

REPORT NUMBER TR-P23106-03-NC

**SIDE AIRBAG OCCUPANT RISK PROGRAM
OCCUPANT OUT-OF-POSITION TESTS**

**BAYERISCHE MOTORENWERKE AG
2003 BMW X5 3.0i
SUV**

NHTSA NUMBER: M30502

**PREPARED BY:
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9270 HOLLY ROAD
ADELANTO, CALIFORNIA 92301**



OCTOBER 24, 2003

FINAL REPORT

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16. Abstract				
A static side airbag deployment was conducted on a 2003 BMW X5 3.0i SUV at KARCO Engineering, LLC on 10/24/03. This test was conducted to obtain data indicant of TWG Side Airbag Out-of-Position Injury criteria.				
Measurement Description	Units	Threshold	Hybrid III 6 Year Old ATD	
Head Injury Criteria (HIC)	N/A	723	6.8	
Max. Thorax Accel. (3 msec clip)	G's	60	4.4	
17. Key Words			18. Distribution Statement	
TWG Occupant Out-of-Position Test Section 3.3.3.2 New Car Assessment Program (NCAP) Side Impact Testing of a 2003 BMW X5 3.0i SUV NHTSA No. M30502			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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SECTION 1

PURPOSE AND SUMMARY OF TEST M30502

1.1 PURPOSE

This occupant out-of-position injury test is part of the Occupant Injury Risk from Deploying Side Airbags Testing Program sponsored by the National Highway Traffic Safety Administration (NHTSA) under Contract No. DTNH22-01-D-02005. The purpose of this test was to obtain occupant restraint system performance data for a side airbag deployment under current requirements.

The occupant out-of-position side airbag test was conducted in accordance with the Office of Crashworthiness Standards Laboratory Test Procedure.

1.2 SUMMARY

The effects of a door mounted side airbag deployment in a 2003 BMW X5 3.0i SUV with an out-of-position Hybrid III 6 Year-Old Child dummy were evaluated. The test was performed at Karco Engineering, LLC on October 24, 2003. Pre- and post-test photographs of the vehicle and dummy can be found in Appendix A.

One real-time, two high-speed film, and two high-speed digital cameras were used to document the side airbag deployment event. Camera locations and other pertinent camera information can be found on Data Sheet No.1 and Data Sheet No. 6.

One Part 572N, Hybrid III 6-Year-Old child anthropomorphic test device (ATD), was placed in the right-front passenger seat oriented in an inboard facing position according to the dummy 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 Group.

The ATD was instrumented with head, chest and pelvis triaxial accelerometers, chest displacement potentiometer and a six-axis upper neck transducer.

Sixteen (16) channels of data were recorded using an on-board data acquisition system. Appendix A contains Photographs. Appendix B contains dummy response data traces. Appendix C contains the Instrumentation Data Channel assignments.

The passenger side doors remained closed during side air bag deployment and were operable after the impact.

The Hybrid III 6 Year-Old Child Dummy's visible contact points were as follows: The ATD's head contacted the airbag. This can be observed dynamically on the high-speed video recording of the event.

Occupant of Position Occupant injury data is contained in table below.

OUT OF POSITION OCCUPANT DATA SUMMARY

ATD Position	HIC	Clip (g)	Chest Disp (mm)
Passenger	6.8	4.4	-0.7

Orientation of the Hybrid III 6 Year-Old Child Dummy was in the inboard facing position leaning against door. The inboard facing position maximizes head and neck interactions with the door mounted side airbag module. The dummy's midsagittal plane was aligned with the vertical centerline of the side airbag module to maximize contact. This orientation complies with section 3.3.3.2 of the Technical Working Group (TWG) recommendation in the Recommended Procedures for Evaluating Occupant Injury Risk from Deploying Side Airbags.

SECTION 2
OCCUPANT AND VEHICLE INFORMATION/DATA SHEETS

Test Vehicle: 2003 BMW X5 3.0i SUV
Test Program: 2003 TWG Side Airbag Occupant OOP Test

NHTSA No.: M30502
Test Date: 10/24/03

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	$=(t_f - 32)/1.8$
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
TEST SUMMARY

Test Vehicle: 2003 BMW X5 3.0i SUV
Test Program: 2003 TWG Side Airbag Occupant OOP Test

NHTSA No.: M30502
Test Date: 10/24/03

TEST DUMMY INFORMATION

Description	Front Passenger Inboard Facing
Dummy Type / Serial No.	Hybrid III 6 Year-Old Child / 027
Head Contact	Airbag
Chest Contact	None
Abdomen Contact	None
Pelvis	None
Left Knee Contact	None
Right Knee Contact	None

16mm MOVIE COVERAGE

High Speed Film	2
High Speed Digital	2
Real Time	1
Total	5

DATA CHANNELS

Child ATD Sensors	16
Belt Assessment Sensors	0
Vehicle Structure Accelerometers	0
Total	16

DATA SHEET NO. 2
GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle: 2003 BMW X5 3.0i SUV
 Test Program: 2003 TWG Side Airbag Occupant OOP Test

NHTSA No.: M30502
 Test Date: 10/24/03

TEST VEHICLE INFORMATION

Make	BMW
Model	X5 3.0i
Body Style	SUV
NHTSA No.	M30502
VIN	5UXFA53503LV84171
Color	Black
Delivery Date	3/10/03
Odometer Reading (mile)	23
Dealer	BMW of Valencia
Transmission	5-Speed Automatic
Final Drive	Rear
Type/Number Cylinders	In-line 6
Engine Displacement (L)	3.0
Engine Placement	Longitudinal

TEST VEHICLE OPTIONS

Driver Front Airbag	Yes
Driver Side Torso Airbag	Yes
Driver Side Head Airbag	Yes
Rear Pass. Airbag	No
Rear Pass. Torso Airbag	No
Rear Pass. Head Airbag	Yes
Power Brakes	Yes
Power Steering	Yes
Disc Brakes, Front	Yes
Disc Brakes, Rear	Yes
Anti-lock Brakes	Yes
Tilt Steering Wheel	Yes
Power Windows	Yes
Power Seats	Driver Only

DATA FROM CERTIFICATION LABEL

Manufactured By	Bayerische Motorenwerke	GVWR (kg)	2724
Date of Manufacture	January-03	GAWR Front (kg)	1264
		GAWR Rear (kg)	1500

DATA FROM TIRE PLACARD

Measured Parameter	Front	Rear
Maximum Tire Pressure (kPa)	220	270
Cold Pressure (kPa)	220	270
Recommend Tire Size	P235/65R17	P235/65R17
Tire Size on Vehicle	P235/65R17	P235/65R17
Tire Manufacturer	Michelin	Michelin

Measured Parameter	Front	Rear	Third	Total
Type of Seats	Bucket	Spilt Bench	None	
Number of Occupants	2	3	0	5
Capacity Wt. (VCW) (kg)				589
Cargo Weight (RCLW) (kg)				136

* Vehicle had undergone New Car Assessment Program Side Impact
 Test on March 30, 2003

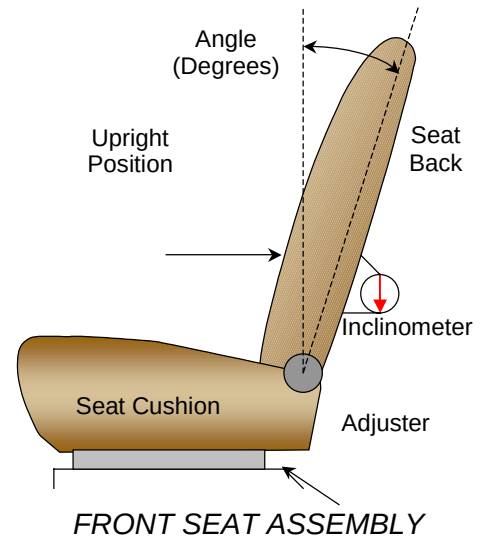
DATA SHEET NO. 3 TEST VEHICLE INFORMATION

Test Vehicle: 2003 BMW X5 3.0i SUV
 Test Program: 2003 TWG Side Airbag Occupant OOP Test

NHTSA No.: M30502
 Test Date: 10/24/03

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.



SEAT BACK ANGLES

Position	Deg.
Passenger w/ Dummy	18

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 #
Passenger Seat	35	18

DATA SHEET NO. 4
DUMMY POSITIONING INFORMATION

Test Vehicle: 2003 BMW X5 3.0i SUV
 Test Program: 2003 TWG Side Airbag Occupant OOP Test

NHTSA No.: M30502
 Test Date: 10/24/03

TEST DUMMY POSITION MEASUREMENTS

Code	Measurement Description	Hybrid III 6-Year-Old Child Dummy	
		Length (mm)	Angle (°)
SA	Seat Back Angle		18
HD	Head CG to Door Panel	75	0
HB	Head CG to B-Pillar	140	0
HSC	Head CG to Seat	185	0
HHD	Head to Header	480	0
CD	Chest to Dash	470	0
CS	Chest to Seatback	220	0
KK	Knee to Knee	130	0
TT	Toe to Toe	90	0
AML	Airbag Module Length	160	0
ABL	Airbag Length	410	0
AMW	Airbag Module Width	60	0
ABW	Airbag Width	225	0

DATA SHEET NO. 5 - 3 YEAR OLD HYBRID III ATD INJURY CRITERIA AND SENSOR DATA

Test Vehicle: 2003 BMW X5 3.0i SUV

NHTSA No.: M30501TWG2

Test Program: TWG Testing (Inboard Facing Hybrid III 6 Yr.)

Test Date: 10/24/03

HEAD PRIMARY PEAK ACCELERATIONS

Location	Axis	Units	Pass.			
			Max	Time	Min	Time
Head CG	X	G's	34.1	6.8	-6.6	56.0
Head CG	Y	G's	20.3	8.2	-6.8	7.3
Head CG	Z	G's	12.5	5.8	-14.5	7.8
Head CG Resultant	N/A	G's	34.3	6.8		

PRIMARY HEAD INJURY CRITERIAS (HIC)

Location	Pass.			
	HIC	T ¹	T ²	Avg G
Head CG Primary (HIC15)	6.8	5.4	9.6	19.0

CHEST PRIMARY PEAK ACCELERATIONS

Location	Axis	Units	Pass.			
			Max	Time	Min	Time
Chest CG	X	G's	26.8	6.6	-1.8	39.0
Chest CG	Y	G's	3.6	11.4	-3.3	6.9
Chest CG	Z	G's	9.7	6.0	-6.1	11.0
Chest CG Resultant	N/A	G's	27.6	6.5		

PRIMARY CHEST CLIP (3MSEC)

Location	Pass.		
	CLIP	T ¹	T ²
Chest CG Primary	4.4	5.2	8.2

CHEST PEAK DISPLACEMENTS

Location	Axis	Units	Pass.			
			Max	Time	Min	Time
Chest CG	X	MM	1.0	7.2	-0.7	12.8

PELVIC PEAK ACCELERATIONS

Location	Axis	Units	Pass.			
			Max	Time	Min	Time
Pelvis	X	G's	1.2	41.9	-2.4	156.6
Pelvis	Y	G's	1.2	36.8	-0.6	166.3
Pelvis	Z	G's	12.1	6.7	-5.1	11.4
Pelvis Resultant	N/A	G's	12.1	6.7		

DATA SHEET NO. 5...(continued)Test Vehicle: 2003 BMW X5 3.0i SUVNHTSA No.: M30501TWG2Test Program: TWG Testing (Inboard Facing Hybrid III 6 Yr.)Test Date: 10/24/03**UPPER NECK PEAK FORCES AND MOMENTS**

Location	Axis	Units	Pass.			
			Max	Time	Min	Time
Neck Force	X	Newtons	736.4	6.7	-52.4	87.6
Neck Force	Y	Newtons	307.4	8.2	-140.4	6.9
Neck Force	Z	Newtons	939.9	5.7	-276.8	5.2
Neck Force Resultant	N/A	Newtons	965.5	5.7		
Neck Moment	X	Nm	11.6	11.2	-4.4	8.2
Neck Moment	Y	Nm	25.3	7.0	-0.8	5.1
Neck Moment	Z	Nm	1.6	35.9	-3.4	79.8
Neck Moment Resultant	N/A	Nm	25.4	7.0		

DATA SHEET NO. 6
CAMERA LOCATIONS

Test Vehicle: 2003 BMW X5 3.0i SUV

NHTSA No.: M30502

Test Program: 2003 TWG Side Airbag Occupant OOP Test

Test Date: 10/24/03

No.	Camera View	Location (mm)			Angle (Deg.)	Lens (mm)	Speed (fps)
		X	Y	Z			
1	Real Time Side View	5	115	5	1	N/A	30
2	High Speed Film Side View	5	122	1	3	24	1000
3	High Speed Film Front View	50	6	25	31	6	1030
4	High Speed Color Digital Side View	0	113	1	2	8	1000
5	High Speed B&W Digital Front View	56	0	23	38	4	500

* Cameras aligned to center of seat back as reference.

APPENDIX A

PHOTOGRAPHS



Figure A-1: Left Front $\frac{3}{4}$ View, As Received

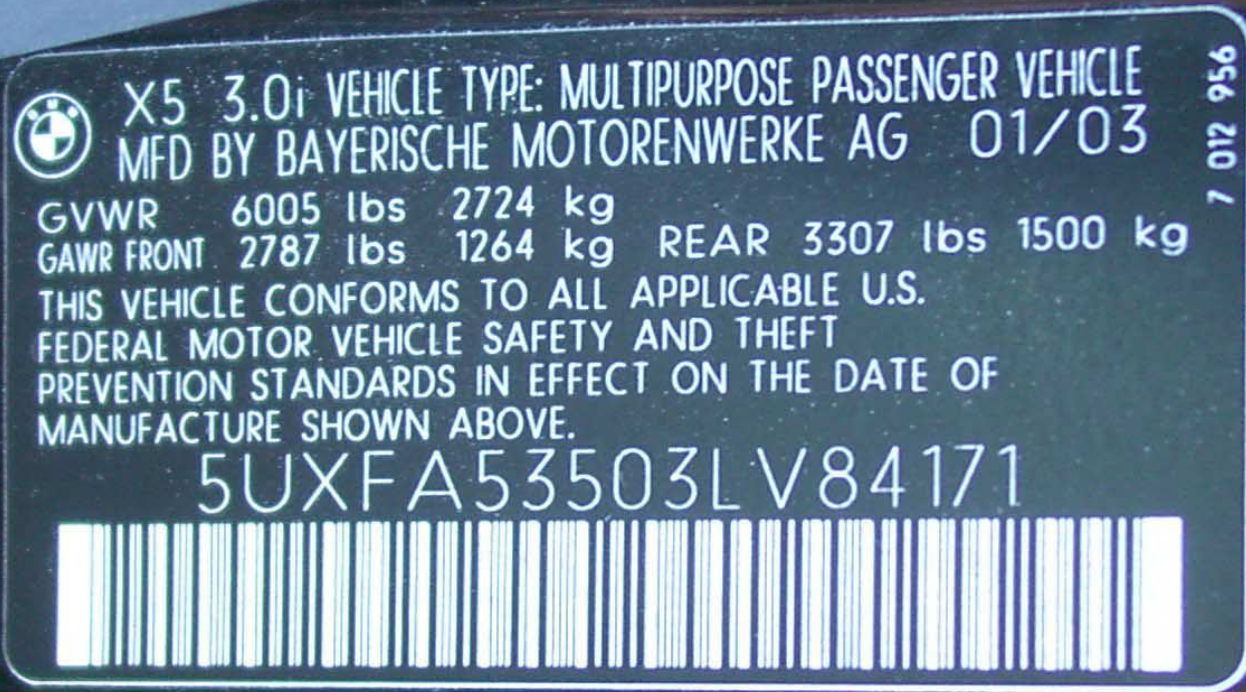


Figure A-2: Vehicle Certification Label



Figure A-3: Post-Test Left Front $\frac{3}{4}$ View of Prior Test



Figure A-4: Post-Test Left Side View of Prior Test



Figure A-5: Pre-Test Dummy Position, Left Side View



Figure A-6: Pre-Test Dummy Position, $\frac{3}{4}$ View from Front



Figure A-7: Pre-Test Dummy Position, Full View from Front



Figure A-8: Post-Test Dummy Position, Left View



Figure A-9: Post-Test Dummy Position, Full View from Front



Figure A-10: Post-Test Airbags, Left View



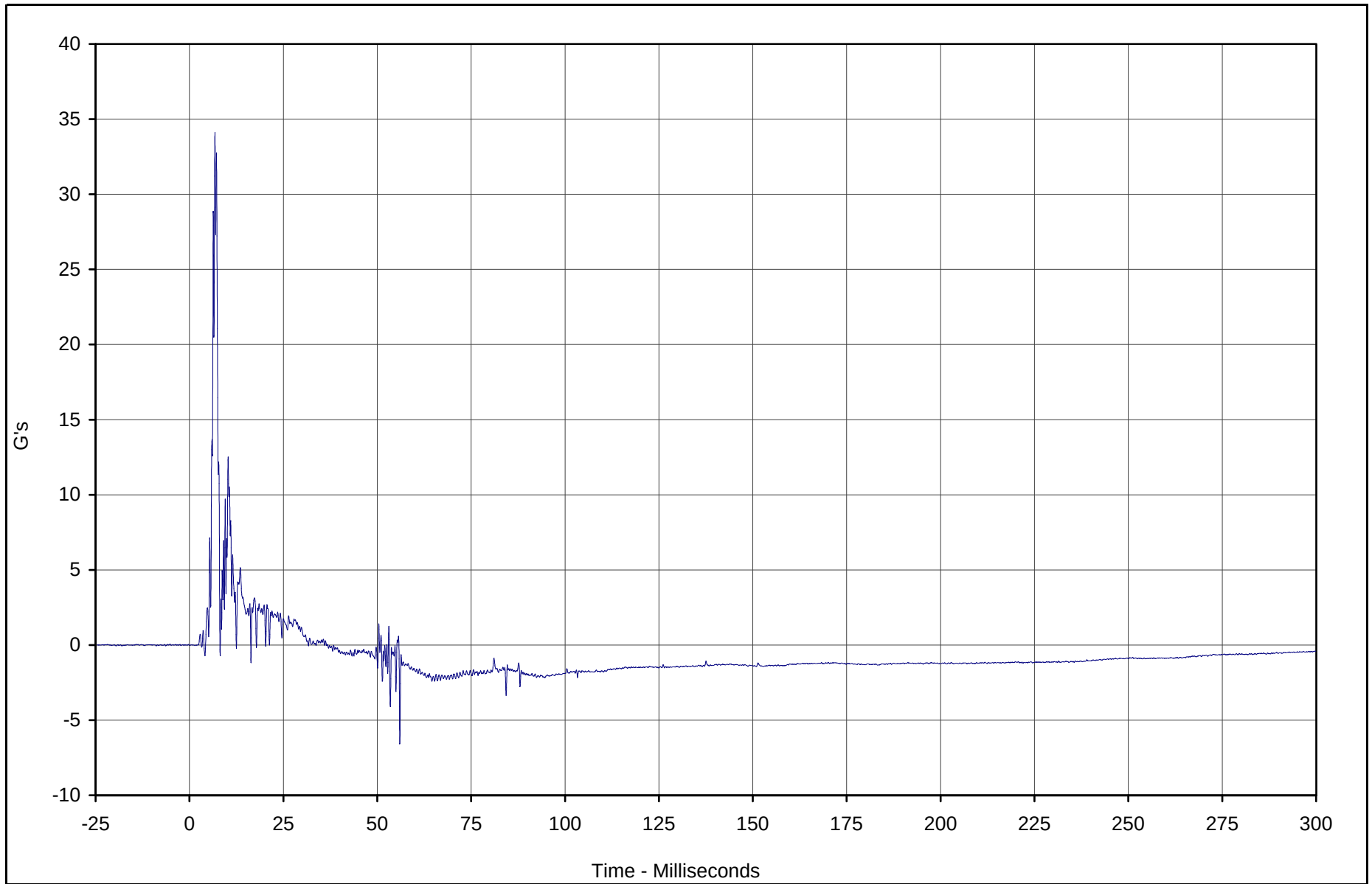
Figure A-11: Post-Test Door-Mounted Airbag, Left View



Figure A-12: Post-Test Airbag (Right Rear Seat)

APPENDIX B

DATA PLOTS



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Pass. Head X	001	FIL	G's	34.1	6.8	-6.6	56.0	1000

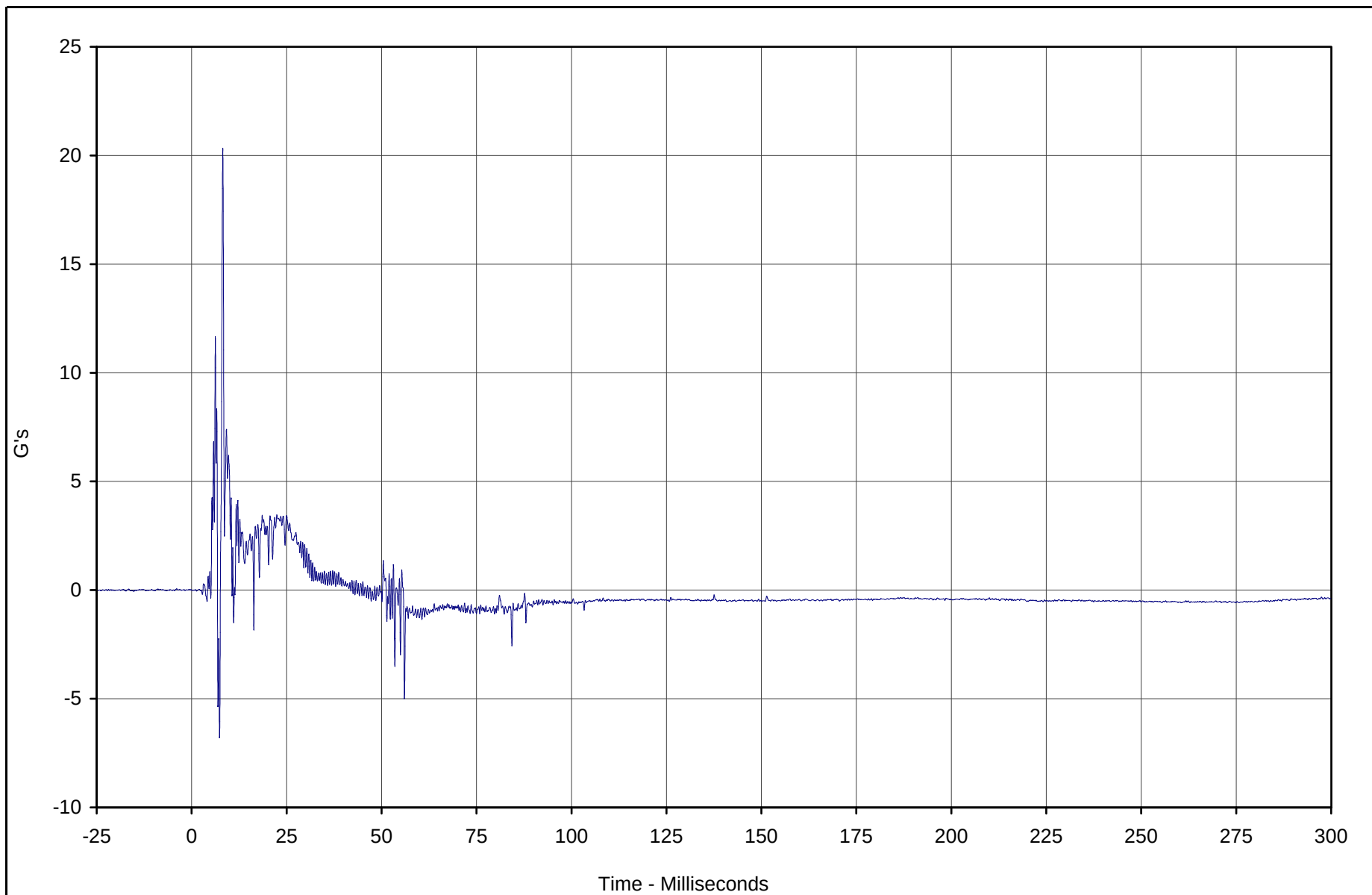


Test Vehicle: 2003 BMW X5 3.0i SUV

Test Date: 10/24/03

Test Program: TWG Testing (Inboard Facing Hybrid III 6 Yr.)

NHTSA No.: M30502TWG2



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Pass. Head Y	002	FIL	G's	20.3	8.2	-6.8	7.3	1000

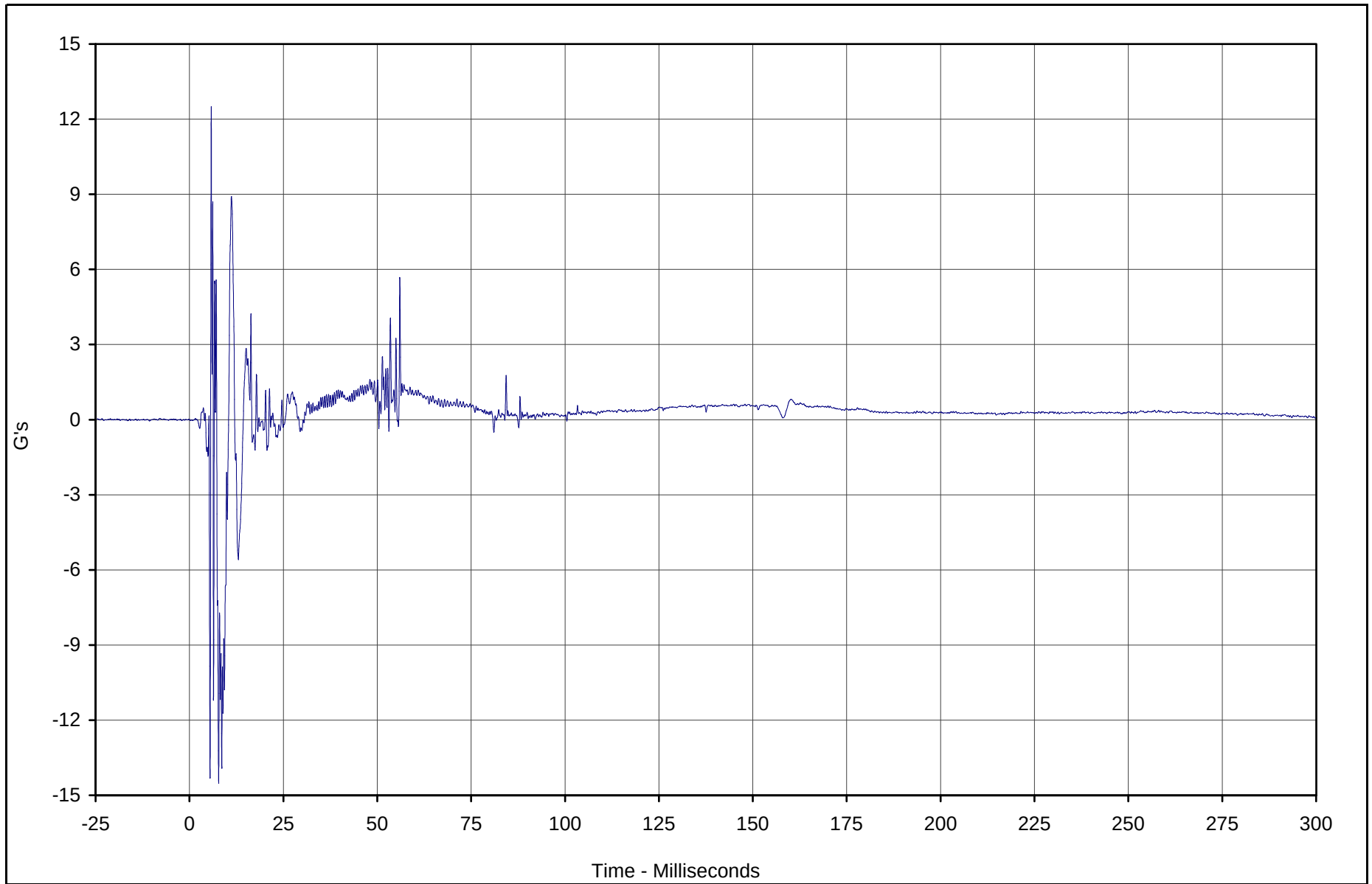


Test Vehicle: 2003 BMW X5 3.0i SUV

Test Date: 10/24/03

Test Program: TWG Testing (Inboard Facing Hybrid III 6 Yr.)

NHTSA No.: M30502TWG2



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Pass. Head Z	003	FIL	G's	12.5	5.8	-14.5	7.8	1000

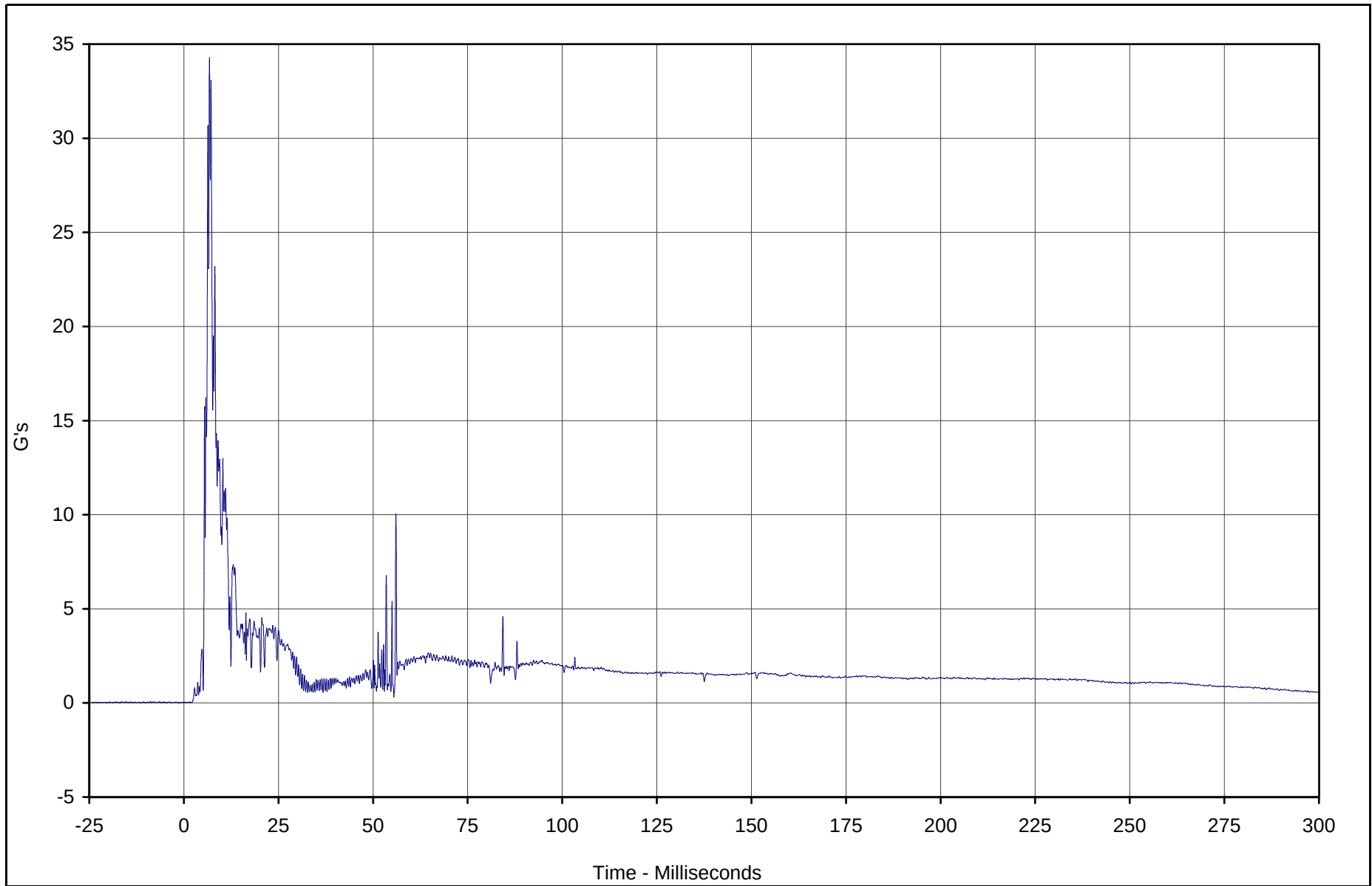


Test Vehicle: 2003 BMW X5 3.0i SUV

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NHTSA No.: M30502TWG2



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Pass. Head Resultant	001	RES	G's	34.3	6.8	0.0	1.1	1000

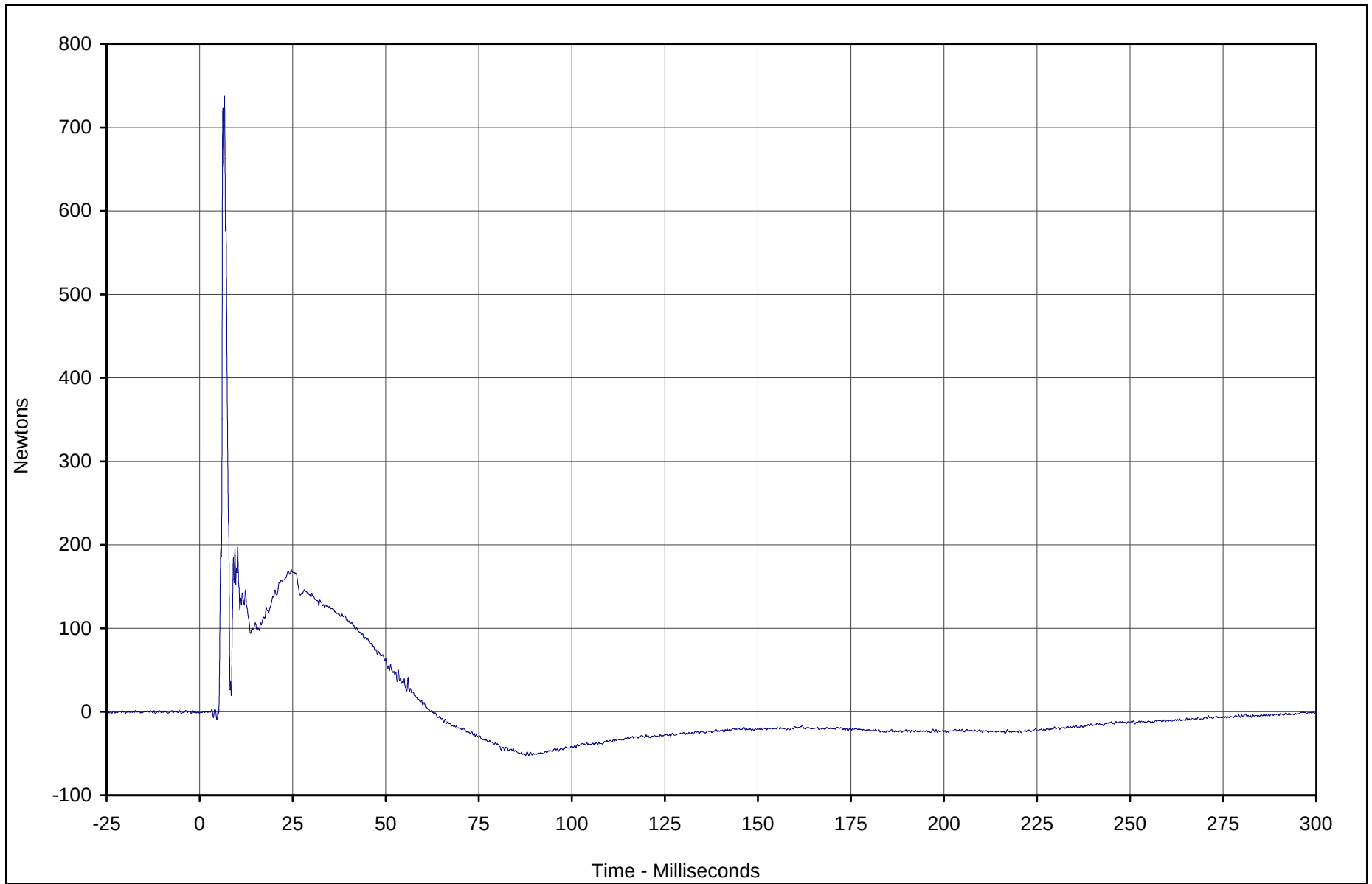


Test Vehicle: 2003 BMW X5 3.0i SUV

Test Date: 10/24/03

Test Program: TWG Testing (Inboard Facing Hybrid III 6 Yr.)

NHTSA No.: M30502TWG2



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Pass. Upper Neck Force X	004	FIL	Newtons	736.4	6.7	-52.4	87.6	1000

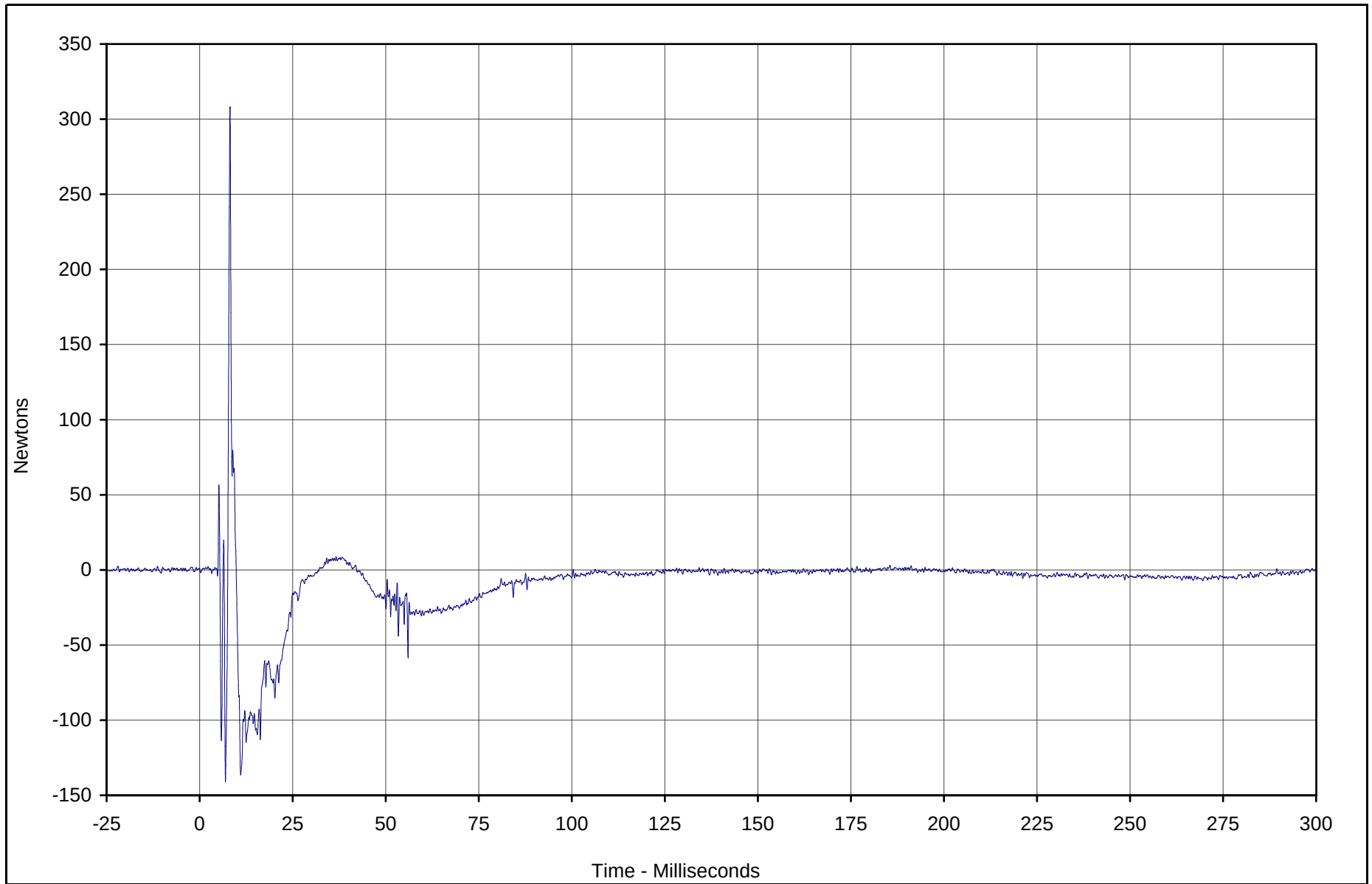


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Test Date: 10/24/03

Test Program: TWG Testing (Inboard Facing Hybrid III 6 Yr.)

NHTSA No.: M30502TWG2



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Pass. Upper Neck Force Y	005	FIL	Newtons	307.4	8.2	-140.4	6.9	1000

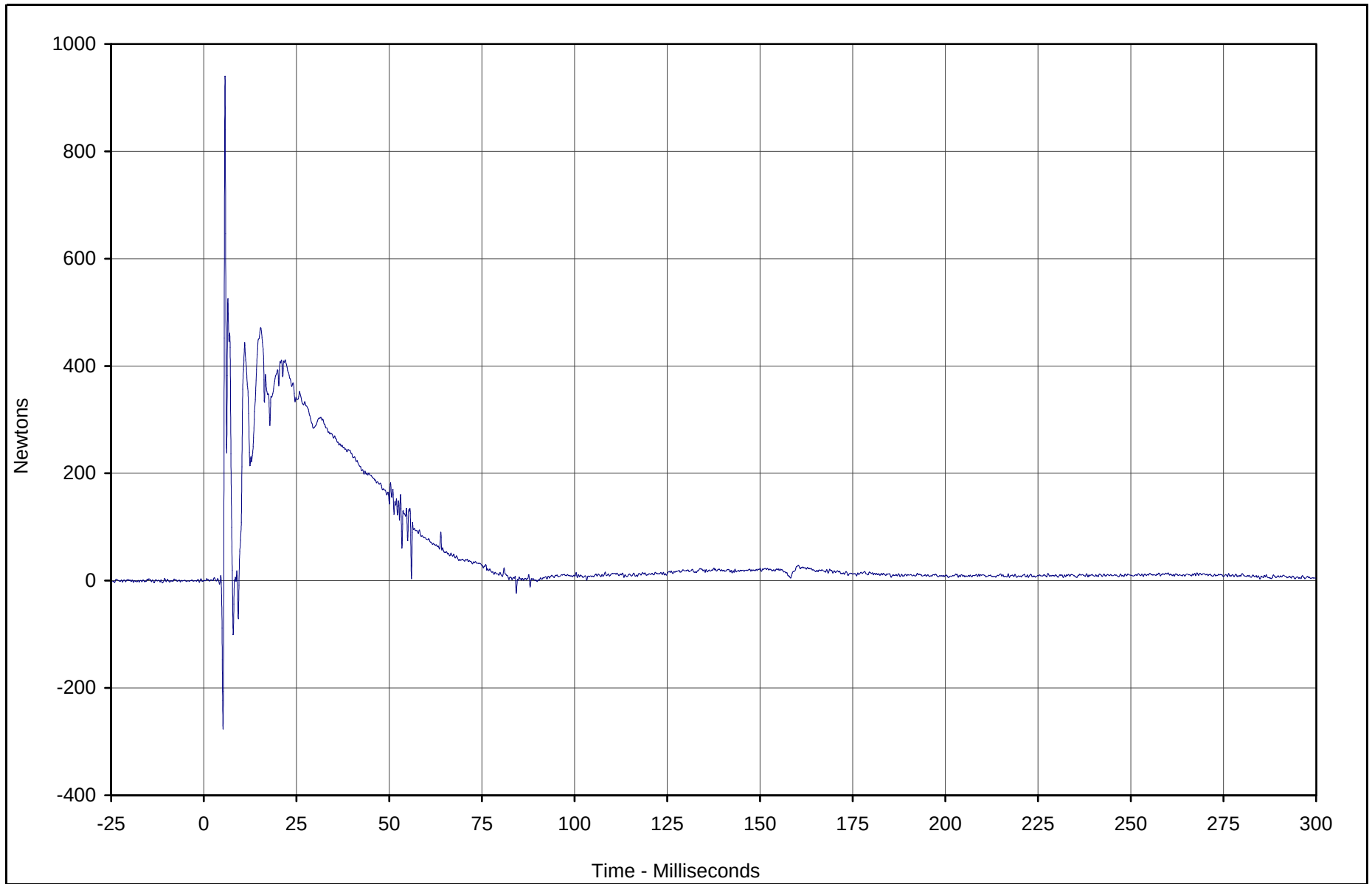


Test Vehicle: 2003 BMW X5 3.0i SUV

Test Date: 10/24/03

Test Program: TWG Testing (Inboard Facing Hybrid III 6 Yr.)

NHTSA No.: M30502TWG2



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Pass. Upper Neck Force Z	006	FIL	Newtons	939.9	5.7	-276.8	5.2	1000

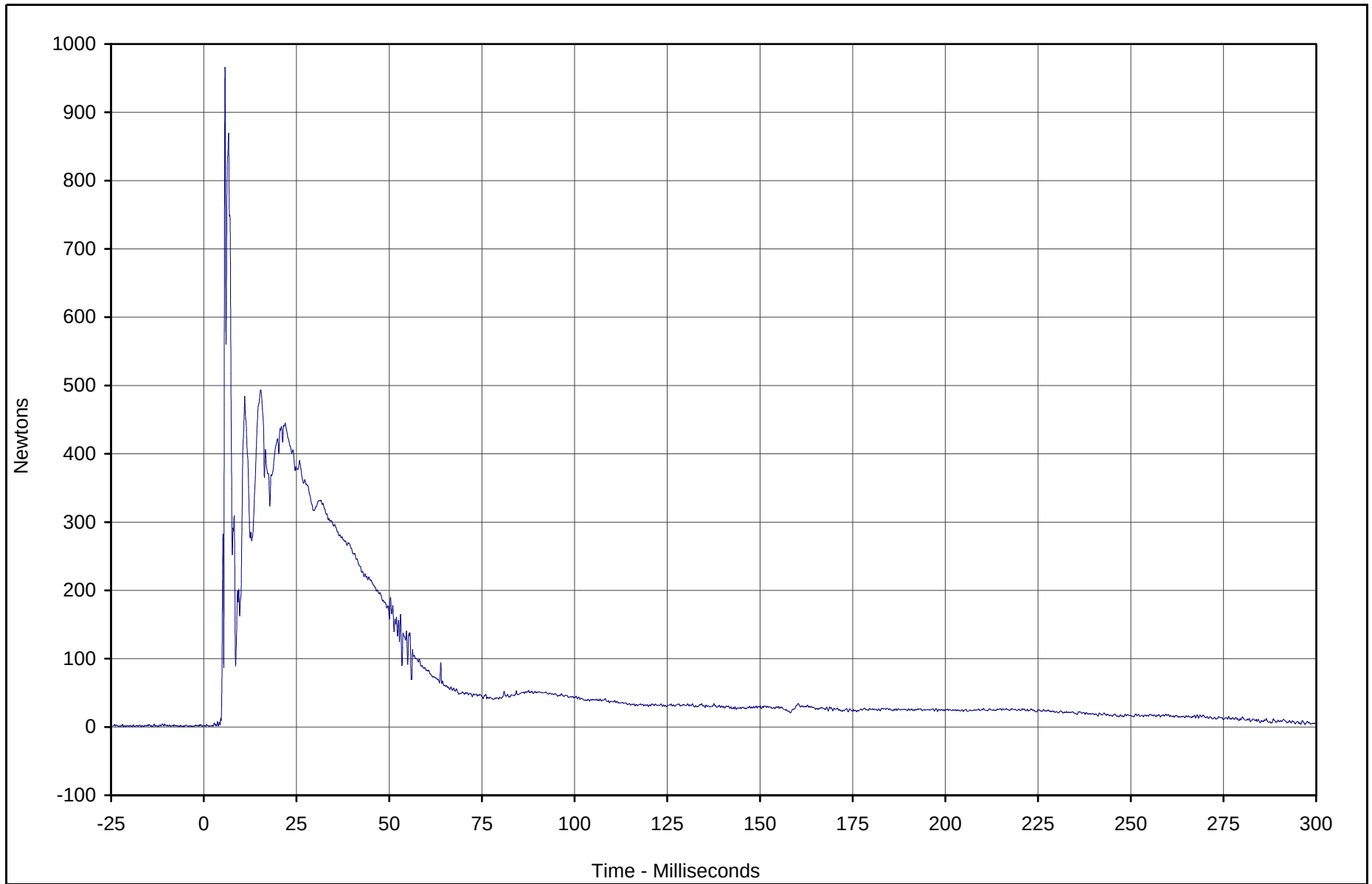


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Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Pass. Upper Neck Force Resultant	004	RES	Newtons	965.5	5.7	1.0	2.5	1000

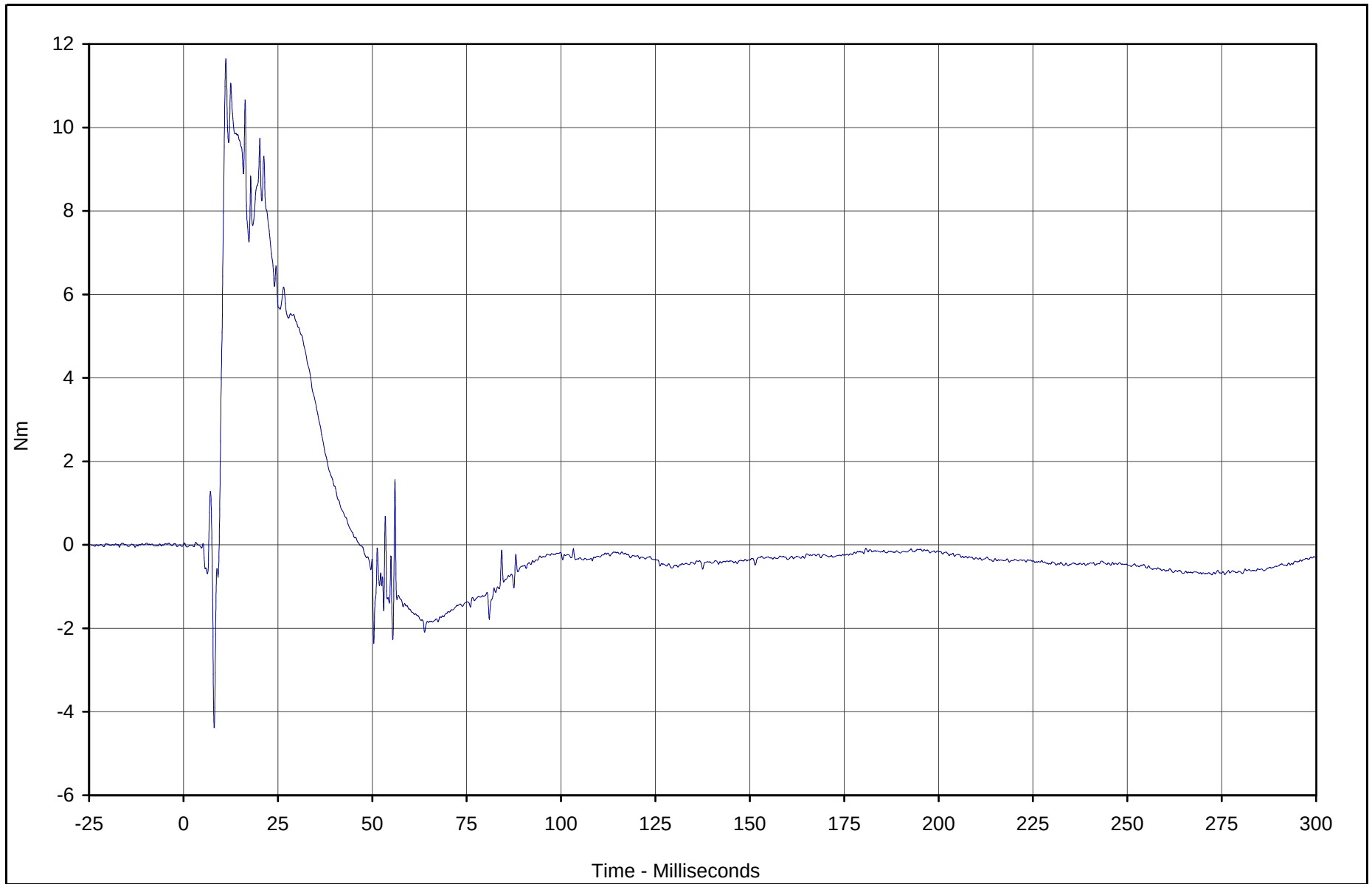


Test Vehicle: 2003 BMW X5 3.0i SUV

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Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Pass. Upper Neck Moment X	007	FIL	Nm	11.6	11.2	-4.4	8.2	600

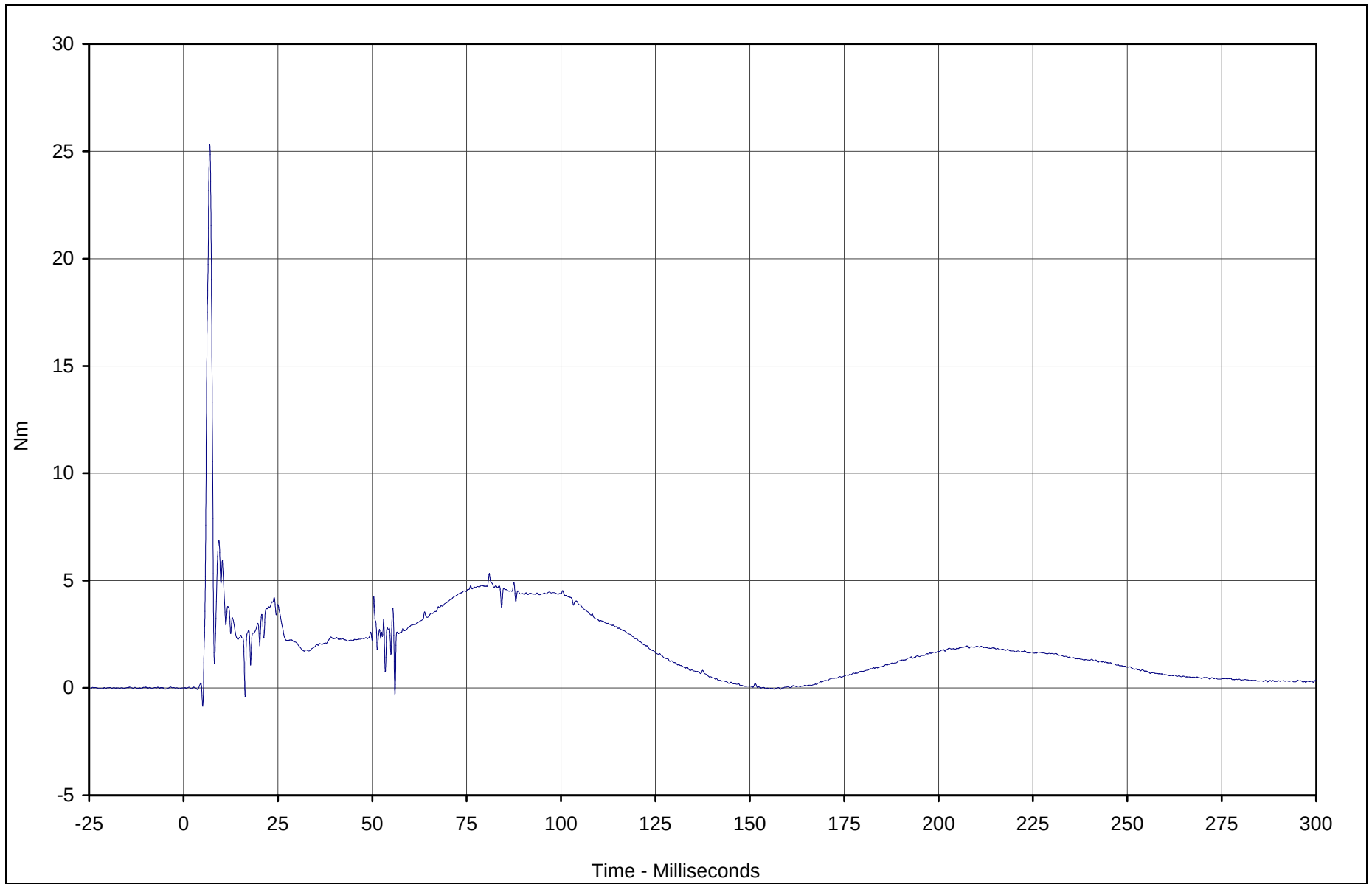


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Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Pass. Upper Neck Moment Y	008	FIL	Nm	25.3	7.0	-0.8	5.1	600

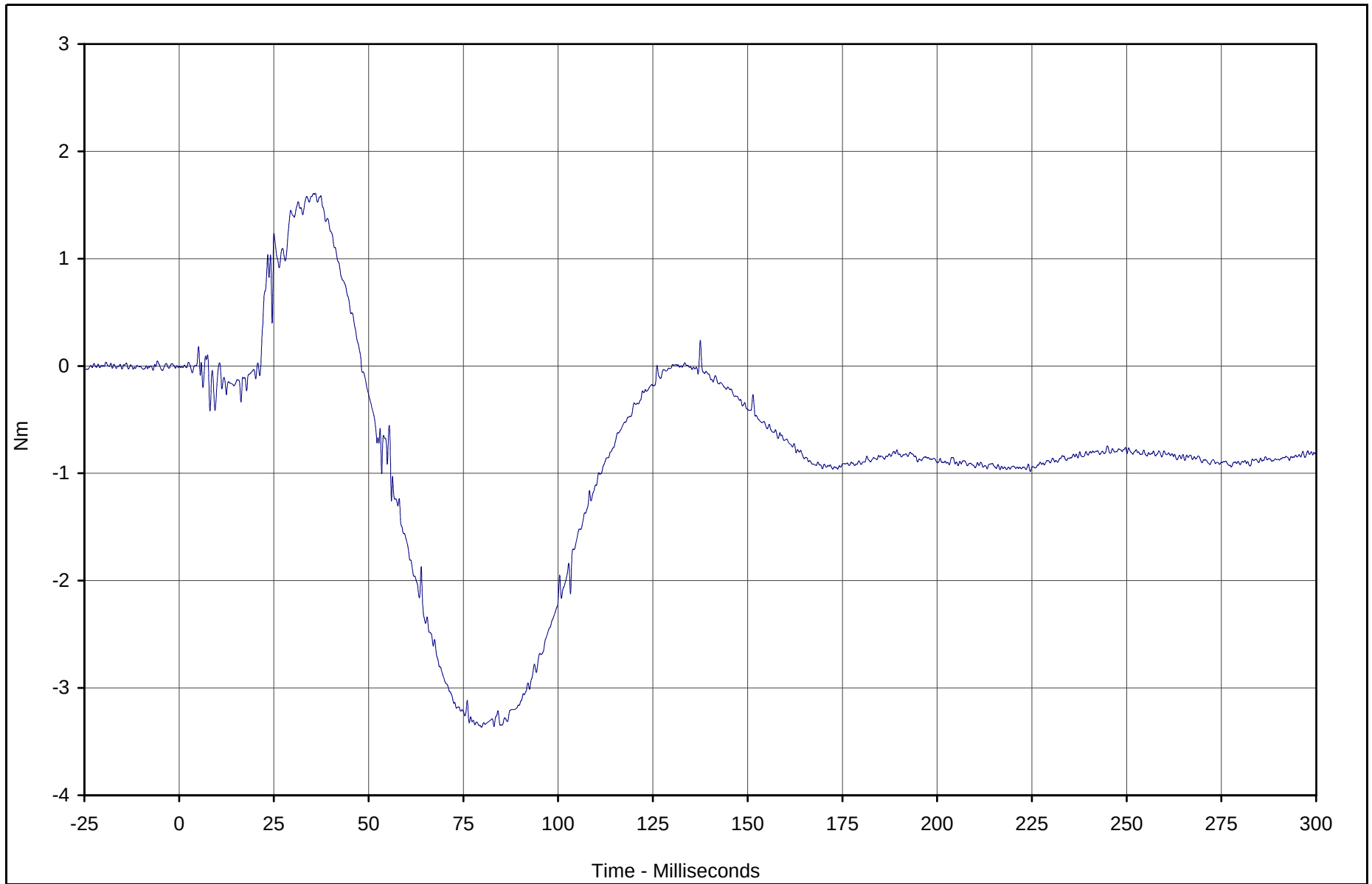


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Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Pass. Upper Neck Moment Z	009	FIL	Nm	1.6	35.9	-3.4	79.8	600

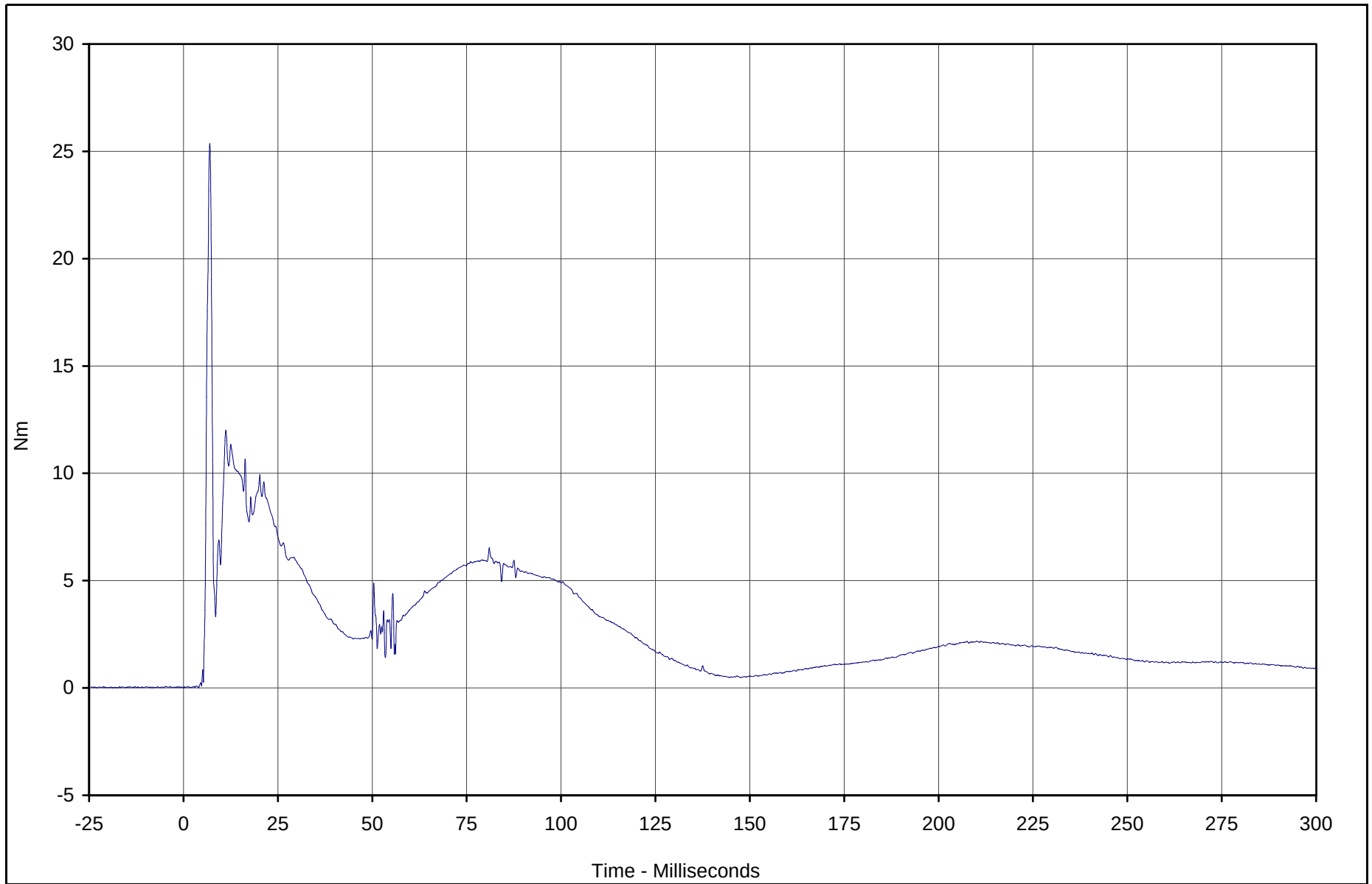


Test Vehicle: 2003 BMW X5 3.0i SUV

Test Date: 10/24/03

Test Program: TWG Testing (Inboard Facing Hybrid III 6 Yr.)

NHTSA No.: M30502TWG2



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Pass. Upper Neck Moment Resultant	007	RES	Nm	25.4	7.0	0.0	4.0	600

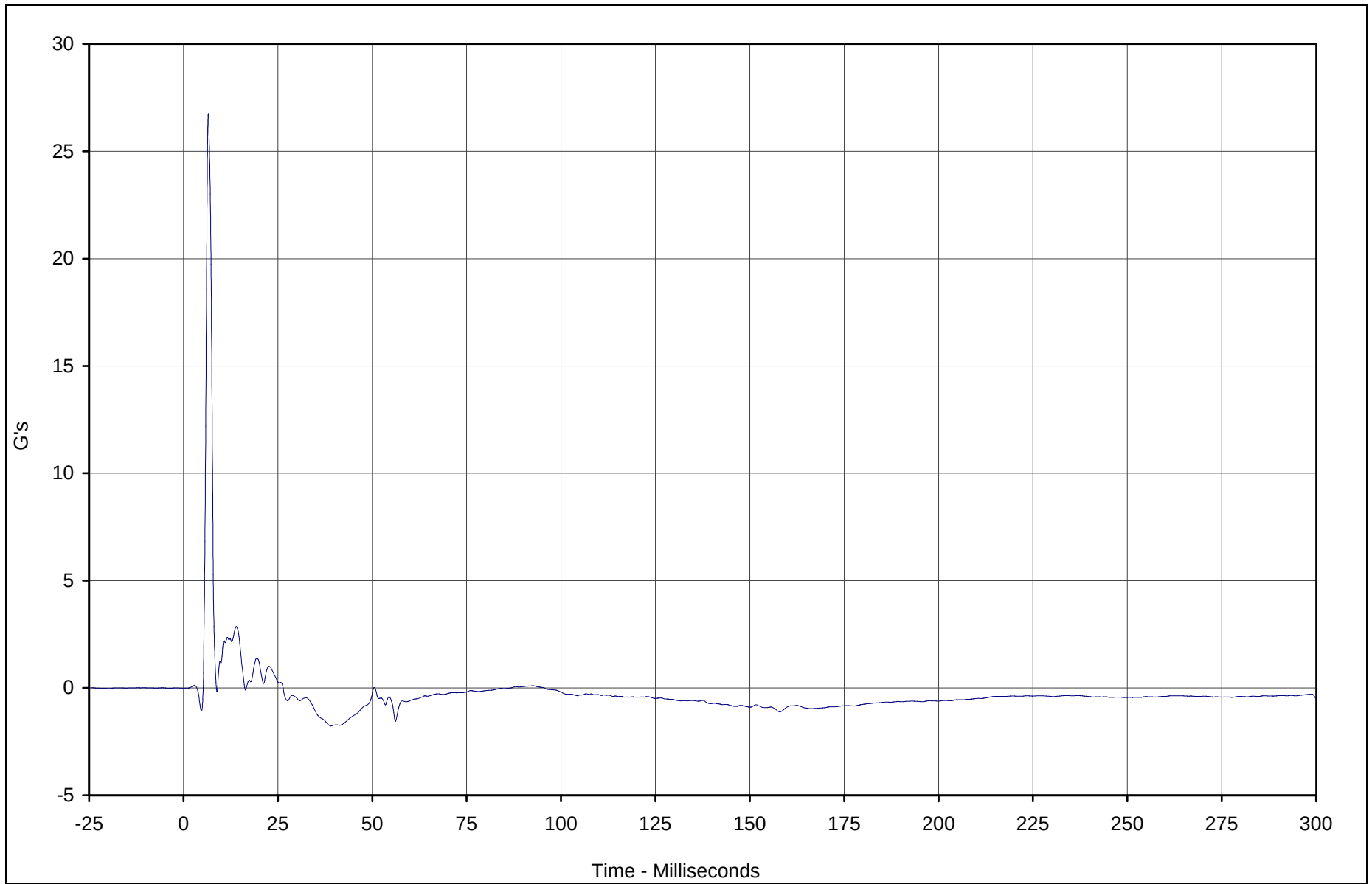


Test Vehicle: 2003 BMW X5 3.0i SUV

Test Date: 10/24/03

Test Program: TWG Testing (Inboard Facing Hybrid III 6 Yr.)

NHTSA No.: M30502TWG2



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Pass. Chest X	010	FIL	G's	26.8	6.6	-1.8	39.0	180

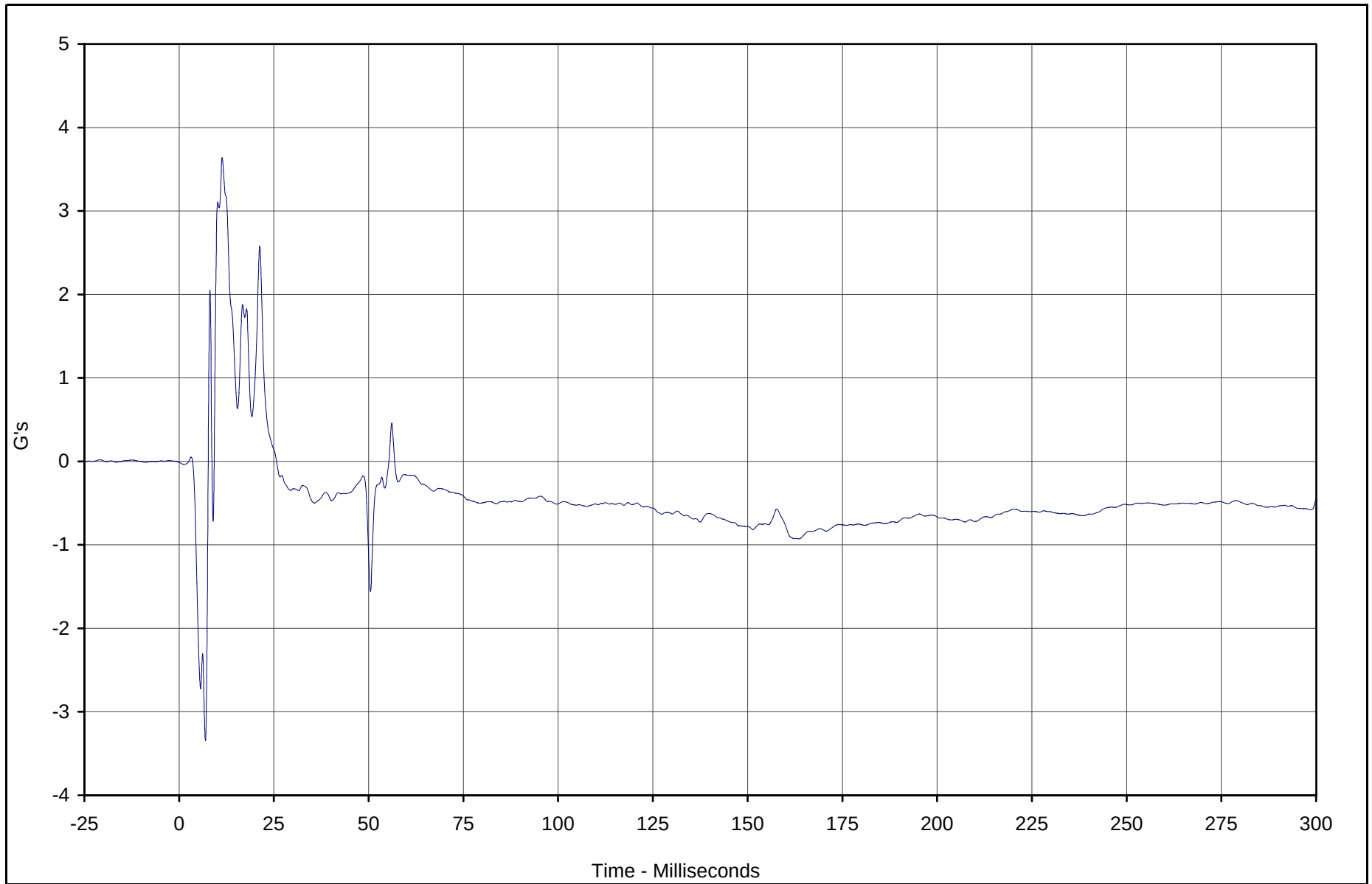


Test Vehicle: 2003 BMW X5 3.0i SUV

Test Date: 10/24/03

Test Program: TWG Testing (Inboard Facing Hybrid III 6 Yr.)

NHTSA No.: M30502TWG2



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Pass. Chest Y	011	FIL	G's	3.6	11.4	-3.3	6.9	180

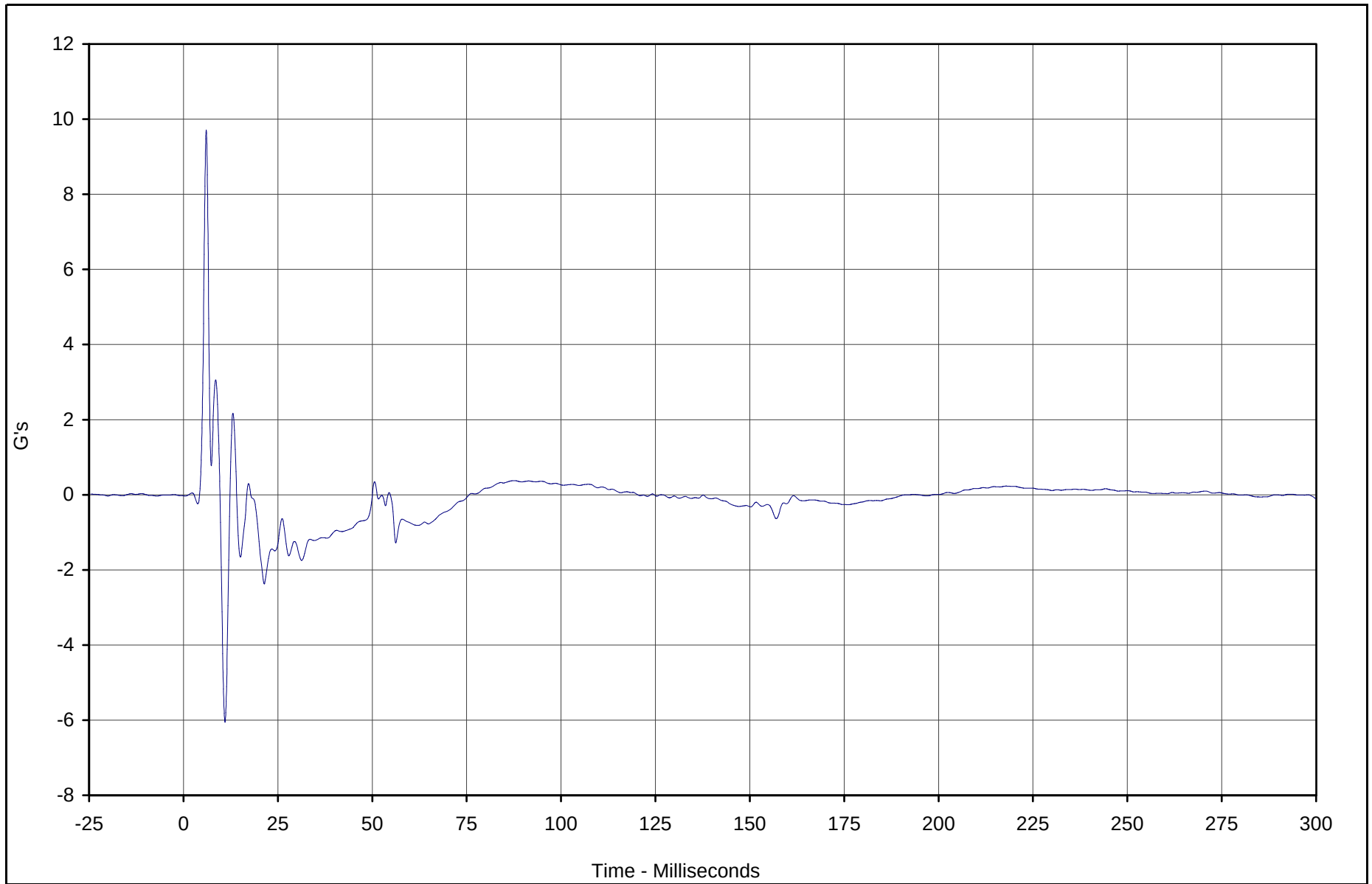


Test Vehicle: 2003 BMW X5 3.0i SUV

Test Date: 10/24/03

Test Program: TWG Testing (Inboard Facing Hybrid III 6 Yr.)

NHTSA No.: M30502TWG2



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Pass. Chest Z	012	FIL	G's	9.7	6.0	-6.1	11.0	180

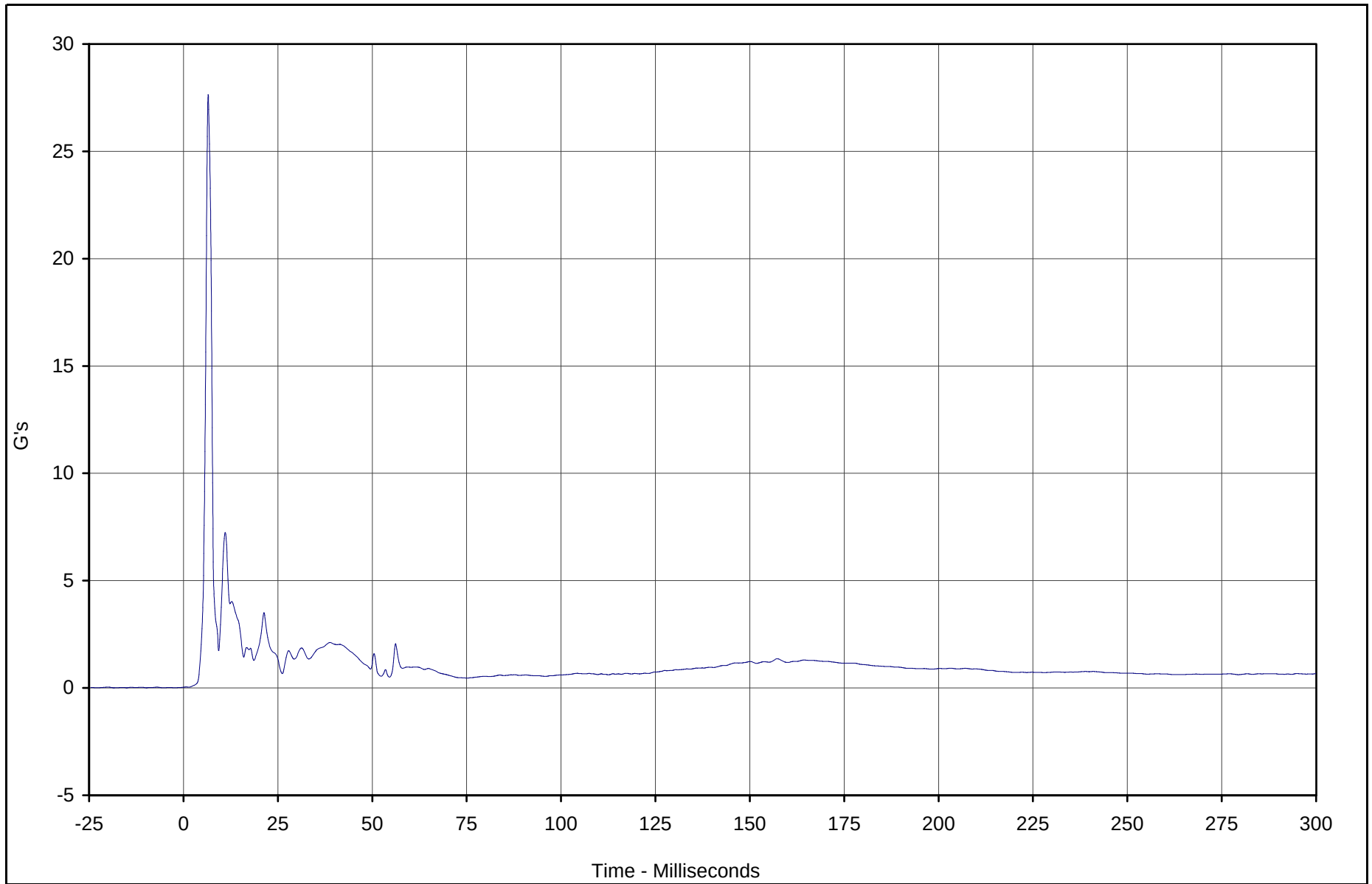


Test Vehicle: 2003 BMW X5 3.0i SUV

Test Date: 10/24/03

Test Program: TWG Testing (Inboard Facing Hybrid III 6 Yr.)

NHTSA No.: M30502TWG2



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Pass. Chest Resultant	010	RES	G's	27.6	6.5	0.0	0.0	180

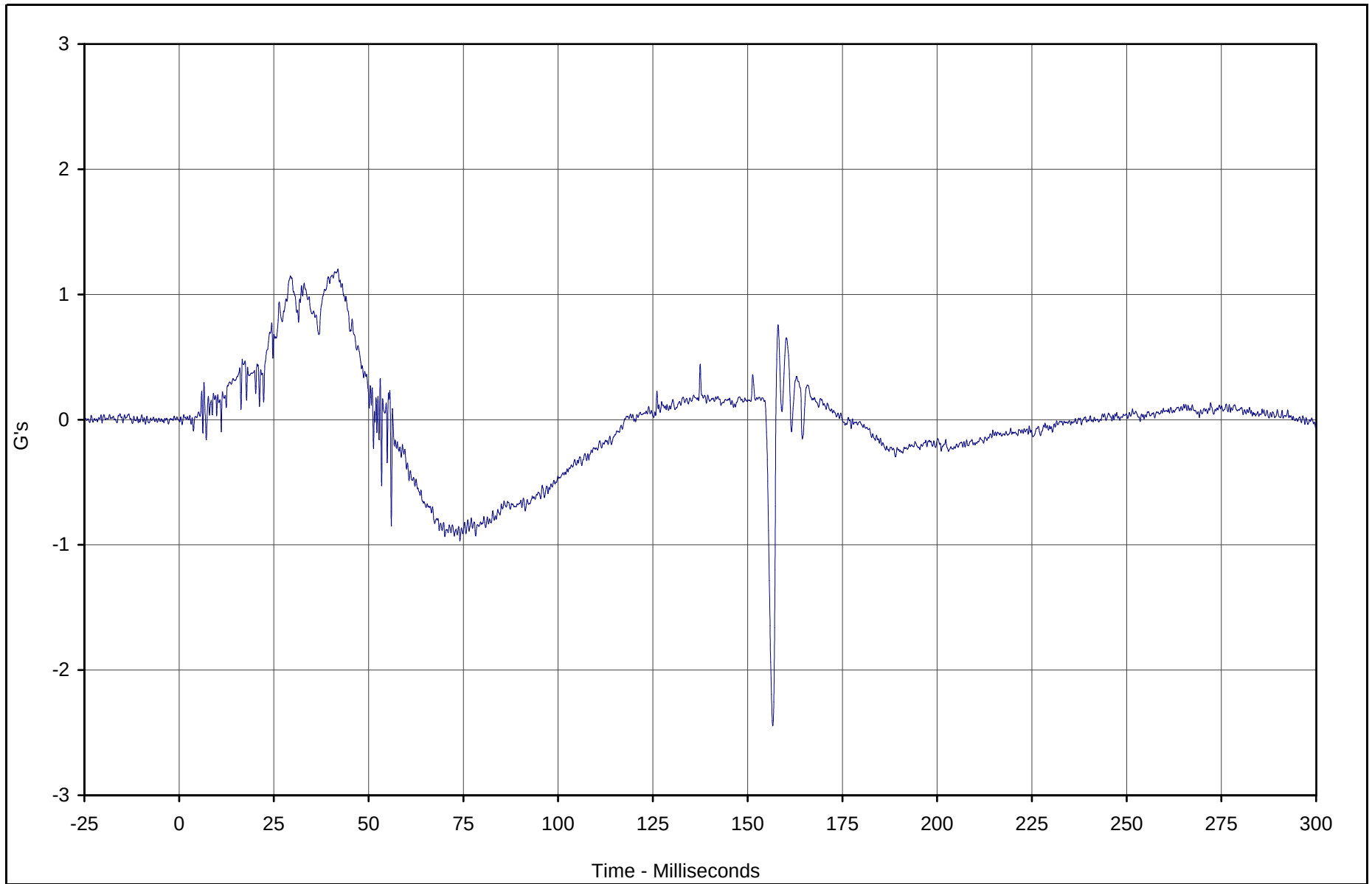


Test Vehicle: 2003 BMW X5 3.0i SUV

Test Date: 10/24/03

Test Program: TWG Testing (Inboard Facing Hybrid III 6 Yr.)

NHTSA No.: M30502TWG2



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Pass. Pelvis X	014	FIL	G's	1.2	41.9	-2.4	156.6	1000

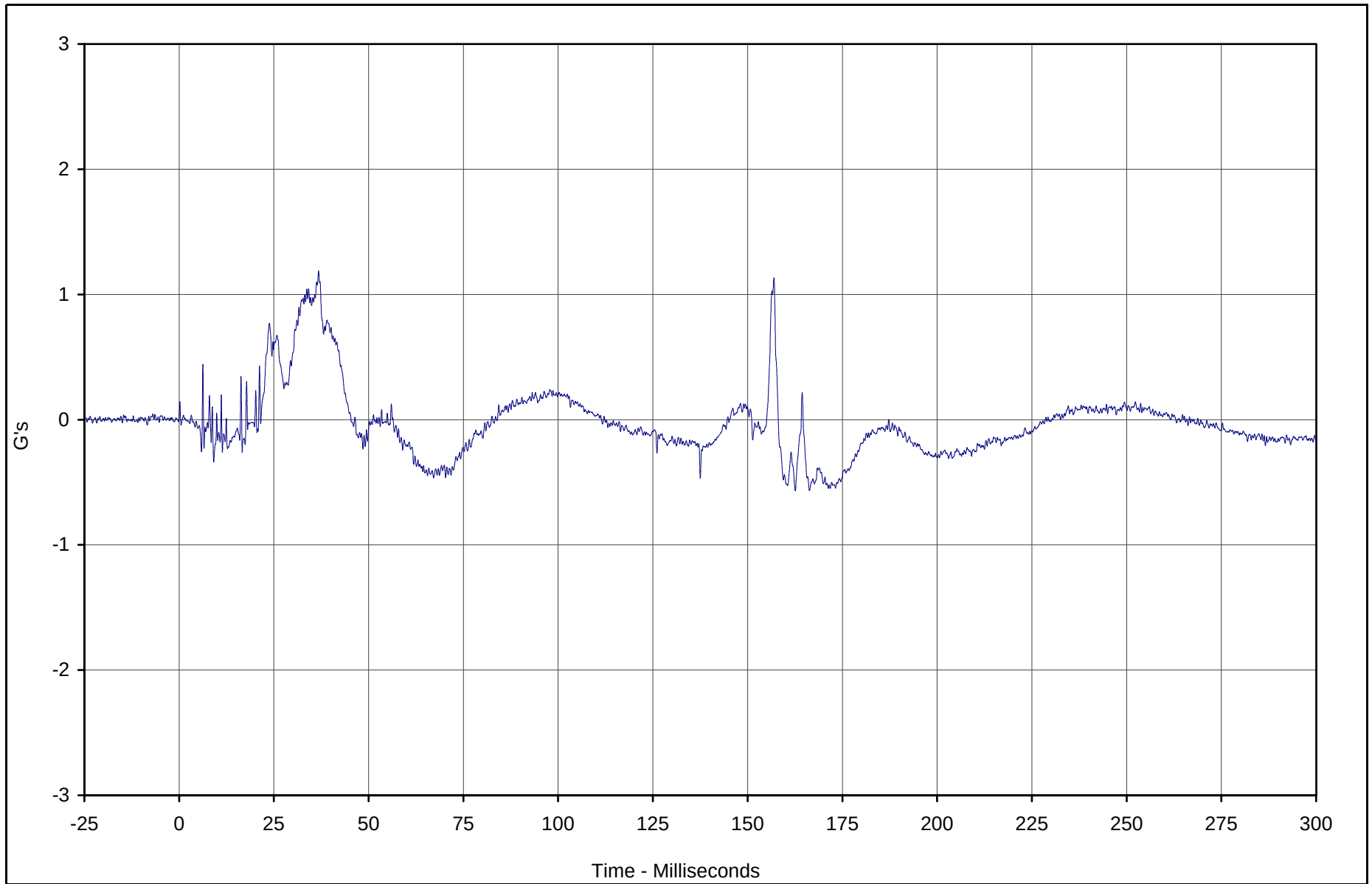


Test Vehicle: 2003 BMW X5 3.0i SUV

Test Date: 10/24/03

Test Program: TWG Testing (Inboard Facing Hybrid III 6 Yr.)

NHTSA No.: M30502TWG2



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Pass. Pelvis Y	015	FIL	G's	1.2	36.8	-0.6	166.3	1000

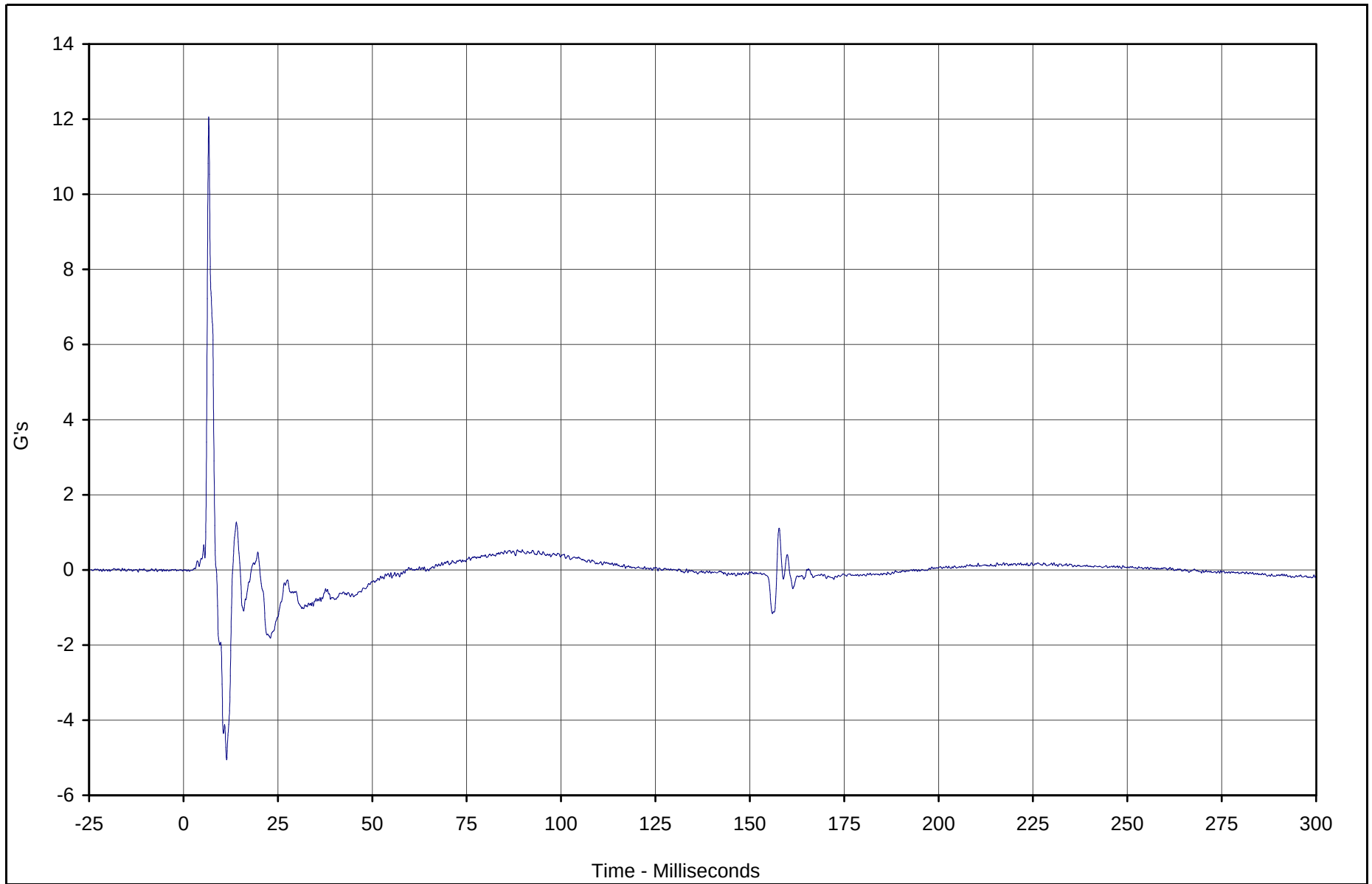


Test Vehicle: 2003 BMW X5 3.0i SUV

Test Date: 10/24/03

Test Program: TWG Testing (Inboard Facing Hybrid III 6 Yr.)

NHTSA No.: M30502TWG2



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Pass. Pelvis Z	016	FIL	G's	12.1	6.7	-5.1	11.4	1000

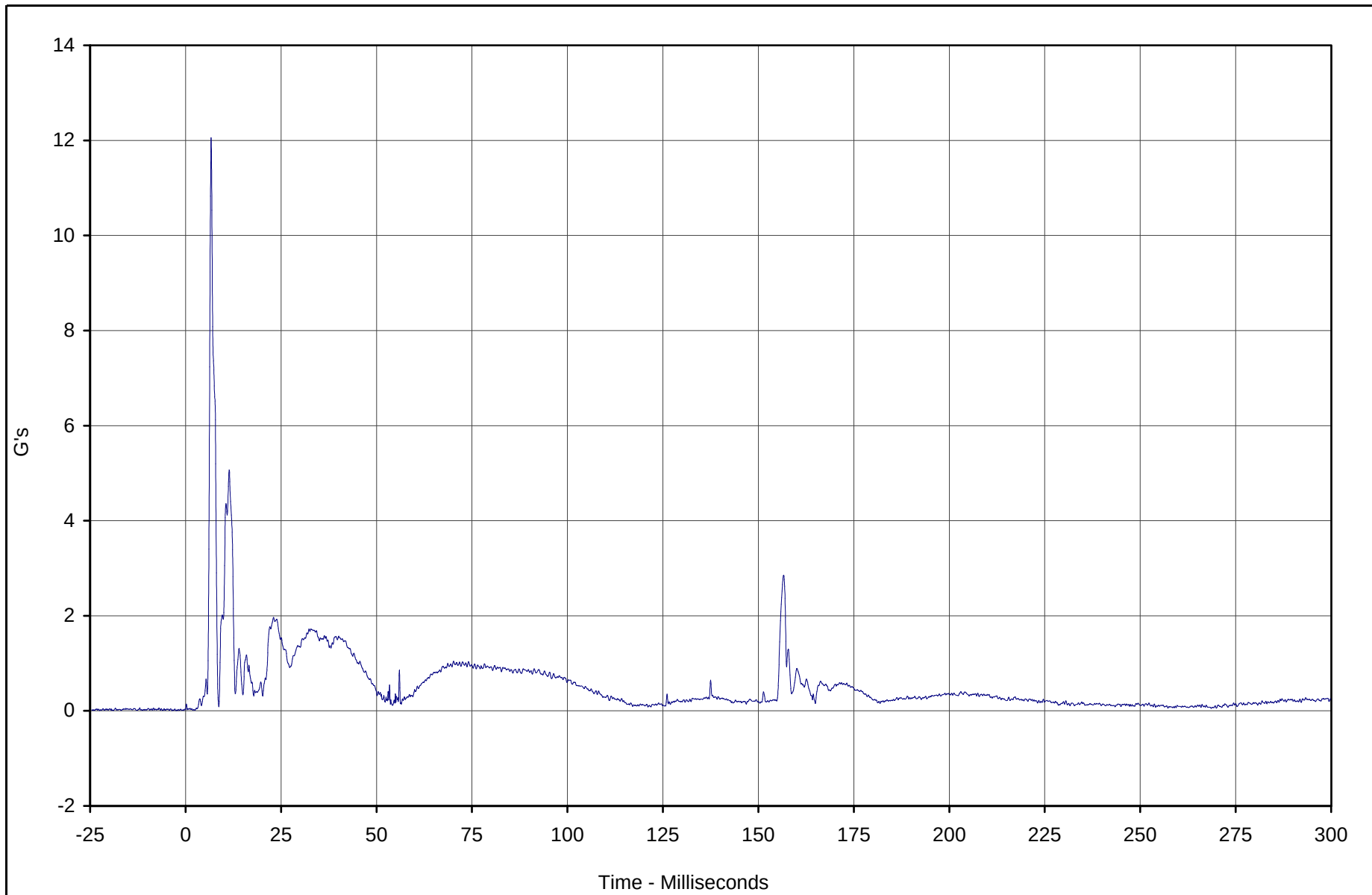


Test Vehicle: 2003 BMW X5 3.0i SUV

Test Date: 10/24/03

Test Program: TWG Testing (Inboard Facing Hybrid III 6 Yr.)

NHTSA No.: M30502TWG2



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Pass. Pelvis Resultant	014	RES	G's	12.1	6.7	0.0	2.5	1000

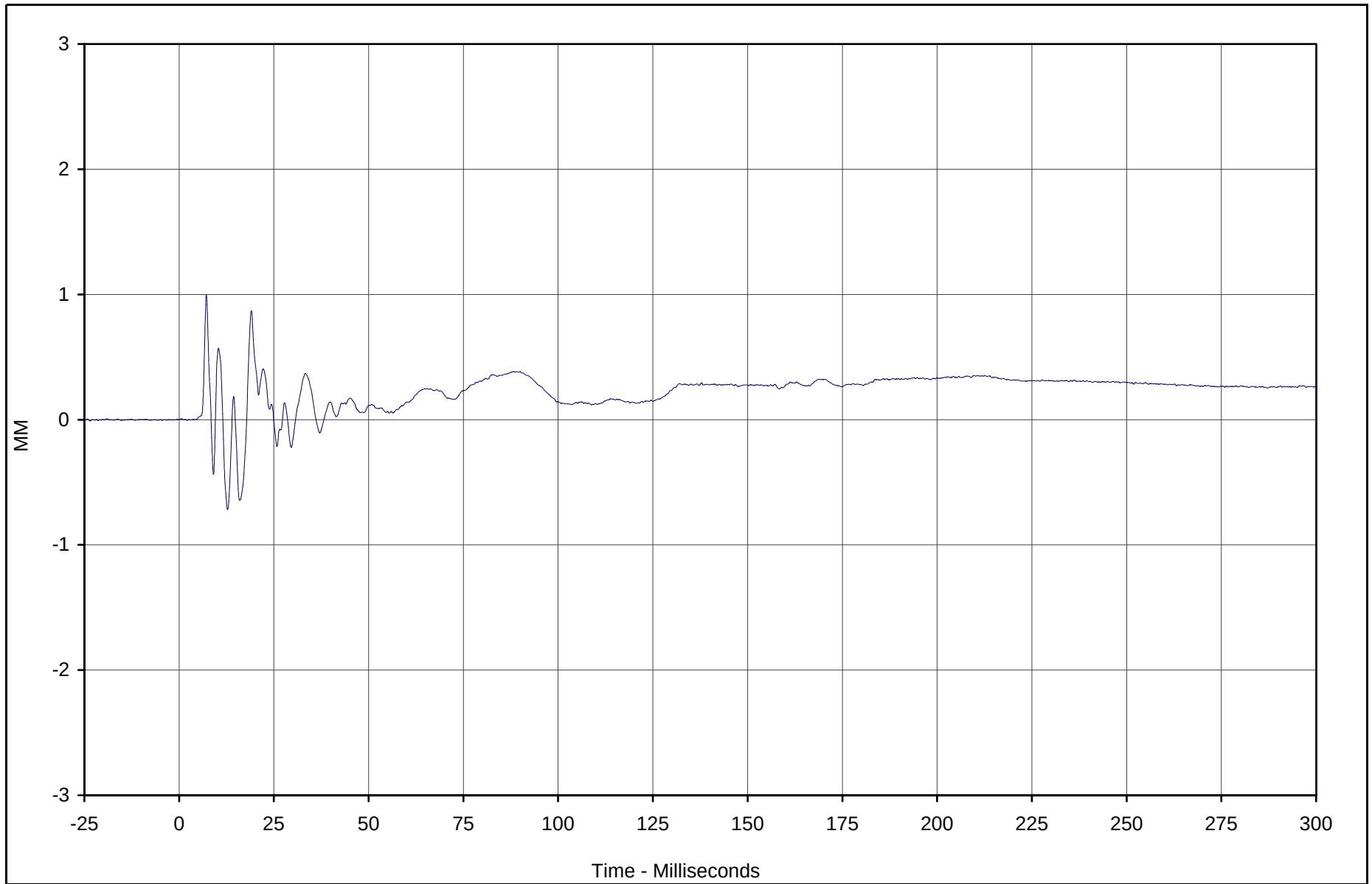


Test Vehicle: 2003 BMW X5 3.0i SUV

Test Date: 10/24/03

Test Program: TWG Testing (Inboard Facing Hybrid III 6 Yr.)

NHTSA No.: M30502TWG2



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Pass. Chest Deflection	013	FIL	MM	1.0	7.2	-0.7	12.8	600



Test Vehicle: 2003 BMW X5 3.0i SUV

Test Date: 10/24/03

Test Program: TWG Testing (Inboard Facing Hybrid III 6 Yr.)

NHTSA No.: M30502TWG2

APPENDIX C

INSTRUMENTATION DATA CHANNEL ASSIGNMENTS

TWG Testing (Inboard Facing Hybrid III 6 Yr.)
Instrumentation Data Channel Assignments
A.T.D. Serial Number 027
10/24/03
2003 BMW X5 3.0i SUV

CH.	LOCATION	AXIS	IDENT. NO.	DESCRIPTION	MFR	MODEL	UNITS
1	HEAD, PRIMARY	X	GPAC047	Accel.,1/2 bridge	Endevco	7264-2000	G
2	HEAD, PRIMARY	Y	GPAC048	Accel.,1/2 bridge	Endevco	7264-2000	G
3	HEAD, PRIMARY	Z	GPAC049	Accel.,1/2 bridge	Endevco	7264-2000	G
4	UPPER NECK FORCE	X	027UNFX	Load cell, six axis neck	R. A. Denton	IF-234	N
5	UPPER NECK FORCE	Y	027UNFY	Load cell, six axis neck	R. A. Denton	IF-234	N
6	UPPER NECK FORCE	Z	027UNFZ	Load cell, six axis neck	R. A. Denton	IF-234	N
7	UPPER NECK MOMENT	X	027UNMX	Load cell, six axis neck	R. A. Denton	IF-234	Nm
8	UPPER NECK MOMENT	Y	027UNMY	Load cell, six axis neck	R. A. Denton	IF-234	Nm
9	UPPER NECK MOMENT	Z	027UNMZ	Load cell, six axis neck	R. A. Denton	IF-234	Nm
10	CHEST , PRIMARY	X	2116-A01	Accel., Full Bridge	Entran	2000JF	G
11	CHEST , PRIMARY	Y	2116-A06	Accel., Full Bridge	Entran	2000JF	G
12	CHEST , PRIMARY	Z	2116-A07	Accel., Full Bridge	Entran	2000JF	G
13	CHEST DISPLACEMENT	X	027CP	Rotary Pot Chest	Servo	14CBI	MM
14	PELVIS, PRIMARY	X	2116-N07	Accel., Full Bridge	Entran	2000JF	G
15	PELVIS, PRIMARY	Y	2116-A03	Accel., Full Bridge	Entran	2000JF	G
16	PELVIS, PRIMARY	Z	2116-A17	Accel., Full Bridge	Entran	2000JF	G