

REPORT NUMBER: NCAP-KAR-17-013

**NEW CAR ASSESSMENT PROGRAM (NCAP)
FRONTAL BARRIER IMPACT TEST**

**NISSAN MOTOR CO LTD
2017 NISSAN FRONTIER CREW CAB 4WD 4-DOOR TRUCK**

NHTSA NUMBER: M20175200

**PREPARED BY:
KARCO ENGINEERING, LLC.
9270 HOLLY ROAD
ADELANTO, CA 92301**




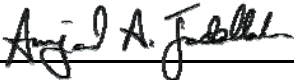
FEBRUARY 22, 2017


FINAL REPORT


**U.S. DEPARTMENT OF TRANSPORTATION
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
OFFICE OF CRASHWORTHINESS STANDARDS
1200 NEW JERSEY AVE, SE
ROOM W43-410
WASHINGTON, DC 20590**

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Tested By: 
Mr. Robert S. Ramos
Program Manager

Report By: 
Mr. Amjad A. Jadallah
Project Engineer

Reviewed By: 
Mr. Andrew J. Espindola
Quality Assurance Manager

Approved By: 
Mr. Michael L. Dunlap
Director of Operations

Approval Date: February 22, 2017

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16. Abstract <p>A 56.3 km/h NCAP Frontal Impact Test was conducted on a 2017 Nissan Frontier Crew Cab 4WD 4-door truck in accordance with the specifications of the Office of Crashworthiness Standards Frontal NCAP Laboratory Test Procedure. This test was conducted to obtain data indicant of FMVSS 208, 212, 219 (partial), 301, and footwell intrusion performance. The test was conducted at the KARCO Engineering, LLC. facility in Adelanto, California on February 8, 2017.</p> <p>The impact velocity of the vehicle was 56.47 km/h and the ambient temperature at the barrier face at the time of impact was 20.0°C. The target vehicle's post-test maximum crush was 459 mm at DPD 3 on the left side of the vehicle's centerline. The test vehicle's performance is as follows:</p> <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 10px;"> <thead> <tr> <th rowspan="2">Measurement Description</th> <th rowspan="2">Units</th> <th colspan="2">Driver ATD</th> <th colspan="2">Passenger ATD</th> </tr> <tr> <th>Threshold</th> <th>Result</th> <th>Threshold</th> <th>Result</th> </tr> </thead> <tbody> <tr> <td>Head Injury Criteria (HIC₁₅)</td> <td>N/A</td> <td>700</td> <td>329.0</td> <td>700</td> <td>473.3</td> </tr> <tr> <td>Maximum Chest Compression</td> <td>mm</td> <td>63</td> <td>-32</td> <td>52</td> <td>-22</td> </tr> <tr> <td>Nij</td> <td>N/A</td> <td>1</td> <td>0.41</td> <td>1</td> <td>0.61</td> </tr> <tr> <td>Neck Tension</td> <td>N</td> <td>4170</td> <td>2459.4</td> <td>2620</td> <td>1180.7</td> </tr> <tr> <td>Neck Compression</td> <td>N</td> <td>4000</td> <td>-320.1</td> <td>2520</td> <td>-427.3</td> </tr> <tr> <td>Left Femur Force</td> <td>N</td> <td>10000</td> <td>-5435.5</td> <td>6800</td> <td>-3397.9</td> </tr> <tr> <td>Right Femur Force</td> <td>N</td> <td>10000</td> <td>-2915.3</td> <td>6800</td> <td>-2069.7</td> </tr> </tbody> </table>				Measurement Description	Units	Driver ATD		Passenger ATD		Threshold	Result	Threshold	Result	Head Injury Criteria (HIC ₁₅)	N/A	700	329.0	700	473.3	Maximum Chest Compression	mm	63	-32	52	-22	Nij	N/A	1	0.41	1	0.61	Neck Tension	N	4170	2459.4	2620	1180.7	Neck Compression	N	4000	-320.1	2520	-427.3	Left Femur Force	N	10000	-5435.5	6800	-3397.9	Right Femur Force	N	10000	-2915.3	6800	-2069.7
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SECTION 1

PURPOSE AND SUMMARY OF TEST

PURPOSE

This 56.3 km/h frontal barrier impact test is part of the Vehicle Barrier Impact Testing Program, sponsored by the National Highway Traffic Safety Administration (NHTSA) under contract number DTNH22-12-D-00259. The purpose of this test was to obtain vehicle crashworthiness and occupant restraint system performance data for consumer information purposes.

The 56.3 km/h frontal barrier impact test was conducted in accordance with the Office of Crashworthiness Standards Frontal NCAP Laboratory Test Procedure, dated October 2015.

SUMMARY

A load cell barrier consisting of 176 load cells was impacted by a 2017 Nissan Frontier Crew Cab 4WD 4-door truck at a velocity of 56.47 km/h. The test was performed at KARCO Engineering, LLC. on February 8, 2017. Pre- and post-test photographs of the vehicle and dummies can be found in Appendix A of this report.

Three (3) real-time cameras and sixteen (16) high-speed cameras were used to document the frontal barrier impact event. Camera locations and other pertinent camera information can be found in Data Sheet 6 of this report.

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

Both ATDs were fully instrumented with head, chest and pelvis tri-axial accelerometers, chest displacement potentiometers, upper neck force transducers, right / left femur load cells, and lower leg instrumentation. The driver (position 1) ATD (Serial No. 360) and the right-front passenger (position 2) ATD (Serial No. 141) were calibrated prior to this test. Certification details, along with instrumentation calibration data, are found in Appendix C of this report.

The 102 channels of dummy and vehicle response data were recorded on an on-board data acquisition system. Appendix B contains the dummy response data traces.

There was 100% windshield retention and no intrusion into the protected zone of the windshield during the event.

The maximum static crush was 459 mm at DPD 3 on the left side of the vehicle's centerline. Both the driver and passenger side doors remained closed during the impact event and were operable after the impact.

The driver's visible contact points were as follows: The driver ATD's head contacted the frontal airbag and headrest. The upper torso contacted the frontal airbag. The left knee contacted the knee bolster. The right knee contacted the knee bolster and steering column.

The passenger's visible contact points were as follows: The passenger ATD's head contacted the frontal airbag, headrest, and seat back. The upper torso contacted the frontal airbag. Both the left and right knees contacted the frontal airbag and knee bolster.

The occupant data is summarized below:

ATD Position	HIC ₁₅	T ¹ (ms)	T ² (ms)	Chest Disp. (mm)	Nij	Neck Tension (N)	Neck Comp. (N)	Left Femur (N)	Right Femur (N)
Driver (50th)	329.0	66.4	81.4	-32	0.41	2459.4	-320.1	-5435.5	-2915.3
Passenger (5th)	473.3	57.8	72.8	-22	0.61	1180.7	-427.3	-3397.9	-2069.7

SECTION 2

OCCUPANT AND VEHICLE INFORMATION / DATA SHEETS

Test Vehicle: 2017 Nissan Frontier Crew Cab 4WD 4-Door Truck NHTSA No.: M20175200

Test Program: 56.3 km/h Frontal Impact NCAP Test Test Date: 02/08/17

CONVERSION FACTORS

Quantity	Typical Application	Std Units	Metric Unit	Multiply By
Mass	Vehicle Weight	lb	kg	0.4536
Linear Velocity	Impact Velocity	miles/hr	km/hr	1.609344
Length or Distance	Measurements	in	mm	25.4
Volume	Fuel Systems	gal	liter	3.785
Volume	Small Fluids	oz	mL	29.574
Pressure	Tire Pressures	lbf/in ²	kPa	6.895
Temperature	General Use	°F	°C	$=(T_f - 32)/1.8$
Force	Dynamic Forces	lbf	N	4.448
Moment	Torque	lbf-ft	N•m	1.355

DATA SHEET NO. 1

GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle: 2017 Nissan Frontier Crew Cab 4WD 4-Door Truck NHTSA No.: M20175200
 Test Program: 56.3 km/h Frontal Impact NCAP Test Test Date: 02/08/17

TEST VEHICLE INFORMATION AND OPTIONS

NHTSA Number	M20175200
Model Year	2017
Make	Nissan
Model	Frontier Crew Cab 4WD
Body Style	4-Door Truck
VIN	1N6AD0FV8HN703305
Body Color	Arctic Blue Metallic
Odometer Reading (km / mi)	186 / 116
Engine Displacement (L)	4.0
Type / No. of Cylinders	V6
Engine Placement	Longitudinal
Transmission Type	Automatic
Transmission Speeds	5
Overdrive	Yes
Final Drive	4WD
Roof Rack	No
Sunroof / T-Top	No
Running Boards	No
Tilt Steering Wheel	Yes
Power Seats	No
Anti-Lock Brakes (ABS)	Yes
Automatic Door Locks (ADLs)	Yes

Traction Control System	Yes
Power Steering	Yes
Power Window Auto-Reverse	Yes
Driver Frontal Airbag	Yes
Driver Curtain Airbag	Yes
Driver Head/Torso Airbag	No
Driver Torso Airbag	No
Driver Torso/Pelvis Airbag	Yes
Driver Pelvis Airbag	No
Driver Knee Airbag	No
Front Pass. Frontal Airbag	Yes
Front Pass. Curtain Airbag	Yes
Front Pass. Head/Torso Airbag	No
Front Pass. Torso Airbag	No
Front Pass. Torso/Pelvis Airbag	Yes
Front Pass. Pelvis Airbag	No
Front Pass. Knee Airbag	No
Driver Seat Belt Pretensioner	Yes
Driver Load Limiter	Yes
Front Pass. Seat Belt Pretensioner	Yes
Front Pass. Load Limiter	Yes
Other Safety Restraint	No

Does Owner's Manual provide instructions to turn off automatic door locks? No

DATA FROM CERTIFICATION LABEL

Manufactured By	Nissan Motor Co LTD
Date of Manufacture	Oct-16

GVWR (kg)	2638
GAWR Front (kg)	1495
GAWR Rear (kg)	1511

VEHICLE SEATING AND CAPACITY WEIGHT INFORMATION

Measured Parameter	Front	Rear	Third	Total
Type of Seats	Bucket	Bench		
Designated Seating Capacity	2	3		5
Capacity Weight (VCW) (kg)				385.2
DSC x 68.04 (kg)				340.2
Cargo Weight (RCLW) (kg)				45.0

DATA SHEET NO. 1 ... (CONTINUED)

GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle: 2017 Nissan Frontier Crew Cab 4WD 4-Door Truck NHTSA No.: M20175200
 Test Program: 56.3 km/h Frontal Impact NCAP Test Test Date: 02/08/17



VEHICLE TIRE INFORMATION

Measured Parameter	Front	Rear
Max. Tire Pressure (kPa)	350	300
Cold Pressure (kPa)	240	240
Recommended Tire Size	P265/70R16	P265/70/R16
Tire Size on Vehicle	P265/70R16	P265/70/R16
Tire Manufacturer	Hankook	Hankook
Tire Model	Dynapro HT	Dynapro HT
Treadwear	700	700
Traction	A	A
Temperature Grades	B	B
Tire Plies Sidewall	2 Polyester	2 Polyester
Tire Plies Body	2 Steel, 2 Polyester, 2 Nylon	2 Steel, 2 Polyester, 2 Nylon
Load Index / Speed Symbol	111T	111T
Tire Material	2 Polyester, 2 Steel, 2 Nylon	2 Polyester, 2 Steel, 2 Nylon
DOT Safety Code Left	T79M HUH 2416	T79M HUH 2416
DOT Safety Code Right	T79M HUH 2416	T79M HUH 2416

DATA SHEET NO. 1 ... (CONTINUED)

GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle: 2017 Nissan Frontier Crew Cab 4WD 4-Door Truck NHTSA No.: M20175200
 Test Program: 56.3 km/h Frontal Impact NCAP Test Test Date: 02/08/17

TEST VEHICLE WEIGHTS

	Units	As Delivered Weights (UVW)			As Tested Weights (ATW)		
		Front Axle	Rear Axle	Total	Front Axle	Rear Axle	Total
Left	kg	581.5	456.5		620.5	515.5	
Right	kg	585.0	444.5		610.0	500.0	
Ratio	%	56.4%	43.6%	100.0%	54.8%	45.2%	100.0%
Total	kg	1166.5	901.0	2067.5	1230.5	1015.5	2246.0

TARGET TEST WEIGHT CALCULATION

Measured Parameter	Units	Value	
Total Delivered Weight (UVW)	kg	2067.5	A
Weight of 1 P572E ATD & 1 P572O ATD	kg	141.0	B
Rated Cargo/Luggage Weight (RCLW)	kg	45.0	C
Calculated Vehicle Target Weight (TVTW)	kg	2253.5	A+B+C

TEST VEHICLE ATTITUDES

Condition	Units	LF	RF	LR	RR	CG Aft of Front Axle
As Delivered	mm	887	887	908	915	1542
As Tested	mm	861	864	891	893	1600
Post-Test	mm	885	875	895	890	

GENERAL TEST VEHICLE DATA

Measurement Description	Units	Value
Total Vehicle Wheel Base	mm	3539
Total Vehicle Length at Left Side	mm	5157
Total Vehicle Length at Centerline	mm	5570
Total Vehicle Length at Right Side	mm	5145
Weight of Ballast in Cargo Area	kg	81.0
Weight of Vehicle Components Removed	kg	28.0
Amount of Stoddard Solvent in Fuel Tank	L	74.26

VEHICLE COMPONENTS REMOVED TO MEET TEST WEIGHT:

Spare Tire _____

DATA SHEET NO. 1 ... (CONTINUED)

GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle: 2017 Nissan Frontier Crew Cab 4WD 4-Door Truck NHTSA No.: M20175200

Test Program: 56.3 km/h Frontal Impact NCAP Test Test Date: 02/08/17

TARGET VEHICLE STRUCTURAL MEASUREMENTS

No.	Description	Pre-Test
1	Total Length	5570
2	Total Width	1852
3	Bumper Top Height	689
4	Bumper Bottom Height	438
5	Longitudinal Member Top Height	538
6	Distance Between Longitudinal Members	970
7	Longitudinal Member Width	65
8	Engine Top Height	1130
9	Engine Bottom Height	245
10	Engine and Gearbox Width	580
11	Front Bumper to Engine Distance	500
12	Front Shock Absorber Fixing Height	855
13	Bonnet Leading Edge Height	1010
14	Front Shock Absorber Fixing Width	1280
15	Front Bumper to Front Axle Distance	790
16	Front Axle to A-Pillar Distance	660
17	A-Pillar to B-Pillar Distance	1014
18	B-Pillar to Rear Axle Distance	1790
19	B-Pillar to C-Pillar Distance	754
20	Roof Sill Bottom Height	1554
21	Roof Sill Top Height	1724
22	Floor Sill Bottom Height	440
23	Floor Sill Top Height	480

All measurements in millimeters.

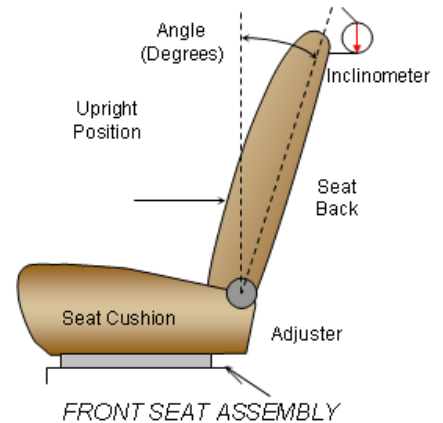
DATA SHEET NO. 2

SEAT ADJUSTMENT, FUEL SYSTEM, AND STEERING WHEEL DATA

Test Vehicle: 2017 Nissan Frontier Crew Cab 4WD 4-Door Truck NHTSA No.: M20175200
 Test Program: 56.3 km/h Frontal Impact NCAP Test Test Date: 02/08/17

NOMINAL DESIGN RIDING POSITION

The procedure for the driver is as follows: the seat back is set to the manufacturer’s designated angle. The procedure for the passenger is as follows: the seat back is set to position the transverse instrumentation platform of the dummy’s head at $0^\circ \pm 0.5^\circ$. Seat back angle is measured at the headrest post.

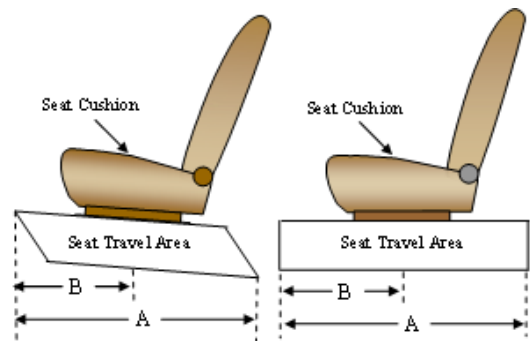


SEAT BACK ANGLE

Seating Position	Degrees
Driver Seat Back Angle	7.0
Passenger Seat Back Angle	7.5

SEAT FORE / AFT POSITIONING

The total seat travel is measured from the forward most possible position to the rear most possible position. The driver’s seat is set to the middle of the fore-aft travel. The passenger’s seat is set to the forward most position where the ATD will not contact any interior panels.



SEAT FORE/AFT POSITIONS

Seating Position	Total Fore-Aft Travel	Placed in Position
Driver Seat	216 mm	120 mm
Passenger Seat	238 mm	24 mm

SEAT BELT UPPER ANCHORAGE

The seat belt upper anchorage is positioned to the manufacturer’s design position for a 50th percentile adult male ATD for the driver, and a 5th percentile adult female ATD for the passenger. Position “H” is the uppermost position, followed by position “M”. Position “L” is the lowermost position.

SEAT BELT UPPER ANCHORAGES

Seating Position	Total No. of Positions	Placed in Position
Driver Seat	4	H
Passenger Seat	4	H

DATA SHEET NO. 2 ... (CONTINUED)

SEAT ADJUSTMENT, FUEL SYSTEM, AND STEERING WHEEL DATA

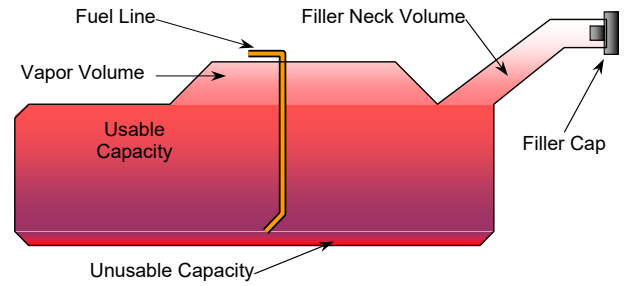
Test Vehicle: 2017 Nissan Frontier Crew Cab 4WD 4-Door Truck NHTSA No.: M20175200
 Test Program: 56.3 km/h Frontal Impact NCAP Test Test Date: 02/08/17

FUEL TANK CAPACITY

Description	Liters
Usable Capacity of "Standard Tank"	79.86
Usable Capacity of "Optional Tank"	N/A
92 - 94% of Usable Capacity	73.47 to 75.07
Actual Amount of Stoddard Solvent Used	74.26
1/3 of Usable Capacity	26.62

FUEL PUMP

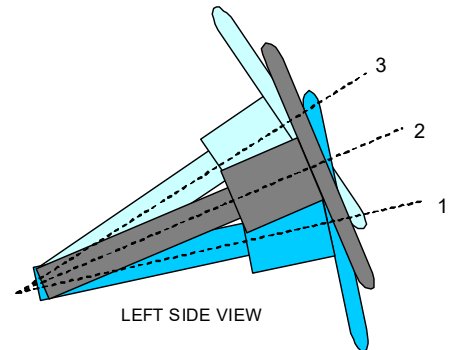
The vehicle is equipped with an electric fuel pump. The fuel pump operates when the ignition is turned on and while the engine is running.



VEHICLE FUEL TANK ASSEMBLY

STEERING COLUMN ADJUSTMENT

Steering wheel and column adjustments are made so that the steering wheel hub is at the geometric center of the locus it describes when moved through its full range of motion. A digital inclinometer is used to measure a plate which is placed across the rim of the steering wheel for angular measurements.



STEERING COLUMN ASSEMBLY

STEERING COLUMN POSITIONING

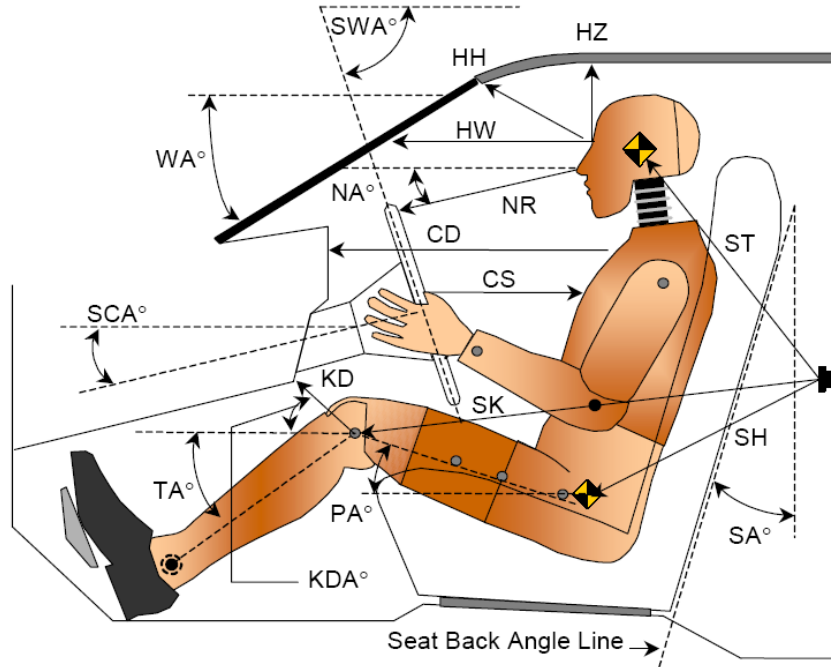
	Degrees	Fore-Aft Position (mm)
Lowermost Position, No. 1	15.7	Fixed
Geometric Center Position, No. 2	23.2	Fixed
Uppermost Position, No. 3	30.6	Fixed
Telescoping Steering Wheel Travel		Fixed
Test Position	24.6	Fixed

DATA SHEET NO. 3

DUMMY LONGITUDINAL CLEARANCE DIMENSIONS

Test Vehicle: 2017 Nissan Frontier Crew Cab 4WD 4-Door Truck NHTSA No.: M20175200

Test Program: 56.3 km/h Frontal Impact NCAP Test Test Date: 02/08/17



LEFT SIDE VIEW

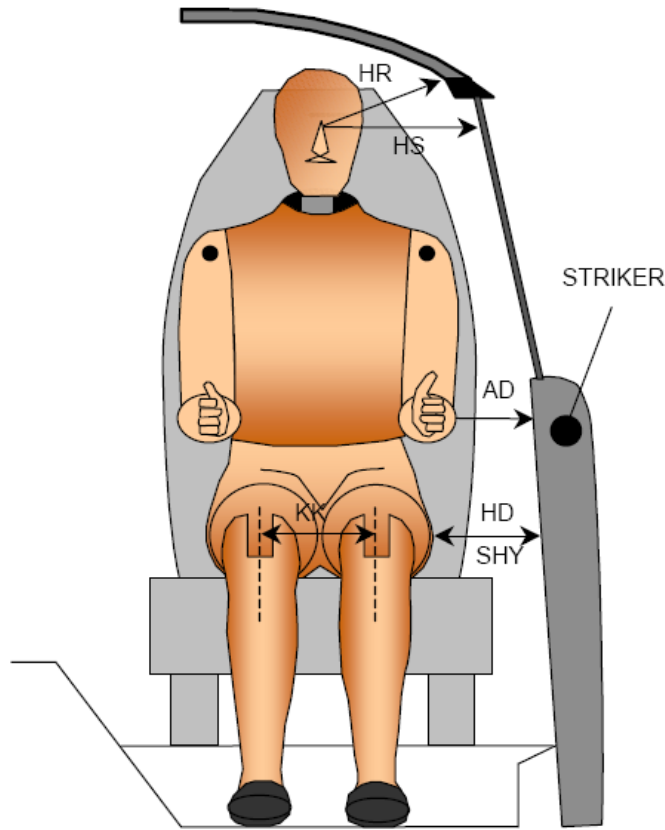
Code	Measurement Description	Driver		Passenger	
		Length (mm)	Angle (°)	Length (mm)	Angle (°)
WA°	Windshield Angle		30.2		
SWA°	Steering Wheel Angle		65.4		
SCA°	Steering Column Angle		24.6		
SA°	Seat Back Angle (On Headrest Post)		7.0		7.5
HZ	Head to Roof	185	90.0	228	90.0
HH	Head to Header	363	28.5	328	41.1
HW	Head to Windshield	583	0.0	558	0.0
NR	Nose to Rim	366	11.2	450	24.2
CD	Chest to Dash	538	9.3	411	3.9
CS	Chest to Steering Hub	270	0.0		
RA	Rim to Abdomen	178	0.0		
KDL	Left Knee to Dash	169	15.4	77	25.7
KDR	Right Knee to Dash	135	24.0	74	26.2
PA°	Pelvic Angle		24.8		21.5
TA°	Tibia Angle		48.3		53.1
SK	Striker to Knee	603	3.7	701	0.8
ST	Striker to Head	604	75.8	556	64.0
SH	Striker to H-Point	242	19.6	371	9.5

DATA SHEET NO. 4

DUMMY LATERAL CLEARANCE DIMENSIONS

Test Vehicle: 2017 Nissan Frontier Crew Cab 4WD 4-Door Truck NHTSA No.: M20175200

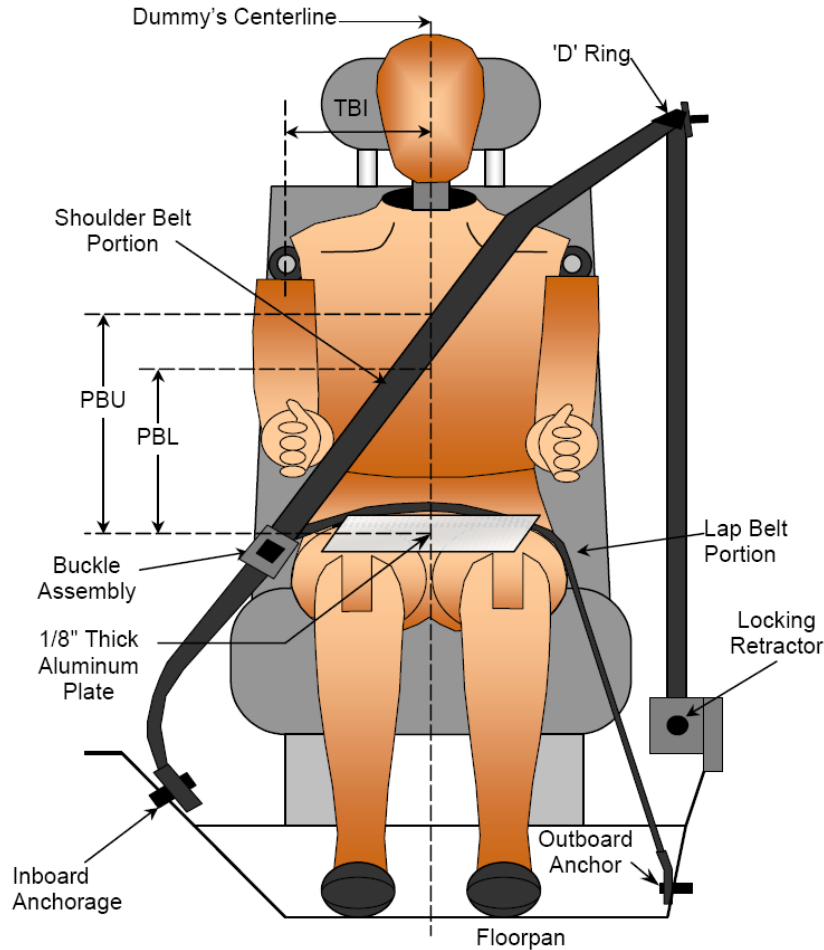
Test Program: 56.3 km/h Frontal Impact NCAP Test Test Date: 02/08/17



Code	Description	Driver (mm)	Passenger (mm)
AD	Arm to Door	94	77
HD	H-Point to Door	119	164
HR	Head to Side Header	231	251
HS	Head to Side Window	342	332
KK	Knee to Knee	325	227
SHY	Striker to H-Point (Y-Direction)	219	264
AA	Ankle to Ankle	325	155

DATA SHEET NO. 5
SEAT BELT POSITIONING DATA

Test Vehicle: 2017 Nissan Frontier Crew Cab 4WD 4-Door Truck NHTSA No.: M20175200
 Test Program: 56.3 km/h Frontal Impact NCAP Test Test Date: 02/08/17



FRONT VIEW OF DUMMY

SEAT BELT POSITIONING MEASUREMENTS

Code	Measurement Description	Units	Driver	Passenger
PBU	Top Surface of Aluminum Plate to Belt Upper Edge	mm	301	360
PBL	Top Surface of Aluminum Plate to Belt Lower Edge	mm	221	272

BELT LENGTH DATA

Measurement Description	Units	Driver	Passenger
Shoulder Belt Length as Measured on ATD	mm	902	892
Lap Belt Length as Measured on ATD	mm	798	755
Remainder of Belt on Reel	mm	833	945
Total Belt Length for Continuous Webbing Systems	mm	2533	2592

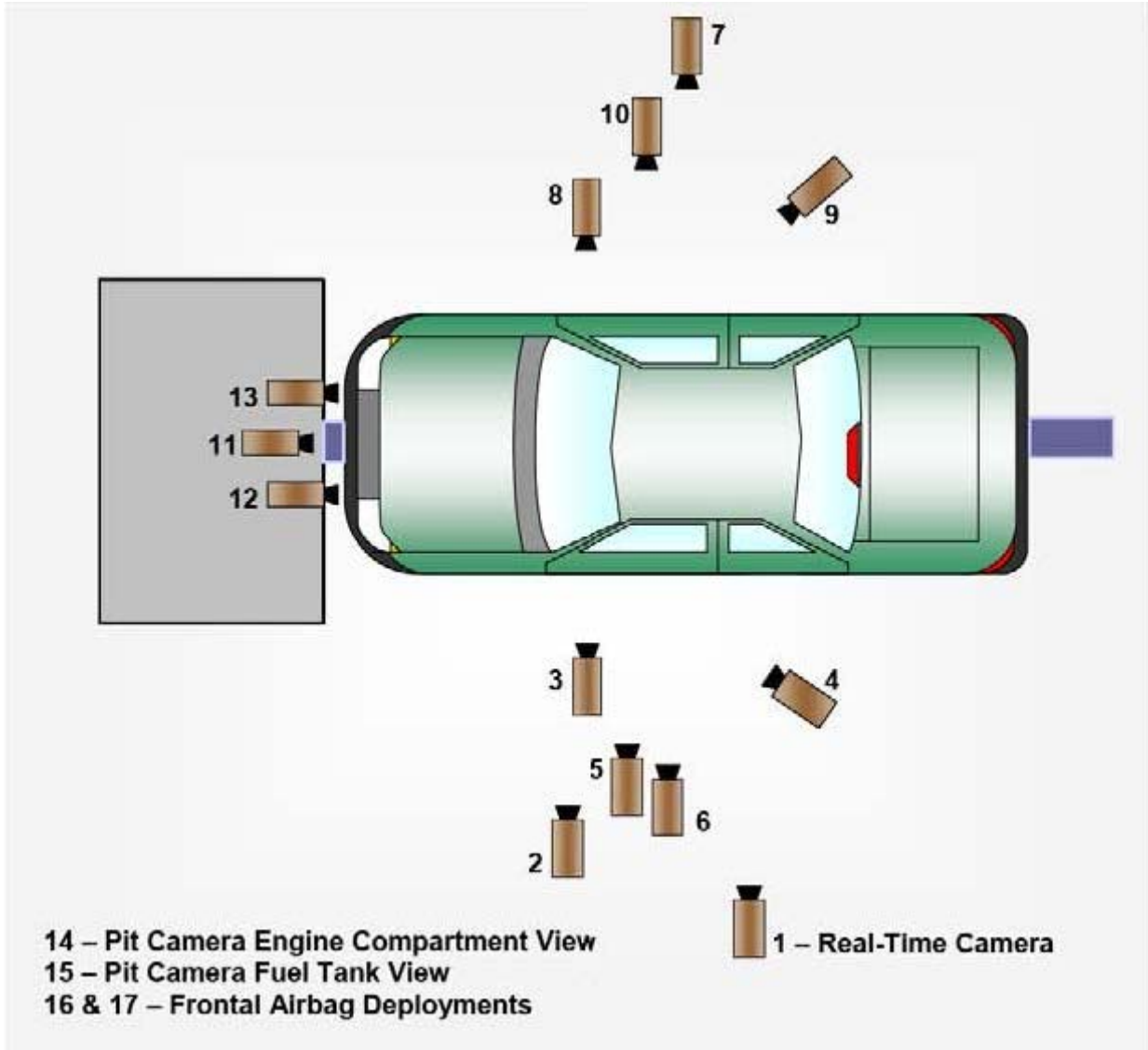
DATA SHEET NO. 6

HIGH-SPEED CAMERA LOCATIONS AND DATA

Test Vehicle: 2017 Nissan Frontier Crew Cab 4WD 4-Door Truck NHTSA No.: M20175200

Test Program: 56.3 km/h Frontal Impact NCAP Test Test Date: 02/08/17

CAMERA POSITIONS FOR FRONTAL IMPACTS



DATA SHEET NO. 6 ... (CONTINUED)

HIGH-SPEED CAMERA LOCATIONS AND DATA

Test Vehicle: 2017 Nissan Frontier Crew Cab 4WD 4-Door Truck NHTSA No.: M20175200

Test Program: 56.3 km/h Frontal Impact NCAP Test Test Date: 02/08/17

CAMERA LOCATIONS

No.	Description	Location (mm)			Lens (mm)	Speed (fps)
		X	Y	Z		
1	Real-Time Left Overall	-11412	-8150	-1484		30
2	Driver Close-Up	-2590	-7950	-1371	50	1000
3	Left Front Half	-1701	-6197	-1701	35	1000
4	Left Angle	-6696	-10308	-3211	105	1000
5	Steering Column - Top	-1966	-10412	-3688	35	1000
6	Steering Column - Bottom	-1972	-10412	-3379	35	1000
7	Right Overall	-2336	7569	-1012	24	1000
8	Passenger Close-Up	-1733	7581	-1408	50	1000
9	Right Front Half	-1600	8214	-1811	35	1000
10	Right Angle	-6217	9516	-4830	85	1000
11	Windshield	-354	0	-5749	24	1000
12	Driver Windshield	297	-366	-2460	20	1000
13	Passenger Windshield	297	366	-2460	20	1000
14	Pit Front	-756	0	1495	20	1000
15	Pit Rear	-3398	0	1495	14	1000
16	Onboard Driver Airbag (Optional)	-3000	340	-1660	8	1000
17	Onboard Passenger Airbag (Optional)	-3000	-340	-1660	8	1000
18	Real-Time Left View of Impact					
19	Real-Time Right View of Impact					

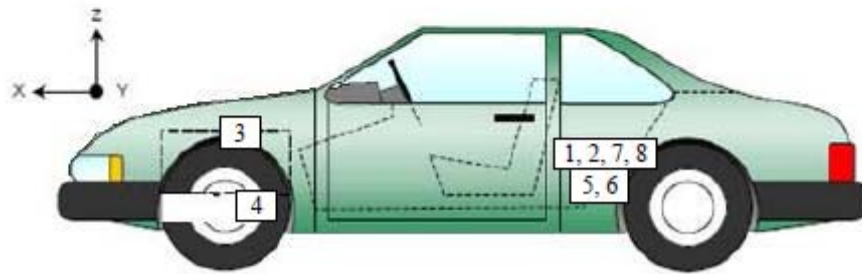
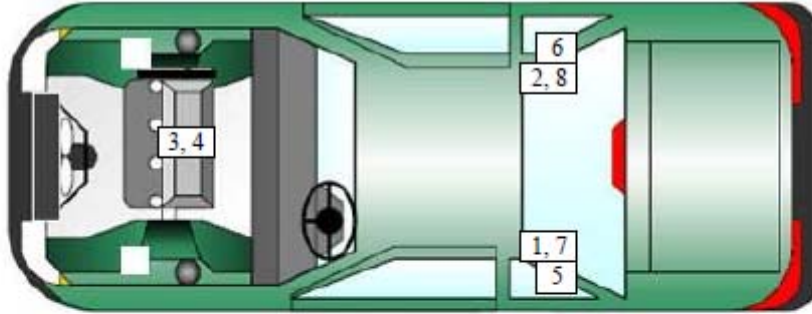
Coordinates: +X = forward impact plane
 +Y = right of monorail center
 +Z = into ground

DATA SHEET NO. 7

VEHICLE ACCELEROMETER LOCATIONS

Test Vehicle: 2017 Nissan Frontier Crew Cab 4WD 4-Door Truck NHTSA No.: M20175200

Test Program: 56.3 km/h Frontal Impact NCAP Test Test Date: 02/08/17



VEHICLE ACCELEROMETER PRE-TEST LOCATIONS

No.	Description	Location		
		X	Y	Z
1	Left Rear Accelerometer X-Direction	2519	-675	-539
2	Right Rear Accelerometer X-Direction	2519	675	-539
3	Engine Top X	4865	115	-977
4	Engine Bottom X	4751	35	-238
5	Left Rear Accelerometer Z-Direction	N/A	N/A	N/A
6	Right Rear Accelerometer Z-Direction	N/A	N/A	N/A
7	Left Rear Accelerometer X-Direction Redundant	2519	-675	-539
8	Right Rear Accelerometer X-Direction Redundant	2519	675	-539

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

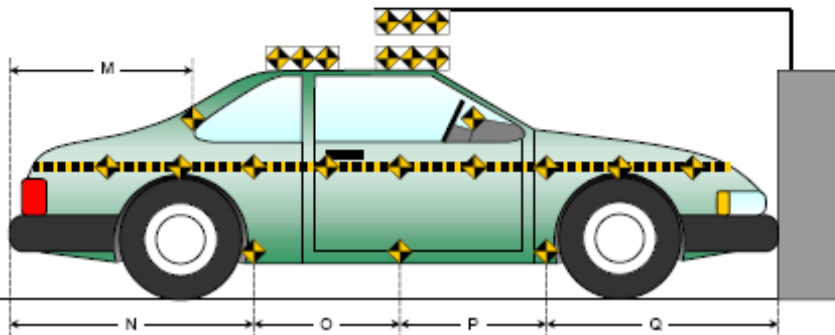
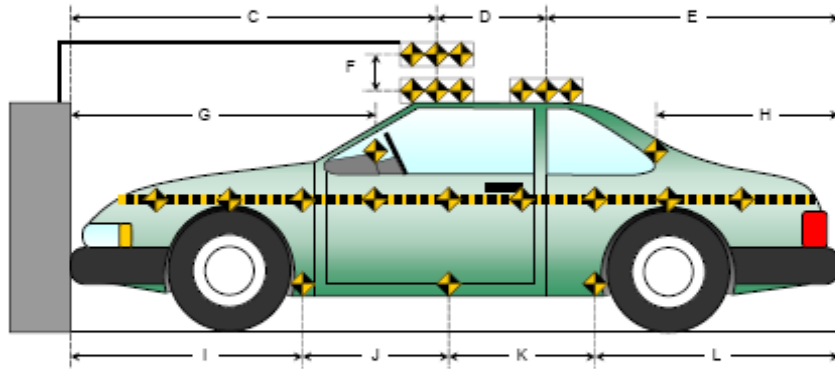
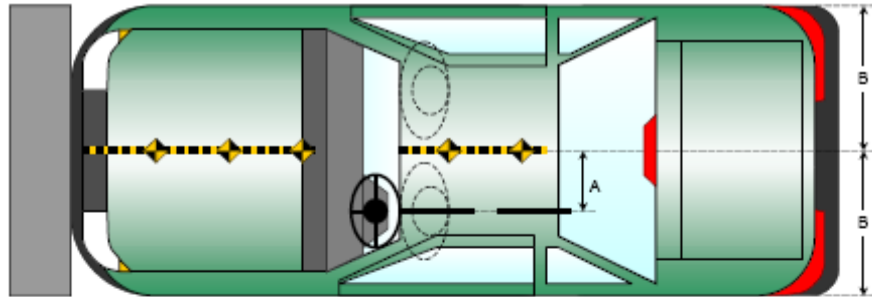
DATA SHEET NO. 8

PHOTOGRAPHIC REFERENCE TARGET LOCATIONS

Test Vehicle: 2017 Nissan Frontier Crew Cab 4WD 4-Door Truck NHTSA No.: M20175200

Test Program: 56.3 km/h Frontal Impact NCAP Test Test Date: 02/08/17

Item	Value
A	380
B	926
C	2137
D	610
E	2865
F	305
G	1690
H	2155
I	1340
J	991
K	991
L	2262
M	2150
N	2260
O	988
P	988
Q	1348



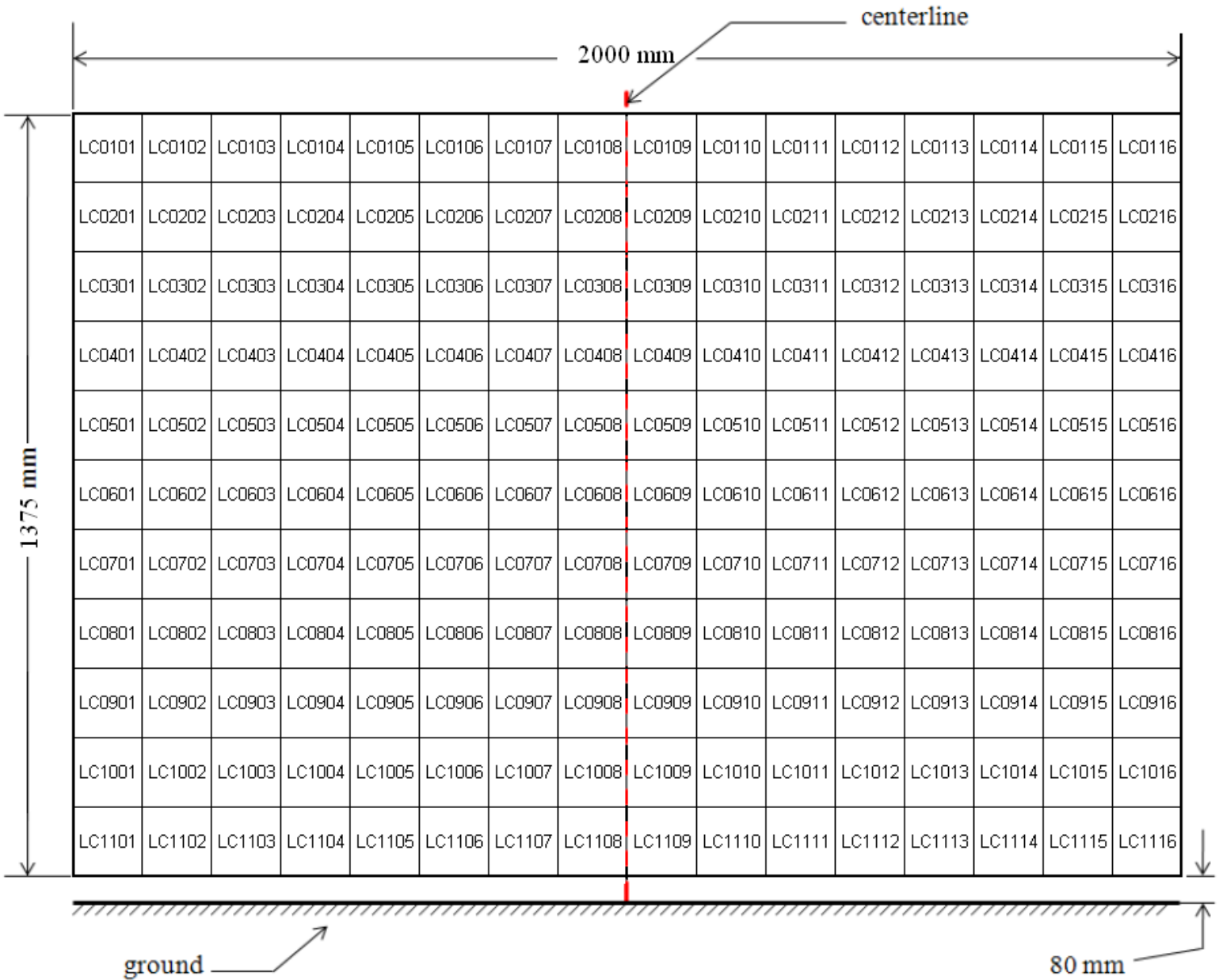
All measurements in millimeters.

DATA SHEET NO. 9

LOAD CELL LOCATIONS ON FIXED BARRIER

Test Vehicle: 2017 Nissan Frontier Crew Cab 4WD 4-Door Truck NHTSA No.: M20175200

Test Program: 56.3 km/h Frontal Impact NCAP Test Test Date: 02/08/17



DATA SHEET NO. 10

TEST VEHICLE CAMERA AND INSTRUMENTATION SUMMARY

Test Vehicle: 2017 Nissan Frontier Crew Cab 4WD 4-Door Truck NHTSA No.: M20175200
Test Program: 56.3 km/h Frontal Impact NCAP Test Test Date: 02/08/17

INSTRUMENTATION

Driver Dummy Accelerometers	47
Passenger Dummy Accelerometers	47
Vehicle Structure Accelerometers	8
Seat Belt Load Cells	
Load Cell Barrier	528
Total	630

CAMERA COVERAGE

High-Speed Vehicle On Board	2
High-Speed Off Board	14
Real Time	3
Total	19

DATA SHEET NO. 11
POST-TEST OBSERVATIONS

Test Vehicle: 2017 Nissan Frontier Crew Cab 4WD 4-Door Truck NHTSA No.: M20175200
 Test Program: 56.3 km/h Frontal Impact NCAP Test Test Date: 02/08/17

TEST DUMMY INFORMATION AND CONTACT

Description	Driver	Passenger
Dummy Type/Serial No.	P572E 50th Percentile Male ATD / 360	P572O 5th Percentile Female ATD / 141
Head Contact	Frontal Airbag, Headrest	Frontal Airbag, Headrest, Seat Back
Upper Torso Contact	Frontal Airbag	Frontal Airbag
Lower Torso Contact	None	None
Left Knee Contact	Knee Bolster	Frontal Airbag, Knee Bolster
Right Knee Contact	Knee Bolster, Steering Column	Frontal Airbag, Knee Bolster

DOOR OPENING AND SEAT TRACK INFORMATION

Description	Driver	Passenger
Locked / Unlocked Doors	Locked	Locked
Front Door Opening	Remained closed and latched, operational	Remained closed and latched, operational
Rear Door Opening	Remained closed and latched, operational	Remained closed and latched, operational
Seat Track Shift (mm)	0	1
Seat Back Failure	None	None
Glazing Damage	Yes	Yes

POST TEST STRUCTURAL OBSERVATIONS

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

VEHICLE REBOUND FROM BARRIER

Measured Parameter	Units	Value
Left Side	mm	1038
Center	mm	1219
Right Side	mm	1070
Average	mm	1109

SUPPLEMENTAL RESTRAINT SYSTEM INFORMATION

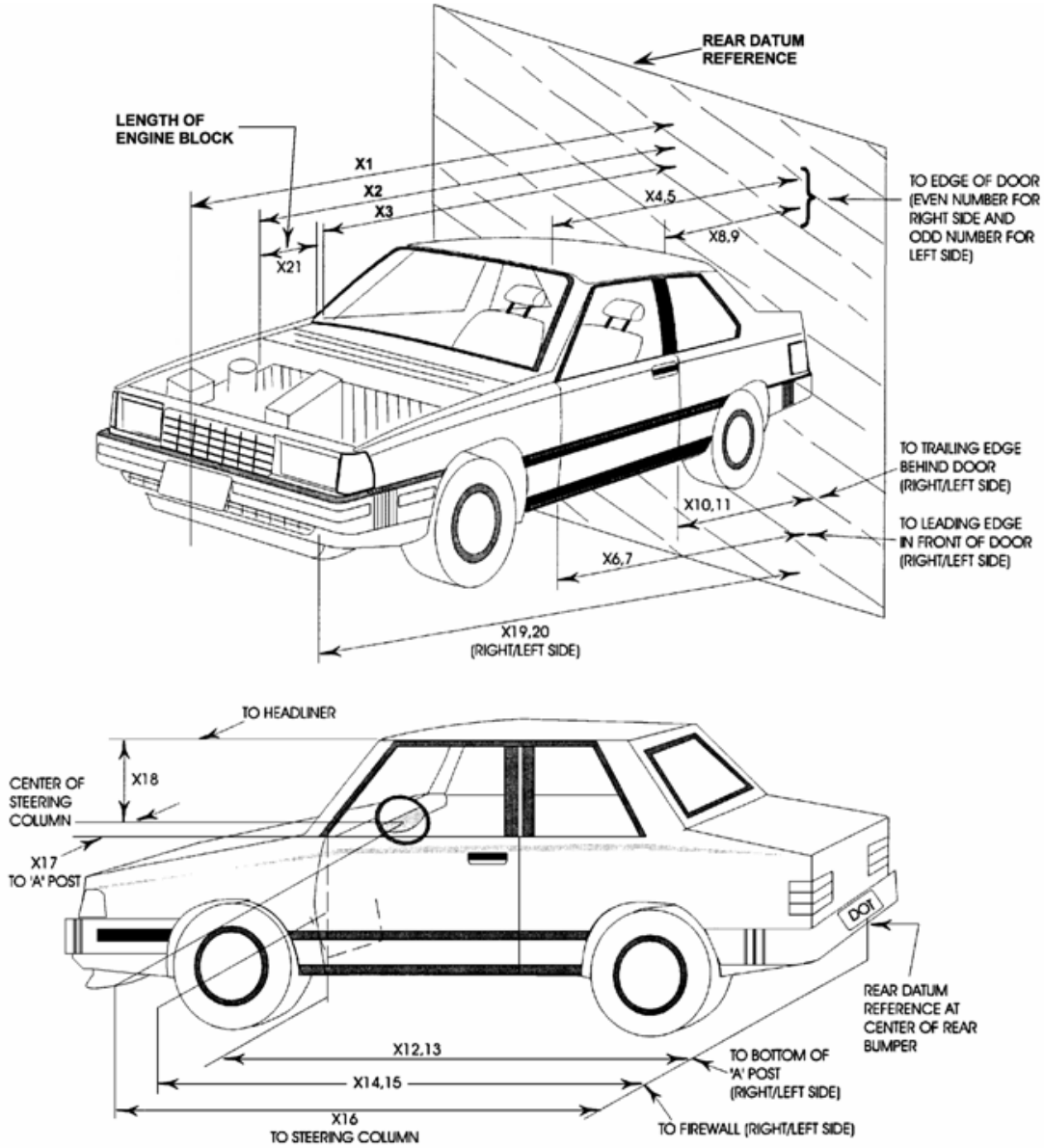
Restraint Type	Driver		Passenger	
	Installed	Operated	Installed	Operated
Front Airbag	Yes	Yes	Yes	Yes
Side Airbag 1 (Curtain)	Yes	No	Yes	No
Side Airbag 2 (Torso/Pelvis)	Yes	No	Yes	No
Knee Airbag	No	N/A	No	N/A
Seat Belt Pretensioner	Yes	Yes	Yes	Yes
Seat Belt Load Limiter	Yes	Yes	Yes	Yes

DATA SHEET NO. 12

VEHICLE PROFILE MEASUREMENTS

Test Vehicle: 2017 Nissan Frontier Crew Cab 4WD 4-Door Truck NHTSA No.: M20175200

Test Program: 56.3 km/h Frontal Impact NCAP Test Test Date: 02/08/17



DATA SHEET NO. 12 ... (CONTINUED)**VEHICLE PROFILE MEASUREMENTS**Test Vehicle: 2017 Nissan Frontier Crew Cab 4WD 4-Door Truck NHTSA No.: M20175200Test Program: 56.3 km/h Frontal Impact NCAP Test Test Date: 02/08/17

No.	Description	Pre-Test	Post-Test	Difference
1	Total Length of Vehicle at Centerline	5570	5180	-390
2	Rear Surface of Vehicle to Front of Engine	5070	4865	-205
3	RSOV to Firewall	4452	4555	103
4	RSOV to Upper Leading Edge of Right Door	4168	4233	65
5	RSOV to Upper Leading Edge of Left Door	4174	4230	56
6	RSOV to Lower Leading Edge of Right Door	4150	4200	50
7	RSOV to Lower Leading Edge of Left Door	4155	4202	47
8	RSOV to Upper Trailing Edge of Right Door	3049	3125	76
9	RSOV to Upper Trailing Edge of Left Door	3050	3127	77
10	RSOV to Lower Trailing Edge of Right Door	3049	3095	46
11	RSOV to Lower Trailing Edge of Left Door	3050	3094	44
12	RSOV to Bottom of A-Pillar, Right Side	4118	4132	14
13	RSOV to Bottom of A-Pillar, Left Side	4126	4206	80
14	RSOV to Firewall, Right Side	4485	4580	95
15	RSOV to Firewall, Left Side	4500	4585	85
16	RSOV to Steering Column	3655	3740	85
17	Center of Steering Column to A-Pillar	390	405	15
18	Center of Steering Column to Headliner	540	390	-150
19	RSOV to Right Side of Front Bumper	5145	4915	-230
20	RSOV to Left Side of Front Bumper	5157	4935	-222
21	Length of Engine Block	530	530	0
RD	RSOV to Right Side of Dash Panel	3875	3930	55
CD	RSOV to Center of Dash Panel	3820	3850	30
LD	RSOV to Left Side of Dash Panel	3875	3940	65

All measurements in millimeters.

DATA SHEET NO. 13

ACCIDENT INVESTIGATION DIVISION DATA

Test Vehicle: 2017 Nissan Frontier Crew Cab 4WD 4-Door Truck NHTSA No.: M20175200
 Test Program: 56.3 km/h Frontal Impact NCAP Test Test Date: 02/08/17

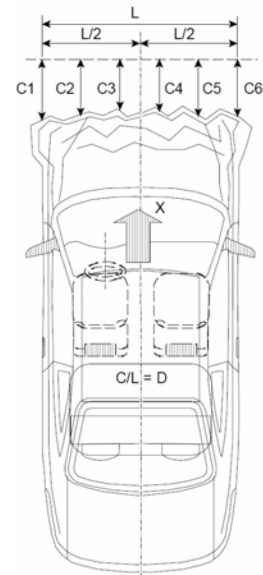
VEHICLE INFORMATION

VIN: 1N6AD0FV8HN703305 Wheelbase (mm): 3539
 Vehicle Size Category: Truck Test Weight (kg): 2246.0

ACCELEROMETER DATA

Accelerometer Locations: Left Rear Crossmember
 Cal. Procedure/Interval: Vibration Test / 6 months
 Integration Algorithm: NHTSA Standard
 Impact Velocity (km/h): 56.47
 Velocity Change (km/h): 64.3
 Time of Separation (msec): 64.8

Linearity: Good



CRUSH PROFILE

Collision Deformation Classification: 12FDEW2
 Midpoint of Damage: Vehicle Centerline
 Damage Region Length (mm): 1620
 Impact Mode: Full Frontal

No.	Measurement Description	Units	Pre-Test	Post-Test	Difference
C1	Crush Zone 1 at Left Side	mm	155	300	145
C2	Crush Zone 2 at Left Side	mm	50	433	383
C3	Crush Zone 3 at Left Side	mm	8	467	459
C4	Crush Zone 4 at Right Side	mm	8	435	427
C5	Crush Zone 5 at Right Side	mm	50	440	390
C6	Crush Zone 6 at Right Side	mm	154	320	166
L	C1 to C6	mm	1620		

DATA SHEET NO. 14

VEHICLE INTRUSION MEASUREMENTS

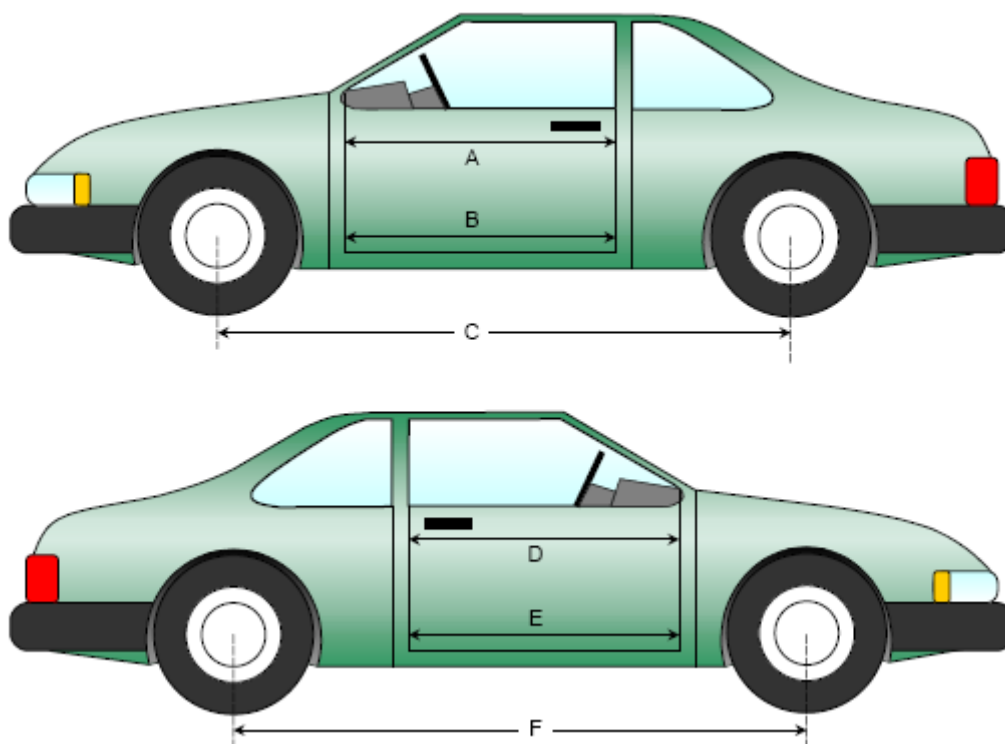
Test Vehicle: 2017 Nissan Frontier Crew Cab 4WD 4-Door Truck NHTSA No.: M20175200
 Test Program: 56.3 km/h Frontal Impact NCAP Test Test Date: 02/08/17

DOOR OPENING WIDTH

Item	Description	Units	Pre-Test	Post-Test	Difference
A	Left Side Upper	mm	1014	1010	4
B	Left Side Lower	mm	912	896	16
D	Right Side Upper	mm	1013	1002	11
E	Right Side Lower	mm	906	901	5

WHEELBASE MEASUREMENTS

Item	Description	Units	Pre-Test	Post-Test	Difference
C	Left Side Wheelbase	mm	3539	3458	81
F	Right Side Wheelbase	mm	3539	3465	74



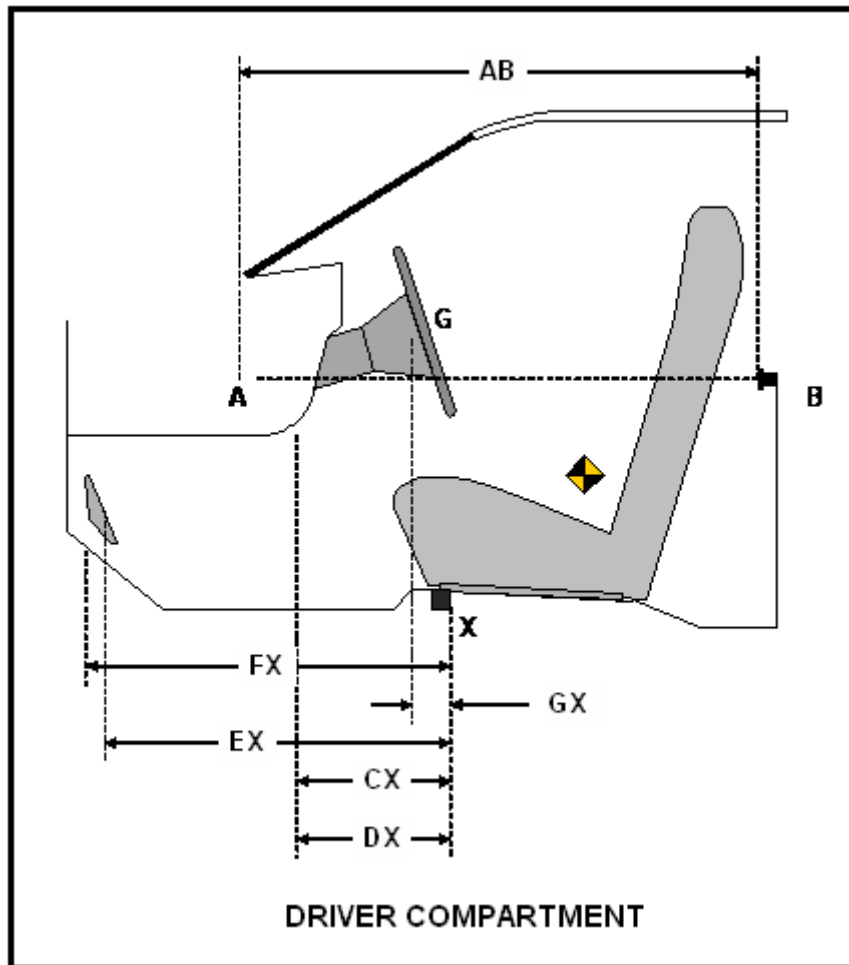
DATA SHEET NO. 14 ... (CONTINUED)
VEHICLE INTRUSION MEASUREMENTS

Test Vehicle: 2017 Nissan Frontier Crew Cab 4WD 4-Door Truck NHTSA No.: M20175200
 Test Program: 56.3 km/h Frontal Impact NCAP Test Test Date: 02/08/17

DRIVER COMPARTMENT INTRUSION

Item	Description	Units	Pre-Test	Post-Test	Difference
AB	Door Opening (Inside Window Jam)	mm	770	761	9
CX	Left Knee Bolster to X	mm	261	300	-39
DX	Right Knee Bolster to X	mm	280	300	-20
EX	Brake Pedal to X	mm	522	610	-88
FX	Foot Rest to X	mm	510	530	-20
GX	Center of Steering Wheel Hub to X	mm	70	65	5

X = Front of Seat Track (Stationary)



DATA SHEET NO. 15

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

Test Vehicle: 2017 Nissan Frontier Crew Cab 4WD 4-Door Truck NHTSA No.: M20175200

Test Program: 56.3 km/h Frontal Impact NCAP Test Test Date: 02/08/17

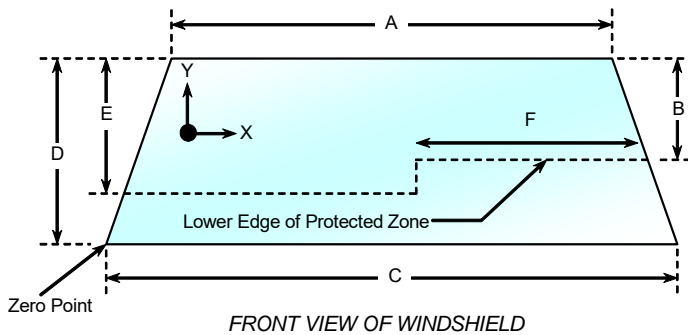
Windshield Mounting Details: Windshield glass is secured to the vehicle frame with plastic molding and rubber cement.

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

Temperature of windshield molding during test: 21.0° C

WINDSHIELD PERIPHERY MEASUREMENTS

Measurement	Pre-Test (mm)	Post-Test (mm)	% Retention
Left Side	2191	2191	100.0%
Right Side	2191	2191	100.0%
Total	4382	4382	100.0%



Item	Units	Value
A	mm	1235
B	mm	404
C	mm	1525
D	mm	811
E	mm	485
F	mm	500

AREAS OF PROTECTED ZONE FAILURES

A. Provide Coordinates of the area that the protected zone was penetrated more than 0.25 inches by a vehicle component other than one that is normally in contact with the windshield.

X	Y

B. Provide coordinates of the area beneath the protected zone that the inner surface of the windshield was penetrated by a vehicle component.

X	Y

DATA SHEET NO. 15 ... (CONTINUED)

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

Test Vehicle: 2017 Nissan Frontier Crew Cab 4WD 4-Door Truck NHTSA No.: M20175200

Test Program: 56.3 km/h Frontal Impact NCAP Test Test Date: 02/08/17

FMVSS 301 FUEL SYSTEM INTEGRITY POST IMPACT DATA

Temperature at Time of Impact: 20.0° C Test Time: 12:29 PM

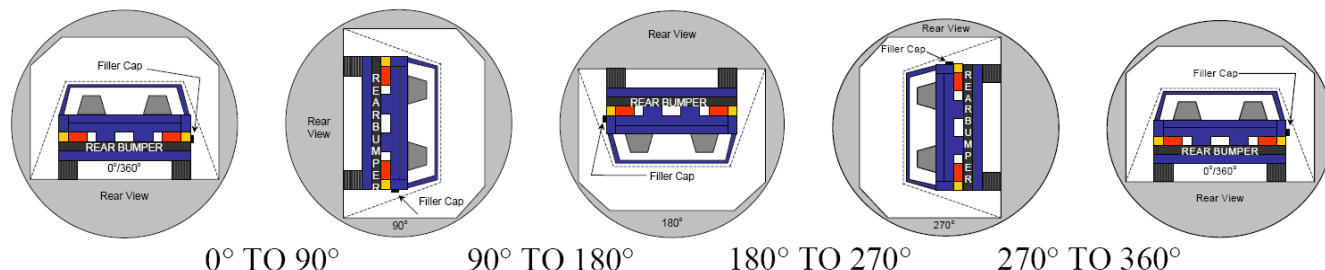
Stoddard Solvent Spillage Measurements

- A. From impact until vehicle motion ceases: 0 oz.
(Maximum allowable = 1 oz.)
- B. For the 5 minute period after motion ceases: 0 oz.
(Maximum allowable = 5 oz.)
- C. For the following 25 minutes: 0 oz.
(Maximum allowable = 1 oz./minute)
- D. Spillage: There was no Stoddard solvent spillage.

DATA SHEET NO. 16

FMVSS 301 STATIC ROLLOVER RESULTS

Test Vehicle: 2017 Nissan Frontier Crew Cab 4WD 4-Door Truck NHTSA No.: M20175200
 Test Program: 56.3 km/h Frontal Impact NCAP Test Test Date: 02/08/17



1. The specified fixture rollover rate for each 90° of rotation is 60 to 180 seconds.
2. The position hold time at each position is 300 seconds (minimum).
3. Details of Stoddard solvent spillage: There was no stoddard solvent spillage.

SOLVENT COLLECTION TIME TABLE IN SECONDS

Test Phase	Rotation Time	Hold Time	Total Time
0° To 90°	77	300	377
90° To 180°	84	300	384
180° To 270°	79	300	379
270° To 360°	81	300	381

FMVSS 301 SPILLAGE TABLE

Test Phase	First 5 Minutes	Sixth Minute	Seventh Minute	Eighth Minute
0° To 90°	0			
90° To 180°	0			
180° To 270°	0			
270° To 360°	0			

SOLVENT SPILLAGE LOCATION TABLE

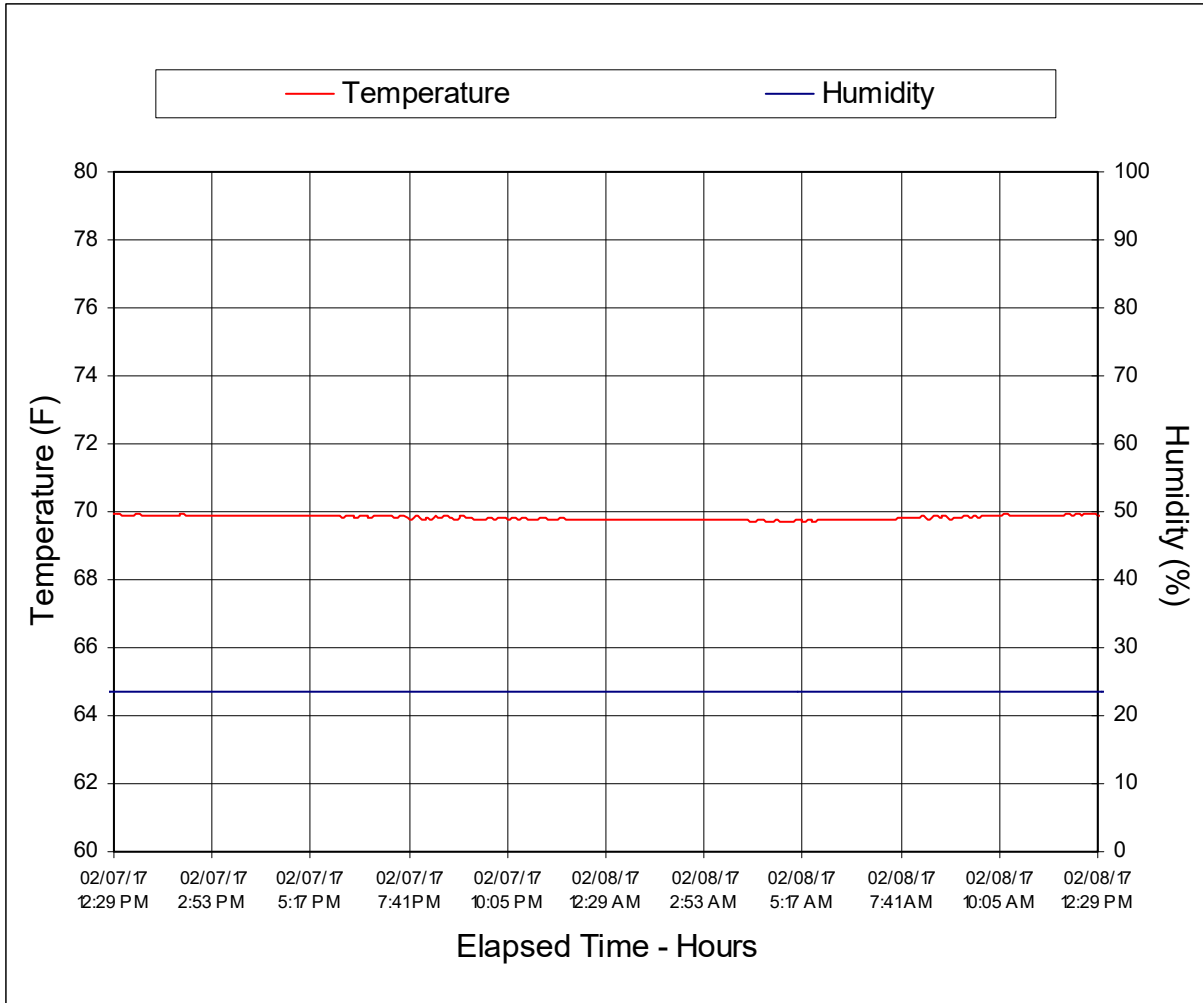
Test Phase	Spillage Location
0° To 90°	
90° To 180°	
180° To 270°	
270° To 360°	

DATA SHEET NO. 17

DUMMY / VEHICLE TEMPERATURE STABILIZATION CHART

Test Vehicle: 2017 Nissan Frontier Crew Cab 4WD 4-Door Truck NHTSA No.: M20175200

Test Program: 56.3 km/h Frontal Impact NCAP Test Test Date: 02/08/17



**APPENDIX A
PHOTOGRAPHS**

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FIGURE 1. Load Cell Location



FIGURE 2. Pre-Test Load Cell Wall



FIGURE 3. Post-Test Load Cell Wall



FIGURE 4. Manufacturer's Label



FIGURE 4a. Reduced Load Carrying Capacity Label

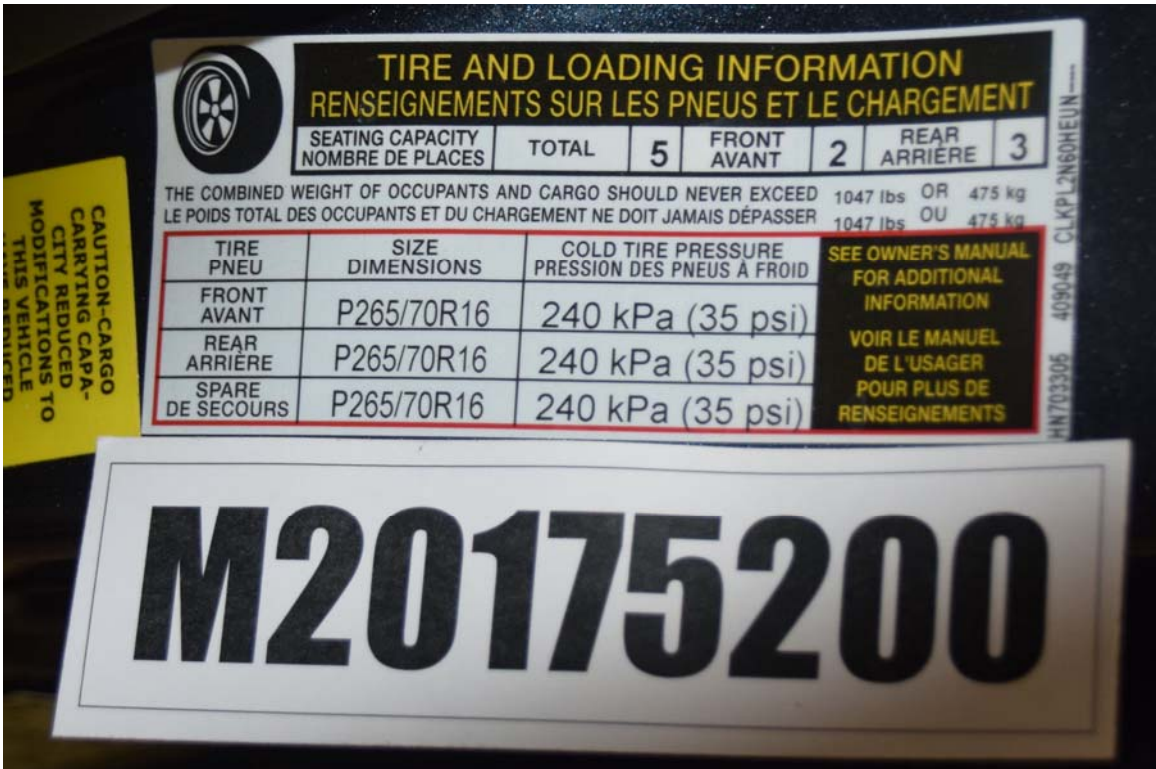


FIGURE 5. Tire Placard



FIGURE 6. 2017 Nissan Frontier Crew Cab 4WD Frontal as Delivered



FIGURE 7. Left Rear $\frac{3}{4}$ View, as Received



FIGURE 8. Pre-Test Front View of Test Vehicle



FIGURE 9. Post-Test Front View of Test Vehicle



FIGURE 10. Pre-Test Left View of Test Vehicle



FIGURE 11. Post-Test Left View of Test Vehicle



FIGURE 12. Pre-Test Right View of Test Vehicle



FIGURE 13. Post-Test Right View of Test Vehicle



FIGURE 14. Pre-Test Right Front ¾ View



FIGURE 15. Post-Test Right Front ¾ View



FIGURE 16. Pre-Test Left Rear $\frac{3}{4}$ View



FIGURE 17. Post-Test Left Rear $\frac{3}{4}$ View



FIGURE 18. Pre-Test Windshield View



FIGURE 19. Post-Test Windshield View



FIGURE 20. Pre-Test Engine Compartment View

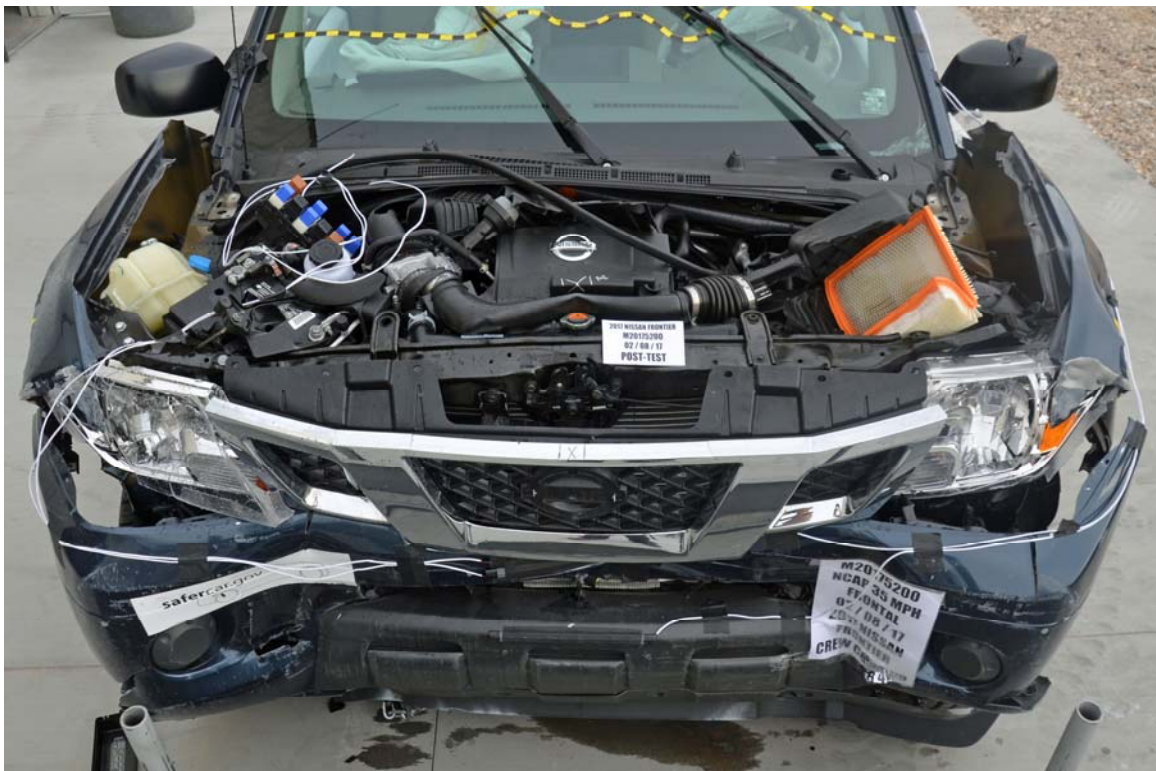


FIGURE 21. Post-Test Engine Compartment View

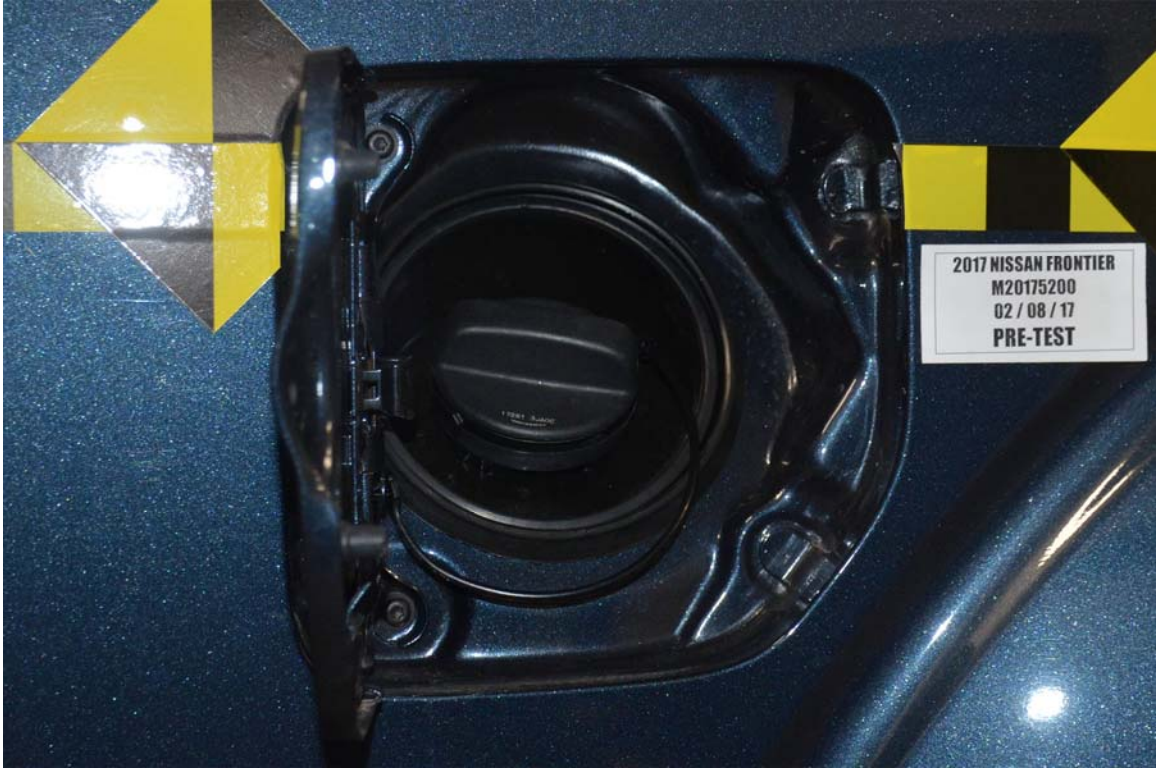


FIGURE 22. Pre-Test Fuel Filler Cap View



FIGURE 23. Post-Test Fuel Filler Cap View

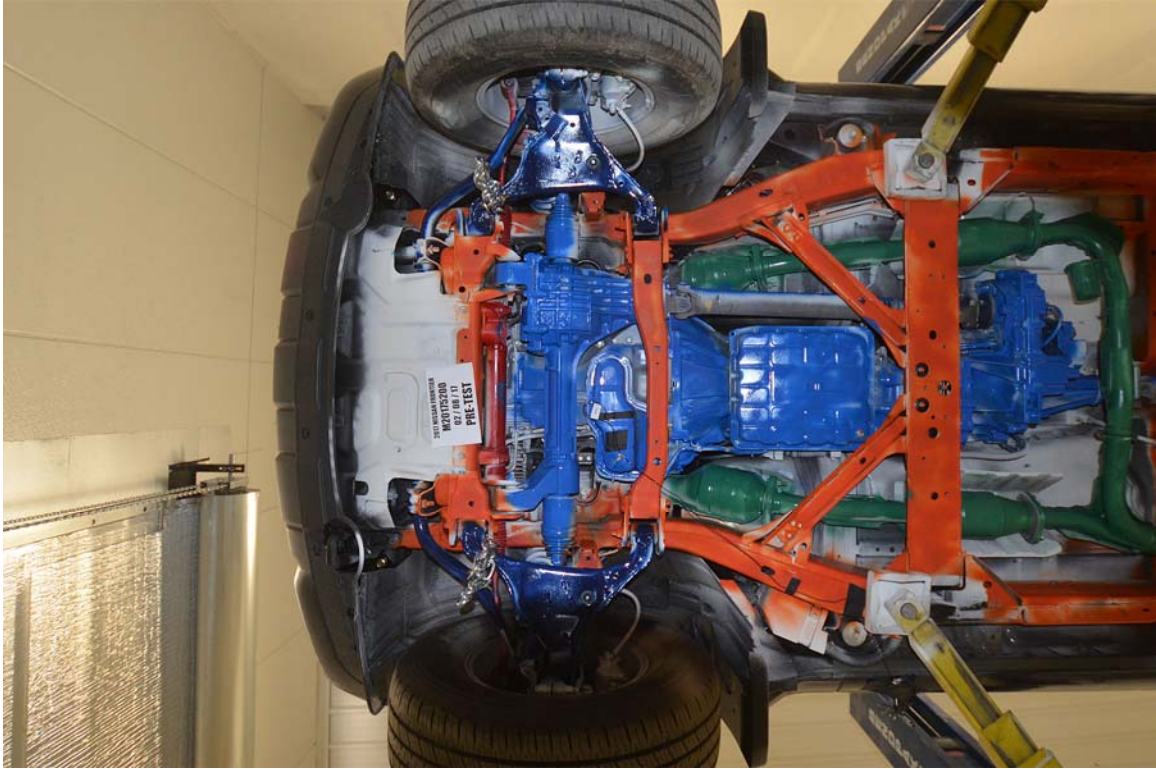


FIGURE 24. Pre-Test Front Underbody View



FIGURE 25. Post-Test Front Underbody View

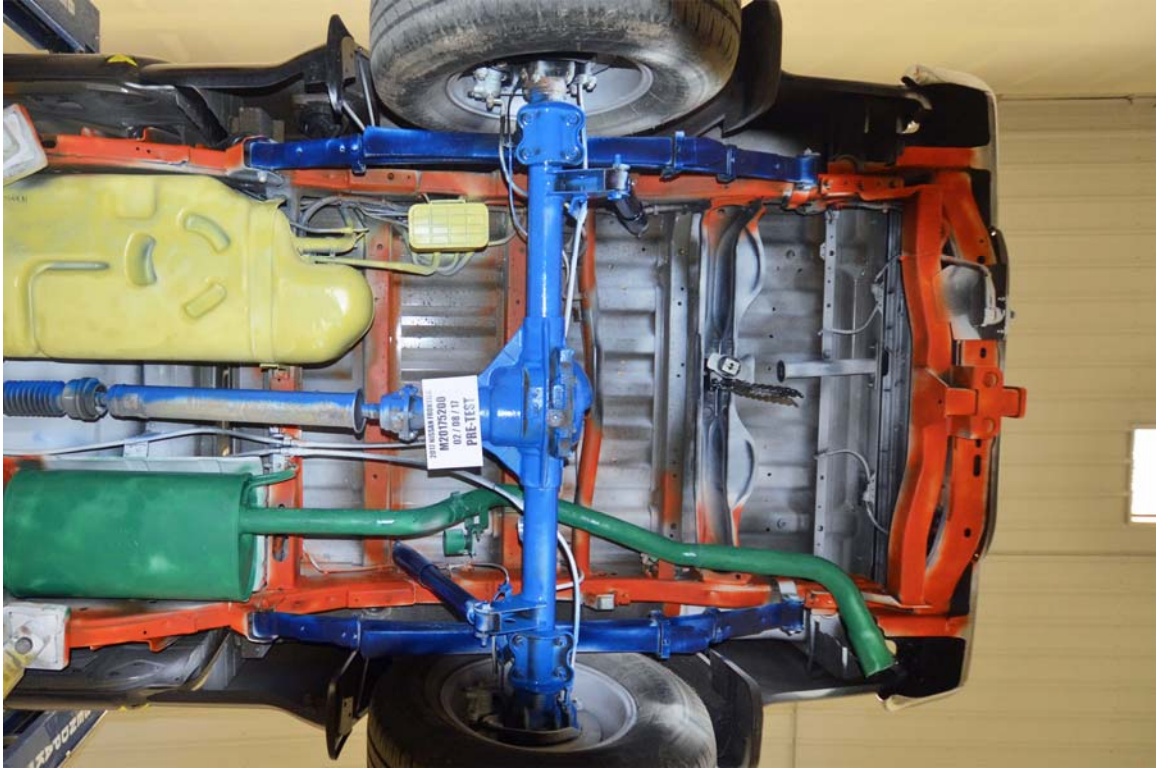


FIGURE 26. Pre-Test Rear Underbody View



FIGURE 27. Post-Test Rear Underbody View



FIGURE 28. Pre-Test Dummy Cable Routing

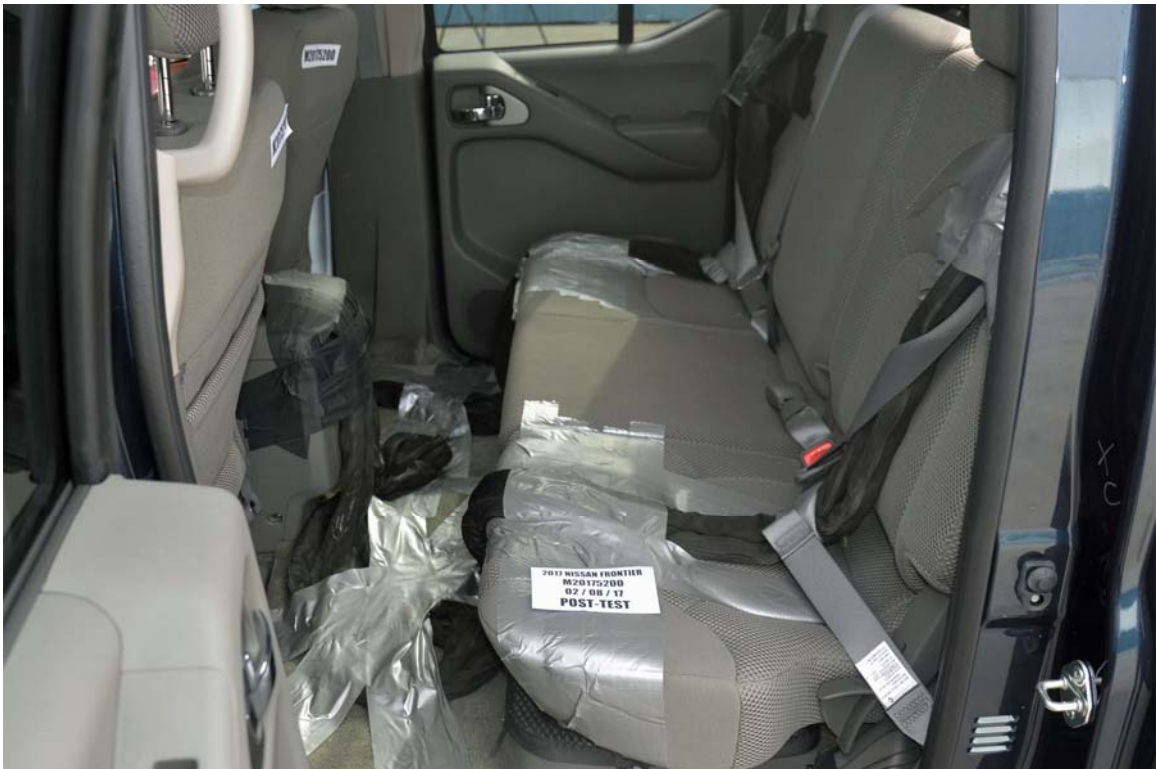


FIGURE 29. Post-Test Dummy Cable Routing



FIGURE 30. Pre-Test Driver Dummy Front View



FIGURE 31. Post-Test Driver Dummy Front View



FIGURE 32. Pre-Test Driver Dummy Window View



FIGURE 33. Post-Test Driver Dummy Window View



FIGURE 34. Pre-Test Driver Dummy and Vehicle Interior View



FIGURE 35. Post-Test Driver Dummy and Vehicle Interior View



FIGURE 36. Pre-Test Driver's Seat Fore-Aft Markings



FIGURE 37. Post-Test Driver's Seat Fore-Aft Markings



FIGURE 38. Pre-Test View of Belt Anchorage for Driver Dummy



FIGURE 39. Post-Test View of Belt Anchorage for Driver Dummy



FIGURE 40. Pre-Test Driver Dummy Feet



FIGURE 41. Post-Test Driver Dummy Feet



FIGURE 42. Pre-Test Driver's Side Knee Bolster



FIGURE 43. Post-Test Driver's Side Knee Bolster



FIGURE 44. Pre-Test Driver's Side Floorpan



FIGURE 45. Post-Test Driver's Side Floorpan



FIGURE 46. Post-Test Driver Dummy Face



FIGURE 47. Post-Test Driver Dummy Contact with Airbag



FIGURE 48. Post-Test Driver Dummy Contact with Headrest



FIGURE 48a. Post-Test Driver Dummy Contact with Knee Bolster



FIGURE 48b. Post-Test Driver Dummy Contact with Steering Column



FIGURE 49. Pre-Test View of the Steering Wheel



FIGURE 50. Post-Test View of the Steering Wheel



FIGURE 51. Pre-Test Passenger Dummy Front View



FIGURE 52. Post-Test Passenger Dummy Front View



FIGURE 53. Pre-Test Passenger Dummy Window View



FIGURE 54. Post-Test Passenger Dummy Window View



FIGURE 55. Pre-Test Passenger Dummy and Vehicle Interior View



FIGURE 56. Post-Test Passenger Dummy and Vehicle Interior View



FIGURE 57. Pre-Test Passenger's Seat Fore-Aft Markings



FIGURE 58. Post-Test Passenger's Seat Fore-Aft Markings



FIGURE 59. Pre-Test View of Belt Anchorage for Passenger Dummy



FIGURE 60. Post-Test View of Belt Anchorage for Passenger Dummy



FIGURE 61. Pre-Test Passenger Dummy Feet



FIGURE 62. Post-Test Passenger Dummy Feet



FIGURE 63. Pre-Test Passenger's Side Knee Bolster



FIGURE 64. Post-Test Passenger's Side Knee Bolster



FIGURE 65. Pre-Test Passenger's Side Floorpan



FIGURE 66. Post-Test Passenger's Side Floorpan

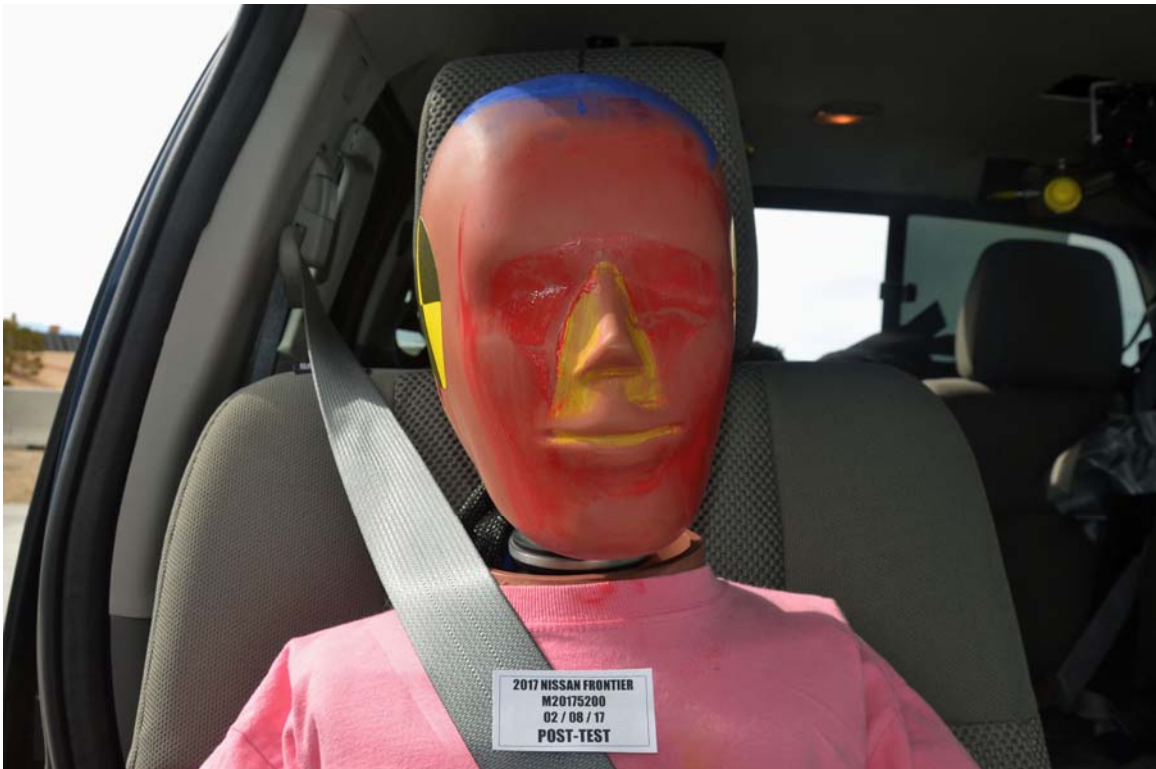


FIGURE 67. Post-Test Passenger Dummy Face



FIGURE 68. Post-Test Passenger Dummy Contact with Airbag



FIGURE 69. Post-Test Passenger Dummy Contact with Headrest



FIGURE 69a. Post-Test Passenger Dummy Contact with Seat Back



FIGURE 69b. Post-Test Passenger Dummy Contact with Knee Bolster



FIGURE 69c. Post-Test Passenger Dummy Contact with Airbag



FIGURE 70. Photograph of Ballast Installed in Vehicle

Photograph Not Applicable

No Stoddard Solvent Spillage

FIGURE 71. Post-Test Stoddard Solvent Spillage Location View



FIGURE 72. Post-Test Speed Trap Read-Out



FIGURE 73. Vehicle at 0° on Static Rollover Device



FIGURE 74. Vehicle at 90° on Static Rollover Device



FIGURE 75. Vehicle at 180° on Static Rollover Device

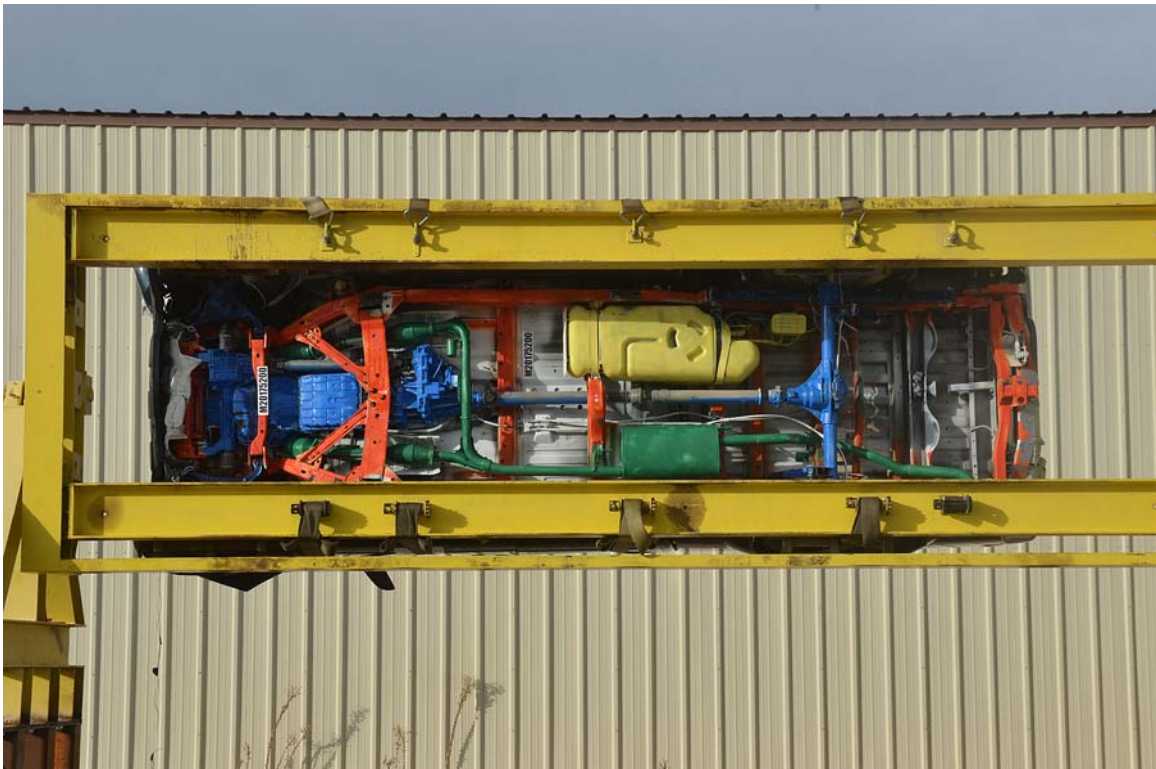



FIGURE 76. Vehicle at 270° on Static Rollover Device



FIGURE 77. Vehicle at 360° on Static Rollover Device




FIGURE 78. 2017 Nissan Frontier Crew Cab 4WD Frontal Impact Event



2017 NISSAN FRONTIER

SV CREW CAB LWB

4WD AUTOMATIC V6



Scan QR code for general model information & options

EPA DOT Fuel Economy and Environment

Gasoline Vehicle

Fuel Economy

17 MPG

combined city/hwy 15 city 21 highway

5.9 gallons per 100 miles

SMALL PICKUP TRUCKS range from 17 to 22 MPG. The best vehicle rates 119 MPG.

You spend \$3,750

more in fuel costs over 5 years compared to the average new vehicle.

Annual fuel cost \$2,150

Fuel Economy & Greenhouse Gas Rating (EPA only) **Smog Rating** (EPA only)

1 3 10 10

This vehicle emits 520 grams CO₂ per mile. The best emits 0 grams per mile (tailpipe only). Producing and distributing fuel also create emissions. Learn more at fuel-economy.gov

Actual results will vary for many reasons, including driving conditions and how you drive and maintain your vehicle. The average new vehicle gets 26 MPG and costs \$7,500 to fuel over 5 years. Cost estimates are based on 15,000 miles per year at \$2.42 per gallon. MPG is miles per gasoline gallon equivalent. Vehicle emissions are a significant cause of climate change and smog.

fuel-economy.gov

Calculate personalized estimates and compare vehicles

GOVERNMENT 5-STAR SAFETY RATINGS

Overall Vehicle Score Not Rated

Based on the combined ratings of frontal, side and rollover. Should ONLY be compared to other vehicles of similar size and weight.

Frontal Crash	Driver Passenger	Not Rated
Side Crash	Front seat Rear seat	Not Rated
Rollover		Not Rated

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

DELIVERY

VEHICLE COLORS:
EXT. ARCTIC BLUE MET
INT.: STEEL

FINAL ASSEMBLY POINT:
CANTON
TRANSPORT METHOD:
TRUCK

DEALER:
CARBONE NISSAN
4967 COMMERCIAL DR
YORKVILLE NY
13496

This Vehicle qualifies for Nissan's **Security+Plus Extended Protection Plan**

The only service agreement backed by Nissan Extended Services North America! Ask your dealer for details, or call 1-800-NISSAN-1 for more information

VIN: 1N6AD0FV8N703305
EMS: 50 STATE EMISSIONS
MDL: 33217-703305 RBG-W
OPT: C-A03B92L9226C03585

2016092924727A5612

Manufacturer's Suggested Retail Base Price: \$29,170.00

Options Included by Manufacturer:

BEDLINER/TRAILER HITCH PACKAGE	630.00
Class IV Tow Hitch Receiver (Subject to Vehicle TowPayload Capacity; see Owner's Manual)	
SPLASH GUARDS	190.00
FLOOR MATS	145.00
DESTINATION CHARGES	900.00
Total*	\$31,035.00

Standard Equipment Included at No Extra Charge

MECHANICAL & PERFORMANCE

- 4.0L I-6 DHC V6 Engine
- 261 Horsepower and 281 lb-ft of Torque
- 5-Speed Automatic Transmission
- 2-Speed Transfer Case w/ 4H & 4Lo
- 4x4 Mode Switch
- 4-Wheel Vented Disc Brakes
- 4-Wheel Active Brake Limited Slip (ABLS)
- Hill Start Assist & Hill Descent Control
- 16" Alloy Wheels
- Full Size Spare
- P205/70R16 All-Season Tires

SAFETY & SECURITY

- Driver & Front Passenger, Side-Impact, & Curtain Air Bags
- Front-Seat Active Head Restraints
- Lower Anchors & Tethers for Children (LATCH)
- Pipe-Style Steel Side-Door Guard Beams
- 4-Wheel Anti-Lock Braking System (ABS)
- Electronic Brake Force Distribution (EBD)
- Vehicle Dynamic Control (VDC)
- Tire Pressure Monitoring System (TPMS)
- Nissan Vehicle Immobilizer System

COMFORT & CONVENIENCE

- 60/40 Split Fold-Down Rear Seat
- Cruise Control
- 6-Speaker AM/FM/CD Audio System
- 5" Color Display Audio
- USB Connection Port for iPod® Interface and Other Compatible Devices
- Streaming Audio via Bluetooth®
- Bluetooth® Hands-free Phone System****
- Sir® Eyes Free*****
- SiriusXM Satellite Radio**
- Hands-free Text Messaging Assistant****
- Steering Wheel Audio Controls
- Power Door Locks
- Power Windows w/driver auto-down
- Rear Under-Seat Storage Bin
- Multiple 12 Volt DC Power Outlets
- Air Conditioning (Dual Type)
- Front Reading Map Lamps
- Roof Console w/sunglass Holder
- Remote Keyless Entry

EXTERIOR

- Cab-Mounted Cargo Bed Lamp
- Dual Power Outside Mirrors
- Body-Color Front Bumper
- Chrome Front Grille & Rear Bumper
- Tinted Rear Privacy Glass
- Manual Sliding Rear Window w/ Lock
- Front Tow Hook
- Bed Rail Caps

****Compatible smartphone required. Text rates and/or data usage may apply.
*****Sirius Eyes Free is a registered trademark of Apple, Inc. Compatible smartphone required.

**+3 months of SiriusXM Services included; subscription sold separately; not available to buyers in AK or HI; some features not available in all markets.

*Does not include dealer installed options and accessories, local taxes or license fees. This label has been applied pursuant to federal law. Do not remove prior to delivery to the ultimate purchaser.

FIGURE 79. Monroney Label Photograph

APPENDIX B
DUMMY RESPONSE DATA TRACES

TABLE OF DATA PLOTS

<u>Plot</u>		<u>Page</u>
1	Driver Head Acceleration X Primary	B-1
2	Driver Head Acceleration Y Primary	B-1
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4	Driver Head Resultant Acceleration Primary	B-1
5	Driver Chest X Deflection	B-2
6	Driver Chest Acceleration X Primary	B-3
7	Driver Chest Acceleration Y Primary	B-3
8	Driver Chest Acceleration Z Primary	B-3
9	Driver Chest Resultant Acceleration Primary	B-3
10	Driver Upper Neck Force X	B-4
11	Driver Upper Neck Force Z	B-4
12	Driver Upper Neck Moment Y	B-4
13	Driver Nij	B-4
14	Driver Left Femur Force Z	B-5
15	Driver Right Femur Force Z	B-5
16	Passenger Head Acceleration X Primary	B-6
17	Passenger Head Acceleration Y Primary	B-6
18	Passenger Head Acceleration Z Primary	B-6
19	Passenger Head Resultant Acceleration Primary	B-6
20	Passenger Chest X Deflection	B-7
21	Passenger Chest Acceleration X Primary	B-8
22	Passenger Chest Acceleration Y Primary	B-8
23	Passenger Chest Acceleration Z Primary	B-8
24	Passenger Chest Resultant Acceleration Primary	B-8
25	Passenger Upper Neck Force X	B-9
26	Passenger Upper Neck Force Z	B-9
27	Passenger Upper Neck Moment Y	B-9
28	Passenger Nij	B-9
29	Passenger Left Femur Force Z	B-10
30	Passenger Right Femur Force Z	B-10

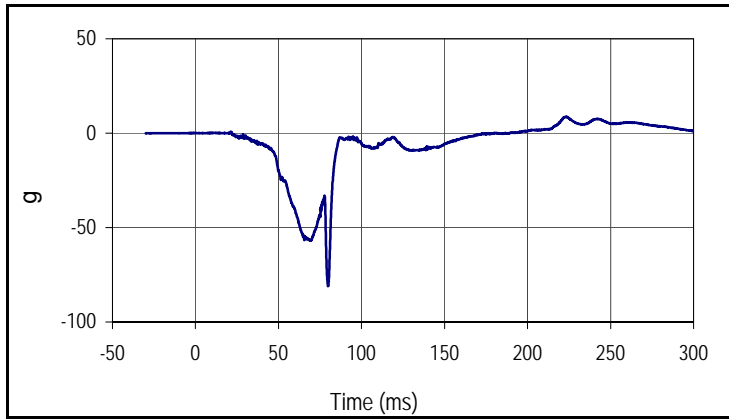
The following additional dummy and vehicle response data can be found in the R&D section of the NHTSA website at www.nhtsa.dot.gov

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

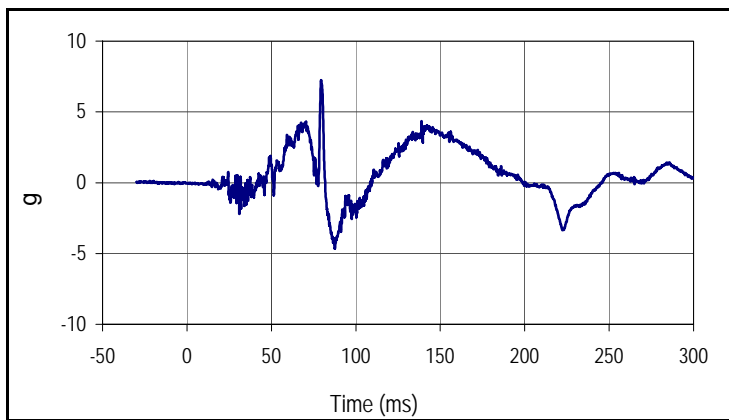
Passenger Pelvis X
Passenger Pelvis Y
Passenger Pelvis Z
Passenger Left Femur Force Redundant
Passenger Right Femur Force Redundant
Passenger Left Upper Tibia Moment X
Passenger Left Upper Tibia Moment Y
Passenger Left Upper Tibia Force Z
Passenger Left Lower Tibia Moment X
Passenger Left Lower Tibia Moment Y
Passenger Left Lower Tibia Force Z
Passenger Right Upper Tibia Moment X
Passenger Right Upper Tibia Moment Y
Passenger Right Upper Tibia Force Z
Passenger Right Lower Tibia Moment X
Passenger Right Lower Tibia Moment Y
Passenger Right Lower Tibia Force Z
Passenger Left Foot Fore Z
Passenger Left Foot Aft X
Passenger Left Foot Aft Z
Passenger Right Foot Fore Z
Passenger Right Foot Aft X
Passenger Right Foot Aft Z
Passenger Shoulder Belt Force
Passenger Lap Belt Force
Left Rear Seat Crossmember X
Left Rear Seat Crossmember Z
Right Rear Seat Crossmember X
Right Rear Seat Crossmember Z
Left Rear Seat Crossmember X Redundant
Right Rear Seat Crossmember X Redundant
Vehicle Engine Top X
Vehicle Engine Bottom X
Load Cell Barrier Forces and Moments

Test Vehicle: 2017 Nissan Frontier Crew Cab 4WD 4-Door Truck
 Test Program: 56 km/h Frontal Impact NCAP Test

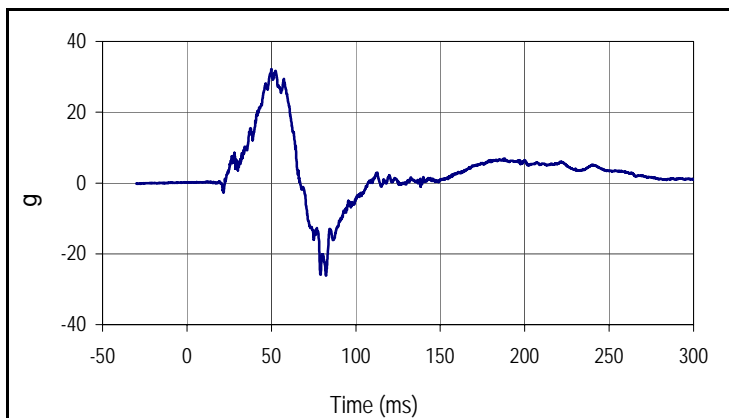
NHTSA No.: M20175200
 Test Date: 2/8/17



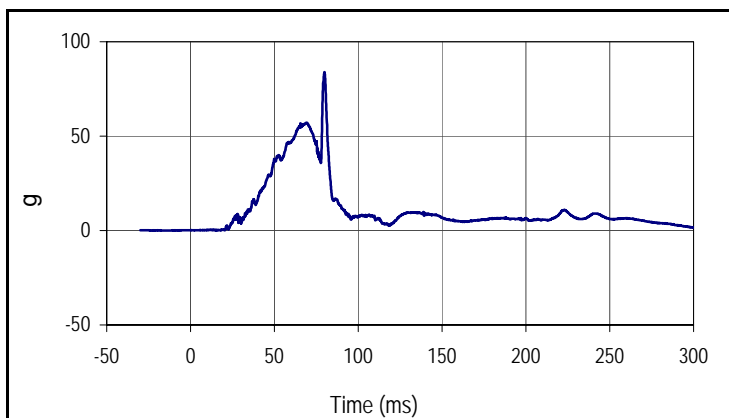
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001		1000	g
Max	Time	Min	Time
8.8	223.1	-81.0	79.9



Curve Description			
Driver Head Acceleration Y Primary			
Plot No.		SAE Class	Units
002		1000	g
Max	Time	Min	Time
7.3	79.5	-4.7	87.6



Curve Description			
Driver Head Acceleration Z Primary			
Plot No.		SAE Class	Units
003		1000	g
Max	Time	Min	Time
32.1	49.9	-26.2	82.3



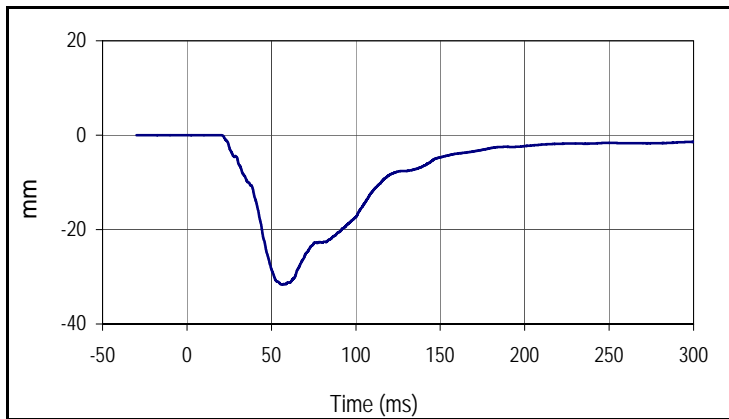
Curve Description			
Driver Head Resultant Acceleration Primary			
Plot No.		SAE Class	Units
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Max	Time	Min	Time
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Test Vehicle: 2017 Nissan Frontier Crew Cab 4WD 4-Door Truck

NHTSA No.: M20175200

Test Program: 56 km/h Frontal Impact NCAP Test

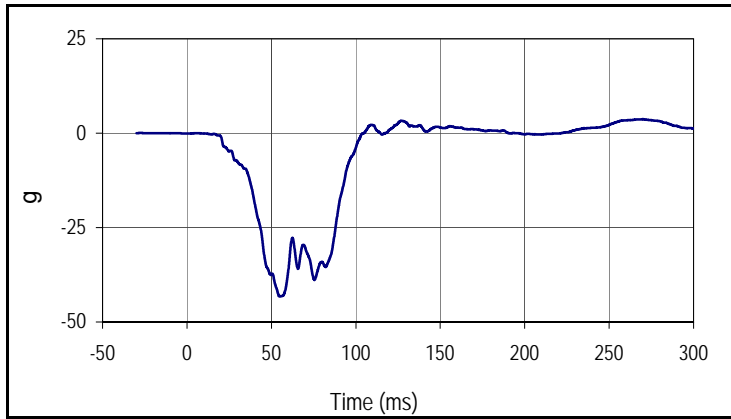
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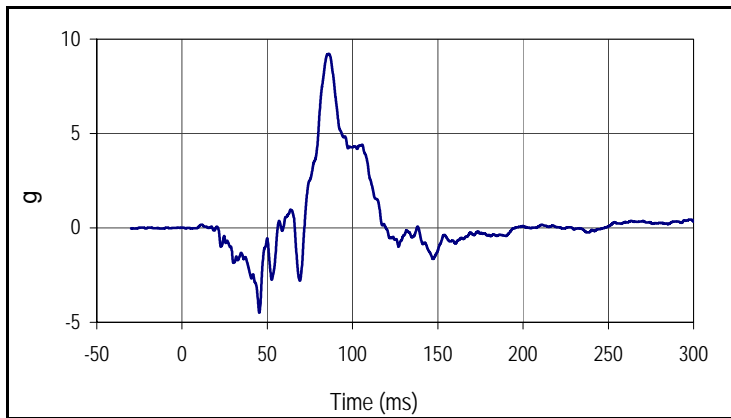
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Driver Chest Deflection			
Plot No.		SAE Class	Units
005		600	mm
Max	Time	Min	Time
0.0	20.2	-31.6	56.0

Test Vehicle: 2017 Nissan Frontier Crew Cab 4WD 4-Door Truck
 Test Program: 56 km/h Frontal Impact NCAP Test

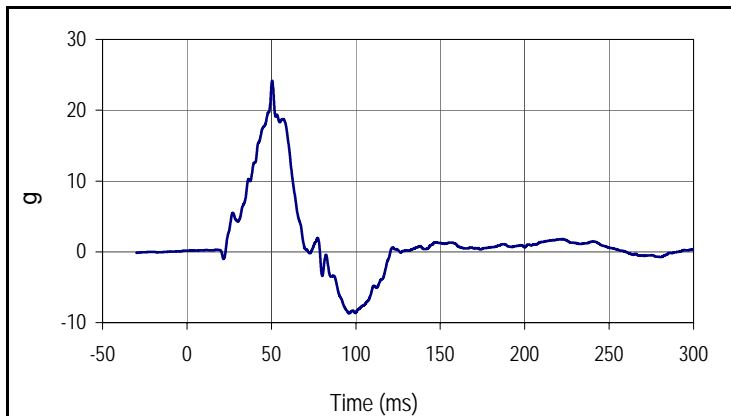
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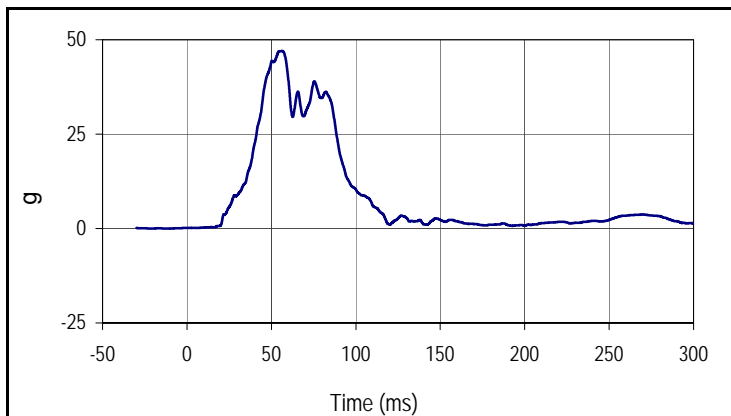
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Driver Chest Acceleration X Primary			
Plot No.		SAE Class	Units
006		180	g
Max	Time	Min	Time
3.7	269.8	-43.2	54.9



Curve Description			
Driver Chest Acceleration Y Primary			
Plot No.		SAE Class	Units
007		180	g
Max	Time	Min	Time
9.2	86.2	-4.5	45.3



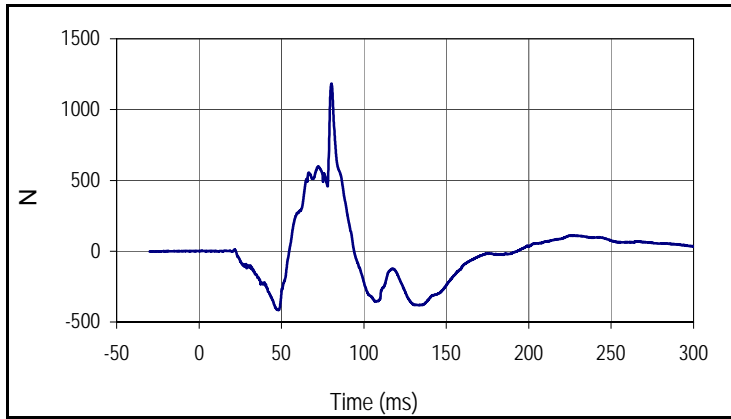
Curve Description			
Driver Chest Acceleration Z Primary			
Plot No.		SAE Class	Units
008		180	g
Max	Time	Min	Time
24.2	50.5	-8.7	96.0



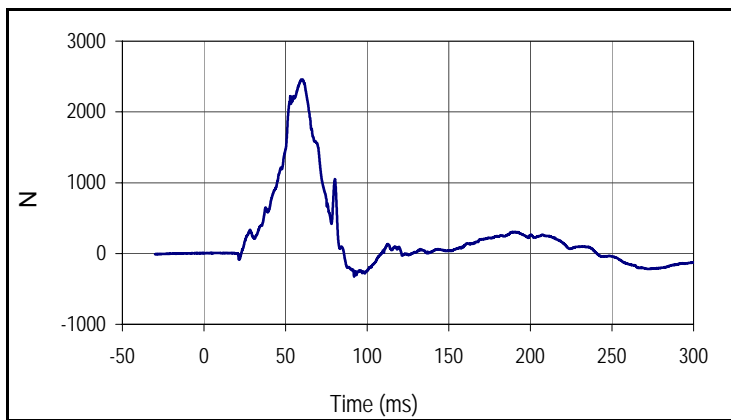
Curve Description			
Driver Chest Resultant Acceleration Primary			
Plot No.		SAE Class	Units
009		180	g
Max	Time	Min	Time
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Test Vehicle: 2017 Nissan Frontier Crew Cab 4WD 4-Door Truck
 Test Program: 56 km/h Frontal Impact NCAP Test

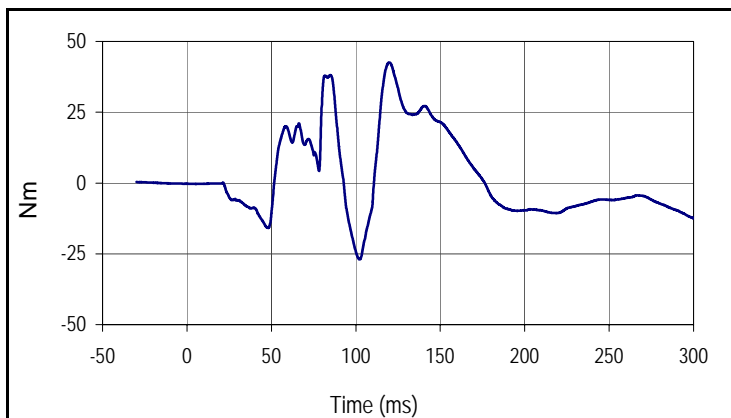
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 Test Date: 2/8/17



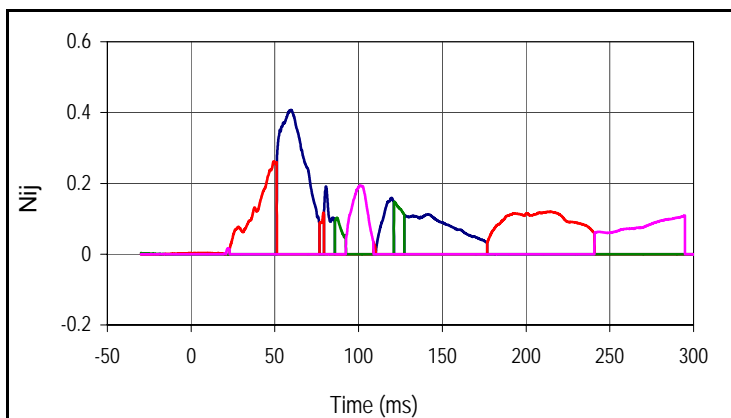
Curve Description			
Driver Upper Neck Force X			
Plot No.		SAE Class	Units
010		1000	N
Max	Time	Min	Time
1184.0	80.3	-415.8	48.2



Curve Description			
Driver Upper Neck Force Z			
Plot No.		SAE Class	Units
011		1000	N
Max	Time	Min	Time
2459.4	59.9	-320.1	92.0



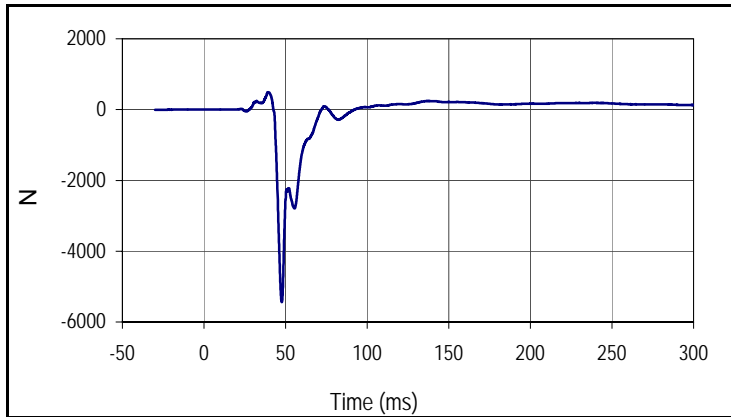
Curve Description			
Driver Upper Neck Moment Y			
Plot No.		SAE Class	Units
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Max	Time	Min	Time
42.6	119.9	-27.0	102.3



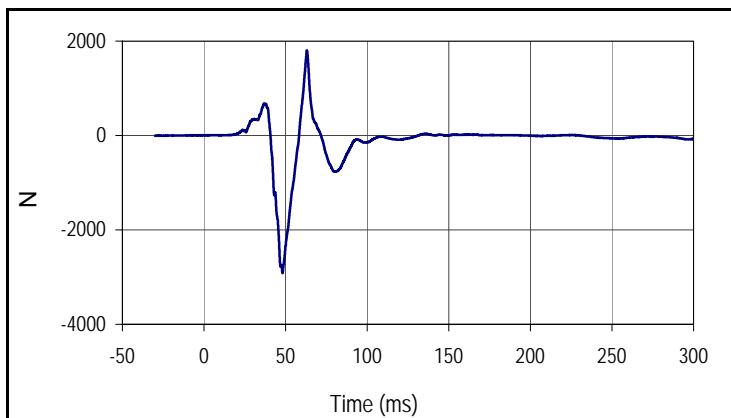
Curve Description		
Driver Nij		
Units	Max	Time
Ntf	0.41	59.7
Units	Max	Time
Nte	0.26	49.4
Units	Max	Time
Ncf	0.15	121.5
Units	Max	Time
Nce	0.19	101.1

Test Vehicle: 2017 Nissan Frontier Crew Cab 4WD 4-Door Truck
 Test Program: 56 km/h Frontal Impact NCAP Test

NHTSA No.: M20175200
 Test Date: 2/8/17



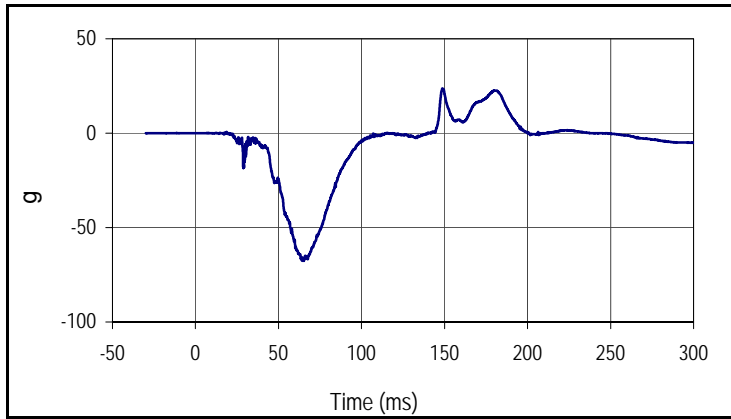
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Driver Left Femur Force Z			
Plot No.		SAE Class	Units
014		600	N
Max	Time	Min	Time
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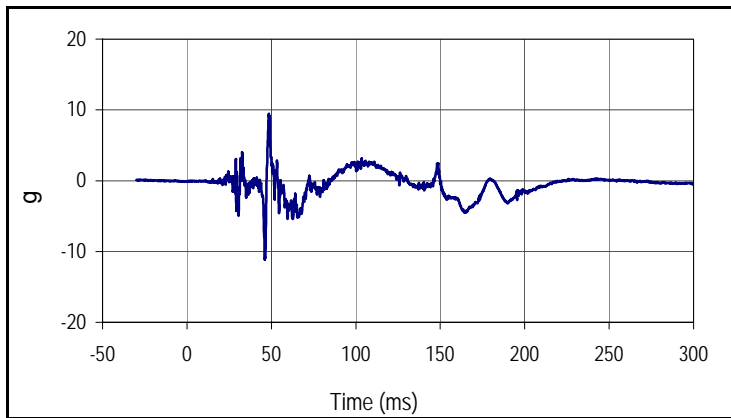
Curve Description			
Driver Right Femur Force Z			
Plot No.		SAE Class	Units
015		600	N
Max	Time	Min	Time
1805.6	63.1	-2915.3	48.2

Test Vehicle: 2017 Nissan Frontier Crew Cab 4WD 4-Door Truck
 Test Program: 56 km/h Frontal Impact NCAP Test

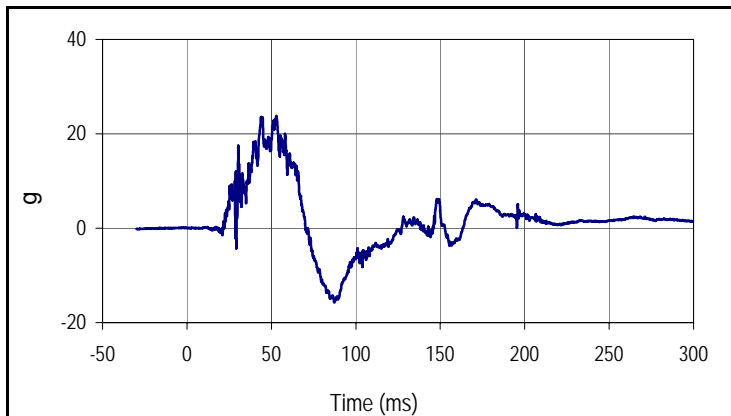
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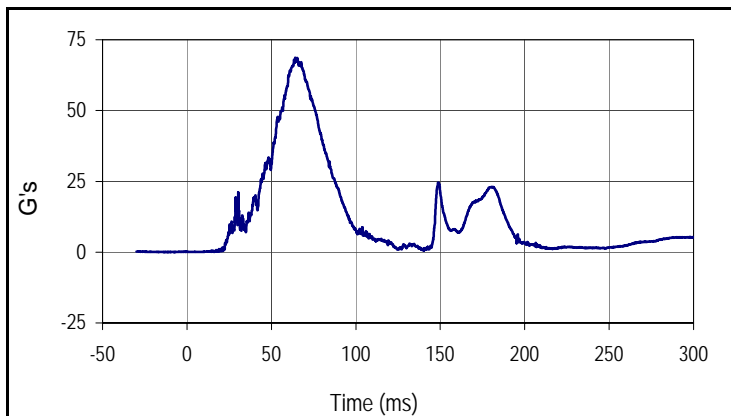
Curve Description			
Passenger Head Acceleration X Primary			
Plot No.		SAE Class	Units
016		1000	g
Max	Time	Min	Time
23.7	148.7	-67.6	65.3



Curve Description			
Passenger Head Acceleration Y Primary			
Plot No.		SAE Class	Units
017		1000	g
Max	Time	Min	Time
9.5	48.5	-11.1	46.1



Curve Description			
Passenger Head Acceleration Z Primary			
Plot No.		SAE Class	Units
018		1000	g
Max	Time	Min	Time
23.8	52.9	-15.7	87.3



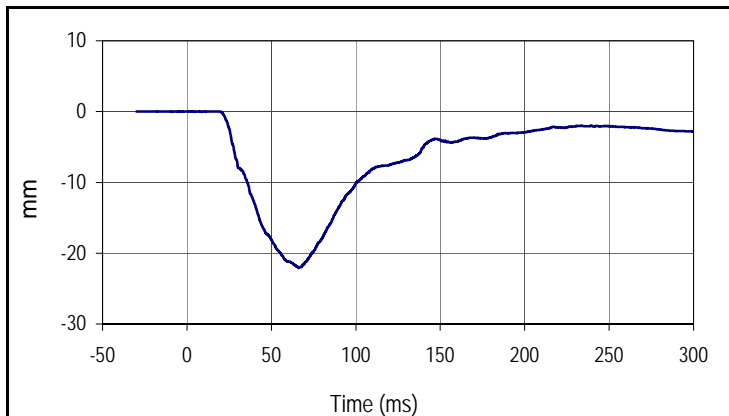
Curve Description			
Passenger Head Resultant Acceleration Primary			
Plot No.		SAE Class	Units
019		1000	G's
Max	Time	Min	Time
68.7	64.1	0.0	5.5

Test Vehicle: 2017 Nissan Frontier Crew Cab 4WD 4-Door Truck

NHTSA No.: M20175200

Test Program: 56 km/h Frontal Impact NCAP Test

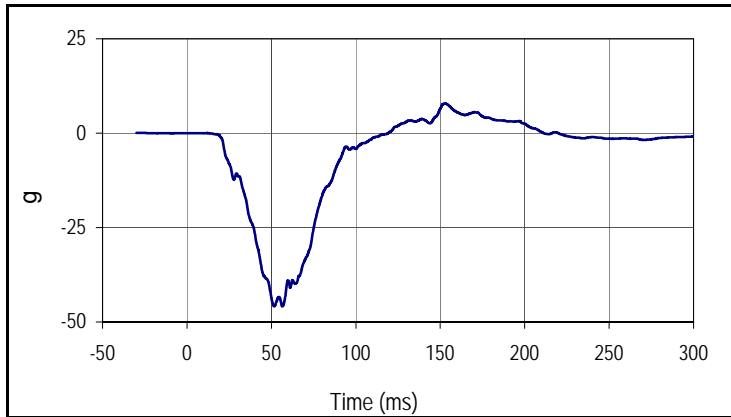
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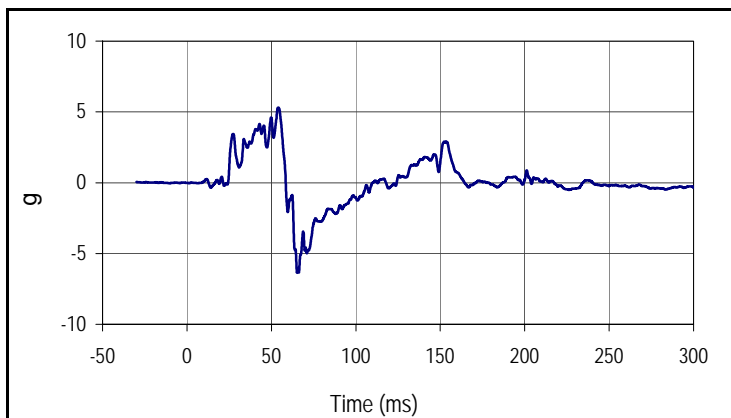
Curve Description			
Passenger Chest Deflection			
Plot No.		SAE Class	Units
020		600	mm
Max	Time	Min	Time
0.0	19.6	-22.1	66.1

Test Vehicle: 2017 Nissan Frontier Crew Cab 4WD 4-Door Truck
 Test Program: 56 km/h Frontal Impact NCAP Test

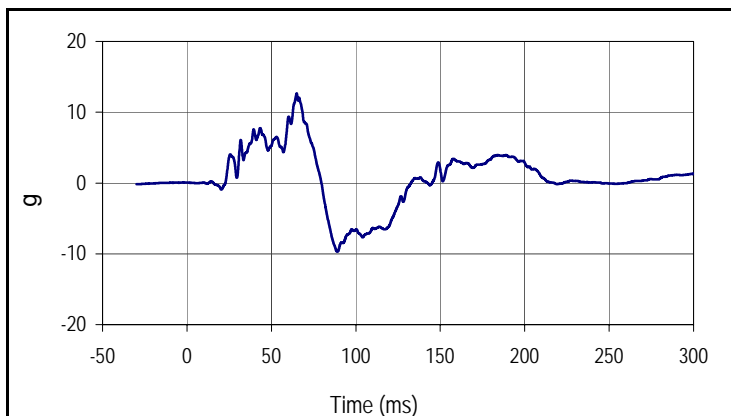
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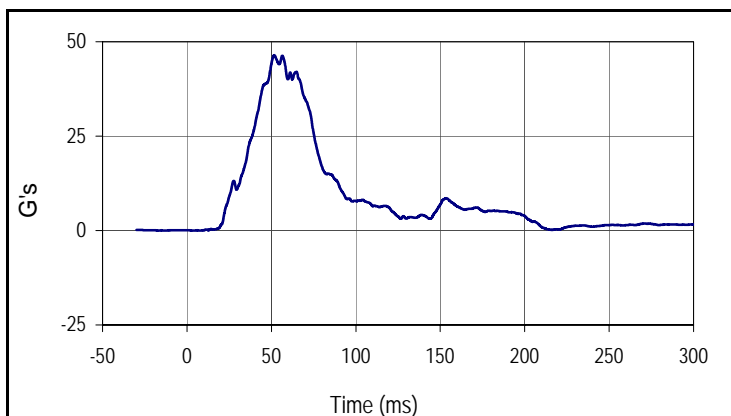
Curve Description			
Passenger Chest Acceleration X Primary			
Plot No.		SAE Class	Units
021		180	g
Max	Time	Min	Time
7.9	153.0	-45.9	56.5



Curve Description			
Passenger Chest Acceleration Y Primary			
Plot No.		SAE Class	Units
022		180	g
Max	Time	Min	Time
5.3	54.0	-6.4	65.2



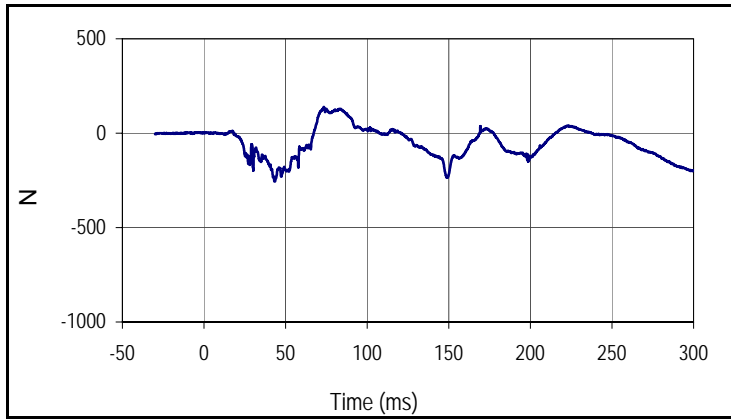
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Plot No.		SAE Class	Units
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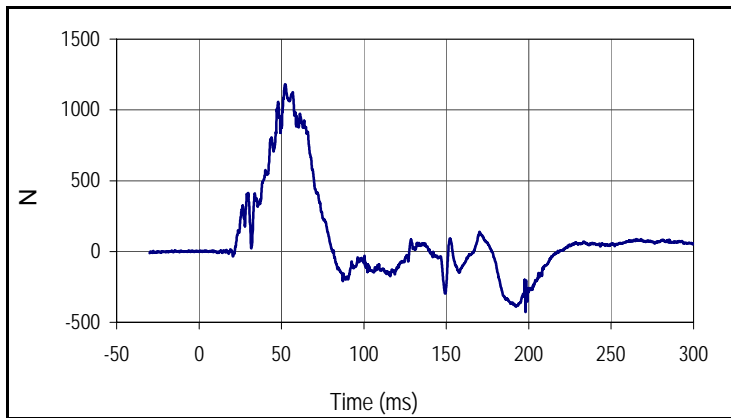
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Passenger Chest Resultant Acceleration Primary			
Plot No.		SAE Class	Units
024		180	G's
Max	Time	Min	Time
46.4	51.7	0.0	12.8

Test Vehicle: 2017 Nissan Frontier Crew Cab 4WD 4-Door Truck
 Test Program: 56 km/h Frontal Impact NCAP Test

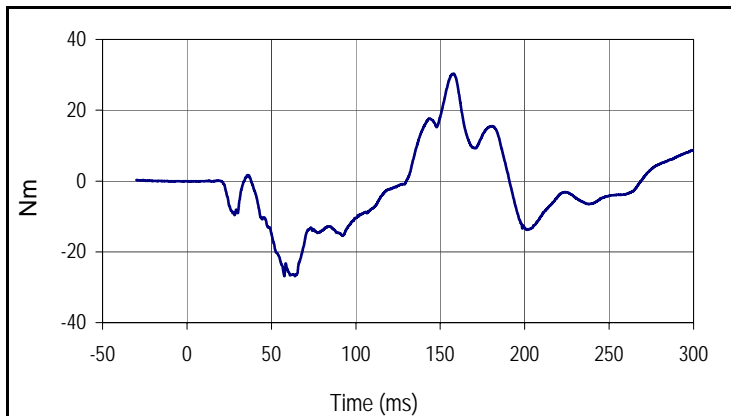
NHTSA No.: M20175200
 Test Date: 2/8/17



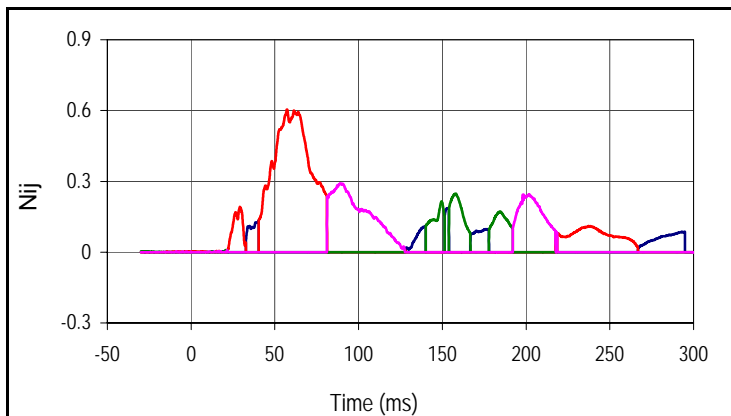
Curve Description			
Passenger Upper Neck Force X			
Plot No.		SAE Class	Units
025		1000	N
Max	Time	Min	Time
138.7	73.5	-255.8	43.5



Curve Description			
Passenger Upper Neck Force Z			
Plot No.		SAE Class	Units
026		1000	N
Max	Time	Min	Time
1180.7	52.3	-427.3	198.0



Curve Description			
Passenger Upper Neck Moment Y			
Plot No.		SAE Class	Units
027		600	Nm
Max	Time	Min	Time
30.3	158.0	-26.9	57.7



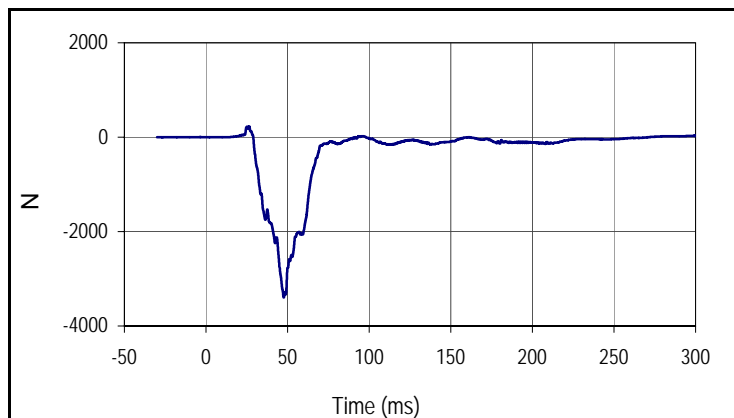
Curve Description			
Passenger Nij			
Units	Max	Time	
Ntf	0.19	153.3	
Nte	0.60	57.3	
Ncf	0.25	157.9	
Nce	0.29	89.3	

Test Vehicle: 2017 Nissan Frontier Crew Cab 4WD 4-Door Truck

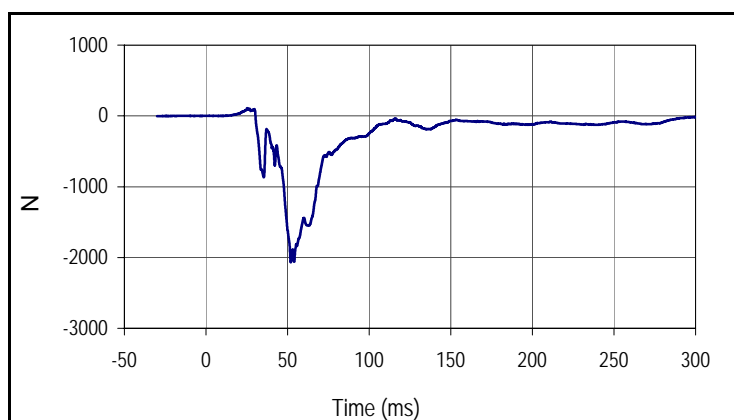
NHTSA No.: M20175200

Test Program: 56 km/h Frontal Impact NCAP Test

Test Date: 2/8/17



Curve Description			
Passenger Left Femur Force Z			
Plot No.		SAE Class	Units
029		600	N
Max	Time	Min	Time
227.5	26.5	-3397.9	47.7



Curve Description			
Passenger Right Femur Force Z			
Plot No.		SAE Class	Units
030		600	N
Max	Time	Min	Time
111.7	25.2	-2069.7	52.0

APPENDIX C
ATD CALIBRATION AND PERFORMANCE VERIFICATION DATA

APPENDIX C
PRE-TEST / ATD CONFIGURATION AND PERFORMANCE VERIFICATION DATA

Test Program: Hybrid III 50th Percentile Male Dummy Damage Checklist

Test Date: 2/7/17

ATD Serial No.: 360

Test I.D.: N/A



Dummy Item	Inspect for	Comments	Damaged	OK
Entire Dummy	Perform general cleaning			X
Outer Skin	Gashes, rips, cracks			X
Head	Ballast secure			X
	General appearance			X
Neck	Broken or cracked rubber			X
	Upper neck bracket firmly attached to the lower neck bracket			X
	Looseness at the condyle joint			X
	Nodding blocks cracked or out of position			X
Spine	Broken or cracks in rubber			X
Ribs	Broken or bent ribs			X
	Broken or bent rib supports			X
	Damping material separated or cracked			X
	Rubber bumpers in place			X
Chest Displacement Assembly	Bent shaft			X
	Slider arm riding in track			X
Transducer Leads	Torn cables			X
Accelerometer Mountings	Head mounting secure			X
	Chest mounting secure			X
Knees	Skin condition			X
	Insert (do not remove)			X
	Casting			X
Limbs	Normal movement and adjustment			X
Knee Sliders	Wires intact			X
	Rubber returned to "at rest" position			X
Pelvis	Broken			X
Other				X

Describe the repair on or replacement of parts:

Test Program: Hybrid III 50th Percentile Male External Measurements

Test Date: 2/7/17

ATD Serial No.: 360

Test I.D.: N/A



Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	29.5	Pass
A - Total sitting height	mm	879 to 889	886	Pass
B - Shoulder pivot height	mm	505 to 521	510	Pass
C - H point height	mm	84 to 89	86	Pass
D - H point location from backline	mm	135 to 140	139	Pass
E - Shoulder pivot from backline	mm	84 to 94	91	Pass
F - Thigh clearance	mm	140 to 155	147	Pass
G - Back of elbow to wrist pivot	mm	290 to 305	298	Pass
H - Head back to backline	mm	41 to 46	44	Pass
I - Shoulder to elbow length	mm	330 to 345	337	Pass
J - Elbow rest height	mm	190 to 211	205	Pass
K - Buttock to knee length	mm	579 to 604	587	Pass
L - Popliteal length	mm	429 to 455	437	Pass
M - Knee pivot height	mm	485 to 500	495	Pass
N - Buttock popliteal length	mm	452 to 477	473	Pass
O - Chest depth without jacket	mm	213 to 229	227	Pass
P - Foot length	mm	251 to 267	263	Pass
V - Shoulder breadth	mm	422 to 437	436	Pass
W - Foot breadth	mm	91 to 107	99	Pass
Y - Chest circumference (with chest jacket)	mm	970 to 1001	982	Pass
Z - Waist circumference	mm	836 to 866	865	Pass
AA - Location for chest circumference	mm	429 to 434	431	Pass
BB - Location for waist circumference	mm	226 to 231	231	Pass
Overall Test Results			Pass	

Test Program: Hybrid III 50th Percentile Male Head Drop Test

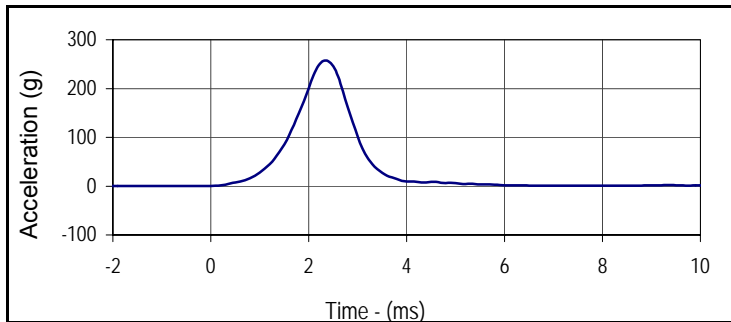
Test Date: 2/7/17



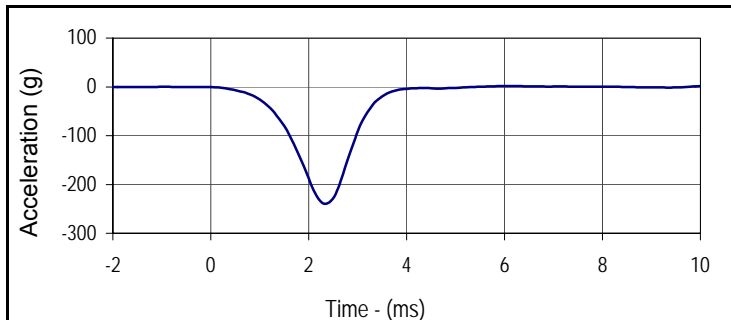
ATD Serial No.: 360

Test I.D.: M360HD029

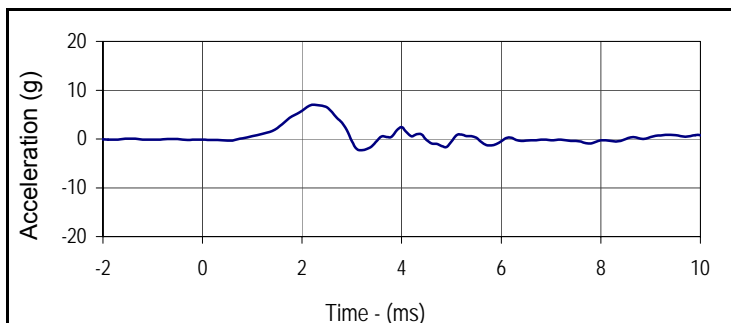
Tested Parameter	Units	Specification	Result	Pass/Fail
Head Assembly Soak Time	Minutes	≥240	399	Pass
Temperature During Soak	Max	18.9 to 25.6	21.2	Pass
	Min		21.1	Pass
Humidity During Soak	Max	10.0 to 70.0	45.4	Pass
	Min		44.8	Pass
Laboratory Temperature During Test	°C	18.9 to 25.6	21.1	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	45.0	Pass
Peak Resultant Acceleration	g	225.0 to 275.0	257.0	Pass
Peak Lateral Acceleration	g	≤15.0	7.0	Pass
Oscillations After Main Pulse	%	<10% of peak Res. Acceleration	3.1	Pass
Is Acceleration Unimodal?	Yes/No	Yes	Yes	Pass
Overall Test Results			Pass	



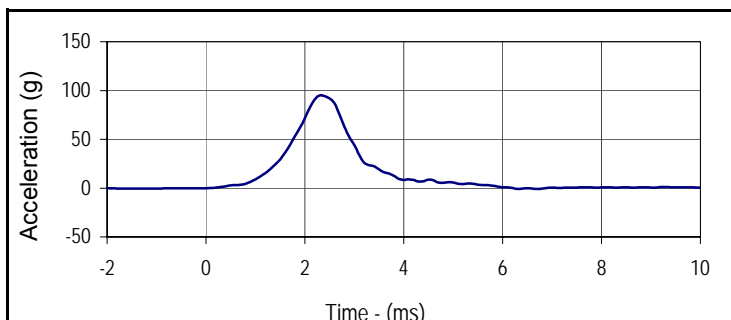
Curve Description			
Head Resultant			
Plot No.	Type	SAE Class	Units
001	RES	1000	g
Max	Time	Min	Time
257.0	2.3	0.1	58.1



Curve Description			
Head X			
Plot No.	Type	SAE Class	Units
002	FIL	1000	g
Max	Time	Min	Time
1.8	10.1	-238.7	2.3



Curve Description			
Head Y			
Plot No.	Type	SAE Class	Units
003	FIL	1000	g
Max	Time	Min	Time
7.0	2.2	-2.3	3.2



Curve Description			
Head Z			
Plot No.	Type	SAE Class	Units
004	FIL	1000	g
Max	Time	Min	Time
94.8	2.3	-2.1	15.3

Test Program: Hybrid III 50th Percentile Male Neck Flexion Test

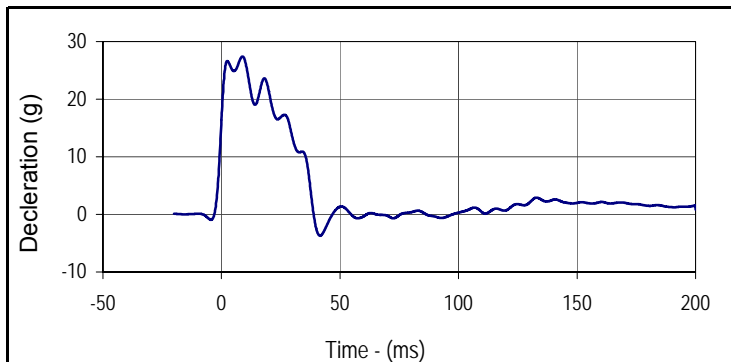
Test Date: 2/7/17



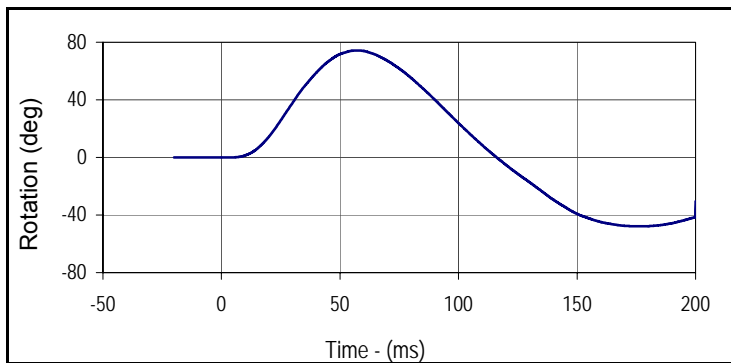
ATD Serial No.: 360

Test I.D.: M360NF029

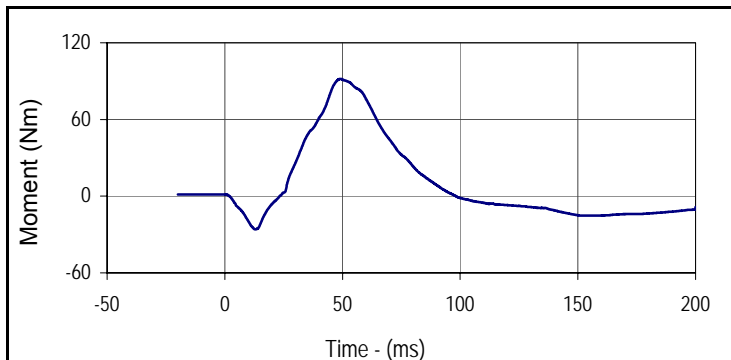
Tested Parameter	Units	Specification	Result	Pass/Fail
Neck Assembly Soak Time	Minutes	≥240	464	Pass
Temperature During Soak	Max	20.6 to 22.2	21.2	Pass
	Min		21.1	Pass
Humidity During Soak	Max	10.0 to 70.0	45.4	Pass
	Min		44.8	Pass
Laboratory Temperature During Test	°C	20.6 to 22.2	21.2	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	45.2	Pass
Pendulum Velocity	m/s	6.89 to 7.13	6.91	Pass
Pendulum Deceleration	10 Msec.	22.5 to 27.5	26.6	Pass
	20 Msec.	17.6 to 22.6	21.3	Pass
	30 Msec.	12.5 to 18.5	13.2	Pass
Peak Pendulum Decel. after 30 Msec.	g	≤ 29.0	13.2	Pass
Deceleration Decay, Time to Cross 5 G's	ms	34.0 to 42.0	37.4	Pass
Maximum "D" Plane Rotation	Max	64.0 to 78.0	74.2	Pass
	Time	57.0 to 64.0	57.0	Pass
"D" Plane Rotation Decay, Time To Zero Crossing	ms	113.0 to 128.0	116.1	Pass
Moment About Occ. Condyle	Max	88.1 to 108.5	91.7	Pass
	Time	47.0 to 58.0	49.2	Pass
Positive Moment Decay, Time To Zero Crossing	ms	97.0 to 107.0	98.2	Pass
Overall Test Results				Pass



Curve Description			
Pendulum Deceleration			
Plot No.	Type	SAE Class	Units
001	FIL	60	g
Max	Time	Min	Time
27.4	8.9	-3.7	41.6



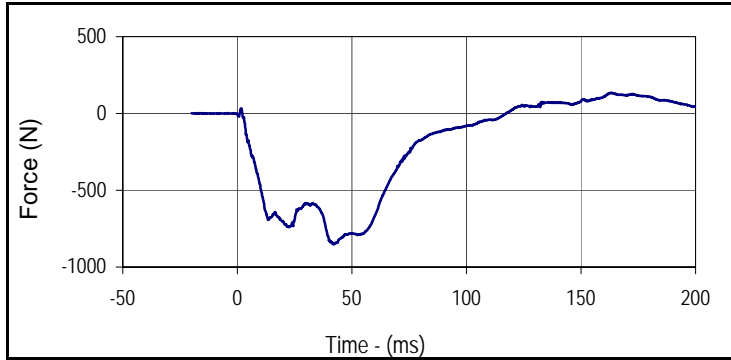
Curve Description			
"D" Plane Rotation			
Plot No.	Type	SAE Class	Units
002	FIL	60	deg
Max	Time	Min	Time
74.2	57.0	-47.9	176.8



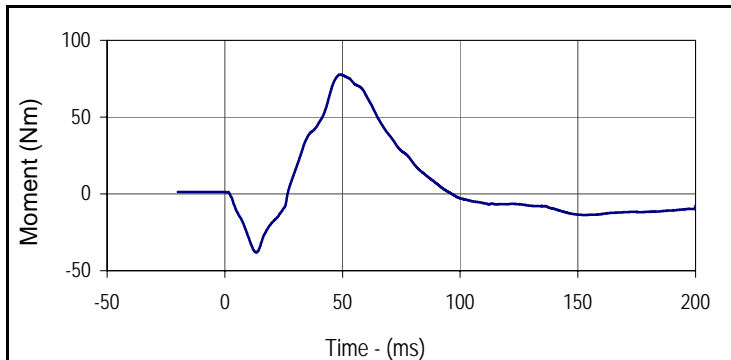
Curve Description			
Moment About Occipital Condyle			
Plot No.	Type	SAE Class	Units
003	FIL	600	Nm
Max	Time	Min	Time
91.7	49.2	-25.9	13.0

Test Program: Hybrid III 50th Percentile Male Neck Flexion Test
 ATD Serial No.: 360

Test Date: 2/7/17
 Test I.D.: M360NF029



Curve Description			
Neck Force X			
Plot No.	Type	SAE Class	Units
004	FIL	1000	N
Max	Time	Min	Time
134.4	163.2	-852.5	42.2



Curve Description			
Neck Moment Y			
Plot No.	Type	SAE Class	Units
005	FIL	600	Nm
Max	Time	Min	Time
77.8	49.2	-38.1	13.3

Test Program: Hybrid III 50th Percentile Male Neck Extension Test

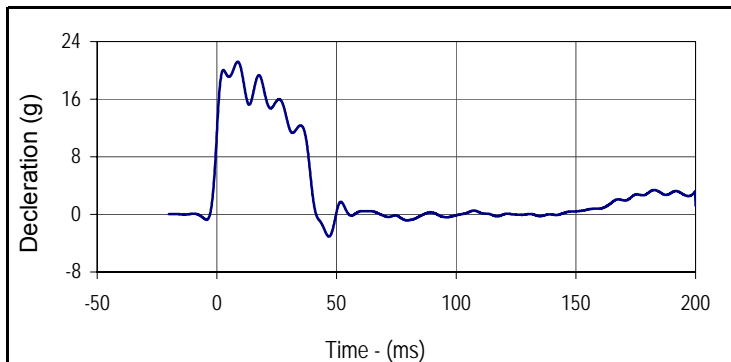
Test Date: 2/7/17



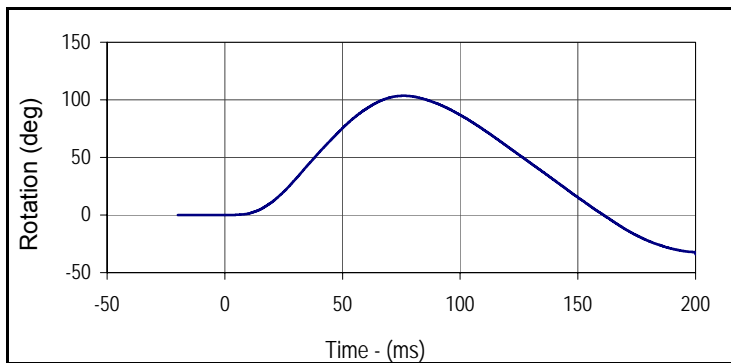
ATD Serial No.: 360

Test I.D.: M360NE029

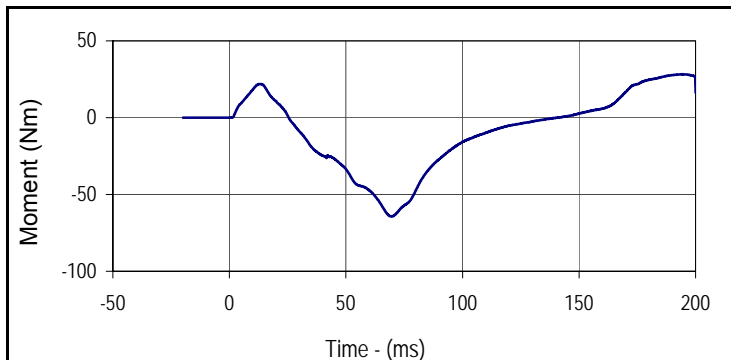
Tested Parameter	Units	Specification	Result	Pass/Fail
Neck Assembly Soak Time	Minutes	≥240	509	Pass
Temperature During Soak	Max	20.6 to 22.2	21.2	Pass
	Min		21.1	Pass
Humidity During Soak	Max	10.0 to 70.0	45.4	Pass
	Min		44.8	Pass
Laboratory Temperature During Test	°C	20.6 to 22.2	21.2	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	45.4	Pass
Pendulum Velocity	m/s	5.94 to 6.19	5.97	Pass
Pendulum Deceleration	10 Msec.	17.2 to 21.2	20.3	Pass
	20 Msec.	14.0 to 19.0	16.8	Pass
	30 Msec.	11.0 to 16.0	12.2	Pass
Peak Pendulum Decel. after 30 Msec.	g	≤ 22.0	12.4	Pass
Deceleration Decay, Time to Cross 5 G's	ms	38.0 to 46.0	39.3	Pass
Maximum "D" Plane Rotation	Max	81.0 to 106.0	103.5	Pass
	Time	72.0 to 82.0	76.0	Pass
"D" Plane Rotation Decay, Time To Zero Crossing	ms	147.0 to 174.0	160.9	Pass
Moment About Occ. Condyle	Max	-52.9 to -79.9	-64.3	Pass
	Time	65.0 to 79.0	69.5	Pass
Positive Moment Decay, Time To Zero Crossing	ms	120.0 to 148.0	140.5	Pass
Overall Test Results				Pass



Curve Description			
Pendulum Deceleration			
Plot No.	Type	SAE Class	Units
001	FIL	60	g
Max	Time	Min	Time
21.2	8.7	-3.1	46.8



Curve Description			
"D" Plane Rotation			
Plot No.	Type	SAE Class	Units
002	FIL	60	deg
Max	Time	Min	Time
103.5	76.0	-34.3	200.0



Curve Description			
Moment About Occipital Condyle			
Plot No.	Type	SAE Class	Units
003	FIL	600	Nm
Max	Time	Min	Time
28.2	194.1	-64.3	69.5

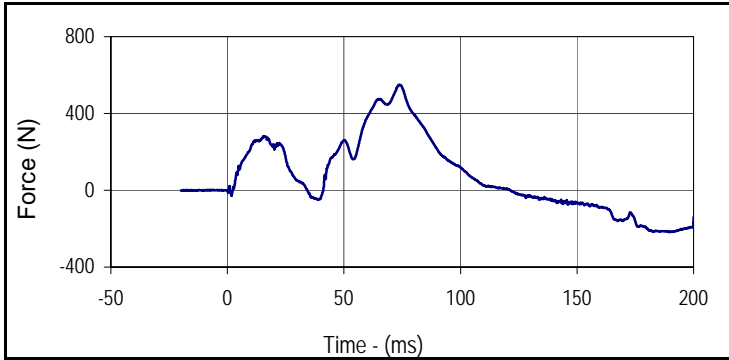
Test Program: Hybrid III 50th Percentile Male Neck Extension Test

Test Date: 2/7/17

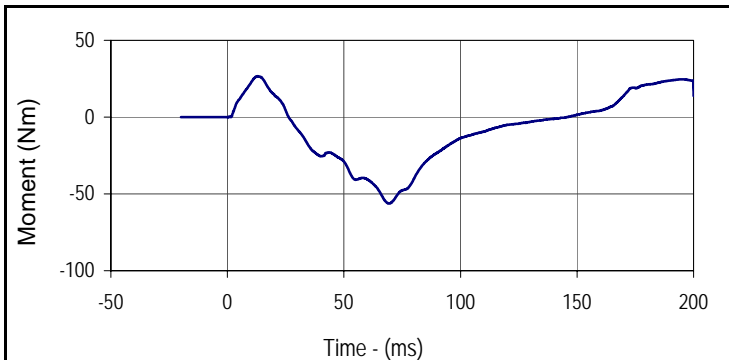


ATD Serial No.: 360

Test I.D.: M360NE029



Curve Description			
Neck Force X			
Plot No.	Type	SAE Class	Units
004	FIL	1000	N
Max	Time	Min	Time
549.4	74.0	-218.8	189.6



Curve Description			
Neck Moment Y			
Plot No.	Type	SAE Class	Units
005	FIL	600	Nm
Max	Time	Min	Time
26.6	13.0	-56.3	69.3

Test Program: Hybrid III 50th Percentile Male Thorax Impact Test

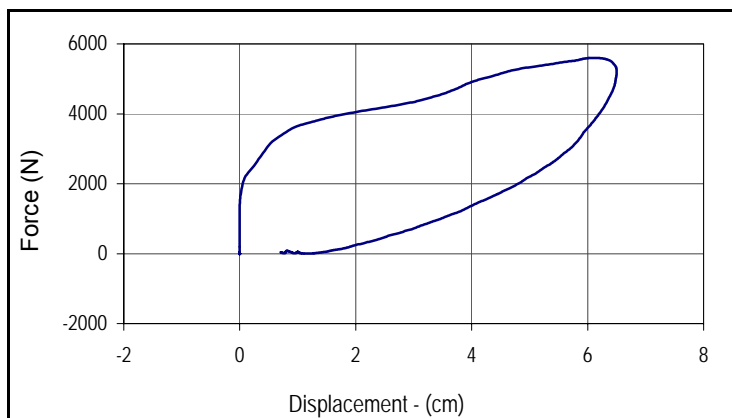
Test Date: 2/7/17



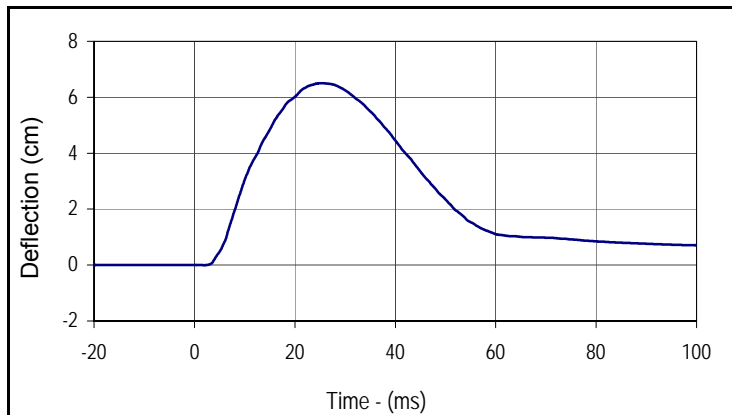
ATD Serial No.: 360

Test I.D.: M360CH029

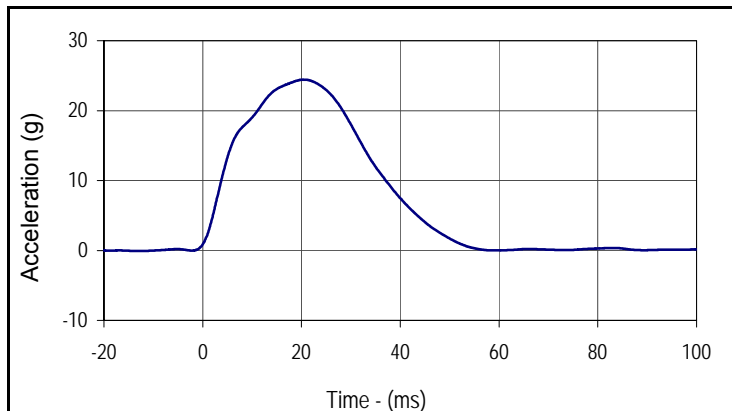
Tested Parameter	Units	Specification	Result	Pass/Fail
Dummy Soak Time	Minutes	≥240	584	Pass
Temperature During Soak	Max	20.6 to 22.2	21.2	Pass
	Min		21.1	Pass
Humidity During Soak	Max	10.0 to 70.0	45.4	Pass
	Min		44.8	Pass
Laboratory Temperature During Test	°C	20.6 to 22.2	21.2	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	45.4	Pass
Probe Velocity	m/s	6.58 to 6.82	6.69	Pass
Peak Probe Force	N	5159 to 5893	5598	Pass
Peak Sternum Deflection	cm	6.35 to 7.26	6.50	Pass
Internal Hysteresis	%	69 to 85	71.6	Pass
Overall Test Results				Pass



Curve Description			
Probe Force vs. Chest Deflection			
Plot No.	Type	SAE Class	Hysteresis
001	FIL	600	71.6
Peak Probe Force		Peak Chest Deflection	
5598		6.50	



Curve Description			
Chest Deflection			
Plot No.	Type	SAE Class	Units
002	FIL	600	cm
Max	Time	Min	Time
6.5	25.6	0.0	2.0



Curve Description			
Impactor Acceleration			
Plot No.	Type	SAE Class	Units
003	FIL	600	g
Max	Time	Min	Time
24.4	20.5	-0.1	-13.2

Test Program: Hybrid III 50th Percentile Male Knee Impact Test
 ATD Serial No.: 360

Test Date: 2/7/17
 Test I.D.: M360LK029 , M360RK029

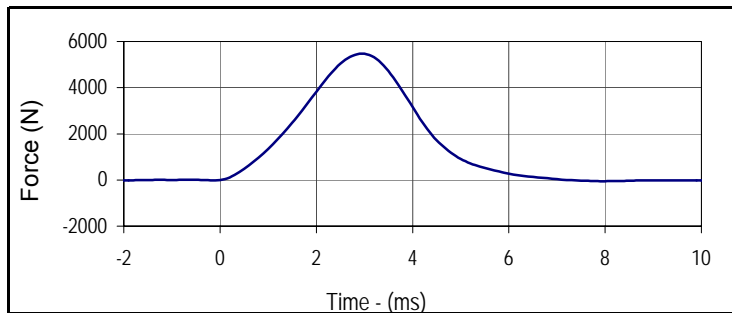


Left Knee

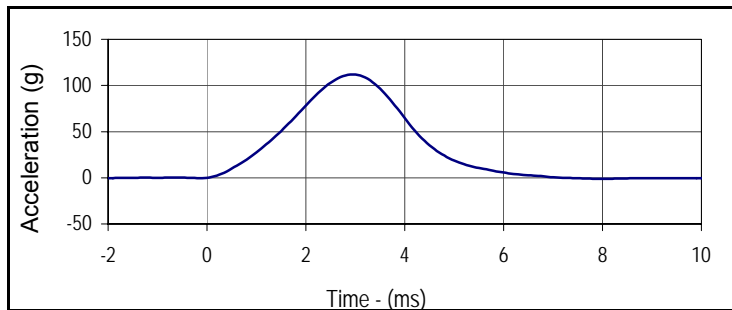
Tested Parameter	Units	Specification	Result	Pass/Fail
Knee Assembly Soak Time	Minutes	≥240	639	Pass
Temperature During Soak	Max	18.9 to 25.6	21.2	Pass
	Min		21.1	Pass
Humidity During Soak	Max	10.0 to 70.0	45.4	Pass
	Min		44.8	Pass
Laboratory Temperature During Test	°C	18.9 to 25.6	21.2	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	45.1	Pass
Pendulum Velocity at T=0	m/sec	2.07 to 2.13	2.09	Pass
Peak Probe Force	N	4715 to 5782	5468	Pass
Overall Test Results				Pass

Right Knee

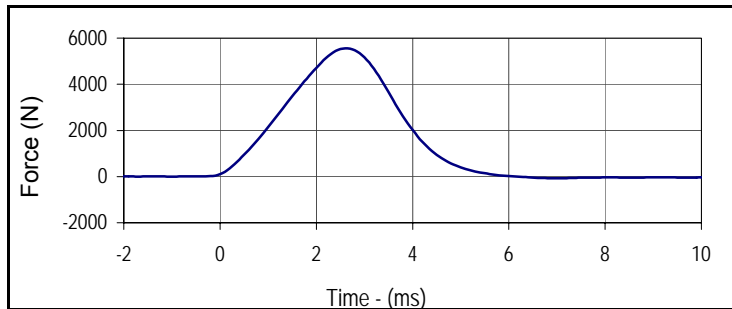
Pendulum Velocity at T=0	m/sec	2.07 to 2.13	2.09	Pass
Peak Probe Force	N	4715 to 5782	5560	Pass
Overall Test Results				Pass



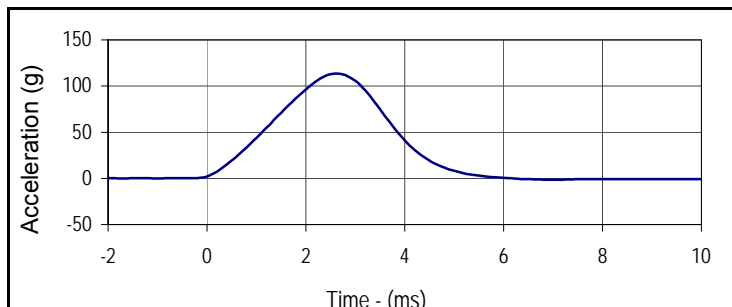
Curve Description			
Left Knee Probe Force			
Plot No.	Type	SAE Class	Units
001	FIL	600	N
Max	Time	Min	Time
5468.5	2.9	-52.8	8.0



Curve Description			
Left Knee Acceleration			
Plot No.	Type	SAE Class	Units
002	FIL	600	g
Max	Time	Min	Time
111.8	2.9	-1.1	8.0



Curve Description			
Right Knee Probe Force			
Plot No.	Type	SAE Class	Units
003	FIL	600	N
Max	Time	Min	Time
5560.4	2.6	-74.9	7.1



Curve Description			
Right Knee Acceleration			
Plot No.	Type	SAE Class	Units
004	FIL	600	g
Max	Time	Min	Time
113.6	2.6	-1.5	7.1

Test Program: Hybrid III 50th Percentile Male Hip Joint-Femur Flexion Test
 ATD Serial No.: 360

Test Date: 2/7/17
 Test I.D.: M360LF029, M360RF029

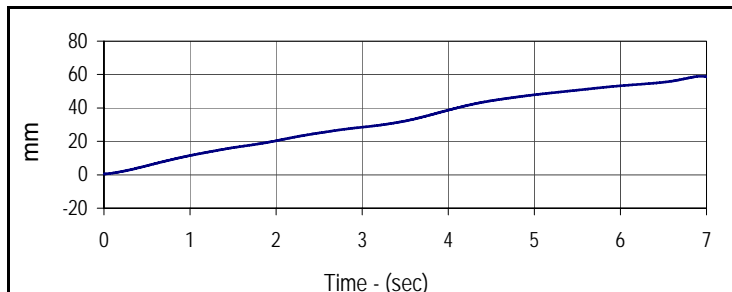


Left Hip Joint-Femur Results

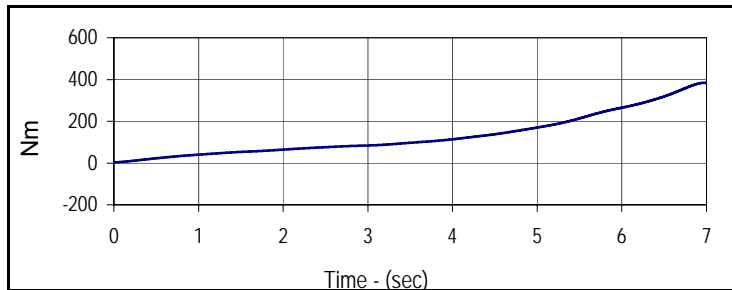
Tested Parameter	Units	Specification	Result	Pass/Fail
Hip Joint-Femur Assembly Soak Time	Minutes	≥240	714	Pass
Temperature During Soak	Max	18.9 to 25.6	21.2	Pass
	Min		21.1	Pass
Humidity During Soak	Max	10.0 to 70.0	45.4	Pass
	Min		44.8	Pass
Laboratory Temperature During Test	°C	18.9 to 25.6	21.2	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	45.3	Pass
Rotation Rate	deg/sec	5 to 10	8.5	Pass
Femur Torque at 30°	Nm	≤ 95	87.0	Pass
Rotation at 203 Nm	Degrees	40.0 to 50.0	49.7	Pass
Overall Test Results				Pass

Right Hip Joint-Femur Results

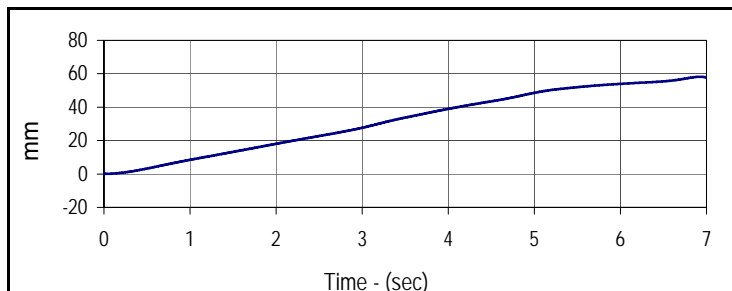
Rotation Rate	deg/sec	5 to 10	8.4	Pass
Femur Torque at 30°	Nm	≤ 95	90.9	Pass
Rotation at 203 Nm	Degrees	40.0 to 50.0	43.6	Pass
Overall Test Results				Pass



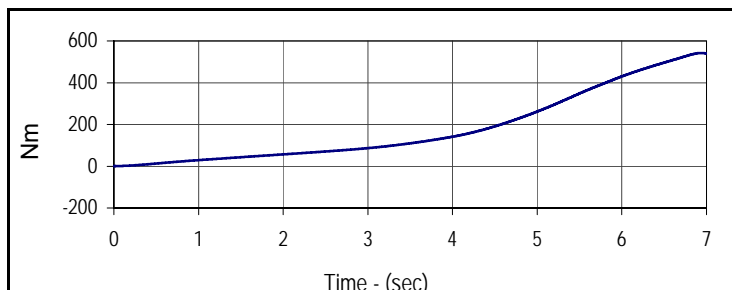
Curve Description			
Left Hip-Femur Rotation			
Plot No.	Type	SAE Class	Units
001	FIL	60	mm
Max	Time	Min	Time
59.0	6.9	0.4	0.0



Curve Description			
Left Femur Torque			
Plot No.	Type	SAE Class	Units
002	FIL	600	Nm
Max	Time	Min	Time
384.3	7.0	0.4	0.0



Curve Description			
Right Hip-Femur Rotation			
Plot No.	Type	SAE Class	Units
003	FIL	60	mm
Max	Time	Min	Time
58.2	6.9	0.4	0.0



Curve Description			
Right Femur Torque			
Plot No.	Type	SAE Class	Units
004	FIL	600	Nm
Max	Time	Min	Time
542.3	6.9	0.4	0.0

Test Program: Hybrid III 5th Percentile Female Dummy Damage Checklist

Test Date: 2/7/17

ATD Serial No.: 141

Test I.D.: N/A



Dummy Item	Inspect for	Comments	Damaged	OK
Entire Dummy	Perform general cleaning			X
Outer Skin	Gashes, rips, cracks			X
Head	Ballast secure			X
	General appearance			X
Neck	Broken or cracked rubber			X
	Upper neck bracket firmly attached to the lower neck bracket			X
	Looseness at the condyle joint			X
	Nodding blocks cracked or out of position			X
Spine	Broken or cracks in rubber			X
Ribs	Broken or bent ribs			X
	Broken or bent rib supports			X
	Damping material separated or cracked			X
	Rubber bumpers in place			X
Chest Displacement Assembly	Bent shaft			X
	Slider arm riding in track			X
Transducer Leads	Torn cables			X
Accelerometer Mountings	Head mounting secure			X
	Chest mounting secure			X
Knees	Skin condition			X
	Insert (do not remove)			X
	Casting			X
Limbs	Normal movement and adjustment			X
Knee Sliders	Wires intact			X
	Rubber returned to "at rest" position			X
Pelvis	Broken			X
Other				X

Describe the repair on or replacement of parts:

Test Program: Hybrid III 5th Percentile Female External Measurements

Test Date: 2/7/17

ATD Serial No.: 141

Test I.D.: N/A



Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.24	Pass
Laboratory Relative Humidity	%	10 to 70	45.4	Pass
A - Total sitting height	mm	774.7 to 800.1	786	Pass
B - Shoulder pivot height	mm	431.8 to 457.2	450	Pass
C - H point height	mm	81.3 to 86.3	85	Pass
D - H point location from backline	mm	144.8 to 149.8	146	Pass
E - Shoulder pivot from backline	mm	68.6 to 83.8	77	Pass
F - Thigh clearance	mm	119.4 to 134.6	126	Pass
G - Back of elbow to wrist pivot	mm	243.9 to 259.1	250	Pass
H - Head back to backline	mm	40.7 to 45.7	44	Pass
I - Shoulder to elbow length	mm	276.8 to 297.2	285	Pass
J - Elbow rest height	mm	182.8 to 203.2	198	Pass
K - Buttock to knee length	mm	520.7 to 546.1	531	Pass
L - Popliteal length	mm	355.6 to 376.0	371	Pass
M - Knee pivot height	mm	393.7 to 419.1	402	Pass
N - Buttock popliteal length	mm	414.0 to 439.4	420	Pass
O - Chest depth without jacket	mm	175.3 to 190.5	186	Pass
P - Foot length	mm	218.5 to 233.7	221	Pass
R - Buttock to Knee Pivot Length	mm	457.2 to 482.6	473	Pass
S - Head Breadth	mm	137.1 to 147.3	144	Pass
T - Head Depth	mm	177.8 to 188.0	180	Pass
U - Hip Breadth	mm	299.7 to 314.9	302	Pass
V - Shoulder breadth	mm	350.5 to 365.7	359	Pass
W - Foot breadth	mm	78.8 to 94.0	90	Pass
X - Head circumference	mm	528.3 to 548.7	541	Pass
Y - Chest circumference (with chest jacket)	mm	850.8 to 881.3	864	Pass
Z - Waist circumference	mm	759.5 to 789.9	766	Pass
AA - Location for chest circumference	mm	299.7 to 309.9	300	Pass
BB - Location for waist circumference	mm	160.1 to 170.2	164	Pass
Overall Test Results				Pass

Test Program: Hybrid III 5th Percentile Female Head Drop Test

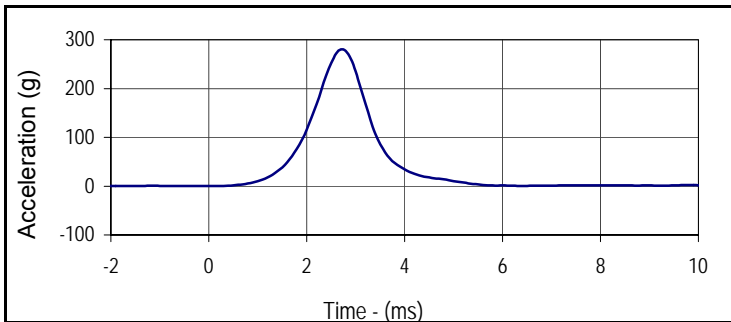
Test Date: 2/7/17



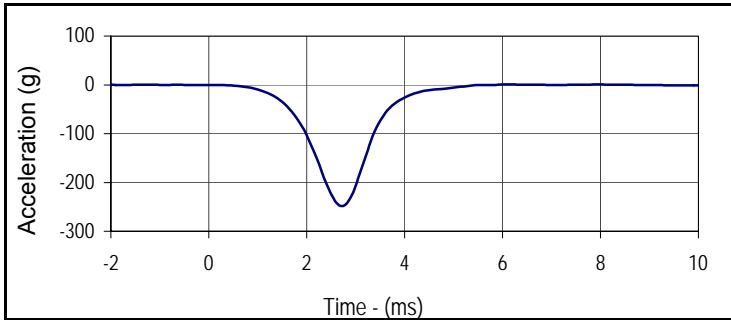
ATD Serial No.: 141

Test I.D.: F141HD082

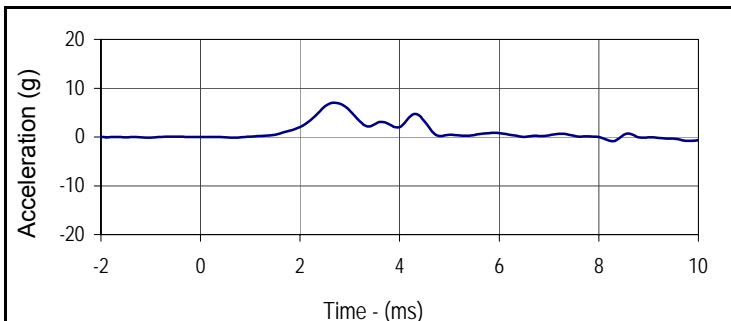
Tested Parameter	Units	Specification	Result	Pass/Fail
Head Assembly Soak Time	Minutes	≥240	471	Pass
Temperature During Soak	Max	18.9 to 25.6	21.4	Pass
	Min		21.2	Pass
Humidity During Soak	Max	10.0 to 70.0	45.7	Pass
	Min		45.0	Pass
Laboratory Temperature During Test	°C	18.9 to 25.6	21.3	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	45.6	Pass
Peak Resultant Acceleration	g	250.0 to 300.0	280.6	Pass
Peak Lateral Acceleration	g	≤15.0	7.0	Pass
Oscillations After Main Pulse	%	<10% of peak Res. Acceleration	4.6	Pass
Is Acceleration Unimodal?	Yes/No	Yes	Yes	Pass
Overall Test Results				Pass



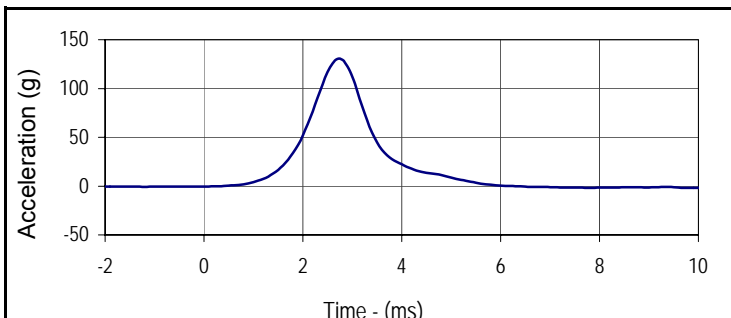
Curve Description			
Head Resultant			
Plot No.	Type	SAE Class	Units
001	RES	1000	g
Max	Time	Min	Time
280.6	2.7	0.2	147.6



Curve Description			
Head X			
Plot No.	Type	SAE Class	Units
002	FIL	1000	g
Max	Time	Min	Time
1.0	6.1	-248.4	2.7



Curve Description			
Head Y			
Plot No.	Type	SAE Class	Units
003	FIL	1000	g
Max	Time	Min	Time
7.0	2.7	-1.0	10.6



Curve Description			
Head Z			
Plot No.	Type	SAE Class	Units
004	FIL	1000	g
Max	Time	Min	Time
130.4	2.7	-1.8	9.7

Test Program: Hybrid III 5th Percentile Female Neck Flexion Test

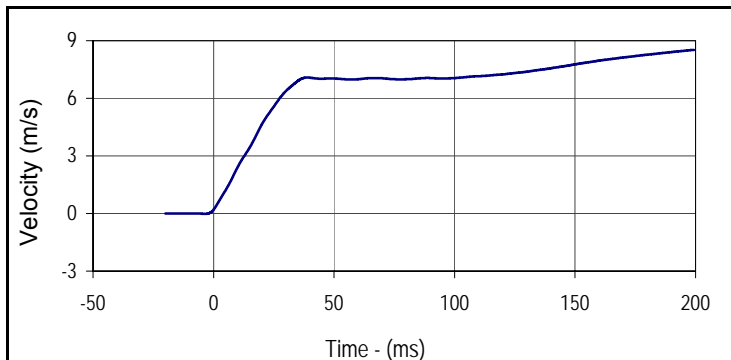
Test Date: 2/7/17



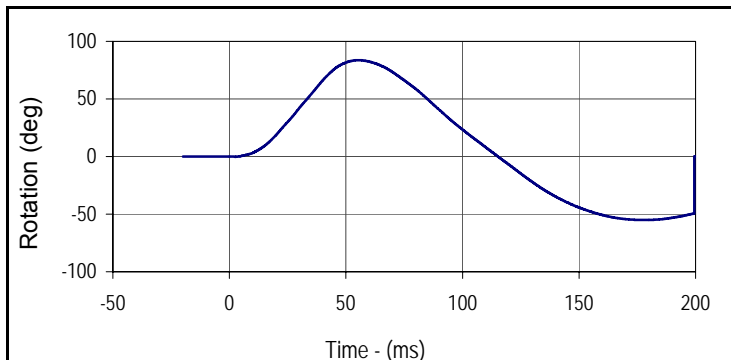
ATD Serial No.: 141

Test I.D.: F141NF082

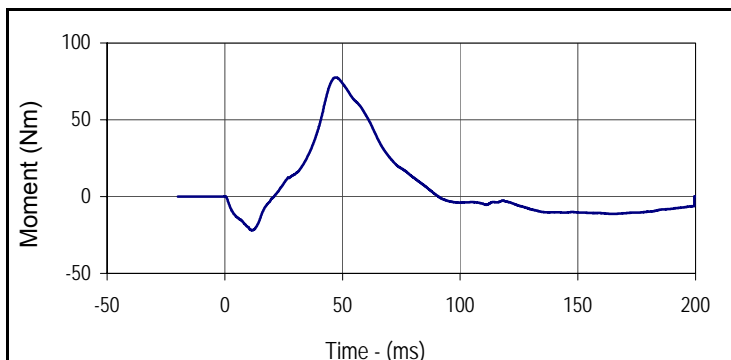
Tested Parameter	Units	Specification	Result	Pass/Fail	
Neck Assembly Soak Time	Minutes	≥240	536	Pass	
Temperature During Soak	Max	20.6 to 22.2	21.4	Pass	
	Min		21.2	Pass	
Humidity During Soak	Max	10.0 to 70.0	45.7	Pass	
	Min		45.0	Pass	
Laboratory Temperature During Test	°C	20.6 to 22.2	21.3	Pass	
Laboratory Humidity During Test	%	10.0 to 70.0	45.7	Pass	
Pendulum Velocity	m/s	6.89 to 7.13	6.92	Pass	
Pendulum Deceleration	10 Msec.	m/s	2.1 to 2.5	2.4	Pass
	20 Msec.	m/s	4.0 to 5.0	4.6	Pass
	30 Msec.	m/s	5.8 to 7.0	6.4	Pass
"D" Plane Rotation	Max	deg	77.0 to 91.0	83.6	Pass
Peak Moment in Rotation	Max	Nm	69.0 to 83.0	77.5	Pass
Positive Moment Decay, Time To 10 Nm	ms	80.0 to 100.0	81.0	Pass	
Overall Test Results				Pass	



Curve Description			
Pendulum Velocity			
Plot No.	Type	SAE Class	Units
001	FIL	180	m/s
Max	Time	Min	Time
8.5	199.9	0.0	-3.0



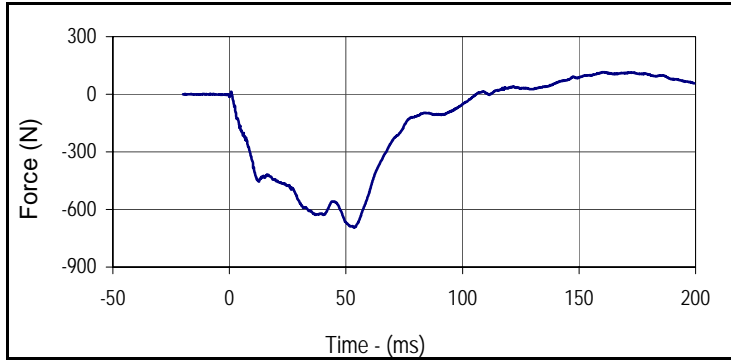
Curve Description			
"D" Plane Rotation			
Plot No.	Type	SAE Class	Units
002	FIL	60	deg
Max	Time	Min	Time
83.6	55.4	-55.1	178.6



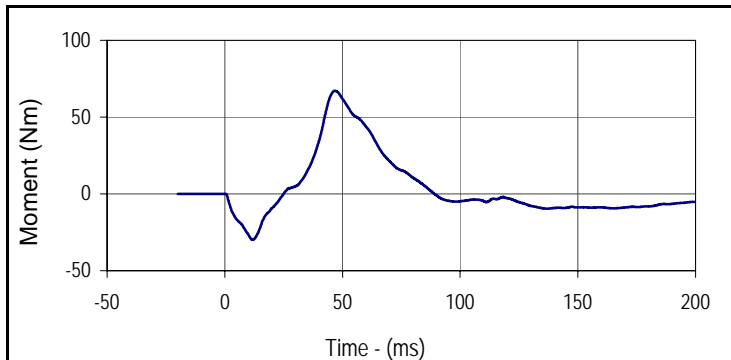
Curve Description			
Moment About Occipital Condyle			
Plot No.	Type	SAE Class	Units
003	FIL	600	Nm
Max	Time	Min	Time
77.5	47.1	-22.0	11.5

Test Program: Hybrid III 5th Percentile Female Neck Flexion Test
 ATD Serial No.: 141

Test Date: 2/7/17
 Test I.D.: F141NF082



Curve Description			
Neck Force X			
Plot No.	Type	SAE Class	Units
004	FIL	1000	N
Max	Time	Min	Time
115.6	160.4	-693.0	53.9



Curve Description			
Neck Moment Y			
Plot No.	Type	SAE Class	Units
005	FIL	600	Nm
Max	Time	Min	Time
67.2	47.2	-29.8	12.3

Test Program: Hybrid III 5th Percentile Female Neck Extension Test

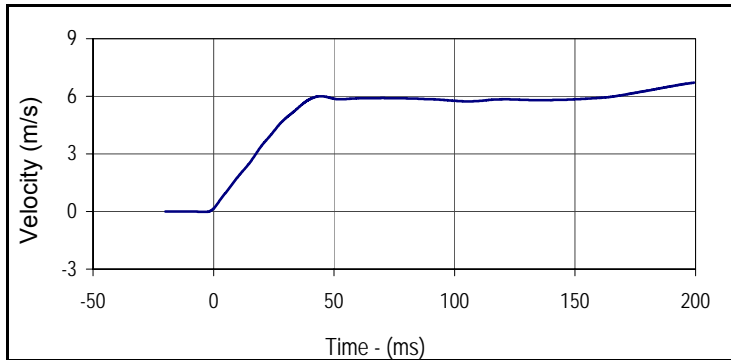
Test Date: 2/7/17



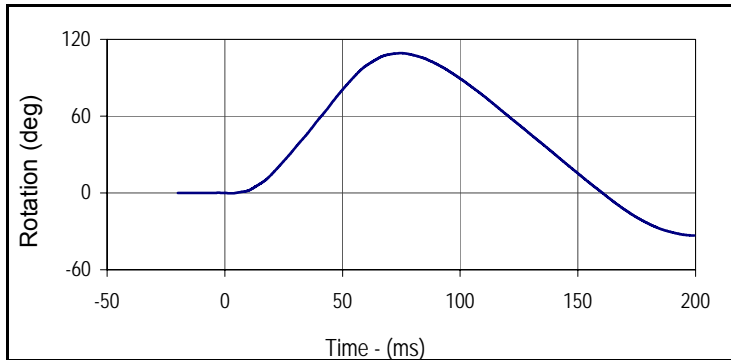
ATD Serial No.: 141

Test I.D.: F141NE082

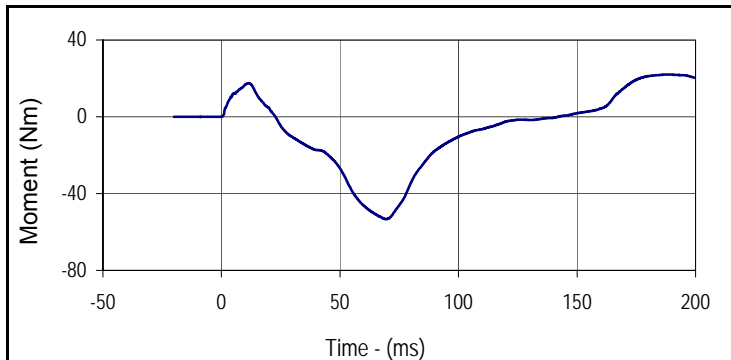
Tested Parameter	Units	Specification	Result	Pass/Fail	
Neck Assembly Soak Time	Minutes	≥240	581	Pass	
Temperature During Soak	Max	20.6 to 22.2	21.4	Pass	
	Min		21.2	Pass	
Humidity During Soak	Max	10.0 to 70.0	45.7	Pass	
	Min		45.0	Pass	
Laboratory Temperature During Test	°C	20.6 to 22.2	21.3	Pass	
Laboratory Humidity During Test	%	10.0 to 70.0	45.7	Pass	
Pendulum Velocity	m/s	5.95 to 6.19	6.13	Pass	
Pendulum Deceleration	10 Msec.	m/s	1.5 to 1.9	1.8	Pass
	20 Msec.	m/s	3.1 to 3.9	3.4	Pass
	30 Msec.	m/s	4.6 to 5.6	4.9	Pass
"D" Plane Rotation	Max	deg	99.0 to 114.0	109.2	Pass
Peak Moment in Rotation	Max	Nm	-53.0 to -65.0	-53.3	Pass
Positive Moment Decay, Time To -10 Nm	ms	94.0 to 114.0	100.7	Pass	
Overall Test Results				Pass	



Curve Description			
Pendulum Velocity			
Plot No.	Type	SAE Class	Units
001	FIL	180	m/s
Max	Time	Min	Time
6.7	199.4	0.0	-3.4



Curve Description			
"D" Plane Rotation			
Plot No.	Type	SAE Class	Units
002	FIL	60	deg
Max	Time	Min	Time
109.2	74.7	-33.3	199.4



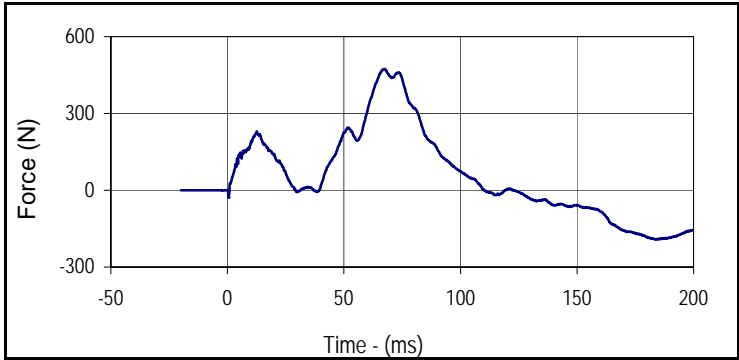
Curve Description			
Moment About Occipital Condyle			
Plot No.	Type	SAE Class	Units
003	FIL	600	Nm
Max	Time	Min	Time
22.0	187.6	-53.3	69.2

Test Program: Hybrid III 5th Percentile Female Neck Extension Test

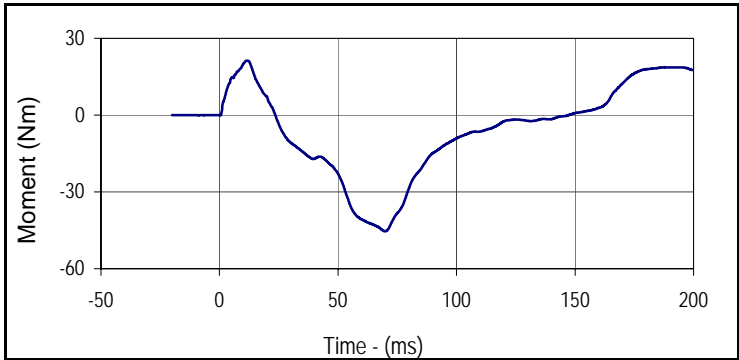
ATD Serial No.: 141

Test Date: 2/7/17

Test I.D.: F141NE082



Curve Description			
Neck Force X			
Plot No.	Type	SAE Class	Units
004	FIL	1000	N
Max	Time	Min	Time
473.9	67.5	-192.2	184.2



Curve Description			
Neck Moment Y			
Plot No.	Type	SAE Class	Units
005	FIL	600	Nm
Max	Time	Min	Time
21.2	11.4	-45.4	69.9

Test Program: Hybrid III 5th Percentile Female Thorax Impact Test

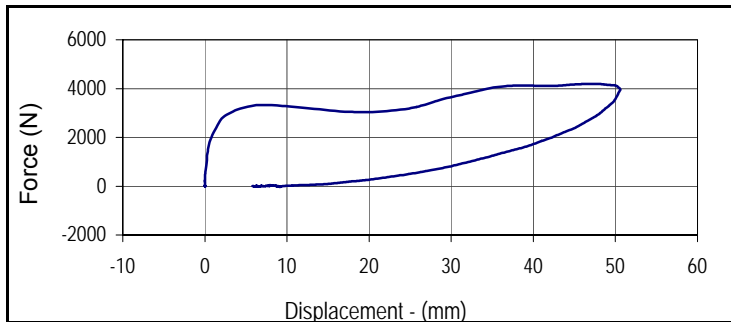
Test Date: 2/7/17



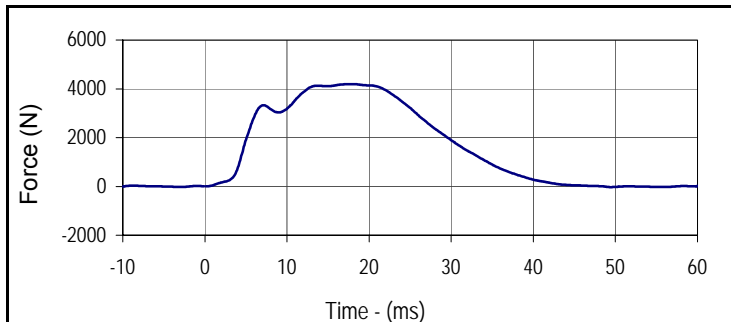
ATD Serial No.: 141

Test I.D.: F141CH082

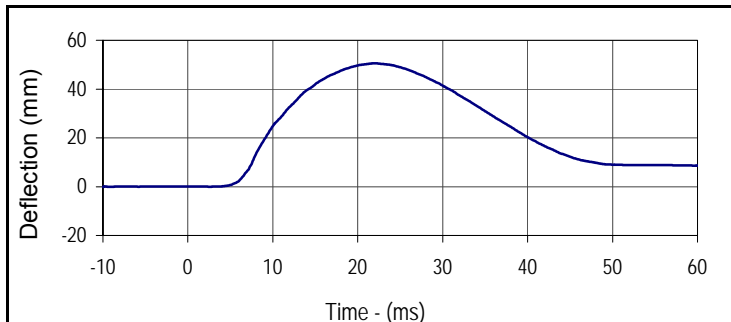
Tested Parameter		Units	Specification	Result	Pass/Fail
Dummy Soak Time		Minutes	≥240	656	Pass
Temperature During Soak	Max	°C	20.6 to 22.2	21.4	Pass
	Min	°C		21.2	Pass
Humidity During Soak	Max	%	10.0 to 70.0	45.7	Pass
	Min	%		45.0	Pass
Laboratory Temperature During Test		°C	20.6 to 22.2	21.4	Pass
Laboratory Humidity During Test		%	10.0 to 70.0	45.7	Pass
Probe Velocity		m/s	6.59 to 6.83	6.72	Pass
Peak Chest Deflection		mm	50.0 to 58.0	50.6	Pass
Peak Force Between 50 and 58 MM		N	3900 to 4400	4189	Pass
Peak Force Between 18 and 50 MM		N	≤4600	4127	Pass
Internal Hysteresis		%	69 to 85	74.1	Pass
Overall Test Results					Pass



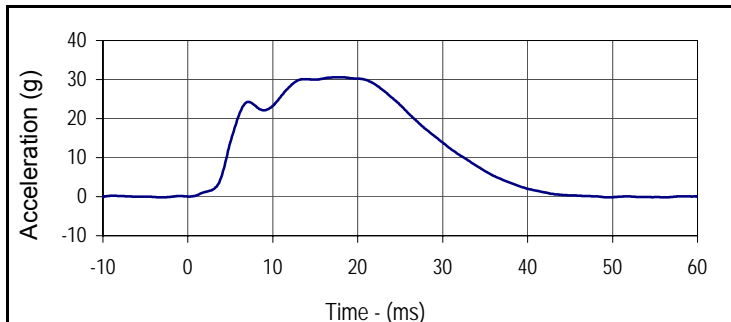
Curve Description			
Probe Force vs. Chest Deflection			
Plot No.	Type	SAE Class	Hysteresis
001	FIL	180	74.1
Peak Probe Force		Peak Chest Deflection	
4188.6		50.6	



Curve Description			
Probe Force			
Plot No.	Type	SAE Class	Units
002	FIL	180	N
Max	Time	Min	Time
4188.6	18.0	-27.4	49.4



Curve Description			
Chest Deflection			
Plot No.	Type	SAE Class	Units
003	FIL	600	mm
Max	Time	Min	Time
50.6	21.9	0.0	2.6



Curve Description			
Impactor Acceleration			
Plot No.	Type	SAE Class	Units
004	FIL	180	g
Max	Time	Min	Time
30.6	18.0	-0.2	49.4

Test Program: Hybrid III 5th Percentile Female Knee Impact Test

Test Date: 2/7/17

ATD Serial No.: 141

Test I.D.: F141LK082, F141RK082

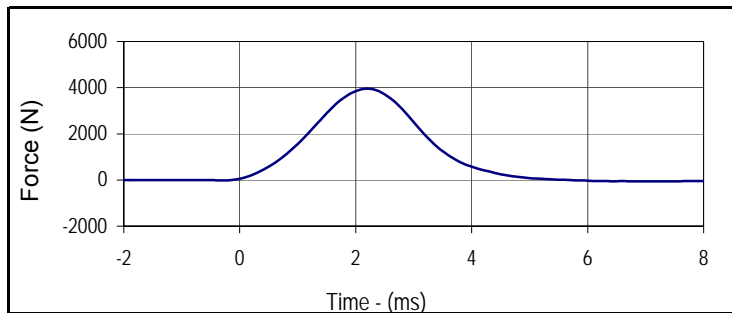


Left Knee

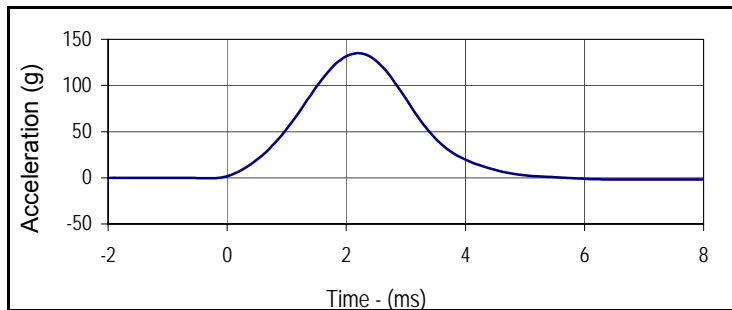
Tested Parameter	Units	Specification	Result	Pass/Fail
Knee Assembly Soak Time	Minutes	≥240	711	Pass
Temperature During Soak	Max	18.9 to 25.6	21.4	Pass
	Min		21.2	Pass
Humidity During Soak	Max	10.0 to 70.0	45.7	Pass
	Min		45.0	Pass
Laboratory Temperature During Test	°C	18.9 to 25.6	21.3	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	45.1	Pass
Pendulum Velocity at T=0	m/sec	2.07 to 2.13	2.09	Pass
Peak Probe Force	N	3450 to 4060	3955	Pass
Overall Test Results				Pass

Right Knee

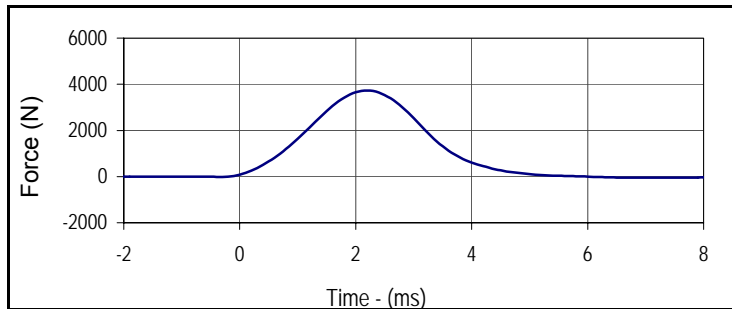
Pendulum Velocity at T=0	m/sec	2.07 to 2.13	2.09	Pass
Peak Probe Force	N	3450 to 4060	3732	Pass
Overall Test Results				Pass



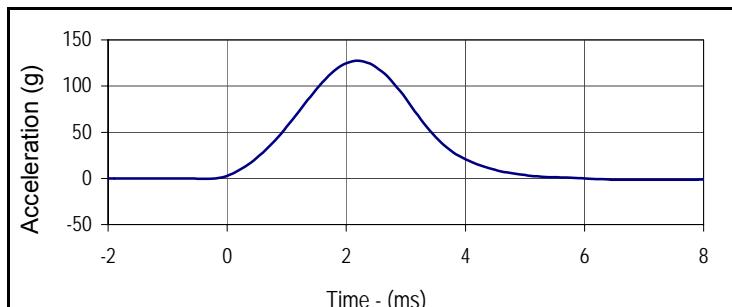
Curve Description			
Left Knee Probe Force			
Plot No.	Type	SAE Class	Units
001	FIL	600	N
Max	Time	Min	Time
3955.1	2.2	-5163.3	62.6



Curve Description			
Left Knee Acceleration			
Plot No.	Type	SAE Class	Units
002	FIL	600	g
Max	Time	Min	Time
134.9	2.2	-176.1	62.6



Curve Description			
Right Knee Probe Force			
Plot No.	Type	SAE Class	Units
003	FIL	600	N
Max	Time	Min	Time
3731.5	2.2	-5358.7	27.0



Curve Description			
Right Knee Acceleration			
Plot No.	Type	SAE Class	Units
004	FIL	600	g
Max	Time	Min	Time
127.3	2.2	-182.8	27.0

Test Program: Hybrid III 5th Percentile Female Torso Flexion Test

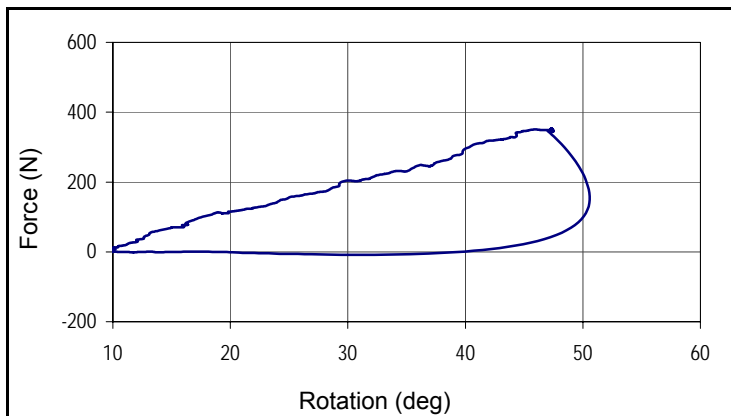
Test Date: 2/7/17

ATD Serial No.: 141

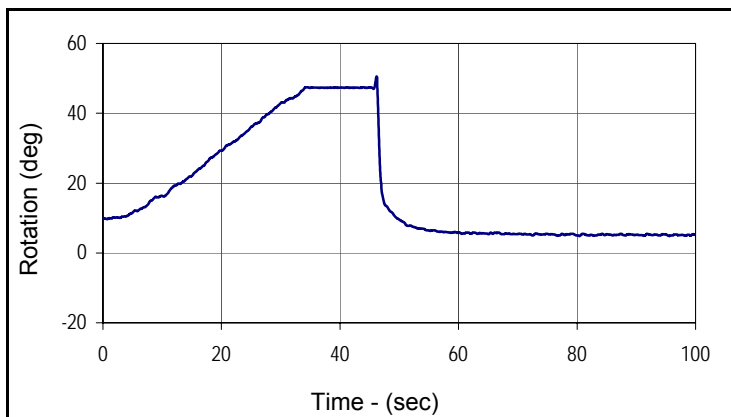
Test I.D.: TF082



Tested Parameter	Units	Specification	Result	Pass/Fail
Dummy Soak Time	Minutes	≥240	786	Pass
Temperature During Soak	Max	18.9 to 25.6	21.4	Pass
	Min		21.2	Pass
Humidity During Soak	Max	10.0 to 70.0	45.7	Pass
	Min		45.0	Pass
Laboratory Temperature During Test	°C	18.9 to 25.6	21.2	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	45.0	Pass
Initial Reference Plane Angle	deg	≤ 20	9.9	Pass
Peak Force at 45° +/-0.5°	N	320.0 to 390.0	353.1	Pass
Torso Rotation Rate	deg/s	0.5 to 1.5	1.1	Pass
Final Reference Plane Angle	deg	+/-8	5.2	Pass
Overall Test Results				Pass



Curve Description		
Force vs Torso Rotation		
Plot No.	Type	Filter Freq
001	FIL	1 Hz
Peak Force		Peak Rotation
353.1		50.6



Curve Description			
Torso Rotation			
Plot No.	Type	Filter Freq	Units
002	FIL	1 Hz	deg
Max	Time	Min	Time
50.6	46.2	4.8	80.4

APPENDIX C
POST-TEST / ATD CONFIGURATION AND PERFORMANCE VERIFICATION DATA

Test Program: Hybrid III 50th Percentile Male Dummy Damage Checklist

Test Date: 2/9/17

ATD Serial No.: 360

Test I.D.: N/A



Dummy Item	Inspect for	Comments	Damaged	OK
Entire Dummy	Perform general cleaning			X
Outer Skin	Gashes, rips, cracks			X
Head	Ballast secure			X
	General appearance			X
Neck	Broken or cracked rubber			X
	Upper neck bracket firmly attached to the lower neck bracket			X
	Looseness at the condyle joint			X
	Nodding blocks cracked or out of position			X
Spine	Broken or cracks in rubber			X
Ribs	Broken or bent ribs			X
	Broken or bent rib supports			X
	Damping material separated or cracked			X
	Rubber bumpers in place			X
Chest Displacement Assembly	Bent shaft			X
	Slider arm riding in track			X
Transducer Leads	Torn cables			X
Accelerometer Mountings	Head mounting secure			X
	Chest mounting secure			X
Knees	Skin condition			X
	Insert (do not remove)			X
	Casting			X
Limbs	Normal movement and adjustment			X
Knee Sliders	Wires intact			X
	Rubber returned to "at rest" position			X
Pelvis	Broken			X
Other				X

Describe the repair on or replacement of parts:

Test Program: Hybrid III 50th Percentile Male External Measurements

Test Date: 2/9/17

ATD Serial No.: 360

Test I.D.: N/A



Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	29.5	Pass
A - Total sitting height	mm	879 to 889	886	Pass
B - Shoulder pivot height	mm	505 to 521	510	Pass
C - H point height	mm	84 to 89	86	Pass
D - H point location from backline	mm	135 to 140	139	Pass
E - Shoulder pivot from backline	mm	84 to 94	91	Pass
F - Thigh clearance	mm	140 to 155	147	Pass
G - Back of elbow to wrist pivot	mm	290 to 305	298	Pass
H - Head back to backline	mm	41 to 46	44	Pass
I - Shoulder to elbow length	mm	330 to 345	337	Pass
J - Elbow rest height	mm	190 to 211	205	Pass
K - Buttock to knee length	mm	579 to 604	587	Pass
L - Popliteal length	mm	429 to 455	437	Pass
M - Knee pivot height	mm	485 to 500	495	Pass
N - Buttock popliteal length	mm	452 to 477	473	Pass
O - Chest depth without jacket	mm	213 to 229	227	Pass
P - Foot length	mm	251 to 267	263	Pass
V - Shoulder breadth	mm	422 to 437	436	Pass
W - Foot breadth	mm	91 to 107	99	Pass
Y - Chest circumference (with chest jacket)	mm	970 to 1001	982	Pass
Z - Waist circumference	mm	836 to 866	865	Pass
AA - Location for chest circumference	mm	429 to 434	431	Pass
BB - Location for waist circumference	mm	226 to 231	231	Pass
Overall Test Results				Pass

Test Program: Hybrid III 50th Percentile Male Head Drop Test

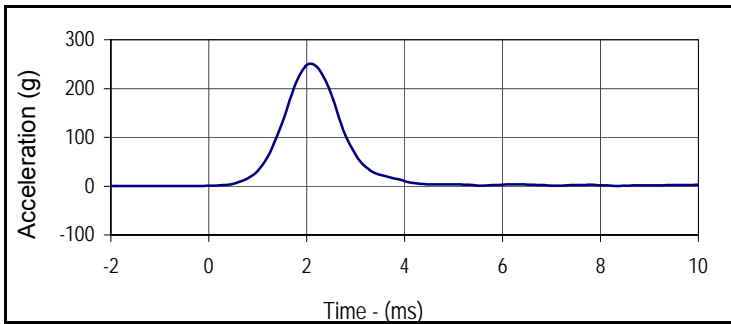
Test Date: 2/9/17



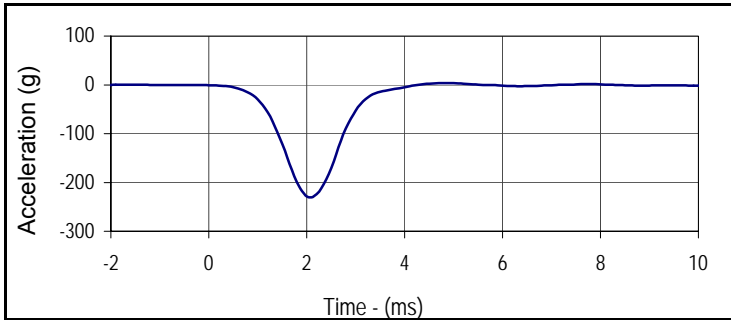
ATD Serial No.: 360

Test I.D.: M360HD030

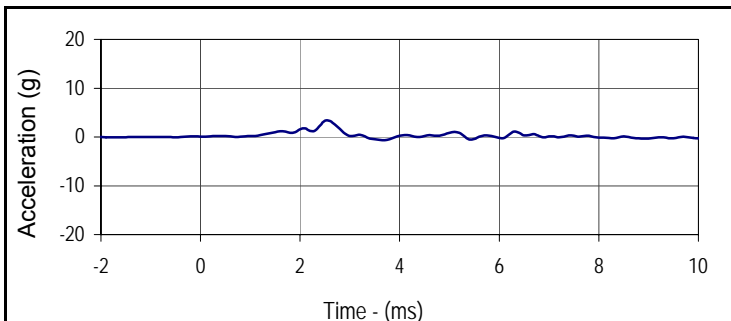
Tested Parameter	Units	Specification	Result	Pass/Fail
Head Assembly Soak Time	Minutes	≥240	402	Pass
Temperature During Soak	Max	18.9 to 25.6	21.2	Pass
	Min		21.0	Pass
Humidity During Soak	Max	10.0 to 70.0	35.0	Pass
	Min		33.7	Pass
Laboratory Temperature During Test	°C	18.9 to 25.6	21.1	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	33.9	Pass
Peak Resultant Acceleration	g	225.0 to 275.0	250.9	Pass
Peak Lateral Acceleration	g	≤15.0	3.4	Pass
Oscillations After Main Pulse	%	<10% of peak Res. Acceleration	3.5	Pass
Is Acceleration Unimodal?	Yes/No	Yes	Yes	Pass
Overall Test Results				Pass



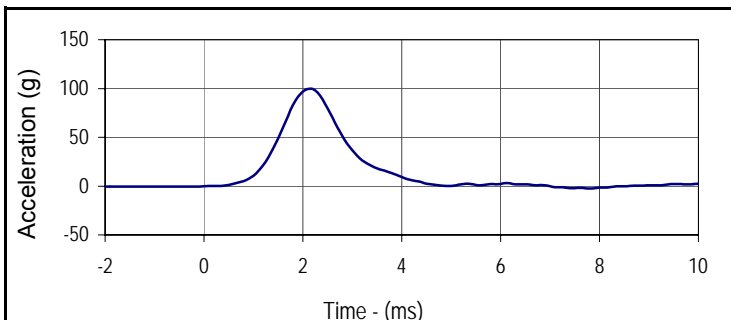
Curve Description			
Head Resultant			
Plot No.	Type	SAE Class	Units
001	RES	1000	g
Max	Time	Min	Time
250.9	2.1	0.0	26.7



Curve Description			
Head X			
Plot No.	Type	SAE Class	Units
002	FIL	1000	g
Max	Time	Min	Time
3.4	4.8	-230.2	2.1



Curve Description			
Head Y			
Plot No.	Type	SAE Class	Units
003	FIL	1000	g
Max	Time	Min	Time
3.4	2.5	-0.6	3.7



Curve Description			
Head Z			
Plot No.	Type	SAE Class	Units
004	FIL	1000	g
Max	Time	Min	Time
99.6	2.1	-2.3	7.8

Test Program: Hybrid III 50th Percentile Male Neck Flexion Test

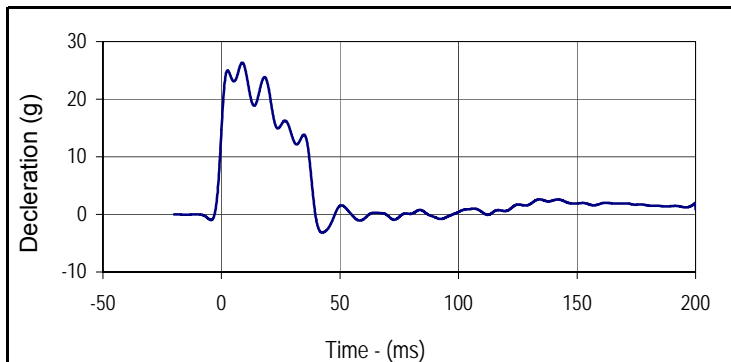
Test Date: 2/9/17



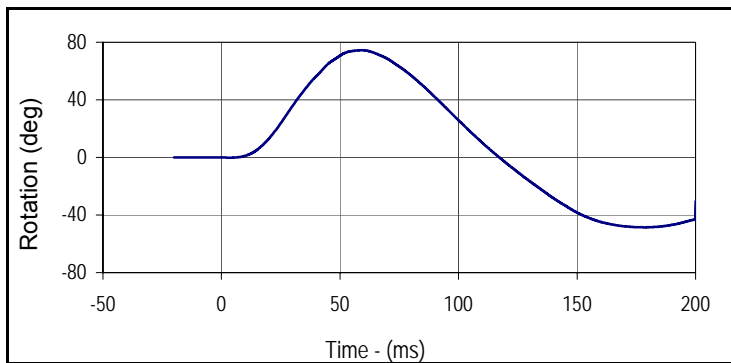
ATD Serial No.: 360

Test I.D.: M360NF030

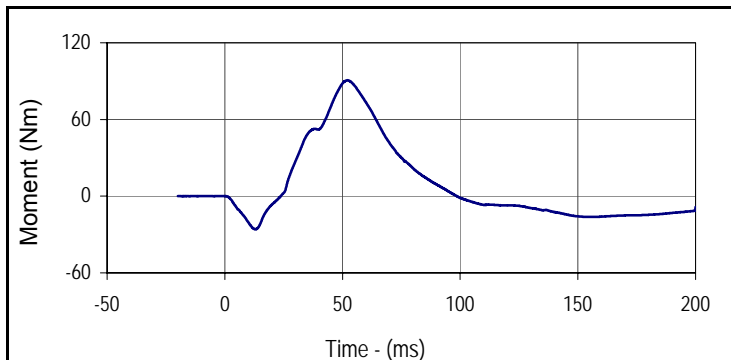
Tested Parameter	Units	Specification	Result	Pass/Fail
Neck Assembly Soak Time	Minutes	≥240	467	Pass
Temperature During Soak	Max	20.6 to 22.2	21.2	Pass
	Min		21.0	Pass
Humidity During Soak	Max	10.0 to 70.0	35.0	Pass
	Min		33.7	Pass
Laboratory Temperature During Test	°C	20.6 to 22.2	21.0	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	34.2	Pass
Pendulum Velocity	m/s	6.89 to 7.13	7.05	Pass
Pendulum Deceleration	10 Msec.	22.5 to 27.5	25.3	Pass
	20 Msec.	17.6 to 22.6	21.6	Pass
	30 Msec.	12.5 to 18.5	13.3	Pass
Peak Pendulum Decel. after 30 Msec.	g	≤ 29.0	13.8	Pass
Deceleration Decay, Time to Cross 5 G's	ms	34.0 to 42.0	38.3	Pass
Maximum "D" Plane Rotation	Max	64.0 to 78.0	74.4	Pass
	Time	57.0 to 64.0	59.4	Pass
"D" Plane Rotation Decay, Time To Zero Crossing	ms	113.0 to 128.0	117.3	Pass
Moment About Occ. Condyle	Max	88.1 to 108.5	90.7	Pass
	Time	47.0 to 58.0	52.3	Pass
Positive Moment Decay, Time To Zero Crossing	ms	97.0 to 107.0	98.6	Pass
Overall Test Results				Pass



Curve Description			
Pendulum Deceleration			
Plot No.	Type	SAE Class	Units
001	FIL	60	g
Max	Time	Min	Time
26.3	8.8	-3.2	42.5



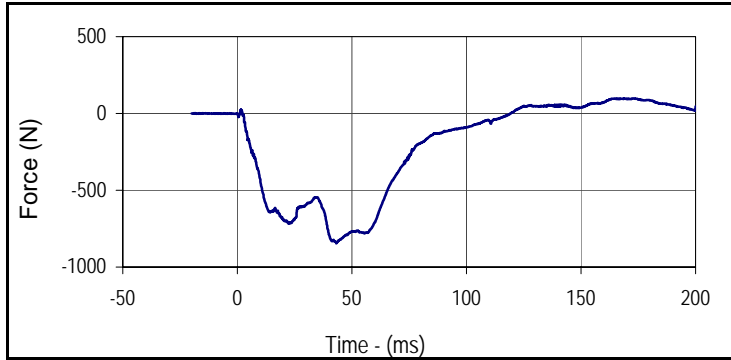
Curve Description			
"D" Plane Rotation			
Plot No.	Type	SAE Class	Units
002	FIL	60	deg
Max	Time	Min	Time
74.4	59.4	-48.6	178.6



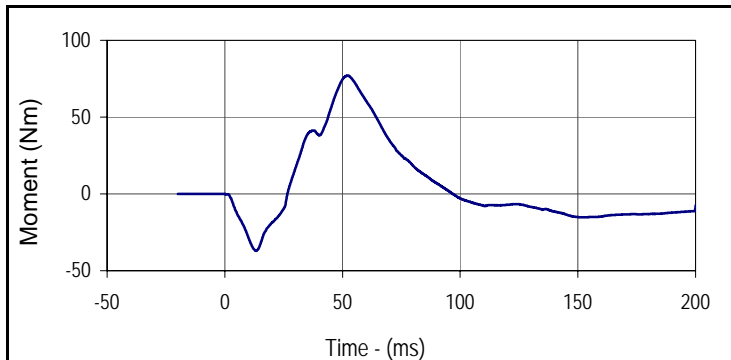
Curve Description			
Moment About Occipital Condyle			
Plot No.	Type	SAE Class	Units
003	FIL	600	Nm
Max	Time	Min	Time
90.7	52.3	-25.9	13.0

Test Program: Hybrid III 50th Percentile Male Neck Flexion Test
 ATD Serial No.: 360

Test Date: 2/9/17
 Test I.D.: M360NF030



Curve Description			
Neck Force X			
Plot No.	Type	SAE Class	Units
004	FIL	1000	N
Max	Time	Min	Time
98.5	173.1	-845.4	43.2



Curve Description			
Neck Moment Y			
Plot No.	Type	SAE Class	Units
005	FIL	600	Nm
Max	Time	Min	Time
77.1	52.2	-37.0	13.3

Test Program: Hybrid III 50th Percentile Male Neck Extension Test

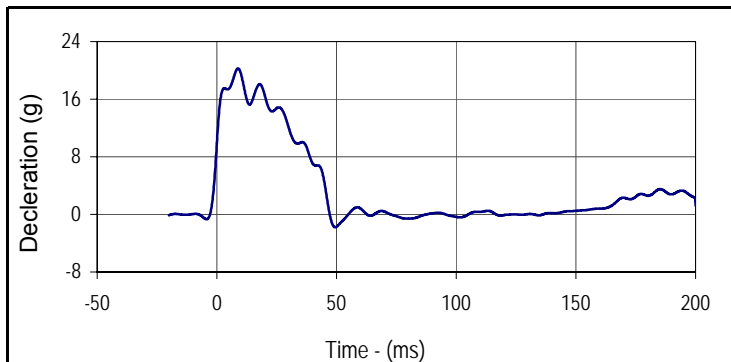
Test Date: 2/9/17



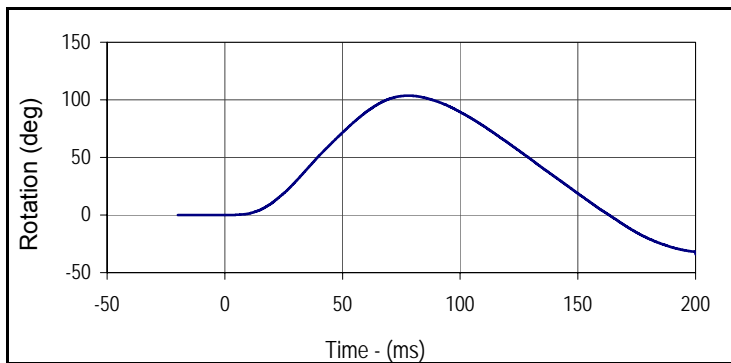
ATD Serial No.: 360

Test I.D.: M360NE030

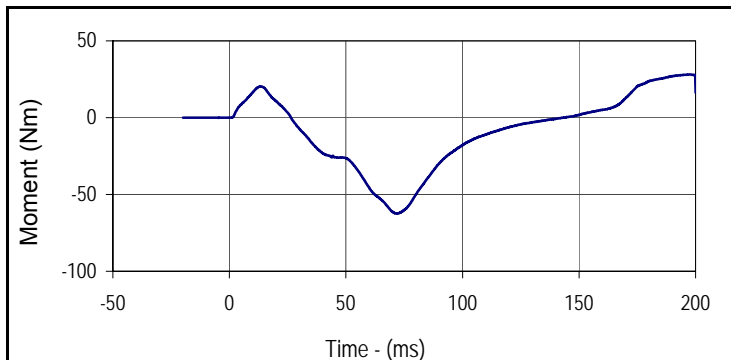
Tested Parameter	Units	Specification	Result	Pass/Fail
Neck Assembly Soak Time	Minutes	≥240	512	Pass
Temperature During Soak	Max	20.6 to 22.2	21.2	Pass
	Min		21.0	Pass
Humidity During Soak	Max	10.0 to 70.0	35.0	Pass
	Min		33.7	Pass
Laboratory Temperature During Test	°C	20.6 to 22.2	21.0	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	34.3	Pass
Pendulum Velocity	m/s	5.94 to 6.19	6.03	Pass
Pendulum Deceleration	10 Msec.	17.2 to 21.2	19.6	Pass
	20 Msec.	14.0 to 19.0	16.5	Pass
	30 Msec.	11.0 to 16.0	12.1	Pass
Peak Pendulum Decel. after 30 Msec.	g	≤ 22.0	12.1	Pass
Deceleration Decay, Time to Cross 5 G's	ms	38.0 to 46.0	44.7	Pass
Maximum "D" Plane Rotation	Max	81.0 to 106.0	103.6	Pass
	Time	72.0 to 82.0	77.9	Pass
"D" Plane Rotation Decay, Time To Zero Crossing	ms	147.0 to 174.0	163.3	Pass
Moment About Occ. Condyle	Max	-52.9 to -79.9	-62.5	Pass
	Time	65.0 to 79.0	71.9	Pass
Positive Moment Decay, Time To Zero Crossing	ms	120.0 to 148.0	143.2	Pass
Overall Test Results				Pass



Curve Description			
Pendulum Deceleration			
Plot No.	Type	SAE Class	Units
001	FIL	60	g
Max	Time	Min	Time
20.3	8.8	-1.8	49.4



Curve Description			
"D" Plane Rotation			
Plot No.	Type	SAE Class	Units
002	FIL	60	deg
Max	Time	Min	Time
103.6	77.9	-34.3	200.0



Curve Description			
Moment About Occipital Condyle			
Plot No.	Type	SAE Class	Units
003	FIL	600	Nm
Max	Time	Min	Time
28.1	197.2	-62.5	71.9

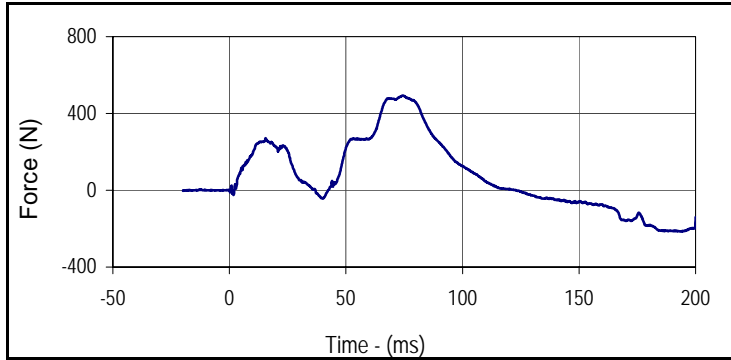
Test Program: Hybrid III 50th Percentile Male Neck Extension Test

Test Date: 2/9/17

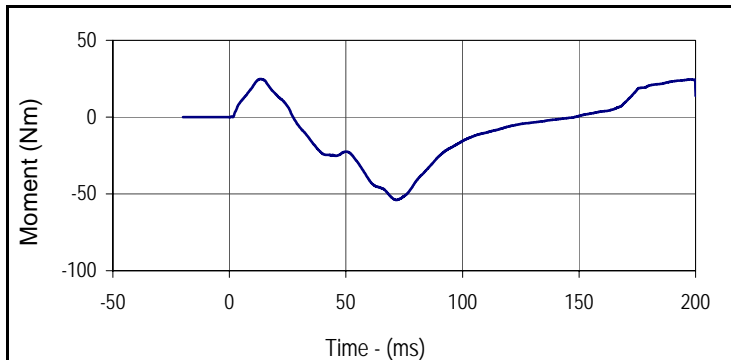


ATD Serial No.: 360

Test I.D.: M360NE030



Curve Description			
Neck Force X			
Plot No.	Type	SAE Class	Units
004	FIL	1000	N
Max	Time	Min	Time
493.5	74.7	-214.7	193.6



Curve Description			
Neck Moment Y			
Plot No.	Type	SAE Class	Units
005	FIL	600	Nm
Max	Time	Min	Time
24.8	13.3	-54.0	71.7

Test Program: Hybrid III 50th Percentile Male Thorax Impact Test

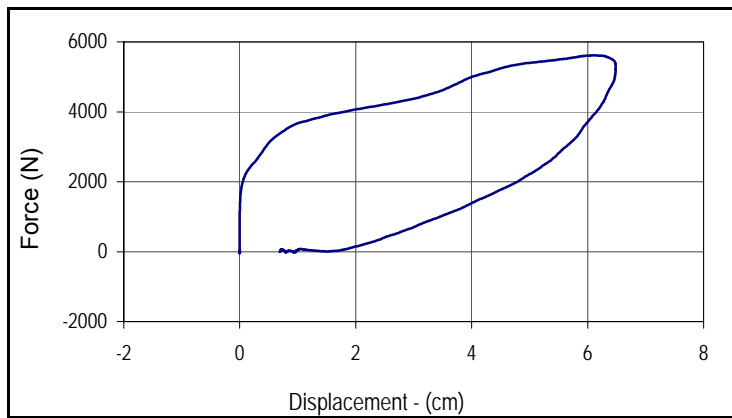
Test Date: 2/9/17



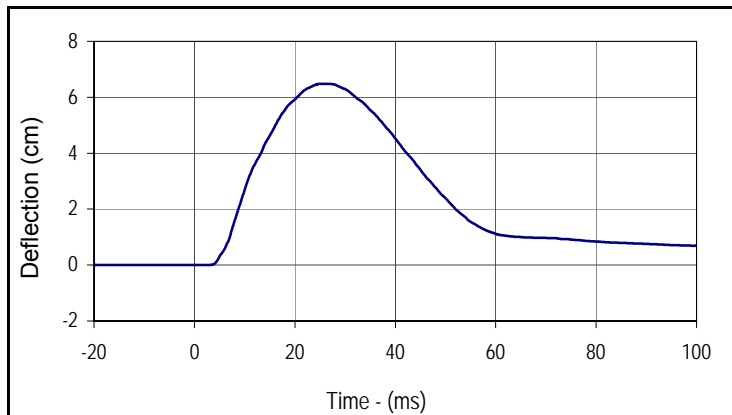
ATD Serial No.: 360

Test I.D.: M360CH030

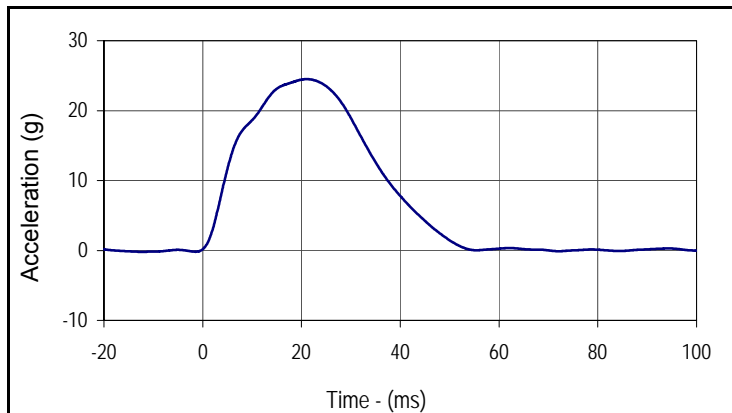
Tested Parameter	Units	Specification	Result	Pass/Fail
Dummy Soak Time	Minutes	≥240	587	Pass
Temperature During Soak	Max	20.6 to 22.2	21.2	Pass
	Min		21.0	Pass
Humidity During Soak	Max	10.0 to 70.0	35.0	Pass
	Min		33.7	Pass
Laboratory Temperature During Test	°C	20.6 to 22.2	21.0	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	34.5	Pass
Probe Velocity	m/s	6.58 to 6.82	6.65	Pass
Peak Probe Force	N	5159 to 5893	5612	Pass
Peak Sternum Deflection	cm	6.35 to 7.26	6.48	Pass
Internal Hysteresis	%	69 to 85	71.9	Pass
Overall Test Results				Pass



Curve Description			
Probe Force vs. Chest Deflection			
Plot No.	Type	SAE Class	Hysteresis
001	FIL	600	71.9
Peak Probe Force		Peak Chest Deflection	
5612		6.48	



Curve Description			
Chest Deflection			
Plot No.	Type	SAE Class	Units
002	FIL	600	cm
Max	Time	Min	Time
6.5	25.5	0.0	2.4



Curve Description			
Impactor Acceleration			
Plot No.	Type	SAE Class	Units
003	FIL	600	g
Max	Time	Min	Time
24.5	21.0	-0.2	-12.2

Test Program: Hybrid III 50th Percentile Male Knee Impact Test

Test Date: 2/9/17

ATD Serial No.: 360

Test I.D.: M360LK030 , M360RK030

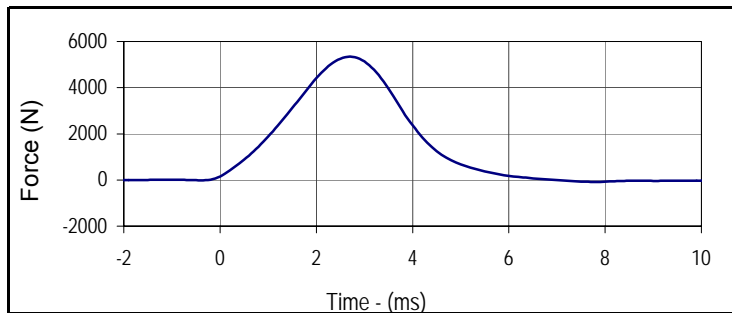


Left Knee

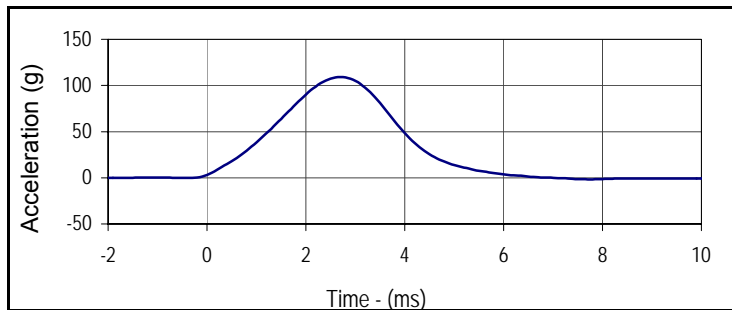
Tested Parameter	Units	Specification	Result	Pass/Fail
Knee Assembly Soak Time	Minutes	≥240	642	Pass
Temperature During Soak	Max	18.9 to 25.6	21.2	Pass
	Min		21.0	Pass
Humidity During Soak	Max	10.0 to 70.0	35.0	Pass
	Min		33.7	Pass
Laboratory Temperature During Test	°C	18.9 to 25.6	21.0	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	34.9	Pass
Pendulum Velocity at T=0	m/sec	2.07 to 2.13	2.10	Pass
Peak Probe Force	N	4715 to 5782	5342	Pass
Overall Test Results				Pass

Right Knee

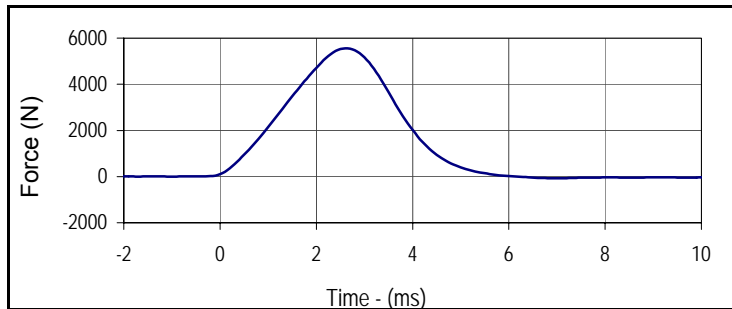
Pendulum Velocity at T=0	m/sec	2.07 to 2.13	2.09	Pass
Peak Probe Force	N	4715 to 5782	5560	Pass
Overall Test Results				Pass



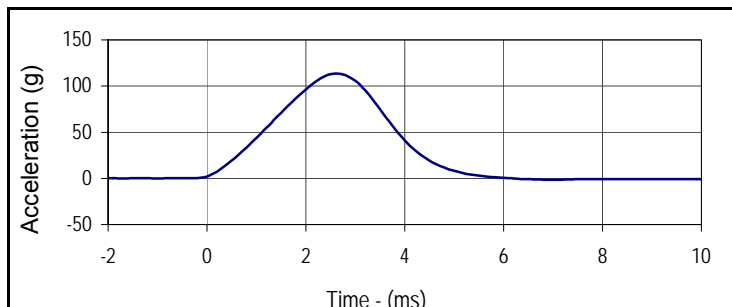
Curve Description			
Left Knee Probe Force			
Plot No.	Type	SAE Class	Units
001	FIL	600	N
Max	Time	Min	Time
5342.1	2.7	-84.5	7.8



Curve Description			
Left Knee Acceleration			
Plot No.	Type	SAE Class	Units
002	FIL	600	g
Max	Time	Min	Time
109.2	2.7	-1.7	7.8



Curve Description			
Right Knee Probe Force			
Plot No.	Type	SAE Class	Units
003	FIL	600	N
Max	Time	Min	Time
5560.4	2.6	-74.9	7.1



Curve Description			
Right Knee Acceleration			
Plot No.	Type	SAE Class	Units
004	FIL	600	g
Max	Time	Min	Time
113.6	2.6	-1.5	7.1

Test Program: Hybrid III 50th Percentile Male Hip Joint-Femur Flexion Test
 ATD Serial No.: 360

Test Date: 2/9/17
 Test I.D.: M360LF030, M360RF030

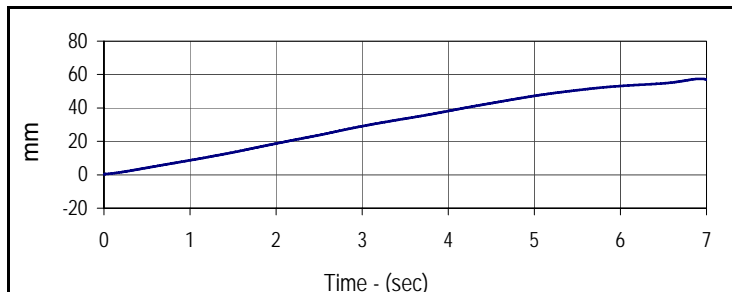


Left Hip Joint-Femur Results

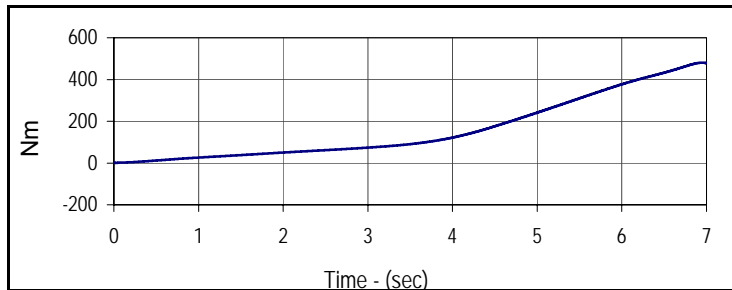
Tested Parameter	Units	Specification	Result	Pass/Fail
Hip Joint-Femur Assembly Soak Time	Minutes	≥240	717	Pass
Temperature During Soak	Max	18.9 to 25.6	21.2	Pass
	Min		21.0	Pass
Humidity During Soak	Max	10.0 to 70.0	35.0	Pass
	Min		33.7	Pass
Laboratory Temperature During Test	°C	18.9 to 25.6	21.1	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	35.0	Pass
Rotation Rate	deg/sec	5 to 10	8.3	Pass
Femur Torque at 30°	Nm	≤ 95	74.2	Pass
Rotation at 203 Nm	Degrees	40.0 to 50.0	44.0	Pass
Overall Test Results				Pass

Right Hip Joint-Femur Results

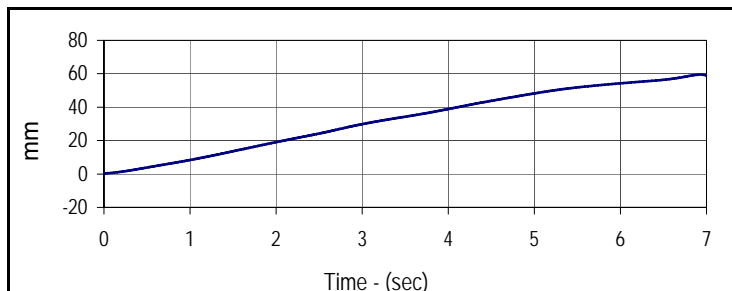
Rotation Rate	deg/sec	5 to 10	8.6	Pass
Femur Torque at 30°	Nm	≤ 95	94.0	Pass
Rotation at 203 Nm	Degrees	40.0 to 50.0	44.4	Pass
Overall Test Results				Pass



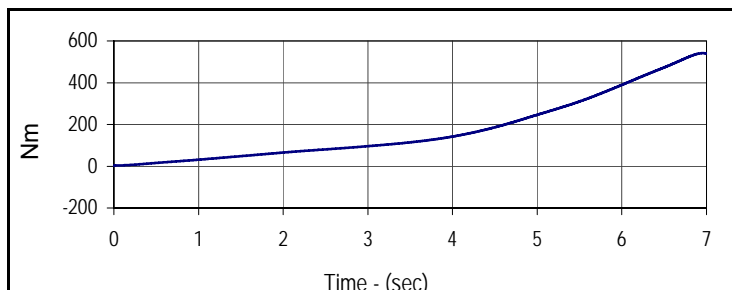
Curve Description			
Left Hip-Femur Rotation			
Plot No.	Type	SAE Class	Units
001	FIL	60	mm
Max	Time	Min	Time
57.5	6.9	0.3	0.0



Curve Description			
Left Femur Torque			
Plot No.	Type	SAE Class	Units
002	FIL	600	Nm
Max	Time	Min	Time
480.4	6.9	0.3	0.0



Curve Description			
Right Hip-Femur Rotation			
Plot No.	Type	SAE Class	Units
003	FIL	60	mm
Max	Time	Min	Time
59.5	6.9	0.3	0.0



Curve Description			
Right Femur Torque			
Plot No.	Type	SAE Class	Units
004	FIL	600	Nm
Max	Time	Min	Time
541.3	7.0	0.3	0.0

Test Program: Hybrid III 5th Percentile Female Dummy Damage Checklist

Test Date: 2/10/17

ATD Serial No.: 141

Test I.D.: N/A



Dummy Item	Inspect for	Comments	Damaged	OK
Entire Dummy	Perform general cleaning			X
Outer Skin	Gashes, rips, cracks			X
Head	Ballast secure			X
	General appearance			X
Neck	Broken or cracked rubber			X
	Upper neck bracket firmly attached to the lower neck bracket			X
	Looseness at the condyle joint			X
	Nodding blocks cracked or out of position			X
Spine	Broken or cracks in rubber			X
Ribs	Broken or bent ribs			X
	Broken or bent rib supports			X
	Damping material separated or cracked			X
	Rubber bumpers in place			X
Chest Displacement Assembly	Bent shaft			X
	Slider arm riding in track			X
Transducer Leads	Torn cables			X
Accelerometer Mountings	Head mounting secure			X
	Chest mounting secure			X
Knees	Skin condition			X
	Insert (do not remove)			X
	Casting			X
Limbs	Normal movement and adjustment			X
Knee Sliders	Wires intact			X
	Rubber returned to "at rest" position			X
Pelvis	Broken			X
Other				X

Describe the repair on or replacement of parts:

Test Program: Hybrid III 5th Percentile Female External Measurements

Test Date: 2/10/17

ATD Serial No.: 141

Test I.D.: N/A



Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.19	Pass
Laboratory Relative Humidity	%	10 to 70	34.8	Pass
A - Total sitting height	mm	774.7 to 800.1	786	Pass
B - Shoulder pivot height	mm	431.8 to 457.2	450	Pass
C - H point height	mm	81.3 to 86.3	85	Pass
D - H point location from backline	mm	144.8 to 149.8	146	Pass
E - Shoulder pivot from backline	mm	68.6 to 83.8	77	Pass
F - Thigh clearance	mm	119.4 to 134.6	126	Pass
G - Back of elbow to wrist pivot	mm	243.9 to 259.1	250	Pass
H - Head back to backline	mm	40.7 to 45.7	44	Pass
I - Shoulder to elbow length	mm	276.8 to 297.2	285	Pass
J - Elbow rest height	mm	182.8 to 203.2	198	Pass
K - Buttock to knee length	mm	520.7 to 546.1	531	Pass
L - Popliteal length	mm	355.6 to 376.0	371	Pass
M - Knee pivot height	mm	393.7 to 419.1	402	Pass
N - Buttock popliteal length	mm	414.0 to 439.4	420	Pass
O - Chest depth without jacket	mm	175.3 to 190.5	186	Pass
P - Foot length	mm	218.5 to 233.7	221	Pass
R - Buttock to Knee Pivot Length	mm	457.2 to 482.6	473	Pass
S - Head Breadth	mm	137.1 to 147.3	144	Pass
T - Head Depth	mm	177.8 to 188.0	180	Pass
U - Hip Breadth	mm	299.7 to 314.9	302	Pass
V - Shoulder breadth	mm	350.5 to 365.7	359	Pass
W - Foot breadth	mm	78.8 to 94.0	90	Pass
X - Head circumference	mm	528.3 to 548.7	541	Pass
Y - Chest circumference (with chest jacket)	mm	850.8 to 881.3	864	Pass
Z - Waist circumference	mm	759.5 to 789.9	766	Pass
AA - Location for chest circumference	mm	299.7 to 309.9	300	Pass
BB - Location for waist circumference	mm	160.1 to 170.2	164	Pass
Overall Test Results				Pass

Test Program: Hybrid III 5th Percentile Female Head Drop Test

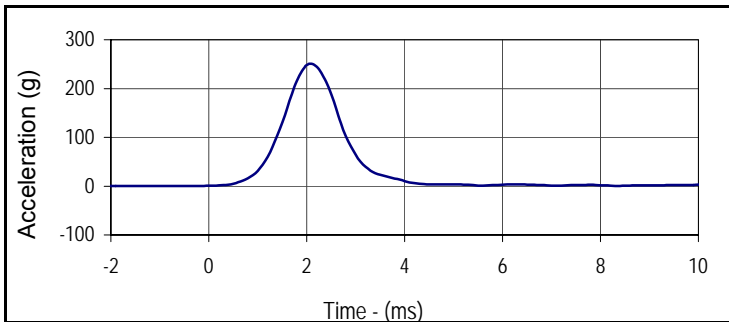
Test Date: 2/10/17



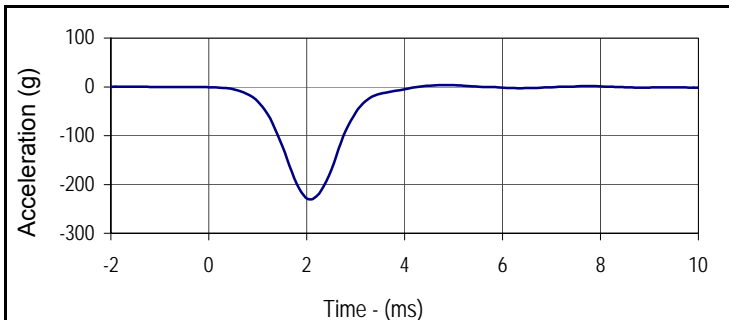
ATD Serial No.: 141

Test I.D.: F141HD083

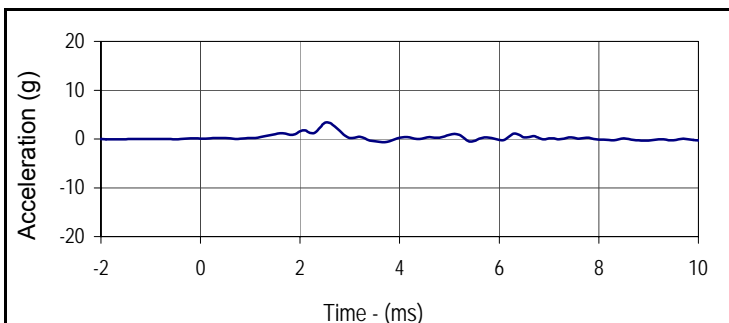
Tested Parameter	Units	Specification	Result	Pass/Fail
Head Assembly Soak Time	Minutes	≥240	306	Pass
Temperature During Soak	Max	18.9 to 25.6	21.2	Pass
	Min		20.9	Pass
Humidity During Soak	Max	10.0 to 70.0	34.8	Pass
	Min		34.3	Pass
Laboratory Temperature During Test	°C	18.9 to 25.6	21.2	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	34.6	Pass
Peak Resultant Acceleration	g	250.0 to 300.0	250.9	Pass
Peak Lateral Acceleration	g	≤15.0	3.4	Pass
Oscillations After Main Pulse	%	<10% of peak Res. Acceleration	5.5	Pass
Is Acceleration Unimodal?	Yes/No	Yes	Yes	Pass
Overall Test Results				Pass



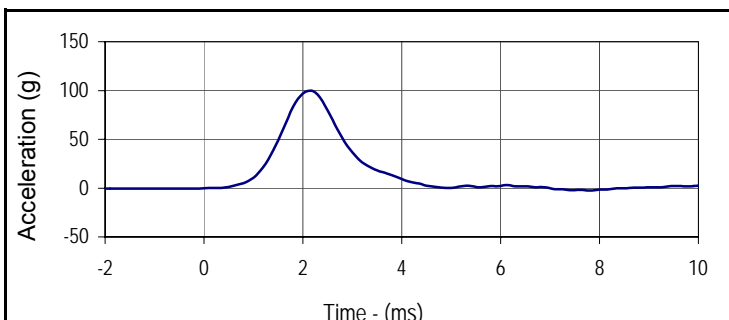
Curve Description			
Head Resultant			
Plot No.	Type	SAE Class	Units
001	RES	1000	g
Max	Time	Min	Time
250.9	2.1	0.0	26.7



Curve Description			
Head X			
Plot No.	Type	SAE Class	Units
002	FIL	1000	g
Max	Time	Min	Time
3.4	4.8	-230.2	2.1



Curve Description			
Head Y			
Plot No.	Type	SAE Class	Units
003	FIL	1000	g
Max	Time	Min	Time
3.4	2.5	-0.6	3.7



Curve Description			
Head Z			
Plot No.	Type	SAE Class	Units
004	FIL	1000	g
Max	Time	Min	Time
99.6	2.1	-3.4	117.6

Test Program: Hybrid III 5th Percentile Female Neck Flexion Test

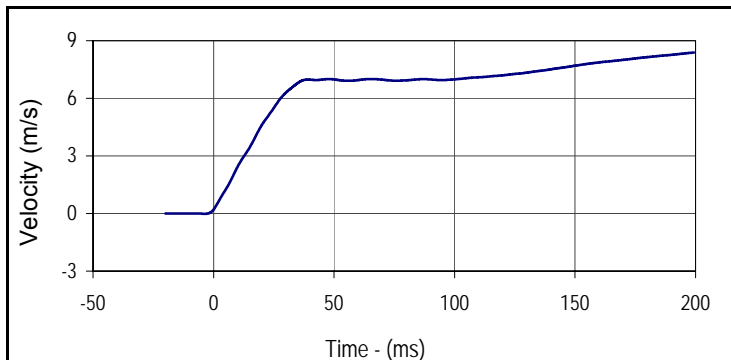
Test Date: 2/10/17



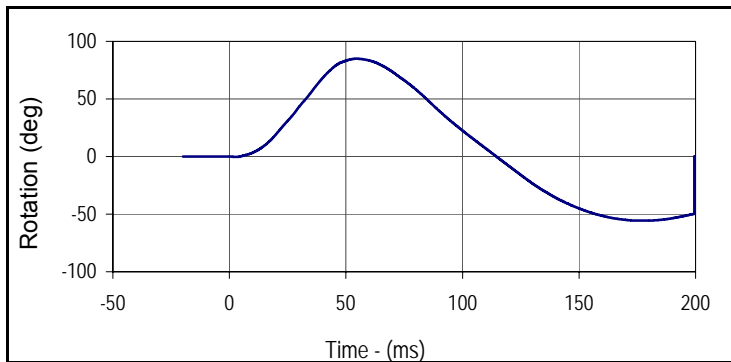
ATD Serial No.: 141

Test I.D.: F141NF083

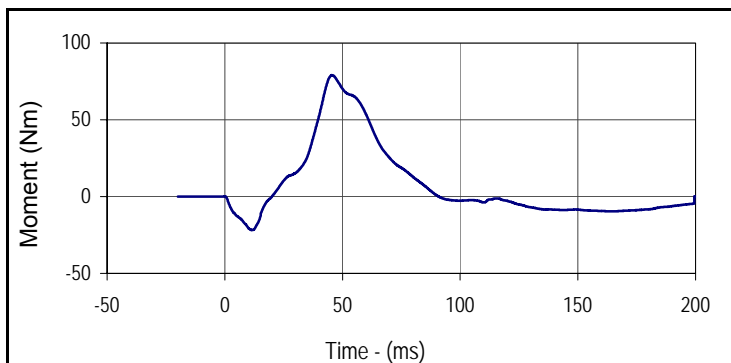
Tested Parameter	Units	Specification	Result	Pass/Fail	
Neck Assembly Soak Time	Minutes	≥240	371	Pass	
Temperature During Soak	Max	20.6 to 22.2	21.2	Pass	
	Min		20.9	Pass	
Humidity During Soak	Max	10.0 to 70.0	34.8	Pass	
	Min		34.3	Pass	
Laboratory Temperature During Test	°C	20.6 to 22.2	21.1	Pass	
Laboratory Humidity During Test	%	10.0 to 70.0	34.4	Pass	
Pendulum Velocity	m/s	6.89 to 7.13	7.03	Pass	
Pendulum Deceleration	10 Msec.	m/s	2.1 to 2.5	2.4	Pass
	20 Msec.	m/s	4.0 to 5.0	4.6	Pass
	30 Msec.	m/s	5.8 to 7.0	6.3	Pass
"D" Plane Rotation	Max	deg	77.0 to 91.0	84.9	Pass
Peak Moment in Rotation	Max	Nm	69.0 to 83.0	79.1	Pass
Positive Moment Decay, Time To 10 Nm	ms	80.0 to 100.0	81.1	Pass	
Overall Test Results				Pass	



Curve Description			
Pendulum Velocity			
Plot No.	Type	SAE Class	Units
001	FIL	180	m/s
Max	Time	Min	Time
8.4	199.9	0.0	-3.0



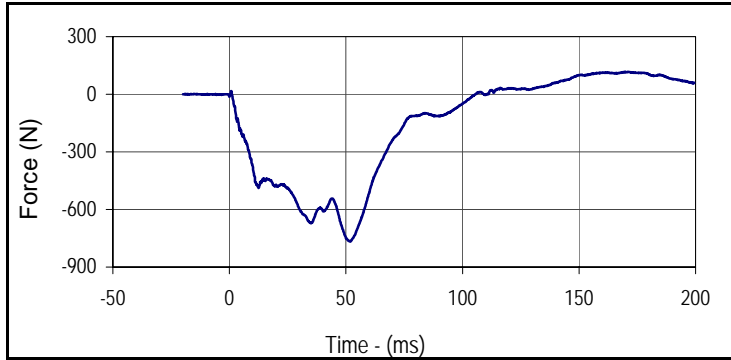
Curve Description			
"D" Plane Rotation			
Plot No.	Type	SAE Class	Units
002	FIL	60	deg
Max	Time	Min	Time
84.9	54.6	-55.6	177.7



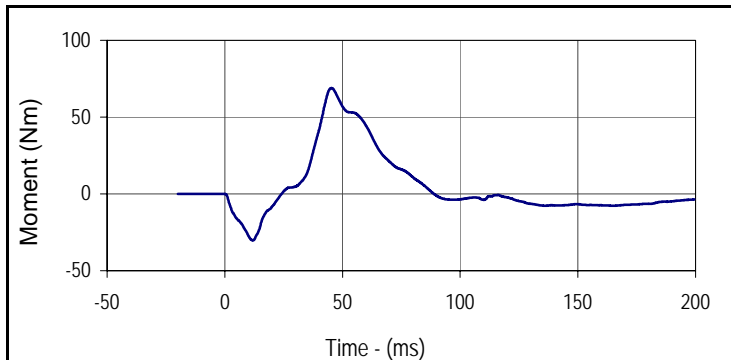
Curve Description			
Moment About Occipital Condyle			
Plot No.	Type	SAE Class	Units
003	FIL	600	Nm
Max	Time	Min	Time
79.1	45.5	-21.9	11.4

Test Program: Hybrid III 5th Percentile Female Neck Flexion Test
 ATD Serial No.: 141

Test Date: 2/10/17
 Test I.D.: F141NF083



Curve Description			
Neck Force X			
Plot No.	Type	SAE Class	Units
004	FIL	1000	N
Max	Time	Min	Time
116.9	170.0	-766.6	52.1



Curve Description			
Neck Moment Y			
Plot No.	Type	SAE Class	Units
005	FIL	600	Nm
Max	Time	Min	Time
69.0	45.8	-30.1	12.6

Test Program: Hybrid III 5th Percentile Female Neck Extension Test

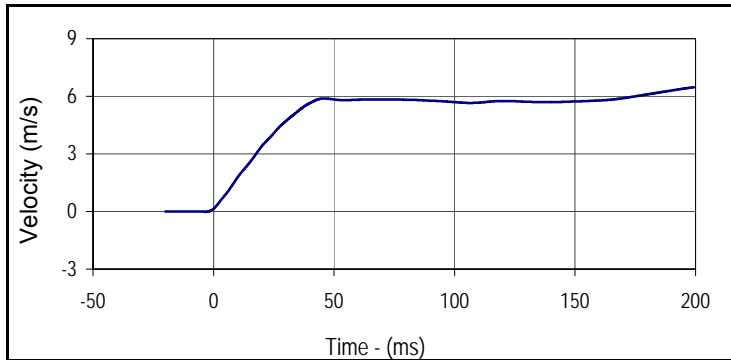
Test Date: 2/10/17



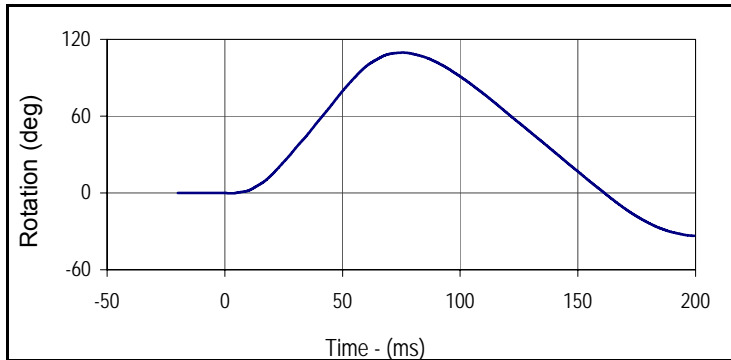
ATD Serial No.: 141

Test I.D.: F141NE083

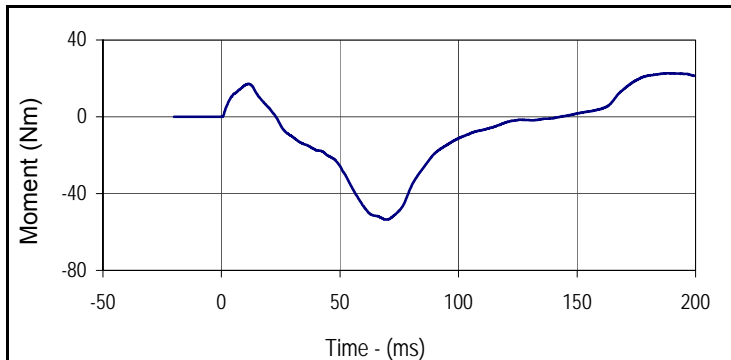
Tested Parameter	Units	Specification	Result	Pass/Fail	
Neck Assembly Soak Time	Minutes	≥240	416	Pass	
Temperature During Soak	Max	20.6 to 22.2	21.2	Pass	
	Min		20.9	Pass	
Humidity During Soak	Max	10.0 to 70.0	34.8	Pass	
	Min		34.3	Pass	
Laboratory Temperature During Test	°C	20.6 to 22.2	21.0	Pass	
Laboratory Humidity During Test	%	10.0 to 70.0	34.3	Pass	
Pendulum Velocity	m/s	5.95 to 6.19	6.05	Pass	
Pendulum Deceleration	10 Msec.	m/s	1.5 to 1.9	1.8	Pass
	20 Msec.	m/s	3.1 to 3.9	3.4	Pass
	30 Msec.	m/s	4.6 to 5.6	4.7	Pass
"D" Plane Rotation	Max	deg	99.0 to 114.0	109.6	Pass
Peak Moment in Rotation	Max	Nm	-53.0 to -65.0	-53.6	Pass
Positive Moment Decay, Time To -10 Nm	ms	94.0 to 114.0	102.4	Pass	
Overall Test Results				Pass	



Curve Description			
Pendulum Velocity			
Plot No.	Type	SAE Class	Units
001	FIL	180	m/s
Max	Time	Min	Time
6.5	199.4	0.0	-3.4



Curve Description			
"D" Plane Rotation			
Plot No.	Type	SAE Class	Units
002	FIL	60	deg
Max	Time	Min	Time
109.6	75.6	-33.5	199.4



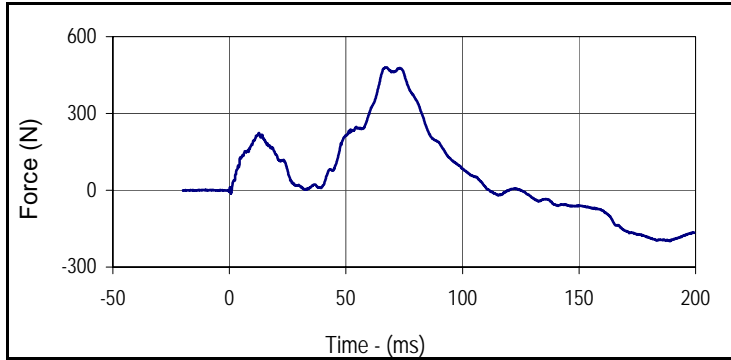
Curve Description			
Moment About Occipital Condyle			
Plot No.	Type	SAE Class	Units
003	FIL	600	Nm
Max	Time	Min	Time
22.7	189.0	-53.6	69.8

Test Program: Hybrid III 5th Percentile Female Neck Extension Test

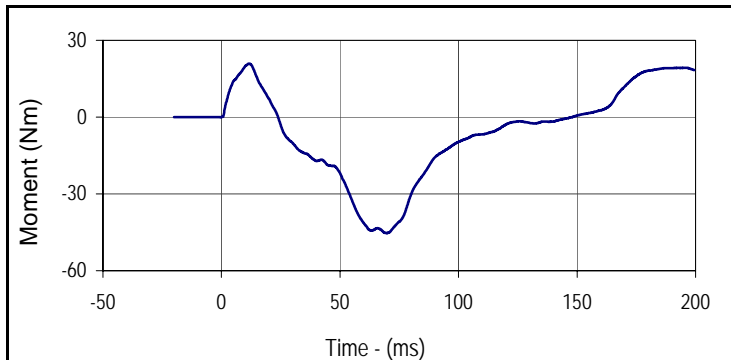
ATD Serial No.: 141

Test Date: 2/10/17

Test I.D.: F141NE083



Curve Description			
Neck Force X			
Plot No.	Type	SAE Class	Units
004	FIL	1000	N
Max	Time	Min	Time
480.6	67.3	-198.3	189.0



Curve Description			
Neck Moment Y			
Plot No.	Type	SAE Class	Units
005	FIL	600	Nm
Max	Time	Min	Time
20.9	11.5	-45.3	69.8

Test Program: Hybrid III 5th Percentile Female Thorax Impact Test

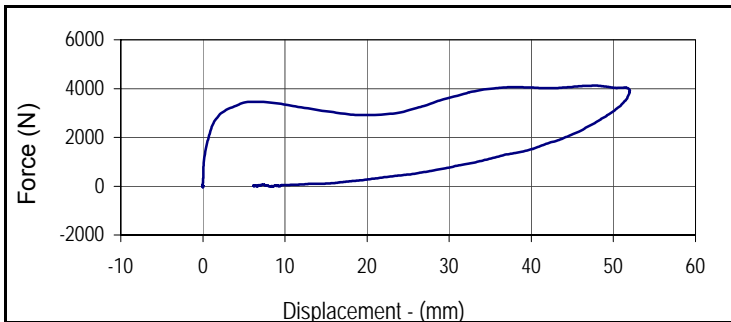
Test Date: 2/10/17



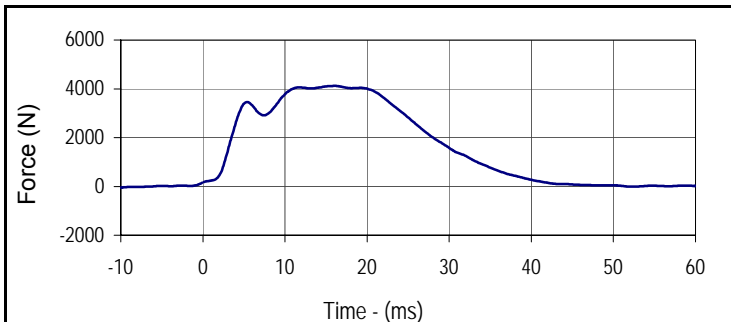
ATD Serial No.: 141

Test I.D.: F141CH083

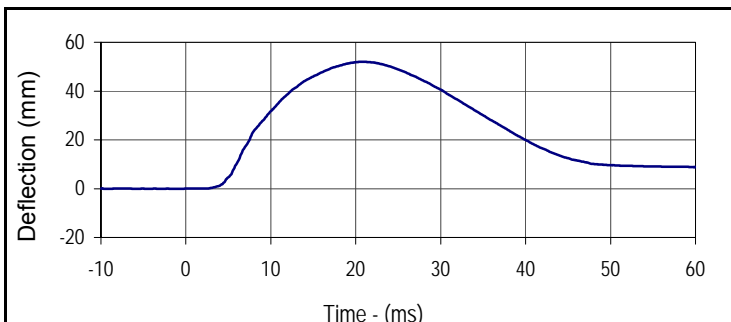
Tested Parameter	Units	Specification	Result	Pass/Fail
Dummy Soak Time	Minutes	≥240	491	Pass
Temperature During Soak	Max	20.6 to 22.2	21.2	Pass
	Min		20.9	Pass
Humidity During Soak	Max	10.0 to 70.0	34.8	Pass
	Min		34.3	Pass
Laboratory Temperature During Test	°C	20.6 to 22.2	20.9	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	34.5	Pass
Probe Velocity	m/s	6.59 to 6.83	6.71	Pass
Peak Chest Deflection	mm	50.0 to 58.0	52.0	Pass
Peak Force Between 50 and 58 MM	N	3900 to 4400	4122	Pass
Peak Force Between 18 and 50 MM	N	≤4600	4041	Pass
Internal Hysteresis	%	69 to 85	74.5	Pass
Overall Test Results				Pass



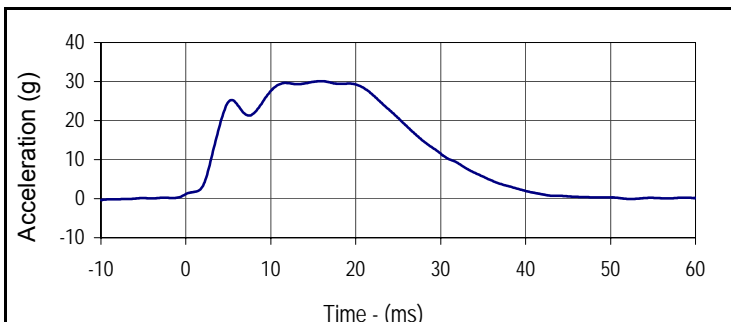
Curve Description			
Probe Force vs. Chest Deflection			
Plot No.	Type	SAE Class	Hysteresis
001	FIL	180	74.5
Peak Probe Force		Peak Chest Deflection	
4121.8		52.0	



Curve Description			
Probe Force			
Plot No.	Type	SAE Class	Units
002	FIL	180	N
Max	Time	Min	Time
4121.8	16.1	-45.1	-10.0



Curve Description			
Chest Deflection			
Plot No.	Type	SAE Class	Units
003	FIL	600	mm
Max	Time	Min	Time
52.0	20.8	0.0	-0.4



Curve Description			
Impactor Acceleration			
Plot No.	Type	SAE Class	Units
004	FIL	180	g
Max	Time	Min	Time
30.1	16.1	-0.3	-10.0

Test Program: Hybrid III 5th Percentile Female Knee Impact Test

Test Date: 2/10/17

ATD Serial No.: 141

Test I.D.: F141LK083, F141RK083

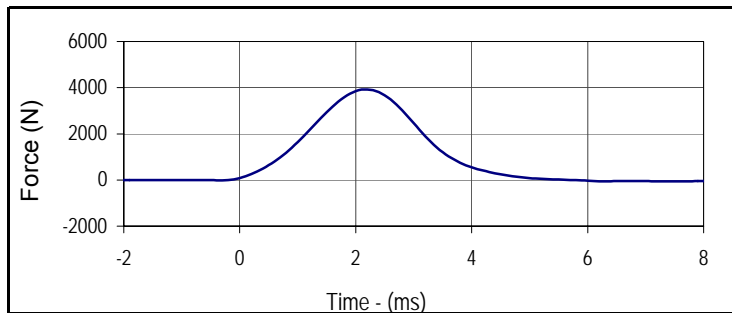


Left Knee

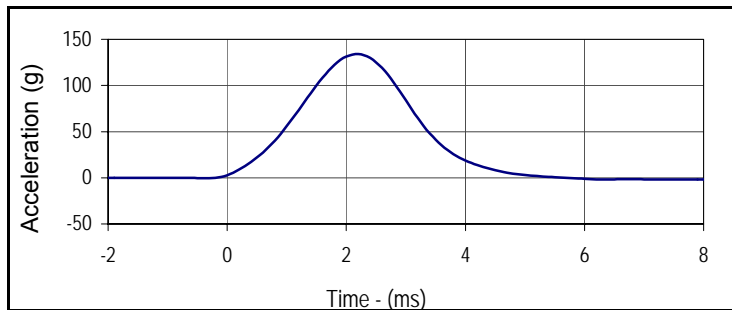
Tested Parameter	Units	Specification	Result	Pass/Fail
Knee Assembly Soak Time	Minutes	≥240	546	Pass
Temperature During Soak	Max	18.9 to 25.6	21.2	Pass
	Min		20.9	Pass
Humidity During Soak	Max	10.0 to 70.0	34.8	Pass
	Min		34.3	Pass
Laboratory Temperature During Test	°C	18.9 to 25.6	20.9	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	34.7	Pass
Pendulum Velocity at T=0	m/sec	2.07 to 2.13	2.09	Pass
Peak Probe Force	N	3450 to 4060	3927	Pass
Overall Test Results				Pass

Right Knee

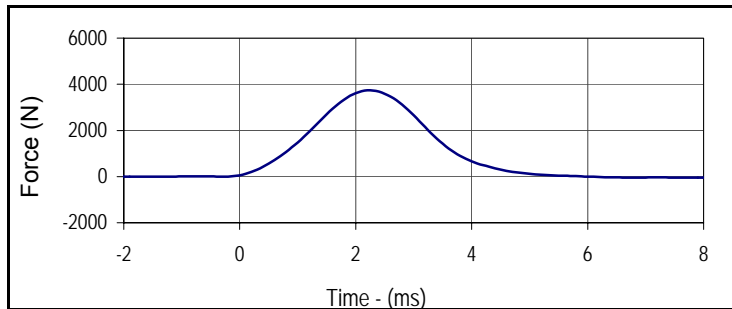
Pendulum Velocity at T=0	m/sec	2.07 to 2.13	2.09	Pass
Peak Probe Force	N	3450 to 4060	3736	Pass
Overall Test Results				Pass



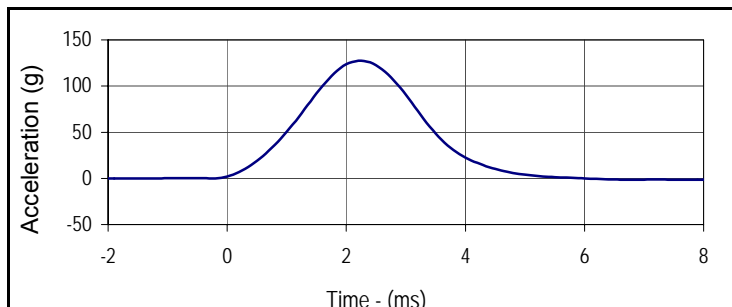
Curve Description			
Left Knee Probe Force			
Plot No.	Type	SAE Class	Units
001	FIL	600	N
Max	Time	Min	Time
3926.9	2.2	-57.6	7.3



Curve Description			
Left Knee Acceleration			
Plot No.	Type	SAE Class	Units
002	FIL	600	g
Max	Time	Min	Time
134.0	2.2	-2.0	7.3



Curve Description			
Right Knee Probe Force			
Plot No.	Type	SAE Class	Units
003	FIL	600	N
Max	Time	Min	Time
3735.9	2.2	-47.0	8.0



Curve Description			
Right Knee Acceleration			
Plot No.	Type	SAE Class	Units
004	FIL	600	g
Max	Time	Min	Time
127.5	2.2	-1.6	8.0

Test Program: Hybrid III 5th Percentile Female Torso Flexion Test

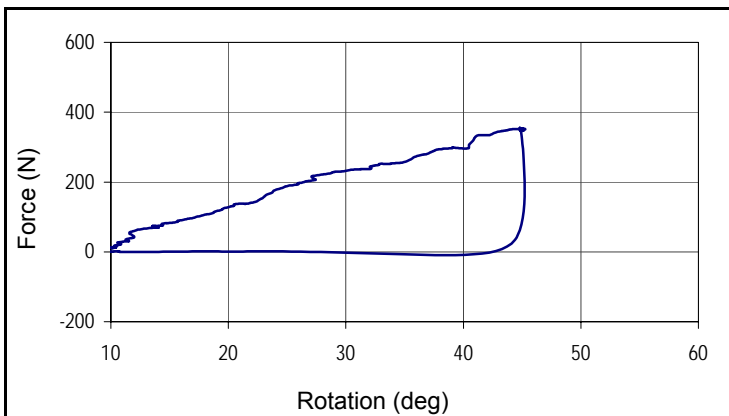
Test Date: 2/10/17



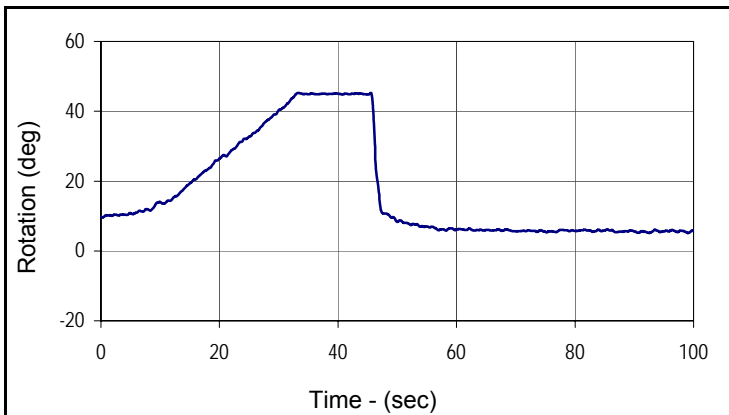
ATD Serial No.: 141

Test I.D.: TF083

Tested Parameter	Units	Specification	Result	Pass/Fail
Dummy Soak Time	Minutes	≥240	621	Pass
Temperature During Soak	Max	18.9 to 25.6	21.2	Pass
	Min		20.9	Pass
Humidity During Soak	Max	10.0 to 70.0	34.8	Pass
	Min		34.3	Pass
Laboratory Temperature During Test	°C	18.9 to 25.6	20.9	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	34.8	Pass
Initial Reference Plane Angle	deg	≤ 20	9.8	Pass
Peak Force at 45° +/-0.5°	N	320.0 to 390.0	354.9	Pass
Torso Rotation Rate	deg/s	0.5 to 1.5	1.4	Pass
Final Reference Plane Angle	deg	+/-8	5.6	Pass
Overall Test Results				Pass



Curve Description		
Force vs Torso Rotation		
Plot No.	Type	Filter Freq
001	FIL	1 Hz
Peak Force		Peak Rotation
354.9		45.3



Curve Description			
Torso Rotation			
Plot No.	Type	Filter Freq	Units
002	FIL	1 Hz	deg
Max	Time	Min	Time
45.3	33.3	5.1	99.1