

REPORT NUMBER: TWG-TRC-13-05

**NEW CAR ASSESSMENT PROGRAM (NCAP)**  
SIDE AIRBAG OUT-OF-POSITION INJURY TESTING

MAZDA MOTOR CORPORATION  
2013 MAZDA CX-9 AWD 5-DOOR SUV

NHTSA NUMBER: QD5400TWG2  
TRC TEST NUMBER: S130426

PREPARED BY:  
TRANSPORTATION RESEARCH CENTER INC.  
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P.O. BOX B-67  
East Liberty, OH 43319



Test Date: April 26, 2013

FINAL REPORT

Alpha Technology Associate, Inc.  
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Fairfax, VA 22031

This Final Test Report was prepared for the U.S. Department of Transportation, National Highway Traffic Safety Administration, under Contract No. DTNH22-08-D-00088, Alpha Technology PO 4GT150. This document is disseminated under the sponsorship of the U.S. Department of Transportation in the interest of information exchange. The United States Government assumes no liability for its contents or use thereof.

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Approval Date: June 6, 2013  
\_\_\_\_\_

FINAL REPORT ACCEPTANCE BY:

Accepted By: \_\_\_\_\_

Acceptance Date: \_\_\_\_\_

**TECHNICAL REPORT STANDARD TITLE PAGE**

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12. Sponsoring Agency Name and Address Alpha Technology Associate, Inc 2810 Old Lee Hwy, Suite 120 Fairfax, VA 22031				13. Type of Report and Period Covered Final Report, April 26, 2013 – June 6, 2013		
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15. Supplementary Notes						
16. Abstract This side impact Out-Of-Position test was performed in conjunction with a New Car Assessment Program (NCAP). This test was conducted at the T R C Test Facility in East Liberty, O h i o , on April 26, 2013.						
<b>Injury Summary</b>						
<b>HIC15</b>	<b>Maximum Chest Displacement (mm)</b>	<b>Maximum Chest Displacement Rate (m/s)</b>	<b>NIJ(NTF)</b>	<b>NIJ(NTE)</b>	<b>NIJ(NCF)</b>	<b>NIJ(NCE)</b>
16.240	N/A	N/A	0.0154	0.0044	0.2576	0.3428
17. Key Words New Car Assessment Program (NCAP) Side Airbag Out-Of-Position				18. Distribution Statement <u>Copies of this report are available from:</u> Alpha Technology Associate, Inc 2810 Old Lee Hwy, Suite 120 Fairfax, VA 22031 Phone: (703) 876-0010 Fax: (703) 876-0120 Attn: Mai Lan Aram		
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## SECTION 1

### TEST PURPOSE AND PROCEDURE

#### 1.1 PURPOSE

The purpose of this test was to obtain data from a static out-of-position side impact using a vehicle that had undergone a New Car Assessment Program (NCAP) sponsored test requested by the National Highway Traffic Safety Administration (NHTSA). This test was performed following the technical requirements under NHTSA contract No. DTNH22-08-D-00088 and through Alpha Technology Associate, Inc.

#### 1.2 SUMMARY

The effects of both a seat-mounted side airbag and a curtain airbag deployment in a 2013 Mazda CX-9 AWD 5-dr SUV on an out-of-position SID-II's 49CFR Part 572 Subpart V anthropomorphic test device (ATD) were evaluated. The test was performed by TRC on April 26, 2013. Pre- and post-test photographs of the vehicle and ATD can be found in Appendix A.

Three (3) high-speed digital cameras were used to document the side airbag deployment event. Images were recorded at rates of 1000 frames per second. Cameras were placed relative to the right front seat and positioned to capture the deployment event from the side, front, and front  $\frac{3}{4}$  views.

The SID-II's ATD was placed in the right front (passenger) seat situated perpendicular to the centerline of the seat, facing inboard. This was placed following the ATD placement instructions specified in the Recommended Procedures for Evaluating Occupant Injury Risk from Deploying Side Airbags as prepared by the Side Airbag Out-of-Position Injury Technical Working Group (TWG). The specific test was section 3.3.5.3.

The SID-II's ATD was instrumented with head x, y and z accelerometers, six upper neck axial force and moment load cell transducers, and six lower neck axial force and moment load cell transducers.

Nineteen (19) channels of data were recorded using an on-board data acquisition system. Appendix A contains photographs. Appendix B contains ATD response data traces. Appendix C contains the Instrumentation Data Channel assignments.

The SID-II's ATD was positioned in the seat dummy facing toward the center of the vehicle with its arm against the seatback. The arm was rotated horizontal in the forward direction with respect to the dummy. The seat was positioned to minimize the vertical distance between the dummy's head and the roof-rail module and to maximize the cushion to head interaction. The seat track test position was 12 detents rearward of full forward. The head was in a neutral orientation and the pelvis was in contact with the door trim panel. The CG of the head was centered in the deployment trajectory of the airbag. A vertical plane through the centerline of the dummy's rib-stiffener and shoulder bolt was parallel to the centerline of the vehicle. This orientation complies with section 3.3.5.3 of the TWG Recommended Procedures for Evaluating Occupant Injury Risk from Deploying Side Airbags, First Revision dated July, 2003.

**SECTION 2**

**DATA SHEET NO. 1  
 TEST SUMMARY**

**TEST CONFIGURATION INFORMATION:**

<b>Seating Position:</b>	P2	Right Front Seating Position
<b>Test:</b>	3.3.5.3	Inboard Facing SID-IIs on Raised Seat (Driver and Passenger Positions with Roof-Rail-Mounted Airbags)
<b>Airbag:</b>	Seat	Seat mounted – outside seam
<b>Airbag:</b>	Side Rail	Side curtain airbag.
<b>Booster Block:</b>	N/A	N/A
<b>ATD Type/Serial No.:</b>	297	SID-IIs

**SEAT POSITION**

Measurement	Value
Total Fore/Aft Travel (Detents)	27
Placed in Position #	12

<b>Number of Data Channels:</b>	19	
<b>Number of Cameras:</b>	0	<u>Real Time</u>
	3	<u>High Speed Digital</u>

**VISIBLE DUMMY CONTACT POINTS**

<b>Head Contact:</b>	Curtain Airbag
<b>Upper Torso Contact:</b>	Torso Airbag
<b>Lower Torso Contact:</b>	None
<b>Left Knee Contact:</b>	None
<b>Right Knee Contact:</b>	None

**DATA SHEET NO. 2**

**GENERAL TEST AND VEHICLE PARAMETER DATA**

**TEST VEHICLE INFORMATION**

**TEST VEHICLE OPTIONS**

NHTSA No.	QD5400
Model Year	2013
Make	Mazda
Model	CX-9
Body Style	MPV
VIN	JM3TB3BA4D0407170
Body Color	Meteor Gray
Odometer Reading (km/mi)	173 mi
Engine Displacement (L)	3.7
Type/No. Cylinders	6
Engine Placement	Front -Transverse
Transmission Type	Auto
Transmission Speeds	6
Overdrive	Yes
Final Drive	AWD
Roof Rack	No
Sunroof/T-Top	No
Running Boards	No
Tilt Steering Wheel	Yes
Power Seats	No
Anti-Lock Brakes (ABS)	Yes
Automatic Door Locks (ADLs)	Yes

Traction Control System (TCS)	Yes
Power Steering	Yes
Power Window Auto-Reverse	Yes
Driver Frontal Airbag	Yes
Driver Curtain Airbag	Yes
Driver Head/Torso Airbag	No
Driver Torso Airbag	Yes
Driver Torso/Pelvis Airbag	No
Driver Pelvis Airbag	No
Driver Knee Airbag	No
Front Pass. Frontal Airbag	Yes
Front Pass. Curtain Airbag	Yes
Front Pass. Head/Torso Airbag	No
Front Pass. Torso Airbag	Yes
Front Pass. Torso/Pelvis Airbag	No
Front Pass. Pelvis Airbag	No
Front Pass. Knee Airbag	No
Driver Pretensioner	Yes
Driver Load Limiter	Yes
Front Pass. Pretensioner	Yes
Front Pass. Load Limiter	Yes
Other	N/A

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

**Yes**

**DATA FROM CERTIFICATION LABEL**

Manufactured by	Mazda Motor Corporation
Date of Manufacture	12/12

GVWR (kg)	2720
GAWR Front (kg)	1307
GAWR Rear (kg)	1458

**VEHICLE SEATING AND WEIGHT CAPACITY**

Measured Parameter	Front	Rear	Third	Total
Type of Seats	Bucket	Split bench	Split Bench	
Number of Occupants	2	2	3	7
Capacity Wt. (VCW) (kg)				539.0
Cargo Wt. (RCLW) (kg)				62.7

**DATA SHEET NO. 3**

**DUMMY POSITIONING IN VEHICLE**

Measurement		Value
Total Range of Seat Travel Fore/Aft (detents)		27 Numbered 0 thru 26
Test Distance Rearward of Full-Forward (detents)		12
Seat Vertical Position		Fixed
Placed in Position # 2		Right Front
Seat Back Angle at Headrest Post	SA (°)	13.5
Top of Curtain Airbag Module to Head/Neck Junction	AN (mm)	255
Top of Seat Airbag Module to Head/Neck Junction	AN (mm)	25
Head CG to Door Panel/Window	HD (mm)	138
Head to Seat Back Centerline	HSC (mm)	150
Chest to Seat	CD (mm)	445
Chest to Seat Back	CS (mm)	240
Right Arm to Seat Back Centerline	RACL (mm)	N/A
Left Arm to Seat Back Centerline	LACL (mm)	90
Right Arm to Door Panel	RA (mm)	N/A
Left Arm to B-Post	LA (mm)	200
Knee to Knee	KK (mm)	130
Toe to Toe	TT (mm)	130
Right Knee to Seat Cushion Centerline	KSCR (mm)	285
Left Knee to Seat Cushion Centerline	KSCL (mm)	285
Right Toe to Seat Cushion Centerline	TSCR (mm)	670
Left Toe to Seat Cushion Centerline	TSCL (mm)	670
Nose to Seat	ND (mm)	667
Nose to Seat Back	NS (mm)	260
Top of Head to Headliner	HH (mm)	90

**DATA SHEET NO. 4  
 DUMMY INJURY CRITERIA VALUES**

Channel	Max	Time (ms)	Min	Time (ms)
Head Ax [g , CFC_1000]	8.94	140.16	-45.02	8.48
Head Ay [g , CFC_1000]	22.98	8.40	-42.93	8.80
Head Az [g , CFC_1000]	57.94	8.48	-13.06	11.92
Upper Neck Fx [N , CFC_1000]	278.96	309.60	-5.60	6.00
Upper Neck Fy [N , CFC_1000]	430.92	179.84	-90.99	8.80
Upper Neck Fz [N , CFC_1000]	61.10	2.40	-994.35	40.00
Upper Neck Mx [N-m , CFC_600]	23.31	130.72	-9.06	20.48
Upper Neck My [N-m , CFC_600]	17.14	16.56	-11.88	298.88
Upper Neck Mz [N-m , CFC_600]	8.25	150.24	-4.35	310.00
Lower Neck Fx [N , CFC_1000]	255.28	17.44	-252.16	309.52
Lower Neck Fy [N , CFC_1000]	217.25	8.32	-277.92	111.12
Lower Neck Fz [N , CFC_1000]	123.86	5.68	-1012.15	40.56
Lower Neck Mx [N-m , CFC_600]	42.14	218.08	-6.33	30.64
Lower Neck My [N-m , CFC_600]	39.65	108.48	-5.07	15.44
Lower Neck Mz [N-m , CFC_600]	8.04	20.16	-17.01	112.32
Airbag Event Passenger Side Curtain Voltage [V]	35.54	5.28		
Airbag Event Front Passenger Seat Voltage [V]	31.90	2.96		
Airbag Event Passenger Side Curtain Current [A]	3.30	0.48		
Airbag Event Front Passenger Seat Current [A]	3.08	0.48		

**HEAD INJURY CRITERIA (HIC)**

	HIC(15)	t <sub>1</sub> (msec)	t <sub>2</sub> (msec)	HIC(36)	t <sub>1</sub> (msec)	t <sub>2</sub> (msec)
Position #2 Right Front	16.24	8.240	9.040	16.24	8.240	9.040

**Position 2 Neck Injury Summary (SID-IIs )**

Nij V10	Nij	Time (ms)
Upper Neck NTF	0.0154	2.40
Upper Neck NTE	0.0044	3.36
Upper Neck NCF	0.2576	80.48
Upper Neck NCE	0.3428	310.00

**Peak Tension (CFC1000) 61 N      Peak Compression (CFC1000) -994 N**

**Critical Values**

Nij Intercepts				Peak Limits	
Tension (CVt)	3880 N	Extension (mCVe)	61 N-m	Tension	2070 N
Compression (CVc)	3880 N	Flexion (mCVf)	155 N-m	Compression	2520 N

Test Vehicle: 2013 Mazda CX-9 AWD 5-dr SUV  
Test Program: Side Airbag O.O.P. Injury Testing

NHTSA No.: QD5400TWG2  
Test Date: 4/26/13

**APPENDIX A**  
**PHOTOGRAPHS**

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**Figure A-1 Right ¾ Front View, as Received**



**Figure A-2 Vehicle Certification Label**



**Figure A-3 Pre-Crash Test Image From NCAP Vehicle**



**Figure A-4 Post-Crash Test Image From NCAP Vehicle**



Figure A-5 Pre-Test Right Front Dummy Position – Right Side View



Figure A-6 Pre-Test Right Front Dummy Position – 3/4 View



**Figure A-7 Pre-Test Right Front Dummy Position – Front View**



**Figure A-8 Pre-Test Right Front Dummy Position – Left Side View**



Figure A-9 Post-Test Right Front Dummy Position – Left Side View



Figure A-10 Post-Test Right Front Dummy Position – ¾ View



**Figure A-11 Post-Test Right Front Dummy Position – Front View**



**Figure A-12 Post-Test Front Passenger Airbags – Left Side View**



**Figure A-13 Post-Test Front Passenger Door – Window View**

Test Vehicle: 2013 Mazda CX-9 AWD 5-dr SUV  
Test Program: Side Airbag O.O.P. Injury Testing

NHTSA No.: QD5400TWG2  
Test Date: 4/26/13

## **APPENDIX B**

### **SID-IIs RESPONSE DATA TRACES**

**Table of Data Plots**

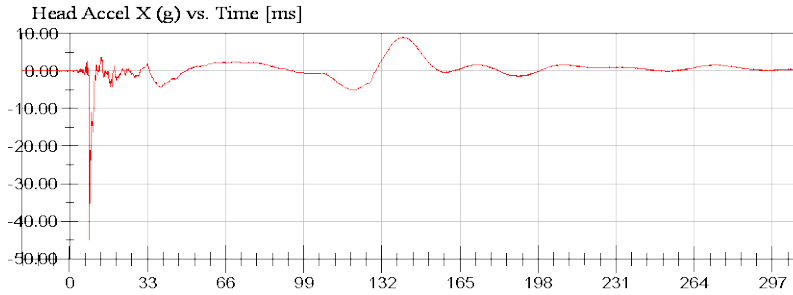
<b>No.</b>	<b>List of Data Plots Provided in the Test Report</b>	<b>Page</b>
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# Alpha Technology

Test Date: 04/26/2013

Test Lab: SLED

Test Number: S130426 (QD5400TWG2)



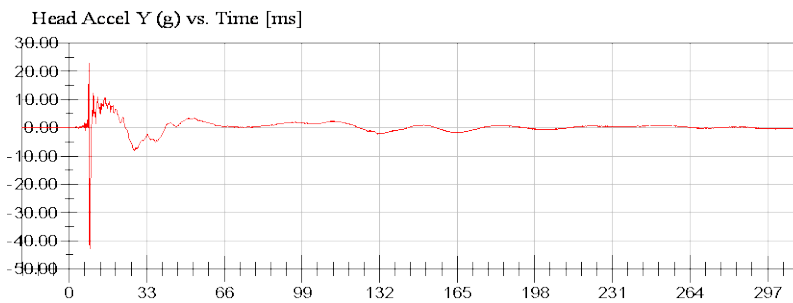
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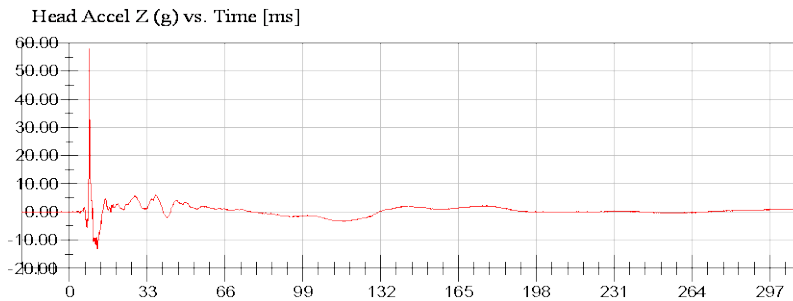
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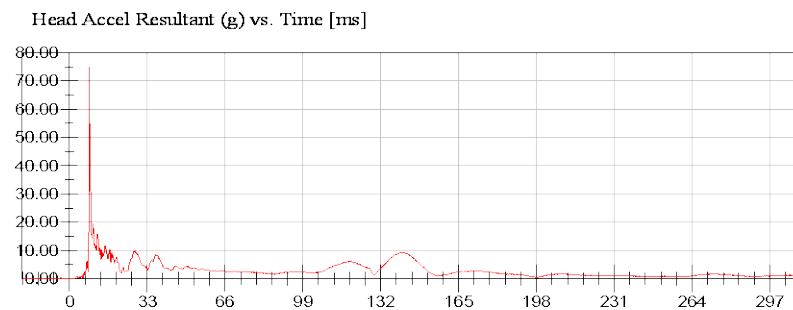
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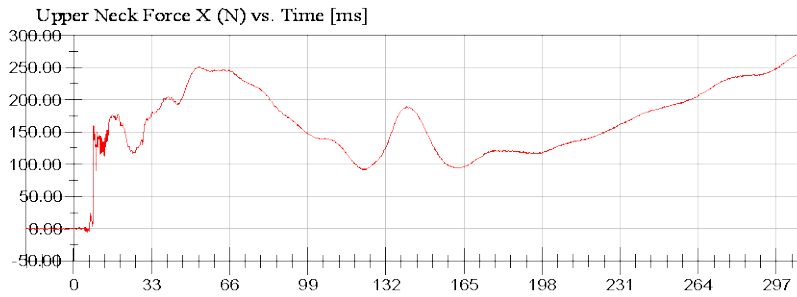


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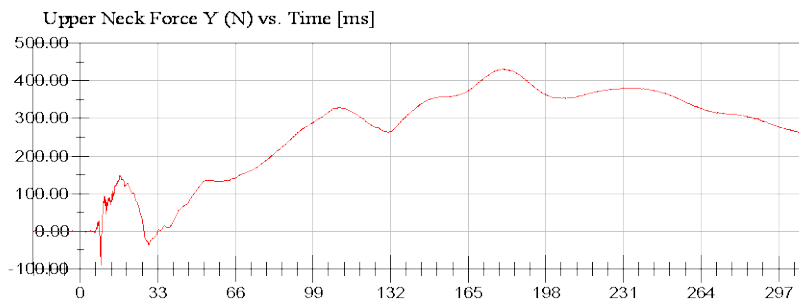
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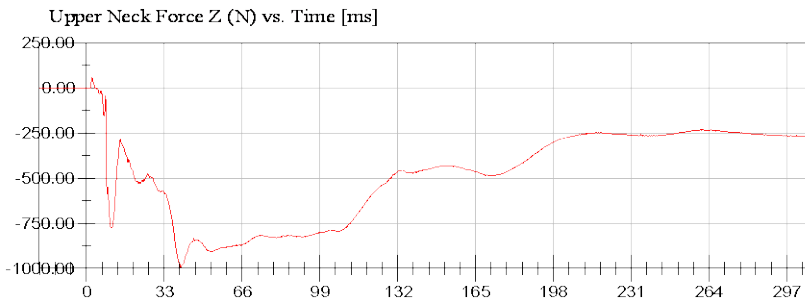
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CFC\_1000



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CFC\_1000

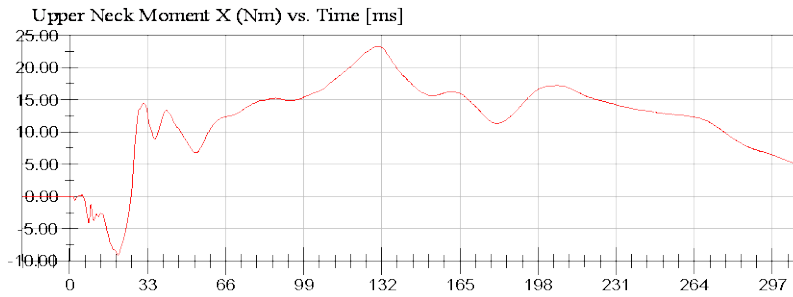


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Test Number: S130426 (QD5400TWG2)



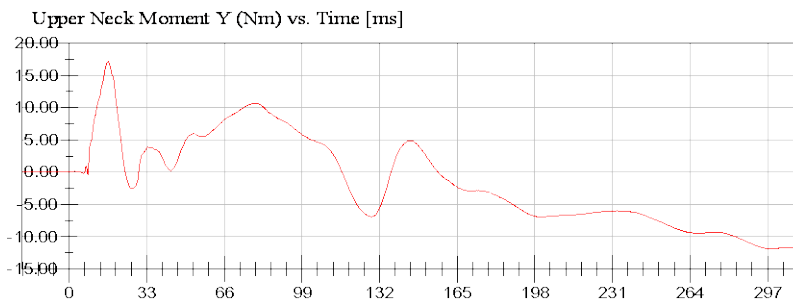
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CFC\_600



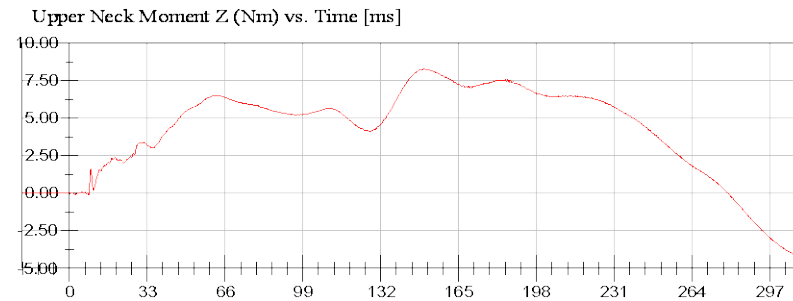
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-4.35 Nm at 310.00 ms

CFC\_600



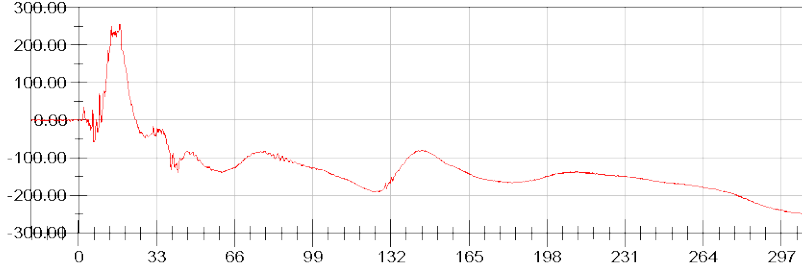
# Alpha Technology

Test Date: 04/26/2013

Test Lab: SLED

Test Number: S130426 (QD5400TWG2)

Lower Neck Force X (N) vs. Time [ms]



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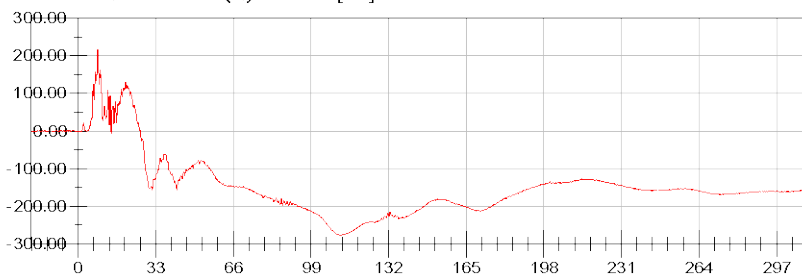
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CFC\_1000

Lower Neck Force Y (N) vs. Time [ms]



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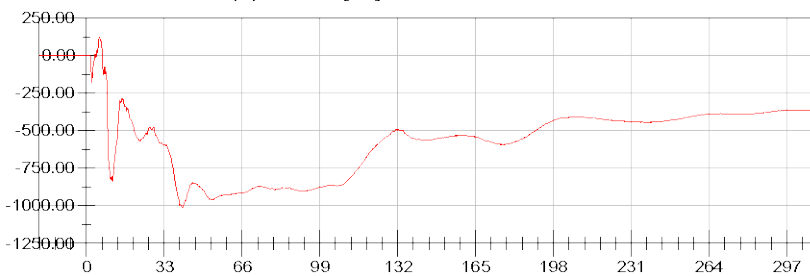
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CFC\_1000

Lower Neck Force Z (N) vs. Time [ms]



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CFC\_1000



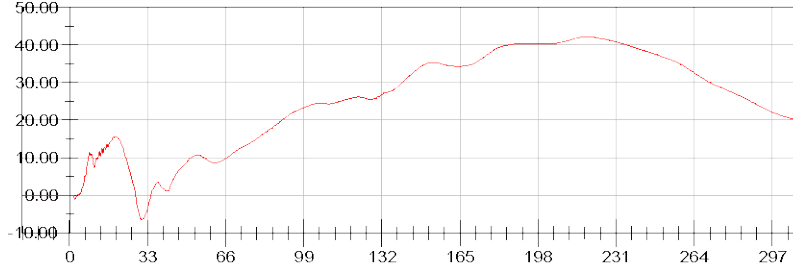
# Alpha Technology

Test Date: 04/26/2013

Test Lab: SLED

Test Number: S130426 (QD5400TWG2)

Lower Neck Moment X (Nm) vs. Time [ms]



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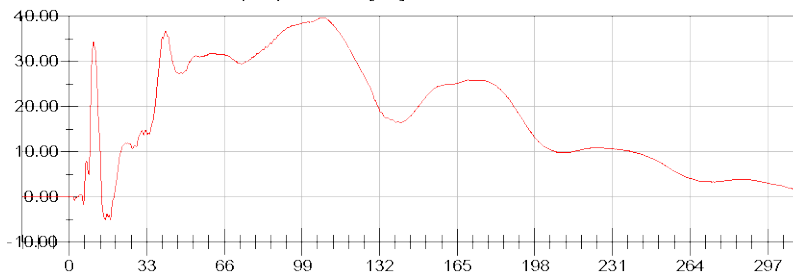
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CFC\_600

Lower Neck Moment Y (Nm) vs. Time [ms]



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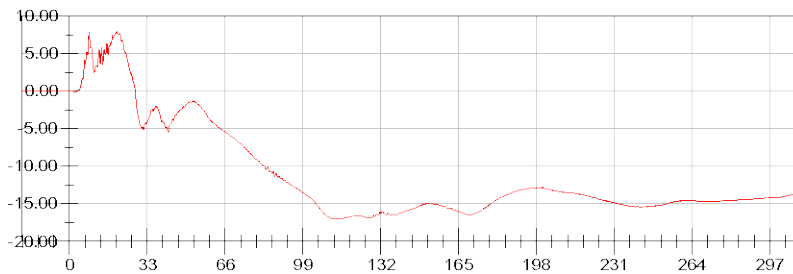
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-5.07 Nm at 15.44 ms

CFC\_600

Lower Neck Moment Z (Nm) vs. Time [ms]



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8.04 Nm at 20.16 ms

**<Min>**

-17.00 Nm at 112.32 ms

CFC\_600



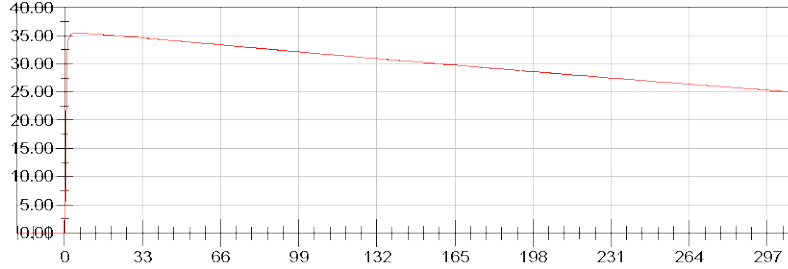
# Alpha Technology

Test Date: 04/26/2013

Test Lab: SLED

Test Number: S130426 (QD5400TWG2)

Airbag Event Front Passenger Seat (V) vs. Time [ms]



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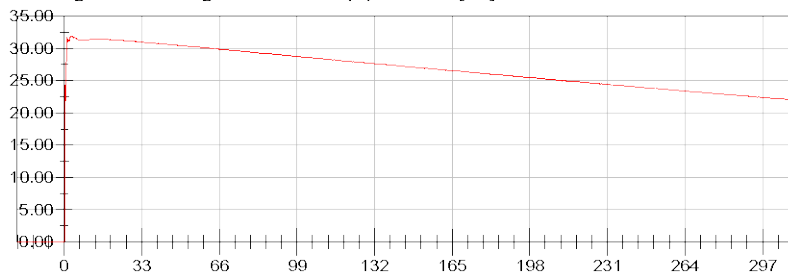
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0.00 V at -20.00 ms

CFC\_1000

Airbag Event Passenger Side Curtain (V) vs. Time [ms]



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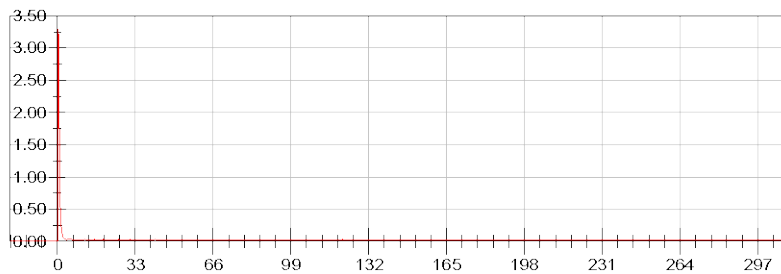
31.90 V at 2.96 ms

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0.00 V at -20.00 ms

CFC\_1000

Airbag Event Front Passenger Seat (A) vs. Time [ms]



**<Max>**

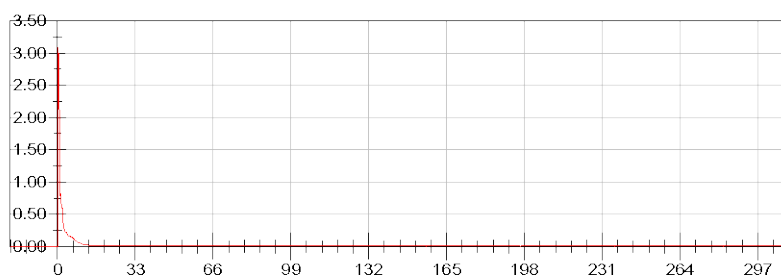
3.30 A at 0.48 ms

**<Min>**

0.00 A at -20.00 ms

CFC\_1000

Airbag Event Passenger Side Curtain (A) vs. Time [ms]



**<Max>**

3.08 A at 0.48 ms

**<Min>**

0.00 A at -20.00 ms

CFC\_1000



Test Vehicle: 2013 Mazda CX-9 AWD 5-dr SUV  
Test Program: Side Airbag O.O.P. Injury Testing

NHTSA No.: QD5400TWG2  
Test Date: 4/26/13

## **APPENDIX C**

### **TEST EQUIPMENT LIST AND CALIBRATION INFORMATION**

Test Vehicle: 2013 Mazda CX-9 AWD 5-dr SUV  
 Test Program: Side Airbag O.O.P. Injury Testing

NHTSA No.: QD5400TWG2  
 Test Date: 4/26/13

**TEST EQUIPMENT LIST AND CALIBRATION INFORMATION**

**P572V INSTRUMENTATION**

	POSITION #2 (RIGHT) SERIAL NO.: 297		
	SERIAL NUMBER	MANUFACTURER	CALIBRATION DATE
Head Accel X	P51292	Endevco	28-Jan-2013
Head Accel Y	P58999	Endevco	28-Jan-2013
Head Accel Z	P58797	Endevco	28-Jan-2013
Upper Neck Force X	1716A-1914-FX	Denton	28-Jan-2013
Upper Neck Force Y	1716A-1914-FY	Denton	28-Jan-2013
Upper Neck Force Z	1716A-1914-FZ	Denton	28-Jan-2013
Upper Neck Moment X	1716A-1914-MX	Denton	28-Jan-2013
Upper Neck Moment Y	1716A-1914-MY	Denton	28-Jan-2013
Upper Neck Moment Z	1716A-1914-MZ	Denton	28-Jan-2013
Lower Neck Force X	3166-143-FX	Denton	27-Jul-2012
Lower Neck Force Y	3166-143-FY	Denton	27-Jul-2012
Lower Neck Force Z	3166-143-FZ	Denton	27-Jul-2012
Lower Neck Moment X	3166-143-MX	Denton	27-Jul-2012
Lower Neck Moment Y	3166-143-MY	Denton	27-Jul-2012
Lower Neck Moment Z	3166-143-MZ	Denton	27-Jul-2012
Airbag Event Front Passenger Seat	K3789-166	KAYSER-THREDE	8-Apr-2013
Airbag Event Passenger Side Curtain	K3789-166	KAYSER-THREDE	8-Apr-2013
Airbag Event Front Passenger Seat	K3789-166	KAYSER-THREDE	8-Apr-2013
Airbag Event Passenger Side Curtain	K3789-166	KAYSER-THREDE	8-Apr-2013

# Transportation Research Center Inc.

Left Lateral Head Drop  
SID IIs Serial No. 297 Certification No. 3-1  
Test Date: 4/4/2013

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.6 °C	21.3 °C	Yes
Relative Humidity	10 - 70 %	27 %	Yes
Peak Head Resultant Acceleration	115 - 137 g	126.4 g	Yes
Peak Head Longitudinal Acceleration	(-15) - 15 g	1.7 g	Yes
Is Head Resultant Acceleration Curve Unimodal within 15% of Peak?	Yes	Yes	Yes

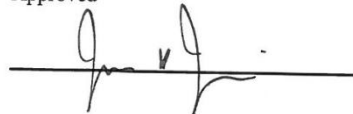
**Test meets specifications.**

**Comments:**

Technician



Approved



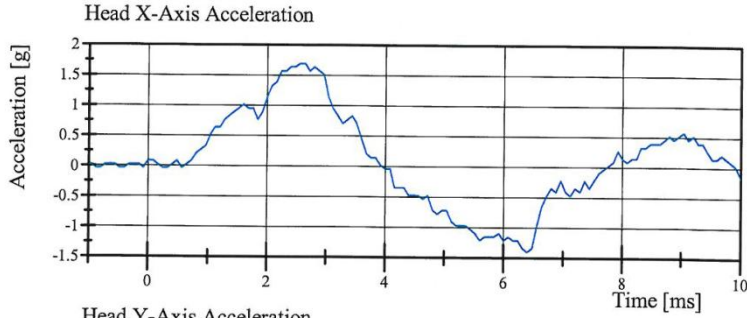
Specification Source: Procedures based on Final Rule effective 8/24/2009  
Polarity in accordance with SAE J211.

04.04.2013 13:54:34 233

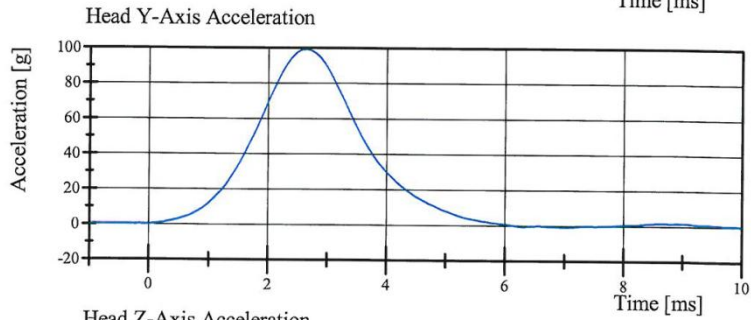


# Transportation Research Center Inc.

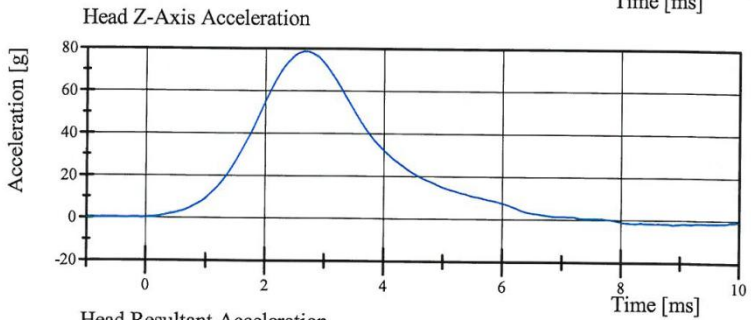
Left Lateral Head Drop  
SID IIs Serial No. 297 Certification No. 3-1  
Test Date: 4/4/2013



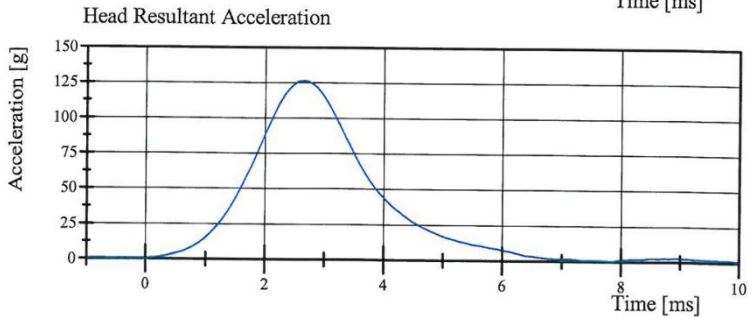
Filter Class: CFC\_1000  
Max: 1.7 g at 2.6 ms  
Min: -1.4 g at 6.4 ms



Filter Class: CFC\_1000  
Max: 99.0 g at 2.6 ms  
Min: -0.9 g at 7.0 ms



Filter Class: CFC\_1000  
Max: 78.5 g at 2.6 ms  
Min: -2.0 g at 8.9 ms



Filter Class: CFC\_1000  
Max: 126.4 g at 2.6 ms  
Min: 0.0 g at -0.6 ms

Specification Source: Procedures based on Final Rule effective 8/24/2009  
Polarity in accordance with SAE J211.

04.04.2013 13:54:46 233



# Transportation Research Center Inc.

Left Lateral Neck  
SID IIs Serial No. 297 Certification No. 3-1  
Test Date: 4/4/2013

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.6 °C	Yes
Relative Humidity	10 - 70 %	25 %	Yes
Pendulum Velocity	(-5.51) - (-5.63) m/s	-5.605 m/s	Yes
Pendulum Integrated Velocity			
Change at 10 ms	2.20 - 2.80 m/s	2.394 m/s	Yes
Change at 15 ms	3.30 - 4.10 m/s	3.603 m/s	Yes
Change at 20 ms	4.40 - 5.40 m/s	4.879 m/s	Yes
Change at 25 ms	5.40 - 6.10 m/s	5.794 m/s	Yes
Change at 25 to 100 ms	5.50 - 6.20 m/s	5.821 m/s	Yes
Maximum Headform Flexion occurring between 50ms and 70ms.			
Peak	(-71) - (-81) deg	-71.7 deg	Yes
Time of Peak	50 - 70 ms	62.1 ms	Yes
Total Neck Occipital Condyles Moment	36 - 44 N·m	40.6 N·m	Yes
Total Neck Occipital Condyles Moment			
Decay Time to 0 N·m	102 - 126 ms	112.8 ms	Yes

**Test meets specifications.**

**Comments:**

Technician



Approved



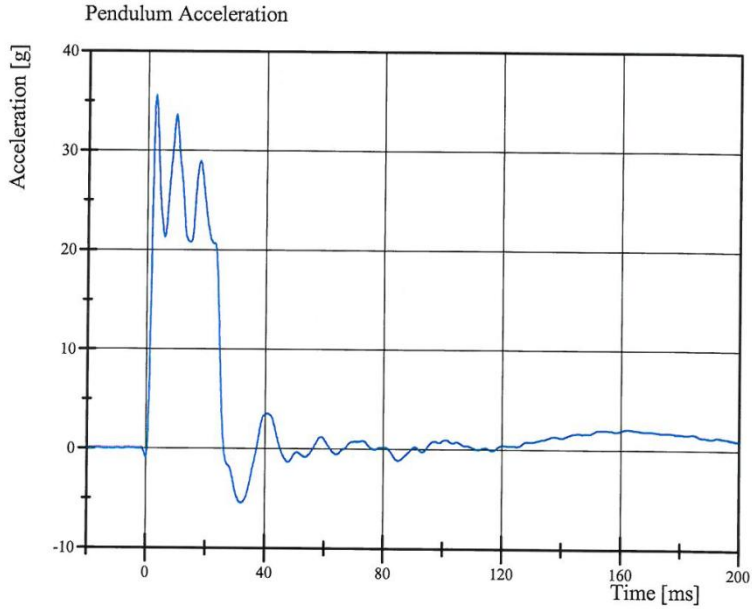
Specification Source: Procedures based on Final Rule effective 8/24/2009  
Polarity in accordance with SAE J211.

04.04.2013 15:22:46 630

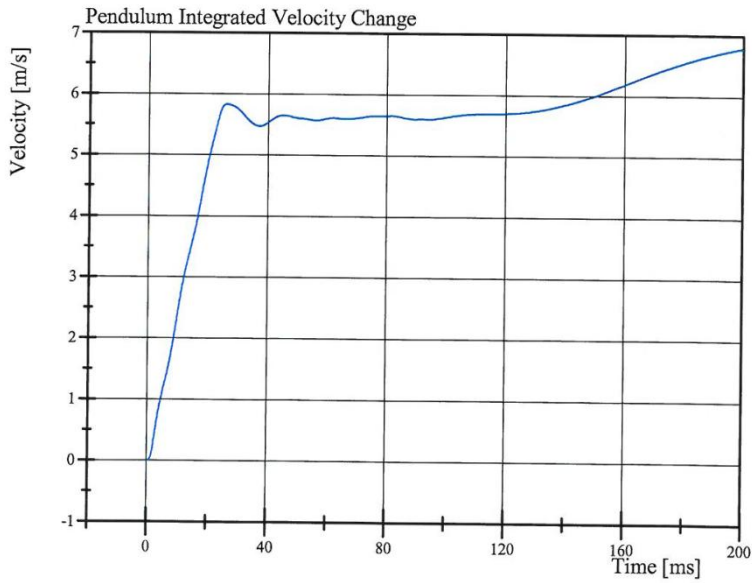


# Transportation Research Center Inc.

Left Lateral Neck  
SID IIs Serial No. 297 Certification No. 3-1  
Test Date: 4/4/2013



Filter Class: CFC\_180  
Max: 35.5 g at 2.7 ms  
Min: -5.5 g at 32.1 ms



Filter Class: CFC\_180  
Max: 6.8 m/s at 200.0 ms  
Min: -0.0 m/s at 0.3 ms

Specification Source: Procedures based on Final Rule effective 8/24/2009  
Polarity in accordance with SAE J211.

04.04.2013 15:22:55 630

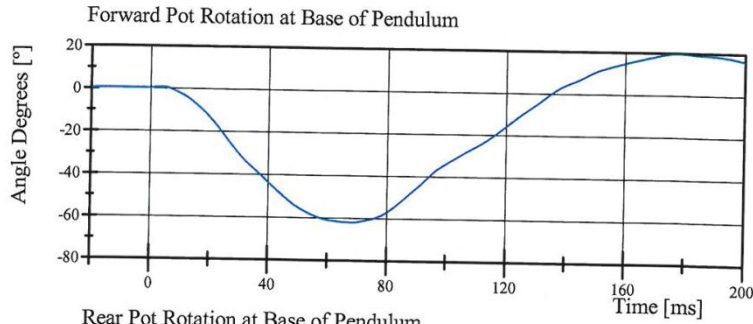


# Transportation Research Center Inc.

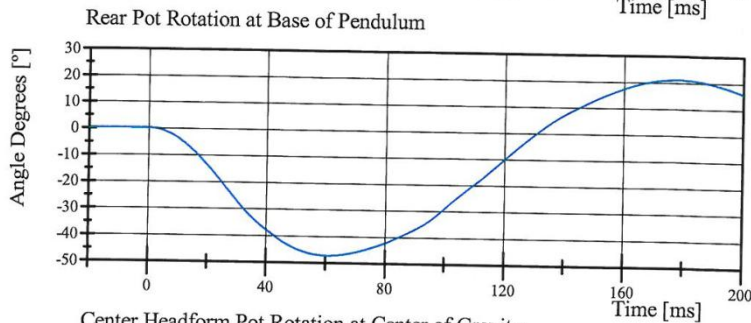
Left Lateral Neck

SID IIs Serial No. 297 Certification No. 3-1

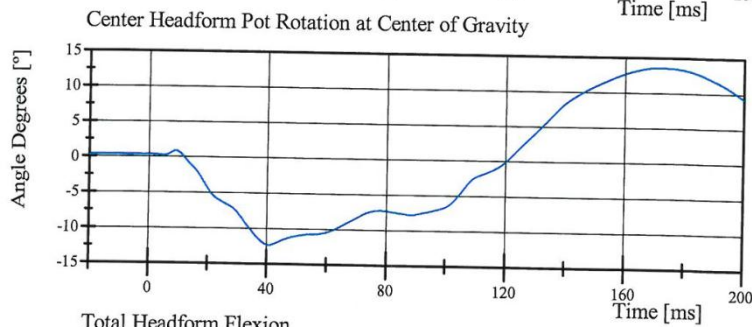
Test Date: 4/4/2013



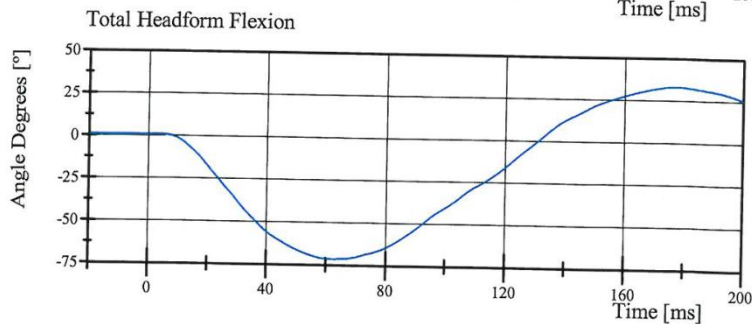
Filter Class: CFC\_60  
Max: 19.6 ° at 177.9 ms  
Min: -62.2 ° at 67.9 ms



Filter Class: CFC\_60  
Max: 21.0 ° at 178.0 ms  
Min: -47.3 ° at 60.9 ms



Filter Class: CFC\_60  
Max: 13.6 ° at 171.8 ms  
Min: -12.4 ° at 40.8 ms



Filter Class: CFC\_60  
Max: 33.1 ° at 177.0 ms  
Min: -71.7 ° at 62.1 ms

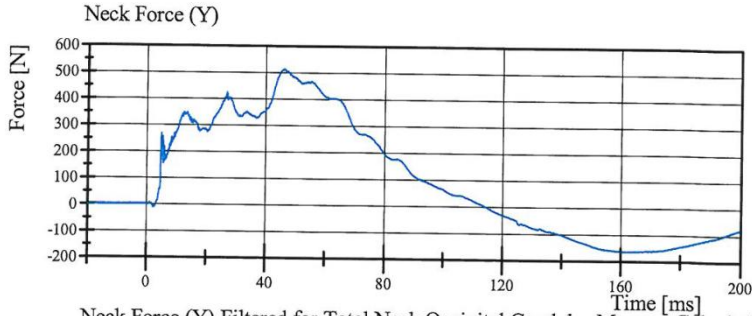
Specification Source: Procedures based on Final Rule effective 8/24/2009  
Polarity in accordance with SAE J211.

04.04.2013 15:22:56 630

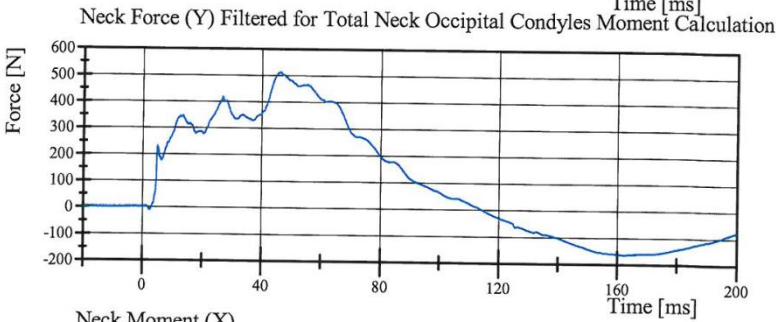


# Transportation Research Center Inc.

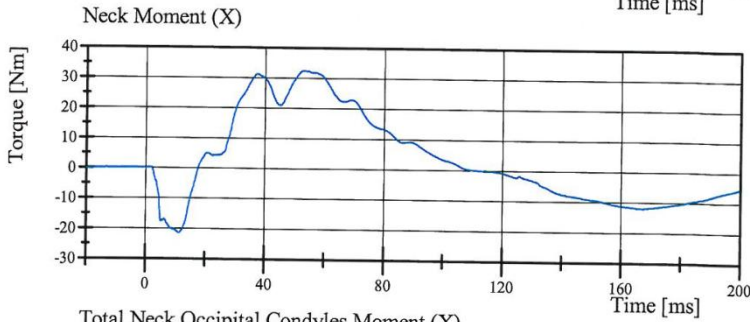
Left Lateral Neck  
SID IIs Serial No. 297 Certification No. 3-1  
Test Date: 4/4/2013



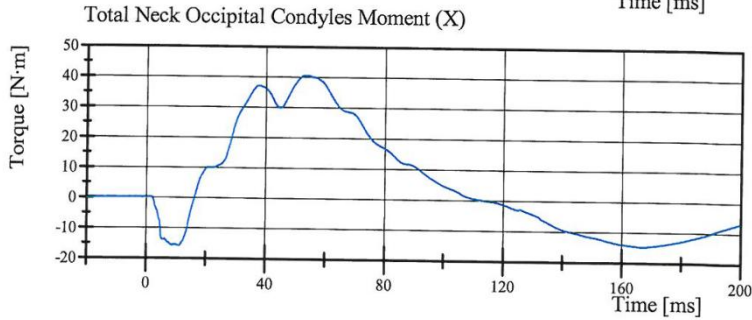
Filter Class: CFC\_1000  
Max: 511.7 N at 46.1 ms  
Min: -165.7 N at 162.0 ms



Filter Class: CFC\_600  
Max: 510.5 N at 46.2 ms  
Min: -165.2 N at 162.0 ms



Filter Class: CFC\_600  
Max: 32.4 Nm at 53.4 ms  
Min: -21.6 Nm at 11.3 ms



Filter Class: Without\_(Consta  
Max: 40.6 N·m at 53.4 ms  
Min: -16.0 N·m at 11.1 ms

Specification Source: Procedures based on Final Rule effective 8/24/2009  
Polarity in accordance with SAE J211.

04.04.2013 15:22:56 630

