

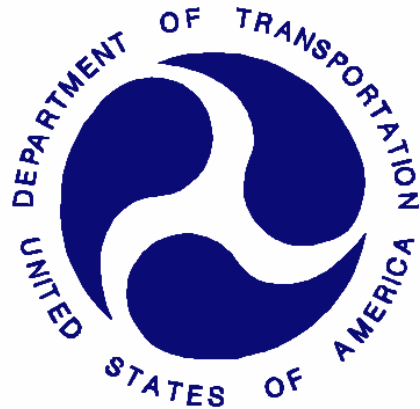
REPORT NUMBER: NCAP-KAR-16-018

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

**FORD MOTOR CO.
2017 FORD ESCAPE 5-DOOR MPV**

NHTSA NUMBER: M20170200

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



JUNE 23, 2016

FINAL REPORT

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

TECHNICAL REPORT DOCUMENTATION PAGE

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		15. Supplementary Notes																																																					
16. Abstract A 56.3 km/h NCAP Frontal Impact Test was conducted on a 2017 Ford Escape 5-door MPV in accordance with the specifications of the Office of Crashworthiness Standards Frontal NCAP Laboratory Test Procedure. This test was conducted to obtain data indicant of FMVSS 208, 212, 219 (partial), 301, and footwell intrusion performance. The test was conducted at the KARCO Engineering, LLC. facility in Adelanto, California on June 9, 2016. The impact velocity of the vehicle was 56.61 km/h and the ambient temperature at the barrier face at the time of impact was 40° C. The target vehicle's post-test maximum crush was 416 mm at the vehicle's crush zone 4 at the right side. The test vehicle's performance is as follows: <table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <thead> <tr> <th rowspan="2">Measurement Description</th> <th rowspan="2">Units</th> <th colspan="2">Driver ATD</th> <th colspan="2">Passenger ATD</th> </tr> <tr> <th>Threshold</th> <th>Result</th> <th>Threshold</th> <th>Result</th> </tr> </thead> <tbody> <tr> <td>Head Injury Criteria (HIC₁₅)</td> <td>N/A</td> <td>700.0</td> <td>198.1</td> <td>700.0</td> <td>289.6</td> </tr> <tr> <td>Maximum Chest Compression</td> <td>mm</td> <td>63</td> <td>-18</td> <td>52</td> <td>-13</td> </tr> <tr> <td>Nij</td> <td>N/A</td> <td>1</td> <td>0.28</td> <td>1</td> <td>0.40</td> </tr> <tr> <td>Neck Tension</td> <td>N</td> <td>4170</td> <td>1083.8</td> <td>2620</td> <td>968.2</td> </tr> <tr> <td>Neck Compression</td> <td>N</td> <td>4000</td> <td>-112.4</td> <td>2520</td> <td>-376.9</td> </tr> <tr> <td>Left Femur Force</td> <td>N</td> <td>10000</td> <td>-883.5</td> <td>6800</td> <td>-1878.6</td> </tr> <tr> <td>Right Femur Force</td> <td>N</td> <td>10000</td> <td>-1831.7</td> <td>6800</td> <td>-1073.4</td> </tr> </tbody> </table>				Measurement Description	Units	Driver ATD		Passenger ATD		Threshold	Result	Threshold	Result	Head Injury Criteria (HIC ₁₅)	N/A	700.0	198.1	700.0	289.6	Maximum Chest Compression	mm	63	-18	52	-13	Nij	N/A	1	0.28	1	0.40	Neck Tension	N	4170	1083.8	2620	968.2	Neck Compression	N	4000	-112.4	2520	-376.9	Left Femur Force	N	10000	-883.5	6800	-1878.6	Right Femur Force	N	10000	-1831.7	6800	-1073.4
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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 Ford Escape 5-door MPV at a velocity of 56.61 km/h. The test was performed at KARCO Engineering, LLC. on June 9, 2016. 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 94 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 of the test vehicle was 416 mm located at the vehicle's crush zone 4 at the right side. 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 airbag and headrest. The upper and lower torso contacted the airbag. Both the left and right knees contacted the knee airbag.

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

The occupant data is summarized below:

ATD Position	HIC ₁₅	T ¹	T ²	Chest Disp. (mm)	Nij	Neck Tension (N)	Neck Comp. (N)	Left Femur (N)	Right Femur (N)
Driver (50th)	198.1	90.2	99.6	-18	0.28	1083.8	-112.4	-883.5	-1831.7
Passenger (5th)	289.6	60.8	75.8	-13	0.40	968.2	-376.9	-1878.6	-1073.4

SECTION 2

OCCUPANT AND VEHICLE INFORMATION / DATA SHEETS

Test Vehicle: 2017 Ford Escape 5-Door MPV NHTSA No.: M20170200
Test Program: 56.3 km/h Frontal Impact NCAP Test Test Date: 6/9/16

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 Ford Escape 5-Door MPV	NHTSA No.:	M20170200
Test Program:	56.3 km/h Frontal Impact NCAP Test	Test Date:	6/9/16

TEST VEHICLE INFORMATION AND OPTIONS

NHTSA Number	M20170200
Model Year	2017
Make	Ford
Model	Escape
Body Style	5-Door MPV
VIN	1FMCU9GD9HUA11237
Body Color	Ingot Silver Metallic
Odometer Reading (km / mi)	157 / 98
Engine Displacement (L)	1.5
Type / No. of Cylinders	Inline 4
Engine Placement	Transverse
Transmission Type	Automatic
Transmission Speeds	6
Overdrive	Yes
Final Drive	AWD
Roof Rack	No
Sunroof / T-Top	No
Running Boards	No
Tilt Steering Wheel	Yes
Power Seats	Yes
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	Yes
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?

Yes

DATA FROM CERTIFICATION LABEL

Manufactured By	Ford Motor Co.
Date of Manufacture	Apr-16

GVWR (kg)	2159
GAWR Front (kg)	1125
GAWR Rear (kg)	1040

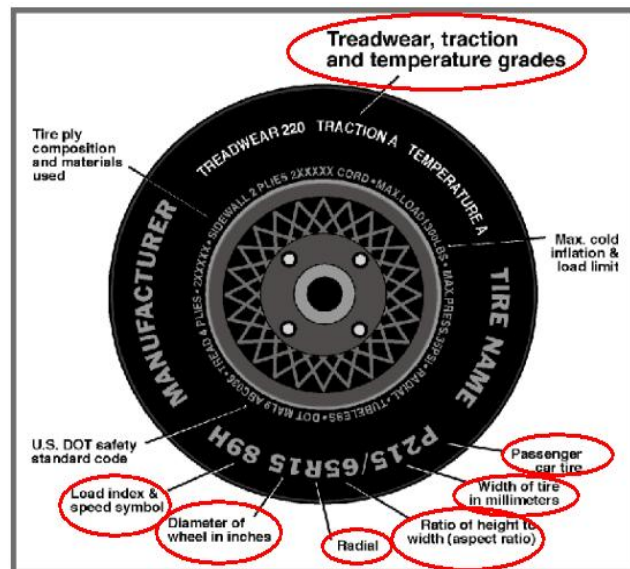
VEHICLE SEATING AND CAPACITY WEIGHT INFORMATION

Measured Parameter	Front	Rear	Third	Total	
Type of Seats	Bucket	Bench			
Designated Seating Capacity	2	3		5	
Capacity Weight (VCW) (kg)				375.0	A
DSC x 68.04 (kg)				340.2	B
Cargo Weight (RCLW) (kg)				34.8	A-B

DATA SHEET NO. 1 ... (CONTINUED)

GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle:	2017 Ford Escape 5-Door MPV	NHTSA No.:	M20170200
Test Program:	56.3 km/h Frontal Impact NCAP Test	Test Date:	6/9/16



VEHICLE TIRE INFORMATION

Measured Parameter	Front	Rear
Max. Tire Pressure (kPa)	300	300
Cold Pressure (kPa)	240	240
Recommended Tire Size	P235/55R17	P235/55R17
Tire Size on Vehicle	P235/55R17	P235/55R17
Tire Manufacturer	Michelin	Michelin
Tire Model	Energy Saver A/S	Energy Saver A/S
Treadwear	480	480
Traction	A	A
Temperature Grades	B	B
Tire Plies Sidewall	2 Polyester	2 Polyester
Tire Plies Body	2 Polyester, 2 Steel, 1 Polyamide	2 Polyester, 2 Steel, 1 Polyamide
Load Index / Speed Symbol	99H	99H
Tire Material	Polyester, Steel, Polyamide	Polyester, Steel, Polyamide
DOT Safety Code Left	M3JJ OJOX 1316	M3JJ OJOX 1316
DOT Safety Code Right	M3JJ OJOX 1316	M3JJ OJOX 1316

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

Test Vehicle: 2017 Ford Escape 5-Door MPV NHTSA No.: M20170200
 Test Program: 56.3 km/h Frontal Impact NCAP Test Test Date: 6/9/16

TEST VEHICLE WEIGHTS

	Units	As Delivered Weights (UVW)			As Tested Weights (ATW)		
		Front Axle	Rear Axle	Total	Front Axle	Rear Axle	Total
Left	kg	495.0	357.0		508.0	397.0	
Right	kg	459.5	348.0		503.0	419.5	
Ratio	%	57.5%	42.5%	100.0%	55.3%	44.7%	100.0%
Total	kg	954.5	705.0	1659.5	1011.0	816.5	1827.5

TARGET TEST WEIGHT CALCULATION

Measured Parameter	Units	Value	
Total Delivered Weight (UVW)	kg	1659.5	A
Weight of 1 P572E ATD & 1 P572O ATD	kg	141.0	B
Rated Cargo/Luggage Weight (RCLW)	kg	34.8	C
Calculated Vehicle Target Weight (TVTW)	kg	1835.3	A+B+C

TEST VEHICLE ATTITUDES

Condition	Units	LF	RF	LR	RR	CG Aft of Front Axle
As Delivered	mm	807	801	850	849	1143
As Tested	mm	799	798	831	833	1202
Post-Test	mm	805	786	839	832	

GENERAL TEST VEHICLE DATA

Measurement Description	Units	Value
Total Vehicle Wheel Base	mm	2690
Total Vehicle Length at Left Side	mm	3903
Total Vehicle Length at Centerline	mm	4525
Total Vehicle Length at Right Side	mm	3897
Weight of Ballast in Cargo Area	kg	101.0
Weight of Vehicle Components Removed	kg	49.0

VEHICLE COMPONENTS REMOVED TO MEET TEST WEIGHT:

Rear Bumper (5.0 kg), Rear Tail Lights (2.5 kg), Rear Interior Trim (10.0 kg), and Rear Driver Side Seats (31.5 kg)

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

Test Vehicle: 2017 Ford Escape 5-Door MPV NHTSA No.: M20170200
Test Program: 56.3 km/h Frontal Impact NCAP Test Test Date: 6/9/16

TARGET VEHICLE STRUCTURAL MEASUREMENTS

No.	Description	Pre-Test
1	Total Length	4525
2	Total Width	1832
3	Bumper Top Height	805
4	Bumper Bottom Height	435
5	Longitudinal Member Top Height	262
6	Distance Between Longitudinal Members	1025
7	Longitudinal Member Width	100
8	Engine Top Height	862
9	Engine Bottom Height	271
10	Engine and Gearbox Width	410
11	Front Bumper to Engine Distance	485
12	Front Shock Absorber Fixing Height	905
13	Bonnet Leading Edge Height	895
14	Front Shock Absorber Fixing Width	1320
15	Front Bumper to Front Axle Distance	983
16	Front Axle to A-Pillar Distance	920
17	A-Pillar to B-Pillar Distance	946
18	B-Pillar to Rear Axle Distance	1130
19	B-Pillar to C-Pillar Distance	856
20	Roof Sill Bottom Height	1505
21	Roof Sill Top Height	1630
22	Floor Sill Bottom Height	264
23	Floor Sill Top Height	390

All measurements in millimeters.

DATA SHEET NO. 2

SEAT ADJUSTMENT, FUEL SYSTEM, AND STEERING WHEEL DATA

Test Vehicle: 2017 Ford Escape 5-Door MPV

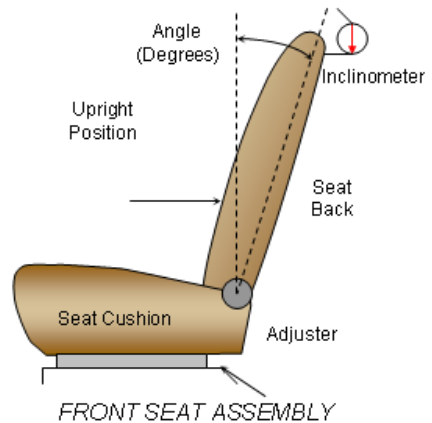
NHTSA No.: M20170200

Test Program: 56.3 km/h Frontal Impact NCAP Test

Test Date: 6/9/16

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.

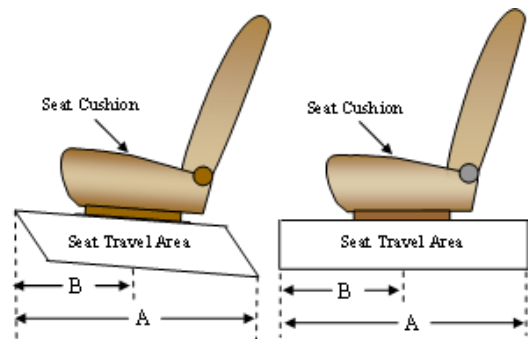


SEAT BACK ANGLE

Seating Position	Degrees
Driver Seat Back Angle	4.1
Passenger Seat Back Angle	2.2

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	314 mm	157 mm
Passenger Seat	264 mm	0 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 "M1". 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

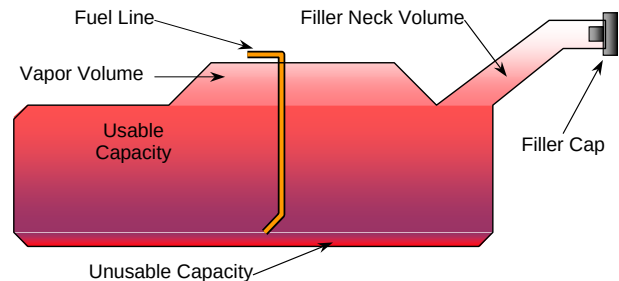
Test Vehicle: 2017 Ford Escape 5-Door MPV NHTSA No.: M20170200
Test Program: 56.3 km/h Frontal Impact NCAP Test Test Date: 6/9/16

FUEL TANK CAPACITY

Description	Liters
Usable Capacity of "Standard Tank"	61.32
Usable Capacity of "Optional Tank"	
92 - 94% of Usable Capacity	56.41 to 57.64
Actual Amount of Stoddard Solvent Used	57.04
1/3 of Usable Capacity	20.44

FUEL PUMP

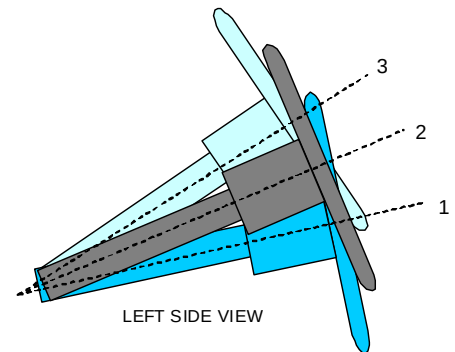
The vehicle is equipped with an electric fuel pump. The fuel pump does not operate when the vehicle's electrical system is activated. The fuel system is pressurized by turning the key to the start position.



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. A tape measure is used to measure telescoping steering wheel travel.



STEERING COLUMN ASSEMBLY

STEERING COLUMN POSITIONING

	Degrees	Fore-Aft Position (mm)
Lowermost Position, No. 1	23.6	95
Geometric Center Position, No. 2	26.6	121
Uppermost Position, No. 3	29.5	147
Telescoping Steering Wheel Travel		52
Test Position	26.6	121

DATA SHEET NO. 3

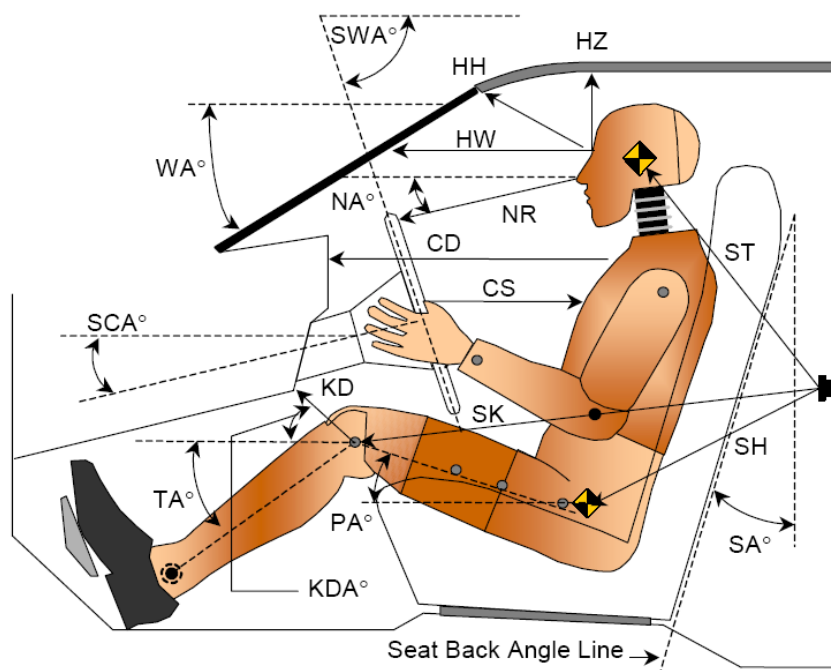
DUMMY LONGITUDINAL CLEARANCE DIMENSIONS

Test Vehicle: 2017 Ford Escape 5-Door MPV

NHTSA No.: M20170200

Test Program: 56.3 km/h Frontal Impact NCAP Test

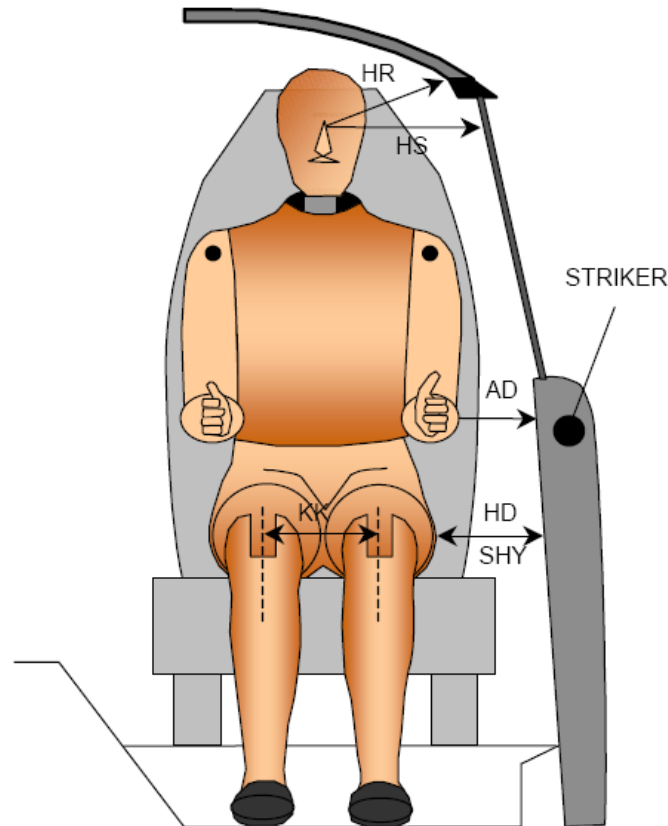
Test Date: 6/9/16



LEFT SIDE VIEW

Code	Measurement Description	Driver		Passenger	
		Length (mm)	Angle (°)	Length (mm)	Angle (°)
WA°	Windshield Angle		22.9		
SWA°	Steering Wheel Angle		63.4		
SCA°	Steering Column Angle		26.6		
SA°	Seat Back Angle (On Headrest Post)		4.1		2.2
HZ	Head to Roof	236	90.0	250	90.0
HH	Head to Header	391	29.4	322	49.7
HW	Head to Windshield	698	0.0	689	0.0
NR	Nose to Rim	405	10.4	437	30.5
CD	Chest to Dash	340	6.6	385	0.0
CS	Chest to Steering Hub	327	0.0		
RA	Rim to Abdomen	208	0.0		
KDL	Left Knee to Dash	170	27.5	75	42.0
KDR	Right Knee to Dash	153	37.7	85	39.9
PA°	Pelvic Angle		22.8		21.3
TA°	Tibia Angle		33.2		53.4
SK	Striker to Knee	553	3.3	701	2.3
ST	Striker to Head	567	84.3	531	62.1
SH	Striker to H-Point	219	30.2	384	11.7

DUMMY LATERAL CLEARANCE DIMENSIONS

Test Date: 6/9/16

Code	Description	Driver (mm)	Passenger (mm)
AD	Arm to Door	116	91
HD	H-Point to Door	141	206
HR	Head to Side Header	259	324
HS	Head to Side Window	380	399
KK	Knee to Knee	358	225
SHY	Striker to H-Point (Y-Direction)	240	267
AA	Ankle to Ankle	343	207

DATA SHEET NO. 5

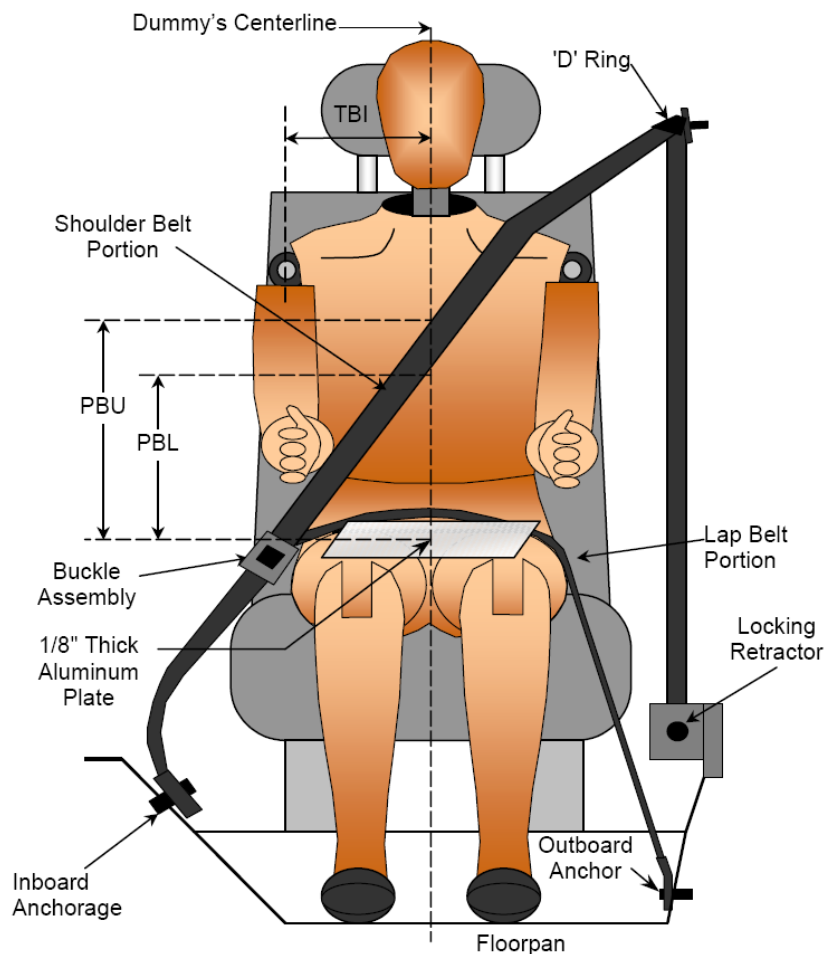
SEAT BELT POSITIONING DATA

Test Vehicle: 2017 Ford Escape 5-Door MPV

NHTSA No.: M20170200

Test Program: 56.3 km/h Frontal Impact NCAP Test

Test Date: 6/9/16



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	352	292
PBL	Top Surface of Aluminum Plate to Belt Lower Edge	mm	264	198

BELT LENGTH DATA

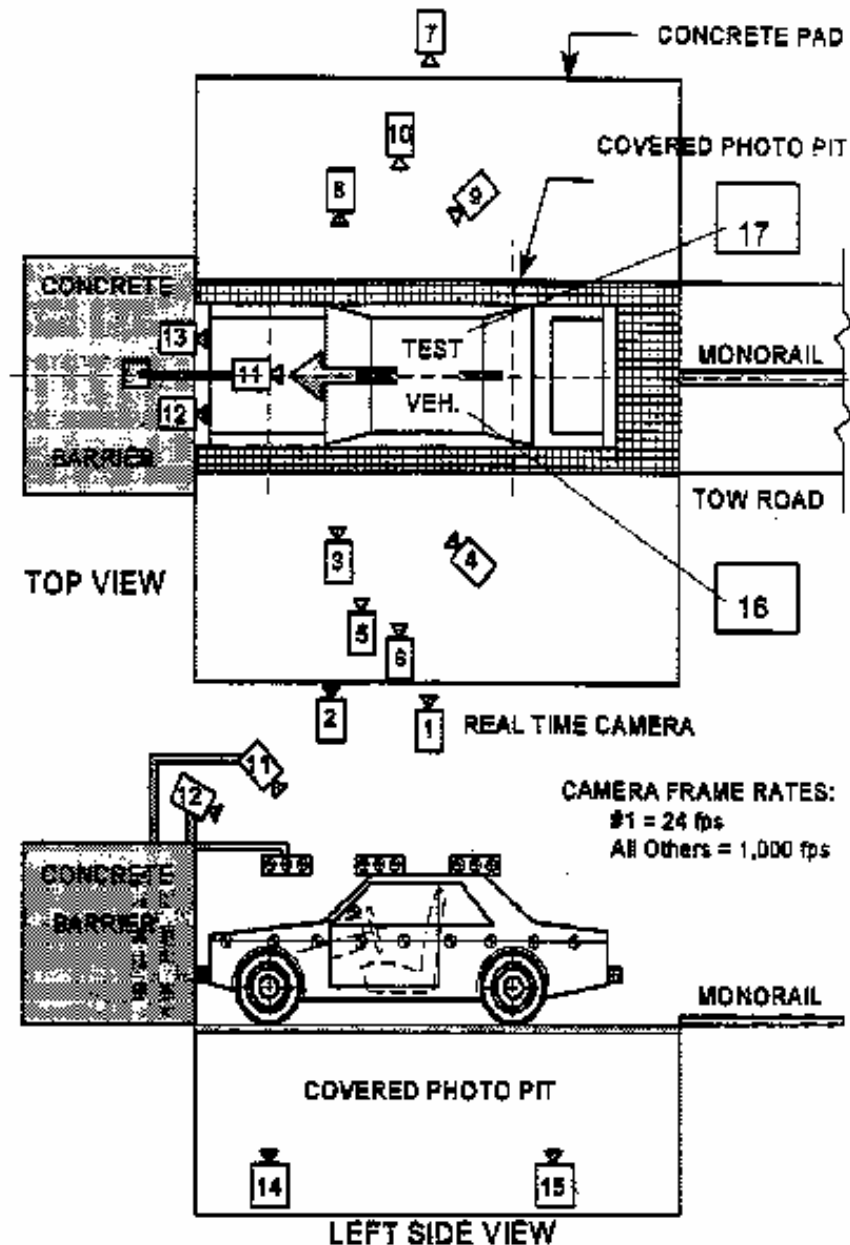
Measurement Description	Units	Driver	Passenger
Shoulder Belt Length as Measured on ATD	mm	812	882
Lap Belt Length as Measured on ATD	mm	820	925
Remainder of Belt on Reel	mm	1004	913
Total Belt Length for Continuous Webbing Systems	mm	2636	2720

DATA SHEET NO. 6

HIGH-SPEED CAMERA LOCATIONS AND DATA

Test Vehicle: 2017 Ford Escape 5-Door MPV NHTSA No.: M20170200
 Test Program: 56.3 km/h Frontal Impact NCAP Test Test Date: 6/9/16

CAMERA POSITIONS FOR FRONTAL IMPACTS



DATA SHEET NO. 6 ... (CONTINUED)

HIGH-SPEED CAMERA LOCATIONS AND DATA

Test Vehicle: 2017 Ford Escape 5-Door MPV NHTSA No.: M20170200
 Test Program: 56.3 km/h Frontal Impact NCAP Test Test Date: 6/9/16

CAMERA LOCATIONS

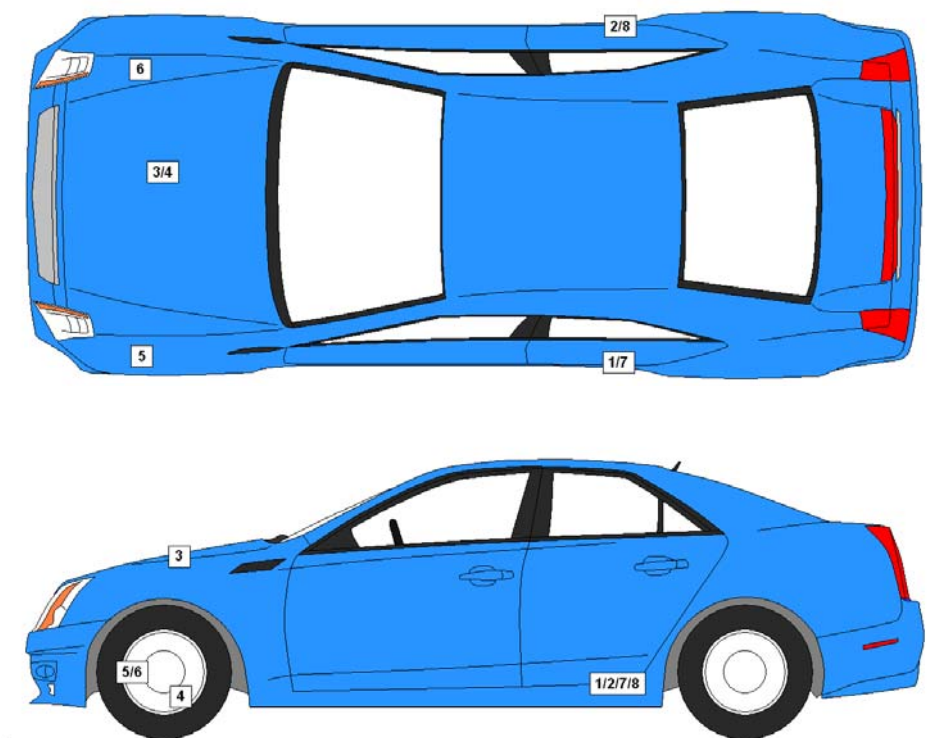
No.	Description	Location (mm)			Lens (mm)	Speed (fps)
		X	Y	Z		
1	Real-Time Left Overall	-11412	-8150	-1484		30
2	Driver Close-Up	-2590	-7950	-1371	24	1000
3	Left Front Half	-1701	-6197	-1701	50	1000
4	Left Angle	-6696	-10308	-3211	ZOOM	1000
5	Steering Column - Top	-1966	-10412	-3688	50	1000
6	Steering Column - Bottom	-1972	-10412	-3379	50	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	ZOOM	1000
10	Right Angle	-6217	9516	-4830	ZOOM	1000
11	Windshield	-354	0	-5749	12	1000
12	Driver Windshield	297	-366	-2460	12	1000
13	Passenger Windshield	297	366	-2460	24	1000
14	Pit Front	-756	0	1495	20	1000
15	Pit Rear	-3398	0	1495	20	1000
16	Onboard Driver Airbag (Optional)	-3030	380	-1540	12	1000
17	Onboard Passenger Airbag (Optional)	-3030	-380	-1540	12	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 Ford Escape 5-Door MPV NHTSA No.: M20170200
Test Program: 56.3 km/h Frontal Impact NCAP Test Test Date: 6/9/16



VEHICLE ACCELEROMETER PRE-TEST LOCATIONS

No.	Description	Location		
		X	Y	Z
1	Left Rear Accelerometer X-Direction	1700	-730	-430
2	Right Rear Accelerometer X-Direction	1705	730	-430
3	Engine Top X	3800	120	-820
4	Engine Bottom X	3860	-80	-30
5	Left Rear Accelerometer Z-Direction	1700	-730	-430
6	Right Rear Accelerometer Z-Direction	1705	730	-430
7	Left Rear Accelerometer X-Direction Redundant	1700	-730	-430
8	Right Rear Accelerometer X-Direction Redundant	1705	730	-430

Reference Points:

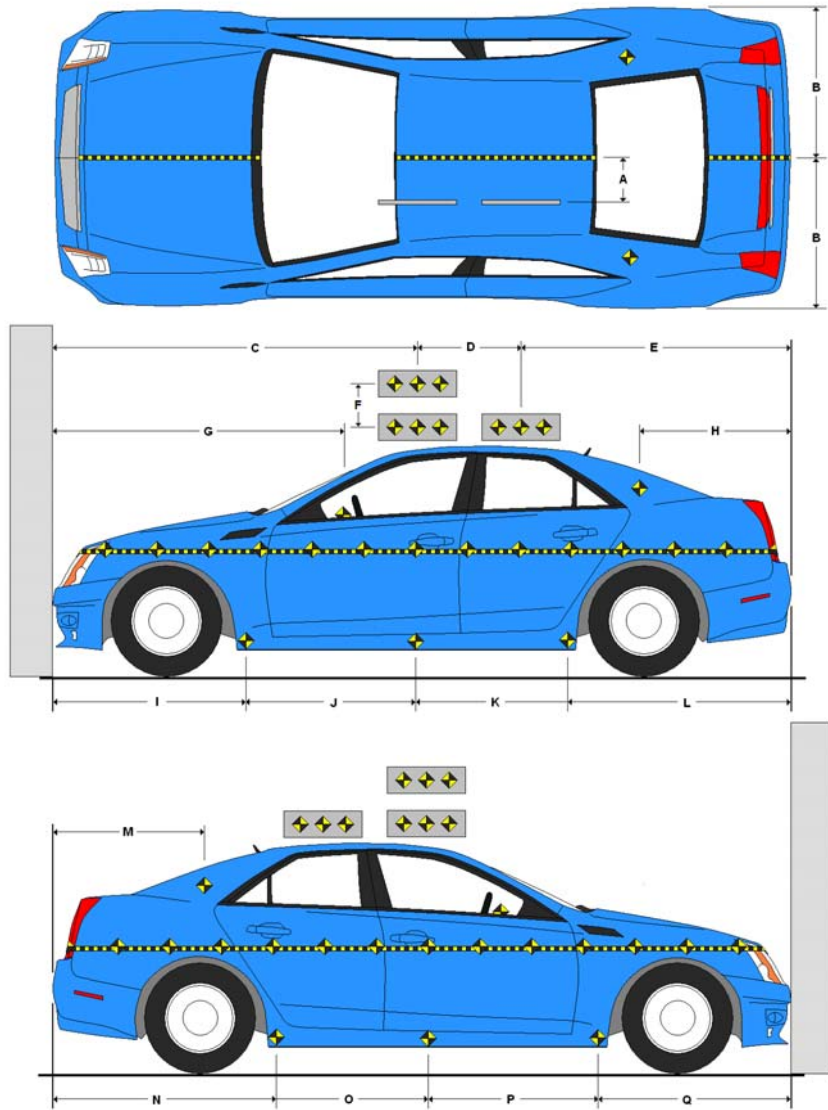
- X – Rear Surface of Vehicle (+ forward)
- Y – Vehicle Centerline (+ to right)
- Z – Ground Plane (+ down)

DATA SHEET NO. 8

PHOTOGRAPHIC REFERENCE TARGET LOCATIONS

Test Vehicle: 2017 Ford Escape 5-Door MPV NHTSA No.: M20170200
 Test Program: 56.3 km/h Frontal Impact NCAP Test Test Date: 6/9/16

Item	Value
A	345
B	916
C	2228
D	610
E	1687
F	305
G	1710
H	635
I	1375
J	862
K	862
L	1426
M	650
N	1428
O	862
P	862
Q	1372

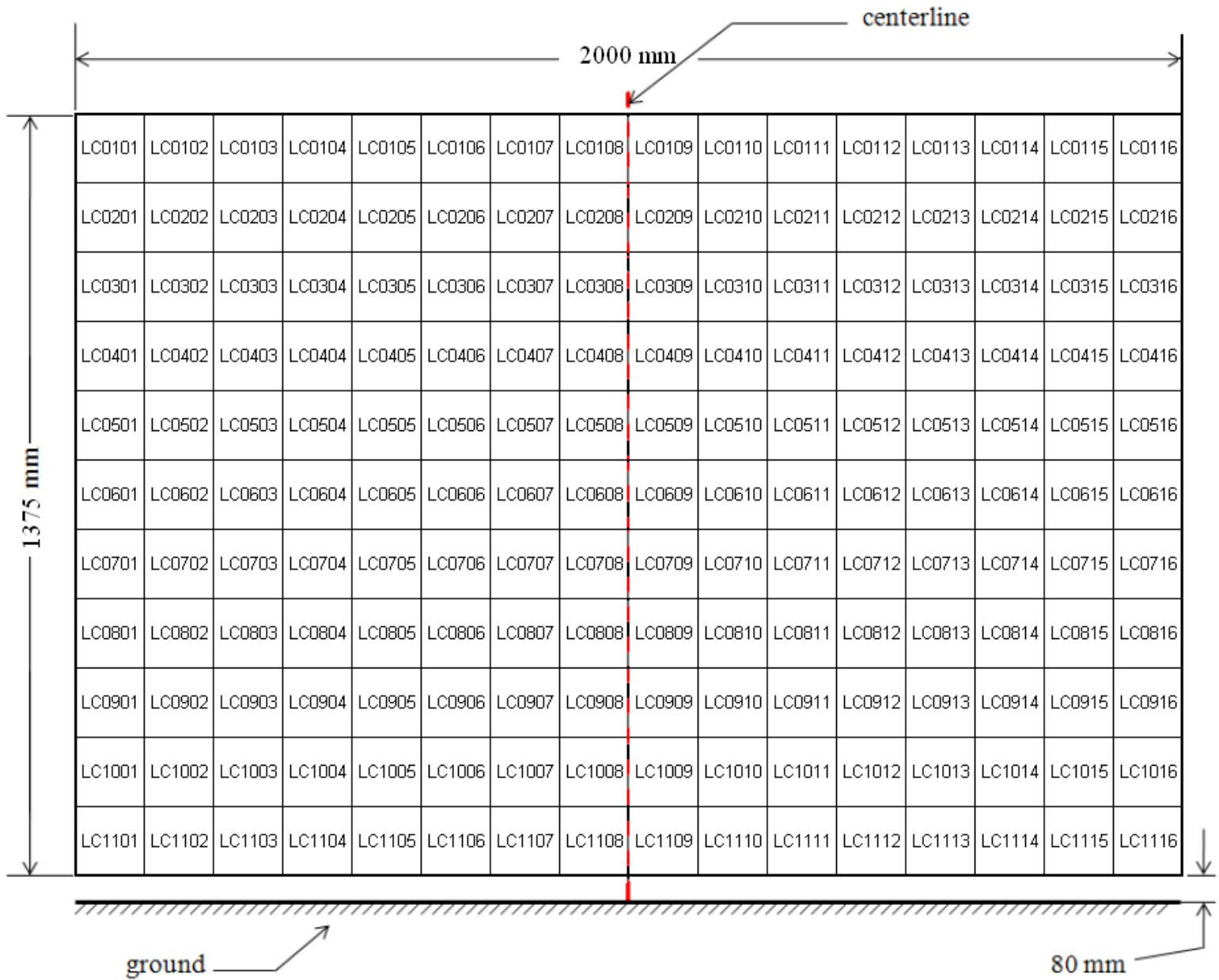


All measurements in millimeters.

DATA SHEET NO. 9

LOAD CELL LOCATIONS ON FIXED BARRIER

Test Vehicle: 2017 Ford Escape 5-Door MPV NHTSA No.: M20170200
 Test Program: 56.3 km/h Frontal Impact NCAP Test Test Date: 6/9/16



DATA SHEET NO. 10

TEST VEHICLE CAMERA AND INSTRUMENTATION SUMMARY

Test Vehicle: 2017 Ford Escape 5-Door MPV NHTSA No.: M20170200
Test Program: 56.3 km/h Frontal Impact NCAP Test Test Date: 6/9/16

INSTRUMENTATION

Driver Dummy Accelerometers	47
Passenger Dummy Accelerometers	47
Vehicle Structure Accelerometers	8
Seat Belt Load Cells	0
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 Ford Escape 5-Door MPV NHTSA No.: M20170200
Test Program: 56.3 km/h Frontal Impact NCAP Test Test Date: 6/9/16

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
Upper Torso Contact	Frontal Airbag	Frontal Airbag
Lower Torso Contact	Frontal Airbag	Frontal Airbag
Left Knee Contact	Knee Airbag	Knee Bolster
Right Knee Contact	Knee Airbag	Knee Bolster

DOOR OPENING AND SEAT TRACK INFORMATION

Description	Driver	Passenger
Locked / Unlocked Doors	Unlocked	Unlocked
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)	4	3
Seat Back Failure	None	None
Glazing Damage	None	None

POST TEST STRUCTURAL OBSERVATIONS

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

VEHICLE REBOUND FROM BARRIER

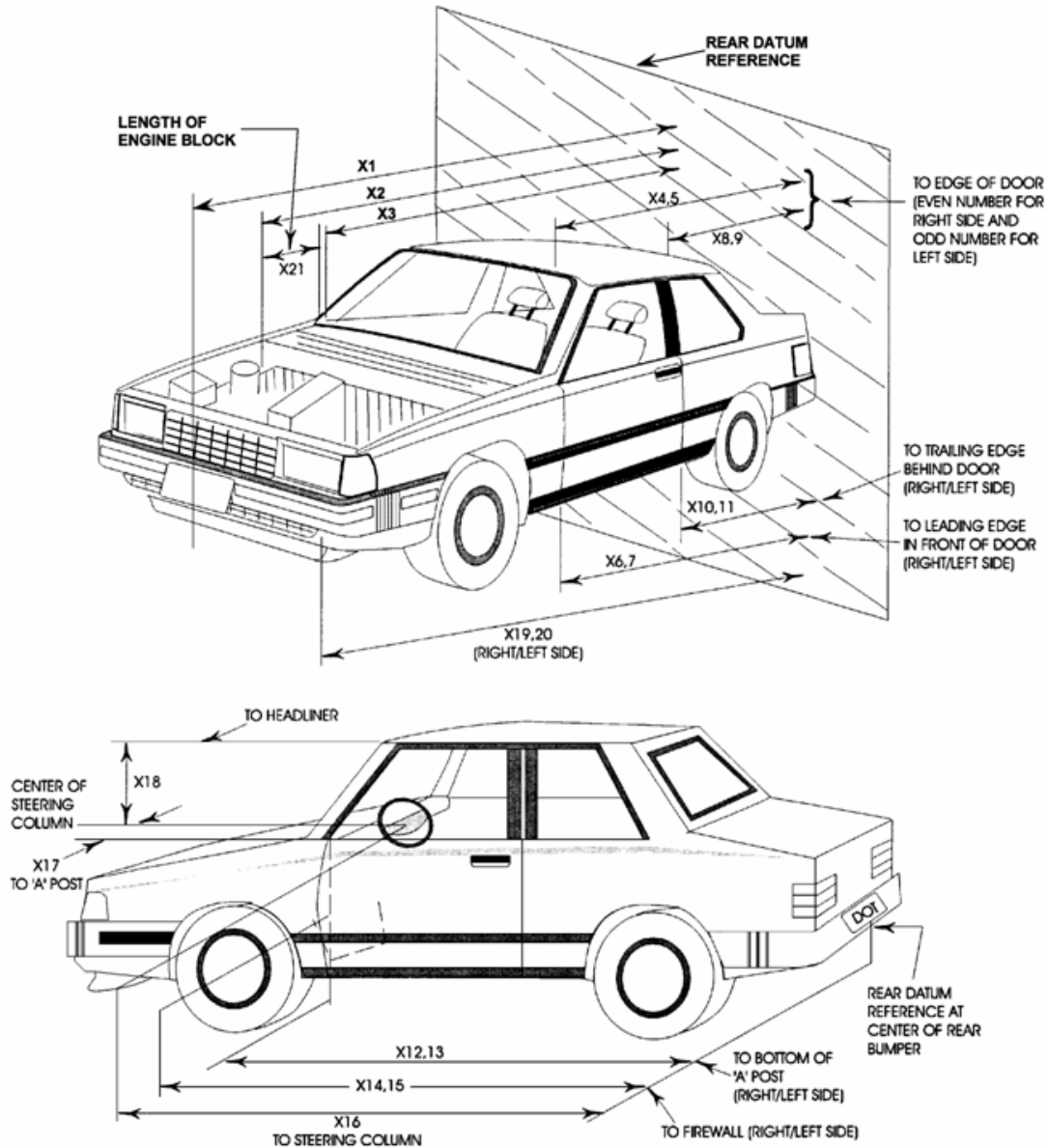
Measured Parameter	Units	Value
Left Side	mm	875
Center	mm	655
Right Side	mm	970
Average	mm	833

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	Yes	Yes	No	
Seat Belt Pretensioner	Yes	Yes	Yes	Yes
Seat Belt Load Limiter	Yes	Yes	Yes	Yes

DATA SHEET NO. 12
VEHICLE PROFILE MEASUREMENTS

Test Vehicle:	<u>2017 Ford Escape 5-Door MPV</u>	NHTSA No.:	<u>M20170200</u>
Test Program:	<u>56.3 km/h Frontal Impact NCAP Test</u>	Test Date:	<u>6/9/16</u>



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

Test Vehicle: 2017 Ford Escape 5-Door MPV NHTSA No.: M20170200
Test Program: 56.3 km/h Frontal Impact NCAP Test Test Date: 6/9/16

No.	Description	Pre-Test	Post-Test	Difference
1	Total Length of Vehicle at Centerline	4525	4195	-330
2	Rear Surface of Vehicle to Front of Engine	4040	3795	-245
3	RSOV to Firewall	3535	3513	-22
4	RSOV to Upper Leading Edge of Right Door	3135	3128	-7
5	RSOV to Upper Leading Edge of Left Door	3145	3142	-3
6	RSOV to Lower Leading Edge of Right Door	3107	3107	0
7	RSOV to Lower Leading Edge of Left Door	3110	3111	1
8	RSOV to Upper Trailing Edge of Right Door	2025	2043	18
9	RSOV to Upper Trailing Edge of Left Door	2035	2040	5
10	RSOV to Lower Trailing Edge of Right Door	2055	2063	8
11	RSOV to Lower Trailing Edge of Left Door	2060	2064	4
12	RSOV to Bottom of A-Pillar, Right Side	2964	3057	93
13	RSOV to Bottom of A-Pillar, Left Side	2965	3065	100
14	RSOV to Firewall, Right Side	3490	3465	-25
15	RSOV to Firewall, Left Side	3625	3635	10
16	RSOV to Steering Column	2645	2695	50
17	Center of Steering Column to A-Pillar	440	445	5
18	Center of Steering Column to Headliner	490	445	-45
19	RSOV to Right Side of Front Bumper	3897	3860	-37
20	RSOV to Left Side of Front Bumper	3903	3812	-91
21	Length of Engine Block	430	430	0
RD	RSOV to Right Side of Dash Panel	2805	2843	38
CD	RSOV to Center of Dash Panel	2710	2767	57
LD	RSOV to Left Side of Dash Panel	2836	2800	-36

All measurements in millimeters.

DATA SHEET NO. 13**ACCIDENT INVESTIGATION DIVISION DATA**

Test Vehicle: 2017 Ford Escape 5-Door MPV NHTSA No.: M20170200
Test Program: 56.3 km/h Frontal Impact NCAP Test Test Date: 6/9/16

VEHICLE INFORMATION

VIN: 1FMCU9GD9HUA11237 Wheelbase (mm): 2690
Vehicle Size Category: MPV Test Weight (kg): 1827.5

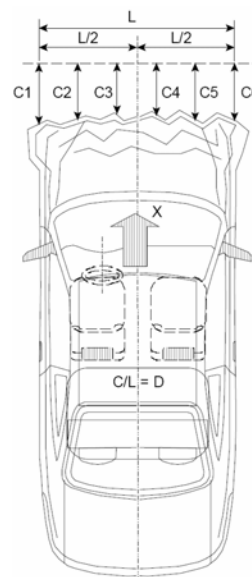
ACCELEROMETER DATA

Accelerometer Locations: Left Rear Crossmember
Cal. Procedure/Interval: Drop Test / 6 months
Integration Algorithm: NHTSA Standard
Impact Velocity (km/h): 56.61
Velocity Change (km/h): 65.3
Time of Separation (msec): 68.3

Linearity: Good

CRUSH PROFILE

Collision Deformation Classification: 12FDEW2
Midpoint of Damage: Vehicle Centerline
Damage Region Length (mm): 1585
Impact Mode: Full Frontal



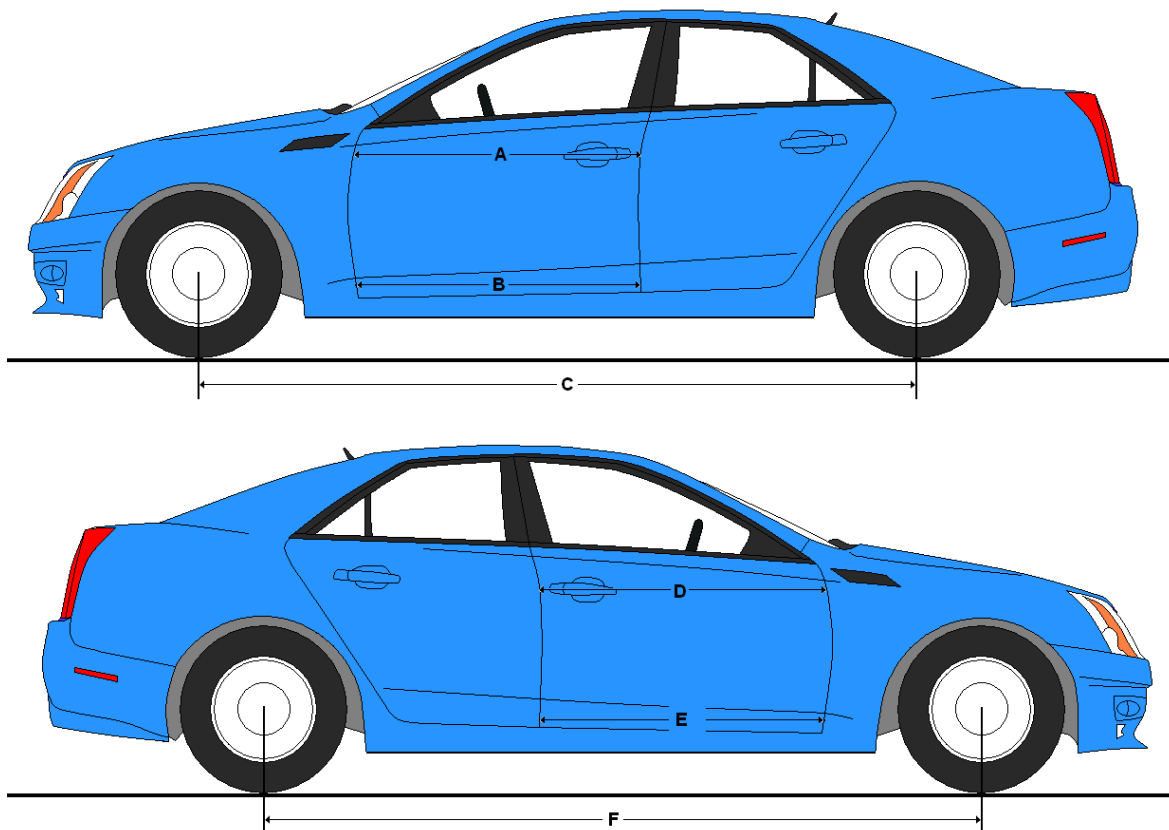
No.	Measurement Description	Units	Pre-Test	Post-Test	Difference
C1	Crush Zone 1 at Left Side	mm	313	520	207
C2	Crush Zone 2 at Left Side	mm	68	440	372
C3	Crush Zone 3 at Left Side	mm	8	420	412
C4	Crush Zone 4 at Right Side	mm	9	425	416
C5	Crush Zone 5 at Right Side	mm	71	420	349
C6	Crush Zone 6 at Right Side	mm	315	520	205
L	C1 to C6	mm	1585		

DATA SHEET NO. 14**VEHICLE INTRUSION MEASUREMENTS**Test Vehicle: 2017 Ford Escape 5-Door MPVNHTSA No.: M20170200Test Program: 56.3 km/h Frontal Impact NCAP TestTest Date: 6/9/16**DOOR OPENING WIDTH**

Item	Description	Units	Pre-Test	Post-Test	Difference
A	Left Side Upper	mm	946	948	-2
B	Left Side Lower	mm	891	898	-7
D	Right Side Upper	mm	951	948	3
E	Right Side Lower	mm	881	880	1

WHEELBASE MEASUREMENTS

Item	Description	Units	Pre-Test	Post-Test	Difference
C	Left Side Wheelbase	mm	2690	2595	95
F	Right Side Wheelbase	mm	2690	2590	100



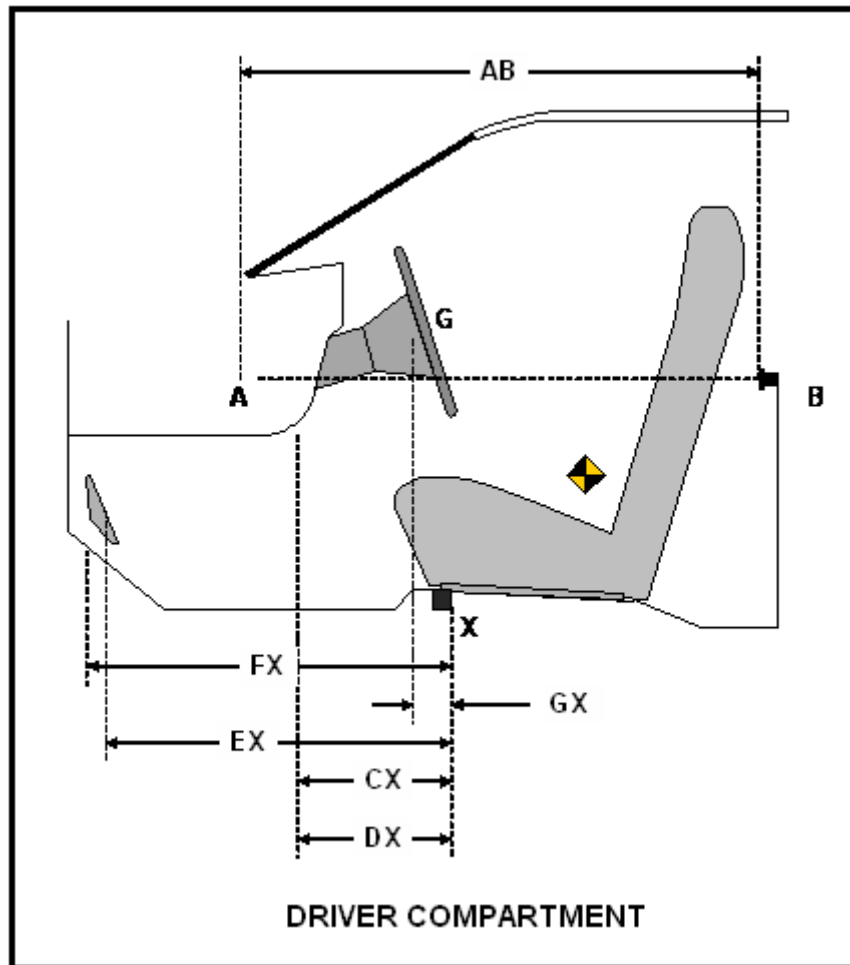
DATA SHEET NO. 14 ... (CONTINUED)
VEHICLE INTRUSION MEASUREMENTS

Test Vehicle: 2017 Ford Escape 5-Door MPV NHTSA No.: M20170200
 Test Program: 56.3 km/h Frontal Impact NCAP Test Test Date: 6/9/16

DRIVER COMPARTMENT INTRUSION

Item	Description	Units	Pre-Test	Post-Test	Difference
AB	Door Opening (Inside Window Jam)	mm	859	863	-4
CX	Left Knee Bolster to X	mm	340	300	40
DX	Right Knee Bolster to X	mm	315	320	-5
EX	Brake Pedal to X	mm	490	515	-25
FX	Foot Rest to X	mm	500	473	27
GX	Center of Steering Wheel Hub to X	mm	90	135	-45

X = Front of Seat Track (Stationary)



DATA SHEET NO. 15

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

Test Vehicle: 2017 Ford Escape 5-Door MPV NHTSA No.: M20170200

Test Program: 56.3 km/h Frontal Impact NCAP Test Test Date: 6/9/16

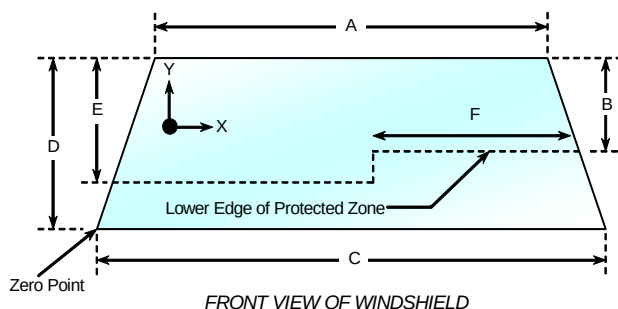
Windshield Mounting Details: Windshield glass is secured to the vehicle frame with plastic molding and rubber cement.

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: 21.1° C

WINDSHIELD PERIPHERY MEASUREMENTS

Measurement	Pre-Test (mm)	Post-Test (mm)	% Retention
Left Side	2480	2480	100.0%
Right Side	2480	2480	100.0%
Total	4960	4960	100.0%



Item	Units	Value
A	mm	1300
B	mm	586
C	mm	1460
D	mm	1100
E	mm	614
F	mm	522

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 Ford Escape 5-Door MPV NHTSA No.: M20170200
Test Program: 56.3 km/h Frontal Impact NCAP Test Test Date: 6/9/16

FMVSS 301 FUEL SYSTEM INTEGRITY POST IMPACT DATA

Temperature at Time of Impact: 40° C Test Time: 3:05 PM

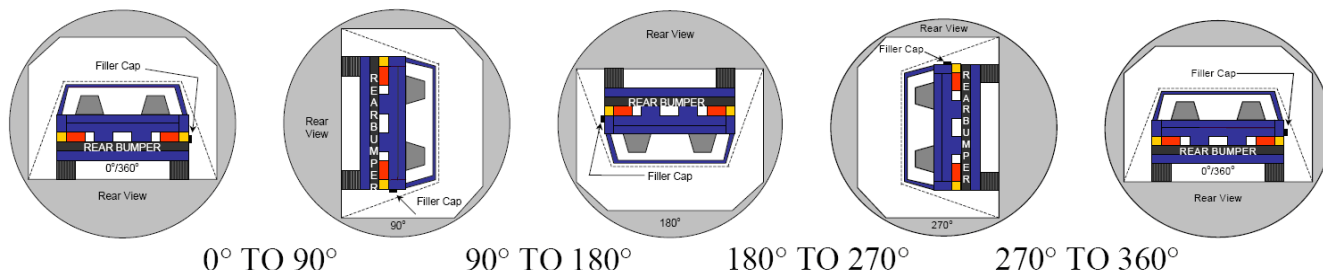
Stoddard Solvent Spillage Measurements

- 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 Ford Escape 5-Door MPV NHTSA No.: M20170200
 Test Program: 56.3 km/h Frontal Impact NCAP Test Test Date: 6/9/16



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

SOLVENT COLLECTION TIME TABLE IN SECONDS

Test Phase	Rotation Time	Hold Time	Total Time
0° To 90°	86	307	393
90° To 180°	86	305	391
180° To 270°	82	300	382
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			

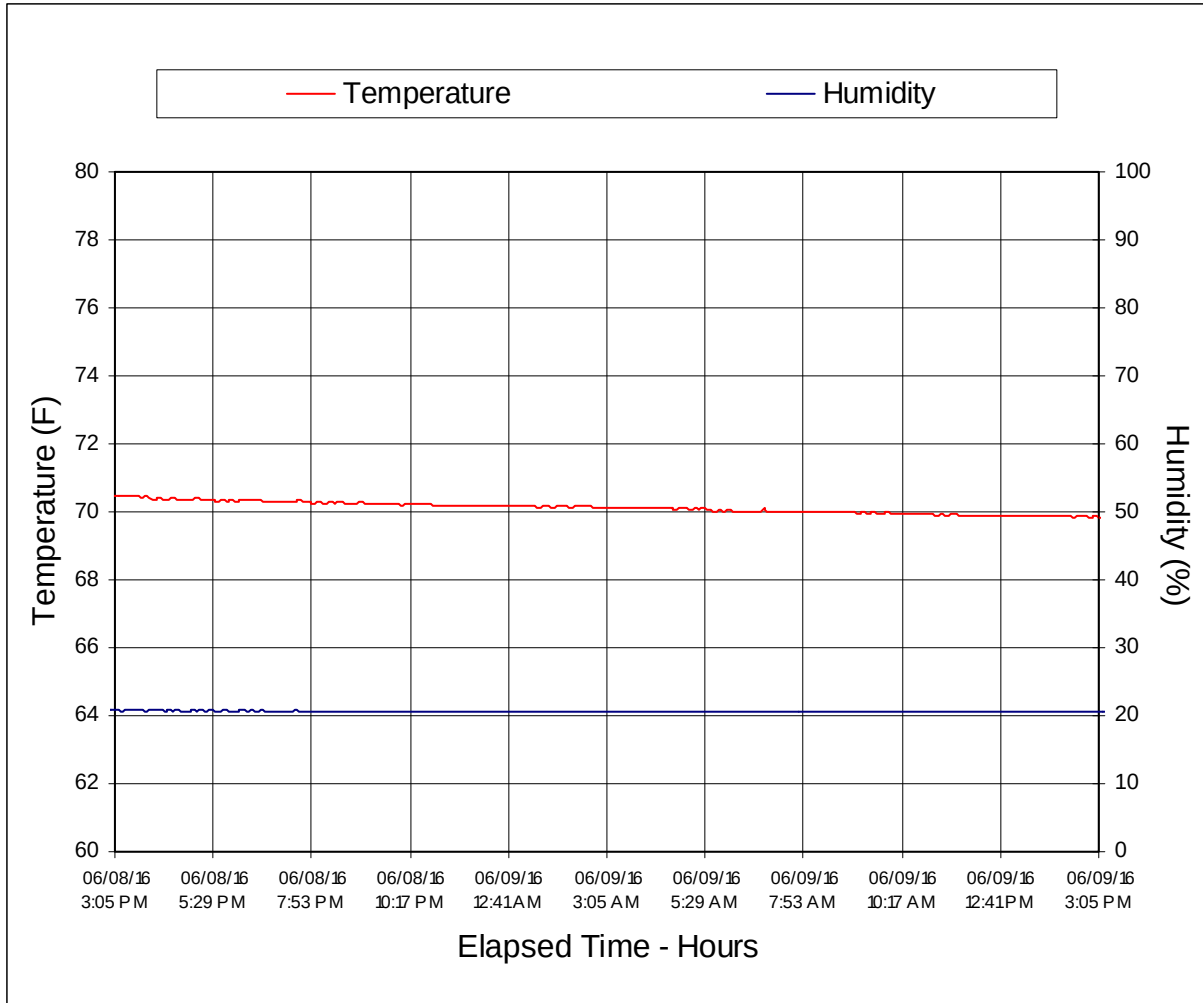
SOLVENT SPILLAGE LOCATION TABLE

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 Ford Escape 5-Door MPV NHTSA No.: M20170200
Test Program: 56.3 km/h Frontal Impact NCAP Test Test Date: 6/9/16



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

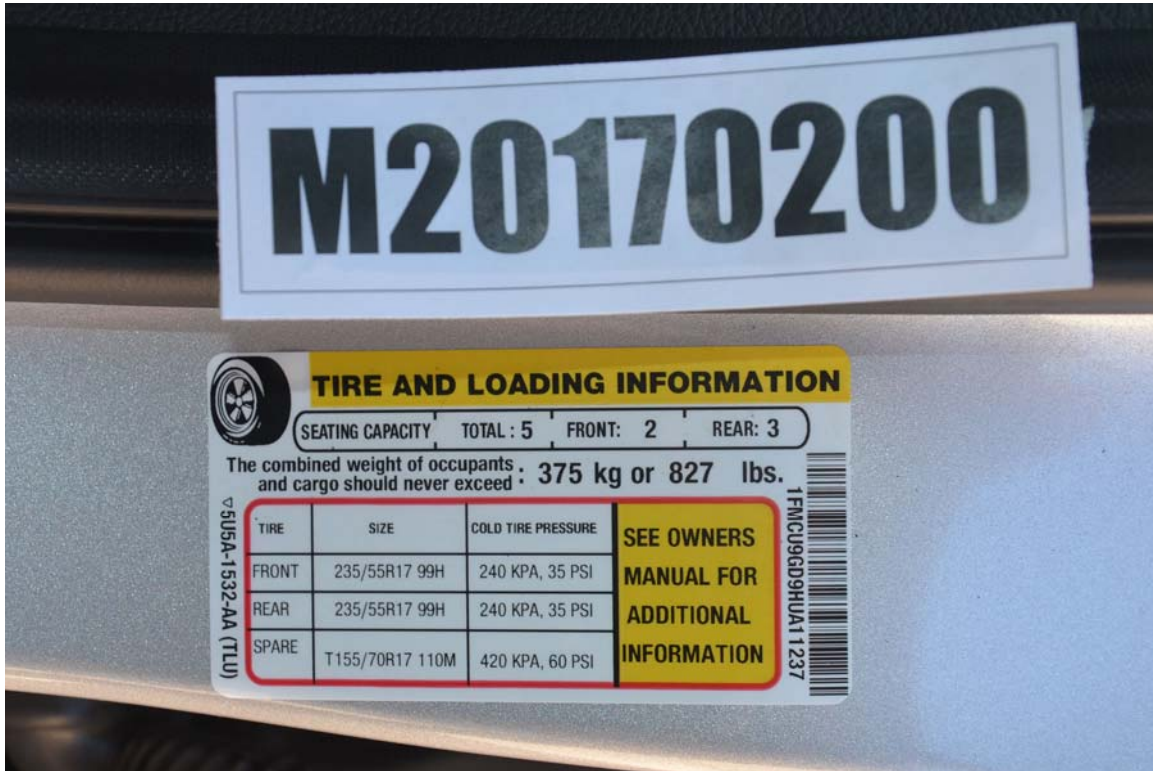


FIGURE 5. Tire Placard



FIGURE 6. 2017 Ford Escape 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 $\frac{3}{4}$ View



FIGURE 15. Post-Test Right Front $\frac{3}{4}$ 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

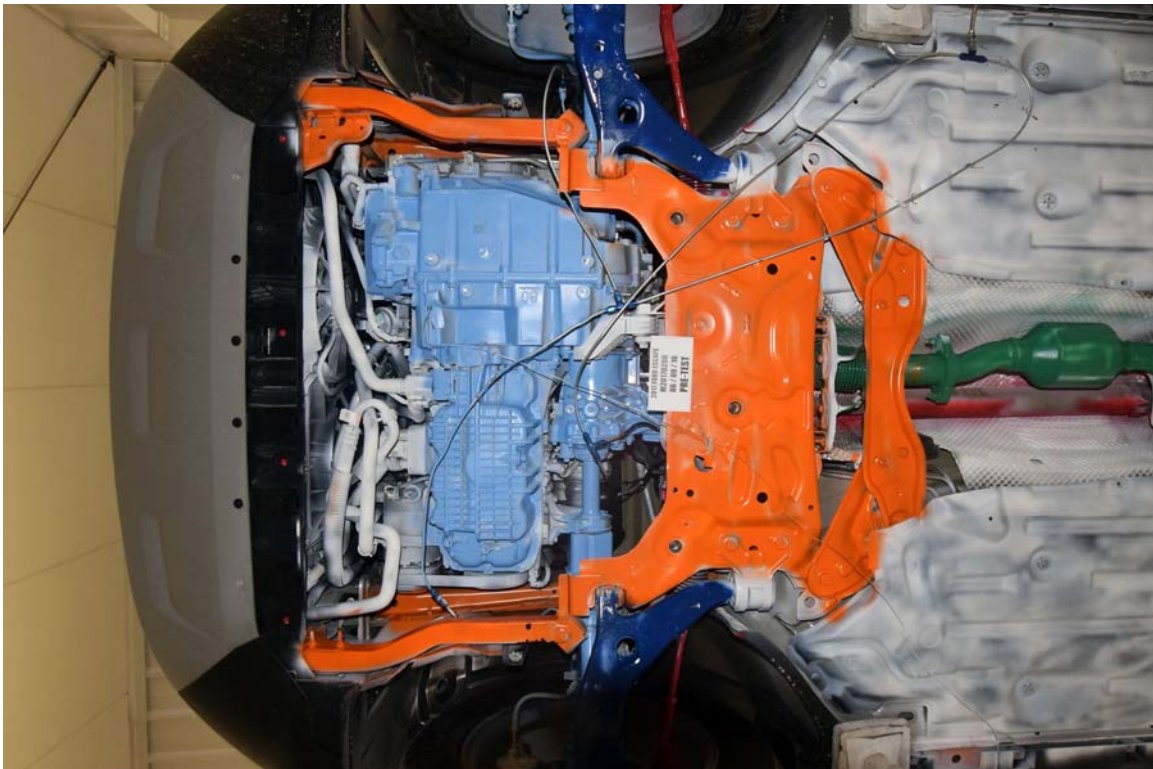


FIGURE 24. Pre-Test Front Underbody View

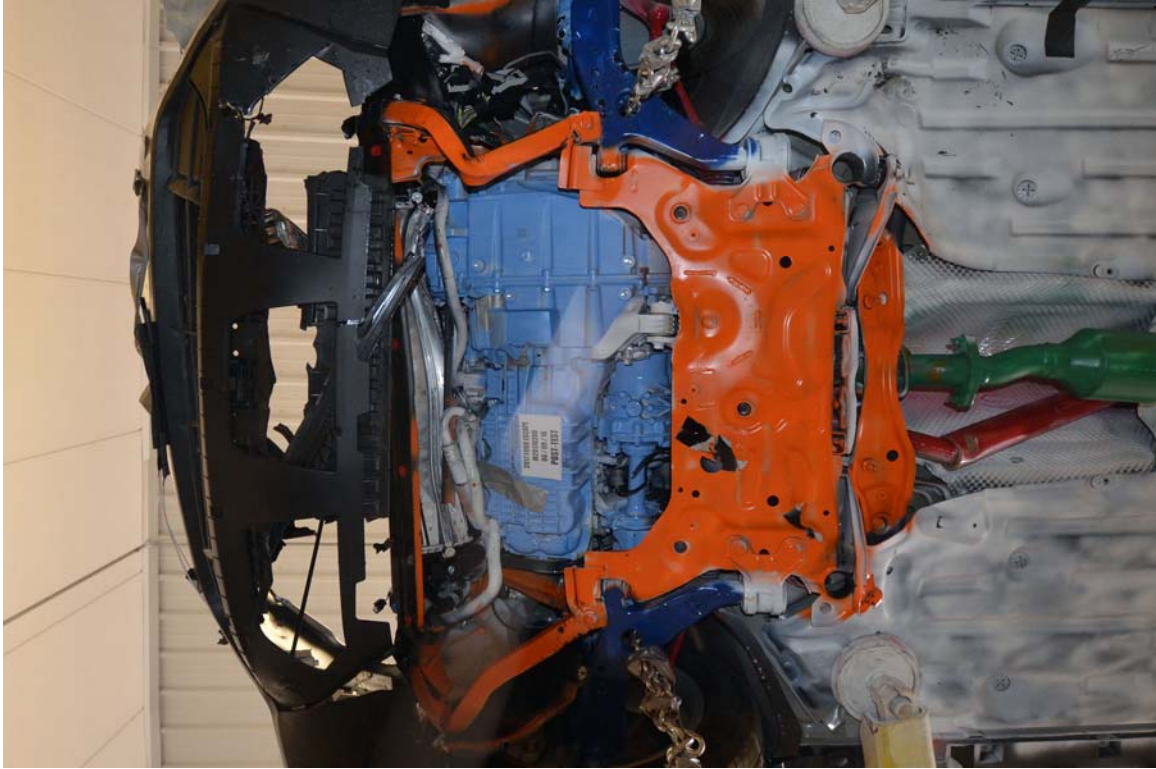


FIGURE 25. Post-Test Front Underbody View

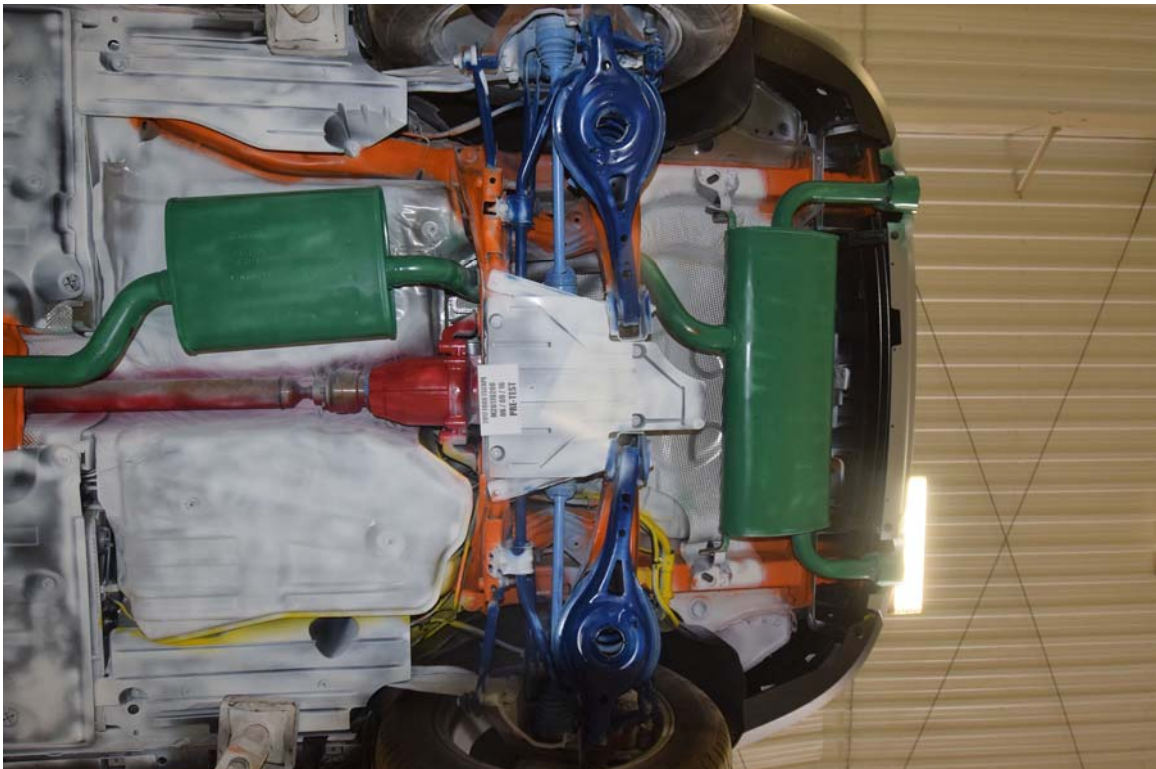


FIGURE 26. Pre-Test Rear Underbody View



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 Airbag



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 Knee Bolster



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

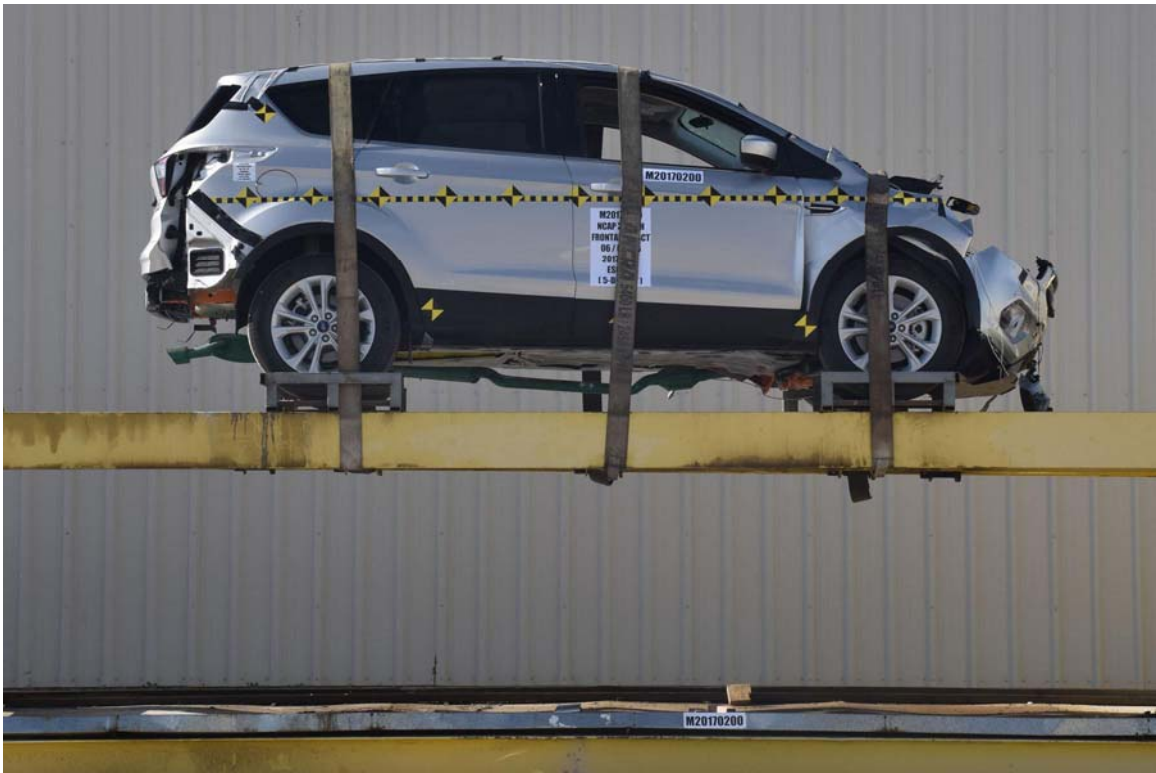


FIGURE 73. Vehicle at 0° on Static Rollover Device

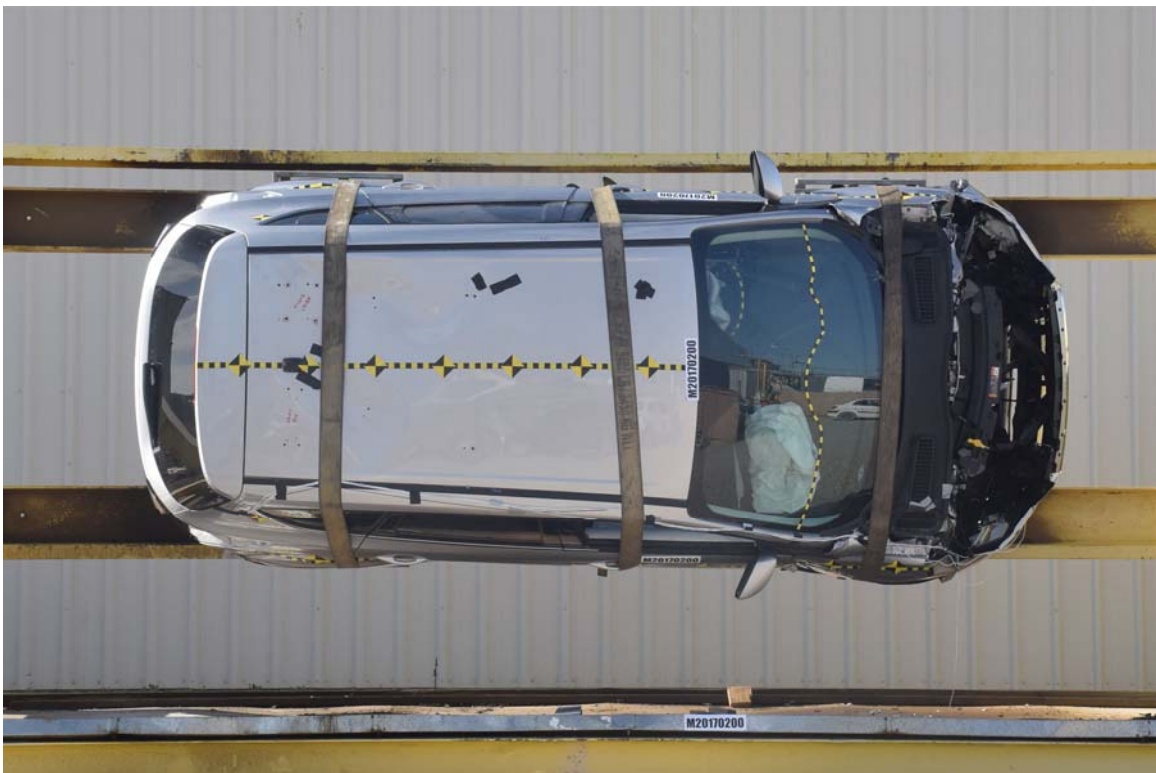


FIGURE 74. Vehicle at 90° on Static Rollover Device



FIGURE 75. Vehicle at 180° on Static Rollover Device

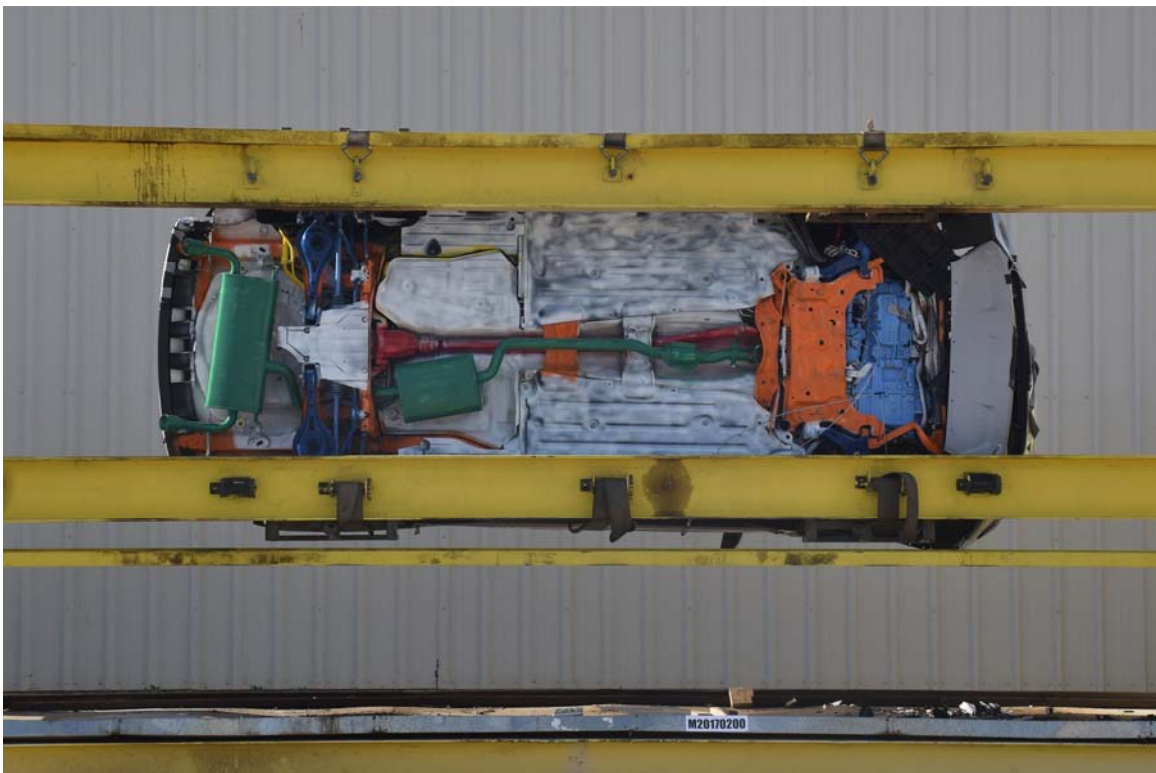


FIGURE 76. Vehicle at 270° on Static Rollover Device

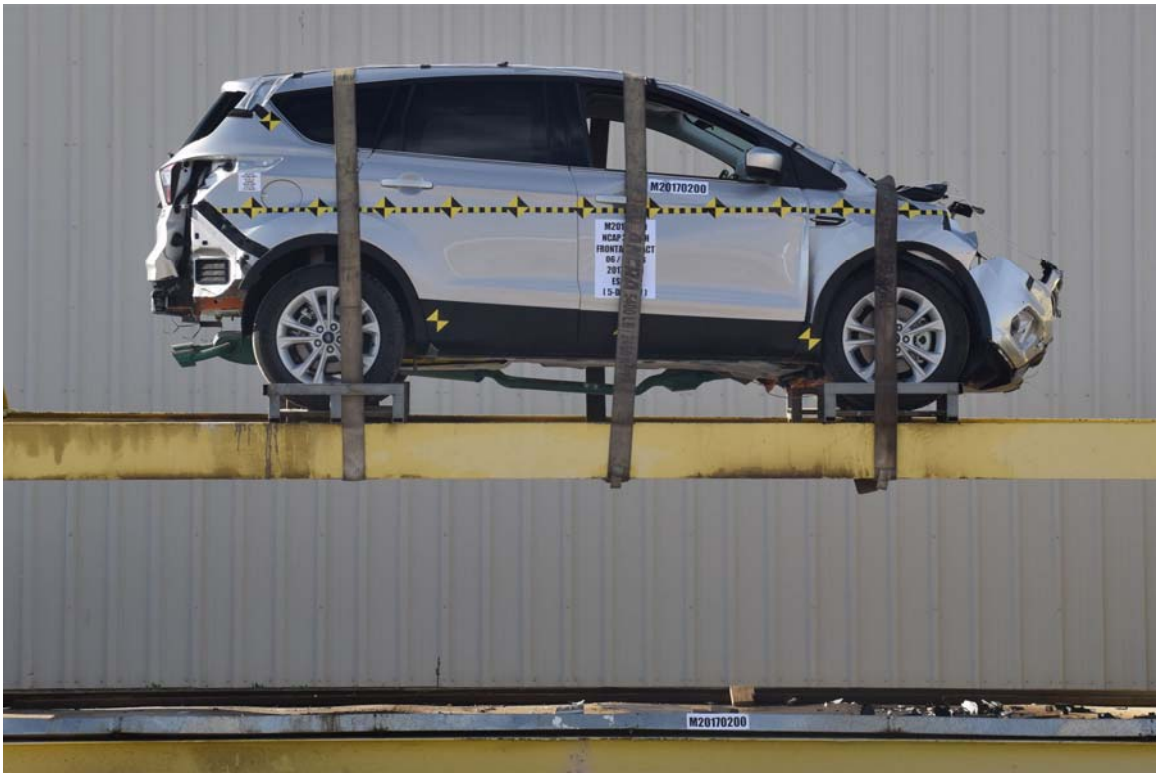


FIGURE 77. Vehicle at 360° on Static Rollover Device



FIGURE 78. 2017 Ford Escape Impact Event

VEHICLE DESCRIPTION		HU A11237	
 ESCAPE 2017 ESCAPE SE 4WD 195.9" WHEELBASE 1.5L ECOBOOST ENGINE 6-SPD AUTO TRANS W/SLCTSHFT		EXTERIOR INGOT SILVER METALLIC INTERIOR CHARCOAL BLACK CLOTH SEATS	
STANDARD EQUIPMENT INCLUDED AT NO EXTRA CHARGE			
EXTERIOR • ACTIVE GRILLE SHUTTERS • DOOR HANDLES - BODY COLOR • DUAL EXHAUST CHROME TIPS • DUAL POWER MIRRORS • EASY FUEL CAPLESS FILLER • FOG LAMPS • HEADLAMP COURTESY DELAY • HEADLAMPS - AUTO HALOGEN • INTEGRATED BLIND SPOT MIRR • LED TAILLAMPS • PRIVACY GLASS	INTERIOR • 1-TOUCH DOWN DRIVER WINDOW • 4-WAY FRT HEAD RESTRAINTS • 12V POWERPOINT • 65/40 SPLT FOLD REAR SEAT • DUAL ILLUM VAS VANITY MIRR • DUAL-ZONE ELECTRONIC • AUTO CLIMATE CONTROL • FLOORMATS-1ST AND 2ND ROW • ICE BLUE LIGHTING • ILLUMINATED ENTRY SYSTEM • SEATS-10-WAY PWR DR & • 4-WAY MANUAL PASS • SMART CHARGING USB PORT(1) • TLT STEERING W/CLUSE & AUDIO CONTROLS	FUNCTIONAL • AUTO START STOP TECH • 4.2" LCD CTR STACK SCREEN • AM/FM SINGLE CD W/MP3 • BRAKES, 4-WHEEL DISC/ABS • CURVE CONTROL • ELECTRIC-ASSIST PARK BRAKE • MYKEY • POWER LOCKS AND WINDOWS • POWER STEERING W/EPAS • REAR VIEW CAMERA • REMOTE KEYLESS ENTRY • SECURICODE KEYLESS KEYPAD • SRRS XN - SVC N/A ASXPS • SYNC3	SAFETY/SECURITY • ADVANCETRAC WITH RSC • AIRBAG-2, DRIVER KNEE • AIRBAG-2, DUAL STAGE FRONT • AIRBAG-3, FRONT SEAT MOUNTED SIDE IMPACT • AIRBAG-3, SAFETY CANOPY • FRT-PASS SENSING SYSTEM • LATCH CHILD SAFETY SYSTEM • SECURELOCK PASS ANTI THEFT • SOS POST CRASH ALERT SYS • TMS
INCLUDED ON THIS VEHICLE EQUIPMENT GROUP 350A OPTIONAL EQUIPMENT/OTHER 17" SPARKLE SILVER PTD ALUM WH 235/55R17 LRR A/S BSW TRES FRONT LICENSE PLATE BRACKET		PRICE INFORMATION BASE PRICE \$26,850.00 TOTAL OPTIONS/OTHER \$695.00 TOTAL VEHICLE & OPTIONS/OTHER \$27,545.00 DESTINATION & DELIVERY \$895.00	
SALES TO: Van Bortel Ford, Inc. 71 Marsh Rd. East Rochester NY 14445		SALES TO: 44F 070 RAMP ONE CS18 DEALER NO. 44F 070	
SHIP TO: 44-0129 QIT 2		SHIP TO: LOUISVILLE	
SHIP THROUGH: CONVOY		ITEM #: GC311 N RB 2X 720 006830 03 3116	

FIGURE 79. Monroney Label Photograph

APPENDIX B
DUMMY RESPONSE DATA TRACES

TABLE OF DATA PLOTS

Plot		Page
1	Driver Head Acceleration X Primary	B-1
2	Driver Head Acceleration Y Primary	B-1
3	Driver Head Acceleration Z Primary	B-1
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

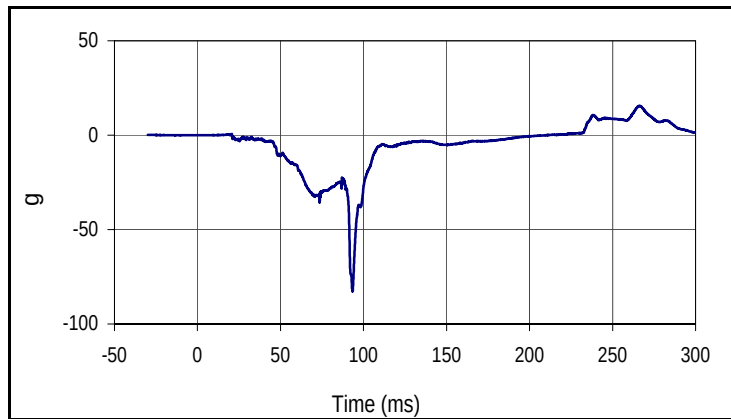
Driver Head X Acceleration Redundant
Driver Head Y Acceleration Redundant
Driver Head Z Acceleration Redundant
Driver Head Front Y Acceleration
Driver Head Front Z Acceleration
Driver Head Top X Acceleration
Driver Head Top Y Acceleration
Driver Head Left X Acceleration
Driver Head Left Z Acceleration
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 Shoulder Belt Force
Driver Lap Belt Force
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
Passenger Head X Acceleration Redundant
Passenger Head Y Acceleration Redundant
Passenger Head Z Acceleration Redundant
Passenger Head Front Y Acceleration
Passenger Head Front Z Acceleration
Passenger Head Top X Acceleration
Passenger Head Top Y Acceleration
Passenger Head Left X Acceleration
Passenger Head Left Z Acceleration
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 Z Redundant
Passenger Right Femur Force Z Redundant
Passenger Shoulder Belt Force
Passenger Lap Belt Force
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

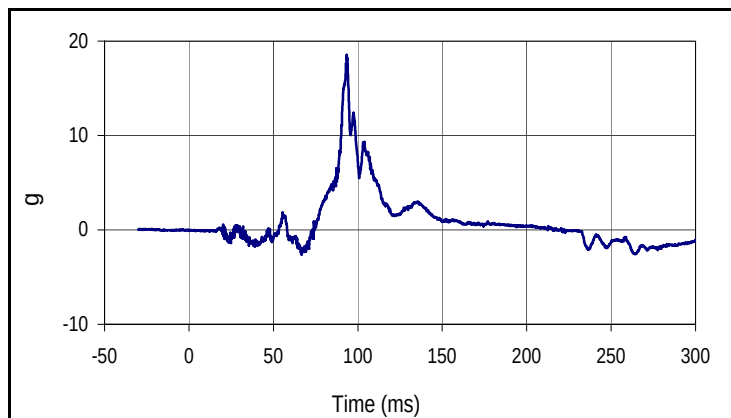
Passenger Right Upper Tibia Moment Y
Passenger Right Upper Tibia Force Z
Passenger Right Lower Tibia Moment X
Passenger Right Lower Tibia Moment Y
Passenger Right Lower Tibia Force Z
Passenger Left Foot Fore Z
Passenger Left Foot Aft X
Passenger Left Foot Aft Z
Passenger Right Foot Fore Z
Passenger Right Foot Aft X
Passenger Right Foot Aft Z
Left Rear Seat Crossmember X
Left Rear Seat Crossmember Z
Right Rear Seat Crossmember X
Right Rear Seat Crossmember Z
Vehicle Engine Top X
Vehicle Engine Bottom X
Vehicle Left Rear Z
Vehicle Right Rear Z
Load Cell Barrier LC0101 – LC 1116

Test Vehicle: 2017 Ford Escape 5-Door MPV
 Test Program: 56 km/h Frontal Impact NCAP Test

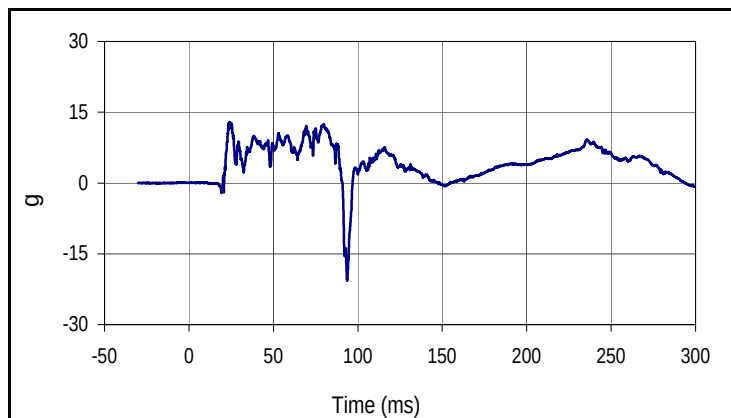
NHTSA No.: M20170200
 Test Date: 6/9/16



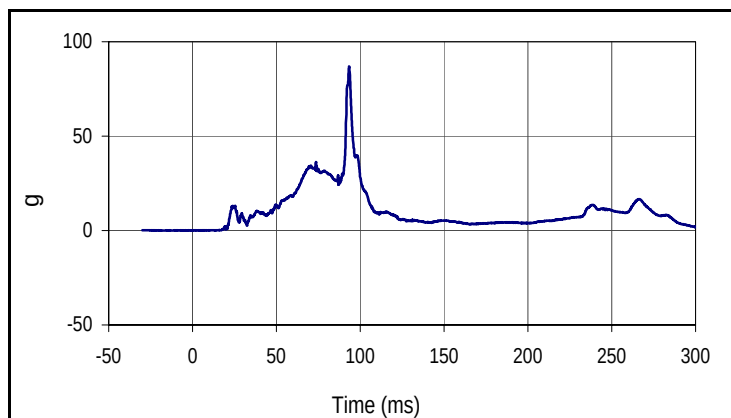
Curve Description			
Driver Head Acceleration X Primary			
Plot No.		SAE Class	Units
001		1000	g
Max	Time	Min	Time
15.5	266.2	-82.8	93.4



Curve Description			
Driver Head Acceleration Y Primary			
Plot No.		SAE Class	Units
002		1000	g
Max	Time	Min	Time
18.6	93.4	-2.6	66.8



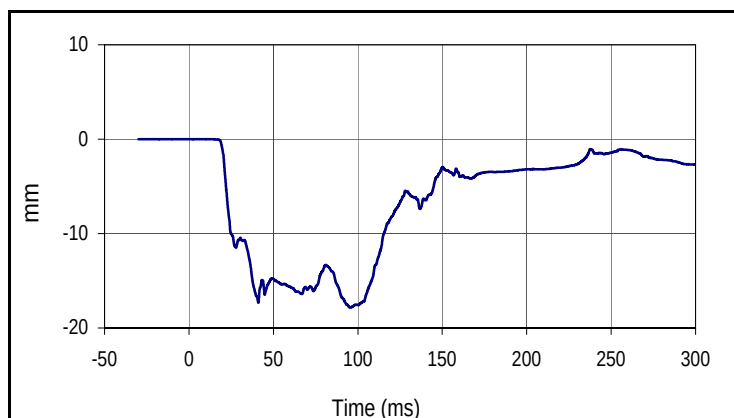
Curve Description			
Driver Head Acceleration Z Primary			
Plot No.		SAE Class	Units
003		1000	g
Max	Time	Min	Time
12.9	24.0	-20.7	93.7



Curve Description			
Driver Head Resultant Acceleration Primary			
Plot No.		SAE Class	Units
004		1000	g
Max	Time	Min	Time
87.0	93.4	0.0	1.4

Test Vehicle: 2017 Ford Escape 5-Door MPV
 Test Program: 56 km/h Frontal Impact NCAP Test

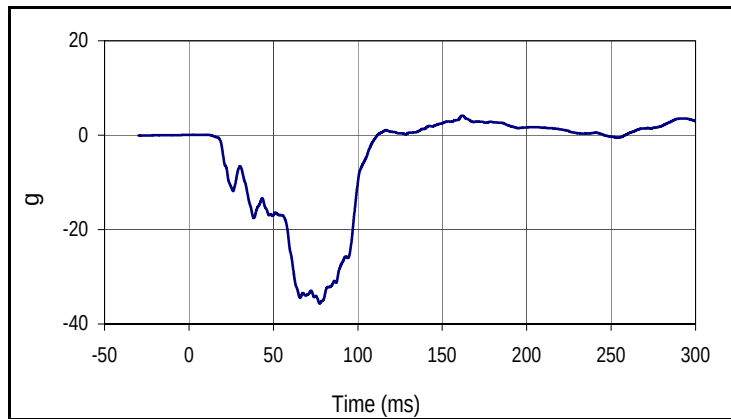
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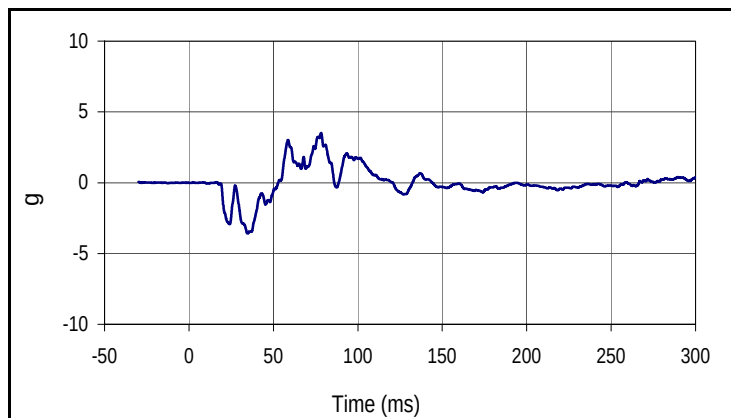
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Driver Chest Deflection			
Plot No.		SAE Class	Units
005		600	mm
Max	Time	Min	Time
0.0	0.3	-17.8	95.5

Test Vehicle: 2017 Ford Escape 5-Door MPV
 Test Program: 56 km/h Frontal Impact NCAP Test

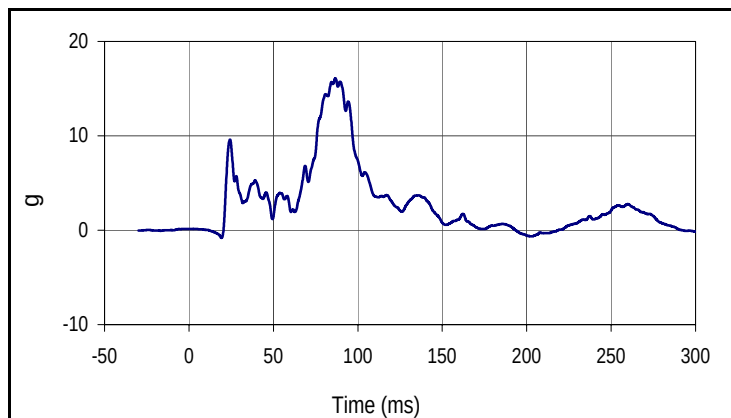
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 Test Date: 6/9/16



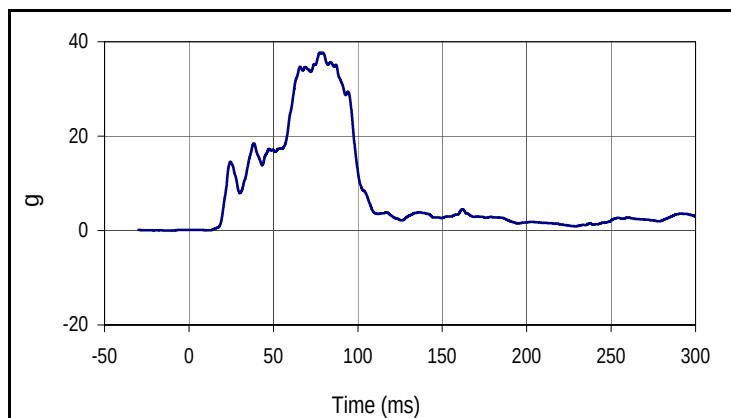
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Driver Chest Acceleration X Primary			
Plot No.		SAE Class	Units
006		180	g
Max	Time	Min	Time
4.2	161.8	-35.6	77.4



Curve Description			
Driver Chest Acceleration Y Primary			
Plot No.		SAE Class	Units
007		180	g
Max	Time	Min	Time
3.5	78.3	-3.6	34.8



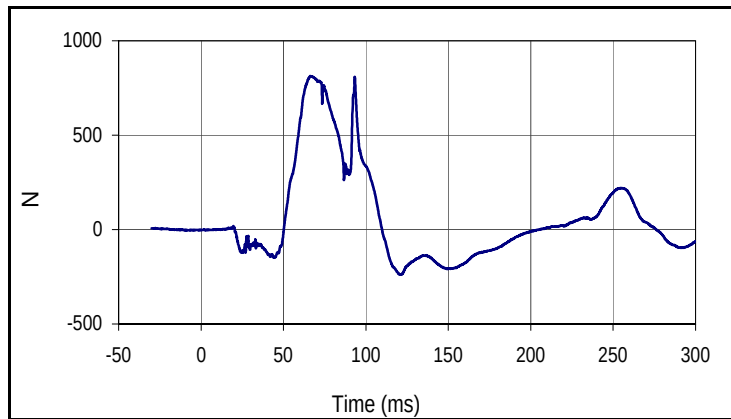
Curve Description			
Driver Chest Acceleration Z Primary			
Plot No.		SAE Class	Units
008		180	g
Max	Time	Min	Time
16.1	86.7	-0.8	19.2



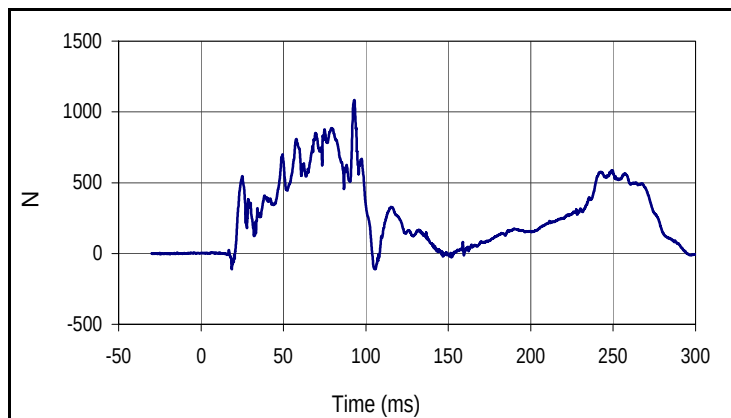
Curve Description			
Driver Chest Resultant Acceleration Primary			
Plot No.		SAE Class	Units
009		180	g
Max	Time	Min	Time
37.7	79.3	0.1	12.5

Test Vehicle: 2017 Ford Escape 5-Door MPV
 Test Program: 56 km/h Frontal Impact NCAP Test

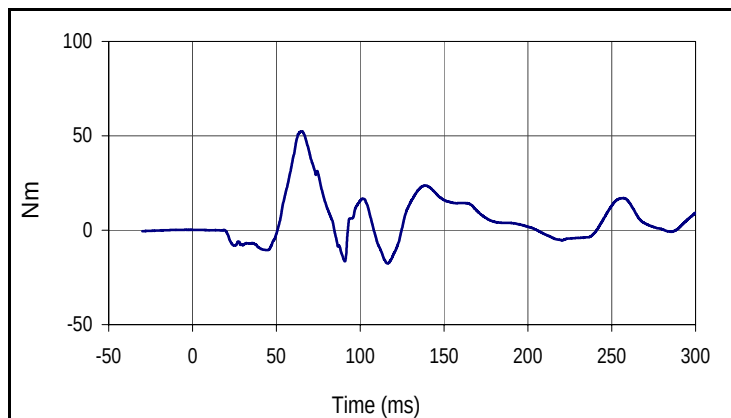
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 Test Date: 6/9/16



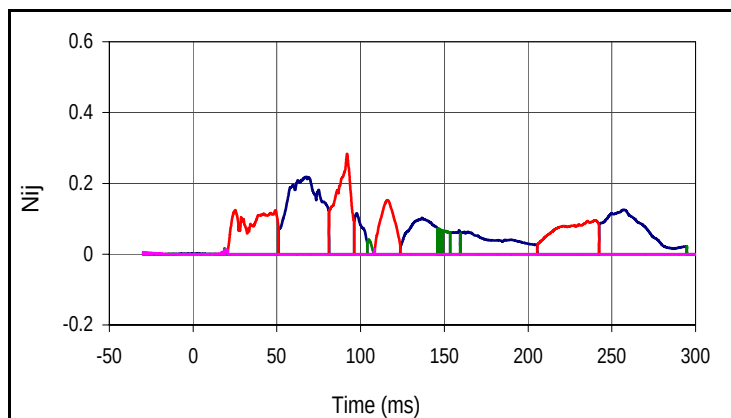
Curve Description			
Driver Upper Neck Force X			
Plot No.		SAE Class	Units
010		1000	N
Max	Time	Min	Time
813.2	66.2	-238.4	121.1



Curve Description			
Driver Upper Neck Force Z			
Plot No.		SAE Class	Units
011		1000	N
Max	Time	Min	Time
1083.8	93.0	-112.4	105.5



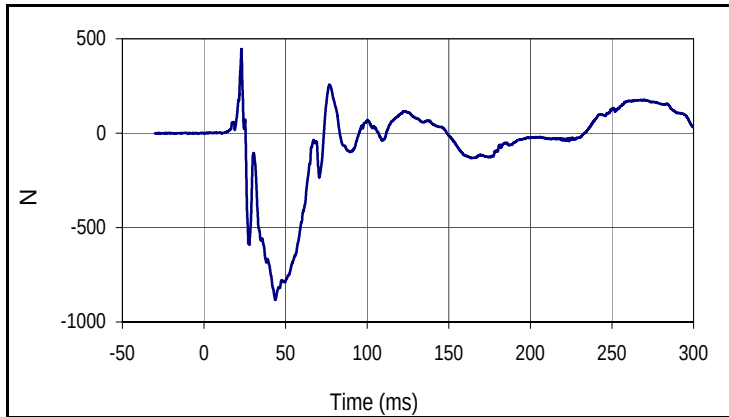
Curve Description			
Driver Upper Neck Moment Y			
Plot No.		SAE Class	Units
012		600	Nm
Max	Time	Min	Time
52.3	65.1	-17.6	116.3



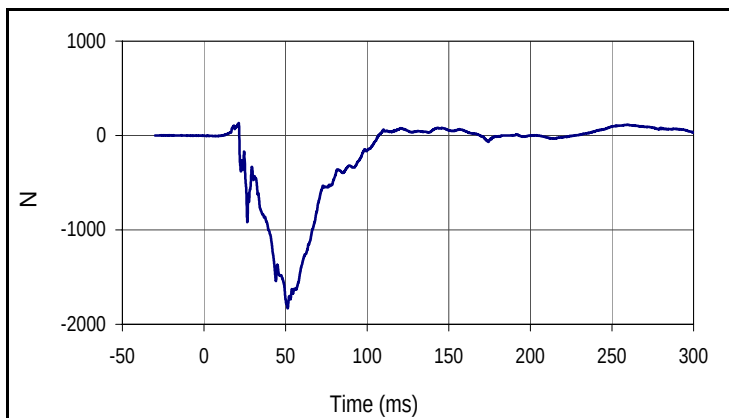
Curve Description		
Driver Nij		
Units	Max	Time
Ntf	0.22	67.6
Units	Max	Time
Nte	0.28	92.0
Units	Max	Time
Ncf	0.07	146.9
Units	Max	Time
Nce	0.01	108.4

Test Vehicle: 2017 Ford Escape 5-Door MPV
 Test Program: 56 km/h Frontal Impact NCAP Test

NHTSA No.: M20170200
 Test Date: 6/9/16



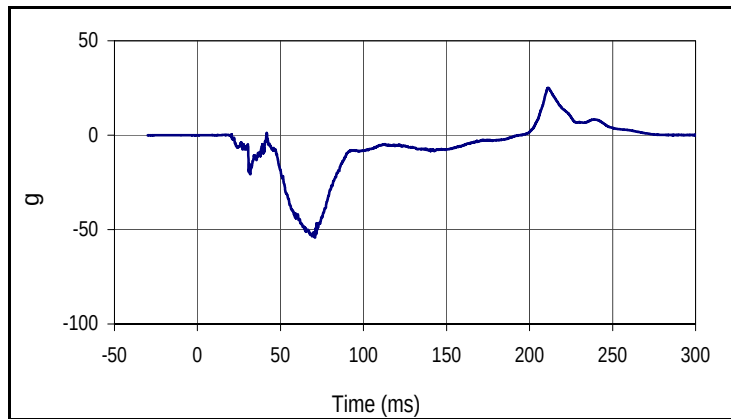
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Driver Left Femur Force Z			
Plot No.		SAE Class	Units
014		600	N
Max	Time	Min	Time
446.2	23.0	-883.5	43.8



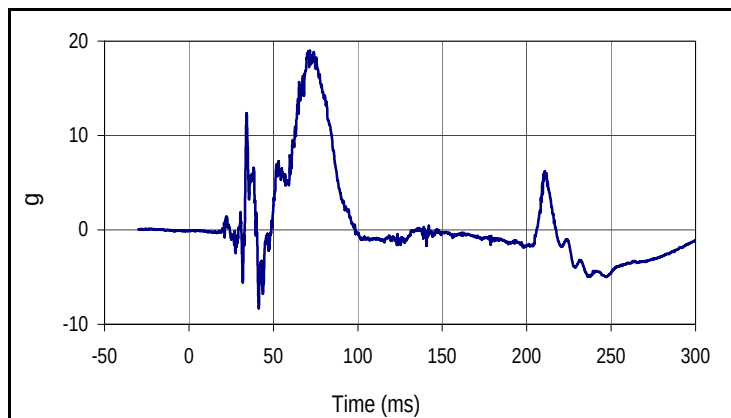
Curve Description			
Driver Right Femur Force Z			
Plot No.		SAE Class	Units
015		600	N
Max	Time	Min	Time
133.0	21.3	-1831.7	51.3

Test Vehicle: 2017 Ford Escape 5-Door MPV
 Test Program: 56 km/h Frontal Impact NCAP Test

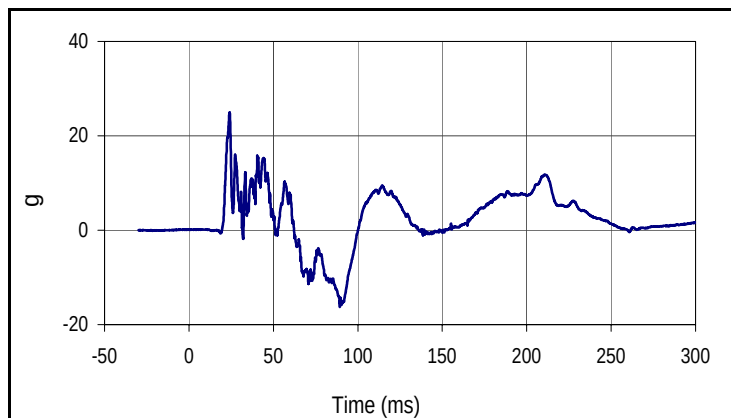
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 Test Date: 6/9/16



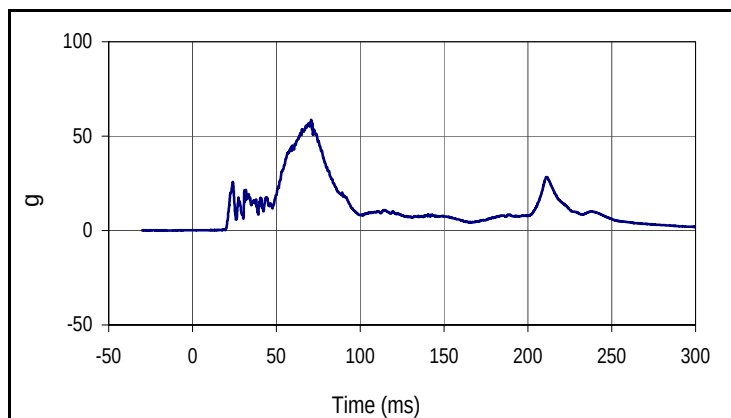
Curve Description			
Passenger Head Acceleration X Primary			
Plot No.		SAE Class	Units
016		1000	g
Max	Time	Min	Time
25.1	211.2	-54.3	70.7



Curve Description			
Passenger Head Acceleration Y Primary			
Plot No.		SAE Class	Units
017		1000	g
Max	Time	Min	Time
19.0	71.6	-8.3	41.4



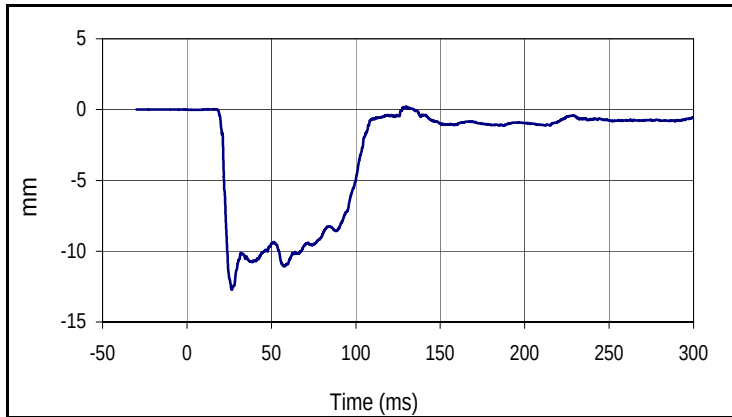
Curve Description			
Passenger Head Acceleration Z Primary			
Plot No.		SAE Class	Units
018		1000	g
Max	Time	Min	Time
24.9	24.1	-16.3	89.3



Curve Description			
Passenger Head Resultant Acceleration Primary			
Plot No.		SAE Class	Units
019		1000	g
Max	Time	Min	Time
58.6	70.8	0.1	2.8

Test Vehicle: 2017 Ford Escape 5-Door MPV
 Test Program: 56 km/h Frontal Impact NCAP Test

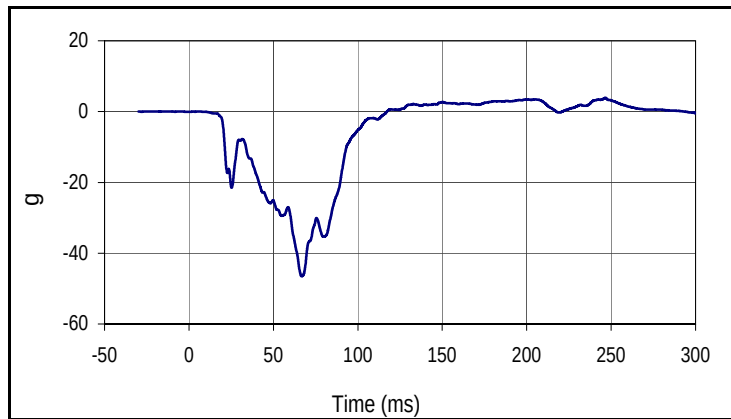
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 Test Date: 6/9/16



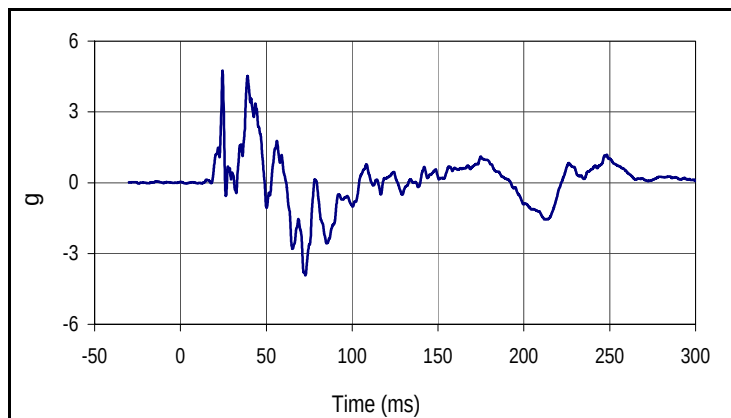
Curve Description			
Passenger Chest Deflection			
Plot No.		SAE Class	Units
020		600	mm
Max	Time	Min	Time
0.2	129.9	-12.7	26.5

Test Vehicle: 2017 Ford Escape 5-Door MPV
 Test Program: 56 km/h Frontal Impact NCAP Test

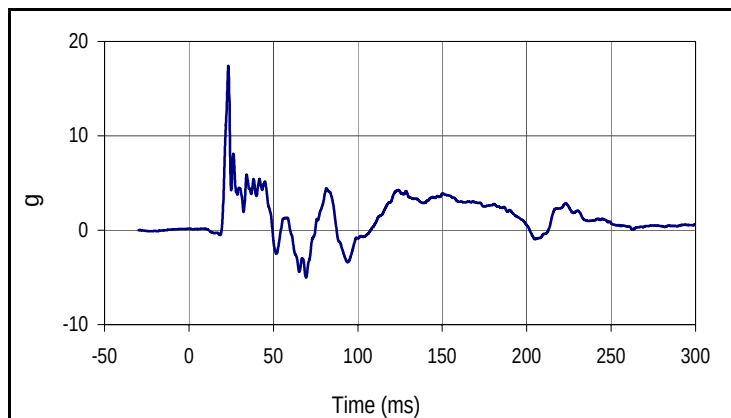
NHTSA No.: M20170200
 Test Date: 6/9/16



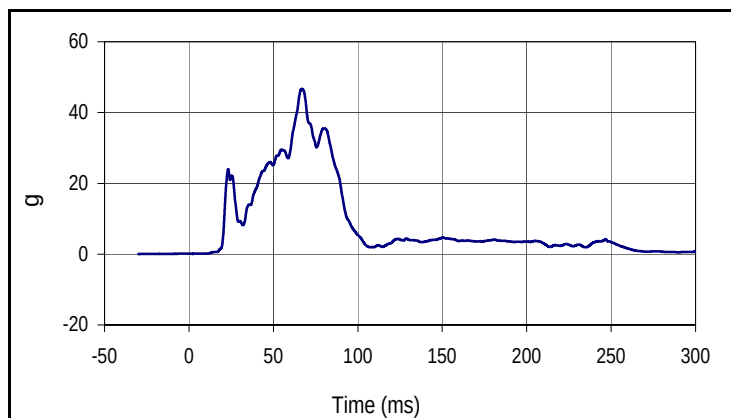
Curve Description			
Passenger Chest Acceleration X Primary			
Plot No.		SAE Class	Units
021		180	g
Max	Time	Min	Time
3.9	246.7	-46.5	66.9



Curve Description			
Passenger Chest Acceleration Y Primary			
Plot No.		SAE Class	Units
022		180	g
Max	Time	Min	Time
4.8	24.5	-3.9	72.8



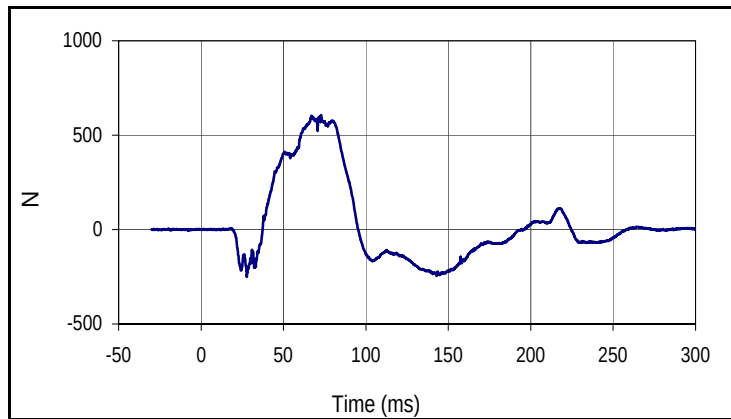
Curve Description			
Passenger Chest Acceleration Z Primary			
Plot No.		SAE Class	Units
023		180	g
Max	Time	Min	Time
17.4	23.3	-5.0	69.3



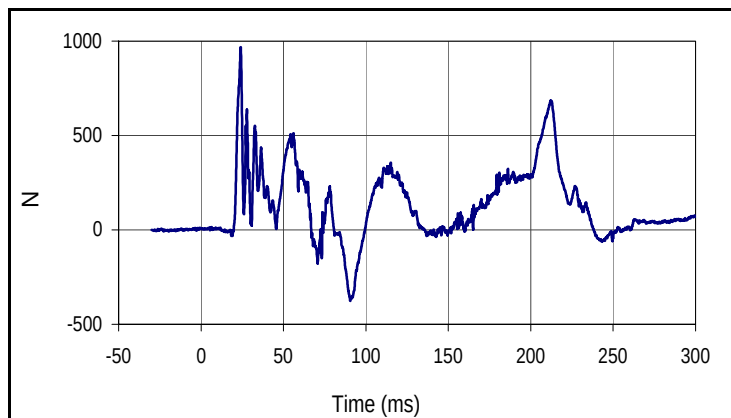
Curve Description			
Passenger Chest Resultant Acceleration Primary			
Plot No.		SAE Class	Units
024		180	g
Max	Time	Min	Time
46.7	66.8	0.1	2.2

Test Vehicle: 2017 Ford Escape 5-Door MPV
 Test Program: 56 km/h Frontal Impact NCAP Test

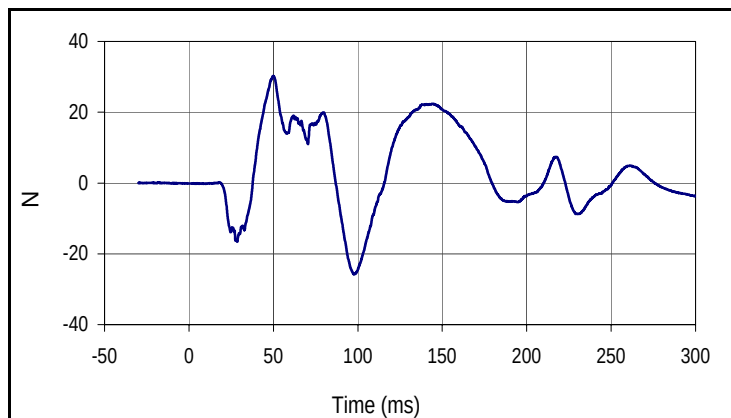
NHTSA No.: M20170200
 Test Date: 6/9/16



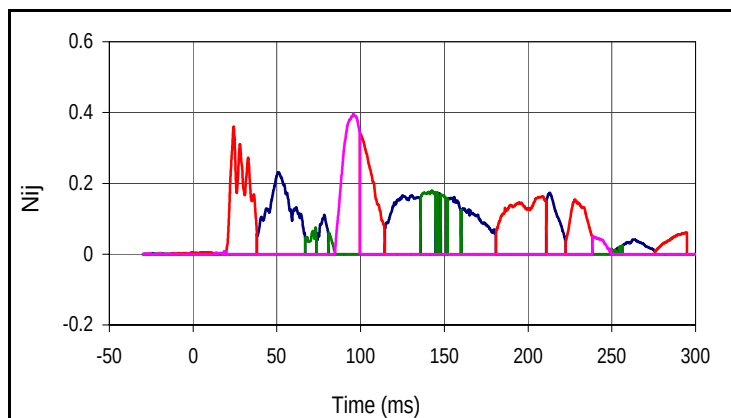
Curve Description			
Passenger Upper Neck Force X			
Plot No.		SAE Class	Units
025		1000	N
Max	Time	Min	Time
607.2	72.8	-251.7	27.8



Curve Description			
Passenger Upper Neck Force Z			
Plot No.		SAE Class	Units
026		1000	N
Max	Time	Min	Time
968.2	24.1	-376.9	90.5



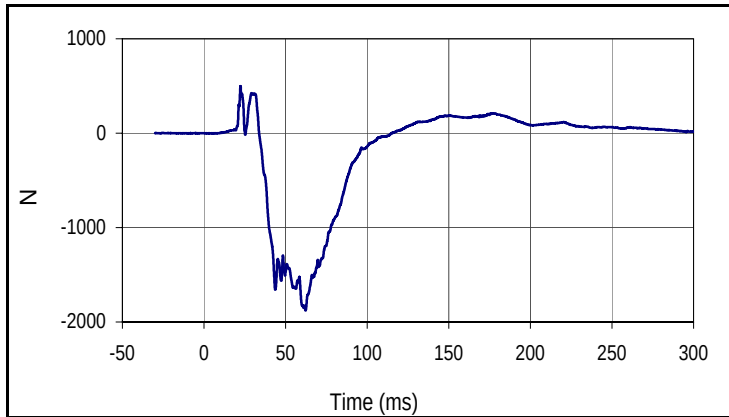
Curve Description			
Passenger Upper Neck Moment Y			
Plot No.		SAE Class	Units
027		600	N
Max	Time	Min	Time
30.2	49.9	-25.8	97.9



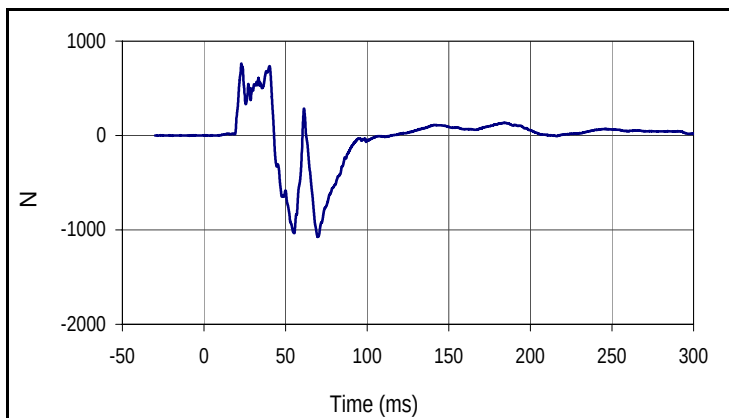
Curve Description		
Passenger Nij		
Units	Max	Time
Ntf	0.23	51.1
Units	Max	Time
Nte	0.36	24.2
Units	Max	Time
Ncf	0.18	142.8
Units	Max	Time
Nce	0.40	95.7

Test Vehicle: 2017 Ford Escape 5-Door MPV
 Test Program: 56 km/h Frontal Impact NCAP Test

NHTSA No.: M20170200
 Test Date: 6/9/16



Curve Description			
Passenger Left Femur Force Z			
Plot No.		SAE Class	Units
029		600	N
Max	Time	Min	Time
499.9	22.4	-1878.6	62.3



Curve Description			
Passenger Right Femur Force Z			
Plot No.		SAE Class	Units
030		600	N
Max	Time	Min	Time
761.2	22.9	-1073.4	69.8

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
 ATD Serial No.: 360

Test Date: 6/7/16
 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: 6/7/16

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

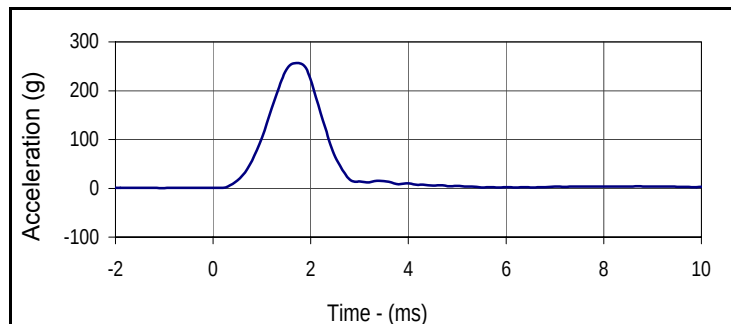
Test Date: 6/7/16

ATD Serial No.: 360

Test I.D.: M360HD017



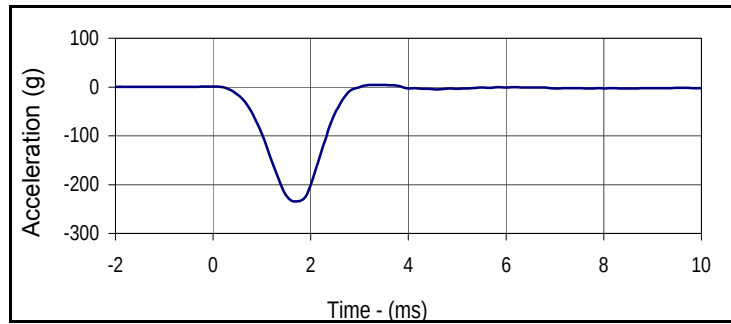
Tested Parameter		Units	Specification	Result	Pass/Fail
Head Assembly Soak Time		Minutes	≥240	405	Pass
Temperature During Soak	Max	°C	18.9 to 25.6	21.9	Pass
	Min	°C		21.8	Pass
Humidity During Soak	Max	%	10.0 to 70.0	20.9	Pass
	Min	%		20.9	Pass
Laboratory Temperature During Test		°C	18.9 to 25.6	21.9	Pass
Laboratory Humidity During Test		%	10.0 to 70.0	20.9	Pass
Peak Resultant Acceleration		g	225.0 to 275.0	256.7	Pass
Peak Lateral Acceleration		g	≤15.0	3.5	Pass
Oscillations After Main Pulse		%	<10% of peak Res. Acceleration	11.5	Pass
Is Acceleration Unimodal?		Yes/No	Yes	Yes	Pass
Overall Test Results				Pass	



Curve Description

Head Resultant

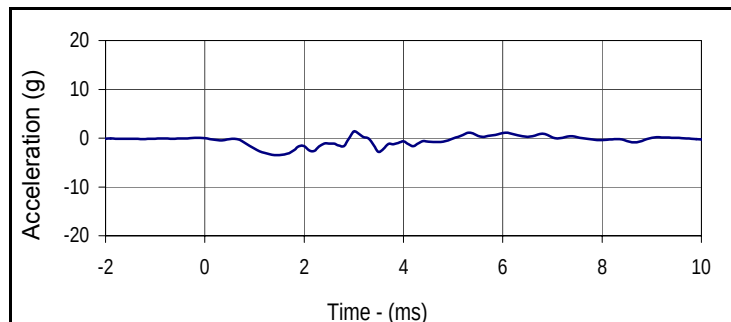
Plot No.	Type	SAE Class	Units
001	RES	1000	g
Max	Time	Min	Time
256.7	1.7	0.1	88.9



Curve Description

Head X

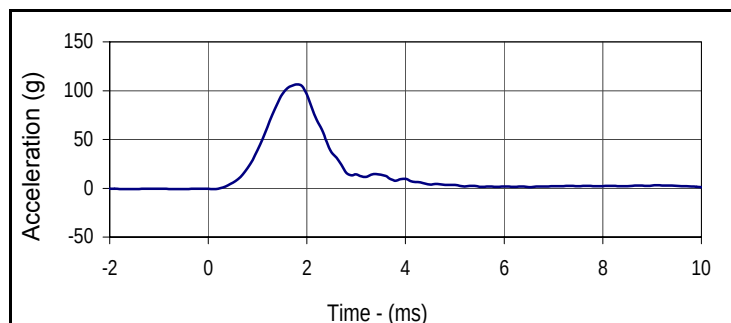
Plot No.	Type	SAE Class	Units
002	FIL	1000	g
Max	Time	Min	Time
4.3	3.2	-234.2	1.7



Curve Description

Head Y

Plot No.	Type	SAE Class	Units
003	FIL	1000	g
Max	Time	Min	Time
1.4	3.0	-3.5	1.5



Curve Description

Head Z

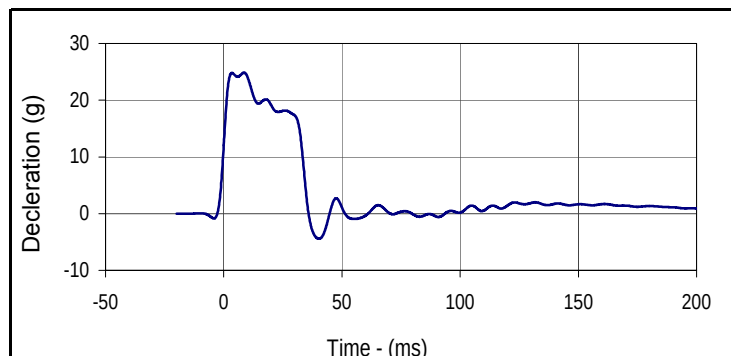
Plot No.	Type	SAE Class	Units
004	FIL	1000	g
Max	Time	Min	Time
106.2	1.8	-2.0	96.0

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

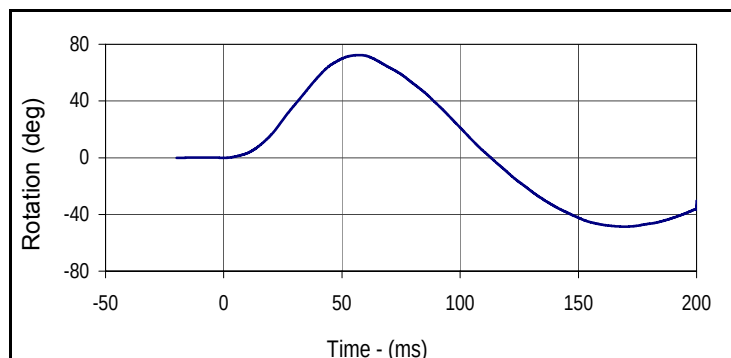
Test Date: 6/7/16
 Test I.D.: M360NF017



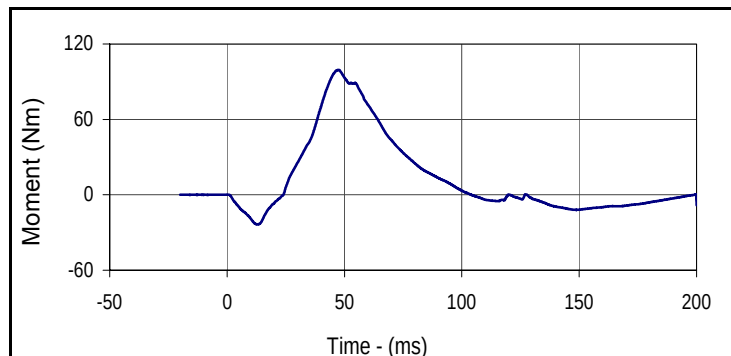
Tested Parameter		Units	Specification	Result	Pass/Fail
Neck Assembly Soak Time		Minutes	≥240	470	Pass
Temperature During Soak	Max	°C	20.6 to 22.2	21.9	Pass
	Min	°C		21.8	Pass
Humidity During Soak	Max	%	10.0 to 70.0	20.9	Pass
	Min	%		20.9	Pass
Laboratory Temperature During Test		°C	20.6 to 22.2	21.9	Pass
Laboratory Humidity During Test		%	10.0 to 70.0	20.9	Pass
Pendulum Velocity		m/s	6.89 to 7.13	6.91	Pass
Pendulum Deceleration	10 Msec.	g	22.5 to 27.5	24.1	Pass
	20 Msec.	g	17.6 to 22.6	19.2	Pass
	30 Msec.	g	12.5 to 18.5	17.3	Pass
Peak Pendulum Decel. after 30 Msec.		g	≤ 29.0	17.3	Pass
Deceleration Decay, Time to Cross 5 G's		ms	34.0 to 42.0	34.5	Pass
Maximum "D" Plane Rotation	Max	deg	64.0 to 78.0	72.4	Pass
	Time	ms	57.0 to 64.0	57.4	Pass
"D" Plane Rotation Decay, Time To Zero Crossing		ms	113.0 to 128.0	113	Pass
Moment About Occ. Condyle	Max	Nm	88.1 to 108.5	99.5	Pass
	Time	ms	47.0 to 58.0	47.4	Pass
Positive Moment Decay, Time To Zero Crossing		ms	97.0 to 107.0	104.0	Pass
Overall Test Results					Pass



Curve Description			
Pendulum Deceleration			
Plot No.	Type	SAE Class	Units
001	FIL	60	g
Max	Time	Min	Time
24.8	8.6	-4.4	40.3



Curve Description			
"D" Plane Rotation			
Plot No.	Type	SAE Class	Units
002	FIL	60	deg
Max	Time	Min	Time
72.4	57.4	-48.6	169.5



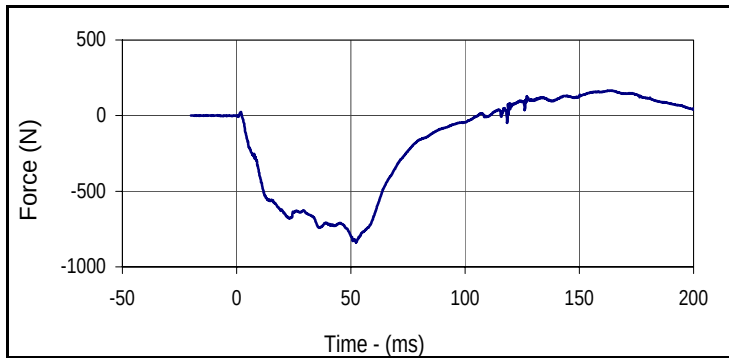
Curve Description			
Moment About Occipital Condyle			
Plot No.	Type	SAE Class	Units
003	FIL	600	Nm
Max	Time	Min	Time
99.5	47.4	-23.6	13.1

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

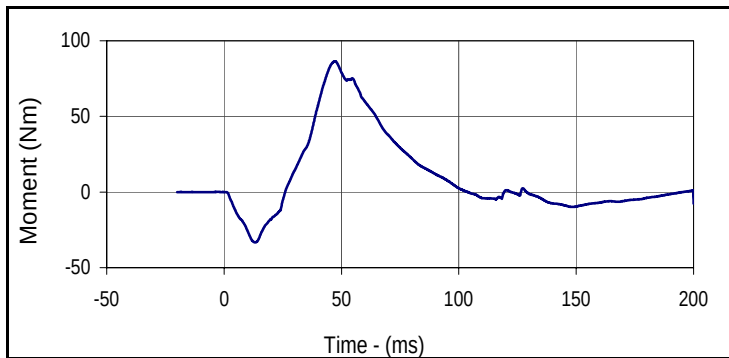
ATD Serial No.: 360

Test Date: 6/7/16

Test I.D.: M360NF017



Curve Description			
Neck Force X			
Plot No.	Type	SAE Class	Units
004	FIL	1000	N
Max	Time	Min	Time
166.4	163.6	-838.7	52.3



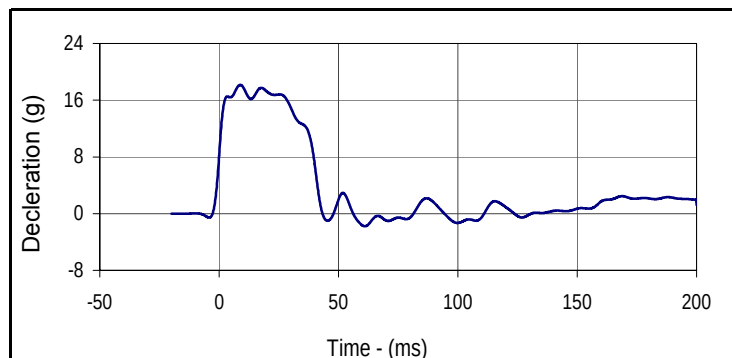
Curve Description			
Neck Moment Y			
Plot No.	Type	SAE Class	Units
005	FIL	600	Nm
Max	Time	Min	Time
86.4	47.3	-33.3	13.2

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

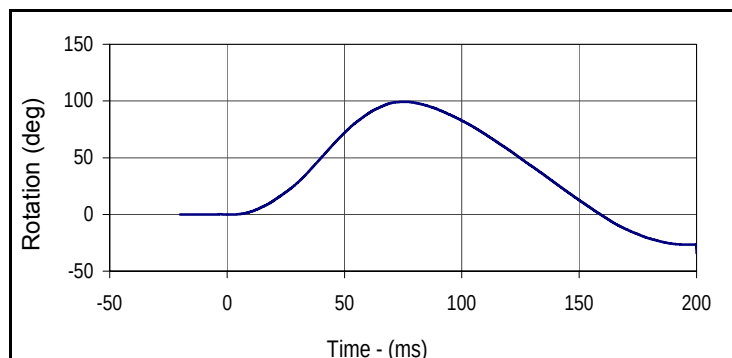
Test Date: 6/7/16
 Test I.D.: M360NE017



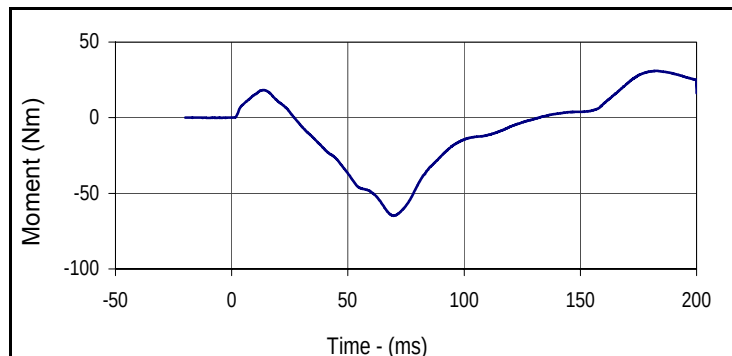
Tested Parameter		Units	Specification	Result	Pass/Fail
Neck Assembly Soak Time		Minutes	≥240	515	Pass
Temperature During Soak	Max	°C	20.6 to 22.2	21.9	Pass
	Min	°C		21.8	Pass
Humidity During Soak	Max	%	10.0 to 70.0	20.9	Pass
	Min	%		20.9	Pass
Laboratory Temperature During Test		°C	20.6 to 22.2	21.8	Pass
Laboratory Humidity During Test		%	10.0 to 70.0	20.9	Pass
Pendulum Velocity		m/s	5.94 to 6.19	6.01	Pass
Pendulum Deceleration	10 Msec.	g	17.2 to 21.2	17.9	Pass
	20 Msec.	g	14.0 to 19.0	17.2	Pass
	30 Msec.	g	11.0 to 16.0	15.0	Pass
Peak Pendulum Decel. after 30 Msec.		g	≤ 22.0	15.0	Pass
Deceleration Decay, Time to Cross 5 G's		ms	38.0 to 46.0	40.8	Pass
Maximum "D" Plane Rotation	Max	deg	81.0 to 106.0	99.2	Pass
	Time	ms	72.0 to 82.0	75.9	Pass
"D" Plane Rotation Decay, Time To Zero Crossing		ms	147.0 to 174.0	159.1	Pass
Moment About Occ. Condyle	Max	Nm	-52.9 to -79.9	-64.8	Pass
	Time	ms	65.0 to 79.0	69.6	Pass
Positive Moment Decay, Time To Zero Crossing		ms	120.0 to 148.0	132.3	Pass
Overall Test Results					Pass



Curve Description			
Pendulum Deceleration			
Plot No.	Type	SAE Class	Units
001	FIL	60	g
Max	Time	Min	Time
18.2	8.8	-1.8	61.0



Curve Description			
"D" Plane Rotation			
Plot No.	Type	SAE Class	Units
002	FIL	60	deg
Max	Time	Min	Time
99.2	75.9	-34.3	200.0



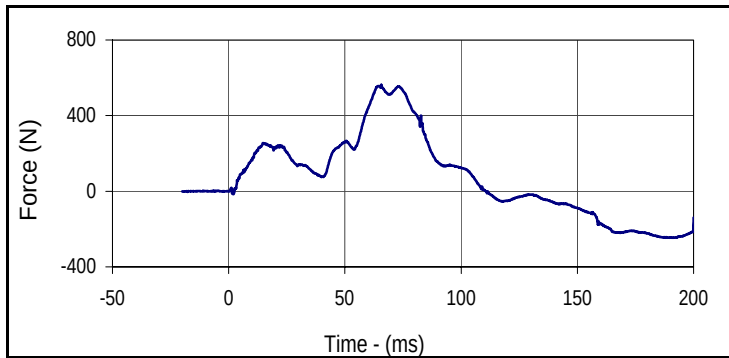
Curve Description			
Moment About Occipital Condyle			
Plot No.	Type	SAE Class	Units
003	FIL	600	Nm
Max	Time	Min	Time
30.9	182.8	-64.8	69.6

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

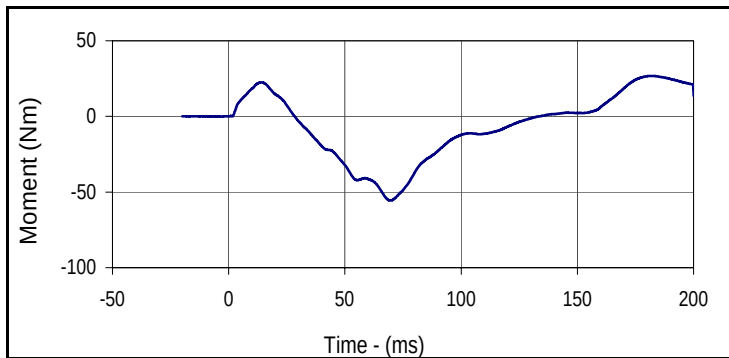
ATD Serial No.: 360

Test Date: 6/7/16

Test I.D.: M360NE017



Curve Description			
Neck Force X			
Plot No.	Type	SAE Class	Units
004	FIL	1000	N
Max	Time	Min	Time
563.4	65.7	-246.4	192.4



Curve Description			
Neck Moment Y			
Plot No.	Type	SAE Class	Units
005	FIL	600	Nm
Max	Time	Min	Time
26.8	182.7	-55.6	69.5

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

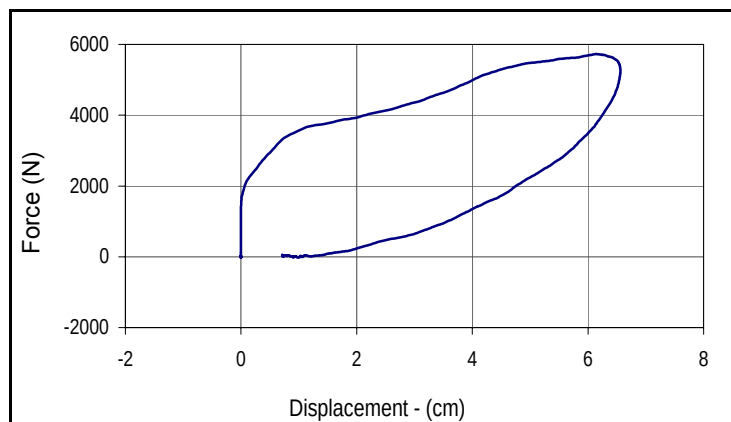
Test Date: 6/7/16

ATD Serial No.: 360

Test I.D.: M360CH017



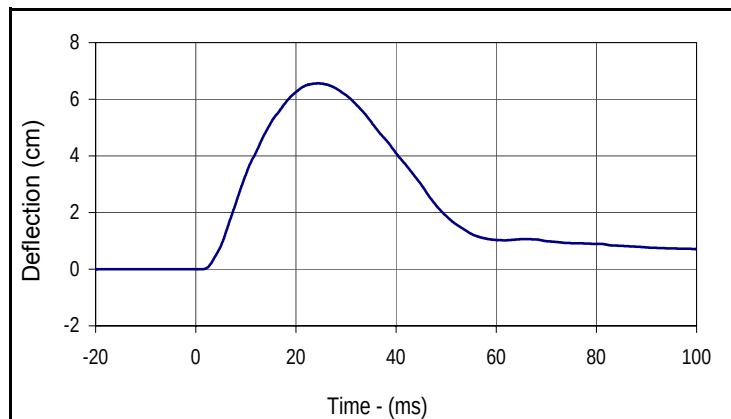
Tested Parameter		Units	Specification	Result	Pass/Fail
Dummy Soak Time		Minutes	≥240	590	Pass
Temperature During Soak	Max	°C	20.6 to 22.2	21.9	Pass
	Min	°C		21.8	Pass
Humidity During Soak	Max	%	10.0 to 70.0	20.9	Pass
	Min	%		20.9	Pass
Laboratory Temperature During Test		°C	20.6 to 22.2	21.8	Pass
Laboratory Humidity During Test		%	10.0 to 70.0	20.9	Pass
Probe Velocity		m/s	6.58 to 6.82	6.61	Pass
Peak Probe Force		N	5159 to 5893	5725	Pass
Peak Sternum Deflection		cm	6.35 to 7.26	6.56	Pass
Internal Hysteresis		%	69 to 85	71.5	Pass
Overall Test Results				Pass	



Curve Description

Probe Force vs. Chest Deflection

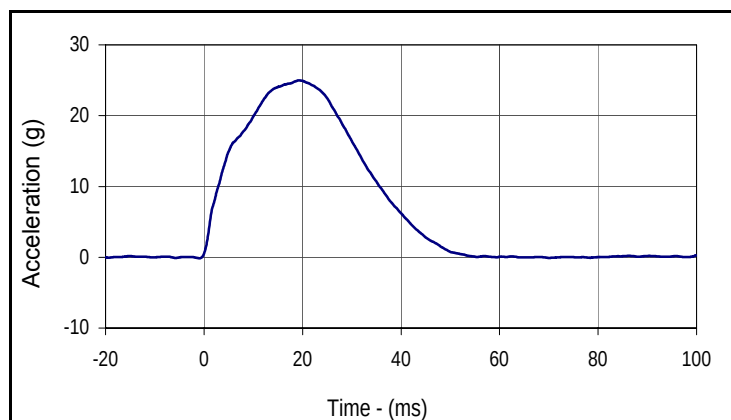
Plot No.	Type	SAE Class	Hysteresis
001	FIL	180	71.5
Peak Probe Force		Peak Chest Deflection	
5725		6.56	



Curve Description

Chest Deflection

Plot No.	Type	SAE Class	Units
002	FIL	180	cm
Max	Time	Min	Time
6.6	24.4	0.0	1.0



Curve Description

Impactor Acceleration

Plot No.	Type	SAE Class	Units
003	FIL	180	g
Max	Time	Min	Time
25.0	19.3	-0.1	-1.0

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

Test Date: 6/7/16
 Test I.D.: M360LK017, M360RK017

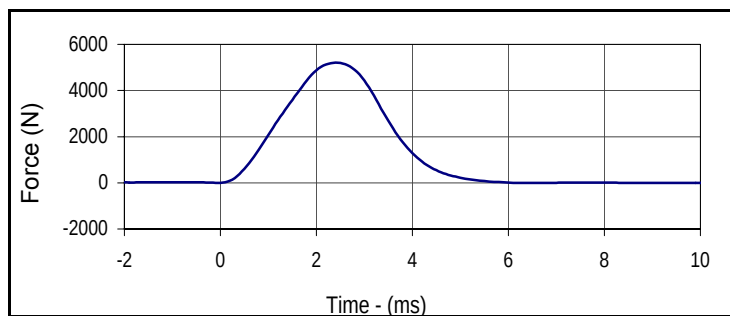


Left Knee

Tested Parameter	Units	Specification	Result	Pass/Fail
Knee Assembly Soak Time	Minutes	≥240	645	Pass
Temperature During Soak	Max	18.9 to 25.6	21.9	Pass
	Min		21.8	Pass
Humidity During Soak	Max	10.0 to 70.0	20.9	Pass
	Min		20.9	Pass
Laboratory Temperature During Test	°C	18.9 to 25.6	21.8	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	20.9	Pass
Pendulum Velocity at T=0	m/sec	2.07 to 2.13	2.07	Pass
Peak Probe Force	N	4715 to 5782	5204	Pass
Overall Test Results				Pass

Right Knee

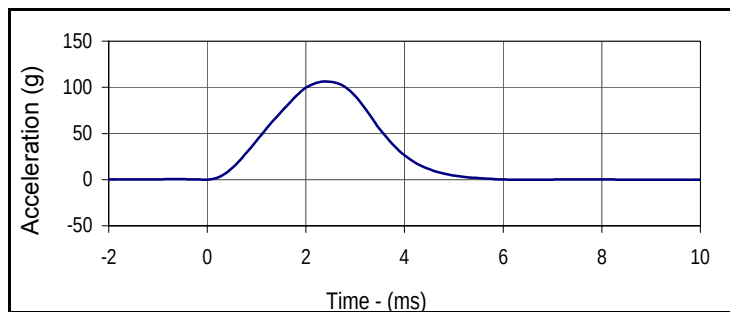
Pendulum Velocity at T=0	m/sec	2.07 to 2.13	2.08	Pass
Peak Probe Force	N	4715 to 5782	5393	Pass
Overall Test Results				Pass



Curve Description

Left Knee Probe Force

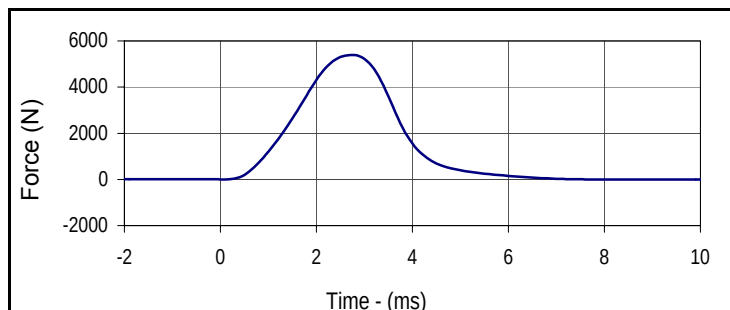
Plot No.	Type	SAE Class	Units
001	FIL	600	N
Max	Time	Min	Time
5203.7	2.4	-10.6	11.5



Curve Description

Left Knee Acceleration

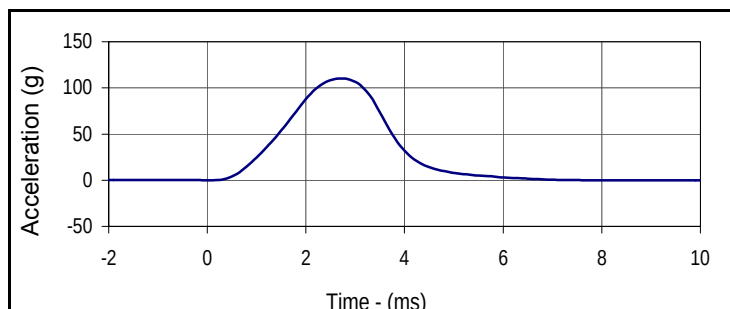
Plot No.	Type	SAE Class	Units
002	FIL	600	g
Max	Time	Min	Time
106.4	2.4	-0.2	11.5



Curve Description

Right Knee Probe Force

Plot No.	Type	SAE Class	Units
003	FIL	600	N
Max	Time	Min	Time
5393.5	2.7	-9.8	10.9



Curve Description

Right Knee Acceleration

Plot No.	Type	SAE Class	Units
004	FIL	600	g
Max	Time	Min	Time
110.2	2.7	-0.2	10.9

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

Test Date: 6/7/16
 Test I.D.: M360LF017, M360RF017

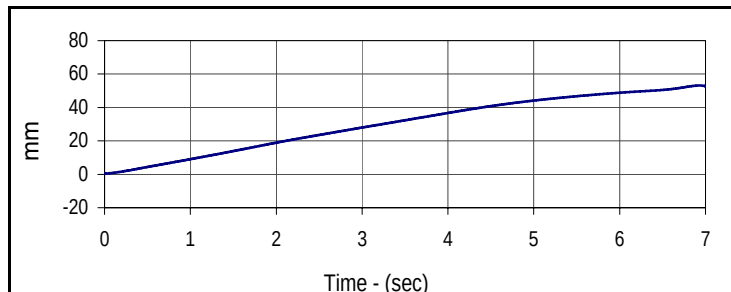


Left Hip Joint-Femur Results

Tested Parameter	Units	Specification	Result	Pass/Fail
Hip Joint-Femur Assembly Soak Time	Minutes	≥240	720	Pass
Temperature During Soak	Max	18.9 to 25.6	21.9	Pass
	Min		21.8	Pass
Humidity During Soak	Max	10.0 to 70.0	20.9	Pass
	Min		20.9	Pass
Laboratory Temperature During Test	°C	18.9 to 25.6	21.8	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	20.9	Pass
Rotation Rate	deg/sec	5 to 10	7.7	Pass
Femur Torque at 30°	Nm	≤ 95	71.8	Pass
Rotation at 203 Nm	Degrees	40.0 to 50.0	41.9	Pass
Overall Test Results				Pass

Right Hip Joint-Femur Results

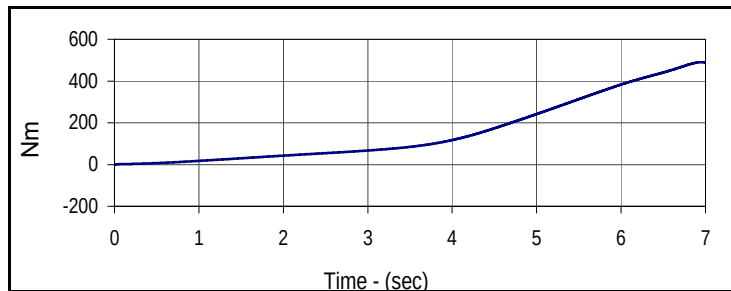
Rotation Rate	deg/sec	5 to 10	7.7	Pass
Femur Torque at 30°	Nm	≤ 95	82.9	Pass
Rotation at 203 Nm	Degrees	40.0 to 50.0	43.6	Pass
Overall Test Results				Pass



Curve Description

Left Hip-Femur Rotation

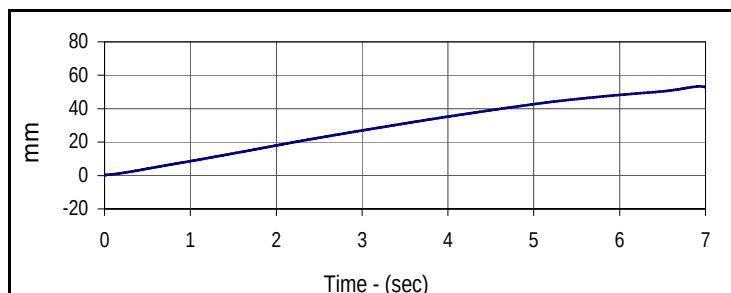
Plot No.	Type	SAE Class	Units
001	FIL	60	mm
Max	Time	Min	Time
53.1	6.9	0.4	0.0



Curve Description

Left Femur Torque

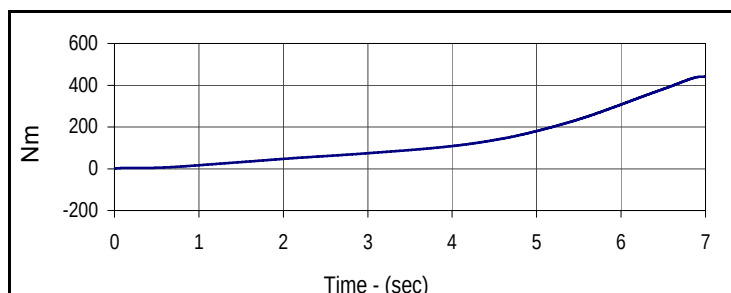
Plot No.	Type	SAE Class	Units
002	FIL	600	Nm
Max	Time	Min	Time
490.3	6.9	0.4	0.0



Curve Description

Right Hip-Femur Rotation

Plot No.	Type	SAE Class	Units
003	FIL	60	mm
Max	Time	Min	Time
53.3	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
441.1	7.0	0.4	0.0

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

Test Date: 6/8/16

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: 6/8/16

ATD Serial No.: 141

Test I.D.: N/A



Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	20.91	Pass
Laboratory Relative Humidity	%	10 to 70	20.5	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

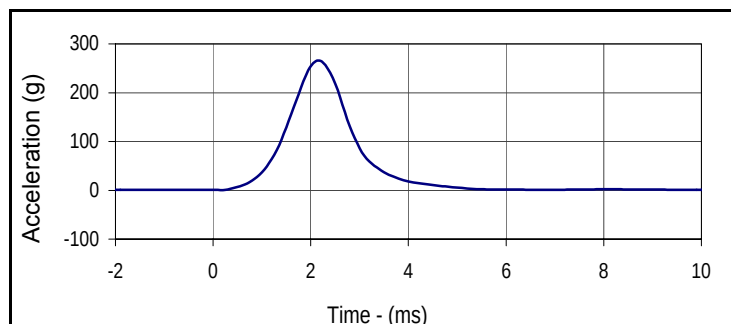
Test Date: 6/8/16

ATD Serial No.: 141

Test I.D.: F141HD074



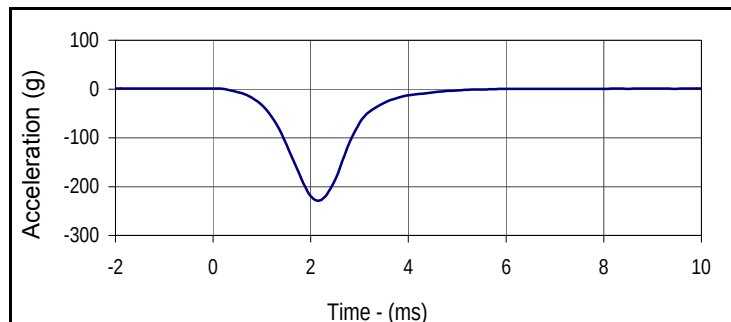
Tested Parameter		Units	Specification	Result	Pass/Fail
Head Assembly Soak Time		Minutes	≥240	435	Pass
Temperature During Soak	Max	°C	18.9 to 25.6	21.0	Pass
	Min	°C		20.9	Pass
Humidity During Soak	Max	%	10.0 to 70.0	20.6	Pass
	Min	%		20.5	Pass
Laboratory Temperature During Test		°C	18.9 to 25.6	20.9	Pass
Laboratory Humidity During Test		%	10.0 to 70.0	20.6	Pass
Peak Resultant Acceleration		g	250.0 to 300.0	265.2	Pass
Peak Lateral Acceleration		g	≤15.0	3.8	Pass
Oscillations After Main Pulse		%	<10% of peak Res. Acceleration	6.5	Pass
Is Acceleration Unimodal?		Yes/No	Yes	Yes	Pass
Overall Test Results				Pass	



Curve Description

Head Resultant

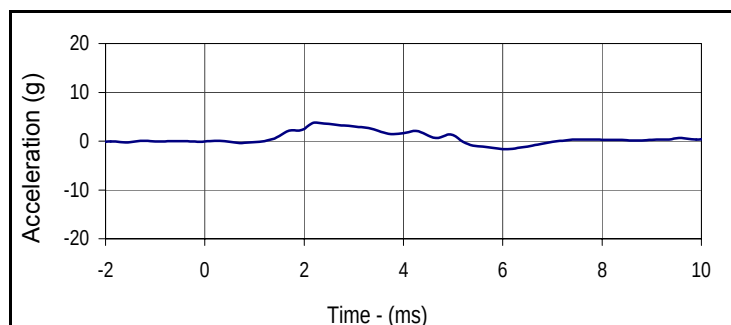
Plot No.	Type	SAE Class	Units
001	RES	1000	g
Max	Time	Min	Time
265.2	2.2	0.1	0.2



Curve Description

Head X

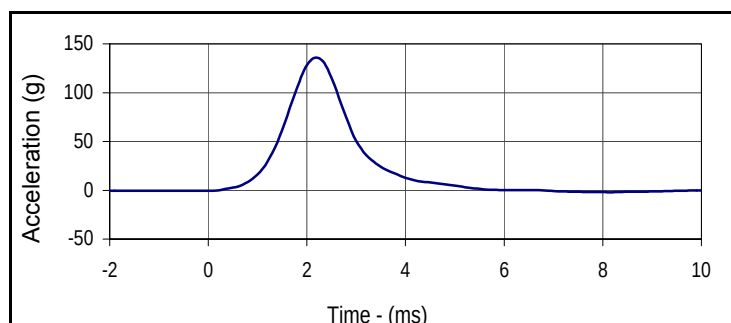
Plot No.	Type	SAE Class	Units
002	FIL	1000	g
Max	Time	Min	Time
1.2	#N/A	-227.7	2.2



Curve Description

Head Y

Plot No.	Type	SAE Class	Units
003	FIL	1000	g
Max	Time	Min	Time
3.8	2.2	-1.7	6.1



Curve Description

Head Z

Plot No.	Type	SAE Class	Units
004	FIL	1000	g
Max	Time	Min	Time
136.0	2.2	-2.1	8.1

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

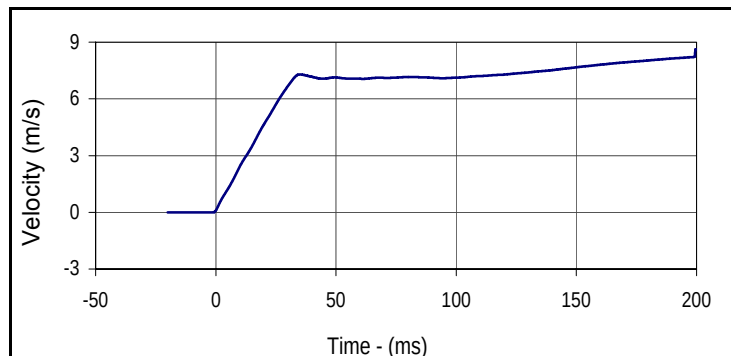
Test Date: 6/8/16

ATD Serial No.: 141

Test I.D.: F141NF074



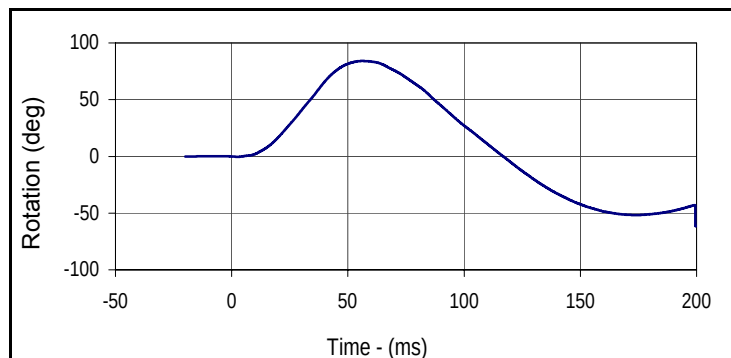
Tested Parameter		Units	Specification	Result	Pass/Fail
Neck Assembly Soak Time		Minutes	≥240	500	Pass
Temperature During Soak	Max	°C	20.6 to 22.2	21.0	Pass
	Min	°C		20.9	Pass
Humidity During Soak	Max	%	10.0 to 70.0	20.6	Pass
	Min	%		20.5	Pass
Laboratory Temperature During Test		°C	20.6 to 22.2	21.0	Pass
Laboratory Humidity During Test		%	10.0 to 70.0	20.6	Pass
Pendulum Velocity		m/s	6.89 to 7.13	6.91	Pass
Pendulum Deceleration	10 Msec.	m/s	2.1 to 2.5	2.4	Pass
	20 Msec.	m/s	4.0 to 5.0	4.7	Pass
	30 Msec.	m/s	5.8 to 7.0	6.7	Pass
"D" Plane Rotation	Max	deg	77.0 to 91.0	84.1	Pass
Peak Moment in Rotation	Max	Nm	69.0 to 83.0	79.4	Pass
Positive Moment Decay, Time To 10 Nm		ms	80.0 to 100.0	81.3	Pass
Overall Test Results				Pass	



Curve Description

Pendulum Velocity

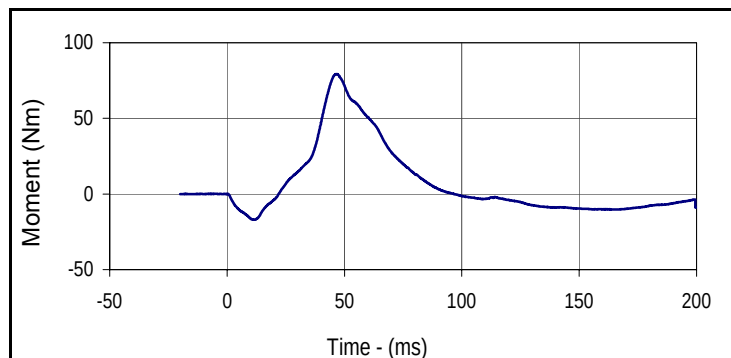
Plot No.	Type	SAE Class	Units
001	FIL	180	m/s
Max	Time	Min	Time
8.6	199.5	0.0	-1.3



Curve Description

"D" Plane Rotation

Plot No.	Type	SAE Class	Units
002	FIL	60	deg
Max	Time	Min	Time
84.1	56.2	-61.3	199.5



Curve Description

Moment About Occipital Condyle

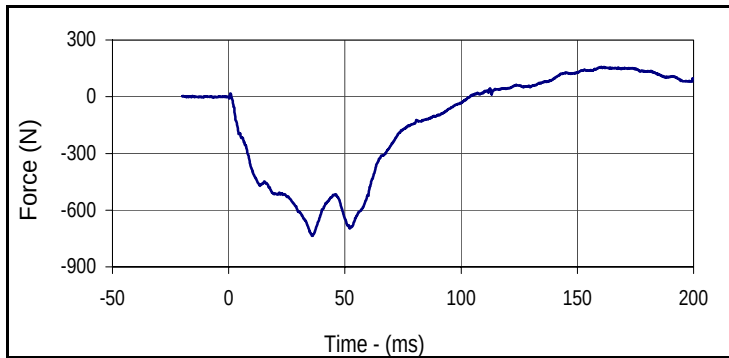
Plot No.	Type	SAE Class	Units
003	FIL	600	Nm
Max	Time	Min	Time
79.4	46.7	-17.1	11.7

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

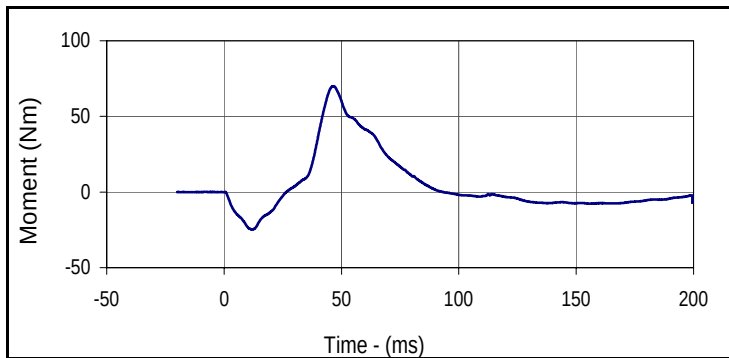
ATD Serial No.: 141

Test Date: 6/8/16

Test I.D.: F141NF074



Curve Description			
Neck Force X			
Plot No.	Type	SAE Class	Units
004	FIL	1000	N
Max	Time	Min	Time
158.0	160.3	-736.3	35.9



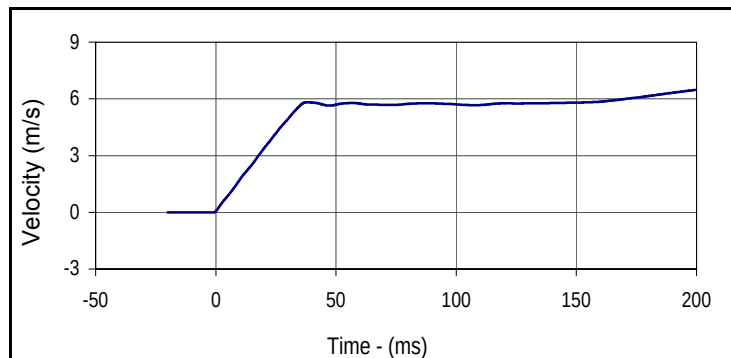
Curve Description			
Neck Moment Y			
Plot No.	Type	SAE Class	Units
005	FIL	600	Nm
Max	Time	Min	Time
70.0	46.5	-24.8	12.0

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

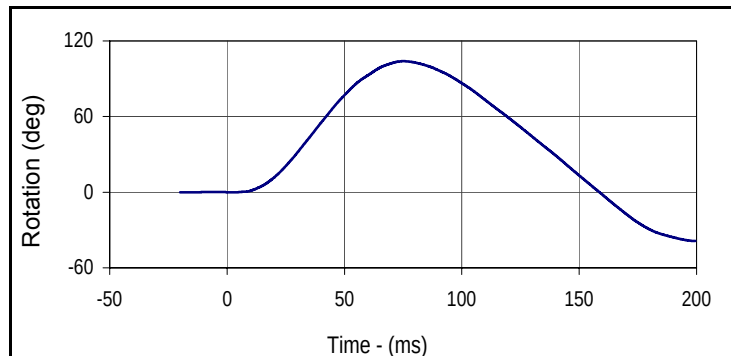
Test Date: 6/8/16
 Test I.D.: F141NE074



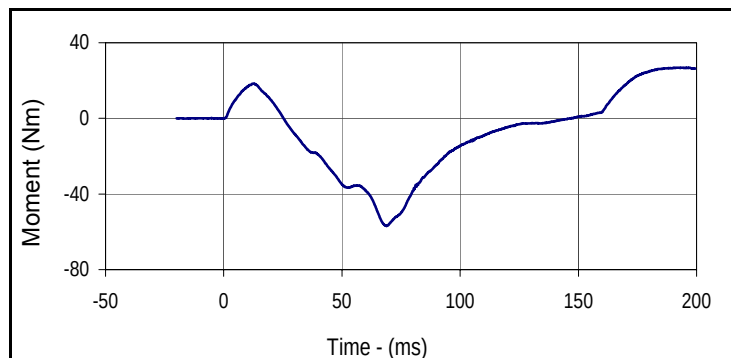
Tested Parameter		Units	Specification	Result	Pass/Fail
Neck Assembly Soak Time		Minutes	≥240	565	Pass
Temperature During Soak	Max	°C	20.6 to 22.2	21.0	Pass
	Min	°C		20.9	Pass
Humidity During Soak	Max	%	10.0 to 70.0	20.6	Pass
	Min	%		20.5	Pass
Laboratory Temperature During Test		°C	20.6 to 22.2	20.9	Pass
Laboratory Humidity During Test		%	10.0 to 70.0	20.5	Pass
Pendulum Velocity		m/s	5.95 to 6.19	6.03	Pass
Pendulum Deceleration	10 Msec.	m/s	1.5 to 1.9	1.7	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	103.9	Pass
Peak Moment in Rotation	Max	Nm	-53.0 to -65.0	-56.9	Pass
Positive Moment Decay, Time To -10 Nm		ms	94.0 to 114.0	108.2	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	-1.2



Curve Description			
"D" Plane Rotation			
Plot No.	Type	SAE Class	Units
002	FIL	60	deg
Max	Time	Min	Time
103.9	75.1	-38.7	199.4



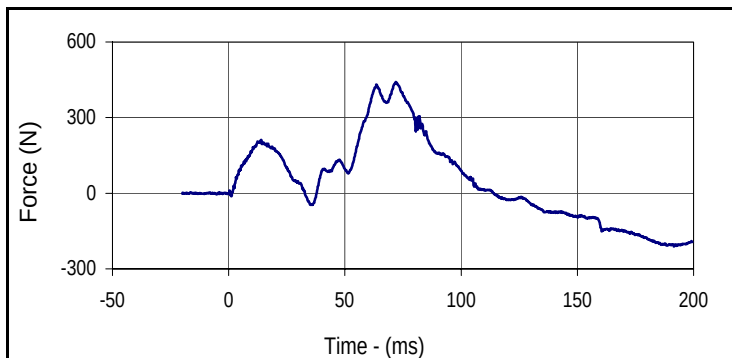
Curve Description			
Moment About Occipital Condyle			
Plot No.	Type	SAE Class	Units
003	FIL	600	Nm
Max	Time	Min	Time
26.8	193.6	-56.9	68.9

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

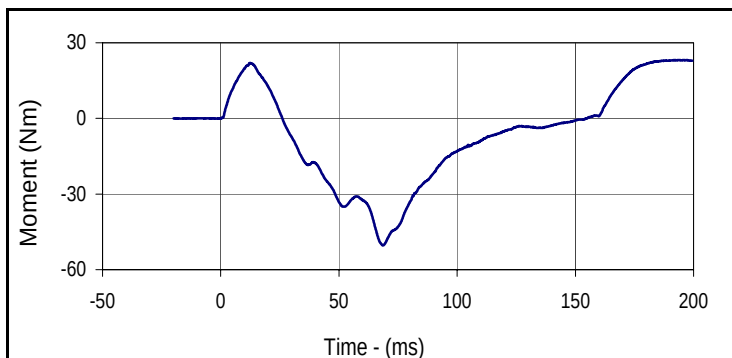
ATD Serial No.: 141

Test Date: 6/8/16

Test I.D.: F141NE074



Curve Description			
Neck Force X			
Plot No.	Type	SAE Class	Units
004	FIL	1000	N
Max	Time	Min	Time
441.4	72.0	-210.7	191.6



Curve Description			
Neck Moment Y			
Plot No.	Type	SAE Class	Units
005	FIL	600	Nm
Max	Time	Min	Time
23.2	193.7	-50.4	68.7

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

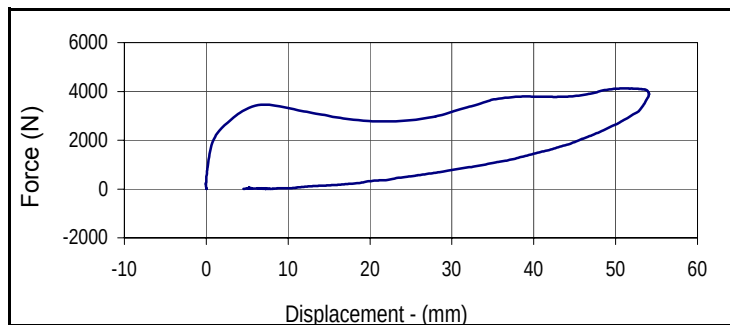
Test Date: 6/8/16

ATD Serial No.: 141

Test I.D.: F141CH074



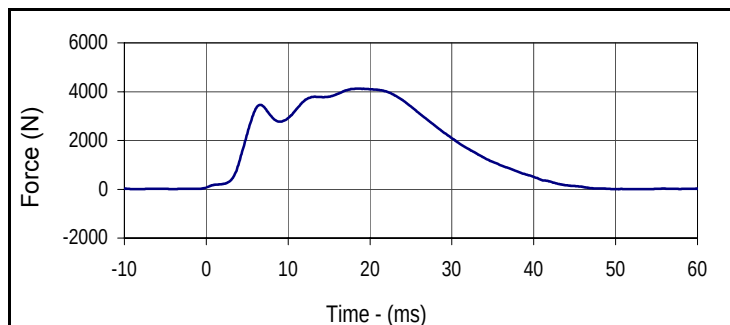
Tested Parameter		Units	Specification	Result	Pass/Fail
Dummy Soak Time		Minutes	≥240	610	Pass
Temperature During Soak	Max	°C	20.6 to 22.2	21.0	Pass
	Min	°C		20.9	Pass
Humidity During Soak	Max	%	10.0 to 70.0	20.6	Pass
	Min	%		20.5	Pass
Laboratory Temperature During Test		°C	20.6 to 22.2	20.9	Pass
Laboratory Humidity During Test		%	10.0 to 70.0	20.6	Pass
Probe Velocity		m/s	6.59 to 6.83	6.66	Pass
Peak Chest Deflection		mm	50.0 to 58.0	54.1	Pass
Peak Force Between 50 and 58 MM		N	3900 to 4400	4114	Pass
Peak Force Between 18 and 50 MM		N	≤4600	4124	Pass
Internal Hysteresis		%	69 to 85	72.1	Pass
Overall Test Results					Pass



Curve Description

Probe Force vs. Chest Deflection

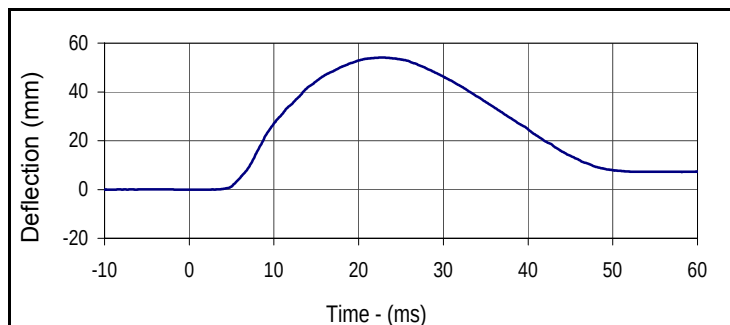
Plot No.	Type	SAE Class	Hysteresis
001	FIL	180	72.1
Peak Probe Force		Peak Chest Deflection	
4123.6		54.1	



Curve Description

Probe Force

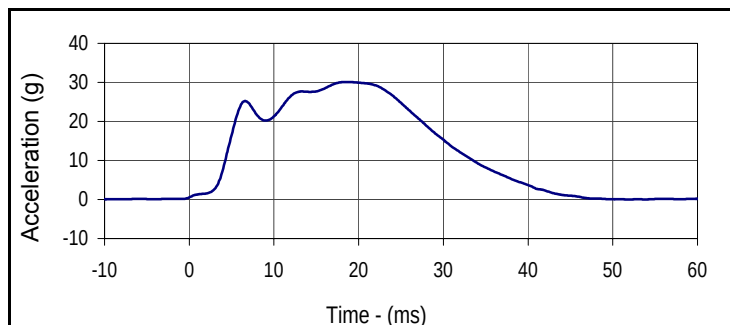
Plot No.	Type	SAE Class	Units
002	FIL	180	N
Max	Time	Min	Time
4123.6	18.5	2.9	53.8



Curve Description

Chest Deflection

Plot No.	Type	SAE Class	Units
003	FIL	600	mm
Max	Time	Min	Time
54.1	22.8	-0.1	1.9



Curve Description

Impactor Acceleration

Plot No.	Type	SAE Class	Units
004	FIL	180	g
Max	Time	Min	Time
30.1	18.5	-0.1	0.0

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

Test Date: 6/8/16

ATD Serial No.: 141

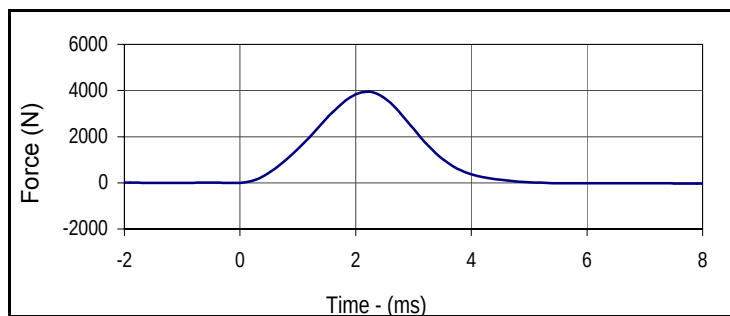
Test I.D.: F141LK074, F141RK074

**Left Knee**

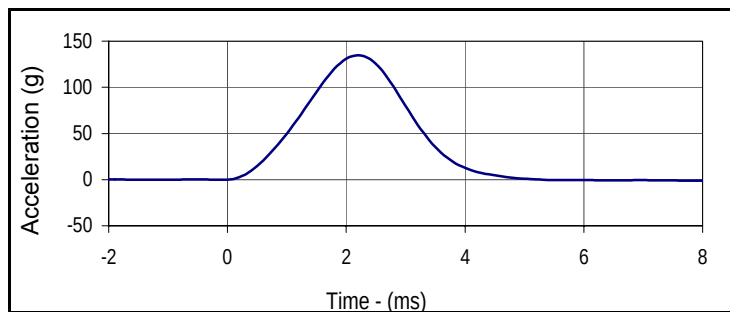
Tested Parameter		Units	Specification	Result	Pass/Fail
Knee Assembly Soak Time		Minutes	≥240	665	Pass
Temperature During Soak	Max	°C	18.9 to 25.6	21.0	Pass
	Min	°C		20.9	Pass
Humidity During Soak	Max	%	10.0 to 70.0	20.6	Pass
	Min	%		20.5	Pass
Laboratory Temperature During Test		°C	18.9 to 25.6	20.9	Pass
Laboratory Humidity During Test		%	10.0 to 70.0	20.6	Pass
Pendulum Velocity at T=0		m/sec	2.07 to 2.13	2.07	Pass
Peak Probe Force		N	3450 to 4060	3952	Pass
Overall Test Results				Pass	

Right Knee

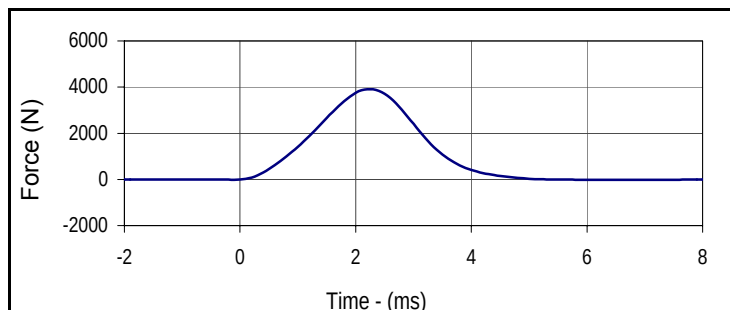
Pendulum Velocity at T=0		m/sec	2.07 to 2.13	2.07	Pass
Peak Probe Force		N	3450 to 4060	3913	Pass
Overall Test Results				Pass	

**Curve Description****Left Knee Probe Force**

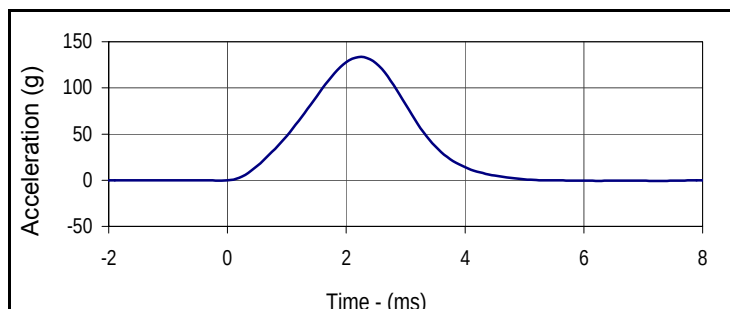
Plot No.	Type	SAE Class	Units
001	FIL	600	N
Max	Time	Min	Time
3951.8	2.2	-34.9	9.0

**Curve Description****Left Knee Acceleration**

Plot No.	Type	SAE Class	Units
002	FIL	600	g
Max	Time	Min	Time
134.8	2.2	-1.2	9.0

**Curve Description****Right Knee Probe Force**

Plot No.	Type	SAE Class	Units
003	FIL	600	N
Max	Time	Min	Time
3913.3	2.2	-24.9	9.8

**Curve Description****Right Knee Acceleration**

Plot No.	Type	SAE Class	Units
004	FIL	600	g
Max	Time	Min	Time
133.5	2.2	-0.9	9.8

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

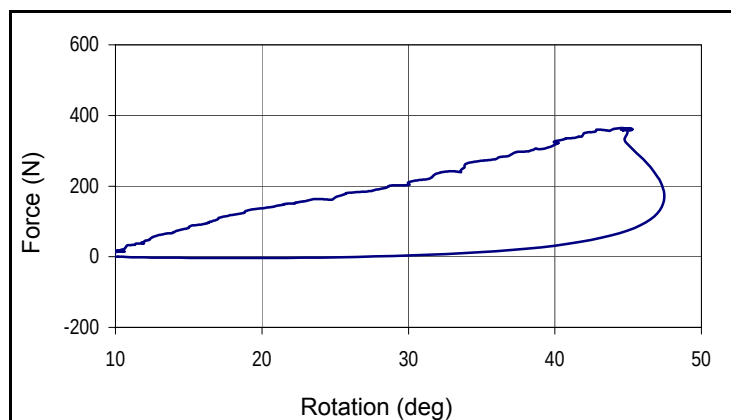
Test Date: 6/8/16

ATD Serial No.: 141

Test I.D.: TF074



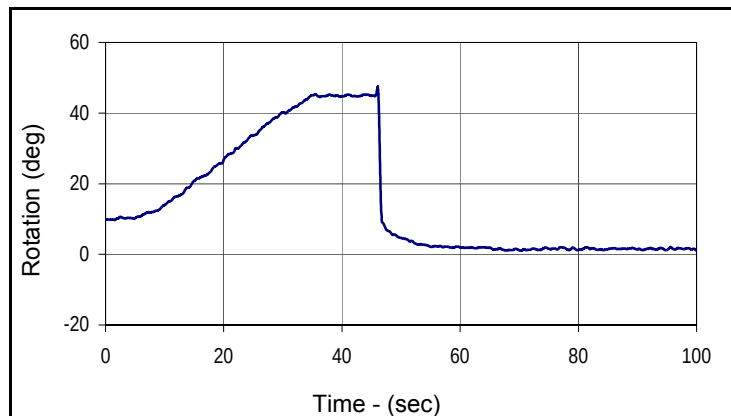
Tested Parameter		Units	Specification	Result	Pass/Fail
Dummy Soak Time		Minutes	≥240	730	Pass
Temperature During Soak	Max	°C	18.9 to 25.6	21.0	Pass
	Min	°C		20.9	Pass
Humidity During Soak	Max	%	10.0 to 70.0	20.6	Pass
	Min	%		20.5	Pass
Laboratory Temperature During Test		°C	18.9 to 25.6	20.9	Pass
Laboratory Humidity During Test		%	10.0 to 70.0	20.6	Pass
Initial Reference Plane Angle		deg	≤ 20	9.9	Pass
Peak Force at 45° +/-0.5°		N	320.0 to 390.0	362.2	Pass
Torso Rotation Rate		deg/s	0.5 to 1.5	1.0	Pass
Final Reference Plane Angle		deg	+/-8	1.1	Pass
Overall Test Results				Pass	



Curve Description

Force vs Torso Rotation

Plot No.	Type	Filter Freq
001	FIL	1 Hz
Peak Force		Peak Rotation
364.1		47.5



Curve Description

Torso Rotation

Plot No.	Type	Filter Freq	Units
002	FIL	1 Hz	deg
Max	Time	Min	Time
47.5	46.1	1.0	70.3

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

Test Program: Hybrid III 50th Percentile Male Dummy Damage Checklist
 ATD Serial No.: 360

Test Date: 6/13/16
 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: 6/13/16

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

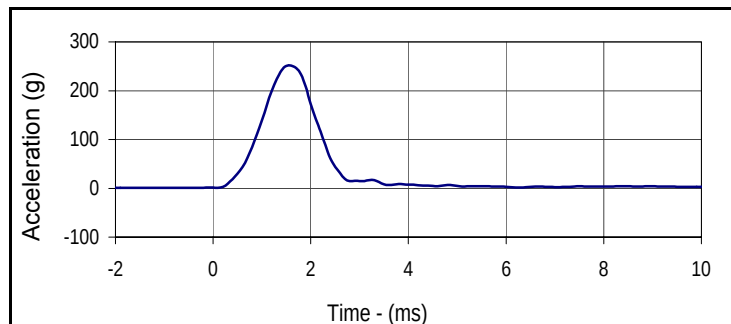
Test Date: 6/13/16

ATD Serial No.: 360

Test I.D.: M360HD018



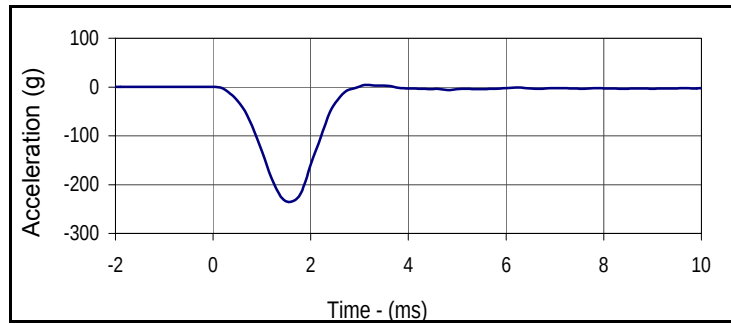
Tested Parameter		Units	Specification	Result	Pass/Fail
Head Assembly Soak Time		Minutes	≥240	475	Pass
Temperature During Soak	Max	°C	18.9 to 25.6	21.9	Pass
	Min	°C		21.8	Pass
Humidity During Soak	Max	%	10.0 to 70.0	20.5	Pass
	Min	%		20.5	Pass
Laboratory Temperature During Test		°C	18.9 to 25.6	21.9	Pass
Laboratory Humidity During Test		%	10.0 to 70.0	20.5	Pass
Peak Resultant Acceleration		g	225.0 to 275.0	251.5	Pass
Peak Lateral Acceleration		g	≤15.0	1.9	Pass
Oscillations After Main Pulse		%	<10% of peak Res. Acceleration	14.7	Pass
Is Acceleration Unimodal?		Yes/No	Yes	Yes	Pass
Overall Test Results				Pass	



Curve Description

Head Resultant

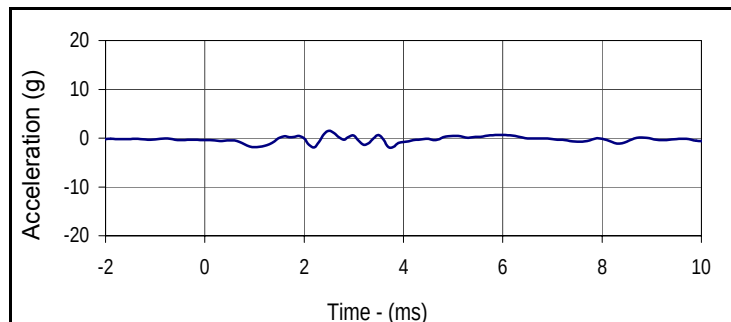
Plot No.	Type	SAE Class	Units
001	RES	1000	g
Max	Time	Min	Time
251.5	1.6	0.1	83.6



Curve Description

Head X

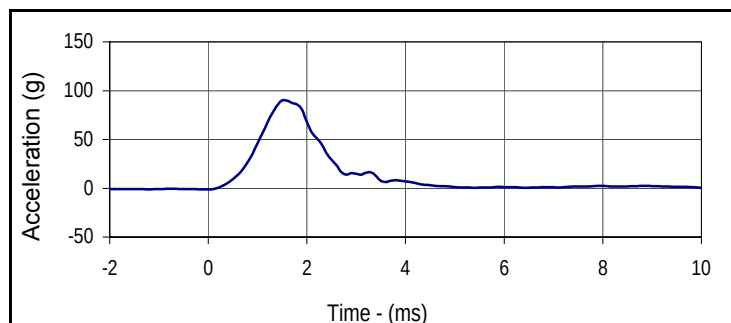
Plot No.	Type	SAE Class	Units
002	FIL	1000	g
Max	Time	Min	Time
4.5	3.2	-234.9	1.6



Curve Description

Head Y

Plot No.	Type	SAE Class	Units
003	FIL	1000	g
Max	Time	Min	Time
1.5	2.5	-1.9	2.2



Curve Description

Head Z

Plot No.	Type	SAE Class	Units
004	FIL	1000	g
Max	Time	Min	Time
89.9	1.5	-2.4	93.6

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

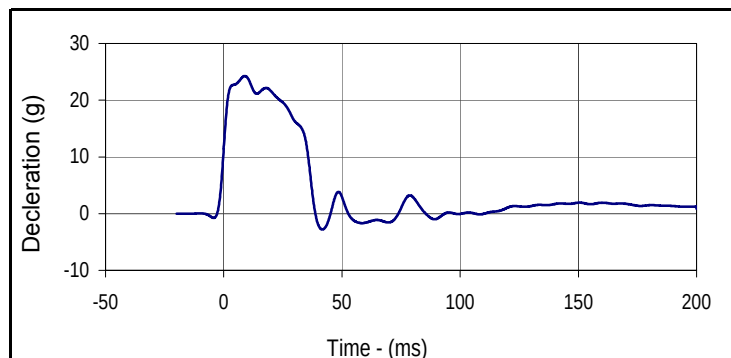
Test Date: 6/13/16

ATD Serial No.: 360

Test I.D.: M360NF018



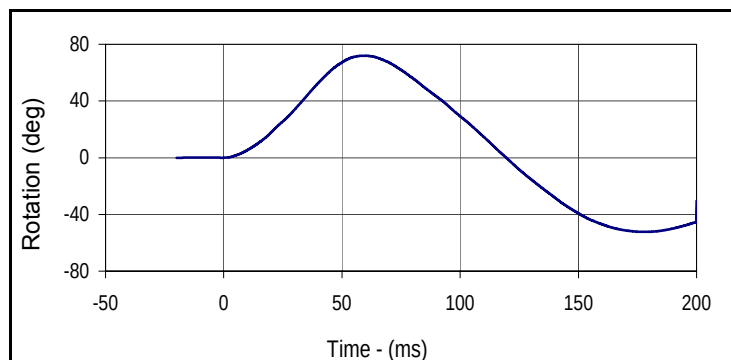
Tested Parameter		Units	Specification	Result	Pass/Fail
Neck Assembly Soak Time		Minutes	≥240	540	Pass
Temperature During Soak	Max	°C	20.6 to 22.2	21.9	Pass
	Min	°C		21.8	Pass
Humidity During Soak	Max	%	10.0 to 70.0	20.5	Pass
	Min	%		20.5	Pass
Laboratory Temperature During Test		°C	20.6 to 22.2	21.9	Pass
Laboratory Humidity During Test		%	10.0 to 70.0	20.5	Pass
Pendulum Velocity		m/s	6.89 to 7.13	6.92	Pass
Pendulum Deceleration	10 Msec.	g	22.5 to 27.5	24.0	Pass
	20 Msec.	g	17.6 to 22.6	21.6	Pass
	30 Msec.	g	12.5 to 18.5	16.3	Pass
Peak Pendulum Decel. after 30 Msec.		g	≤ 29.0	16.3	Pass
Deceleration Decay, Time to Cross 5 G's		ms	34.0 to 42.0	37.1	Pass
Maximum "D" Plane Rotation	Max	deg	64.0 to 78.0	72.0	Pass
	Time	ms	57.0 to 64.0	59.2	Pass
"D" Plane Rotation Decay, Time To Zero Crossing		ms	113.0 to 128.0	119.5	Pass
Moment About Occ. Condyle	Max	Nm	88.1 to 108.5	99.6	Pass
	Time	ms	47.0 to 58.0	49.3	Pass
Positive Moment Decay, Time To Zero Crossing		ms	97.0 to 107.0	103.2	Pass
Overall Test Results					Pass



Curve Description

Pendulum Deceleration

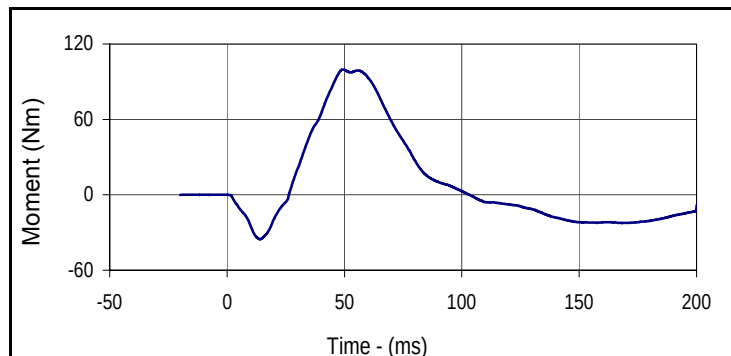
Plot No.	Type	SAE Class	Units
001	FIL	60	g
Max	Time	Min	Time
24.3	8.9	-2.8	41.7



Curve Description

"D" Plane Rotation

Plot No.	Type	SAE Class	Units
002	FIL	60	deg
Max	Time	Min	Time
72.0	59.2	-52.2	177.0



Curve Description

Moment About Occipital Condyle

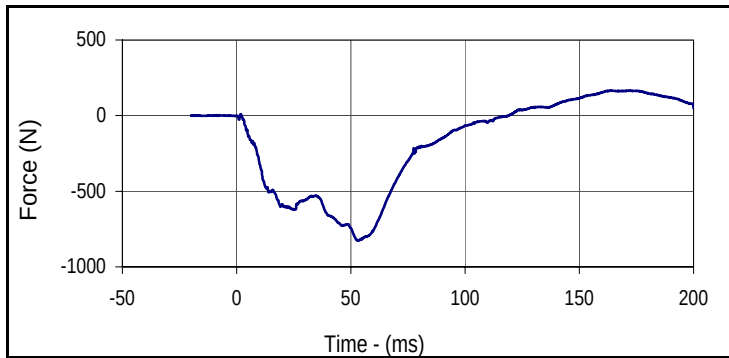
Plot No.	Type	SAE Class	Units
003	FIL	600	Nm
Max	Time	Min	Time
99.6	49.3	-35.4	14.1

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

ATD Serial No.: 360

Test Date: 6/13/16

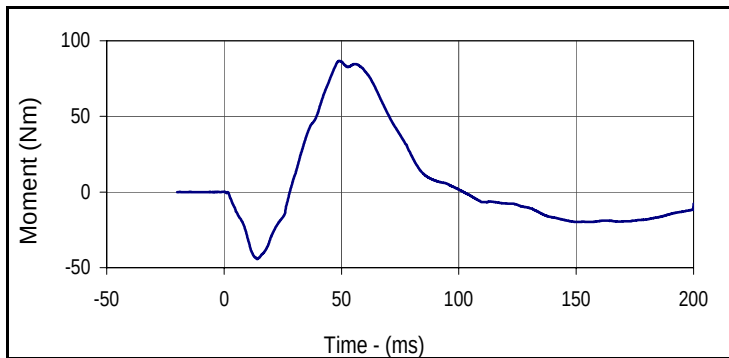
Test I.D.: M360NF018



Curve Description

Neck Force X

Plot No.	Type	SAE Class	Units
004	FIL	1000	N
Max	Time	Min	Time
166.4	164.2	-826.9	53.4



Curve Description

Neck Moment Y

Plot No.	Type	SAE Class	Units
005	FIL	600	Nm
Max	Time	Min	Time
86.7	49.1	-44.4	14.1

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

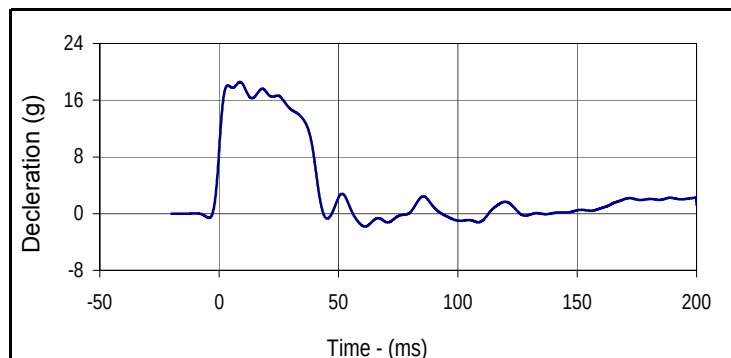
Test Date: 6/13/16

ATD Serial No.: 360

Test I.D.: M360NE018



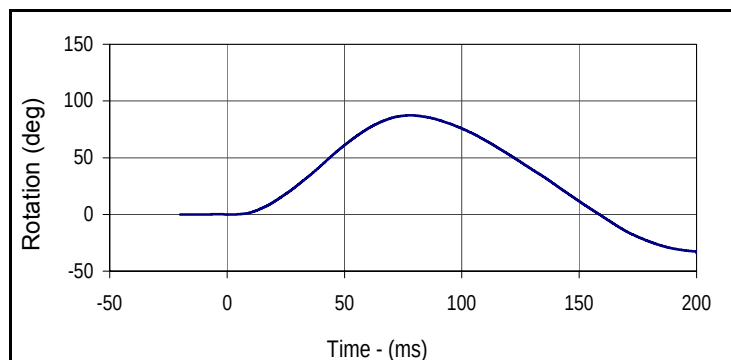
Tested Parameter		Units	Specification	Result	Pass/Fail
Neck Assembly Soak Time		Minutes	≥240	585	Pass
Temperature During Soak	Max	°C	20.6 to 22.2	21.9	Pass
	Min	°C		21.8	Pass
Humidity During Soak	Max	%	10.0 to 70.0	20.5	Pass
	Min	%		20.5	Pass
Laboratory Temperature During Test		°C	20.6 to 22.2	21.8	Pass
Laboratory Humidity During Test		%	10.0 to 70.0	20.5	Pass
Pendulum Velocity		m/s	5.94 to 6.19	6.03	Pass
Pendulum Deceleration	10 Msec.	g	17.2 to 21.2	18.2	Pass
	20 Msec.	g	14.0 to 19.0	17.1	Pass
	30 Msec.	g	11.0 to 16.0	14.7	Pass
Peak Pendulum Decel. after 30 Msec.		g	≤ 22.0	14.7	Pass
Deceleration Decay, Time to Cross 5 G's		ms	38.0 to 46.0	41.0	Pass
Maximum "D" Plane Rotation	Max	deg	81.0 to 106.0	87.4	Pass
	Time	ms	72.0 to 82.0	78.2	Pass
"D" Plane Rotation Decay, Time To Zero Crossing		ms	147.0 to 174.0	158.6	Pass
Moment About Occ. Condyle	Max	Nm	-52.9 to -79.9	-62.6	Pass
	Time	ms	65.0 to 79.0	72.6	Pass
Positive Moment Decay, Time To Zero Crossing		ms	120.0 to 148.0	135.7	Pass
Overall Test Results					Pass



Curve Description

Pendulum Deceleration

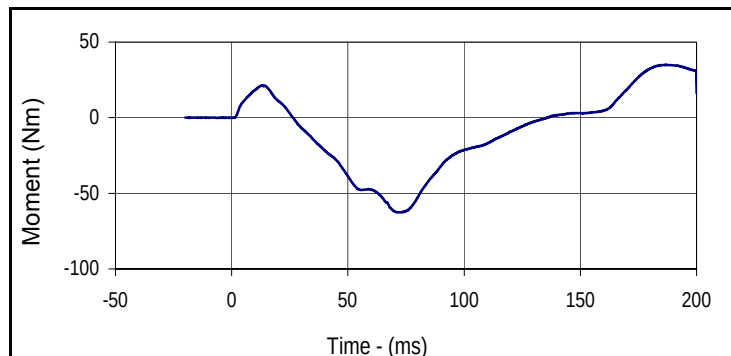
Plot No.	Type	SAE Class	Units
001	FIL	60	g
Max	Time	Min	Time
18.6	8.8	-1.8	61.1



Curve Description

"D" Plane Rotation

Plot No.	Type	SAE Class	Units
002	FIL	60	deg
Max	Time	Min	Time
87.4	78.2	-34.3	200.0



Curve Description

Moment About Occipital Condyle

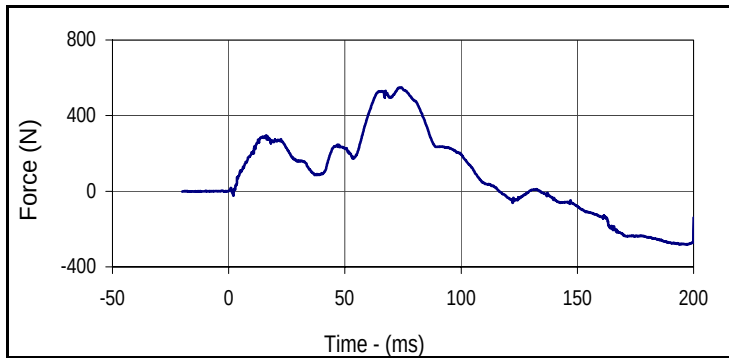
Plot No.	Type	SAE Class	Units
003	FIL	600	Nm
Max	Time	Min	Time
34.9	187.1	-62.6	72.6

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

ATD Serial No.: 360

Test Date: 6/13/16

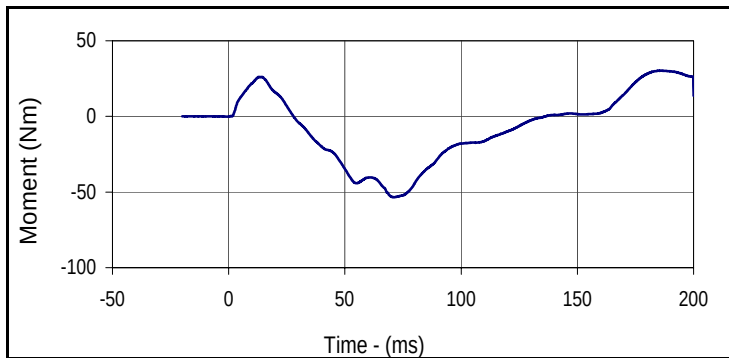
Test I.D.: M360NE018



Curve Description

Neck Force X

Plot No.	Type	SAE Class	Units
004	FIL	1000	N
Max	Time	Min	Time
549.4	74.2	-281.5	196.5



Curve Description

Neck Moment Y

Plot No.	Type	SAE Class	Units
005	FIL	600	Nm
Max	Time	Min	Time
30.3	186.2	-53.5	71.1

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

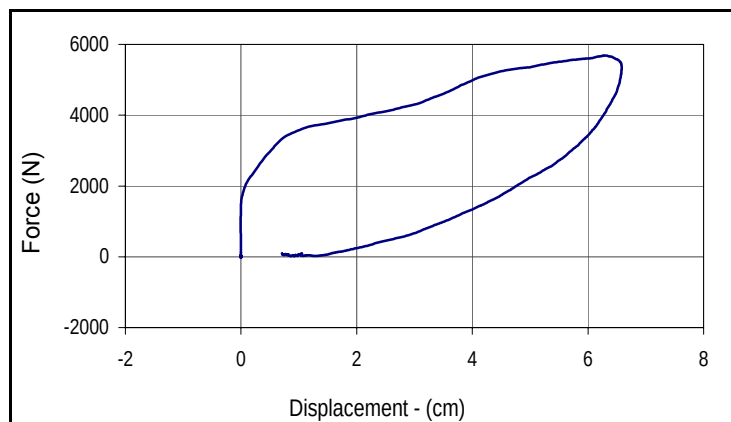
Test Date: 6/13/16

ATD Serial No.: 360

Test I.D.: M360CH018



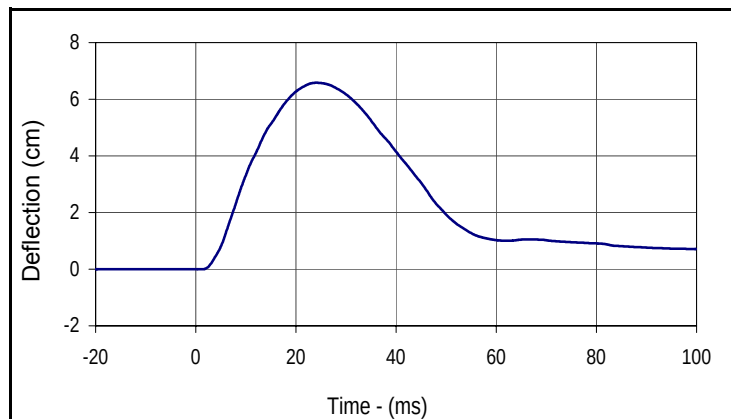
Tested Parameter		Units	Specification	Result	Pass/Fail
Dummy Soak Time		Minutes	≥240	660	Pass
Temperature During Soak	Max	°C	20.6 to 22.2	21.9	Pass
	Min	°C		21.8	Pass
Humidity During Soak	Max	%	10.0 to 70.0	20.5	Pass
	Min	%		20.5	Pass
Laboratory Temperature During Test		°C	20.6 to 22.2	21.8	Pass
Laboratory Humidity During Test		%	10.0 to 70.0	20.5	Pass
Probe Velocity		m/s	6.58 to 6.82	6.63	Pass
Peak Probe Force		N	5159 to 5893	5686	Pass
Peak Sternum Deflection		cm	6.35 to 7.26	6.58	Pass
Internal Hysteresis		%	69 to 85	71.1	Pass
Overall Test Results				Pass	



Curve Description

Probe Force vs. Chest Deflection

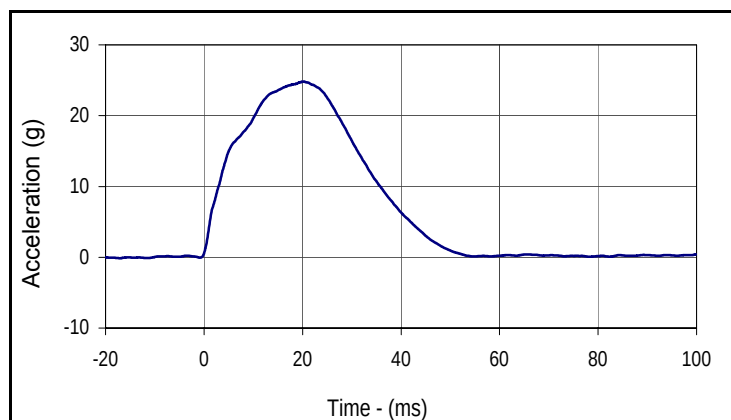
Plot No.	Type	SAE Class	Hysteresis
001	FIL	180	71.1
Peak Probe Force		Peak Chest Deflection	
5686		6.58	



Curve Description

Chest Deflection

Plot No.	Type	SAE Class	Units
002	FIL	180	cm
Max	Time	Min	Time
6.6	24.1	0.0	1.0



Curve Description

Impactor Acceleration

Plot No.	Type	SAE Class	Units
003	FIL	180	g
Max	Time	Min	Time
24.8	20.2	-0.1	-17.1

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

Test Date: 6/13/16

ATD Serial No.: 360

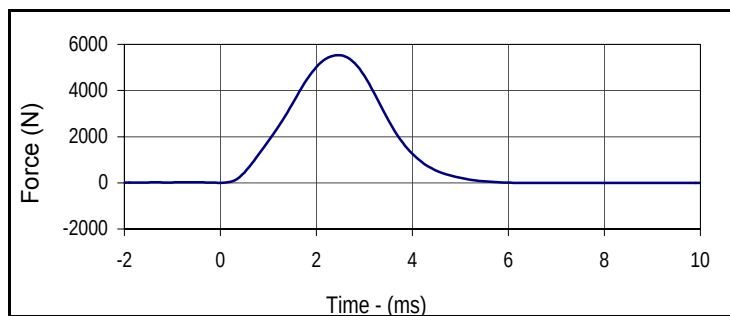
Test I.D.: M360LK018 , M360RK018

**Left Knee**

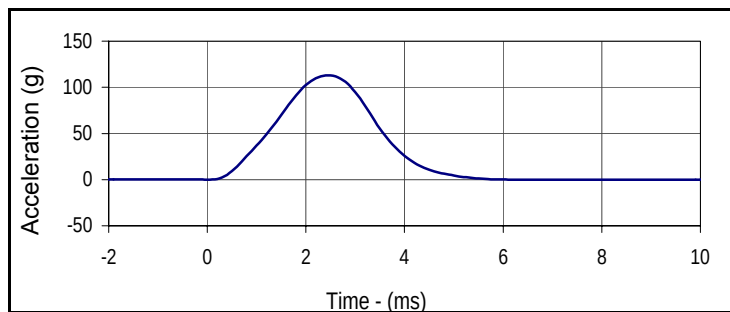
Tested Parameter		Units	Specification	Result	Pass/Fail
Knee Assembly Soak Time		Minutes	≥240	715	Pass
Temperature During Soak	Max	°C	18.9 to 25.6	21.9	Pass
	Min	°C		21.8	Pass
Humidity During Soak	Max	%	10.0 to 70.0	20.5	Pass
	Min	%		20.5	Pass
Laboratory Temperature During Test		°C	18.9 to 25.6	21.8	Pass
Laboratory Humidity During Test		%	10.0 to 70.0	20.5	Pass
Pendulum Velocity at T=0		m/sec	2.07 to 2.13	2.07	Pass
Peak Probe Force		N	4715 to 5782	5528	Pass
Overall Test Results					Pass

Right Knee

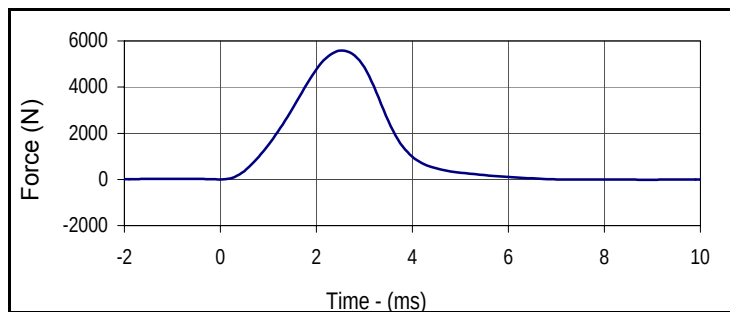
Pendulum Velocity at T=0		m/sec	2.07 to 2.13	2.07	Pass
Peak Probe Force		N	4715 to 5782	5581	Pass
Overall Test Results					Pass

**Curve Description****Left Knee Probe Force**

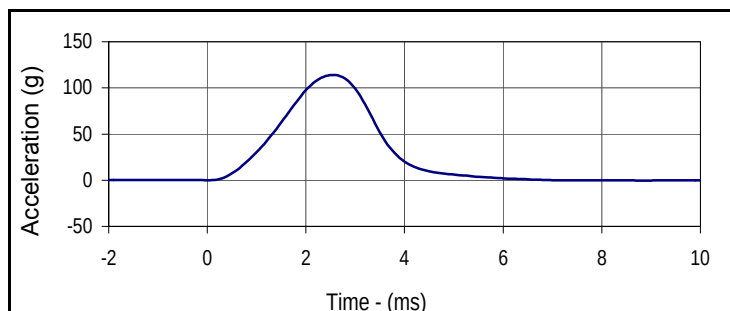
Plot No.	Type	SAE Class	Units
001	FIL	600	N
Max	Time	Min	Time
5528.2	2.5	-11.8	16.1

**Curve Description****Left Knee Acceleration**

Plot No.	Type	SAE Class	Units
002	FIL	600	g
Max	Time	Min	Time
113.0	2.5	-0.2	16.1

**Curve Description****Right Knee Probe Force**

Plot No.	Type	SAE Class	Units
003	FIL	600	N
Max	Time	Min	Time
5581.4	2.5	-14.8	8.9

**Curve Description****Right Knee Acceleration**

Plot No.	Type	SAE Class	Units
004	FIL	600	g
Max	Time	Min	Time
114.1	2.5	-0.3	8.9

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

Test Date: 6/13/16
 Test I.D.: M360LF018, M360RF018

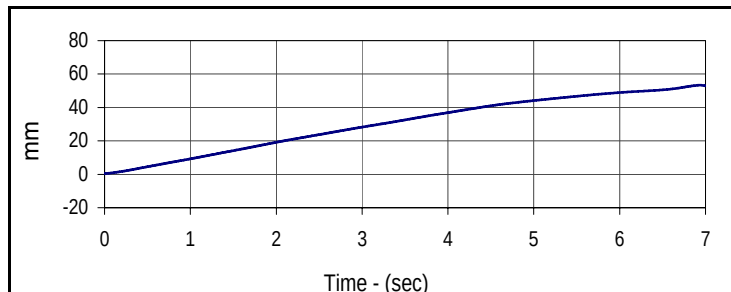


Left Hip Joint-Femur Results

Tested Parameter	Units	Specification	Result	Pass/Fail
Hip Joint-Femur Assembly Soak Time	Minutes	≥240	790	Pass
Temperature During Soak	Max	18.9 to 25.6	21.9	Pass
	Min		21.8	Pass
Humidity During Soak	Max	10.0 to 70.0	20.5	Pass
	Min		20.5	Pass
Laboratory Temperature During Test	°C	18.9 to 25.6	21.8	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	20.5	Pass
Rotation Rate	deg/sec	5 to 10	7.7	Pass
Femur Torque at 30°	Nm	≤ 95	71.3	Pass
Rotation at 203 Nm	Degrees	40.0 to 50.0	42.0	Pass
Overall Test Results			Pass	

Right Hip Joint-Femur Results

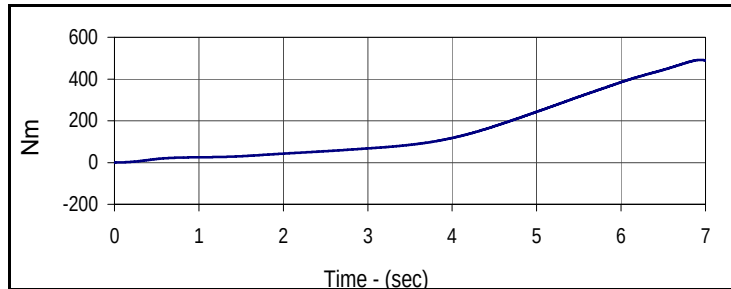
Rotation Rate	deg/sec	5 to 10	7.7	Pass
Femur Torque at 30°	Nm	≤ 95	84.3	Pass
Rotation at 203 Nm	Degrees	40.0 to 50.0	43.5	Pass
Overall Test Results			Pass	



Curve Description

Left Hip-Femur Rotation

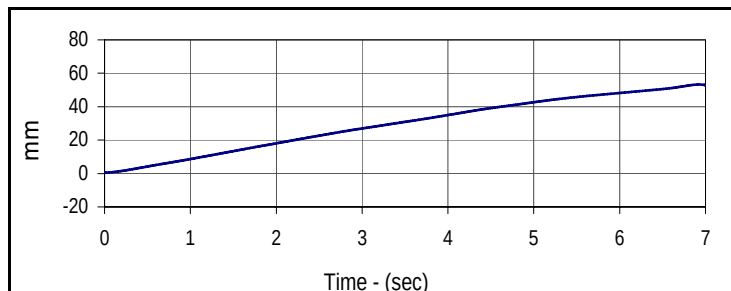
Plot No.	Type	SAE Class	Units
001	FIL	60	mm
Max	Time	Min	Time
53.3	6.9	0.4	0.0



Curve Description

Left Femur Torque

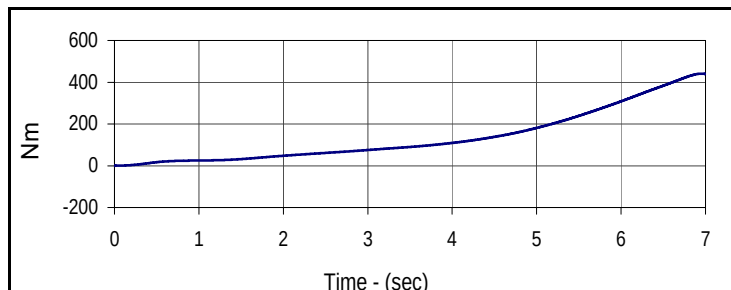
Plot No.	Type	SAE Class	Units
002	FIL	600	Nm
Max	Time	Min	Time
491.7	6.9	0.4	0.0



Curve Description

Right Hip-Femur Rotation

Plot No.	Type	SAE Class	Units
003	FIL	60	mm
Max	Time	Min	Time
53.3	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
441.0	7.0	0.4	0.0

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

Test Date: 6/14/16

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: 6/14/16

ATD Serial No.: 141

Test I.D.: N/A



Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.46	Pass
Laboratory Relative Humidity	%	10 to 70	20.4	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

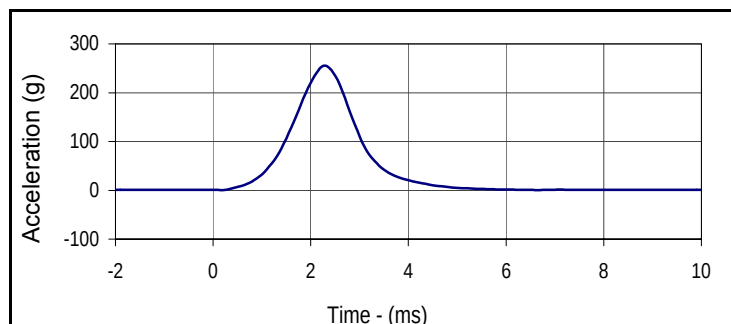
Test Date: 6/14/16

ATD Serial No.: 141

Test I.D.: F141HD075



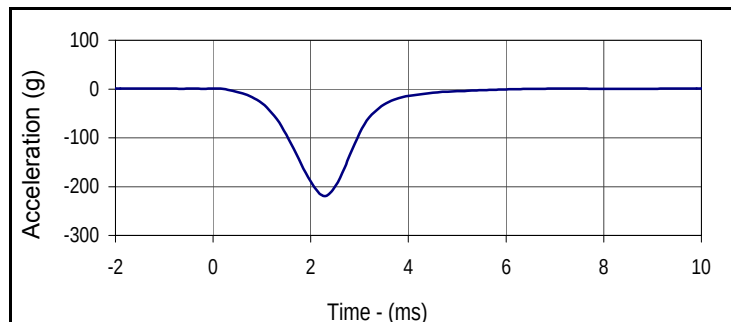
Tested Parameter		Units	Specification	Result	Pass/Fail
Head Assembly Soak Time		Minutes	≥240	325	Pass
Temperature During Soak	Max	°C	18.9 to 25.6	21.5	Pass
	Min	°C		21.5	Pass
Humidity During Soak	Max	%	10.0 to 70.0	20.4	Pass
	Min	%		20.4	Pass
Laboratory Temperature During Test		°C	18.9 to 25.6	21.5	Pass
Laboratory Humidity During Test		%	10.0 to 70.0	20.4	Pass
Peak Resultant Acceleration		g	250.0 to 300.0	255.7	Pass
Peak Lateral Acceleration		g	≤15.0	1.6	Pass
Oscillations After Main Pulse		%	<10% of peak Res. Acceleration	8.2	Pass
Is Acceleration Unimodal?		Yes/No	Yes	Yes	Pass
Overall Test Results				Pass	



Curve Description

Head Resultant

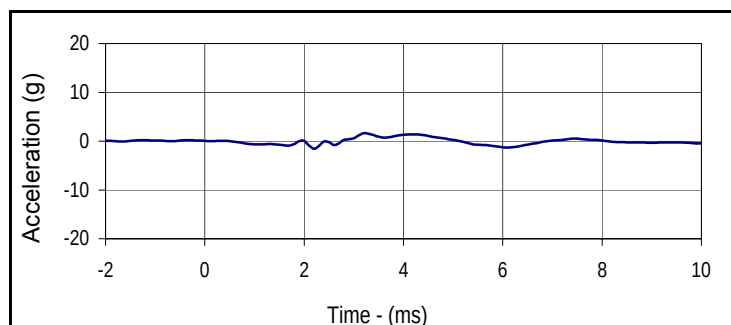
Plot No.	Type	SAE Class	Units
001	RES	1000	g
Max	Time	Min	Time
255.7	2.3	0.1	0.2



Curve Description

Head X

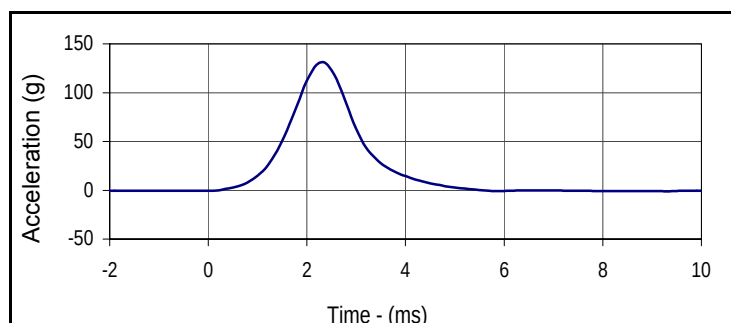
Plot No.	Type	SAE Class	Units
002	FIL	1000	g
Max	Time	Min	Time
1.3	7.1	-219.3	2.3



Curve Description

Head Y

Plot No.	Type	SAE Class	Units
003	FIL	1000	g
Max	Time	Min	Time
1.6	3.2	-1.6	2.2



Curve Description

Head Z

Plot No.	Type	SAE Class	Units
004	FIL	1000	g
Max	Time	Min	Time
131.5	2.3	-1.0	9.3

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

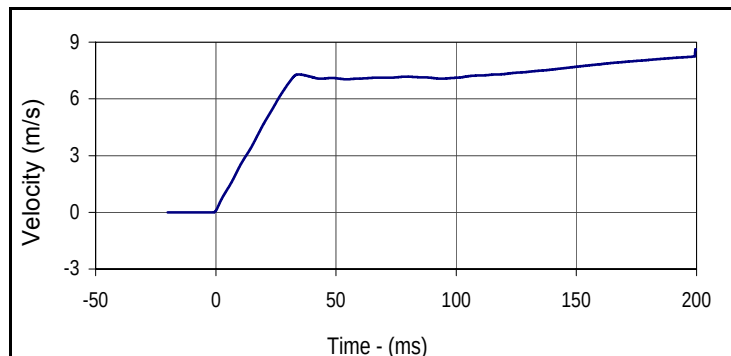
Test Date: 6/14/16

ATD Serial No.: 141

Test I.D.: F141NF075



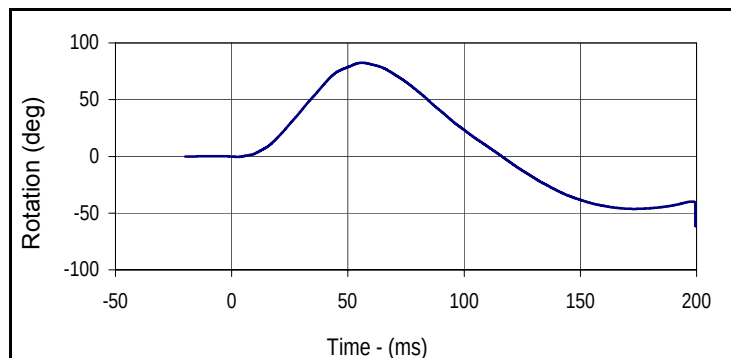
Tested Parameter		Units	Specification	Result	Pass/Fail
Neck Assembly Soak Time		Minutes	≥240	390	Pass
Temperature During Soak	Max	°C	20.6 to 22.2	21.5	Pass
	Min	°C		21.5	Pass
Humidity During Soak	Max	%	10.0 to 70.0	20.4	Pass
	Min	%		20.4	Pass
Laboratory Temperature During Test		°C	20.6 to 22.2	21.5	Pass
Laboratory Humidity During Test		%	10.0 to 70.0	20.4	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	4.7	Pass
	30 Msec.	m/s	5.8 to 7.0	6.8	Pass
"D" Plane Rotation	Max	deg	77.0 to 91.0	82.6	Pass
Peak Moment in Rotation	Max	Nm	69.0 to 83.0	77.2	Pass
Positive Moment Decay, Time To 10 Nm		ms	80.0 to 100.0	82.8	Pass
Overall Test Results				Pass	



Curve Description

Pendulum Velocity

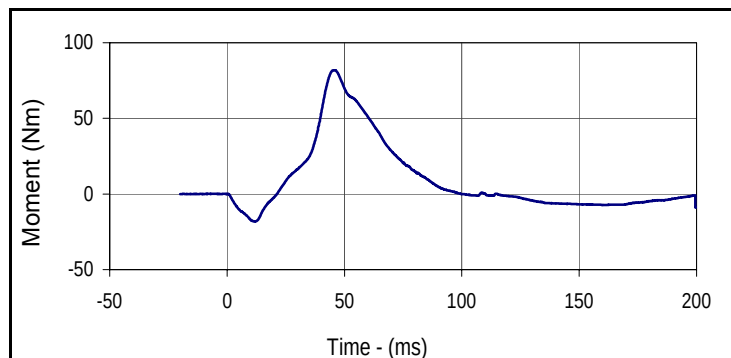
Plot No.	Type	SAE Class	Units
001	FIL	180	m/s
Max	Time	Min	Time
8.6	199.5	0.0	-1.3



Curve Description

"D" Plane Rotation

Plot No.	Type	SAE Class	Units
002	FIL	60	deg
Max	Time	Min	Time
82.6	56.0	-61.3	199.5



Curve Description

Moment About Occipital Condyle

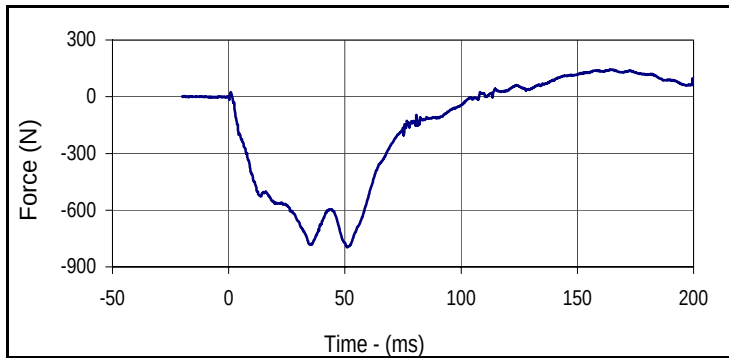
Plot No.	Type	SAE Class	Units
003	FIL	600	Nm
Max	Time	Min	Time
81.9	45.7	-18.2	11.7

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

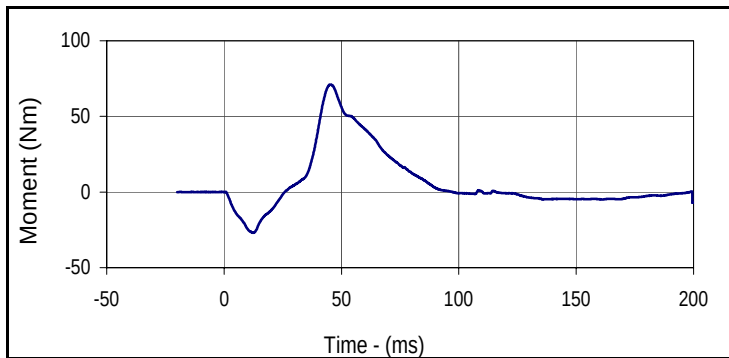
ATD Serial No.: 141

Test Date: 6/14/16

Test I.D.: F141NF075



Curve Description			
Neck Force X			
Plot No.	Type	SAE Class	Units
004	FIL	1000	N
Max	Time	Min	Time
144.2	164.3	-796.0	51.1



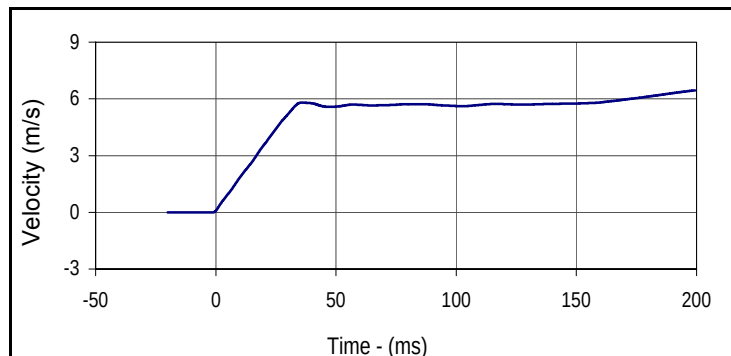
Curve Description			
Neck Moment Y			
Plot No.	Type	SAE Class	Units
005	FIL	600	Nm
Max	Time	Min	Time
71.0	45.3	-26.9	12.3

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

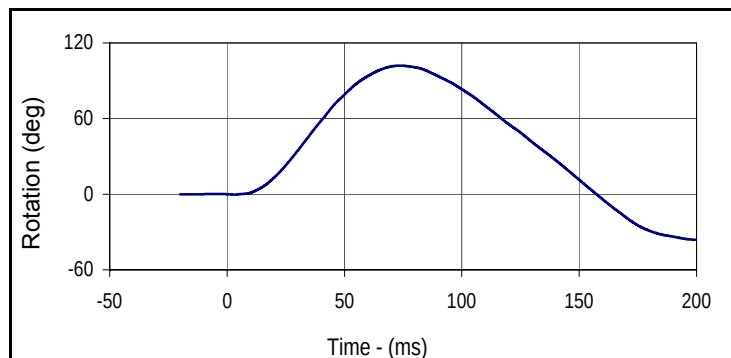
Test Date: 6/14/16
 Test I.D.: F141NE075



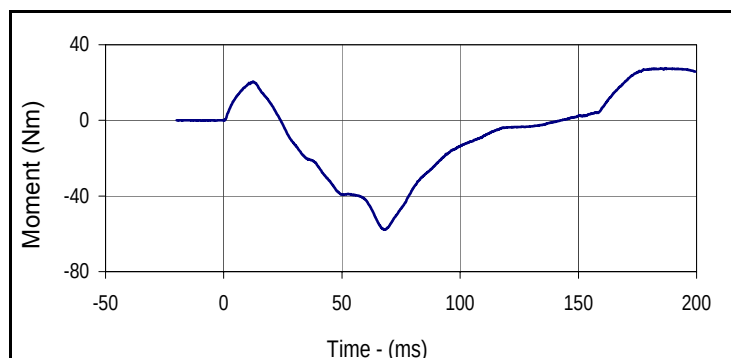
Tested Parameter		Units	Specification	Result	Pass/Fail
Neck Assembly Soak Time		Minutes	≥240	455	Pass
Temperature During Soak	Max	°C	20.6 to 22.2	21.5	Pass
	Min	°C		21.5	Pass
Humidity During Soak	Max	%	10.0 to 70.0	20.4	Pass
	Min	%		20.4	Pass
Laboratory Temperature During Test		°C	20.6 to 22.2	21.5	Pass
Laboratory Humidity During Test		%	10.0 to 70.0	20.4	Pass
Pendulum Velocity		m/s	5.95 to 6.19	6.02	Pass
Pendulum Deceleration	10 Msec.	m/s	1.5 to 1.9	1.8	Pass
	20 Msec.	m/s	3.1 to 3.9	3.6	Pass
	30 Msec.	m/s	4.6 to 5.6	5.2	Pass
"D" Plane Rotation	Max	deg	99.0 to 114.0	102.1	Pass
Peak Moment in Rotation	Max	Nm	-53.0 to -65.0	-57.8	Pass
Positive Moment Decay, Time To -10 Nm		ms	94.0 to 114.0	106.9	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	-1.4



Curve Description			
"D" Plane Rotation			
Plot No.	Type	SAE Class	Units
002	FIL	60	deg
Max	Time	Min	Time
102.1	73.6	-36.1	199.4



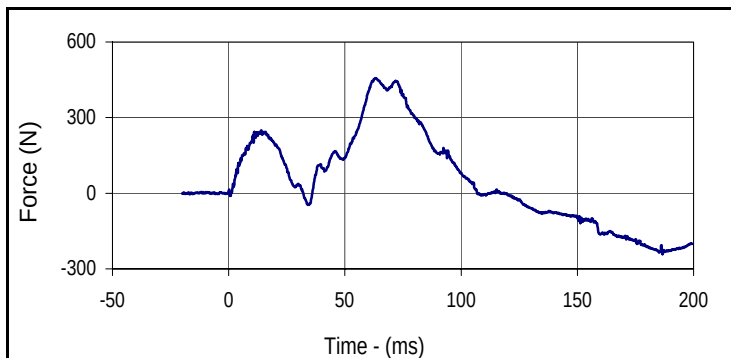
Curve Description			
Moment About Occipital Condyle			
Plot No.	Type	SAE Class	Units
003	FIL	600	Nm
Max	Time	Min	Time
27.6	186.7	-57.8	68.0

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

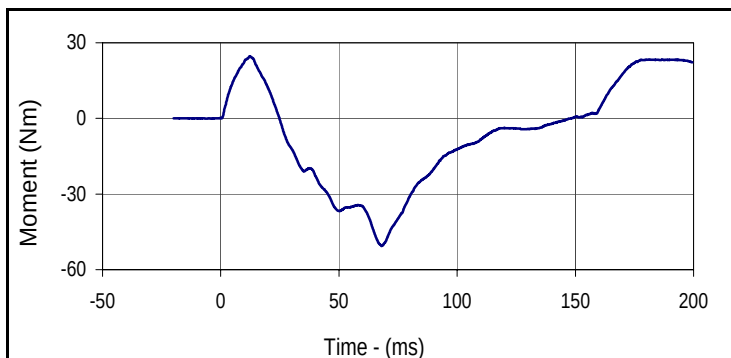
ATD Serial No.: 141

Test Date: 6/14/16

Test I.D.: F141NE075



Curve Description			
Neck Force X			
Plot No.	Type	SAE Class	Units
004	FIL	1000	N
Max	Time	Min	Time
457.2	63.1	-241.7	186.7



Curve Description			
Neck Moment Y			
Plot No.	Type	SAE Class	Units
005	FIL	600	Nm
Max	Time	Min	Time
24.6	12.4	-50.5	68.0

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

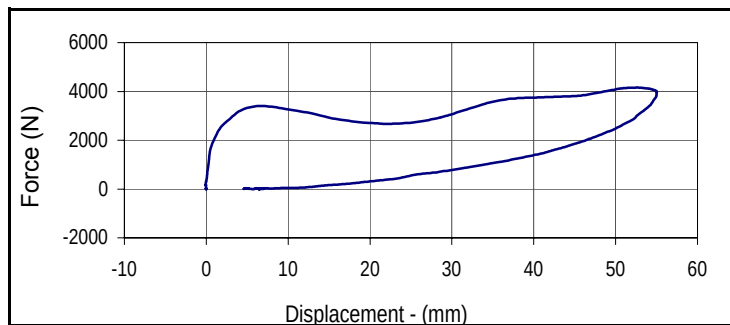
Test Date: 6/14/16

ATD Serial No.: 141

Test I.D.: F141CH075



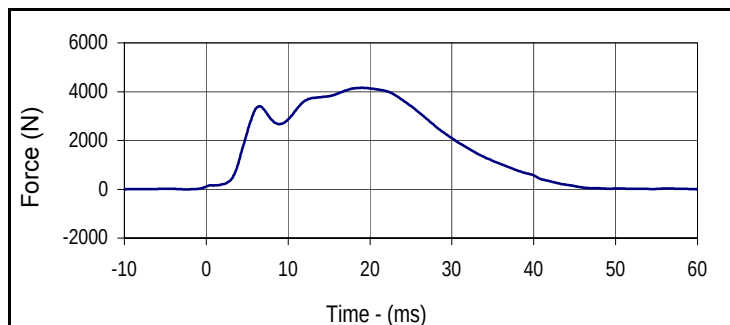
Tested Parameter		Units	Specification	Result	Pass/Fail
Dummy Soak Time		Minutes	≥240	500	Pass
Temperature During Soak	Max	°C	20.6 to 22.2	21.5	Pass
	Min	°C		21.5	Pass
Humidity During Soak	Max	%	10.0 to 70.0	20.4	Pass
	Min	%		20.4	Pass
Laboratory Temperature During Test		°C	20.6 to 22.2	21.5	Pass
Laboratory Humidity During Test		%	10.0 to 70.0	20.4	Pass
Probe Velocity		m/s	6.59 to 6.83	6.63	Pass
Peak Chest Deflection		mm	50.0 to 58.0	55.0	Pass
Peak Force Between 50 and 58 MM		N	3900 to 4400	4087	Pass
Peak Force Between 18 and 50 MM		N	≤4600	4158	Pass
Internal Hysteresis		%	69 to 85	71.5	Pass
Overall Test Results					Pass



Curve Description

Probe Force vs. Chest Deflection

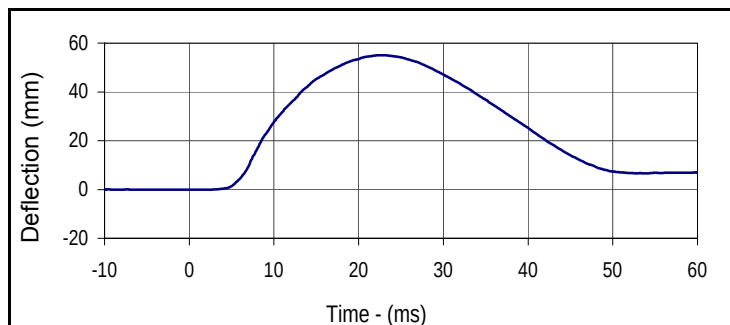
Plot No.	Type	SAE Class	Hysteresis
001	FIL	180	71.5
Peak Probe Force		Peak Chest Deflection	
4157.9		55.0	



Curve Description

Probe Force

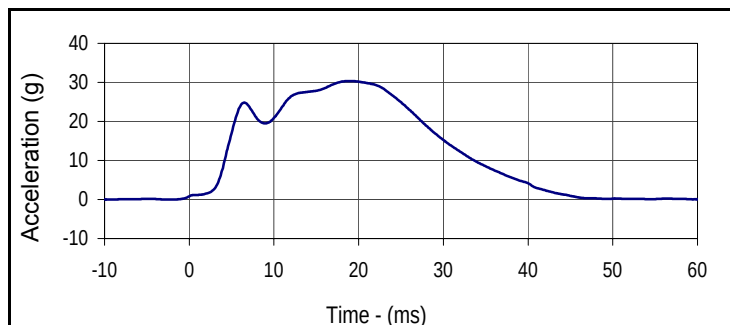
Plot No.	Type	SAE Class	Units
002	FIL	180	N
Max	Time	Min	Time
4157.9	19.1	-6.3	67.4



Curve Description

Chest Deflection

Plot No.	Type	SAE Class	Units
003	FIL	600	mm
Max	Time	Min	Time
55.0	22.5	-0.1	2.0



Curve Description

Impactor Acceleration

Plot No.	Type	SAE Class	Units
004	FIL	180	g
Max	Time	Min	Time
30.4	19.1	-0.1	0.0

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

Test Date: 6/14/16

ATD Serial No.: 141

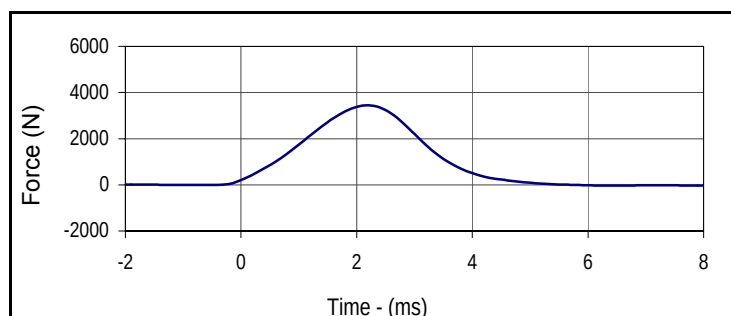
Test I.D.: F141LK075, F141RK075

**Left Knee**

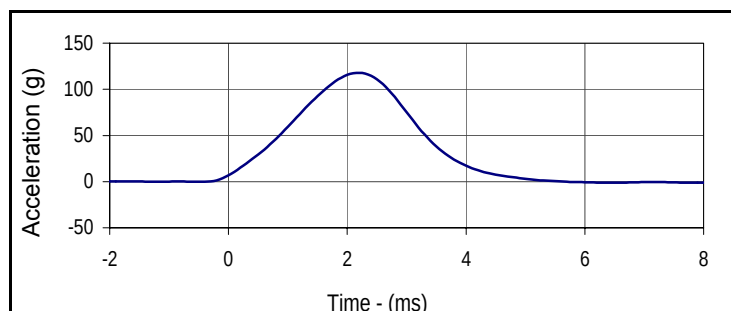
Tested Parameter		Units	Specification	Result	Pass/Fail
Knee Assembly Soak Time		Minutes	≥240	555	Pass
Temperature During Soak	Max	°C	18.9 to 25.6	21.5	Pass
	Min	°C		21.5	Pass
Humidity During Soak	Max	%	10.0 to 70.0	20.4	Pass
	Min	%		20.4	Pass
Laboratory Temperature During Test		°C	18.9 to 25.6	21.5	Pass
Laboratory Humidity During Test		%	10.0 to 70.0	20.4	Pass
Pendulum Velocity at T=0		m/sec	2.07 to 2.13	2.07	Pass
Peak Probe Force		N	3450 to 4060	3454	Pass
Overall Test Results					Pass

Right Knee

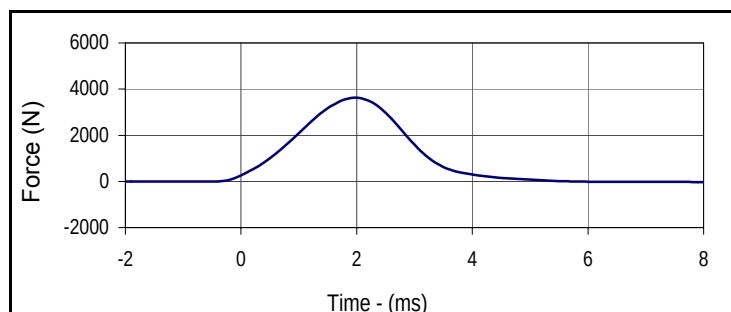
Pendulum Velocity at T=0		m/sec	2.07 to 2.13	2.07	Pass
Peak Probe Force		N	3450 to 4060	3626	Pass
Overall Test Results					Pass

**Curve Description****Left Knee Probe Force**

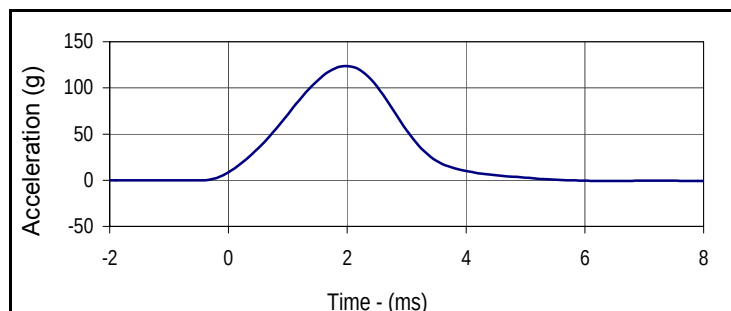
Plot No.	Type	SAE Class	Units
001	FIL	600	N
Max	Time	Min	Time
3453.5	2.2	-33.3	7.9

**Curve Description****Left Knee Acceleration**

Plot No.	Type	SAE Class	Units
002	FIL	600	g
Max	Time	Min	Time
117.8	2.2	-1.1	7.9

**Curve Description****Right Knee Probe Force**

Plot No.	Type	SAE Class	Units
003	FIL	600	N
Max	Time	Min	Time
3625.9	2.0	-29.0	9.1

**Curve Description****Right Knee Acceleration**

Plot No.	Type	SAE Class	Units
004	FIL	600	g
Max	Time	Min	Time
123.7	2.0	-1.0	9.1

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

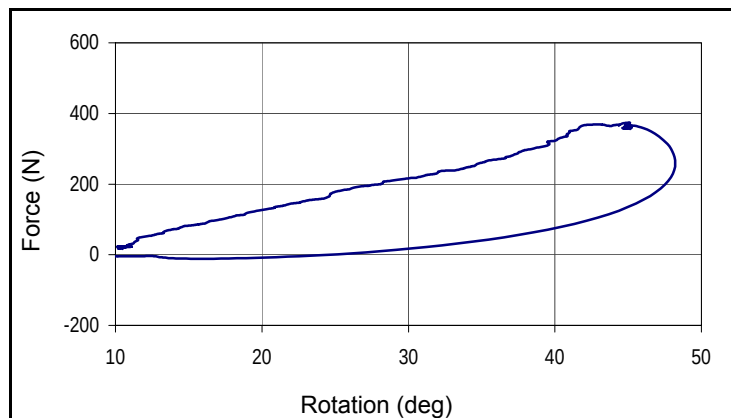
Test Date: 6/14/16

ATD Serial No.: 141

Test I.D.: TF075



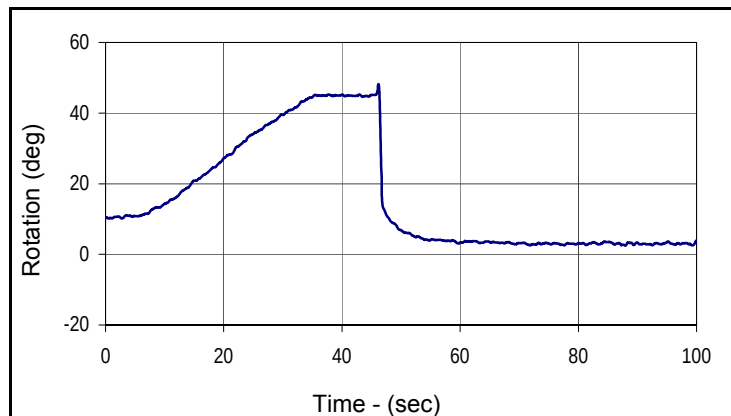
Tested Parameter		Units	Specification	Result	Pass/Fail
Dummy Soak Time		Minutes	≥240	620	Pass
Temperature During Soak	Max	°C	18.9 to 25.6	21.5	Pass
	Min	°C		21.5	Pass
Humidity During Soak	Max	%	10.0 to 70.0	20.4	Pass
	Min	%		20.4	Pass
Laboratory Temperature During Test		°C	18.9 to 25.6	21.5	Pass
Laboratory Humidity During Test		%	10.0 to 70.0	20.4	Pass
Initial Reference Plane Angle		deg	≤ 20	10.5	Pass
Peak Force at 45° +/-0.5°		N	320.0 to 390.0	372.2	Pass
Torso Rotation Rate		deg/s	0.5 to 1.5	1.0	Pass
Final Reference Plane Angle		deg	+/-8	3.9	Pass
Overall Test Results				Pass	



Curve Description

Force vs Torso Rotation

Plot No.	Type	Filter Freq
001	FIL	1 Hz
Peak Force		Peak Rotation
374.0		48.2



Curve Description

Torso Rotation

Plot No.	Type	Filter Freq	Units
002	FIL	1 Hz	deg
Max	Time	Min	Time
48.2	46.2	2.4	88.0