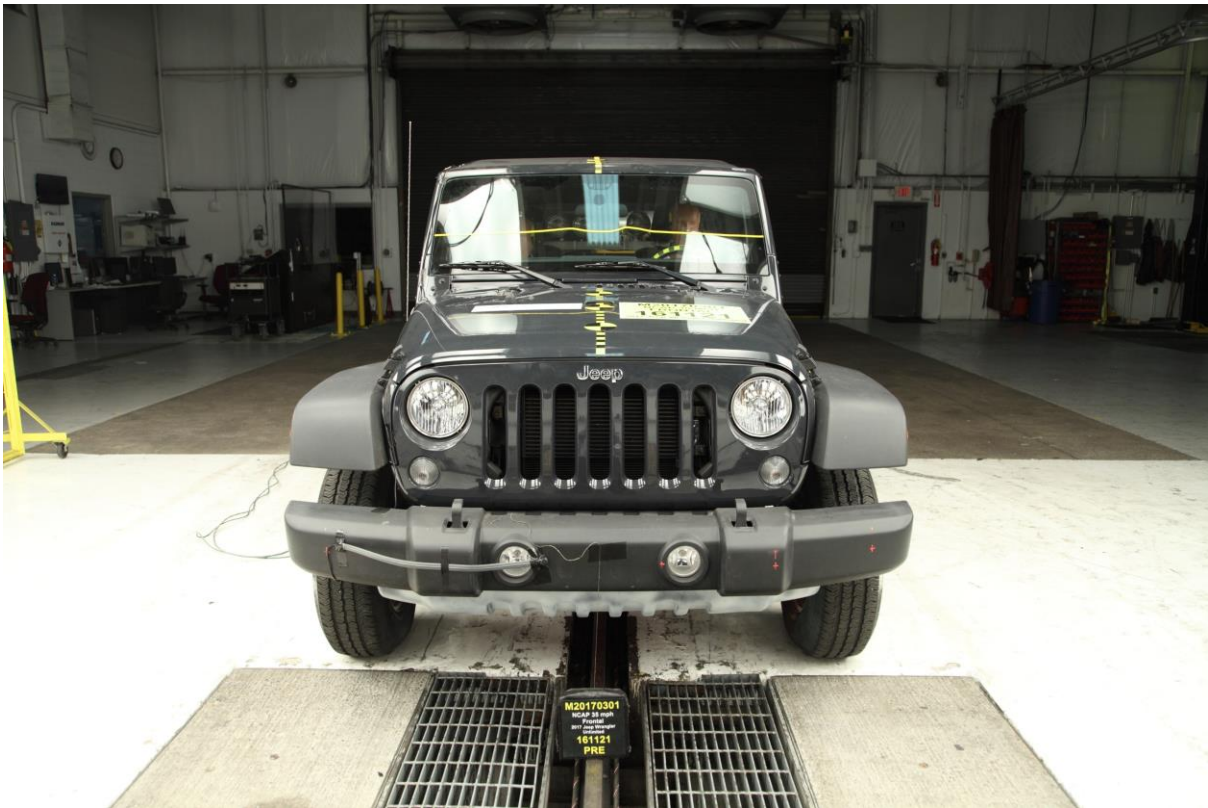
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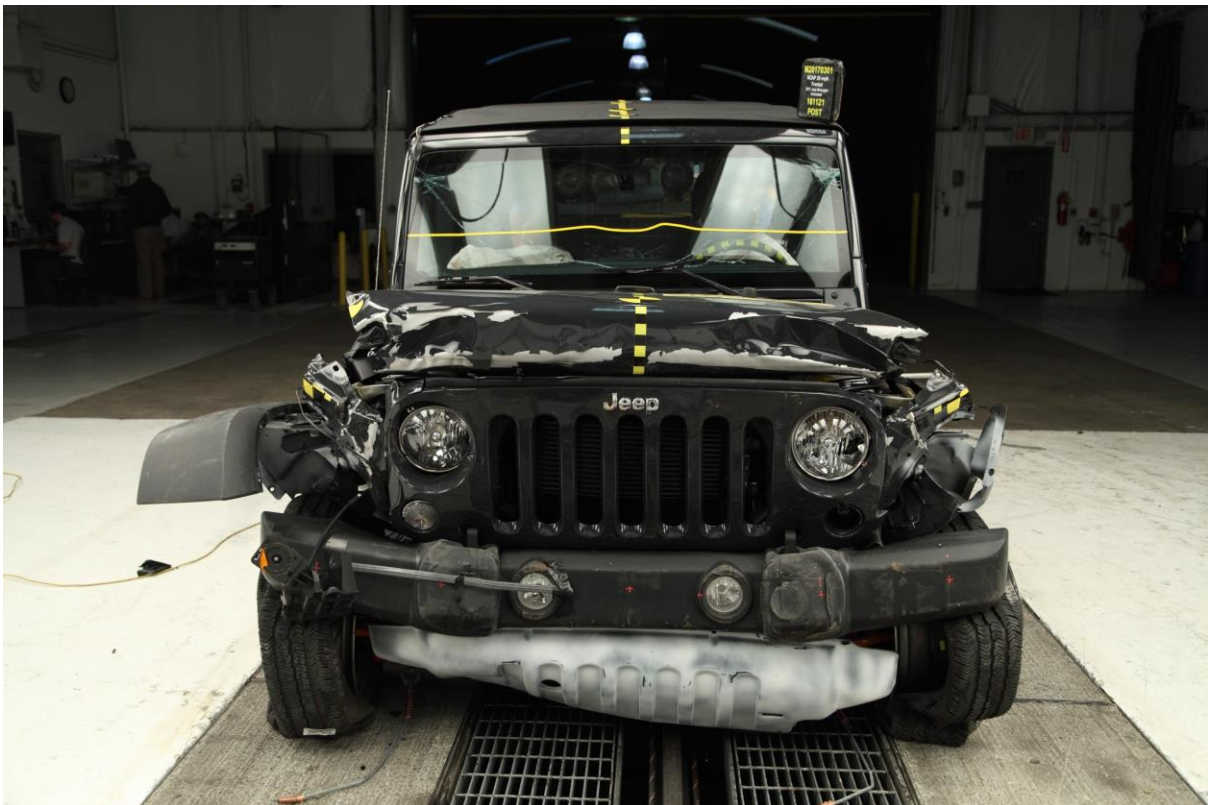
006 2017 Jeep Wrangler Unlimited 4DR MPV Frontal As Delivered



007 Left Rear 3-4 View, as Received



008 Pre-Test Front View of Test Vehicle



009 Post-Test Front View of Test Vehicle



010 Pre-Test Left View of Test Vehicle



011 Post-Test Left View of Test Vehicle



012 Pre-Test Right View of Test Vehicle



013 Post-Test Right View of Test Vehicle



014 Pre-Test Right Front 3-4 View



015 Post-Test Right Front 3-4 View



016 Pre-Test Left Rear 3-4 View



017 Post-Test Left Rear 3-4 View



018 Pre-Test Windshield View



019 Post-Test Windshield View



020 Pre-Test Engine Compartment View



021 Post-Test Engine Compartment View



022 Pre-Test Fuel Filler Cap View



023 Post-Test Fuel Filler Cap View



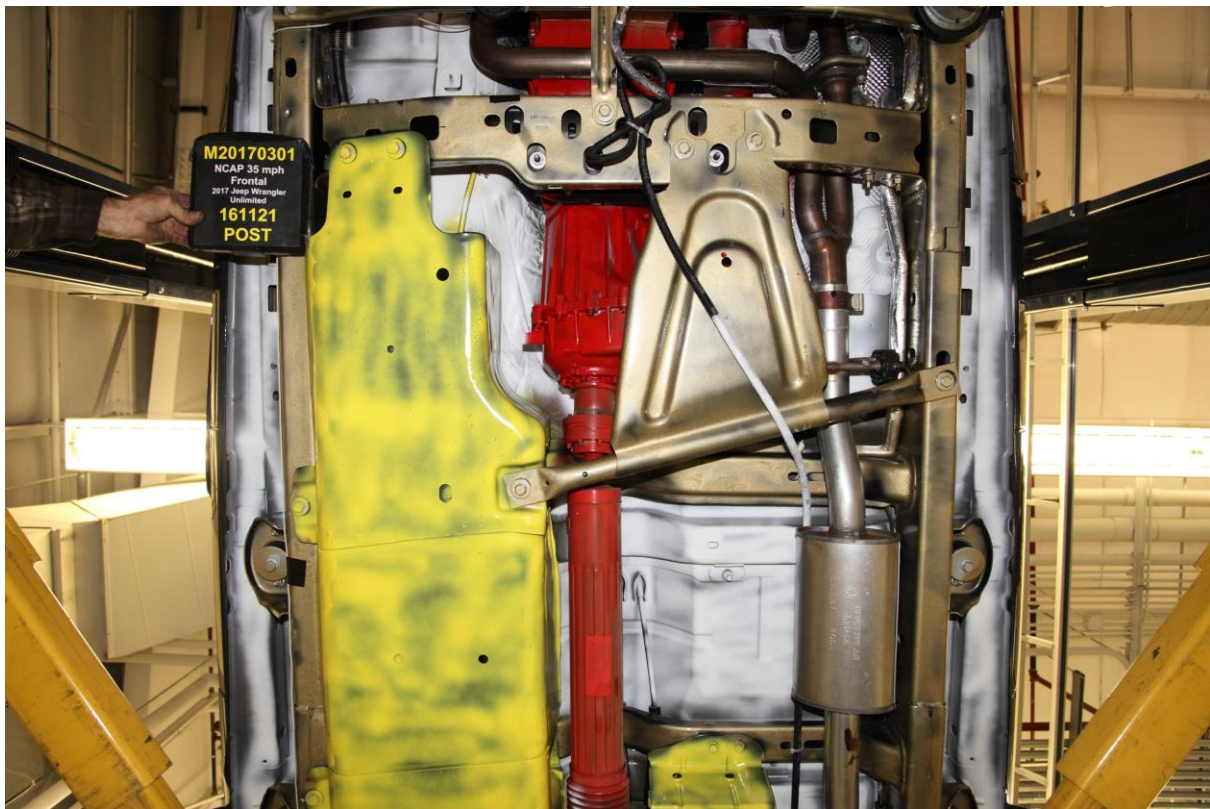
024 Pre-Test Front Underbody View



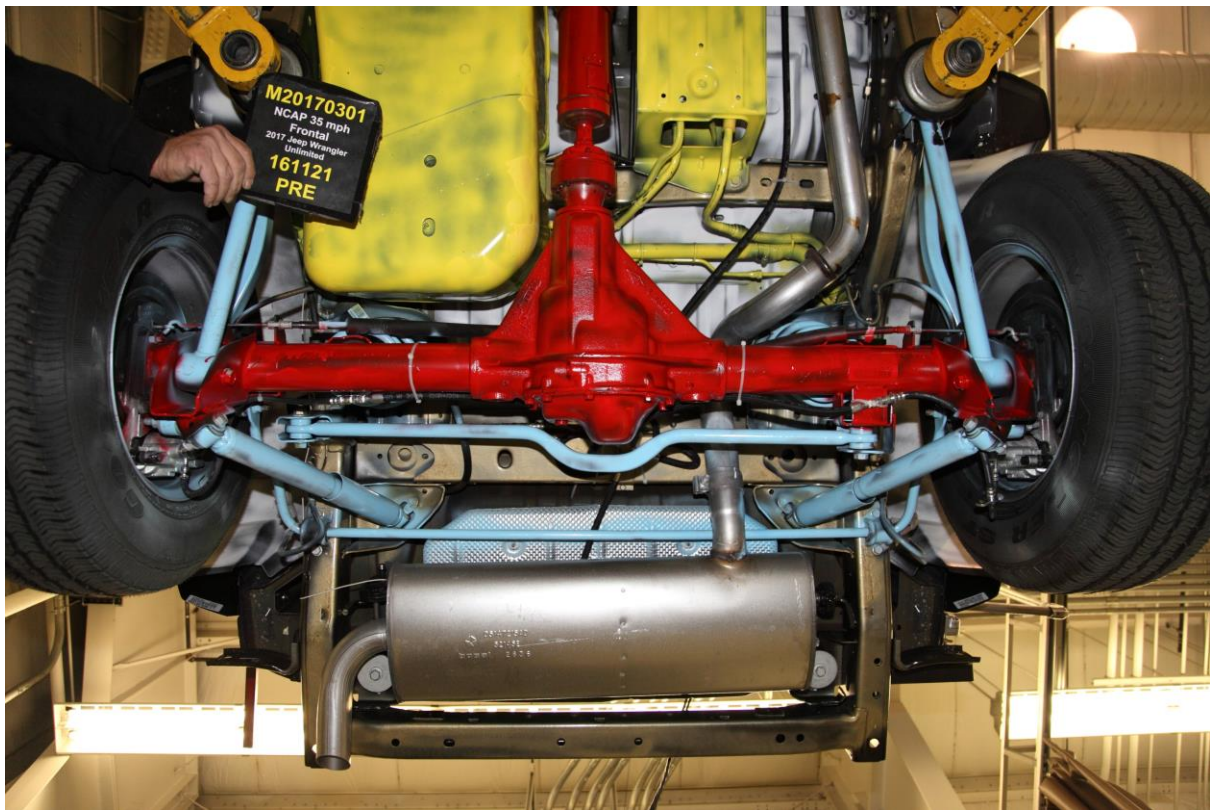
025 Post-Test Front Underbody View



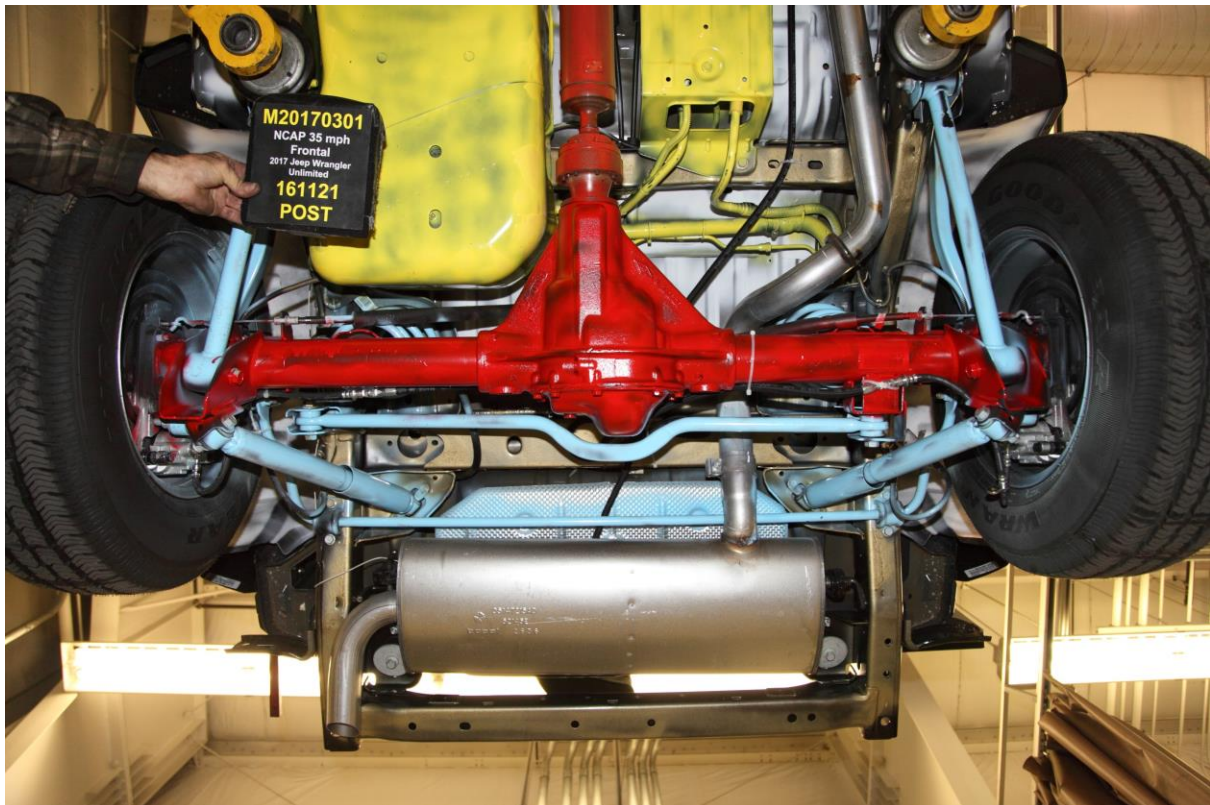
025a Pre-Test Mid Underbody View



025b Post-Test Mid Underbody View



026 Pre-Test Rear Underbody View



027 Post-Test Rear Underbody View



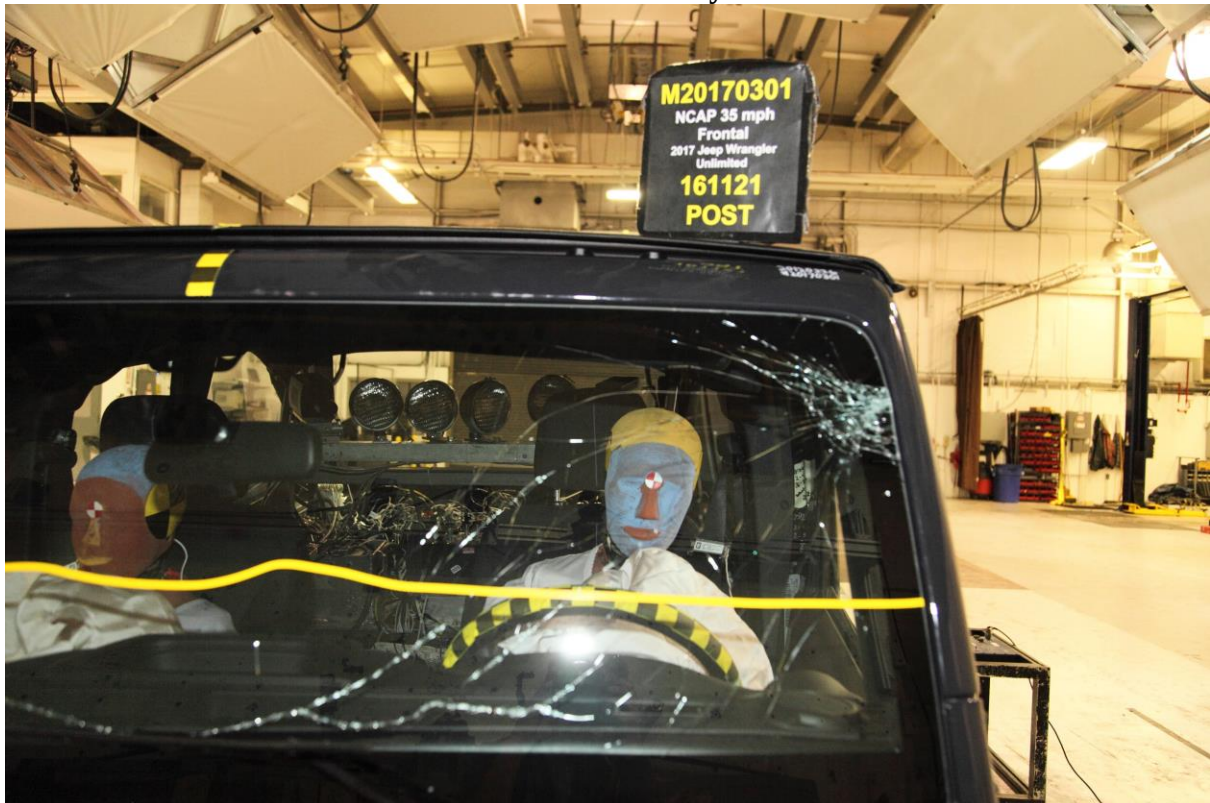
028 Pre-Test Dummy Cable Routing



029 Post-Test Dummy Cable Routing



030 Pre-Test Driver Dummy Front View



031 Post-Test Driver Dummy Front View



032 Pre-Test Driver Dummy Window View



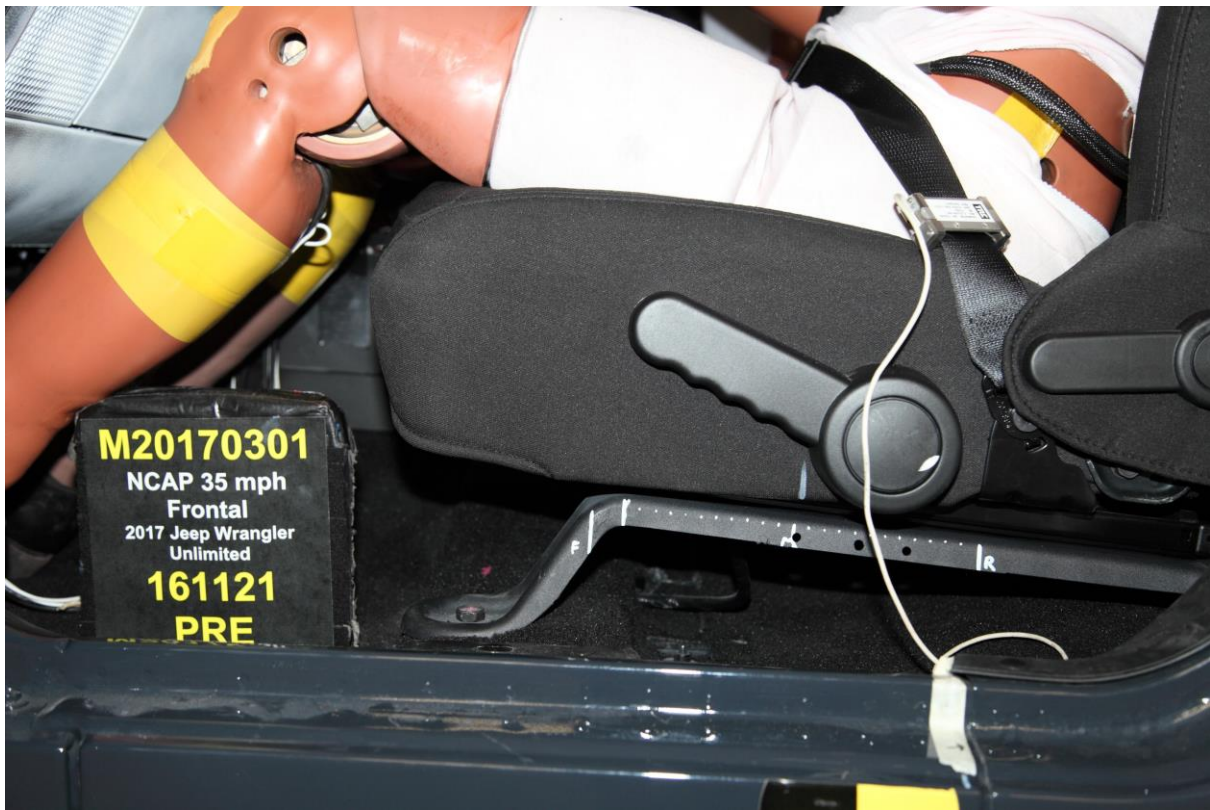
033 Post-Test Driver Dummy Window View



034 Pre-Test Driver Dummy and Vehicle Interior View



035 Post-Test Driver Dummy and Vehicle Interior View



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



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



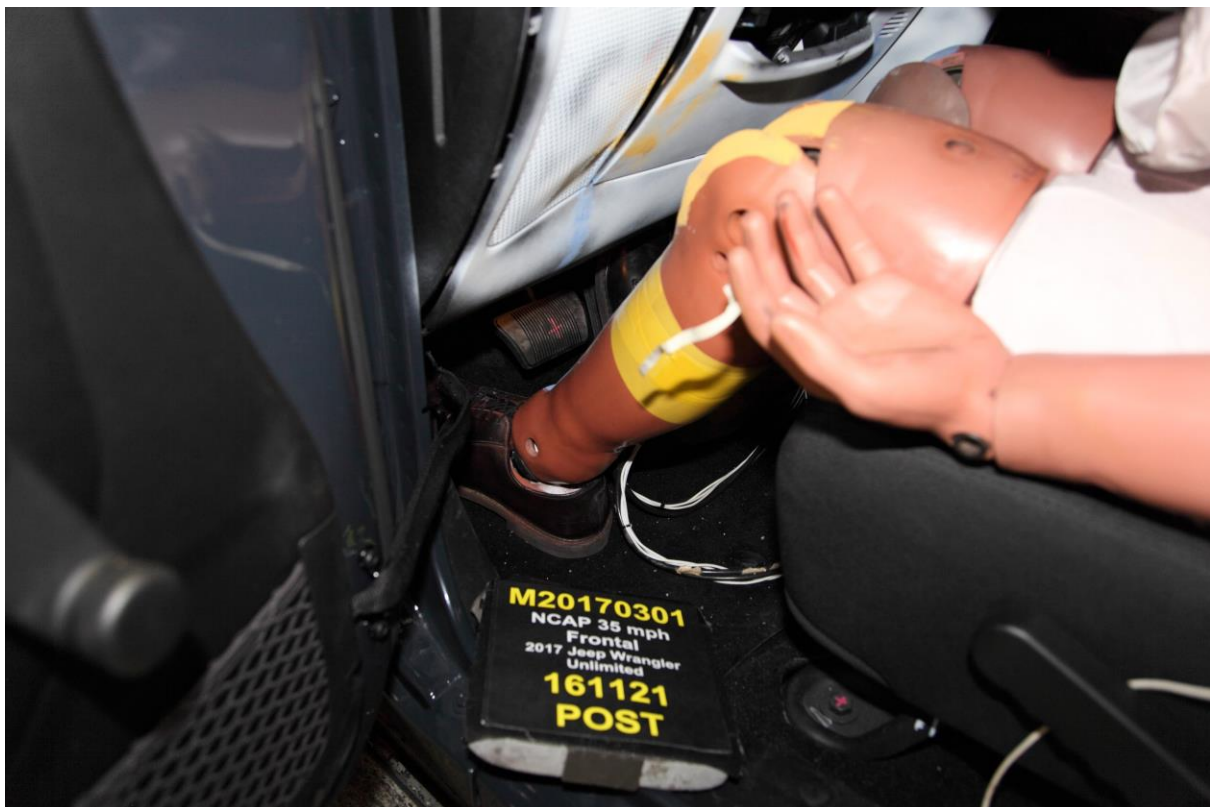
038 Pre-Test View of Belt Anchorage for Driver Dummy



039 Post-Test View of Belt Anchorage for Driver Dummy



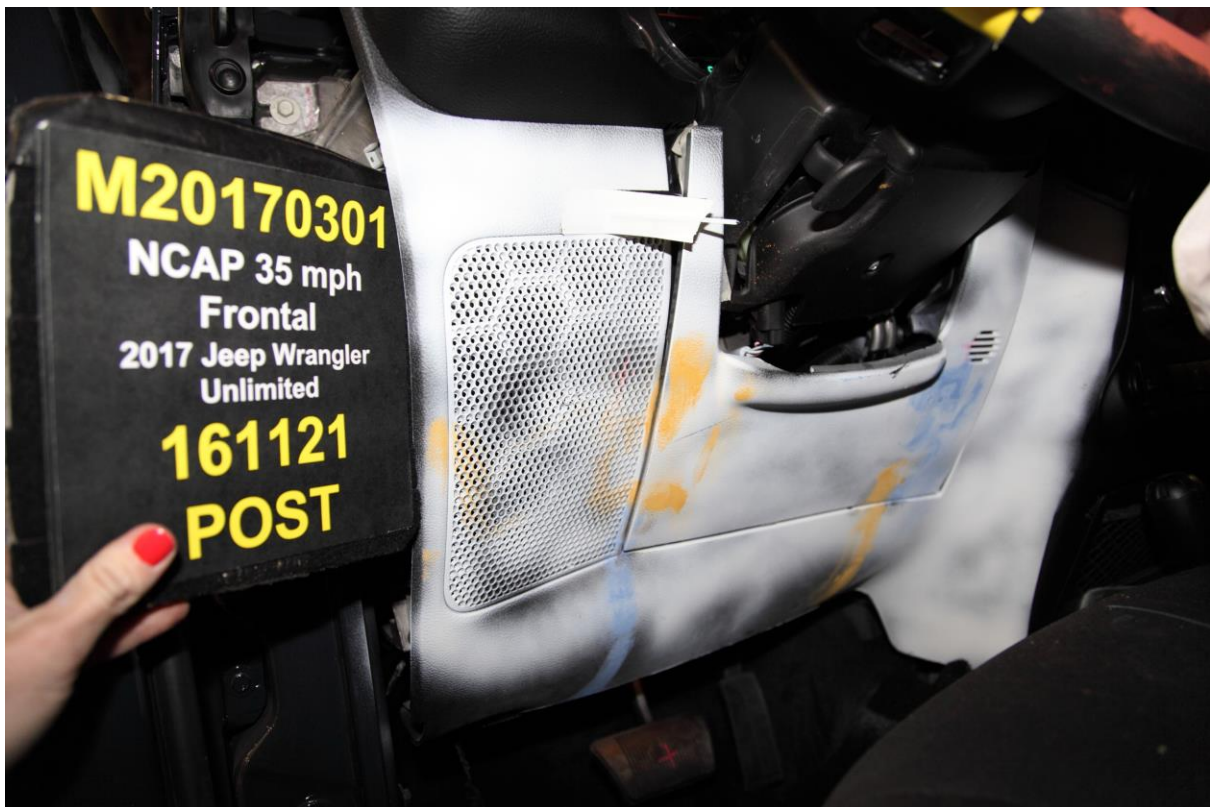
040 Pre-Test Driver Dummy Feet



041 Post-Test Driver Dummy Feet



042 Pre-Test Driver's Side Knee Bolster



043 Post-Test Driver's Side Knee Bolster



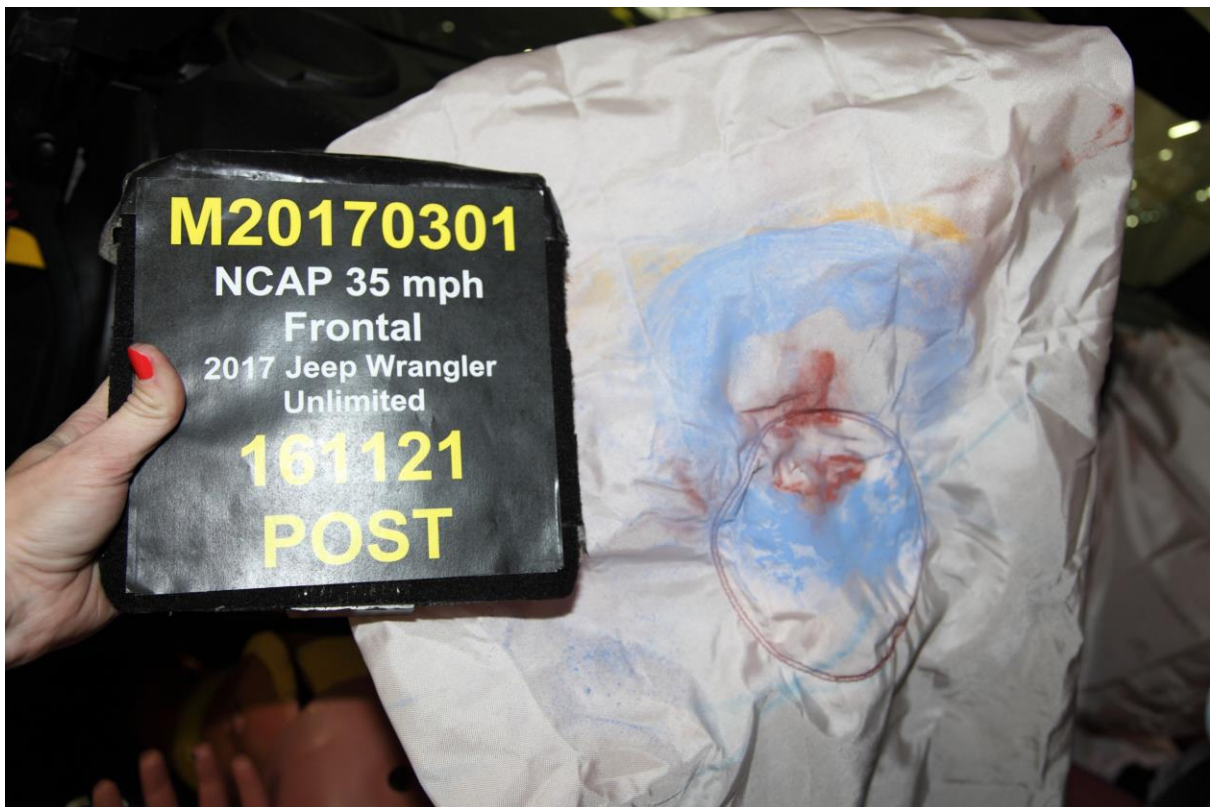
044 Pre-Test Driver's Side Floorpan



045 Post-Test Driver's Side Floorpan



046 Post-Test Driver Dummy Face



047 Post-Test Driver Dummy Contact With Airbag



048 Post-Test Driver Dummy Contact With Headrest

Intentionally Left Blank



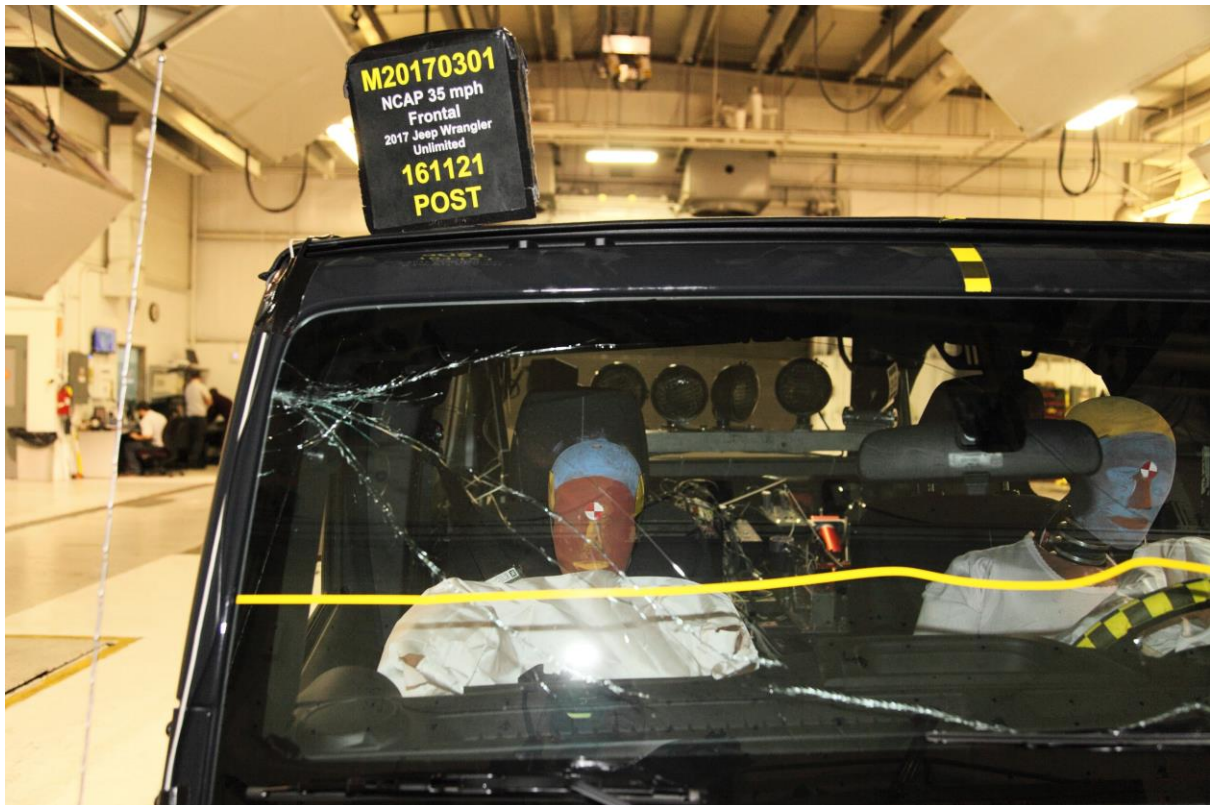
049 Pre-Test View of the Steering Wheel



050 Post-Test View of the Steering Wheel



051 Pre-Test Passenger Dummy Front View



052 Post-Test Passenger Dummy Front View



053 Pre-Test Passenger Dummy Window View



054 Post-Test Passenger Dummy Window View



055 Pre-Test Passenger Dummy and Vehicle Interior View



056 Post-Test Passenger Dummy and Vehicle Interior View



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



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



059 Pre-Test View of Belt Anchorage for Passenger Dummy



060 Post-Test View of Belt Anchorage for Passenger Dummy



061 Pre-Test Passenger Dummy Feet



062 Post-Test Passenger Dummy Feet



063 Pre-Test Passenger's Side Knee Bolster



064 Post-Test Passenger's Side Knee Bolster



065 Pre-Test Passenger's Side Floorpan



066 Post-Test Passenger's Side Floorpan



067 Post-Test Passenger Dummy Face

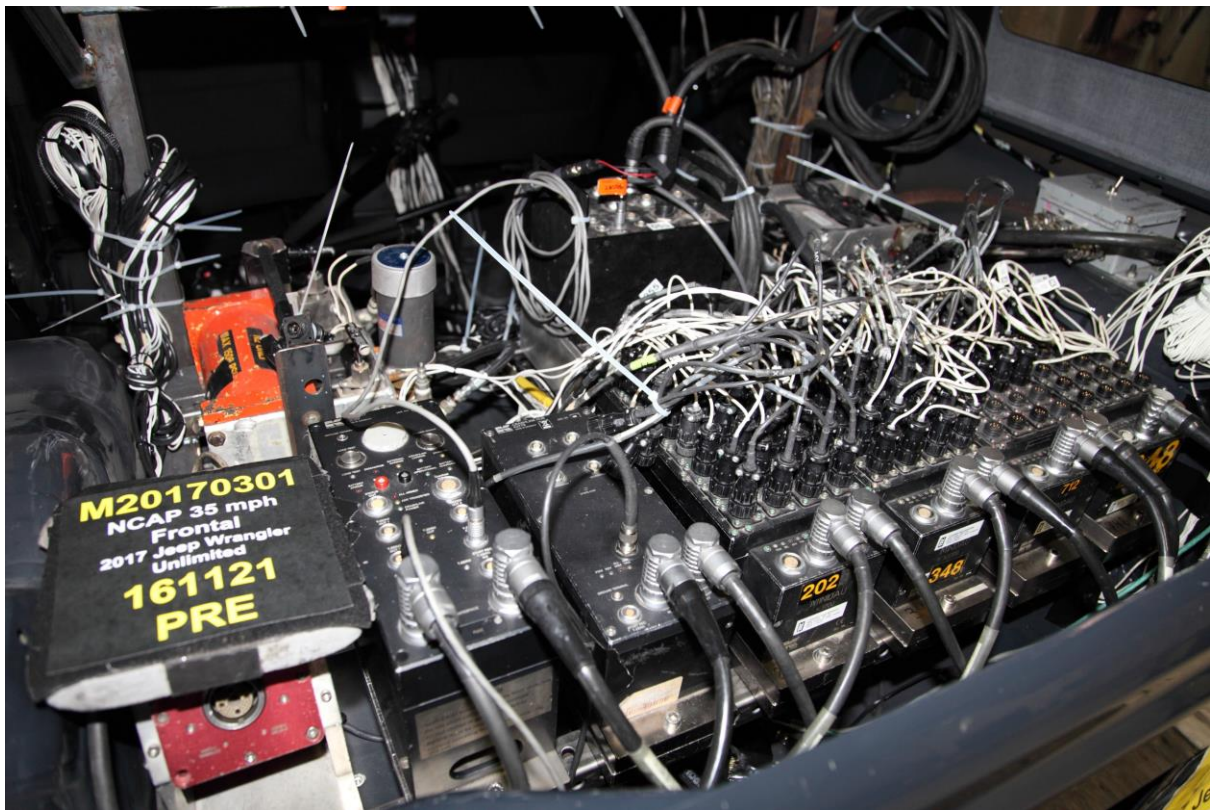


068 Post-Test Passenger Dummy Contact With Airbag

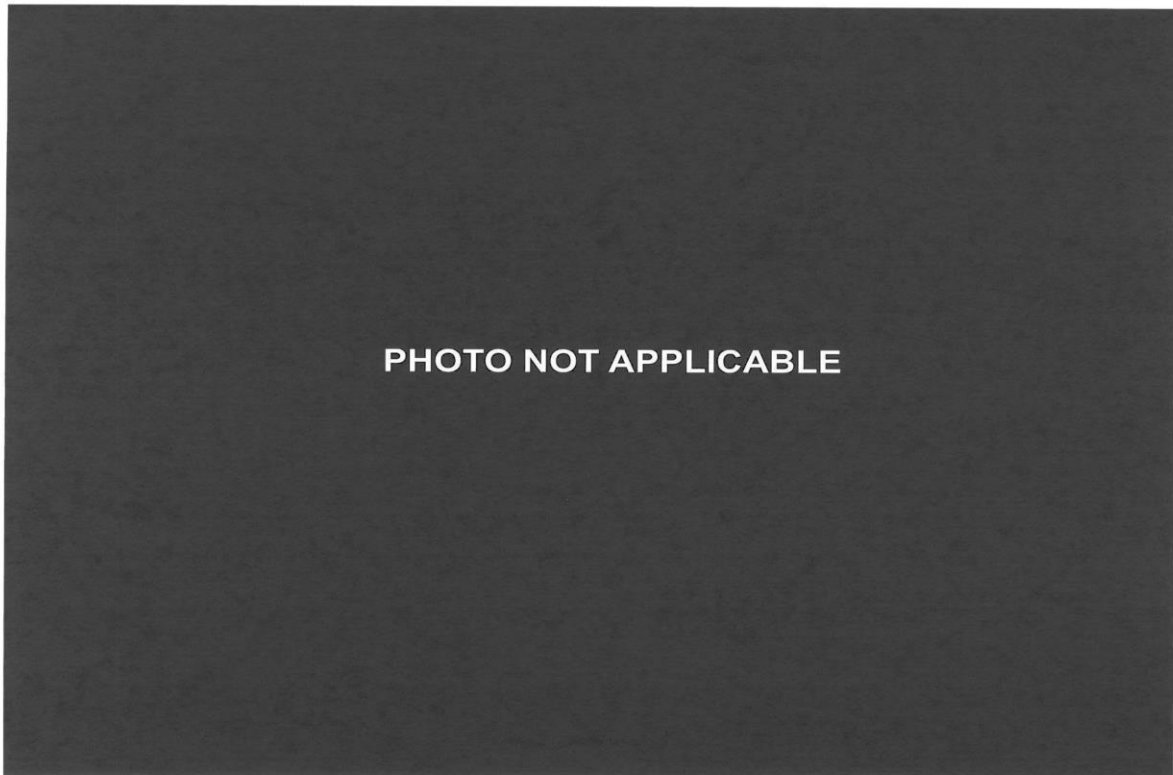


069 Post Test Passenger Dummy Contact With Headrest

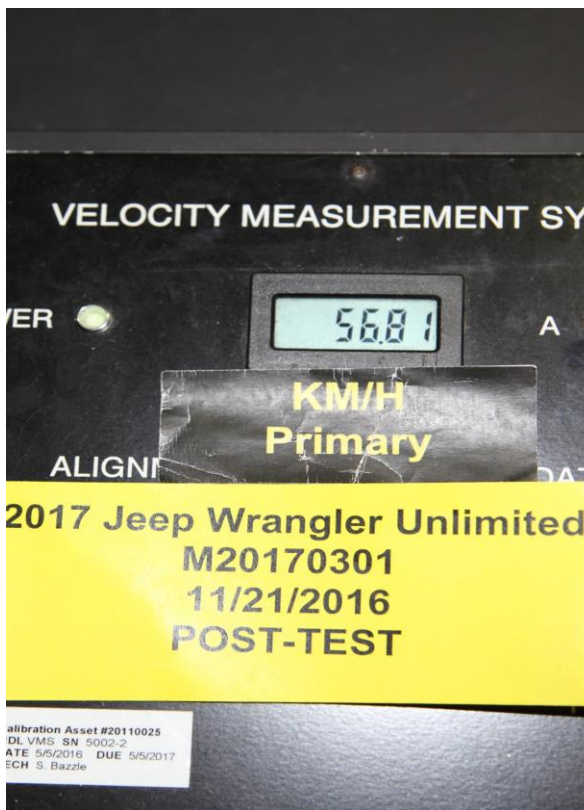
Intentionally Left Blank



070 Photograph of Ballast Installed in Vehicle



071 Post-Test Stoddard Spillage Location View



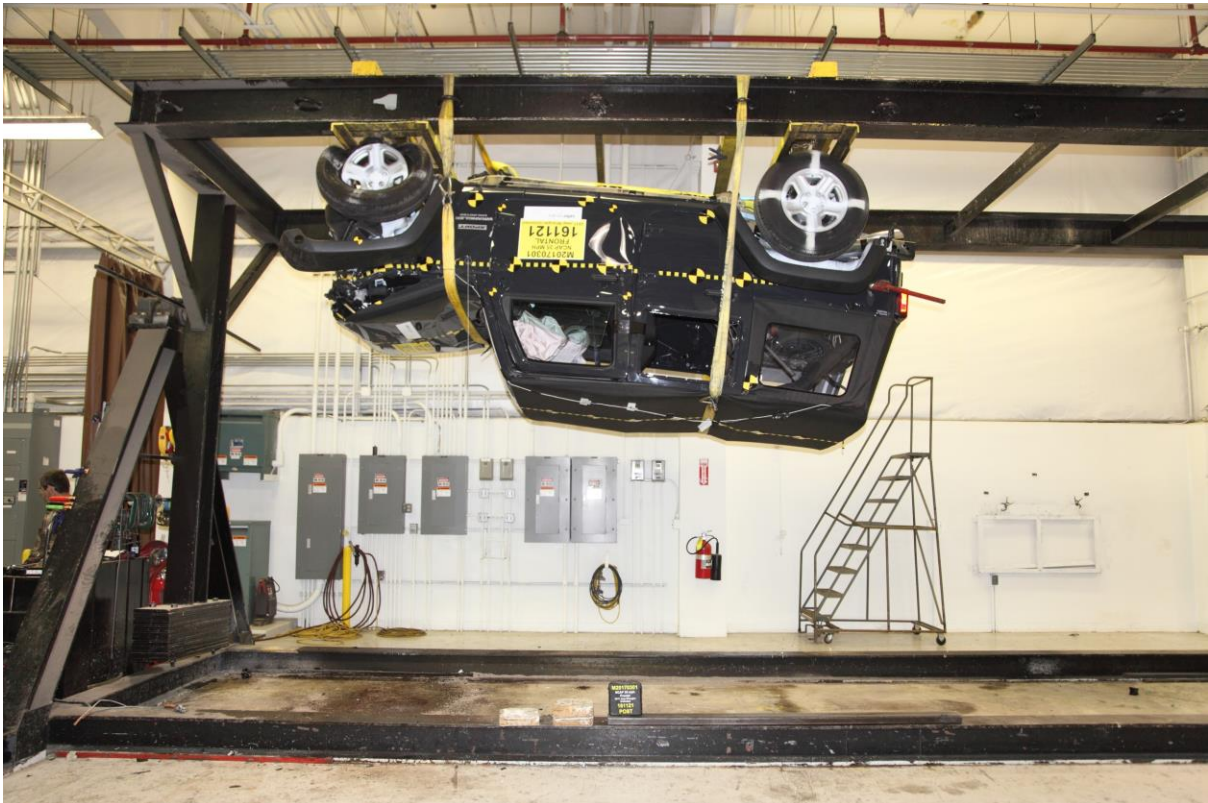
072 Post-Test Speed Trap Readout



073 Vehicle at 0° on Static Rollover Device



074 Vehicle at 90° on Static Rollover Device



075 Vehicle at 180° on Static Rollover Device



076 Vehicle at 270° on Static Rollover Device



077 Vehicle at 360° on Static Rollover Device



078 2017 Jeep Wrangler Unlimited 4DR MPV Frontal Impact Event

2017 MODEL YEAR
WRANGLER UNLIMITED SPORT 4X4

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

FCA US 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: \$27,895

JEEP WRANGLER UNLIMITED SPORT 4X4
Exterior Color: Rhino Clear Coat Exterior Paint
Interior Color: Black Interior Color
Interior: Cloth Seats with Adjustable Head Restraints
Engine: 3.6-Liter V6 24-Valve VVT Engine
Transmission: 5-Speed Automatic Transmission

STANDARD EQUIPMENT (UNLESS REPLACED BY OPTIONAL EQUIPMENT)

FUNCTIONAL/SAFETY FEATURES
Advanced Multistage Front Airbags
Command-Trac® Shift-on-the-Fly Part-Time 4WD
Next Generation Dana® 44 Heavy Duty Rear Axle
Next Generation Dana® 30 Solid Front Axle
3.21 Front / Rear Axle Ratio
Transfer Case Skid Plate
Fuel Tank Skid Plate
22.5-Gallon Fuel Tank
Electronic Stability Control
4-Wheel Disc Brakes
Electronic Roll Mitigation
Hill Start Assist
Trailer Sway Damping
160-Amp Alternator
Sentry Key® Theft Deterrent System
Tire Pressure Monitor with Warning Lamp
Speed Control
Sport Bar with Full Padding

INTERIOR FEATURES
Rear View Day / Night Mirror
Air Conditioning
Steering Wheel Mounted Audio Controls
Tilt Steering Column
Premium Instrument Cluster with Tachometer
Temperature and Compass Gauge
Radio 130
8 Speakers
Audio Jack Input for Mobile Devices
Reclining Front Seats
Driver Seat Height Adjuster

Rear 60 / 40 Folding Seat
Front Seatback Map Pockets
Front and Rear Floor Mats
Rear Compartment Covered Storage
Cargo Tie-Down Loops
12-Volt Auxiliary Power Outlet
Full-Length Floor Console
Sliding Sun Visors with Mirrors
Front Domes with On / Off Switch Lamp

EXTERIOR FEATURES
16-Inch x 7-Inch Styled Steel Wheels
P225/75R16 BSW On/Off-Road Tires
"Trail Rated" Badge
Summertime® Soft Top
Full Metal Doors with Roll-up Windows
Fog Lamps
Two Front Tow Hooks and One Rear Tow Hook

OPTIONAL EQUIPMENT (May Replace Standard Equipment)

Sport Package 14C \$1,400
5-Speed Automatic Transmission
Hill Descent Control
SiriusXM® Sat Radio w/ 1-Yr Radio Subscription
For More Information, Call 888-539-7474

DESTINATION CHARGE \$995

TOTAL PRICE: *\$30,510

WARRANTY COVERAGE
5-year or 60,000-mile Powertrain Limited Warranty.
3-year or 36,000-mile Basic Limited Warranty.
Ask Dealer for a copy of the limited warranties or see your owner's manual for details.

5 YEAR/60,000 MILE POWERTRAIN WARRANTY

EPA DOT Fuel Economy and Environment

Fuel Economy These estimates reflect new EPA methods beginning with 2017 models. Small SUV 4WD range from 18 to 33 MPG. The best vehicle rates 11.9 MPGe.

18 MPG
combined city/hwy
5.6 gallons per 100 miles

16 city
20 highway

You spend \$3,250 more in fuel costs over 5 years
compared to the average new vehicle.

Annual fuel cost \$2,050

Fuel Economy & Greenhouse Gas Rating (tailpipe only)
1 3 10 Best
This vehicle emits 124 grams CO2 per mile. The best emits 8 grams per mile (tailpipe only). Producing and distributing fuel also creates emissions. Learn more at fuelconomy.gov

Smog Rating (tailpipe only)
1 6 10 Best

Actual results will vary for many reasons, including driving conditions and how you drive and maintain your vehicle. The average new vehicle gets 24 MPG and costs \$7,200 to fuel over 5 years. Cost estimates are based on 15,000 miles per year at \$2.45 per gallon. MPGe is miles per gallon gasoline equivalent. Vehicle emissions are a significant cause of climate change and smog.

fuelconomy.gov
Calculate personalized estimates and compare vehicles

Smartphone QR Code

GOVERNMENT 5-STAR SAFETY RATINGS

Overall Vehicle Score Not Rated
Based on the combined ratings of frontal, side, and rollover. Should ONLY be compared to other vehicles of similar size and weight.

Frontal Crash	Driver Passenger	Not Rated
Based on the risk of injury in a frontal impact.		
Side Crash	Front seat Rear seat	Not Rated
Based on the risk of injury in a side impact.		
Rollover	★★★	
Based on the risk of rollover in a single-vehicle crash.		

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

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

PARTS CONTENT INFORMATION
FOR VEHICLES IN THIS COUNTRY:
U.S./CANADIAN PARTS CONTENT: 75%
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 of Entry: TOLEDO, OHIO, U.S.A.
VIN: 1CA-SJWD0PH-503290 1-400-1654 8804

IMPORTED BY: CHRYSLER FINANCIAL GROUP
IMPORTED BY: CHRYSLER FINANCIAL GROUP
IMPORTED BY: CHRYSLER FINANCIAL GROUP

THIS LABEL IS ADDED TO THIS VEHICLE TO COMPLY WITH FEDERAL LAW. THE LABEL CANNOT BE REMOVED OR ALTERED PRIOR TO DELIVERY TO THE ULTIMATE PURCHASER.

*LISTED HEREIN ARE THE STANDARD EQUIPMENT AND OPTIONS AVAILABLE ON THIS VEHICLE. THE PRICE OF THIS VEHICLE IS \$30,510. THE PRICE OF THIS VEHICLE IS \$30,510. THE PRICE OF THIS VEHICLE IS \$30,510.

079 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-5
2	Driver Head Y Acceleration vs. Time Primary	B-5
3	Driver Head Z Acceleration vs. Time Primary	B-5
4	Driver Head Resultant Acceleration vs. Time Primary	B-5
5	Driver Chest X Deflection vs. Time	B-6
6	Driver Chest X Acceleration vs. Time Primary	B-7
7	Driver Chest Y Acceleration vs. Time Primary	B-7
8	Driver Chest Z Acceleration vs. Time Primary	B-7
9	Driver Chest Resultant Acceleration vs. Time Primary	B-7
10	Driver Upper Neck Force X vs. Time	B-8
11	Driver Upper Neck Force Z vs. Time	B-8
12	Driver Upper Neck Moment Y vs. Time	B-8
13	Driver Nij vs. Time	B-9
14	Driver Left Femur Force vs. Time	B-10
15	Driver Right Femur Force vs. Time	B-10
16	Passenger Head X Acceleration vs. Time Primary	B-11
17	Passenger Head Y Acceleration vs. Time Primary	B-11
18	Passenger Head Z Acceleration vs. Time Primary	B-11
19	Passenger Head Resultant Acceleration vs. Time Primary	B-11
20	Passenger Chest X Deflection vs. Time	B-12
21	Passenger Chest X Acceleration vs. Time Primary	B-13
22	Passenger Chest Y Acceleration vs. Time Primary	B-13
23	Passenger Chest Z Acceleration vs. Time Primary	B-13
24	Passenger Chest Resultant Acceleration vs. Time Primary	B-13
25	Passenger Upper Neck Force X vs. Time	B-14
26	Passenger Upper Neck Force Z vs. Time	B-14
27	Passenger Upper Neck Moment Y vs. Time	B-14
28	Passenger Nij vs. Time	B-15
29	Passenger Left Femur Force vs. Time	B-16
30	Passenger Right Femur Force vs. Time	B-16

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 Femur Force Redundant
Driver Right Femur Force Redundant
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 Femur Force Redundant
Passenger Right Femur Force Redundant
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
Load Cell Barrier Forces and Moments

NHTSA

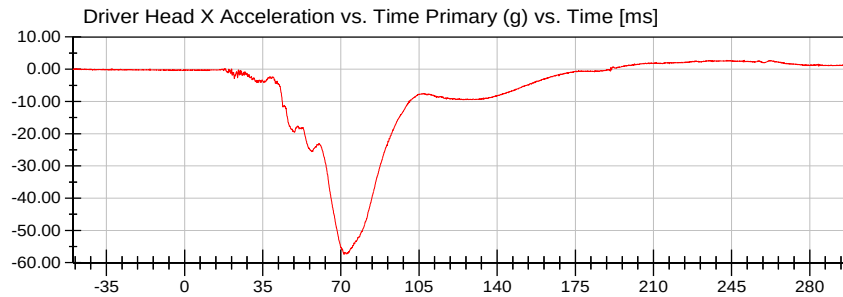
Test Lab: CTF

Test Number: 161121 (M20170301)

Test Date: 11/21/2016

Position #1 Hybrid III Mid-Sized Adult Male Dummy (037)

Position #2 Hybrid III Small Adult Female (426)



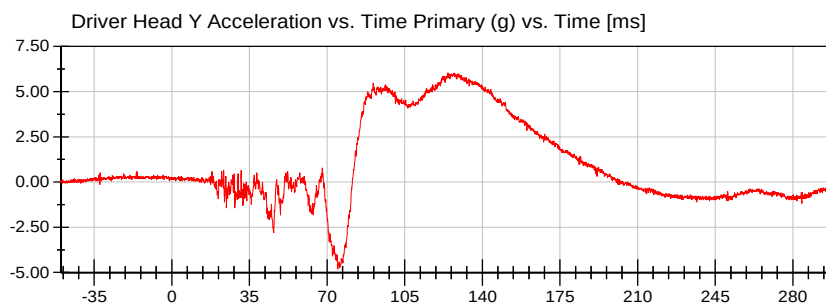
<Max>

2.75 g at 242.96 ms

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-57.44 g at 71.44 ms

CFC_1000



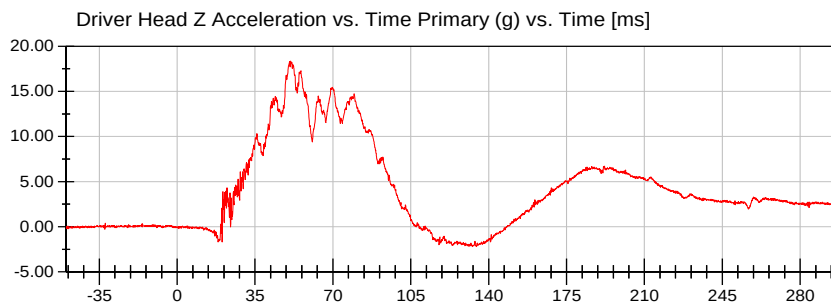
<Max>

6.03 g at 124.32 ms

<Min>

-4.81 g at 74.80 ms

CFC_1000



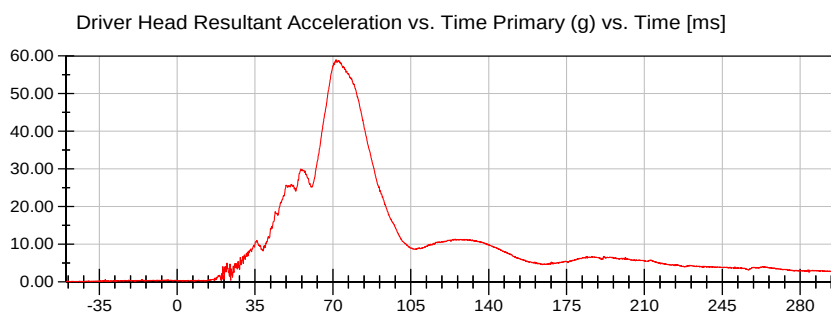
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18.35 g at 50.96 ms

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-2.19 g at 131.20 ms

CFC_1000



<Max>

59.00 g at 71.44 ms

<Min>

0.04 g at -48.32 ms

CFC_1000



NHTSA

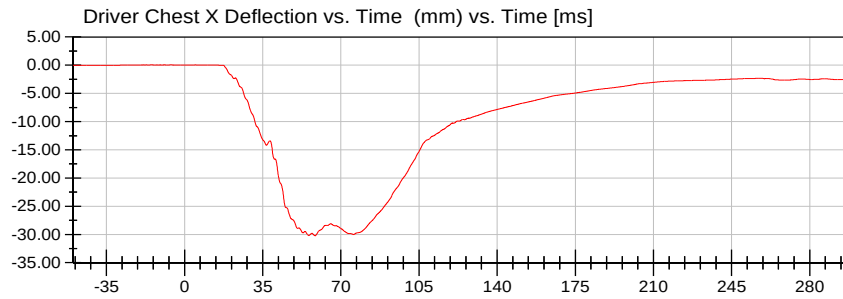
Test Lab: CTF

Test Number: 161121 (M20170301)

Test Date: 11/21/2016

Position #1 Hybrid III Mid-Sized Adult Male Dummy (037)

Position #2 Hybrid III Small Adult Female (426)



<Max>

0.04 mm at 4.80 ms

<Min>

-30.22 mm at 58.48 ms

CFC_600



NHTSA

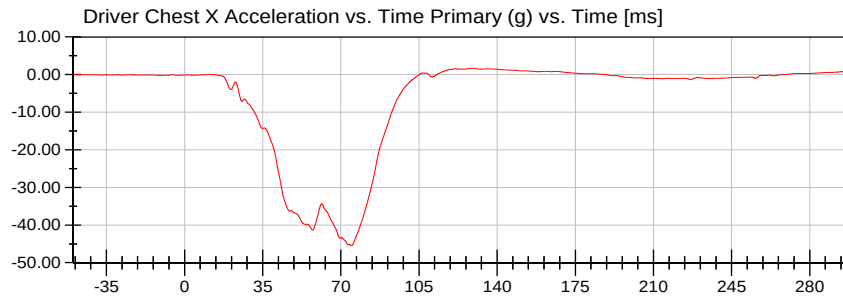
Test Lab: CTF

Test Number: 161121 (M20170301)

Test Date: 11/21/2016

Position #1 Hybrid III Mid-Sized Adult Male Dummy (037)

Position #2 Hybrid III Small Adult Female (426)



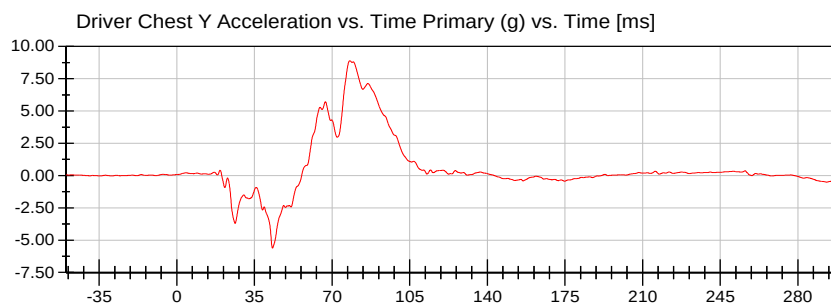
<Max>

1.65 g at 129.44 ms

<Min>

-45.45 g at 74.88 ms

CFC_180



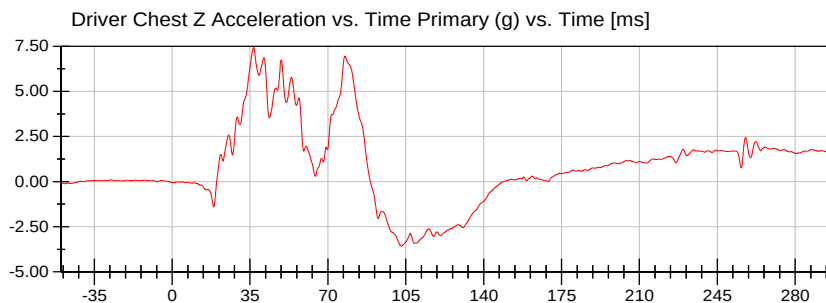
<Max>

8.88 g at 77.92 ms

<Min>

-5.61 g at 43.20 ms

CFC_180



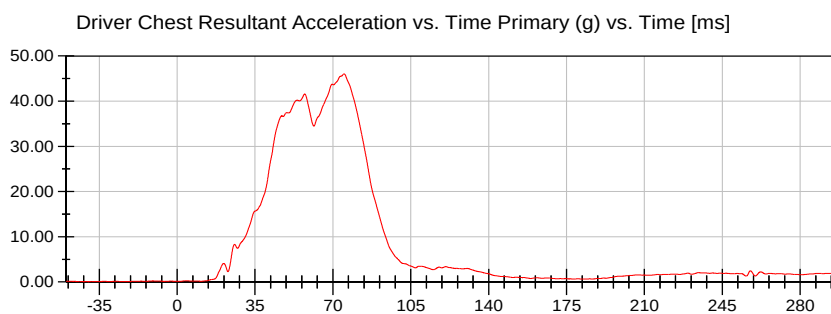
<Max>

7.42 g at 36.64 ms

<Min>

-3.58 g at 102.96 ms

CFC_180



<Max>

46.03 g at 75.04 ms

<Min>

0.06 g at -39.84 ms

CFC_180



NHTSA

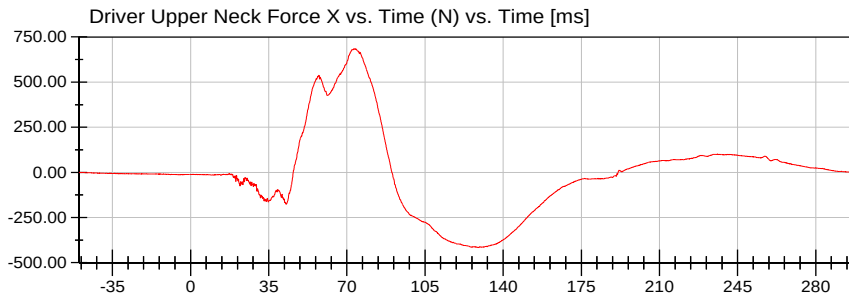
Test Lab: CTF

Test Number: 161121 (M20170301)

Test Date: 11/21/2016

Position #1 Hybrid III Mid-Sized Adult Male Dummy (037)

Position #2 Hybrid III Small Adult Female (426)



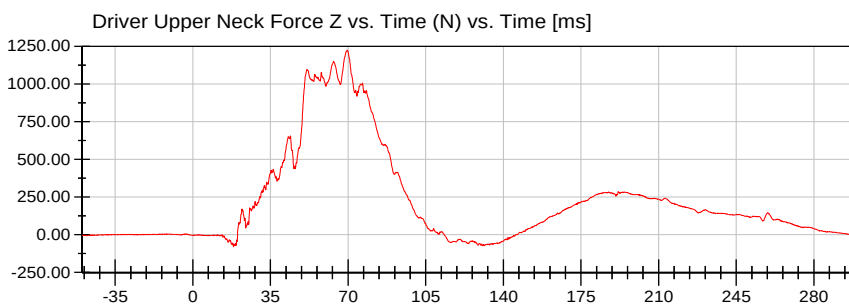
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684.81 N at 73.92 ms

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-416.49 N at 128.80 ms

CFC_1000



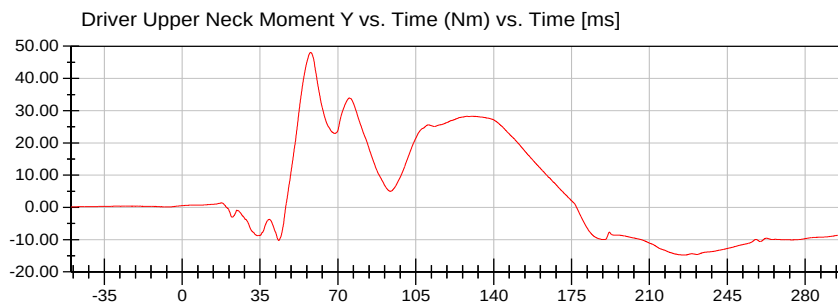
<Max>

1,225.66 N at 69.60 ms

<Min>

-79.46 N at 18.32 ms

CFC_1000



<Max>

48.05 Nm at 57.68 ms

<Min>

-14.78 Nm at 226.00 ms

CFC_600





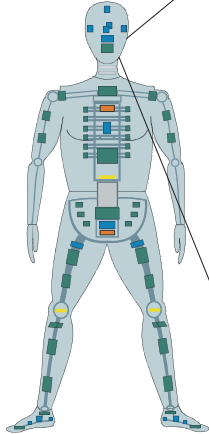
Neck Injury Predictor (NIJ)

Date: 11/21/2016
Time: 14:54

Customer: NHTSA

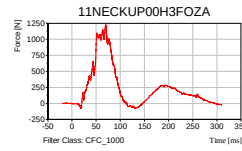
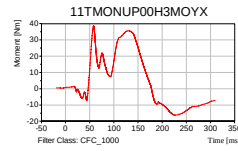
Test Number: M20170301

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

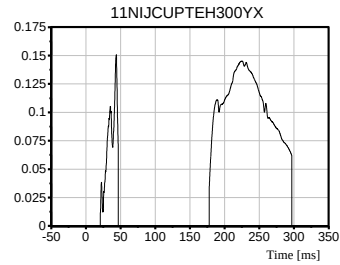


Dummy: HIII 50th Male
Seating Position:
Driver

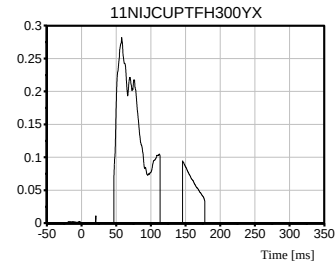
NIJ Source Code: (Fz/Fzc)+(Myl/Myc)



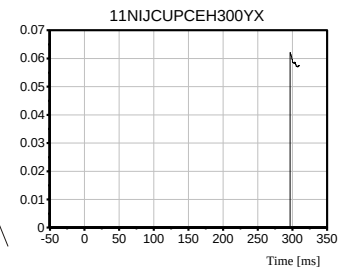
TRC Inc. Test Lab: CTF
Test Number: 161121



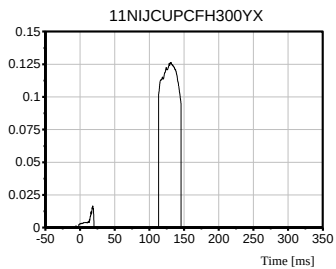
Max [NTE] 0.1505 at 43.92 ms



Max [NTF] 0.2819 at 57.92 ms



Max [NCE] 0.0621 at 296.96 ms



Max [NCF] 0.1264 at 130.64 ms

NHTSA

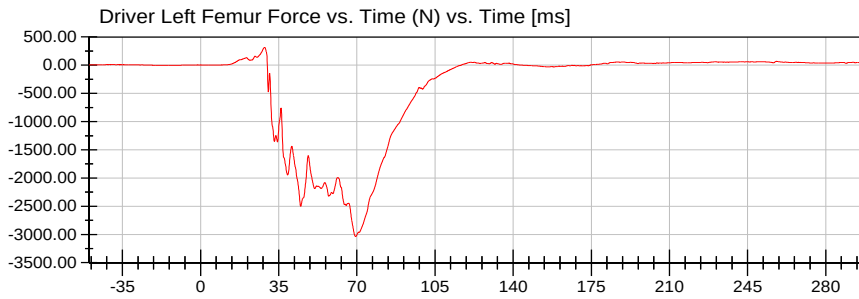
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Test Number: 161121 (M20170301)

Test Date: 11/21/2016

Position #1 Hybrid III Mid-Sized Adult Male Dummy (037)

Position #2 Hybrid III Small Adult Female (426)



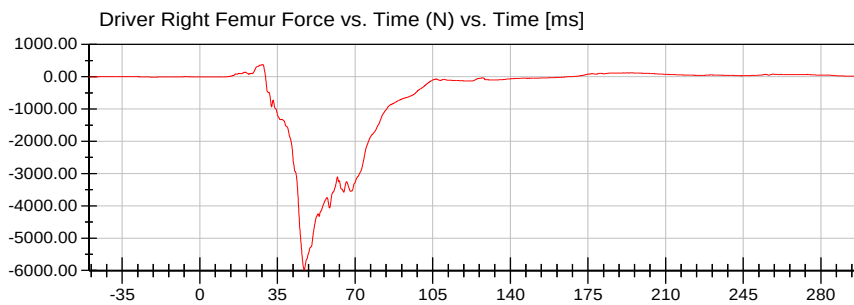
<Max>

314.31 N at 28.72 ms

<Min>

-3,036.08 N at 69.52 ms

CFC_600



<Max>

375.42 N at 28.40 ms

<Min>

-5,984.75 N at 47.04 ms

CFC_600



NHTSA

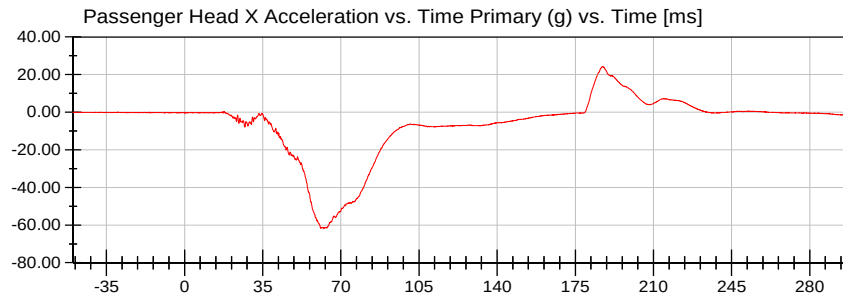
Test Lab: CTF

Test Number: 161121 (M20170301)

Test Date: 11/21/2016

Position #1 Hybrid III Mid-Sized Adult Male Dummy (037)

Position #2 Hybrid III Small Adult Female (426)



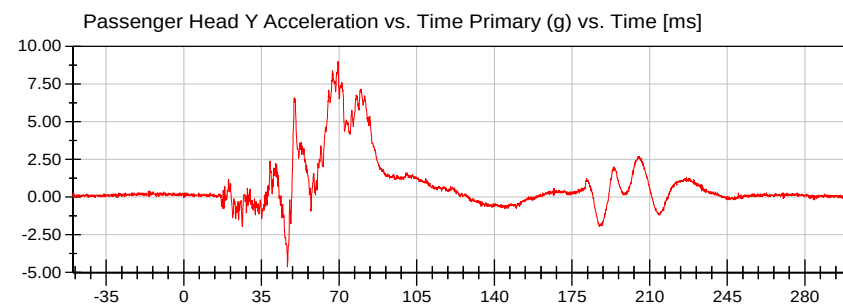
<Max>

24.29 g at 187.12 ms

<Min>

-61.91 g at 62.40 ms

CFC_1000



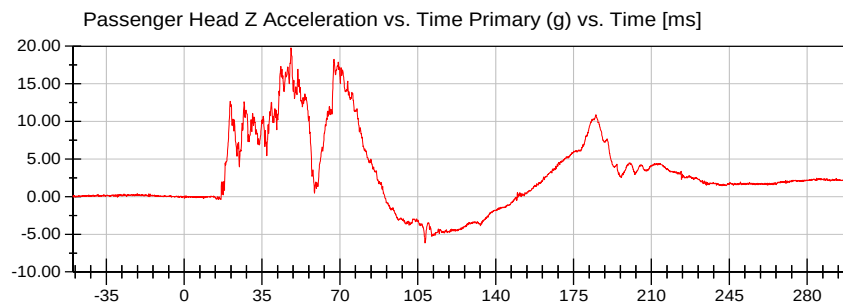
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9.02 g at 69.52 ms

<Min>

-4.64 g at 46.72 ms

CFC_1000



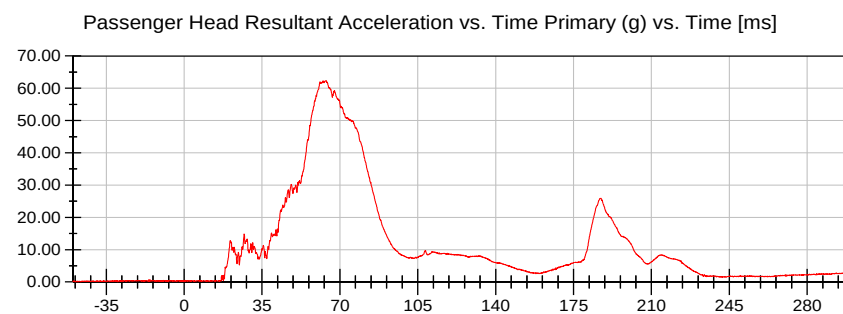
<Max>

19.80 g at 48.00 ms

<Min>

-6.15 g at 108.24 ms

CFC_1000



<Max>

62.43 g at 63.76 ms

<Min>

0.03 g at -48.32 ms

CFC_1000



NHTSA

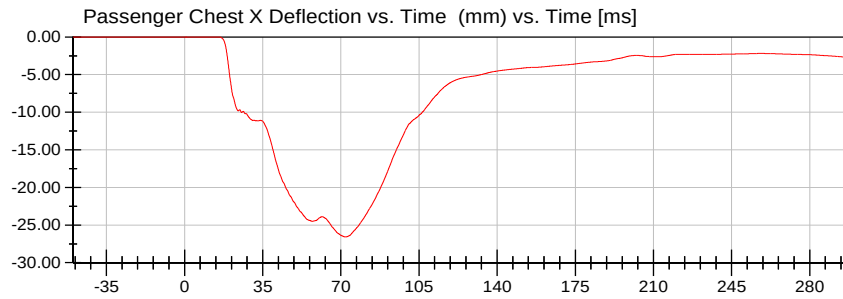
Test Lab: CTF

Test Number: 161121 (M20170301)

Test Date: 11/21/2016

Position #1 Hybrid III Mid-Sized Adult Male Dummy (037)

Position #2 Hybrid III Small Adult Female (426)



<Max>

0.00 mm at 0.64 ms

<Min>

-26.57 mm at 72.16 ms

CFC_600



NHTSA

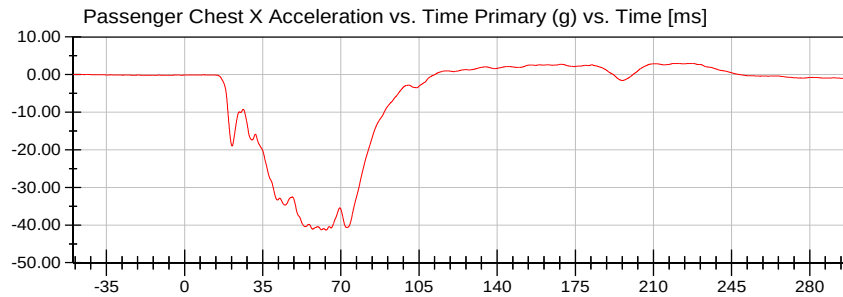
Test Lab: CTF

Test Number: 161121 (M20170301)

Test Date: 11/21/2016

Position #1 Hybrid III Mid-Sized Adult Male Dummy (037)

Position #2 Hybrid III Small Adult Female (426)



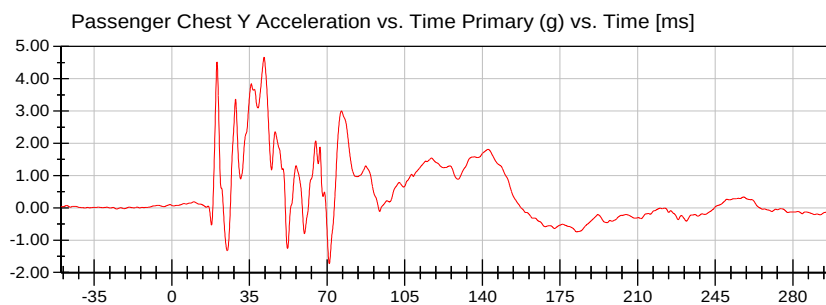
<Max>

2.94 g at 219.12 ms

<Min>

-41.33 g at 63.44 ms

CFC_180



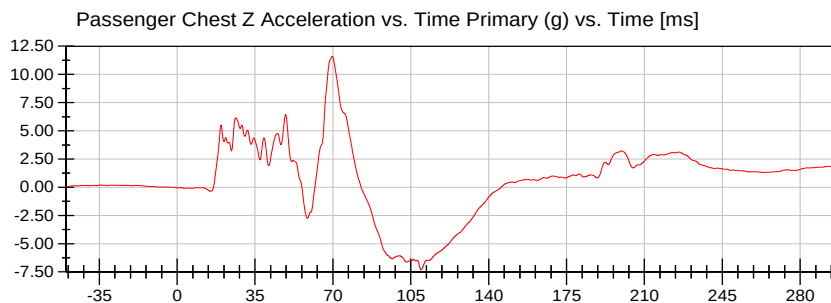
<Max>

4.67 g at 41.60 ms

<Min>

-1.73 g at 70.96 ms

CFC_180



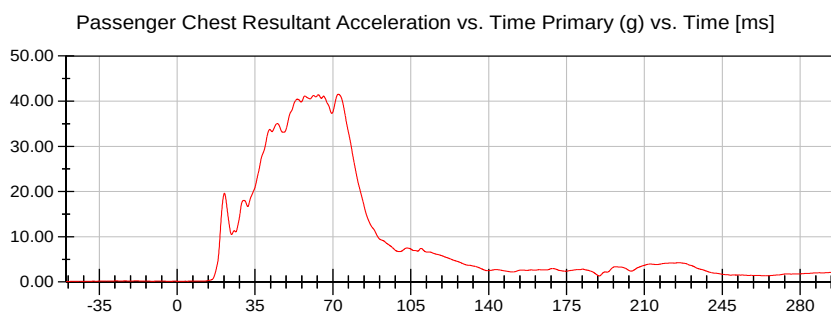
<Max>

11.60 g at 69.68 ms

<Min>

-7.30 g at 109.60 ms

CFC_180



<Max>

41.53 g at 72.40 ms

<Min>

0.09 g at -49.36 ms

CFC_180



NHTSA

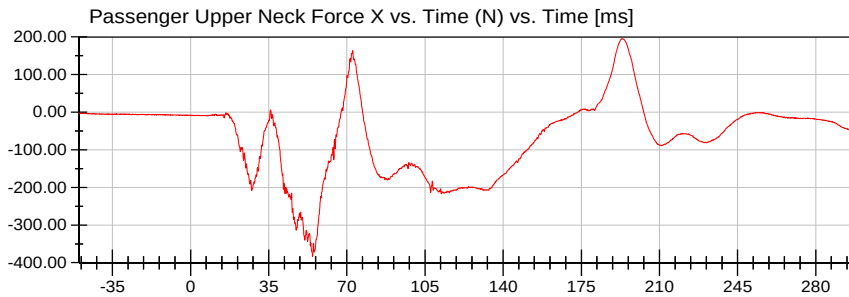
Test Lab: CTF

Test Number: 161121 (M20170301)

Test Date: 11/21/2016

Position #1 Hybrid III Mid-Sized Adult Male Dummy (037)

Position #2 Hybrid III Small Adult Female (426)



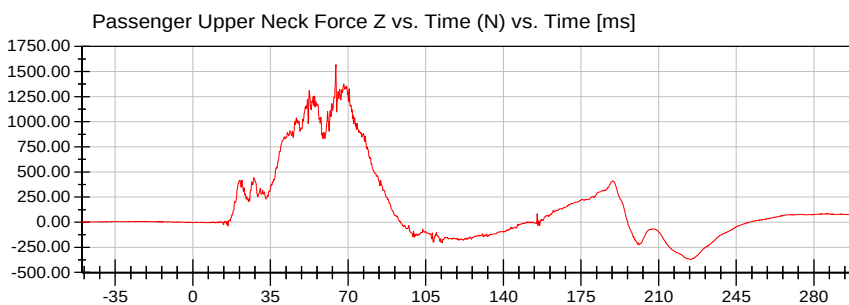
<Max>

194.89 N at 192.96 ms

<Min>

-383.40 N at 54.72 ms

CFC_1000



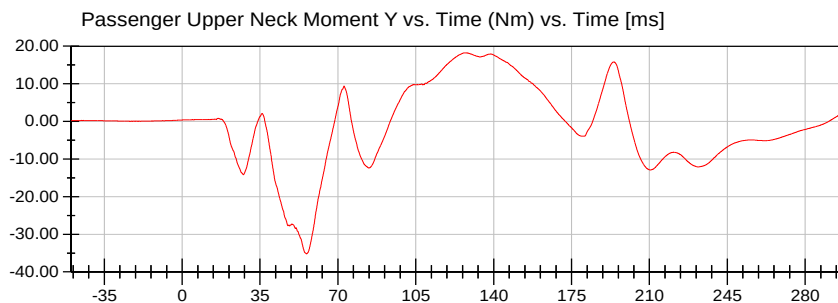
<Max>

1,568.65 N at 64.48 ms

<Min>

-369.63 N at 224.16 ms

CFC_1000



<Max>

18.24 Nm at 127.28 ms

<Min>

-35.21 Nm at 55.92 ms

CFC_600





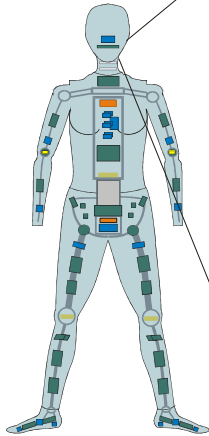
Neck Injury Predictor (NIJ)

Date: 11/21/2016
Time: 14:54

Customer: NHTSA

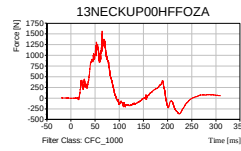
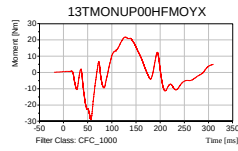
Test Number: M20170301

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

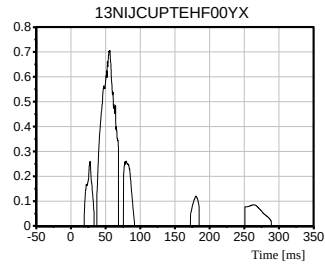


Dummy: HIII 5th Female
Seating Position:
Right Front Passenger

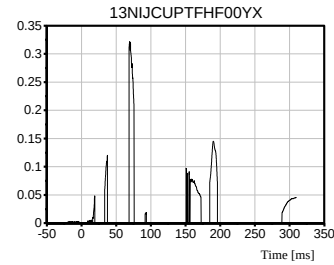
NIJ Source Code: (Fz/Fzc)+(Myl/Myc)



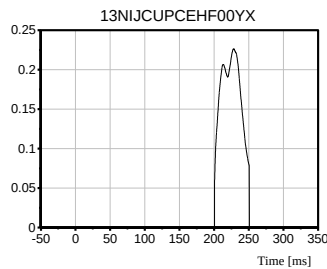
TRC Inc. Test Lab: CTF
Test Number: 161121



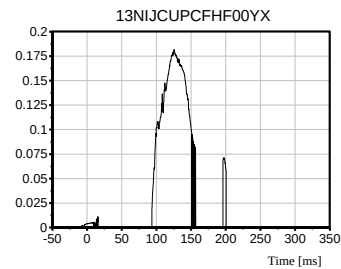
Max [NTE] 0.7064 at 56.24 ms



Max [NTF] 0.3215 at 69.36 ms



Max [NCE] 0.2266 at 228.08 ms



Max [NCF] 0.1815 at 125.60 ms

NHTSA

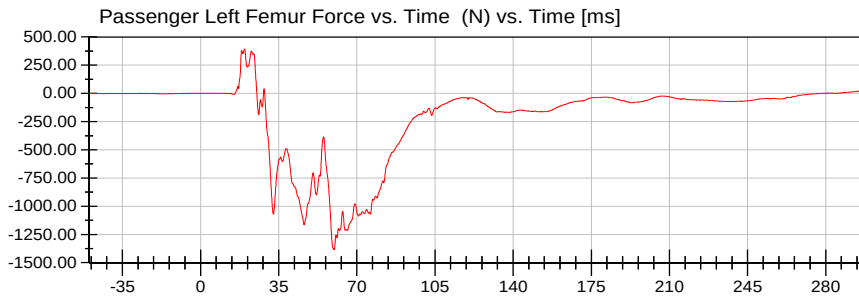
Test Lab: CTF

Test Number: 161121 (M20170301)

Test Date: 11/21/2016

Position #1 Hybrid III Mid-Sized Adult Male Dummy (037)

Position #2 Hybrid III Small Adult Female (426)



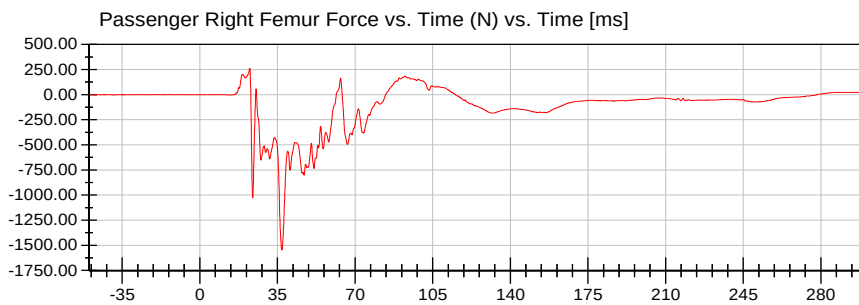
<Max>

393.95 N at 19.68 ms

<Min>

-1,382.80 N at 59.84 ms

CFC_600



<Max>

262.68 N at 22.56 ms

<Min>

-1,545.57 N at 37.04 ms

CFC_600



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. 41

Symbol	Description	Specification	Results	Pass
		mm	mm	
A	Total Sitting Height	878.8 - 889.0	880	Yes
B	Shoulder Pivot Height	505.5 - 520.7	514	Yes
C	H-Point Height	83.8 - 88.9	87	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	295	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	198	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	429	Yes
W	Foot Breadth	91.4 - 106.7	97	Yes
Y	Chest Circumference	970.3 - 1000.8	990	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:



Transportation Research Center Inc.

Front Head Drop

HIII 50th Serial No. 037 Certification No. 41-1

Test Date: 11/15/2016

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.5 °C	21.7 °C	Yes
Relative Humidity	10 - 70 %	28 %	Yes
Peak Head Resultant Acceleration	225 - 275 g	249.1 g	Yes
Peak Head Lateral Acceleration	(-15) - 15 g	-8.7 g	Yes
Is Acceleration Curve Unimodal within 10% of Peak?	Yes	Yes	Yes

Test meets specifications.

Comments:

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

11.15.2016 13:25:57 614

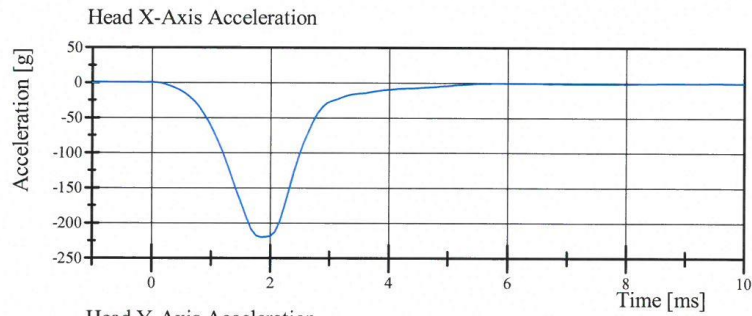


Transportation Research Center Inc.

Front Head Drop

HIII 50th Serial No. 037 Certification No. 41-1

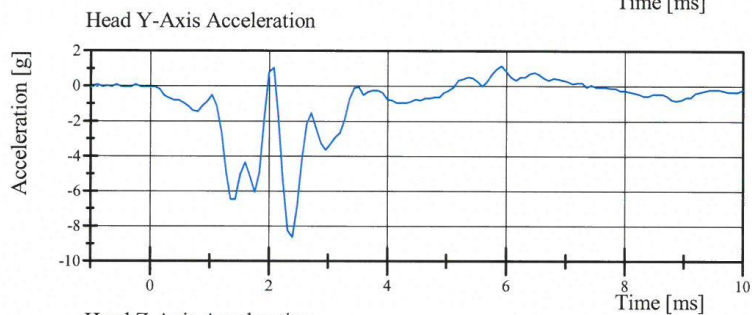
Test Date: 11/15/2016



Filter Class: CFC_1000

Max: 0.1 g at -0.2 ms

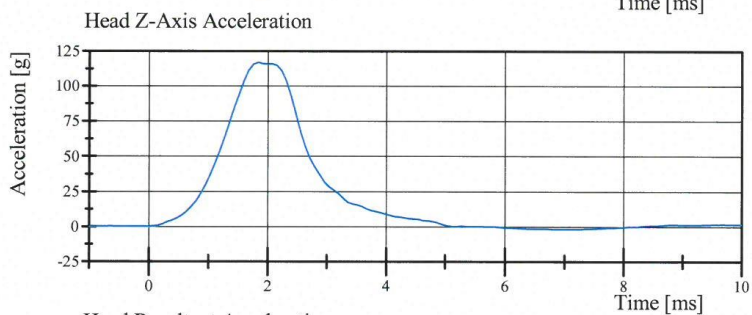
Min: -220.0 g at 1.8 ms



Filter Class: CFC_1000

Max: 1.1 g at 5.9 ms

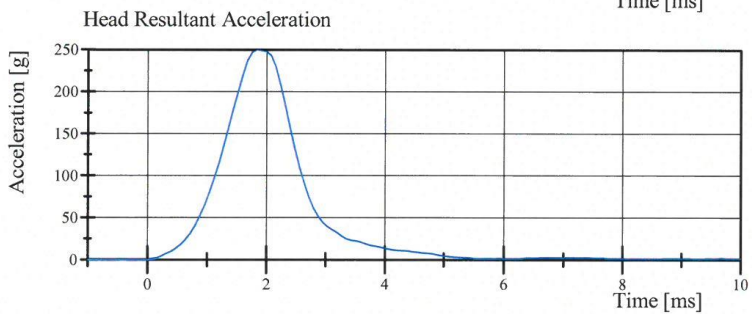
Min: -8.7 g at 2.4 ms



Filter Class: CFC_1000

Max: 116.7 g at 1.8 ms

Min: -1.8 g at 7.0 ms



Filter Class: CFC_1000

Max: 249.1 g at 1.8 ms

Min: 0.1 g at -0.6 ms

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

11.15.2016 13:26:06 614



Transportation Research Center Inc.

Neck Flexion

HIII 50th Serial No. 037 Certification No. 41-2

Test Date: 11/15/2016

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.9 °C	Yes
Relative Humidity	10 - 70 %	28 %	Yes
Pendulum Velocity	6.89 - 7.13 m/s	6.941 m/s	Yes
Pendulum Acceleration Decay Crossing -5g	34 - 42 ms	37.6 ms	Yes
Pendulum Acceleration at 10ms	(-22.5) - (-27.5) g	-24.70 g	Yes
Pendulum Acceleration at 20ms	(-17.6) - (-22.6) g	-19.83 g	Yes
Pendulum Acceleration at 30ms	(-12.5) - (-18.5) g	-14.38 g	Yes
Pendulum Acceleration > 30ms	>= (-29.0) g	-14.38 g	Yes
Total Head D-Plane Rotation			
Peak	(-64) - (-78) °	-76.3 °	Yes
Time of Peak	57 - 64 ms	59.5 ms	Yes
Total Head D-Plane Rotation			
Decay to 0°	113 - 128 ms	119.0 ms	Yes
Total Neck Occipital Condyles Moment			
Peak	88 - 108 N·m	102.5 N·m	Yes
Time of Peak	47 - 58 ms	50.7 ms	Yes
Total Neck Occipital Condyles Moment			
Decay to 0 N·m	97 - 107 ms	99.9 ms	Yes

Test meets specifications.

Comments:

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

11.15.2016 14:23:30 3039

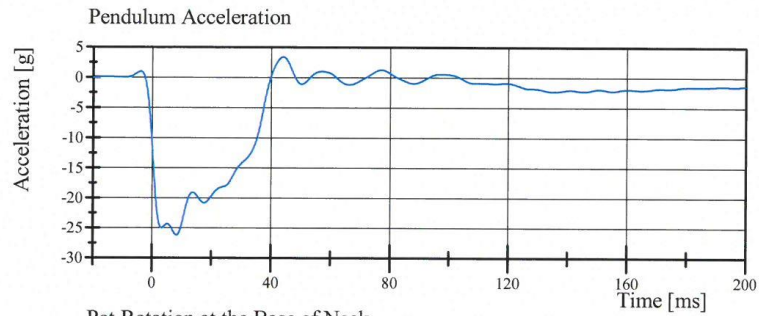


Transportation Research Center Inc.

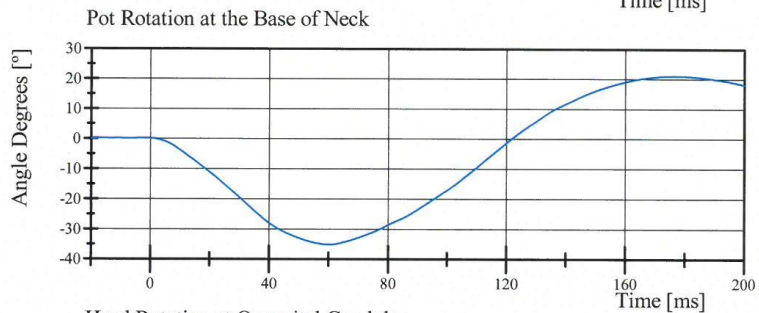
Neck Flexion

HIII 50th Serial No. 037 Certification No. 41-2

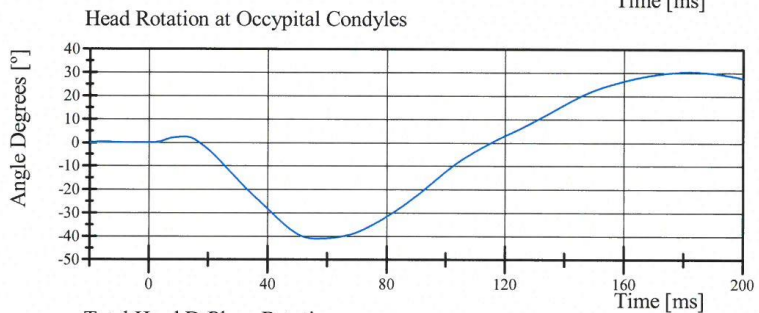
Test Date: 11/15/2016



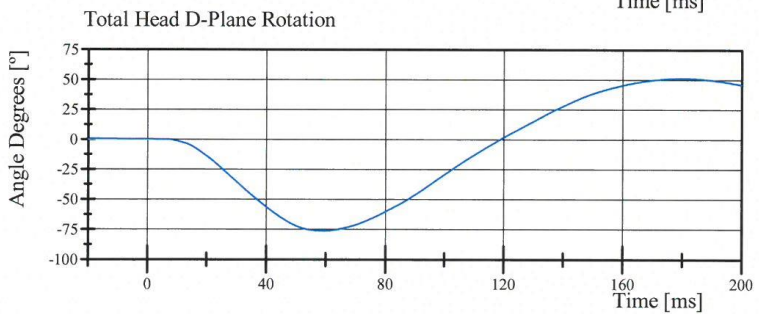
Filter Class: CFC_60
Max: 3.3 g at 44.1 ms
Min: -26.3 g at 8.4 ms



Filter Class: CFC_60
Max: 21.0 ° at 176.3 ms
Min: -35.3 ° at 60.4 ms



Filter Class: CFC_60
Max: 30.5 ° at 182.2 ms
Min: -41.2 ° at 56.5 ms



Filter Class: CFC_60
Max: 51.4 ° at 180.2 ms
Min: -76.3 ° at 59.5 ms

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

11.15.2016 14:23:55 3039

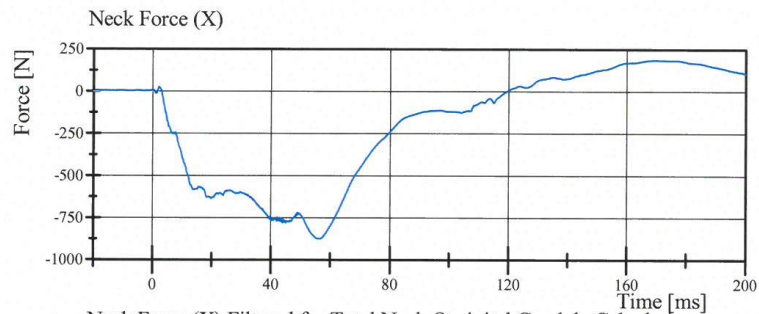


Transportation Research Center Inc.

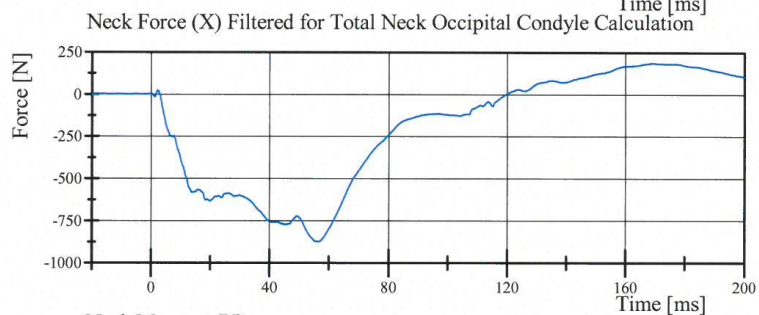
Neck Flexion

HIII 50th Serial No. 037 Certification No. 41-2

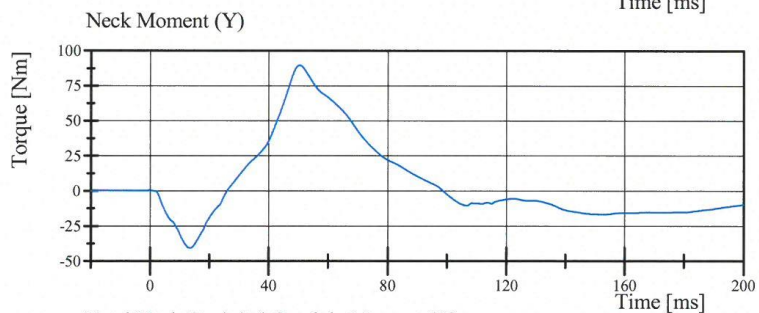
Test Date: 11/15/2016



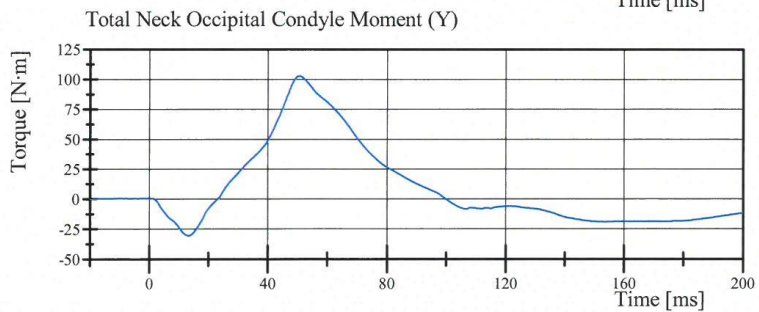
Filter Class: CFC_1000
Max: 187.3 N at 170.0 ms
Min: -876.3 N at 56.6 ms



Filter Class: CFC_600
Max: 186.6 N at 169.9 ms
Min: -875.8 N at 56.6 ms



Filter Class: CFC_600
Max: 89.4 Nm at 50.5 ms
Min: -41.1 Nm at 13.7 ms



Filter Class: Without_Constai
Max: 102.5 N·m at 50.7 ms
Min: -30.9 N·m at 13.2 ms

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

11.15.2016 14:23:56 3039



Transportation Research Center Inc.

Neck Extension

HIII 50th Serial No. 037 Certification No. 41-2

Test Date: 11/15/2016

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.6 °C	Yes
Relative Humidity	10 - 70 %	29 %	Yes
Pendulum Velocity	(-5.95) - (-6.18) m/s	-5.984 m/s	Yes
Pendulum Acceleration Decay Crossing 5g	38 - 46 ms	41.0 ms	Yes
Pendulum Acceleration at 10ms	17.2 - 21.2 g	19.11 g	Yes
Pendulum Acceleration at 20ms	14.0 - 19.0 g	16.00 g	Yes
Pendulum Acceleration at 30ms	11.0 - 16.0 g	13.01 g	Yes
Pendulum Acceleration > 30ms	<= 22.0 g	13.01 g	Yes
Total Head D-Plane Rotation			
Peak	81 - 106 °	98.6 °	Yes
Time of Peak	72 - 82 ms	77.4 ms	Yes
Total Head D-Plane Rotation			
Decay to 0°	147 - 174 ms	159.2 ms	Yes
Total Neck Occipital Condyles Moment			
Peak	(-53) - (-80) N·m	-72.0 N·m	Yes
Time of Peak	65 - 79 ms	71.9 ms	Yes
Total Neck Occipital Condyles Moment			
Decay to 0 N·m	120 - 148 ms	145.6 ms	Yes

Test meets specifications.

Comments:

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

11.15.2016 15:26:04 3128

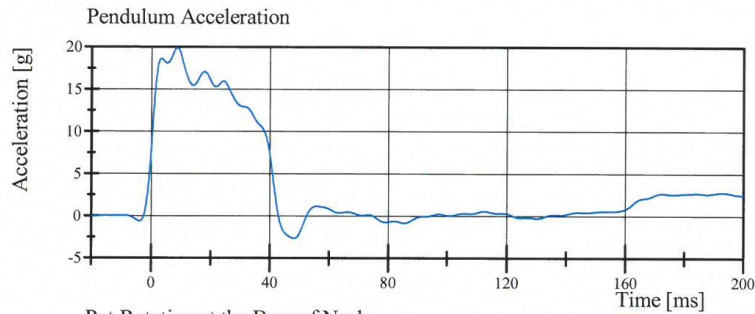


Transportation Research Center Inc.

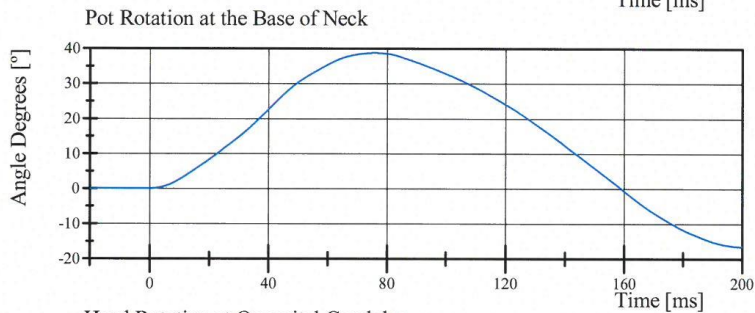
Neck Extension

HIII 50th Serial No. 037 Certification No. 41-2

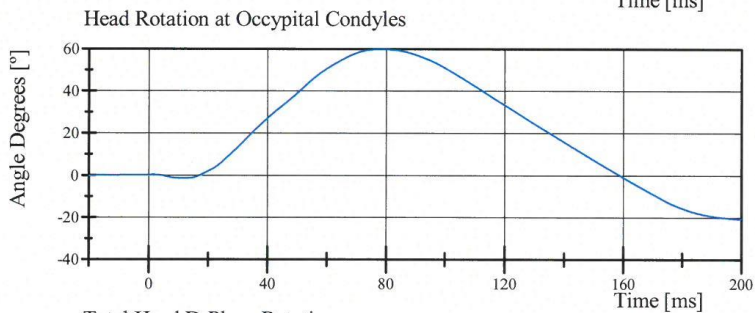
Test Date: 11/15/2016



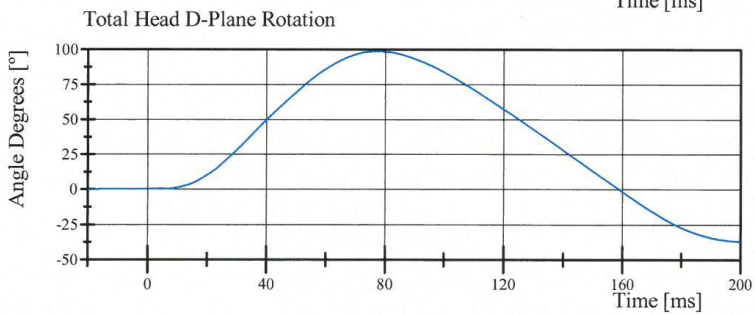
Filter Class: CFC_60
Max: 19.9 g at 8.7 ms
Min: -2.7 g at 48.2 ms



Filter Class: CFC_60
Max: 38.8 ° at 75.8 ms
Min: -16.5 ° at 200.0 ms



Filter Class: CFC_60
Max: 59.9 ° at 78.4 ms
Min: -20.5 ° at 200.0 ms



Filter Class: CFC_60
Max: 98.6 ° at 77.4 ms
Min: -37.0 ° at 200.0 ms

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

11.15.2016 15:26:15 3128

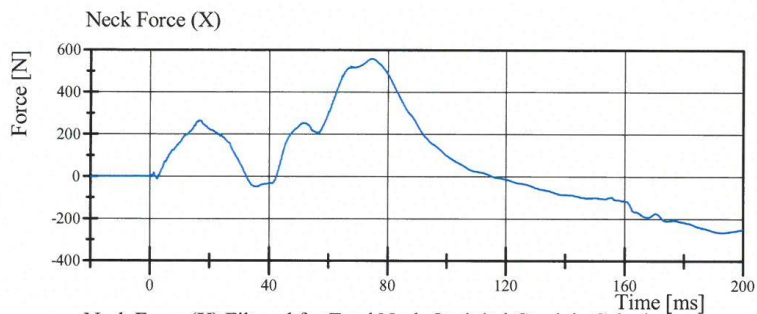


Transportation Research Center Inc.

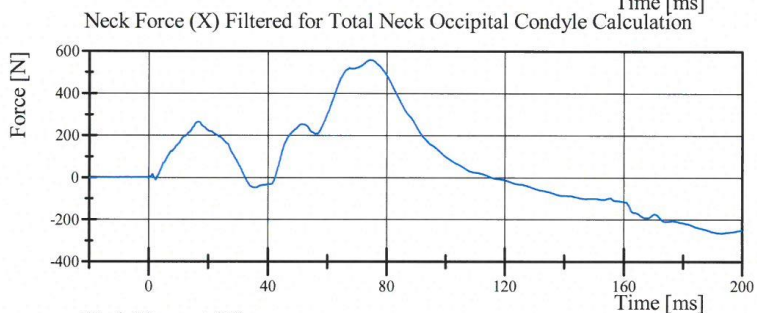
Neck Extension

HIII 50th Serial No. 037 Certification No. 41-2

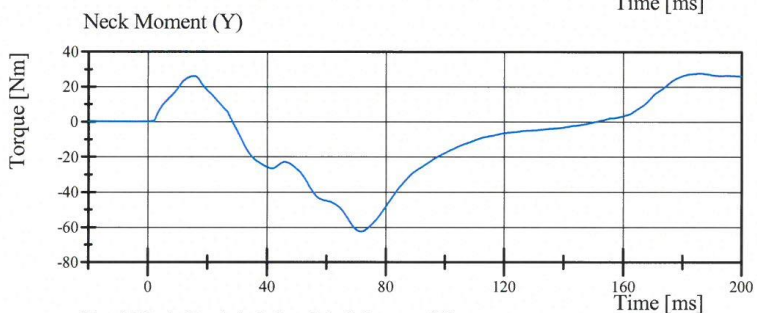
Test Date: 11/15/2016



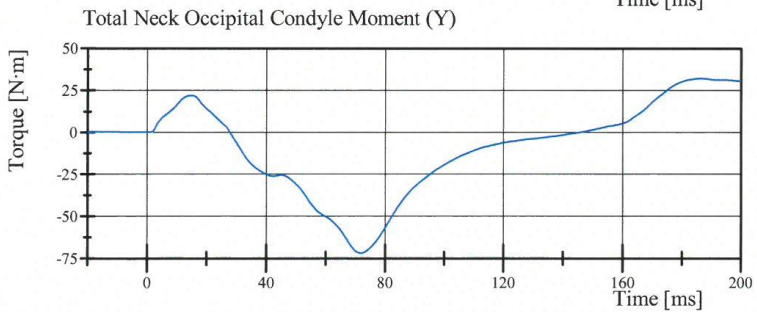
Filter Class: CFC_1000
Max: 558.9 N at 74.4 ms
Min: -263.7 N at 193.0 ms



Filter Class: CFC_600
Max: 558.6 N at 74.5 ms
Min: -263.4 N at 193.0 ms



Filter Class: CFC_600
Max: 27.9 Nm at 186.1 ms
Min: -62.5 Nm at 71.7 ms



Filter Class: Without_Constai
Max: 32.2 N·m at 186.1 ms
Min: -72.0 N·m at 71.9 ms

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

11.15.2016 15:26:16 3128



Transportation Research Center Inc.

Front Thorax

HIII 50th Serial No. 037 Certification No. 41-3

Test Date: 11/15/2016

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.9 °C	Yes
Relative Humidity	10 - 70 %	30 %	Yes
Probe Velocity	6.59 - 6.83 m/s	6.680 m/s	Yes
Probe Force Peak	(-5,160) - (-5,893) N	-5,550.3 N	Yes
Maximum Chest Compression	(-63.5) - (-72.6) mm	-71.96 mm	Yes
Internal Hysteresis	65 - 85 %	72.7 %	Yes

Test meets specifications.

Comments:

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

11.15.2016 16:14:54 381

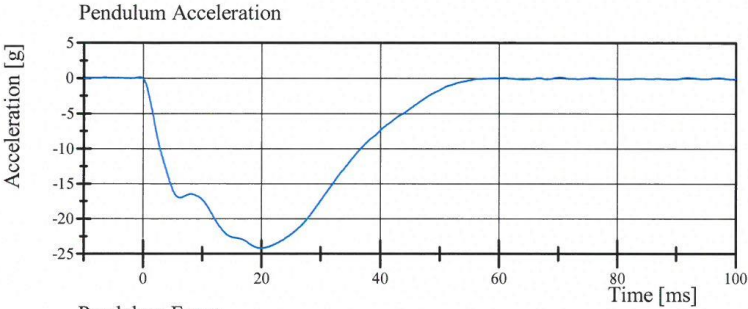


Transportation Research Center Inc.

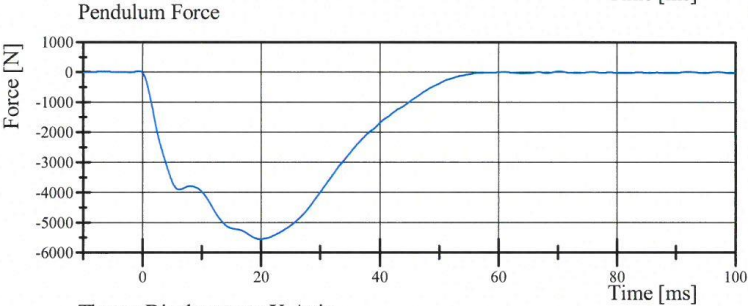
Front Thorax

HIII 50th Serial No. 037 Certification No. 41-3

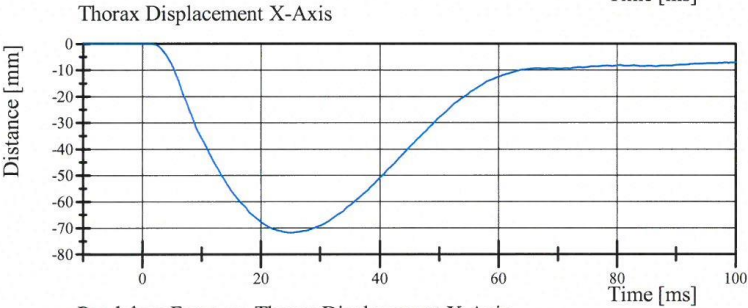
Test Date: 11/15/2016



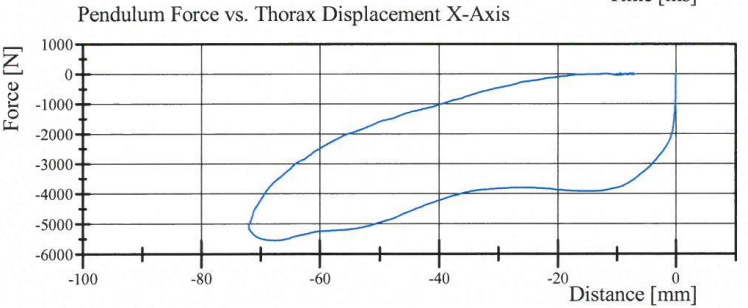
Filter Class: CFC_180
 Max: 0.2 g at 70.3 ms
 Min: -24.2 g at 19.9 ms



Filter Class: CFC_180
 Max: 37.8 N at 70.3 ms
 Min: -5,550.3 N at 19.9 ms



Filter Class: CFC_600
 Max: 0.0 mm at -9.8 ms
 Min: -72.0 mm at 25.1 ms



Filter Class: CFC_180
 Max: 37.8 N at -9.4 mm
 Min: -5,550.3 N at -67.6 mm

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

11.15.2016 16:15:09 381



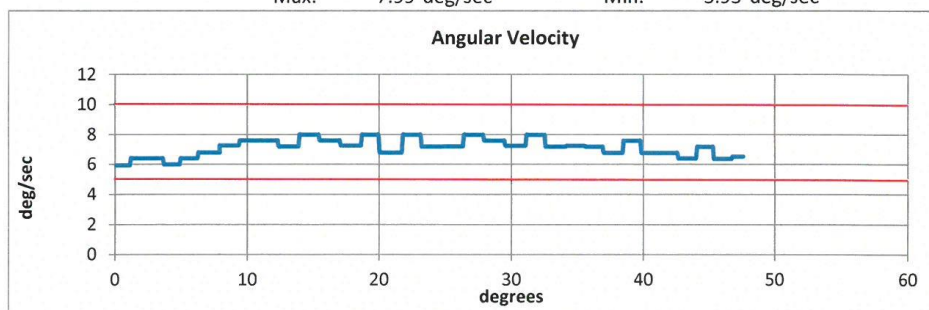
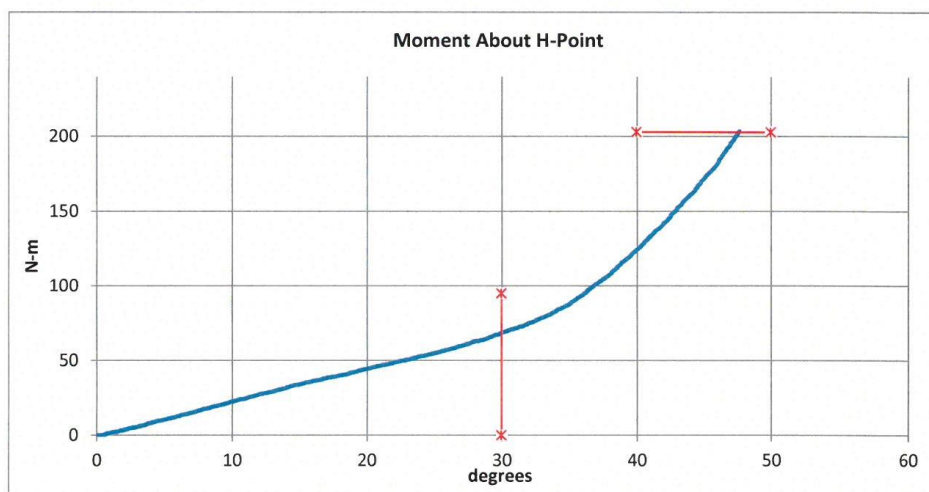
Transportation Research Center Inc.

Hybrid III 50th Male Hip Range of Motion



Serial Number: 037 Date: 15-Nov-2016
Side Tested: Left Hip Time: 11:27
Test Number: 1 Comments:

TEST PARAMETER	SPECIFICATION			TEST RESULTS	
Temperature	18.9	-	25.6	21.8 °C	Pass
Humidity	10	-	70	25 %	Pass
Moment at 30°	0	≤	94.9	68.75 N-m	Pass
Angle at 203 Nm	40	-	50	47.64 deg	Pass
Average Velocity	5	-	10	7.11 deg/sec	Pass



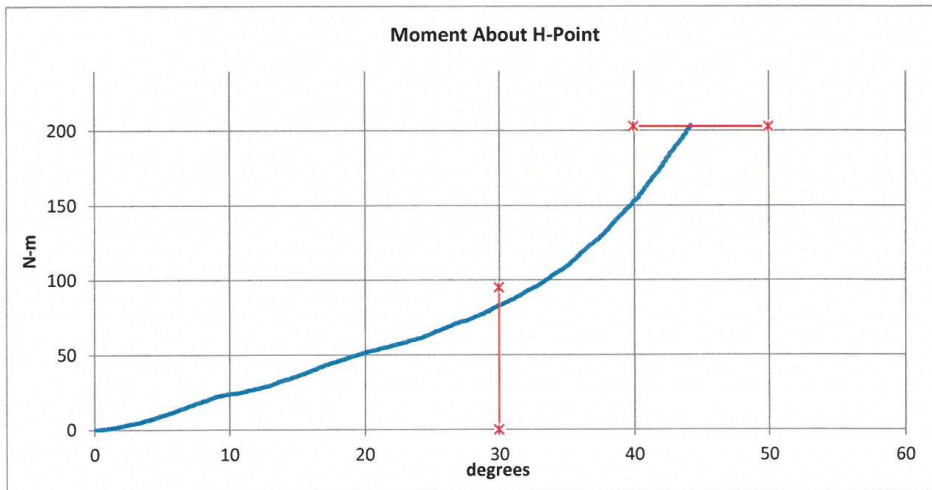
Transportation Research Center Inc.

Hybrid III 50th Male Hip Range of Motion

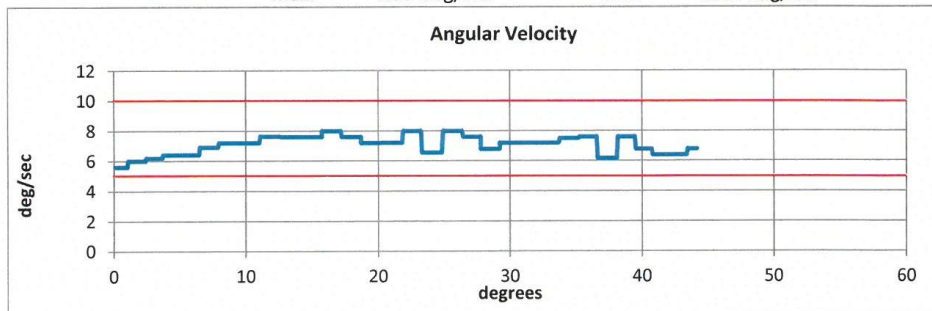


Serial Number: 037 Date: 15-Nov-2016
Side Tested: Right Hip Time: 12:29
Test Number: 1 Comments:

TEST PARAMETER	SPECIFICATION			TEST RESULTS		
Temperature	18.9	-	25.6	21.8	°C	Pass
Humidity	10	-	70	26	%	Pass
Moment at 30°	0	≤	94.9	83.27	N-m	Pass
Angle at 203 Nm	40	-	50	44.2	deg	Pass
Average Velocity	5	-	10	7.05	deg/sec	Pass



Max: 7.99 deg/sec Min: 5.59 deg/sec



Transportation Research Center Inc.

Left Knee Femur Response Test

HIII 50th Serial No. 037 Certification No. 41-2

Test Date: 11/15/2016

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.5 °C	21.8 °C	Yes
Relative Humidity	10 - 70 %	23 %	Yes
Probe Velocity	2.08 - 2.13 m/s	2.098 m/s	Yes
Peak Femur Force	(-4,715.2) - (-5,782.6) N	-5,472.02 N	Yes

Test meets specifications.

Comments:

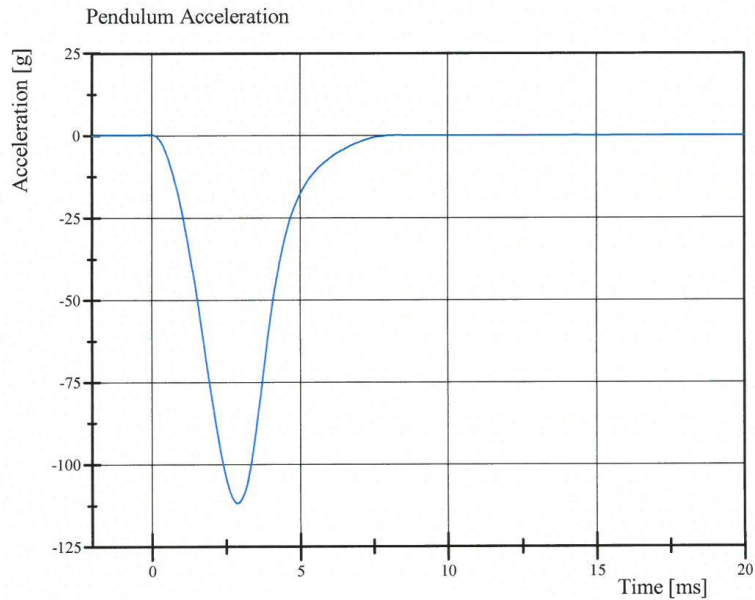
Specification Source: CFR49 Part 572 Subpart E
with Polarity in accordance with J211

11.15.2016 09:49:58 1780

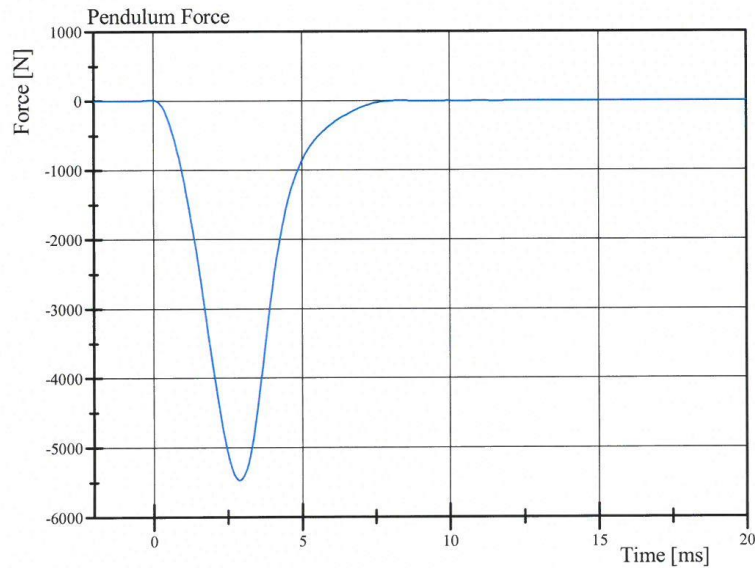


Transportation Research Center Inc.

Left Knee Femur Response Test
HIII 50th Serial No. 037 Certification No. 41-2
Test Date: 11/15/2016



Filter Class: CFC_600
Max: 0.2 g at -0.1 ms
Min: -111.8 g at 2.9 ms



Filter Class: CFC_600
Max: 7.4 N at -0.1 ms
Min: -5,472.0 N at 2.9 ms

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

11.15.2016 09:50:35 1780



Transportation Research Center Inc.

Right Knee Femur Response Test
HIII 50th Serial No. 037 Certification No. 41-1
Test Date: 11/15/2016

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.5 °C	21.8 °C	Yes
Relative Humidity	10 - 70 %	22 %	Yes
Probe Velocity	2.08 - 2.13 m/s	2.084 m/s	Yes
Peak Femur Force	(-4,715.2) - (-5,782.6) N	-5,468.86 N	Yes

Test meets specifications.

Comments:

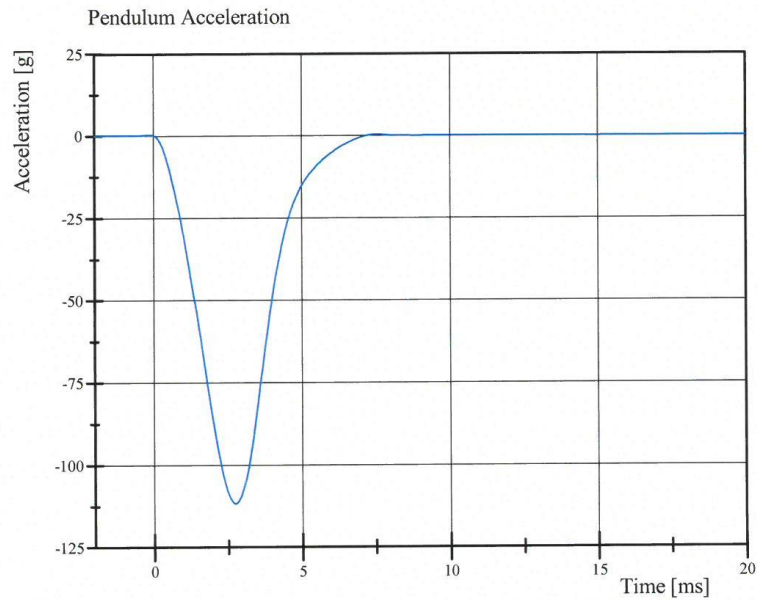
Specification Source: CFR49 Part 572 Subpart E
with Polarity in accordance with J211

11.15.2016 09:31:22 1789

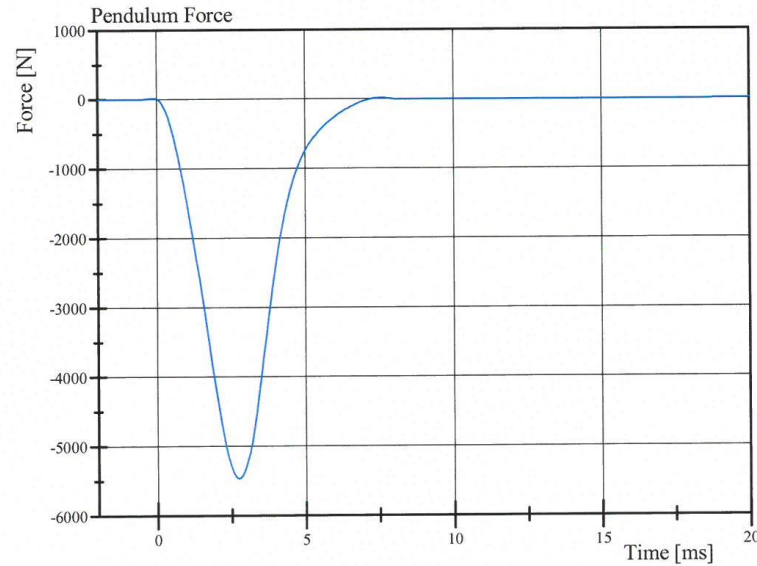


Transportation Research Center Inc.

Right Knee Femur Response Test
HIII 50th Serial No. 037 Certification No. 41-1
Test Date: 11/15/2016



Filter Class: CFC_600
Max: 0.3 g at 7.6 ms
Min: -111.8 g at 2.7 ms



Filter Class: CFC_600
Max: 14.9 N at 7.6 ms
Min: -5,468.9 N at 2.7 ms

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

11.15.2016 09:32:20 1789



Post-Test Calibration Sheets

Driver S/N 037

Transportation Research Center Inc.
572E HIII 50th Male Dummy
External Dimensions
Serial No. 037
Calibration No. 42

Symbol	Description	Specification	Results	Pass
		mm	mm	
A	Total Sitting Height	878.8 - 889.0	882	Yes
B	Shoulder Pivot Height	505.5 - 520.7	515	Yes
C	H-Point Height	83.8 - 88.9	87	Yes
D	H-Point From Seatback	134.6 - 139.7	138	Yes
E	Shoulder Pivot From Backline	83.8 - 94.0	93	Yes
F	Thigh Clearance	139.7 - 154.9	151	Yes
G	Back Of Elbow To Wrist Pivot	289.6 - 304.8	295	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	199	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	226	Yes
P	Foot Length	251.5 - 266.7	264	Yes
V	Shoulder Breadth	421.6 - 436.9	429	Yes
W	Foot Breadth	91.4 - 106.7	97	Yes
Y	Chest Circumference	970.3 - 1000.8	990	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:



Revised 8/10/12

Page 19 of 19

Transportation Research Center Inc.

Front Head Drop

HIII 50th Serial No. 037 Certification No. 42-1

Test Date: 11/22/2016

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.5 °C	21.4 °C	Yes
Relative Humidity	10 - 70 %	17 %	Yes
Peak Head Resultant Acceleration	225 - 275 g	261.1 g	Yes
Peak Head Lateral Acceleration	(-15) - 15 g	9.3 g	Yes
Is Acceleration Curve Unimodal within 10% of Peak?	Yes	Yes	Yes

Test meets specifications.

Comments:

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

11.22.2016 08:44:11 615

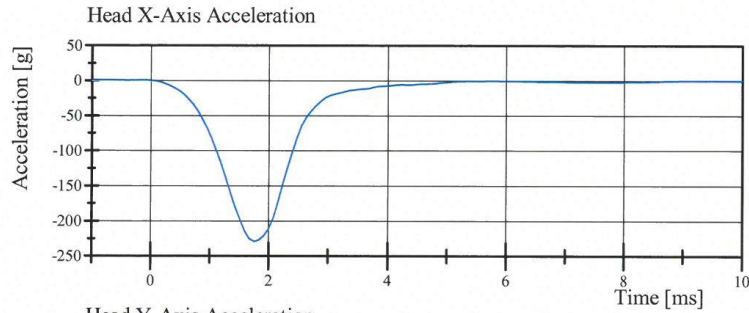


Transportation Research Center Inc.

Front Head Drop

HIII 50th Serial No. 037 Certification No. 42-1

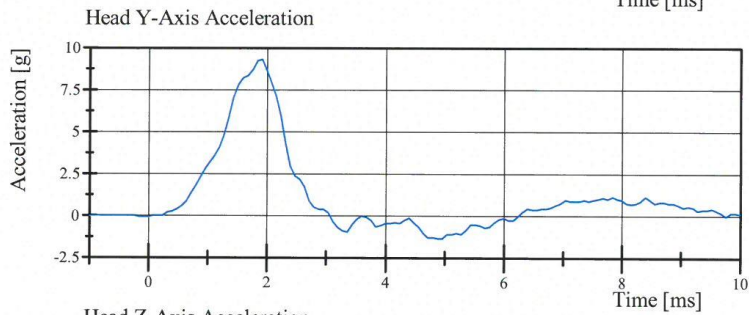
Test Date: 11/22/2016



Filter Class: CFC_1000

Max: 0.2 g at 9.7 ms

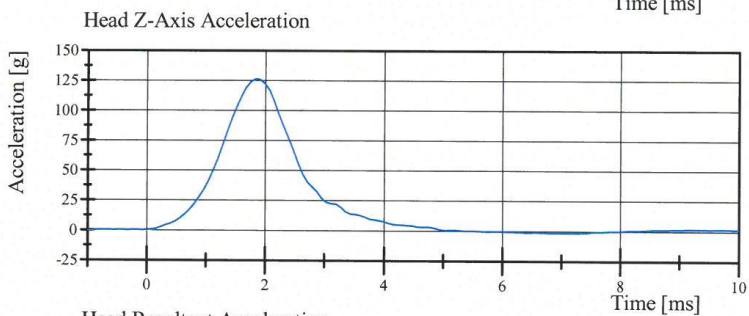
Min: -229.5 g at 1.8 ms



Filter Class: CFC_1000

Max: 9.3 g at 1.9 ms

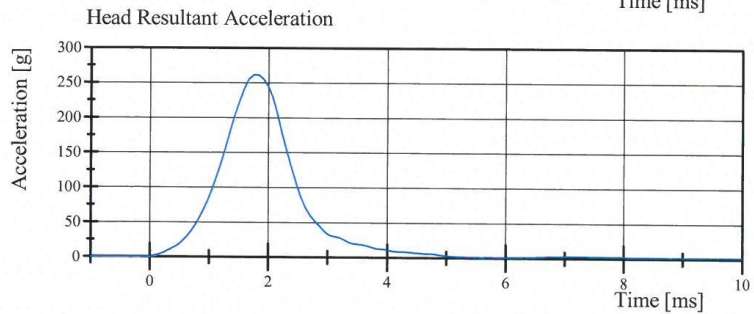
Min: -1.4 g at 4.9 ms



Filter Class: CFC_1000

Max: 126.4 g at 1.8 ms

Min: -1.5 g at 7.0 ms



Filter Class: CFC_1000

Max: 261.1 g at 1.8 ms

Min: 0.0 g at -0.3 ms

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

11.22.2016 08:44:24 615



Transportation Research Center Inc.

Neck Flexion

HIII 50th Serial No. 037 Certification No. 42-1

Test Date: 11/22/2016

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.4 °C	Yes
Relative Humidity	10 - 70 %	18 %	Yes
Pendulum Velocity	6.89 - 7.13 m/s	6.941 m/s	Yes
Pendulum Acceleration Decay Crossing -5g	34 - 42 ms	38.0 ms	Yes
Pendulum Acceleration at 10ms	(-22.5) - (-27.5) g	-24.40 g	Yes
Pendulum Acceleration at 20ms	(-17.6) - (-22.6) g	-21.24 g	Yes
Pendulum Acceleration at 30ms	(-12.5) - (-18.5) g	-15.01 g	Yes
Pendulum Acceleration > 30ms	>= (-29.0) g	-15.01 g	Yes
Total Head D-Plane Rotation			
Peak	(-64) - (-78) °	-65.5 °	Yes
Time of Peak	57 - 64 ms	59.1 ms	Yes
Total Head D-Plane Rotation			
Decay to 0°	113 - 128 ms	118.2 ms	Yes
Total Neck Occipital Condyles Moment			
Peak	88 - 108 N·m	104.6 N·m	Yes
Time of Peak	47 - 58 ms	50.8 ms	Yes
Total Neck Occipital Condyles Moment			
Decay to 0 N·m	97 - 107 ms	100.4 ms	Yes

Test meets specifications.

Comments:

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

11.22.2016 12:56:33 3035

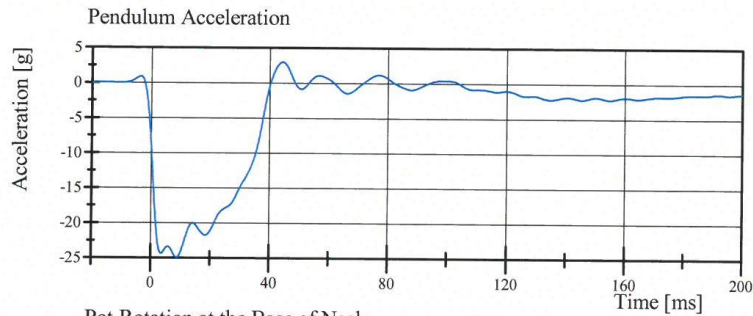


Transportation Research Center Inc.

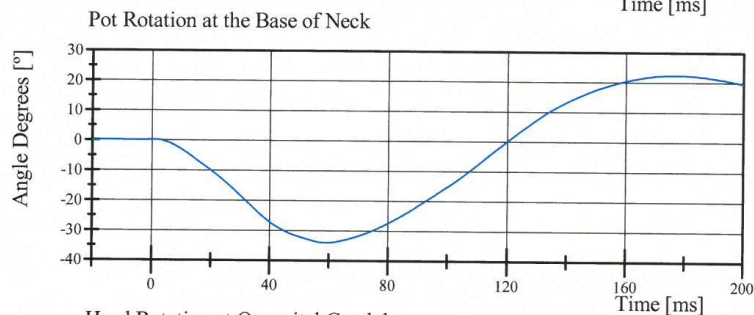
Neck Flexion

HIH 50th Serial No. 037 Certification No. 42-1

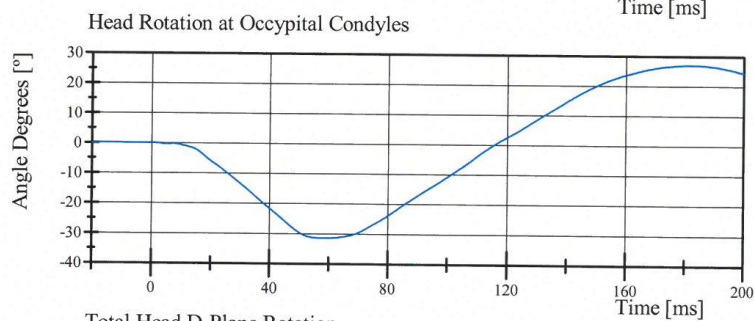
Test Date: 11/22/2016



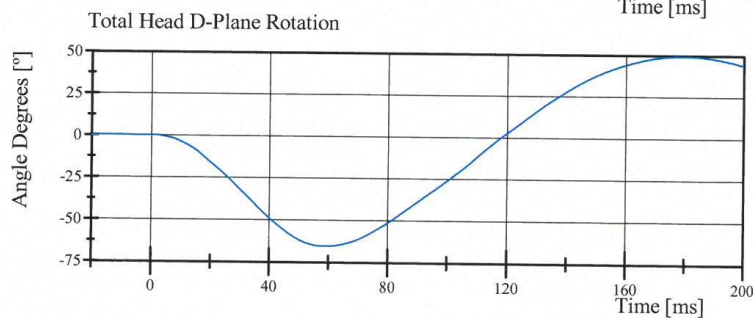
Filter Class: CFC_60
Max: 2.9 g at 44.3 ms
Min: -25.0 g at 8.9 ms



Filter Class: CFC_60
Max: 22.5 ° at 177.0 ms
Min: -34.1 ° at 59.1 ms



Filter Class: CFC_60
Max: 27.1 ° at 182.4 ms
Min: -31.5 ° at 59.3 ms



Filter Class: CFC_60
Max: 49.5 ° at 179.7 ms
Min: -65.5 ° at 59.1 ms

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

11.22.2016 12:56:43 3035

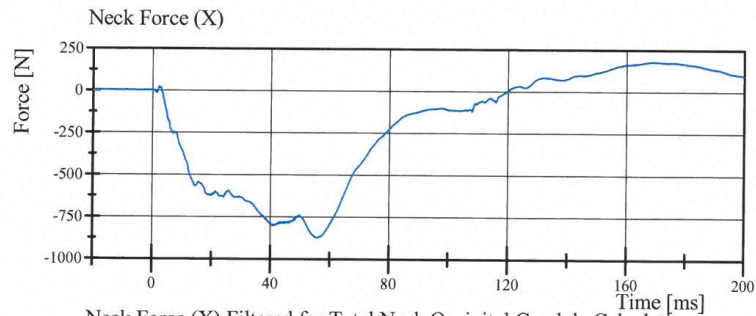


Transportation Research Center Inc.

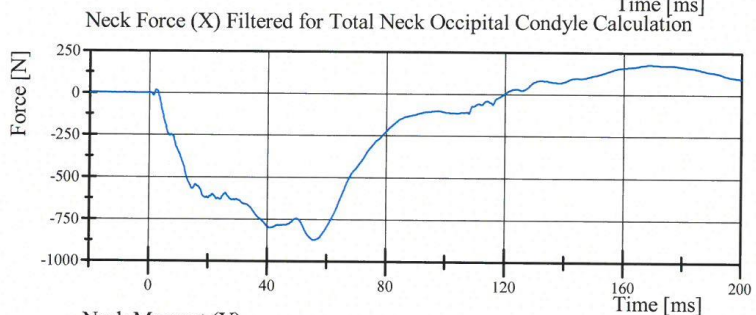
Neck Flexion

HIII 50th Serial No. 037 Certification No. 42-1

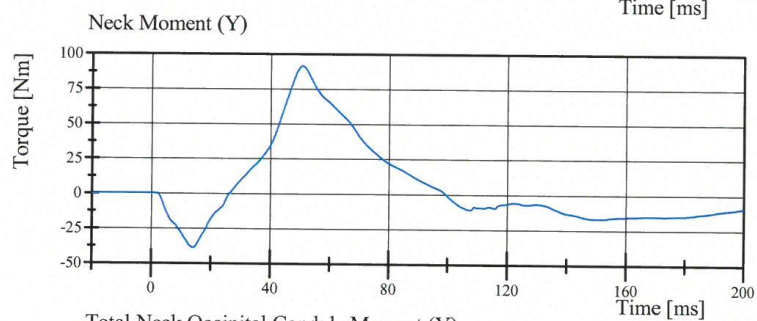
Test Date: 11/22/2016



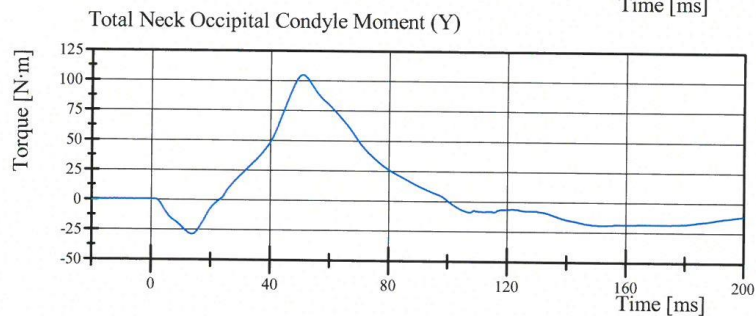
Filter Class: CFC_1000
Max: 179.9 N at 168.9 ms
Min: -872.2 N at 55.4 ms



Filter Class: CFC_600
Max: 179.4 N at 168.9 ms
Min: -872.1 N at 56.0 ms



Filter Class: CFC_600
Max: 91.3 Nm at 50.7 ms
Min: -38.9 Nm at 14.2 ms



Filter Class: Without_(Consta
Max: 104.6 N·m at 50.8 ms
Min: -29.1 N·m at 13.8 ms

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

11.22.2016 12:56:44 3035



Transportation Research Center Inc.

Neck Extension

HIII 50th Serial No. 037 Certification No. 42-2

Test Date: 11/22/2016

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.4 °C	Yes
Relative Humidity	10 - 70 %	18 %	Yes
Pendulum Velocity	(-5.95) - (-6.18) m/s	-5.995 m/s	Yes
Pendulum Acceleration Decay Crossing 5g	38 - 46 ms	41.7 ms	Yes
Pendulum Acceleration at 10ms	17.2 - 21.2 g	18.47 g	Yes
Pendulum Acceleration at 20ms	14.0 - 19.0 g	15.90 g	Yes
Pendulum Acceleration at 30ms	11.0 - 16.0 g	12.57 g	Yes
Pendulum Acceleration > 30ms	<= 22.0 g	13.05 g	Yes
Total Head D-Plane Rotation			
Peak	81 - 106 °	93.2 °	Yes
Time of Peak	72 - 82 ms	77.9 ms	Yes
Total Head D-Plane Rotation			
Decay to 0°	147 - 174 ms	159.4 ms	Yes
Total Neck Occipital Condyles Moment			
Peak	(-53) - (-80) N·m	-69.6 N·m	Yes
Time of Peak	65 - 79 ms	72.1 ms	Yes
Total Neck Occipital Condyles Moment			
Decay to 0 N·m	120 - 148 ms	144.5 ms	Yes

Test meets specifications.

Comments:

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

11.22.2016 13:59:26 3129

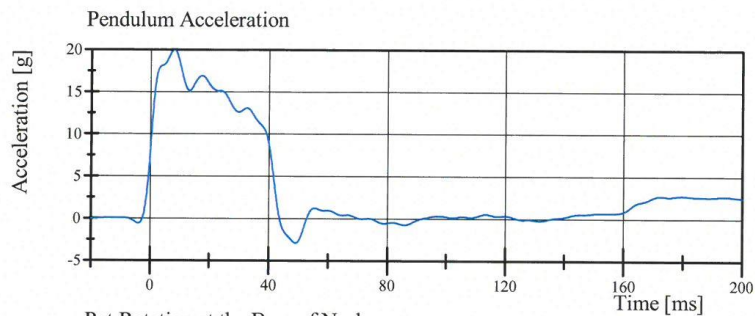


Transportation Research Center Inc.

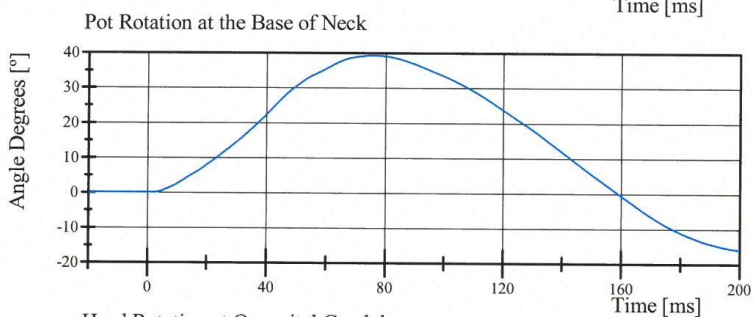
Neck Extension

HIII 50th Serial No. 037 Certification No. 42-2

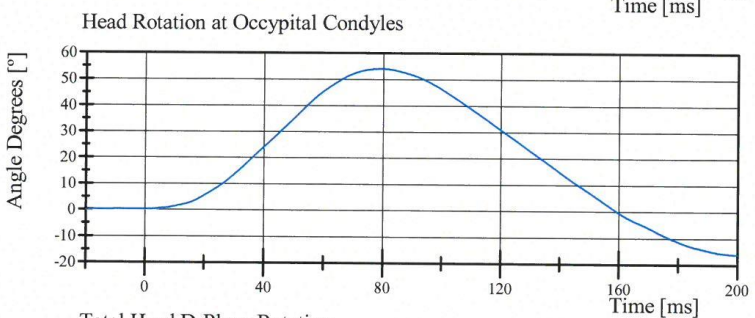
Test Date: 11/22/2016



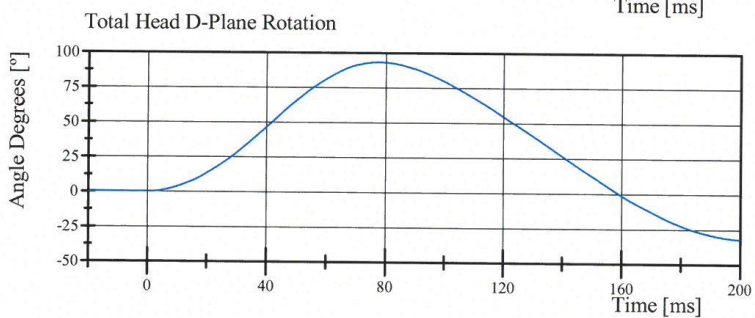
Filter Class: CFC_60
Max: 19.9 g at 8.0 ms
Min: -2.9 g at 49.2 ms



Filter Class: CFC_60
Max: 39.3 ° at 76.0 ms
Min: -15.8 ° at 200.0 ms



Filter Class: CFC_60
Max: 54.0 ° at 79.4 ms
Min: -16.1 ° at 200.0 ms



Filter Class: CFC_60
Max: 93.2 ° at 77.9 ms
Min: -31.9 ° at 200.0 ms

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

11.22.2016 13:59:36 3129

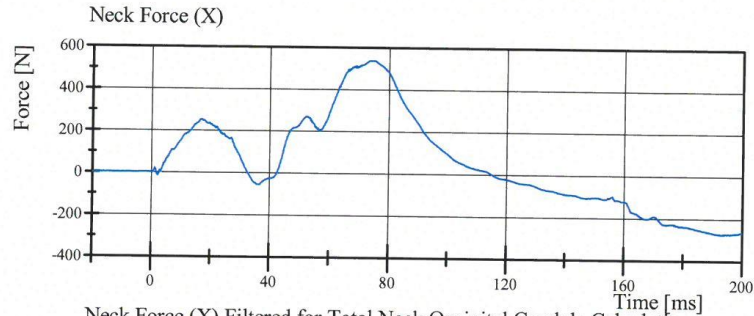


Transportation Research Center Inc.

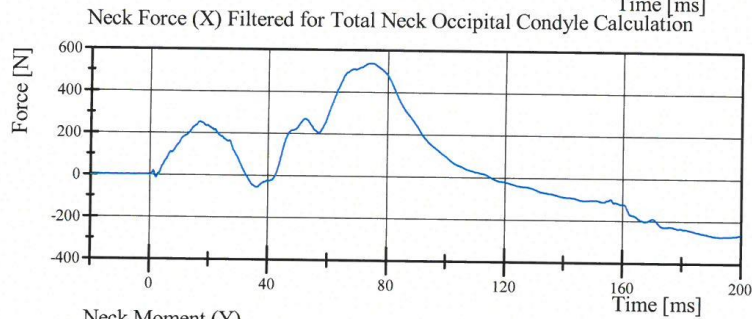
Neck Extension

HIII 50th Serial No. 037 Certification No. 42-2

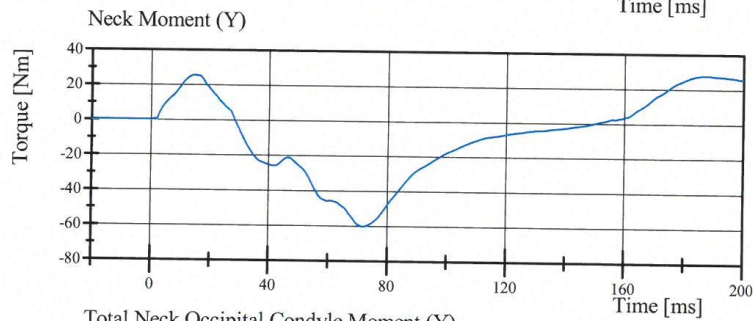
Test Date: 11/22/2016



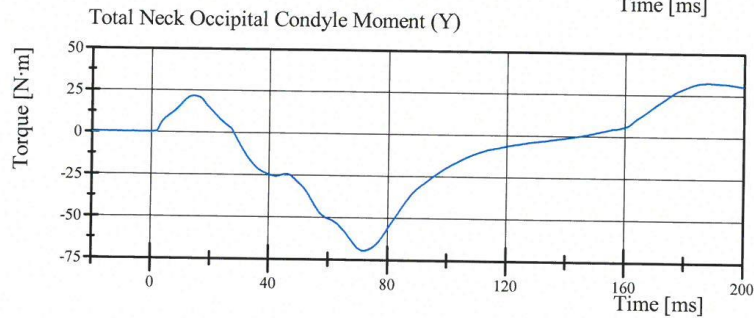
Filter Class: CFC_1000
Max: 536.8 N at 74.8 ms
Min: -272.7 N at 193.1 ms



Filter Class: CFC_600
Max: 536.5 N at 74.8 ms
Min: -272.4 N at 193.1 ms



Filter Class: CFC_600
Max: 28.0 Nm at 187.7 ms
Min: -60.4 Nm at 71.9 ms



Filter Class: Without_(Consta
Max: 32.6 N·m at 187.8 ms
Min: -69.6 N·m at 72.1 ms

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

11.22.2016 13:59:37 3129



Transportation Research Center Inc.

Front Thorax

HIH 50th Serial No. 037 Certification No. 42-1

Test Date: 11/22/2016

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.6 °C	Yes
Relative Humidity	10 - 70 %	18 %	Yes
Probe Velocity	6.59 - 6.83 m/s	6.666 m/s	Yes
Probe Force Peak	(-5,160) - (-5,893) N	-5,656.8 N	Yes
Maximum Chest Compression	(-63.5) - (-72.6) mm	-69.40 mm	Yes
Internal Hysteresis	65 - 85 %	72.4 %	Yes

Test meets specifications.

Comments:

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

11.22.2016 15:06:20 439

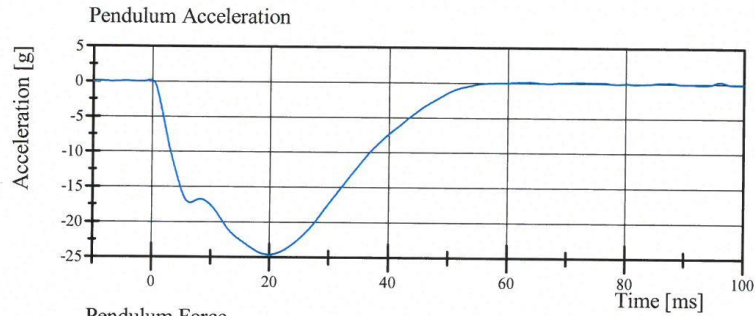


Transportation Research Center Inc.

Front Thorax

HIII 50th Serial No. 037 Certification No. 42-1

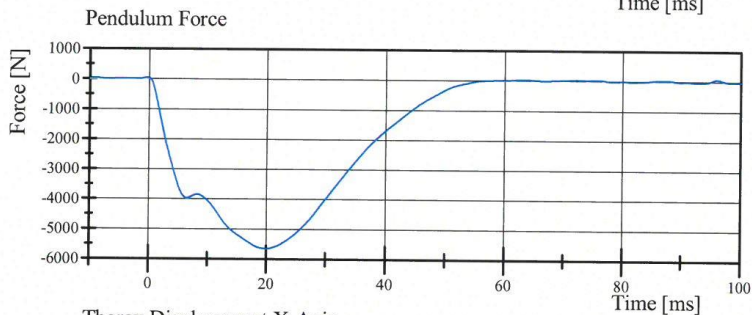
Test Date: 11/22/2016



Filter Class: CFC_180

Max: 0.3 g at 96.0 ms

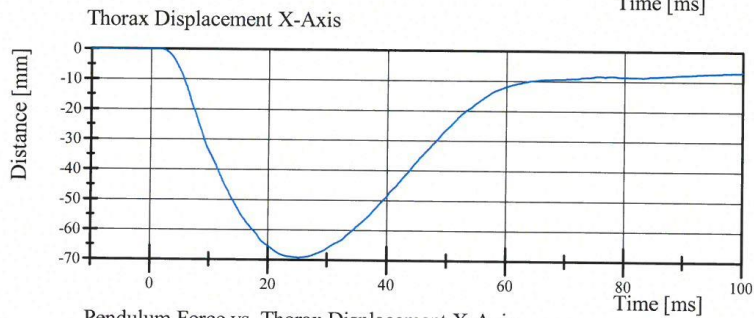
Min: -24.7 g at 20.1 ms



Filter Class: CFC_180

Max: 63.6 N at 96.0 ms

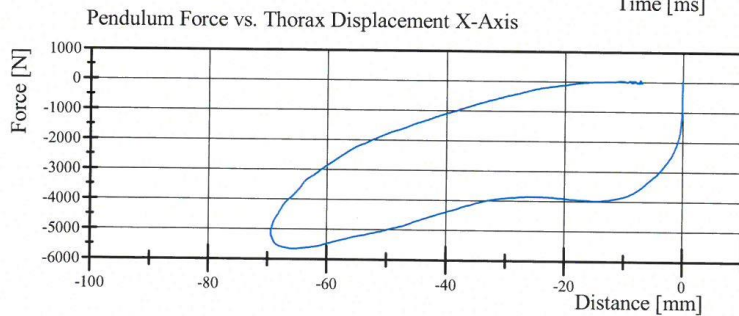
Min: -5,656.8 N at 20.1 ms



Filter Class: CFC_600

Max: 0.0 mm at -7.0 ms

Min: -69.4 mm at 25.2 ms



Filter Class: CFC_180

Max: 63.6 N at -7.2 mm

Min: -5,656.8 N at -65.6 mm

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

11.22.2016 15:06:33 439



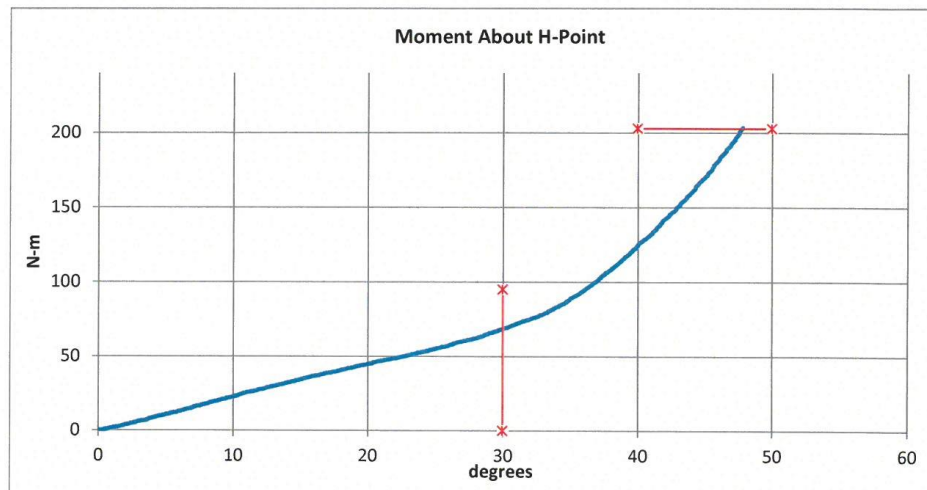
Transportation Research Center Inc.

Hybrid III 50th Male Hip Range of Motion

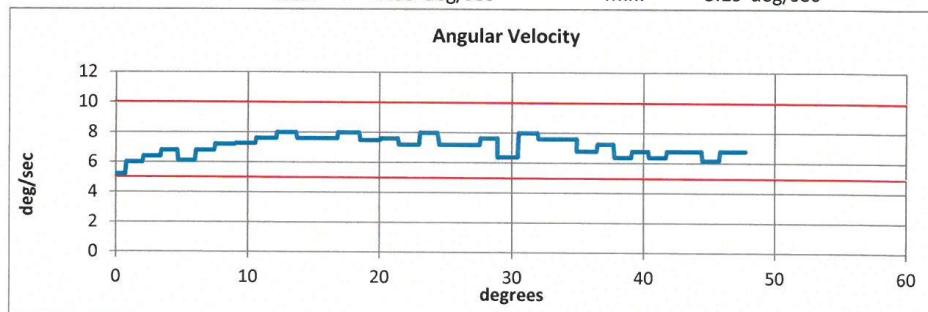


Serial Number: 037 Date: 22-Nov-2016
Side Tested: Left Hip Time: 8:18
Test Number: 1 Comments:

TEST PARAMETER	SPECIFICATION		TEST RESULTS		
Temperature	18.9	- 25.6	21.3	°C	Pass
Humidity	10	- 70	17	%	Pass
Moment at 30°	0	≤ 94.9	68.75	N-m	Pass
Angle at 203 Nm	40	- 50	47.8	deg	Pass
Average Velocity	5	- 10	7.06	deg/sec	Pass



Max: 7.99 deg/sec Min: 5.19 deg/sec



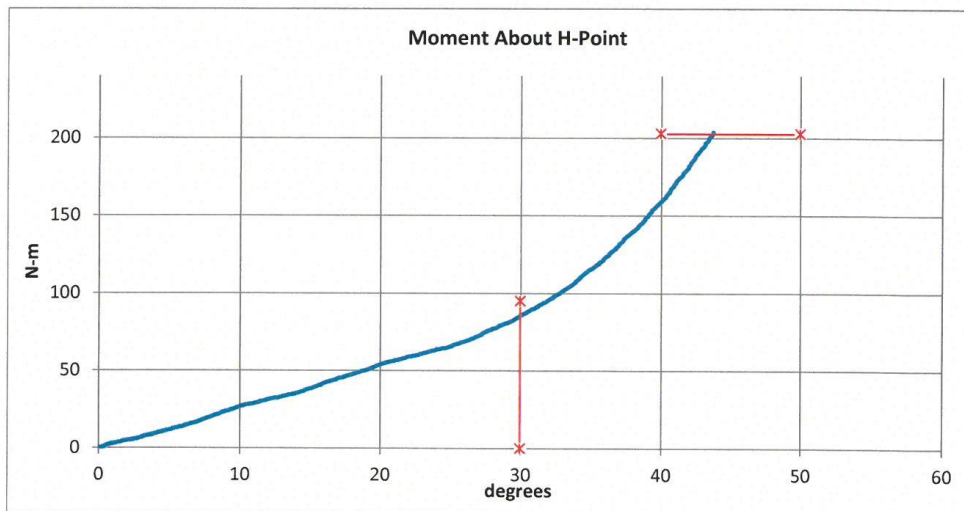
Transportation Research Center Inc.

Hybrid III 50th Male Hip Range of Motion

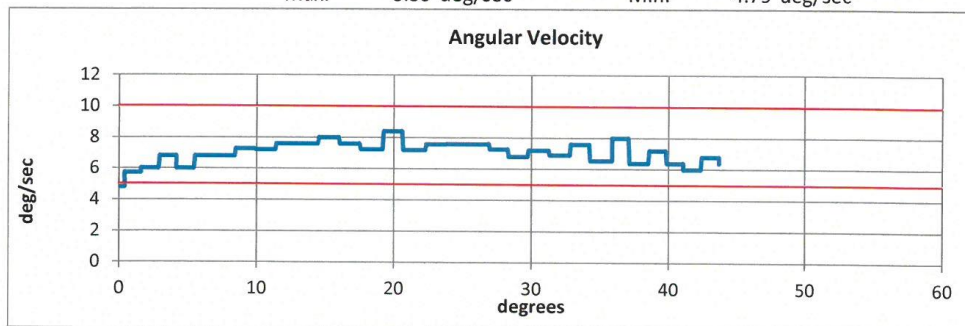


Serial Number: 037 Date: 22-Nov-2016
Side Tested: Right Hip Time: 9:38
Test Number: 1 Comments:

TEST PARAMETER	SPECIFICATION			TEST RESULTS		
Temperature	18.9	-	25.6	21.3	°C	Pass
Humidity	10	-	70	18	%	Pass
Moment at 30°	0	≤	94.9	85.93	N-m	Pass
Angle at 203 Nm	40	-	50	43.72	deg	Pass
Average Velocity	5	-	10	7.03	deg/sec	Pass



Max: 8.39 deg/sec Min: 4.79 deg/sec



Transportation Research Center Inc.

Left Knee Femur Response Test
HIII 50th Serial No. 037 Certification No. 42-1
Test Date: 11/22/2016

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.5 °C	21.3 °C	Yes
Relative Humidity	10 - 70 %	17 %	Yes
Probe Velocity	2.08 - 2.13 m/s	2.103 m/s	Yes
Peak Femur Force	(-4,715.2) - (-5,782.6) N	-5,609.18 N	Yes

Test meets specifications.

Comments:

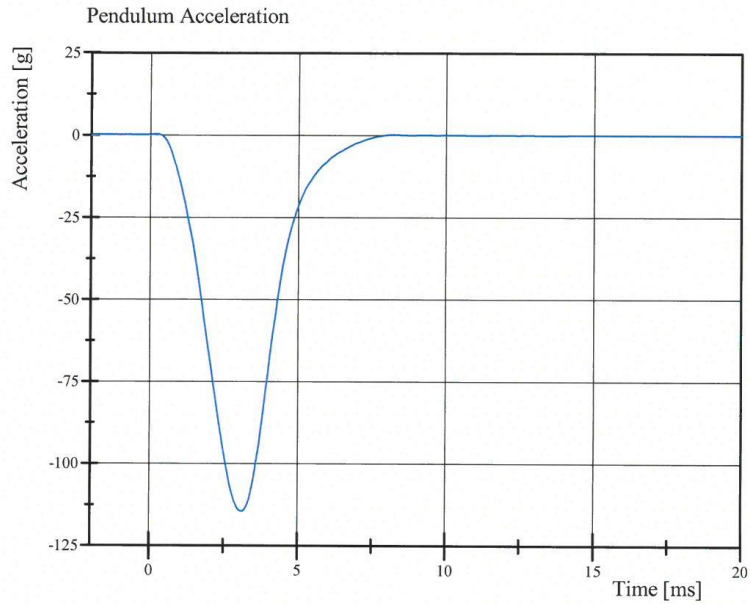
Specification Source: CFR49 Part 572 Subpart E
with Polarity in accordance with J211

11.22.2016 07:57:56 1900

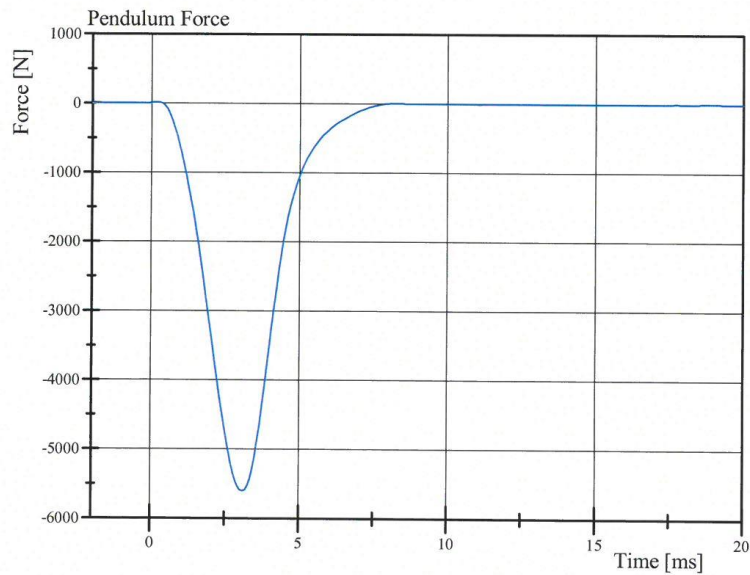


Transportation Research Center Inc.

Left Knee Femur Response Test
HIII 50th Serial No. 037 Certification No. 42-1
Test Date: 11/22/2016



Filter Class: CFC_600
Max: 0.2 g at 0.2 ms
Min: -114.6 g at 3.1 ms



Filter Class: CFC_600
Max: 8.1 N at 0.2 ms
Min: -5,609.2 N at 3.1 ms

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

11.22.2016 07:58:08 1900



Transportation Research Center Inc.

Right Knee Femur Response Test
HIII 50th Serial No. 037 Certification No. 42-1
Test Date: 11/22/2016

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.5 °C	21.8 °C	Yes
Relative Humidity	10 - 70 %	17 %	Yes
Probe Velocity	2.08 - 2.13 m/s	2.096 m/s	Yes
Peak Femur Force	(-4,715.2) - (-5,782.6) N	-5,597.97 N	Yes

Test meets specifications.

Comments:

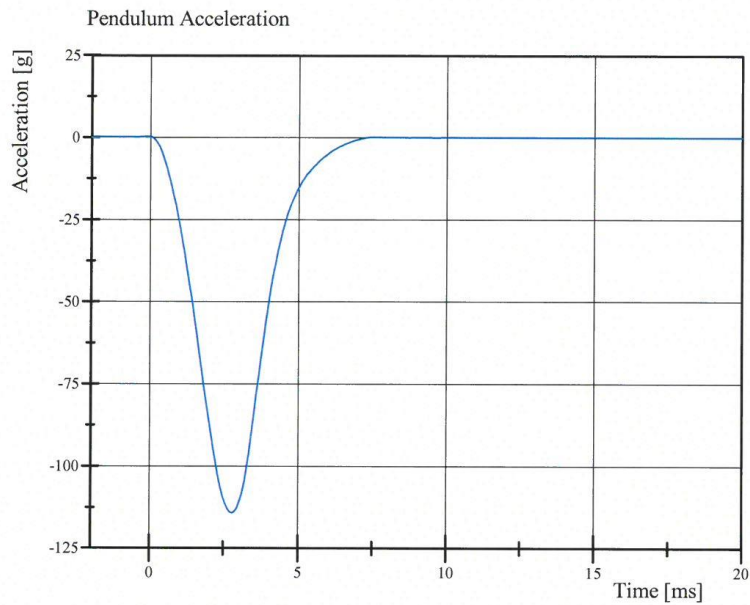
Specification Source: CFR49 Part 572 Subpart E
with Polarity in accordance with J211

11.22.2016 08:02:30 1906

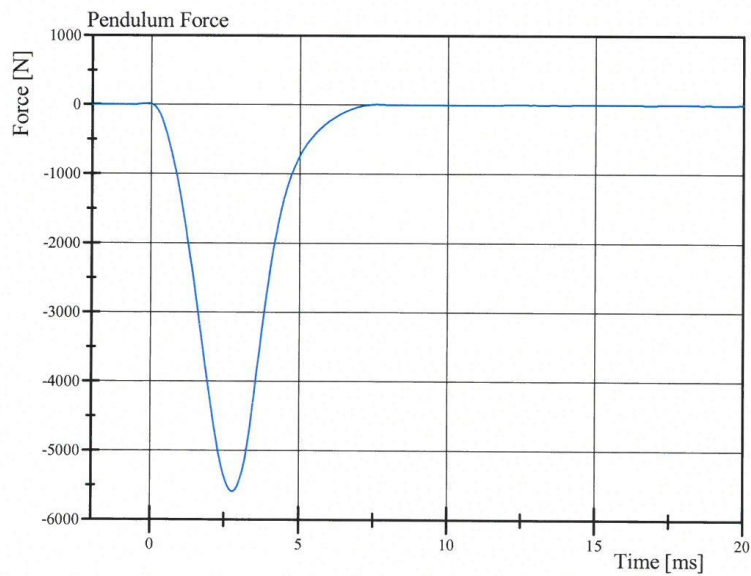


Transportation Research Center Inc.

Right Knee Femur Response Test
HIII 50th Serial No. 037 Certification No. 42-1
Test Date: 11/22/2016



Filter Class: CFC_600
Max: 0.2 g at -0.1 ms
Min: -114.4 g at 2.8 ms



Filter Class: CFC_600
Max: 9.3 N at -0.1 ms
Min: -5,598.0 N at 2.8 ms

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

11.22.2016 08:02:40 1906



Pre-Test Calibration Sheets

Front Passenger S/N 426

Transportation Research Center Inc.
5720 HHH 5th Dummy
External Dimensions
Serial No. 426 Calibration No. 39

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	444	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	286	Yes
J	Elbow Rest Height	182.8 - 203.2	196	Yes
K	Buttock Knee Length	520.7 - 546.1	535	Yes
L	Popliteal Height	355.6 - 376.0	367	Yes
M	Knee Pivot Height	393.7 - 419.1	409	Yes
N	Buttock Popliteal Length	414.0 - 439.4	431	Yes
O	Chest Depth without Jacket	175.3 - 190.5	182	Yes
P	Foot Length	218.5 - 233.7	224	Yes
R	Buttock to Knee Pivot Length	457.2 - 482.6	473	Yes
S	Head Breadth	137.1 - 147.3	141	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	357	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	870	Yes
Z	Waist Circumference	759.5 - 789.9	775	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

Transportation Research Center Inc.

Front Head Drop

HIII 5th Serial No. 426 Certification No. 39-1

Test Date: 11/15/2016

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.5 °C	21.9 °C	Yes
Relative Humidity	10 - 70 %	27 %	Yes
Peak Head Resultant Acceleration	250 - 300 g	284.9 g	Yes
Peak Head Lateral Acceleration	(-15) - 15 g	4.0 g	Yes
Is Acceleration Curve Unimodal within 10% of Peak?	Yes	Yes	Yes

Test meets specifications.

Comments:

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

11.15.2016 13:57:55 608

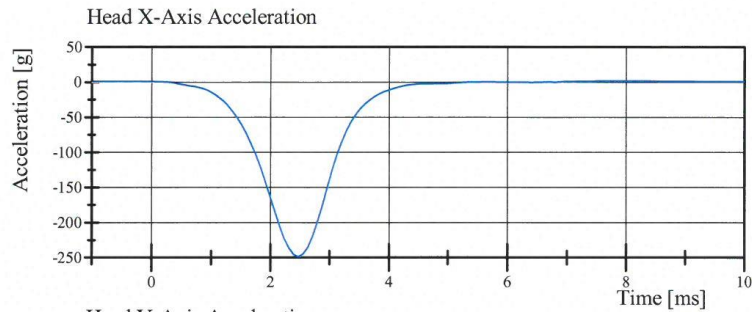


Transportation Research Center Inc.

Front Head Drop

HIII 5th Serial No. 426 Certification No. 39-1

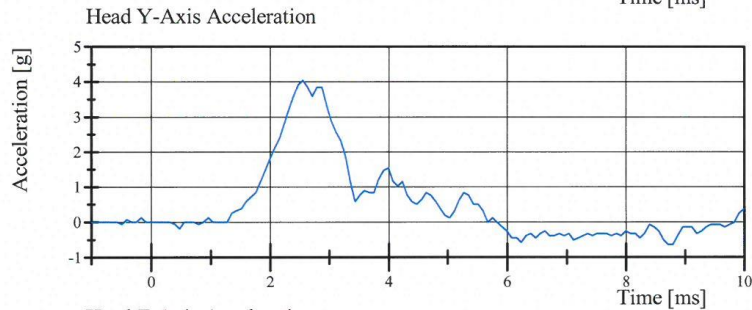
Test Date: 11/15/2016



Filter Class: CFC_1000

Max: 1.5 g at 7.8 ms

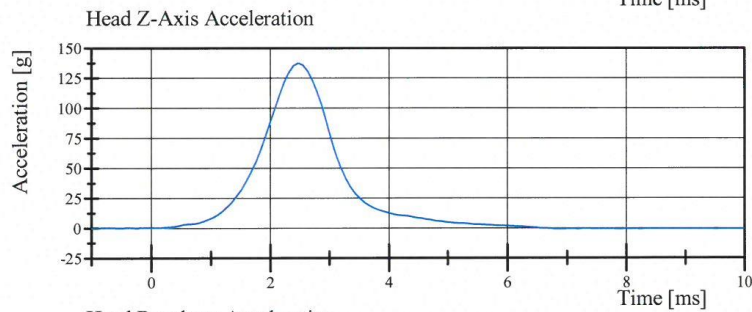
Min: -249.5 g at 2.5 ms



Filter Class: CFC_1000

Max: 4.0 g at 2.6 ms

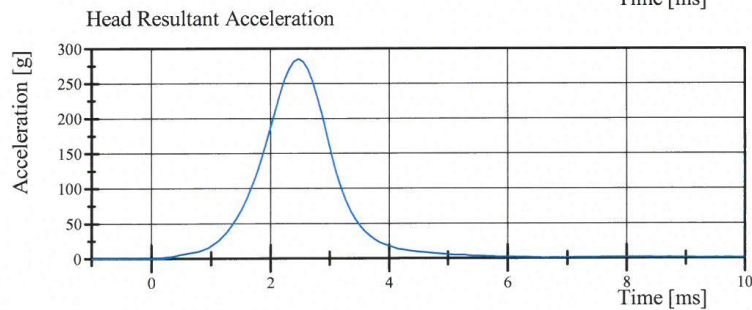
Min: -0.6 g at 8.7 ms



Filter Class: CFC_1000

Max: 137.5 g at 2.5 ms

Min: -0.7 g at 6.9 ms



Filter Class: CFC_1000

Max: 284.9 g at 2.5 ms

Min: 0.0 g at -1.0 ms

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

11.15.2016 13:58:04 608



Transportation Research Center Inc.

Neck Flexion

HIII 5th Serial No. 426 Certification No. 39-2

Test Date: 11/15/2016

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.9 °C	Yes
Relative Humidity	10 - 70 %	30 %	Yes
Pendulum Velocity	6.89 - 7.13 m/s	7.092 m/s	Yes
Pendulum Integrated Velocity Change at 10ms	(-2.1) - (-2.5) m/s	-2.39 m/s	Yes
Pendulum Integrated Velocity Change at 20ms	(-4.0) - (-5.0) m/s	-4.68 m/s	Yes
Pendulum Integrated Velocity Change at 30ms	(-5.8) - (-7.0) m/s	-6.73 m/s	Yes
Total Head D-Plane Rotation	(-77) - (-91) °	-82.6 °	Yes
Total Neck Occipital Condyles Moment Between -77° and -91° Rotation	69 - 83 N·m	75.7 N·m	Yes
Total Neck Occipital Condyles Moment Decay to 10 N·m	80 - 100 ms	87.0 ms	Yes

Test meets specifications.

Comments:

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

11.15.2016 16:48:02 1845

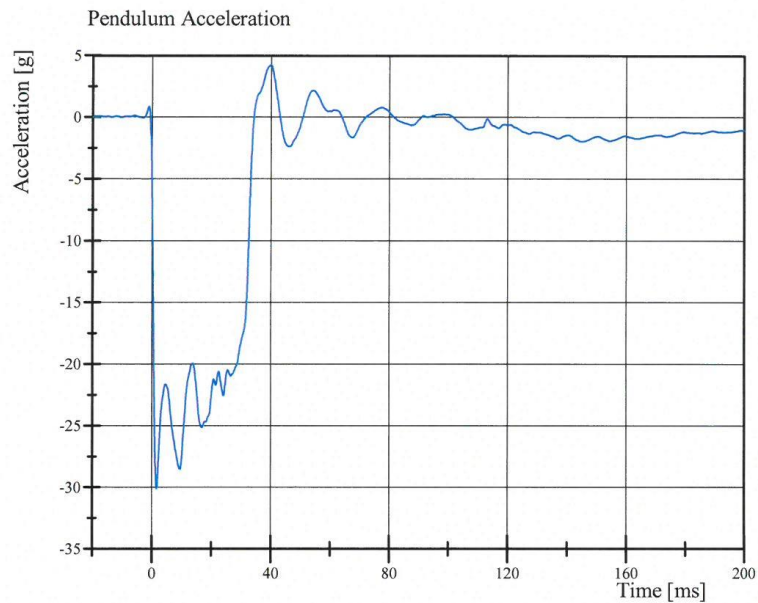


Transportation Research Center Inc.

Neck Flexion

HIII 5th Serial No. 426 Certification No. 39-2

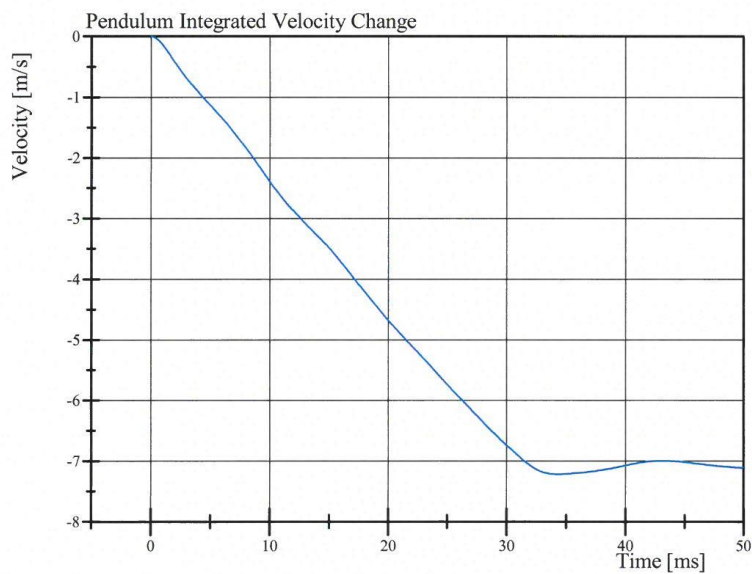
Test Date: 11/15/2016



Filter Class: CFC_180

Max: 4.2 g at 40.1 ms

Min: -30.2 g at 1.8 ms



Filter Class: CFC_180

Max: 0.0 m/s at 0.0 ms

Min: -7.2 m/s at 34.3 ms

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

11.15.2016 16:48:12 1845

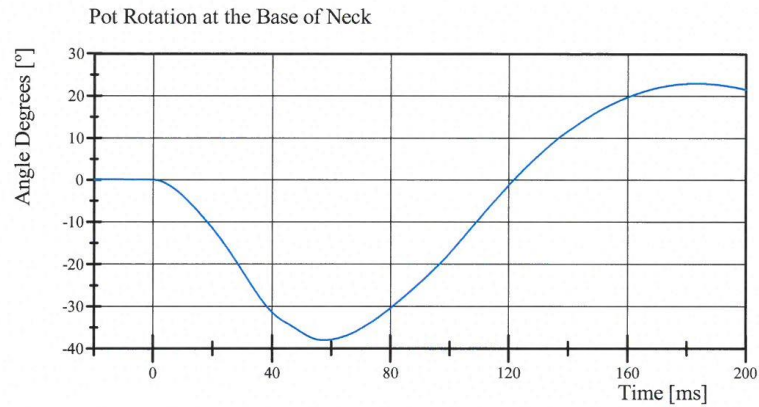


Transportation Research Center Inc.

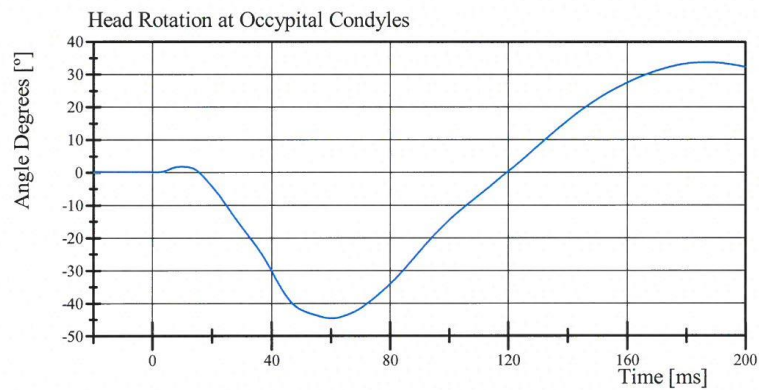
Neck Flexion

HIII 5th Serial No. 426 Certification No. 39-2

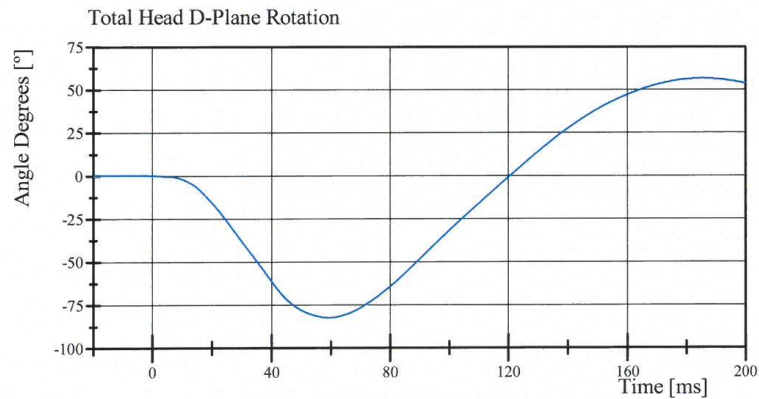
Test Date: 11/15/2016



Filter Class: CFC_60
Max: 23.0 ° at 183.6 ms
Min: -38.1 ° at 57.6 ms



Filter Class: CFC_60
Max: 33.7 ° at 187.0 ms
Min: -44.7 ° at 60.4 ms



Filter Class: CFC_60
Max: 56.7 ° at 185.5 ms
Min: -82.6 ° at 59.5 ms

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

11.15.2016 16:48:13 1845

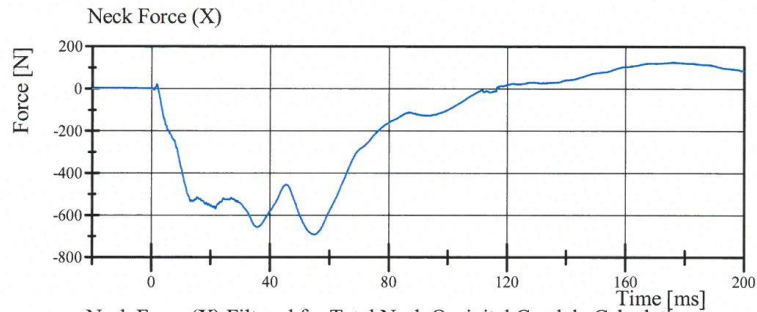


Transportation Research Center Inc.

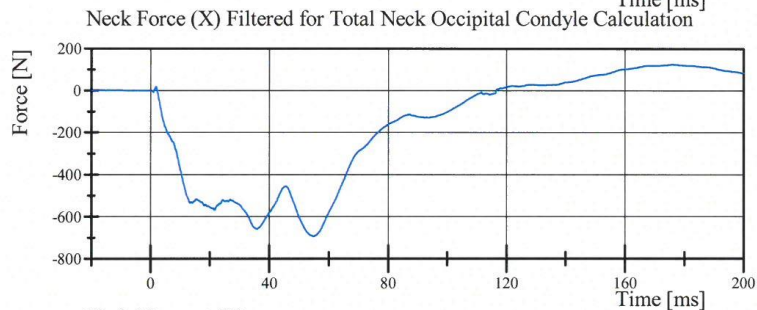
Neck Flexion

HIII 5th Serial No. 426 Certification No. 39-2

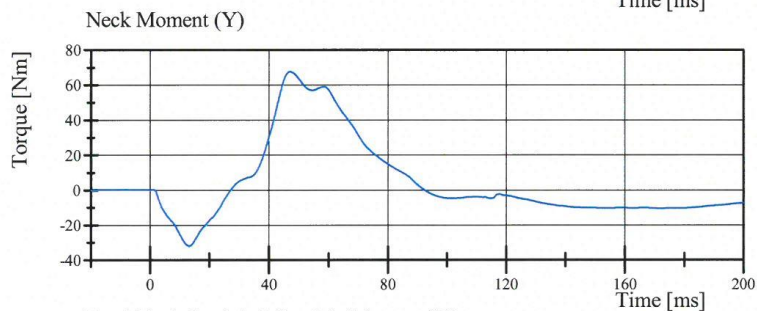
Test Date: 11/15/2016



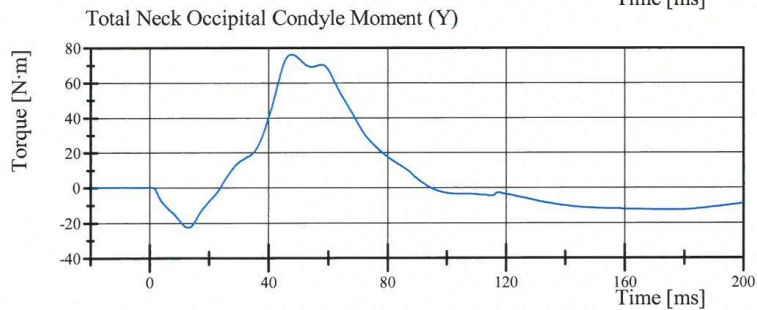
Filter Class: CFC_1000
Max: 126.6 N at 176.4 ms
Min: -693.4 N at 54.9 ms



Filter Class: CFC_600
Max: 126.1 N at 176.2 ms
Min: -692.9 N at 54.9 ms



Filter Class: CFC_600
Max: 67.4 Nm at 47.2 ms
Min: -32.3 Nm at 13.4 ms



Filter Class: Without (Consta
Max: 76.2 N·m at 47.9 ms
Min: -22.8 N·m at 13.3 ms

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

11.15.2016 16:48:14 1845



Transportation Research Center Inc.

Neck Extension

HIII 5th Serial No. 426 Certification No. 39-1

Test Date: 11/16/2016

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.9 °C	Yes
Relative Humidity	10 - 70 %	31 %	Yes
Pendulum Velocity	(-5.95) - (-6.19) m/s	-6.096 m/s	Yes
Pendulum Integrated Velocity Change at 10ms	1.5 - 1.9 m/s	1.81 m/s	Yes
Pendulum Integrated Velocity Change at 20ms	3.1 - 3.9 m/s	3.63 m/s	Yes
Pendulum Integrated Velocity Change at 30ms	4.6 - 5.6 m/s	5.25 m/s	Yes
Total Head D-Plane Rotation	99 - 114 °	102.2 °	Yes
Total Neck Occipital Condyles Moment Between 99° and 114° Rotation	(-53) - (-65) N·m	-59.3 N·m	Yes
Total Neck Occipital Condyles Moment Decay to -10 N·m	94 - 114 ms	101.3 ms	Yes

Test meets specifications.

Comments:

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

11.16.2016 07:01:09 3115

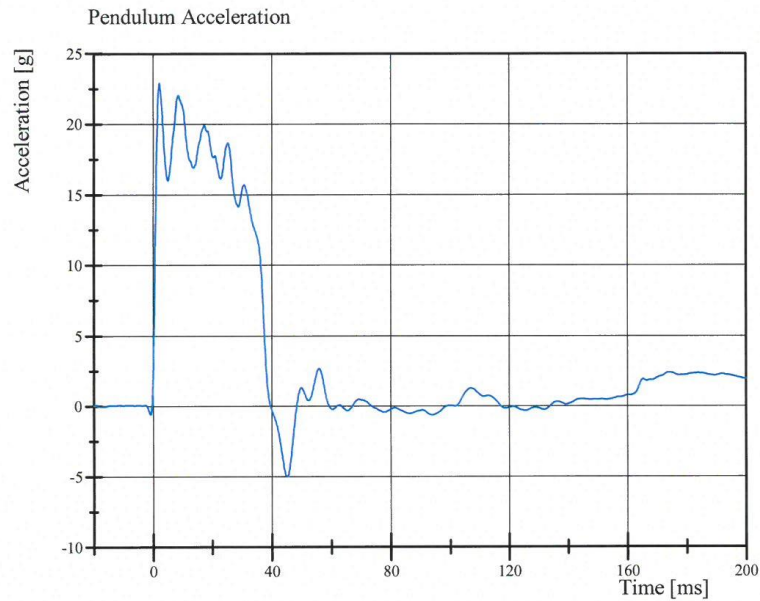


Transportation Research Center Inc.

Neck Extension

HIII 5th Serial No. 426 Certification No. 39-1

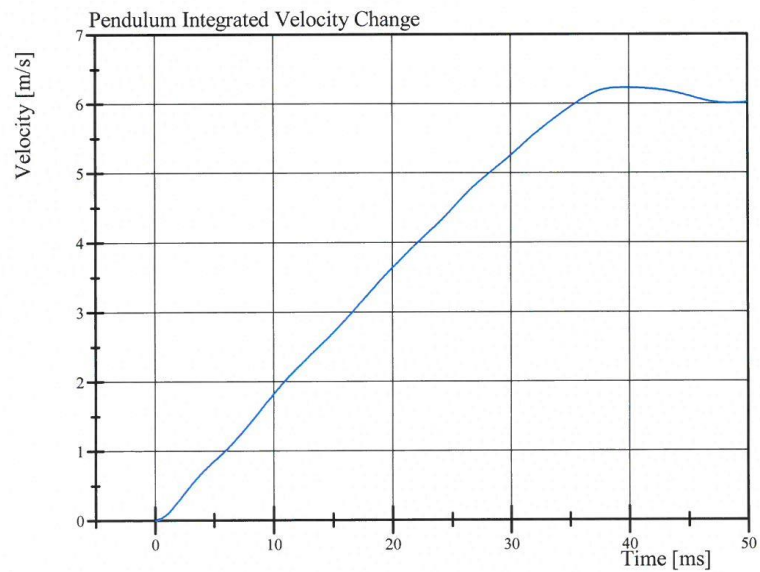
Test Date: 11/16/2016



Filter Class: CFC_180

Max: 22.8 g at 2.2 ms

Min: -5.0 g at 45.3 ms



Filter Class: CFC_180

Max: 6.2 m/s at 39.6 ms

Min: 0.0 m/s at 0.0 ms

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

11.16.2016 07:01:26 3115

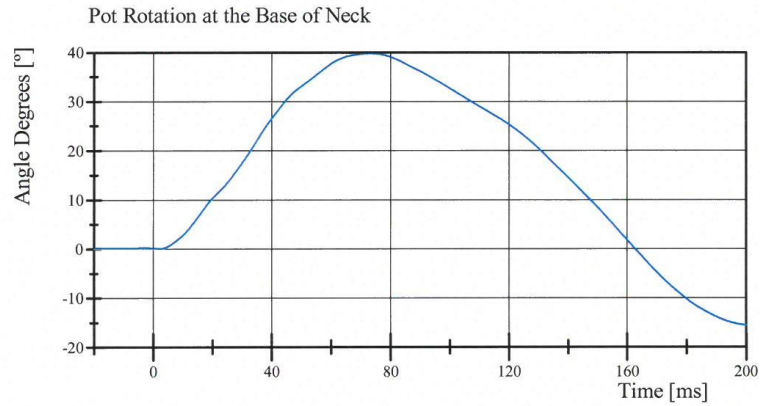


Transportation Research Center Inc.

Neck Extension

HIII 5th Serial No. 426 Certification No. 39-1

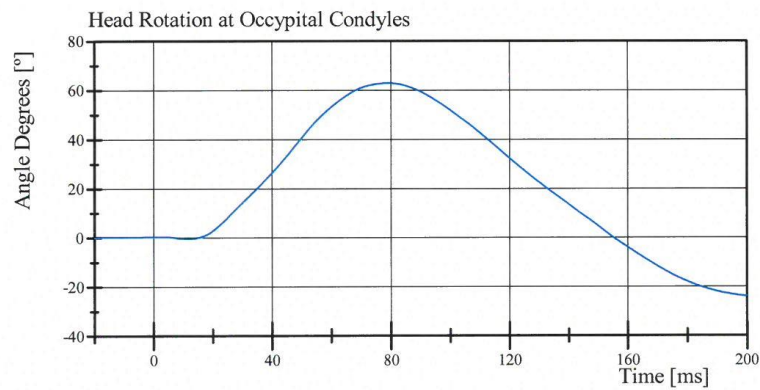
Test Date: 11/16/2016



Filter Class: CFC_60

Max: 39.6 ° at 73.3 ms

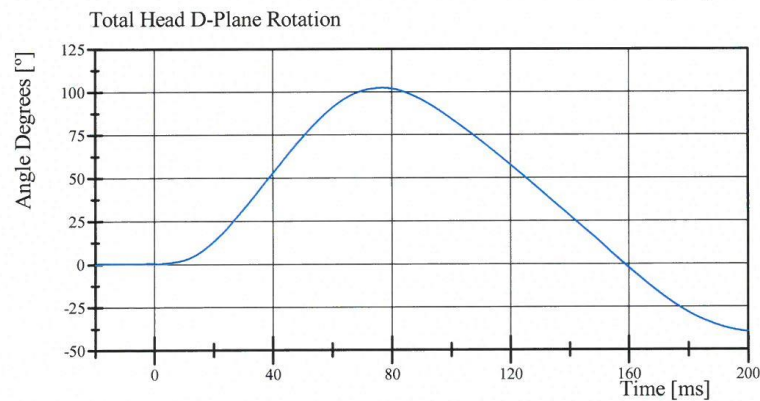
Min: -15.5 ° at 200.0 ms



Filter Class: CFC_60

Max: 62.8 ° at 79.1 ms

Min: -24.0 ° at 200.0 ms



Filter Class: CFC_60

Max: 102.2 ° at 76.9 ms

Min: -39.5 ° at 200.0 ms

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

11.16.2016 07:01:27 3115

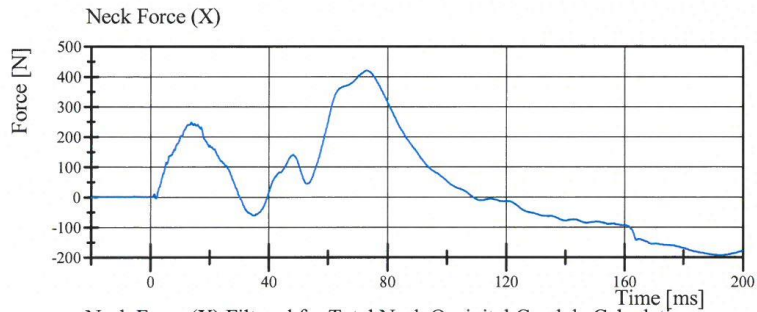


Transportation Research Center Inc.

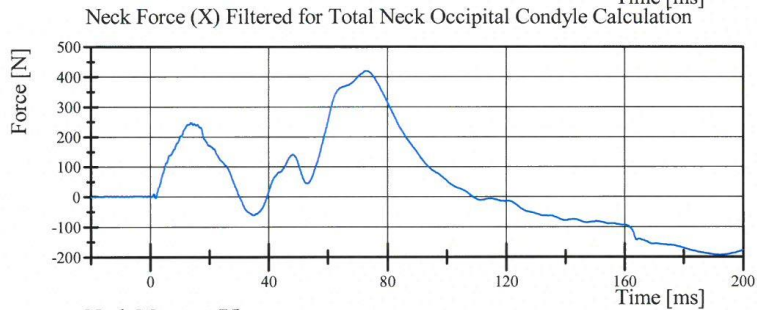
Neck Extension

HIII 5th Serial No. 426 Certification No. 39-1

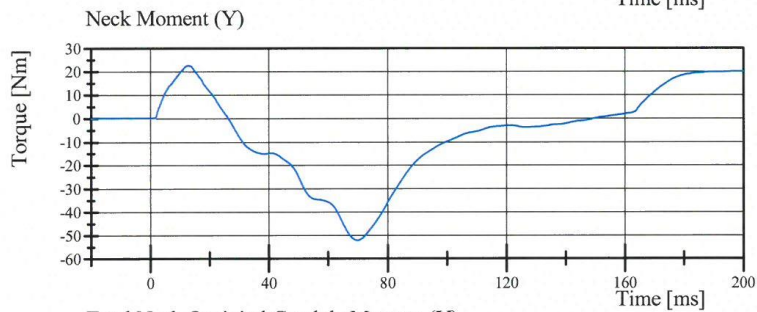
Test Date: 11/16/2016



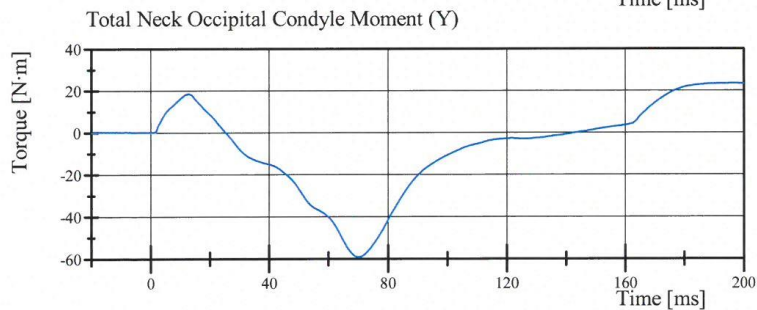
Filter Class: CFC_1000
Max: 419.3 N at 72.8 ms
Min: -193.3 N at 192.0 ms



Filter Class: CFC_600
Max: 419.2 N at 72.9 ms
Min: -193.1 N at 192.3 ms



Filter Class: CFC_600
Max: 22.5 Nm at 12.7 ms
Min: -52.2 Nm at 69.8 ms



Filter Class: Without_Constai
Max: 23.5 N·m at 195.7 ms
Min: -59.3 N·m at 70.2 ms

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

11.16.2016 07:01:28 3115



Transportation Research Center Inc.

Front Thorax

HIII 5th Serial No. 426 Certification No. 39-3

Test Date: 11/15/2016

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.9 °C	Yes
Relative Humidity	10 - 70 %	26 %	Yes
Probe Velocity	6.59 - 6.83 m/s	6.687 m/s	Yes
Probe Force Peak Between 50.0 mm and 58.0 mm Chest Deflection	(-3,900) - (-4,400) N	-4,320.9 N	Yes
Probe Force Peak Between 18.0 mm and 50.0 mm Chest Deflection	$\geq$ (-4,600) N	-4,541.7 N	Yes
Maximum Chest Compression	(-50) - (-58) mm	-50.2 mm	Yes
Internal Hysteresis	69 - 85 %	74.2 %	Yes

Test meets specifications.

Comments:

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

11.15.2016 12:39:14 404

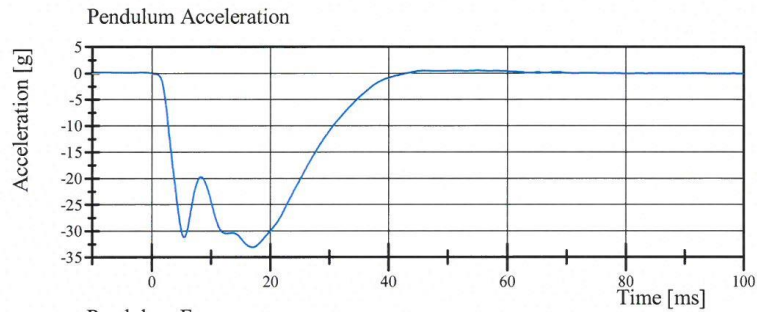


Transportation Research Center Inc.

Front Thorax

HIII 5th Serial No. 426 Certification No. 39-3

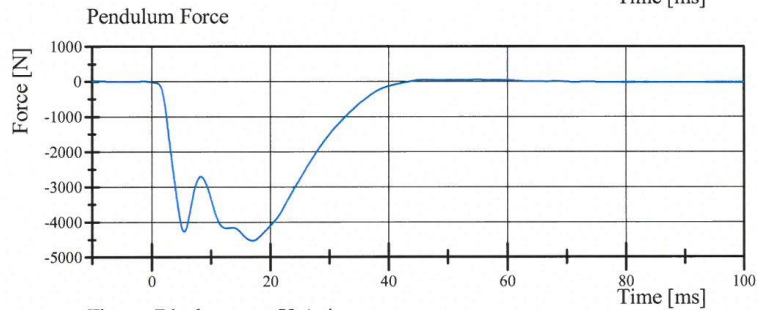
Test Date: 11/15/2016



Filter Class: CFC_180

Max: 0.4 g at 55.1 ms

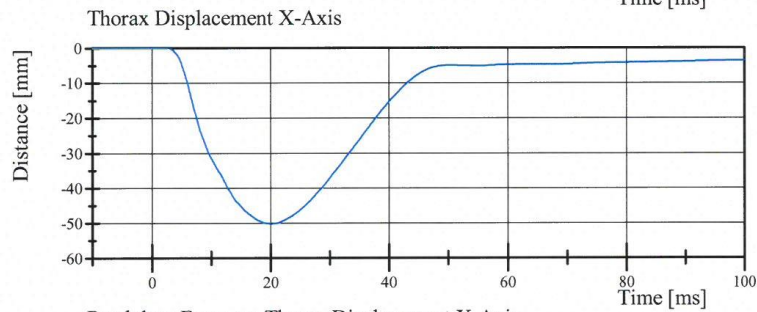
Min: -33.2 g at 17.0 ms



Filter Class: CFC_180

Max: 59.8 N at 55.1 ms

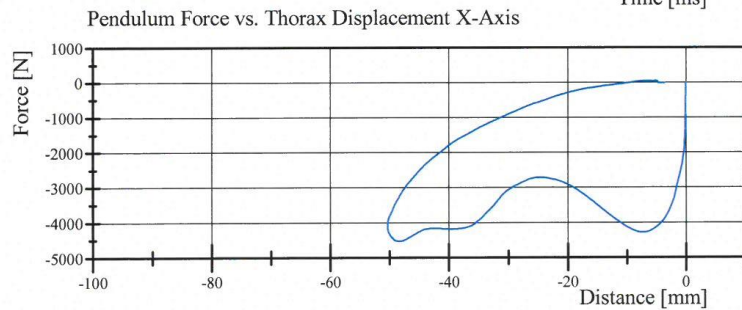
Min: -4,541.7 N at 17.0 ms



Filter Class: CFC_600

Max: 0.0 mm at -4.2 ms

Min: -50.2 mm at 20.2 ms



Filter Class: CFC_180

Max: 59.8 N at -5.2 mm

Min: -4,541.7 N at -48.4 mm

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

11.15.2016 12:41:58 404



Transportation Research Center Inc.

Hybrid III Small Female Torso Flexion

NHTSA

Serial Number: 426

Date: 11/15/2016

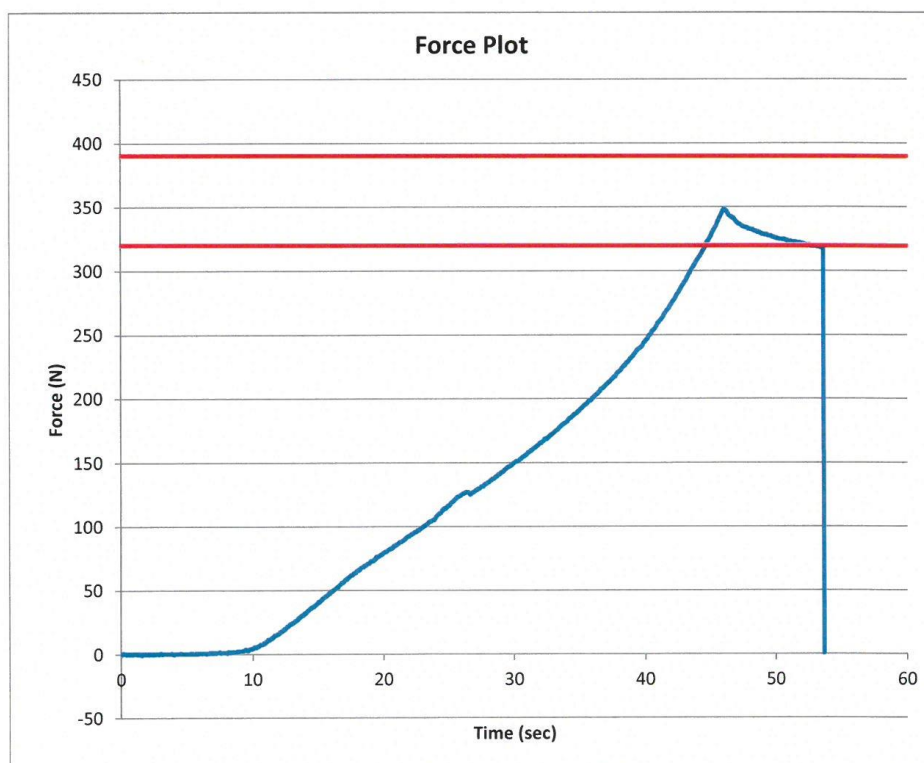
Test Number: 1

Time: 17:25

Comments:



TEST PARAMETER	SPECIFICATION	TEST RESULTS
Temperature	18.9 - 25.6	21.7 °C Pass
Humidity	10 - 70	30 % Pass
Average Angular Velocity	0.5 - 1.5	0.86 deg/sec Pass
Initial Angle	0 - 20	13.91 deg Pass
Peak Force at 45.12°	320 - 390	348.34 N Pass
Final Angle	-8 - 8	4.64 deg Pass



Transportation Research Center Inc.

Left Knee Femur Response Test

HIII 5th Serial No. 426 Certification No. 39-1

Test Date: 11/15/2016

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.6 °C	21.9 °C	Yes
Relative Humidity	10 - 70 %	22 %	Yes
Probe Velocity	2.08 - 2.13 m/s	2.101 m/s	Yes
Peak Femur Force	(-3,450) - (-4,060) N	-3,967.2 N	Yes

Test meets specifications.

Comments:

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

11.15.2016 08:33:34 1732

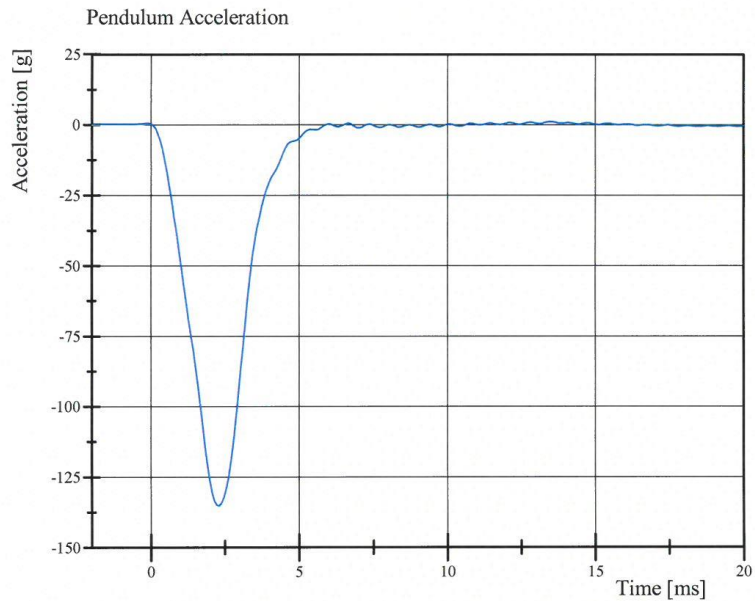


Transportation Research Center Inc.

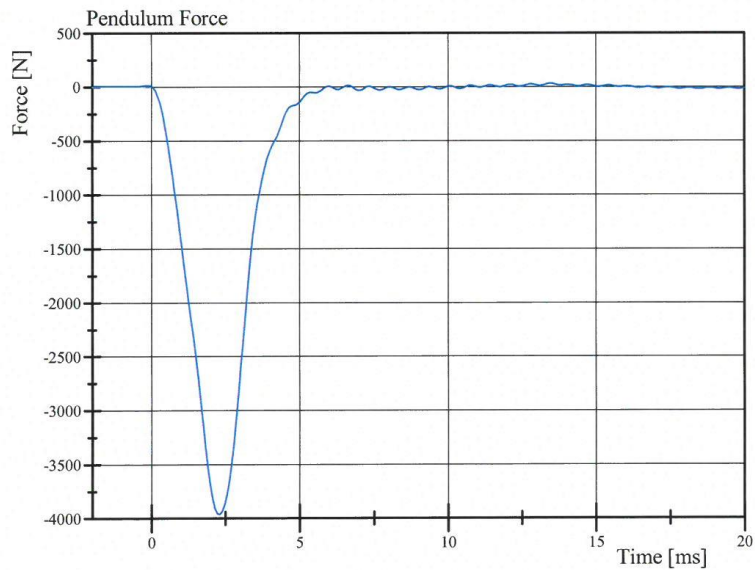
Left Knee Femur Response Test

HIII 5th Serial No. 426 Certification No. 39-1

Test Date: 11/15/2016



Filter Class: CFC_600
Max: 1.1 g at 13.4 ms
Min: -135.3 g at 2.3 ms



Filter Class: CFC_600
Max: 32.1 N at 13.4 ms
Min: -3,967.2 N at 2.3 ms

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

11.15.2016 08:34:52 1732



Transportation Research Center Inc.

Right Knee Femur Response Test
HIII 5th Serial No. 426 Certification No. 39-1
Test Date: 11/15/2016

Test Parameter	Specification	Test Results	Pass
Temperature	18,9 - 25,6 °C	21,9 °C	Yes
Relative Humidity	10 - 70 %	22 %	Yes
Probe Velocity	2,08 - 2,13 m/s	2,112 m/s	Yes
Peak Femur Force	(-3,450) - (-4,060) N	-3,749,3 N	Yes

Test meets specifications.

Comments:

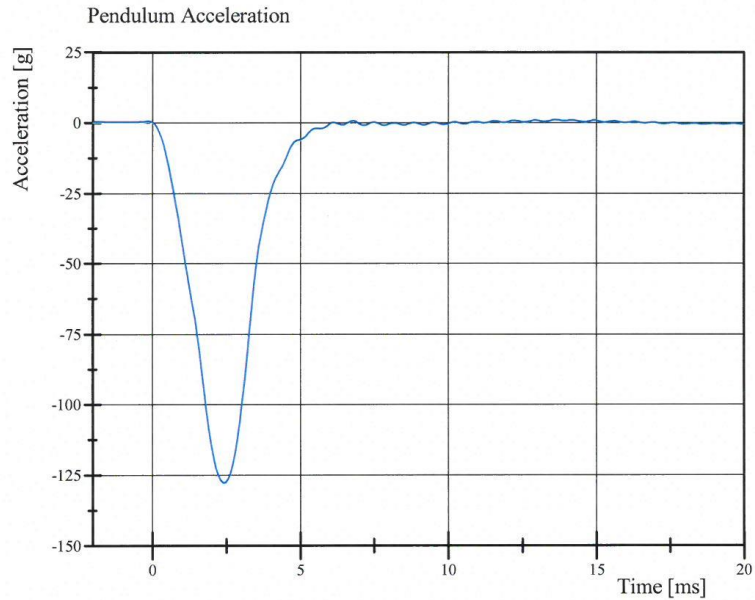
Specification Source: CFR49 Part 572 Subpart O
with Polarity in accordance with J211

11.15.2016 08:46:07 1727

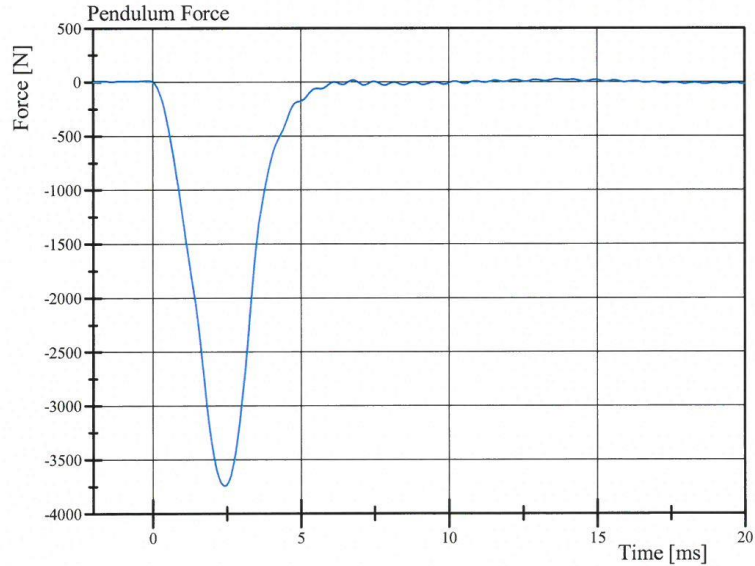


Transportation Research Center Inc.

Right Knee Femur Response Test
HIII 5th Serial No. 426 Certification No. 39-1
Test Date: 11/15/2016



Filter Class: CFC_600
Max: 0.9 g at 13.6 ms
Min: -127.9 g at 2.4 ms



Filter Class: CFC_600
Max: 26.0 N at 13.6 ms
Min: -3,749.3 N at 2.4 ms

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

11.15.2016 08:47:13 1727



Post-Test Calibration Sheets

Front Passenger S/N 426

Transportation Research Center Inc.
5720 HIII 5th Dummy
External Dimensions
Serial No. 426 Calibration No. 40

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	444	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	286	Yes
J	Elbow Rest Height	182.8 - 203.2	196	Yes
K	Buttock Knee Length	520.7 - 546.1	535	Yes
L	Popliteal Height	355.6 - 376.0	367	Yes
M	Knee Pivot Height	393.7 - 419.1	409	Yes
N	Buttock Popliteal Length	414.0 - 439.4	431	Yes
O	Chest Depth without Jacket	175.3 - 190.5	182	Yes
P	Foot Length	218.5 - 233.7	224	Yes
R	Buttock to Knee Pivot Length	457.2 - 482.6	473	Yes
S	Head Breadth	137.1 - 147.3	141	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	357	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	870	Yes
Z	Waist Circumference	759.5 - 789.9	775	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

Transportation Research Center Inc.

Front Head Drop

HIII 5th Serial No. 426 Certification No. 40-1

Test Date: 11/22/2016

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.5 °C	21.6 °C	Yes
Relative Humidity	10 - 70 %	18 %	Yes
Peak Head Resultant Acceleration	250 - 300 g	276.2 g	Yes
Peak Head Lateral Acceleration	(-15) - 15 g	6.4 g	Yes
Is Acceleration Curve Unimodal within 10% of Peak?	Yes	Yes	Yes

Test meets specifications.

Comments:

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

11.22.2016 09:29:04 608

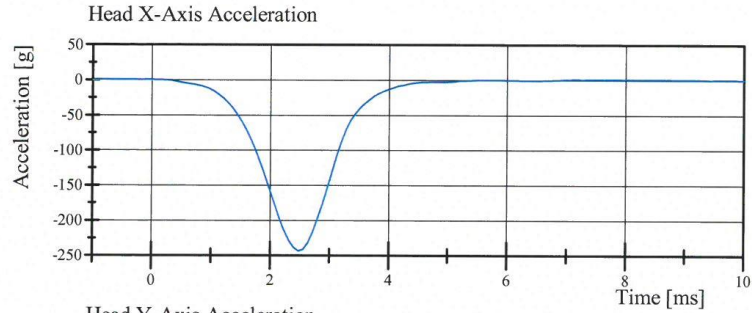


Transportation Research Center Inc.

Front Head Drop

HIII 5th Serial No. 426 Certification No. 40-1

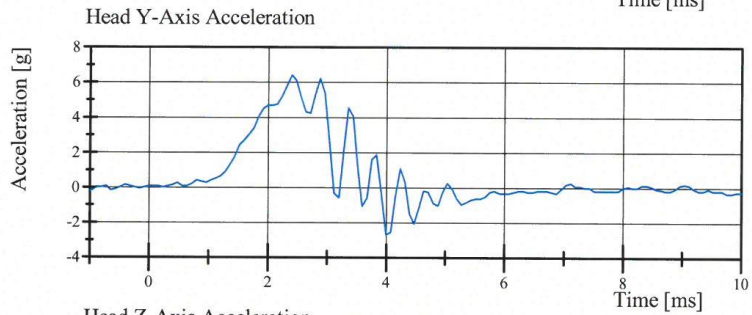
Test Date: 11/22/2016



Filter Class: CFC_1000

Max: 1.1 g at 7.6 ms

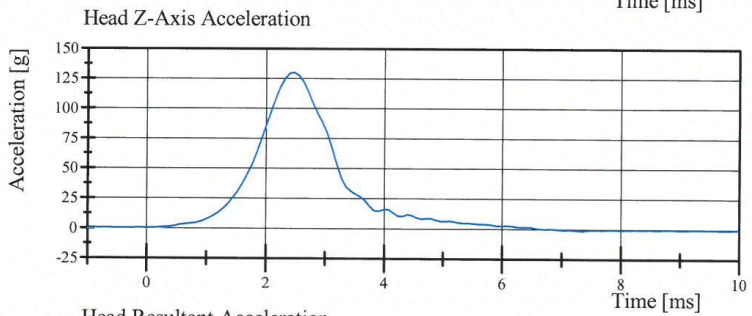
Min: -243.7 g at 2.5 ms



Filter Class: CFC_1000

Max: 6.4 g at 2.4 ms

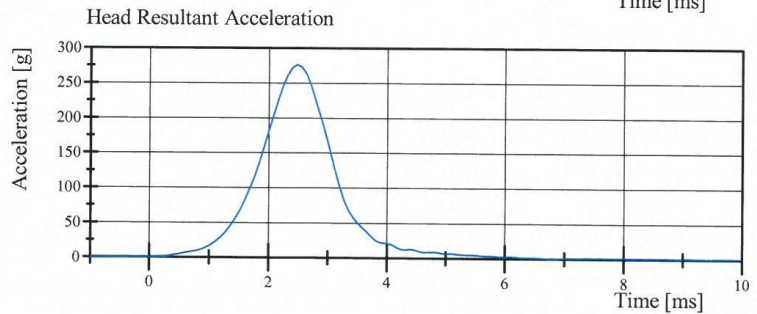
Min: -2.7 g at 4.0 ms



Filter Class: CFC_1000

Max: 129.9 g at 2.5 ms

Min: -1.3 g at 7.4 ms



Filter Class: CFC_1000

Max: 276.2 g at 2.5 ms

Min: 0.0 g at -0.8 ms

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

11.22.2016 09:29:22 608



Transportation Research Center Inc.

Neck Flexion

HIII 5th Serial No. 426 Certification No. 40-7

Test Date: 11/23/2016

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.3 °C	Yes
Relative Humidity	10 - 70 %	18 %	Yes
Pendulum Velocity	6.89 - 7.13 m/s	7.045 m/s	Yes
Pendulum Integrated Velocity Change at 10ms	(-2.1) - (-2.5) m/s	-2.45 m/s	Yes
Pendulum Integrated Velocity Change at 20ms	(-4.0) - (-5.0) m/s	-4.90 m/s	Yes
Pendulum Integrated Velocity Change at 30ms	(-5.8) - (-7.0) m/s	-6.95 m/s	Yes
Total Head D-Plane Rotation	(-77) - (-91) °	-78.2 °	Yes
Total Neck Occipital Condyles Moment Between -77° and -91° Rotation	69 - 83 N·m	71.6 N·m	Yes
Total Neck Occipital Condyles Moment Decay to 10 N·m	80 - 100 ms	86.9 ms	Yes

Test meets specifications.

Comments:

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

11.23.2016 08:20:47 1840

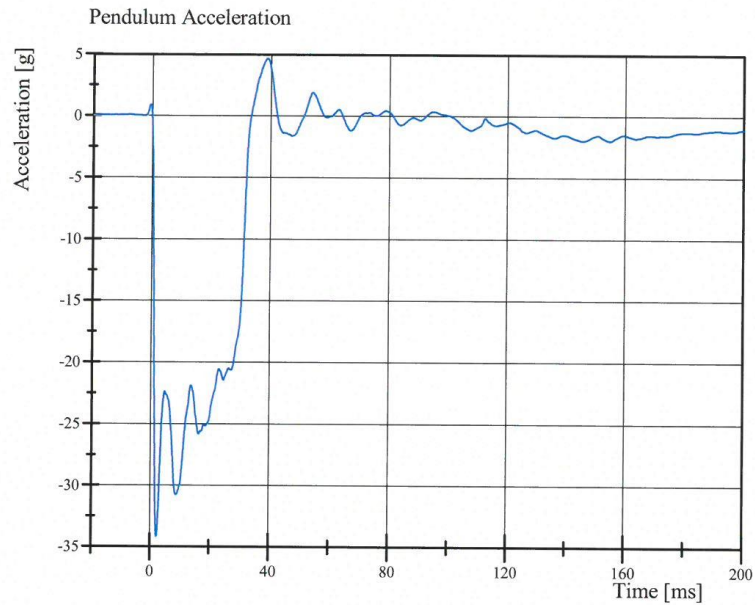


Transportation Research Center Inc.

Neck Flexion

HIII 5th Serial No. 426 Certification No. 40-7

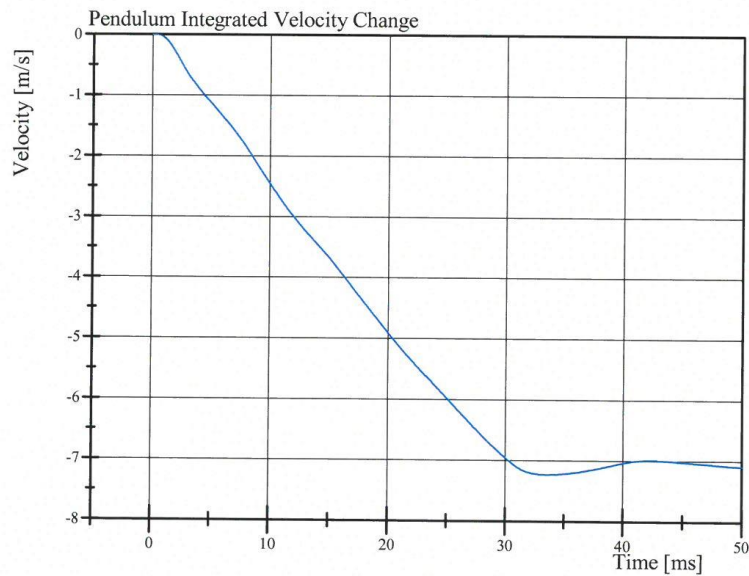
Test Date: 11/23/2016



Filter Class: CFC_180

Max: 4.6 g at 38.9 ms

Min: -34.2 g at 2.4 ms



Filter Class: CFC_180

Max: 0.0 m/s at 0.0 ms

Min: -7.2 m/s at 33.6 ms

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

11.23.2016 08:21:26 1840

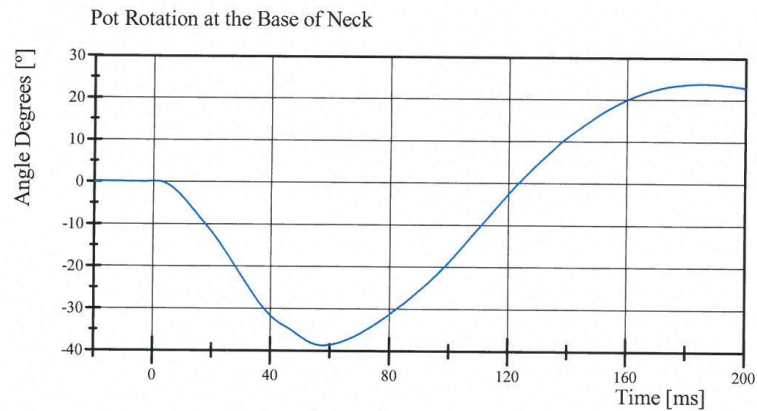


Transportation Research Center Inc.

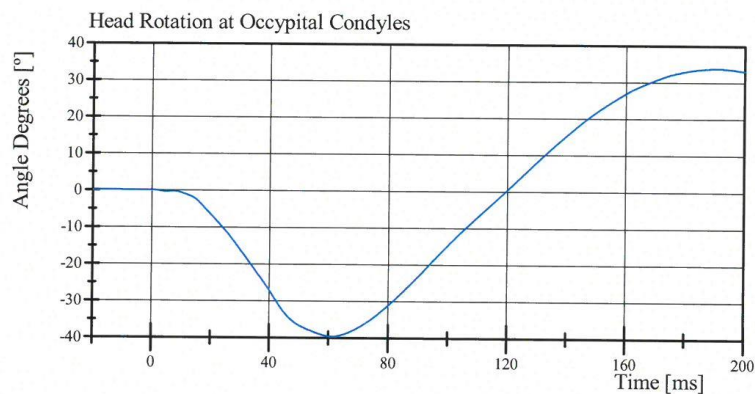
Neck Flexion

HIH 5th Serial No. 426 Certification No. 40-7

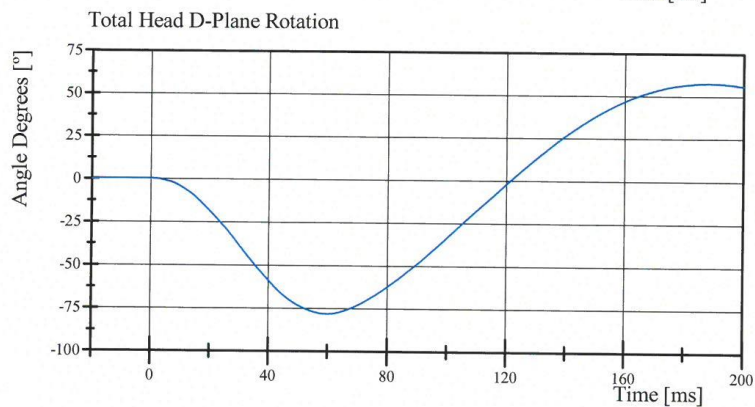
Test Date: 11/23/2016



Filter Class: CFC_60
Max: 23.8 ° at 185.7 ms
Min: -38.8 ° at 57.8 ms



Filter Class: CFC_60
Max: 33.8 ° at 190.6 ms
Min: -39.7 ° at 61.3 ms



Filter Class: CFC_60
Max: 57.6 ° at 188.1 ms
Min: -78.2 ° at 60.1 ms

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

11.23.2016 08:21:27 1840

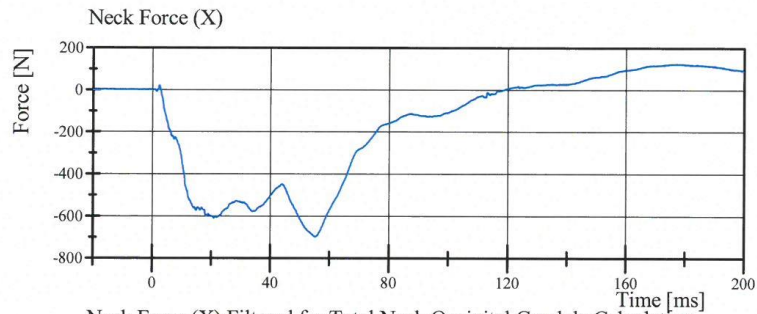


Transportation Research Center Inc.

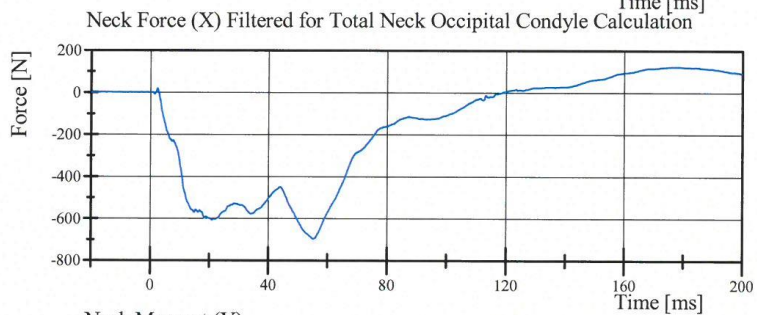
Neck Flexion

HIII 5th Serial No. 426 Certification No. 40-7

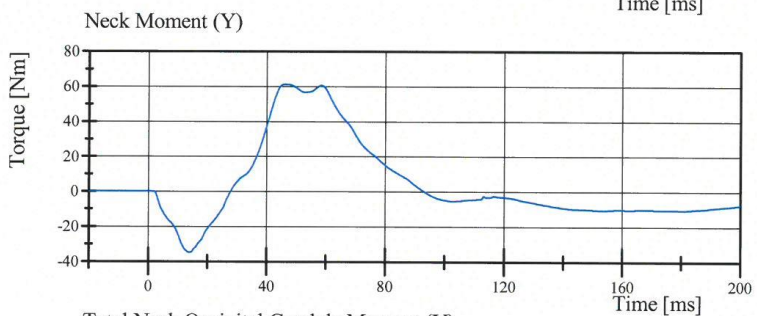
Test Date: 11/23/2016



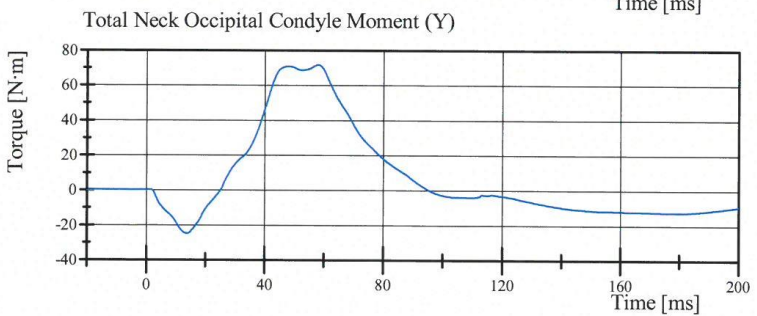
Filter Class: CFC_1000
Max: 124.6 N at 176.7 ms
Min: -697.8 N at 55.2 ms



Filter Class: CFC_600
Max: 124.3 N at 177.4 ms
Min: -697.6 N at 55.3 ms



Filter Class: CFC_600
Max: 61.1 Nm at 46.3 ms
Min: -35.0 Nm at 14.0 ms



Filter Class: Without (Constai
Max: 71.6 N·m at 58.1 ms
Min: -25.1 N·m at 13.9 ms

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

11.23.2016 08:21:27 1840



Transportation Research Center Inc.

Neck Extension

HIII 5th Serial No. 426 Certification No. 40-1

Test Date: 11/23/2016

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.4 °C	Yes
Relative Humidity	10 - 70 %	19 %	Yes
Pendulum Velocity	(-5.95) - (-6.19) m/s	-6.129 m/s	Yes
Pendulum Integrated Velocity Change at 10ms	1.5 - 1.9 m/s	1.84 m/s	Yes
Pendulum Integrated Velocity Change at 20ms	3.1 - 3.9 m/s	3.76 m/s	Yes
Pendulum Integrated Velocity Change at 30ms	4.6 - 5.6 m/s	5.45 m/s	Yes
Total Head D-Plane Rotation	99 - 114 °	103.1 °	Yes
Total Neck Occipital Condyles Moment Between 99° and 114° Rotation	(-53) - (-65) N·m	-58.6 N·m	Yes
Total Neck Occipital Condyles Moment Decay to -10 N·m	94 - 114 ms	103.7 ms	Yes

Test meets specifications.

Comments:

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

11.23.2016 09:05:07 3107

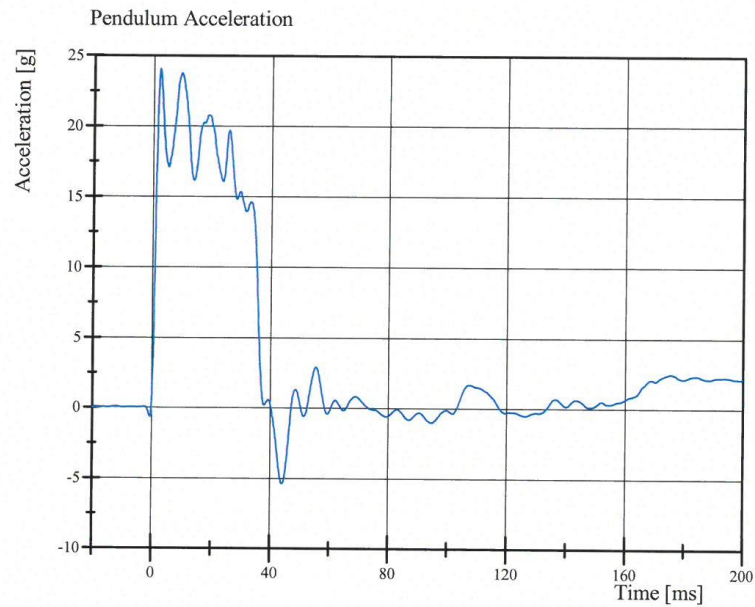


Transportation Research Center Inc.

Neck Extension

HIII 5th Serial No. 426 Certification No. 40-1

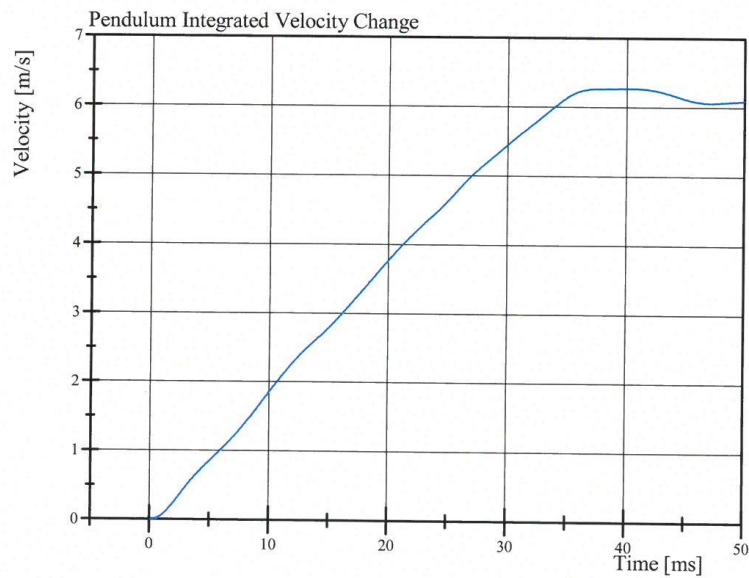
Test Date: 11/23/2016



Filter Class: CFC_180

Max: 24.0 g at 2.4 ms

Min: -5.4 g at 44.2 ms



Filter Class: CFC_180

Max: 6.3 m/s at 40.3 ms

Min: 0.0 m/s at 0.0 ms

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

11.23.2016 09:05:34 3107



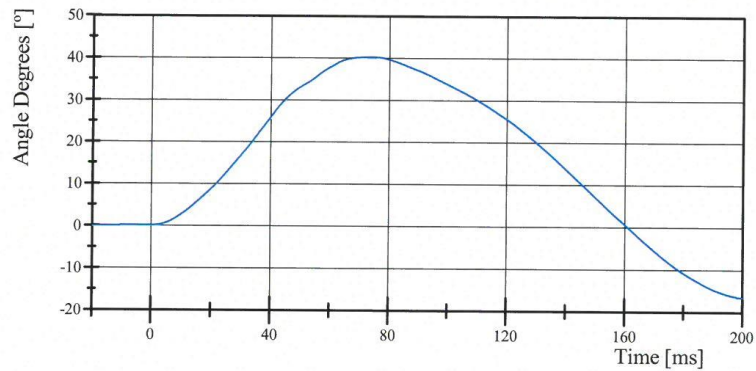
Transportation Research Center Inc.

Neck Extension

HIII 5th Serial No. 426 Certification No. 40-1

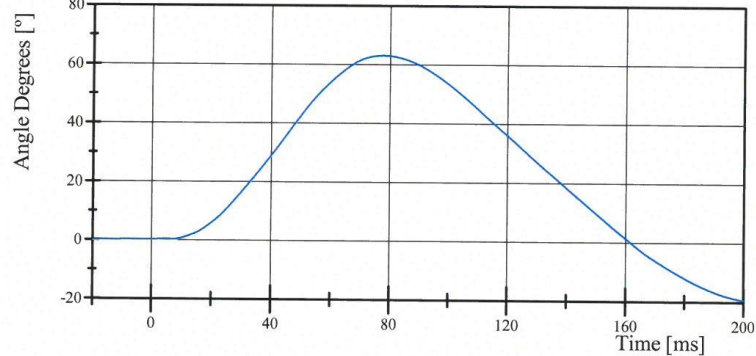
Test Date: 11/23/2016

Pot Rotation at the Base of Neck



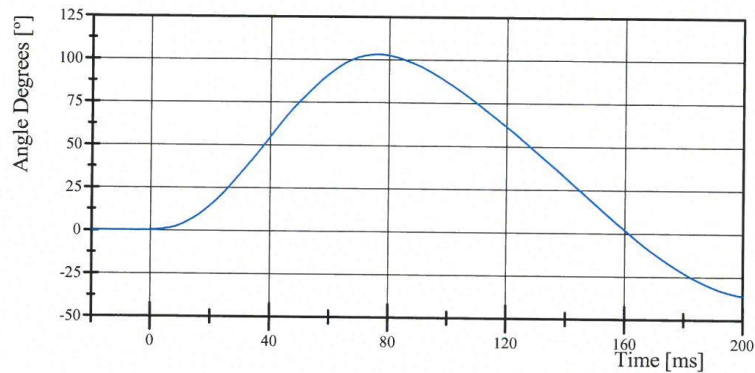
Filter Class: CFC_60
Max: 40.2 ° at 74.1 ms
Min: -16.5 ° at 200.0 ms

Head Rotation at Occipital Condyles



Filter Class: CFC_60
Max: 63.1 ° at 77.8 ms
Min: -19.4 ° at 200.0 ms

Total Head D-Plane Rotation



Filter Class: CFC_60
Max: 103.1 ° at 76.5 ms
Min: -36.0 ° at 200.0 ms

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

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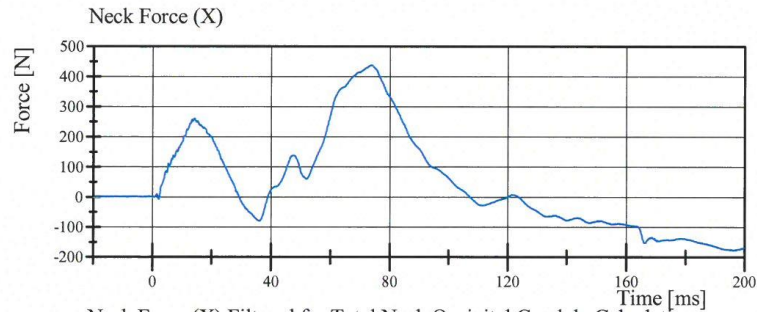


Transportation Research Center Inc.

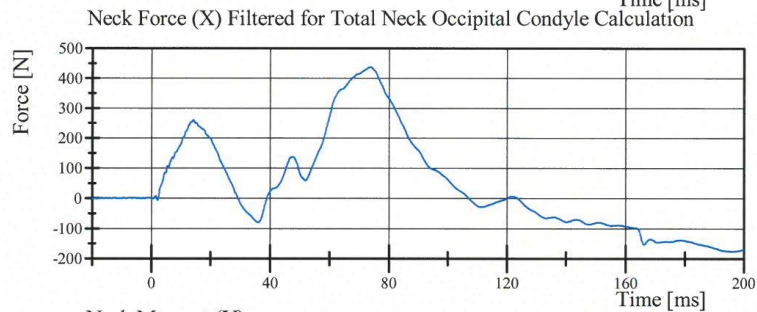
Neck Extension

HIII 5th Serial No. 426 Certification No. 40-1

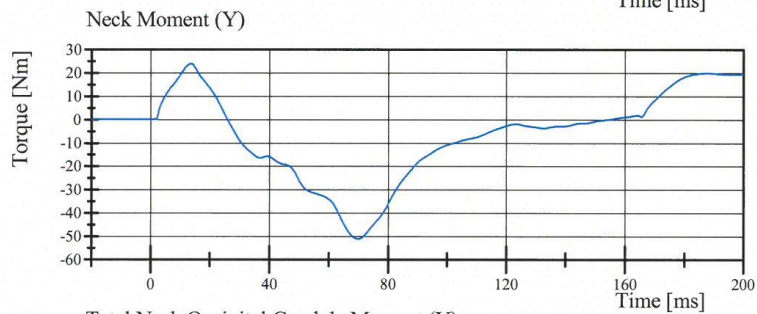
Test Date: 11/23/2016



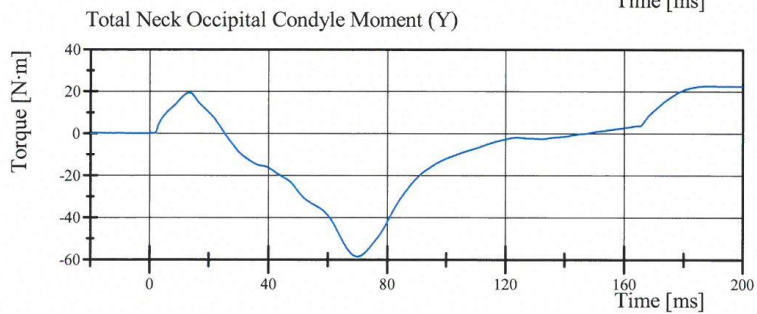
Filter Class: CFC_1000
Max: 437.1 N at 73.7 ms
Min: -176.3 N at 196.2 ms



Filter Class: CFC_600
Max: 437.1 N at 73.8 ms
Min: -175.8 N at 196.2 ms



Filter Class: CFC_600
Max: 23.8 Nm at 13.6 ms
Min: -51.2 Nm at 70.1 ms



Filter Class: Without_(Consta
Max: 22.8 N·m at 188.8 ms
Min: -58.6 N·m at 70.1 ms

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

11.23.2016 09:05:37 3107



Transportation Research Center Inc.

Front Thorax

HIII 5th Serial No. 426 Certification No. 40-1

Test Date: 11/23/2016

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.6 °C	Yes
Relative Humidity	10 - 70 %	20 %	Yes
Probe Velocity	6.59 - 6.83 m/s	6.685 m/s	Yes
Probe Force Peak Between 50.0 mm and 58.0 mm Chest Deflection	(-3,900) - (-4,400) N	-4,049.0 N	Yes
Probe Force Peak Between 18.0 mm and 50.0 mm Chest Deflection	$\geq (-4,600)$ N	-4,396.8 N	Yes
Maximum Chest Compression	(-50) - (-58) mm	-50.0 mm	Yes
Internal Hysteresis	69 - 85 %	75.6 %	Yes

Test meets specifications.

Comments:

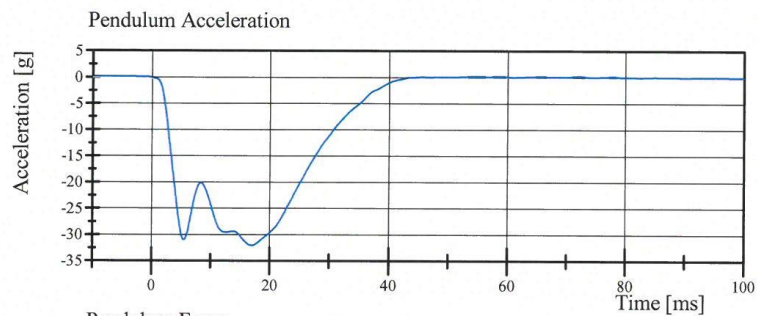
Specification Source: CFR49 Part 572 Subpart O
with Polarity in accordance with J211

11.23.2016 10:07:05 420

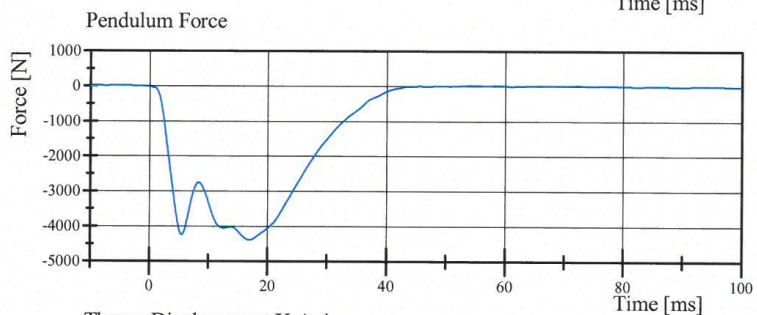


Transportation Research Center Inc.

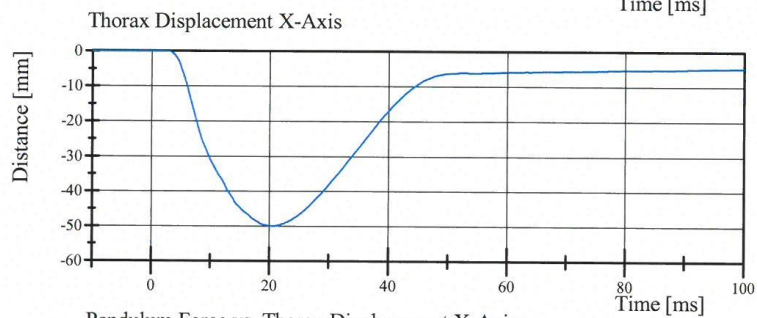
Front Thorax
HIII 5th Serial No. 426 Certification No. 40-1
Test Date: 11/23/2016



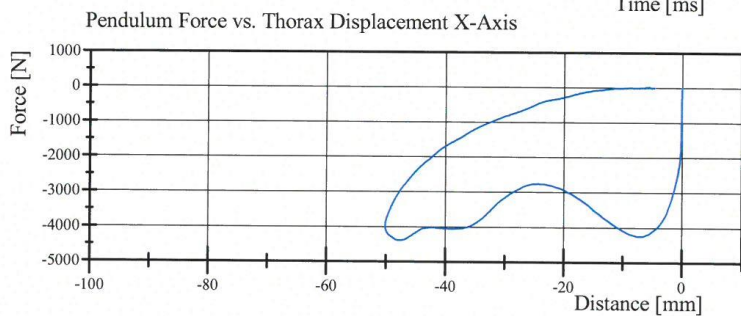
Filter Class: CFC_180
Max: 0.2 g at 72.2 ms
Min: -32.1 g at 17.0 ms



Filter Class: CFC_180
Max: 23.8 N at 72.2 ms
Min: -4,396.8 N at 17.0 ms



Filter Class: CFC_600
Max: 0.0 mm at -5.5 ms
Min: -50.0 mm at 20.6 ms



Filter Class: CFC_180
Max: 23.8 N at -5.5 mm
Min: -4,396.8 N at -47.8 mm

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

11.23.2016 10:07:15 420



Transportation Research Center Inc.

Hybrid III Small Female Torso Flexion

NHTSA

Serial Number: 426

Date: 11/23/2016

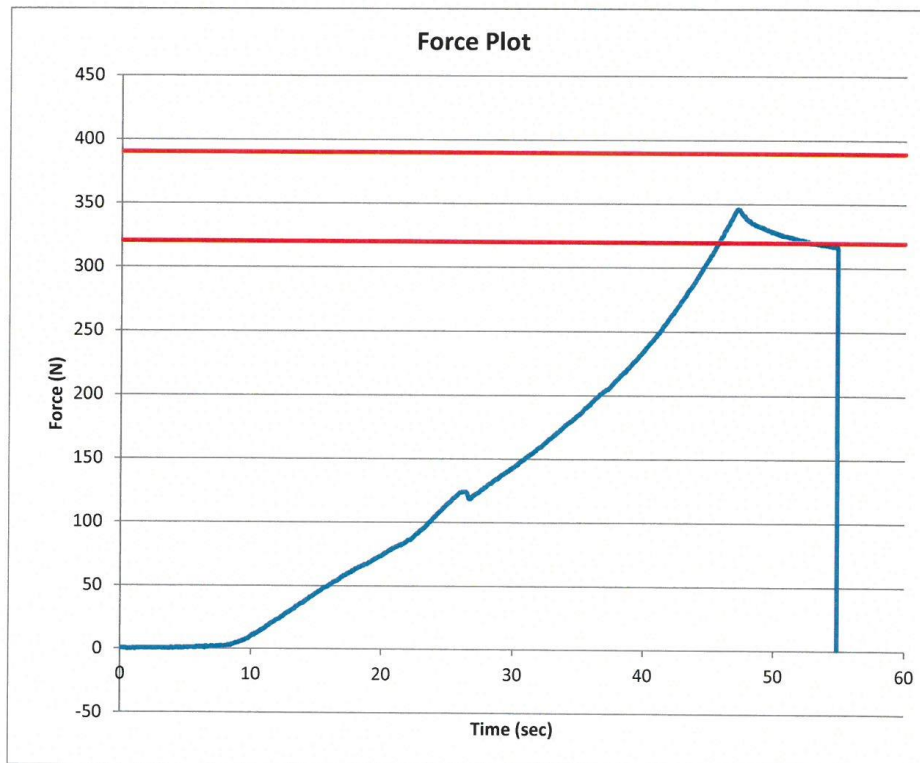
Test Number: 1

Time: 8:34

Comments:



TEST PARAMETER	SPECIFICATION		TEST RESULTS		
Temperature	18.9	- 25.6	21.4	°C	Pass
Humidity	10	- 70	18	%	Pass
Average Angular Velocity	0.5	- 1.5	0.82	deg/sec	Pass
Initial Angle	0	- 20	13.19	deg	Pass
Peak Force at 45.12°	320	- 390	346.19	N	Pass
Final Angle	-8	- 8	6.49	deg	Pass



Transportation Research Center Inc.

Left Knee Femur Response Test
HIII 5th Serial No. 426 Certification No. 40-1
Test Date: 11/22/2016

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.6 °C	21.6 °C	Yes
Relative Humidity	10 - 70 %	18 %	Yes
Probe Velocity	2.08 - 2.13 m/s	2.093 m/s	Yes
Peak Femur Force	(-3,450) - (-4,060) N	-4,048.4 N	Yes

Test meets specifications.

Comments:

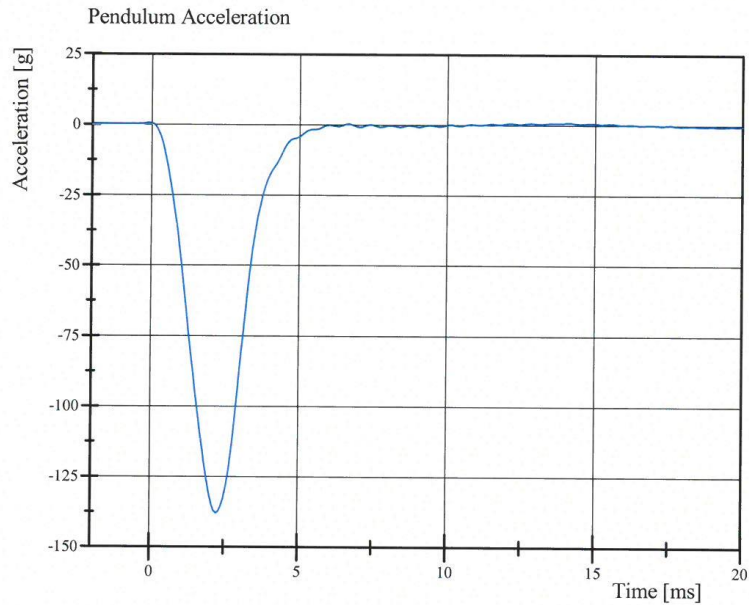
Specification Source: CFR49 Part 572 Subpart O
with Polarity in accordance with J211

11.22.2016 08:40:46 1719

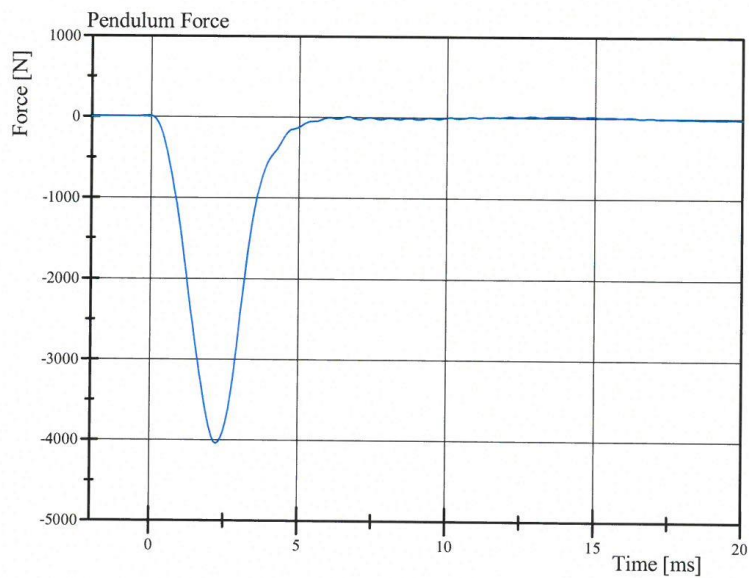


Transportation Research Center Inc.

Left Knee Femur Response Test
HIII 5th Serial No. 426 Certification No. 40-1
Test Date: 11/22/2016



Filter Class: CFC_600
Max: 0.7 g at 14.1 ms
Min: -138.1 g at 2.2 ms



Filter Class: CFC_600
Max: 21.2 N at 14.1 ms
Min: -4,048.4 N at 2.2 ms

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

11.22.2016 08:41:05 1719



Transportation Research Center Inc.

Right Knee Femur Response Test
HIII 5th Serial No. 426 Certification No. 40-1
Test Date: 11/22/2016

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.6 °C	21.3 °C	Yes
Relative Humidity	10 - 70 %	17 %	Yes
Probe Velocity	2.08 - 2.13 m/s	2.102 m/s	Yes
Peak Femur Force	(-3,450) - (-4,060) N	-4,024.1 N	Yes

Test meets specifications.

Comments:

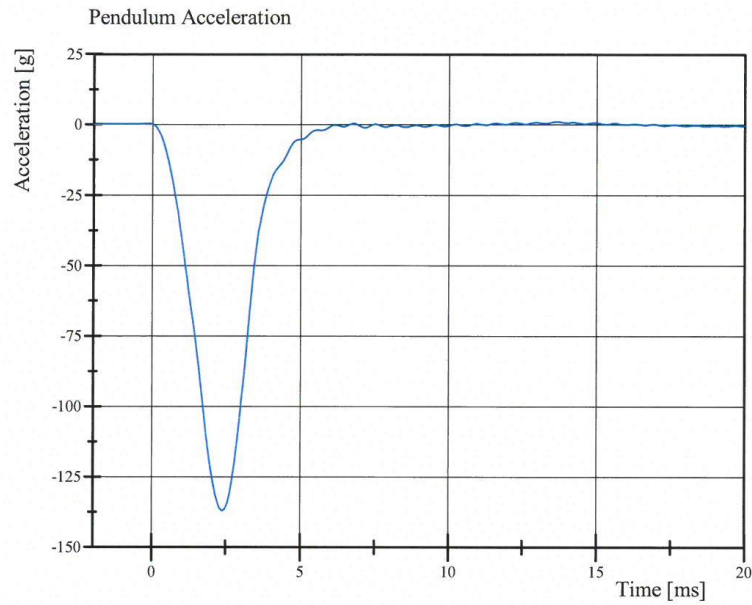
Specification Source: CFR49 Part 572 Subpart O
with Polarity in accordance with J211

11.22.2016 08:48:25 1714

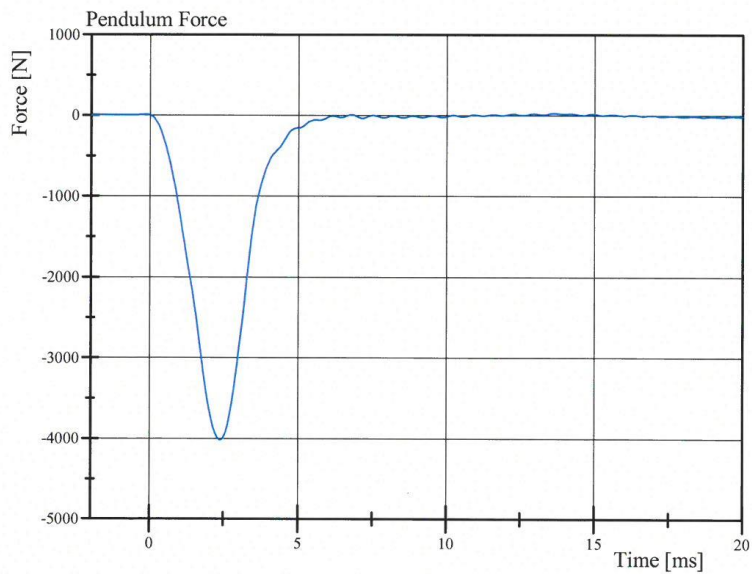


Transportation Research Center Inc.

Right Knee Femur Response Test
HIII 5th Serial No. 426 Certification No. 40-1
Test Date: 11/22/2016



Filter Class: CFC_600
Max: 1.0 g at 13.7 ms
Min: -137.2 g at 2.4 ms



Filter Class: CFC_600
Max: 28.8 N at 13.7 ms
Min: -4,024.1 N at 2.4 ms

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

11.22.2016 08:48:37 1714

