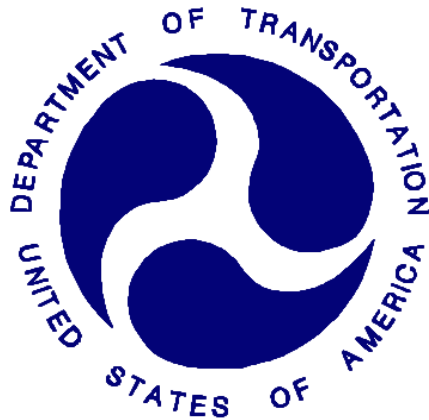


**NEW CAR ASSESSMENT PROGRAM
FRONTAL BARRIER IMPACT TEST**

**TOYOTA MOTOR CORPORATION
2004 TOYOTA SCION XA
4 DOOR SEDAN**

NHTSA NUMBER: M45106

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



2/10/04

FINAL REPORT

**PREPARED FOR:
U.S. DEPARTMENT OF TRANSPORTATION
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
RULEMAKING
OFFICE OF CRASHWORTHINESS STANDARDS
MAIL CODE: NVS-111
400 SEVENTH STREET, SW, ROOM 5311
WASHINGTON, D.C. 20590**

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Prepared by: _____
Mr. James E. Gorth, Project Engineer
KARCO Engineering, LLC

Date: February 13, 2004

Reviewed by: _____
Mr. Jerry L. Kratzke, Director of Operations
KARCO Engineering, LLC

Date: February 13, 2004

Approved by: _____
Mr. Frank D. Richardson, Program Manager
KARCO Engineering, LLC

Date: February 13, 2004

FINAL REPORT ACCEPTED BY:

Manager, New Car Assessment Program

Date of Acceptance

COTR, NCAP Frontal Impact Program

Date of Acceptance

Technical Report Documentation Page

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16. Abstract A 35 mph (56.3 km/h) frontal barrier impact was conducted on a 2004 Toyota Scion XA 4 Door Sedan at Karco Engineering, LLC on 2/10/04. This test was conducted to obtain data indicant of FMVSS 208, 212, 219 (partial), 301, and footwell intrusion performance. The impact velocity is 55.75 km/h. The ambient temperature at the barrier face at the time of impact is 10.0 degrees Celcius. The vehicle's maximum post test static crush is 483 mm to the right of the vehicle centerline. The test vehicle is equipped with a 3-point continuous belt system and second generation supplemental airbags in both front outboard seating positions. With respect to FMVSS 208 "Occupant Crash Protection", the occupant injury criteria summary is as follows:					
Measurement Description		Units	Threshold	Driver ATD	Passenger ATD
Head Injury Criteria (HIC)		N/A	1000	344.0	247.2
Max. Chest Accel. (3 msec Clip)		G's	60	46.4	49.3
Left Femur Force		Newtons	10008	-572.3	-4960.6
Right Femur Force		Newtons	10008	-4095.1	-519.1
17. Key Words 56.3 km/h NCAP Frontal Barrier Impact Test New Car Assessment Program (NCAP) 2004 Toyota Scion XA 4 Door Sedan NHTSA No. M45106				18. Distribution of Statement Copies of this report available from: NHTSA Technical Reference Division National Highway Traffic Safety Admin. 400 Seventh St., SW, Room 5108 Washington, D.C. 20590	
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TABLE OF CONTENTS

Section	Description	Page
1	Purpose and Summary of Test M45106	1
2	Occupant and Vehicle Information/Data Sheets	3

Data Sheet	Description	Page
1	Crash Test Summary	4
2	General Test and Vehicle Parameter Data	5
3	Post Test Impact Data	8
4	Test Vehicle Information	9
5	Dummy Positioning in Vehicle	11
6	Seatbelt Positioning Data	13
7	Vehicle Accelerometer Location and Data Summary	14
8	Hybrid III ATD Injury Criteria and Sensor Data	15
9	Seatbelt Assessment Test Data	18
10	Summary of FMVSS 212 Data	19
11	Windshield Zone Intrusion FMVSS 219 Data (Partial)	20
12	FMVSS 301 Fuel System Integrity Post Impact Data	21
13	FMVSS 301 Static Rollover Data	22
14	Vehicle Measurements	24
15	Camera Locations	27
16	Photographic Reference Target Locations	28
17	Vehicle Intrusion Measurements	29
18	Fixed Barrier Load Cell Locations	33
19	Accident Investigation Division Data	34
20	Dummy/Vehicle Temperature Stabilization	35

Appendix	Description	Appendix
A	Photographs	A
B	Dummy and Vehicle Response Data Traces	B
C	Load Cell Barrier Data Traces	C
D	Instrumentation and Data Channel Assignments	D
E	Dummy Calibration Data Traces and Tables	E
F	Child Restraint System (NOT USED IN THS TEST)	F
G	Nine Accelerometer Array Head	G

SECTION 1

PURPOSE AND SUMMARY OF TEST M45106

1.1 PURPOSE

This 35 mph (56.3 km/h) frontal barrier impact test is part of the New Car Assessment Program (NCAP) sponsored by the National Highway Traffic Safety Administration (NHTSA) under Contract No. DTNH22-01-D-02005. The purpose of this test was to obtain vehicle crashworthiness and occupant restraint system performance data for an impact speed in excess of the current 30 mph (48.3 km/h) requirements.

The 35 mph (56.3 km/h) frontal barrier impact test was conducted in accordance with the Office of Crashworthiness Standards Laboratory Test Procedure.

1.2 SUMMARY

A load cell barrier consisting of 36 load cells was impacted by a 2004 Toyota Scion XA 4 Door Sedan at a velocity of 55.75 km/h. The test was performed at Karco Engineering, LLC on February 10, 2004.

One real-time and fourteen (14) high-speed cameras were used to document the frontal barrier impact event. Camera locations and other pertinent camera information can be found in this report.

Two Part 572E, 50th percentile male anthropomorphic test devices (ATDs), were placed in the driver and right-front passenger seating positions according to dummy placement instructions specified in the Laboratory Indicant Test Procedure.

Both ATDs were fully instrumented with nine accelerometer array heads, chest and pelvis triaxial accelerometers, chest displacement potentiometers, six-axis upper neck transducers, right/left femur load cells, and lower leg instrumentation. Seat belt load cells were also placed on the driver's and passenger's lap and shoulder belts to measure dummy torso and pelvic section loading. The driver (position 1) ATD (Serial No. 34) and the right-front passenger (position 2) ATD (Serial No. 35) were calibrated prior to this test.

One Hundred and Nine (109) channels of data were recorded using an on-board data acquisition system. Appendix A contains Pre and Post-Test Photographs, Appendix B contains the vehicle and dummy response data traces. Appendix C contains Load Cell Barrier information. Appendix D contains the Instrumentation Data Channel assignments. Appendix E contains the Dummy Calibration data and Appendix F contains the Child Restraint System (CRS). Appendix G contains the Nine Accelerometer Array Head data.

There was 100 percent windshield retention and no intrusion into the protected zone of the windshield during the impact event. There was no Stoddard solvent leakage after the event or during any phase of the static rollover.

The maximum static crush of the vehicle was 483 mm and both the driver and the 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 head and chest contacted the airbag. Its abdomen had no contact. Both knees contacted the knee bolster.

The passenger's visible contact points were as follows: The passenger ATD head contacted the airbag. The chest and abdomen had no contact. Both knees contacted the glove box.

Occupant injury data is contained in table below.

OCCUPANT DATA SUMMARY

ATD Position	HIC	Clip (g)	Chest Disp. (mm)	Left Femur (N)	Right Femur (N)	Belt Spool (mm)
Driver	344.0	46.4	-28.4	-572.3	-4095.1	156.1
Passenger	247.2	49.3	-23.5	-4960.6	-519.1	144.3

SECTION 2
OCCUPANT AND VEHICLE INFORMATION/DATA SHEETS

Test Vehicle: 2004 Toyota Scion XA 4 Door Sedan

NHTSA No.: M45106

Test Program: 2004 NHTSA 35mph NCAP

Test Date: 2/10/04

CONVERSION FACTORS USED IN THIS REPORT*

Quantity	Typical Application	Std Units	Metric Unit	Multiply By
Mass	Vehicle Weight	lb	kg	0.4536
Linear Velocity	Impact Velocity	mile/h	km/h	1.609
Length or Distance	Measurements	in	mm	25.4
Volume	Fuel Systems	gal	liter	3.785
Volume	Small Fluids	oz	mL	29.573
Pressure	Tire Pressures	lbf/in ²	kPa	7.0
Volume	Liquid	gal	liter	3.785
Temperature	General Use	°F	°C	=(tf -32)/1.8
Force	Dynamic Forces	lbf	N	4.448
Moment	Torque	lbf/ft	Nm	1.355

* Based on the Recommended Practice in SAE J916, May 85

DATA SHEET NO. 1
CRASH TEST SUMMARY

Test Vehicle: 2004 Toyota Scion XA 4 Door Sedan
Test Program: 2004 NHTSA 35mph NCAP

NHTSA No.: M45106
Test Date: 2/10/04

PRIMARY IMPACT DATA

Measured Parameter	Units	Value
Velocity at Impact	km/h	55.75
Test Weight	kg	1236
Impact Angle	degrees	0
Average Rebound	mm	1570
Maximum Static Crush	mm	483

DOOR OPENING AND SEAT TRACK INFORMATION

Description	Driver	Passenger
Front Door opening	Remained closed, opened w/o tools	Remained closed, opened w/o tools
Rear Door Opening	Remained closed, opened w/o tools	Remained closed, opened w/o tools
Seat Track Shift (mm)	None	None
Seat Back Failure	None	None

TEST DUMMY INFORMATION

Description	Driver	Passenger
Dummy Type/ Serial No.	50% Male Hybrid III No. 34	50% Male Hybrid III No. 35
Head Contact	Airbag	Airbag
Chest Contact	Airbag	None
Abdomen Contact	None	None
Left Knee Contact	Knee Bolster	Glovebox
Right Knee Contact	Knee Bolster	Glovebox

16mm MOVIE COVERAGE

High Speed	1
Real Time	14
Total	15

DATA CHANNELS

Driver ATD Sensors	46
Passenger ATD Sensors	46
Belt Assessment Sensors	8
Vehicle Structure Accelerometers	9
Rigid Barrier Load Cells	36
Total	145

DATA SHEET NO. 2
GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle: 2004 Toyota Scion XA 4 Door Sedan

NHTSA No.: M45106

Test Program: 2004 NHTSA 35mph NCAP

Test Date: 2/10/04

TEST VEHICLE INFORMATION AND OPTIONS

NHTSA No.	M45106	Anti-Lock Brakes	Yes
Make	Scion	All Wheel Drive	No
Model	XA	Power Steering	Yes
Body Style	4-Door	Driver Front Airbag	Yes
Vin No.	JTKKT624940064894	Driver Side Airbag	No
Color	Black Cherry	Driver Head Airbag	No
Delivery Date	2/5/2004	Driver Curtain Airbag	No
Odometer	52.0 mi.	Pass. Airbag	Yes
Dealer	Sierra Toyota	Pass. Side Airbag	No
Transmission	5 Speed Manual	Pass. Head Airbag	No
Final Drive	Front	Pass. Curtain Airbag	No
Type/No. Cyl.	In-Line 4	Pre-Tensioners	Yes
Engine Disp. (L)	1.5	Load Limiters	Yes
Engine Placement	Transverse	Bucket Seats	Yes
Roof Rack	No	Air. Cond.	Yes
Sunroof/T-Top	No	AM/FM Cassette	Yes
Tinted Glass	No	Tilt Steering	Yes
Traction Control	No	Automatic Door Locks	Yes
Power Brakes	Yes	Power Windows	Yes
Front Disc	Yes	Power Seats	No
Rear Disc	No	Other	None

Does Owners Manual provide instructions to turn off automatic door locks.

Yes

DATA FROM CERTIFICATION LABEL

Manufactured By	Toyota Motor Corporation	GWR (kg)	1499
Date of Manufacture	12/03	GAWR Front (kg)	762
		GAWR Rear (kg)	746

VEHICLE SEATING AND CAPACITY WEIGHT INFORMATION

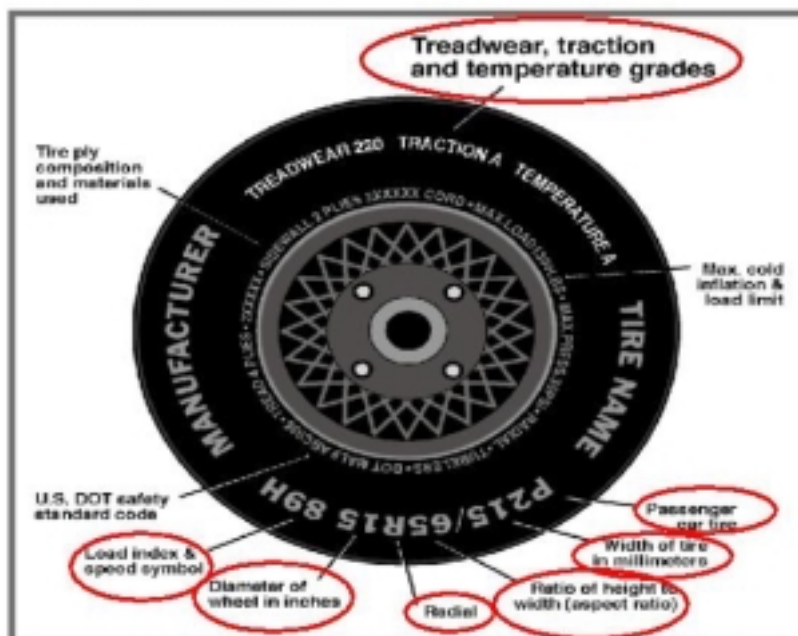
Measured Parameter	Front	Rear	Third	Total
Type of Seats	Bucket	Bucket	None	
Number of Occupants	2	3	0	5
Capacity Weight (VCW) (kg)				375
Cargo Weight (RCLW) (kg)				35

DATA SHEET NO. 2.....(CONTINUED)
GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle: 2004 Toyota Scion XA 4 Door Sedan
 Test Program: 2004 NHTSA 35mph NCAP

NHTSA No.: M45106
 Test Date: 2/10/04

Collect year, make, model, VIN, items circled in red, and tire manufacturer and tire name.



TIRE INFORMATION

Measured Parameter	Front	Rear
Max. Tire Pressure (kpa)	308	308
Cold Pressure (kpa)	200	200
Recommended Tire Size	P185/60R15	P185/60R15
Tire Size on Vehicle	P185/60R15	P185/60R15
Tire Manufacturer	Bridgestone	Bridgestone
Treadwear	160	160
Traction	A	A
Temperature Grades	A	A
Tire Plies Sidewall	1	1
Tire Plies Body	3	3
Load Index/Speed Symbol	84t	84t
Tire Material	Polyester/Steel/Nylon	Polyester/Steel/Nylon
DOT Safety Code Right	ELCADJB4903	ELCADJB4903
DOT Safety Code Left	ELCADJB4903	ELCADJB4903

DATA SHEET NO. 2.....(CONTINUED)
GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle: 2004 Toyota Scion XA 4 Door Sedan
 Test Program: 2004 NHTSA 35mph NCAP

NHTSA No.: M45106
 Test Date: 2/10/04

TEST VEHICLE WEIGHTS

	Units	As Delivered Weights (UVW)			As Tested Weights (ATW)		
		Front Axle	Rear Axle	Total	Front Axle	Rear Axle	Total
Left	kg	307	225		345	276	
Right	kg	318	206		357	258	
Ratio	%	59.2	40.8		56.8	43.2	
Totals	kg	625	431	1056	702	534	1236

TARGET TEST WEIGHT CALCULATION

Measured Parameter	Units	Value
Total Delivered Weight (UVW)	kg	1056
Weight of 2 P572 ATD's	kg	152
Rated Cargo/Luggage Wt. (RCLW)	kg	34
Calculated Vehicle Target Wt. (TVTW)	kg	1242

TEST VEHICLE ATTITUDE AND CG

	Units	LF	RF	LR	RR	CG (aft of front axle)
As Delivered	mm	699	703	703	712	968
As Tested	mm	682	683	680	682	1025

Vehicle Wheel Base (mm) 2373

Weight of Ballast Secured in cargo area (kg) 0

Vehicle Components Removed Rear hatch, rear bumper, rear windows, rear interior panels, rear seat and taillights.

* Ballast weight does not include cameras, instrumentation and brake abort system.

FUEL SYSTEM DATA

Fuel System Capacity From Owners Manual (L) 45.05

Usable Capacity Furnished by COTR (L) 45.05

Actual Test Volume with entire fuel System Filled (L) 42.02

1/3 of Usable Capacity (L) 15.01

Test Fluid Type: Stoddard Solvent

Kinematic Viscosity: as per ASTM Standard D484-71 Purple

Is Vehicle Fuel Pump Electric or Mechanical? Electric

If electric, does pump operate with ignition switch "On" & engine "OFF" Yes

Fuel System Particulars: Key operated w/automatic shutoff.

DATA SHEET NO. 3
POST TEST IMPACT DATA

Test Vehicle: 2004 Toyota Scion XA 4 Door Sedan
Test Program: 2004 NHTSA 35mph NCAP

NHTSA No.: M45106
Test Date: 2/10/04

SPEED TRAP DATA

Measured Parameter	Units	Requirement	Value
Trap No.1 Velocity (Primary)	km/h	55.51 to 57.12	55.75
Trap No. 1 Entry Distance	mm	<1524	1524
Trap No.1 Exit Distance	mm	<1524	305
Trap No.2 Velocity (Redun.)	km/h	55.51 to 57.12	55.77
Trap No.2 Entry Distance	mm	<1524	1524
Trap No.2 Exit Distance	mm	<1524	305

VEHICLE STATIC CRUSH

Measured Parameter	Units	Pre-Test	Post-Test	Difference
Left Side	mm	3777	3422	-355
Center	mm	3907	3447	-460
Right Side	mm	3777	3382	-395

VEHICLE REBOUND FROM BARRIER

Measured Parameter	Units	Value
Left Side	mm	1615
Center	mm	1540
Right Side	mm	1555
Average	mm	1570

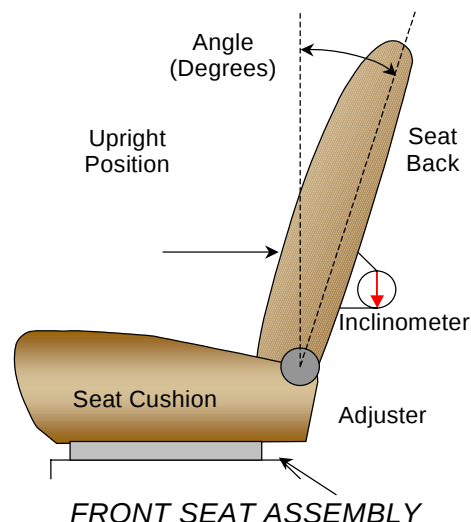
DATA SHEET NO. 4 TEST VEHICLE INFORMATION

Test Vehicle: 2004 Toyota Scion XA 4 Door Sedan
 Test Program: 2004 NHTSA 35mph NCAP

NHTSA No.: M45106
 Test Date: 2/10/04

NOMINAL DESIGN RIDING POSITION

The driver and passenger seat backs are positioned to the manufacturers designated angle. The procedure is as follows: A special application tool with pointed probes is inserted through the fabric to make contact with the rigid portion of the lower seat frame assembly, approximately 13 inches above the pivot point of the seat back. An inclinometer is placed against the flat surface of the tool and the seat back angle is measured directly from the dial face.



	Deg.
Driver w/seated dummy	3.0
Passenger w/seated Dummy	3.0

*Taken at headrest

SEAT FORE/AFT POSITIONS

The first or forward most position is counted as number one (1). The fore/aft position is set aft of the middle position for both the driver and passenger.

SEAT FORE/AFT POSITIONING

	Total Fore/Aft Travel	Placed in Position #
Driver Seat	17	9
Passenger Seat	17	9

SEAT BELT UPPER ANCHORAGE

Position number one (1) is the uppermost position.

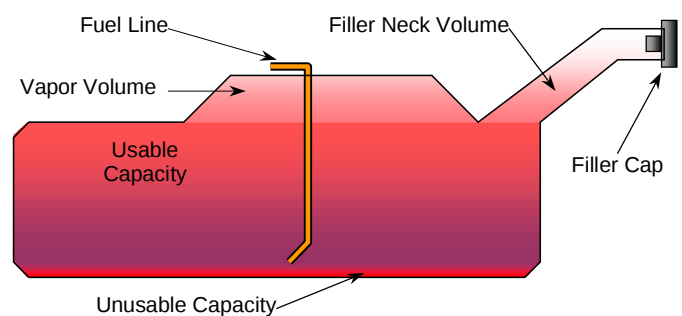
SEAT BELT UPPER ANCHORAGE

	Total # of Positions	Placed in Position #
Driver Seat	5	2
Passenger Seat	5	2

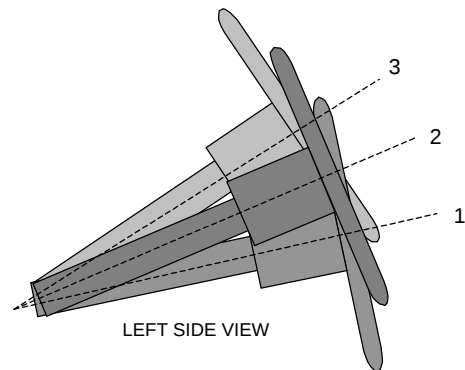
DATA SHEET NO. 4.....(CONTINUED)**TEST VEHICLE INFORMATION**Test Vehicle: 2004 Toyota Scion XA 4 Door SedanNHTSA No.: M45106Test Program: 2004 NHTSA 35mph NCAPTest Date: 2/10/04**FUEL TANK CAPACITY**

	Liters
Usable Capacity of "Standard Tank"	45.05
Usable Capacity of "Optional" Tank	N/A
Usable Capacity used for FMVSS 301	41.44 to 42.35
Actual Amount of Solvent used	42.02
1/3 of Usable Capacity	15.01

The test vehicle is equipped with an electric fuel pump. The fuel pump operates for approximately two seconds after the ignition is placed in the "ON" position, after which the fuel pump automatically shuts off. The fuel filler door is located on the left rear fender. The standard fuel tank occupies the area under the rear seat.

**VEHICLE FUEL TANK ASSEMBLY****STEERING COLUMN ADJUSTMENT**

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

**STEERING COLUMN ASSEMBLY****STEERING COLUMN POSITIONS**

	Degrees
Lowermost position No. 1	26.6
Geometric center position No. 2	28.0
Uppermost position No. 3	30.0

DATA SHEET NO. 5
DUMMY POSITIONING IN VEHICLE

Test Vehicle: 2004 Toyota Scion XA 4 Door Sedan
Test Program: 2004 NHTSA 35mph NCAP

NHTSA No.: M45106
Test Date: 2/10/04

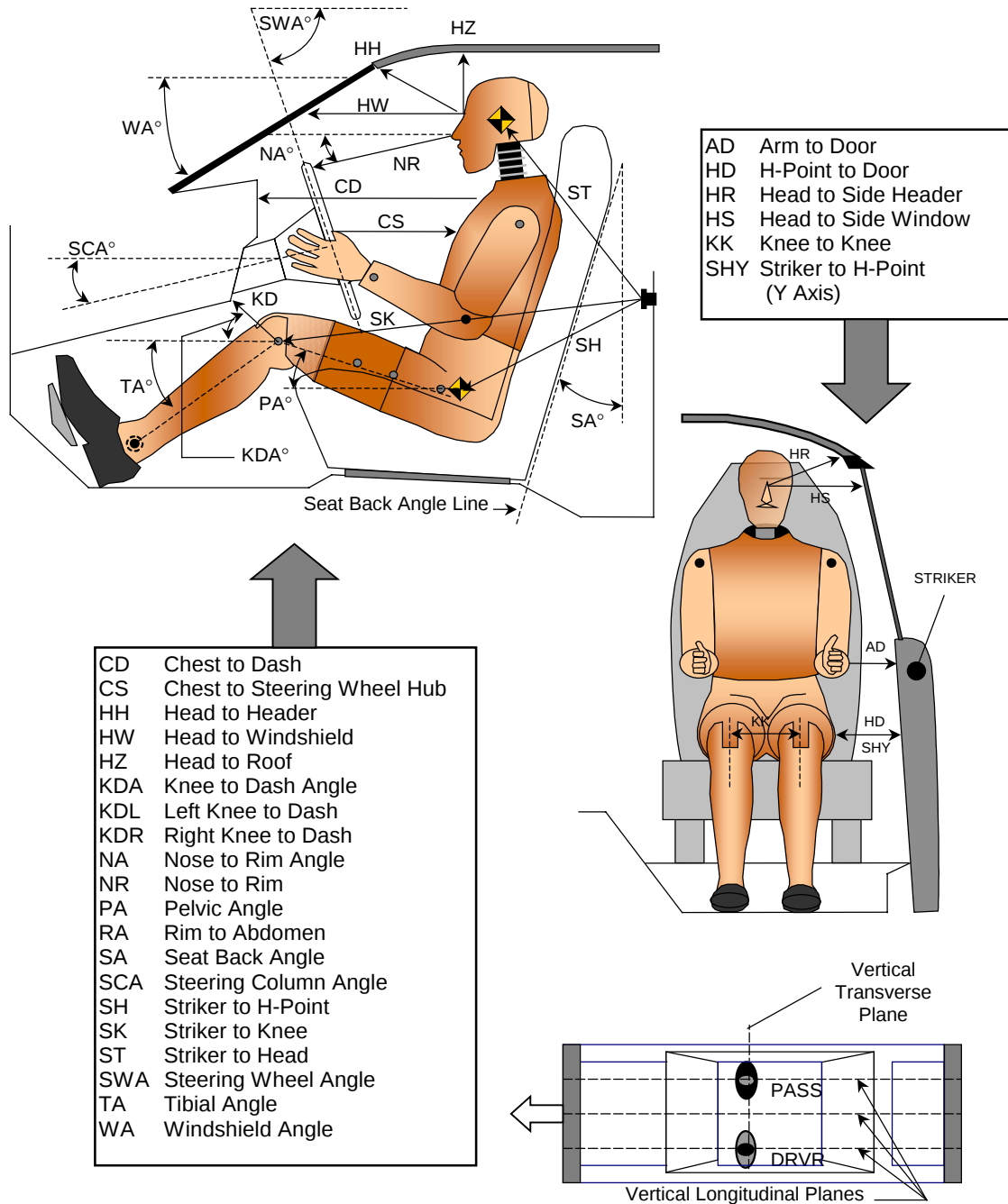
TEST DUMMY POSITION MEASUREMENTS

Code	Measurement Description	Driver		Passenger	
		Length (mm)	Angle (deg)	Length (mm)	Angle (deg)
WA	Windshield Angle		27		
SWA	Steering Wheel Angle		62.0		
SCA	Steering Column Angle		28.0		
SA	Seat Back Angle		3.0		3.0
HZ	Head to Roof (Z)	190	90	187	90
HH	Head to Header	362		330	
HW	Head to Windshield	618		640	
HR	Head to Side Header (Y)	257		265	
NR	Nose to Rim	422	19		
CD	Chest to Dash	595		507	
CS	Chest to Steering Hub	306			
RA	Rim to Abdomen	190			
KDL	Left Knee to Dash	165	11	140	
KDR	Right Knee to Dash	95		170	8
PA	Pelvic Angle		20		22
TA	Tibia Angle		57		55
KK	Knee to Knee (Y)	315		270	
SK	Striker to Knee	600	9	515	8
ST	Striker to Head	513	75	600	82
SH	Striker to H-Point	262	41	256	45
SHY	Striker to H-Point (Y)	235		225	
HS	Head to Side Window	300		295	
HD	H-Point to Door (Y)	130		135	
AD	Arm to Door (Y)	85		32	

DATA SHEET NO. 5...(CONTINUED) **DUMMY POSITIONING IN VEHICLE**

Test Vehicle: 2004 Toyota Scion XA 4 Door Sedan
 Test Program: 2004 NHTSA 35mph NCAP

NHTSA No.: M45106
 Test Date: 2/10/04

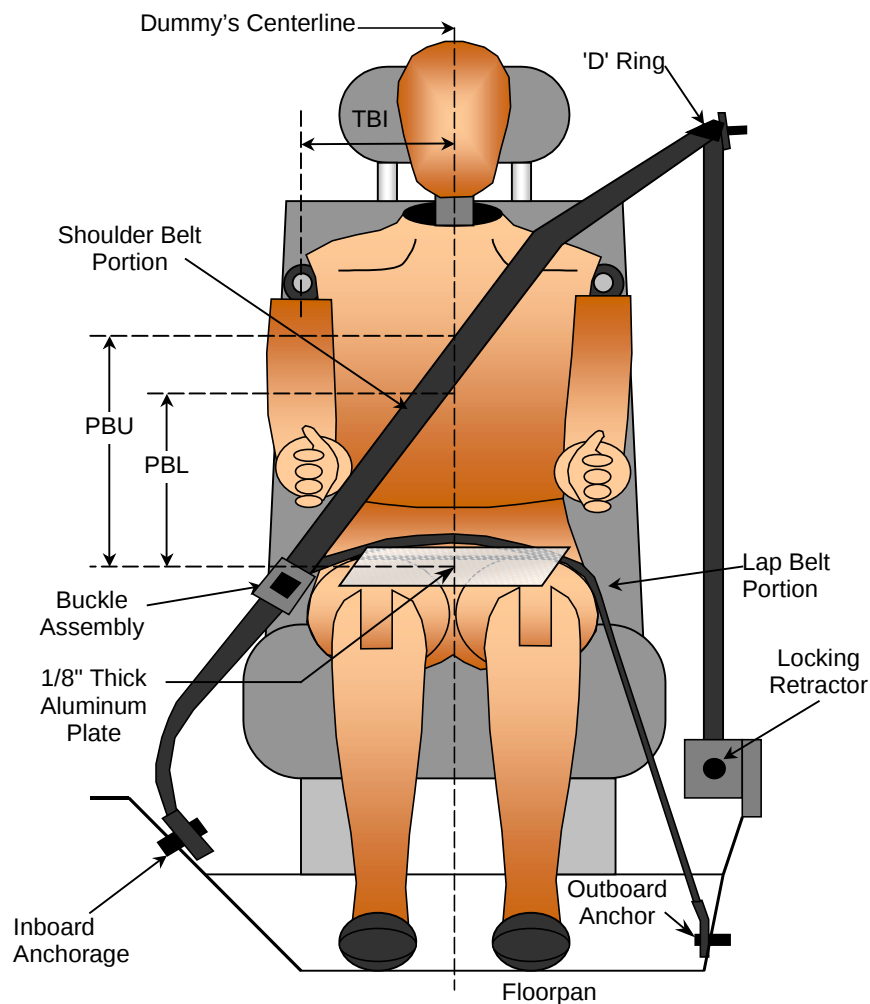


DUMMY MEASUREMENTS FOR FRONT SEAT OCCUPANTS

DATA SHEET NO. 6 **SEAT BELT POSITIONING DATA**

Test Vehicle: 2004 Toyota Scion XA 4 Door Sedan
 Test Program: 2004 NHTSA 35mph NCAP

NHTSA No.: M45106
 Test Date: 2/10/04



SEAT BELT POSITIONING MEASUREMENTS

Measured Parameter	Units	Driver	Passenger
TBI -Dummy C/L to Lap/Shoulder Belt Intersect	mm	240	205
PBU - Top Surface of reference to belt upper edge	mm	335	320
PBL - Top Surface of reference to belt lower edge	mm	260	240
Lap Belt Tension	Newtons	10	10
Shoulder Belt Tension	N/A	Retractor	Retractor

DATA SHEET NO. 7 - VEHICLE ACCELEROMETER LOCATION AND DATA SUMMARY

Test Vehicle: 2004 Toyota Scion XA 4 Door Sedan

NHTSA No.: M45106

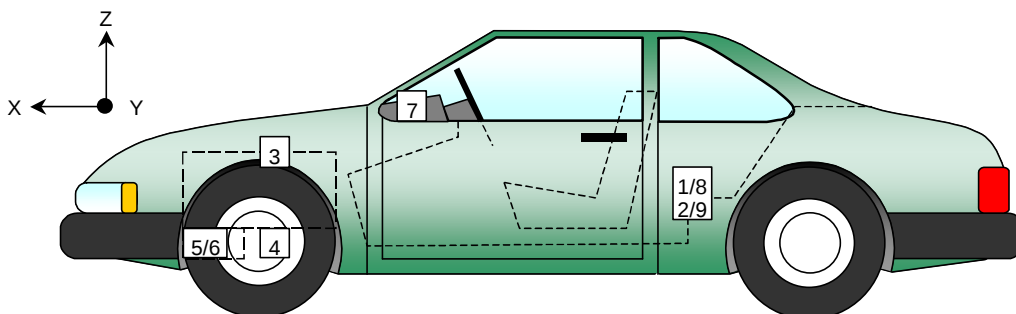
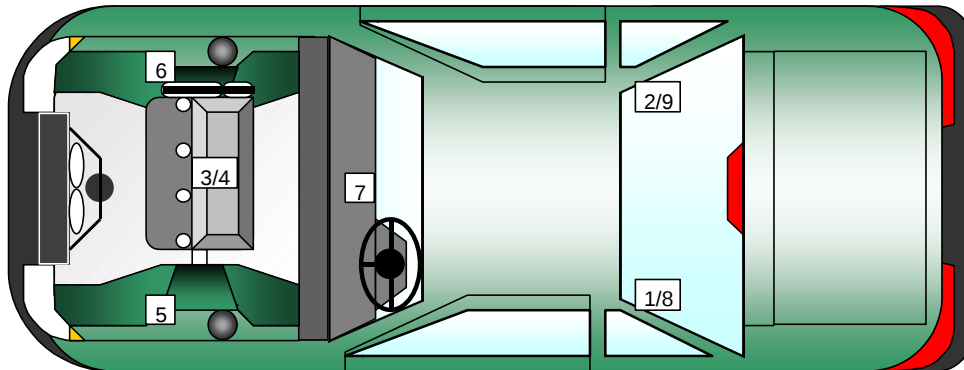
Test Program: 2004 NHTSA 35mph NCAP

Test Date: 2/10/04

VEHICLE ACCELEROMETER PEAK DATA AND PRE-TEST LOCATIONS

No.	Accelerometer Location	Measurements (mm)			Peak Values				
		X	Y	Z	Units	Max	Time	Min	Time
1	Left Rear X-Member	1500	-650	380	G's	3.7	110.1	-40.0	60.1
2	Right Rear X-Member	1500	650	380	G's	3.2	107.7	-42.5	50.9
3	Engine Top	3250	170	870	G's	48.2	36.8	-167.2	28.2
4	Engine Bottom	3235	300	180	G's	15.3	50.8	-207.8	25.1
5	Left Brake Caliper	3240	-660	220	G's	46.3	58.3	-100.8	35.9
6	Right Brake Caliper	3240	660	220	G's	33.6	54.2	-124.0	32.7
7	Instrument Panel	2620	0	1010	G's	18.0	85.5	-92.2	58.3
8	Left Rear X-Member (Z-Axis)	1400	-650	390	G's	3.6	84.2	-9.0	41.2
9	Right Rear X-Member (Z-Axis)	1400	650	390	G's	4.0	24.7	-8.8	30.7

Reference Planes: X=From Rear Surface of Vehicle, Y=Vehicle Centerline, Z=Ground Plane



DATA SHEET NO. 8 - HYBRID III ATD INJURY CRITERIA AND SENSOR DATA

Test Vehicle: 2004 Toyota Scion XA 4 Door Sedan

NHTSA No.: M45106

Test Program: 2004 NHTSA 35mph NCAP

Test Date: 2/10/04

HEAD PRIMARY PEAK ACCELERATIONS

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Head CG	X	G's	1.6	16.9	-47.0	80.2	0.8	200.0	-35.1	89.1
Head CG	Y	G's	6.2	60.9	-3.3	23.6	1.7	40.6	-7.1	109.0
Head CG	Z	G's	16.4	101.5	-3.6	88.5	29.0	97.9	-1.3	17.6
Head CG Resultant	N/A	G's	47.6	76.0			43.3	92.7		

CHEST PRIMARY PEAK ACCELERATIONS

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Chest CG	X	G's	2.7	118.2	-47.4	70.8	2.8	181.4	-51.0	75.2
Chest CG	Y	G's	10.0	87.0	-5.9	50.4	4.4	52.3	-13.4	80.6
Chest CG	Z	G's	6.8	42.9	-16.2	69.6	9.8	49.6	-11.0	75.9
Chest CG Resultant	N/A	G's	49.9	70.8			52.4	75.4		

FEMUR PEAK FORCES

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Left Femur	Z	Newtons	750.5	56.5	-572.3	66.0	300.4	35.8	-4960.6	66.2
Right Femur	Z	Newtons	312.8	26.6	-4095.1	51.5	1165.0	66.0	-519.1	53.6

SEAT BELT SENSOR PEAK VALUES

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Shoulder Belt Pullout	N/A	MM	156.1	96.5	-40.3	51.2	144.3	86.2	-62.3	39.9
Shoulder Belt Stretch	N/A	MM/CM	0.00	0.0	0.00	0.0	0.00	0.0	0.00	0.0
Lap Belt Force	N/A	Newtons	7518.1	61.6	-26.8	12.5	8454.8	58.9	-34.0	163.5
Shoulder Belt Force	N/A	Newtons	5819.4	86.6	-64.2	10.8	5595.0	52.2	-37.1	166.4

1.) Not used with pre-tensioners

PRIMARY HEAD INJURY CRITERIA (HIC)

Location	Driver				Passenger			
	HIC	T ¹	T ²	Avg G	HIC	T ¹	T ²	Avg G
Head CG Primary	344.0	62.8	98.8	39.1	247.2	65.7	101.7	34.2

PRIMARY CHEST CLIP (3MSEC)

Location	Driver			Passenger		
	CLIP	T ¹	T ²	CLIP	T ¹	T ²
Chest CG Primary	46.4	69.4	72.4	49.3	74.4	77.4

DATA SHEET NO. 8...(continued)

Test Vehicle: 2004 Toyota Scion XA 4 Door Sedan

NHTSA No.: M45106

Test Program: 2004 NHTSA 35mph NCAP

Test Date: 2/10/04

PELVIC PEAK ACCELERATIONS

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Pelvis	X	G's	4.3	199.8	-53.9	64.6	6.8	179.5	-60.3	51.8
Pelvis	Y	G's	15.9	63.7	-5.8	38.9	4.7	39.9	-8.8	70.7
Pelvis	Z	G's	3.1	198.3	-48.9	70.2	4.0	183.0	-43.9	71.8
Pelvis Resultant	N/A	G's	70.5	64.9			62.4	57.6		

UPPER NECK PEAK FORCES AND MOMENTS

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Neck Force	X	Newtons	413.9	70.7	-563.4	93.0	36.0	200.0	-822.3	91.7
Neck Force	Y	Newtons	150.7	121.4	-56.7	36.5	51.7	25.0	-387.8	121.2
Neck Force	Z	Newtons	1102.2	75.5	-80.0	135.6	1169.3	98.0	-39.7	17.8
Neck Force Resultant	N/A	Newtons	1119.2	73.6			1400.5	92.8		
Neck Moment	X	N•m	11.3	128.1	-12.8	84.1	12.0	88.2	-23.9	117.3
Neck Moment	Y	N•m	45.4	111.5	-69.3	90.2	68.1	104.1	-59.8	84.2
Neck Moment	Z	N•m	3.7	60.2	-4.0	105.3	2.7	92.2	-8.0	134.3
Neck Moment Resultant	N/A	N•m	69.8	90.1			68.5	104.2		

FOOT PEAK ACCELERATIONS

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Left Foot Aft	X	G's	14.3	94.2	-34.3	57.5	35.6	72.5	-128.0	42.8
Left Foot Aft	Z	G's	4.0	200.0	-37.6	63.4	28.4	62.4	-54.6	43.7
Left Foot Fore	Z	G's	10.1	17.4	-45.2	23.2	53.4	56.2	-137.9	38.9
Right Foot Aft	X	G's	14.6	89.7	-92.0	41.5	19.3	89.4	-70.7	51.3
Right Foot Aft	Z	G's	11.6	55.9	-113.0	41.5	13.7	74.2	-55.3	50.9
Right Foot Fore	Z	G's	41.9	54.6	-173.0	41.4	11.3	70.6	-78.2	51.3

UPPER AND LOWER TIBIA PEAK FORCES AND MOMENTS

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Left Upper Moment	X	N•m	14.5	49.7	-22.6	110.2	1.8	23.2	-37.9	83.6
Left Upper Moment	Y	N•m	17.9	188.8	-99.9	64.8	54.6	46.6	-44.1	34.9
Right Upper Moment	X	N•m	41.8	69.9	-10.6	191.0	36.0	59.4	-35.0	91.6
Right Upper Moment	Y	N•m	23.1	97.2	-47.8	38.8	73.4	56.9	-65.4	33.5
Left Lower Moment	X	N•m	5.8	57.2	-11.4	108.9	1.4	194.6	-16.5	76.2
Left Lower Moment	Y	N•m	25.5	86.2	-45.5	63.2	49.9	60.2	-24.5	42.3
Left Lower Force	Z	Newtons	182.1	159.3	-920.0	31.7	177.6	69.5	-1080.3	41.5
Right Lower Moment	X	N•m	11.9	98.5	-13.9	65.4	31.2	57.7	-6.0	35.5
Right Lower Moment	Y	N•m	91.5	58.8	-42.4	41.3	61.9	57.7	-30.0	32.7
Right Lower Force	Z	Newtons	45.4	128.1	-2436.8	38.9	396.2	59.2	-1300.1	89.8

DATA SHEET NO. 8...(continued)Test Vehicle: 2004 Toyota Scion XA 4 Door SedanNHTSA No.: M45106Test Program: 2004 NHTSA 35mph NCAPTest Date: 2/10/04**CHEST PEAK DISPLACEMENTS**

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Chest	X	MM	0.0	5.7	-28.4	86.7	0.0	5.3	-23.5	56.1

HEAD REDUNDANT PEAK ACCELERATIONS

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Head CG	X	G's	0.6	199.5	-47.4	76.0	0.8	199.7	-35.0	89.1
Head CG	Y	G's	6.4	60.9	-3.3	23.6	2.0	33.1	-7.1	109.0
Head CG	Z	G's	16.6	101.5	-3.8	88.5	29.1	97.8	-1.4	17.6
Head CG Resultant	N/A	G's	47.9	76.0			43.2	92.7		

CHEST REDUNDANT PEAK ACCELERATIONS

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Chest CG	X	G's	2.6	118.2	-48.1	70.8	2.8	181.4	-51.2	75.2
Chest CG	Y	G's	10.2	87.1	-6.3	50.4	4.6	52.3	-13.3	80.6
Chest CG	Z	G's	6.8	42.8	-16.3	69.6	9.7	49.7	-11.1	75.9
Chest CG Resultant	N/A	G's	50.6	70.8			52.6	75.4		

REDUNDANT HEAD INJURY CRITERIA (HIC)

Location	Driver				Passenger			
	HIC	T ¹	T ²	Avg G	HIC	T ¹	T ²	Avg G
Head CG Redundant	345.2	62.5	98.5	39.1	246.7	65.7	101.7	34.2

REDUNDANT CHEST CLIP (3MSEC)

Location	Driver			Passenger		
	CLIP	T ¹	T ²	CLIP	T ¹	T ²
Chest CG Redundant	47.0	69.3	72.3	49.7	74.4	77.4

DATA SHEET NO. 9
SEATBELT ASSESSMENT TEST DATA

Test Vehicle: 2004 Toyota Scion XA 4 Door Sedan
Test Program: 2004 NHTSA 35mph NCAP

NHTSA No.: M45106
Test Date: 2/10/04

SEAT BELT POSITIONING MEASUREMENTS

Measurement Description	Units	Driver	Passenger
TBI -Dummy C/L to Lap/Shoulder Belt Intersect	mm	240	205
PBU - Top Surface of reference to belt upper edge	mm	335	320
PBL - Top Surface of reference to belt lower edge	mm	260	240
Lap Belt Tension	Newtons	10	10
Shoulder Belt Tension	N/A	Retractor	Retractor

SEAT BELT POSITIONING MEASUREMENTS

Measurement Description	Units	Driver	Passenger
Retractor Reel to "D" ring	mm	655	655
Shoulder Belt length as measured on ATD	mm	860	855
Lap Belt length as measured on ATD	mm	930	915
Remainder of belt on reel	mm	810	830
Total belt length for continuous webbing systems	mm	3255	3255

SHOULDER BELT SPOOL-OFF DATA

Measurement Description	Units	Driver	Passenger
As determined mechanically	mm	110.0	97.0
As determined electronically	mm	156.1	144.3

BELT STRETCH DATA

Measurement Description	Units	Driver	Passenger
Electronically between belt load cell and "D" ring	mm/cm	*	*
Mechanically	mm/cm	N/A	N/A

* Not used with shoulder belt pre-tensioner systems

DATA SHEET NO. 10
SUMMARY OF FMVSS 212 DATA

Test Vehicle: 2004 Toyota Scion XA 4 Door Sedan
 Test Program: 2004 NHTSA 35mph NCAP

NHTSA No.: M45106
 Test Date: 2/10/04

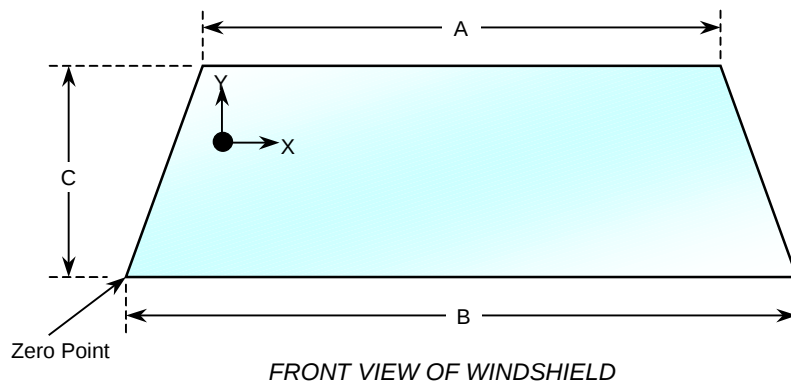
Windshield Mounting Details: Windshield glass is secured to the vehicle frame with a rubber type adhesive. No molding covers the windshield periphery at any point.

The standard requires that the posttest retention measurement be a minimum of 75 percent of the pretest total periphery measurement for vehicles not equipped with occupant passive restraints and 50 percent for each side of the windshield for vehicles that 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)	% of Retention
Left Side	1998.0	1998.0	100.0
Right Side	1998.0	1998.0	100.0
Total	3996.0	3996.0	100.0



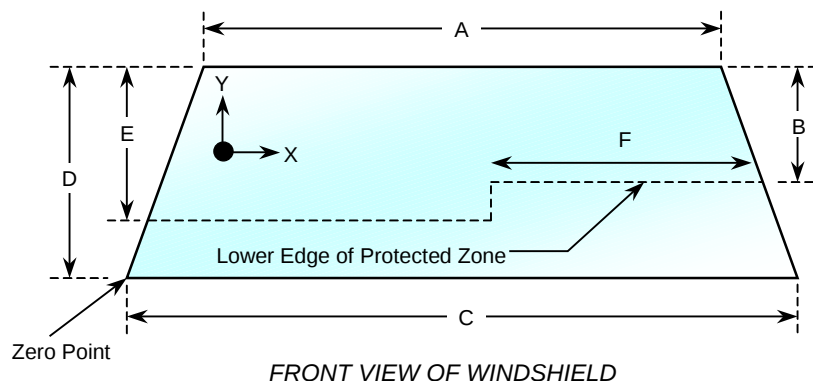
WINDSHIELD DIMENSIONS

Item	Units	Segment Length	Molding Width
A	mm	1070.0	10.0
B	mm	1300.0	10.0
C-Left	mm	813.0	10.0
C-Right	mm	813.0	10.0

DATA SHEET NO. 11
WINDSHIELD ZONE INTRUSION FMVSS 219 DATA (PARTIAL)

Test Vehicle: 2004 Toyota Scion XA 4 Door Sedan
 Test Program: 2004 NHTSA 35mph NCAP

NHTSA No.: M45106
 Test Date: 2/10/04



**WINDSHIELD AND
PROTECTED ZONE**

Item	Units	Value
A	mm	1070
B	mm	578
C	mm	1300
D	mm	813
E	mm	568
F	mm	428

AREA OF PROTECTED ZONE FAILURES

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

X	Y
N/A	N/A
N/A	N/A
N/A	N/A
N/A	N/A

- 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
N/A	N/A
N/A	N/A
N/A	N/A
N/A	N/A

DATA SHEET NO. 12
FMVSS 301 FUEL SYSTEM INTEGRITY POST IMPACT DATA

Test Vehicle: 2004 Toyota Scion XA 4 Door Sedan NHTSA No.: M45106
Test Program: 2004 NHTSA 35mph NCAP Test Date: 2/10/04

Test Time: 12:49 PM Temperature: 10.0 Deg. C.

STODDARD SOLVENT SPILLAGE MEASUREMENTS

- A. From impact until vehicle motion ceases: 0.0 oz.
(Maximum Allowable = 1 ounce)
- B. For the 5 minute period after motion ceases: 0.0 oz.
(Maximum Allowable = 5 ounces)
- C. For the following 25 minutes: 0.0 oz.
(Maximum Allowable = 1 oz./minute)
- D. Spillage Location Details: No leakage occurred

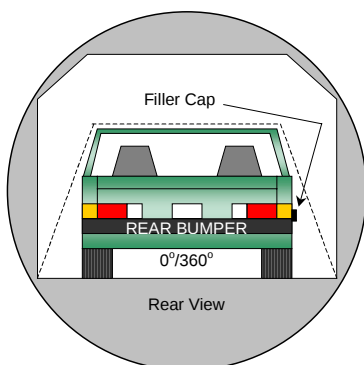
DATA SHEET NO. 13
FMVSS 301 STATIC ROLLOVER DATA

Test Vehicle: 2004 Toyota Scion XA 4 Door Sedan

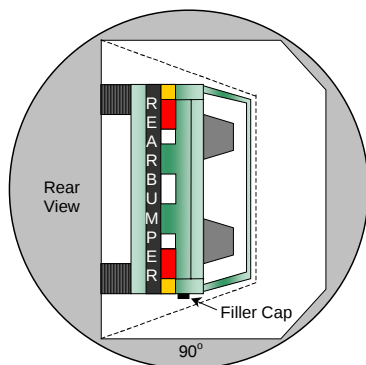
NHTSA No.: M45106

Test Program: 2004 NHTSA 35mph NCAP

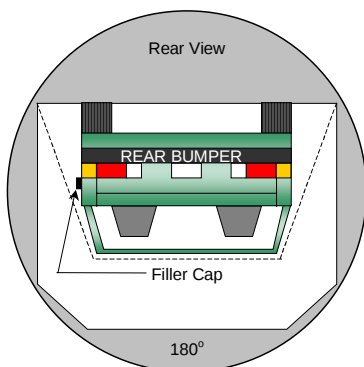
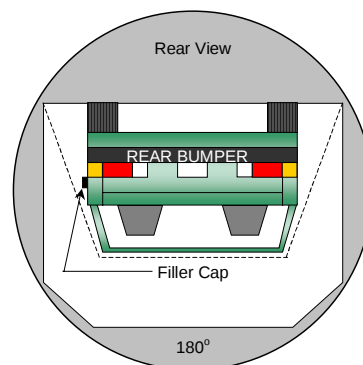
Test Date: 2/10/04



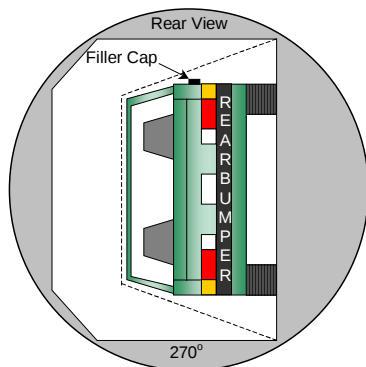
0° to 90°



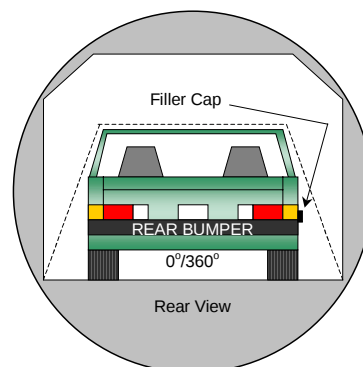
90° to 180°



180° to 270°



270° to 360°



1. The specified fixture rollover rate for each 90° of rotation is 60 to 120 seconds.
2. The position hold time at each position is 300 seconds (minimum).
3. No solvent leakage occurred during rollover.

DATA SHEET NO. 13....(CONTINUED)
FMVSS 301 STATIC ROLLOVER DATA

Test Vehicle: 2004 Toyota Scion XA 4 Door Sedan
 Test Program: 2004 NHTSA 35mph NCAP

NHTSA No.: M45106
 Test Date: 2/10/04

SOLVENT COLLECTION TIME TABLE IN SECONDS

Test Phase	Rotation Time	Hold Time	Total Time
0° to 90°	85	300	385
90° to 180°	80	300	380
180° to 270°	78	300	378
270° to 360°	80	300	380

FMVSS 301 SPILLAGE TABLE REQUIREMENT (oz.)

First 5 Minutes	5.0
Sixth Minute	1.0
Seventh Minute	1.0
Eighth Minute	1.0

ACTUAL TEST VEHICLE SOLVENT SPILLAGE TABLE (oz.)

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

SOLVENT SPILLAGE LOCATION TABLE

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

DATA SHEET NO. 14
VEHICLE MEASUREMENTS

Test Vehicle: 2004 Toyota Scion XA 4 Door Sedan
Test Program: 2004 NHTSA 35mph NCAP

NHTSA No.: M45106
Test Date: 2/10/04

VEHICLE MEASUREMENT TABLE

No.	Measurement Description	Units	Pre-Test	Post-Test	Diff.
1	Total length of vehicle at centerline	mm	3907	3447	-460
2	RSOV to front of engine	mm	3407	3057	-350
3	RSOV to firewall centerline	mm	3042	3032	-10
4	RSOV to leading edge of right door	mm	2710	2731	21
5	RSOV to leading edge of left door	mm	2710	2715	5
6	RSOV to lower leading edge of right door	mm	2625	2630	5
7	RSOV to lower leading edge of left door	mm	3635	2635	-1000
8	RSOV to upper trailing edge of right door	mm	1680	1696	16
9	RSOV to upper trailing edge of left door	mm	1682	1686	4
10	RSOV to lower trailing edge of right door	mm	1650	1664	14
11	RSOV to lower trailing edge of left door	mm	1655	1648	-7
12	RSOV to bottom of right 'A' pillar	mm	2667	2664	-3
13	RSOV to bottom of left 'A' pillar	mm	2671	2667	-4
14	RSOV to firewall on right side	mm	3044	3037	-7
15	RSOV to firewall on left side	mm	3059	3047	-12
16	RSOV to steering column	mm	2286	2290	4
17	Center of steering column to left 'A' pillar	mm	398	360	-38
18	Center of steering column to headlining	mm	465	460	-5
19	RSOV to right side of front bumper	mm	3777	3382	-395
20	RSOV to left side of front bumper	mm	3777	3422	-355
21	Length of engine block	mm	285	285	0
RD	RSOV to right side of dash panel	mm	2497	2500	3
CD	RSOV to center of dash panel	mm	2405	2500	95
LD	RSOV to left side of dash panel	mm	2504	2499	-5

All measurements in millimeters

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

Test Vehicle: 2004 Toyota Scion XA 4 Door Sedan
 Test Program: 2004 NHTSA 35mph NCAP

NHTSA No.: M45106
 Test Date: 2/10/04

VEHICLE STRUCTURAL MEASUREMENT TABLE

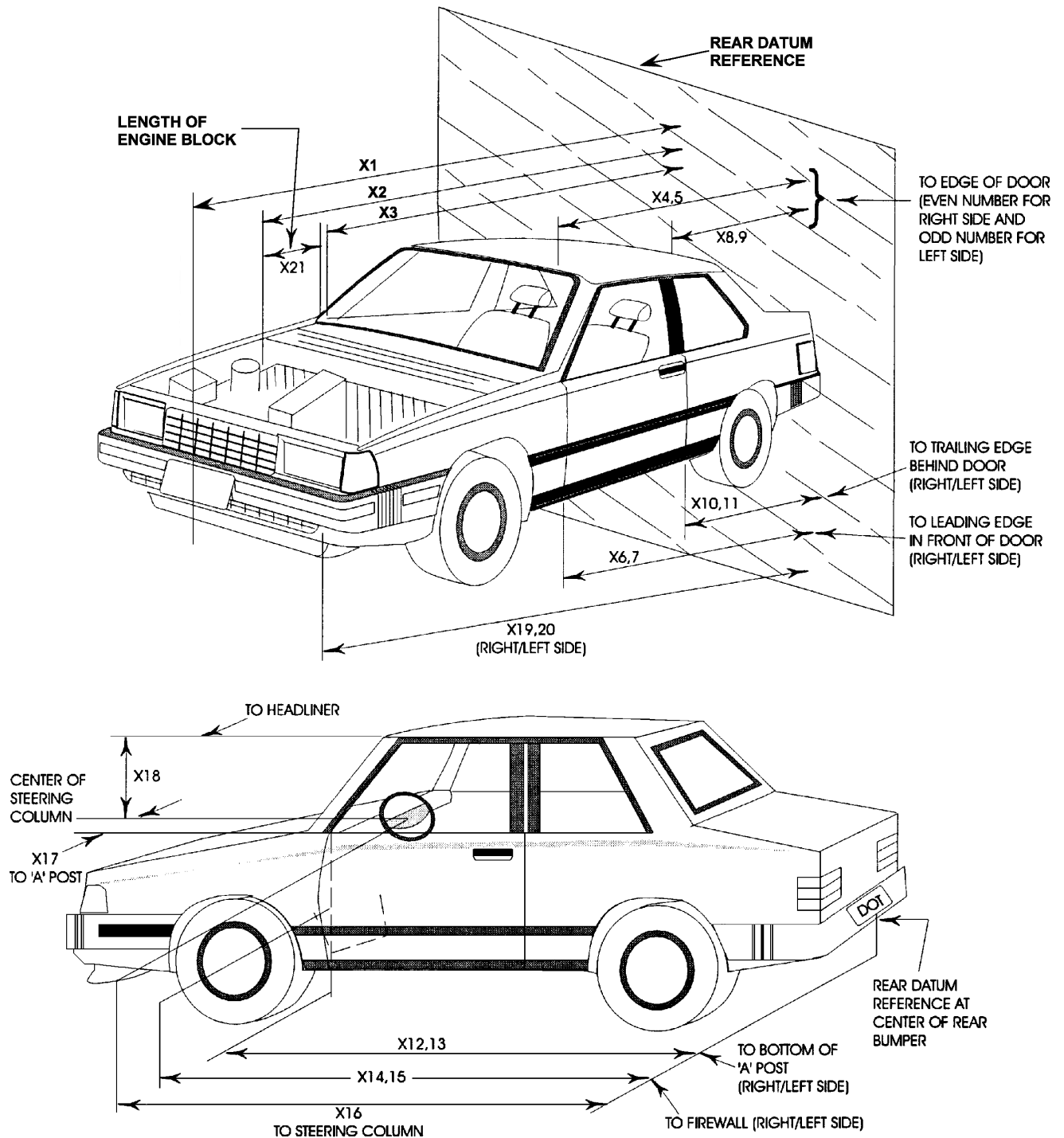
No.	Measurement Description	Units	Pre-Test	Post-Test	Diff.
1	Total length	mm	3907	3447	-460
2	Total width	mm	1692	1665	-27
3	Bumper top height	mm	590	595	5
4	Bumper bottom height	mm	135	225	90
5	Longitudinal member top height	mm	540	590	50
6	Longitudinal member bottom height	mm	403	435	32
7	Distance between longitudinal members	mm	956	960	4
8	Longitudinal member width	mm	55	50	-5
9	Engine top height	mm	770	776	6
10	Engine bottom height	mm	181	154	-27
11	Engine and gear box width	mm	480	480	0
12	Front bumper to engine distance	mm	500	420	-80
13	Front shock absorber fixing width	mm	869	850	-19
14	Bonnet leading edge height	mm	753	830	77
15	Front shock absorber fixing width	mm	1130	1130	0
16	Front bumper to front axle distance	mm	810	380	-430
17	Front axle to 'A' pillar distance	mm	380	405	25
18	'A' pillar to 'B' pillar distance	mm	1035	1038	3
19	'B' pillar to rear axle distance	mm	954	955	1
20	'B' pillar to 'C' pillar distance	mm	805	805	0
21	Roof sill bottom height	mm	1330	1405	75
22	Roof sill top height	mm	1475	1495	20
23	Floor sill bottom height	mm	215	245	30
24	Floor sill top height	mm	400	360	-40

All measurements in millimeters

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

Test Vehicle: 2004 Toyota Scion XA 4 Door Sedan
 Test Program: 2004 NHTSA 35mph NCAP

NHTSA No.: M45106
 Test Date: 2/10/04



DATA SHEET NO. 15
CAMERA LOCATIONS

Test Vehicle: 2004 Toyota Scion XA 4 Door Sedan
Test Program: 2004 NHTSA 35mph NCAP

NHTSA No.: M45106
Test Date: 2/10/04

VEHICLE CAMERA MEASUREMENT TABLE

No.	Camera View	Location (mm)			Angle (deg.)	Film Plane to Head	Lens (mm)	Speed (fps)
		X	Y	Z				
1	Real Time	18288	-22860	2540	10	N/A	17-70	24
2	Driver Overall	1930	8357	1321	4	7876	13	1020
3	Driver Overall	1626	8230	1092	4	7766	17	NTM
4	Driver Close-Up	1930	8230	1600	4	7755	35	1010
5	3/4 Driver	6477	10185	4648	13	11146	105	1020
6	Steering Column	1524	8230	2997	16	7955	19	920
7	Steering Column	1524	8230	3404	20	8052	19	1000
8	Driver Side Child	N/A	N/A	N/A	N/A	N/A	N/A	N/A
9	Passenger Overall	2286	-8230	1524	6	7751	13	NTM
10	Passenger Close-Up	1219	-6096	1524	4	5691	35	1010
11	3/4 Passenger	8026	-8941	2997	9	10447	80	920
12	Passenger Door	1626	-8836	1702	4	8378	50	1010
13	Passenger Side Child	N/A	N/A	N/A	N/A	N/A	N/A	N/A
14	Overhead	610	0	6172	90	N/A	13	1010
15	Driver Front	-610	406	2743	40	N/A	13	700
16	Passenger Front	-610	406	2743	40	N/A	13	1070
17	Pit Engine	762	0	-1499	90	N/A	9	DNR
18	Pit Fuel Tank	3658	0	-1499	90	N/A	6	930

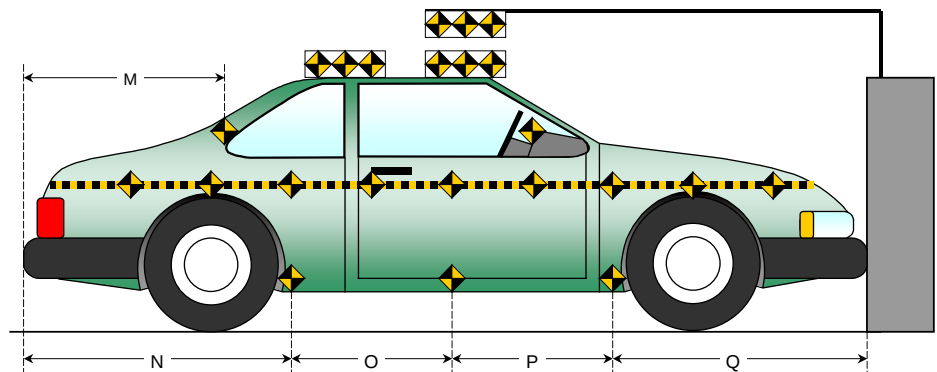
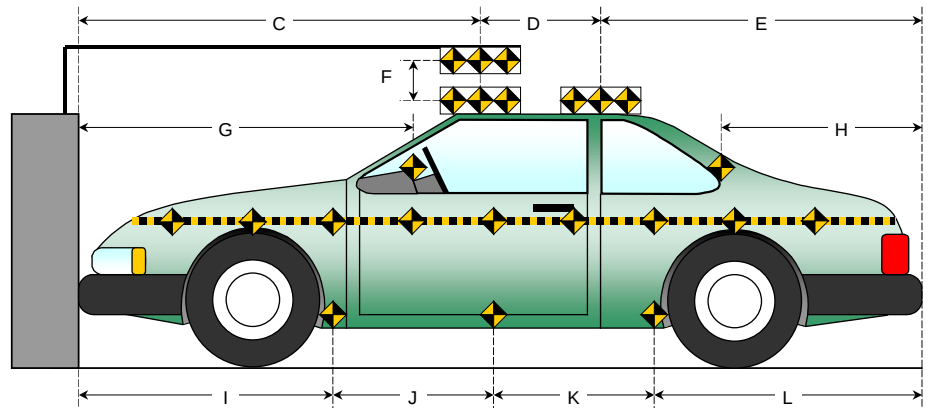
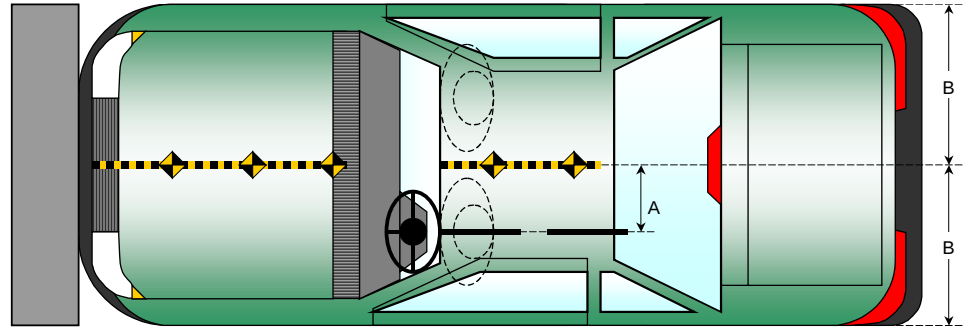
X = Barrier Face Y = Monorail Centerline Z = Ground DNR = Did Not Run NTM = No Timing Marks

DATA SHEET NO. 16
PHOTOGRAPHIC REFERENCE TARGET LOCATIONS

Test Vehicle: 2004 Toyota Scion XA 4 Door Sedan
 Test Program: 2004 NHTSA 35mph NCAP

NHTSA No.: M45106
 Test Date: 2/10/04

All Dimensions in (mm)	
Item	Value
A	356
B	581
C	1998
D	613
E	1315
F	155
G	1205
H	905
I	1225
J	765
K	765
L	1150
M	900
N	1140
O	770
P	770
Q	1235



DATA SHEET NO. 17
VEHICLE INTRUSION MEASUREMENTS

Test Vehicle: 2004 Toyota Scion XA 4 Door Sedan
 Test Program: 2004 NHTSA 35mph NCAP

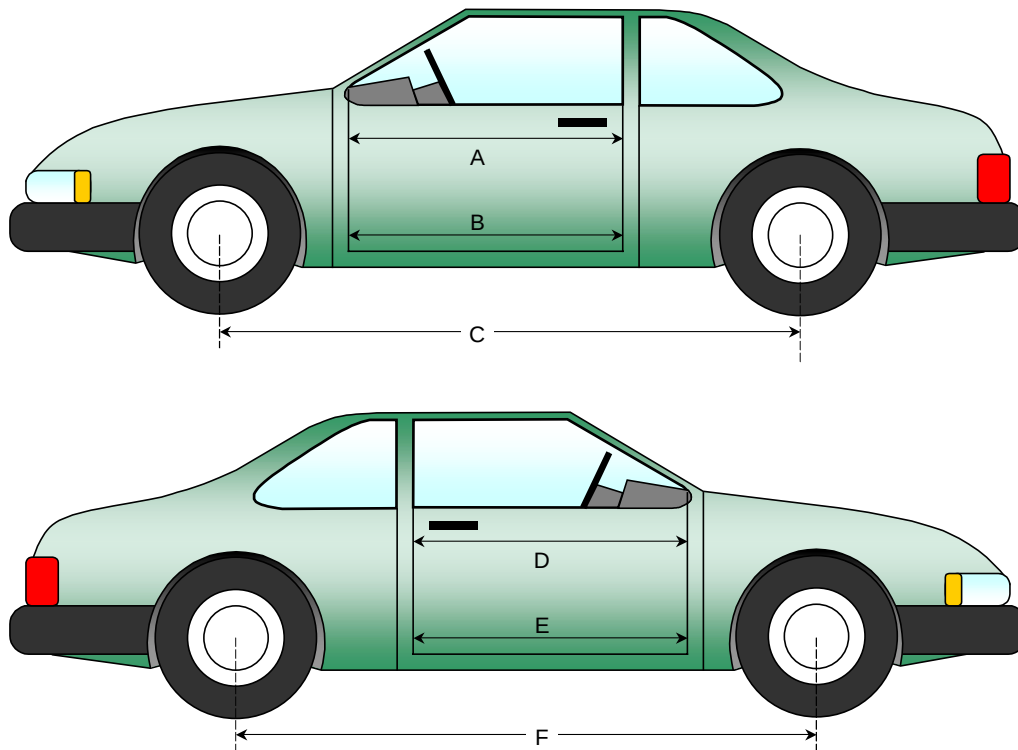
NHTSA No.: M45106
 Test Date: 2/10/04

DOOR OPENING WIDTH TABLE

Item	Description	Units	Pre-Test	Post-Test	Diff.
A	Left Side Upper	mm	944	939	-5
B	Left Side Lower	mm	918	912	-6
D	Right Side Upper	mm	944	938	-6
E	Right Side Lower	mm	924	918	-6

WHEELBASE MEASUREMENT TABLE

Item	Description	Units	Pre-Test	Post-Test	Diff.
C	Left Side Wheel Base	mm	2373	2330	-43
F	Right Side Wheel Base	mm	2373	2315	-58



DATA SHEET NO. 17...(CONTINUED)
VEHICLE INTRUSION MEASUREMENTS

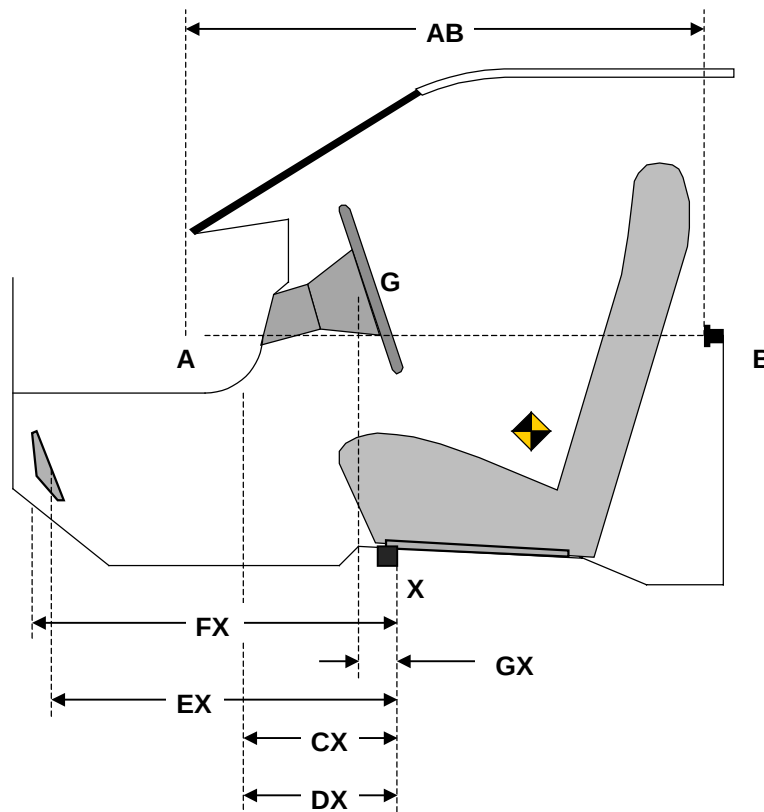
Test Vehicle: 2004 Toyota Scion XA 4 Door Sedan
 Test Program: 2004 NHTSA 35mph NCAP

NHTSA No.: M45106
 Test Date: 2/10/04

DRIVER COMPARTMENT INTRUSION TABLE

Item	Description	Units	Pre-Test	Post-Test	Diff.
AB	Door Opening (Inside window jam)	mm	944	939	-5
CX	Left Knee Bolster to X	mm	322	325	3
DX	Right Knee Bolster to X	mm	264	265	1
EX	Brake Pedal to X	mm	520	523	3
FX	Foot Rest to X	mm	495	498	3
GX	Center of Steering Wheel Hub to X	mm	80	70	-10

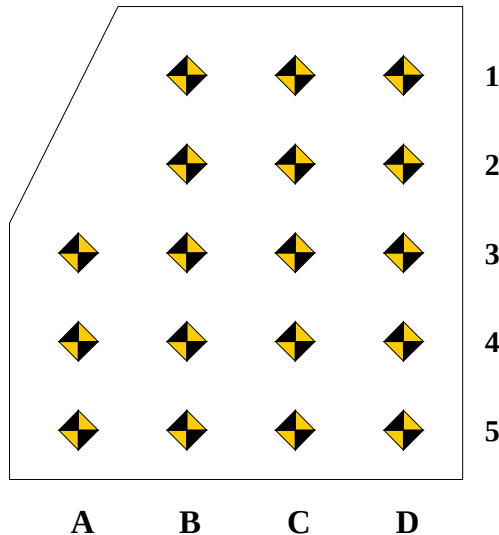
X = Left Front Seat Outboard Anchor Bolt Head



DATA SHEET NO. 17...(CONTINUED)
VEHICLE INTRUSION MEASUREMENTS

Test Vehicle: 2004 Toyota Scion XA 4 Door Sedan
 Test Program: 2004 NHTSA 35mph NCAP

NHTSA No.: M45106
 Test Date: 2/10/04



1 Measurement reference point for X and Z-axis is the forward outboard seat mounting bolt.

2
 Columns A through D are evenly spaced.

3
 Rows 1 and 2 are on the toe kick portion of the floor pan. Rows 3, 4 and 5 are located on the most level portion of the floor pan.

the level sections of the floor pan.

DRIVER FLOOR PAN X-AXIS

	Pre-Test				Post-Test				Difference			
	A	B	C	D	A	B	C	D	A	B	C	D
1		612	610	611		600	589	547		-12	-21	-64
2		534	534	534		530	530	506		-4	-4	-28
3	444	445	443	445	439	439	440	443	-5	-6	-3	-2
4	349	344	348	353	347	343	344	352	-2	-1	-4	-1
5	247	249	251	253	245	249	248	250	-2	0	-3	-3

DRIVER FLOOR PAN Z-AXIS

	Pre-Test				Post-Test				Difference			
	A	B	C	D	A	B	C	D	A	B	C	D
1		-8	-10	-13		-22	-34	-15		-14	-24	-2
2		-73	-73	-75		-94	-107	-105		-21	-34	-30
3	-110	-109	-109	-109	-125	-133	-143	-159	-15	-24	-34	-50
4	-110	-108	-110	-118	-121	-131	-135	-161	-11	-23	-25	-43
5	-110	-101	-110	-121	-121	-122	-141	-161	-11	-21	-31	-40

DATA SHEET NO. 17...(CONTINUED)
VEHICLE INTRUSION MEASUREMENTS

Test Vehicle: 2004 Toyota Scion XA 4 Door Sedan
 Test Program: 2004 NHTSA 35mph NCAP

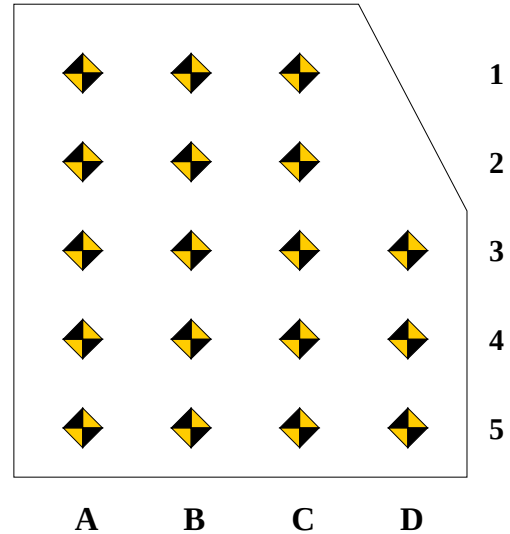
NHTSA No.: M45106
 Test Date: 2/10/04

Measurement reference point for X and Z axis is the forward outboard seat mounting bolt.

Columns A through D are evenly spaced.

Rows 1 and 2 are on the toe kick portion of the floor pan. Rows 3, 4 and 5 are located on the most level portion of the floor pan.

Row 3 will be at the intersection of the toe kick and the level sections of the floor pan.



PASSENGER FLOOR PAN X-AXIS

	Pre-Test				Post-Test				Difference			
	A	B	C	D	A	B	C	D	A	B	C	D
1	643	635	627		600	584	595		-43	-51	-32	
2	563	556	550		520	525	528		-43	-31	-22	
3	468	464	458	453	436	441	446	452	-32	-23	-12	-1
4	370	365	357	349	343	346	347	352	-27	-19	-10	3
5	270	263	257	250	239	244	243	251	-31	-19	-14	1

PASSENGER FLOOR PAN Z-AXIS

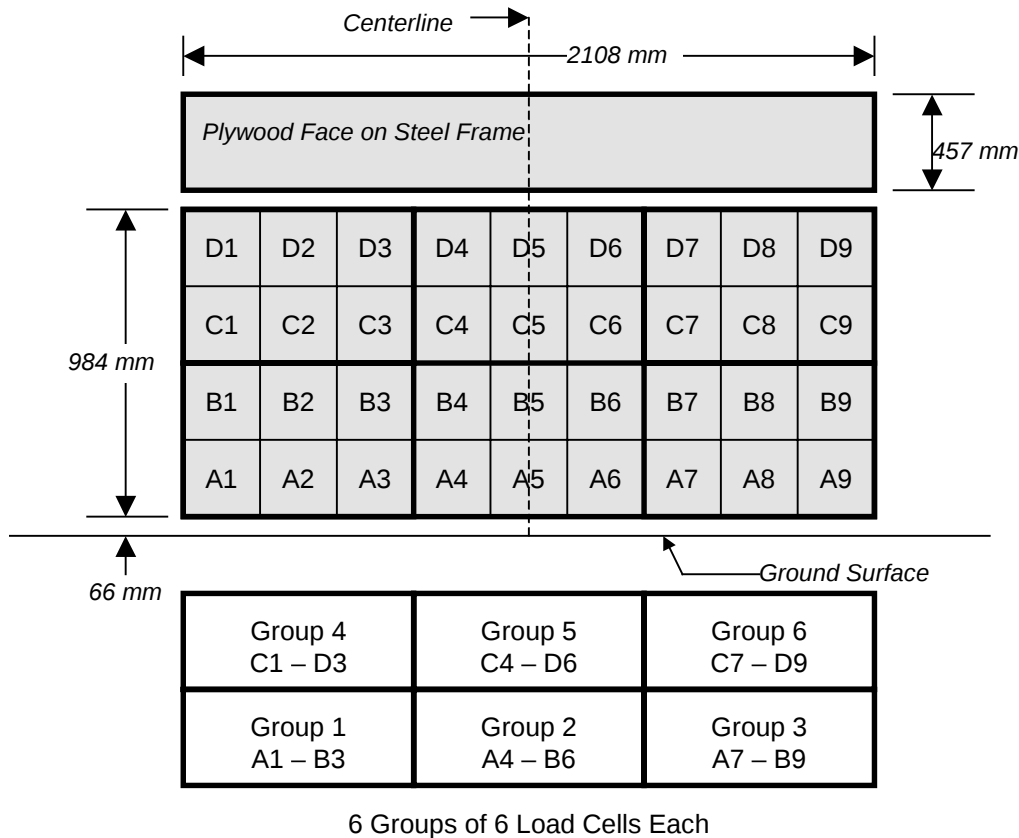
	Pre-Test				Post-Test				Difference			
	A	B	C	D	A	B	C	D	A	B	C	D
1	-20	-15	-16		-16	-16	-3		4	-1	13	
2	-85	-78	-76		-78	-78	-81		7	0	-5	
3	-123	-120	-118	-118	-134	-135	-135	-123	-11	-15	-17	-5
4	-130	-120	-115	-119	-134	-121	-121	-126	-4	-1	-6	-7
5	-140	-121	-113	-126	-139	-120	-120	-131	1	1	-7	-5

DATA SHEET NO. 18
FIXED BARRIER LOAD CELL LOCATIONS

Test Vehicle: 2004 Toyota Scion XA 4 Door Sedan
 Test Program: 2004 NHTSA 35mph NCAP

NHTSA No.: M45106
 Test Date: 2/10/04

36 Load Cell Rigid Barrier (NHTSA Standard)
Load Cell Locations on Fixed Barrier



The Data is presented in Appendix C with the following requirements:

- 1.) Data from 36 individual load cells
- 2.) Sum data from 6 groupings shown above (6 cells/group)
- 3.) Total or sum of all 36 individual load cells
- 4.) Sum of all 36 individual load cells vs. vehicle dynamic crush

DATA SHEET NO. 19
ACCIDENT INVESTIGATION DIVISION DATA

Test Vehicle: 2004 Toyota Scion XA 4 Door Sedan
 Test Program: 2004 NHTSA 35mph NCAP

NHTSA No.: M45106
 Test Date: 2/10/04

VEHICLE INFORMATION

VIN: JTKKT624940064894
 Vehicle Size Category: 4-Door

Wheel base (mm): 2373
 Test Weight (kg): 1236

ACCELEROMETER DATA

Accelerometer Location: Left rear floor pan
 Cal. Procedure/Interval: 6 months / drop test
 Integration Algorithm: NHTSA Standard
 Impact Velocity (km/h): 55.75
 Velocity Change (km/h): 65.51

Linearity: Good

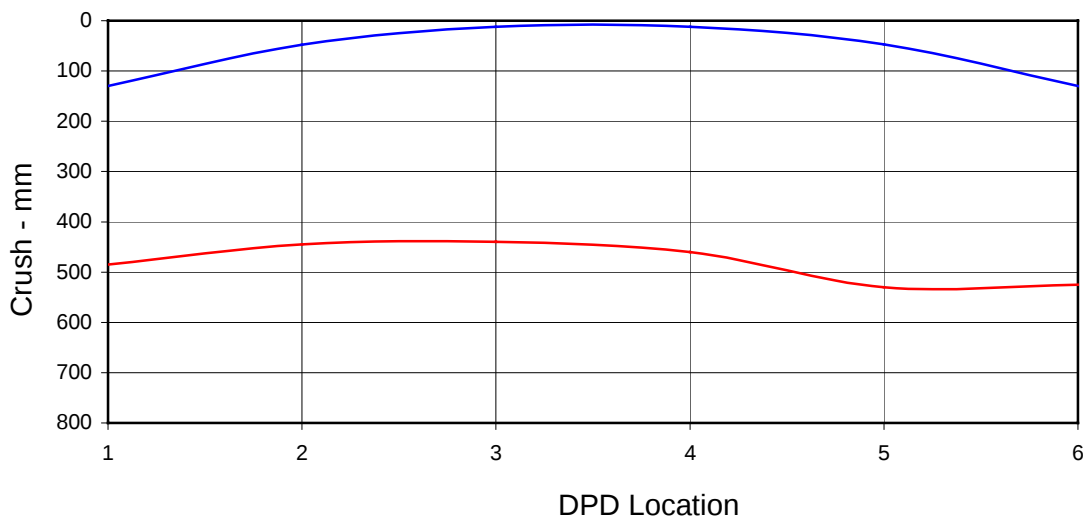
Time of Separation (msec): 66.2

CRUSH PROFILE

Collision Deformation Classification: 12FDEW6
 Damage Region Length (mm): 1162

Midpoint of Damage: Vehicle Centerline
 Impact Mode: Full Frontal

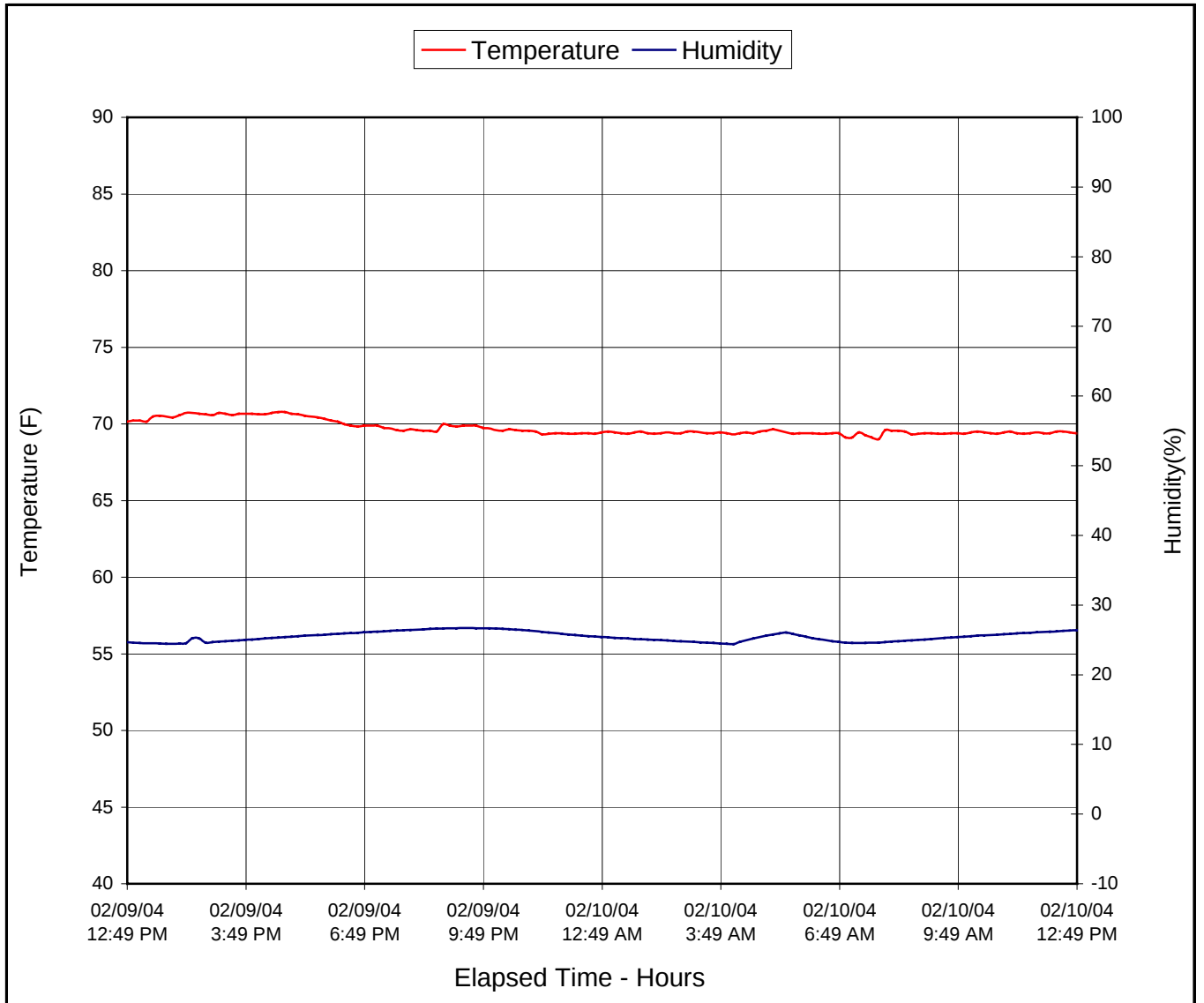
No.	Measurement Description	Units	Pre-Test	Post-Test	Difference
C1	Crush zone 1 at left side	mm	130	485	-355
C2	Crush zone 2 on left side	mm	48	445	-397
C3	Crush zone 3 on left side	mm	12	440	-428
C4	Crush zone 4 on right side	mm	12	460	-448
C5	Crush zone 5 on right side	mm	47	530	-483
C6	Crush zone 6 at right side	mm	130	525	-395



DATA SHEET NO. 20
DUMMY/VEHICLE TEMPERATURE STABILIZATION

Test Vehicle: 2004 Toyota Scion XA 4 Door Sedan
Test Program: 2004 NHTSA 35mph NCAP

NHTSA No.: M45106
Test Date: 2/10/04



APPENDIX A
PHOTOGRAPHS

LIST OF PHOTOGRAPHS

<u>Figure</u>		<u>Page</u>
A-1	Load Cell Location	A-1
A-2	Vehicle Certification Label	A-2
A-3	Vehicle Tire Label	A-3
A-4	Right Front $\frac{3}{4}$ View, As Received	A-4
A-5	Left Rear $\frac{3}{4}$ View, As Received	A-5
A-6	Pre-Test Front View	A-6
A-7	Post-Test Front View	A-7
A-8	Pre-Test Left Side View	A-8
A-9	Post-Test Left Side View	A-9
A-10	Pre-Test Right Side View	A-10
A-11	Post-Test Right Side View	A-11
A-12	Pre-Test Right Front $\frac{3}{4}$ View	A-12
A-13	Post-Test Right Front $\frac{3}{4}$ View	A-13
A-14	Pre-Test Left Rear $\frac{3}{4}$ View	A-14
A-15	Post-Test Left Rear $\frac{3}{4}$ View	A-15
A-16	Left Rear $\frac{3}{4}$ View of Doors After Impact	A-16
A-17	Right Rear $\frac{3}{4}$ View of Doors After Impact	A-17
A-18	Pre-Test Windshield View	A-18
A-19	Post-Test Windshield View	A-19
A-20	Pre-Test Engine Compartment	A-20
A-21	Post-Test Engine Compartment	A-21
A-22	Pre-Test Fuel Cap	A-22
A-23	Post-Test Fuel Cap	A-23
A-24	Pre-Test Front Underbody View	A-24
A-25	Post-Test Front Underbody View	A-25
A-26	Pre-Test Mid Underbody View	A-26
A-27	Post-Test Mid Underbody View	A-27
A-28	Pre-Test Rear Underbody View	A-28
A-29	Post-Test Rear Underbody View	A-29
A-30	Pre-Test Driver Dummy Front View (Head Position)	A-30
A-31	Post-Test Driver Dummy Front View (Head Position)	A-31
A-32	Pre-Test Driver Dummy Front Through Window	A-32
A-33	Post-Test Driver Dummy Front Through Window	A-33
A-34	Pre-Test Driver Dummy Door Open	A-34
A-35	Post-Test Driver Dummy Door Open	A-35

LIST OF PHOTOGRAPHS...(Continued)

Figure		Page
A-36	Pre-Test Driver Dummy Feet	A-36
A-37	Post-Test Driver Dummy Feet	A-37
A-38	Pre-Test Driver Side Knee Bolster	A-38
A-39	Post-Test Driver Side Knee Bolster	A-39
A-40	Pre-Test Driver Side Floor Pan	A-40
A-41	Post-Test Driver Side Floor Pan	A-41
A-42	Post-Test Driver Dummy Head	A-42
A-43	Post-Test Driver Dummy Contact to Air Bag	A-43
A-44	Pre-Test Passenger Dummy Front View (Head Position)	A-44
A-45	Post-Test Passenger Dummy Front View (Head Position)	A-45
A-46	Pre-Test Passenger Dummy Front Through Window	A-46
A-47	Post-Test Passenger Dummy Front Through Window	A-47
A-48	Pre-Test Passenger Dummy Door Open	A-48
A-49	Post-Test Passenger Dummy Door Open	A-49
A-50	Pre-Test Passenger Dummy Feet	A-50
A-51	Post-Test Passenger Dummy Feet	A-51
A-52	Pre-Test Passenger Side Knee Bolster	A-52
A-53	Post-Test Passenger Side Knee Bolster	A-53
A-54	Pre-Test Passenger Side Floor Pan	A-54
A-55	Post-Test Passenger Side Floor Pan	A-55
A-56	Post-Test Passenger Dummy Head	A-56
A-57	Post-Test Passenger Dummy Contact to Air Bag	A-57
A-58	Vehicle on Rollover Device	A-58
A-59	Vehicle on Rollover Device	A-59
A-60	Vehicle on Rollover Device	A-60
A-61	Vehicle on Rollover Device	A-61
A-62	Vehicle During Impact	A-62



Figure A-1: Load Cell Location

✱

MFD. BY: TOYOTA MOTOR CORPORATION 12/03
 GVWR 3305LB GAWR FR 1680LB RR 1645LB
 THIS VEHICLE CONFORMS TO ALL APPLICABLE
 FEDERAL MOTOR VEHICLE SAFETY, BUMPER, AND
 THEFT PREVENTION STANDARDS IN EFFECT ON
 THE DATE OF MANUFACTURE SHOWN ABOVE.
 JTKKT624940064894 PASS. CAR

TOYOTA



C/TR: 3P2/FC13
 A/TM: -02A/C50

MODEL: NCP61L-HHMNKA
 MADE IN JAPAN
 NO. 217

✱

✱

BA5701665

Figure A-2: Vehicle Certification Label



SEE OWNER'S
MANUAL FOR
ADDITIONAL
INFORMATION.

52380

TIRE AND LOADING INFORMATION

SEATING CAPACITY: TOTAL 5
FRONT 2: REAR 3

The combined weight of occupants and cargo should never exceed 375 kg or 825 lbs.

ORIGINAL TIRE SIZE	COLD TIRE INFLATION PRESSURE	
	FRONT	REAR
P185/60R15	200kPa, 29PSI	200kPa, 29PSI
COMPACT SPARE TIRE	COLD TIRE INFLATION PRESSURE	
T125/70D16	420kPa, 60PSI	

INFORMATION SUR LES PNEUS ET LE CHARGEMENT

NOMBRE DE PLACES ASSISES: TOTAL 5
AVANT 2: ARRIÈRE 3

Le poids total des occupants et du chargement ne doit jamais être supérieur à 375 kg ou 825 lb.

DIMENSION DES PNEUS D'ORIGINE	PRESSION DE GONFLAGE À FROID	
	AVANT	ARRIÈRE
P185/60R15	200kPa, 29PSI	200kPa, 29PSI
ROUE DE SECOURS COMPACTE	PRESSION DE GONFLAGE À FROID	
T125/70D16	420kPa, 60PSI	

POUR DE PLUS
AMPLES INFOR-
MATIONS, VOIR
LE MANUEL DU
PROPRIÉTAIRE.

J 4

Figure A-3: Vehicle Tire Label



Figure A-4: Right Front $\frac{3}{4}$ View, As Received



Figure A-5: Left Rear $\frac{3}{4}$ View, as Received



Figure A-6: Pre-Test Front View

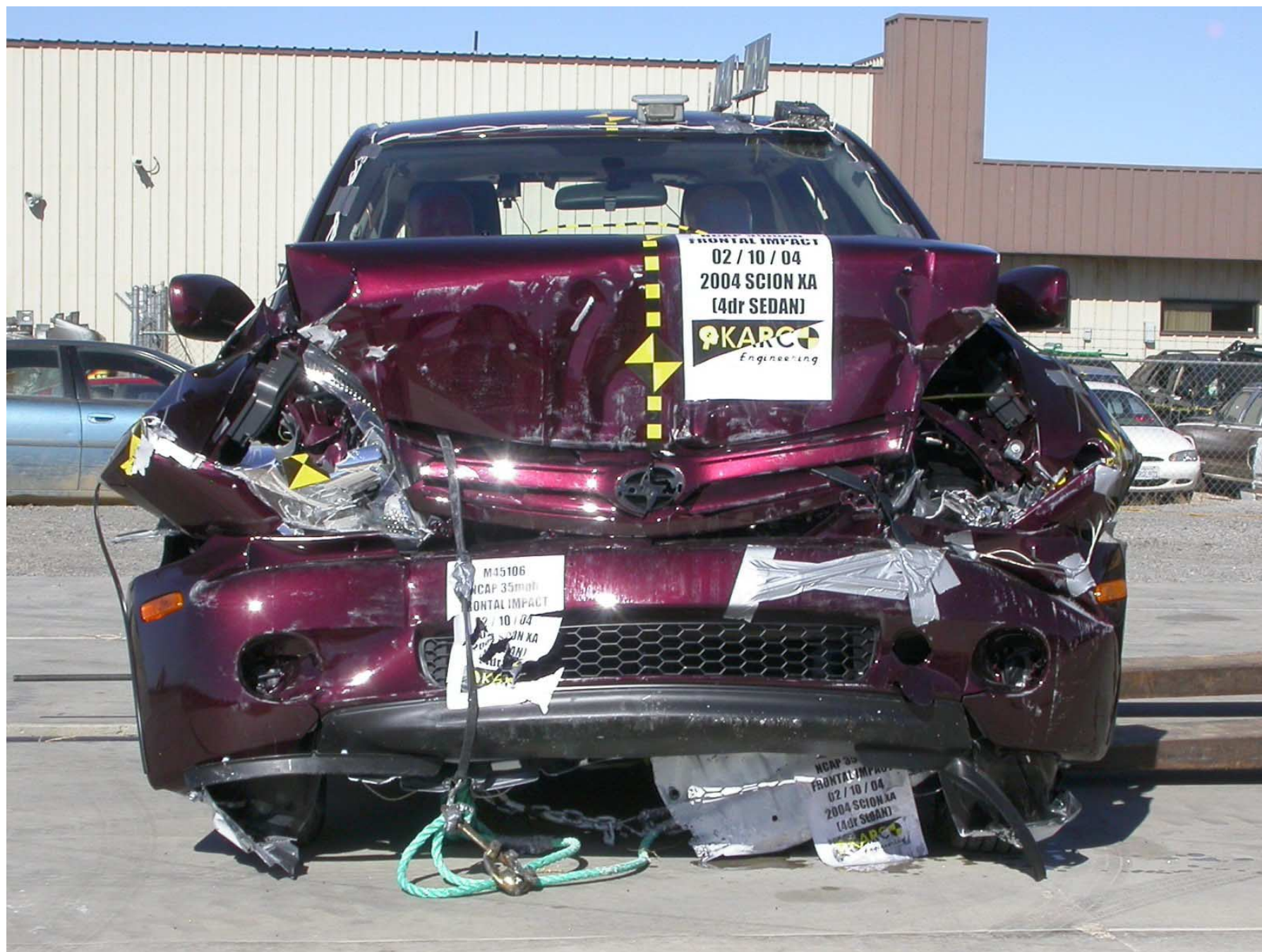


Figure A-7: Post-Test Front View (Vehicle Moved)



Figure A-8: Pre-Test Left Side View



Figure A-9: Post-Test Left Side View



Figure A-10: Pre-Test Right Side View



Figure A-11: Post-Test Right Side View



Figure A-12: Pre-Test Right Front ¾ View

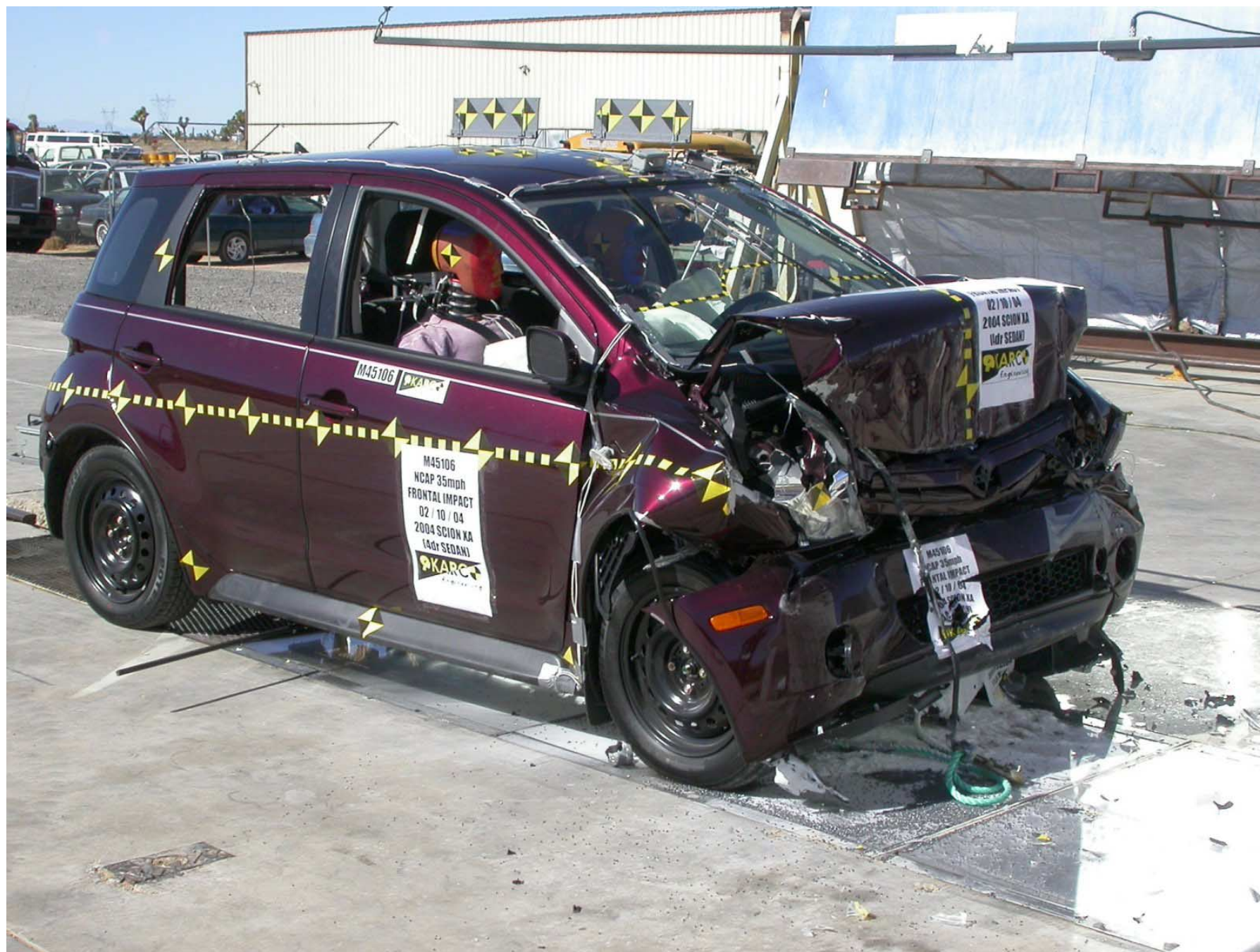


Figure A-13: Post-Test Right Front $\frac{3}{4}$ View



Figure A-14: Pre-Test Left Rear $\frac{3}{4}$ View



Figure A-15: Post-Test Left Rear $\frac{3}{4}$ View



Figure A-16: Left Rear $\frac{3}{4}$ View of Doors After Impact



Figure A-17: Right Rear ¾ View of Doors After Impact

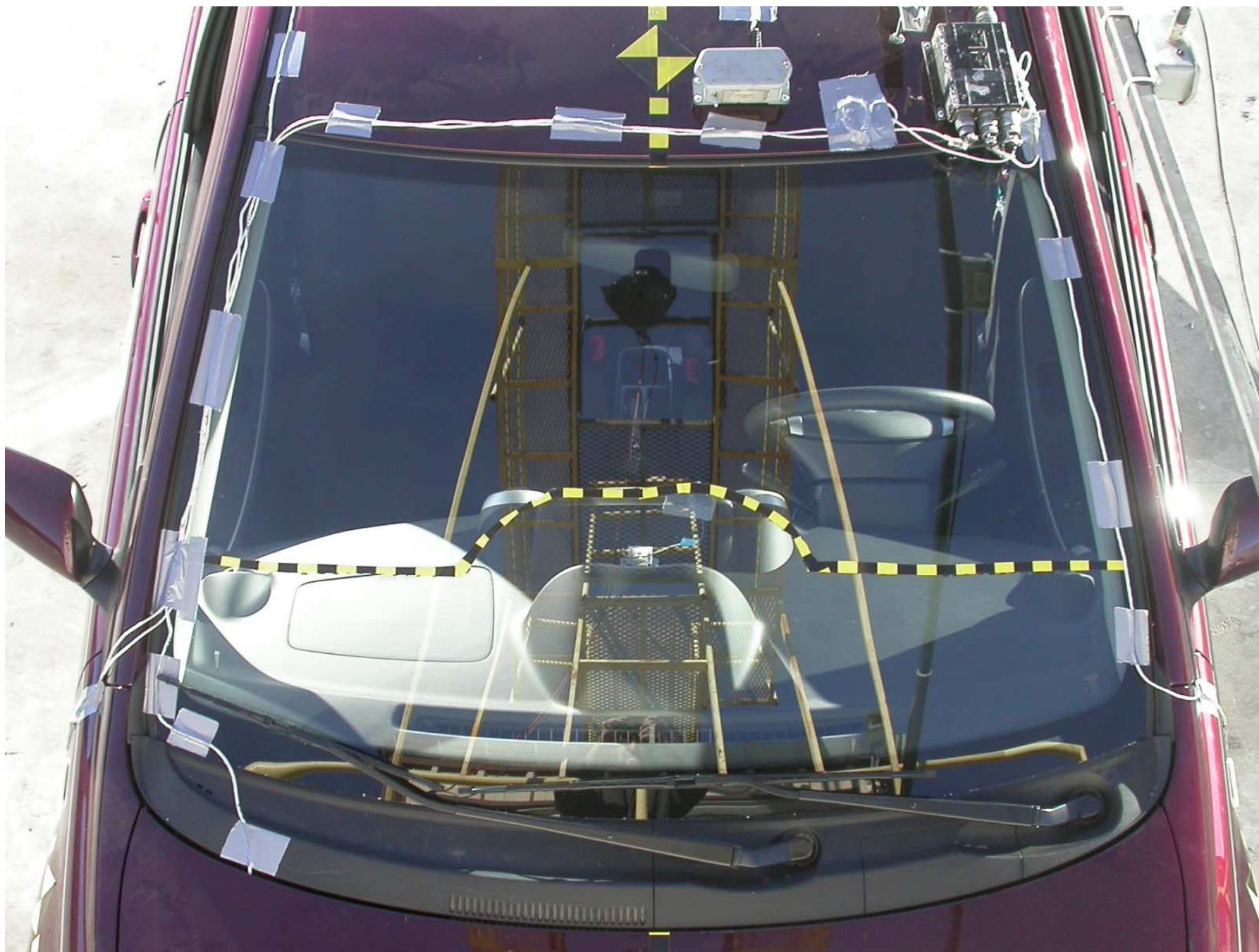


Figure A-18: Pre-Test Windshield View



Figure A-19: Post-Test Windshield View



Figure A-20: Pre-Test Engine Compartment



Figure A-21: Post-Test Engine Compartment (Vehicle Moved)



Figure A-22: Pre-Test Fuel Cap (Correct Liters is 42.02)



Figure A-23: Post-Test Fuel Cap (Correct Liters is 42.02)



Figure A-24: Pre-Test Front Underbody View



Figure A-25: Post-Test Front Underbody View



Figure A-26: Pre-Test Mid Underbody View

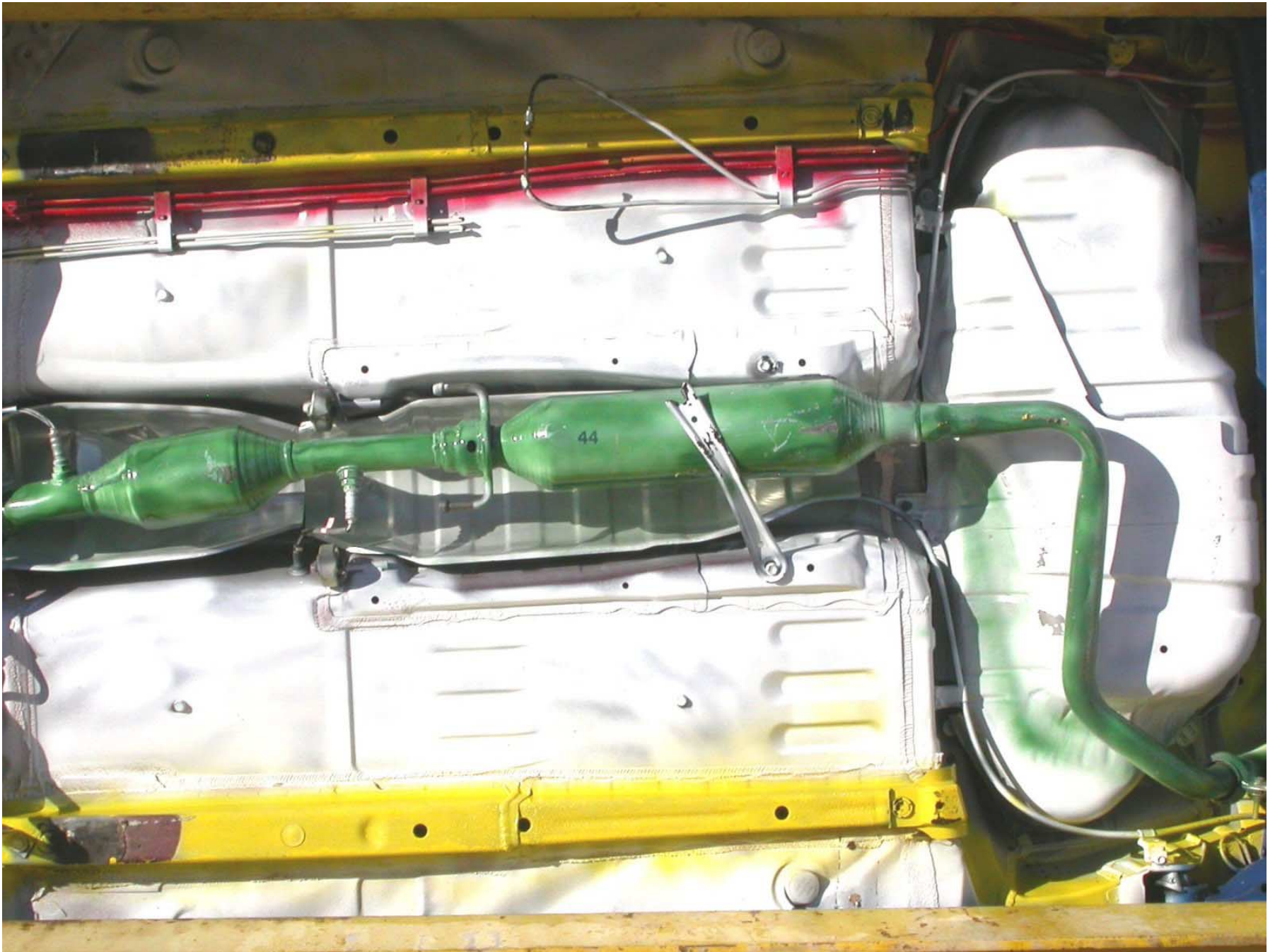


Figure A-27: Post-Test Mid Underbody View



Figure A-28: Pre-Test Rear Underbody View

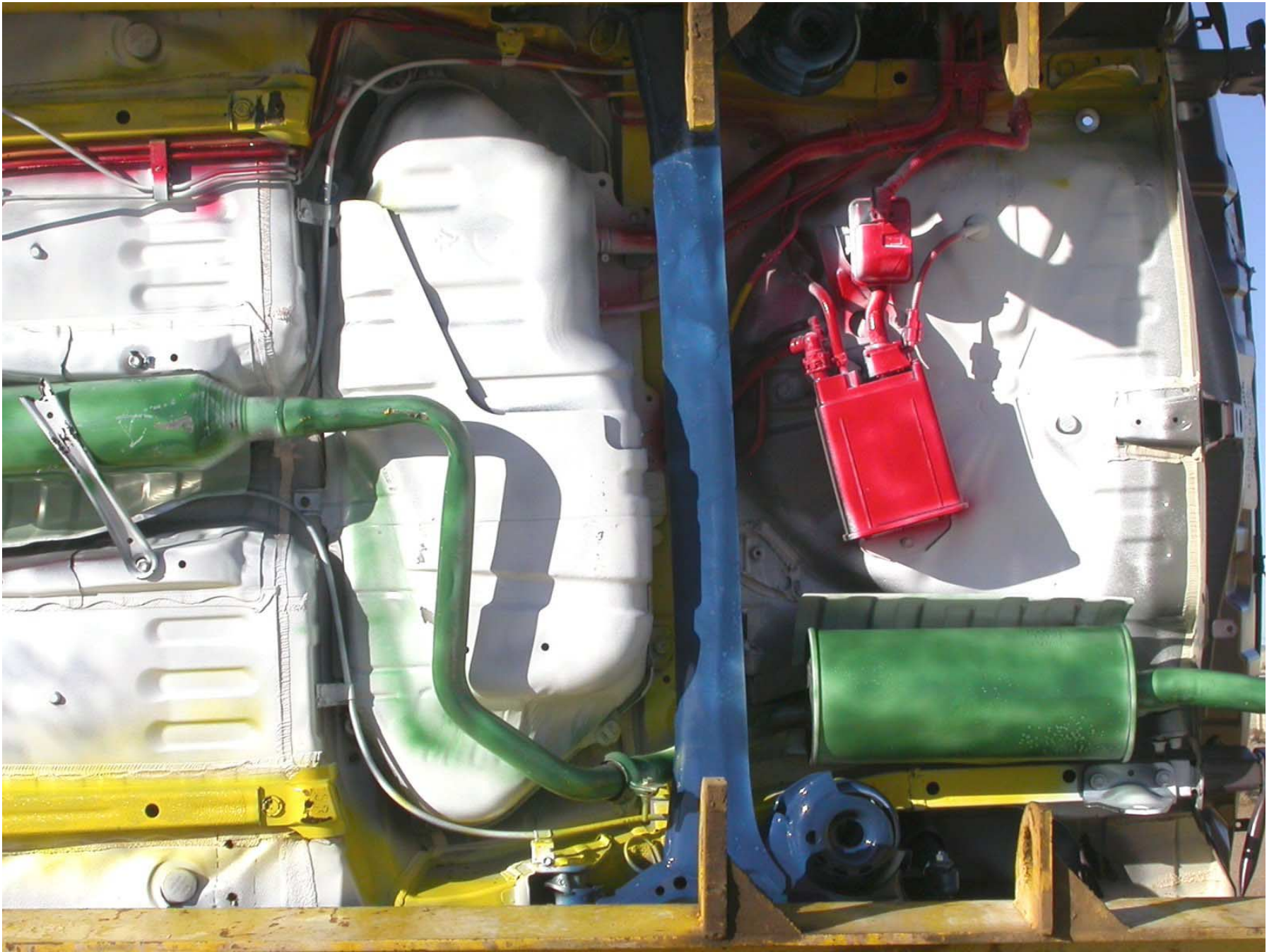


Figure A-29: Post-Test Rear Underbody View



Figure A-30: Pre-Test Driver Dummy Front View (Head Position)



Figure A-31: Post-Test Driver Dummy Front View (Head Position)



Figure A-32: Pre-Test Driver Dummy Front Through Window



Figure A-33: Post-Test Driver Dummy Front Through Window



Figure A-34: Pre-Test Driver Dummy Door Open



Figure A-35: Post-Test Driver Dummy Door Open



Figure A-36: Pre-Test Driver Dummy Feet



Figure A-37: Post-Test Driver Dummy Feet



Figure A-38: Pre-Test Driver Side Knee Bolster



Figure A-39: Post-Test Driver Side Knee Bolster



Figure A-40: Pre-Test Driver Side Floor Pan



Figure A-41: Post-Test Driver Side Floor Pan



Figure A-42: Post-Test Driver Dummy Head

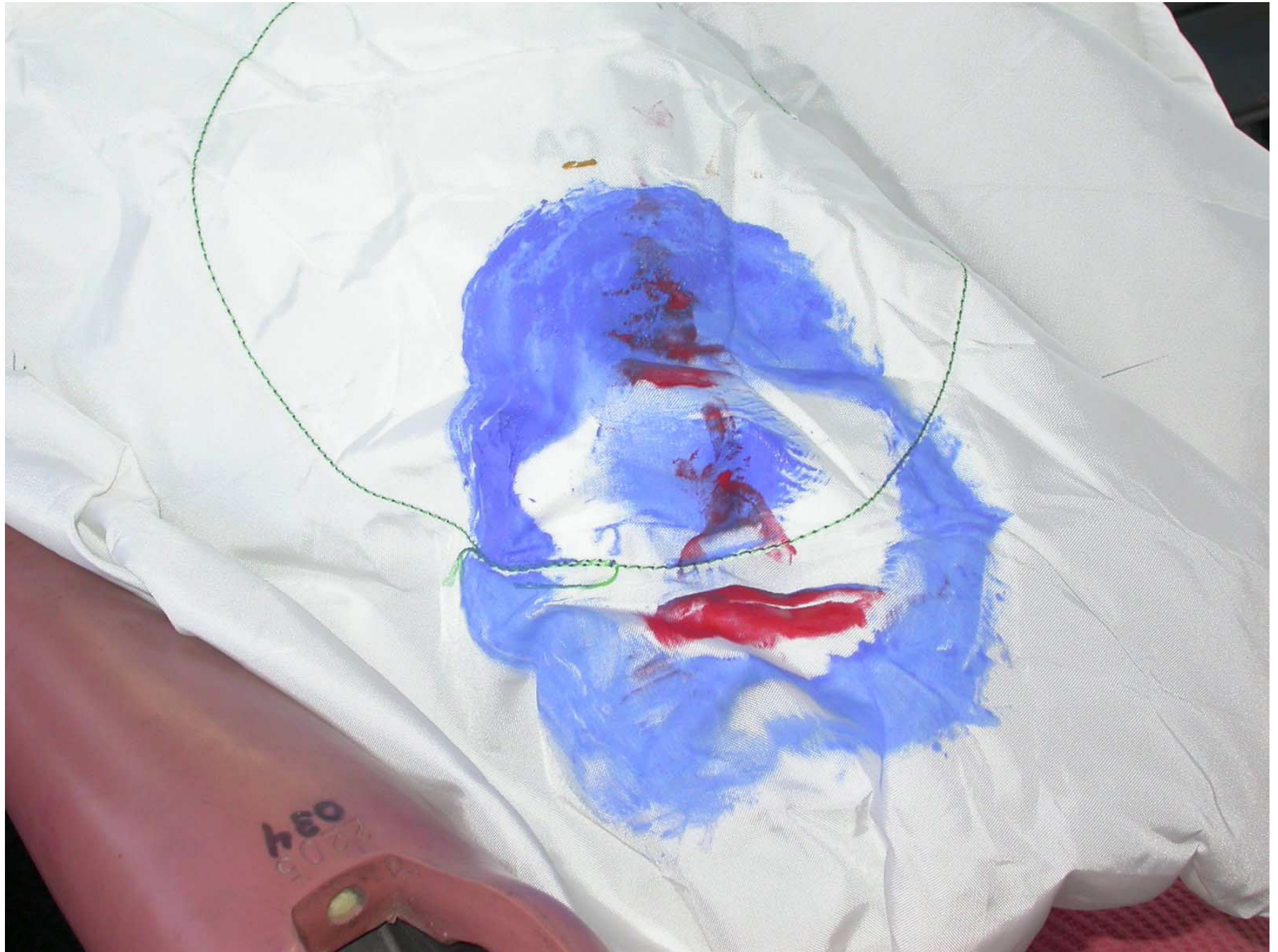


Figure A-43: Post-Test Driver Dummy Contact to Air Bag



Figure A-44: Pre-Test Passenger Dummy Front View (Head Position)



Figure A-45: Post-Test Passenger Dummy Front View (Head Position)



Figure A-46: Pre-Test Passenger Dummy Front Through Window



Figure A-47: Post-Test Passenger Dummy Front Through Window



Figure A-48: Pre-Test Passenger Dummy Door Open



Figure A-49: Post-Test Passenger Dummy Door Open



Figure A-50: Pre-Test Passenger Dummy Feet



Figure A-51: Post-Test Passenger Dummy Feet



Figure A-52: Pre-Test Passenger Side Knee Bolster



Figure A-53: Post-Test Passenger Side Knee Bolster



Figure A-54: Pre-Test Passenger Side Floor Pan



Figure A-55: Post-Test Passenger Side Floor Pan



Figure A-56: Post-Test Passenger Dummy Head



Figure A-57: Post-Test Passenger Dummy Contact to Air Bag



Figure A-58: Vehicle on Rollover Device

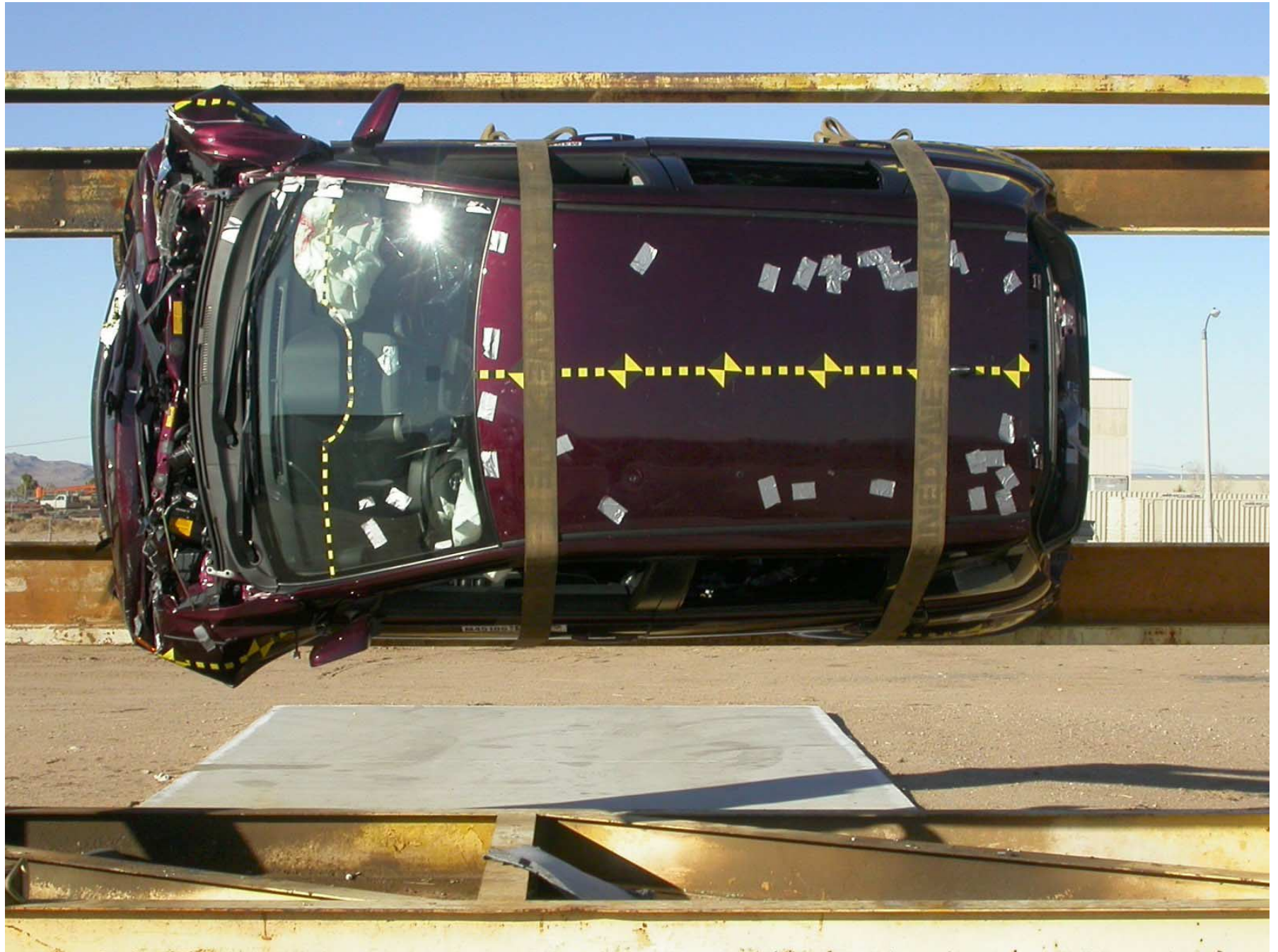


Figure A-59: Vehicle on Rollover Device

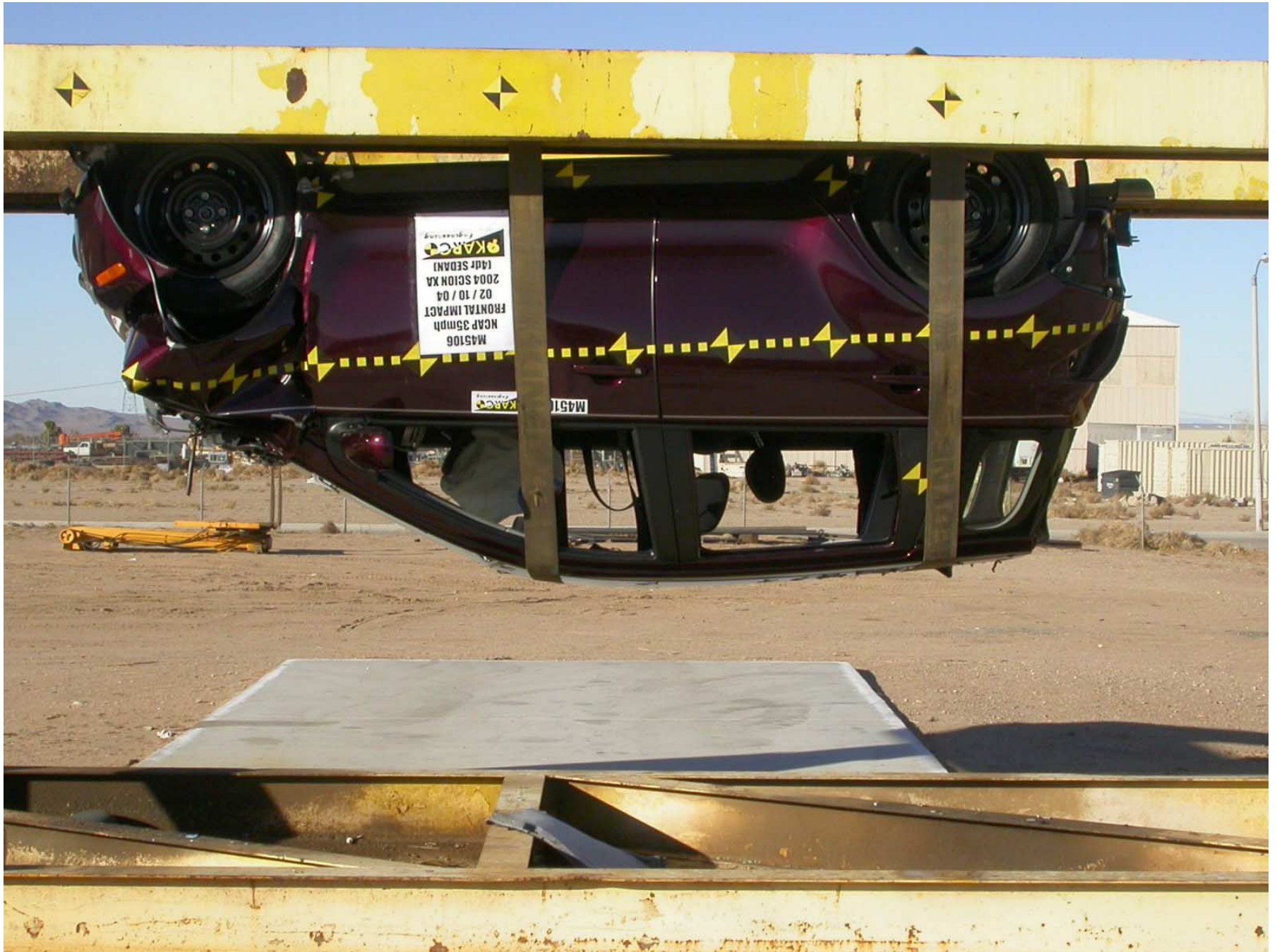


Figure A-60: Vehicle on Rollover Device



Figure A-61: Vehicle on Rollover Device



Figure A-62: Vehicle During Impact

APPENDIX B

DATA PLOTS

LIST OF DATA PLOTS

Data Plot	Page
B-1	Driver Head Primary X
	Driver Head Primary Y
	Driver Head Primary Z
	Driver Head Resultant Primary
B-2	Driver Head Primary X Velocity
	Driver Head Primary X Displacement
B-3	Driver Head Redundant X
	Driver Head Redundant Y
	Driver Head Redundant Z
	Driver Head Resultant Redundant
B-4	Driver Head Redundant X Velocity
	Driver Head Redundant X Displacement
B-5	Driver Upper Neck Force X
	Driver Upper Neck Force Y
	Driver Upper Neck Force Z
	Driver Upper Neck Force Resultant
B-6	Driver Upper Neck Moment X
	Driver Upper Neck Moment Y
	Driver Upper Neck Moment Z
	Driver Upper Neck Moment Resultant
B-7	Driver Chest Primary X
	Driver Chest Primary Y
	Driver Chest Primary Z
	Driver Chest Resultant Primary
B-8	Driver Chest Primary X Velocity
	Driver Chest Primary X Displacement
B-9	Driver Chest Redundant X
	Driver Chest Redundant Y
	Driver Chest Redundant Z
	Driver Chest Resultant Redundant
B-10	Driver Chest Redundant X Velocity
	Driver Chest Redundant X Displacement
B-11	Driver Chest Displacement

LIST OF DATA PLOTS...(Continued)

Data Plot	Page
B-12	Driver Pelvis X
	Driver Pelvis Y
	Driver Pelvis Z
	Driver Pelvis Resultant
B-13	Driver Pelvis X Velocity
	Driver Pelvis X Displacement
B-14	Driver Left Femur Force
	Driver Right Femur Force
B-15	Driver Left Upper Tibia Moment X
	Driver Left Upper Tibia Moment Y
	Driver Right Upper Tibia Moment X
	Driver Right Upper Tibia Moment Y
B-16	Driver Left Lower Tibia Moment X
	Driver Left Lower Tibia Moment Y
	Driver Left Lower Tibia Force Z
B-17	Driver Right Lower Tibia Moment X
	Driver Right Lower Tibia Moment Y
	Driver Right Lower Tibia Force Z
B-18	Driver Left Foot Aft X
	Driver Left Foot Aft Z
	Driver Left Foot Fore Z
B-19	Driver Right Foot Aft X
	Driver Right Foot Aft Z
	Driver Right Foot Fore Z
B-20	Driver Lap Belt Force
	Driver Shoulder Belt Force
	Driver Shoulder Belt Pullout
	Driver Shoulder Belt Elongation
B-21	Passenger Head Primary X
	Passenger Head Primary Y
	Passenger Head Primary Z
	Passenger Head Resultant Primary
B-22	Passenger Head Primary X Velocity
	Passenger Head Primary X Displacement

LIST OF DATA PLOTS...(Continued)

Data Plot	Page
B-23	Passenger Head Redundant X
	Passenger Head Redundant Y
	Passenger Head Redundant Z
	Passenger Head Resultant Redundant
B-24	Passenger Head Redundant X Velocity
	Passenger Head Redundant X Displacement
B-25	Passenger Upper Neck Force X
	Passenger Upper Neck Force Y
	Passenger Upper Neck Force Z
	Passenger Upper Neck Force Resultant
B-26	Passenger Upper Neck Moment X
	Passenger Upper Neck Moment Y
	Passenger Upper Neck Moment Z
	Passenger Upper Neck Moment Resultant
B-27	Passenger Chest Primary X
	Passenger Chest Primary Y
	Passenger Chest Primary Z
	Passenger Chest Resultant Primary
B-28	Passenger Chest Primary X Velocity
	Passenger Chest Primary X Displacement
B-29	Passenger Chest Redundant X
	Passenger Chest Redundant Y
	Passenger Chest Redundant Z
	Passenger Chest Resultant Redundant
B-30	Passenger Chest Redundant X Velocity
	Passenger Chest Redundant X Displacement
B-31	Passenger Chest Displacement
B-32	Passenger Pelvis X
	Passenger Pelvis Y
	Passenger Pelvis Z
	Passenger Pelvis Resultant
B-33	Passenger Pelvis X Velocity
	Passenger Pelvis X Displacement

LIST OF DATA PLOTS...(Continued)

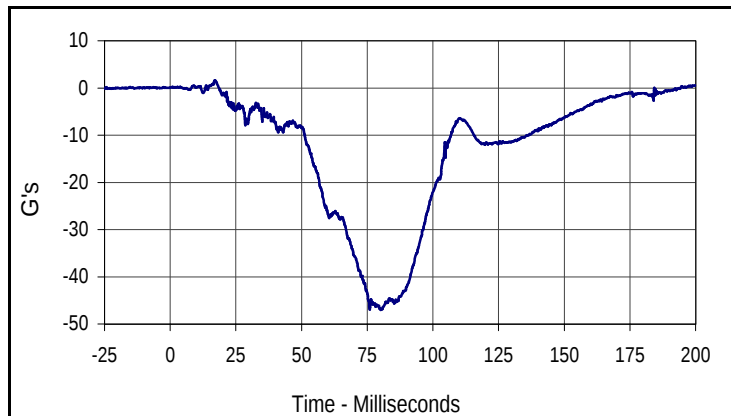
Data Plot		Page
B-34	Passenger Left Femur Force	B-34
	Passenger Right Femur Force	B-34
B-35	Passenger Left Upper Tibia Moment X	B-35
	Passenger Left Upper Tibia Moment Y	B-35
	Passenger Right Upper Tibia Moment X	B-35
	Passenger Right Upper Tibia Moment Y	B-35
B-36	Passenger Left Lower Tibia Moment X	B-36
	Passenger Left Lower Tibia Moment Y	B-36
	Passenger Left Lower Tibia Force Z	B-36
B-37	Passenger Right Lower Tibia Moment X	B-37
	Passenger Right Lower Tibia Moment Y	B-37
	Passenger Right Lower Tibia Force Z	B-37
B-38	Passenger Left Foot Aft X	B-38
	Passenger Left Foot Aft Z	B-38
	Passenger Left Foot Fore Z	B-38
B-39	Passenger Right Foot Aft X	B-39
	Passenger Right Foot Aft Z	B-39
	Passenger Right Foot Fore Z	B-39
B-40	Passenger Lap Belt Force	B-40
	Passenger Shoulder Belt Force	B-40
	Passenger Shoulder Belt Pullout	B-40
	Passenger Shoulder Belt Elongation	B-40
B-41	Vehicle Left Rear X	B-41
	Vehicle Left Rear X Velocity	B-41
	Vehicle Left Rear X Displacement	B-41
B-42	Vehicle Right Rear X	B-42
	Vehicle Right Rear X Velocity	B-42
	Vehicle Right Rear X Displacement	B-42
B-43	Vehicle Engine Top	B-43
	Vehicle Engine Top Velocity	B-43
	Vehicle Engine Top Displacement	B-43
B-44	Vehicle Engine Bottom	B-44
	Vehicle Engine Bottom Velocity	B-44
	Vehicle Engine Bottom Displacement	B-44

LIST OF DATA PLOTS...(Continued)

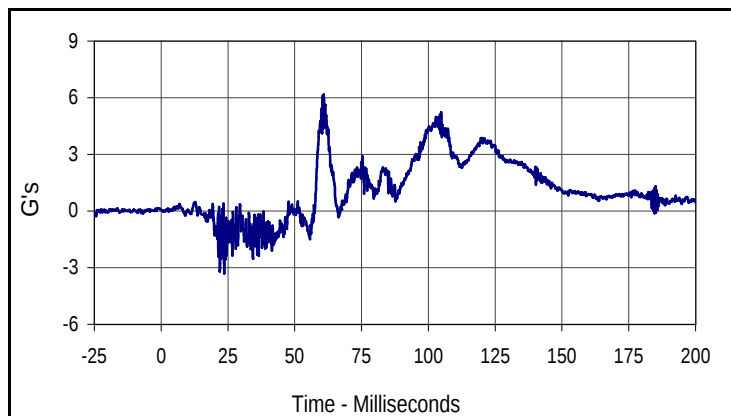
<u>Data Plot</u>	<u>Page</u>
B-45	Vehicle Left Brake Caliper
	Vehicle Left Brake Caliper Velocity
	Vehicle Left Brake Caliper Displacement
B-46	Vehicle Right Brake Caliper
	Vehicle Right Brake Caliper Velocity
	Vehicle Right Brake Caliper Displacement
B-47	Vehicle Instrument Panel
	Vehicle Instrument Panel Velocity
	Vehicle Instrument Panel Displacement
B-48	Vehicle Left Rear Z
	Vehicle Left Rear Z Velocity
	Vehicle Left Rear Z Displacement
B-49	Vehicle Right Rear Z
	Vehicle Right Rear Z Velocity
	Vehicle Right Rear Z Displacement

Test Vehicle: 2004 Toyota Scion XA 4 Door Sedan
 Test Program: 2004 NHTSA 35mph NCAP

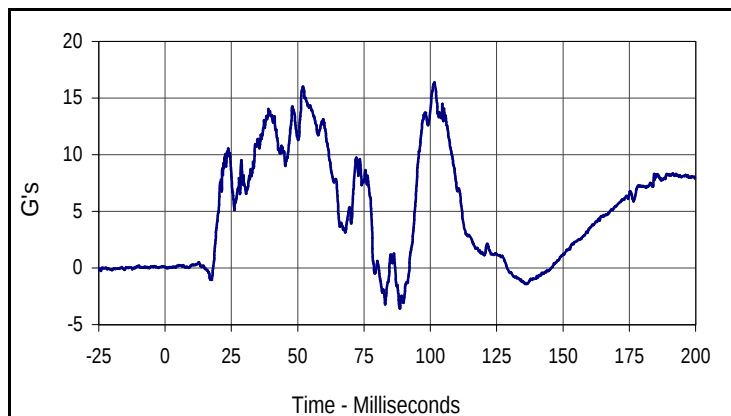
Test Date: 2/10/04
 NHTSA No.: M45106



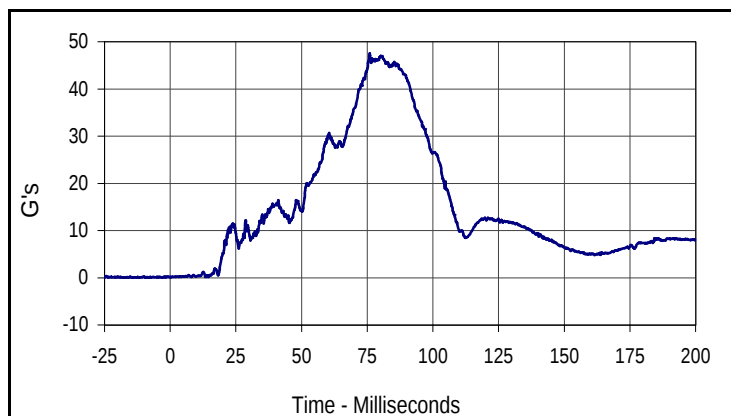
Curve Description			
Driver Head Primary X			
CURNO	Type	SAE Class	Units
001	FIL	1000	G's
Max	Time	Min	Time
1.6	16.9	-47.0	80.2



Curve Description			
Driver Head Primary Y			
CURNO	Type	SAE Class	Units
002	FIL	1000	G's
Max	Time	Min	Time
6.2	60.9	-3.3	23.6



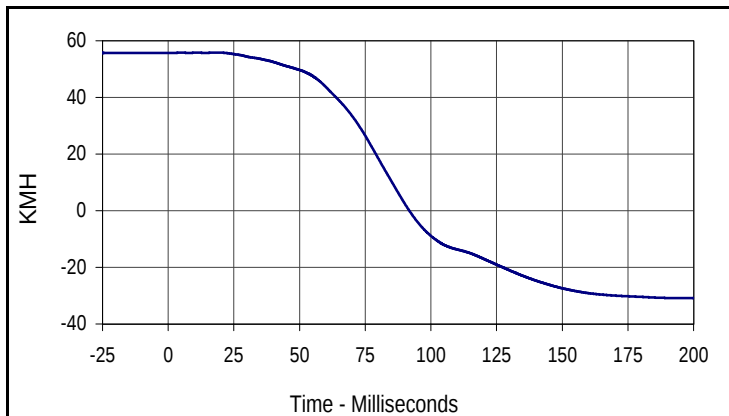
Curve Description			
Driver Head Primary Z			
CURNO	Type	SAE Class	Units
003	FIL	1000	G's
Max	Time	Min	Time
16.4	101.5	-3.6	88.5



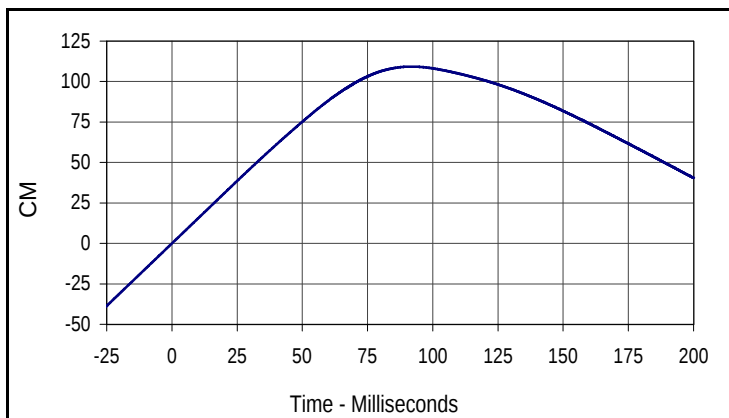
Curve Description			
Driver Head Resultant Primary			
CURNO	Type	SAE Class	Units
001	RES	1000	G's
Max	Time	Min	Time
47.6	76.0	0.1	0.5

Test Vehicle: 2004 Toyota Scion XA 4 Door Sedan
 Test Program: 2004 NHTSA 35mph NCAP

Test Date: 2/10/04
 NHTSA No.: M45106



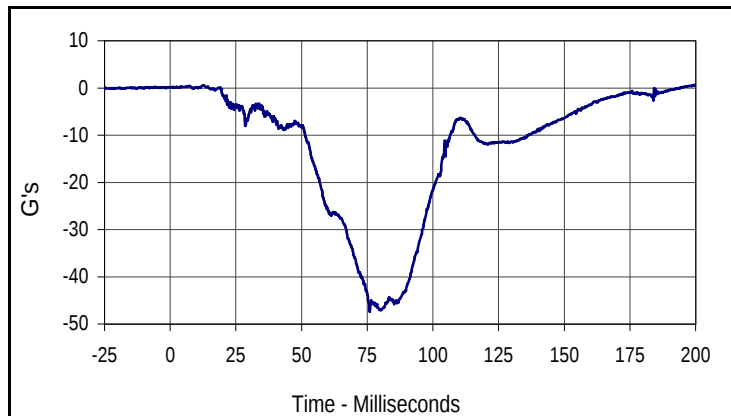
Curve Description			
Driver Head Primary X Velocity			
CURNO	Type	SAE Class	Units
001	IN1	180	KMH
Max	Time	Min	Time
55.9	18.6	-30.9	194.0



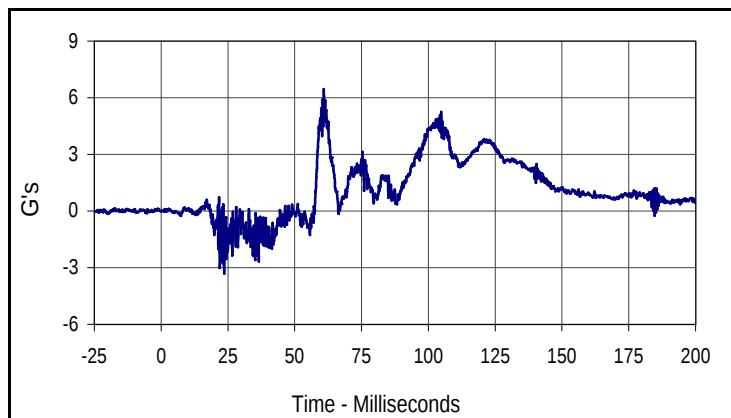
Curve Description			
Driver Head Primary X Displacement			
CURNO	Type	SAE Class	Units
001	IN2	180	CM
Max	Time	Min	Time
109.3	91.8	0.0	0.0

Test Vehicle: 2004 Toyota Scion XA 4 Door Sedan
 Test Program: 2004 NHTSA 35mph NCAP

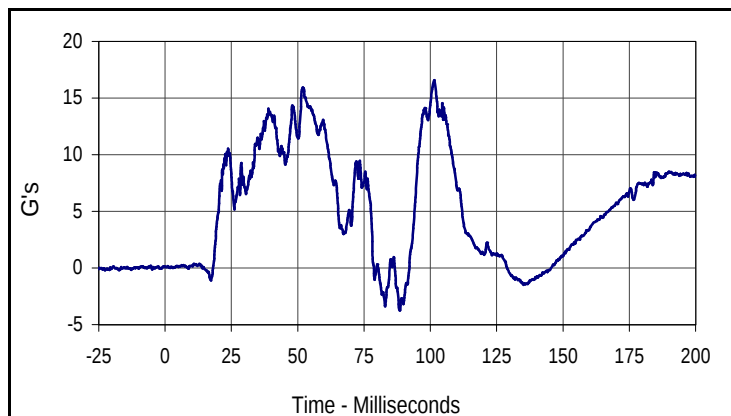
Test Date: 2/10/04
 NHTSA No.: M45106



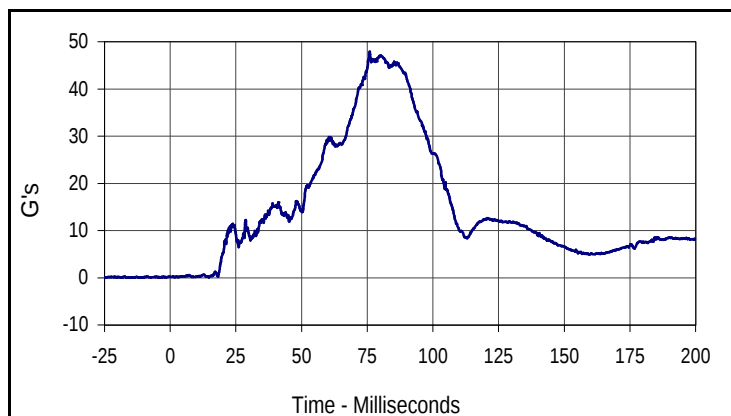
Curve Description			
Driver Head Redundant X			
CURNO	Type	SAE Class	Units
004	FIL	1000	G's
Max	Time	Min	Time
0.6	199.5	-47.4	76.0



Curve Description			
Driver Head Redundant Y			
CURNO	Type	SAE Class	Units
005	FIL	1000	G's
Max	Time	Min	Time
6.4	60.9	-3.3	23.6



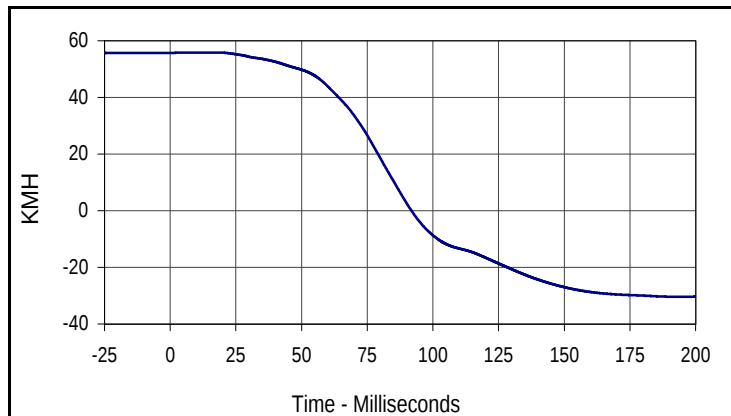
Curve Description			
Driver Head Redundant Z			
CURNO	Type	SAE Class	Units
006	FIL	1000	G's
Max	Time	Min	Time
16.6	101.5	-3.8	88.5



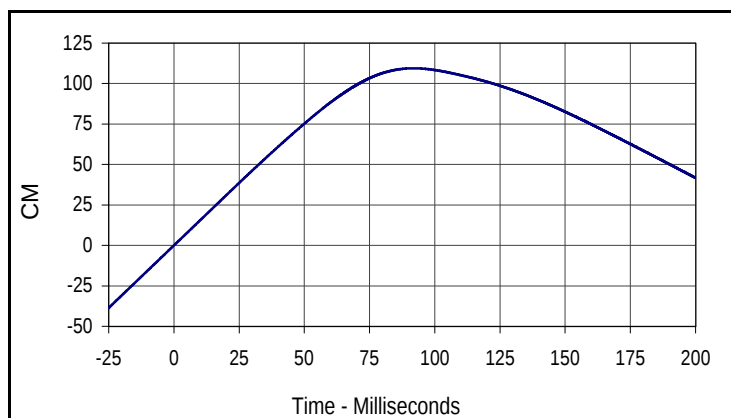
Curve Description			
Driver Head Resultant Redundant			
CURNO	Type	SAE Class	Units
004	RES	1000	G's
Max	Time	Min	Time
47.9	76.0	0.1	14.7

Test Vehicle: 2004 Toyota Scion XA 4 Door Sedan
 Test Program: 2004 NHTSA 35mph NCAP

Test Date: 2/10/04
 NHTSA No.: M45106



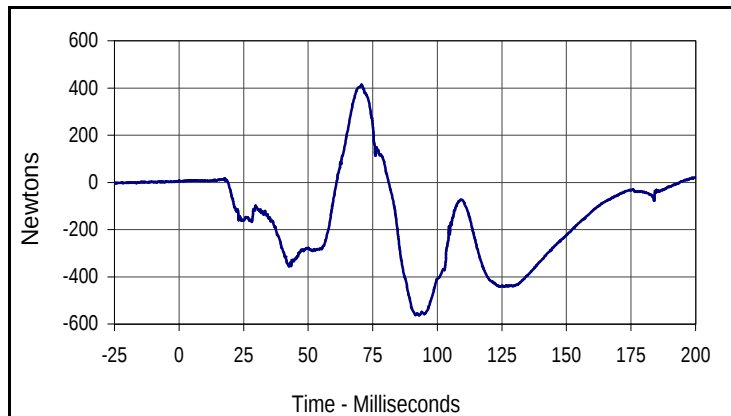
Curve Description			
Driver Head Redundant X Velocity			
CURNO	Type	SAE Class	Units
004	IN1	180	KMH
Max	Time	Min	Time
55.9	14.8	-30.4	194.0



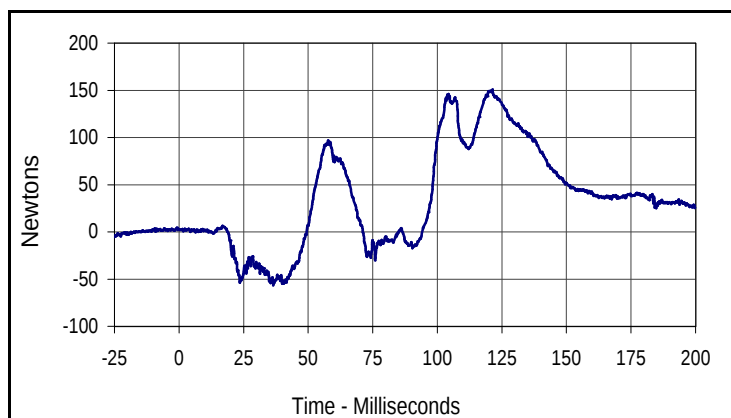
Curve Description			
Driver Head Redundant X Displacement			
CURNO	Type	SAE Class	Units
004	IN2	180	CM
Max	Time	Min	Time
109.4	91.8	0.0	0.0

Test Vehicle: 2004 Toyota Scion XA 4 Door Sedan
 Test Program: 2004 NHTSA 35mph NCAP

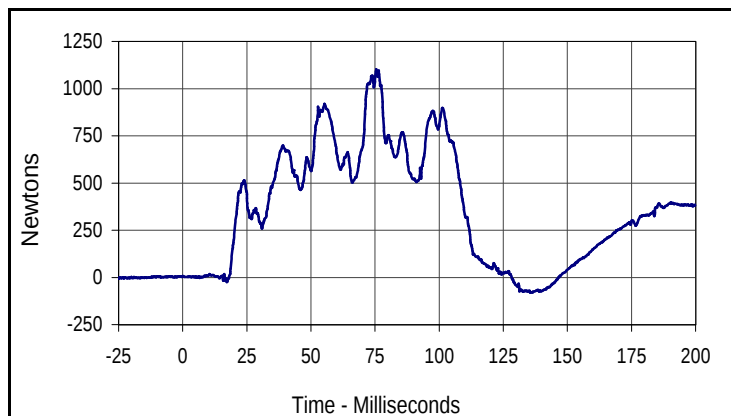
Test Date: 2/10/04
 NHTSA No.: M45106



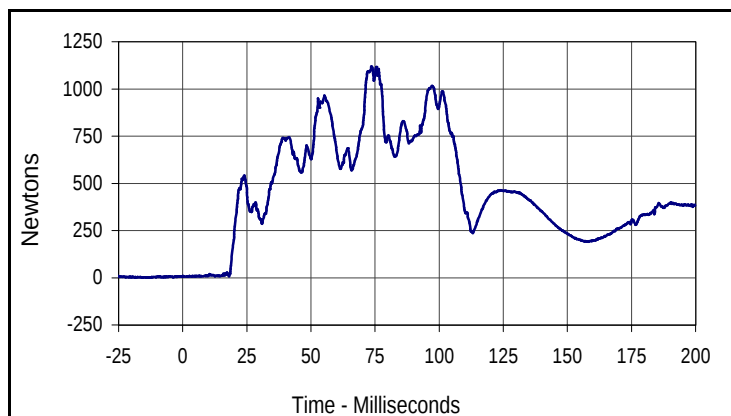
Curve Description			
Driver Upper Neck Force X			
CURNO	Type	SAE Class	Units
007	FIL	1000	Newtons
Max	Time	Min	Time
413.9	70.7	-563.4	93.0



Curve Description			
Driver Upper Neck Force Y			
CURNO	Type	SAE Class	Units
008	FIL	1000	Newtons
Max	Time	Min	Time
150.7	121.4	-56.7	36.5



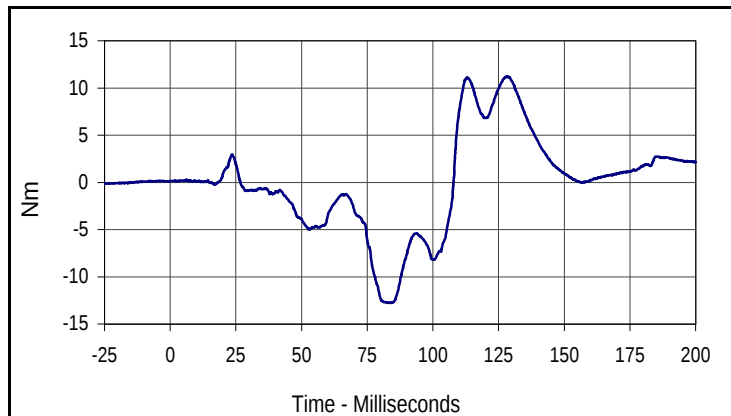
Curve Description			
Driver Upper Neck Force Z			
CURNO	Type	SAE Class	Units
009	FIL	1000	Newtons
Max	Time	Min	Time
1102.2	75.5	-80.0	135.6



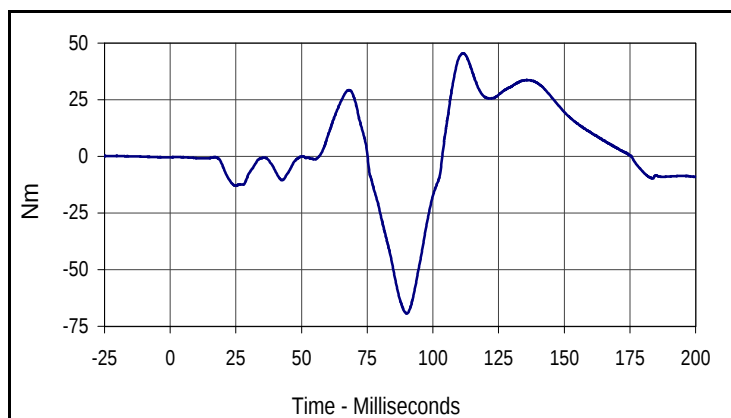
Curve Description			
Driver Upper Neck Force Res.			
CURNO	Type	SAE Class	Units
007	RES	1000	Newtons
Max	Time	Min	Time
1119.2	73.6	5.4	0.8

Test Vehicle: 2004 Toyota Scion XA 4 Door Sedan
 Test Program: 2004 NHTSA 35mph NCAP

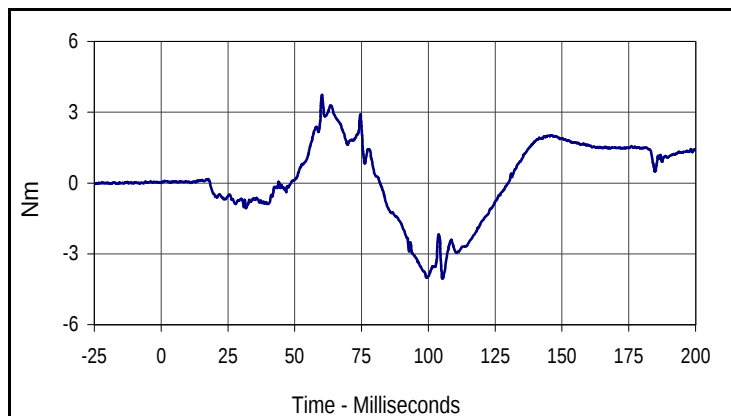
Test Date: 2/10/04
 NHTSA No.: M45106



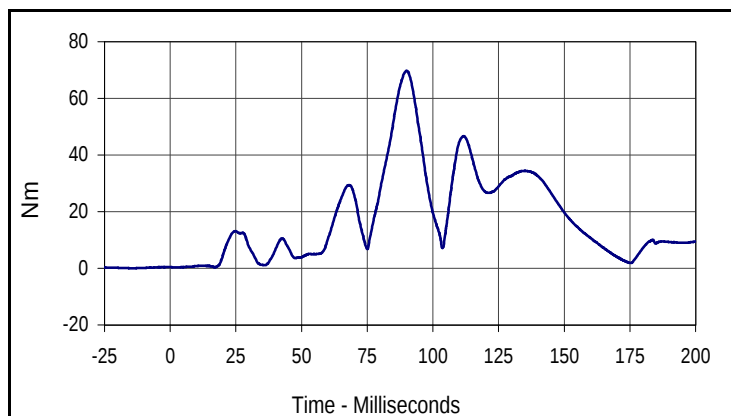
Curve Description			
Driver Upper Neck Moment X			
CURNO	Type	SAE Class	Units
010	FIL	600	Nm
Max	Time	Min	Time
11.3	128.1	-12.8	84.1



Curve Description			
Driver Upper Neck Moment Y			
CURNO	Type	SAE Class	Units
011	FIL	600	Nm
Max	Time	Min	Time
45.4	111.5	-69.3	90.2



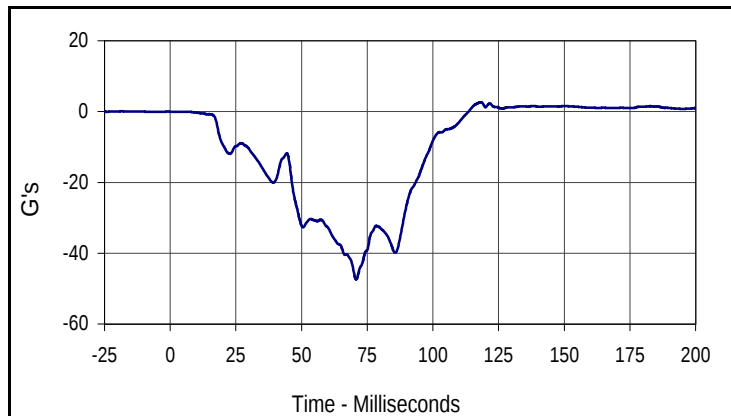
Curve Description			
Driver Upper Neck Moment Z			
CURNO	Type	SAE Class	Units
012	FIL	600	Nm
Max	Time	Min	Time
3.7	60.2	-4.0	105.3



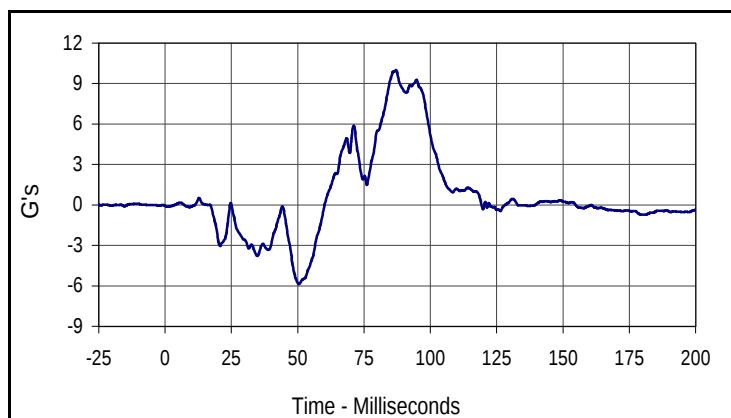
Curve Description			
Driver Upper Neck Moment Res.			
CURNO	Type	SAE Class	Units
010	RES	600	Nm
Max	Time	Min	Time
69.8	90.1	0.3	2.9

Test Vehicle: 2004 Toyota Scion XA 4 Door Sedan
 Test Program: 2004 NHTSA 35mph NCAP

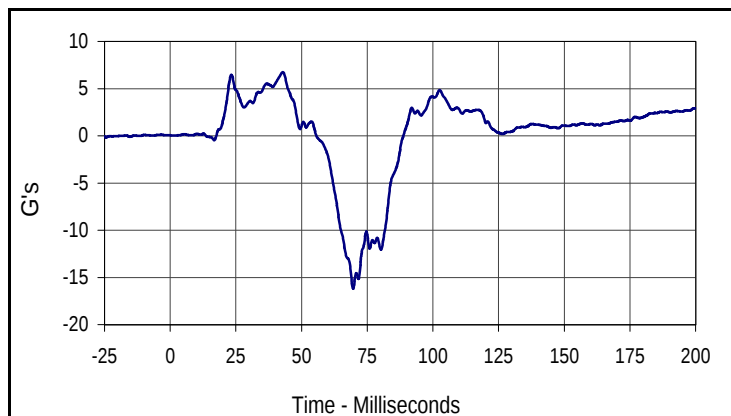
Test Date: 2/10/04
 NHTSA No.: M45106



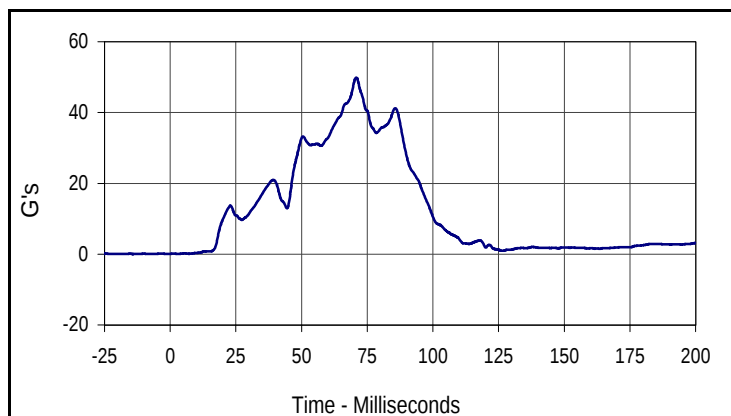
Curve Description			
Driver Chest Primary X			
CURNO	Type	SAE Class	Units
013	FIL	180	G's
Max	Time	Min	Time
2.7	118.2	-47.4	70.8



Curve Description			
Driver Chest Primary Y			
CURNO	Type	SAE Class	Units
014	FIL	180	G's
Max	Time	Min	Time
10.0	87.0	-5.9	50.4



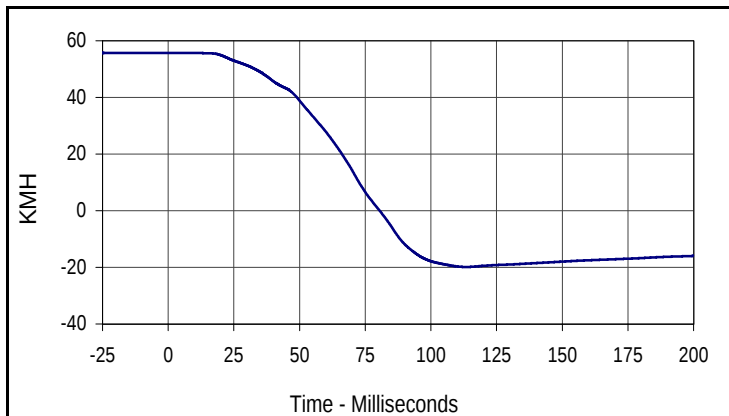
Curve Description			
Driver Chest Primary Z			
CURNO	Type	SAE Class	Units
015	FIL	180	G's
Max	Time	Min	Time
6.8	42.9	-16.2	69.6



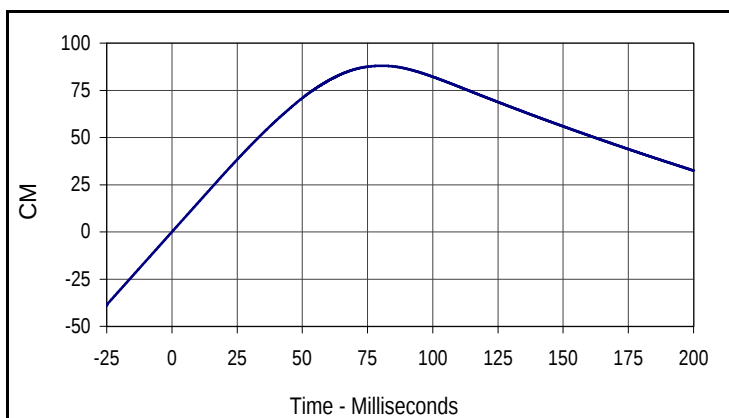
Curve Description			
Driver Chest Resultant Primary			
CURNO	Type	SAE Class	Units
013	RES	180	G's
Max	Time	Min	Time
49.9	70.8	0.1	0.0

Test Vehicle: 2004 Toyota Scion XA 4 Door Sedan
 Test Program: 2004 NHTSA 35mph NCAP

Test Date: 2/10/04
 NHTSA No.: M45106



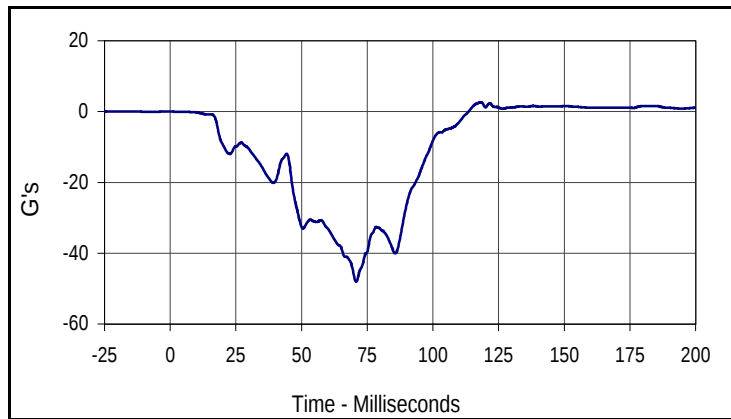
Curve Description			
Driver Chest Primary X Velocity			
CURNO	Type	SAE Class	Units
013	IN1	180	KMH
Max	Time	Min	Time
55.7	0.0	-19.9	113.6



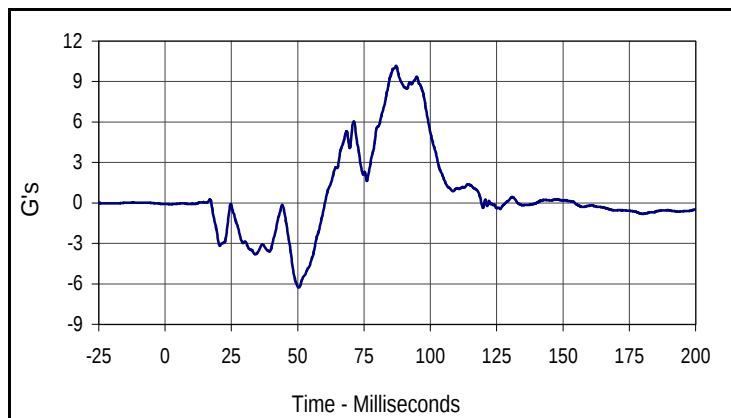
Curve Description			
Driver Chest Primary X Displacement			
CURNO	Type	SAE Class	Units
013	IN2	180	CM
Max	Time	Min	Time
88.0	80.5	0.0	0.0

Test Vehicle: 2004 Toyota Scion XA 4 Door Sedan
 Test Program: 2004 NHTSA 35mph NCAP

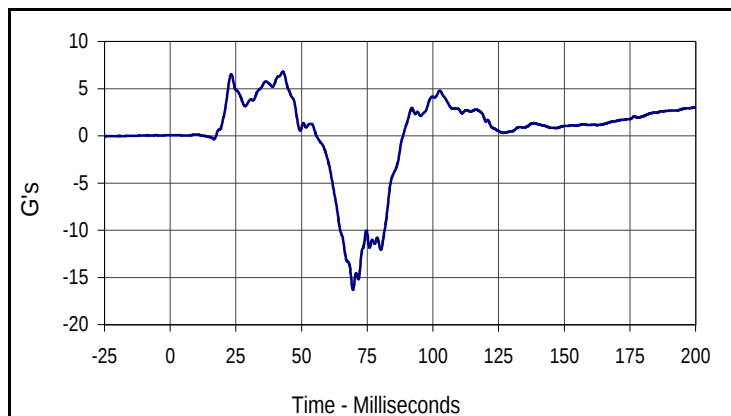
Test Date: 2/10/04
 NHTSA No.: M45106



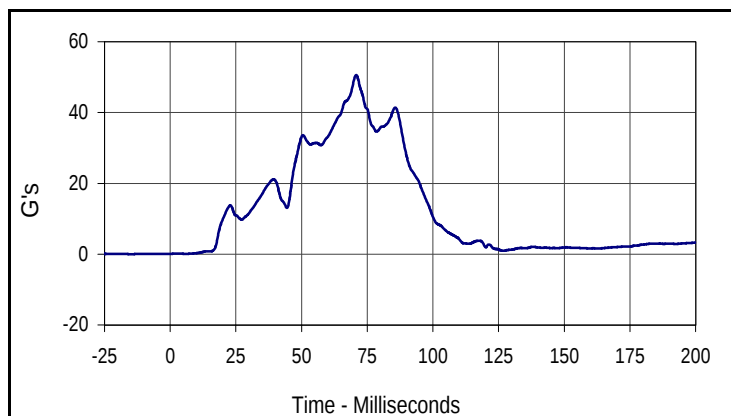
Curve Description			
Driver Chest Redundant X			
CURNO	Type	SAE Class	Units
016	FIL	180	G's
Max	Time	Min	Time
2.6	118.2	-48.1	70.8



Curve Description			
Driver Chest Redundant Y			
CURNO	Type	SAE Class	Units
017	FIL	180	G's
Max	Time	Min	Time
10.2	87.1	-6.3	50.4



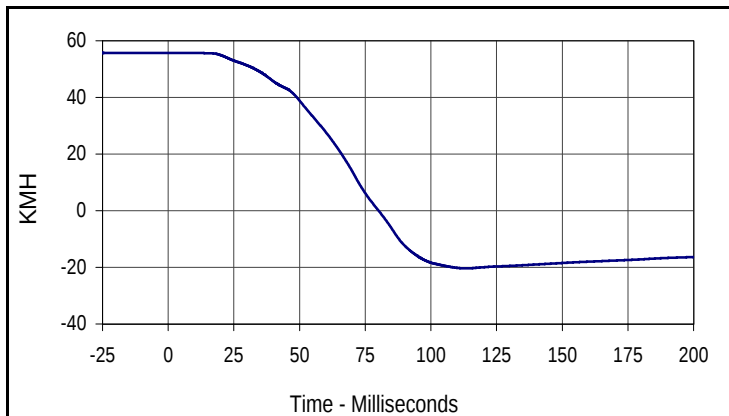
Curve Description			
Driver Chest Redundant Z			
CURNO	Type	SAE Class	Units
018	FIL	180	G's
Max	Time	Min	Time
6.8	42.8	-16.3	69.6



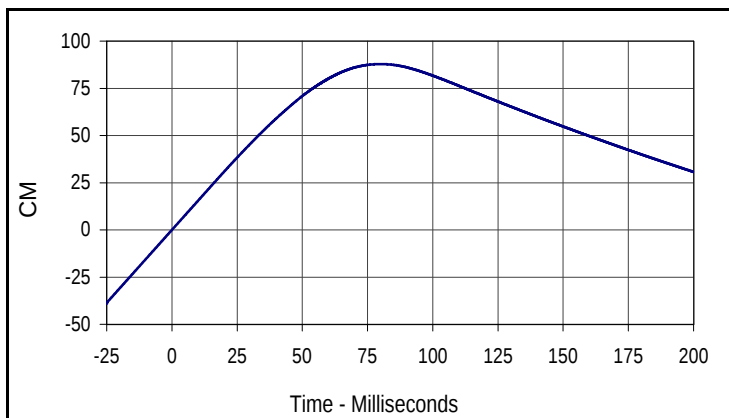
Curve Description			
Driver Chest Resultant Redundant			
CURNO	Type	SAE Class	Units
016	RES	180	G's
Max	Time	Min	Time
50.6	70.8	0.1	6.1

Test Vehicle: 2004 Toyota Scion XA 4 Door Sedan
 Test Program: 2004 NHTSA 35mph NCAP

Test Date: 2/10/04
 NHTSA No.: M45106



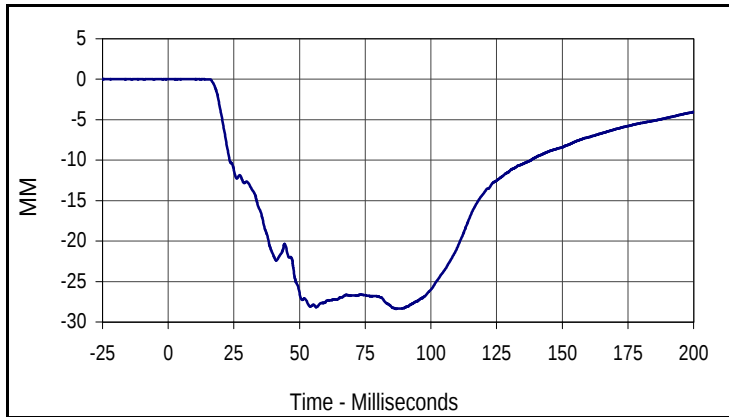
Curve Description			
Driver Chest Redundant X Velocity			
CURNO	Type	SAE Class	Units
016	IN1	180	KMH
Max	Time	Min	Time
55.7	0.2	-20.4	113.6



Curve Description			
Driver Chest Redundant X Displacement			
CURNO	Type	SAE Class	Units
016	IN2	180	CM
Max	Time	Min	Time
87.8	80.1	0.0	0.0

Test Vehicle: 2004 Toyota Scion XA 4 Door Sedan
 Test Program: 2004 NHTSA 35mph NCAP

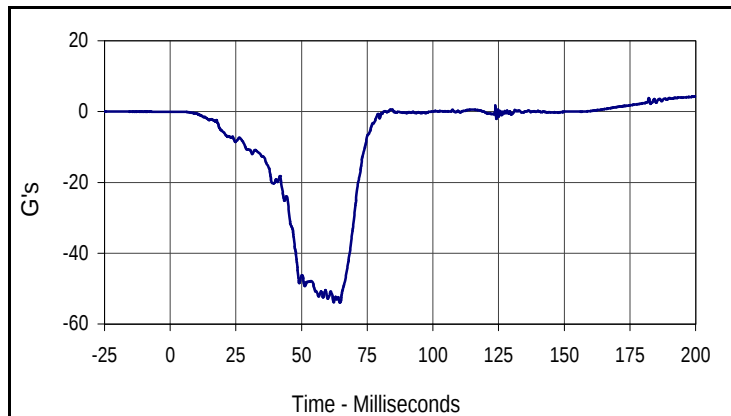
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 NHTSA No.: M45106



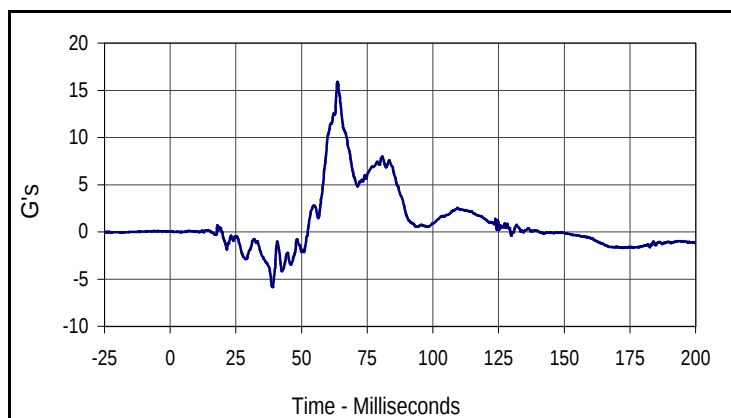
Curve Description			
Driver Chest Displacement			
CURNO	Type	SAE Class	Units
019	FIL	600	MM
Max	Time	Min	Time
0.0	5.7	-28.4	86.7

Test Vehicle: 2004 Toyota Scion XA 4 Door Sedan
 Test Program: 2004 NHTSA 35mph NCAP

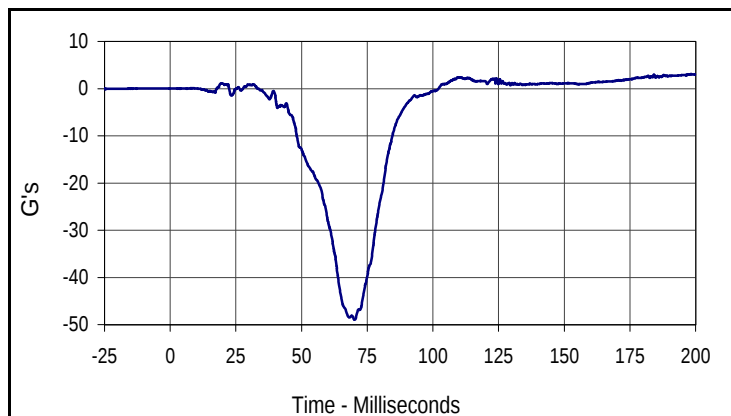
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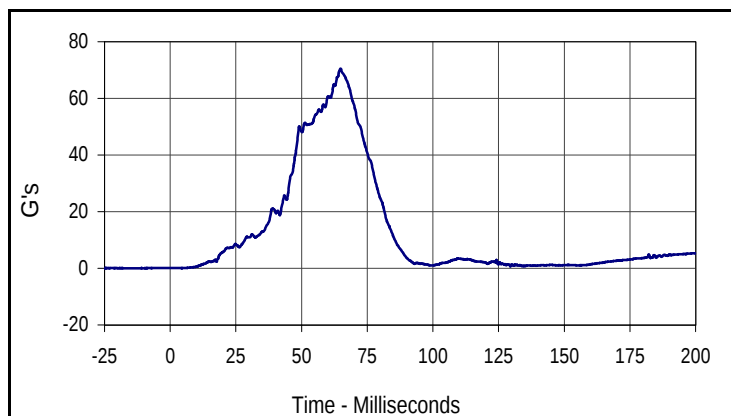
Curve Description			
Driver Pelvis X			
CURNO	Type	SAE Class	Units
020	FIL	1000	G's
Max	Time	Min	Time
4.3	199.8	-53.9	64.6



Curve Description			
Driver Pelvis Y			
CURNO	Type	SAE Class	Units
021	FIL	1000	G's
Max	Time	Min	Time
15.9	63.7	-5.8	38.9



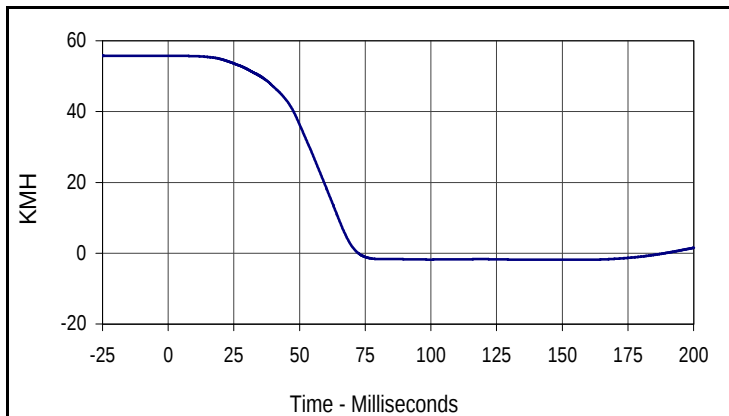
Curve Description			
Driver Pelvis Z			
CURNO	Type	SAE Class	Units
022	FIL	1000	G's
Max	Time	Min	Time
3.1	198.3	-48.9	70.2



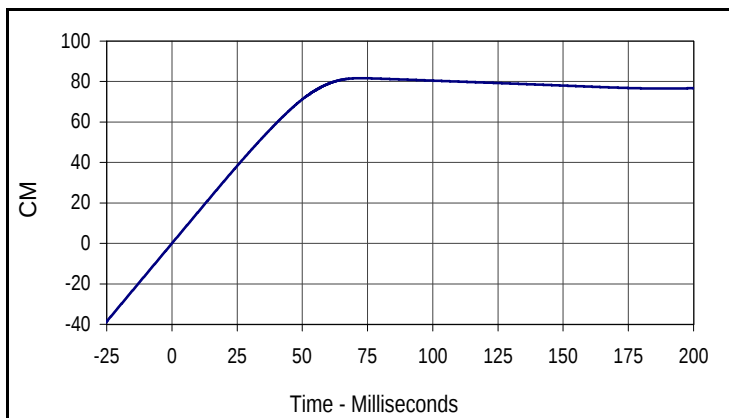
Curve Description			
Driver Pelvis Resultant			
CURNO	Type	SAE Class	Units
020	RES	1000	G's
Max	Time	Min	Time
70.5	64.9	0.1	4.4

Test Vehicle: 2004 Toyota Scion XA 4 Door Sedan
 Test Program: 2004 NHTSA 35mph NCAP

Test Date: 2/10/04
 NHTSA No.: M45106



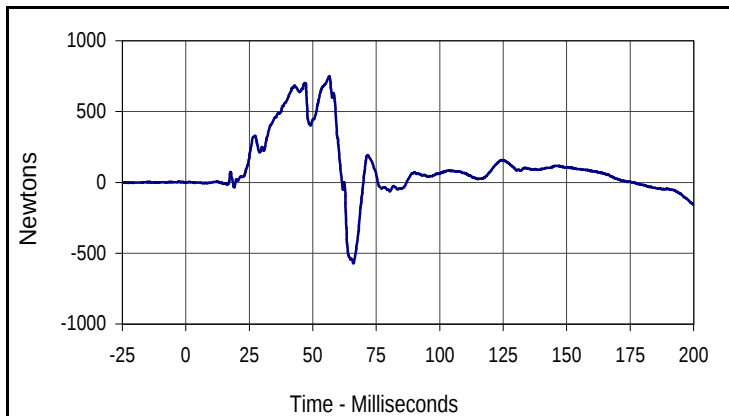
Curve Description			
Driver Pelvis X Velocity			
CURNO	Type	SAE Class	Units
020	IN1	180	KMH
Max	Time	Min	Time
55.7	0.0	-1.9	150.4



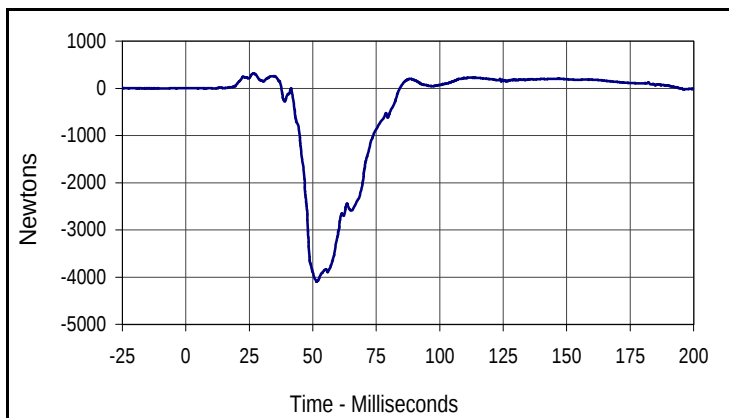
Curve Description			
Driver Pelvis X Displacement			
CURNO	Type	SAE Class	Units
020	IN2	180	CM
Max	Time	Min	Time
81.7	72.4	0.0	0.0

Test Vehicle: 2004 Toyota Scion XA 4 Door Sedan
 Test Program: 2004 NHTSA 35mph NCAP

Test Date: 2/10/04
 NHTSA No.: M45106



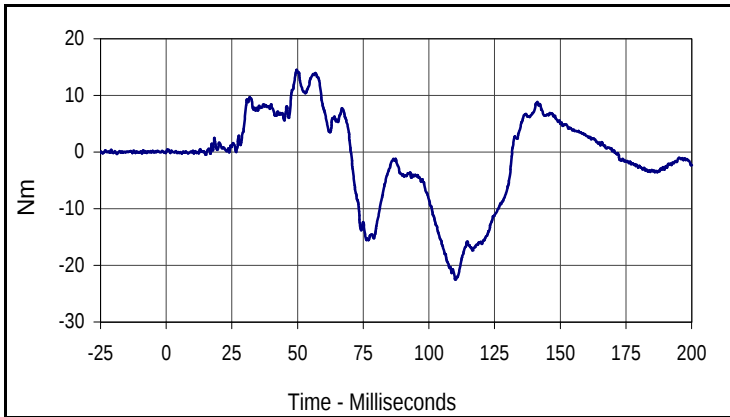
Curve Description			
Driver Left Femur Force			
CURNO	Type	SAE Class	Units
023	FIL	600	Newtons
Max	Time	Min	Time
750.5	56.5	-572.3	66.0



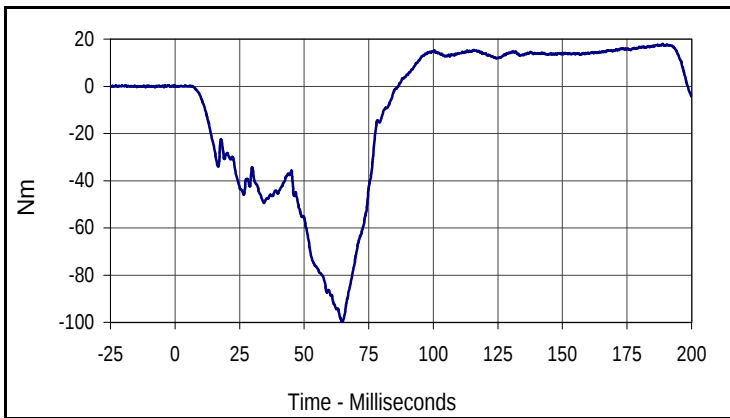
Curve Description			
Driver Right Femur Force			
CURNO	Type	SAE Class	Units
024	FIL	600	Newtons
Max	Time	Min	Time
312.8	26.6	-4095.1	51.5

Test Vehicle: 2004 Toyota Scion XA 4 Door Sedan
 Test Program: 2004 NHTSA 35mph NCAP

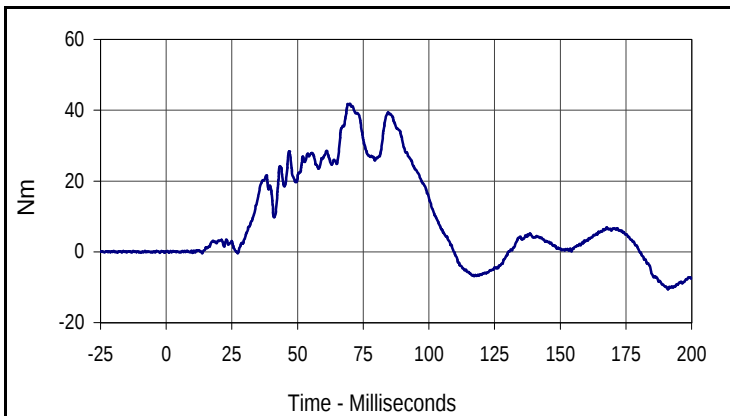
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 NHTSA No.: M45106



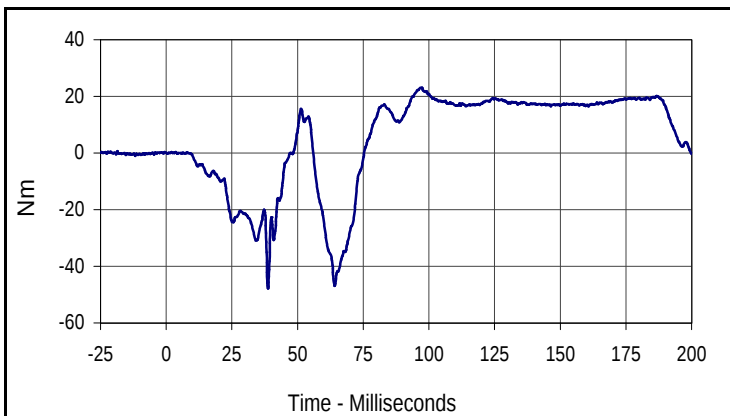
Curve Description			
Driver Left Upper Tibia Moment X			
CURNO	Type	SAE Class	Units
025	FIL	600	Nm
Max	Time	Min	Time
14.5	49.7	-22.6	110.2



Curve Description			
Driver Left Upper Tibia Moment Y			
CURNO	Type	SAE Class	Units
026	FIL	600	Nm
Max	Time	Min	Time
17.9	188.8	-99.9	64.8



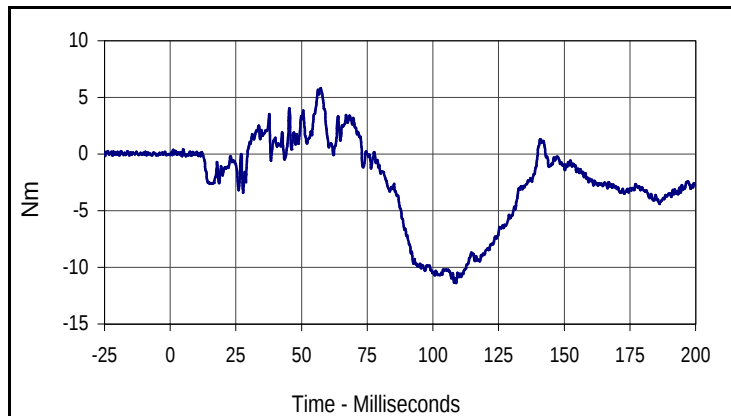
Curve Description			
Driver Right Upper Tibia Moment X			
CURNO	Type	SAE Class	Units
027	FIL	600	Nm
Max	Time	Min	Time
41.8	69.9	-10.6	191.0



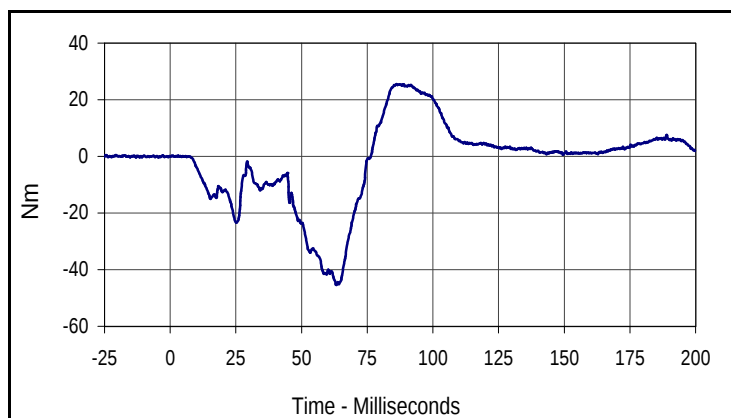
Curve Description			
Driver Right Upper Tibia Moment Y			
CURNO	Type	SAE Class	Units
028	FIL	600	Nm
Max	Time	Min	Time
23.1	97.2	-47.8	38.8

Test Vehicle: 2004 Toyota Scion XA 4 Door Sedan
 Test Program: 2004 NHTSA 35mph NCAP

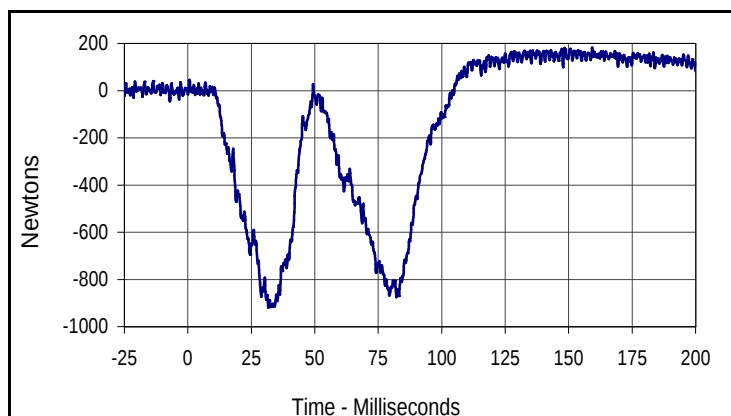
Test Date: 2/10/04
 NHTSA No.: M45106



Curve Description			
Driver Left Lower Tibia Moment X			
CURNO	Type	SAE Class	Units
029	FIL	600	Nm
Max	Time	Min	Time
5.8	57.2	-11.4	108.9



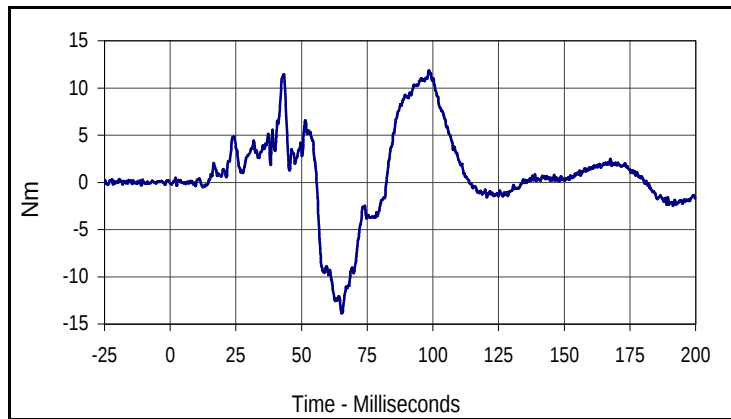
Curve Description			
Driver Left Lower Tibia Moment Y			
CURNO	Type	SAE Class	Units
030	FIL	600	Nm
Max	Time	Min	Time
25.5	86.2	-45.5	63.2



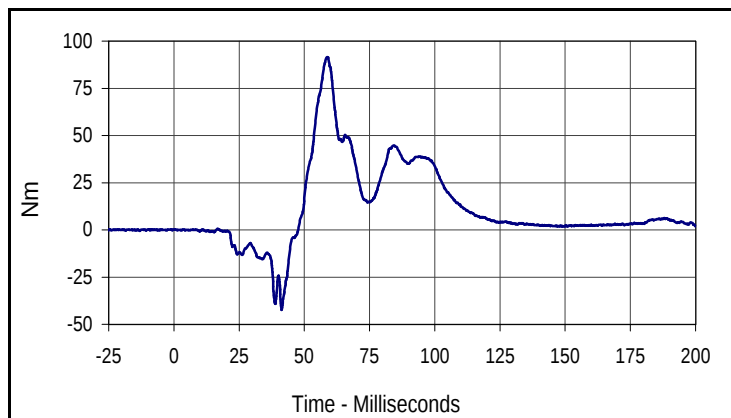
Curve Description			
Driver Left Lower Tibia Force Z			
CURNO	Type	SAE Class	Units
031	FIL	600	Newtons
Max	Time	Min	Time
182.1	159.3	-920.0	31.7

Test Vehicle: 2004 Toyota Scion XA 4 Door Sedan
 Test Program: 2004 NHTSA 35mph NCAP

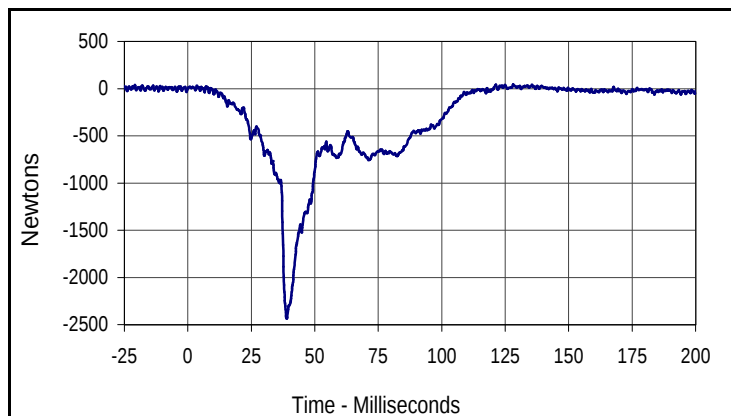
Test Date: 2/10/04
 NHTSA No.: M45106



Curve Description			
Driver Right Lower Tibia Moment X			
CURNO	Type	SAE Class	Units
032	FIL	600	Nm
Max	Time	Min	Time
11.9	98.5	-13.9	65.4



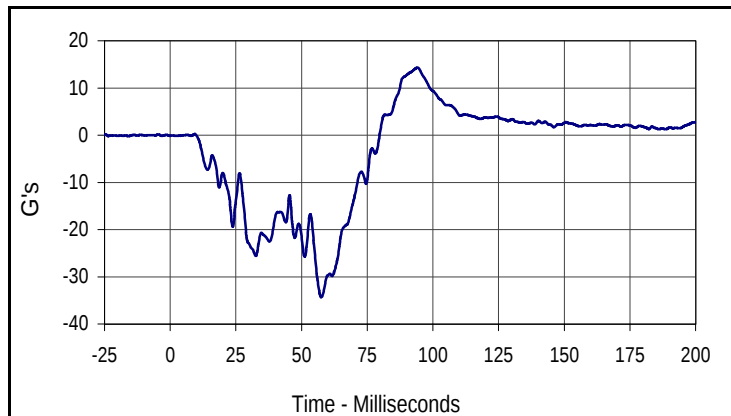
Curve Description			
Driver Right Lower Tibia Moment Y			
CURNO	Type	SAE Class	Units
033	FIL	600	Nm
Max	Time	Min	Time
91.5	58.8	-42.4	41.3



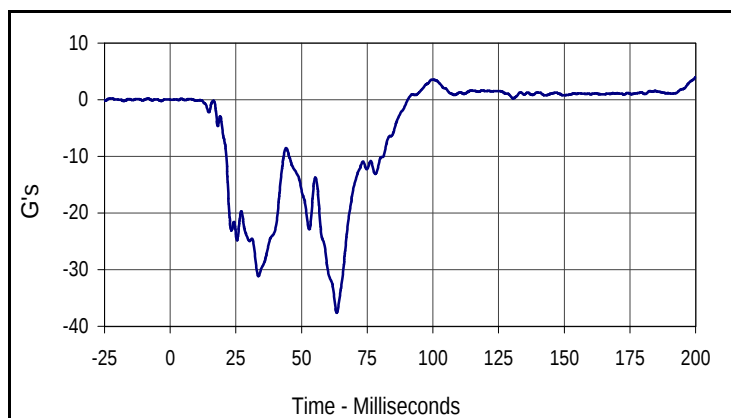
Curve Description			
Driver Right Lower Tibia Force Z			
CURNO	Type	SAE Class	Units
034	FIL	600	Newtons
Max	Time	Min	Time
45.4	128.1	-2436.8	38.9

Test Vehicle: 2004 Toyota Scion XA 4 Door Sedan
 Test Program: 2004 NHTSA 35mph NCAP

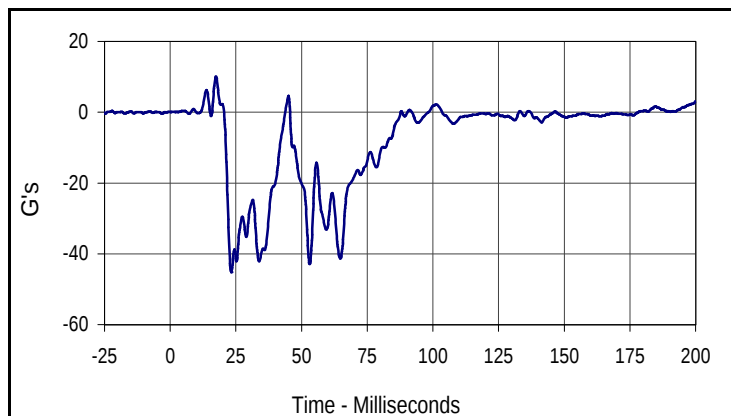
Test Date: 2/10/04
 NHTSA No.: M45106



Curve Description			
Driver Left Foot Aft X			
CURNO	Type	SAE Class	Units
035	FIL	180	G's
Max	Time	Min	Time
14.3	94.2	-34.3	57.5



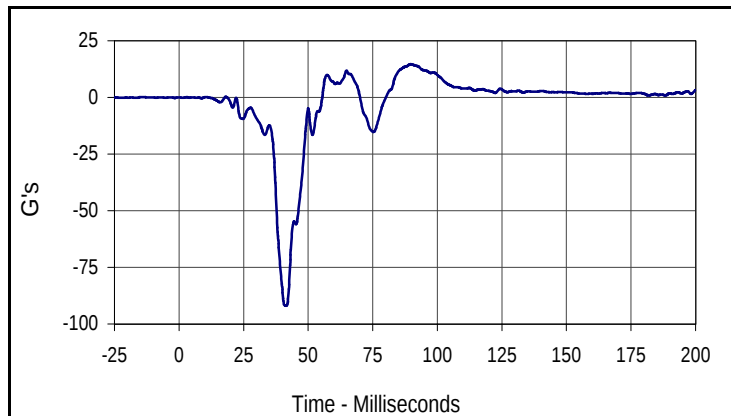
Curve Description			
Driver Left Foot Aft Z			
CURNO	Type	SAE Class	Units
036	FIL	180	G's
Max	Time	Min	Time
4.0	200.0	-37.6	63.4



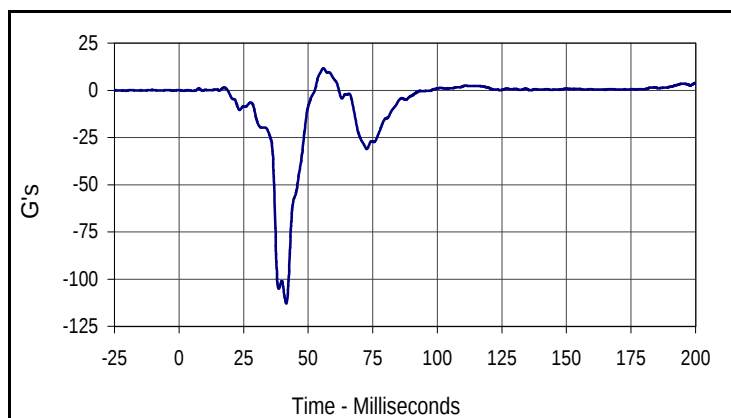
Curve Description			
Driver Left Foot Fore Z			
CURNO	Type	SAE Class	Units
037	FIL	180	G's
Max	Time	Min	Time
10.1	17.4	-45.2	23.2

Test Vehicle: 2004 Toyota Scion XA 4 Door Sedan
 Test Program: 2004 NHTSA 35mph NCAP

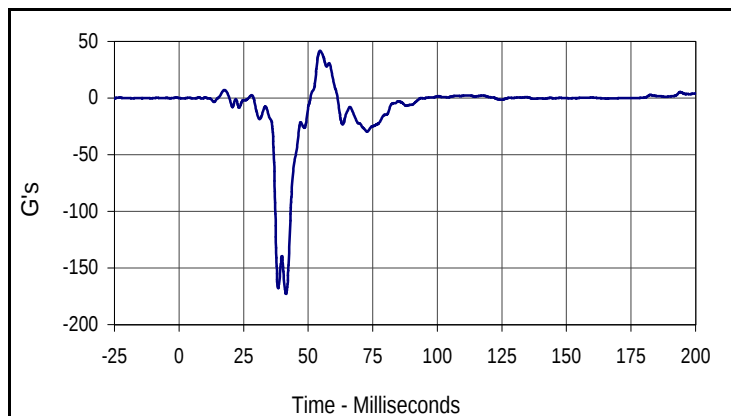
Test Date: 2/10/04
 NHTSA No.: M45106



Curve Description			
Driver Right Foot Aft X			
CURNO	Type	SAE Class	Units
038	FIL	180	G's
Max	Time	Min	Time
14.6	89.7	-92.0	41.5



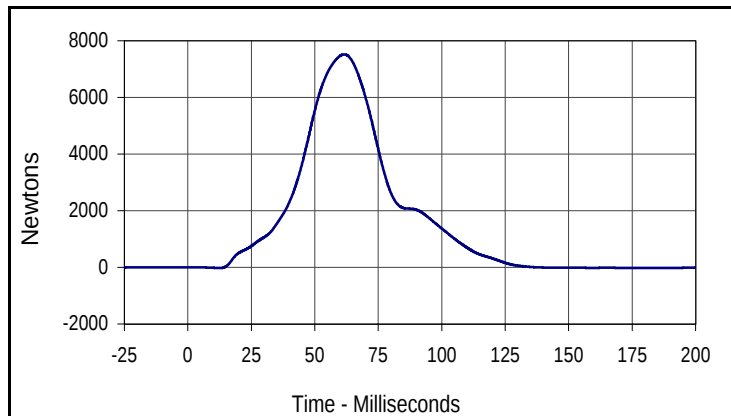
Curve Description			
Driver Right Foot Aft Z			
CURNO	Type	SAE Class	Units
039	FIL	180	G's
Max	Time	Min	Time
11.6	55.9	-113.0	41.5



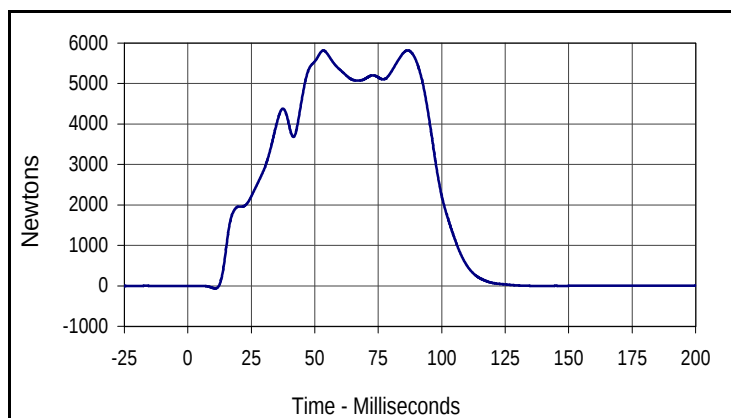
Curve Description			
Driver Right Foot Fore Z			
CURNO	Type	SAE Class	Units
040	FIL	180	G's
Max	Time	Min	Time
41.9	54.6	-173.0	41.4

Test Vehicle: 2004 Toyota Scion XA 4 Door Sedan
 Test Program: 2004 NHTSA 35mph NCAP

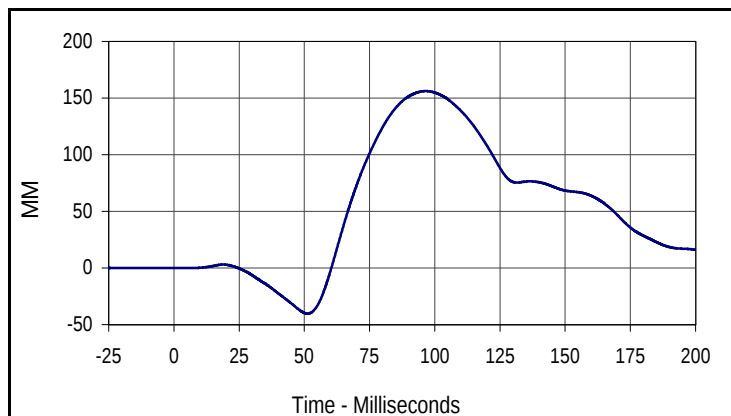
Test Date: 2/10/04
 NHTSA No.: M45106



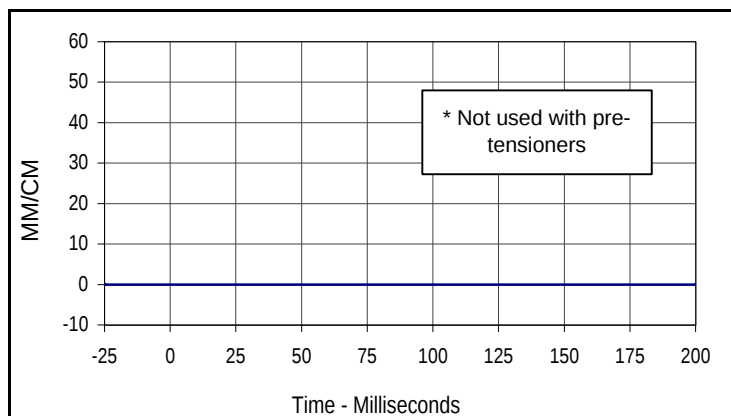
Curve Description			
Driver Lap Belt Force			
CURNO	Type	SAE Class	Units
041	FIL	60	Newtons
Max	Time	Min	Time
7518.1	61.6	-26.8	12.5



Curve Description			
Driver Shoulder Belt Force			
CURNO	Type	SAE Class	Units
042	FIL	60	Newtons
Max	Time	Min	Time
5819.4	86.6	-64.2	10.8



Curve Description			
Driver Shoulder Belt Pullout			
CURNO	Type	SAE Class	Units
043	FIL	60	MM
Max	Time	Min	Time
156.1	96.5	-40.3	51.2

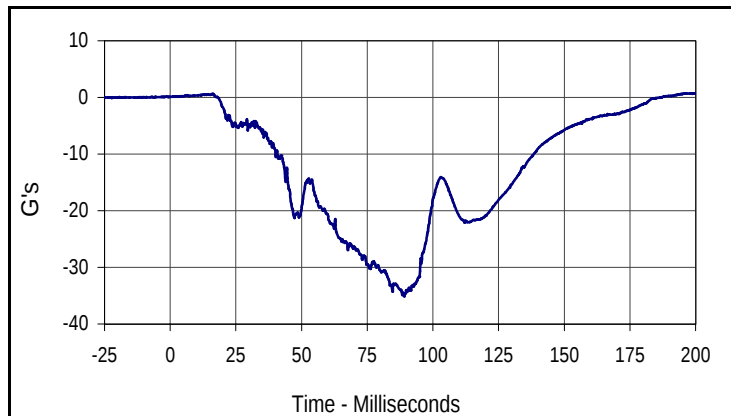


Curve Description			
Driver Shoulder Belt Elongation			
CURNO	Type	SAE Class	Units
044	FIL	60	MM/CM
Max	Time	Min	Time
0.0	0.0	0.0	0.0

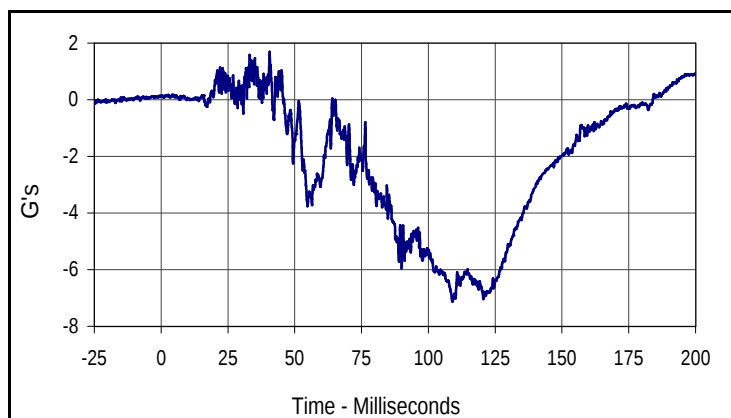
* Not used with pre-tensioners

Test Vehicle: 2004 Toyota Scion XA 4 Door Sedan
 Test Program: 2004 NHTSA 35mph NCAP

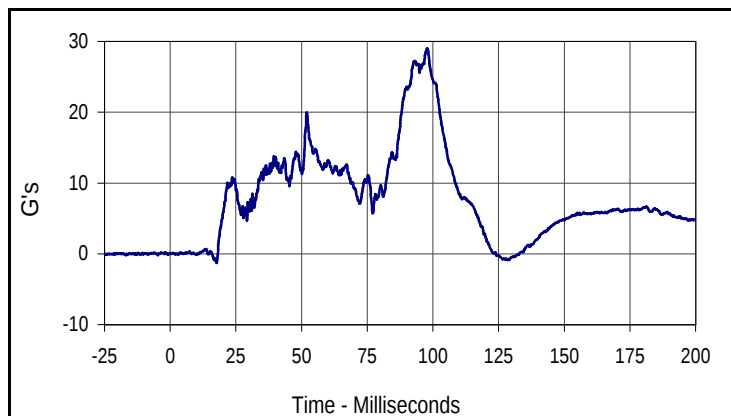
Test Date: 2/10/04
 NHTSA No.: M45106



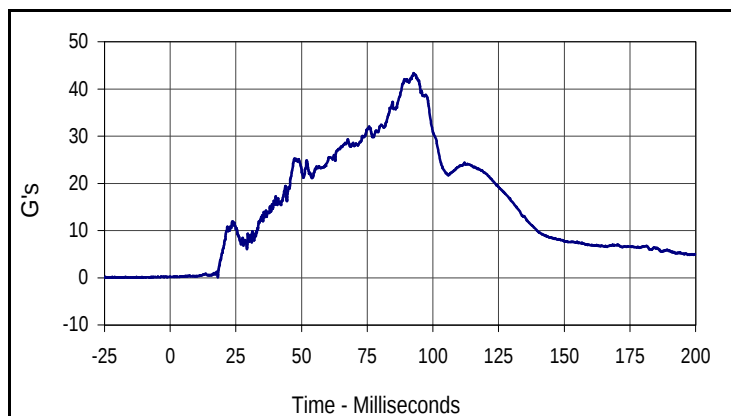
Curve Description			
Passenger Head Primary X			
CURNO	Type	SAE Class	Units
045	FIL	1000	G's
Max	Time	Min	Time
0.8	200.0	-35.1	89.1



Curve Description			
Passenger Head Primary Y			
CURNO	Type	SAE Class	Units
046	FIL	1000	G's
Max	Time	Min	Time
1.7	40.6	-7.1	109.0



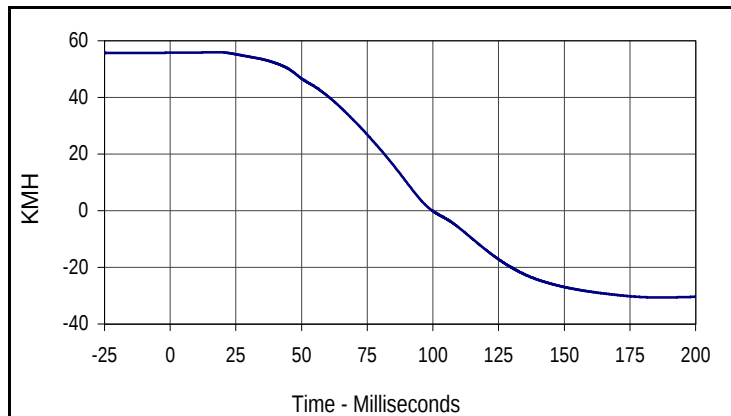
Curve Description			
Passenger Head Primary Z			
CURNO	Type	SAE Class	Units
047	FIL	1000	G's
Max	Time	Min	Time
29.0	97.9	-1.3	17.6



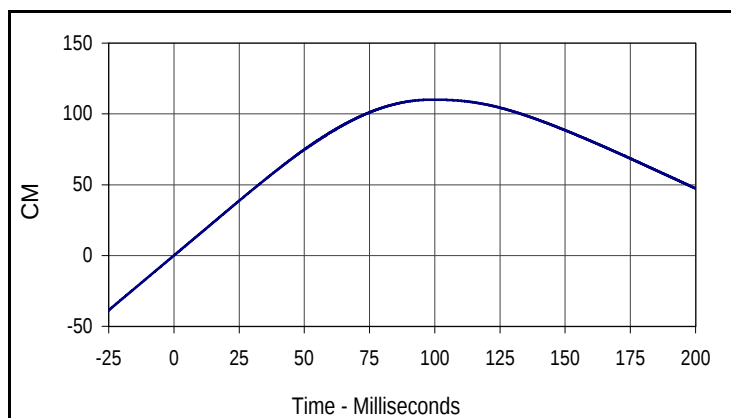
Curve Description			
Passenger Head Resultant Primary			
CURNO	Type	SAE Class	Units
045	RES	1000	G's
Max	Time	Min	Time
43.3	92.7	0.1	18.1

Test Vehicle: 2004 Toyota Scion XA 4 Door Sedan
 Test Program: 2004 NHTSA 35mph NCAP

Test Date: 2/10/04
 NHTSA No.: M45106



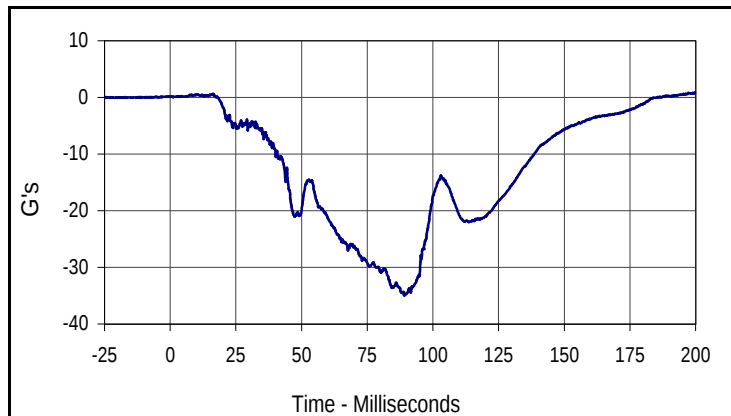
Curve Description			
Passenger Head Primary X Velocity			
CURNO	Type	SAE Class	Units
045	IN1	180	KMH
Max	Time	Min	Time
56.0	18.0	-30.6	186.9



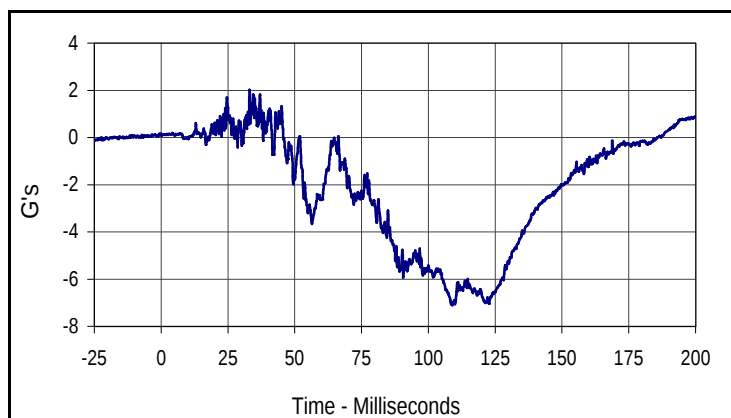
Curve Description			
Passenger Head Primary X Displacement			
CURNO	Type	SAE Class	Units
045	IN2	180	CM
Max	Time	Min	Time
110.1	99.7	0.0	0.0

Test Vehicle: 2004 Toyota Scion XA 4 Door Sedan
 Test Program: 2004 NHTSA 35mph NCAP

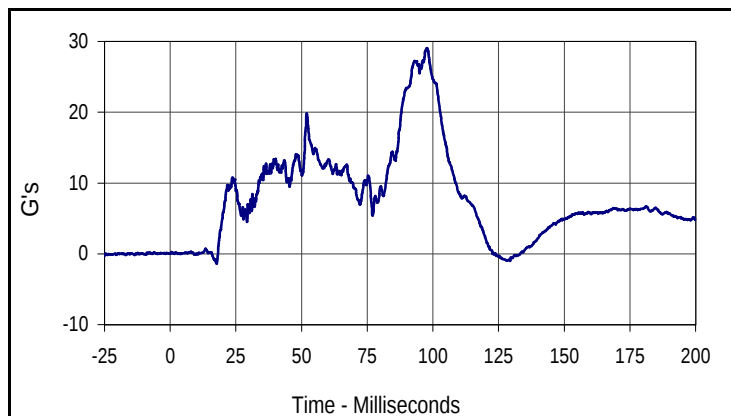
Test Date: 2/10/04
 NHTSA No.: M45106



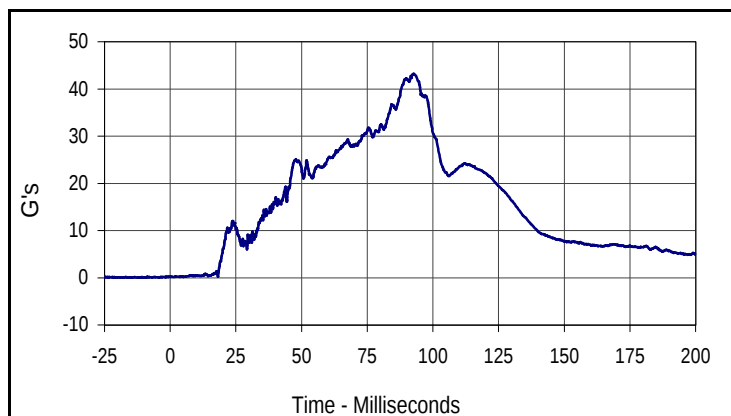
Curve Description			
Passenger Head Redundant X			
CURNO	Type	SAE Class	Units
048	FIL	1000	G's
Max	Time	Min	Time
0.8	199.7	-35.0	89.1



Curve Description			
Passenger Head Redundant Y			
CURNO	Type	SAE Class	Units
049	FIL	1000	G's
Max	Time	Min	Time
2.0	33.1	-7.1	109.0



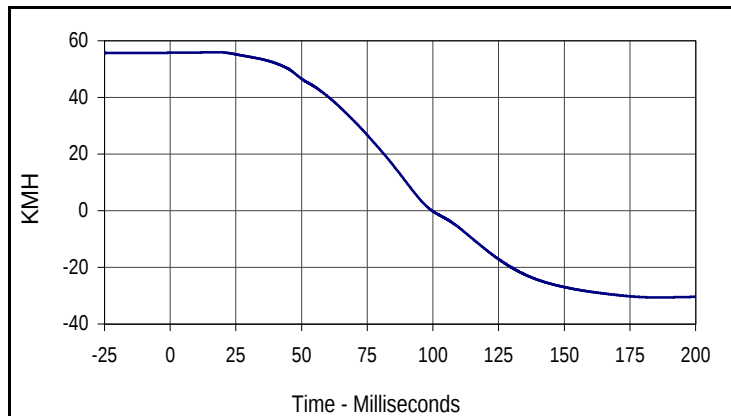
Curve Description			
Passenger Head Redundant Z			
CURNO	Type	SAE Class	Units
050	FIL	1000	G's
Max	Time	Min	Time
29.1	97.8	-1.4	17.6



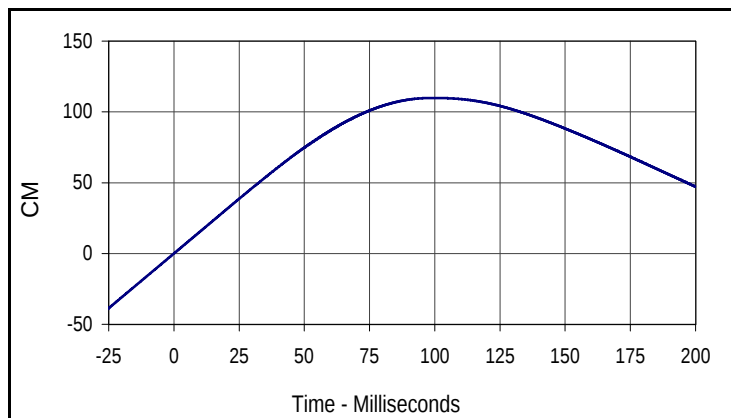
Curve Description			
Passenger Head Resultant Redundant			
CURNO	Type	SAE Class	Units
048	RES	1000	G's
Max	Time	Min	Time
43.2	92.7	0.2	1.7

Test Vehicle: 2004 Toyota Scion XA 4 Door Sedan
 Test Program: 2004 NHTSA 35mph NCAP

Test Date: 2/10/04
 NHTSA No.: M45106



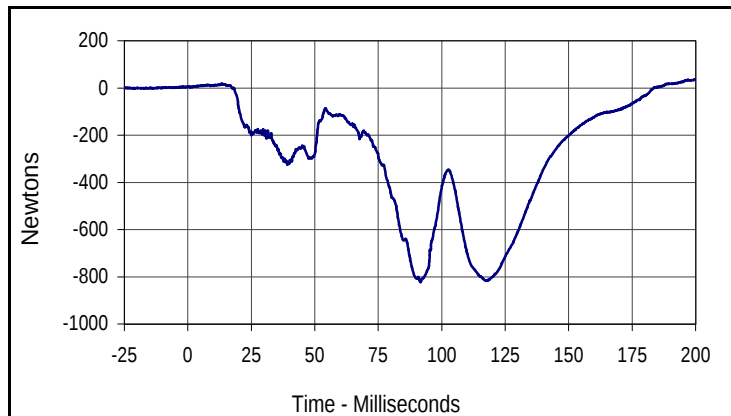
Curve Description			
Passenger Head Redundant X Velocity			
CURNO	Type	SAE Class	Units
048	IN1	180	KMH
Max	Time	Min	Time
56.0	18.0	-30.6	185.3



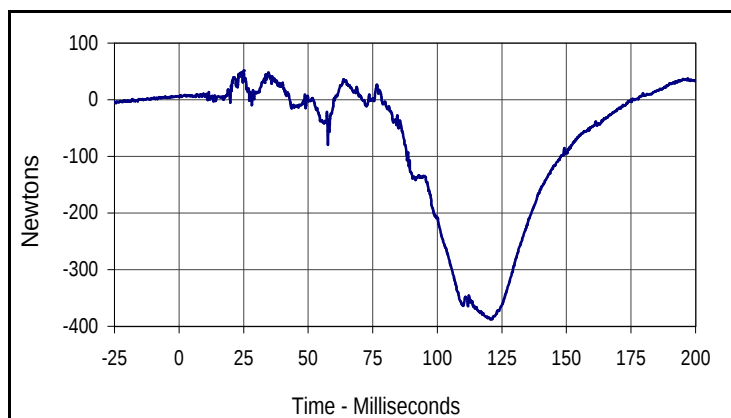
Curve Description			
Passenger Head Redundant X Displacement			
CURNO	Type	SAE Class	Units
048	IN2	180	CM
Max	Time	Min	Time
109.9	99.7	0.0	0.0

Test Vehicle: 2004 Toyota Scion XA 4 Door Sedan
 Test Program: 2004 NHTSA 35mph NCAP

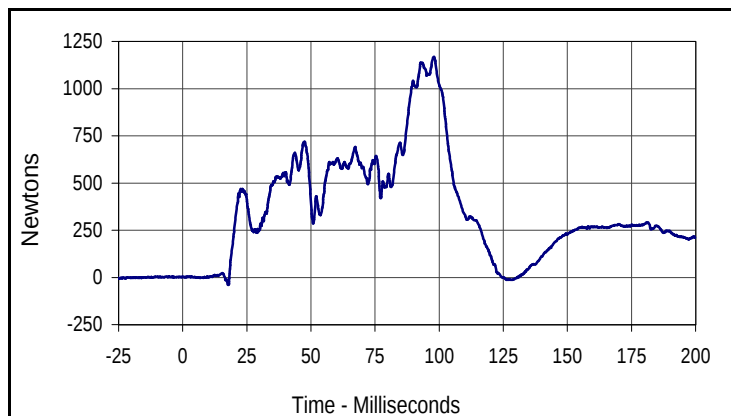
Test Date: 2/10/04
 NHTSA No.: M45106



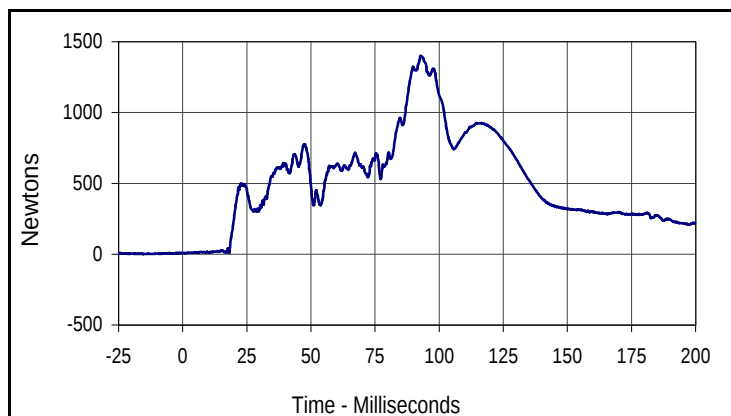
Curve Description			
Passenger Upper Neck Force X			
CURNO	Type	SAE Class	Units
051	FIL	1000	Newtons
Max	Time	Min	Time
36.0	200.0	-822.3	91.7



Curve Description			
Passenger Upper Neck Force Y			
CURNO	Type	SAE Class	Units
052	FIL	1000	Newtons
Max	Time	Min	Time
51.7	25.0	-387.8	121.2



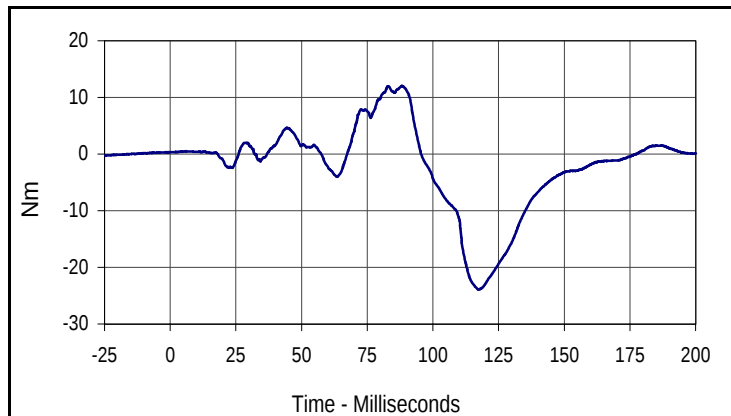
Curve Description			
Passenger Upper Neck Force Z			
CURNO	Type	SAE Class	Units
053	FIL	1000	Newtons
Max	Time	Min	Time
1169.3	98.0	-39.7	17.8



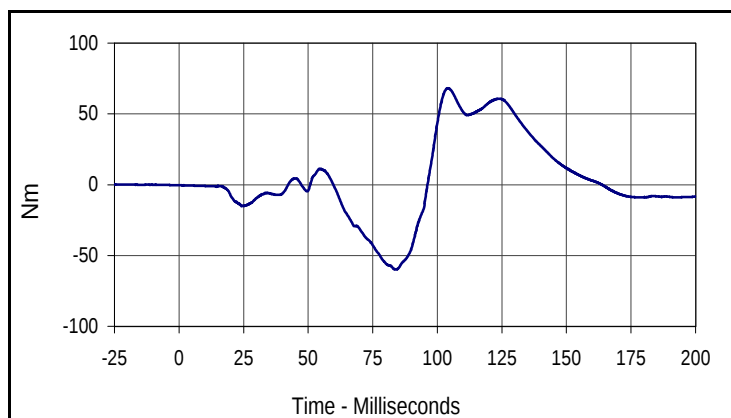
Curve Description			
Passenger Upper Neck Force Res.			
CURNO	Type	SAE Class	Units
051	RES	1000	Newtons
Max	Time	Min	Time
1400.5	92.8	6.9	1.1

Test Vehicle: 2004 Toyota Scion XA 4 Door Sedan
 Test Program: 2004 NHTSA 35mph NCAP

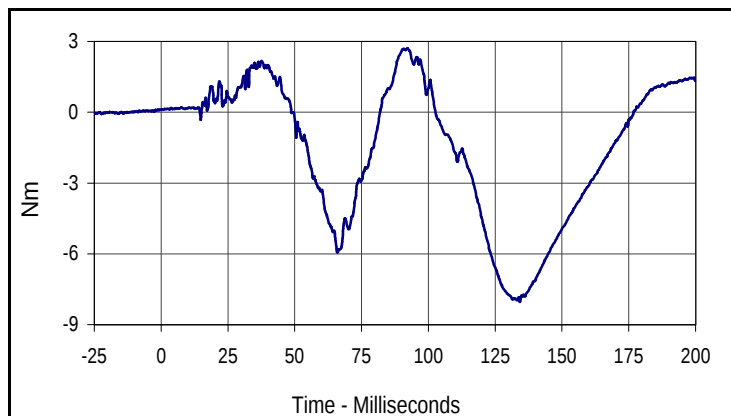
Test Date: 2/10/04
 NHTSA No.: M45106



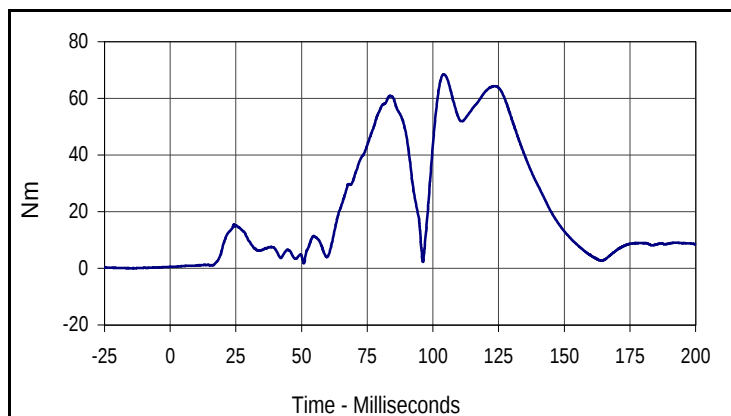
Curve Description			
Passenger Upper Neck Moment X			
CURNO	Type	SAE Class	Units
054	FIL	600	Nm
Max	Time	Min	Time
12.0	88.2	-23.9	117.3



Curve Description			
Passenger Upper Neck Moment Y			
CURNO	Type	SAE Class	Units
055	FIL	600	Nm
Max	Time	Min	Time
68.1	104.1	-59.8	84.2



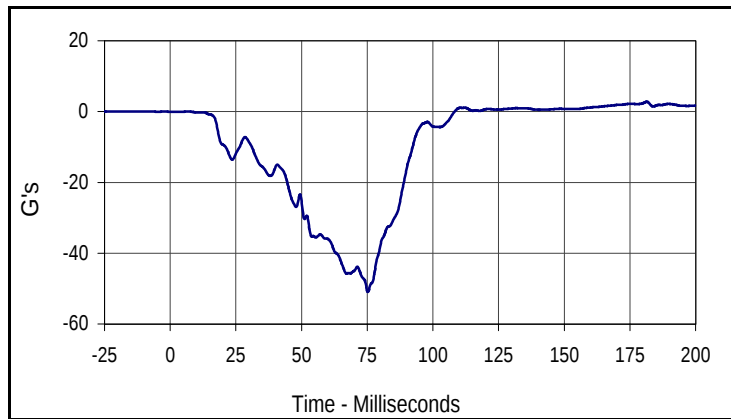
Curve Description			
Passenger Upper Neck Moment Z			
CURNO	Type	SAE Class	Units
056	FIL	600	Nm
Max	Time	Min	Time
2.7	92.2	-8.0	134.3



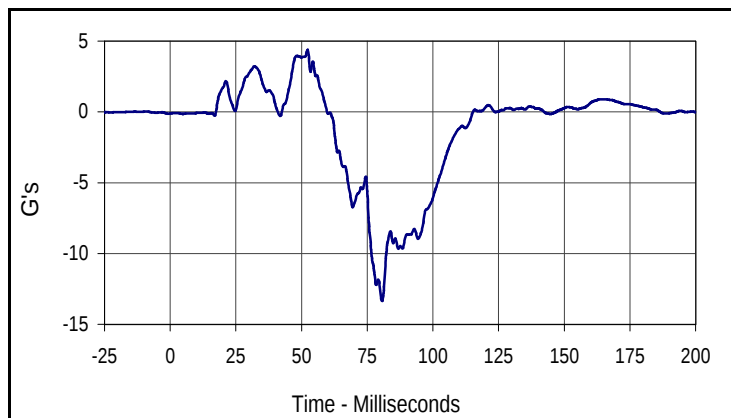
Curve Description			
Passenger Upper Neck Moment Res.			
CURNO	Type	SAE Class	Units
054	RES	600	Nm
Max	Time	Min	Time
68.5	104.2	0.5	0.4

Test Vehicle: 2004 Toyota Scion XA 4 Door Sedan
 Test Program: 2004 NHTSA 35mph NCAP

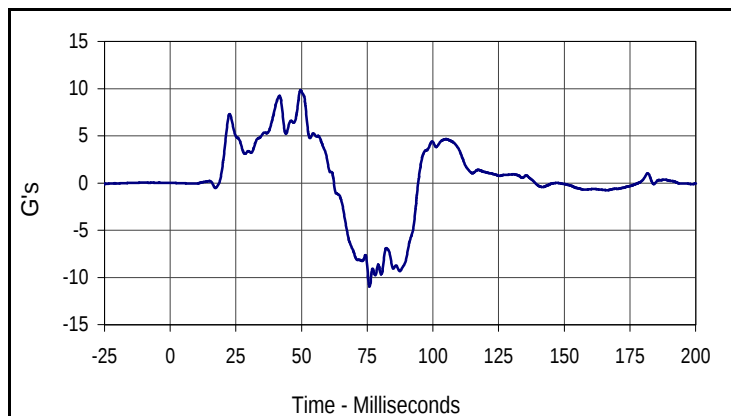
Test Date: 2/10/04
 NHTSA No.: M45106



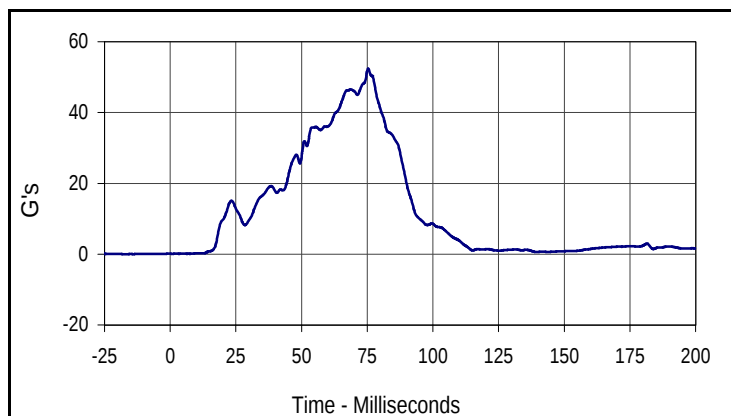
Curve Description			
Passenger Chest Primary X			
CURNO	Type	SAE Class	Units
057	FIL	180	G's
Max	Time	Min	Time
2.8	181.4	-51.0	75.2



Curve Description			
Passenger Chest Primary Y			
CURNO	Type	SAE Class	Units
058	FIL	180	G's
Max	Time	Min	Time
4.4	52.3	-13.4	80.6



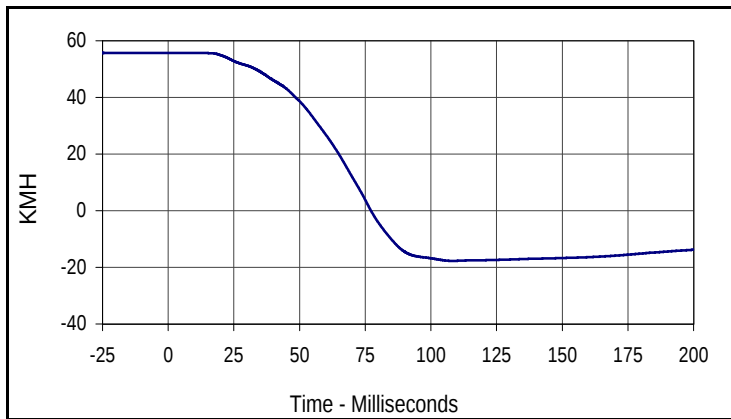
Curve Description			
Passenger Chest Primary Z			
CURNO	Type	SAE Class	Units
059	FIL	180	G's
Max	Time	Min	Time
9.8	49.6	-11.0	75.9



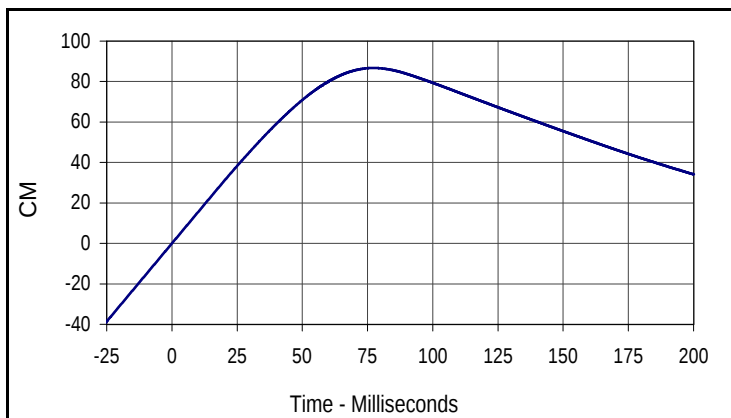
Curve Description			
Passenger Chest Resultant Primary			
CURNO	Type	SAE Class	Units
057	RES	180	G's
Max	Time	Min	Time
52.4	75.4	0.1	0.8

Test Vehicle: 2004 Toyota Scion XA 4 Door Sedan
 Test Program: 2004 NHTSA 35mph NCAP

Test Date: 2/10/04
 NHTSA No.: M45106



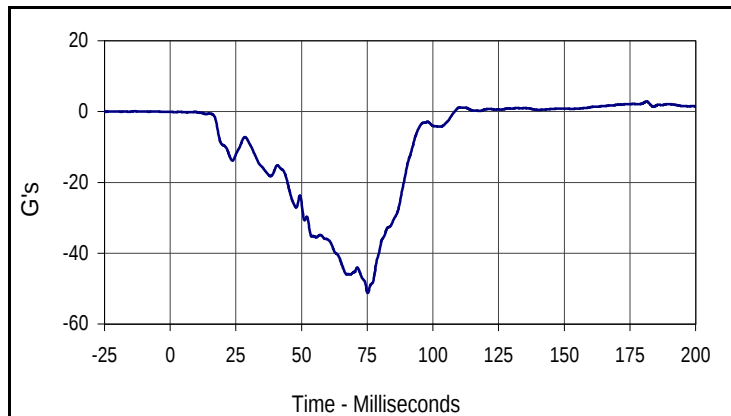
Curve Description			
Passenger Chest Primary X Velocity			
CURNO	Type	SAE Class	Units
057	IN1	180	KMH
Max	Time	Min	Time
55.7	0.0	-17.7	108.3



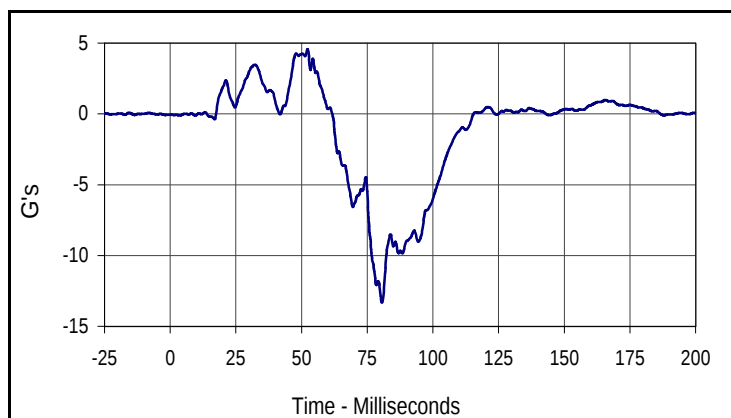
Curve Description			
Passenger Chest Primary X Displacement			
CURNO	Type	SAE Class	Units
057	IN2	180	CM
Max	Time	Min	Time
86.7	77.2	0.0	0.0

Test Vehicle: 2004 Toyota Scion XA 4 Door Sedan
 Test Program: 2004 NHTSA 35mph NCAP

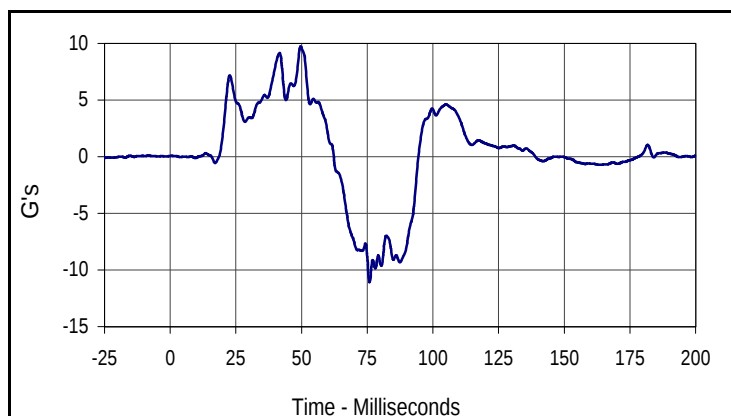
Test Date: 2/10/04
 NHTSA No.: M45106



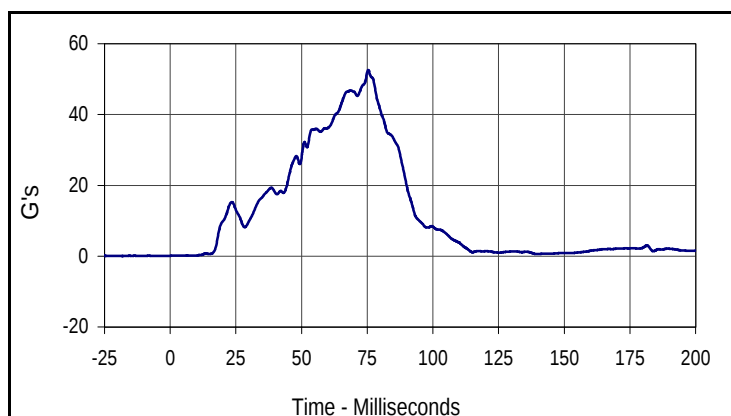
Curve Description			
Passenger Chest Redundant X			
CURNO	Type	SAE Class	Units
060	FIL	180	G's
Max	Time	Min	Time
2.8	181.4	-51.2	75.2



Curve Description			
Passenger Chest Redundant Y			
CURNO	Type	SAE Class	Units
061	FIL	180	G's
Max	Time	Min	Time
4.6	52.3	-13.3	80.6



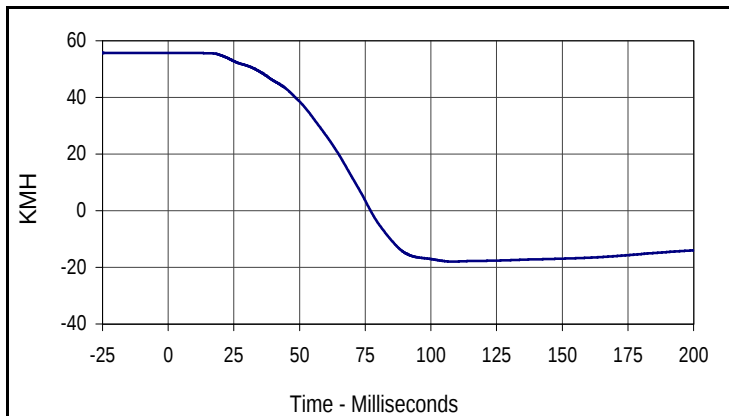
Curve Description			
Passenger Chest Redundant Z			
CURNO	Type	SAE Class	Units
062	FIL	180	G's
Max	Time	Min	Time
9.7	49.7	-11.1	75.9



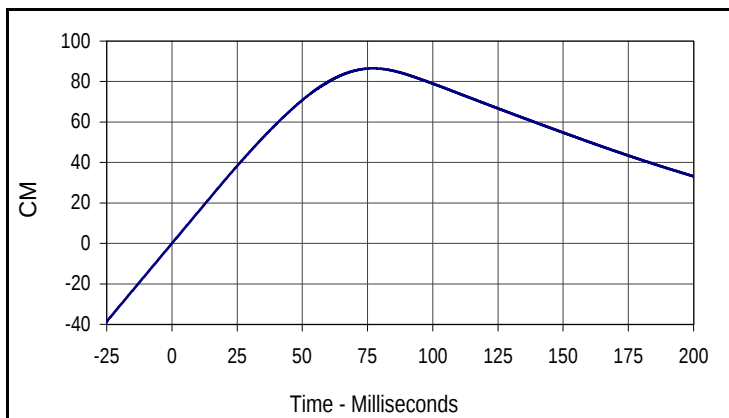
Curve Description			
Passenger Chest Resultant Redundant			
CURNO	Type	SAE Class	Units
060	RES	180	G's
Max	Time	Min	Time
52.6	75.4	0.1	0.0

Test Vehicle: 2004 Toyota Scion XA 4 Door Sedan
 Test Program: 2004 NHTSA 35mph NCAP

Test Date: 2/10/04
 NHTSA No.: M45106



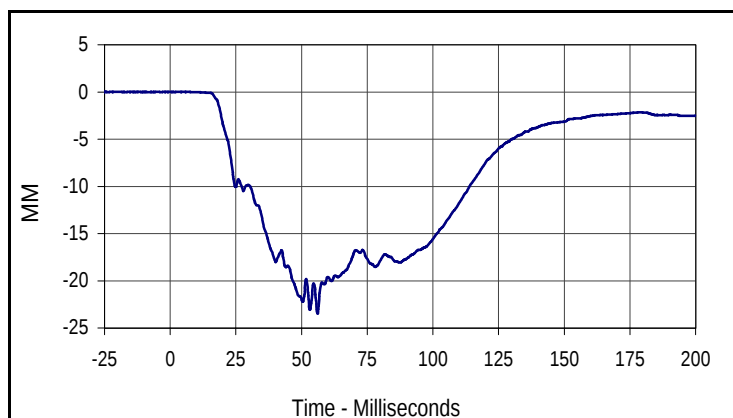
Curve Description			
Passenger Chest Redundant X Velocity			
CURNO	Type	SAE Class	Units
060	IN1	180	KMH
Max	Time	Min	Time
55.7	0.0	-18.0	108.3



Curve Description			
Passenger Chest Redundant X Displacement			
CURNO	Type	SAE Class	Units
060	IN2	180	CM
Max	Time	Min	Time
86.5	77.0	0.0	0.0

Test Vehicle: 2004 Toyota Scion XA 4 Door Sedan
 Test Program: 2004 NHTSA 35mph NCAP

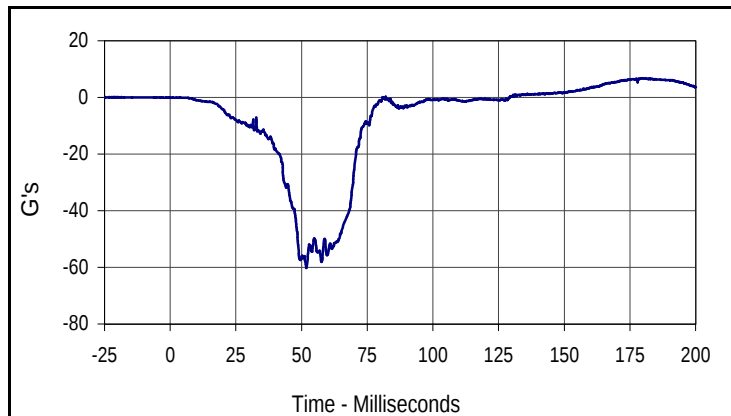
Test Date: 2/10/04
 NHTSA No.: M45106



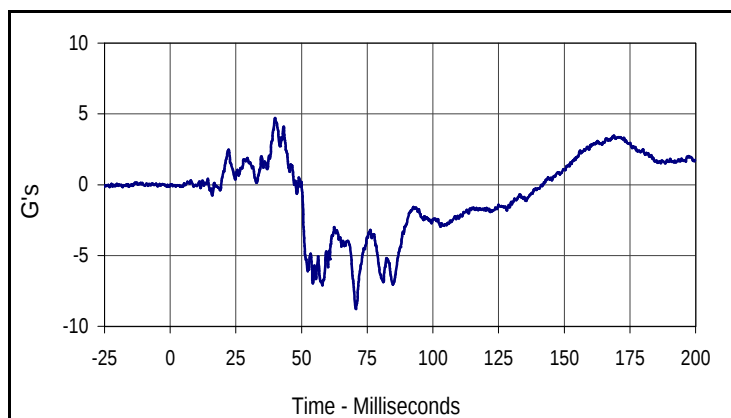
Curve Description			
Passenger Chest Displacement			
CURNO	Type	SAE Class	Units
063	FIL	600	MM
Max	Time	Min	Time
0.0	5.3	-23.5	56.1

Test Vehicle: 2004 Toyota Scion XA 4 Door Sedan
 Test Program: 2004 NHTSA 35mph NCAP

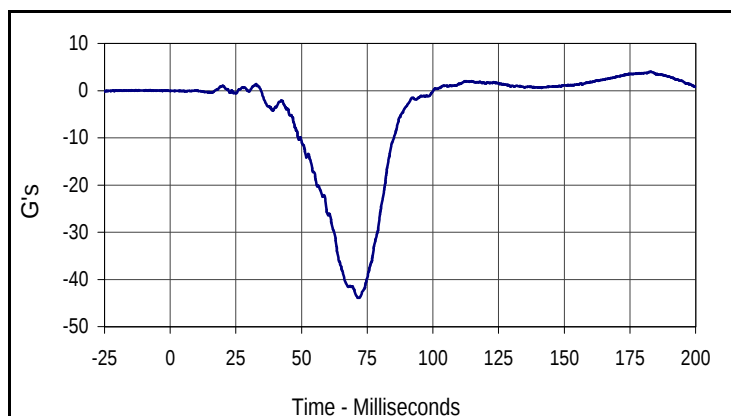
Test Date: 2/10/04
 NHTSA No.: M45106



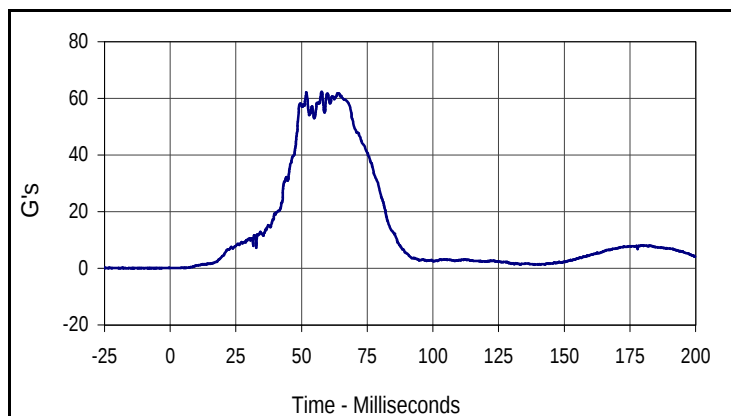
Curve Description			
Passenger Pelvis X			
CURNO	Type	SAE Class	Units
064	FIL	1000	G's
Max	Time	Min	Time
6.8	179.5	-60.3	51.8



Curve Description			
Passenger Pelvis Y			
CURNO	Type	SAE Class	Units
065	FIL	1000	G's
Max	Time	Min	Time
4.7	39.9	-8.8	70.7



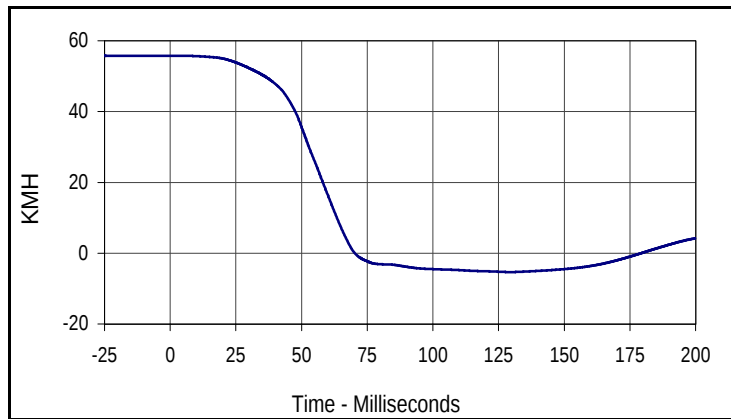
Curve Description			
Passenger Pelvis Z			
CURNO	Type	SAE Class	Units
066	FIL	1000	G's
Max	Time	Min	Time
4.0	183.0	-43.9	71.8



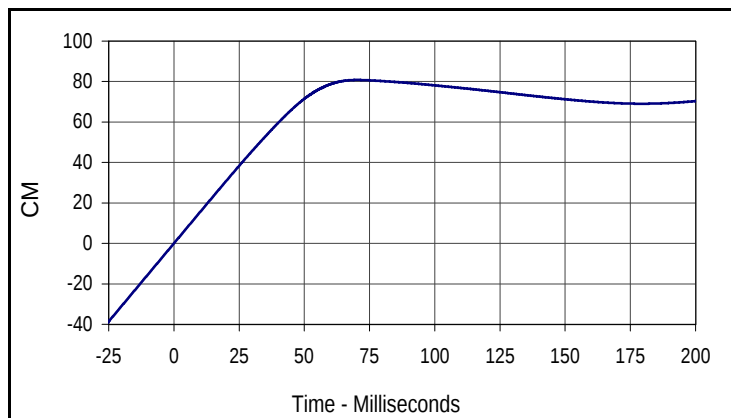
Curve Description			
Passenger Pelvis Resultant			
CURNO	Type	SAE Class	Units
064	RES	1000	G's
Max	Time	Min	Time
62.4	57.6	0.1	2.4

Test Vehicle: 2004 Toyota Scion XA 4 Door Sedan
 Test Program: 2004 NHTSA 35mph NCAP

Test Date: 2/10/04
 NHTSA No.: M45106



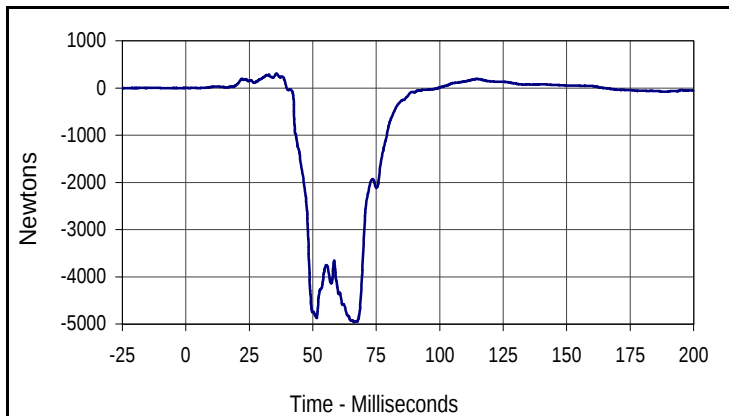
Curve Description			
Passenger Pelvis X Velocity			
CURNO	Type	SAE Class	Units
064	IN1	180	KMH
Max	Time	Min	Time
55.7	0.0	-5.3	129.3



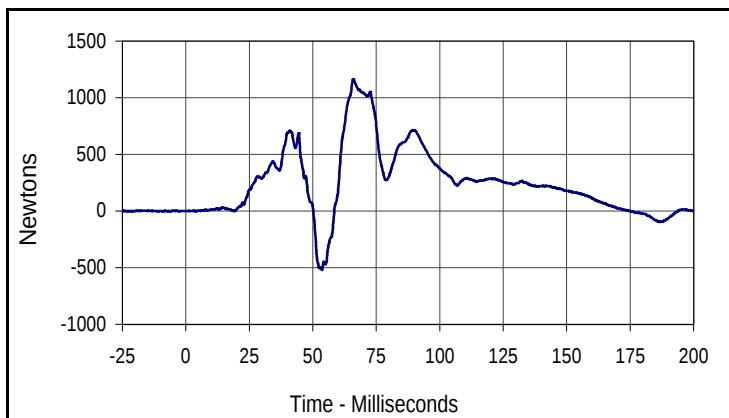
Curve Description			
Passenger Pelvis X Displacement			
CURNO	Type	SAE Class	Units
064	IN2	180	CM
Max	Time	Min	Time
80.8	70.3	0.0	0.0

Test Vehicle: 2004 Toyota Scion XA 4 Door Sedan
 Test Program: 2004 NHTSA 35mph NCAP

Test Date: 2/10/04
 NHTSA No.: M45106



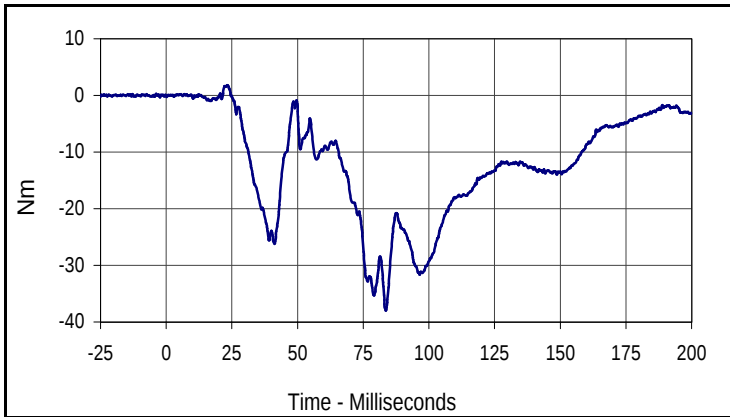
Curve Description			
Passenger Left Femur Force			
CURNO	Type	SAE Class	Units
067	FIL	600	Newtons
Max	Time	Min	Time
300.4	35.8	-4960.6	66.2



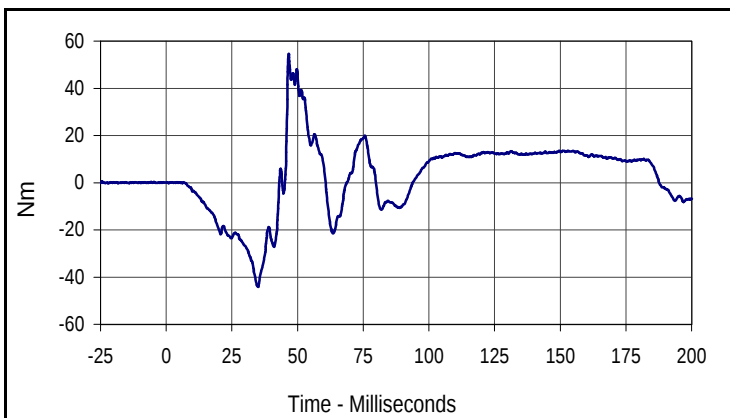
Curve Description			
Passenger Right Femur Force			
CURNO	Type	SAE Class	Units
068	FIL	600	Newtons
Max	Time	Min	Time
1165.0	66.0	-519.1	53.6

Test Vehicle: 2004 Toyota Scion XA 4 Door Sedan
 Test Program: 2004 NHTSA 35mph NCAP

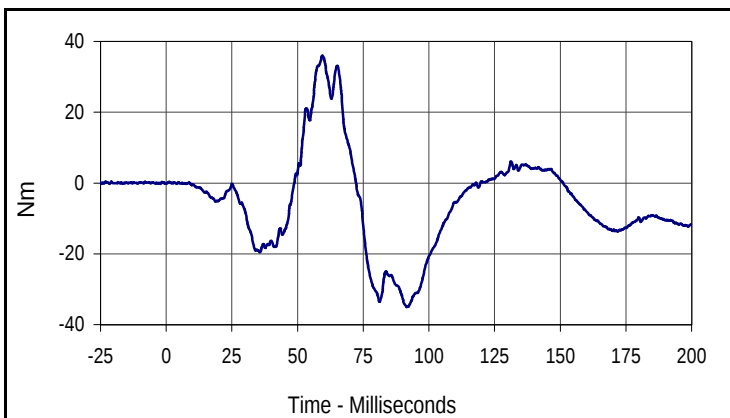
Test Date: 2/10/04
 NHTSA No.: M45106



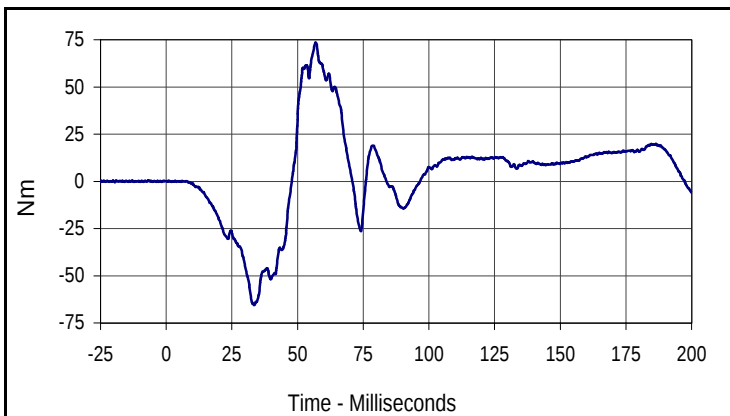
Curve Description			
Passenger Left Upper Tibia Moment X			
CURNO	Type	SAE Class	Units
069	FIL	600	Nm
Max	Time	Min	Time
1.8	23.2	-37.9	83.6



Curve Description			
Passenger Left Upper Tibia Moment Y			
CURNO	Type	SAE Class	Units
070	FIL	600	Nm
Max	Time	Min	Time
54.6	46.6	-44.1	34.9



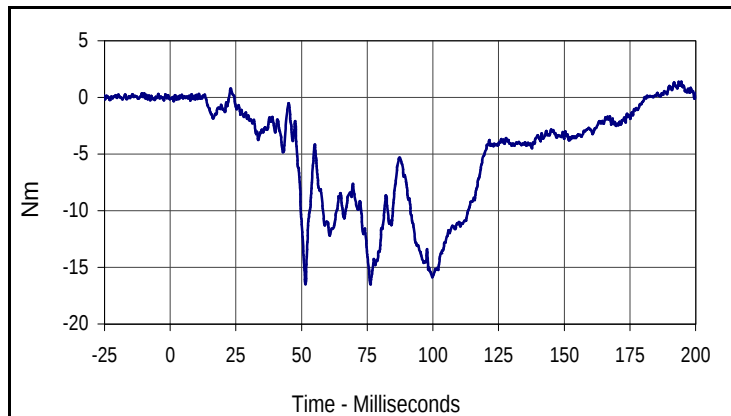
Curve Description			
Passenger Right Upper Tibia Moment X			
CURNO	Type	SAE Class	Units
071	FIL	600	Nm
Max	Time	Min	Time
36.0	59.4	-35.0	91.6



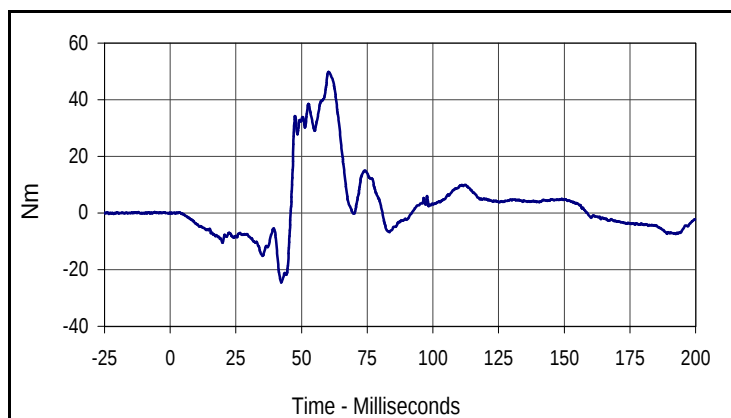
Curve Description			
Passenger Right Upper Tibia Moment Y			
CURNO	Type	SAE Class	Units
072	FIL	600	Nm
Max	Time	Min	Time
73.4	56.9	-65.4	33.5

Test Vehicle: 2004 Toyota Scion XA 4 Door Sedan
 Test Program: 2004 NHTSA 35mph NCAP

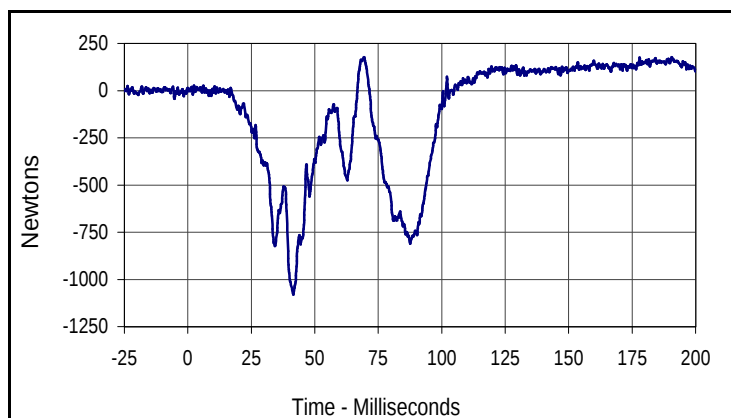
Test Date: 2/10/04
 NHTSA No.: M45106



Curve Description			
Passenger Left Lower Tibia Moment X			
CURNO	Type	SAE Class	Units
073	FIL	600	Nm
Max	Time	Min	Time
1.4	194.6	-16.5	76.2



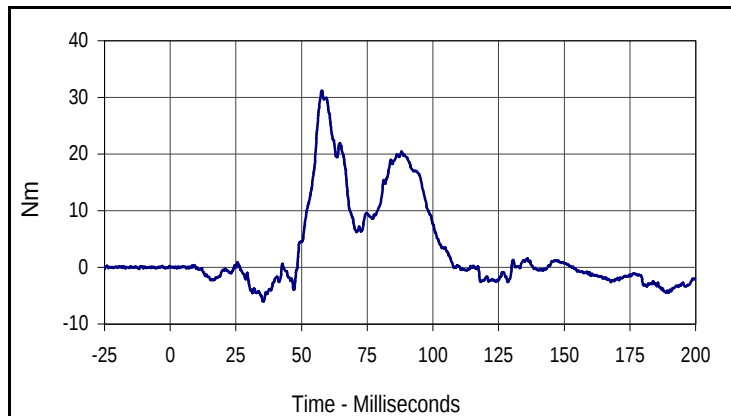
Curve Description			
Passenger Left Lower Tibia Moment Y			
CURNO	Type	SAE Class	Units
074	FIL	600	Nm
Max	Time	Min	Time
49.9	60.2	-24.5	42.3



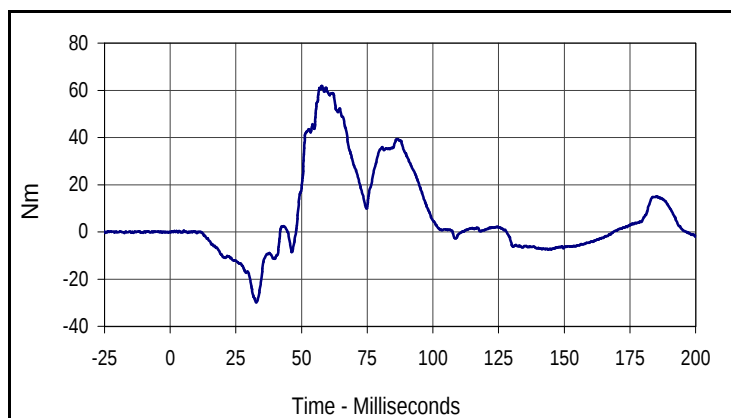
Curve Description			
Passenger Left Lower Tibia Force Z			
CURNO	Type	SAE Class	Units
075	FIL	600	Newtons
Max	Time	Min	Time
177.6	69.5	-1080.3	41.5

Test Vehicle: 2004 Toyota Scion XA 4 Door Sedan
 Test Program: 2004 NHTSA 35mph NCAP

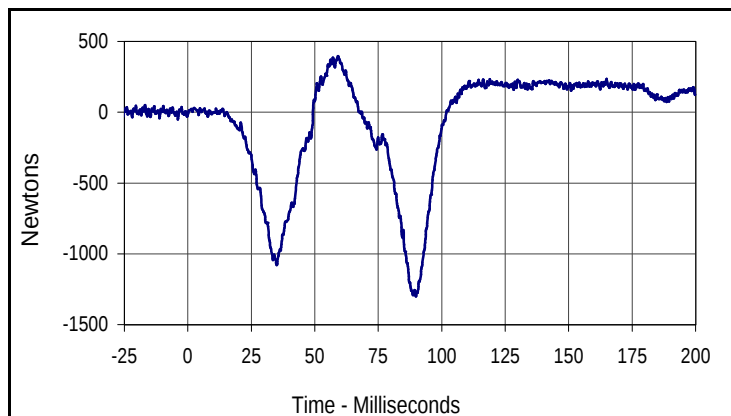
Test Date: 2/10/04
 NHTSA No.: M45106



Curve Description			
Passenger Right Lower Tibia Moment X			
CURNO	Type	SAE Class	Units
076	FIL	600	Nm
Max	Time	Min	Time
31.2	57.7	-6.0	35.5



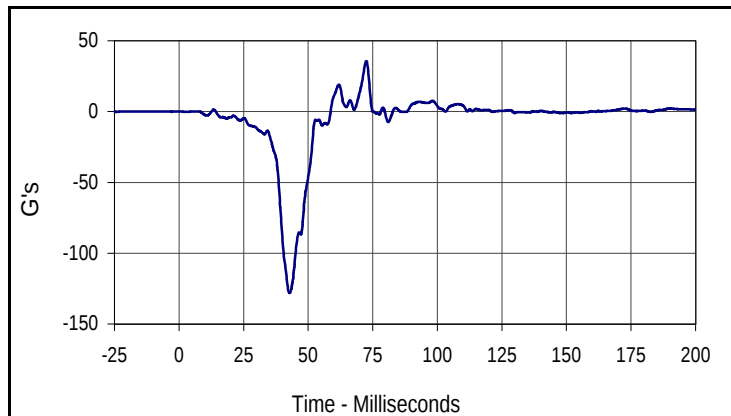
Curve Description			
Passenger Right Lower Tibia Moment Y			
CURNO	Type	SAE Class	Units
077	FIL	600	Nm
Max	Time	Min	Time
61.9	57.7	-30.0	32.7



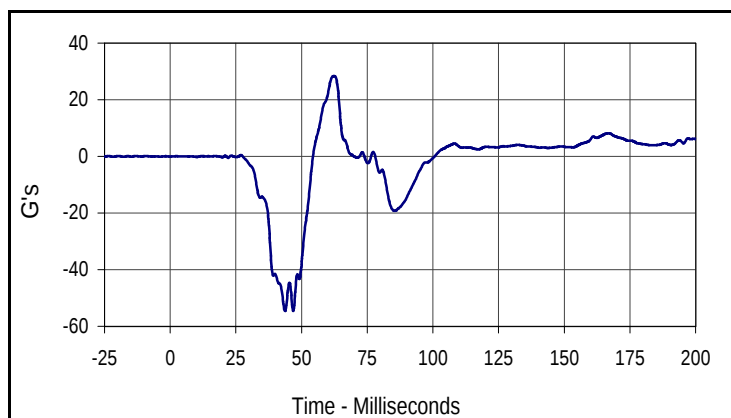
Curve Description			
Passenger Right lower Tibia Force Z			
CURNO	Type	SAE Class	Units
078	FIL	600	Newtons
Max	Time	Min	Time
396.2	59.2	-1300.1	89.8

Test Vehicle: 2004 Toyota Scion XA 4 Door Sedan
 Test Program: 2004 NHTSA 35mph NCAP

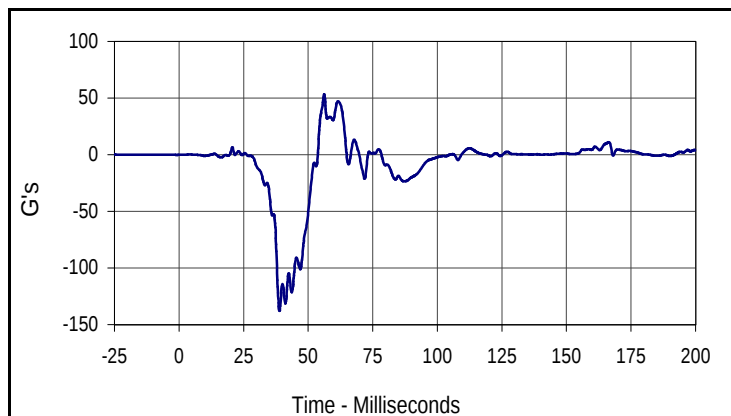
Test Date: 2/10/04
 NHTSA No.: M45106



Curve Description			
Passenger Left Foot Aft X			
CURNO	Type	SAE Class	Units
079	FIL	180	G's
Max	Time	Min	Time
35.6	72.5	-128.0	42.8



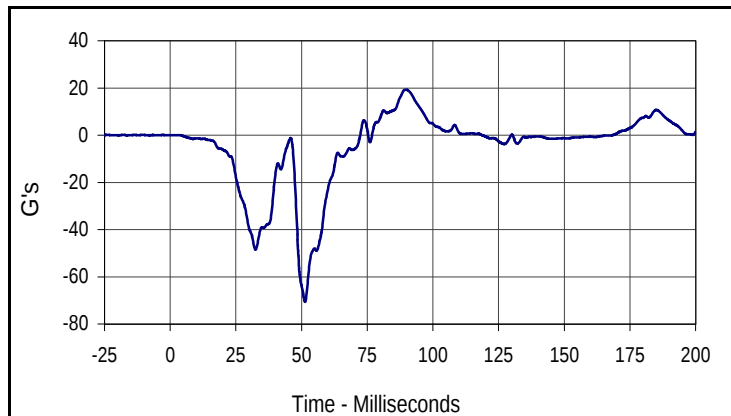
Curve Description			
Passenger Left Foot Aft Z			
CURNO	Type	SAE Class	Units
080	FIL	180	G's
Max	Time	Min	Time
28.4	62.4	-54.6	43.7



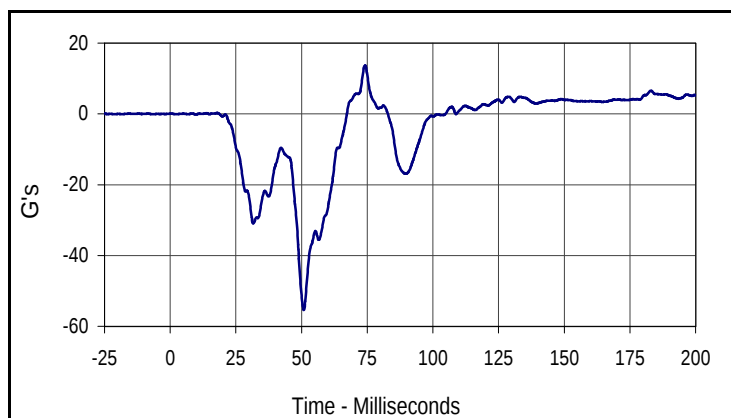
Curve Description			
Passenger Left Foot Fore Z			
CURNO	Type	SAE Class	Units
081	FIL	180	G's
Max	Time	Min	Time
53.4	56.2	-137.9	38.9

Test Vehicle: 2004 Toyota Scion XA 4 Door Sedan
 Test Program: 2004 NHTSA 35mph NCAP

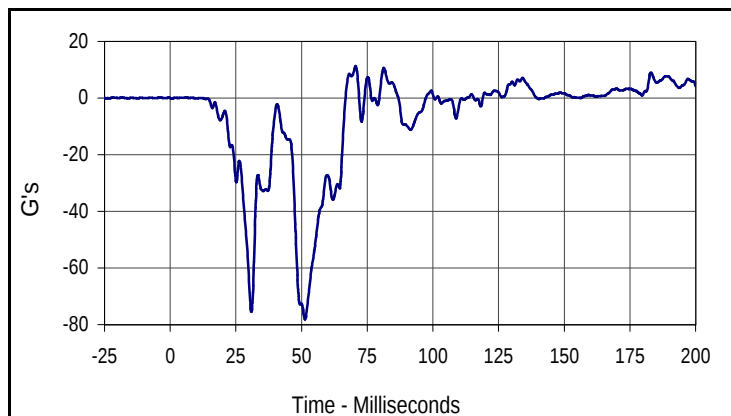
Test Date: 2/10/04
 NHTSA No.: M45106



Curve Description			
Passenger Right Foot Aft X			
CURNO	Type	SAE Class	Units
082	FIL	180	G's
Max	Time	Min	Time
19.3	89.4	-70.7	51.3



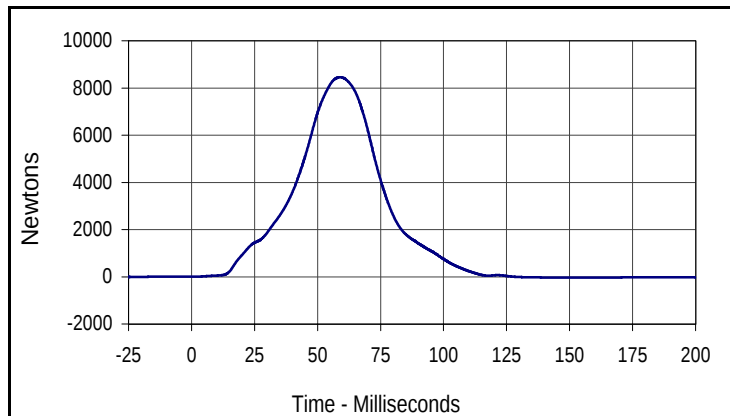
Curve Description			
Passenger Right Foot Aft Z			
CURNO	Type	SAE Class	Units
083	FIL	180	G's
Max	Time	Min	Time
13.7	74.2	-55.3	50.9



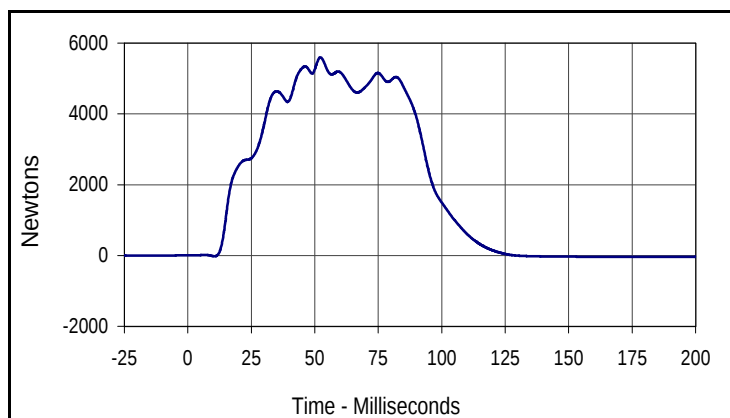
Curve Description			
Passenger Right Foot Fore Z			
CURNO	Type	SAE Class	Units
084	FIL	180	G's
Max	Time	Min	Time
11.3	70.6	-78.2	51.3

Test Vehicle: 2004 Toyota Scion XA 4 Door Sedan
 Test Program: 2004 NHTSA 35mph NCAP

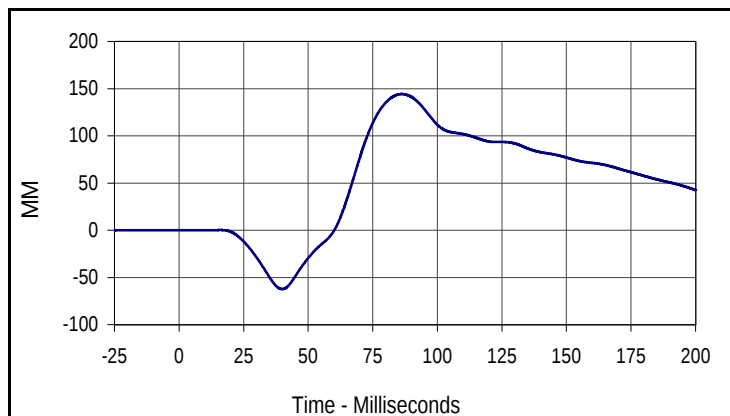
Test Date: 2/10/04
 NHTSA No.: M45106



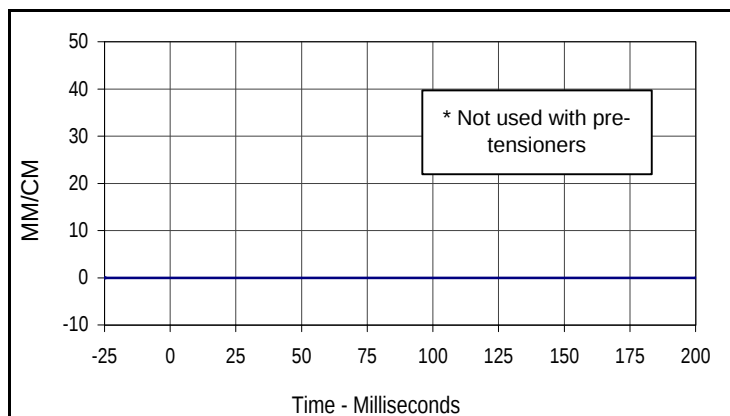
Curve Description			
Passenger Lap Belt Force			
CURNO	Type	SAE Class	Units
085	FIL	60	Newtons
Max	Time	Min	Time
8454.8	58.9	-34.0	163.5



Curve Description			
Passenger Shoulder Belt Force			
CURNO	Type	SAE Class	Units
086	FIL	60	Newtons
Max	Time	Min	Time
5595.0	52.2	-37.1	166.4



Curve Description			
Passenger Shoulder Belt Pullout			
CURNO	Type	SAE Class	Units
087	FIL	60	MM
Max	Time	Min	Time
144.3	86.2	-62.3	39.9

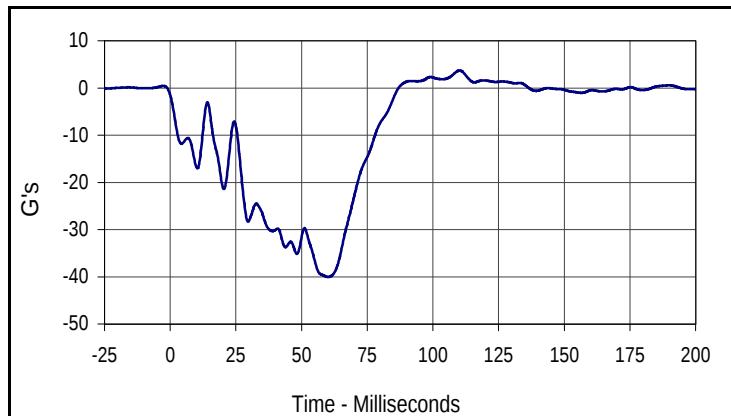


Curve Description			
Passenger Shoulder Belt Elongation			
CURNO	Type	SAE Class	Units
088	FIL	60	MM/CM
Max	Time	Min	Time
0.0	0.0	0.0	0.0

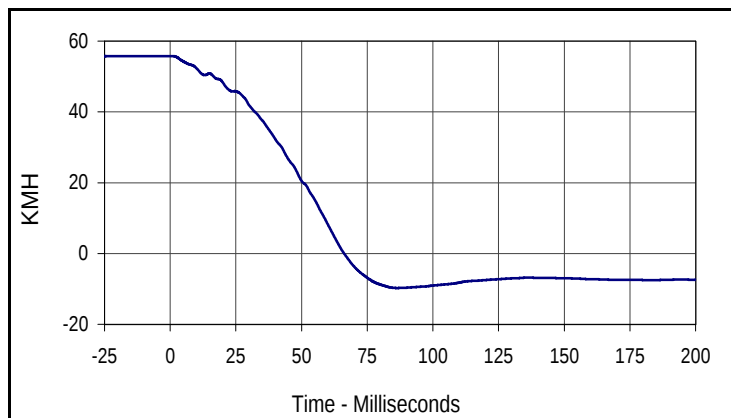
* Not used with pre-tensioners

Test Vehicle: 2004 Toyota Scion XA 4 Door Sedan
 Test Program: 2004 NHTSA 35mph NCAP

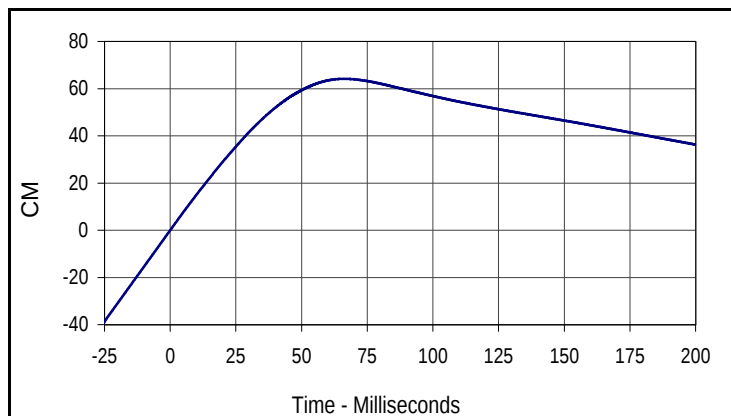
Test Date: 2/10/04
 NHTSA No.: M45106



Curve Description			
Vehicle Left Rear X			
CURNO	Type	SAE Class	Units
089	FIL	60	G's
Max	Time	Min	Time
3.7	110.1	-40.0	60.1



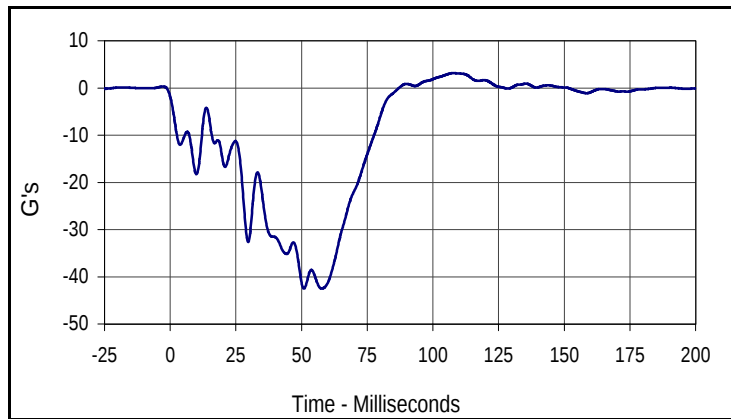
Curve Description			
Vehicle Left Rear X Velocity			
CURNO	Type	SAE Class	Units
089	IN1	180	KMH
Max	Time	Min	Time
55.8	0.1	-9.8	86.4



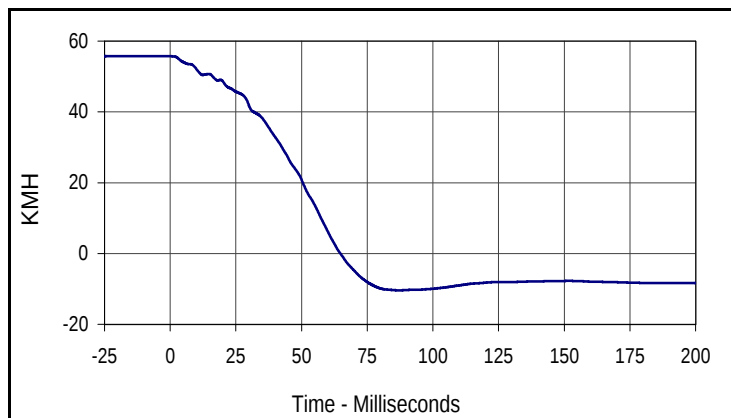
Curve Description			
Vehicle Left Rear X Displacement			
CURNO	Type	SAE Class	Units
089	IN2	180	CM
Max	Time	Min	Time
64.1	66.2	0.0	0.0

Test Vehicle: 2004 Toyota Scion XA 4 Door Sedan
 Test Program: 2004 NHTSA 35mph NCAP

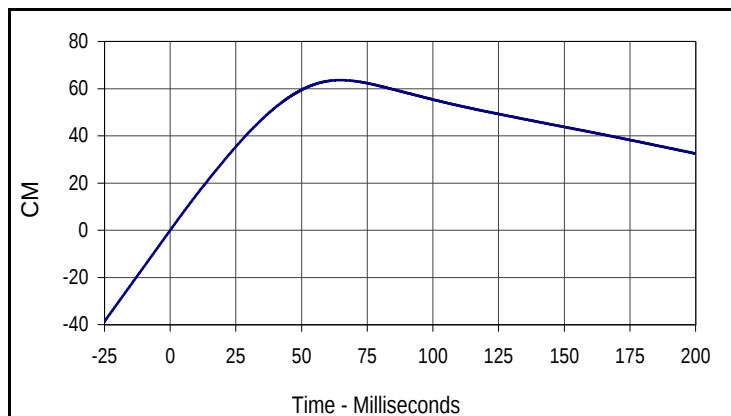
Test Date: 2/10/04
 NHTSA No.: M45106



Curve Description			
Vehicle Right Rear X			
CURNO	Type	SAE Class	Units
090	FIL	60	G's
Max	Time	Min	Time
3.2	107.7	-42.5	50.9



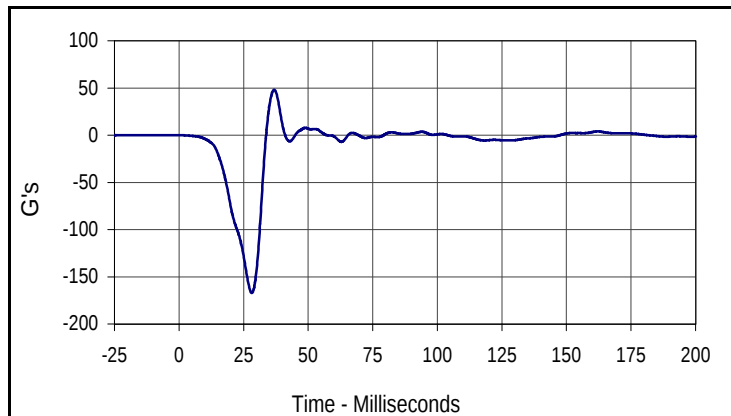
Curve Description			
Vehicle Right Rear X Velocity			
CURNO	Type	SAE Class	Units
090	IN1	180	KMH
Max	Time	Min	Time
55.7	0.0	-10.4	87.6



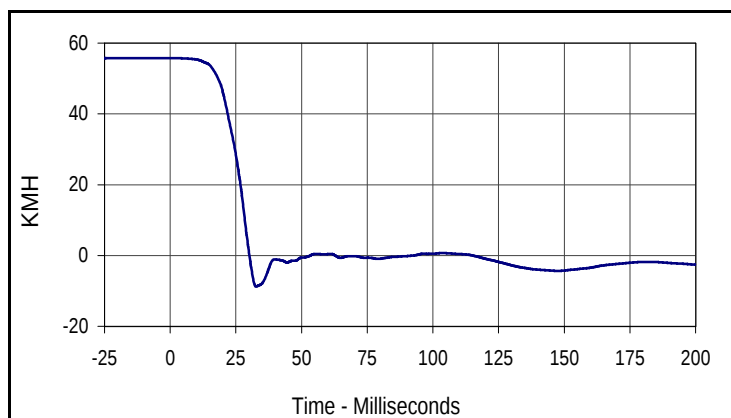
Curve Description			
Vehicle Right Rear X Displacement			
CURNO	Type	SAE Class	Units
090	IN2	180	CM
Max	Time	Min	Time
63.6	64.8	0.0	0.0

Test Vehicle: 2004 Toyota Scion XA 4 Door Sedan
 Test Program: 2004 NHTSA 35mph NCAP

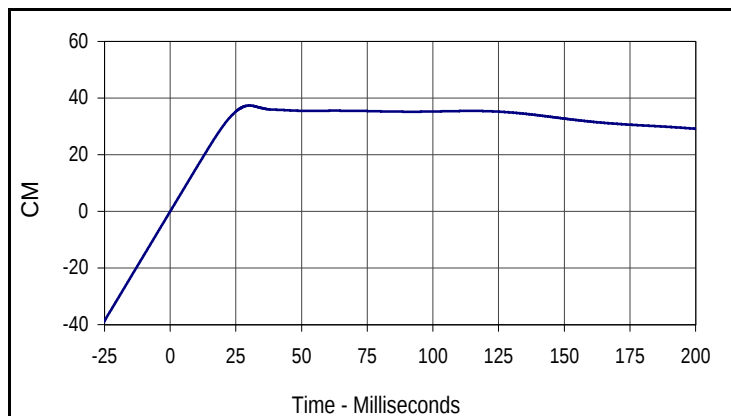
Test Date: 2/10/04
 NHTSA No.: M45106



Curve Description			
Vehicle Engine Top			
CURNO	Type	SAE Class	Units
091	FIL	60	G's
Max	Time	Min	Time
48.2	36.8	-167.2	28.2



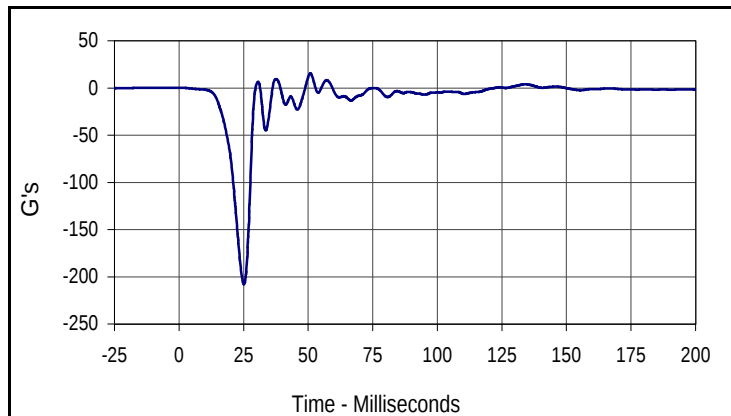
Curve Description			
Vehicle Engine Top Velocity			
CURNO	Type	SAE Class	Units
091	IN1	180	KMH
Max	Time	Min	Time
55.7	0.0	-8.8	32.7



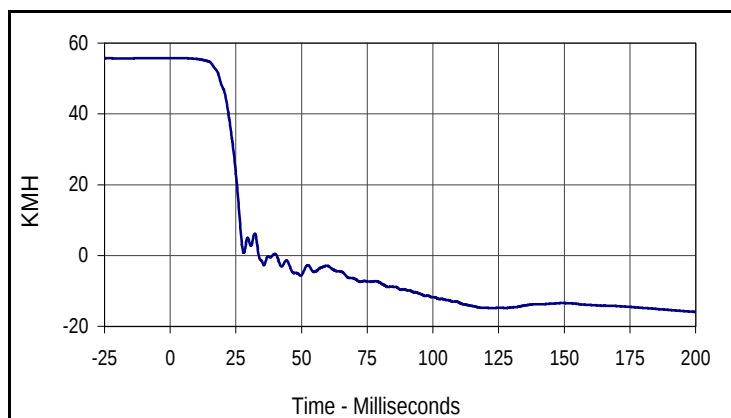
Curve Description			
Vehicle Engine Top Displacement			
CURNO	Type	SAE Class	Units
091	IN2	180	CM
Max	Time	Min	Time
37.4	30.2	0.0	0.0

Test Vehicle: 2004 Toyota Scion XA 4 Door Sedan
 Test Program: 2004 NHTSA 35mph NCAP

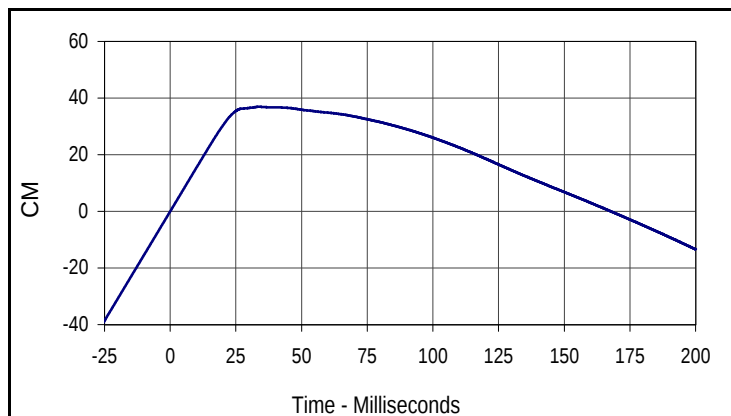
Test Date: 2/10/04
 NHTSA No.: M45106



Curve Description			
Vehicle Engine Bottom			
CURNO	Type	SAE Class	Units
092	FIL	60	G's
Max	Time	Min	Time
15.3	50.8	-207.8	25.1



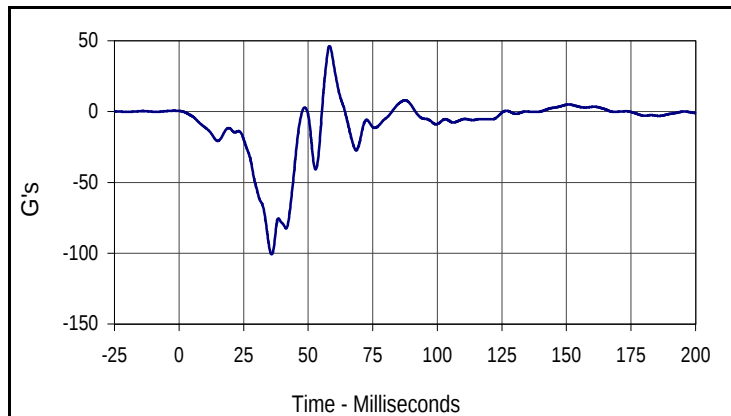
Curve Description			
Vehicle Engine Bottom Velocity			
CURNO	Type	SAE Class	Units
092	IN1	180	KMH
Max	Time	Min	Time
55.8	3.0	-15.9	200.0



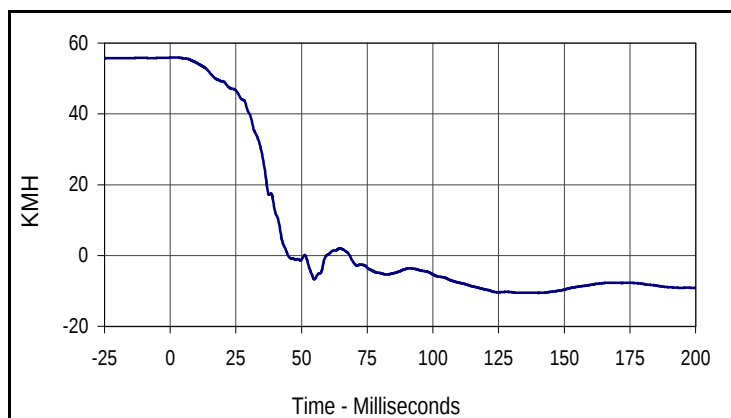
Curve Description			
Vehicle Engine Bottom Displacement			
CURNO	Type	SAE Class	Units
092	IN2	180	CM
Max	Time	Min	Time
36.9	33.7	-13.4	200.0

Test Vehicle: 2004 Toyota Scion XA 4 Door Sedan
 Test Program: 2004 NHTSA 35mph NCAP

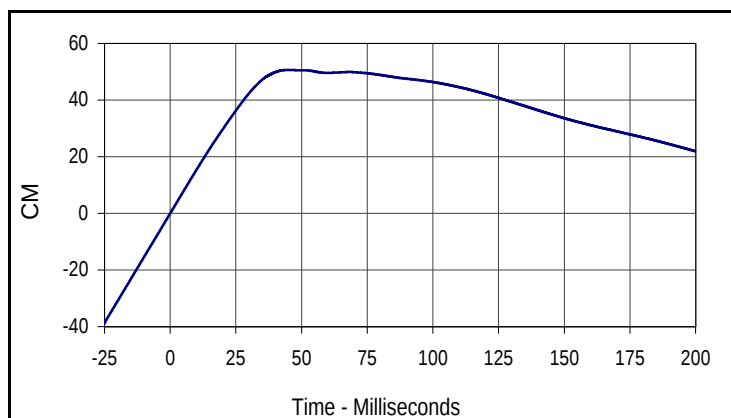
Test Date: 2/10/04
 NHTSA No.: M45106



Curve Description			
Vehicle Left Brake Caliper			
CURNO	Type	SAE Class	Units
093	FIL	60	G's
Max	Time	Min	Time
46.3	58.3	-100.8	35.9



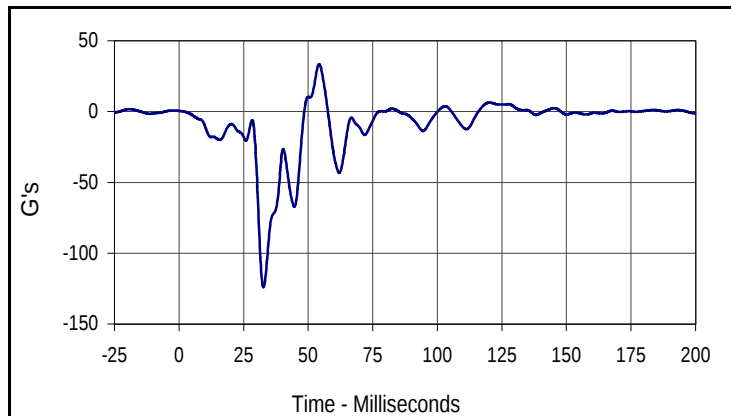
Curve Description			
Vehicle Left Brake Caliper Velocity			
CURNO	Type	SAE Class	Units
093	IN1	180	KMH
Max	Time	Min	Time
55.9	2.4	-10.6	140.2



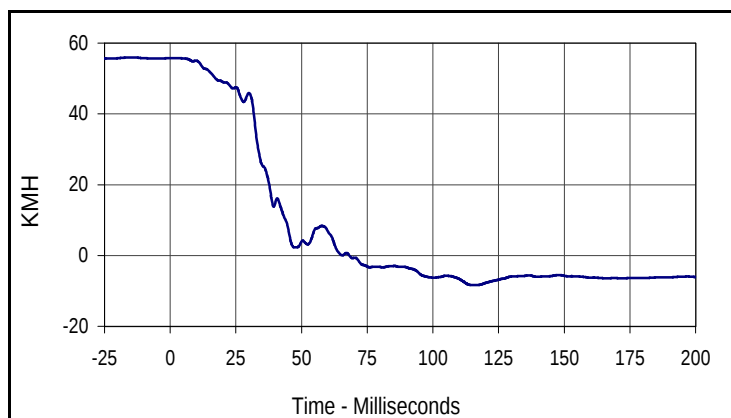
Curve Description			
Vehicle Left Brake Caliper Displacement			
CURNO	Type	SAE Class	Units
093	IN2	180	CM
Max	Time	Min	Time
50.6	44.9	0.0	0.0

Test Vehicle: 2004 Toyota Scion XA 4 Door Sedan
 Test Program: 2004 NHTSA 35mph NCAP

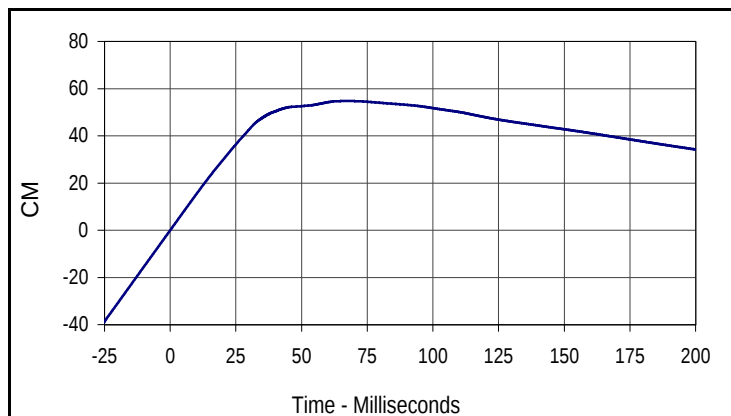
Test Date: 2/10/04
 NHTSA No.: M45106



Curve Description			
Vehicle Right Brake Caliper			
CURNO	Type	SAE Class	Units
094	FIL	60	G's
Max	Time	Min	Time
33.6	54.2	-124.0	32.7



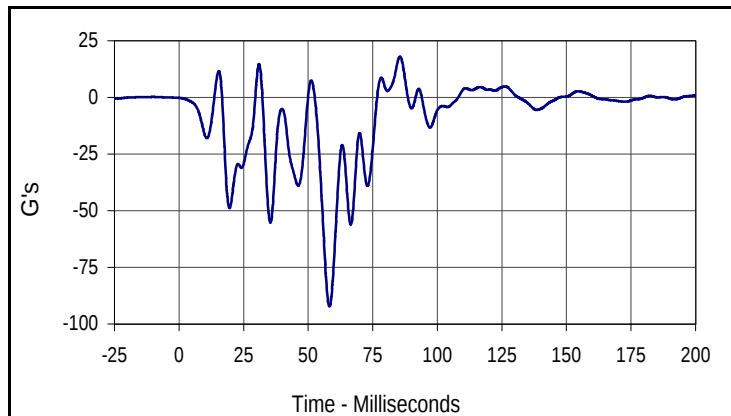
Curve Description			
Vehicle Right Brake Caliper Velocity			
CURNO	Type	SAE Class	Units
094	IN1	180	KMH
Max	Time	Min	Time
55.8	2.4	-8.4	115.7



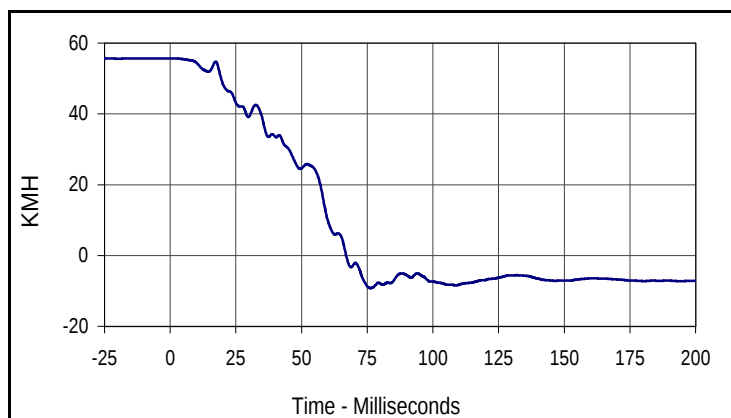
Curve Description			
Vehicle Right Brake Caliper Displacement			
CURNO	Type	SAE Class	Units
094	IN2	180	CM
Max	Time	Min	Time
54.7	68.2	0.0	0.0

Test Vehicle: 2004 Toyota Scion XA 4 Door Sedan
 Test Program: 2004 NHTSA 35mph NCAP

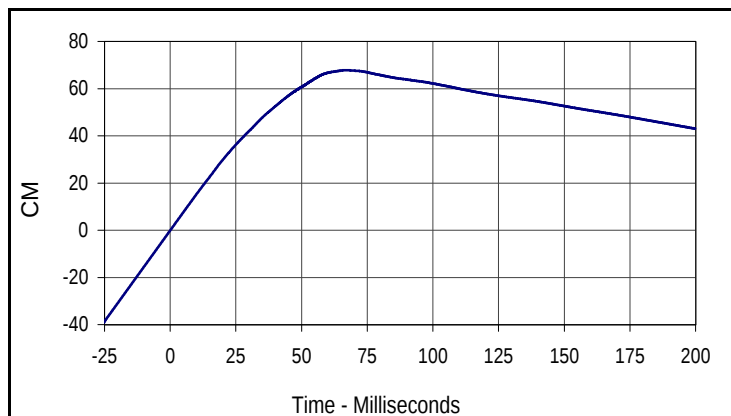
Test Date: 2/10/04
 NHTSA No.: M45106



Curve Description			
Vehicle Instrument Panel			
CURNO	Type	SAE Class	Units
095	FIL	60	G's
Max	Time	Min	Time
18.0	85.5	-92.2	58.3



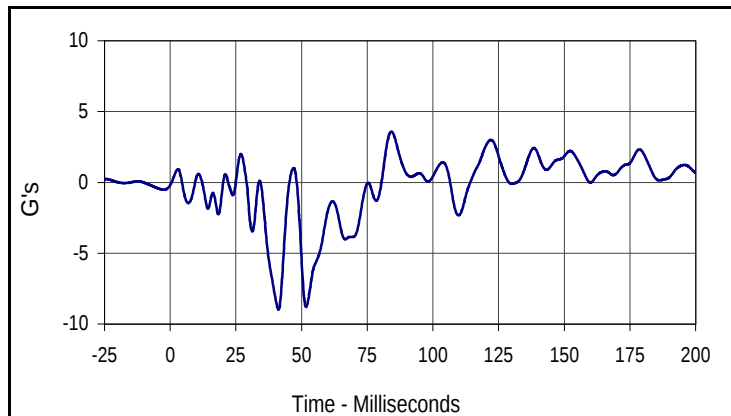
Curve Description			
Vehicle Instrument Panel Velocity			
CURNO	Type	SAE Class	Units
095	IN1	180	KMH
Max	Time	Min	Time
55.7	0.0	-9.2	76.2



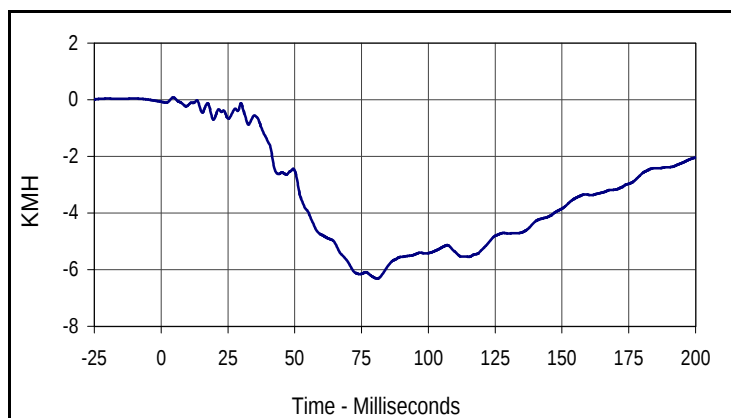
Curve Description			
Vehicle Instrument Panel Displacement			
CURNO	Type	SAE Class	Units
095	IN2	180	CM
Max	Time	Min	Time
67.8	67.0	-0.1	0.0

Test Vehicle: 2004 Toyota Scion XA 4 Door Sedan
 Test Program: 2004 NHTSA 35mph NCAP

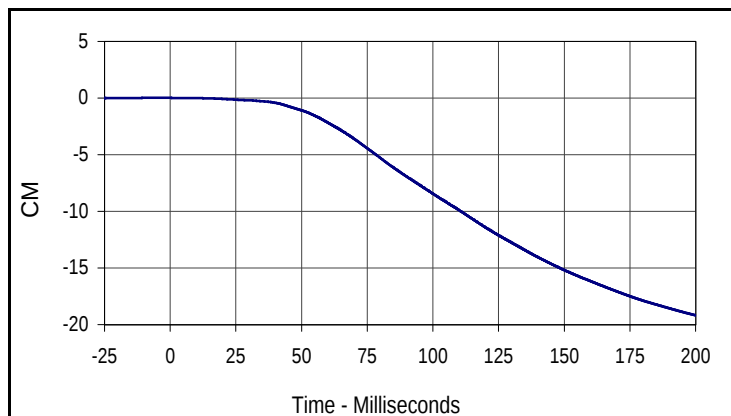
Test Date: 2/10/04
 NHTSA No.: M45106



Curve Description			
Vehicle Left Rear Z			
CURNO	Type	SAE Class	Units
096	FIL	60	G's
Max	Time	Min	Time
3.6	84.2	-9.0	41.2



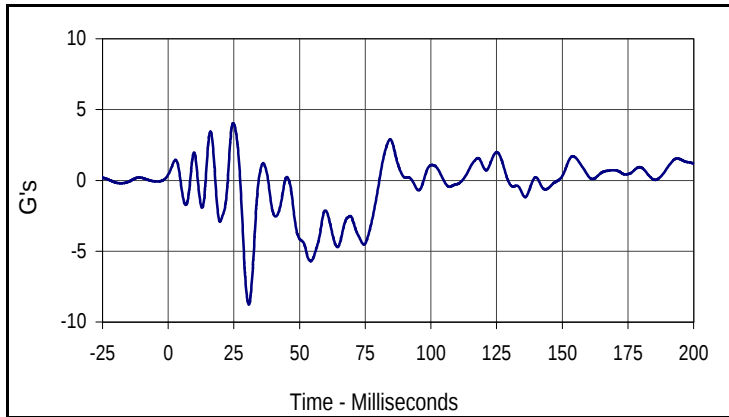
Curve Description			
Vehicle Left Rear Z Velocity			
CURNO	Type	SAE Class	Units
096	IN1	180	KMH
Max	Time	Min	Time
0.1	4.5	-6.3	80.9



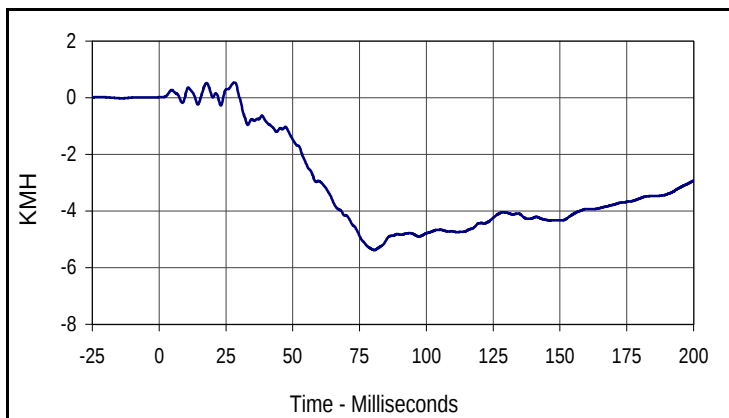
Curve Description			
Vehicle Left Rear Z Displacement			
CURNO	Type	SAE Class	Units
096	IN2	180	CM
Max	Time	Min	Time
0.0	0.0	-19.2	200.0

Test Vehicle: 2004 Toyota Scion XA 4 Door Sedan
 Test Program: 2004 NHTSA 35mph NCAP

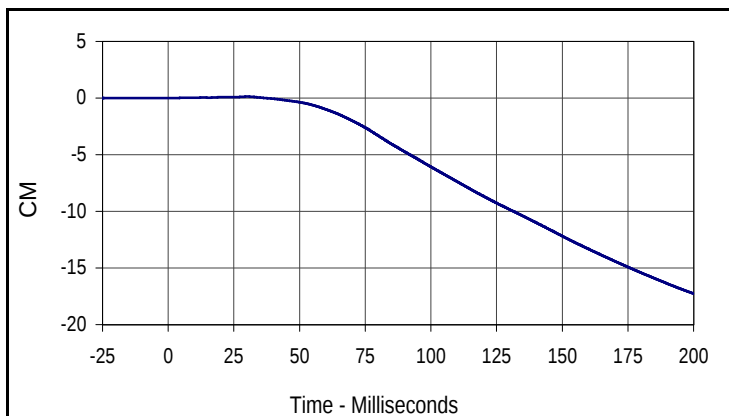
Test Date: 2/10/04
 NHTSA No.: M45106



Curve Description			
Vehicle Right Rear Z			
CURNO	Type	SAE Class	Units
097	FIL	60	G's
Max	Time	Min	Time
4.0	24.7	-8.8	30.7



Curve Description			
Vehicle Right Rear Z Velocity			
CURNO	Type	SAE Class	Units
097	IN1	180	KMH
Max	Time	Min	Time
0.5	28.2	-5.4	80.5



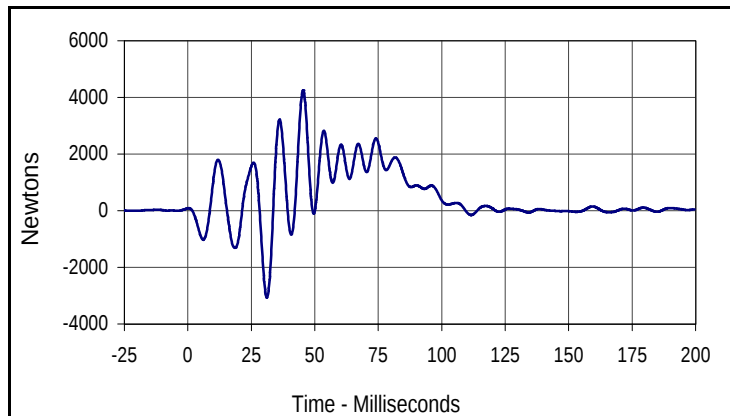
Curve Description			
Vehicle Right Rear Z Displacement			
CURNO	Type	SAE Class	Units
097	IN2	180	CM
Max	Time	Min	Time
0.1	30.1	-17.3	200.0

APPENDIX C

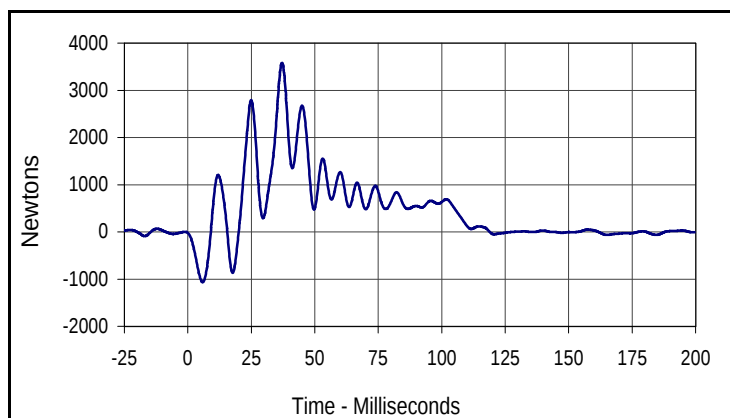
LOAD CELL BARRIER DATA PLOTS

Test Vehicle: 2004 Toyota Scion XA
 Test Program: 2004 NHTSA 35mph NCAP

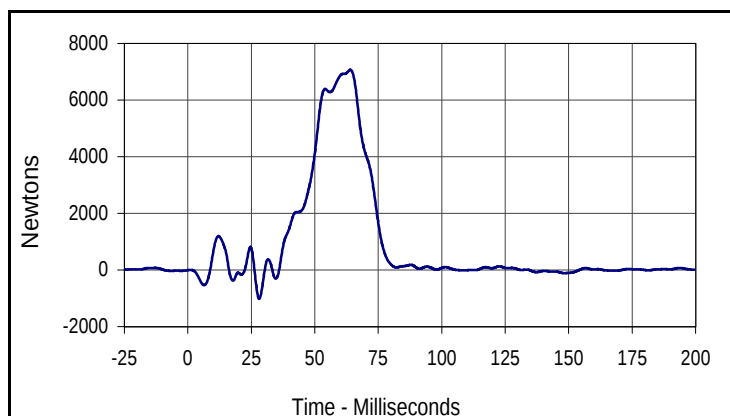
Test Date: 2/10/04
 NHTSA No.: M45106



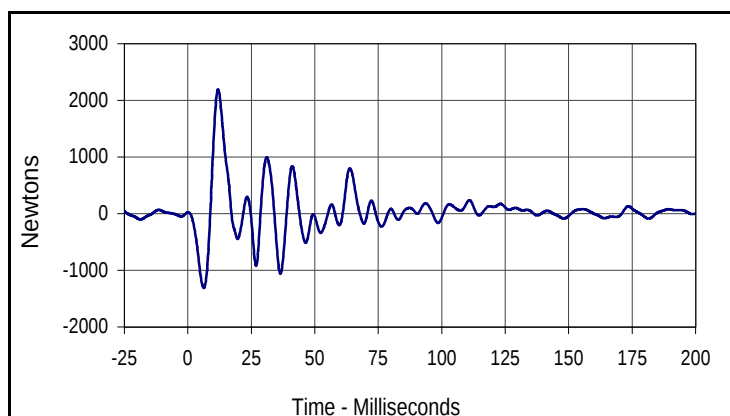
Curve Description			
Barrier Force A1			
CURNO	Type	SAE Class	Units
098	FIL	60	Newtons
Max	Time	Min	Time
4250.6	45.4	-3069.0	31.1



Curve Description			
Barrier Force B1			
CURNO	Type	SAE Class	Units
107	FIL	60	Newtons
Max	Time	Min	Time
3579.9	37.1	-1065.7	5.8



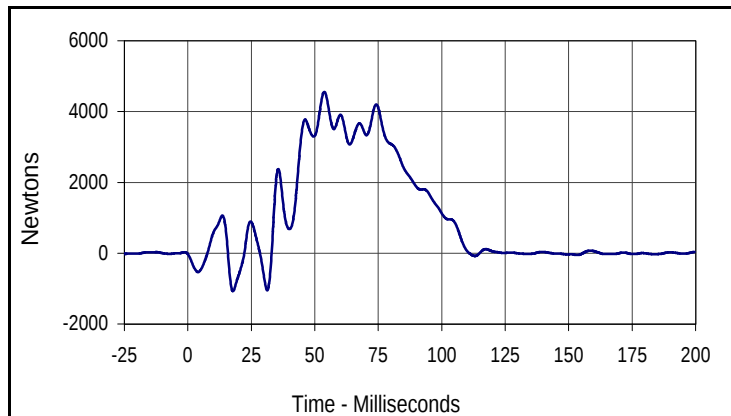
Curve Description			
Barrier Force C1			
CURNO	Type	SAE Class	Units
116	FIL	60	Newtons
Max	Time	Min	Time
7067.8	64.0	-1012.0	28.1



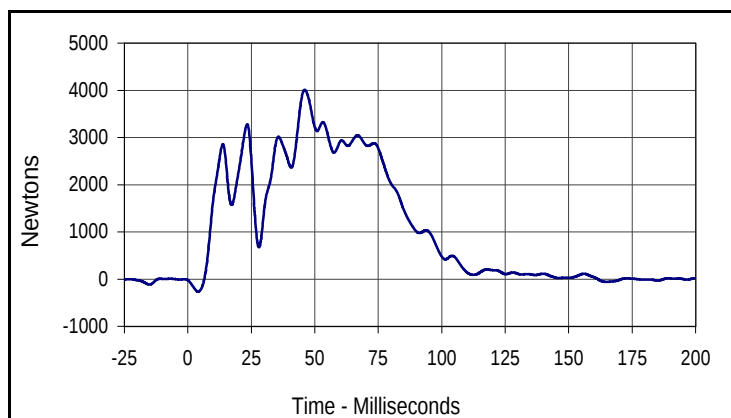
Curve Description			
Barrier Force D1			
CURNO	Type	SAE Class	Units
125	FIL	60	Newtons
Max	Time	Min	Time
2190.2	11.9	-1310.8	6.3

Test Vehicle: 2004 Toyota Scion XA
 Test Program: 2004 NHTSA 35mph NCAP

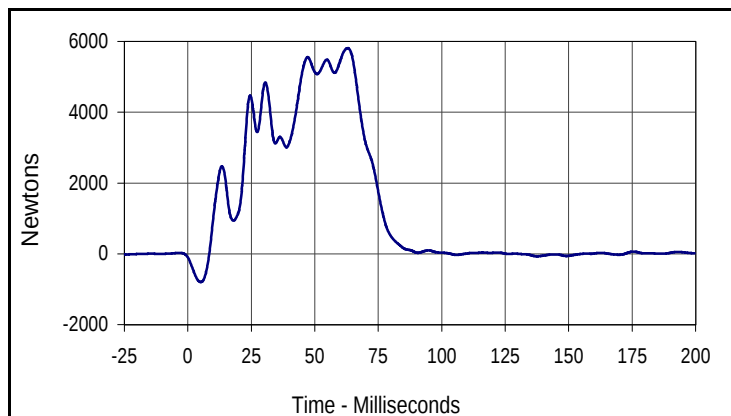
Test Date: 2/10/04
 NHTSA No.: M45106



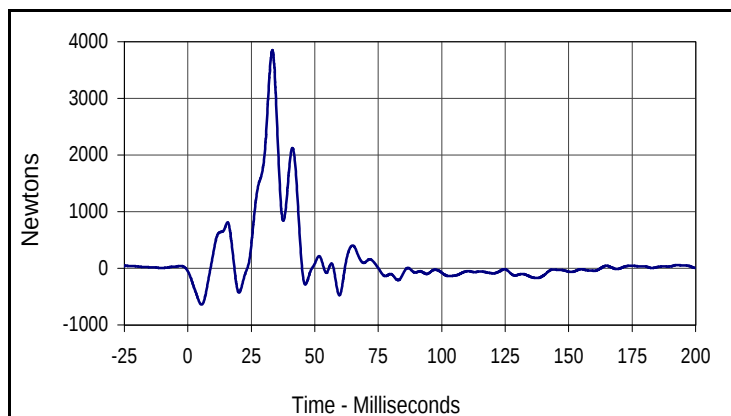
Curve Description			
Barrier Force A2			
CURNO	Type	SAE Class	Units
099	FIL	60	Newtons
Max	Time	Min	Time
4557.1	53.8	-1073.4	17.8



Curve Description			
Barrier Force B2			
CURNO	Type	SAE Class	Units
108	FIL	60	Newtons
Max	Time	Min	Time
4012.8	46.0	-267.0	4.0



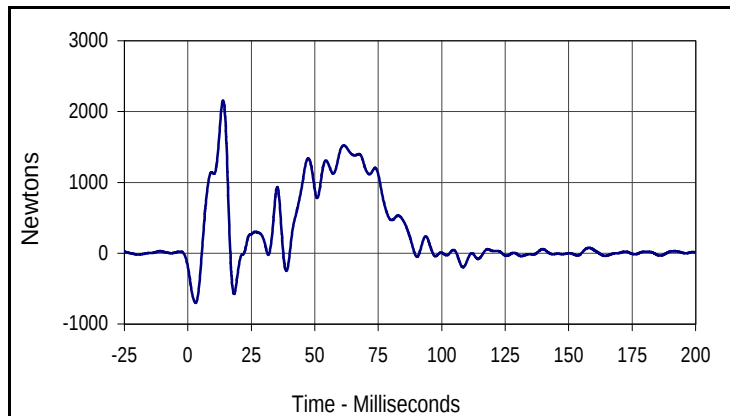
Curve Description			
Barrier Force C2			
CURNO	Type	SAE Class	Units
117	FIL	60	Newtons
Max	Time	Min	Time
5808.4	63.0	-794.7	5.1



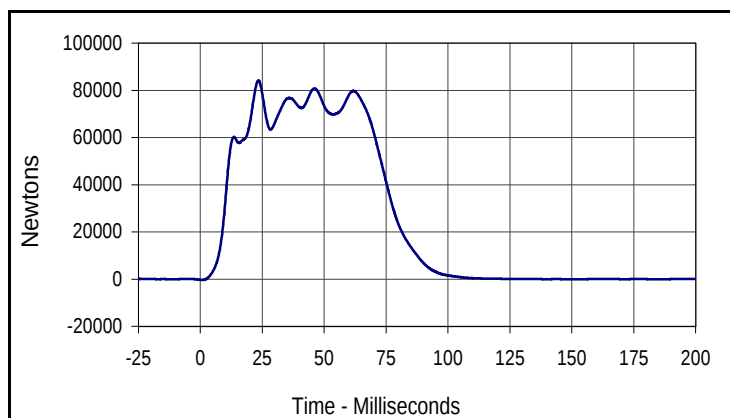
Curve Description			
Barrier Force D2			
CURNO	Type	SAE Class	Units
126	FIL	60	Newtons
Max	Time	Min	Time
3850.7	33.3	-641.2	5.3

Test Vehicle: 2004 Toyota Scion XA
 Test Program: 2004 NHTSA 35mph NCAP

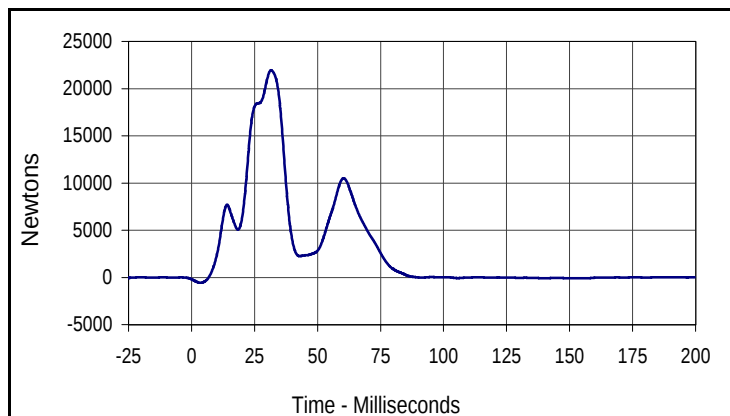
Test Date: 2/10/04
 NHTSA No.: M45106



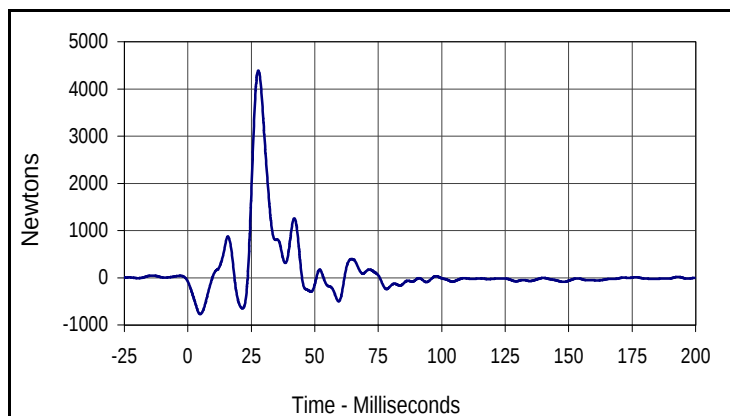
Curve Description			
Barrier Force A3			
CURNO	Type	SAE Class	Units
100	FIL	60	Newtons
Max	Time	Min	Time
2155.1	13.9	-702.7	3.1



Curve Description			
Barrier Force B3			
CURNO	Type	SAE Class	Units
109	FIL	60	Newtons
Max	Time	Min	Time
84137.1	23.4	-362.5	0.8



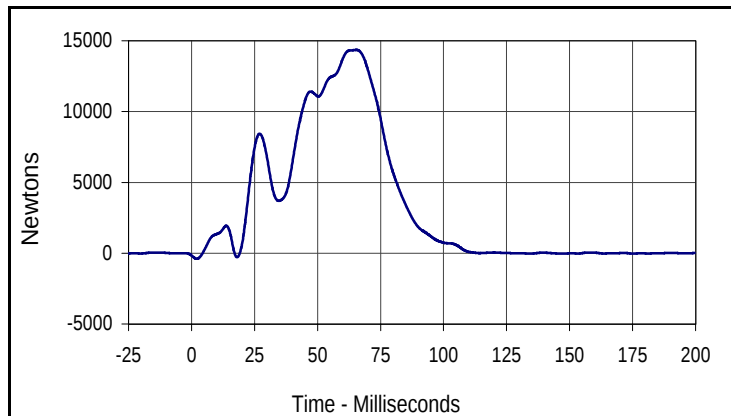
Curve Description			
Barrier Force C3			
CURNO	Type	SAE Class	Units
118	FIL	60	Newtons
Max	Time	Min	Time
21941.5	31.6	-572.6	3.5



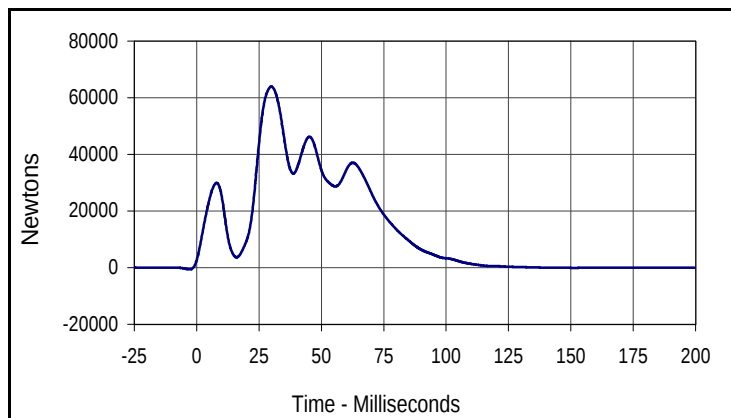
Curve Description			
Barrier Force D3			
CURNO	Type	SAE Class	Units
127	FIL	60	Newtons
Max	Time	Min	Time
4391.7	27.7	-770.9	4.9

Test Vehicle: 2004 Toyota Scion XA
 Test Program: 2004 NHTSA 35mph NCAP

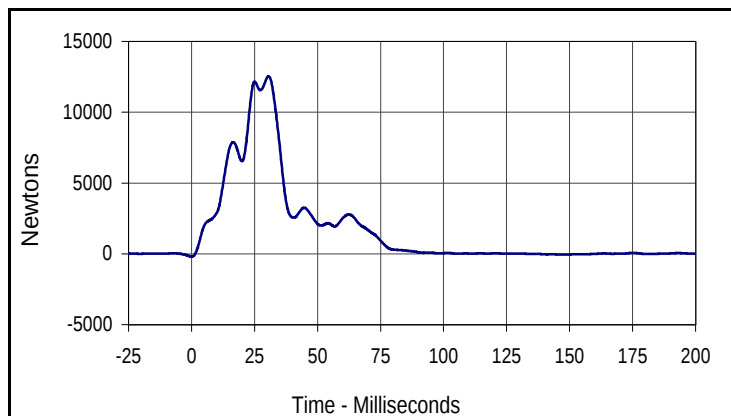
Test Date: 2/10/04
 NHTSA No.: M45106



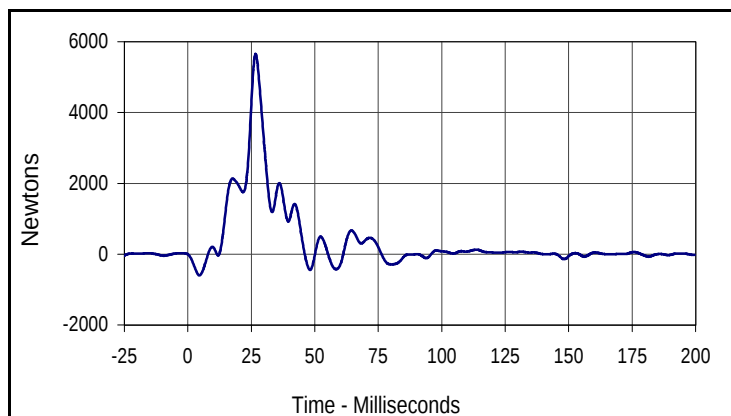
Curve Description			
Barrier Force A4			
CURNO	Type	SAE Class	Units
101	FIL	60	Newtons
Max	Time	Min	Time
14357.1	65.4	-398.4	2.0



Curve Description			
Barrier Force B4			
CURNO	Type	SAE Class	Units
110	FIL	60	Newtons
Max	Time	Min	Time
63937.5	29.9	-67.1	151.3



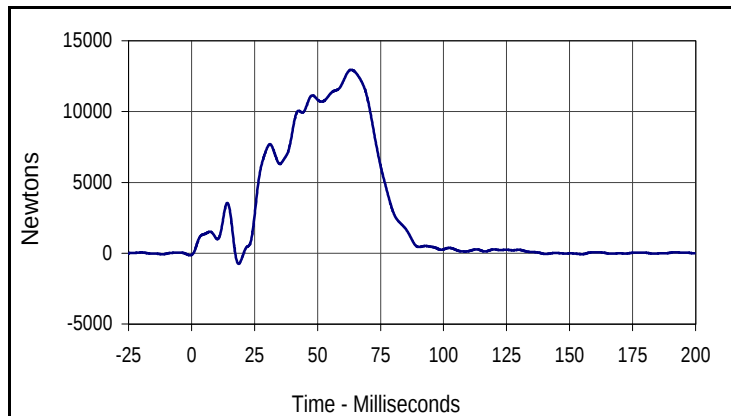
Curve Description			
Barrier Force C4			
CURNO	Type	SAE Class	Units
119	FIL	60	Newtons
Max	Time	Min	Time
12538.9	30.5	-201.9	0.0



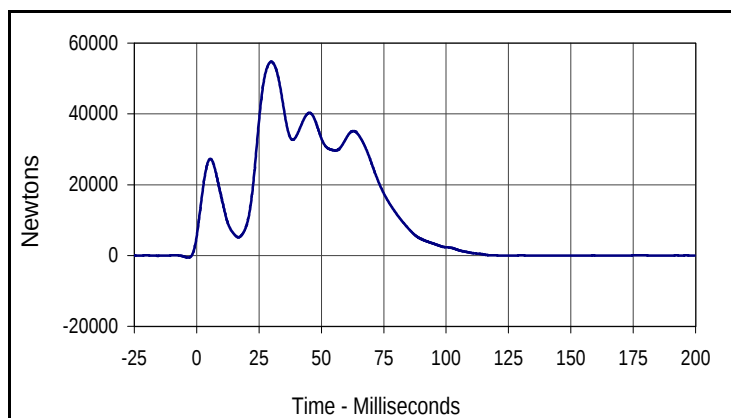
Curve Description			
Barrier Force D4			
CURNO	Type	SAE Class	Units
128	FIL	60	Newtons
Max	Time	Min	Time
5654.2	26.7	-601.3	4.5

Test Vehicle: 2004 Toyota Scion XA
 Test Program: 2004 NHTSA 35mph NCAP

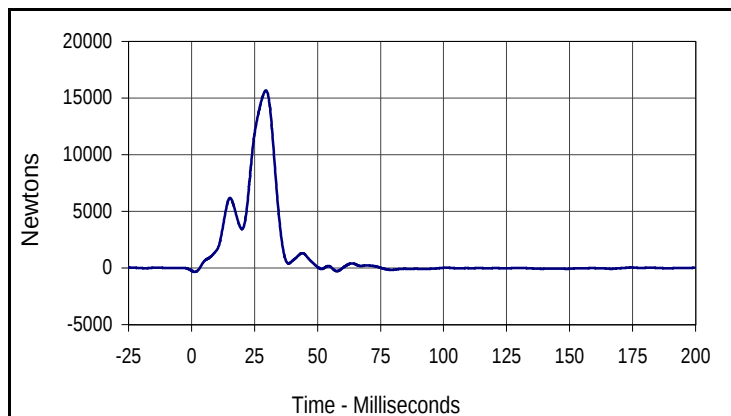
Test Date: 2/10/04
 NHTSA No.: M45106



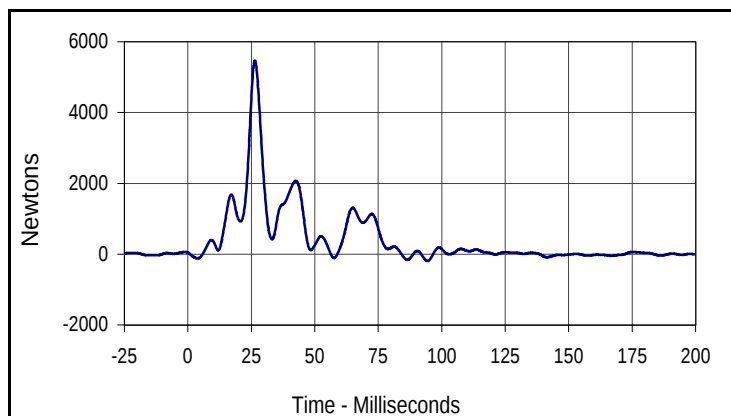
Curve Description			
Barrier Force A5			
CURNO	Type	SAE Class	Units
102	FIL	60	Newtons
Max	Time	Min	Time
12950.1	63.4	-757.2	18.7



Curve Description			
Barrier Force B5			
CURNO	Type	SAE Class	Units
111	FIL	60	Newtons
Max	Time	Min	Time
54726.2	29.9	-60.1	165.8



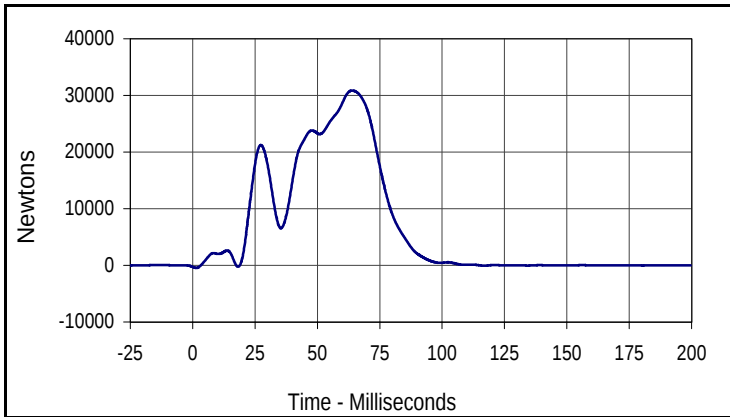
Curve Description			
Barrier Force C5			
CURNO	Type	SAE Class	Units
120	FIL	60	Newtons
Max	Time	Min	Time
15670.6	29.5	-342.3	1.3



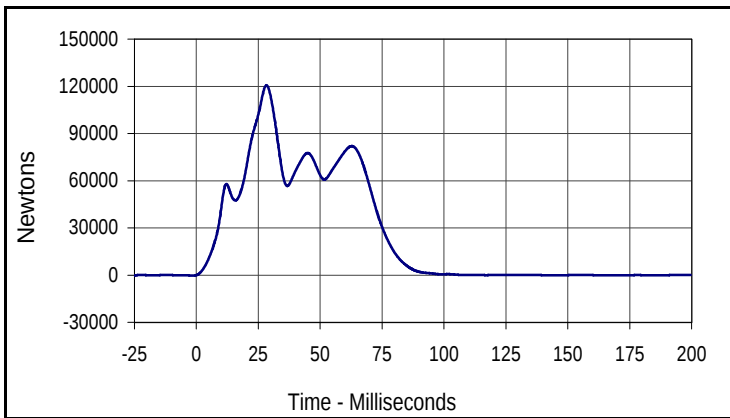
Curve Description			
Barrier Force D5			
CURNO	Type	SAE Class	Units
129	FIL	60	Newtons
Max	Time	Min	Time
5461.1	26.4	-191.7	94.4

Test Vehicle: 2004 Toyota Scion XA
 Test Program: 2004 NHTSA 35mph NCAP

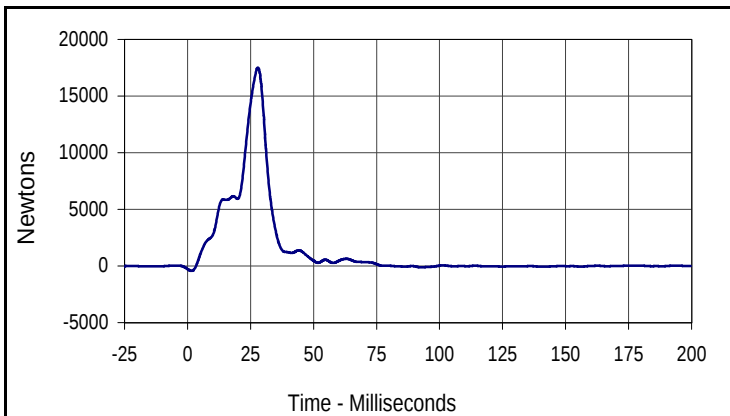
Test Date: 2/10/04
 NHTSA No.: M45106



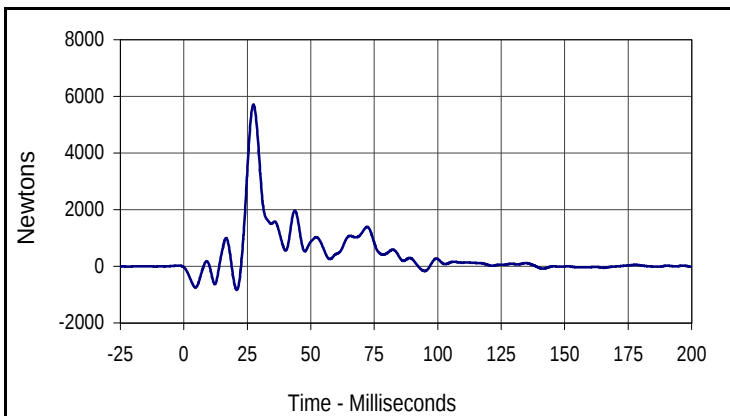
Curve Description			
Barrier Force A6			
CURNO	Type	SAE Class	Units
103	FIL	60	Newtons
Max	Time	Min	Time
30854.3	63.9	-447.9	1.4



Curve Description			
Barrier Force B6			
CURNO	Type	SAE Class	Units
112	FIL	60	Newtons
Max	Time	Min	Time
120629.1	28.3	-36.0	165.6



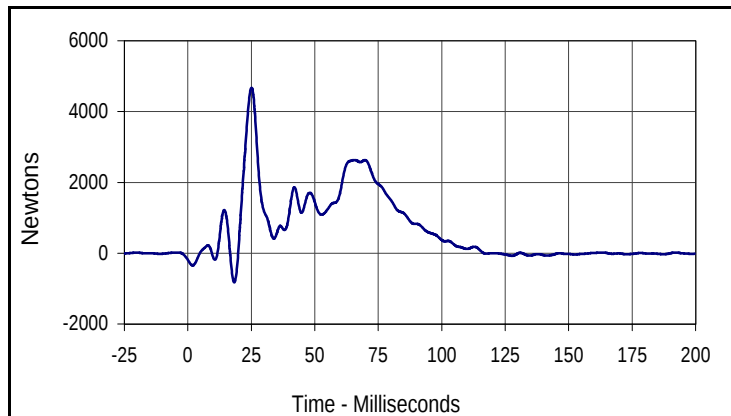
Curve Description			
Barrier Force C6			
CURNO	Type	SAE Class	Units
121	FIL	60	Newtons
Max	Time	Min	Time
17516.8	27.9	-437.8	1.5



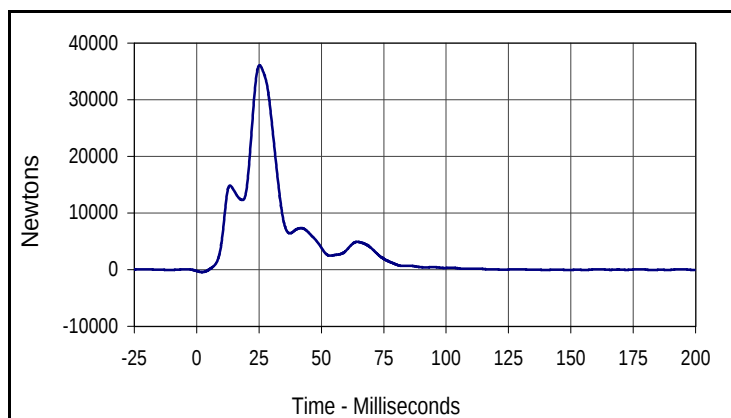
Curve Description			
Barrier Force D6			
CURNO	Type	SAE Class	Units
130	FIL	60	Newtons
Max	Time	Min	Time
5703.2	27.4	-831.4	20.9

Test Vehicle: 2004 Toyota Scion XA
 Test Program: 2004 NHTSA 35mph NCAP

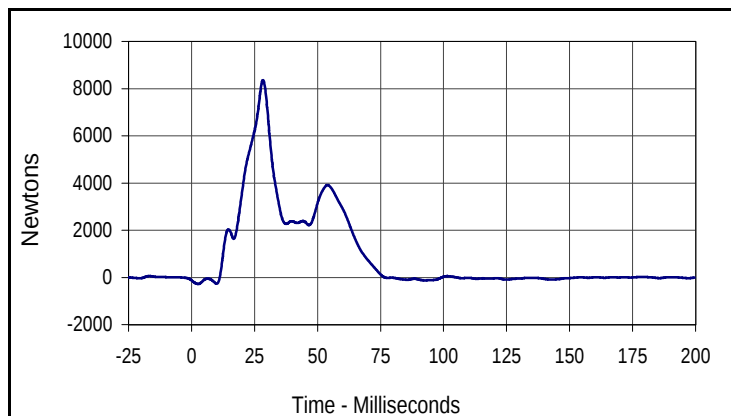
Test Date: 2/10/04
 NHTSA No.: M45106



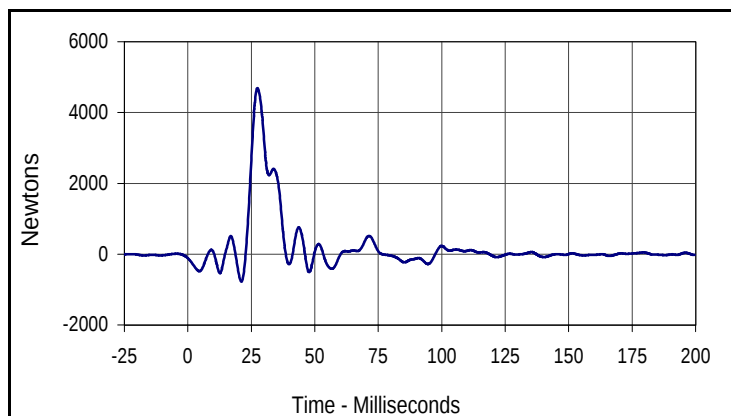
Curve Description			
Barrier Force A7			
CURNO	Type	SAE Class	Units
104	FIL	60	Newtons
Max	Time	Min	Time
4674.2	25.1	-825.3	18.3



Curve Description			
Barrier Force B7			
CURNO	Type	SAE Class	Units
113	FIL	60	Newtons
Max	Time	Min	Time
36099.2	25.2	-425.3	2.2



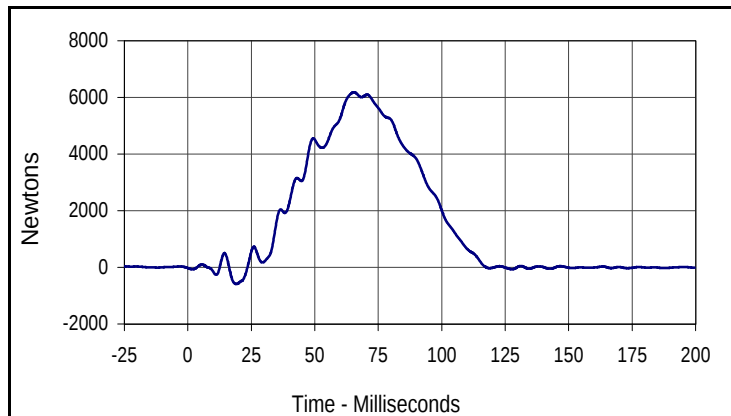
Curve Description			
Barrier Force C7			
CURNO	Type	SAE Class	Units
122	FIL	60	Newtons
Max	Time	Min	Time
8359.1	28.4	-276.0	2.6



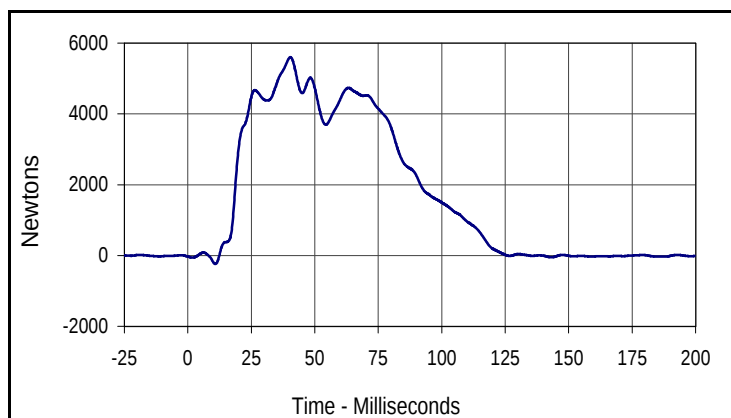
Curve Description			
Barrier Force D7			
CURNO	Type	SAE Class	Units
131	FIL	60	Newtons
Max	Time	Min	Time
4691.2	27.4	-767.4	21.1

Test Vehicle: 2004 Toyota Scion XA
 Test Program: 2004 NHTSA 35mph NCAP

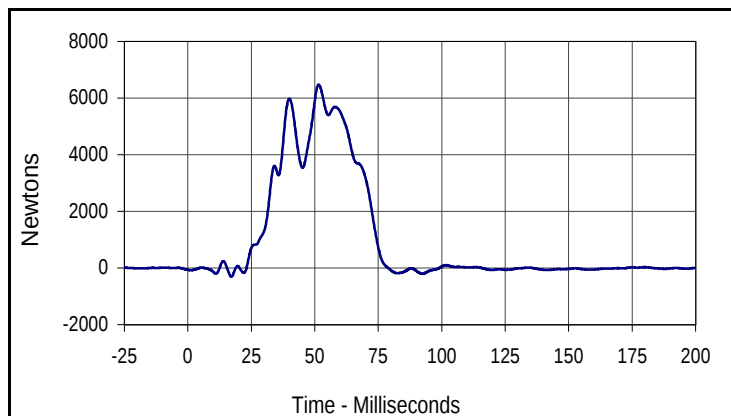
Test Date: 2/10/04
 NHTSA No.: M45106



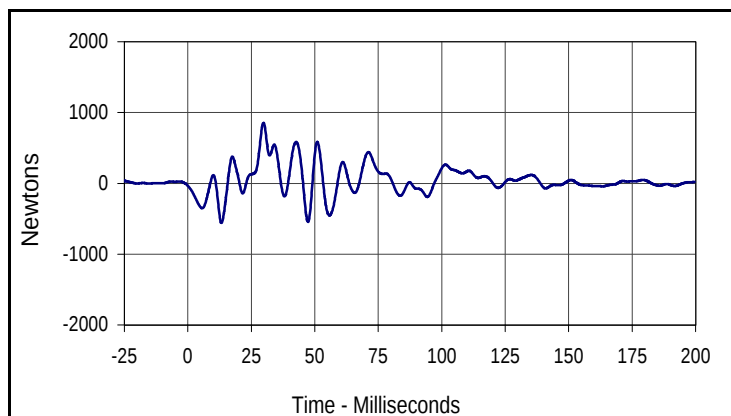
Curve Description			
Barrier Force A8			
CURNO	Type	SAE Class	Units
105	FIL	60	Newtons
Max	Time	Min	Time
6182.2	65.4	-588.7	19.1



Curve Description			
Barrier Force B8			
CURNO	Type	SAE Class	Units
114	FIL	60	Newtons
Max	Time	Min	Time
5601.2	40.4	-240.9	10.9



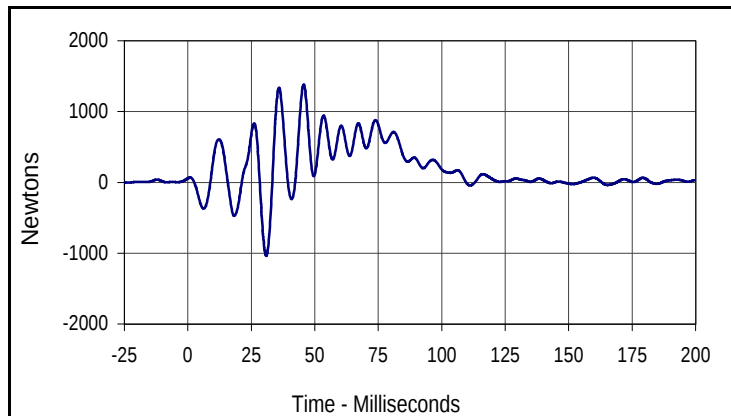
Curve Description			
Barrier Force C8			
CURNO	Type	SAE Class	Units
123	FIL	60	Newtons
Max	Time	Min	Time
6473.1	51.5	-309.3	17.1



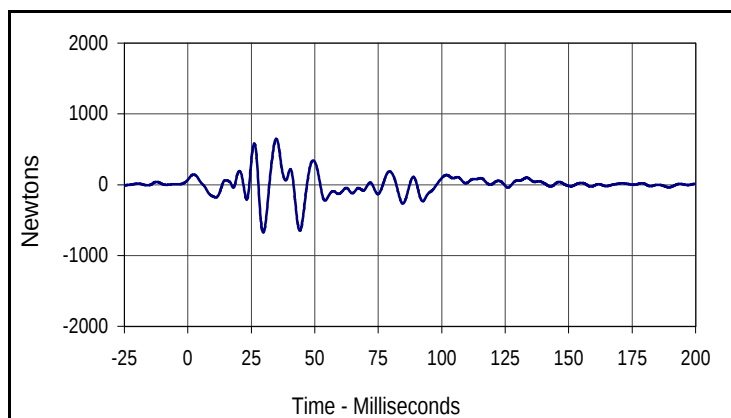
Curve Description			
Barrier Force D8			
CURNO	Type	SAE Class	Units
132	FIL	60	Newtons
Max	Time	Min	Time
853.1	29.8	-558.6	13.2

Test Vehicle: 2004 Toyota Scion XA
 Test Program: 2004 NHTSA 35mph NCAP

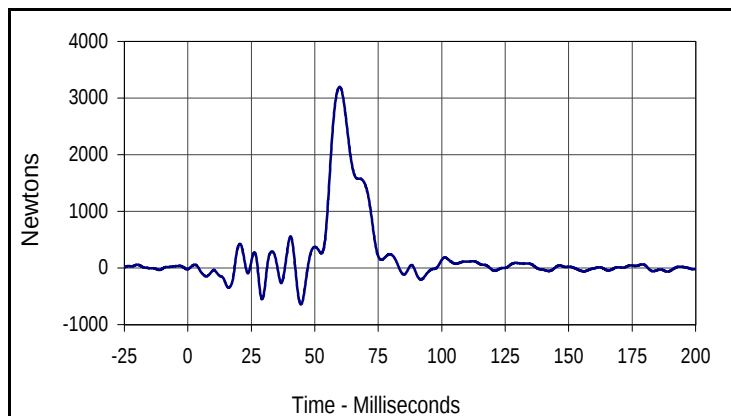
Test Date: 2/10/04
 NHTSA No.: M45106



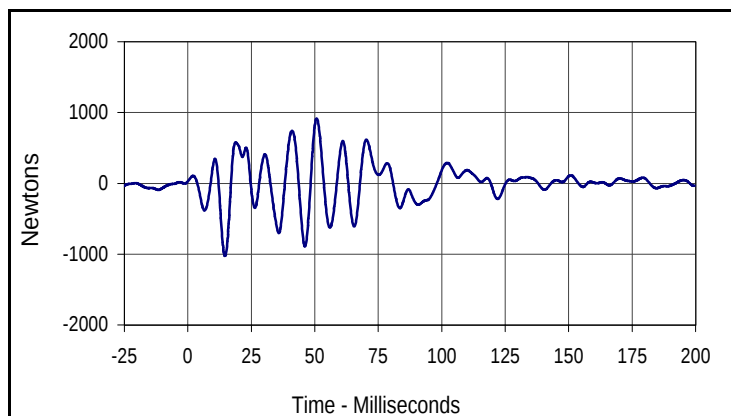
Curve Description			
Barrier Force A9			
CURNO	Type	SAE Class	Units
106	FIL	60	Newtons
Max	Time	Min	Time
1381.2	45.6	-1039.0	30.9



Curve Description			
Barrier Force B9			
CURNO	Type	SAE Class	Units
115	FIL	60	Newtons
Max	Time	Min	Time
646.4	34.8	-672.5	29.7



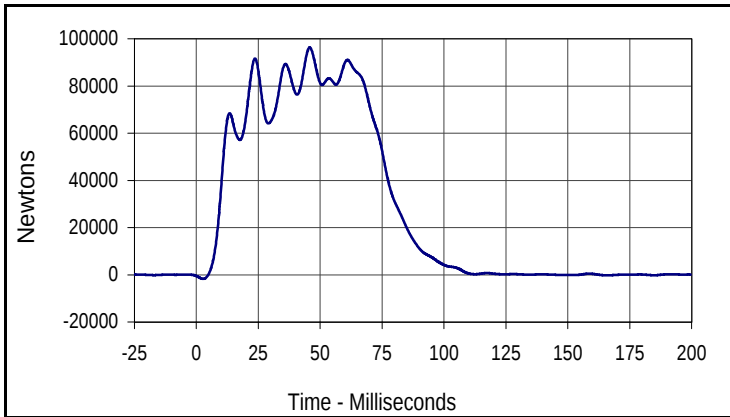
Curve Description			
Barrier Force C9			
CURNO	Type	SAE Class	Units
124	FIL	60	Newtons
Max	Time	Min	Time
3197.4	59.8	-644.3	44.5



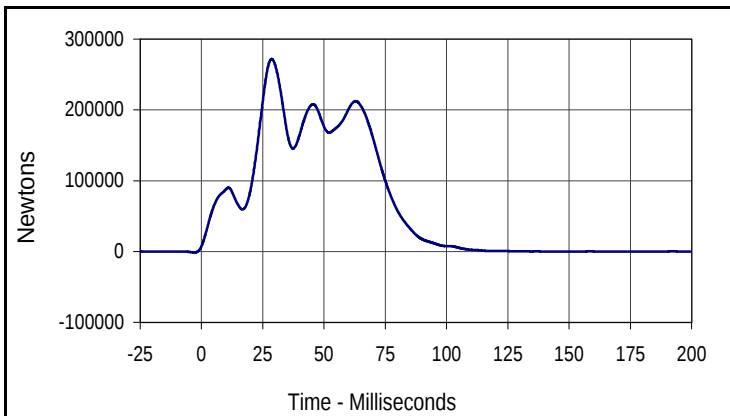
Curve Description			
Barrier Force D9			
CURNO	Type	SAE Class	Units
133	FIL	60	Newtons
Max	Time	Min	Time
914.4	50.7	-1024.7	14.6

Test Vehicle: 2004 Toyota Scion XA
 Test Program: 2004 NHTSA 35mph NCAP

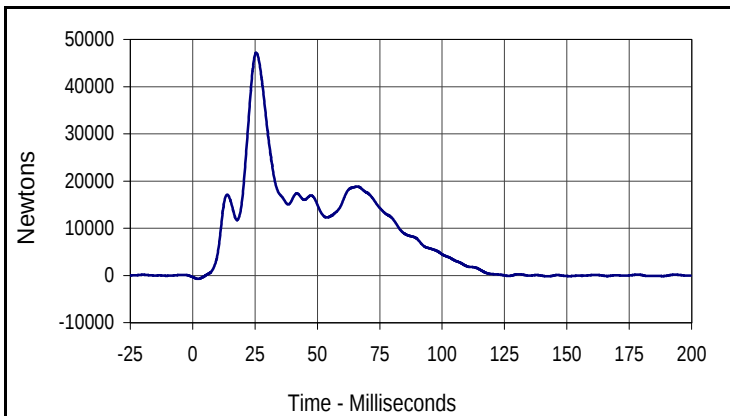
Test Date: 2/10/04
 NHTSA No.: M45106



Curve Description			
Barrier Force Sum Group 1			
CURNO	Type	SAE Class	Units
001	SUM	60	Newtons
Max	Time	Min	Time
96295.6	45.8	-1704.6	2.8



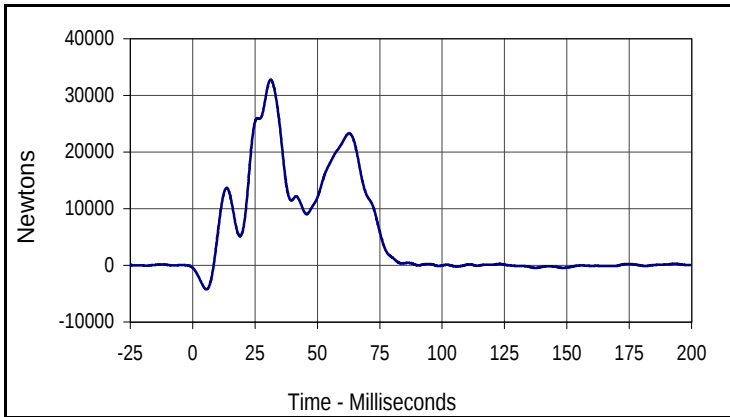
Curve Description			
Barrier Force Sum Group 2			
CURNO	Type	SAE Class	Units
002	SUM	60	Newtons
Max	Time	Min	Time
271860.5	28.6	-151.1	165.4



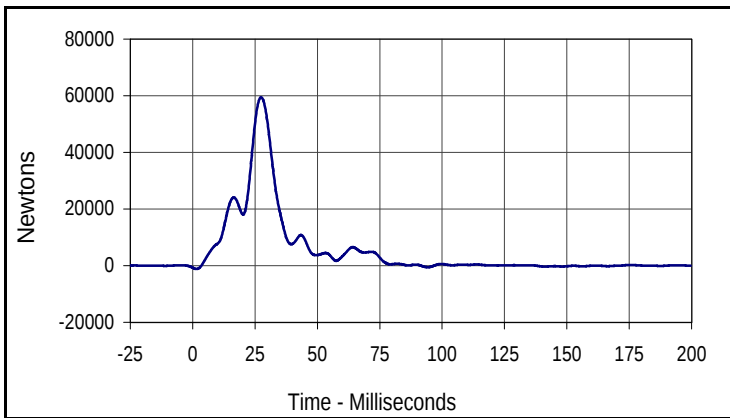
Curve Description			
Barrier Force Sum Group 3			
CURNO	Type	SAE Class	Units
003	SUM	60	Newtons
Max	Time	Min	Time
47184.0	25.5	-715.1	2.2

Test Vehicle: 2004 Toyota Scion XA
 Test Program: 2004 NHTSA 35mph NCAP

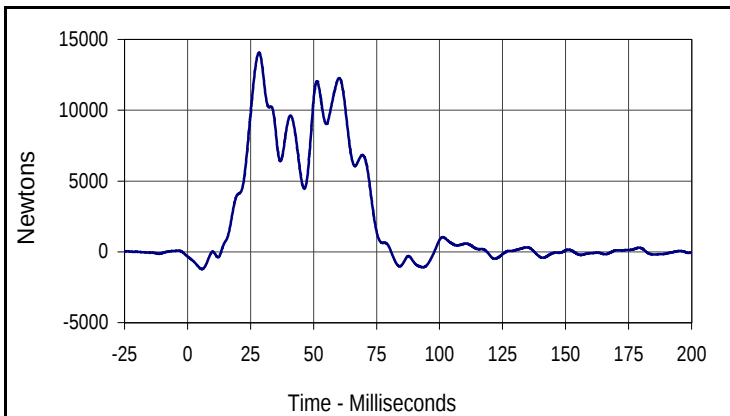
Test Date: 2/10/04
 NHTSA No.: M45106



Curve Description			
Barrier Force Sum Group 4			
CURNO	Type	SAE Class	Units
004	SUM	60	Newtons
Max	Time	Min	Time
32782.9	31.3	-4252.4	5.5



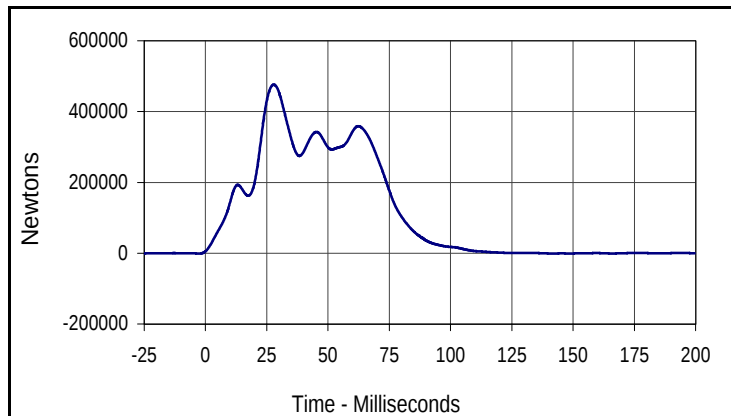
Curve Description			
Barrier Force Sum Group 5			
CURNO	Type	SAE Class	Units
005	SUM	60	Newtons
Max	Time	Min	Time
59435.0	27.4	-1186.1	1.5



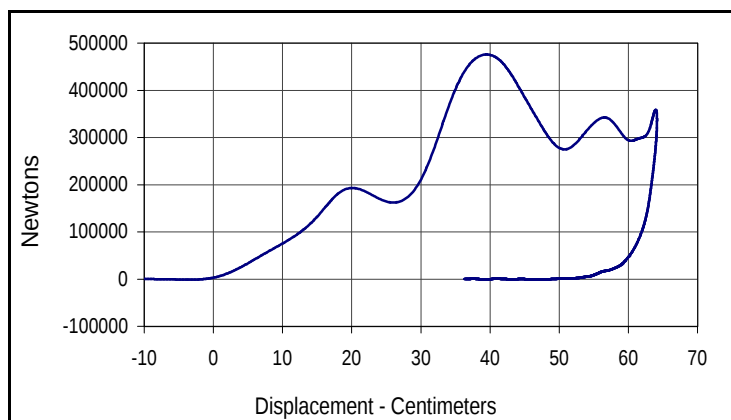
Curve Description			
Barrier Force Sum Group 6			
CURNO	Type	SAE Class	Units
006	SUM	60	Newtons
Max	Time	Min	Time
14072.9	28.4	-1220.2	5.8

Test Vehicle: 2004 Toyota Scion XA
 Test Program: 2004 NHTSA 35mph NCAP

Test Date: 2/10/04
 NHTSA No.: M45106



Curve Description			
Barrier Force Total Sum			
CURNO	Type	SAE Class	Units
007	SUM	60	Newtons
Max	Time	Min	Time
476020.3	27.9	-1039.6	148.3



Curve Description			
Barrier Force Total Sum vs. Displ.			
CURNO	Type	SAE Class	Units
001	XVY	60	Newtons
Max	CM	Min	CM
476020.3	39.5	-1039.6	46.7

BARRIER LOAD CELL SUMMARY DATA

Test Vehicle: 2004 Toyota Scion XA 4 Door Sedan

NHTSA No.: M45106

Test Program: 2004 NHTSA 35mph NCAP

Test Date: 2/10/04

Location	Units	Max	Time	Min	Time
Barrier Force A1	Newtons	4250.6	45.4	-3069.0	31.1
Barrier Force A2	Newtons	4557.1	53.8	-1073.4	17.8
Barrier Force A3	Newtons	2155.1	13.9	-702.7	3.1
Barrier Force A4	Newtons	14357.1	65.4	-398.4	2.0
Barrier Force A5	Newtons	12950.1	63.4	-757.2	18.7
Barrier Force A6	Newtons	30854.3	63.9	-447.9	1.4
Barrier Force A7	Newtons	4674.2	25.1	-825.3	18.3
Barrier Force A8	Newtons	6182.2	65.4	-588.7	19.1
Barrier Force A9	Newtons	1381.2	45.6	-1039.0	30.9
Barrier Force B1	Newtons	3579.9	37.1	-1065.7	5.8
Barrier Force B2	Newtons	4012.8	46.0	-267.0	4.0
Barrier Force B3	Newtons	84137.1	23.4	-362.5	0.8
Barrier Force B4	Newtons	63937.5	29.9	-67.1	151.3
Barrier Force B5	Newtons	54726.2	29.9	-60.1	165.8
Barrier Force B6	Newtons	120629.1	28.3	-36.0	165.6
Barrier Force B7	Newtons	36099.2	25.2	-425.3	2.2
Barrier Force B8	Newtons	5601.2	40.4	-240.9	10.9
Barrier Force B9	Newtons	646.4	34.8	-672.5	29.7
Barrier Force C1	Newtons	7067.8	64.0	-1012.0	28.1
Barrier Force C2	Newtons	5808.4	63.0	-794.7	5.1
Barrier Force C3	Newtons	21941.5	31.6	-572.6	3.5
Barrier Force C4	Newtons	12538.9	30.5	-201.9	0.0
Barrier Force C5	Newtons	15670.6	29.5	-342.3	1.3
Barrier Force C6	Newtons	17516.8	27.9	-437.8	1.5
Barrier Force C7	Newtons	8359.1	28.4	-276.0	2.6
Barrier Force C8	Newtons	6473.1	51.5	-309.3	17.1
Barrier Force C9	Newtons	3197.4	59.8	-644.3	44.5
Barrier Force D1	Newtons	2190.2	11.9	-1310.8	6.3
Barrier Force D2	Newtons	3850.7	33.3	-641.2	5.3
Barrier Force D3	Newtons	4391.7	27.7	-770.9	4.9
Barrier Force D4	Newtons	5654.2	26.7	-601.3	4.5
Barrier Force D5	Newtons	5461.1	26.4	-191.7	94.4
Barrier Force D6	Newtons	5703.2	27.4	-831.4	20.9
Barrier Force D7	Newtons	4691.2	27.4	-767.4	21.1
Barrier Force D8	Newtons	853.1	29.8	-558.6	13.2
Barrier Force D9	Newtons	914.4	50.7	-1024.7	14.6
Barrier Force Sum Group 1	Newtons	96295.6	45.8	-1704.6	2.8
Barrier Force Sum Group 2	Newtons	271860.5	28.6	-151.1	165.4
Barrier Force Sum Group 3	Newtons	47184.0	25.5	-715.1	2.2
Barrier Force Sum Group 4	Newtons	32782.9	31.3	-4252.4	5.5
Barrier Force Sum Group 5	Newtons	59435.0	27.4	-1186.1	1.5
Barrier Force Sum Group 6	Newtons	14072.9	28.4	-1220.2	5.8
Barrier Force Total Sum	Newtons	476020.3	27.9	-1039.6	148.3

APPENDIX D

INSTRUMENTATION DATA CHANNEL ASSIGNMENTS

2004 NHTSA 35mph NCAP
Instrumentation Data Channel Assignments
Driver A.T.D. Serial Number 34
2/10/04
2004 Toyota Scion XA 4 Door Sedan

CH.	LOCATION	AXIS	IDENT. NO.	DESCRIPTION	MFR	MODEL	UNITS
1	HEAD, PRIMARY	X	KEAC039	Accel.,1/2 bridge	Endevco	7264-2000	G
2	HEAD, PRIMARY	Y	KEAC038	Accel.,1/2 bridge	Endevco	7264-2000	G
3	HEAD, PRIMARY	Z	KEAC027	Accel.,1/2 bridge	Endevco	7264-2000	G
4	HEAD, REDUNDANT	X	KEAC031	Accel.,1/2 bridge	Endevco	7264-2000	G
5	HEAD, REDUNDANT	Y	KEAC032	Accel.,1/2 bridge	Endevco	7264-2000	G
6	HEAD, REDUNDANT	Z	KEAC026	Accel.,1/2 bridge	Endevco	7264-2000	G
7	NECK FORCE	X	GPUN02FX	Load cell, six axis neck	R. A. Denton	1716A	N
8	NECK FORCE	Y	GPUN02FY	Load cell, six axis neck	R. A. Denton	1716A	N
9	NECK FORCE	Z	GPUN02FZ	Load cell, six axis neck	R. A. Denton	1716A	N
10	NECK MOMENT	X	GPUN02MX	Load cell, six axis neck	R. A. Denton	1716A	Nm
11	NECK MOMENT	Y	GPUN02MY	Load cell, six axis neck	R. A. Denton	1716A	Nm
12	NECK MOMENT	Z	GPUN02MZ	Load cell, six axis neck	R. A. Denton	1716A	Nm
13	CHEST , PRIMARY	X	GPAC031	Accel., 1/2 bridge	Endevco	7264-2000	G
14	CHEST , PRIMARY	Y	GPAC024	Accel., 1/2 bridge	Endevco	7264-2000	G
15	CHEST , PRIMARY	Z	GPAC029	Accel., 1/2 bridge	Endevco	7264-2000	G
16	CHEST , REDUNDANT	X	KEAC023	Accel.,1/2 bridge	Endevco	7264-200	G
17	CHEST , REDUNDANT	Y	KEAC022	Accel.,1/2 bridge	Endevco	7264-200	G
18	CHEST , REDUNDANT	Z	KEAC024	Accel.,1/2 bridge	Endevco	7264-200	G
19	CHEST DISPLACEMENT	X	GPCP001	Rotary Pot Chest	Servo	14CBI	MM
20	PELVIS, PRIMARY	X	KEAC019	Accel.,1/2 bridge	Endevco	7264-200	G
21	PELVIS, PRIMARY	Y	KEAC020	Accel.,1/2 bridge	Endevco	7264-200	G
22	PELVIS, PRIMARY	Z	KEAC021	Accel.,1/2 bridge	Endevco	7264-200	G
23	LEFT FEMUR FORCE	Z	KEFF001	Load cell, Femur	R.A. Denton	2121	N
24	RIGHT FEMUR FORCE	Z	KEFF002	Load cell, Femur	R.A. Denton	2121	N

2004 NHTSA 35mph NCAP
Instrumentation Data Channel Assignments
Driver A.T.D. Serial Number 34
2/10/04
2004 Toyota Scion XA 4 Door Sedan

CH.	LOCATION	AXIS	IDENT. NO.	DESCRIPTION	MFR	MODEL	UNITS
25	UP. TIBIA LEFT MOM.	X	GPUT09MX	2 ch., Upper tibia gage	R. A. Denton	1583	Nm
26	UP. TIBIA LEFT MOM.	Y	GPUT09MY	2 ch., Upper tibia gage	R. A. Denton	1583	Nm
27	UP. TIBIA RIGHT MOM.	X	GPUT09MX	2 ch., Upper tibia gage	R. A. Denton	1583	Nm
28	UP. TIBIA RIGHT MOM.	Y	GPUT09MY	2 ch., Upper tibia gage	R. A. Denton	1583	Nm
29	LWR. TIBIA LEFT MOM.	X	GPLT09MX	3 ch., lower tibia gage	R. A. Denton	3093	Nm
30	LWR. TIBIA LEFT MOM.	Y	GPLT09MY	3 ch., lower tibia gage	R. A. Denton	3093	Nm
31	LWR. TIBIA LEFT FORCE	Z	GPLT09FZ	3 ch., lower tibia gage	R. A. Denton	3093	N
32	LWR. TIBIA RIGHT MOM.	X	GPLT09MX	3 ch., lower tibia gage	R. A. Denton	3093	Nm
33	LWR. TIBIA RIGHT MOM.	Y	GPLT09MY	3 ch., lower tibia gage	R. A. Denton	3093	Nm
34	LWR. TIBIA RIGHT FORCE	Z	GPLT09FZ	3 ch., lower tibia gage	R. A. Denton	3093	N
35	FOOT LEFT, AFT	X	KEIC003X	Accel., Foot Triax	I.C. Sensor	3031-500	G
36	FOOT LEFT, AFT	Z	KEIC003Y	Accel., Foot Triax	I.C. Sensor	3031-500	G
37	FOOT LEFT, FORE	Z	KEIC003Z	Accel., Foot Triax	I.C. Sensor	3031-500	G
38	FOOT RIGHT, AFT	X	KEIC004X	Accel., Foot Triax	I.C. Sensor	3031-500	G
39	FOOT RIGHT, AFT	Z	KEIC004Y	Accel., Foot Triax	I.C. Sensor	3031-500	G
40	FOOT RIGHT, FORE	Z	KEIC004Z	Accel., Foot Triax	I.C. Sensor	3031-500	G
41	LAP BELT FORCE	N/A	BL134	Load cell, Seat belt	FGP	FN4060	N
42	SHOULDER BELT FORCE	N/A	BL135	Load cell, Seat belt	FGP	FN4060	N
43	SHOULDER BELT SPOOL	N/A	KEPP001	Pullout pot	Celesco	PTX101-0030	MM
44	SHOULDER BELT ELONG.	N/A	KEEP001	Linear pot., belt stretch	E.T.I.	LCP8-10 10K	MM/CM

2004 NHTSA 35mph NCAP
Instrumentation Data Channel Assignments
Passenger A.T.D. Serial Number 35
2/10/04
2004 Toyota Scion XA 4 Door Sedan

CH.	LOCATION	AXIS	IDENT. NO.	DESCRIPTION	MFR	MODEL	UNITS
45	HEAD, PRIMARY	X	GPAC027	Accel., 1/2 bridge	Endevco	7264-2000	G
46	HEAD, PRIMARY	Y	GPAC002	Accel., 1/2 bridge	Endevco	7264-2000	G
47	HEAD, PRIMARY	Z	GPAC003	Accel., 1/2 bridge	Endevco	7264-2000	G
48	HEAD, REDUNDANT	X	GPAC032	Accel., 1/2 bridge	Endevco	7264-2000	G
49	HEAD, REDUNDANT	Y	GPAC021	Accel., 1/2 bridge	Endevco	7264-2000	G
50	HEAD, REDUNDANT	Z	GPAC026	Accel., 1/2 bridge	Endevco	7264-2000	G
51	NECK FORCE	X	GPUN01FX	Load cell, six axis neck	R. A. Denton	1716A	N
52	NECK FORCE	Y	GPUN01FY	Load cell, six axis neck	R. A. Denton	1716A	N
53	NECK FORCE	Z	GPUN01FZ	Load cell, six axis neck	R. A. Denton	1716A	N
54	NECK MOMENT	X	GPUN01MX	Load cell, six axis neck	R. A. Denton	1716A	Nm
55	NECK MOMENT	Y	GPUN01MY	Load cell, six axis neck	R. A. Denton	1716A	Nm
56	NECK MOMENT	Z	GPUN01MZ	Load cell, six axis neck	R. A. Denton	1716A	Nm
57	CHEST , PRIMARY	X	GPAC005	Accel., 1/2 bridge	Endevco	7264-2000	G
58	CHEST , PRIMARY	Y	GPAC011	Accel., 1/2 bridge	Endevco	7264-2000	G
59	CHEST , PRIMARY	Z	GPAC010	Accel., 1/2 bridge	Endevco	7264-2000	G
60	CHEST , REDUNDANT	X	GPAC034	Accel., 1/2 bridge	Endevco	7264-2000	G
61	CHEST , REDUNDANT	Y	GPAC023	Accel., 1/2 bridge	Endevco	7264-2000	G
62	CHEST , REDUNDANT	Z	GPAC020	Accel., 1/2 bridge	Endevco	7264-2000	G
63	CHEST DISPLACEMENT	X	GPCP002	Rotary Pot Chest	Servo	14CBI	MM
64	PELVIS, PRIMARY	X	GPAC025	Accel., 1/2 bridge	Endevco	7264-2000	G
65	PELVIS, PRIMARY	Y	GPAC022	Accel., 1/2 bridge	Endevco	7264-2000	G
66	PELVIS, PRIMARY	Z	GPAC019	Accel., 1/2 bridge	Endevco	7264-2000	G
67	LEFT FEMUR FORCE	Z	KEFF003	Load cell, Femur	R.A. Denton	2121	N
68	RIGHT FEMUR FORCE	Z	KEFF004	Load cell, Femur	R.A. Denton	2121	N

2004 NHTSA 35mph NCAP
Instrumentation Data Channel Assignments
Passenger A.T.D. Serial Number 35
2/10/04
2004 Toyota Scion XA 4 Door Sedan

CH.	LOCATION	AXIS	IDENT. NO.	DESCRIPTION	MFR	MODEL	UNITS
69	UP. TIBIA LEFT MOM.	X	GPUT09MX	2 ch., Upper tibia gage	R. A. Denton	1583	Nm
70	UP. TIBIA LEFT MOM.	Y	GPUT09MY	2 ch., Upper tibia gage	R. A. Denton	1583	Nm
71	UP. TIBIA RIGHT MOM.	X	GPUT09MX	2 ch., Upper tibia gage	R. A. Denton	1583	Nm
72	UP. TIBIA RIGHT MOM.	Y	GPUT09MY	2 ch., Upper tibia gage	R. A. Denton	1583	Nm
73	LWR. TIBIA LEFT MOM.	X	GPLT09MX	3 ch., lower tibia gage	R. A. Denton	3093	Nm
74	LWR. TIBIA LEFT MOM.	Y	GPLT09MY	3 ch., lower tibia gage	R. A. Denton	3093	Nm
75	LWR. TIBIA LEFT FORCE	Z	GPLT09FZ	3 ch., lower tibia gage	R. A. Denton	3093	N
76	LWR. TIBIA RIGHT MOM.	X	GPLT09MX	3 ch., lower tibia gage	R. A. Denton	3093	Nm
77	LWR. TIBIA RIGHT MOM.	Y	GPLT09MY	3 ch., lower tibia gage	R. A. Denton	3093	Nm
78	LWR. TIBIA RIGHT FORCE	Z	GPLT09FZ	3 ch., lower tibia gage	R. A. Denton	3093	N
79	FOOT LEFT, AFT	X	KEIC002X	Accel., Foot Triax	I.C. Sensor	3031-500	G
80	FOOT LEFT, AFT	Z	KEIC002Y	Accel., Foot Triax	I.C. Sensor	3031-500	G
81	FOOT LEFT, FORE	Z	KEIC002Z	Accel., Foot Triax	I.C. Sensor	3031-500	G
82	FOOT RIGHT, AFT	X	KEIC001X	Accel., Foot Triax	I.C. Sensor	3031-500	G
83	FOOT RIGHT, AFT	Z	KEIC001Y	Accel., Foot Triax	I.C. Sensor	3031-500	G
84	FOOT RIGHT, FORE	Z	KEIC001Z	Accel., Foot Triax	I.C. Sensor	3031-500	G
85	LAP BELT FORCE	N/A	BL168	Load cell, Seat belt	First Tech	IF-964	N
86	SHOULDER BELT FORCE	N/A	BL169	Load cell, Seat belt	First Tech	IF-964	N
87	SHOULDER BELT SPOOL	N/A	KEPP001	Pullout pot	Celesco	PTX101-0030	MM
88	SHOULDER BELT ELONG.	N/A	KEEP001	Linear pot., belt stretch	E.T.I.	LCP8-10 10K	MM/CM

**2004 NHTSA 35mph NCAP
Instrumentation Data Channel Assignments
Vehicle Accelerometers
2/10/04
2004 Toyota Scion XA 4 Door Sedan**

CH.	LOCATION	AXIS	IDENT. NO.	DESCRIPTION	MFR	MODEL	UNITS
89	LEFT REAR	X	KEVA002	Accel., Pre-Amp	I.C.S/Karco	3031-500	G
90	RIGHT REAR	X	KEVA006	Accel., Vehicle block	I.C. Sensor	3031-200	G
91	ENGINE TOP	X	KEVA009	Accel., Vehicle block	I.C. Sensor	3031-500	G
92	ENGINE BOTTOM	X	KEVA007	Accel., Vehicle block	I.C. Sensor	3031-500	G
93	LEFT BRAKE CALIPER	X	KEVA008	Accel., Vehicle block	I.C. Sensor	3031-500	G
94	RIGHT BRAKE CALIPER	X	KEVA012	Accel., Vehicle block	I.C. Sensor	3031-500	G
95	INSTRUMENT PANEL	X	KEVA011	Accel., Vehicle block	I.C. Sensor	3031-200	G
96	LEFT REAR	Z	KEVA001	Accel., Vehicle block	I.C. Sensor	3031-500	G
97	RIGHT REAR	Z	KEVA010	Accel., Vehicle block	I.C. Sensor	3031-200	G

2004 NHTSA 35mph NCAP
Instrumentation Data Channel Assignments
Rigid Load Cell Barrier
2/10/04
2004 Toyota Scion XA 4 Door Sedan

CH.	LOCATION	AXIS	IDENT. NO.	DESCRIPTION	MFR	MODEL	UNITS
98	BARRIER FORCE A1	X	BARRIER	Load Cell, LCB	Interface	1220-FS	N
99	BARRIER FORCE A2	X	BARRIER	Load Cell, LCB	Interface	1220-FS	N
100	BARRIER FORCE A3	X	BARRIER	Load Cell, LCB	Interface	1220-FS	N
101	BARRIER FORCE A4	X	BARRIER	Load Cell, LCB	Interface	1220-FS	N
102	BARRIER FORCE A5	X	BARRIER	Load Cell, LCB	Interface	1220-FS	N
103	BARRIER FORCE A6	X	BARRIER	Load Cell, LCB	Interface	1220-FS	N
104	BARRIER FORCE A7	X	BARRIER	Load Cell, LCB	Interface	1220-FS	N
105	BARRIER FORCE A8	X	BARRIER	Load Cell, LCB	Interface	1220-FS	N
106	BARRIER FORCE A9	X	BARRIER	Load Cell, LCB	Interface	1220-FS	N
107	BARRIER FORCE B1	X	BARRIER	Load Cell, LCB	Interface	1220-FS	N
108	BARRIER FORCE B2	X	BARRIER	Load Cell, LCB	Interface	1220-FS	N
109	BARRIER FORCE B3	X	BARRIER	Load Cell, LCB	Interface	1220-FS	N
110	BARRIER FORCE B4	X	BARRIER	Load Cell, LCB	Interface	1220-FS	N
111	BARRIER FORCE B5	X	BARRIER	Load Cell, LCB	Interface	1220-FS	N
112	BARRIER FORCE B6	X	BARRIER	Load Cell, LCB	Interface	1220-FS	N
113	BARRIER FORCE B7	X	BARRIER	Load Cell, LCB	Interface	1220-FS	N
114	BARRIER FORCE B8	X	BARRIER	Load Cell, LCB	Interface	1220-FS	N
115	BARRIER FORCE B9	X	BARRIER	Load Cell, LCB	Interface	1220-FS	N

**2004 NHTSA 35mph NCAP
Instrumentation Data Channel Assignments
Rigid Load Cell Barrier
2/10/04
2004 Toyota Scion XA 4 Door Sedan**

CH.	LOCATION	AXIS	IDENT. NO.	DESCRIPTION	MFR	MODEL	UNITS
116	BARRIER FORCE C1	X	BARRIER	Load Cell, LCB	Interface	1220-FS	N
117	BARRIER FORCE C2	X	BARRIER	Load Cell, LCB	Interface	1220-FS	N
118	BARRIER FORCE C3	X	BARRIER	Load Cell, LCB	Interface	1220-FS	N
119	BARRIER FORCE C4	X	BARRIER	Load Cell, LCB	Interface	1220-FS	N
120	BARRIER FORCE C5	X	BARRIER	Load Cell, LCB	Interface	1220-FS	N
121	BARRIER FORCE C6	X	BARRIER	Load Cell, LCB	Interface	1220-FS	N
122	BARRIER FORCE C7	X	BARRIER	Load Cell, LCB	Interface	1220-FS	N
123	BARRIER FORCE C8	X	BARRIER	Load Cell, LCB	Interface	1220-FS	N
124	BARRIER FORCE C9	X	BARRIER	Load Cell, LCB	Interface	1220-FS	N
125	BARRIER FORCE D1	X	BARRIER	Load Cell, LCB	Interface	1220-FS	N
126	BARRIER FORCE D2	X	BARRIER	Load Cell, LCB	Interface	1220-FS	N
127	BARRIER FORCE D3	X	BARRIER	Load Cell, LCB	Interface	1220-FS	N
128	BARRIER FORCE D4	X	BARRIER	Load Cell, LCB	Interface	1220-FS	N
129	BARRIER FORCE D5	X	BARRIER	Load Cell, LCB	Interface	1220-FS	N
130	BARRIER FORCE D6	X	BARRIER	Load Cell, LCB	Interface	1220-FS	N
131	BARRIER FORCE D7	X	BARRIER	Load Cell, LCB	Interface	1220-FS	N
132	BARRIER FORCE D8	X	BARRIER	Load Cell, LCB	Interface	1220-FS	N
133	BARRIER FORCE D9	X	BARRIER	Load Cell, LCB	Interface	1220-FS	N

**2004 NHTSA 35mph NCAP
Instrumentation Data Channel Assignments
Nine Accelerometer Array Head
2/10/04
2004 Toyota Scion XA 4 Door Sedan**

CH.	LOCATION	AXIS	IDENT. NO.	DESCRIPTION	MFR	MODEL	UNITS
134	DRIVER X-ARM	Y	GPAC016	Accel., 1/2 bridge	Endevco	7264-2000	G
135	DRIVER X-ARM	Z	GPAC015	Accel., 1/2 bridge	Endevco	7264-2000	G
136	DRIVER Y-ARM	X	GPAC004	Accel., 1/2 bridge	Endevco	7264-2000	G
137	DRIVER Y-ARM	Z	GPAC018	Accel., 1/2 bridge	Endevco	7264-2000	G
138	DRIVER Z-ARM	X	GPAC006	Accel., 1/2 bridge	Endevco	7264-2000	G
139	DRIVER Z-ARM	Y	GPAC007	Accel., 1/2 bridge	Endevco	7264-2000	G
140	PASS. X-ARM	Y	GPAC012	Accel., 1/2 bridge	Endevco	7264-2000	G
141	PASS. X-ARM	Z	GPAC001	Accel., 1/2 bridge	Endevco	7264-2000	G
142	PASS. Y-ARM	X	GPAC036	Accel., 1/2 bridge	Endevco	7264-2000	G
143	PASS. Y-ARM	Z	GPAC014	Accel., 1/2 bridge	Endevco	7264-2000	G
144	PASS. Z-ARM	X	GPAC030	Accel., 1/2 bridge	Endevco	7264-2000	G
145	PASS. Z-ARM	Y	GPAC037	Accel., 1/2 bridge	Endevco	7264-2000	G

APPENDIX E

DUMMY CALIBRATION DATA

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

Test Date: 2/7/04

ATD Serial No.: 034

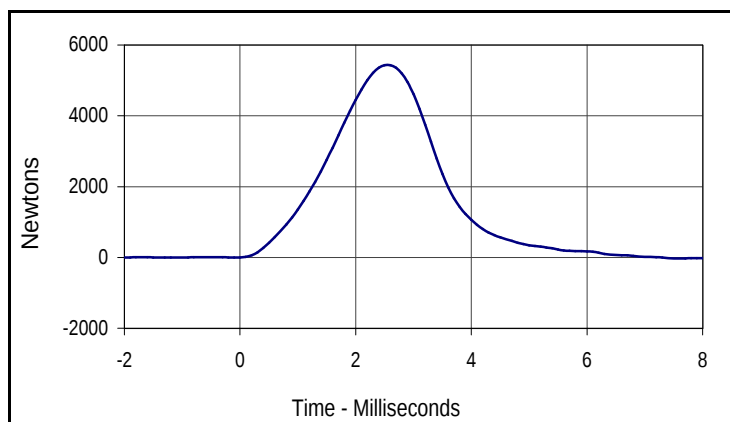
Test I.D.: LK04A , RK04a

**Left Knee**

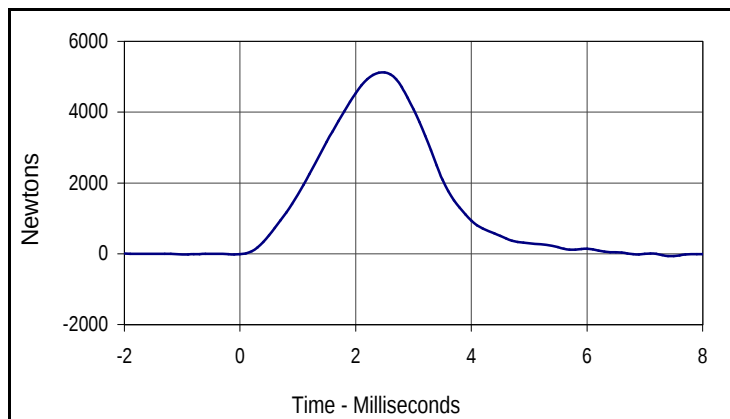
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	18.9 to 25.6	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Pendulum Velocity at T=0	m/sec	2.07 to 2.13	2.10	Pass
Peak Probe Force	Newtons	4715 to 5782	5431	Pass
Overall Test Results				Pass

Right Knee

Pendulum Velocity at T=0	m/sec	2.07 to 2.13	2.13	Pass
Peak Probe Force	Newtons	4715 to 5782	5125	Pass
Overall Test Results				Pass

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

CURNO	Type	SAE Class	Units
001	FIL	600	Newtons
Max	Time	Min	Time
5431.0	2.6	-39.2	8.3

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

CURNO	Type	SAE Class	Units
002	FIL	600	Newtons
Max	Time	Min	Time
5125.2	2.5	-65.5	7.5

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

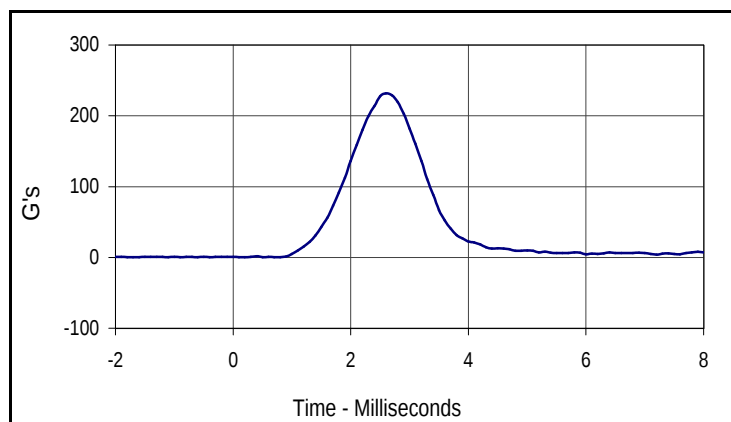
Test Date: 2/7/04

ATD Serial No.: 034

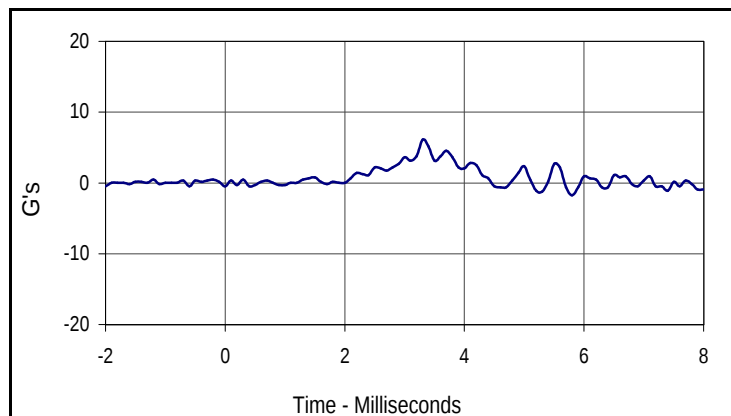
Test I.D.: HD04A



Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	18.9 to 25.6	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Peak Resultant Acceleration	G's	225.0 to 275.0	231.8	Pass
Peak Lateral Acceleration	G's	≤15.0	6.1	Pass
Is Acceleration Unimodal?	Yes/No	Yes	Yes	Pass
Overall Test Results			Pass	



Curve Description			
Head Resultant			
CURNO	Type	SAE Class	Units
001	RES	1000	G's
Max	Time	Min	Time
231.8	2.6	0.3	-0.4



Curve Description			
Head Y			
CURNO	Type	SAE Class	Units
002	FIL	1000	G's
Max	Time	Min	Time
6.1	3.3	-1.7	5.8

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

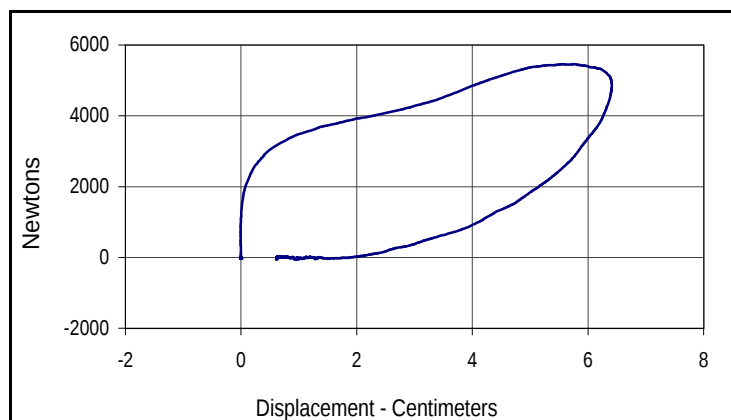
Test Date: 2/8/04

ATD Serial No.: 034

Test I.D.: CH04A



Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Probe Velocity	m/s	6.58 to 6.82	6.61	Pass
Peak Probe Force	Newtons	5159 to 5893	5455	Pass
Peak Sternum Displacement	CM	6.35 to 7.26	6.41	Pass
Internal Hysteresis	%	69 to 85	77.6	Pass
Overall Test Results				Pass



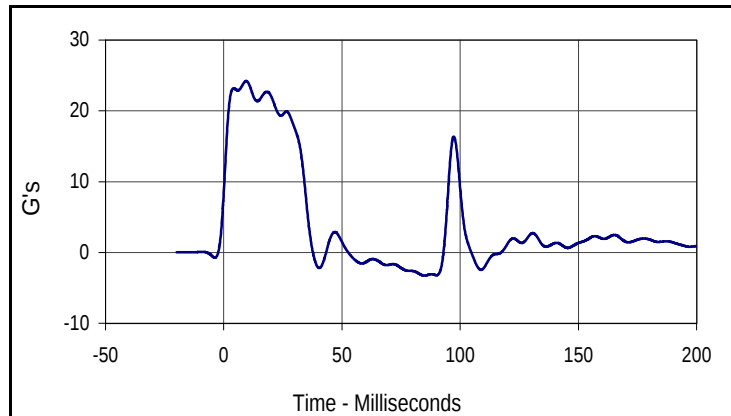
Curve Description			
Probe Force vs. Chest Displacement			
CURNO	Type	SAE Class	Hysteresis
001	FIL	180	77.6
Peak Probe Force		Peak Chest Displ.	
5455.4		6.41	

Test Program: Hybrid III 50th Percentile Male Neck Flexion Test
 ATD Serial No.: 034

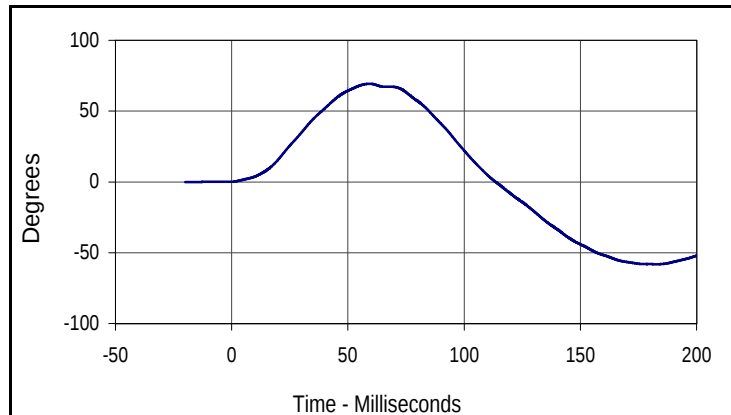
Test Date: 2/7/04
 Test I.D.: NF04A



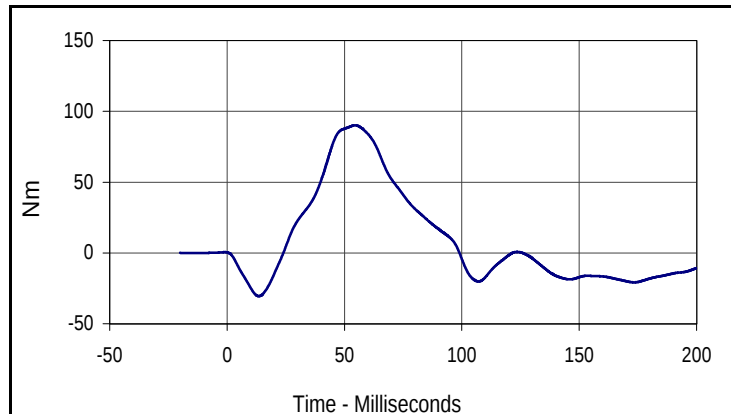
Tested Parameter		Units	Specification	Result	Pass/Fail
Laboratory Temperature		°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity		%	10 to 70	30	Pass
Pendulum Velocity		m/s	6.89 to 7.13	7.03	Pass
Pendulum Deceleration	10 Msec.	G's	22.5 to 27.5	24.1	Pass
	20 Msec.	G's	17.6 to 22.6	22.1	Pass
	30 Msec.	G's	12.5 to 18.5	17.5	Pass
Peak Pendulum Decel. after 30 Msec.		G's	≤ 29.0	17.5	Pass
Deceleration Decay, Time to Cross 5 G's		Msec.	34.0 to 42.0	35.6	Pass
Maximum "D" Plane Rotation	Max	Degrees	64.0 to 78.0	69.3	Pass
	Time	Msec.	57.0 to 64.0	59.4	Pass
"D" Plane Rotation Decay, Time To Zero Crossing		Msec.	113.0 to 128.0	113.6	Pass
Moment About Occ. Condyle	Max	Nm	84.1 to 108.5	90.2	Pass
	Time	Msec.	47.0 to 58.0	54.6	Pass
Positive Moment Decay, Time To Zero Crossing		Msec.	97.0 to 107.0	99.0	Pass
			Overall Test Results		Pass



Curve Description			
Pendulum Deceleration			
CURNO	Type	SAE Class	Units
001	FIL	60	G's
Max	Time	Min	Time
24.2	9.5	-3.3	84.8



Curve Description			
"D" Plane Rotation			
CURNO	Type	SAE Class	Units
003	FIL	60	Degrees
Max	Time	Min	Time
69.3	59.4	-58.1	183.0



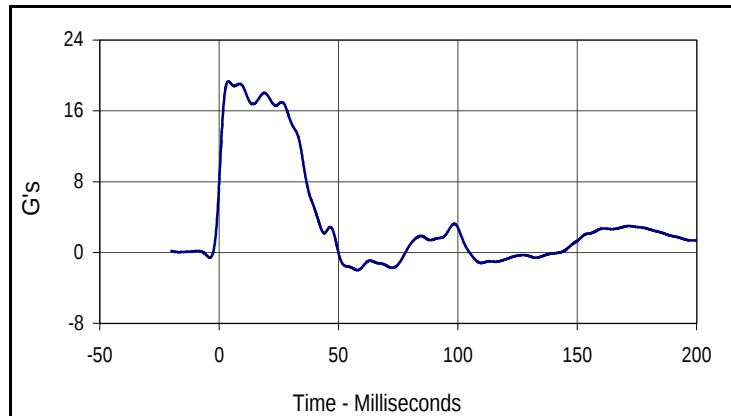
Curve Description			
Moment About Occipital Condyle			
CURNO	Type	SAE Class	Units
004	FIL	60	Nm
Max	Time	Min	Time
90.2	54.6	-30.5	13.5

Test Program: Hybrid III 50th Percentile Male Neck Extension Test
 ATD Serial No.: 034

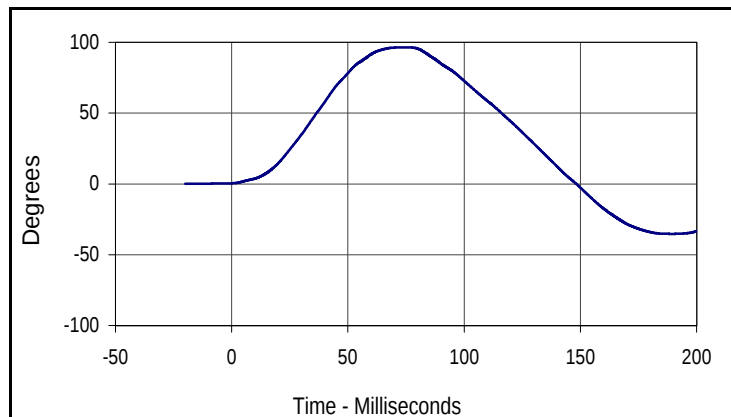
Test Date: 2/7/04
 Test I.D.: NE04A



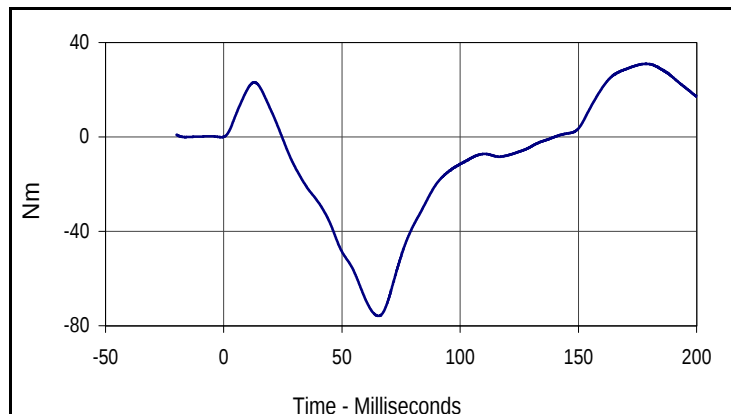
Tested Parameter		Units	Specification	Result	Pass/Fail
Laboratory Temperature		°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity		%	10 to 70	30	Pass
Pendulum Velocity		m/s	5.94 to 6.19	6.08	Pass
Pendulum Deceleration	10 Msec.	G's	17.2 to 21.2	18.7	Pass
	20 Msec.	G's	14.0 to 19.0	17.9	Pass
	30 Msec.	G's	11.0 to 16.0	14.8	Pass
Peak Pendulum Decel. after 30 Msec.		G's	≤ 22.0	14.8	Pass
Deceleration Decay, Time to Cross 5 G's		Msec.	38.0 to 46.0	40.0	Pass
Maximum "D" Plane Rotation	Max	Degrees	81.0 to 106.0	96.4	Pass
	Time	Msec.	72.0 to 82.0	75.2	Pass
"D" Plane Rotation Decay, Time To Zero Crossing		Msec.	147.0 to 174.0	148.3	Pass
Moment About Occ. Condyle	Max	Nm	-52.9 to- 79.9	-75.8	Pass
	Time	Msec.	65.0 to 79.0	65.4	Pass
Positive Moment Decay, Time To Zero Crossing		Msec.	120.0 to 148.0	139.9	Pass
			Overall Test Results		Pass



Curve Description			
Pendulum Deceleration			
CURNO	Type	SAE Class	Units
001	FIL	60	G's
Max	Time	Min	Time
19.3	3.8	-2.0	57.9



Curve Description			
"D" Plane Rotation			
CURNO	Type	SAE Class	Units
003	FIL	60	Degrees
Max	Time	Min	Time
96.4	75.2	-35.3	189.8



Curve Description			
Moment About Occipital Condyle			
CURNO	Type	SAE Class	Units
004	FIL	60	Nm
Max	Time	Min	Time
31.0	178.6	-75.8	65.4

Test Program: Hybrid III 50th Percentile Male External Measurements

Test Date: 2/8/04

ATD Serial No.: 034

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	30	Pass
A - Total sitting height	mm	879 to 889	885	Pass
B - Shoulder pivot height	mm	505 to 521	520	Pass
C - "H" point height	mm	84 to 89	85	Pass
D - "H" point from seat back	mm	135 to 140	135	Pass
E - Shoulder pivot from back	mm	84 to 94	90	Pass
F - Thigh clearance	mm	140 to 155	154	Pass
G - Elbow back to wrist pivot	mm	290 to 305	295	Pass
H - Skull cap to back line	mm	41 to 46	45	Pass
I - Shoulder to elbow length	mm	330 to 345	340	Pass
J - Elbow rest height	mm	190 to 211	200	Pass
K - Buttock to knee length	mm	579 to 604	585	Pass
L - Popliteal length	mm	429 to 455	450	Pass
M - Knee pivot height	mm	485 to 500	495	Pass
N - Buttock popliteal length	mm	452 to 477	475	Pass
O - Chest depth	mm	213 to 229	225	Pass
P - Foot length	mm	251 to 267	255	Pass
V - Shoulder breadth	mm	422 to 437	430	Pass
W - Foot breadth	mm	91 to 107	105	Pass
Y - Chest circumference	mm	970 to 1001	990	Pass
Z - Waist circumference	mm	836 to 866	860	Pass
AA - Location for chest circumference	mm	429 to 434	430	Pass
BB - Location for waist circumference	mm	226 to 231	230	Pass
Overall Test Results				Pass

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

Test Date: 2/7/04

ATD Serial No.: 035

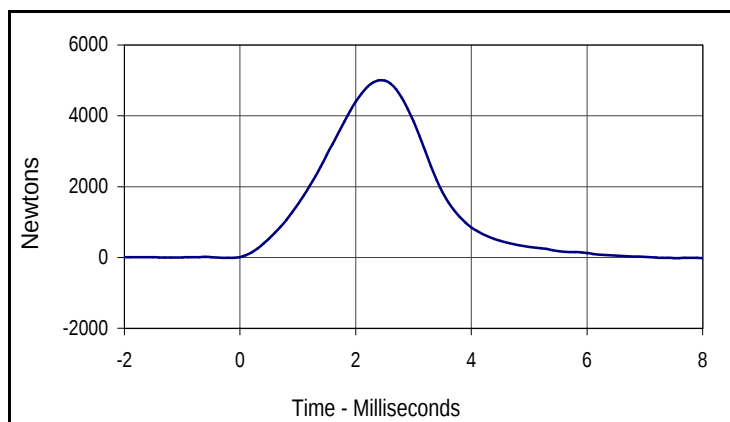
Test I.D.: LK04B , RK04B

**Left Knee**

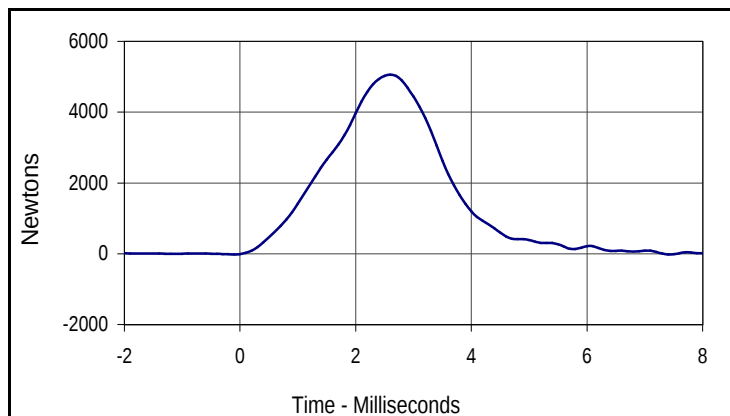
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	18.9 to 25.6	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Pendulum Velocity at T=0	m/sec	2.07 to 2.13	2.10	Pass
Peak Probe Force	Newtons	4715 to 5782	5005	Pass
Overall Test Results				Pass

Right Knee

Pendulum Velocity at T=0	m/sec	2.07 to 2.13	2.09	Pass
Peak Probe Force	Newtons	4715 to 5782	5061	Pass
Overall Test Results				Pass

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

CURNO	Type	SAE Class	Units
001	FIL	600	Newtons
Max	Time	Min	Time
5004.6	2.4	-43.4	8.3

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

CURNO	Type	SAE Class	Units
002	FIL	600	Newtons
Max	Time	Min	Time
5061.2	2.6	-62.6	8.5

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

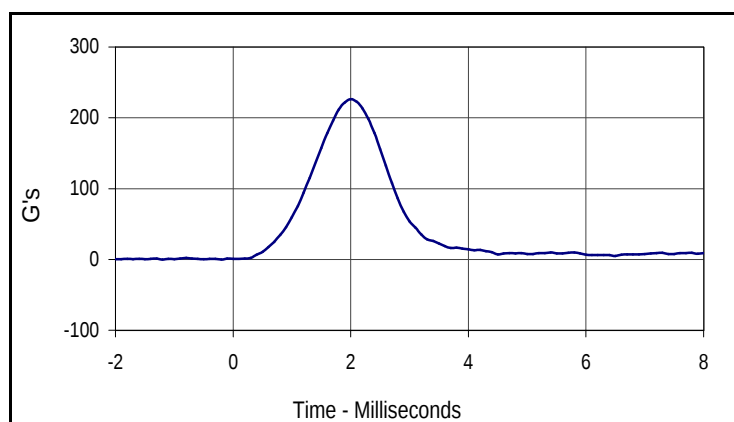
Test Date: 2/7/04

ATD Serial No.: 035

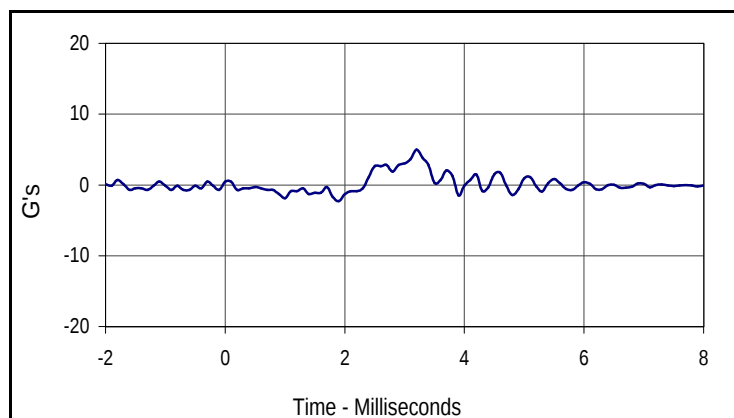
Test I.D.: HD04B



Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	18.9 to 25.6	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Peak Resultant Acceleration	G's	225.0 to 275.0	226.1	Pass
Peak Lateral Acceleration	G's	≤15.0	5.0	Pass
Is Acceleration Unimodal?	Yes/No	Yes	Yes	Pass
Overall Test Results			Pass	



Curve Description			
Head Resultant			
CURNO	Type	SAE Class	Units
001	RES	1000	G's
Max	Time	Min	Time
226.1	2.0	0.1	-1.2



Curve Description			
Head Y			
CURNO	Type	SAE Class	Units
002	FIL	1000	G's
Max	Time	Min	Time
5.0	3.2	-2.3	1.9

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

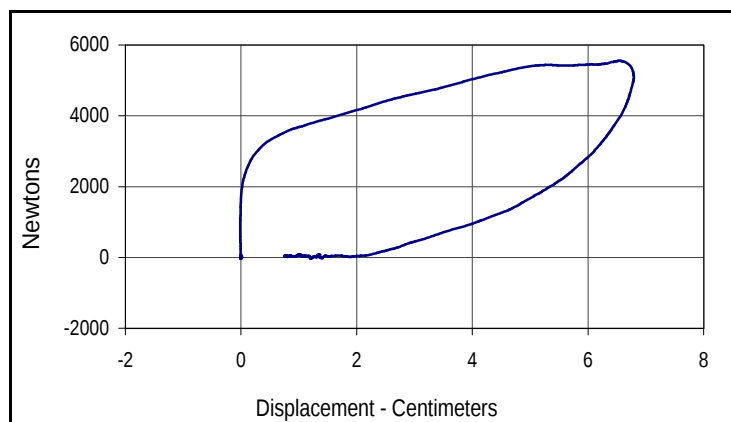
Test Date: 2/8/04

ATD Serial No.: 035

Test I.D.: CH04B



Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Probe Velocity	m/s	6.58 to 6.82	6.74	Pass
Peak Probe Force	Newtons	5159 to 5893	5557	Pass
Peak Sternum Displacement	CM	6.35 to 7.26	6.79	Pass
Internal Hysteresis	%	69 to 85	76.6	Pass
Overall Test Results			Pass	



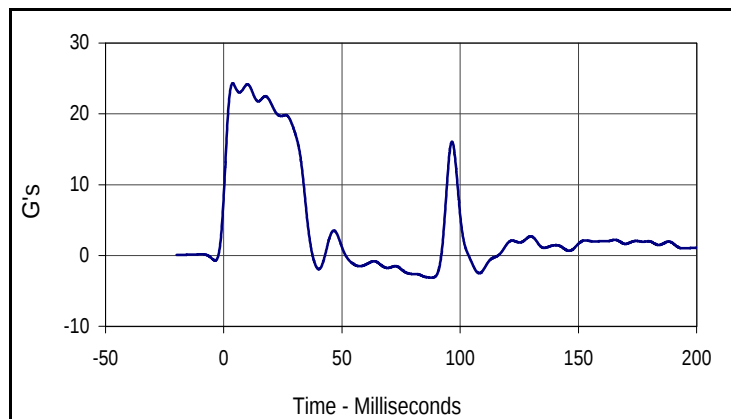
Curve Description			
Probe Force vs. Chest Displacement			
CURNO	Type	SAE Class	Hysteresis
001	FIL	180	76.6
Peak Probe Force		Peak Chest Displ.	
5556.6		6.79	

Test Program: Hybrid III 50th Percentile Male Neck Flexion Test
 ATD Serial No.: 035

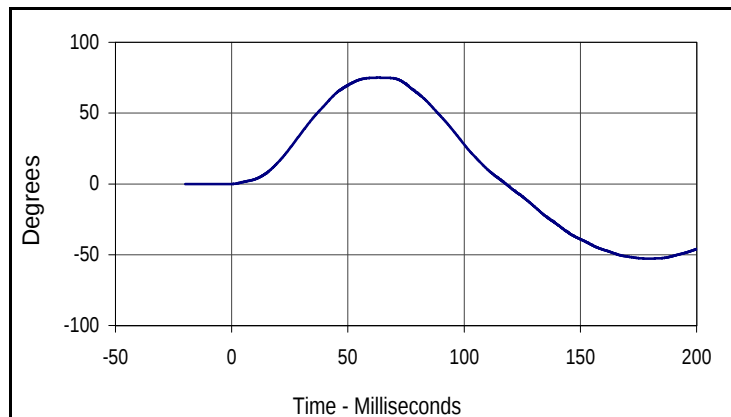
Test Date: 2/7/04
 Test I.D.: NF04B



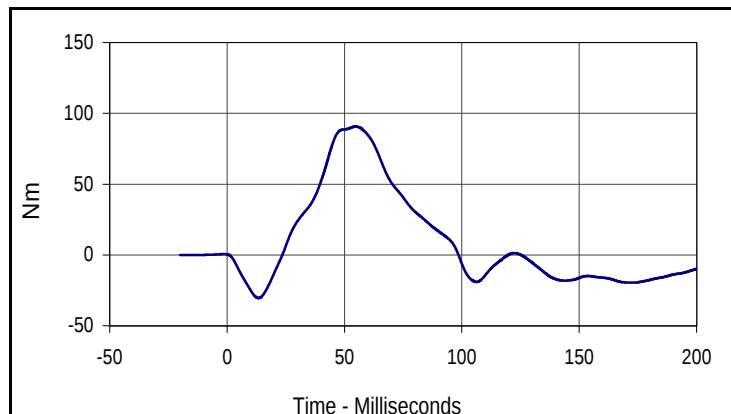
Tested Parameter		Units	Specification	Result	Pass/Fail
Laboratory Temperature		°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity		%	10 to 70	30	Pass
Pendulum Velocity		m/s	6.89 to 7.13	7.11	Pass
Pendulum Deceleration	10 Msec.	G's	22.5 to 27.5	24.2	Pass
	20 Msec.	G's	17.6 to 22.6	21.5	Pass
	30 Msec.	G's	12.5 to 18.5	17.5	Pass
Peak Pendulum Decel. after 30 Msec.		G's	≤ 29.0	17.5	Pass
Deceleration Decay, Time to Cross 5 G's		Msec.	34.0 to 42.0	35.4	Pass
Maximum "D" Plane Rotation	Max	Degrees	64.0 to 78.0	75.0	Pass
	Time	Msec.	57.0 to 64.0	63.1	Pass
"D" Plane Rotation Decay, Time To Zero Crossing		Msec.	113.0 to 128.0	118	Pass
Moment About Occ. Condyle	Max	Nm	84.1 to 108.5	90.7	Pass
	Time	Msec.	47.0 to 58.0	54.8	Pass
Positive Moment Decay, Time To Zero Crossing		Msec.	97.0 to 107.0	98.6	Pass
			Overall Test Results		Pass



Curve Description			
Pendulum Deceleration			
CURNO	Type	SAE Class	Units
001	FIL	60	G's
Max	Time	Min	Time
24.3	3.8	-3.1	87.8



Curve Description			
"D" Plane Rotation			
CURNO	Type	SAE Class	Units
003	FIL	60	Degrees
Max	Time	Min	Time
75.0	63.1	-52.7	178.7



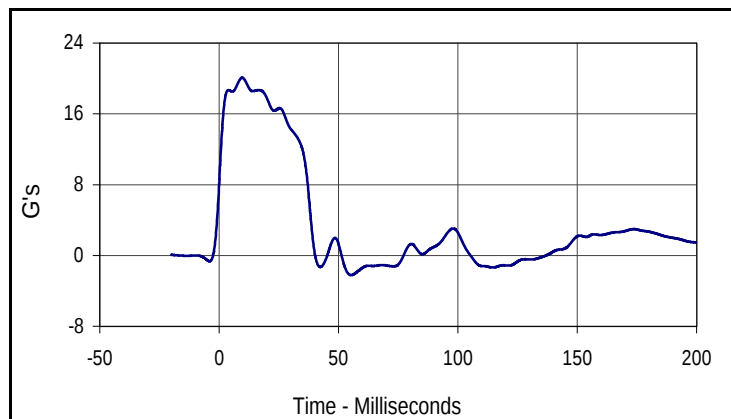
Curve Description			
Moment About Occipital Condyle			
CURNO	Type	SAE Class	Units
004	FIL	60	Nm
Max	Time	Min	Time
90.7	54.8	-30.5	13.4

Test Program: Hybrid III 50th Percentile Male Neck Extension Test
 ATD Serial No.: 035

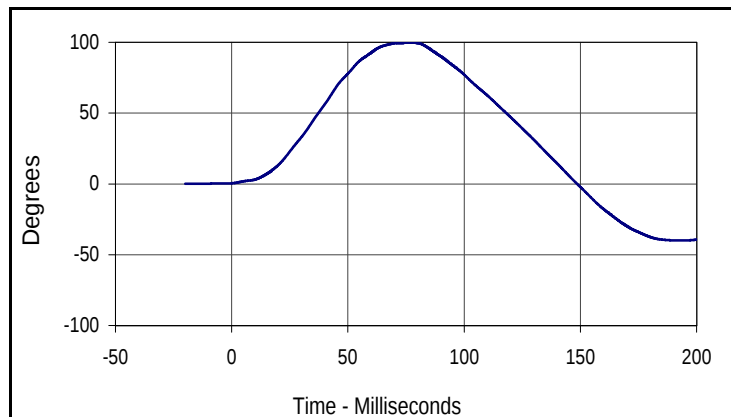
Test Date: 2/7/04
 Test I.D.: NE04B



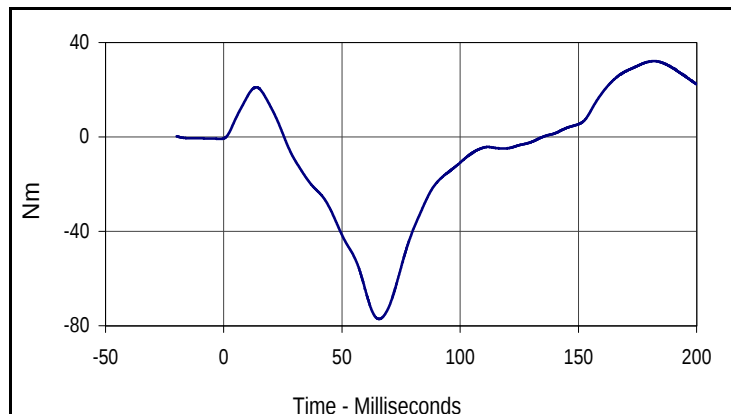
Tested Parameter		Units	Specification	Result	Pass/Fail
Laboratory Temperature		°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity		%	10 to 70	30	Pass
Pendulum Velocity		m/s	5.94 to 6.19	6.01	Pass
Pendulum Deceleration	10 Msec.	G's	17.2 to 21.2	20.1	Pass
	20 Msec.	G's	14.0 to 19.0	17.8	Pass
	30 Msec.	G's	11.0 to 16.0	14.3	Pass
Peak Pendulum Decel. after 30 Msec.		G's	≤ 22.0	14.3	Pass
Deceleration Decay, Time to Cross 5 G's		Msec.	38.0 to 46.0	38.2	Pass
Maximum "D" Plane Rotation	Max	Degrees	81.0 to 106.0	99.8	Pass
	Time	Msec.	72.0 to 82.0	77.2	Pass
"D" Plane Rotation Decay, Time To Zero Crossing		Msec.	147.0 to 174.0	148.7	Pass
Moment About Occ. Condyle	Max	Nm	-52.9 to- 79.9	-77.1	Pass
	Time	Msec.	65.0 to 79.0	65.7	Pass
Positive Moment Decay, Time To Zero Crossing		Msec.	120.0 to 148.0	134.9	Pass
Overall Test Results				Pass	



Curve Description			
Pendulum Deceleration			
CURNO	Type	SAE Class	Units
001	FIL	60	G's
Max	Time	Min	Time
20.1	9.6	-2.2	55.2



Curve Description			
"D" Plane Rotation			
CURNO	Type	SAE Class	Units
003	FIL	60	Degrees
Max	Time	Min	Time
99.8	77.2	-40.0	192.6



Curve Description			
Moment About Occipital Condyle			
CURNO	Type	SAE Class	Units
004	FIL	60	Nm
Max	Time	Min	Time
32.1	182.0	-77.1	65.7

Test Program: Hybrid III 50th Percentile Male External Measurements

Test Date: 2/8/04

ATD Serial No.: 035

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	30	Pass
A - Total sitting height	mm	879 to 889	880	Pass
B - Shoulder pivot height	mm	505 to 521	515	Pass
C - "H" point height	mm	84 to 89	85	Pass
D - "H" point from seat back	mm	135 to 140	135	Pass
E - Shoulder pivot from back	mm	84 to 94	90	Pass
F - Thigh clearance	mm	140 to 155	145	Pass
G - Elbow back to wrist pivot	mm	290 to 305	300	Pass
H - Skull cap to back line	mm	41 to 46	45	Pass
I - Shoulder to elbow length	mm	330 to 345	335	Pass
J - Elbow rest height	mm	190 to 211	195	Pass
K - Buttock to knee length	mm	579 to 604	600	Pass
L - Popliteal length	mm	429 to 455	435	Pass
M - Knee pivot height	mm	485 to 500	490	Pass
N - Buttock popliteal length	mm	452 to 477	455	Pass
O - Chest depth	mm	213 to 229	228	Pass
P - Foot length	mm	251 to 267	265	Pass
V - Shoulder breadth	mm	422 to 437	425	Pass
W - Foot breadth	mm	91 to 107	105	Pass
Y - Chest circumference	mm	970 to 1001	985	Pass
Z - Waist circumference	mm	836 to 866	860	Pass
AA - Location for chest circumference	mm	429 to 434	430	Pass
BB - Location for waist circumference	mm	226 to 231	230	Pass
Overall Test Results				Pass

APPENDIX F

CHILD RESTRAINT SYSTEM

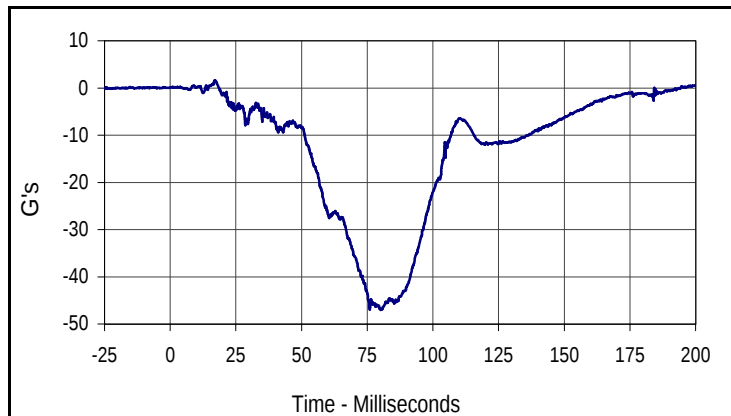
NOT USED IN THIS TEST

APPENDIX G

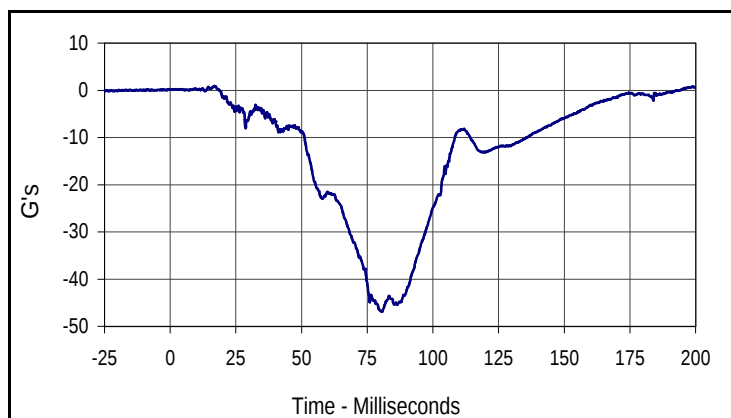
NINE ACCELEROMETER ARRAY HEAD

Test Vehicle: 2004 Toyota Scion XA 4 Door Sedan
 Test Program: 2004 NHTSA 35mph NCAP

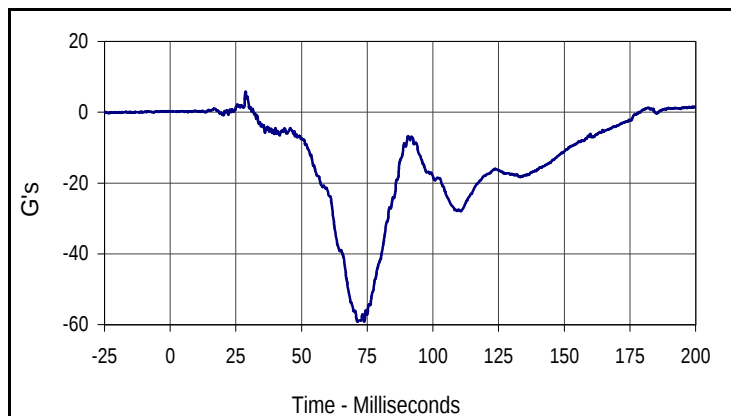
Test Date: 2/10/04
 NHTSA No.: M45106



Curve Description			
Driver Head Primary X			
CURNO	Type	SAE Class	Units
001	FIL	1000	G's
Max	Time	Min	Time
1.6	16.9	-47.0	80.2



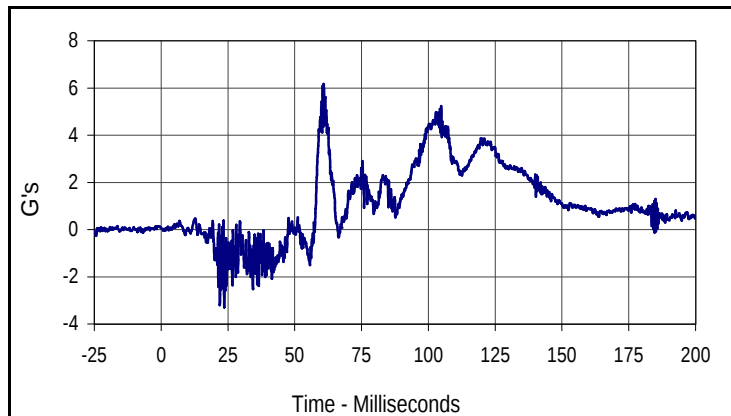
Curve Description			
Driver NAAH Yarm-X			
CURNO	Type	SAE Class	Units
136	FIL	1000	G's
Max	Time	Min	Time
0.9	16.8	-46.9	80.6



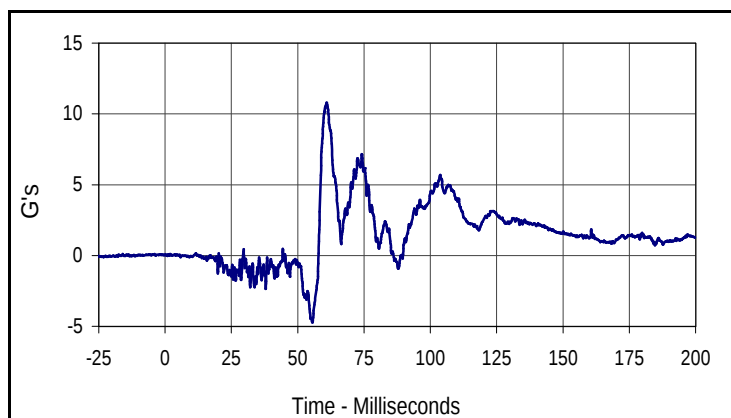
Curve Description			
Driver NAAH Zarm-X			
CURNO	Type	SAE Class	Units
138	FIL	1000	G's
Max	Time	Min	Time
5.8	28.7	-59.2	71.3

Test Vehicle: 2004 Toyota Scion XA 4 Door Sedan
 Test Program: 2004 NHTSA 35mph NCAP

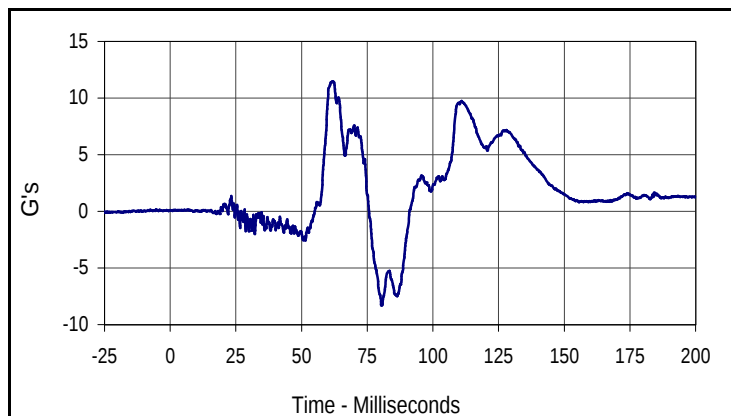
Test Date: 2/10/04
 NHTSA No.: M45106



Curve Description			
Driver Head Primary Y			
CURNO	Type	SAE Class	Units
002	FIL	1000	G's
Max	Time	Min	Time
6.2	60.9	-3.3	23.6



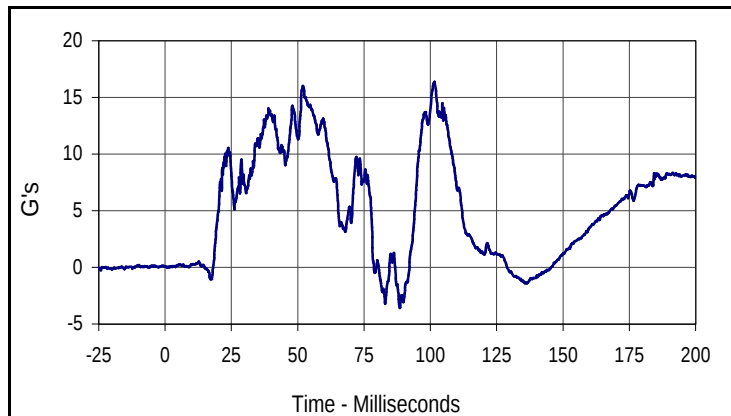
Curve Description			
Driver NAAH Xarm-Y			
CURNO	Type	SAE Class	Units
134	FIL	1000	G's
Max	Time	Min	Time
10.8	60.9	-4.7	55.6



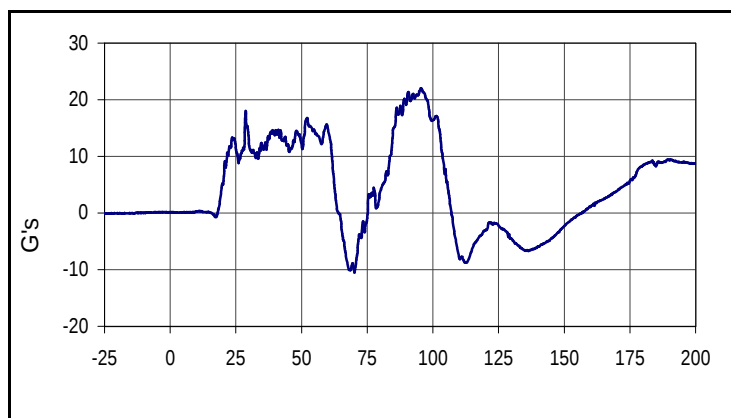
Curve Description			
Driver NAAH Zarm-Y			
CURNO	Type	SAE Class	Units
139	FIL	1000	G's
Max	Time	Min	Time
11.5	62.0	-8.3	80.6

Test Vehicle: 2004 Toyota Scion XA 4 Door Sedan
 Test Program: 2004 NHTSA 35mph NCAP

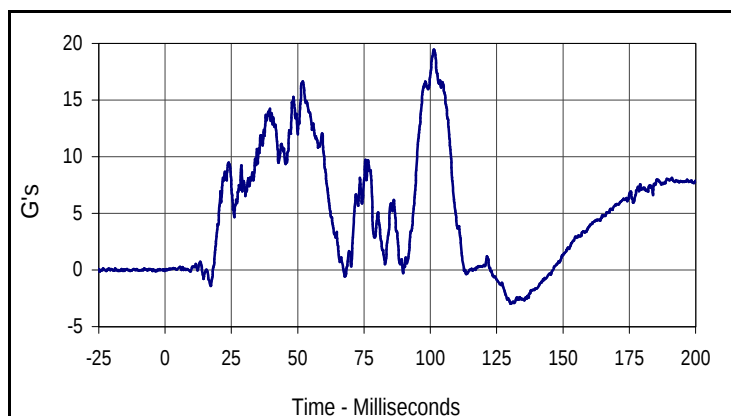
Test Date: 2/10/04
 NHTSA No.: M45106



Curve Description			
Driver Head Primary Z			
CURNO	Type	SAE Class	Units
003	FIL	1000	G's
Max	Time	Min	Time
16.4	101.5	-3.6	88.5



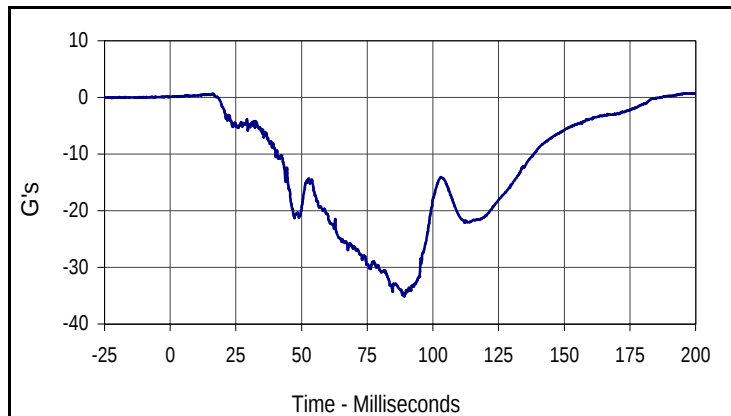
Curve Description			
Driver NAAH Xarm-Z			
CURNO	Type	SAE Class	Units
135	FIL	1000	G's
Max	Time	Min	Time
22.0	95.5	-10.5	70.2



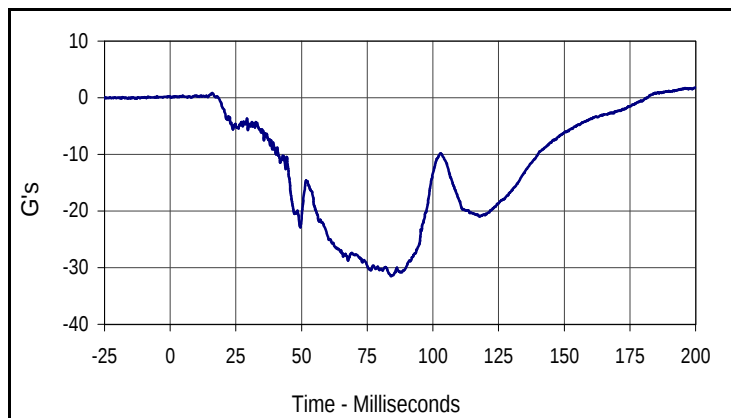
Curve Description			
Driver NAAH Yarm-Z			
CURNO	Type	SAE Class	Units
137	FIL	1000	G's
Max	Time	Min	Time
19.5	101.3	-3.0	130.2

Test Vehicle: 2004 Toyota Scion XA 4 Door Sedan
 Test Program: 2004 NHTSA 35mph NCAP

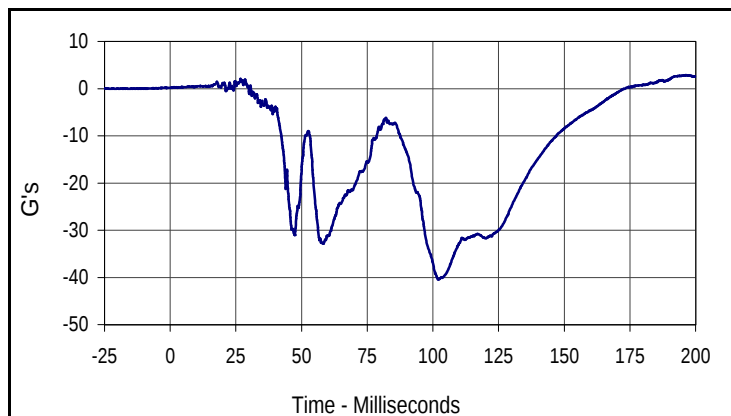
Test Date: 2/10/04
 NHTSA No.: M45106



Curve Description			
Passenger Head Primary X			
CURNO	Type	SAE Class	Units
045	FIL	1000	G's
Max	Time	Min	Time
0.8	200.0	-35.1	89.1



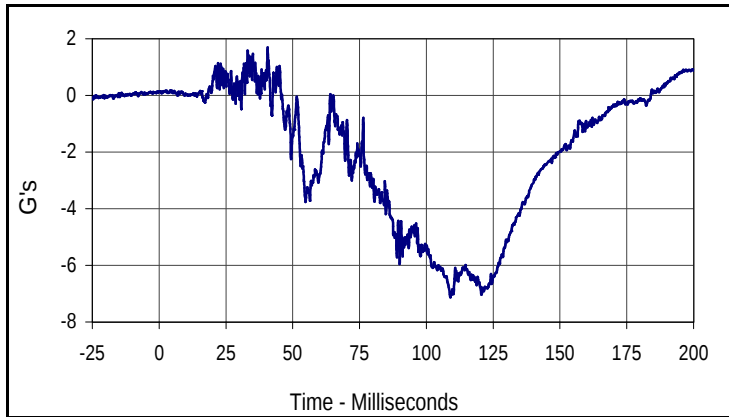
Curve Description			
Passenger NAAH Yarm-X			
CURNO	Type	SAE Class	Units
142	FIL	1000	G's
Max	Time	Min	Time
1.8	199.5	-31.5	84.1



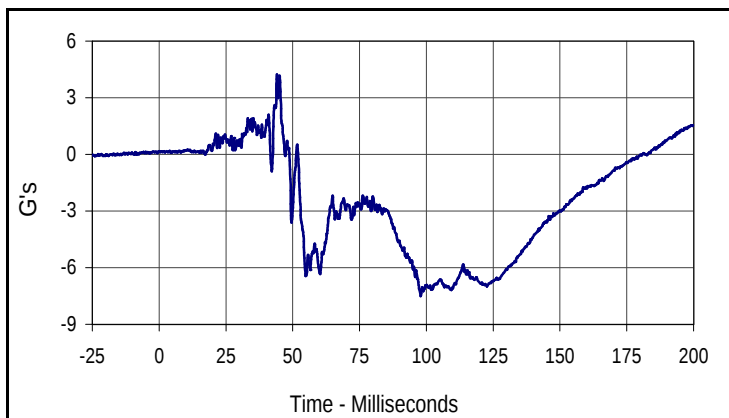
Curve Description			
Passenger NAAH Zarm-X			
CURNO	Type	SAE Class	Units
144	FIL	1000	G's
Max	Time	Min	Time
2.9	196.4	-40.4	101.9

Test Vehicle: 2004 Toyota Scion XA 4 Door Sedan
 Test Program: 2004 NHTSA 35mph NCAP

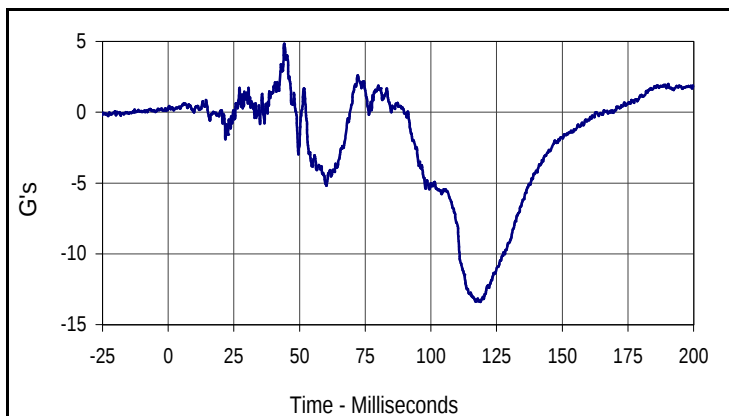
Test Date: 2/10/04
 NHTSA No.: M45106



Curve Description			
Passenger Head Primary Y			
CURNO	Type	SAE Class	Units
046	FIL	1000	G's
Max	Time	Min	Time
1.7	40.6	-7.1	109.0



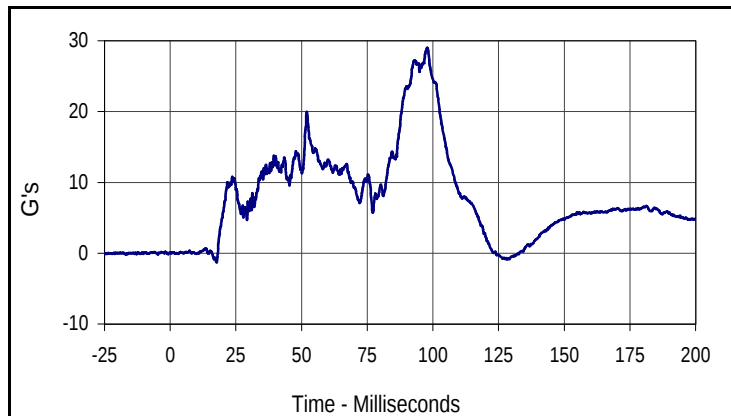
Curve Description			
Passenger NAAH Xarm-Y			
CURNO	Type	SAE Class	Units
140	FIL	1000	G's
Max	Time	Min	Time
4.2	44.1	-7.5	97.9



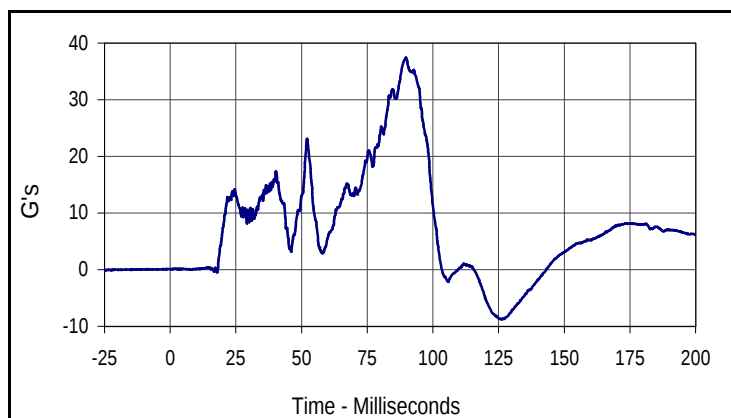
Curve Description			
Passenger NAAH Zarm-Y			
CURNO	Type	SAE Class	Units
145	FIL	1000	G's
Max	Time	Min	Time
4.8	44.2	-13.4	118.9

Test Vehicle: 2004 Toyota Scion XA 4 Door Sedan
 Test Program: 2004 NHTSA 35mph NCAP

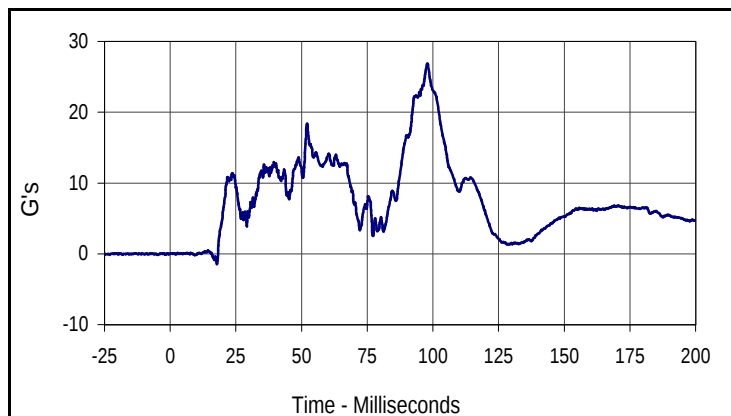
Test Date: 2/10/04
 NHTSA No.: M45106



Curve Description			
Passenger Head Primary Z			
CURNO	Type	SAE Class	Units
047	FIL	1000	G's
Max	Time	Min	Time
29.0	97.9	-1.3	17.6



Curve Description			
Passenger NAAH Xarm-Z			
CURNO	Type	SAE Class	Units
141	FIL	1000	G's
Max	Time	Min	Time
37.4	89.7	-8.7	126.2



Curve Description			
Passenger NAAH Yarm-Z			
CURNO	Type	SAE Class	Units
143	FIL	1000	G's
Max	Time	Min	Time
26.9	97.9	-1.5	17.8