

Final Report Number: NCAP-TRC-16-003

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

**Volkswagen de Mexico S.A. de C.V. Mexico
2016 Volkswagen Golf SportWagen
NHTSA Number: M20165800**

**PREPARED BY:
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Report Date: March 4, 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: Impact Laboratory Project Operations Group

Approved By: Melinda Lackey

Approval Date: March 4, 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 _____

1. Report No. NCAP-TRC-16-003	2. Government Accession No.	3. Recipient's Catalog No.																																																																										
4. Title and Subtitle Final Report of NEW CAR ASSESSMENT PROGRAM Frontal Impact Testing of a 2016 Volkswagen Golf Sportwagen, NHTSA No. M20165800				5. Report Date March 4, 2016																																																																								
				6. Performing Organization Code TRC Inc.																																																																								
7. Author(s) Melinda Lackey, Project Manager				8. Performing Organization Report No. 150128																																																																								
9. Performing Organization Name and Address Transportation Research Center Inc. 10820 State Route 347 East Liberty, OH 43319-0367				10. Work Unit No. (TRAIS)																																																																								
				11. Contract or Grant No. DTNH22-12-D-00257																																																																								
12. Sponsoring Agency Name and Address 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				13. Type of Report and Period Covered Final Report January 28, 2016 – March 4, 2016																																																																								
				14. Sponsoring Agency Code NRM-110																																																																								
15. Supplemental Notes																																																																												
16. Abstract A 56.0 km/h NCAP Frontal Impact Test was conducted on a 2016 Volkswagen Golf SportWagen, in accordance with the specifications of the Office of Crashworthiness Standards Frontal NCAP Laboratory Test Procedure. This test was conducted to obtain data indicant of FMVSS 208, 212, 219 (partial), 301 and foot well intrusion performance. This test was conducted at the Transportation Research Center Inc. in East Liberty, Ohio on January 28, 2016. The impact velocity was 56.05 km/h, and the ambient temperature at the barrier face at the time of impact was 21° C. The target vehicle post-test maximum crush was 450 millimeters at crush zone 2 at left 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>286</td> <td>NA</td> <td>700</td> <td>256</td> </tr> <tr> <td>Maximum Chest Compression</td> <td>mm</td> <td>63</td> <td>-21.3</td> <td>mm</td> <td>52</td> <td>-18.4</td> </tr> <tr> <td>3ms Chest Clip</td> <td>Gs</td> <td>60</td> <td>52.4</td> <td>Gs</td> <td>60</td> <td>50.1</td> </tr> <tr> <td>Nij</td> <td>NA</td> <td>1</td> <td>0.34</td> <td>NA</td> <td>1</td> <td>0.43</td> </tr> <tr> <td>Neck Tension</td> <td>Newtons</td> <td>4170</td> <td>1494.9</td> <td>Newtons</td> <td>2620</td> <td>934.0</td> </tr> <tr> <td>Neck Compression</td> <td>Newtons</td> <td>4000</td> <td>-271.6</td> <td>Newtons</td> <td>2520</td> <td>-406.4</td> </tr> <tr> <td>Left Femur Force</td> <td>Newtons</td> <td>10008</td> <td>-355.1</td> <td>Newtons</td> <td>6805</td> <td>-752.0</td> </tr> <tr> <td>Right Femur Force</td> <td>Newtons</td> <td>10008</td> <td>-753.6</td> <td>Newtons</td> <td>6805</td> <td>-433.4</td> </tr> </tbody> </table>								Driver ATD			Passenger ATD			Measurement Description	Units	Threshold	Result	Units	Threshold	Result	Head Injury Criteria (HIC ₁₅)	NA	700	286	NA	700	256	Maximum Chest Compression	mm	63	-21.3	mm	52	-18.4	3ms Chest Clip	Gs	60	52.4	Gs	60	50.1	Nij	NA	1	0.34	NA	1	0.43	Neck Tension	Newtons	4170	1494.9	Newtons	2620	934.0	Neck Compression	Newtons	4000	-271.6	Newtons	2520	-406.4	Left Femur Force	Newtons	10008	-355.1	Newtons	6805	-752.0	Right Femur Force	Newtons	10008	-753.6	Newtons	6805	-433.4
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19. Security Classif. (of this report) Unclassified	20. Security Classif. (of this page) Unclassified		21. Number of Pages 164		22. Price																																																																							

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1: PURPOSE AND SUMMARY OF TEST

PURPOSE

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

This 56 km/h frontal barrier impact test was conducted in accordance with the Office of Crashworthiness Standards Front NCAP Laboratory Test Procedure dated October 2015.

SUMMARY

A 2016 Volkswagen Golf SportWagen impacted the barrier wall at a velocity of 56.05 km/h. The test was performed at Transportation Research Center, Inc. on January 28, 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. 070) 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 100.0 percent windshield retention and no intrusion into the protected zone of the windshield during the event. There was no Stoddard solvent leakage after the event or during any phase of the static rollover.

The maximum static crush of the vehicle was 450 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 glove box.

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)	286	0.34	1494.9	-271.6	52.4	-21.3	-355.1	-753.6
Passenger (5 th Female)	256	0.43	934.0	-406.4	50.1	-18.4	-752.0	-433.4

2: OCCUPANT AND VEHICLE INFORMATION / DATA SHEETS

DATA SHEET NO. 1

GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle: 2016 Volkswagen Golf SportWagen
 Test Program: NCAP Frontal Impact

NHTSA No.: M20165800
 Test Date: 1/28/16

TEST VEHICLE INFORMATION

NHTSA No.	M20165800
Model Year	2016
Make	Volkswagen
Model	Golf SportWagen
Body Style	Passenger Car
VIN	3VWC17AU1GM514433
Body Color	Silk Blue Metallic
Odometer Reading (km/mi)	10.0
Engine Displacement (L)	1.8
Type/No. Cylinders	Straight/4
Engine Placement	Front/Transverse
Transmission Type	Automatic
Transmission Speeds	6
Overdrive	Yes
Final Drive	FWD
Roof Rack	Rails
Sunroof/T-Top	No
Running Boards	No
Tilt Steering Wheel	Yes
Power Seats	Seatback only
Anti-Lock Brakes (ABS)	Yes
Automatic Door Locks (ADLs)	Yes

TEST VEHICLE OPTIONS

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

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

Yes

DATA FROM CERTIFICATION LABEL

Manufactured by	Volkswagen de Mexico S.A. de C.V. Mexico	GVWR (kg)	1930.0 (4255 lbs)
Date of Manufacture	11/15	GAWR Front (kg)	980.0 (2161 lbs)
		GAWR Rear (kg)	1000.0 (22205 lbs)

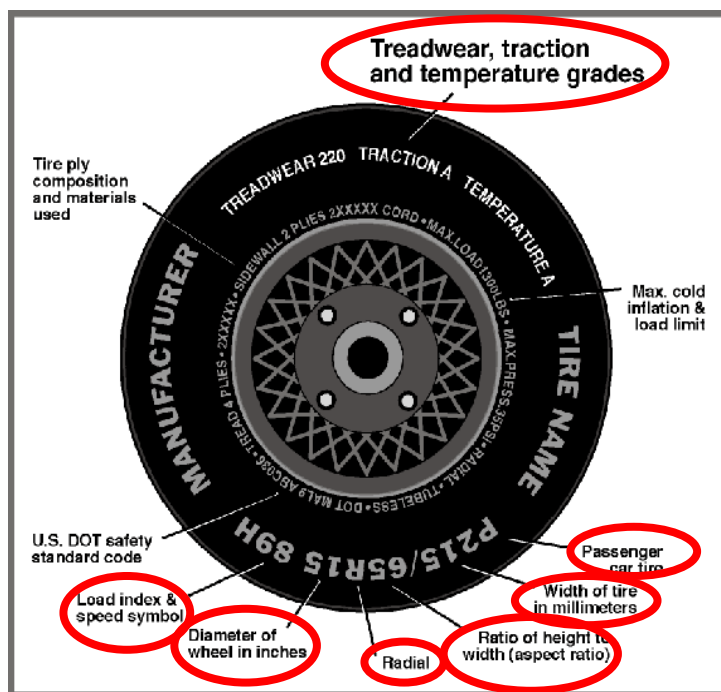
VEHICLE SEATING AND WEIGHT CAPACITY

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)				454
Cargo Wt. (RCLW) (kg)				113.8

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

Test Vehicle: 2016 Volkswagen Golf SportWagen
 Test Program: NCAP Frontal Impact

NHTSA No.: M20165800
 Test Date: 1/28/16



DATA FROM TIRE PLACARD

Measured Parameter	Front	Rear
Maximum Tire Pressure (kPa)	350	350
Cold / Test Pressure (kPa)	230	230
Recommended Tire Size	195/65R15	195/65R15
Tire Size on Vehicle	195/65R15	195/65R15
Tire Manufacturer	Continental	Continental
Tire Model	ProContact TX	ProContact TX
Treadwear	500	500
Traction Grade	A	A
Temperature Grade	A	A
Tire Plies Sidewall	1	1
Tire Plies Body	4	4
Load Index/Speed Symbol	91H	91H
Tire Material	Polyester, Steel, Polyamide	Polyester, Steel, Polyamide
DOT Safety Code Right	P5AE WC1A 3715	P5AE WC1A 3715
DOT Safety Code Left	P5AE WC1A 3715	P5AE WC1A 3715

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

Test Vehicle: 2016 Volkswagen Golf SportWagen
 Test Program: NCAP Frontal Impact

NHTSA No.: M20165800
 Test Date: 1/28/16

TEST VEHICLE WEIGHTS

	Units	As Delivered (UVW) (Axle)			As Tested (ATW) (Axle)		
		Front	Rear	Total	Front	Rear	Total
Left	kg	408.0	306.0		445.6	394.0	
Right	kg	402.4	299.0		433.2	389.0	
Ratio	%	57.3	42.7		52.9	41.1	
Totals	kg	810.4	605.0	1415.4	878.8	783.0	1661.8

TARGET TEST WEIGHT CALCULATION

Measured Parameter	Units	Value
Total Delivered Weight (UVW)	kg	1415.4
Weight of 1 P572E ATD & 1 P572O ATD	kg	139.3
Rated Cargo/Luggage Weight (RCLW)	kg	113.8
Vehicle Target Weight (TVTW)	kg	1668.5

TEST VEHICLE ATTITUDES AND CG

	Units	LF	RF	LR	RR	CG (aft of front)
As Delivered	mm	691	693	686	694	1124
As Tested	mm	682	683	647	649	1239
Post Test	mm	760	730	650	632	

GENERAL TEST VEHICLE DATA

Measurement Description	Units	Value
Test Vehicle Wheel Base	mm	2629
Total Vehicle Length at Left Side	mm	4354
Total Vehicle Length at Centerline	mm	4564
Total Vehicle Length at Right Side	mm	4354
Weight of Ballast in Cargo Area	kg	19.3
Weight of Vehicle Components Removed	kg	0.0
Amount of Stoddard Solvent in Fuel Tank	liters	46.5

LIST OF COMPONENTS REMOVED TO MEET TEST WEIGHT: None

DATA SHEET NO. 1 (CONTINUED)**GENERAL TEST AND VEHICLE PARAMETER DATA**Test Vehicle: 2016 Volkswagen Golf SportWagenNHTSA No.: M20165800Test Program: NCAP Frontal ImpactTest Date: 1/28/16**TARGET VEHICLE STRUCTURAL MEASUREMENT**

	Elements	Pre-Test (mm)
1	Total Length	4564
2	Total Width	1770
3	Bumper Top Height	540
4	Bumper Bottom Height	424
5	Longitudinal Member Top Height	540
6	Distance Between Longitudinal Members	900
7	Longitudinal Member Width	85
8	Engine Top Height	860
9	Engine Bottom Height	167
10	Engine and Gearbox Width	800
11	Front Bumper-Engine Distance	457
12	Front Shock Absorber Fixing Height	875
13	Bonnet Leading Edge Height	715
14	Front Shock Absorber Fixing Width	1200
15	Front Bumper – Front Axle Distance	855
16	Front Axle – A-Pillar Distance	550
17	A-Pillar – B-Pillar Distance	960
18	B-Pillar – Rear Axle Distance	1115
19	B-Pillar – C-Pillar Distance	930
20	Roof Sill Bottom Height	1292
21	Roof Sill Top Height	1355
22	Floor Sill Bottom Height	335
23	Floor Sill Top Height	377

DATA SHEET NO. 2

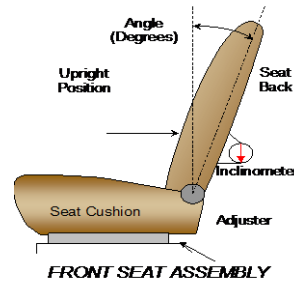
SEAT ADJUSTMENT, FUEL SYSTEM AND STEERING WHEEL DATA

Test Vehicle: 2016 Volkswagen Golf SportWagen
 Test Program: NCAP Frontal Impact

NHTSA No.: M20165800
 Test Date: 1/28/16

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:	18.6
Passenger Seat back angle:	23.1

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	300	19
Passenger Seat	254	0

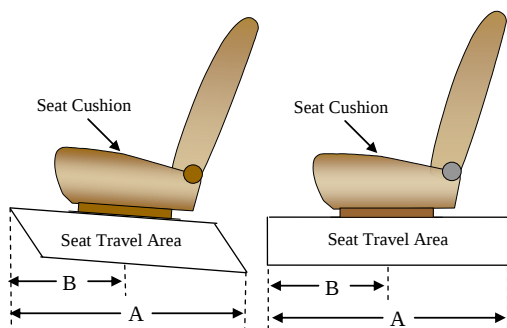
SEAT BELT UPPER ANCHORAGE

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	4, numbered 0 to 3	0, Uppermost
Passenger Seat	4, numbered 0 to 3	0, Uppermost



DATA SHEET NO. 2 (CONTINUED)

SEAT ADJUSTMENT, FUEL SYSTEM AND STEERING WHEEL DATA

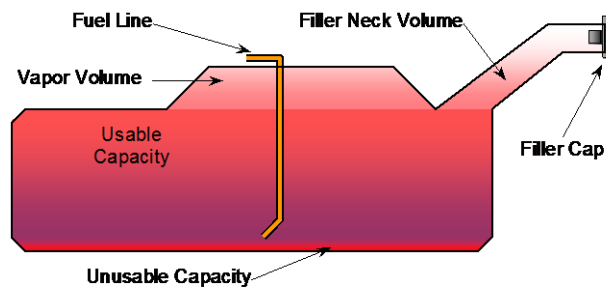
Test Vehicle: 2016 Volkswagen Golf SportWagen
Test Program: NCAP Frontal Impact

NHTSA No.: M20165800
Test Date: 1/28/16

FUEL TANK CAPACITY

	Liters
Usable Capacity of "Standard Tank"	50
Usable Capacity of "Optional Tank"	N/A
92%-94% of Usable Capacity	46.5
Actual Amount of Solvent Used	46.5
1/3 of Usable Capacity	16.7

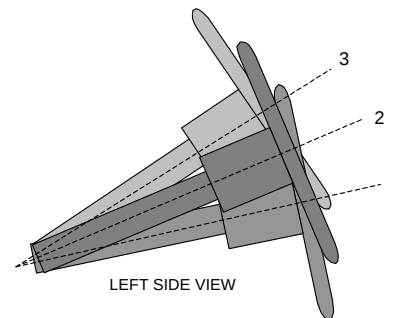
The vehicle is equipped with an electric fuel pump. The electric fuel pump runs for 2 seconds after ignition is switched on. If the engine does not run, the fuel pump stops. If there is a crash signal, it will also stop running.



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

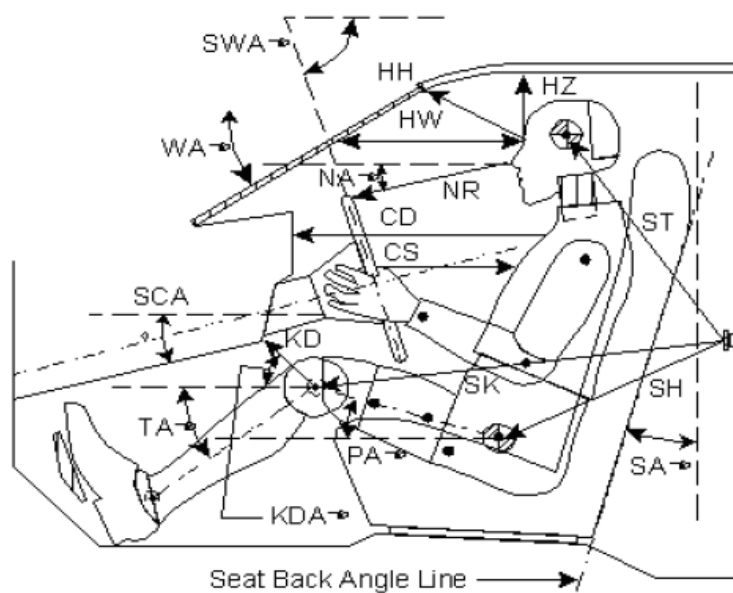
	Degrees	Fore/Aft Position (mm)
Lowermost Position No. 1	70.2	300
Geometric Center Position No. 2	67.5	327
Uppermost Position No. 3	64.9	354
Telescoping Steering Wheel Travel		54
Test Position	67.5	327

DATA SHEET NO. 3

DUMMY LONGITUDINAL CLEARANCE DIMENSIONS

Test Vehicle: 2016 Volkswagen Golf SportWagen
 Test Program: NCAP Frontal Impact

NHTSA No.: M20165800
 Test Date: 1/28/16



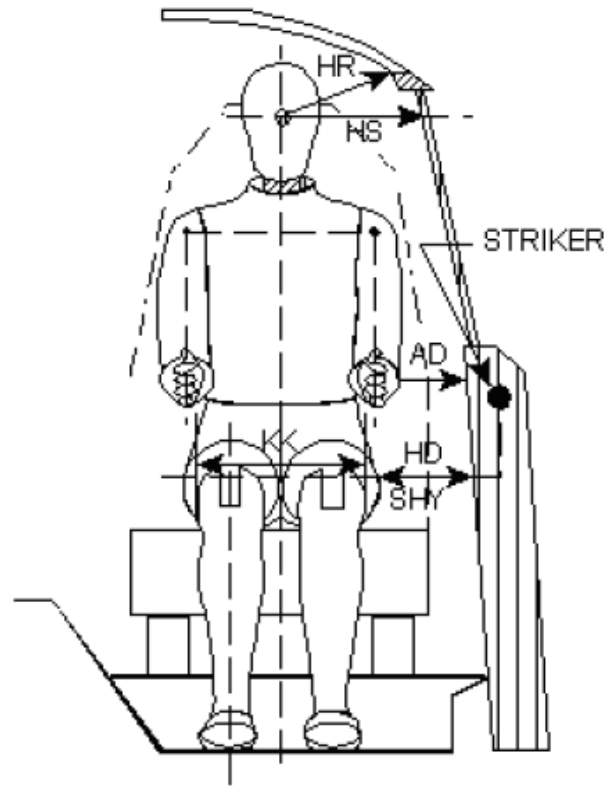
Code	Measurement Description	Driver		Passenger	
		Length (mm)	Angle (°)	Length (mm)	Angle (°)
WA°	Windshield Angle		27.5		
SWA°	Steering Wheel Angle		67.5		
SCA°	Steering Column Angle		22.5		
SA°	Seat Back Angle (on headrest post)		19.5		22.6
HZ	Head to Roof (Z)	216		249	
HH	Head to Header	400		361	
HW	Head to Windshield	701		745	
NR	Nose to Rim	410	7.5		
CD	Chest to Dash	555		433	
CS	Chest to Steering Hub	345			
RA	Rim to Abdomen	231			
KDL	Left Knee to Dash	246	29.0	153	40.0
KDR	Right Knee to Dash	245	29.0	157	40.0
PA°	Pelvic Angle		22.1		20.5
TA°	Tibia Angle		37.4		49.5
SK	Striker to Knee	540	14.0	627	12.3
ST	Striker to Head	415	86.0	377	67.0
SH	Striker to H-Point	396	56.2	367	37.3

DATA SHEET NO. 4

DUMMY LATERAL CLEARANCE DIMENSIONS

Test Vehicle: 2016 Volkswagen Golf SportWagen
Test Program: NCAP Frontal Impact

NHTSA No.: M20165800
Test Date: 1/28/16



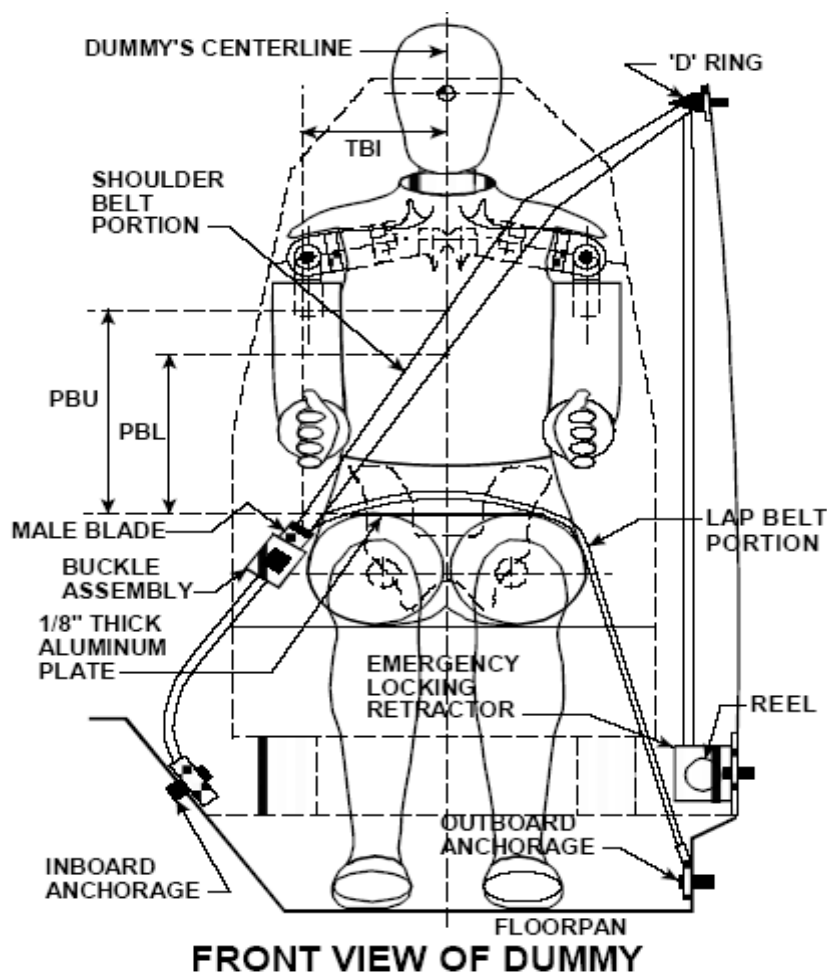
Code	Measurement Description	Driver	Passenger
AD	Arm to Door	146	114
HD	H-Point to Door	151	191
HR	Head to Side Header	230	265
HS	Head to Side Window	359	382
KK	Knee to Knee	360	165
SHY	Striker to H-Point (Y Direction)	240	284
AA	Ankle to Ankle	370	165

DATA SHEET NO. 5

SEAT BELT POSITIONING DATA

Test Vehicle: 2016 Volkswagen Golf SportWagen
 Test Program: NCAP Frontal Impact

NHTSA No.: M20165800
 Test Date: 1/28/16



SEAT BELT POSITIONING MEASUREMENTS

Measurement Description	Units	Driver	Passenger
PBU – Top surface of reference to belt upper edge	mm	348	283
PBL – Top surface of reference to belt lower edge	mm	273	196

BELT LENGTH DATA

Measurement Description	Units	Driver	Passenger
Shoulder belt length as measured on ATD	mm	840	910
Lap belt length as measured on ATD	mm	702	750
Remainder of belt on reel	mm	815	730
Total belt length for continuous webbing systems	mm	2357	2390

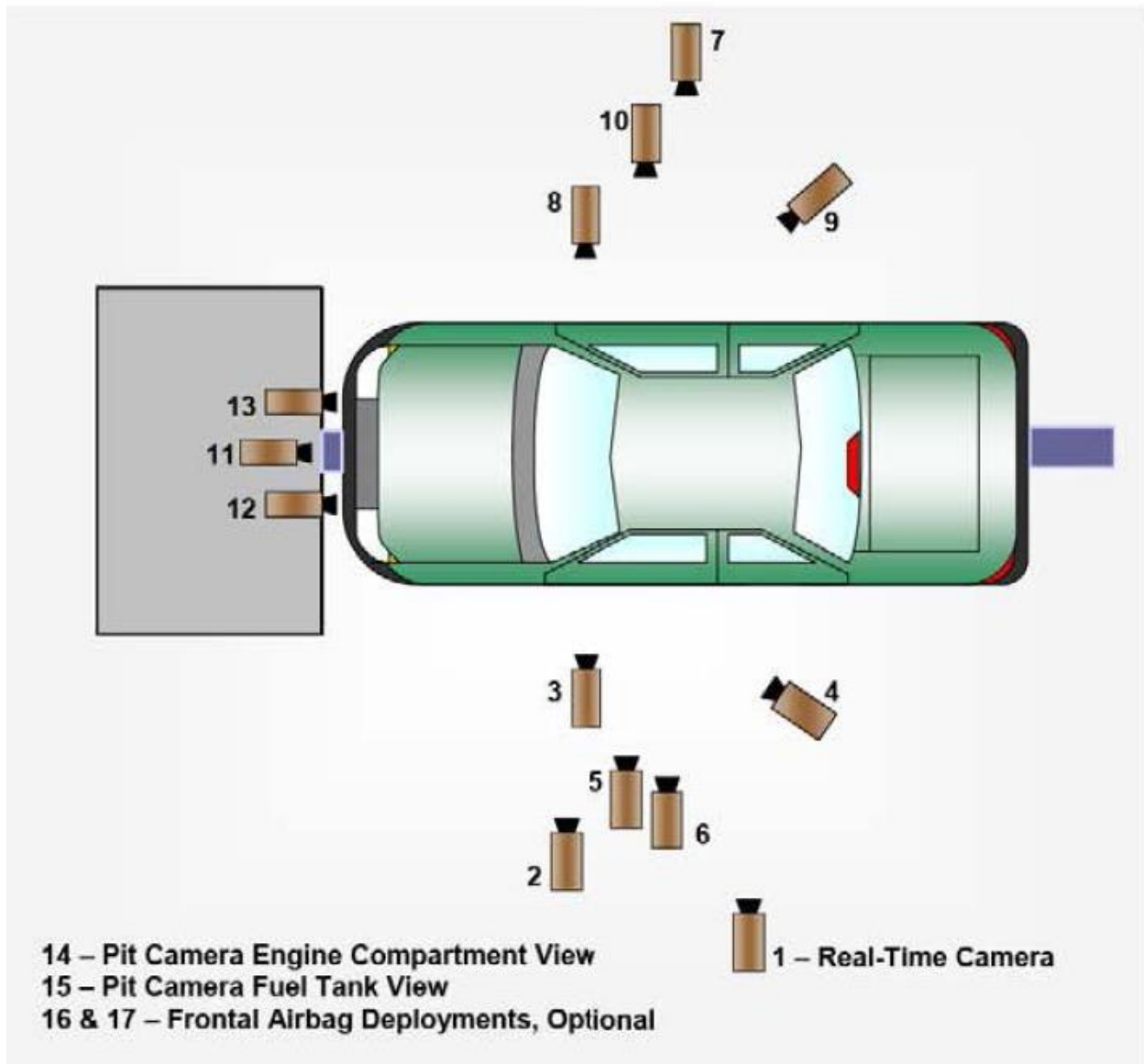
DATA SHEET NO. 6

HIGH SPEED CAMERA LOCATIONS AND DATA

Test Vehicle: 2016 Volkswagen Golf SportWagen
Test Program: NCAP Frontal Impact

NHTSA No.: M20165800
Test Date: 1/28/16

CAMERA POSITIONS FOR FRONTAL IMPACTS



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

Test Vehicle: 2016 Volkswagen Golf SportWagen
Test Program: NCAP Frontal Impact

NHTSA No.: M20165800
Test Date: 1/28/16

CAMERA LOCATIONS

No.	Camera View	Location (mm)			Lens (mm)	Frame Speed (fps)
		X	Y	Z		
1	Real-Time Left Overall	-1359	-6373	-1630	Zoom	30
2	Driver Close-Up	-1349	-5623	-1254	50	1000
3	Left Front Half	-1161	-5152	-1286	25	1000
4	Left Angle	-3892	-2385	-1961	25	1000
5	Steering Column - Top	-1527	-6291	-2439	50	1000
6	Steering Column – Bottom	-1517	-5916	-1368	50	1000
7	Right Overall	-1683	5981	-1297	20	1000
8	Passenger Close-Up	-1316	6138	-1225	50	1000
9	Right Front Half	-3986	2665	-1976	25	1000
10	Right Angle	-1044	5495	-1217	25	1000
11	Windshield	-165	0	-2714	12.5	1000
12	Driver Windshield	-175	-420	-2677	25	1000
13	Passenger Windshield	-165	335	-2679	25	1000
14	Pit Front	-785	-35	3096	Zoom	1000
15	Pit Rear	-2998	130	3198	Zoom	1000
16	Onboard Driver Airbag (Optional)	N/A	N/A	N/A	12.5	1000
17	Onboard Passenger Airbag (Optional)	N/A	N/A	N/A	12.5	1000

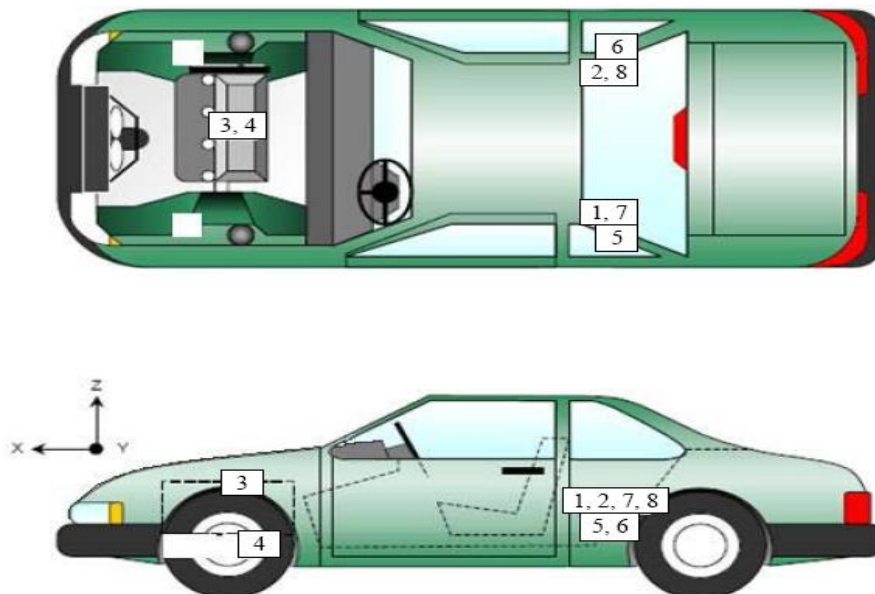
Reference Points: +X – forward of impact plane
+Y – right of monorail center
+Z – into ground

DATA SHEET NO. 7

VEHICLE ACCELEROMETER DATA

Test Vehicle: 2016 Volkswagen Golf SportWagen
 Test Program: NCAP Frontal Impact

NHTSA No.: M20165800
 Test Date: 1/28/16



VEHICLE ACCELEROMETER PRE-TEST LOCATIONS

No.	Camera View	Location (mm)		
		X	Y	Z
1	Left Rear Accelerometer – X Direction	1824	-345	433
2	Right Rear Accelerometer – X Direction	1824	335	431
3	Engine Top X	3919	25	749
4	Engine Bottom X	3799	115	232
5	Left Rear Accelerometer – Z Direction	1824	-345	433
6	Right Rear Accelerometer – Z Direction	1824	335	431
7	Left Rear Accelerometer – X Direction Redundant	1824	-437	433
8	Right Rear Accelerometer- X Direction Redundant	1824	440	431

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

DATA SHEET NO. 8

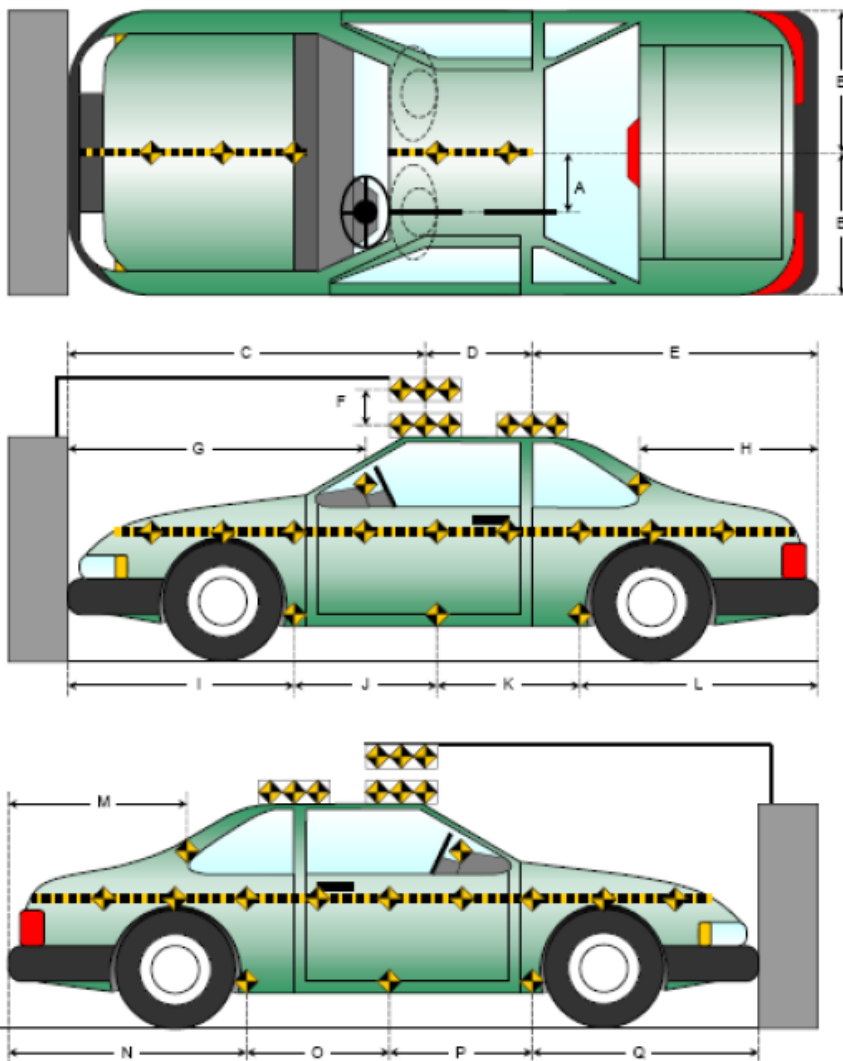
PHOTOGRAPHIC REFERENCE TARGET LOCATIONS

Test Vehicle: 2016 Volkswagen Golf SportWagen
 Test Program: NCAP Frontal Impact

NHTSA No.: M20165800
 Test Date: 1/28/16

Item	Value
A	380
B	885
C	2599
D	625
E	1611
F	300
G	1660
H	1181
I	1284
J	912
K	871
L	1494
M	1180
N	1488
O	887
P	895
Q	1290

All units in millimeters



DATA SHEET NO. 9

LOAD CELL LOCATIONS ON FIXED BARRIER

Test Vehicle: 2016 Volkswagen Golf SportWagen
 Test Program: NCAP Frontal Impact

NHTSA No.: M20165800
 Test Date: 1/28/16

								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: 2016 Volkswagen Golf SportWagen
Test Program: NCAP Frontal Impact

NHTSA No.: M20165800
Test Date: 1/28/16

INSTRUMENTATION

Instrumentation	Number of Channels Collected
Driver Dummy Accelerometers	44
Passenger Dummy Accelerometers	44
Vehicle Structure Accelerometers	8
Total	100

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: 2016 Volkswagen Golf SportWagenNHTSA No.: M20165800Test Program: NCAP Frontal ImpactTest Date: 1/28/16**TEST DUMMY INFORMATION AND CONTACT LOCATIONS**

Description	Driver	Passenger
Dummy Type / Serial No.	Hybrid III 50th/ 037	Hybrid III 5th/ 070
Head Contact	Airbag, Headrest	Airbag, Headrest
Upper Torso Contact	None	None
Lower Torso Contact	None	None
Left Knee Contact	Knee Bolster	Glove Box Door
Right Knee Contact	Knee Bolster	Glove Box Door

DOOR OPENING AND SEAT TRACK INFORMATION

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

POST-TEST STRUCTURAL OBSERVATIONS

Critical Areas of Performance	Observations and Conclusions
Windshield Damage	None
Window Damage	None
Other Notable Effects	Right front tire flat

VEHICLE REBOUND FROM BARRIER

Measured Parameter	Units	Value
Left Side	mm	1144
Center	mm	1060
Right Side	mm	1204
Average	mm	1136

SUPPLEMENTAL RESTRAINT SYSTEM INFORMATION

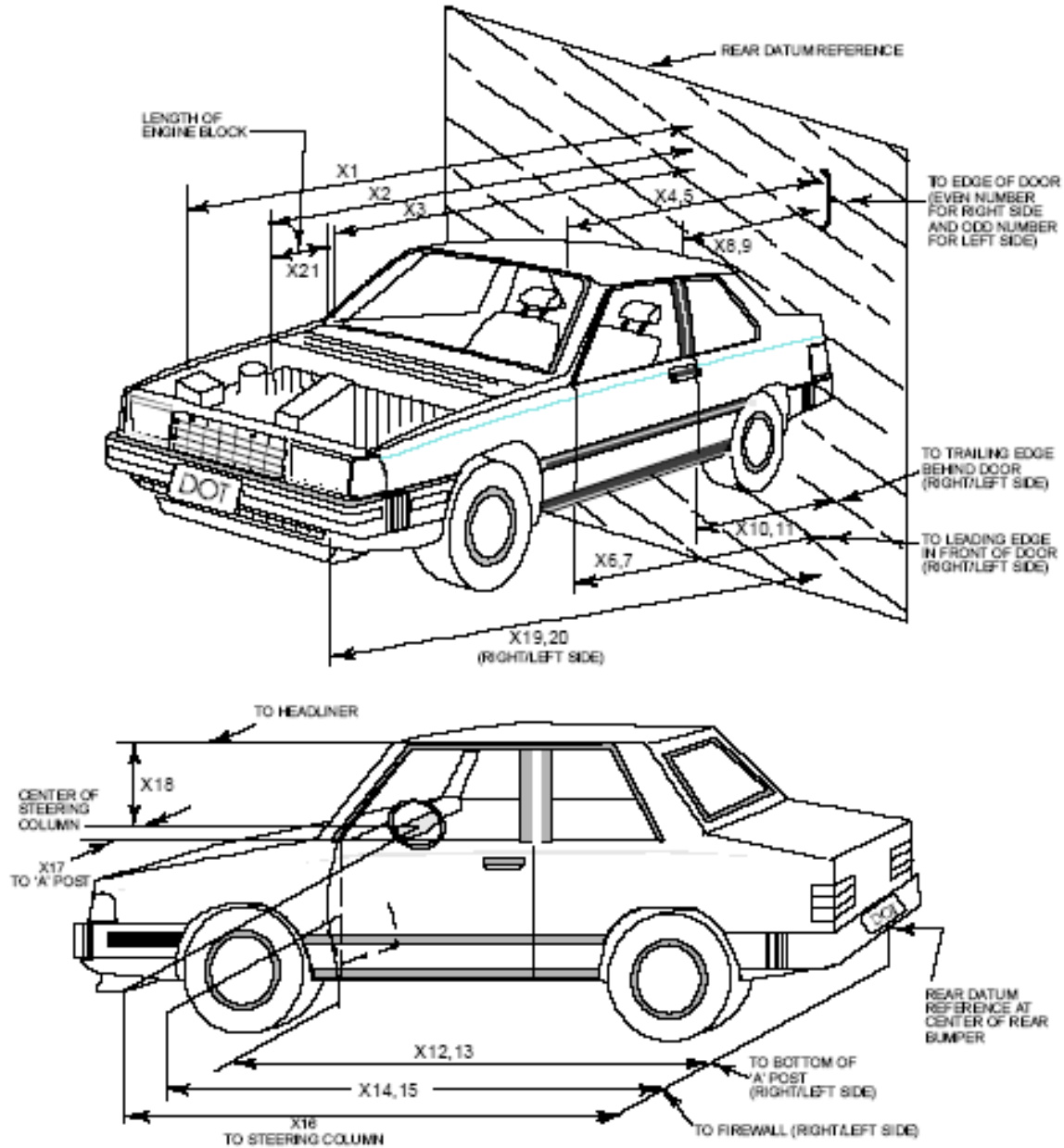
Restraint Type	Driver (Occupant 1)		Passenger (Occupant 2)	
	Installed	Deployed	Installed	Deployed
Front Airbag	Yes	Yes	Yes	Yes
Side Curtain Airbag	Yes	No	Yes	No
Torso/Pelvis Airbag	Yes	No	Yes	No
Pelvis Airbag	No	N/A	No	N/A
Knee Airbag	No	N/A	No	N/A
Seat Belt Pretensioner	Yes	Yes	Yes	Yes
Seat Belt Load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

DATA SHEET NO. 12

VEHICLE PROFILE MEASUREMENTS

Test Vehicle: 2016 Volkswagen Golf SportWagen
Test Program: NCAP Frontal Impact

NHTSA No.: M20165800
Test Date: 1/28/16



DATA SHEET NO. 12 (CONTINUED)
VEHICLE PROFILE MEASUREMENTS

Test Vehicle: 2016 Volkswagen Golf SportWagen
 Test Program: NCAP Frontal Impact

NHTSA No.: M20165800
 Test Date: 1/28/16

No.	Measurement Description	Pre-Test	Post-Test	Difference
1	Total Length of Vehicle at Centerline	4564	4155	409
2	Rear Surface of Vehicle (RSOV) to Front of Engine	4112	4144	-32
3	RSOV to Firewall	3586	3564	22
4	RSOV to Upper Leading Edge of Right Door	3184	3185	-1
5	RSOV to Upper Leading Edge of Left Door	3195	3192	3
6	RSOV to Lower Leading Edge of Right Door	3187	3193	-6
7	RSOV to Lower Leading Edge of Left Door	3194	3193	1
8	RSOV to Upper Trailing Edge of Right Door	2142	2139	3
9	RSOV to Upper Trailing Edge of Left Door	2152	2144	8
10	RSOV to Lower Trailing Edge of Right Door	2183	2187	-4
11	RSOV to Lower Trailing Edge of Left Door	2189	2190	-1
12	RSOV to Bottom of "A" Post-of Right Side	3144	3143	1
13	RSOV to Bottom of "A" Post-of Left Side	3154	3154	0
14	RSOV to Firewall, Right Side	3729	3724	5
15	RSOV to Firewall, Left Side	3726	3716	10
16	RSOV to Steering Column	2714	2757	-43
17	Center of Steering Column to "A" Post	312	290	22
18	Center of Steering Column to Headliner	392	403	-11
19	RSOV to Right Side of Front Bumper	4354	4007	347
20	RSOV to Left Side of Front Bumper	4354	4040	314
21	Length of Engine Block	500	500	0
RD	RSOV to Right Side of Dash Panel	2497	2956	-9
CD	RSOV to Center of Dash Panel	2954	2967	-13
LD	RSOV to Left Side of Dash Panel	2952	2972	-20

All Dimensions in mm

DATA SHEET NO. 13

ACCIDENT INVESTIGATION DIVISION DATA

Test Vehicle: 2016 Volkswagen Golf SportWagen
Test Program: NCAP Frontal Impact

NHTSA No.: M20165800
Test Date: 1/28/16

VEHICLE INFORMATION

VIN: 3VWC17AU1GM514433
Vehicle Size Category: Small Station Wagon

Wheelbase: 2629
Test Weight (kg): 1661.8

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): 56.05

Velocity Change (km/h): 65.30

Time of Separation (ms): 99

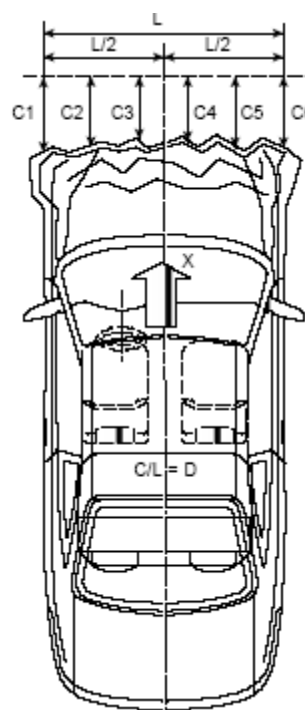
CRUSH PROFILE

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	4354	4040	314
C2	Crush zone 2 at left side	mm	4526	4076	450
C3	Crush zone 3 at left side	mm	4554	4136	418
C4	Crush zone 4 at right side	mm	4554	4131	423
C5	Crush zone 5 at right side	mm	4526	4133	393
C6	Crush zone 6 at right side	mm	4354	4007	347
L	C1 to C6	mm	1524	1524	0

DATA SHEET NO. 14

VEHICLE INTRUSION MEASUREMENTS

Test Vehicle: 2016 Volkswagen Golf SportWagen

NHTSA No.: M20165800

Test Program: NCAP Frontal Impact

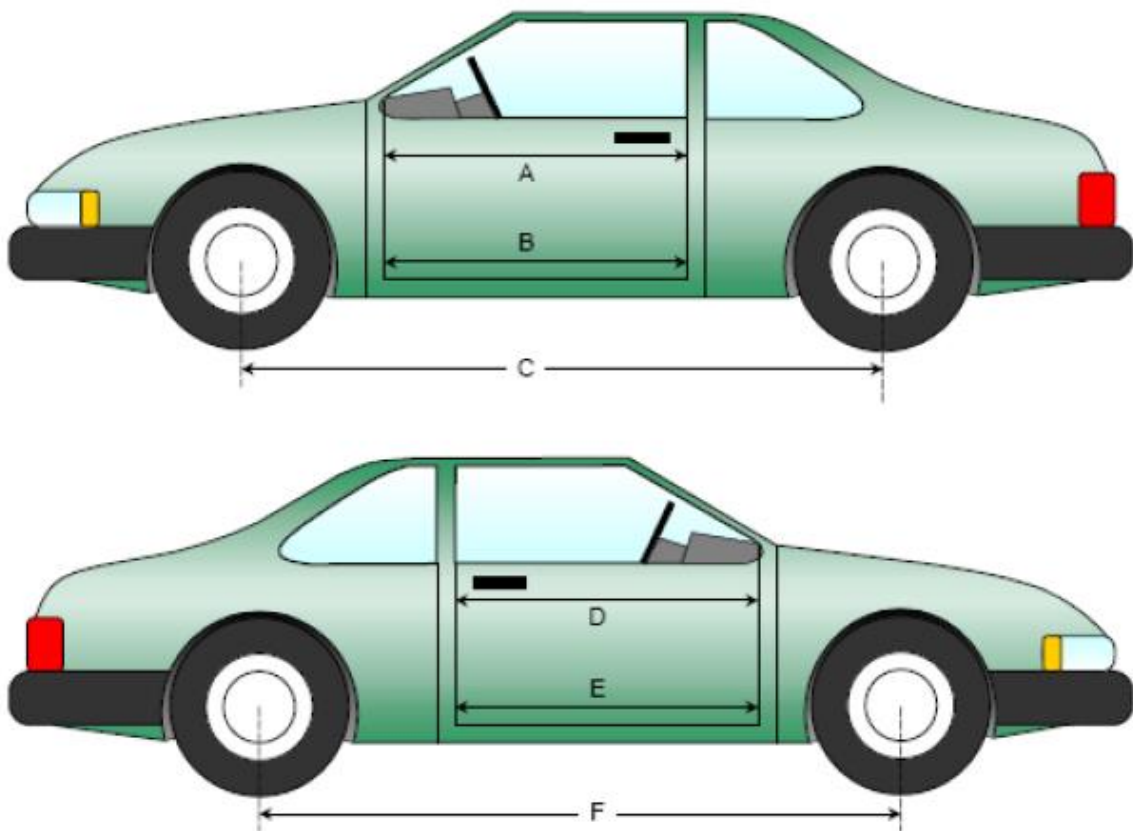
Test Date: 1/28/16

DOOR OPENING WIDTH

No.	Description	Units	Pre-Test	Post-Test	Difference
A	Left Side Upper	mm	990	990	0
B	Left Side Lower	mm	900	900	0
C	Right Side Upper	mm	983	982	1
D	Right Side Lower	mm	840	840	0

WHEELBASE MEASUREMENTS

No.	Description	Units	Pre-Test	Post-Test	Difference
C	Left Side Wheelbase	mm	2629	2615	14
F	Right Side Wheelbase	mm	2629	2618	11



DATA SHEET NO. 14 (CONTINUED)

VEHICLE INTRUSION MEASUREMENTS

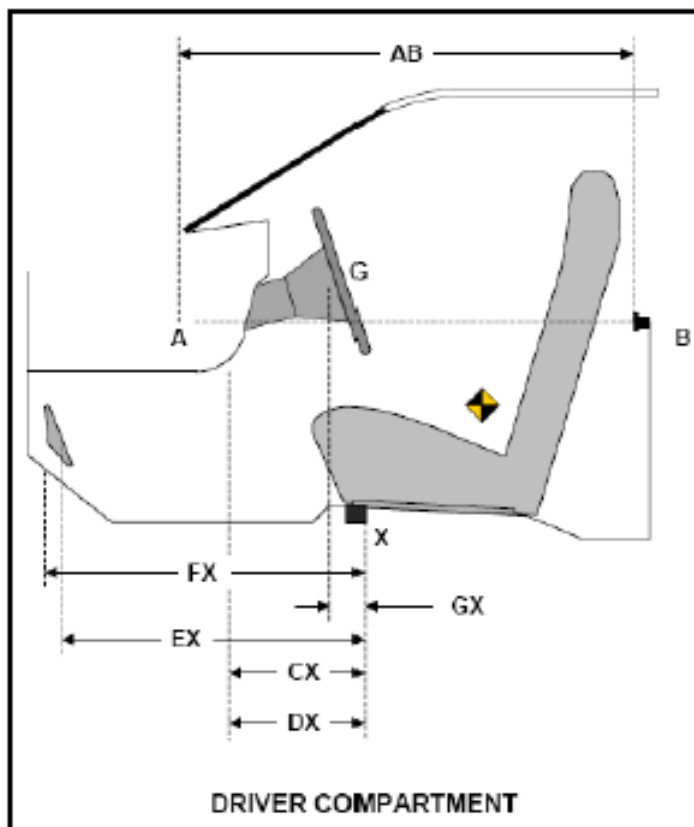
Test Vehicle: 2016 Volkswagen Golf SportWagen
 Test Program: NCAP Frontal Impact

NHTSA No.: M20165800
 Test Date: 1/28/16

DRIVER COMPARTMENT INTRUSION

Item	Description	Units	Pre-Test	Post-Test	Difference
AB	Door Opening (Inside Window Jam)	mm	880	882	-2
CX	Left Knee Bolster to X	mm	265	272	-7
DX	Right Knee Bolster to X	mm	278	256	22
EX	Brake Pedal to X	mm	538	548	-10
FX	Foot Rest to X	mm	572	561	11
GX	Center of Steering Column Wheel Hub to X	mm	30	80	-50

X = Front of Seat Track (Stationary)



DATA SHEET NO. 15

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

Test Vehicle: 2016 Volkswagen Golf SportWagen
 Test Program: NCAP Frontal Impact

NHTSA No.: M20165800
 Test Date: 1/28/16

Please provide windshield mounting details.

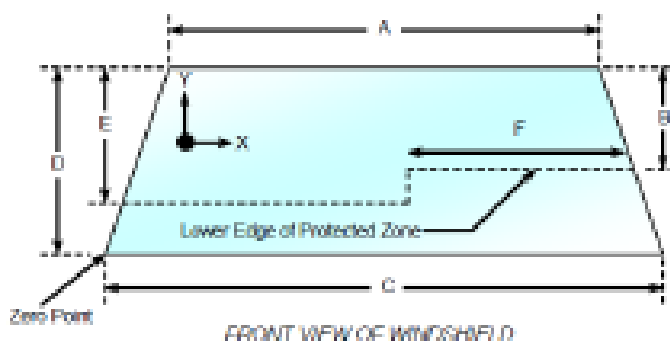
The standard requires that the post-test retention measurement be a minimum of 75% of the pre-test total periphery measurement for vehicle not equipped with occupant passive restraint and 50% for each side of the windshield for vehicle which are equipped with occupant passive restraints.

Temperature of windshield molding during test: 21.5° C

WINDSHIELD PERIPHERY MEASUREMENTS

Measurement	Pre-Test (mm)	Post-Test (mm)	% Retention
Left Side	1713	1713	100.0
Right Side	1713	1713	100.0
Total	3426	3426	100.0

Item	Units	Value
A	mm	1180
B	mm	385
C	mm	1486
D	mm	830
E	mm	470
F	mm	510



AREAS OF PROTECTED ZONE FAILURES

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

X	Y
NA	NA
NA	NA
NA	NA
NA	NA

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

X	Y
NA	NA
NA	NA
NA	NA
NA	NA

DATA SHEET NO. 15 (CONTINUED)

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

Test Vehicle: 2016 Volkswagen Golf SportWagen

NHTSA No.: M20165800

Test Program: NCAP Frontal Impact

Test Date: 1/28/16

FMVSS 301 FUEL SYSTEM INTEGRITY POST IMPACT DATA

Temperature at Time of Impact: 21.5°C

Test Time: 13:02

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

FMVSS 301 STATIC ROLLOVER RESULTS

NHTSA No.: M20165800
Test Date: 1/28/16

- None



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

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

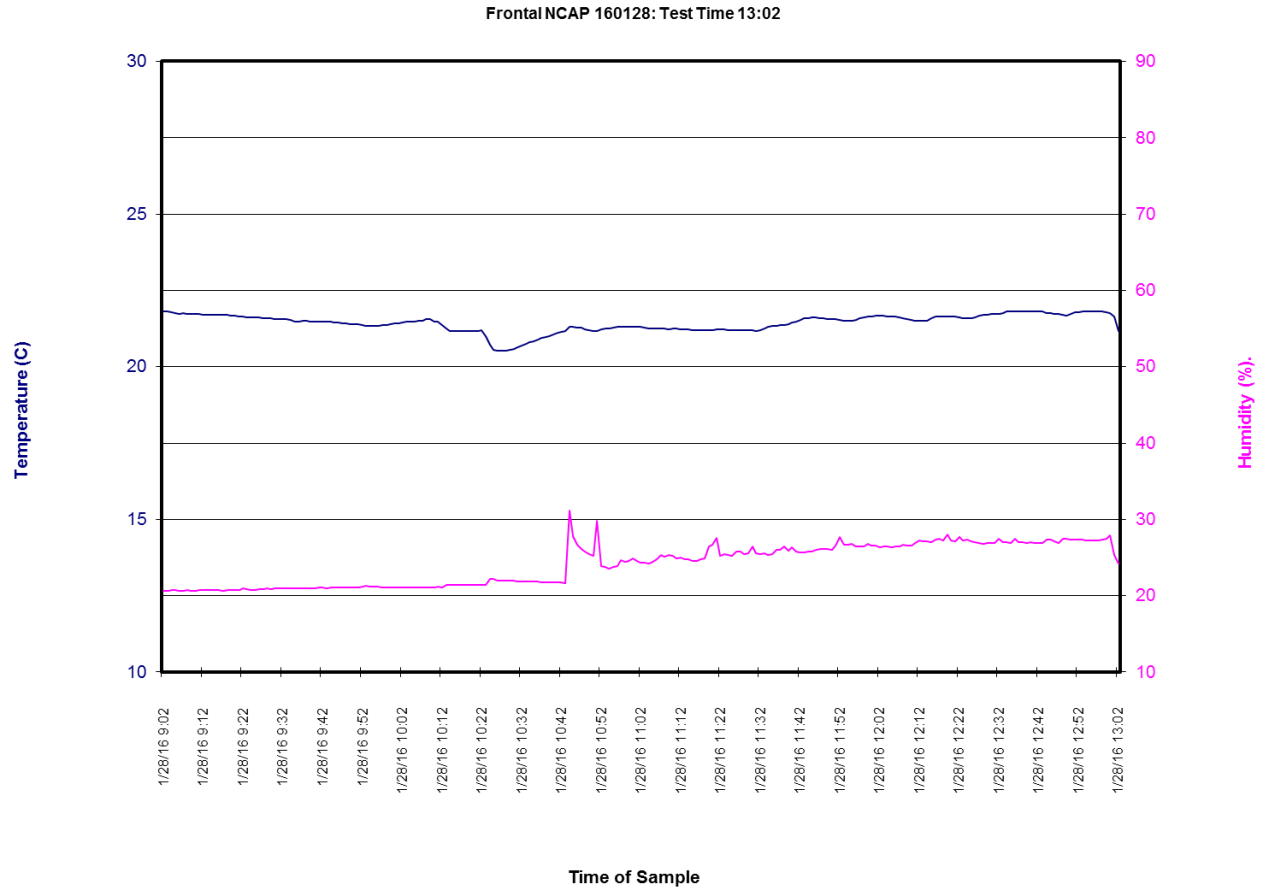
Test Phase	Spillage Location
0° to 90°	None
90° to 180°	None
180° to 270°	None
270° to 360°	None

DATA SHEET NO. 17

DUMMY/VEHICLE TEMPERATURE STABILIZATION

Test Vehicle: 2016 Volkswagen Golf SportWagen
Test Program: NCAP Frontal Impact

NHTSA No.: M20165800
Test Date: 1/28/16



APPENDIX A
PHOTOGRAPHS

TABLE OF PHOTOGRAPHS

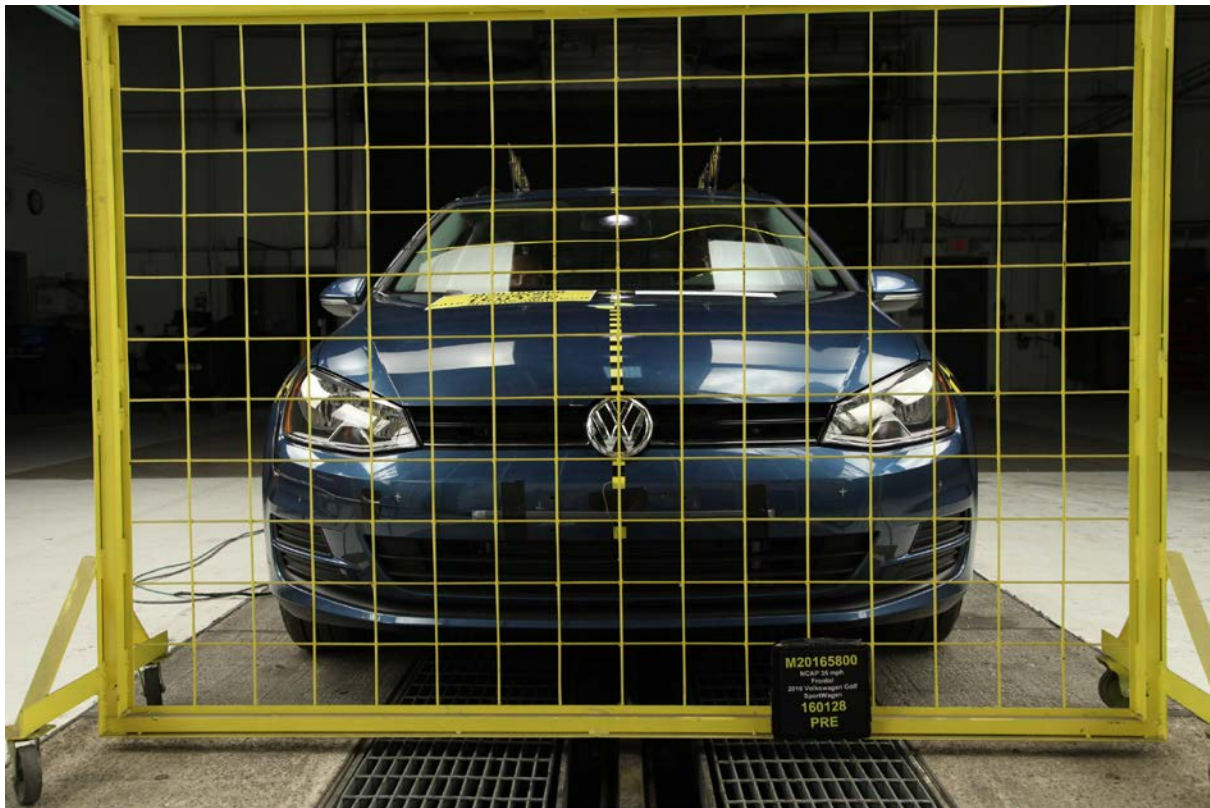
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2	Pre-Test Load Cell Wall	A-5
3	Post-Test Load Cell Wall	A-6
4	Manufacturer's Label	A-6
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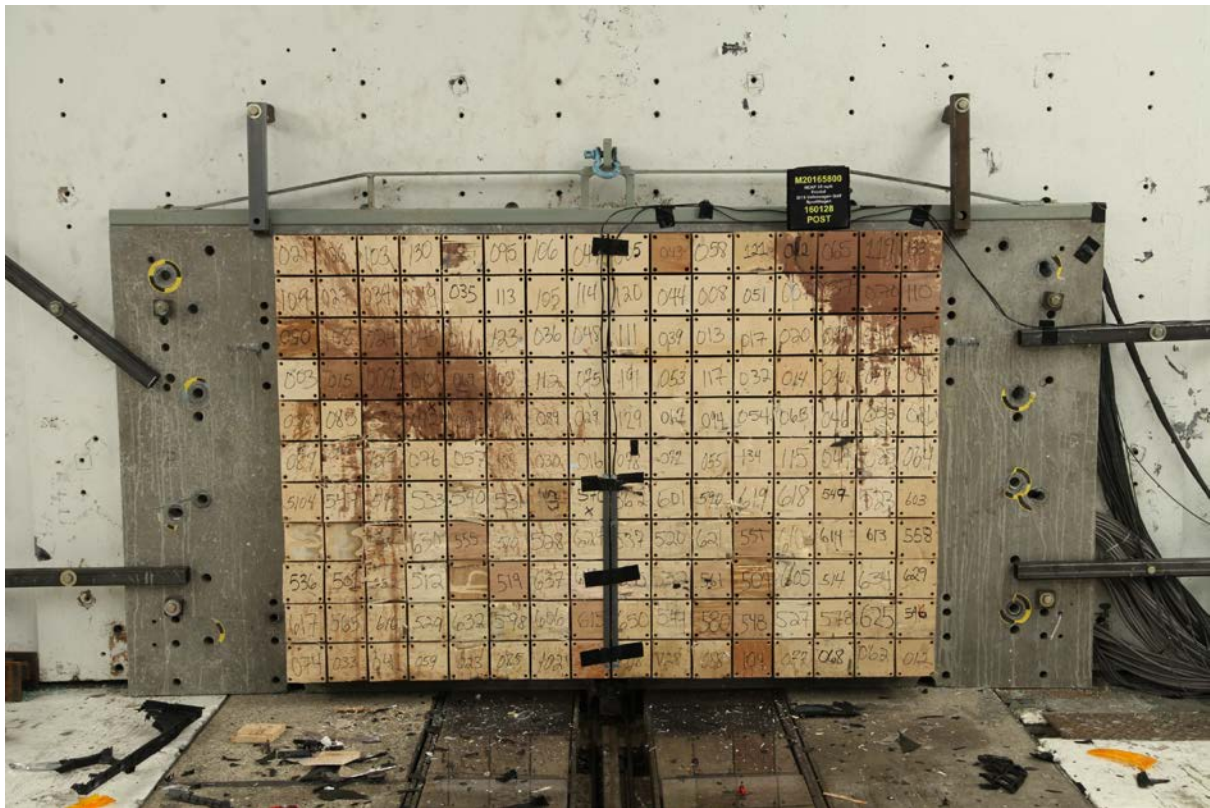
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001 Load Cell Location



002 Pre-Test Load Cell Wall



003 Post-Test Load Cell Wall



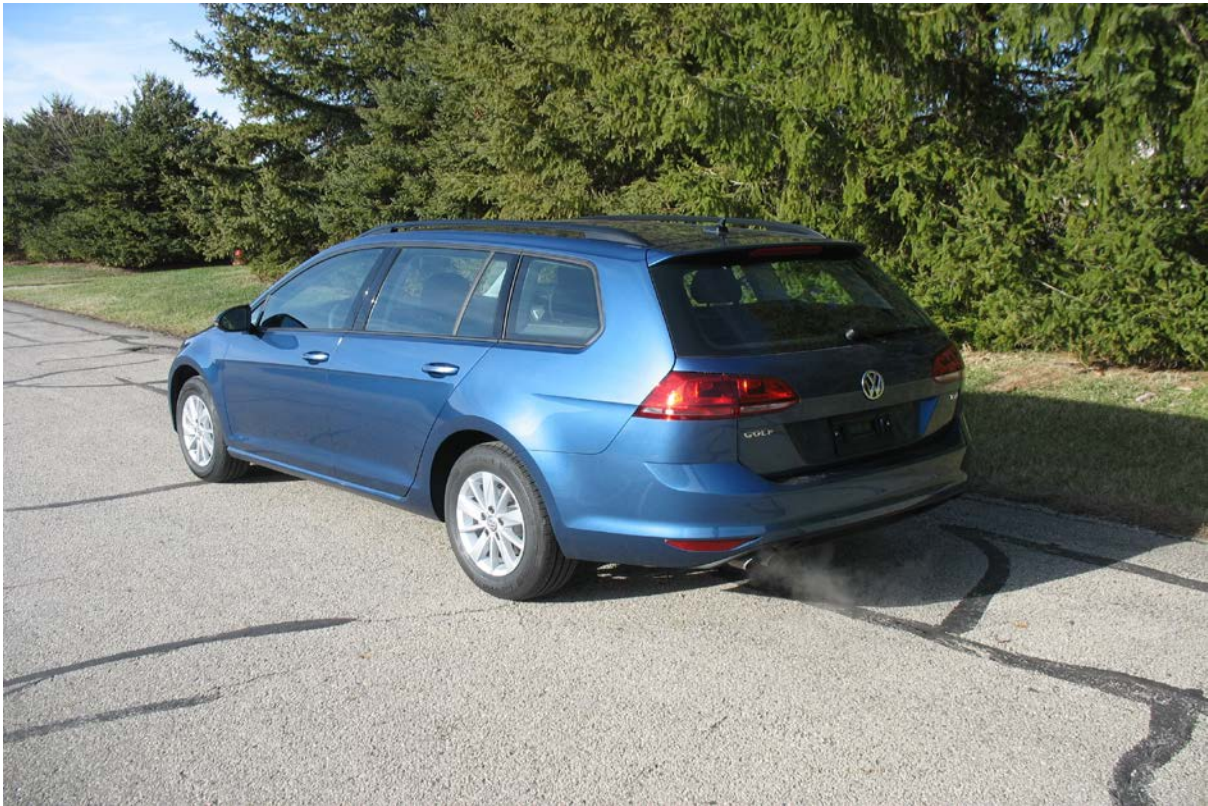
004 Manufacturer's Label



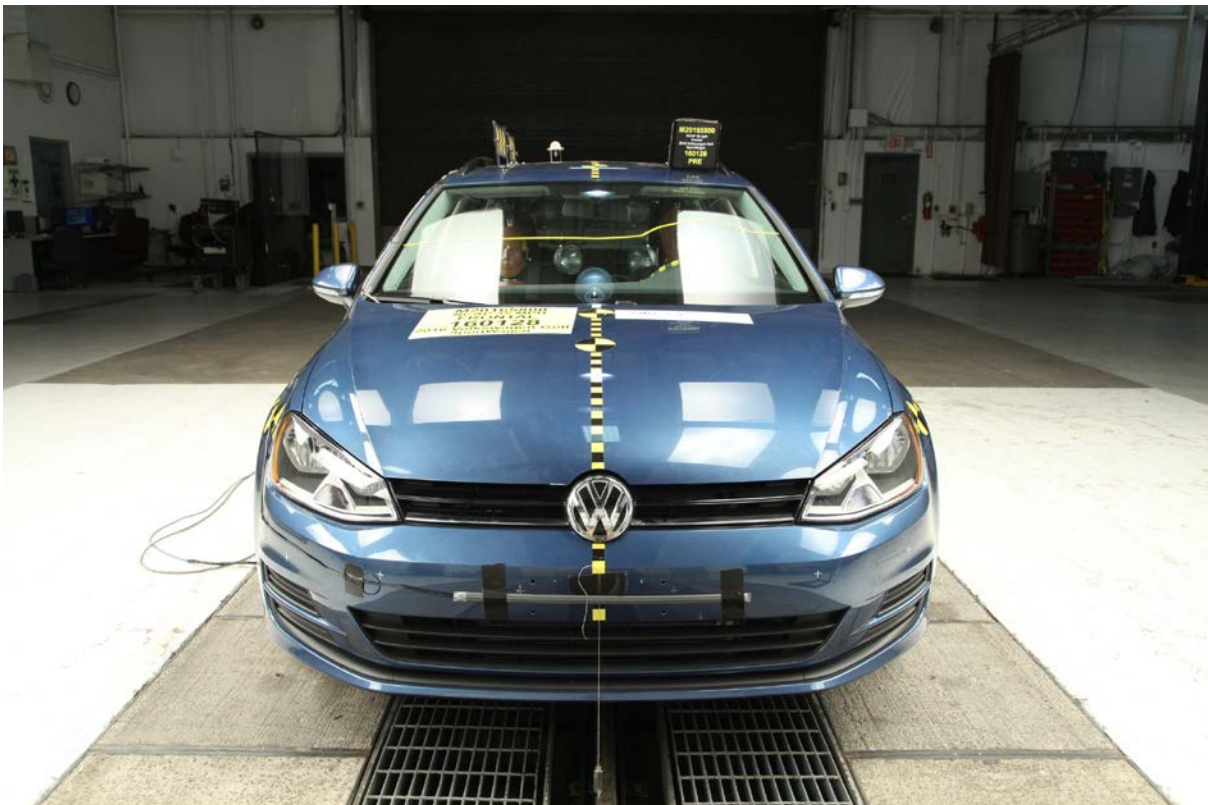
005 Tire Placard



006 2016 Volkswagen Golf SportWagen 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



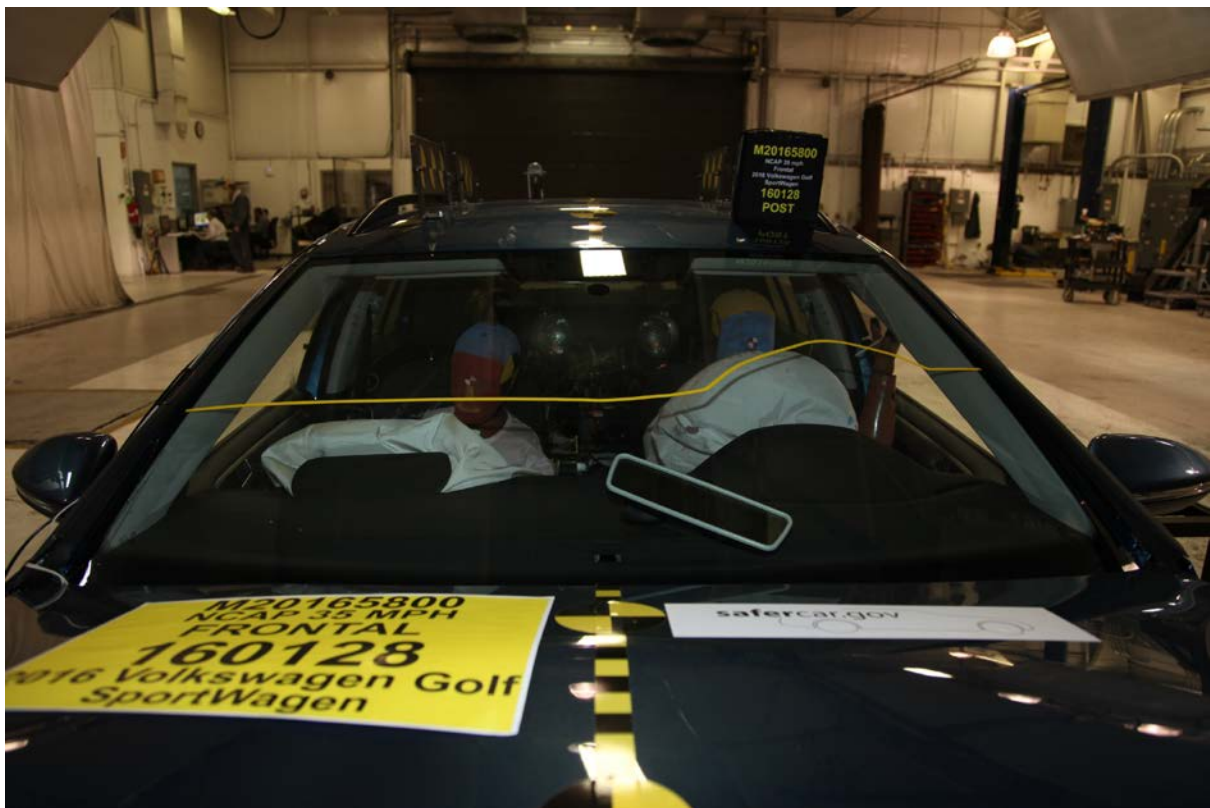
016 Pre-Test Left Rear 3-4 View



017 Post-Test Left Rear 3-4 View



018 Pre-Test Windshield View



019 Post-Test Windshield View



020 Pre-Test Engine Compartment View



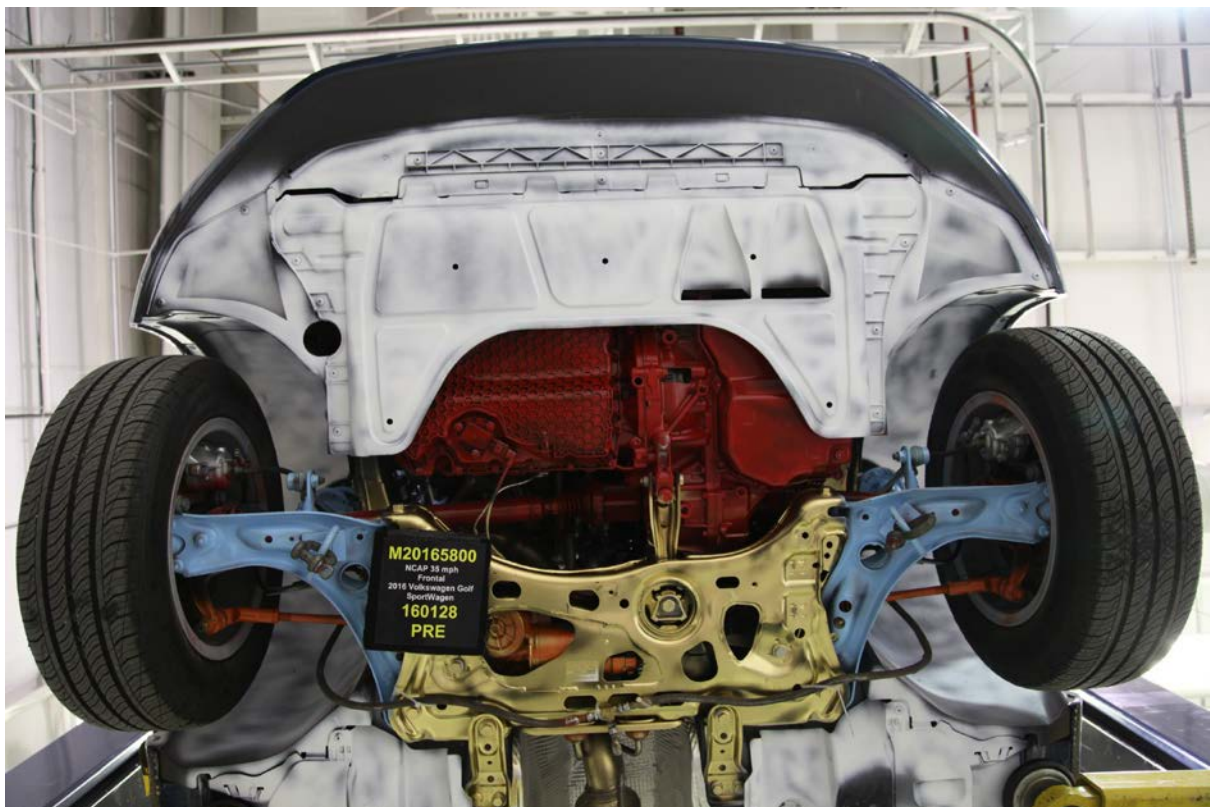
021 Post-Test Engine Compartment View



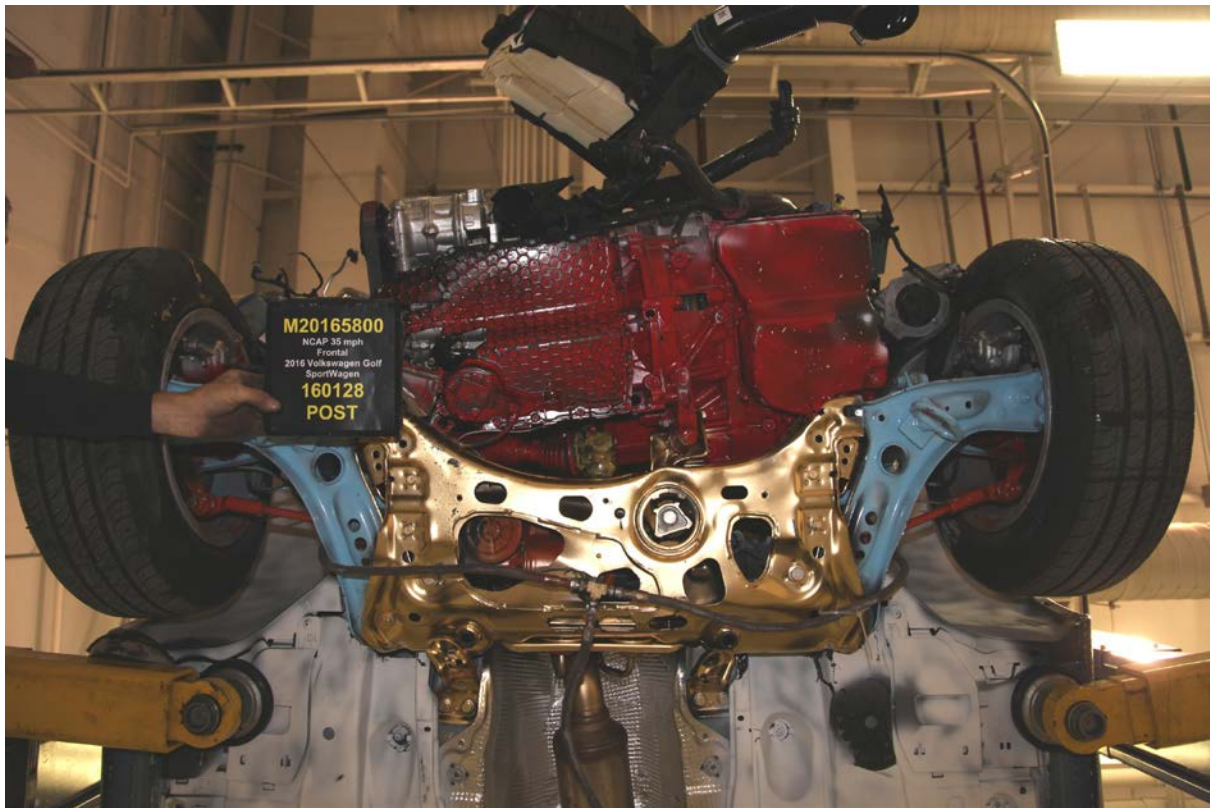
022 Pre-Test Fuel Filler Cap View



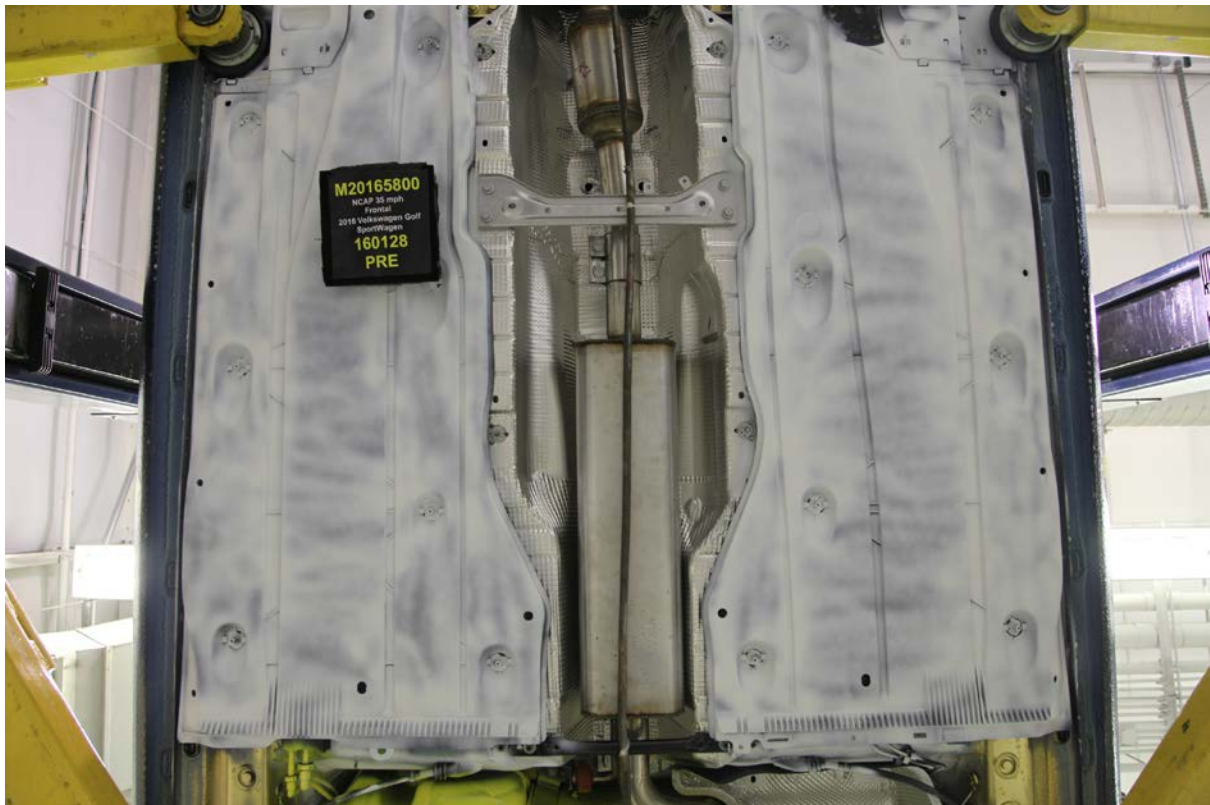
023 Post-Test Fuel Filler Cap View



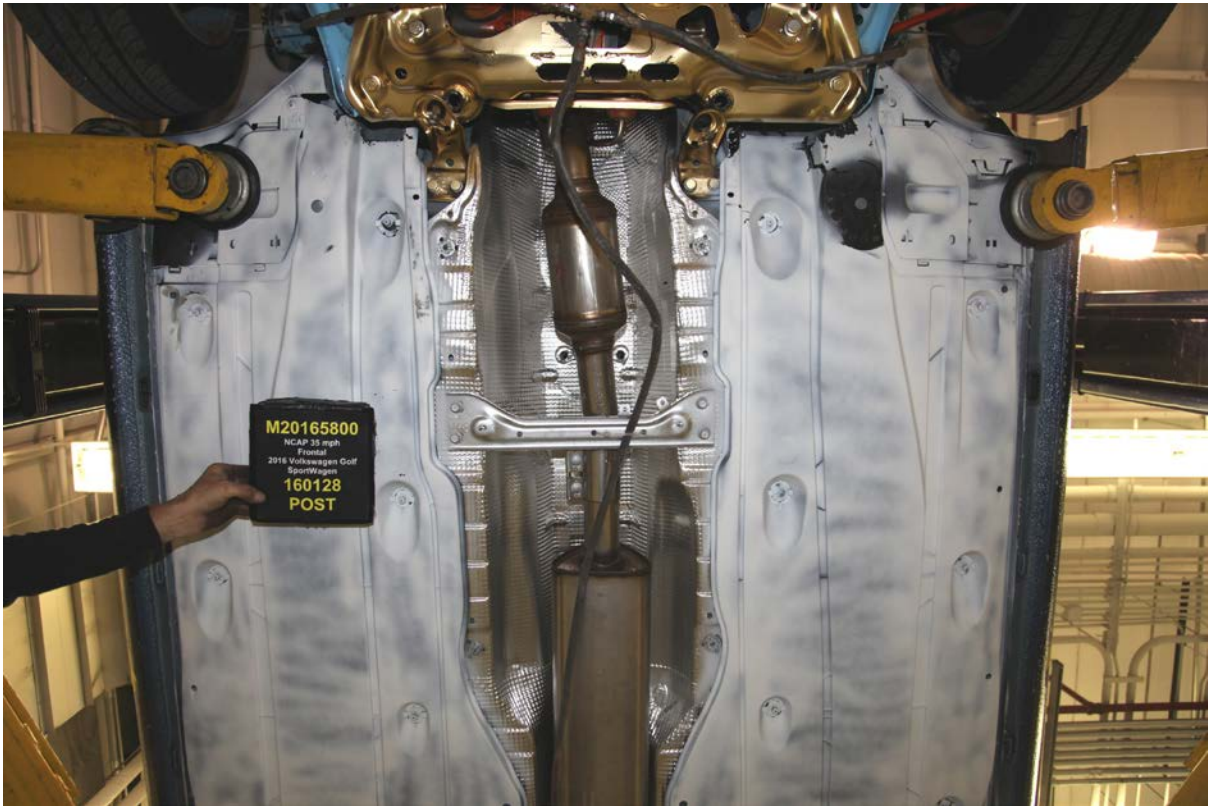
024 Pre-Test Front Underbody View



025 Post-Test Front Underbody View



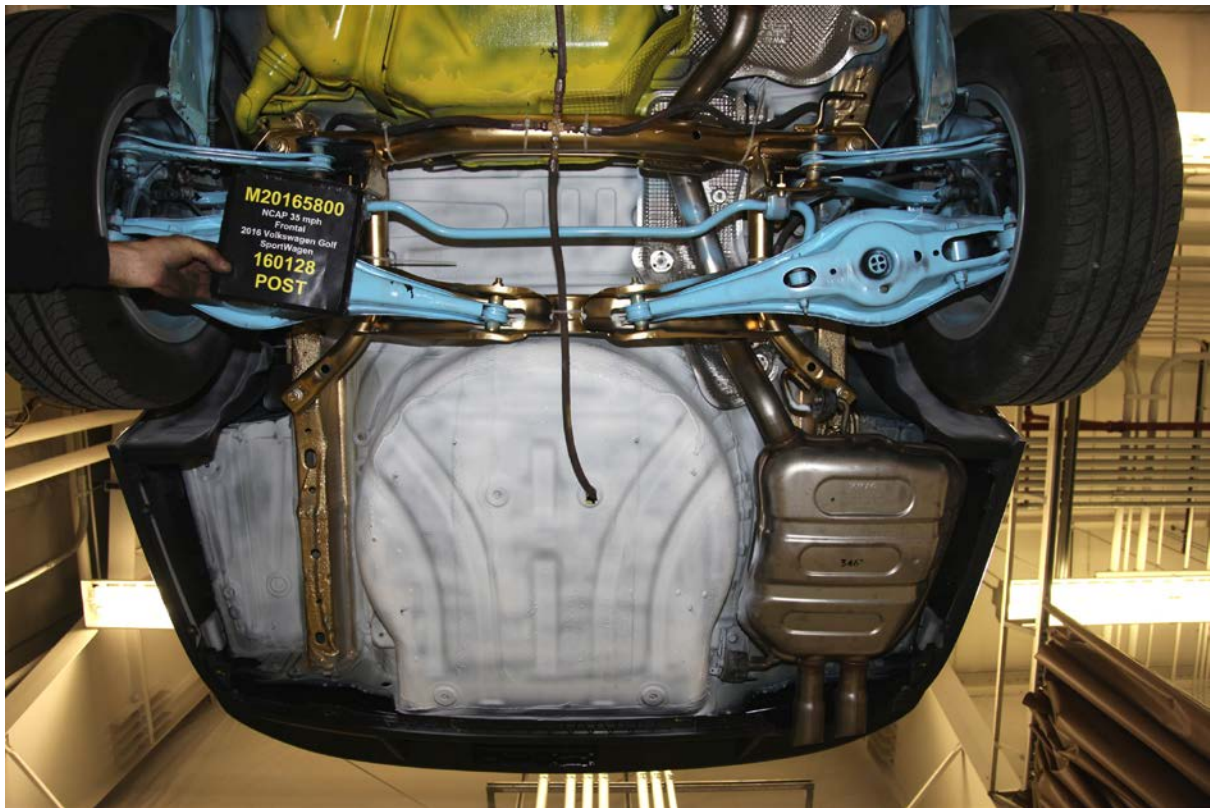
025a Pre-Test Mid Underbody View



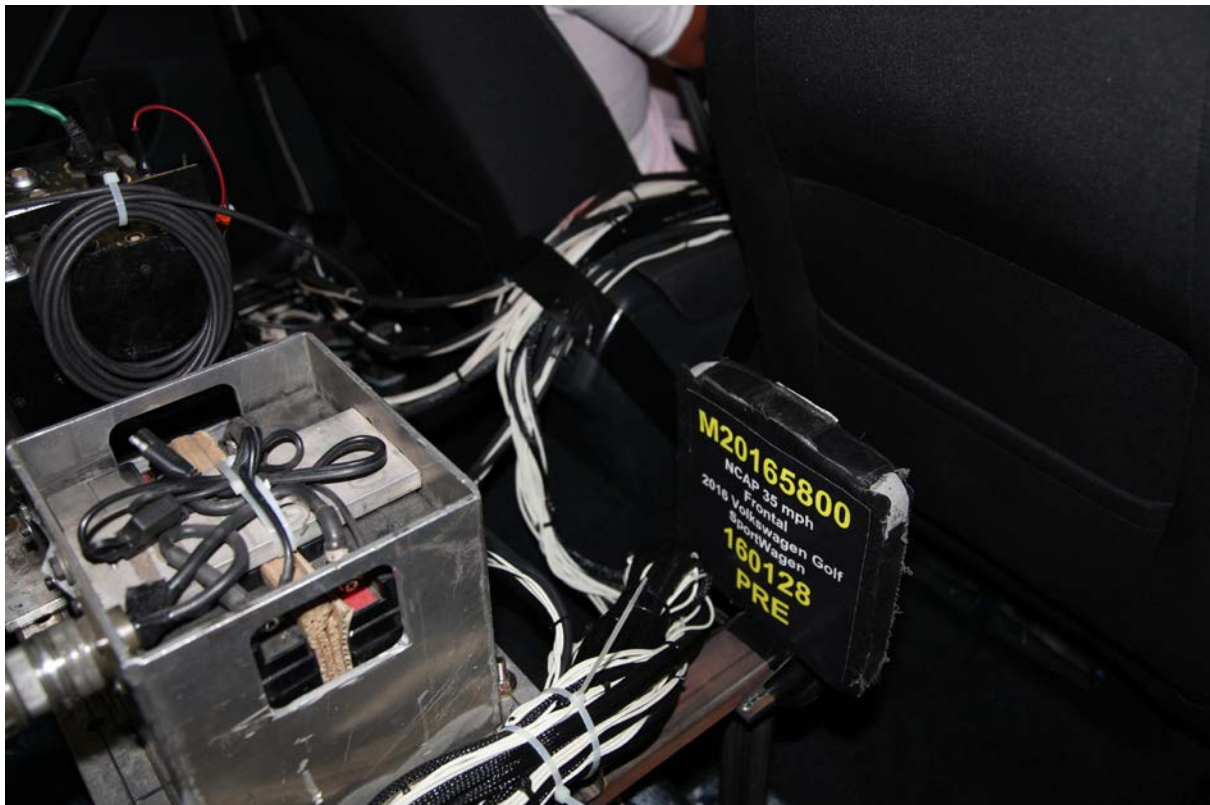
025b Post-Test Mid Underbody View



026 Pre-Test Rear Underbody View



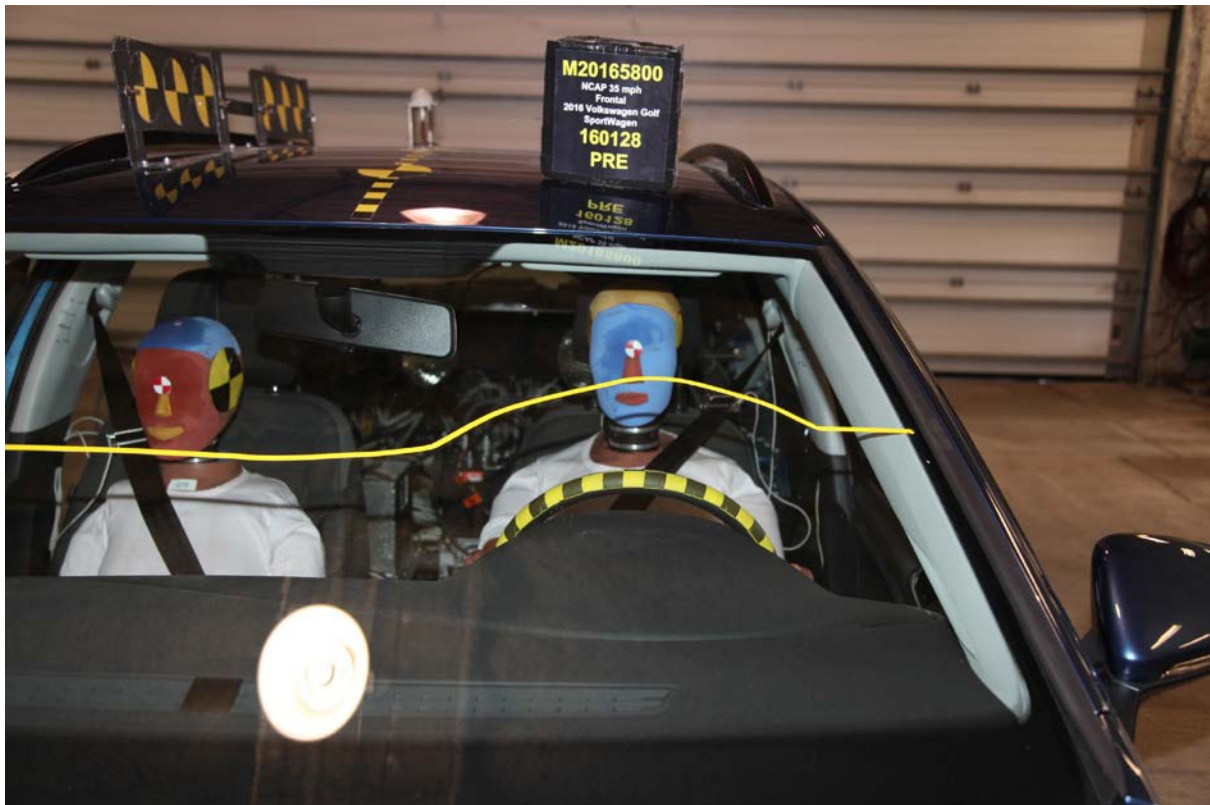
027 Post-Test Rear Underbody View



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



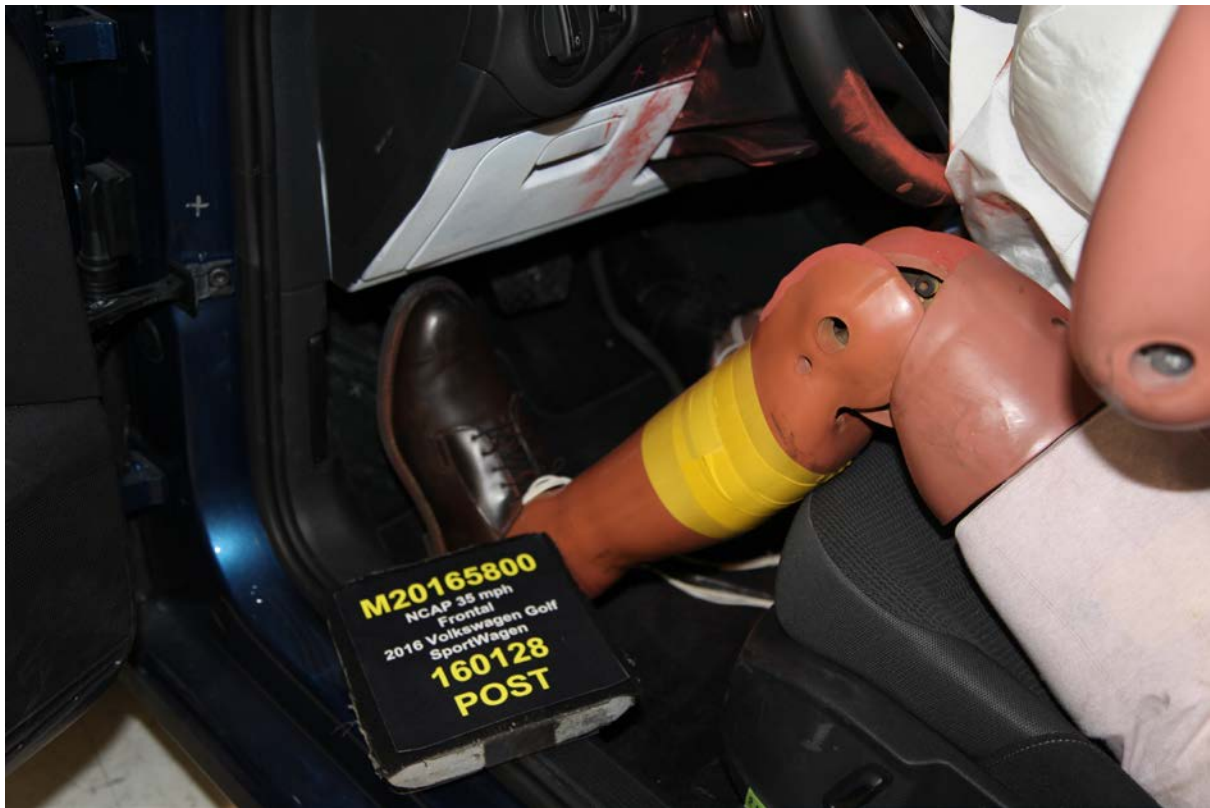
038 Pre-Test View of Belt Anchorage for Driver Dummy



039 Post-Test View of Belt Anchorage for Driver Dummy



040 Pre-Test Driver Dummy Feet



041 Post-Test Driver Dummy Feet



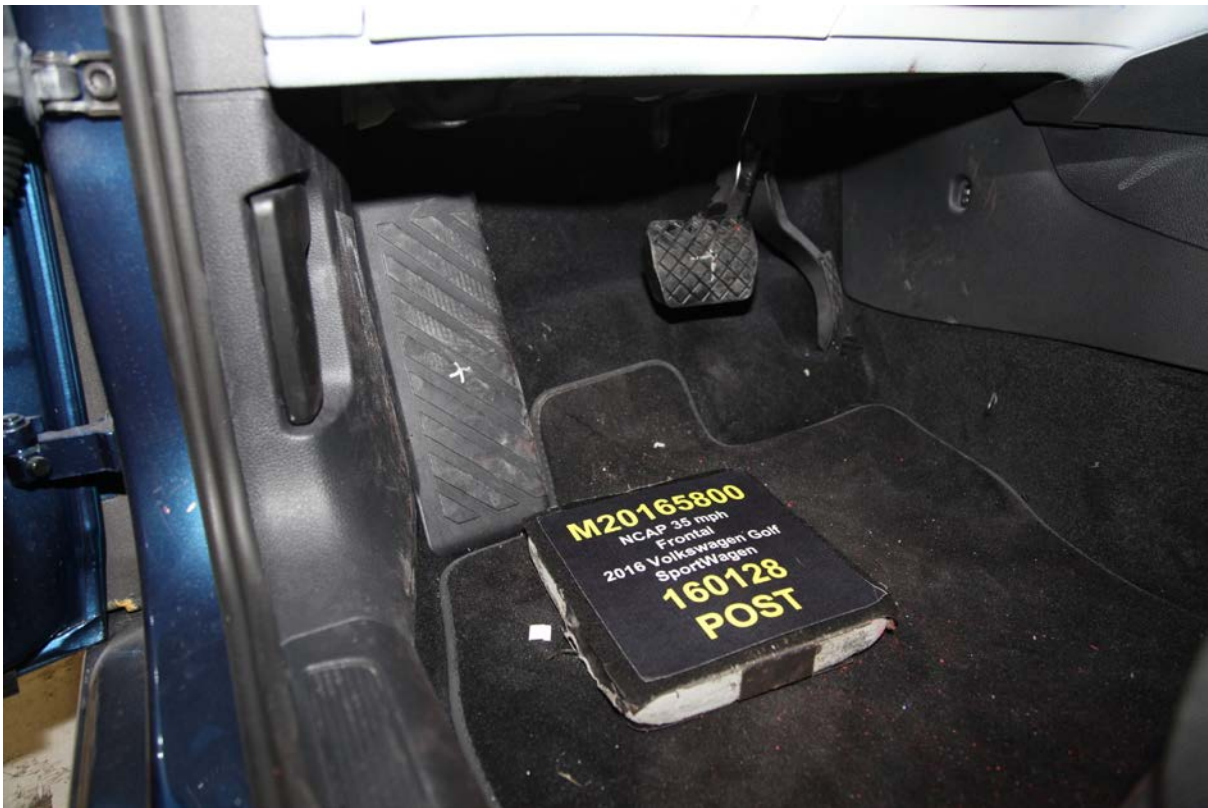
042 Pre-Test Driver's Side Knee Bolster



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



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



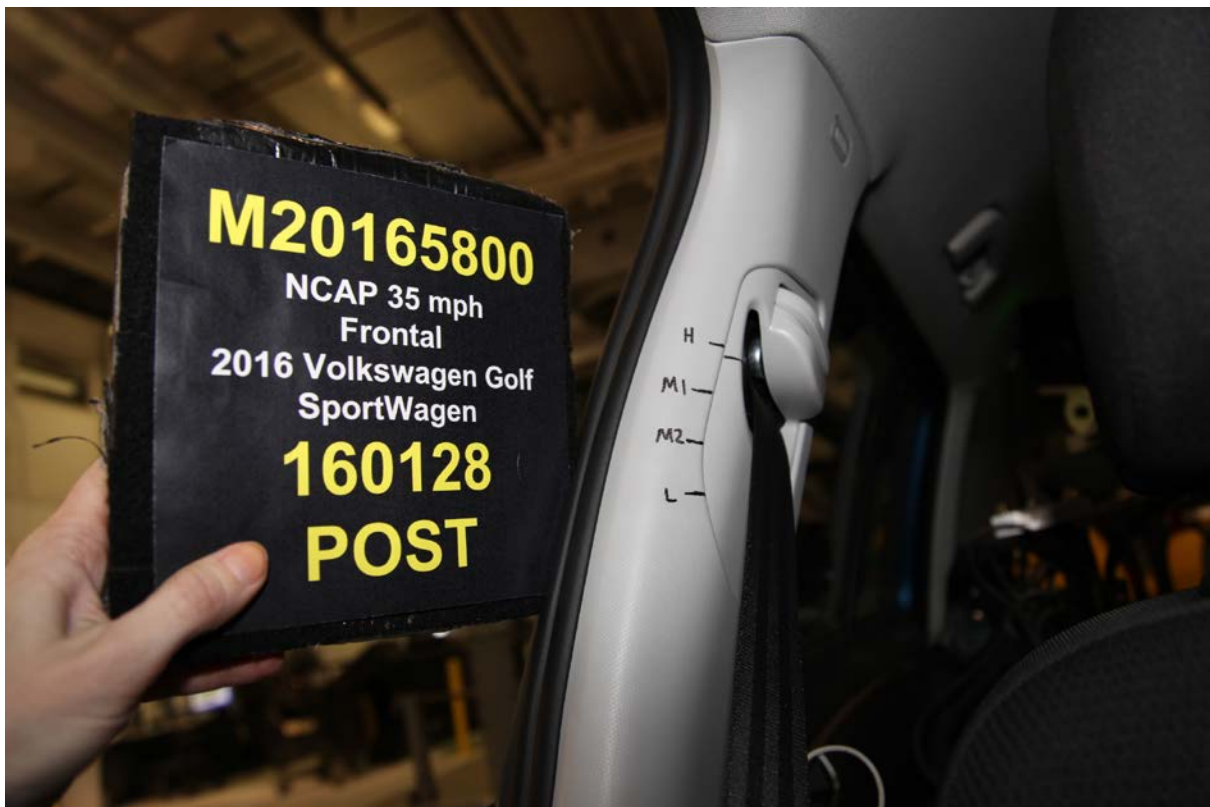
057 Pre-Test Passenger's Seat Fore-Aft Markings



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



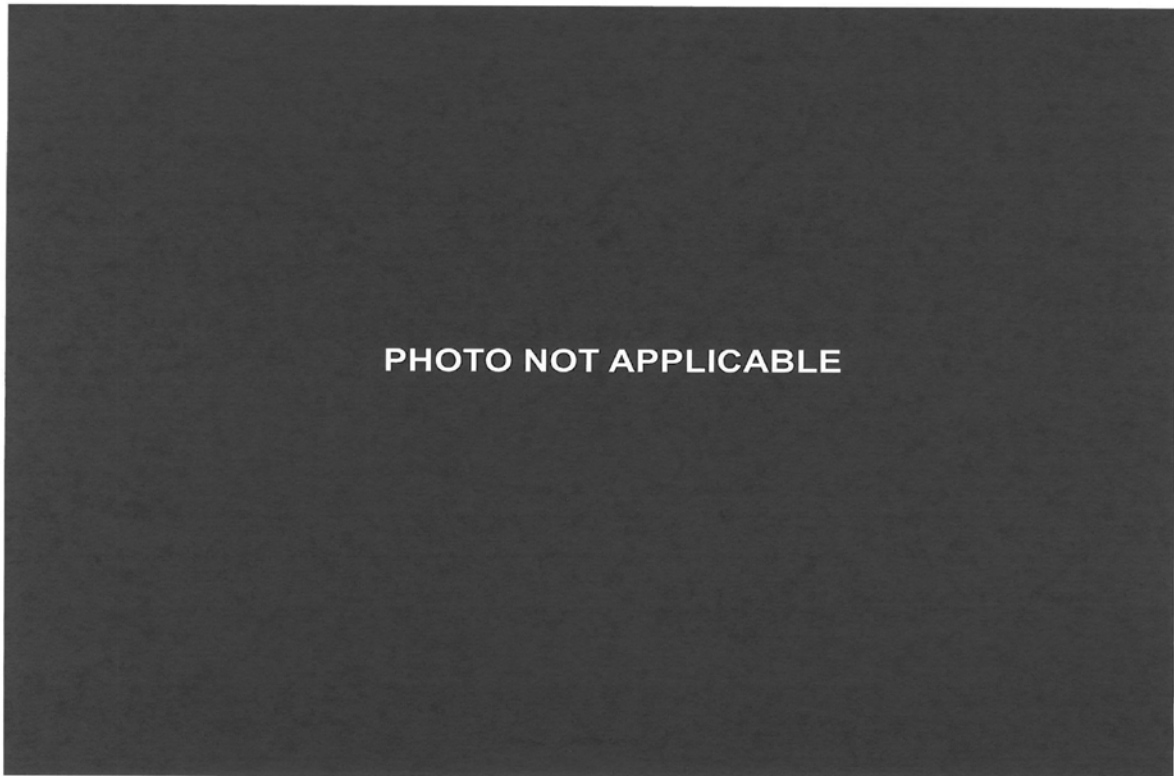
068 Post-Test Passenger Dummy Contact With Airbag



069 Post Test Passenger Dummy Contact With Headrest



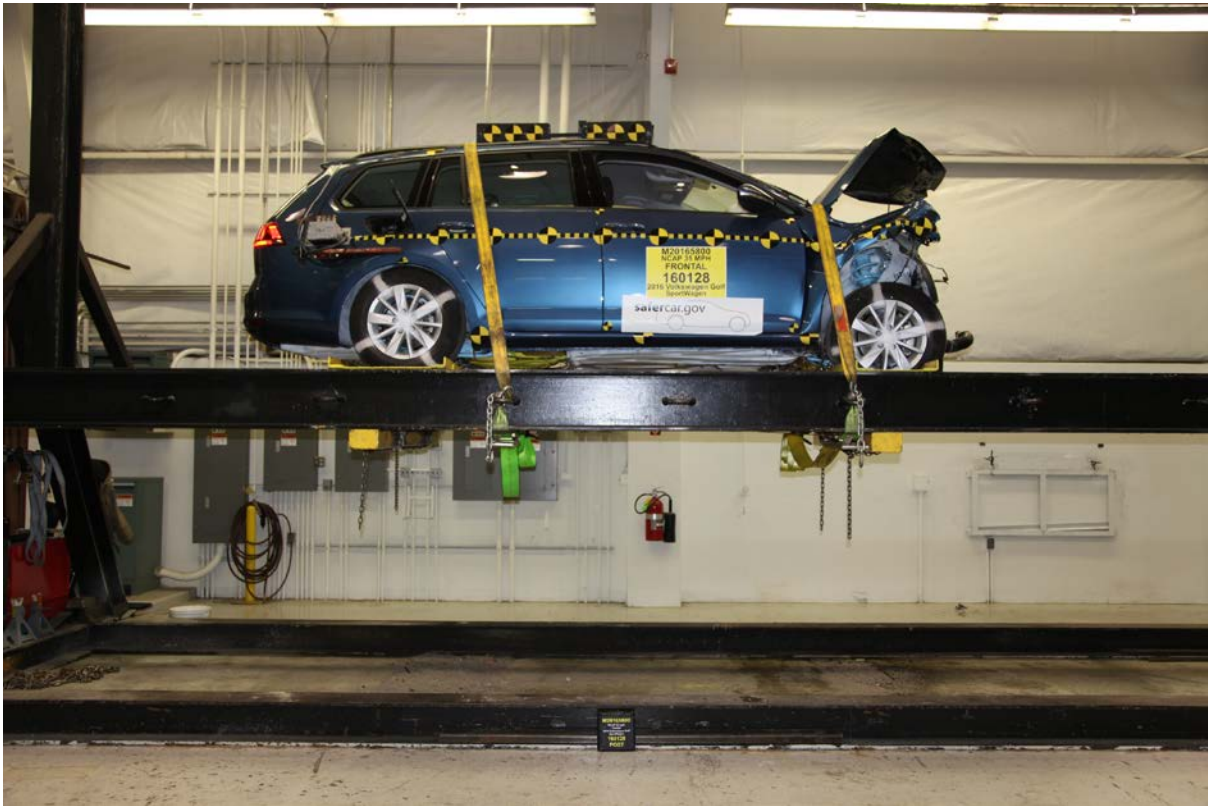
070 Photograph of Ballast Installed in Vehicle



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 2016 Volkswagen Golf SportWagen Frontal Impact Event

2016 Golf SportWagen TSI® S

Silk Blue Metallic Exterior Titan Black Cloth Interior

The German-Tuned Wagon.



STANDARD FEATURES (unless replaced by options)

PERFORMANCE

- 1.8 TSI® DOHC 18V TURBO 4-CYLINDER DIRECT INJECTION ENGINE
- PARTIAL ZERO EMISSIONS VEHICLE (PZEV)
- FOUR WHEEL INDEPENDENT SUSPENSION
- SERVOTRONIC® ELECTRO-MECHANICAL POWER STEERING

SAFETY FEATURES

- FRONT & SIDE AIRBAG SUPPLEMENTAL RESTRAINT SYSTEMS FOR DRIVER & FRONT PASSENGER
- SIDE CURTAIN PROTECTION HEAD IMPACT AIRBAGS
- 3-POINT SAFETY BELTS, ALL SEATING POSITIONS
- ANTI-LOCK BRAKING SYSTEM (ABS) w/ ESC BRAKES
- ELECTRONIC STABILITY CONTROL (ESC)
- INTELLIGENT CRASH RESPONSE SYSTEM (ICRS)
- LOWER ANCHORS & TETHERS FOR CHILDREN LATCH
- TIRE PRESSURE MONITORING SYSTEM (TPMS)

EXTERIOR

- 17" ALLOY WHEELS w/ ALL-SEASON TIRES
- HALOGEN HEADLIGHTS w/ DAYTIME RUNNING LIGHTS (DRL)
- HEATED, FOLDABLE, POWER ADJUSTABLE SIDE MIRRORS
- BLACK ROOF RAILS

INTERIOR

- CLIMATIC MANUAL CLIMATE CONTROL
- 18-TWO & TELESCOPING MULTI-FUNCTION STEERING WHEEL
- LEATHER WRAPPED STEERING WHEEL, BRAKE LEVER & SHIFT KNOB
- MANUAL FRONT SEATS w/ POWER RECLINE
- FRONT SEAT LUMBAR SUPPORT ADJUSTMENT
- SPLIT-FOLDING REAR SEAT w/ ARMREST & PASS-THROUGH
- CLOTH SEATING SURFACES
- FRONT CENTER CONSOLE w/ ARMREST & CUPHOLDERS
- ILLUMINATED VANITY MIRRORS, FRONT & REAR READING LIGHTS
- POWER WINDOWS w/ AUTO UP/DOWN
- CARPETED FLOOR MATS, FRONT & REAR

TECHNOLOGY

- REARVIEW CAMERA
- COMPOSITION MEDIA 6.3" TOUCHSCREEN AMP/FM/HD RADIO w/ CD PLAYER, USB & AUX-IN
- 8-SPEAKER SOUND SYSTEM
- BLUETOOTH® MOBILE TELEPHONE CONNECTIVITY
- SINGAPORE SATELLITE RADIO (w/ LIMITED TIME SUBSCRIPTION)
- CRUISE CONTROL
- MULTI-FUNCTION DISPLAY w/ TRIP COMPUTER
- POWER DOOR LOCKS w/ REMOTE

Manufacturer's Suggested Retail Price: \$22,725.00

VW CAR-NET® EQUIPPED. Features include:

- App-Connect (Smartphone Integration & Interface)
- Security & Service (Emergency Assistance, Remote Access & Vehicle Health) Limited emergency services temporarily active on delivery. Full trial available, subscription required. All services subject to Terms of Service available in glove box.

DRIVER CARE PACKAGE

- Volkswagen New Vehicles Limited Warranty
 - 3 years/36,000 miles (whichever occurs first)
 - Powertrain Limited Warranty
 - 5 years/99,000 miles (whichever occurs first)
 - Limited Warranty against Corrosion Perforation
 - 12 years/120,000 miles (whichever occurs first)
- Please ask your dealer for a copy of the Volkswagen warranty booklet for details.
- 24-HOUR ROADSIDE ASSISTANCE
- 3 years/36,000 miles (whichever occurs first)
- (Towing, Jump Starts, Tire Changes, Out of Fuel, and Lock-Out)
- Provided by a third party supplier

PACKAGES/OPTIONS

- Silk Blue Metallic Exterior
- Titan Black Cloth Interior
- Monitor Mount (set of 4) Heavy Duty Trunk Liner with VSI CarGo Blocks
- Roadside Assistance Kit
- 6-Speed Automatic Transmission

- No Charge
- No Charge
- \$335.00
- \$95.00
- No Charge

Destination Charge

\$920.00

Total Price: \$23,865.00

Fuel, license, title fees, taxes and dealer-installed accessories are not included.

PARTS CONTENT INFORMATION

FOR VEHICLES IN THIS CARLINE:

U.S./CANADIAN
PARTS CONTENT: 4%
MAJOR SOURCES OF FOREIGN
PARTS CONTENT:
MEXICO: 35%

FOR THIS VEHICLE:

FINAL ASSEMBLY POINT:
PUEBLA, MEXICO
COUNTRY OF ORIGIN:
ENGINE: MEXICO
TRANSMISSION: JAPAN

NOTE: PARTS CONTENT DOES NOT INCLUDE FINAL ASSEMBLY, DISTRIBUTION OR OTHER NON-PARTS COSTS.

Fuel Economy and Environment

Gasoline Vehicle

Fuel Economy

29 MPG
combined city/hwy

25 city
35 highway

3.4 gallons per 100 miles

Small Station Wagons range from 20 to 105 MPG. The best vehicle rates 119 MPG.

You save
\$1,250
in fuel costs
over 5 years
compared to the
average new vehicle.

Annual fuel Cost
\$1,550

Fuel Economy & Greenhouse Gas Rating (tailpipe only)

7 Best

Smog Rating (tailpipe only)

9 Best

This vehicle emits 305 grams of CO₂ per mile. The best emits 9 grams per mile (tailpipe only). Producing and distributing fuel also create emissions; learn more at fuel-economy.gov

Actual results will vary for many reasons, including driving conditions and how you drive and maintain your vehicle. The average new vehicle gets 25 MPG and costs \$9,000 to fuel over 5 years. Cost estimates are based on 15,000 miles per year at \$3.09 per gallon. MPG is miles per gasoline gallon equivalent. Vehicle emissions are a significant cause of climate change and smog.

fuel-economy.gov

Calculate personalized estimates and compare vehicles

SOLD TO: 402160
VOLKSWAGEN OF HIGHLAND PARK
1300 PARK AVE W
HIGHLAND PARK, IL 60035
SHIP TO: 402160
VOLKSWAGEN OF HIGHLAND PARK
1300 PARK AVE W
HIGHLAND PARK, IL 60035
VIN: 3VWC17AU1GM514433
Port of Entry: HOUSTON

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
Not Rated

Side Crash

Front Seat Rear Seat

Not Rated
Not Rated

Based on the risk of injury in a side impact.

Rollover

Not Rated

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

Who better to get you into a Volkswagen than us?

Volkswagen Credit



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

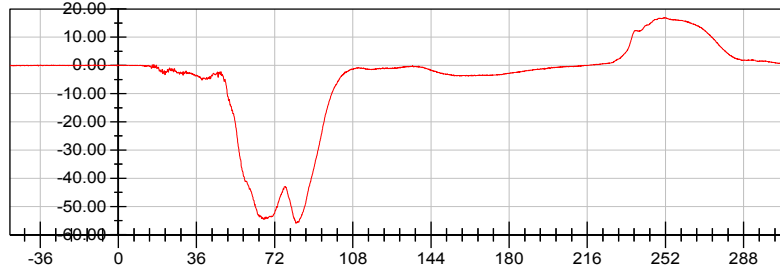
Test Number: 160128 (M20165800)

Test Date: 01/28/2016

Position #1 Hybrid III Mid-Sized Adult Male Dummy (D037)

Position #2 Hybrid III Small Adult Female (70)

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



<Max>

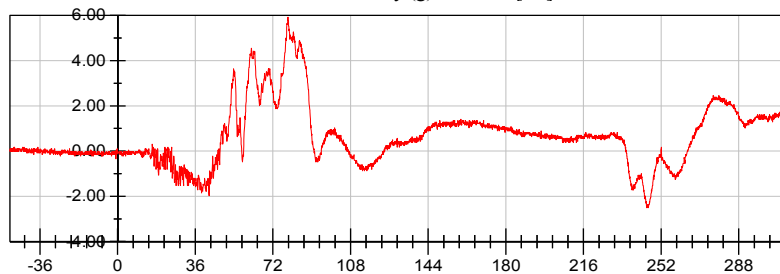
16.96 g at 251.28 ms

<Min>

-55.86 g at 81.68 ms

CFC_1000

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



<Max>

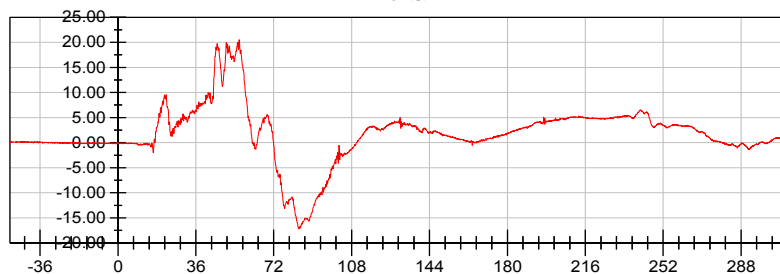
5.92 g at 78.96 ms

<Min>

-2.50 g at 245.28 ms

CFC_1000

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



<Max>

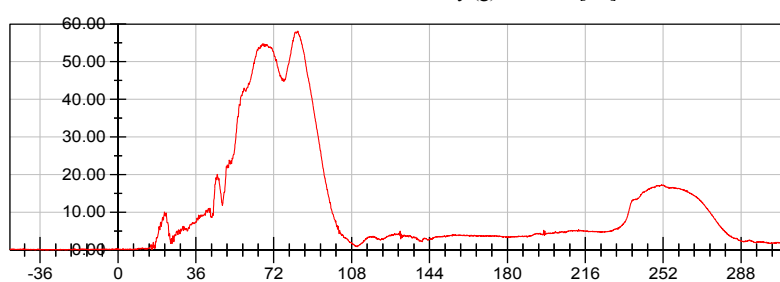
20.53 g at 56.00 ms

<Min>

-17.18 g at 83.60 ms

CFC_1000

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



<Max>

58.11 g at 83.12 ms

<Min>

0.02 g at -40.48 ms

CFC_1000



NHTSA

Test Lab: CTF

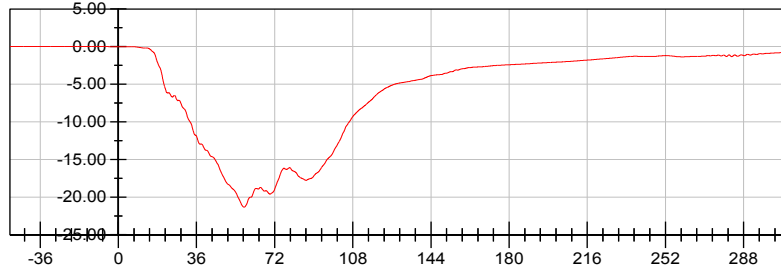
Test Number: 160128 (M20165800)

Test Date: 01/28/2016

Position #1 Hybrid III Mid-Sized Adult Male Dummy (D037)

Position #2 Hybrid III Small Adult Female (70)

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



<Max>

0.01 mm at -38.96 ms

<Min>

-21.34 mm at 57.92 ms

CFC_600



NHTSA

Test Lab: CTF

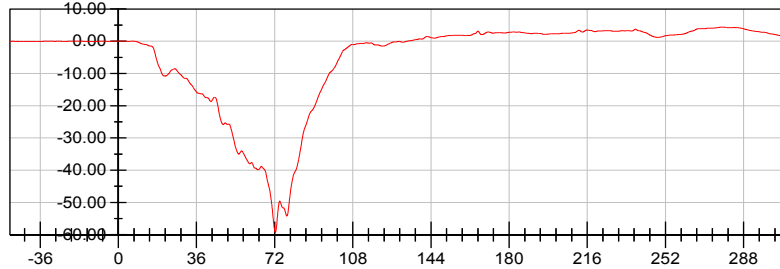
Test Number: 160128 (M20165800)

Test Date: 01/28/2016

Position #1 Hybrid III Mid-Sized Adult Male Dummy (D037)

Position #2 Hybrid III Small Adult Female (70)

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



<Max>

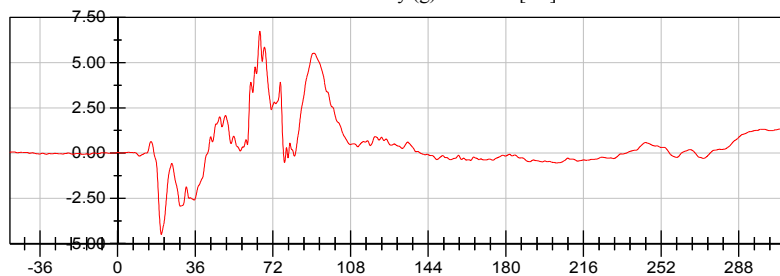
4.37 g at 278.16 ms

<Min>

-59.31 g at 72.24 ms

CFC_180

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



<Max>

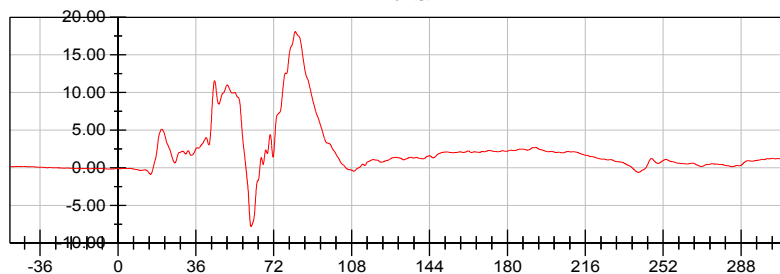
6.74 g at 65.92 ms

<Min>

-4.50 g at 20.24 ms

CFC_180

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



<Max>

18.08 g at 82.00 ms

<Min>

-7.80 g at 61.52 ms

CFC_180

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



<Max>

59.45 g at 72.32 ms

<Min>

0.03 g at -28.56 ms

CFC_180



NHTSA

Test Lab: CTF

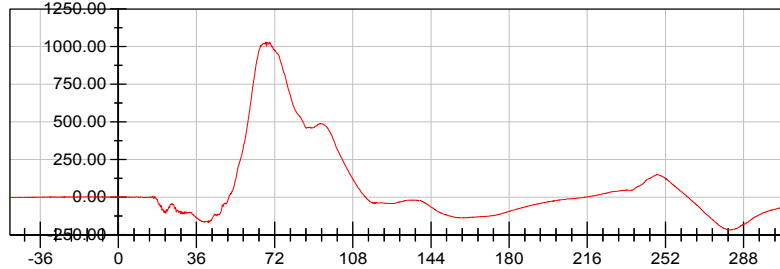
Test Number: 160128 (M20165800)

Test Date: 01/28/2016

Position #1 Hybrid III Mid-Sized Adult Male Dummy (D037)

Position #2 Hybrid III Small Adult Female (70)

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



<Max>

1,030.26 N at 67.92 ms

<Min>

-219.04 N at 281.36 ms

CFC_1000

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



<Max>

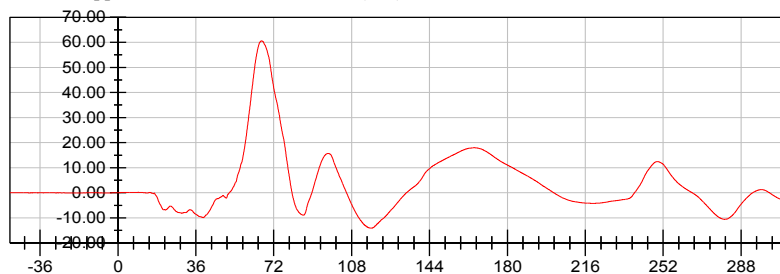
1,494.88 N at 68.56 ms

<Min>

-271.64 N at 279.84 ms

CFC_1000

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



<Max>

60.59 Nm at 66.32 ms

<Min>

-14.11 Nm at 117.20 ms

CFC_600





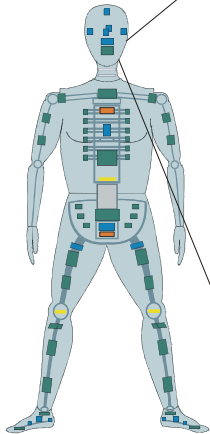
2016 Volkswagen Golf SportWagen NCAP 35 mph Frontal Impact Neck Injury Predictor (NIJ)

Date: 01/28/2016
Time: 13:02

Customer: NHTSA

Test Number: M20165800

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

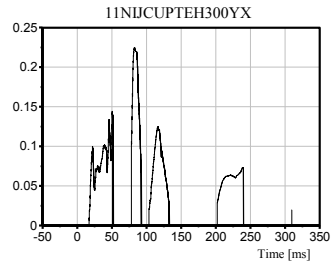


Dummy: HIII 50th Male
Seating Position:
Driver

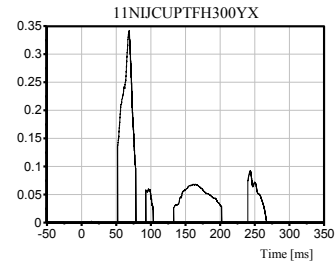
NIJ Source Code: (Fz/Fzc)+(Myc/Myc)



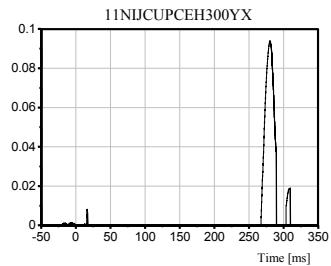
TRC Inc. Test Lab: CTF
Test Number: 160128



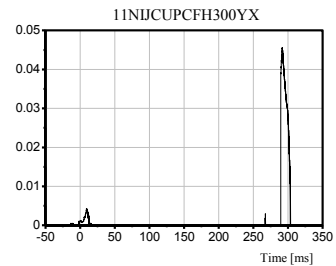
Max [NTE] 0.2249 at 82.56 ms



Max [NTF] 0.3425 at 68.64 ms



Max [NCE] 0.0940 at 280.24 ms



Max [NCF] 0.0456 at 291.68 ms

NHTSA

Test Lab: CTF

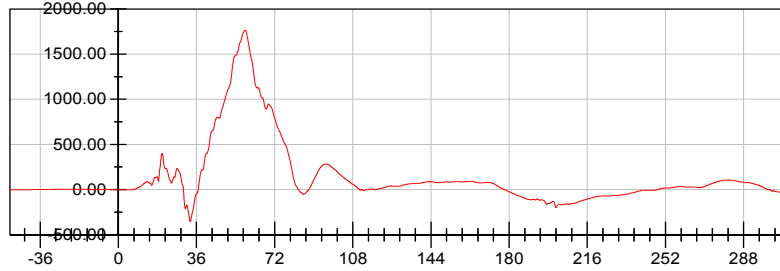
Test Number: 160128 (M20165800)

Test Date: 01/28/2016

Position #1 Hybrid III Mid-Sized Adult Male Dummy (D037)

Position #2 Hybrid III Small Adult Female (70)

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



<Max>

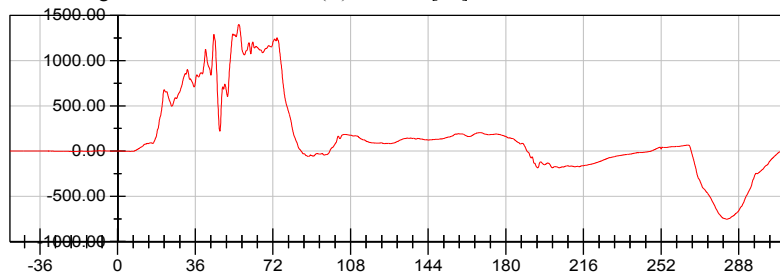
1,763.77 N at 58.48 ms

<Min>

-355.14 N at 33.12 ms

CFC_600

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



<Max>

1,400.14 N at 56.16 ms

<Min>

-753.60 N at 282.48 ms

CFC_600



NHTSA

Test Lab: CTF

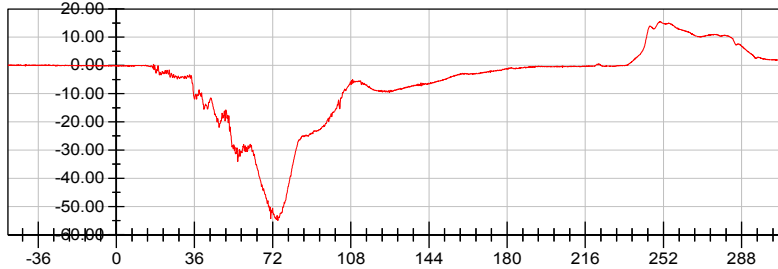
Test Number: 160128 (M20165800)

Test Date: 01/28/2016

Position #1 Hybrid III Mid-Sized Adult Male Dummy (D037)

Position #2 Hybrid III Small Adult Female (70)

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



<Max>

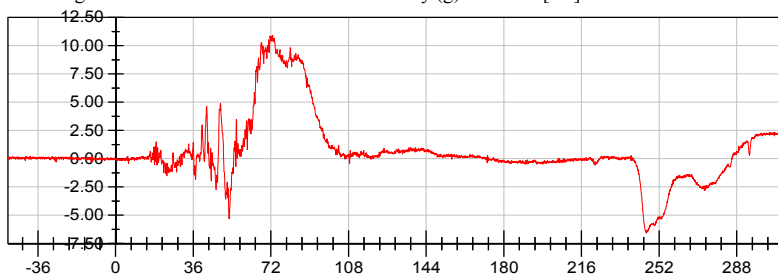
15.53 g at 250.40 ms

<Min>

-54.97 g at 74.40 ms

CFC_1000

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



<Max>

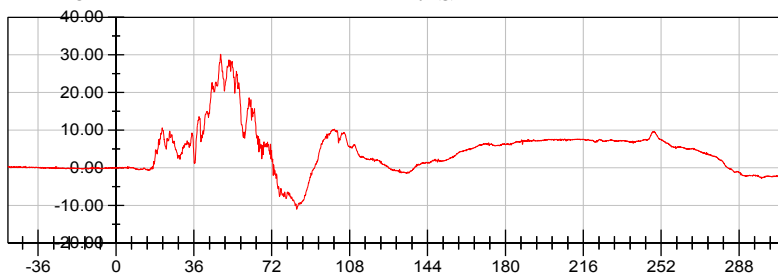
10.92 g at 72.64 ms

<Min>

-6.58 g at 246.00 ms

CFC_1000

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



<Max>

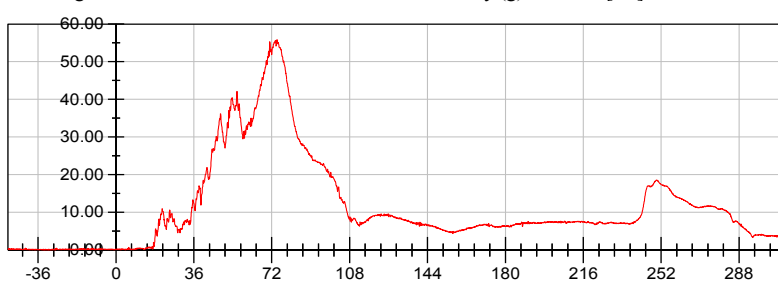
30.13 g at 48.40 ms

<Min>

-11.03 g at 83.52 ms

CFC_1000

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



<Max>

55.84 g at 74.40 ms

<Min>

0.04 g at -37.12 ms

CFC_1000



NHTSA

Test Lab: CTF

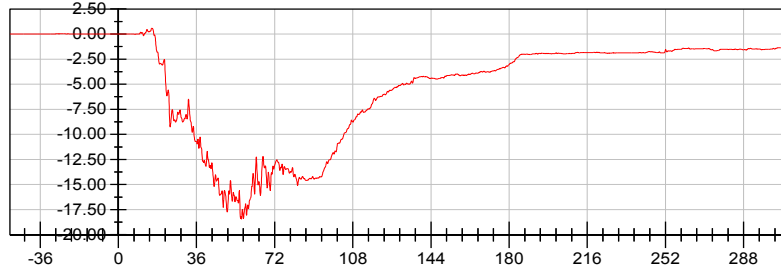
Test Number: 160128 (M20165800)

Test Date: 01/28/2016

Position #1 Hybrid III Mid-Sized Adult Male Dummy (D037)

Position #2 Hybrid III Small Adult Female (70)

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



<Max>

0.58 mm at 15.36 ms

<Min>

-18.43 mm at 56.72 ms

CFC_600



NHTSA

Test Lab: CTF

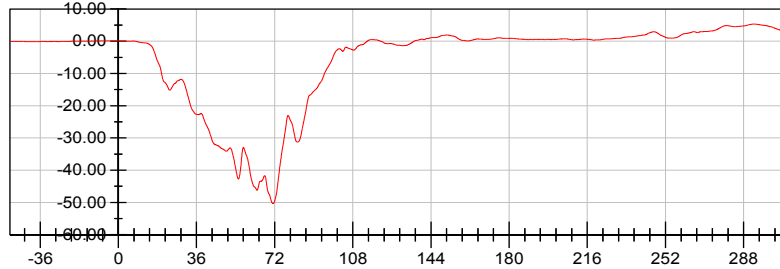
Test Number: 160128 (M20165800)

Test Date: 01/28/2016

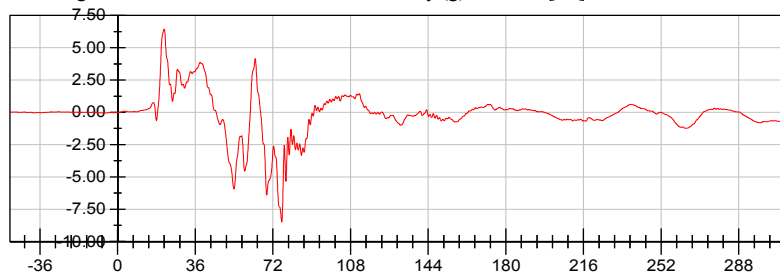
Position #1 Hybrid III Mid-Sized Adult Male Dummy (D037)

Position #2 Hybrid III Small Adult Female (70)

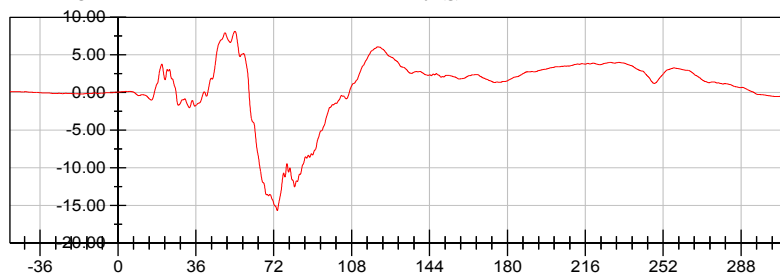
Passenger Chest X Acceleration vs. Time Primary (g) vs. Time [ms]



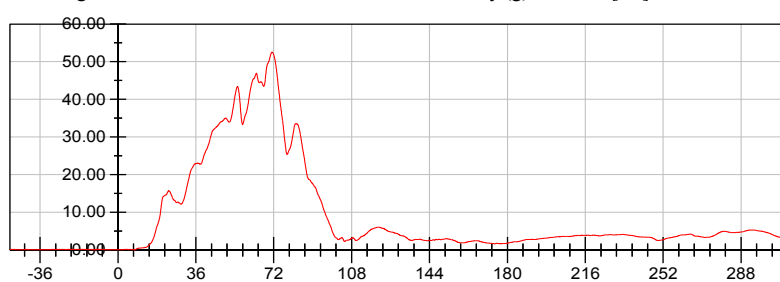
Passenger Chest Y Acceleration vs. Time Primary (g) vs. Time [ms]



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



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



NHTSA

Test Lab: CTF

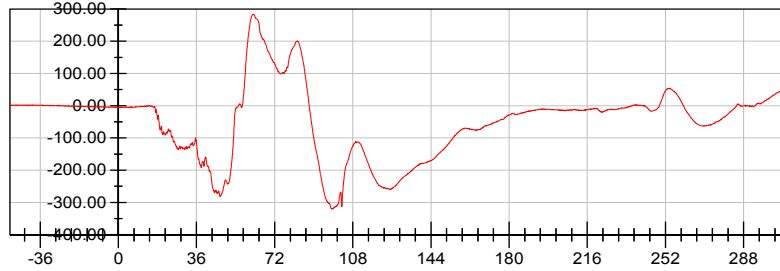
Test Number: 160128 (M20165800)

Test Date: 01/28/2016

Position #1 Hybrid III Mid-Sized Adult Male Dummy (D037)

Position #2 Hybrid III Small Adult Female (70)

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



<Max>

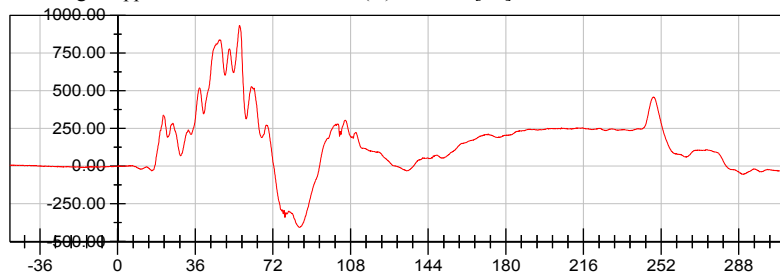
283.71 N at 62.32 ms

<Min>

-320.42 N at 98.32 ms

CFC_1000

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



<Max>

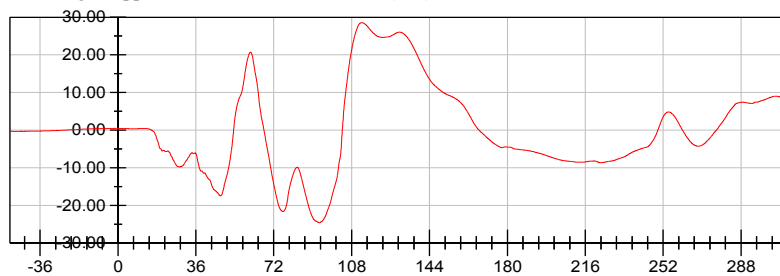
934.00 N at 56.48 ms

<Min>

-406.42 N at 84.24 ms

CFC_1000

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



<Max>

28.53 Nm at 112.72 ms

<Min>

-24.61 Nm at 93.12 ms

CFC_600





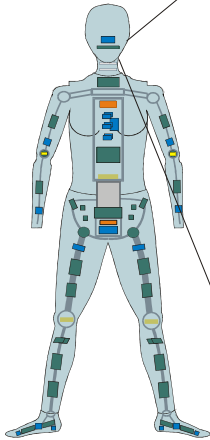
2016 Volkswagen Golf SportWagen NCAP 35 mph Frontal Impact Neck Injury Predictor (NIJ)

Date: 01/28/2016
Time: 13:02

Customer: NHTSA

Test Number: M20165800

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

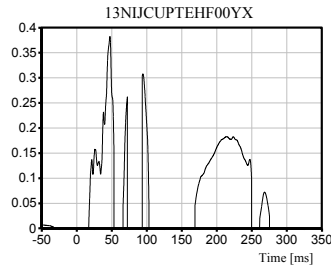


Dummy: HIII 5th Female
Seating Position:
Right Front Passenger

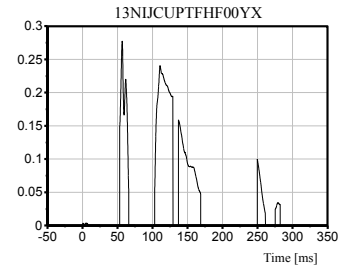
NIJ Source Code: (Fz/Fzc)+(Myc/Myc)



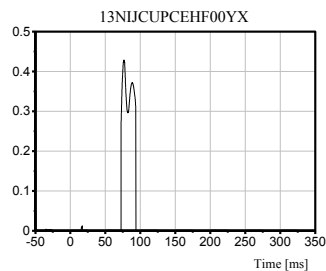
TRC Inc. Test Lab: CTF
Test Number: 160128



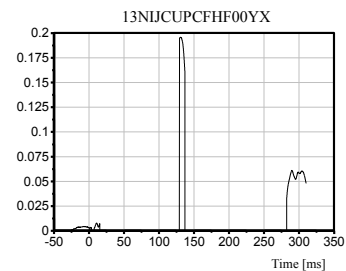
Max [NTE] 0.3825 at 47.44 ms



Max [NTF] 0.2775 at 56.72 ms



Max [NCE] 0.4288 at 76.72 ms



Max [NCF] 0.1957 at 130.80 ms

NHTSA

Test Lab: CTF

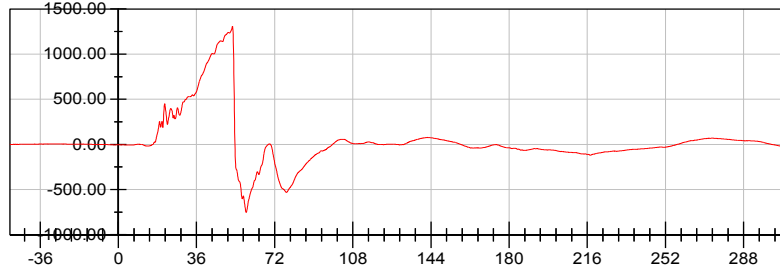
Test Number: 160128 (M20165800)

Test Date: 01/28/2016

Position #1 Hybrid III Mid-Sized Adult Male Dummy (D037)

Position #2 Hybrid III Small Adult Female (70)

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



<Max>

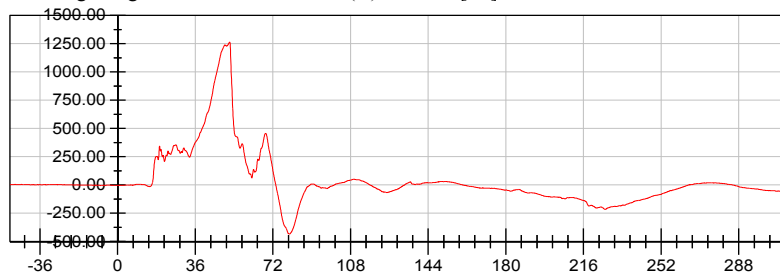
1,305.71 N at 52.56 ms

<Min>

-751.99 N at 58.88 ms

CFC_600

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



<Max>

1,264.65 N at 51.92 ms

<Min>

-433.40 N at 79.76 ms

CFC_600



APPENDIX C
DUMMY CALIBRATION AND PERFORMANCE VERIFICATION

Pre-Test Calibration Sheets

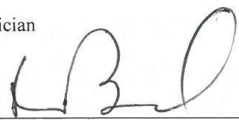
Driver S/N 037

Transportation Research Center Inc.
572E HIII 50th Male Dummy
External Dimensions
Serial No. 037
Calibration No. 32

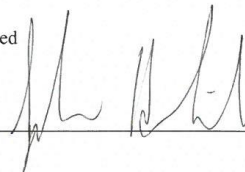
Symbol	Description	Specification	Results	Pass
		mm	mm	
A	Total Sitting Height	878.8 - 889.0	883	Yes
B	Shoulder Pivot Height	505.5 - 520.7	518	Yes
C	H-Point Height	83.8 - 88.9	86	Yes
D	H-Point From Seatback	134.6 - 139.7	138	Yes
E	Shoulder Pivot From Backline	83.8 - 94.0	93	Yes
F	Thigh Clearance	139.7 - 154.9	150	Yes
G	Back Of Elbow To Wrist Pivot	289.6 - 304.8	296	Yes
H	Skull Cap To Backline	40.6 - 45.7	45	Yes
I	Shoulder-Elbow Length	330.2 - 345.4	340	Yes
J	Elbow Rest Height	190.5 - 210.8	200	Yes
K	Buttock Knee Length	579.1 - 604.5	599	Yes
L	Popliteal Height	429.3 - 454.7	440	Yes
M	Knee Pivot Height	485.1 - 500.4	495	Yes
N	Buttock Popliteal Length	452.1 - 477.5	470	Yes
O	Chest Depth	213.4 - 228.6	225	Yes
P	Foot Length	251.5 - 266.7	264	Yes
V	Shoulder Breadth	421.6 - 436.9	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:

Technician



Approved




Revised 8/10/12

Transportation Research Center Inc.

Front Head Drop

HIII 50th Serial No. 037 Certification No. 32-5

Test Date: 1/14/2016

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.5 °C	21.5 °C	Yes
Relative Humidity	10 - 70 %	35 %	Yes
Peak Head Resultant Acceleration	225 - 275 g	244.6 g	Yes
Peak Head Lateral Acceleration	(-15) - 15 g	-2.8 g	Yes
Is Acceleration Curve Unimodal within 10% of Peak?	Yes	Yes	Yes

Test meets specifications.

Comments:

Technician



Approved



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

01.14.2016 07:15:49 614

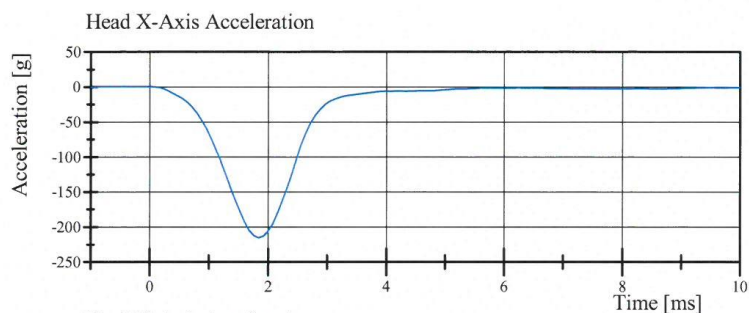


Transportation Research Center Inc.

Front Head Drop

HIII 50th Serial No. 037 Certification No. 32-5

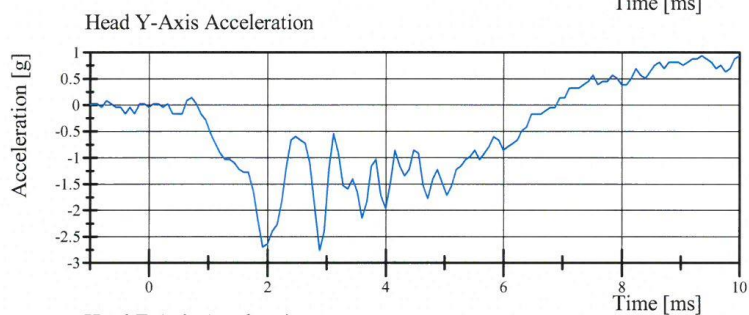
Test Date: 1/14/2016



Filter Class: CFC_1000

Max: 0.1 g at -1.0 ms

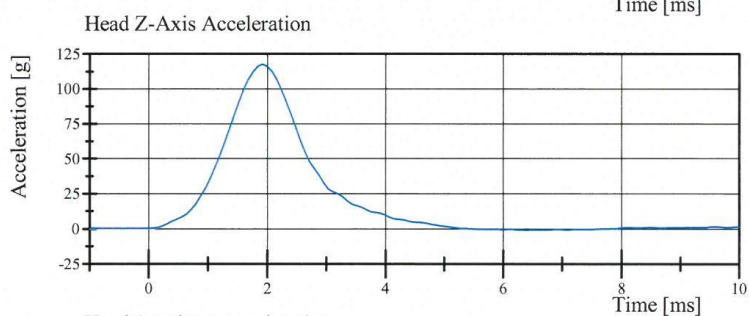
Min: -215.4 g at 1.8 ms



Filter Class: CFC_1000

Max: 0.9 g at 9.4 ms

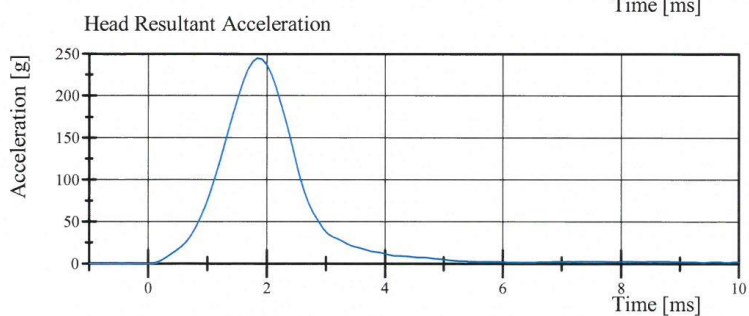
Min: -2.8 g at 2.9 ms



Filter Class: CFC_1000

Max: 117.3 g at 1.9 ms

Min: -0.9 g at 6.4 ms



Filter Class: CFC_1000

Max: 244.6 g at 1.8 ms

Min: 0.0 g at -0.1 ms

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

01.14.2016 07:15:56 614



Transportation Research Center Inc.

Neck Flexion

HIH 50th Serial No. 037 Certification No. 32-1

Test Date: 1/13/2016

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.7 °C	Yes
Relative Humidity	10 - 70 %	38 %	Yes
Pendulum Velocity	6.89 - 7.13 m/s	6.941 m/s	Yes
Pendulum Acceleration Decay Crossing -5g	34 - 42 ms	35.9 ms	Yes
Pendulum Acceleration at 10ms	(-22.5) - (-27.5) g	-25.13 g	Yes
Pendulum Acceleration at 20ms	(-17.6) - (-22.6) g	-21.42 g	Yes
Pendulum Acceleration at 30ms	(-12.5) - (-18.5) g	-16.44 g	Yes
Pendulum Acceleration > 30ms	>= (-29.0) g	-16.44 g	Yes
Total Head D-Plane Rotation Peak	(-64) - (-78) °	-67.0 °	Yes
Time of Peak	57 - 64 ms	58.8 ms	Yes
Total Head D-Plane Rotation Decay to 0°	113 - 128 ms	120.0 ms	Yes
Total Neck Occipital Condyles Moment Peak	88 - 108 N·m	101.3 N·m	Yes
Time of Peak	47 - 58 ms	49.4 ms	Yes
Total Neck Occipital Condyles Moment Decay to 0 N·m	97 - 107 ms	100.8 ms	Yes

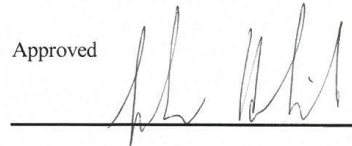
Test meets specifications.

Comments:

Technician



Approved



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

01.13.2016 14:25:47 2948

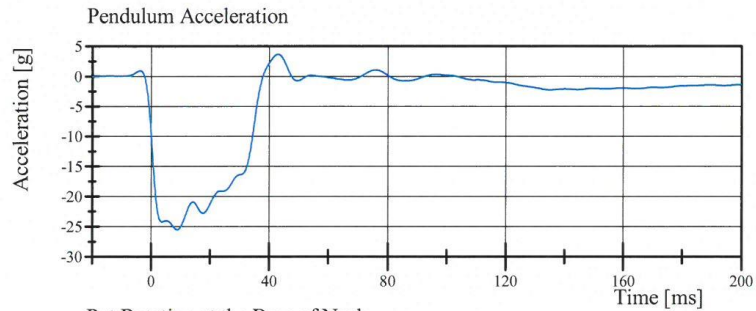


Transportation Research Center Inc.

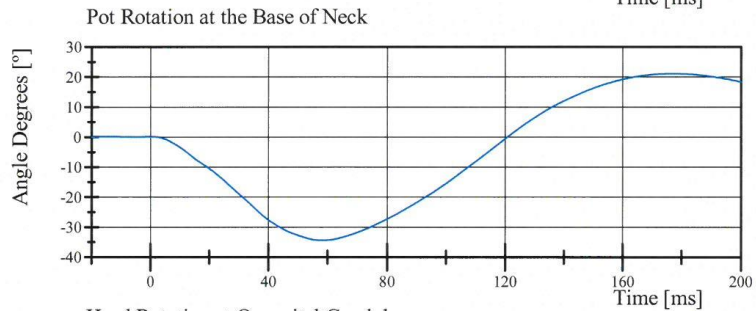
Neck Flexion

HIII 50th Serial No. 037 Certification No. 32-1

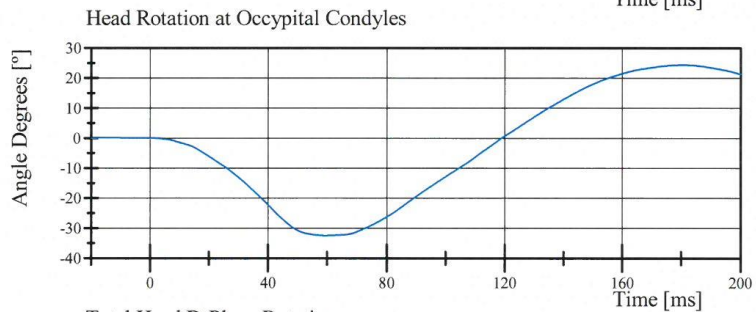
Test Date: 1/13/2016



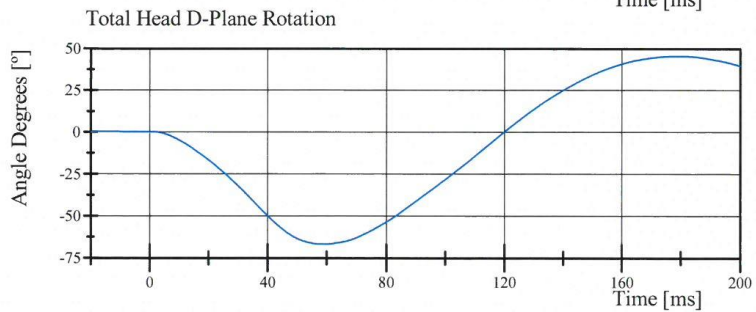
Filter Class: CFC_60
Max: 3.6 g at 43.0 ms
Min: -25.6 g at 8.9 ms



Filter Class: CFC_60
Max: 21.1 ° at 177.1 ms
Min: -34.5 ° at 58.4 ms



Filter Class: CFC_60
Max: 24.4 ° at 180.6 ms
Min: -32.5 ° at 59.4 ms



Filter Class: CFC_60
Max: 45.5 ° at 179.3 ms
Min: -67.0 ° at 58.8 ms

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

01.13.2016 14:26:04 2948

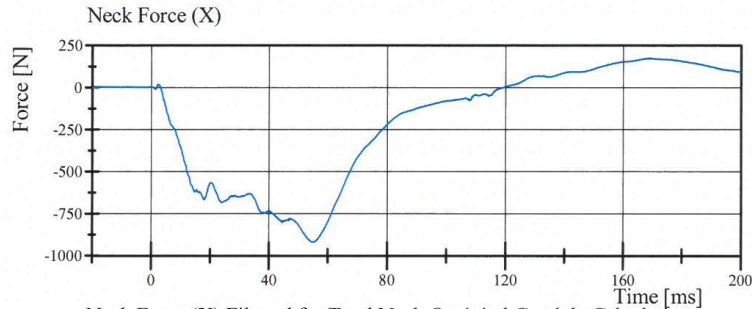


Transportation Research Center Inc.

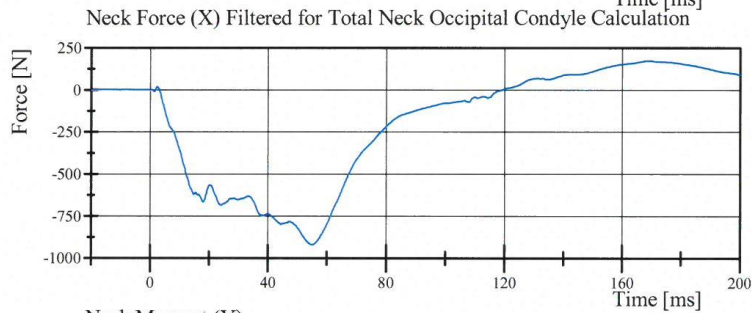
Neck Flexion

HIII 50th Serial No. 037 Certification No. 32-1

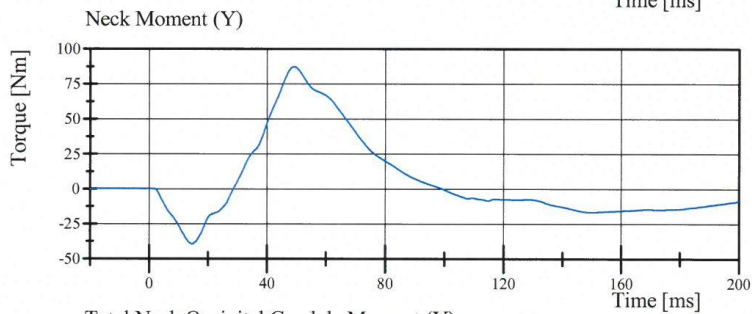
Test Date: 1/13/2016



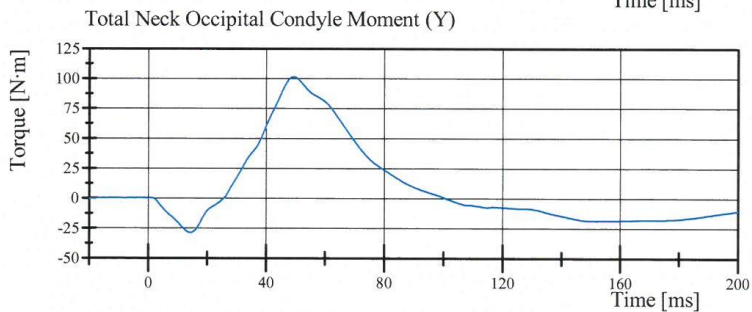
Filter Class: CFC_1000
Max: 173.6 N at 169.4 ms
Min: -921.2 N at 55.3 ms



Filter Class: CFC_600
Max: 173.4 N at 169.5 ms
Min: -921.0 N at 55.1 ms



Filter Class: CFC_600
Max: 87.1 Nm at 49.3 ms
Min: -39.7 Nm at 14.7 ms



Filter Class: Without_(Consta
Max: 101.3 N·m at 49.4 ms
Min: -28.8 N·m at 14.4 ms

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

01.13.2016 14:26:05 2948



Transportation Research Center Inc.

Neck Extension

HIII 50th Serial No. 037 Certification No. 32-1

Test Date: 1/13/2016

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.8 °C	Yes
Relative Humidity	10 - 70 %	37 %	Yes
Pendulum Velocity	(-5.95) - (-6.18) m/s	-5.995 m/s	Yes
Pendulum Acceleration Decay Crossing 5g	38 - 46 ms	39.4 ms	Yes
Pendulum Acceleration at 10ms	17.2 - 21.2 g	19.37 g	Yes
Pendulum Acceleration at 20ms	14.0 - 19.0 g	18.17 g	Yes
Pendulum Acceleration at 30ms	11.0 - 16.0 g	13.95 g	Yes
Pendulum Acceleration > 30ms	<= 22.0 g	13.95 g	Yes
Total Head D-Plane Rotation			
Peak	81 - 106 °	93.0 °	Yes
Time of Peak	72 - 82 ms	76.6 ms	Yes
Total Head D-Plane Rotation Decay to 0°	147 - 174 ms	159.5 ms	Yes
Total Neck Occipital Condyles Moment			
Peak	(-53) - (-80) N·m	-71.2 N·m	Yes
Time of Peak	65 - 79 ms	71.8 ms	Yes
Total Neck Occipital Condyles Moment Decay to 0 N·m	120 - 148 ms	146.1 ms	Yes

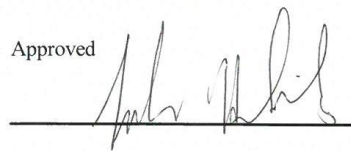
Test meets specifications.

Comments:

Technician



Approved



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

01.13.2016 15:13:45 3028

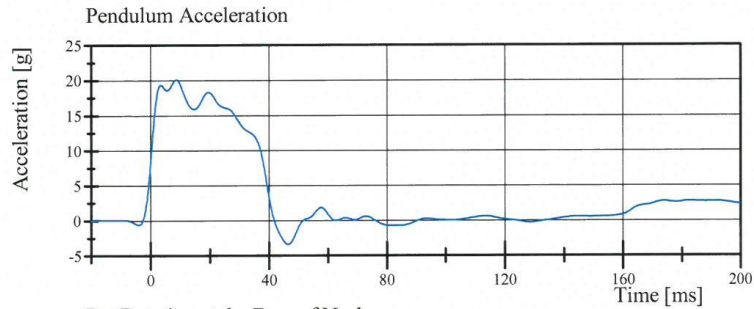


Transportation Research Center Inc.

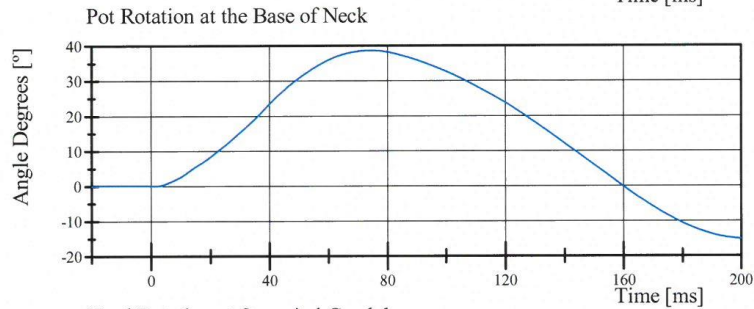
Neck Extension

HIII 50th Serial No. 037 Certification No. 32-1

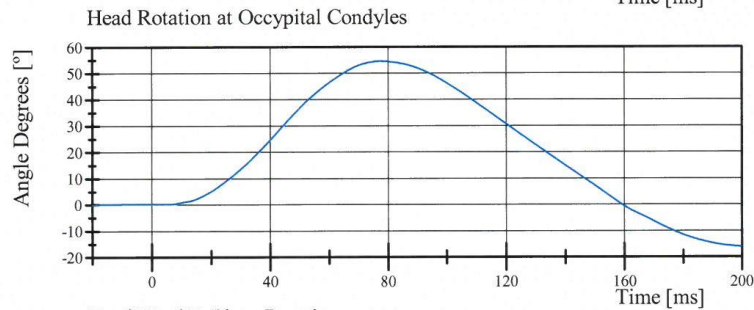
Test Date: 1/13/2016



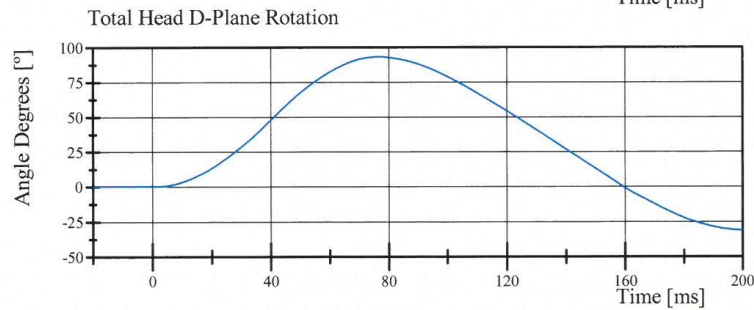
Filter Class: CFC_60
Max: 20.0 g at 8.7 ms
Min: -3.4 g at 46.5 ms



Filter Class: CFC_60
Max: 38.6 ° at 74.1 ms
Min: -15.1 ° at 200.0 ms



Filter Class: CFC_60
Max: 54.5 ° at 77.4 ms
Min: -16.0 ° at 200.0 ms



Filter Class: CFC_60
Max: 93.0 ° at 76.6 ms
Min: -31.1 ° at 200.0 ms

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

01.13.2016 15:14:00 3028

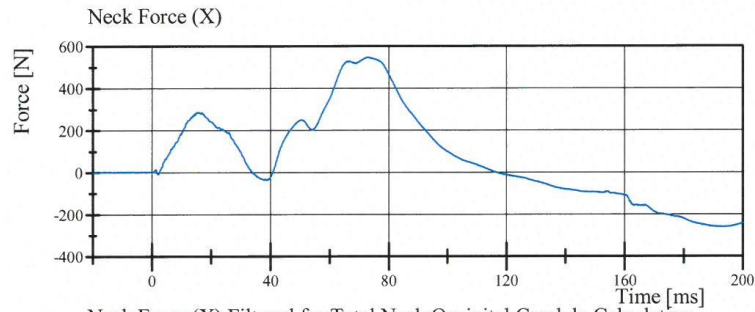


Transportation Research Center Inc.

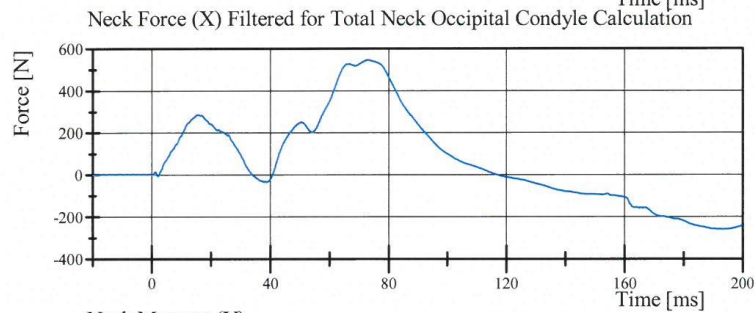
Neck Extension

HIII 50th Serial No. 037 Certification No. 32-1

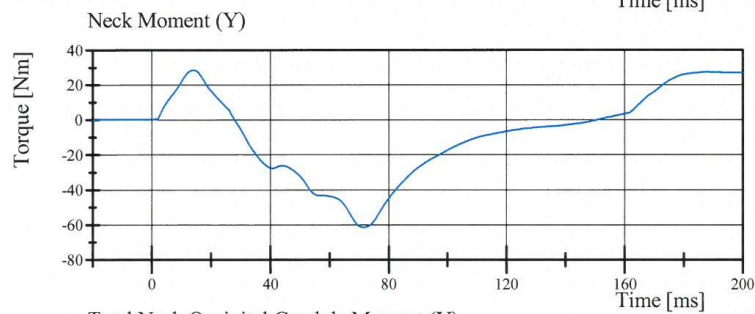
Test Date: 1/13/2016



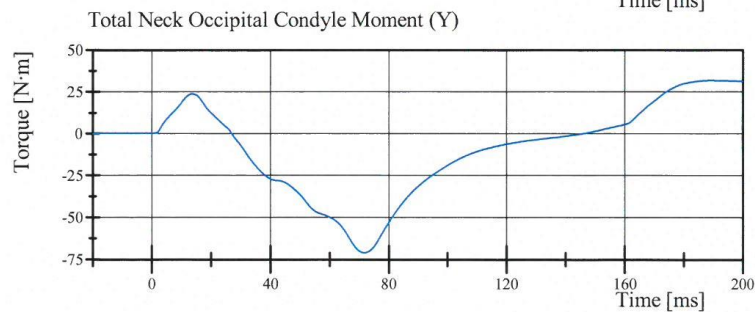
Filter Class: CFC_1000
Max: 545.6 N at 72.7 ms
Min: -259.2 N at 191.8 ms



Filter Class: CFC_600
Max: 545.6 N at 73.0 ms
Min: -258.9 N at 193.1 ms



Filter Class: CFC_600
Max: 28.2 Nm at 14.0 ms
Min: -61.6 Nm at 71.6 ms



Filter Class: Without_(Consta
Max: 31.8 N·m at 188.8 ms
Min: -71.2 N·m at 71.8 ms

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

01.13.2016 15:14:01 3028



Transportation Research Center Inc.

Front Thorax

HIII 50th Serial No. 037 Certification No. 32-1

Test Date: 1/14/2016

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.6 °C	Yes
Relative Humidity	10 - 70 %	35 %	Yes
Probe Velocity	6.59 - 6.83 m/s	6.710 m/s	Yes
Probe Force Peak	(-5,160) - (-5,893) N	-5,639.2 N	Yes
Maximum Chest Compression	(-63.5) - (-72.6) mm	-68.93 mm	Yes
Internal Hysteresis	65 - 85 %	73.5 %	Yes

Test meets specifications.

Comments:

Technician



Approved



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

01.14.2016 09:01:03 392

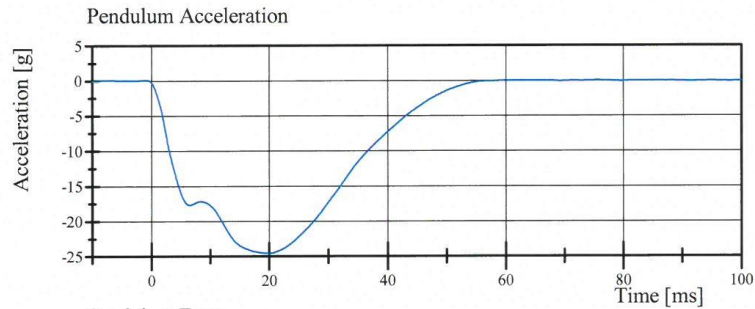


Transportation Research Center Inc.

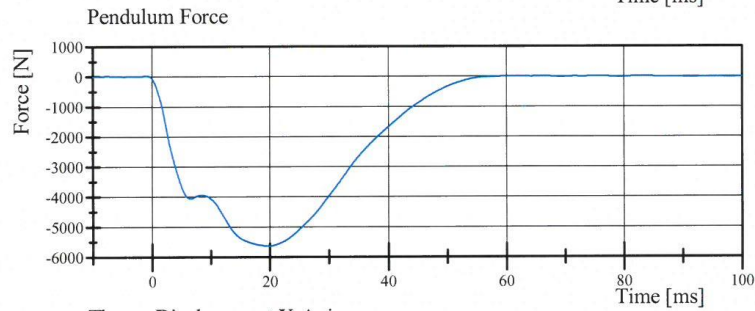
Front Thorax

HIII 50th Serial No. 037 Certification No. 32-1

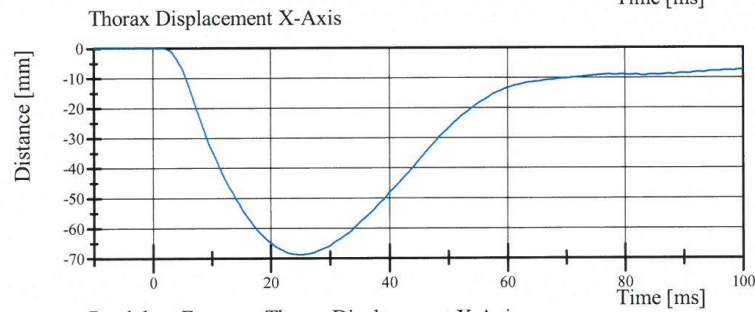
Test Date: 1/14/2016



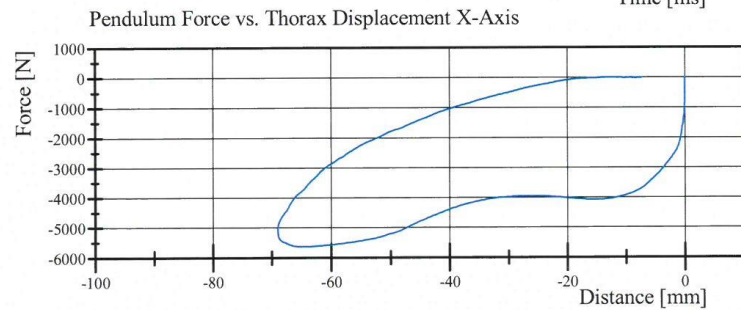
Filter Class: CFC_180
Max: 0.0 g at 75.7 ms
Min: -24.6 g at 19.8 ms



Filter Class: CFC_180
Max: 8.1 N at 75.7 ms
Min: -5,639.2 N at 19.8 ms



Filter Class: CFC_600
Max: 0.0 mm at -9.1 ms
Min: -68.9 mm at 25.3 ms



Filter Class: CFC_180
Max: 8.1 N at -9.1 mm
Min: -5,639.2 N at -64.7 mm

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

01.14.2016 09:01:11 392



Transportation Research Center Inc.

Left Knee Femur Response Test
HIII 50th Serial No. 037 Certification No. 32-1
Test Date: 1/13/2016

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.5 °C	21.4 °C	Yes
Relative Humidity	10 - 70 %	39 %	Yes
Probe Velocity	2.08 - 2.13 m/s	2.082 m/s	Yes
Peak Femur Force	(-4,715.2) - (-5,782.6) N	-5,643.10 N	Yes

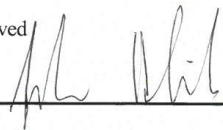
Test meets specifications.

Comments:

Technician



Approved



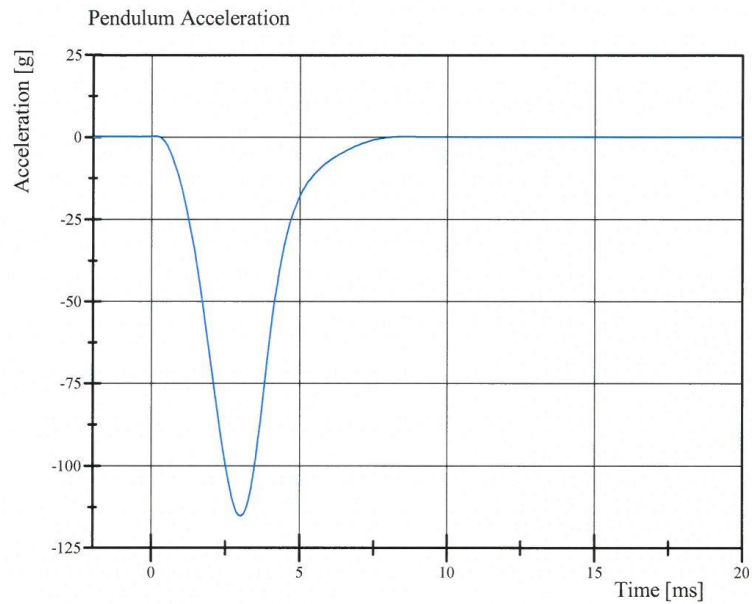
Specification Source: CFR49 Part 572 Subpart E
with Polarity in accordance with J211

01.13.2016 10:33:33 1754

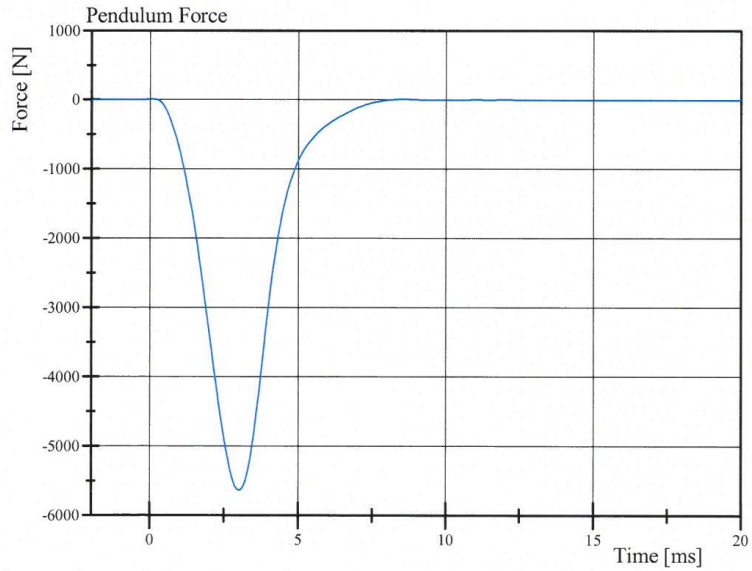


Transportation Research Center Inc.

Left Knee Femur Response Test
HIII 50th Serial No. 037 Certification No. 32-1
Test Date: 1/13/2016



Filter Class: CFC_600
Max: 0.1 g at 8.6 ms
Min: -115.3 g at 3.0 ms



Filter Class: CFC_600
Max: 5.6 N at 8.6 ms
Min: -5,643.1 N at 3.0 ms

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

01.13.2016 10:33:41 1754



Transportation Research Center Inc.

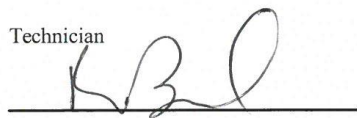
Right Knee Femur Response Test
HIII 50th Serial No. 037 Certification No. 32-1
Test Date: 1/13/2016

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.5 °C	21.7 °C	Yes
Relative Humidity	10 - 70 %	34 %	Yes
Probe Velocity	2.08 - 2.13 m/s	2.101 m/s	Yes
Peak Femur Force	(-4,715.2) - (-5,782.6) N	-5,636.94 N	Yes

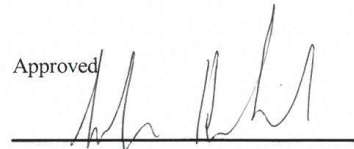
Test meets specifications.

Comments:

Technician



Approved



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

01.13.2016 10:51:43 1746



Transportation Research Center Inc.

Hybrid III 50th Male Hip Range of Motion



Serial Number: 37

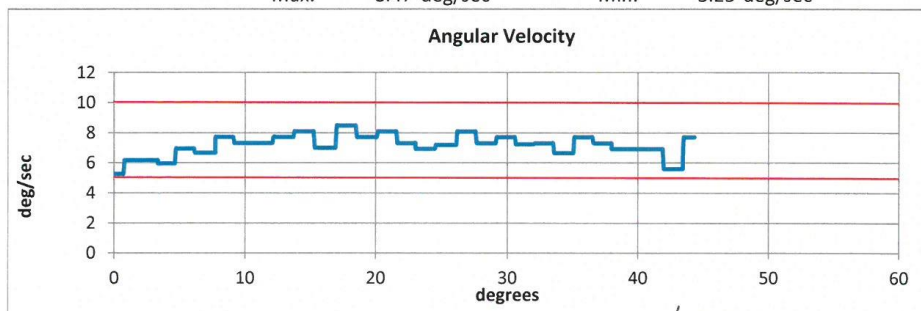
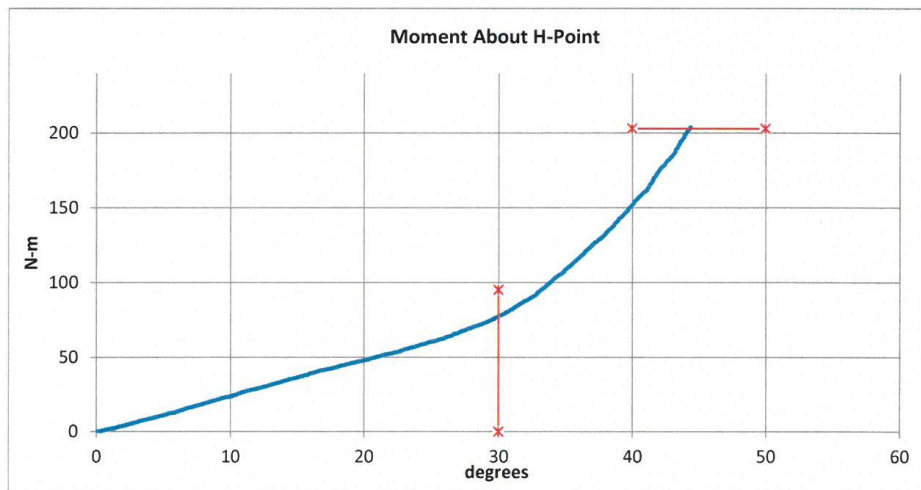
Date: 13-Jan-2016

Test Number: 1

Time: 9:40

Comments:

TEST PARAMETER	SPECIFICATION	TEST RESULTS
Temperature	18.9 - 25.6	21.2 °C Pass
Humidity	10 - 70	37 % Pass
Moment at 30°	0 ≤ 94.9	77.74 N-m Pass
Angle at 203 Nm	40 - 50	44.37 deg Pass
Average Velocity	5 - 10	7.15 deg/sec Pass



Technician

Approved

Transportation Research Center Inc.

Hybrid III 50th Male Hip Range of Motion



Serial Number: 37

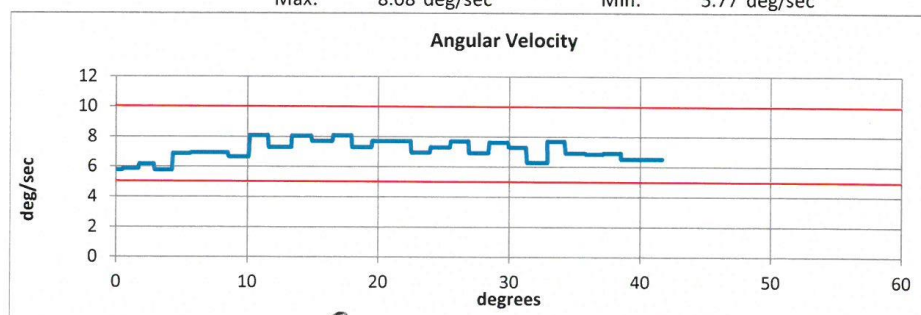
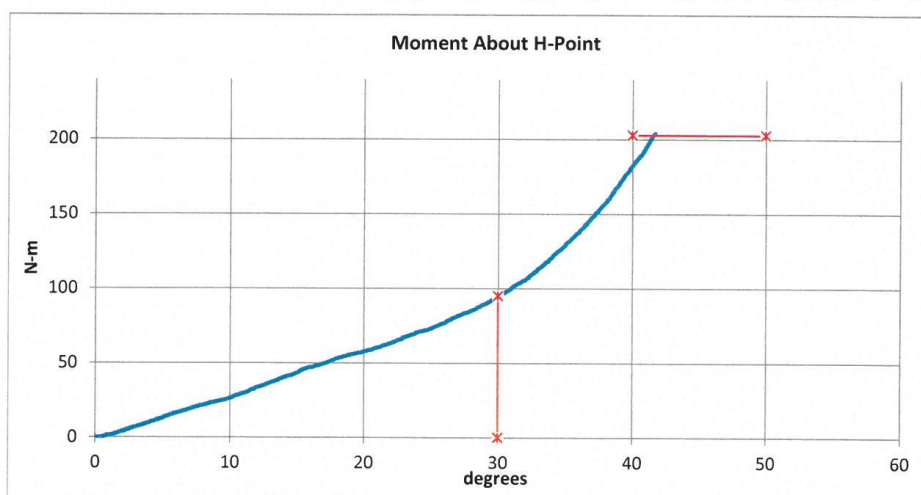
Date: 13-Jan-2016

Test Number: 1

Time: 12:56

Comments:

TEST PARAMETER	SPECIFICATION	TEST RESULTS
Temperature	18.9 - 25.6	21.3 °C Pass
Humidity	10 - 70	33 % Pass
Moment at 30°	0 ≤ 94.9	94.48 N-m Pass
Angle at 203 Nm	40 - 50	41.68 deg Pass
Average Velocity	5 - 10	7.07 deg/sec Pass



Technician

Approved

Post-Test Calibration Sheets

Driver S/N 037

Transportation Research Center Inc.
572E HIII 50th Male Dummy
External Dimensions
Serial No. 037
Calibration No. 33

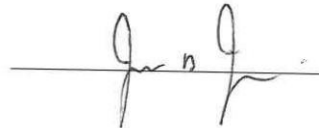
Symbol	Description	Specification	Results	Pass
		mm	mm	
A	Total Sitting Height	878.8 - 889.0	881	Yes
B	Shoulder Pivot Height	505.5 - 520.7	517	Yes
C	H-Point Height	83.8 - 88.9	86	Yes
D	H-Point From Seatback	134.6 - 139.7	138	Yes
E	Shoulder Pivot From Backline	83.8 - 94.0	92	Yes
F	Thigh Clearance	139.7 - 154.9	151	Yes
G	Back Of Elbow To Wrist Pivot	289.6 - 304.8	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	201	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:

Technician



Approved



Revised 8/10/12



Transportation Research Center Inc.

Front Head Drop

HIII 50th Serial No. 037 Certification No. 33-1

Test Date: 1/29/2016

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.5 °C	21.4 °C	Yes
Relative Humidity	10 - 70 %	42 %	Yes
Peak Head Resultant Acceleration	225 - 275 g	271.3 g	Yes
Peak Head Lateral Acceleration	(-15) - 15 g	-7.3 g	Yes
Is Acceleration Curve Unimodal within 10% of Peak?	Yes	Yes	Yes

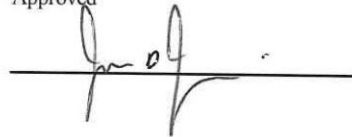
Test meets specifications.

Comments:

Technician



Approved



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

01.29.2016 13:14:28 614

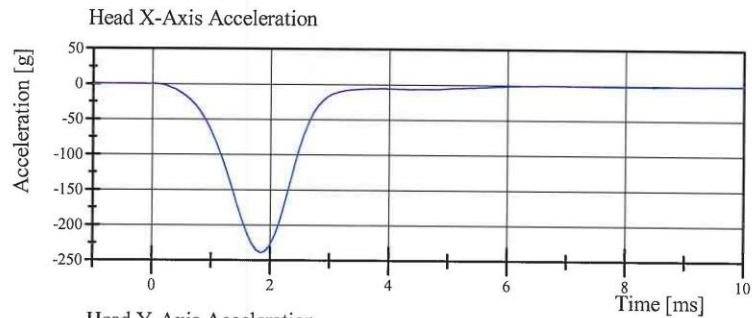


Transportation Research Center Inc.

Front Head Drop

HIII 50th Serial No. 037 Certification No. 33-1

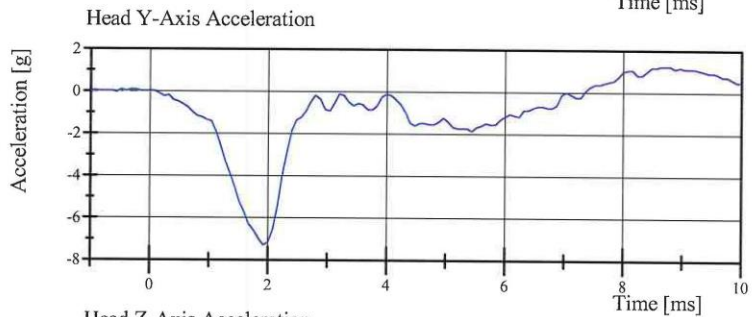
Test Date: 1/29/2016



Filter Class: CFC_1000

Max: 0.1 g at -0.6 ms

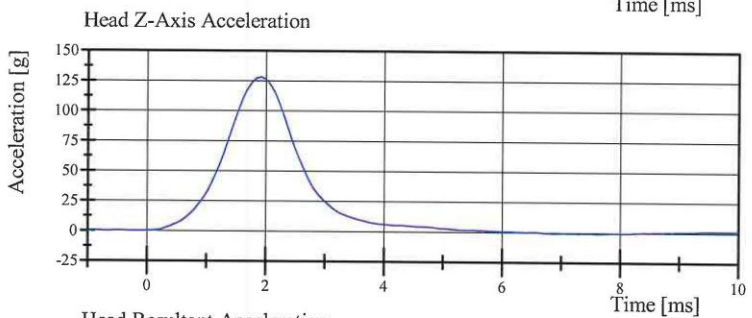
Min: -239.5 g at 1.8 ms



Filter Class: CFC_1000

Max: 1.2 g at 8.6 ms

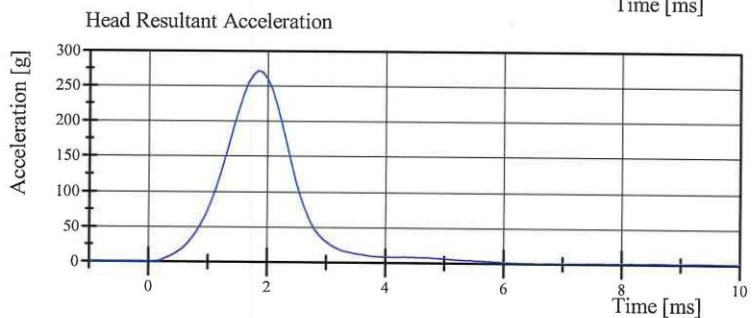
Min: -7.3 g at 1.9 ms



Filter Class: CFC_1000

Max: 128.1 g at 1.9 ms

Min: -0.9 g at 6.9 ms



Filter Class: CFC_1000

Max: 271.3 g at 1.8 ms

Min: 0.0 g at -0.8 ms

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

01.29.2016 13:14:36 614



Transportation Research Center Inc.

Neck Flexion

HIII 50th Serial No. 037 Certification No. 33-1

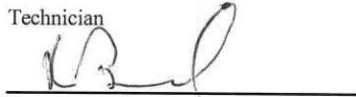
Test Date: 1/30/2016

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.3 °C	Yes
Relative Humidity	10 - 70 %	40 %	Yes
Pendulum Velocity	6.89 - 7.13 m/s	6.934 m/s	Yes
Pendulum Acceleration Decay Crossing -5g	34 - 42 ms	38.5 ms	Yes
Pendulum Acceleration at 10ms	(-22.5) - (-27.5) g	-26.99 g	Yes
Pendulum Acceleration at 20ms	(-17.6) - (-22.6) g	-18.32 g	Yes
Pendulum Acceleration at 30ms	(-12.5) - (-18.5) g	-12.51 g	Yes
Pendulum Acceleration > 30ms	>= (-29.0) g	-13.09 g	Yes
Total Head D-Plane Rotation Peak	(-64) - (-78) °	-68.1 °	Yes
Time of Peak	57 - 64 ms	58.6 ms	Yes
Total Head D-Plane Rotation Decay to 0°	113 - 128 ms	119.6 ms	Yes
Total Neck Occipital Condyles Moment Peak	88 - 108 N·m	100.5 N·m	Yes
Time of Peak	47 - 58 ms	51.6 ms	Yes
Total Neck Occipital Condyles Moment Decay to 0 N·m	97 - 107 ms	100.5 ms	Yes

Test meets specifications.

Comments:

Technician



Approved



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

01.30.2016 07:23:15 2948

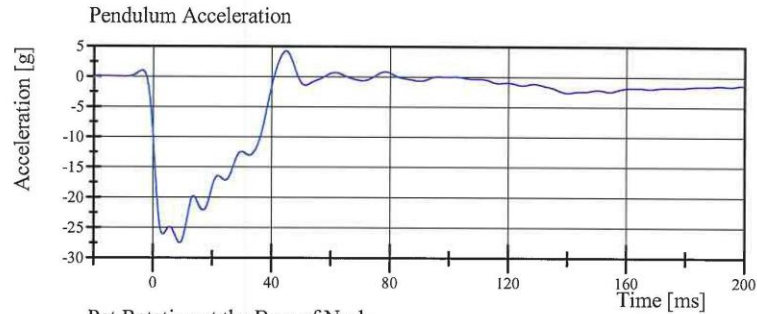


Transportation Research Center Inc.

Neck Flexion

HIII 50th Serial No. 037 Certification No. 33-1

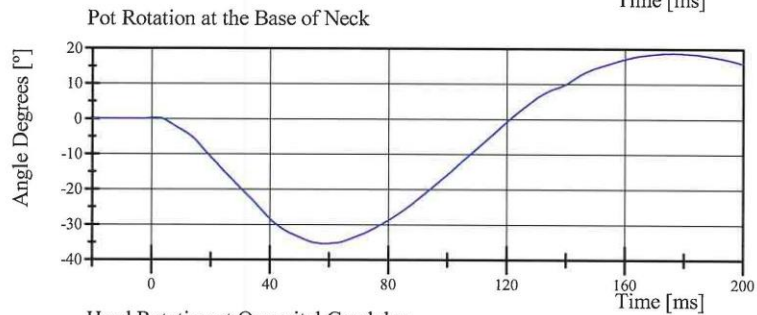
Test Date: 1/30/2016



Filter Class: CFC_60

Max: 4.2 g at 44.8 ms

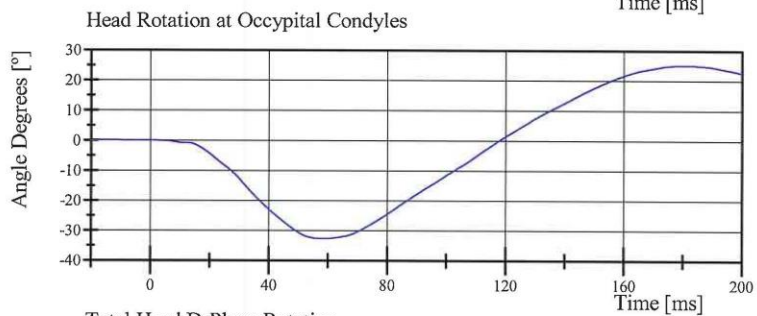
Min: -27.6 g at 9.1 ms



Filter Class: CFC_60

Max: 18.9 ° at 176.4 ms

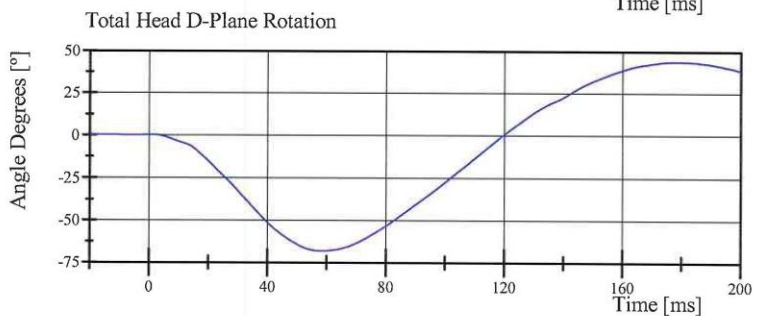
Min: -35.4 ° at 58.6 ms



Filter Class: CFC_60

Max: 25.2 ° at 180.2 ms

Min: -32.7 ° at 58.4 ms



Filter Class: CFC_60

Max: 44.0 ° at 178.2 ms

Min: -68.1 ° at 58.6 ms

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

01.30.2016 07:23:22 2948

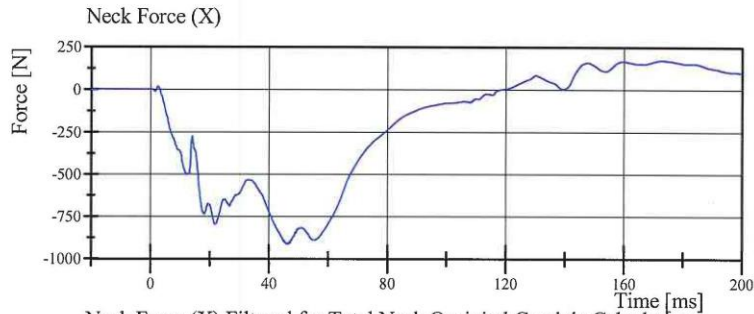


Transportation Research Center Inc.

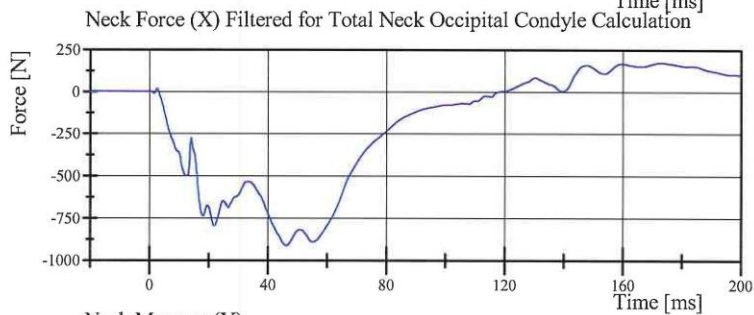
Neck Flexion

HIII 50th Serial No. 037 Certification No. 33-1

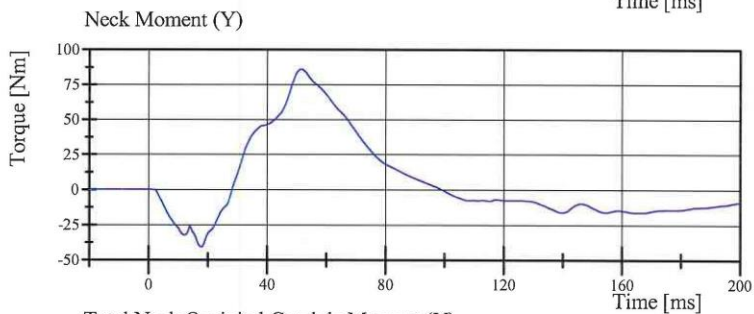
Test Date: 1/30/2016



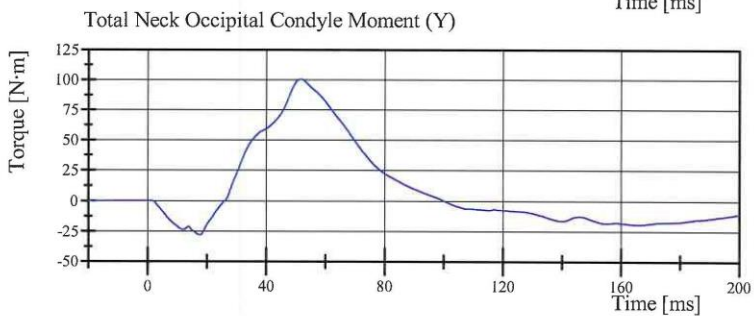
Filter Class: CFC_1000
Max: 174.8 N at 172.6 ms
Min: -915.1 N at 46.2 ms



Filter Class: CFC_600
Max: 174.5 N at 172.6 ms
Min: -913.5 N at 46.1 ms



Filter Class: CFC_600
Max: 86.0 Nm at 51.5 ms
Min: -41.0 Nm at 17.8 ms



Filter Class: Without_Constant
Max: 100.5 N·m at 51.6 ms
Min: -28.1 N·m at 17.7 ms

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

01.30.2016 07:23:23 2948



Transportation Research Center Inc.

Neck Extension

HIII 50th Serial No. 037 Certification No. 33-7

Test Date: 2/1/2016

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.6 °C	Yes
Relative Humidity	10 - 70 %	40 %	Yes
Pendulum Velocity	(-5.95) - (-6.18) m/s	-6.016 m/s	Yes
Pendulum Acceleration Decay Crossing 5g	38 - 46 ms	41.7 ms	Yes
Pendulum Acceleration at 10ms	17.2 - 21.2 g	20.26 g	Yes
Pendulum Acceleration at 20ms	14.0 - 19.0 g	15.91 g	Yes
Pendulum Acceleration at 30ms	11.0 - 16.0 g	12.76 g	Yes
Pendulum Acceleration > 30ms	<= 22.0 g	12.76 g	Yes
Total Head D-Plane Rotation			
Peak	81 - 106 °	93.5 °	Yes
Time of Peak	72 - 82 ms	78.1 ms	Yes
Total Head D-Plane Rotation			
Decay to 0°	147 - 174 ms	159.3 ms	Yes
Total Neck Occipital Condyles Moment			
Peak	(-53) - (-80) N·m	-75.3 N·m	Yes
Time of Peak	65 - 79 ms	73.6 ms	Yes
Total Neck Occipital Condyles Moment			
Decay to 0 N·m	120 - 148 ms	147.0 ms	Yes

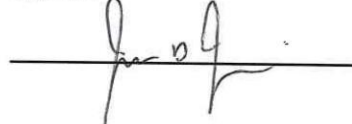
Test meets specifications.

Comments:

Technician



Approved



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

02.01.2016 06:08:21 3019

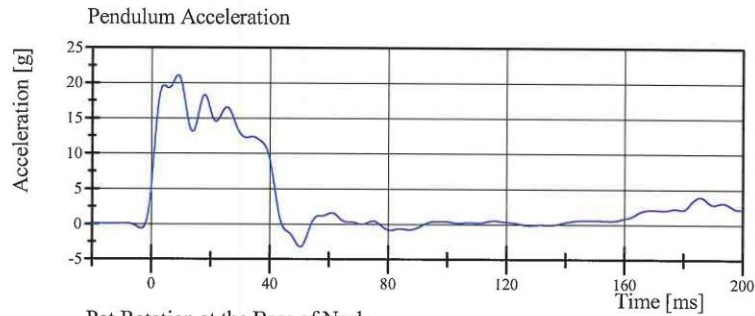


Transportation Research Center Inc.

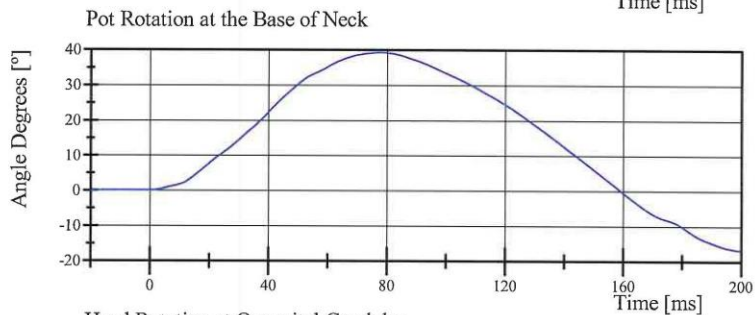
Neck Extension

HIII 50th Serial No. 037 Certification No. 33-7

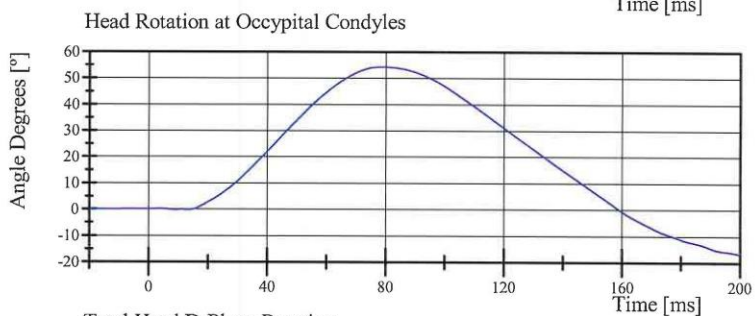
Test Date: 2/1/2016



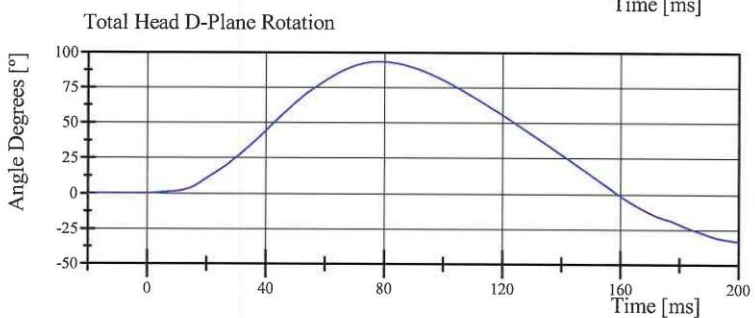
Filter Class: CFC_60
Max: 21.0 g at 9.0 ms
Min: -3.3 g at 50.3 ms



Filter Class: CFC_60
Max: 39.2 ° at 77.5 ms
Min: -16.9 ° at 200.0 ms



Filter Class: CFC_60
Max: 54.3 ° at 78.6 ms
Min: -16.6 ° at 200.0 ms



Filter Class: CFC_60
Max: 93.5 ° at 78.1 ms
Min: -33.5 ° at 200.0 ms

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

02.01.2016 06:08:28 3019

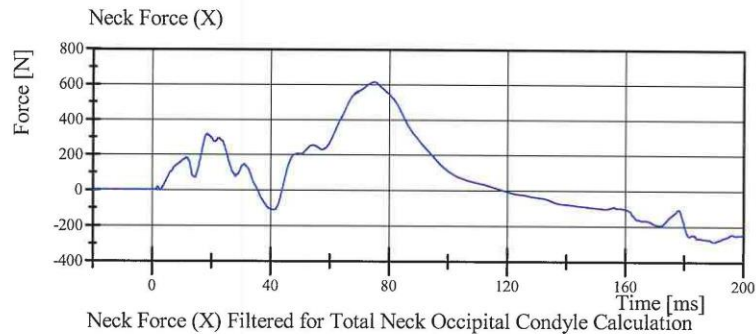


Transportation Research Center Inc.

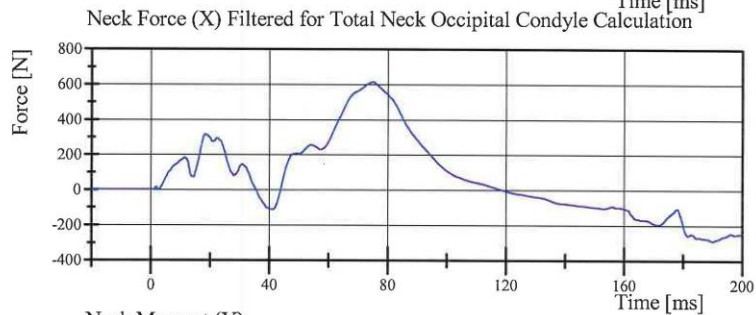
Neck Extension

HIII 50th Serial No. 037 Certification No. 33-7

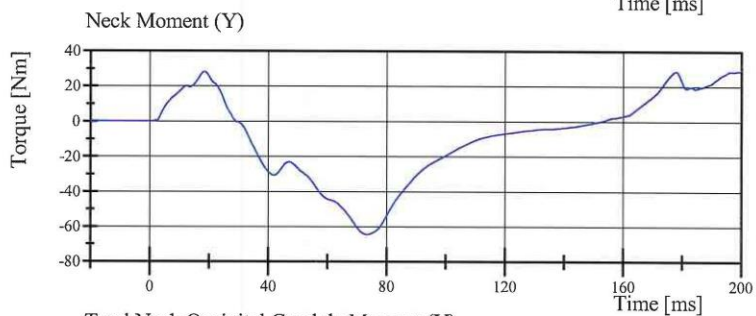
Test Date: 2/1/2016



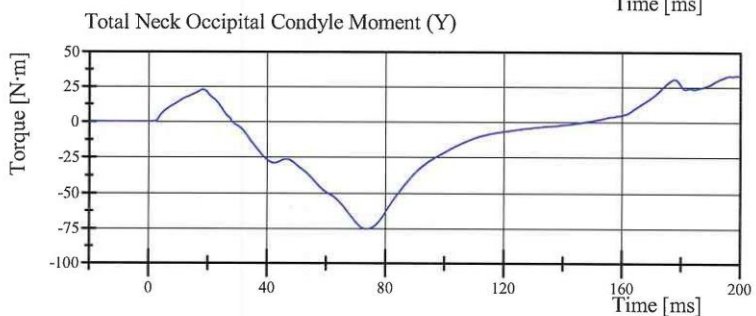
Filter Class: CFC_1000
Max: 614.4 N at 74.9 ms
Min: -286.3 N at 190.1 ms



Filter Class: CFC_600
Max: 614.3 N at 75.0 ms
Min: -285.7 N at 190.1 ms



Filter Class: CFC_600
Max: 29.4 Nm at 200.0 ms
Min: -64.6 Nm at 73.5 ms



Filter Class: Without (Consta
Max: 33.7 N·m at 200.0 ms
Min: -75.3 N·m at 73.6 ms

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

02.01.2016 06:08:29 3019



Transportation Research Center Inc.

Front Thorax

HIII 50th Serial No. 037 Certification No. 33-1

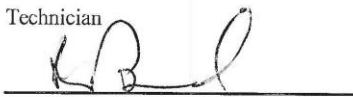
Test Date: 2/1/2016

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.6 °C	Yes
Relative Humidity	10 - 70 %	42 %	Yes
Probe Velocity	6.59 - 6.83 m/s	6.642 m/s	Yes
Probe Force Peak	(-5,160) - (-5,893) N	-5,559.3 N	Yes
Maximum Chest Compression	(-63.5) - (-72.6) mm	-69.64 mm	Yes
Internal Hysteresis	65 - 85 %	72.2 %	Yes

Test meets specifications.

Comments:

Technician



Approved



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

02.01.2016 06:43:36 439

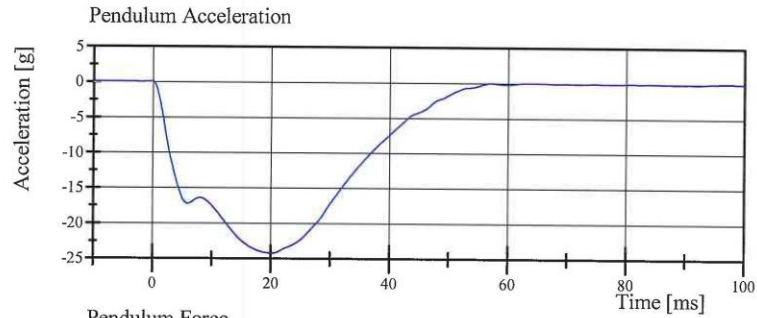


Transportation Research Center Inc.

Front Thorax

HIII 50th Serial No. 037 Certification No. 33-1

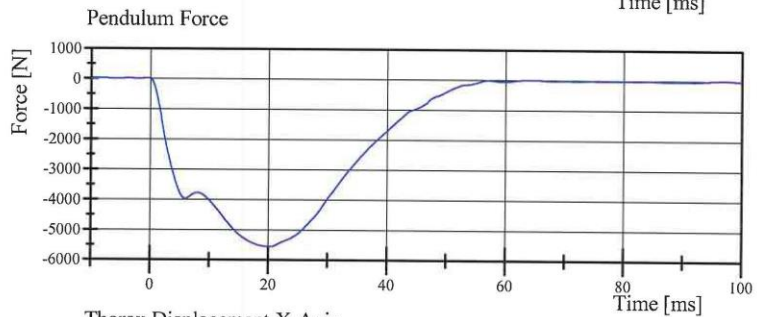
Test Date: 2/1/2016



Filter Class: CFC_180

Max: 0.1 g at 96.7 ms

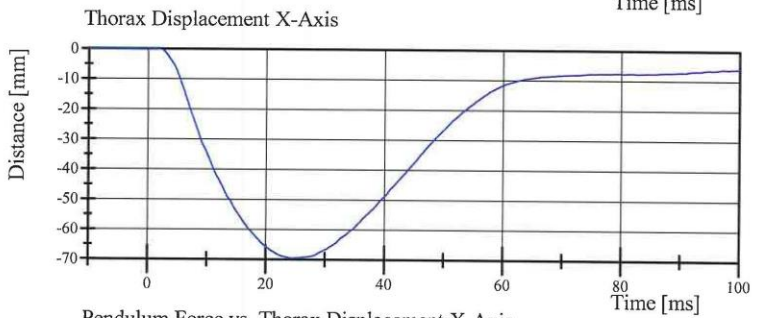
Min: -24.3 g at 20.2 ms



Filter Class: CFC_180

Max: 15.2 N at 96.7 ms

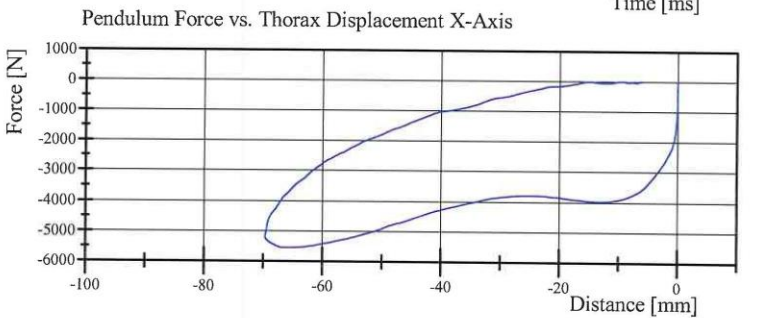
Min: -5,559.3 N at 20.2 ms



Filter Class: CFC_600

Max: 0.0 mm at -6.6 ms

Min: -69.6 mm at 24.6 ms



Filter Class: CFC_180

Max: 15.2 N at -6.2 mm

Min: -5,559.3 N at -66.1 mm

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

02.01.2016 06:43:43 439



Transportation Research Center Inc.

Left Knee Femur Response Test
HIII 50th Serial No. 037 Certification No. 33-3
Test Date: 1/29/2016

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.5 °C	21.4 °C	Yes
Relative Humidity	10 - 70 %	42 %	Yes
Probe Velocity	2.08 - 2.13 m/s	2.114 m/s	Yes
Peak Femur Force	(-4,715.2) - (-5,782.6) N	-5,669.68 N	Yes

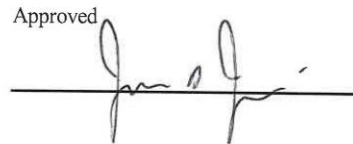
Test meets specifications.

Comments:

Technician



Approved



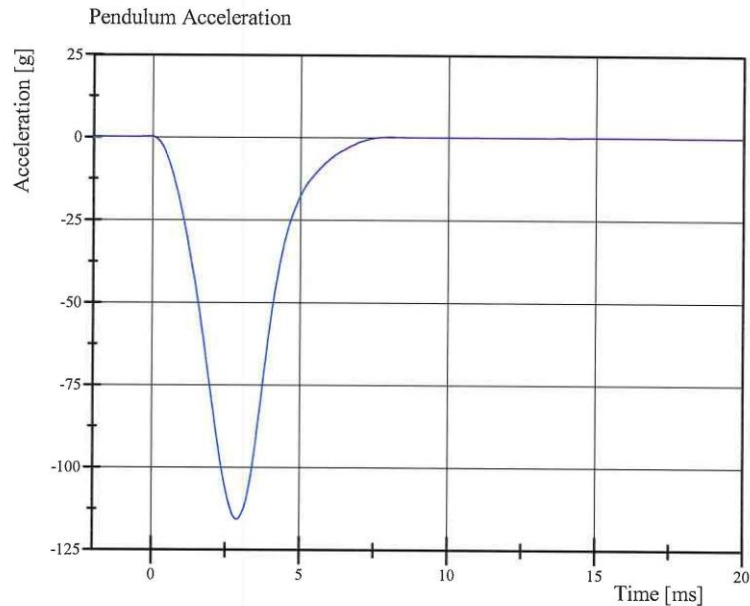
Specification Source: CFR49 Part 572 Subpart E
with Polarity in accordance with J211

02.01.2016 06:48:24 1771

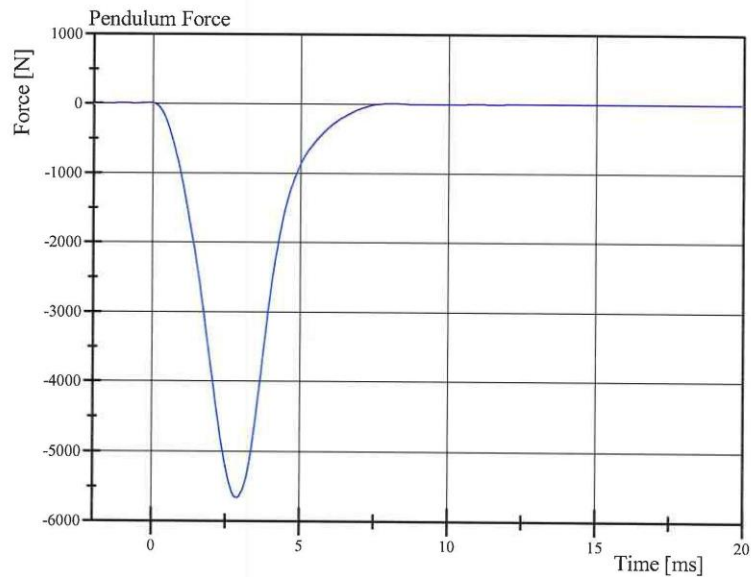


Transportation Research Center Inc.

Left Knee Femur Response Test
HIII 50th Serial No. 037 Certification No. 33-3
Test Date: 1/29/2016



Filter Class: CFC_600
Max: 0.2 g at 8.1 ms
Min: -115.9 g at 2.9 ms



Filter Class: CFC_600
Max: 7.3 N at 8.1 ms
Min: -5,669.7 N at 2.9 ms

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

02.01.2016 06:48:31 1771



Transportation Research Center Inc.

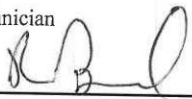
Right Knee Femur Response Test
HIII 50th Serial No. 037 Certification No. 33-2
Test Date: 1/29/2016

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.5 °C	21.4 °C	Yes
Relative Humidity	10 - 70 %	37 %	Yes
Probe Velocity	2.08 - 2.13 m/s	2.114 m/s	Yes
Peak Femur Force	(-4,715.2) - (-5,782.6) N	-5,686.69 N	Yes

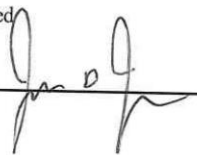
Test meets specifications.

Comments:

Technician



Approved



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

01.29.2016 12:52:05 1770



Transportation Research Center Inc.

Hybrid III 50th Male Hip Range of Motion



Serial Number: 37

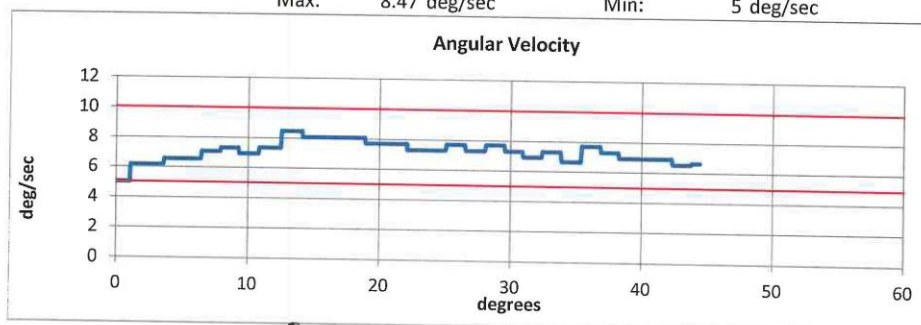
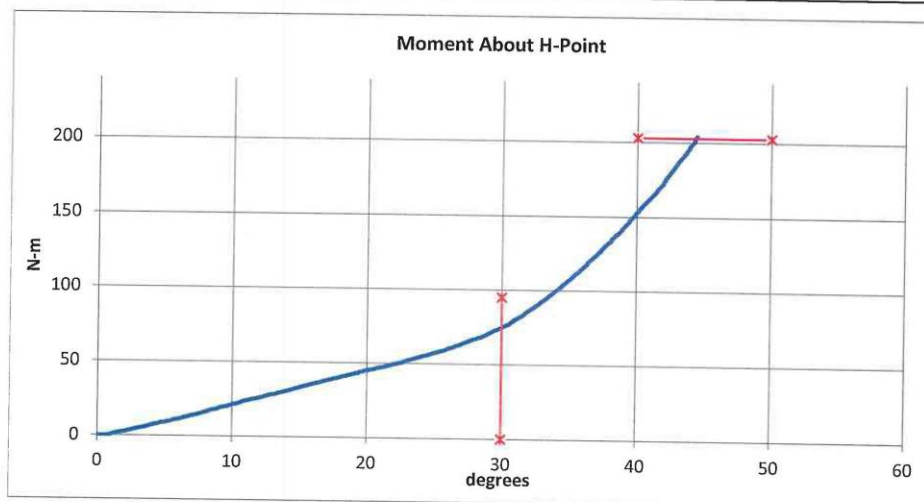
Date: 29-Jan-2016

Test Number: 1

Time: 10:44

Comments:

TEST PARAMETER	SPECIFICATION	TEST RESULTS
Temperature	18.9 - 25.6	21.3 °C Pass
Humidity	10 - 70	38 % Pass
Moment at 30°	0 ≤ 94.9	75.05 N-m Pass
Angle at 203 Nm	40 - 50	44.45 deg Pass
Average Velocity	5 - 10	7.17 deg/sec Pass



Technician

Approved

Transportation Research Center Inc.

Hybrid III 50th Male Hip Range of Motion



Serial Number: 37

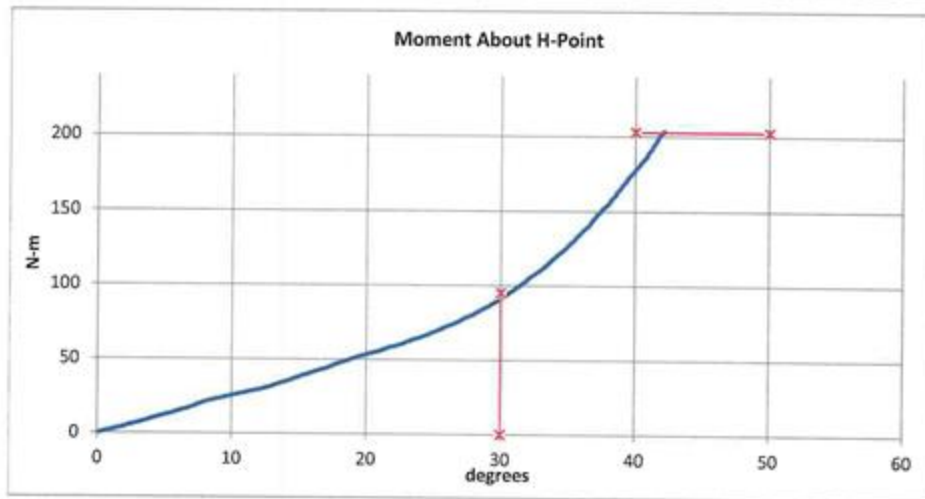
Date: 29-Jan-2016

Test Number: 1

Time: 11:46

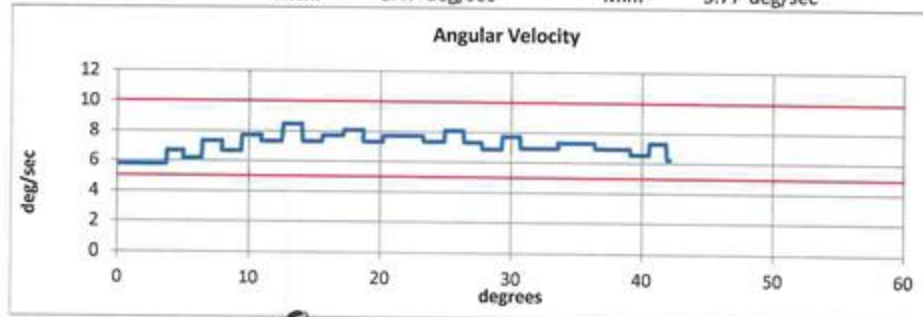
Comments:

TEST PARAMETER	SPECIFICATION	TEST RESULTS
Temperature	18.9 - 25.6	21.5 °C Pass
Humidity	10 - 70	37 % Pass
Moment at 30°	0 ≤ 94.9	91.49 N-m Pass
Angle at 203 Nm	40 - 50	42.14 deg Pass
Average Velocity	5 - 10	7.13 deg/sec Pass



Max: 8.47 deg/sec

Min: 5.77 deg/sec



Technician

[Signature]

Approved

[Signature]

Pre-Test Calibration Sheets

Front Passenger S/N 070

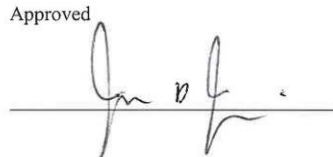
Transportation Research Center Inc.
5720 HIII 5th Female Dummy
External Dimensions
Serial No. 070 Calibration No. 25

Symbol	Description	Specification	Results	Pass
		mm	mm	
A	Total Sitting Height	774.7 - 800.1	780	Yes
B	Shoulder Pivot Height	431.8 - 457.2	449	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	79	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	285	Yes
J	Elbow Rest Height	182.8 - 203.2	186	Yes
K	Buttock Knee Length	520.7 - 546.1	538	Yes
L	Popliteal Height	355.6 - 376.0	365	Yes
M	Knee Pivot Height	393.7 - 419.1	403	Yes
N	Buttock Popliteal Length	414.0 - 439.4	430	Yes
O	Chest Depth without Jacket	175.3 - 190.5	181	Yes
P	Foot Length	218.5 - 233.7	220	Yes
R	Buttock to Knee Pivot Length	457.2 - 482.6	473	Yes
S	Head Breadth	137.1 - 147.3	140	Yes
T	Head Depth	177.8 - 188.0	180	Yes
U	Hip Breadth	299.7 - 314.9	305	Yes
V	Shoulder Breadth	350.5 - 365.7	361	Yes
W	Foot Breadth	78.8 - 94.0	85	Yes
X	Head Circumference	528.3 - 548.7	538	Yes
Y	Chest Circumference with Jacket	850.9 - 881.3	869	Yes
Z	Waist Circumference	759.5 - 789.9	783	Yes
AA	Reference Location for Chest Circumference	332.7 - 358.1	355	Yes
BB	Reference Location for Waist Circumference	160.0 - 170.2	165	Yes

Technician



Approved




Revised 8/10/2012

Transportation Research Center Inc.

Front Head Drop

HIII 5th Serial No. 070 Certification No. 25-4

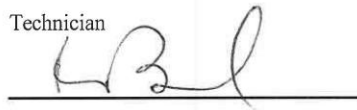
Test Date: 1/27/2016

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.5 °C	21.3 °C	Yes
Relative Humidity	10 - 70 %	31 %	Yes
Peak Head Resultant Acceleration	250 - 300 g	285.0 g	Yes
Peak Head Lateral Acceleration	(-15) - 15 g	-9.2 g	Yes
Is Acceleration Curve Unimodal within 10% of Peak?	Yes	Yes	Yes

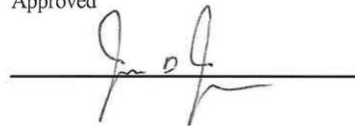
Test meets specifications.

Comments:

Technician



Approved



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

01.27.2016 08:28:25 612

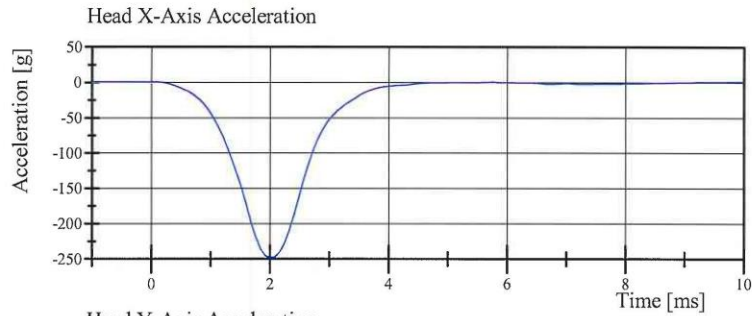


Transportation Research Center Inc.

Front Head Drop

HIII 5th Serial No. 070 Certification No. 25-4

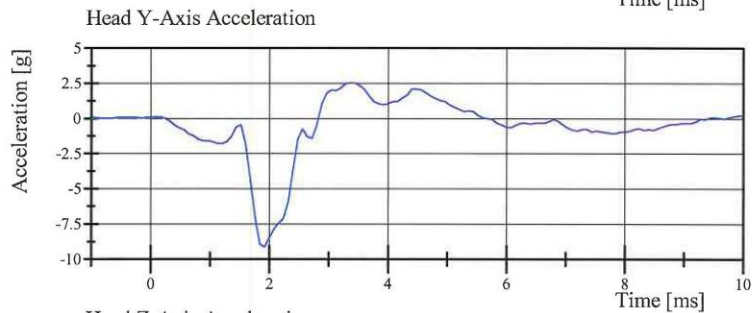
Test Date: 1/27/2016



Filter Class: CFC_1000

Max: 0.9 g at 9.9 ms

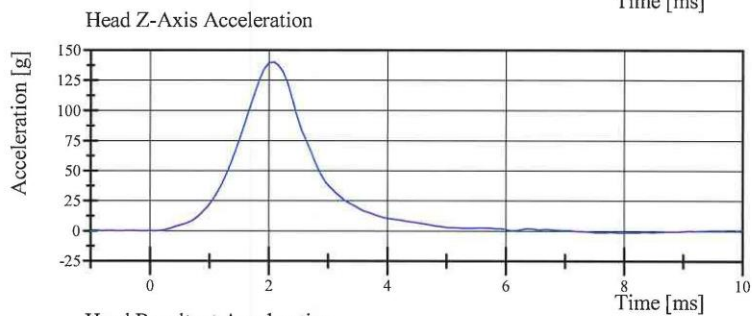
Min: -248.7 g at 2.0 ms



Filter Class: CFC_1000

Max: 2.5 g at 3.4 ms

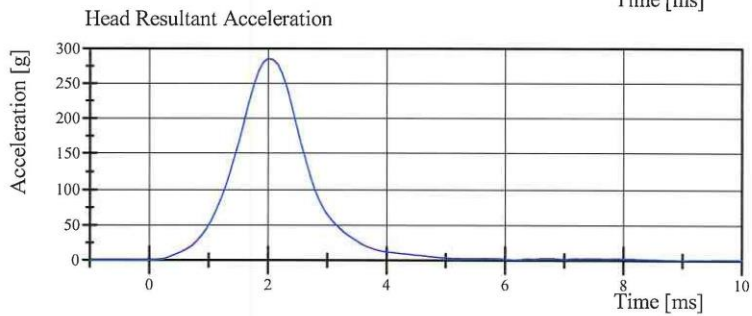
Min: -9.2 g at 1.9 ms



Filter Class: CFC_1000

Max: 139.9 g at 2.1 ms

Min: -1.3 g at 8.0 ms



Filter Class: CFC_1000

Max: 285.0 g at 2.0 ms

Min: 0.0 g at -0.6 ms

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

01.27.2016 08:28:46 612



Transportation Research Center Inc.

Neck Flexion

HIII 5th Serial No. 070 Certification No. 25-2

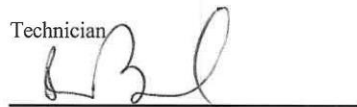
Test Date: 1/26/2016

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.7 °C	Yes
Relative Humidity	10 - 70 %	37 %	Yes
Pendulum Velocity	6.89 - 7.13 m/s	7.016 m/s	Yes
Pendulum Integrated Velocity Change at 10ms	(-2.1) - (-2.5) m/s	-2.31 m/s	Yes
Pendulum Integrated Velocity Change at 20ms	(-4.0) - (-5.0) m/s	-4.55 m/s	Yes
Pendulum Integrated Velocity Change at 30ms	(-5.8) - (-7.0) m/s	-6.57 m/s	Yes
Total Head D-Plane Rotation	(-77) - (-91) °	-84.3 °	Yes
Total Neck Occipital Condyles Moment Between -77° and -91° Rotation	69 - 83 N·m	76.6 N·m	Yes
Total Neck Occipital Condyles Moment Decay to 10 N·m	80 - 100 ms	87.5 ms	Yes

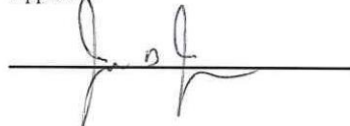
Test meets specifications.

Comments:

Technician



Approved



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

01.26.2016 10:56:07 1716

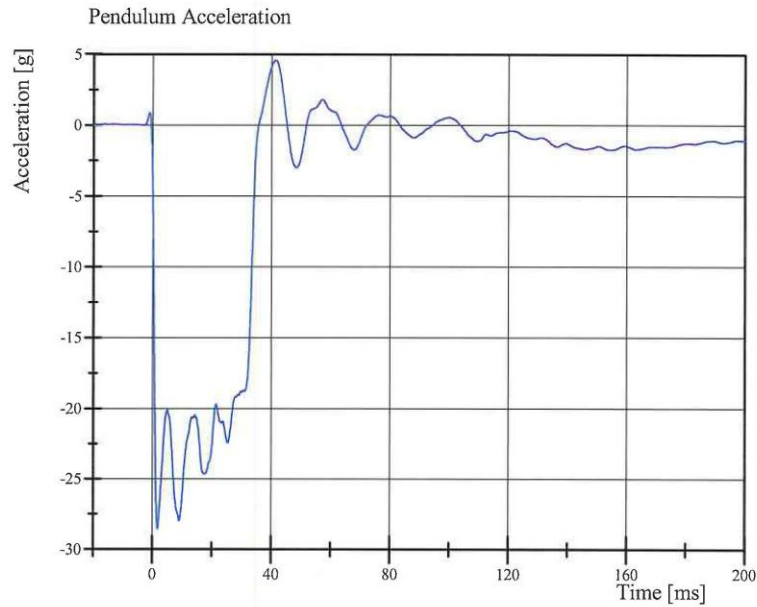


Transportation Research Center Inc.

Neck Flexion

HIII 5th Serial No. 070 Certification No. 25-2

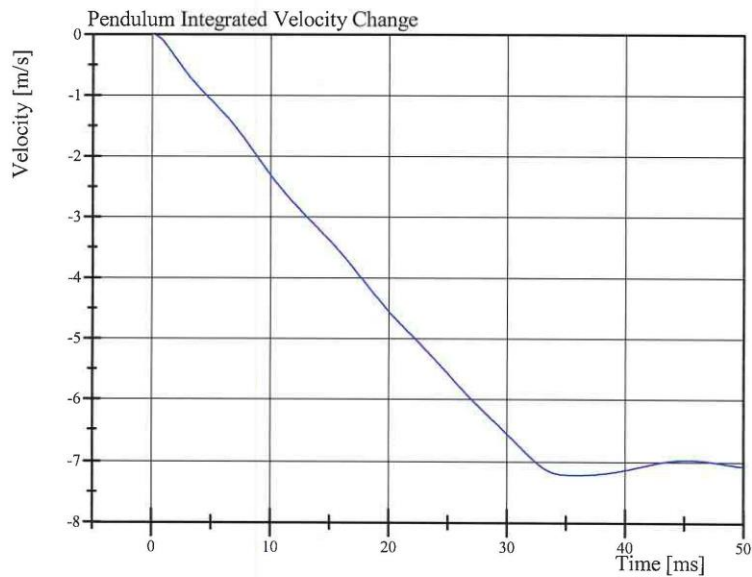
Test Date: 1/26/2016



Filter Class: CFC_180

Max: 4.5 g at 41.4 ms

Min: -28.6 g at 1.8 ms



Filter Class: CFC_180

Max: 0.0 m/s at 0.0 ms

Min: -7.2 m/s at 35.8 ms

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

01.26.2016 10:56:14 1716



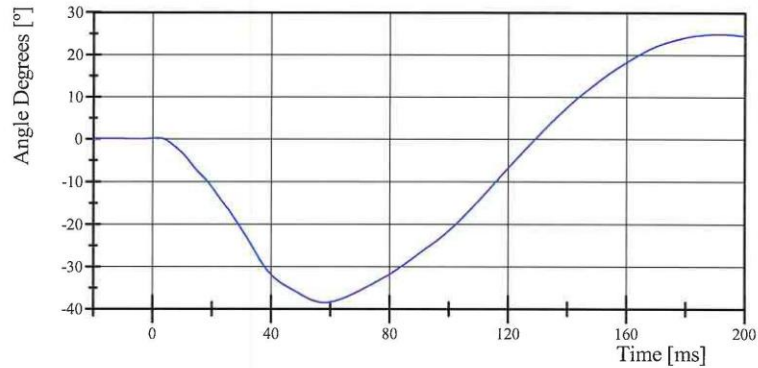
Transportation Research Center Inc.

Neck Flexion

HIII 5th Serial No. 070 Certification No. 25-2

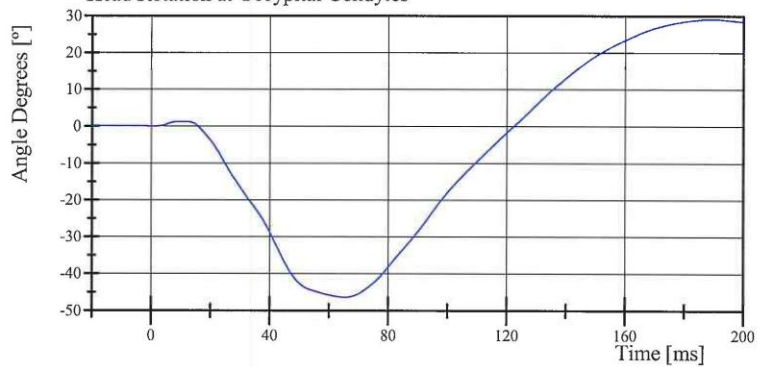
Test Date: 1/26/2016

Pot Rotation at the Base of Neck



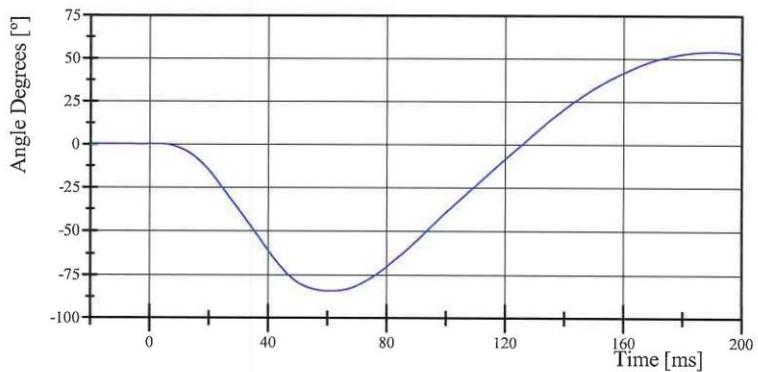
Filter Class: CFC_60
Max: 25.0 ° at 191.4 ms
Min: -38.5 ° at 58.0 ms

Head Rotation at Occipital Condyles



Filter Class: CFC_60
Max: 29.2 ° at 189.4 ms
Min: -46.4 ° at 65.4 ms

Total Head D-Plane Rotation



Filter Class: CFC_60
Max: 54.1 ° at 190.2 ms
Min: -84.3 ° at 60.8 ms

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

01.26.2016 10:56:14 1716

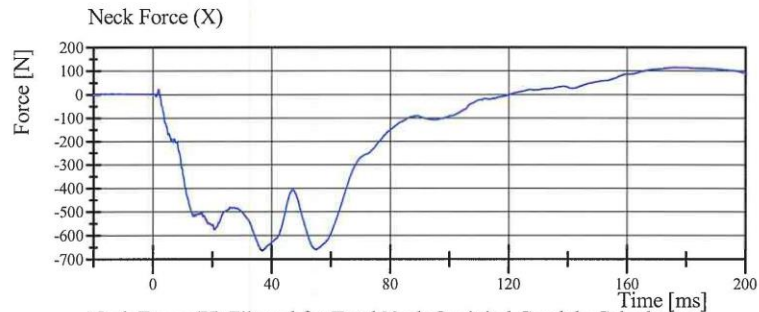


Transportation Research Center Inc.

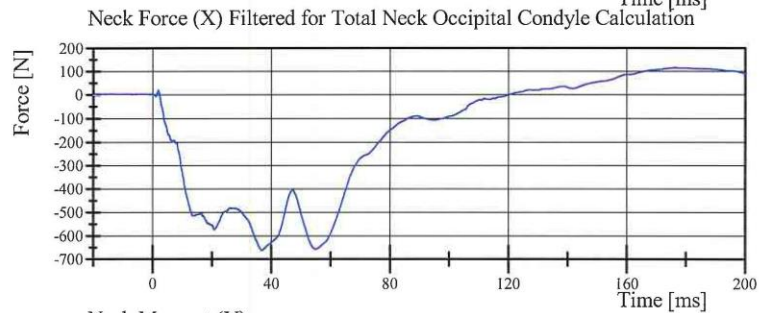
Neck Flexion

HIII 5th Serial No. 070 Certification No. 25-2

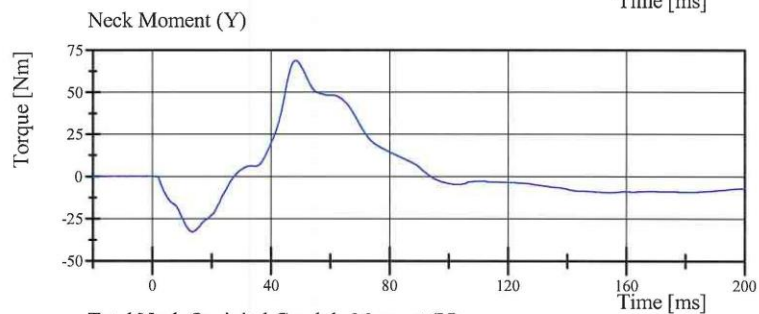
Test Date: 1/26/2016



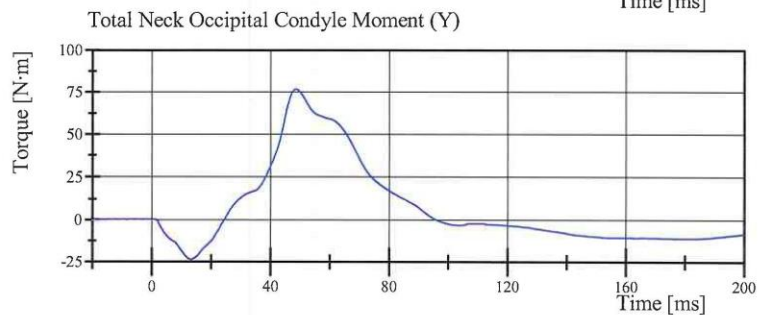
Filter Class: CFC_1000
Max: 115.8 N at 176.1 ms
Min: -665.2 N at 36.9 ms



Filter Class: CFC_600
Max: 115.4 N at 176.0 ms
Min: -664.5 N at 36.9 ms



Filter Class: CFC_600
Max: 68.9 Nm at 48.3 ms
Min: -33.0 Nm at 13.5 ms



Filter Class: Without_Constant
Max: 76.6 N·m at 48.6 ms
Min: -23.8 N·m at 13.3 ms

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

01.26.2016 10:56:15 1716



Transportation Research Center Inc.

Neck Extension

HIII 5th Serial No. 070 Certification No. 25-1

Test Date: 1/26/2016

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.7 °C	Yes
Relative Humidity	10 - 70 %	37 %	Yes
Pendulum Velocity	(-5.95) - (-6.19) m/s	-6.091 m/s	Yes
Pendulum Integrated Velocity Change at 10ms	1.5 - 1.9 m/s	1.90 m/s	Yes
Pendulum Integrated Velocity Change at 20ms	3.1 - 3.9 m/s	3.68 m/s	Yes
Pendulum Integrated Velocity Change at 30ms	4.6 - 5.6 m/s	5.37 m/s	Yes
Total Head D-Plane Rotation	99 - 114 °	110.2 °	Yes
Total Neck Occipital Condyles Moment Between 99° and 114° Rotation	(-53) - (-65) N·m	-54.7 N·m	Yes
Total Neck Occipital Condyles Moment Decay to -10 N·m	94 - 114 ms	103.2 ms	Yes

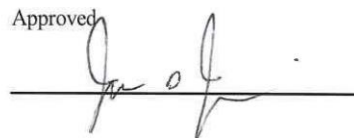
Test meets specifications.

Comments:

Technician



Approved



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

01.26.2016 11:31:13 1828

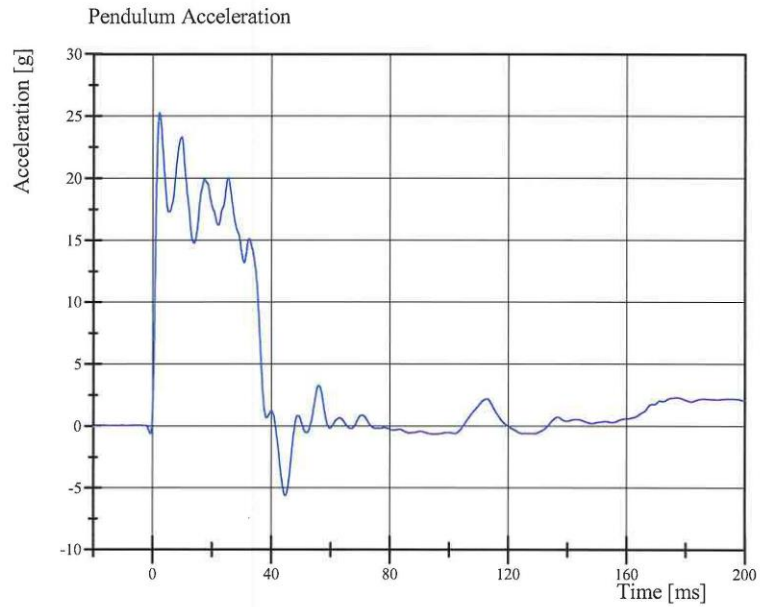


Transportation Research Center Inc.

Neck Extension

HIII 5th Serial No. 070 Certification No. 25-1

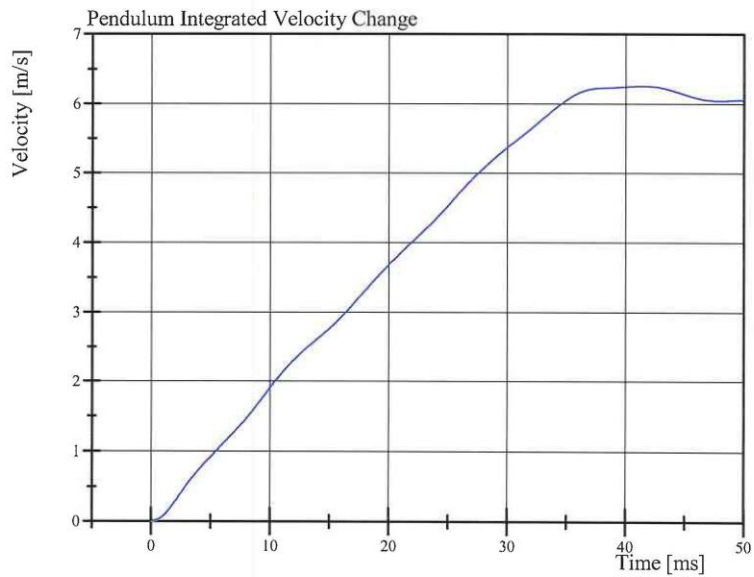
Test Date: 1/26/2016



Filter Class: CFC_180

Max: 25.2 g at 2.3 ms

Min: -5.7 g at 44.8 ms



Filter Class: CFC_180

Max: 6.3 m/s at 41.5 ms

Min: 0.0 m/s at 0.0 ms

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

01.26.2016 11:31:19 1828



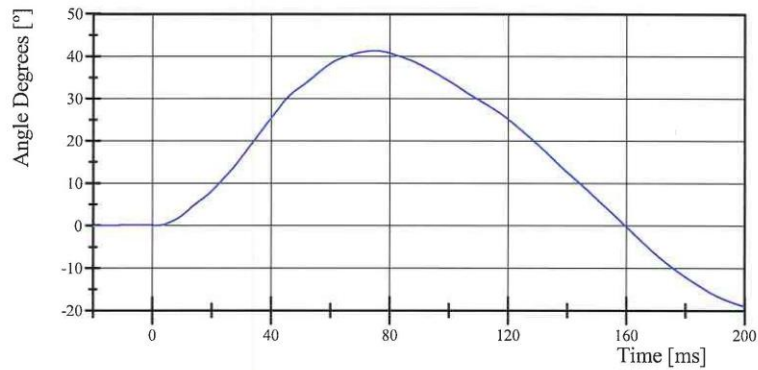
Transportation Research Center Inc.

Neck Extension

HIII 5th Serial No. 070 Certification No. 25-1

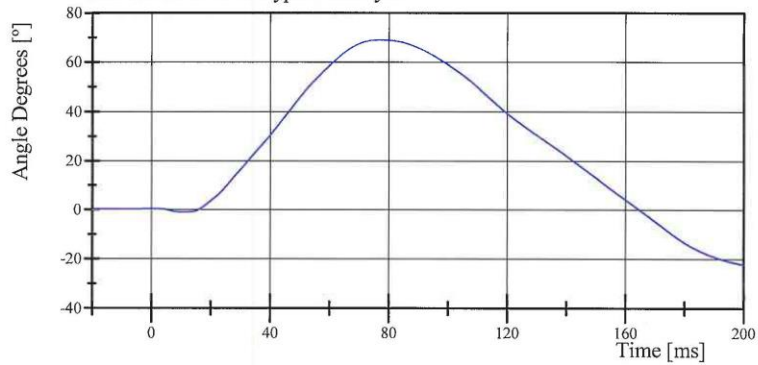
Test Date: 1/26/2016

Pot Rotation at the Base of Neck



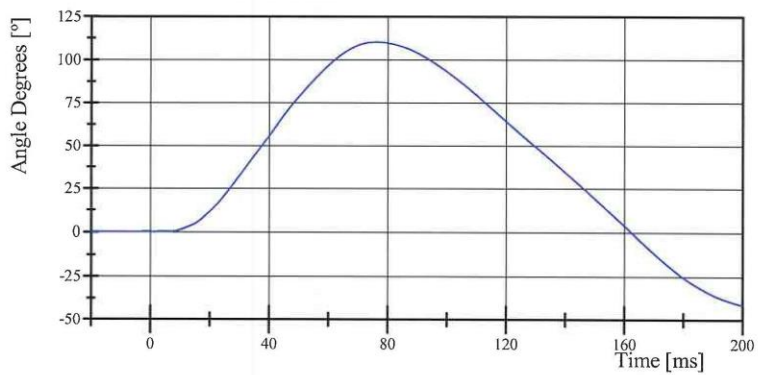
Filter Class: CFC_60
Max: 41.2 ° at 75.2 ms
Min: -18.9 ° at 200.0 ms

Head Rotation at Occypital Condyles



Filter Class: CFC_60
Max: 69.1 ° at 77.3 ms
Min: -22.3 ° at 200.0 ms

Total Head D-Plane Rotation



Filter Class: CFC_60
Max: 110.2 ° at 76.3 ms
Min: -41.2 ° at 200.0 ms

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

01.26.2016 11:31:20 1828

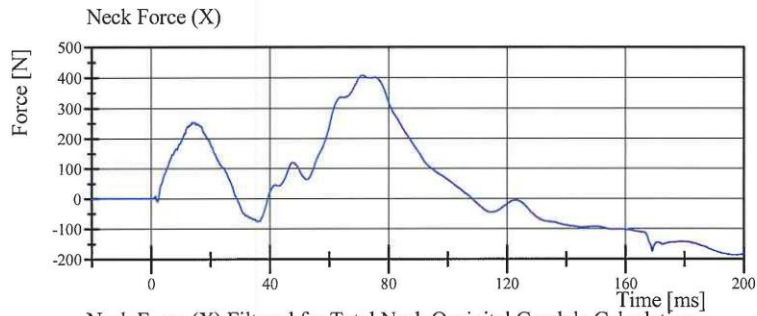


Transportation Research Center Inc.

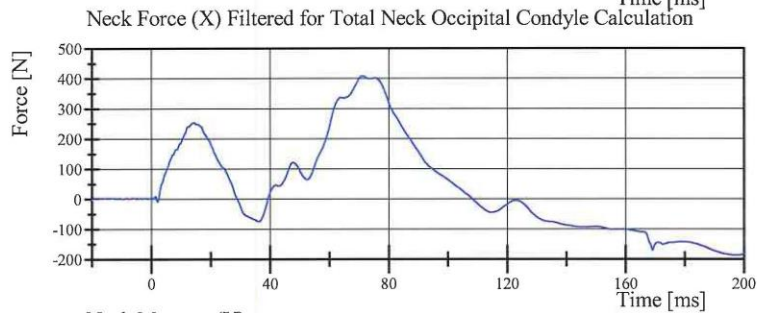
Neck Extension

HIII 5th Serial No. 070 Certification No. 25-1

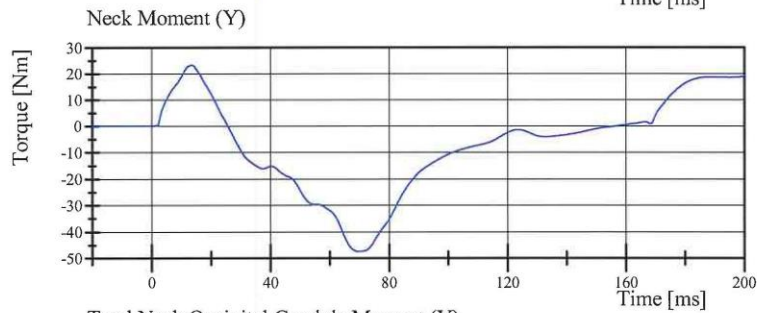
Test Date: 1/26/2016



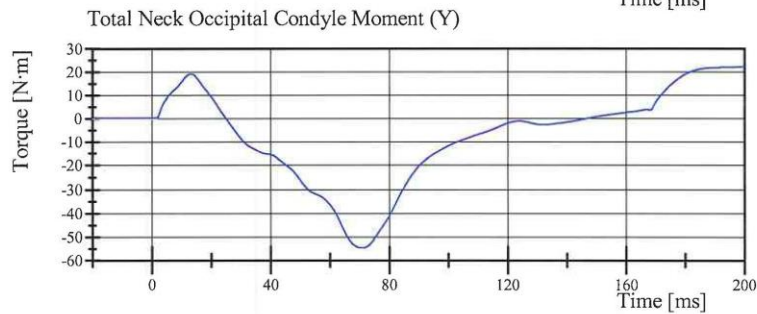
Filter Class: CFC_1000
Max: 407.8 N at 71.0 ms
Min: -186.0 N at 196.7 ms



Filter Class: CFC_600
Max: 407.7 N at 71.1 ms
Min: -185.6 N at 197.7 ms



Filter Class: CFC_600
Max: 22.3 Nm at 13.6 ms
Min: -47.6 Nm at 69.7 ms



Filter Class: Without (Consta
Max: 22.3 N·m at 200.0 ms
Min: -54.7 N·m at 70.6 ms

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

01.26.2016 11:31:20 1828



Transportation Research Center Inc.

Front Thorax

HIII 5th Serial No. 070 Certification No. 25-3

Test Date: 1/27/2016

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.5 °C	Yes
Relative Humidity	10 - 70 %	18 %	Yes
Probe Velocity	6.59 - 6.83 m/s	6.745 m/s	Yes
Probe Force Peak Between 50.0 mm and 58.0 mm Chest Deflection	(-3,900) - (-4,400) N	-4,110.6 N	Yes
Probe Force Peak Between 18.0 mm and 50.0 mm Chest Deflection	$\geq$ (-4,600) N	-4,127.4 N	Yes
Maximum Chest Compression	(-50) - (-58) mm	-51.3 mm	Yes
Internal Hysteresis	69 - 85 %	71.1 %	Yes

Test meets specifications.

Comments:

Technician



Approved



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

01.27.2016 16:18:32 388

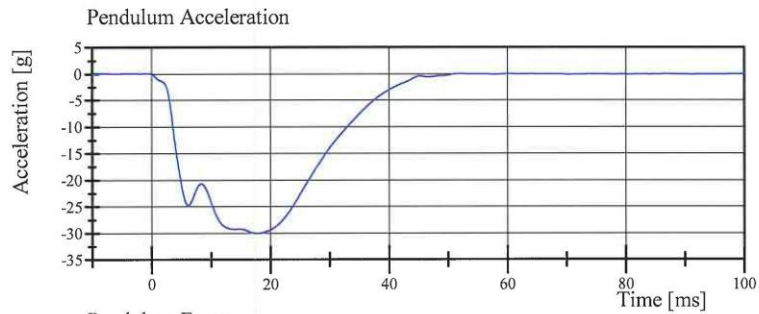


Transportation Research Center Inc.

Front Thorax

HIII 5th Serial No. 070 Certification No. 25-3

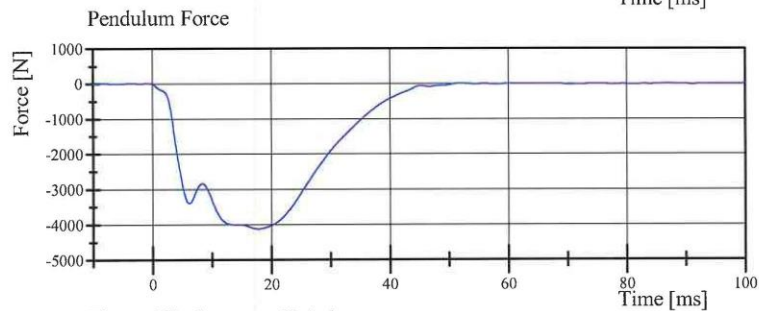
Test Date: 1/27/2016



Filter Class: CFC_180

Max: 0.1 g at 51.9 ms

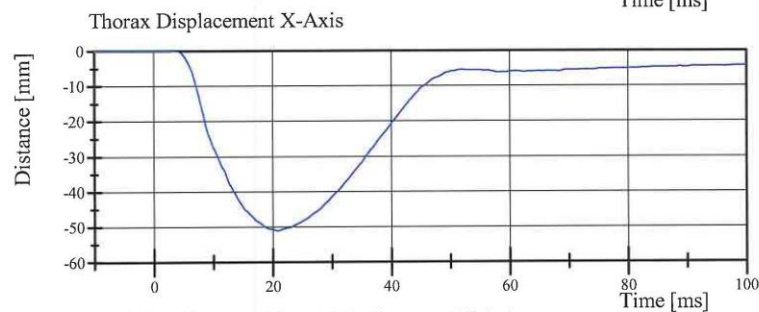
Min: -30.1 g at 17.8 ms



Filter Class: CFC_180

Max: 10.0 N at 51.9 ms

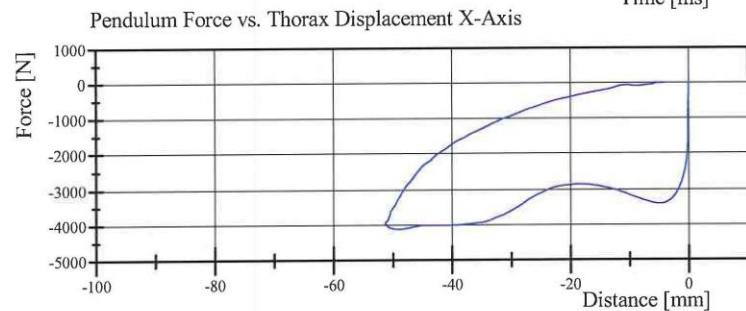
Min: -4,127.4 N at 17.8 ms



Filter Class: CFC_600

Max: 0.0 mm at 7.0 ms

Min: -51.3 mm at 20.8 ms



Filter Class: CFC_180

Max: 10.0 N at -5.5 mm

Min: -4,127.4 N at -49.0 mm

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

01.27.2016 16:18:42 388



Transportation Research Center Inc.

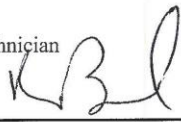
Left Knee Femur Response Test
HIII 5th Serial No. 070 Certification No. 25-2
Test Date: 1/26/2016

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.6 °C	21.8 °C	Yes
Relative Humidity	10 - 70 %	35 %	Yes
Probe Velocity	2.08 - 2.13 m/s	2.121 m/s	Yes
Peak Femur Force	(-3,450) - (-4,060) N	-3,852.5 N	Yes

Test meets specifications.

Comments:

Technician



Approved



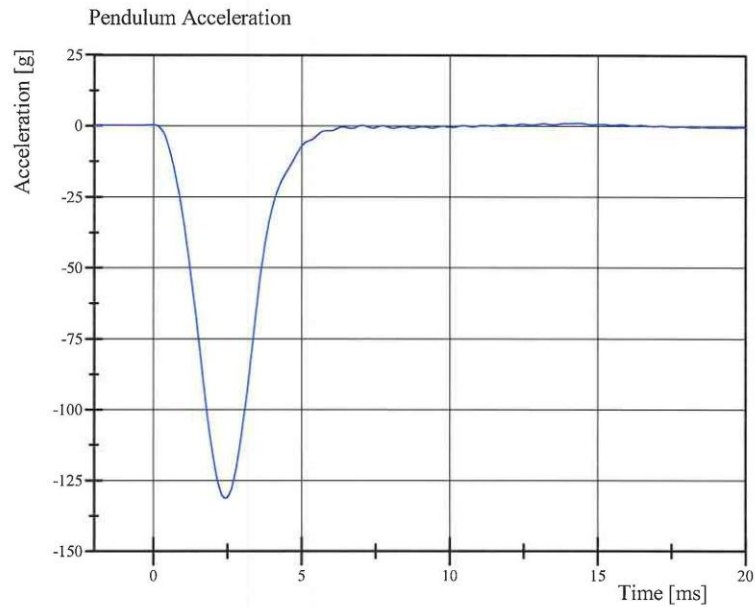
Specification Source: CFR49 Part 572 Subpart O
with Polarity in accordance with J211

01.26.2016 16:47:40 1746

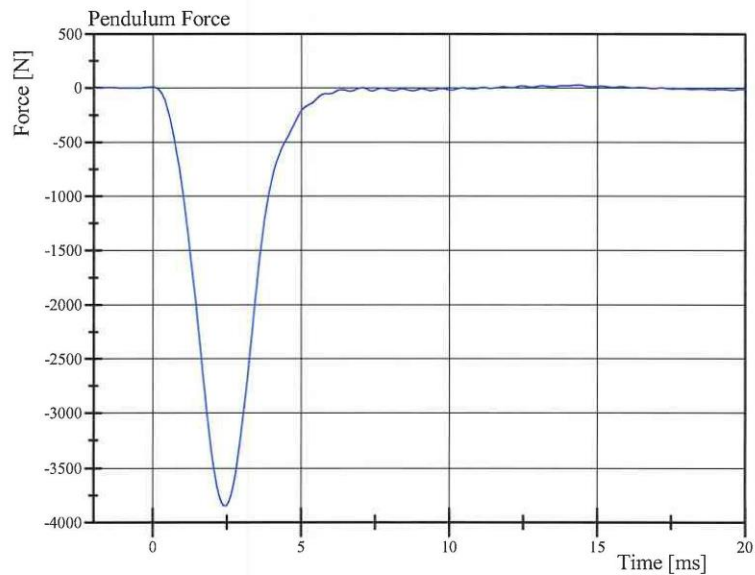


Transportation Research Center Inc.

Left Knee Femur Response Test
HIII 5th Serial No. 070 Certification No. 25-2
Test Date: 1/26/2016



Filter Class: CFC_600
Max: 1.0 g at 14.3 ms
Min: -131.4 g at 2.4 ms



Filter Class: CFC_600
Max: 28.1 N at 14.3 ms
Min: -3,852.5 N at 2.4 ms

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

01.26.2016 16:47:54 1746



Transportation Research Center Inc.

Right Knee Femur Response Test
HIII 5th Serial No. 070 Certification No. 25-1
Test Date: 1/26/2016

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.6 °C	21.8 °C	Yes
Relative Humidity	10 - 70 %	38 %	Yes
Probe Velocity	2.08 - 2.13 m/s	2.117 m/s	Yes
Peak Femur Force	(-3,450) - (-4,060) N	-3,806.6 N	Yes

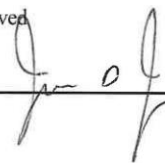
Test meets specifications.

Comments:

Technician



Approved



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

01.26.2016 17:00:41 1748



Transportation Research Center Inc.

Hybrid III Small Female Torso Flexion



Serial Number: 70

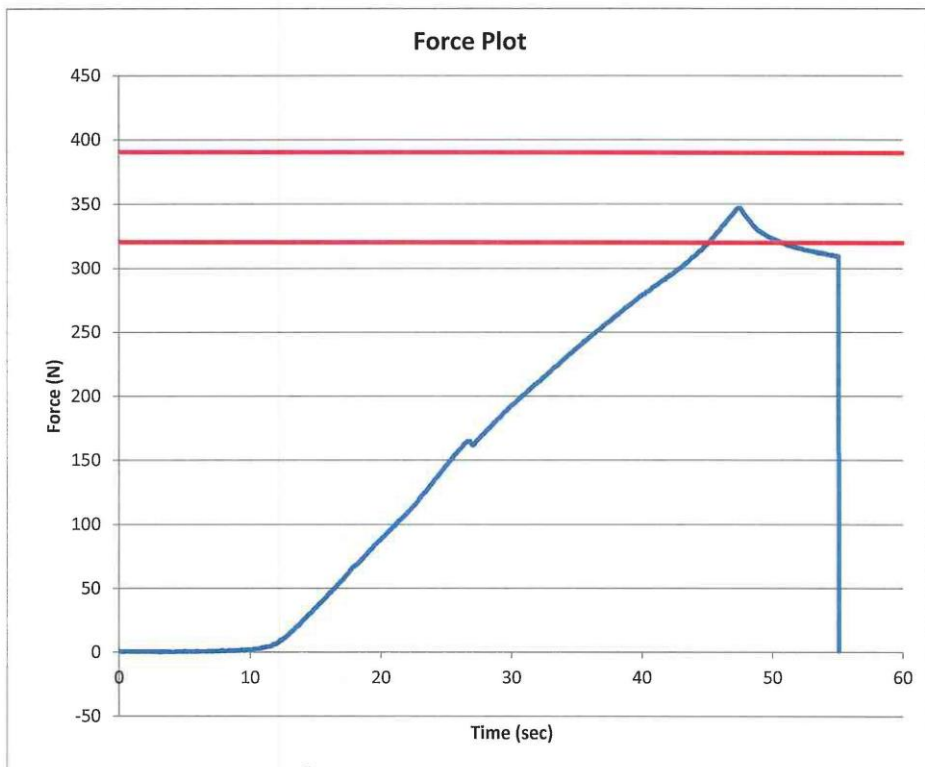
Date: 1/27/2016

Test Number: 1

Time: 10:53

Comments:

TEST PARAMETER	SPECIFICATION	TEST RESULTS
Temperature	18.9 - 25.6	21.7 °C Pass
Humidity	10 - 70	23 % Pass
Average Angular Velocity	0.5 - 1.5	0.83 deg/sec Pass
Initial Angle	0 - 20	15.1 deg Pass
Peak Force at 45.31°	320 - 390	346.94 N Pass
Final Angle	-8 - 8	3.51 deg Pass



Technician

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

Approved

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

Post-Test Calibration Sheets

Front Passenger S/N 070

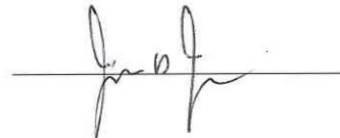
Transportation Research Center Inc.
5720 HIII 5th Female Dummy
External Dimensions
Serial No. 070 Calibration No. 26

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	449	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	79	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	285	Yes
J	Elbow Rest Height	182.8 - 203.2	186	Yes
K	Buttock Knee Length	520.7 - 546.1	538	Yes
L	Popliteal Height	355.6 - 376.0	365	Yes
M	Knee Pivot Height	393.7 - 419.1	403	Yes
N	Buttock Popliteal Length	414.0 - 439.4	430	Yes
O	Chest Depth without Jacket	175.3 - 190.5	181	Yes
P	Foot Length	218.5 - 233.7	220	Yes
R	Buttock to Knee Pivot Length	457.2 - 482.6	473	Yes
S	Head Breadth	137.1 - 147.3	140	Yes
T	Head Depth	177.8 - 188.0	180	Yes
U	Hip Breadth	299.7 - 314.9	305	Yes
V	Shoulder Breadth	350.5 - 365.7	361	Yes
W	Foot Breadth	78.8 - 94.0	85	Yes
X	Head Circumference	528.3 - 548.7	538	Yes
Y	Chest Circumference with Jacket	850.9 - 881.3	869	Yes
Z	Waist Circumference	759.5 - 789.9	783	Yes
AA	Reference Location for Chest Circumference	332.7 - 358.1	355	Yes
BB	Reference Location for Waist Circumference	160.0 - 170.2	165	Yes

Technician



Approved




Revised 8/10/2012

Transportation Research Center Inc.

Front Head Drop

HIII 5th Serial No. 070 Certification No. 26-2

Test Date: 1/29/2016

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.5 °C	21.4 °C	Yes
Relative Humidity	10 - 70 %	37 %	Yes
Peak Head Resultant Acceleration	250 - 300 g	285.7 g	Yes
Peak Head Lateral Acceleration	(-15) - 15 g	-5.5 g	Yes
Is Acceleration Curve Unimodal within 10% of Peak?	Yes	Yes	Yes

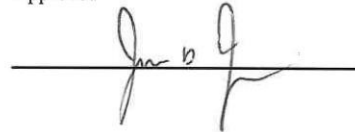
Test meets specifications.

Comments:

Technician



Approved



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

01.29.2016 13:48:27 613

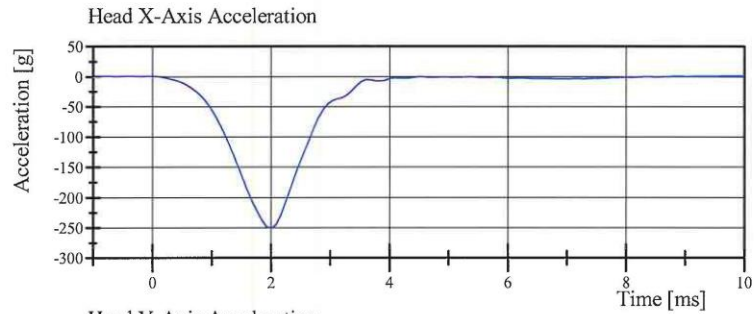


Transportation Research Center Inc.

Front Head Drop

HIII 5th Serial No. 070 Certification No. 26-2

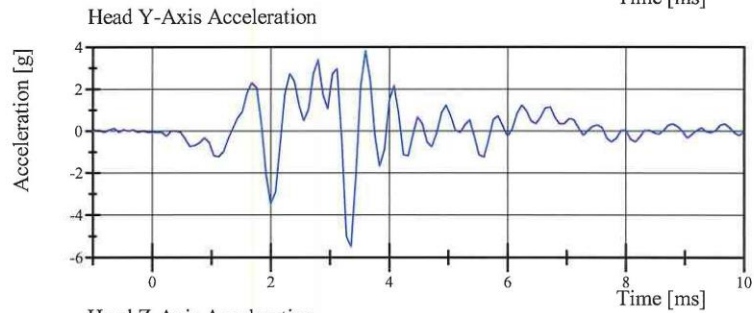
Test Date: 1/29/2016



Filter Class: CFC_1000

Max: 1.3 g at 10.0 ms

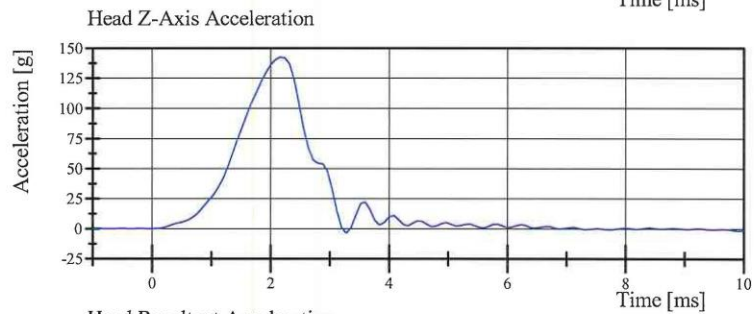
Min: -251.4 g at 2.0 ms



Filter Class: CFC_1000

Max: 3.8 g at 3.6 ms

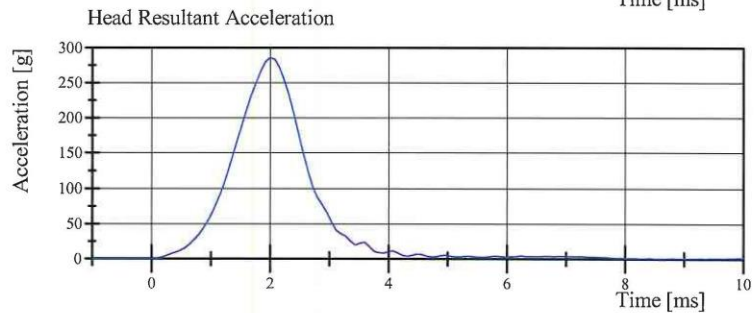
Min: -5.5 g at 3.4 ms



Filter Class: CFC_1000

Max: 142.4 g at 2.2 ms

Min: -3.9 g at 3.3 ms



Filter Class: CFC_1000

Max: 285.7 g at 2.0 ms

Min: 0.0 g at -0.2 ms

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

01.29.2016 13:48:42 613



Transportation Research Center Inc.

Neck Flexion

HIII 5th Serial No. 070 Certification No. 26-4

Test Date: 1/29/2016

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.4 °C	Yes
Relative Humidity	10 - 70 %	38 %	Yes
Pendulum Velocity	6.89 - 7.13 m/s	7.019 m/s	Yes
Pendulum Integrated Velocity Change at 10ms	(-2.1) - (-2.5) m/s	-2.29 m/s	Yes
Pendulum Integrated Velocity Change at 20ms	(-4.0) - (-5.0) m/s	-4.37 m/s	Yes
Pendulum Integrated Velocity Change at 30ms	(-5.8) - (-7.0) m/s	-6.21 m/s	Yes
Total Head D-Plane Rotation	(-77) - (-91) °	-81.1 °	Yes
Total Neck Occipital Condyles Moment Between -77° and -91° Rotation	69 - 83 N·m	76.6 N·m	Yes
Total Neck Occipital Condyles Moment Decay to 10 N·m	80 - 100 ms	87.7 ms	Yes

Test meets specifications.

Comments:

Technician



Approved



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

01.29.2016 17:39:49 1719

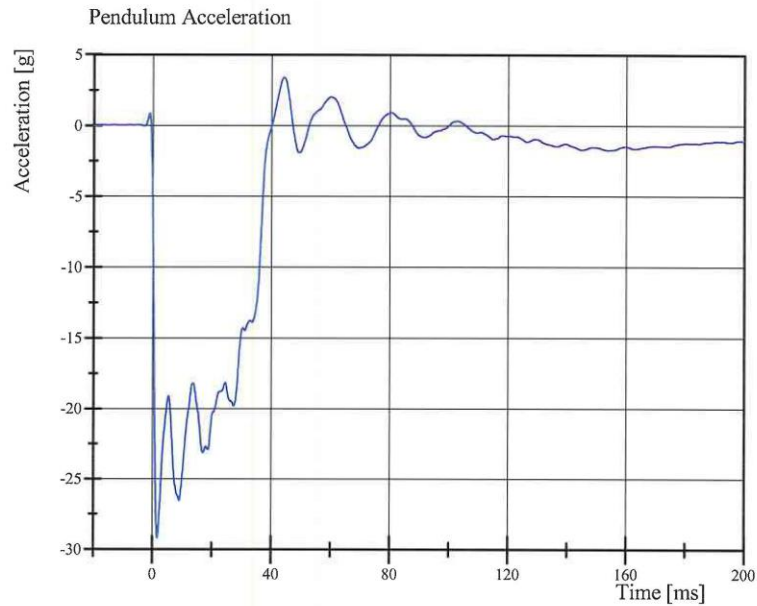


Transportation Research Center Inc.

Neck Flexion

HIII 5th Serial No. 070 Certification No. 26-4

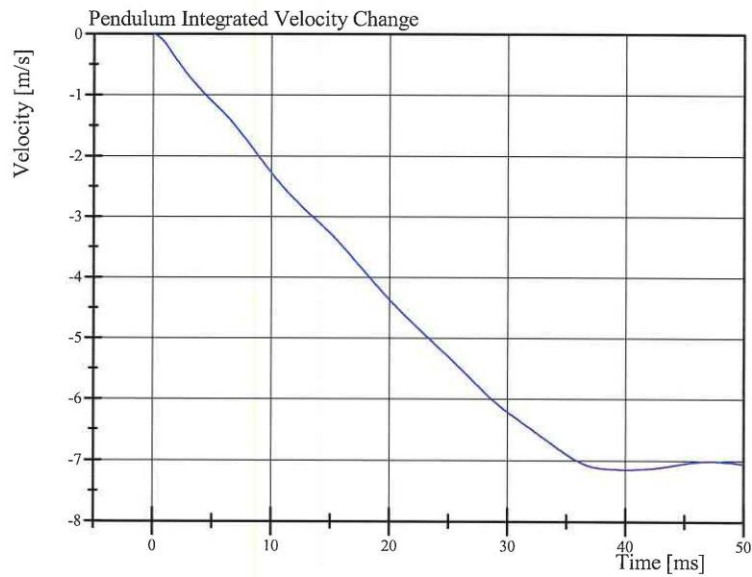
Test Date: 1/29/2016



Filter Class: CFC_180

Max: 3.4 g at 44.2 ms

Min: -29.2 g at 1.7 ms



Filter Class: CFC_180

Max: 0.0 m/s at 0.0 ms

Min: -7.1 m/s at 40.1 ms

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

01.29.2016 17:40:54 1719

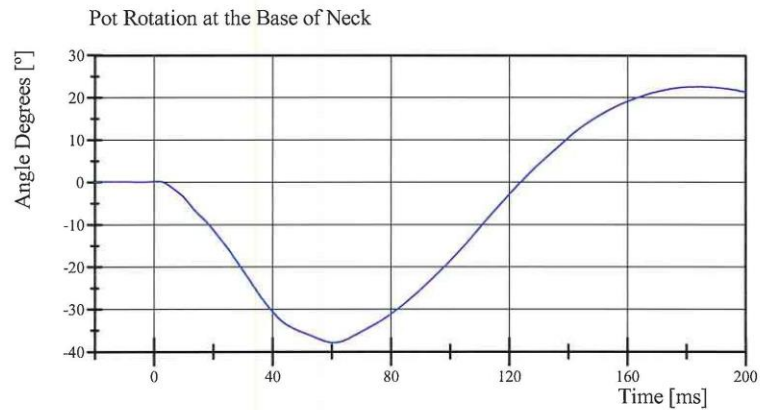


Transportation Research Center Inc.

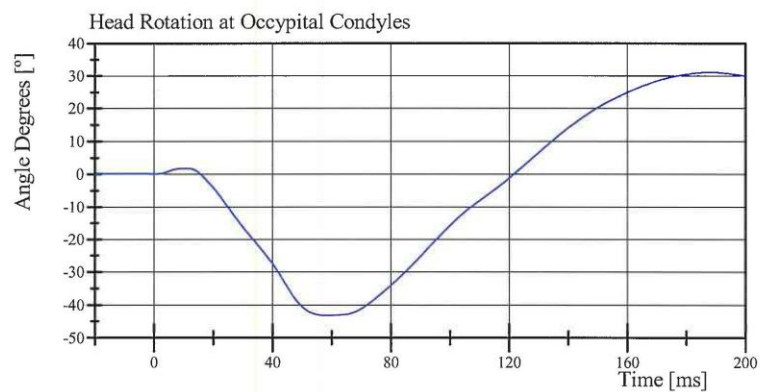
Neck Flexion

HIII 5th Serial No. 070 Certification No. 26-4

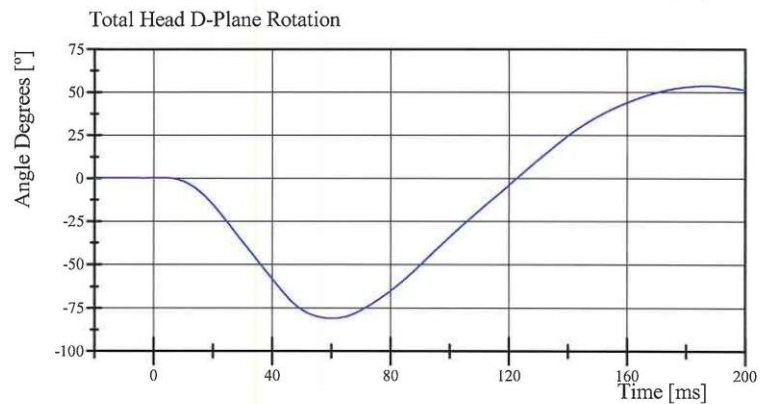
Test Date: 1/29/2016



Filter Class: CFC_60
Max: 22.6 ° at 184.1 ms
Min: -37.9 ° at 60.7 ms



Filter Class: CFC_60
Max: 31.1 ° at 188.1 ms
Min: -43.3 ° at 58.4 ms



Filter Class: CFC_60
Max: 53.6 ° at 186.5 ms
Min: -81.1 ° at 60.2 ms

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

01.29.2016 17:40:54 1719

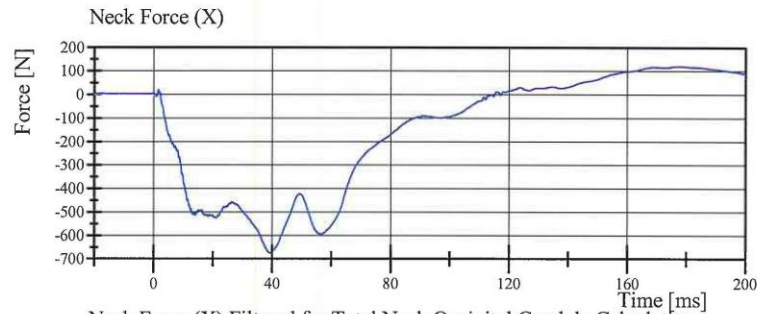


Transportation Research Center Inc.

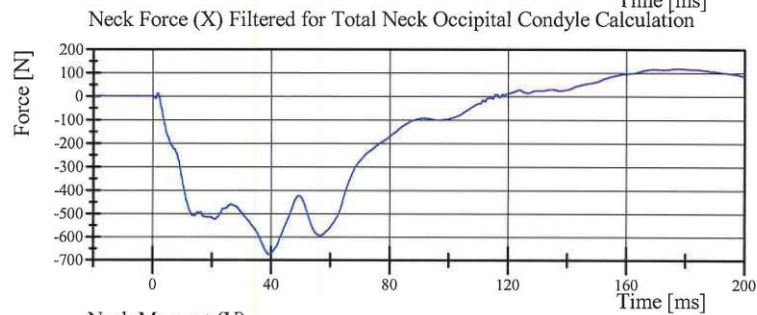
Neck Flexion

HIII 5th Serial No. 070 Certification No. 26-4

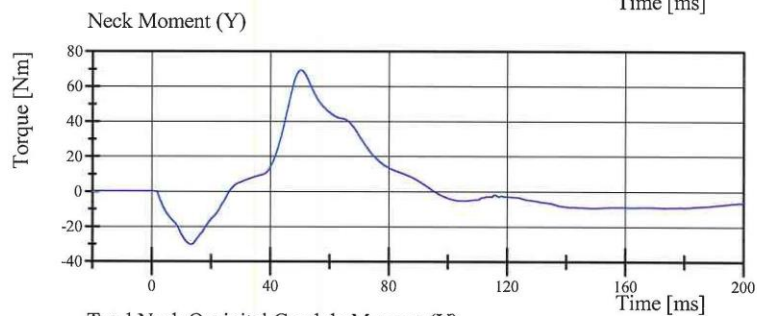
Test Date: 1/29/2016



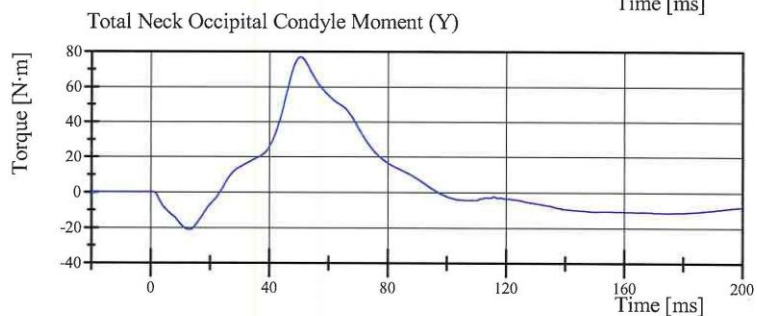
Filter Class: CFC_1000
Max: 121.3 N at 177.7 ms
Min: -676.8 N at 39.3 ms



Filter Class: CFC_600
Max: 120.8 N at 177.2 ms
Min: -676.9 N at 39.6 ms



Filter Class: CFC_600
Max: 69.1 Nm at 50.3 ms
Min: -30.5 Nm at 13.2 ms



Filter Class: Without (Consta
Max: 76.8 N·m at 50.4 ms
Min: -21.5 N·m at 13.0 ms

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

01.29.2016 17:40:55 1719



Transportation Research Center Inc.

Neck Extension

HIII 5th Serial No. 070 Certification No. 26-1

Test Date: 1/29/2016

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.3 °C	Yes
Relative Humidity	10 - 70 %	40 %	Yes
Pendulum Velocity	(-5.95) - (-6.19) m/s	-6.103 m/s	Yes
Pendulum Integrated Velocity Change at 10ms	1.5 - 1.9 m/s	1.78 m/s	Yes
Pendulum Integrated Velocity Change at 20ms	3.1 - 3.9 m/s	3.70 m/s	Yes
Pendulum Integrated Velocity Change at 30ms	4.6 - 5.6 m/s	5.59 m/s	Yes
Total Head D-Plane Rotation	99 - 114 °	109.0 °	Yes
Total Neck Occipital Condyles Moment Between 99° and 114° Rotation	(-53) - (-65) N·m	-59.7 N·m	Yes
Total Neck Occipital Condyles Moment Decay to -10 N·m	94 - 114 ms	99.9 ms	Yes

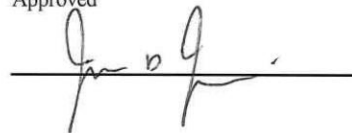
Test meets specifications.

Comments:

Technician



Approved



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

01.29.2016 18:15:18 1819

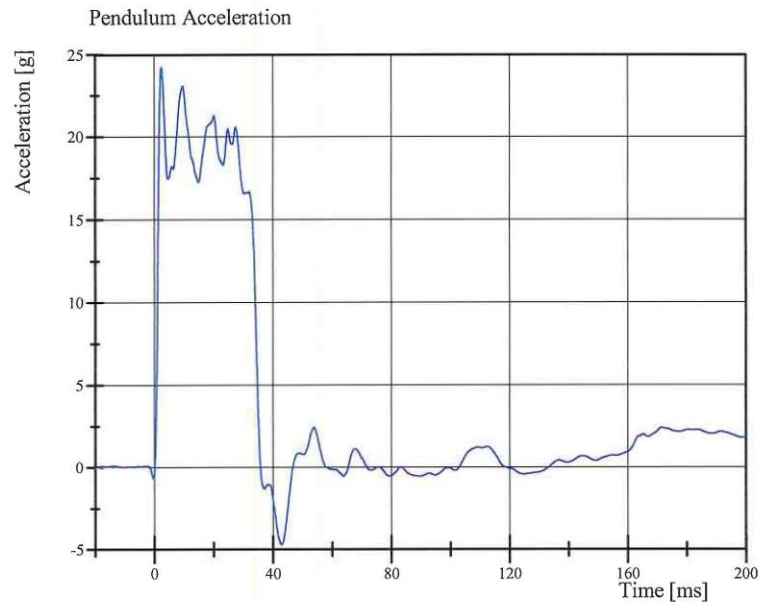


Transportation Research Center Inc.

Neck Extension

HIII 5th Serial No. 070 Certification No. 26-1

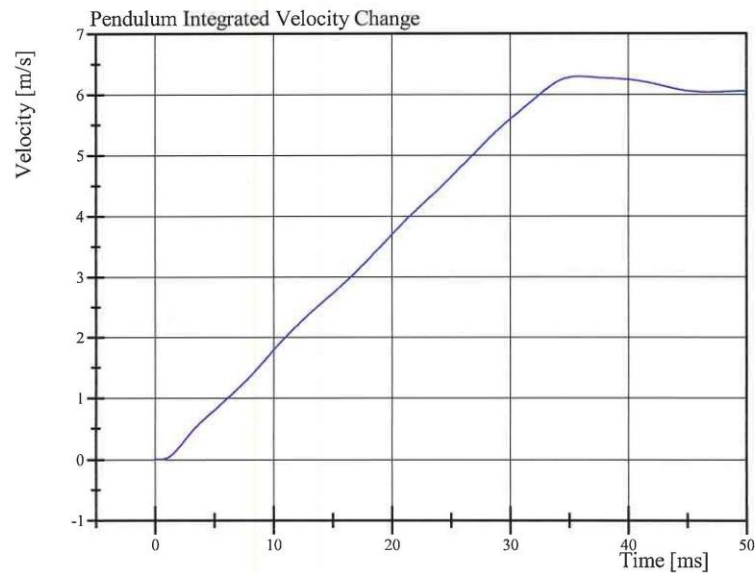
Test Date: 1/29/2016



Filter Class: CFC_180

Max: 24.2 g at 2.5 ms

Min: -4.7 g at 42.9 ms



Filter Class: CFC_180

Max: 6.3 m/s at 35.9 ms

Min: -0.0 m/s at 0.2 ms

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

01.29.2016 18:15:38 1819



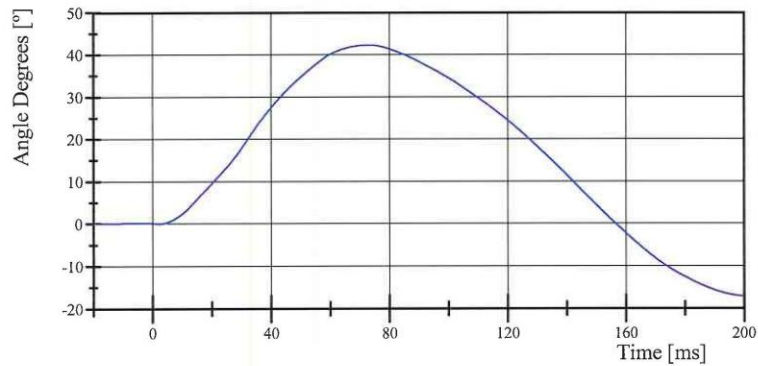
Transportation Research Center Inc.

Neck Extension

HIII 5th Serial No. 070 Certification No. 26-1

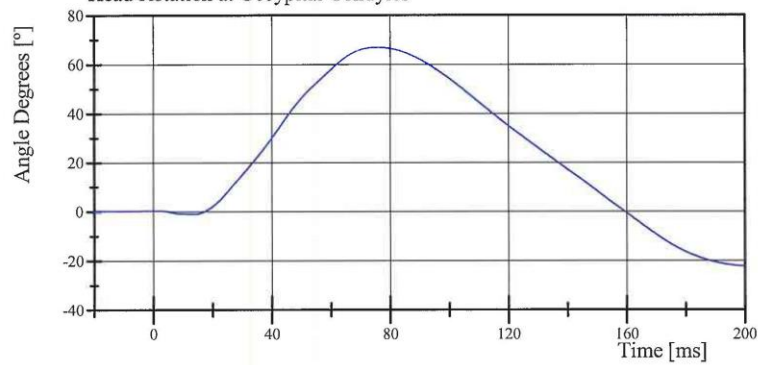
Test Date: 1/29/2016

Pot Rotation at the Base of Neck



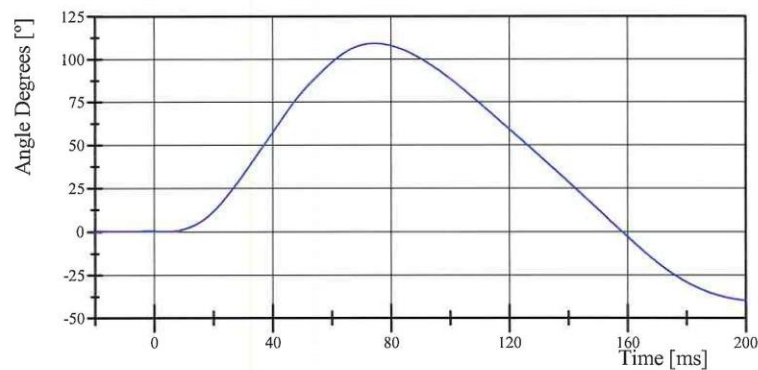
Filter Class: CFC_60
Max: 42.2 ° at 72.8 ms
Min: -17.1 ° at 200.0 ms

Head Rotation at Occipital Condyles



Filter Class: CFC_60
Max: 66.8 ° at 75.6 ms
Min: -22.3 ° at 200.0 ms

Total Head D-Plane Rotation



Filter Class: CFC_60
Max: 109.0 ° at 74.5 ms
Min: -39.4 ° at 200.0 ms

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

01.29.2016 18:15:39 1819

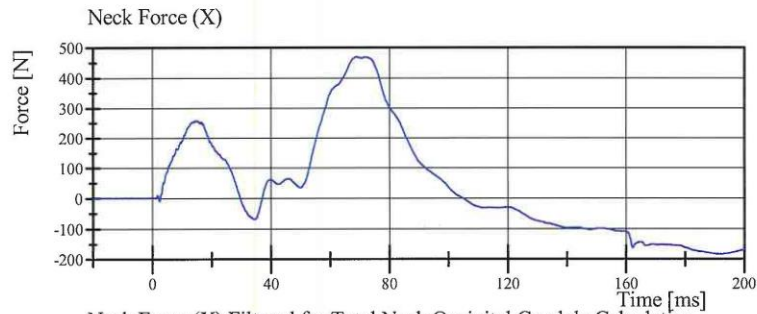


Transportation Research Center Inc.

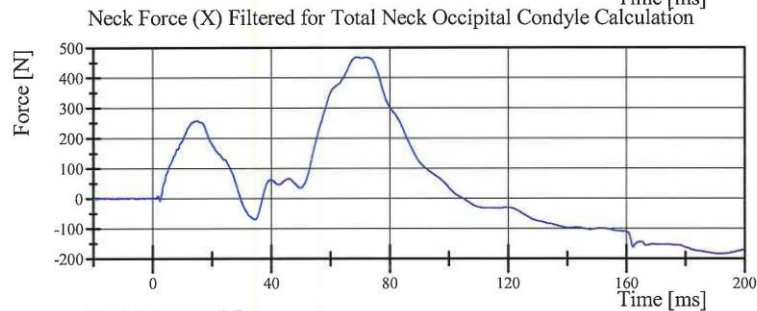
Neck Extension

HIII 5th Serial No. 070 Certification No. 26-1

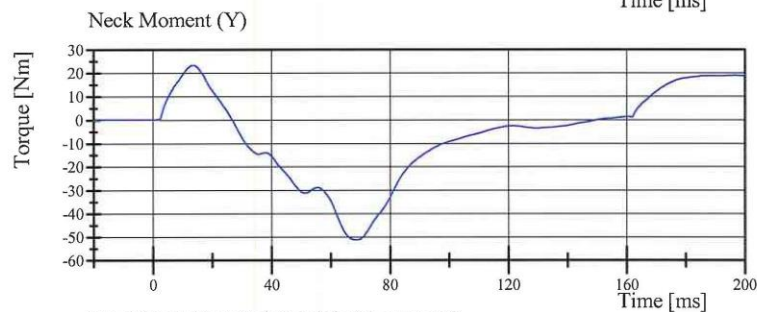
Test Date: 1/29/2016



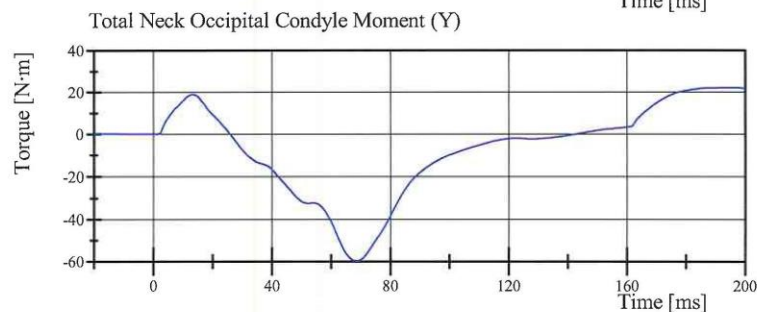
Filter Class: CFC_1000
Max: 469.4 N at 68.8 ms
Min: -184.3 N at 191.6 ms



Filter Class: CFC_600
Max: 469.0 N at 68.9 ms
Min: -183.7 N at 191.6 ms



Filter Class: CFC_600
Max: 23.2 Nm at 13.3 ms
Min: -51.4 Nm at 68.7 ms



Filter Class: Without_Constant
Max: 22.2 N·m at 196.4 ms
Min: -59.7 N·m at 68.8 ms

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

01.29.2016 18:15:39 1819



Transportation Research Center Inc.

Front Thorax

HIII 5th Serial No. 070 Certification No. 26-1

Test Date: 1/30/2016

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.3 °C	Yes
Relative Humidity	10 - 70 %	42 %	Yes
Probe Velocity	6.59 - 6.83 m/s	6.745 m/s	Yes
Probe Force Peak Between 50.0 mm and 58.0 mm Chest Deflection	(-3,900) - (-4,400) N	-4,050.4 N	Yes
Probe Force Peak Between 18.0 mm and 50.0 mm Chest Deflection	$\geq$ (-4,600) N	-4,132.3 N	Yes
Maximum Chest Compression	(-50) - (-58) mm	-50.9 mm	Yes
Internal Hysteresis	69 - 85 %	74.4 %	Yes

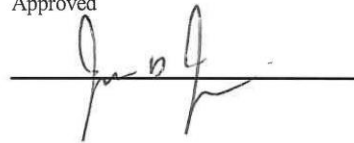
Test meets specifications.

Comments:

Technician



Approved



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

01.30.2016 08:11:48 400

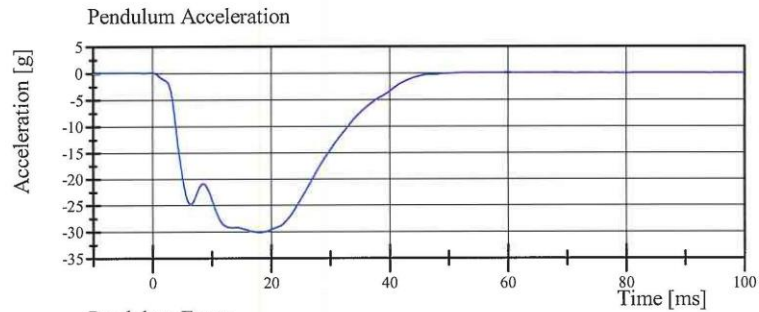


Transportation Research Center Inc.

Front Thorax

HIII 5th Serial No. 070 Certification No. 26-1

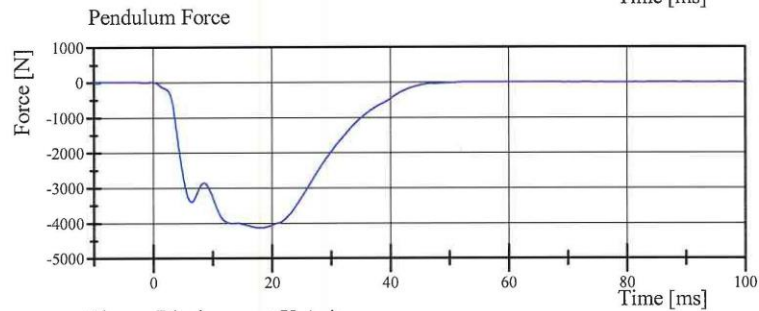
Test Date: 1/30/2016



Filter Class: CFC_180

Max: 0.1 g at 59.9 ms

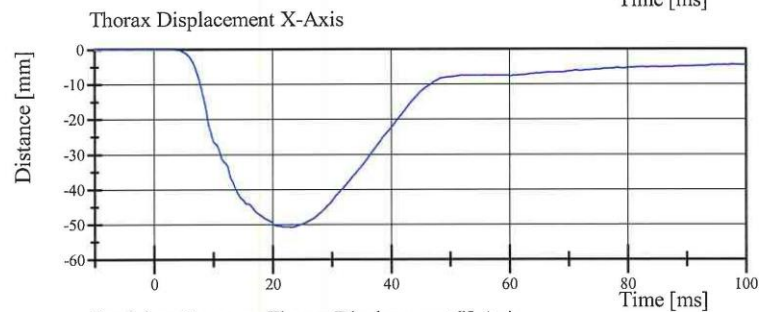
Min: -30.2 g at 18.0 ms



Filter Class: CFC_180

Max: 13.5 N at 59.9 ms

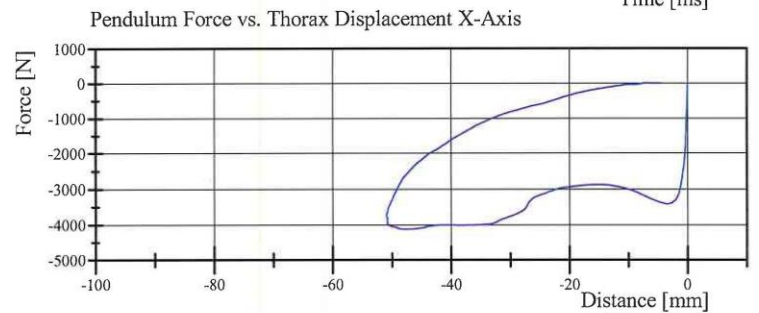
Min: -4,132.3 N at 18.0 ms



Filter Class: CFC_600

Max: 0.0 mm at -3.8 ms

Min: -50.9 mm at 23.1 ms



Filter Class: CFC_180

Max: 13.5 N at -7.5 mm

Min: -4,132.3 N at -47.5 mm

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

01.30.2016 08:12:05 400



Transportation Research Center Inc.

Left Knee Femur Response Test
HIII 5th Serial No. 070 Certification No. 26-2
Test Date: 1/29/2016

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.6 °C	21.4 °C	Yes
Relative Humidity	10 - 70 %	43 %	Yes
Probe Velocity	2.08 - 2.13 m/s	2.097 m/s	Yes
Peak Femur Force	(-3,450) - (-4,060) N	-4,023.4 N	Yes

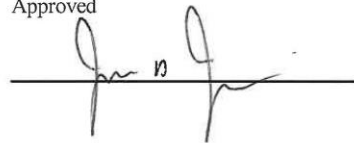
Test meets specifications.

Comments:

Technician



Approved



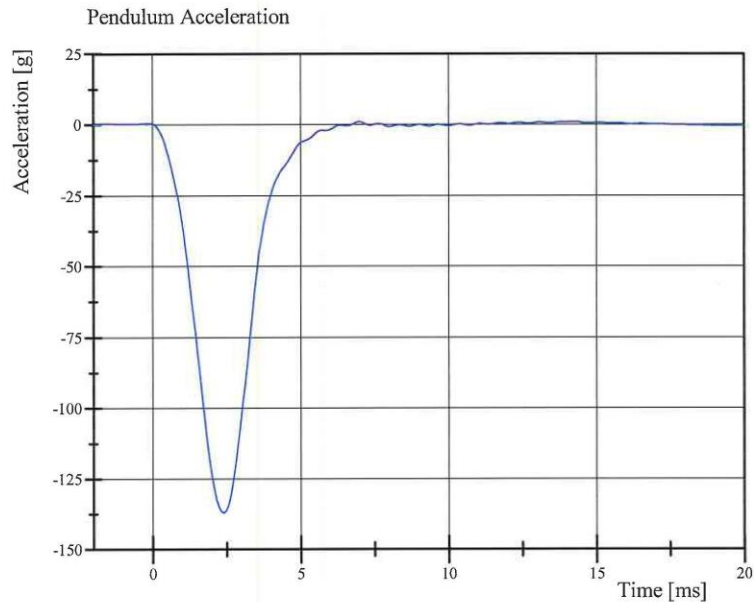
Specification Source: CFR49 Part 572 Subpart O
with Polarity in accordance with J211

01.29.2016 16:02:23 1965

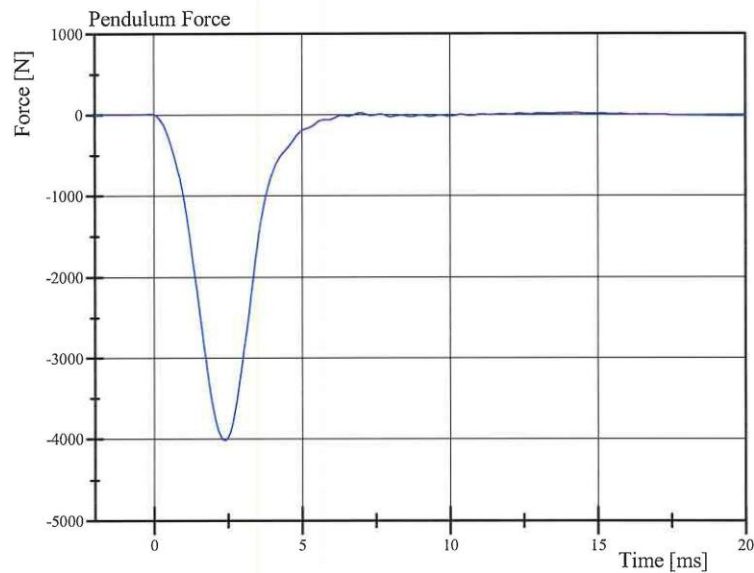


Transportation Research Center Inc.

Left Knee Femur Response Test
HIII 5th Serial No. 070 Certification No. 26-2
Test Date: 1/29/2016



Filter Class: CFC_600
Max: 0.9 g at 14.2 ms
Min: -137.2 g at 2.4 ms



Filter Class: CFC_600
Max: 25.8 N at 14.2 ms
Min: -4,023.4 N at 2.4 ms

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

01.29.2016 16:02:30 1965



Transportation Research Center Inc.

Right Knee Femur Response Test
HIII 5th Serial No. 070 Certification No. 26-1
Test Date: 1/29/2016

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.6 °C	21.3 °C	Yes
Relative Humidity	10 - 70 %	42 %	Yes
Probe Velocity	2.08 - 2.13 m/s	2.097 m/s	Yes
Peak Femur Force	(-3,450) - (-4,060) N	-3,982.8 N	Yes

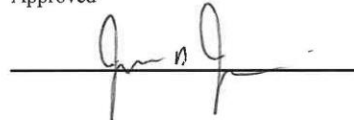
Test meets specifications.

Comments:

Technician



Approved



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

01.29.2016 16:11:26 1963



Transportation Research Center Inc.

Hybrid III Small Female Torso Flexion



Serial Number: 70

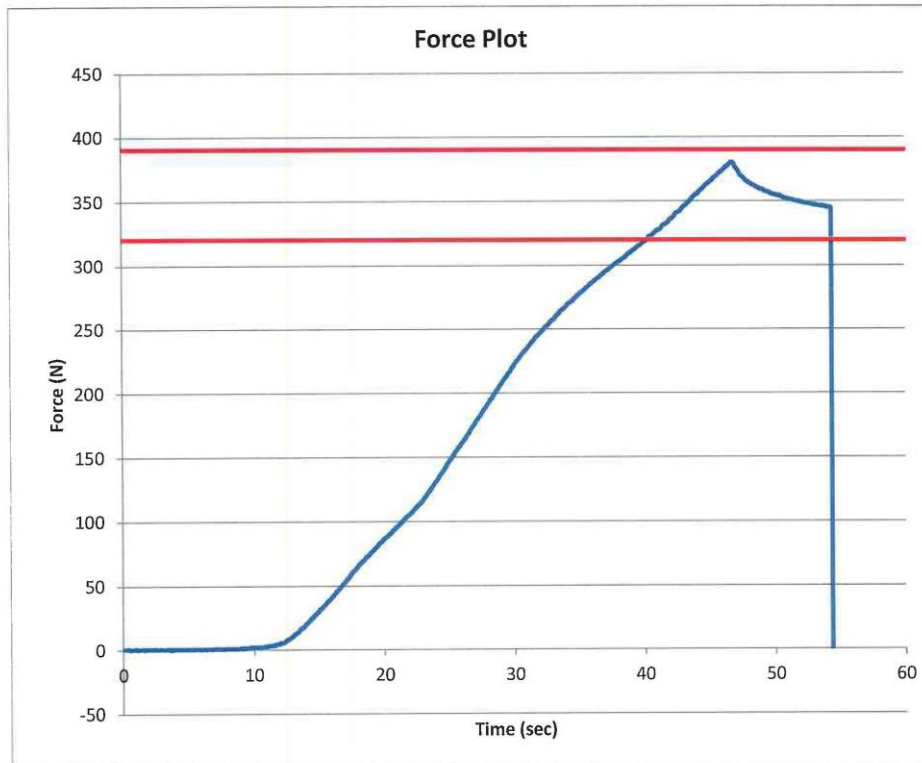
Date: 1/30/2016

Test Number: 2

Time: 11:02

Comments:

TEST PARAMETER	SPECIFICATION		TEST RESULTS		
Temperature	18.9	- 25.6	21.2	°C	Pass
Humidity	10	- 70	42	%	Pass
Average Angular Velocity	0.5	- 1.5	0.86	deg/sec	Pass
Initial Angle	0	- 20	15.31	deg	Pass
Peak Force at 45.21°	320	- 390	380.14	N	Pass
Final Angle	-8	- 8	3.81	deg	Pass



Technician

[Signature]

Approved

[Signature]