

FINAL REPORT NUMBER: SMDB-TRC-18-001

RESEARCH MOVING DEFORMABLE BARRIER SIDE IMPACT TEST

**HONDA OF AMERICA MFG., INC.
2018 Honda Accord 4-DR Sedan
NHTSA NUMBER: R20185383**

**PREPARED BY:
Transportation Research Center Inc.
10820 State Route 347
P. O. Box B-67
East Liberty, OH 43319**



Report Date: April 28, 2020

FINAL REPORT

**PREPARED FOR:
U.S. DEPARTMENT OF TRANSPORTATION
National Highway Traffic Safety Administration
Office of Crashworthiness Research
Mail Code: NSR-210
1200 New Jersey Ave, SE
Washington, D.C. 20590**

This publication is distributed by the U.S. Department of Transportation, National Highway Traffic Safety Administration, in the interest of information exchange. The opinions, findings and conclusions expressed in this publication are those of the author(s) and not necessarily those of the Department of Transportation or the National Highway Traffic Safety Administration. The United States Government assumes no liability for its contents or use thereof. If trade or manufacturers' names or products are mentioned, it is only because they are considered essential to the object of the publication and should not be construed as an endorsement.

Report Prepared By: ILO Project Operations Group

Report Approved By: 

John Shultz

Approval Date: April 28, 2020

FINAL REPORT ACCEPTANCE BY NHTSA:

Division Chief, Structures and Restraints Research
NHTSA, Office of Crashworthiness Research

Date: _____

COTR, Structures and Restraints Research
NHTSA, Office of Crashworthiness Research

Date: _____

Technical Report Documentation Page

1. Report No. SMDB-TRC-18-001	2. Government Accession No.	3. Recipient's Catalog No.																																																		
4. Title and Subtitle Final Report of Research Side Impact MDB Testing of a 2018 Honda Accord 4-DR Sedan, NHTSA No.: R20185383		5. Report Date April 28, 2020																																																		
		6. Performing Organization Code TRC Inc.																																																		
7. Author(s) John Shultz, Project Manager		8. Performing Organization Report No. 190724																																																		
9. Performing Organization Name And Address Transportation Research Center Inc. 10820 State Route 347, East Liberty, OH 43319		10. Work Unit No.																																																		
		11. Contract Or Grant No. DTNH22-17-F-00151																																																		
12. Sponsoring Agency Name And Address U.S. Department of Transportation National Highway Traffic Safety Administration Office of Crashworthiness Research (NSR-210) 1200 New Jersey Ave, SE Washington, DC 20590		13. Type Of Report And Period Covered Final Test Report July 24, 2019 – April 28, 2020																																																		
		14. Sponsoring Agency Code NRS-210																																																		
15. Supplemental Notes																																																				
16. Abstract A 55/28 km/h 90° Moving Deformable Barrier Research Side Impact Test was conducted on the subject 2018 Honda Accord 4-DR sedan in accordance with the specifications of the Laboratory Test Procedure for the Moving Deformable Barrier test. This test was conducted by Transportation Research Center Inc. in East Liberty, Ohio, on July 24, 2019. The impact velocity of the Moving Deformable Barrier (MDB) was 62.12 km/h, and the ambient temperature at the struck (driver's) side of the target vehicle at the time of impact was 21.2°C. The target vehicle post test maximum crush was 208 mm at level 3. The test vehicle's performance was as follows:																																																				
<table border="1"> <thead> <tr> <th rowspan="2">Measurement Description</th> <th colspan="2">Driver ATD (WorldSID-50M)</th> </tr> <tr> <th>Units</th> <th>Result</th> </tr> </thead> <tbody> <tr> <td>Head Injury Criterion (HIC15)</td> <td>N/A</td> <td>53</td> </tr> <tr> <td>Brain Injury Criterion (BrIC)</td> <td>N/A</td> <td>0.81</td> </tr> <tr> <td>Peak Shoulder Force</td> <td>N</td> <td>-1982.90</td> </tr> <tr> <td>Peak Thoracic Rib Deflection</td> <td>mm</td> <td>10.95</td> </tr> <tr> <td>Peak Abdominal Rib Deflection</td> <td>mm</td> <td>24.84</td> </tr> <tr> <td>Pubic Symphysis Force</td> <td>N</td> <td>-832.54</td> </tr> <tr> <td>Peak Resultant Sacro-Iliac Force</td> <td>N</td> <td>1795.18</td> </tr> </tbody> </table> <table border="1"> <thead> <tr> <th rowspan="2">Measurement Description</th> <th colspan="2">Passenger ATD(SID-IIs)</th> </tr> <tr> <th>Units</th> <th>Result</th> </tr> </thead> <tbody> <tr> <td>Head Injury Criterion (HIC15)</td> <td>N/A</td> <td>219</td> </tr> <tr> <td>Brain Injury Criterion (BrIC)</td> <td>N/A</td> <td>0.88</td> </tr> <tr> <td>Maximum Thoracic Rib Deflection</td> <td>mm</td> <td>31.38</td> </tr> <tr> <td>Maximum Abdominal Rib Deflection</td> <td>mm</td> <td>23.71</td> </tr> <tr> <td>Lower Spine Acceleration</td> <td>G</td> <td>49.22</td> </tr> <tr> <td>Total Pelvic Force (sum of acetabular and iliac forces)</td> <td>N</td> <td>1327.45</td> </tr> </tbody> </table>				Measurement Description	Driver ATD (WorldSID-50M)		Units	Result	Head Injury Criterion (HIC15)	N/A	53	Brain Injury Criterion (BrIC)	N/A	0.81	Peak Shoulder Force	N	-1982.90	Peak Thoracic Rib Deflection	mm	10.95	Peak Abdominal Rib Deflection	mm	24.84	Pubic Symphysis Force	N	-832.54	Peak Resultant Sacro-Iliac Force	N	1795.18	Measurement Description	Passenger ATD(SID-IIs)		Units	Result	Head Injury Criterion (HIC15)	N/A	219	Brain Injury Criterion (BrIC)	N/A	0.88	Maximum Thoracic Rib Deflection	mm	31.38	Maximum Abdominal Rib Deflection	mm	23.71	Lower Spine Acceleration	G	49.22	Total Pelvic Force (sum of acetabular and iliac forces)	N	1327.45
Measurement Description	Driver ATD (WorldSID-50M)																																																			
	Units	Result																																																		
Head Injury Criterion (HIC15)	N/A	53																																																		
Brain Injury Criterion (BrIC)	N/A	0.81																																																		
Peak Shoulder Force	N	-1982.90																																																		
Peak Thoracic Rib Deflection	mm	10.95																																																		
Peak Abdominal Rib Deflection	mm	24.84																																																		
Pubic Symphysis Force	N	-832.54																																																		
Peak Resultant Sacro-Iliac Force	N	1795.18																																																		
Measurement Description	Passenger ATD(SID-IIs)																																																			
	Units	Result																																																		
Head Injury Criterion (HIC15)	N/A	219																																																		
Brain Injury Criterion (BrIC)	N/A	0.88																																																		
Maximum Thoracic Rib Deflection	mm	31.38																																																		
Maximum Abdominal Rib Deflection	mm	23.71																																																		
Lower Spine Acceleration	G	49.22																																																		
Total Pelvic Force (sum of acetabular and iliac forces)	N	1327.45																																																		
17. Key Words Side Impact MDB WorldSID-50M SID-IIs		18. Distribution Statement Copies of this report are available from: National Highway Traffic Safety Administration Technical Information Services Division, NPO-411 1200 New Jersey Ave, SE Washington, DC 20590																																																		
19. Security Classification of Report Unclassified	20. Security Classification of page Unclassified	21. Number of Pages 293	22. Price																																																	

TABLE OF CONTENTS

<u>Section</u>	<u>Description</u>	<u>Page</u>
1	Test Purpose and Procedure	1-1
2	Summary of Test Results	2-1
3	Occupant and Vehicle Information	3-1
Appendix A	Photographs	A-1
Appendix B	Vehicle and Dummy Response Data Plots	B-1
Appendix C	Dummy Configuration And Performance Verification Data	C-1
Appendix D	Test Equipment and Instrumentation Calibration Data	D-1
Appendix E	Seating Procedure Worksheets and Plots	E-1
<u>Data Sheet No</u>	<u>Description</u>	<u>Page</u>
1	General Test and Vehicle Parameter Data	3-2
2	Seat, Seat Belt, Steering Wheel Adjustment And Fuel Systems Data	3-6
3	Dummy Longitudinal Clearance Dimensions	3-16
4	Dummy Lateral Clearance Dimensions	3-17
5	Camera and Instrumentation Data	3-18
6	Vehicle Accelerometer Data	3-19
7	MDB Accelerometer Data	3-22
8	Post Test Observations	3-23
9	MDB Summary of Results	3-25
10	Vehicle Profile Measurements	3-26
11	Vehicle Exterior Crush Measurements	3-27
12	MDB Exterior Crush Measurements	3-30
13	Vehicle Damage Profile Distances	3-31
14	Dummy/Vehicle Temperature and Humidity Stabilization Data	3-32
15	FMVSS No. 301 Static Rollover Results	3-33
<u>List of Tables</u>		
<u>Number</u>	<u>Description</u>	<u>Page</u>
1	WorldSID-50M And SID-II's Instrumentation Data	3-10

SECTION 1

PURPOSE AND TEST PROCEDURE

PURPOSE AND TEST PROCEDURE

This moving deformable barrier side impact test is a part of the Federal Motor Vehicle Safety Standard 214 Side Impact Protection program. It was conducted for the National Highway Traffic Safety Administration's (NHTSA) under DTNH22-17-F-00151 by Transportation Research Center Inc.. The purpose of this test was to evaluate the repeatability, reproducibility, and durability of the WorldSID 50th percentile male ATD (WorldSID-50M) equipped with RibEye™, to determine whether the dummy is a viable option to replace the EuroSID-2 dummy with rib extension modifiers (ES-2re) in future side impact moving deformable barrier crash tests conducted by NHTSA. The test was conducted using NHTSA's 'LABORATORY TEST PROCEDURE FOR THE NEW CAR ASSESSMENT PROGRAM SIDE IMPACT MOVING DEFORMABLE BARRIER TEST' dated October 2015 as a guideline. WorldSID-50M dummy was used instead of the ES-2re listed in the test procedure."

SECTION 2

SUMMARY OF TEST RESULTS

A 2018 Honda Accord 4-DR Sedan was impacted on the left (driver's) side by a Moving Deformable Barrier (MDB) which was moving forward in a 27° crabbed position to the tow road guidance system at a velocity of 62.12 km/h (38.60 mph). The target vehicle was stationary and was positioned at an angle of 63° to the line of forward motion. The side impact test was conducted by the Transportation Research Center Inc. in East Liberty, Ohio, on July 24, 2019. Pre-test and post-test photographs of the test vehicle and the MDB and the dummies (WorldSID-50M and SID-IIs) are included in Appendix A.

Dummies were placed in the driver and left rear designated seating positions according to instructions specified in the Research Side Impact Moving Barrier Test Procedure, dated July 2017. The WorldSID was seated per NHTSA report <https://rosap.ntl.bts.gov/view/dot/41900>. The side impact event was documented by 11 cameras. Camera locations are included in this report.

The dummies were instrumented in the following manner:

- DRIVER ATD (WorldSID-50M)
 - Head CG tri-axial accelerometer
 - Head angular rate sensor
 - Upper and lower neck load cells
 - Shoulder load cell
 - RibEye measurement system in thorax ribs 1-3 and abdominal ribs 1 and 2, with three LEDs per rib
 - Upper (T1), middle (T4), and lower spine (T12) tri-axial accelerometers
 - Lumbar load cell
 - Pelvic tri-axial accelerometers
 - Pubic load cell
 - Left and right sacroiliac load cells
 - Left femur load cell

- PASSENGER ATD (SID-IIs)
 - Primary and redundant head CG tri-axial accelerometers
 - Head angular rate sensor
 - Chest upper rib, middle rib, and lower rib y-axis displacement potentiometers
 - Abdomen upper rib and lower rib y-axis displacement potentiometers
 - Upper (T1) and lower spine (T12) tri-axial accelerometers
 - Acetabulum and iliac wing y-axis load cells

APPENDIX B contains the vehicle and dummy response data. Dummy configuration and performance verification data can be found in APPENDIX C of this report. APPENDIX D of this report contains the test equipment and instrumentation calibration data. Worksheets and plots found in Appendix E describe dummy positions in detail.

Dummy injury readings were recorded as follows:

Measurement Description	Driver ATD (WorldSID-50M)	
	Units	Result
Head Injury Criterion (HIC15)	N/A	53
Brain Injury Criterion (BrIC)	N/A	0.81
Peak Shoulder Force	N	1982.90
Peak Thoracic Rib Deflection	mm	10.95
Peak Abdominal Rib Deflection	mm	24.84
Pubic Symphysis Force	N	-832.54
Peak Resultant Sacro-Iliac Force	N	1795.18

Measurement Description	Passenger ATD(SID-IIs)	
	Units	Result
Head Injury Criterion (HIC15)	N/A	219
Brain Injury Criterion (BrIC)	N/A	0.88
Maximum Thoracic Rib Deflection	mm	31.38
Maximum Abdominal Rib Deflection	mm	23.71
Lower Spine Acceleration	G	49.22
Total Pelvic Force (sum of acetabular and iliac forces)	N	1327.45

Supplemental restraint information is given below:

Restraint Type	Left Front (Driver) Occupant Location 1		Left Rear (Passenger) Occupant Location 4	
	Mounted	Deployed	Mounted	Deployed
Frontal Airbag	Yes	No		
Knee Airbag	Yes	No		
Side Curtain Airbag	Yes	Yes	Yes	Yes
Side Torso/Pelvis Airbag	Yes	Yes	No	N/A
Side Pelvis Airbag	No	N/A	No	N/A
Seat Belt Pretensioner	Yes	Yes	No	N/A
Seat Belt Load Limiter	Yes	Unknown	No	N/A
Other Safety Restraint	No	N/A	No	N/A

GENERAL COMMENTS

All doors remained closed throughout the test. No fuel spillage occurred during the impact or the static rollover test which followed.

Struck side rear door separated 44 mm from the latch

Data Acquisition Explanations

Left Lower A-Pillar Acceleration Y; Channel Failed at 2.0 ms

Left Lower B-Pillar Acceleration Y; Channel Failed at 10.0 ms

Left Middle B-Pillar Acceleration Y; Channel Failed at 12.0 ms

Left Front Door Mid Rear Acceleration Y; Channel Failed at 15.0 ms

Left Rear Door Mid Rear Acceleration Y; Channel Failed at 20.0 ms

Left Rear Door Upper Centerline Acceleration Y; Channel Failed at 20.0 ms

SECTION 3
OCCUPANT AND VEHICLE INFORMATION

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

Test Vehicle: 2018 Honda Accord 4-DR Sedan
Test Program: SMDB Impact

NHTSA No. R20185383
Test Date: 7/24/2019

TEST VEHICLE INFORMATION AND OPTIONS

NHTSA No.	R20185383
Model Year	2018
Make	Honda
Model	Accord
Body Style	Passenger Car
VIN	1HGCV1F12JA048052
Body Color	Modern Steel M.
Odometer Reading (km/mi)	16 mi.
Engine Displacement (L)	1.5
Type/No. Cylinders	Gas/ 4
Engine Placement	Front Transverse
Transmission Type	CVT
Transmission Speeds	N/A
Overdrive	Yes
Final Drive	FWD
Roof Rack	No
Sunroof/T-Top	No
Running Boards	No
Tilt Steering Wheel	Yes
Power Seats	No
Anti-Lock Brakes (ABS)	Yes

Traction Control System (TCS)	Yes
Auto-Leveling System	No
Automatic Door Locks (ADL)	Yes
Power Window Auto-Reverse	Yes
Other Optional Feature	No
Driver Front Airbag	Yes
Driver Curtain Airbag	Yes
Driver Head/Torso Airbag	No
Driver Torso Airbag	No
Driver Torso/Pelvis Airbag	Yes
Driver Pelvis Airbag	No
Driver Knee Airbag	Yes
Rear Pass. Curtain Airbag	Yes
Rear Pass. Head/Torso Airbag	No
Rear Pass. Torso Airbag	No
Rear Pass. Torso/Pelvis Airbag	No
Rear Pass. Pelvis Airbag	No
Driver Seat Belt Pretensioner	Yes
Rear Pass. Seat Belt Pretensioner	No
Driver Load Limiter	Yes
Rear Pass. Load Limiter	No
Other Safety Restraint	No

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

Yes

DATA FROM CERTIFICATION LABEL

Manufactured By	HONDA OF AMERICA MFG., INC.
Date of Manufacturer	11/17
Vehicle Type	Passenger Car

GVWR (kg)	1950
GAWR Front (kg)	1070
GAWR Rear (kg)	960

VEHICLE SEATING AND WEIGHT CAPACITY DATA

	Front	Rear	Third	Total
Designated Seating Capacity (DSC)	2	3	N/A	5
Vehicle Capacity Weight (VCW) (kg)				385.0
DSC X 68.04 kg				340.2
Rated Cargo and Luggage Weight (RCLW) (kg)				44.8

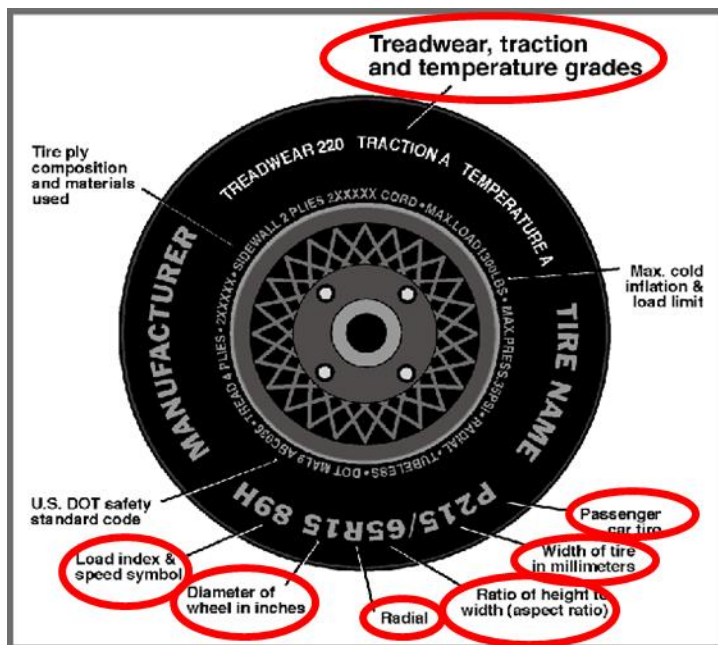
VEHICLE SEAT TYPE

Seating Location	Type of Seat Pan				Type of Seat Back		
	Bucket	Bench	Split Bench	Contoured	Fixed	Adjustable	
						W/ Lever	W/ Knob
Front Seat	Yes	N/A	N/A	N/A	N/A	Yes	N/A
Rear or Second Row Seat	N/A	Yes	N/A	Yes	Yes	N/A	N/A
Third row seat	N/A	N/A	N/A	N/A	N/A	N/A	N/A

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

Test Vehicle: 2018 Honda Accord 4-DR Sedan
 Test Program: SMDB Impact

NHTSA No. R20185383
 Test Date: 7/24/2019



DATA FROM TIRE PLACARD

Measured Parameter	Front	Rear
Maximum Tire Pressure (kPa)	330	330
Cold Pressure (kPa)	220	220
Recommended Tire Size	225/50R17 94V	225/50R17 94V
Tire Size on Vehicle	225/50R17 94V	225/50R17 94V
Tire Manufacturer	Hankook	Hankook
Tire Model	Kinergy GT	Kinergy GT
Treadwear	500	500
Traction	A	A
Temperature Grades	A	A
Tire Plies Sidewall	1	1
Tire Plies Body	3	3
Load Index/Speed Symbol	94V	94V
Tire Material	Steel/Polyester/Nylon	Steel/Polyester/Nylon
DOT Safety Code Left	1T7AB 1B OH 3717	1T7AB 1B OH 3717
DOT Safety Code Right	1T7AB 1B OH 3817	1T7AB 1B OH 3717

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

Test Vehicle: 2018 Honda Accord 4-DR Sedan
 Test Program: SMDB Impact

NHTSA No. R20185383
 Test Date: 7/24/2019

TIRE PRESSURES

	Units	LF	RF	LR	RR
As Delivered	kPa	152	152	152	152
Tire Placard	kPa	220	220	220	220
Owner's Manual	kPa	220	220	220	220
As Tested	kPa	220	220	220	220

MDB TIRE SPECIFICATIONS

	Units	Requirement	LF	RF	LR	RR
Tire Size		P205/75R15	P205/75R15	P205/75R15	P205/75R15	P205/75R15
Tire Pressure	kPa	200 ± 21 kPa	207	207	207	207

TEST VEHICLE AXLE WEIGHTS

	Units	As Delivered (UVW)			As Tested (ATW)			Fully Loaded		
		Front Axle	Rear Axle	Total	Front Axle	Rear Axle	Total	Front Axle	Rear Axle	Total
Left	kg	427.0	291.8	1420.0	470.4	359.2	1581.2	474.4	364.6	1588.8
Right	kg	427.4	273.8		422.2	329.4		430.2	319.6	
Ratio	%	60.2	39.8		56.5	43.5		56.9	43.1	
Totals	kg	854.4	565.6	1420.0	892.6	688.6	1581.2	904.6	684.2	1588.8

TARGET TEST WEIGHT CALCULATION

Measured Parameter	Units	Value	
Total As Delivered Weight (UVW)	kg	1420.0	(A)
Weight of 1 WorldSID (75kg) & 1 SID-IIs (49kg) ATD	kg	124.0	(B)
Rated Cargo/Luggage Weight (RCLW)	kg	44.8	(C)
Calculated Vehicle Target Weight (TVTW)	kg	1588.8	(A+B+C)

Does the measured As Tested Vehicle Weight lie within the required weight range (i.e. Calculated Test Vehicle Target Weight – 4.5 kg to 9 kg)? YES NO

TEST VEHICLE ATTITUDES AND CG

	Units	Fully Loaded	As Tested	Meets Requirement***
LF	mm	683	678	Yes
RF	mm	688	682	Yes
RR	mm	697	693	Yes
LR	mm	685	680	Yes
Vehicle CG (Aft of Front Axle)	mm	1219	1232	
Vehicle CG (Left(+)/Right(-) from Longitudinal Centerline)	mm	+45	+40	

***The "As Tested" vehicle attitude measurements must be equal to or within ± 10 mm of the "Fully Loaded" vehicle attitude measurements at each wheel well. Indicate "Yes" or "No" for "Meets Requirement".

Test height adjustable suspension setting, if applicable:

N/A

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

Test Vehicle: 2018 Honda Accord 4-DR Sedan
Test Program: SMDB Impact

NHTSA No. R20185383
Test Date: 7/24/2019

WEIGHT OF BALLAST AND VEHICLE COMPONENTS REMOVED TO MEET TVTW

Component Description	Weight (kg)
Ballast: None	0.0
Components removed: Headlights, front bumper beam and fascia, tail lights, rear bumper beam and fascia and miscellaneous trim pieces.	38.0

DATA SHEET NO. 2

SEAT, SEAT BELT, STEERING WHEEL ADJUSTMENT AND FUEL SYSTEMS DATA

Test Vehicle: 2018 Honda Accord 4-DR Sedan

NHTSA No. R20185383

Test Program: SMDB Impact

Test Date: 7/24/2019

SCRL ANGLE RANGE

Seat	SCRL(°)		
	Max.	Min.	Mid
Driver Seat	17.3	12.0	14.7
Front Passenger Seat	N/A	N/A	14.0
Front Center Seat*	N/A	N/A	N/A
Struck Side Rear Seat	N/A	N/A	15.5
Non-Struck Side Rear Seat	N/A	N/A	15.2
Rear Center Seat*	N/A	N/A	12.5

* If applicable.

SEAT HEIGHT AND ANGLE

Seat	As Tested SCRL Angle (Mid) (°)	As Tested SCRP Height (mm)	SCRP Height Position	SCRP Height (mm)		
				Rearmost	Mid Fore/Aft	Forward-Most
Driver Seat	14.7	100	Max	N/A	N/A	N/A
			Mid	87	100	113
			Min	N/A	N/A	N/A
Front Passenger Seat	14.0	94	Max	N/A	N/A	N/A
			Mid	82	94	105
			Min	N/A	N/A	N/A
Front Center Seat*	N/A	N/A	Max	N/A	N/A	N/A
			Mid	N/A	N/A	N/A
			Min	N/A	N/A	N/A
Struck Side Rear Seat	15.5	145	Max	N/A	N/A	N/A
			Mid	N/A	145	N/A
			Min	N/A	N/A	N/A
Non-Struck Side Rear Seat	15.2	147	Max	N/A	N/A	N/A
			Mid	N/A	147	N/A
			Min	N/A	N/A	N/A
Rear Center Seat*	12.5	145	Max	N/A	N/A	N/A
			Mid	N/A	145	N/A
			Min	N/A	N/A	N/A

* If applicable.

DATA SHEET NO. 2 (CONTINUED)

SEAT, SEAT BELT, STEERING WHEEL ADJUSTMENT AND FUEL SYSTEMS DATA

Test Vehicle: 2018 Honda Accord 4-DR Sedan

NHTSA No. R20185383

Test Program: SMDB Impact

Test Date: 7/24/2019

SEAT FORE/AFT POSITION

Seat	Total Fore/Aft Travel		Test Position from Forwardmost Position	
	mm	Detents*	mm	Detent*
Driver Seat	240	25	120	13
Front Passenger Seat	240	25	120	13
Front Center Seat*	N/A	N/A	N/A	N/A
Struck Side Rear Seat	0	Fixed	0	Fixed
Non-Struck Side Rear Seat	0	Fixed	0	Fixed
Rear Center Seat*	0	Fixed	0	Fixed

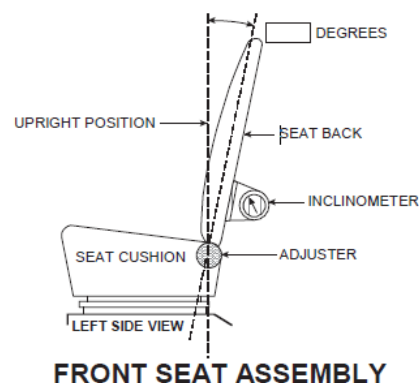
* If applicable.

NORMAL DESIGN RIDING POSITION

For adjustable driver and passenger seat backs. 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.

Driver seat: The driver's seat back is positioned at 3.3° rearward measured at the head rest post per seating procedure. The seat was positioned at mid-track fore and aft travel. The front center and front passenger's seat backs are positioned in a similar manner as the driver's seat back.

Rear Passenger Seat: The left rear passenger seat back is positioned fixed. The seat track travel was fixed.



Seat	Total Seat Back Angle Range		Test Position from Most Upright	
	Degrees	Detents*	Degrees	Detent*
Driver Seat w/ Seated Dummy	65.7	33	3.3	4
Front Passenger Seat	66.8	33	2.6	4
Front Center Seat*	N/A	N/A	N/A	N/A
Struck Side Rear Seat	0	Fixed	23.7	Fixed
Non-Struck Side Rear Seat	0	Fixed	22.8	Fixed
Rear Center Seat*	0	Fixed	25.7	Fixed

* If applicable.

SEAT BELT ANCHORAGE ADJUSTMENT

Seat belt anchorages are adjusted with the information provided by the manufacturer on Form No. 1

	Total # of Positions	Placed in Position #
Driver Seat	4	4; Uppermost
Rear Seat	1; Fixed	Fixed

HEAD RESTRAINT ADJUSTMENT

Head restraints are adjusted to the lowest and most full rearward in-use position.

	Total # of Positions	Placed in Position #
Driver Seat	6	6; Uppermost
Rear Seat	1; Fixed	Fixed

DATA SHEET NO. 2 (CONTINUED)

SEAT, SEAT BELT, STEERING WHEEL ADJUSTMENT AND FUEL SYSTEMS DATA

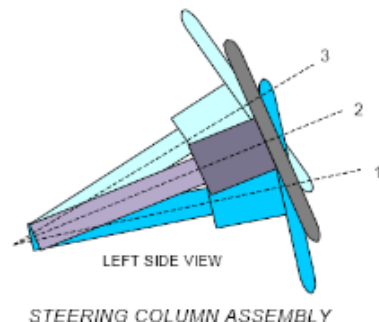
Test Vehicle: 2018 Honda Accord 4-DR Sedan
 Test Program: SMDB Impact

NHTSA No. R20185383
 Test Date: 7/24/2019

STEERING COLUMN ADJUSTMENT

Steering wheel and column adjustments are made so that the steering wheel geometric locus it describes when moved through its full range of motion.

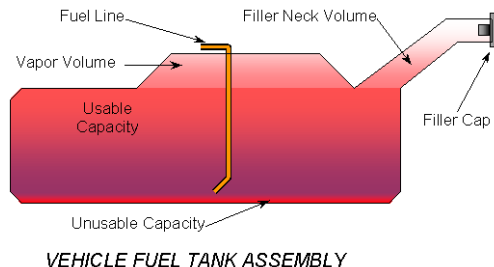
	Degrees	Fore/Aft Position, mm
Lowermost, Position No. 1	17.5	0
Geometric Center, Position No. 2	20.2	20
Uppermost, Position No. 3	22.8	40
Telescoping Steering Wheel Travel		40
Test Position	20.2	20



FUEL PUMP

Describe the fuel pump type, details about how it operates and the location of the fuel filler neck:

Ignition Stage 2 (Push the engine start button twice) will activate the fuel pump to prime the system.



FUEL TANK CAPACITY

	Liters
Usable Capacity of "Standard Tank" (see Form No. 1)	56.0
Usable Capacity of "Optional" Tank (see Form No. 1)	N/A
Usable Capacity of Standard Tank (see Owner's Manual)	56.0
Usable Capacity of Optional Tank (see Owner's Manual)	N/A
93% of Usable Capacity	52.1
Actual Amount of Solvent Used in Test	52.1
1/3 of Usable Capacity	18.7

Is the Actual Amount of Solvent Used in the test equal to 93% +/- 1% of the Usable Capacity stated on Form No. 1? YES NO

TABLE 1 WORLDSID-50M AND SID-IIS INSTRUMENTATION DATA

Test Vehicle: 2018 Honda Accord 4-DR Sedan

NHTSA No. R20185383

Test Program: SMDB Impact

Test Date: 7/24/2019

Driver Dummy Serial Number: EB8888

Location		Positive Direction		Negative Direction	
		Max.	Time (ms)	Max.	Time (ms)
Head Acceleration (g)	X	17.97	69.30	-5.25	270.30
	Y	23.00	51.60	-5.39	261.00
	Z	2.37	76.05	-4.82	40.15
	R	27.41	59.65		
Head Angular Rate (deg/sec)	X	432.65	82.10	-405.26	51.25
	Y	424.37	177.60	-653.86	64.55
	Z	876.19	108.45	-1910.41	51.25
Upper Neck Force (N)	X	202.05	256.40	-158.40	52.05
	Y	28.23	28.75	-299.49	63.15
	Z	510.13	54.75	-22.38	85.60
Upper Neck Moment (Nm)	X	16.33	63.75	-9.57	33.15
	Y	22.02	83.35	-20.60	52.10
	Z	32.14	66.55	-9.98	137.05
Lower Neck Force (N)	X	261.85	251.10	-265.72	68.20
	Y	185.83	34.30	-215.56	262.05
	Z	556.88	56.45	-23.24	85.60
Lower Neck Moment (Nm)	X	7.58	33.90	-40.23	275.45
	Y	31.78	70.90	-53.66	260.15
	Z	34.34	65.10	-10.46	252.40
Driver Shoulder Force (N)	X	129.37	118.55	-372.44	56.65
	Y	205.20	91.95	-1982.90	49.25
	Z	487.72	45.00	-108.69	99.40
Shoulder Rear Ribeye Position (mm)	X	-47.57	88.50	-70.77	58.70
	Y	-58.31	54.60	-86.35	17.90
	Z	-45.80	191.90	-65.62	72.70
Length of Change (mm)		17.29	46.75	-6.32	116.15
Shoulder Middle Ribeye Position (mm)	X	-12.53	91.05	-35.25	58.90
	Y	-58.10	56.10	-98.15	119.70
	Z	-48.08	192.20	-71.86	72.60
Length of Change (mm)		36.03	53.75	-3.37	119.70
Shoulder Front Ribeye Position (mm)	X	26.03	43.30	0.79	119.40
	Y	-42.99	57.30	-85.60	119.65
	Z	-53.12	192.20	-74.89	48.25
Length of Change (mm)		36.16	58.55	-0.63	16.30

TABLE 1 WORLDSID-50M AND SID-IIS INSTRUMENTATION DATA (CONTINUED)

Test Vehicle: 2018 Honda Accord 4-DR Sedan

NHTSA No. R20185383

Test Program: SMDB Impact

Test Date: 7/24/2019

Driver Dummy Serial Number: EB8888

Location		Positive Direction		Negative Direction	
		Max.	Time (ms)	Max.	Time (ms)
Thorax Rib 1 Rear Ribeye Position (mm)	X	-29.31	39.30	-38.71	109.10
	Y	-93.65	45.05	-101.74	106.60
	Z	1.79	132.10	-8.26	32.60
Length of Change (mm)		7.77	41.65	-2.13	106.65
Thorax Rib 1 Middle Ribeye Position (mm)	X	9.02	38.30	-2.90	109.10
	Y	-98.01	45.50	-110.72	111.45
	Z	2.84	58.50	-9.69	30.75
Length of Change (mm)		9.98	48.10	-2.31	111.40
Thorax Rib 1 Front Ribeye Position (mm)	X	45.27	39.30	31.84	107.30
	Y	-88.77	49.70	-103.39	108.45
	Z	2.88	59.60	-10.65	30.80
Length of Change (mm)		8.42	51.65	-1.73	108.55
Thorax Rib 2 Rear Ribeye Position (mm)	X	-21.28	61.70	-32.03	143.80
	Y	-87.92	30.00	-98.43	107.90
	Z	41.40	210.90	33.06	60.60
Length of Change (mm)		10.31	32.15	-1.44	107.90
Thorax Rib 2 Middle Ribeye Position (mm)	X	17.21	62.05	4.21	144.80
	Y	-96.80	29.75	-111.39	183.45
	Z	43.19	244.65	34.50	59.75
Length of Change (mm)		10.95	31.35	-1.66	115.05
Thorax Rib 2 Front Ribeye Position (mm)	X	52.68	33.60	39.02	144.55
	Y	-88.82	31.70	-101.52	107.65
	Z	46.32	241.90	38.14	61.60
Length of Change (mm)		5.44	29.10	-1.35	204.35
Thorax Rib 3 Rear Ribeye Position (mm)	X	-39.80	62.70	-48.49	82.50
	Y	-84.37	31.90	-94.89	271.00
	Z	-33.84	210.30	-44.23	60.80
Length of Change (mm)		9.36	31.25	-1.22	270.90
Thorax Rib 3 Middle Ribeye Position (mm)	X	-7.55	60.55	-19.07	82.00
	Y	-90.37	31.10	-102.33	266.30
	Z	-32.18	264.40	-43.36	60.80
Length of Change (mm)		9.73	31.10	-1.35	266.25

TABLE 1 WORLDSID-50M AND SID-IIS INSTRUMENTATION DATA (CONTINUED)Test Vehicle: 2018 Honda Accord 4-DR SedanNHTSA No. R20185383Test Program: SMDB ImpactTest Date: 7/24/2019

Driver Dummy Serial Number: EB8888

Location		Positive Direction		Negative Direction	
		Max.	Time (ms)	Max.	Time (ms)
Thorax Rib 3 Front Ribeye Position (mm)	X	23.55	30.90	10.73	82.70
	Y	-82.65	32.25	-93.51	255.40
	Z	-33.41	4.35	-42.63	61.60
Length of Change (mm)		4.42	31.35	-1.12	69.45
Abdomen Rib 1 Rear Ribeye Position (mm)	X	-21.53	63.70	-31.70	183.05
	Y	-86.37	31.05	-97.80	246.35
	Z	-0.29	237.70	-14.22	63.60
Length of Change (mm)		9.71	56.50	-2.65	246.30
Abdomen Rib 1 Middle Ribeye Position (mm)	X	12.43	62.70	-2.00	208.70
	Y	-91.41	56.35	-105.06	259.65
	Z	-0.31	247.60	-15.64	63.20
Length of Change (mm)		10.62	32.70	-2.31	259.55
Abdomen Rib 1 Front Ribeye Position (mm)	X	44.39	61.40	29.94	185.30
	Y	-84.21	57.20	-96.80	170.40
	Z	-1.04	212.95	-15.09	62.70
Length of Change (mm)		5.82	31.95	-1.26	259.45
Abdomen Rib 2 Rear Ribeye Position (mm)	X	-3.81	65.40	-16.61	19.30
	Y	-71.67	54.90	-93.74	267.80
	Z	35.05	209.00	18.36	63.65
Length of Change (mm)		20.24	56.90	-1.68	252.65
Abdomen Rib 2 Middle Ribeye Position (mm)	X	32.10	63.80	14.59	256.60
	Y	-76.50	56.30	-103.48	252.50
	Z	33.97	213.40	14.36	63.60
Length of Change (mm)		24.84	55.30	-1.46	252.65
Abdomen Rib 2 Front Ribeye Position (mm)	X	64.61	61.40	44.68	253.70
	Y	-69.03	56.15	-96.99	222.90
	Z	35.28	219.50	16.39	63.65
Length of Change (mm)		16.84	56.20	-1.44	242.45
T1 Acceleration (g)	X	3.66	221.65	-7.82	13.80
	Y	27.38	40.80	-4.89	17.35
	Z	4.13	13.90	-1.77	71.35
	R	27.88	40.90		

TABLE 1 WORLDSID-50M AND SID-IIS INSTRUMENTATION DATA (CONTINUED)

Test Vehicle: 2018 Honda Accord 4-DR Sedan
 Test Program: SMDB Impact

NHTSA No. R20185383
 Test Date: 7/24/2019

Driver Dummy Serial Number: EB8888

Location		Positive Direction		Negative Direction	
		Max.	Time (ms)	Max.	Time (ms)
T4 Acceleration (g)	X	4.31	13.95	-1.67	74.45
	Y	27.22	53.90	-5.33	96.05
	Z	2.82	221.60	-5.85	51.75
	R	27.78	53.75		
T12 Acceleration (g)	X	2.31	108.35	-8.13	19.55
	Y	26.04	32.95	-5.84	94.35
	Z	3.44	14.40	-2.39	70.65
	R	26.17	32.90		
Pubic Symphysis (N)	Y	37.32	154.30	-832.54	35.15
Left Sacro-Iliac Force (N)	X	247.12	51.25	-228.65	112.15
	Y	8.78	187.30	-1773.34	36.25
	Z	5.55	-2.90	-322.27	29.20
Left Sacro-Iliac Moment (Nm)	X	15.07	240.80	-27.22	40.90
	Y	16.83	111.00	-8.05	14.20
	Z	30.19	33.60	-14.74	112.40
Right Sacro-Iliac Force (N)	X	254.69	60.20	-366.44	32.55
	Y	7.31	-2.90	-763.39	35.05
	Z	290.28	60.15	-55.26	14.70
Right Sacro-Iliac Moment (Nm)	X	22.32	68.05	-10.71	16.00
	Y	14.38	36.55	-9.78	69.30
	Z	28.65	33.95	-8.32	113.90
Lumbar Force (N)	X	193.44	65.15	-229.08	33.50
	Y	575.43	39.05	-49.05	202.45
	Z	698.91	51.10	-6.06	7.30
Lumbar Moment (Nm)	X	24.95	56.75	-10.02	100.10
	Y	9.19	18.20	-12.03	68.70
	Z	11.12	39.00	-4.30	241.70
Pelvis Acceleration (g)	X	16.35	51.65	-12.42	14.05
	Y	39.03	35.80	-9.76	73.15
	Z	15.75	33.70	-2.41	191.90
	R	40.93	35.65		

TABLE 1 WORLDSID-50M AND SID-IIS INSTRUMENTATION DATA (CONTINUED)

Test Vehicle: 2018 Honda Accord 4-DR Sedan
 Test Program: SMDB Impact

NHTSA No. R20185383
 Test Date: 7/24/2019

Driver Dummy Serial Number: EB8888

Location		Positive Direction		Negative Direction	
		Max.	Time (ms)	Max.	Time (ms)
Left Femur Force (N)	X	147.50	51.75	-245.87	29.20
	Y	598.63	34.05	-12.79	94.75
	Z	213.75	20.55	-1390.40	50.35
Left Femur Moment (Nm)	X	241.88	34.05	-11.44	211.90
	Y	130.90	35.70	-8.60	102.75
	Z	71.75	39.40	-7.32	105.70
Left Femoral Neck Force (N)	X	1041.91	37.15	-78.88	107.15
	Y	111.90	15.30	-1869.49	34.05
	Z	433.56	50.20	-589.78	30.45

TABLE 1 WORLDSID-50M AND SID-IIS INSTRUMENTATION DATA (CONTINUED)

Test Vehicle: 2018 Honda Accord 4-DR Sedan
 Test Program: SMDB Impact

NHTSA No. R20185383
 Test Date: 7/24/2019

Passenger Dummy Serial Number: 219

Location		Positive Direction		Negative Direction	
		Max.	Time (ms)	Max.	Time (ms)
Head Acceleration (g)	X	8.43	167.80	-16.64	73.90
	Y	47.80	58.20	-17.90	168.80
	Z	9.24	86.70	-17.75	63.90
	R	49.37	58.20		
Head Acceleration Redundant (g)	X	7.75	167.85	-16.54	73.35
	Y	47.86	58.15	-17.31	168.80
	Z	9.32	92.85	-17.84	63.90
	R	49.41	60.85		
Head Angular Rate (deg/sec)	X	878.10	103.30	-806.15	72.50
	Y	517.13	161.65	-740.71	261.80
	Z	1998.04	169.65	-1216.27	254.25
Shoulder Force (N)	X	179.98	81.55	-215.76	54.80
	Y	1786.90	59.10	-155.11	93.10
	Z	233.85	96.00	-628.04	64.00
Shoulder Displacement (mm)	Y	33.68	63.95	-2.04	180.85
Thorax Rib 1 Displacement (mm)	Y	31.38	63.00	-1.87	197.25
Thorax Rib 2 Displacement (mm)	Y	24.38	62.50	-1.11	202.70
Thorax Rib 3 Displacement (mm)	Y	17.16	61.55	-0.73	198.35
Abdominal Rib 1 Displacement (mm)	Y	15.89	50.05	-0.40	39.25
Abdominal Rib 2 Displacement (mm)	Y	23.71	50.20	-0.32	38.00
Lower Spine Acceleration (g)	X	3.93	63.20	-17.12	51.40
	Y	47.03	48.85	-5.36	187.05
	Z	12.98	69.45	-11.11	45.40
	R	49.22	49.05		
Iliac Wing Force (N)	Y	854.61	55.75	-34.15	206.15
Acetabulum Force (N)	Y	540.98	58.50	-35.40	143.30
Pelvis Acceleration (g)	X	11.43	141.30	-21.50	39.60
	Y	45.56	39.05	-4.50	195.15
	Z	6.87	39.95	-10.30	52.65
	R	49.92	39.30		

Positive Direction

Longitudinal Forward
 Lateral Rightward
 Vertical Downward

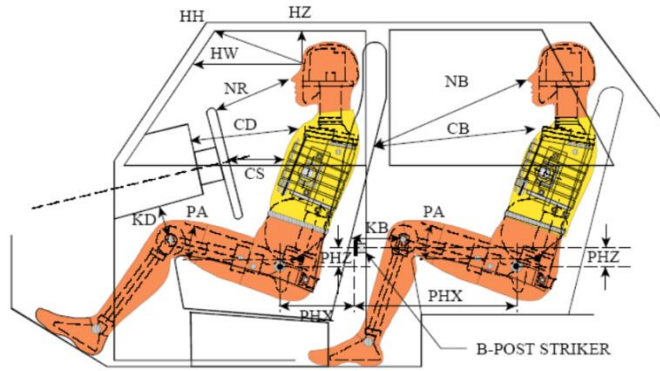
Negative Direction

Longitudinal Rearward
 Lateral Leftward
 Vertical Upward

**DATA SHEET NO. 3
DUMMY LONGITUDINAL CLEARANCE DIMENSIONS**

Test Vehicle: 2018 Honda Accord 4-DR Sedan
Test Program: SMDB Impact

NHTSA No. R20185383
Test Date: 7/24/2019



LEFT SIDE VIEW

NOTE: 2-DOOR VEHICLE SHOWN.
REAR DUMMY PHX & PHZ
MEASUREMENTS FOR A 4-DOOR
VEHICLE WOULD USE THE C-POST
STRIKER AS A REFERENCE POINT

Code	Measurement Description	Driver WorldSID-50M SN # EB8888		Passenger SID-IIs SN # 219	
		Length (mm)	Angle	Length (mm)	Angle
HH	Header to Header	363			
HW	Header to Windshield	629			
HZ	Head to Roof Liner	205		256	
NR	Nose to Rim/Seat Back	423		745	
CD	Chest to Dash/Seat Back	592		691	
CS	Chest to Steering Wheel	358			
KD(L)/KDA(L)°	Left Knee to Dash/Seat Back	112	-19.0	405	
KD(R)/KDA(R)°	Right Knee to Dash/Seat Back	N/A	N/A	400	
PAX°	Pelvic Tilt Angle X		1.2		
PAY°	Pelvic Tilt Angle Y		0.6		
PHX	Hip Point to Striker (X-Axis)	281		201	
PHZ	Hip Point to Striker (Z-Axis)	265		272	
HAX°	Head Tilt Angle X		0.8		
HAY ¹ °	Head Tilt Angle Y		-1.7		
TAX°	Thorax Tilt Angle X		1.8		
TAY°	Thorax Tilt Angle Y		-1.2		
	Head Rest Angle		3.3		N/A
	H-Point Tool Angle		42.2		8.3
	Torso Angle		13.9		36.4
	Windshield Angle		59.0		

Note: All measurements are in millimeters. 2-door vehicle shown. Rear dummy HX, HZ, PHX and PHZ measurements for 4-door vehicle would use the C-post striker as a reference point.

All tilt sensor angles are recorded digitally

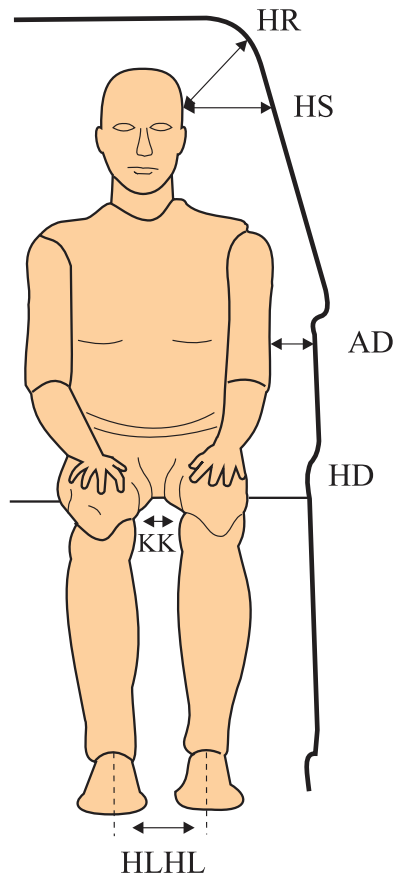
WorldSID neck was adjusted 0 notches

SID-IIs neck was adjusted 4 notches down

**DATA SHEET NO. 4
DUMMY LATERAL CLEARANCE DIMENSIONS**

Test Vehicle: 2018 Honda Accord 4-DR Sedan
 Test Program: SMDB Impact

NHTSA No. R20185383
 Test Date: 7/24/2019



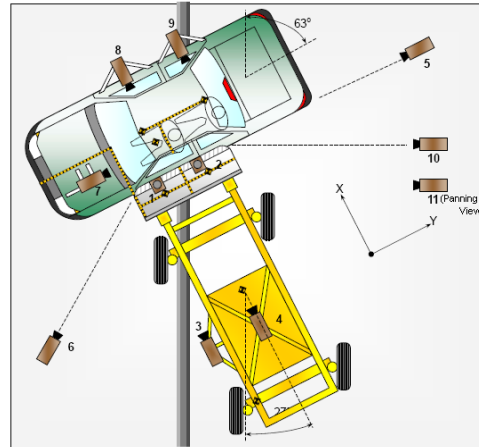
Code	Measurement Description	Driver WorldSID-50M SN # EB8888	Passenger SID-IIs SN # 219
HR	Head to Side Header	269	304
HS	Head to Side Window	374	406
AD	Arm to Door	158	156
HD	Hip Point to Door	111	170
KK	Knee to Knee	325	156
HLHL	Heel to Heel	356	N/A

Note: All measurements are in millimeters.

**DATA SHEET NO. 5
CAMERA AND INSTRUMENTATION DATA**

Test Vehicle: 2018 Honda Accord 4-DR Sedan
Test Program: SMDB Impact

NHTSA No. R20185383
Test Date: 7/24/2019



CAMERA LOCATIONS AND DATA

Camera No.	View	Coordinates (mm)			Lens Length (mm)	Operating Frame Rate (fps)
		X	Y	Z		
1	Overhead Overall	-1588	0	-5692	8.5	1000
2	Overhead Close-up	1387	0	-5692	25	1000
3	Left Impact Point (MDB)	1645	971	-993	25	1000
4	Side Overall (MDB)	2426	0	-1473	12.5	1000
5	Rear	758	6345	-1428	20	1000
6	Left Front	6381	-3379	-1436	20	1000
7	Driver Front (OB)				25	1000
8	Driver Side (OB)				12.5	1000
9	Passenger Side (OB)				12.5	1000
10	Passenger Side				20	1000
11	Real-time Pan				Zoom	30
12	Real-time Rear				Zoom	30

Reference: Impact Point projected to Ground; +X = To Front of MDB, +Y = To Right of MDB, +Z = Down *All measurements accurate to ± 6 mm.

If applicable, explain why camera(s) did not operate as intended: Camera number 12 malfunctioned; resulting in loss of view

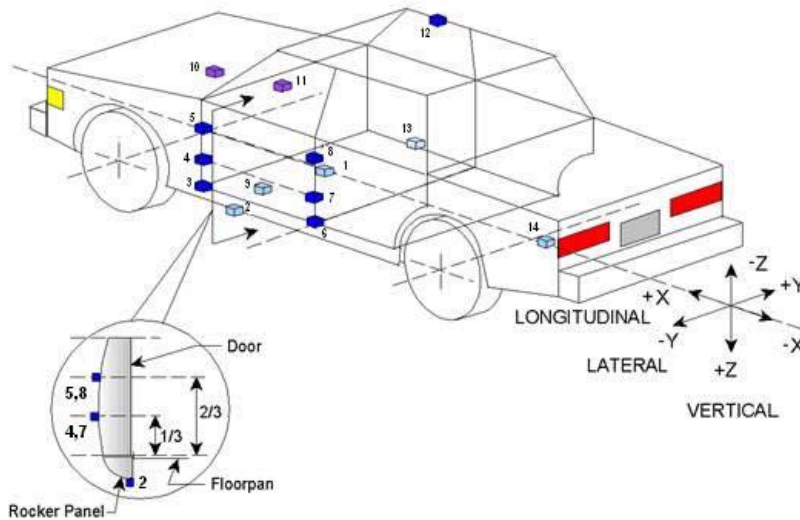
INSTRUMENTATION

Driver Dummy Channels	133
Passenger Dummy Channels	26
Vehicle Structure Accelerometers	37
MDB Accelerometers	5
Contact Channels	10
TOTAL	211

**DATA SHEET NO. 6
VEHICLE ACCELEROMETER DATA**

Test Vehicle: 2018 Honda Accord 4-DR Sedan
 Test Program: SMDB Impact

NHTSA No. R20185383
 Test Date: 7/24/2019



Location		Coordinates (mm)			Positive Direction		Negative Direction	
		X	Y	Z	Max	Time (ms)	Max	Time (ms)
1	Vehicle CG	3085	112	-329				
	Longitudinal (g)				3.03	4.15	-6.95	29.35
	Lateral (g)				22.50	8.05	-5.00	27.95
	Vertical (g)				11.61	34.25	-2.16	22.15
	Resultant (g)				22.85	7.90		
2	Vehicle CG ARS	3085	112	-329				
	Longitudinal (g)				82.49	14.75	-47.16	114.85
	Lateral (g)				82.50	28.25	-76.08	11.15
	Vertical (g)				3.86	4.20	-92.99	218.05
3	Right Sill at Front Seat	2995	747	-333				
	Longitudinal (g)				5.08	62.35	-5.94	10.40
	Lateral (g)				22.15	6.40	-2.27	81.90
	Vertical (g)				6.94	37.95	-8.49	10.90
	Resultant (g)				22.96	10.00		
4	Right Side Sill At Rear Seat	1953	740	-343				
	Longitudinal (g)				5.14	62.10	-5.87	10.30
	Lateral (g)				24.40	6.85	-2.94	80.85
	Vertical (g)				8.46	31.60	-8.28	16.60
	Resultant (g)				24.51	6.85		
5	Left Side Sill At Front Seat	2949	-747	-315				
	Lateral (g)				68.03	28.30	-32.08	10.25
6	Left Side Sill At Rear Seat	1957	-740	-335				
	Lateral (g)				34.41	20.80	-27.00	10.75

DATA SHEET NO. 6 (CONTINUED)
VEHICLE ACCELEROMETER DATA

Test Vehicle: 2018 Honda Accord 4-DR Sedan
 Test Program: SMDB Impact

NHTSA No. R20185383
 Test Date: 7/24/2019

	Location	Coordinates (mm)			Positive Direction		Negative Direction	
		X	Y	Z	Max	Time (ms)	Max	Time (ms)
7	Lower A-Post	3450	-833	-468				
	Lateral (g)				--- ¹	--- ¹	--- ¹	--- ¹
8	Middle A-Post	3441	-823	-781				
	Lateral (g)				28.76	8.85	-6.83	30.95
9	Lower B-Post	2285	-841	-573				
	Lateral (g)				--- ¹	--- ¹	--- ¹	--- ¹
10	Middle B-Post	2263	-820	-900				
	Lateral (g)				--- ¹	--- ¹	--- ¹	--- ¹
11	Front Seat Track	2600	-615	-275				
	Lateral (g)				45.70	32.25	-4.15	12.00
12	Rear Seat Structure	1857	-635	-338				
	Lateral (g)				28.26	20.20	-4.55	12.50
13	Right Rear Occupant Compartment	1850	635	-347				
	Lateral (g)				25.18	6.90	-3.01	99.25
14	Engine Block	4215	35	-767				
	Longitudinal (g)				7.04	80.60	-12.73	47.55
	Lateral (g)				29.31	32.35	-6.09	124.20
15	Rear Floorpan Above Axle	903	0	-308				
	Longitudinal (g)				4.08	60.50	-4.97	6.15
	Lateral (g)				25.30	18.90	-3.25	99.30
	Vertical (g)				6.37	14.20	-5.55	38.90
	Resultant (g)				25.64	18.85		
16	Rear Deck	190	0	-478				
	Longitudinal (g)				12.56	66.60	-12.48	44.95
	Lateral (g)				29.81	33.65	-3.59	104.10
	Vertical (g)				9.93	28.65	-7.31	8.10
	Resultant (g)				31.75	33.70		
17	Rear Deck ARS	190	0	-478				
	Longitudinal (g)				105.23	22.85	-51.10	60.90
	Lateral (g)				78.07	63.10	-68.61	14.60
	Vertical (g)				336.13	16.60	-105.41	83.25
18	Left Front Door Mid Centerline	2898	-810	-690				
	Lateral (g)				130.99	26.25	-176.03	20.90
19	Left Front Door Mid Rear	2565	-782	-646				
	Lateral (g)				--- ¹	--- ¹	--- ¹	--- ¹
20	Left Front Door Upper Centerline	2882	-778	-920				
	Lateral (g)				178.87	14.75	-95.07	22.90

DATA SHEET NO. 6 (CONTINUED)
VEHICLE ACCELEROMETER DATA

Test Vehicle: 2018 Honda Accord 4-DR Sedan
 Test Program: SMDB Impact

NHTSA No. R20185383
 Test Date: 7/24/2019

Location		Coordinates (mm)			Positive Direction		Negative Direction	
		X	Y	Z	Max	Time (ms)	Max	Time (ms)
21	Left Rear Door Mid Rear	1634	-785	-663				
	Lateral (g)				--- ¹	--- ¹	--- ¹	--- ¹
22	Left Rear Door Upper Centerline	1854	-772	-942				
	Lateral (g)				--- ¹	--- ¹	--- ¹	--- ¹

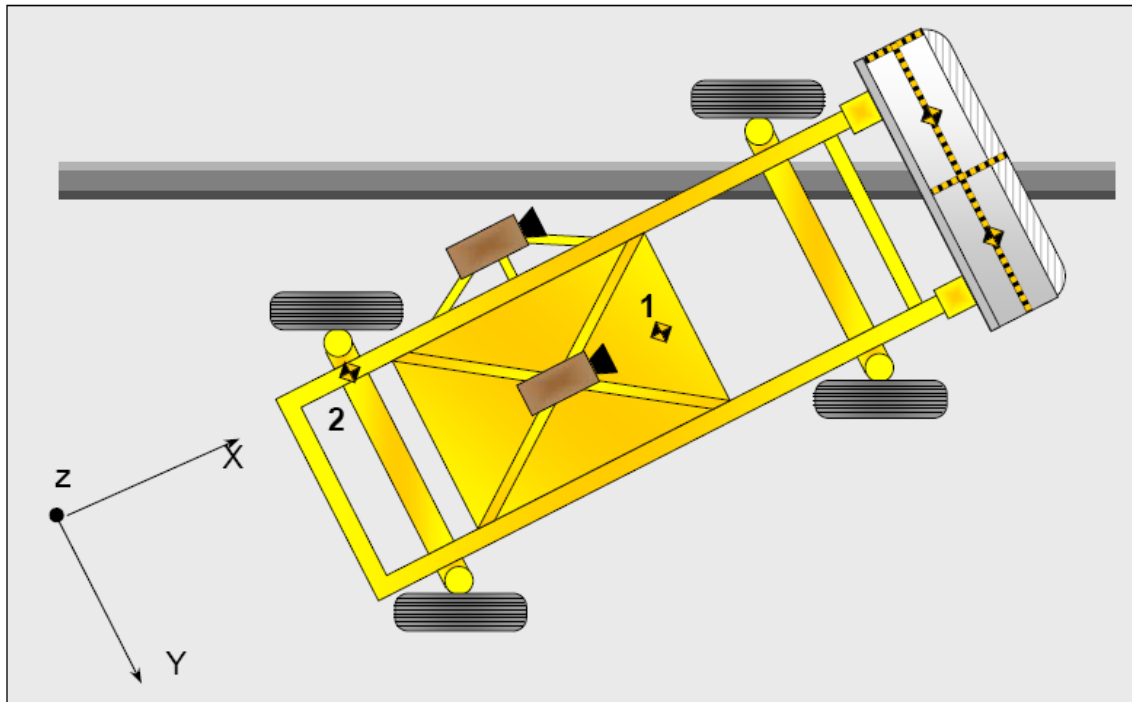
*0,0,0 located at rear bumper

¹See data acquisition explanation

**DATA SHEET NO. 7
MDB ACCELEROMETER DATA**

Test Vehicle: 2018 Honda Accord 4-DR Sedan
 Test Program: SMDB Impact

NHTSA No. R20185383
 Test Date: 7/24/2019



MDB ACCELEROMETER LOCATIONS

Location		Coordinates (mm)			Positive Direction		Negative Direction	
		X	Y	Z	Max	Time (ms)	Max	Time (ms)
1	MDB CG	-2179	0	-505				
	Longitudinal (g)				2.94	104.65	-21.32	14.40
	Lateral (g)				2.72	66.00	-7.89	30.70
	Vertical (g)				6.99	35.20	-7.25	16.70
	Resultant (g)				21.64	35.45		
2	MDB Rear	-3648	-650	-618				
	Longitudinal (g)				2.39	91.00	-21.69	30.25
	Lateral (g)				4.80	22.90	-1.91	144.40

Reference: X – Face of MDB (+ forward)
 Y – MDB centerline (+ to right)
 Z – Ground plane (+ down)

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

Test Vehicle: 2018 Honda Accord 4-DR Sedan
 Test Program: SMDB Impact

NHTSA No. R20185383
 Test Date: 7/24/2019

TEST DUMMY INFORMATION AND CONTACT POINTS

Dummy Body Part	Front Seat Dummy (WorldSID-50M)	Rear Seat Dummy (SID-IIs)
Face	SCAB	SCAB
Top of Head	SCAB	Head liner, SCAB
Left Side of Head	SCAB	SCAB
Back of head	SCAB	SCAB
Left Shoulder	SAB, Door panel	Door panel
Upper Torso	Seat back bolster, SAB	None
Lower Torso	Seat back bolster, SAB	Door panel
Left Hip	SAB, Door panel	Seat cushion bolster, Door panel
Left Knee	None	Door panel

POST-TEST DOOR PERFORMANCE

Description	Struck Side		Non-Struck Side		Rear Hatch/ Other Door
	Front	Rear	Front	Rear	
Remained Closed and Operational	No	No	Yes	Yes	Yes
Total Separation from Vehicle at Hinges or Latches	No	No	No	No	No
Latch or Hinge Systems Pulled Out of Their Anchorages	No	No	No	No	No
Disengaged from Latched Position	No	No	No	No	No
Latch Separated from Striker	No	Yes	No	No	No
Jammed Shut	Yes	Yes	No	No	No
If Door Opened at Striker, Record Width of Opening at Striker (mm)	N/A	40	N/A	N/A	N/A

* Indicate "Yes", "No", or "NA".

POST-TEST SEAT PERFORMANCE

Description	Struck Side		Non-Struck Side	
	Front	Rear	Front	Rear
Seat Movement Along Seat Track	No	No	No	No
Seat Disengagement from Floor pan	No	No	No	No
Seat Back Movement from Initial Position	No	No	No	No
Seat Back Collapse	No	No	No	No

POST-TEST STRUCTURAL OBSERVATIONS

Critical Areas of Performance	Observations and Conclusions
Pillar Performance	Good
Sill Separation	None
Windshield Damage	None
Side Window Damage	Driver & passenger windows broken out
Other Notable Effects	None

**DATA SHEET NO. 8 (CONTINUED)
POST TEST OBSERVATIONS**

Test Vehicle: 2018 Honda Accord 4-DR Sedan
Test Program: SMDB Impact

NHTSA No. R20185383
Test Date: 7/24/2019

SUPPLEMENTAL RESTRAINT SYSTEM INFORMATION

Restraint Type	Struck Side (Driver)		Struck Side (Rear Passenger)	
	Mounted	Deployed	Mounted	Deployed
Front Airbag	Yes	No		
Knee Airbag	Yes	No		
Side Curtain Airbag	Yes	Yes	Yes	Yes
Side Torso/Pelvis Airbag	No	N/A	No	N/A
Side Pelvis Airbag	No	N/A	No	N/A
Seat Belt Pretensioner	Yes	Yes	No	N/A
Seat Belt Load Limiter	Yes	Unknown	No	N/A
Other	No	N/A	No	N/A

IMPACT POINT LOCATION DATA

Measured Parameter	Units	Tolerance	Value
Vehicle Wheel Base	mm		2830
Vertical Impact Reference Line (Aft of Front Axle) (Intended Impact Point)	mm		476
Actual Impact Point (Aft of Front Axle)	mm		469
Horizontal Offset (+ forward / - rearward)	mm	+/- 50 of Intended Impact Point	+7
Vertical Offset (+ down / - up)	mm	+/- 20 of Intended Impact Point	-5

**DATA SHEET NO. 9
MDB SUMMARY OF RESULTS**

Test Vehicle: 2018 Honda Accord 4-DR Sedan
 Test Program: SMDB Impact

NHTSA No. R20185383
 Test Date: 7/24/2019

MDB SPECIFICATIONS

Measurement Description	Length (mm)
Overall Width of Framework Carriage	1252
Overall Length Including Honeycomb Frame	4115
Wheel Base of Framework Carriage	2591
CG Location of Front Axle	1105

MDB WEIGHTS

	Units	Front Axle	Rear Axle	Total
Left	kg	385.6	294.0	679.6
Right	kg	397.4	287.8	685.2
Ratio	%	57.4	42.6	100.0
Totals	kg	783.0	581.8	1364.8

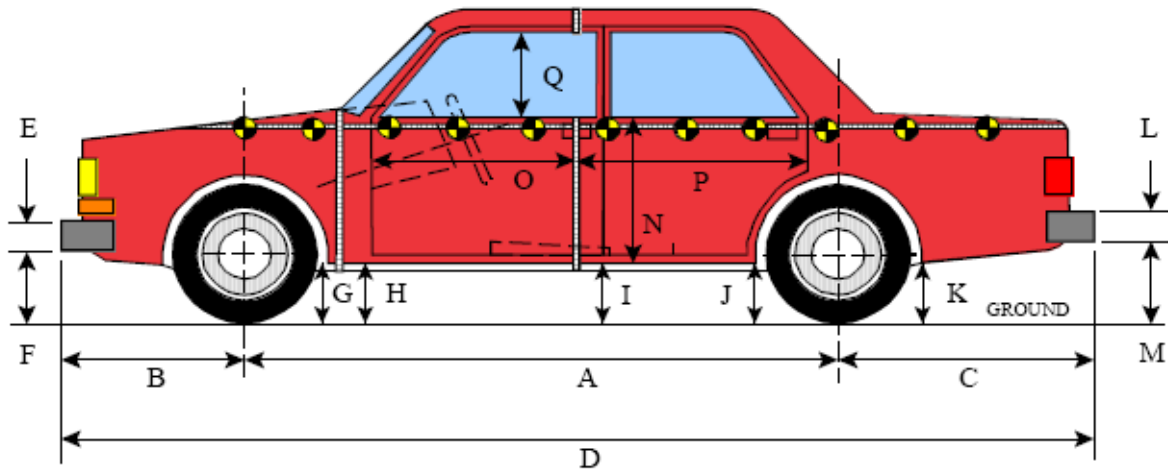
SPEED AND ANGLE AT IMPACT DATA

Measured Parameter	Units	Tolerance	Value
Trap No. 1 Velocity (Primary)	km/h	61.10 to 62.70	62.12
Trap No. 2 Velocity (Redundant)	km/h	61.10 to 62.70	62.12
MDB CL to Target Vehicle CL	degrees	88.5 to 91.5	90
MDB Forward Line of Motion to Target Vehicle CL	degrees	62.5 to 63.5	63
MDB Crabbed Angle to MDB Forward Line of Motion	degrees	26 to 28	27

**DATA SHEET NO. 10
VEHICLE PROFILE MEASUREMENTS**

Test Vehicle: 2018 Honda Accord 4-DR Sedan
Test Program: SMDB Impact

NHTSA No. R20185383
Test Date: 7/24/2019



LEFT SIDE VIEW

All MEASUREMENTS IN (mm) WITH TOLERANCE OF ± 3 mm

VEHICLE PRE- AND POST-TEST MEASUREMENT INFORMATION

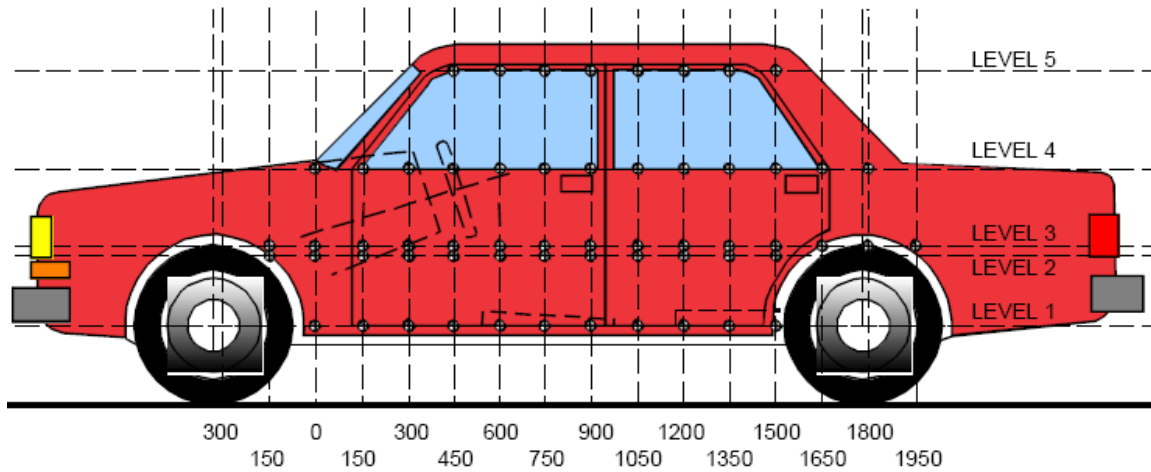
Code	Measurement Description	Pre-Test	Post-Test	Difference
A	Wheelbase	2830	2838	-8
B	Front Axle to FSOV	925	925	0
C	Rear Axle to RSOV	1120	1114	6
D	Total Length at Centerline	4875	4877	-2
E	Front Bumper Thickness	120	120	0
F	Front Bumper Bottom to Ground	393	425	-32
G	Sill Height at Front Wheel Well	240	246	-6
H	Sill Height at Front Door Leading Edge	238	235	3
I	Sill Height at B Pillar	270	270	0
J1	Sill Height at Rear Wheel Well	316	521	-205
J2	Pinch Weld Height at Rear Wheel Well	160	161	-1
K	Sill Height Aft of Rear Wheel Well	387	440	-53
L	Rear Bumper Thickness	164	164	0
M	Rear Bumper Bottom to Ground	378	438	-60
N	Sill Height to Bottom of Front Window Sill	752	606	146
O	Front Door Leading Edge to Impact CL	847	782	65
P	Rear Door Trailing Edge to Impact CL	1385	1215	170
Q	Front Window Opening	401	386	15
R	Right Side Length	4544	4555	-11
S	Left Side Length	4544	4560	-16
T	Maximum Vehicle Width at B-Pillars	1848	1762	86
U	Maximum Vehicle Width	1860	1883	-23

**All Dimensions in mm

**DATA SHEET NO. 11
VEHICLE EXTERIOR CRUSH MEASUREMENTS**

Test Vehicle: 2018 Honda Accord 4-DR Sedan
 Test Program: SMDB Impact

NHTSA No. R20185383
 Test Date: 7/24/2019



LEFT SIDE VIEW

MAXIMUM EXTERIOR CRUSH MEASUREMENTS

Level	Measurement Description	Height Above Ground	Maximum Exterior Static Crush	Distance from Impact
1	Sill Top	338	36	600
2	Occupant H-Point	497	172	1650
3	Mid-Door	624	208	1650
4	Window Sill	931	206	1650
5	Window Top	1387	-1	1200
			-1	1500

NOTE: The above measurements should be taken along the vertical impact reference line. Vehicle measurements forward of the vertical impact reference line are negative.

DATA SHEET NO. 11 (CONTINUED)
VEHICLE EXTERIOR CRUSH MEASUREMENTS

Test Vehicle: 2018 Honda Accord 4-DR Sedan
 Test Program: SMDB Impact

NHTSA No. R20185383
 Test Date: 7/24/2019

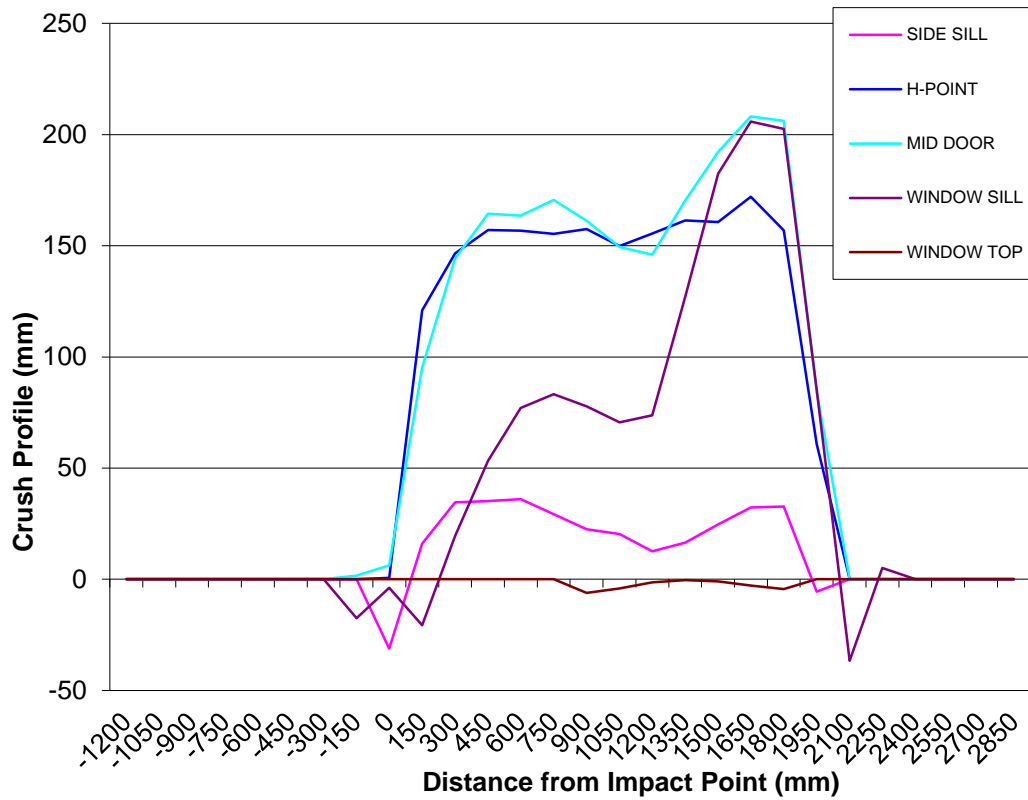
	Pre-Test					Post-Test					Difference				
	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
-150			926	787				924	804				2	-17	
0	897	919	923	803		929	918	917	807		-32	1	6	-4	
150	890	915	922	815		874	794	826	836		16	121	96	-21	
300	886	913	921	837		851	767	777	818		35	146	144	19	
450	883	913	921	852		848	756	757	799		35	157	164	53	
600	881	912	921	868		845	755	757	790		36	157	164	78	
750	877	910	920	880		848	755	750	797		29	155	170	83	
900	873	909	920	891	575	851	751	758	813	581	22	158	162	78	-6
1050	871	907	918	895	605	851	757	769	825	609	20	150	149	70	-4
1200	871	905	917	897	613	859	750	771	823	614	12	155	146	74	-1
1350	874	903	914	897	615	858	742	744	770	615	16	161	170	127	0
1500	880	904	913	896	614	856	744	721	714	615	24	160	192	182	-1
1650	889	908	915	895	608	857	736	707	689	611	32	172	208	206	-3
1800	897	914	920	892	594	864	757	714	690	598	33	157	206	202	-4
1950	893	921	926	888		899	860	842	803		-6	61	84	85	
2100				885					921					-36	
2250				879					874					5	

NOTE: Pre-test measurements are taken when the vehicle is in the "As Tested" weight condition. Vehicle measurements forward of the vertical impact reference line are negative. The crush profile grid is established prior to the test based on an estimated impact point. The vertical impact reference line was set at (0, 0, 0).

DATA SHEET NO. 11 (CONTINUED)
VEHICLE EXTERIOR CRUSH MEASUREMENTS

Test Vehicle: 2018 Honda Accord 4-DR Sedan
Test Program: SMDB Impact

NHTSA No. R20185383
Test Date: 7/24/2019

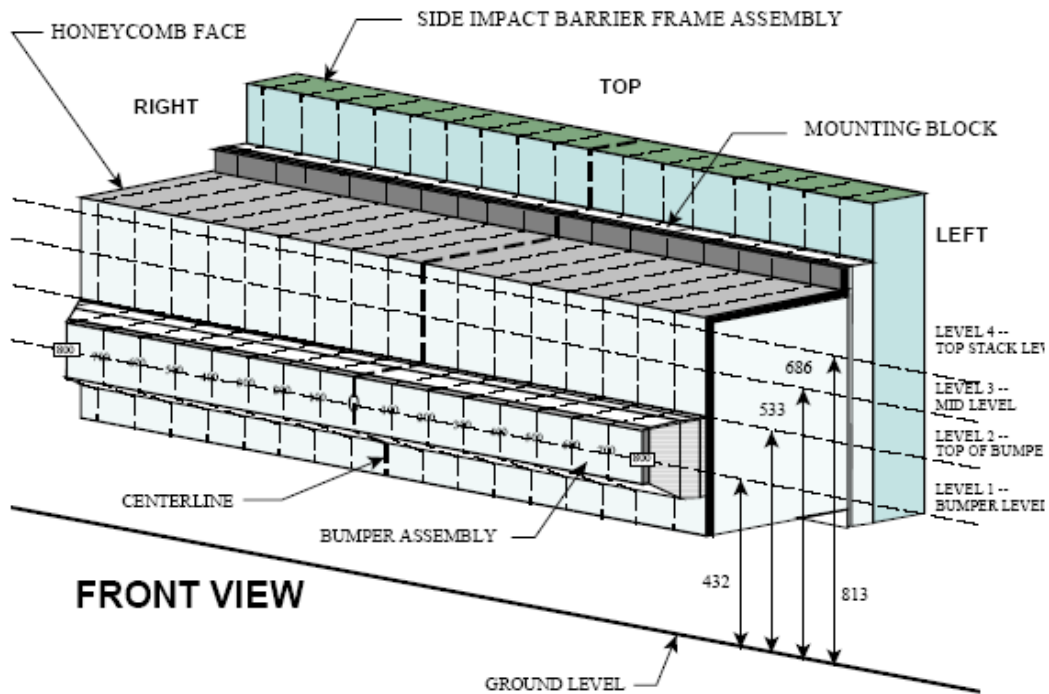


DATA SHEET NO. 12

MDB EXTERIOR STATIC CRUSH MEASUREMENTS

Test Vehicle: 2018 Honda Accord 4-DR Sedan
 Test Program: SMDB Impact

NHTSA No. R20185383
 Test Date: 7/24/2019



NOTE: Dimensions are shown in millimeters, mm

MAXIMUM STATIC CRUSH OF HONEYCOMB IMPACT FACE

Row	Vertical Location		From Centerline		Maximum Crush
	Description	Height	Distance	Direction	
A	Center of Bumper	432	800	Right	214
			700	Right	214
B	Top of Bumper	533	800	Left	121
C	Mid-Level	686	800	Left	102
D	Top of Stack	813	800	Left	125

DEFORMABLE BARRIER STATIC CRUSH

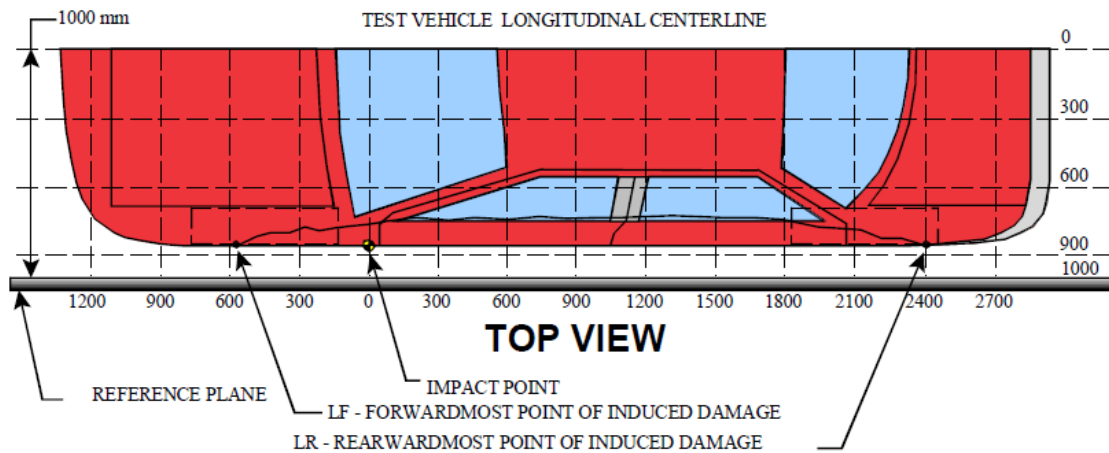
Stack Level	Distance Right of Center								C/L	Distance Left of Center							
	800	700	600	500	400	300	200	100		100	200	300	400	500	600	700	800
1	214	214	210	209	208	207	205	202	199	192	186	183	179	175	172	176	185
2	94	94	93	93	93	---1	---1	---1	91	88	85	83	83	82	83	90	121
3	32	34	26	32	39	67	72	78	55	38	31	28	31	39	53	73	102
4	14	38	15	24	47	93	111	102	94	76	62	52	53	61	71	96	125

¹ Missing post-test points 40, 41 & 42

**DATA SHEET NO. 13
VEHICLE DAMAGE PROFILE DISTANCES**

Test Vehicle: 2018 Honda Accord 4-DR Sedan
Test Program: SMDB Impact

NHTSA No. R20185383
Test Date: 7/24/2019



VEHICLE DAMAGE PROFILE DISTANCES

DPD	Distance From Impact Point (mm)	Level	Post-Test (mm)	Pre-Test (mm)	Crush (mm)
1	2250	4	874	879	5
2	1800	3	714	920	206
3	1350	3	744	914	170
4	750	3	750	920	170
5	300	2	767	913	146
6	-150	3	924	926	2

MDB DAMAGE PROFILE DISTANCES

DPD	Distance From Center of MDB	Level	Post-Test (mm)*
1	800 mm left of center	1	185
2	500 mm left of center	1	175
3	200 mm left of center	1	186
4	200 mm right of center	1	205
5	500 mm right of center	1	209
6	800 mm right of center	1	214

DATA SHEET NO. 14

DUMMY/VEHICLE TEMPERATURE AND HUMIDITY STABILIZATION DATA

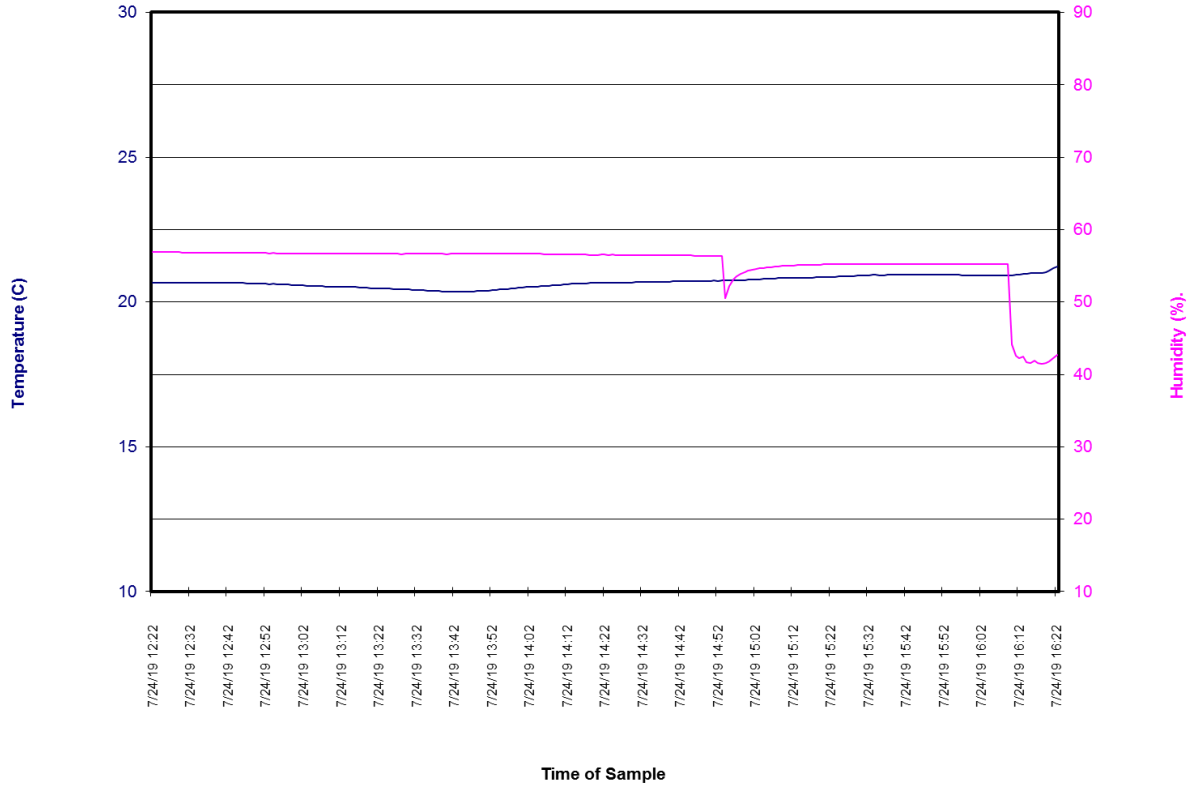
Test Vehicle: 2018 Honda Accord 4-DR Sedan

NHTSA No. R20185383

Test Program: SMDB Impact

Test Date: 7/24/2019

R20185383 2018 Honda Accord 4-DR Sedan Left MDB Impact 190724: Test Time 16:22



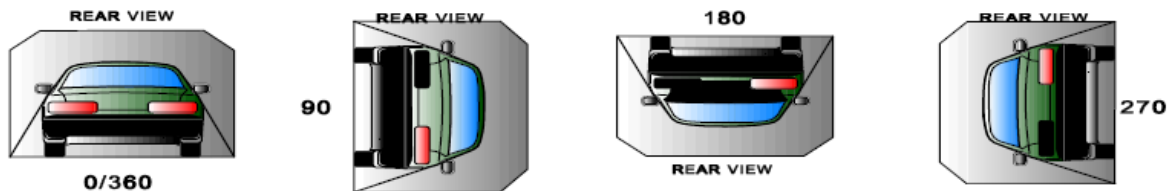
**DATA SHEET NO. 15
FMVSS NO. 301 STATIC ROLLOVER RESULTS**

Test Vehicle: 2018 Honda Accord 4-DR Sedan NHTSA No. R20185383
 Test Program: SMDB Impact Test Date: 7/24/2019

Test Time: 09:32 Temperature: 21.1°C

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

FMVSS 301 STATIC ROLLOVER DATA



ROLLOVER SOLVENT COLLECTION TIME TABLE IN SECONDS

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

FMVSS NO. 301 ROLLOVER SPILLAGE TABLE

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

ROLLOVER SOLVENT SPILLAGE LOCATION TABLE

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

**APPENDIX A
PHOTOGRAPHS**

TABLE OF PHOTOGRAPHS

No.	Description	Page
001	As-Delivered Right Front $\frac{3}{4}$ View of Test Vehicle	A-6
002	As-Delivered Left Rear $\frac{3}{4}$ View of Test Vehicle	A-6
003	Pre-Test Frontal View of Test Vehicle	A-7
004	Post-Test Frontal View of Test Vehicle	A-7
005	Pre-Test Left Front $\frac{3}{4}$ View of Test Vehicle	A-8
006	Post-Test Left Front $\frac{3}{4}$ View of Test Vehicle	A-8
007	Pre-Test Left Side View of Test Vehicle	A-9
008	Post-Test Left Side View of Test Vehicle	A-9
009	Pre-Test Left Rear $\frac{3}{4}$ View of Test Vehicle	A-10
010	Post-Test Left Rear $\frac{3}{4}$ View of Test Vehicle	A-10
011	Pre-Test Rear View of Test Vehicle	A-11
012	Post-Test Rear View of Test Vehicle	A-11
013	Pre-Test Right Side View of Test Vehicle	A-12
014	Post-Test Right Side View of Test Vehicle	A-12
015	Pre-Test Overhead View of Test Area	A-13
016	Post-Test Overhead View of Test Area	A-13
017	Pre-Test Left Side View of MDB Positioned Against Side of Test Vehicle	A-14
018	Pre-Test Right Side View of MDB Positioned Against Side of Test Vehicle	A-14
019	Pre-Test Close-Up View of Impact Point Target	A-15
020	Post-Test Close-Up View of Impact Point Target	A-15
021	Pre-Test Left Front Door Latch Close-Up	A-16
022	Post-Test Left Front Door Latch Close-Up	A-16
023	Pre-Test Left Rear Door Latch Close-Up	A-17
024	Post-Test Left Rear Door Latch Close-Up	A-17
025	Pre-Test Front Close-Up View of Driver Dummy	A-18
026	Post-Test Front Close-Up View of Driver Dummy	A-18
027	Pre-Test Left Side View of Driver Dummy Showing Belt and Chalking	A-19
028	Pre-Test Left Side View of Driver Dummy Shoulder and Door Top	A-20
029	Post-Test Left Side View of Driver Dummy Shoulder and Door Top	A-20
030	Pre-Test Frontal View of Driver Seat Back Prior to Dummy Positioning	A-21
031	Pre-Test Frontal View of Driver Dummy Head and Shoulders in Relation to Head Restraint	A-21
032	Pre-Test Frontal View of Driver Seat Pan Prior to Dummy Positioning	A-22
033	Pre-Test Overhead View of Driver Dummy Thighs on Seat Pan	A-22
034	Pre-Test Placement of Driver Dummy's Feet	A-23
035	Pre-Test View of Belt Anchorage for Driver Dummy	A-23
036	Pre-Test Left Side View of Steering Wheel	A-24

TABLE OF PHOTOGRAPHS (CONTINUED)

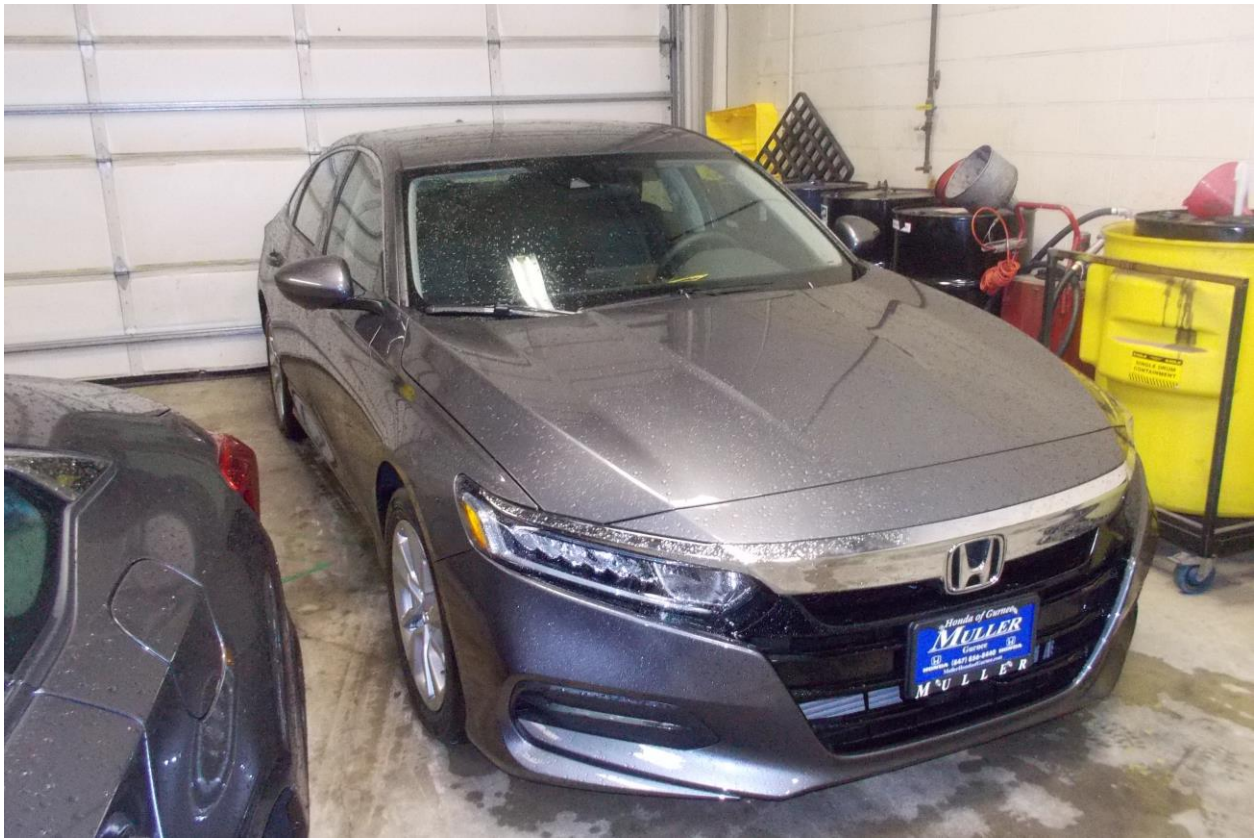
No.	Description	Page
037	View of Disengaged Parking Brake	A-24
038	Pre-Test View of Parking Brake	A-25
039	Pre-Test Close-Up Left Side View of Driver Seat Track	A-25
040	Pre-Test Close-Up Left Side View of Driver Seat Back	A-26
041	Pre-Test Close-Up View of Driver Seat Back or Head Restraint	A-26
042	Pre-Test Driver Dummy and Door Clearance View	A-27
043	Post-Test Driver Dummy and Door Clearance View	A-27
044	Pre-Test Right Side View of Driver Dummy and Front Seat of Occupant Compartment	A-28
045	Post-Test Right Side View of Driver Dummy and Front Seat of Occupant Compartment	A-28
046	Pre-Test Driver Inner Door Panel View	A-29
047	Post-Test Driver Inner Door Panel View Showing Driver Dummy Contact Locations	A-29
048	Post-Test Driver Dummy Close-Up Head Contact with Vehicle View	A-30
049	Post-Test Driver Dummy Close-Up Head Contact with Side Airbag View	A-30
050	Post-Test Driver Dummy Close-Up Torso Contact with Vehicle Interior View	A-31
051	Post-Test Driver Dummy Close-Up Torso Contact with Side Airbag View	A-31
052	Post-Test Driver Dummy Close-Up Pelvis Contact View	A-32
053	Post-Test Driver Dummy Close-Up Pelvis Contact with Side Airbag View	A-32
054	Post-Test Driver Dummy Close-Up Knee Contact View	A-33
055	Pre-Test Left Side View of Rear Passenger Dummy Showing Belt and Chalking	A-33
056	Pre-Test Left Side View of Rear Passenger Dummy Shoulder and Door Top View	A-34
057	Post-Test Left Side View of Rear Passenger Dummy Shoulder and Door Top View	A-34
058	Pre-Test Frontal View of Rear Passenger Seat Back Prior to Dummy Positioning	A-35
059	Pre-Test Frontal View of Rear Passenger Dummy Head and Shoulders in Relation to Head Restraint	A-35
060	Pre-Test Overhead View of Rear Passenger Seat Pan Prior to Dummy Positioning	A-36
061	Pre-Test Overhead View of Rear Passenger Dummy Thighs on Seat Pan	A-36
062	Pre-Test View of Rear Passenger Dummy's Neck Showing Position of Adjustable Neck Bracket	A-37
063	Pre-Test View of Rear Passenger Dummy's Head Showing Dummy's Head is Level	A-37

TABLE OF PHOTOGRAPHS (CONTINUED)

No.	Description	Page
064	Pre-Test Placement of Rear Passenger Dummy's Feet	A-38
065	Pre-Test View of Belt Anchorage for Rear Passenger Dummy	A-38
066	Pre-Test Close-Up Left Side View of Rear Passenger Seat Track	A-39
067	Pre-Test Close-Up Left Side View of Rear Passenger Seat Back	A-39
068	Pre-Test Close-Up View of Rear Passenger Seat Back or Head Restraint	A-40
069	Pre-Test Rear Passenger Dummy and Door Clearance View	A-41
070	Post-Test Rear Passenger Dummy and Door Clearance View	A-41
071	Pre-Test Right Side View of Rear Passenger Dummy and Rear Seat Occupant Compartment	A-42
072	Post-Test Right Side View of Rear Passenger Dummy and Rear Seat Occupant Compartment	A-42
073	Pre-Test Rear Passenger Inner Door Panel View	A-43
074	Post-Test Rear Passenger Inner Door Panel View	A-43
075	Post-Test Rear Passenger Dummy Close-Up Head Contact with Vehicle View	A-44
076	Post-Test Rear Passenger Dummy Close-Up Head Contact with Side Airbag View	A-44
077	Post-Test Rear Passenger Dummy Close-Up Torso Contact with Vehicle Interior View	A-45
078	Post-Test Rear Passenger Dummy Close-Up Torso Contact with Side Airbag View	A-45
079	Post-Test Rear Passenger Dummy Close-Up Pelvis Contact View	A-46
080	Post-Test Rear Passenger Dummy Close-Up Pelvis Contact with Side Airbag View	A-46
081	Post-Test Rear Passenger Dummy Close-Up Knee Contact View	A-47
082	Pre-Test View of Fuel Filler Cap or Fuel Filler Neck	A-48
083	Post-Test View of Fuel Filler Cap or Fuel Filler Neck	A-48
084	Pre-Test Front View of MDB Impactor Face	A-49
085	Post-Test Front View of MDB Impactor Face	A-49
086	Pre-Test Top View of MDB Impactor Face	A-50
087	Post-Test Top View of MDB Impactor Face	A-50
088	Pre-Test Left Side View of MDB Impactor Face	A-51
089	Post-Test Left Side View of MDB Impactor Face	A-51
090	Pre-Test Right Side View of MDB Impactor Face	A-52
091	Post-Test Right Side View of MDB Impactor Face	A-52

TABLE OF PHOTOGRAPHS (CONTINUED)

No.	Description	Page
092	Close-Up View of Vehicle's Certification Label	A-53
093	Close-Up View of Vehicle's Tire Information Placard or Label	A-53
094	Pre-Test Ballast View	A-54
095	Post-Test Primary and Redundant Speed Trap Read-Out	A-54
096	FMVSS No. 301 Static Rollover 0 Degrees	A-55
097	FMVSS No. 301 Static Rollover 90 Degrees	A-55
098	FMVSS No. 301 Static Rollover 180 Degrees	A-56
099	FMVSS No. 301 Static Rollover 270 Degrees	A-56
100	FMVSS No. 301 Static Rollover 360 Degrees	A-57
101	Impact Event	A-57
102	Monroney Label	A-58
103	Driver Head Restraint Use and Adjustment Information from Vehicle Owner's Manual	A-58
104	Left Rear Passenger Head Restraint Use and Adjustment Information from Vehicle Owner's Manual	A-59
105	Pre-Test Tilt Sensor View for WorldSID-50M	A-59



001 As-Delivered Right Front $\frac{3}{4}$ View of Test Vehicle



002 As-Delivered Left Rear $\frac{3}{4}$ View of Test Vehicle



003 Pre-Test Frontal View of Test Vehicle



004 Post-Test Frontal View of Test Vehicle



005 Pre-Test Left Front $\frac{3}{4}$ View of Test Vehicle



006 Post-Test Left Front $\frac{3}{4}$ View of Test Vehicle



007 Pre-Test Left Side View of Test Vehicle



008 Post-Test Left Side View of Test Vehicle



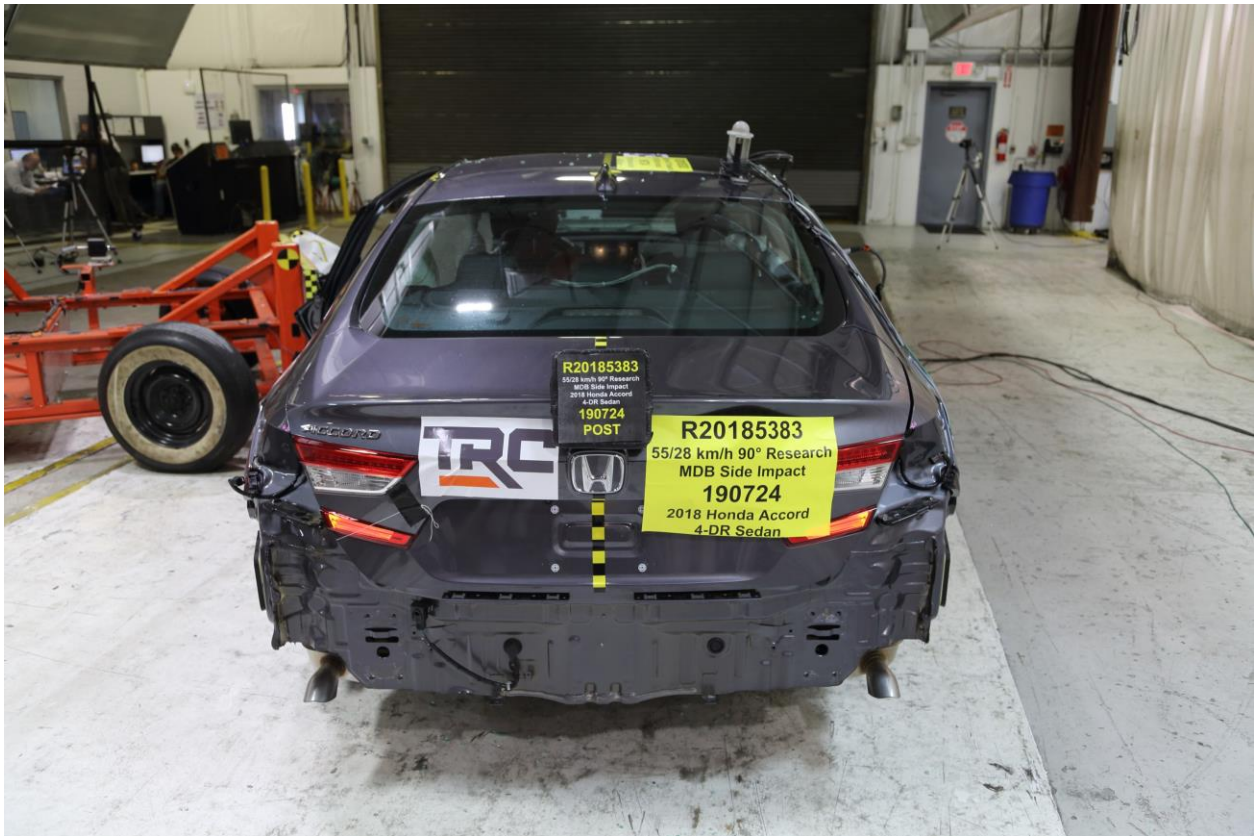
009 Pre-Test Left Rear ¾ View of Test Vehicle



010 Post-Test Left Rear ¾ View of Test Vehicle



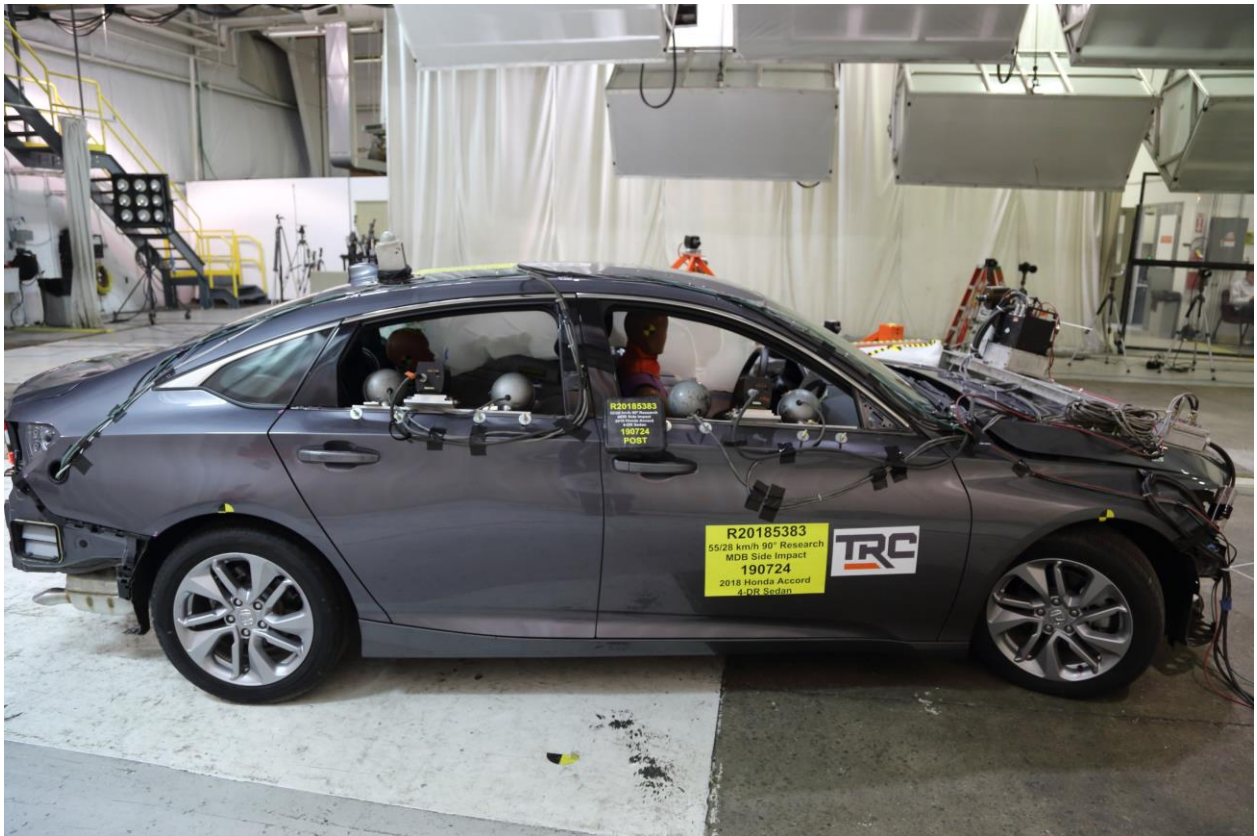
011 Pre-Test Rear View of Test Vehicle



012 Post-Test Rear View of Test Vehicle



013 Pre-Test Right Side View of Test Vehicle



014 Post-Test Right Side View of Test Vehicle



015 Pre-Test Overhead View of Test Area



016 Post-Test Overhead View of Test Area



017 Pre-Test Left Side View of MDB Positioned Against Side of Test Vehicle



018 Pre-Test Right Side View of MDB Positioned Against Side of Test Vehicle



019 Pre-Test Close-Up View of Impact Point Target



020 Post-Test Close-Up View of Impact Point Target



021 Pre-Test Left Front Door Latch Close-Up



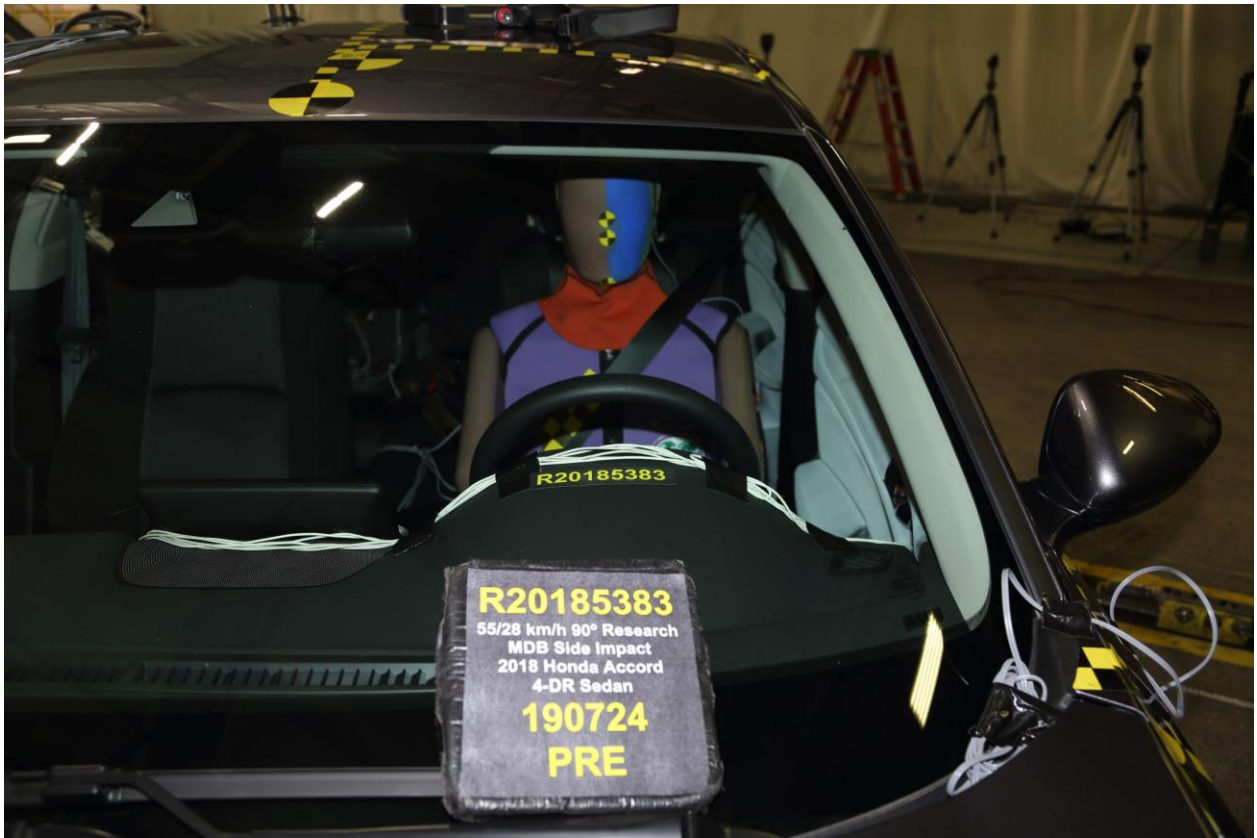
022 Post-Test Left Front Door Latch Close-Up



023 Pre-Test Left Rear Door Latch Close-Up



024 Post-Test Left Rear Door Latch Close-Up



025 Pre-Test Front Close-Up View of Driver Dummy



026 Post-Test Front Close-Up View of Driver Dummy



027 Pre-Test Left Side View of Driver Dummy Showing Belt and Chalking

Intentionally Left Blank



028 Pre-Test Left Side View of Driver Dummy Shoulder and Door Top



029 Post-Test Left Side View of Driver Dummy Shoulder and Door Top



030 Pre-Test Frontal View of Driver Seat Back Prior to Dummy Positioning



031 Pre-Test Frontal View of Driver Dummy Head and Shoulders in Relation to Head Restraint



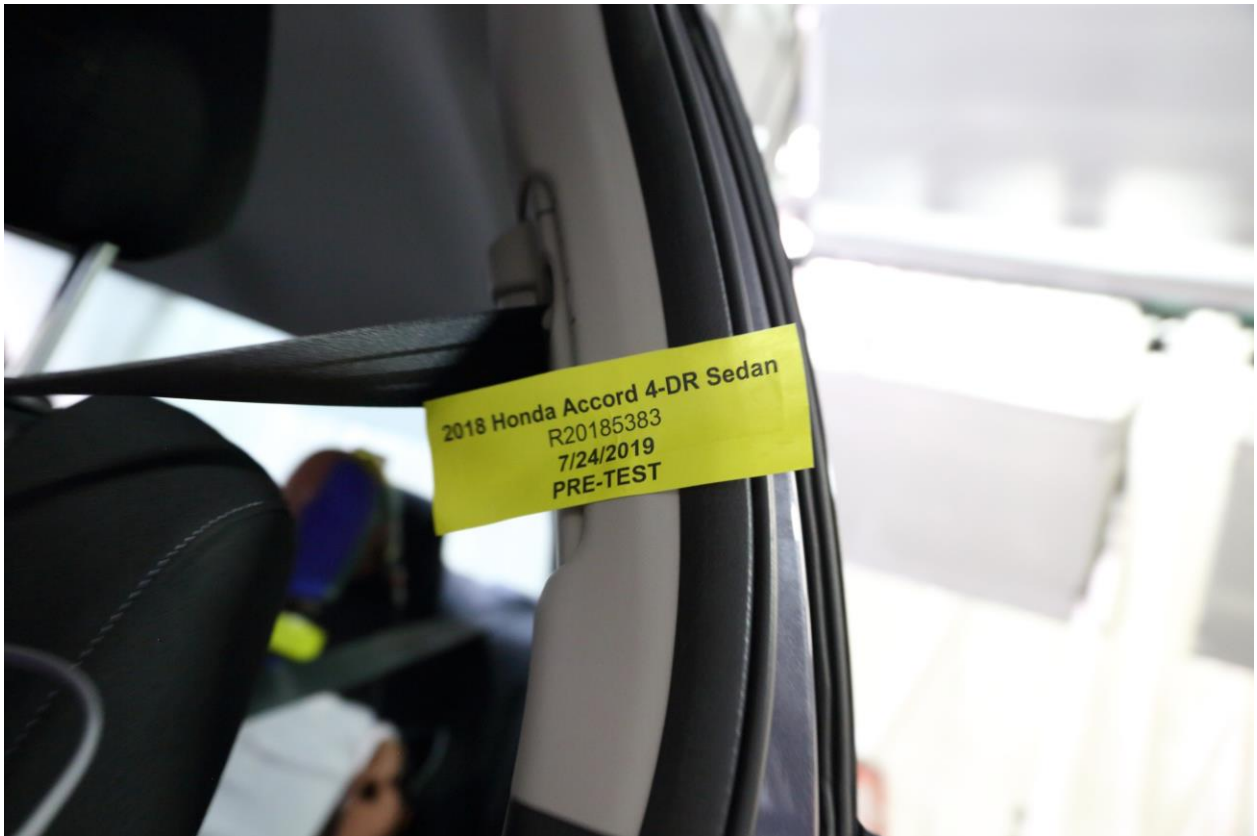
032 Pre-Test Frontal View of Driver Seat Pan Prior to Dummy Positioning



033 Pre-Test Overhead View of Driver Dummy Thighs on Seat Pan



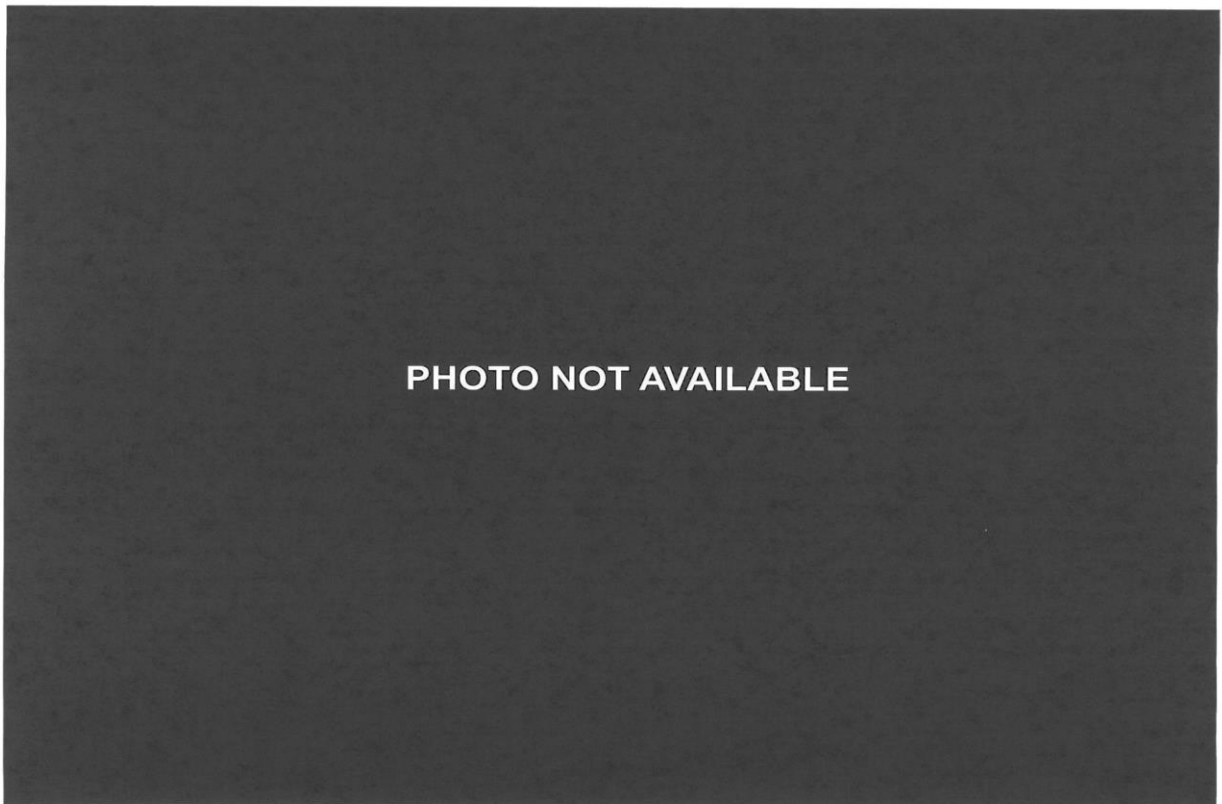
034 Pre-Test Placement of Driver's Dummy Feet



035 Pre-Test View of Belt Anchorage for Driver Dummy



036 Pre-Test Left Side View of Steering Wheel



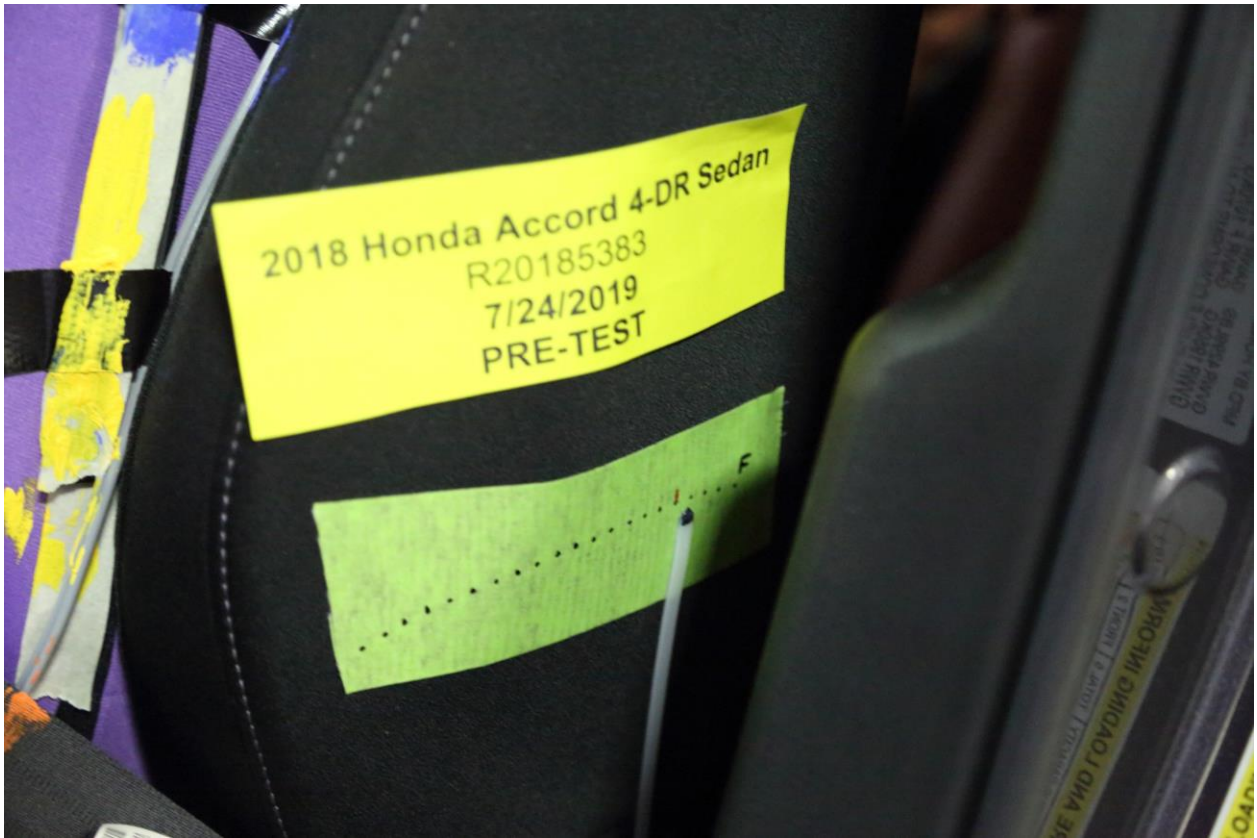
037 View of Disengaged Parking Brake



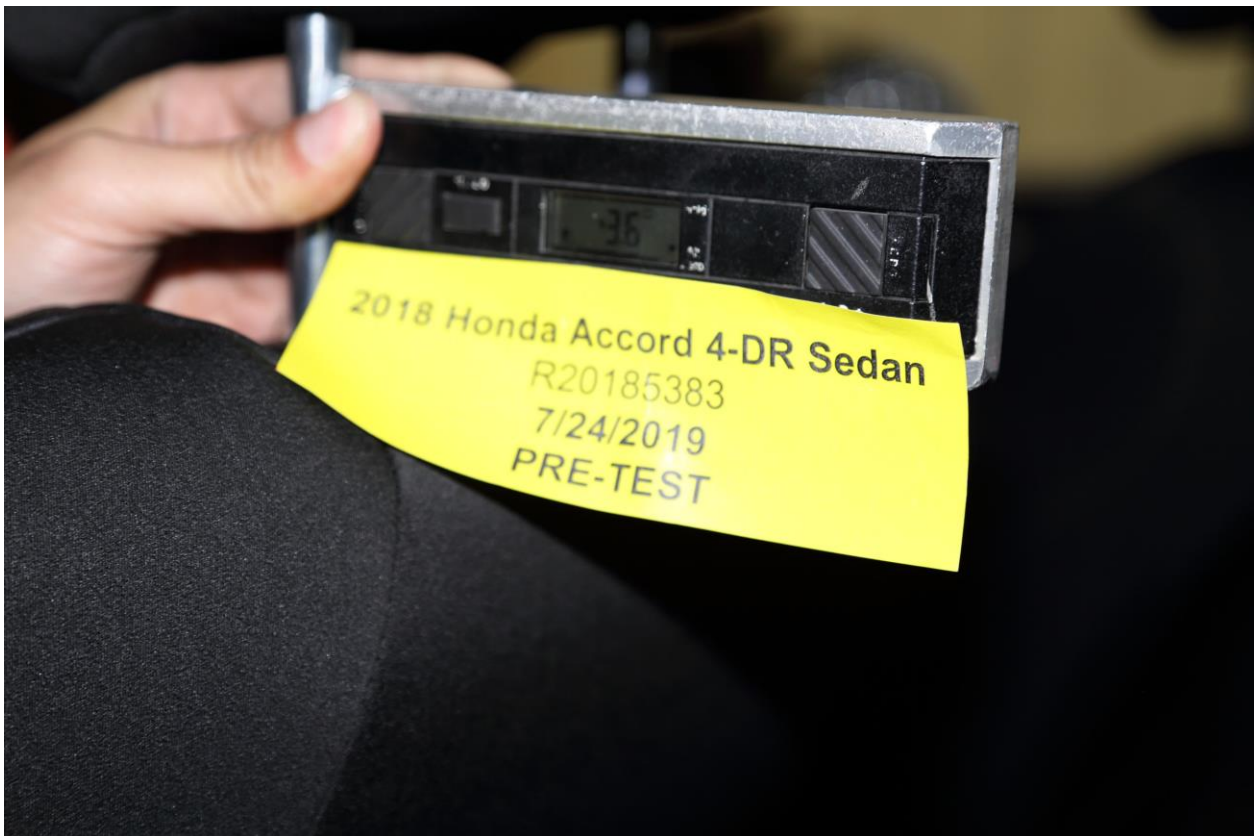
038 Pre-Test View of Parking Brake



039 Pre-Test Close-Up Left Side View of Driver Seat Track



040 Pre-Test Close-Up Left Side View of Driver Seat Back



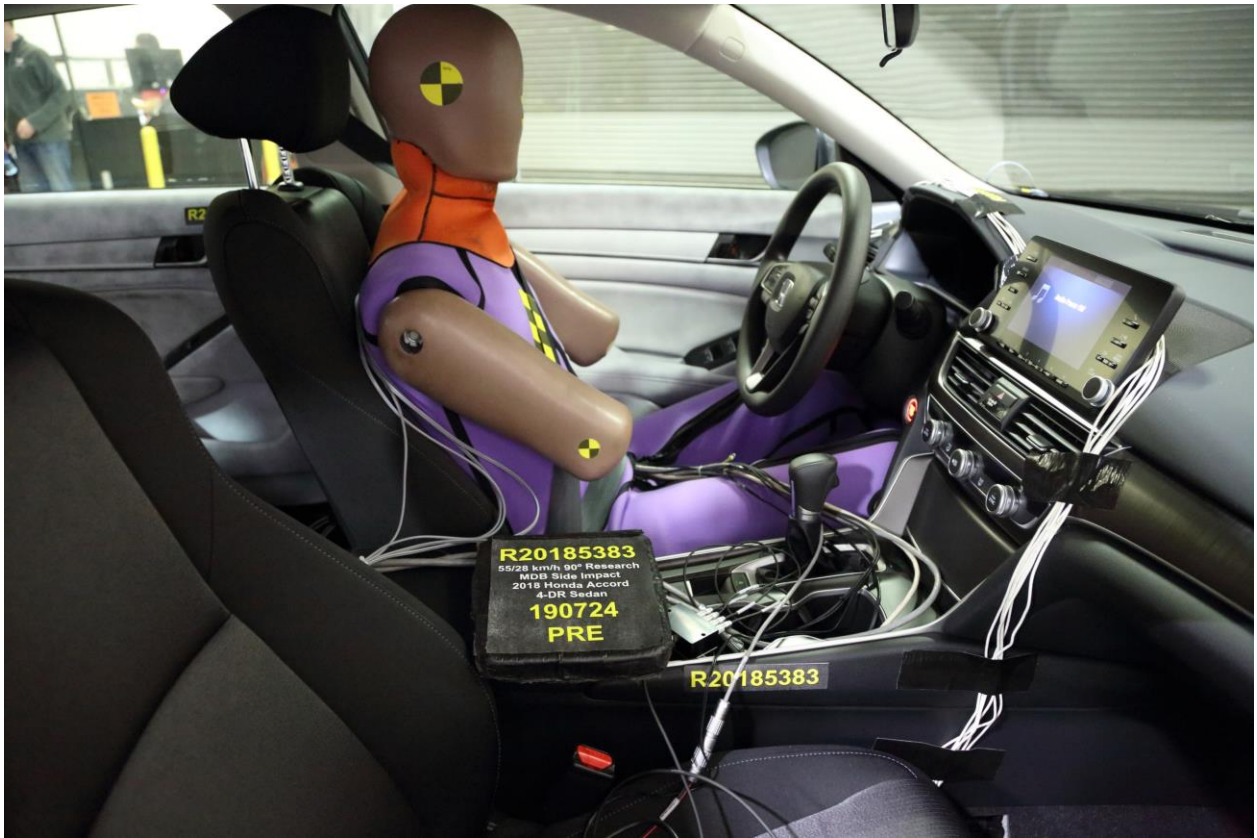
041 Pre-Test Close-Up View of Driver Seat Back or Head Restraint



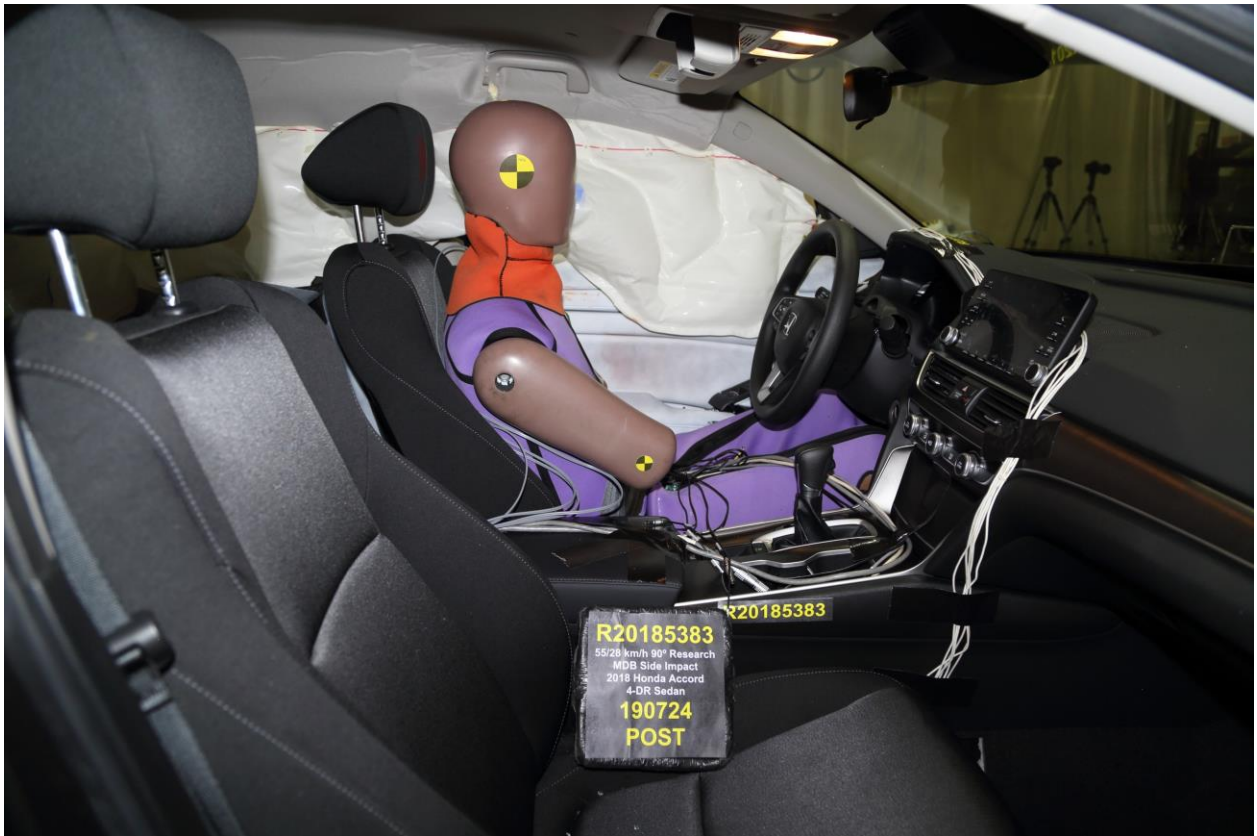
042 Pre-Test Driver Dummy and Door Clearance View



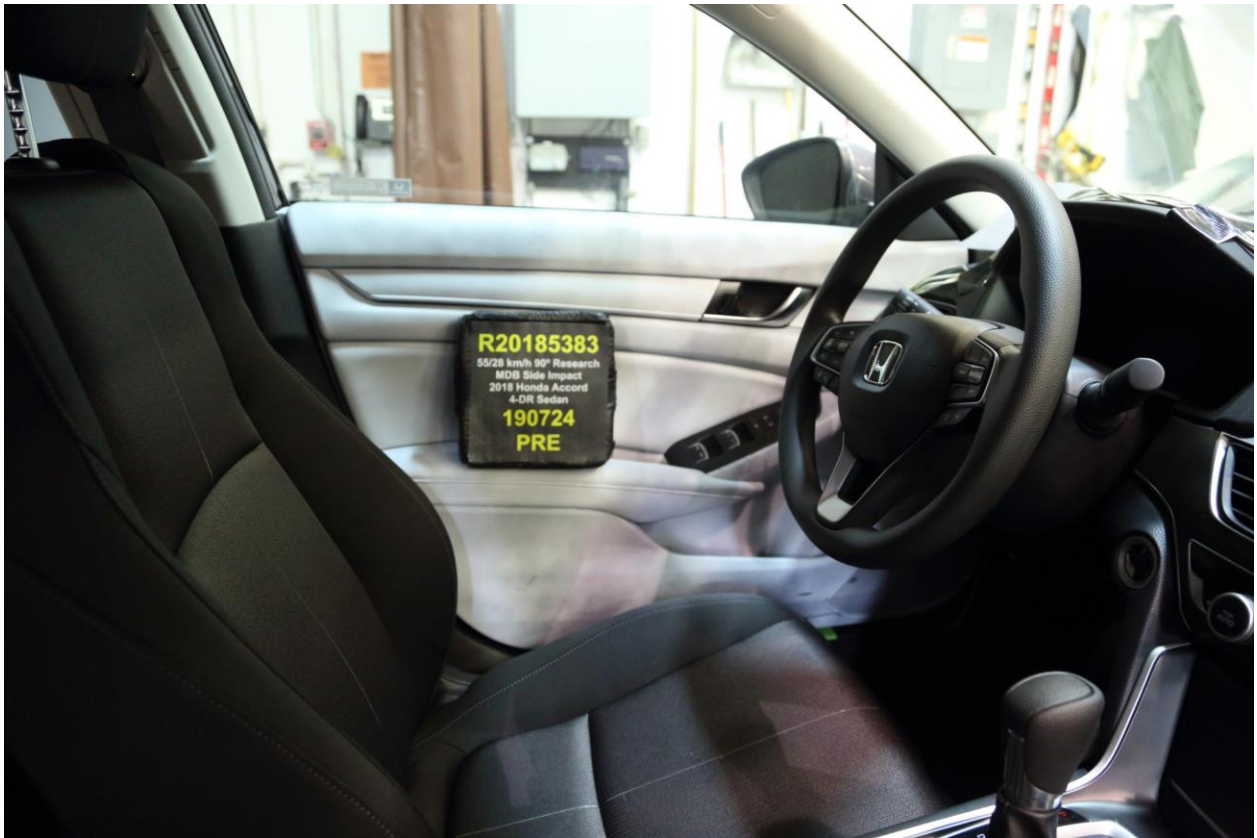
043 Post-Test Driver Dummy and Door Clearance View



044 Pre-Test Right Side View of Driver Dummy and Front Seat of Occupant Compartment



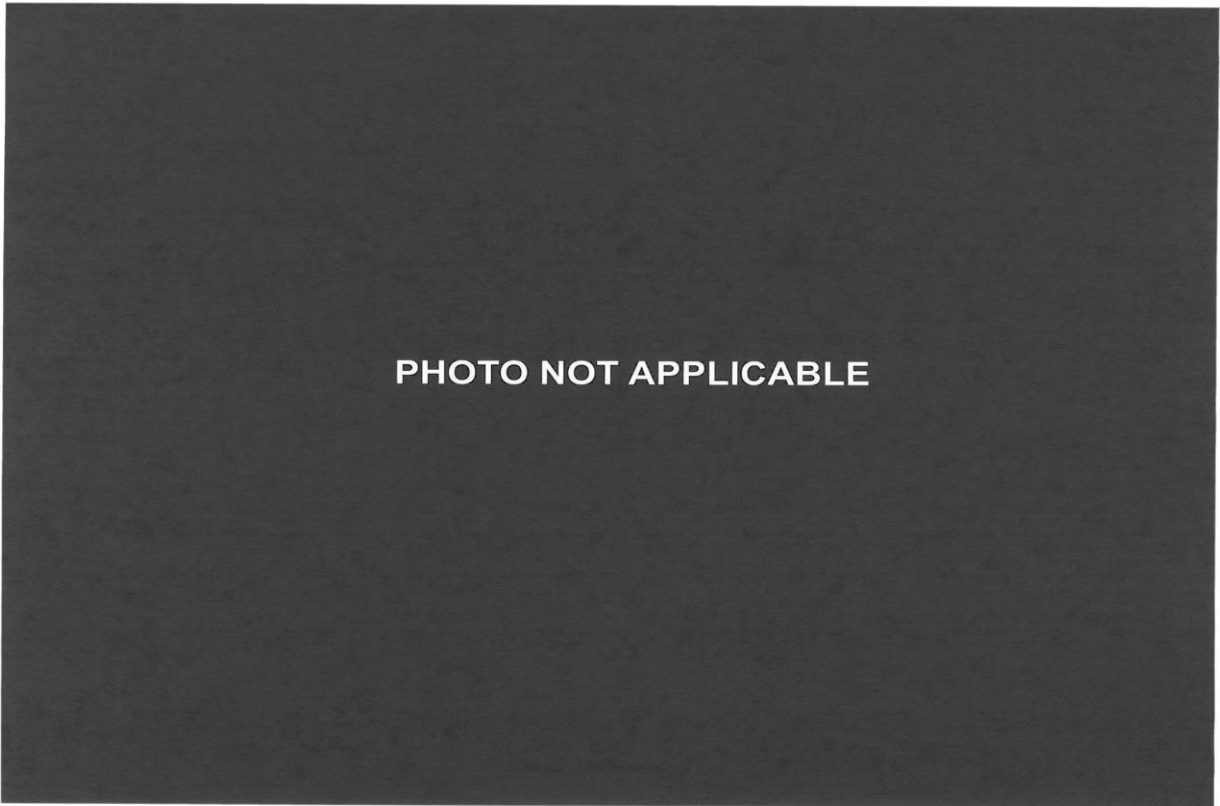
045 Post-Test Right Side View of Driver Dummy and Front Seat of Occupant Compartment



046 Pre-Test Driver Inner Door Panel View



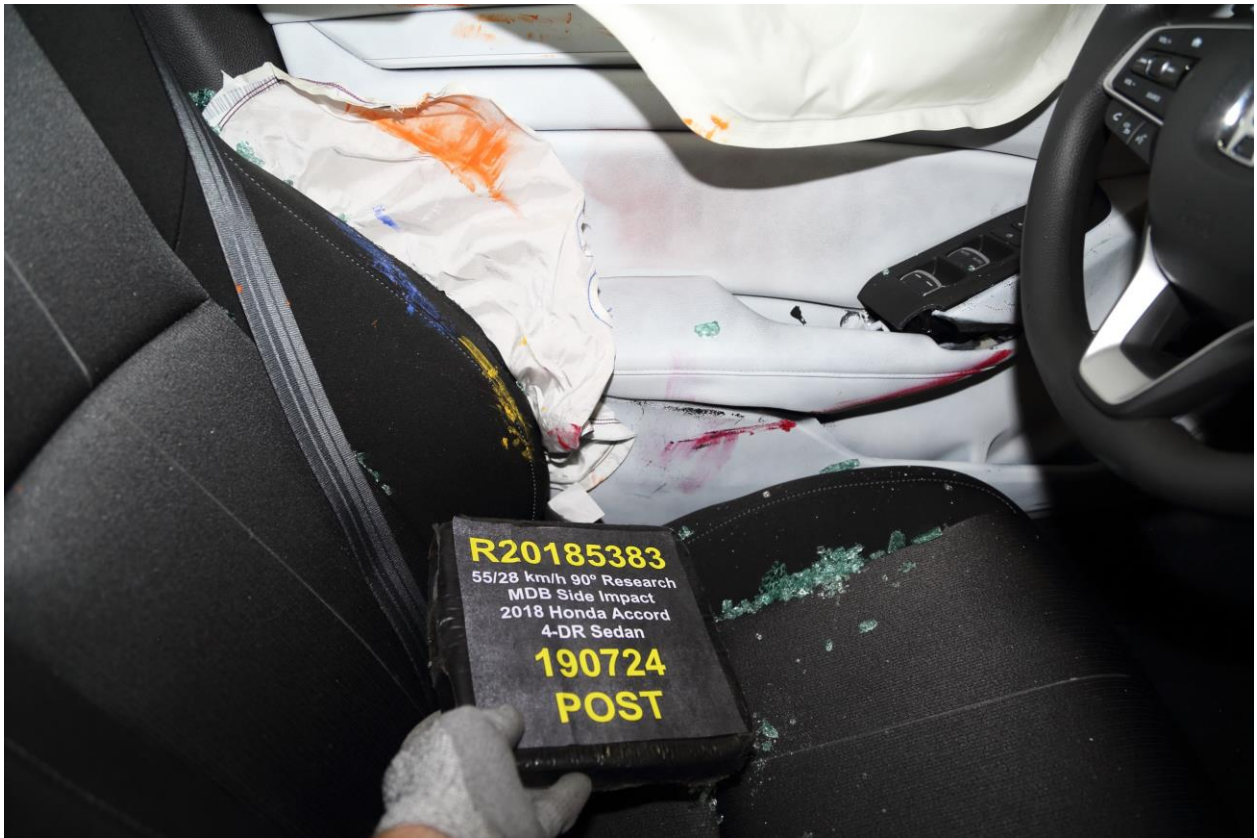
047 Post-Test Driver Inner Door Panel View Showing Driver Dummy Contact Locations



048 Post-Test Driver Dummy Close-Up Head Contact with Vehicle View



049 Post-Test Driver Dummy Close-Up Head Contact with Side Airbag View



050 Post-Test Driver Dummy Close-Up Torso Contact with Vehicle Interior View



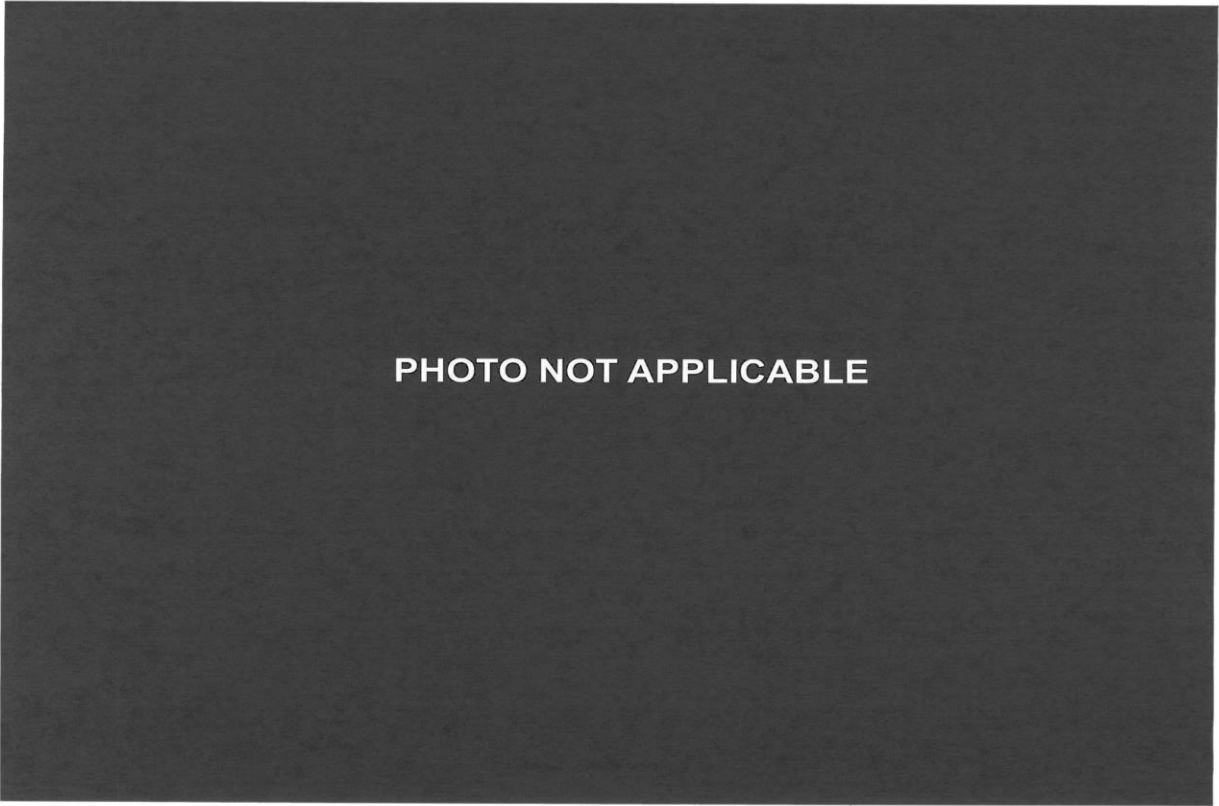
051 Post-Test Driver Dummy Close-Up Torso Contact with Side Airbag View



052 Post-Test Driver Dummy Close-Up Pelvis Contact View



053 Post-Test Driver Dummy Close-Up Pelvis Contact with Side Airbag View



054 Post-Test Driver Dummy Close-Up Knee Contact View



055 Pre-Test Left Side View of Passenger Dummy Showing Belt and Chalking



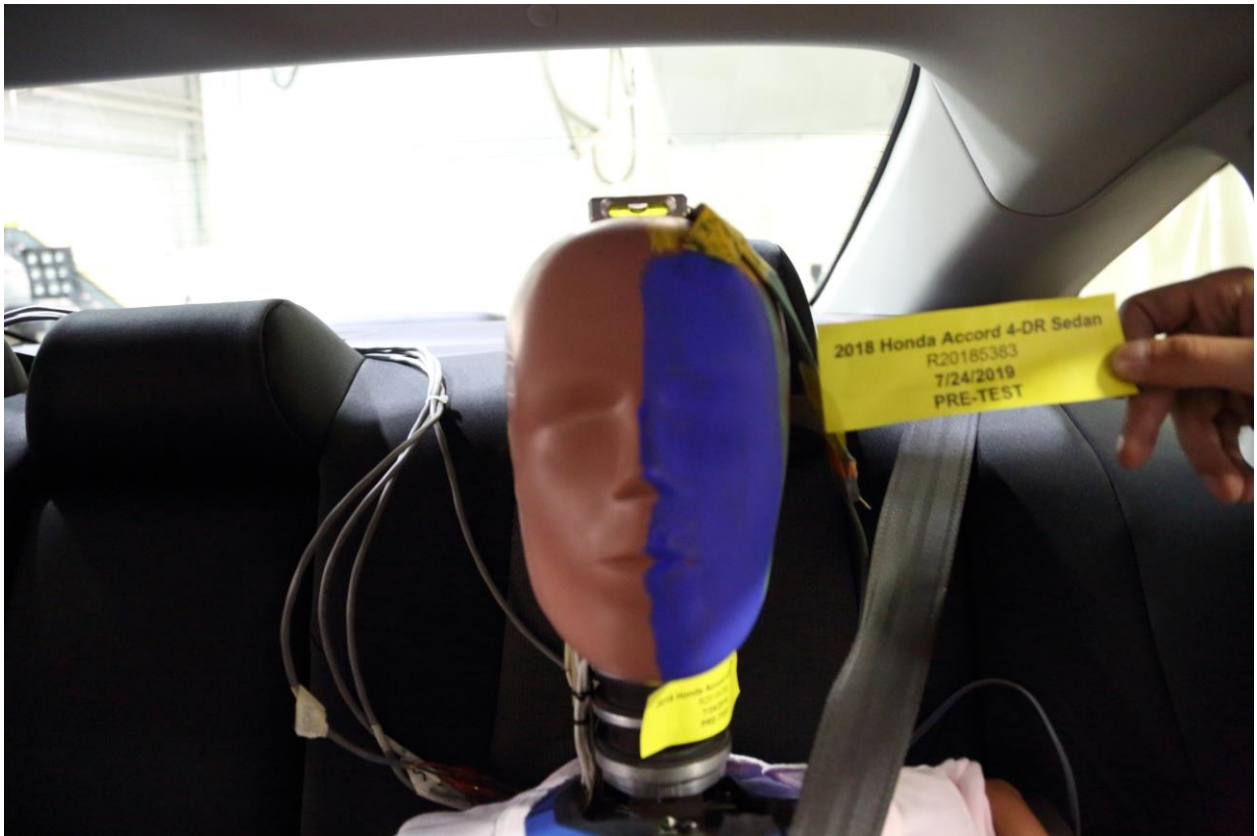
056 Pre-Test Left Side View of Passenger Dummy Shoulder and Door Top View



057 Post-Test Left Side View of Passenger Dummy Shoulder and Door Top View



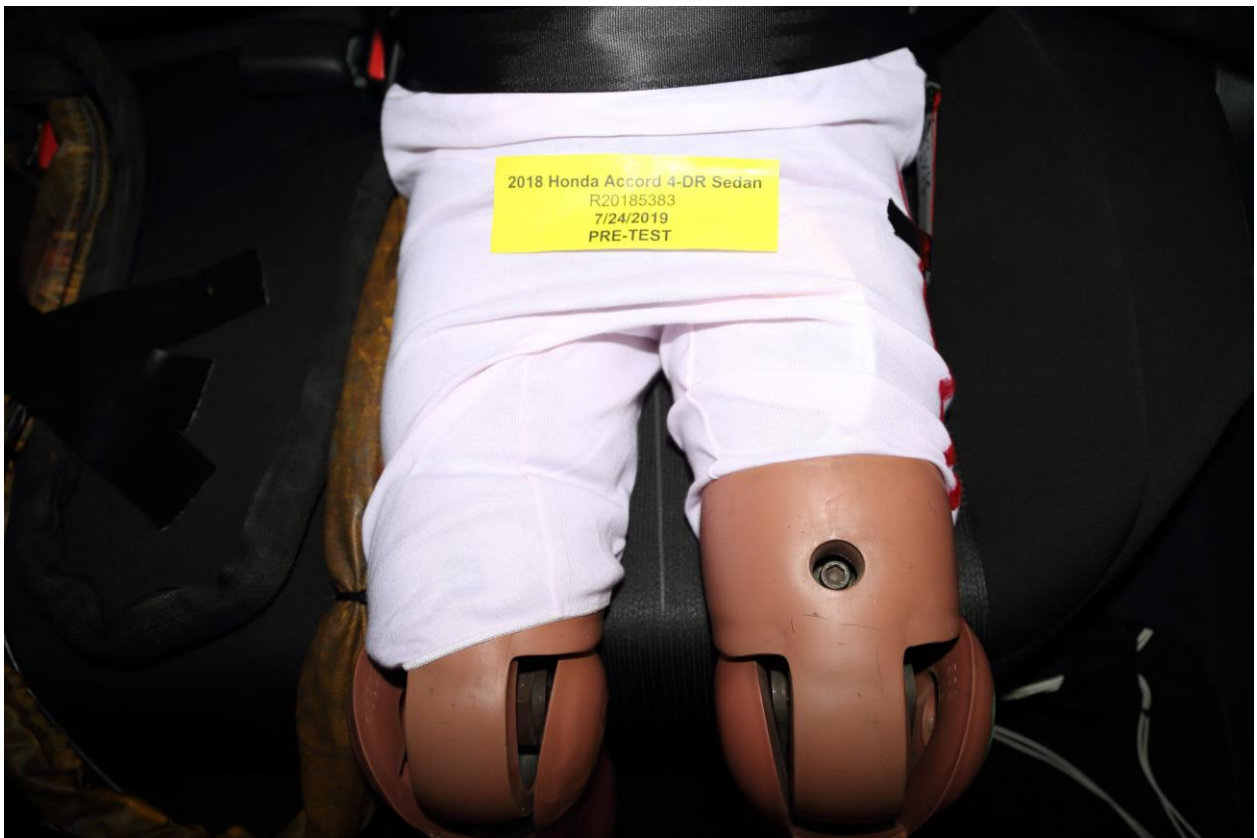
058 Pre-Test Frontal View of Rear Passenger Seat Back Prior to Dummy Positioning



059 Pre-Test Frontal View of Rear Passenger Dummy Head and Shoulders in Relation to Head Restraint



060 Pre-Test Overhead View of Rear Passenger Seat Pan Prior to Dummy Positioning



061 Pre-Test Overhead View of Rear Passenger Dummy Thighs on Seat Pan



062 Pre-Test View of Rear Passenger Dummy's Neck Showing Position of Adjustable Neck Bracket



063 Pre-Test View of Rear Passenger Dummy's Head Showing Dummy Head is Level



064 Pre-Test Placement of Rear Passenger Dummy's Feet



065 Pre-Test View of Belt Anchorage for Rear Passenger Dummy



PHOTO NOT APPLICABLE

066 Pre-Test Close-Up Left Side View of Rear Passenger Seat Track



PHOTO NOT APPLICABLE

067 Pre-test Close-Up Left Side View of Rear Passenger Seat Back



068 Pre-Test Close-Up View of Rear Passenger Seat Back or Head Restraint

Intentionally Left Blank



2018 Honda Accord 4-DR Sedan
R20185383
7/24/2019
PRE-TEST

069 Pre-Test Rear Passenger Dummy and Door Clearance View



R20185383
55/28 km/h 90° Research
MDB Side Impact
2018 Honda Accord
4-DR Sedan
190724
POST

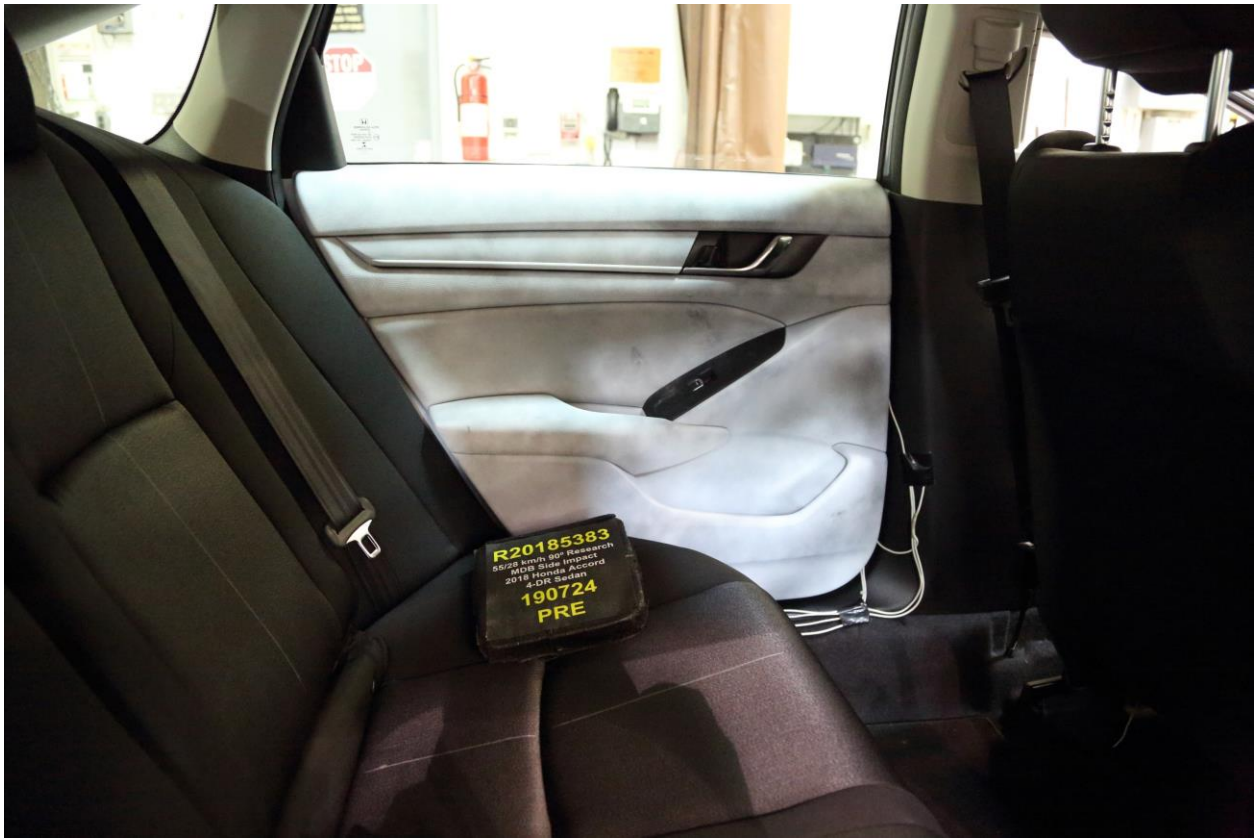
070 Post-Test Rear Passenger Dummy and Door Clearance View



071 Pre-Test Right Side View of Rear Passenger Dummy and Rear Seat Occupant Compartment



072 Post-Test Right Side View of Rear Passenger Dummy and Rear Seat Occupant Compartment



073 Pre-Test Rear Passenger Inner Door Panel View



074 Post-Test Rear Passenger Inner Door Panel View



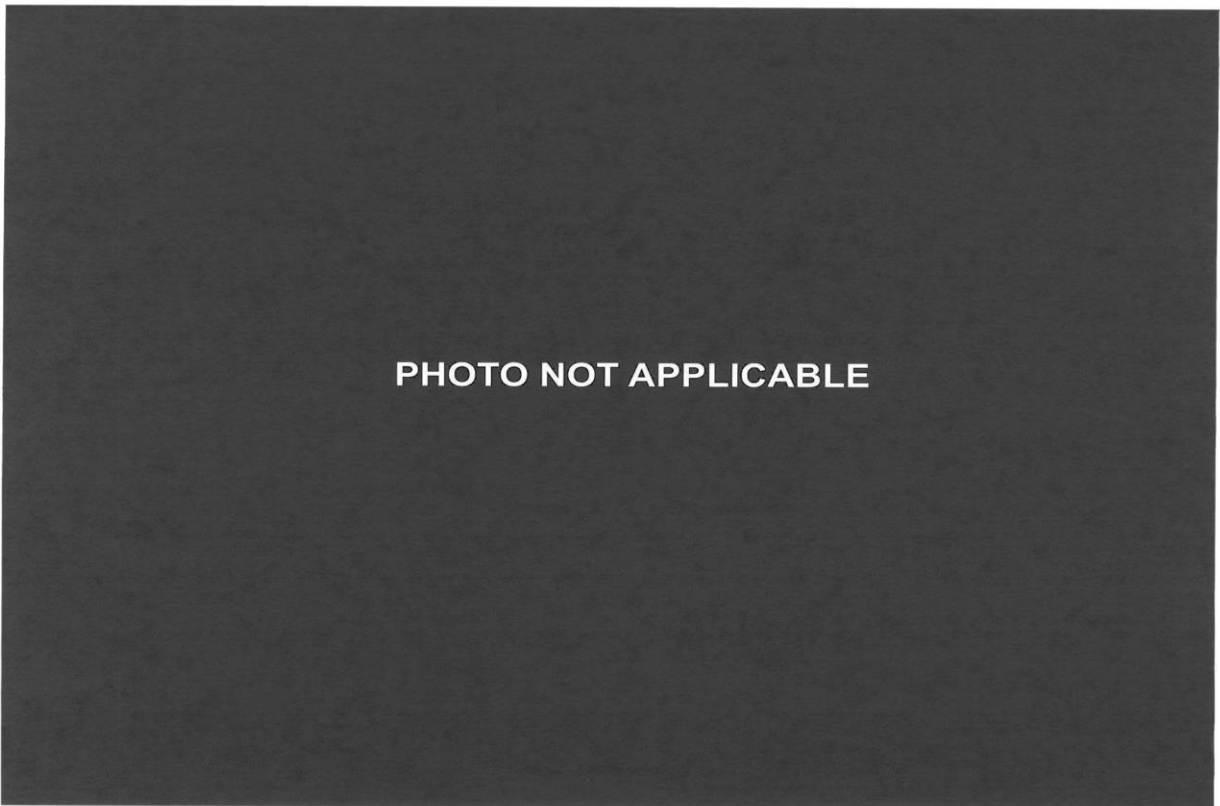
075 Post-Test Rear Passenger Dummy Close-Up Head Contact with Vehicle View



076 Post-Test Rear Passenger Dummy Close-Up Head Contact with Side Airbag View



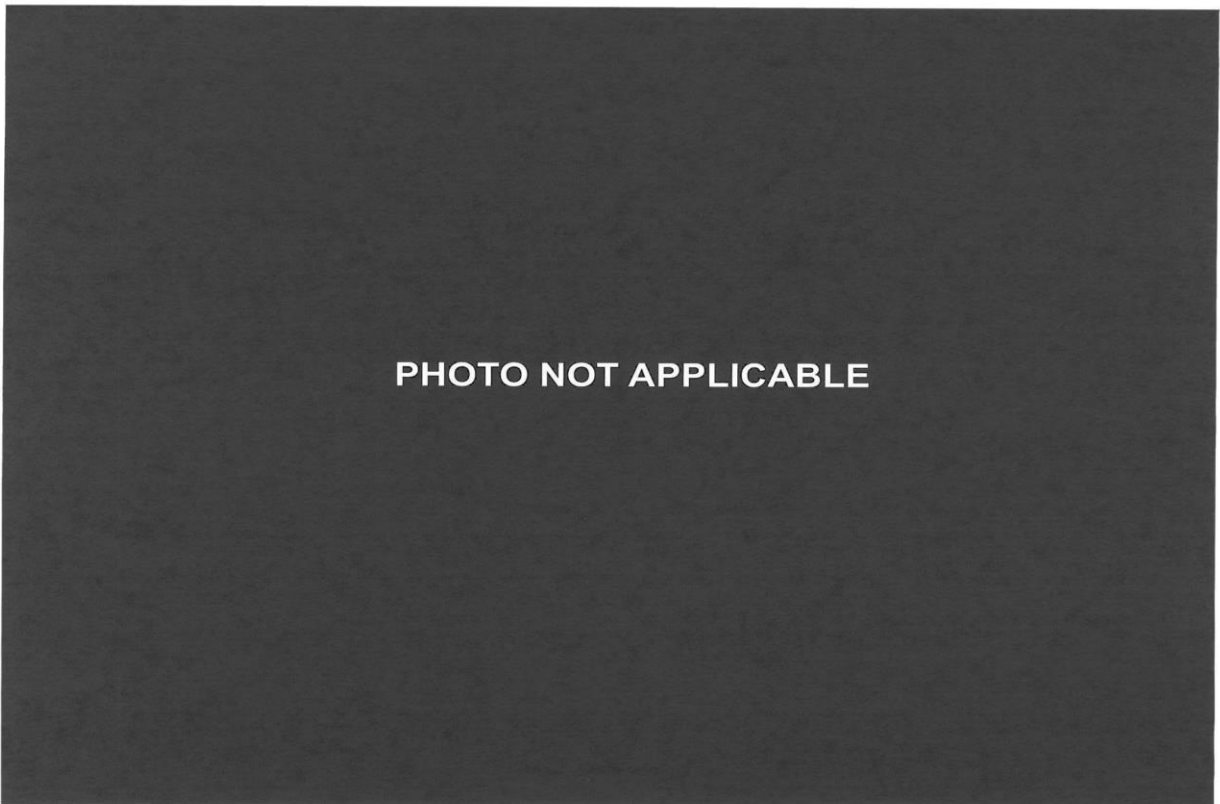
077 Post-Test Rear Passenger Dummy Close-Up Torso Contact with Vehicle Interior View



078 Post-Test Rear Passenger Dummy Close-Up Torso Contact with Side Airbag View



079 Post-Test Rear Passenger Dummy Close-Up Pelvis Contact View



080 Post-Test Rear Passenger Dummy Close-Up Pelvis Contact with Side Airbag View



081 Post-Test Rear Passenger Dummy Close-Up Knee Contact View

Intentionally Left Blank



082 Pre-Test View of Fuel Filler Cap or Fuel Filler Neck



083 Post-Test View of Fuel Filler Cap or Fuel Filler Neck



084 Pre-Test Front View of MDB Impactor Face



085 Post-Test Front View of MDB Impactor Face



086 Pre-Test Top View of MDB Impactor Face



087 Post-Test Top View of MDB Impactor Face



088 Pre-Test Left Side View of MDB Impactor Face



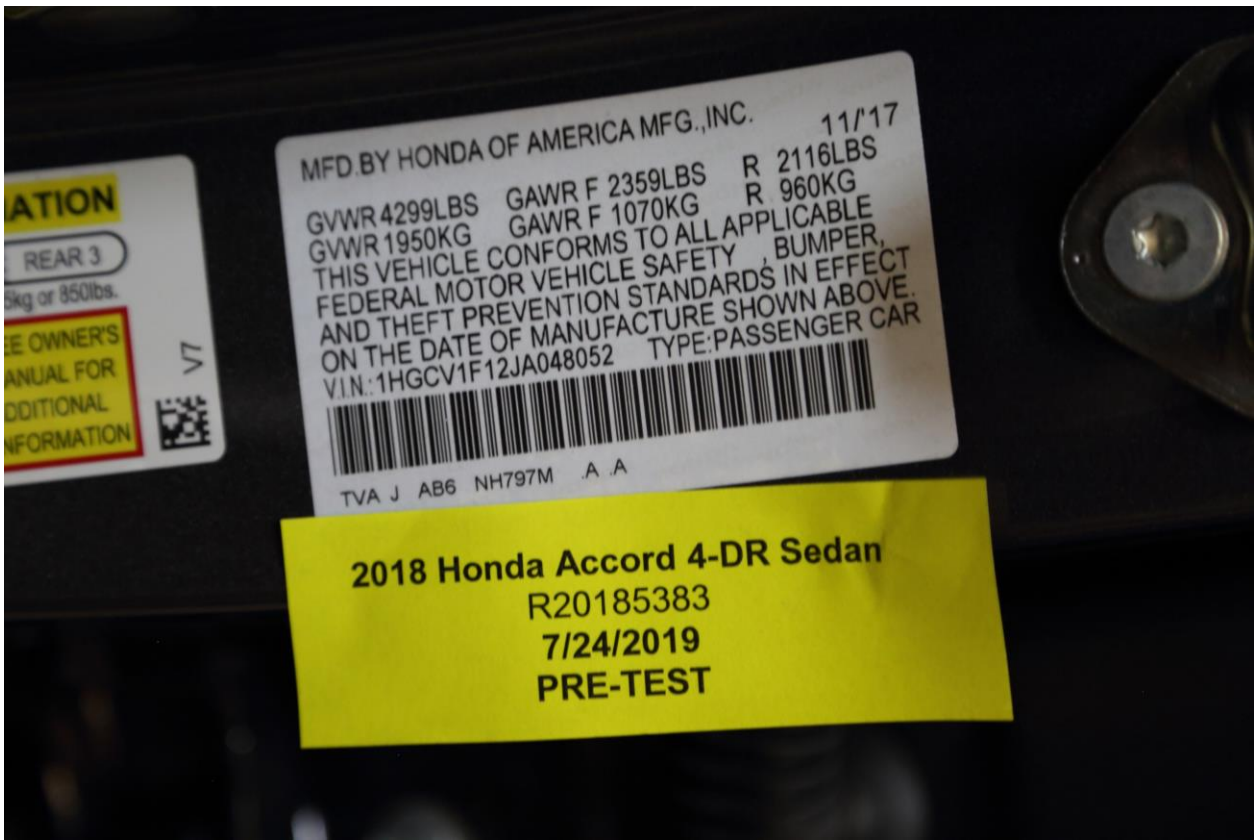
089 Post-Test Left Side View of MDB Impactor Face



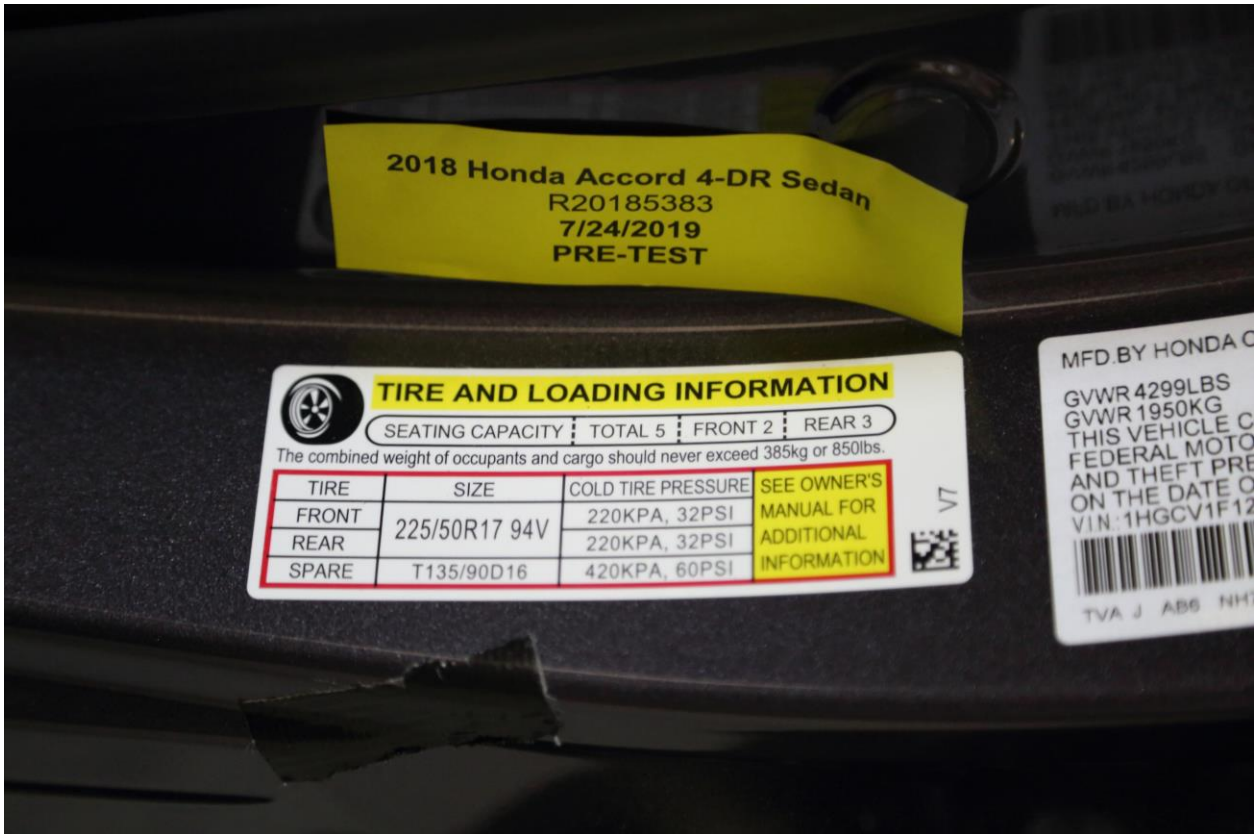
090 Pre-Test Right Side View of MDB Impactor Face



091 Post-Test Right Side View of MDB Impactor Face



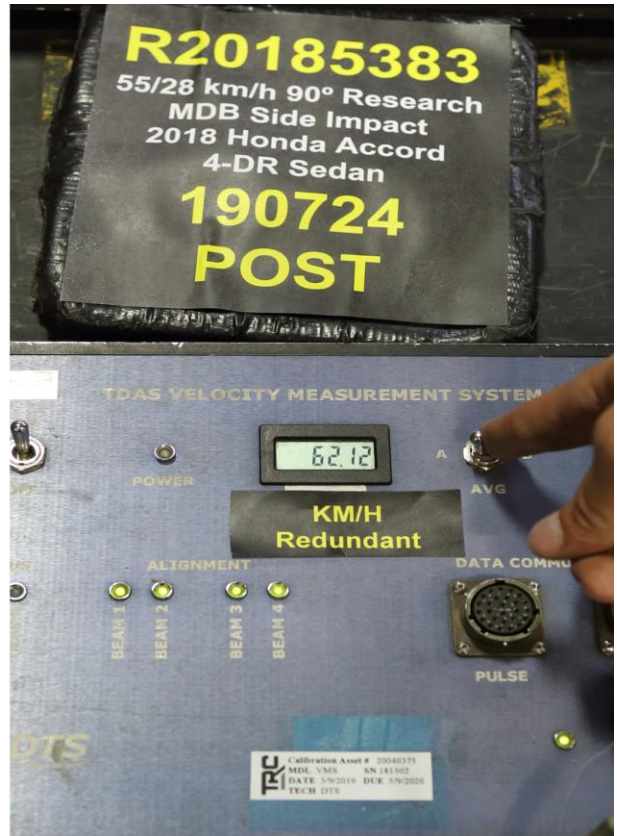
092 Close-Up View of Vehicle's Certification Label



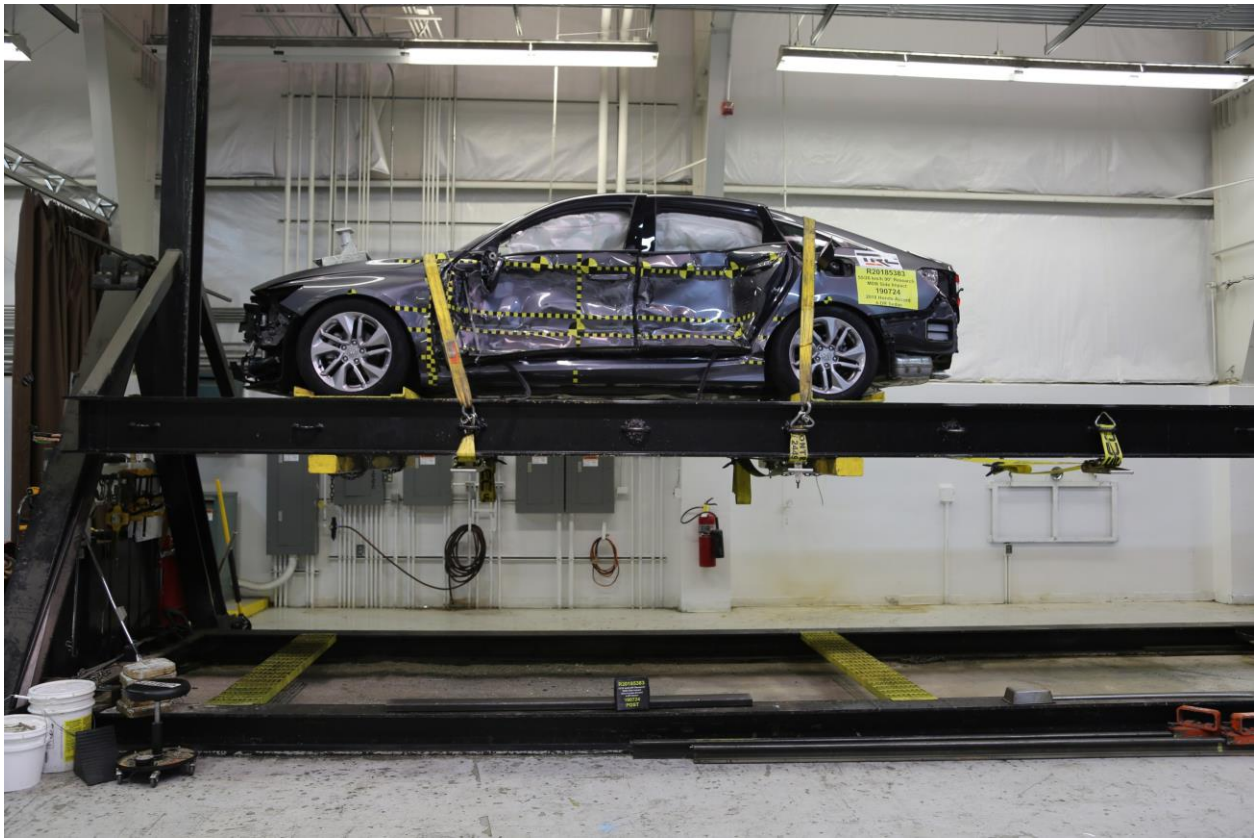
093 Close-Up View of Vehicle's Tire Information Placard or Label



094 Pre-Test Ballast View



095 No. Post-Test Primary and Redundant Speed Trap Read-Out



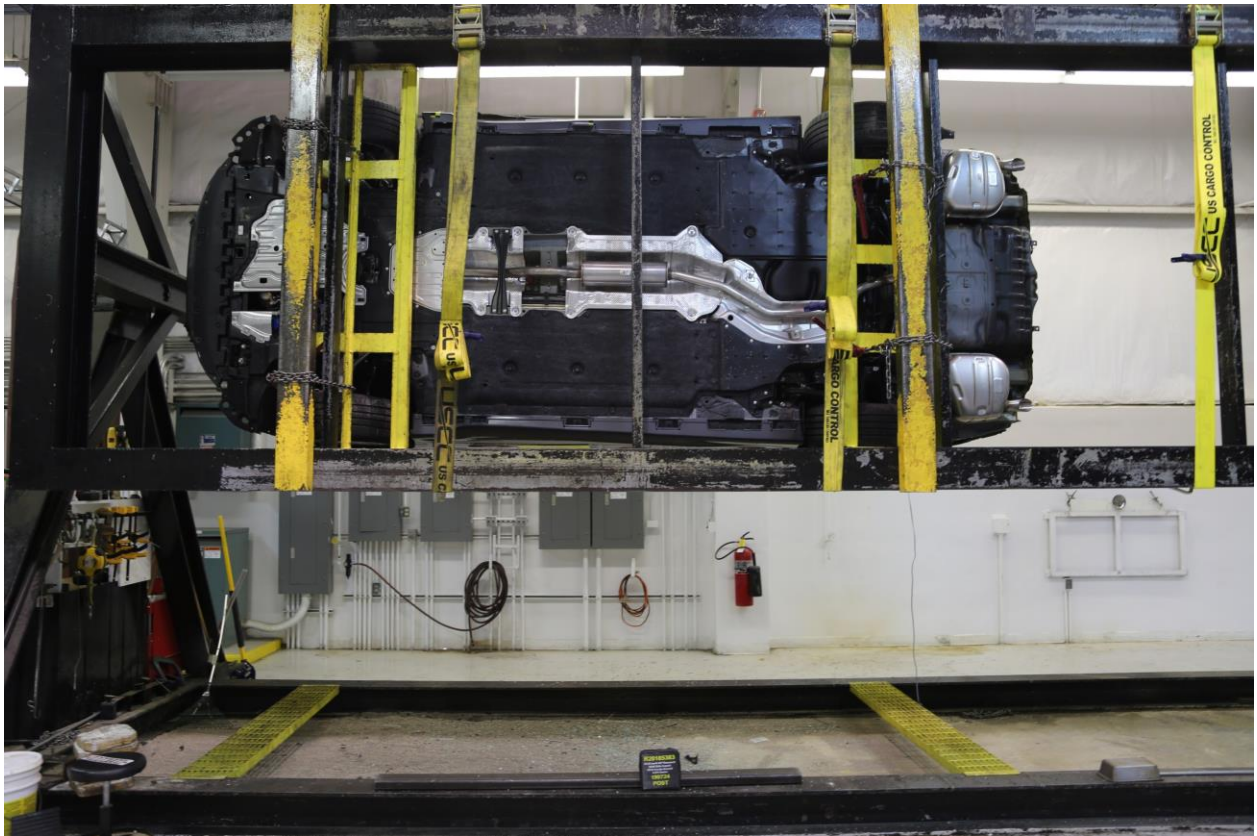
096 FMVSS No. 301 Static Rollover 0 Degrees



097 FMVSS No. 301 Static Rollover 90 Degrees



098 FMVSS No. 301 Static Rollover 180 Degrees



099 FMVSS No. 301 Static Rollover 270 Degrees



100 FMVSS No. 301 Static Rollover 360 Degrees



101 Impact Event

2018 ACCORD 1.5T LX

EXT: MODERN STEEL M. ENGINE NUMBER: L15BE-2650147
INT: BLACK

Manufacturer's Suggested Retail Price **\$23,570.00**

Full Tank of Fuel No Charge

-Honda Roadside Assistance
3YR/50K Mile Warranty Term

Destination and Handling 890.00

TOTAL VEHICLE PRICE
(includes Pre-Delivery Service) **\$24,460.00**

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

11/17
16 miles
H48753

STANDARD EQUIPMENT AT NO EXTRA COST

*** TECHNICAL FEATURES ***

- 192hp 1.5-Liter Direct Injection Turbo-Charged 4-Cylinder Engine
- Continuously Variable Transmission (CVT)
- 4-Wheel Disc Brakes
- Electric Power Steering
- Hill Start Assist

*** SAFETY FEATURES ***

- Driver's and Front Passenger's Airbags
- Driver's and Front Passenger's Side Airbags
- Driver's and Front Passenger's Knee Airbags
- Side Curtain Airbags with Roll-over Sensor
- Anti-Lock Braking System (ABS)
- Electronic Brake Distribution (EBD)
- Vehicle Stability Assist (VSA)
- Tire Pressure Monitoring System
- LED Daytime Running Lights
- LATCH System for Child Seats

*** INTERIOR FEATURES ***

- Audio System with 4 Speakers
- Color LCD Screen and Multi-View Rear Camera
- Bluetooth HandsFreeLink
- USB Audio Interface
- Driver Attention Monitor

*** EXTERIOR FEATURES ***

- 17" Alloy Wheels
- 2225/55 R17 All-Season Tires
- Auto-On/Off Headlights
- Power Door Mirrors
- Remote Entry with Security System
- Capless Fuel Filler

*** HONDA SENSING ***

- Adaptive Cruise Control (ACC) w/ Low-Speed Follow
- Collision Mitigation Braking System (CMBS)
- Lane Keeping Assist System (LKAS)
- Road Departure Mitigation (RDM)

*** DUAL-ZONE AUTOMATIC CLIMATE CONTROL with Air Filtration System**

- Push-Button Start
- Driver's Seat Height Adjustment
- Fold-Down Rear Seat Center Armrest
- Power Windows and Door Locks
- Front Auto Up/Down Windows
- Illuminated Visor Vanity Mirrors
- Sunglasses Holder
- Exterior Temperature Display
- Fold-Down Rear Seatback
- Floor Mats
- 12-Volt Power Outlets
- Electric Parking Brake

EPA DOT Fuel Economy and Environment Gasoline Vehicle

These estimates reflect new EPA methods beginning with 2017 models. Large Cars range from 14 to 104 MPG. The best vehicle rates 136 MPG.

Fuel Economy **33** MPG
combined city/hwy city highway
3.0 gallons per 100 miles

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

Annual fuel cost \$1,100

Fuel Economy & Greenhouse Gas Rating (tailpipe only) **8** (Best)

Smog Rating (tailpipe only) **7** (Best)

Actual results will vary for many reasons, including driving conditions and how you drive and maintain your vehicle. The average new vehicle gets 27 MPG and costs \$6,750 to fuel over 5 years. Cost estimates are based on 15,000 miles per year at \$2.40 per gallon. MPGe is miles per gasoline gallon equivalent. Vehicle emissions are a significant cause of climate change and smog.

fuel economy.gov
Calculate personalized estimates. ePA.com/vehicles

PARTS CONTENT INFORMATION

FOR VEHICLES IN THIS CARLINE U.S./Canadian Parts Content: **60%**

GOVERNMENT 5-STAR SAFETY RATING

Overall Vehicle Score To Be Rated
Based on the combined ratings of frontal, side and rollover. Should ONLY be compared to other vehicles of similar size and weight.

Frontal	Driver	To Be Rated
	Passenger	To Be Rated

Based on the risk of injury in a frontal impact. Should ONLY be compared to other vehicles of similar size and weight.

Side	Front seat	To Be Rated
Crash	Rear seat	To Be Rated

Based on the risk of injury in a side impact.

Rollover To Be 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 1-888-327-4226**

FOR THIS VEHICLE
Final Assembly Point: **MARYSVILLE, OHIO USA**
Country of Origin: Engine: **U.S.A.**
Transmission: **U.S.A.**

This vehicle is equipped with bumpers that can withstand an impact of 2.5 miles per hour with no damage to the vehicle's body and safety systems, although the bumper and related components may sustain damage. The bumper system on this vehicle conforms to the current federal bumper standard of 2.5 miles per hour.

HSC 39037.05 Low-Emission Motor Vehicle

PORT OF ENTRY: MARYSVILLE OHIO
MULLER HONDA OF GURNEE 7000 GRAND AVENUE GURNEE, IL 60031
VIN: 1HGCV1F12JA048052

SHIP TO: MARYSVILLE OHIO
DELIVERY POINT: SCHAUMBURG ILLINOIS
POWSPACE: 525-009
TRANSMETHOD: TRUCK

ORIG. DLR: 208663
REF. NO: 40354
HN CODE: HN-3901
EMISSION: 50 STATE
CONTROL NO: 570666
DEALER: 208663

102 Monroney Label

VEHICLE CONTROLS

Adjusting the Front and Rear Outer* Head Restraints

Your vehicle is equipped with head restraints in all seating positions. Head restraints are most effective for protection against whiplash and other rear-impact crash injuries.

The center of the back of the occupant's head should rest against the center of the restraint. The tops of the occupant's ears should be level with the center height of the restraint.

To raise the head restraint: Pull it upward.

To lower the head restraint: Push it down while pressing the release button.

To remove the head restraint: Pull the restraint up as far as it will go. Then push the release button and pull the restraint up and out.

To reinstall a head restraint: Insert the legs back in place, then adjust the head restraint to an appropriate height while pressing the release button. Pull up on the restraint to make sure it is locked in position.

For a head restraint system to work properly:

- Do not hang any items on the head restraints or from the restraint legs.
- Do not place any object between an occupant and the seat-back.
- Install each restraint in its proper location.

WARNING

Improperly positioning head restraints reduces their effectiveness and increases the likelihood of serious injury in a crash. Make sure head restraints are in place and positioned properly before driving.

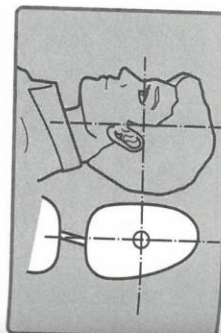
*Not adjustable on all models

103 Driver Head Restraint Use and Adjustment Information from Vehicle Owner's Manual

Adjusting the Front and Rear Outer* Head Restraints

Your vehicle is equipped with head restraints in all seating positions. Head restraints are most effective for protection against whiplash and other rear-impact crash injuries.

The center of the back of the occupant's head should rest against the center of the restraint. The tops of the occupant's ears should be level with the center height of the restraint.

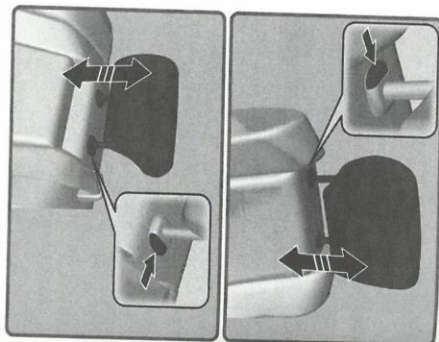


To raise the head restraint: Pull it upward.

To lower the head restraint: Push it down while pressing the release button.

To remove the head restraint: Pull the restraint up as far as it will go. Then push the release button and pull the restraint up and out.

To reinstall a head restraint: Insert the legs back in place, then adjust the head restraint to an appropriate height while pressing the release button. Pull up on the restraint to make sure it is locked in position.



For a head restraint system to work properly:

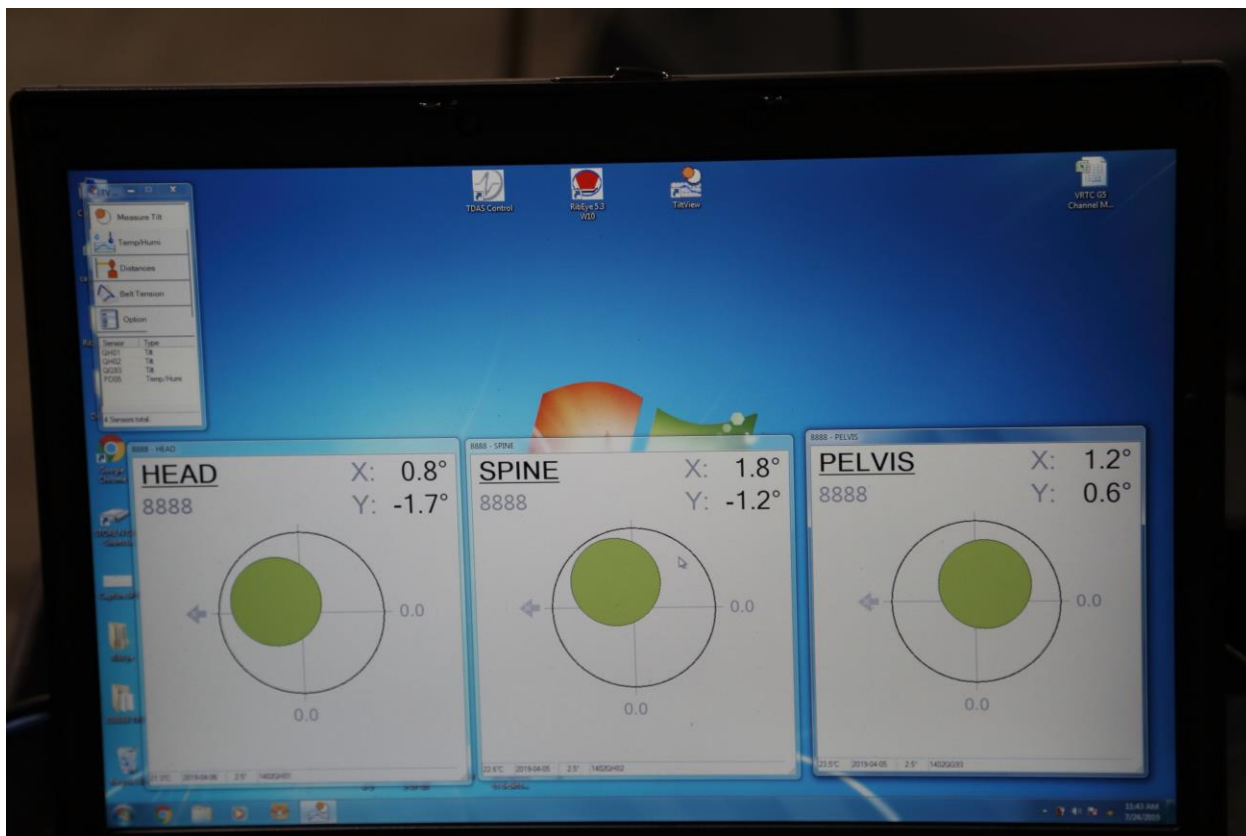
- Do not hang any items on the head restraints or from the restraint legs.
- Do not place any object between an occupant and the seat-back.
- Install each restraint in its proper location.

WARNING

Improperly positioning head restraints reduces their effectiveness and increases the likelihood of serious injury in a crash. Make sure head restraints are in place and positioned properly before driving.

**Not adjustable on all models*

104 Left Rear Passenger Head Restraint Use and Adjustment Information from Vehicle Owner's Manual



105 WorldSID-50M Pre-Test Tilt Sensor View

APPENDIX B
VEHICLE AND DUMMY RESPONSE DATA PLOTS

TABLE OF DATA PLOTS

Driver & Passenger Dummy Instrumentation Plots

No.	Description	Page
1	Driver Head Acceleration (X) Primary vs. Time	B-9
2	Driver Head Acceleration (Y) Primary vs. Time	B-9
3	Driver Head Acceleration (Z) Primary vs. Time	B-9
4	Driver Head Resultant Acceleration Primary vs. Time	B-9
5	Driver Head Angular Rate (X)	B-10
6	Driver Head Angular Rate (Y)	B-10
7	Driver Head Angular Rate (Z)	B-10
8	Driver Upper Neck Force (X)	B-11
9	Driver Upper Neck Force (Y)	B-11
10	Driver Upper Neck Force (Z)	B-11
11	Driver Upper Neck Moment (X)	B-12
12	Driver Upper Neck Moment (Y)	B-12
13	Driver Upper Neck Moment (Z)	B-12
14	Driver Lower Neck Force (X)	B-13
15	Driver Lower Neck Force (Y)	B-13
16	Driver Lower Neck Force (Z)	B-13
17	Driver Lower Neck Moment (X)	B-14
18	Driver Lower Neck Moment (Y)	B-14
19	Driver Lower Neck Moment (Z)	B-14
20	Driver Shoulder Force (X)	B-15
21	Driver Shoulder Force (Y)	B-15
22	Driver Shoulder Force (Z)	B-15
23	Driver Shoulder Rear Displacement (X)	B-16
24	Driver Shoulder Rear Displacement (Y)	B-16
25	Driver Shoulder Rear Displacement (Z)	B-16
26	Driver Shoulder Rear Length Change	B-16
27	Driver Shoulder Middle Displacement (X)	B-17
28	Driver Shoulder Middle Displacement (Y)	B-17
29	Driver Shoulder Middle Displacement (Z)	B-17
30	Driver Shoulder Middle Length Change	B-17
31	Driver Shoulder Front Displacement (X)	B-18
32	Driver Shoulder Front Displacement (Y)	B-18
33	Driver Shoulder Front Displacement (Z)	B-18
34	Driver Shoulder Front Length Change	B-18

TABLE OF DATA PLOTS, CONTINUED

Driver & Passenger Dummy Instrumentation Plots

No.	Description	Page
35	Driver Thorax Rib 1 Rear Displacement (X)	B-19
36	Driver Thorax Rib 1 Rear Displacement (Y)	B-19
37	Driver Thorax Rib 1 Rear Displacement (Z)	B-19
38	Driver Thorax Rib 1 Rear Length Change	B-19
39	Driver Thorax Rib 1 Middle Displacement (X)	B-20
40	Driver Thorax Rib 1 Middle Displacement (Y)	B-20
41	Driver Thorax Rib 1 Middle Displacement (Z)	B-20
42	Driver Thorax Rib 1 Middle Length Change	B-20
43	Driver Thorax Rib 1 Front Displacement (X)	B-21
44	Driver Thorax Rib 1 Front Displacement (Y)	B-21
45	Driver Thorax Rib 1 Front Displacement (Z)	B-21
46	Driver Thorax Rib 1 Front Length Change	B-21
47	Driver Thorax Rib 2 Rear Displacement (X)	B-22
48	Driver Thorax Rib 2 Rear Displacement (Y)	B-22
49	Driver Thorax Rib 2 Rear Displacement (Z)	B-22
50	Driver Thorax Rib 2 Rear Length Change	B-22
51	Driver Thorax Rib 2 Middle Displacement (X)	B-23
52	Driver Thorax Rib 2 Middle Displacement (Y)	B-23
53	Driver Thorax Rib 2 Middle Displacement (Z)	B-23
54	Driver Thorax Rib 2 Middle Length Change	B-23
55	Driver Thorax Rib 2 Front Displacement (X)	B-24
56	Driver Thorax Rib 2 Front Displacement (Y)	B-24
57	Driver Thorax Rib 2 Front Displacement (Z)	B-24
58	Driver Thorax Rib 2 Front Length Change	B-24
59	Driver Thorax Rib 3 Rear Displacement (X)	B-25
60	Driver Thorax Rib 3 Rear Displacement (Y)	B-25
61	Driver Thorax Rib 3 Rear Displacement (Z)	B-25
62	Driver Thorax Rib 3 Rear Length Change	B-25
63	Driver Thorax Rib 3 Middle Displacement (X)	B-26
64	Driver Thorax Rib 3 Middle Displacement (Y)	B-26
65	Driver Thorax Rib 3 Middle Displacement (Z)	B-26
66	Driver Thorax Rib 3 Middle Length Change	B-26

TABLE OF DATA PLOTS, CONTINUED

Driver & Passenger Dummy Instrumentation Plots

No.	Description	Page
67	Driver Thorax Rib 3 Front Displacement (X)	B-27
68	Driver Thorax Rib 3 Front Displacement (Y)	B-27
69	Driver Thorax Rib 3 Front Displacement (Z)	B-27
70	Driver Thorax Rib 3 Front Length Change	B-27
71	Driver Abdomen Rib 1 Rear Displacement (X)	B-28
72	Driver Abdomen Rib 1 Rear Displacement (Y)	B-28
73	Driver Abdomen Rib 1 Rear Displacement (Z)	B-28
74	Driver Abdomen Rib 1 Rear Length Change	B-28
75	Driver Abdomen Rib 1 Middle Displacement (X)	B-29
76	Driver Abdomen Rib 1 Middle Displacement (Y)	B-29
77	Driver Abdomen Rib 1 Middle Displacement (Z)	B-29
78	Driver Abdomen Rib 1 Middle Length Change	B-29
79	Driver Abdomen Rib 1 Front Displacement (X)	B-30
80	Driver Abdomen Rib 1 Front Displacement (Y)	B-30
81	Driver Abdomen Rib 1 Front Displacement (Z)	B-30
82	Driver Abdomen Rib 1 Front Length Change	B-30
83	Driver Abdomen Rib 2 Rear Displacement (X)	B-31
84	Driver Abdomen Rib 2 Rear Displacement (Y)	B-31
85	Driver Abdomen Rib 2 Rear Displacement (Z)	B-31
86	Driver Abdomen Rib 2 Rear Length Change	B-31
87	Driver Abdomen Rib 2 Middle Displacement (X)	B-32
88	Driver Abdomen Rib 2 Middle Displacement (Y)	B-32
89	Driver Abdomen Rib 2 Middle Displacement (Z)	B-32
90	Driver Abdomen Rib 2 Middle Length Change	B-32
91	Driver Abdomen Rib 2 Front Displacement (X)	B-33
92	Driver Abdomen Rib 2 Front Displacement (Y)	B-33
93	Driver Abdomen Rib 2 Front Displacement (Z)	B-33
94	Driver Abdomen Rib 2 Front Length Change	B-33
95	Driver Spine T1 Acceleration (X)	B-34
96	Driver Spine T1 Acceleration (Y)	B-34
97	Driver Spine T1 Acceleration (Z)	B-34
98	Driver Spine T1 Acceleration (Resultant)	B-34

TABLE OF DATA PLOTS, CONTINUED

Driver & Passenger Dummy Instrumentation Plots

No.	Description	Page
99	Driver Spine T4 Acceleration (X)	B-35
100	Driver Spine T4 Acceleration (Y)	B-35
101	Driver Spine T4 Acceleration (Z)	B-35
102	Driver Spine T4 Acceleration (Resultant)	B-35
103	Driver Spine T12 Acceleration (X)	B-36
104	Driver Spine T12 Acceleration (Y)	B-36
105	Driver Spine T12 Acceleration (Z)	B-36
106	Driver Spine T12 Acceleration (Resultant)	B-36
107	Driver Pubic Symphysis Force (Y)	B-37
108	Driver Left Sacro-iliac Force (X)	B-38
109	Driver Left Sacro-iliac Force (Y)	B-38
110	Driver Left Sacro-iliac Force (Z)	B-38
111	Driver Left Sacro-iliac Moment (X)	B-39
112	Driver Left Sacro-iliac Moment (Y)	B-39
113	Driver Left Sacro-iliac Moment (Z)	B-39
114	Driver Right Sacro-iliac Force (X)	B-40
115	Driver Right Sacro-iliac Force (Y)	B-40
116	Driver Right Sacro-iliac Force (Z)	B-40
117	Driver Right Sacro-iliac Moment (X)	B-41
118	Driver Right Sacro-iliac Moment (Y)	B-41
119	Driver Right Sacro-iliac Moment (Z)	B-41
120	Driver Lumbar Force (X)	B-42
121	Driver Lumbar Force (Y)	B-42
122	Driver Lumbar Force (Z)	B-42
123	Driver Lumbar Moment (X)	B-43
124	Driver Lumbar Moment (Y)	B-43
125	Driver Lumbar Moment (Z)	B-43
126	Driver Pelvic Acceleration (X)	B-44
127	Driver Pelvic Acceleration (Y)	B-44
128	Driver Pelvic Acceleration (Z)	B-44
129	Driver Pelvic Acceleration (Resultant)	B-44
130	Driver Left Femur Force (X)	B-45
131	Driver Left Femur Force (Y)	B-45
132	Driver Left Femur Force (Z)	B-45

TABLE OF DATA PLOTS, CONTINUED

Driver & Passenger Dummy Instrumentation Plots

No.	Description	Page
133	Driver Left Femur Moment (X)	B-46
134	Driver Left Femur Moment (Y)	B-46
135	Driver Left Femur Moment (Z)	B-46
136	Driver Femoral Neck Force (X)	B-47
137	Driver Femoral Neck Force (Y)	B-47
138	Driver Femoral Neck Force (Z)	B-47
139	Passenger Head Acceleration (X)	B-48
140	Passenger Head Acceleration (Y)	B-48
141	Passenger Head Acceleration (Z)	B-48
142	Passenger Head Acceleration Resultant	B-48
143	Passenger Head Acceleration Redundant (X)	B-49
144	Passenger Head Acceleration Redundant (Y)	B-49
145	Passenger Head Acceleration Redundant (Z)	B-49
146	Passenger Head Acceleration Redundant Resultant	B-49
147	Passenger Head Angular Rate (X)	B-50
148	Passenger Head Angular Rate (Y)	B-50
149	Passenger Head Angular Rate (Z)	B-50
150	Passenger Shoulder Force (X)	B-51
151	Passenger Shoulder Force (Y)	B-51
152	Passenger Shoulder Force (Z)	B-51
153	Passenger Shoulder Displacement (Y)	B-52
154	Passenger Thorax Rib 1 Displacement (Y)	B-52
155	Passenger Thorax Rib 2 Displacement (Y)	B-52
156	Passenger Thorax Rib 3 Displacement (Y)	B-53
157	Passenger Abdominal Rib 1 Displacement (Y)	B-53
158	Passenger Abdominal Rib 2 Displacement (Y)	B-53
159	Passenger Lower Spine Acceleration (X)	B-54
160	Passenger Lower Spine Acceleration (Y)	B-54
161	Passenger Lower Spine Acceleration (Z)	B-54
162	Passenger Lower Spine Acceleration Resultant	B-54
163	Passenger Acetabulum Force on Impact Side (Y)	B-55
164	Passenger Iliac Force on Impact Side (Y)	B-55
165	Passenger Pelvis Acceleration (X)	B-56
166	Passenger Pelvis Acceleration (Y)	B-56
167	Passenger Pelvis Acceleration (Z)	B-56
168	Passenger Pelvis Acceleration Resultant	B-56

TABLE OF DATA PLOTS, CONTINUED

Driver & Passenger Dummy Instrumentation Plots

No.	Description	Page
169	Vehicle Center of Gravity Acceleration (X)	B-57
170	Vehicle Center of Gravity Acceleration (Y)	B-57
171	Vehicle Center of Gravity Acceleration (Z)	B-57
172	Vehicle Center of Gravity Acceleration Resultant	B-57
173	Vehicle Center of Gravity Angular Rate (X)	B-58
174	Vehicle Center of Gravity Angular Rate (Y)	B-58
175	Vehicle Center of Gravity Angular Rate (Z)	B-58
176	Right Side Sill at Front Seat Acceleration (X)	B-59
177	Right Side Sill at Front Seat Acceleration (Y)	B-59
178	Right Side Sill at Front Seat Acceleration (Z)	B-59
179	Right Side Sill at Front Seat Acceleration Resultant	B-59
180	Right Side Sill at Rear Seat Acceleration (X)	B-60
181	Right Side Sill at Rear Seat Acceleration (Y)	B-60
182	Right Side Sill at Rear Seat Acceleration (Z)	B-60
183	Right Side Sill at Rear Seat Acceleration Resultant	B-60
184	Left Side Sill at Front Seat Acceleration (Y)	B-61
185	Left Side Sill at Rear Seat Acceleration (Y)	B-61
186	Lower A-Post Acceleration (Y)	B-61
187	Middle A-Post Acceleration (Y)	B-62
188	Lower B-Post Acceleration (Y)	B-62
189	Middle B-Post Acceleration (Y)	B-62
190	Front Seat Track Acceleration (Y)	B-63
191	Rear Seat Structure Acceleration (Y)	B-63
192	Right Rear Occupant Compartment Acceleration (Y)	B-63
193	Engine Block (X)	B-64
194	Engine Block (Y)	B-64
195	Rear Floorpan Above Axle Acceleration (X)	B-65
196	Rear Floorpan Above Axle Acceleration (Y)	B-65
197	Rear Floorpan Above Axle Acceleration (Z)	B-65
198	Rear Floorpan Above Axle Acceleration Resultant	B-65
199	Rear Deck Acceleration (X)	B-66
200	Rear Deck Acceleration (Y)	B-66
201	Rear Deck Acceleration (Z)	B-66
203	Rear Deck Acceleration Resultant	B-66

TABLE OF DATA PLOTS, CONTINUED

Driver & Passenger Dummy Instrumentation Plots

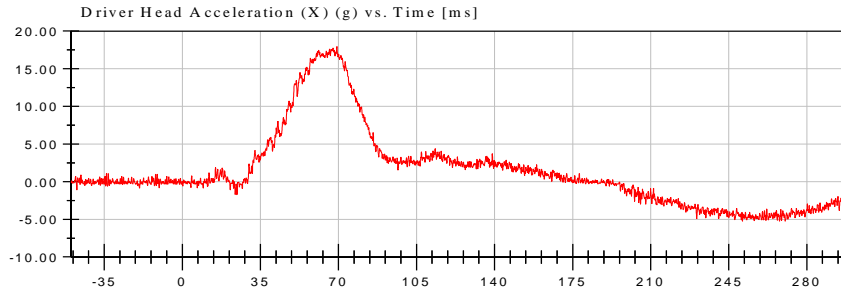
No.	Description	Page
204	Rear Deck Angular Rate (X)	B-67
205	Rear Deck Angular Rate (Y)	B-67
206	Rear Deck Angular Rate (Z)	B-67
207	Left Front Door Mid Centerline Acceleration (Y)	B-68
208	Left Front Door Mid Rear Acceleration (Y)	B-68
209	Left Front Door Upper Centerline (Y)	B-68
210	Left Rear Door Mid Rear (Y)	B-69
211	Left Rear Door Upper Centerline (Y)	B-69
212	Driver Head Contact	B-70
213	Driver Shoulder Contact	B-70
214	Driver Thorax Contact	B-70
215	Driver Pelvis Contact	B-70
216	Passenger Head Contact	B-71
217	Passenger Shoulder Contact	B-71
218	Passenger Thorax Contact	B-71
219	Passenger Pelvis Contact	B-71
220	MDB Center of Gravity Acceleration (X)	B-72
221	MDB Center of Gravity Acceleration (Y)	B-72
222	MDB Center of Gravity Acceleration (Z)	B-72
223	MDB Center of Gravity Acceleration Resultant	B-72
224	MDB Rear Acceleration (X)	B-73
225	MDB Rear Acceleration (Y)	B-73
226	Left MDB Contact Switch	B-73
227	Right MDB Contact Switch	B-73

NHTSA

Test Date: 07/24/2019

Test Lab: CTF

Test Number: 190724 (R20185383)



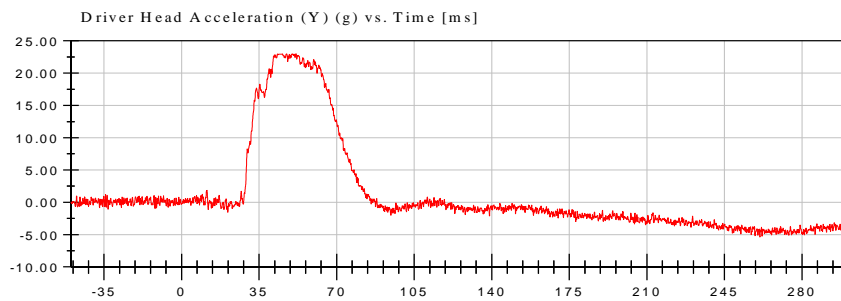
<Max>

17.97 g at 69.30 ms

<Min>

-5.25 g at 270.30 ms

CFC_1000



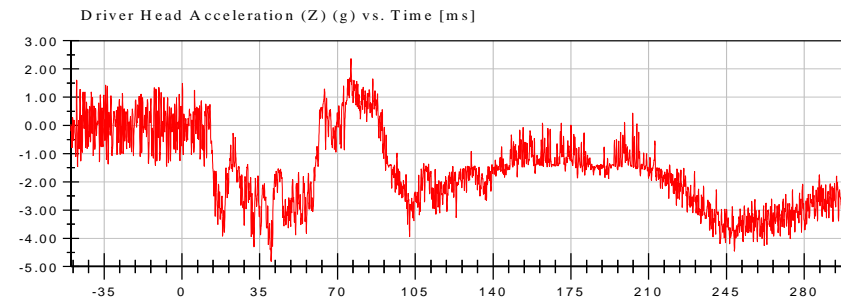
<Max>

23.00 g at 51.60 ms

<Min>

-5.39 g at 261.00 ms

CFC_1000



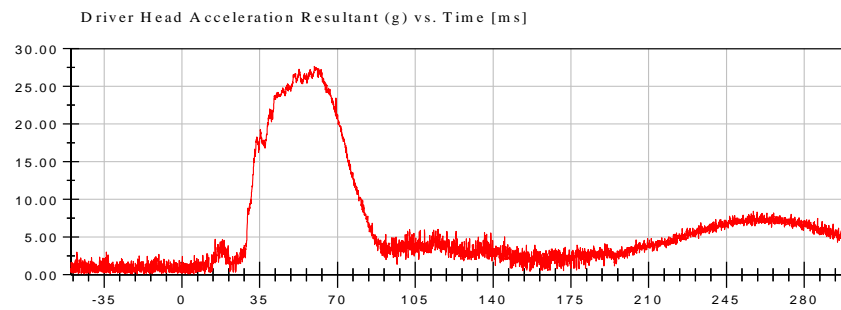
<Max>

2.37 g at 76.05 ms

<Min>

-4.81 g at 40.15 ms

CFC_1000



<Max>

27.64 g at 59.60 ms

<Min>

0.10 g at 2.85 ms

Prefiltered_> CFC 1000

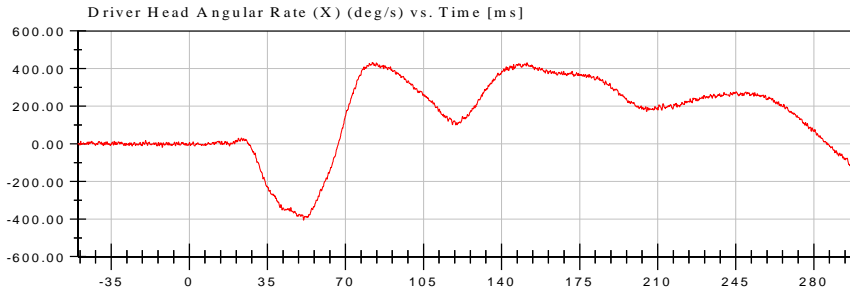


NHTSA

Test Date: 07/24/2019

Test Lab: CTF

Test Number: 190724 (R20185383)



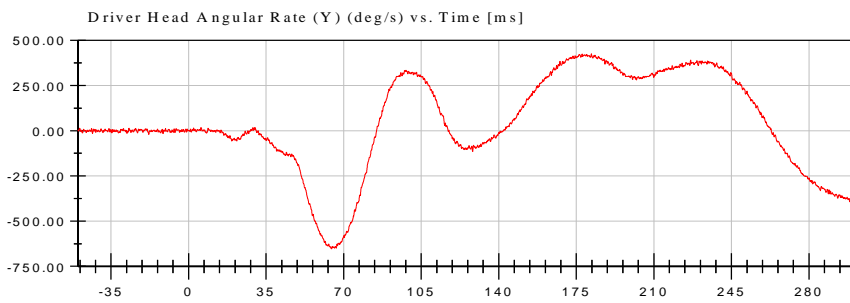
<Max>

432.65 deg/s at 82.10 ms

<Min>

-405.26 deg/s at 51.25 ms

CFC_1000



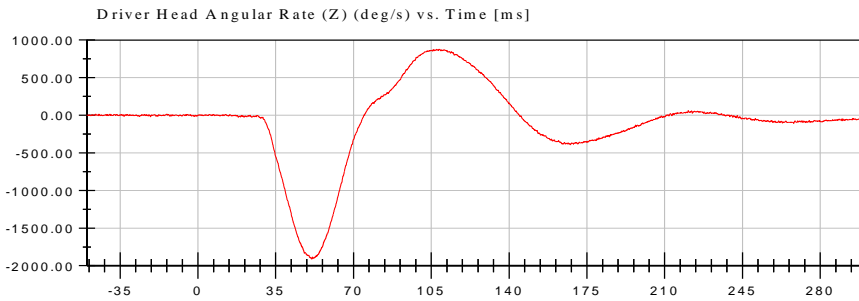
<Max>

424.37 deg/s at 177.60 ms

<Min>

-653.86 deg/s at 64.55 ms

CFC_1000



<Max>

876.19 deg/s at 108.45 ms

<Min>

-1,910.41 deg/s at 51.25 ms

CFC_1000

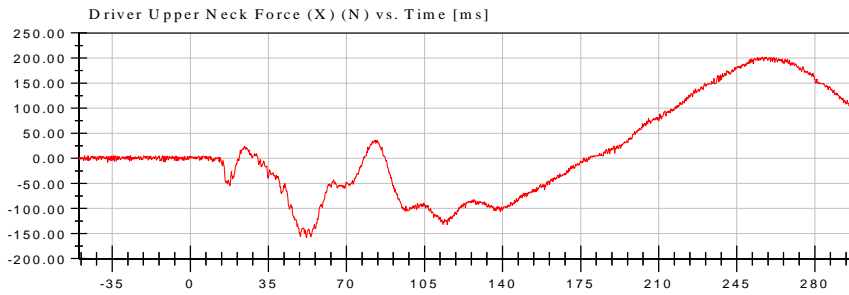


NHTSA

Test Date: 07/24/2019

Test Lab: CTF

Test Number: 190724 (R20185383)



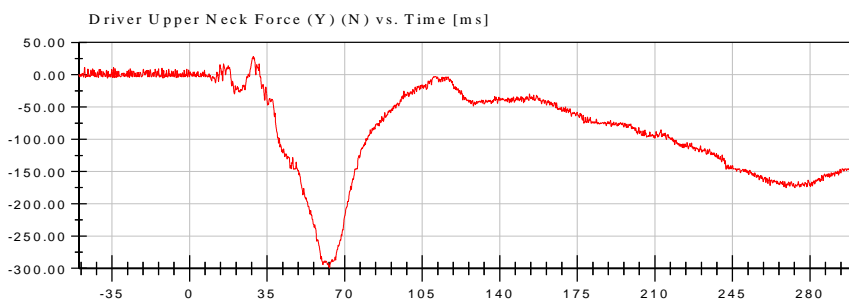
<Max>

202.05 N at 256.40 ms

<Min>

-158.40 N at 52.05 ms

CFC_1000



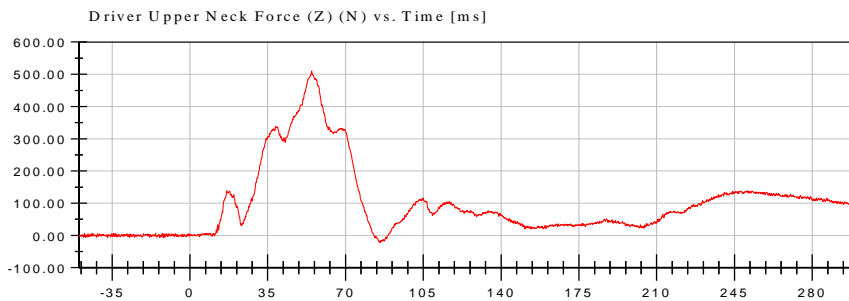
<Max>

28.23 N at 28.75 ms

<Min>

-299.49 N at 63.15 ms

CFC_1000



<Max>

510.13 N at 54.75 ms

<Min>

-22.38 N at 85.60 ms

CFC_1000

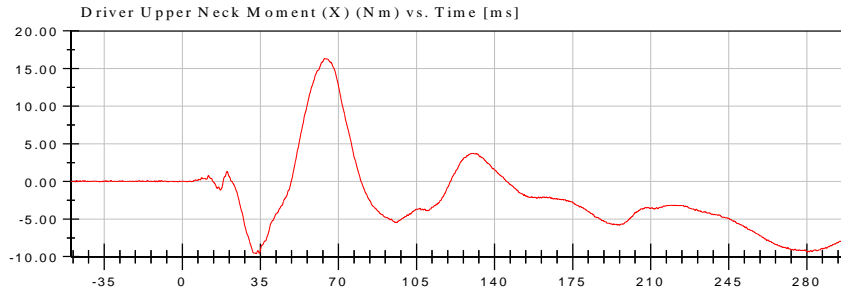


NHTSA

Test Date: 07/24/2019

Test Lab: CTF

Test Number: 190724 (R20185383)



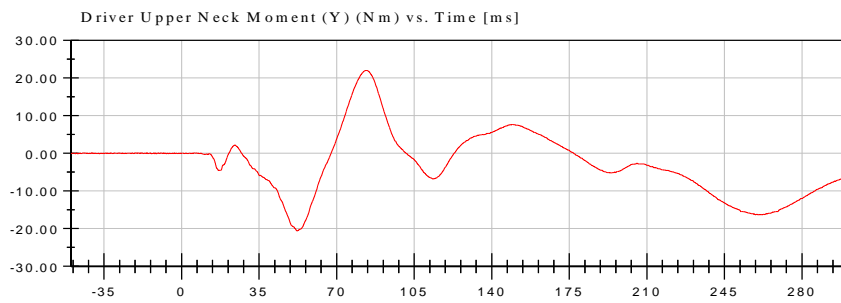
<Max>

16.33 Nm at 63.75 ms

<Min>

-9.57 Nm at 33.15 ms

CFC_600



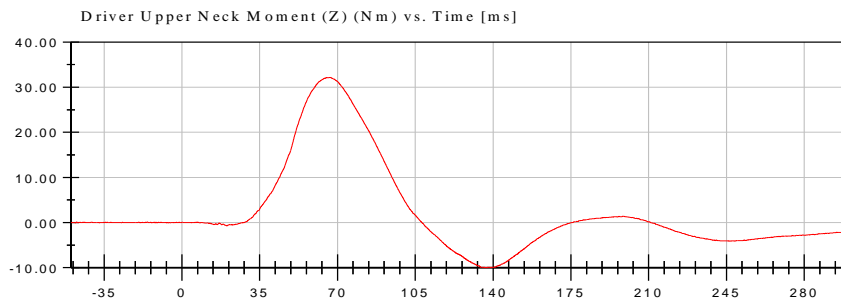
<Max>

22.02 Nm at 83.35 ms

<Min>

-20.60 Nm at 52.10 ms

CFC_600



<Max>

32.14 Nm at 66.55 ms

<Min>

-9.98 Nm at 137.05 ms

CFC_600

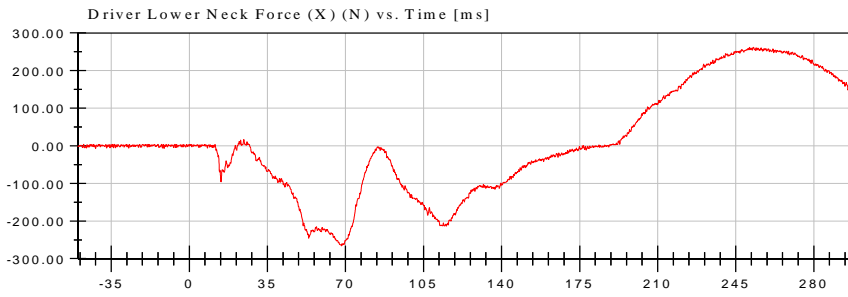


NHTSA

Test Date: 07/24/2019

Test Lab: CTF

Test Number: 190724 (R20185383)



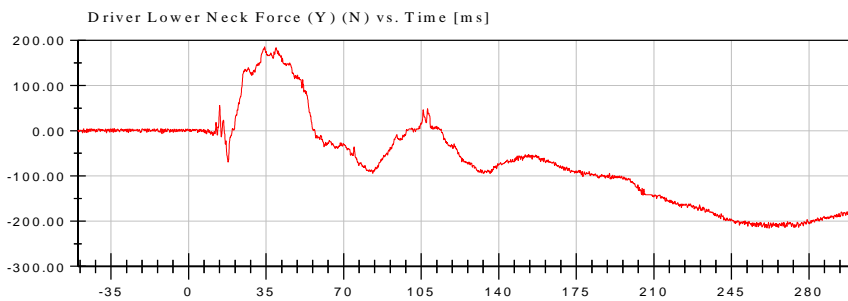
<Max>

261.85 N at 251.10 ms

<Min>

-265.72 N at 68.20 ms

CFC_1000



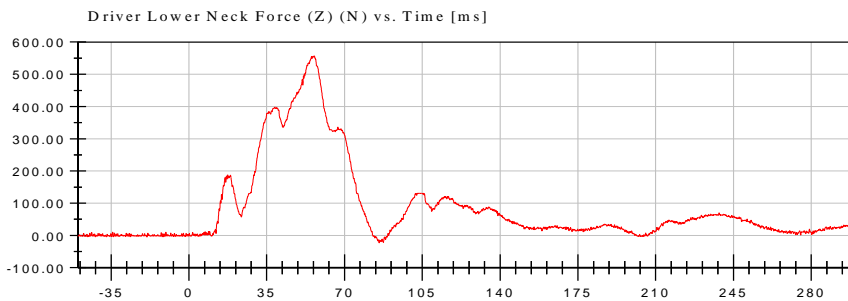
<Max>

185.83 N at 34.30 ms

<Min>

-215.56 N at 262.05 ms

CFC_1000



<Max>

556.88 N at 56.45 ms

<Min>

-23.24 N at 85.60 ms

CFC_1000

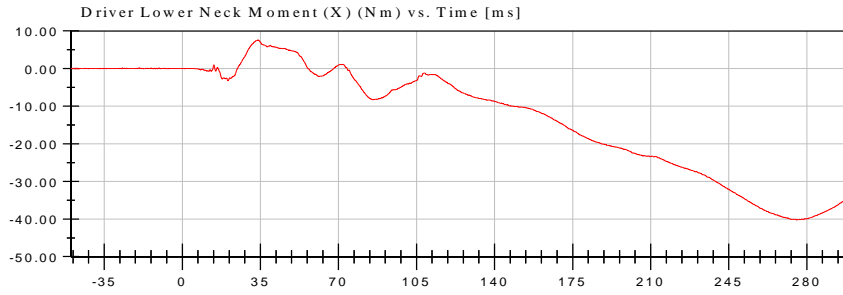


NHTSA

Test Date: 07/24/2019

Test Lab: CTF

Test Number: 190724 (R20185383)



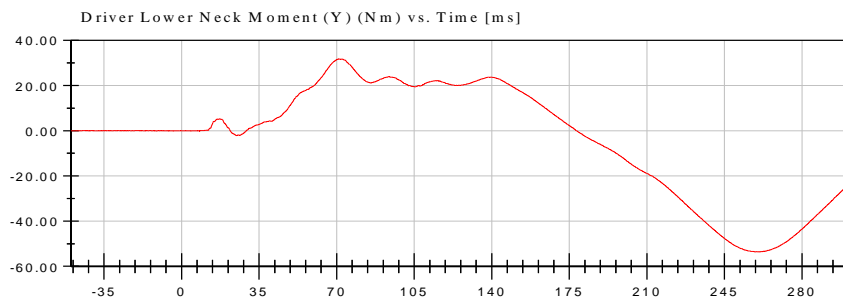
<Max>

7.58 Nm at 33.90 ms

<Min>

-40.23 Nm at 275.45 ms

CFC_600



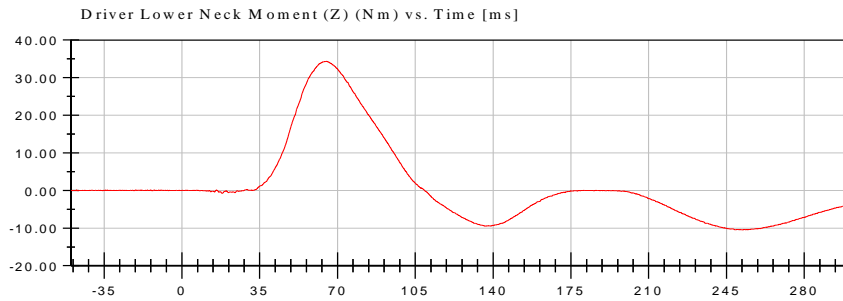
<Max>

31.78 Nm at 70.90 ms

<Min>

-53.66 Nm at 260.15 ms

CFC_600



<Max>

34.34 Nm at 65.10 ms

<Min>

-10.46 Nm at 252.40 ms

CFC_600

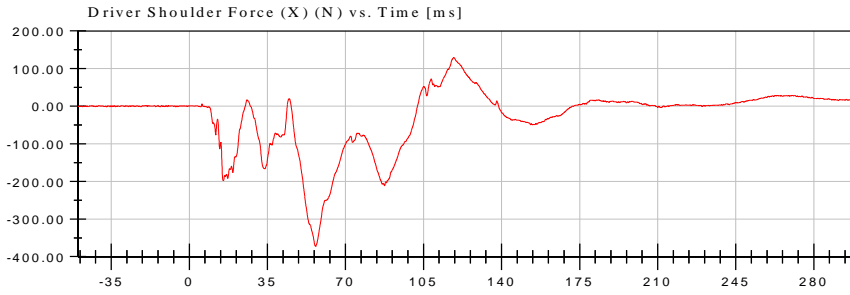


NHTSA

Test Date: 07/24/2019

Test Lab: CTF

Test Number: 190724 (R20185383)



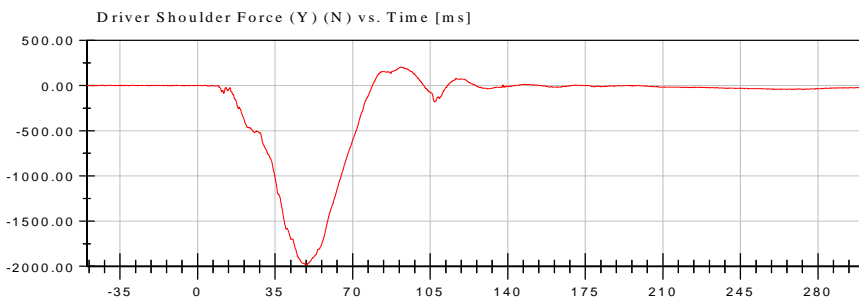
<Max>

129.37 N at 118.55 ms

<Min>

-372.44 N at 56.65 ms

CFC_600



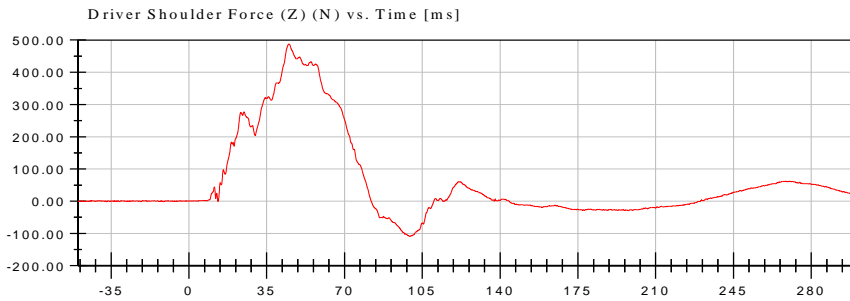
<Max>

205.20 N at 91.95 ms

<Min>

-1,982.90 N at 49.25 ms

CFC_600



<Max>

487.72 N at 45.00 ms

<Min>

-108.69 N at 99.40 ms

CFC_600



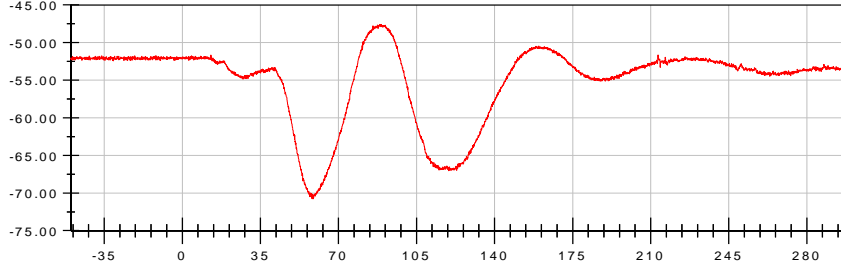
NHTSA

Test Date: 07/24/2019

Test Lab: CTF

Test Number: 190724 (R20185383)

Driver Shoulder Rear Displacement (X) (mm) vs. Time [ms]



<Max>

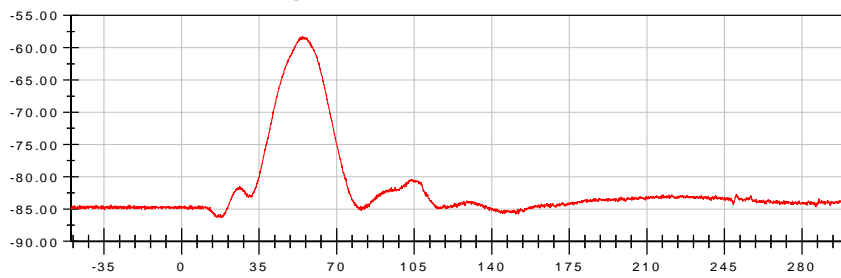
-47.57 mm at 88.50 ms

<Min>

-70.77 mm at 58.70 ms

Unfiltered

Driver Shoulder Rear Displacement (Y) (mm) vs. Time [ms]



<Max>

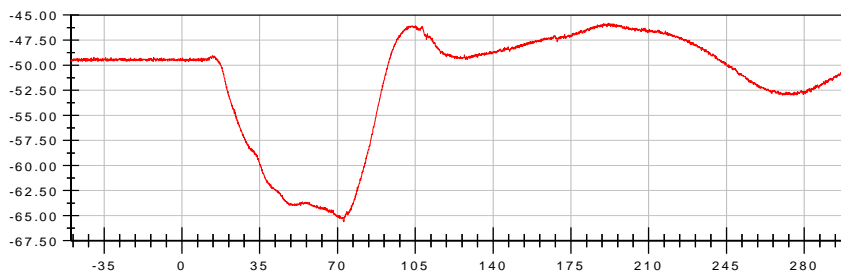
-58.31 mm at 54.60 ms

<Min>

-86.35 mm at 17.90 ms

Unfiltered

Driver Shoulder Rear Displacement (Z) (mm) vs. Time [ms]



<Max>

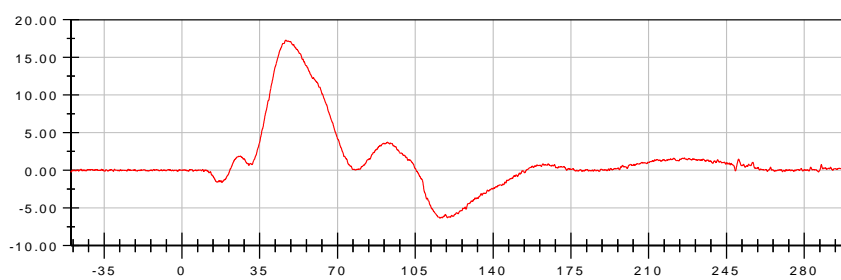
-45.80 mm at 191.90 ms

<Min>

-65.62 mm at 72.70 ms

Unfiltered

Driver Shoulder Rear Length Change (mm) vs. Time [ms]



<Max>

17.29 mm at 46.75 ms

<Min>

-6.32 mm at 116.15 ms

CFC_600

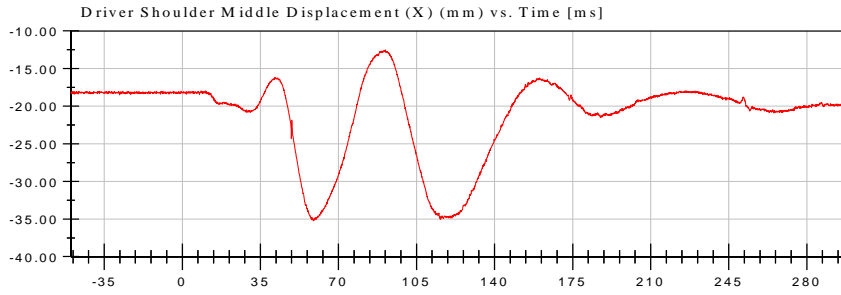


NHTSA

Test Date: 07/24/2019

Test Lab: CTF

Test Number: 190724 (R20185383)



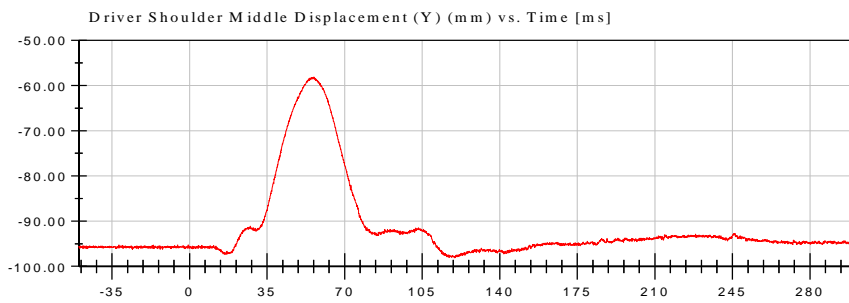
<Max>

-12.53 mm at 91.05 ms

<Min>

-35.25 mm at 58.90 ms

Unfiltered



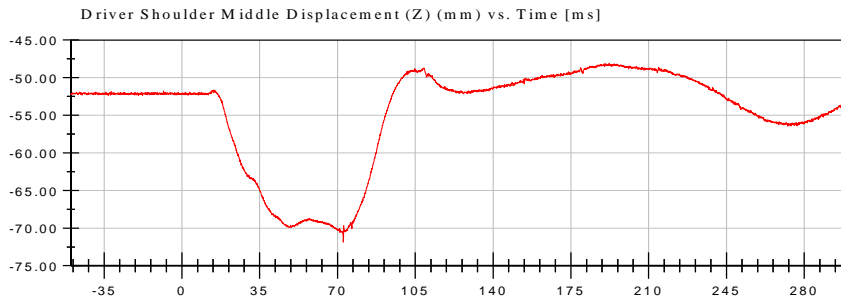
<Max>

-58.10 mm at 56.10 ms

<Min>

-98.14 mm at 119.70 ms

Unfiltered



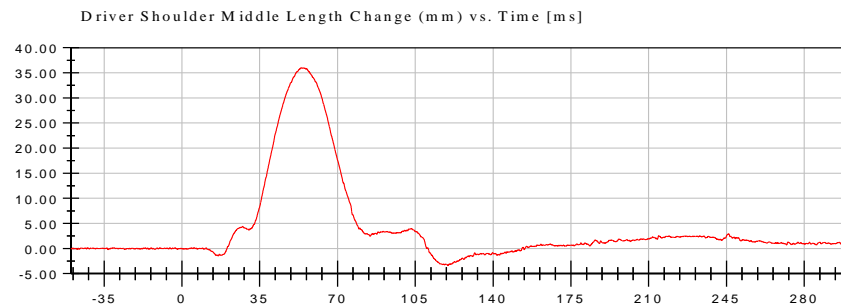
<Max>

-48.08 mm at 192.20 ms

<Min>

-71.86 mm at 72.60 ms

Unfiltered



<Max>

36.03 mm at 53.75 ms

<Min>

-3.37 mm at 119.70 ms

CFC_600

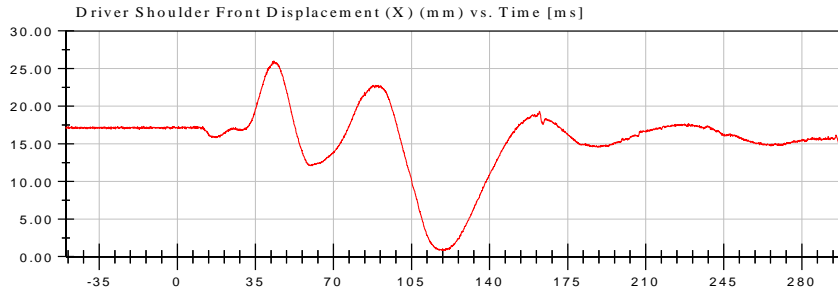


NHTSA

Test Date: 07/24/2019

Test Lab: CTF

Test Number: 190724 (R20185383)



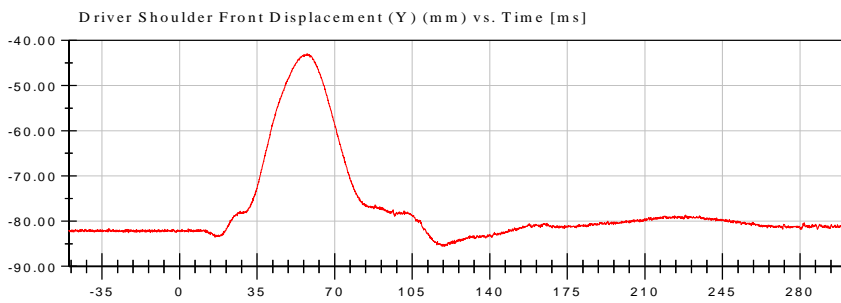
<Max>

26.03 mm at 43.30 ms

<Min>

0.79 mm at 119.40 ms

Unfiltered



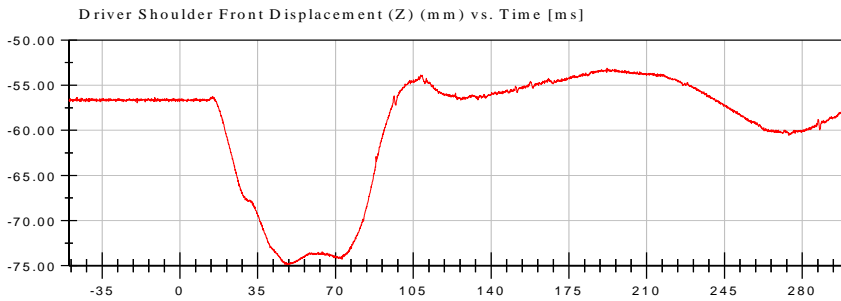
<Max>

-42.99 mm at 57.30 ms

<Min>

-85.60 mm at 119.65 ms

Unfiltered



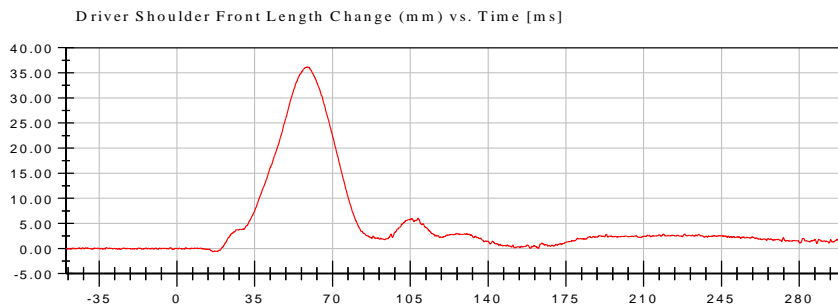
<Max>

-53.12 mm at 192.20 ms

<Min>

-74.89 mm at 48.25 ms

Unfiltered



<Max>

36.16 mm at 58.55 ms

<Min>

-0.63 mm at 16.30 ms

CFC_600

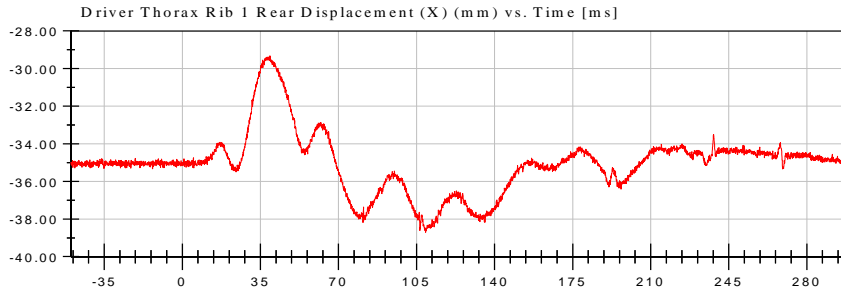


NHTSA

Test Date: 07/24/2019

Test Lab: CTF

Test Number: 190724 (R20185383)



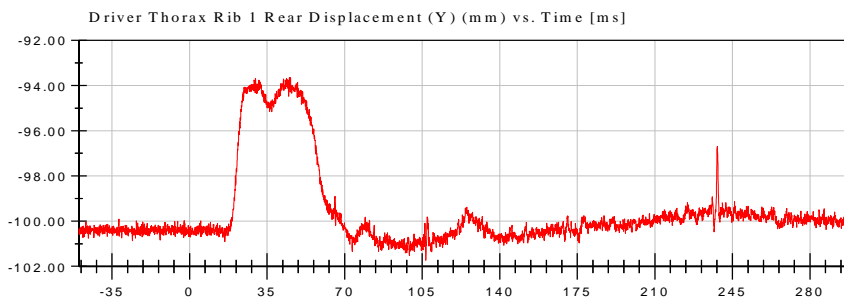
<Max>

-29.31 mm at 39.30 ms

<Min>

-38.71 mm at 109.10 ms

Unfiltered



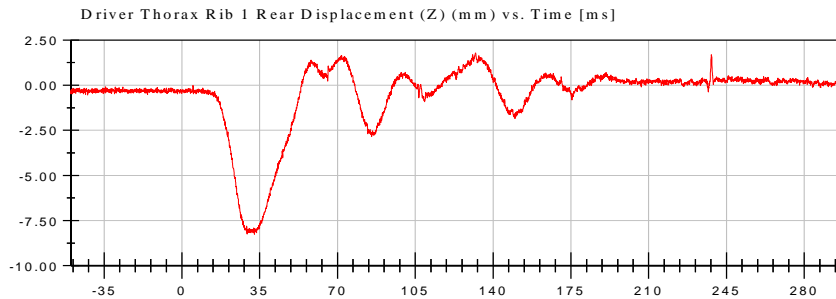
<Max>

-93.65 mm at 45.05 ms

<Min>

-101.74 mm at 106.60 ms

Unfiltered



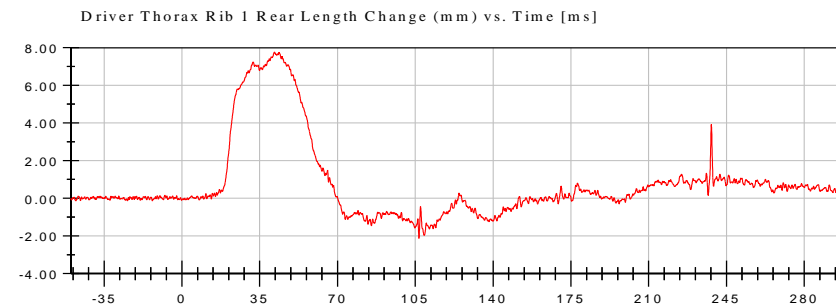
<Max>

1.78 mm at 132.10 ms

<Min>

-8.26 mm at 32.60 ms

Unfiltered



<Max>

7.77 mm at 41.65 ms

<Min>

-2.13 mm at 106.65 ms

CFC_600

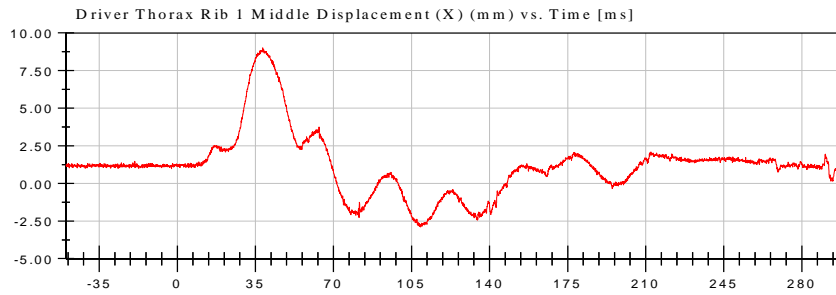


NHTSA

Test Date: 07/24/2019

Test Lab: CTF

Test Number: 190724 (R20185383)



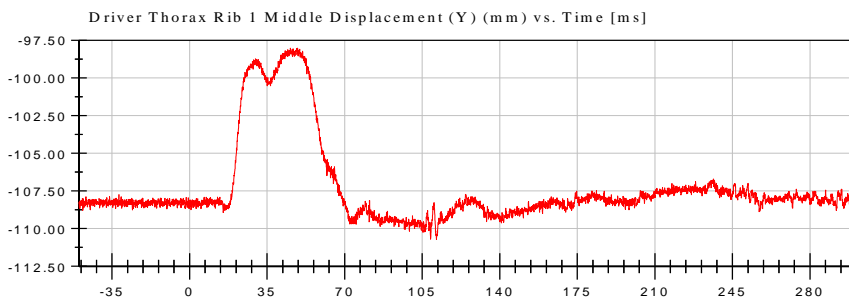
<Max>

9.02 mm at 38.30 ms

<Min>

-2.90 mm at 109.10 ms

Unfiltered



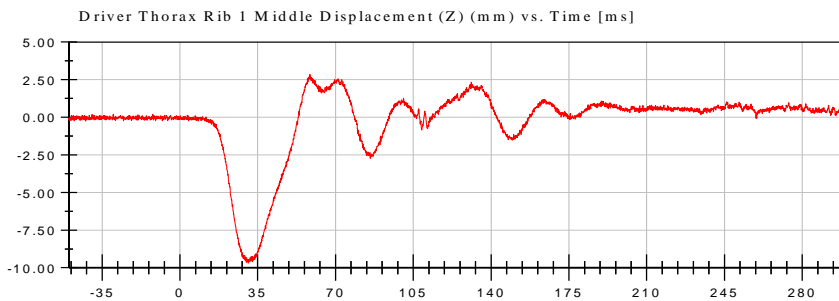
<Max>

-98.01 mm at 45.50 ms

<Min>

-110.72 mm at 111.45 ms

Unfiltered



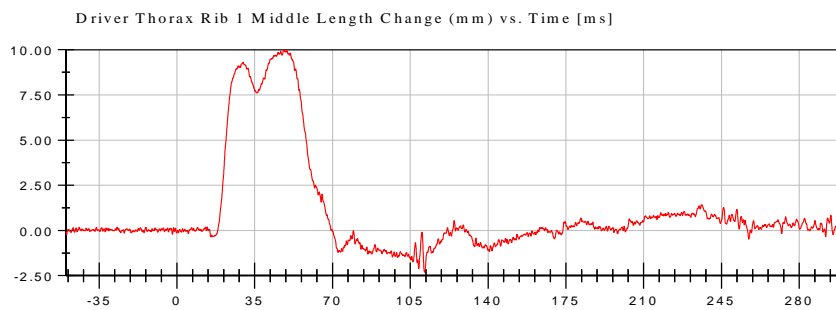
<Max>

2.84 mm at 58.50 ms

<Min>

-9.69 mm at 30.75 ms

Unfiltered



<Max>

9.98 mm at 48.10 ms

<Min>

-2.30 mm at 111.40 ms

CFC_600



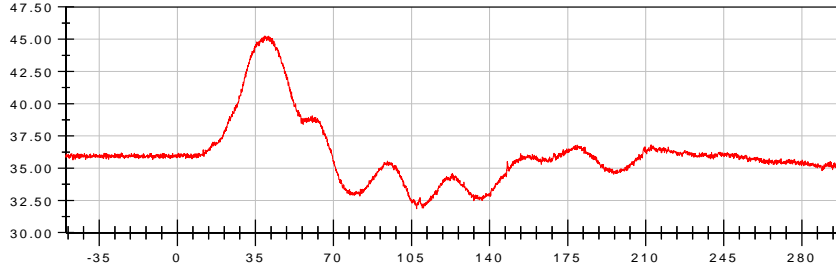
NHTSA

Test Date: 07/24/2019

Test Lab: CTF

Test Number: 190724 (R20185383)

Driver Thorax Rib 1 Front Displacement (X) (mm) vs. Time [ms]



<Max>

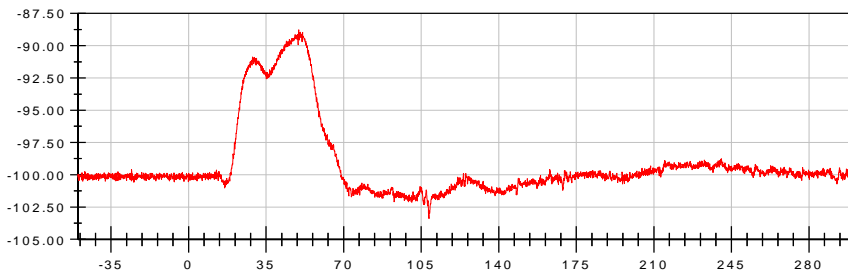
45.27 mm at 39.30 ms

<Min>

31.84 mm at 107.30 ms

Unfiltered

Driver Thorax Rib 1 Front Displacement (Y) (mm) vs. Time [ms]



<Max>

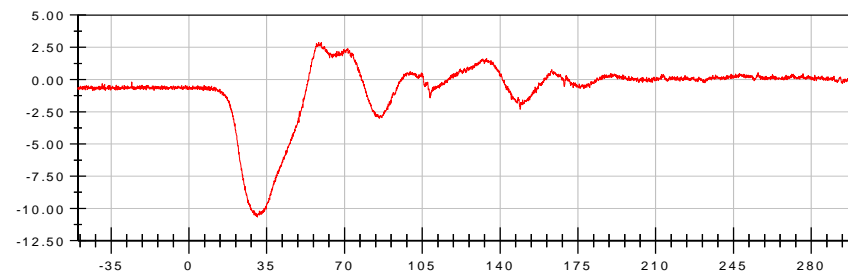
-88.77 mm at 49.70 ms

<Min>

-103.39 mm at 108.45 ms

Unfiltered

Driver Thorax Rib 1 Front Displacement (Z) (mm) vs. Time [ms]



<Max>

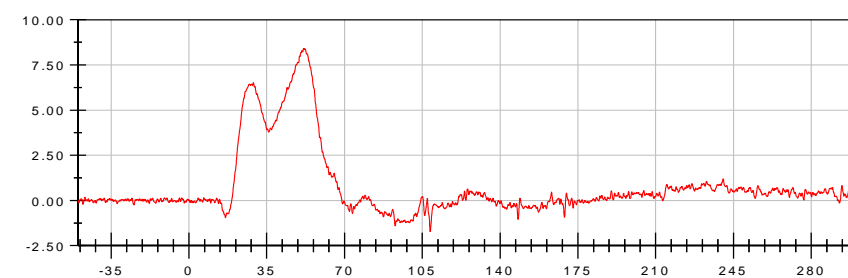
2.88 mm at 59.60 ms

<Min>

-10.65 mm at 30.80 ms

Unfiltered

Driver Thorax Rib 1 Front Length Change (mm) vs. Time [ms]



<Max>

8.42 mm at 51.65 ms

<Min>

-1.72 mm at 108.55 ms

CFC_600

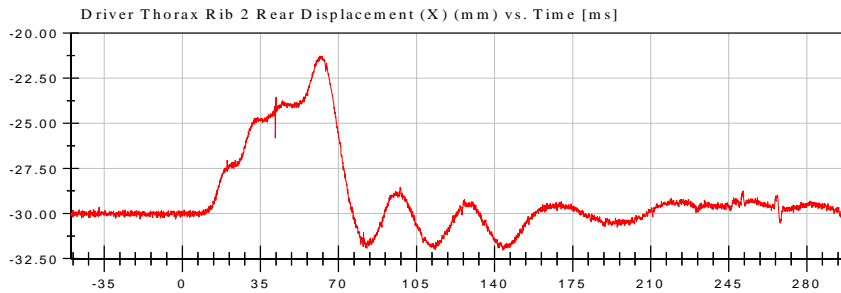


NHTSA

Test Date: 07/24/2019

Test Lab: CTF

Test Number: 190724 (R20185383)



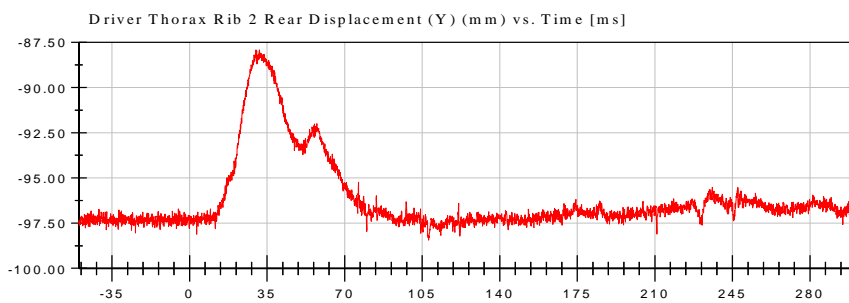
<Max>

-21.28 mm at 61.70 ms

<Min>

-32.03 mm at 143.80 ms

Unfiltered



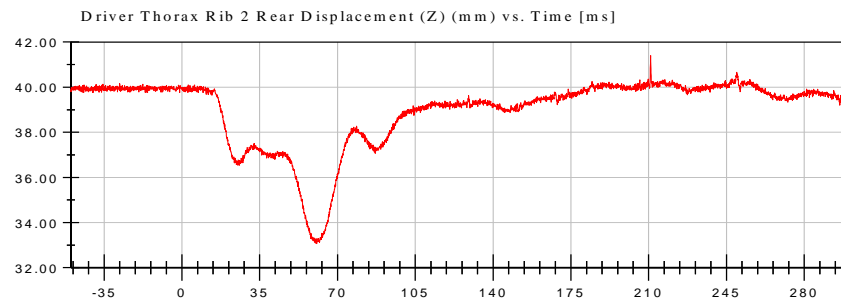
<Max>

-87.92 mm at 30.00 ms

<Min>

-98.43 mm at 107.90 ms

Unfiltered



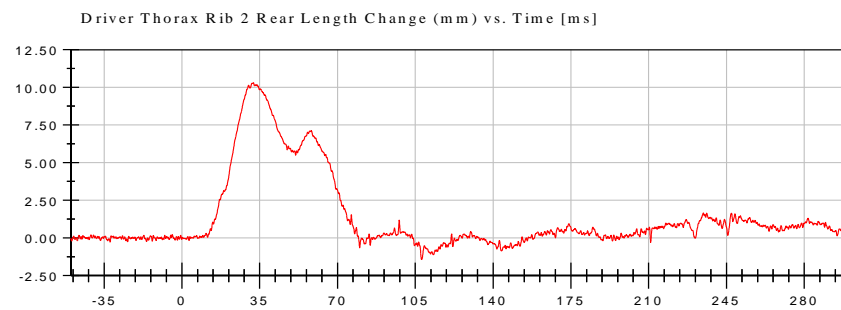
<Max>

41.40 mm at 210.90 ms

<Min>

33.06 mm at 60.60 ms

Unfiltered



<Max>

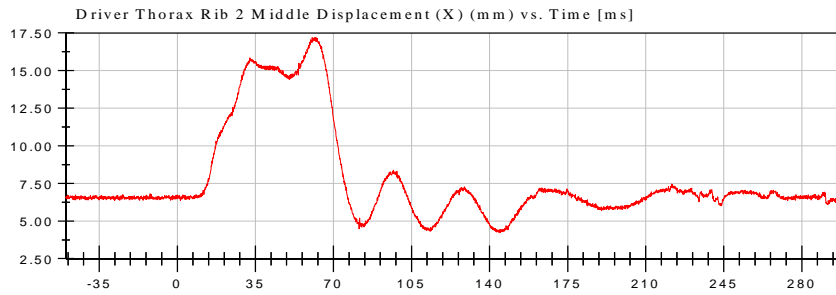
10.31 mm at 32.15 ms

<Min>

-1.43 mm at 107.90 ms

CFC_600





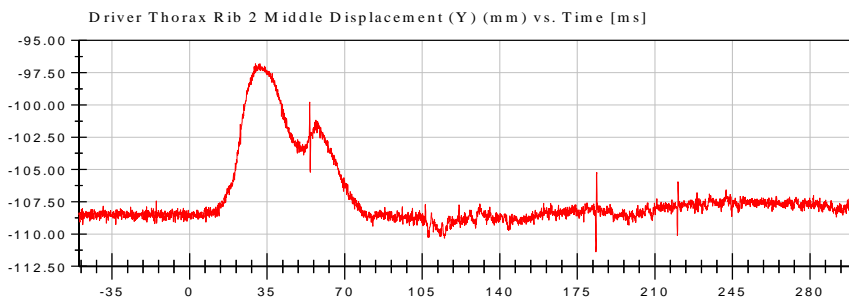
<Max>

17.21 mm at 62.05 ms

<Min>

4.21 mm at 144.80 ms

Unfiltered



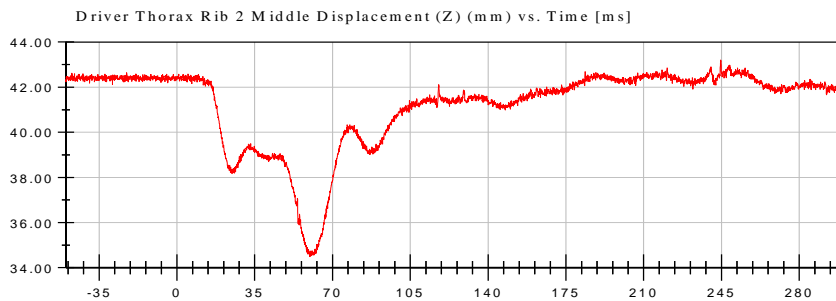
<Max>

-96.80 mm at 29.75 ms

<Min>

-111.39 mm at 183.45 ms

Unfiltered



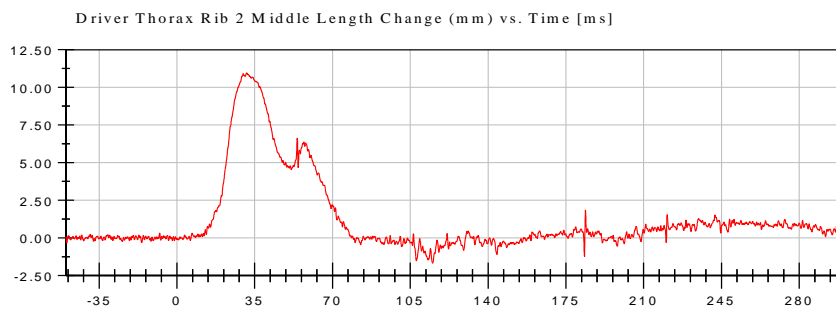
<Max>

43.19 mm at 244.65 ms

<Min>

34.50 mm at 59.75 ms

Unfiltered



<Max>

10.95 mm at 31.35 ms

<Min>

-1.66 mm at 115.05 ms

CFC_600

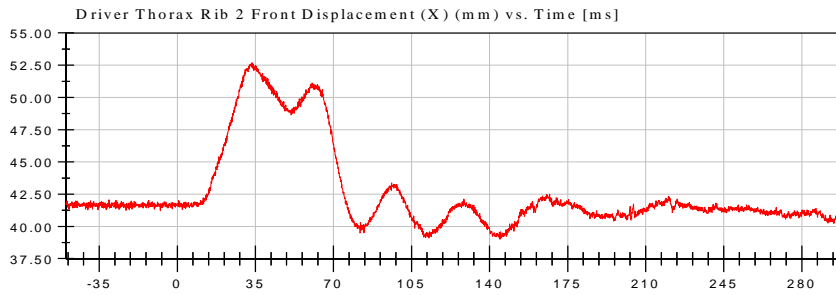


NHTSA

Test Date: 07/24/2019

Test Lab: CTF

Test Number: 190724 (R20185383)



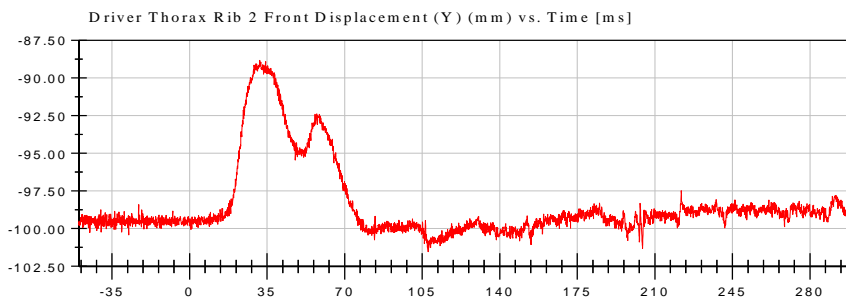
<Max>

52.68 mm at 33.60 ms

<Min>

39.02 mm at 144.55 ms

Unfiltered



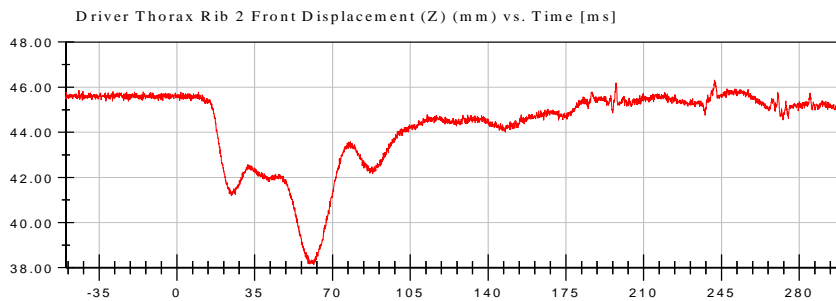
<Max>

-88.82 mm at 31.70 ms

<Min>

-101.52 mm at 107.65 ms

Unfiltered



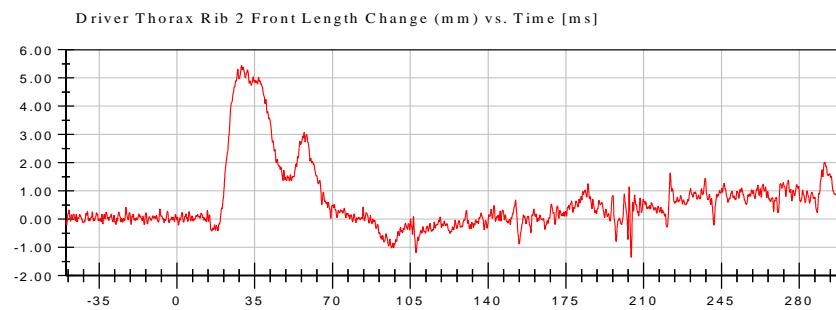
<Max>

46.32 mm at 241.90 ms

<Min>

38.14 mm at 61.60 ms

Unfiltered



<Max>

5.44 mm at 29.10 ms

<Min>

-1.35 mm at 204.35 ms

CFC_600

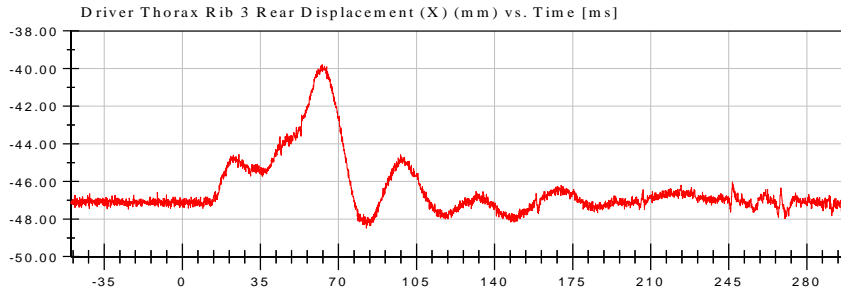


NHTSA

Test Date: 07/24/2019

Test Lab: CTF

Test Number: 190724 (R20185383)



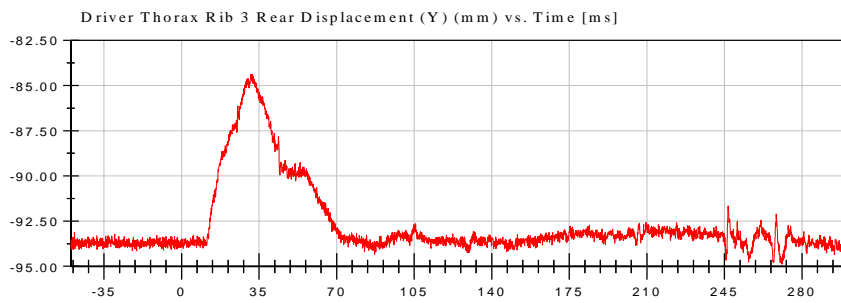
<Max>

-39.80 mm at 62.70 ms

<Min>

-48.49 mm at 82.50 ms

Unfiltered



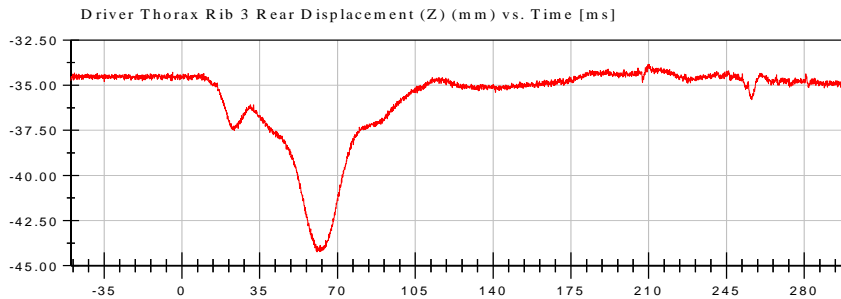
<Max>

-84.37 mm at 31.90 ms

<Min>

-94.89 mm at 271.00 ms

Unfiltered



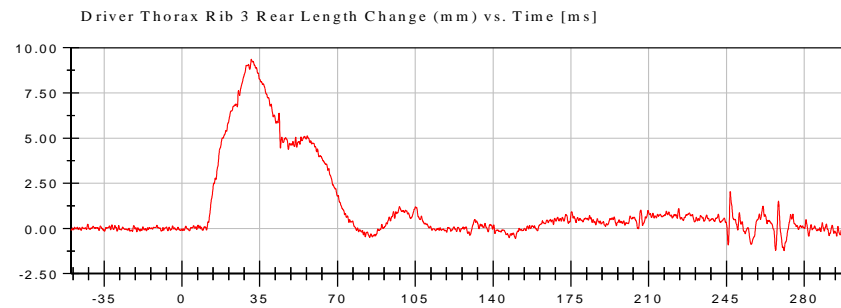
<Max>

-33.84 mm at 210.30 ms

<Min>

-44.23 mm at 60.80 ms

Unfiltered



<Max>

9.36 mm at 31.25 ms

<Min>

-1.22 mm at 270.90 ms

CFC_600

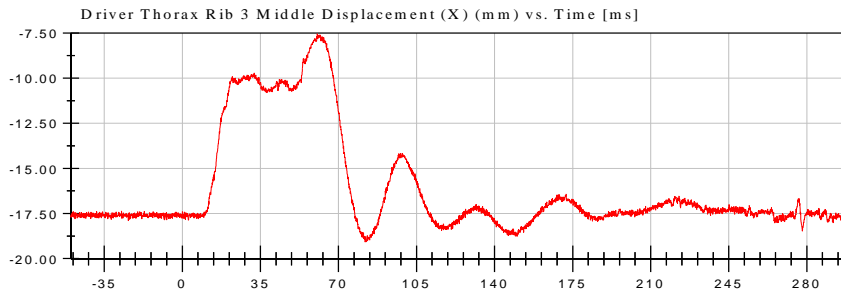


NHTSA

Test Date: 07/24/2019

Test Lab: CTF

Test Number: 190724 (R20185383)



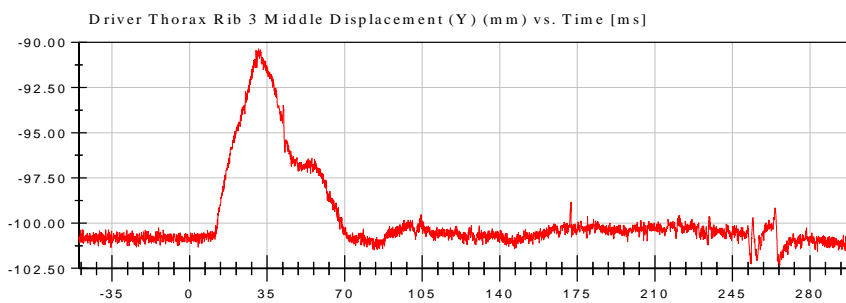
<Max>

-7.55 mm at 60.55 ms

<Min>

-19.07 mm at 82.00 ms

Unfiltered



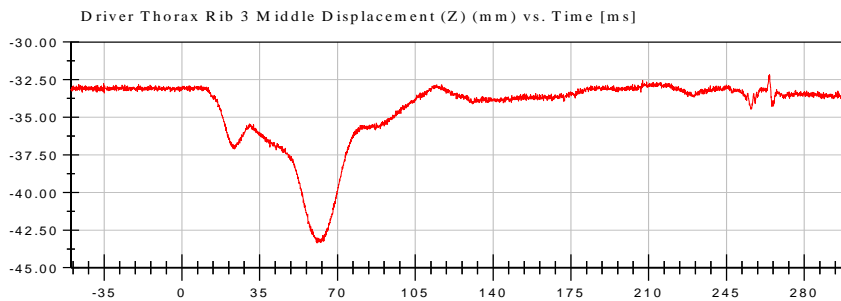
<Max>

-90.37 mm at 31.10 ms

<Min>

-102.33 mm at 266.30 ms

Unfiltered



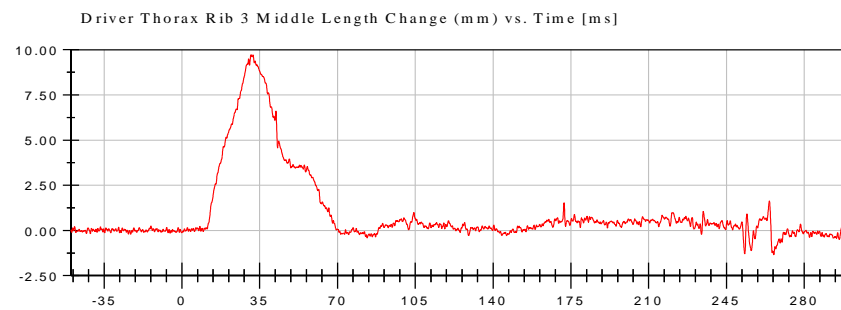
<Max>

-32.17 mm at 264.40 ms

<Min>

-43.36 mm at 60.80 ms

Unfiltered



<Max>

9.73 mm at 31.10 ms

<Min>

-1.35 mm at 266.25 ms

CFC_600



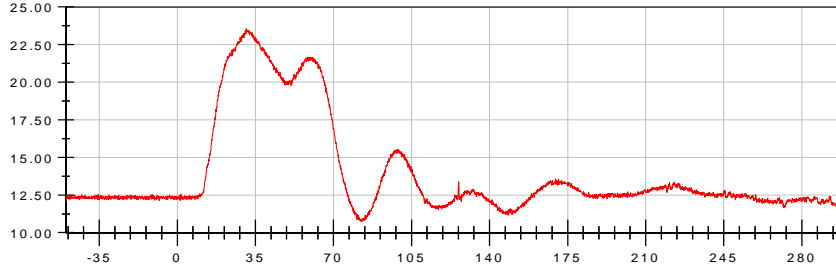
NHTSA

Test Date: 07/24/2019

Test Lab: CTF

Test Number: 190724 (R20185383)

Driver Thorax Rib 3 Front Displacement (X) (mm) vs. Time [ms]



<Max>

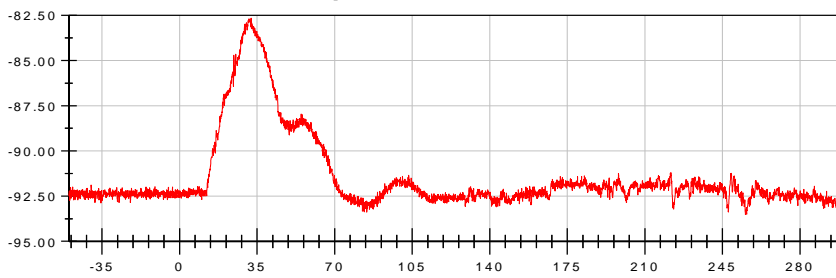
23.55 mm at 30.90 ms

<Min>

10.73 mm at 82.70 ms

Unfiltered

Driver Thorax Rib 3 Front Displacement (Y) (mm) vs. Time [ms]



<Max>

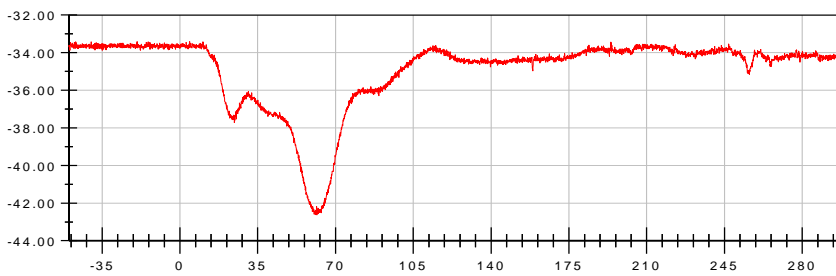
-82.65 mm at 32.25 ms

<Min>

-93.51 mm at 255.40 ms

Unfiltered

Driver Thorax Rib 3 Front Displacement (Z) (mm) vs. Time [ms]



<Max>

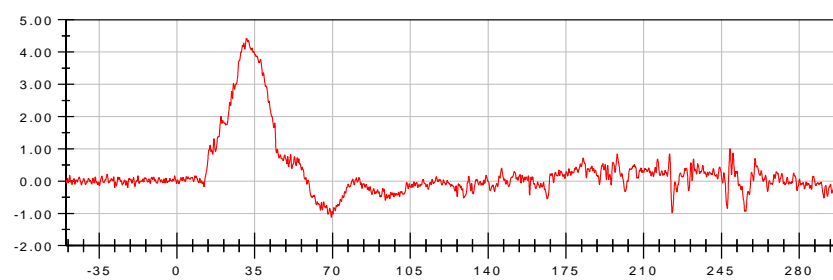
-33.41 mm at 4.35 ms

<Min>

-42.63 mm at 61.60 ms

Unfiltered

Driver Thorax Rib 3 Front Length Change (mm) vs. Time [ms]



<Max>

4.42 mm at 31.35 ms

<Min>

-1.12 mm at 69.45 ms

CFC_600

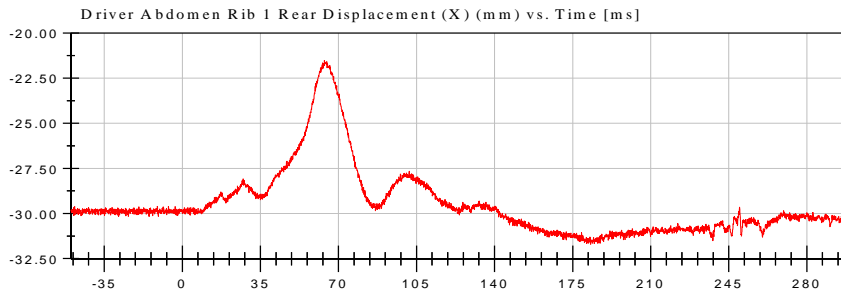


NHTSA

Test Date: 07/24/2019

Test Lab: CTF

Test Number: 190724 (R20185383)



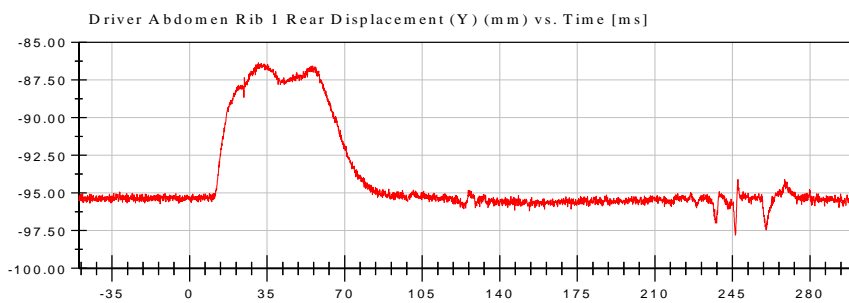
<Max>

-21.53 mm at 63.70 ms

<Min>

-31.70 mm at 183.05 ms

Unfiltered



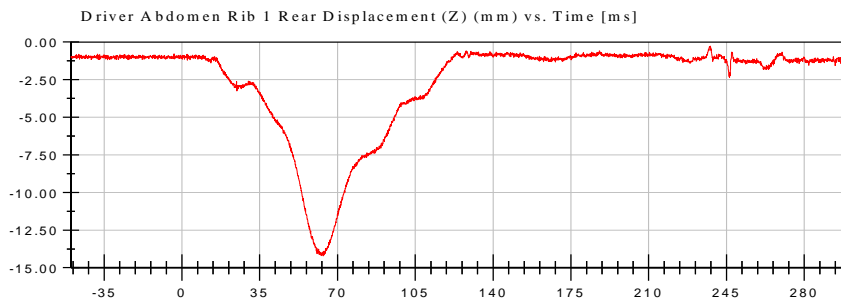
<Max>

-86.36 mm at 31.05 ms

<Min>

-97.80 mm at 246.35 ms

Unfiltered



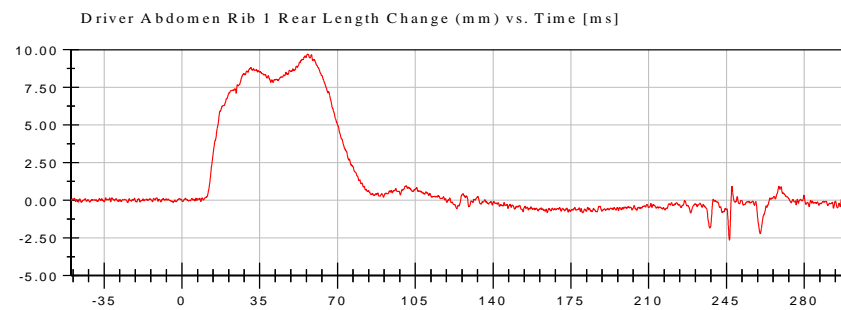
<Max>

-0.29 mm at 237.70 ms

<Min>

-14.22 mm at 63.60 ms

Unfiltered



<Max>

9.71 mm at 56.50 ms

<Min>

-2.65 mm at 246.30 ms

CFC_600

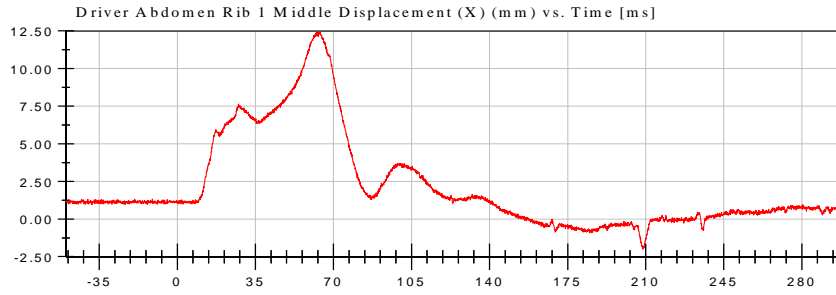


NHTSA

Test Date: 07/24/2019

Test Lab: CTF

Test Number: 190724 (R20185383)



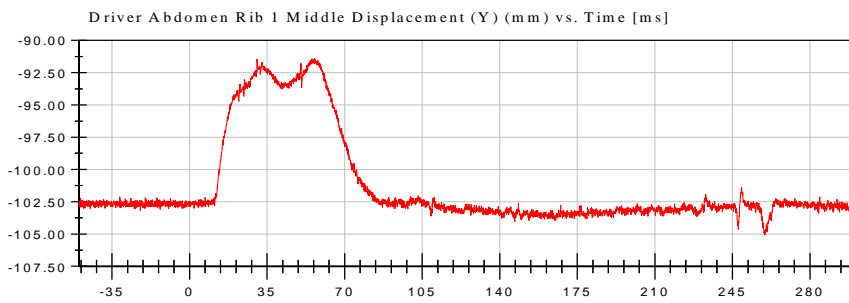
<Max>

12.43 mm at 62.70 ms

<Min>

-2.00 mm at 208.70 ms

Unfiltered



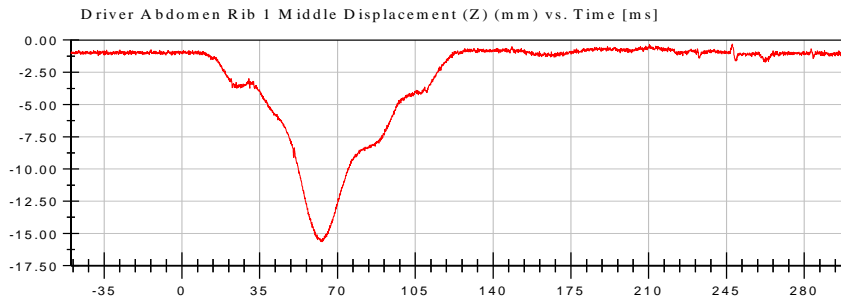
<Max>

-91.41 mm at 56.35 ms

<Min>

-105.06 mm at 259.65 ms

Unfiltered



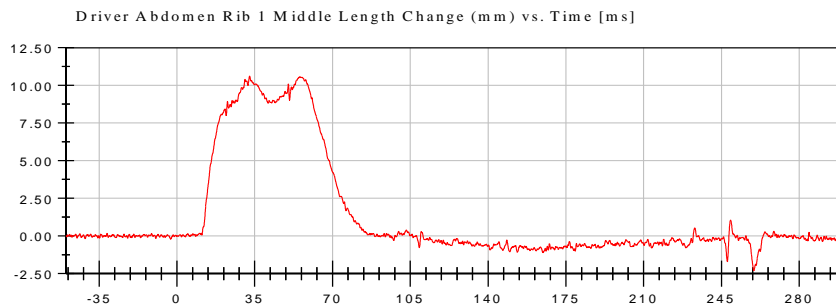
<Max>

-0.31 mm at 247.60 ms

<Min>

-15.64 mm at 63.20 ms

Unfiltered



<Max>

10.61 mm at 32.70 ms

<Min>

-2.30 mm at 259.55 ms

CFC_600

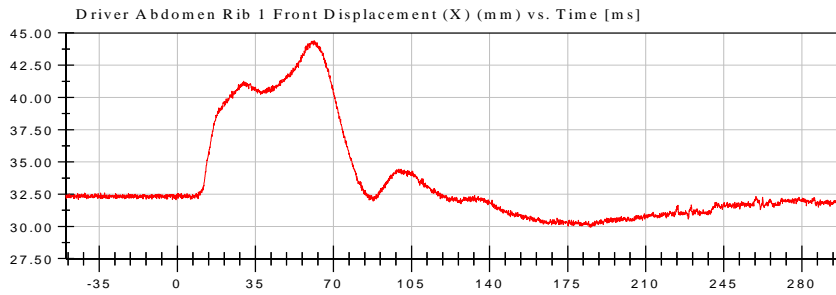


NHTSA

Test Date: 07/24/2019

Test Lab: CTF

Test Number: 190724 (R20185383)



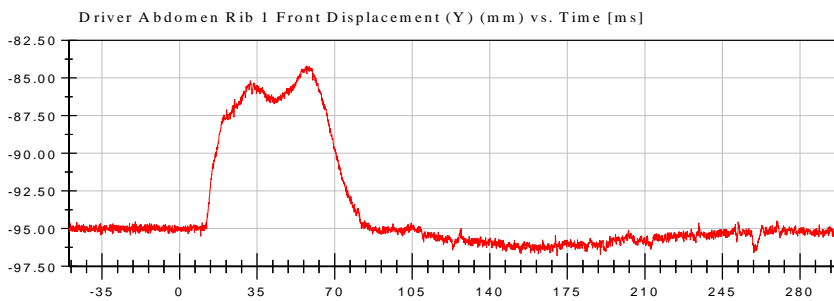
<Max>

44.39 mm at 61.40 ms

<Min>

29.93 mm at 185.30 ms

Unfiltered



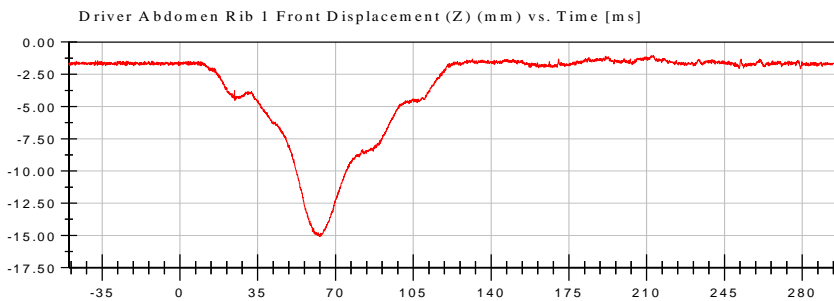
<Max>

-84.21 mm at 57.20 ms

<Min>

-96.80 mm at 170.40 ms

Unfiltered



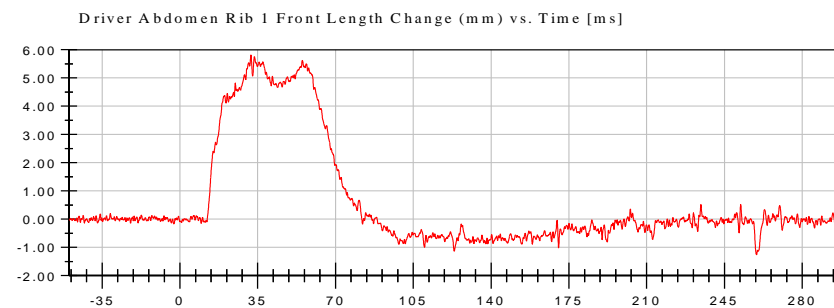
<Max>

-1.04 mm at 212.95 ms

<Min>

-15.09 mm at 62.70 ms

Unfiltered



<Max>

5.82 mm at 31.95 ms

<Min>

-1.26 mm at 259.45 ms

CFC_600

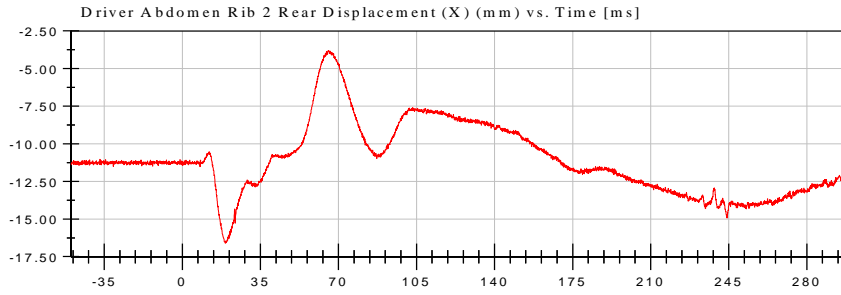


NHTSA

Test Date: 07/24/2019

Test Lab: CTF

Test Number: 190724 (R20185383)



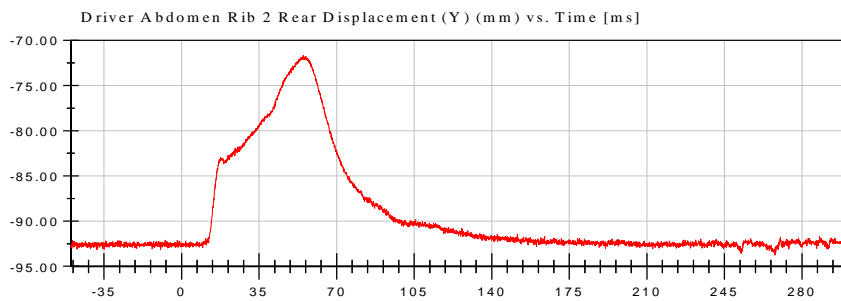
<Max>

-3.81 mm at 65.40 ms

<Min>

-16.61 mm at 19.30 ms

Unfiltered



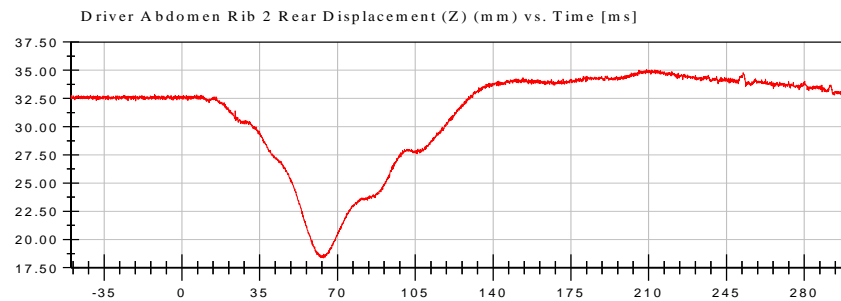
<Max>

-71.67 mm at 54.90 ms

<Min>

-93.74 mm at 267.80 ms

Unfiltered



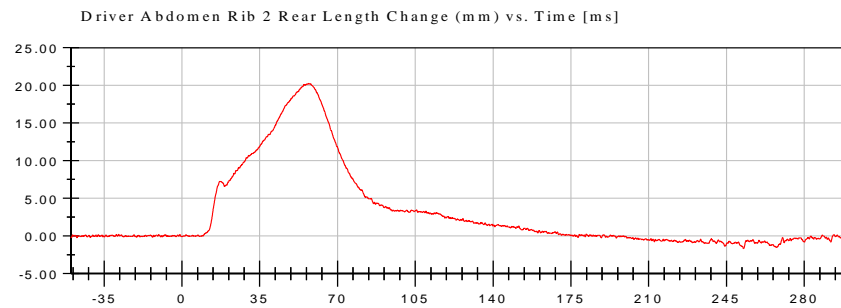
<Max>

35.05 mm at 209.00 ms

<Min>

18.36 mm at 63.65 ms

Unfiltered



<Max>

20.24 mm at 56.90 ms

<Min>

-1.68 mm at 252.65 ms

CFC_600

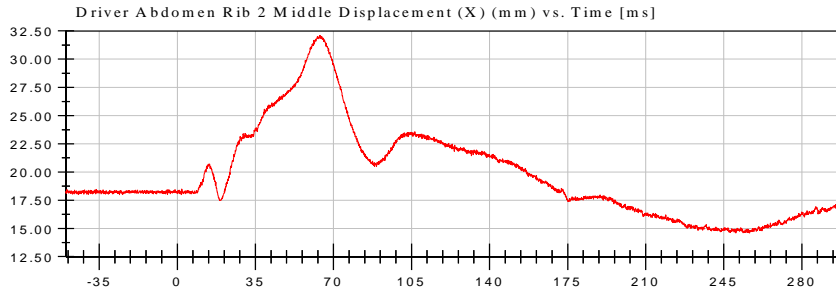


NHTSA

Test Date: 07/24/2019

Test Lab: CTF

Test Number: 190724 (R20185383)



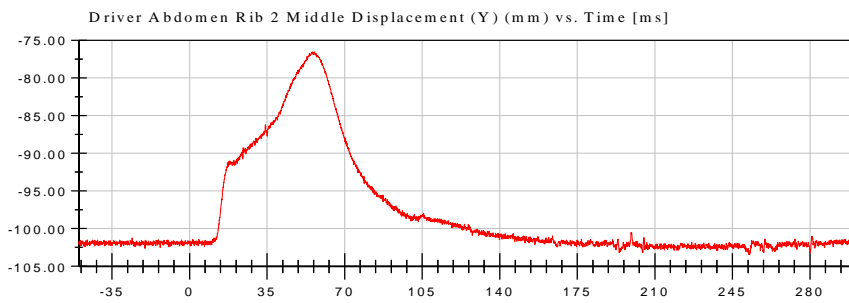
<Max>

32.10 mm at 63.80 ms

<Min>

14.59 mm at 256.60 ms

Unfiltered



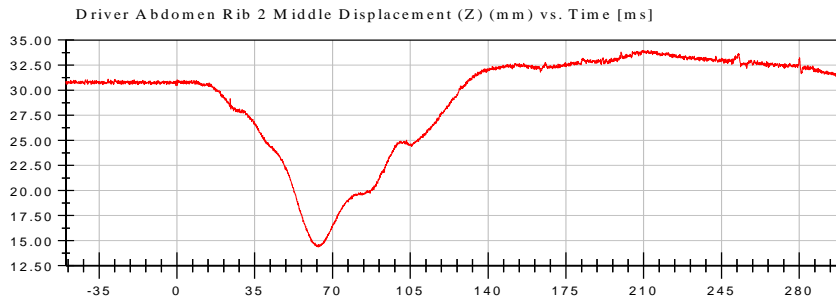
<Max>

-76.50 mm at 56.30 ms

<Min>

-103.48 mm at 252.50 ms

Unfiltered



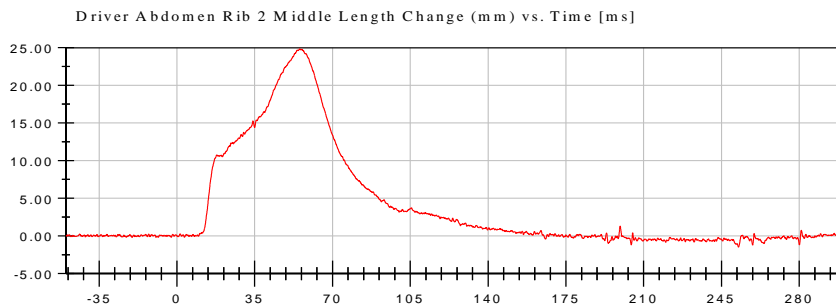
<Max>

33.97 mm at 213.40 ms

<Min>

14.36 mm at 63.60 ms

Unfiltered



<Max>

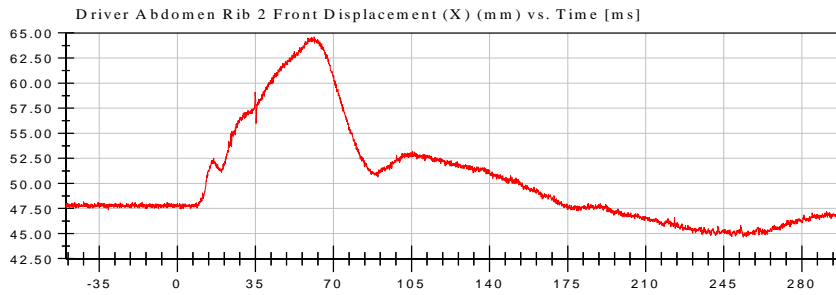
24.84 mm at 55.30 ms

<Min>

-1.46 mm at 252.65 ms

CFC_600





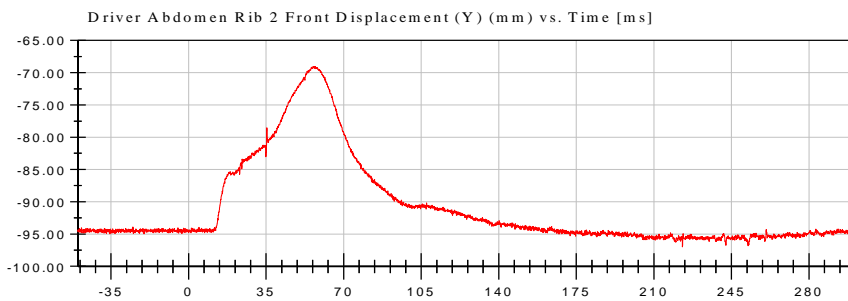
<Max>

64.61 mm at 61.40 ms

<Min>

44.68 mm at 253.70 ms

Unfiltered



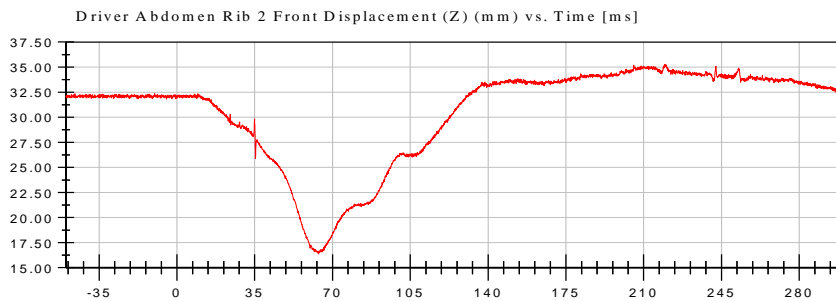
<Max>

-69.03 mm at 56.15 ms

<Min>

-96.99 mm at 222.90 ms

Unfiltered



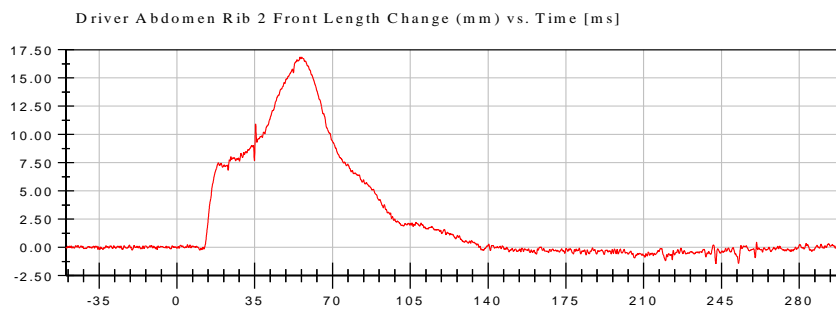
<Max>

35.28 mm at 219.50 ms

<Min>

16.39 mm at 63.65 ms

Unfiltered



<Max>

16.84 mm at 56.20 ms

<Min>

-1.44 mm at 242.45 ms

CFC_600

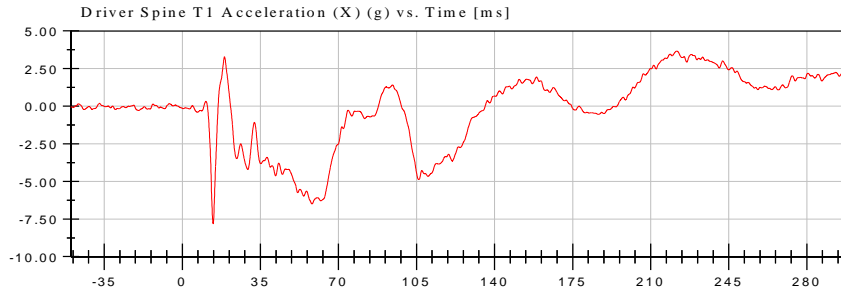


NHTSA

Test Date: 07/24/2019

Test Lab: CTF

Test Number: 190724 (R20185383)



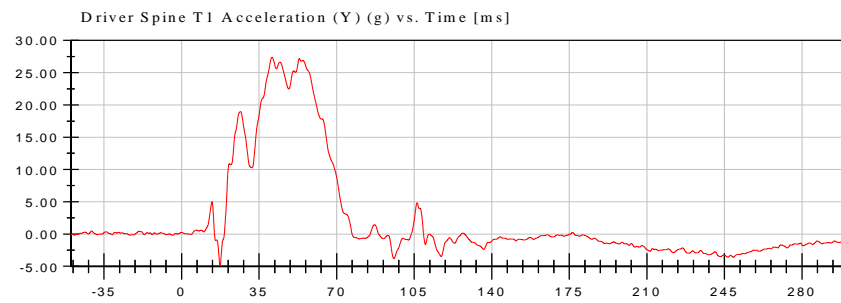
<Max>

3.66 g at 221.65 ms

<Min>

-7.82 g at 13.80 ms

CFC_180



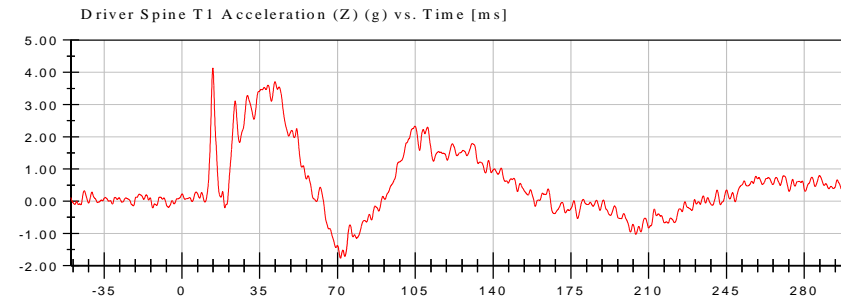
<Max>

27.37 g at 40.80 ms

<Min>

-4.89 g at 17.35 ms

CFC_180



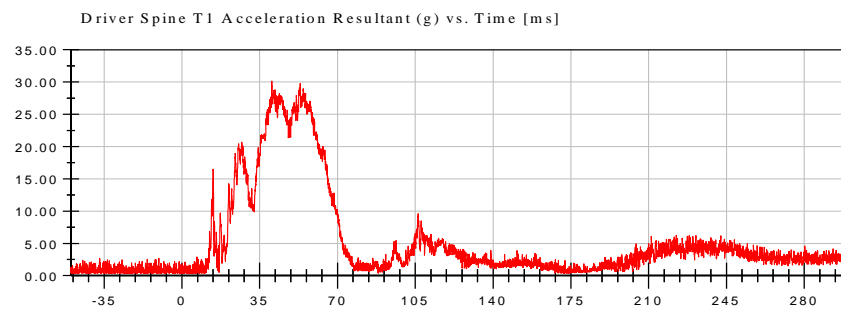
<Max>

4.13 g at 13.90 ms

<Min>

-1.77 g at 71.35 ms

CFC_180



<Max>

30.13 g at 40.40 ms

<Min>

0.34 g at -36.35 ms

Prefiltered_> CFC 1000

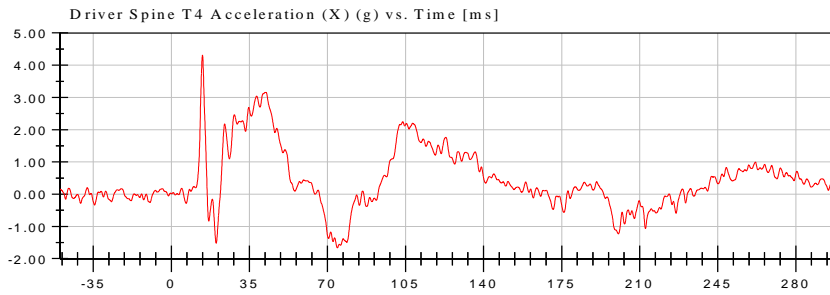


NHTSA

Test Date: 07/24/2019

Test Lab: CTF

Test Number: 190724 (R20185383)



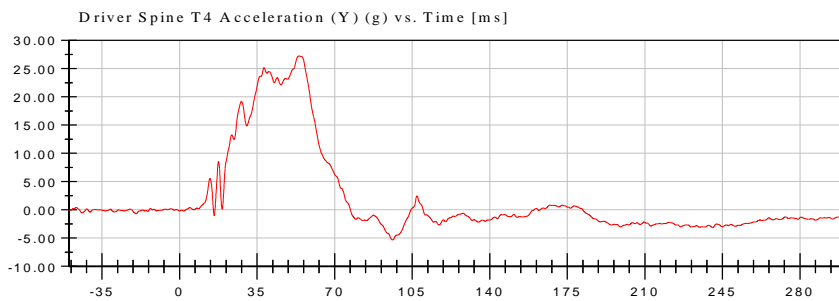
<Max>

4.31 g at 13.95 ms

<Min>

-1.67 g at 74.45 ms

CFC_180



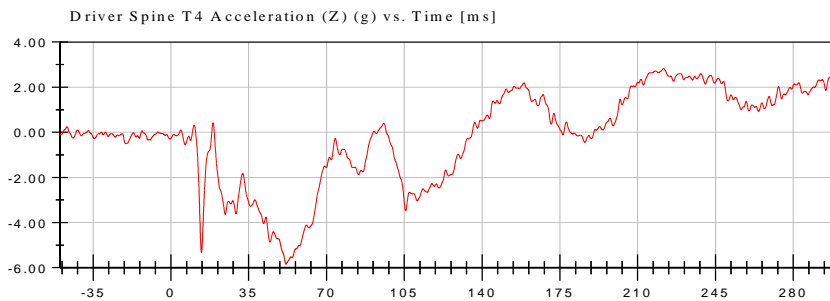
<Max>

27.22 g at 53.90 ms

<Min>

-5.33 g at 96.05 ms

CFC_180



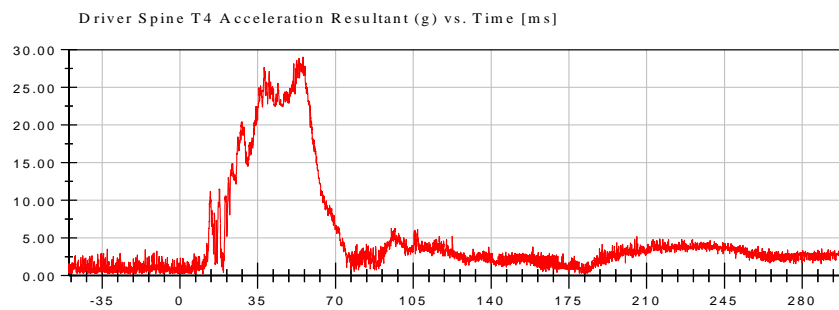
<Max>

2.82 g at 221.60 ms

<Min>

-5.85 g at 51.75 ms

CFC_180



<Max>

28.99 g at 55.40 ms

<Min>

0.18 g at -22.25 ms

Prefiltered_> CFC 1000

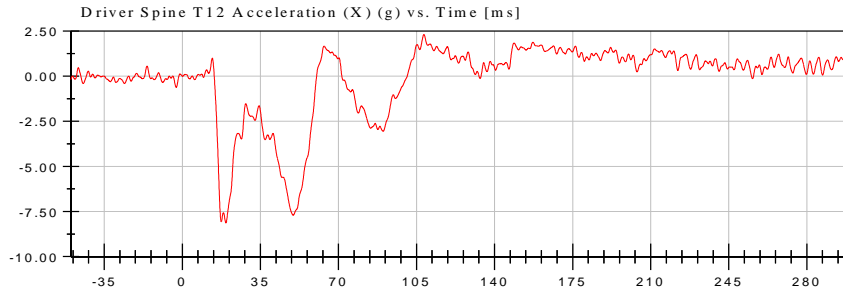


NHTSA

Test Date: 07/24/2019

Test Lab: CTF

Test Number: 190724 (R20185383)



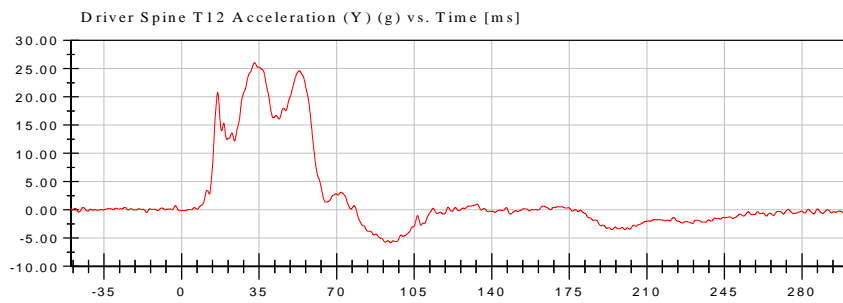
<Max>

2.31 g at 108.35 ms

<Min>

-8.13 g at 19.55 ms

CFC_180



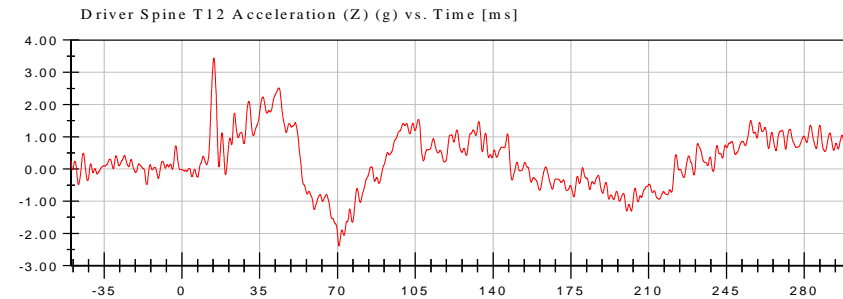
<Max>

26.04 g at 32.95 ms

<Min>

-5.84 g at 94.35 ms

CFC_180



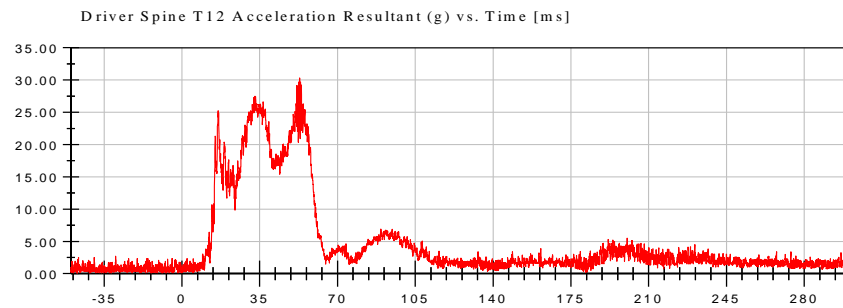
<Max>

3.44 g at 14.40 ms

<Min>

-2.39 g at 70.65 ms

CFC_180



<Max>

30.32 g at 52.95 ms

<Min>

0.05 g at -47.15 ms

Prefiltered_> CFC 1000

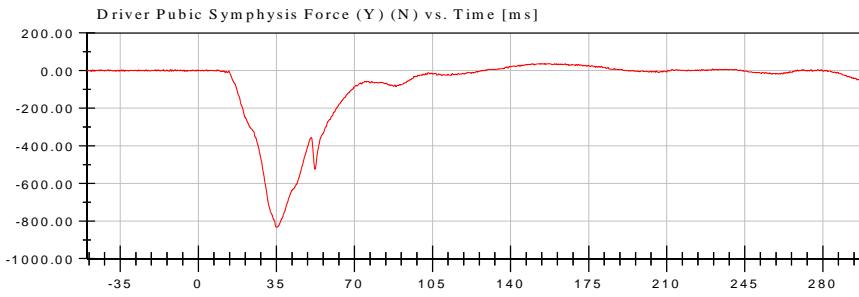


NHTSA

Test Date: 07/24/2019

Test Lab: CTF

Test Number: 190724 (R20185383)



<Max>

37.32 N at 154.30 ms

<Min>

-832.54 N at 35.15 ms

CFC_600

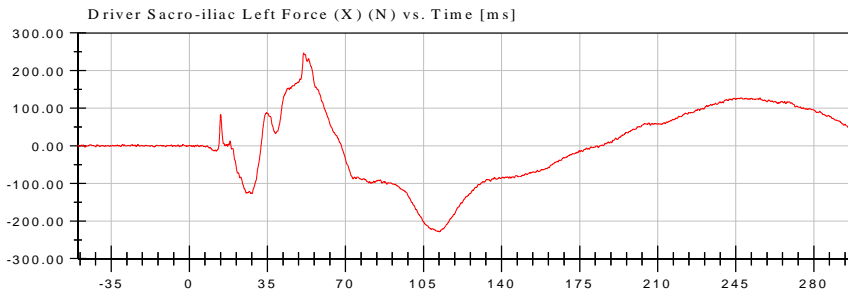


NHTSA

Test Date: 07/24/2019

Test Lab: CTF

Test Number: 190724 (R20185383)



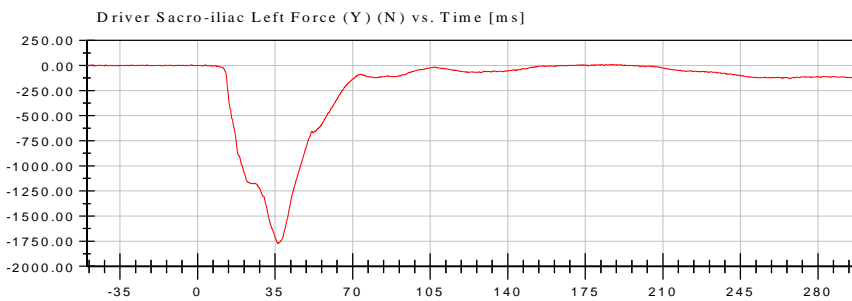
<Max>

247.12 N at 51.25 ms

<Min>

-228.65 N at 112.15 ms

CFC_600



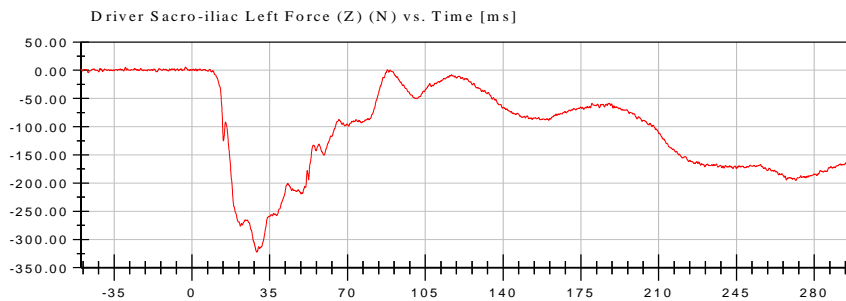
<Max>

8.78 N at 187.30 ms

<Min>

-1,773.34 N at 36.25 ms

CFC_600



<Max>

5.55 N at -2.90 ms

<Min>

-322.26 N at 29.20 ms

CFC_600

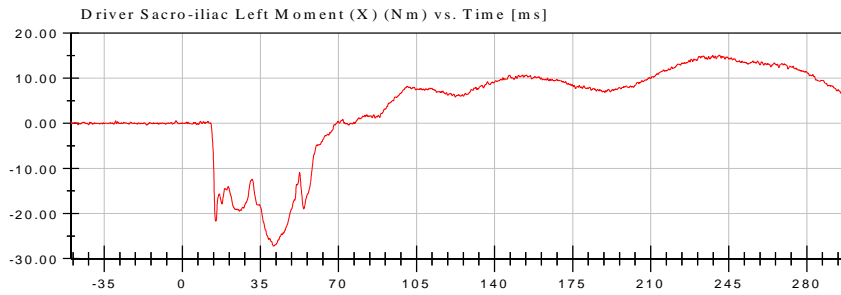


NHTSA

Test Date: 07/24/2019

Test Lab: CTF

Test Number: 190724 (R20185383)



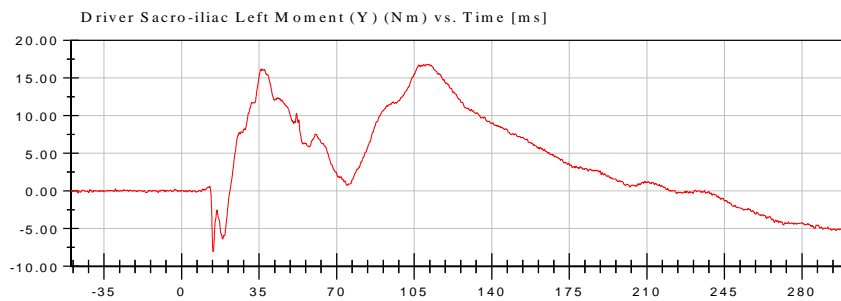
<Max>

15.07 Nm at 240.80 ms

<Min>

-27.22 Nm at 40.90 ms

CFC_600



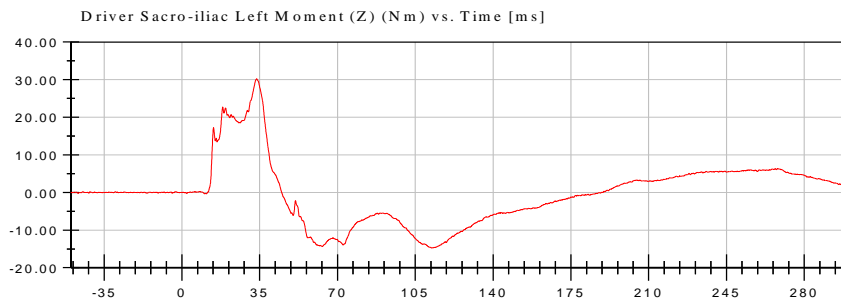
<Max>

16.82 Nm at 111.00 ms

<Min>

-8.05 Nm at 14.20 ms

CFC_600



<Max>

30.19 Nm at 33.60 ms

<Min>

-14.74 Nm at 112.40 ms

CFC_600

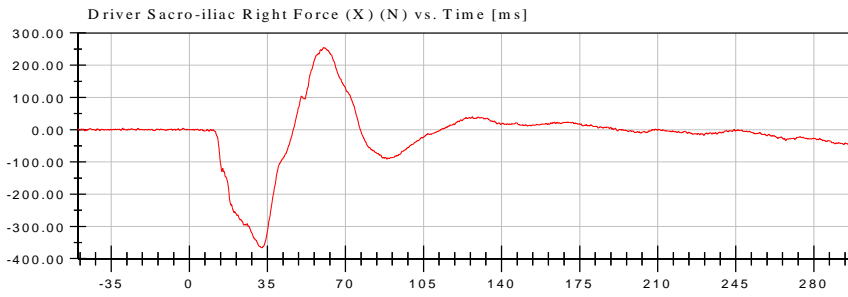


NHTSA

Test Date: 07/24/2019

Test Lab: CTF

Test Number: 190724 (R20185383)



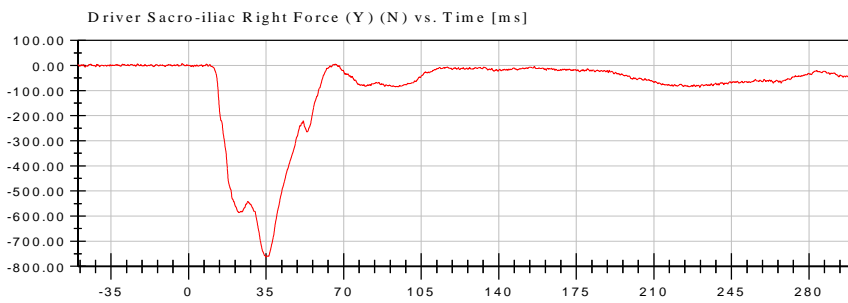
<Max>

254.69 N at 60.20 ms

<Min>

-366.44 N at 32.55 ms

CFC_600



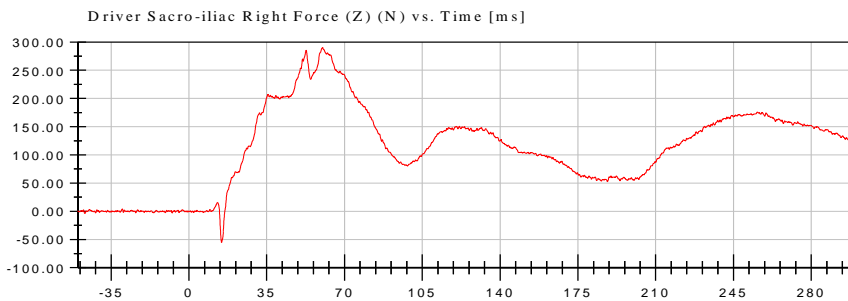
<Max>

7.31 N at -2.90 ms

<Min>

-763.39 N at 35.05 ms

CFC_600



<Max>

290.27 N at 60.15 ms

<Min>

-55.26 N at 14.70 ms

CFC_600

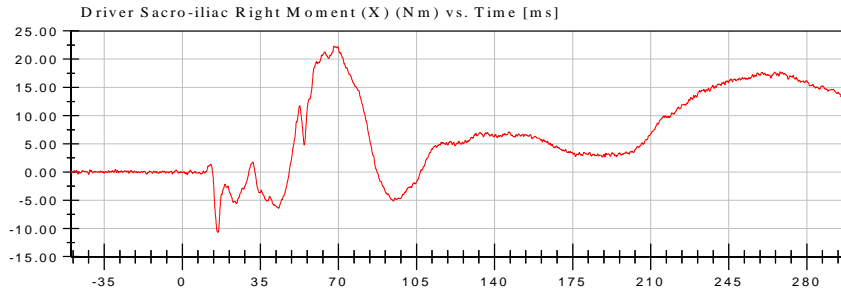


NHTSA

Test Date: 07/24/2019

Test Lab: CTF

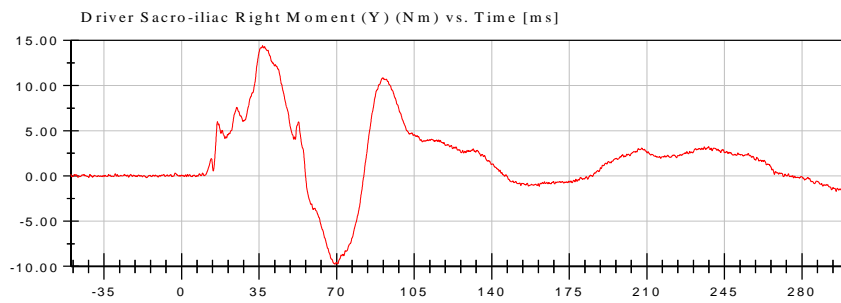
Test Number: 190724 (R20185383)



<Max>
22.32 Nm at 68.05 ms

<Min>
-10.71 Nm at 16.00 ms

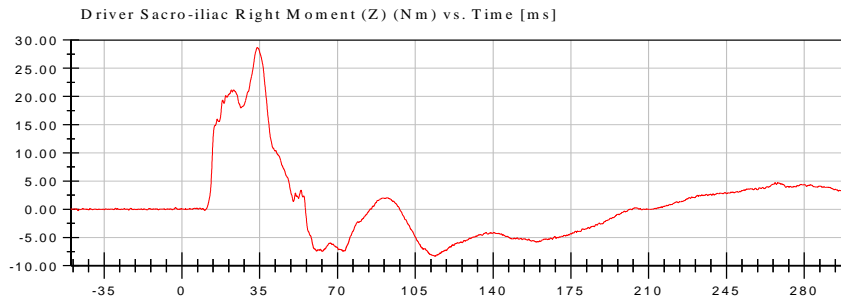
CFC_600



<Max>
14.38 Nm at 36.55 ms

<Min>
-9.77 Nm at 69.30 ms

CFC_600



<Max>
28.65 Nm at 33.95 ms

<Min>
-8.32 Nm at 113.90 ms

CFC_600

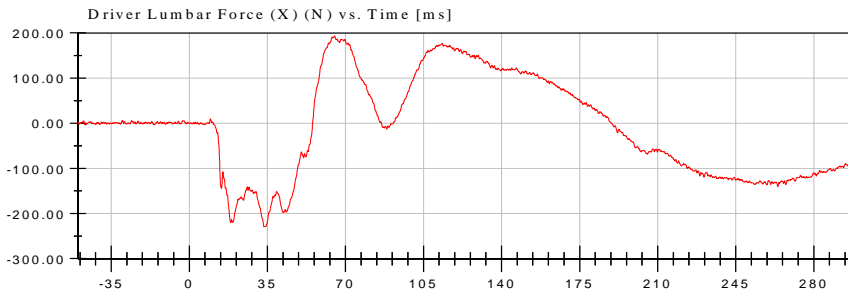


NHTSA

Test Date: 07/24/2019

Test Lab: CTF

Test Number: 190724 (R20185383)



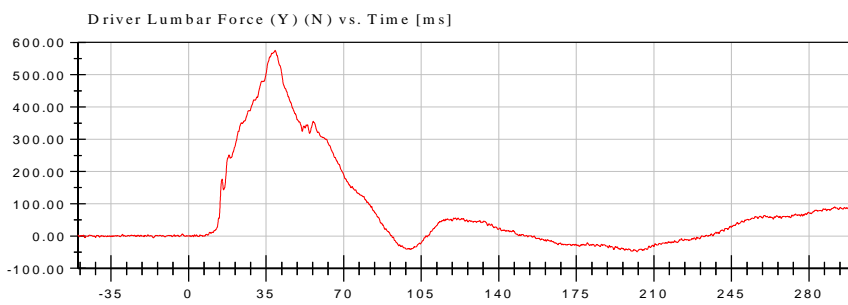
<Max>

193.44 N at 65.15 ms

<Min>

-229.08 N at 33.50 ms

CFC_600



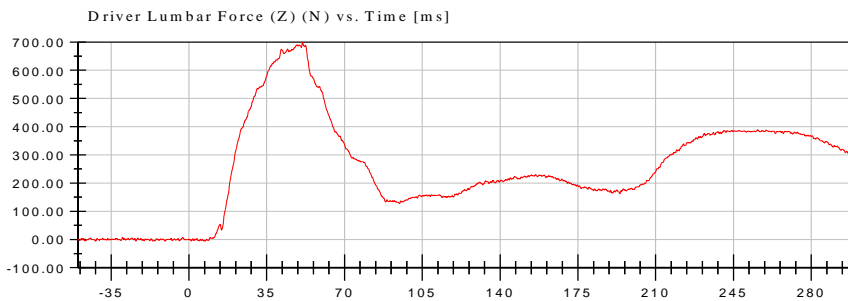
<Max>

575.43 N at 39.05 ms

<Min>

-49.05 N at 202.45 ms

CFC_600



<Max>

698.91 N at 51.10 ms

<Min>

-6.06 N at 7.30 ms

CFC_600

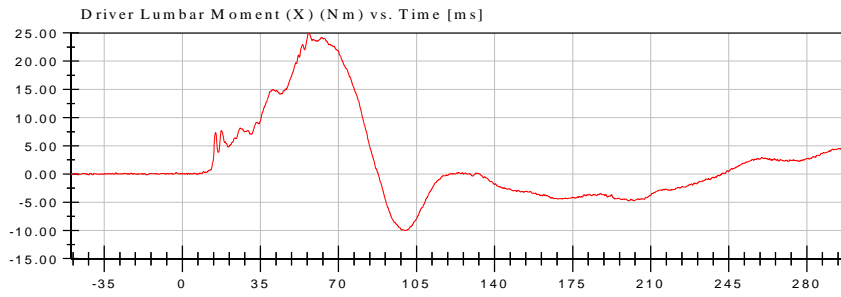


NHTSA

Test Date: 07/24/2019

Test Lab: CTF

Test Number: 190724 (R20185383)



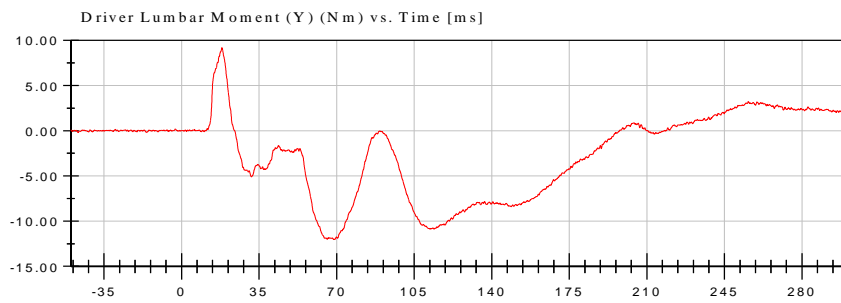
<Max>

24.95 Nm at 56.75 ms

<Min>

-10.02 Nm at 100.10 ms

CFC_600



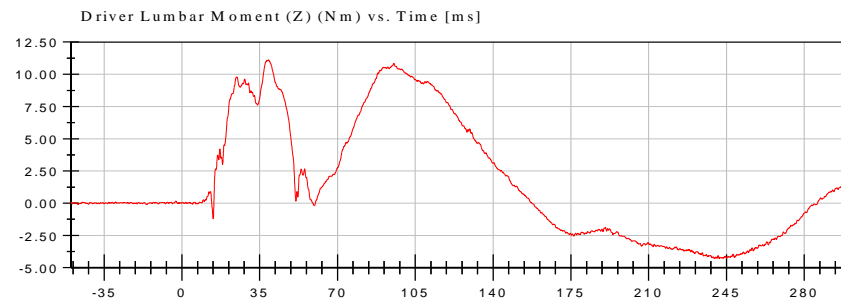
<Max>

9.19 Nm at 18.20 ms

<Min>

-12.03 Nm at 68.70 ms

CFC_600



<Max>

11.11 Nm at 39.00 ms

<Min>

-4.30 Nm at 241.70 ms

CFC_600

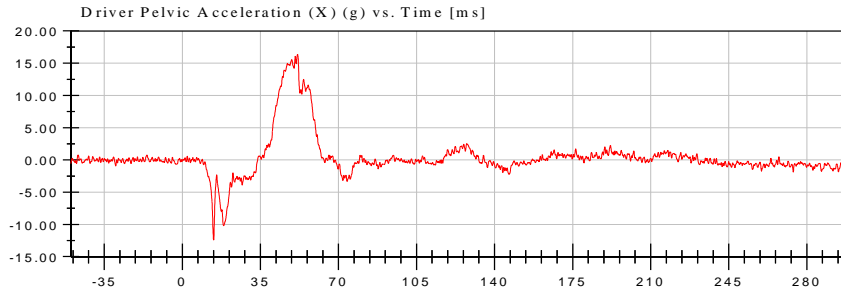


NHTSA

Test Date: 07/24/2019

Test Lab: CTF

Test Number: 190724 (R20185383)



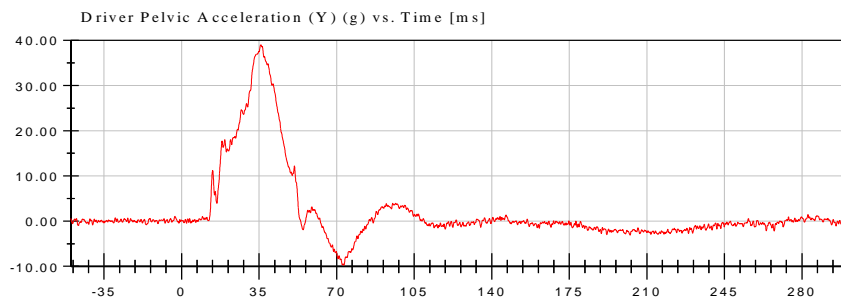
<Max>

16.35 g at 51.65 ms

<Min>

-12.42 g at 14.05 ms

CFC_600



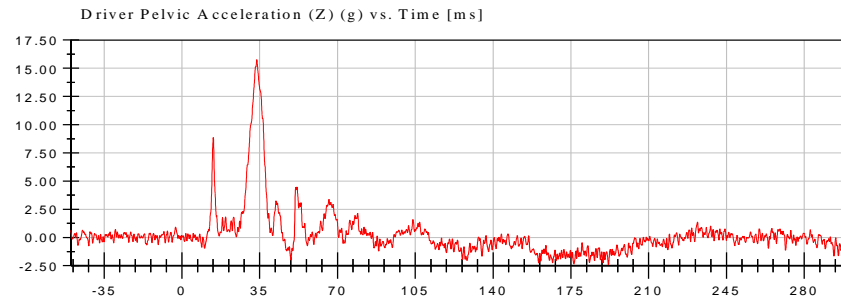
<Max>

39.03 g at 35.80 ms

<Min>

-9.76 g at 73.15 ms

CFC_600



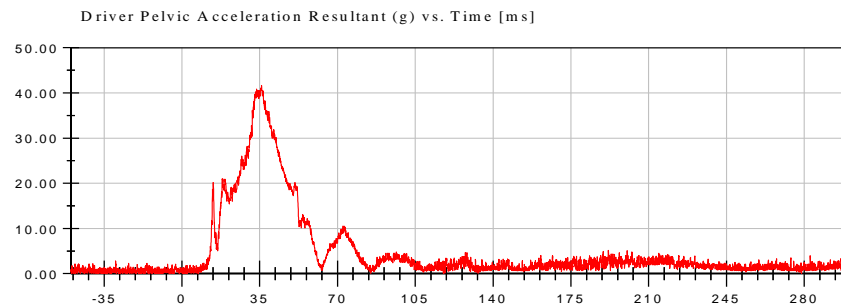
<Max>

15.74 g at 33.70 ms

<Min>

-2.41 g at 191.90 ms

CFC_600



<Max>

41.64 g at 35.85 ms

<Min>

0.11 g at -49.75 ms

Prefiltered_> CFC 1000

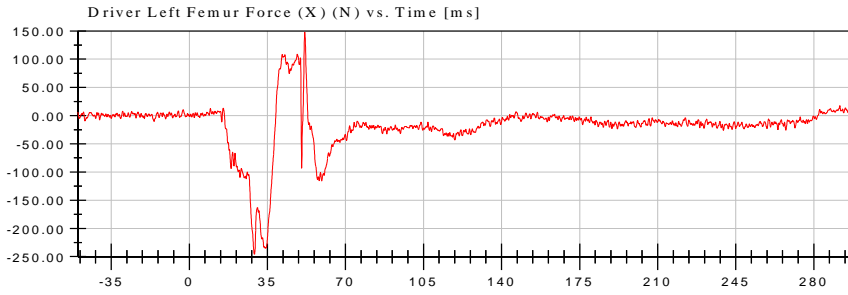


NHTSA

Test Date: 07/24/2019

Test Lab: CTF

Test Number: 190724 (R20185383)



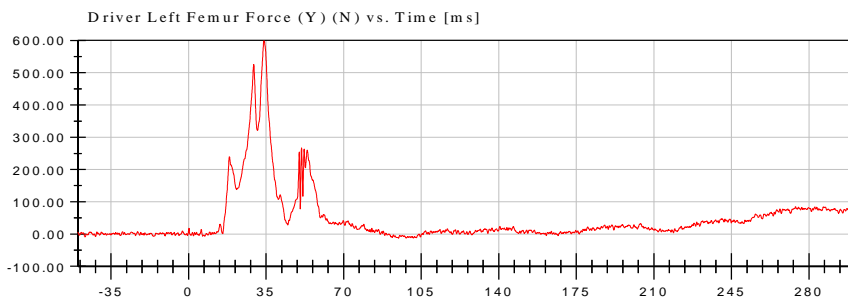
<Max>

147.50 N at 51.75 ms

<Min>

-245.87 N at 29.20 ms

CFC_600



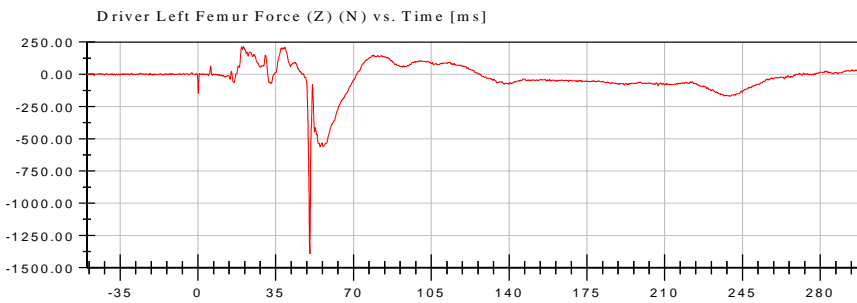
<Max>

598.63 N at 34.05 ms

<Min>

-12.79 N at 94.75 ms

CFC_600



<Max>

213.75 N at 20.55 ms

<Min>

-1,390.40 N at 50.35 ms

CFC_600



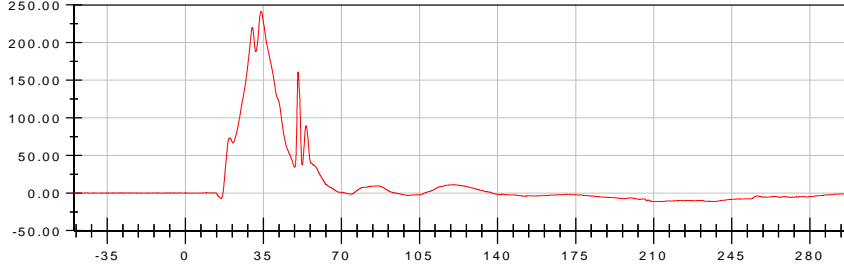
NHTSA

Test Date: 07/24/2019

Test Lab: CTF

Test Number: 190724 (R20185383)

Driver Left Femur Moment (X) (Nm) vs. Time [ms]



<Max>

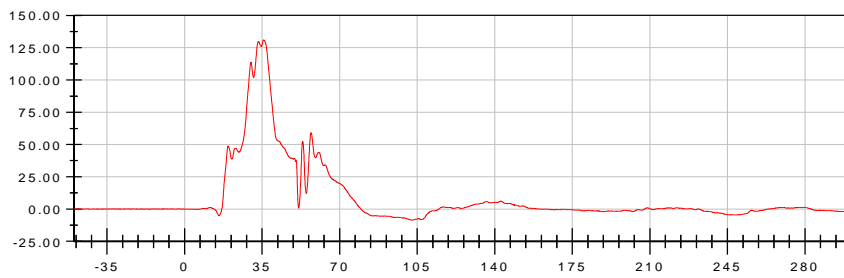
241.88 Nm at 34.05 ms

<Min>

-11.44 Nm at 211.90 ms

CFC_600

Driver Left Femur Moment (Y) (Nm) vs. Time [ms]



<Max>

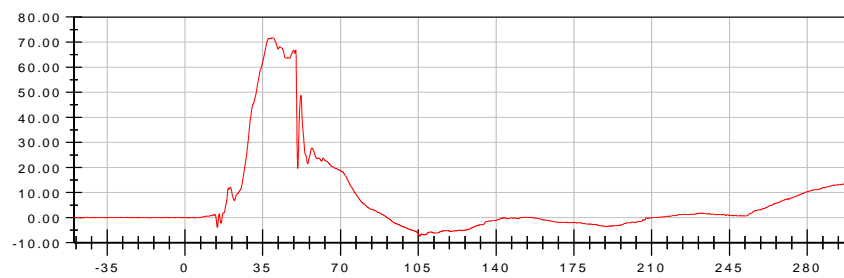
130.90 Nm at 35.70 ms

<Min>

-8.60 Nm at 102.75 ms

CFC_600

Driver Left Femur Moment (Z) (Nm) vs. Time [ms]



<Max>

71.75 Nm at 39.40 ms

<Min>

-7.32 Nm at 105.70 ms

CFC_600

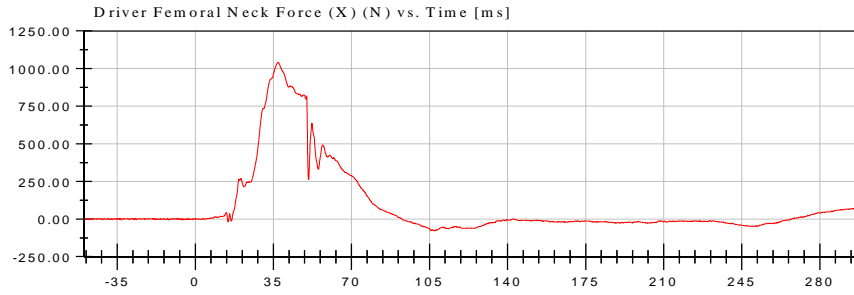


NHTSA

Test Date: 07/24/2019

Test Lab: CTF

Test Number: 190724 (R20185383)



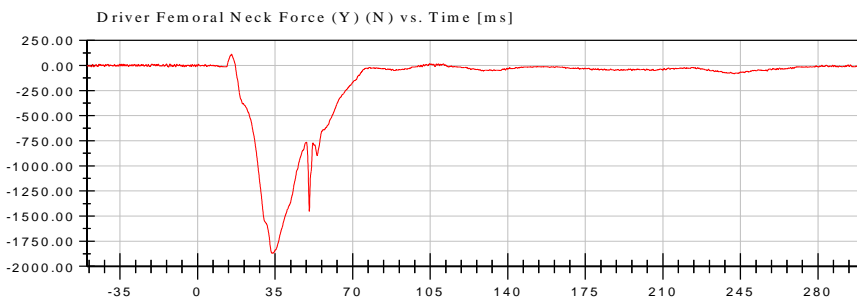
<Max>

1,041.91 N at 37.15 ms

<Min>

-78.88 N at 107.15 ms

CFC_600



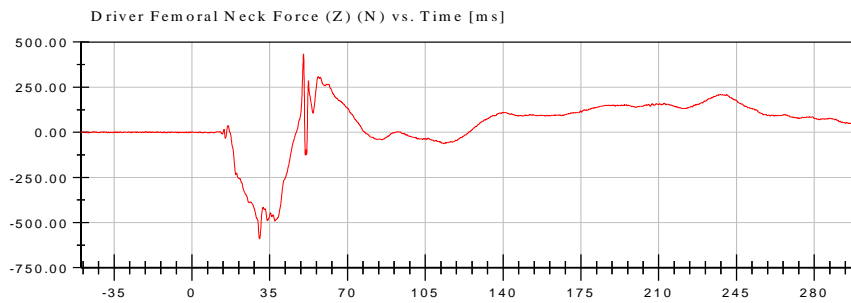
<Max>

111.89 N at 15.30 ms

<Min>

-1,869.49 N at 34.05 ms

CFC_600



<Max>

433.56 N at 50.20 ms

<Min>

-589.78 N at 30.45 ms

CFC_600

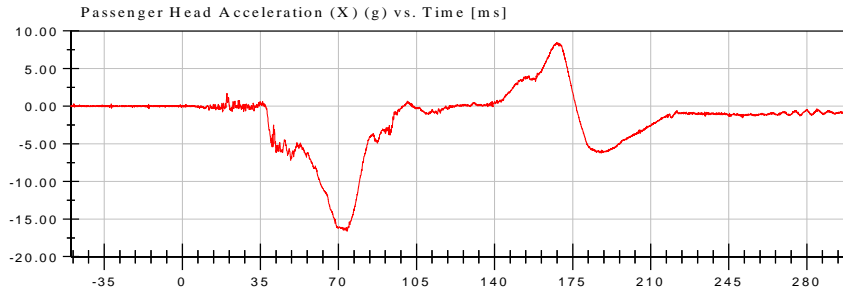


NHTSA

Test Date: 07/24/2019

Test Lab: CTF

Test Number: 190724 (R20185383)



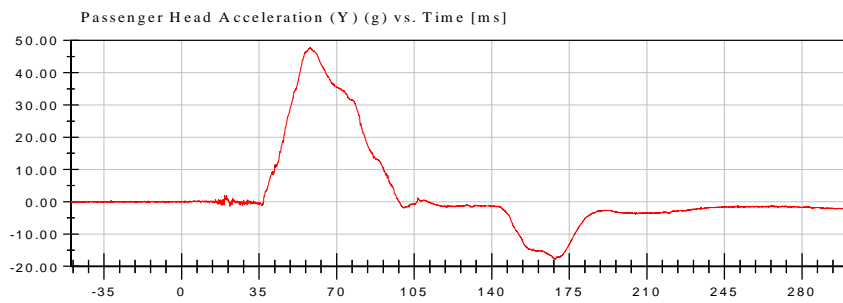
<Max>

8.43 g at 167.80 ms

<Min>

-16.64 g at 73.90 ms

CFC_1000



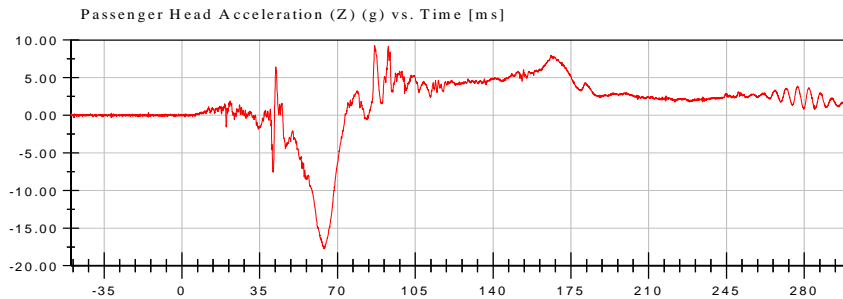
<Max>

47.80 g at 58.20 ms

<Min>

-17.90 g at 168.80 ms

CFC_1000



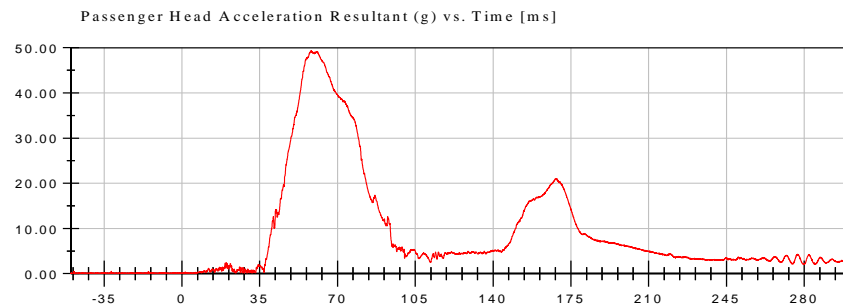
<Max>

9.24 g at 86.70 ms

<Min>

-17.75 g at 63.90 ms

CFC_1000



<Max>

49.37 g at 58.20 ms

<Min>

0.03 g at -49.90 ms

CFC_1000

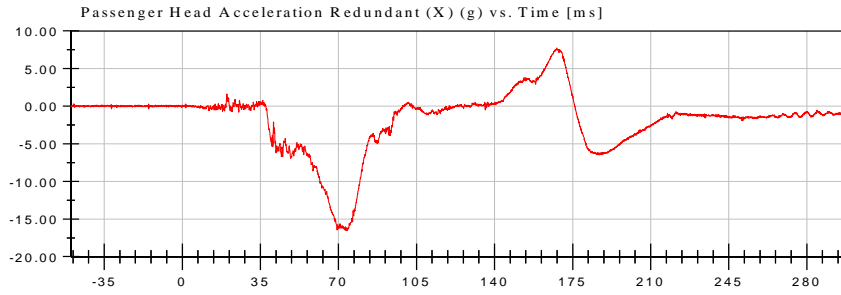


NHTSA

Test Date: 07/24/2019

Test Lab: CTF

Test Number: 190724 (R20185383)



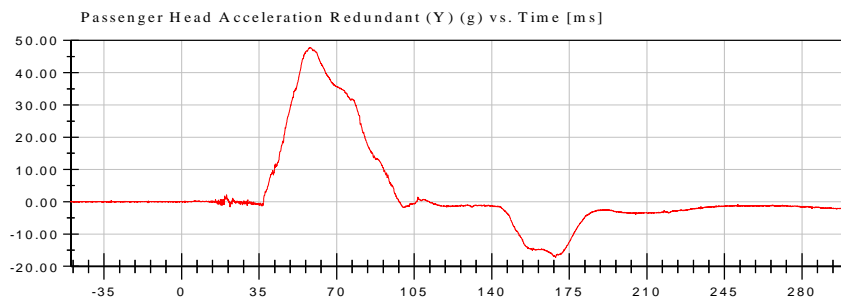
<Max>

7.75 g at 167.85 ms

<Min>

-16.54 g at 73.35 ms

CFC_1000



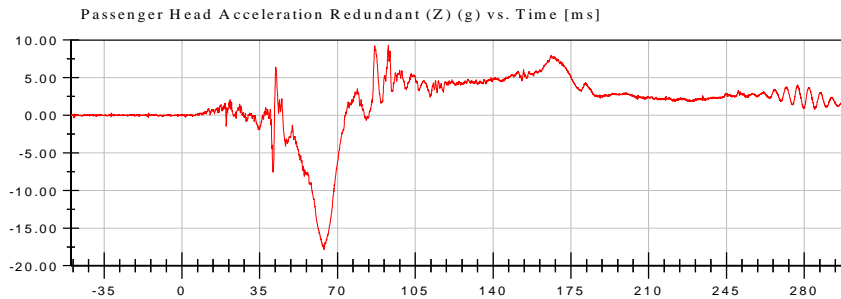
<Max>

47.86 g at 58.15 ms

<Min>

-17.31 g at 168.80 ms

CFC_1000



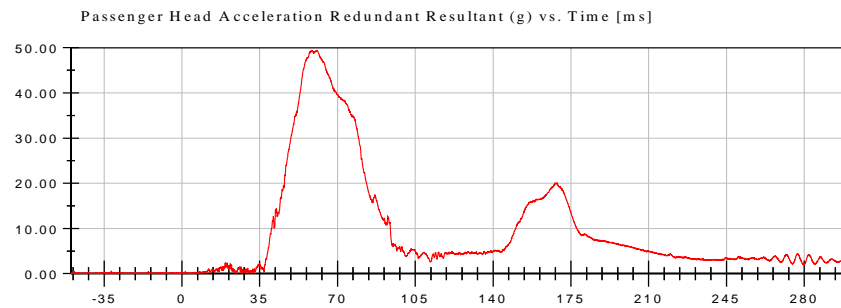
<Max>

9.32 g at 92.85 ms

<Min>

-17.84 g at 63.90 ms

CFC_1000



<Max>

49.41 g at 60.85 ms

<Min>

0.03 g at -49.95 ms

CFC_1000

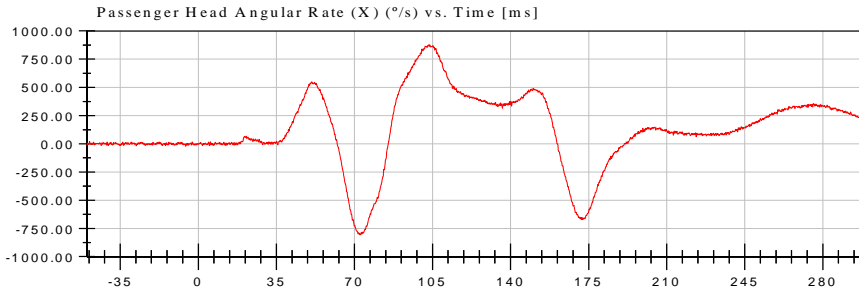


NHTSA

Test Date: 07/24/2019

Test Lab: CTF

Test Number: 190724 (R20185383)



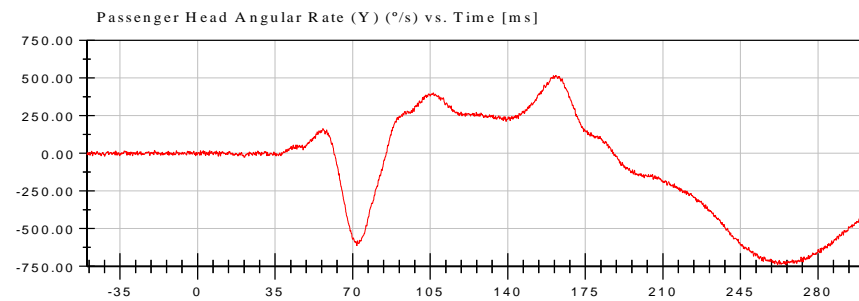
<Max>

878.10 °/s at 103.30 ms

<Min>

-806.15 °/s at 72.50 ms

CFC_1000



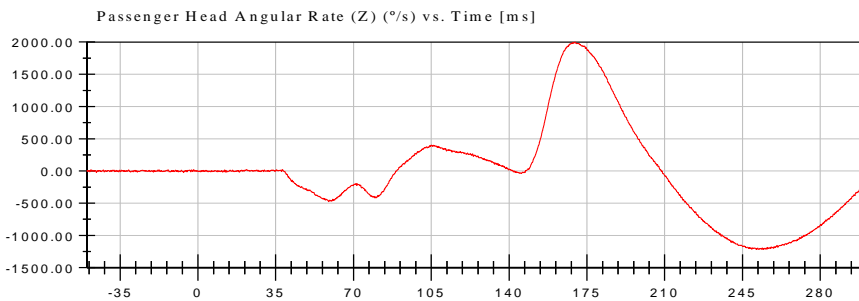
<Max>

517.13 °/s at 161.65 ms

<Min>

-740.71 °/s at 261.80 ms

CFC_1000



<Max>

1,998.04 °/s at 169.65 ms

<Min>

-1,216.27 °/s at 254.25 ms

CFC_1000

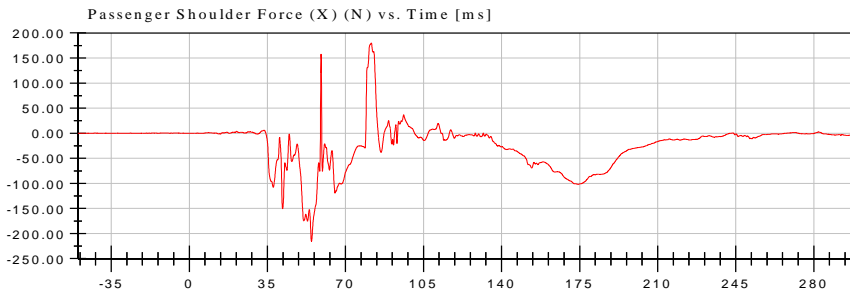


NHTSA

Test Date: 07/24/2019

Test Lab: CTF

Test Number: 190724 (R20185383)



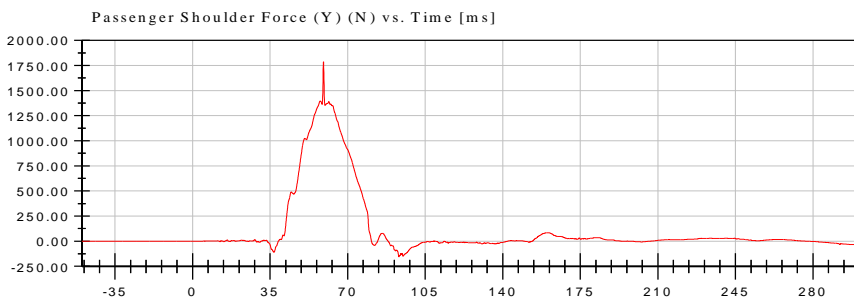
<Max>

179.98 N at 81.55 ms

<Min>

-215.75 N at 54.80 ms

CFC_600



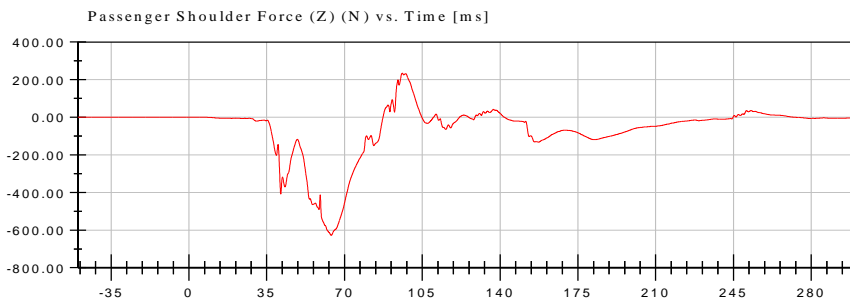
<Max>

1,786.90 N at 59.10 ms

<Min>

-155.11 N at 93.10 ms

CFC_600



<Max>

233.85 N at 96.00 ms

<Min>

-628.04 N at 64.00 ms

CFC_600

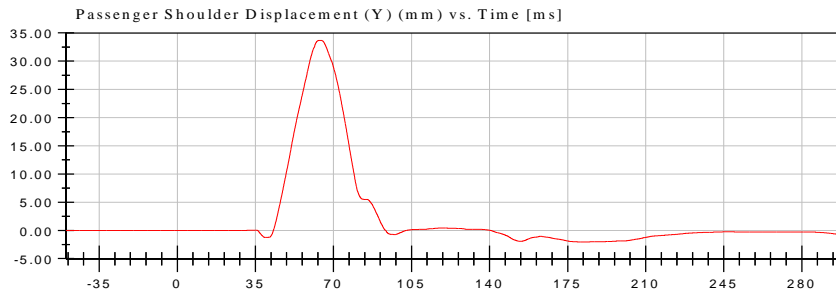


NHTSA

Test Date: 07/24/2019

Test Lab: CTF

Test Number: 190724 (R20185383)



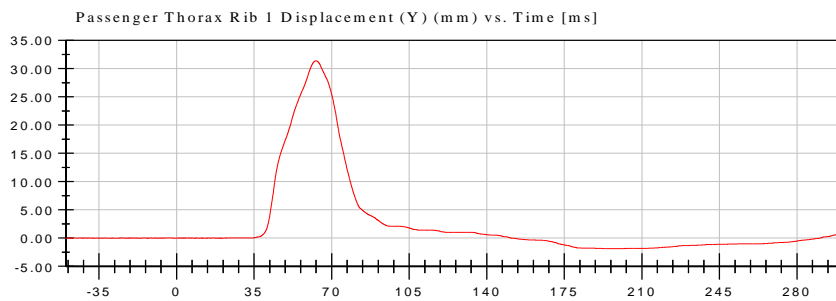
<Max>

33.68 mm at 63.95 ms

<Min>

-2.03 mm at 180.85 ms

CFC_600



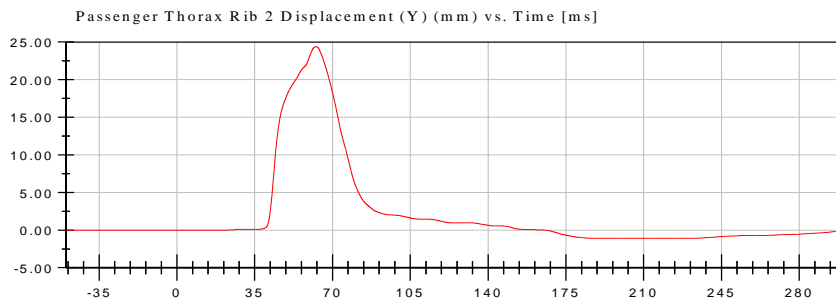
<Max>

31.38 mm at 63.00 ms

<Min>

-1.87 mm at 197.25 ms

CFC_600



<Max>

24.38 mm at 62.50 ms

<Min>

-1.11 mm at 202.70 ms

CFC_600

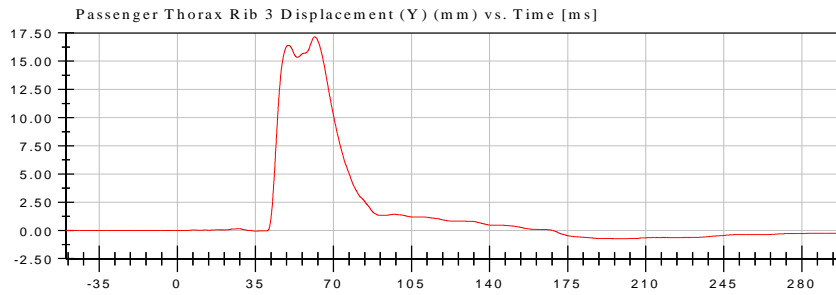


NHTSA

Test Date: 07/24/2019

Test Lab: CTF

Test Number: 190724 (R20185383)



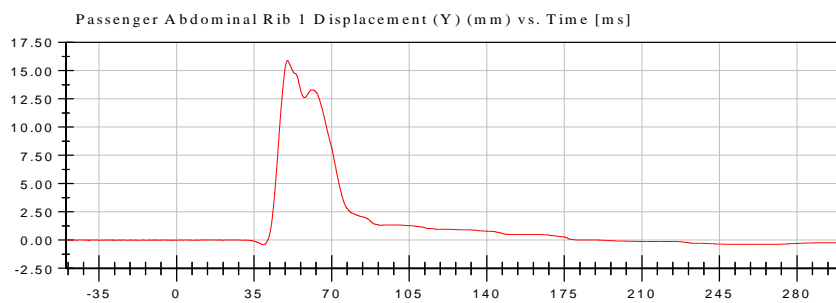
<Max>

17.16 mm at 61.55 ms

<Min>

-0.73 mm at 198.35 ms

CFC_600



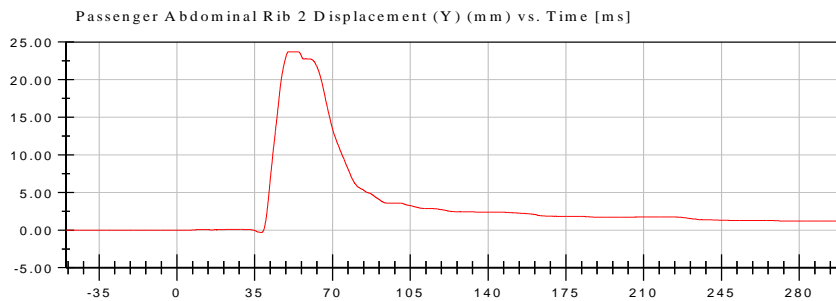
<Max>

15.89 mm at 50.05 ms

<Min>

-0.40 mm at 39.25 ms

CFC_600



<Max>

23.71 mm at 50.20 ms

<Min>

-0.32 mm at 38.00 ms

CFC_600

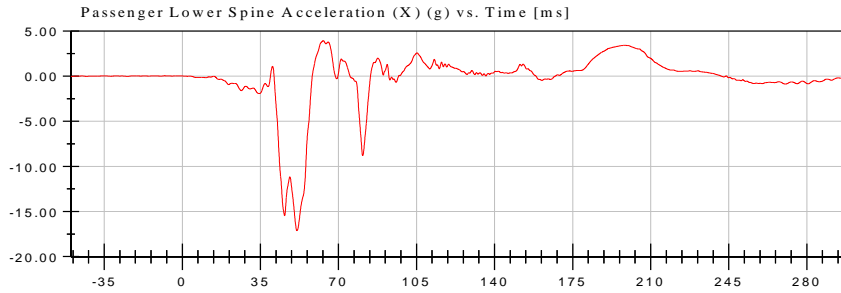


NHTSA

Test Date: 07/24/2019

Test Lab: CTF

Test Number: 190724 (R20185383)



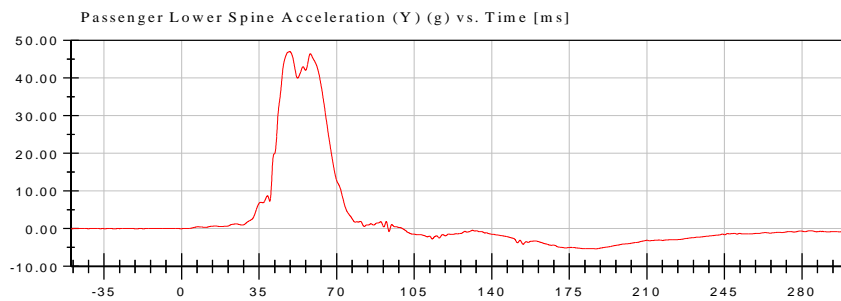
<Max>

3.92 g at 63.20 ms

<Min>

-17.12 g at 51.40 ms

CFC_180



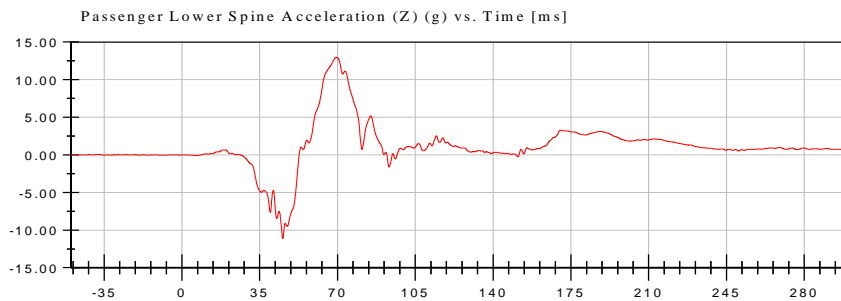
<Max>

47.03 g at 48.85 ms

<Min>

-5.36 g at 187.05 ms

CFC_180



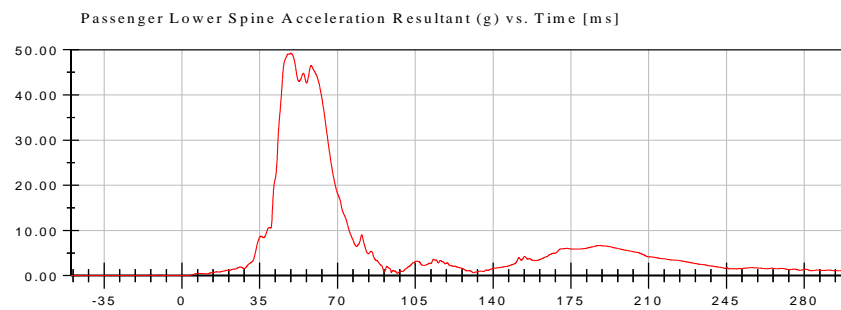
<Max>

12.98 g at 69.45 ms

<Min>

-11.11 g at 45.40 ms

CFC_180



<Max>

49.22 g at 49.05 ms

<Min>

0.00 g at -31.30 ms

CFC_180

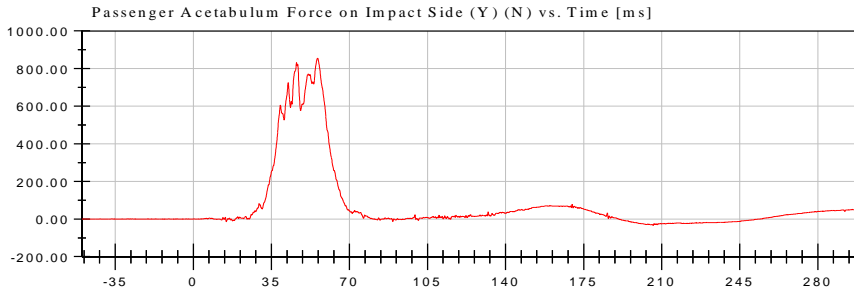


NHTSA

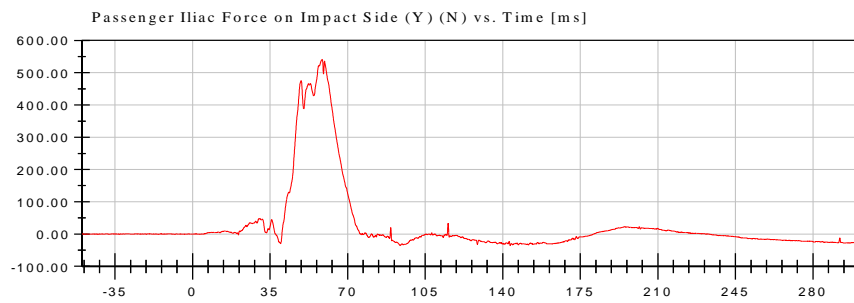
Test Date: 07/24/2019

Test Lab: CTF

Test Number: 190724 (R20185383)



<Max>
854.61 N at 55.75 ms
<Min>
-34.15 N at 206.15 ms
CFC_600



<Max>
540.98 N at 58.50 ms
<Min>
-35.40 N at 143.30 ms
CFC_600

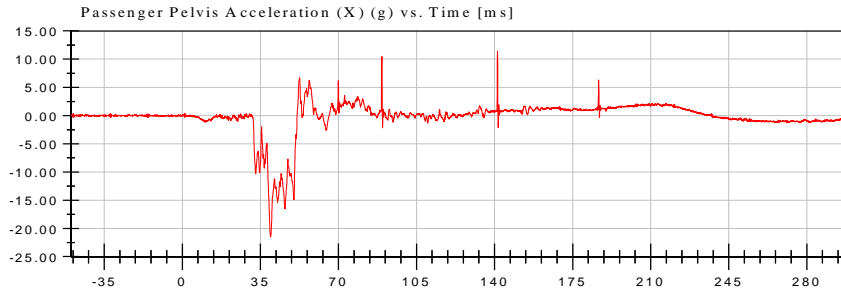


NHTSA

Test Date: 07/24/2019

Test Lab: CTF

Test Number: 190724 (R20185383)



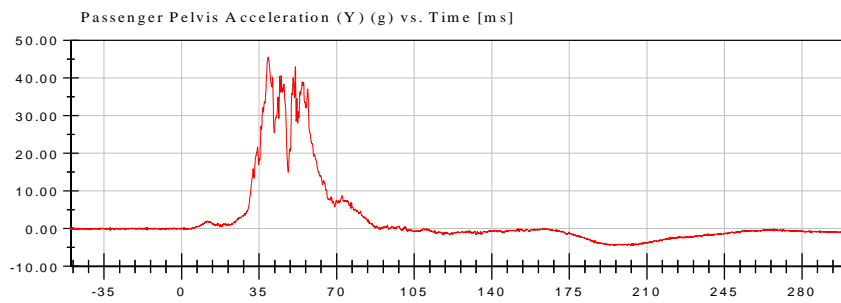
<Max>

11.43 g at 141.30 ms

<Min>

-21.49 g at 39.60 ms

CFC_1000



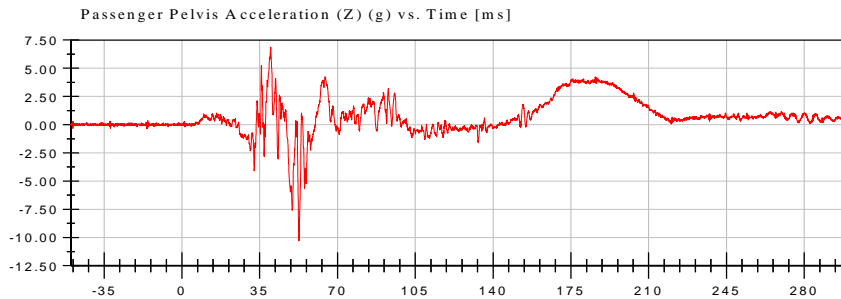
<Max>

45.56 g at 39.05 ms

<Min>

-4.50 g at 195.15 ms

CFC_1000



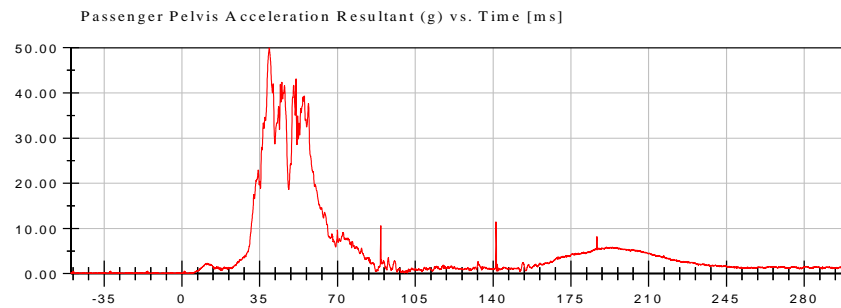
<Max>

6.87 g at 39.95 ms

<Min>

-10.30 g at 52.65 ms

CFC_1000



<Max>

49.92 g at 39.30 ms

<Min>

0.02 g at -49.55 ms

CFC_1000

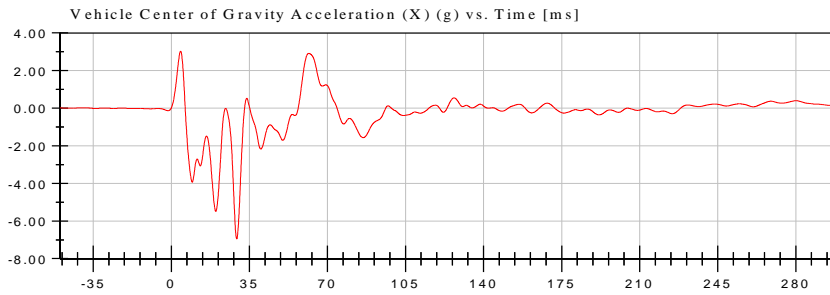


NHTSA

Test Date: 07/24/2019

Test Lab: CTF

Test Number: 190724 (R20185383)



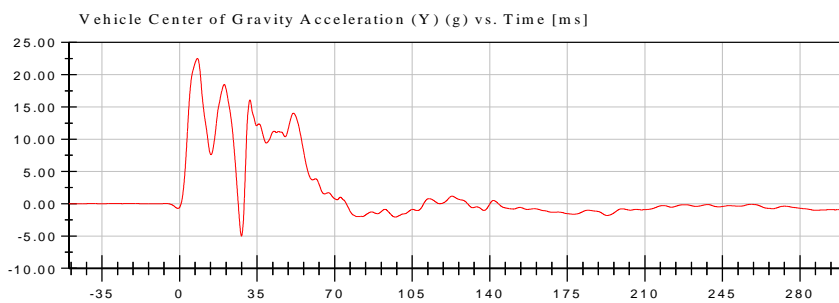
<Max>

3.03 g at 4.15 ms

<Min>

-6.95 g at 29.35 ms

CFC_60



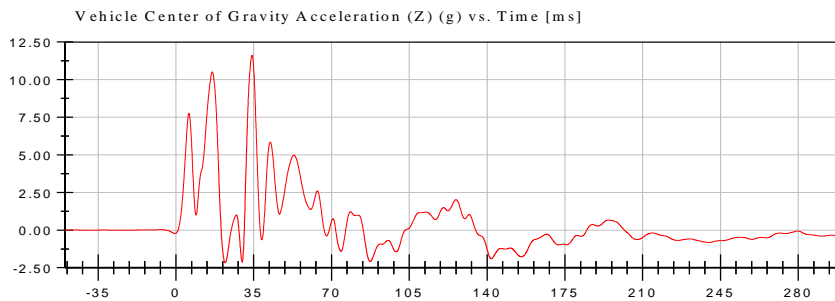
<Max>

22.50 g at 8.05 ms

<Min>

-5.00 g at 27.95 ms

CFC_60



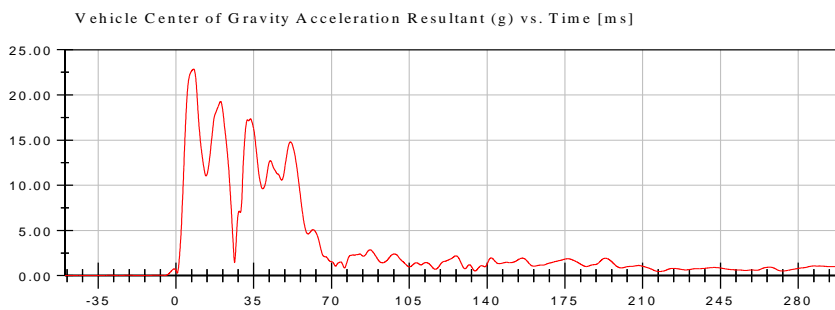
<Max>

11.61 g at 34.25 ms

<Min>

-2.16 g at 22.15 ms

CFC_60



<Max>

22.85 g at 7.90 ms

<Min>

0.01 g at -47.55 ms

CFC_60

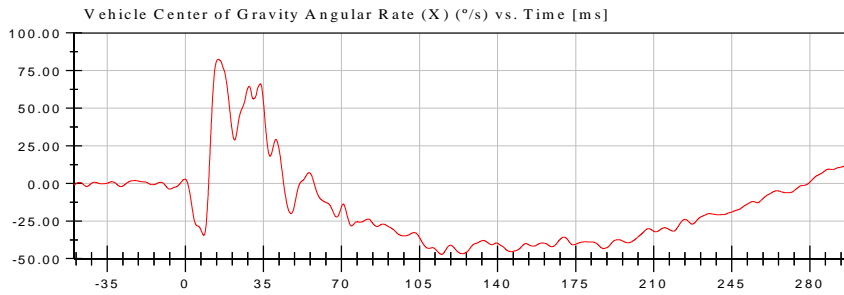


NHTSA

Test Date: 07/24/2019

Test Lab: CTF

Test Number: 190724 (R20185383)



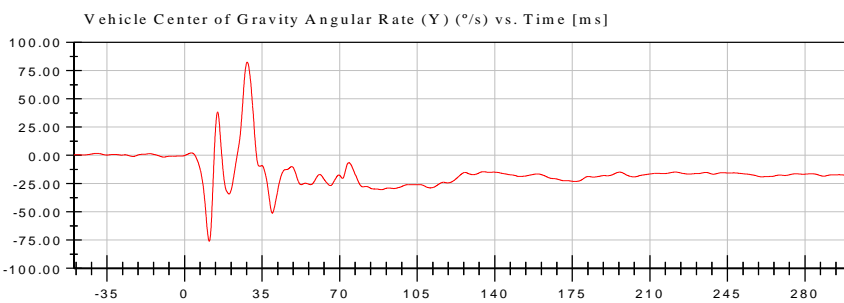
<Max>

82.48 °/s at 14.75 m s

<Min>

-47.16 °/s at 114.85 m s

CFC_60



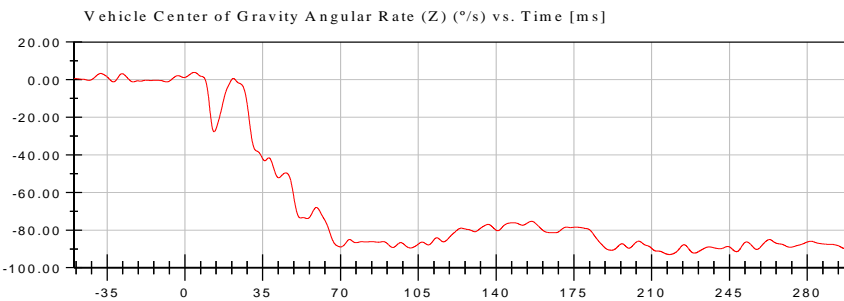
<Max>

82.50 °/s at 28.25 m s

<Min>

-76.08 °/s at 11.15 m s

CFC_60



<Max>

3.86 °/s at 4.20 m s

<Min>

-92.99 °/s at 218.05 m s

CFC_60

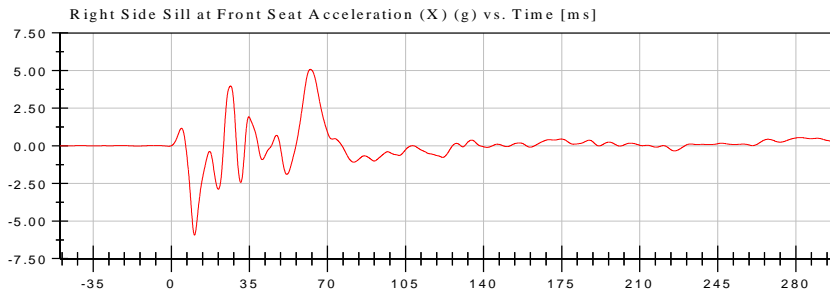


NHTSA

Test Date: 07/24/2019

Test Lab: CTF

Test Number: 190724 (R20185383)



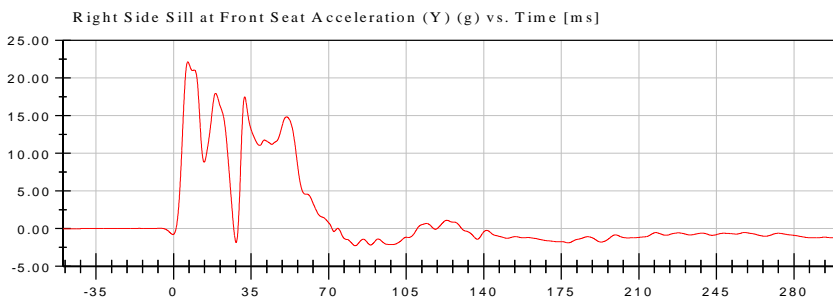
<Max>

5.08 g at 62.35 ms

<Min>

-5.94 g at 10.40 ms

CFC_60



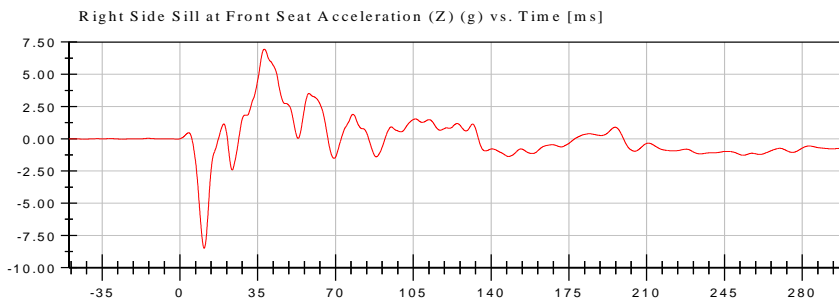
<Max>

22.15 g at 6.40 ms

<Min>

-2.27 g at 81.90 ms

CFC_60



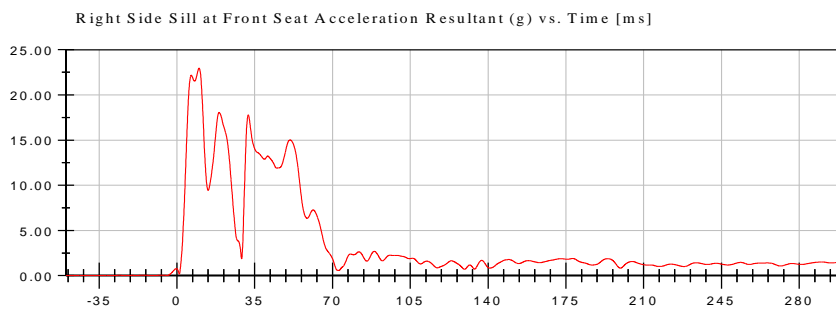
<Max>

6.94 g at 37.95 ms

<Min>

-8.49 g at 10.90 ms

CFC_60



<Max>

22.96 g at 10.00 ms

<Min>

0.00 g at -33.30 ms

CFC_60

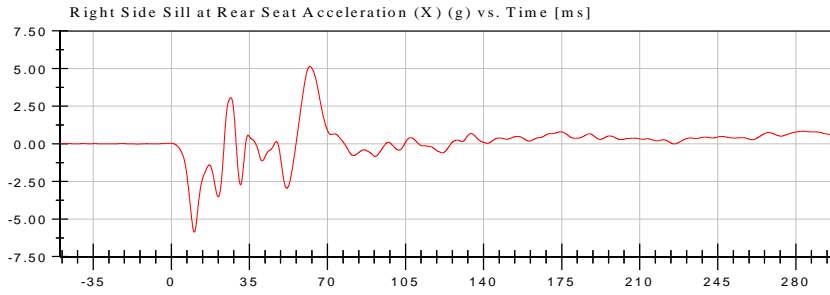


NHTSA

Test Date: 07/24/2019

Test Lab: CTF

Test Number: 190724 (R20185383)



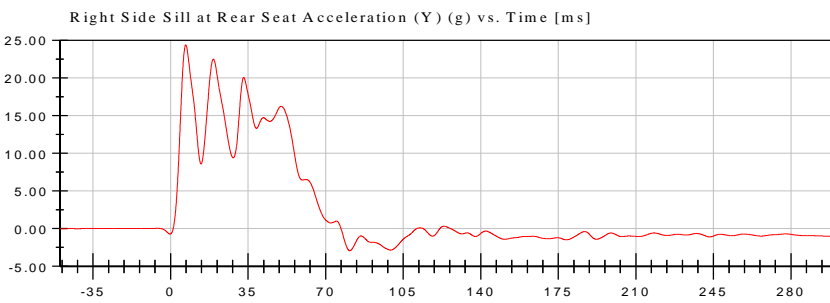
<Max>

5.14 g at 62.10 ms

<Min>

-5.87 g at 10.30 ms

CFC_60



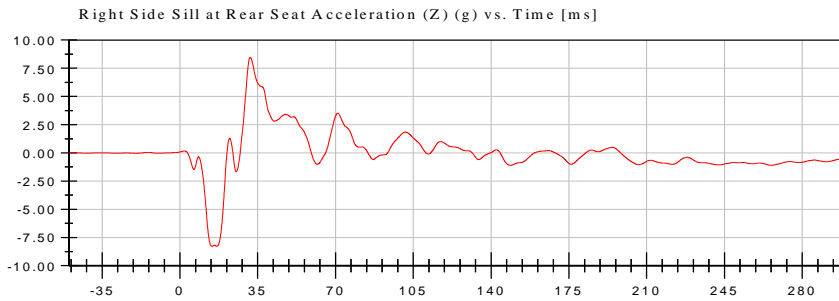
<Max>

24.40 g at 6.85 ms

<Min>

-2.94 g at 80.85 ms

CFC_60



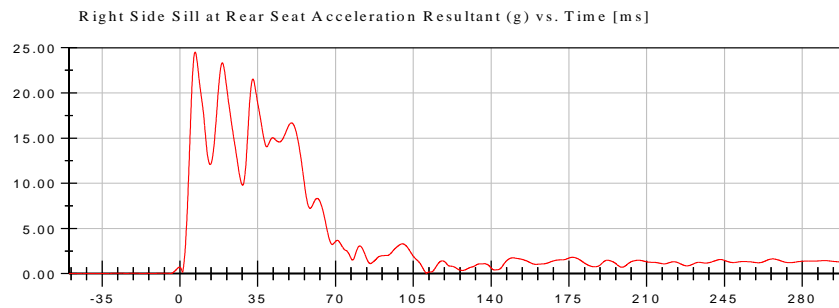
<Max>

8.46 g at 31.60 ms

<Min>

-8.28 g at 16.60 ms

CFC_60



<Max>

24.51 g at 6.85 ms

<Min>

0.01 g at -12.20 ms

CFC_60

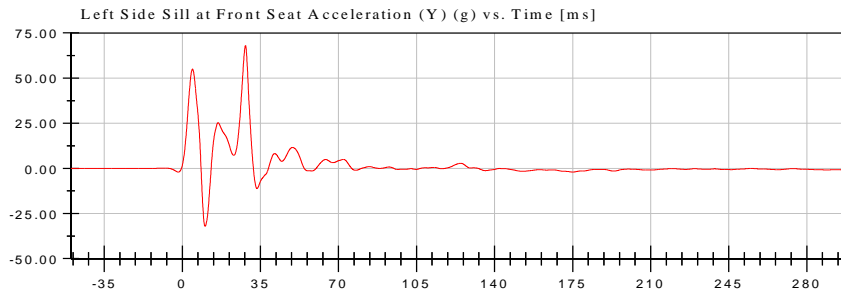


NHTSA

Test Date: 07/24/2019

Test Lab: CTF

Test Number: 190724 (R20185383)



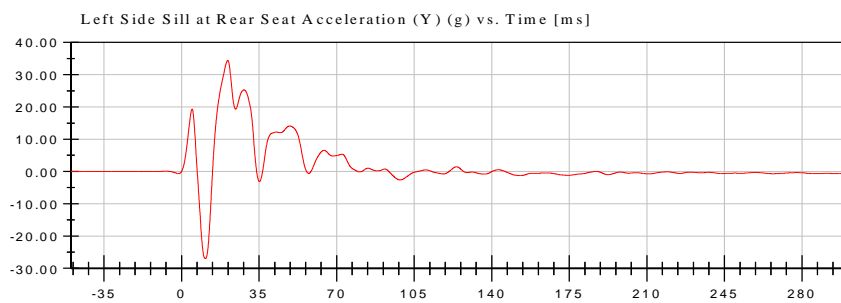
<Max>

68.03 g at 28.30 ms

<Min>

-32.08 g at 10.25 ms

CFC_60



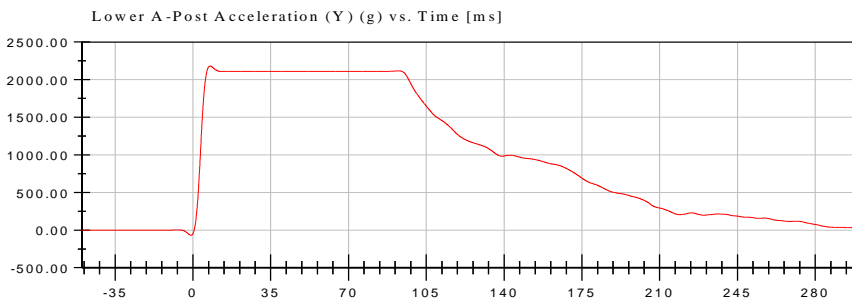
<Max>

34.41 g at 20.80 ms

<Min>

-27.00 g at 10.75 ms

CFC_60



<Max>

2,180.92 g at 7.70 ms

<Min>

-68.98 g at -0.85 ms

CFC_60

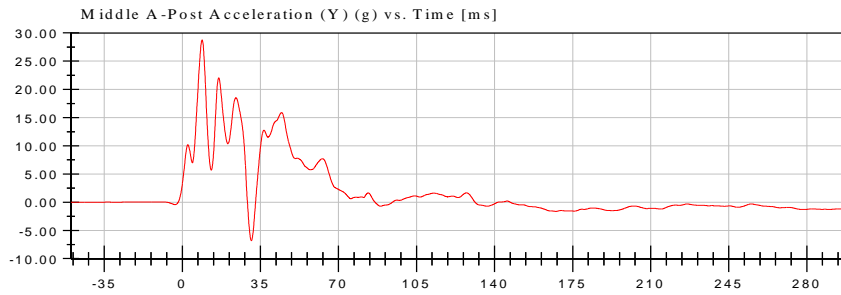


NHTSA

Test Date: 07/24/2019

Test Lab: CTF

Test Number: 190724 (R20185383)



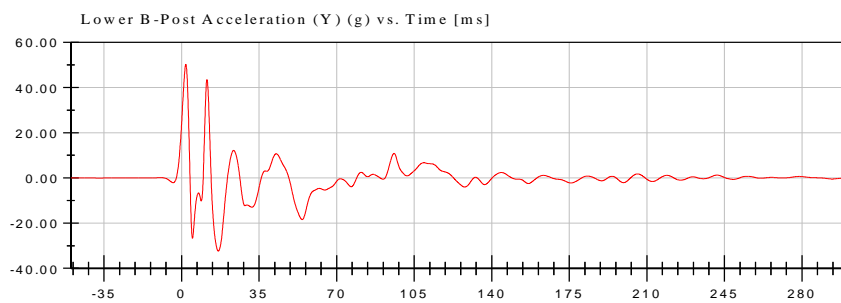
<Max>

28.76 g at 8.85 ms

<Min>

-6.83 g at 30.95 ms

CFC_60



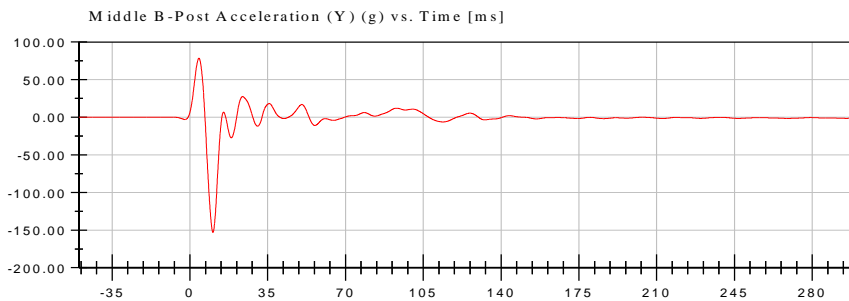
<Max>

50.26 g at 1.90 ms

<Min>

-32.38 g at 16.60 ms

CFC_60



<Max>

78.41 g at 4.05 ms

<Min>

-152.66 g at 10.35 ms

CFC_60

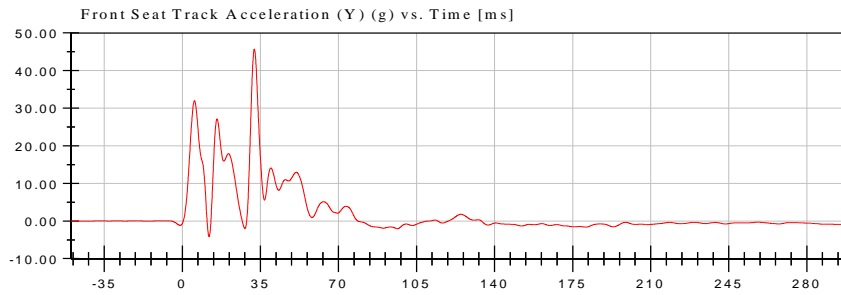


NHTSA

Test Date: 07/24/2019

Test Lab: CTF

Test Number: 190724 (R20185383)



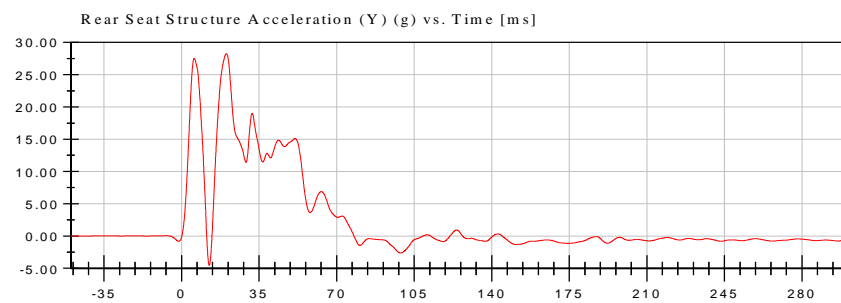
<Max>

45.70 g at 32.25 ms

<Min>

-4.15 g at 12.00 ms

CFC_60



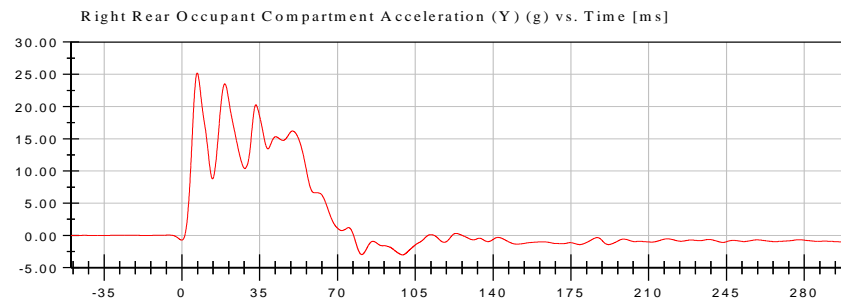
<Max>

28.26 g at 20.20 ms

<Min>

-4.55 g at 12.50 ms

CFC_60



<Max>

25.18 g at 6.90 ms

<Min>

-3.01 g at 99.25 ms

CFC_60

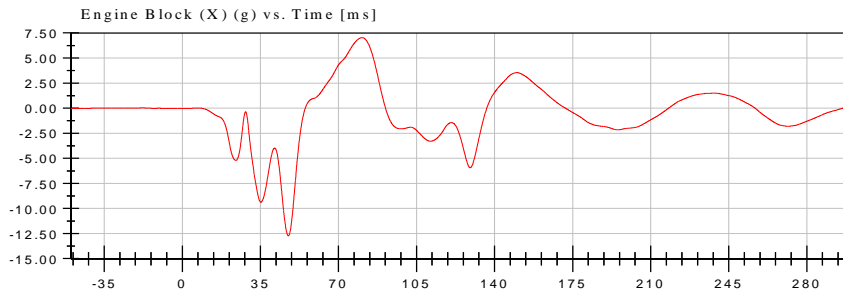


NHTSA

Test Date: 07/24/2019

Test Lab: CTF

Test Number: 190724 (R20185383)



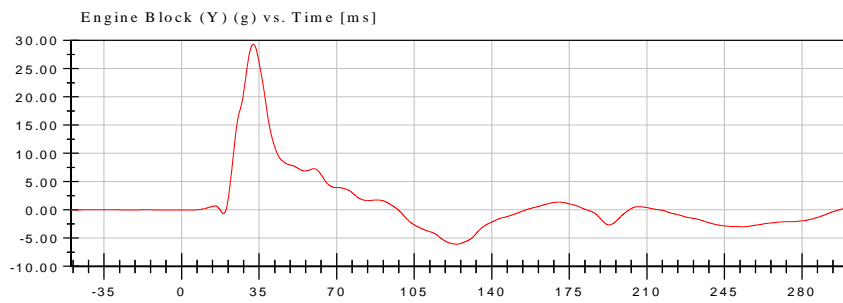
<Max>

7.04 g at 80.60 ms

<Min>

-12.73 g at 47.55 ms

CFC_60



<Max>

29.31 g at 32.35 ms

<Min>

-6.09 g at 124.20 ms

CFC_60

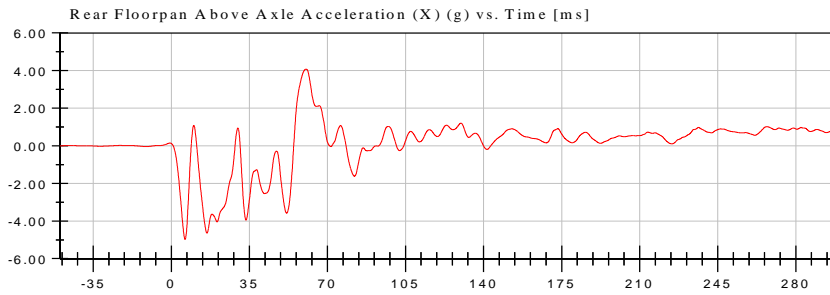


NHTSA

Test Date: 07/24/2019

Test Lab: CTF

Test Number: 190724 (R20185383)



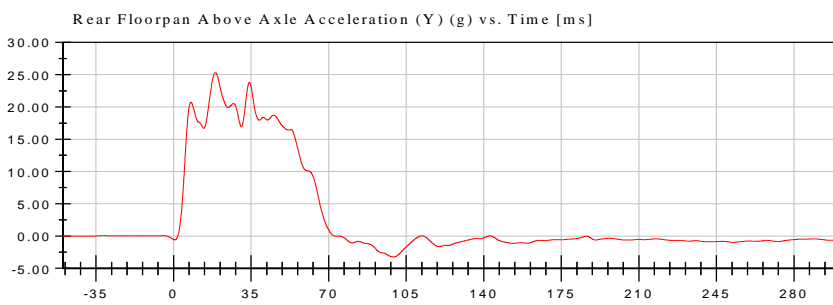
<Max>

4.08 g at 60.50 ms

<Min>

-4.97 g at 6.15 ms

CFC_60



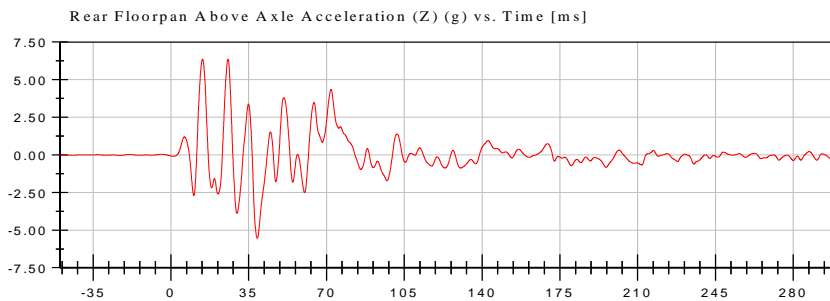
<Max>

25.30 g at 18.90 ms

<Min>

-3.25 g at 99.30 ms

CFC_60



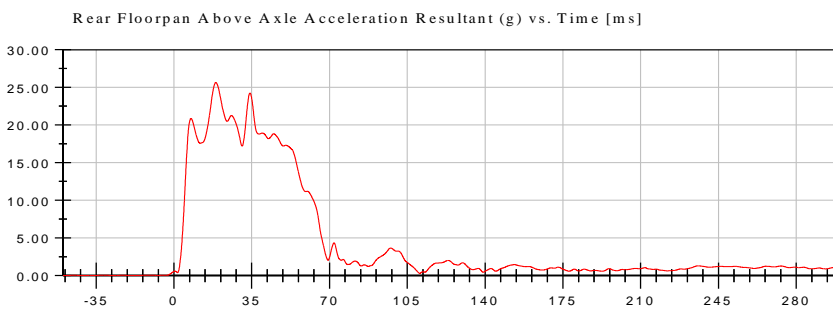
<Max>

6.37 g at 14.20 ms

<Min>

-5.55 g at 38.90 ms

CFC_60



<Max>

25.64 g at 18.85 ms

<Min>

0.00 g at -38.75 ms

CFC_60

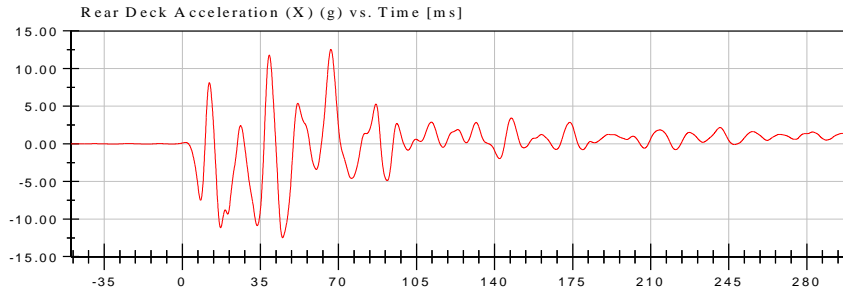


NHTSA

Test Date: 07/24/2019

Test Lab: CTF

Test Number: 190724 (R20185383)



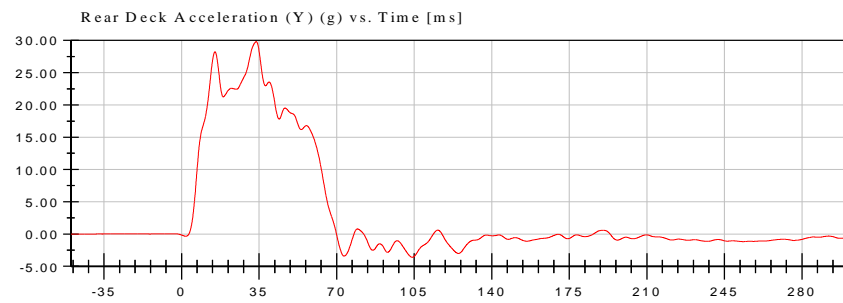
<Max>

12.56 g at 66.60 ms

<Min>

-12.48 g at 44.95 ms

CFC_60



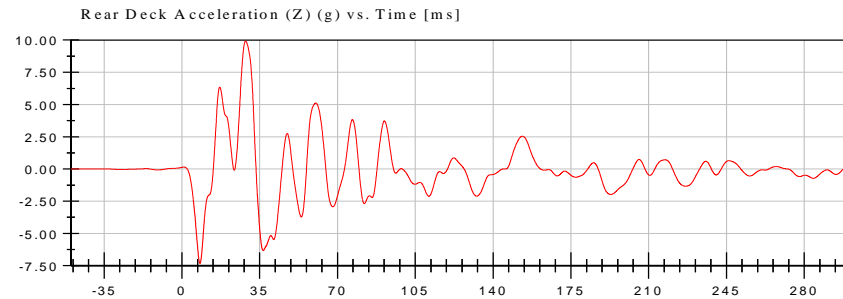
<Max>

29.81 g at 33.65 ms

<Min>

-3.59 g at 104.10 ms

CFC_60



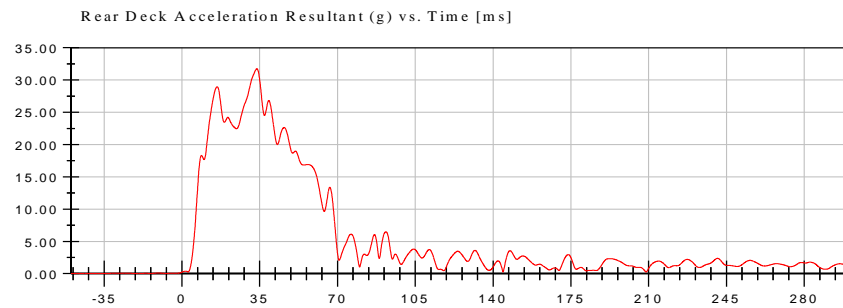
<Max>

9.93 g at 28.65 ms

<Min>

-7.31 g at 8.10 ms

CFC_60



<Max>

31.75 g at 33.70 ms

<Min>

0.01 g at -35.70 ms

CFC_60

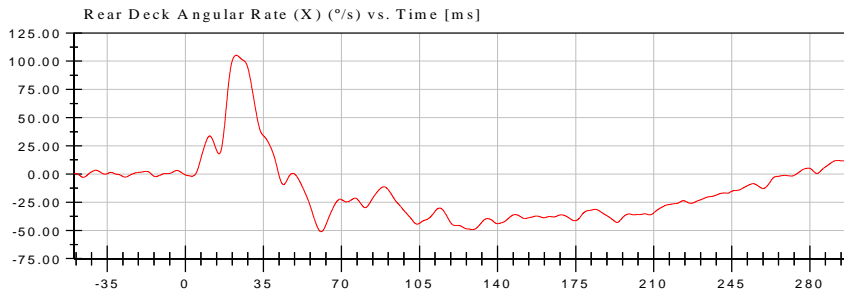


NHTSA

Test Date: 07/24/2019

Test Lab: CTF

Test Number: 190724 (R20185383)



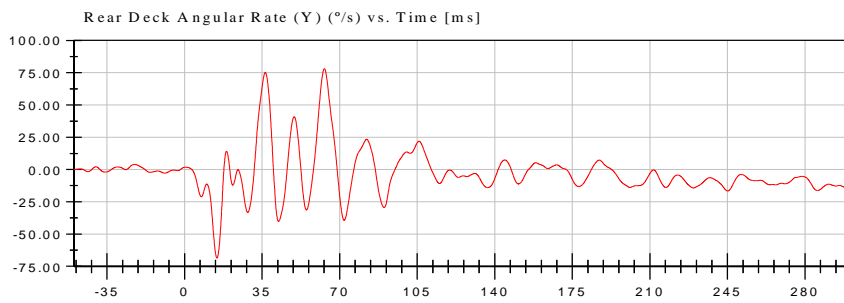
<Max>

105.23 °/s at 22.85 ms

<Min>

-51.10 °/s at 60.90 ms

CFC_60



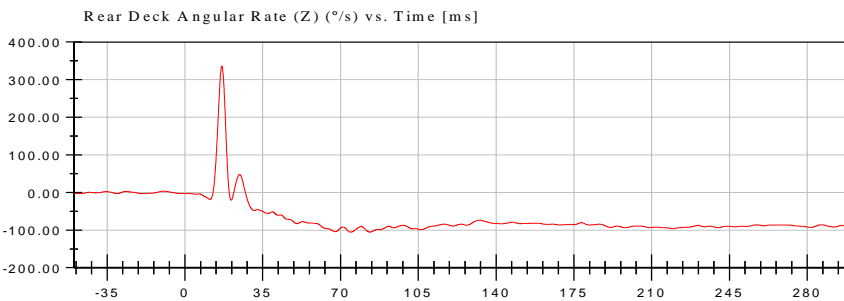
<Max>

78.07 °/s at 63.10 ms

<Min>

-68.61 °/s at 14.60 ms

CFC_60



<Max>

336.13 °/s at 16.60 ms

<Min>

-105.41 °/s at 83.25 ms

CFC_60

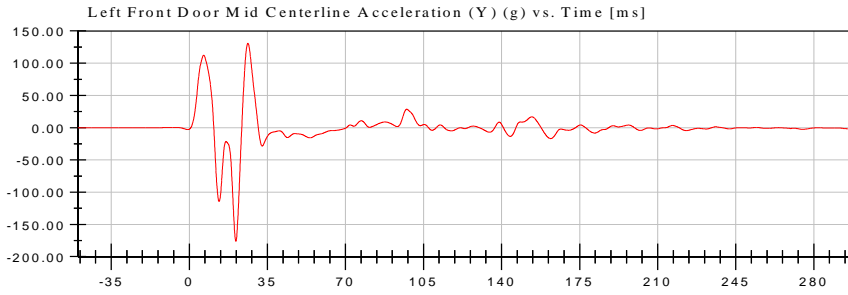


NHTSA

Test Date: 07/24/2019

Test Lab: CTF

Test Number: 190724 (R20185383)



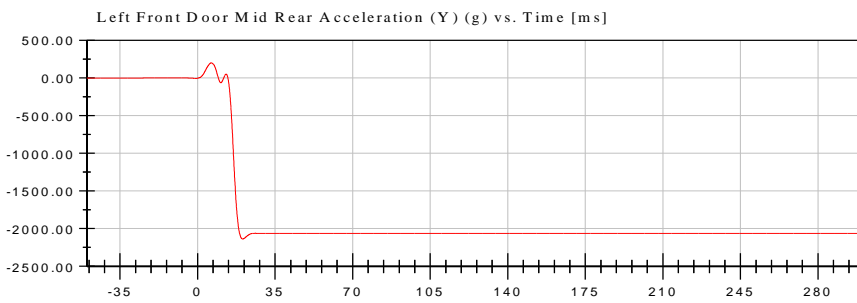
<Max>

130.99 g at 26.25 ms

<Min>

-176.03 g at 26.90 ms

CFC_60



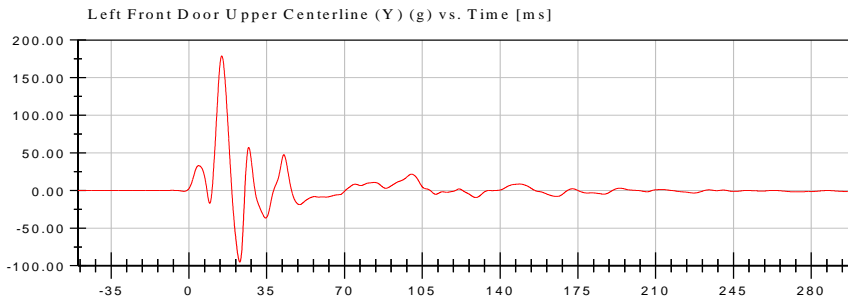
<Max>

201.43 g at 6.15 ms

<Min>

-2,136.58 g at 20.40 ms

CFC_60



<Max>

178.87 g at 14.75 ms

<Min>

-95.07 g at 22.90 ms

CFC_60

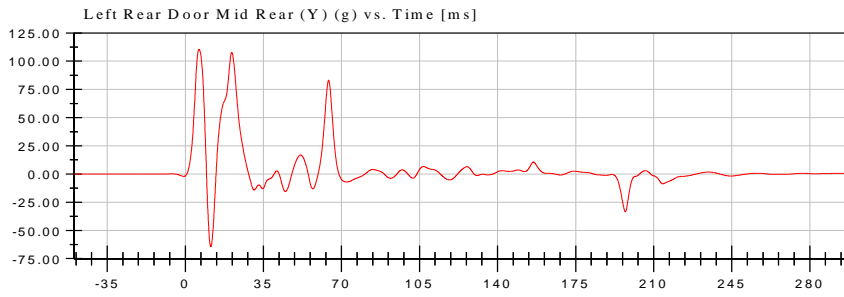


NHTSA

Test Date: 07/24/2019

Test Lab: CTF

Test Number: 190724 (R20185383)



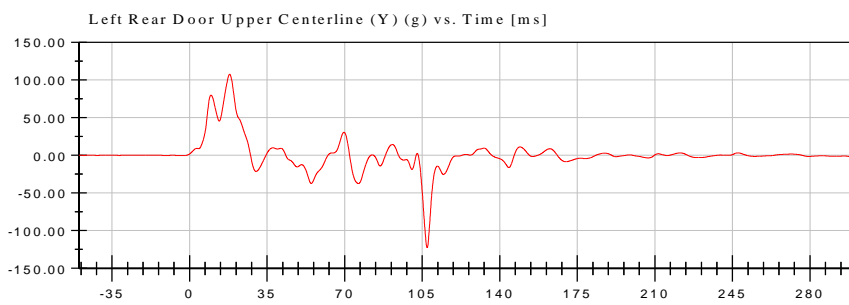
<Max>

110.51 g at 6.15 m s

<Min>

-64.42 g at 11.45 m s

CFC_60



<Max>

107.75 g at 18.10 m s

<Min>

-122.45 g at 107.25 m s

CFC_60



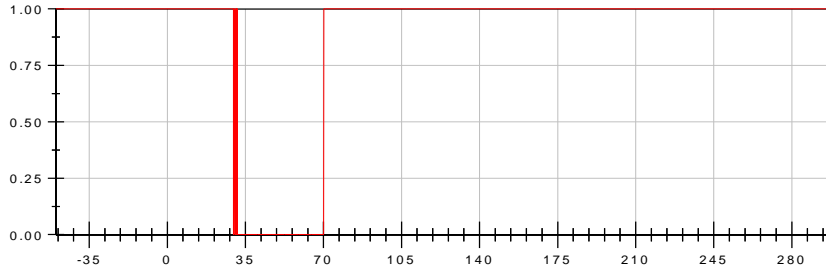
NHTSA

Test Date: 07/24/2019

Test Lab: CTF

Test Number: 190724 (R20185383)

Driver Head Contact (Logic) vs. Time [ms]



<Max>

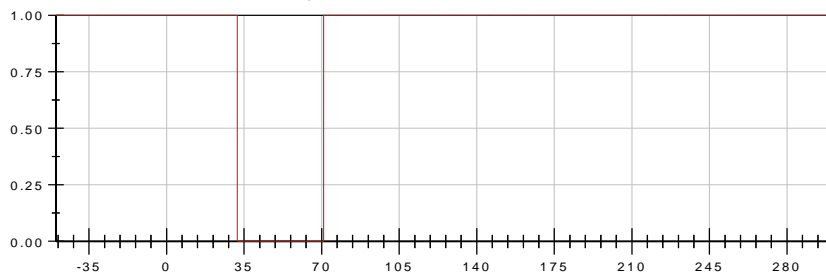
1.00 Logic at -50.00 ms

<Min>

0.00 Logic at 29.70 ms

Unfiltered

Driver Shoulder Contact (Logic) vs. Time [ms]



<Max>

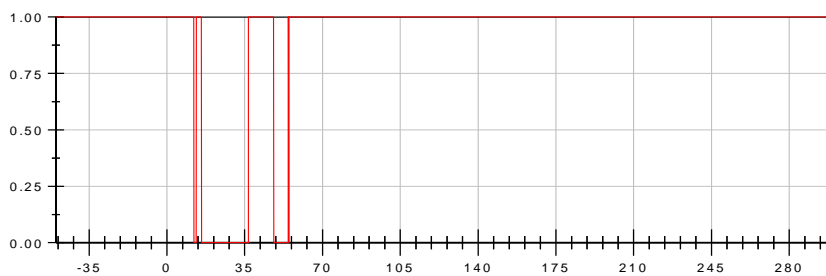
1.00 Logic at -50.00 ms

<Min>

0.00 Logic at 31.95 ms

Unfiltered

Driver Thorax Contact (Logic) vs. Time [ms]



<Max>

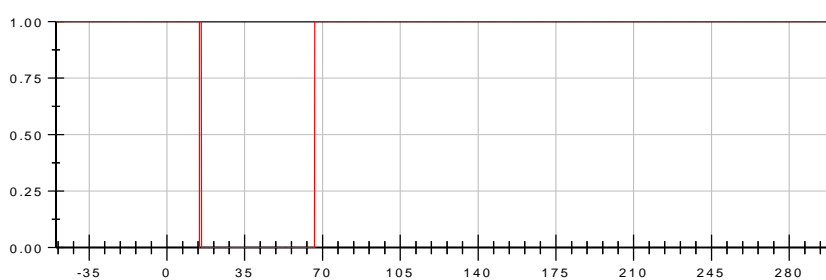
1.00 Logic at -50.00 ms

<Min>

0.00 Logic at 12.15 ms

Unfiltered

Driver Pelvis Contact (Logic) vs. Time [ms]



<Max>

1.00 Logic at -50.00 ms

<Min>

0.00 Logic at 14.65 ms

Unfiltered

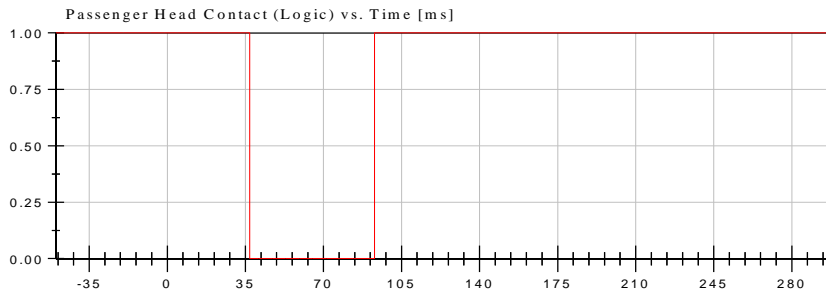


NHTSA

Test Date: 07/24/2019

Test Lab: CTF

Test Number: 190724 (R20185383)



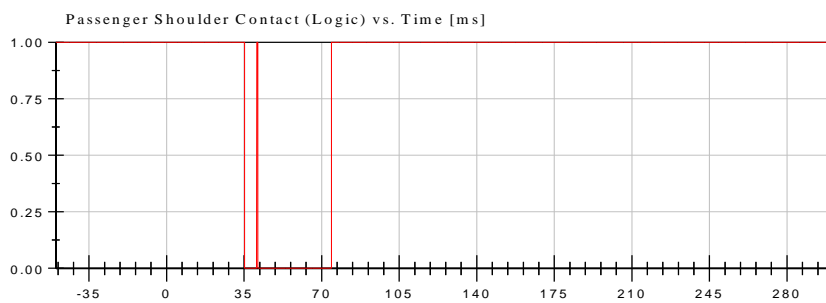
<Max>

1.00 Logic at -50.00 ms

<Min>

0.00 Logic at 37.00 ms

Unfiltered



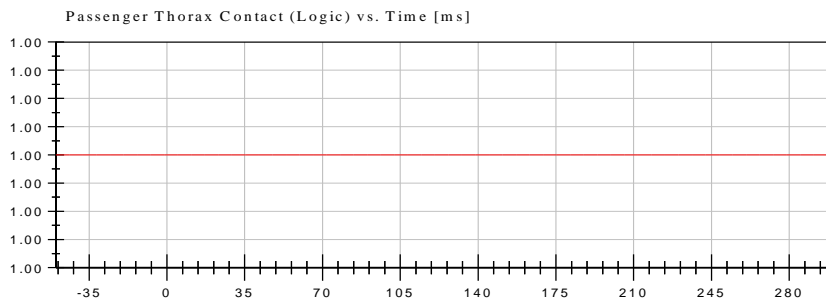
<Max>

1.00 Logic at -50.00 ms

<Min>

0.00 Logic at 35.25 ms

Unfiltered



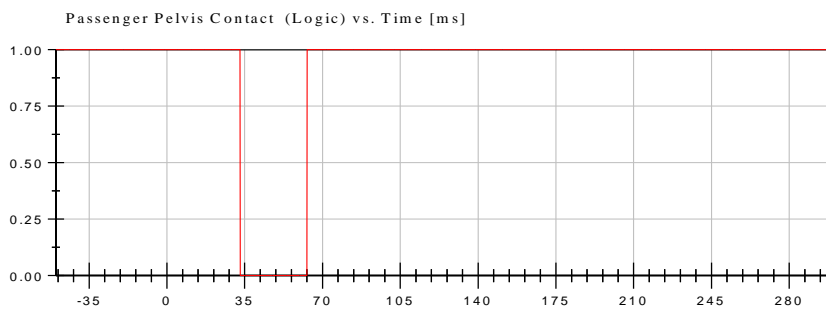
<Max>

1.00 Logic at -50.00 ms

<Min>

1.00 Logic at -50.00 ms

Unfiltered



<Max>

1.00 Logic at -50.00 ms

<Min>

0.00 Logic at 32.95 ms

Unfiltered

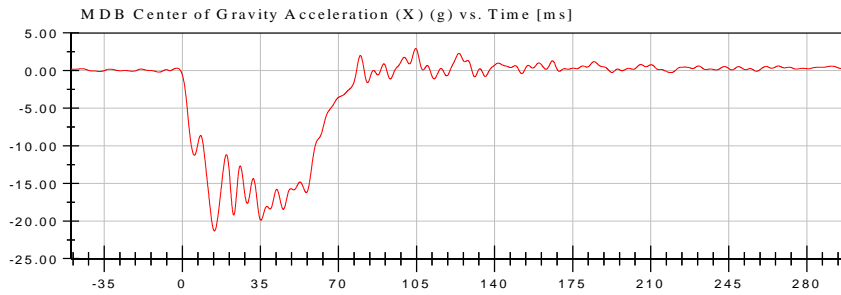


NHTSA

Test Date: 07/24/2019

Test Lab: CTF

Test Number: 190724 (R20185383)



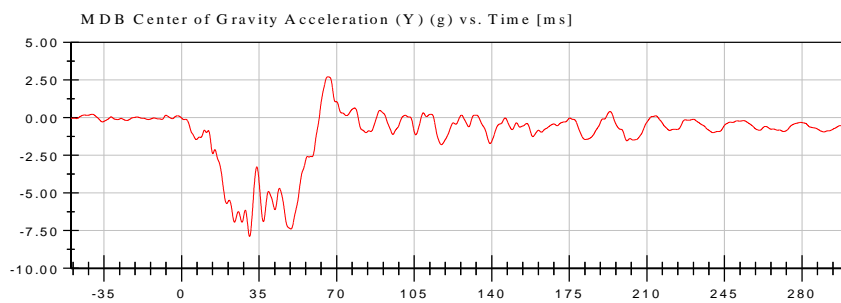
<Max>

2.94 g at 104.65 ms

<Min>

-21.32 g at 14.40 ms

CFC_60



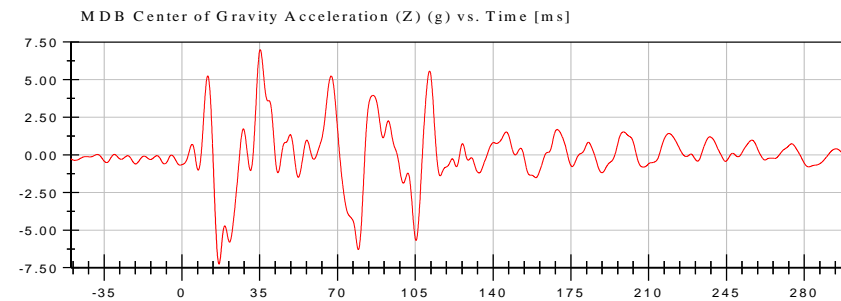
<Max>

2.72 g at 66.00 ms

<Min>

-7.89 g at 30.70 ms

CFC_60



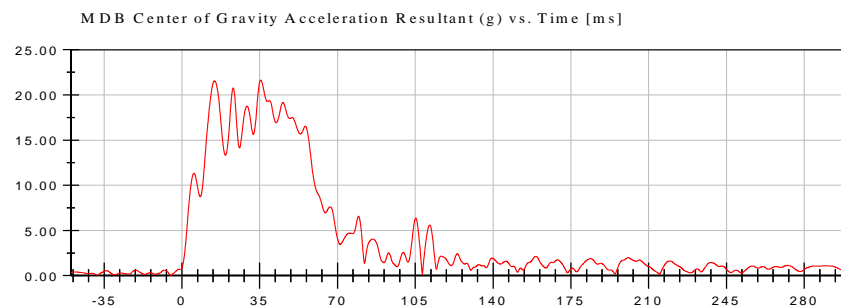
<Max>

6.99 g at 35.20 ms

<Min>

-7.25 g at 16.70 ms

CFC_60



<Max>

21.64 g at 35.45 ms

<Min>

0.04 g at -5.05 ms

CFC_60

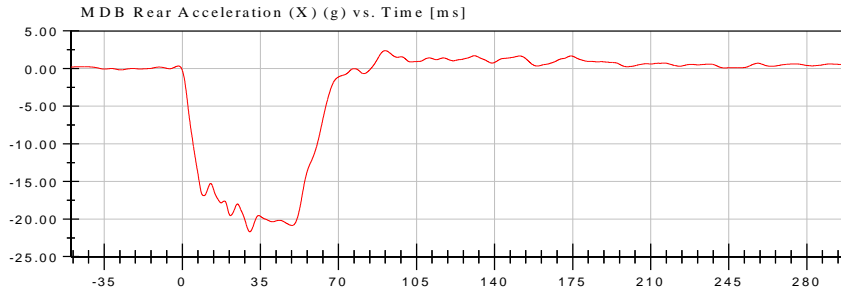


NHTSA

Test Date: 07/24/2019

Test Lab: CTF

Test Number: 190724 (R20185383)



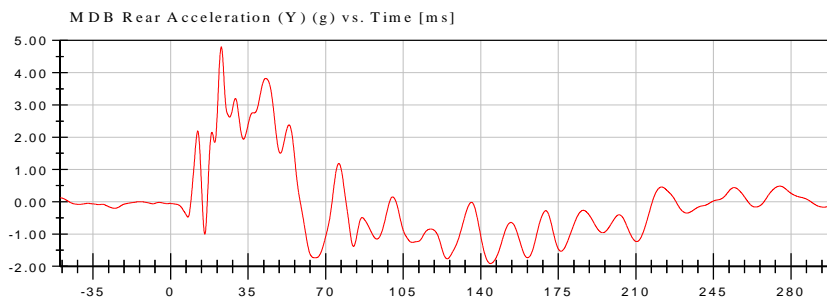
<Max>

2.39 g at 91.00 ms

<Min>

-21.69 g at 30.25 ms

CFC_60



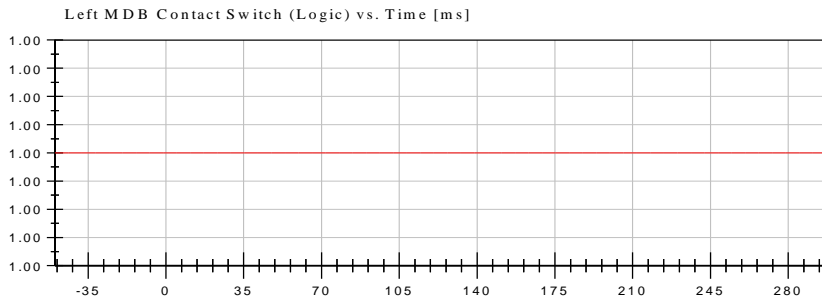
<Max>

4.80 g at 22.90 ms

<Min>

-1.91 g at 144.40 ms

CFC_60



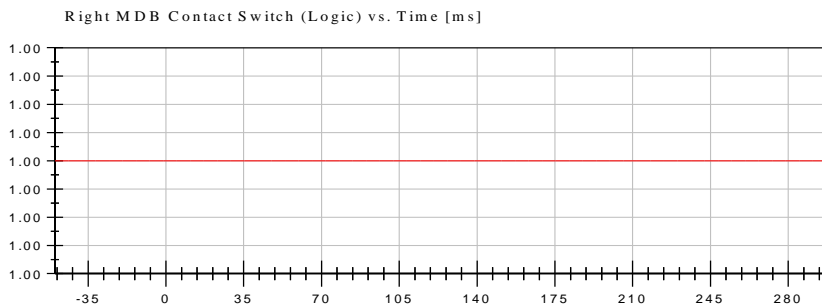
<Max>

1.00 Logic at -50.00 ms

<Min>

1.00 Logic at -50.00 ms

Unfiltered



<Max>

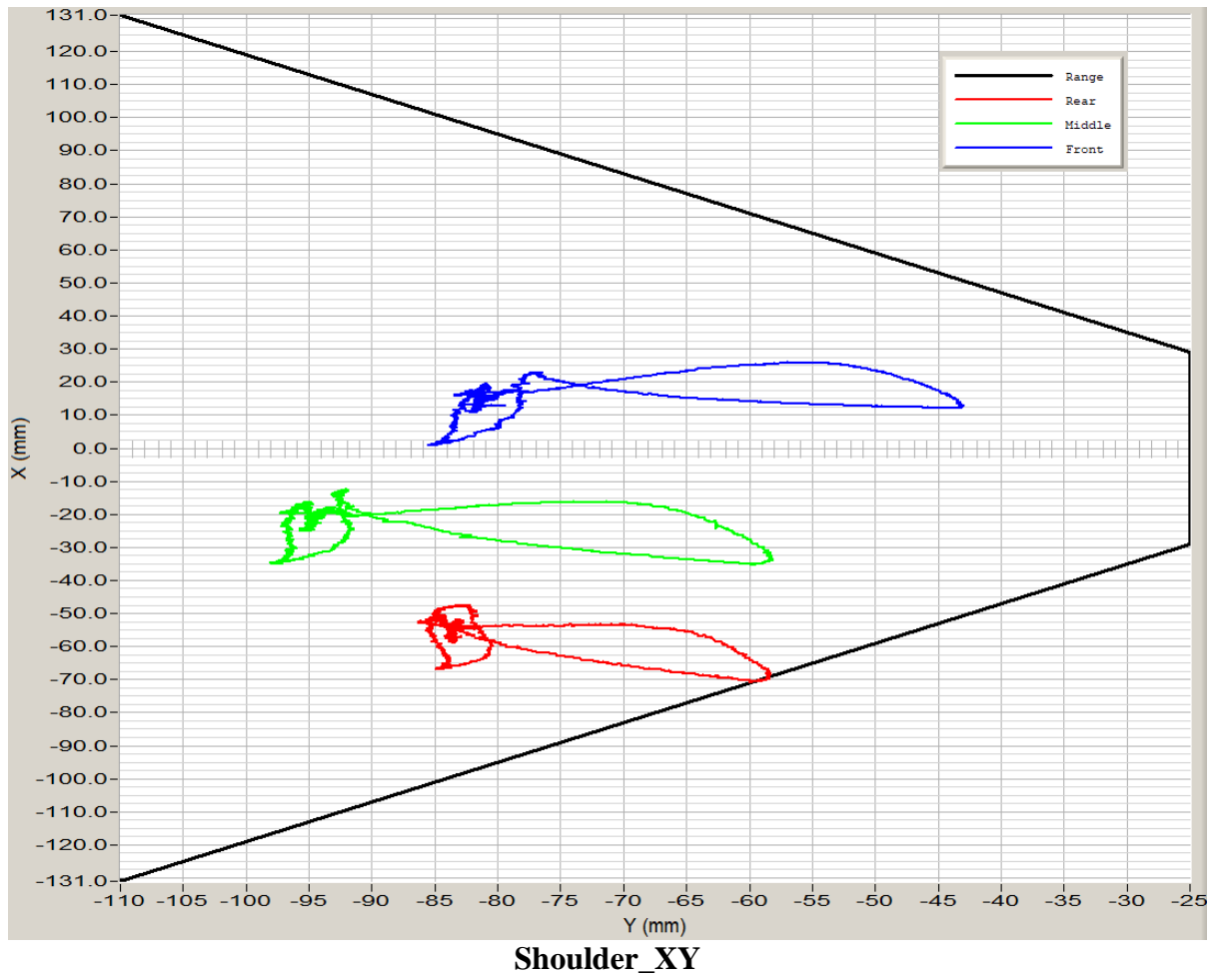
1.00 Logic at -50.00 ms

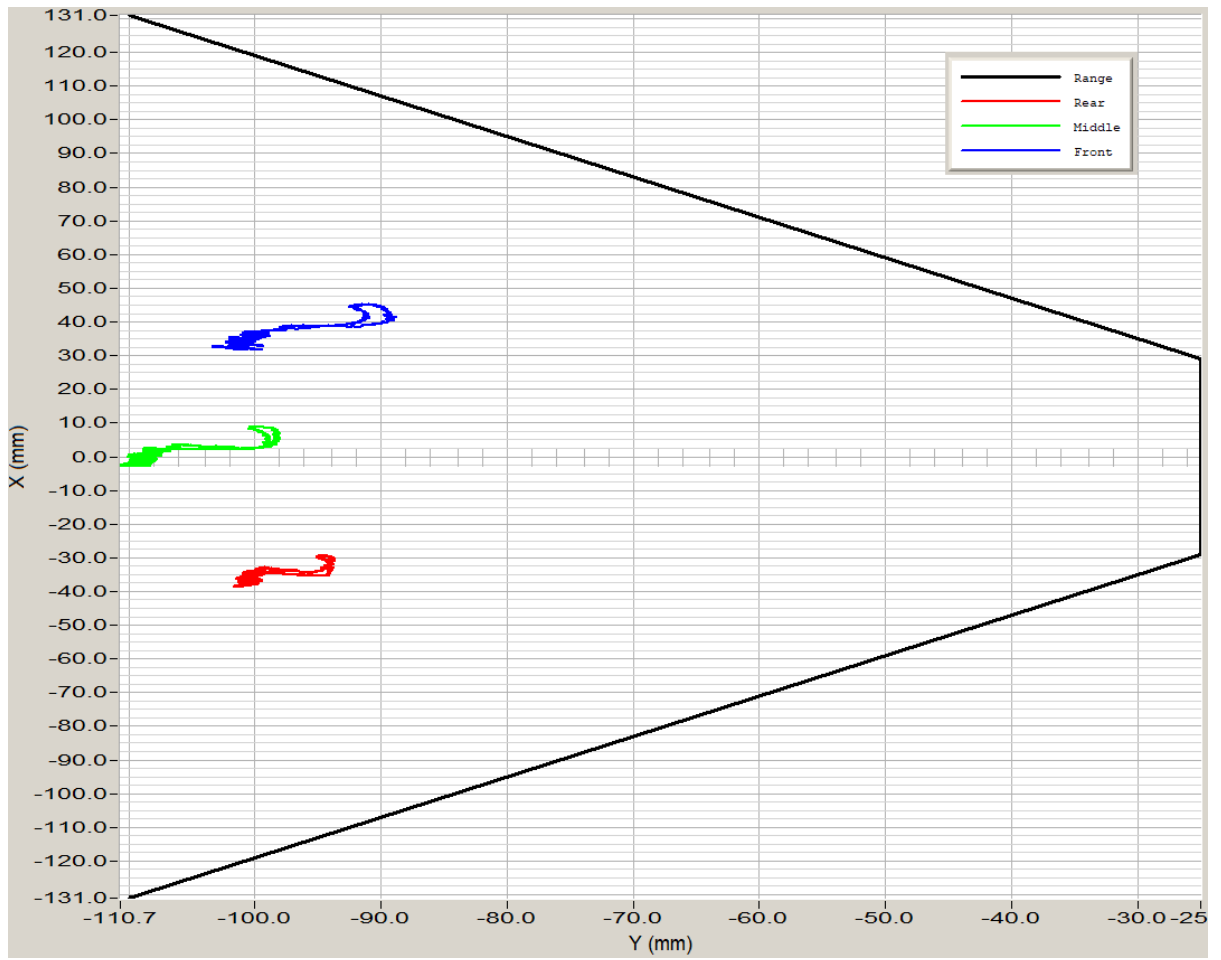
<Min>

1.00 Logic at -50.00 ms

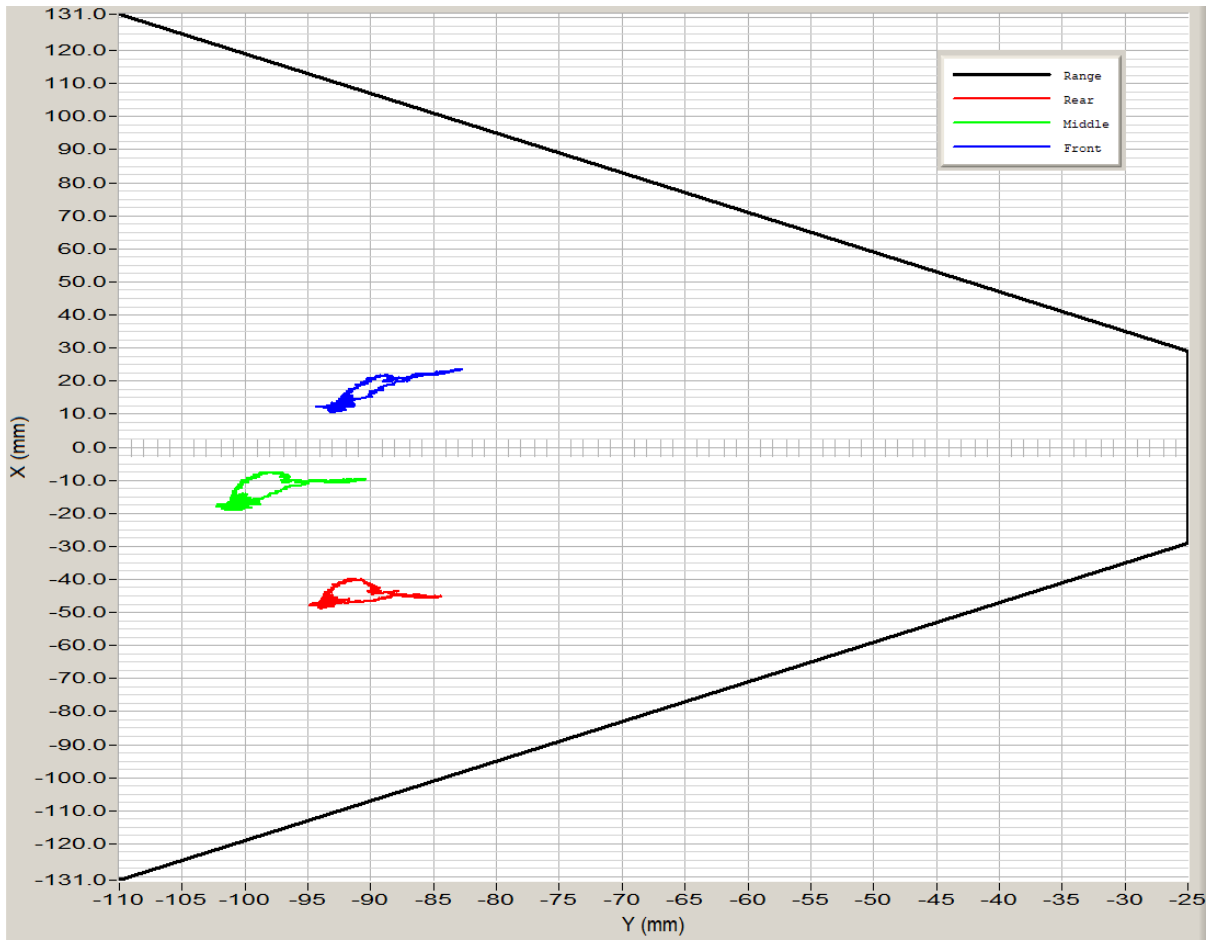
Unfiltered



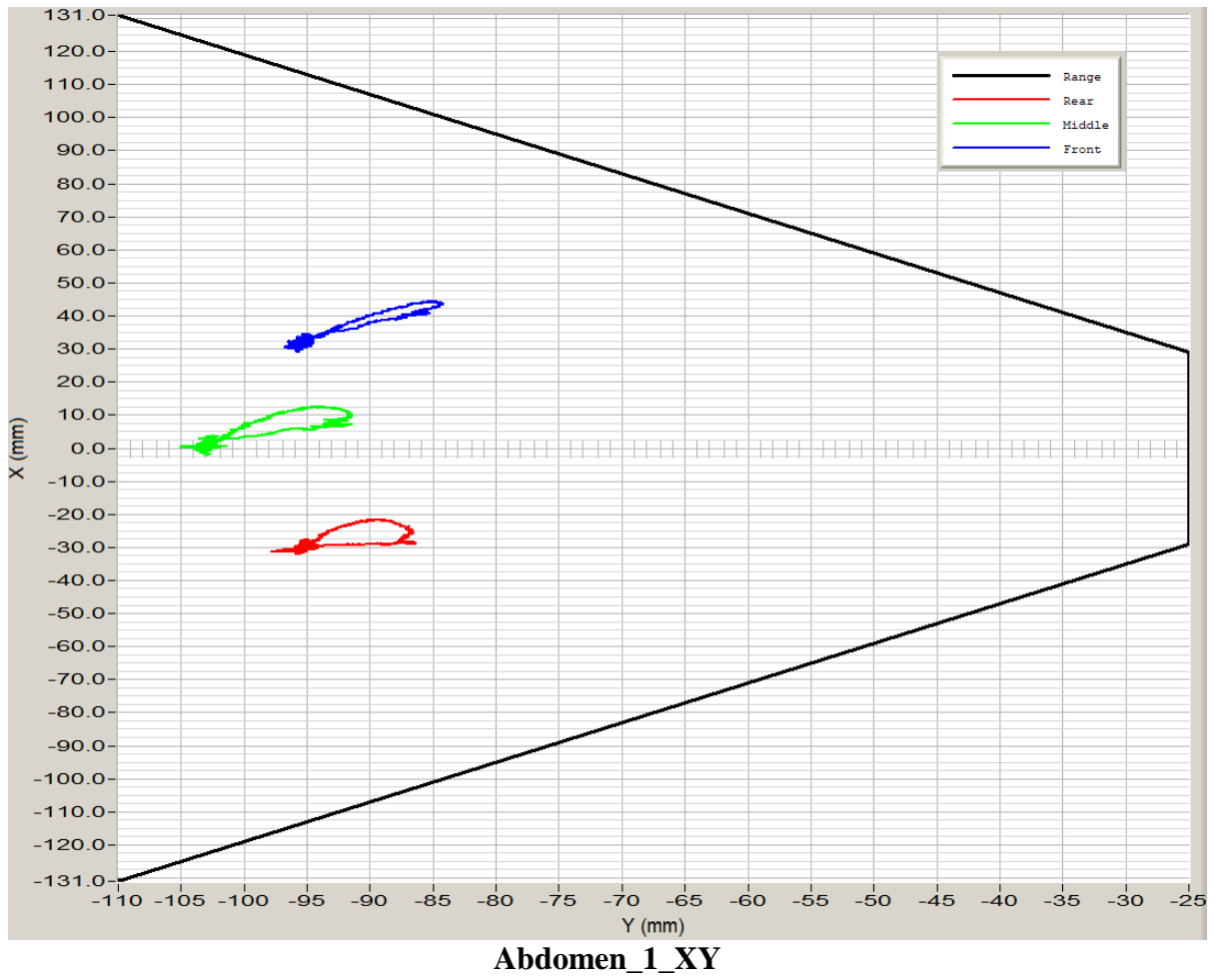


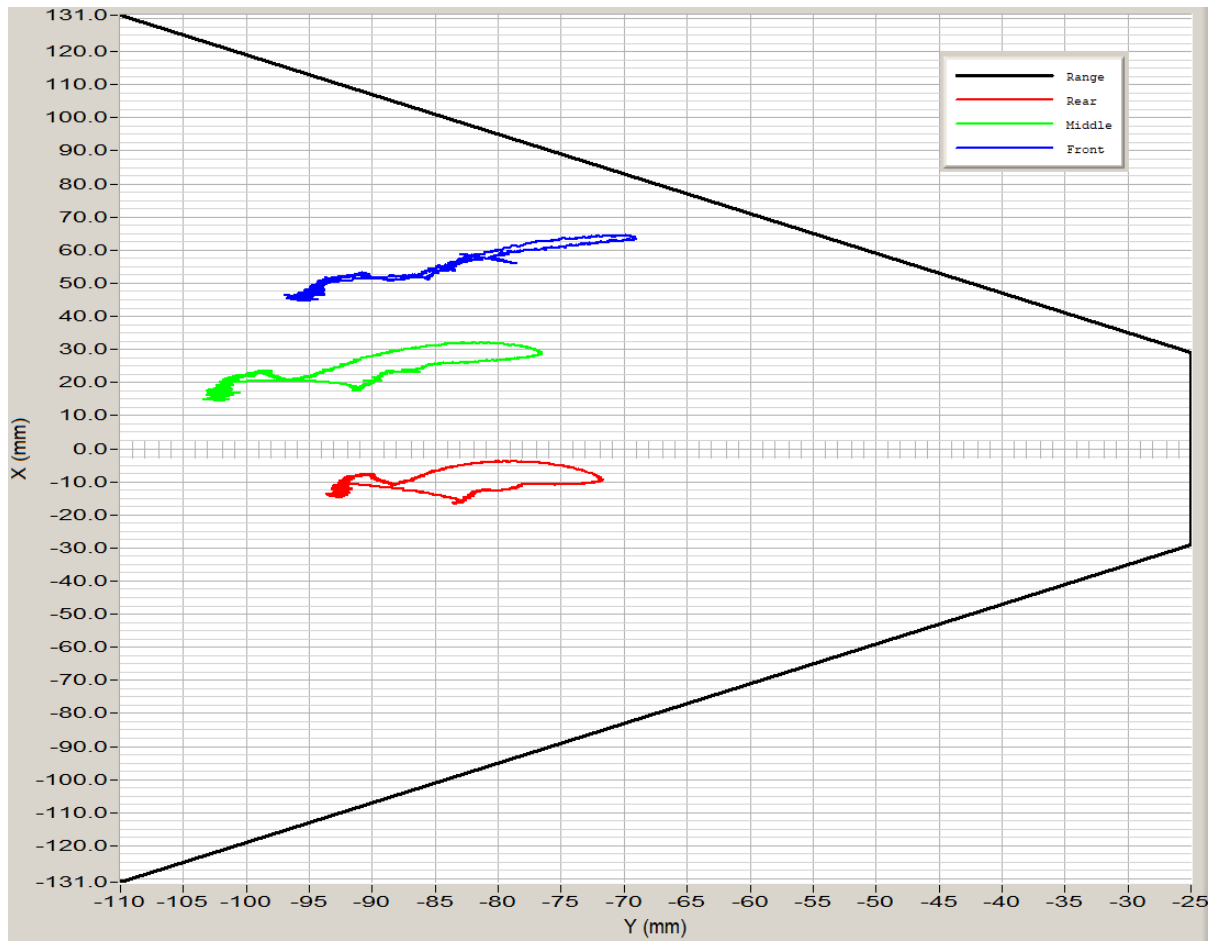


Thorax_1_XY



Thorax_3_XY





Abdomen_2_XY

APPENDIX C
DUMMY CONFIGURATION AND PERFORMANCE VERIFICATION DATA

TABLE OF QUALIFICATION MEASUREMENTS AND PLOTS

WorldSID-50M (Driver) Dummy

Description

Table 1. External Measurements

Table 2. Front Head Drop Test

Resultant Head Acceleration (G's) vs. Time (ms)

Head (X) Acceleration (G's) vs. Time (ms)

Head (Y) Acceleration (G's) vs. Time (ms)

Head (Z) Acceleration (G's) vs. Time (ms)

Table 3. Left Lateral Head Drop Test

Resultant Head Acceleration (G's) vs. Time (ms)

Head (X) Acceleration (G's) vs. Time (ms)

Head (Y) Acceleration (G's) vs. Time (ms)

Head (Z) Acceleration (G's) vs. Time (ms)

Table 4. Right Lateral Head Drop Test

Resultant Head Acceleration (G's) vs. Time (ms)

Head (X) Acceleration (G's) vs. Time (ms)

Head (Y) Acceleration (G's) vs. Time (ms)

Head (Z) Acceleration (G's) vs. Time (ms)

Table 5. Left Lateral Neck Pendulum Test

Pendulum Acceleration (G's) vs. Time (ms)

Pendulum Velocity (m/s) vs. Time (ms)

Flexion Angle (°) vs. Time (ms)

Forward Potentiometer Rotation at Base of Pendulum (°) vs. Time (ms)

Rear Potentiometer Rotation at Base of Pendulum (°) vs. Time (ms)

Center Headform Potentiometer Rotation at CG (°) vs. Time (ms)

Neck Force Y (N) vs. Time (ms)

Neck Force Y (N) Filtered for Total Neck Occipital Condyle Moment Calculation vs. Time (ms)

Neck Moment X (Nm) vs. Time (ms)

Total Neck Occipital Condyle Moment X (Nm) vs. Time (ms)

Table 6. Right Lateral Neck Pendulum Test

Pendulum Acceleration (G's) vs. Time (ms)

Pendulum Velocity (m/s) vs. Time (ms)

Flexion Angle (°) vs. Time (ms)

Forward Potentiometer Rotation at Base of Pendulum (°) vs. Time (ms)

Rear Potentiometer Rotation at Base of Pendulum (°) vs. Time (ms)

Center Headform Potentiometer Rotation at CG (°) vs. Time (ms)

Neck Force Y (N) vs. Time (ms)

Neck Force Y (N) Filtered for Total Neck Occipital Condyle Moment Calculation vs. Time (ms)

Neck Moment X (Nm) vs. Time (ms)

Total Neck Occipital Condyle Moment X (Nm) vs. Time (ms)

Table 7. Left Lateral Shoulder Impact Test

Impactor Acceleration (G's) vs. Time (ms)

Impactor Force (N) vs. Time (ms)

Shoulder Displacement (mm) vs. Time (ms)

Table 8. Left Lateral Thorax with Arm Impact Test

Impactor Acceleration (G's) vs. Time (ms)

Impactor Force (N) vs. Time (ms)

TABLE OF QUALIFICATION MEASUREMENTS AND PLOTS (CONTUNUED)

WorldSID-50M (Driver) Dummy

Description

Upper Spine Acceleration (G's) vs. Time (ms)
Lower Spine Acceleration (G's) vs. Time (ms)
Upper Thorax Rib Displacement (mm) vs. Time (ms)
Center Thorax Rib Displacement (mm) vs. Time (ms)
Lower Thorax Rib Displacement (mm) vs. Time (ms)

Table 9. Left Lateral Thorax without Arm Impact Test

Impactor Acceleration (G's) vs. Time (ms)
Impactor Force (N) vs. Time (ms)
Upper Spine Acceleration (G's) vs. Time (ms)
Lower Spine Acceleration (G's) vs. Time (ms)
Upper Thorax Rib Displacement (mm) vs. Time (ms)
Center Thorax Rib Displacement (mm) vs. Time (ms)
Lower Thorax Rib Displacement (mm) vs. Time (ms)

Table 10. Left Lateral Abdomen Impact Test

Impactor Acceleration (G's) vs. Time (ms)
Impactor Force (N) vs. Time (ms)
Upper Abdominal Rib Displacement (mm) vs. Time (ms)
Lower Abdominal Rib Displacement (mm) vs. Time (ms)
Lower Spine Acceleration (G's) vs. Time (ms)

Table 11. Left Lateral Pelvis Impact Test

Impactor Acceleration (G's) vs. Time (ms)
Impactor Force (N) vs. Time (ms)
Pelvis Acceleration Y (G's) vs. Time (ms)
Lower Spine Acceleration Y (G's) vs. Time (ms)

TABLE OF QUALIFICATION MEASUREMENTS AND PLOTS

SID-IIs (Rear Passenger) Dummy

Description

Table 1. External Measurements

Table 2. Head Drop Test

Resultant Head Acceleration (G's) vs. Time (ms)
Head (X) Acceleration (G's) vs. Time (ms)
Head (Y) Acceleration (G's) vs. Time (ms)
Head (Z) Acceleration (G's) vs. Time (ms)

Table 3. Lateral Neck Pendulum Test

Pendulum Acceleration (G's) vs. Time (ms)
Pendulum Velocity (m/s) vs. Time (ms)
Neck (X) Force (N) vs. Time (ms)
Neck (X) Moment (Nm) vs. Time (ms)
Flexion Angle (°) vs. Time (ms)
Moment About Occipital Condyle (Nm) vs. Time (ms)
D-Plane Rotation (°) vs. Time (ms)

Table 4. Shoulder Impact Test

Impactor Acceleration (G's) vs. Time (ms)
Shoulder Displacement (mm) vs. Time (ms)
Upper Spine Acceleration (G's) vs. Time (ms)

Table 5. Thorax (With Arm) Impact Test

Impactor Acceleration (G's) vs. Time (ms)
Shoulder Displacement (mm) vs. Time (ms)
Upper Rib Displacement (mm) vs. Time (ms)
Middle Rib Displacement (mm) vs. Time (ms)
Lower Rib Displacement (mm) vs. Time (ms)
Upper Spine Acceleration (G's) vs. Time (ms)
Lower Spine Acceleration (G's) vs. Time (ms)

Table 6. Thorax (Without Arm) Impact Test

Impactor Acceleration (G's) vs. Time (ms)
Upper Rib Displacement (mm) vs. Time (ms)
Middle Rib Displacement (mm) vs. Time (ms)
Lower Rib Displacement (mm) vs. Time (ms)
Upper Spine Acceleration (G's) vs. Time (ms)
Lower Spine Acceleration (G's) vs. Time (ms)

Table 7. Abdomen Impact Test

Impactor Acceleration (G's) vs. Time (ms)
Upper Abdominal Rib Displacement (mm) vs. Time (ms)
Lower Abdominal Rib Displacement (mm) vs. Time (ms)
Lower Spine Acceleration (G's) vs. Time (ms)

Table 8. Pelvis Plug Quasi-Static Test (Optional*)

Table 9. Pelvis Acetabulum Impact Test

Impactor Acceleration (G's) vs. Time (ms)
Pelvis (Y) Acceleration (G's) vs. Time (ms)
Acetabulum Force (N) vs. Time (ms)

Table 10. Pelvis Iliac Impact Test

Impactor Acceleration (G's) vs. Time (ms)
Pelvis (Y) Acceleration (G's) vs. Time (ms)
Iliac Force (N) vs. Time (ms)

Pre-Test Calibration Sheets
Driver S/N EB8888

Transportation Research Center Inc.

Front Head Drop

WorldSID 50th Serial No. EB8888 Certification No. 1-3

Test Date: 7/2/2019

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.1 °C	Yes
Relative Humidity	10 - 70 %	59 %	Yes
Peak Head Resultant Acceleration	205 - 255 g	210.6 g	Yes
Peak Head Lateral Acceleration	(-15) - 15 g	-5.7 g	Yes
Is Acceleration Curve Unimodal within 10% of Peak?	< 10 %	0.64 %	Yes

Test meets specifications.

Condition: Used

Comments:

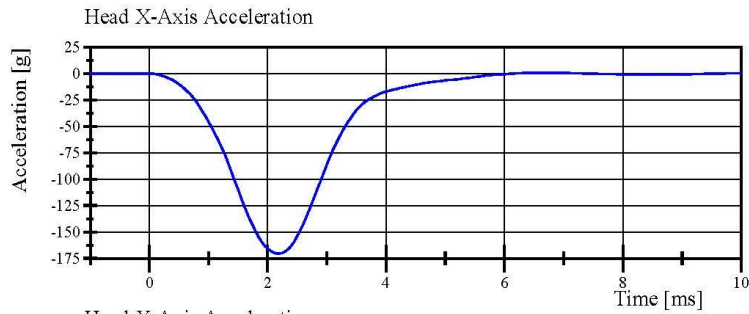
Head S/N: EG2845

Transportation Research Center Inc.

Front Head Drop

WorldSID 50th Serial No. EB8888 Certification No. 1-3

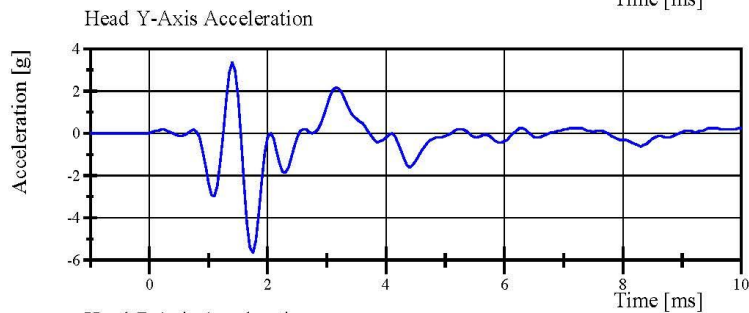
Test Date: 7/2/2019



Filter Class: CFC_1000

Max: 0.9 g at 6.6 ms

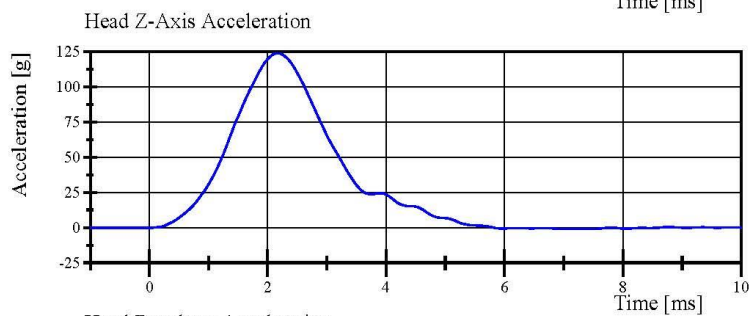
Min: -170.3 g at 2.2 ms



Filter Class: CFC_1000

Max: 3.4 g at 1.4 ms

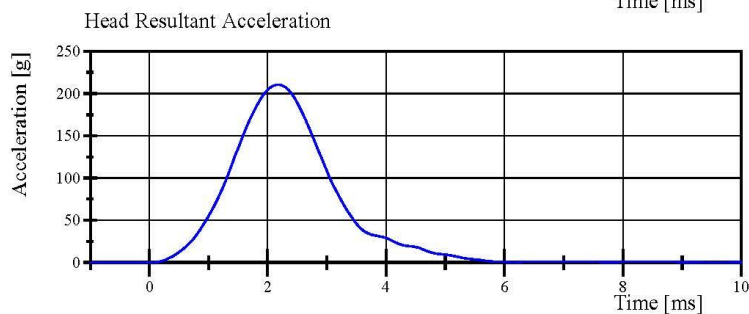
Min: -5.7 g at 1.8 ms



Filter Class: CFC_1000

Max: 123.9 g at 2.2 ms

Min: -1.0 g at 7.0 ms



Filter Class: CFC_1000

Max: 210.6 g at 2.2 ms

Min: 0.0 g at -1.0 ms

Specification Source: WorldSID 50th Qualification Manual, dated Aug. 2016
with Polarity in accordance with J211

07.02.2019 09:53:14 953



Transportation Research Center Inc.

Left Lateral Head Drop

WorldSID 50th Serial No. EB8888 Certification No. 1-2

Test Date: 7/2/2019

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.0 °C	Yes
Relative Humidity	10 - 70 %	58 %	Yes
Peak Head Resultant Acceleration	104 - 123 g	113.3 g	Yes
Peak Head Longitudinal Acceleration	(-15) - 15 g	-3.4 g	Yes
Is Acceleration Curve Unimodal within 10% of Peak?	< 10 %	2.62 %	Yes

Test meets specifications.

Condition: Used

Comments:

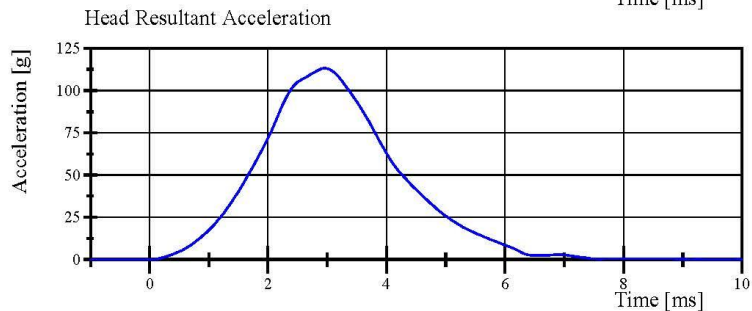
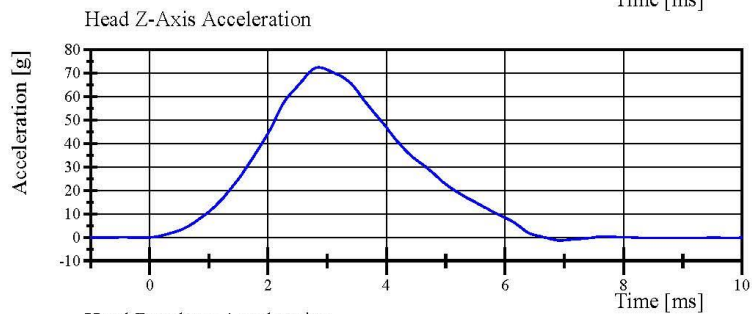
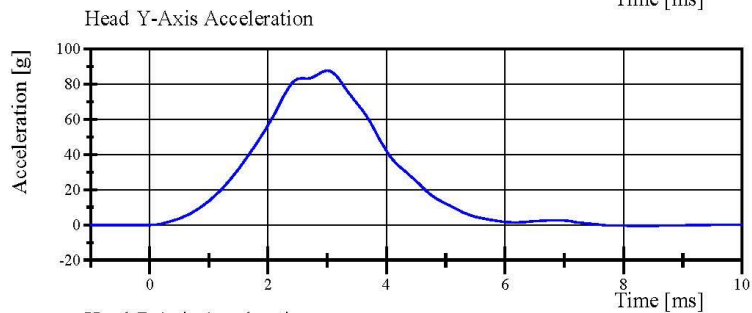
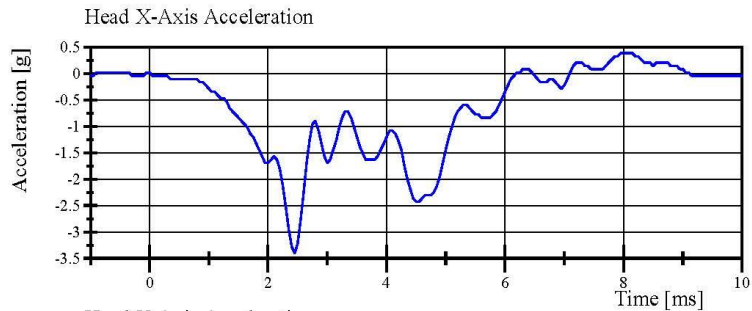
Head S/N: EG2845

Transportation Research Center Inc.

Left Lateral Head Drop

WorldSID 50th Serial No. EB8888 Certification No. 1-2

Test Date: 7/2/2019



Specification Source: WorldSID 50th Qualification Manual, dated Aug. 2016
with Polarity in accordance with J211

07.02.2019 13:04:14 945



Transportation Research Center Inc.

Right Lateral Head Drop

WorldSID 50th Serial No. EB8888 Certification No. 1-1

Test Date: 7/2/2019

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.1 °C	Yes
Relative Humidity	10 - 70 %	59 %	Yes
Peak Head Resultant Acceleration	104 - 123 g	112.1 g	Yes
Peak Head Longitudinal Acceleration	(-15) - 15 g	-2.1 g	Yes
Is Acceleration Curve Unimodal within 10% of Peak?	< 10 %	2.62 %	Yes

Test meets specifications.

Condition: Used

Comments:

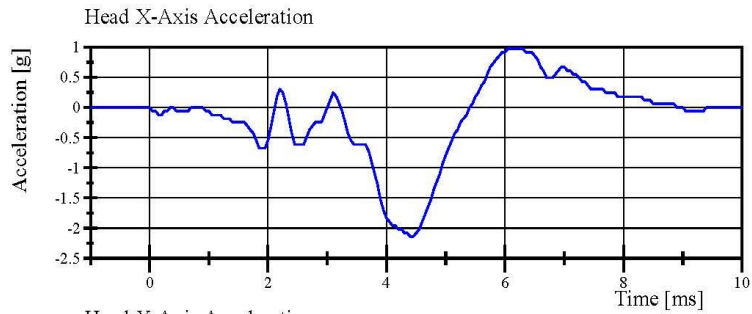
Head S/N: EG2845

Transportation Research Center Inc.

Right Lateral Head Drop

WorldSID 50th Serial No. EB8888 Certification No. 1-1

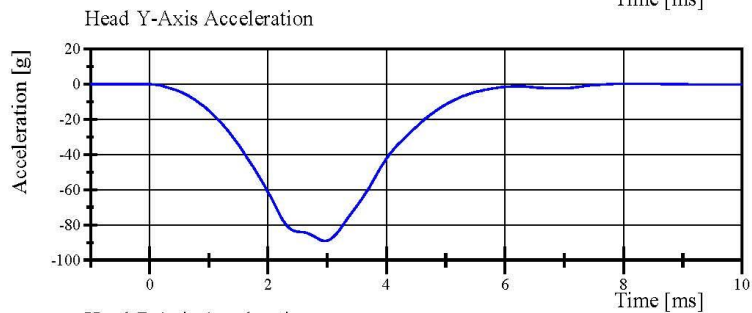
Test Date: 7/2/2019



Filter Class: CFC_1000

Max: 1.0 g at 6.1 ms

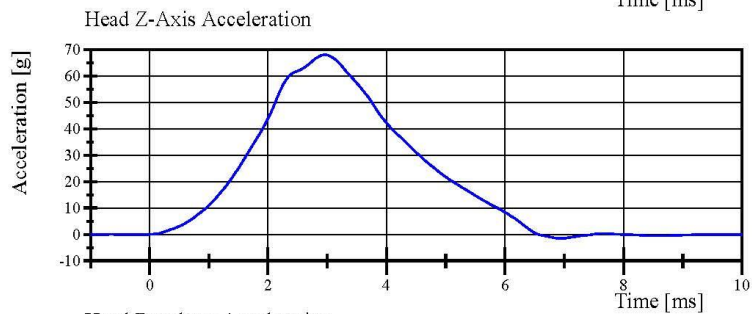
Min: -2.1 g at 4.4 ms



Filter Class: CFC_1000

Max: 0.2 g at 8.0 ms

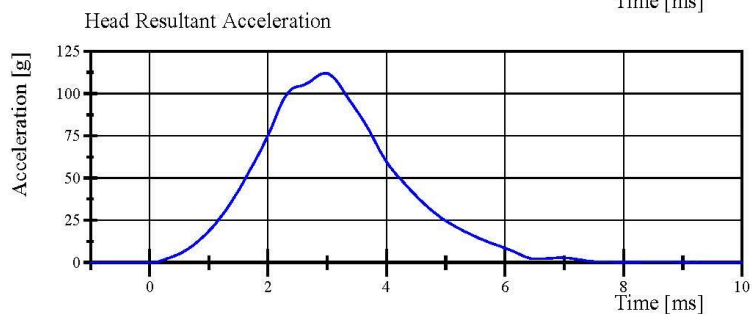
Min: -89.1 g at 3.0 ms



Filter Class: CFC_1000

Max: 68.1 g at 3.0 ms

Min: -1.5 g at 7.0 ms



Filter Class: CFC_1000

Max: 112.1 g at 3.0 ms

Min: 0.0 g at -1.0 ms

Specification Source: WorldSID 50th Qualification Manual, dated Aug. 2016
with Polarity in accordance with J211

07.02.2019 10:10:27 946



Transportation Research Center Inc.

Left Lateral Neck

WorldSID 50th Serial No. EB8888 Certification No. 1-3

Test Date: 7/3/2019

Test Parameter	Specifications	Test Results	Pass
Temperature	20.6 - 22.2 C	20.8 C	Yes
Relative Humidity	10 - 70 %	56 %	Yes
Pendulum Velocity	3.3 - 3.5 m/s	3.32 m/s	Yes
Pendulum Integrated Velocity			
Change at 4ms	0.77 - 1.04 m/s	0.950 m/s	Yes
Change at 8ms	1.6 - 1.9 m/s	1.862 m/s	Yes
Change at 12ms	2.43 - 3.29 m/s	2.814 m/s	Yes
Peak Flexion Angle	50 - 61 deg	51.00 deg	Yes
Peak Flexion Angle Decay to 0	58.72 ms	58.800 ms	Yes
Peak OC Moment	54 - 67 Nm	63.6 Nm	Yes
Peak OC Moment Decay to 0	71 - 87 ms	74.00 ms	Yes
Peak Forward Pot Angle	32 - 39 deg	32.89 deg	Yes
Time of Forward Pot Angle Peak	56 - 68 ms	59.10 ms	Yes
Peak Rear Pot Angle	29 - 36 deg	29.43 deg	Yes
Time of Rear Pot Angle Peak	56 - 68 ms	56.95 ms	Yes
Peak Headform Angular Rate	2164 - 2393 deg/sec	2246.12 deg/sec	Yes

Test meets specifications.

Condition: Used

Comments:

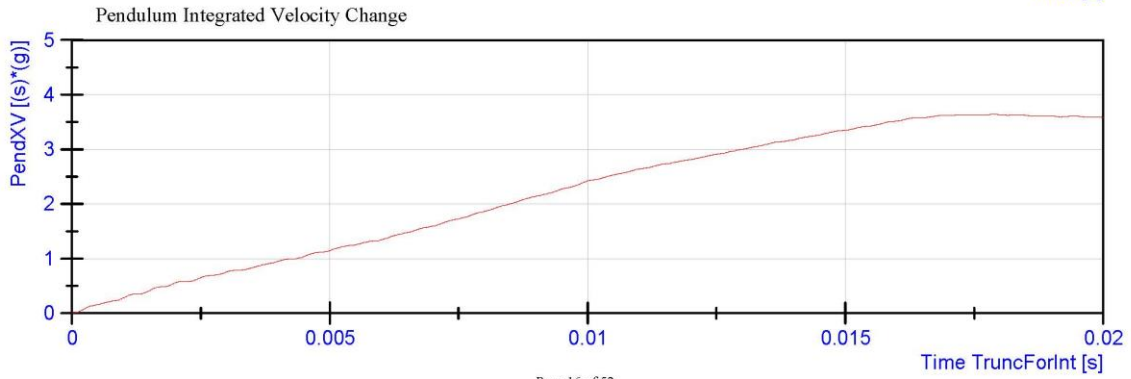
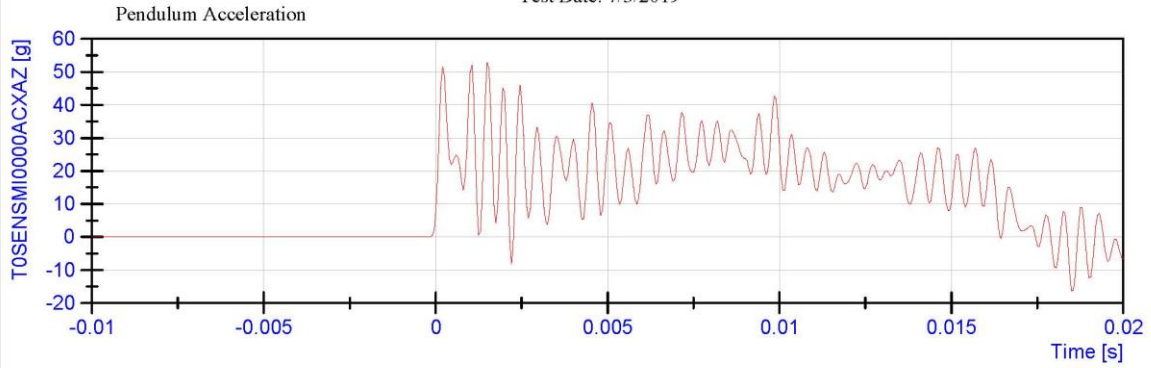
Neck S/N: DM3419

Transportation Research Center Inc.

Left Lateral Neck

WorldSID 50th Serial No. EB8888 Certification No. 1-3

Test Date: 7/3/2019

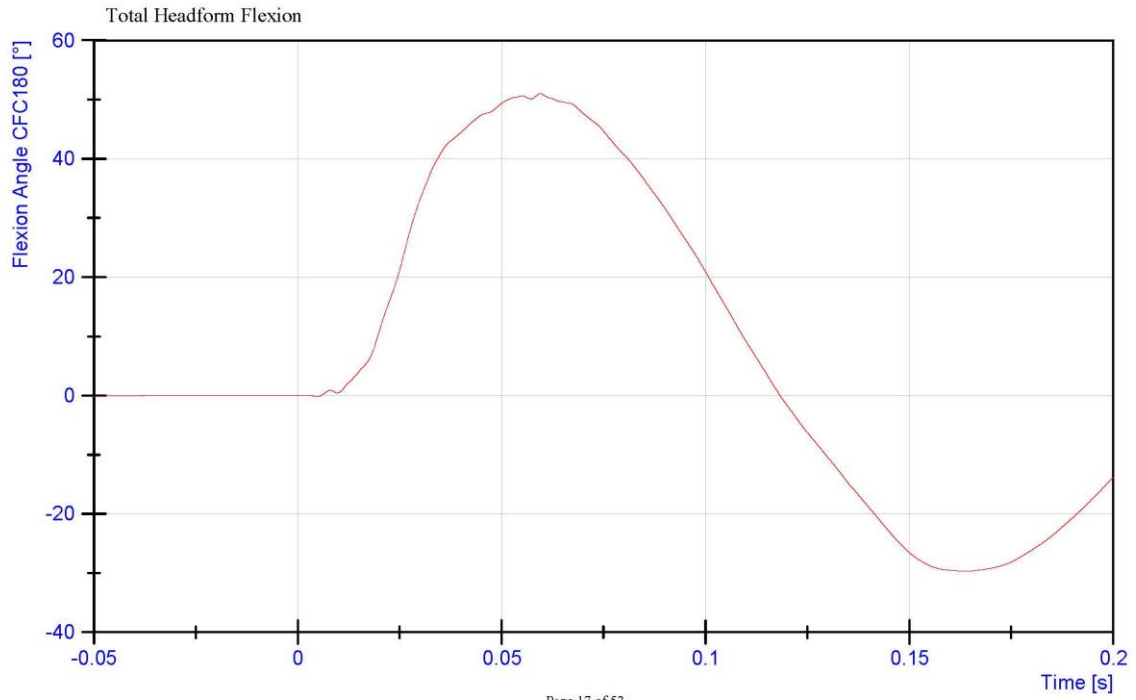


Transportation Research Center Inc.

Left Lateral Neck

WorldSID 50th Serial No. EB8888 Certification No. 1-3

Test Date: 7/3/2019



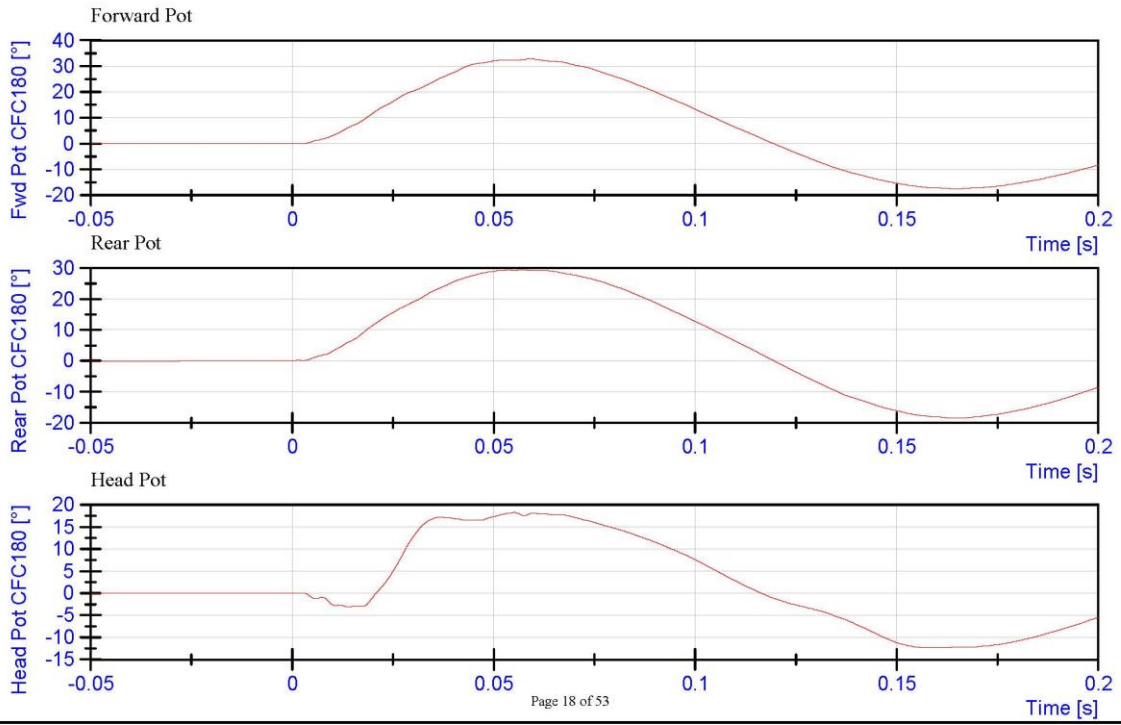
Page 17 of 53

Transportation Research Center Inc.

Left Lateral Neck

WorldSID 50th Serial No. EB8888 Certification No. 1-3

Test Date: 7/3/2019

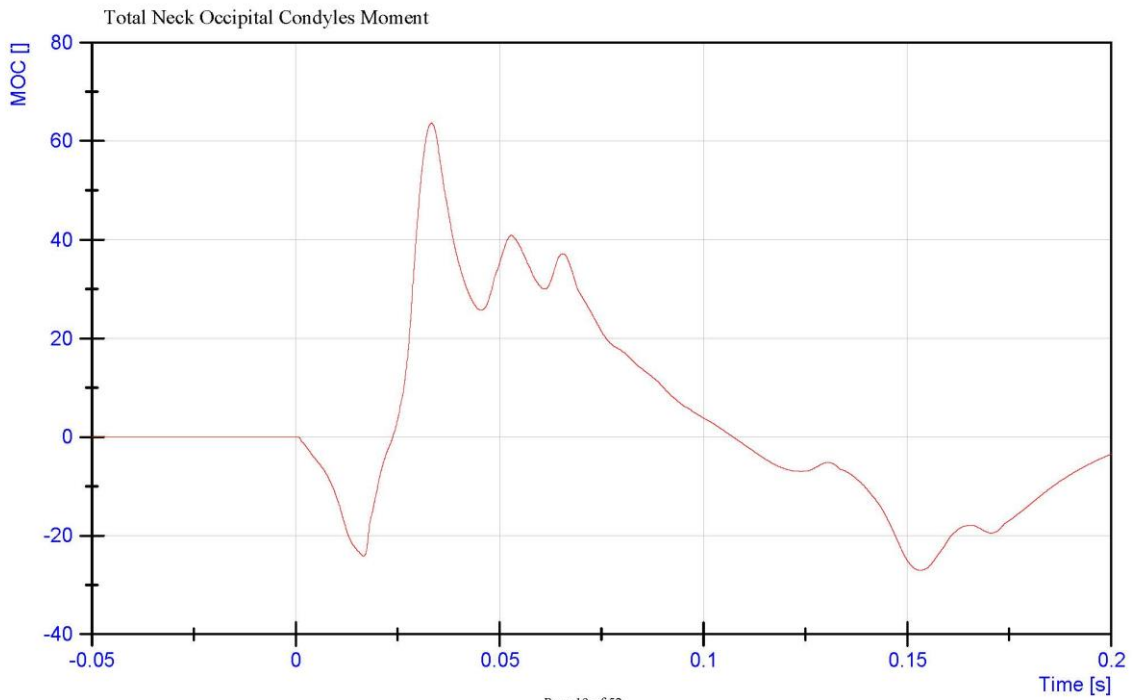


Transportation Research Center Inc.

Left Lateral Neck

WorldSID 50th Serial No. EB8888 Certification No. 1-3

Test Date: 7/3/2019



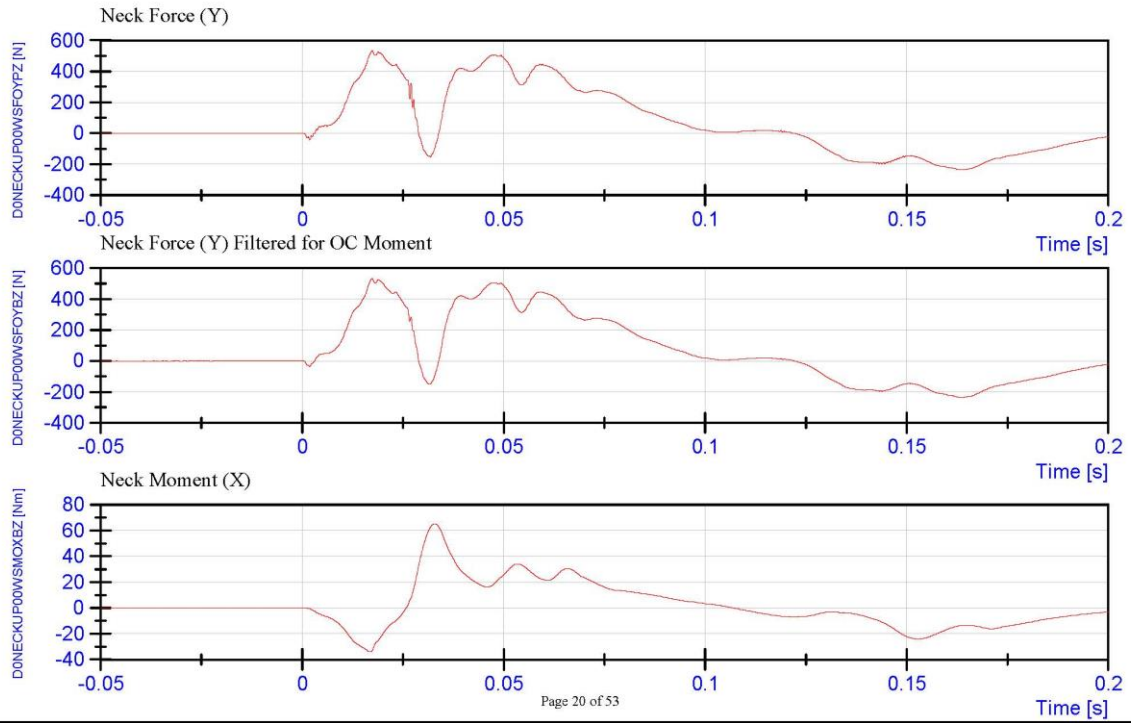
Page 19 of 53

Transportation Research Center Inc.

Left Lateral Neck

WorldSID 50th Serial No. EB8888 Certification No. 1-3

Test Date: 7/3/2019



Transportation Research Center Inc.

Right Lateral Neck

WorldSID 50th Serial No. EB8888 Certification No. 1-2

Test Date: 7/3/2019

Test Parameter	Specifications	Test Results	Pass
Temperature	20.6 - 22.2 C	21.1 C	Yes
Relative Humidity	10 - 70 %	58 %	Yes
Pendulum Velocity	3.3 - 3.5 m/s	3.32 m/s	Yes
Pendulum Integrated Velocity			
Change at 4ms	0.77 - 1.04 m/s	0.951 m/s	Yes
Change at 8ms	1.6 - 1.9 m/s	1.813 m/s	Yes
Change at 12ms	2.43 - 3.29 m/s	2.745 m/s	Yes
Peak Flexion Angle	50 - 61 deg	51.15 deg	Yes
Peak Flexion Angle Decay to 0	58.72 ms	59.350 ms	Yes
Peak OC Moment	54 - 67 Nm	63.2 Nm	Yes
Peak OC Moment Decay to 0	71 - 87 ms	74.55 ms	Yes
Peak Forward Pot Angle	32 - 39 deg	33.29 deg	Yes
Time of Forward Pot Angle Peak	56 - 68 ms	59.65 ms	Yes
Peak Rear Pot Angle	29 - 36 deg	29.72 deg	Yes
Time of Rear Pot Angle Peak	56 - 68 ms	59.00 ms	Yes
Peak Headform Angular Rate	2164 - 2393 deg/sec	2213.09 deg/sec	Yes

Test meets specifications.

Condition: Used

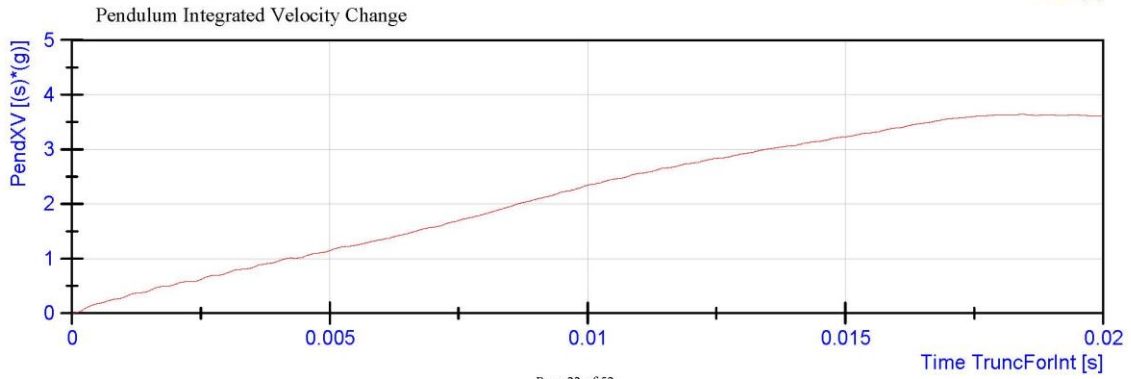
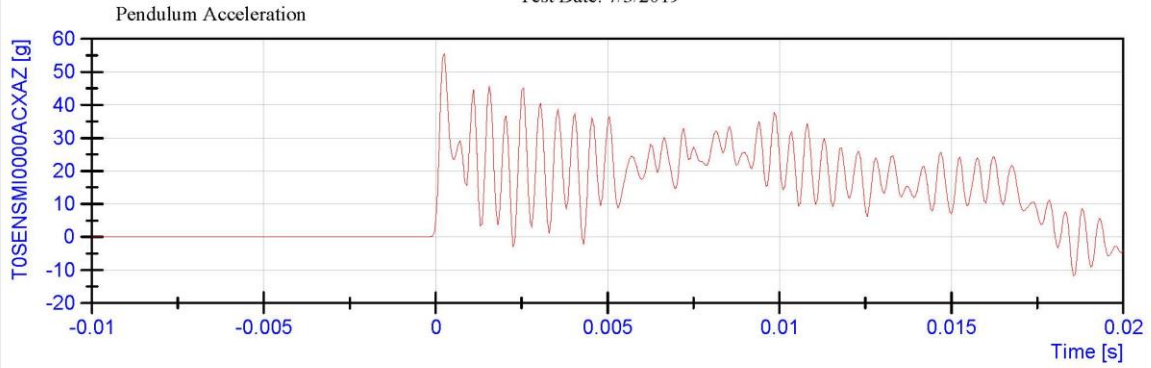
Comments:
Neck S/N: DM3419

Transportation Research Center Inc.

Right Lateral Neck

WorldSID 50th Serial No. EB8888 Certification No. 1-2

Test Date: 7/3/2019

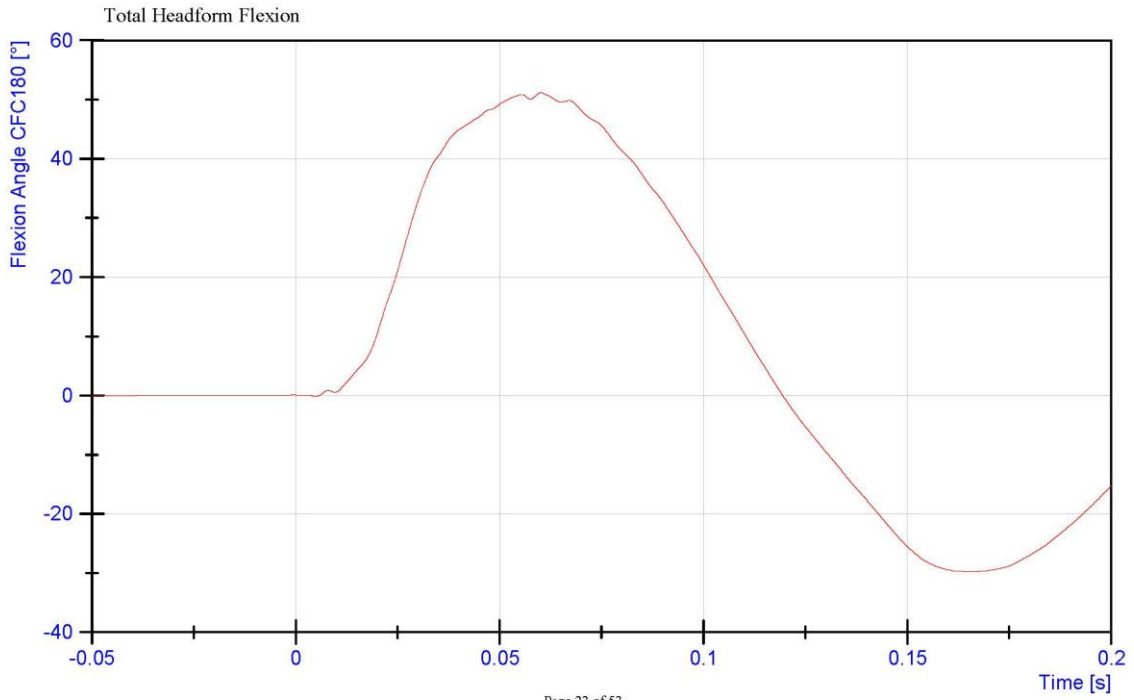


Transportation Research Center Inc.

Right Lateral Neck

WorldSID 50th Serial No. EB8888 Certification No. 1-2

Test Date: 7/3/2019

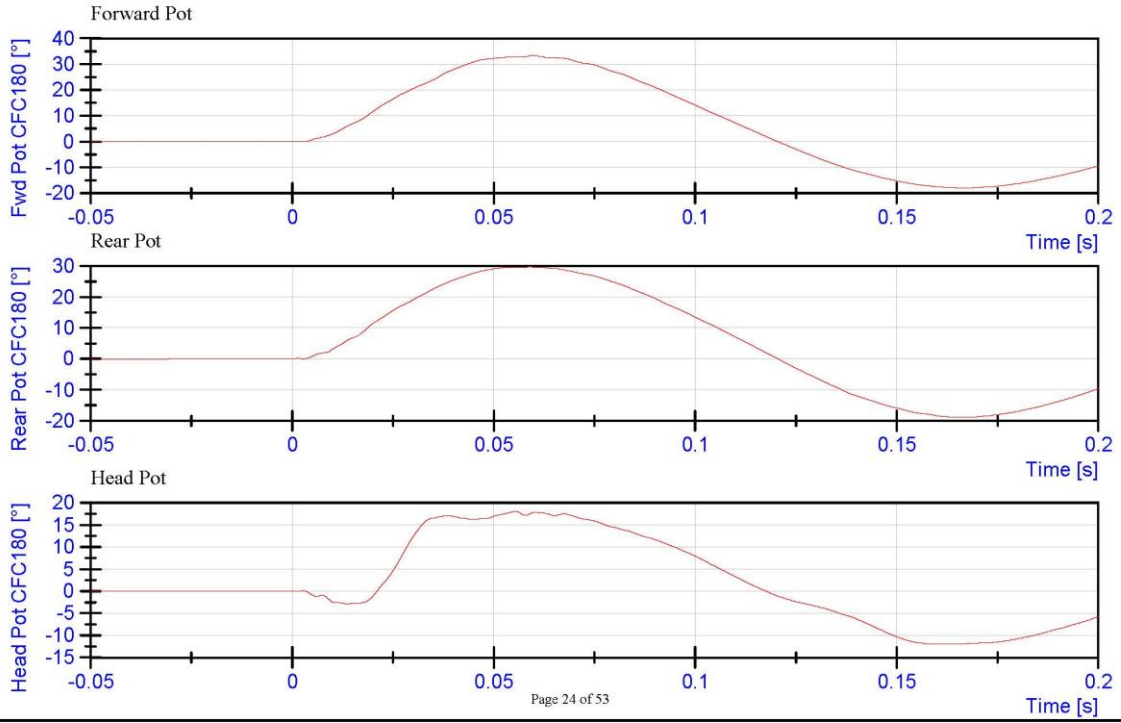


Transportation Research Center Inc.

Right Lateral Neck

WorldSID 50th Serial No. EB8888 Certification No. 1-2

Test Date: 7/3/2019

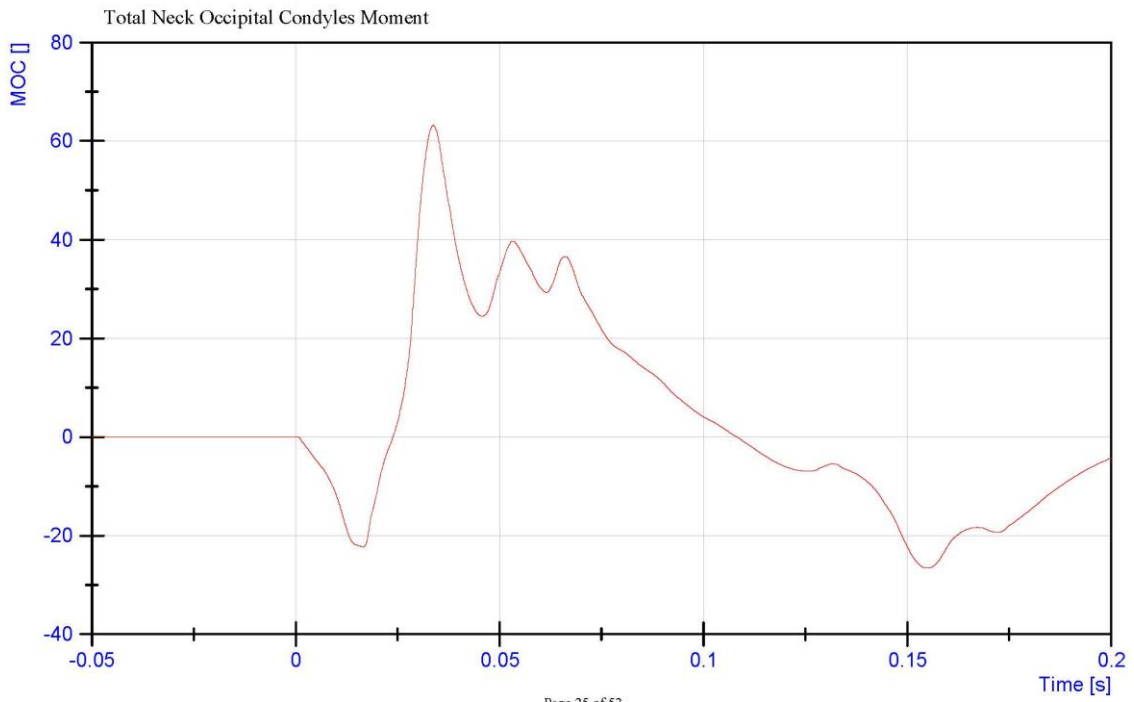


Transportation Research Center Inc.

Right Lateral Neck

WorldSID 50th Serial No. EB8888 Certification No. 1-2

Test Date: 7/3/2019



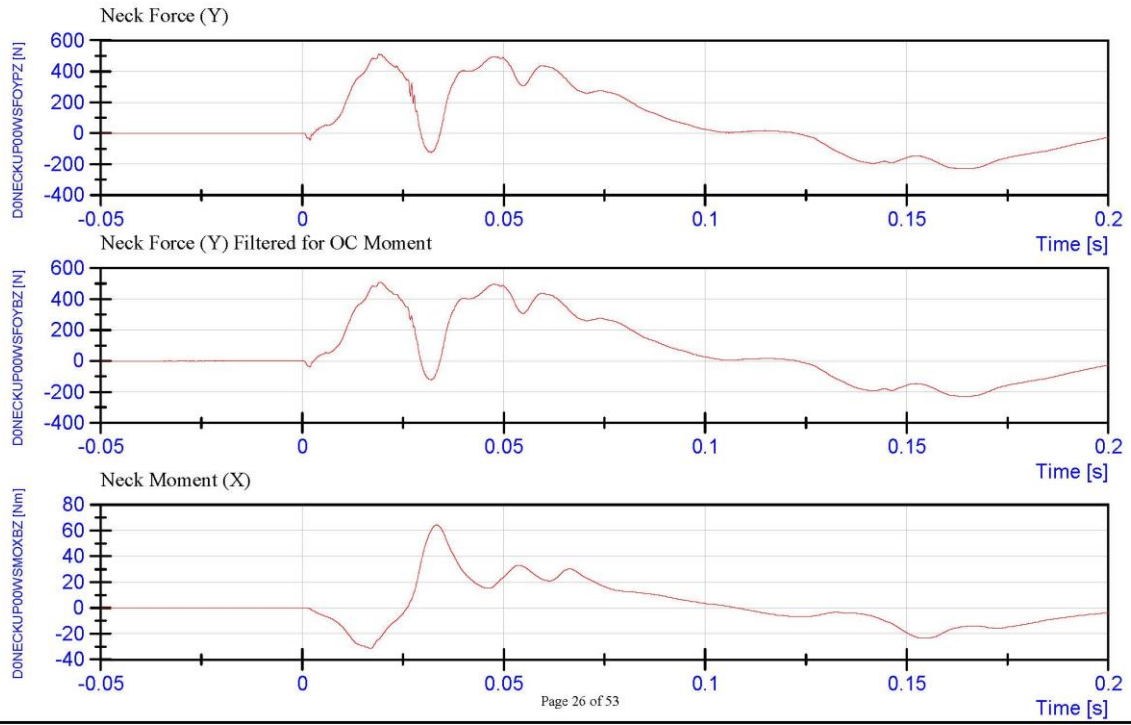
Page 25 of 53

Transportation Research Center Inc.

Right Lateral Neck

WorldSID 50th Serial No. EB8888 Certification No. 1-2

Test Date: 7/3/2019



Transportation Research Center Inc.

Left Torsion

WorldSID 50th Serial No. EB8888 Certification No. 1-6

Test Date: 7/16/2019

Test Parameter	Specifications	Test Results	Pass
Temperature	20.6 - 22.2 C	20.8 C	Yes
Relative Humidity	10 - 70 %	59 %	Yes
Pendulum Velocity	5.1 - 5.3 m/s	5.13 m/s	Yes
Pendulum Integrated Velocity			
Change at 10ms	2.04 - 2.28 m/s	2.148 m/s	No
Change at 20ms	3.2 - 3.57 m/s	3.323 m/s	Yes
Change at 30ms	4.32 - 4.83 m/s	4.427 m/s	Yes
Peak Fixture Rotation	47.9 - 45 deg	43.57 deg	No
Decay Time to 0 deg from Peak Angle	37.9 - 40.57 ms	38.300 ms	Yes
Peak Head Angular Velocity Z-axis	1536 - 1470 deg/s	1438.7 deg/s	No
Peak Lower Neck Moment Z-axis	39.1 - 35.9 Nm	40.11 Nm	No

Test does not meet specifications.

Condition: Used

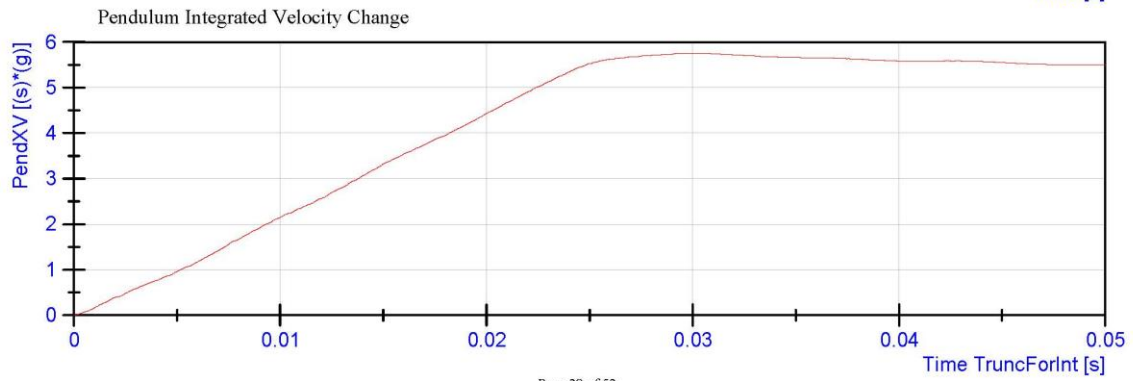
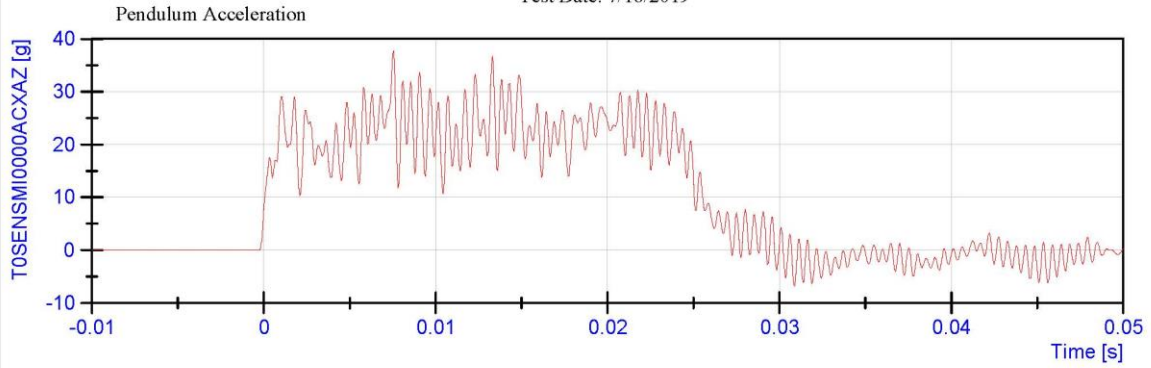
Comments:
Neck S/N: DM3419

Transportation Research Center Inc.

Left Torsion

WorldSID 50th Serial No. EB8888 Certification No. 1-6

Test Date: 7/16/2019

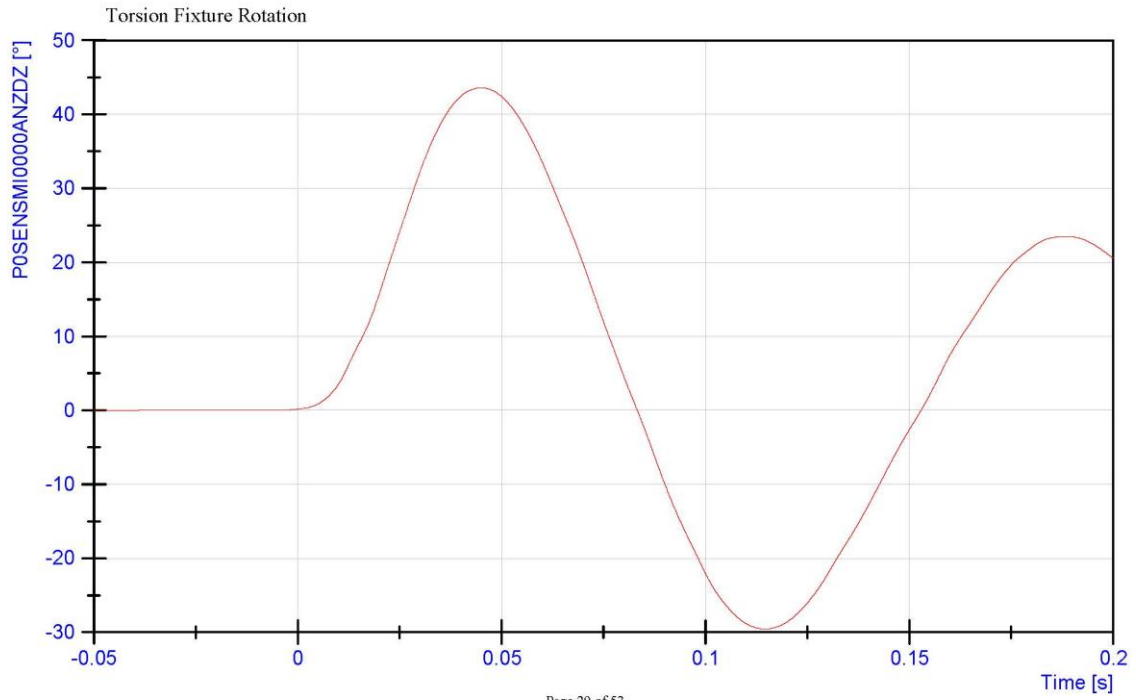


Transportation Research Center Inc.

Left Torsion

WorldSID 50th Serial No. EB8888 Certification No. 1-6

Test Date: 7/16/2019



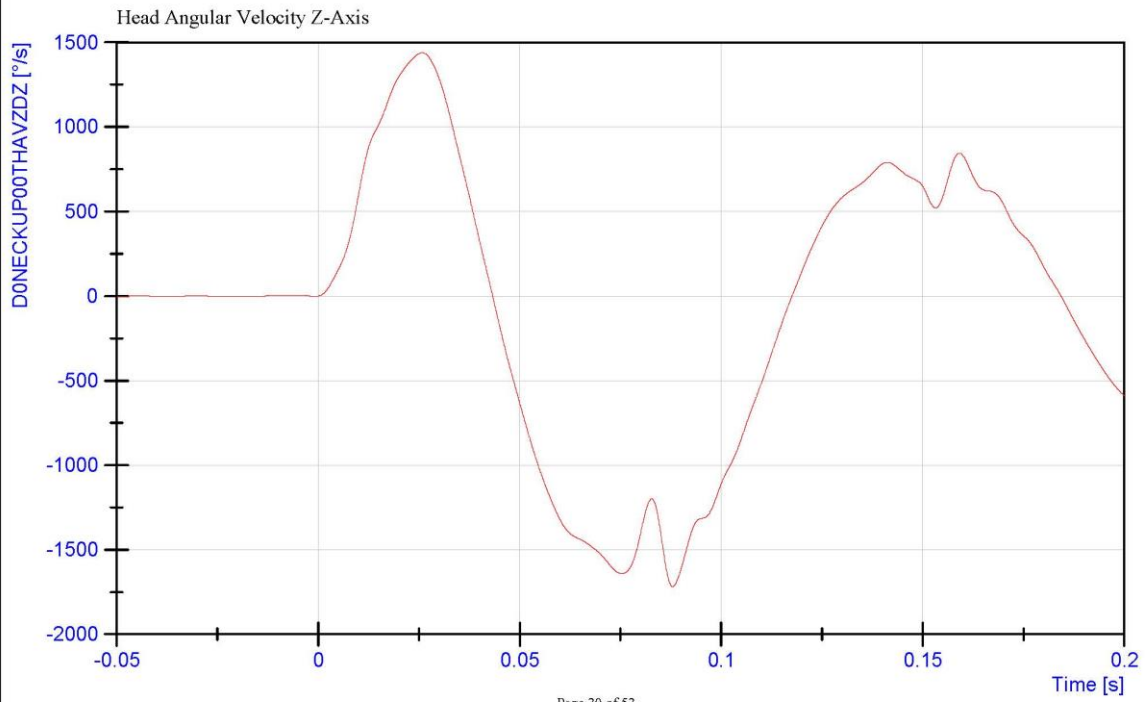
Page 29 of 53

Transportation Research Center Inc.

Left Torsion

WorldSID 50th Serial No. EB8888 Certification No. 1-6

Test Date: 7/16/2019

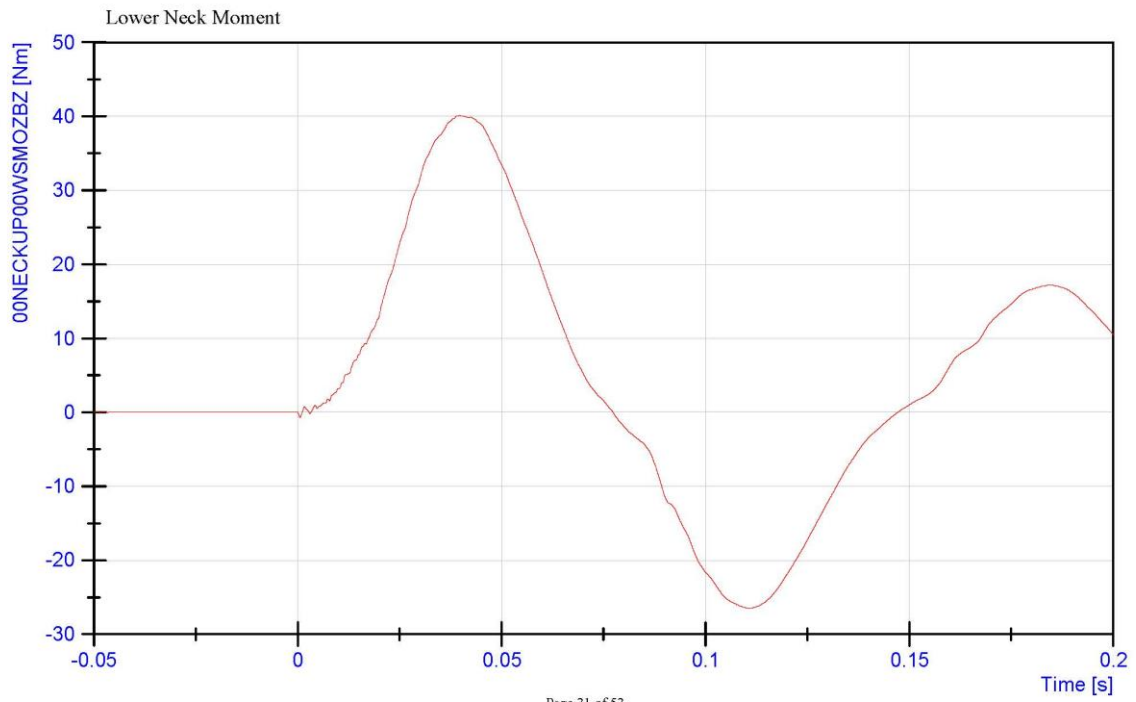


Transportation Research Center Inc.

Left Torsion

WorldSID 50th Serial No. EB8888 Certification No. 1-6

Test Date: 7/16/2019



Page 31 of 53

Transportation Research Center Inc.

Right Torsion

WorldSID 50th Serial No. EB8888 Certification No. 1-8

Test Date: 7/16/2019

Test Parameter	Specifications	Test Results	Pass
Temperature	20.6 - 22.2 C	20.9 C	Yes
Relative Humidity	10 - 70 %	59 %	Yes
Pendulum Velocity	5.1 - 5.3 m/s	5.13 m/s	Yes
Pendulum Integrated Velocity			
Change at 10ms	2.04 - 2.28 m/s	2.240 m/s	Yes
Change at 20ms	3.2 - 3.57 m/s	3.413 m/s	Yes
Change at 30ms	4.32 - 4.83 m/s	4.519 m/s	Yes
Peak Fixture Rotation	47.9 - 45 deg	43.57 deg	No
Decay Time to 0 deg from Peak Angle	37.9 - 40.57 ms	38.000 ms	Yes
Peak Head Angular Velocity Z-axis	1536 - 1470 deg/s	1471.6 deg/s	Yes
Peak Lower Neck Moment Z-axis	39.1 - 35.9 Nm	40.43 Nm	No

Test does not meet specifications.

Condition: Used

Comments:

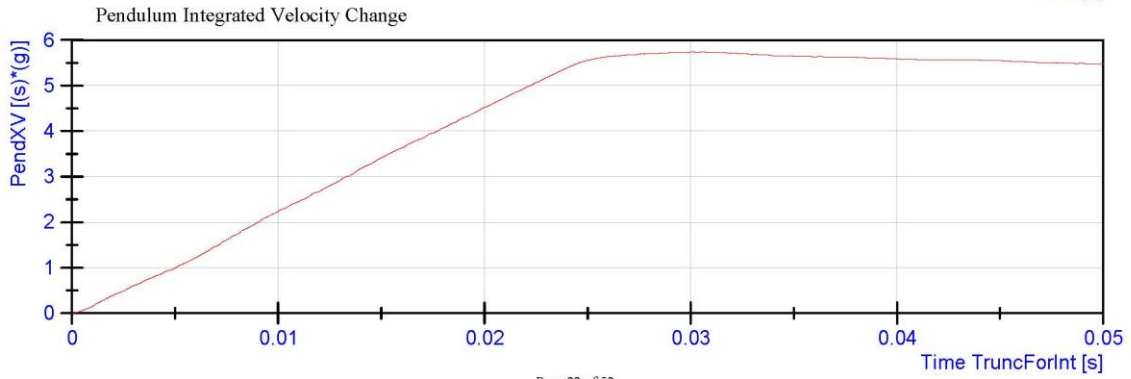
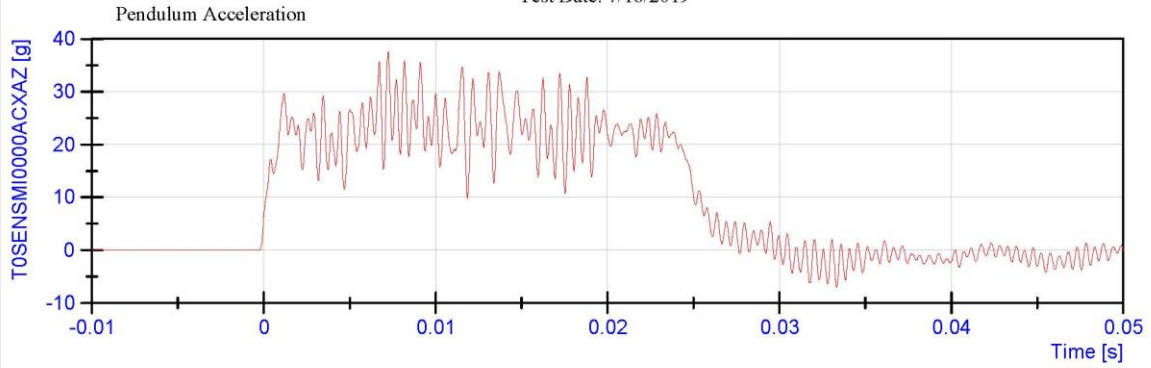
Neck S/N: DM3419

Transportation Research Center Inc.

Right Torsion

WorldSID 50th Serial No. EB8888 Certification No. 1-8

Test Date: 7/16/2019

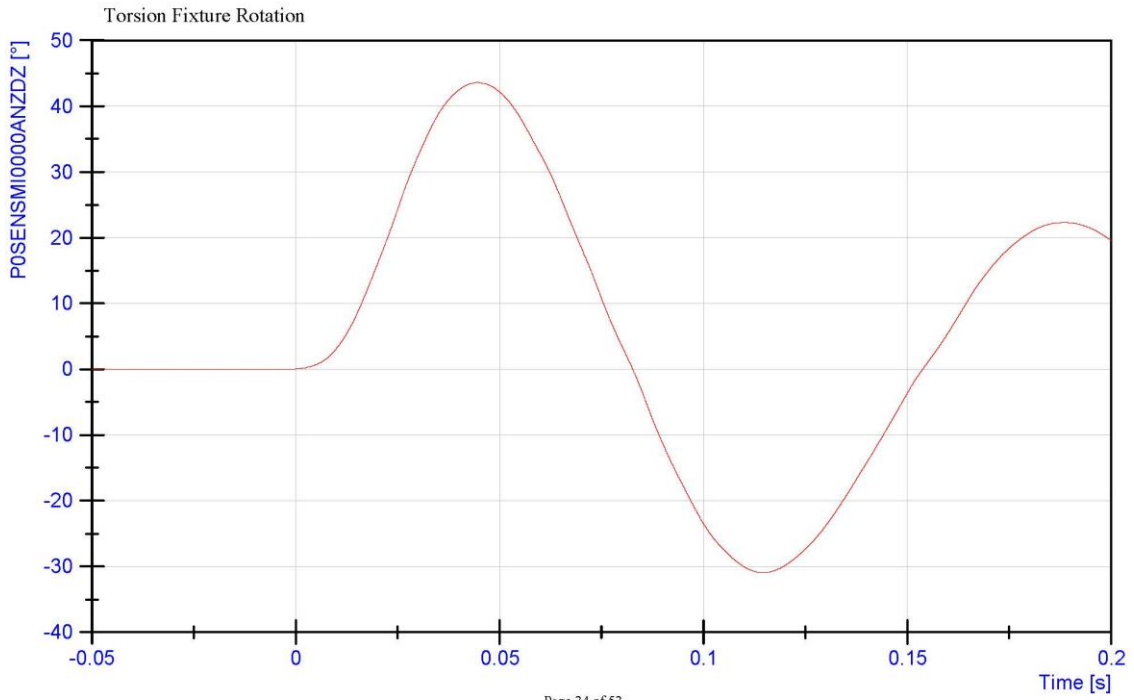


Transportation Research Center Inc.

Right Torsion

WorldSID 50th Serial No. EB8888 Certification No. 1-8

Test Date: 7/16/2019

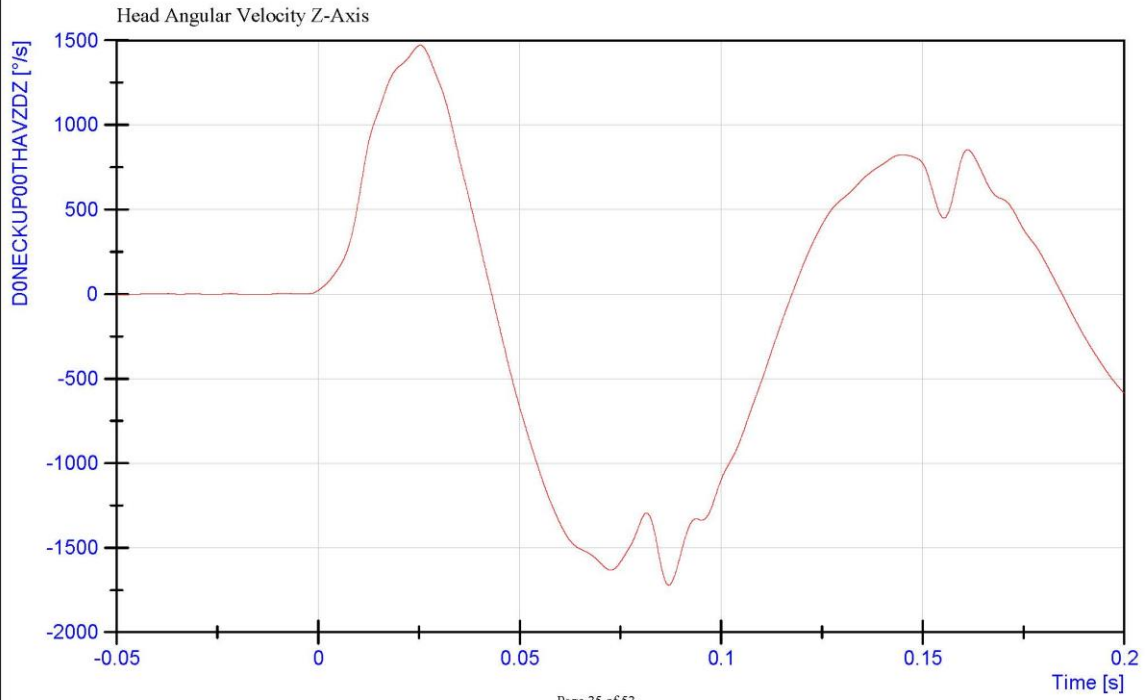


Transportation Research Center Inc.

Right Torsion

WorldSID 50th Serial No. EB8888 Certification No. 1-8

Test Date: 7/16/2019

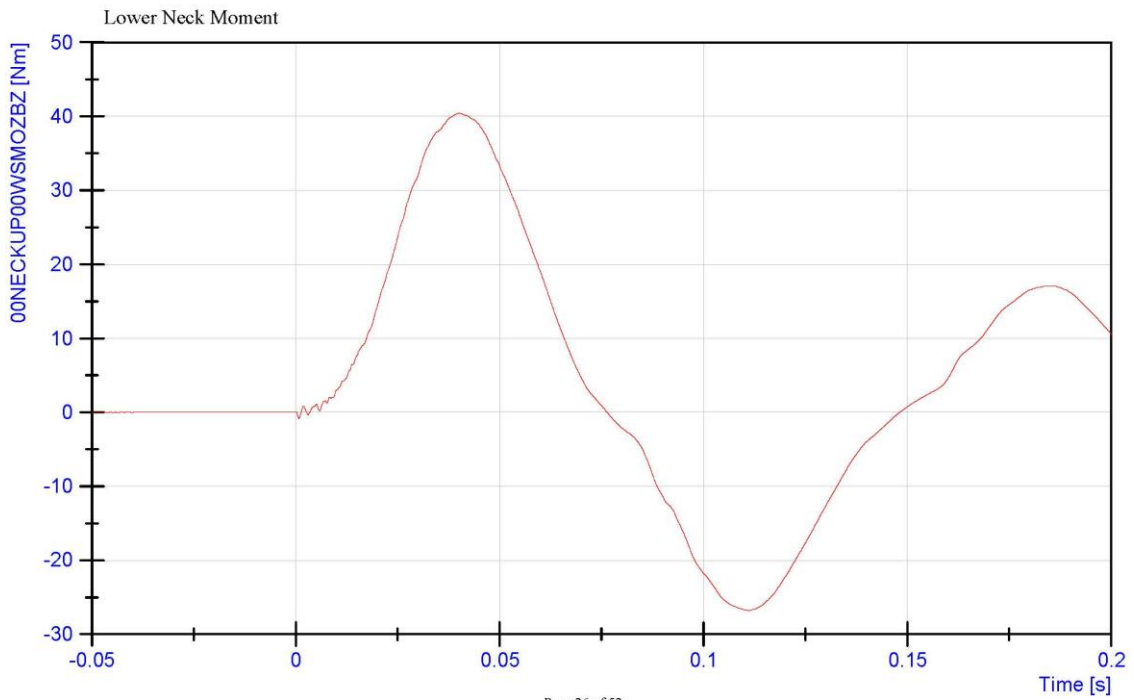


Transportation Research Center Inc.

Right Torsion

WorldSID 50th Serial No. EB8888 Certification No. 1-8

Test Date: 7/16/2019



Page 36 of 53

Transportation Research Center Inc.

Left Lateral Shoulder
WorldSID 50th Serial No. EB8888 Certification No. 1-1
Test Date: 7/10/2019

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	20.9 °C	Yes
Relative Humidity	10 - 70 %	59 %	Yes
Impactor Velocity	4.2 - 4.4 m/s	4.28 m/s	Yes
Impactor Force	2,600 - 3,300 N	2,852.2 N	Yes
Shoulder Force	1,500 - 1,900 N	1,600.9 N	Yes
S1 RibEye Max	37.5 - 46.5 mm	43.62 mm	Yes

Test meets specifications.

Condition: Used

Comments:

Arm S/N: EC3594

Shoulder Rib S/N: EB8887

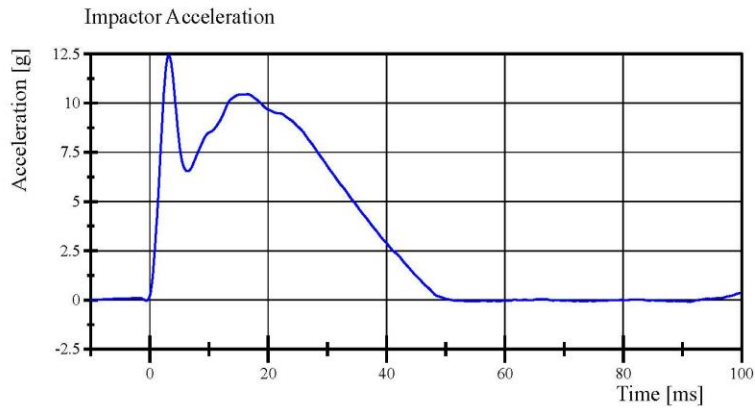
RibEYE S/N: 123

Transportation Research Center Inc.

Left Lateral Shoulder

WorldSID 50th Serial No. EB8888 Certification No. 1-1

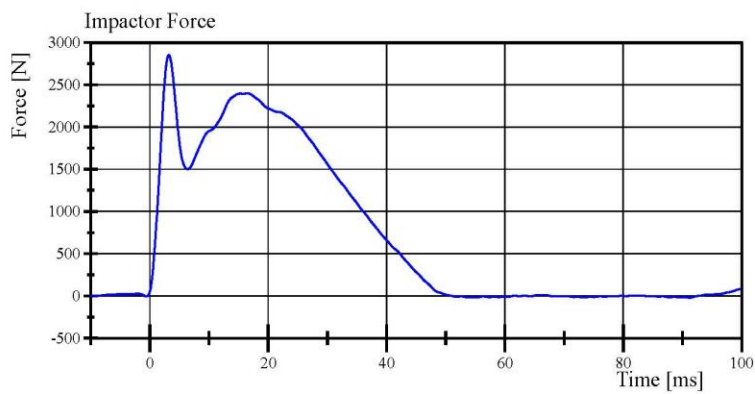
Test Date: 7/10/2019



Filter Class: CFC_180

Max: 12.4 g at 3.2 ms

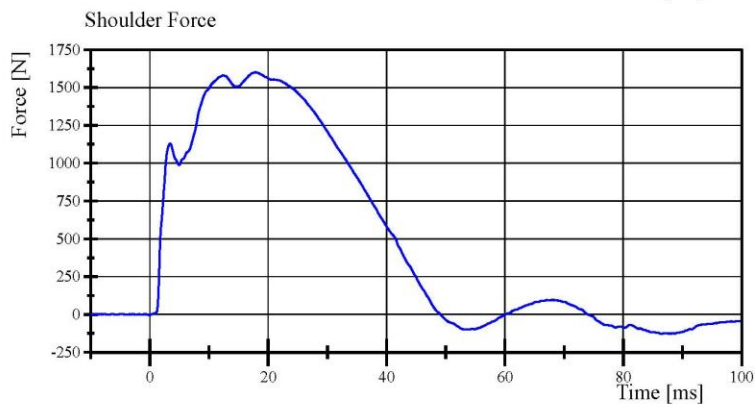
Min: -0.1 g at 91.2 ms



Filter Class: CFC_180

Max: 2,852.2 N at 3.2 ms

Min: -20.3 N at 91.2 ms



Filter Class: CFC_600

Max: 1,600.9 N at 17.9 ms

Min: -128.6 N at 86.5 ms

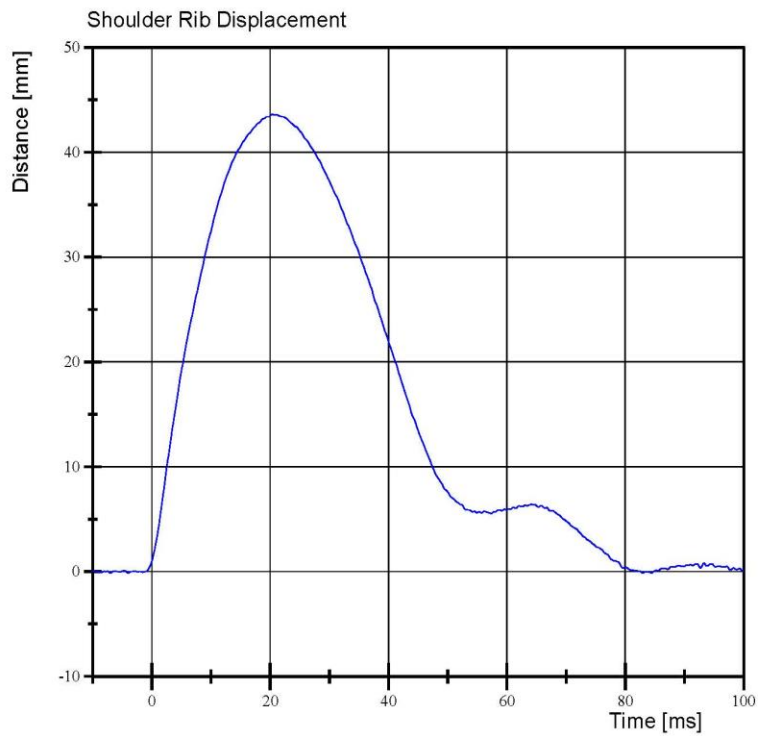
Specification Source: WS50 R&R qual specs July 2019.xlsx
orldSID 50th VRTC July 2019

07.12.2019 12:00:44 1006



Transportation Research Center Inc.

Shoulder Left Lateral
WorldSID 50th Serial No. EB8888 Certification No. 1-1
Test Date: 7/10/2019



Filter Class: CFC_600
Max: 43.6 mm at 20.4
Min: -1.0 mm at 107.6

Transportation Research Center Inc.

Left Lateral Thorax with Arm
WorldSID 50th Serial No. EB8888 Certification No. 1-1
Test Date: 7/12/2019

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	20.7 °C	Yes
Relative Humidity	10 - 70 %	59 %	Yes
Impactor Velocity	6.6 - 6.8 m/s	6.64 m/s	Yes
Impactor Force	5,300 - 6,200 N	5,710.9 N	Yes
Upper Thorax Rib Displacement	35 - 47 mm	43.8 mm	Yes
Center Thorax Rib Displacement	46 - 56 mm	50.2 mm	Yes
Lower Thorax Rib Displacement	33.5 - 41.5 mm	36.45 mm	Yes
Upper Spine Lateral Acceleration	28 - 37 g	34.3 g	Yes
Lower Spine Lateral Acceleration	22 - 28 g	22.4 g	Yes

Test meets specifications.

Condition: Used

Comments:

Arm S/N: EC3594

Throax Rib 1 S/N: EB5400

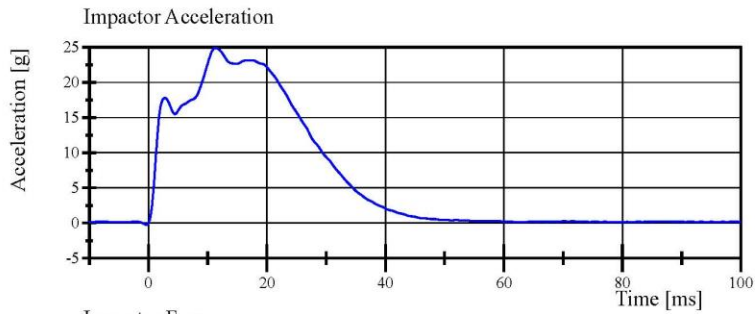
Thorax Rib 2 S/N: EB5401

Throax Rib 3 S/N: EB5402

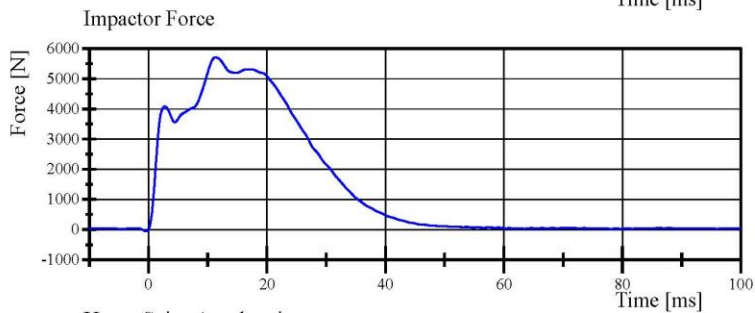
RibEYE S/N: 123

Transportation Research Center Inc.

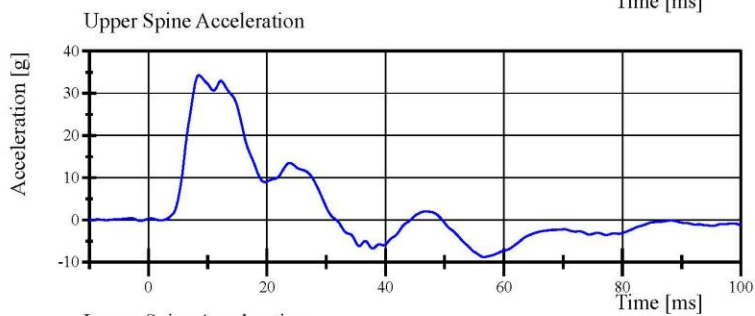
Left Lateral Thorax with Arm
WorldSID 50th Serial No. EB8888 Certification No. 1-1
Test Date: 7/12/2019



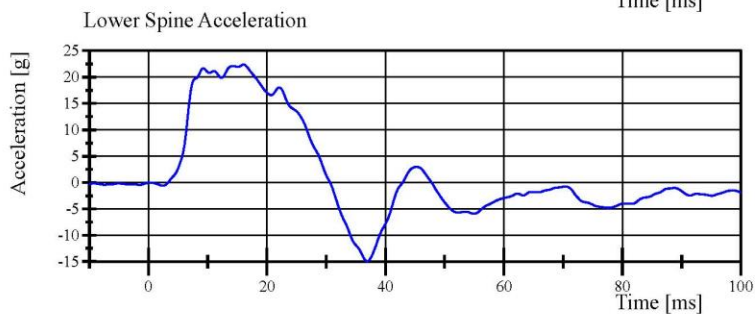
Filter Class: CFC_180
Max: 24.9 g at 11.4 ms
Min: -0.3 g at -0.4 ms



Filter Class: CFC_180
Max: 5,710.9 N at 11.4 ms
Min: -57.6 N at -0.4 ms



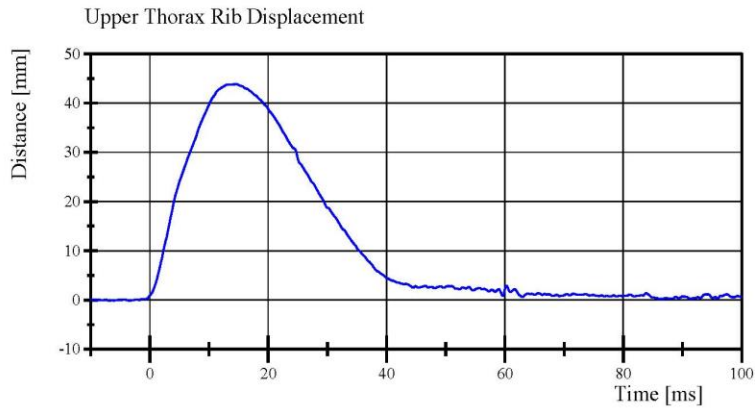
Filter Class: CFC_180
Max: 34.3 g at 8.5 ms
Min: -8.8 g at 56.6 ms



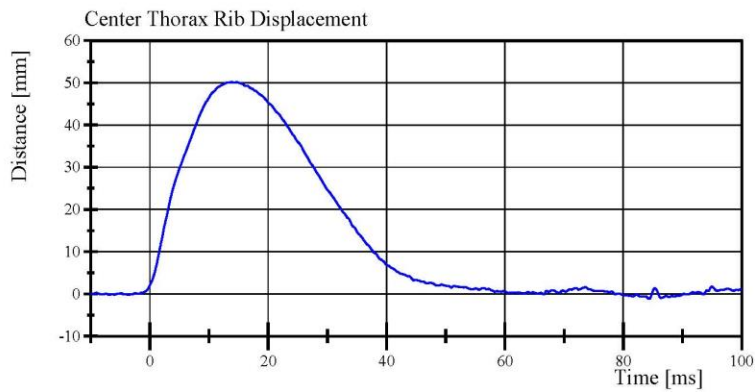
Filter Class: CFC_180
Max: 22.4 g at 16.1 ms
Min: -15.0 g at 36.9 ms

Transportation Research Center Inc.

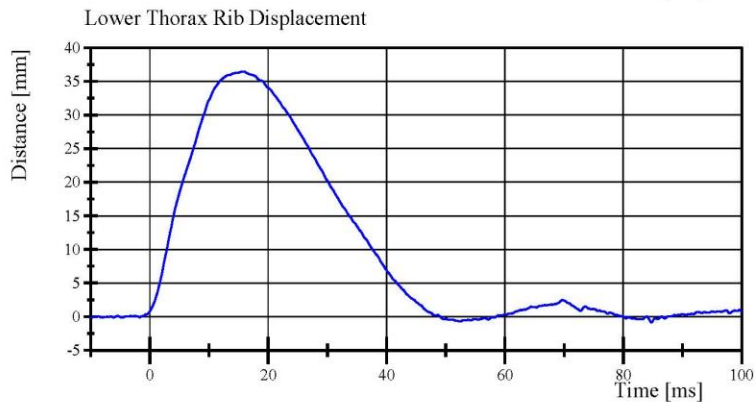
Thorax wArm Left Lateral
WorldSID 50th Serial No. EB8888 Certification No. 1-1
Test Date: 7/12/2019



Filter Class: CFC_600
Max: 43.8 mm at 14.6
Min: -0.5 mm at 115.8



Filter Class: CFC_600
Max: 50.2 mm at 14.7
Min: -2.9 mm at 107.4



Filter Class: CFC_600
Max: 36.4 mm at 15.7
Min: -1.8 mm at 311.9

Transportation Research Center Inc.

Left Lateral Thorax without Arm
WorldSID 50th Serial No. EB8888 Certification No. 1-1
Test Date: 7/12/2019

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	20.8 °C	Yes
Relative Humidity	10 - 70 %	59 %	Yes
Impactor Velocity	4.20 - 4.40 m/s	4.276 m/s	Yes
Impactor Force	3,400 - 4,000 N	3,573.6 N	Yes
Upper Thorax Rib Displacement	33 - 43 mm	39.2 mm	Yes
Center Thorax Rib Displacement	35 - 43 mm	42.3 mm	Yes
Lower Thorax Rib Displacement	32 - 40 mm	35.0 mm	Yes
Upper Spine Lateral Acceleration	14 - 20 g	15.6 g	Yes
Lower Spine Lateral Acceleration	14 - 22 g	16.4 g	Yes

Test meets specifications.

Condition: Used

Comments:

Thorax Rib 1 S/N: EB5400

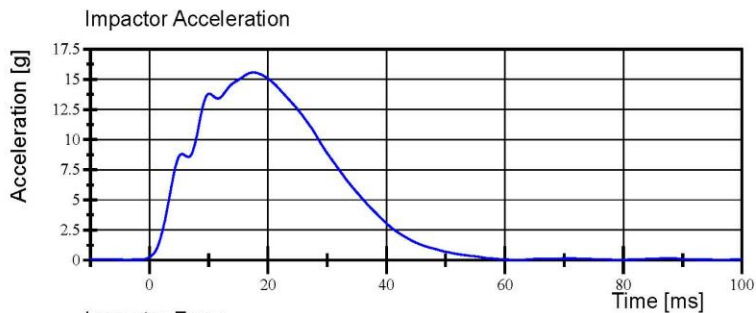
Thorax Rib 2 S/N: EB5401

Thorax Rib 3 S/N: EB5402

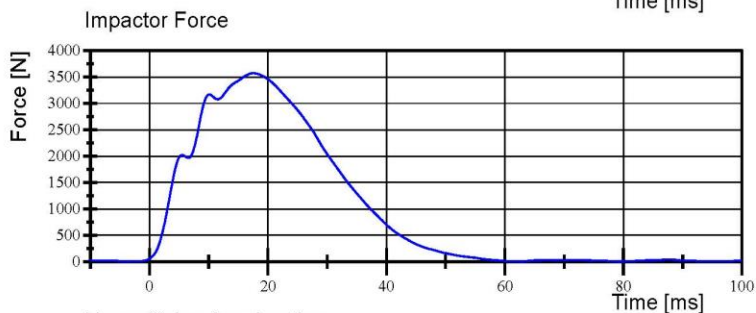
RibEYE S/N: 123

Transportation Research Center Inc.

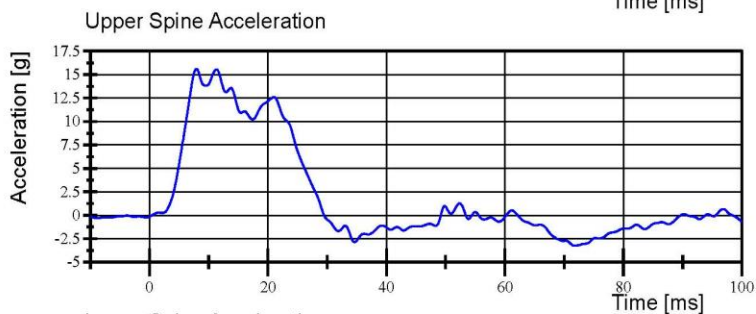
Left Lateral Thorax without Arm
WorldSID 50th Serial No. EB8888 Certification No. 1-1
Test Date: 7/12/2019



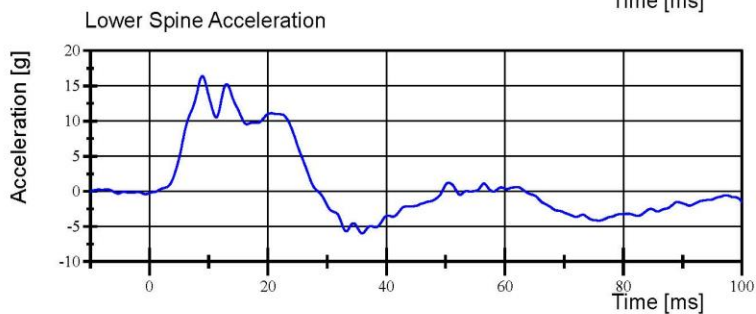
Filter Class: CFC_180
Max: 15.6 g at 17.6 ms
Min: 0.0 g at 79.7 ms



Filter Class: CFC_180
Max: 3,573.6 N at 17.6 ms
Min: 4.9 N at 79.7 ms



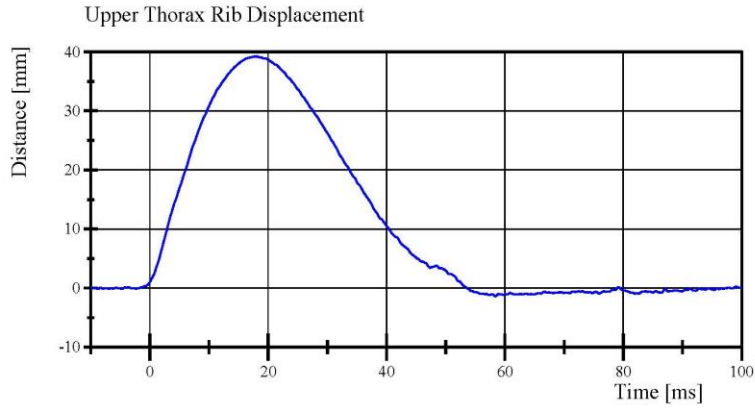
Filter Class: CFC_180
Max: 15.6 g at 7.9 ms
Min: -3.3 g at 71.8 ms



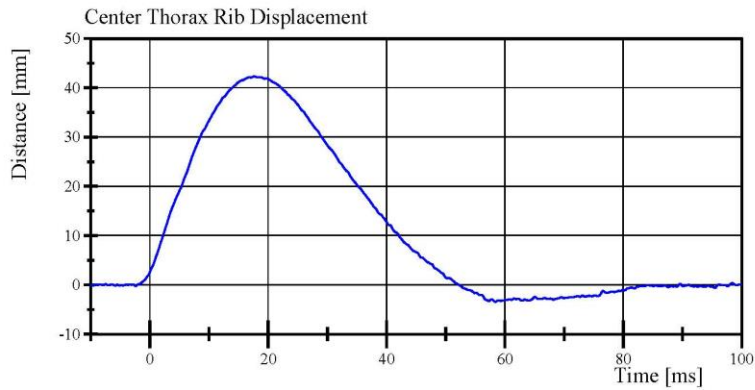
Filter Class: CFC_180
Max: 16.4 g at 9.0 ms
Min: -6.0 g at 35.9 ms

Transportation Research Center Inc.

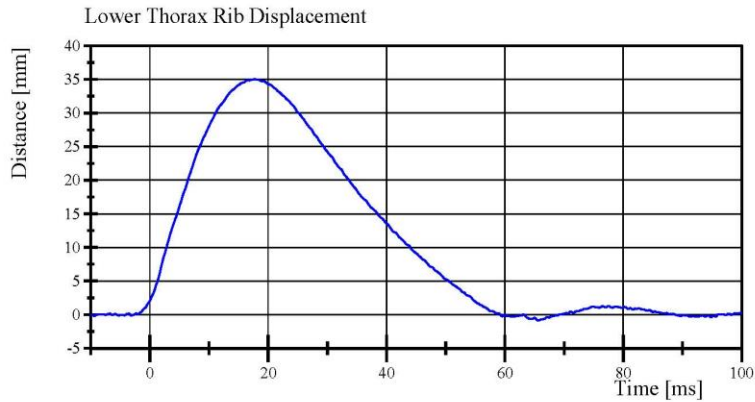
Thorax woArm Left Lateral
WorldSID 50th Serial No. EB8888 Certification No. 1-1
Test Date: 7/12/2019



Filter Class: CFC_600
Max: 39.2 mm at 17.9
Min: -1.4 mm at 58.4



Filter Class: CFC_600
Max: 42.3 mm at 17.6
Min: -3.5 mm at 58.4



Filter Class: CFC_600
Max: 35.0 mm at 17.7
Min: -1.6 mm at 199.9

Transportation Research Center Inc.

Left Lateral Abdomen
WorldSID 50th Serial No. EB8888 Certification No. 1-2
Test Date: 7/15/2019

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	20.9 °C	Yes
Relative Humidity	10 - 70 %	58 %	Yes
Impactor Velocity	4.2 - 4.4 m/s	4.30 m/s	Yes
Impactor Force	2,700 - 3,100 N	3,045.0 N	Yes
Upper Abdominal Rib Displacement	32.5 - 39.5 mm	33.15 mm	Yes
Lower Abdominal Rib Displacement	30 - 36 mm	32.6 mm	Yes
Lower Spine Lateral Acceleration	14.5 - 19.5 g	18.80 g	Yes

Test meets specifications.

Condition: Used

Comments:

Abdomen Rib 1 S/N: DY5252

Abdomen Rib 2 S/N: DY5253

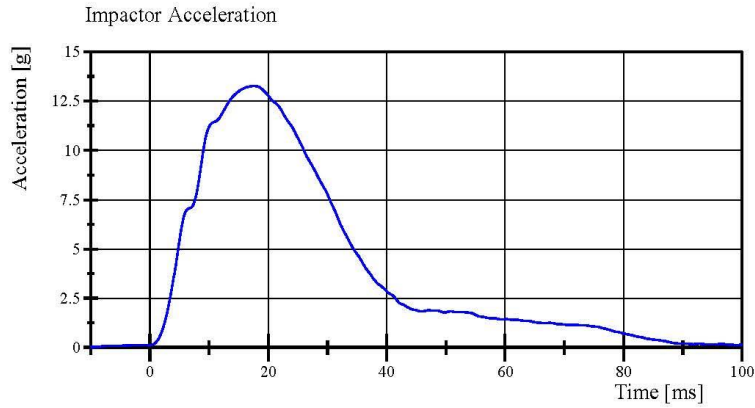
RibEYE S/N: 123

Transportation Research Center Inc.

Left Lateral Abdomen

WorldSID 50th Serial No. EB8888 Certification No. 1-2

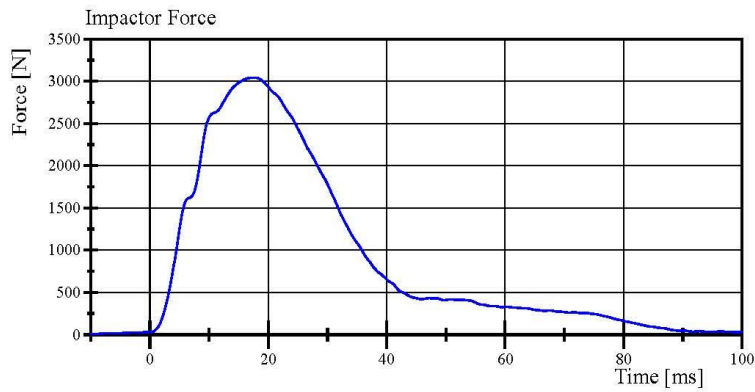
Test Date: 7/15/2019



Filter Class: CFC_180

Max: 13.3 g at 17.7 ms

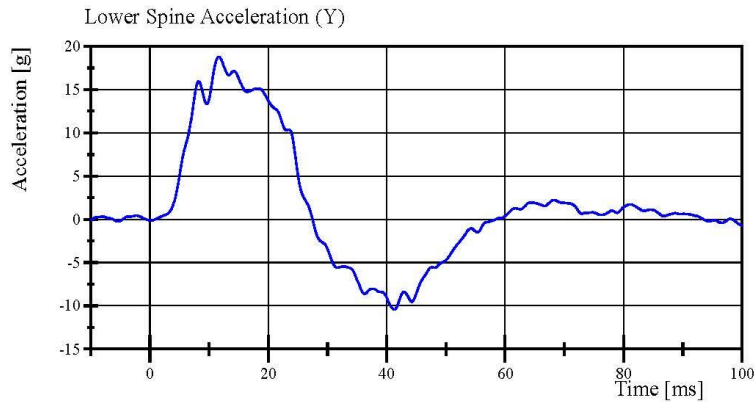
Min: 0.0 g at -10.0 ms



Filter Class: CFC_180

Max: 3,045.0 N at 17.7 ms

Min: 6.0 N at -10.0 ms



Filter Class: CFC_180

Max: 18.8 g at 11.7 ms

Min: -10.4 g at 41.3 ms

Specification Source: WS50 R&R qual specs July 2019.xlsx
WorldSID 50th VRTC July 2019

07.15.2019 16:16:43 1001



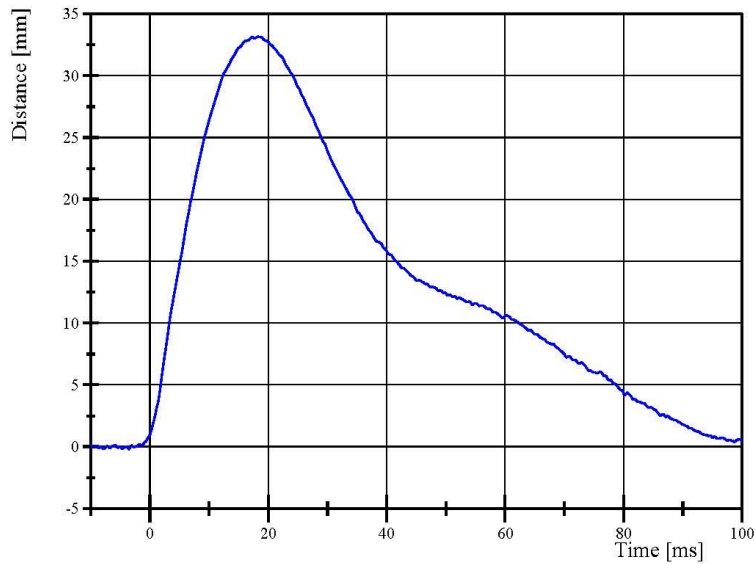
Transportation Research Center Inc.

Abdomen Left Lateral

WorldSID 50th Serial No. EB8888 Certification No. 1-2

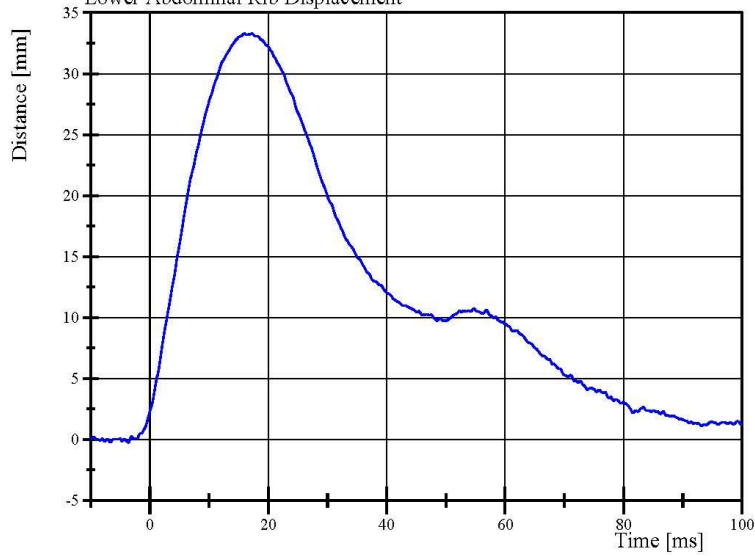
Test Date: 7/15/2019

Upper Abdominal Rib Displacement



Filter Class: CFC_600
Max: 33.1 mm at 18.3
Min: -0.2 mm at -3.5

Lower Abdominal Rib Displacement



Filter Class: CFC_600
Max: 33.3 mm at 17.2
Min: -0.3 mm at -6.7

Transportation Research Center Inc.

Left Lateral Pelvis
WorldSID 50th Serial No. EB8888 Certification No. 1-7
Test Date: 7/15/2019

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.1 °C	Yes
Relative Humidity	10 - 70 %	59 %	Yes
Impactor Velocity	6.60 - 6.80 m/s	6.791 m/s	Yes
Impactor Force	6,800 - 8,200 N	7,210.4 N	Yes
Pelvis Lateral Acceleration	38.5 - 48.5 g	40.95 g	Yes
Lower Spine Lateral Acceleration	10 - 14 g	11.3 g	Yes
Pubic Lateral Force	(-1,300) - (-1,600) N	-1,265.5 N	No
Sacroiliac Lateral Force	(-1,900) - (-2,200) N	-2,182.3 N	Yes

Test does not meet specifications.

Condition: Used

Comments:

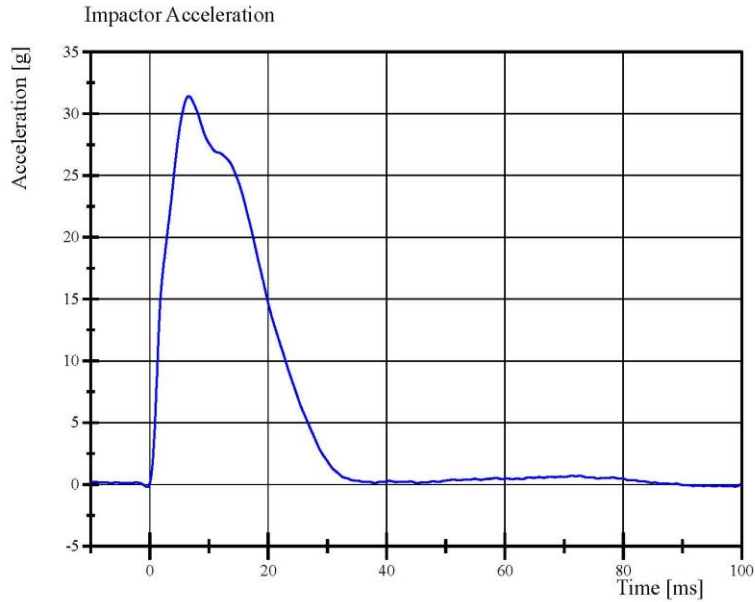
Pelvis Skin S/N: EC1494

Transportation Research Center Inc.

Left Lateral Pelvis

WorldSID 50th Serial No. EB8888 Certification No. 1-7

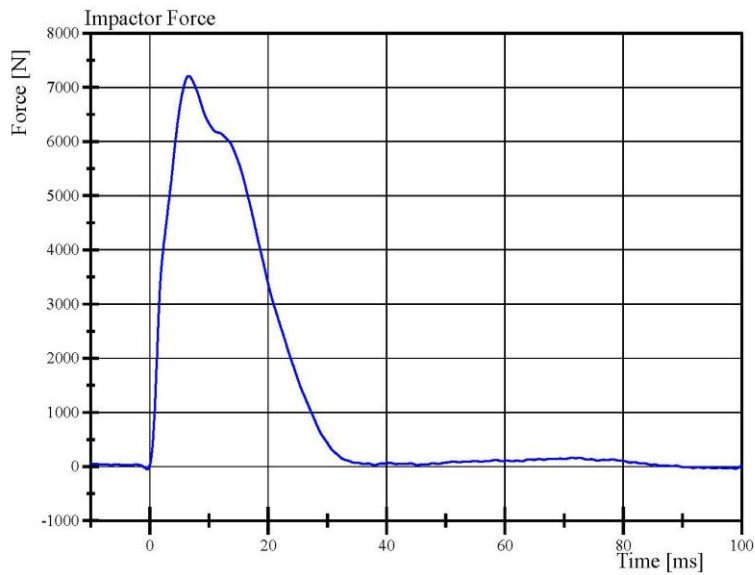
Test Date: 7/15/2019



Filter Class: CFC_180

Max: 31.4 g at 6.6 ms

Min: -0.2 g at -0.4 ms



Filter Class: CFC_180

Max: 7,210.4 N at 6.6 ms

Min: -46.7 N at -0.4 ms

Specification Source: WS50 R&R qual specs July 2019.xlsx
WorldSID 50th VRTC July 2019 v1.1

07.24.2019 15:03:00 1001

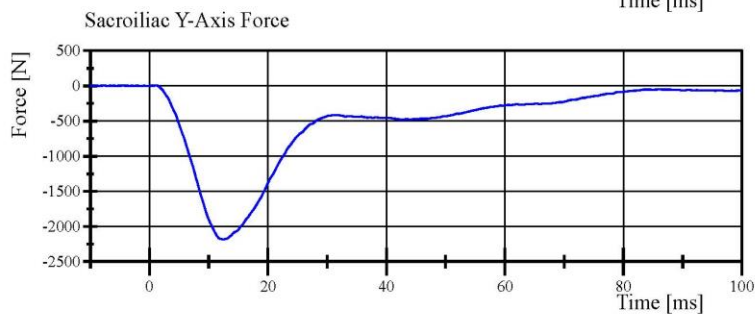
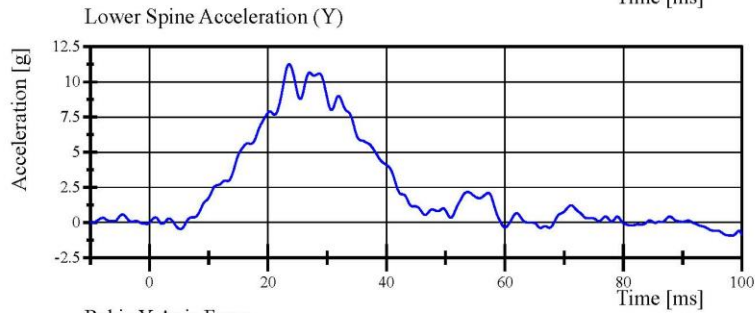
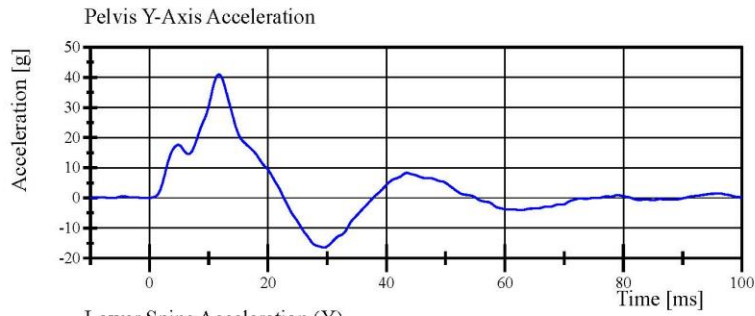


Transportation Research Center Inc.

Left Lateral Pelvis

WorldSID 50th Serial No. EB8888 Certification No. 1-7

Test Date: 7/15/2019



Specification Source: WS50 R&R qual specs July 2019.xlsx
WorldSID 50th VRTC July 2019 v1.1

07.24.2019 15:03:01 1001



Pre-Test Calibration Sheets
Passenger S/N 219

Transportation Research Center Inc.
SIDI's Dummy - Level D
External Dimensions
Serial No. 219 Calibration No. 77

Symbol	Description	Specification	Results	Pass
		mm	mm	
A	Sitting Height	772.0 - 788.0	786	Yes
B	Shoulder Pivot Height	437.0 - 453.0	450	Yes
C	H-Point Height	79.0 - 89.0	87	Yes
D	H-Point from Seat Back	141.0 - 151.0	145	Yes
E	Shoulder Pivot from Backline	97.0 - 107.0	99	Yes
F	Thigh Clearance	119.0 - 135.0	130	Yes
G	Head Breadth	140.0 - 148.0	143	Yes
H	Head Back from Backline	40.0 - 46.0	44	Yes
I	Head Depth	178.0 - 188.0	185	Yes
J	Head Circumference	541.0 - 551.0	544	Yes
K	Buttock to Knee Length	514.0 - 540.0	534	Yes
L	Popliteal Height	343.0 - 369.0	348	Yes
M	Knee Pivot to Floor Height	393.0 - 409.0	397	Yes
N	Buttock Popliteal Length	416.0 - 442.0	434	Yes
O	Chest Depth without Jacket	195.0 - 211.0	201	Yes
P	Foot Length (right)	216.0 - 232.0	222	Yes
P	Foot Length (left)	216.0 - 232.0	221	Yes
Q	Hip Breadth	313.0 - 323.0	320	Yes
R	Arm Length	249.0 - 259.0	252	Yes
S	Knee Joint to seat Back	478.0 - 493.0	482	Yes
V	Shoulder Width (only one arm installed)	341.0 - 357.0	350	Yes
W	Foot Width (right)	78.0 - 94.0	85	Yes
W	Foot Width (left)	78.0 - 94.0	85	Yes
Y	Chest Circumference with Jacket	851.0 - 881.0	873	Yes
Z	Waist Circumference	761.0 - 791.0	780	Yes

Transportation Research Center Inc.

Left Lateral Head Drop

SID IIS Serial No. 219 Certification No. 77-1

Test Date: 7/16/2019

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.6 °C	20.9 °C	Yes
Relative Humidity	10 - 70 %	60 %	Yes
Peak Head Resultant Acceleration	115 - 137 g	134.9 g	Yes
Peak Head Longitudinal Acceleration	(-15) - 15 g	3.6 g	Yes
Is Head Resultant Acceleration Curve Unimodal within 15% of Peak?	< 15 %	1.27 %	Yes

Test meets specifications.

Condition: Used

Comments:

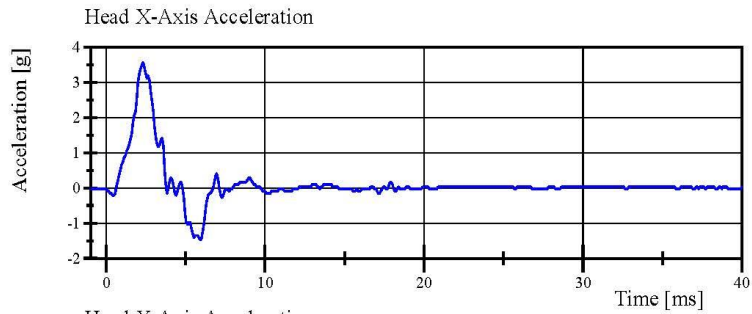
Head Skin S/N: 1312

Transportation Research Center Inc.

Left Lateral Head Drop

SID IIS Serial No. 219 Certification No. 77-1

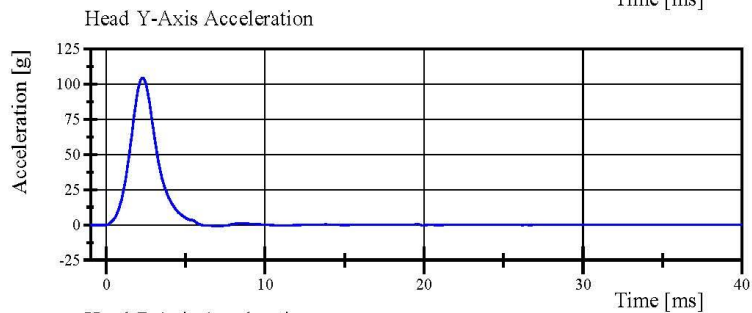
Test Date: 7/16/2019



Filter Class: CFC_1000

Max: 3.6 g at 2.3 ms

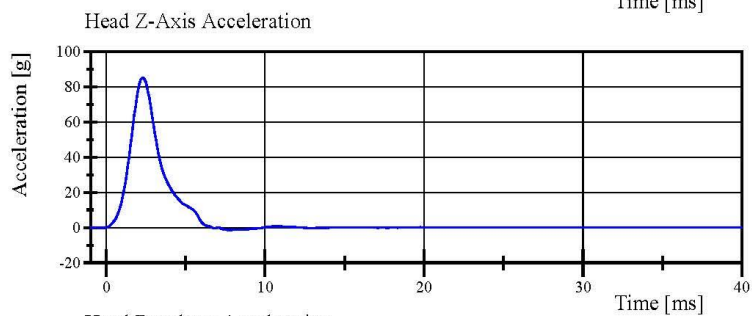
Min: -1.5 g at 5.9 ms



Filter Class: CFC_1000

Max: 104.4 g at 2.3 ms

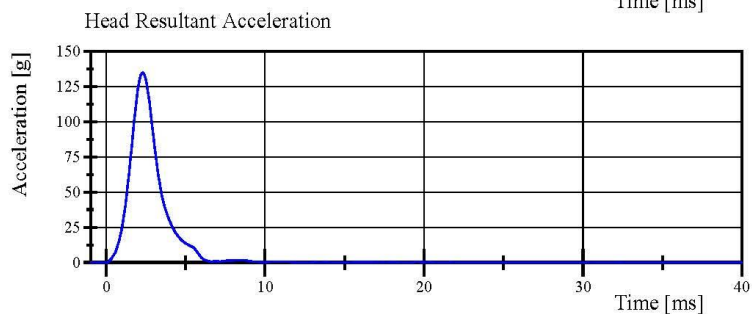
Min: -0.9 g at 7.0 ms



Filter Class: CFC_1000

Max: 85.3 g at 2.3 ms

Min: -1.4 g at 7.7 ms



Filter Class: CFC_1000

Max: 134.9 g at 2.3 ms

Min: 0.0 g at -1.0 ms

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

07.16.2019 14:19:06 200



Transportation Research Center Inc.

Left Lateral Neck

SID IIs Serial No. 219 Certification No. 77-5

Test Date: 7/18/2019

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	20.8 °C	Yes
Relative Humidity	10 - 70 %	59 %	Yes
Pendulum Velocity	(-5.51) - (-5.63) m/s	-5.615 m/s	Yes
Pendulum Integrated Velocity			
Change at 10 ms	2.20 - 2.80 m/s	2.516 m/s	Yes
Change at 15 ms	3.30 - 4.10 m/s	3.578 m/s	Yes
Change at 20 ms	4.40 - 5.40 m/s	4.793 m/s	Yes
Change at 25 ms	5.40 - 6.10 m/s	5.806 m/s	Yes
Change at 25 to 100 ms	5.50 - 6.20 m/s	6.075 m/s	Yes
Maximum Headform Flexion occurring between 50ms and 70ms.			
Peak	(-71) - (-81) deg	-74.6 deg	Yes
Time of Peak	50 - 70 ms	64.5 ms	Yes
Total Neck Occipital Condyles Moment	36 - 44 N·m	39.4 N·m	Yes
Total Neck Occipital Condyles Moment Decay Time to 0 N·m	102 - 126 ms	124.2 ms	Yes

Test meets specifications.

Condition: Used

Comments:

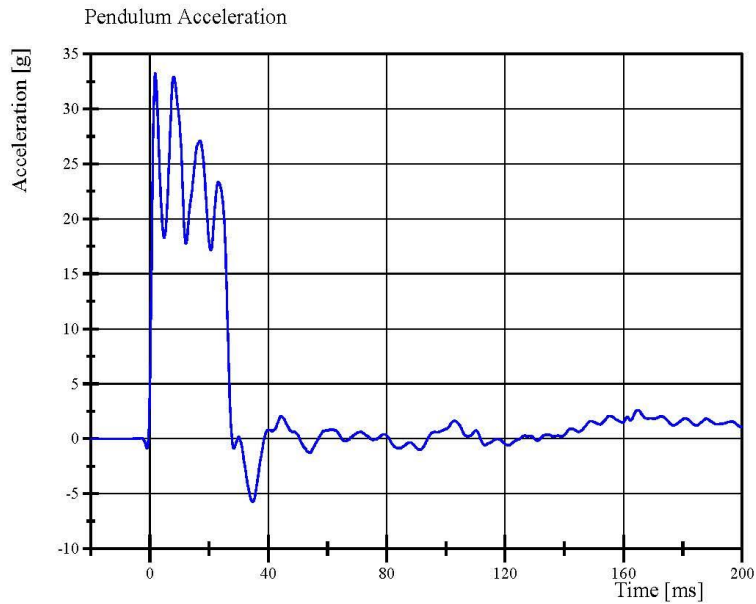
Neck S/N: DI0542

Transportation Research Center Inc.

Left Lateral Neck

SID IIS Serial No. 219 Certification No. 77-5

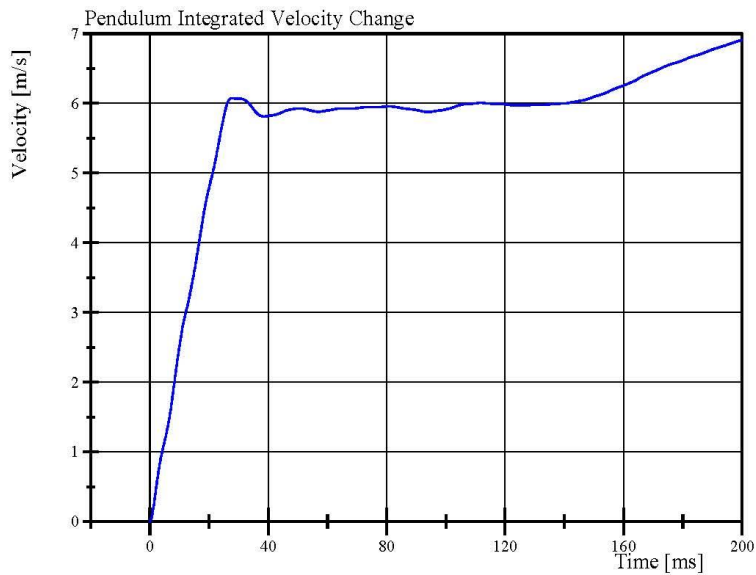
Test Date: 7/18/2019



Filter Class: CFC_180

Max: 33.2 g at 1.8 ms

Min: -5.7 g at 34.7 ms



Filter Class: CFC_180

Max: 6.9 m/s at 200.0 ms

Min: 0.0 m/s at 0.0 ms

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

07.18.2019 13:12:48 718

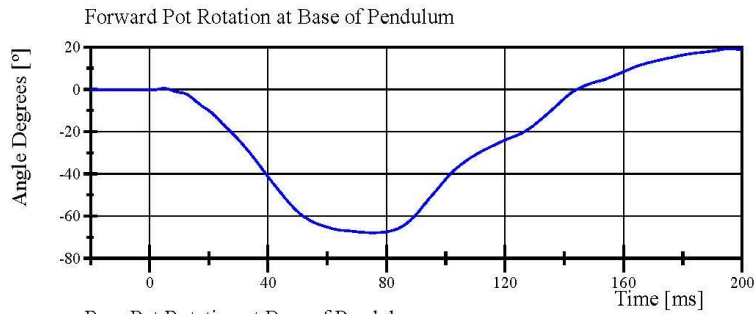


Transportation Research Center Inc.

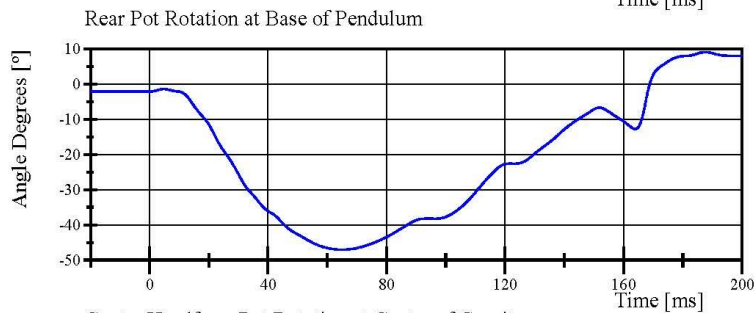
Left Lateral Neck

SID IIs Serial No. 219 Certification No. 77-5

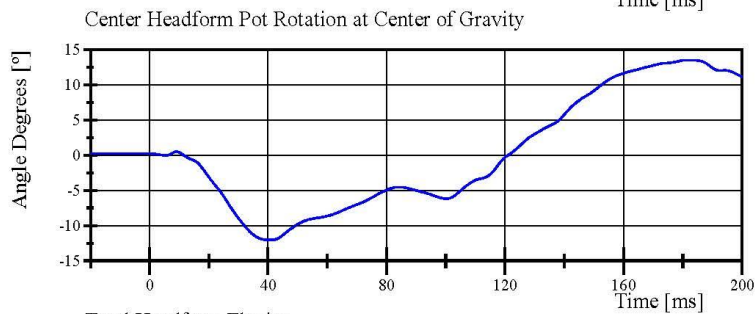
Test Date: 7/18/2019



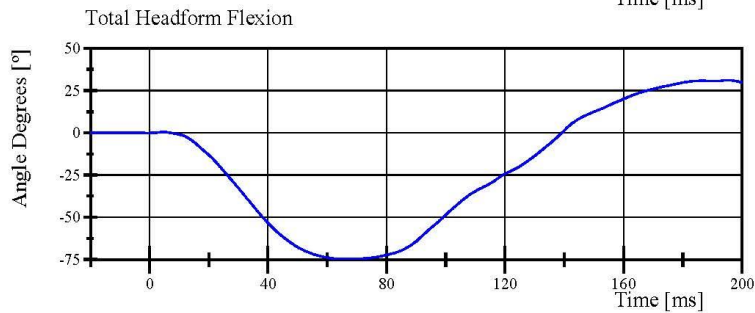
Filter Class: CFC_60
Max: 19.2 ° at 195.8 ms
Min: -67.9 ° at 75.3 ms



Filter Class: CFC_60
Max: 9.1 ° at 187.6 ms
Min: -47.1 ° at 65.0 ms



Filter Class: CFC_60
Max: 13.5 ° at 181.3 ms
Min: -12.0 ° at 40.6 ms



Filter Class: CFC_60
Max: 31.2 ° at 195.2 ms
Min: -74.6 ° at 64.5 ms

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

07.18.2019 13:12:49 718

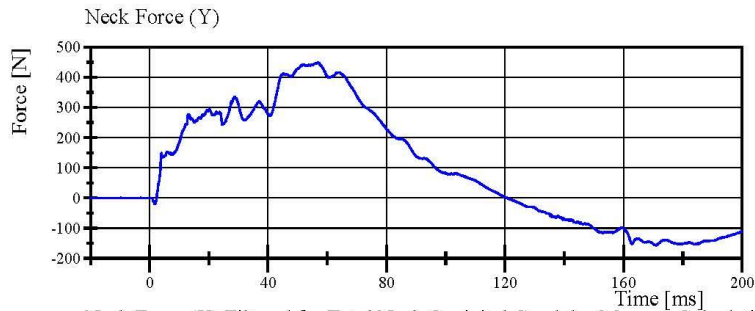


Transportation Research Center Inc.

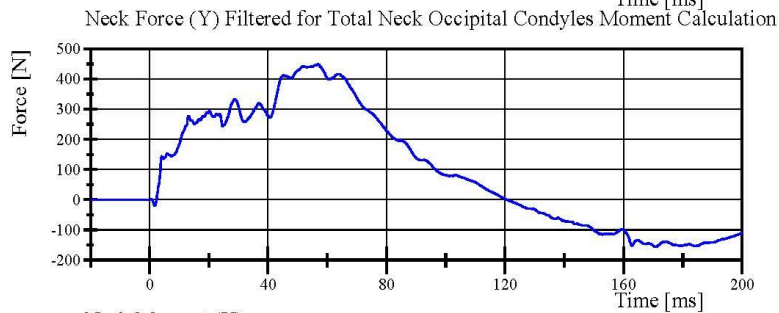
Left Lateral Neck

SID IIS Serial No. 219 Certification No. 77-5

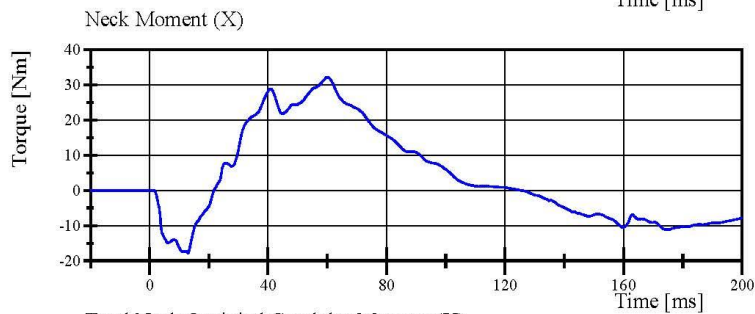
Test Date: 7/18/2019



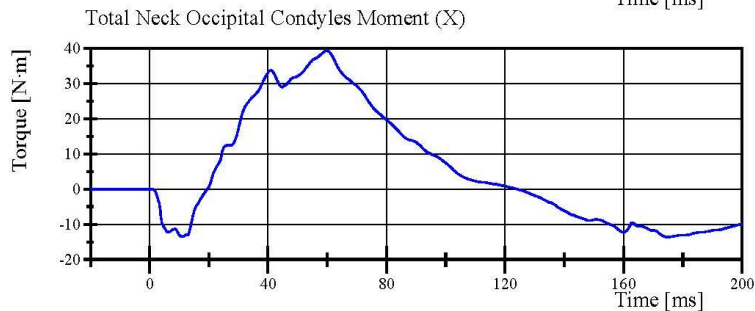
Filter Class: CFC_1000
Max: 449.3 N at 56.8 ms
Min: -156.1 N at 171.0 ms



Filter Class: CFC_600
Max: 449.1 N at 56.9 ms
Min: -156.0 N at 171.0 ms



Filter Class: CFC_600
Max: 32.2 Nm at 60.0 ms
Min: -17.8 Nm at 13.0 ms



Filter Class: Without_(Consta
Max: 39.4 N.m at 59.8 ms
Min: -13.6 N.m at 174.9 ms

Transportation Research Center Inc.

Left Lateral Shoulder
SID IIS Serial No. 219 Certification No. 77-1
Test Date: 7/16/2019

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	20.8 °C	Yes
Relative Humidity	10 - 70 %	59 %	Yes
Impactor Velocity	4.2 - 4.4 m/s	4.27 m/s	Yes
Impactor Acceleration	(-13) - (-18) g	-15.8 g	Yes
Shoulder Displacement	28 - 37 mm	36.1 mm	Yes
Upper Spine Lateral Acceleration	17 - 22 g	19.0 g	Yes

Test meets specifications.

Condition: Used

Comments:

Arm S/N: 777

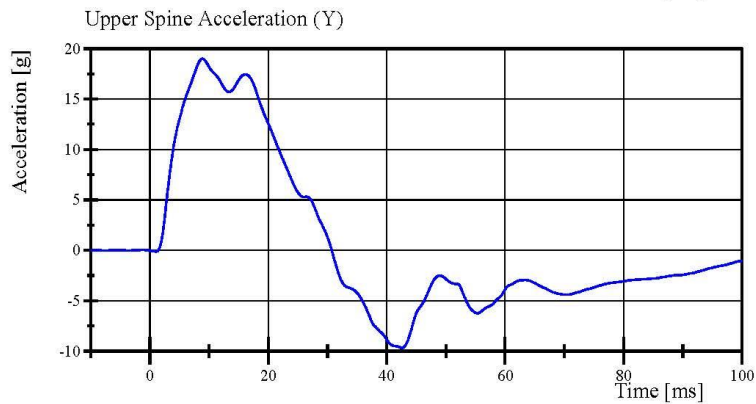
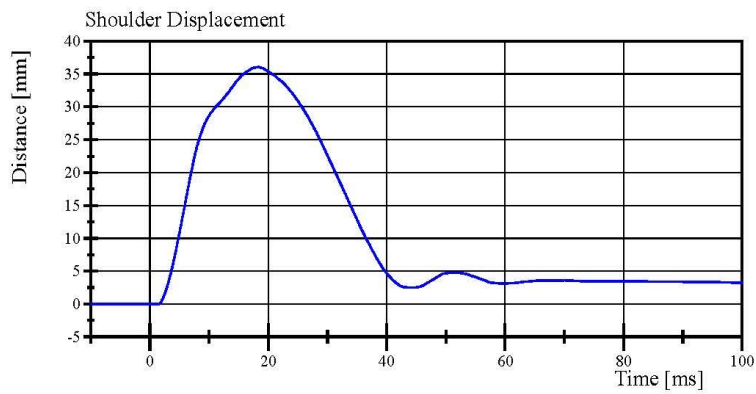
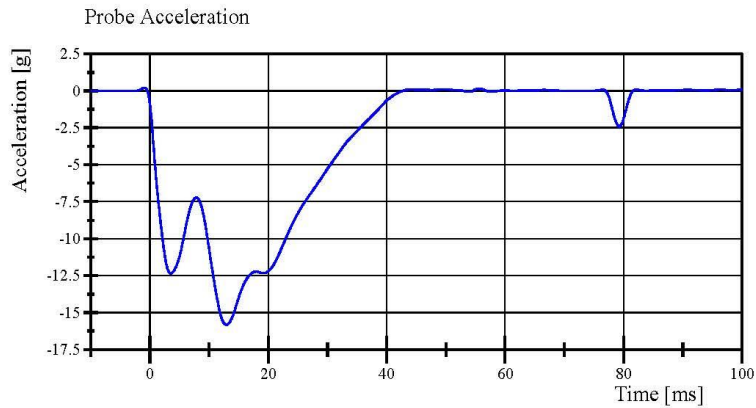
Shoulder Rib S/N: DH7130

Transportation Research Center Inc.

Left Lateral Shoulder

SID IIs Serial No. 219 Certification No. 77-1

Test Date: 7/16/2019



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

07.16.2019 16:15:19 819



Transportation Research Center Inc.

Left Lateral Thorax with Arm
SID IIS Serial No. 219 Certification No. 77-1
Test Date: 7/17/2019

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	20.9 °C	Yes
Relative Humidity	10 - 70 %	58 %	Yes
Impactor Velocity	6.60 - 6.80 m/s	6.617 m/s	Yes
Impactor Acceleration	(-30) - (-36) g	-33.7 g	Yes
Shoulder Displacement	31 - 40 mm	38.9 mm	Yes
Upper Thorax Rib Displacement	25 - 32 mm	27.8 mm	Yes
Center Thorax Rib Displacement	30 - 36 mm	32.3 mm	Yes
Lower Thorax Rib Displacement	32 - 38 mm	35.4 mm	Yes
Upper Spine Lateral Acceleration	34 - 43 g	38.7 g	Yes
Lower Spine Lateral Acceleration	29 - 37 g	30.5 g	Yes

Test meets specifications.

Condition: Used

Comments:

Arm S/N: 777

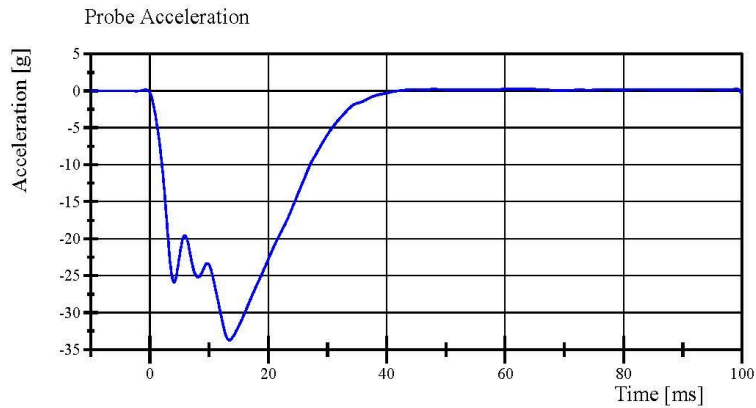
Upper Thorax Rib S/N: DY3208

Middle Thorax Rib S/N: DY3209

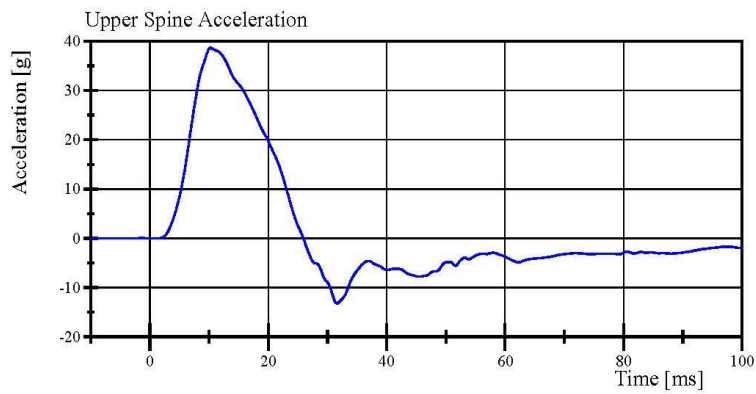
Lower Thorax Rib S/N: DY3210

Transportation Research Center Inc.

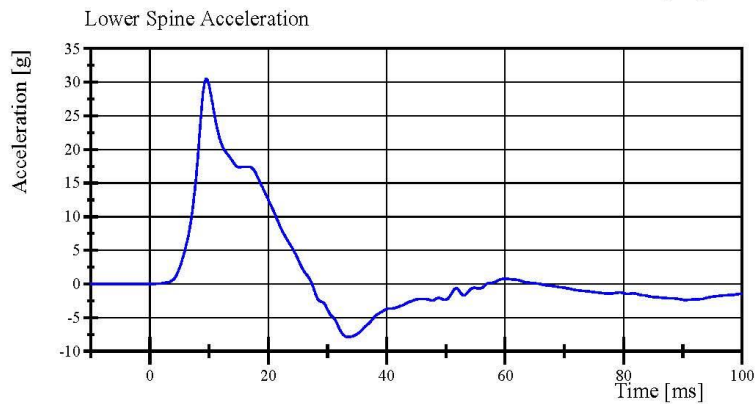
Left Lateral Thorax with Arm
SID IIs Serial No. 219 Certification No. 77-1
Test Date: 7/17/2019



Filter Class: CFC_180
Max: 0.3 g at 60.2 ms
Min: -33.7 g at 13.4 ms



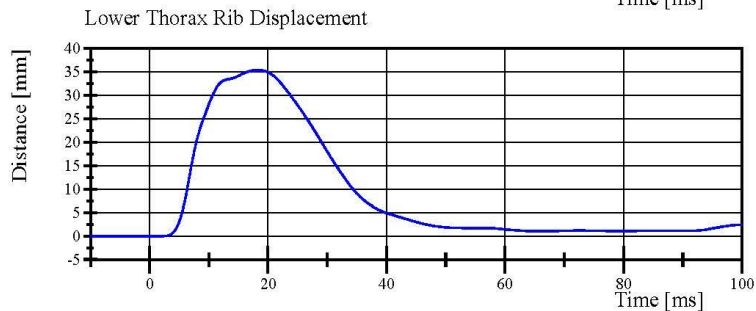
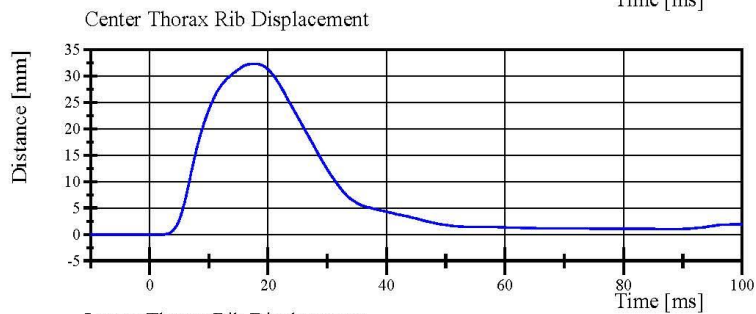
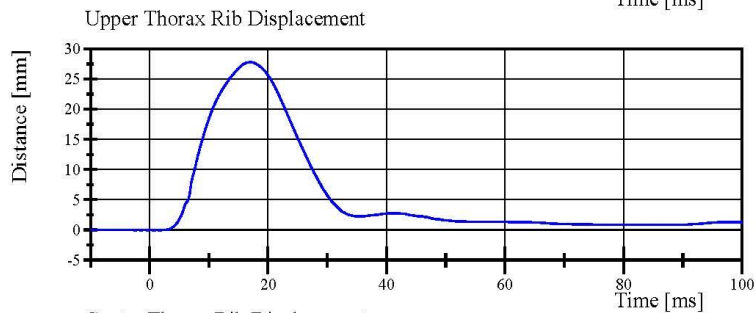
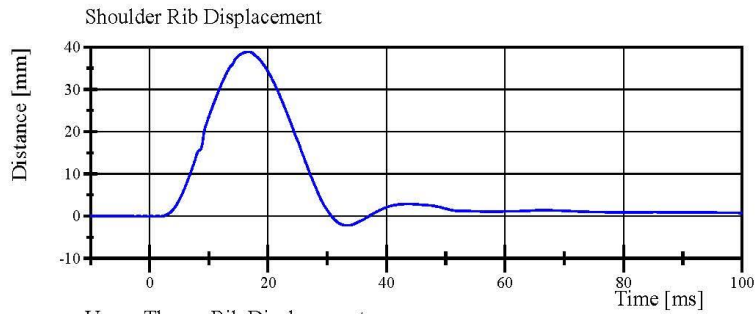
Filter Class: CFC_180
Max: 38.7 g at 10.2 ms
Min: -13.2 g at 31.6 ms



Filter Class: CFC_180
Max: 30.5 g at 9.5 ms
Min: -7.9 g at 33.5 ms

Transportation Research Center Inc.

Left Lateral Thorax with Arm
SID IIs Serial No. 219 Certification No. 77-1
Test Date: 7/17/2019



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

07.17.2019 10:43:33 623



Transportation Research Center Inc.

Left Lateral Thorax without Arm
SID IIS Serial No. 219 Certification No. 77-1
Test Date: 7/17/2019

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	20.9 °C	Yes
Relative Humidity	10 - 70 %	59 %	Yes
Impactor Velocity	4.20 - 4.40 m/s	4.267 m/s	Yes
Impactor Acceleration	(-14) - (-18) g	-16.5 g	Yes
Upper Thorax Rib Displacement	32 - 40 mm	33.6 mm	Yes
Center Thorax Rib Displacement	39 - 45 mm	40.0 mm	Yes
Lower Thorax Rib Displacement	35 - 43 mm	38.9 mm	Yes
Upper Spine Lateral Acceleration	13 - 17 g	14.7 g	Yes
Lower Spine Lateral Acceleration	7 - 11 g	8.9 g	Yes

Test meets specifications.

Condition: Used

Comments:

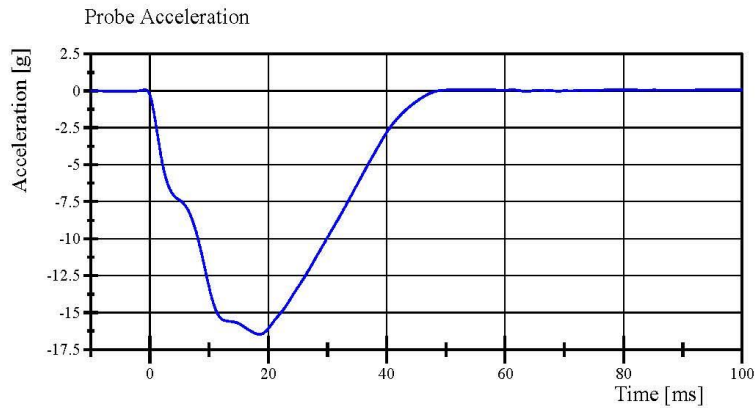
Upper Thorax Rib S/N: DY3208

Middle Thorax Rib S/N: DY3209

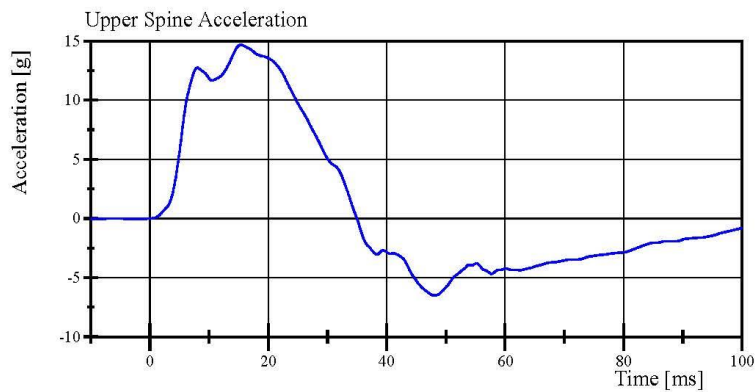
Lower Thorax Rib S/N: DY3210

Transportation Research Center Inc.

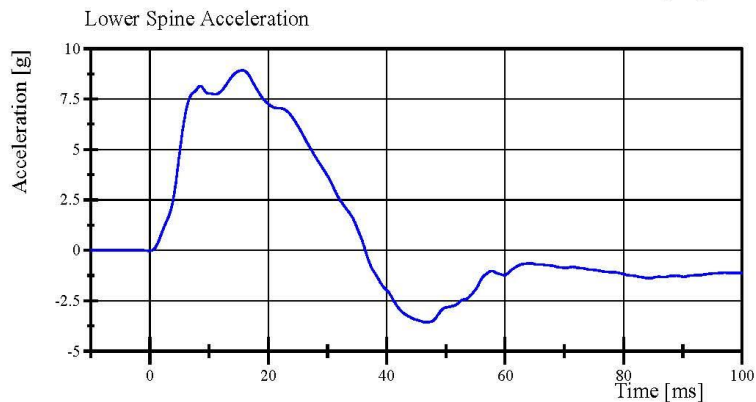
Left Lateral Thorax without Arm
SID IIs Serial No. 219 Certification No. 77-1
Test Date: 7/17/2019



Filter Class: CFC_180
Max: 0.1 g at -0.9 ms
Min: -16.5 g at 18.5 ms



Filter Class: CFC_180
Max: 14.7 g at 15.4 ms
Min: -6.5 g at 48.1 ms



Filter Class: CFC_180
Max: 8.9 g at 15.6 ms
Min: -3.6 g at 46.6 ms

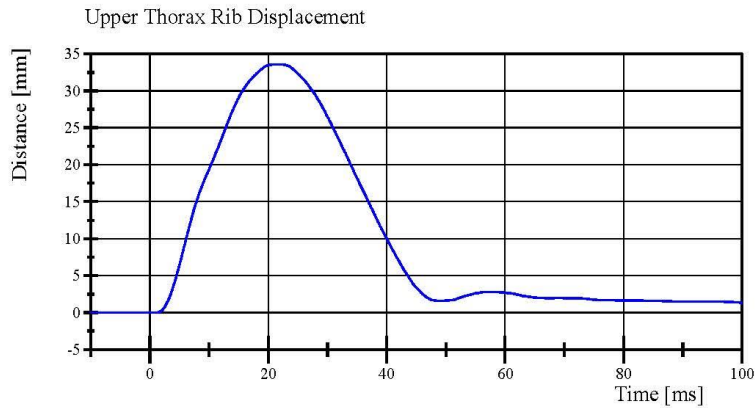
Specification Source: CFR49 Part 572 Subpart V
with Polarity in accordance with J211

07.17.2019 09:32:52 852

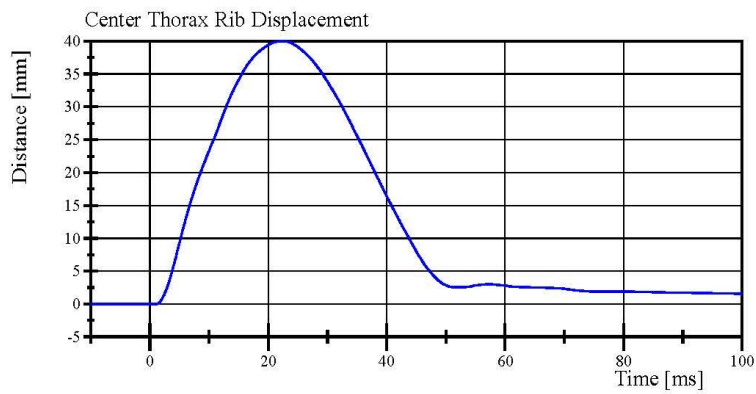


Transportation Research Center Inc.

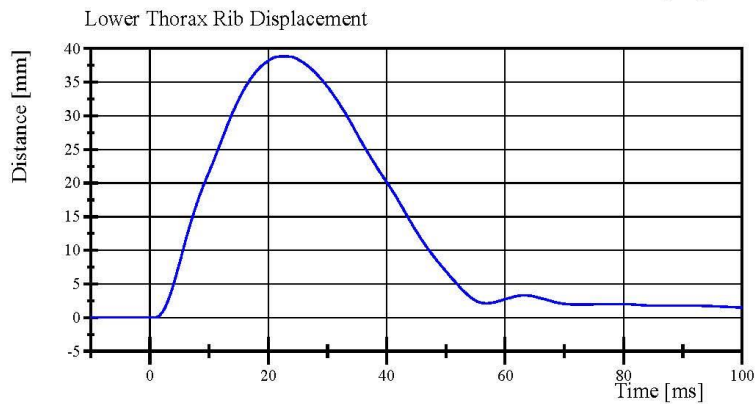
Left Lateral Thorax without Arm
SID IIs Serial No. 219 Certification No. 77-1
Test Date: 7/17/2019



Filter Class: CFC_600
Max: 33.6 mm at 21.6 ms
Min: -0.0 mm at 1.0 ms



Filter Class: CFC_600
Max: 40.0 mm at 22.7 ms
Min: -0.0 mm at 0.9 ms



Filter Class: CFC_600
Max: 38.9 mm at 22.6 ms
Min: -0.0 mm at 0.6 ms

Transportation Research Center Inc.

Left Lateral Abdomen

SID IIs Serial No. 219 Certification No. 77-1

Test Date: 7/17/2019

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	20.8 °C	Yes
Relative Humidity	10 - 70 %	59 %	Yes
Impactor Velocity	4.2 - 4.4 m/s	4.27 m/s	Yes
Impactor Acceleration	(-12) - (-16) g	-14.6 g	Yes
Upper Abdominal Rib Displacement	36 - 47 mm	42.4 mm	Yes
Lower Abdominal Rib Displacement	33 - 44 mm	43.5 mm	Yes
Lower Spine Lateral Acceleration	9 - 14.0 g	9.97 g	Yes

Test meets specifications.

Condition: Used

Comments:

Upper Abdominal Rib S/N: DT0965

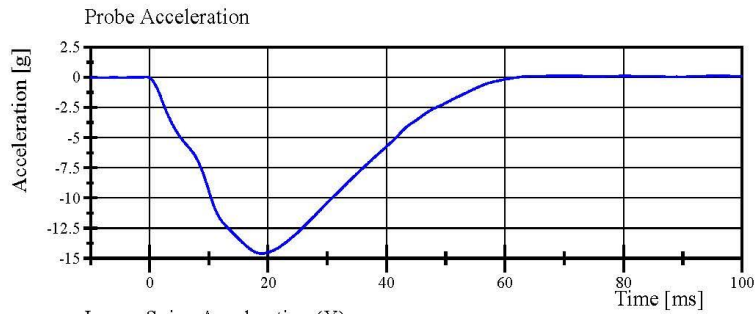
Lower Abdominal Rib S/N: 1195-326

Transportation Research Center Inc.

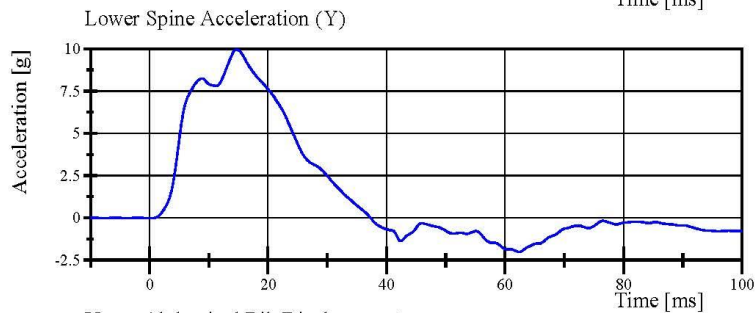
Left Lateral Abdomen

SID IIs Serial No. 219 Certification No. 77-1

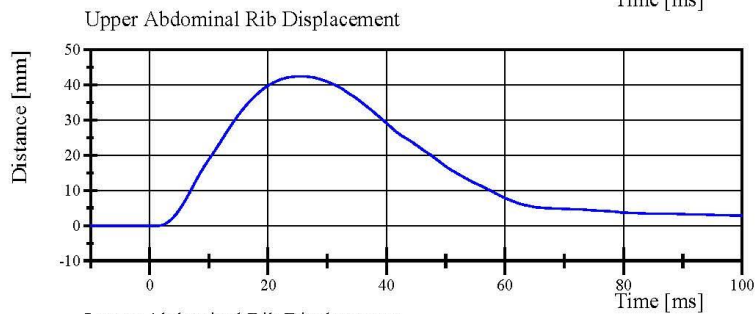
Test Date: 7/17/2019



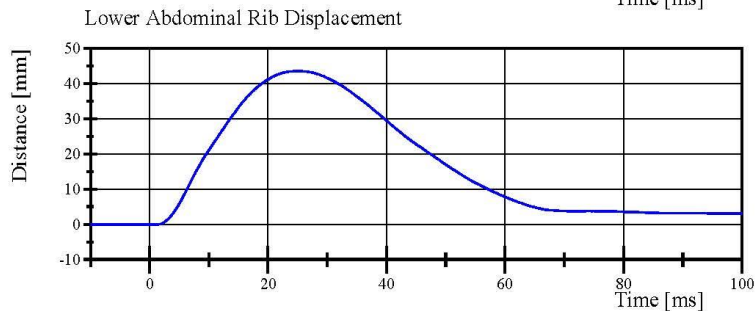
Filter Class: CFC_180
Max: 0.2 g at 95.5 ms
Min: -14.6 g at 19.0 ms



Filter Class: CFC_180
Max: 10.0 g at 14.7 ms
Min: -2.0 g at 62.4 ms



Filter Class: CFC_600
Max: 42.4 mm at 25.3 ms
Min: -0.0 mm at 1.3 ms



Filter Class: CFC_600
Max: 43.5 mm at 25.0 ms
Min: -0.0 mm at -4.4 ms

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

07.17.2019 09:04:28 641



Transportation Research Center Inc.

Left Lateral Pelvis
SID IIS Serial No. 219 Certification No. 77-1
Test Date: 7/16/2019

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	20.8 °C	Yes
Relative Humidity	10 - 70 %	59 %	Yes
Pendulum Velocity	6.6 - 6.8 m/s	6.64 m/s	Yes
Impactor Acceleration	(-38.0) - (-47.0) g	-42.66 g	Yes
Peak Pelvis Lateral Acceleration after 6ms	34 - 42 g	40.8 g	Yes
Acetabulum Force	3,600 - 4,300 N	3,979.8 N	Yes

Test meets specifications.

Condition: Used

Comments:

Pelvis Skin S/N: 751

Pelvis Plug Info:

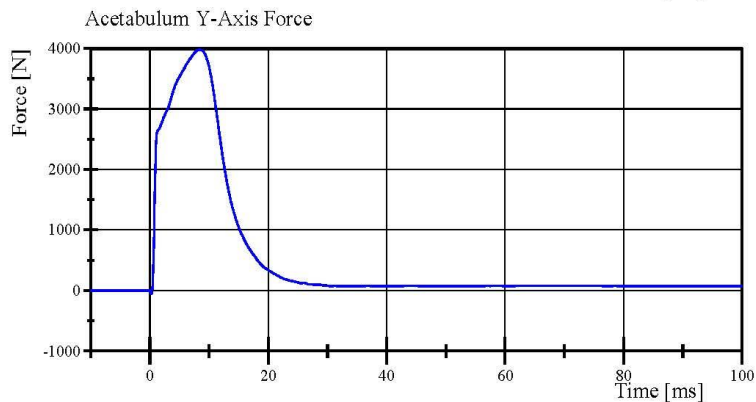
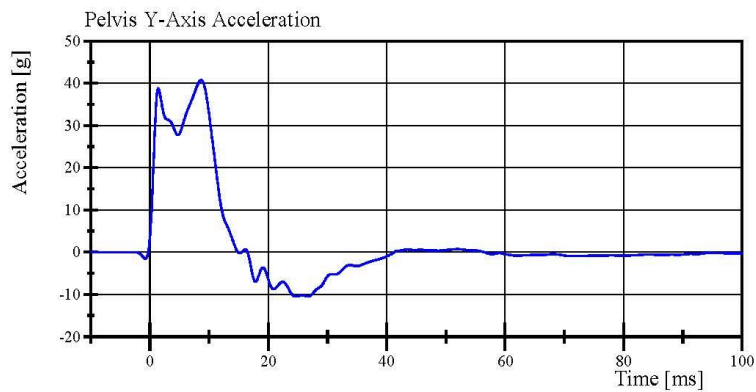
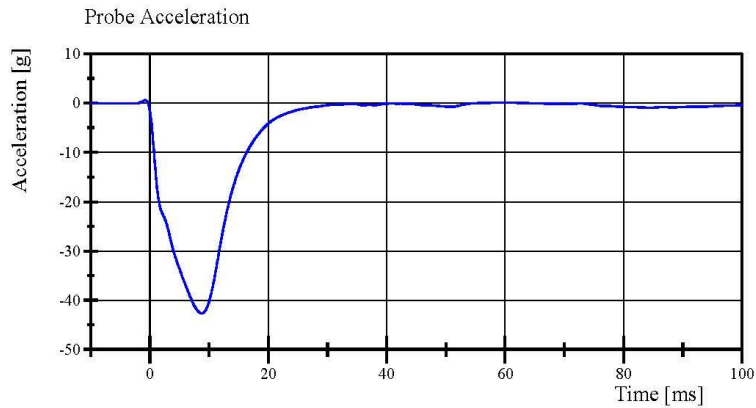
Manufacturer: Jasti

S/N: 2264

Cal Date: N/A

Transportation Research Center Inc.

Left Lateral Pelvis
SID IIs Serial No. 219 Certification No. 77-1
Test Date: 7/16/2019



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

07.16.2019 15:59:59 417



Transportation Research Center Inc.

Left Lateral Iliac

SID IIs Serial No. 219 Certification No. 77-1

Test Date: 7/17/2019

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	20.8 °C	Yes
Relative Humidity	10 - 70 %	59 %	Yes
Pendulum Velocity	4.2 - 4.4 m/s	4.36 m/s	Yes
Impactor Acceleration	(-36) - (-45) g	-41.7 g	Yes
Peak Pelvis Lateral Acceleration	28 - 39 g	29.2 g	Yes
Iliac Force	4,100 - 5,100 N	4,872.5 N	Yes

Test meets specifications.

Condition: Used

Comments:

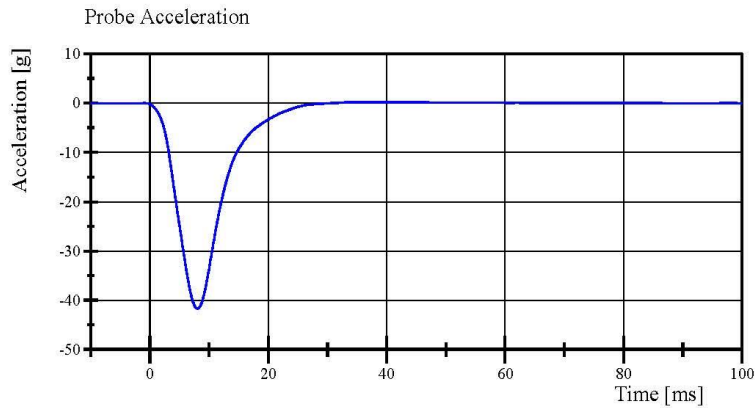
Pelvis Skin S/N: 751

Transportation Research Center Inc.

Left Lateral Iliac

SID IIs Serial No. 219 Certification No. 77-1

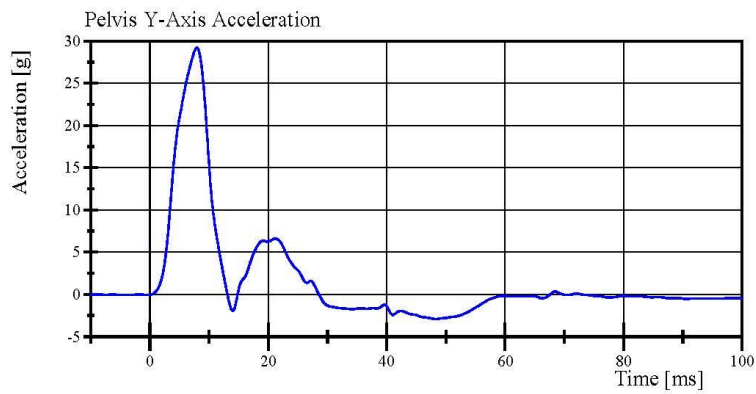
Test Date: 7/17/2019



Filter Class: CFC_180

Max: 0.2 g at 41.1 ms

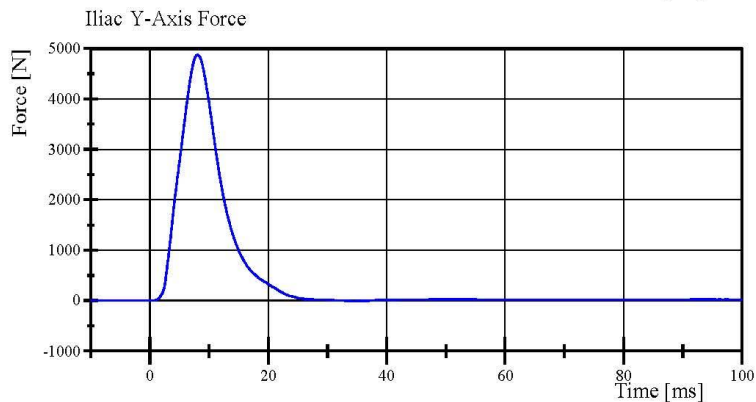
Min: -41.7 g at 8.1 ms



Filter Class: CFC_180

Max: 29.2 g at 7.9 ms

Min: -2.9 g at 48.2 ms



Filter Class: CFC_600

Max: 4,872.5 N at 8.1 ms

Min: -8.4 N at 34.5 ms

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

07.17.2019 11:20:34 657



**Post-Test Calibration Sheets
Passenger S/N 219**

Transportation Research Center Inc.
SIDIIs Dummy - Level D
External Dimensions
Serial No. 219 Calibration No. 78

Symbol	Description	Specification	Results	Pass
		mm	mm	
A	Sitting Height	772.0 - 788.0	786	Yes
B	Shoulder Pivot Height	437.0 - 453.0	450	Yes
C	H-Point Height	79.0 - 89.0	87	Yes
D	H-Point from Seat Back	141.0 - 151.0	145	Yes
E	Shoulder Pivot from Backline	97.0 - 107.0	99	Yes
F	Thigh Clearance	119.0 - 135.0	130	Yes
G	Head Breadth	140.0 - 148.0	143	Yes
H	Head Back from Backline	40.0 - 46.0	44	Yes
I	Head Depth	178.0 - 188.0	185	Yes
J	Head Circumference	541.0 - 551.0	544	Yes
K	Buttock to Knee Length	514.0 - 540.0	534	Yes
L	Popliteal Height	343.0 - 369.0	348	Yes
M	Knee Pivot to Floor Height	393.0 - 409.0	397	Yes
N	Buttock Popliteal Length	416.0 - 442.0	434	Yes
O	Chest Depth without Jacket	195.0 - 211.0	201	Yes
P	Foot Length (right)	216.0 - 232.0	222	Yes
P	Foot Length (left)	216.0 - 232.0	221	Yes
Q	Hip Breadth	313.0 - 323.0	320	Yes
R	Arm Length	249.0 - 259.0	252	Yes
S	Knee Joint to seat Back	478.0 - 493.0	482	Yes
V	Shoulder Width (only one arm installed)	341.0 - 357.0	350	Yes
W	Foot Width (right)	78.0 - 94.0	85	Yes
W	Foot Width (left)	78.0 - 94.0	85	Yes
Y	Chest Circumference with Jacket	851.0 - 881.0	873	Yes
Z	Waist Circumference	761.0 - 791.0	780	Yes

Transportation Research Center Inc.

Left Lateral Head Drop
SID IIs Serial No. 219 Certification No. 78-1
Test Date: 7/26/2019

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.6 °C	21.1 °C	Yes
Relative Humidity	10 - 70 %	59 %	Yes
Peak Head Resultant Acceleration	115 - 137 g	129.7 g	Yes
Peak Head Longitudinal Acceleration	(-15) - 15 g	2.9 g	Yes
Is Head Resultant Acceleration Curve Unimodal within 15% of Peak?	< 15 %	1.71 %	Yes

Test meets specifications.

Condition: Used

Comments:

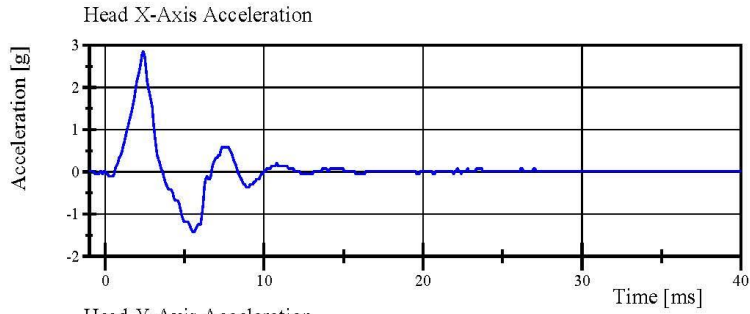
Head Skin S/N: 1312

Transportation Research Center Inc.

Left Lateral Head Drop

SID IIs Serial No. 219 Certification No. 78-1

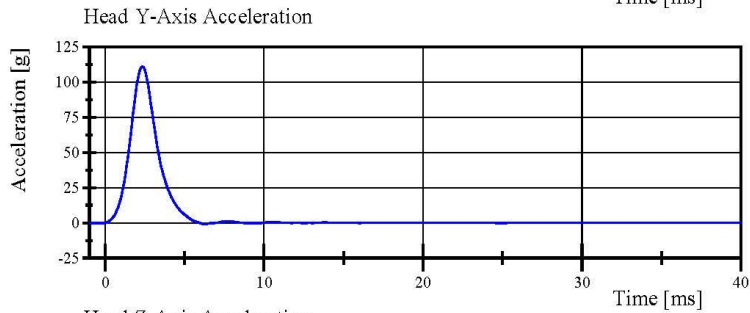
Test Date: 7/26/2019



Filter Class: CFC_1000

Max: 2.9 g at 2.4 ms

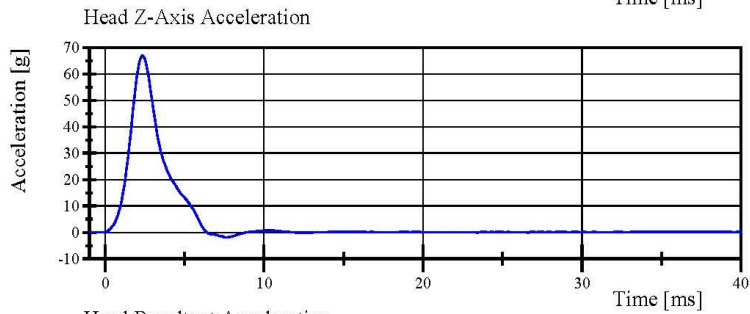
Min: -1.4 g at 5.5 ms



Filter Class: CFC_1000

Max: 111.1 g at 2.3 ms

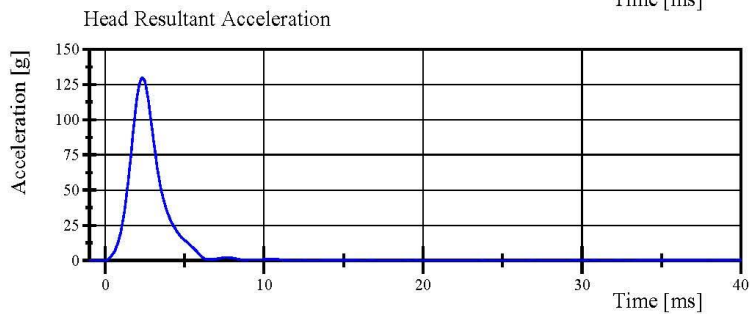
Min: -0.9 g at 6.2 ms



Filter Class: CFC_1000

Max: 66.9 g at 2.3 ms

Min: -1.9 g at 7.6 ms



Filter Class: CFC_1000

Max: 129.7 g at 2.3 ms

Min: 0.0 g at -1.0 ms

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

07.26.2019 11:29:48 198



Transportation Research Center Inc.

Left Lateral Neck
SID IIs Serial No. 219 Certification No. 78-7
Test Date: 7/30/2019

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.1 °C	Yes
Relative Humidity	10 - 70 %	60 %	Yes
Pendulum Velocity	(-5.51) - (-5.63) m/s	-5.602 m/s	Yes
Pendulum Integrated Velocity			
Change at 10 ms	2.20 - 2.80 m/s	2.325 m/s	Yes
Change at 15 ms	3.30 - 4.10 m/s	3.403 m/s	Yes
Change at 20 ms	4.40 - 5.40 m/s	4.609 m/s	Yes
Change at 25 ms	5.40 - 6.10 m/s	5.581 m/s	Yes
Change at 25 to 100 ms	5.50 - 6.20 m/s	6.074 m/s	Yes
Maximum Headform Flexion occurring between 50ms and 70ms.			
Peak	(-71) - (-81) deg	-70.4 deg	No
Time of Peak	50 - 70 ms	72.1 ms	No
Total Neck Occipital Condyles Moment	36 - 44 N·m	37.2 N·m	Yes
Total Neck Occipital Condyles Moment Decay Time to 0 N·m	102 - 126 ms	121.0 ms	Yes

Test does not meet specifications.

Condition: Used

Comments:

Neck S/N: DI0542

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

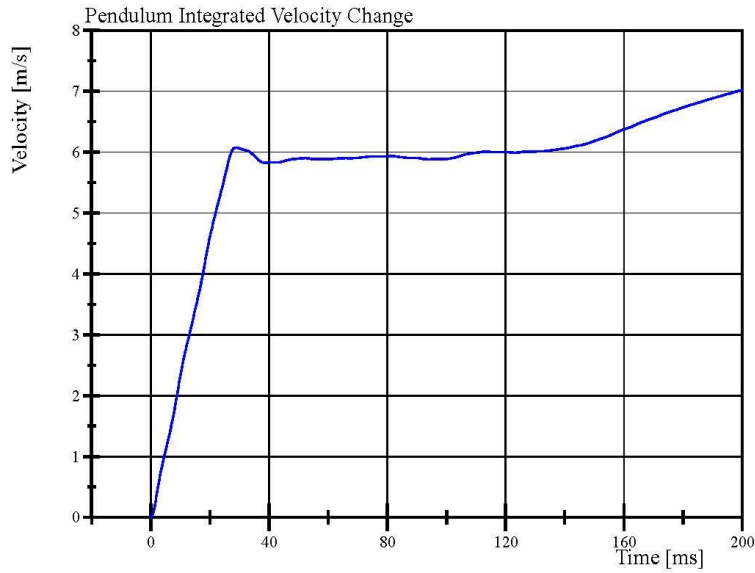
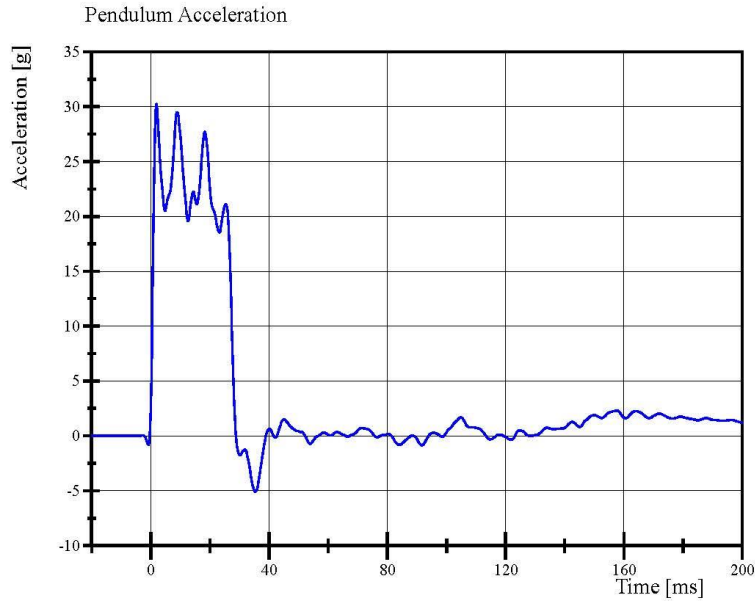
07.30.2019 13:21:10 717



Page 12 of 31

Transportation Research Center Inc.

Left Lateral Neck
SID IIs Serial No. 219 Certification No. 78-7
Test Date: 7/30/2019



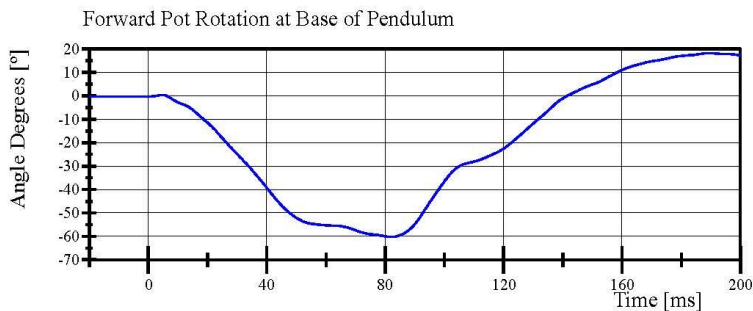
Specification Source: CFR49 Part 572 Subpart V
with Polarity in accordance with J211

07.30.2019 13:33:52 717

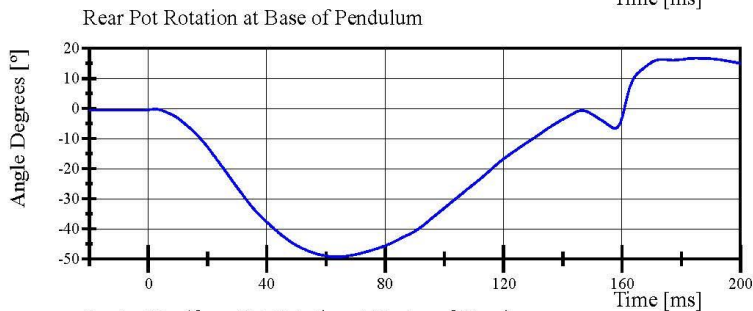


Transportation Research Center Inc.

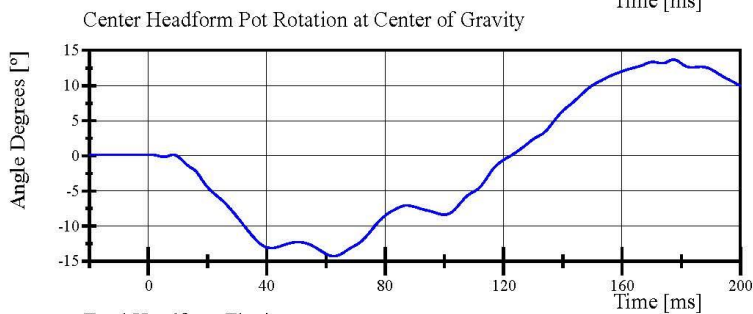
Left Lateral Neck
SID IIs Serial No. 219 Certification No. 78-7
Test Date: 7/30/2019



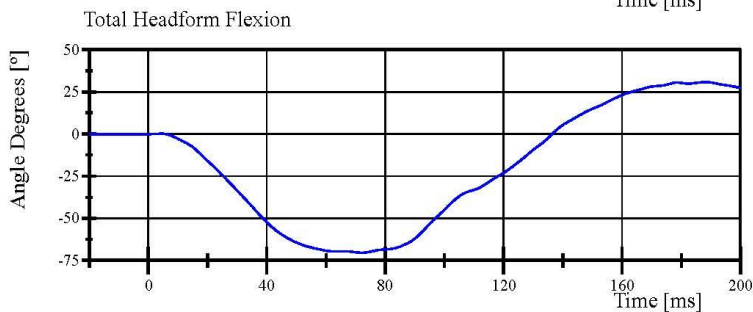
Filter Class: CFC_60
Max: 18.2 ° at 189.3 ms
Min: -60.2 ° at 82.1 ms



Filter Class: CFC_60
Max: 16.7 ° at 185.0 ms
Min: -49.3 ° at 63.8 ms



Filter Class: CFC_60
Max: 13.7 ° at 177.4 ms
Min: -14.3 ° at 62.6 ms



Filter Class: CFC_60
Max: 30.8 ° at 188.2 ms
Min: -70.4 ° at 72.1 ms

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

07.30.2019 13:33:52 717



Transportation Research Center Inc.

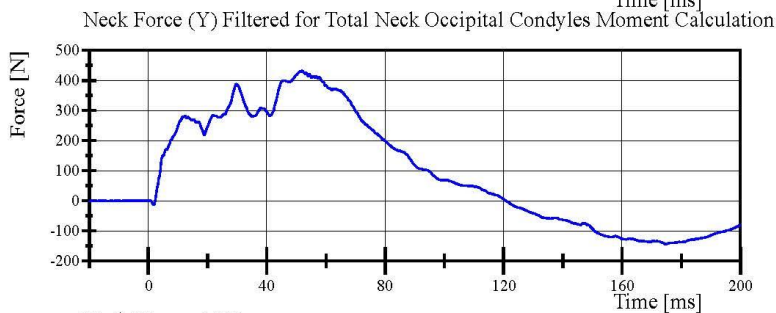
Left Lateral Neck

SID IIs Serial No. 219 Certification No. 78-7

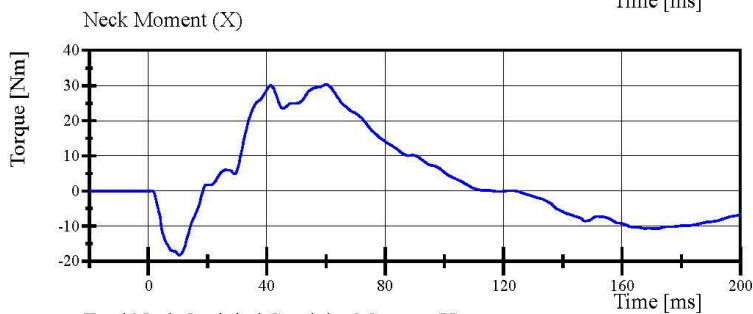
Test Date: 7/30/2019



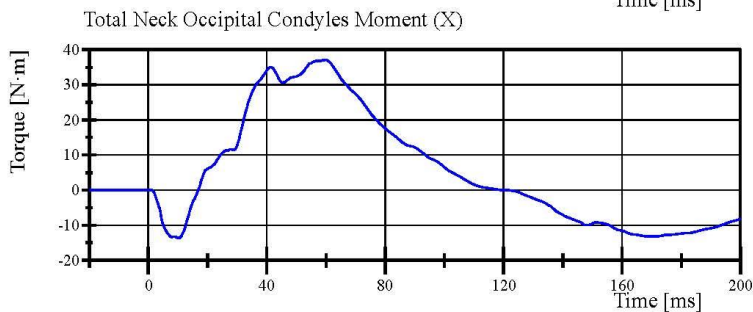
Filter Class: CFC_1000
Max: 431.9 N at 52.0 ms
Min: -145.5 N at 174.7 ms



Filter Class: CFC_600
Max: 431.5 N at 51.9 ms
Min: -144.5 N at 174.8 ms



Filter Class: CFC_600
Max: 30.4 Nm at 59.8 ms
Min: -13.3 Nm at 10.2 ms



Filter Class: Without_(Constar
Max: 37.2 N·m at 59.9 ms
Min: -13.7 N·m at 10.2 ms

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

07.30.2019 13:33:52 717



Transportation Research Center Inc.

Left Lateral Shoulder
SID IIs Serial No. 219 Certification No. 78-2
Test Date: 7/25/2019

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.3 °C	Yes
Relative Humidity	10 - 70 %	56 %	Yes
Impactor Velocity	4.2 - 4.4 m/s	4.27 m/s	Yes
Impactor Acceleration	(-13) - (-18) g	-15.0 g	Yes
Shoulder Displacement	28 - 37 mm	36.7 mm	Yes
Upper Spine Lateral Acceleration	17 - 22 g	17.4 g	Yes

Test meets specifications.

Condition: Used

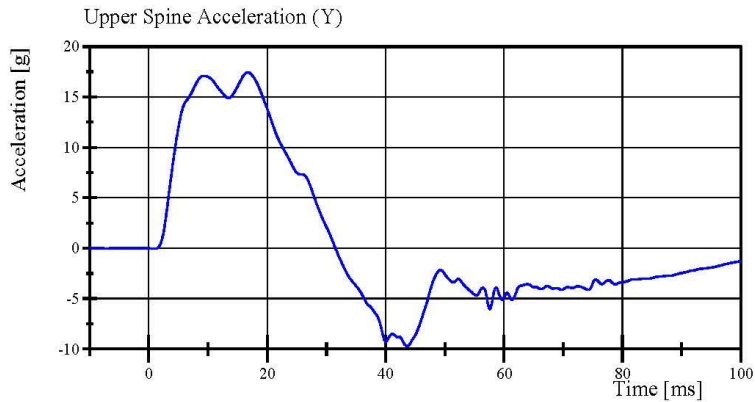
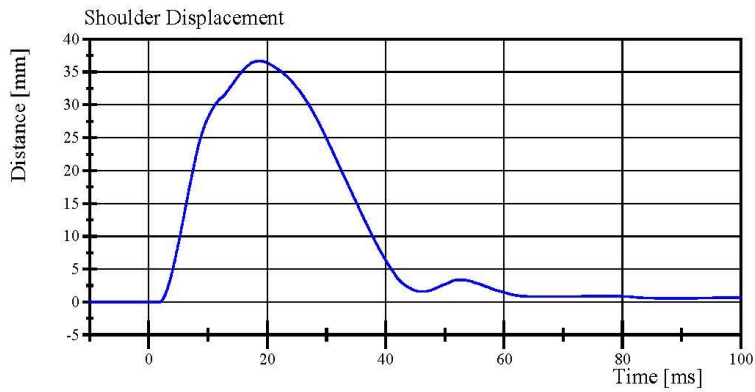
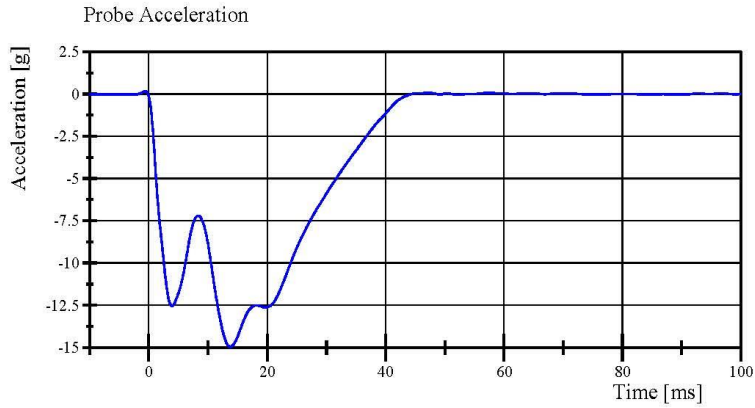
Comments:

Arm S/N: 777

Shoulder Rib S/N: DH7130

Transportation Research Center Inc.

Left Lateral Shoulder
SID IIs Serial No. 219 Certification No. 78-2
Test Date: 7/25/2019



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

07.25.2019 15:32:59 826



Transportation Research Center Inc.

Left Lateral Thorax with Arm
SID IIs Serial No. 219 Certification No. 78-3
Test Date: 7/25/2019

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.2 °C	Yes
Relative Humidity	10 - 70 %	56 %	Yes
Impactor Velocity	6.60 - 6.80 m/s	6.605 m/s	Yes
Impactor Acceleration	(-30) - (-36) g	-32.8 g	Yes
Shoulder Displacement	31 - 40 mm	37.7 mm	Yes
Upper Thorax Rib Displacement	25 - 32 mm	28.6 mm	Yes
Center Thorax Rib Displacement	30 - 36 mm	33.7 mm	Yes
Lower Thorax Rib Displacement	32 - 38 mm	37.5 mm	Yes
Upper Spine Lateral Acceleration	34 - 43 g	36.9 g	Yes
Lower Spine Lateral Acceleration	29 - 37 g	29.0 g	Yes

Test meets specifications.

Condition: Used

Comments:

Arm S/N: 777

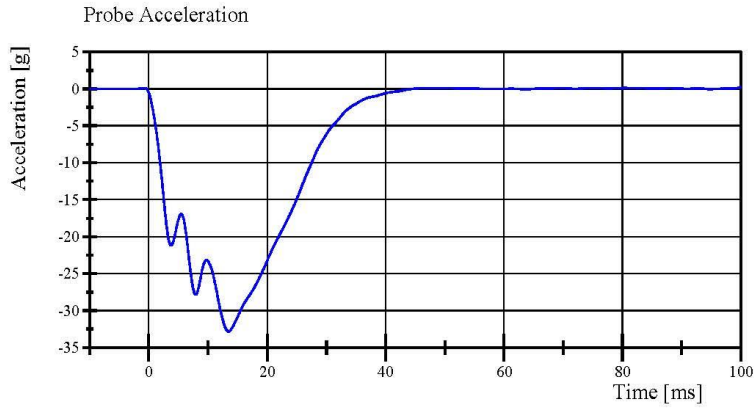
Upper Thorax Rib S/N: DY3208

Middle Thorax Rib S/N: DY3209

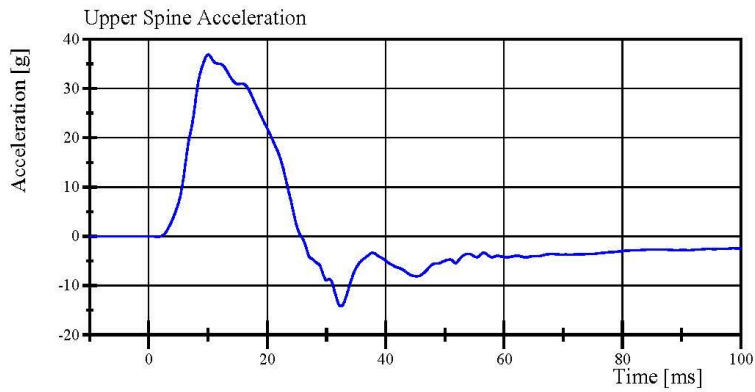
Lower Thorax Rib S/N: DY3210

Transportation Research Center Inc.

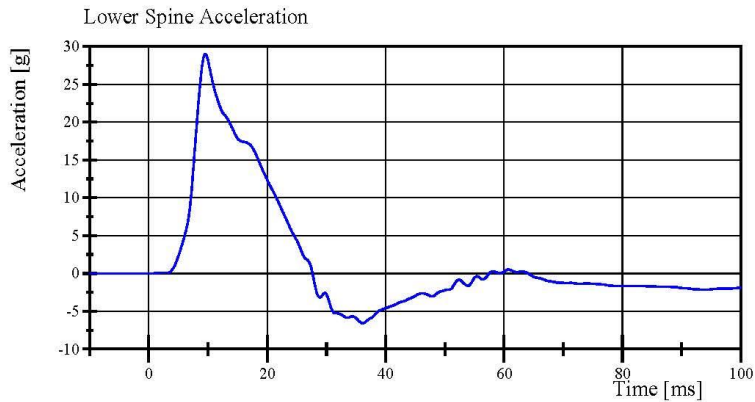
Left Lateral Thorax with Arm
SID IIs Serial No. 219 Certification No. 78-3
Test Date: 7/25/2019



Filter Class: CFC_180
Max: 0.2 g at 100.0 ms
Min: -32.8 g at 13.4 ms



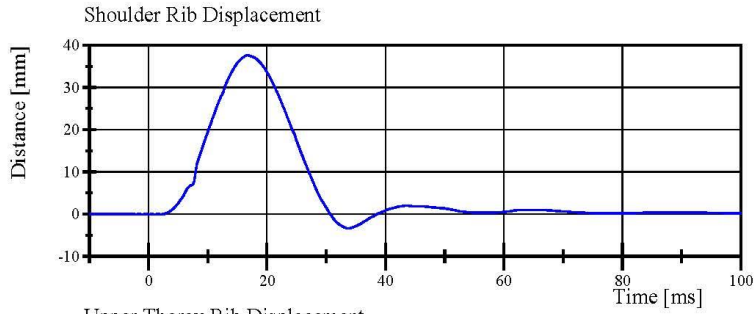
Filter Class: CFC_180
Max: 36.9 g at 10.0 ms
Min: -14.2 g at 32.4 ms



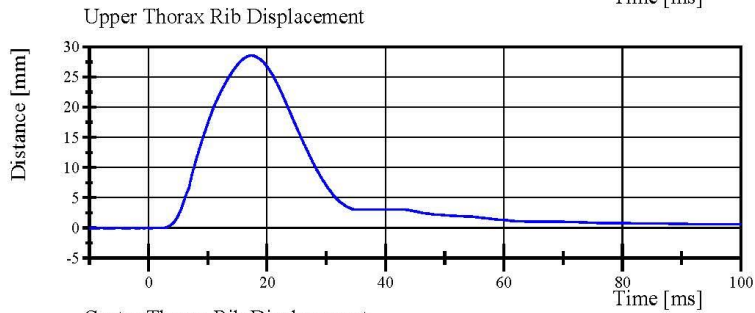
Filter Class: CFC_180
Max: 29.0 g at 9.5 ms
Min: -6.6 g at 36.1 ms

Transportation Research Center Inc.

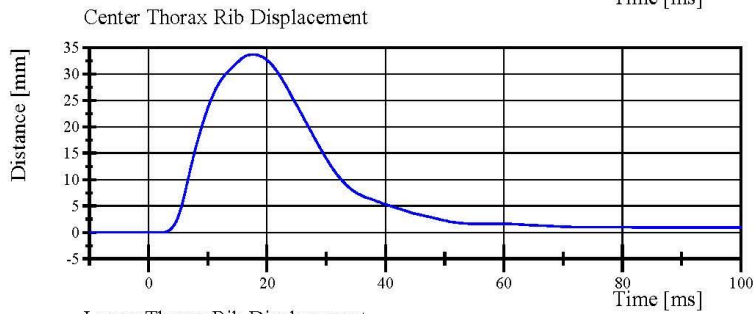
Left Lateral Thorax with Arm
SID II's Serial No. 219 Certification No. 78-3
Test Date: 7/25/2019



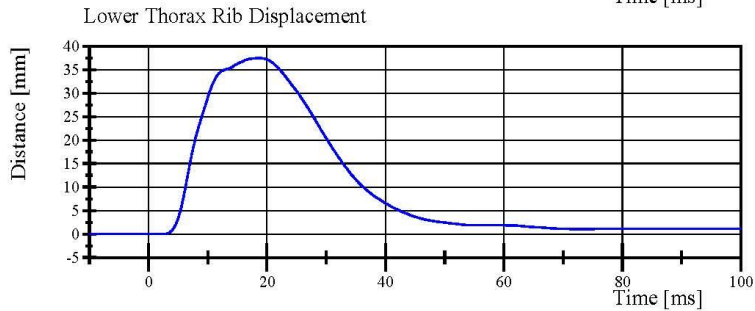
Filter Class: CFC_600
Max: 37.7 mm at 16.7 ms
Min: -3.4 mm at 33.8 ms



Filter Class: CFC_600
Max: 28.6 mm at 17.4 ms
Min: -0.0 mm at 0.3 ms



Filter Class: CFC_600
Max: 33.7 mm at 17.6 ms
Min: -0.0 mm at 2.1 ms



Filter Class: CFC_600
Max: 37.5 mm at 18.6 ms
Min: -0.0 mm at 1.8 ms

Transportation Research Center Inc.

Left Lateral Thorax without Arm
SID IIs Serial No. 219 Certification No. 78-1
Test Date: 7/25/2019

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.1 °C	Yes
Relative Humidity	10 - 70 %	59 %	Yes
Impactor Velocity	4.20 - 4.40 m/s	4.270 m/s	Yes
Impactor Acceleration	(-14) - (-18) g	-16.1 g	Yes
Upper Thorax Rib Displacement	32 - 40 mm	35.0 mm	Yes
Center Thorax Rib Displacement	39 - 45 mm	40.4 mm	Yes
Lower Thorax Rib Displacement	35 - 43 mm	37.7 mm	Yes
Upper Spine Lateral Acceleration	13 - 17 g	14.6 g	Yes
Lower Spine Lateral Acceleration	7 - 11 g	8.8 g	Yes

Test meets specifications.

Condition: Used

Comments:

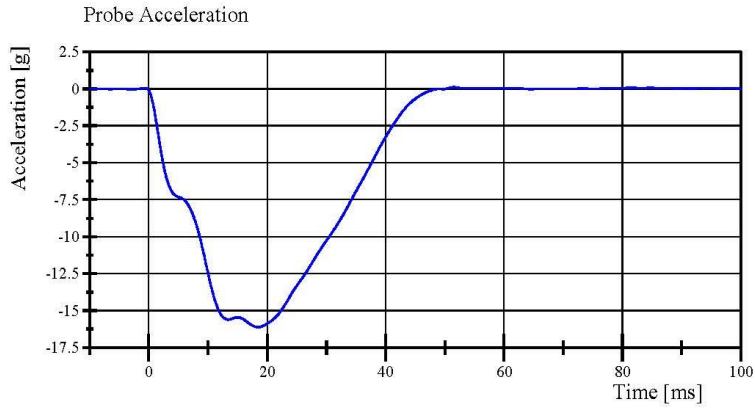
Upper Thorax Rib S/N: DY3208

Middle Thorax Rib S/N: DY320

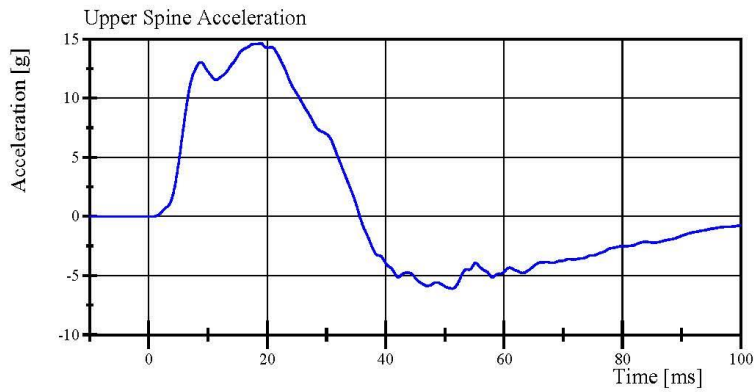
Lower Thorax Rib S/N: DY3210

Transportation Research Center Inc.

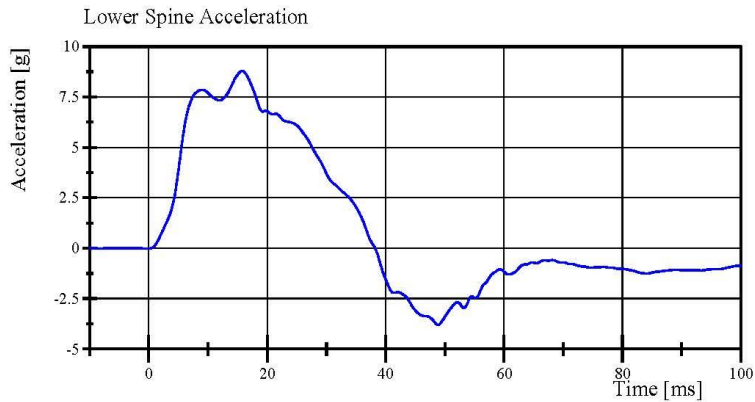
Left Lateral Thorax without Arm
SID IIs Serial No. 219 Certification No. 78-1
Test Date: 7/25/2019



Filter Class: CFC_180
Max: 0.1 g at 51.5 ms
Min: -16.1 g at 18.5 ms



Filter Class: CFC_180
Max: 14.6 g at 18.9 ms
Min: -6.1 g at 51.2 ms



Filter Class: CFC_180
Max: 8.8 g at 15.8 ms
Min: -3.8 g at 48.8 ms

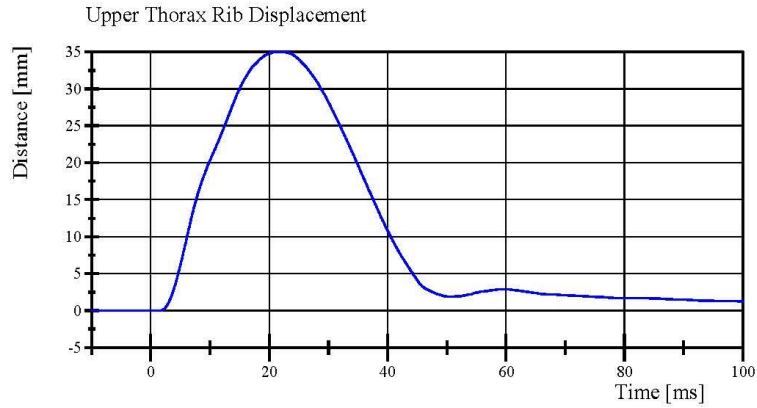
Specification Source: CFR49 Part 572 Subpart V
with Polarity in accordance with J211

07.25.2019 11:44:35 819

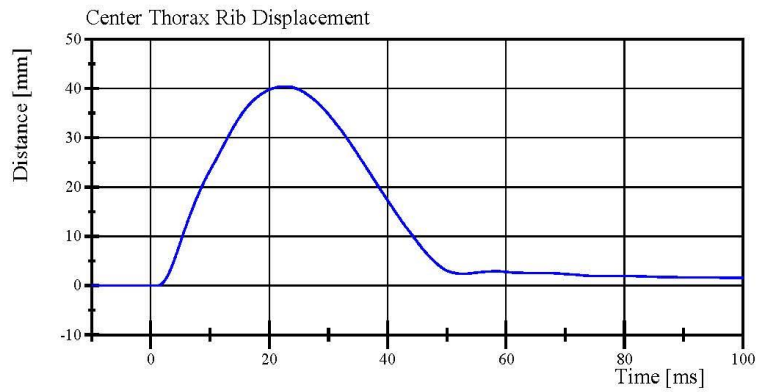


Transportation Research Center Inc.

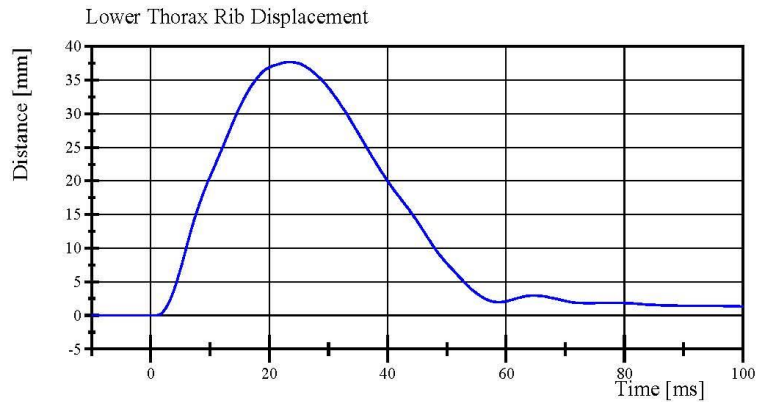
Left Lateral Thorax without Arm
SID IIs Serial No. 219 Certification No. 78-1
Test Date: 7/25/2019



Filter Class: CFC_600
Max: 35.0 mm at 21.4 ms
Min: -0.0 mm at 1.5 ms



Filter Class: CFC_600
Max: 40.4 mm at 22.5 ms
Min: -0.0 mm at 1.0 ms



Filter Class: CFC_600
Max: 37.7 mm at 23.4 ms
Min: -0.0 mm at 0.6 ms

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

07.25.2019 11:44:36 819



Transportation Research Center Inc.

Left Lateral Abdomen
SID IIs Serial No. 219 Certification No. 78-1
Test Date: 7/25/2019

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	20.9 °C	Yes
Relative Humidity	10 - 70 %	59 %	Yes
Impactor Velocity	4.2 - 4.4 m/s	4.27 m/s	Yes
Impactor Acceleration	(-12) - (-16) g	-14.5 g	Yes
Upper Abdominal Rib Displacement	36 - 47 mm	41.5 mm	Yes
Lower Abdominal Rib Displacement	33 - 44 mm	40.2 mm	Yes
Lower Spine Lateral Acceleration	9 - 14.0 g	9.85 g	Yes

Test meets specifications.

Condition: Used

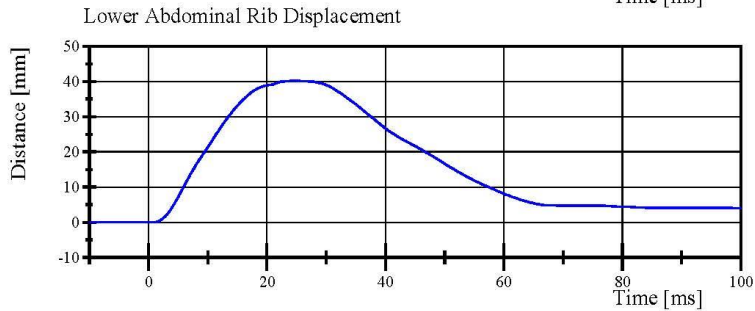
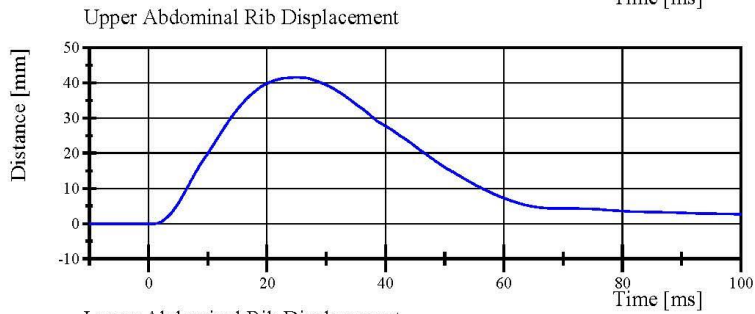
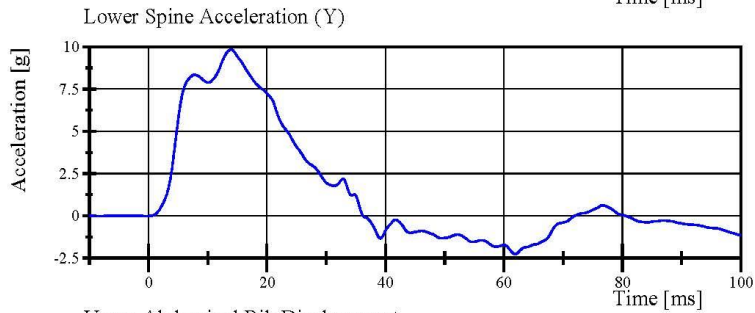
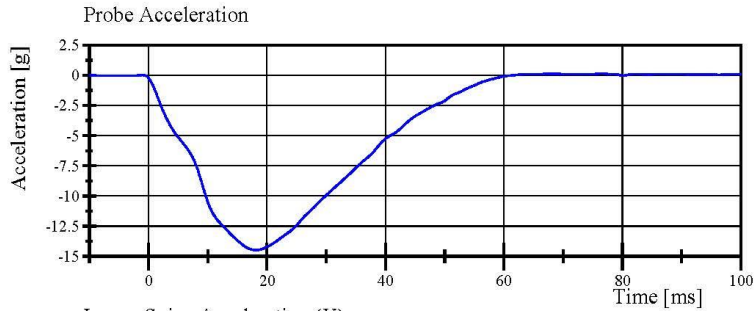
Comments:

Upper Abdominal Rib S/N: DT0965

Lower Abdominal Rib S/N: 1195-326

Transportation Research Center Inc.

Left Lateral Abdomen
SID IIs Serial No. 219 Certification No. 78-1
Test Date: 7/25/2019



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

07.25.2019 11:20:19 635



Transportation Research Center Inc.

Left Lateral Pelvis
SID IIs Serial No. 219 Certification No. 78-2
Test Date: 7/26/2019

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	20.9 °C	Yes
Relative Humidity	10 - 70 %	57 %	Yes
Pendulum Velocity	6.6 - 6.8 m/s	6.62 m/s	Yes
Impactor Acceleration	(-38.0) - (-47.0) g	-42.76 g	Yes
Peak Pelvis Lateral Acceleration after 6ms	34 - 42 g	40.1 g	Yes
Acetabulum Force	3,600 - 4,300 N	3,922.0 N	Yes

Test meets specifications.

Condition: Used

Comments:

Pelvis Skin S/N: 751

Pelvis Plug Info:

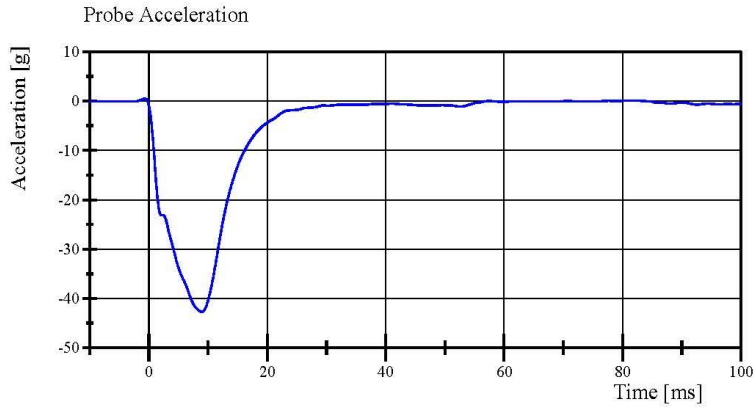
Manufacturer: Jasti

S/N: 2269

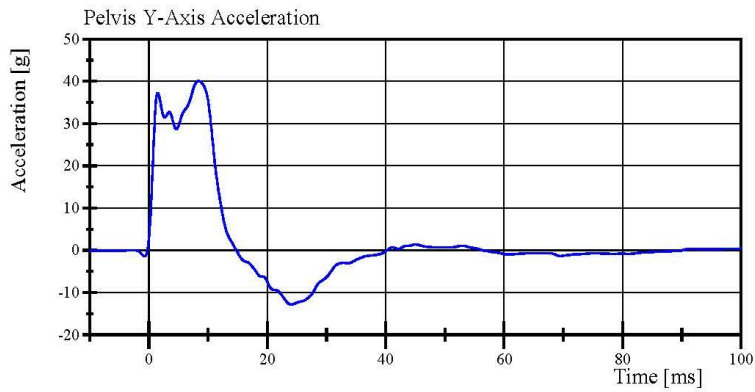
Cal Date: N/A

Transportation Research Center Inc.

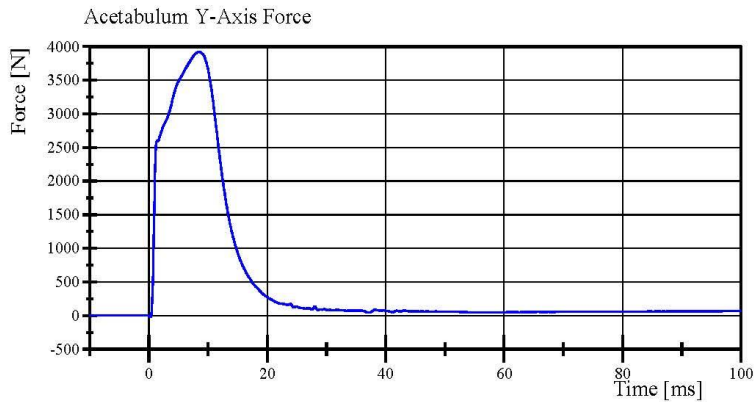
Left Lateral Pelvis
SID IIs Serial No. 219 Certification No. 78-2
Test Date: 7/26/2019



Filter Class: CFC_180
Max: 0.5 g at -0.7 ms
Min: -42.8 g at 9.0 ms



Filter Class: CFC_180
Max: 40.1 g at 8.4 ms
Min: -12.8 g at 24.1 ms



Filter Class: CFC_600
Max: 3,922.0 N at 8.5 ms
Min: -22.2 N at 0.2 ms

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

07.26.2019 06:58:44 446



Transportation Research Center Inc.

Left Lateral Iliac
SID IIs Serial No. 219 Certification No. 78-2
Test Date: 7/26/2019

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	20.8 °C	Yes
Relative Humidity	10 - 70 %	59 %	Yes
Pendulum Velocity	4.2 - 4.4 m/s	4.38 m/s	Yes
Impactor Acceleration	(-36) - (-45) g	-39.7 g	Yes
Peak Pelvis Lateral Acceleration	28 - 39 g	30.4 g	Yes
Iliac Force	4,100 - 5,100 N	4,593.7 N	Yes

Test meets specifications.

Condition: Used

Comments:

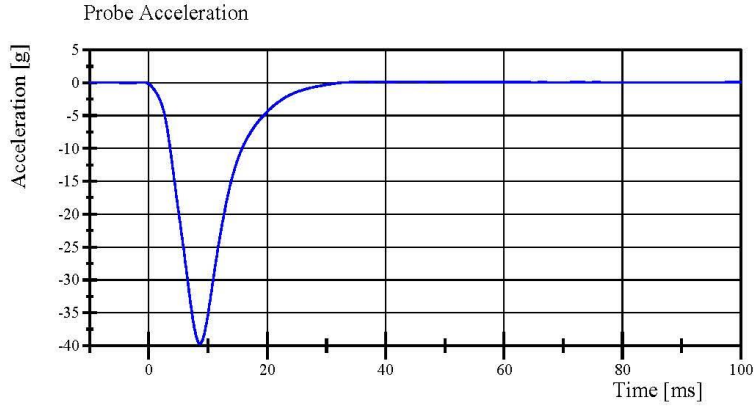
Pelvis Skin S/N: 751

Transportation Research Center Inc.

Left Lateral Iliac

SID IIs Serial No. 219 Certification No. 78-2

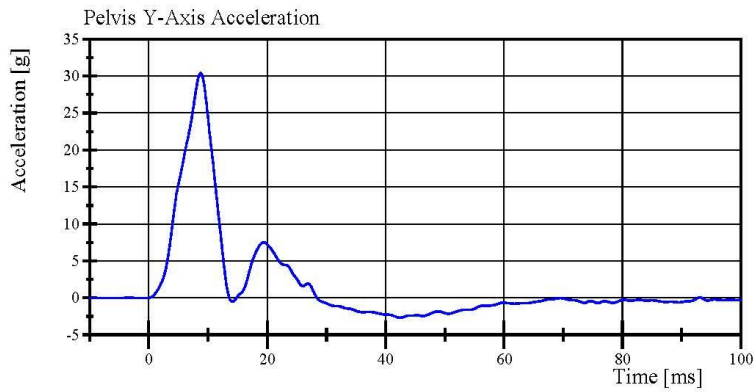
Test Date: 7/26/2019



Filter Class: CFC_180

Max: 0.2 g at 48.1 ms

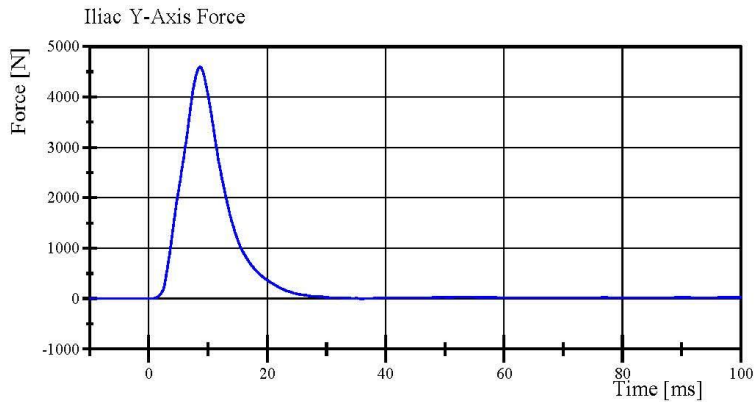
Min: -39.7 g at 8.6 ms



Filter Class: CFC_180

Max: 30.4 g at 8.7 ms

Min: -2.7 g at 42.4 ms



Filter Class: CFC_600

Max: 4,593.7 N at 8.6 ms

Min: -2.5 N at 36.0 ms

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

07.26.2019 09:35:02 639



APPENDIX D
TEST EQUIPMENT AND INSTRUMENTATION CALIBRATION DATA

TABLE 1 – DUMMY INSTRUMENTATION (WorldSID-50M)

		WorldSID-50M S/N EB8888		
		Serial Number	Manufacturer	Calibration Date
Head Accelerometers (g)	X	12362-1	Endevco	23-May-2019
	Y	12362-2	Endevco	23-May-2019
	Z	12362-3	Endevco	23-May-2019
Head Angular Rates Sensors (deg/sec)	X	ARS15092	DTS	1-Oct-2018
	Y	ARS12311	DTS	1-Oct-2018
	Z	ARS15089	DTS	1-Oct-2018
Upper Neck Force (N)	X	110	Humanetics	27-Nov-2018
	Y	110	Humanetics	27-Nov-2018
	Z	110	Humanetics	27-Nov-2018
Upper Neck Moment (Nm)	X	110	Humanetics	27-Nov-2018
	Y	110	Humanetics	27-Nov-2018
	Z	110	Humanetics	27-Nov-2018
Lower Neck Force (N)	X	EB8143	Denton	27-Nov-2018
	Y	EB8143	Denton	27-Nov-2018
	Z	EB8143	Denton	27-Nov-2018
Lower Neck Moment (Nm)	X	EB8143	Denton	27-Nov-2018
	Y	EB8143	Denton	27-Nov-2018
	Z	EB8143	Denton	27-Nov-2018
Upper Spine Accelerometers (T1) (g)	X	12040-1	Endevco	23-May-2019
	Y	12040-2	Endevco	23-May-2019
	Z	12040-3	Endevco	23-May-2019
Middle Spine Accelerometers (T4) (g)	X	12078-1	Endevco	21-May-2019
	Y	12078-2	Endevco	21-May-2019
	Z	12078-3	Endevco	21-May-2019
Lower Spine Accelerometers (T12) (g)	X	12058-1	Endevco	23-May-2019
	Y	12058-2	Endevco	23-May-2019
	Z	12058-3	Endevco	23-May-2019
Shoulder Force (N)	X	EA8982	Humanetics	27-Nov-2018
	Y	EA8982	Humanetics	27-Nov-2018
	Z	EA8982	Humanetics	27-Nov-2018
Pubic Symphysis Force (N)	Y	EB8675	Humanetics	27-Nov-2018
Sacro-Iliac Left Force (N)	X	EA8971	Humanetics	26-Nov-2018
	Y	EA8971	Humanetics	26-Nov-2018
	Z	EA8971	Humanetics	26-Nov-2018
Sacro-Iliac Left Moment (Nm)	X	EA8971	Humanetics	26-Nov-2018
	Y	EA8971	Humanetics	26-Nov-2018
	Z	EA8971	Humanetics	26-Nov-2018

TABLE 1 – DUMMY INSTRUMENTATION (WorldSID-50M) (CONTINUED)

		WorldSID-50M S/N EB8888		
		Serial Number	Manufacturer	Calibration Date
Sacro-Iliac Right Force (N)	X	EA8971	Humanetics	26-Nov-2018
	Y	EA8971	Humanetics	26-Nov-2018
	Z	EA8971	Humanetics	26-Nov-2018
Sacro-Iliac Right Moment (Nm)	X	EA8971	Humanetics	26-Nov-2018
	Y	EA8971	Humanetics	26-Nov-2018
	Z	EA8971	Humanetics	26-Nov-2018
Lumbar Force (N)	X	EB8157	Humanetics	27-Nov-2018
	Y	EB8157	Humanetics	27-Nov-2018
	Z	EB8157	Humanetics	27-Nov-2018
Lumbar Moment (Nm)	X	EB8157	Humanetics	27-Nov-2018
	Y	EB8157	Humanetics	27-Nov-2018
	Z	EB8157	Humanetics	27-Nov-2018
Pelvis Accelerometers (g)	X	12300-1	Endevco	23-May-2019
	Y	12300-2	Endevco	23-May-2019
	Z	12300-3	Endevco	23-May-2019
Left Femur Force (N)	X	DZ5708T	Denton	27-Nov-2018
	Y	DZ5708T	Denton	27-Nov-2018
	Z	DZ5708T	Denton	27-Nov-2018
Left Femur Moment (Nm)	X	DZ5708T	Denton	27-Nov-2018
	Y	DZ5708T	Denton	27-Nov-2018
	Z	DZ5708T	Denton	27-Nov-2018
Left Femoral Neck Force (N)	X	EB8707-FX	Denton	27-Nov-2018
	Y	EB8707-FY	Denton	27-Nov-2018
	Z	EB8707-FZ	Denton	27-Nov-2018

TABLE 1 – DUMMY INSTRUMENTATION (WorldSID-50M) (CONTINUED)

			WorldSID-50M S/N EB8888		
			Serial Number	Manufacturer	Calibration Date
Shoulder RibEye (mm)	Front	X	123	Boxboro Systems	10-Nov-2018
		Y	123	Boxboro Systems	10-Nov-2018
		Z	123	Boxboro Systems	10-Nov-2018
	Middle	X	123	Boxboro Systems	10-Nov-2018
		Y	123	Boxboro Systems	10-Nov-2018
		Z	123	Boxboro Systems	10-Nov-2018
	Rear	X	123	Boxboro Systems	10-Nov-2018
		Y	123	Boxboro Systems	10-Nov-2018
		Z	123	Boxboro Systems	10-Nov-2018
Thorax Rib 1 RibEye (mm)	Front	X	123	Boxboro Systems	10-Nov-2018
		Y	123	Boxboro Systems	10-Nov-2018
		Z	123	Boxboro Systems	10-Nov-2018
	Middle	X	123	Boxboro Systems	10-Nov-2018
		Y	123	Boxboro Systems	10-Nov-2018
		Z	123	Boxboro Systems	10-Nov-2018
	Rear	X	123	Boxboro Systems	10-Nov-2018
		Y	123	Boxboro Systems	10-Nov-2018
		Z	123	Boxboro Systems	10-Nov-2018
Thorax Rib 2 RibEye (mm)	Front	X	123	Boxboro Systems	10-Nov-2018
		Y	123	Boxboro Systems	10-Nov-2018
		Z	123	Boxboro Systems	10-Nov-2018
	Middle	X	123	Boxboro Systems	10-Nov-2018
		Y	123	Boxboro Systems	10-Nov-2018
		Z	123	Boxboro Systems	10-Nov-2018
	Rear	X	123	Boxboro Systems	10-Nov-2018
		Y	123	Boxboro Systems	10-Nov-2018
		Z	123	Boxboro Systems	10-Nov-2018
Thorax Rib 3 RibEye (mm)	Front	X	123	Boxboro Systems	10-Nov-2018
		Y	123	Boxboro Systems	10-Nov-2018
		Z	123	Boxboro Systems	10-Nov-2018
	Middle	X	123	Boxboro Systems	10-Nov-2018
		Y	123	Boxboro Systems	10-Nov-2018
		Z	123	Boxboro Systems	10-Nov-2018
	Rear	X	123	Boxboro Systems	10-Nov-2018
		Y	123	Boxboro Systems	10-Nov-2018
		Z	123	Boxboro Systems	10-Nov-2018

TABLE 1 – DUMMY INSTRUMENTATION (WorldSID-50M) (CONTINUED)

			WorldSID-50M S/N EB8888		
			Serial Number	Manufacturer	Calibration Date
Abdomen Rib 1 RibEye (mm)	Front	X	123	Boxboro Systems	10-Nov-2018
		Y	123	Boxboro Systems	10-Nov-2018
		Z	123	Boxboro Systems	10-Nov-2018
	Middle	X	123	Boxboro Systems	10-Nov-2018
		Y	123	Boxboro Systems	10-Nov-2018
		Z	123	Boxboro Systems	10-Nov-2018
	Rear	X	123	Boxboro Systems	10-Nov-2018
		Y	123	Boxboro Systems	10-Nov-2018
		Z	123	Boxboro Systems	10-Nov-2018
Abdomen Rib 2 RibEye (mm)	Front	X	123	Boxboro Systems	10-Nov-2018
		Y	123	Boxboro Systems	10-Nov-2018
		Z	123	Boxboro Systems	10-Nov-2018
	Middle	X	123	Boxboro Systems	10-Nov-2018
		Y	123	Boxboro Systems	10-Nov-2018
		Z	123	Boxboro Systems	10-Nov-2018
	Rear	X	123	Boxboro Systems	10-Nov-2018
		Y	123	Boxboro Systems	10-Nov-2018
		Z	123	Boxboro Systems	10-Nov-2018

TABLE 2 – DUMMY INSTRUMENTATION (SID-IIs)

			SID-IIs S/N 219			
			Serial Number	Manufacturer	Calibration Date	
Head Accelerometers (g)	Primary	X	P97714	Endevco	4-Apr-2019	
		Y	P84600	Endevco	4-Apr-2019	
		Z	P62545	Endevco	4-Apr-2019	
	Redundant	X	P62567	Endevco	4-Apr-2019	
		Y	P81617	Endevco	4-Apr-2019	
		Z	P62618	Endevco	4-Apr-2019	
Head Angular Rate Sensors (deg/sec)		X	ARS7999	DTS	19-Apr-2019	
		Y	ARS6461	DTS	19-Apr-2019	
		Z	ARS6383	DTS	19-Apr-2019	
Shoulder Force (N)		X	81-FX	Denton	3-Apr-2019	
		Y	81-FY	Denton	3-Apr-2019	
		Z	81-FZ	Denton	3-Apr-2019	
Shoulder Displacement (mm)		Y	830	Servo	4-Apr-2019	
Displacement Potentiometers	Thoracic Rib	Upper	Y	431	Servo	4-Apr-2019
		Middle	Y	021	Servo	4-Apr-2019
		Lower	Y	096	Servo	4-Apr-2019
	Abdominal Rib	Upper	Y	089	Servo	4-Apr-2019
		Lower	Y	578	Servo	4-Apr-2019
Lower Spine Acceleration (g)		X	P88005	Endevco	3-Apr-2019	
		Y	P88011	Endevco	3-Apr-2019	
		Z	P87824	Endevco	3-Apr-2019	
Acetabulum Force (N)		Y	224-FY	Denton	3-Apr-2019	
Iliac Wing Force (N)		Y	235-FY	Denton	3-Apr-2019	
Pelvis Acceleration (g)		X	P45655	Endevco	4-Apr-2019	
		Y	P83443	Endevco	4-Apr-2019	
		Z	P45643	Endevco	4-Apr-2019	
Pelvis Plug (struck side)			98543	Humanetics	12-Jun-2017	
Pelvis Plug (non-struck side)			63587	Humanetics	15-Jun-2013	

TABLE 3 – VEHICLE INSTRUMENTATION

Vehicle Instrumentation		Serial Number	Manufacturer	Calibration Date
Vehicle Center of Gravity (g)	X	P50400	Endevco	7-May-2019
	Y	P91909	Endevco	6-May-2019
	Z	T10347	Endevco	6-May-2019
Vehicle Center of Gravity Angular Rate (deg/sec)	X	ARS6470	DTS	15-Feb-2019
	Y	ARS6687	DTS	15-Feb-2019
	Z	ARS6372	DTS	19-Apr-2019
Right Side Sill At Front Seat (g)	X	P45629	Endevco	7-May-2019
	Y	P50293	Endevco	7-May-2019
	Z	P57961	Endevco	7-May-2019
Right Side Sill At Rear Seat (g)	X	P57946	Endevco	8-May-2019
	Y	P88038	Endevco	15-Apr-2019
	Z	T11839	Endevco	8-Jan-2019
Left Side Sill At Front Seat (g)	Y	P57192	Endevco	3-Jan-2019
Left Side Sill At Rear Seat (g)	Y	P91492	Endevco	7-May-2019
Left Lower A-Pillar (g)	Y	P97716	Endevco	18-Jun-2019
Left Middle A-Pillar (g)	Y	T11449	Endevco	18-Jun-2019
Left Lower B-Pillar (g)	Y	P44288	Endevco	8-May-2019
Left Middle B-Pillar (g)	Y	P97889	Endevco	8-May-2019
Front Seat Track (g)	Y	P57917	Endevco	8-May-2019
Rear Seat Structure (g)	Y	T11397	Endevco	26-Jun-2019
Right Rear Occupant Compartment (g)	Y	P81065	Endevco	3-Jan-2019
Engine Block (g)	X	P50428	Endevco	7-May-2019
	Y	P80720	Endevco	7-May-2019
Floorpan Above Rear Axle (g)	X	P94524	Endevco	18-Jun-2019
	Y	P87822	Endevco	18-Jun-2019
	Z	P88460	Endevco	18-Jun-2019
Rear Deck (g)	X	T11835	Endevco	18-Jun-2019
	Y	P61501	Endevco	8-May-2019
	Z	P94485	Endevco	17-Jun-2019
Rear Deck Angular Rate (deg/sec)	X	ARS7974	DTS	19-Apr-2019
	Y	ARS6469	DTS	15-Feb-2019
	Z	ARS7979	DTS	15-Feb-2019
Left Front Door Mid Centerline Acceleration (g)	Y	P91180	Endevco	6-May-2019
Left Front Door Mid Rear Acceleration (g)	Y	P97539	Endevco	6-May-2019
Left Front Door Upper Centerline (g)	Y	P91482	Endevco	6-May-2019
Left Rear Door Mid Rear (g)	Y	P50491	Endevco	8-May-2019
Left Rear Door Upper Centerline (g)	Y	P50313	Endevco	8-May-2019

TABLE 4 – MDB INSTRUMENTATION

MDB Instrumentation		Serial Number	Manufacturer	Calibration Date
MDB Center of Gravity (g)	X	P75713	Endevco	19-Mar-2019
	Y	P76171	Endevco	19-Mar-2019
	Z	P76114	Endevco	19-Mar-2019
MDB Rear (g)	X	P75115	Endevco	25-Mar-2019
	Y	P94567	Endevco	25-Mar-2019

Sign Convention
SAE J211 MAR95

Accelerometers:
+X: Forward
+Y: Rightward
+Z: Downward

Potentiometers:
+Chest longitudinal deflection: Outward
+Chest lateral deflection: Rightward
+Seat belt displacement: Outward
+Seat belt extension: Elongation
+Knee slider displacement: Distance between femur and tibia increased (in relation to a seated dummy)

Rotation potentiometers:
+About the X-axis: Left foot-eversion
Right foot-inversion
+About the Y-axis: Left/right foot-dorsiflexion
+About the Z-axis: Left foot-internal
Right foot-external

Load cells:
+Femur force: Tension
+Seat belt force: Tension
+Barrier force: Tension

Neck load cells:
+X force: Head pushed rearward
+Y force: Head pushed leftward
+Z force: Head pulled upward (tension on neck)
+X moment: Left ear rotating toward left shoulder
+Y moment: Chin rotating toward chest
+Z moment: Chin rotating toward left shoulder

Tibia load cells:
+X force: Ankle forward, knee rearward
+Y force: Ankle rightward, knee leftward
+Z force: Tension
+X moment: Bottom of tibia moving leftward
+Y moment: Bottom of tibia moving rearward

Sign Convention (Continued)
SAE J211 MAR95

<u>Lumbar load cells:</u>	+X force:	Chest rearward, pelvis forward
	+Y force:	Chest leftward, pelvis rightward
	+Z force:	Chest upward, pelvis downward
	+X moment:	Left shoulder toward left hip
	+Y moment:	Sternum toward front of legs
	+Z moment:	Right shoulder forward, left shoulder rearward

Frequency Response Classes
SAE J211 MAR95

<u>Typical Test Measurements</u>	<u>Channel Class</u>
Vehicle Structural Accelerations for use in:	
Total vehicle comparison	60
Collision simulation input	60
Component analysis	600
Integration for velocity or displacement	180
Barrier Face Forces	60
Belt Restraint System Loads	60
Anthropomorphic Test Device	
Head accelerations (linear and angular)	1000
Neck	
Forces	1000
Moments	600
Thorax	
Spine accelerations	180
Rib accelerations	1000
Sternum accelerations	1000
Deflections	600
Lumbar	
Forces	1000
Moments	1000
Pelvis	
Accelerations	1000
Forces	1000
Moments	1000
Femur/Knee/Tibia/Ankle	
Forces	600
Moments	600
Displacements	180
Sled Accelerations	60
Steering Column Loads	600
Head Form Accelerations	1000

Channel Number	ISO mnemonic	Channel Title	Filter Class	Flip	Zero	Full Scale
1	11HEADCG00WSACXP	Driver Head Acceleration (X)	1000	+	yes	2000
2	11HEADCG00WSACYP	Driver Head Acceleration (Y)	1000	+	yes	2000
3	11HEADCG00WSACZP	Driver Head Acceleration (Z)	1000	+	yes	2000
3A	11HEADCG00WSACRP	Driver Head Acceleration Resultant	1000			
4	11HEADCG00WSAVXP	Driver Head Angular Rate (X)	1000	+	yes	8000
5	11HEADCG00WSAVYP	Driver Head Angular Rate (Y)	1000	+	yes	8000
6	11HEADCG00WSAVZP	Driver Head Angular Rate (Z)	1000	+	yes	8000
7	11NECKUP00WSFOXP	Driver Upper Neck Force (X)	1000	+	yes	10000
8	11NECKUP00WSFOYP	Driver Upper Neck Force (Y)	1000	+	yes	10000
9	11NECKUP00WSFOZP	Driver Upper Neck Force (Z)	1000	+	yes	12000
10	11NECKUP00WSMOXP	Driver Upper Neck Moment (X)	600	+	yes	300
11	11NECKUP00WSMOYP	Driver Upper Neck Moment (Y)	600	+	yes	300
12	11NECKUP00WSMOZP	Driver Upper Neck Moment (Z)	600	+	yes	200
13	11NECKLO00WSFOXP	Driver Lower Neck Force (X)	1000	+	yes	10000
14	11NECKLO00WSFOYP	Driver Lower Neck Force (Y)	1000	+	yes	10000
15	11NECKLO00WSFOZP	Driver Lower Neck Force (Z)	1000	+	yes	12000
16	11NECKLO00WSMOXP	Driver Lower Neck Moment (X)	600	+	yes	300
17	11NECKLO00WSMOYP	Driver Lower Neck Moment (Y)	600	+	yes	300
18	11NECKLO00WSMOZP	Driver Lower Neck Moment (Z)	600	+	yes	200
19	11SHLDLE00WSFOXP	Driver Shoulder Force (X)	600	+	yes	5000
20	11SHLDLE00WSFOYP	Driver Shoulder Force (Y)	600	+	yes	10000
21	11SHLDLE00WSFOZP	Driver Shoulder Force (Z)	600	+	yes	5000
22	11SHRI01REWSDSX0	Driver Shoulder Rear Displacement (X)	0	+	no	60
23	11SHRI01REWSDSY0	Driver Shoulder Rear Displacement (Y)	0	+	no	60
24	11SHRI01REWSDSZ0	Driver Shoulder Rear Displacement (Z)	0	+	no	60
25	11SHRI01REWSDSLB	Driver Shoulder Rear Length Change	600	+	no	60
26	11SHRI01MIWSDSX0	Driver Shoulder Middle Displacement (X)	0	+	no	60
27	11SHRI01MIWSDSY0	Driver Shoulder Middle Displacement (Y)	0	+	no	60
28	11SHRI01MIWSDSZ0	Driver Shoulder Middle Displacement (Z)	0	+	no	60
29	11SHRI01MIWSDSLB	Driver Shoulder Middle Length Change	600	+	no	60
30	11SHRI01FRWSDSX0	Driver Shoulder Front Displacement (X)	0	+	no	60
31	11SHRI01FRWSDSY0	Driver Shoulder Front Displacement (Y)	0	+	no	60
32	11SHRI01FRWSDSZ0	Driver Shoulder Front Displacement (Z)	0	+	no	60
33	11SHRI01FRWSDSLB	Driver Shoulder Front Length Change	600	+	no	60

Channel Number	ISO mnemonic	Channel Title	Filter Class	Flip	Zero	Full Scale
34	11TRRI01REWSDSX0	Driver Thorax Rib 1 Rear Displacement (X)	0	+	no	60
35	11TRRI01REWSDSY0	Driver Thorax Rib 1 Rear Displacement (Y)	0	+	no	60
36	11TRRI01REWSDSZ0	Driver Thorax Rib 1 Rear Displacement (Z)	0	+	no	60
37	11TRRI01REWSDSLB	Driver Thorax Rib 1 Rear Length Change	600	+	no	60
v	11TRRI01MIWSDSX0	Driver Thorax Rib 1 Middle Displacement (X)	0	+	no	60
39	11TRRI01MIWSDSY0	Driver Thorax Rib 1 Middle Displacement (Y)	0	+	no	60
40	11TRRI01MIWSDSZ0	Driver Thorax Rib 1 Middle Displacement (Z)	0	+	no	60
41	11TRRI01MIWSDSLB	Driver Thorax Rib 1 Middle Length Change	600	+	no	60
42	11TRRI01FRWSDSX0	Driver Thorax Rib 1 Front Displacement (X)	0	+	no	60
43	11TRRI01FRWSDSY0	Driver Thorax Rib 1 Front Displacement (Y)	0	+	no	60
44	11TRRI01FRWSDSZ0	Driver Thorax Rib 1 Front Displacement (Z)	0	+	no	60
45	11TRRI01FRWSDSLB	Driver Thorax Rib 1 Front Length Change	600	+	no	60
46	11TRRI02REWSDSX0	Driver Thorax Rib 2 Rear Displacement (X)	0	+	no	60
47	11TRRI02REWSDSY0	Driver Thorax Rib 2 Rear Displacement (Y)	0	+	no	60
48	11TRRI02REWSDSZ0	Driver Thorax Rib 2 Rear Displacement (Z)	0	+	no	60
49	11TRRI02REWSDSLB	Driver Thorax Rib 2 Rear Length Change	600	+	no	60
50	11TRRI02MIWSDSX0	Driver Thorax Rib 2 Middle Displacement (X)	0	+	no	60
51	11TRRI02MIWSDSY0	Driver Thorax Rib 2 Middle Displacement (Y)	0	+	no	60
52	11TRRI02MIWSDSZ0	Driver Thorax Rib 2 Middle Displacement (Z)	0	+	no	60
53	11TRRI02MIWSDSLB	Driver Thorax Rib 2 Middle Length Change	600	+	no	60
54	11TRRI02FRWSDSX0	Driver Thorax Rib 2 Front Displacement (X)	0	+	no	60
55	11TRRI02FRWSDSY0	Driver Thorax Rib 2 Front Displacement (Y)	0	+	no	60
56	11TRRI02FRWSDSZ0	Driver Thorax Rib 2 Front Displacement (Z)	0	+	no	60
57	11TRRI02FRWSDSLB	Driver Thorax Rib 2 Front Length Change	600	+	no	60

Channel Number	ISO mnemonic	Channel Title	Filter Class	Flip	Zero	Full Scale
58	11TRRI03REWSDSX0	Driver Thorax Rib 3 Rear Displacement (X)	0	+	no	60
59	11TRRI03REWSDSY0	Driver Thorax Rib 3 Rear Displacement (Y)	0	+	no	60
60	11TRRI03REWSDSZ0	Driver Thorax Rib 3 Rear Displacement (Z)	0	+	no	60
61	11TRRI03REWSDSLB	Driver Thorax Rib 3 Rear Length Change	600	+	no	60
62	11TRRI03MIWSDSX0	Driver Thorax Rib 3 Middle Displacement (X)	0	+	no	60
63	11TRRI03MIWSDSY0	Driver Thorax Rib 3 Middle Displacement (Y)	0	+	no	60
64	11TRRI03MIWSDSZ0	Driver Thorax Rib 3 Middle Displacement (Z)	0	+	no	60
65	11TRRI03MIWSDSLB	Driver Thorax Rib 3 Middle Length Change	600	+	no	60
66	11TRRI03FRWSDSX0	Driver Thorax Rib 3 Front Displacement (X)	0	+	no	60
67	11TRRI03FRWSDSY0	Driver Thorax Rib 3 Front Displacement (Y)	0	+	no	60
68	11TRRI03FRWSDSZ0	Driver Thorax Rib 3 Front Displacement (Z)	0	+	no	60
69	11TRRI03FRWSDSLB	Driver Thorax Rib 3 Front Length Change	600	+	no	60
70	11ABRI01REWSDSX0	Driver Abdomen Rib 1 Rear Displacement (X)	0	+	no	60
71	11ABRI01REWSDSY0	Driver Abdomen Rib 1 Rear Displacement (Y)	0	+	no	60
72	11ABRI01REWSDSZ0	Driver Abdomen Rib 1 Rear Displacement (Z)	0	+	no	60
73	11ABRI01REWSDSLB	Driver Abdomen Rib 1 Rear Length Change	600	+	no	60
74	11ABRI01MIWSDSX0	Driver Abdomen Rib 1 Middle Displacement (X)	0	+	no	60
75	11ABRI01MIWSDSY0	Driver Abdomen Rib 1 Middle Displacement (Y)	0	+	no	60
76	11ABRI01MIWSDSZ0	Driver Abdomen Rib 1 Middle Displacement (Z)	0	+	no	60
77	11ABRI01MIWSDSLB	Driver Abdomen Rib 1 Middle Length Change	600	+	no	60
78	11ABRI01FRWSDSX0	Driver Abdomen Rib 1 Front Displacement (X)	0	+	no	60
79	11ABRI01FRWSDSY0	Driver Abdomen Rib 1 Front Displacement (Y)	0	+	no	60
80	11ABRI01FRWSDSZ0	Driver Abdomen Rib 1 Front Displacement (Z)	0	+	no	60
81	11ABRI01FRWSDSLB	Driver Abdomen Rib 1 Front Length Change	600	+	no	60

Channel Number	ISO mnemonic	Channel Title	Filter Class	Flip	Zero	Full Scale
82	11ABRI02REWSDSX0	Driver Abdomen Rib 2 Rear Displacement (X)	0	+	no	60
83	11ABRI02REWSDSY0	Driver Abdomen Rib 2 Rear Displacement (Y)	0	+	no	60
84	11ABRI02REWSDSZ0	Driver Abdomen Rib 2 Rear Displacement (Z)	0	+	no	60
85	11ABRI02REWSDSLB	Driver Abdomen Rib 2 Rear Length Change	600	+	no	60
86	11ABRI02MIWSDSX0	Driver Abdomen Rib 2 Middle Displacement (X)	0	+	no	60
87	11ABRI02MIWSDSY0	Driver Abdomen Rib 2 Middle Displacement (Y)	0	+	no	60
88	11ABRI02MIWSDSZ0	Driver Abdomen Rib 2 Middle Displacement (Z)	0	+	no	60
89	11ABRI02MIWSDSLB	Driver Abdomen Rib 2 Middle Length Change	600	+	no	60
90	11ABRI02FRWSDSX0	Driver Abdomen Rib 2 Front Displacement (X)	0	+	no	60
91	11ABRI02FRWSDSY0	Driver Abdomen Rib 2 Front Displacement (Y)	0	+	no	60
92	11ABRI02FRWSDSZ0	Driver Abdomen Rib 2 Front Displacement (Z)	0	+	no	60
93	11ABRI02FRWSDSLB	Driver Abdomen Rib 2 Front Length Change	600	+	no	60
94	11THSP0100WSACXP	Driver Spine T1 Acceleration (X)	180	+	yes	2000
95	11THSP0100WSACYP	Driver Spine T1 Acceleration (Y)	180	+	yes	2000
96	11THSP0100WSACZP	Driver Spine T1 Acceleration (Z)	180	+	yes	2000
96A	11THSP0100WSACRP	Driver Spine T1 Acceleration Resultant	180			
97	11THSP0400WSACXP	Driver Spine T4 Acceleration (X)	180	+	yes	2000
98	11THSP0400WSACYP	Driver Spine T4 Acceleration (Y)	180	+	yes	2000
99	11THSP0400WSACZP	Driver Spine T4 Acceleration (Z)	180	+	yes	2000
99A	11THSP0400WSACRP	Driver Spine T4 Acceleration Resultant	180			
100	11THSP1200WSACXP	Driver Spine T12 Acceleration (X)	180	+	yes	2000
101	11THSP1200WSACYP	Driver Spine T12 Acceleration (Y)	180	+	yes	2000
102	11THSP1200WSACZP	Driver Spine T12 Acceleration (Z)	180	+	yes	2000
102A	11THSP1200WSACRP	Driver Spine T12 Acceleration Resultant	180			
103	11PUBC0000WSFOYP	Driver Pubic Symphysis Force (Y)	600	+	yes	12000
104	11SACRLE00WSFOXP	Driver Sacro-iliac Left Force (X)	600	+	yes	6000
105	11SACRLE00WSFOYP	Driver Sacro-iliac Left Force (Y)	600	+	yes	12000
106	11SACRLE00WSFOZP	Driver Sacro-iliac Left Force (Z)	600	+	yes	6000
107	11SACRLE00WSMOXP	Driver Sacro-iliac Left Moment (X)	600	+	yes	800
108	11SACRLE00WSMOYP	Driver Sacro-iliac Left Moment (Y)	600	+	yes	400
109	11SACRLE00WSMOZP	Driver Sacro-iliac Left Moment (Z)	600	+	yes	400

Channel Number	ISO mnemonic	Channel Title	Filter Class	Flip	Zero	Full Scale
110	11SACRRI00WSFOXP	Driver Sacro-iliac Right Force (X)	600	+	yes	6000
111	11SACRRI00WSFOYP	Driver Sacro-iliac Right Force (Y)	600	+	yes	12000
112	11SACRRI00WSFOZP	Driver Sacro-iliac Right Force (Z)	600	+	yes	6000
113	11SACRRI00WSMOXP	Driver Sacro-iliac Right Moment (X)	600	+	yes	800
114	11SACRRI00WSMOYP	Driver Sacro-iliac Right Moment (Y)	600	+	yes	400
115	11SACRRI00WSMOZP	Driver Sacro-iliac Right Moment (Z)	600	+	yes	400
116	11LUSP0000WSFOXP	Driver Lumbar Force (X)	600	+	yes	10000
117	11LUSP0000WSFOYP	Driver Lumbar Force (Y)	600	+	yes	10000
118	11LUSP0000WSFOZP	Driver Lumbar Force (Z)	600	+	yes	12000
119	11LUSP0000WSMOXP	Driver Lumbar Moment (X)	600	+	yes	300
120	11LUSP0000WSMOYP	Driver Lumbar Moment (Y)	600	+	yes	300
121	11LUSP0000WSMOZP	Driver Lumbar Moment (Z)	600	+	yes	200
122	11PELV0000WSACXP	Driver Pelvic Acceleration (X)	600	+	yes	2000
123	11PELV0000WSACYP	Driver Pelvic Acceleration (Y)	600	+	yes	2000
124	11PELV0000WSACZP	Driver Pelvic Acceleration (Z)	600	+	yes	2000
124A	11PELV0000WSACRP	Driver Pelvic Acceleration Resultant	600			
125	11FEMRLE00WSFOXP	Driver Left Femur Force (X)	600	+	yes	15000
126	11FEMRLE00WSFOYP	Driver Left Femur Force (Y)	600	+	yes	15000
127	11FEMRLE00WSFOZP	Driver Left Femur Force (Z)	600	+	yes	15000
128	11FEMRLE00WSMOXP	Driver Left Femur Moment (X)	600	+	yes	350
129	11FEMRLE00WSMOYP	Driver Left Femur Moment (Y)	600	+	yes	350
130	11FEMRLE00WSMOZP	Driver Left Femur Moment (Z)	600	+	yes	300
131	11FEACLE00WSFOXP	Driver Femoral Neck Force (X)	600	+	yes	10000
132	11FEACLE00WSFOYP	Driver Femoral Neck Force (Y)	600	+	yes	25000
133	11FEACLE00WSFOZP	Driver Femoral Neck Force (Z)	600	+	yes	10000
134	14HEADCG00S2ACXA	Passenger Head Acceleration (X)	1000	+	yes	2000
135	14HEADCG00S2ACYA	Passenger Head Acceleration (Y)	1000	+	yes	2000
136	14HEADCG00S2ACZA	Passenger Head Acceleration (Z)	1000	+	yes	2000
136A	14HEADCG00S2ACRA	Passenger Head Acceleration Resultant	1000			
137	14HEADCGRDS2ACXA	Passenger Head Acceleration Redundant (X)	1000	+	yes	2000
138	14HEADCGRDS2ACYA	Passenger Head Acceleration Redundant (Y)	1000	+	yes	2000
139	14HEADCGRDS2ACZA	Passenger Head Acceleration Redundant (Z)	1000	+	yes	2000
139A	14HEADCGRDS2ACRA	Passenger Head Acceleration Redundant Resultant	1000			
140	14HEADCG00S2AVXA	Passenger Head Angular Rate (X)	1000	+	yes	8000
141	14HEADCG00S2AVYA	Passenger Head Angular Rate (Y)	1000	+	yes	8000
142	14HEADCG00S2AVZA	Passenger Head Angular Rate (Z)	1000	+	yes	8000
140	14HEADCG00S2AVXA	Passenger Head Angular Rate (X)	1000	+	yes	8000
143	14SHLDLE00S2FOXA	Passenger Shoulder Force (X)	600	+	yes	4448.2
144	14SHLDLE00S2FOYA	Passenger Shoulder Force (Y)	600	+	yes	4448.2
145	14SHLDLE00S2FOZA	Passenger Shoulder Force (Z)	600	+	yes	4448.2

Channel Number	ISO mnemonic	Channel Title	Filter Class	Flip	Zero	Full Scale
146	14SHRILE00S2DSYA	Passenger Shoulder Displacement (Y)	600	+	yes	60
147	14TRRI01LES2DSYA	Passenger Thorax Rib 1 Displacement (Y)	600	+	yes	60
148	14TRRI02LES2DSYA	Passenger Thorax Rib 2 Displacement (Y)	600	+	yes	60
149	14TRRI03LES2DSYA	Passenger Thorax Rib 3 Displacement (Y)	600	+	yes	60
150	14ABRI01LES2DSYA	Passenger Abdominal Rib 1 Displacement (Y)	600	+	yes	60
151	14ABRI02LES2DSYA	Passenger Abdominal Rib 2 Displacement (Y)	600	+	yes	60
152	14THSP1200S2ACXA	Passenger Lower Spine Acceleration (X)	180	+	yes	2000
153	14THSP1200S2ACYA	Passenger Lower Spine Acceleration (Y)	180	+	yes	2000
154	14THSP1200S2ACZA	Passenger Lower Spine Acceleration (Z)	180	+	yes	2000
154A	14THSP1200S2ACRA	Passenger Lower Spine Acceleration Resultant	180			
155	14ACTBLE00S2FOYA	Passenger Acetabulum Force on Impact Side (Y)	600	+	yes	8896.4
156	14ILACLE00S2FOYA	Passenger Iliac Force on Impact Side (Y)	600	+	yes	13344.7
157	14PELVCG00S2ACXA	Passenger Pelvis Acceleration (X)	1000	+	yes	2000
158	14PELVCG00S2ACYA	Passenger Pelvis Acceleration (Y)	1000	+	yes	2000
159	14PELVCG00S2ACZA	Passenger Pelvis Acceleration (Z)	1000	+	yes	2000
159A	14PELVCG00S2ACRA	Passenger Pelvis Acceleration Resultant	1000			
160	12VEHCCG0000ACXA	Vehicle Center of Gravity Acceleration (X)	60	+	yes	2000
161	12VEHCCG0000ACYA	Vehicle Center of Gravity Acceleration (Y)	60	+	yes	2000
162	12VEHCCG0000ACZA	Vehicle Center of Gravity Acceleration (Z)	60	+	yes	2000
162A	12VEHCCG0000ACRA	Vehicle Center of Gravity Acceleration Resultant	60			
163	12VEHCCG0000AVXA	Vehicle Center of Gravity Angular Rate (X)	60	+	yes	8000
164	12VEHCCG0000AVYA	Vehicle Center of Gravity Angular Rate (Y)	60	+	yes	1500
165	12VEHCCG0000AVZA	Vehicle Center of Gravity Angular Rate (Z)	60	+	yes	8000

Channel Number	ISO mnemonic	Channel Title	Filter Class	Flip	Zero	Full Scale
166	13SILBRIFR00ACXA	Right Side Sill at Front Seat Acceleration (X)	60	+	yes	2000
167	13SILBRIFR00ACYA	Right Side Sill at Front Seat Acceleration (Y)	60	+	yes	2000
168	13SILBRIFR00ACZA	Right Side Sill at Front Seat Acceleration (Z)	60	+	yes	2000
168A	13SILBRIFR00ACRA	Right Side Sill at Front Seat Acceleration Resultant	60			
169	16SILBRIRE00ACXA	Right Side Sill at Rear Seat Acceleration (X)	60	+	yes	2000
170	16SILBRIRE00ACYA	Right Side Sill at Rear Seat Acceleration (Y)	60	+	yes	2000
171	16SILBRIRE00ACZA	Right Side Sill at Rear Seat Acceleration (Z)	60	+	yes	2000
171A	16SILBRIRE00ACRA	Right Side Sill at Rear Seat Acceleration Resultant	60			
172	11SILBLEFR00ACYA	Left Side Sill at Front Seat Acceleration (Y)	60	+	yes	2000
173	14SILBLERE00ACYA	Left Side Sill at Rear Seat Acceleration (Y)	60	+	yes	2000
174	11APILLO0000ACYA	Lower A-Post Acceleration (Y)	60	+	yes	2000
175	11APILMI0000ACYA	Middle A-Post Acceleration (Y)	60	+	yes	2000
176	11BPILLO0000ACYA	Lower B-Post Acceleration (Y)	60	+	yes	176
177	11BPILMI0000ACYA	Middle B-Post Acceleration (Y)	60	+	yes	177
178	11SETR000000ACYA	Front Seat Track Acceleration (Y)	60	+	yes	178
179	14SETRLERE00ACYA	Rear Seat Structure Acceleration (Y)	60	+	yes	2000
180	16OCCRIRE000ACYA	Right Rear Occupant Compartment Acceleration (Y)	60	+	yes	2000
181	12ENGNTTP0000ACXA	Engine Block (X)	60	+	yes	2000
182	12ENGNTTP0000ACYA	Engine Block (Y)	60	+	yes	2000
183	15FORA000000ACXA	Rear Floorpan Above Axle Acceleration (X)	60	+	yes	2000
184	15FORA000000ACYA	Rear Floorpan Above Axle Acceleration (Y)	60	+	yes	2000
185	15FORA000000ACZA	Rear Floorpan Above Axle Acceleration (Z)	60	+	yes	2000
185A	15FORA000000ACRA	Rear Floorpan Above Axle Acceleration Resultant	60			
186	10FORARD0000ACXA	Rear Deck Acceleration (X)	60	+	yes	2000
187	10FORARD0000ACYA	Rear Deck Acceleration (Y)	60	+	yes	2000
188	10FORARD0000ACZA	Rear Deck Acceleration (Z)	60	+	yes	2000
188A	10FORARD0000ACRA	Rear Deck Acceleration Resultant	60			
189	10FORARD0000AVXA	Rear Deck Angular Rate (X)	60	+	yes	8000
190	10FORARD0000AVYA	Rear Deck Angular Rate (Y)	60	+	yes	8000
191	10FORARD0000AVZA	Rear Deck Angular Rate (Z)	60	+	yes	8000

Channel Number	ISO mnemonic	Channel Title	Filter Class	Flip	Zero	Full Scale
192	11DOORMIMI71ACYA	Left Front Door Mid Centerline Acceleration (Y)	60	+	yes	2000
193	11DOORMIRE71ACYA	Left Front Door Mid Rear Acceleration (Y)	60	+	yes	2000
194	11DOORMIUP71ACYA	Left Front Door Upper Centerline (Y)	60	+	yes	2000
195	14DOORMIRE71ACYA	Left Rear Door Mid Rear (Y)	60	+	yes	2000
196	14DOORMIUP71ACYA	Left Rear Door Upper Centerline (Y)	60	+	yes	2000
197	11HEADCONT00VO00	Driver Head Contact	0	+	no	1
198	11SHOUCONT00VO00	Driver Shoulder Contact	0	+	no	1
199	11THORCONT00VO00	Driver Thorax Contact	0	+	no	1
200	11PELVCONT00VO00	Driver Pelvis Contact	0	+	no	1
201	14HEADCONT00VO00	Passenger Head Contact	0	+	no	1
202	14SHOUCONT00VO00	Passenger Shoulder Contact	0	+	no	1
203	14THORCONT00VO00	Passenger Thorax Contact	0	+	no	1
204	14PELVCONT00VO00	Passenger Pelvis Contact	0	+	no	1
205	M0MBARCG0000ACXA	MDB Center of Gravity Acceleration (X)	60	+	yes	2000
206	M0MBARCG0000ACYA	MDB Center of Gravity Acceleration (Y)	60	+	yes	2000
207	M0MBARCG0000ACZA	MDB Center of Gravity Acceleration (Z)	60	+	yes	2000
207A	M0MBARCG0000ACRA	MDB Center of Gravity Acceleration Resultant	60			
208	M0FRAMRE0000ACXA	MDB Rear Acceleration (X)	60	+	yes	2000
209	M0FRAMRE0000ACYA	MDB Rear Acceleration (Y)	60	+	yes	2000
210	M0MBARLE0000VO00	Left MDB Contact Switch	0	+	no	1
211	M0MBARRI0000VO00	Right MDB Contact Switch	0	+	no	1

APPENDIX E
SEATING PROCEDURE WORKSHEETS AND PLOTS

Driver WSID 50th Seating Worksheet

Vehicle	2018 Honda Accord R20185383	Technician	Ramadan/Postle
VIN #	1HGCV1F12JA048052	Position	
ATD	WorldSID 50th	Date	7/24/2019
Test #			

SCRL Angle	Max	17.4	WSID 50th Tilt Sensors		X	Y	
	Min -	12.1		Head	0°±2	0.8	-1.7
	Difference	5.3					
	/2	2.65		T6	0°±2	1.8	-1.2
	Min +	2.65					
Mid Angle	14.75		Pelvis	0°±2	1.2	0.6	

Seat Back Angle	W/Level °	20.0	HEAD REST POST	
Seat Pan Angle	W/Level °	14.0	ANGLE	2.7
			FINAL HEAD REST POST ANGLE	3.3

Pelvis Angle	WSID 50th 0° +/-2.5°	Manual Inclinometer	41.5	Tilt Sensor	0.6
---------------------	----------------------	------------------------	------	-------------	-----

Collected Points			
Name	Meas X	Meas Y	Meas Z
SBU -	-34.8819	3.0903	-13.2986
SBL -	-31.1898	1.5342	22.317
STRIKER -	0	0	0
FOSB -	492.3676	206.0432	500.3664
FISB -	492.0423	640.6871	502.6882
ROSB -	91.534	204.542	513.992
RISB -	90.265	656.252	508.997
PCP-(Pedal Center Point)	1120.961	624.545	376.197
RHP - (Right Heel Point)	1002.661	622.460	530.065
LHP - (Left Heel Point)	1002.851	258.348	526.216
S0 -	561.648	435.064	-94.339
TS -	624.445	435.059	-263.696
BS -	505.421	435.109	58.665
SC1 -	749.677	335.095	-8.842
OSCAR H-POINT -	257.091	244.670	277.271
DR PROJECTED WSID H-POINT AT MID-POSITION -	277.000	277.000	259.000
DRIVER STP 15.27 MID-POSITION -	277.000	277.000	344.000
DRIVER STP STEP 18.6 TRIAL 1 -	257.000	257.000	347.000
DR PROJECTED WSID H-POINT STEP 18.6.2 TRIAL 1 -	257.000	257.000	262.000
DRIVER STP STEP 18.6 TRIAL 2 -	277.000	277.000	346.000
DR PROJECTED WSID H-POINT STEP 18.6.2 TRIAL 2 -	277.000	277.000	261.000
DRIVER STP STEP 18.6 TRIAL 3 -	277.000	277.000	277.000
DR PROJECTED WSID H-POINT STEP 18.6.2 TRIAL 3 -	0.000	0.000	-85.000
3DRHCG-	116.335	530.045	-395.145
3DLHCG-	136.385	373.500	-398.046
LHDCCG -	115.711	372.285	-398.838
BON -	209.902	447.657	-376.295
TN -	210.188	446.866	-347.626
TC -	194.701	447.036	-270.184
SHLD R1 -	169.550	447.269	-167.720
THX R1 -	202.868	445.876	-92.462
THX R2 -	237.143	442.906	-26.469
THX R3 -	253.857	441.203	19.784
ABD R1 -	272.313	436.517	72.864
ABD R2 -	290.326	436.879	118.117
TPS	321.110	439.337	141.520
C1 -	177.265	439.761	-145.221
C2 -	204.067	438.111	-94.776
C3 -	261.601	436.887	58.393
SHT -	87.884	227.981	-133.292
E1 -	285.717	198.608	7.255
P1 -	226.467	216.101	216.178
H-POINT -	280.520	215.680	265.150

OK -	660.078	215.491	114.034
IK -	696.190	538.384	119.863
OA -	972.890	256.871	409.313
IA -	979.585	563.315	420.134
OH -	998.803	258.559	532.060
IH -	1007.750	614.796	536.961
OP -	-129.559	362.859	-273.068
R -	210.725	447.155	-581.399
H -	542.164	447.976	-522.028
W1	838.580	448.554	-377.293
W1 - Outside	857.438	447.371	-375.444
W2 - Outside	1123.315	447.675	-215.713
D1 -	762.839	447.061	-235.245
D2 -	766.440	214.924	77.473
D3 -	N/A	N/A	N/A
HRP -	209.530	211.462	-504.572
HSP -	209.237	74.147	-377.310
ADP -	285.043	40.554	6.325
HDP -	280.436	104.366	264.158

Calculated Measurements					
Name	Cal X	Cal Y	Cal Z	Cal 3D Distance	Deg
HZ -			205		
HH -				363	
HW -	629				
NR -				423	
CD -				592	
CS -	358				
IKD -				Missing D3	
OKD -				112	
HR -				269	
HS -		374			
AD -		158			
HD -		111			
HLHL -				356	
KK -				325	
SH -				442	
HRA -					3.3
H-POINT TOOL ANGLE -					42.2
TORSO ANGLE -					13.9
WINDSHIELD ANGLE -					59.0

Rear Passenger SIDIIS Seating Worksheet

Vehicle	2018 Honda Accord R20185383	Technician	
VIN #	1HGCV1F12JA048052	Position	
ATD	SIDIIS	Date	7/24/2019
SEATING #			

Seat Back Angle	W/Level °		HEAD REST	
Seat Pan Angle	W/Level °		POST ANGLE	

Pelvis Angle Manual
Inclinometer 24.1

Collected Points			
Name	Meas X	Meas Y	Meas Z
SBU -	N/A	N/A	N/A
SBL -	N/A	N/A	N/A
STRIKER -	0.000	0.000	0.000
FOSB -			
FISB -			
ROSB -			
RISB -			
RHP -			
LHP -			
OSCAR H-POINT -			
LHDCG -	-20.493	368.380	-277.689
BON -	55.751	440.460	-310.814
TN -	84.632	441.097	-280.123
TC -	84.111	439.359	-205.241
C1 -	108.578	431.739	-74.062
SHT -	-11.366	237.305	-43.040
E1 -	164.008	201.905	29.082
P1 -	117.225	215.049	260.185
H-POINT -	201.085	228.379	272.464
OK -	532.172	348.753	211.095
IK -	531.407	504.519	211.531
OA -	765.184	339.193	483.513
IA -	759.236	525.225	470.931
OH -	750.485	358.503	574.670
IH -	N/A	N/A	N/A
OP -	N/A	N/A	N/A
R -	55.328	439.892	-567.151
SB -	800.042	432.118	-73.834
KBL -	937.663	348.680	210.296
KBR -	931.254	504.525	210.691
HRP -	56.344	155.134	-416.077
HSP -	56.033	34.326	-310.654
ADP -	163.985	46.057	28.135
HDP -	200.584	58.619	272.384

Calculated Measurements					
Name	Cal X	Cal Y	Cal Z	Cal 3D Distance	Deg
HZ -			256		
NB -				745	
CB -				691	
IKB -				400	
OKB -				405	
HR -				304	
HS -		406			
AD -		156			
HD -		170			
HLHL -				Missing IH	
KK -				156	
SH -				307	
HRA -					N/A
H-POINT TOOL ANGLE -					8.3
TORSO ANGLE -					36.4
SEATBACK ANGLE -					25.8