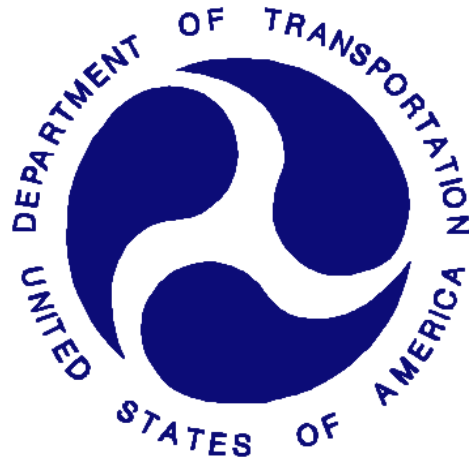


REPORT NUMBER: NCAP-MGA-2015-065

**NEW CAR ASSESSMENT PROGRAM (NCAP)
Frontal Barrier Impact Test**

**HONDA MOTOR CO., LTD.
2015 Acura RLX Advance 4-Dr Sedan
NHTSA No.: O20155300**

**MGA RESEARCH CORPORATION
5000 Warren Road
Burlington, WI 53105**



Test Date: April 1, 2015

Final Report Date: May 7, 2015

FINAL REPORT

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

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Prepared by: Nicholas Abels
Nicholas Abels, Project Engineer

Approved by: Ben Fischer
Ben Fischer, Project Engineer

Approval Date: May 7, 2015

FINAL REPORT ACCEPTANCE BY OCWS:

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

Date: _____

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

Date: _____

Technical Report Documentation Page

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15. Supplementary Notes																																																									
16. Abstract A 56.3 km/h NCAP Frontal Impact Test was conducted on a 2015 Acura RLX Advance 4-Dr Sedan 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), and 301 performance. The test was conducted at MGA Research Corporation in Burlington, Wisconsin on April 1, 2015. The impact velocity of the vehicle was 56.4 km/h and the ambient temperature at the barrier face at the time of impact was 21.2°C. The target vehicle post-test maximum crush was 431 located at the vehicle's centerline. The test vehicle's performance was as follows:																																																									
<table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <thead> <tr> <th rowspan="2">Measurement Description</th> <th rowspan="2">Units</th> <th colspan="2">Driver ATD</th> <th colspan="2">Passenger ATD</th> </tr> <tr> <th>Threshold</th> <th>Result</th> <th>Threshold</th> <th>Result</th> </tr> </thead> <tbody> <tr> <td>Head Injury Criteria (HIC₁₅)</td> <td>N/A</td> <td>700</td> <td>252</td> <td>700</td> <td>248</td> </tr> <tr> <td>Maximum Chest</td> <td>mm</td> <td>63</td> <td>26</td> <td>52</td> <td>14</td> </tr> <tr> <td>Nij</td> <td>N/A</td> <td>1</td> <td>0.25</td> <td>1</td> <td>0.29</td> </tr> <tr> <td>Neck Tension</td> <td>N</td> <td>4170</td> <td>989</td> <td>2620</td> <td>727</td> </tr> <tr> <td>Neck Compression</td> <td>N</td> <td>4000</td> <td>299</td> <td>2520</td> <td>300</td> </tr> <tr> <td>Left Femur Force</td> <td>N</td> <td>10008</td> <td>1356</td> <td>6805</td> <td>1413</td> </tr> <tr> <td>Right Femur Force</td> <td>N</td> <td>10008</td> <td>1720</td> <td>6805</td> <td>2371</td> </tr> </tbody> </table>						Measurement Description	Units	Driver ATD		Passenger ATD		Threshold	Result	Threshold	Result	Head Injury Criteria (HIC ₁₅)	N/A	700	252	700	248	Maximum Chest	mm	63	26	52	14	Nij	N/A	1	0.25	1	0.29	Neck Tension	N	4170	989	2620	727	Neck Compression	N	4000	299	2520	300	Left Femur Force	N	10008	1356	6805	1413	Right Femur Force	N	10008	1720	6805	2371
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SECTION 1 PURPOSE AND SUMMARY OF TEST

PURPOSE

This 56.3 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 number DTNH22-12-D-00258. The purpose of this test was to obtain vehicle crashworthiness and occupant restraint system performance data for consumer information purposes.

The 56.3 km/h frontal barrier impact was conducted in accordance with the Office of Crashworthiness Standards Frontal NCAP Laboratory Test Procedure.

SUMMARY

A load cell barrier consisting of 176 load cells was impacted by a 2015 Acura RLX Advance 4-Dr Sedan at a velocity of 56.4 km/h. The test was performed at MGA Research Corporation on April 1, 2015. Pre-test and post-test photographs of the vehicle and dummies can be found in Appendix A.

Two (2) real-time cameras and fourteen (14) 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 test device (ATD) was placed in the right-front passenger seating 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 transducers, right/left femur load cells, and lower leg instrumentation.

The driver (position 1) ATD (Serial No. 351) and the right-front passenger (position 2) ATD (Serial No. 634) were calibrated previous to this test. Certification details, along with instrumentation calibration data, are found in Appendix C of this report.

The 631 channels of data were recorded on a data acquisition system. Appendix B contains the dummy response data traces.

There was 100 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 431 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: The driver's head and chest contacted the airbag. The driver's head also contacted the headrest. The driver's knees contacted the knee airbag. The passenger's visible contact points were as follows: The passenger's head and chest contacted the airbag. The passenger's head also contacted the headrest. The passenger's knees contacted the glovebox.

The occupant data is summarized below:

ATD position	HIC ₁₅	Nij	Neck Tension (N)	Neck Comp. (N)	3ms Chest Clip (Gs)	Chest Disp. (mm)	Left Femur (N)	Right Femur (N)
Driver (50 th)	252	0.25	989	299	45	26	1356	1720
Passenger (5 th)	248	0.29	727	300	47	14	1413	2371

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

TEST NOTES

Barrier K-16 MY has no valid data.
Barrier D-06 MY has no valid data.
Barrier C-04 FX has no valid data.
Barrier C-04 MY has no valid data.
Barrier C-04 MZ has no valid data.
Barrier I-05 MY has no valid data.

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

SECTION 2
OCCUPANT AND VEHICLE INFORMATION / DATA SHEETS

DATA SHEET NO. 1
GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle: 2015 Acura RLX Advance 4-Dr Sedan
Test Program: NCAP Frontal Barrier Impact Test

NHTSA No.: O20155300
Test Date: 4/1/2015

TEST VEHICLE INFORMATION AND OPTIONS

NHTSA No.	O20155300	Traction Control System (TCS)	Yes
Model Year	2015	Power Steering	Yes
Make	Acura	Power Window Auto-Reverse	Yes
Model	RLX Advance	Driver Frontal Airbag	Yes
Body Style	4-Door Sedan	Driver Curtain Airbag	Yes
VIN	JH4KC1F98FC000930	Driver Head/Torso Airbag	No
Body Color	Graphite Luster	Driver Torso Airbag	No
Odometer (km/mi)	286 / 178	Driver Torso/Pelvis Airbag	Yes
Engine Displacement (L)	3.5	Driver Pelvis Airbag	No
Type/No. Cylinders	6	Driver Knee Airbag	Yes
Engine Placement	Lateral	Front Pass. Frontal Airbag	Yes
Transmission Type	Automatic	Front Pass. Curtain Airbag	Yes
Transmission Speeds	6	Front Pass. Head/Torso Airbag	No
Overdrive	Yes	Front Pass. Torso Airbag	No
Final Drive	FWD	Front Pass. Torso/Pelvis Airbag	Yes
Roof Rack	No	Front Pass. Pelvis Airbag	No
Sunroof/T-Top	Yes	Front Pass. Knee Airbag	No
Running Boards	No	Driver Pretensioner	Yes
Tilt Steering Wheel	Yes	Driver Load Limiter	Yes
Power Seats	Yes	Front Pass. Pretensioner	Yes
Anti-Lock Brakes (ABS)	Yes	Front Pass. Load Limiter	Yes
Automatic Door Locks (ADLs)	Yes	Other	N/A

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

DATA FROM CERTIFICATION LABEL

Manufactured By	Honda Motor Co., LTD.	GVWR (kg)	2265
Date of Manufacture	08/14	GAWR Front (kg)	1260
		GAWR Rear (kg)	1030

VEHICLE SEATING AND WEIGHT CAPACITY DATA

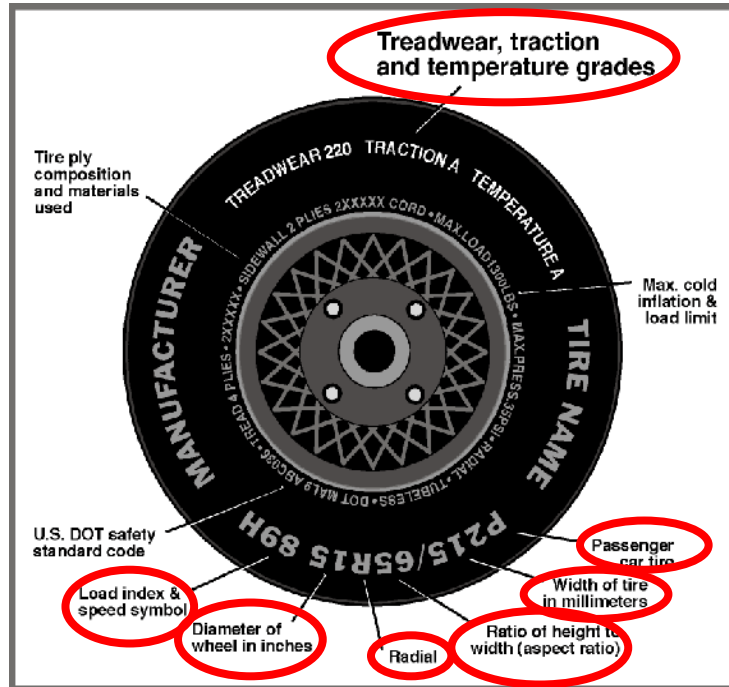
Measured Parameter	Front	Rear	Third	Total
Type of Seats	Bucket	Bench		
Designated Seating Capacity (DSC)	2	3		5
Capacity Weight (VCW) (kg)				385
Cargo Weight (RCLW) (kg)				45

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

Test Vehicle: 2015 Acura RLX Advance 4-Dr Sedan
 Test Program: NCAP Frontal Barrier Impact Test

NHTSA No.: O20155300
 Test Date: 4/1/2015

VEHICLE TIRE INFORMATION



Measured Parameter	Front	Rear
Max. Tire Pressure (kPa)	340	340
Cold Pressure (kPa)	240	240
Recommended Tire Size	245/40R19	245/40R19
Tire Size on Vehicle	245/40R19	245/40R19
Tire Manufacturer	Michelin	Michelin
Tire Model	Primary MXM4	Primary MXM4
Treadwear	500	500
Traction	A	A
Temperature Grade	A	A
Tire Plies Sidewall	2 Polyester	2 Polyester
Tire Plies Body	2 Polyester, 1 Polyamide, 2 Steel	2 Polyester, 1 Polyamide, 2 Steel
Load Index/Speed Symbol	98W	98W
Tire Material	Rubber	Rubber
DOT Safety Code Left	HNIC OOLX 4013	HNIC OOLX 3913
DOT Safety Code Right	HNIC OOLX 4013	HNIC OOLX 4013

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

Test Vehicle: 2015 Acura RLX Advance 4-Dr Sedan
 Test Program: NCAP Frontal Barrier Impact Test

NHTSA No.: O20155300
 Test Date: 4/1/2015

TEST VEHICLE WEIGHTS

	Units	As Delivered (UVW)			As Tested (ATW)		
		Front	Rear	Total	Front	Rear	Total
Left	kg	566.5	351.0		600.0	421.0	
Right	kg	539.0	364.5		557.5	421.5	
Ratio	%	60.7	39.3		57.9	42.1	
Totals	kg	1105.5	715.5	1821.0	1157.5	842.5	2000.0

TARGET TEST WEIGHT CALCULATION

Measured Parameter	Units	Value
Total Delivered Weight (UVW)	kg	1821.0
Weight of 1 P572E ATD & 1 P572O ATD	kg	141
Rated Cargo/Luggage Weight (RCLW)	kg	45
Calculated Test Vehicle Target Weight (TVTW)	kg	2007

TEST VEHICLE ATTITUDES AND CG

	Units	LF	RF	LR	RR	CG (aft of front axle)
As Delivered	mm	722	719	727	721	1120
As Tested	mm	710	706	700	702	1201
Post Test	mm	718	680	700	699	

GENERAL TEST VEHICLE DATA

Measurement Description	Units	Value
Total Vehicle Wheel Base	mm	2850
Total Vehicle Length at Left Side	mm	4730
Total Vehicle Length at Centerline	mm	4984
Total Vehicle Length at Right Side	mm	4730
Weight of Ballast in Cargo Area	kg	0
Weight of Vehicle Components Removed	kg	18.1
Amount of Stoddard Solvent in Fuel Tank	L	65.1

List of components removed to meet test weight: Left/Right front side mirror and luggage lid.

List of components removed for instrumentation, data box, and equipment installation: Cargo carpet, rear carpet, cargo divider/organizer, right taillight, tire repair kit, left/right front underbody plastic.

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

Test Vehicle: 2015 Acura RLX Advance 4-Dr Sedan
 Test Program: NCAP Frontal Barrier Impact Test

NHTSA No.: O20155300
 Test Date: 4/1/2015

TARGET VEHICLE STRUCTURAL MEASUREMENT

	Elements	Pre-Test (mm)
1	Total Length	4984
2	Total Width	1886
3	Bumper Top Height	580
4	Bumper Bottom Height	455
5	Longitudinal Member Top Height	560
6	Distance between Longitudinal Members	965
7	Longitudinal Member Width	80
8	Engine Top Height	875
9	Engine Bottom Height	180
10	Engine and Gearbox Width	810
11	Front Bumper-Engine Distance	483
12	Front Shock Absorber Fixing Height	903
13	Bonnet Leading Edge Height	780
14	Front Shock Absorber Fixing Width	960
15	Front Bumper – Front Axle Distance	998
16	Front Axle – A-Pillar Distance	502
17	A-Pillar – B-Pillar Distance	1128
18	B-Pillar – Rear Axle Distance	1220
19	B-Pillar – C-Pillar Distance	1048
20	Roof Sill Bottom Height	1320
21	Roof Sill Top Height	1445
22	Floor Sill Bottom Height	190
23	Floor Sill Top Height	345

DATA SHEET NO. 2

SEAT ADJUSTMENT, FUEL SYSTEM, AND STEERING WHEEL DATA

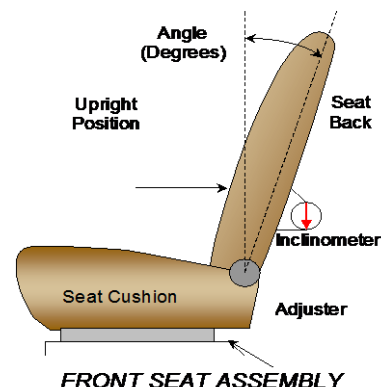
Test Vehicle: 2015 Acura RLX Advance 4-Dr Sedan
 Test Program: NCAP Frontal Barrier Impact Test

NHTSA No.: O20155300
 Test Date: 4/1/2015

NOMINAL DESIGN RIDING POSITION

The driver seat back is positioned as close as possible to the manufacturer's design angle. For the passenger seat back, seat back is adjusted following Appendix F, "Driver & Passenger Dummy Seating & Positioning Procedures" in the NCAP Test Procedure dated August 2013.

	Degrees
Driver Seat Back Angle	-4.0° on headrest post guide
Passenger Seat Back Angle	-4.2° on headrest post guide



SEAT FORE/AFT POSITIONS

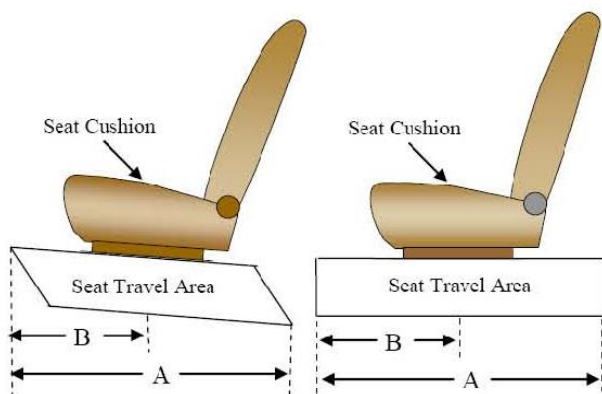
The driver and passenger seat fore/aft positions are adjusted following Appendix F, "Driver & Passenger Dummy Seating & Positioning Procedures" in the NCAP Test Procedure dated August 2013.

	Total Fore/Aft Travel	Placed in Position #
Driver Seat	291 mm	146 mm
Passenger Seat	240 mm	0 mm

SEAT BELT UPPER ANCHORAGES

The seat belt upper anchorages are positioning following the manufacturer's specified position as listed in Form 1.

	Total # of Positions	Placed in Position #
Driver Seat	4 (1 st as 1)	0 th (1 st as 0)
Passenger Seat	4 (1 st as 1)	0 th (1 st as 0)



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

Test Vehicle: 2015 Acura RLX Advance 4-Dr Sedan
 Test Program: NCAP Frontal Barrier Impact Test

NHTSA No.: O20155300
 Test Date: 4/1/2015

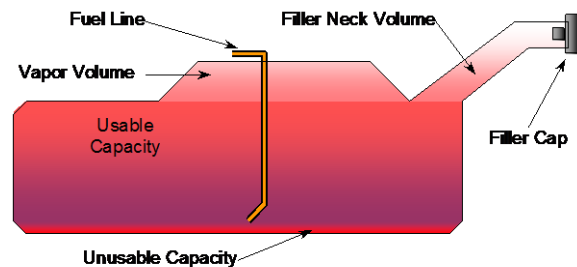
FUEL TANK CAPACITY DATA

	Liters
Usable Capacity of "Standard Tank"	70.0
Usable Capacity of "Optional Tank"	
92-94% of Usable Capacity	64.4 to 65.8
Actual Amount of Solvent used	65.1
1/3 of Usable Capacity	23.3

FUEL PUMP

Describe the fuel pump type, its behavior, and the location of the fuel filler pipe.

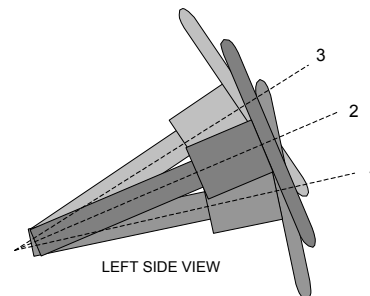
The electric fuel pump operates when the start/stop button is selected to ON mode. The fuel filler pipe is on the left side.



VEHICLE FUEL TANK ASSEMBLY

STEERING COLUMN ADJUSTMENT

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



STEERING COLUMN ASSEMBLY

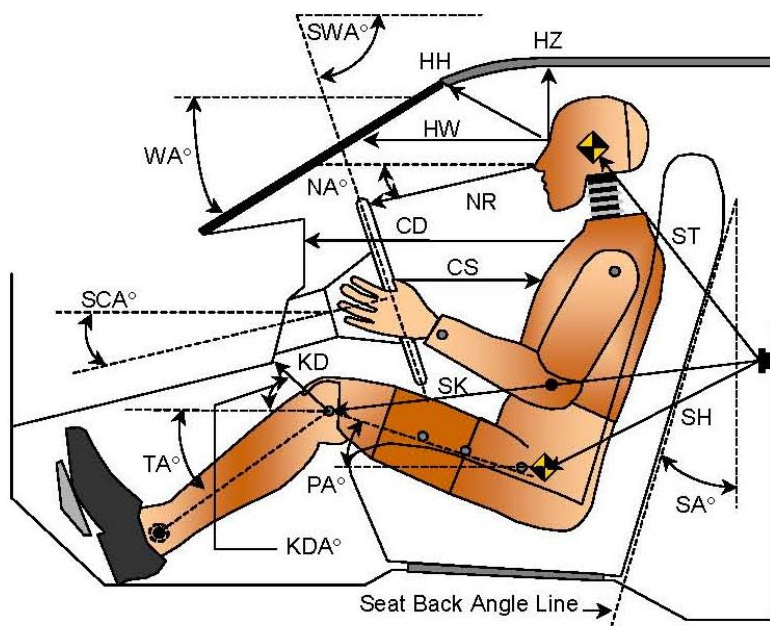
STEERING COLUMN POSITION

	Degrees	Fore/Aft Position (mm)
Lowermost Position 1	69.8	178
Geometric Center Position 2	67.5	198
Uppermost Position 3	65.2	218
Telescoping Steering Wheel Travel		40
Test Position	67.5	198

DATA SHEET NO. 3 DUMMY LONGITUDINAL CLEARANCE DIMENSIONS

Test Vehicle: 2015 Acura RLX Advance 4-Dr Sedan
Test Program: NCAP Frontal Barrier Impact Test

NHTSA No.: O20155300
Test Date: 4/1/2015



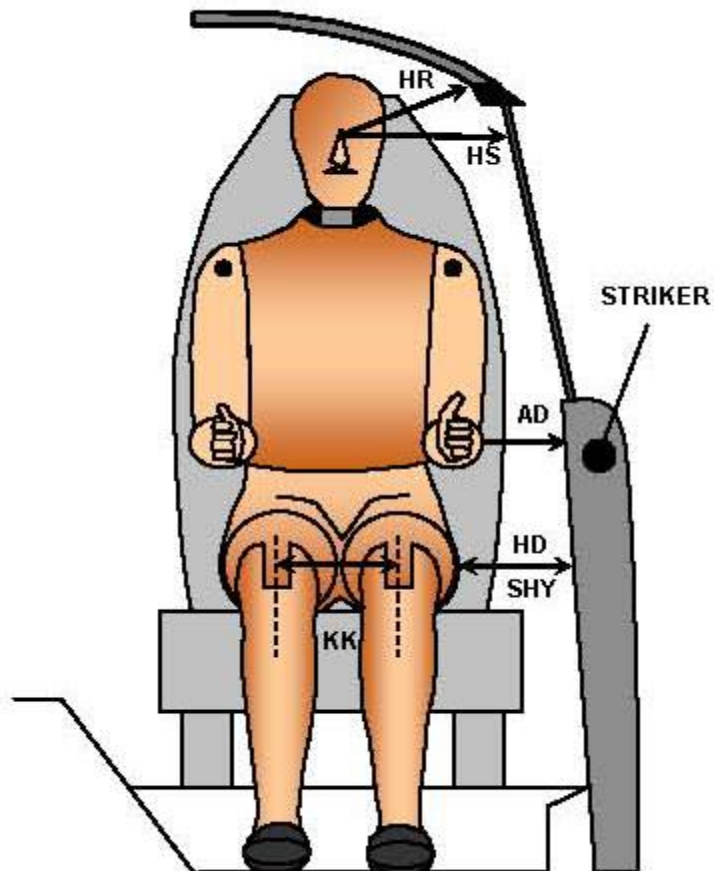
LEFT SIDE VIEW

Code	Measurement Description	Driver		Passenger	
		Length (mm)	Angle (°)	Length (mm)	Angle (°)
WA°	Windshield Angle		23.8		
SWA°	Steering Wheel Angle		67.5		
SCA°	Steering Column Angle		22.5		
SA°	Seat Back Angle (on headrest post)		-4.0		-4.2
HZ	Head to Roof (Z)	175	90.0	202	90.0
HH	Head to Header	386	20.5	297	40.8
HW	Head to Windshield	680	0.0	651	0.0
NR	Nose to Rim	393	10.5		
CD	Chest to Dash	538		408	
CS	Chest to Steering Hub	320	3.2		
RA	Rim to Abdomen	195	0.0		
KDL	Left Knee to Dash	155	29.6	104	34.0
KDR	Right Knee to Dash	140	26.1	99	36.4
PA°	Pelvic Angle		23.7		19.3
TA°	Tibia Angle		41.4		49.2
SK	Striker to Knee	586	98.3	674	100.9
ST	Striker to Head	395	15.4	414	20.4
SH	Striker to H-Point	220	123.8	376	120.8

DATA SHEET NO. 4
DUMMY LATERAL CLEARANCE DIMENSIONS

Test Vehicle: 2015 Acura RLX Advance 4-Dr Sedan
 Test Program: NCAP Frontal Barrier Impact Test

NHTSA No.: O20155300
 Test Date: 4/1/2015



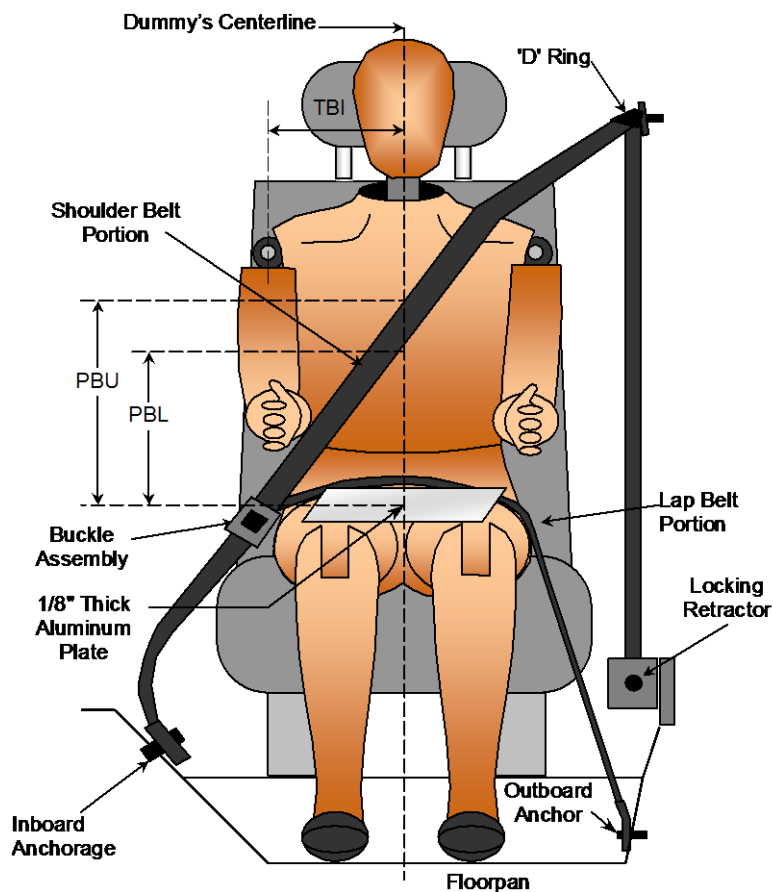
FRONT VIEW OF DUMMY

Code	Measurement Description	Driver	Passenger
		Length (mm)	
AD	Arm to Door	142	100
HD	H-Point to Door	146	183
HR	Head to Side Header	216	232
HS	Head to Side Window	350	369
KK	Knee to Knee	330	227
SHY	Striker to H-Point (Y Direction)	294	333
AA	Ankle to Ankle	320	165

DATA SHEET NO. 5 SEAT BELT POSITIONING DATA

Test Vehicle: 2015 Acura RLX Advance 4-Dr Sedan
Test Program: NCAP Frontal Barrier Impact Test

NHTSA No.: O20155300
Test Date: 4/1/2015



FRONT VIEW OF DUMMY

SEAT BELT POSITIONING MEASUREMENTS

Measurement Description	Units	Driver	Passenger
PBU - Top surface of reference to belt upper edge	mm	360	335
PBL - Top surface of reference to belt lower edge	mm	290	240

BELT LENGTH DATA

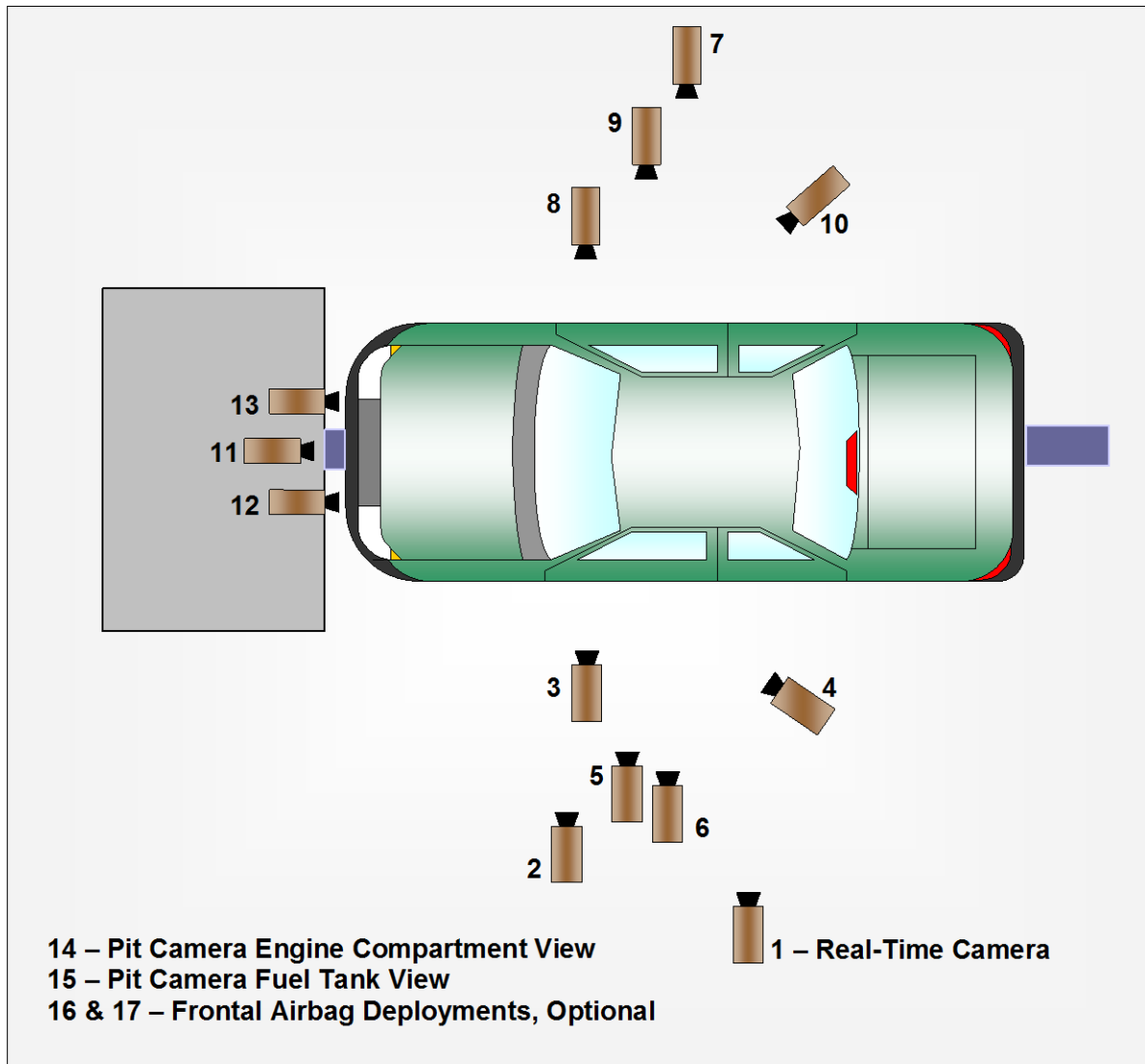
Measurement Description	Units	Driver	Passenger
Shoulder Belt Length as measured on ATD	mm	830	900
Lap Belt Length as measured on ATD	mm	500	520
Remainder of belt on reel	mm	1170	1080
Total Belt Length for Continuous Webbing Systems	mm	3200	3200

DATA SHEET NO. 6
HIGH-SPEED CAMERA LOCATIONS AND DATA

Test Vehicle: 2015 Acura RLX Advance 4-Dr Sedan
Test Program: NCAP Frontal Barrier Impact Test

NHTSA No.: O20155300
Test Date: 4/1/2015

CAMERA POSITIONS FOR FRONTAL IMPACTS



DATA SHEET NO. 6 (CONTINUED)
CAMERA LOCATIONS AND DATA

Test Vehicle: 2015 Acura RLX Advance 4-Dr Sedan
 Test Program: NCAP Frontal Barrier Impact Test

NHTSA No.: O20155300
 Test Date: 4/1/2015

CAMERA LOCATIONS

No.	Camera View	Coordinates (mm)			Lens (mm)	Speed (fps)
		X*	Y*	Z*		
1	Real-Time Left Overall					30
2	Driver Close-Up	-1530	-6220	-1840	35	1000
3	Left Front Half	-1150	-5310	-1210	24	1000
4	Left Angle	-5530	-5070	-1940	50	1000
5	Steering Column - Top					
6	Steering Column - Bottom					
7	Right Overall	-2300	6870	-1140	20	1000
8	Passenger Close-Up	-1540	5970	-1900	35	1000
9	Right Front Half	-1200	5080	-1130	24	1000
10	Right Angle	-5610	5100	-1920	50	1000
11	Windshield	430	0	-2810	20	1000
12	Driver Windshield	-30	-450	-2030	8.5	1000
13	Passenger Windshield	-30	450	-2030	8.5	1000
14	Pit Front	-1190	0	3150	24	1000
15	Pit Rear	-3030	0	3150	24	1000
16	Onboard Driver Side				12	1000
17	Onboard Passenger Side				12	1000
18	Real-Time Pan View					30

***COORDINATES:**

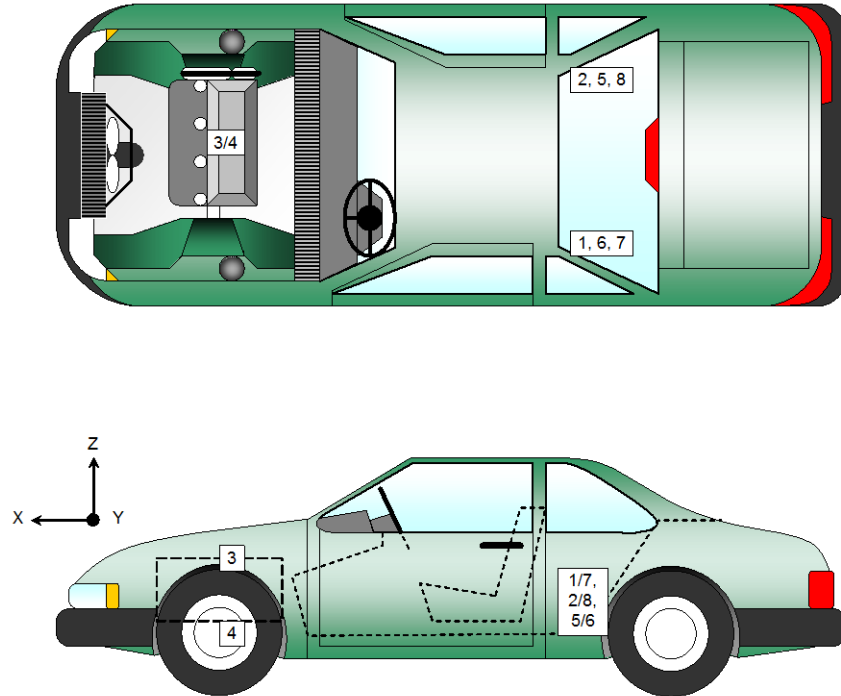
+X = forward of impact plane
 +Y = right of monorail centerline
 +Z = below ground level

Cameras 5 & 6 were not used for this test.

DATA SHEET NO. 7 **VEHICLE ACCELEROMETER LOCATIONS**

Test Vehicle: 2015 Acura RLX Advance 4-Dr Sedan
 Test Program: NCAP Frontal Barrier Impact Test

NHTSA No.: O20155300
 Test Date: 4/1/2015



VEHICLE ACCELEROMETER PRE-TEST LOCATIONS

No.	Accelerometer Location	Measurements (mm)		
		X	Y	Z
1	Left Rear Crossmember Accelerometer – X Direction	2035	-380	-214
2	Right Rear Crossmember Accelerometer – X Direction	2040	400	-210
3	Engine Top X	4175	0	-879
4	Engine Bottom X	4153	230	-180
5	Left Rear Crossmember Accelerometer – Z Direction	2075	-380	-214
6	Right Rear Crossmember Accelerometer – Z Direction	2080	400	-210
7	Left Rear Crossmember Accelerometer Redundant – X Direction	2075	-380	-214
8	Right Rear Crossmember Accelerometer Redundant – X Direction	2080	400	-210

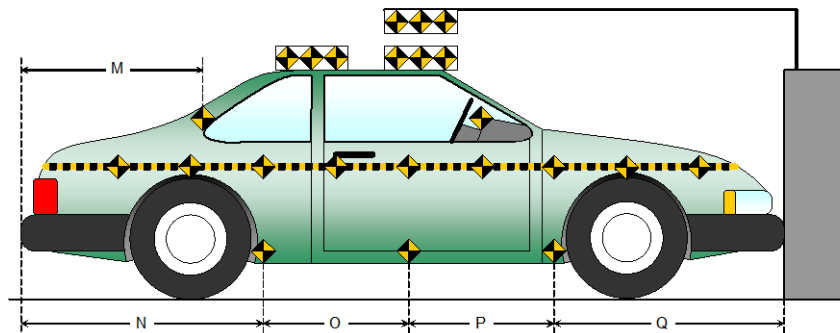
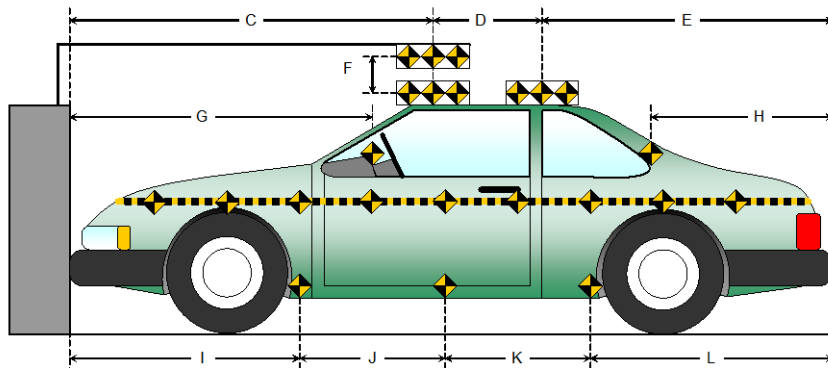
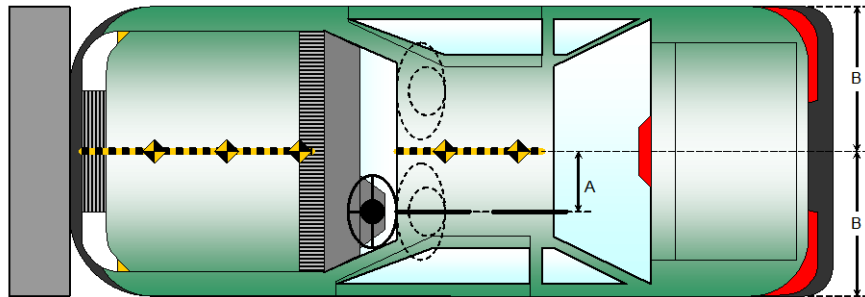
Reference Points: X - Rear Surface of Vehicle (+ forward)
 Y - Vehicle Centerline (+ to right)
 Z - Ground Plane (+ down)

DATA SHEET NO. 8
PHOTOGRAPHIC REFERENCE TARGET LOCATIONS

Test Vehicle: 2015 Acura RLX Advance 4-Dr Sedan
 Test Program: NCAP Frontal Barrier Impact Test

NHTSA No.: O20155300
 Test Date: 4/1/2015

Item	Value (mm)
A	380
B	943
C	2455
D	612
E	1663
F	120
G	
H	1308
I	1450
J	985
K	985
L	1564
M	1308
N	1564
O	985
P	985
Q	1450



DATA SHEET NO. 9 **LOAD CELL LOCATIONS ON FIXED BARRIER**

Test Vehicle: 2015 Acura RLX Advance 4-Dr Sedan
 Test Program: NCAP Frontal Barrier Impact Test

NHTSA No.: O20155300
 Test Date: 4/1/2015

Advanced Research Load Cell Barrier

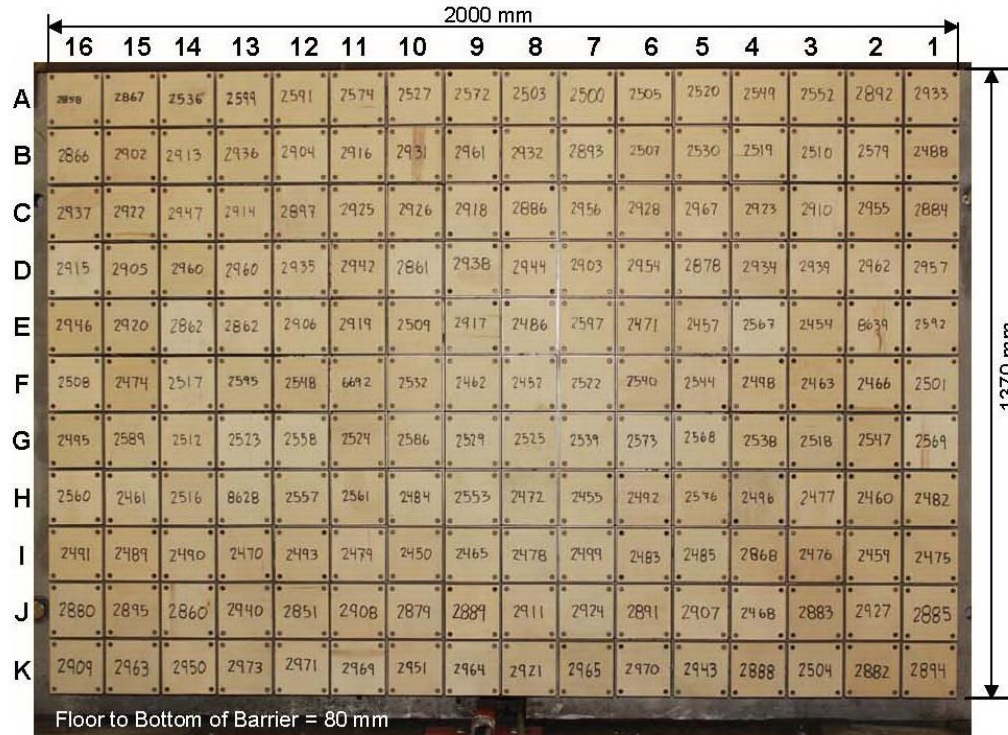


Photo for Reference Only

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

Load Cells are 121 mm x 121 mm with a 7 mm gap in between each load cell.

DATA SHEET NO. 10
TEST VEHICLE SUMMARY OF RESULTS

Test Vehicle: 2015 Acura RLX Advance 4-Dr Sedan
Test Program: NCAP Frontal Barrier Impact Test

NHTSA No.: O20155300
Test Date: 4/1/2015

INSTRUMENTATION

Driver Dummy Data Channels	46
Passenger Dummy Data Channels	49
Vehicle Structure Accelerometers	8
Barrier Channels	528
Total	631

CAMERA COVERAGE

High-Speed Vehicle Onboard	2
High-Speed Offboard	12
Real-Time	2
Total	16

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

Test Vehicle: 2015 Acura RLX Advance 4-Dr Sedan
Test Program: NCAP Frontal Barrier Impact Test

NHTSA No.: O20155300
Test Date: 4/1/2015

TEST DUMMY INFORMATION AND CONTACT LOCATIONS

Description	Driver	Passenger
Dummy Type / Serial No.	HIII 50% / 351	HIII 5% / 634
Head Contact	Airbag, Headrest	Airbag, Headrest
Upper Torso Contact	Airbag	Airbag
Lower Torso Contact	None	None
Left Knee Contact	Knee Airbag	Glovebox
Right Knee Contact	Knee Airbag	Glovebox

DOOR OPENING AND SEAT TRACK INFORMATION

Description	Driver	Passenger
Locked/Unlocked Doors	Doors were unlocked	Doors were unlocked
Front Door Opening	Door remained closed and latched; Door opened without tools	Door remained closed and latched; Door opened without tools
Rear Door Opening	Door remained closed and latched; Door opened without tools	Door remained closed and latched; Door opened without tools
Seat Track Shift (mm)	0	0
Seat Back Failure	None	None

POST TEST STRUCTURAL OBSERVATIONS

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

VEHICLE REBOUND FROM BARRIER

Measured Parameter	Units	Value
Left Side	mm	605
Center	mm	650
Right Side	mm	865
Average	mm	707

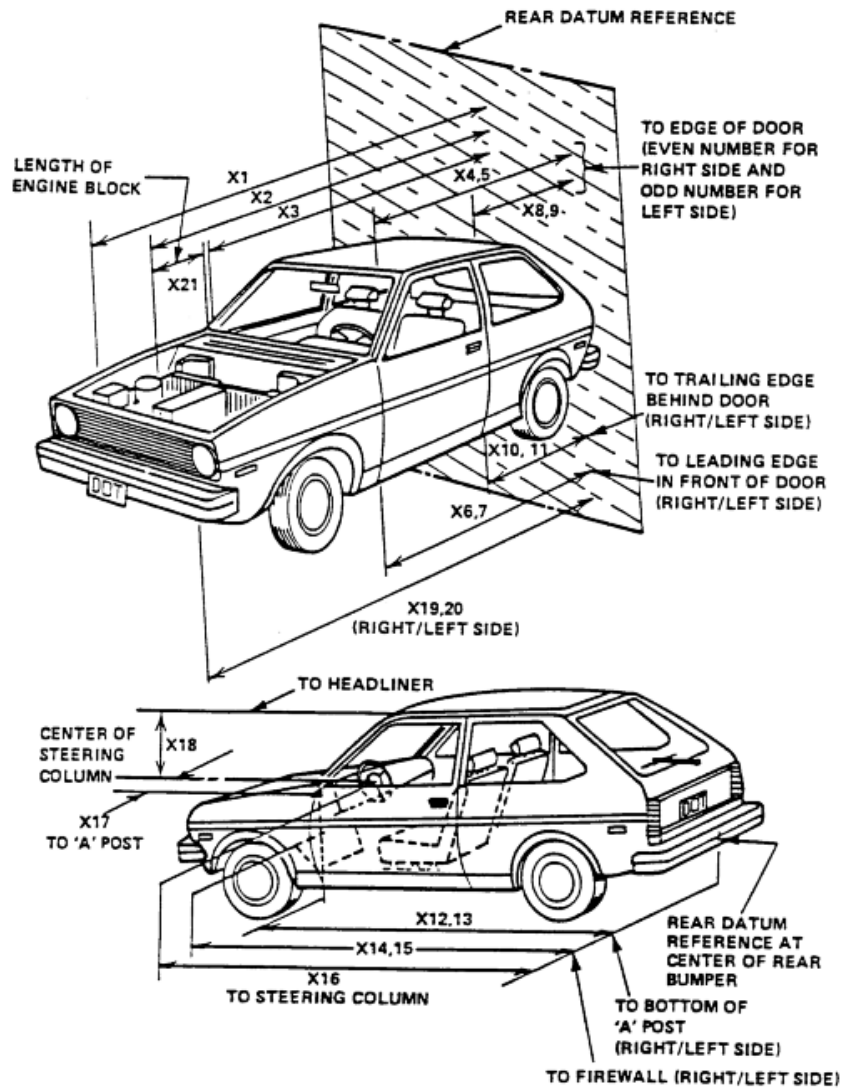
SUPPLEMENTAL RESTRAINT SYSTEM INFORMATION

Restraint Type	Driver (Occupant 1)		Passenger (Occupant 2)	
	Mounted	Deployed	Mounted	Deployed
Frontal Airbag	Yes	Yes	Yes	Yes
Curtain Side Airbag	Yes	No	Yes	No
Torso/Pelvis Side Airbag	Yes	No	Yes	No
Knee Airbag	Yes	Yes	No	
Seat Belt Pretensioner	Yes	Yes	Yes	Yes
Seat Belt Load Limiter	Yes		Yes	

DATA SHEET NO. 12 **VEHICLE PROFILE MEASUREMENTS**

Test Vehicle: 2015 Acura RLX Advance 4-Dr Sedan
 Test Program: NCAP Frontal Barrier Impact Test

NHTSA No.: O20155300
 Test Date: 4/1/2015



DATA SHEET NO. 12 (CONTINUED)
VEHICLE PROFILE MEASUREMENTS

Test Vehicle: 2015 Acura RLX Advance 4-Dr Sedan
 Test Program: NCAP Frontal Barrier Impact Test

NHTSA No.: O20155300
 Test Date: 4/1/2015

RSOV (Rear Surface of Vehicle)

No.	Measurement Description	Units	Pre-Test	Post-Test	Difference
1	Total Length of Vehicle at Centerline	mm	4984	4553	431
2	RSOV to Front of Engine	mm	4477	4168	309
3	RSOV to Firewall	mm	3869	3761	108
4	RSOV to Upper Leading Edge of Right Door	mm	3462	3462	0
5	RSOV to Upper Leading Edge of Left Door	mm	3462	3462	0
6	RSOV to Lower Leading Edge of Right Door	mm	3426	3426	0
7	RSOV to Lower Leading Edge of Left Door	mm	3426	3426	0
8	RSOV to Upper Trailing Edge of Right Door	mm	2332	2332	0
9	RSOV to Upper Trailing Edge of Left Door	mm	2332	2332	0
10	RSOV to Lower Trailing Edge of Right Door	mm	2342	2342	0
11	RSOV to Lower Trailing Edge of Left Door	mm	2342	2342	0
12	RSOV to Bottom of "A" Post of Right Side	mm	3460	3460	0
13	RSOV to Bottom of "A" Post of Left Side	mm	3460	3460	0
14	RSOV to Firewall, Right Side	mm	3606	3605	1
15	RSOV to Firewall, Left Side	mm	3606	3600	6
16	RSOV to Steering Column	mm	2948	2979	-31
17	Center of Steering Column to "A" Post	mm	405	409	-4
18	Center of Steering Column to Headliner	mm	408	432	-24
19	RSOV to Right Side of Front Bumper	mm	4730	4462	268
20	RSOV to Left Side of Front Bumper	mm	4730	4432	298
21	Length of Engine Block	mm	530	530	0
RD	RSOV to Right Side of Dash Panel	mm	3206	3209	-3
CD	RSOV to Center of Dash Panel	mm	3194	3195	-1
LD	RSOV to Left Side of Dash Panel	mm	3212	3212	0

DATA SHEET NO. 13
ACCIDENT INVESTIGATION DIVISION DATA

Test Vehicle: 2015 Acura RLX Advance 4-Dr Sedan
Test Program: NCAP Frontal Barrier Impact Test

NHTSA No.: O20155300
Test Date: 4/1/2015

VEHICLE INFORMATION

VIN: JH4KC1F98FC000930

Wheelbase (mm): 2850

Vehicle Size Category: Passenger Car

Test Weight (kg): 2000.0

ACCELEROMETER DATA

Accelerometer Locations: As per measurements on Page 15

Cal. Procedure/Interval: MGA procedure / 6 month

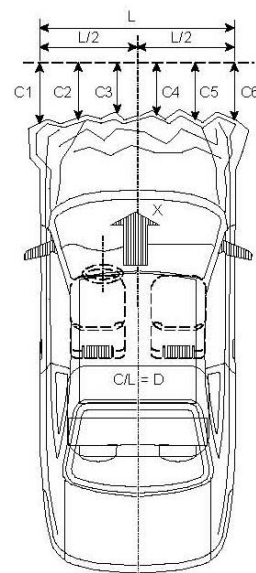
Integration Algorithm: Trapezoidal

Linearity: > 99%

Impact Velocity (km/h): 56.4

Velocity Change (km/h): 66.2

Time of Separation (msec): 106.1



CRUSH PROFILE

Collision Deformation Classification: Frontal

Midpoint of Damage: Centerline

Damage Region Length (mm): 1640

Impact Mode: Frontal

No.	Measurement Description	Units	Pre-Test	Post-Test	Difference
C1	Crush zone 1 at left side	mm	4730	4432	298
C2	Crush zone 2 at left side	mm	4880	4516	364
C3	Crush zone 3 at left side	mm	4936	4547	389
C4	Crush zone 4 at right side	mm	4936	4522	414
C5	Crush zone 5 at right side	mm	4880	4484	396
C6	Crush zone 6 at right side	mm	4730	4462	268
L	C1 TO C6	mm	1640	1635	5

DATA SHEET NO. 14
VEHICLE INTRUSION MEASUREMENTS

Test Vehicle: 2015 Acura RLX Advance 4-Dr Sedan
 Test Program: NCAP Frontal Barrier Impact Test

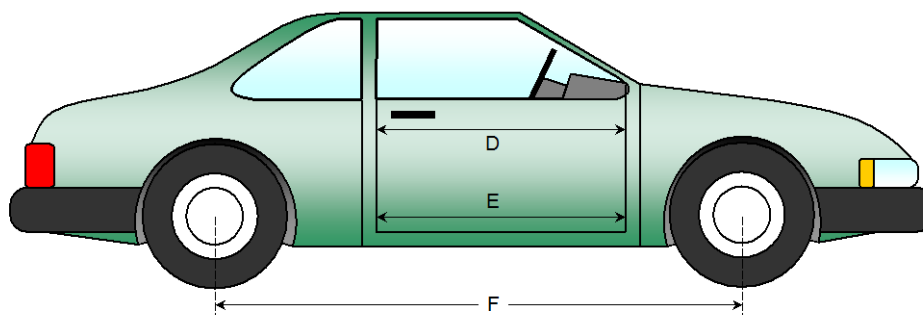
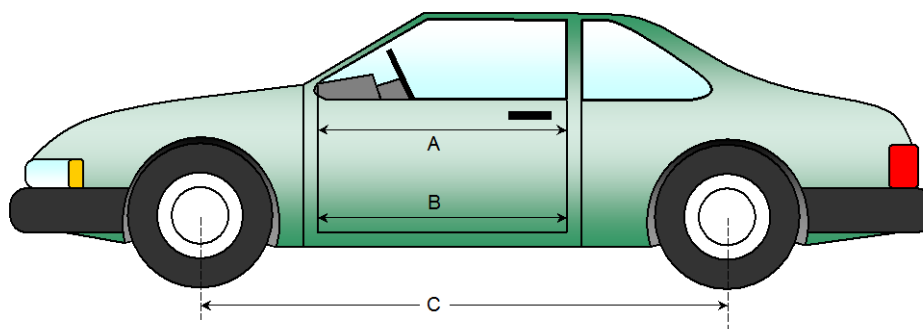
NHTSA No.: O20155300
 Test Date: 4/1/2015

DOOR OPENING WIDTH

Item	Description	Units	Pre-Test	Post-Test	Difference
A	Left Side Upper	mm	1040	1040	0
B	Left Side Lower	mm	894	892	2
D	Right Side Upper	mm	1040	1040	0
E	Right Side Lower	mm	894	891	3

WHEELBASE MEASUREMENTS

Item	Description	Units	Pre-Test	Post-Test	Difference
C	Left Side Wheelbase	mm	2850	2728	122
F	Right Side Wheelbase	mm	2850	2688	162



DATA SHEET NO. 14 (CONTINUED)
VEHICLE INTRUSION MEASUREMENTS

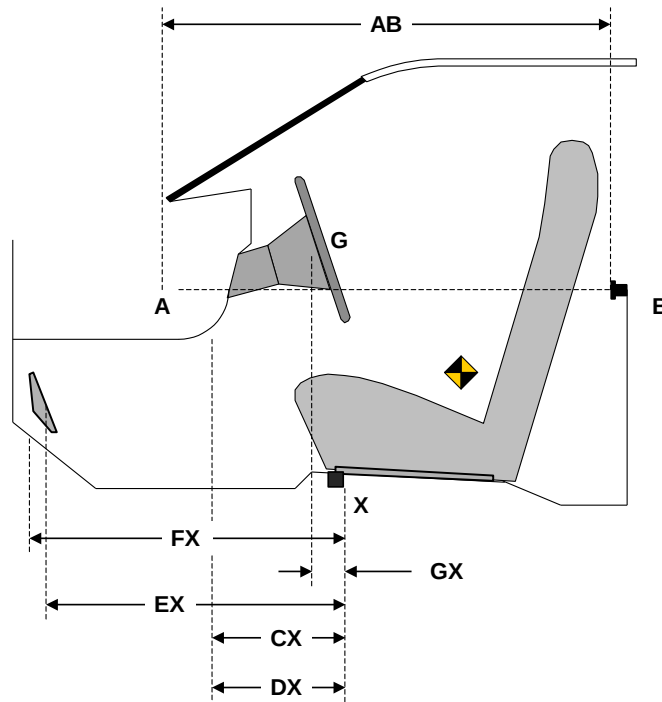
Test Vehicle: 2015 Acura RLX Advance 4-Dr Sedan
 Test Program: NCAP Frontal Barrier Impact Test

NHTSA No.: O20155300
 Test Date: 4/1/2015

DRIVER COMPARTMENT INTRUSION

Item	Description	Units	Pre-Test	Post-Test	Difference
AB	Door Opening (Inside Window Jam)	mm	776	776	0
CX	Left Knee Bolster to X	mm	248	244	4
DX	Right Knee Bolster to X	mm	262	253	9
EX	Brake Pedal to X	mm	560	560	0
FX	Foot Rest to X	mm	600	585	15
GX	Center of Steering Column Wheel Hub to X	mm	74	93	-19

X = Front of Seat Track (stationary)



DRIVER COMPARTMENT

DATA SHEET NO. 15
SUMMARY OF FMVSS 212, FMVSS 219 (PARTIAL) DATA, AND 301 DATA

Test Vehicle: 2015 Acura RLX Advance 4-Dr Sedan
 Test Program: NCAP Frontal Barrier Impact Test

NHTSA No.: O20155300
 Test Date: 4/1/2015

Windshield Mounting Details:

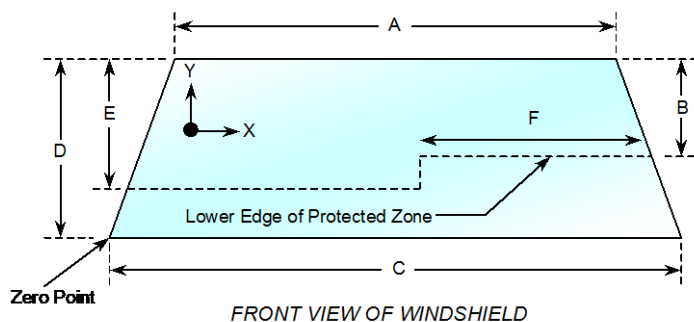
Windshield glass is secured to the vehicle frame with a rubber trim and glue.

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

Temperature of windshield molding during test: 21.2° C.

WINDSHIELD PERIPHERY MEASUREMENTS

Measurement	Pre-Test (mm)	Post-Test (mm)	% of Retention
Left Side	2159	2159	100.0
Right Side	2175	2175	100.0
Total	4334	4334	100.0



Item	Units	Value
A	mm	1218
B	mm	440
C	mm	1504
D	mm	806
E	mm	508
F	mm	444

AREA OF PROTECTED ZONE FAILURES - NONE

A. Provide coordinates of the area that the protected zone was penetrated more than 0.25 inches by a vehicle component other than one that is normally in contact with the windshield. **None**

X	Y

B. Provide coordinates of the area beneath the protected zone that the inner surface of the windshield was penetrated by a vehicle component. **None**

X	Y

DATA SHEET NO. 15 (CONTINUED)
SUMMARY OF FMVSS 212, FMVSS 219 (PARTIAL), AND 301 DATA

Test Vehicle: 2015 Acura RLX Advance 4-Dr Sedan
Test Program: NCAP Frontal Barrier Impact Test

NHTSA No.: O20155300
Test Date: 4/1/2015

FMVSS 301 FUEL SYSTEM INTEGRITY POST IMPACT DATA

Temperature at Time of Impact: 21.2°C Test Time: 10:10 a.m.

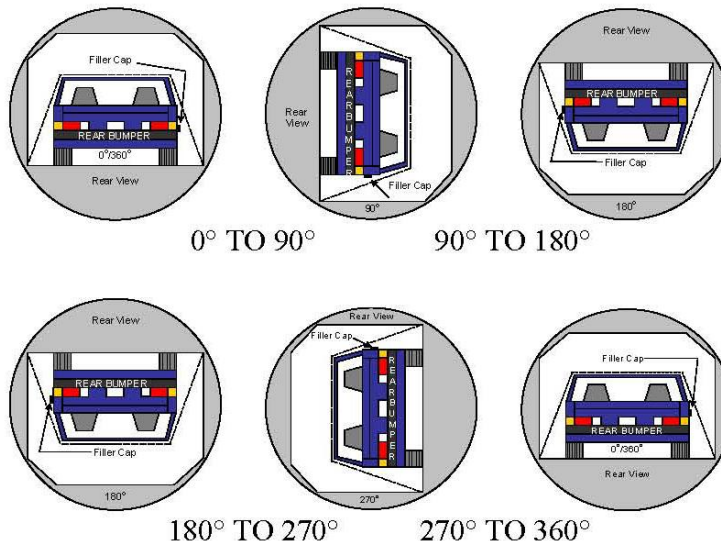
- A. From impact until vehicle motion ceases: 0 oz.
(Maximum allowable = 1 oz.)
- B. For the 5 minute period after motion ceases: 0 oz.
(Maximum allowable = 5 oz.)
- C. For the following 25 minutes: 0 oz.
(Maximum allowable = 1 oz./minute)
- D. Spillage: None

DATA SHEET NO. 16 **FMVSS 301 STATIC ROLLOVER RESULTS**

Test Vehicle: 2015 Acura RLX Advance 4-Dr Sedan
 Test Program: NCAP Frontal Barrier Impact Test

NHTSA No.: O20155300
 Test Date: 4/1/2015

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



SOLVENT COLLECTION TIME TABLE IN SECONDS

Test Phase	Rotation Time	Hold Time	Total Time
0° to 90°	115	300	415
90° to 180°	112	300	412
180° to 270°	106	300	406
270° to 360°	113	300	413

FMVSS 301 SPILLAGE TABLE (units in ounces)

Test Phase	First 5 Minutes	Sixth Minute	Seventh Minute	Eight Minute
0° to 90°	0	0	0	0
90° to 180°	0	0	0	0
180° to 270°	0	0	0	0
270° to 360°	0	0	0	0

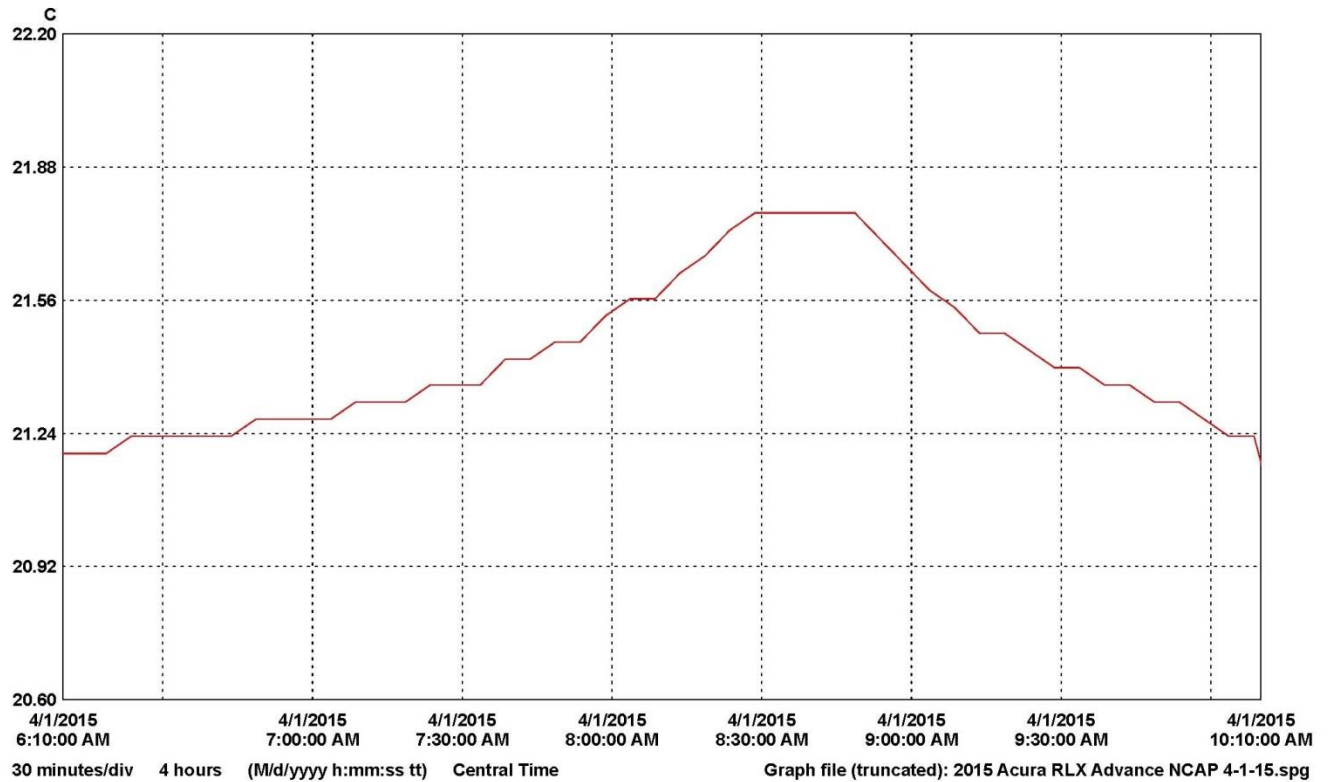
SOLVENT SPILLAGE LOCATION TABLE

Test Phase	Spillage Location
0° to 90°	
90° to 180°	
180° to 270°	
270° to 360°	

DATA SHEET NO. 17 **DUMMY/VEHICLE TEMPERATURE STABILIZATION DATA**

Test Vehicle: 2015 Acura RLX Advance 4-Dr Sedan
 Test Program: NCAP Frontal Barrier Impact Test

NHTSA No.: O20155300
 Test Date: 4/1/2015



LN	Serial #	Description	CH	Value	Maximum	Average	Minimum	Units	CH description	Logger file
1	10102056	Crash Prep	1		21.77	21.43	21.19	C	Temperature	10102056_Crash_Prep.spl

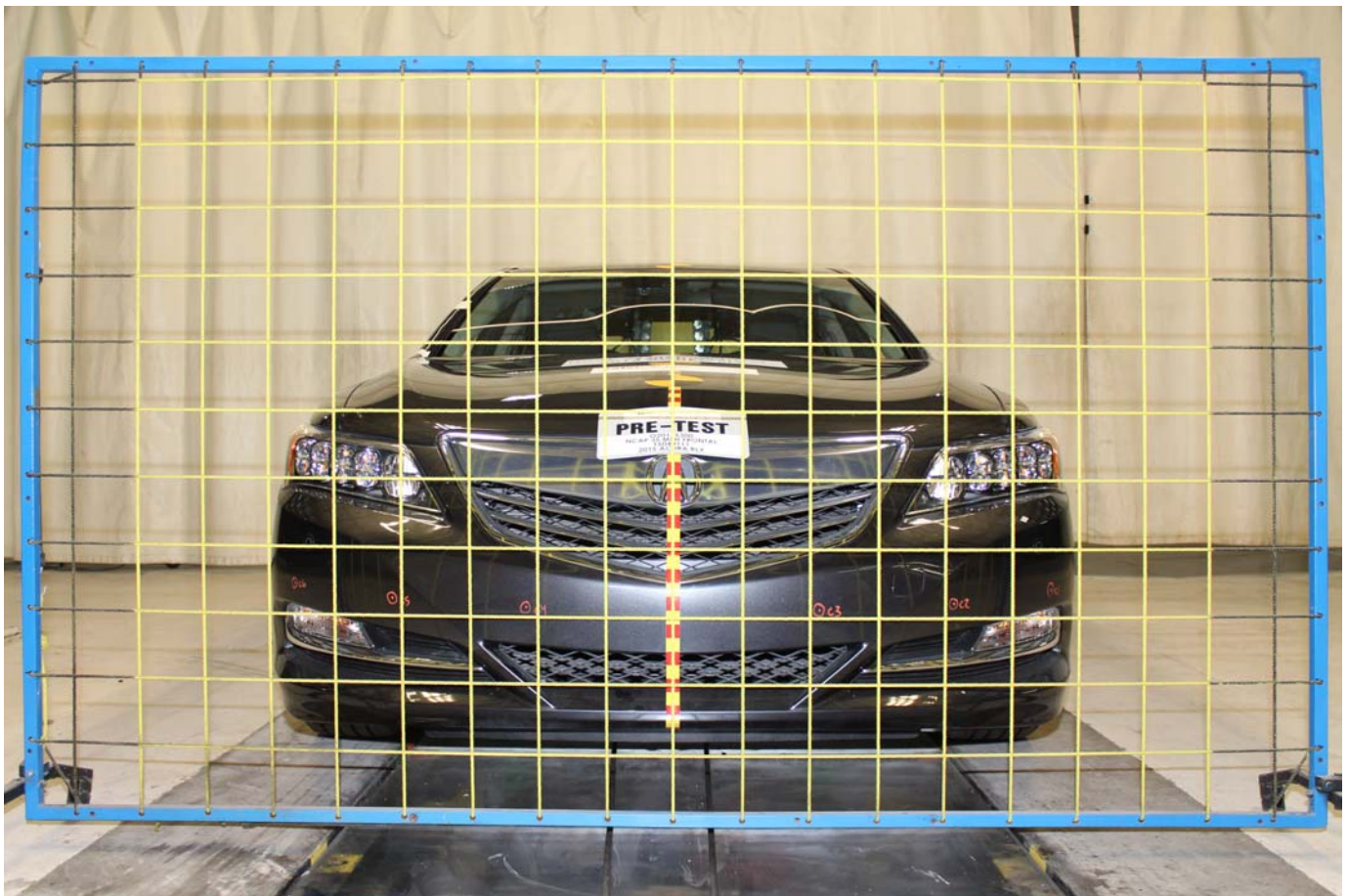
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PHOTOGRAPHS**

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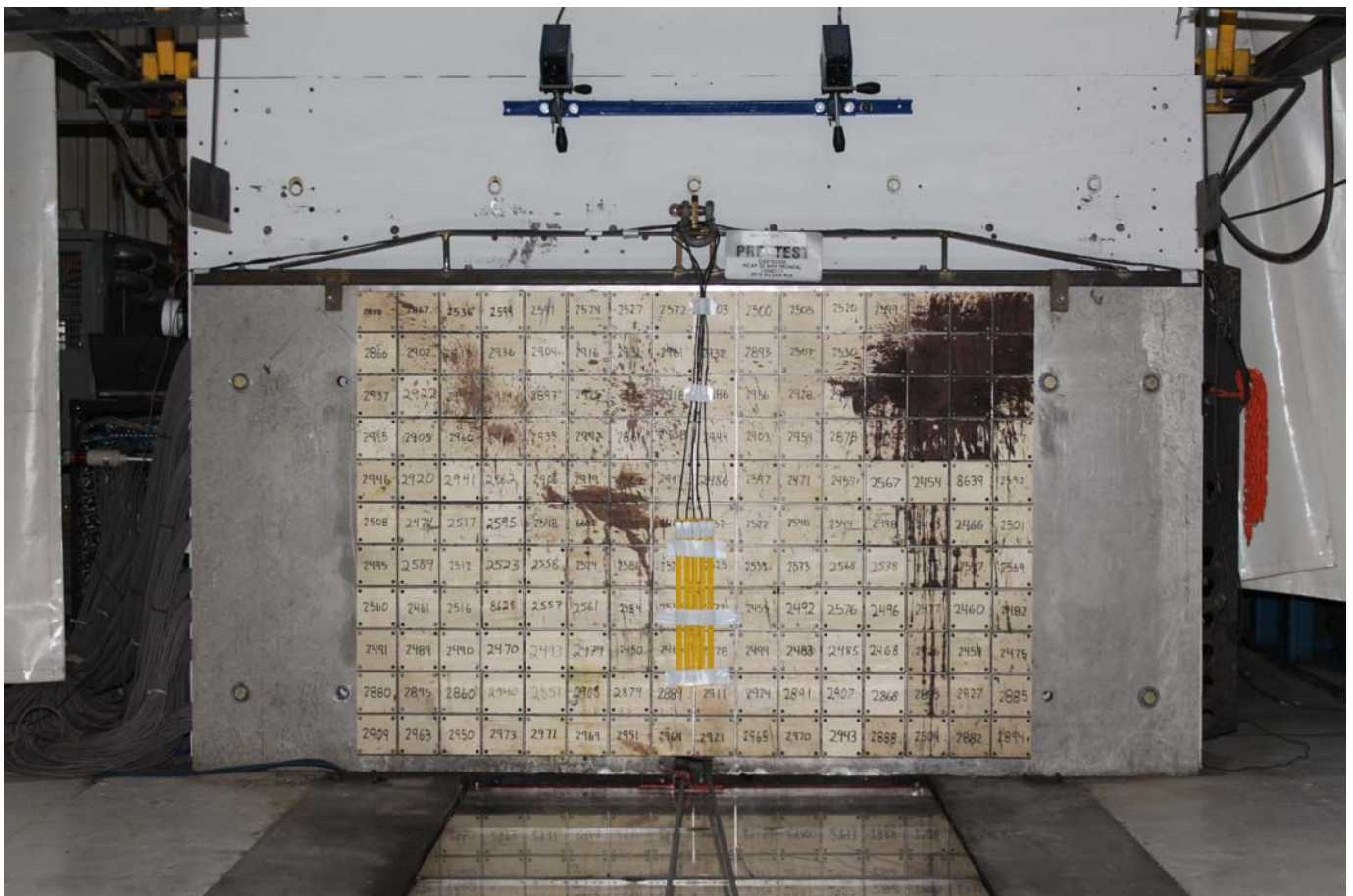
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No. 001 - Load Cell Location



No. 002 - Load Cell Wall



020155300

No. 003 - Manufacturer's Label



020155300

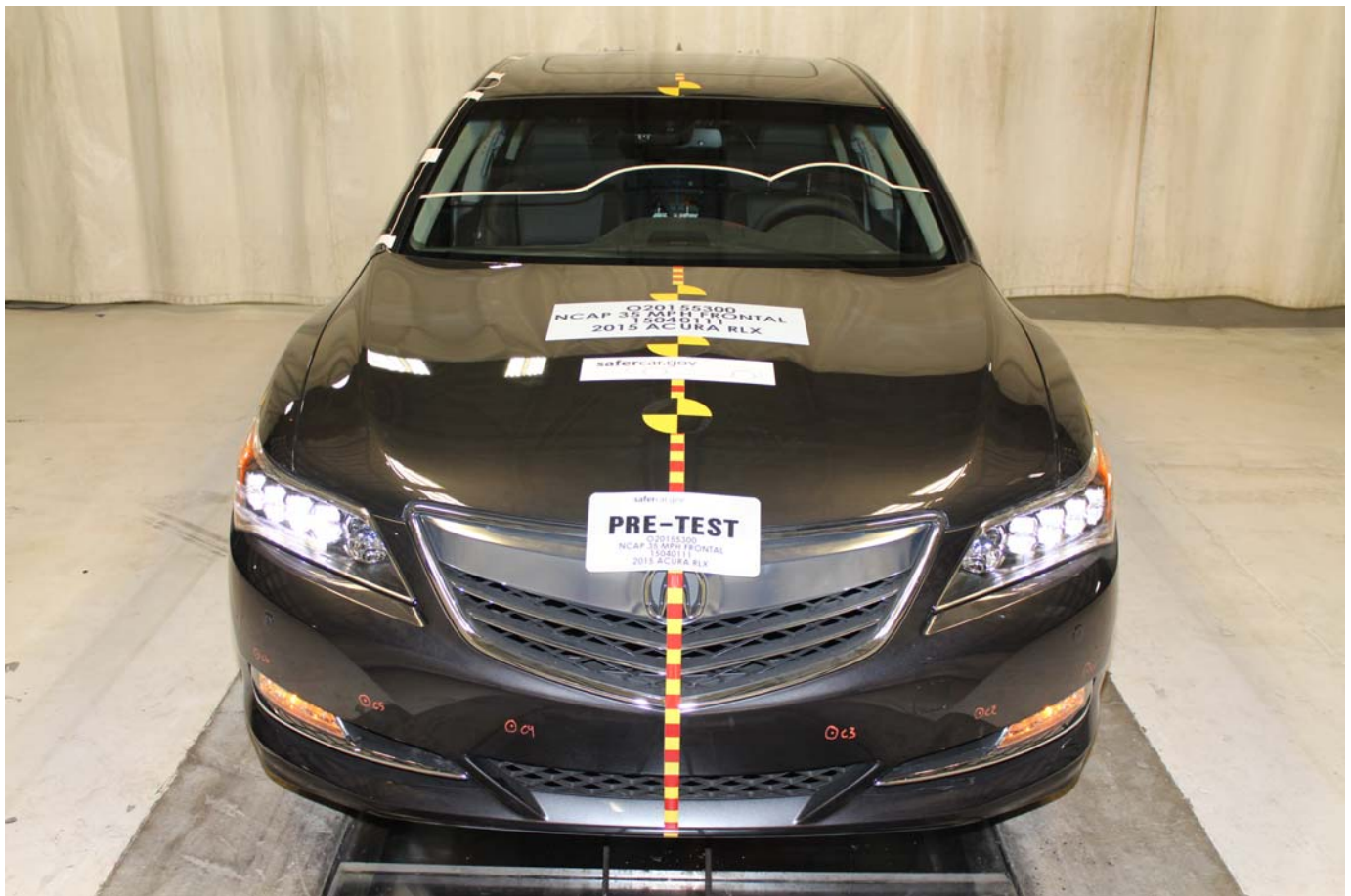
No. 004 - Tire Placard



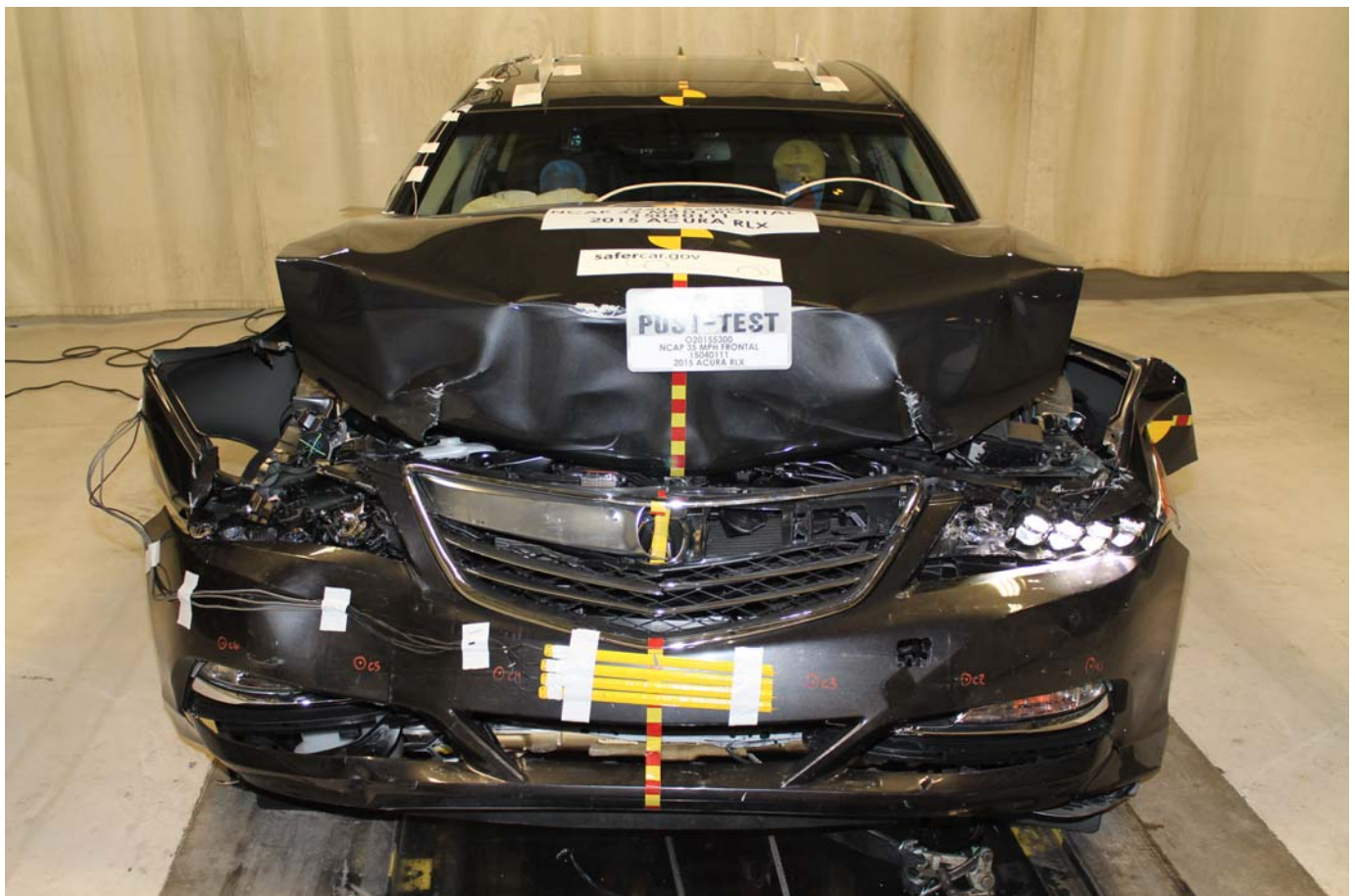
No. 005 - 2015 Acura RLX Advance Frontal As Delivered



No. 006 - Left Rear 3-4 View, As Received



No. 007 - Pre-Test Front View of Test Vehicle



No. 008 - Post-Test Front View of Test Vehicle



No. 009 - Pre-Test Left View of Test Vehicle



No. 010 - Post-Test Left View of Test Vehicle



No. 011 - Pre-Test Right View of Test Vehicle



No. 012 - Post-Test Right View of Test Vehicle



No. 013 - Pre-Test Right Front 3-4 View



No. 014 - Post-Test Right Front 3-4 View



No. 015 - Pre-Test Left Rear 3-4 View



No. 016 - Post-Test Left Rear 3-4 View



No. 017 - Pre-Test Windshield View



No. 018 - Post-Test Windshield View



No. 019 - Pre-Test Engine Compartment View



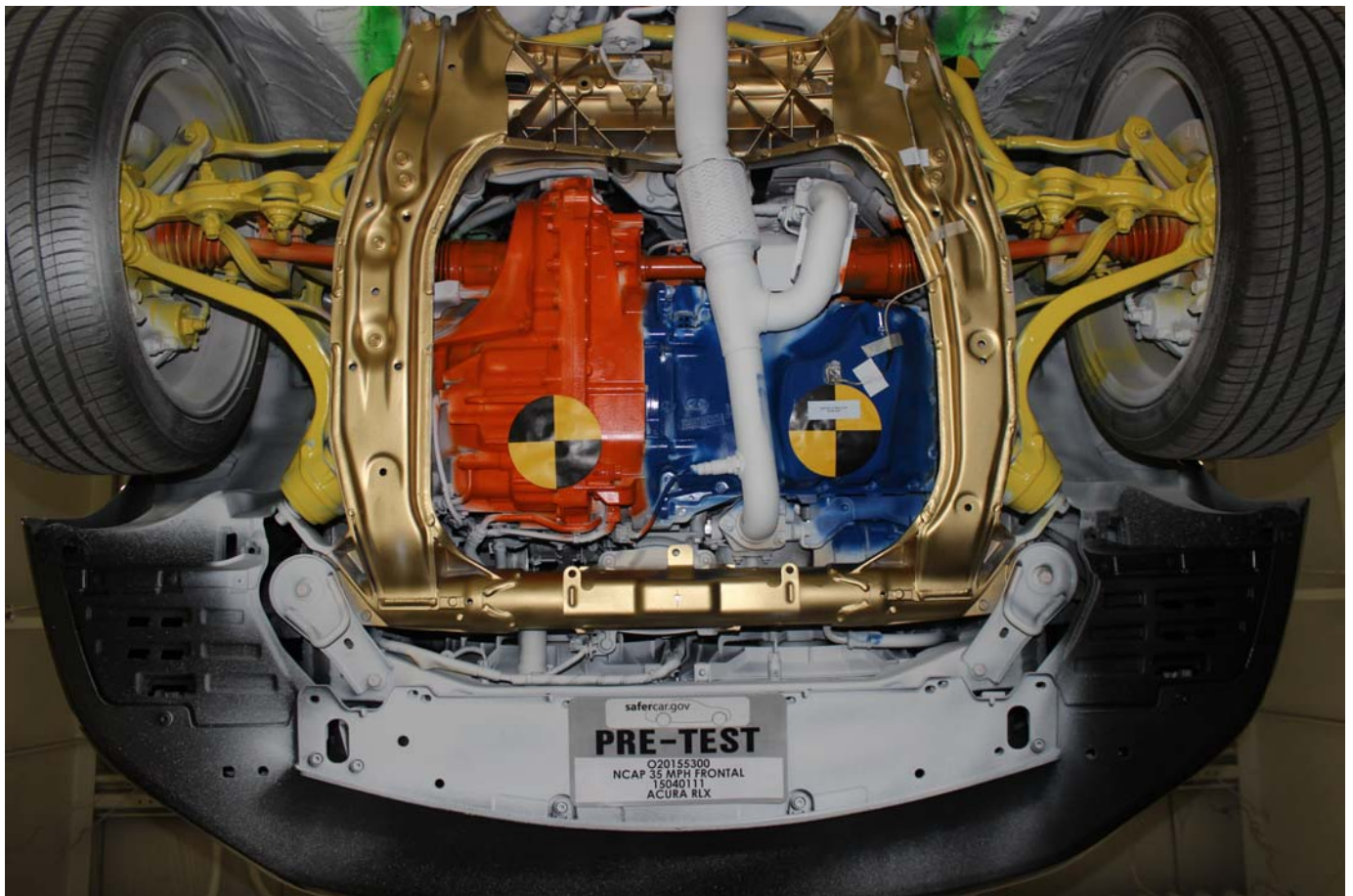
No. 020 - Post-Test Engine Compartment View



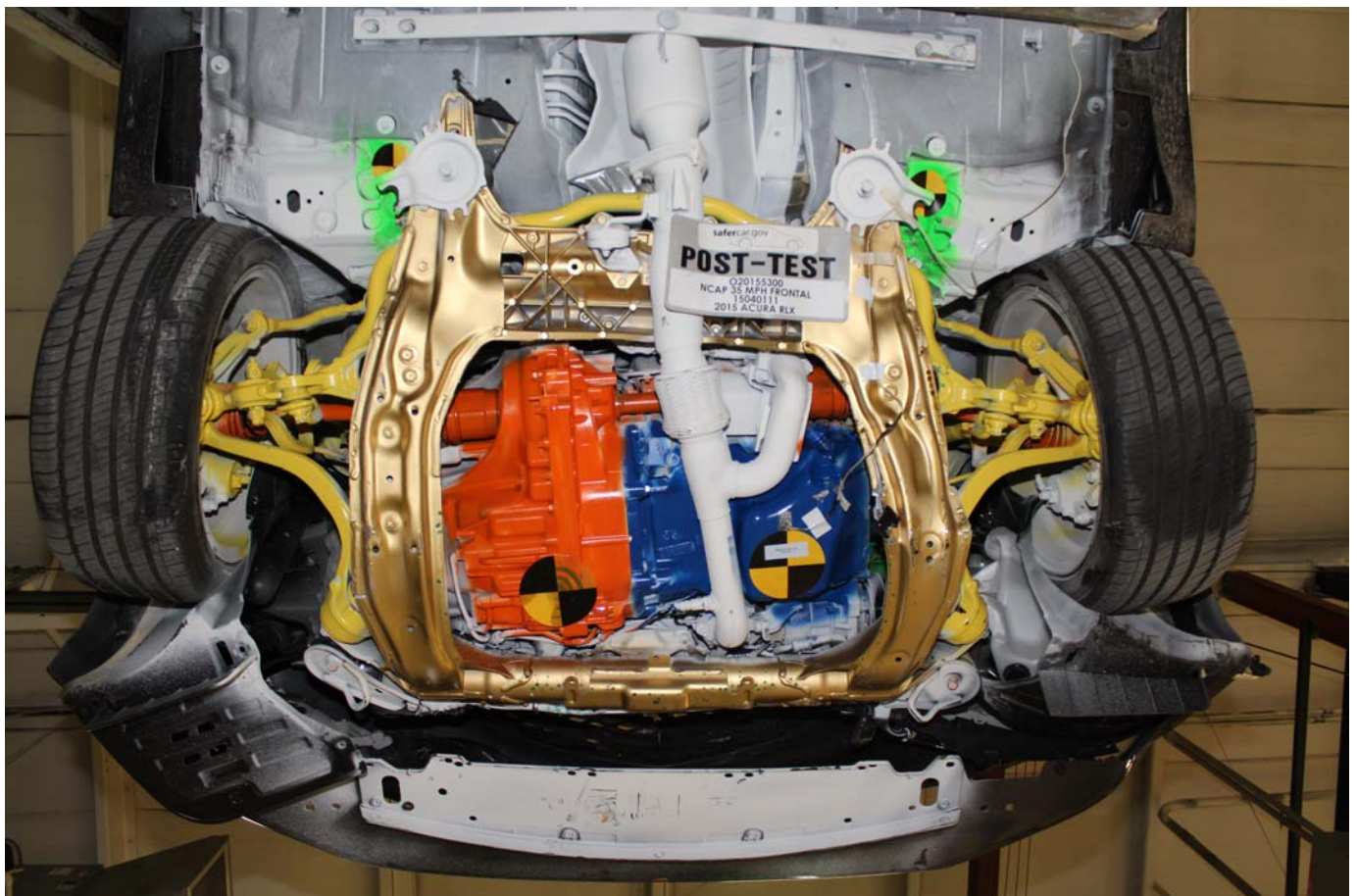
No. 021 - Pre-Test Fuel Filler Cap View



No. 022 - Post-Test Fuel Filler Cap View



No. 023 - Pre-Test Front Underbody View



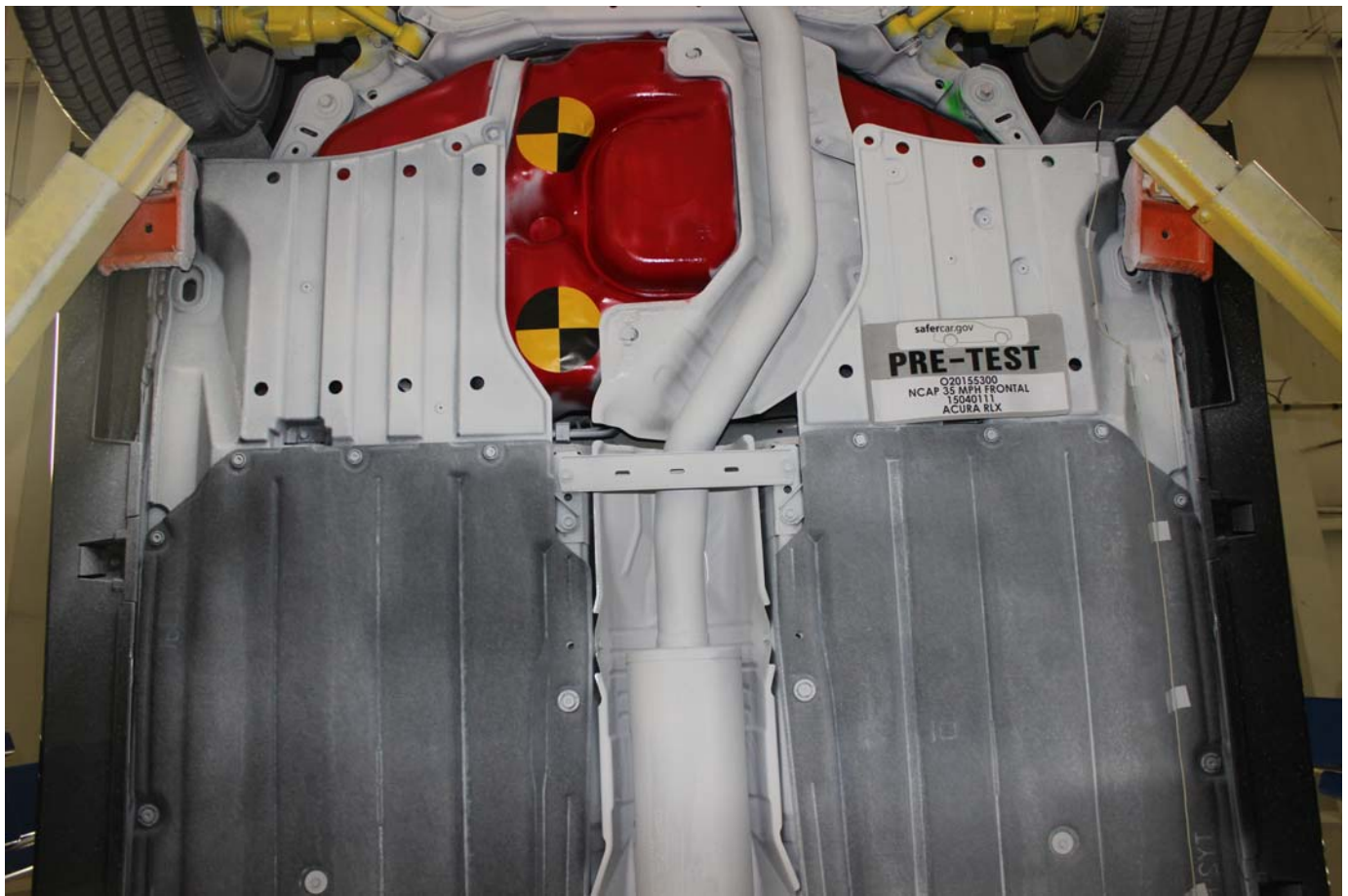
No. 024 - Post-Test Front Underbody View



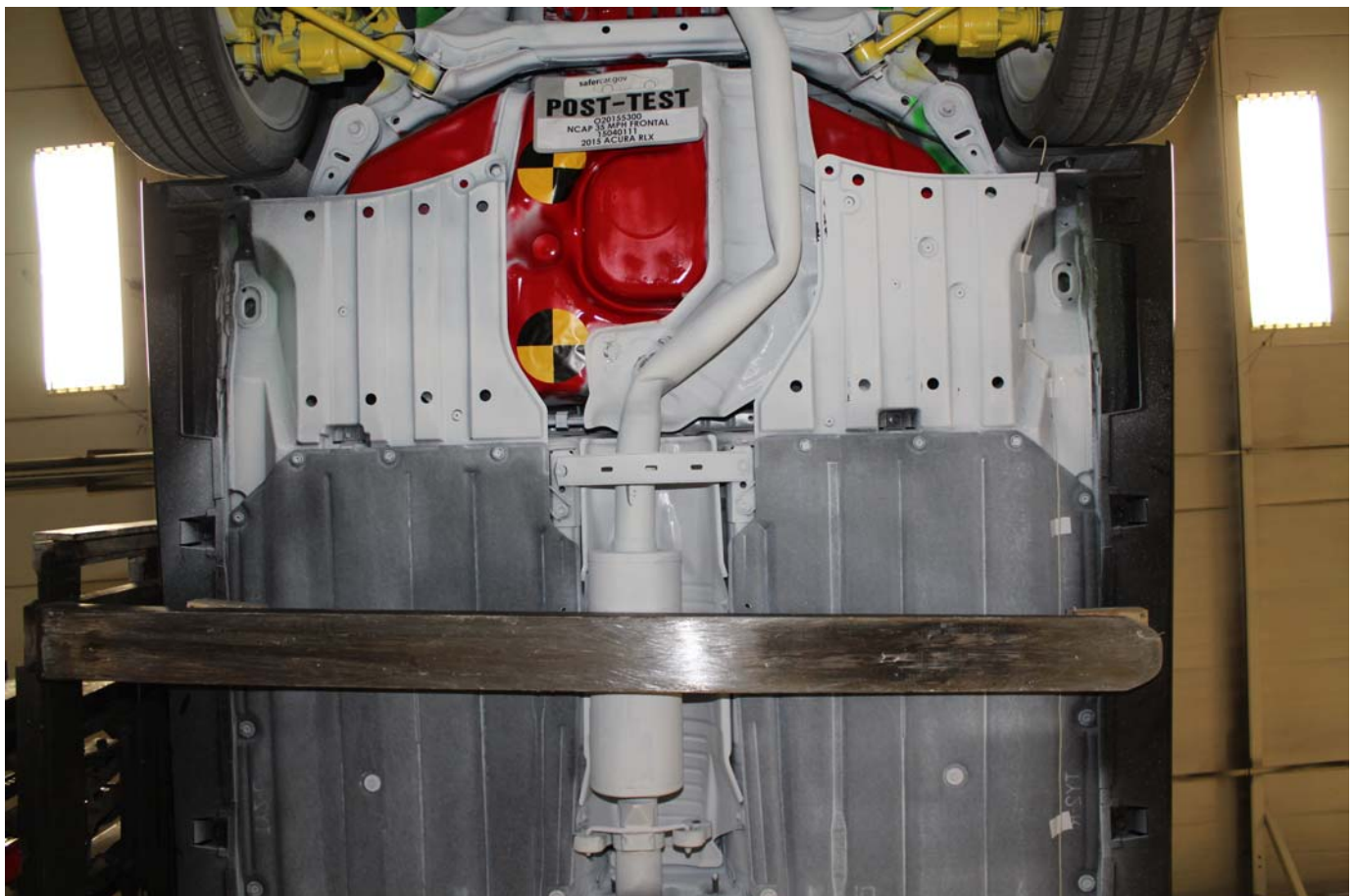
No. 025 - Pre-Test Mid Front Underbody View



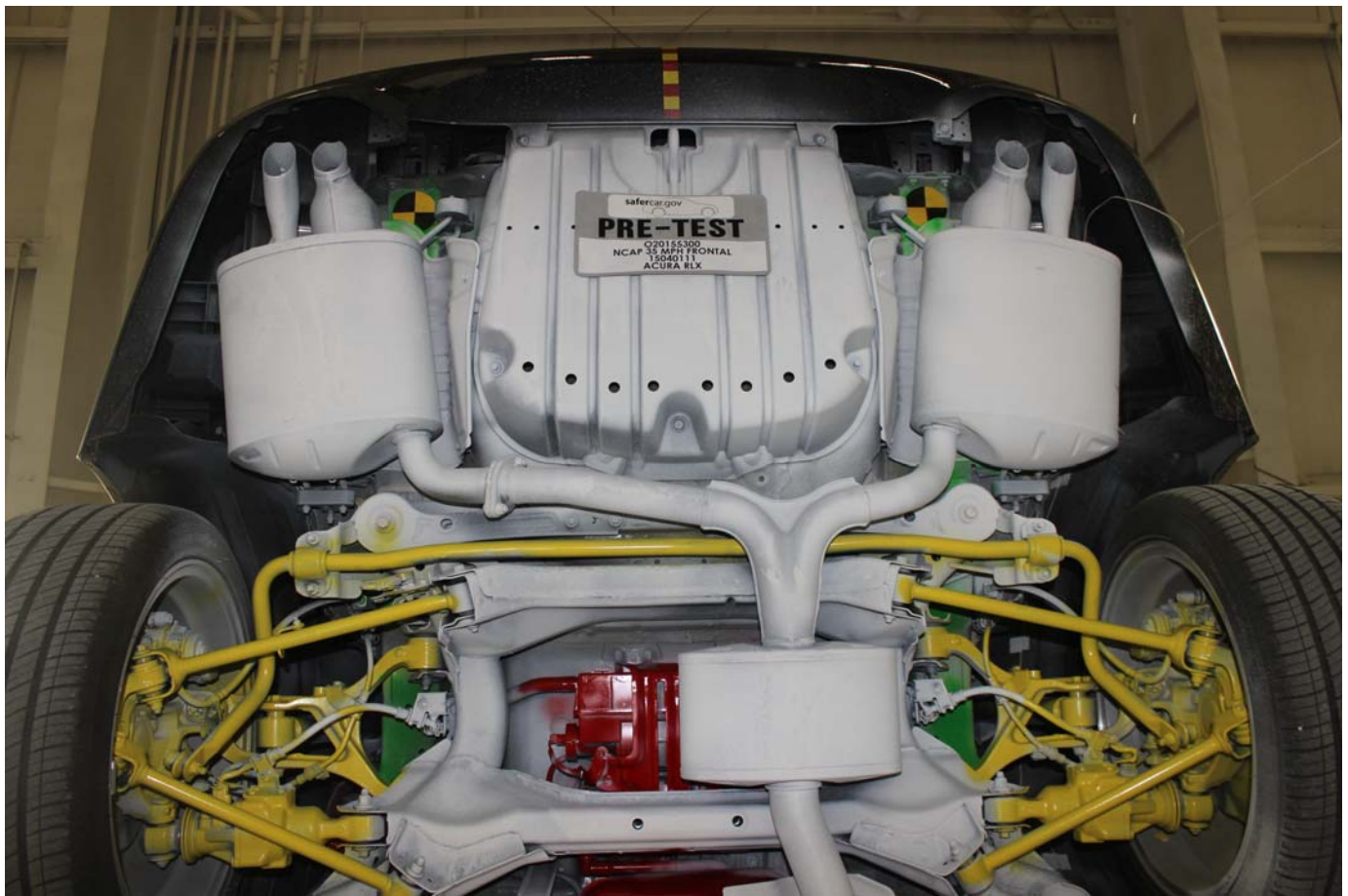
No. 026 - Post-Test Mid Front Underbody View



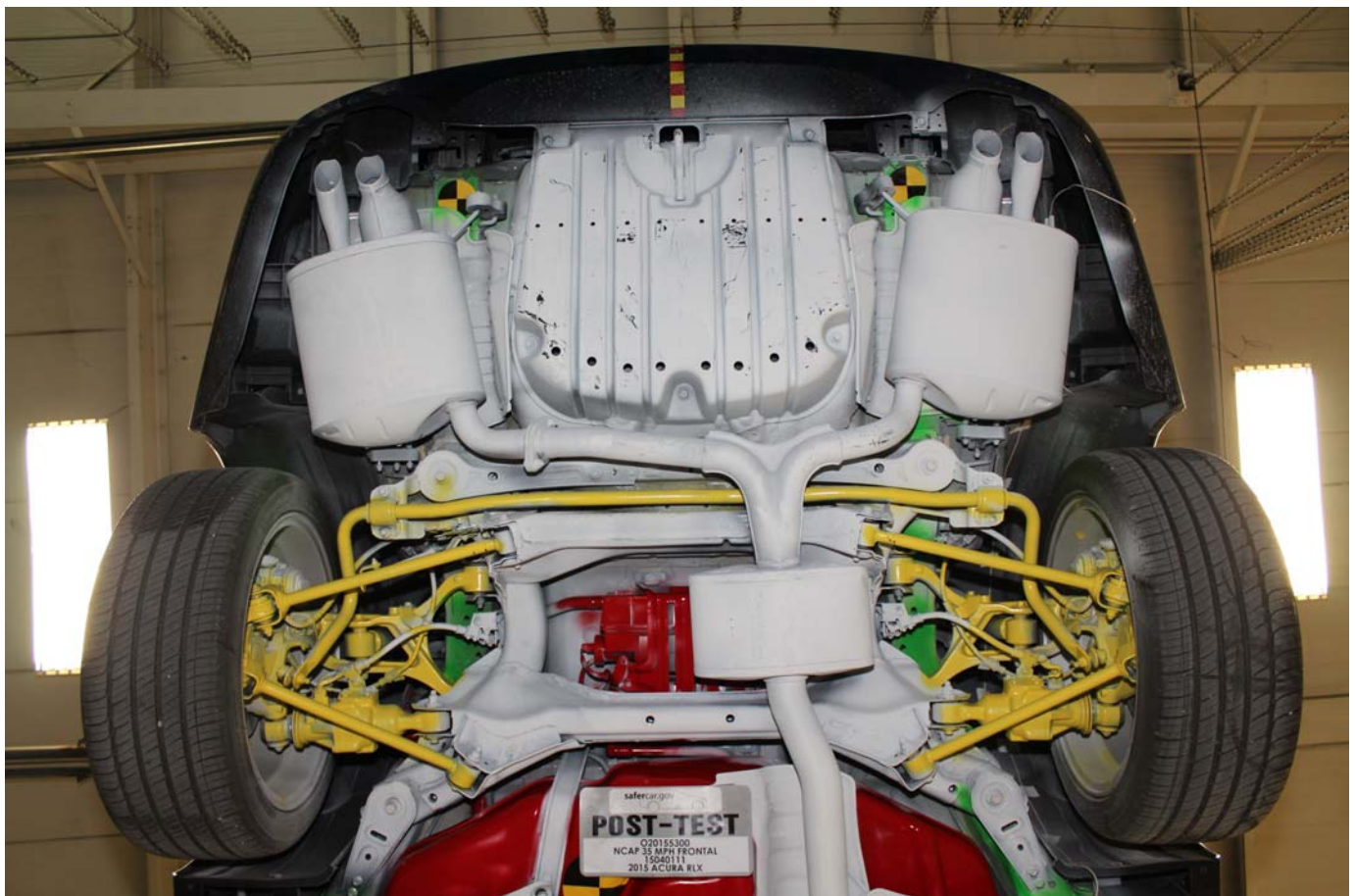
No. 027 - Pre-Test Mid Rear Underbody View



No. 028 - Post-Test Mid Rear Underbody View



No. 029 - Pre-Test Rear Underbody View



No. 030 - Post-Test Rear Underbody View



No. 031 - Pre-Test Dummy Cable Routing



No. 032 - Post-Test Dummy Cable Routing



No. 033 - Pre-Test Driver Dummy Front View



No. 034 - Post-Test Driver Dummy Front View



No. 035 - Pre-Test Driver Dummy Window View



No. 036 - Post-Test Driver Dummy Window View



No. 037 - Pre-Test Driver Dummy and Vehicle Interior (Door Open)



No. 038 - Post-Test Driver Dummy and Vehicle Interior (Door Open)



No. 039 - Pre-Test Driver's Seat Fore-Aft Markings



No. 040 - Post-Test Driver's Seat Fore-Aft Markings



No. 041 - Pre-Test View of Belt Anchorage for Driver Dummy



No. 042 - Post-Test View of Belt Anchorage for Driver Dummy



No. 043 - Pre-Test Driver Dummy Feet



No. 044 - Post-Test Driver Dummy Feet



No. 045 - Pre-Test Driver's Side Knee Bolster (without dummy)



No. 046 - Post-Test Driver's Side Knee Bolster (without dummy)



No. 047 - Pre-Test Driver's Side Floorpan



No. 048 - Post-Test Driver's Side Floorpan



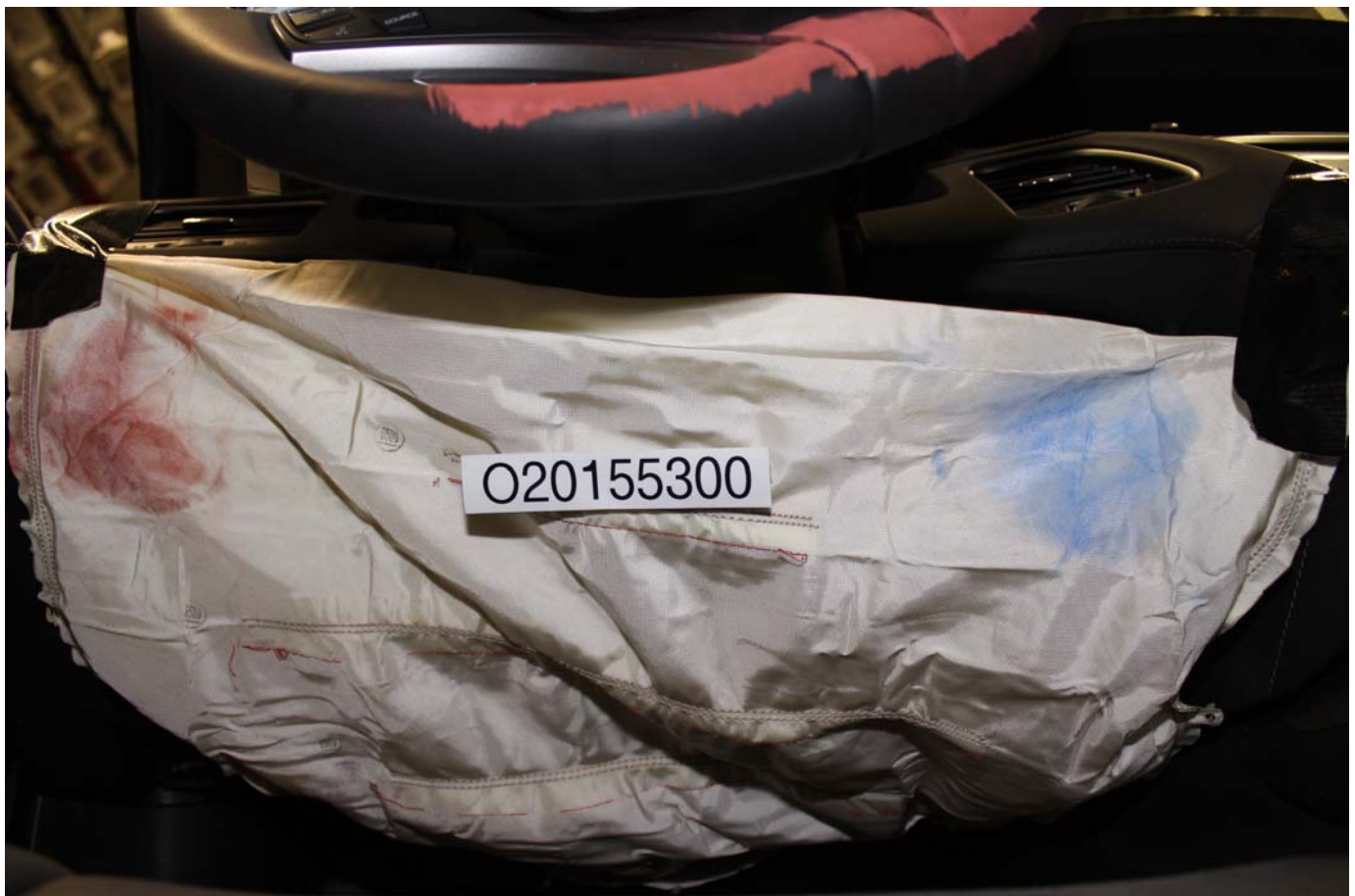
No. 049 - Post-Test Driver Dummy Face



No. 050 - Post-Test Driver Dummy Contact with Airbag



No. 051 - Post-Test Driver Dummy Contact with Headrest



No. 052 - Post-Test Driver Dummy Contact with Knee Airbag



No. 053 - Pre-Test View of the Steering Wheel



No. 054 - Post-Test View of the Steering Wheel

PHOTOGRAPH NOT AVAILABLE

No. 055 - Pre-Test Passenger Dummy Front View



No. 056 - Post-Test Passenger Dummy Front View



No. 057 - Pre-Test Passenger Dummy Window View

PHOTOGRAPH NOT AVAILABLE

No. 058 - Post-Test Passenger Dummy Window View



No. 059 - Pre-Test Passenger Dummy and Vehicle Interior (Door Open)



No. 060 - Post-Test Passenger Dummy and Vehicle Interior (Door Open)



No. 061 - Pre-Test Passenger's Seat Fore-Aft Markings



No. 062 - Post-Test Passenger's Seat Fore-Aft Markings



No. 063 - Pre-Test View of Belt Anchorage for Passenger Dummy

PHOTOGRAPH NOT AVAILABLE

No. 064 - Post-Test View of Belt Anchorage for Passenger Dummy



No. 065 - Pre-Test Passenger Dummy Feet



No. 066 - Post-Test Passenger Dummy Feet



No. 067 - Pre-Test Passenger's Side Knee Bolster (without dummy)



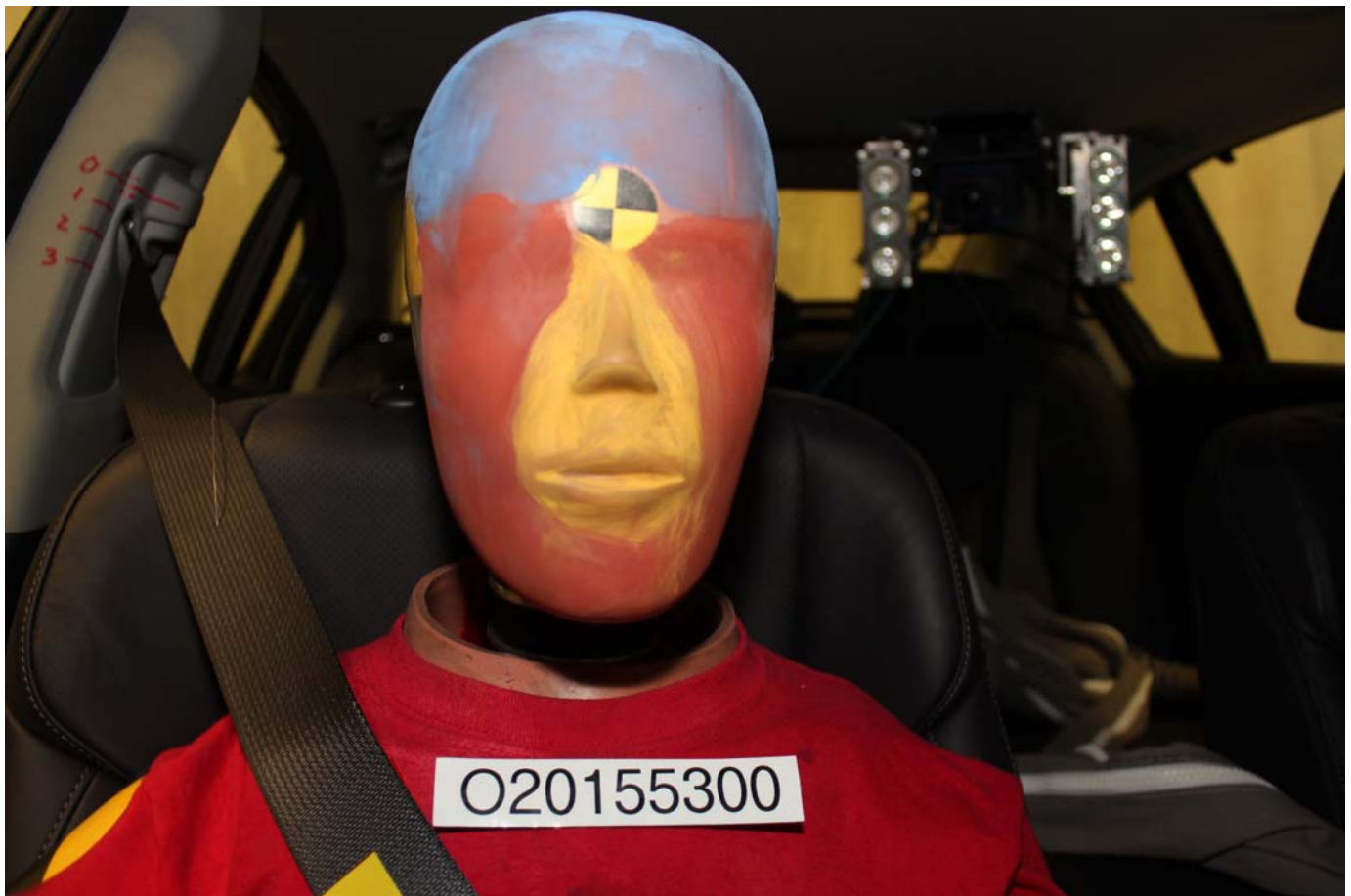
No. 068 - Post-Test Passenger's Side Knee Bolster (without dummy)



No. 069 - Pre-Test Passenger's Side Floorpan



No. 070 - Post-Test Passenger's Side Floorpan



No. 071 - Post-Test Passenger Dummy Face



No. 072 - Post-Test Passenger Dummy Contact with Airbag



No. 073 - Post-Test Passenger Dummy Contact with Headrest



No. 074 - Post-Test Passenger Dummy Contact with Glovebox

PHOTOGRAPH NOT APPLICABLE

No. 075 - Ballast Installed in Vehicle

PHOTOGRAPH NOT APPLICABLE

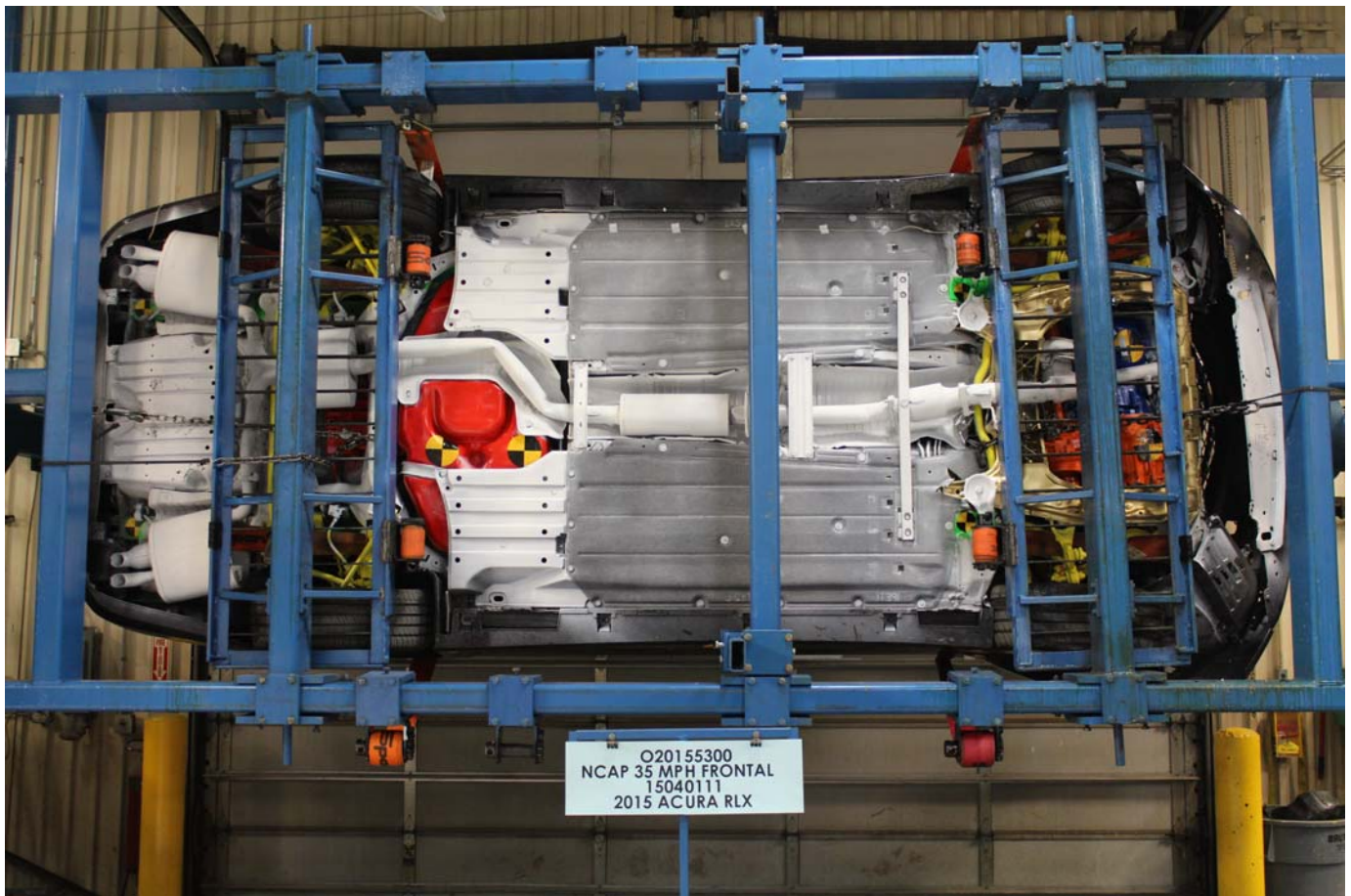
No. 076 - Post-Test Stoddard Solvent Spillage Location View



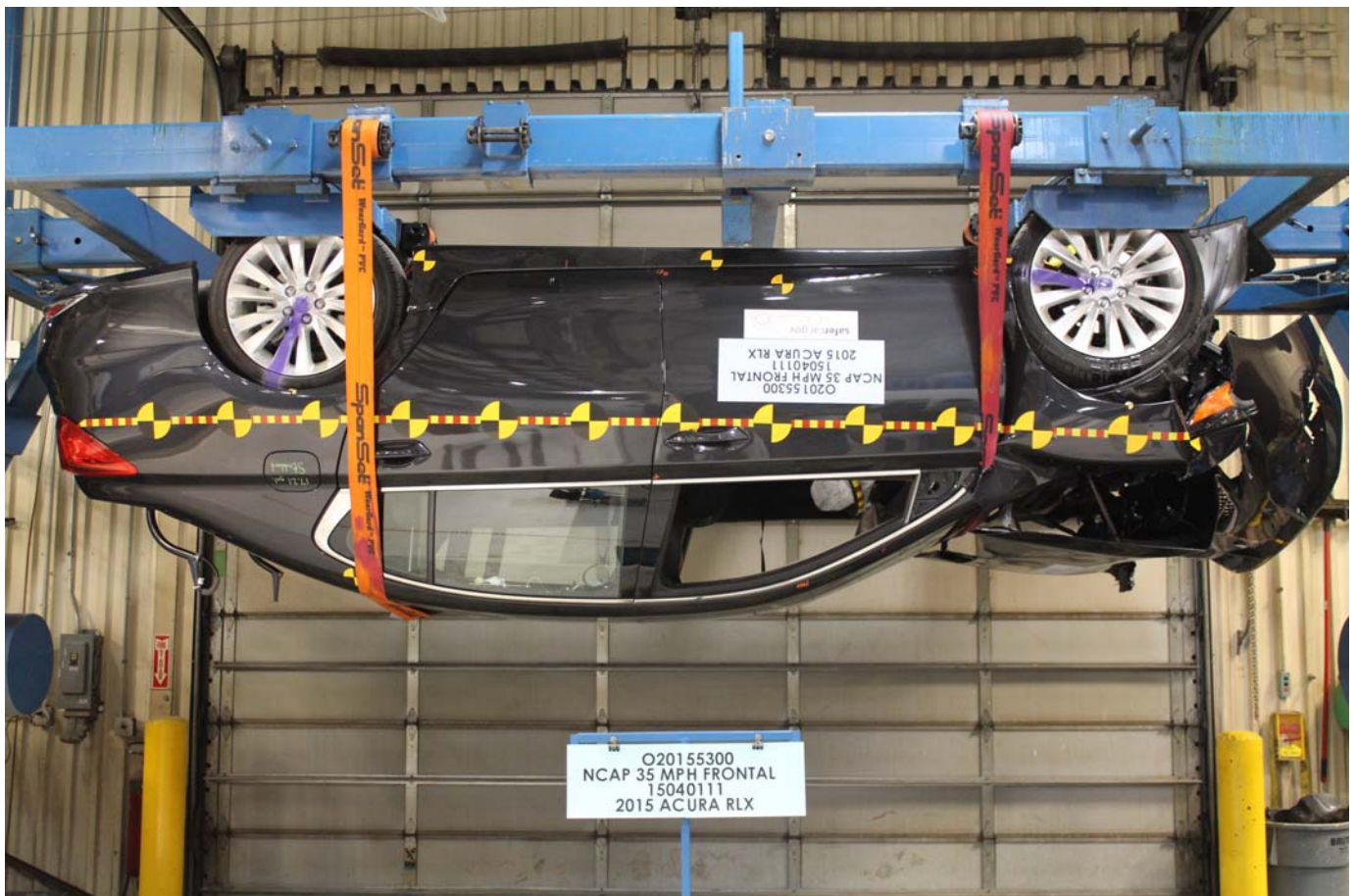
No. 077 - Post-Test Speed Trap Read-Out



No. 078 - Vehicle at 0 Degree on Static Rollover Device



No. 079 - Vehicle at 90 Degrees on Static Rollover Device



No. 080 - Vehicle at 180 Degrees on Static Rollover Device



No. 081 - Vehicle at 270 Degrees on Static Rollover Device



No. 082 - Vehicle at 360 Degrees on Static Rollover Device



No. 083 - 2015 Acura RLX Advance Frontal Impact Event



ACURA

2015 RLX ADVANCE

EXT: GRAPHITE LUSTER M. ENGINE NUMBER: J35Y4-1401004
INT: EBONY

STANDARD EQUIPMENT AT NO EXTRA COST

* TECHNICAL FEATURES *

- 310hp Direct-Injected 3.5 Liter SOHC 24-Valve VTEC V6 Engine with Variable Cylinder Management
- 6-Speed Automatic Transmission with Sequential SportShift
- Precision All-Wheel Steer
- Front Double Wishbone Suspension
- Rear Multi-Link Suspension

* SAFETY FEATURES *

- Driver's and Front Passenger's Dual-Stage Airbags (SRS)
- Driver's and Front Passenger's Side Airbags w/ SmartVent
- Side Curtain Airbags
- with Rollover Sensor
- Driver Knee Airbag
- Vehicle Stability Assist (VSA)
- Anti-Lock Braking System (ABS)
- Electronic Brake Distribution (EBD)
- Agile Handling Assist Dynamic Braking System
- Electronic Parking Brake
- Lane Departure Warning
- Tire Pressure Monitoring System
- ACE Body Structure
- LATCH System for Child Seats

* INTERIOR FEATURES *

- Multi-Angle Rearview Camera with Dynamic Guidelines
- On-Demand Multi-Use Display Touch Screen
- XM Satellite Radio
- HD Radio
- Bluetooth HandsFreeLink
- SMS Text Messaging Functionality
- Pandora Internet Radio Interface
- Driver's and Front Passenger's 12-Way Power Seats
- Driver Recognition Memory System
- Heated Front Seats
- Push-Button Ignition
- Electronic Tilt and Telescoping Steering Column
- Tri-Zone Automatic Climate Control with Air Filtration System

* EXTERIOR FEATURES *

- HomeLink System
- Auto Dimming Rearview Mirror
- Jewel Eye LED Headlights
- Power Moonroof with Tilt Feature
- 18" x 8.0" Alloy Wheels
- 245/40 R19 All-Season Tires
- Tire Sealant and Inflator Kit (in place of spare tire)
- Expanded View Driver's Mirror
- Keyless Access System with Smart Entry

* TECH PACKAGE *

- Acura Navigation System with Voice Recognition
- AcuraLink Communication System with Real-Time Traffic with Street and Freeway Conditions (available in select markets)
- Blind Spot Information
- Perforated Leather Trimmed Seats
- Rain Sensing Wipers
- Power-Folding Side Mirrors

* ADVANCE PACKAGE *

- Collision Mitigation Braking System
- Adaptive Cruise Control (ACC)
- Lane Keeping Assist System
- Ventilated Front Seats
- Heated Rear Seats
- Auto-Dimming Side Mirrors
- Parking Sensors
- Heated Steering Wheel
- Krell Premium Audio System with 14 Speakers
- Power Rear Window Sunshade
- Rear Door Sunshades

Manufacturer's Suggested Retail Price **\$60,450.00**

MSRP Includes:
-6YR/70K Mile Powertrain Warranty
-4YR/50K Mile Ltd Vehicle Warranty
-Full Tank of Fuel
-Complimentary AcuraLink Standard Package for 3 Years

- XM Radio Includes
Free Activation and 3 Months Free Service (excl. AK & HI)

Destination and Handling **895.00**

TOTAL VEHICLE PRICE
(Includes Pre-Delivery Service) **\$61,345.00**

License and title fees, state and local taxes and dealer options and accessories are not included in the manufacturer's suggested retail price.

EPA DOT Fuel Economy and Environment

Gasoline Vehicle

Fuel Economy

24 MPG
combined city/hwy

20 city 31 highway

4.2 gallons per 100 miles

Midsize cars range from 13 to 58 MPG. The best vehicle rates 119 MPG.

You spend \$1,000 in fuel costs over 5 years compared to the average new vehicle.

Annual fuel cost \$2,400

Fuel Economy & Greenhouse Gas Rating (tailpipe only) Smog Rating (tailpipe only)

6 10 5 10

Best Best

This vehicle emits 378 grams CO₂ per mile. The best emits 0 grams per mile (tailpipe only). Producing and distributing fuel also create emissions. Learn more at fuelconomy.gov.

Actual results will vary for many reasons, including driving conditions and how you drive and maintain your vehicle. The average new vehicle gets 24 MPG and costs \$11,200 to fuel over 5 years. Cost estimates are based on 15,000 miles per year at \$3.00 per gallon. 100C is miles per gasoline gallon equivalent. Vehicle emissions are a significant cause of climate change and smog.

fuelconomy.gov
Calculate personalized estimates and compare vehicles.

Smartphone QR Code

PARTS CONTENT INFORMATION

FOR VEHICLES IN THIS CARLINE
U.S./Canadian Parts Content: **10 %**

Major Sources of Foreign Parts Content:
JAPAN 80 %

NOTE: Parts content does not include final assembly, distribution or other non-parts costs.

GOVERNMENT 5-STAR SAFETY RATING

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
Side Crash	Front seat Rear seat	Not Rated
Rollover		Not Rated

Based on the risk of injury in a frontal impact.
Based on the risk of injury in a side impact.
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

This vehicle is equipped with a front bumper of a type that has been tested at an impact speed of 5 miles per hour, and a rear bumper of a type that has been tested at an impact speed of 5 miles per hour, resulting in no damage to the vehicle's body and safety systems and minimal damage to the bumper and attachment hardware. "Minimal damage to the bumper" means minor cosmetic damage that can be repaired with the use of common repair materials and without replacing any parts. The stronger the bumper, the less likely the vehicle will require repair after a low-speed collision. This vehicle exceeds the current federal bumper standard of 2.5 miles per hour.

BERGSTROM ACURA
2910 NORTH VICTORY LAN
APPLETON, WI 54913

PORT OF ENTRY: PORTLAND
DELIVERY POINT: CHICAGO
SHIP: 809-718339
ROW/SPACE:
TRANS.METHOD: N50 ELWOOD

VIN: JH4KC1F98FC000930

ORIG. DLR: 251554
REF.NO: 40270
HN CODE: AL-7890
EMISSION: 50 STATE
CONTROL NO: 321882
DEALER: 251554



FOR THIS VEHICLE
Final Assembly Point:
SAYAMA, SAITAMA JAPAN

Country of Origin: Engine:
JAPAN

Transmission:
JAPAN

No. 084 - Monroney Label Photograph

APPENDIX B
DUMMY RESPONSE DATA TRACES

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Figure No. 3.	Driver Head Z Acceleration vs. Time	B-1
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Figure No. 26.	Passenger Chest Z Acceleration vs. Time	B-9
Figure No. 27.	Passenger Chest Resultant Z Acceleration vs. Time	B-9

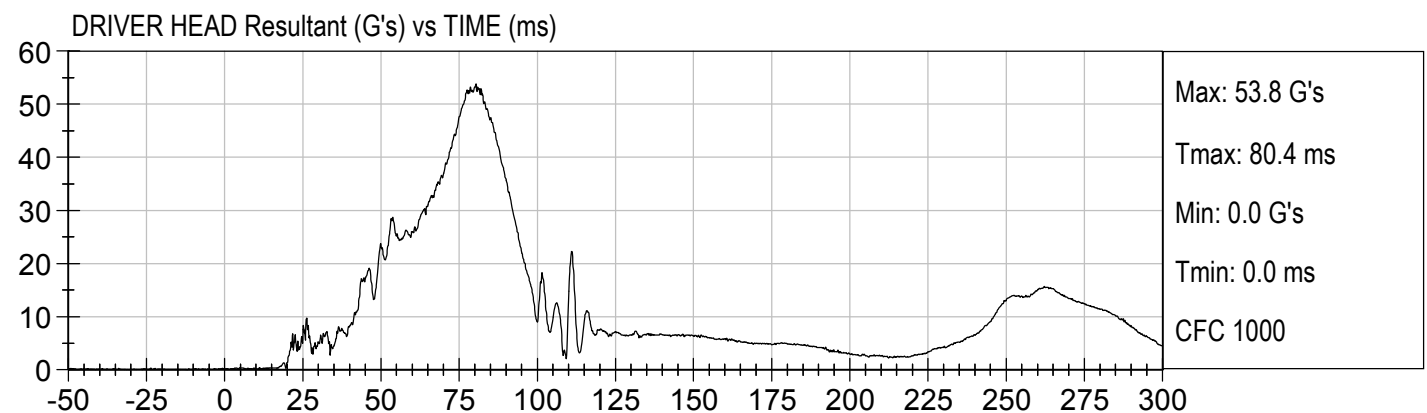
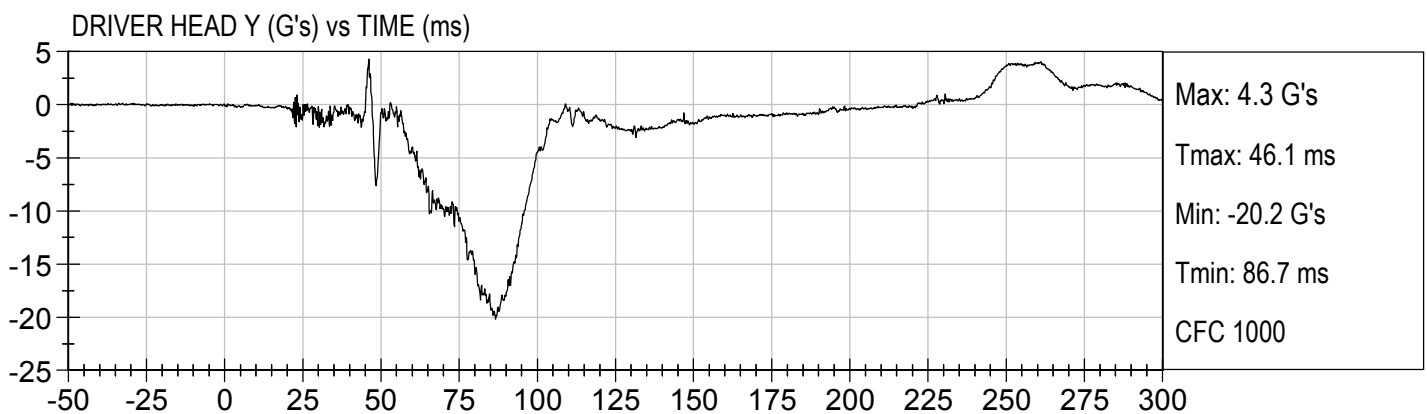
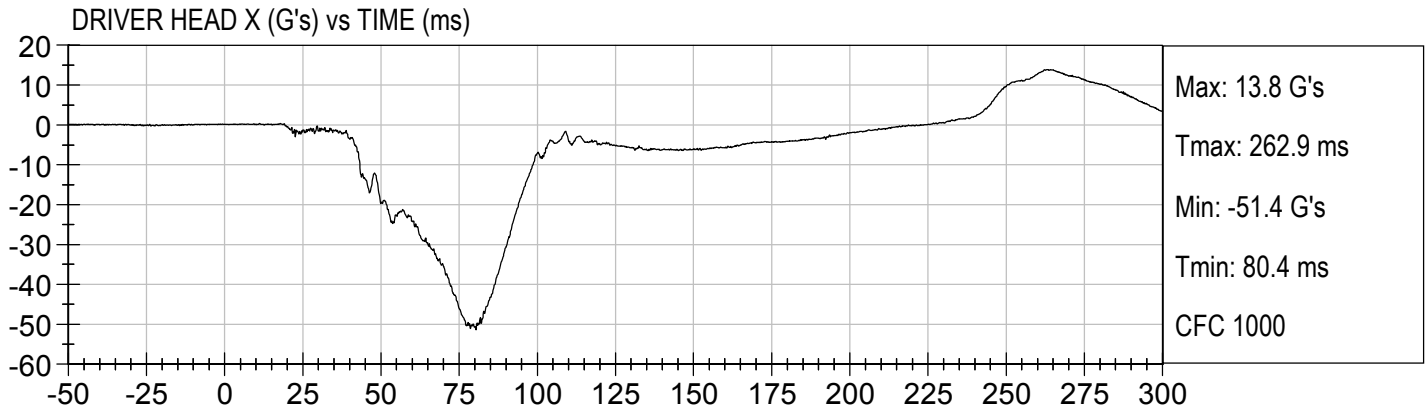
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Figure No. 28.	Passenger Neck Force X vs. Time	B-10
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Figure No. 30.	Passenger Neck Moment Y vs. Time	B-10
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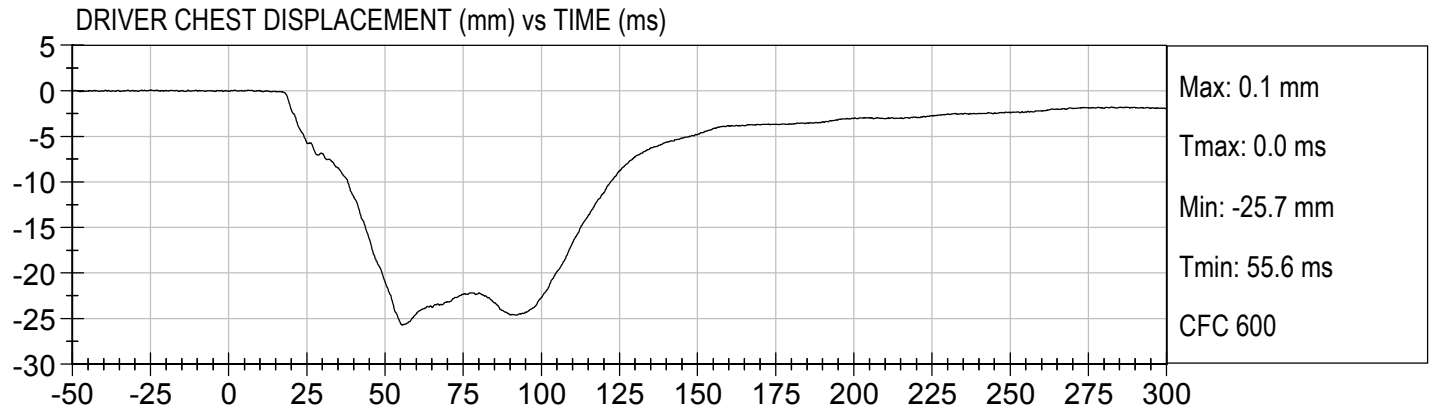
The following additional dummy and vehicle response data can be found in the R&D section of the NHTSA website at www.nhtsa.dot.gov

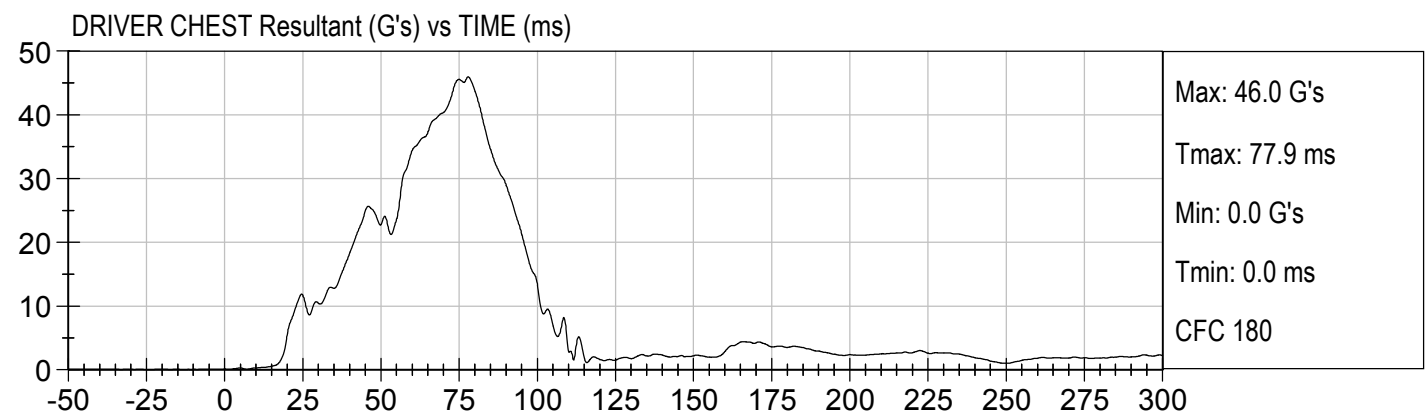
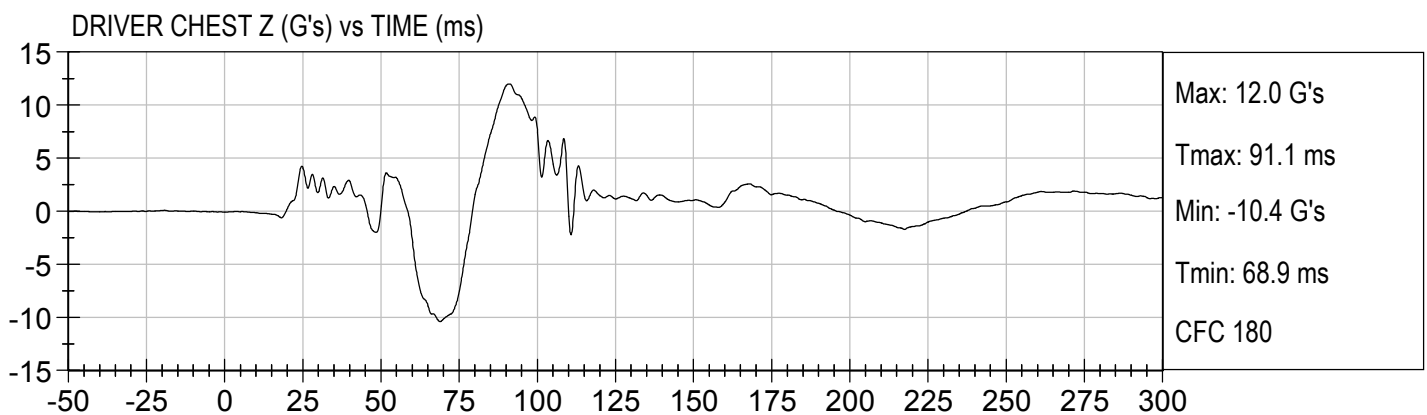
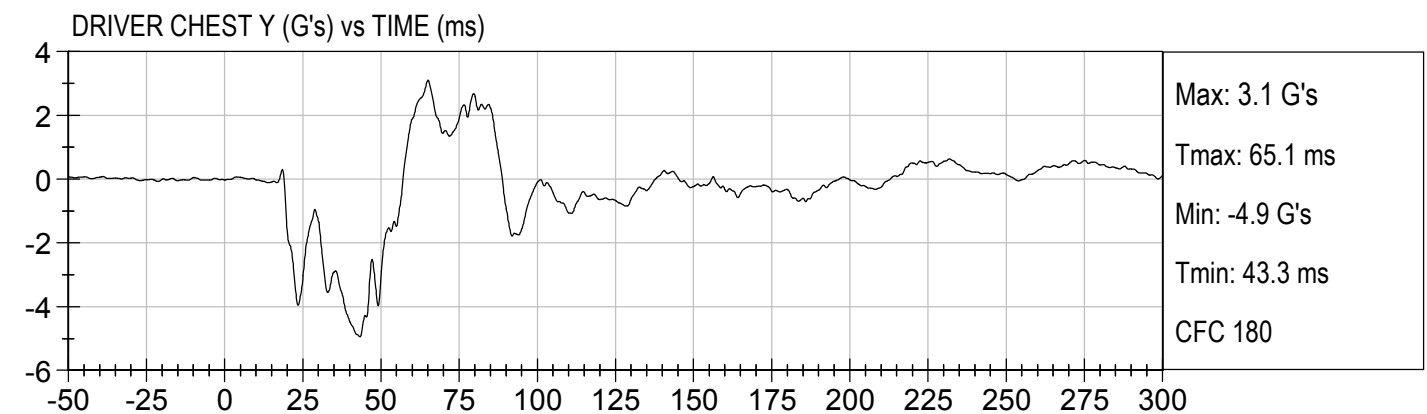
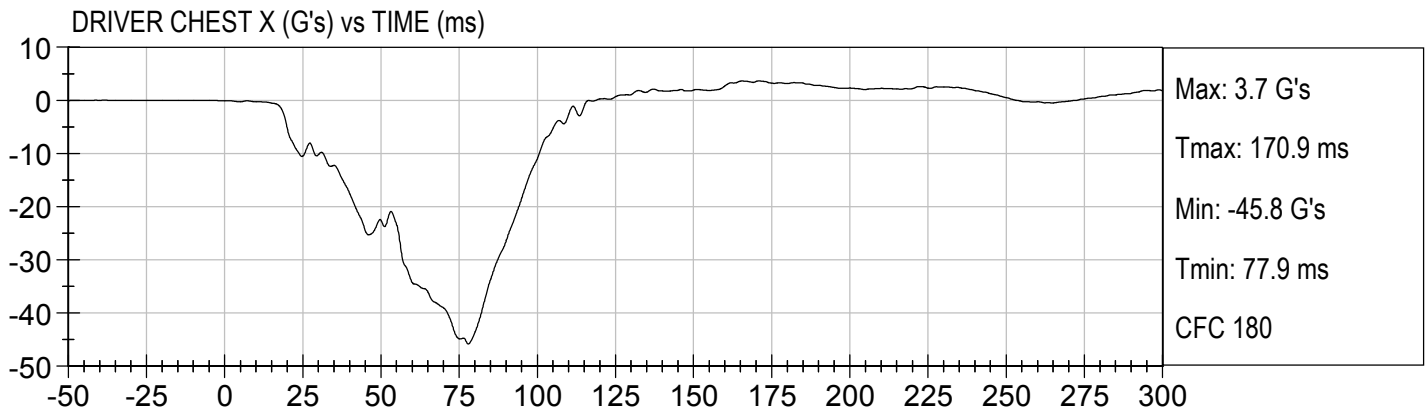
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 Driver Head Y Redundant
 Driver Head Z Redundant
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 Driver Upper Neck Moment X
 Driver Upper Neck Moment Z
 Driver Chest X Redundant
 Driver Chest Y Redundant
 Driver Chest Z Redundant
 Driver Pelvis X
 Driver Pelvis Y
 Driver Pelvis Z
 Driver Left Femur Redundant
 Driver Right Femur Redundant
 Driver Left Upper Tibia Moment X
 Driver Left Upper Tibia Moment Y
 Driver Left Upper Tibia Force Z

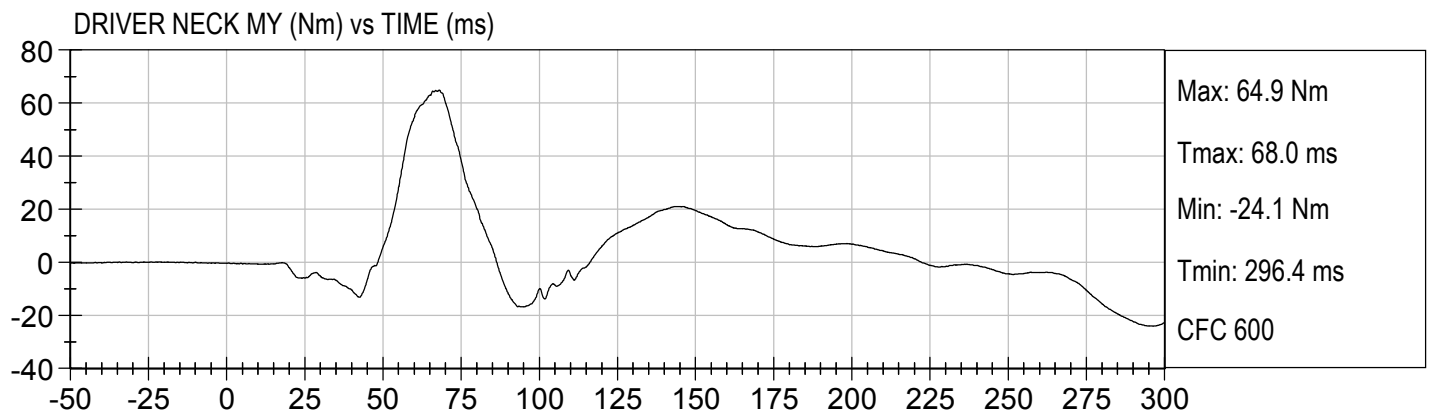
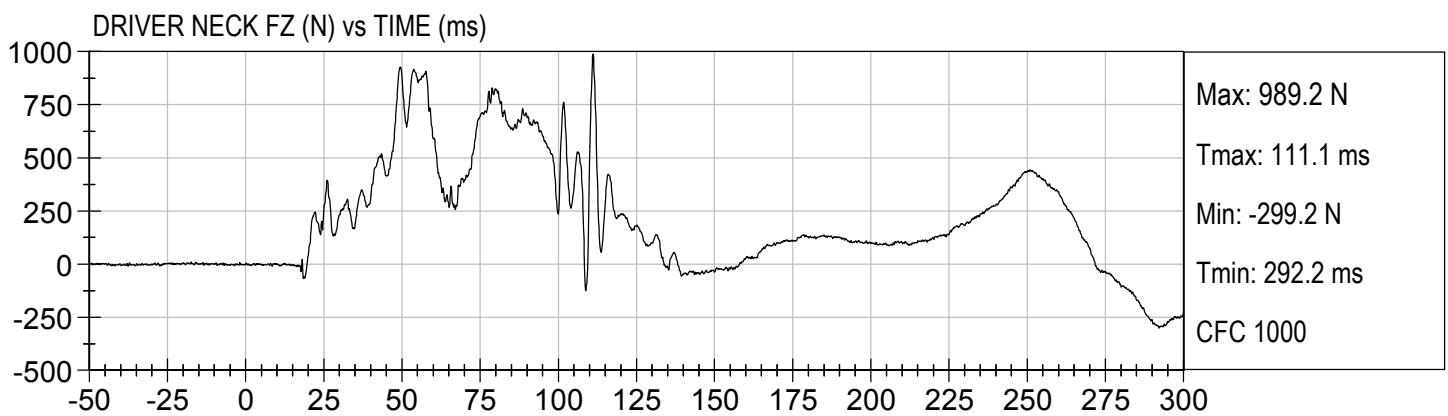
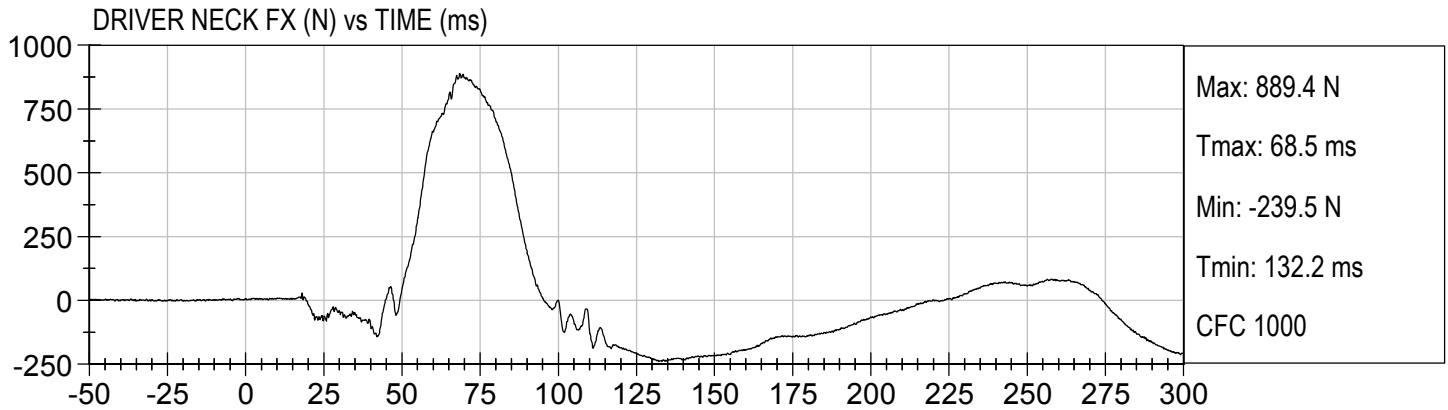
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Driver Left Lower Tibia Moment Y
Driver Left Lower Tibia Force Z
Driver Right Upper Tibia Moment X
Driver Right Upper Tibia Moment Y
Driver Right Upper Tibia Force Z
Driver Right Lower Tibia Moment X
Driver Right Lower Tibia Moment Y
Driver Right Lower 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 Lap Belt Force
Driver Shoulder Belt Force
Passenger Head X Redundant
Passenger Head Y Redundant
Passenger Head Z Redundant
Passenger Head Angular Velocity X
Passenger Head Angular Velocity Y
Passenger Head Angular Velocity Z
Passenger Upper Neck Force Y
Passenger Upper Neck Moment X
Passenger Upper Neck Moment Z
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Passenger Chest Z Redundant
Passenger Pelvis X
Passenger Pelvis Y
Passenger Pelvis Z

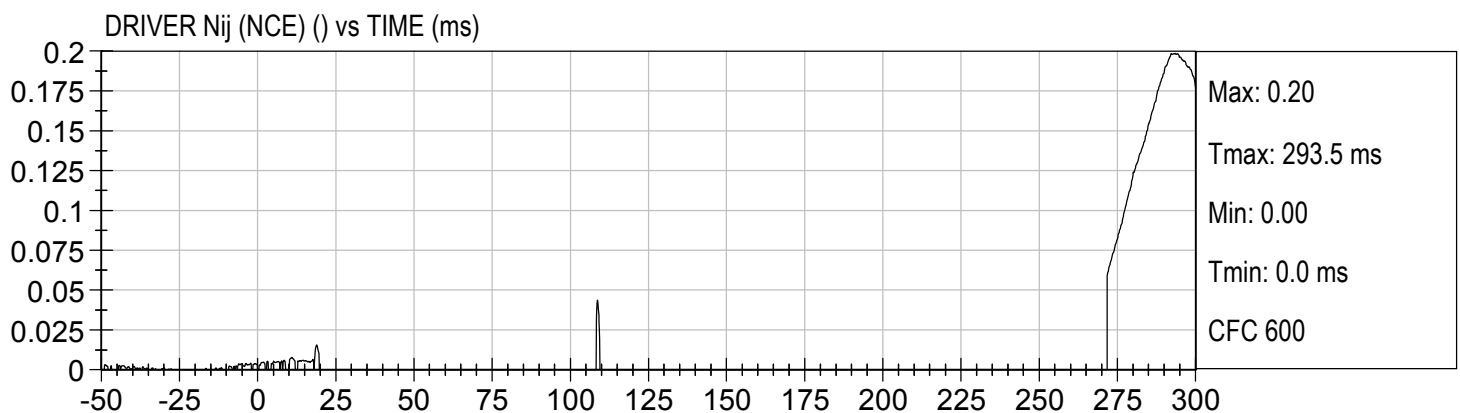
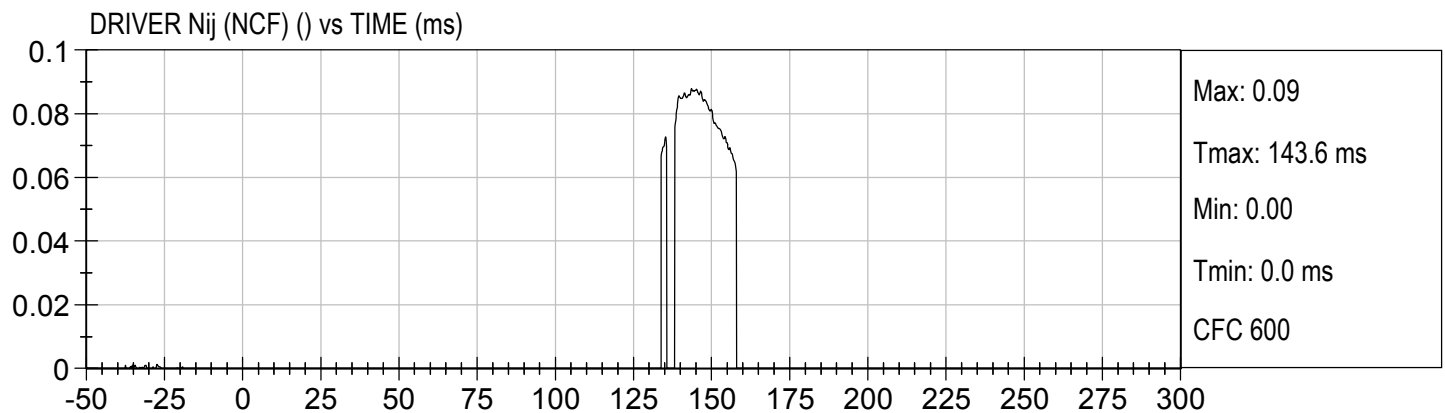
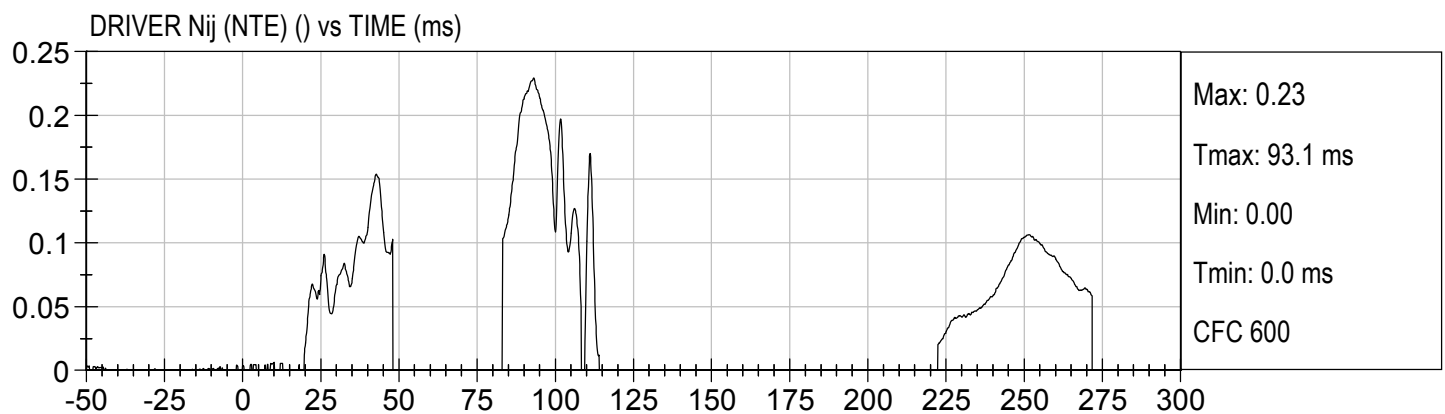
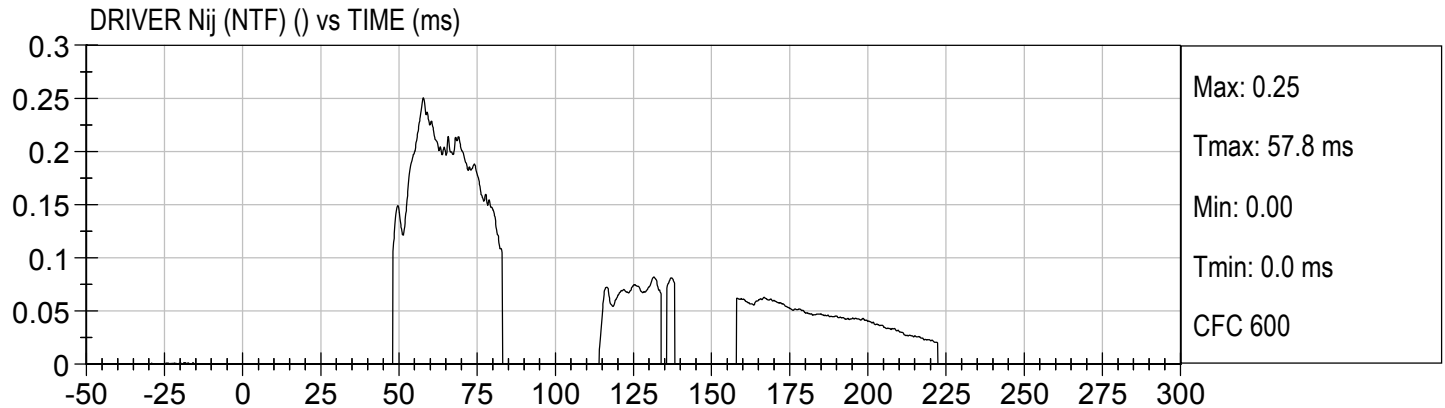
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Passenger Left Lower Tibia Moment Y
Passenger Left Lower Tibia Force Z
Passenger Right Upper Tibia Moment X
Passenger Right Upper Tibia Moment Y
Passenger Right Upper Tibia Force Z
Passenger Right Lower Tibia Moment X
Passenger Right Lower Tibia Moment 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 Lap Belt Force
Passenger Shoulder Belt Force
Left Rear Seat Crossmember X
Right Rear Seat Crossmember X
Vehicle Engine Top X
Vehicle Engine Bottom X
Left Rear Seat Crossmember Z
Right Rear Seat Crossmember Z
Left Rear Seat Crossmember Xr
Right Rear Seat Crossmember Xr
Advanced Research Load Cell Barrier – 528 channels

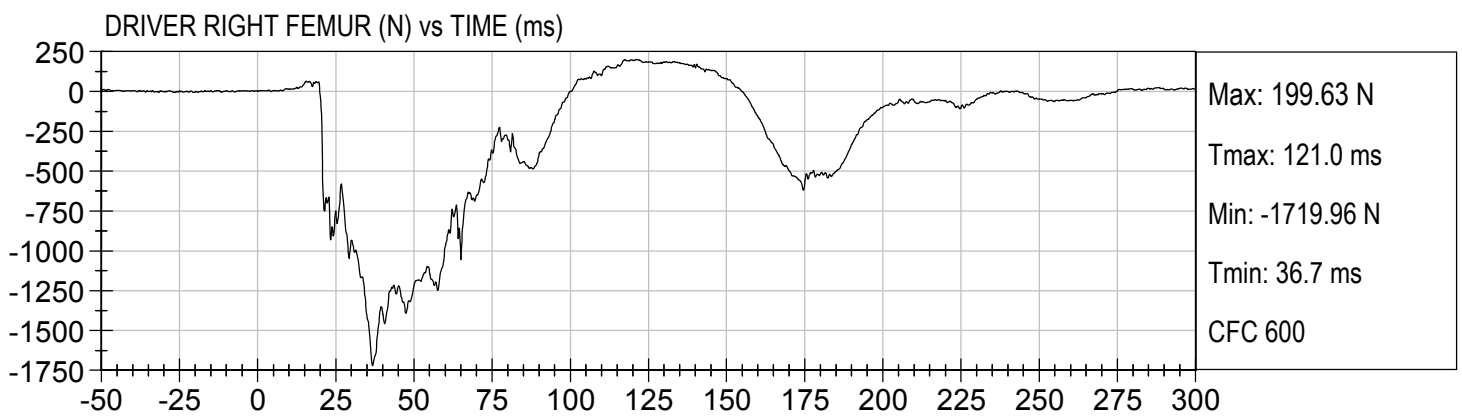
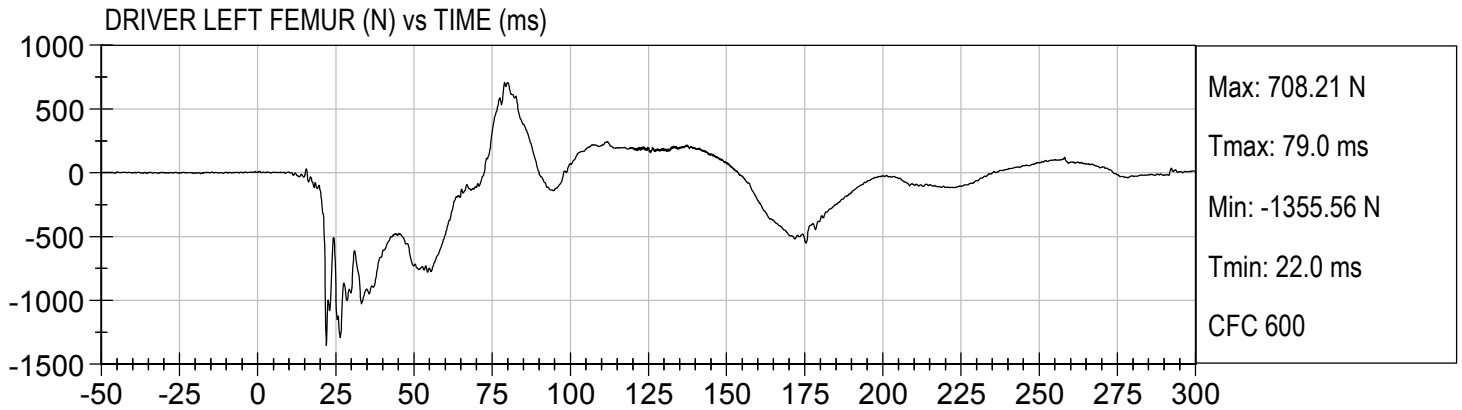


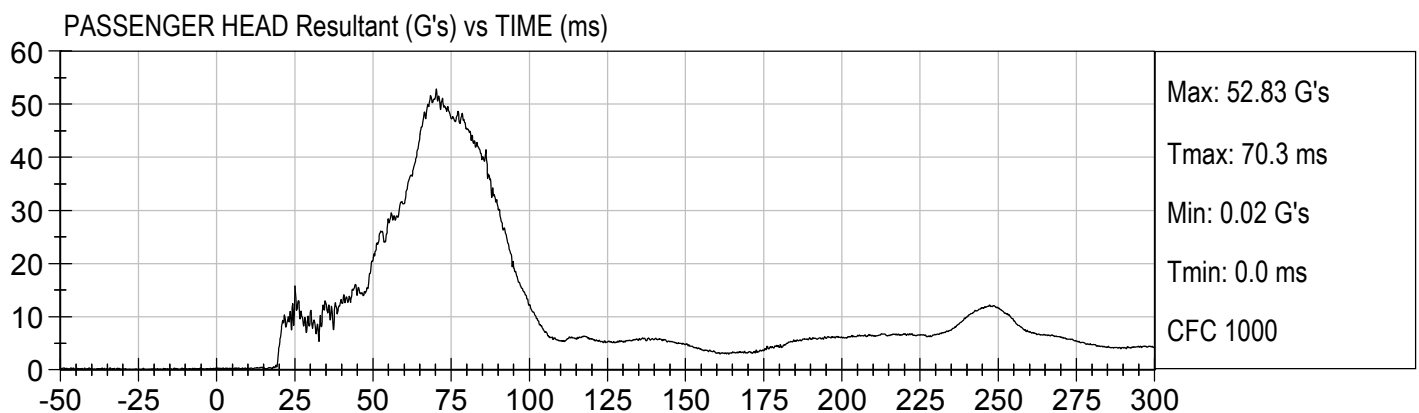
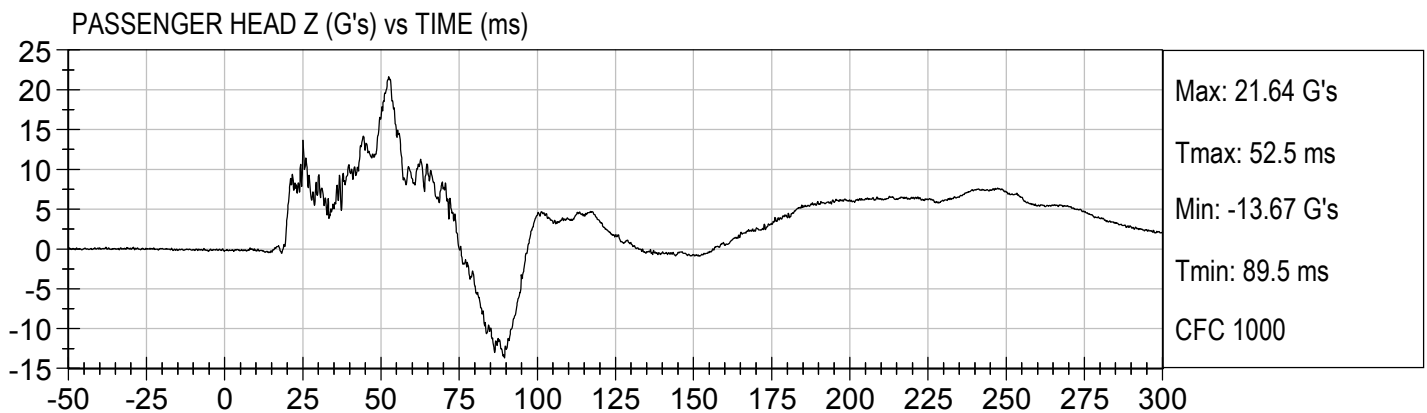
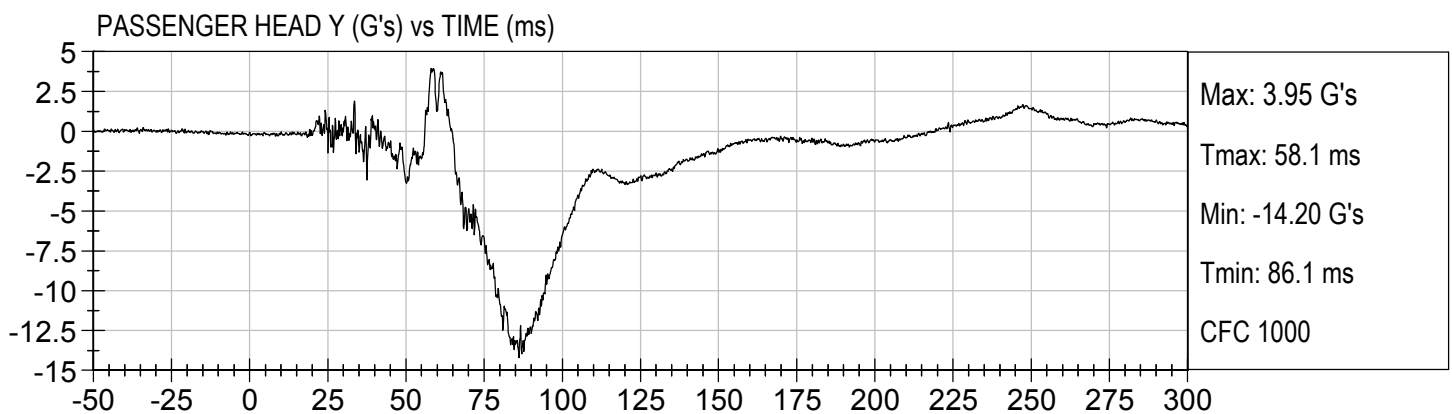
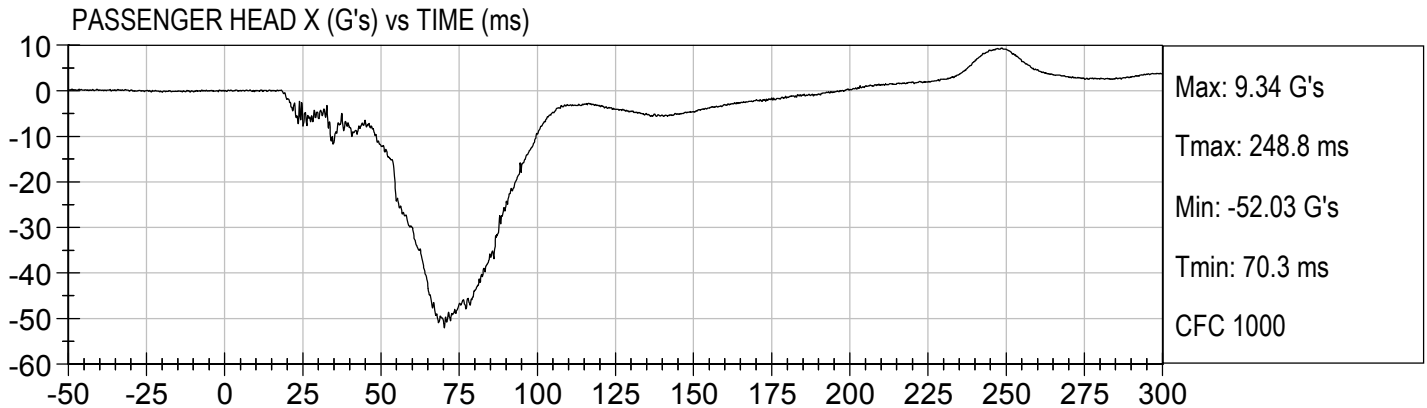


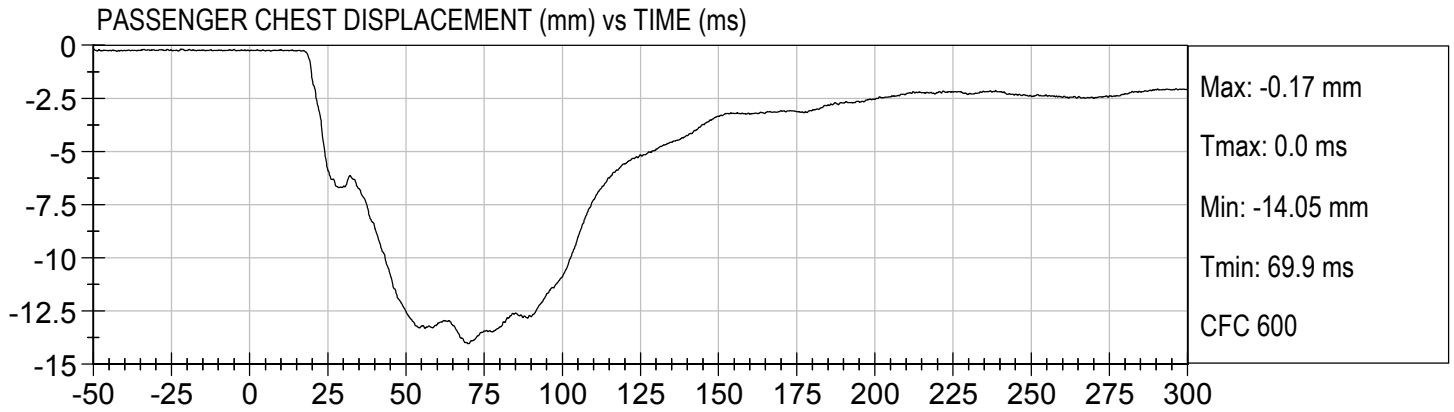


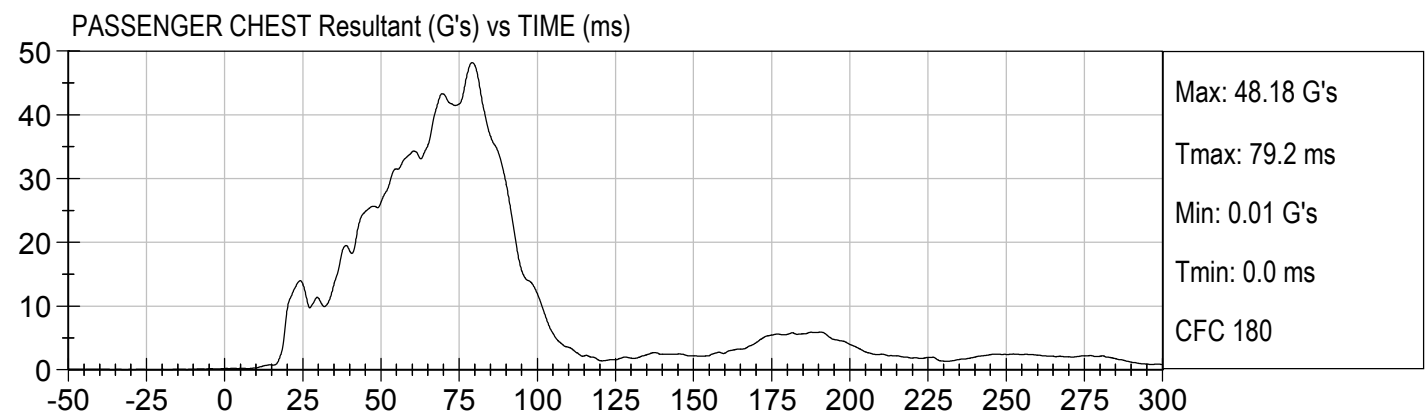
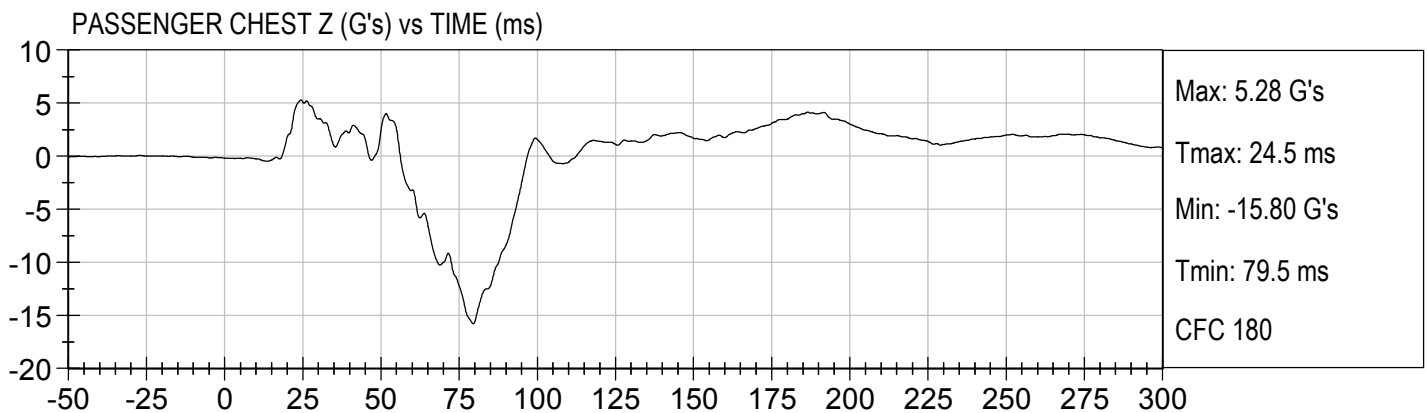
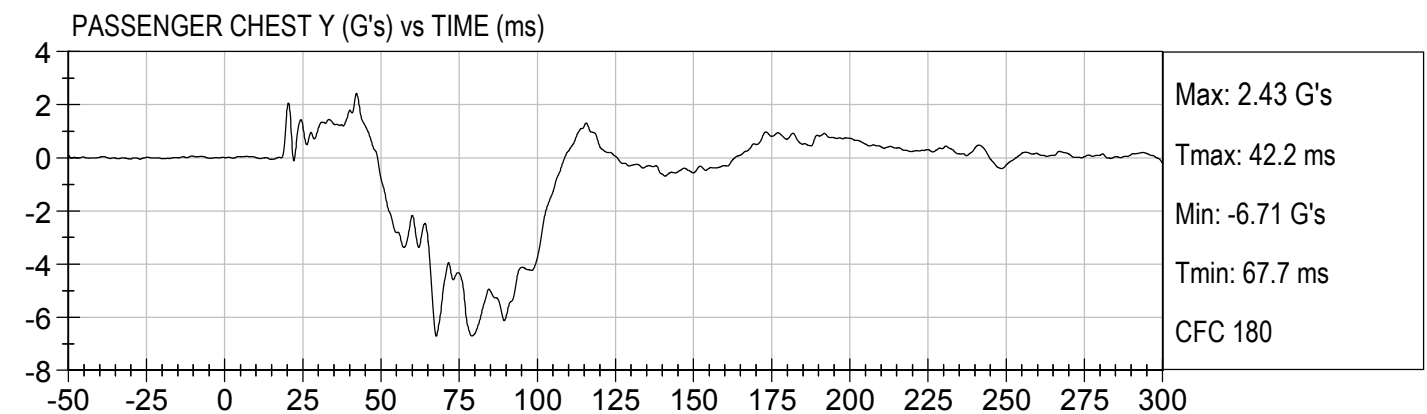
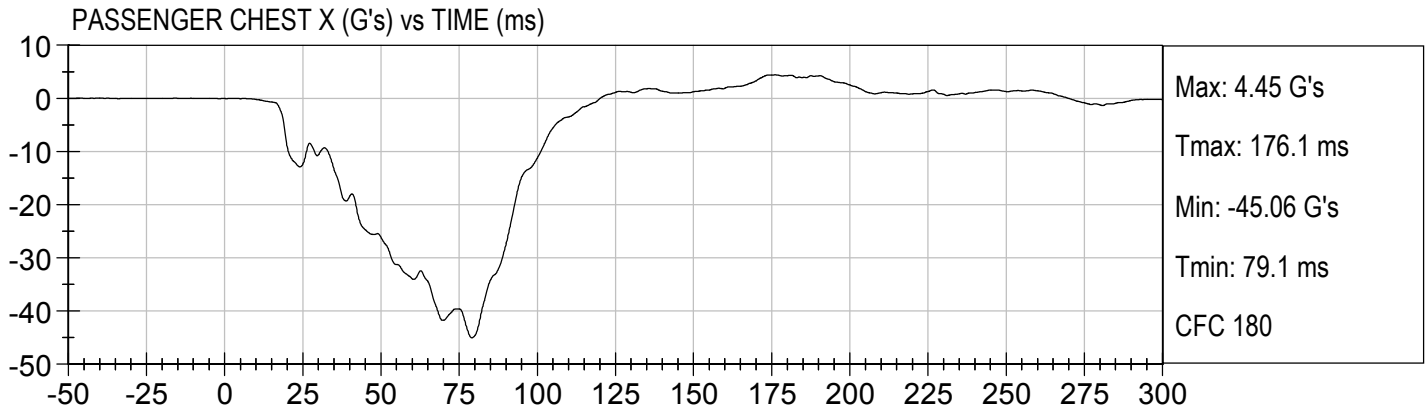


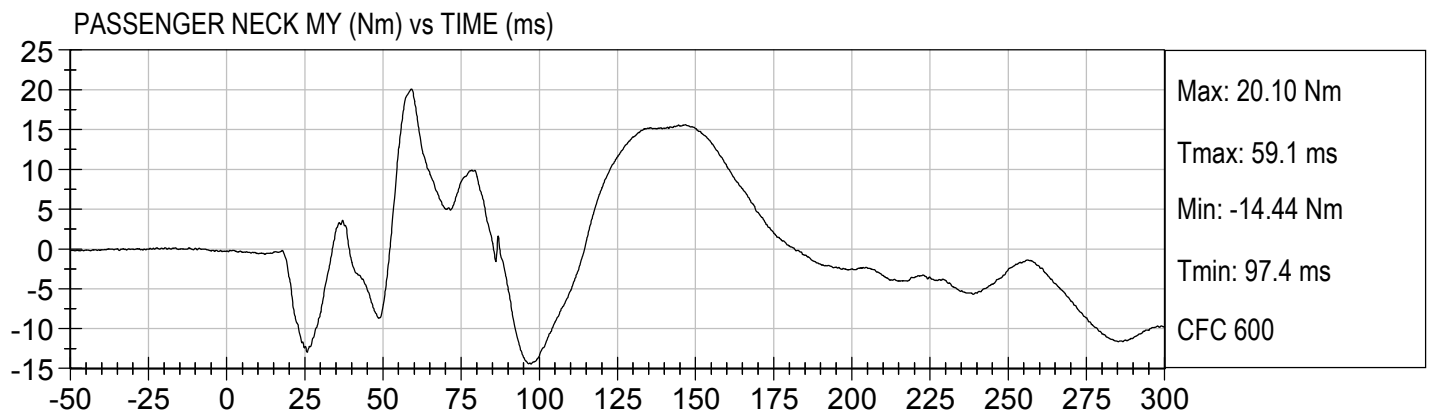
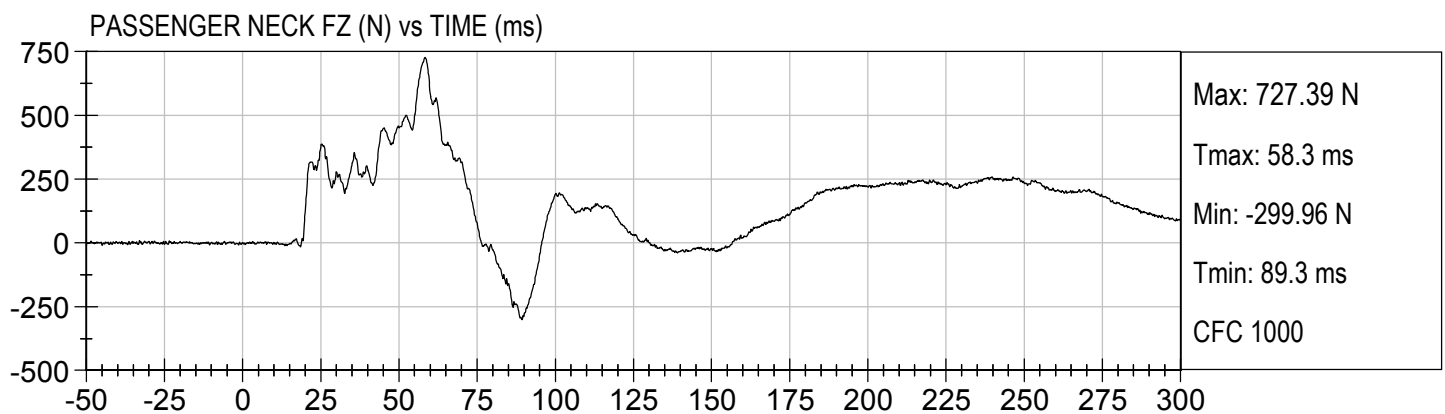
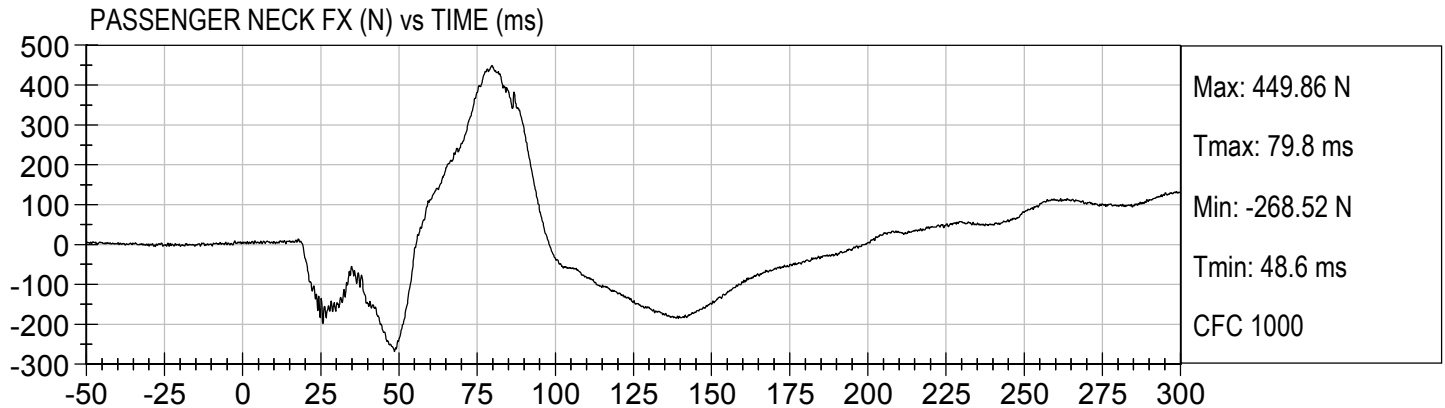


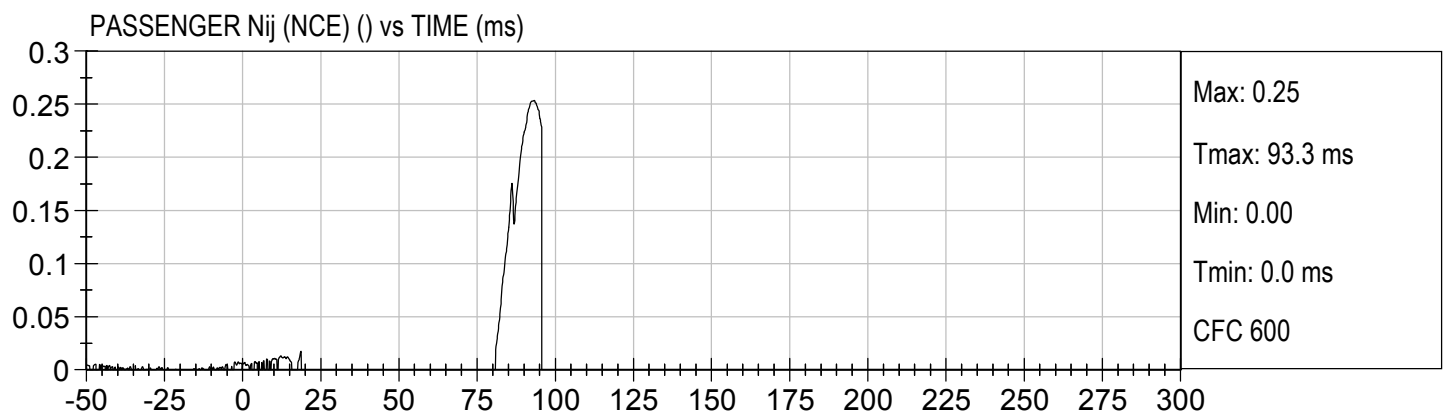
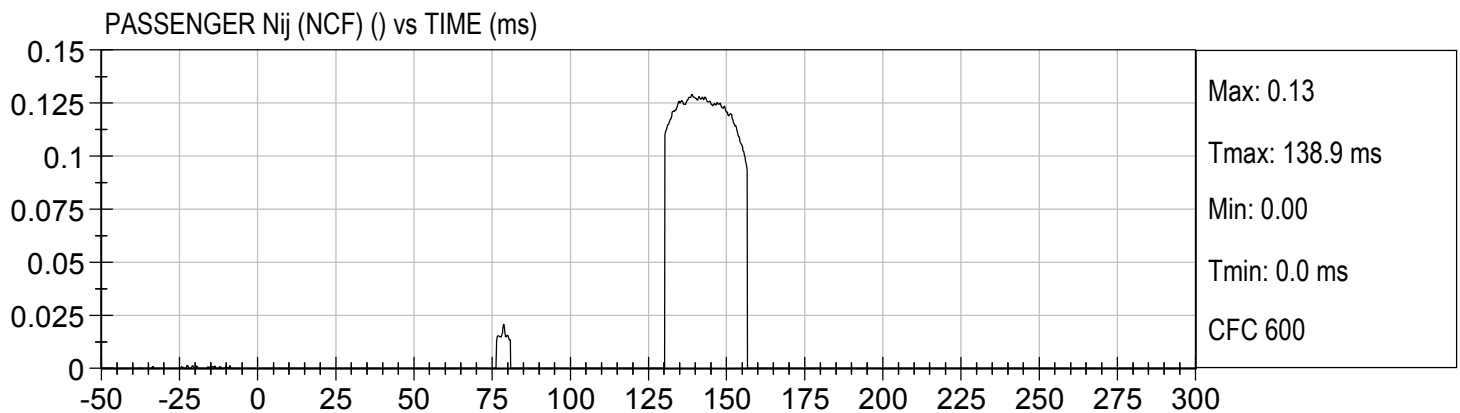
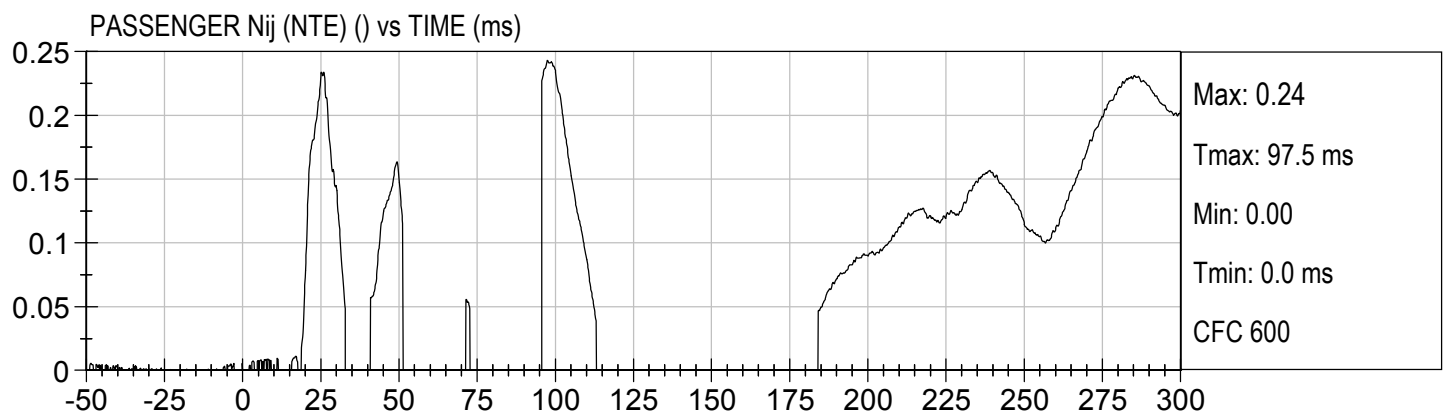
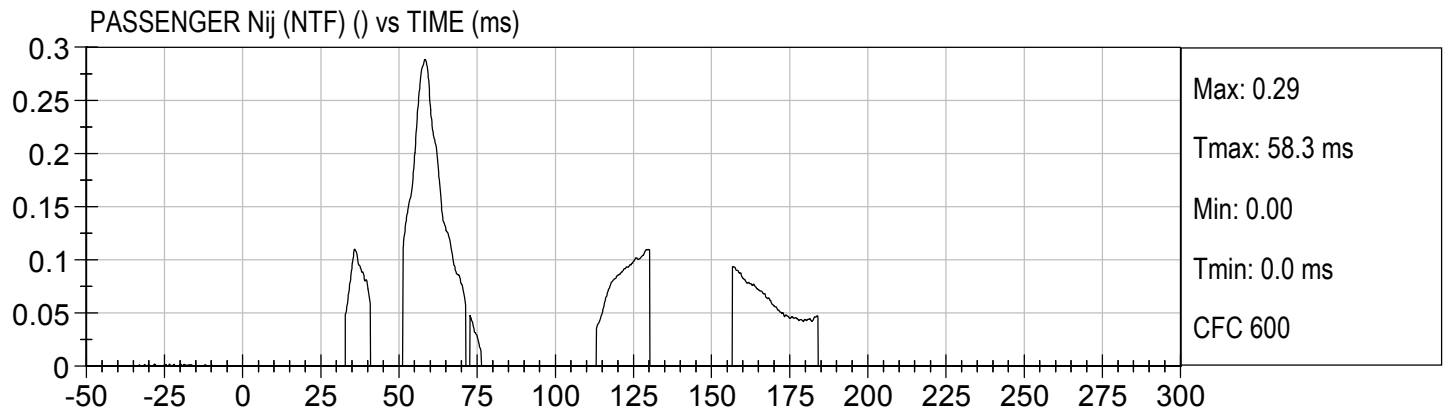


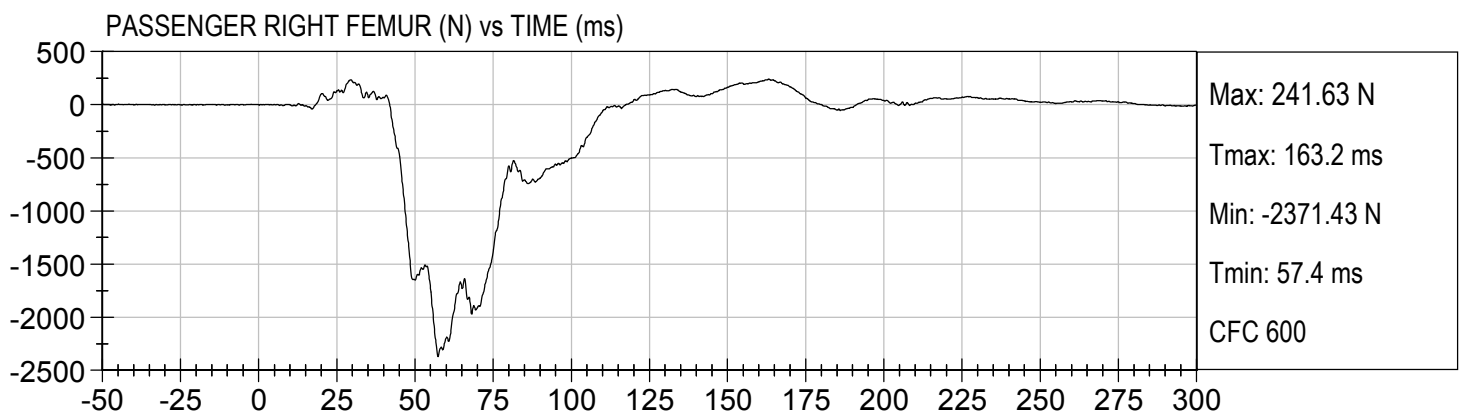
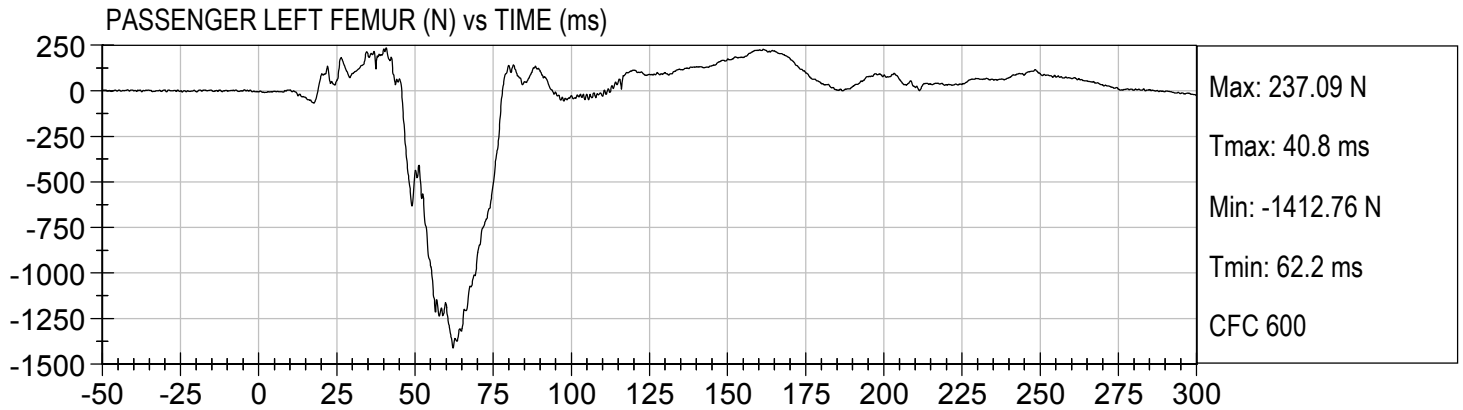












APPENDIX C
DUMMY CALIBRATION AND PERFORMANCE VERIFICATION DATA

Hybrid III, 50th External Measurements
SN: 351

HYBRID III, PART 572, SUBPART E EXTERNAL DIMENSIONS				
DIMENSION	DESCRIPTION	DETAILS	ASSEMBLY DIMENSION (inches)	ACTUAL MEASUREMENT
A	TOTAL SITTING HEIGHT	Seat surface to highest point on top of the head.	34.6–35.0	34.8
B	SHOULDER PIVOT HEIGHT	Centerline of shoulder pivot bolt to the seat surface.	19.9-20.5	20.0
C	H-POINT HEIGHT	Reference	3.3-3.5	3.4
D	H-POINT LOCATION FROM BACKLINE	Reference	5.3-5.5	5.5
E	SHOULDER PIVOT FROM BACKLINE	Center of the shoulder clevis to the rear vertical surface of the fixture.	3.3-3.7	3.5
F	THIGH CLEARANCE	Measured at the highest point on the upper femur segment.	5.5-6.1	6.0
G	BACK OF ELBOW TO WRIST PIVOT	back of the elbow flesh to the wrist pivot in line with the elbow and wrist pivots	11.4-12.0	11.8
H	HEAD BACK TO BACKLINE	Back of Skull cap skin to seat rear vertical surface (Reference)	1.6-1.8	1.7
I	SHOULDER TO- ELBOW LENGTH	Measure from the highest point on top of the shoulder clevis to the lowest part of the flesh on the elbow in line with the elbow pivot bolt.	13.0-13.6	13.3
J	ELBOW REST HEIGHT	Measure from the flesh below the elbow pivot bolt to the seat surface.	7.5-8.3	7.8
K	BUTTOCK TO KNEE LENGTH	The forward most part of the knee flesh to the rear vertical surface of the fixture.	22.8-23.8	23.8
L	POPLITEAL HEIGHT	Seat surface to the plane of the horizontal plane of the bottom of the feet.	16.9-17.9	17.0
M	KNEE PIVOT HEIGHT	Centerline of knee pivot bolt to the horizontal plane of the bottom of the feet.	19.1-19.7	19.5
N	BUTTOCK POPLITEAL LENGTH	The rearmost surface of the lower leg to the same point on the rear surface of the buttocks used for dim. "K".	17.8-18.8	18.8

HYBRID III, SUBPART E EXTERIOR DIMENSIONS, continued				
DIMENSION	DESCRIPTION	DETAILS		ACTUAL MEASUREMENT
O	CHEST DEPTH WITHOUT JACKET	Measured 16.9-17.1 in. above seat surface	8.4-9.0	8.5
P	FOOT LENGTH	Tip of toe to rear of heel	9.9-10.5	10.3
V	SHOULDER BREADTH	Outside edges of right and left shoulder clevises	16.3-17.2	16.5
W	FOOT BREADTH	The widest part of the foot	3.6-4.2	4.0
Y	CHEST CIRCUMFERENCE (WITH CHEST JACKET)	Measured 16.9-17.1 in. above seat surface	38.2-39.4	39.2
Z	WAIST CIRCUMFERENCE	Measured 8.9-9.1 in. above seat surface	32.9-34.1	33.7
AA	REFERENCE LOCATION FOR MEASUREMENT OF CHEST CIRCUMFERENCE	Reference	16.9-17.1	17.0
BB	REFERENCE LOCATION FOR MEASUREMENT OF WAIST CIRCUMFERENCE	Reference	8.9-9.1	9.0

NOTE: THE H-POINT IS LOCATED 1.83 INCHES FORWARD AND 2.57 INCHES DOWN FROM THE CENTER OF THE PELVIS ANGLE REFERENCE HOLE.

MGA RESEARCH CORPORATION
HEAD DROP TEST
HYBRID III 50TH PERCENTILE MALE

ATD Serial No: 351

Test ID: D15901

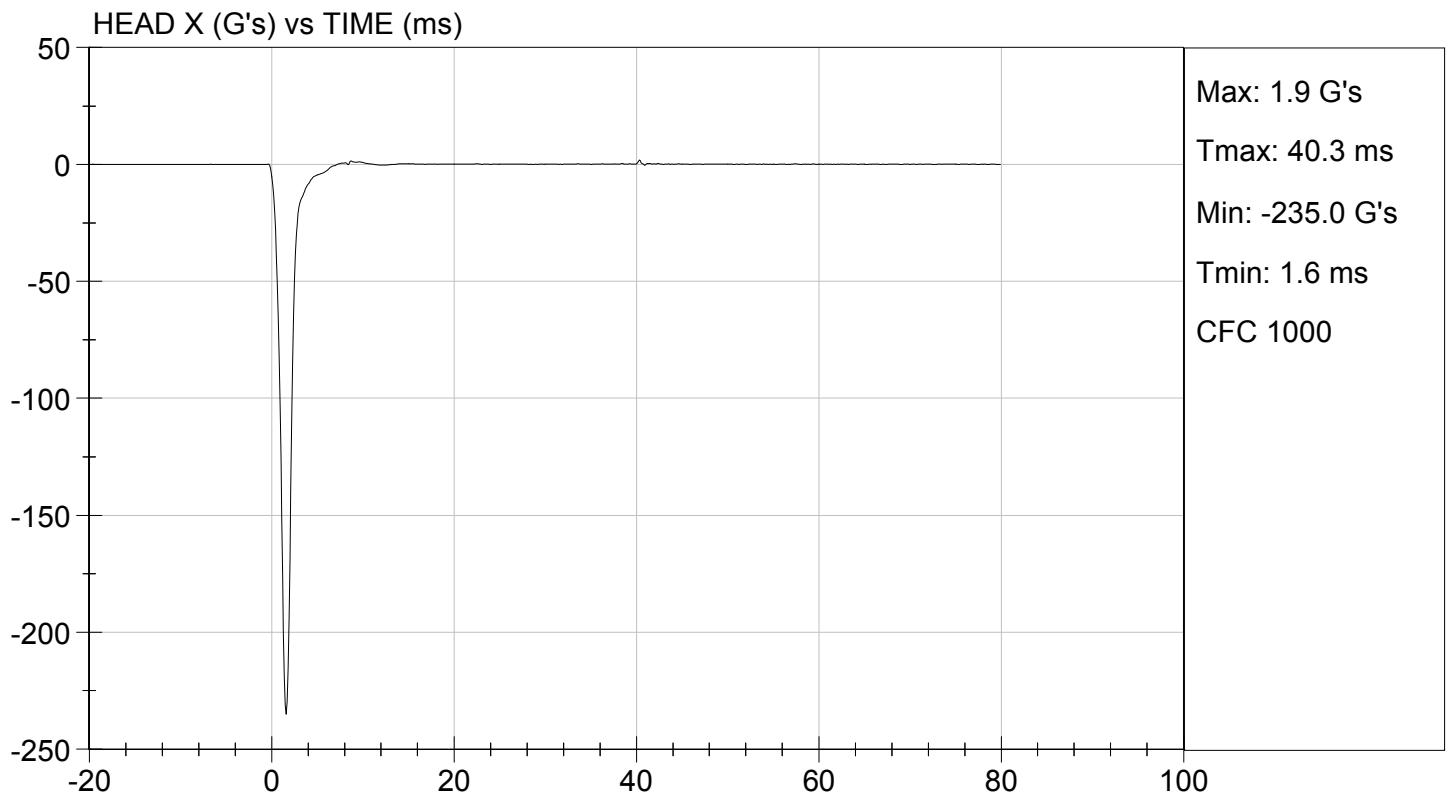
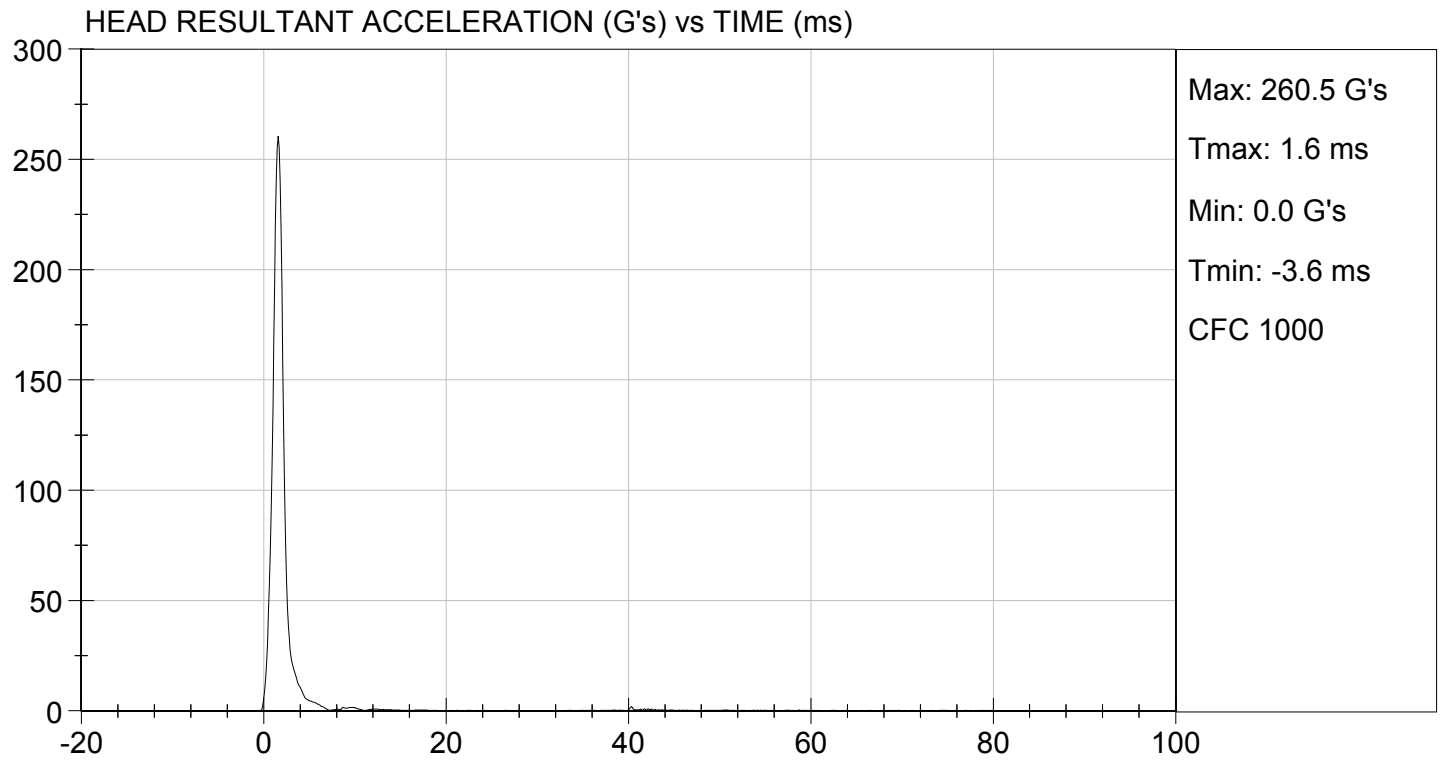
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 to 25.6	22.2	Pass
Laboratory Relative Humidity	%	10 to 70	27	Pass
Peak Resultant Acceleration	G's	225 to 275	261	Pass
Peak Lateral Acceleration	G's	<= +/- 15.0	-14.2	Pass
Unimodal	N/A	Yes	Yes	Pass
Oscillations	N/A	within 10% of peak	Yes	Pass
Overall Test Results				Pass

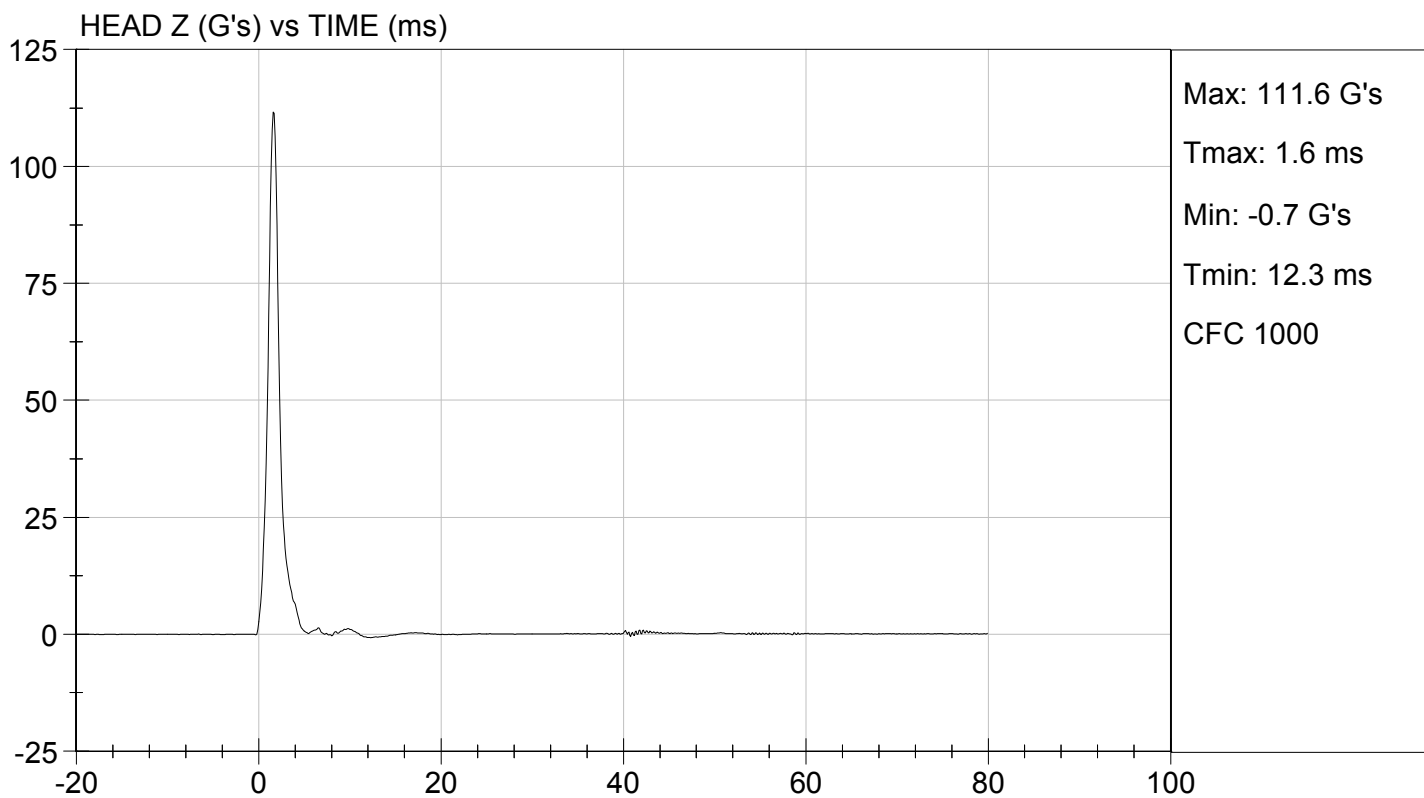
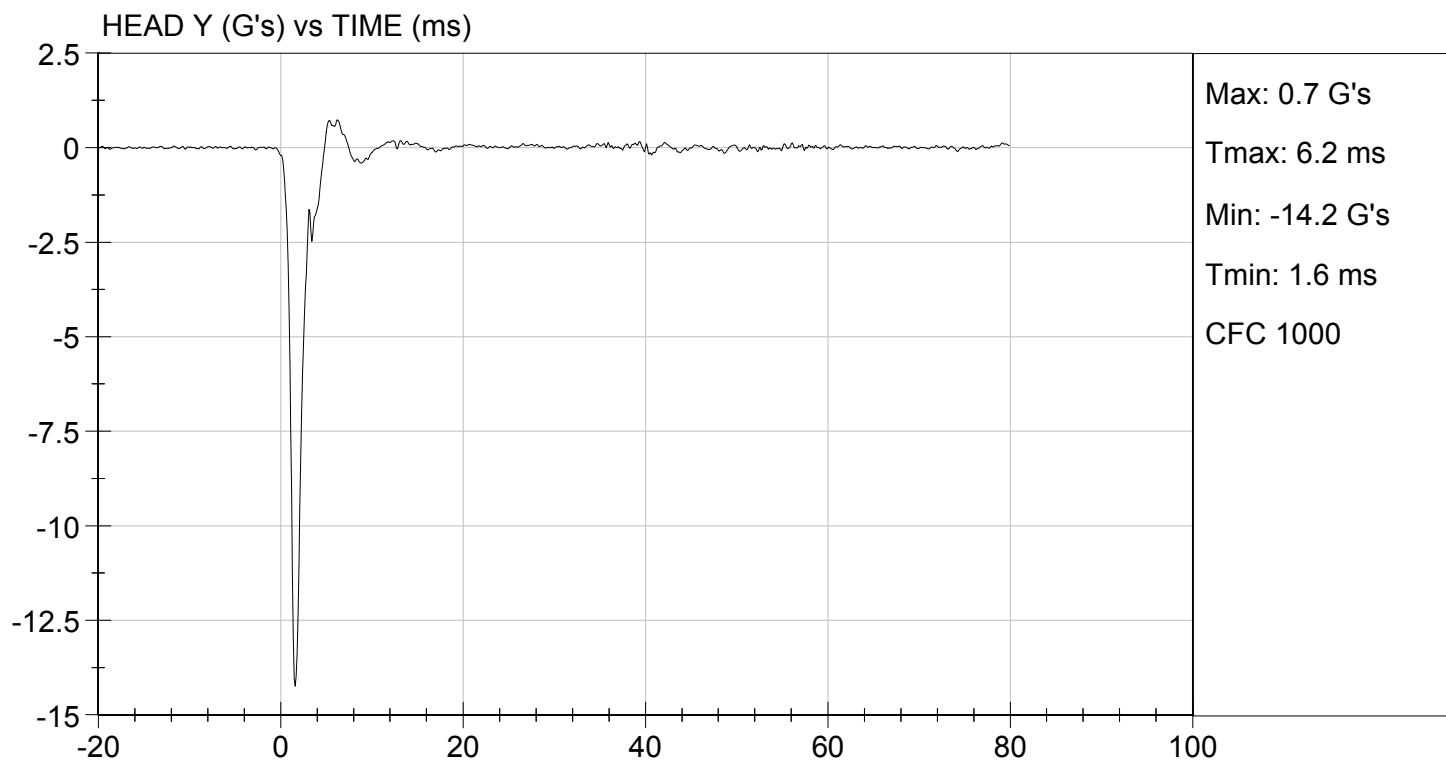
David Schoedel
Laboratory Technician

03/31/2015

Test Date

Jessica Hall
Approved By





MGA RESEARCH CORPORATION
NECK FLEXION TEST
HYBRID III 50TH PERCENTILE MALE

ATD Serial No: 351

Test I.D: D15902

Tested Parameter		Units	Specification	Result	Pass/Fail
Laboratory Temperature		deg C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity		%	10 to 70	31	Pass
Pendulum Velocity		m/s	6.89 to 7.13	7.13	Pass
Pendulum Deceleration	10 ms	G's	22.50 to 27.50	22.93	Pass
	20 ms	G's	17.60 to 22.60	19.12	Pass
	30 ms	G's	12.50 to 18.50	15.08	Pass
Peak Pendulum Deceleration After 30 ms		G's	<= 29.0	15.5	Pass
Deceleration Decay Time to Cross 5 G's		ms	34.0 to 42.0	39.6	Pass
Maximum "D" Plane Rotation	Maximum	Deg	64.0 to 78.0	74.3	Pass
	Time	ms	57.0 to 64.0	60.8	Pass
"D" Plane Rotation Decay Time To Zero Crossing		ms	113.0 to 128.0	121.1	Pass
Moment About Occipital Condyle	Maximum	Nm	88.1 to 108.5	90.0	Pass
	Time	ms	47.0 to 58.0	52.4	Pass
Positive Moment Decay Time To Zero Crossing		ms	97.0 to 107.0	106.7	Pass
Overall Test Results					Pass

David Schoedel

Laboratory Technician

03/31/2015

Test Date

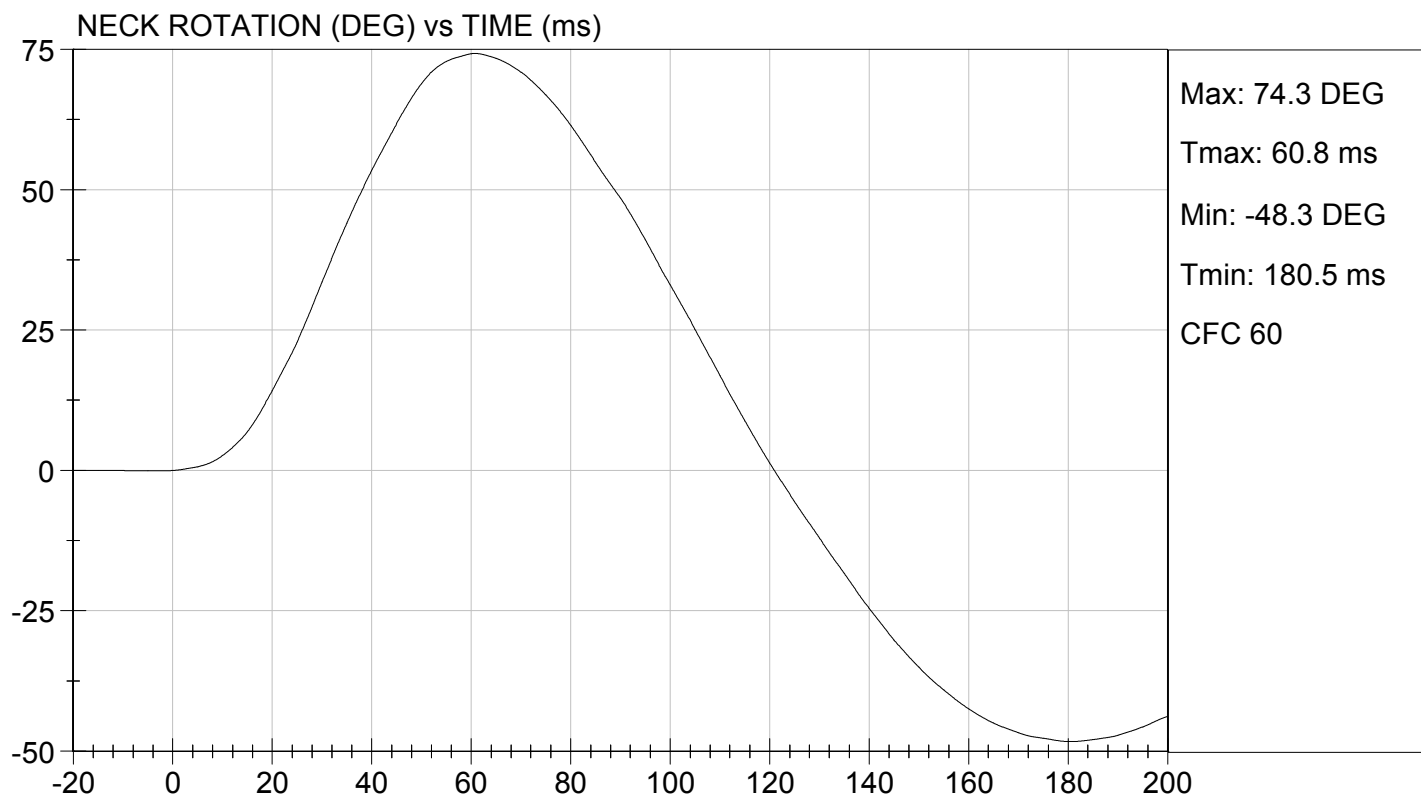
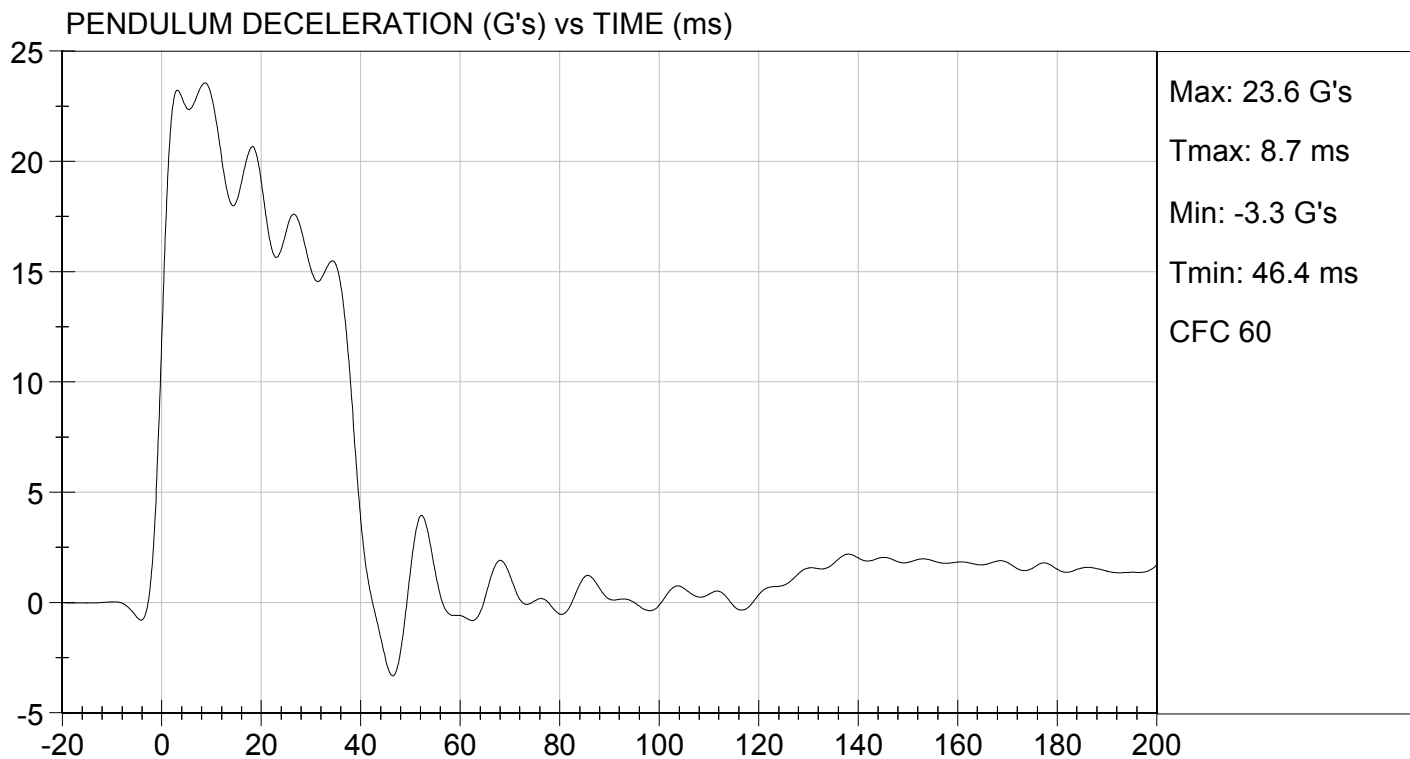
Jessica Hall

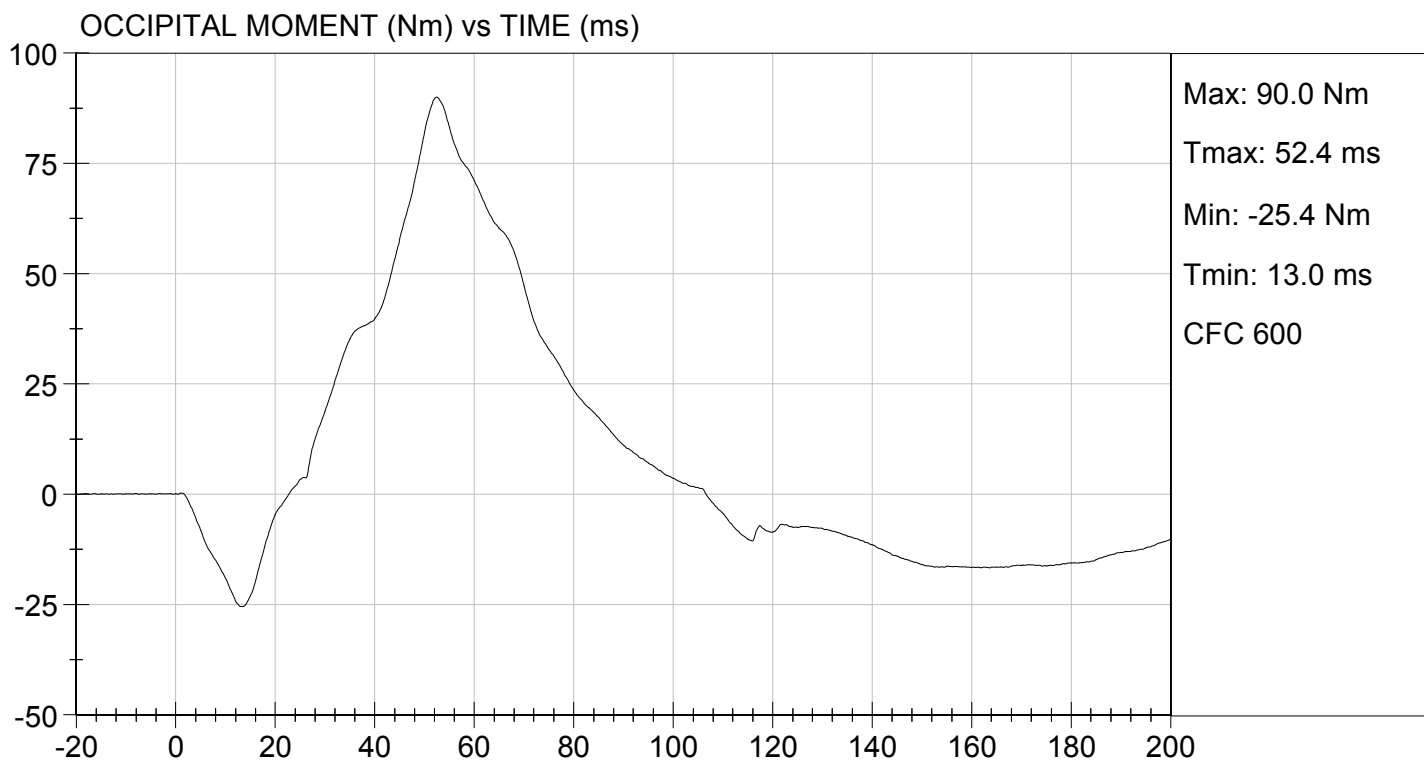
Approved By



TEST DESC: NECK FLEXION
VELOCITY: 23.40 ft/s, 7.13 m/s

TEST DATE: 03/31/2015
TEST #: D15902





MGA RESEARCH CORPORATION
NECK EXTENSION TEST
HYBRID III 50TH PERCENTILE MALE

ATD Serial No: 351

Test I.D: D15903

Tested Parameter		Units	Specification	Result	Pass/Fail
Laboratory Temperature		deg C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity		%	10 to 70	31	Pass
Pendulum Velocity		m/s	5.95 to 6.19	6.19	Pass
Pendulum Deceleration	10 ms	G's	17.20 to 21.20	18.60	Pass
	20 ms	G's	14.00 to 19.00	15.61	Pass
	30 ms	G's	11.00 to 16.00	11.10	Pass
Peak Pendulum Deceleration After 30 ms		G's	<= 22.0	11.4	Pass
Deceleration Decay Time to Cross 5 G's		ms	38.0 to 46.0	45.5	Pass
Maximum "D" Plane Rotation	Maximum	Degrees	81.0 to 106.0	99.1	Pass
	Time	ms	72.0 to 82.0	80.9	Pass
"D" Plane Rotation Decay Time To Zero Crossing		ms	147.0 to 174.0	166.9	Pass
Moment About Occipital Condyle	Maximum	Nm	-52.9 to -79.9	-55.9	Pass
	Time	ms	65.0 to 79.0	76.0	Pass
Negative Moment Decay Time To Zero Crossing		ms	120.0 to 148.0	146.2	Pass
Overall Test Results					Pass

David Schoedel

Laboratory Technician

03/31/2015

Test Date

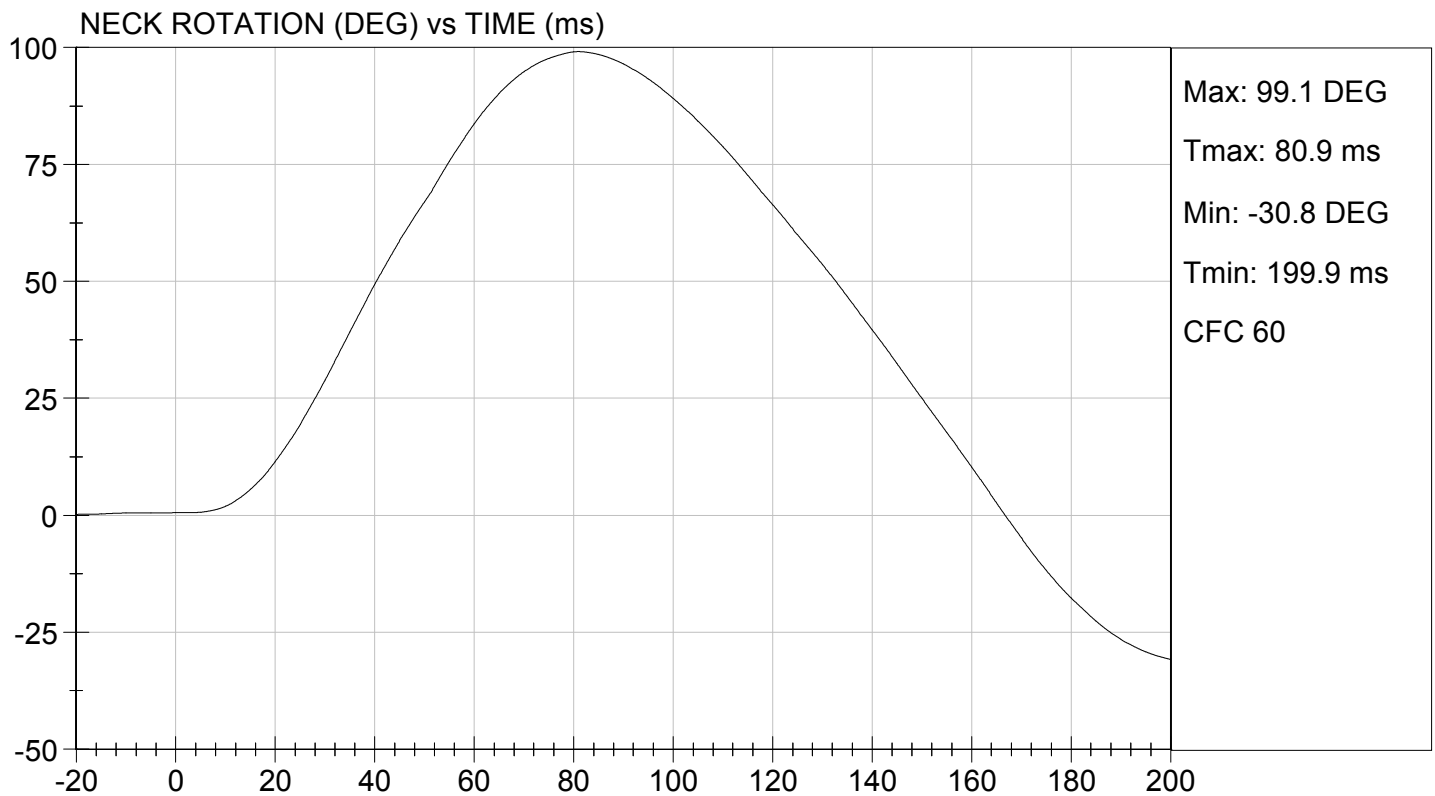
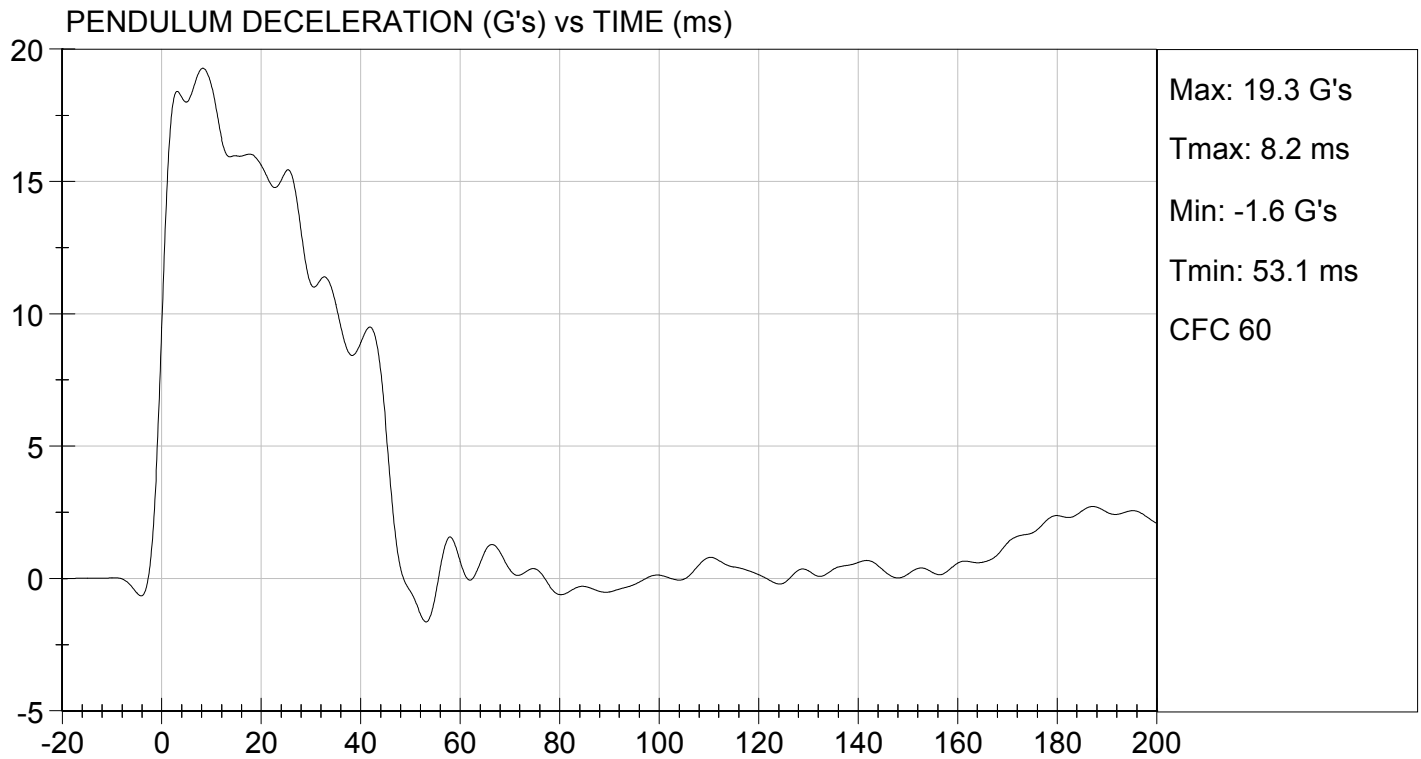
Jessica Hall

Approved By



TEST DESC: NECK EXTENSION
VELOCITY: 20.30 ft/s, 6.19 m/s

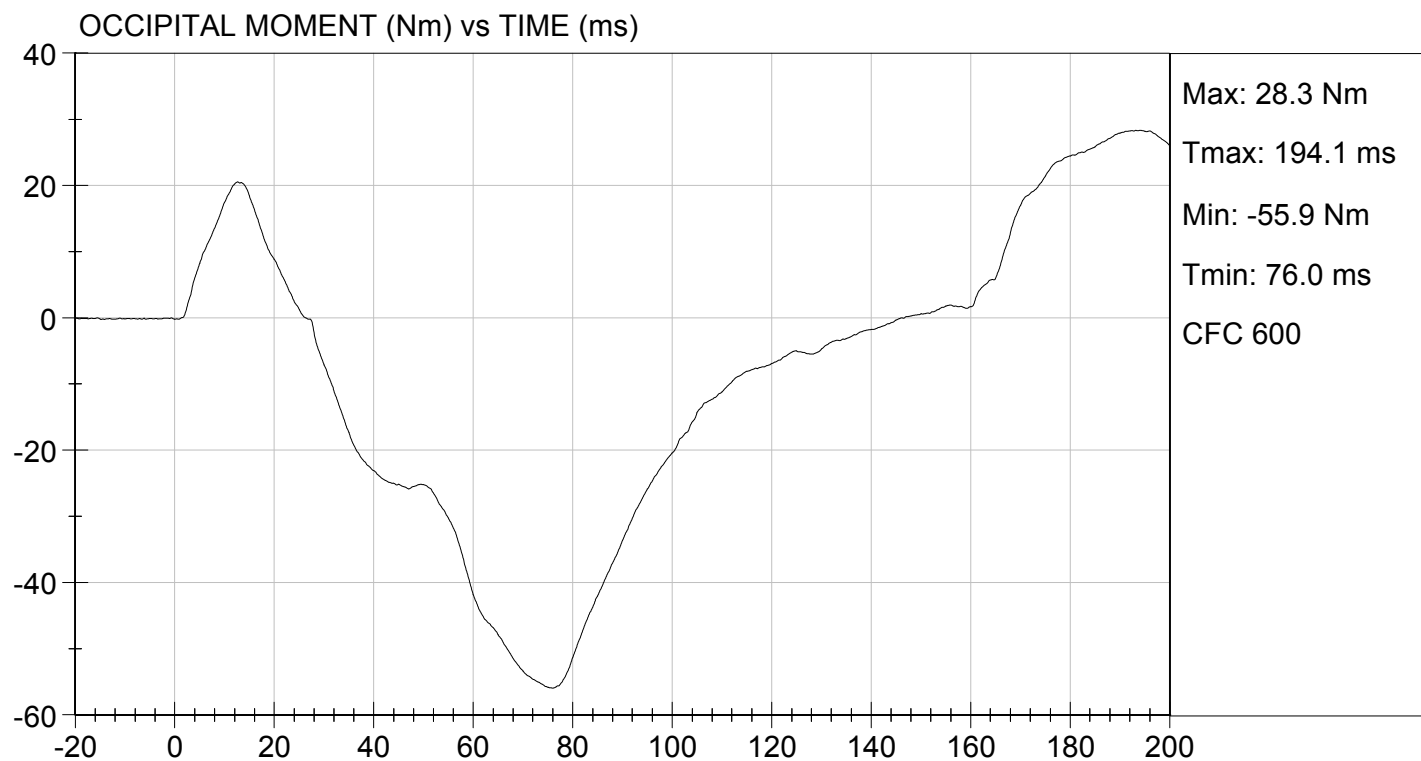
TEST DATE: 03/31/2015
TEST #: D15903





TEST DESC: NECK EXTENSION
VELOCITY: 20.30 ft/s, 6.19 m/s

TEST DATE: 03/31/2015
TEST #: D15903

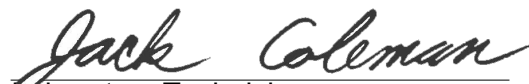


MGA RESEARCH CORPORATION
THORAX IMPACT
HYBRID III 50TH PERCENTILE MALE

ATD Serial No: 351

Test I.D: D15904

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	20.6 to 22.2	22.2	Pass
Laboratory Relative Humidity	%	10 to 70	31	Pass
Probe Velocity	m/s	6.58 to 6.82	6.77	Pass
Peak Probe Force	N	5159 to 5893	5,246	Pass
Peak Sternum Displacement	cm	6.35 to 7.26	6.68	Pass
Internal Hysteresis	%	69 to 85	69	Pass
Overall Test Results			Pass	


Laboratory Technician

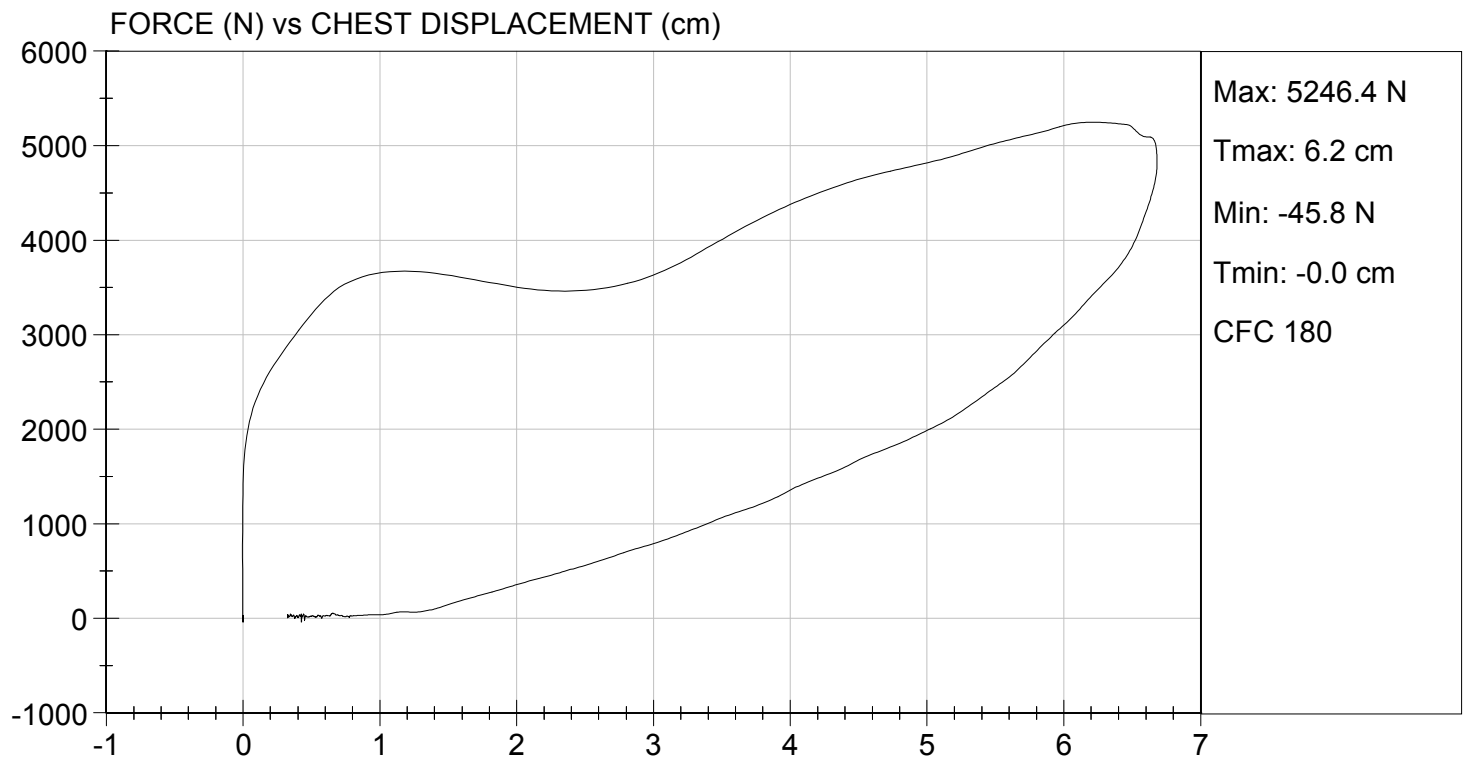
03/31/2015
Test Date


Approved By



TEST DESC: THORAX IMPACT
VELOCITY: 22.22 ft/s, 6.77 m/s

TEST DATE: 03/31/2015
TEST #: D15904



MGA RESEARCH CORPORATION
RIGHT KNEE IMPACT TEST
HYBRID III 50TH PERCENTILE MALE

ATD Serial No: 351

Test I.D: D15905

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 to 25.6	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	31	Pass
Probe Velocity	m/s	2.07 to 2.13	2.13	Pass
Peak Probe Force	N	4715 to 5782	5,155	Pass
Overall Test Results				Pass

David Schoedel
Laboratory Technician

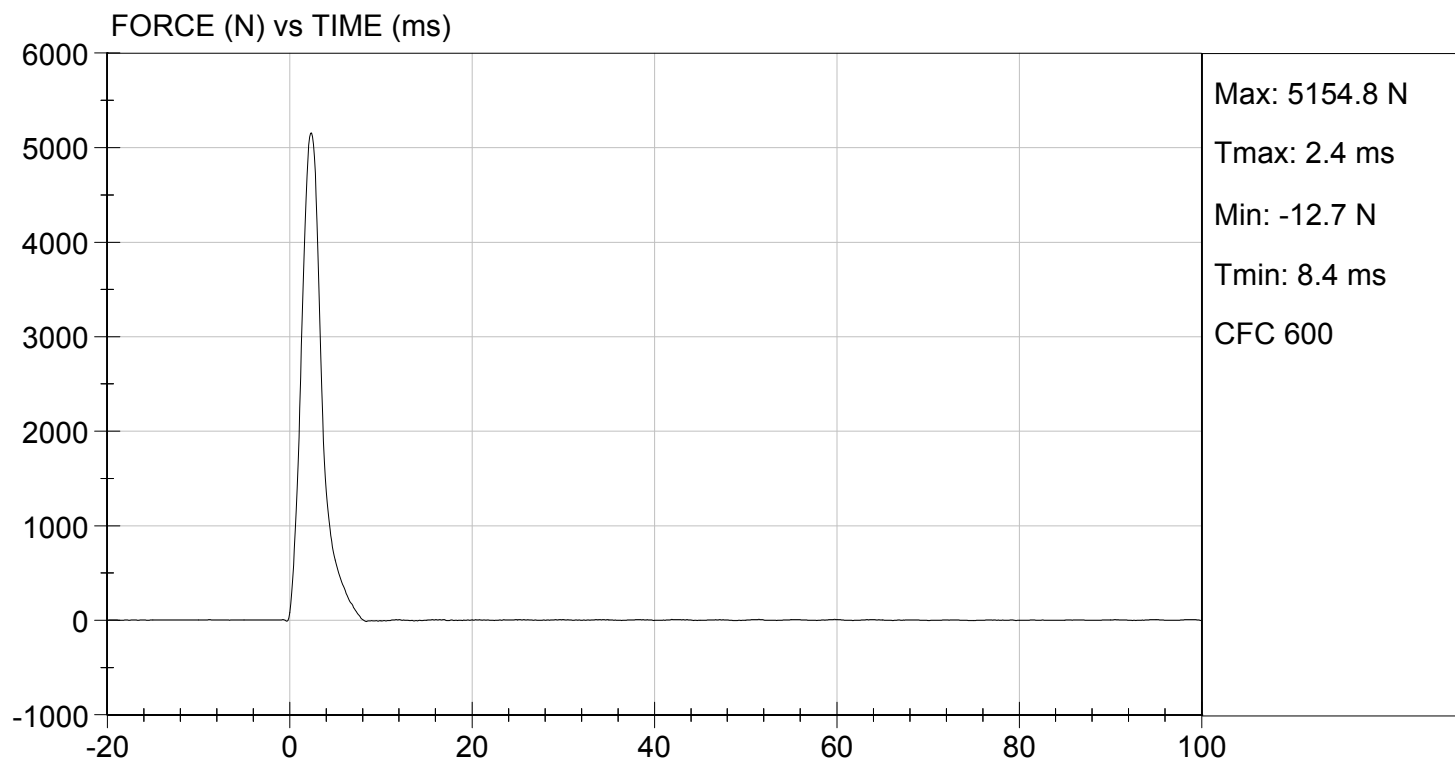
03/31/2015
Test Date

Jessica Hall
Approved By



TEST DESC: RIGHT KNEE
VELOCITY: 7.00 ft/s, 2.13 m/s

TEST DATE: 03/31/2015
TEST #: D15905



MGA RESEARCH CORPORATION
LEFT KNEE IMPACT TEST
HYBRID III 50TH PERCENTILE MALE

ATD Serial No: 351

Test I.D: D15906

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 to 25.6	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	31	Pass
Probe Velocity	m/s	2.07 to 2.13	2.13	Pass
Peak Probe Force	N	4715 to 5782	5,296	Pass
Overall Test Results				Pass

David Schoedel
Laboratory Technician

03/31/2015

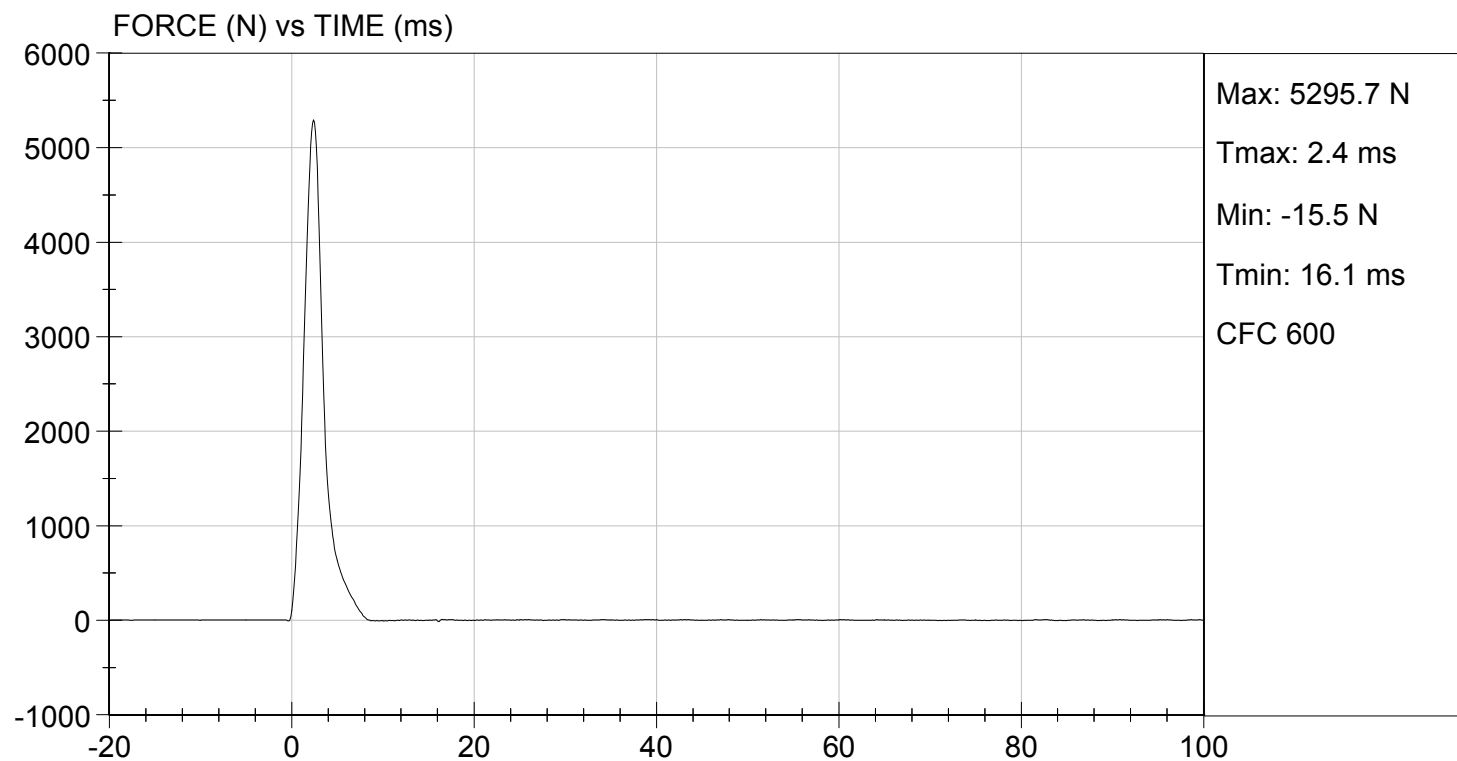
Test Date

Jessica Hall
Approved By



TEST DESC: LEFT KNEE
VELOCITY: 7.00 ft/s, 2.13 m/s

TEST DATE: 03/31/2015
TEST #: D15906



MGA RESEARCH CORPORATION
HIP-FEMUR FLEXION TEST
HYBRID III 50TH PERCENTILE MALE

ATD Serial No: 351

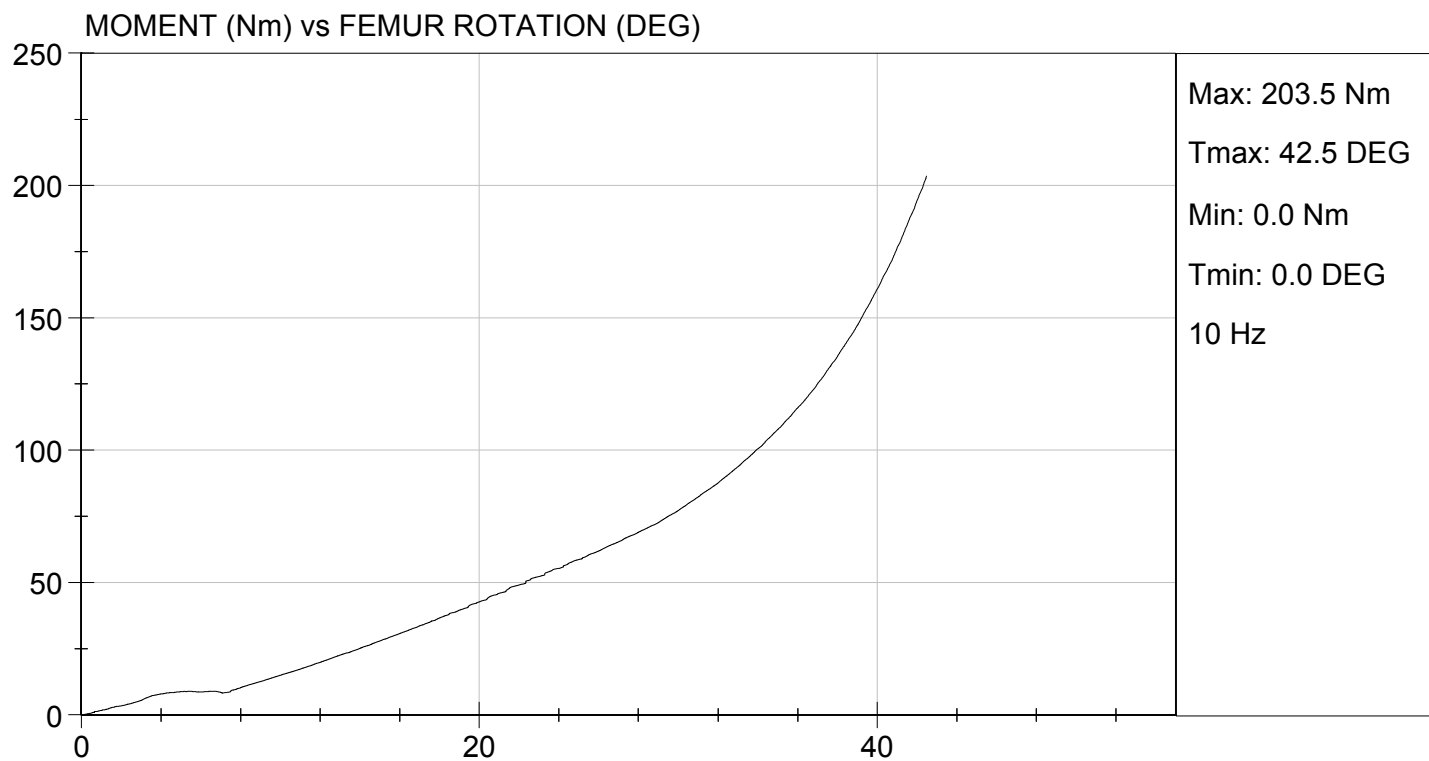
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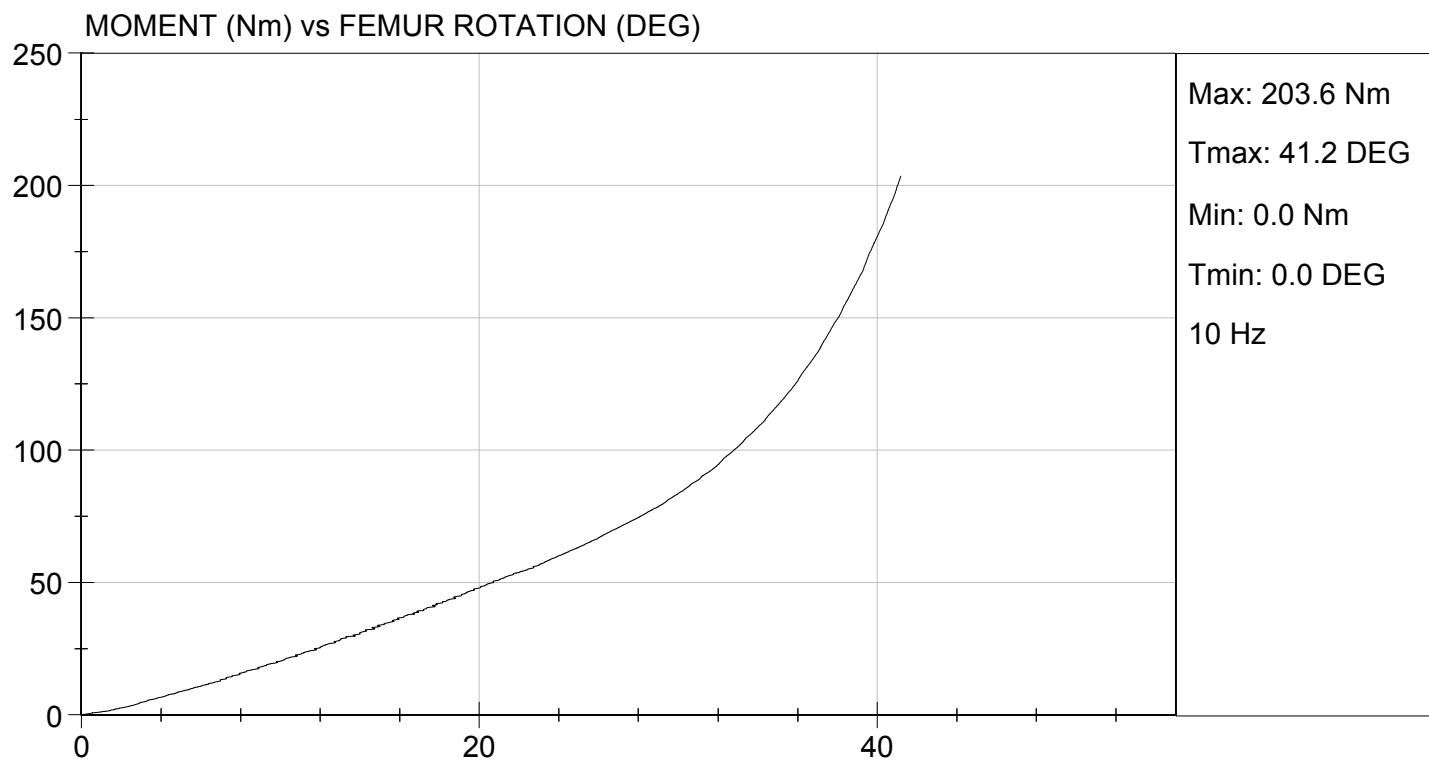
Tested Parameter	Units	Specification	Result		Pass/Fail
			Right	Left	
Laboratory Temperature	deg C	18.9 to 25.6	21.1	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	32	32	Pass
Rotation Rate	deg/s	5.0 to 10.0	6.1	6.2	Pass
30 Degrees	Nm	94.9 Nm Max	77.2	83.6	Pass
150 ft-lbf / 203.4 Nm	Deg	40.0 to 50.0 Degree Max Rotation	42.5	41.2	Pass
Overall Test Results					Pass


Laboratory Technician

03/31/2015
Test Date


Approved By





MGA RESEARCH CORPORATION
HEAD DROP TEST
HYBRID III 50TH PERCENTILE MALE

ATD Serial No: 351

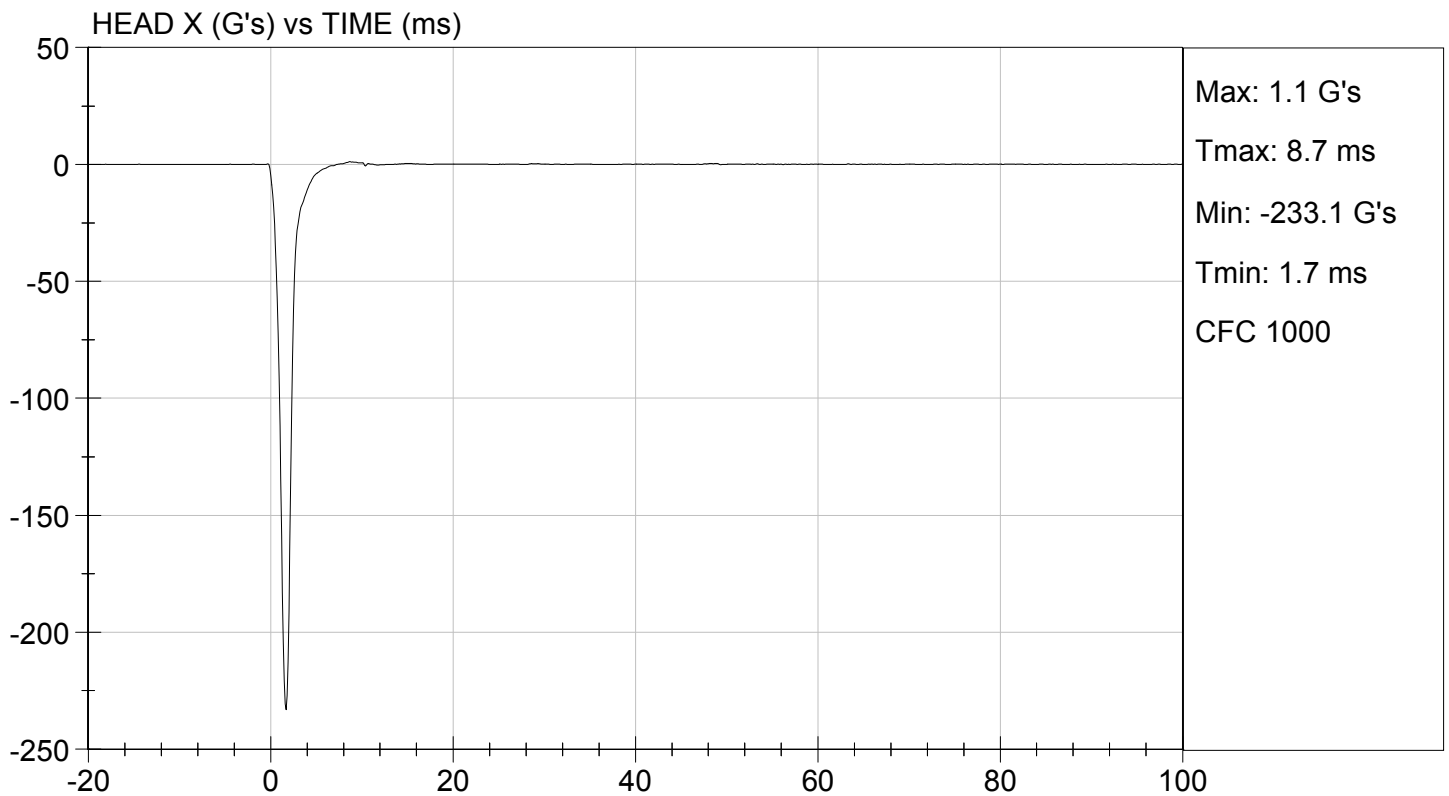
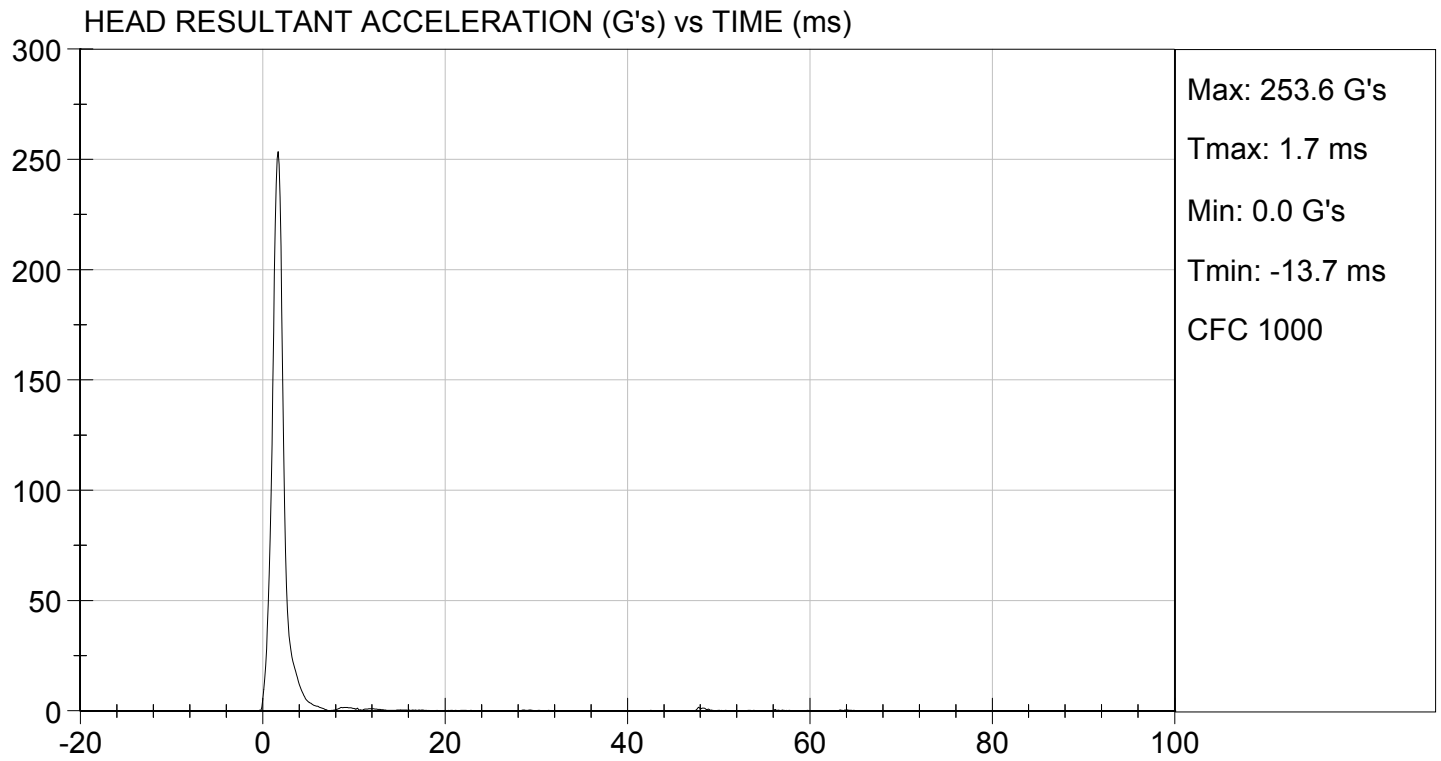
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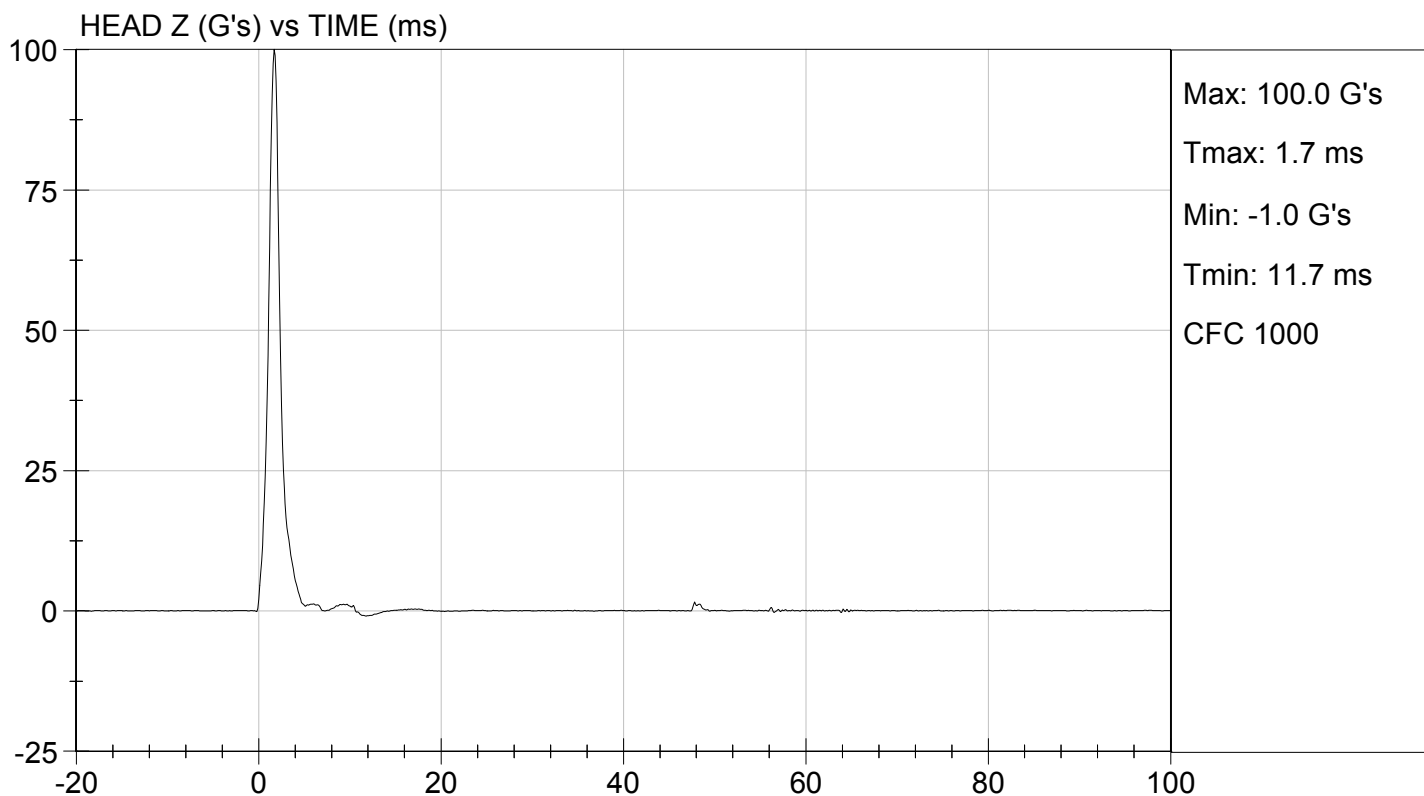
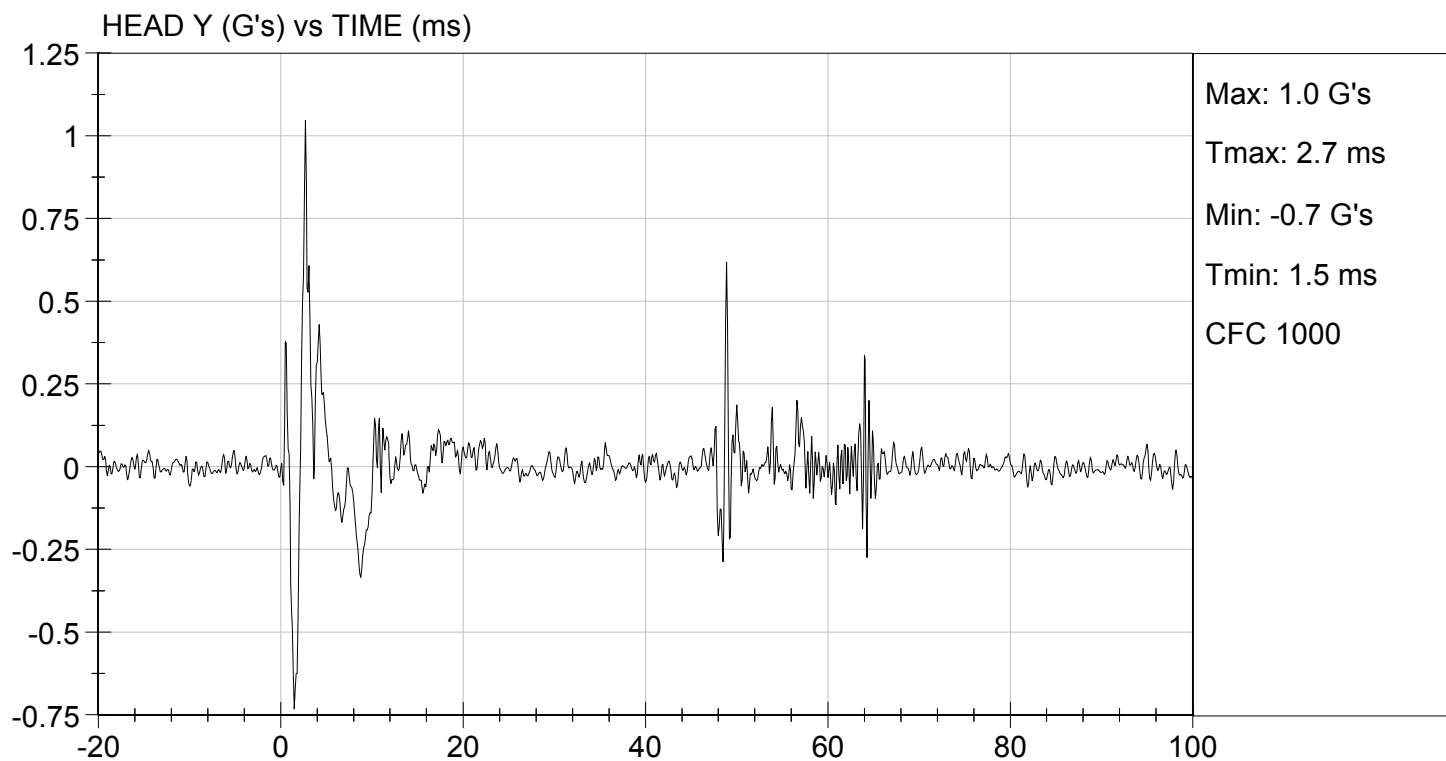
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 to 25.6	21.5	Pass
Laboratory Relative Humidity	%	10 to 70	27	Pass
Peak Resultant Acceleration	G's	225 to 275	254	Pass
Peak Lateral Acceleration	G's	<= +/- 15.0	1.0	Pass
Unimodal	N/A	Yes	Yes	Pass
Oscillations	N/A	within 10% of peak	Yes	Pass
Overall Test Results				Pass

David Schoedel
Laboratory Technician

04/01/2015
Test Date

Jessica Hall
Approved By





MGA RESEARCH CORPORATION
NECK FLEXION TEST
HYBRID III 50TH PERCENTILE MALE

ATD Serial No: 351

Test I.D: D15932

Tested Parameter		Units	Specification	Result	Pass/Fail
Laboratory Temperature		deg C	20.6 to 22.2	21.4	Pass
Laboratory Relative Humidity		%	10 to 70	32	Pass
Pendulum Velocity		m/s	6.89 to 7.13	6.96	Pass
Pendulum Deceleration	10 ms	G's	22.50 to 27.50	27.08	Pass
	20 ms	G's	17.60 to 22.60	22.02	Pass
	30 ms	G's	12.50 to 18.50	12.87	Pass
Peak Pendulum Deceleration After 30 ms		G's	<= 29.0	12.8	Pass
Deceleration Decay Time to Cross 5 G's		ms	34.0 to 42.0	34.1	Pass
Maximum "D" Plane Rotation	Maximum	Deg	64.0 to 78.0	74.6	Pass
	Time	ms	57.0 to 64.0	57.1	Pass
"D" Plane Rotation Decay Time To Zero Crossing		ms	113.0 to 128.0	115.6	Pass
Moment About Occipital Condyle	Maximum	Nm	88.1 to 108.5	91.8	Pass
	Time	ms	47.0 to 58.0	47.7	Pass
Positive Moment Decay Time To Zero Crossing		ms	97.0 to 107.0	101.3	Pass
Overall Test Results					Pass


Laboratory Technician

04/01/2015

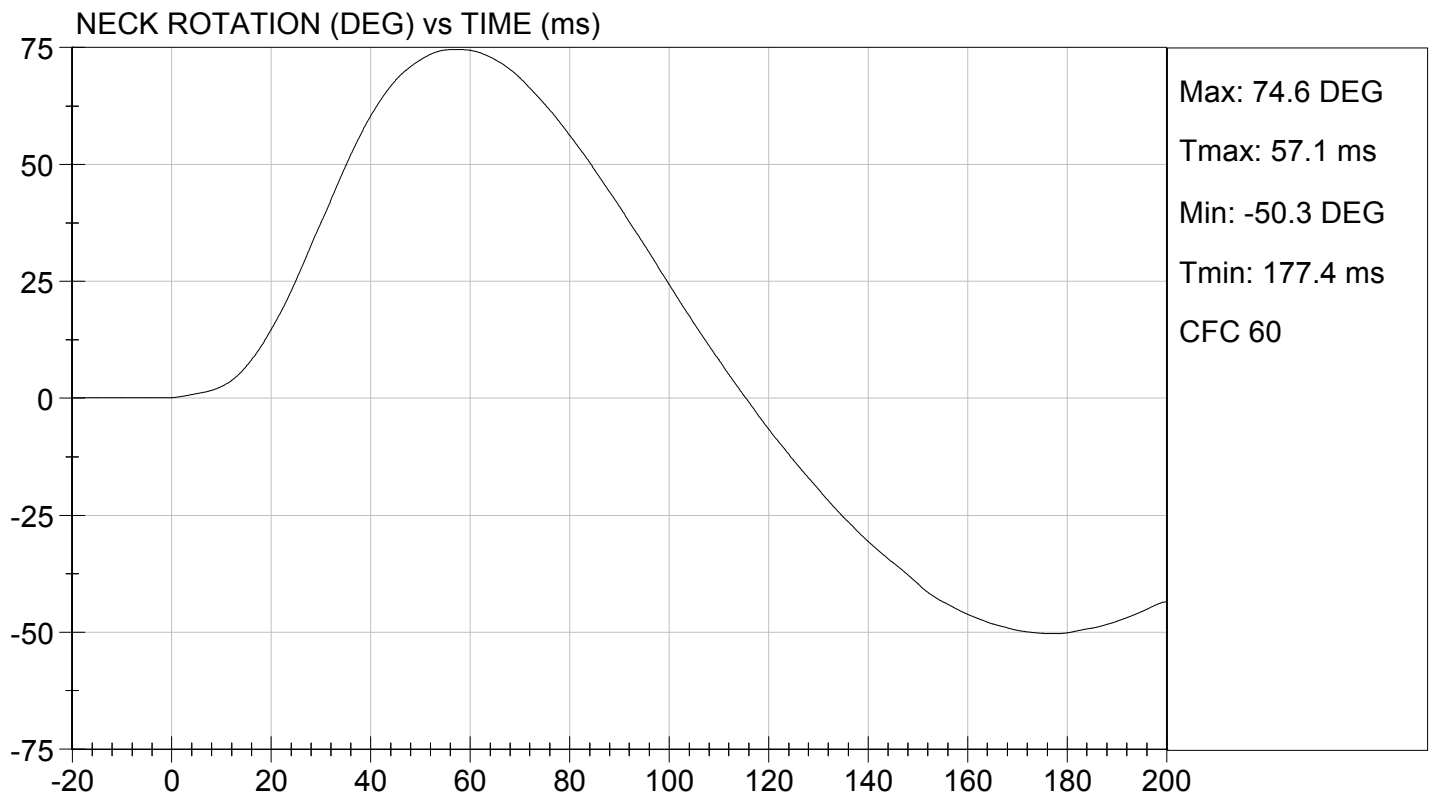
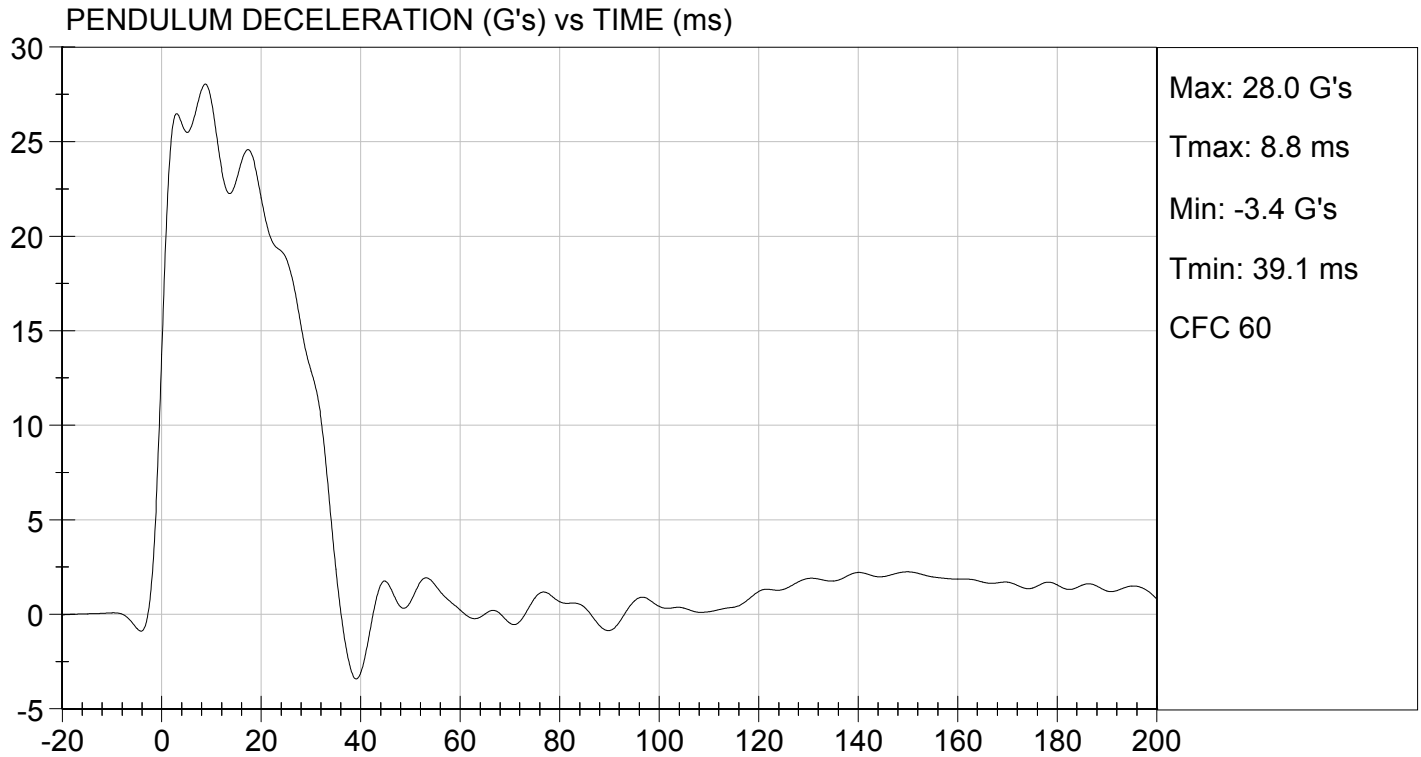
Test Date


Approved By



TEST DESC: NECK FLEXION
VELOCITY: 22.83 ft/s, 6.96 m/s

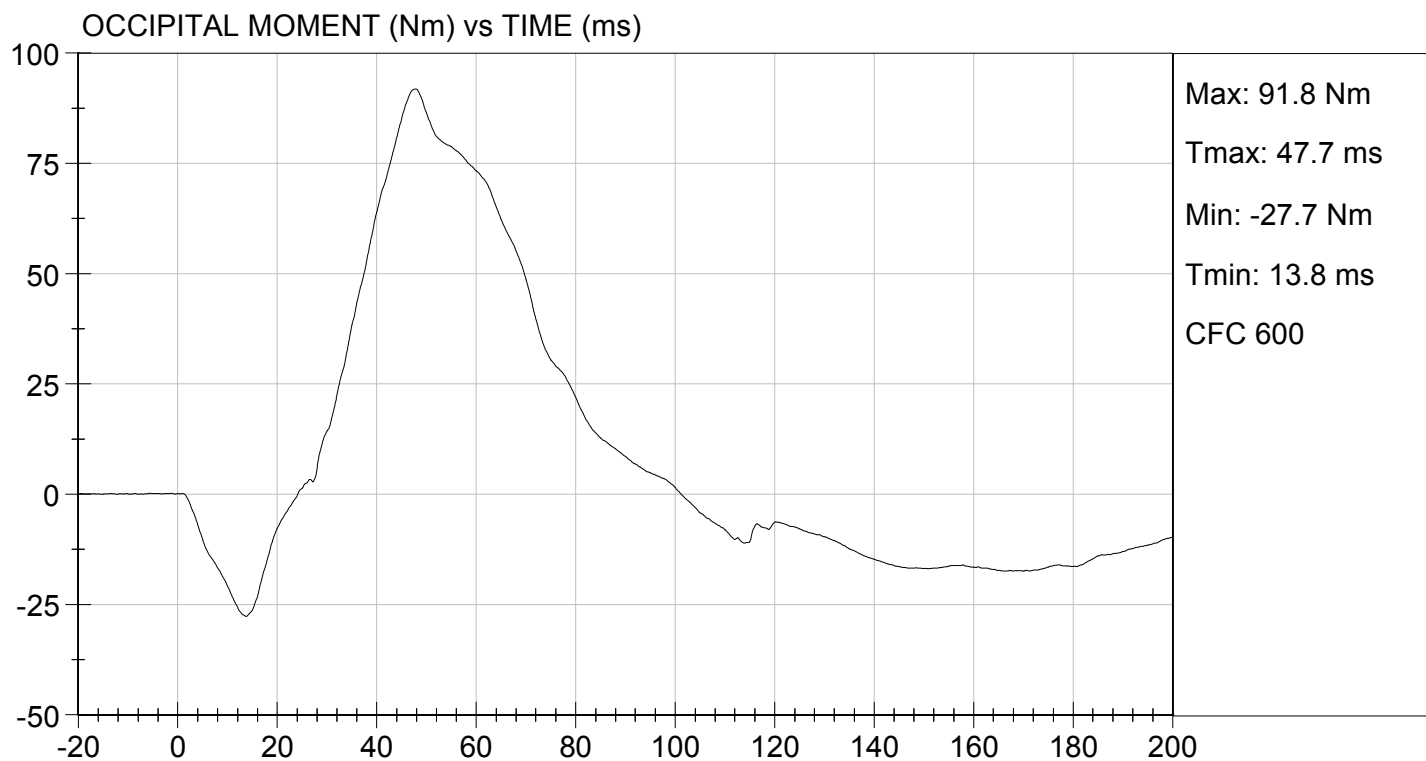
TEST DATE: 04/01/2015
TEST #: D15932





TEST DESC: NECK FLEXION
VELOCITY: 22.83 ft/s, 6.96 m/s

TEST DATE: 04/01/2015
TEST #: D15932



MGA RESEARCH CORPORATION
NECK EXTENSION TEST
HYBRID III 50TH PERCENTILE MALE

ATD Serial No: 351

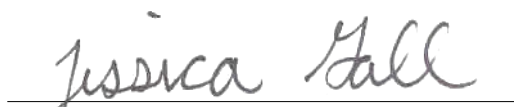
Test I.D: D15933

Tested Parameter		Units	Specification	Result	Pass/Fail
Laboratory Temperature		deg C	20.6 to 22.2	21.4	Pass
Laboratory Relative Humidity		%	10 to 70	32	Pass
Pendulum Velocity		m/s	5.95 to 6.19	6.05	Pass
Pendulum Deceleration	10 ms	G's	17.20 to 21.20	20.21	Pass
	20 ms	G's	14.00 to 19.00	16.69	Pass
	30 ms	G's	11.00 to 16.00	12.25	Pass
Peak Pendulum Deceleration After 30 ms		G's	<= 22.0	12.8	Pass
Deceleration Decay Time to Cross 5 G's		ms	38.0 to 46.0	38.9	Pass
Maximum "D" Plane Rotation	Maximum	Degrees	81.0 to 106.0	99.2	Pass
	Time	ms	72.0 to 82.0	77.7	Pass
"D" Plane Rotation Decay Time To Zero Crossing		ms	147.0 to 174.0	161.0	Pass
Moment About Occipital Condyle	Maximum	Nm	-52.9 to -79.9	-63.5	Pass
	Time	ms	65.0 to 79.0	71.1	Pass
Negative Moment Decay Time To Zero Crossing		ms	120.0 to 148.0	145.7	Pass
Overall Test Results					Pass


Laboratory Technician

04/01/2015

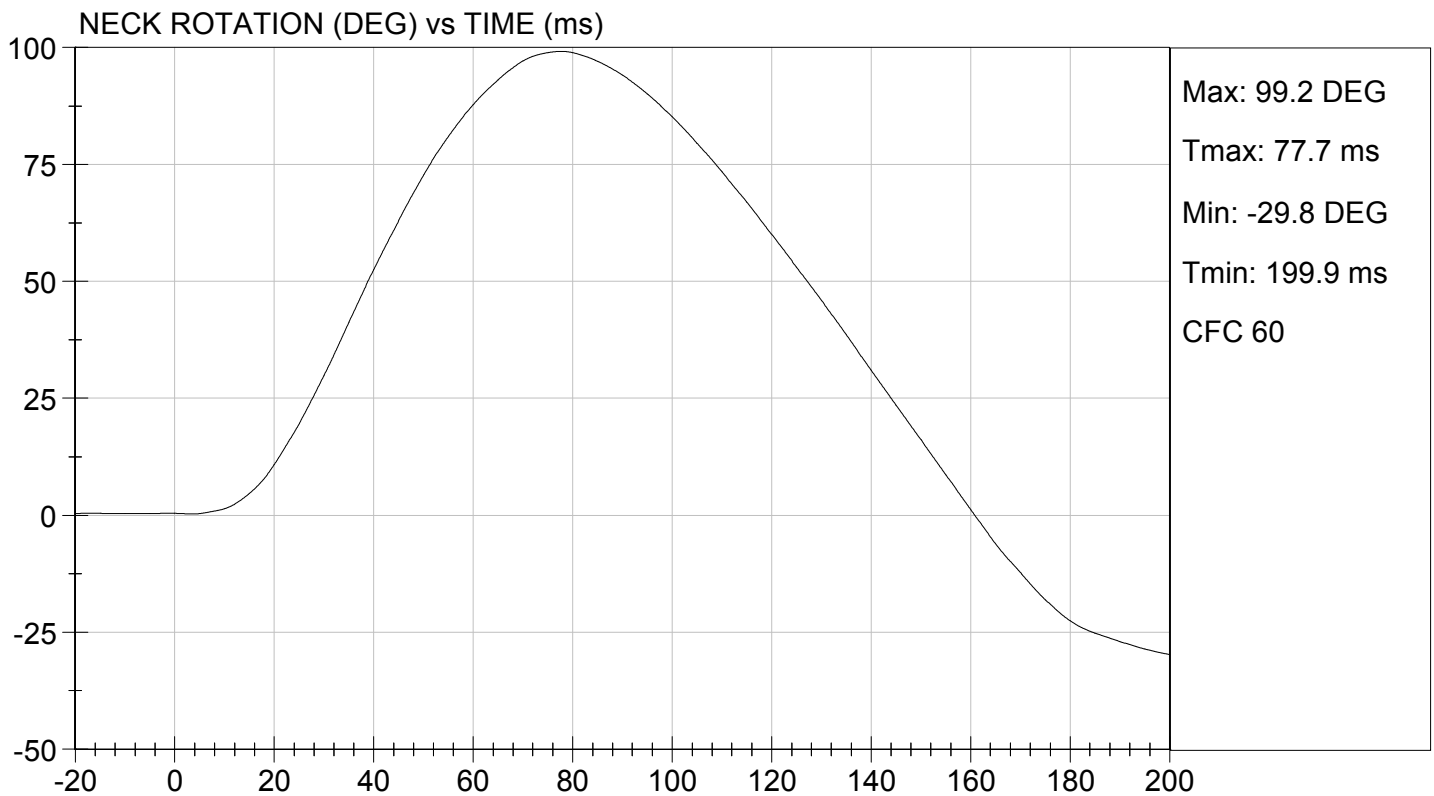
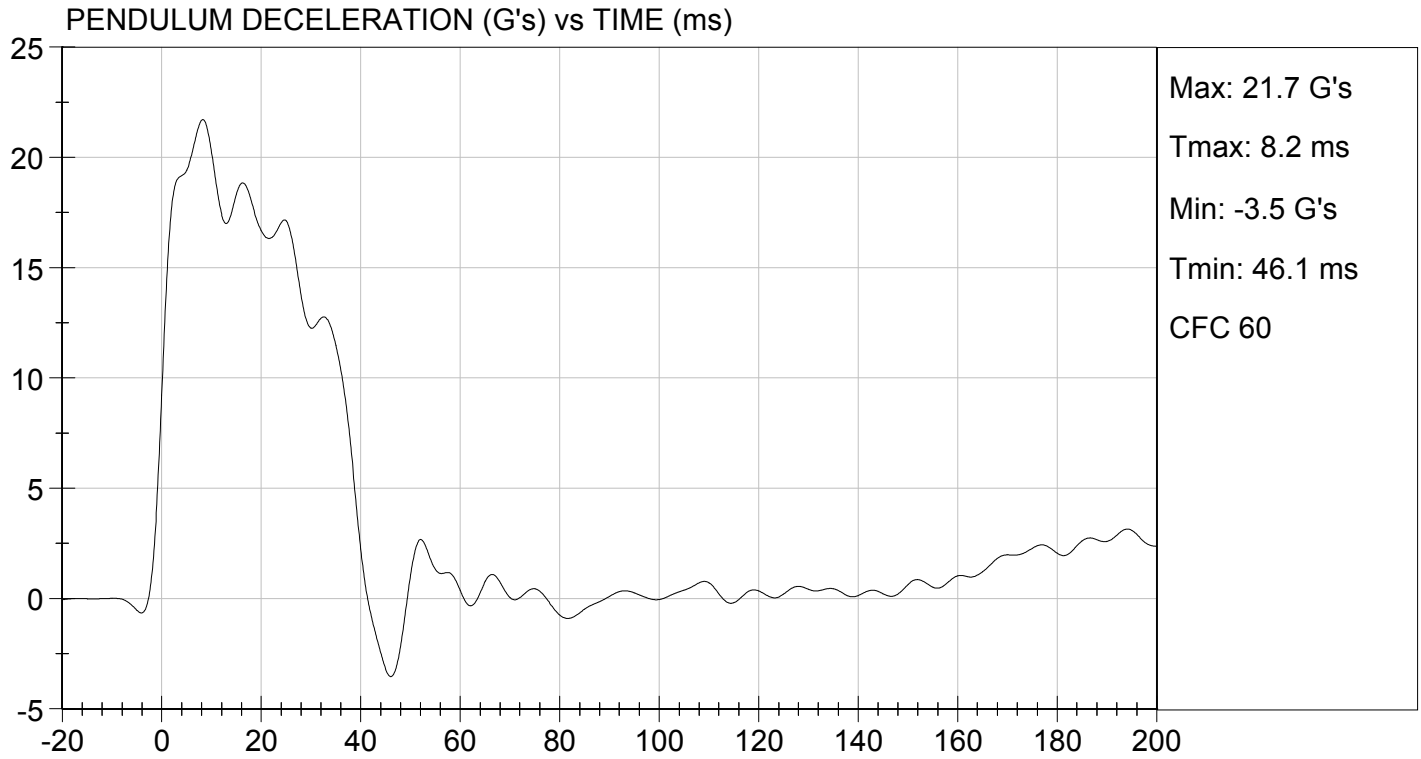
Test Date


Approved By



TEST DESC: NECK EXTENSION
VELOCITY: 19.84 ft/s, 6.05 m/s

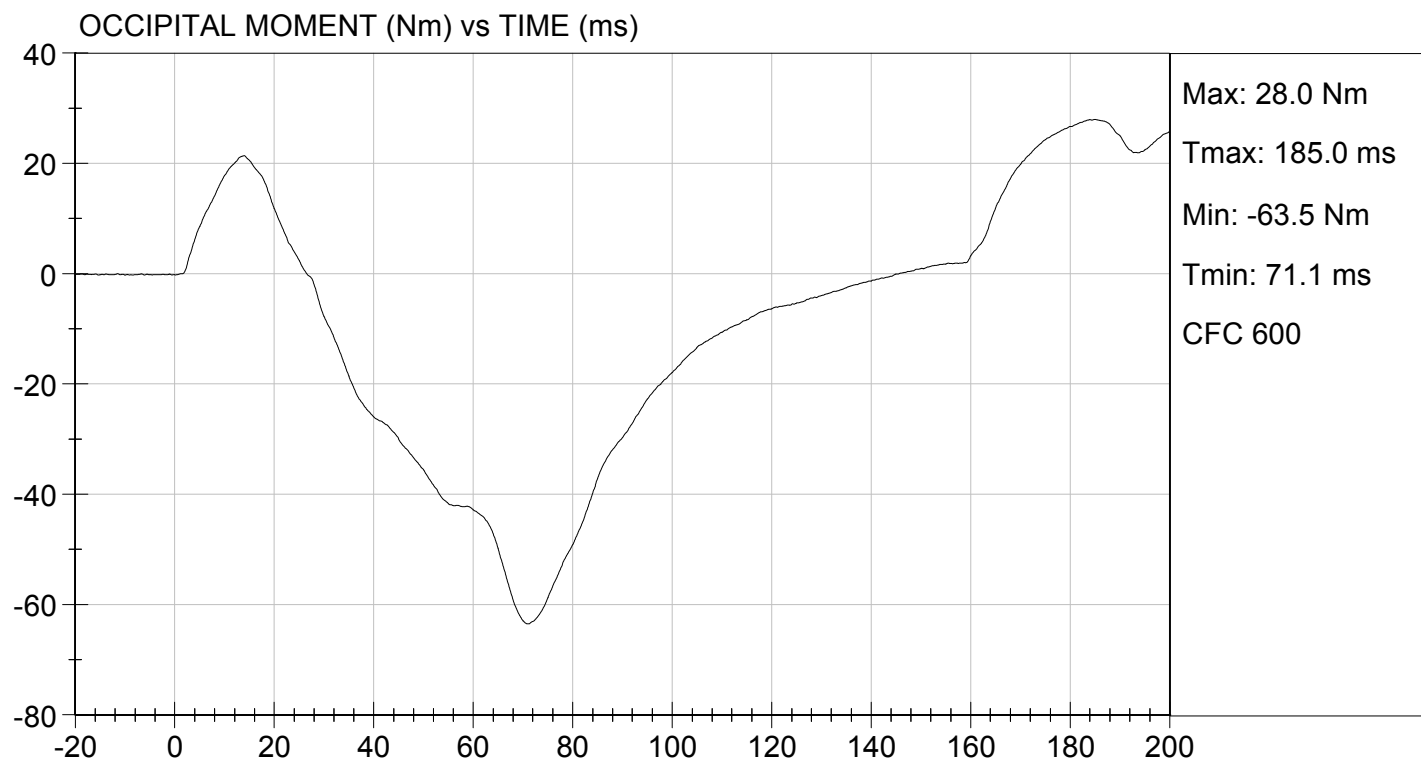
TEST DATE: 04/01/2015
TEST #: D15933





TEST DESC: NECK EXTENSION
VELOCITY: 19.84 ft/s, 6.05 m/s

TEST DATE: 04/01/2015
TEST #: D15933



MGA RESEARCH CORPORATION
THORAX IMPACT
HYBRID III 50TH PERCENTILE MALE

ATD Serial No: 351

Test I.D: D15934

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	20.6 to 22.2	21.2	Pass
Laboratory Relative Humidity	%	10 to 70	36	Pass
Probe Velocity	m/s	6.58 to 6.82	6.77	Pass
Peak Probe Force	N	5159 to 5893	5,356	Pass
Peak Sternum Displacement	cm	6.35 to 7.26	6.49	Pass
Internal Hysteresis	%	69 to 85	70	Pass
Overall Test Results				Pass


Laboratory Technician

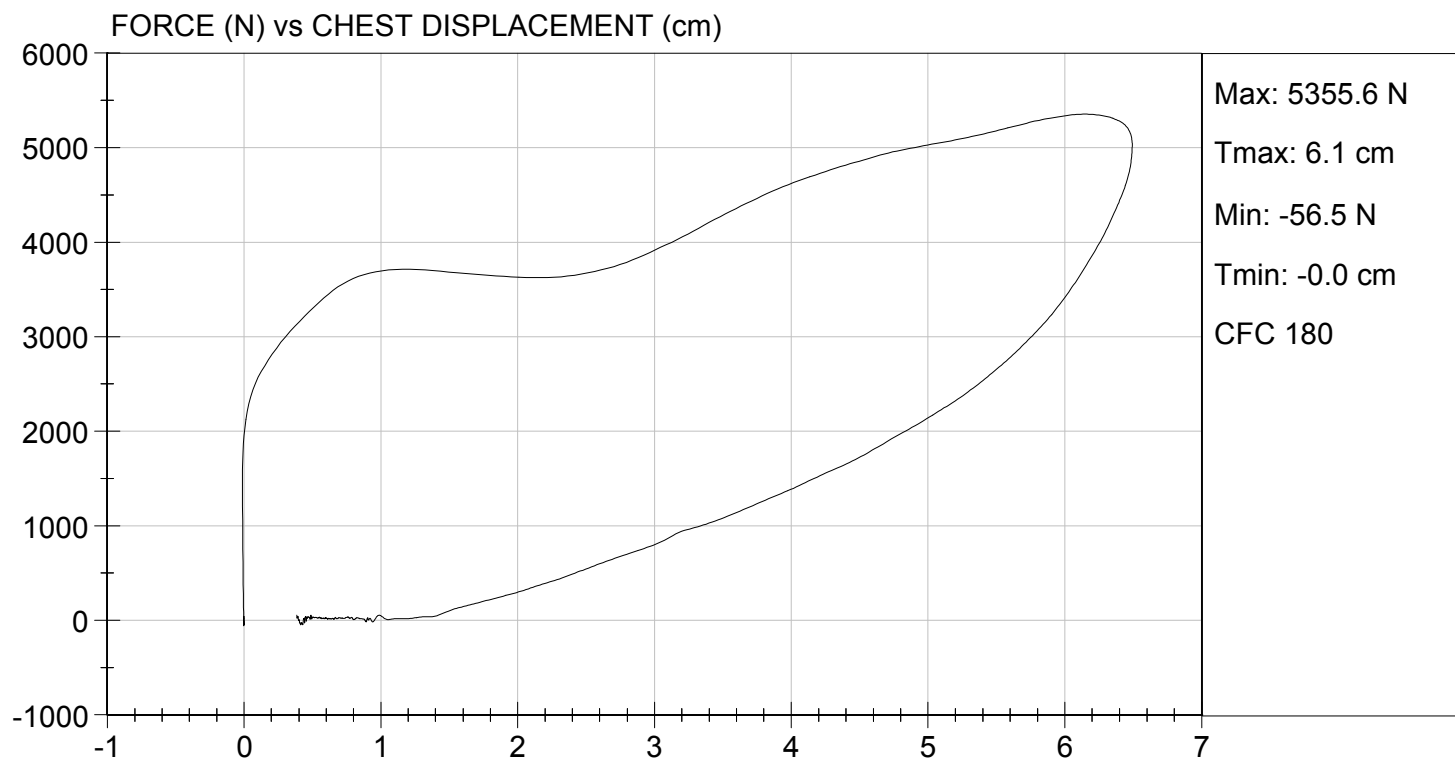
04/02/2015
Test Date


Approved By



TEST DESC: THORAX IMPACT
VELOCITY: 22.22 ft/s, 6.77 m/s

TEST DATE: 04/02/2015
TEST #: D15934



MGA RESEARCH CORPORATION
RIGHT KNEE IMPACT TEST
HYBRID III 50TH PERCENTILE MALE

ATD Serial No: 351

Test I.D: D15935

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 to 25.6	21.4	Pass
Laboratory Relative Humidity	%	10 to 70	32	Pass
Probe Velocity	m/s	2.07 to 2.13	2.08	Pass
Peak Probe Force	N	4715 to 5782	5,280	Pass
			Overall Test Results	Pass

David Schoedel
Laboratory Technician

04/01/2015

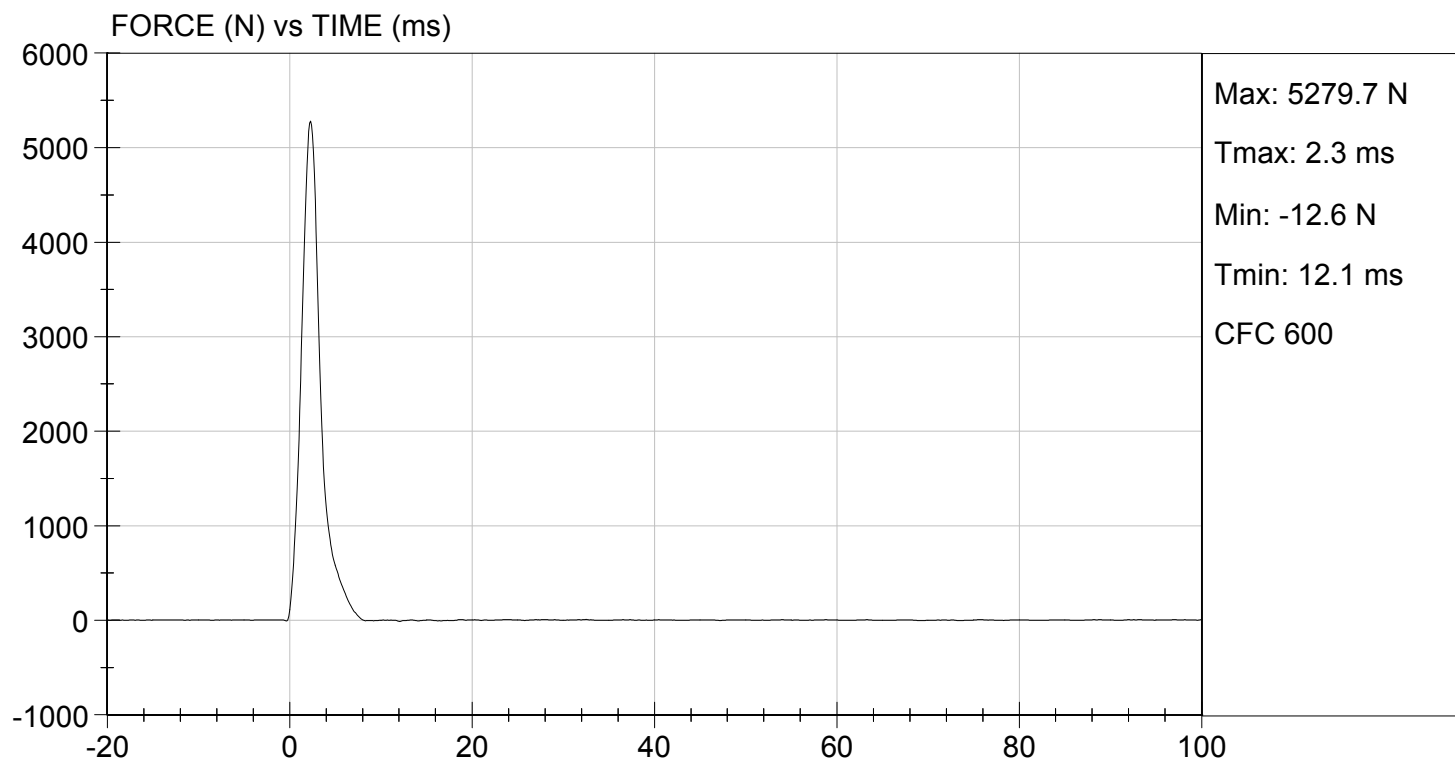
Test Date

Jessica Hall
Approved By



TEST DESC: RIGHT KNEE
VELOCITY: 6.83 ft/s, 2.08 m/s

TEST DATE: 04/01/2015
TEST #: D15935



MGA RESEARCH CORPORATION
LEFT KNEE IMPACT TEST
HYBRID III 50TH PERCENTILE MALE

ATD Serial No: 351

Test I.D: D15936

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 to 25.6	21.4	Pass
Laboratory Relative Humidity	%	10 to 70	32	Pass
Probe Velocity	m/s	2.07 to 2.13	2.13	Pass
Peak Probe Force	N	4715 to 5782	5,592	Pass
Overall Test Results				Pass


Laboratory Technician

04/01/2015

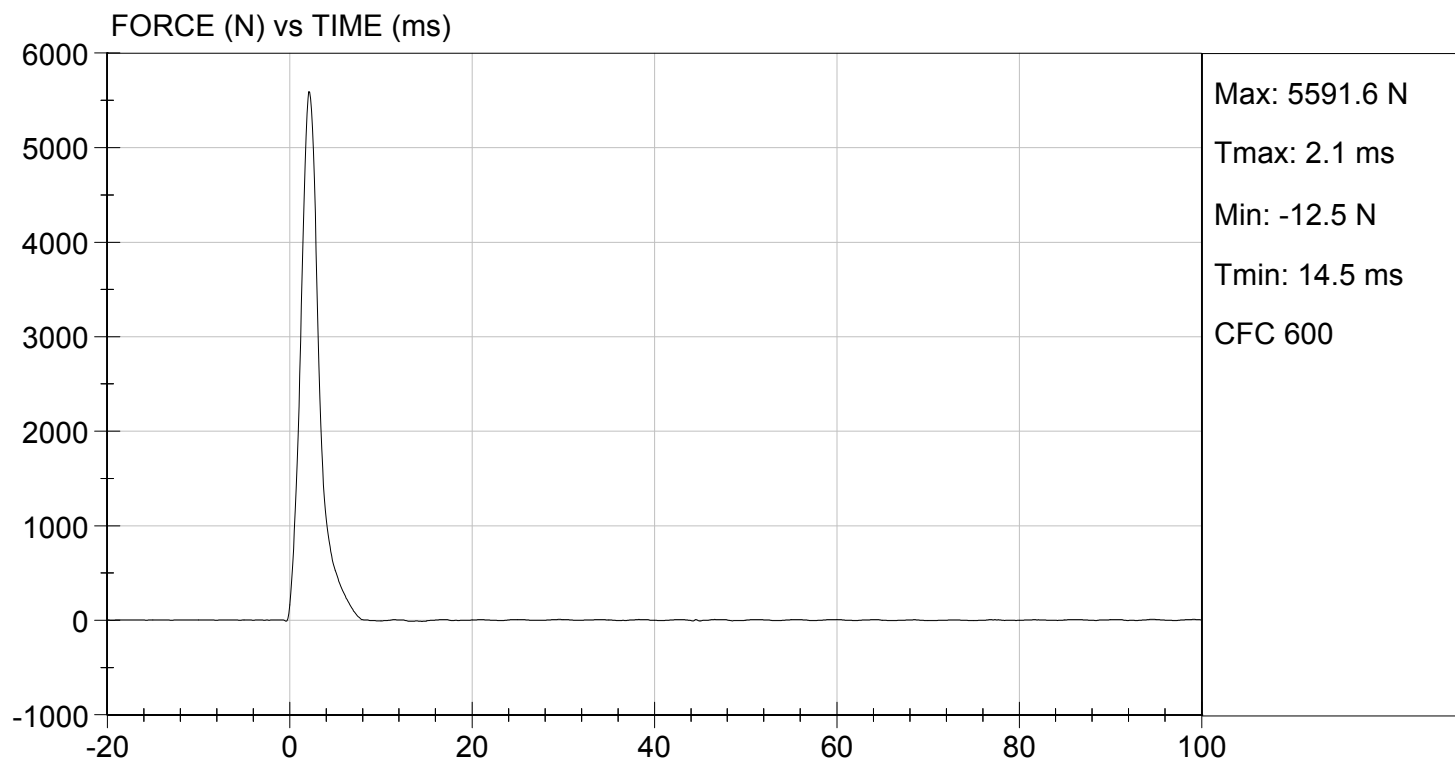
Test Date


Approved By



TEST DESC: LEFT KNEE
VELOCITY: 7.00 ft/s, 2.13 m/s

TEST DATE: 04/01/2015
TEST #: D15936



MGA RESEARCH CORPORATION
HIP-FEMUR FLEXION TEST
HYBRID III 50TH PERCENTILE MALE

ATD Serial No: 351

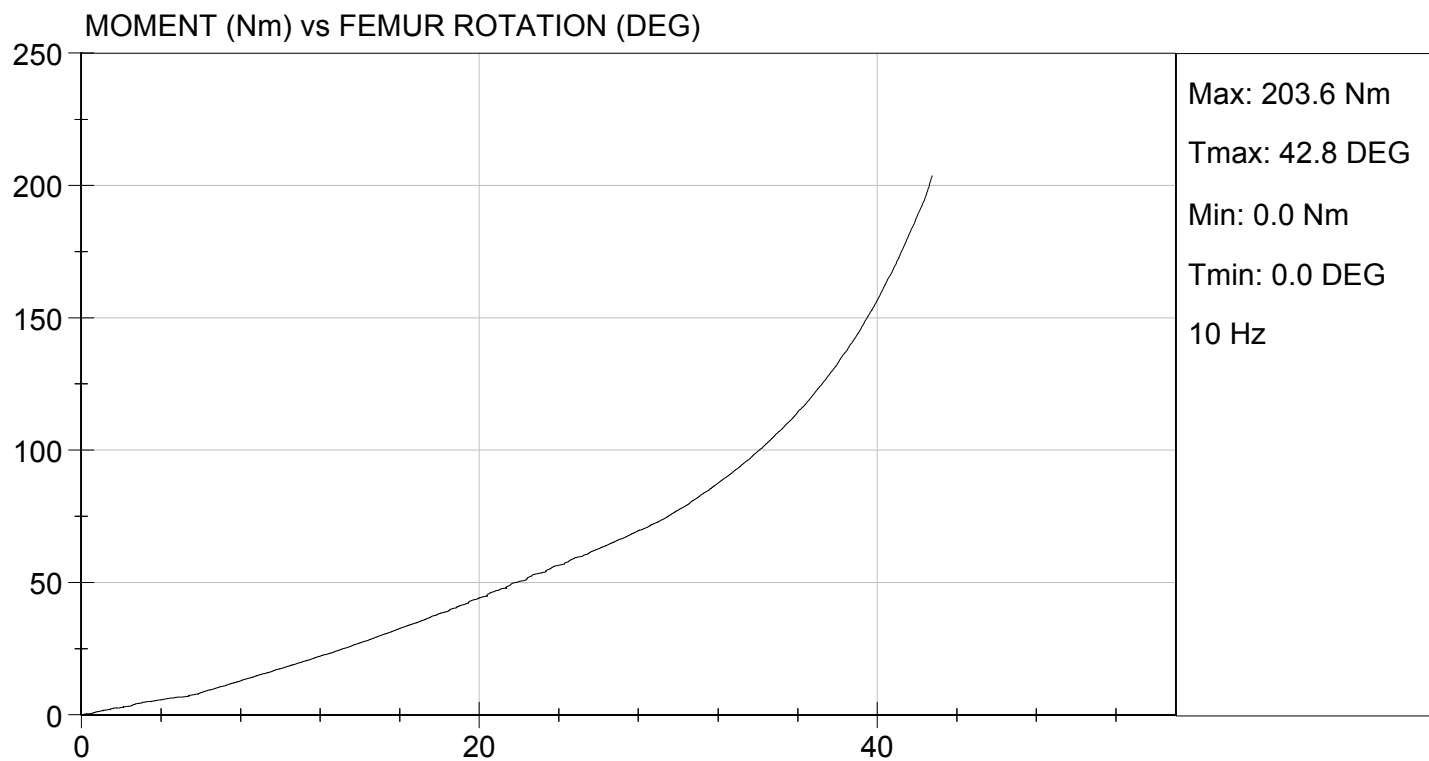
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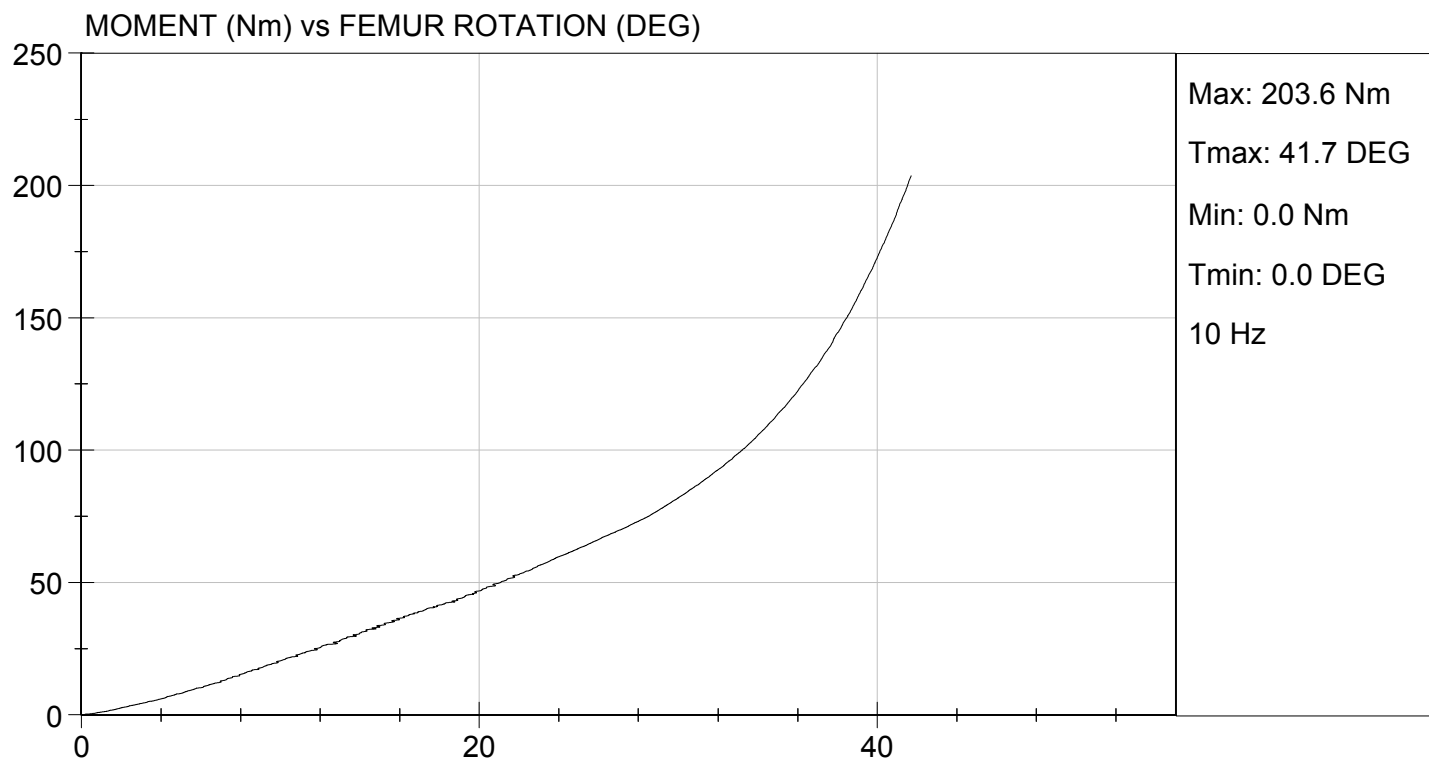
Tested Parameter	Units	Specification	Result		Pass/Fail
			Right	Left	
Laboratory Temperature	deg C	18.9 to 25.6	21.2	21.2	Pass
Laboratory Relative Humidity	%	10 to 70	33	33	Pass
Rotation Rate	deg/s	5.0 to 10.0	6.2	6.2	Pass
30 Degrees	Nm	94.9 Nm Max	77.4	81.9	Pass
150 ft-lbf / 203.4 Nm	Deg	40.0 to 50.0 Degree Max Rotation	42.8	41.7	Pass
Overall Test Results					Pass


 Laboratory Technician

04/01/2015
 Test Date


 Approved By





Hybrid III, 5th External Measurements
SN: 634

HYBRID III, PART 572, SUBPART O EXTERNAL DIMENSIONS				
DIMENSION	DESCRIPTION	DETAILS	ASSEMBLY DIMENSION (mm)	ACTUAL MEASUREMENT
A	TOTAL SITTING HEIGHT	Seat surface to highest point on top of the head.	774.7-800.1	784.6
B	SHOULDER PIVOT HEIGHT	Centerline of shoulder pivot bolt to the seat surface.	431.8-457.2	449.0
C	H-POINT HEIGHT	Reference	81.3-86.3	85.0
D	H-POINT LOCATION FROM BACKLINE	Reference	144.8-149.8	145.0
E	SHOULDER PIVOT FROM BACKLINE	Center of the shoulder clevis to the rear vertical surface of the fixture.	68.6-83.8	79.2
F	THIGH CLEARANCE	Measured at the highest point on the upper femur segment.	119.4-134.6	125.6
G	BACK OF ELBOW TO WRIST PIVOT	back of the elbow flesh to the wrist pivot in line with the elbow and wrist pivots	243.9-259.1	253.4
H	HEAD BACK TO BACKLINE	Back of Skull cap skin to seat rear vertical surface (Reference)	43.2-48.2	45.0
I	SHOULDER TO- ELBOW LENGTH	Measure from the highest point on top of the shoulder clevis to the lowest part of the flesh on the elbow in line with the elbow pivot bolt.	276.8-297.2	277.8
J	ELBOW REST HEIGHT	Measure from the flesh below the elbow pivot bolt to the seat surface.	182.8-203.2	197.5
K	BUTTOCK TO KNEE LENGTH	The forward most part of the knee flesh to the rear vertical surface of the fixture.	520.7-546.1	541.4
L	POPLITEAL HEIGHT	Seat surface to the plane of the horizontal plane of the bottom of the feet.	355.6-376.0	362.1
M	KNEE PIVOT HEIGHT	Centerline of knee pivot bolt to the horizontal plane of the bottom of the feet.	393.7-419.1	400.4
N	BUTTOCK POPLITEAL LENGTH	The rearmost surface of the lower leg to the same point on the rear surface of the buttocks used for dim. "K".	414-439.4	428.6

HYBRID III, SUBPART O EXTERNAL DIMENSIONS, continued				
DIMENSION	DESCRIPTION	DETAILS	ASSEMBLY DIMENSION (mm)	ACTUAL MEASUREMENT
O	CHEST DEPTH WITHOUT JACKET	Measured 304.8 ± 5.1 mm above seat surface	175.3-190.5	181.6
P	FOOT LENGTH	Tip of toe to rear of heel	218.5-233.7	224.7
Q	STANDING HEIGHT	(THEORETICAL)	1501.1	N/A
R	BUTTOCK TO KNEE PIVOT LENGTH	The rear surface of the buttocks to the knee pivot bolt	457.2-482.6	482.0
S	HEAD BREADTH	The widest part of the head	137.1-147.3	139.6
T	HEAD DEPTH	Back of the head to the forehead	177.8-188.0	179.2
U	HIP BREADTH	The widest part of the hip	299.7-314.9	306.1
V	SHOULDER BREADTH	Outside edges of right and left shoulder clevises	350.5-365.7	355.5
W	FOOT BREADTH	The widest part of the foot	78.8-94.0	90.0
X	HEAD CIRCUMFERENCE	Measured at the point as in dim. "T"	528.3-548.7	540.6
Y	CHEST CIRCUMFERENCE (WITH CHEST JACKET)	Measured 345.4 ± 12.7 mm above seat surface	850.9-881.3	868.7
Z	WAIST CIRCUMFERENCE	Measured 165.1 ± 5.1 mm above seat surface	759.5-789.9	786.8
AA	REFERENCE LOCATION FOR MEASUREMENT OF CHEST CIRCUMFERENCE	Reference	332.7-358.1	345.4
BB	REFERENCE LOCATION FOR MEASUREMENT OF WAIST CIRCUMFERENCE	Reference	160.1-170.2	165.1

MGA RESEARCH CORPORATION
HEAD DROP TEST
HYBRID III 5TH PERCENTILE

ATD Serial No: 634

Test ID: D15731

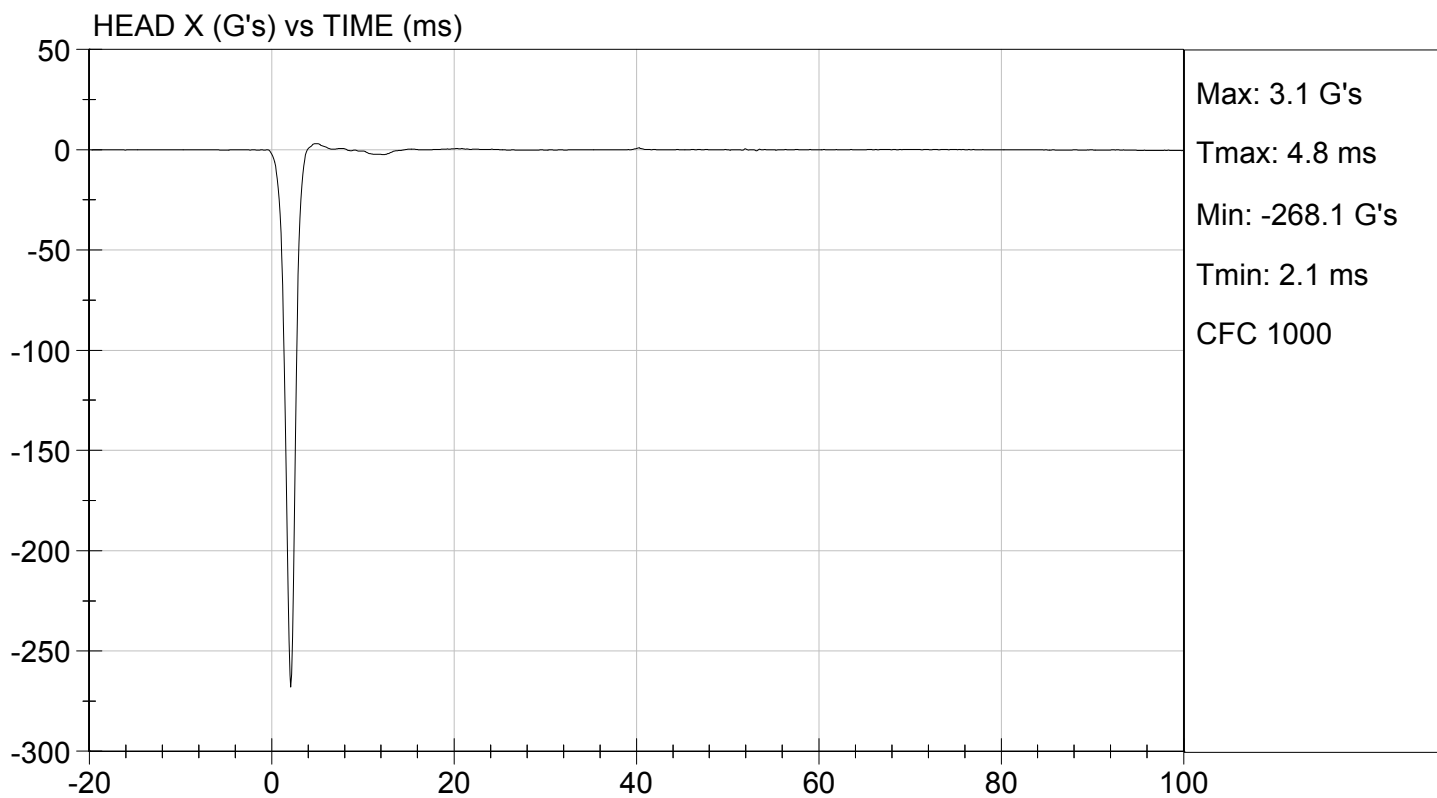
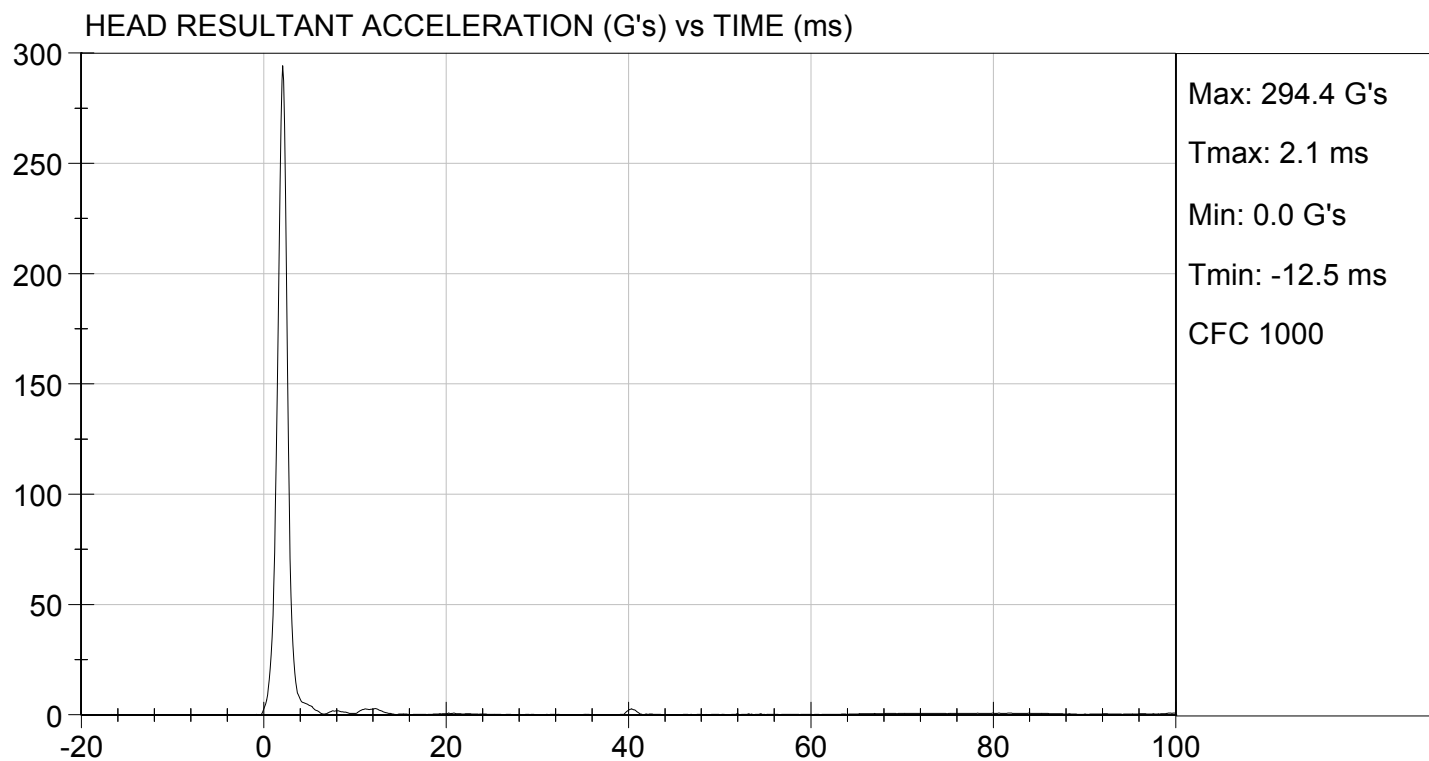
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 to 25.6	21.8	Pass
Laboratory Relative Humidity	%	10 to 70	19	Pass
Peak Resultant Acceleration	G's	250 to 300	294	Pass
Peak Lateral Acceleration	G's	<= +/- 15.0	11.2	Pass
Unimodal	N/A	Yes	Yes	Pass
Oscillations	N/A	within 10% of peak	Yes	Pass
			Overall Test Results	Pass

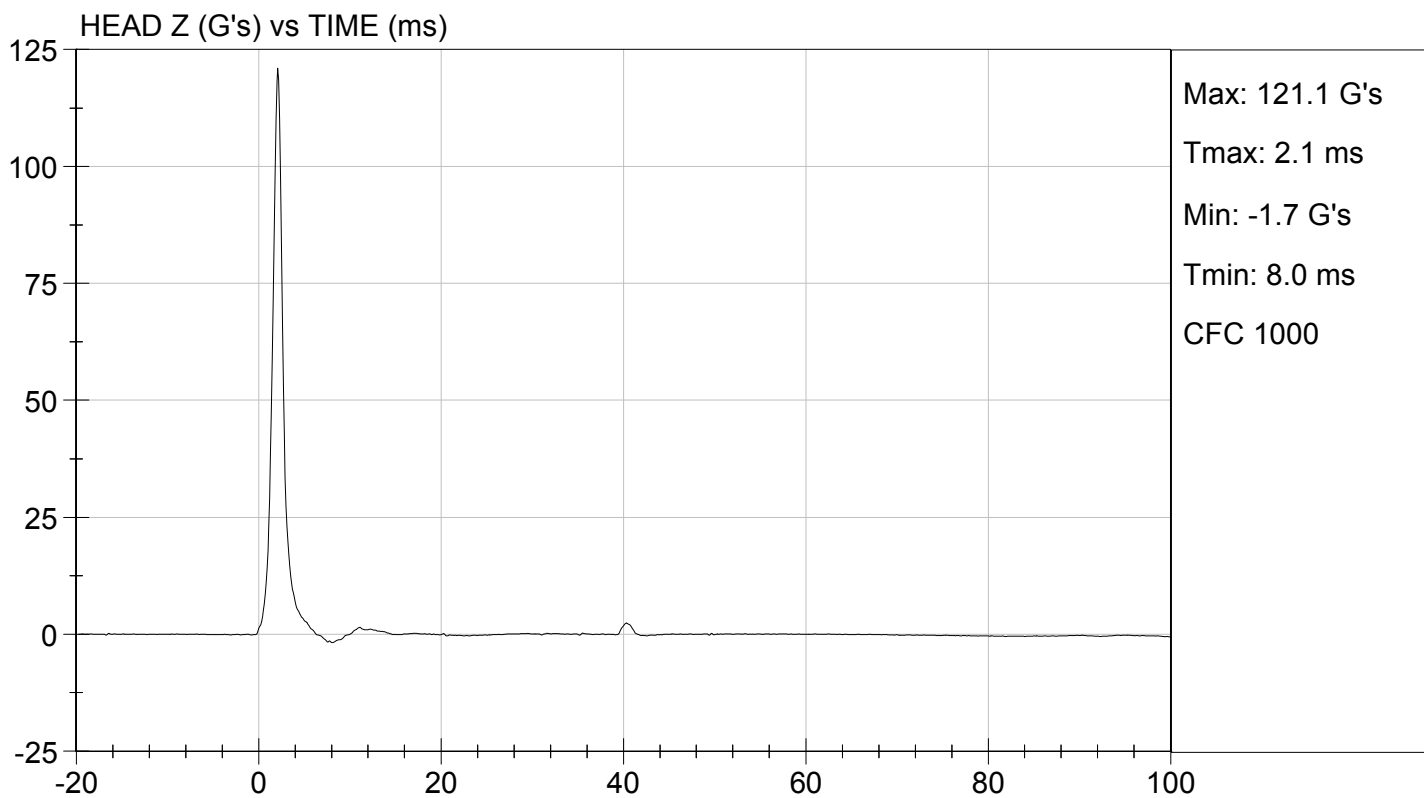
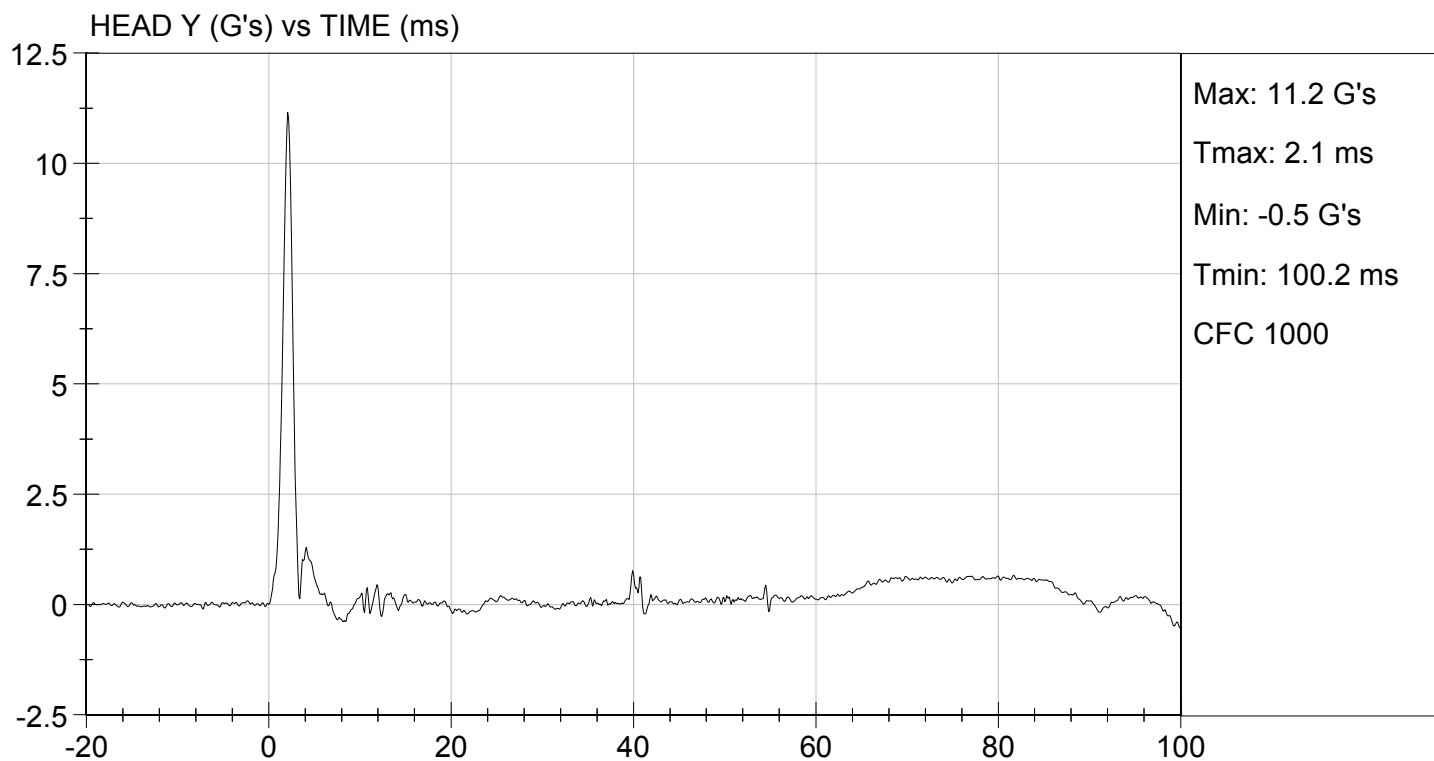
David Schoedel
Laboratory Technician

03/18/2015

Test Date

Jessica Hall
Approved By





MGA RESEARCH CORPORATION

NECK FLEXION TEST

HYBRID III 5TH PERCENTILE

ATD Serial No: 634

Test I.D: D15732

Tested Parameter		Units	Specification	Result	Pass/Fail
Laboratory Temperature		deg C	20.6 to 22.2	21.8	Pass
Laboratory Relative Humidity		%	10 to 70	19	Pass
Pendulum Speed		m/s	6.89 to 7.13	7.13	Pass
Pendulum Velocity	10 ms	m/s	2.1 to 2.5	2.5	Pass
	20 ms	m/s	4.0 to 5.0	4.6	Pass
	30 ms	m/s	5.8 to 7.0	6.3	Pass
D Plane Rotation	Max	deg	77 to 91	80	Pass
Occipital Condyle Moment within Rotation Corridor		Nm	69 to 83	72	Pass
Positive Moment Time Curve Decay to 10 Nm		ms	80 to 100	81	Pass
Overall Results				Pass	



Laboratory Technician

03/18/2015

Test Date

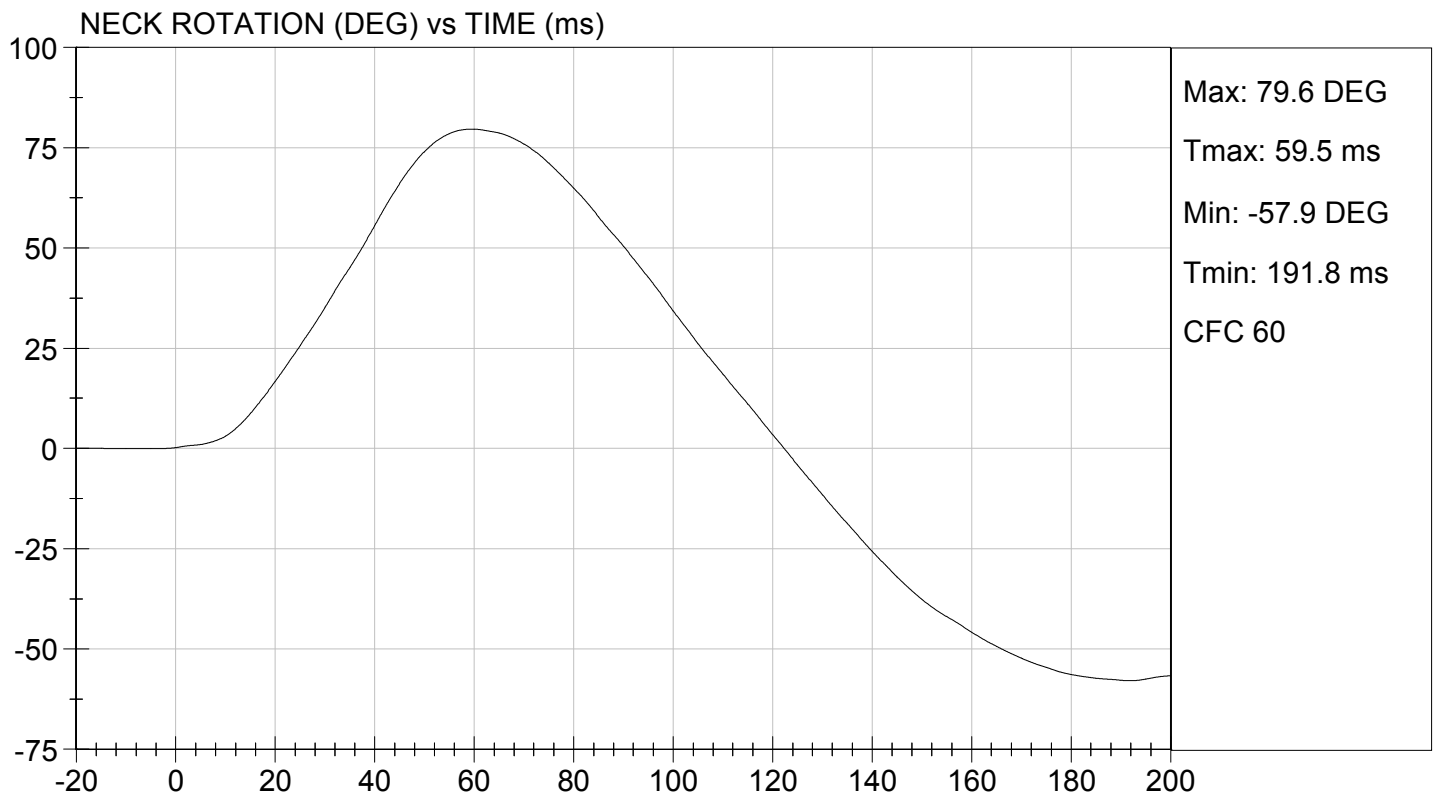
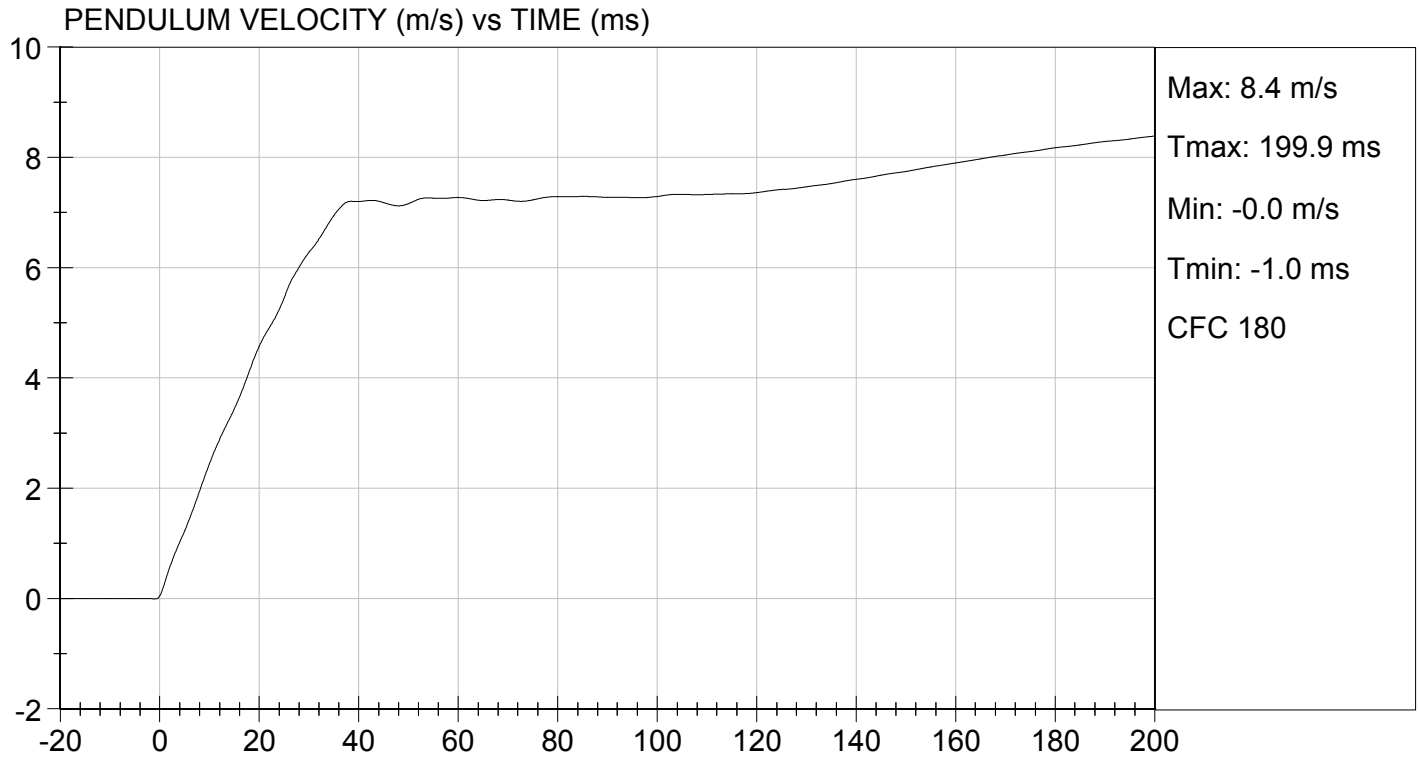


Approved By



TEST DESC: NECK FLEXION
VELOCITY: 23.40 ft/s, 7.13 m/s

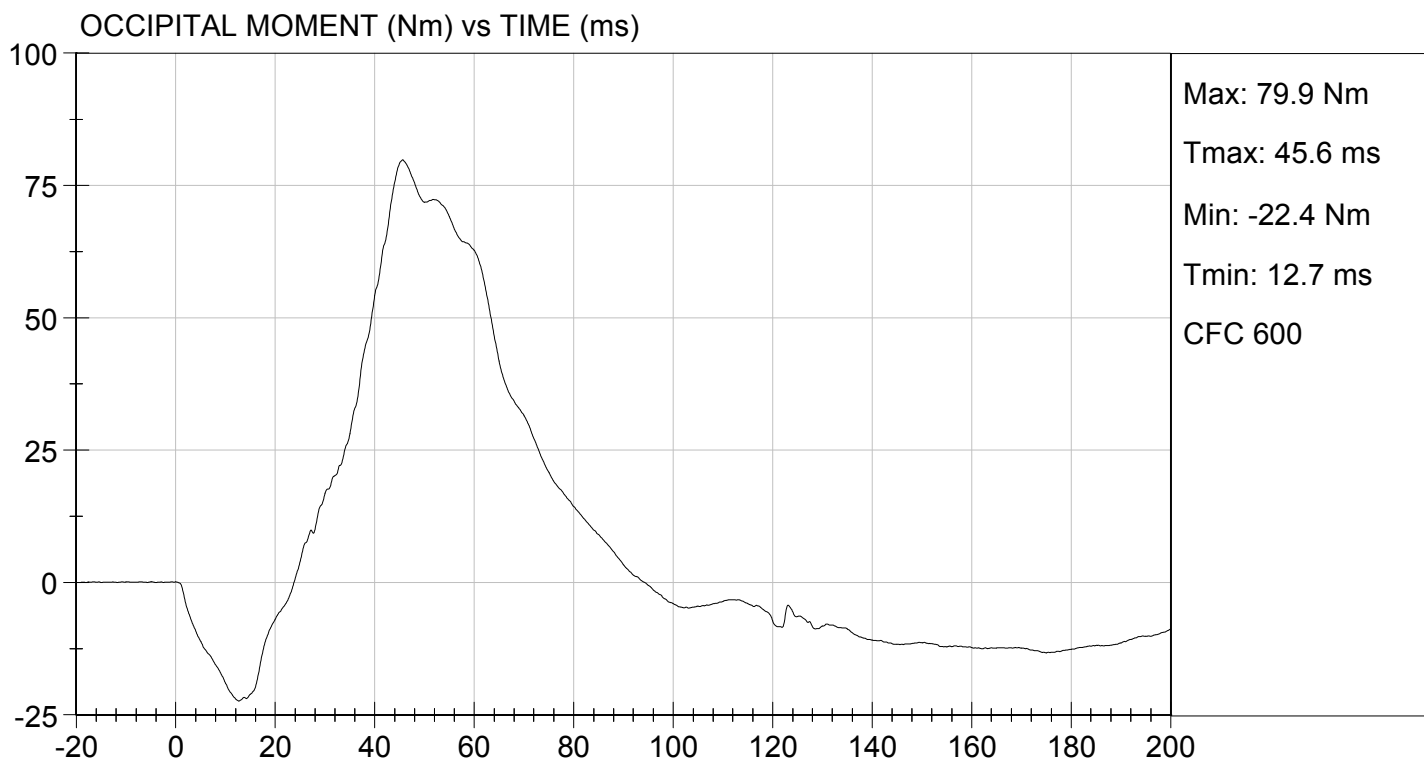
TEST DATE: 03/18/2015
TEST #: D15732





TEST DESC: NECK FLEXION
VELOCITY: 23.40 ft/s, 7.13 m/s

TEST DATE: 03/18/2015
TEST #: D15732



MGA RESEARCH CORPORATION
NECK EXTENSION TEST
HYBRID III 5TH PERCENTILE

ATD Serial No: 634

Test I.D: D15733

Tested Parameter		Units	Specification	Result	Pass/Fail
Laboratory Temperature		deg C	20.6 to 22.2	21.8	Pass
Laboratory Relative Humidity		%	10 to 70	19	Pass
Pendulum Speed		m/s	5.95 to 6.19	6.19	Pass
Pendulum Velocity	10 ms	m/s	1.5 to 1.9	1.7	Pass
	20 ms	m/s	3.1 to 3.9	3.6	Pass
	30 ms	m/s	4.6 to 5.6	5.2	Pass
D Plane Rotation	Max	deg	99 to 114	111	Pass
Occipital Condyle Moment within Rotation Corridor		Nm	-65 to -53	-60	Pass
Negative Moment Time Curve Decay to -10 Nm		ms	94 to 114	100	Pass
Overall Results					Pass

David Schoedel
Laboratory Technician

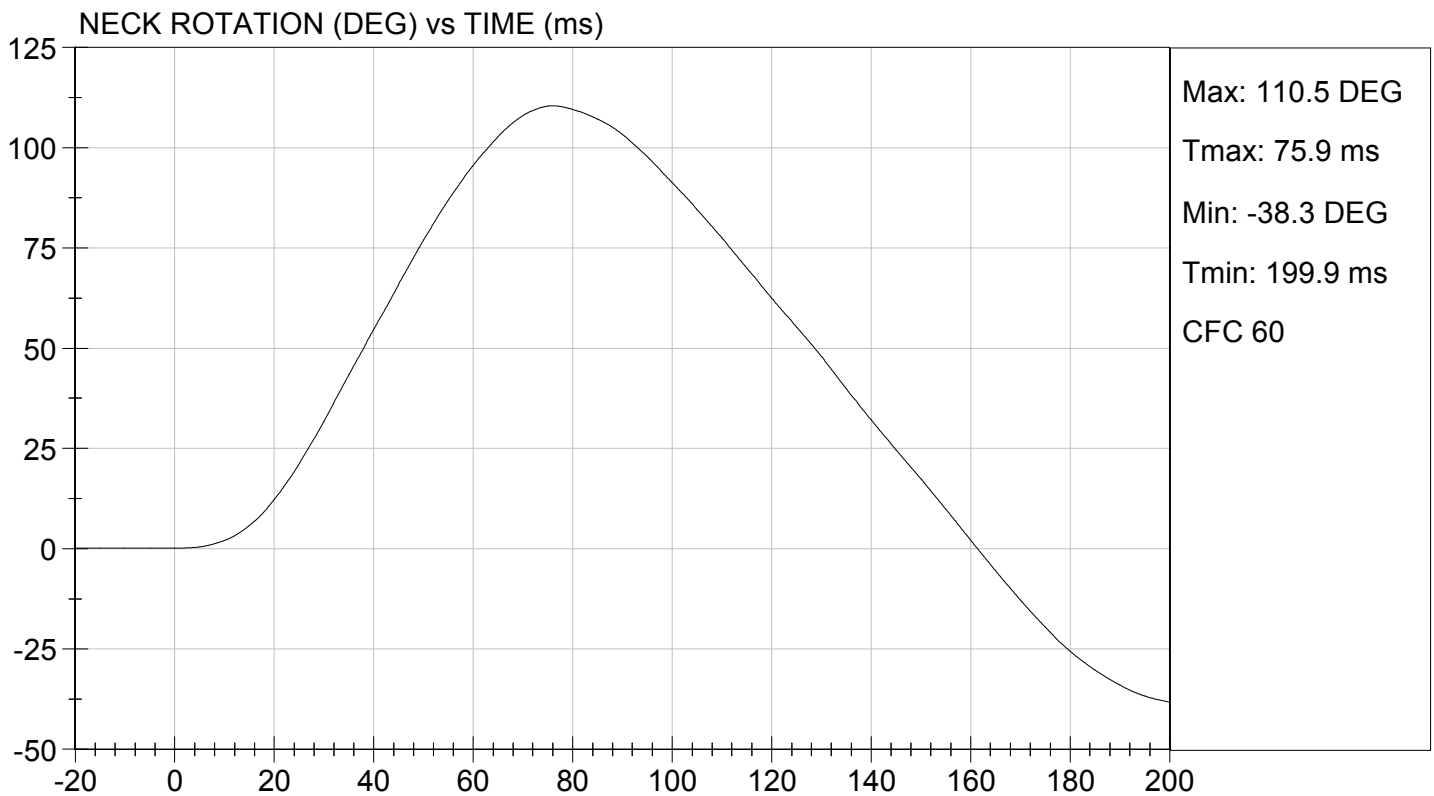
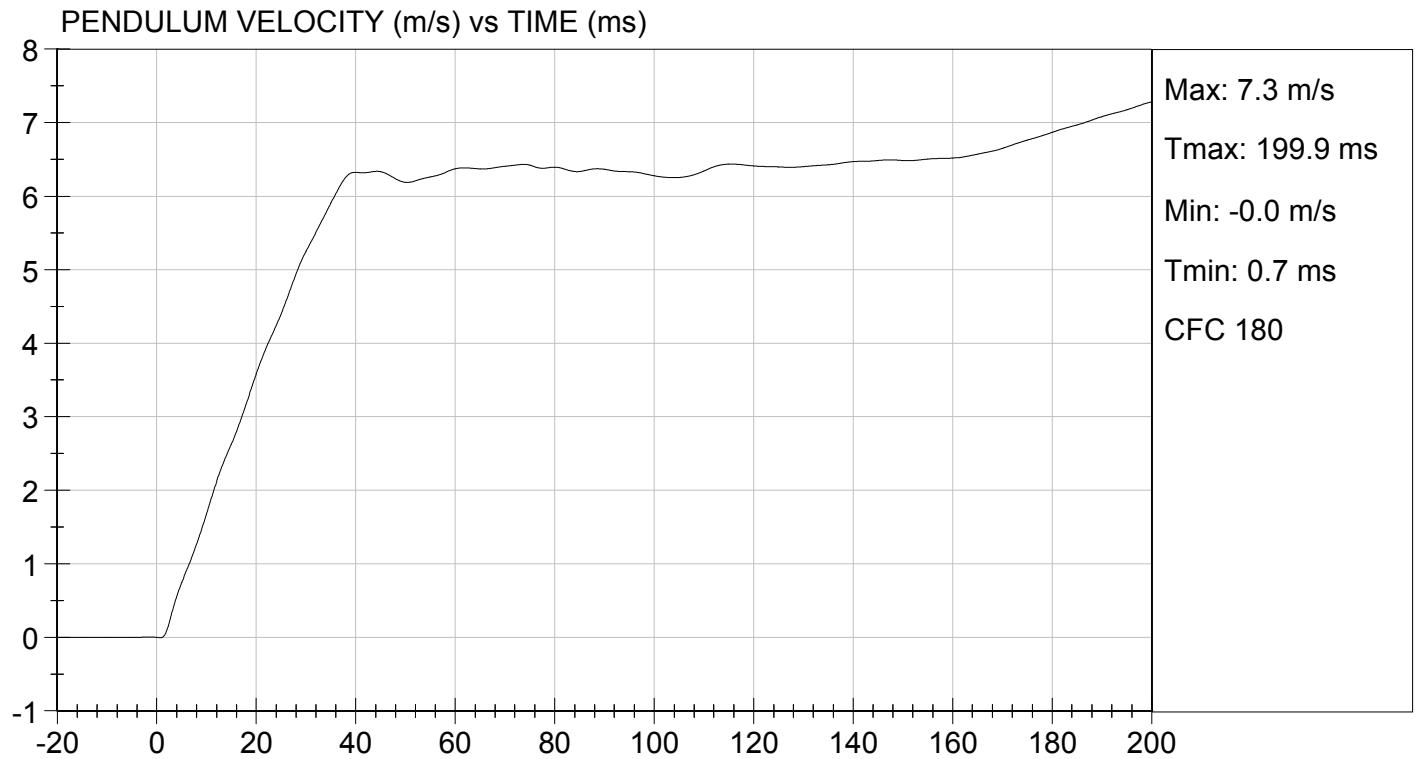
03/18/2015
Test Date

Jessica Hall
Approved By



TEST DESC: NECK EXTENSION
VELOCITY: 20.30 ft/s, 6.19 m/s

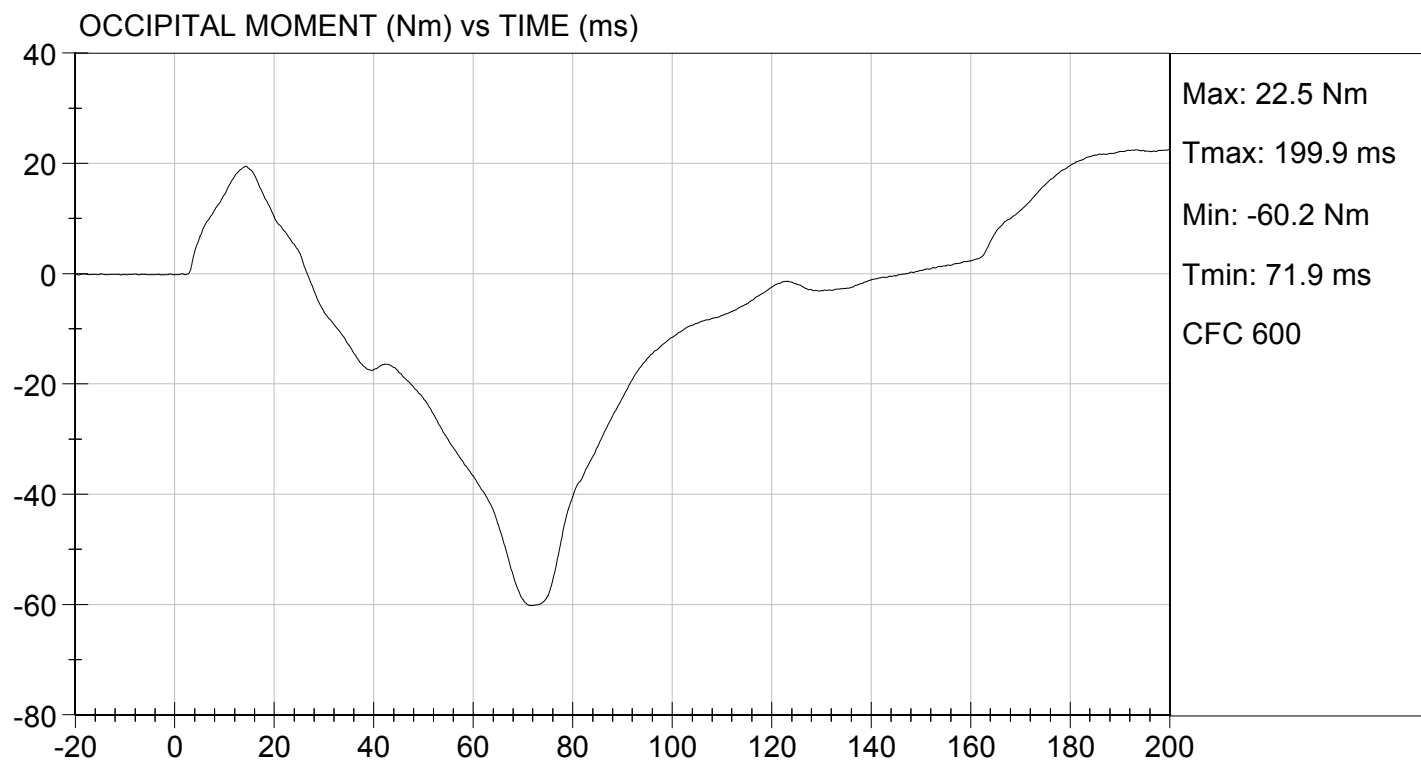
TEST DATE: 03/18/2015
TEST #: D15733





TEST DESC: NECK EXTENSION
VELOCITY: 20.30 ft/s, 6.19 m/s

TEST DATE: 03/18/2015
TEST #: D15733

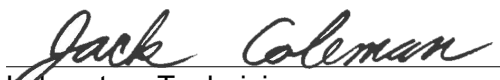


MGA RESEARCH CORPORATION
THORAX IMPACT
HYBRID III 5TH PERCENTILE

ATD Serial No: 634

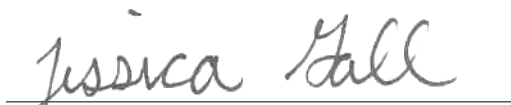
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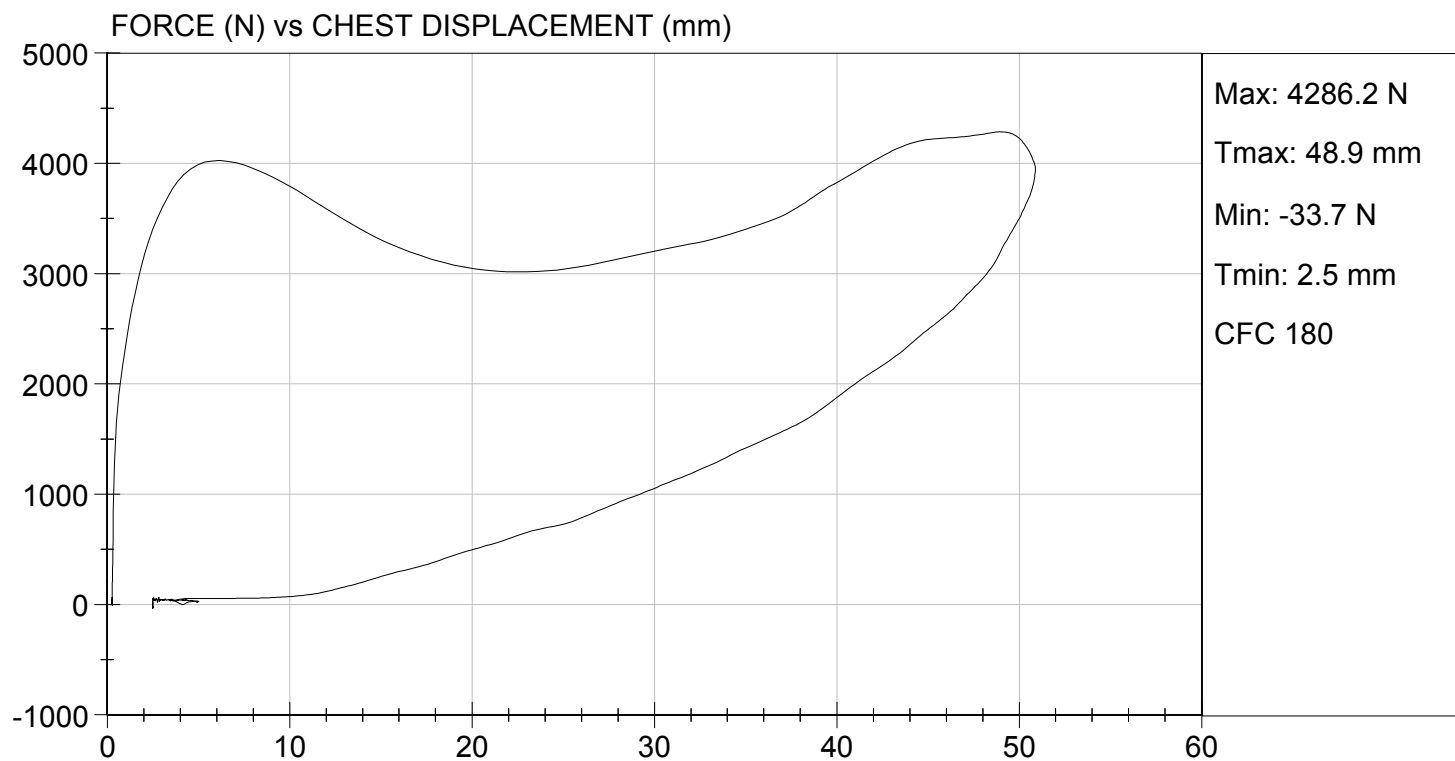
Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	21.0	Pass
Relative Humidity	%	10 to 70	21	Pass
Probe Speed	m/s	6.59 to 6.83	6.77	Pass
Peak Deflection	mm	50 to 58	51	Pass
Peak Resistive Force w/in Deflection Corridor	N	3900 to 4400	4223	Pass
Internal Hysteresis	%	69 to 85	70	Pass
Peak Force 18 mm - 50 mm	N	<= 4600	4286	Pass
Overall Test Results				Pass


Laboratory Technician

03/19/2015

Test Date


Approved By



MGA RESEARCH CORPORATION

RIGHT KNEE IMPACT TEST

HYBRID III 5TH PERCENTILE

ATD Serial No: 634

Test I.D: D15735

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 to 25.6	21.8	Pass
Laboratory Relative Humidity	%	10 to 70	19	Pass
Probe Speed	m/s	2.07 to 2.13	2.08	Pass
Maximum Force	N	3450 to 4060	3534	Pass
Overall Test Results				Pass

Maxime Chamberland

Laboratory Technician

03/18/2015

Test Date

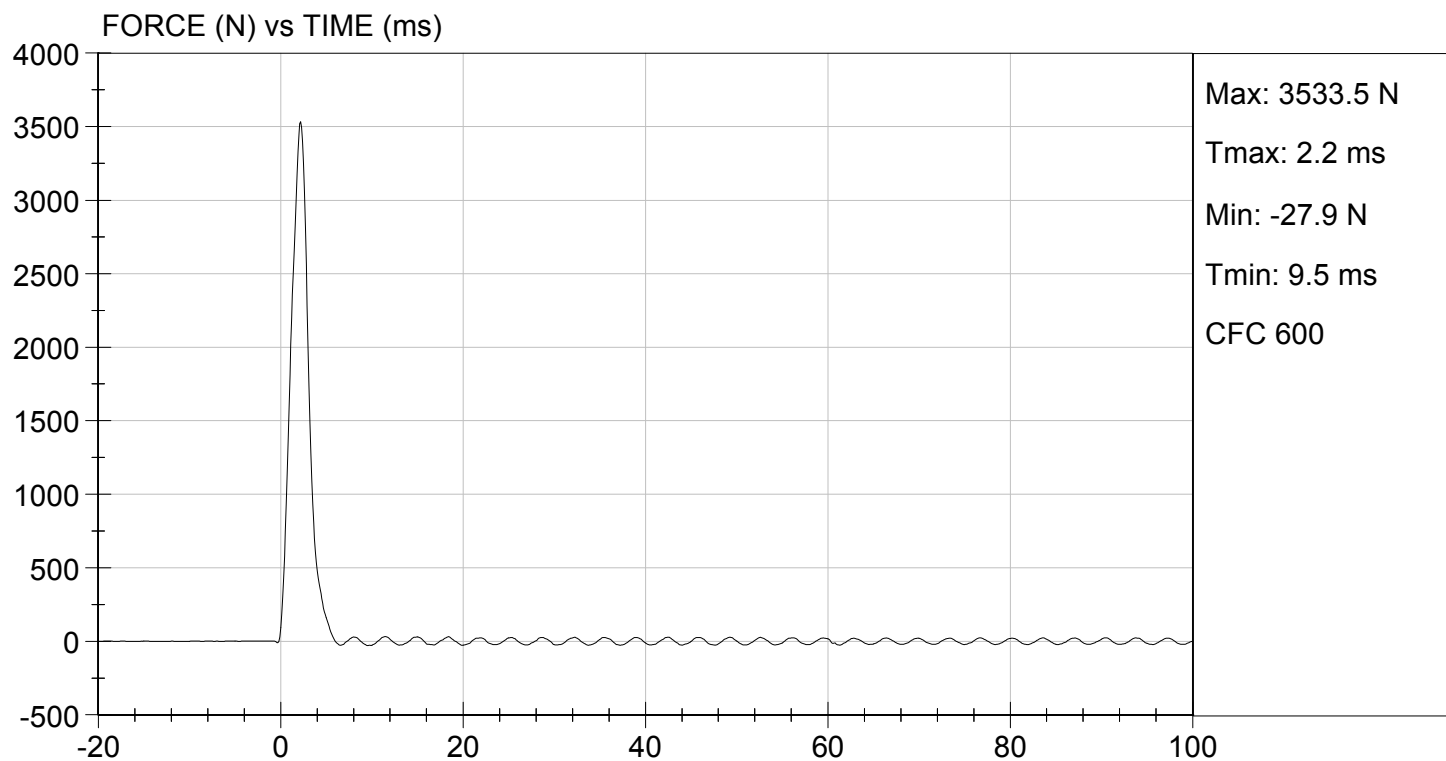
Jessica Hall

Approved By



TEST DESC: RIGHT KNEE
VELOCITY: 6.83 ft/s, 2.08 m/s

TEST DATE: 03/18/2015
TEST #: D15735



MGA RESEARCH CORPORATION

**LEFT KNEE IMPACT TEST
HYBRID III 5TH PERCENTILE**

ATD Serial No: 634

Test I.D: D15736

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 to 25.6	21.8	Pass
Laboratory Relative Humidity	%	10 to 70	19	Pass
Probe Speed	m/s	2.07 to 2.13	2.12	Pass
Maximum Force	N	3450 to 4060	3668	Pass
Overall Test Results				Pass

Maxime Chamberland
Laboratory Technician

03/18/2015

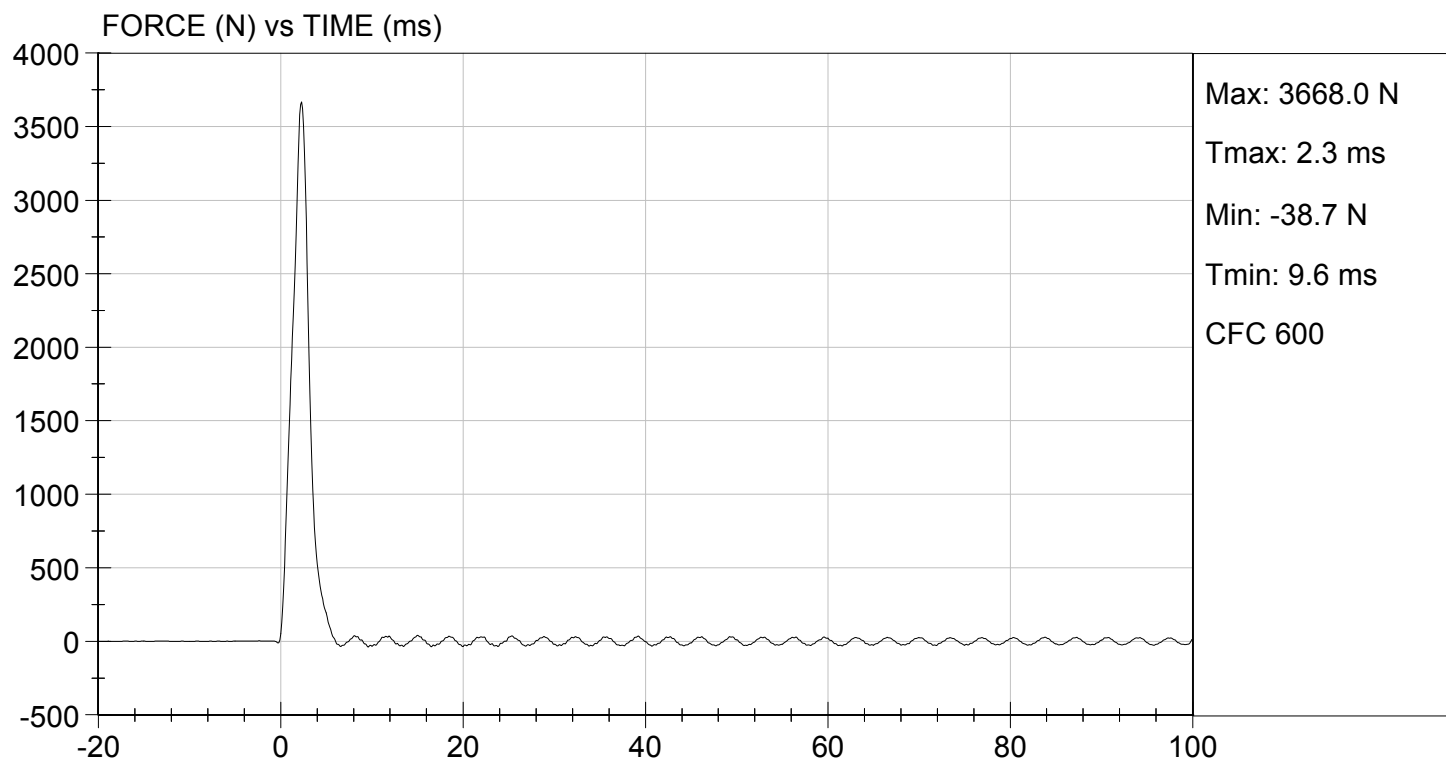
Test Date

Jessica Hall
Approved By



TEST DESC: LEFT KNEE
VELOCITY: 6.97 ft/s, 2.12 m/s

TEST DATE: 03/18/2015
TEST #: D15736



MGA RESEARCH CORPORATION

TORSO FLEXION TEST

HYBRID III 5TH PERCENTILE

ATD Serial No: 634

Test I.D: D15737

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 to 25.6	21.8	Pass
Laboratory Relative Humidity	%	10 to 70	19	Pass
Initial Angle	deg	0 to 20	18	Pass
Return Angle	deg	+/- 8	8	Pass
Force at 45 deg	N	320 to 390	324	Pass
Upper Torso Deflection Rate	deg/s	0.5 to 1.5	0.9	Pass
Overall Result				Pass

David Schoedel

Laboratory Technician

03/18/2015

Test Date

Jessica Hall

Approved By

MGA RESEARCH CORPORATION
HEAD DROP TEST
HYBRID III 5TH PERCENTILE

ATD Serial No: 634

Test ID: D15941

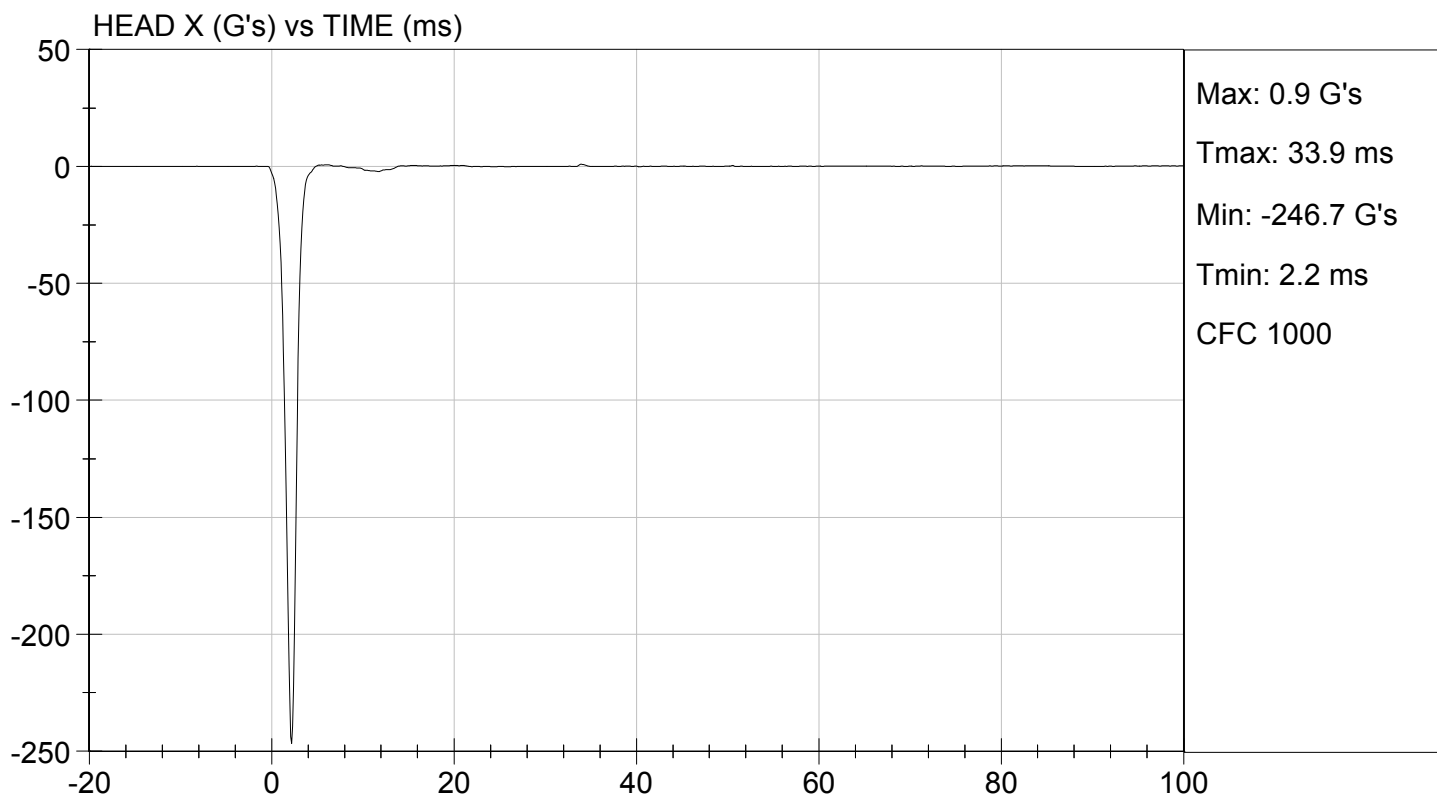
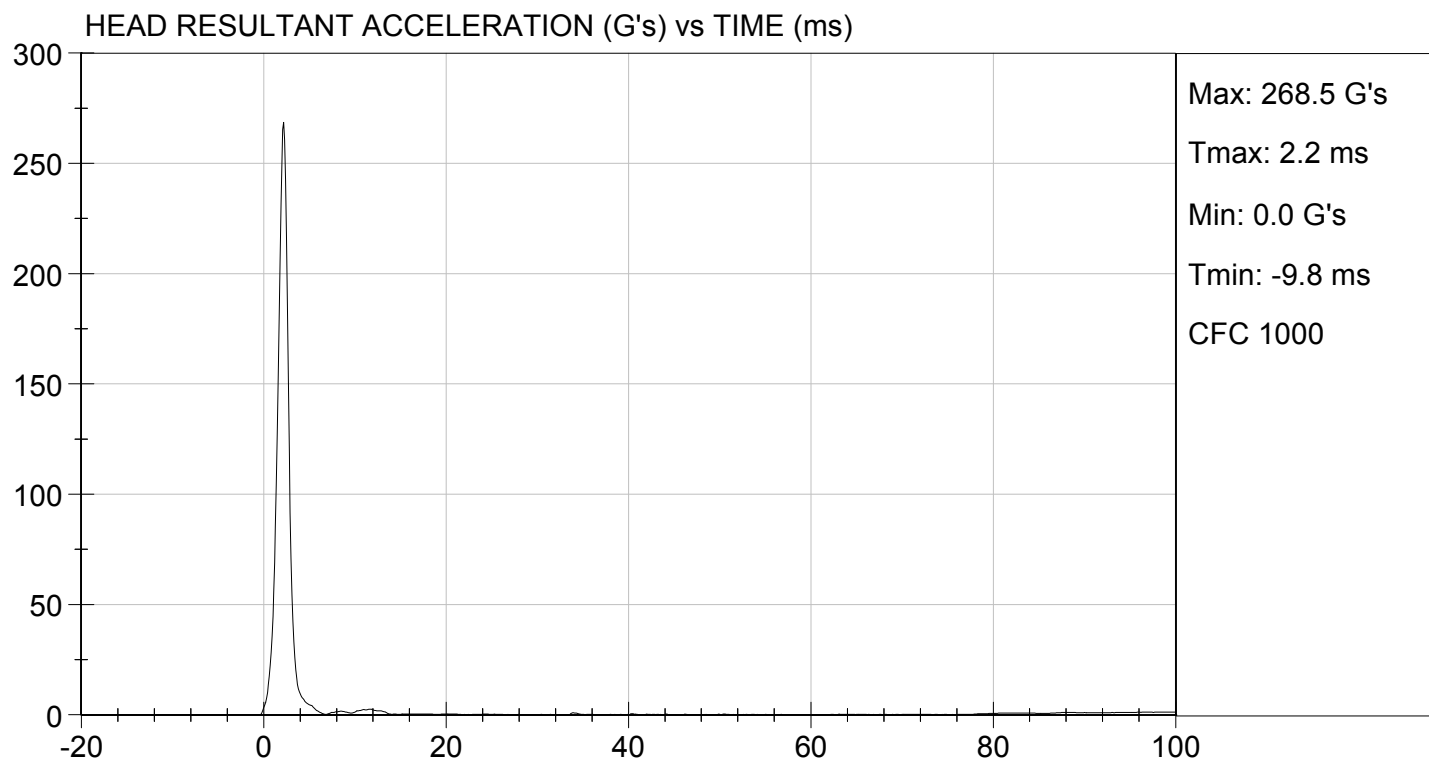
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 to 25.6	21.5	Pass
Laboratory Relative Humidity	%	10 to 70	28	Pass
Peak Resultant Acceleration	G's	250 to 300	269	Pass
Peak Lateral Acceleration	G's	<= +/- 15.0	-10.4	Pass
Unimodal	N/A	Yes	Yes	Pass
Oscillations	N/A	within 10% of peak	Yes	Pass
Overall Test Results				Pass

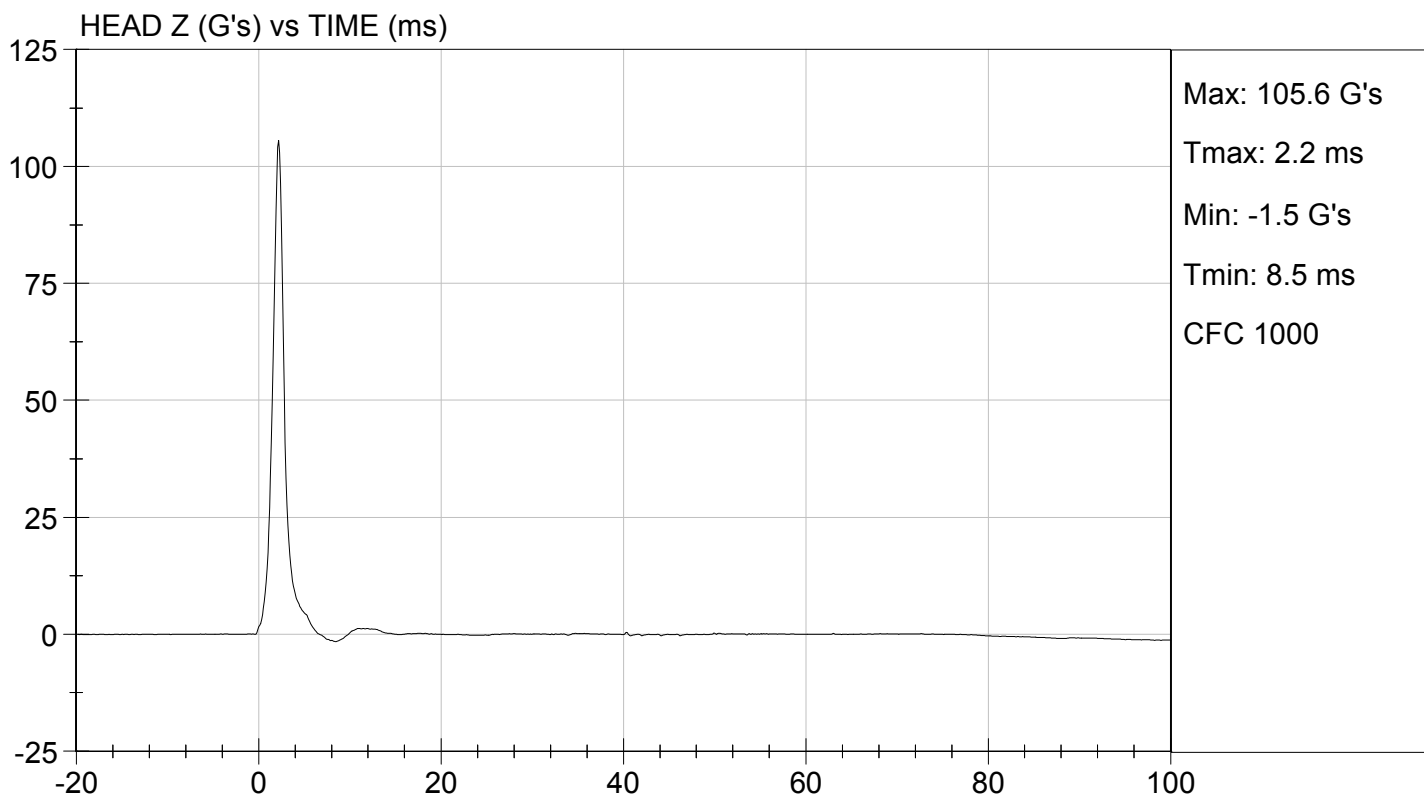
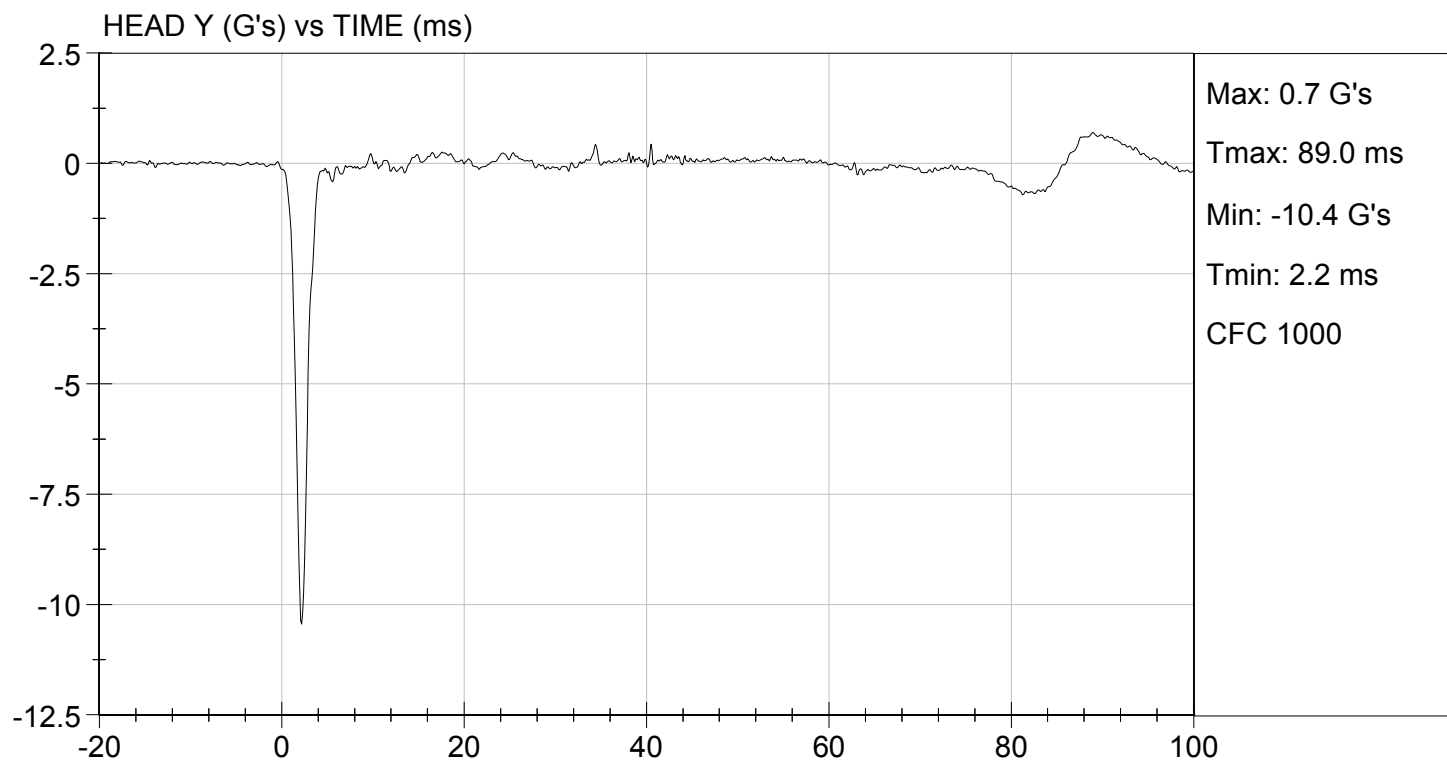

Laboratory Technician

04/01/2015

Test Date


Approved By





MGA RESEARCH CORPORATION

NECK FLEXION TEST

HYBRID III 5TH PERCENTILE

ATD Serial No: 634

Test I.D: D15942

Tested Parameter		Units	Specification	Result	Pass/Fail
Laboratory Temperature		deg C	20.6 to 22.2	21.4	Pass
Laboratory Relative Humidity		%	10 to 70	32	Pass
Pendulum Speed		m/s	6.89 to 7.13	7.06	Pass
Pendulum Velocity	10 ms	m/s	2.1 to 2.5	2.3	Pass
	20 ms	m/s	4.0 to 5.0	4.6	Pass
	30 ms	m/s	5.8 to 7.0	6.2	Pass
D Plane Rotation	Max	deg	77 to 91	78	Pass
Occipital Condyle Moment within Rotation Corridor		Nm	69 to 83	70	Pass
Positive Moment Time Curve Decay to 10 Nm		ms	80 to 100	83	Pass
Overall Results					Pass

David Schoedel
Laboratory Technician

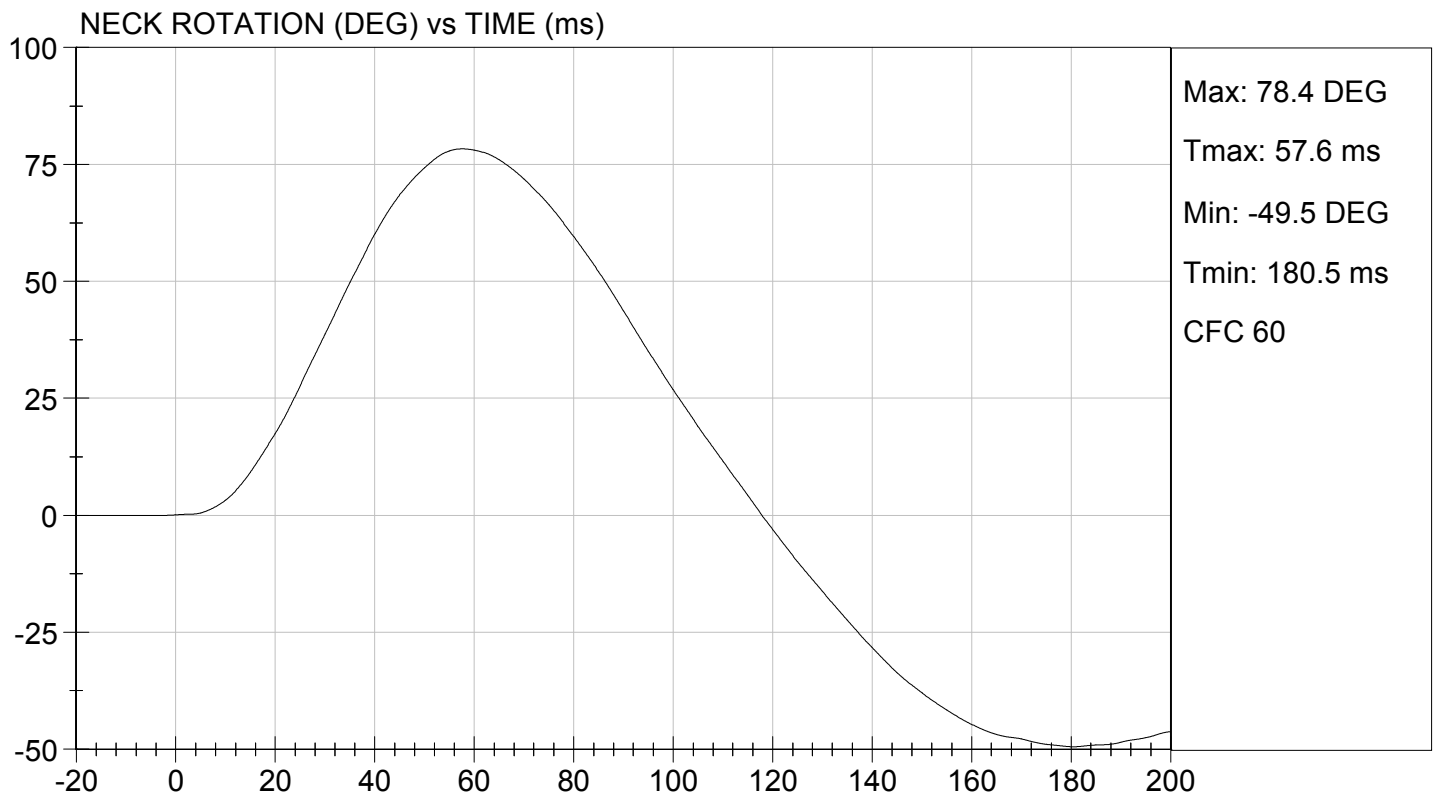
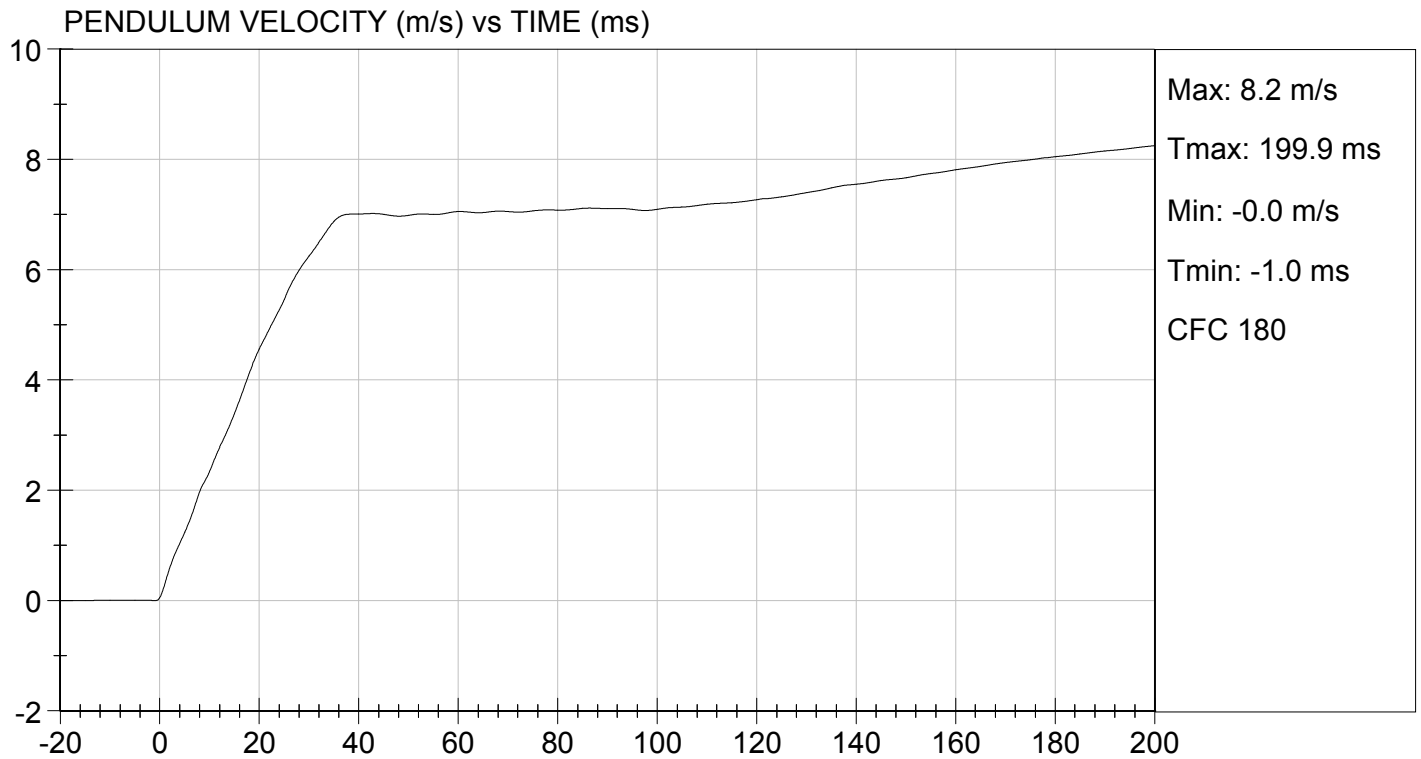
04/01/2015
Test Date

Jessica Hall
Approved By



TEST DESC: NECK FLEXION
VELOCITY: 23.15 ft/s, 7.06 m/s

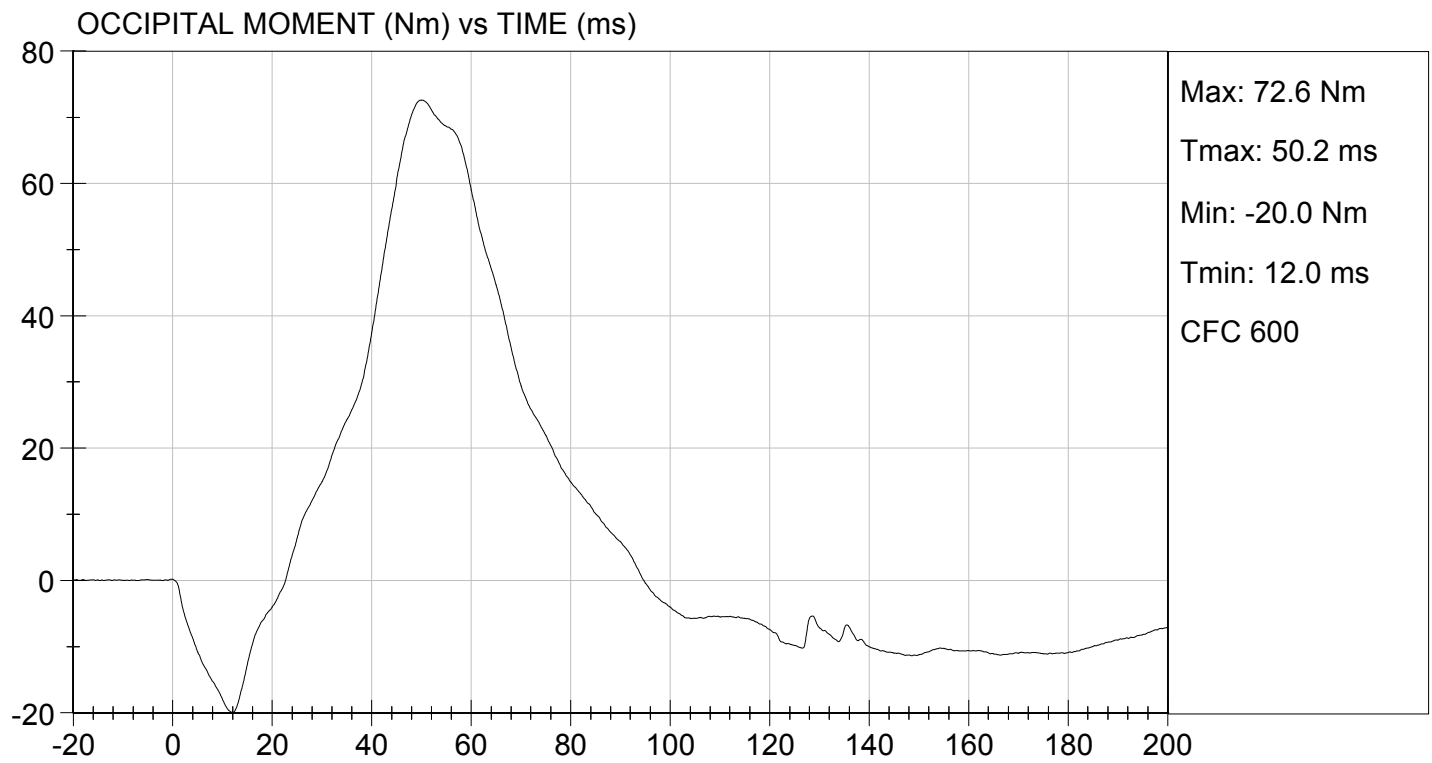
TEST DATE: 04/01/2015
TEST #: D15942





TEST DESC: NECK FLEXION
VELOCITY: 23.15 ft/s, 7.06 m/s

TEST DATE: 04/01/2015
TEST #: D15942



MGA RESEARCH CORPORATION
NECK EXTENSION TEST
HYBRID III 5TH PERCENTILE

ATD Serial No: 634

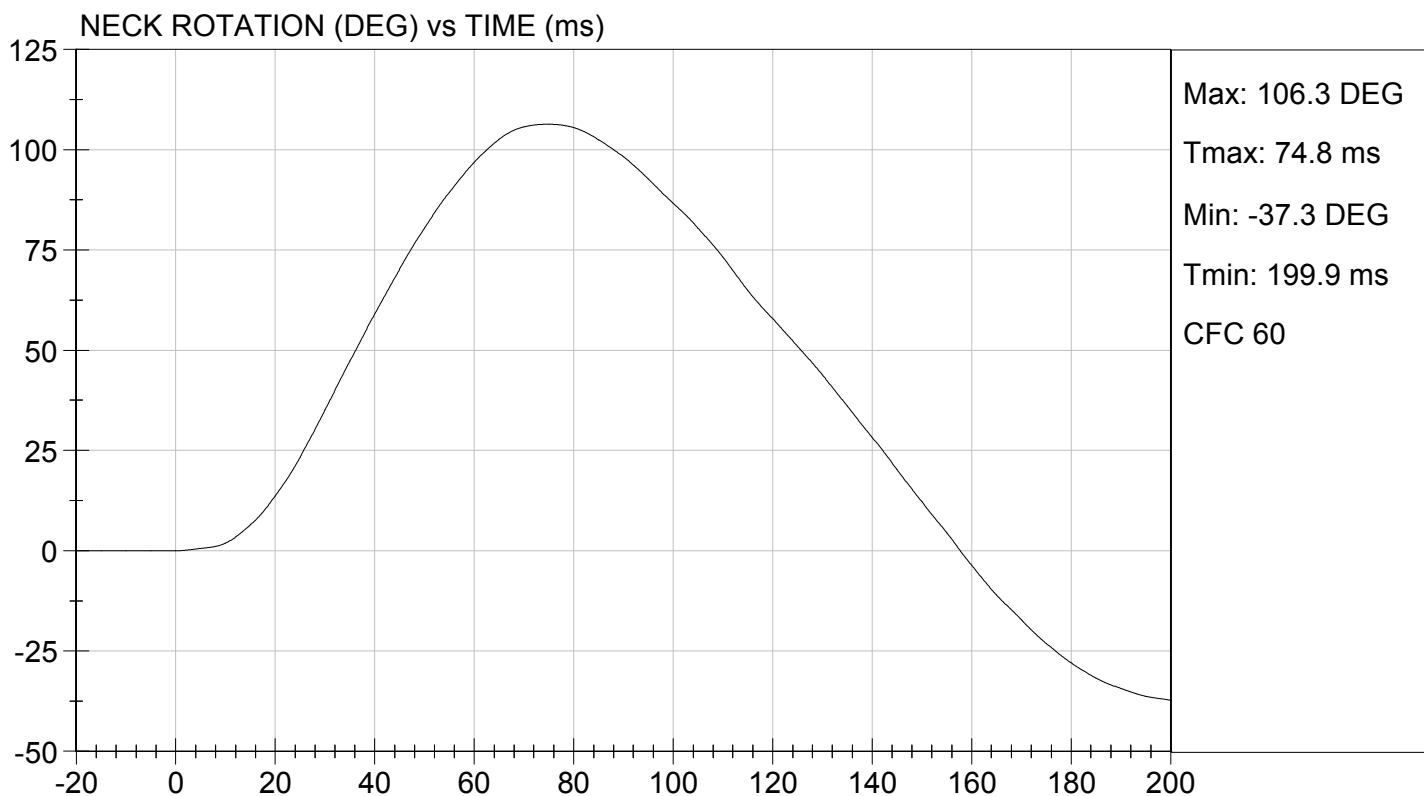
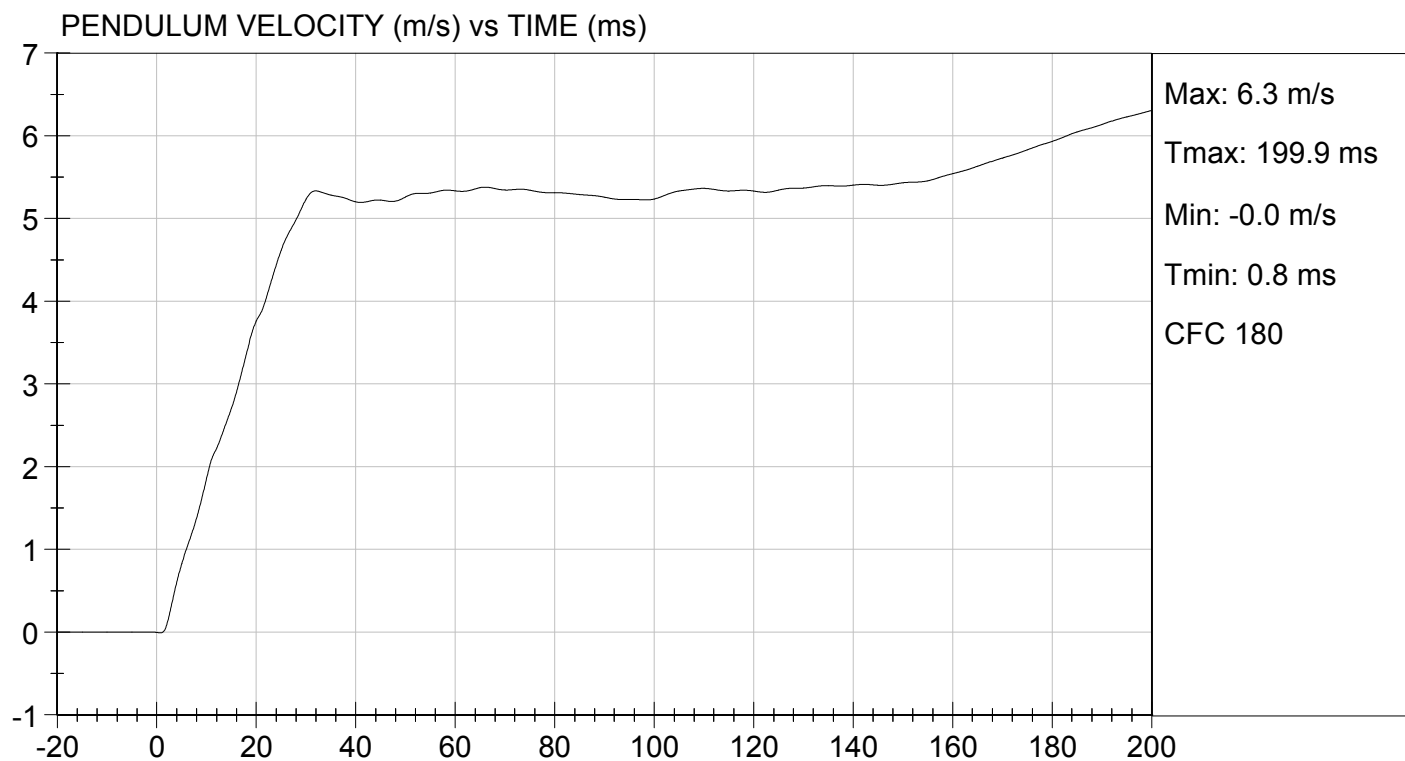
Test I.D: D15943

Tested Parameter		Units	Specification	Result	Pass/Fail
Laboratory Temperature		deg C	20.6 to 22.2	21.4	Pass
Laboratory Relative Humidity		%	10 to 70	32	Pass
Pendulum Speed		m/s	5.95 to 6.19	6.19	Pass
Pendulum Velocity	10 ms	m/s	1.5 to 1.9	1.9	Pass
	20 ms	m/s	3.1 to 3.9	3.8	Pass
	30 ms	m/s	4.6 to 5.6	5.2	Pass
D Plane Rotation	Max	deg	99 to 114	106	Pass
Occipital Condyle Moment within Rotation Corridor		Nm	-65 to -53	-59	Pass
Negative Moment Time Curve Decay to -10 Nm		ms	94 to 114	99	Pass
Overall Results					Pass

David Schoedel
Laboratory Technician

04/01/2015
Test Date

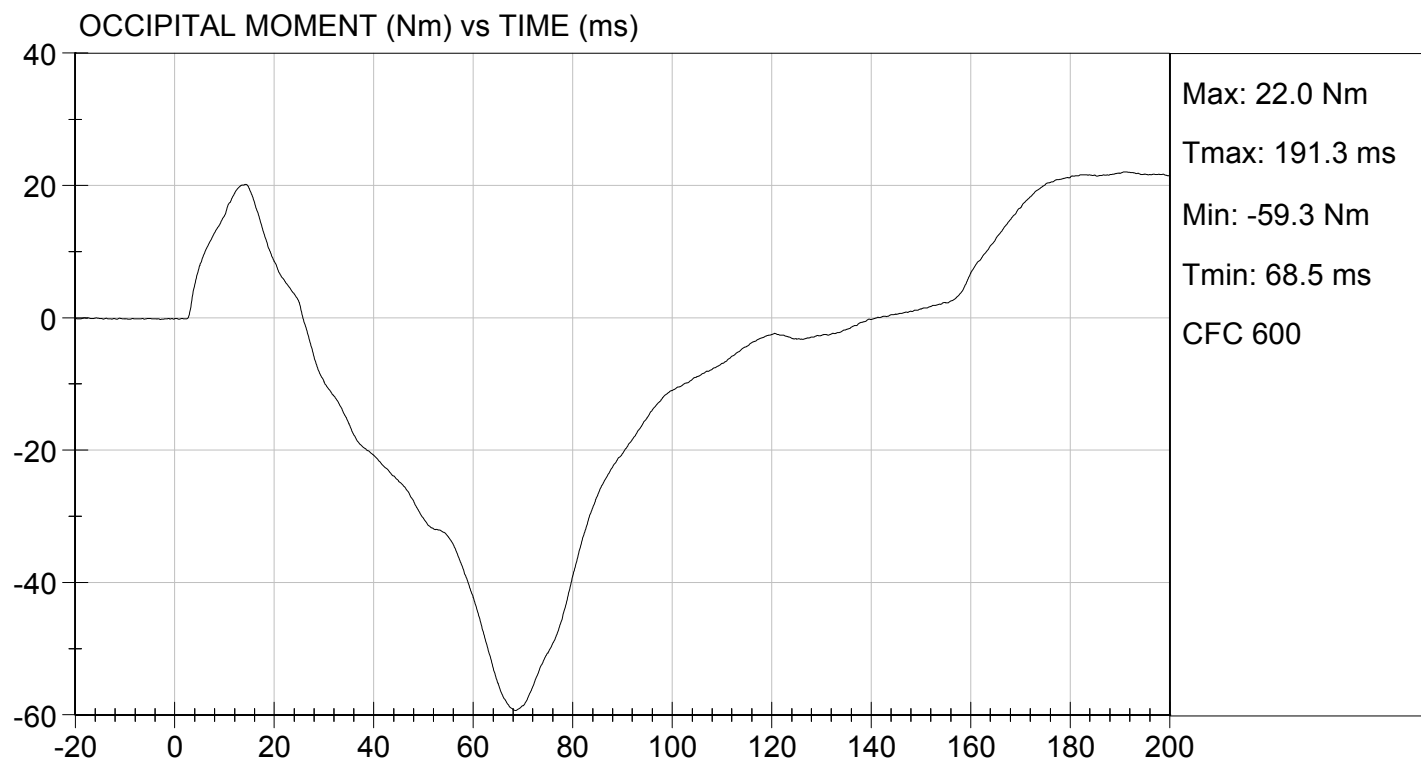
Jessica Hall
Approved By





TEST DESC: NECK EXTENSION
VELOCITY: 20.30 ft/s, 6.19 m/s

TEST DATE: 04/01/2015
TEST #: D15943



MGA RESEARCH CORPORATION
THORAX IMPACT
HYBRID III 5TH PERCENTILE

ATD Serial No: 634

Test I.D: D15944

Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	21.8	Pass
Relative Humidity	%	10 to 70	42	Pass
Probe Speed	m/s	6.59 to 6.83	6.77	Pass
Peak Deflection	mm	50 to 58	51	Pass
Peak Resistive Force w/in Deflection Corridor	N	3900 to 4400	3970	Pass
Internal Hysteresis	%	69 to 85	71	Pass
Peak Force 18 mm - 50 mm	N	<= 4600	4152	Pass
Overall Test Results				Pass


Laboratory Technician

04/02/2015

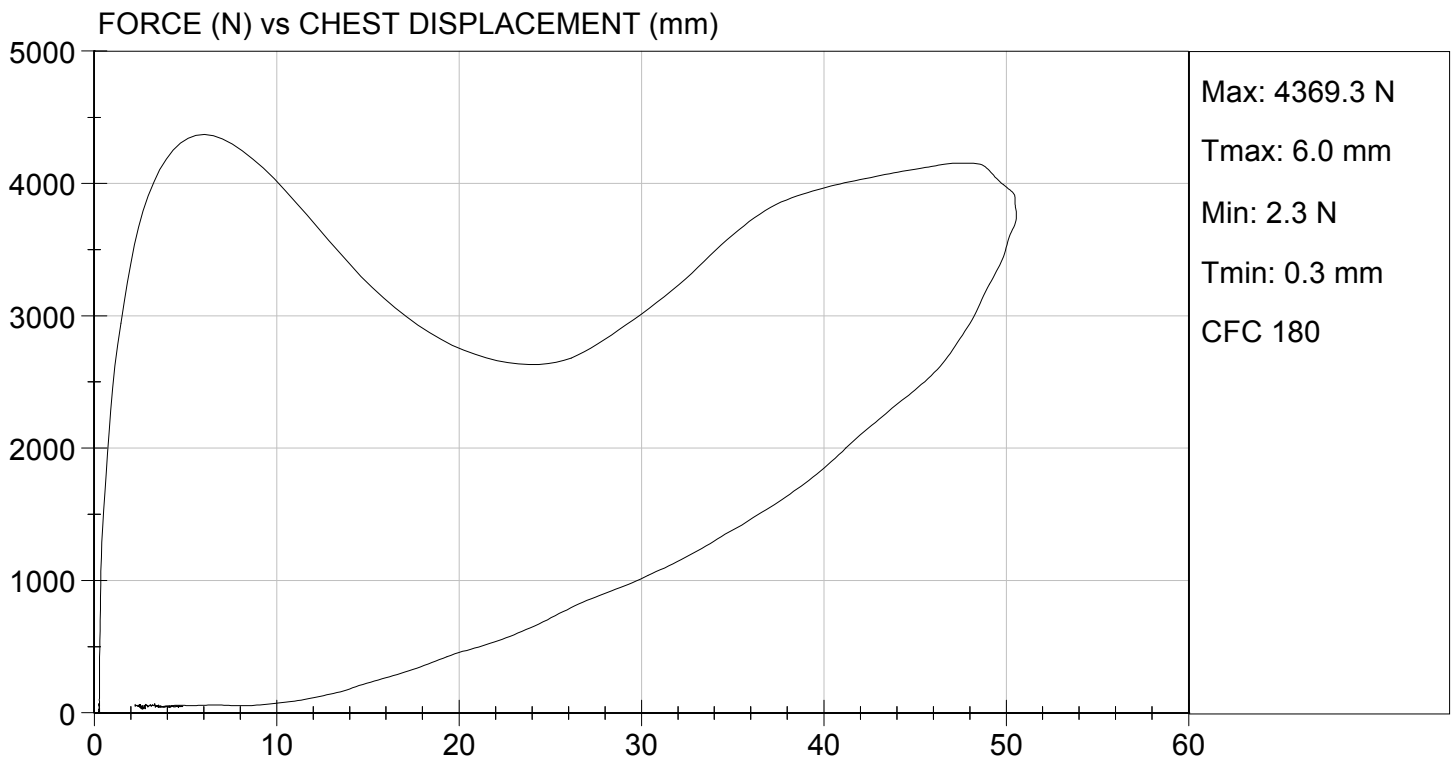
Test Date


Approved By



TEST DESC: THORAX IMPACT
VELOCITY: 22.22 ft/s, 6.77 m/s

TEST DATE: 04/02/2015
TEST #: D15944



MGA RESEARCH CORPORATION

RIGHT KNEE IMPACT TEST

HYBRID III 5TH PERCENTILE

ATD Serial No: 634

Test I.D: D15945

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 to 25.6	21.5	Pass
Laboratory Relative Humidity	%	10 to 70	31	Pass
Probe Speed	m/s	2.07 to 2.13	2.12	Pass
Maximum Force	N	3450 to 4060	3458	Pass
Overall Test Results				Pass

David Schoedel

Laboratory Technician

04/01/2015

Test Date

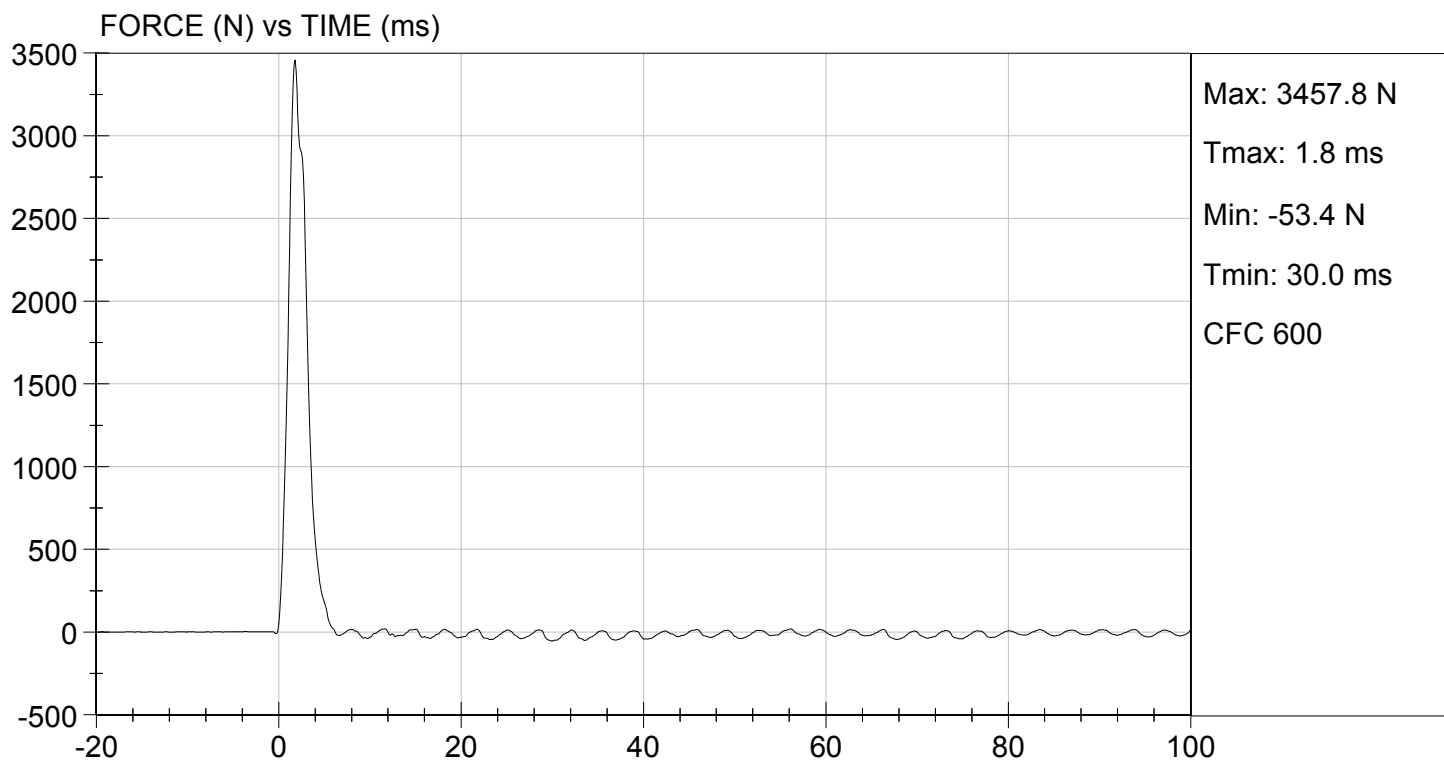
Jessica Hall

Approved By



TEST DESC: RIGHT KNEE
VELOCITY: 6.97 ft/s, 2.12 m/s

TEST DATE: 04/01/2015
TEST #: D15945



MGA RESEARCH CORPORATION

**LEFT KNEE IMPACT TEST
HYBRID III 5TH PERCENTILE**

ATD Serial No: 634

Test I.D: D15946

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 to 25.6	21.5	Pass
Laboratory Relative Humidity	%	10 to 70	31	Pass
Probe Speed	m/s	2.07 to 2.13	2.12	Pass
Maximum Force	N	3450 to 4060	3887	Pass
Overall Test Results				Pass

David Schoedel

Laboratory Technician

04/01/2015

Test Date

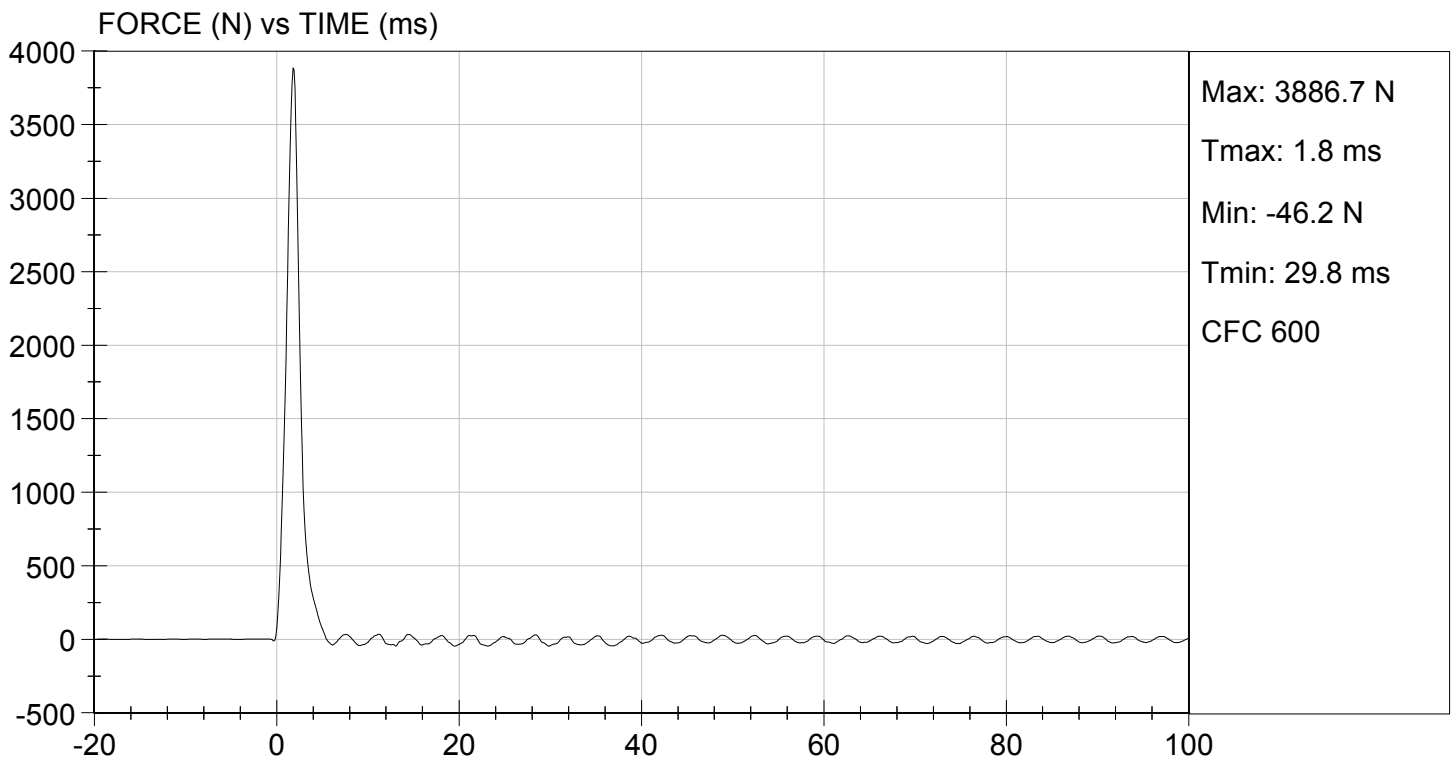
Jessica Hall

Approved By



TEST DESC: LEFT KNEE
VELOCITY: 6.97 ft/s, 2.12 m/s

TEST DATE: 04/01/2015
TEST #: D15946



MGA RESEARCH CORPORATION

**TORSO FLEXION TEST
HYBRID III 5TH PERCENTILE**

ATD Serial No: 634

Test I.D: D15947

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 to 25.6	21.5	Pass
Laboratory Relative Humidity	%	10 to 70	38	Pass
Initial Angle	deg	0 to 20	20	Pass
Return Angle	deg	+/- 8	8	Pass
Force at 45 deg	N	320 to 390	323	Pass
Upper Torso Deflection Rate	deg/s	0.5 to 1.5	0.8	Pass
Overall Result			Pass	

Jack Coleman
Laboratory Technician

04/02/2015

Test Date

Jessica Hall
Approved By