

REPORT NUMBER KAR21006-02

**NEW CAR ASSESSMENT PROGRAM
SIDE IMPACT TEST**

**FUJI HEAVY INDUSTRIES
2001 SUBARU FORESTER
AWD WAGON
NHTSA NUMBER: SUB001**

**PREPARED BY:
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FINAL REPORT

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16. Abstract A 55/28 km/h 90 deg. Moving Deformable Barrier Side Impact NCAP Test was conducted on the subject 2001 Subaru Forester AWD Wagon in accordance with the specifications of the Office of Crash Worthiness Standards Test Procedure for the generation of consumer information on vehicle side crash protection. The test was conducted at KARCO Engineering laboratories in Adelanto, California, on February 15, 2001. The impact velocity of the Moving Deformable Barrier was 61.25 km/h, and the outside ambient temperature at the struck (driver's) side of the vehicle was 10.5 deg. C. The target vehicle's maximum post test static crush was 293 mm located at level 2 . The test vehicle's occupant performance is as follows: <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 10px;"> <thead> <tr> <th style="width: 35%;">Measurement Description</th> <th style="width: 30%;">Driver SID</th> <th style="width: 35%;">Passenger SID</th> </tr> </thead> <tbody> <tr> <td>Left Upper Rib (LUR) G's</td> <td style="text-align: center;">31.4</td> <td style="text-align: center;">58.2</td> </tr> <tr> <td>Left Lower Rib (LLR) G's</td> <td style="text-align: center;">34.4</td> <td style="text-align: center;">60.8</td> </tr> <tr> <td>Lower Spine (T₁₂) G's</td> <td style="text-align: center;">49.5</td> <td style="text-align: center;">73.0</td> </tr> <tr> <td>Thoracic Trauma Index (TTI) G's</td> <td style="text-align: center;">42</td> <td style="text-align: center;">67</td> </tr> <tr> <td>Pelvis (PEV) G's</td> <td style="text-align: center;">73</td> <td style="text-align: center;">79</td> </tr> </tbody> </table>				Measurement Description	Driver SID	Passenger SID	Left Upper Rib (LUR) G's	31.4	58.2	Left Lower Rib (LLR) G's	34.4	60.8	Lower Spine (T ₁₂) G's	49.5	73.0	Thoracic Trauma Index (TTI) G's	42	67	Pelvis (PEV) G's	73	79
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17. Key Words New Car Assessment Program (NCAP) Side Impact Moving Deformable Barrier (MDB) Side Impact Dummy (SID)		18. Distribution Statement Copies of this report are available from: National Highway Traffic Safety Admin. NHTSA Technical Reference Division 400 Seventh St., SW, Room 5108 Washington, DC 20590																			
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SECTION 1

PURPOSE and TEST PROCEDURE

1.1 PURPOSE

This Side Impact NCAP test is conducted as part of the FY' 2001 test program sponsored by the National Highway Traffic Safety Administration (NHTSA), under contract No. DTNH22-99-D-02041. The purpose of this test is to generate comparative side impact data on a 2001 Subaru Forester AWD Wagon manufactured by Fuji Heavy Industrial.

1.2 TEST PROCEDURE

The side impact test was conducted in accordance with the current National Highway Traffic Safety Administration (NHTSA), Office of Crashworthiness Standards (OCS), laboratory test procedure NCAP Side Impact Testing, dated July 1997 and the corresponding KARCO Engineering Test Procedure KTP-214D, dated November 18, 1998. The procedures for receiving, inspection, testing, and reporting of test results are described in the test procedures and are not repeated in this report.

SECTION 2

SUMMARY OF SIDE IMPACT TEST

2.1 SUMMARY OF SIDE IMPACT NCAP TEST

A model year 2001 Subaru Forester AWD Wagon was impacted on the left (driver's) side by a Moving Deformable Barrier (MDB) which was moving forward in a 27° crabbed position to the tow road guidance system at a velocity of 61.25 km/h. The specified impact velocity range is from 61.1 to 62.7 km/h. The test (target) vehicle was stationary and positioned 63° to the line of forward motion. The weight of the vehicle as tested was 1699 kg and the test weight of the MDB was 1361 kg. The test was conducted at KARCO Engineering in Adelanto, California, on February 15, 2001.

One (1) real-time motion picture camera and ten (10) high-speed motion picture cameras were used to document the impact event. The pre-test and post-test conditions were recorded by one (1) real-time motion picture camera. Camera locations and pertinent camera information is documented in the data sheets. Pre- and post-test photographs of the vehicle and SID can be found in Appendix A. Two 50th percentile adult male Side Impact Dummy's (SID's) were placed in the driver's and left rear passenger designated seating positions according to the test procedure. Each SID is instrumented with contact switches on the pelvis and thorax, and eleven accelerometers in the following locations:

- Left Upper Rib (LUR) uni-axial accelerometer (Y-axis primary and redundant)
- Left Lower Rib (LLR) uni-axial accelerometer (Y-axis primary and redundant)
- Lower Thoracic Spine (T12) uni-axial accelerometer (Y-axis primary and redundant)
- Pelvic (PEV) section uni-axial accelerometer (Y-axis primary and redundant)
- Head Center of Gravity (CG) tri-axial accelerometers (X, Y, and Z axes)

The test vehicle was instrumented with twenty-five (25) structural accelerometers and the MDB was instrumented with five (5) accelerometers and a one (1) contact switch on the right bumper to compare left side to right side bumper impact timing. All data channels were recorded with a fully self contained on-board Test Data Acquisition System (TDAS). The data was digitally sampled at 10,000 samples per second and processed per Appendix V of the Test Procedure.

2.2 GENERAL COMMENTS

The test vehicle sustained a maximum static crush of 293 mm at level 2, 750mm rearward of the left vertical impact point. The driver SID, Serial No. 274 and the passenger SID, Serial No. 275 were calibrated just prior to this test. The SID injury criteria is summarized as follows:

Measurement	Units	Driver	Passenger
Thoracic Trauma Index (TTI)	G's	42	67
Peak Pelvic G's (PEV)	G's	73	79

Tests summaries and post-test observations are presented in Section 3. The vehicle, camera, and occupant measurements are presented in Section 4. Appendix A contains the still photograph prints. Appendix B contains the driver and passenger SID's, vehicle, and MDB response data traces. Appendix C contains the SID's Configuration and performance verification data. Appendix D contains the test equipment information.

SECTION 3
SIDE IMPACT DUMMY (SID) AND VEHICLE TEST DATA

Test Vehicle: 2001 Subaru Forester AWD Wagon
 Test Program: 55/28 km/h 90° Side Impact NCAP

NHTSA No. SUB001
 Test Date: 02/15/01

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
GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle: 2001 Subaru Forester AWD Wagon
 Test Program: 55/28 km/h 90° Side Impact NCAP

NHTSA No.: SUB001
 Test Date: 02/15/01

TEST VEHICLE INFORMATION

Make	Subaru
Model	Forester
Body Style	4 Door Wagon
NHTSA No.	SUB001
VIN	JF1SF65601H756895
Color	Silverthorn
Delivery Date	2/12/01
Odometer Reading (mile)	74
Dealer	Exclusively Subaru
Transmission	4 Speed Automatic
Final Drive	AWD
Number of Cylinders	4
Engine Displacement (L)	2.5
Engine Placement	Longitudinal

TEST VEHICLE OPTIONS

Driver Airbag	Yes
Passenger Airbag	Yes
Power Windows	Yes
Power Steering	Yes
Power Door Locks	Yes
Tilt Wheel	Yes
Air Conditioning	Yes
Power Brakes	Yes
Disc Brakes, Front	Yes
Disc Brakes, Rear	No
Anti-lock Brakes	Yes
AM/FM/Cassette	Yes
Anti-Theft System	Yes
Cruise Control	Yes

DATA FROM CERTIFICATION LABEL

Manufactured By	Fuji Heavy Ind. LTD., Japan	GVWR (kg)	1895
Date of Manufacture	November-00	GAWR Front (kg)	915
		GAWR Rear (kg)	990

DATA FROM TIRE PLACARD

Measured Parameter	Front	Rear
Maximum Tire Pressure (kPa)	203	252
Cold Pressure (kPa)	203	196
Recommend Tire Size	P215/60R16	P215/60R16
Tire Size on Vehicle	P215/60R16	P215/60R16
Tire Manufacturer	Yokohama	Yokohama

Measured Parameter	Front	Rear	Third	Total
Type of Seats	Split Bench	Bench	None	
Number of Occupants	2	3	N/A	5
Capacity Wt. (VCW) (kg)				410
Cargo Weight (RCLW) (kg)				68

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

Test Vehicle: 2001 Subaru Forester AWD Wagon
 Test Program: 55/28 km/h 90° Side Impact NCAP

NHTSA No.: SUB001
 Test Date: 02/15/01

TEST VEHICLE WEIGHTS

	Units	As Delivered (UVW)			As Tested (ATW)		
		Front Axle	Rear Axle	Total	Front Axle	Rear Axle	Total
Left	kg	404	341		445	432	
Right	kg	397	333		418	404	
Ratio	%	54.3	45.7		50.8	49.2	
Totals	kg	801	674	1475	863	836	1699

TARGET TEST WEIGHT CALCULATION*

Measured Parameter	Units	Value
Total Delivered Weight (UVW)	kg	1475
Weight of 2 P572F Side Impact Dummies	kg	161.5
Rated Cargo/Luggage Weight (RCLW)	kg	68
Calculated Vehicle Target Weight (TVTW)	kg	1705

*Actual As Tested Weight (ATW) will be TVTW -5/-10 kg

TEST VEHICLE ATTITUDES AND CG

	Units	LF	RF	LR	RR	CG (aft of front axle)
As Delivered	mm	752	756	762	763	1153
As Tested	mm	737	745	727	742	1241
Fully Loaded	mm	737	749	726	738	

GENERAL TEST VEHICLE DATA

Measurement Description	Units	Value
Test Vehicle Wheel base	mm	2523
Total Vehicle Length at Left Side	mm	3158
Total Vehicle Length at Centerline	mm	4459
Total Vehicle Length at Right Side	mm	3163
Weight of Ballast In Cargo Area	kg	78
Amount of Stoddard Solvent in Fuel Tank	Liters	55.9

TEST VEHICLE VERTICAL IMPACT LINE DATA

Measurement Description	Units	Value
Test Vehicle Wheel base	mm	2523
Target Impact Point Aft of Front Axle	mm	322
Actual Impact Point Aft of Front Axle	mm	327

DATA SHEET NO. 1...(continued)

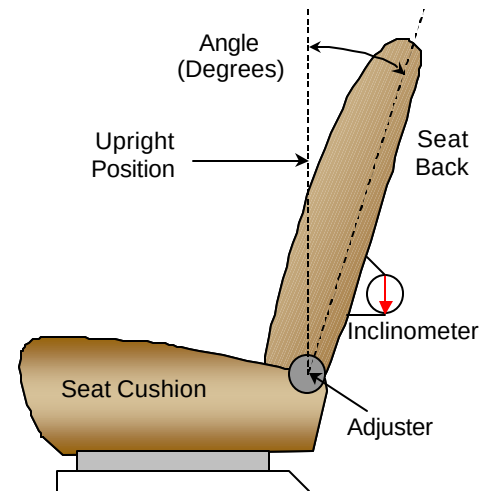
GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle: 2001 Subaru Forester AWD Wagon
Test Program: 55/28 km/h 90° Side Impact NCAP

NHTSA No. SUB001
Test Date: 02/15/01

NOMINAL DESIGN RIDING POSITION

The driver's seat back is positioned to the manufacturer's designated angle. The procedure for positioning the seat is as follows: A slit is cut into fabric of the seat at the outboard edge, approximately 10-13 inches above the pivot point to expose the frame of the seat. An inclinometer is firmly placed against the flat portion of the frame surface and the seat back is adjusted to the manufacturer's designated angle.



FRONT SEAT ASSEMBLY

Driver seat back angle: 22° with a seated dummy
Rear seat back angle: 22° fixed

SEAT FORE/AFT POSITIONS

The driver's seat is adjustable. The fore/aft position is set to the middle.

Driver seat fore/aft total travel: 16 seat detents
Rear seat fore/aft total travel: Seat is fixed
Driver seat fore/aft position: Placed in the 9th detent
Rear seat fore/aft position: Seat is fixed

SEAT BELT UPPER ANCHORAGE

Both driver and rear passenger seats are equipped with adjustable upper seat belt anchorages. The driver's "D" ring anchorage has 5 positions and is placed in the 2nd position from the top; the rear passenger seat has 4 positions and is placed in the 2nd position from the top.

DATA SHEET NO. 1...(continued)

GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle: 2001 Subaru Forester AWD Wagon

NHTSA No. SUB001

Test Program: 55/28 km/h 90° Side Impact NCAP

Test Date: 02/15/01

FUEL TANK CAPACITY DATA

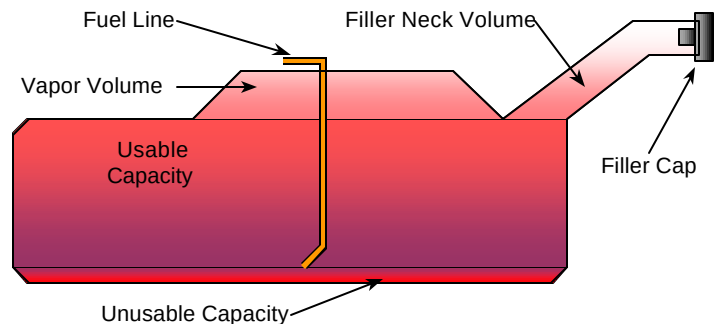
The "Usable Capacity" of the standard equipment fuel tank is: 60.1 liters

The "Usable Capacity" of any optional equipment fuel tank is: N/A liters

92-94% of "Usable Capacity" for certification to FMVSS 301 requirement: 55.3 to 56.5 liters

Actual amount of Stoddard solvent added to vehicle for certification test: 55.9 liters

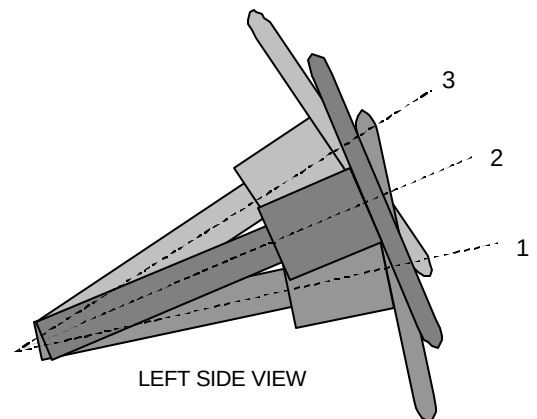
The test vehicle is equipped with an electric fuel pump. The fuel pump will operate for approximately three (3) seconds with the ignition in the "ON" position, after which the fuel pump automatically shuts off. The fuel filler door is located on the left rear fender.



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 it is moved through its full range of motion. An aluminum plate is placed across the rim of the steering wheel, an inclinometer is placed onto the plate and the angle is measured. The tested vehicle has its steering column set at position 2 as indicated in the drawing at right and the angle below.



STEERING COLUMN ASSEMBLY

Lowermost, position 1: 24°

Geometric center, position 2: 25°

Uppermost, position 3: 26°

DATA SHEET NO. 2
TEST VEHICLE SUMMARY OF RESULTS

Test Vehicle: 2001 Subaru Forester AWD Wagon
Test Program: 55/28 km/h 90° Side Impact NCAP

NHTSA No.: SUB001
Test Date: 02/15/01

TEST VEHICLE WEIGHTS

	Units	As Delivered (UVW)			As Tested (ATW)		
		Front Axle	Rear Axle	Total	Front Axle	Rear Axle	Total
Left	kg	404	341		445	432	
Right	kg	397	333		418	404	
Weight Ratio	%	54.3	45.7		50.8	49.2	
Totals	kg	801	674	1475	863	836	1699

MAXIMUM EXTERIOR STATIC CRUSH

Level	Measured Parameter	Units	Maximum Crush	Above Ground
Level 1	Sill Top Height	mm	151	306
Level 2	Occupant H-Point	mm	293	589
Level 3	Mid Door	mm	274	633
Level 4	Window Sill	mm	189	955
Level 5	Window Top	mm	50	1447
N/A	Maximum Penetration	mm	293	

INSTRUMENTATION

Driver SID Accelerometers	11
Passenger SID Accelerometers	11
Vehicle Structure Accelerometers	25
MDB Accelerometers	5
Total	52

16mm MOVIE COVERAGE

High Speed, Vehicle On-Board	3
High Speed, Off-Board	5
High Speed, MDB On-Board	2
Real Time, Panning	1
Total	11

DATA SHEET NO. 3
MOVING DEFORMABLE BARRIER (MDB) SUMMARY OF RESULTS

Test Vehicle: 2001 Subaru Forester AWD Wagon
 Test Program: 55/28 km/h 90° Side Impact NCAP

NHTSA No.: SUB001
 Test Date: 02/15/01

MDB SPECIFICATIONS (mm)

Measurement Description	Length
Overall Width of Framework Carriage	1252
Overall Length Including Honeycomb Face	4115
Wheel base of Framework Carriage	2590
C.G. Location aft of Front Axle	1127

MDB WEIGHTS

	Units	Front Axle	Rear Axle	Total
Left	kg	384	308	
Right	kg	385	284	
Ratio	%	56.5	43.5	
Totals	kg	769	592	1361

SPEED AND IMPACT ANGLE DATA

Measured Parameter	Units	Requirement	Value
Trap No. 1 Velocity (Primary)	km/h	61.1 to 62.7	61.25
Trap No. 2 Velocity (Redn.)	km/h	61.1 to 62.7	61.27
MDB CL to Target Vehicle CL	degrees	88.5 to 91.5	89.5

MAXIMUM STATIC CRUSH OF HONEYCOMB FACE (mm)

Vertical Location			From Centerline		Max Crush
Row	Description	Height	Distance	Direction	
A	Center of Bumper	432	800	Left	103
B	Top of Bumper	533	800	Left	55
C	Mid Level	686	800	Right	42
D	Top of Stack	813	800	Right	124

MDB INSTRUMENTATION AND CAMERAS

Accelerometers	5
Contact Switches	2
High Speed Cameras	2

**DATA SHEET NO. 4
POST TEST OBSERVATIONS**

Test Vehicle: 2001 Subaru Forester AWD Wagon
Test Program: 55/28 km/h 90° Side Impact NCAP

NHTSA No.: SUB001
Test Date: 02/15/01

TEST DUMMY INFORMATION AND CONTACT POINTS

Description	Front Seat SID	Rear Seat SID
Dummy Type / Serial No.	P572F, SID / No. 274	P572F, SID / No. 275
Head Contact	Headrest	C-Pillar/D-Ring
Upper Torso Contact	Airbag	Door Panel
Lower Torso Contact	Door Panel/Seat	Seat/Door Panel
Left Knee Contact	Door Panel/Knee	Door Panel/Seat Belt
Right Knee Contact	Knee	Knee

POST TEST DOOR OPENING AND SEAT TRACK INFORMATION

Description	Front	Rear
Left Side Door Opening	Remained closed inoperable	Remained closed inoperable
Right Side Door Opening	Remained closed operable	Remained closed operable
Seat Movement	None	None
Seat Back Failure	None	None

POST TEST STRUCTURAL OBSERVATIONS

Critical Areas of Performance	Observations and Conclusions
Pillar Performance	Pillars pushed inward with no apparent failure
Sill Separation	No Apparent Visible Failure
Windshield Damage	Glazing Cracks on Struck Side Only
Window Damage	Both Left Side Windows Broke.
Other Notable Effects	No significant items to note.

AIR BAG DEPLOYMENT

	Driver	Front Passenger	Rear Passenger
Front	No	No	N/A
Side	Yes	N/A	N/A

MDB LEFT EDGE IMPACT POINT DATA

Measured Parameter	Units	Requirement	Value
Horizontal Offset	mm	+/- 50	11 (right)
Vertical Offset	mm	+/- 20	5 (below)

SECTION 4
OCCUPANT AND VEHICLE INFORMATION

DATA SHEET NO. 5
SID INJURY CRITERIA AND SENSOR DATA

Test Vehicle: 2001 Subaru Forester AWD Wagon

NHTSA No.: SUB001

Test Program: 55/28 km/h 90° Side Impact NCAP

Test Date: 02/15/01

THORAX AND PELVIS PEAK ACCELERATIONS, PRIMARY (FIR 100 Filtered)

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Upper Rib (LUR)	Y	G's	31.4	15.7	-8.8	86.1	58.2	50.1	-8.4	98.5
Lower Rib (LLR)	Y	G's	34.4	33.2	-8.9	85.4	60.8	49.5	-17.2	85.8
Lower Spine (T ₁₂)	Y	G's	49.5	31.9	-9.9	59.6	73.0	48.8	-30.2	81.0
Pelvis (PEV)	Y	G's	73.3	30.8	-11.2	68.3	79.1	44.3	-15.2	93.6

THORACIC TRAUMA INDEX (TTI) AND PELVIC ACCELERATION, PRIMARY (FIR 100 Filtered)

Location	Driver				Passenger			
	LLR	T ₁₂	TTI(g)	PEV(g)	LLR	T ₁₂	TTI(g)	PEV(g)
Primary Rib, Spine, and Pelvis	34.427	49.526	42	73	60.839	72.990	67	79

THORAX AND PELVIS PEAK ACCELERATIONS, REDUNDANT (FIR 100 Filtered)

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Upper Rib (LUR)	Y	G's	31.3	15.7	-8.7	86.1	58.9	50.2	-8.5	98.7
Lower Rib (LLR)	Y	G's	33.8	33.3	-8.5	85.4	61.3	49.5	-17.2	85.8
Lower Spine (T ₁₂)	Y	G's	49.2	32.4	-9.9	59.6	73.0	48.9	-28.8	81.1
Pelvis (PEV)	Y	G's	72.6	31.0	-11.0	68.8	79.0	44.4	-14.3	93.8

THORACIC TRAUMA INDEX (TTI) AND PELVIC ACCELERATION, REDUNDANT (FIR 100 Filtered)

Location	Driver				Passenger			
	LLR	T ₁₂	TTI(g)	PEV(g)	LLR	T ₁₂	TTI(g)	PEV(g)
Redundant Rib, Spine, and Pelvis	33.793	49.245	42	73	61.277	73.009	67	79

HEAD CG PEAK ACCELERATIONS (SAE CLASS 1000 Filtered)

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Head CG	X	G's	6.8	42.1	-17.4	90.6	6.1	64.7	-28.4	96.4
Head CG	Y	G's	15.0	48.6	-5.3	146.4	126.1	63.2	-13.4	74.1
Head CG	Z	G's	34.4	62.3	-7.0	34.3	44.3	96.1	-35.7	70.8
Head CG Resultant	N/A	G's	37.4	62.3			126.6	63.2		

HEAD INJURY CRITERIA (SAE CLASS 1000 Filtered)

Location	Driver				Passenger			
	HIC	T ¹	T ²	Avg G	HIC	T ¹	T ²	Avg G
Head CG	103.5	49.3	85.2	24.2	756.7	60.8	68.5	98.8

Positive Acceleration Polarities: Longitudinal (X) = Forward
 (Conforms to SAE J211) Lateral (Y) = Right
 Vertical (Z) = Down

DATA SHEET NO. 6

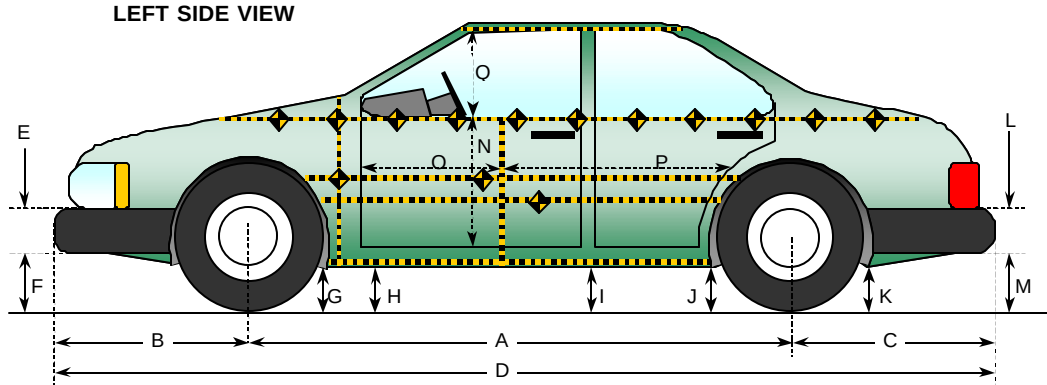
VEHICLE PRE-TEST AND POST-TEST MEASUREMENTS

Test Vehicle: 2001 Subaru Forester AWD Wagon

NHTSA No.: SUB001

Test Program: 55/28 km/h 90° Side Impact NCAP

Test Date: 02/15/01



All Measurements in mm

Code	Measurement Description	Pre-Test	Post-Test	Difference
A	Wheelbase	2523	2462	61
B	Front Axle To FSOV	920	952	-32
C	Rear Axle to RSOV	1020	1014	6
D	Total Length at Centerline	4459	4432	27
E	Front Bumper Thickness	290	290	0
F	Front Bumper Bottom to Ground	300	316	-16
G	Sill Height at Front Wheel Well	251	261	-10
H	Sill Height at Front Door Leading Edge	251	258	-7
I	Sill Height at "B" Pillar	242	276	-34
J1	Sill Height at Rear Wheel Well	231	302	-71
J2	Pinch Weld Height at Rear Wheel Well	242	296	-54
K	Sill Height aft of Rear Wheel Well	277	299	-22
L	Rear Bumper Thickness	256	256	0
M	Rear Bumper Bottom to Ground	371	376	-5
N	Sill Height to Window Bottom Sill	640	630	10
O	Front Door Leading Edge to Impact CL	707	710	-3
P	Rear Door Trailing Edge to Impact CL	1263	1190	73
Q	Front Window Opening	421	430	-9
R	Right Side Length	3163	3165	-2
S	Left Side Length	3158	3100	58
T	Vehicle Width at "B" Post	1710	1553	157

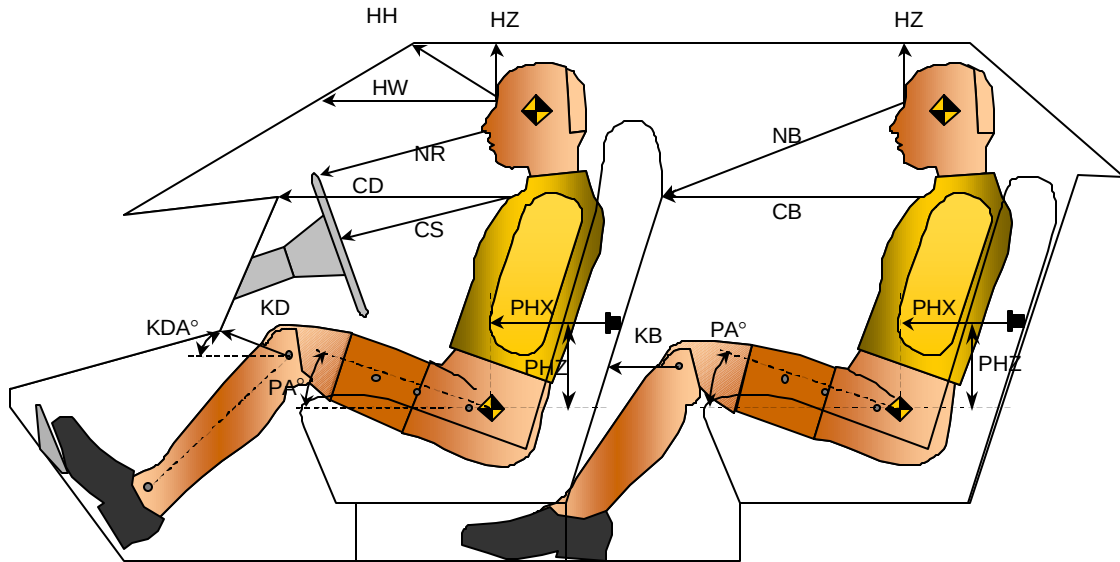
DATA SHEET NO. 7
SID LONGITUDINAL CLEARANCE DIMENSIONS

Test Vehicle: 2001 Subaru Forester AWD Wagon

NHTSA No.: SUB001

Test Program: 55/28 km/h 90° Side Impact NCAP

Test Date: 02/15/01



Driver Code	Pass. Code	Measurement Description	Driver		Passenger	
			Length(mm)	Angle(°)	Length(mm)	Angle(°)
HH		Head to Header	470	19		
HW		Head to Windshield	660			
HZ	HZ	Head to Roof	191	90	160	90
NR	NB	Nose to Rim/Nose to Seatback	489	14	540	28
CD	CB	Chest to Dash or Seatback	536	1	440	11
CS		Chest to Steering Wheel	337	17		
KDL	KBL	Left Knee to Dash or Seatback	190	23	145	
KDR	KBR	Right Knee to Dash or Seatback	190		150	
PA	PA	Pelvic Angle		23		24
PHX	PHX	H-Point to Striker (X-Axis)	147		270	
PHZ	PHZ	H-Point to Striker (Z-Axis)	98		277	

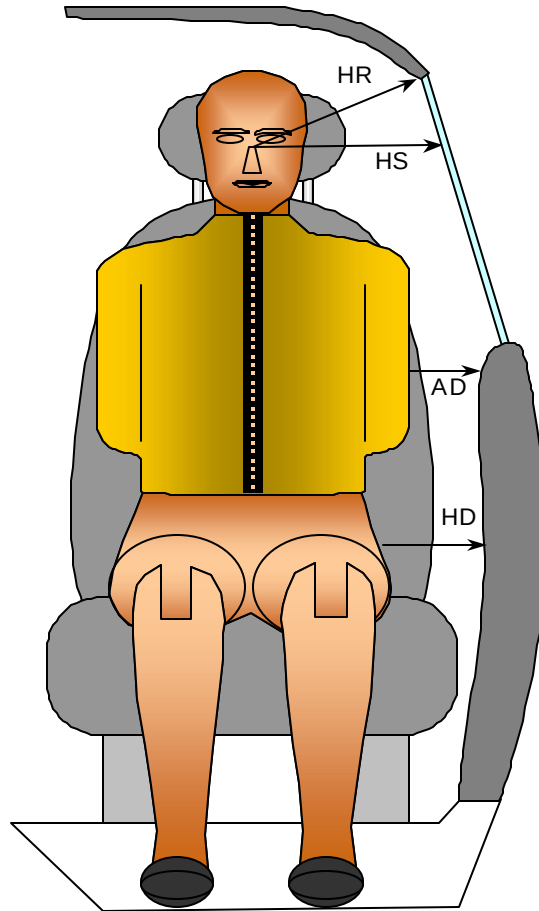
DATA SHEET NO. 8
SID LATERAL CLEARANCE DIMENSIONS

Test Vehicle: 2001 Subaru Forester AWD Wagon

NHTSA No.: SUB001

Test Program: 55/28 km/h 90° Side Impact NCAP

Test Date: 02/15/01



FRONT VIEW OF DUMMY

Code	Measurement Description	Units	Driver	Passenger
HR	Head to Side Header	mm	237	285
HS	Head to Side Window	mm	310	370
AD	Arm to Door	mm	83	151
HD	H-Point to Door	mm	116	191

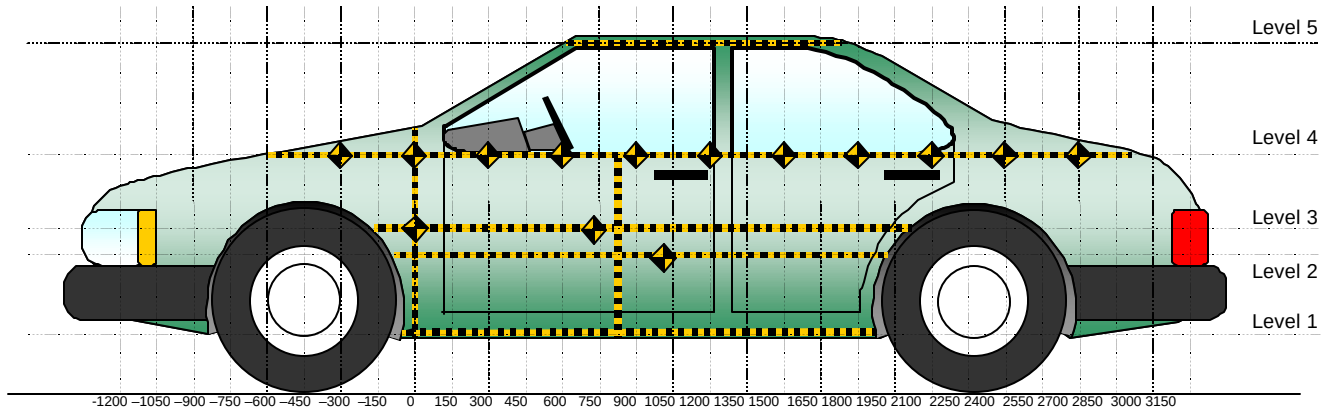
DATA SHEET NO. 9
VEHICLE SIDE MEASUREMENTS

Test Vehicle: 2001 Subaru Forester AWD Wagon

NHTSA No.: SUB001

Test Program: 55/28 km/h 90° Side Impact NCAP

Test Date: 02/15/01



All Measurements Shown in mm

LEFT SIDE VIEW

Measurements are taken with vehicle in the as tested condition.

Measurements taken 900mm right of impact reference.

All measurements below in mm.

Level	Measurement Description	Height Above Ground
5	Window Top	1447
4	Window Sill	955
3	Mid Door	633
2	Occupant H-Point	589
1	Sill Top	306

DATA SHEET NO. 10 - VEHICLE EXTERIOR CRUSH PROFILES

Test Vehicle: 2001 Subaru Forester AWD Wagon

NHTSA No.: SUB001

Test Program: 55/28 km/h 90° Side Impact NCAP

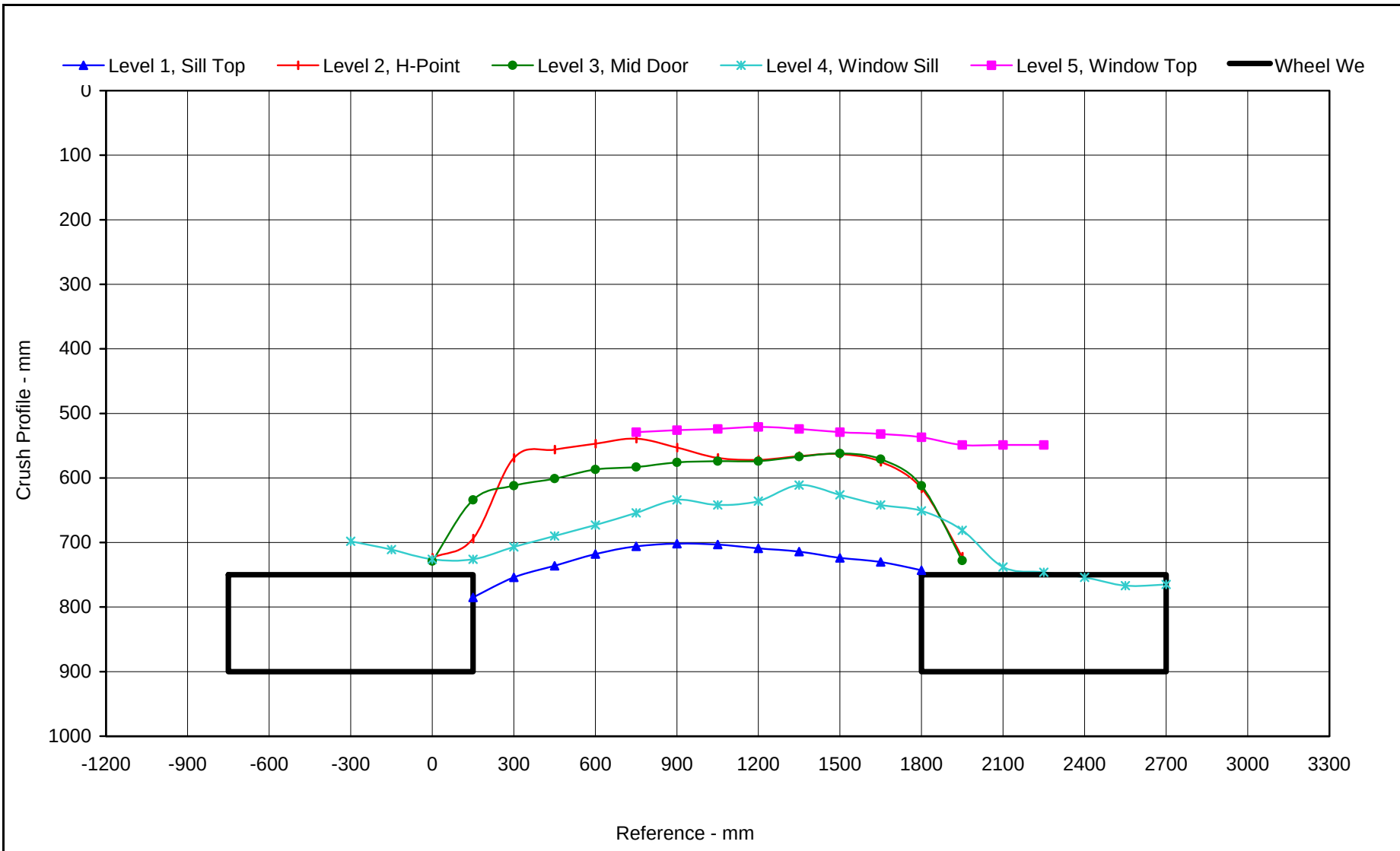
Test Date: 2/15/01

	Pre-Test					Post-Test					Difference				
	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
-900															
-750															
-600															
-450															
-300				717					698					19	
-150				747					711					36	
0		854	857	769			724	729	726			130	128	43	
150	867	826	833	781		785	694	634	726		82	132	199	55	
300	861	827	834	784		754	569	612	707		107	258	222	77	
450	856	829	837	779		736	556	601	690		120	273	236	89	
600	854	831	839	790		718	547	587	673		136	284	252	117	
750	854	832	839	792	564	706	539	583	654	529	148	293	256	138	35
900	852	833	839	794	571	702	553	576	634	526	150	280	263	160	45
1050	853	833	839	797	571	703	569	574	642	524	150	264	265	155	47
1200	854	831	838	797	571	709	572	574	636	521	145	259	264	161	50
1350	855	835	837	800	570	714	566	567	611	524	141	269	270	189	46
1500	857	837	836	799	570	724	563	562	626	529	133	274	274	173	41
1650	863	838	836	799	569	730	575	571	642	532	133	263	265	157	37
1800	870	842	844	797	565	743	616	612	651	537	127	226	232	146	28
1950		846	846	797	564		722	728	681	549		124	118	116	15
2100				793	560				738	549				55	11
2250				791	559				746	549				45	10
2400				784					754					30	
2550				776					767					9	
2700				769					765					4	
2850															
3000															

Pre-Test and Post-Test dimensions are actual distance from centerline of test vehicle.

DATA SHEET NO. 10...(continued)

18



Maximum Crush, Level 1: 150 mm at 900 mm
 Maximum Crush, Level 2: 293 mm at 750 mm
 Maximum Crush, Level 3: 274 mm at 1500 mm
 Maximum Crush, Level 4: 189 mm at 1350 mm
 Maximum Crush, Level 5: 50 mm at 1200 mm

Test Program: 55/28 km/h 90° Side Impact NCAP No.: SUB001
 Test Vehicle: 2001 Subaru Forester AWD Wagon
 Test Date: 02/15/01



KAR21006-02

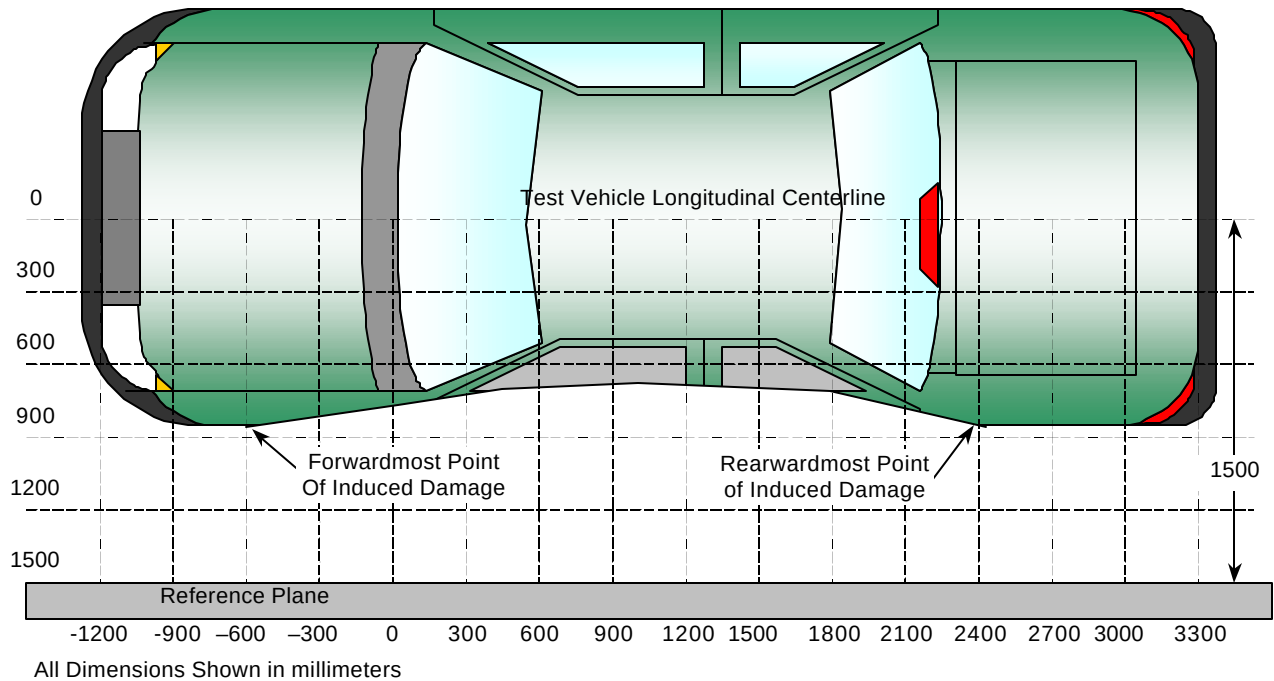
DATA SHEET NO. 11
VEHICLE DAMAGE PROFILE DISTANCES

Test Vehicle: 2001 Subaru Forester AWD Wagon

NHTSA No.: SUB001

Test Program: 55/28 km/h 90° Side Impact NCAP

Test Date: 02/15/01



TOP VIEW

Damage Profile Distances

DPD	Distance From Impact Point in mm	Level	Pre-Test (mm)	Post-Test (mm)	Max Static Crush (mm)
1	-300	4	717	698	19
2	300	2	827	569	258
3	900	2	833	553	280
4	1500	2	837	563	274
5	2100	4	793	738	55
6	2700	4	769	765	4

Pre-Test and Post-Test measurements are distance from vehicle centerline.

DATA SHEET NO. 12

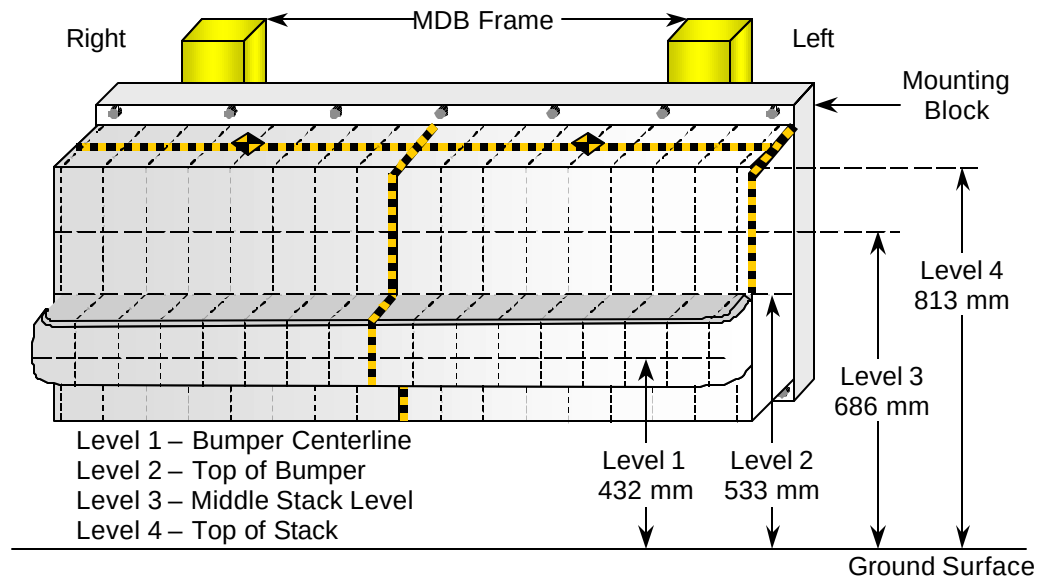
DEFORMABLE BARRIER HONEYCOMB FACE STATIC CRUSH

Test Vehicle: 2001 Subaru Forester AWD Wagon

NHTSA No.: SUB001

Test Program: 55/28 km/h 90° Side Impact NCAP

Test Date: 02/15/01



DEFORMABLE BARRIER STATIC CRUSH

Stack	Distance Right of Center								C _L	Distance Left of Center							
Level	800	700	600	500	400	300	200	100	0	100	200	300	400	500	600	700	800
1	103	102	103	87	77	79	71	74	42	42	43	41	41	40	40	53	78
2	55	56	50	38	25	20	23	-2	-6	-8	-3	1	7	9	8	11	18
3	1	-20	-27	-32	-30	-26	-16	-28	-28	-31	-30	-28	-20	-11	2	15	42
4	1	-17	-30	-42	-42	-16	10	-26	-40	-43	-36	-22	-5	18	40	66	124

All Dimensions in mm

DATA SHEET NO. 13

VEHICLE ACCELEROMETER LOCATION AND DATA SUMMARY

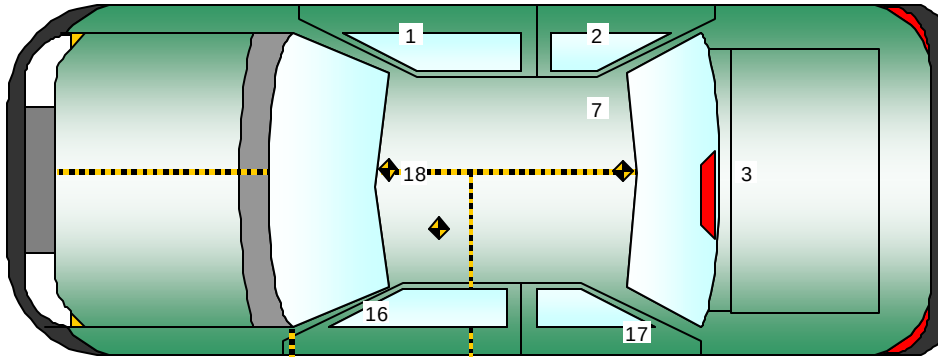
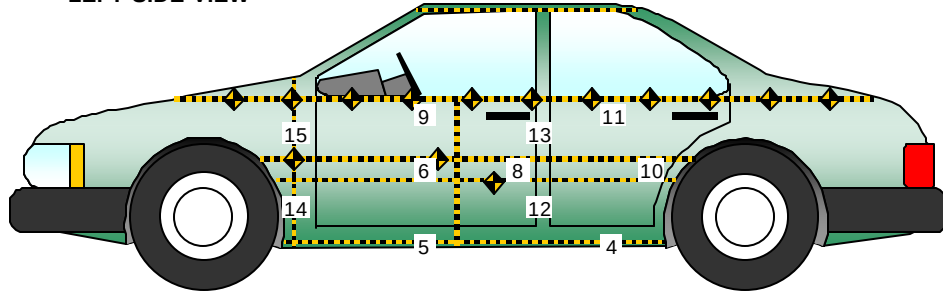
Test Vehicle: 2001 Subaru Forester AWD Wagon

NHTSA No.: SUB001

Test Program: 55/28 km/h 90° Side Impact NCAP

Test Date: 02/15/01

LEFT SIDE VIEW



No.	Location
1	Right Sill at Front Seat
2	Right Sill at Rear Seat
3	Rear Floorpan Above Axle
4	Left Sill at Rear Door
5	Left Sill at Front Door
6	Left Front Door Centerline
7	Right Rear Occupant Compartment
8	Left Front Door Mid-Rear
9	Left Front Door Upper Centerline

No.	Location
10	Left Rear Door Mid-Rear
11	Left Rear Door Upper Centerline
12	Left Lower B-Post
13	Left Middle B-Post
14	Left Lower A-Post
15	Left Middle A-Post
16	Front Seat Track
17	Rear Seat Track or Structure
18	Vehicle CG

DATA SHEET NO. 13
VEHICLE ACCELEROMETER LOCATION AND DATA SUMMARY

Test Vehicle: 2001 Subaru Forester AWD Wagon

NHTSA No.: SUB001

Test Program: 55/28 km/h 90° Side Impact NCAP

Test Date: 02/15/01

VEHICLE ACCELEROMETER PEAK DATA AND PRE-TEST LOCATIONS

Loc. No.	Accelerometer Location	Measurements (mm)			Peak Values (G's)				
		X	Y	Z	Axis	Max	Time	Min	Time
1	Right Sill at Front Seat	2640	620	280	X	2.6	55.6	-7.0	19.0
					Y	31.6	8.3	-4.8	53.8
					Z	17.3	14.7	-18.5	18.7
					RES	35.4	18.9		
2	Right Sill at Rear Seat	1860	620	305	X	2.5	48.6	-6.0	16.5
					Y	32.0	26.9	-6.1	54.6
					Z	5.6	9.6	-7.4	26.2
					RES	32.8	26.8		
3	Rear Floorpan Above Axle	910	110	440	X	4.3	75.8	-6.5	50.5
					Y	27.9	39.1	-5.0	78.3
					Z	6.9	39.6	-10.4	76.4
					RES	28.9	39.4		
4	Left Sill at Rear Door	1630	-680	260	Y	85.8	13.3	-28.7	29.1
5	Left Sill at Front Door	2570	-490	275	Y	63.6	20.7	-22.7	27.6
6	Front Door Centerline	2570	-735	680	Y	99.0	12.3	-105.2	21.7
7	Rear Occupant Compartment	2170	385	240	Y	32.5	8.6	-6.4	54.2
8	Front Door Mid-Rear	2355	-735	640	Y	133.9	11.0	-57.6	14.8
9	Front Door Upper Centerline	2460	-730	895	Y	190.1	14.4	-53.3	23.6
10	Rear Door Mid-Rear	1585	-715	660	Y	184.7	13.4	-30.7	25.0
11	Rear Door Upper Centerline	1600	-705	940	Y	166.8	17.0	-67.0	37.8
12	B-Post Lower	2140	-710	630	Y	104.4	4.4	-19.8	16.7 *
13	B-Post Middle	2140	-710	850	Y	91.0	4.2	-57.6	9.2
14	A-Post Lower	3095	-820	545	Y	68.6	2.8	-60.4	16.1 *
15	A-Post Middle	3095	-820	790	Y	48.6	2.5	-27.3	26.9
16	Front Seat Track	2520	-690	380	Y	132.9	14.0	-14.6	20.6
17	Rear Seat Structure				Y				**
18	Vehicle CG	1830	0	445	X	8.0	4.0	-15.0	23.8
					Y	31.8	9.9	-6.0	52.7
					Z	17.0	30.7	-15.0	4.7
					RES	34.1	9.3		

* Channels failed, check plot for failure times

** Not installed

DATA SHEET NO. 14
MDB ACCELEROMETER LOCATION AND DATA SUMMARY

Test Vehicle: 2001 Subaru Forester AWD Wagon

Test Program: 55/28 km/h 90° Side Impact NCAP

NHTSA No.: SUB001

Test Date: 02/15/01

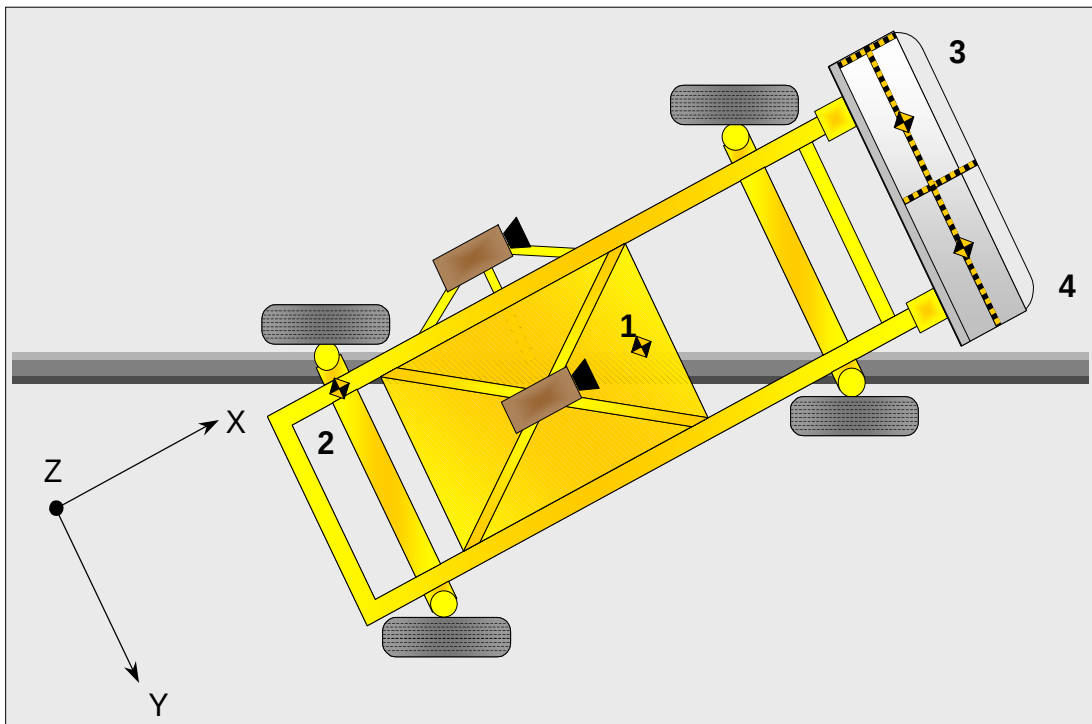
MDB ACCELEROMETER PEAK DATA AND LOCATIONS

Loc. No.	Accelerometer Location	Measurements (mm)			Peak Values (G's)				
		X	Y	Z	Axis	Max	Time	Min	Time
1	MDB CG	-1195	0	430	X	2.8	174.4	-21.6	38.3
					Y	4.3	155.5	-8.6	45.4
					Z	11.1	138.1	-13.6	28.9
					RES	22.4	43.4		
2	MDB Rear	-2642	-593	608	X	2.2	90.2	-24.4	38.6
					Y	2.8	141.9	-7.3	24.9

Reference Points X - MDB Front Axle Y - MDB Centerline Z - Ground Plane

MDB BUMPER CONTACT SWITCH DATA

Loc. No.	Contact Switch Location	Units	Peak and 50% Crossing Point			
			Max	Time	50%	Time
3	MDB Left Bumper (T=0)	% F.S	100.0	0.0	0.0	0.0
4	MDB Right Bumper	% F.S.	105.3	10.4	52.6	1.8



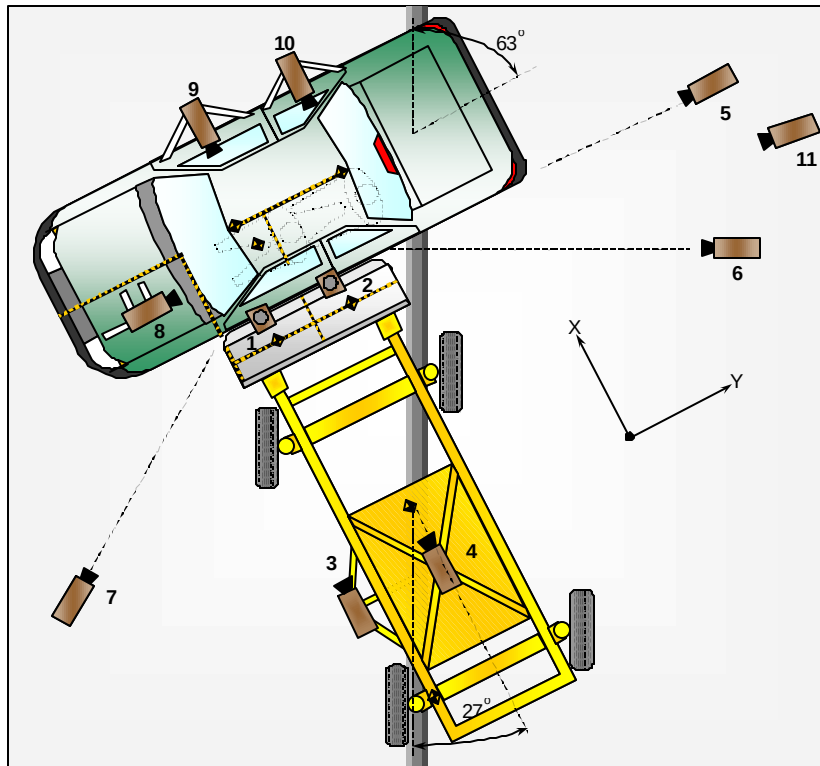
DATA SHEET NO. 15
HIGH SPEED CAMERA LOCATIONS AND DATA

Test Vehicle: 2001 Subaru Forester AWD Wagon

NHTSA No.: SUB001

Test Program: 55/28 km/h 90° Side Impact NCAP

Test Date: 02/15/01



No.	Camera View	Location (mm)			Angle (deg.)	Lens (mm)	Film Speed (fr./sec.)
		X	Y	Z			
1	Overhead Overall	1652	-762	5486	-86	10	910
2	Overhead Close-up	-762	0	5791	-82	24	N/A
3	MDB Onboard, Impact Point Close-Up	-2134	0	1143	-7	13	1140
4	MDB Onboard, Centerline of Impact	-3048	-1652	1829	-11	13	920
5	Right Side, Ground Level, Overall	9144	-18288	2210	-1	25	1090
6	Right Side, Ground Level, Close-up	0	-18898	1524	0	60	1000
7	Left Side, Ground Level, Close-up	2362	-5410	1448	-6	13	1010
8	Vehicle Onboard Front SID, Front	100	590	1380	-12	19	1010
9	Vehicle Onboard Front SID, Side	1840	330	1050	-4	10	1030
10	Vehicle Onboard Rear SID, Side	2220	-440	1010	-4	10	1020
11	Real Time Coverage	N/A	N/A	N/A	N/A	N/A	24

DATA SHEET NO. 16

FMVSS 301 FUEL SYSTEM INTEGRITY POST IMPACT DATA

Test Vehicle: 2001 Subaru Forester AWD Wagon

NHTSA No.: SUB001

Test Program: 55/28 km/h 90° Side Impact NCAP

Test Date: 02/15/01

Test Time: 1:26 PM

Temperature at Time of Impact: 10.5 °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 Details: No leakage occurred

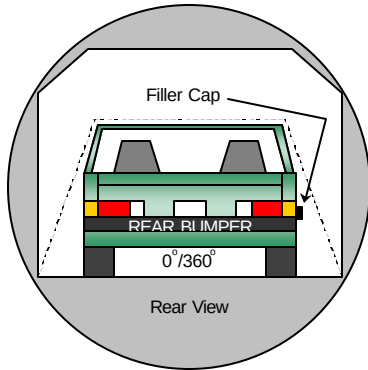
DATA SHEET NO. 17
FMVSS 301 STATIC ROLLOVER DATA SHEET

Test Vehicle: 2001 Subaru Forester AWD Wagon

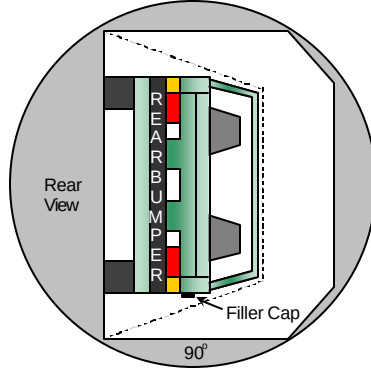
NHTSA No.: SUB001

Test Program: 55/28 km/h 90° Side Impact NCAP

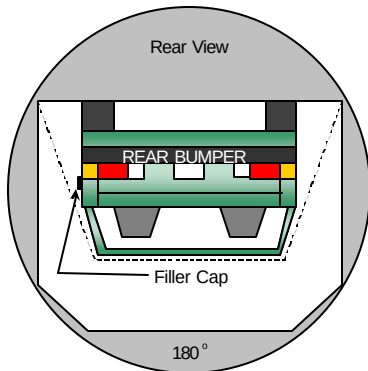
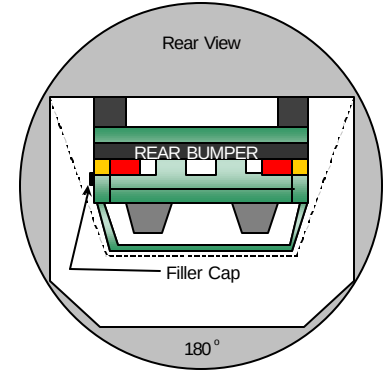
Test Date: 02/15/01



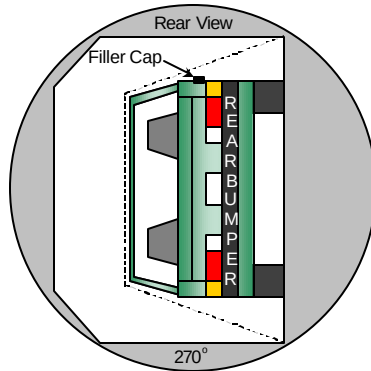
0° TO 90°



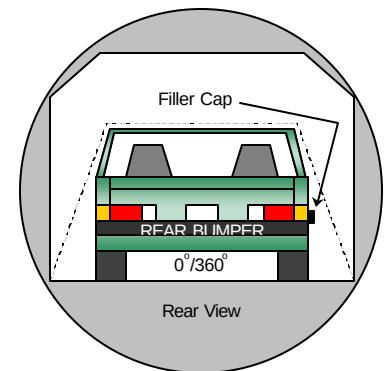
90° TO 180°



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. Details of Stoddard Solvent spillage locations:

No solvent leakage occurred during static rollover testing.

Rollover Test Phase	Rotation Time (sec.)	Hold Time (sec.)	Spillage (oz.)
0° TO 90°	83	300	0.0
90° TO 180°	82	300	0.0
180° TO 270°	79	300	0.0
270° TO 360°	82	300	0.0

APPENDIX A
PHOTOGRAPHS

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Figure A-1: Left Front, as Received



Figure A-2: Right Rear, as Received

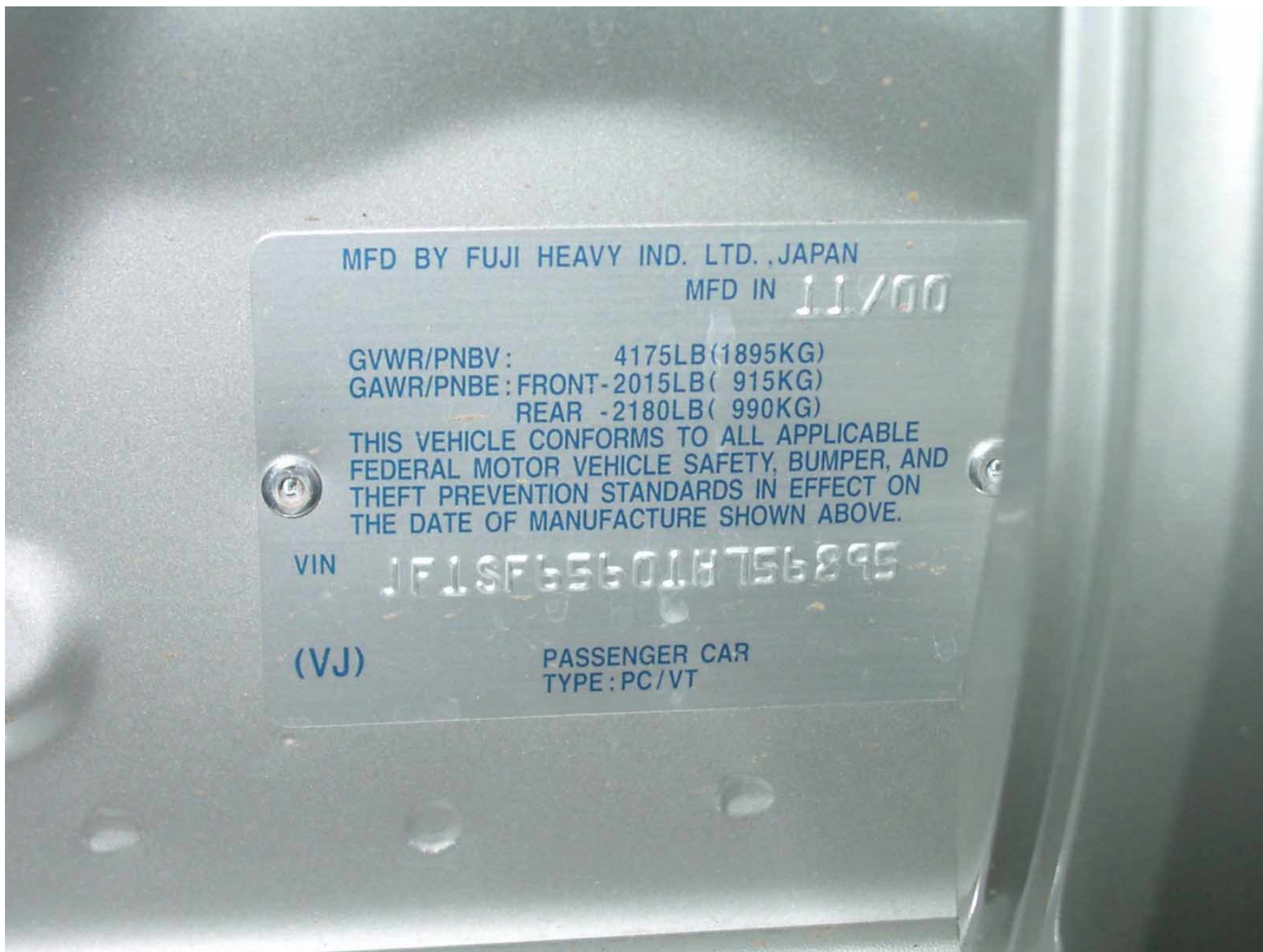


Figure A-3: Vehicle Certification Label

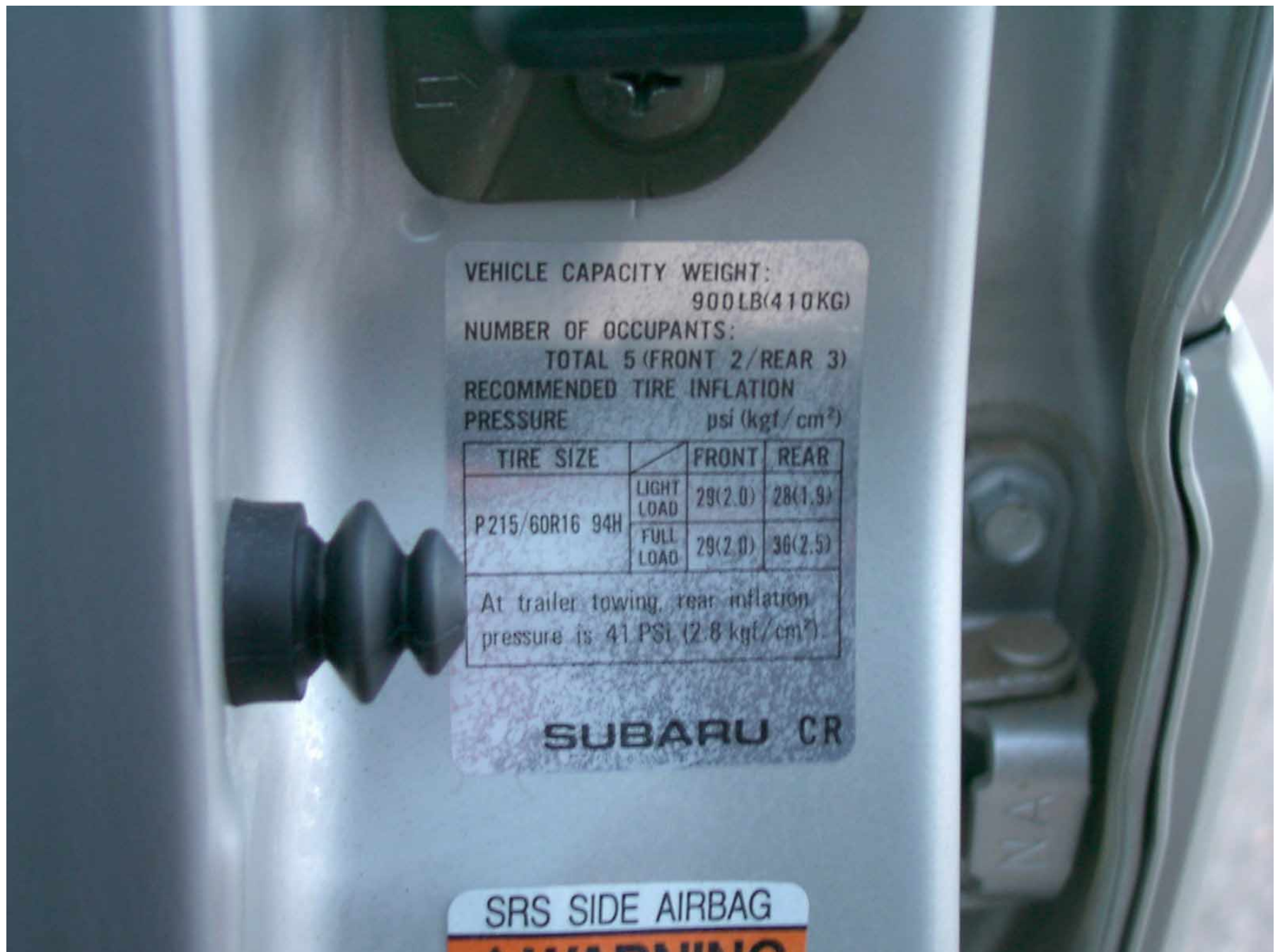


Figure A-4: Vehicle Tire Label



Figure A-5: Front View, Pre-Test



Figure A-6: Front View, Post-Test



Figure A-7: Rear View, Pre-Test



Figure A-8: Rear View, Post-Test



Figure A-9: Left (Impacted) Side View, Pre-Test



Figure A-10: Left (Impacted) Side View, Post-Test

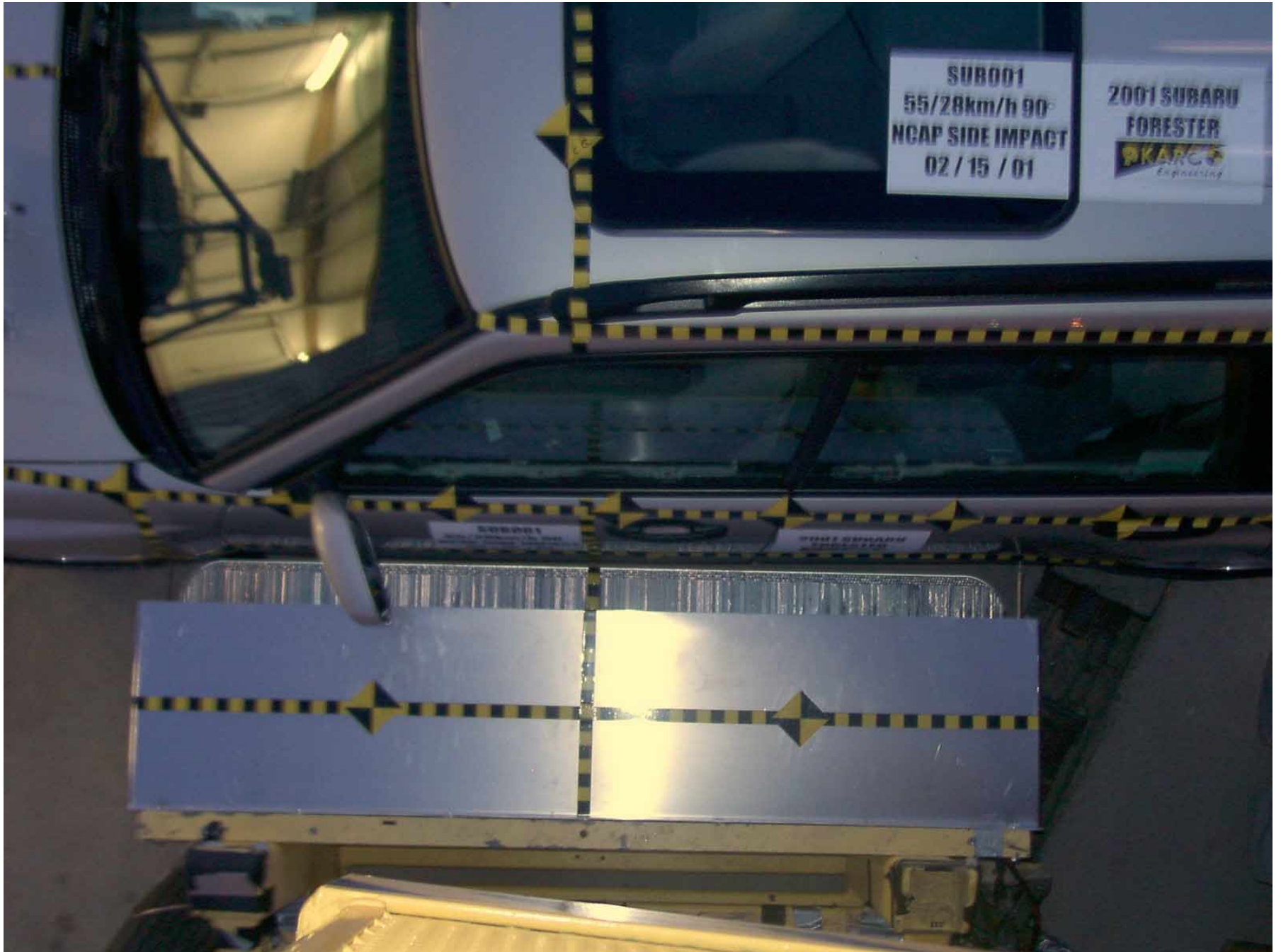


Figure A-11: Overhead Close-up View at Impact Position, Pre-Test



Figure A-12: Overhead Overall View, Pre-Test



Figure A-13: Overhead Overall View, Post-Test



Figure A-14: MDB Left Side View at Impact Position, Pre-Test



Figure A-15: MDB Right Side View at Impact Position, Pre-Test



Figure A-16: Impact Point Target Close-up, Pre-Test



Figure A-17: Impact Point Target Close-up, Post-Test



Figure A-18: Driver Dummy Left Side with Door Open, Pre-Test



Figure A-19: Driver Dummy Left Side, Pre-test



Figure A-20: Driver Dummy Left Side, Post-Test



Figure A-21: Driver Dummy Clearance, Pre-Test



Figure A-22: Driver Dummy Clearance, Post-Test



Figure A-23: Driver Dummy Inside View, Pre-Test



Figure A-24: Driver Dummy Inside View, Post-Test



Figure A-25: Driver Door Inside View, Pre-Test



Figure A-26: Driver Dummy Contact Points Inside View, Post-Test



Figure A-27: Passenger Dummy Left Side with Door Open, Pre-Test



Figure A-28: Passenger Dummy Left Side, Pre-Test



Figure A-29: Passenger Dummy Left Side, Post-Test



Figure A-30: Passenger Dummy Clearance, Pre-Test



Figure A-31: Passenger Dummy Clearance, Post-Test



Figure A-32: Passenger Dummy Inside View, Pre-Test



Figure A-33: Passenger Dummy Inside View, Post-Test



Figure A-34: Passenger Door Inside View, Pre-Test

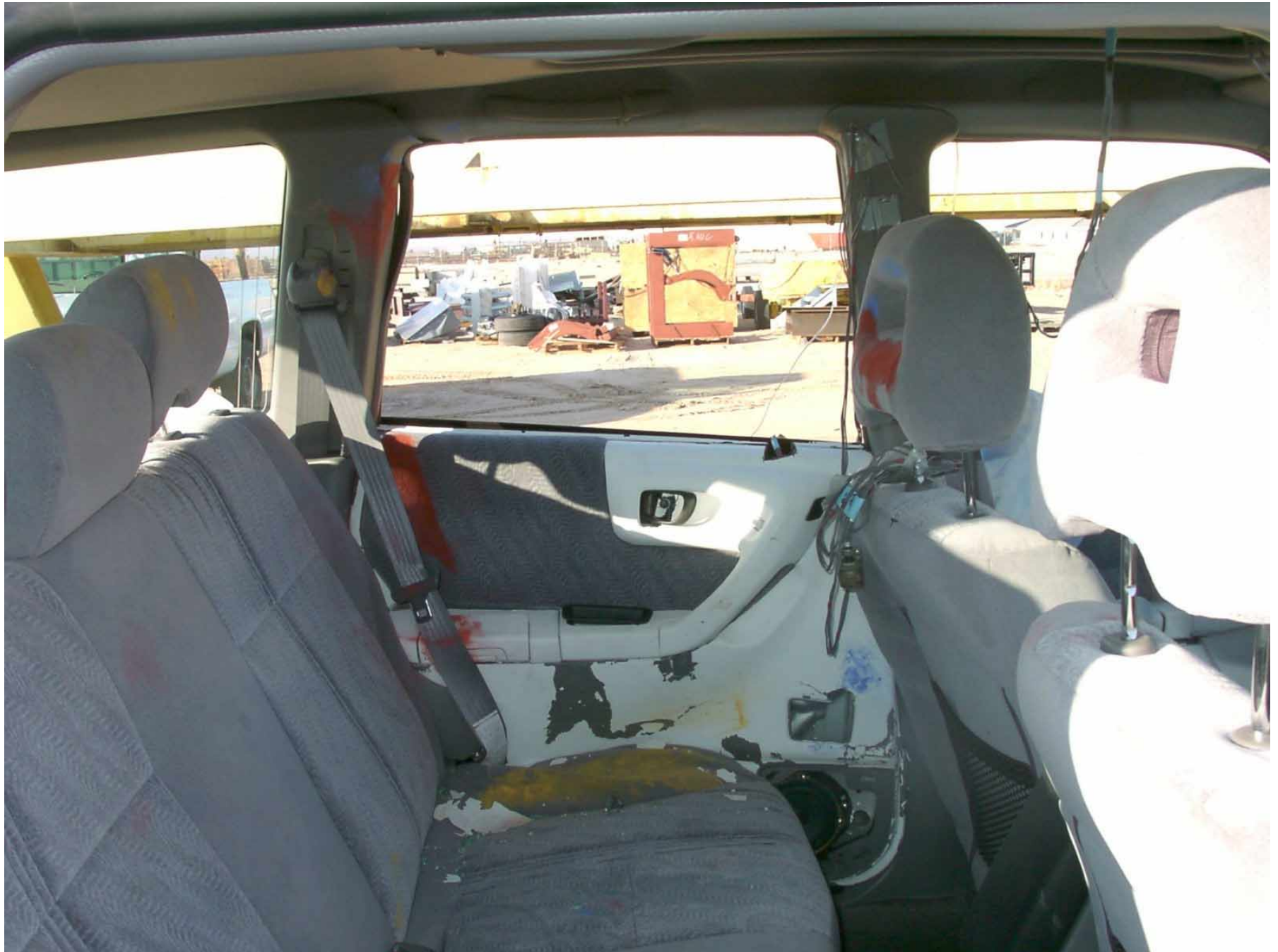


Figure A-35: Passenger Dummy Contact Points Inside View, Post-Test



Figure A-36: Front View of Deformable Barrier, Pre-Test



Figure A-37: Front View of Deformable Barrier, Post-Test



Figure A-38: Top View of Deformable Barrier, Pre-Test



Figure A-39: Top View of Deformable Barrier, Post-Test



Figure A-40: Right Side View of Deformable Barrier, Pre-Test



Figure A-41: Right Side View of Deformable Barrier, Post-Test



Figure A-42: Left Side View of Deformable Barrier, Pre-Test



Figure A-43: Left Side View of Deformable Barrier, Post-Test



Figure A-44: Vehicle on Rollover Device, Top View



Figure A-45: Vehicle During Impact

APPENDIX B
SID, VEHICLE, AND MDB RESPONSE DATA

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B-7	Driver Head CG Resultant	B-7
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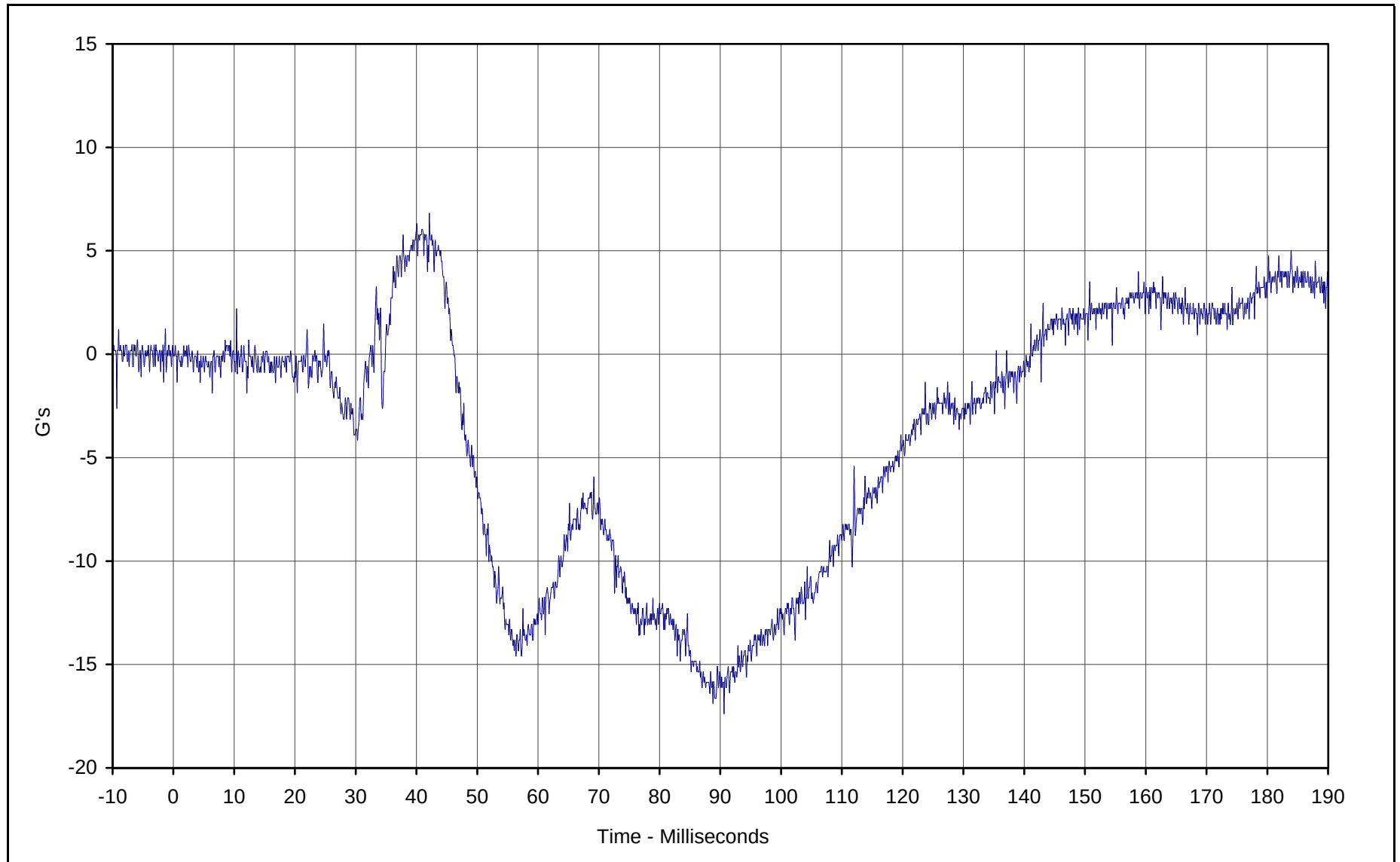
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Curve Description: Driver Head CG X

Maximum Value: 6.8 at 42.1 Milliseconds

Minimum Value: -17.4 at 90.6 Milliseconds

SAE Filter Class: 1000

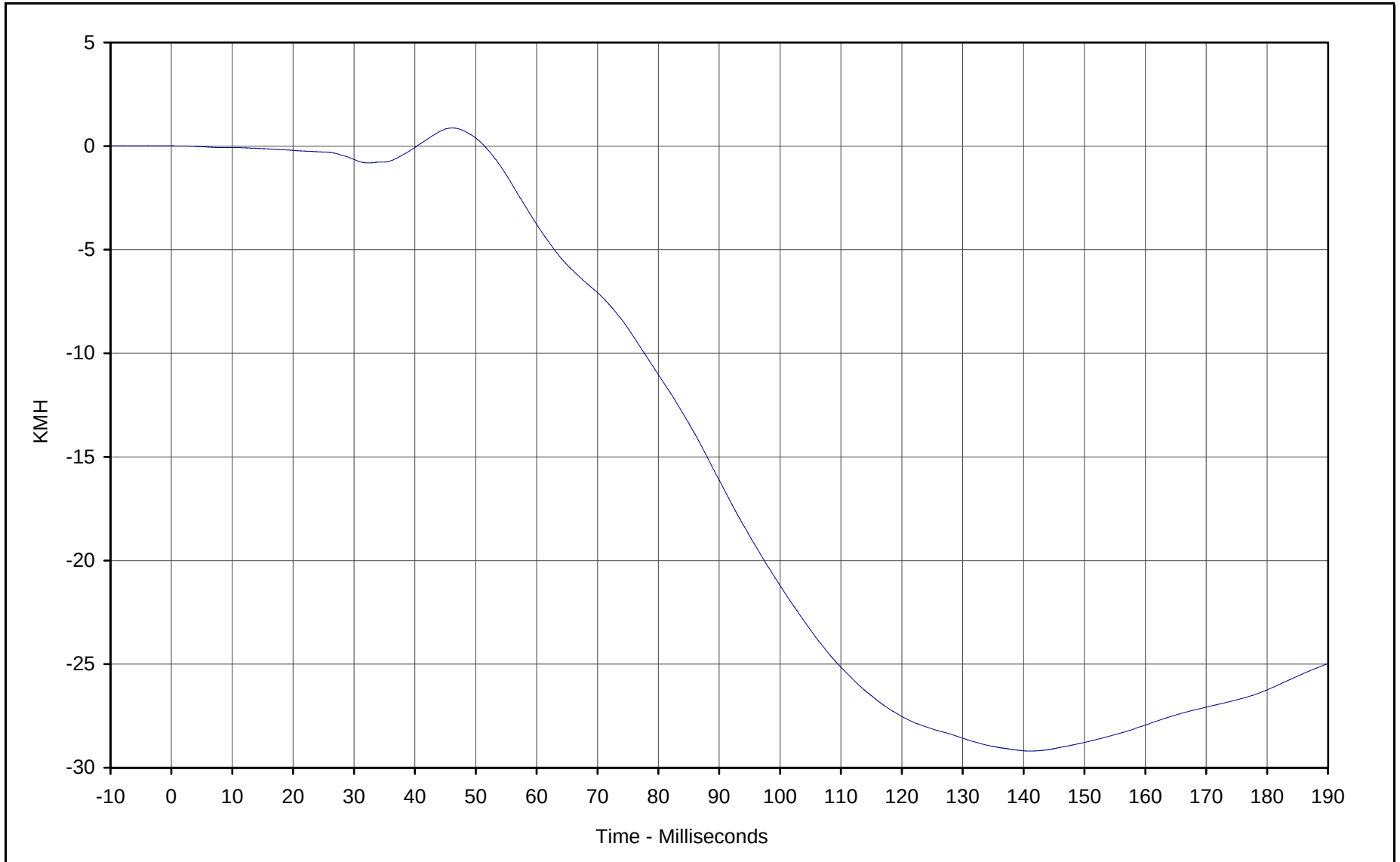
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Curve Number: FIL-001

Test Program: 55/28 km/h Side Impact NCAP No.: SUB001

Test Vehicle: 2001 Subaru Forester AWD Wagon

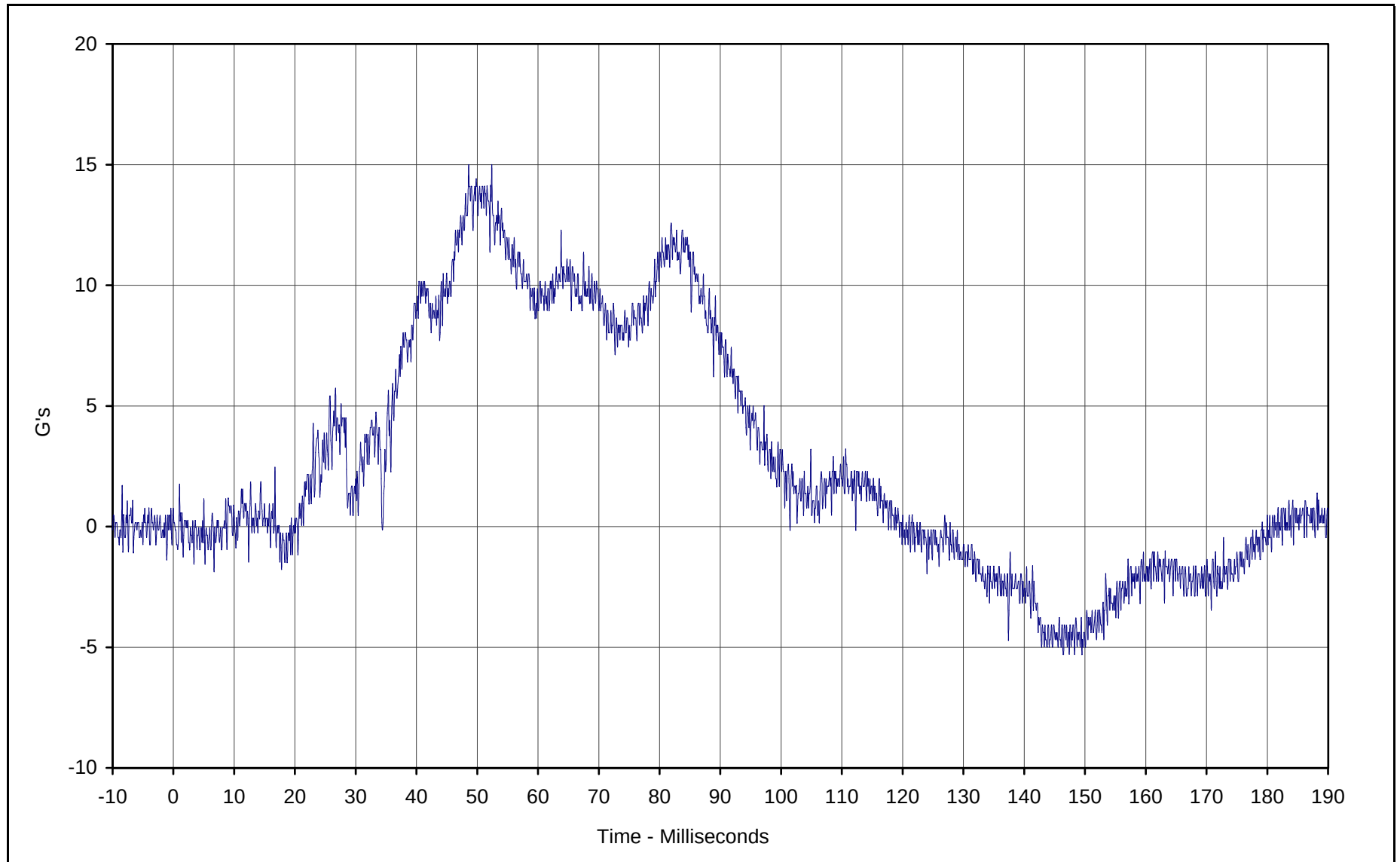




Curve Description: Driver Head CG X Velocity
Maximum Value: 0.9 at 46.1 Milliseconds
Minimum Value: -29.2 at 141.1 Milliseconds
SAE Filter Class: 180
Date of Test: 02/15/01
Curve Number: IN1-001

Test Program: 55/28 km/h Side Impact NCAP No.: SUB001
Test Vehicle: 2001 Subaru Forester AWD Wagon

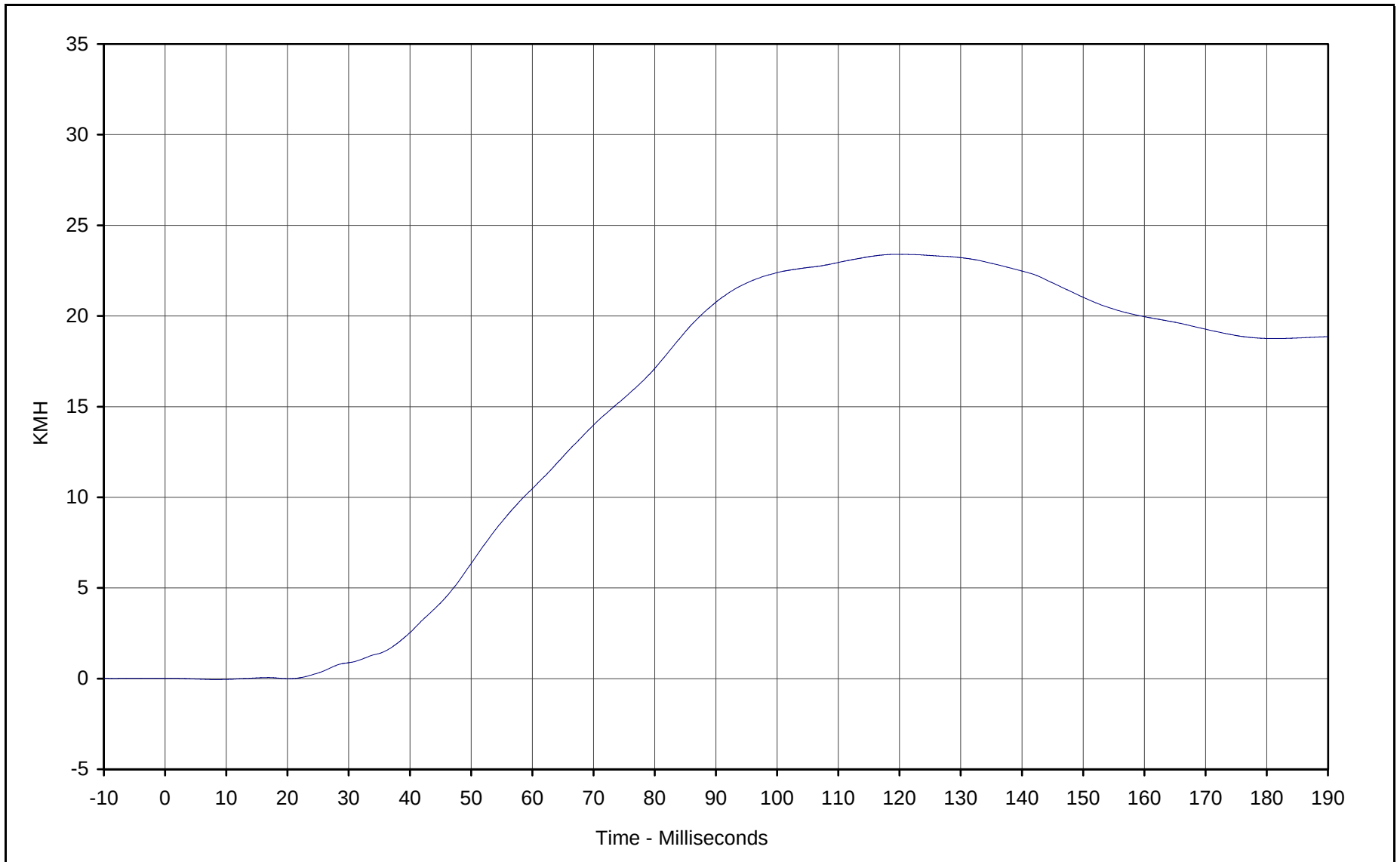




Curve Description: Driver Head CG Y
Maximum Value: 15.0 at 48.6 Milliseconds
Minimum Value: -5.3 at 146.4 Milliseconds
SAE Filter Class: 1000
Date of Test: 02/15/01
Curve Number: FIL-002

Test Program: 55/28 km/h Side Impact NCAP No.: SUB001
Test Vehicle: 2001 Subaru Forester AWD Wagon

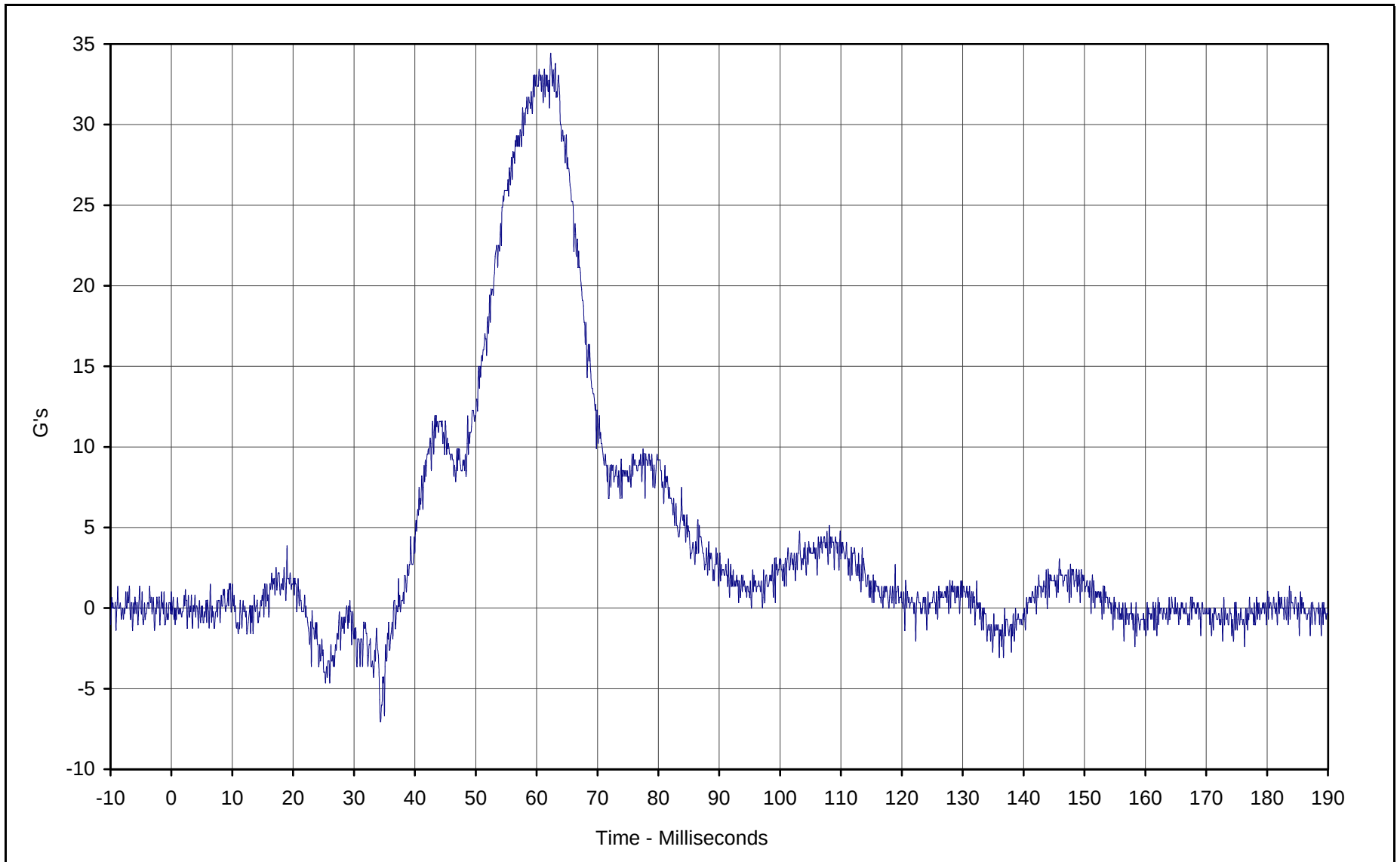




Curve Description: Driver Head CG Y Velocity
Maximum Value: 23.4 at 119.7 Milliseconds
Minimum Value: -0.1 at 8.4 Milliseconds
SAE Filter Class: 180
Date of Test: 02/15/01
Curve Number: IN1-002

Test Program: 55/28 km/h Side Impact NCAP No.: SUB001
Test Vehicle: 2001 Subaru Forester AWD Wagon

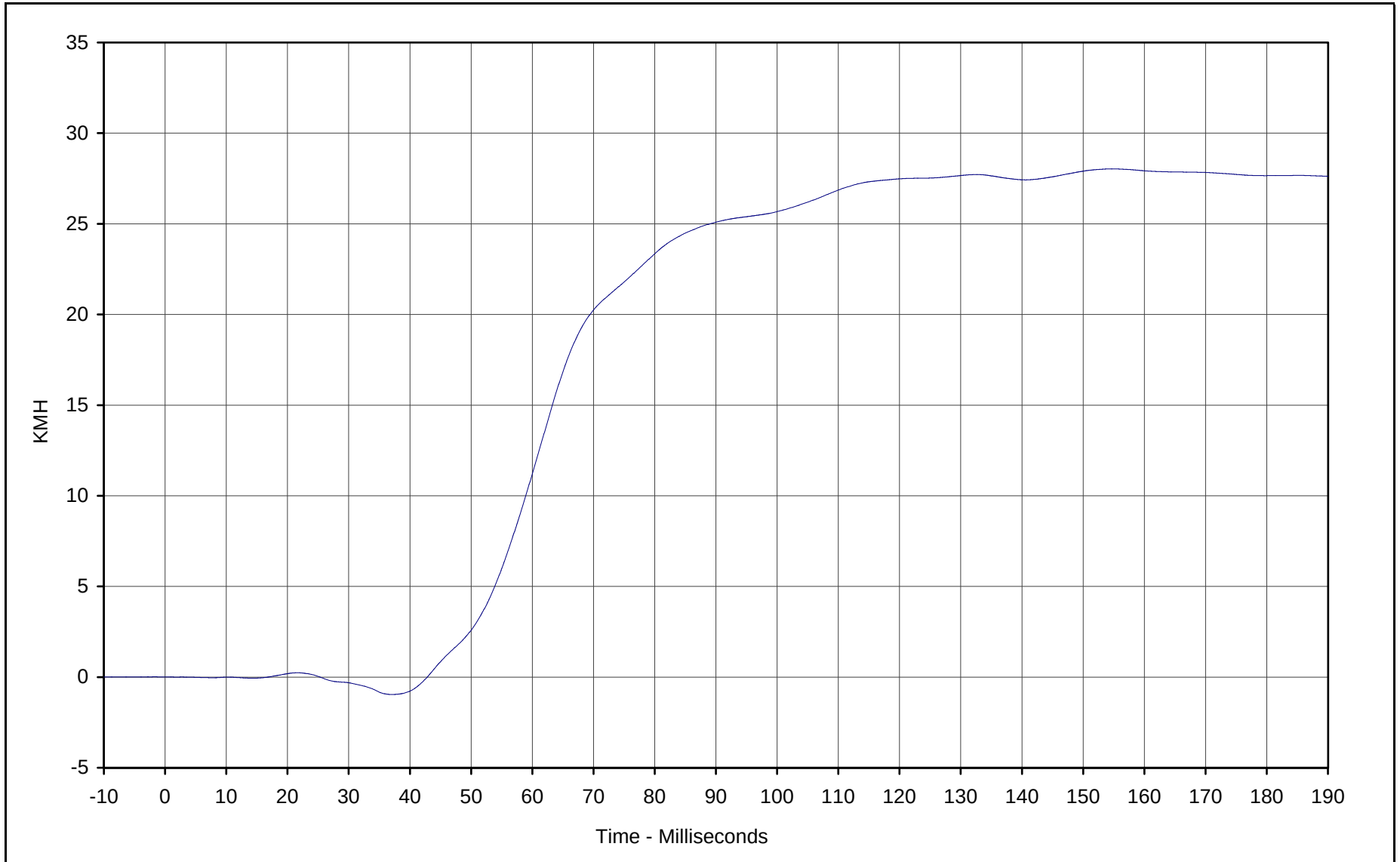




Curve Description: Driver Head CG Z
Maximum Value: 34.4 at 62.3 Milliseconds
Minimum Value: -7.0 at 34.3 Milliseconds
SAE Filter Class: 1000
Date of Test: 02/15/01
Curve Number: FIL-003

Test Program: 55/28 km/h Side Impact NCAP No.: SUB001
Test Vehicle: 2001 Subaru Forester AWD Wagon

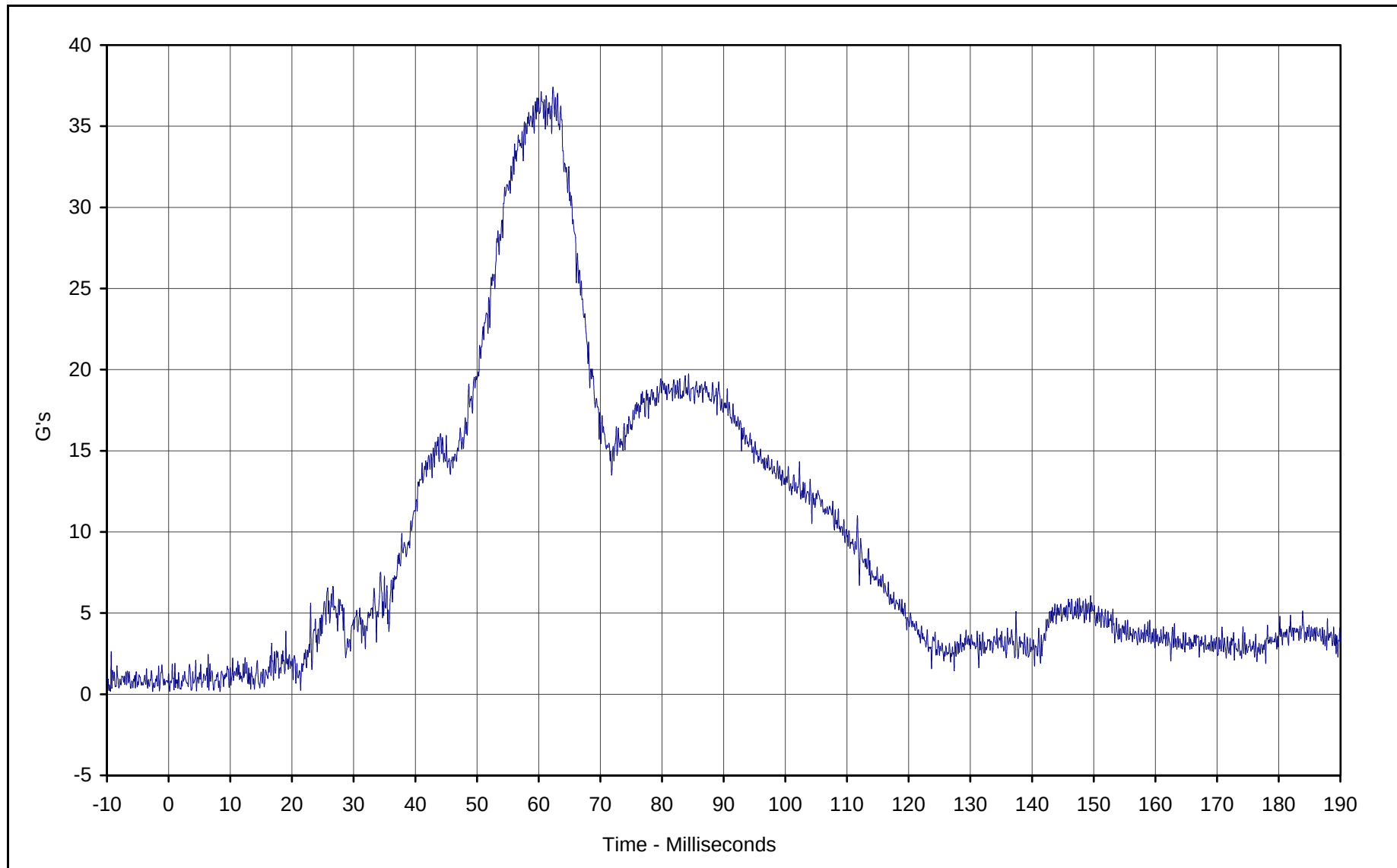




Curve Description: Driver Head CG Z Velocity
Maximum Value: 28.0 at 154.6 Milliseconds
Minimum Value: -1.0 at 37.1 Milliseconds
SAE Filter Class: 180
Date of Test: 02/15/01
Curve Number: IN1-003

Test Program: 55/28 km/h Side Impact NCAP No.: SUB001
Test Vehicle: 2001 Subaru Forester AWD Wagon

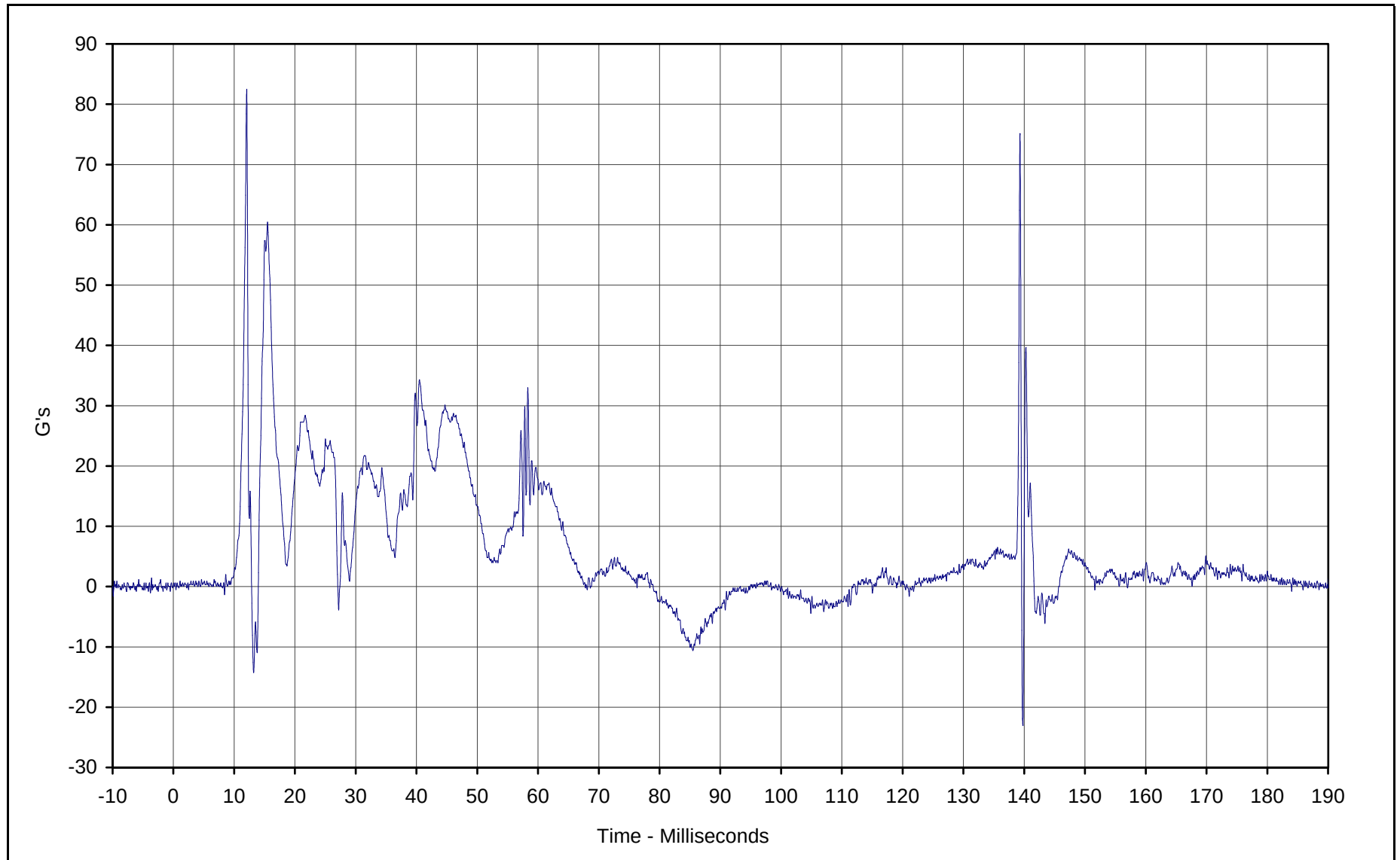




Curve Description: Driver Head CG Resultant
Maximum Value: 37.4 at 62.3 Milliseconds
Minimum Value: 0.2 at 8.3 Milliseconds
SAE Filter Class: 1000
Date of Test: 02/15/01
Curve Number: RES-001

Test Program: 55/28 km/h Side Impact NCAP No.: SUB001
Test Vehicle: 2001 Subaru Forester AWD Wagon

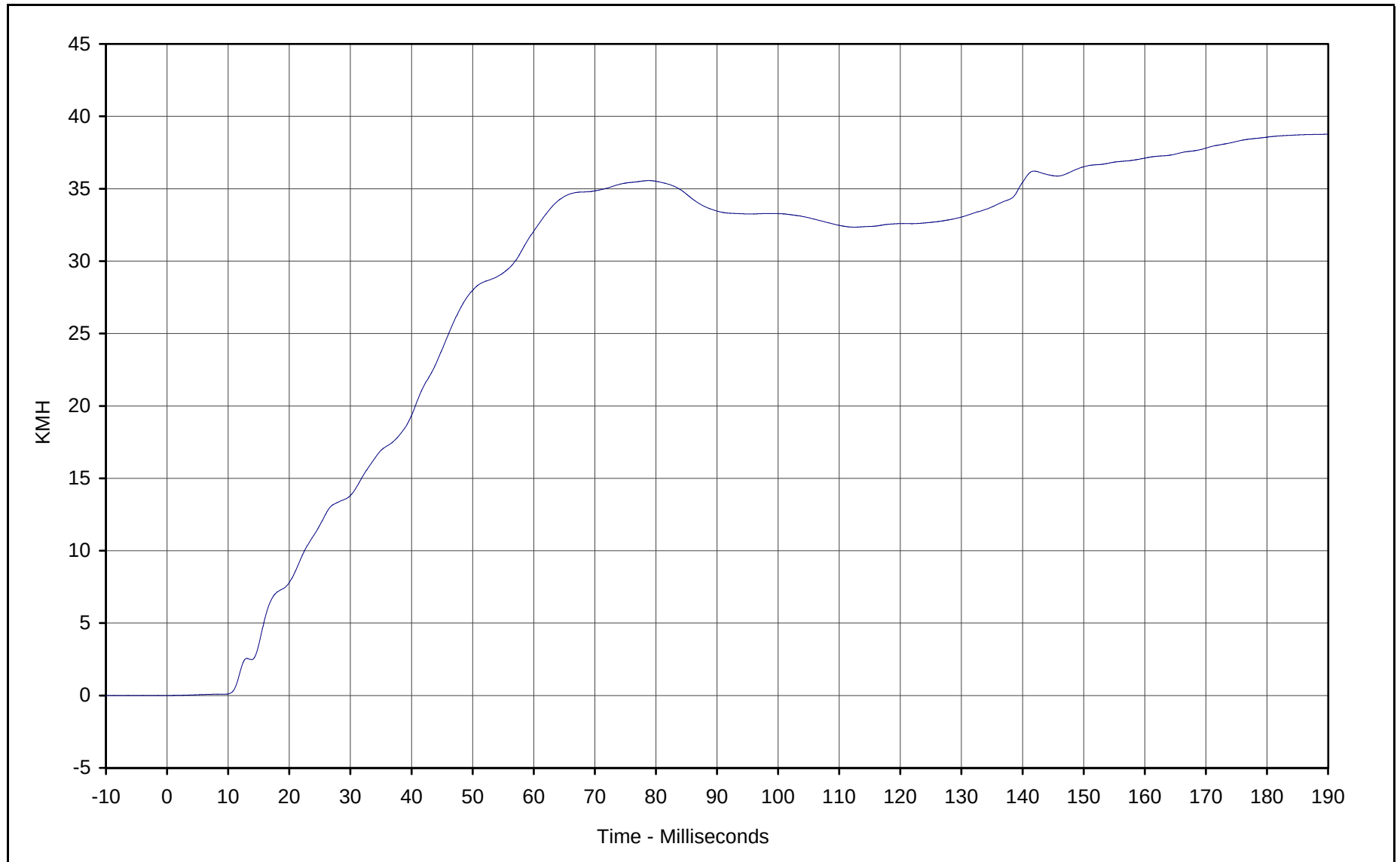




Curve Description: Driver Upper Rib Primary Y
Maximum Value: 82.1 at 12.1 Milliseconds
Minimum Value: -23.0 at 139.8 Milliseconds
SAE Filter Class: 1000
Date of Test: 02/15/01
Curve Number: FIL-004

Test Program: 55/28 km/h Side Impact NCAP No.: SUB001
Test Vehicle: 2001 Subaru Forester AWD Wagon





Curve Description: Driver Upper Rib Primary Y Velocity

Maximum Value: 38.8 at 189.9 Milliseconds

Minimum Value: 0.0 at 0.0 Milliseconds

SAE Filter Class: 180

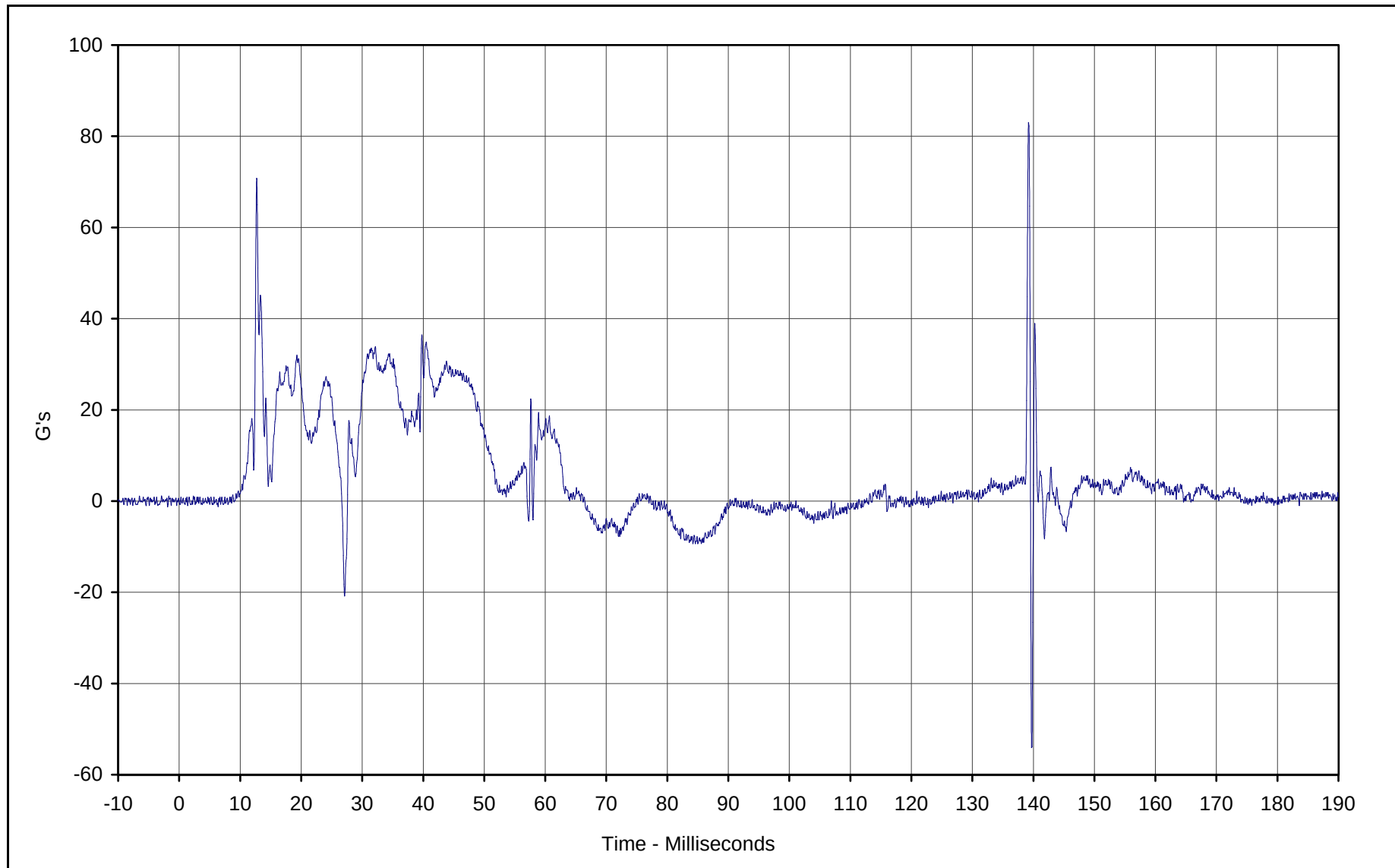
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Curve Number: IN1-004

Test Program: 55/28 km/h Side Impact NCAP No.: SUB001

Test Vehicle: 2001 Subaru Forester AWD Wagon

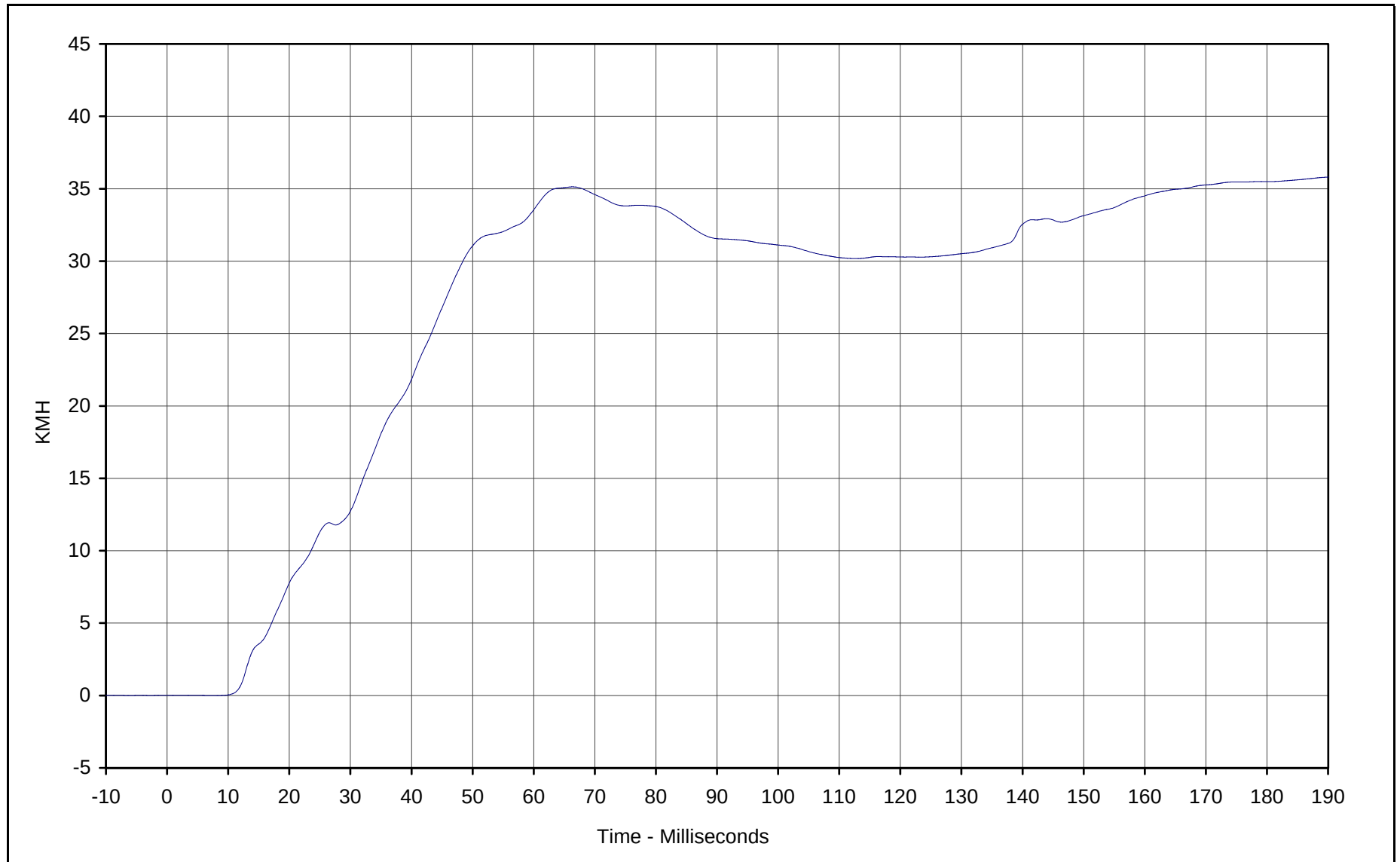




Curve Description: Driver Lower Rib Primary Y
Maximum Value: 83.0 at 139.2 Milliseconds
Minimum Value: -54.1 at 139.7 Milliseconds
SAE Filter Class: 1000
Date of Test: 02/15/01
Curve Number: FIL-005

Test Program: 55/28 km/h Side Impact NCAP No.: SUB001
Test Vehicle: 2001 Subaru Forester AWD Wagon





Curve Description: Driver Lower Rib Primary Y Velocity

Maximum Value: 35.8 at 189.9 Milliseconds

Minimum Value: 0.0 at 8.0 Milliseconds

SAE Filter Class: 180

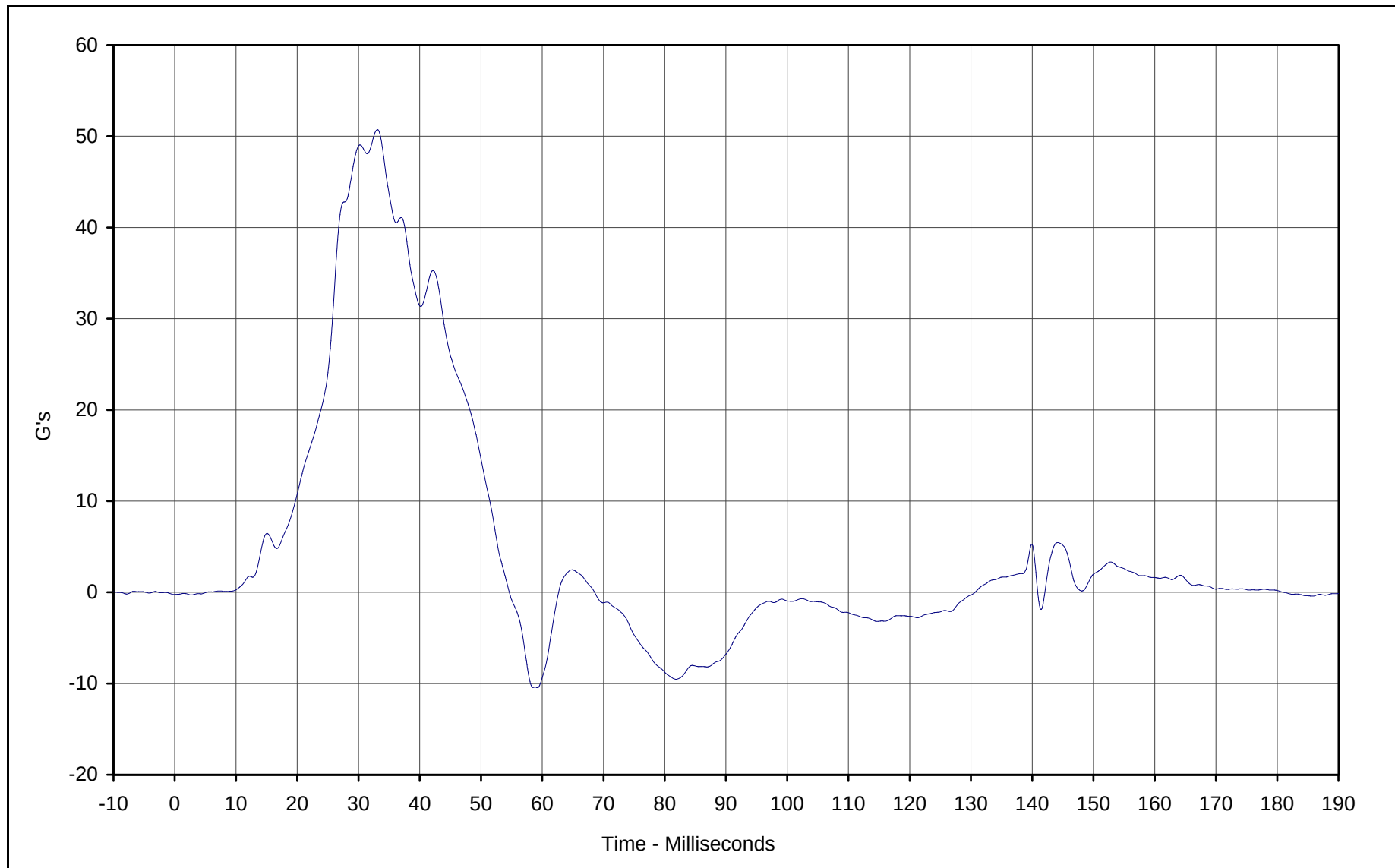
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Test Program: 55/28 km/h Side Impact NCAP No.: SUB001

Test Vehicle: 2001 Subaru Forester AWD Wagon

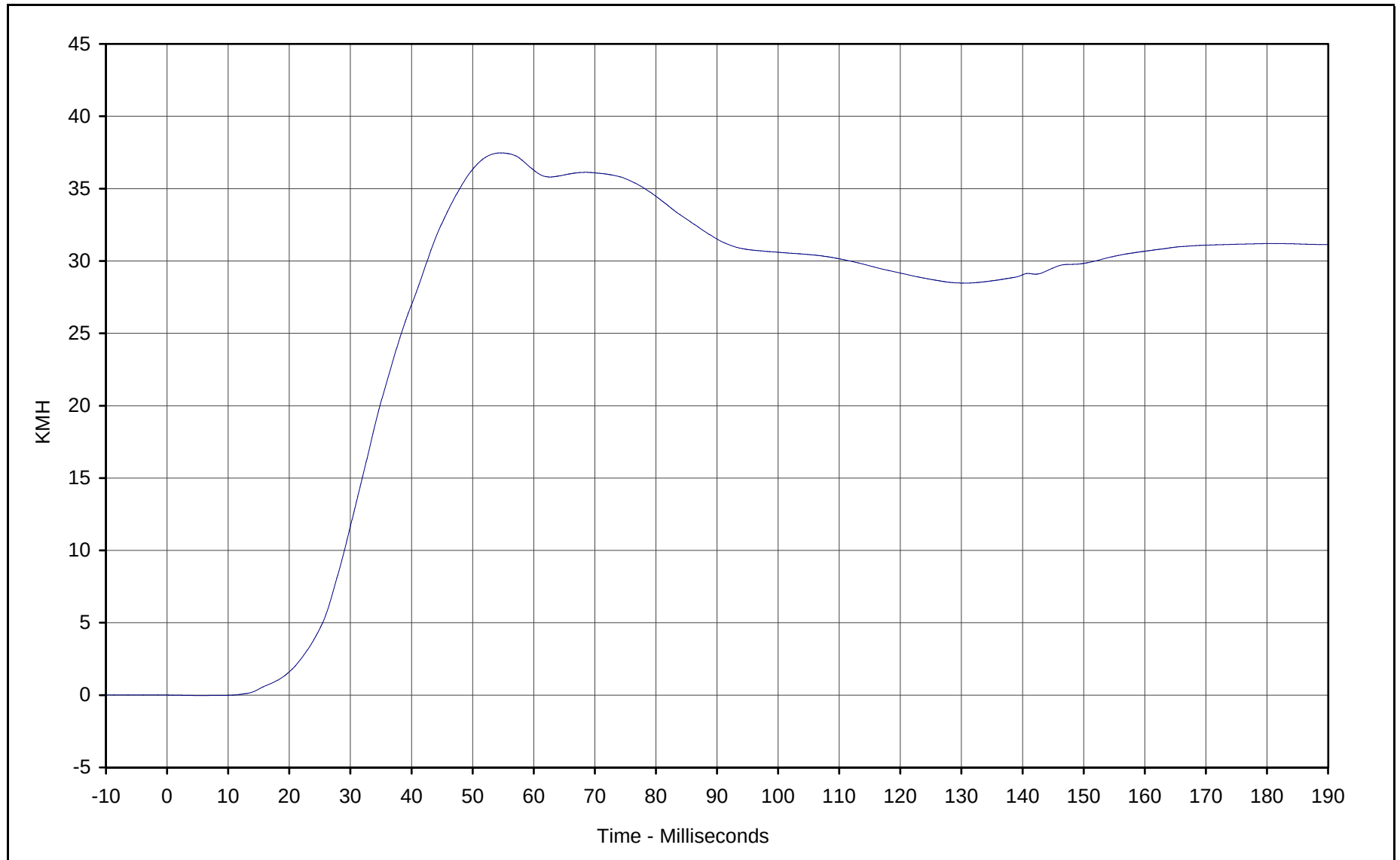




Curve Description: Driver Lower Spine Primary Y
Maximum Value: 50.7 at 33.1 Milliseconds
Minimum Value: -10.5 at 59.2 Milliseconds
SAE Filter Class: 180
Date of Test: 02/15/01
Curve Number: FIL-006

Test Program: 55/28 km/h Side Impact NCAP No.: SUB001
Test Vehicle: 2001 Subaru Forester AWD Wagon





Curve Description: Driver Lower Spine Primary Y Velocity

Maximum Value: 37.5 at 54.6 Milliseconds

Minimum Value: 0.0 at 5.2 Milliseconds

SAE Filter Class: 180

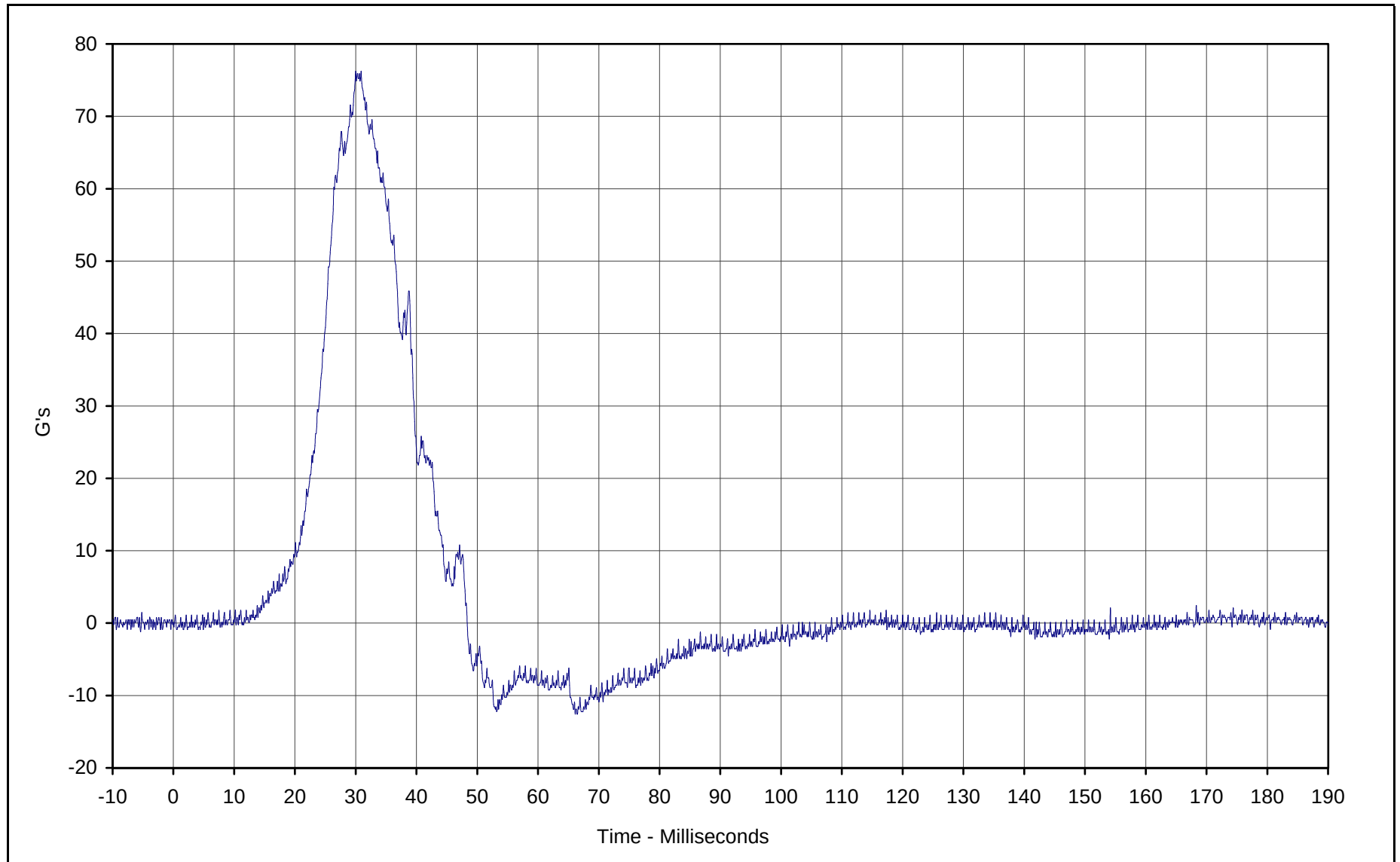
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Curve Number: IN1-006

Test Program: 55/28 km/h Side Impact NCAP No.: SUB001

Test Vehicle: 2001 Subaru Forester AWD Wagon

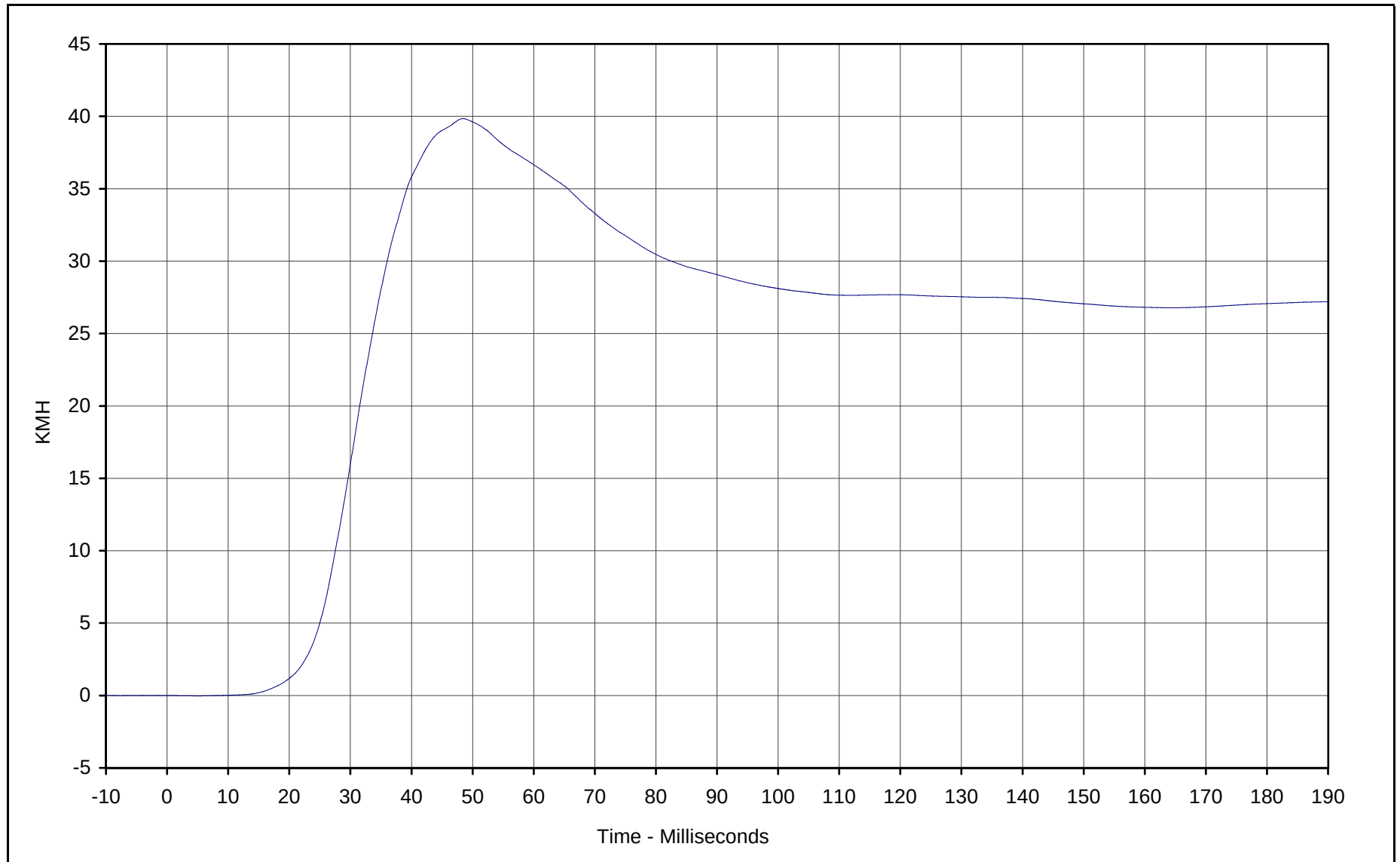




Curve Description: Driver Pelvis Primary Y
Maximum Value: 76.2 at 30.0 Milliseconds
Minimum Value: -12.6 at 66.1 Milliseconds
SAE Filter Class: 1000
Date of Test: 02/15/01
Curve Number: FIL-007

Test Program: 55/28 km/h Side Impact NCAP No.: SUB001
Test Vehicle: 2001 Subaru Forester AWD Wagon

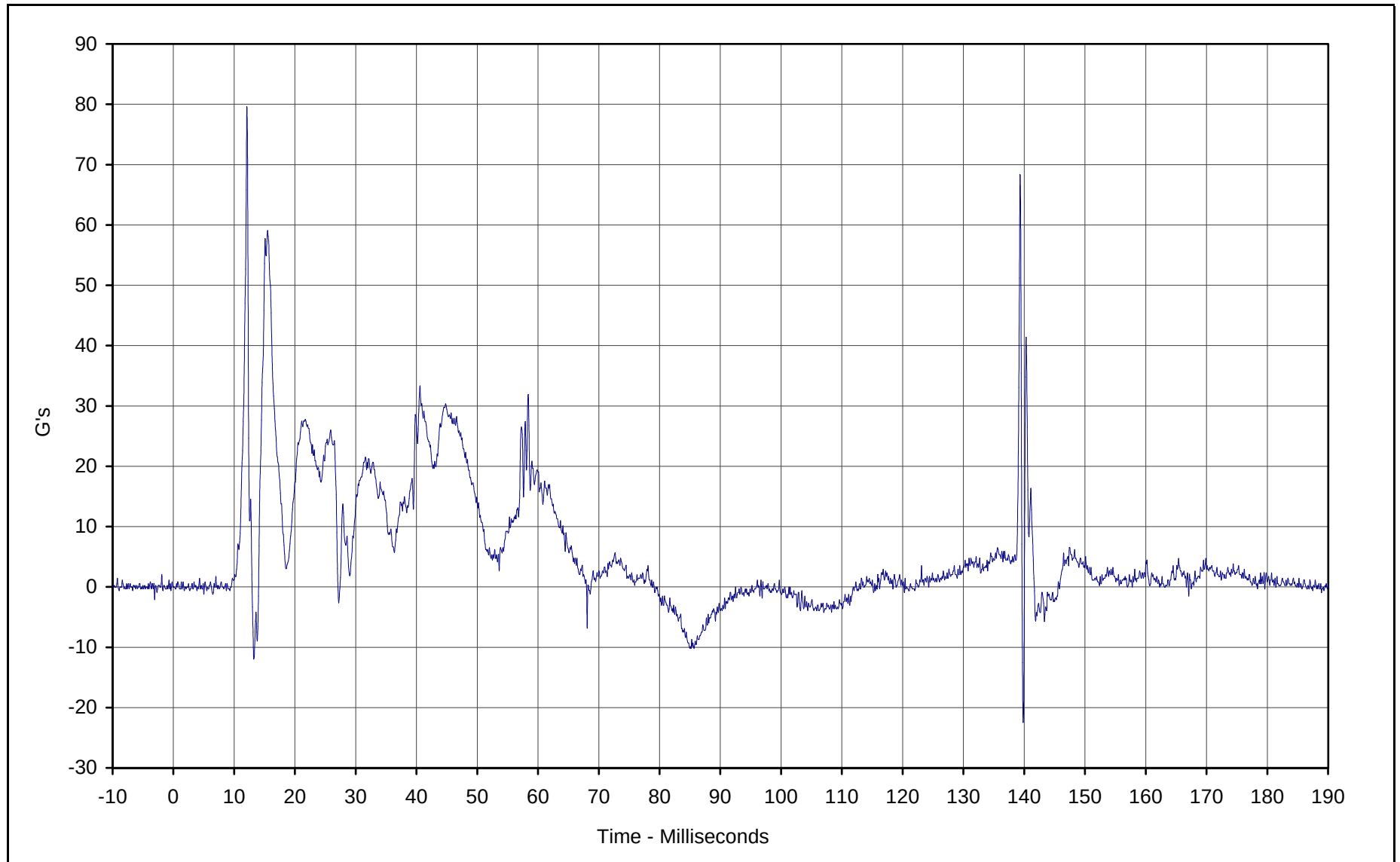




Curve Description: Driver Pelvis Primary Y Velocity
Maximum Value: 39.8 at 48.4 Milliseconds
Minimum Value: 0.0 at 5.0 Milliseconds
SAE Filter Class: 180
Date of Test: 02/15/01
Curve Number: IN1-007

Test Program: 55/28 km/h Side Impact NCAP No.: SUB001
Test Vehicle: 2001 Subaru Forester AWD Wagon

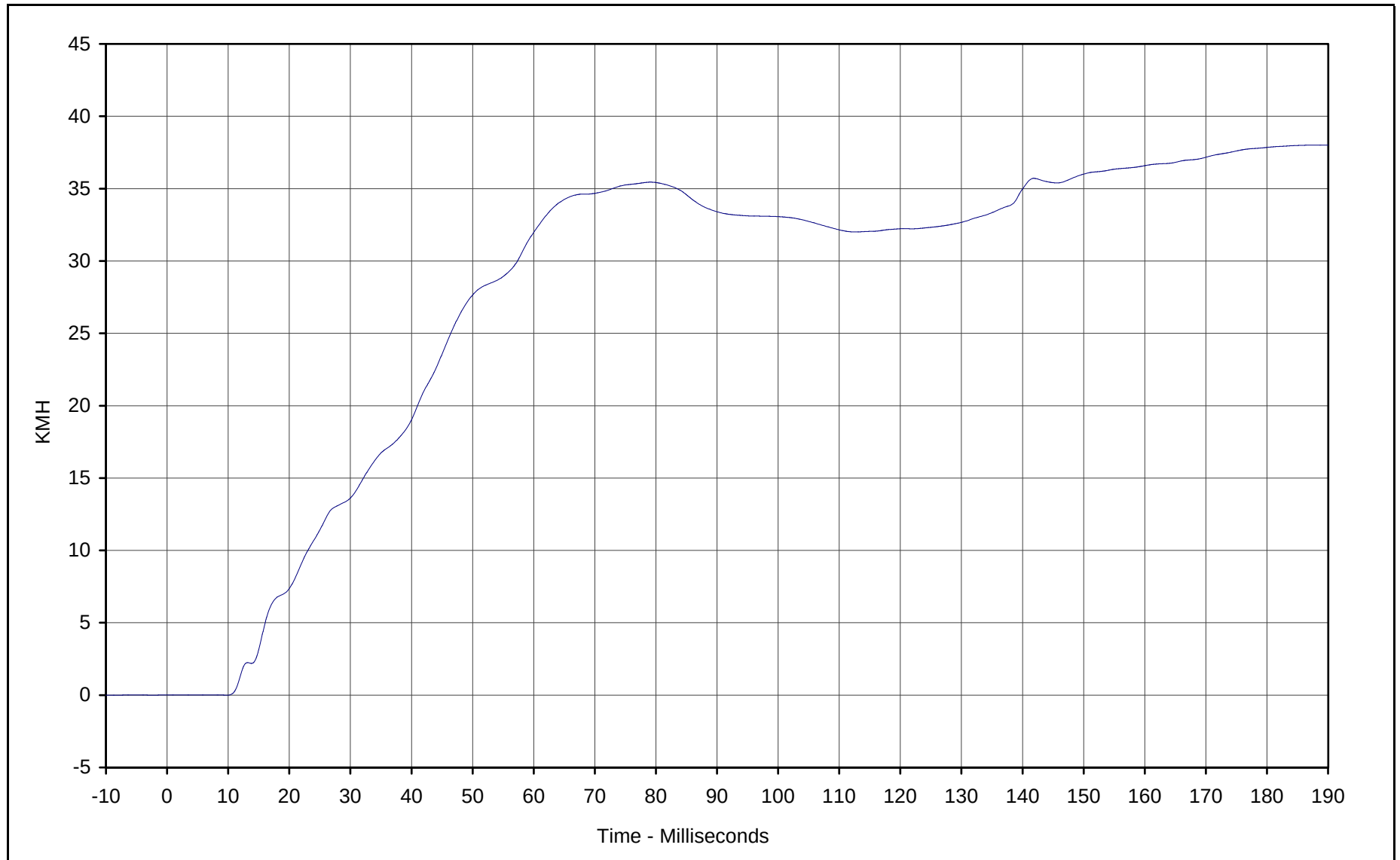




Curve Description: Driver Upper Rib Redundant Y
Maximum Value: 79.5 at 12.1 Milliseconds
Minimum Value: -22.4 at 139.8 Milliseconds
SAE Filter Class: 1000
Date of Test: 02/15/01
Curve Number: FIL-008

Test Program: 55/28 km/h Side Impact NCAP No.: SUB001
Test Vehicle: 2001 Subaru Forester AWD Wagon





Curve Description: Driver Upper Rib Redundant Y Velocity

Maximum Value: 38.0 at 188.4 Milliseconds

Minimum Value: 0.0 at 9.8 Milliseconds

SAE Filter Class: 180

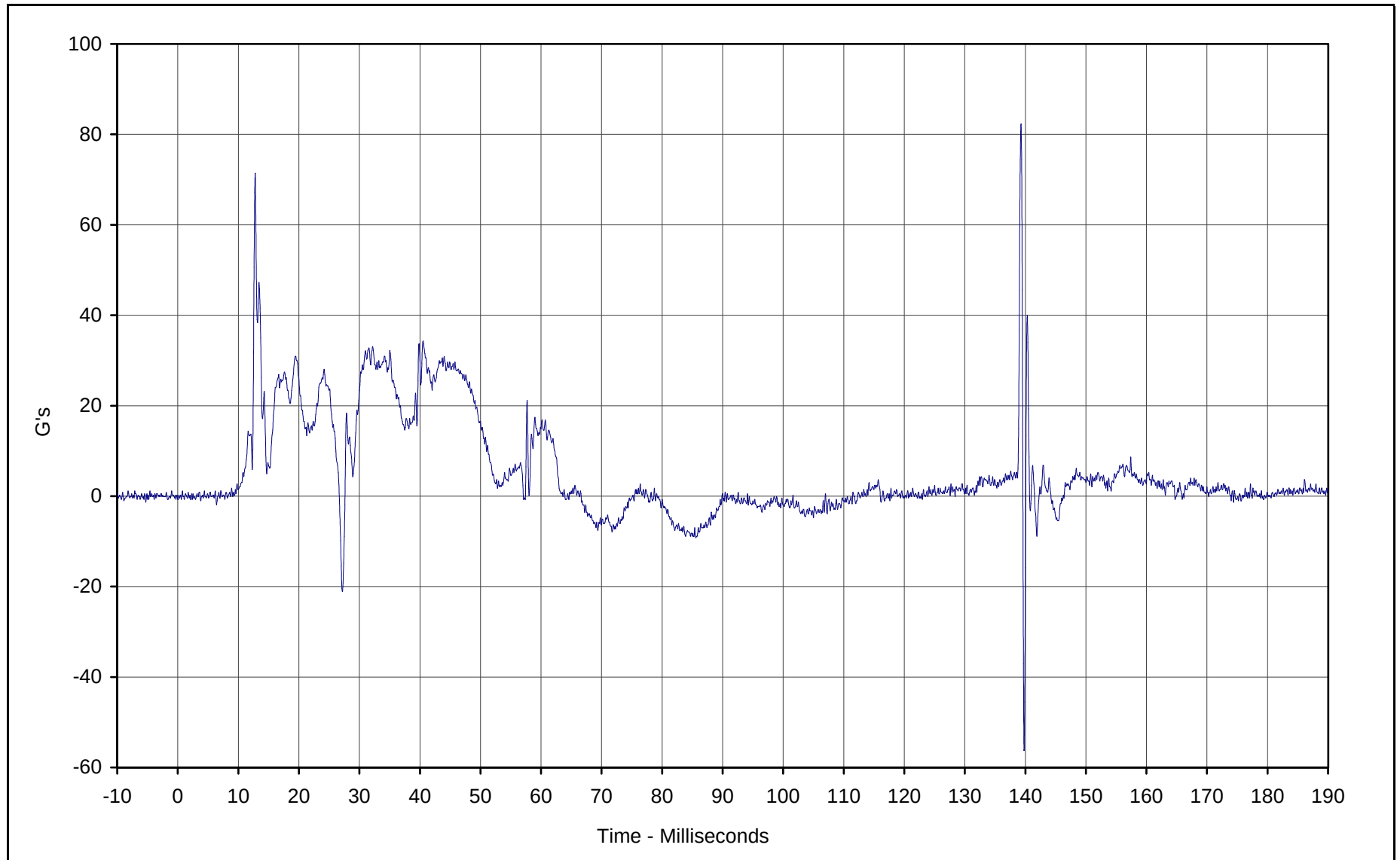
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Curve Number: IN1-008

Test Program: 55/28 km/h Side Impact NCAP No.: SUB001

Test Vehicle: 2001 Subaru Forester AWD Wagon

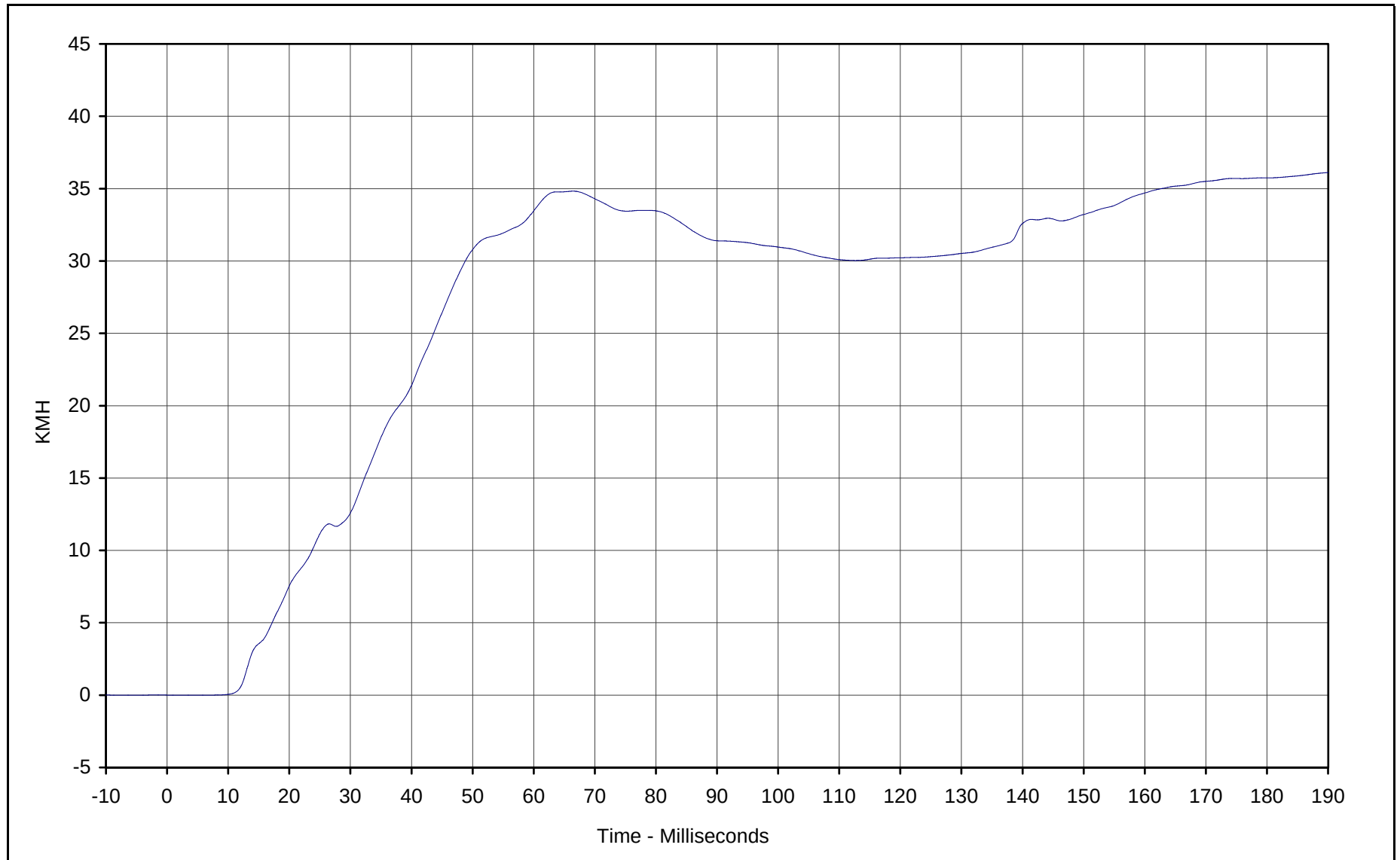




Curve Description: Driver Lower Rib Redundant Y
Maximum Value: 82.3 at 139.3 Milliseconds
Minimum Value: -56.1 at 139.8 Milliseconds
SAE Filter Class: 1000
Date of Test: 02/15/01
Curve Number: FIL-009

Test Program: 55/28 km/h Side Impact NCAP No.: SUB001
Test Vehicle: 2001 Subaru Forester AWD Wagon





Curve Description: Driver Lower Rib Redundant Y Velocity

Maximum Value: 36.1 at 189.9 Milliseconds

Minimum Value: 0.0 at 3.6 Milliseconds

SAE Filter Class: 180

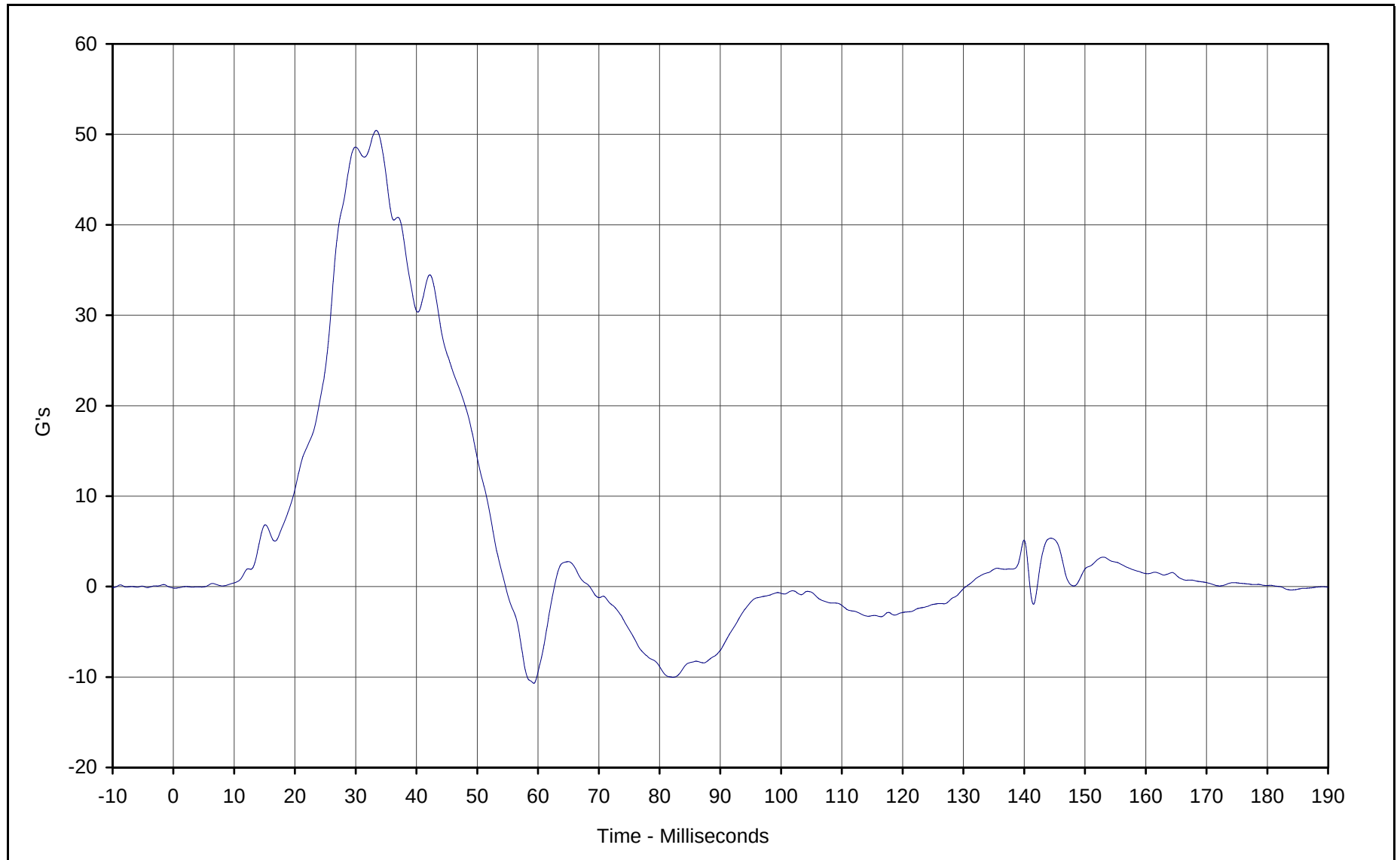
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Curve Number: IN1-009

Test Program: 55/28 km/h Side Impact NCAP No.: SUB001

Test Vehicle: 2001 Subaru Forester AWD Wagon

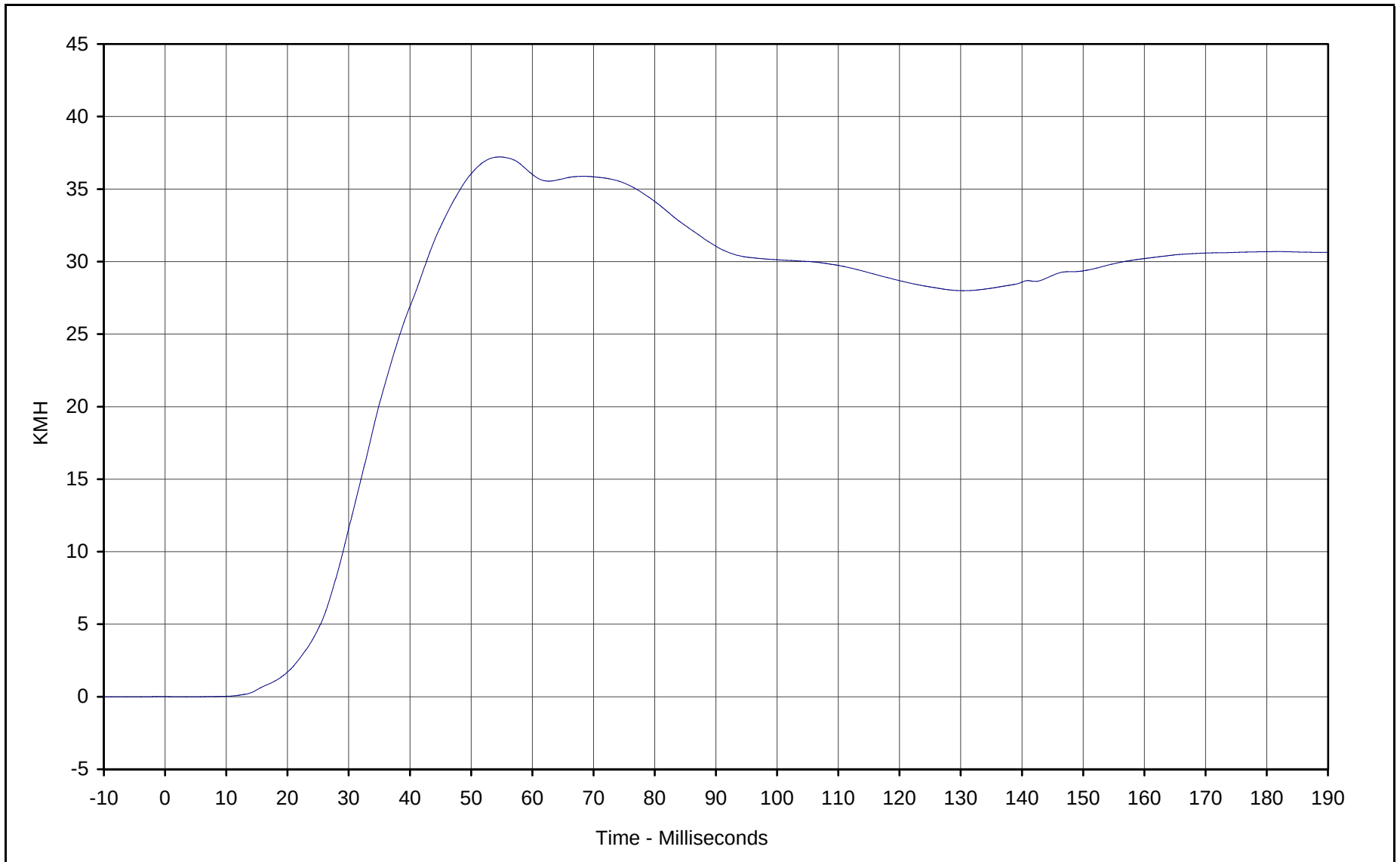




Curve Description: Driver Lower Spine Redundant Y
Maximum Value: 50.4 at 33.4 Milliseconds
Minimum Value: -10.7 at 59.3 Milliseconds
SAE Filter Class: 180
Date of Test: 02/15/01
Curve Number: FIL-010

Test Program: 55/28 km/h Side Impact NCAP No.: SUB001
Test Vehicle: 2001 Subaru Forester AWD Wagon





Curve Description: Driver Lower Spine Redundant Y Velocity

Maximum Value: 37.2 at 54.7 Milliseconds

Minimum Value: 0.0 at 5.2 Milliseconds

SAE Filter Class: 180

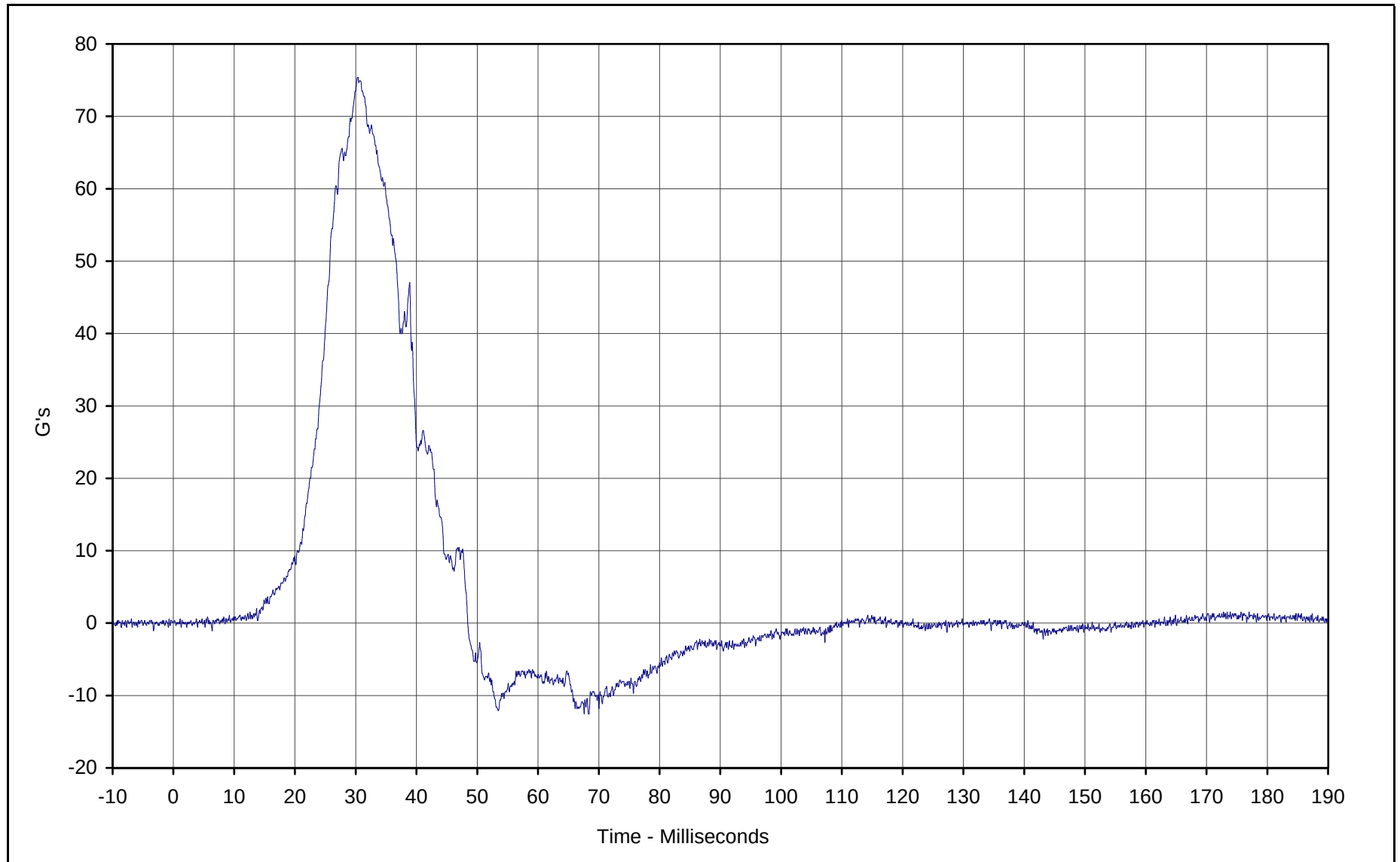
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Curve Number: IN1-0010

Test Program: 55/28 km/h Side Impact NCAP No.: SUB001

Test Vehicle: 2001 Subaru Forester AWD Wagon

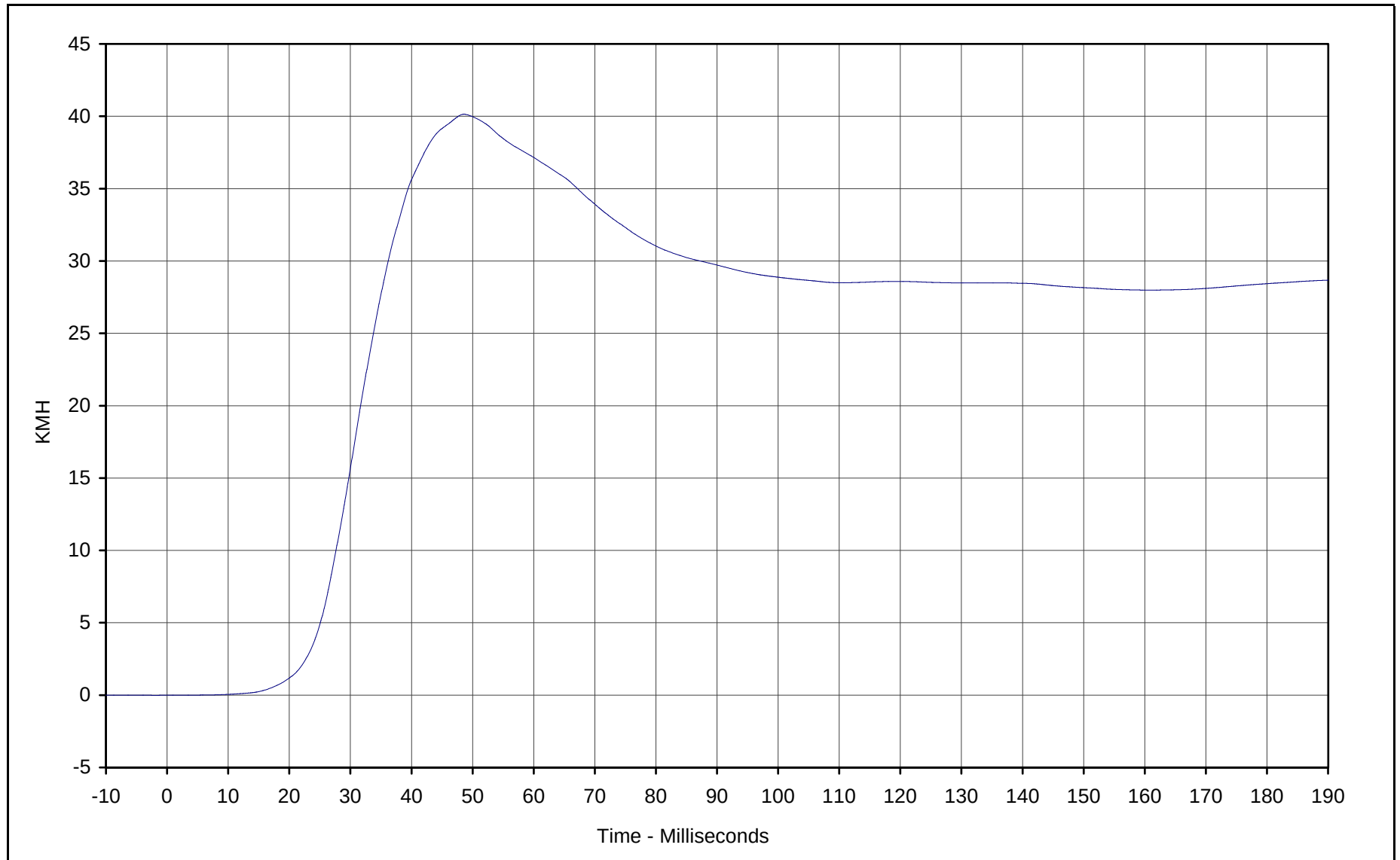




Curve Description: Driver Pelvis Redundant Y
Maximum Value: 75.4 at 30.3 Milliseconds
Minimum Value: -12.5 at 67.6 Milliseconds
SAE Filter Class: 1000
Date of Test: 02/15/01
Curve Number: FIL-011

Test Program: 55/28 km/h Side Impact NCAP No.: SUB001
Test Vehicle: 2001 Subaru Forester AWD Wagon

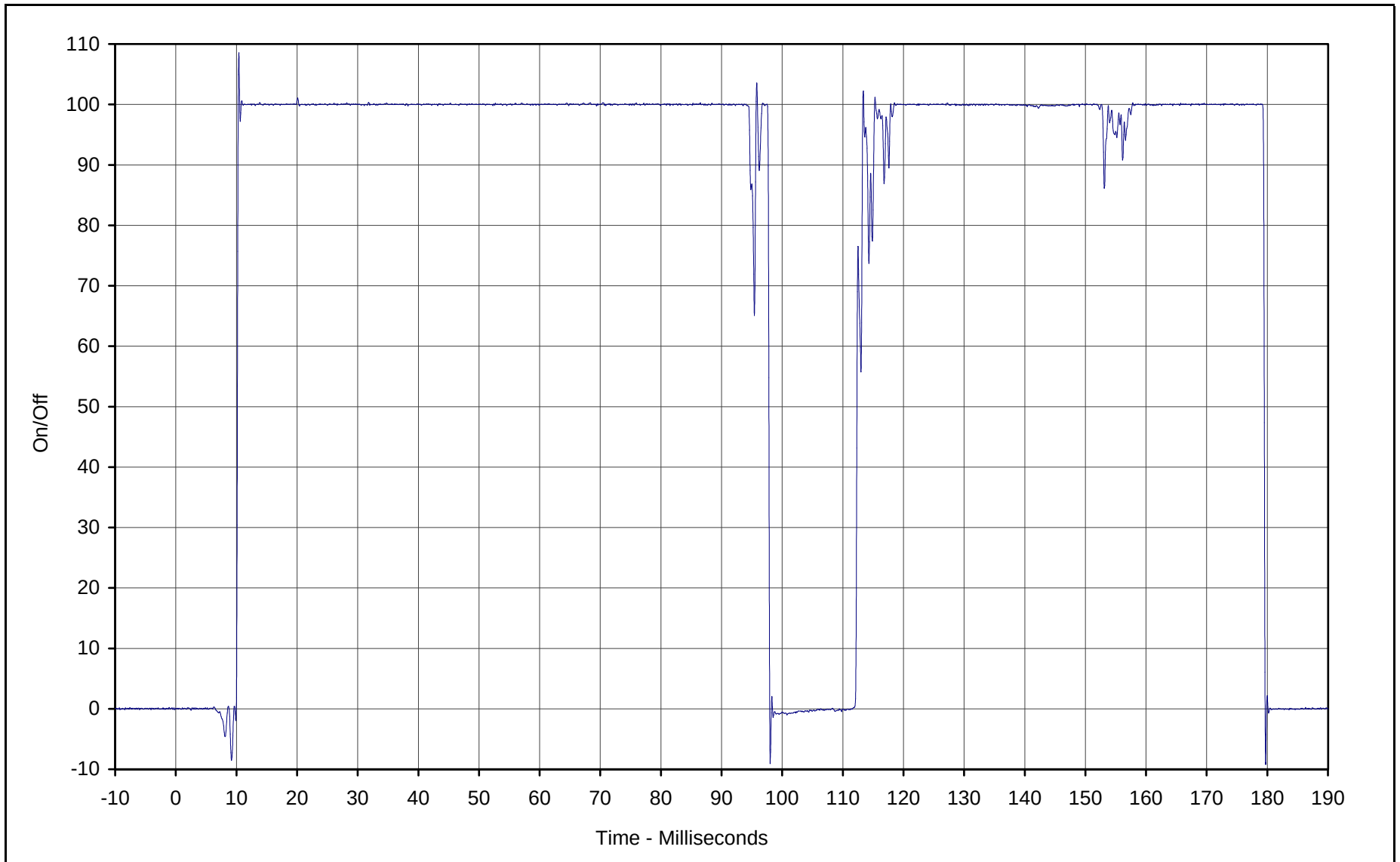




Curve Description: Driver Pelvis Redundant Y Velocity
Maximum Value: 40.1 at 48.6 Milliseconds
Minimum Value: 0.0 at 0.0 Milliseconds
SAE Filter Class: 180
Date of Test: 02/15/01
Curve Number: IN1-011

Test Program: 55/28 km/h Side Impact NCAP No.: SUB001
Test Vehicle: 2001 Subaru Forester AWD Wagon

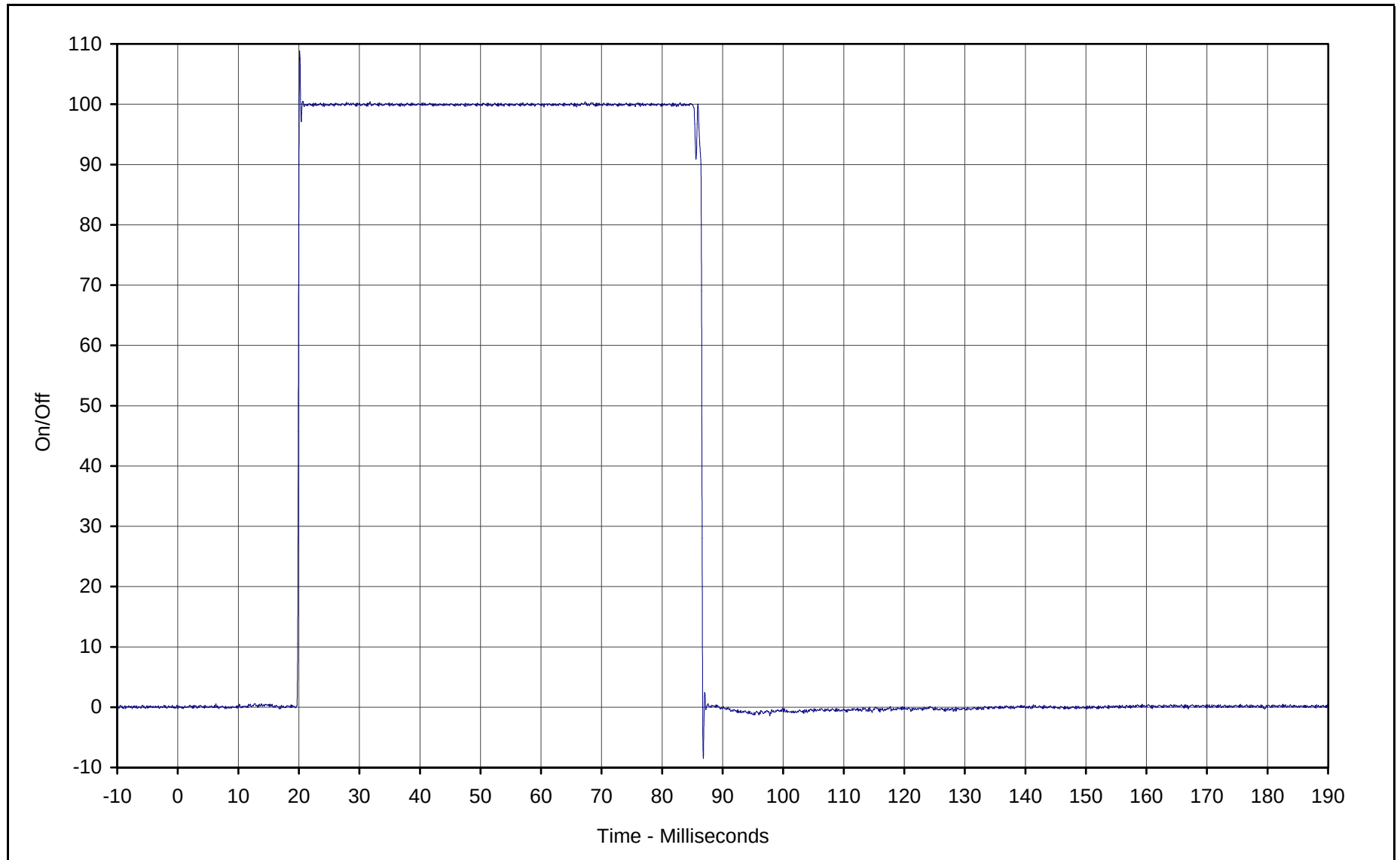




Curve Description: Driver Thorax Contact
Maximum Value: 108.6 at 10.4 Milliseconds
Crossing Point: 50% at 10.2 Milliseconds
SAE Filter Class: 1000
Date of Test: 02/15/01
Curve Number: FIL-012

Test Program: 55/28 km/h Side Impact NCAP No.: SUB001
Test Vehicle: 2001 Subaru Forester AWD Wagon

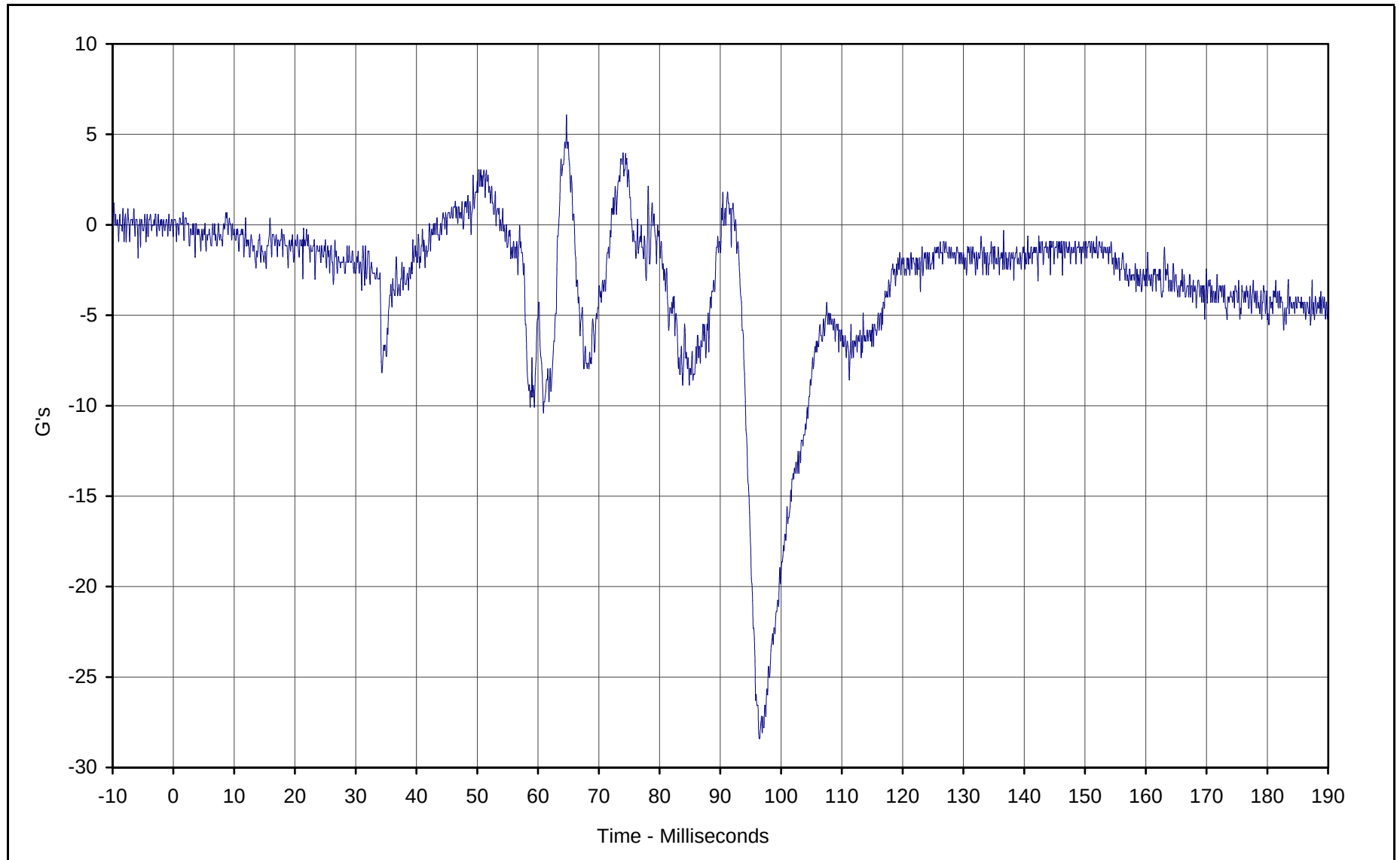




Curve Description: Driver Pelvis Contact
Maximum Value: 108.7 at 20.1 Milliseconds
Crossing Point: 50% at 20.0 Milliseconds
SAE Filter Class: 1000
Date of Test: 02/15/01
Curve Number: FIL-013

Test Program: 55/28 km/h Side Impact NCAP No.: SUB001
Test Vehicle: 2001 Subaru Forester AWD Wagon

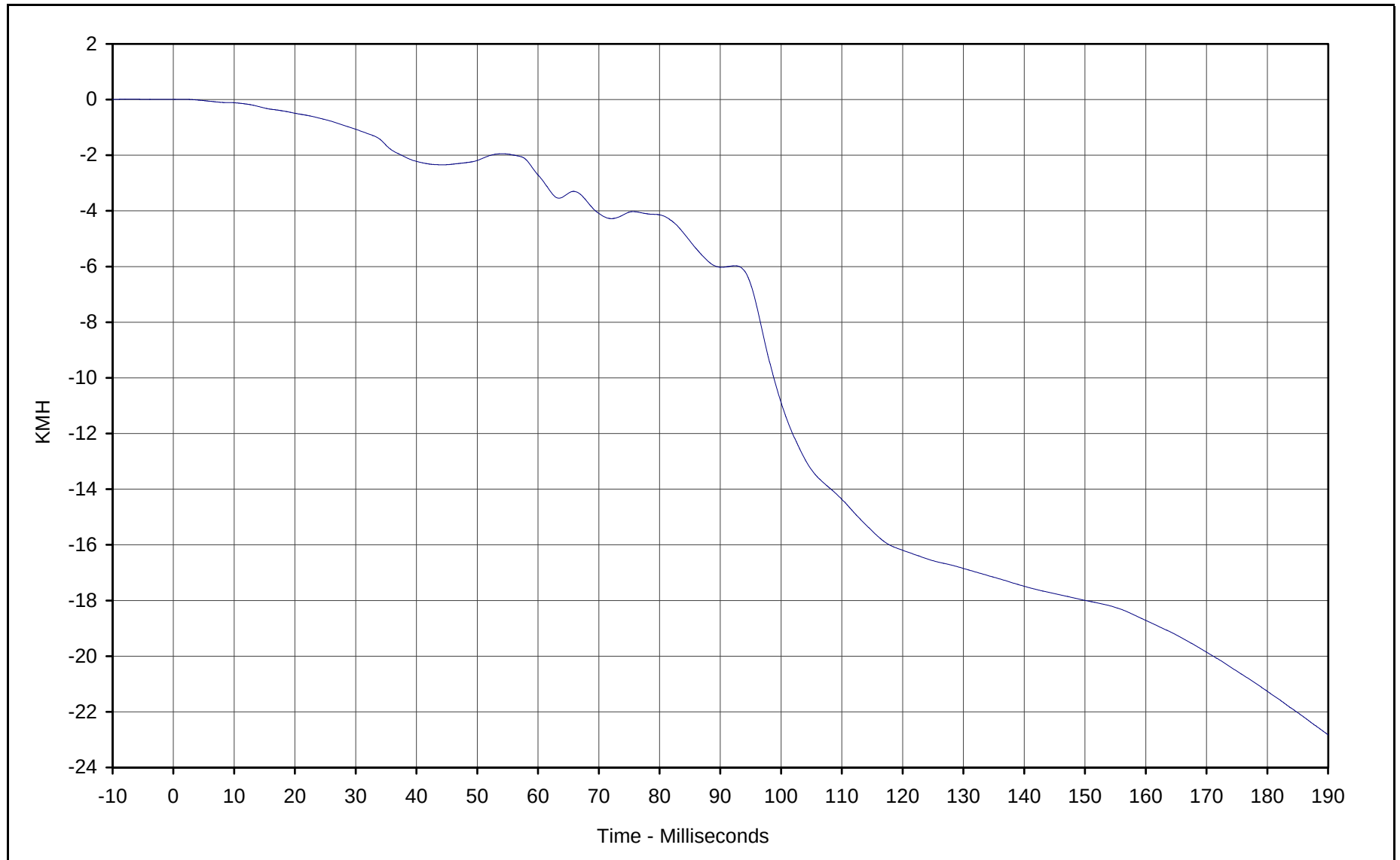




Curve Description: Pass. Head CG X
Maximum Value: 6.1 at 64.7 Milliseconds
Minimum Value: -28.4 at 96.4 Milliseconds
SAE Filter Class: 1000
Date of Test: 02/15/01
Curve Number: FIL-014

Test Program: 55/28 km/h Side Impact NCAP No.: SUB001
Test Vehicle: 2001 Subaru Forester AWD Wagon

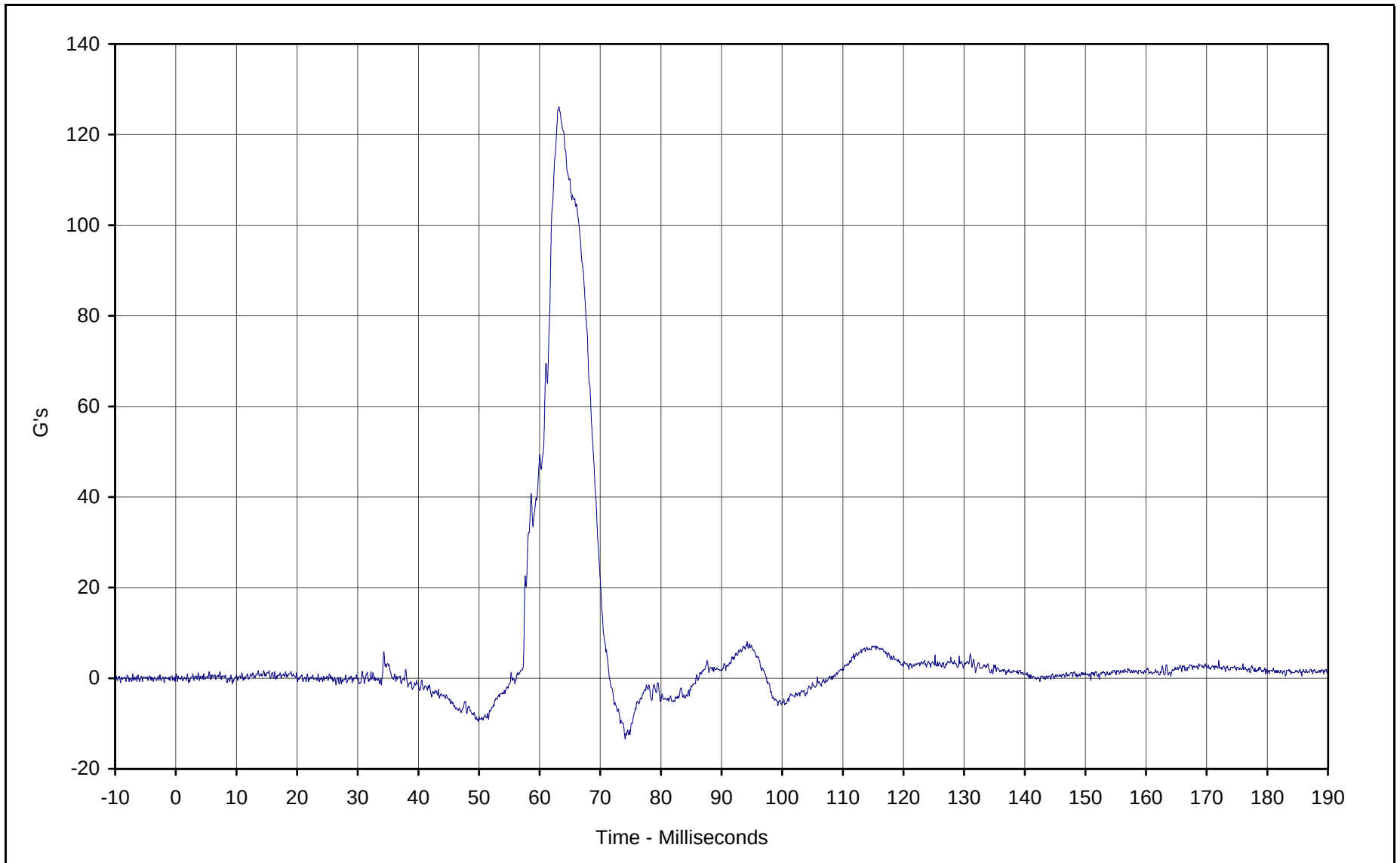




Curve Description: Pass. Head CG X Velocity
Maximum Value: 0.0 at 0.0 Milliseconds
Minimum Value: -22.8 at 189.9 Milliseconds
SAE Filter Class: 180
Date of Test: 02/15/01
Curve Number: IN1-014

Test Program: 55/28 km/h Side Impact NCAP No.: SUB001
Test Vehicle: 2001 Subaru Forester AWD Wagon

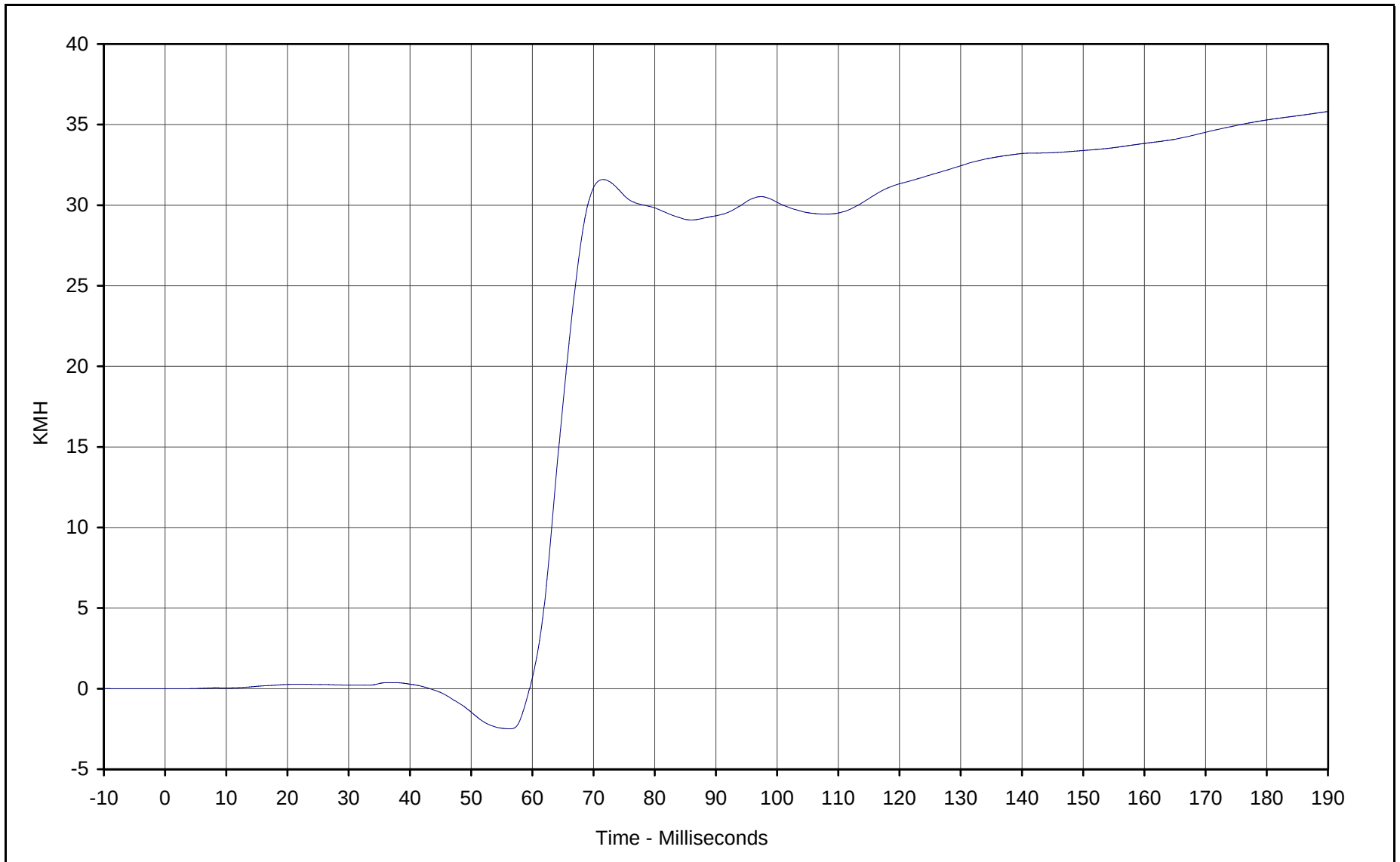




Curve Description: Pass. Head CG Y
Maximum Value: 126.1 at 63.2 Milliseconds
Minimum Value: -13.4 at 74.1 Milliseconds
SAE Filter Class: 1000
Date of Test: 02/15/01
Curve Number: FIL-015

Test Program: 55/28 km/h Side Impact NCAP No.: SUB001
Test Vehicle: 2001 Subaru Forester AWD Wagon

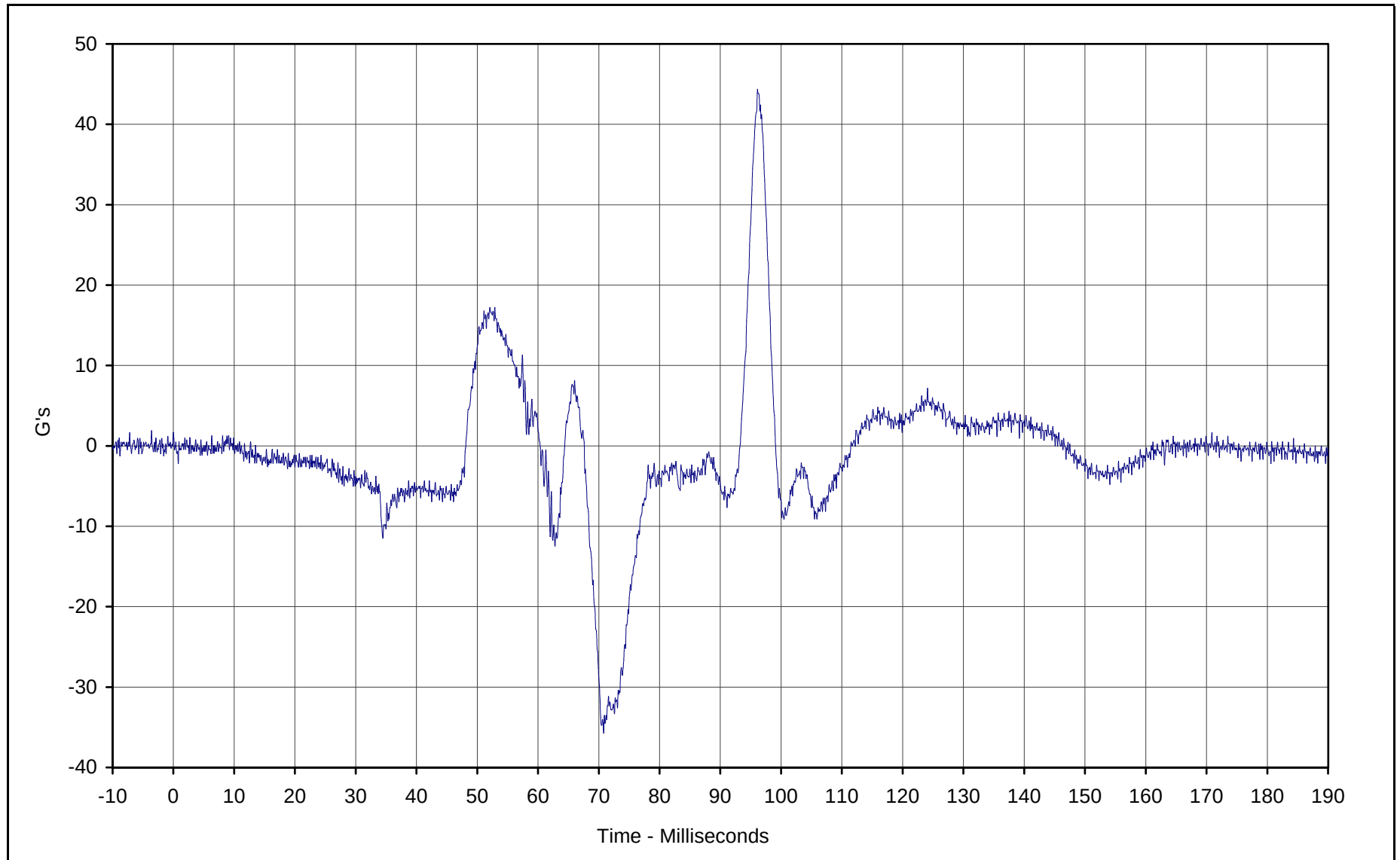




Curve Description: Pass. Head CG Y Velocity
Maximum Value: 35.8 at 189.9 Milliseconds
Minimum Value: -2.5 at 56.4 Milliseconds
SAE Filter Class: 180
Date of Test: 02/15/01
Curve Number: IN1-015

Test Program: 55/28 km/h Side Impact NCAP No.: SUB001
Test Vehicle: 2001 Subaru Forester AWD Wagon

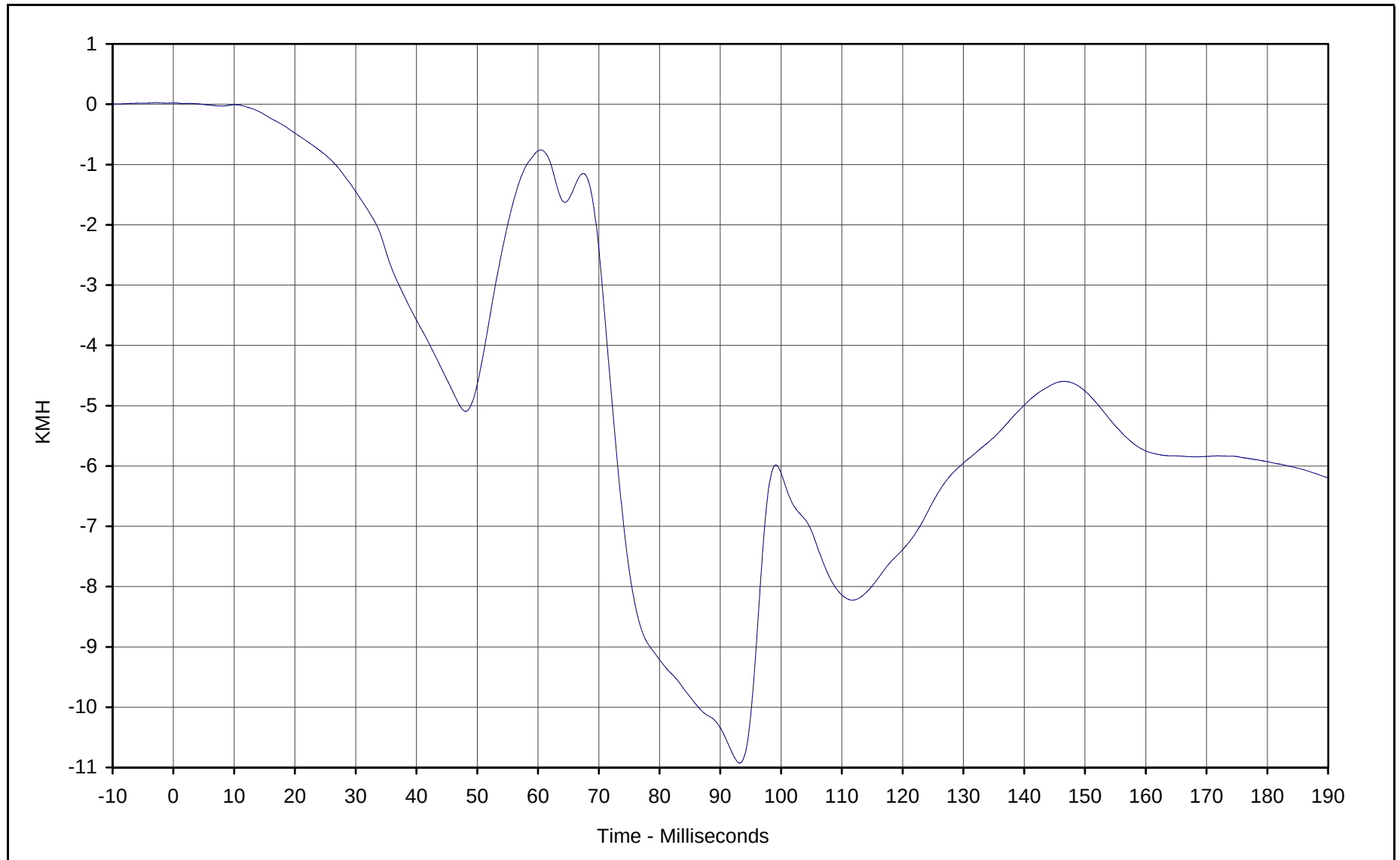




Curve Description: Pass. Head CG Z
Maximum Value: 44.3 at 96.1 Milliseconds
Minimum Value: -35.7 at 70.8 Milliseconds
SAE Filter Class: 1000
Date of Test: 02/15/01
Curve Number: FIL-016

Test Program: 55/28 km/h Side Impact NCAP No.: SUB001
Test Vehicle: 2001 Subaru Forester AWD Wagon

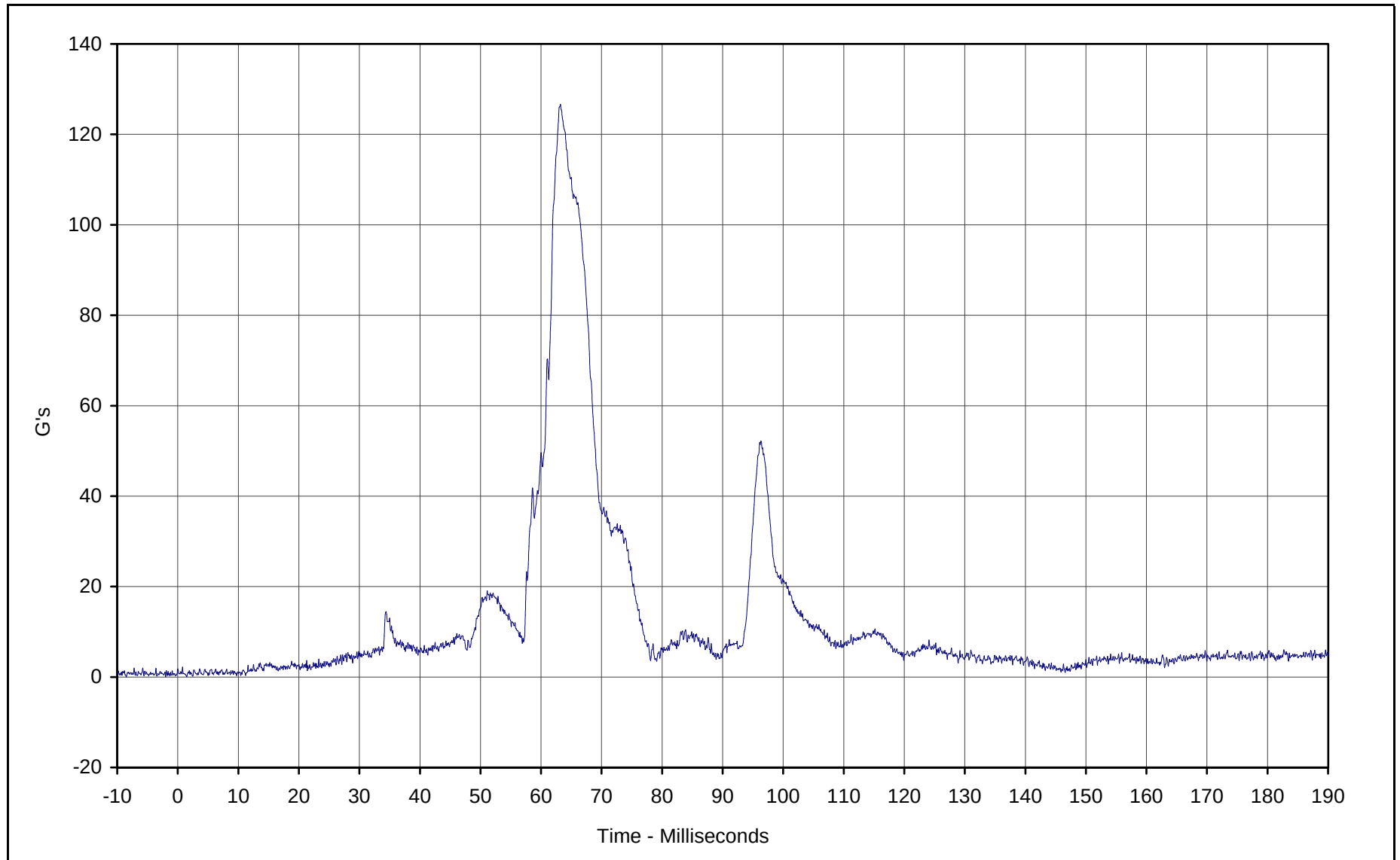




Curve Description: Pass. Head CG Z Velocity
Maximum Value: 0.0 at 0.1 Milliseconds
Minimum Value: -10.9 at 93.2 Milliseconds
SAE Filter Class: 180
Date of Test: 02/15/01
Curve Number: IN1-016

Test Program: 55/28 km/h Side Impact NCAP No.: SUB001
Test Vehicle: 2001 Subaru Forester AWD Wagon

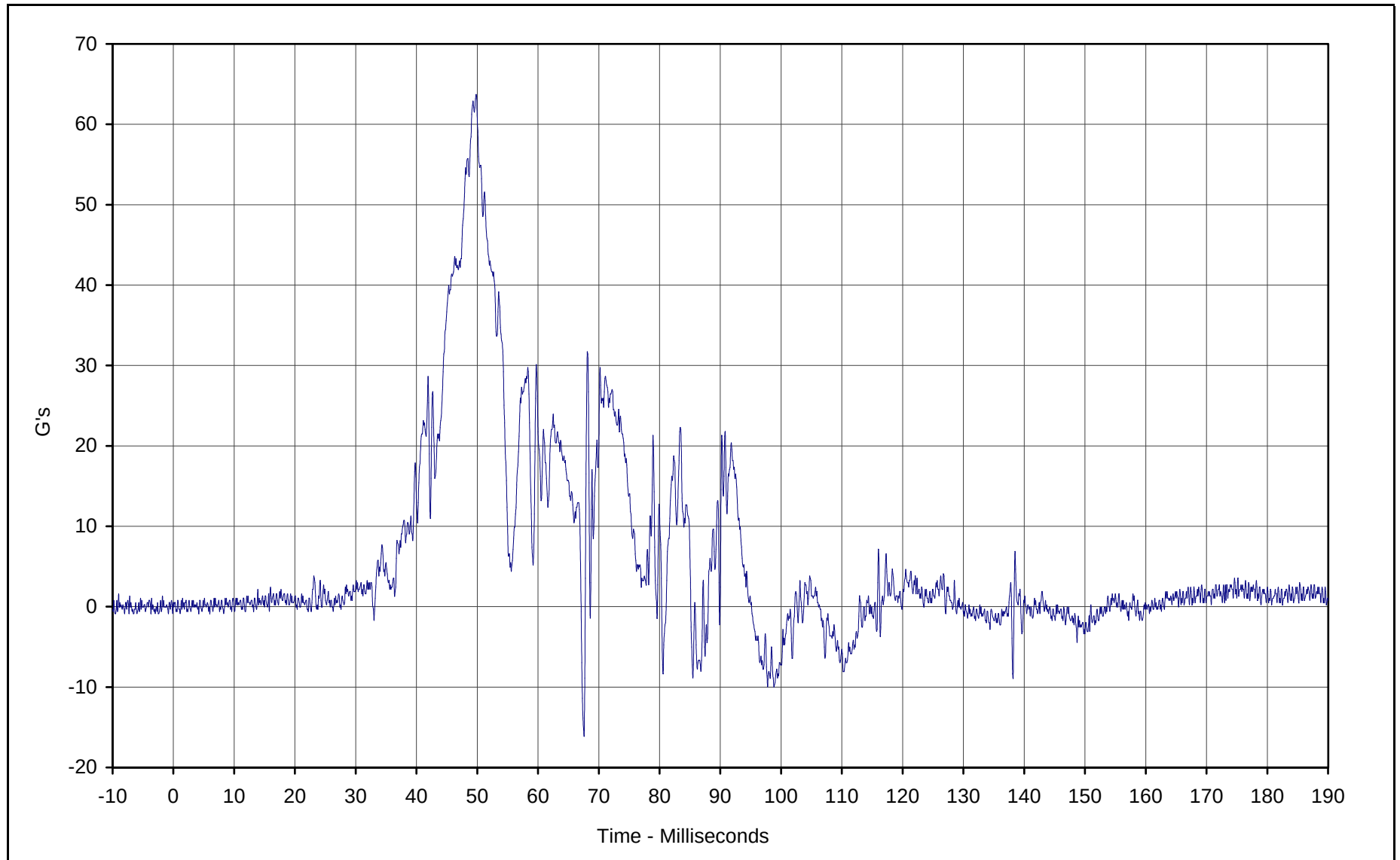




Curve Description: Pass. Head CG Resultant
Maximum Value: 126.6 at 63.2 Milliseconds
Minimum Value: 0.1 at 1.5 Milliseconds
SAE Filter Class: 1000
Date of Test: 02/15/01
Curve Number: RES-014

Test Program: 55/28 km/h Side Impact NCAP No.: SUB001
Test Vehicle: 2001 Subaru Forester AWD Wagon

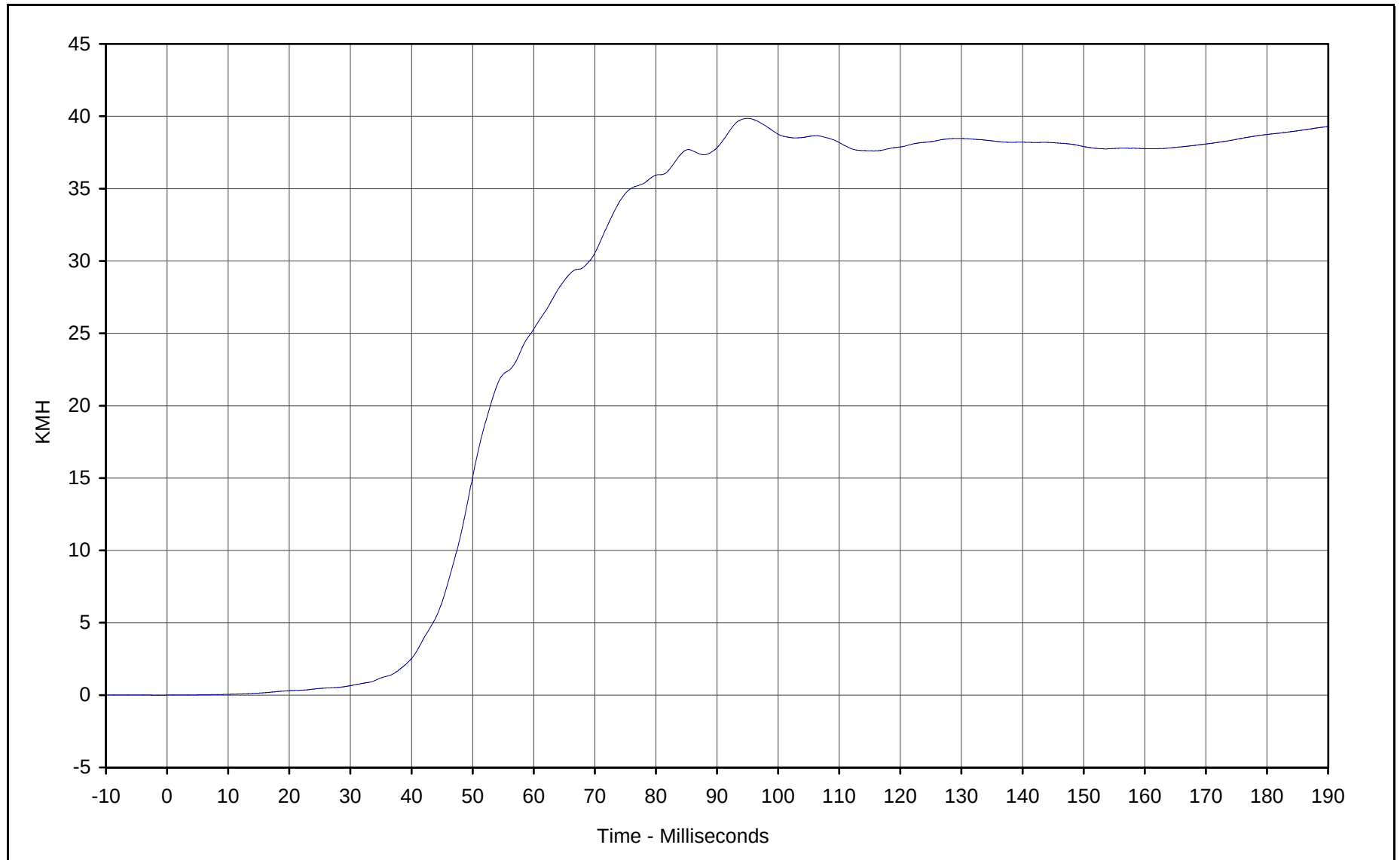




Curve Description: Pass. Upper Rib Primary Y
Maximum Value: 63.7 at 49.8 Milliseconds
Minimum Value: -16.1 at 67.6 Milliseconds
SAE Filter Class: 1000
Date of Test: 02/15/01
Curve Number: FIL-017

Test Program: 55/28 km/h Side Impact NCAP No.: SUB001
Test Vehicle: 2001 Subaru Forester AWD Wagon





Curve Description: Pass. Upper Rib Primary Y Velocity

Maximum Value: 39.9 at 95.0 Milliseconds

Minimum Value: 0.0 at 0.0 Milliseconds

SAE Filter Class: 180

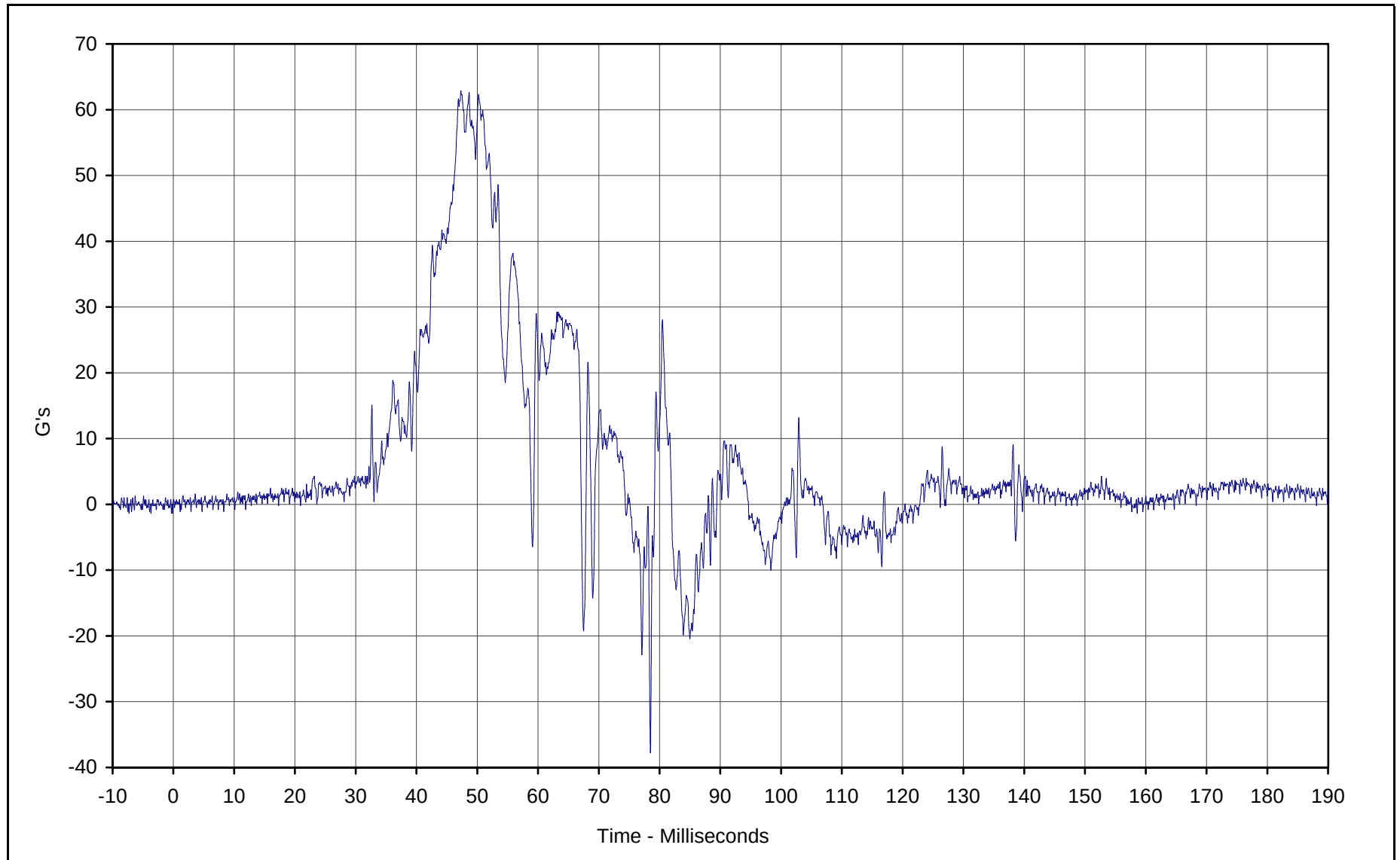
Date of Test: 02/15/01

Curve Number: IN1-017

Test Program: 55/28 km/h Side Impact NCAP No.: SUB001

Test Vehicle: 2001 Subaru Forester AWD Wagon

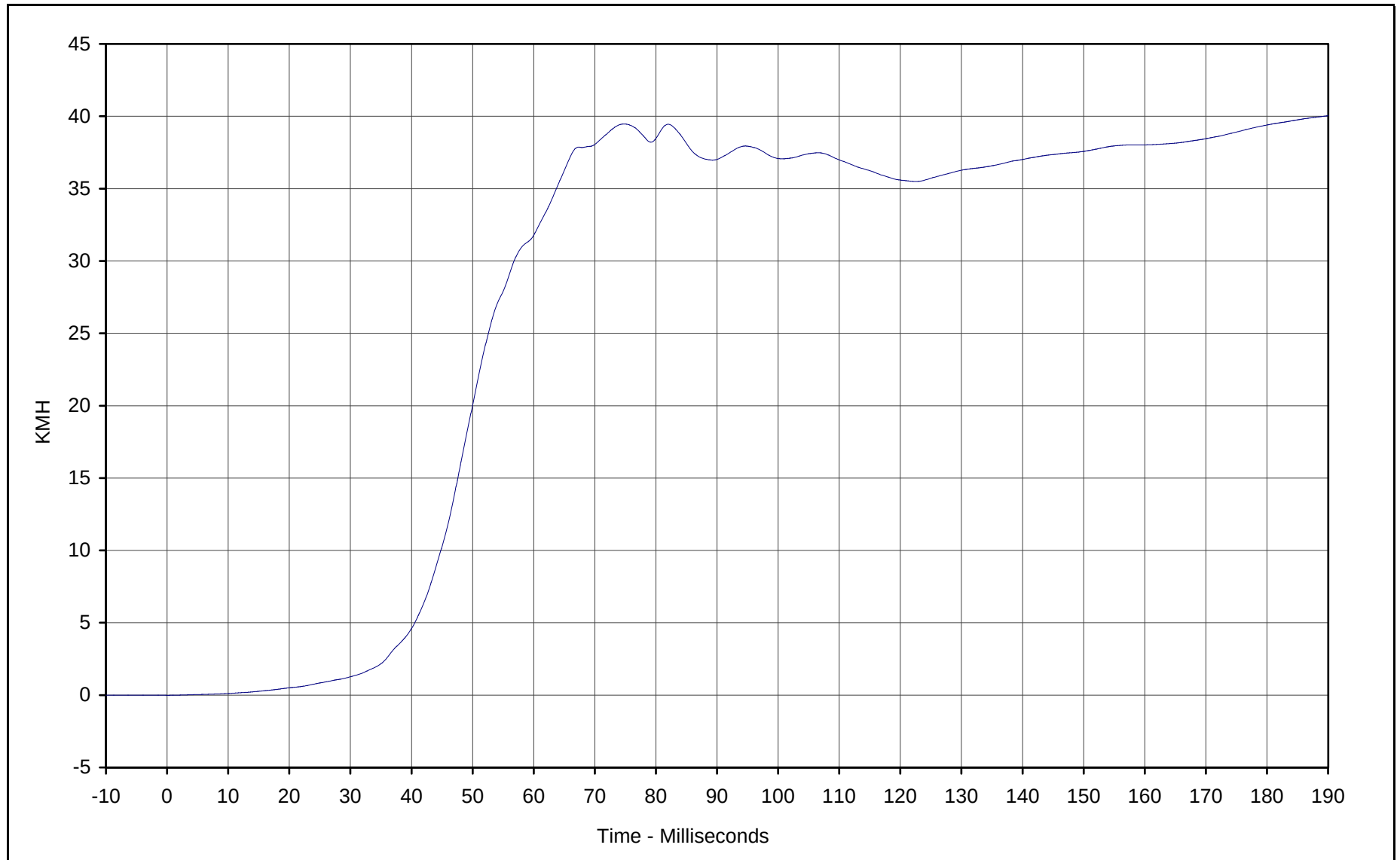




Curve Description: Pass. Lower Rib Primary Y
Maximum Value: 62.9 at 47.3 Milliseconds
Minimum Value: -37.7 at 78.5 Milliseconds
SAE Filter Class: 1000
Date of Test: 02/15/01
Curve Number: FIL-018

Test Program: 55/28 km/h Side Impact NCAP No.: SUB001
Test Vehicle: 2001 Subaru Forester AWD Wagon





Curve Description: Pass. Lower Rib Primary Y Velocity

Maximum Value: 40.0 at 189.9 Milliseconds

Minimum Value: 0.0 at 0.2 Milliseconds

SAE Filter Class: 180

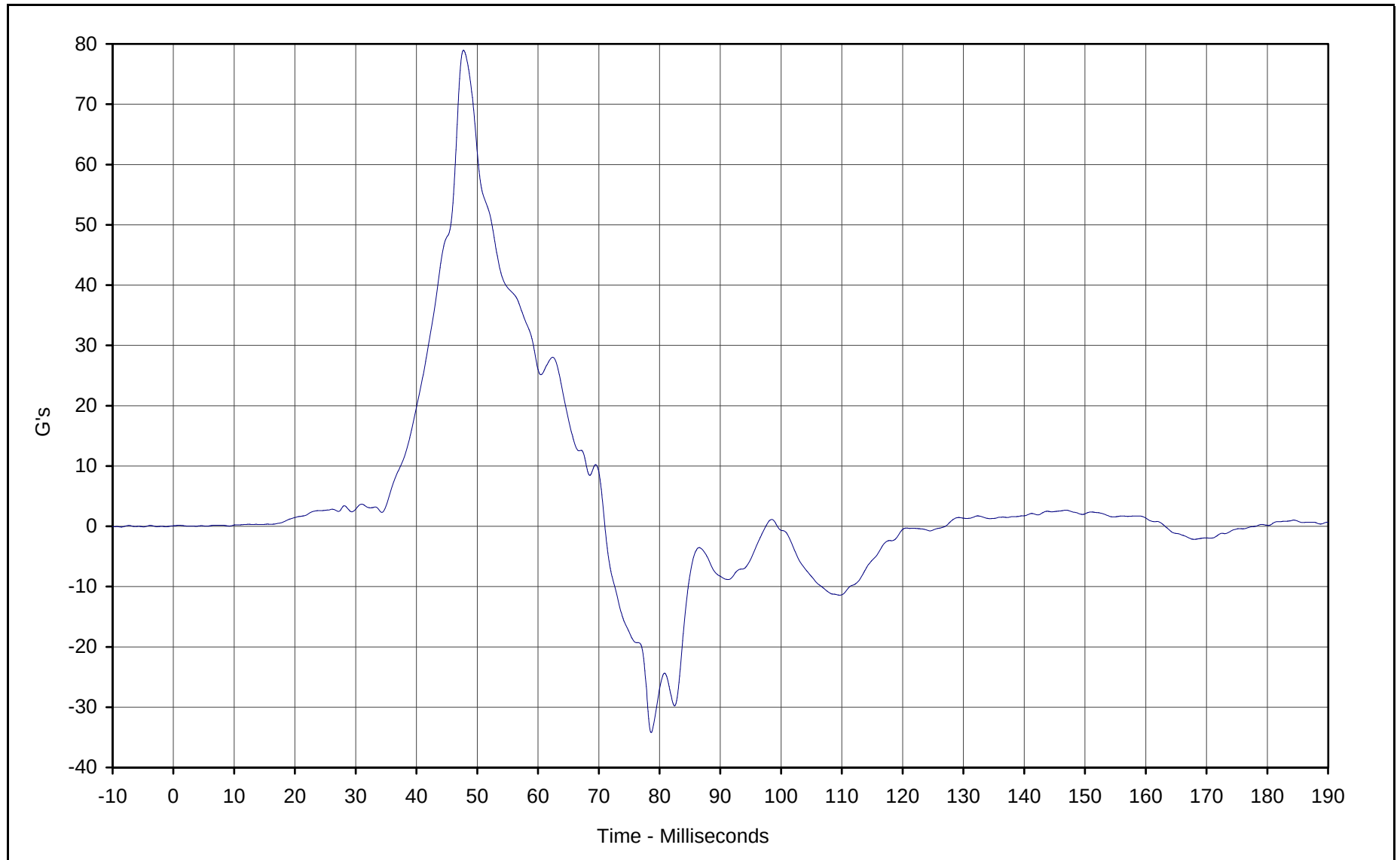
Date of Test: 02/15/01

Curve Number: IN1-018

Test Program: 55/28 km/h Side Impact NCAP No.: SUB001

Test Vehicle: 2001 Subaru Forester AWD Wagon

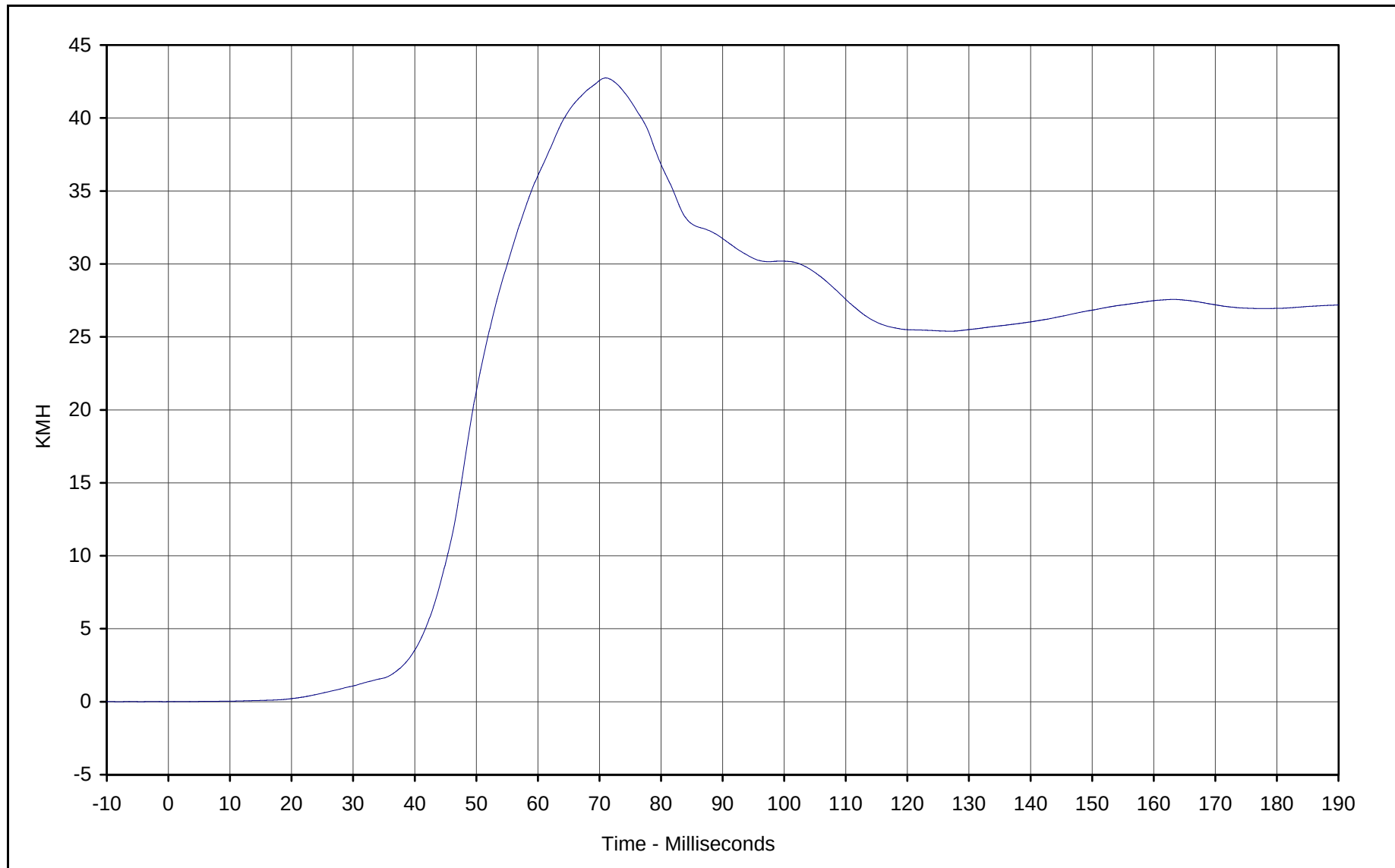




Curve Description: Pass. Lower Spine Primary Y
Maximum Value: 78.9 at 47.7 Milliseconds
Minimum Value: -34.2 at 78.6 Milliseconds
SAE Filter Class: 180
Date of Test: 02/15/01
Curve Number: FIL-019

Test Program: 55/28 km/h Side Impact NCAP No.: SUB001
Test Vehicle: 2001 Subaru Forester AWD Wagon





Curve Description: Pass. Lower Spine Primary Y Velocity

Maximum Value: 42.7 at 71.0 Milliseconds

Minimum Value: 0.0 at 0.0 Milliseconds

SAE Filter Class: 180

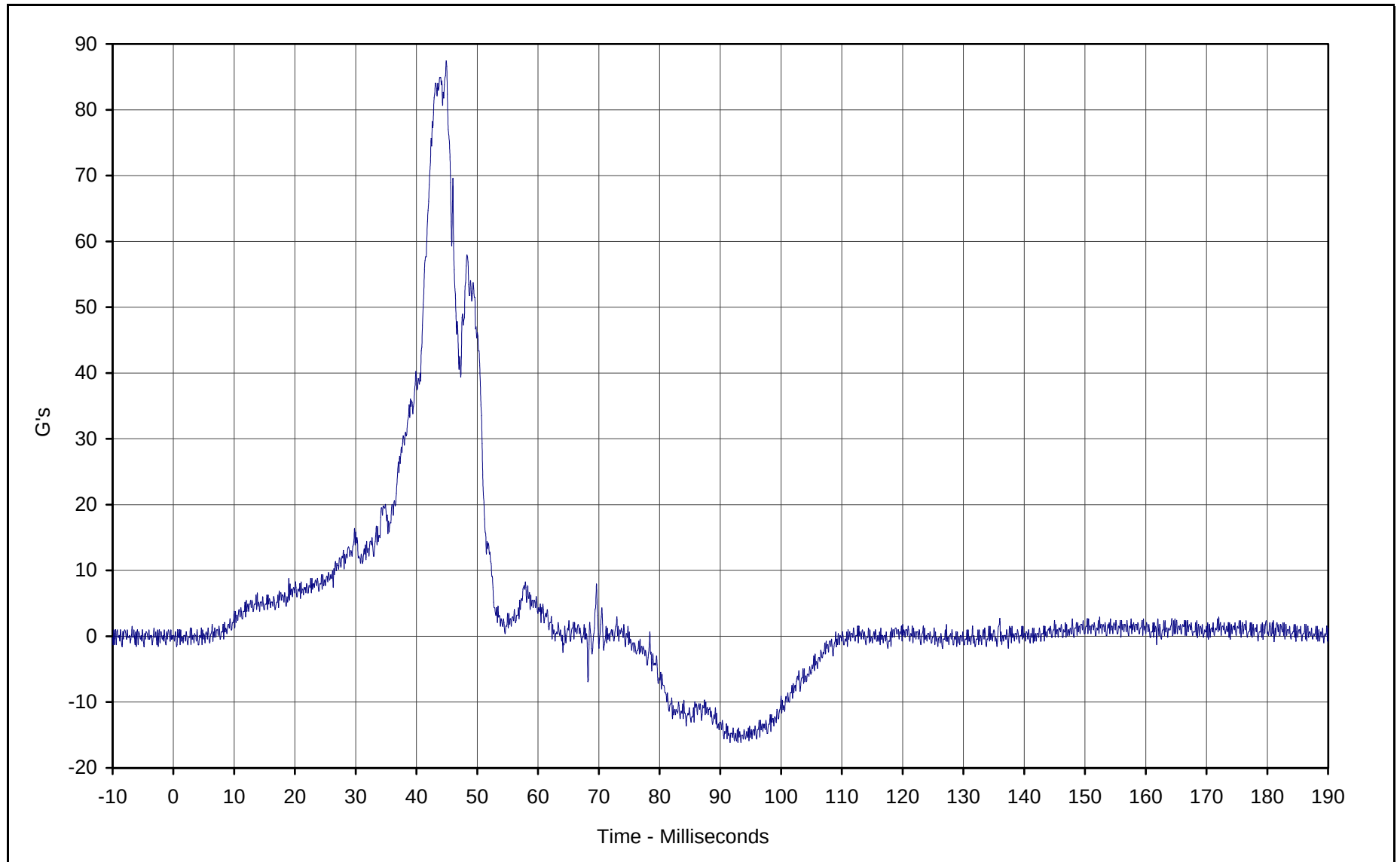
Date of Test: 02/15/01

Curve Number: IN1-019

Test Program: 55/28 km/h Side Impact NCAP No.: SUB001

Test Vehicle: 2001 Subaru Forester AWD Wagon

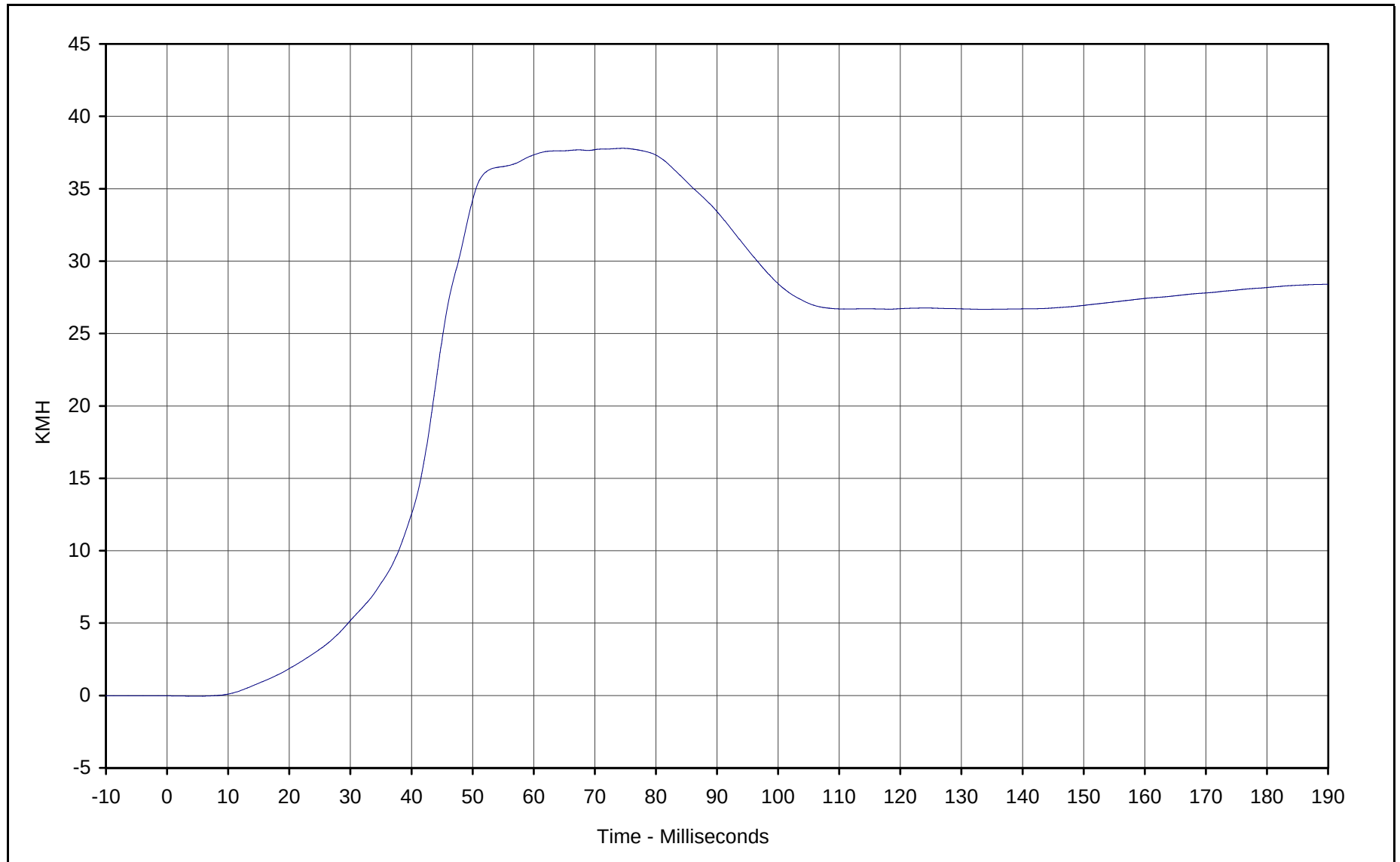




Curve Description: Pass. Pelvis Primary Y
Maximum Value: 87.4 at 44.9 Milliseconds
Minimum Value: -16.2 at 91.6 Milliseconds
SAE Filter Class: 1000
Date of Test: 02/15/01
Curve Number: FIL-020

Test Program: 55/28 km/h Side Impact NCAP No.: SUB001
Test Vehicle: 2001 Subaru Forester AWD Wagon

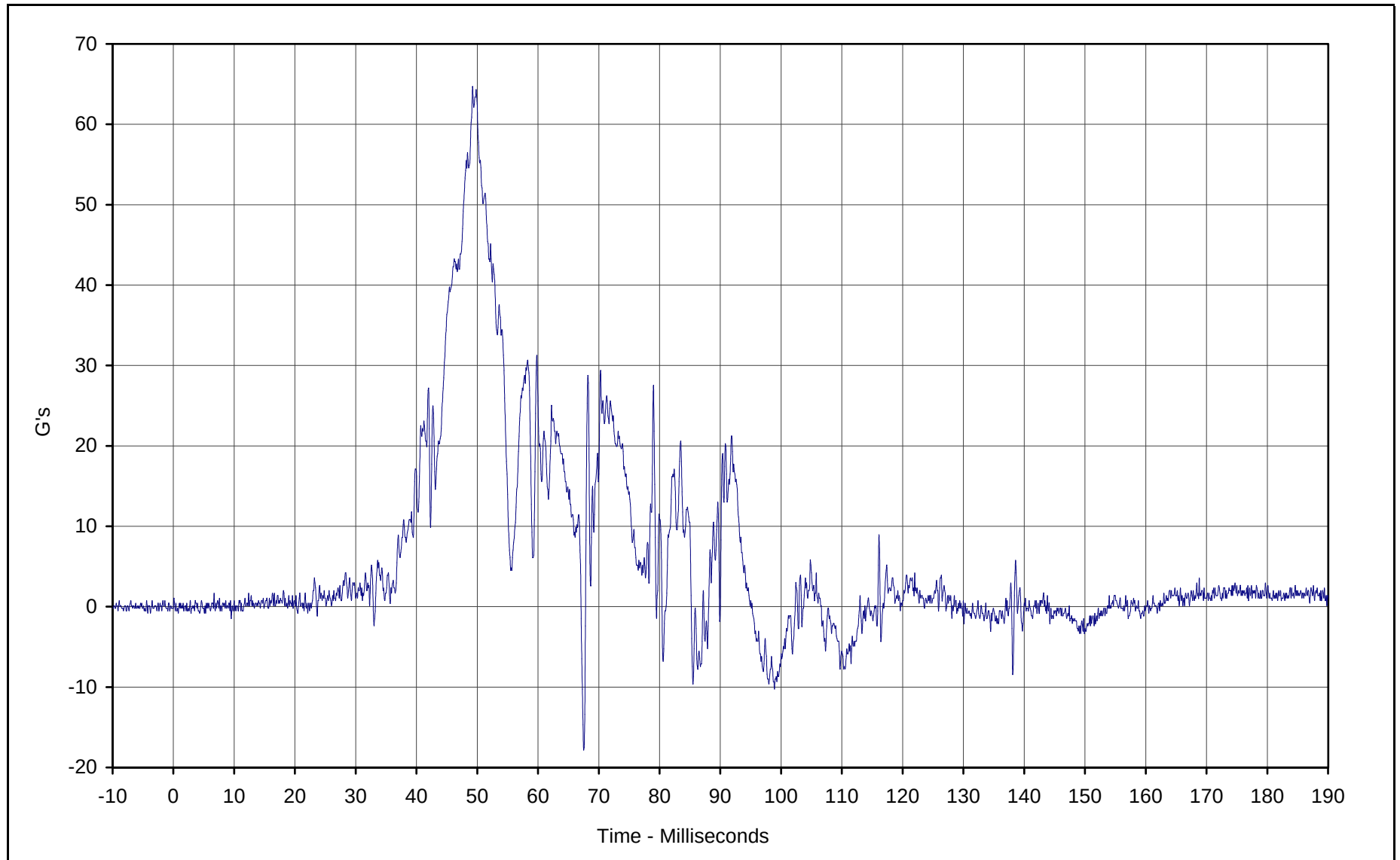




Curve Description: Pass. Pelvis Primary Y Velocity
Maximum Value: 37.8 at 74.5 Milliseconds
Minimum Value: 0.0 at 4.9 Milliseconds
SAE Filter Class: 180
Date of Test: 02/15/01
Curve Number: IN1-020

Test Program: 55/28 km/h Side Impact NCAP No.: SUB001
Test Vehicle: 2001 Subaru Forester AWD Wagon

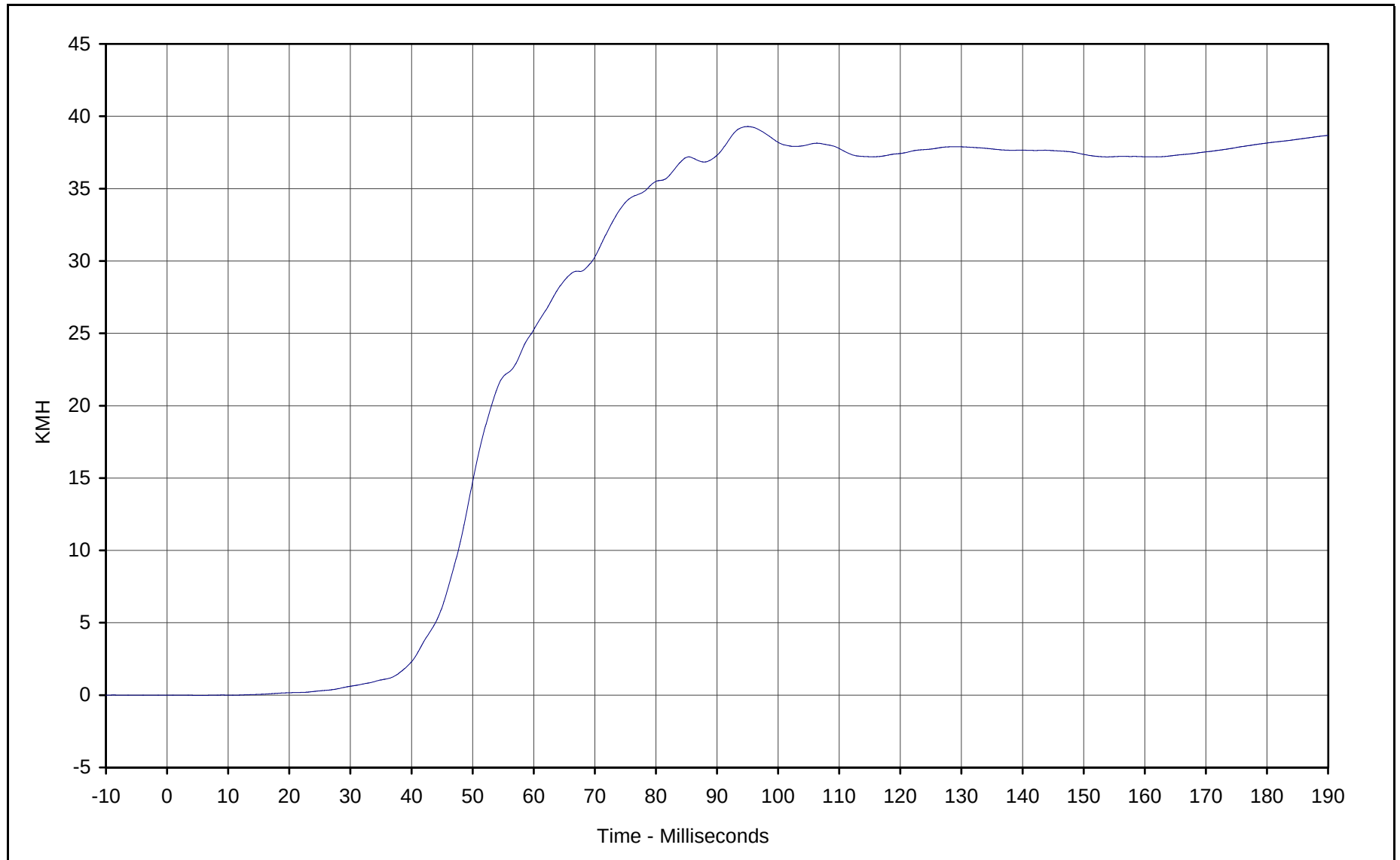




Curve Description: Pass. Upper Rib Redundant Y
Maximum Value: 64.7 at 49.2 Milliseconds
Minimum Value: -17.8 at 67.5 Milliseconds
SAE Filter Class: 1000
Date of Test: 02/15/01
Curve Number: FIL-021

Test Program: 55/28 km/h Side Impact NCAP No.: SUB001
Test Vehicle: 2001 Subaru Forester AWD Wagon





Curve Description: Pass. Upper Rib Redundant Y Velocity

Maximum Value: 39.3 at 95.0 Milliseconds

Minimum Value: 0.0 at 5.7 Milliseconds

SAE Filter Class: 180

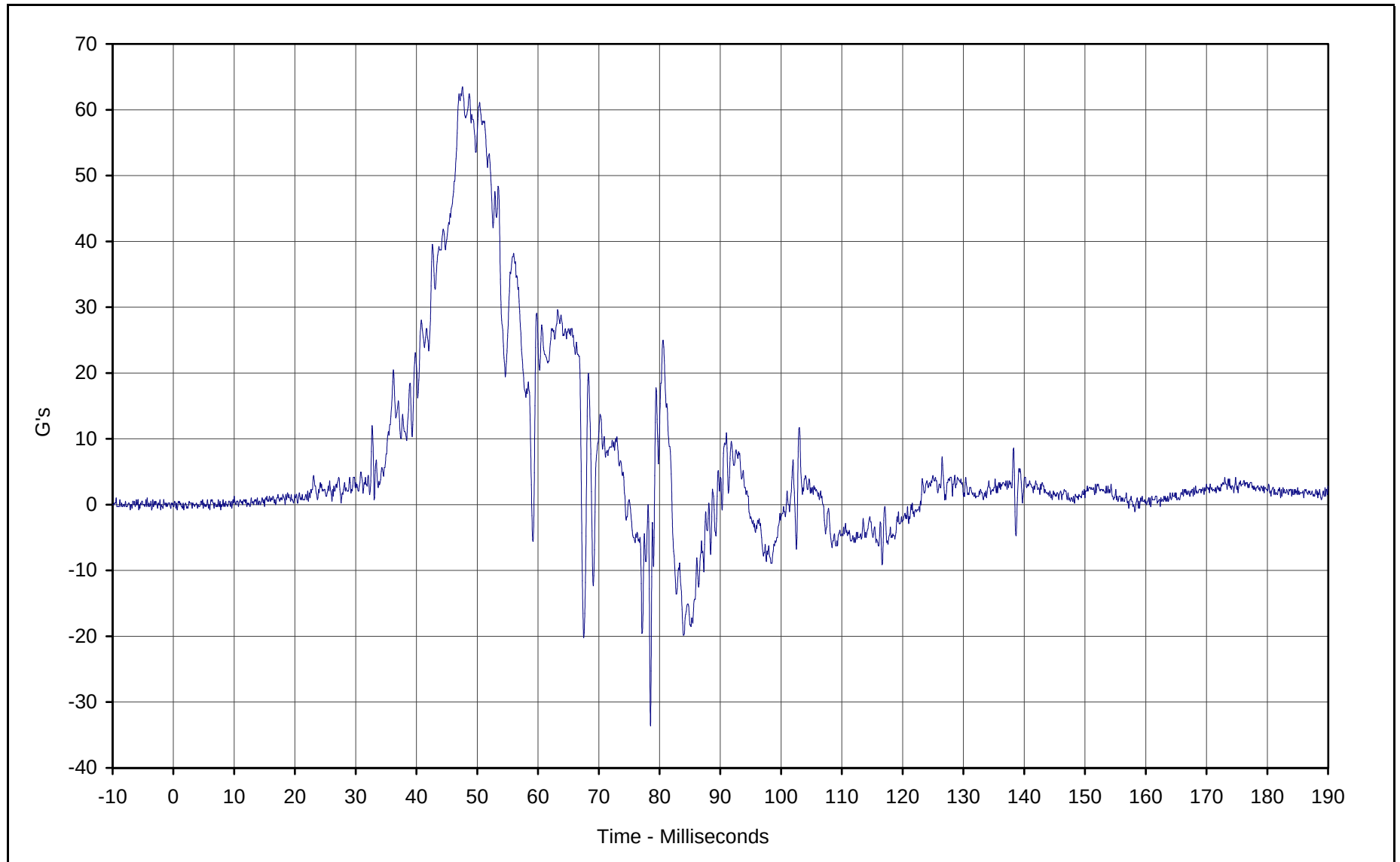
Date of Test: 02/15/01

Curve Number: IN1-021

Test Program: 55/28 km/h Side Impact NCAP No.: SUB001

Test Vehicle: 2001 Subaru Forester AWD Wagon

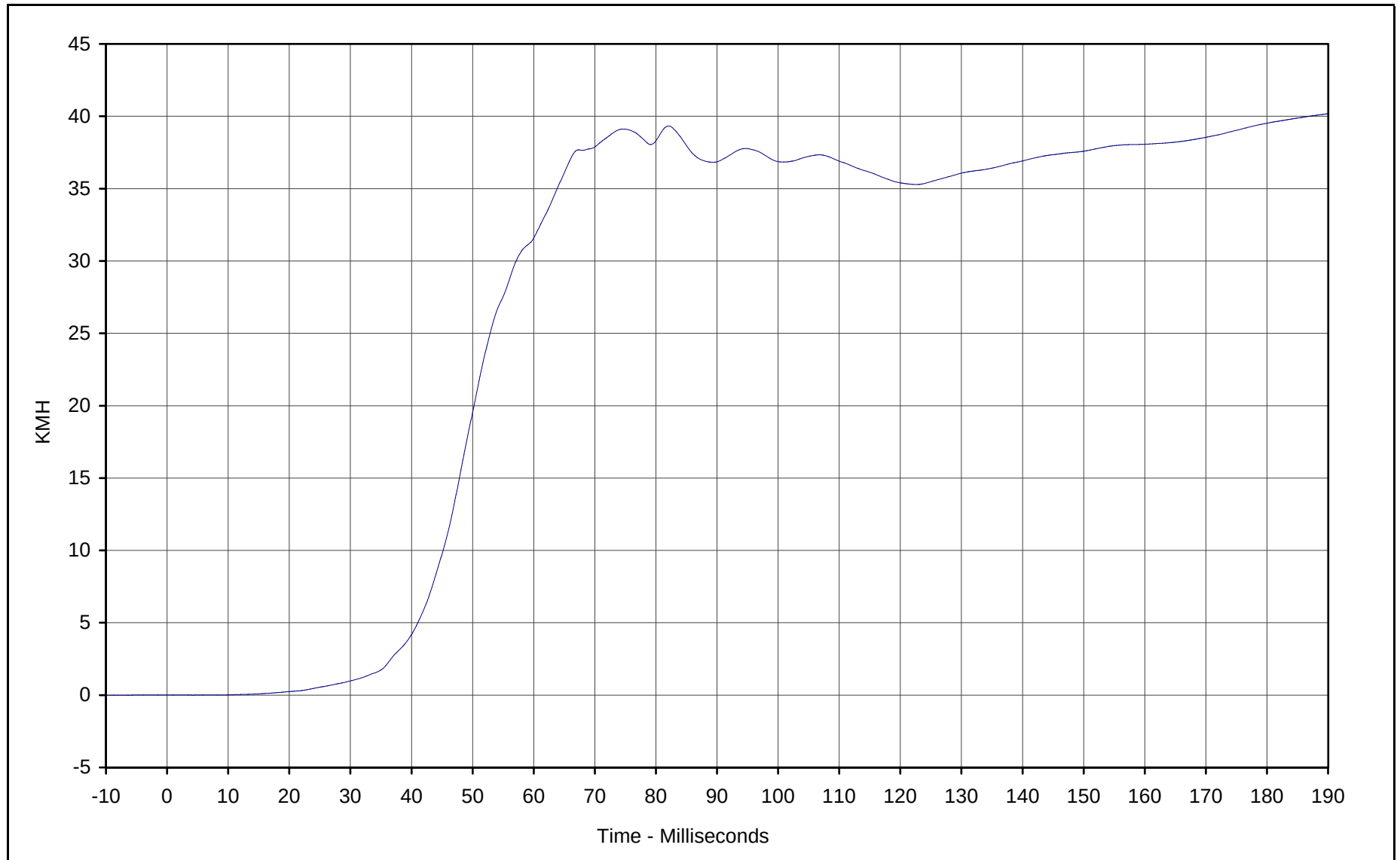




Curve Description: Pass. Lower Rib Redundant Y
Maximum Value: 63.5 at 47.6 Milliseconds
Minimum Value: -33.6 at 78.5 Milliseconds
SAE Filter Class: 1000
Date of Test: 02/15/01
Curve Number: FIL-022

Test Program: 55/28 km/h Side Impact NCAP No.: SUB001
Test Vehicle: 2001 Subaru Forester AWD Wagon





Curve Description: Pass. Lower Rib Redundant Y Velocity

Maximum Value: 40.2 at 189.9 Milliseconds

Minimum Value: 0.0 at 4.3 Milliseconds

SAE Filter Class: 180

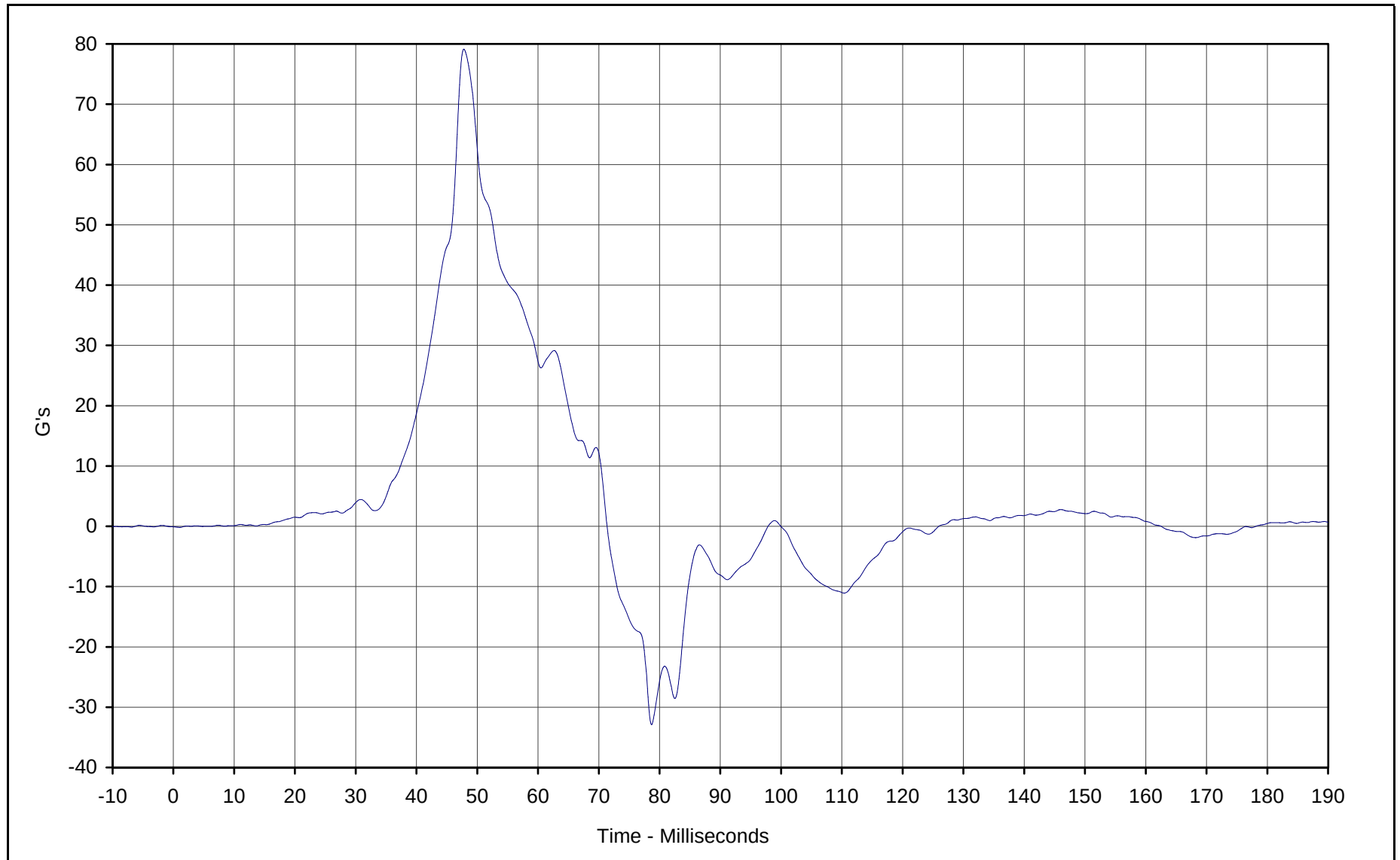
Date of Test: 02/15/01

Curve Number: IN1-022

Test Program: 55/28 km/h Side Impact NCAP No.: SUB001

Test Vehicle: 2001 Subaru Forester AWD Wagon

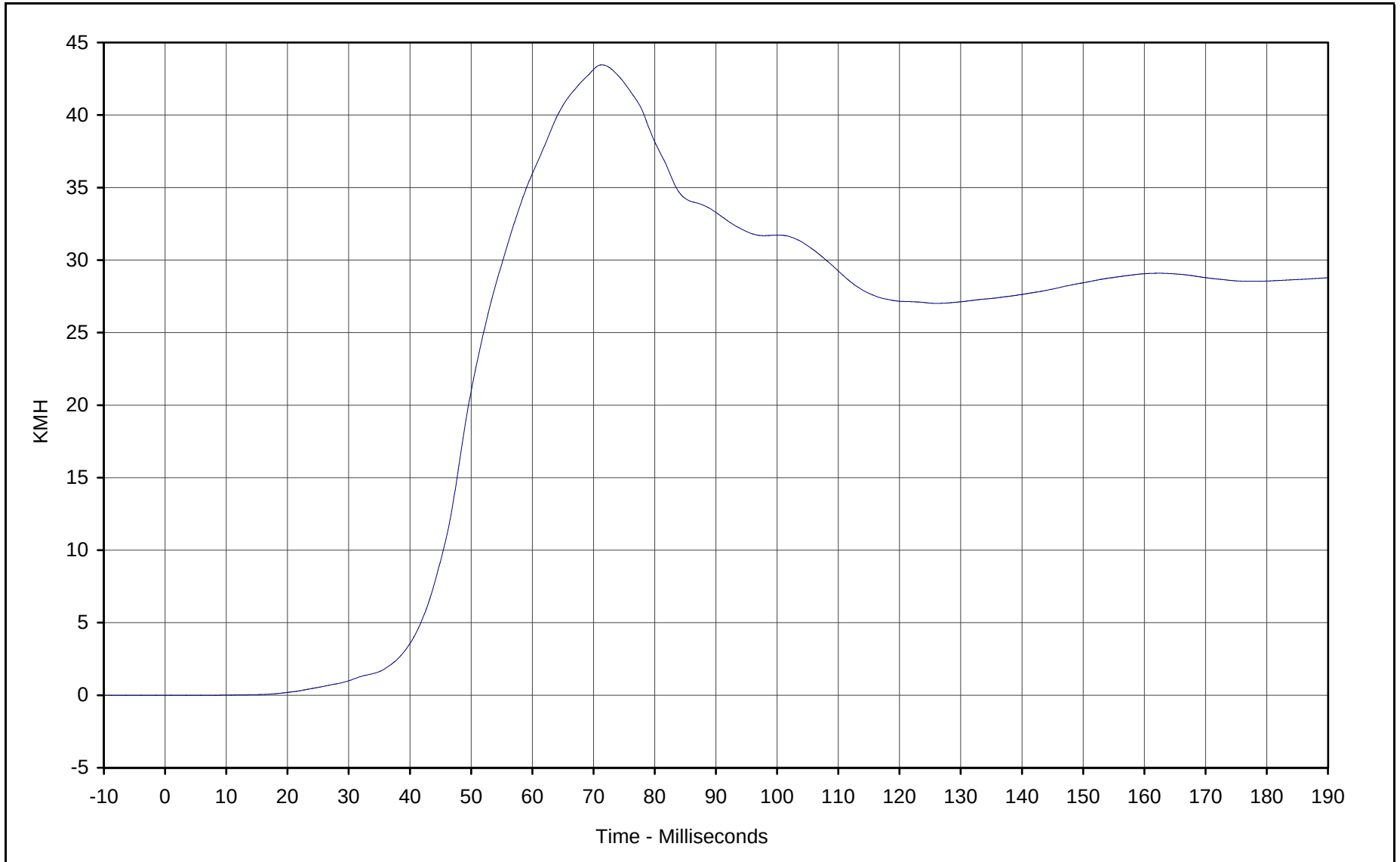




Curve Description: Pass. Lower Spine Redundant Y
Maximum Value: 79.1 at 47.8 Milliseconds
Minimum Value: -32.9 at 78.7 Milliseconds
SAE Filter Class: 180
Date of Test: 02/15/01
Curve Number: FIL-023

Test Program: 55/28 km/h Side Impact NCAP No.: SUB001
Test Vehicle: 2001 Subaru Forester AWD Wagon





Curve Description: Pass. Lower Spine Redundant Y Velocity

Maximum Value: 43.5 at 71.4 Milliseconds

Minimum Value: 0.0 at 1.8 Milliseconds

SAE Filter Class: 180

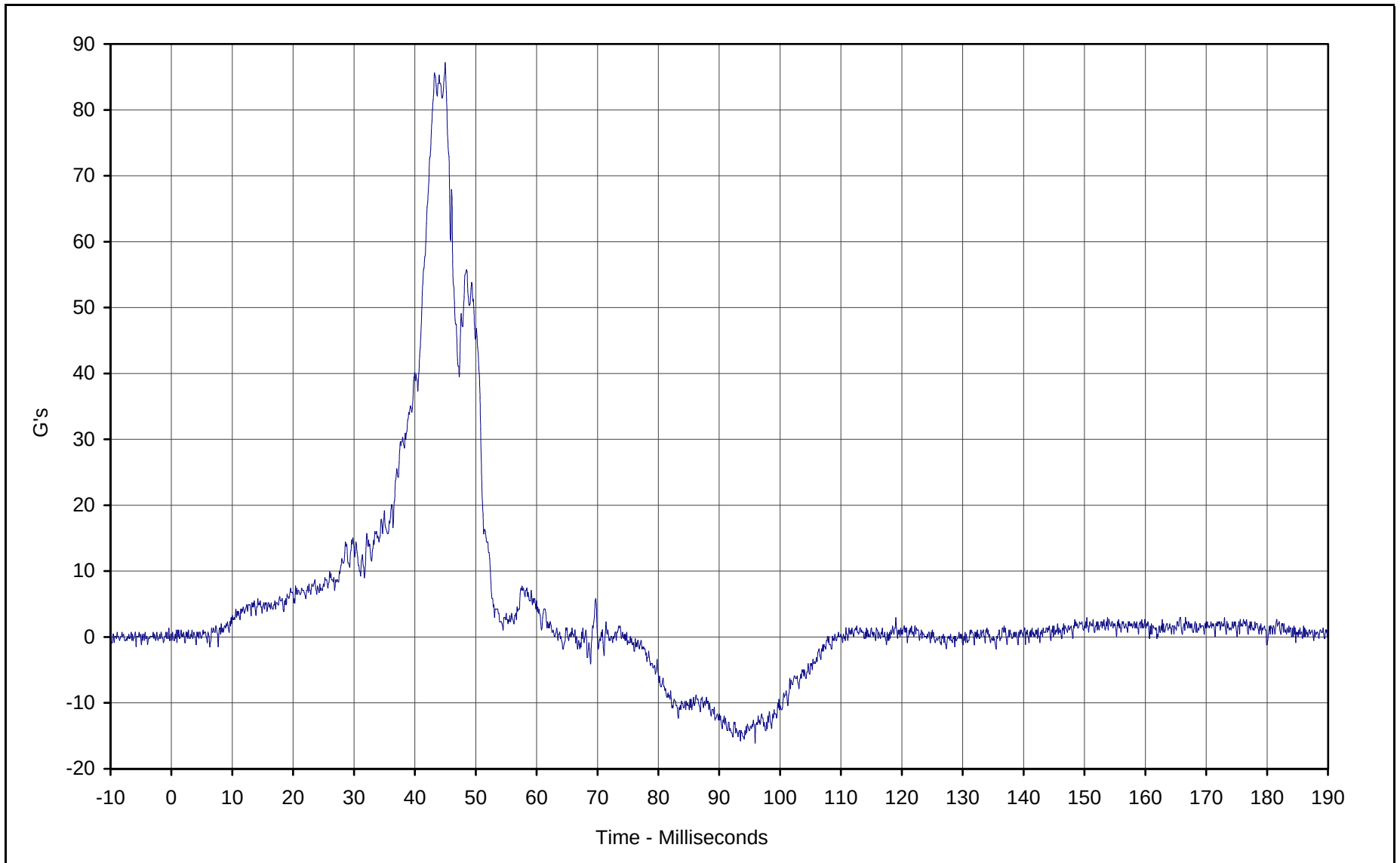
Date of Test: 02/15/01

Curve Number: IN1-023

Test Program: 55/28 km/h Side Impact NCAP No.: SUB001

Test Vehicle: 2001 Subaru Forester AWD Wagon

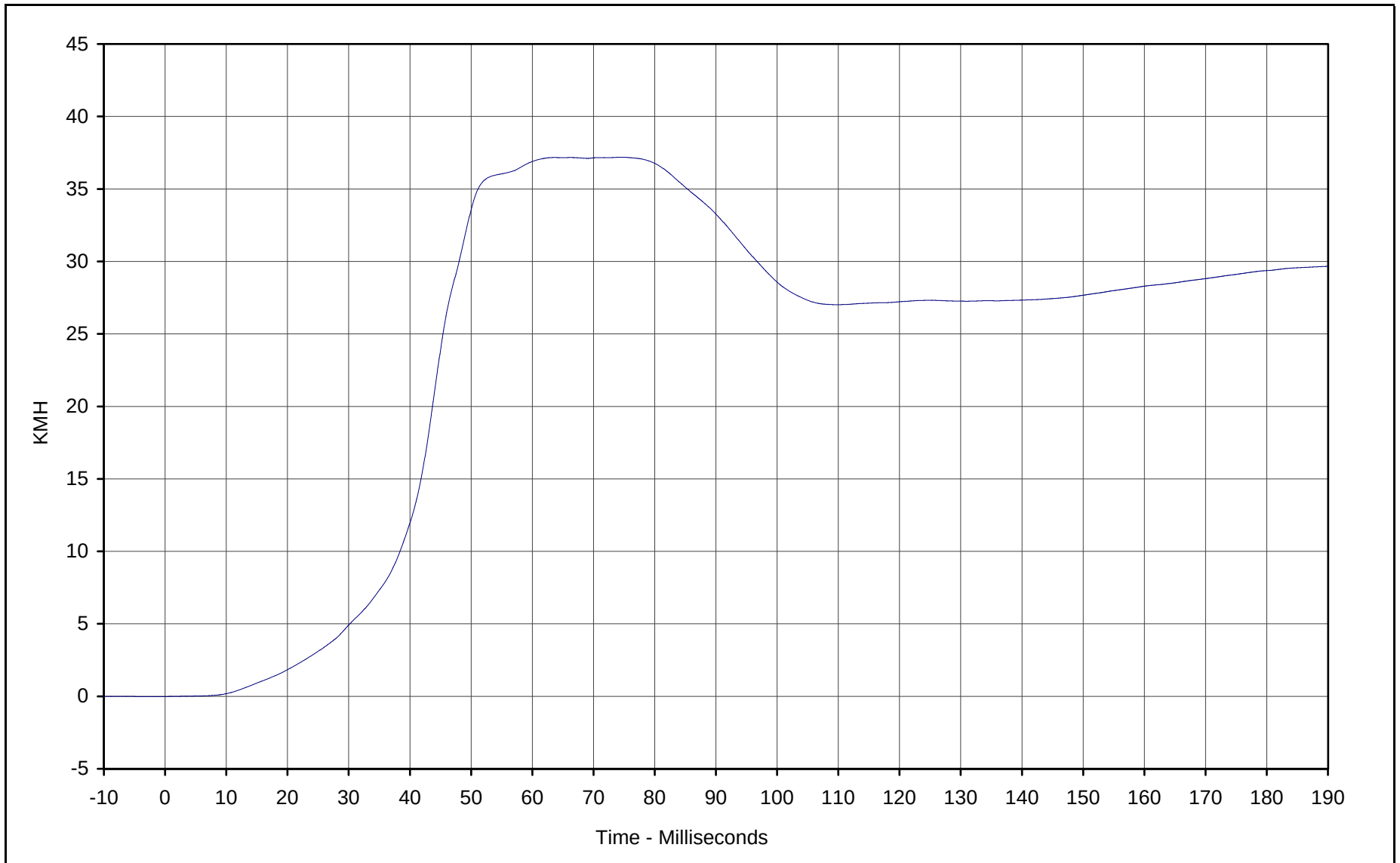




Curve Description: Pass. Pelvis Redundant Y
Maximum Value: 87.2 at 45.0 Milliseconds
Minimum Value: -16.1 at 95.9 Milliseconds
SAE Filter Class: 1000
Date of Test: 02/15/01
Curve Number: FIL-024

Test Program: 55/28 km/h Side Impact NCAP No.: SUB001
Test Vehicle: 2001 Subaru Forester AWD Wagon

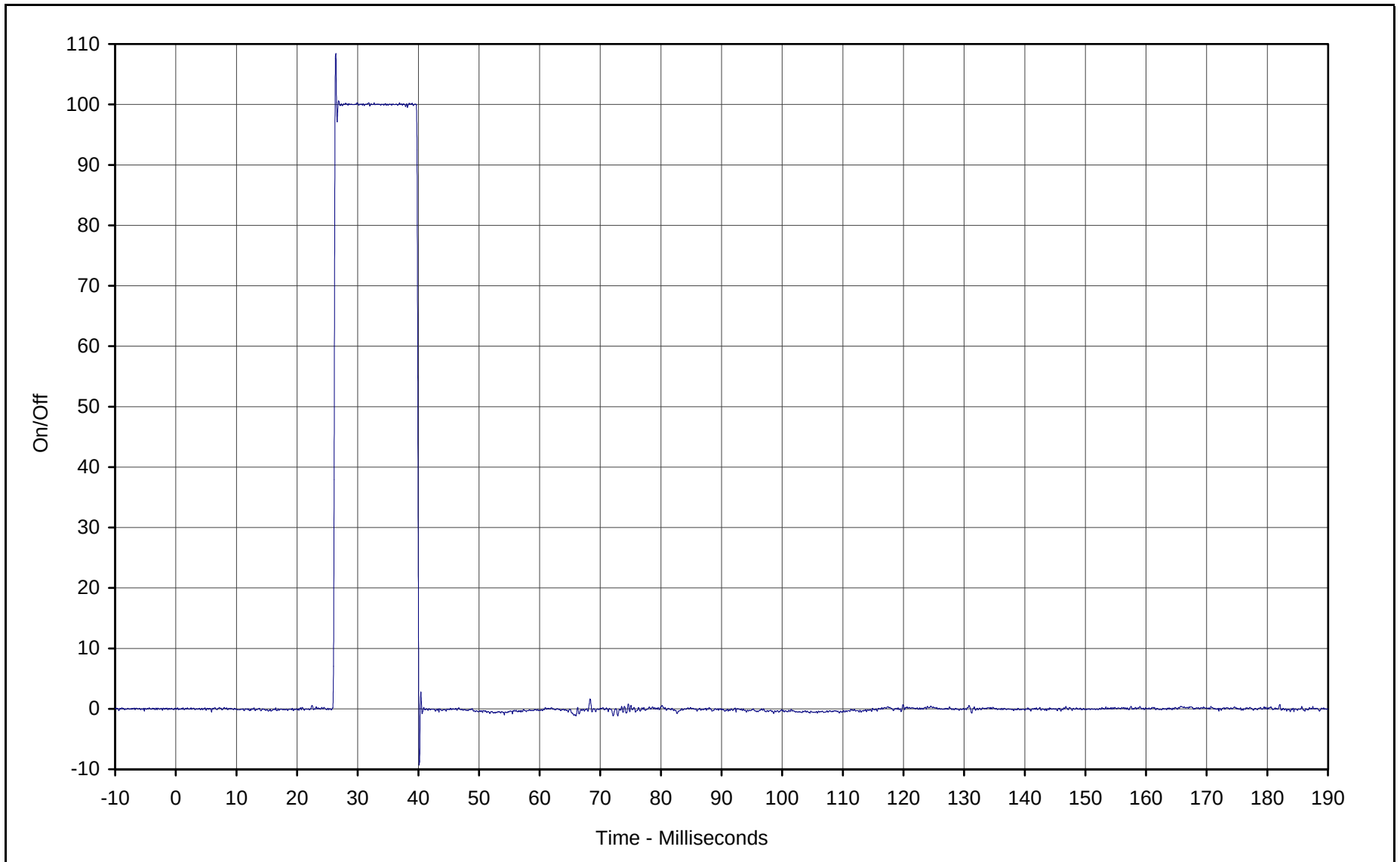




Curve Description: Pass. Pelvis Redundant Y Velocity
Maximum Value: 37.2 at 74.5 Milliseconds
Minimum Value: 0.0 at 0.0 Milliseconds
SAE Filter Class: 180
Date of Test: 02/15/01
Curve Number: IN1-024

Test Program: 55/28 km/h Side Impact NCAP No.: SUB001
Test Vehicle: 2001 Subaru Forester AWD Wagon

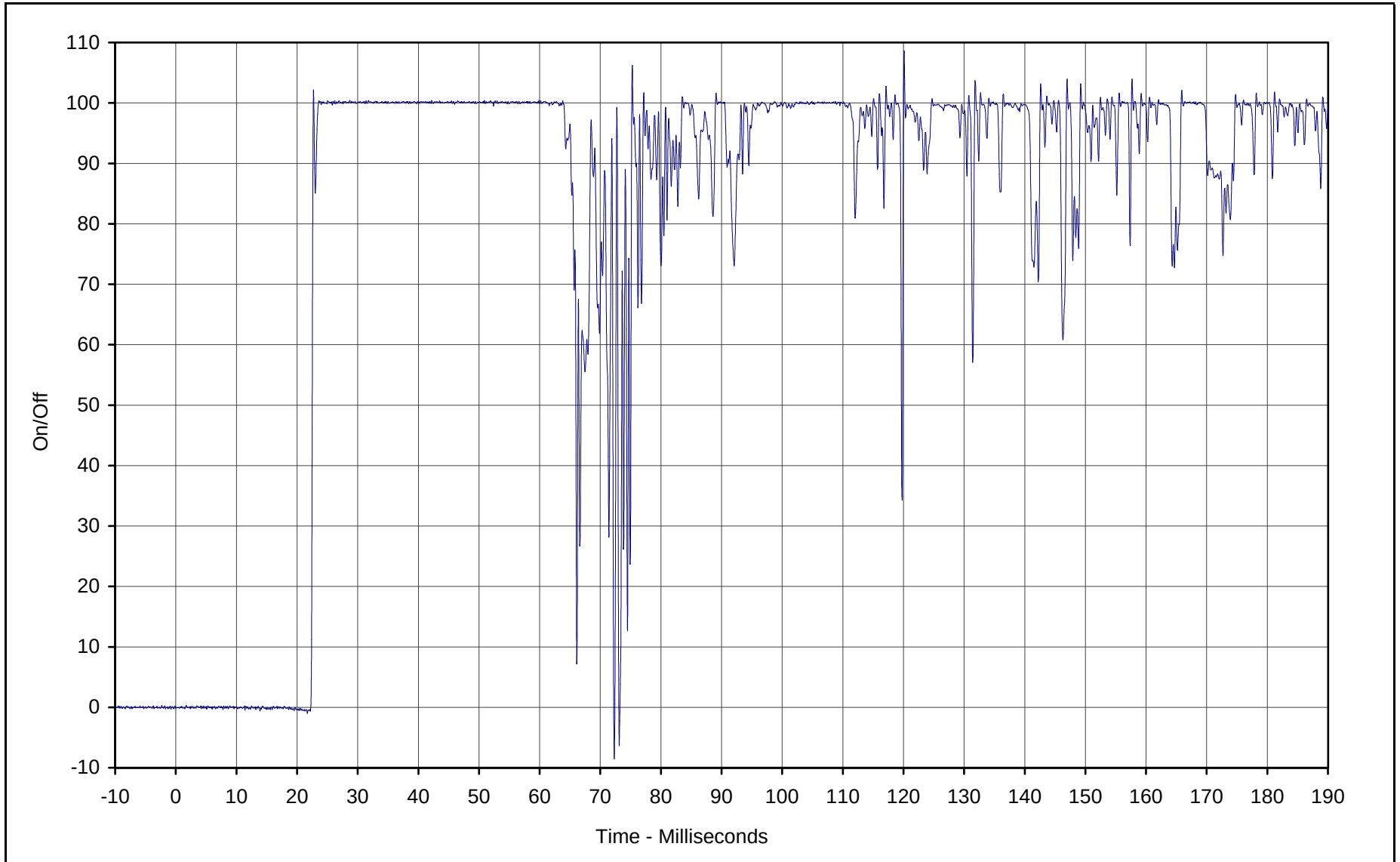




Curve Description: Pass. Thorax Contact
Maximum Value: 108.4 at 26.4 Milliseconds
Crossing Point: 50% at 26.2 Milliseconds
SAE Filter Class: 1000
Date of Test: 02/15/01
Curve Number: FIL-025

Test Program: 55/28 km/h Side Impact NCAP No.: SUB001
Test Vehicle: 2001 Subaru Forester AWD Wagon

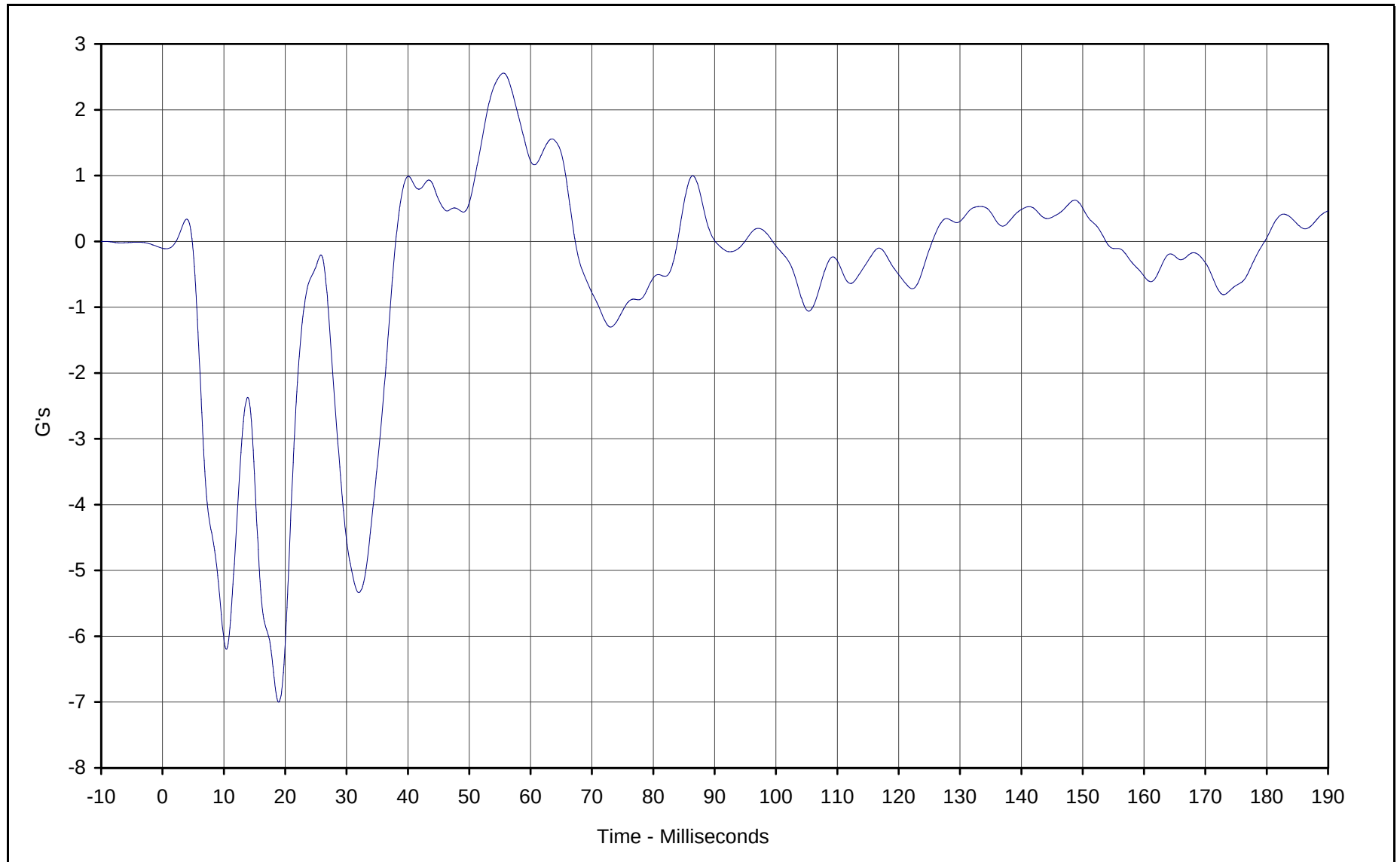




Curve Description: Pass. Pelvis Contact
Maximum Value: 108.6 at 120.1 Milliseconds
Crossing Point: 50% at 22.6 Milliseconds
SAE Filter Class: 1000
Date of Test: 02/15/01
Curve Number: FIL-026

Test Program: 55/28 km/h Side Impact NCAP No.: SUB001
Test Vehicle: 2001 Subaru Forester AWD Wagon

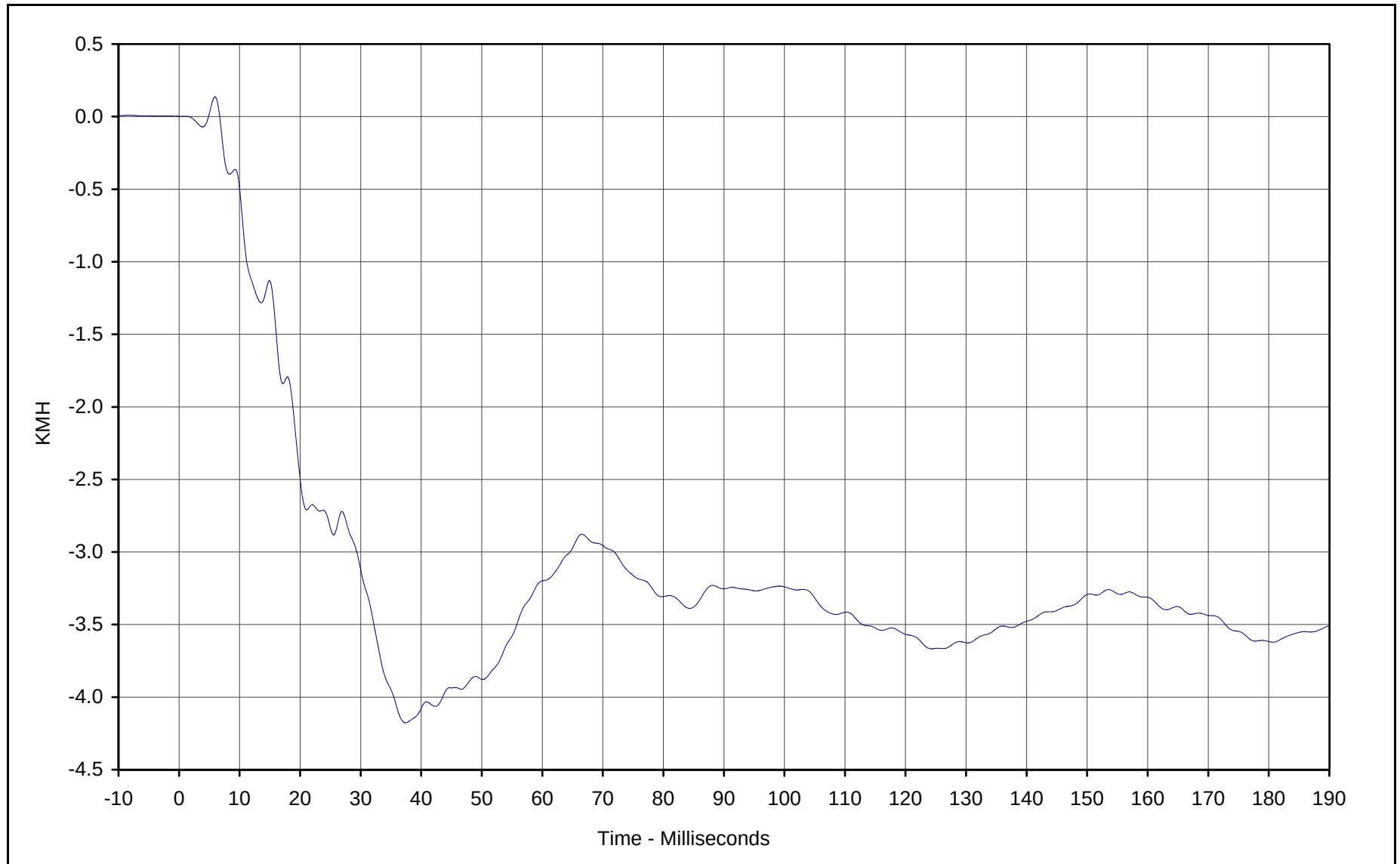




Curve Description: Right Sill at Front Seat X
Maximum Value: 2.6 at 55.6 Milliseconds
Minimum Value: -7.0 at 19.0 Milliseconds
SAE Filter Class: 60
Date of Test: 02/15/01
Curve Number: FIL-027

Test Program: 55/28 km/h Side Impact NCAP No.: SUB001
Test Vehicle: 2001 Subaru Forester AWD Wagon





Curve Description: Right Sill at Front Seat X Velocity

Maximum Value: 0.1 at 5.9 Milliseconds

Minimum Value: -4.2 at 37.4 Milliseconds

SAE Filter Class: 180

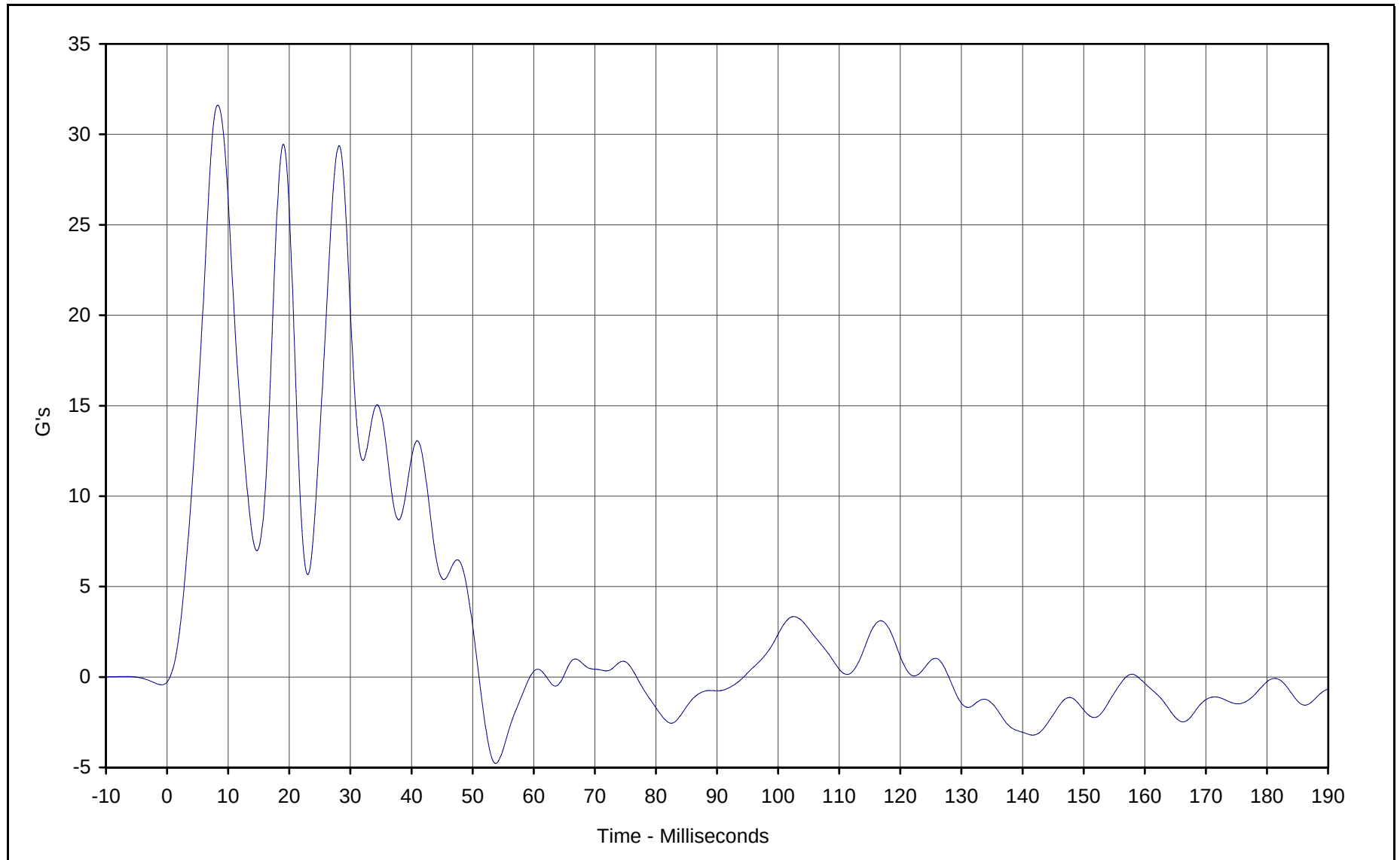
Date of Test: 02/15/01

Curve Number: IN1-027

Test Program: 55/28 km/h Side Impact NCAP No.: SUB001

Test Vehicle: 2001 Subaru Forester AWD Wagon

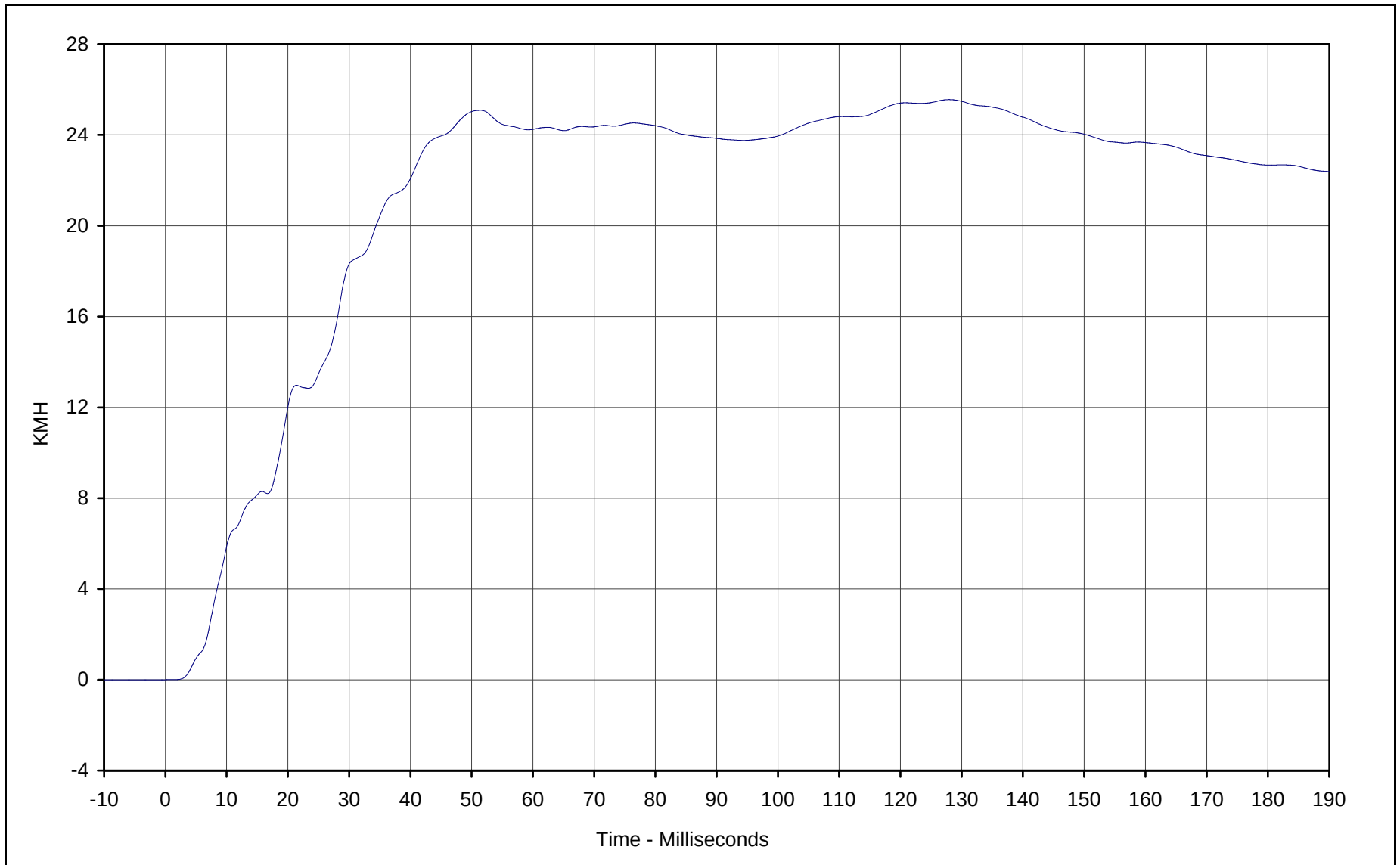




Curve Description: Right Sill at Front Seat Y
Maximum Value: 31.6 at 8.3 Milliseconds
Minimum Value: -4.8 at 53.8 Milliseconds
SAE Filter Class: 60
Date of Test: 02/15/01
Curve Number: FIL-028

Test Program: 55/28 km/h Side Impact NCAP No.: SUB001
Test Vehicle: 2001 Subaru Forester AWD Wagon

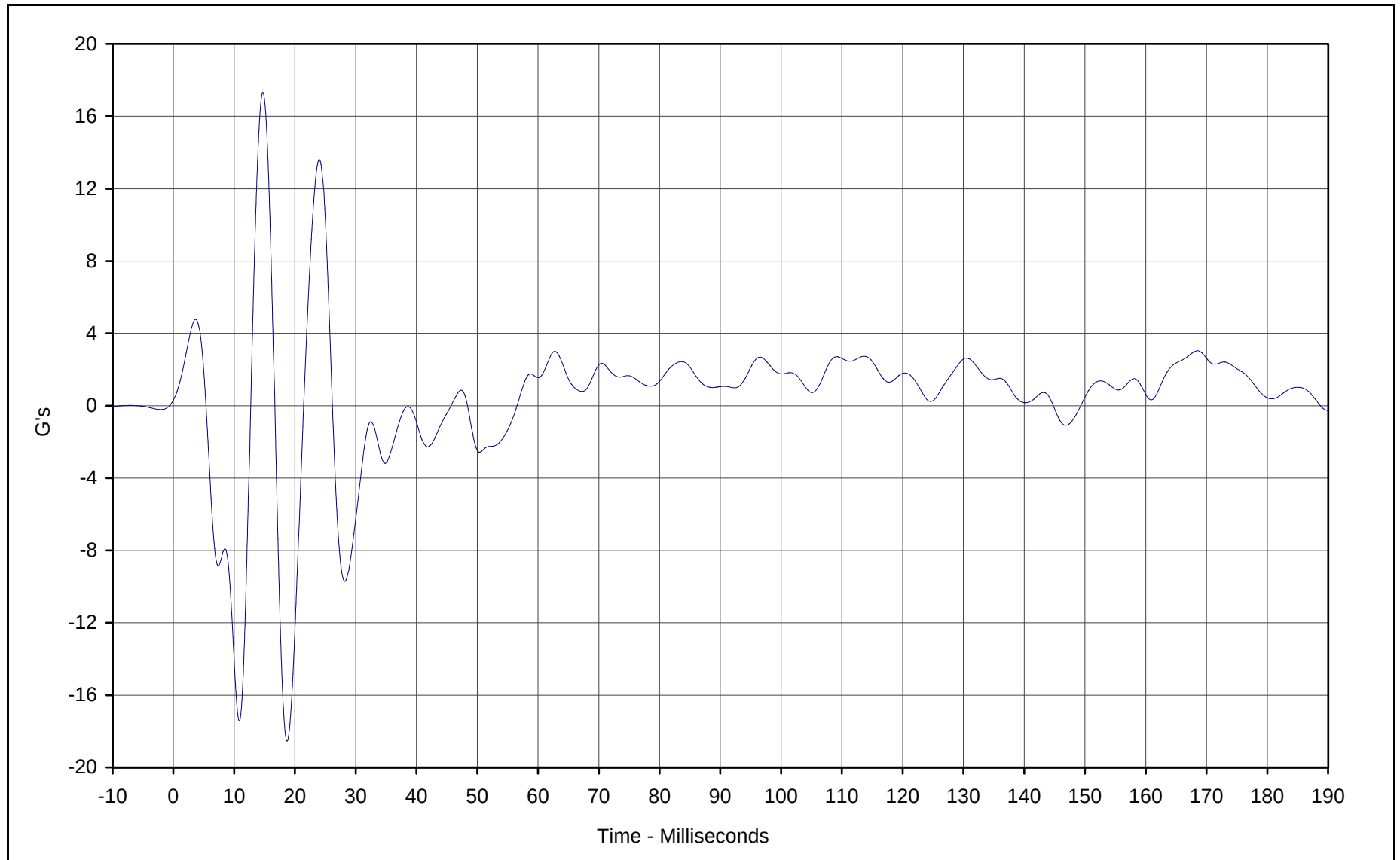




Curve Description: Right Sill at Front Seat Y Velocity
Maximum Value: 25.6 at 127.9 Milliseconds
Minimum Value: 0.0 at 0.0 Milliseconds
SAE Filter Class: 180
Date of Test: 02/15/01
Curve Number: IN1-028

Test Program: 55/28 km/h Side Impact NCAP No.: SUB001
Test Vehicle: 2001 Subaru Forester AWD Wagon

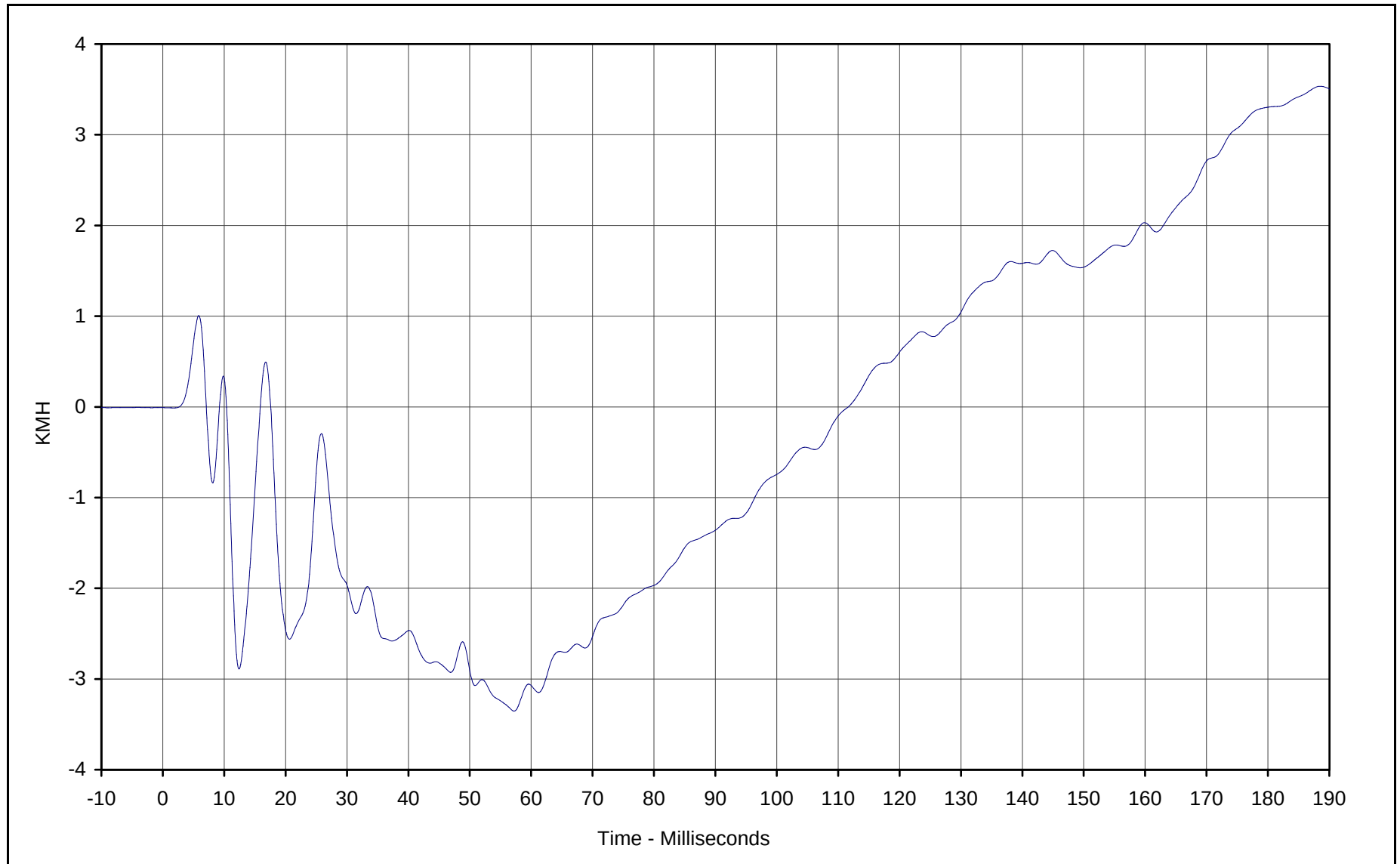




Curve Description: Right Sill at Front Seat Z
Maximum Value: 17.3 at 14.7 Milliseconds
Minimum Value: -18.5 at 18.7 Milliseconds
SAE Filter Class: 60
Date of Test: 02/15/01
Curve Number: FIL-029

Test Program: 55/28 km/h Side Impact NCAP No.: SUB001
Test Vehicle: 2001 Subaru Forester AWD Wagon

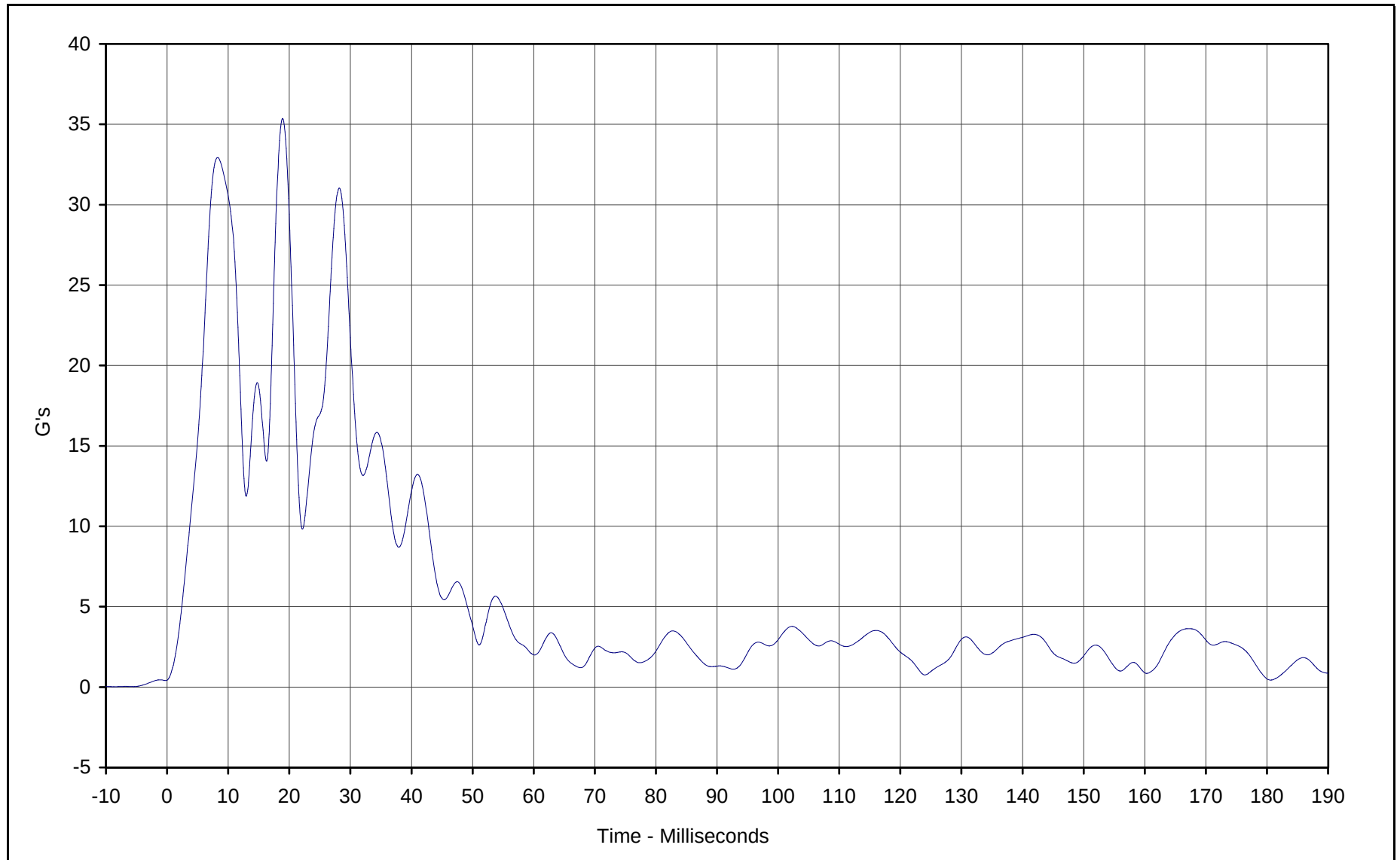




Curve Description: Right Sill at Front Seat Z Velocity
Maximum Value: 3.5 at 188.5 Milliseconds
Minimum Value: -3.4 at 57.2 Milliseconds
SAE Filter Class: 180
Date of Test: 02/15/01
Curve Number: IN1-029

Test Program: 55/28 km/h Side Impact NCAP No.: SUB001
Test Vehicle: 2001 Subaru Forester AWD Wagon

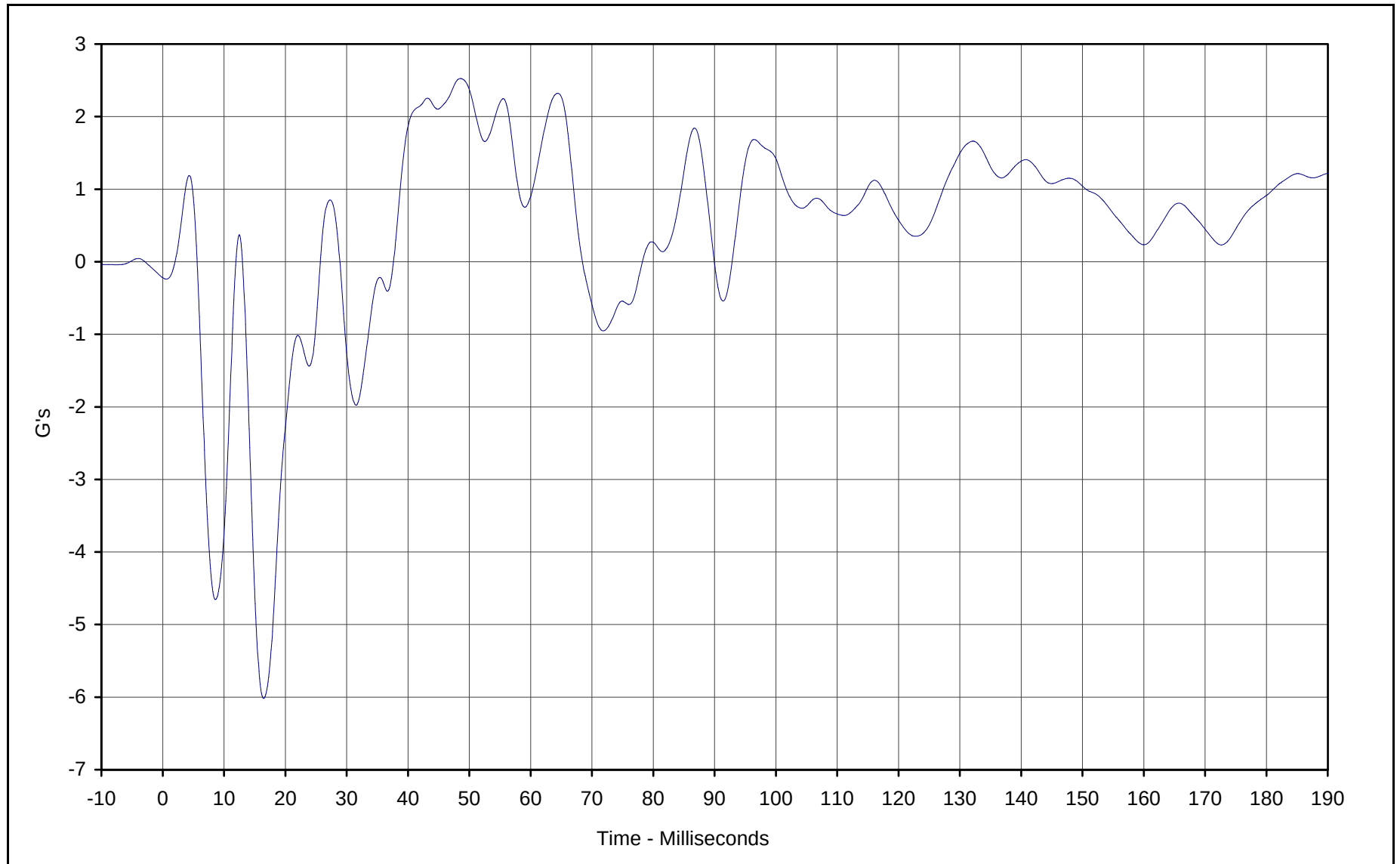




Curve Description: Right Sill at Front Seat Resultant
Maximum Value: 35.4 at 18.9 Milliseconds
Minimum Value: 0.4 at 0.0 Milliseconds
SAE Filter Class: 60
Date of Test: 02/15/01
Curve Number: RES-027

Test Program: 55/28 km/h Side Impact NCAP No.: SUB001
Test Vehicle: 2001 Subaru Forester AWD Wagon

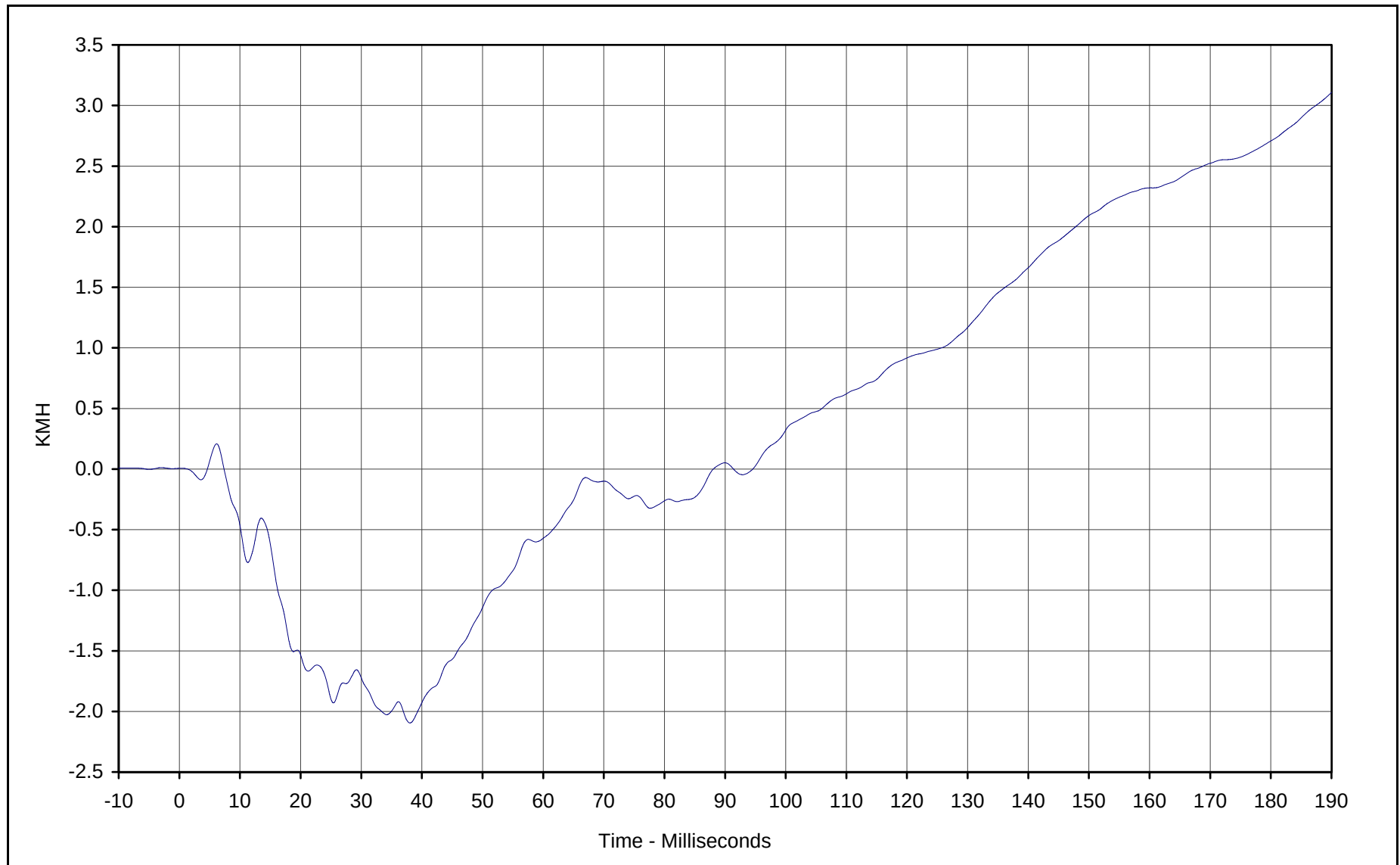




Curve Description: Right Sill at Rear Seat X
Maximum Value: 2.5 at 48.6 Milliseconds
Minimum Value: -6.0 at 16.5 Milliseconds
SAE Filter Class: 60
Date of Test: 02/15/01
Curve Number: FIL-030

Test Program: 55/28 km/h Side Impact NCAP No.: SUB001
Test Vehicle: 2001 Subaru Forester AWD Wagon

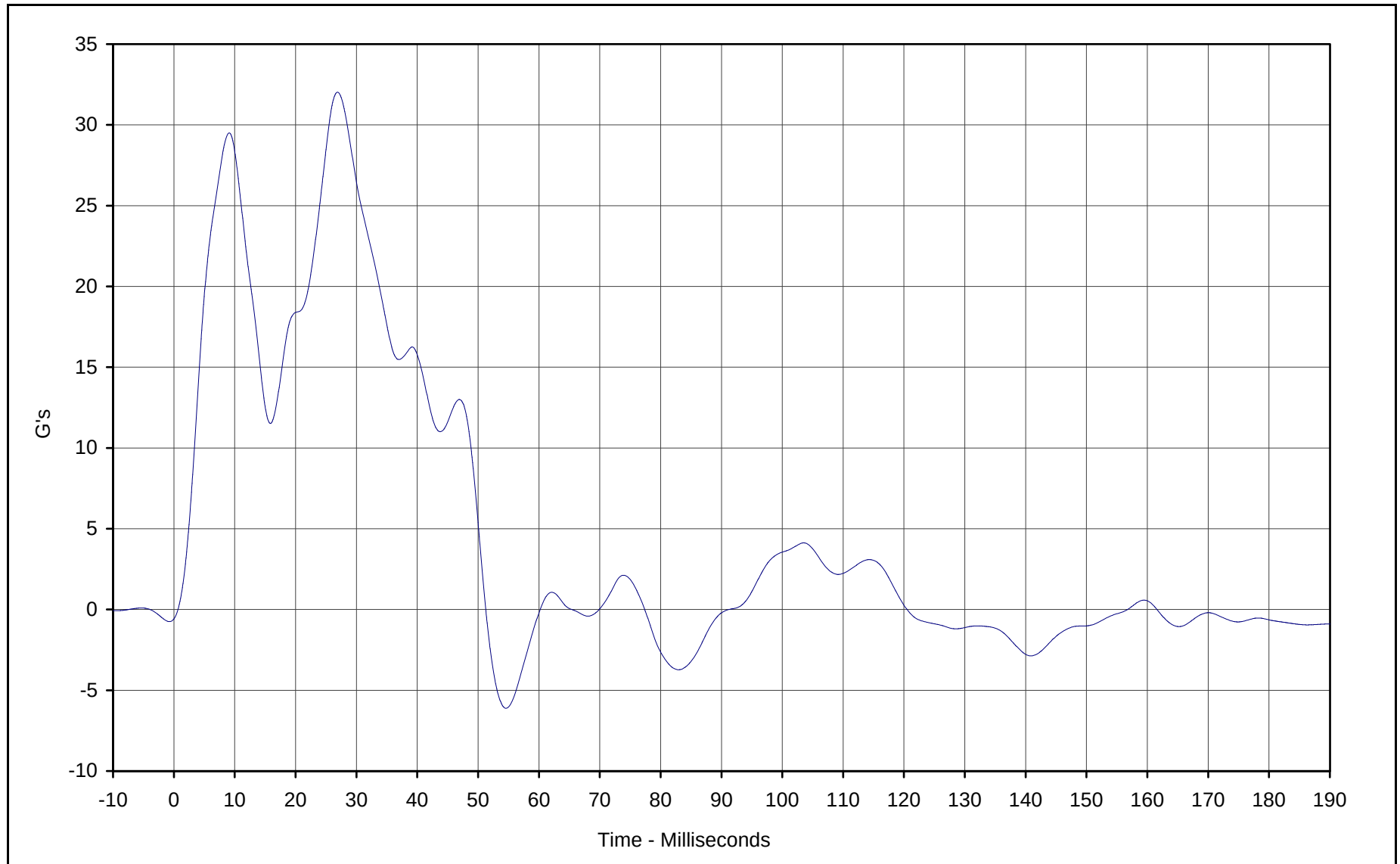




Curve Description: Right Sill at Rear Seat X Velocity
Maximum Value: 3.1 at 189.9 Milliseconds
Minimum Value: -2.1 at 38.0 Milliseconds
SAE Filter Class: 180
Date of Test: 02/15/01
Curve Number: IN1-030

Test Program: 55/28 km/h Side Impact NCAP No.: SUB001
Test Vehicle: 2001 Subaru Forester AWD Wagon

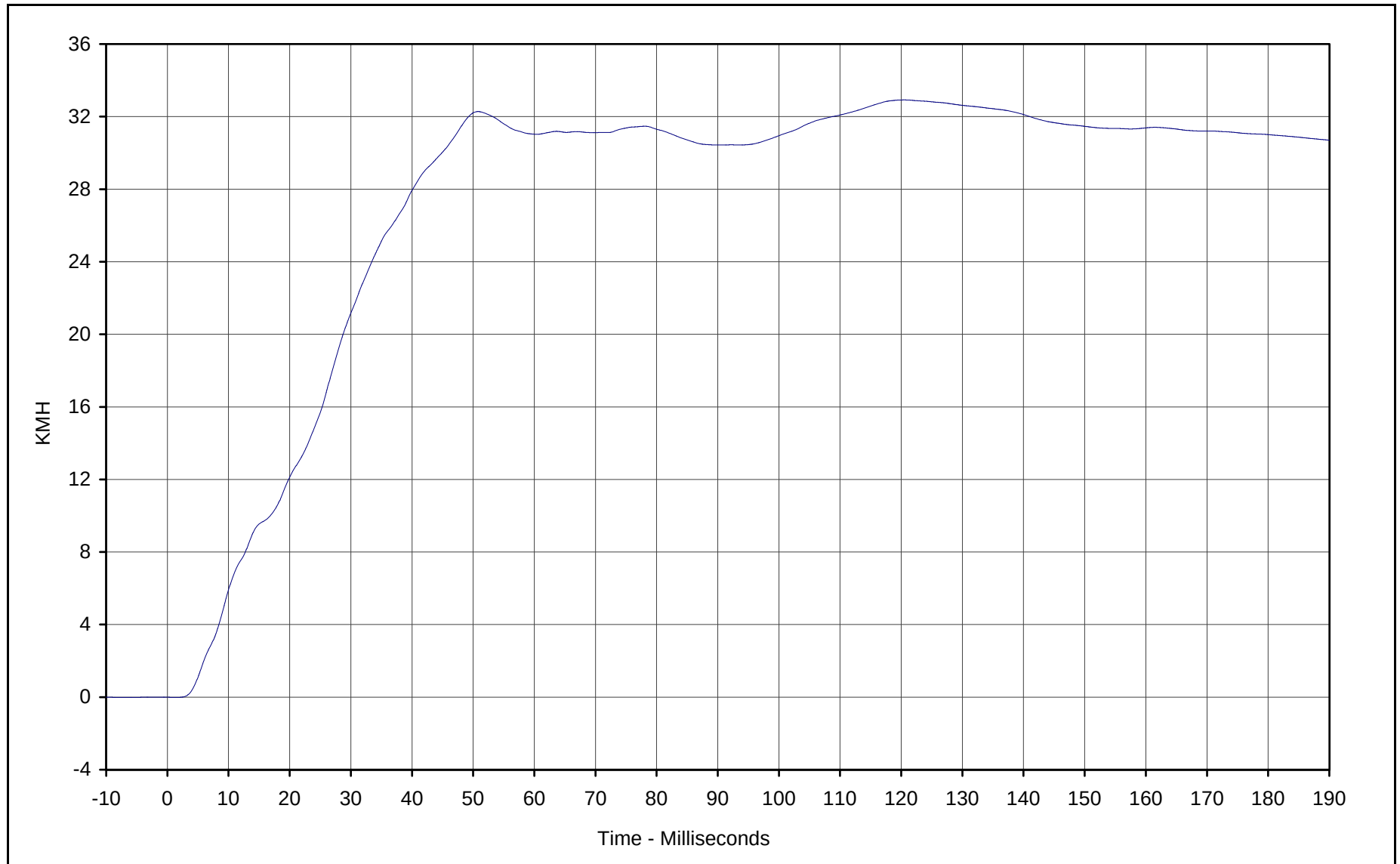




Curve Description: Right Sill at Rear Seat Y
Maximum Value: 32.0 at 26.9 Milliseconds
Minimum Value: -6.1 at 54.6 Milliseconds
SAE Filter Class: 60
Date of Test: 02/15/01
Curve Number: FIL-031

Test Program: 55/28 km/h Side Impact NCAP No.: SUB001
Test Vehicle: 2001 Subaru Forester AWD Wagon

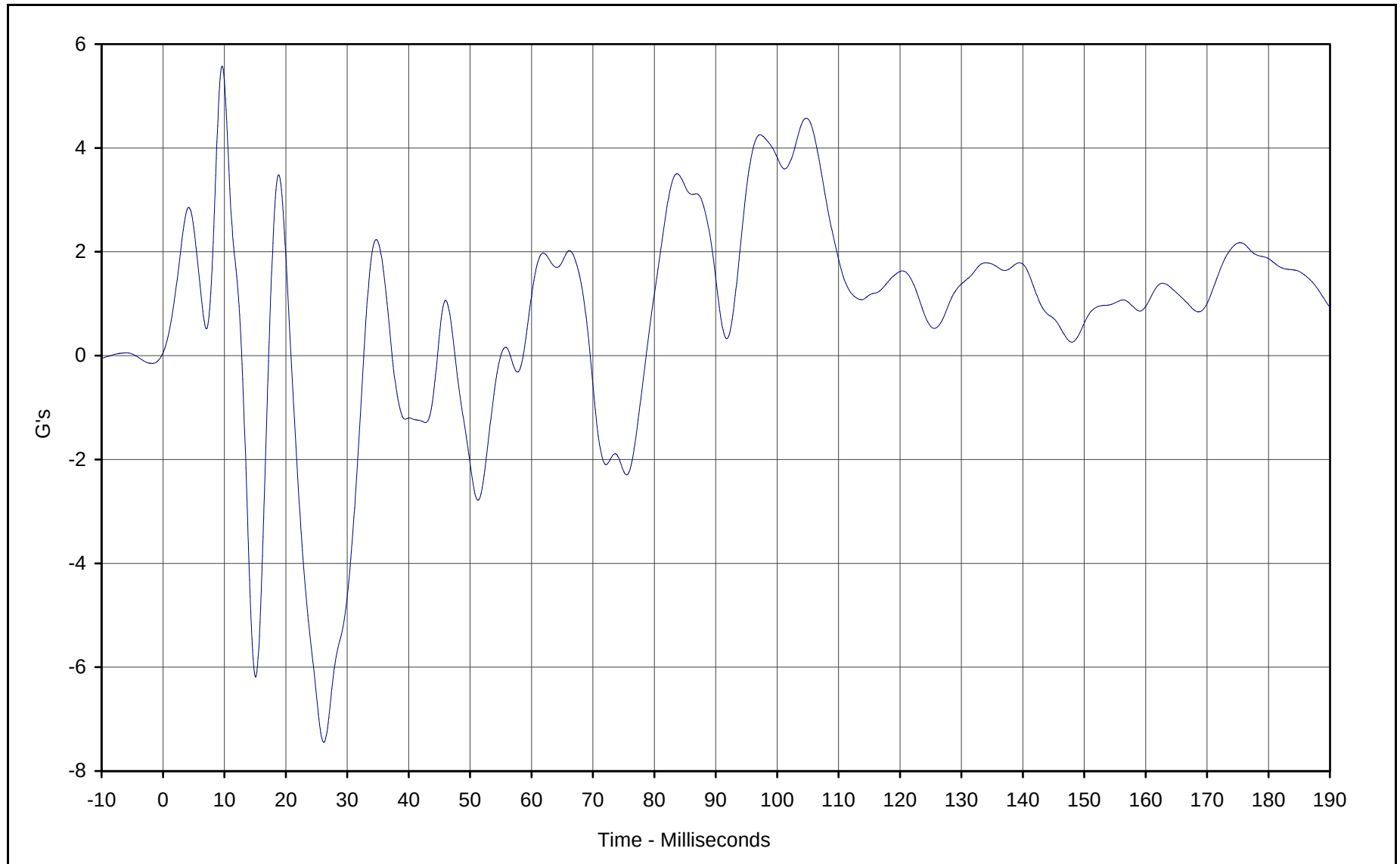




Curve Description: Right Sill at Rear Seat Y Velocity
Maximum Value: 32.9 at 120.5 Milliseconds
Minimum Value: 0.0 at 1.6 Milliseconds
SAE Filter Class: 180
Date of Test: 02/15/01
Curve Number: IN1-031

Test Program: 55/28 km/h Side Impact NCAP No.: SUB001
Test Vehicle: 2001 Subaru Forester AWD Wagon

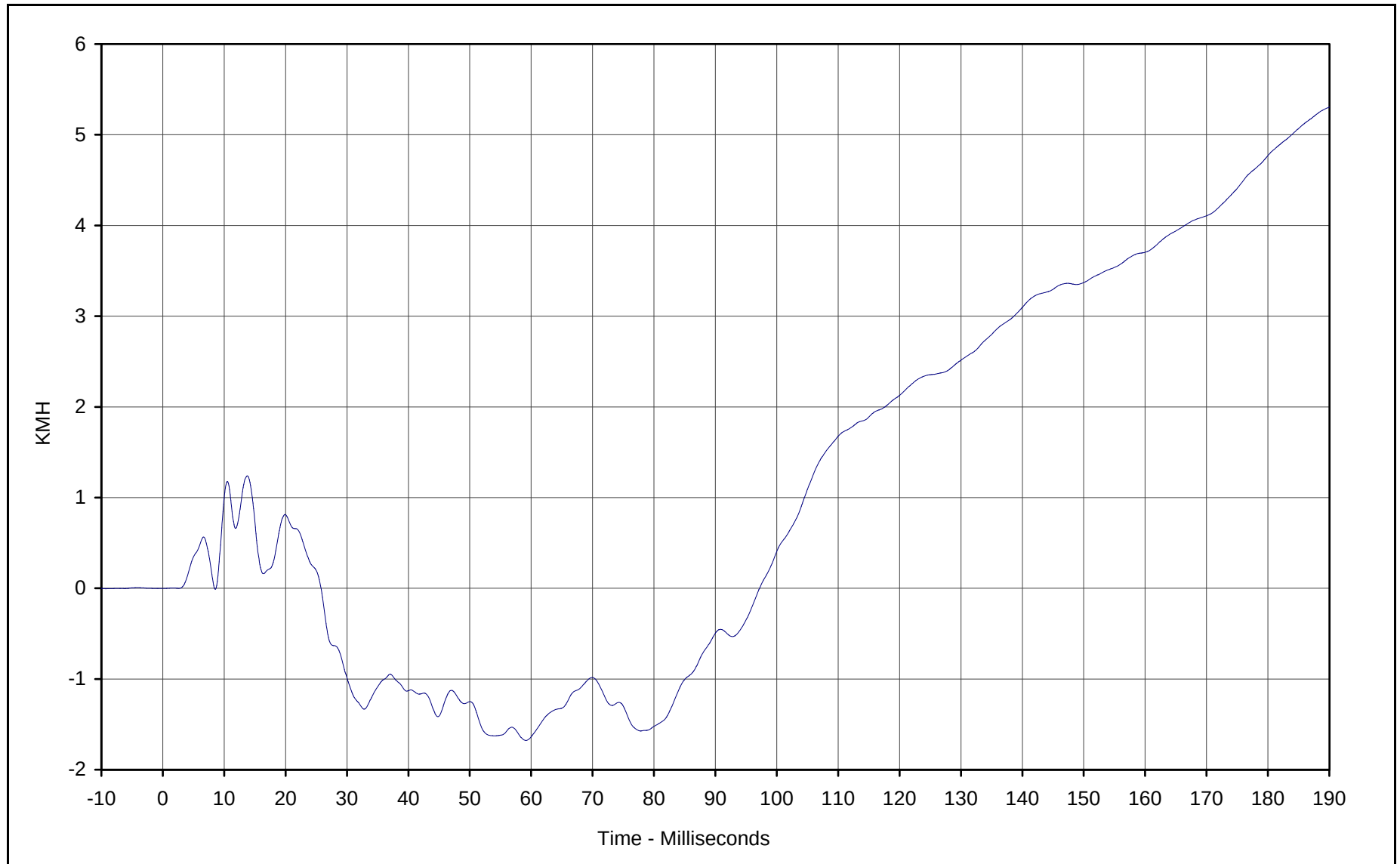




Curve Description: Right Sill at Rear Seat Z
Maximum Value: 5.6 at 9.6 Milliseconds
Minimum Value: -7.4 at 26.2 Milliseconds
SAE Filter Class: 60
Date of Test: 02/15/01
Curve Number: FIL-032

Test Program: 55/28 km/h Side Impact NCAP No.: SUB001
Test Vehicle: 2001 Subaru Forester AWD Wagon

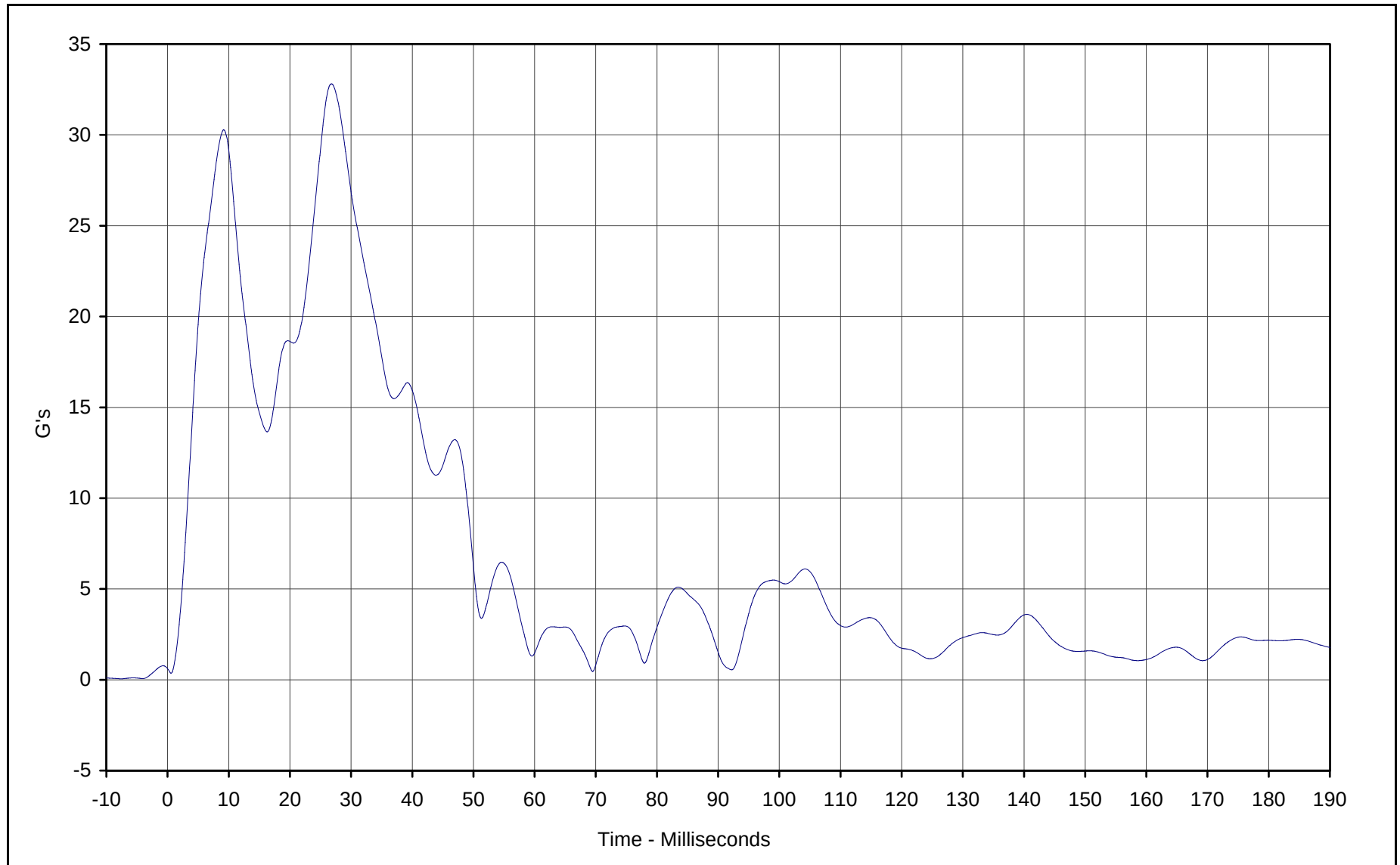




Curve Description: Right Sill at Rear Seat Z Velocity
Maximum Value: 5.3 at 189.9 Milliseconds
Minimum Value: -1.7 at 59.1 Milliseconds
SAE Filter Class: 180
Date of Test: 02/15/01
Curve Number: IN1-032

Test Program: 55/28 km/h Side Impact NCAP No.: SUB001
Test Vehicle: 2001 Subaru Forester AWD Wagon

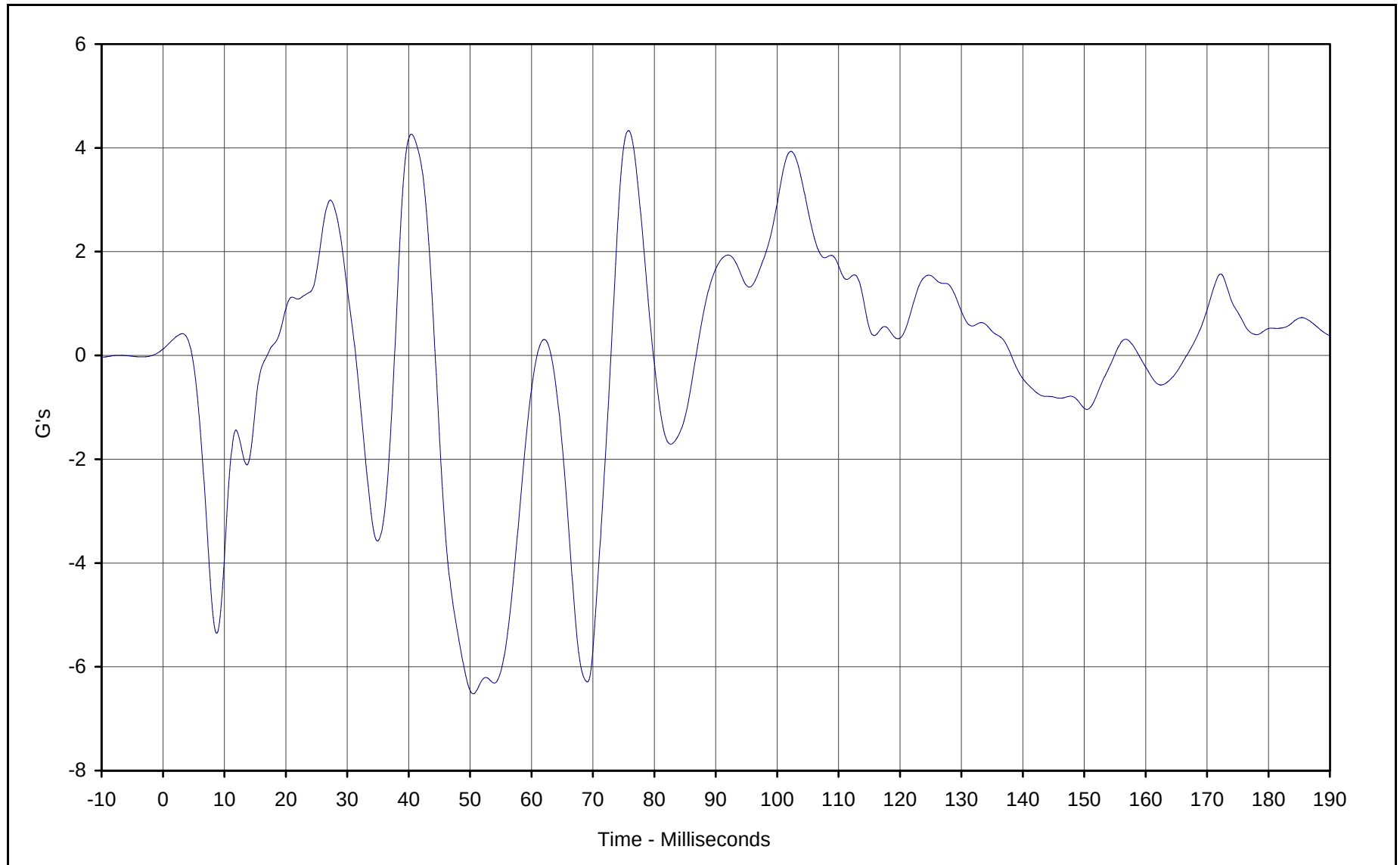




Curve Description: Right Sill at Rear Seat Resultant
Maximum Value: 32.8 at 26.8 Milliseconds
Minimum Value: 0.4 at 0.6 Milliseconds
SAE Filter Class: 60
Date of Test: 02/15/01
Curve Number: RES-030

Test Program: 55/28 km/h Side Impact NCAP No.: SUB001
Test Vehicle: 2001 Subaru Forester AWD Wagon

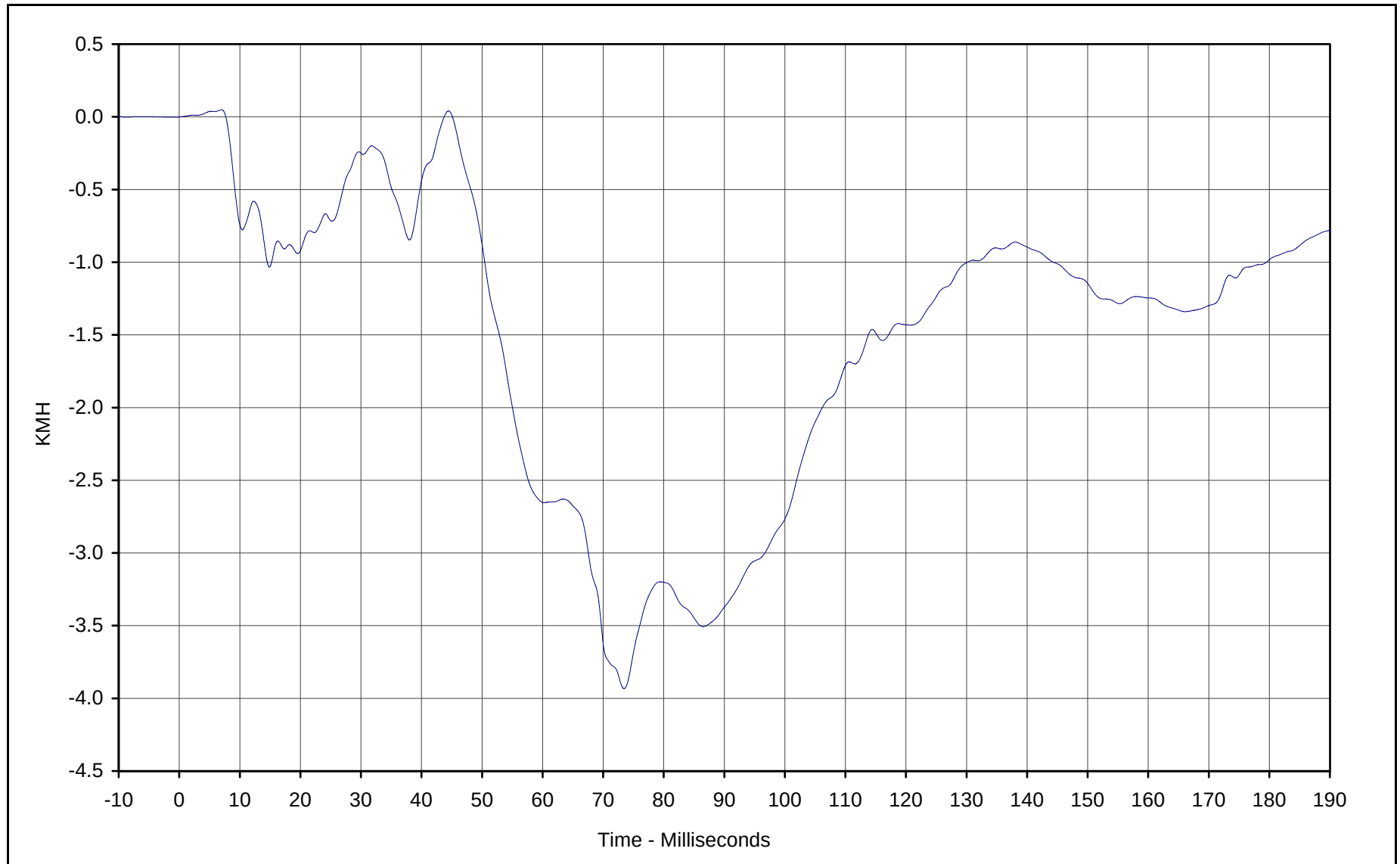




Curve Description: Rear Floor Above Axle X
Maximum Value: 4.3 at 75.8 Milliseconds
Minimum Value: -6.5 at 50.5 Milliseconds
SAE Filter Class: 60
Date of Test: 02/15/01
Curve Number: FIL-033

Test Program: 55/28 km/h Side Impact NCAP No.: SUB001
Test Vehicle: 2001 Subaru Forester AWD Wagon

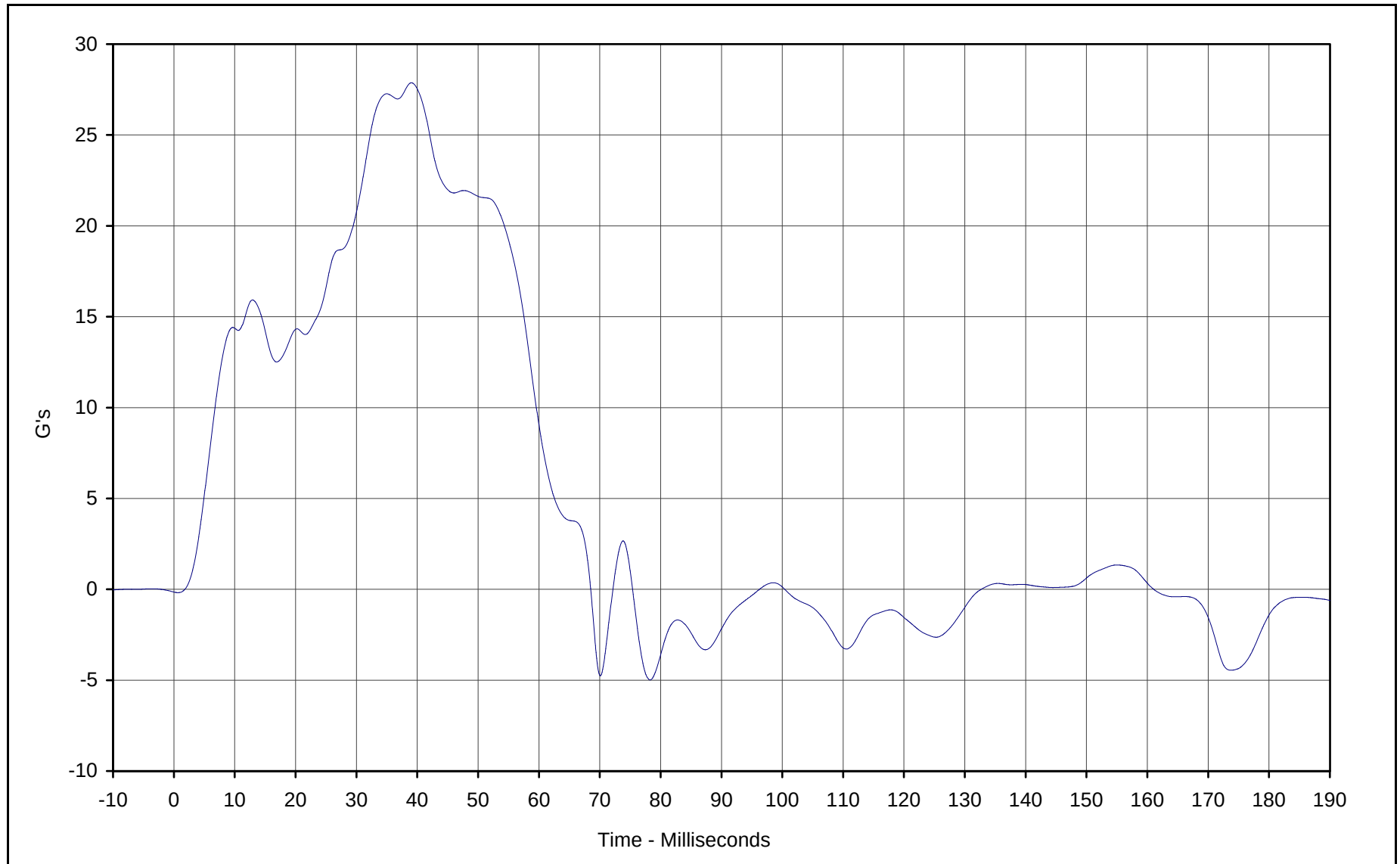




Curve Description: Rear Floor Above Axle X Velocity
Maximum Value: 0.0 at 7.0 Milliseconds
Minimum Value: -3.9 at 73.5 Milliseconds
SAE Filter Class: 180
Date of Test: 02/15/01
Curve Number: IN1-033

Test Program: 55/28 km/h Side Impact NCAP No.: SUB001
Test Vehicle: 2001 Subaru Forester AWD Wagon

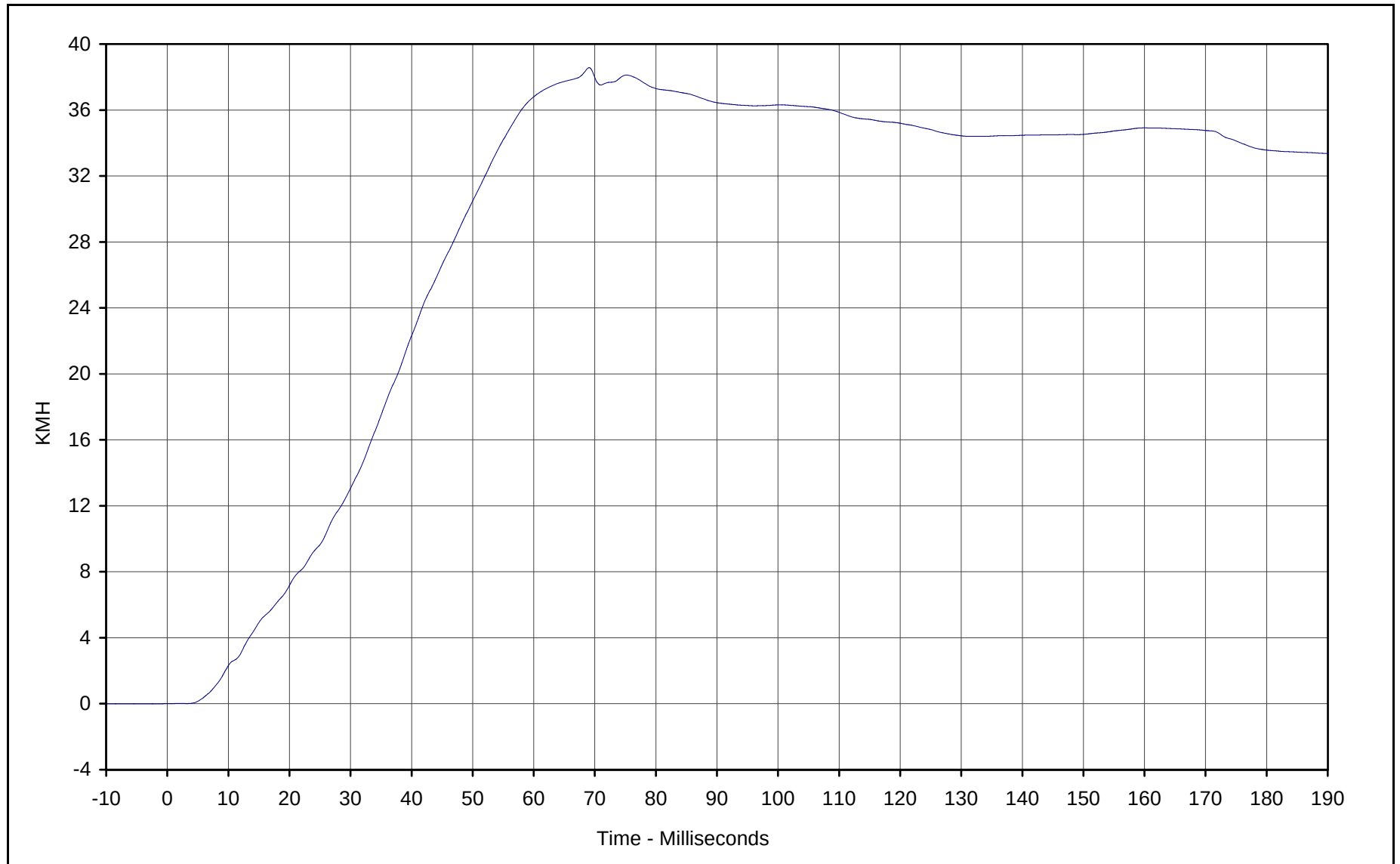




Curve Description: Rear Floor Above Axle Y
Maximum Value: 27.9 at 39.1 Milliseconds
Minimum Value: -5.0 at 78.3 Milliseconds
SAE Filter Class: 60
Date of Test: 02/15/01
Curve Number: FIL-034

Test Program: 55/28 km/h Side Impact NCAP No.: SUB001
Test Vehicle: 2001 Subaru Forester AWD Wagon

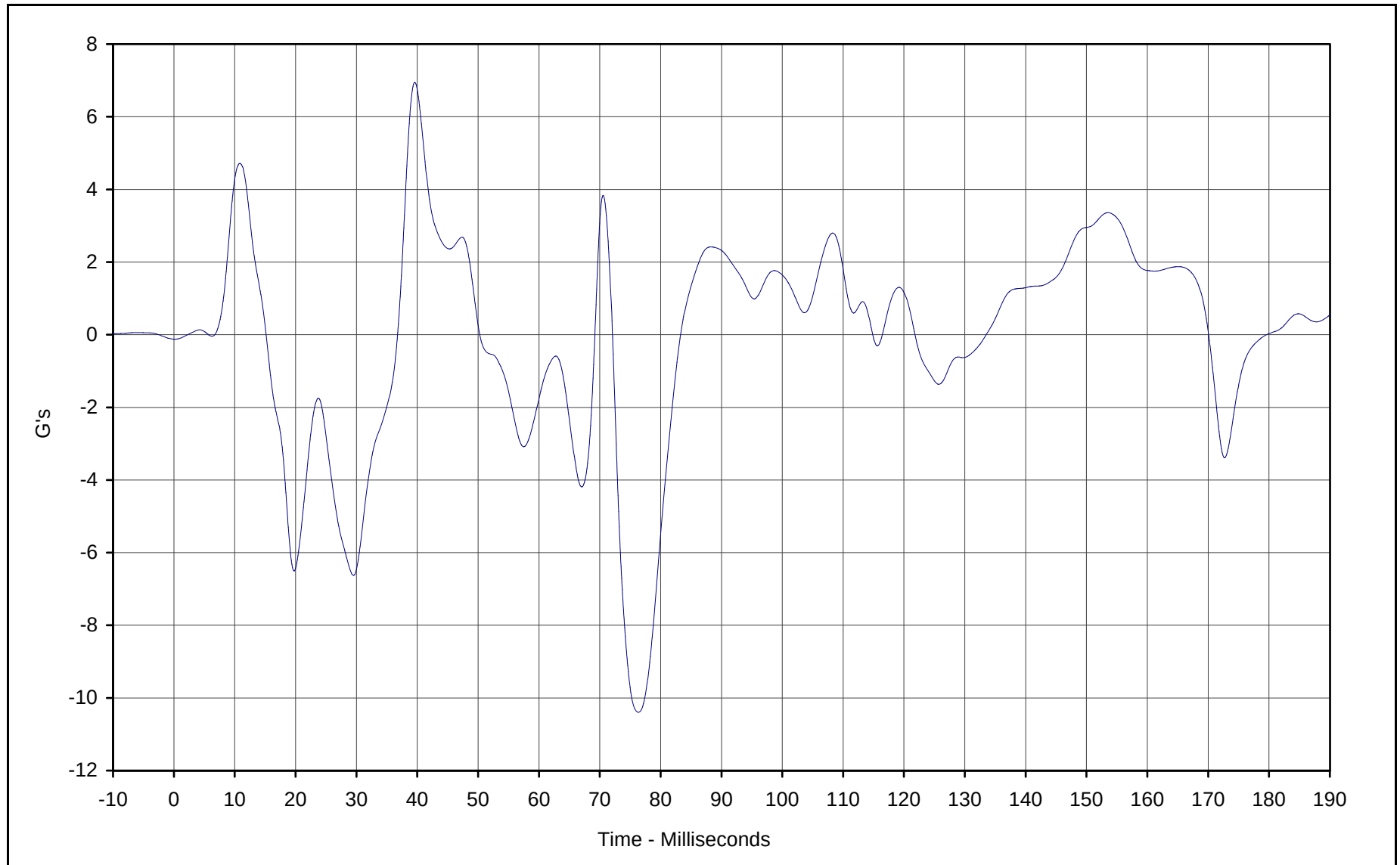




Curve Description: Rear Floor Above Axle Y Velocity
Maximum Value: 38.6 at 69.1 Milliseconds
Minimum Value: 0.0 at 0.0 Milliseconds
SAE Filter Class: 180
Date of Test: 02/15/01
Curve Number: IN1-034

Test Program: 55/28 km/h Side Impact NCAP No.: SUB001
Test Vehicle: 2001 Subaru Forester AWD Wagon



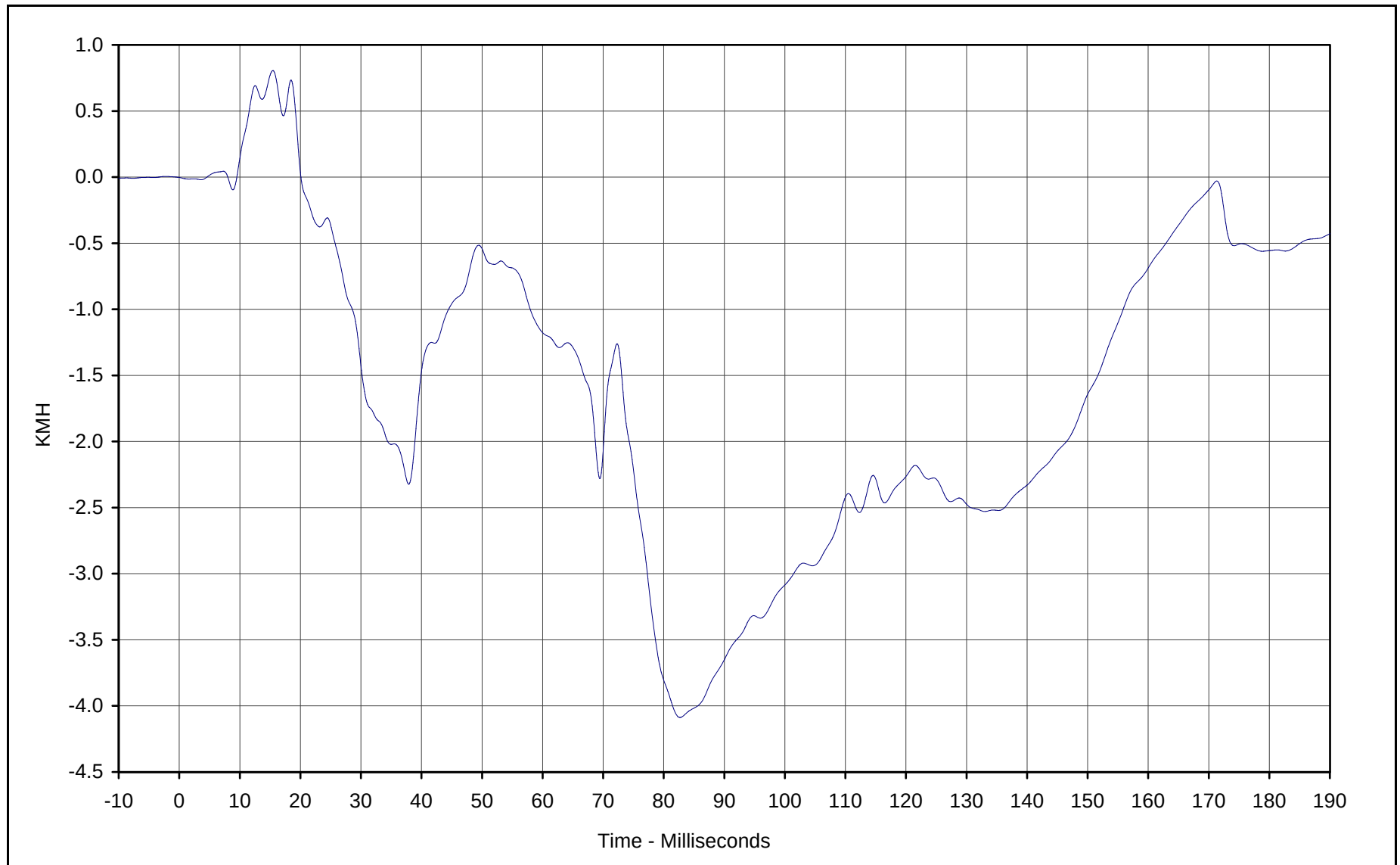


Curve Description: Rear Floor Above Axle Z
Maximum Value: 6.9 at 39.6 Milliseconds
Minimum Value: -10.4 at 76.4 Milliseconds
SAE Filter Class: 60
Date of Test: 02/15/01
Curve Number: FIL-035

Test Program: 55/28 km/h Side Impact NCAP No.: SUB001
Test Vehicle: 2001 Subaru Forester AWD Wagon



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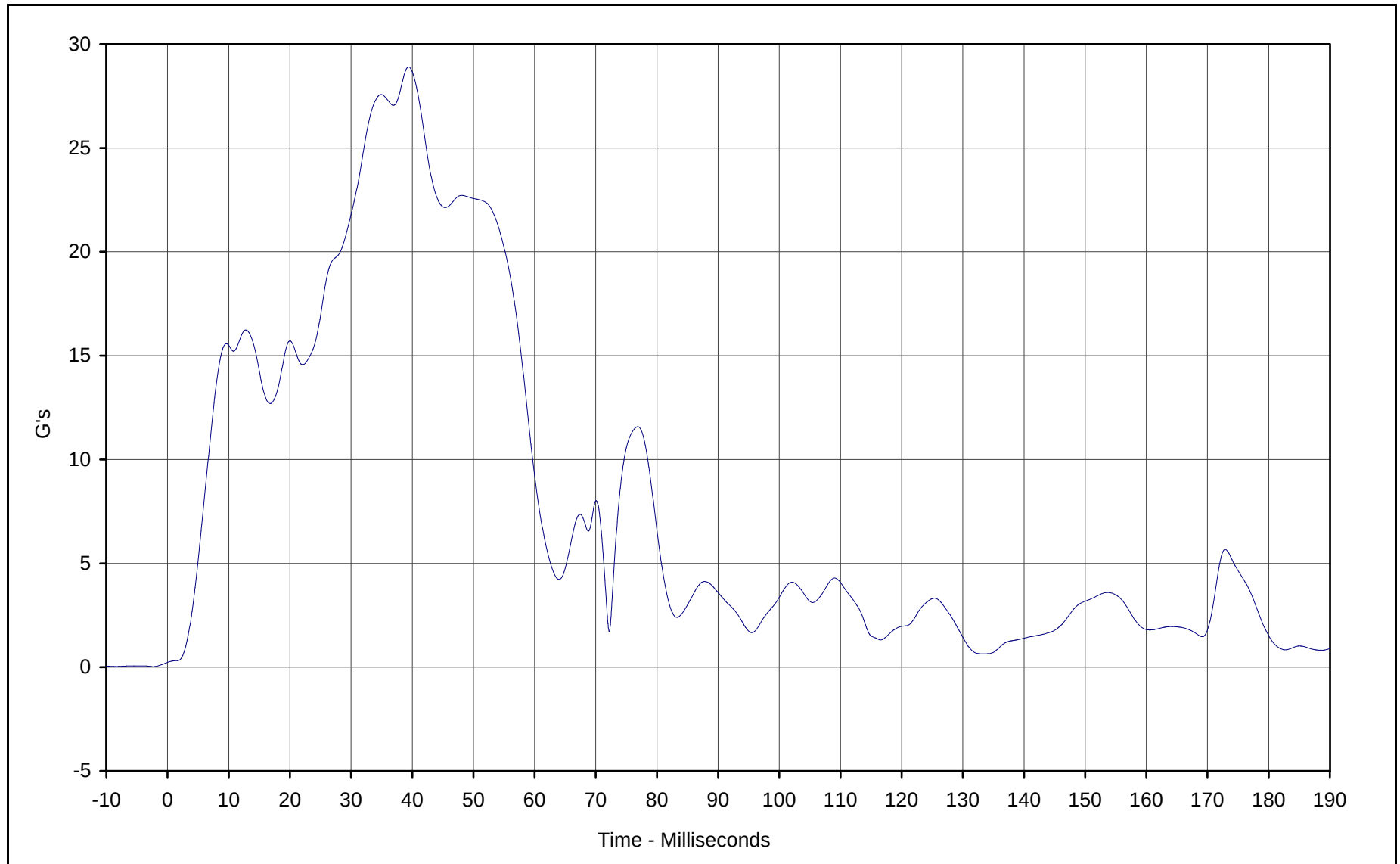


Curve Description: Rear Floor Above Axle Z Velocity
Maximum Value: 0.8 at 15.5 Milliseconds
Minimum Value: -4.1 at 82.7 Milliseconds
SAE Filter Class: 180
Date of Test: 02/15/01
Curve Number: IN1-035

Test Program: 55/28 km/h Side Impact NCAP No.: SUB001
Test Vehicle: 2001 Subaru Forester AWD Wagon



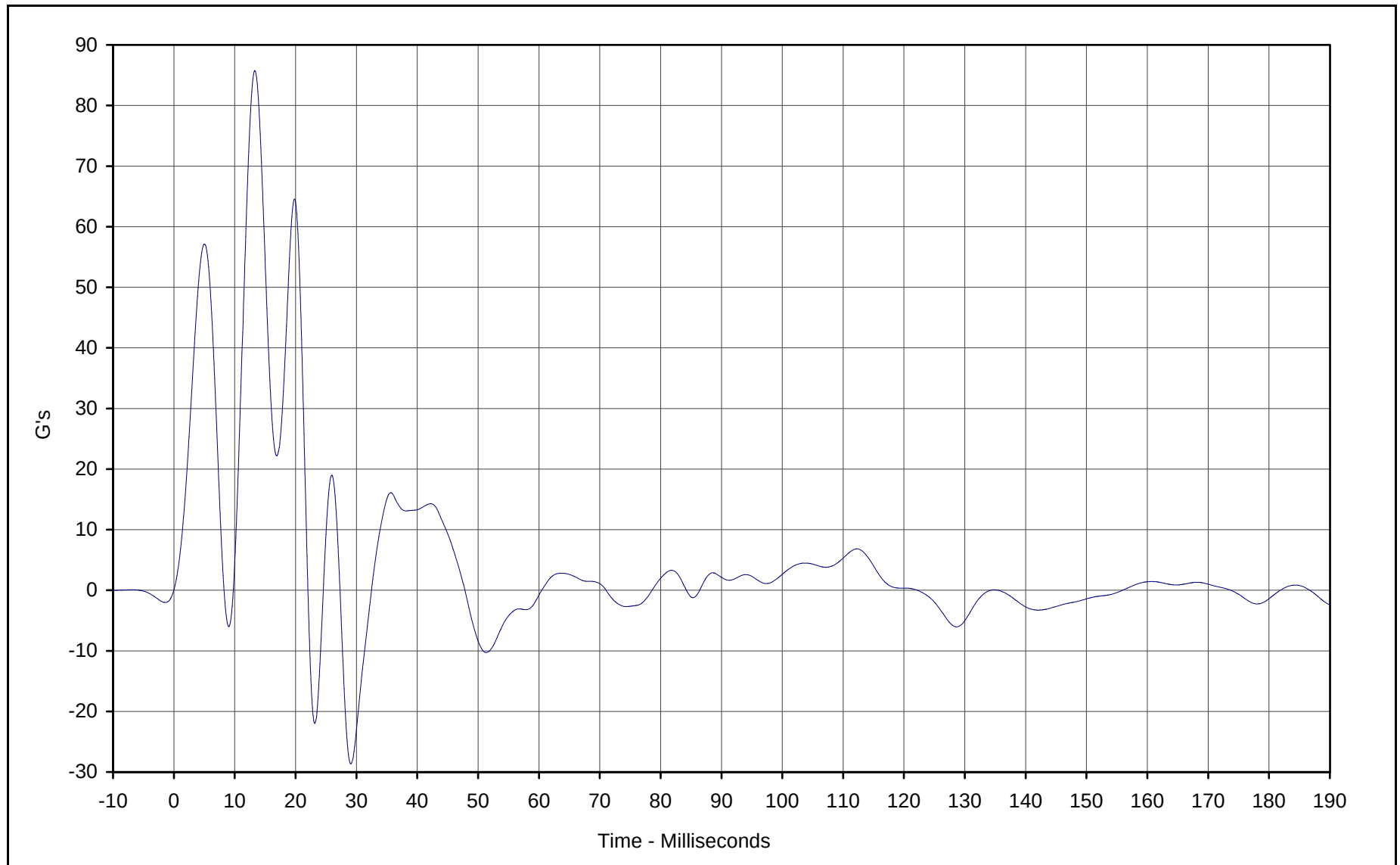
KAR21006-02



Curve Description: Rear Floor Above Axle Resultant
Maximum Value: 28.9 at 39.4 Milliseconds
Minimum Value: 0.2 at 0.0 Milliseconds
SAE Filter Class: 60
Date of Test: 02/15/01
Curve Number: RES-033

Test Program: 55/28 km/h Side Impact NCAP No.: SUB001
Test Vehicle: 2001 Subaru Forester AWD Wagon

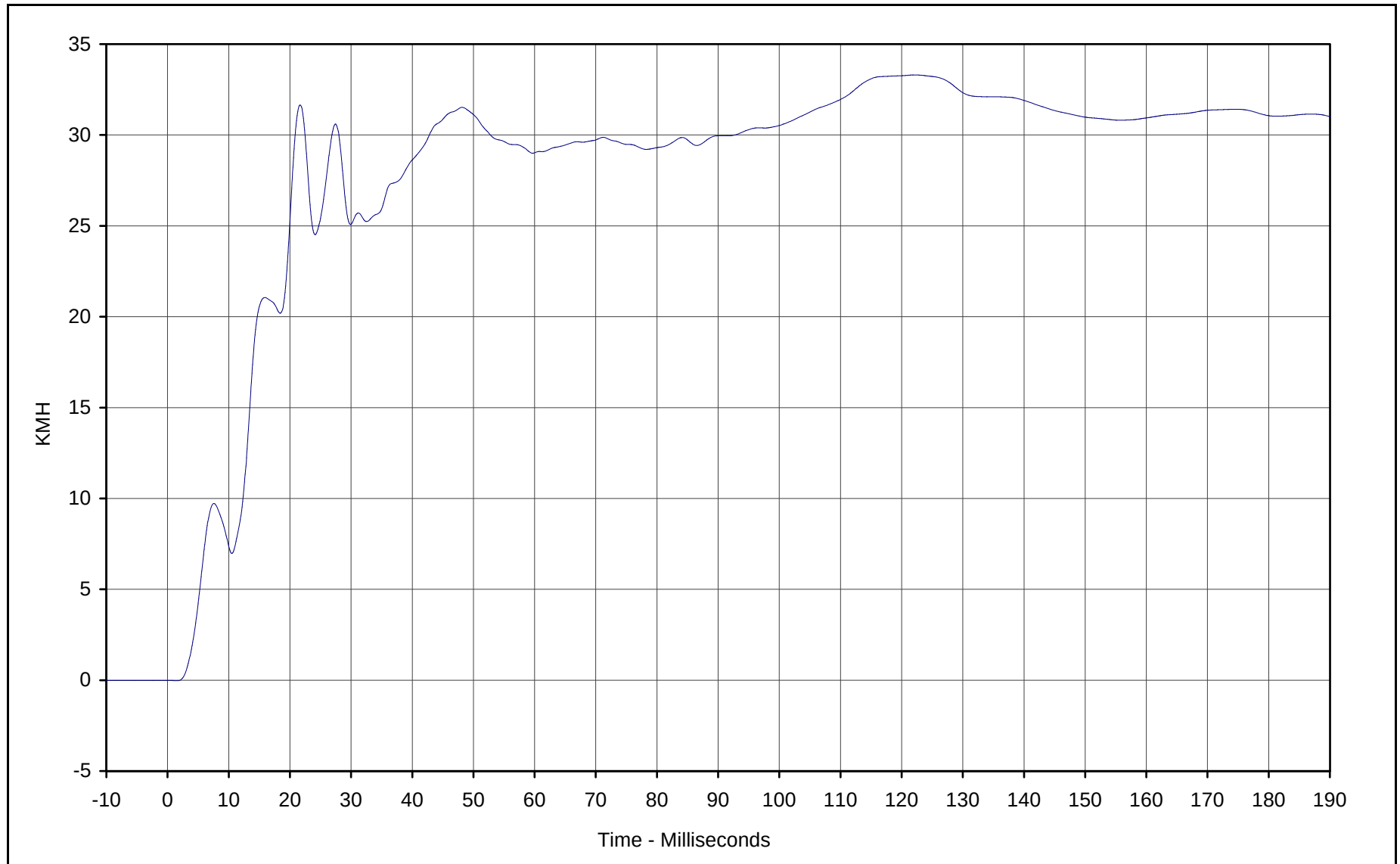




Curve Description: Left Sill at Rear Door Y
Maximum Value: 85.8 at 13.3 Milliseconds
Minimum Value: -28.7 at 29.1 Milliseconds
SAE Filter Class: 60
Date of Test: 02/15/01
Curve Number: FIL-036

Test Program: 55/28 km/h Side Impact NCAP No.: SUB001
Test Vehicle: 2001 Subaru Forester AWD Wagon

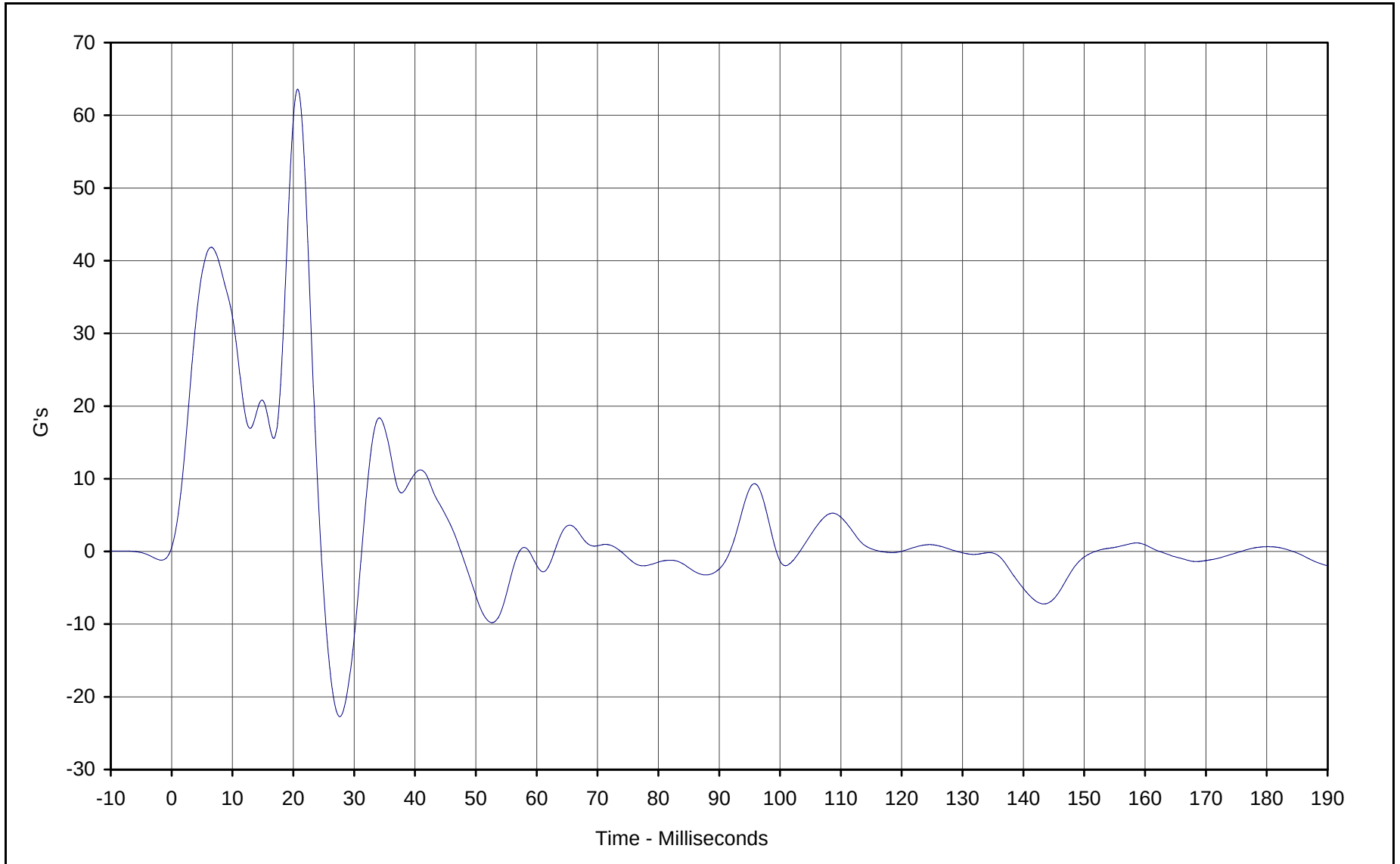




Curve Description: Left Sill at Rear Door Y Velocity
Maximum Value: 33.3 at 122.1 Milliseconds
Minimum Value: 0.0 at 1.5 Milliseconds
SAE Filter Class: 180
Date of Test: 02/15/01
Curve Number: IN1-036

Test Program: 55/28 km/h Side Impact NCAP No.: SUB001
Test Vehicle: 2001 Subaru Forester AWD Wagon

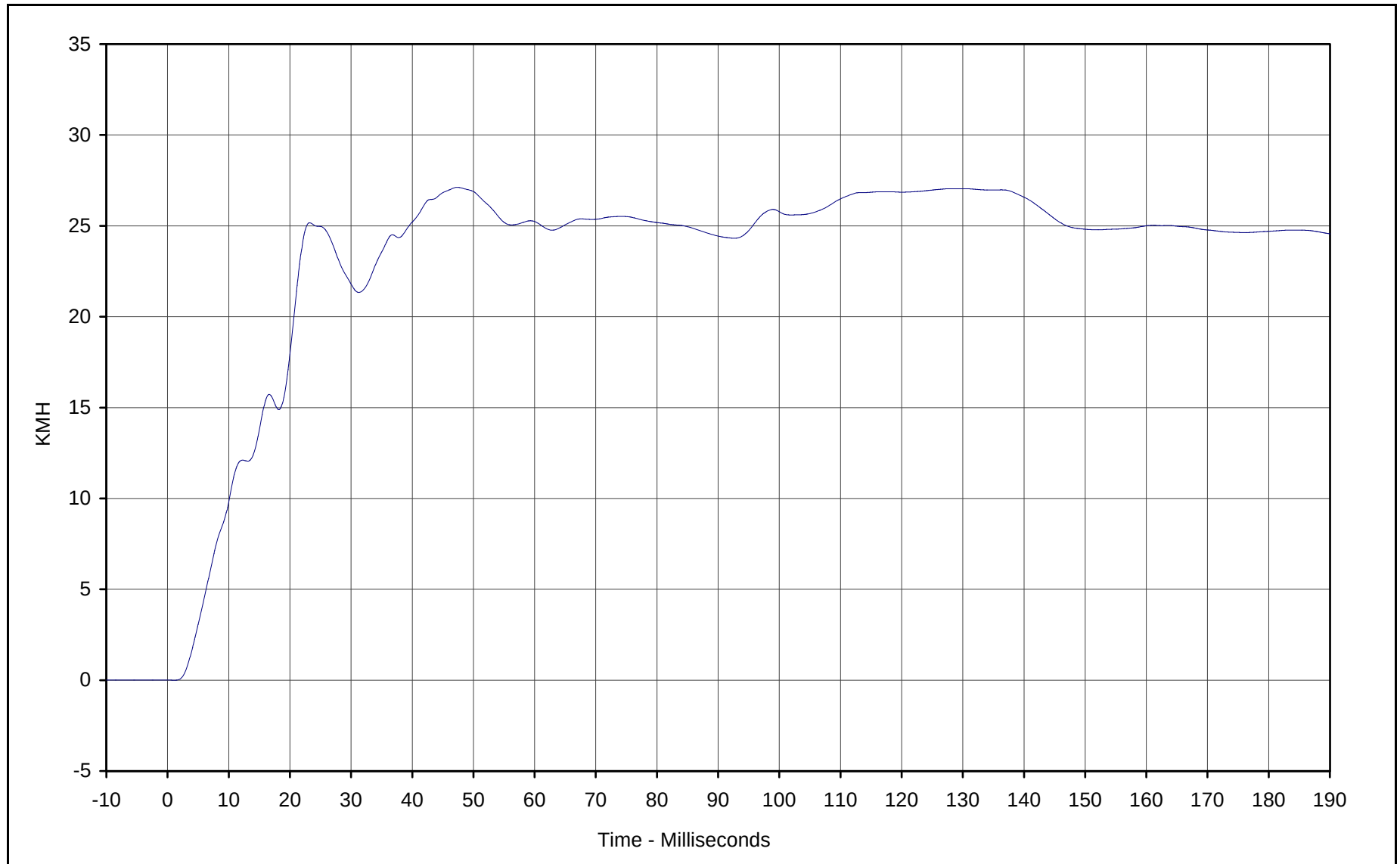




Curve Description: Left Sill at Front Door Y
Maximum Value: 63.6 at 20.7 Milliseconds
Minimum Value: -22.7 at 27.6 Milliseconds
SAE Filter Class: 60
Date of Test: 02/15/01
Curve Number: FIL-037

Test Program: 55/28 km/h Side Impact NCAP No.: SUB001
Test Vehicle: 2001 Subaru Forester AWD Wagon

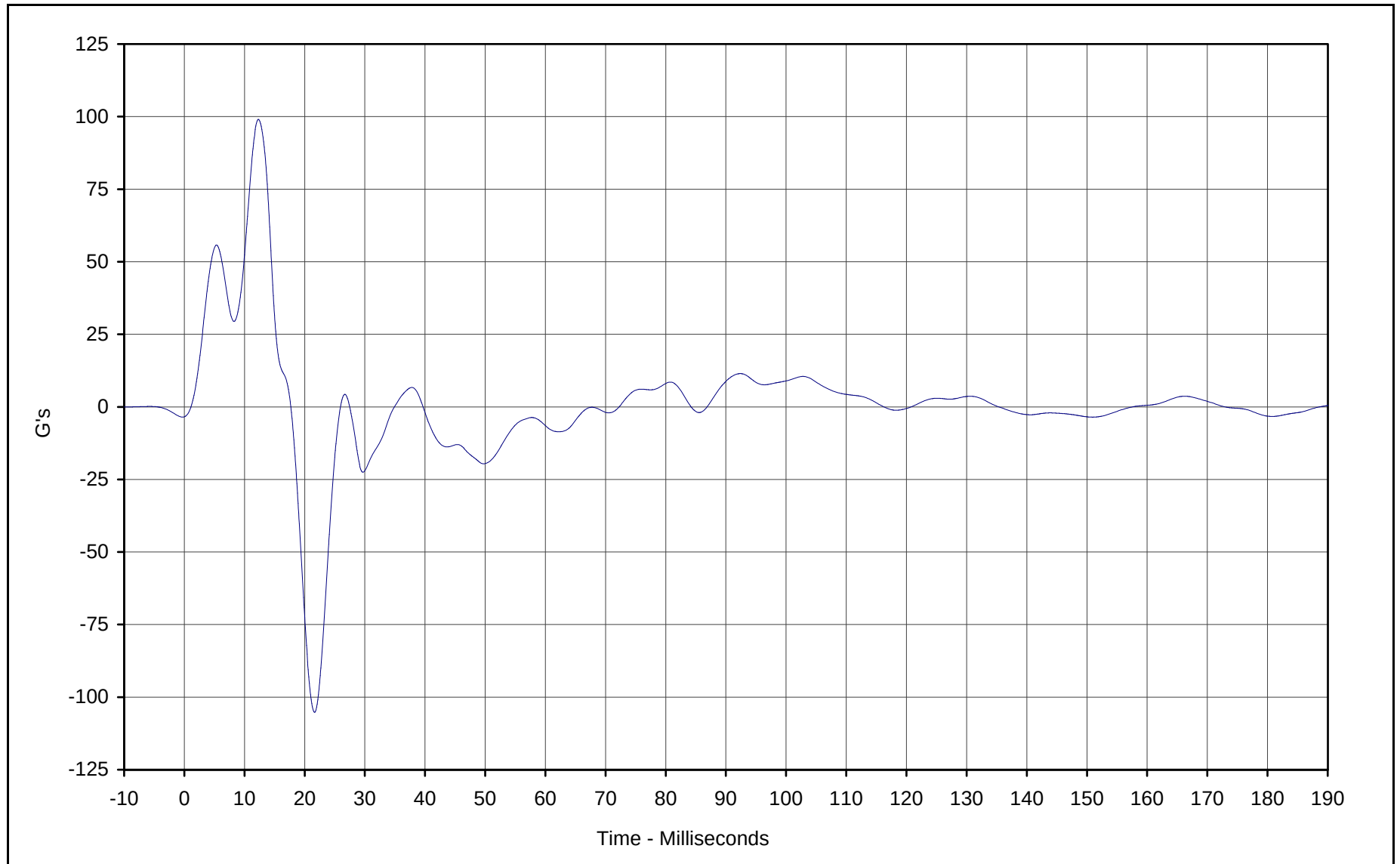




Curve Description: Left Sill at Front Door Y Velocity
Maximum Value: 27.1 at 47.4 Milliseconds
Minimum Value: 0.0 at 1.2 Milliseconds
SAE Filter Class: 180
Date of Test: 02/15/01
Curve Number: IN1-037

Test Program: 55/28 km/h Side Impact NCAP No.: SUB001
Test Vehicle: 2001 Subaru Forester AWD Wagon

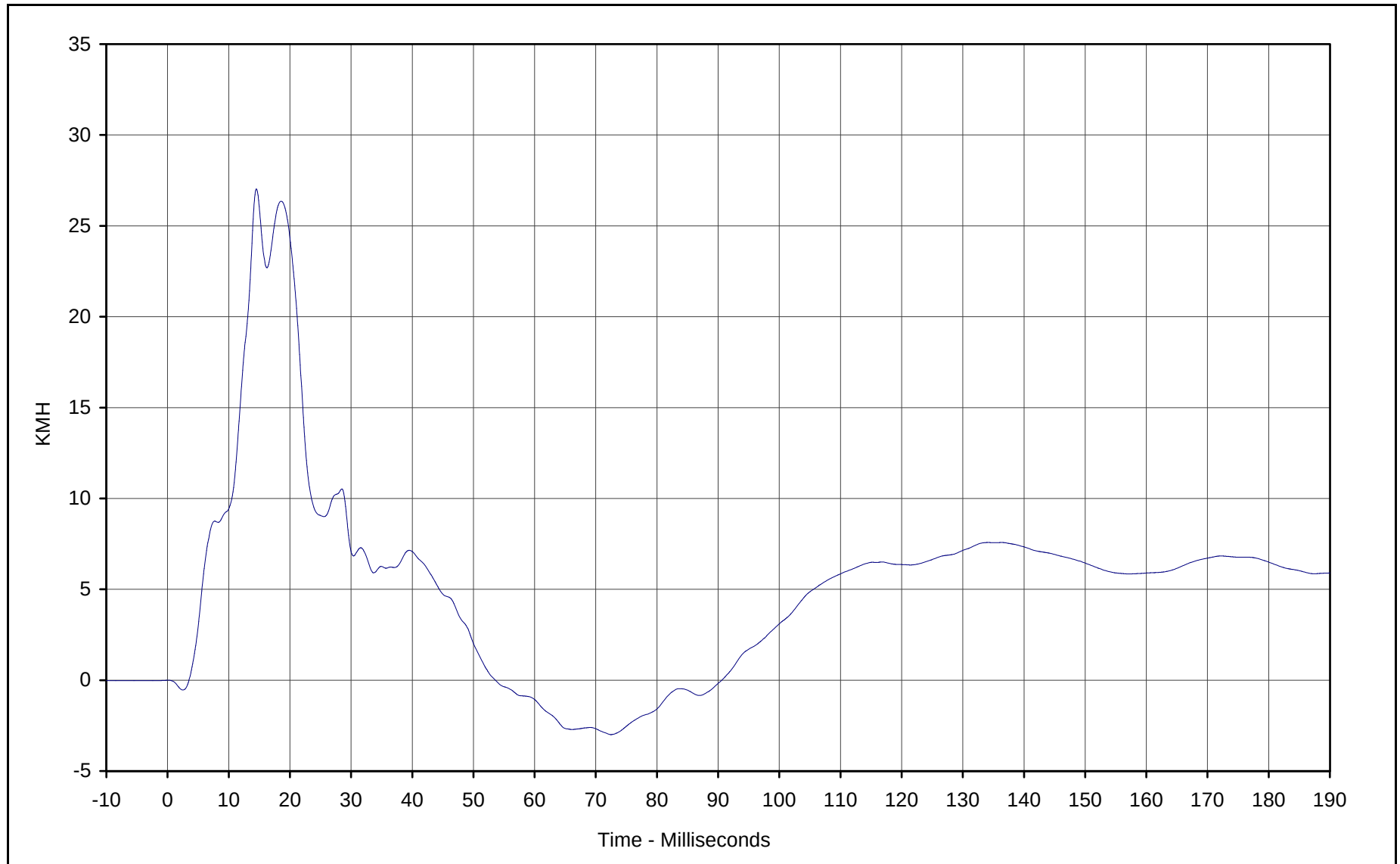




Curve Description: Left Front Door Centerline Y
Maximum Value: 99.0 at 12.3 Milliseconds
Minimum Value: -105.2 at 21.7 Milliseconds
SAE Filter Class: 60
Date of Test: 02/15/01
Curve Number: FIL-038

Test Program: 55/28 km/h Side Impact NCAP No.: SUB001
Test Vehicle: 2001 Subaru Forester AWD Wagon

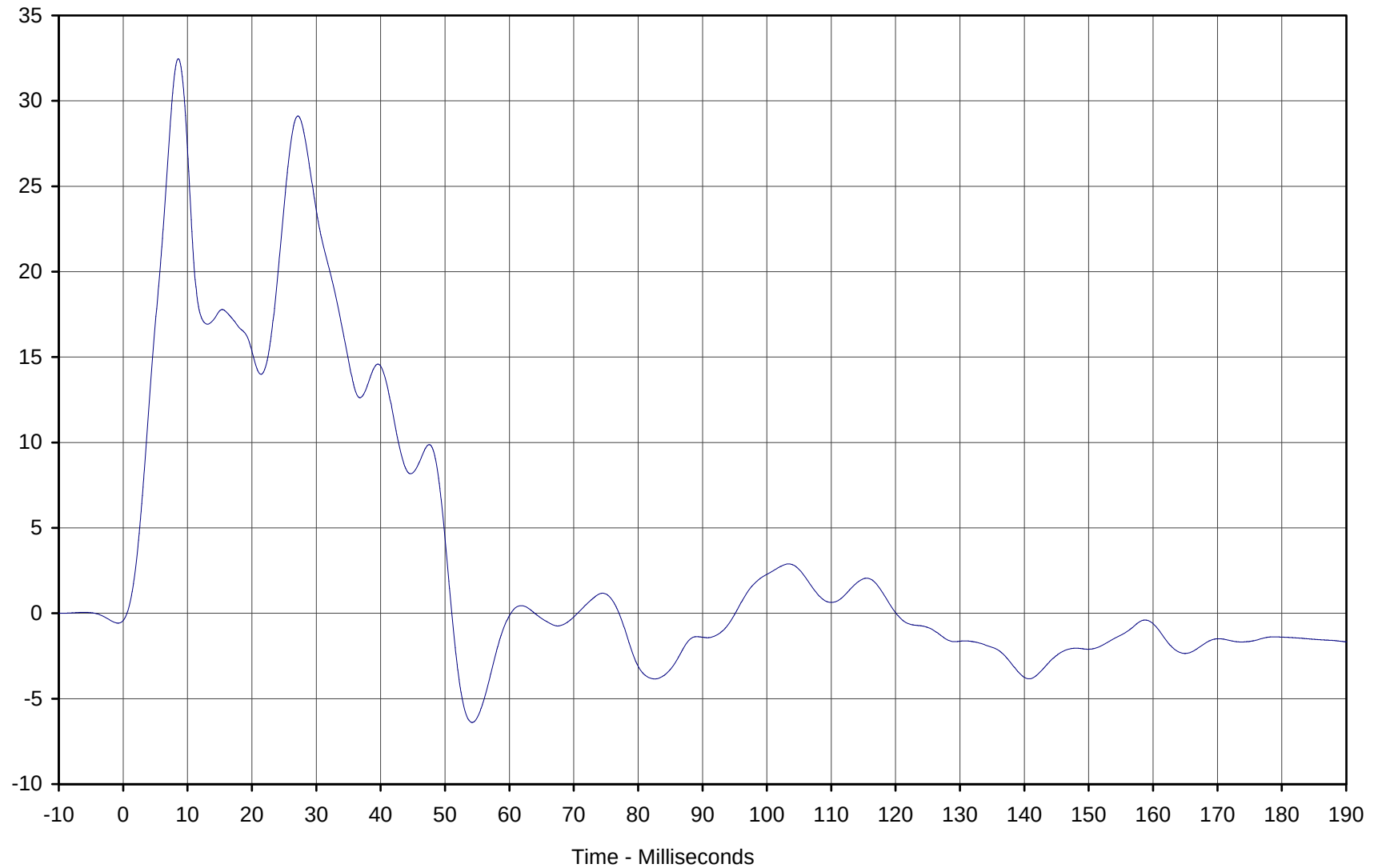




Curve Description: Left Front Door CL Y Velocity
Maximum Value: 27.0 at 14.5 Milliseconds
Minimum Value: -3.0 at 72.5 Milliseconds
SAE Filter Class: 180
Date of Test: 02/15/01
Curve Number: IN1-038

Test Program: 55/28 km/h Side Impact NCAP No.: SUB001
Test Vehicle: 2001 Subaru Forester AWD Wagon

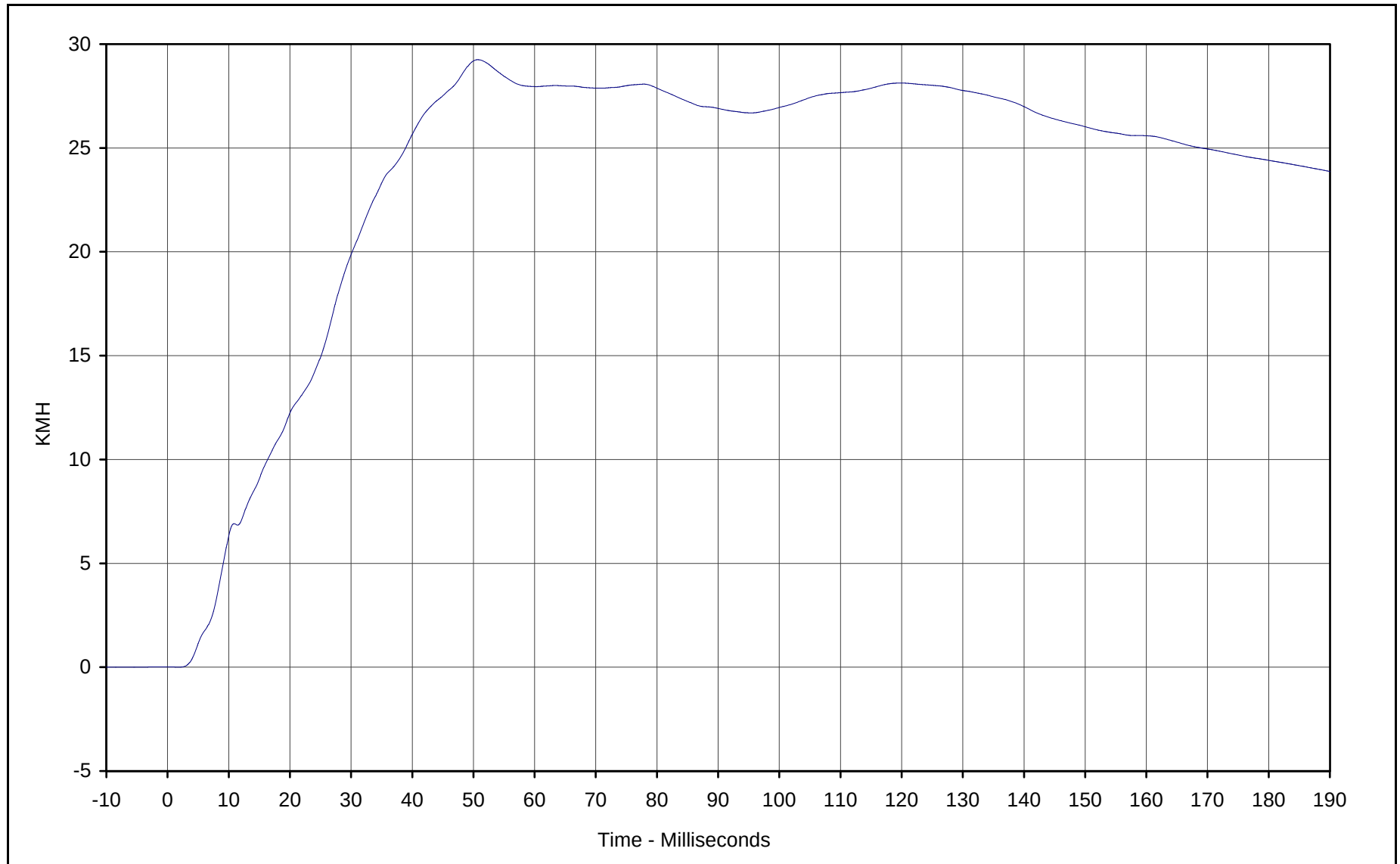




Curve Description: Right Rear Occ. Compartment Y
Maximum Value: 32.5 at 8.6 Milliseconds
Minimum Value: -6.4 at 54.2 Milliseconds
SAE Filter Class: 60
Date of Test: 02/15/01
Curve Number: FIL-039

Test Program: 55/28 km/h Side Impact NCAP No.: SUB001
Test Vehicle: 2001 Subaru Forester AWD Wagon

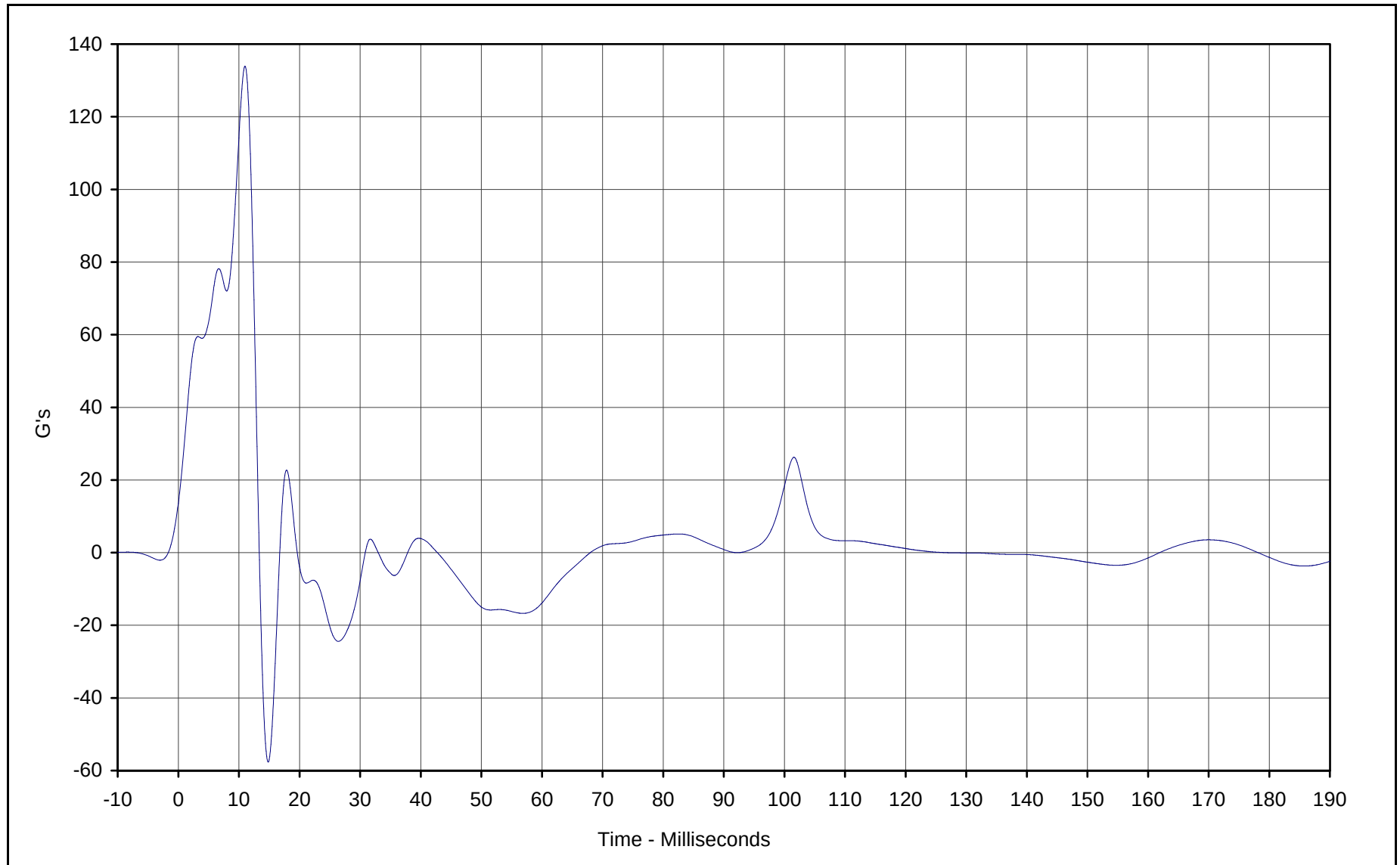




Curve Description: Right Rear Occ. Comp. Y Velocity
Maximum Value: 29.2 at 50.7 Milliseconds
Minimum Value: 0.0 at 1.9 Milliseconds
SAE Filter Class: 180
Date of Test: 02/15/01
Curve Number: IN1-039

Test Program: 55/28 km/h Side Impact NCAP No.: SUB001
Test Vehicle: 2001 Subaru Forester AWD Wagon

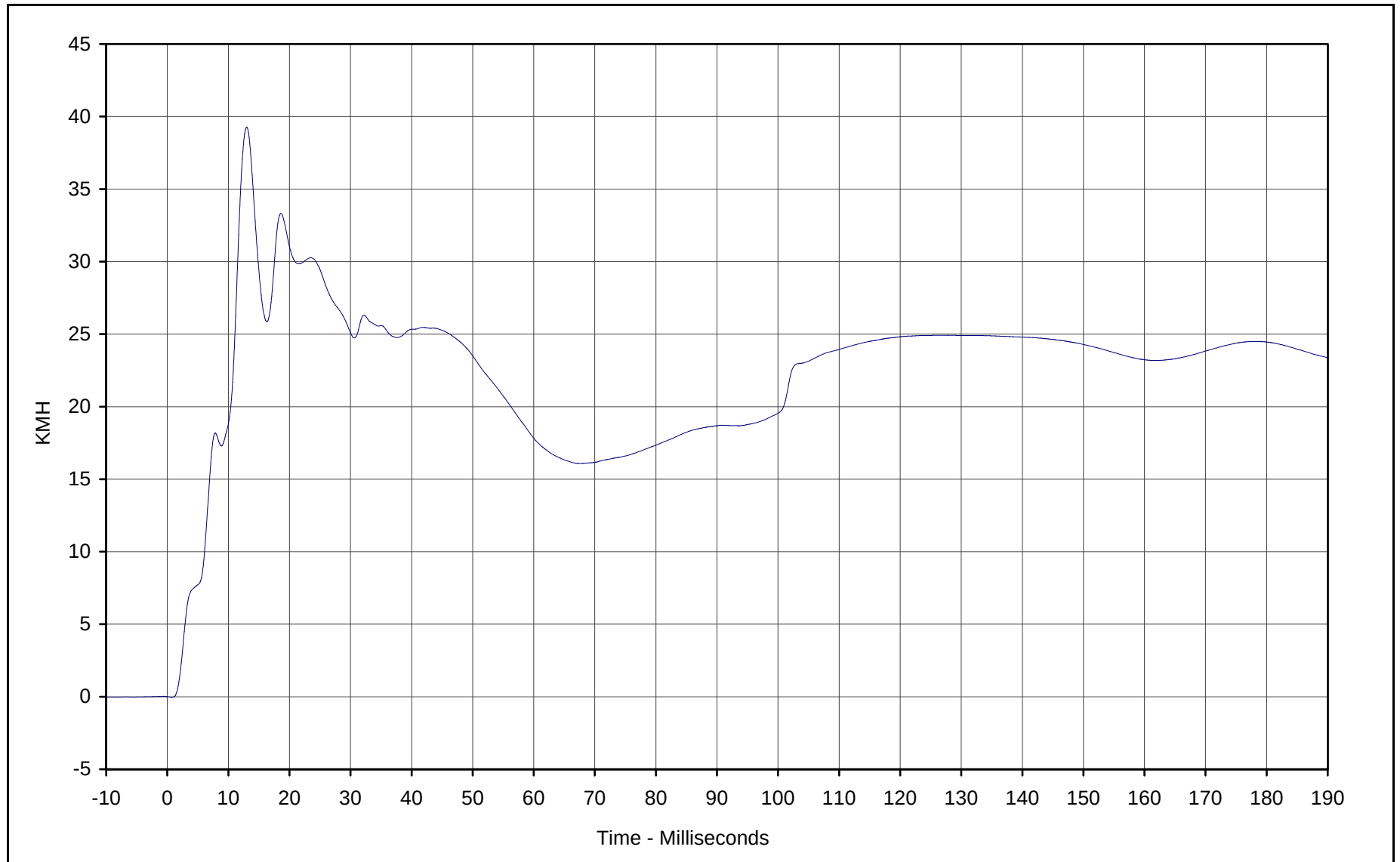




Curve Description: Left Front Door Mid Rear Y
Maximum Value: 133.9 at 11.0 Milliseconds
Minimum Value: -57.6 at 14.8 Milliseconds
SAE Filter Class: 60
Date of Test: 02/15/01
Curve Number: FIL-040

Test Program: 55/28 km/h Side Impact NCAP No.: SUB001
Test Vehicle: 2001 Subaru Forester AWD Wagon





Curve Description: Left Front Door Mid Rear Y Velocity

Maximum Value: 39.3 at 13.0 Milliseconds

Minimum Value: 0.0 at 0.8 Milliseconds

SAE Filter Class: 180

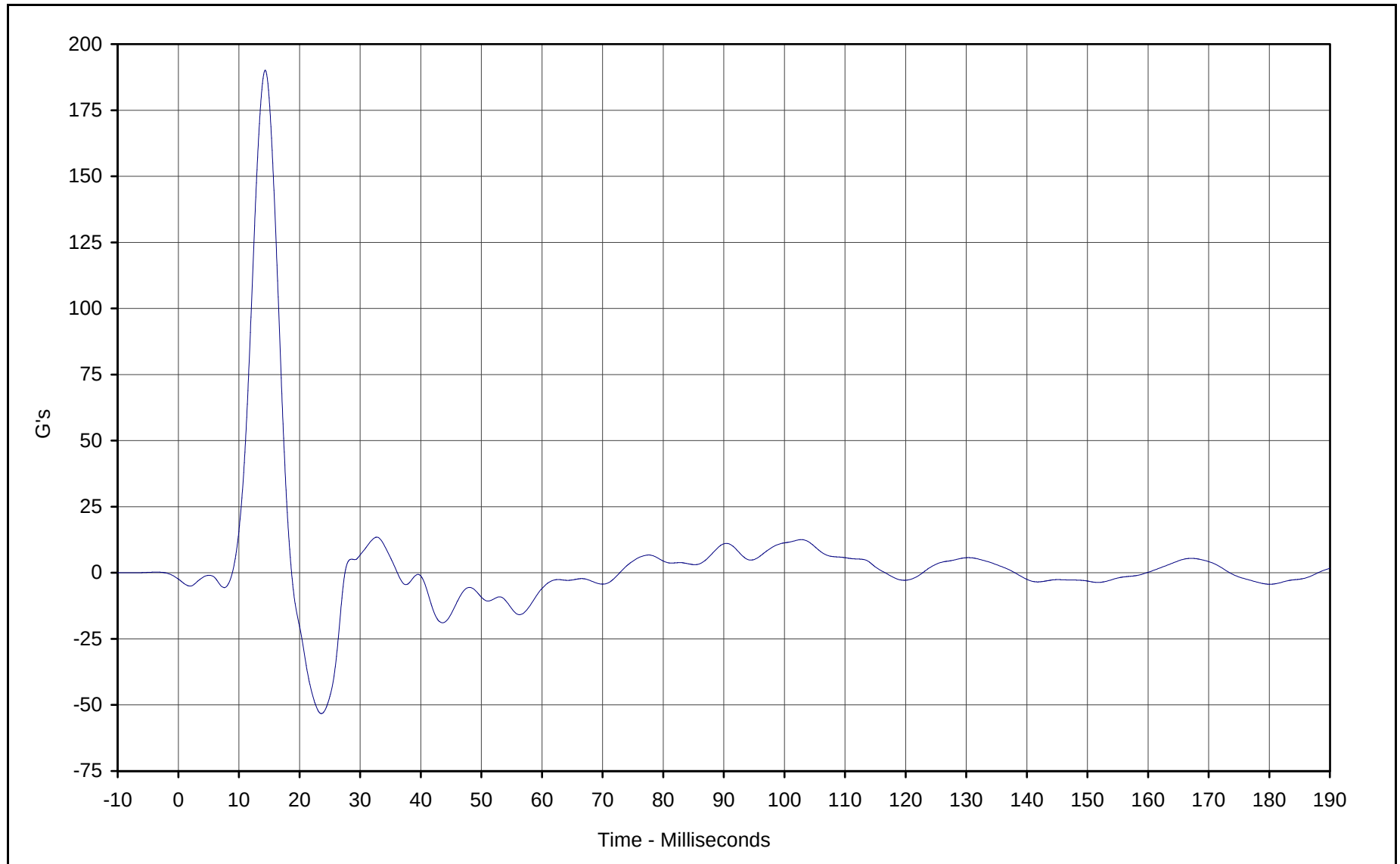
Date of Test: 02/15/01

Curve Number: IN1-040

Test Program: 55/28 km/h Side Impact NCAP No.: SUB001

Test Vehicle: 2001 Subaru Forester AWD Wagon

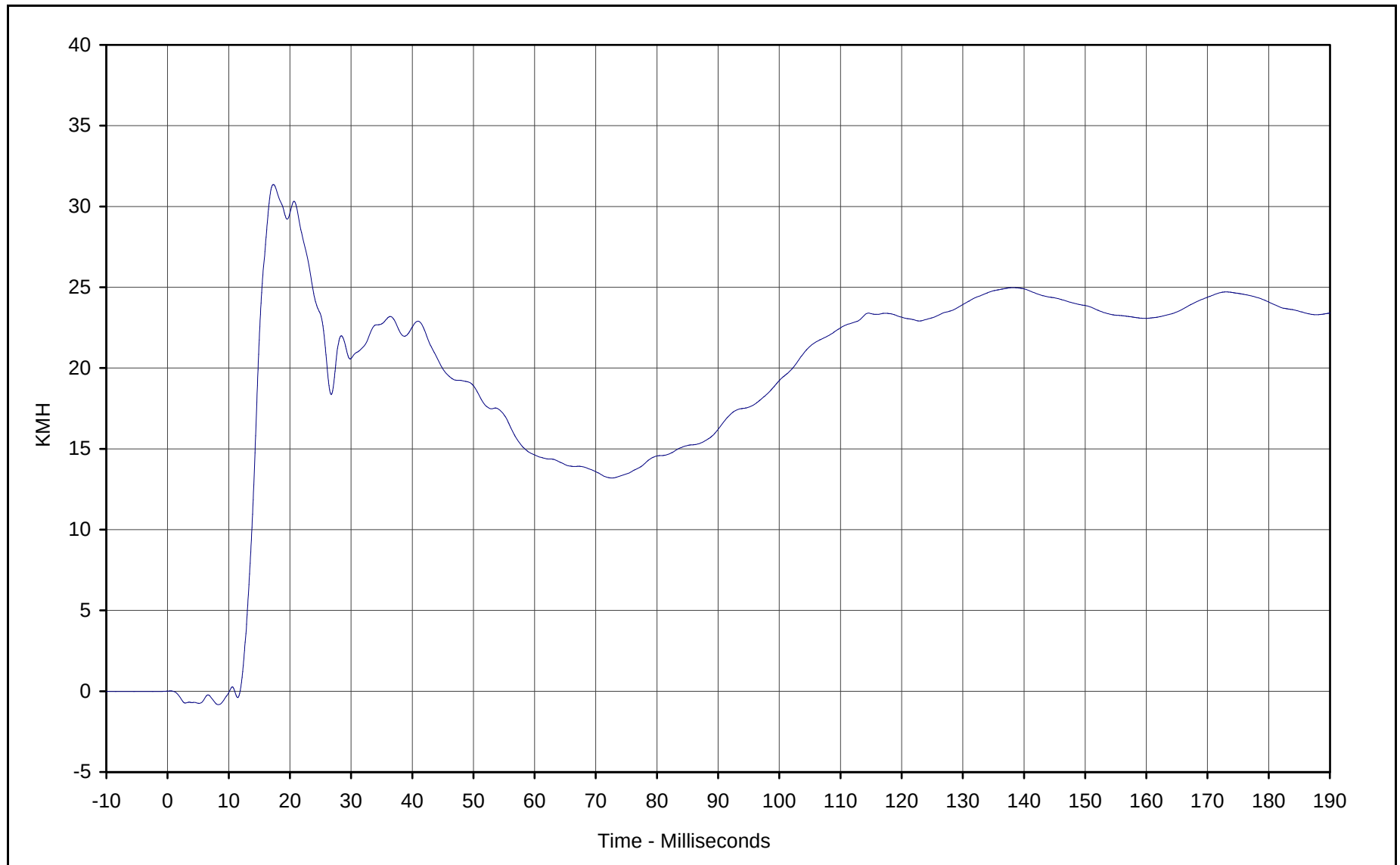




Curve Description: Left Front Door Upper CL Y
Maximum Value: 190.1 at 14.4 Milliseconds
Minimum Value: -53.3 at 23.6 Milliseconds
SAE Filter Class: 60
Date of Test: 02/15/01
Curve Number: FIL-041

Test Program: 55/28 km/h Side Impact NCAP No.: SUB001
Test Vehicle: 2001 Subaru Forester AWD Wagon





Curve Description: Left Front Door Upper CL Y Velocity

Maximum Value: 31.4 at 17.3 Milliseconds

Minimum Value: -0.8 at 8.3 Milliseconds

SAE Filter Class: 180

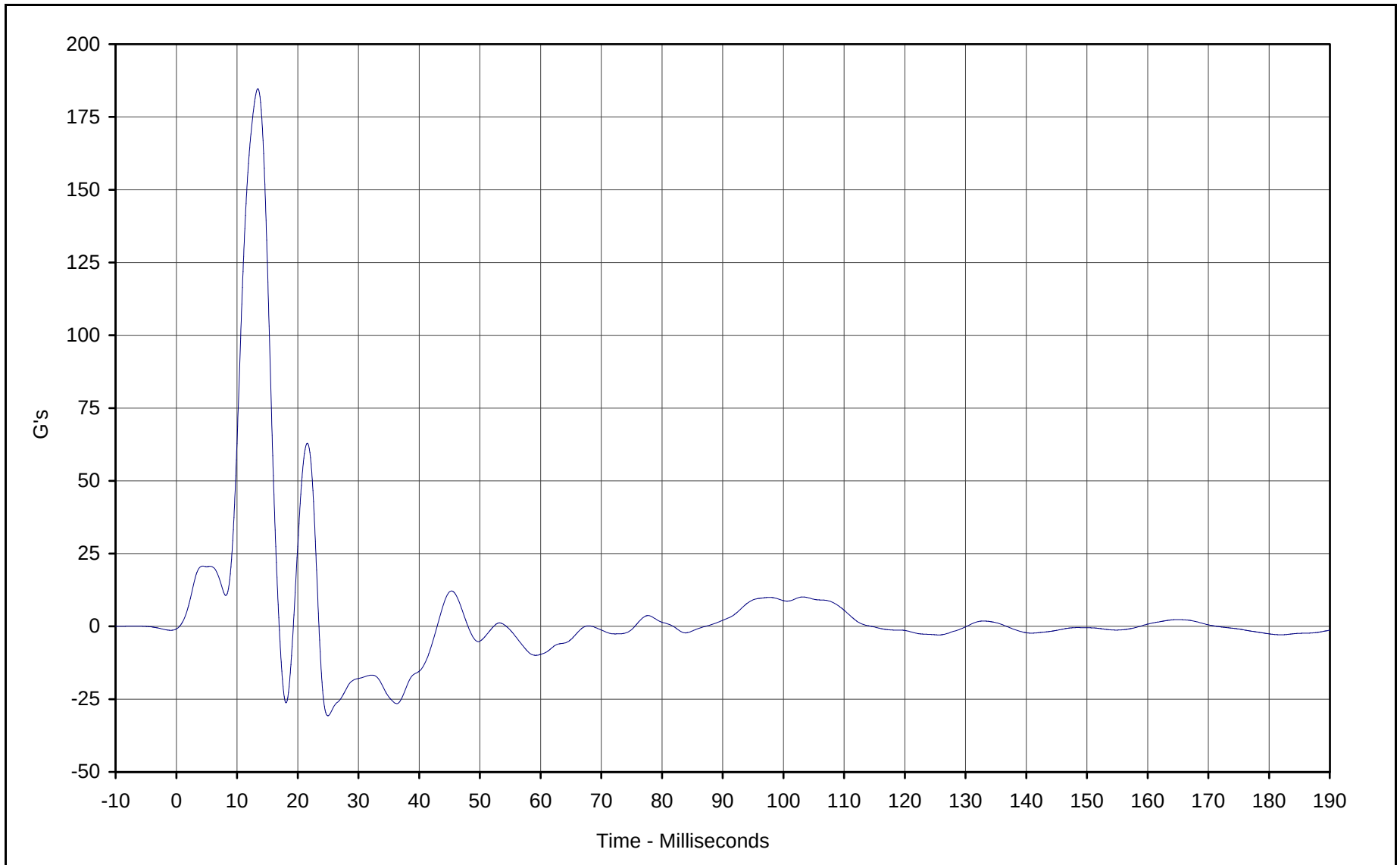
Date of Test: 02/15/01

Curve Number: IN1-041

Test Program: 55/28 km/h Side Impact NCAP No.: SUB001

Test Vehicle: 2001 Subaru Forester AWD Wagon

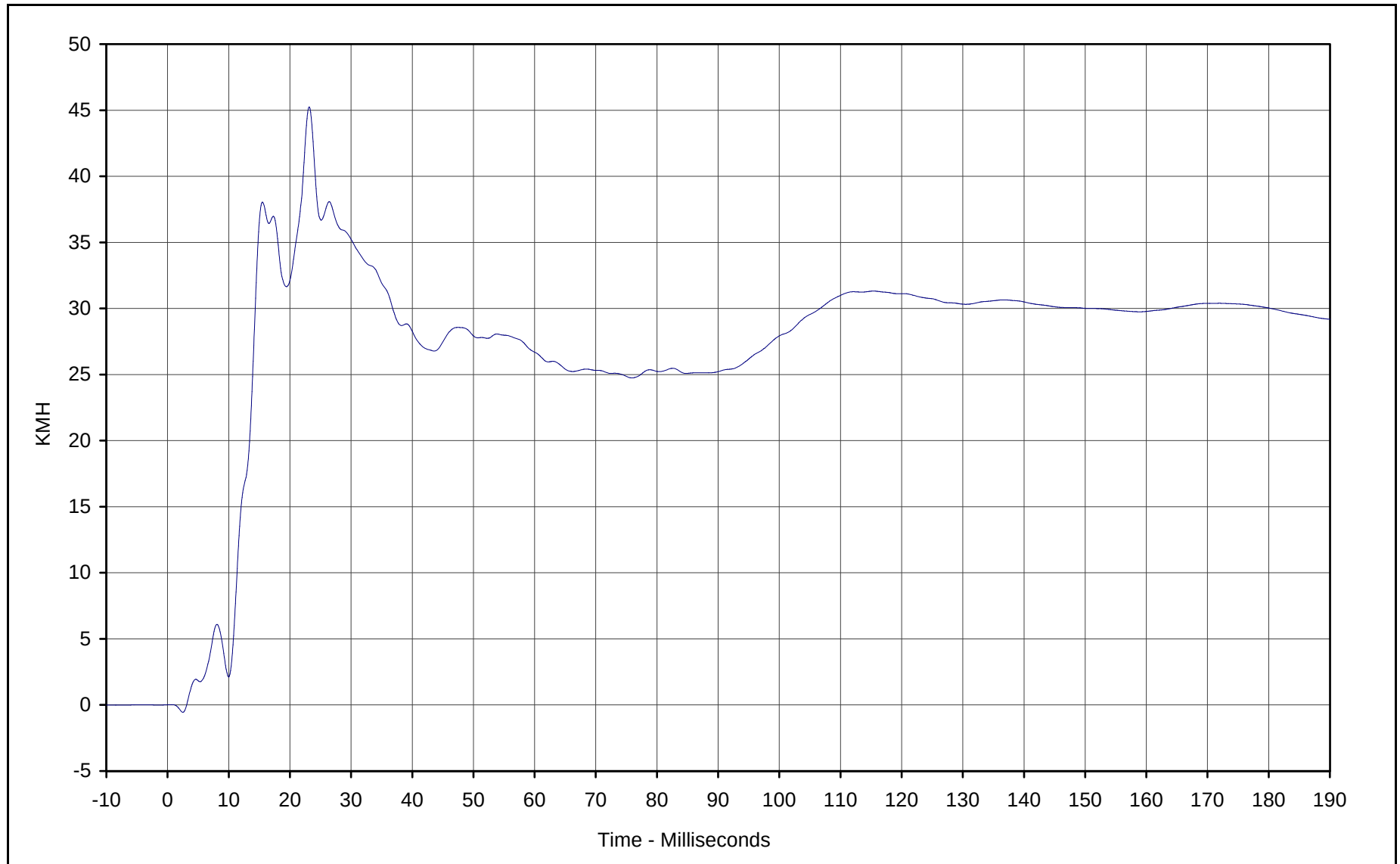




Curve Description: Left Rear Door Mid Rear Y
Maximum Value: 184.7 at 13.4 Milliseconds
Minimum Value: -30.7 at 25.0 Milliseconds
SAE Filter Class: 60
Date of Test: 02/15/01
Curve Number: FIL-042

Test Program: 55/28 km/h Side Impact NCAP No.: SUB001
Test Vehicle: 2001 Subaru Forester AWD Wagon

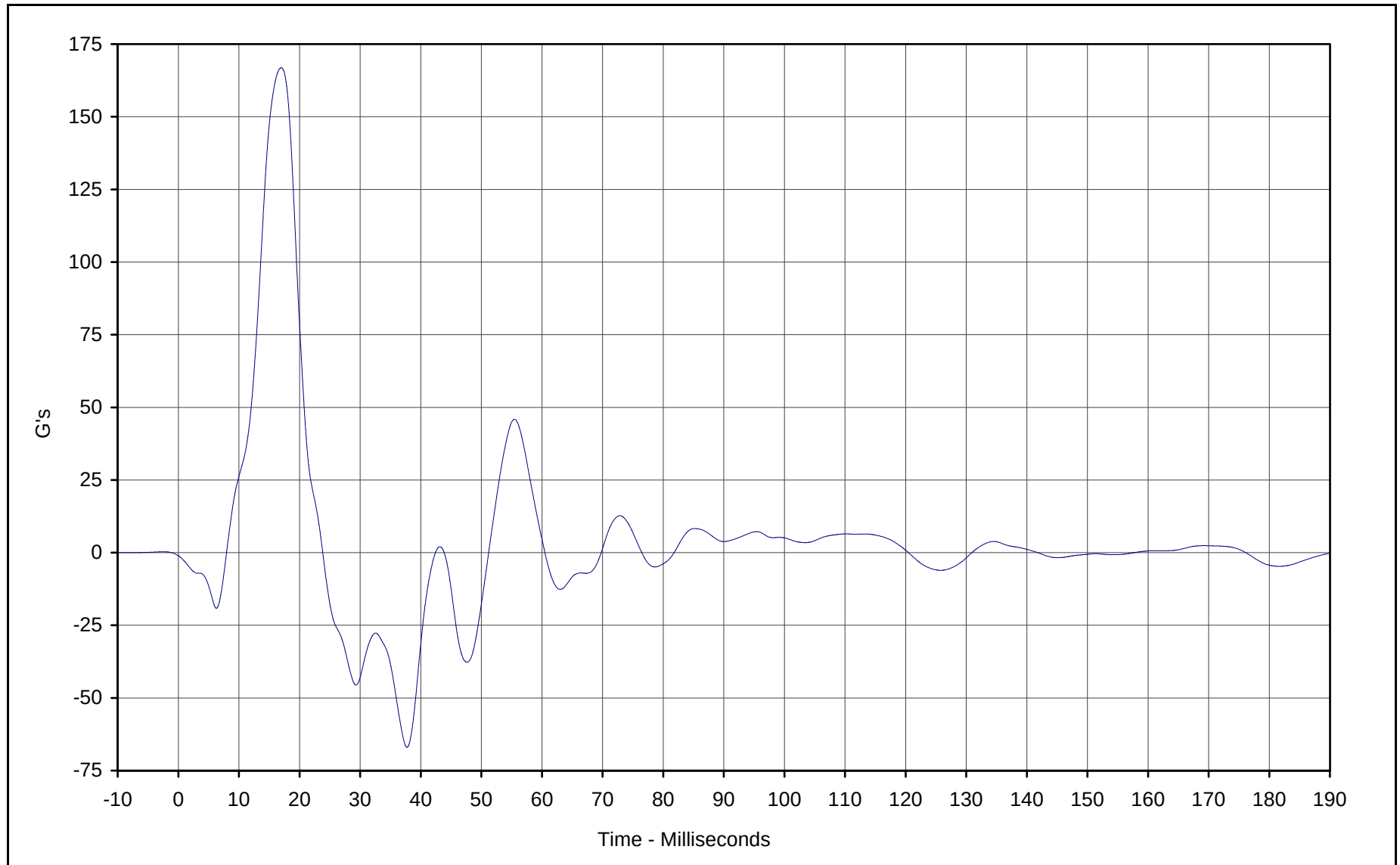




Curve Description: Left Rear Door Mid Rear Y Velocity
Maximum Value: 45.2 at 23.2 Milliseconds
Minimum Value: -0.6 at 2.5 Milliseconds
SAE Filter Class: 180
Date of Test: 02/15/01
Curve Number: IN1-042

Test Program: 55/28 km/h Side Impact NCAP No.: SUB001
Test Vehicle: 2001 Subaru Forester AWD Wagon

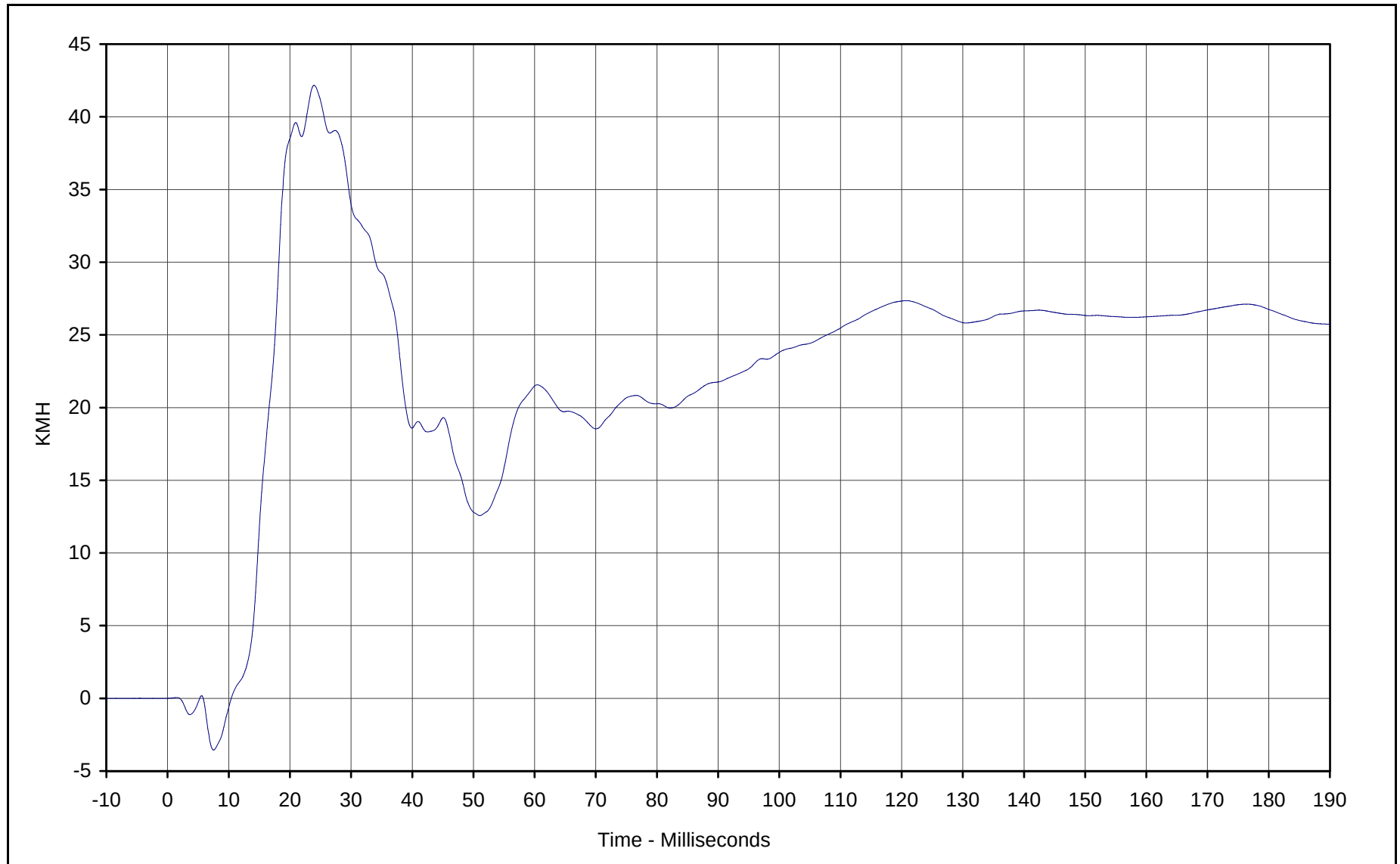




Curve Description: Left Rear Door Upper CL Y
Maximum Value: 166.8 at 17.0 Milliseconds
Minimum Value: -67.0 at 37.8 Milliseconds
SAE Filter Class: 60
Date of Test: 02/15/01
Curve Number: FIL-043

Test Program: 55/28 km/h Side Impact NCAP No.: SUB001
Test Vehicle: 2001 Subaru Forester AWD Wagon





Curve Description: Left Rear Door Upper CL Y Velocity

Maximum Value: 42.2 at 24.0 Milliseconds

Minimum Value: -3.6 at 7.5 Milliseconds

SAE Filter Class: 180

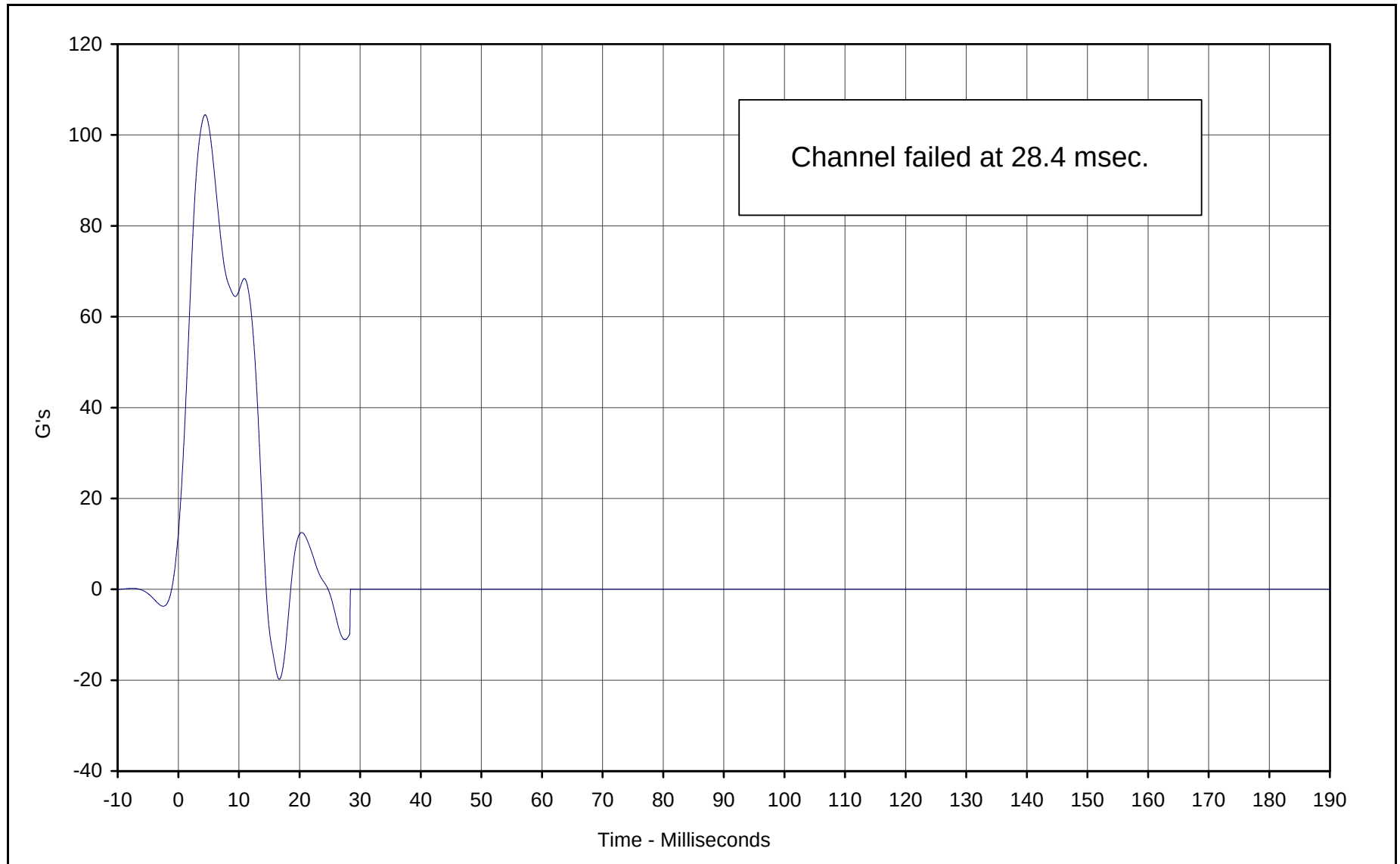
Date of Test: 02/15/01

Curve Number: IN1-043

Test Program: 55/28 km/h Side Impact NCAP No.: SUB001

Test Vehicle: 2001 Subaru Forester AWD Wagon





Curve Description: Left B-Post Lower Y *

Maximum Value: 104.4 at 4.4 Milliseconds

Minimum Value: -19.8 at 16.7 Milliseconds

SAE Filter Class: 60

Date of Test: 02/15/01

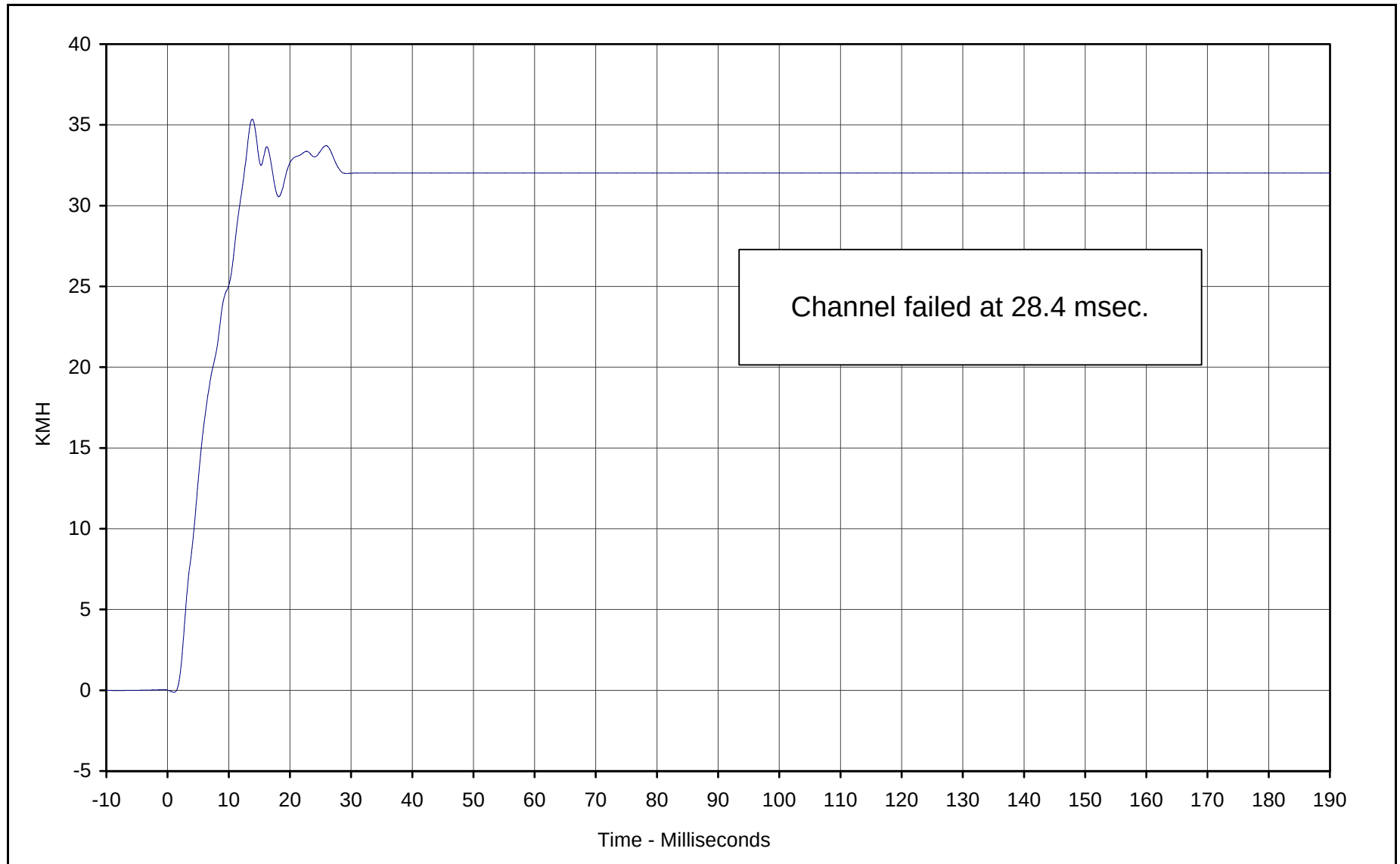
Curve Number: FIL-044

Test Program: 55/28 km/h Side Impact NCAP No.: SUB001

Test Vehicle: 2001 Subaru Forester AWD Wagon

* Channel failed at 28.4 msec.





Curve Description: Left B-Post Lower Y Velocity *

Maximum Value: 35.3 at 13.8 Milliseconds

Minimum Value: -0.1 at 1.0 Milliseconds

SAE Filter Class: 180

Date of Test: 02/15/01

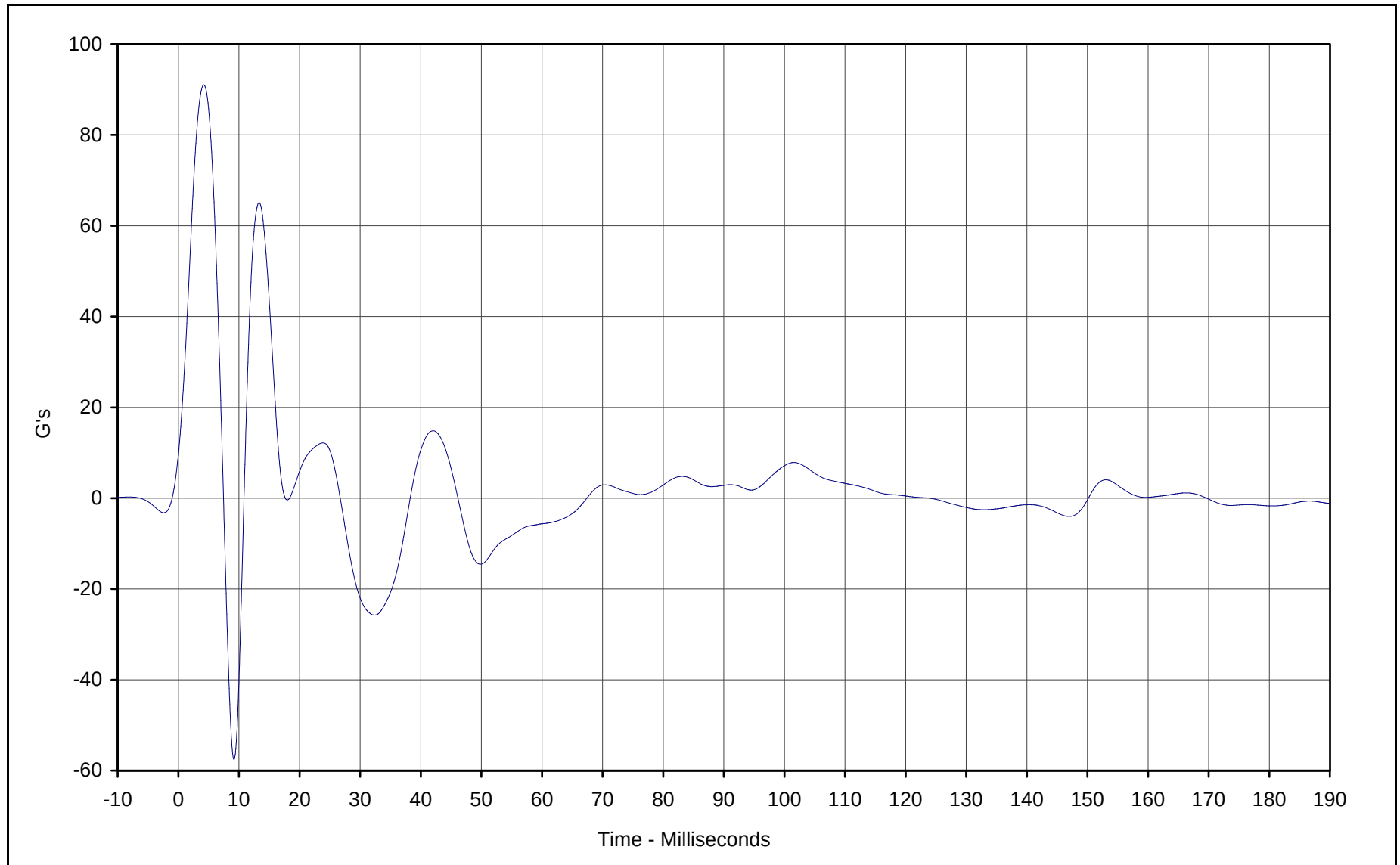
Curve Number: IN1-044

Test Program: 55/28 km/h Side Impact NCAP No.: SUB001

Test Vehicle: 2001 Subaru Forester AWD Wagon

* Channel failed at 28.4 msec.

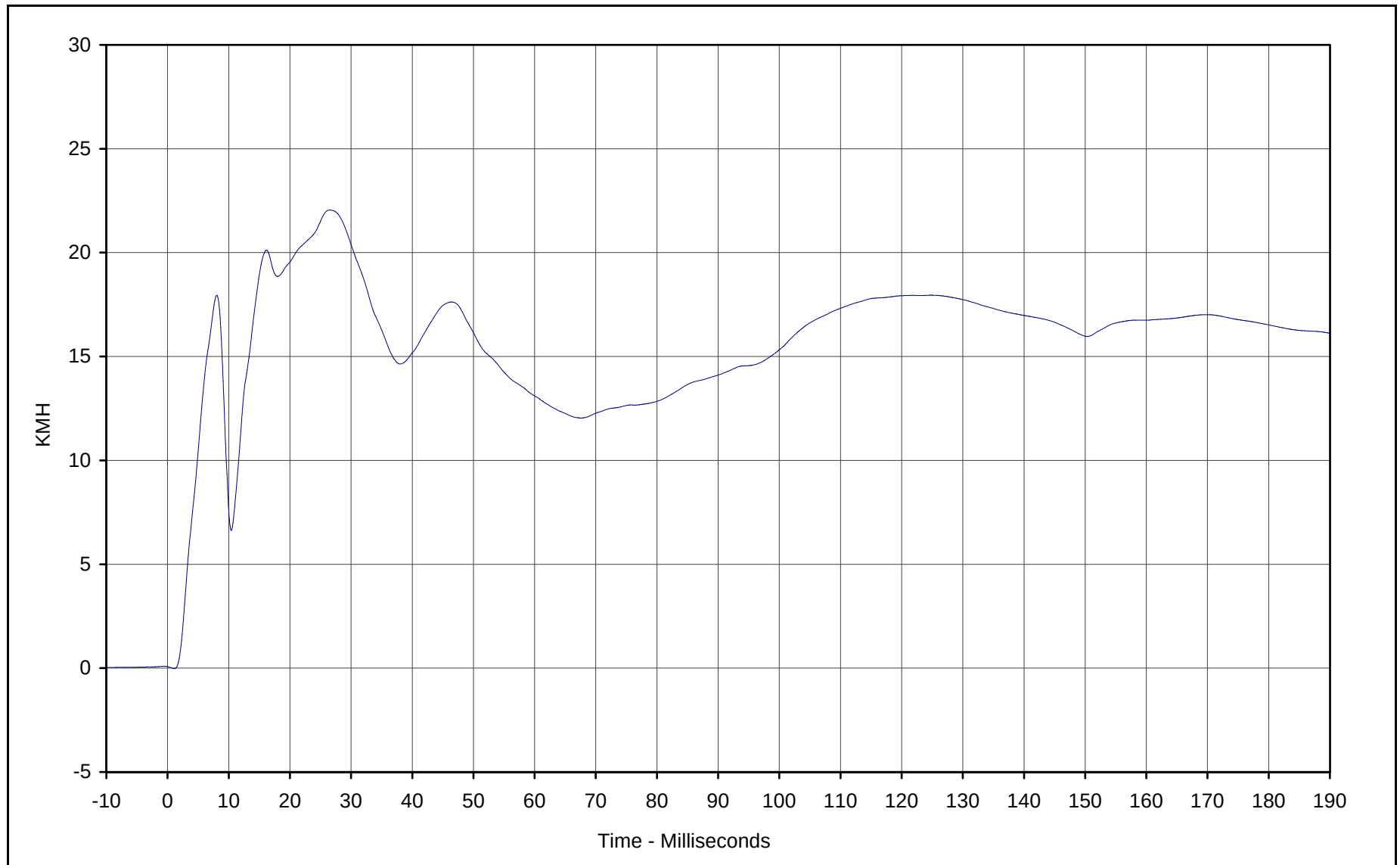




Curve Description: Left B-Post Middle Y
Maximum Value: 91.0 at 4.2 Milliseconds
Minimum Value: -57.6 at 9.2 Milliseconds
SAE Filter Class: 60
Date of Test: 02/15/01
Curve Number: FIL-045

Test Program: 55/28 km/h Side Impact NCAP No.: SUB001
Test Vehicle: 2001 Subaru Forester AWD Wagon

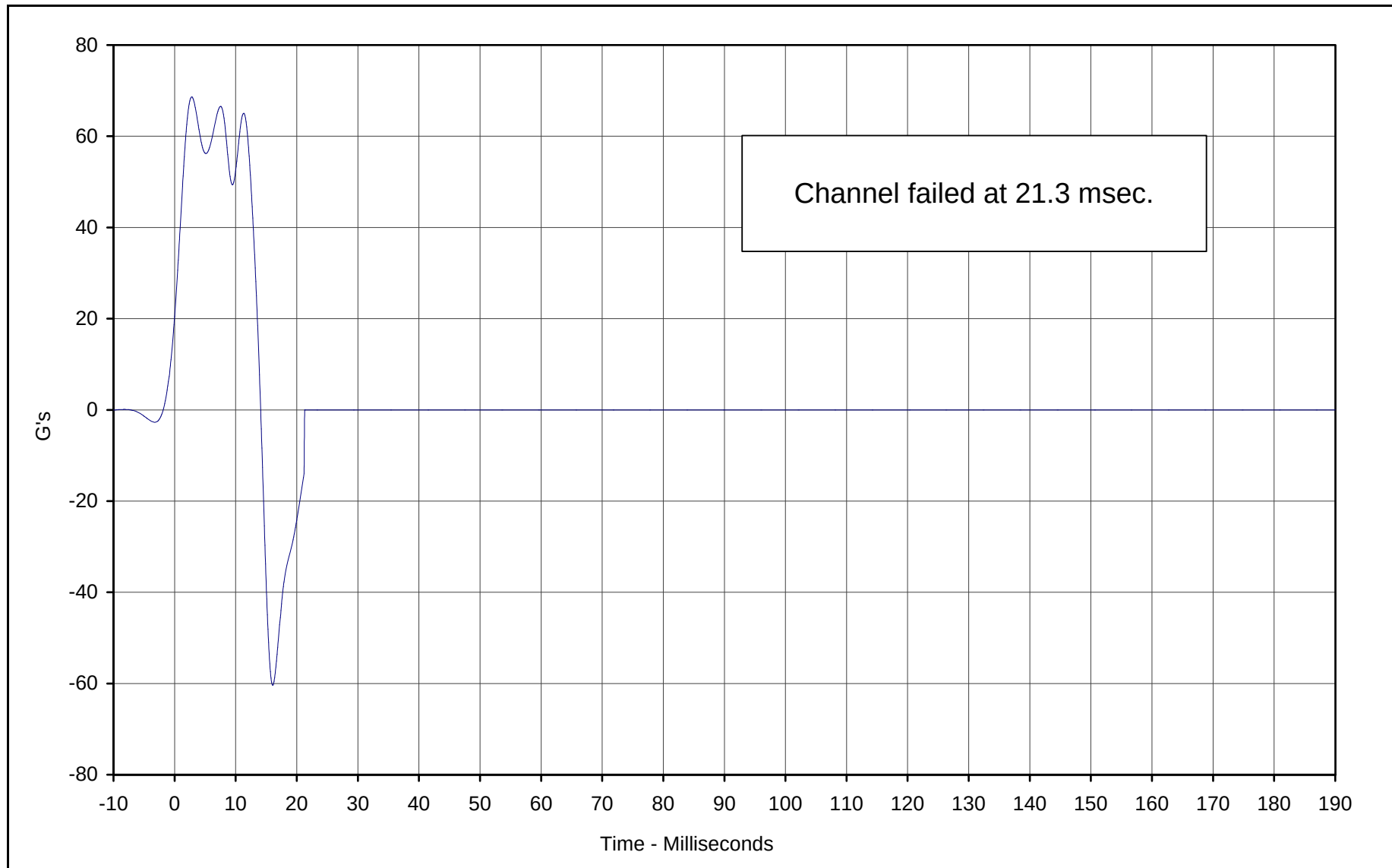




Curve Description: Left B-Post Middle Y Velocity
Maximum Value: 22.1 at 26.5 Milliseconds
Minimum Value: 0.0 at 1.1 Milliseconds
SAE Filter Class: 180
Date of Test: 02/15/01
Curve Number: IN1-045

Test Program: 55/28 km/h Side Impact NCAP No.: SUB001
Test Vehicle: 2001 Subaru Forester AWD Wagon





Curve Description: Left A-Post Lower Y *

Maximum Value: 68.6 at 2.8 Milliseconds

Minimum Value: -60.4 at 16.1 Milliseconds

SAE Filter Class: 60

Date of Test: 02/15/01

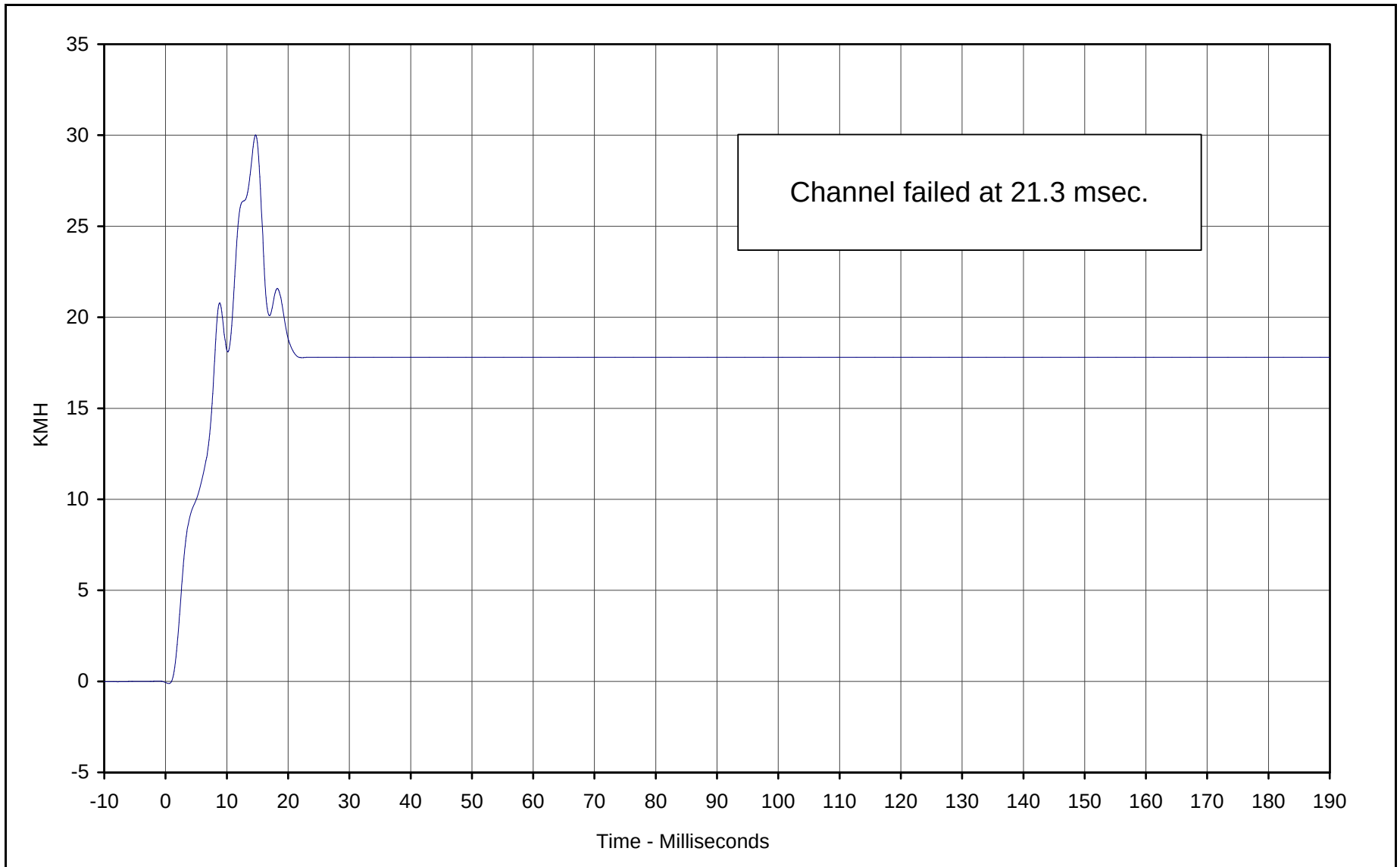
Curve Number: FIL-046

Test Program: 55/28 km/h Side Impact NCAP No.: SUB001

Test Vehicle: 2001 Subaru Forester AWD Wagon

* Channel failed at 21.3 msec.





Curve Description: Left A-Post Lower Y Velocity *

Maximum Value: 30.0 at 14.7 Milliseconds

Minimum Value: -0.1 at 0.5 Milliseconds

SAE Filter Class: 180

Date of Test: 02/15/01

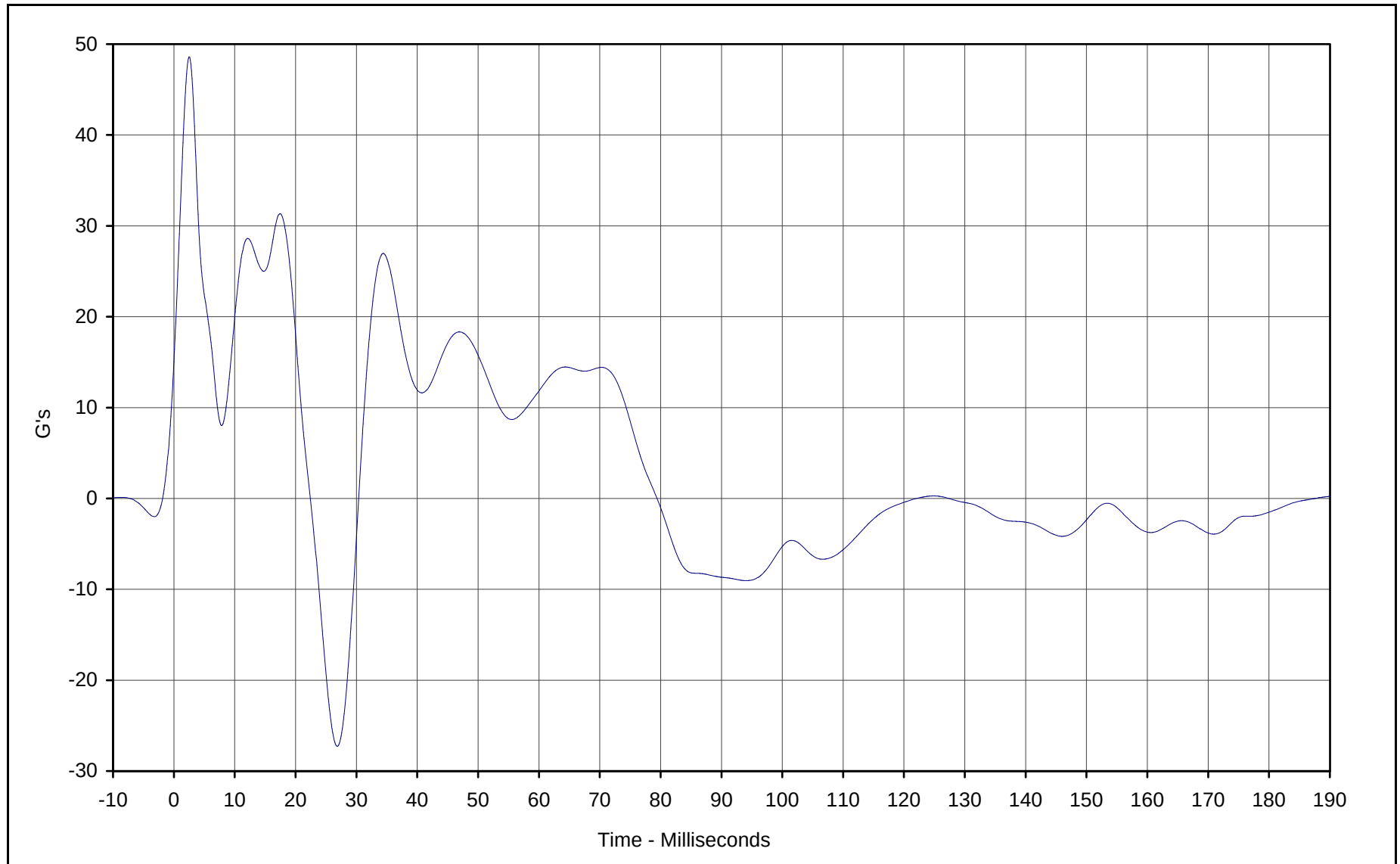
Curve Number: IN1-046

Test Program: 55/28 km/h Side Impact NCAP No.: SUB001

Test Vehicle: 2001 Subaru Forester AWD Wagon

* Channel failed at 21.3 msec.

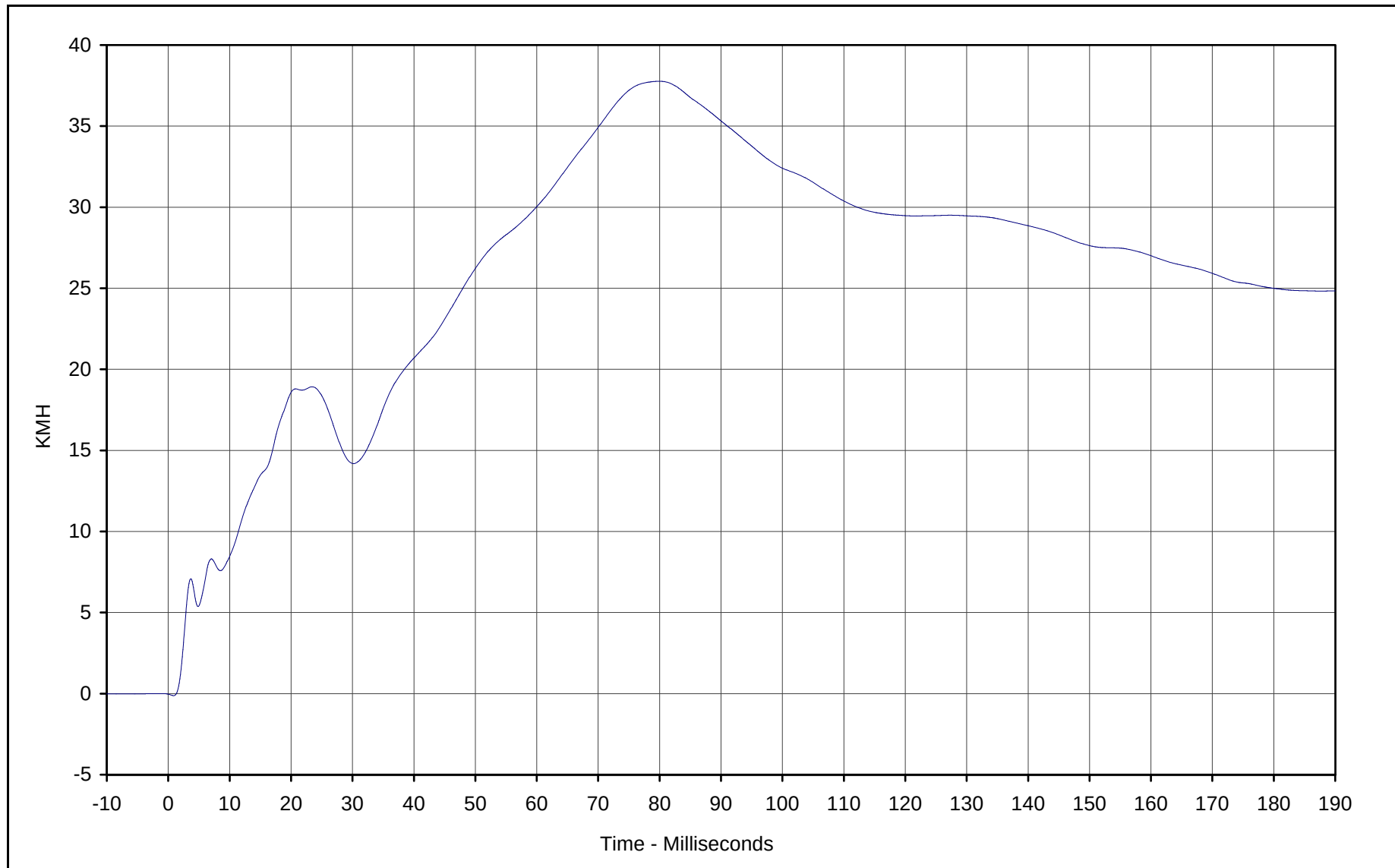




Curve Description: Left A-Post Middle Y
Maximum Value: 48.6 at 2.5 Milliseconds
Minimum Value: -27.3 at 26.9 Milliseconds
SAE Filter Class: 60
Date of Test: 02/15/01
Curve Number: FIL-047

Test Program: 55/28 km/h Side Impact NCAP No.: SUB001
Test Vehicle: 2001 Subaru Forester AWD Wagon

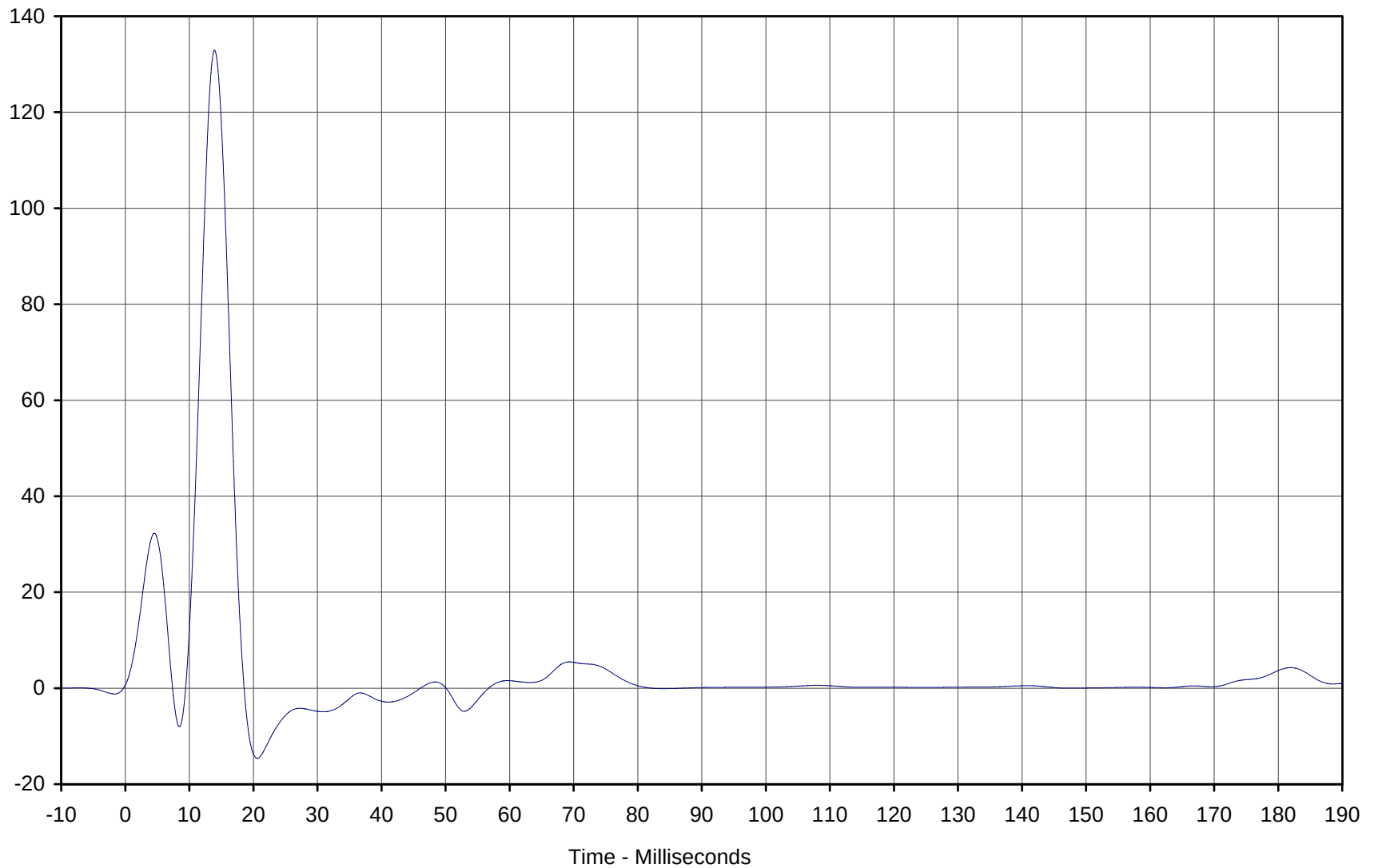




Curve Description: Left A-Post Middle Y Velocity
Maximum Value: 37.8 at 79.9 Milliseconds
Minimum Value: -0.1 at 0.9 Milliseconds
SAE Filter Class: 180
Date of Test: 02/15/01
Curve Number: IN1-047

Test Program: 55/28 km/h Side Impact NCAP No.: SUB001
Test Vehicle: 2001 Subaru Forester AWD Wagon

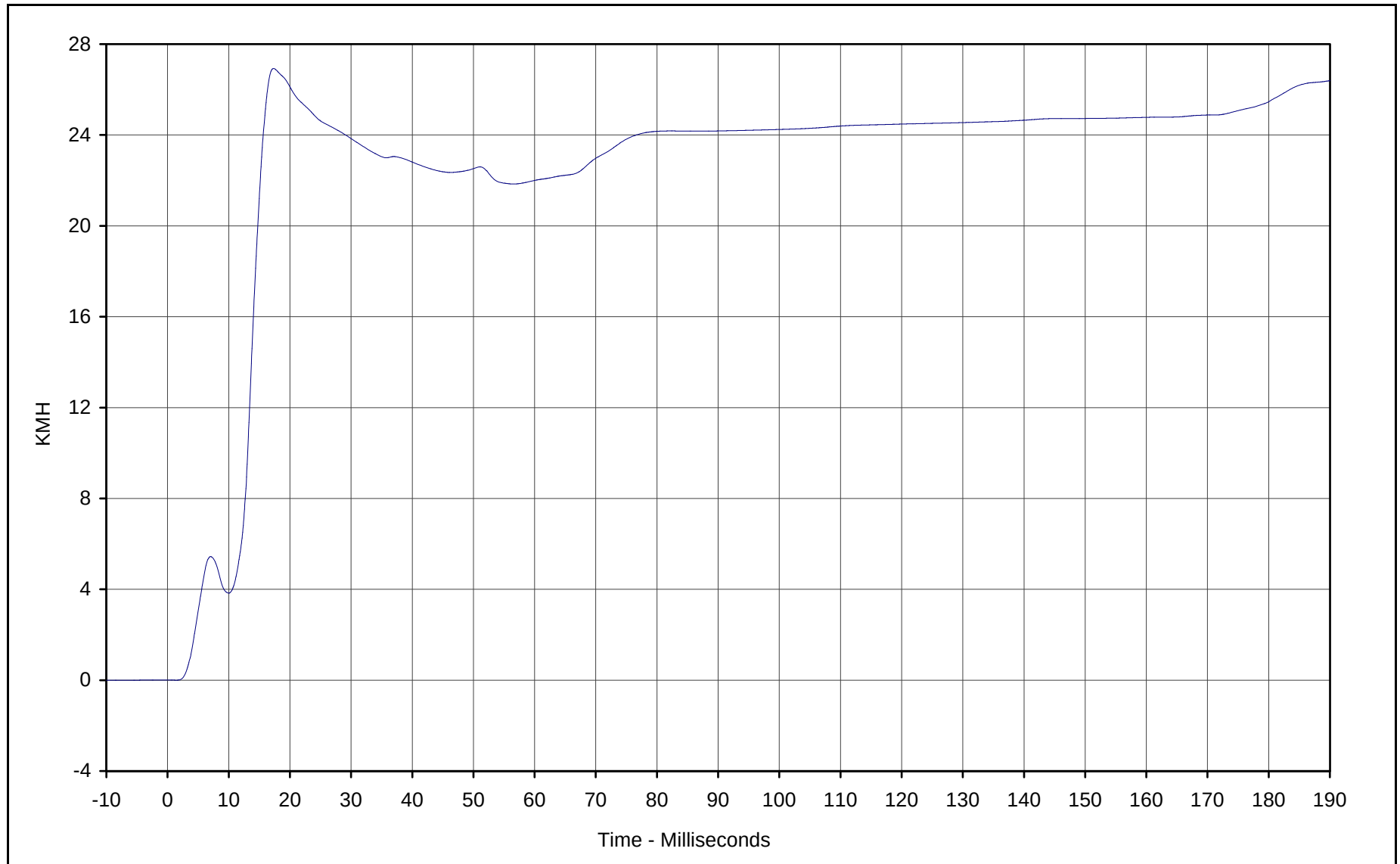




Curve Description: Left Front Seat Track Y
Maximum Value: 132.9 at 14.0 Milliseconds
Minimum Value: -14.6 at 20.6 Milliseconds
SAE Filter Class: 60
Date of Test: 02/15/01
Curve Number: FIL-048

Test Program: 55/28 km/h Side Impact NCAP No.: SUB001
Test Vehicle: 2001 Subaru Forester AWD Wagon

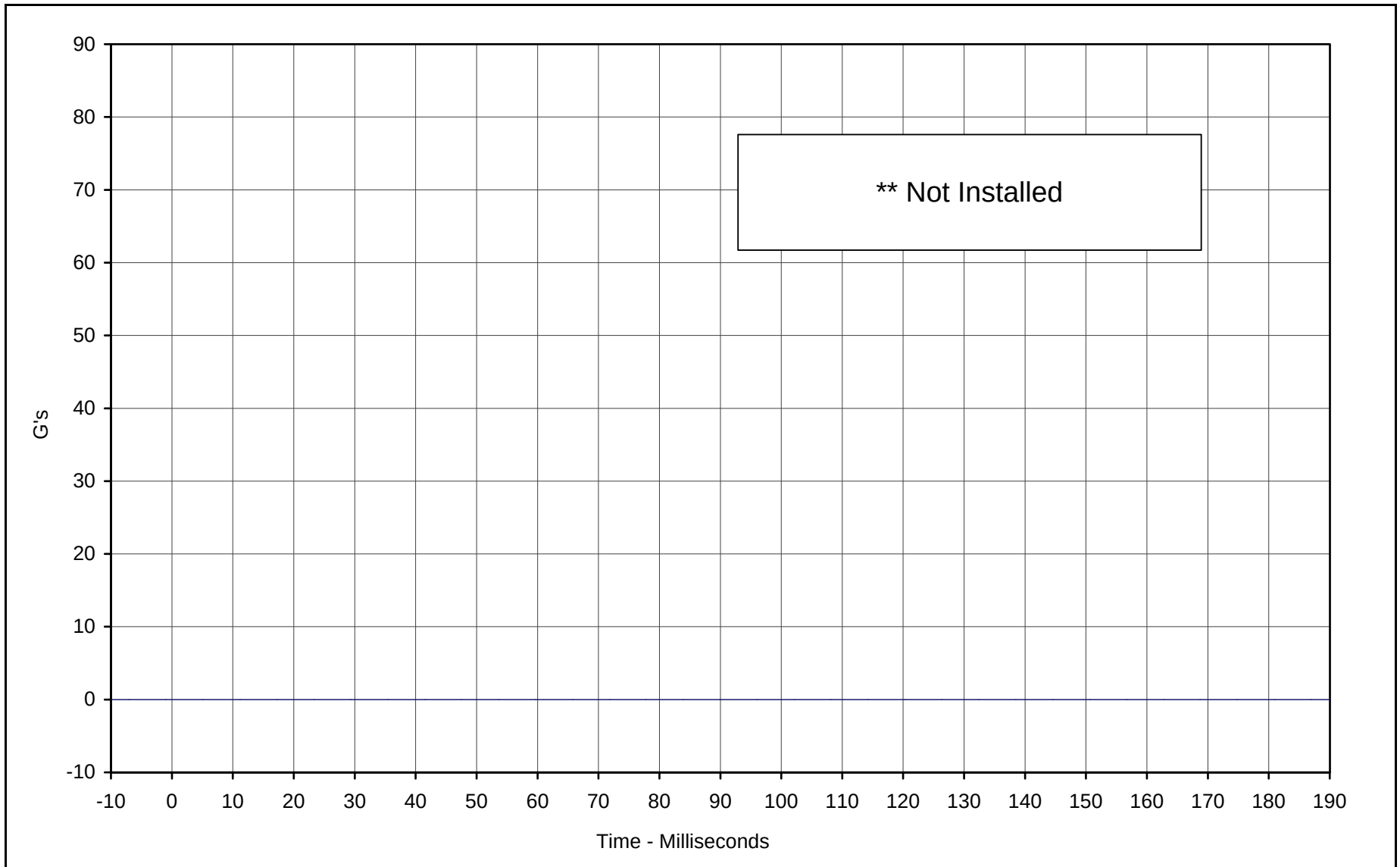




Curve Description: Left Front Seat Track Y Velocity
Maximum Value: 26.9 at 17.3 Milliseconds
Minimum Value: 0.0 at 1.4 Milliseconds
SAE Filter Class: 180
Date of Test: 02/15/01
Curve Number: IN1-048

Test Program: 55/28 km/h Side Impact NCAP No.: SUB001
Test Vehicle: 2001 Subaru Forester AWD Wagon





Curve Description: Left Rear Seat Structure Y **

Maximum Value: 0.0 at 0.0 Milliseconds

Minimum Value: 0.0 at 0.0 Milliseconds

SAE Filter Class: 60

Date of Test: 02/15/01

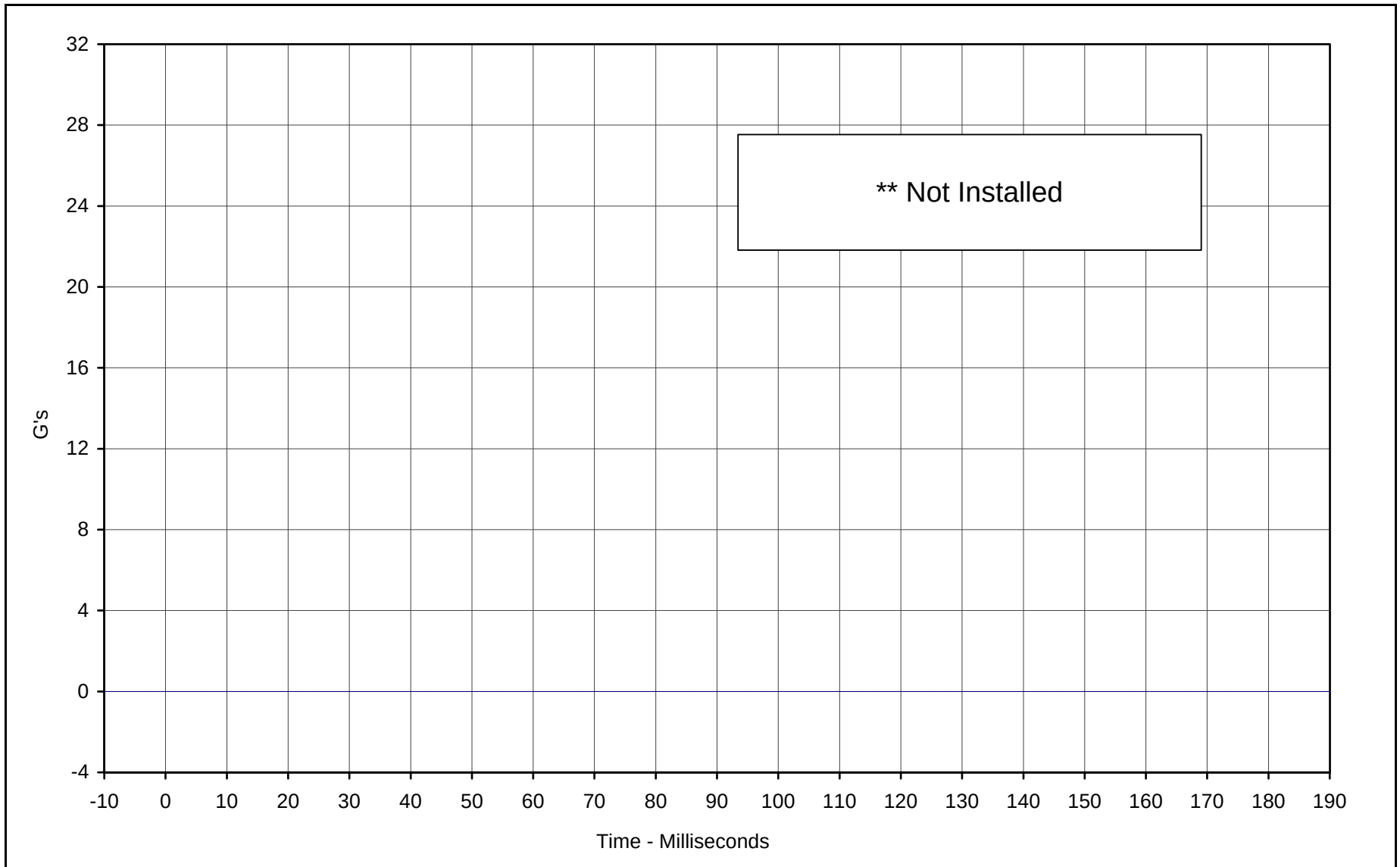
Curve Number: FIL-049

Test Program: 55/28 km/h Side Impact NCAP No.: SUB001

Test Vehicle: 2001 Subaru Forester AWD Wagon

** Not Installed





Curve Description: Left Rear Seat Structure Y Velocity **

Maximum Value: 0.0 at 0.0 Milliseconds

Minimum Value: 0.0 at 0.0 Milliseconds

SAE Filter Class: 180

Date of Test: 02/15/01

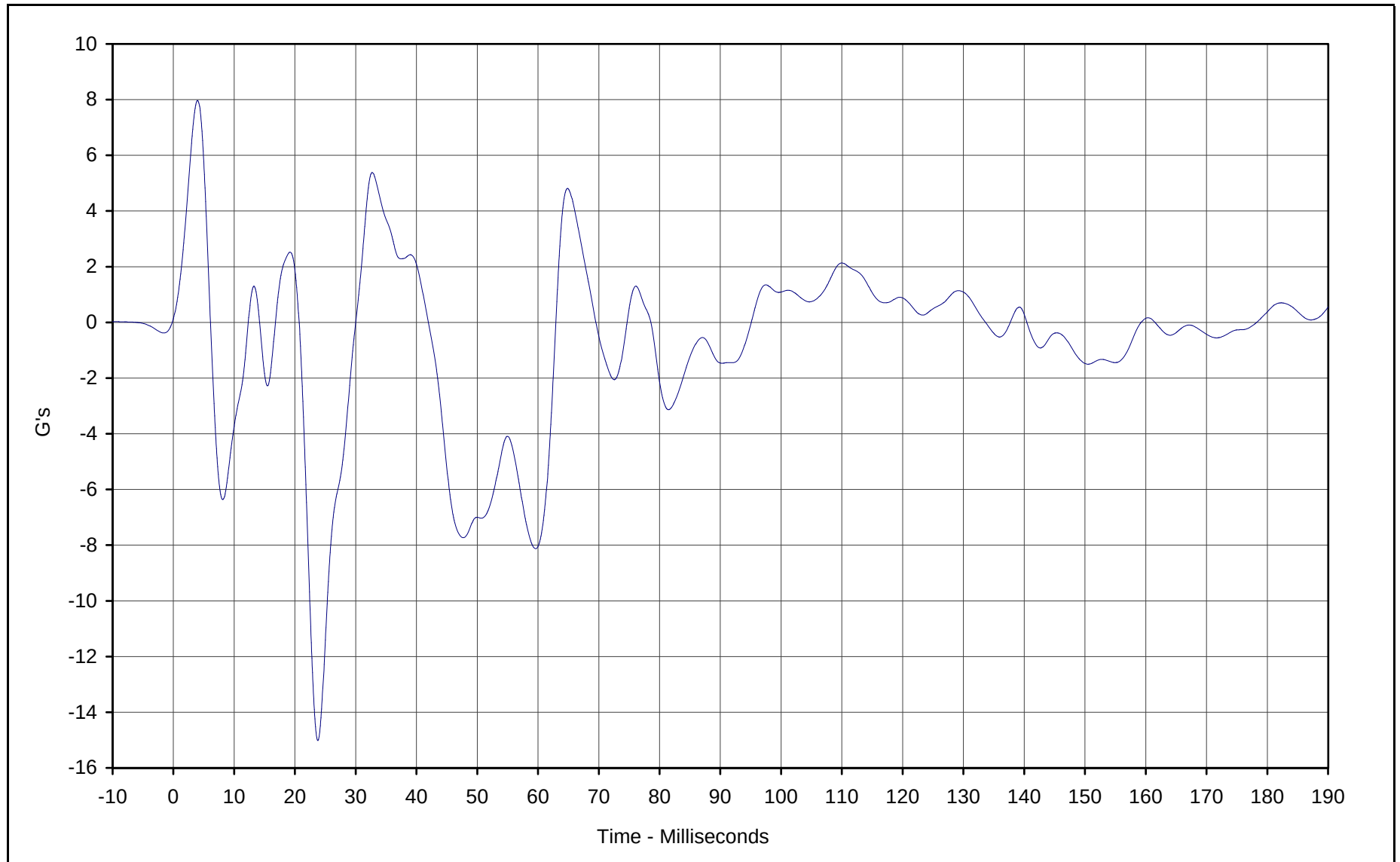
Curve Number: IN1-049

Test Program: 55/28 km/h Side Impact NCAP No.: SUB001

Test Vehicle: 2001 Subaru Forester AWD Wagon

** Not Installed

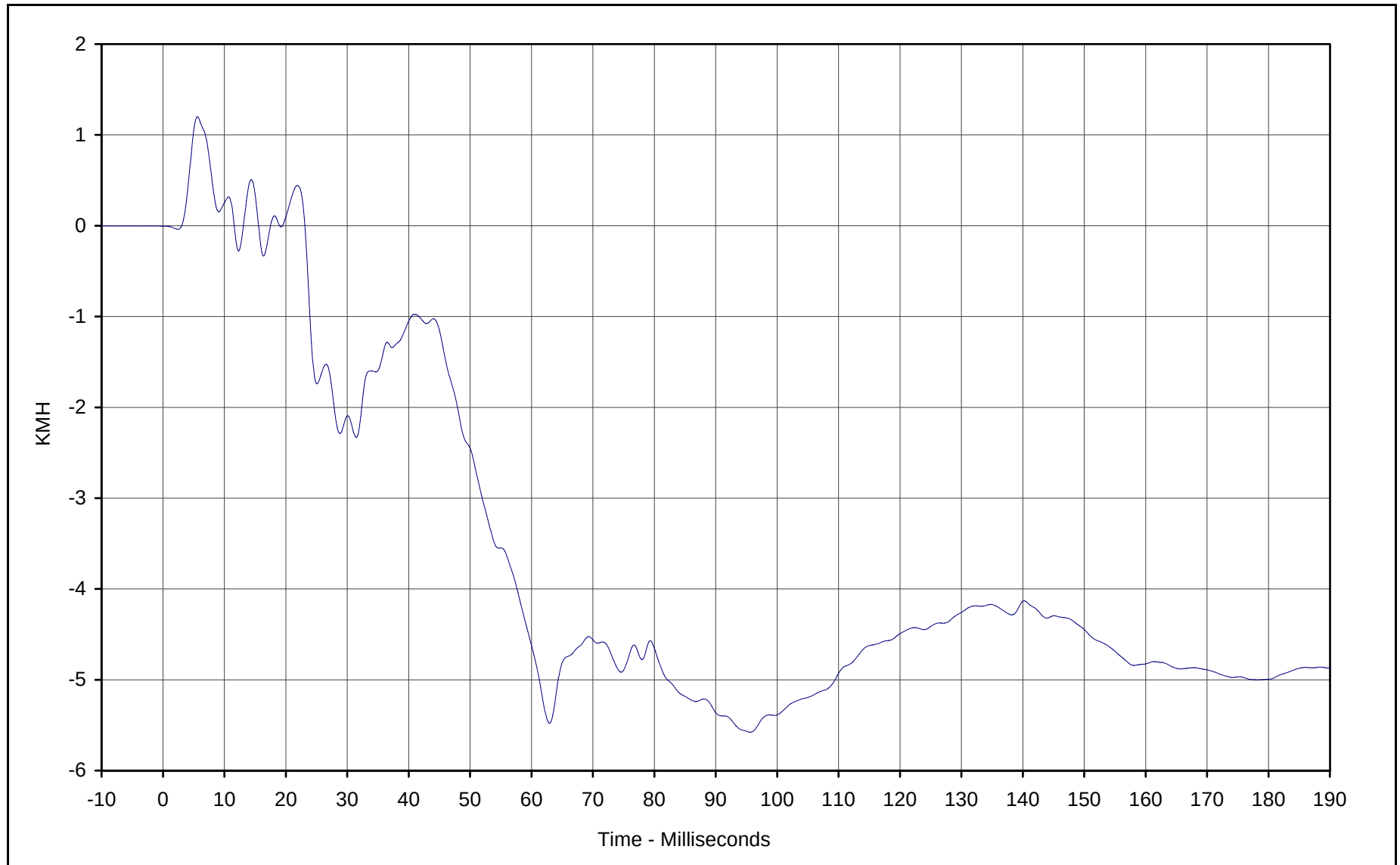




Curve Description: Vehicle CG X
Maximum Value: 8.0 at 4.0 Milliseconds
Minimum Value: -15.0 at 23.8 Milliseconds
SAE Filter Class: 60
Date of Test: 02/15/01
Curve Number: FIL-050

Test Program: 55/28 km/h Side Impact NCAP No.: SUB001
Test Vehicle: 2001 Subaru Forester AWD Wagon

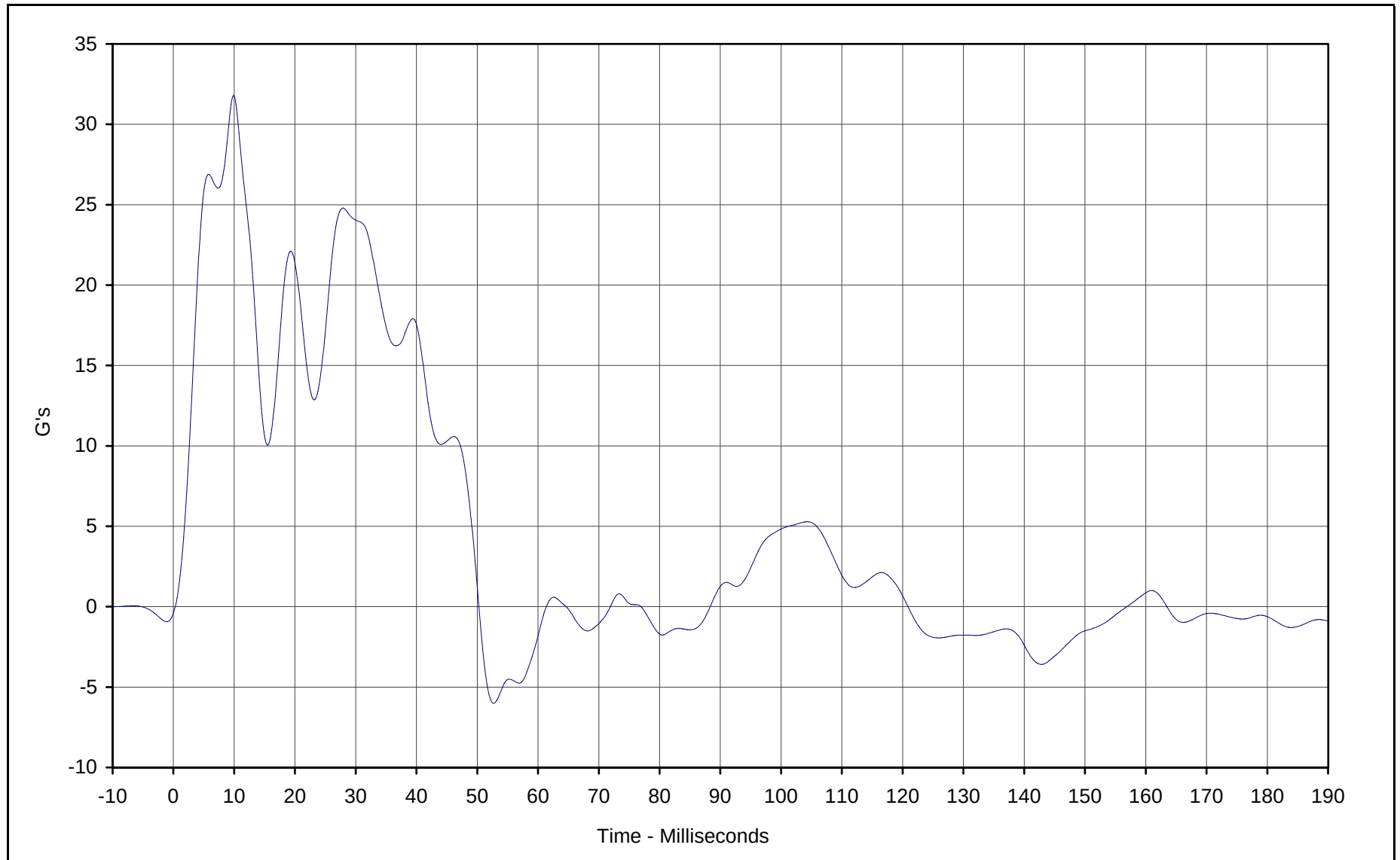




Curve Description: Vehicle CG X Velocity
Maximum Value: 1.2 at 5.6 Milliseconds
Minimum Value: -5.6 at 95.6 Milliseconds
SAE Filter Class: 180
Date of Test: 02/15/01
Curve Number: IN1-050

Test Program: 55/28 km/h Side Impact NCAP No.: SUB001
Test Vehicle: 2001 Subaru Forester AWD Wagon

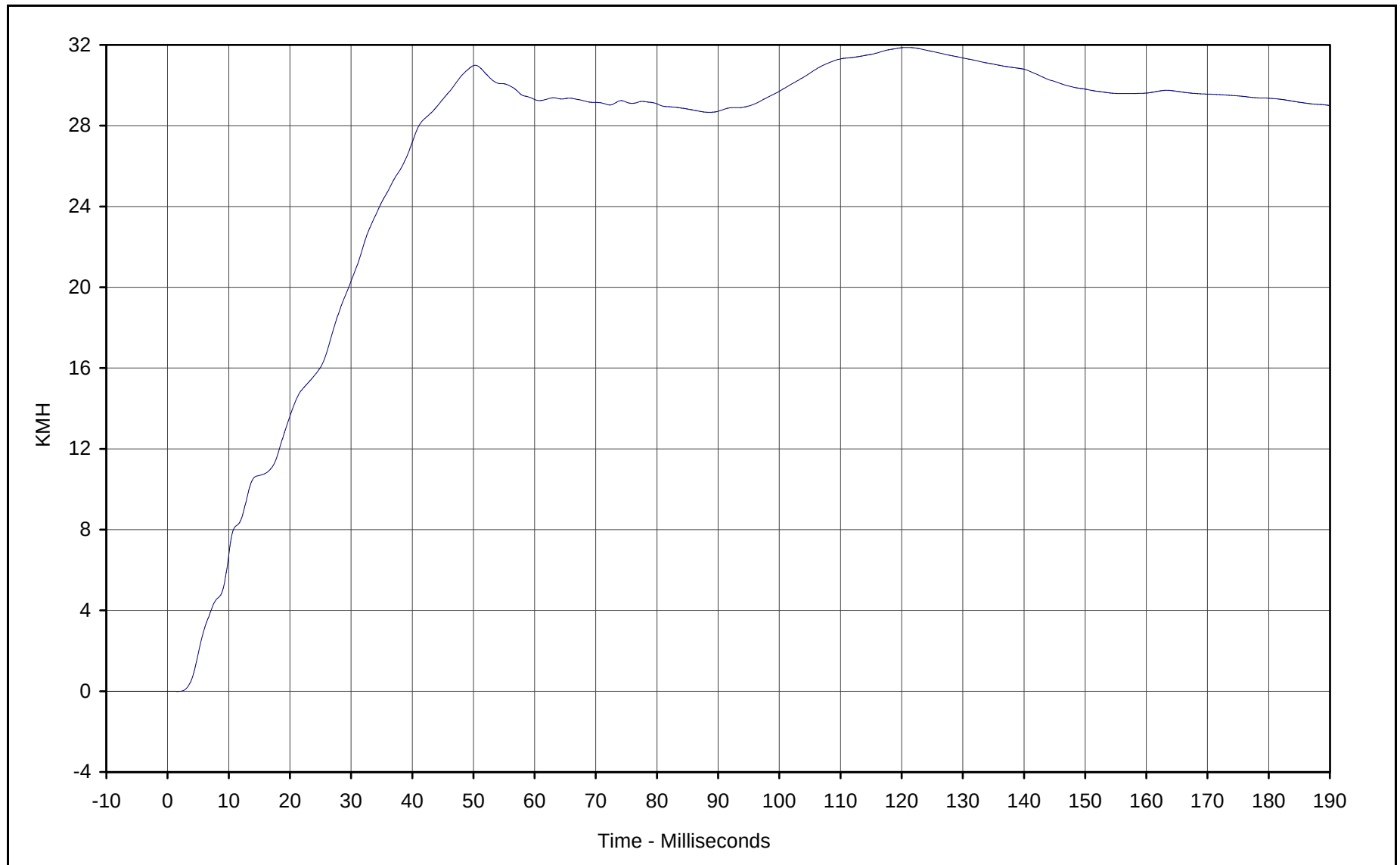




Curve Description: Vehicle CG Y
Maximum Value: 31.8 at 9.9 Milliseconds
Minimum Value: -6.0 at 52.7 Milliseconds
SAE Filter Class: 60
Date of Test: 02/15/01
Curve Number: FIL-051

Test Program: 55/28 km/h Side Impact NCAP No.: SUB001
Test Vehicle: 2001 Subaru Forester AWD Wagon

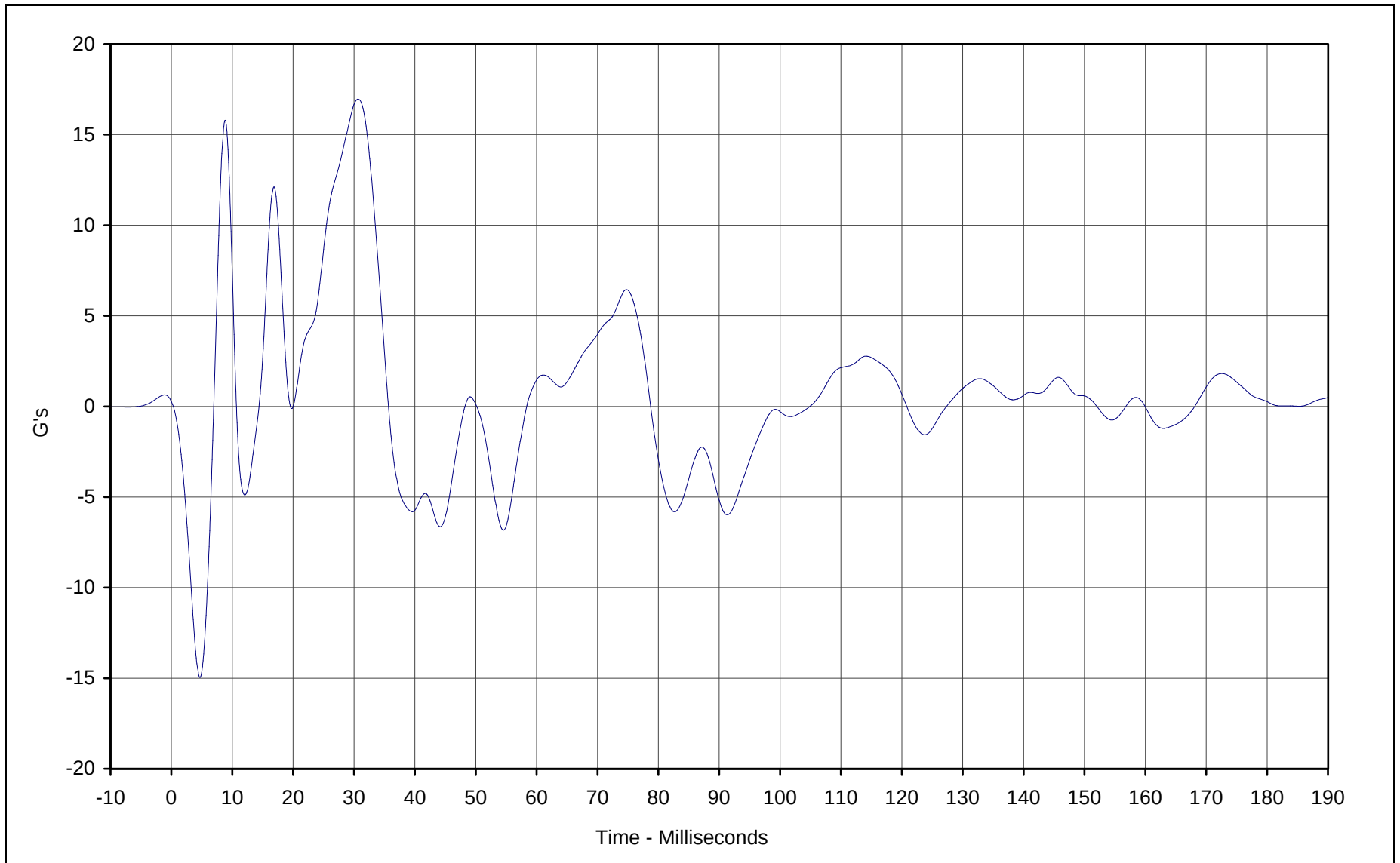




Curve Description: Vehicle CG Y Velocity
Maximum Value: 31.9 at 120.9 Milliseconds
Minimum Value: 0.0 at 1.7 Milliseconds
SAE Filter Class: 180
Date of Test: 02/15/01
Curve Number: IN1-051

Test Program: 55/28 km/h Side Impact NCAP No.: SUB001
Test Vehicle: 2001 Subaru Forester AWD Wagon

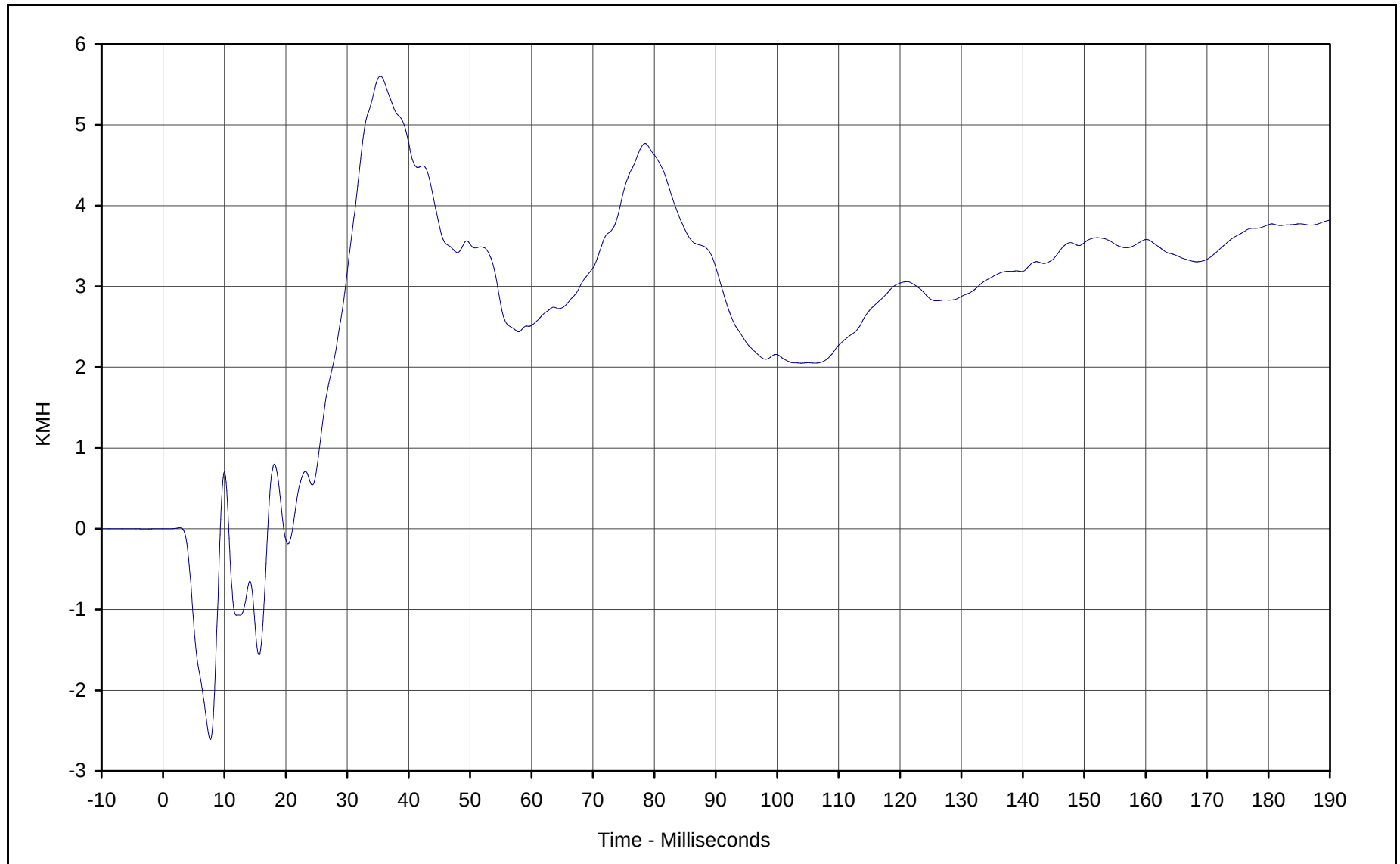




Curve Description: Vehicle CG Z
Maximum Value: 17.0 at 30.7 Milliseconds
Minimum Value: -15.0 at 4.7 Milliseconds
SAE Filter Class: 60
Date of Test: 02/15/01
Curve Number: FIL-052

Test Program: 55/28 km/h Side Impact NCAP No.: SUB001
Test Vehicle: 2001 Subaru Forester AWD Wagon

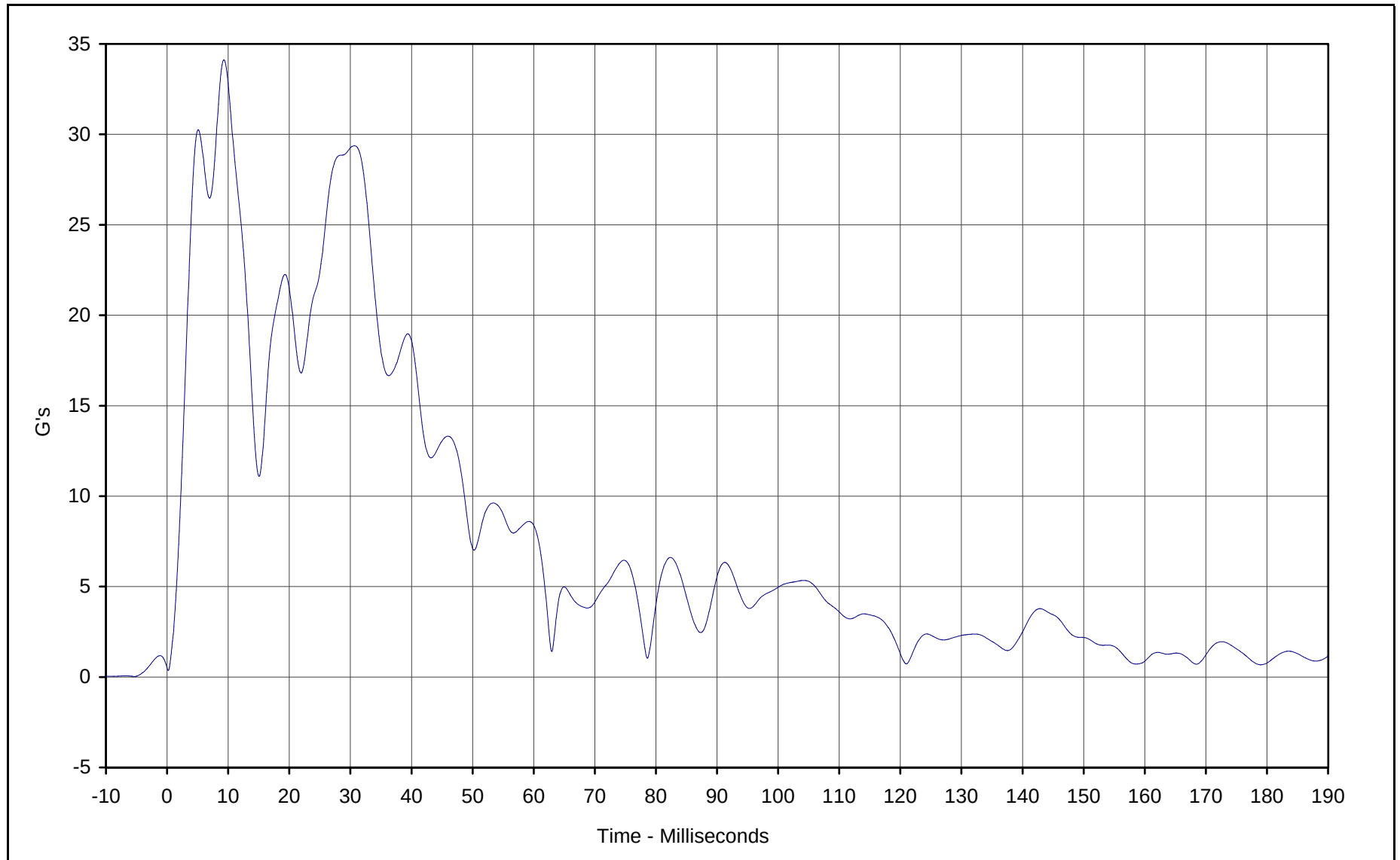




Curve Description: Vehicle CG Z Velocity
Maximum Value: 5.6 at 35.4 Milliseconds
Minimum Value: -2.6 at 7.7 Milliseconds
SAE Filter Class: 180
Date of Test: 02/15/01
Curve Number: IN1-052

Test Program: 55/28 km/h Side Impact NCAP No.: SUB001
Test Vehicle: 2001 Subaru Forester AWD Wagon

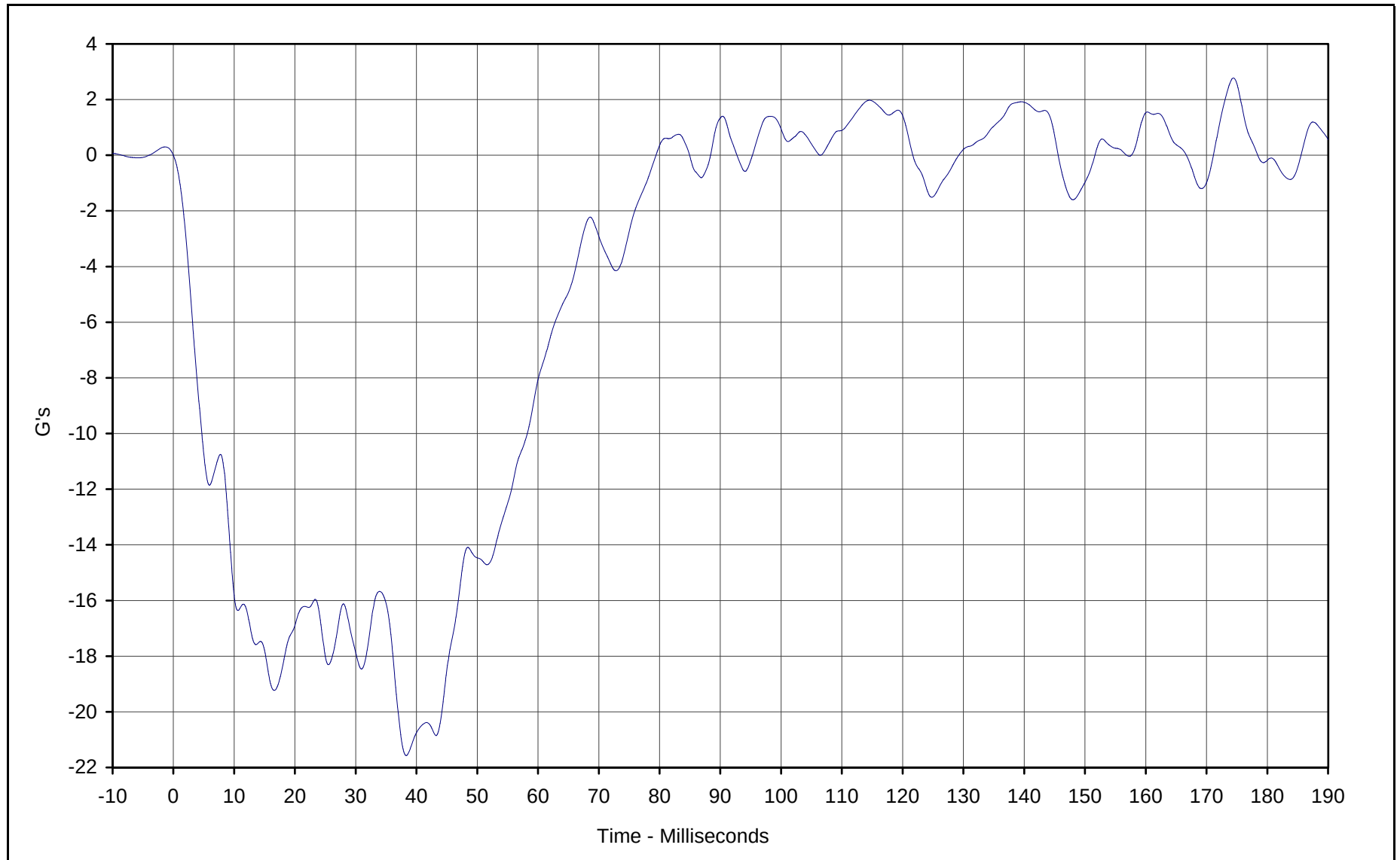




Curve Description: Vehicle CG Resultant
Maximum Value: 34.1 at 9.3 Milliseconds
Minimum Value: 0.4 at 0.2 Milliseconds
SAE Filter Class: 60
Date of Test: 02/15/01
Curve Number: RES-050

Test Program: 55/28 km/h Side Impact NCAP No.: SUB001
Test Vehicle: 2001 Subaru Forester AWD Wagon

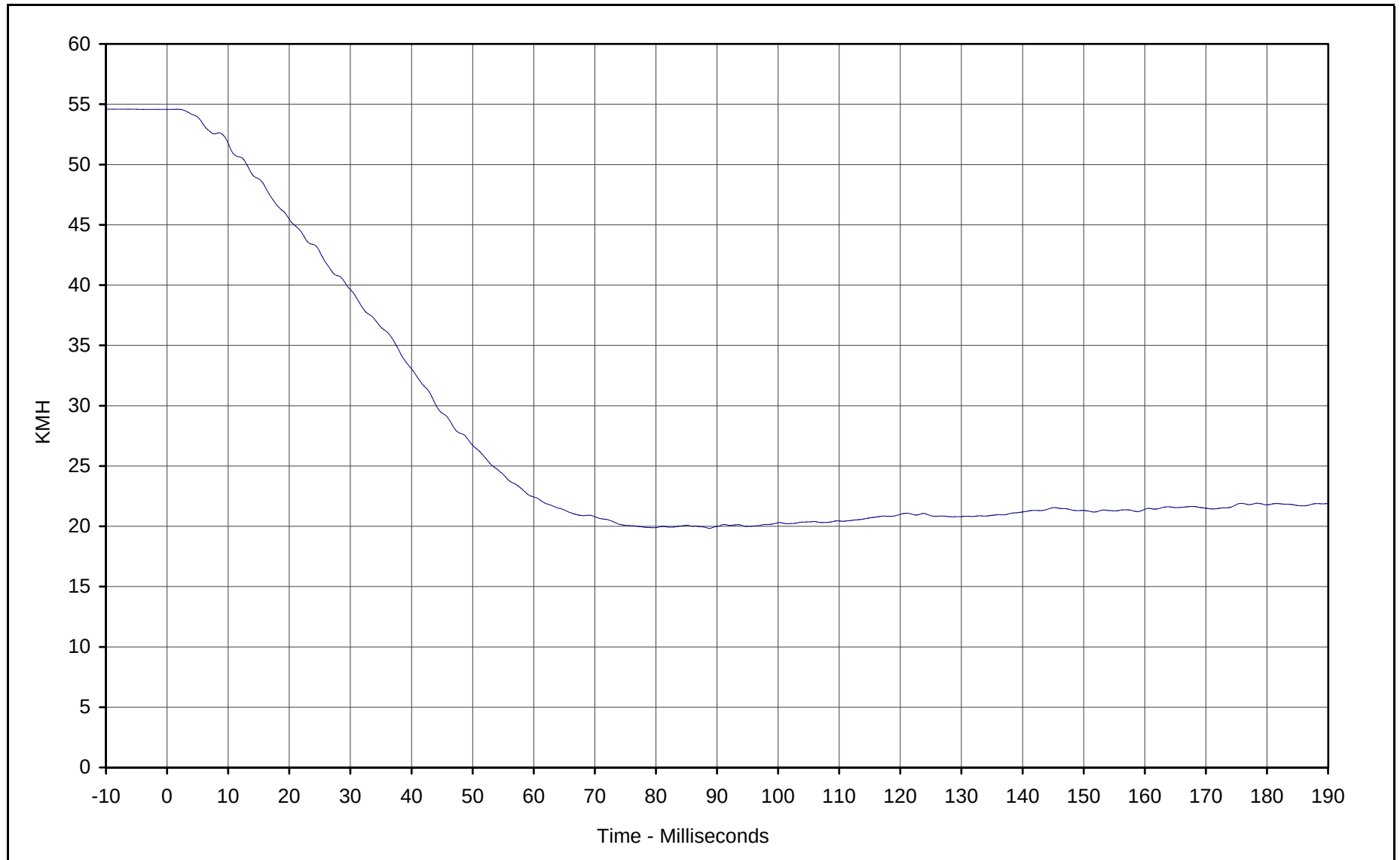




Curve Description: MDB CG X
Maximum Value: 2.8 at 174.4 Milliseconds
Minimum Value: -21.6 at 38.3 Milliseconds
SAE Filter Class: 60
Date of Test: 02/15/01
Curve Number: FIL-053

Test Program: 55/28 km/h Side Impact NCAP No.: SUB001
Test Vehicle: 2001 Subaru Forester AWD Wagon





Curve Description: MDB CG X Velocity

Maximum Value: 54.6 at 1.6 Milliseconds

Minimum Value: 19.8 at 88.8 Milliseconds

SAE Filter Class: 180

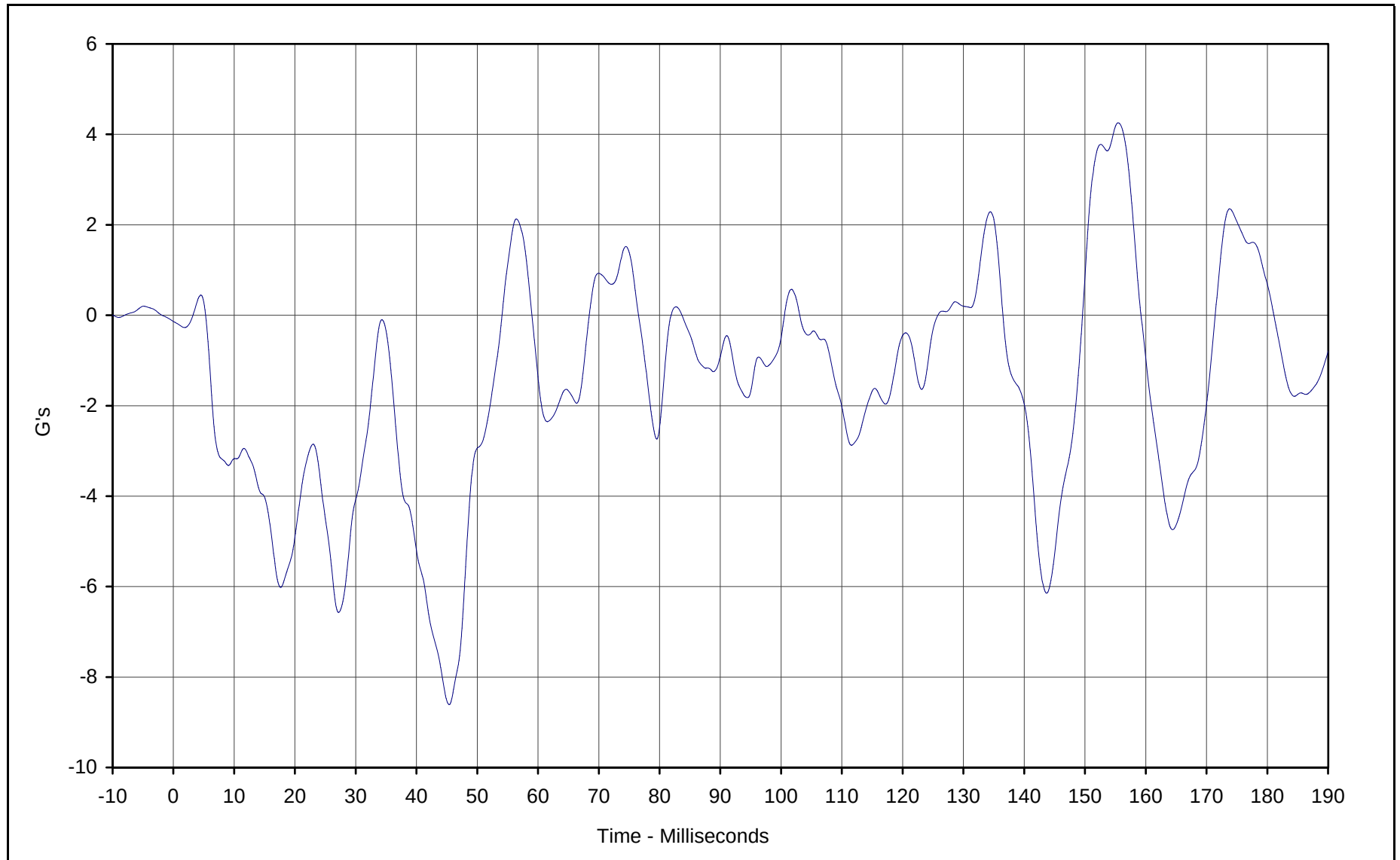
Date of Test: 02/15/01

Curve Number: IN1-053

Test Program: 55/28 km/h Side Impact NCAP No.: SUB001

Test Vehicle: 2001 Subaru Forester AWD Wagon

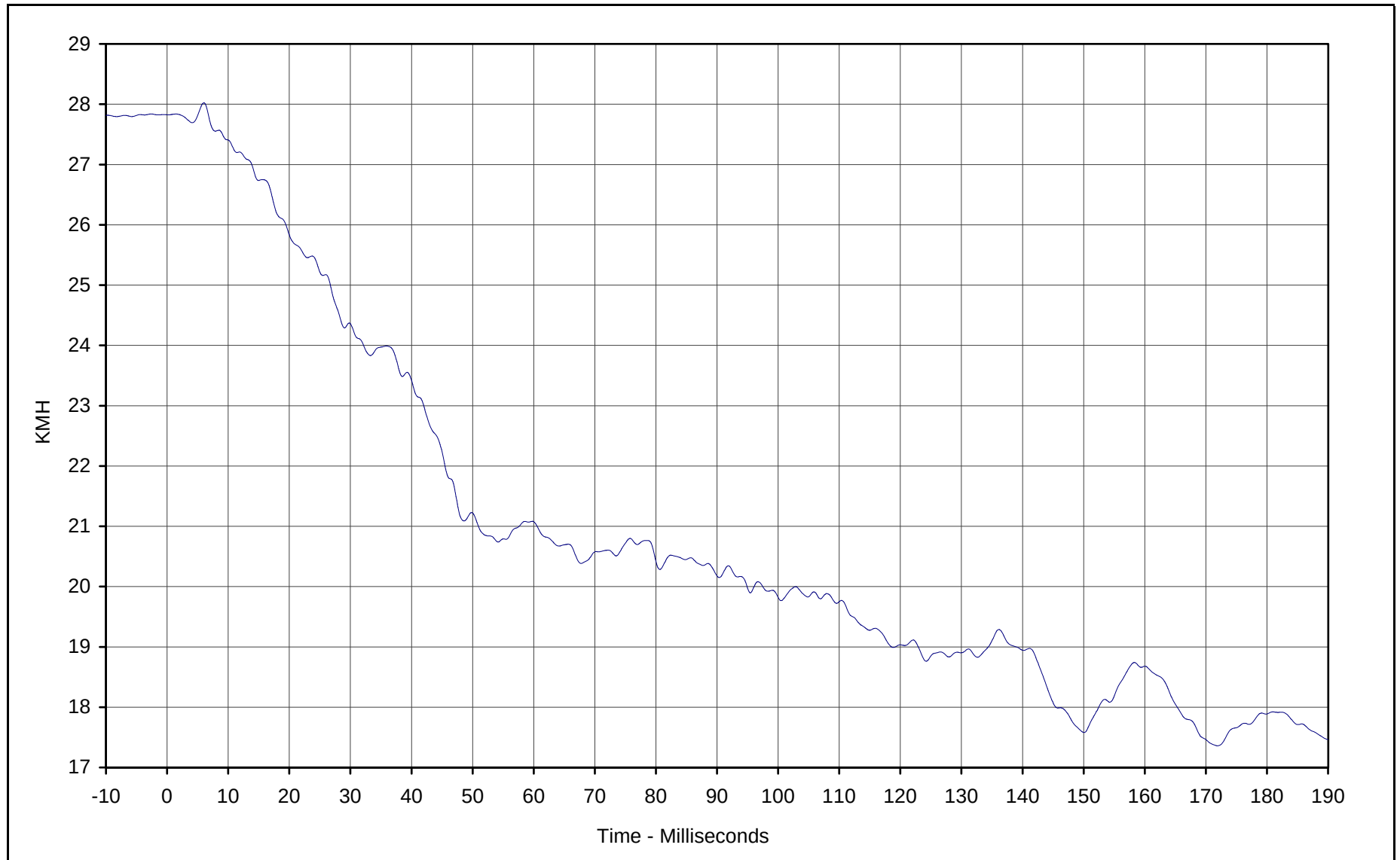




Curve Description: MDB CG Y
Maximum Value: 4.3 at 155.5 Milliseconds
Minimum Value: -8.6 at 45.4 Milliseconds
SAE Filter Class: 60
Date of Test: 02/15/01
Curve Number: FIL-054

Test Program: 55/28 km/h Side Impact NCAP No.: SUB001
Test Vehicle: 2001 Subaru Forester AWD Wagon

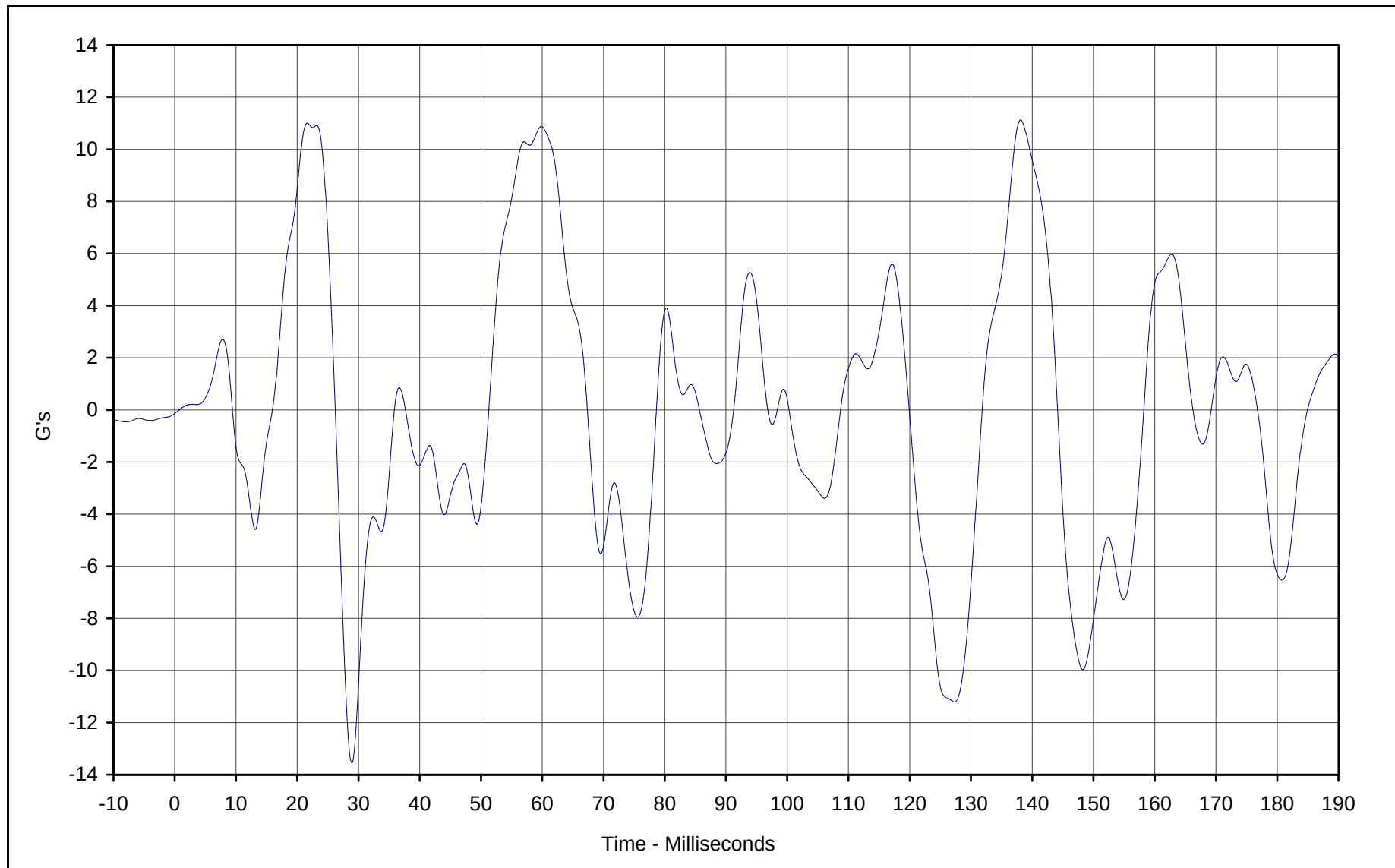




Curve Description: MDB CG Y Velocity
Maximum Value: 28.0 at 6.0 Milliseconds
Minimum Value: 17.4 at 171.9 Milliseconds
SAE Filter Class: 180
Date of Test: 02/15/01
Curve Number: IN1-054

Test Program: 55/28 km/h Side Impact NCAP No.: SUB001
Test Vehicle: 2001 Subaru Forester AWD Wagon

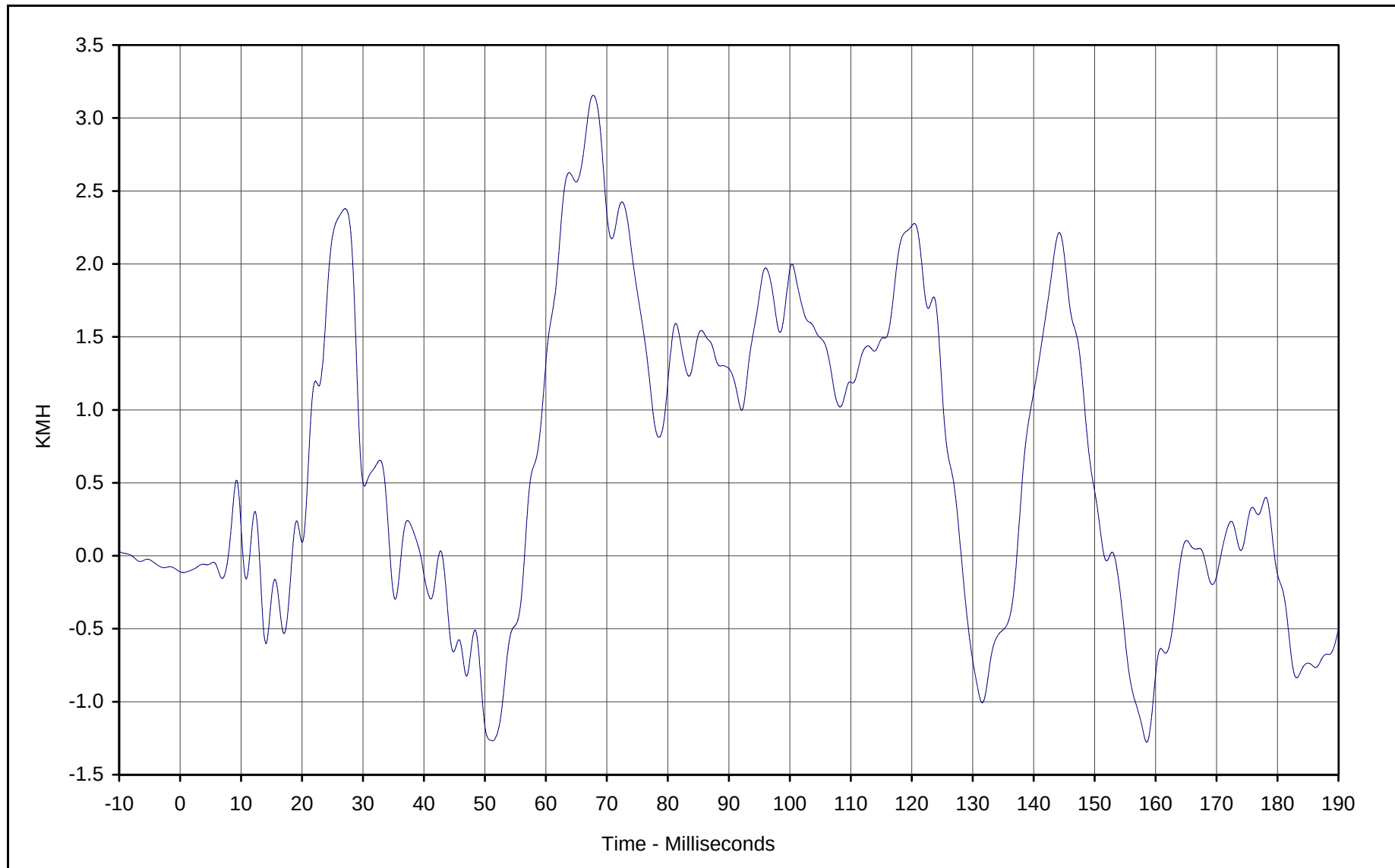




Curve Description: MDB CG Z
Maximum Value: 11.1 at 138.1 Milliseconds
Minimum Value: -13.6 at 28.9 Milliseconds
SAE Filter Class: 60
Date of Test: 02/15/01
Curve Number: FIL-055

Test Program: 55/28 km/h Side Impact NCAP No.: SUB001
Test Vehicle: 2001 Subaru Forester AWD Wagon

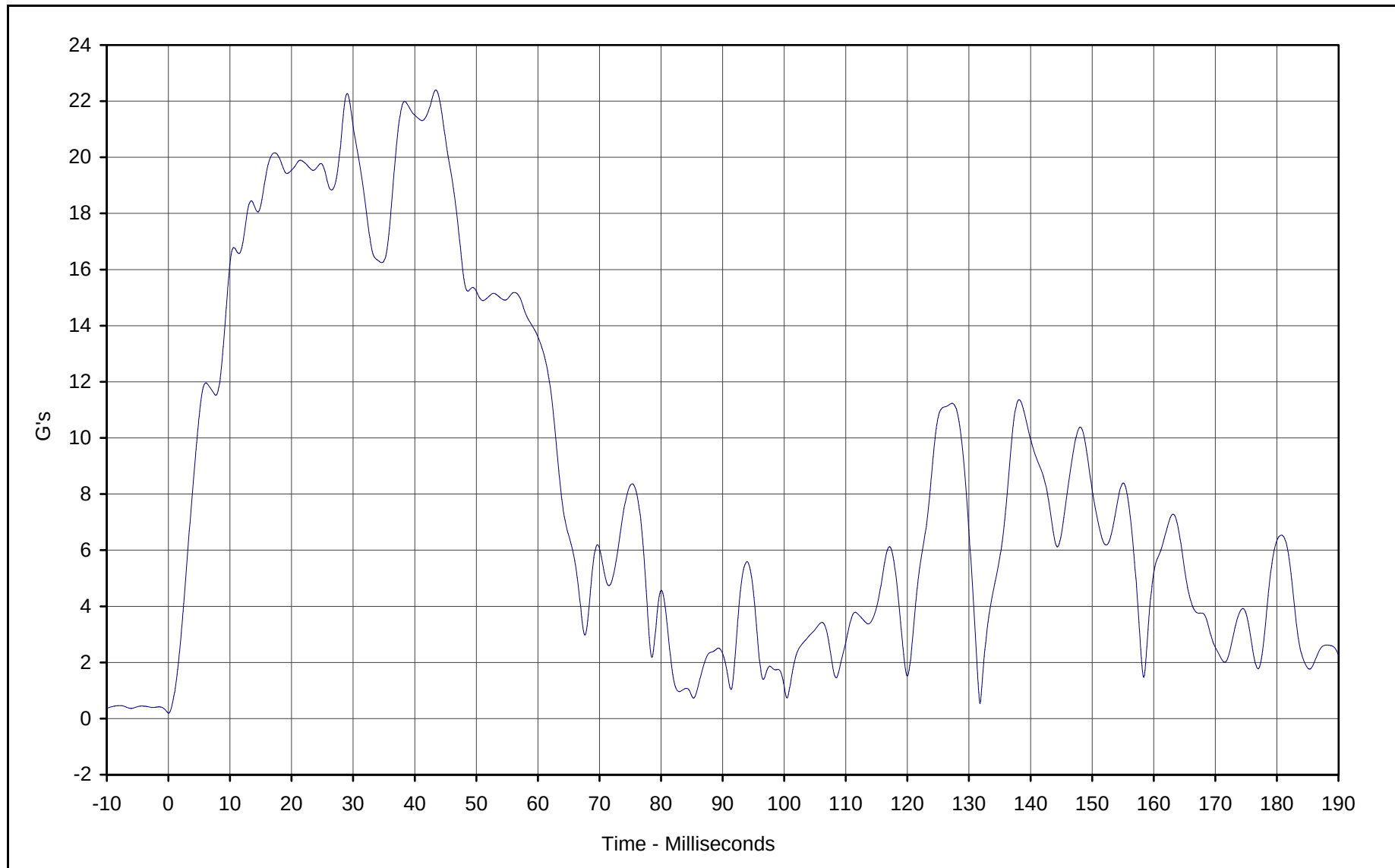




Curve Description: MDB CG Z Velocity
Maximum Value: 3.2 at 67.8 Milliseconds
Minimum Value: -1.3 at 158.6 Milliseconds
SAE Filter Class: 180
Date of Test: 02/15/01
Curve Number: IN1-055

Test Program: 55/28 km/h Side Impact NCAP No.: SUB001
Test Vehicle: 2001 Subaru Forester AWD Wagon

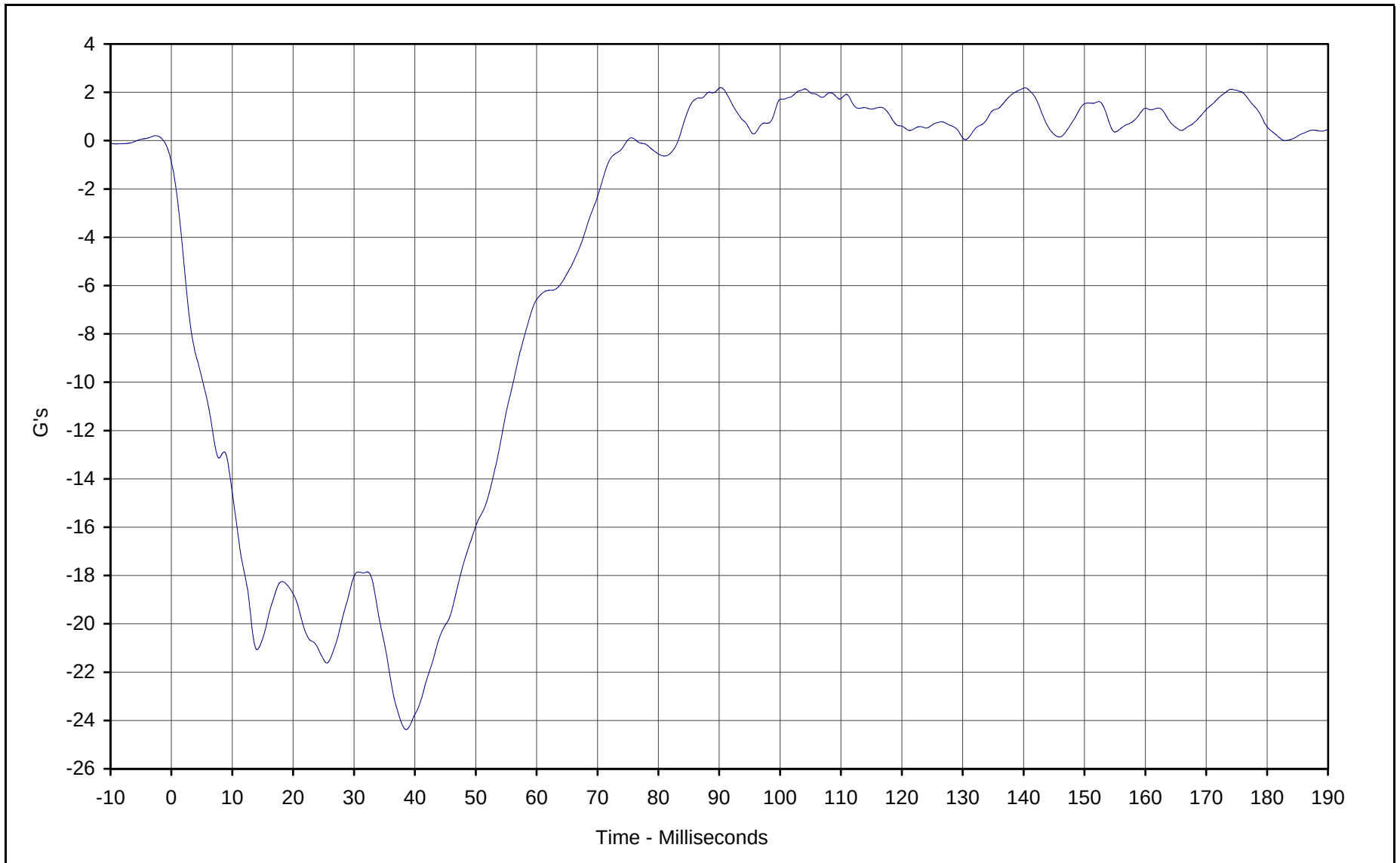




Curve Description: CG Resultant
Maximum Value: 22.4 at 43.4 Milliseconds
Minimum Value: 0.2 at 0.1 Milliseconds
SAE Filter Class: 60
Date of Test: 02/15/01
Curve Number: RES-053

Test Program: 55/28 km/h Side Impact NCAP No.: SUB001
Test Vehicle: 2001 Subaru Forester AWD Wagon

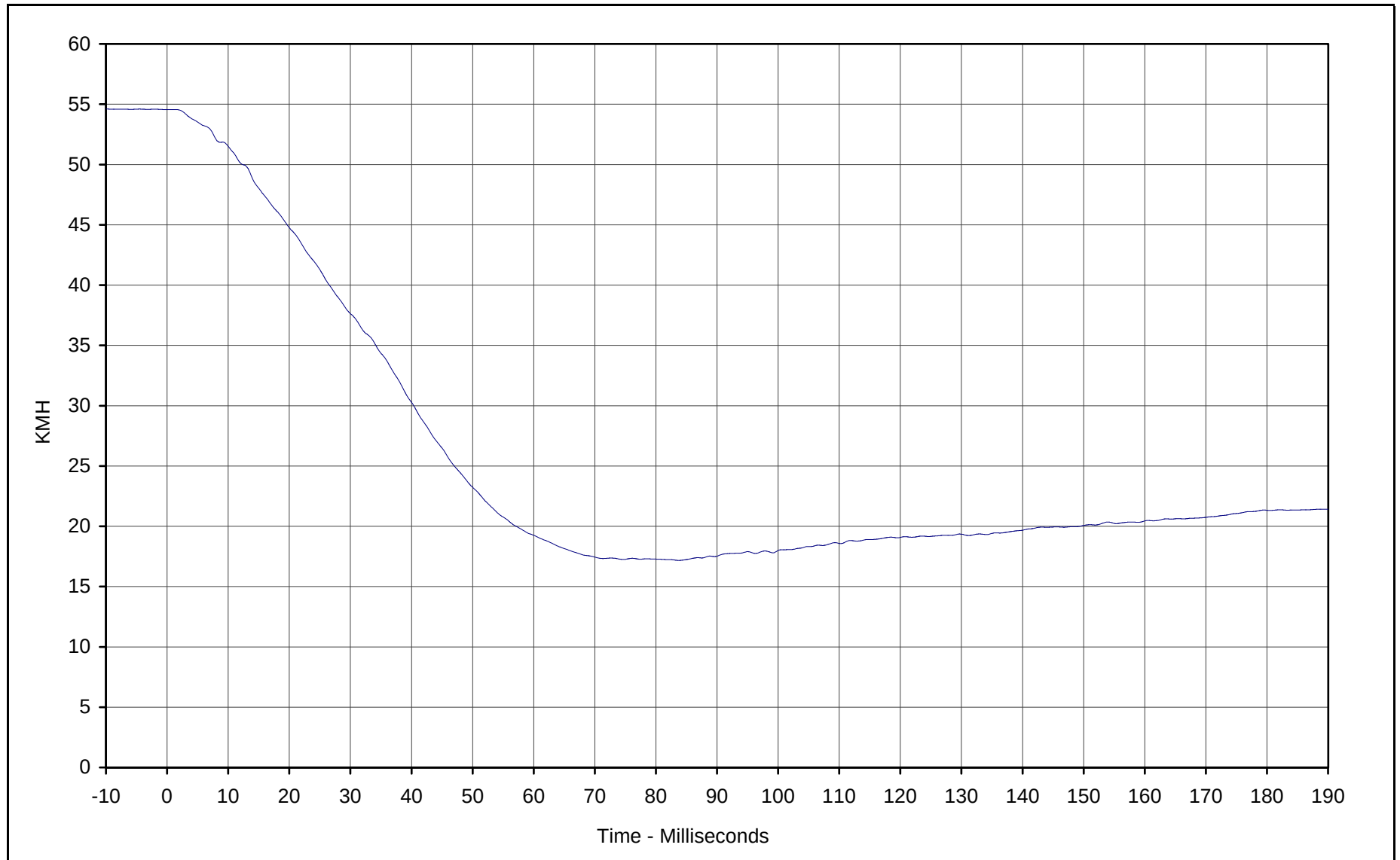




Curve Description: MDB Rear X
Maximum Value: 2.2 at 90.2 Milliseconds
Minimum Value: -24.4 at 38.6 Milliseconds
SAE Filter Class: 60
Date of Test: 02/15/01
Curve Number: FIL-056

Test Program: 55/28 km/h Side Impact NCAP No.: SUB001
Test Vehicle: 2001 Subaru Forester AWD Wagon

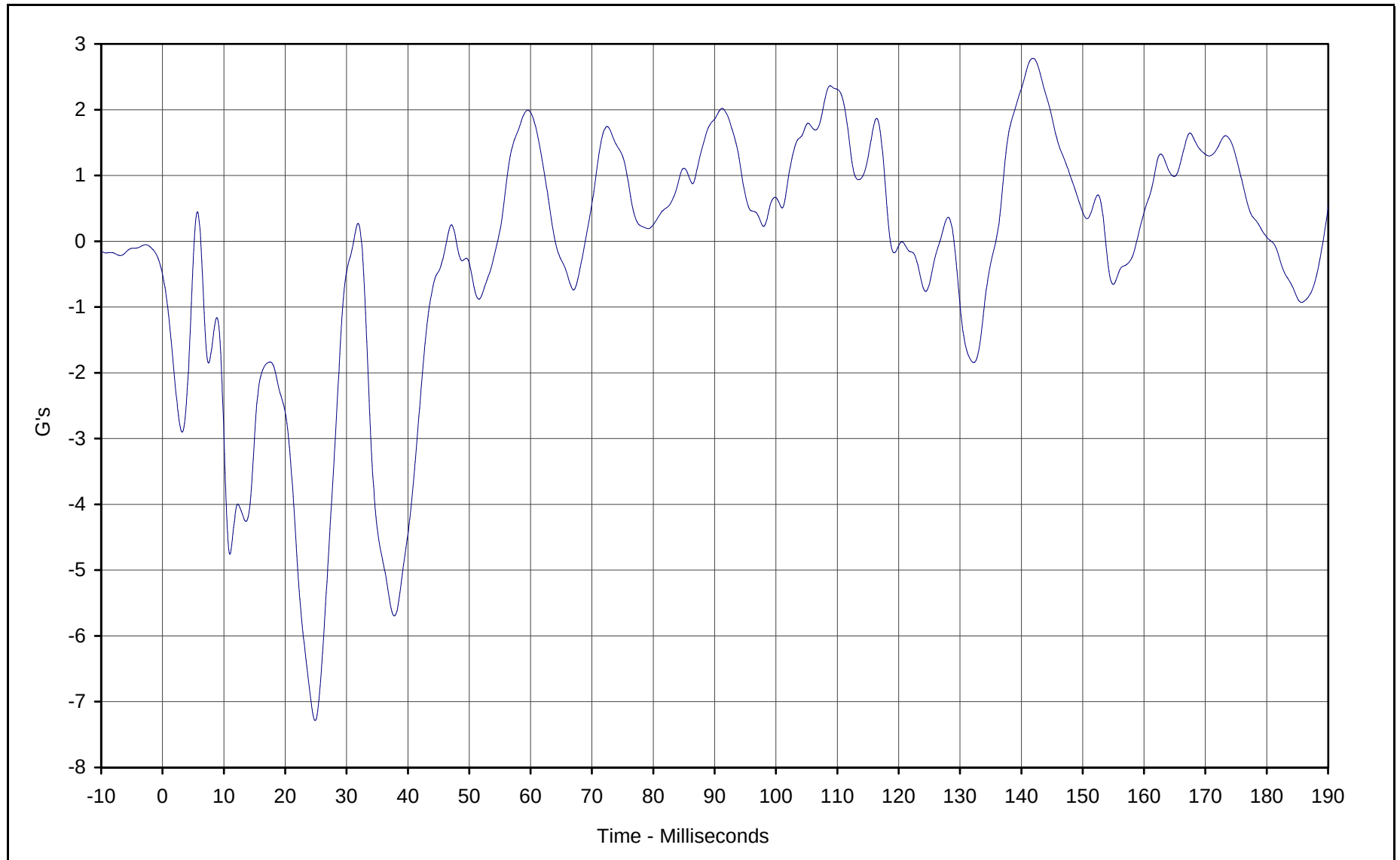




Curve Description: MDB Rear X Velocity
Maximum Value: 54.6 at 1.3 Milliseconds
Minimum Value: 17.2 at 83.8 Milliseconds
SAE Filter Class: 180
Date of Test: 02/15/01
Curve Number: IN1-056

Test Program: 55/28 km/h Side Impact NCAP No.: SUB001
Test Vehicle: 2001 Subaru Forester AWD Wagon

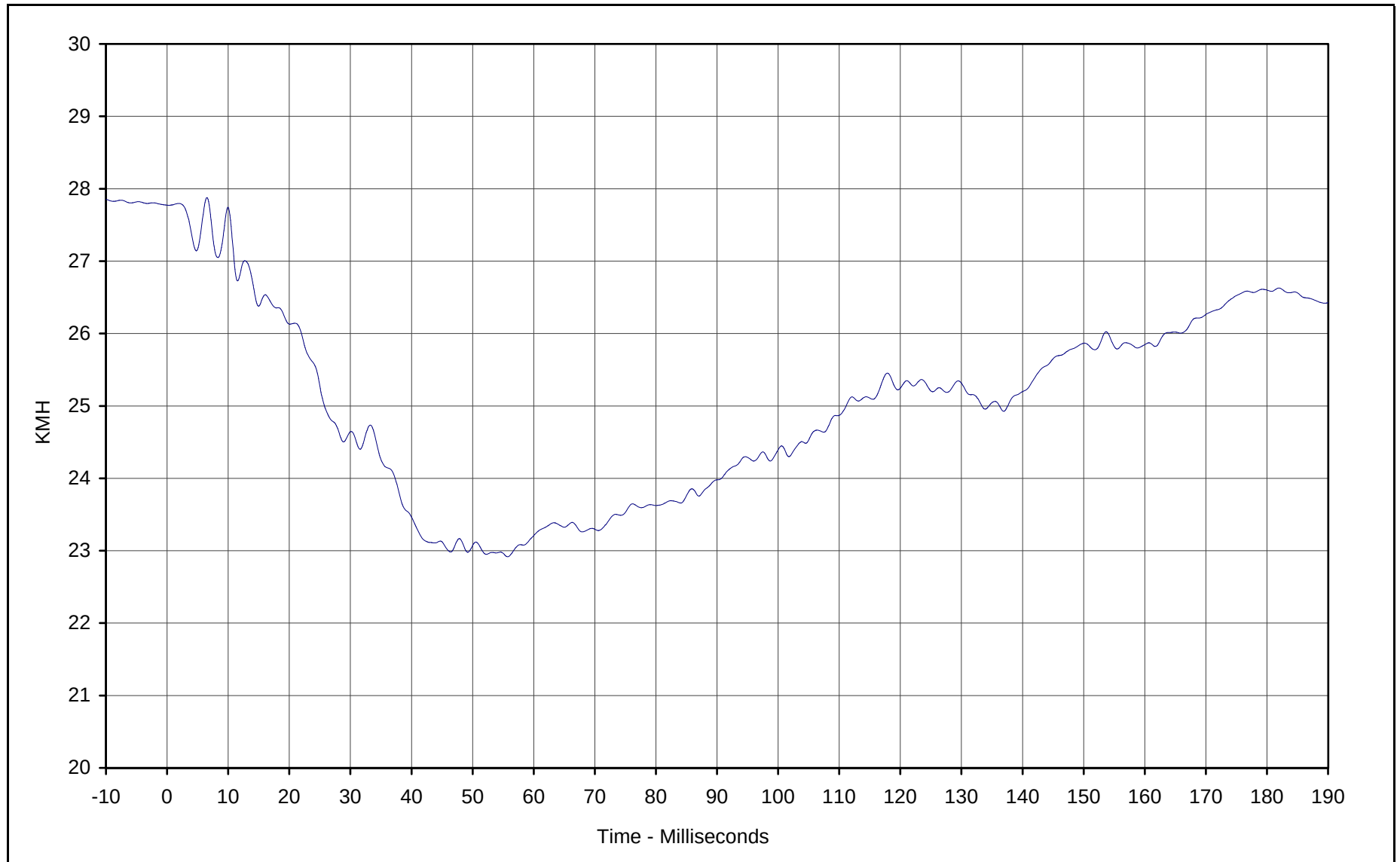




Curve Description: MDB Rear Y
Maximum Value: 2.8 at 141.9 Milliseconds
Minimum Value: -7.3 at 24.9 Milliseconds
SAE Filter Class: 60
Date of Test: 02/15/01
Curve Number: FIL-057

Test Program: 55/28 km/h Side Impact NCAP No.: SUB001
Test Vehicle: 2001 Subaru Forester AWD Wagon

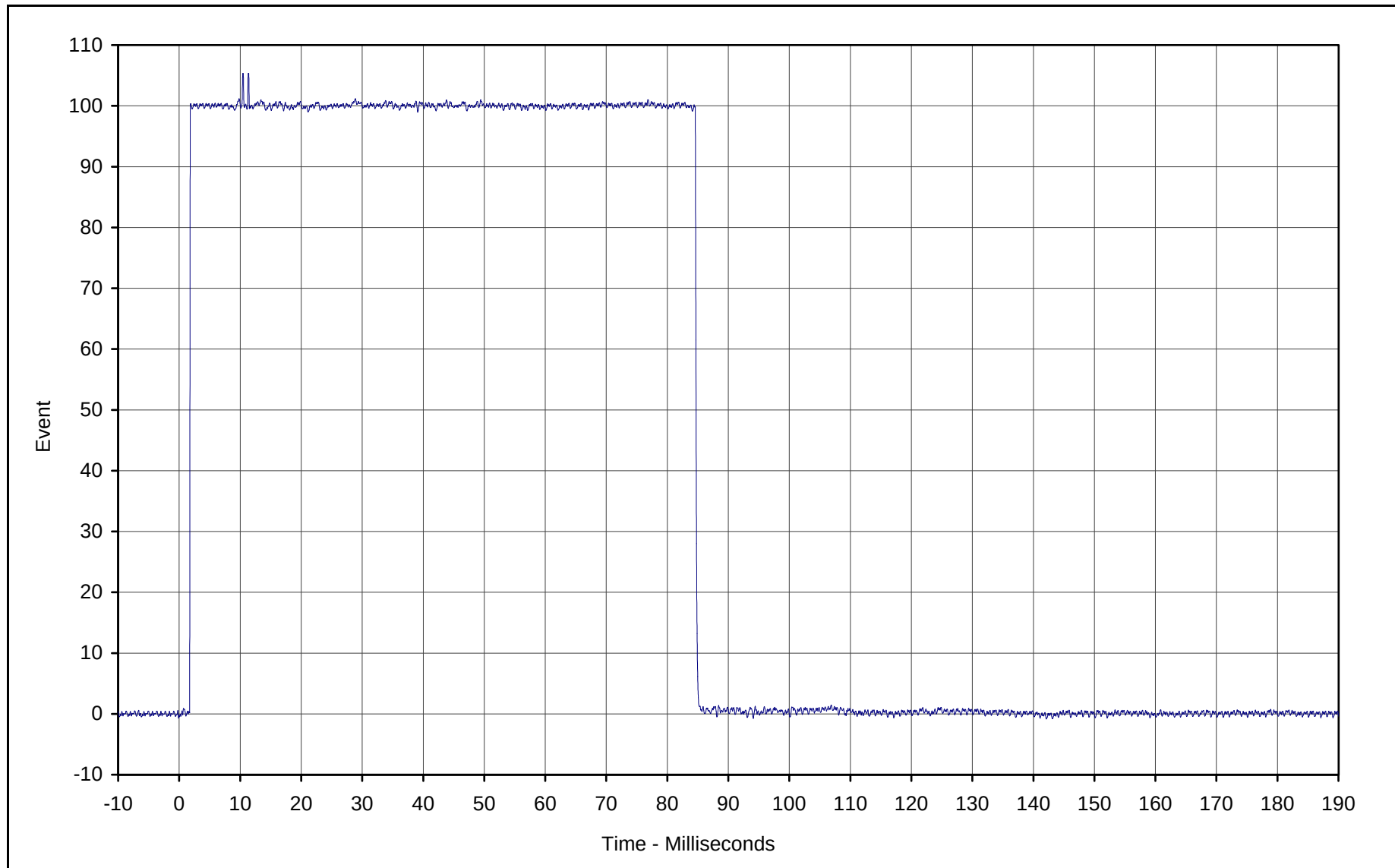




Curve Description: MDB Rear Y Velocity
Maximum Value: 27.9 at 6.5 Milliseconds
Minimum Value: 22.9 at 55.7 Milliseconds
SAE Filter Class: 180
Date of Test: 02/15/01
Curve Number: IN1-057

Test Program: 55/28 km/h Side Impact NCAP No.: SUB001
Test Vehicle: 2001 Subaru Forester AWD Wagon

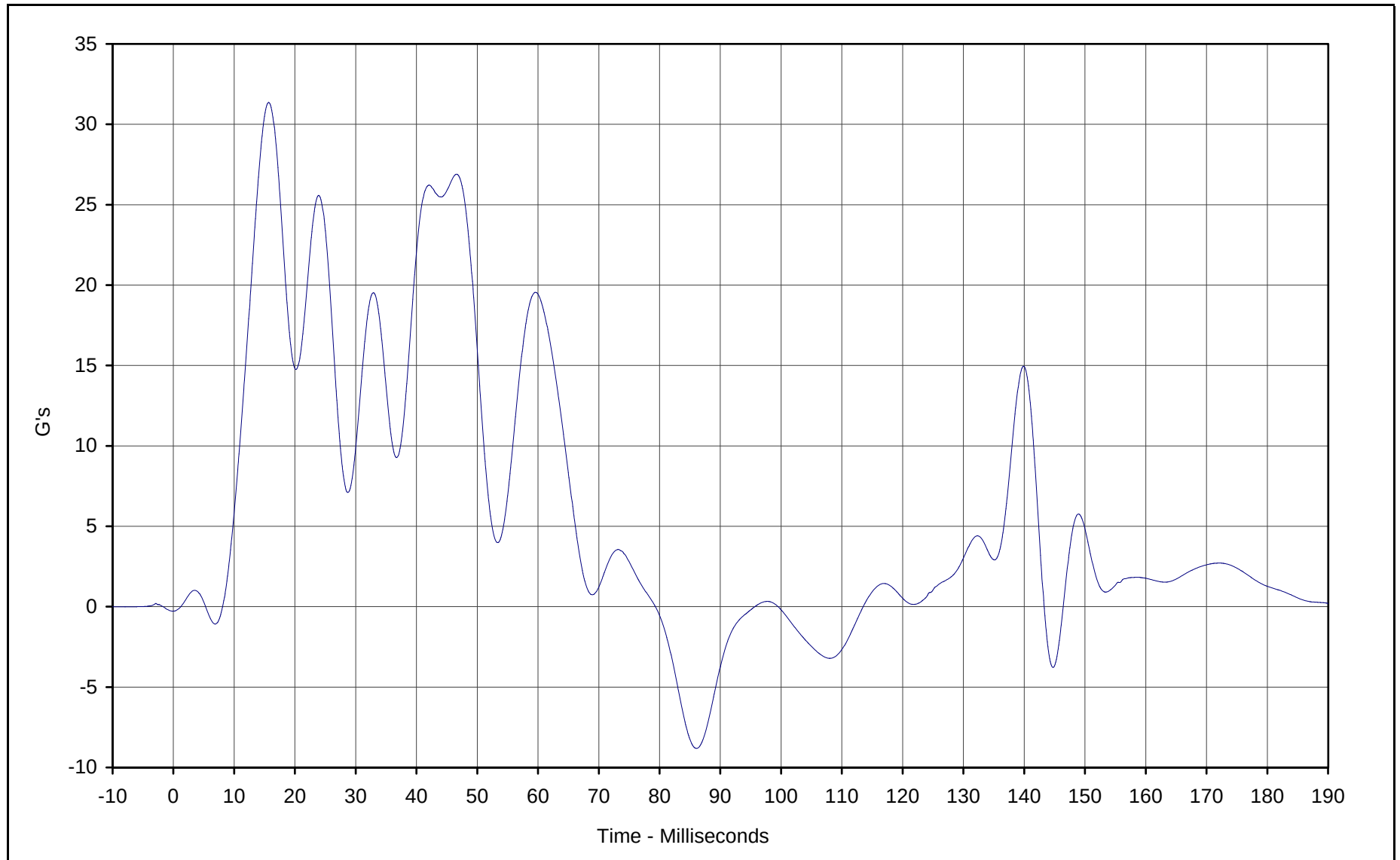




Curve Description: MDB Right Bumper Contact
Maximum Value: 105.3 at 10.4 Milliseconds
Crossing Point: 50% at 1.8 Milliseconds
SAE Filter Class: 1000
Date of Test: 02/15/01
Curve Number: FIL-058

Test Program: 55/28 km/h Side Impact NCAP No.: SUB001
Test Vehicle: 2001 Subaru Forester AWD Wagon

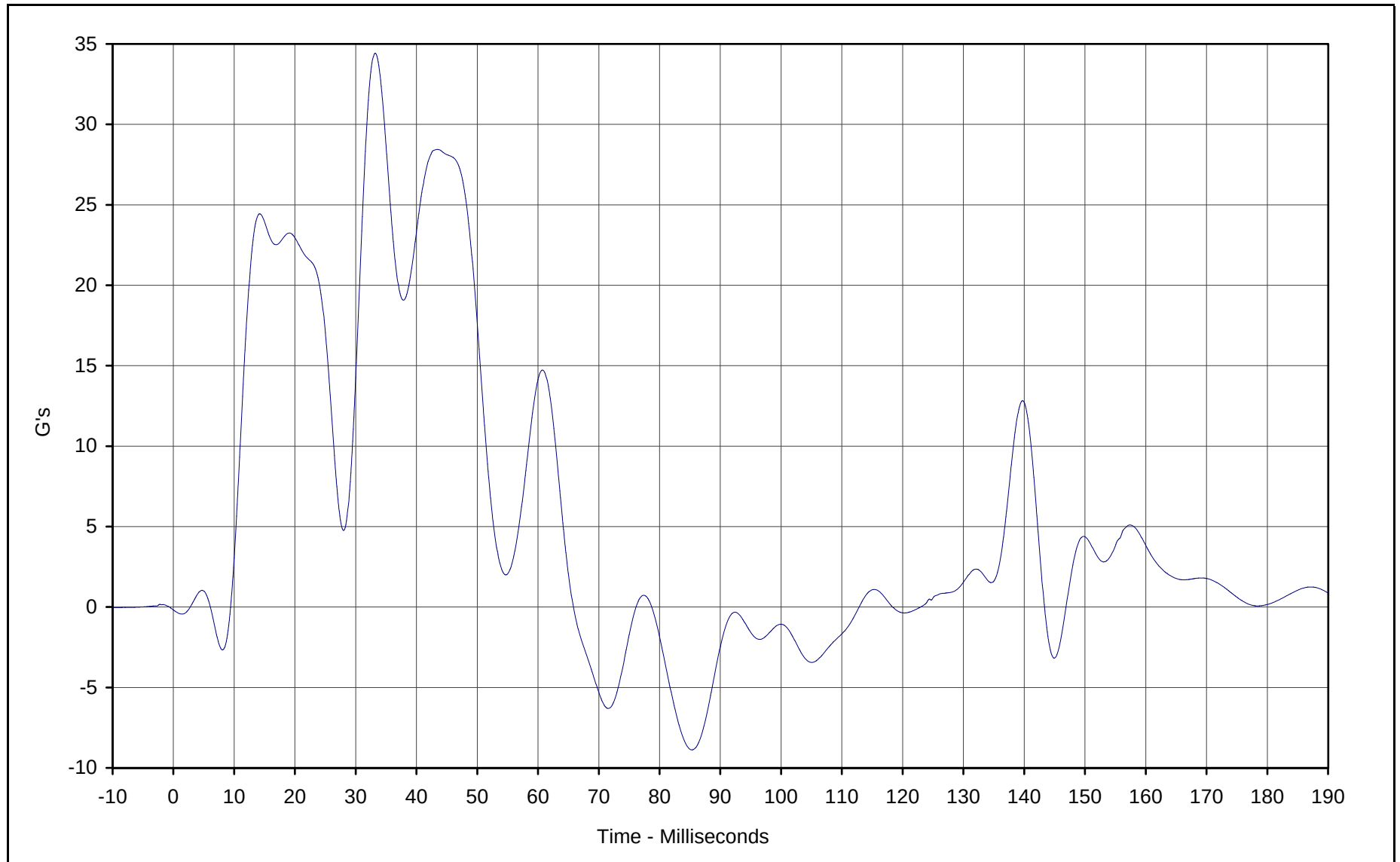




Curve Description: Driver Upper Rib Primary Y
Maximum Value: 31.4 at 15.7 Milliseconds
Minimum Value: -8.8 at 86.1 Milliseconds
SAE Filter Class: FIR 100
Date of Test: 02/15/01
Curve Number: FIR-004

Test Program: 55/28 km/h Side Impact NCAP No.: SUB001
Test Vehicle: 2001 Subaru Forester AWD Wagon

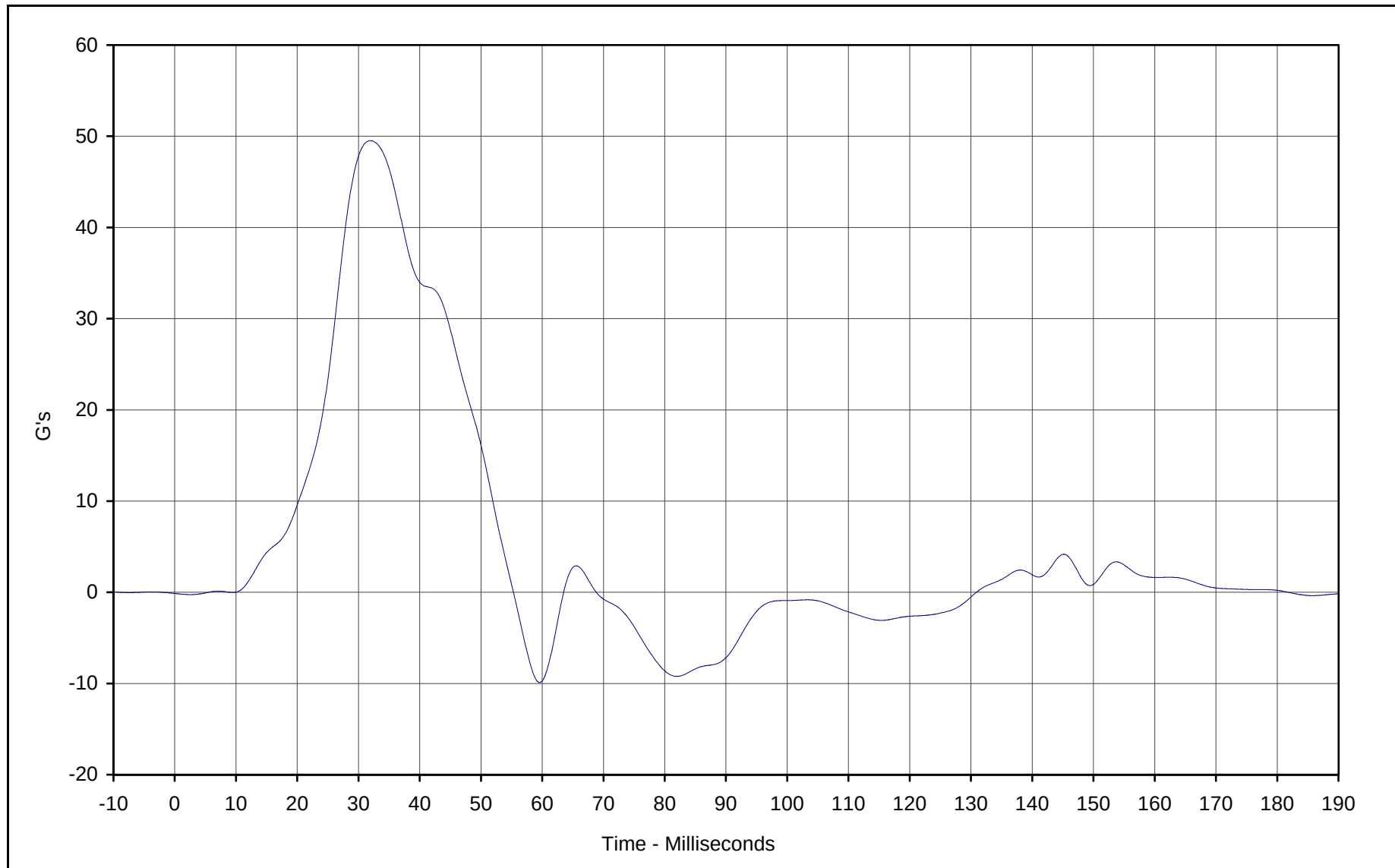




Curve Description: Driver Lower Rib Primary Y
Maximum Value: 34.4 at 33.2 Milliseconds
Minimum Value: -8.9 at 85.4 Milliseconds
SAE Filter Class: FIR 100
Date of Test: 02/15/01
Curve Number: FIR-005

Test Program: 55/28 km/h Side Impact NCAP No.: SUB001
Test Vehicle: 2001 Subaru Forester AWD Wagon





Curve Description: Driver Lower Spine Primary Y

Maximum Value: 49.5 at 31.9 Milliseconds

Minimum Value: -9.9 at 59.6 Milliseconds

SAE Filter Class: FIR 100

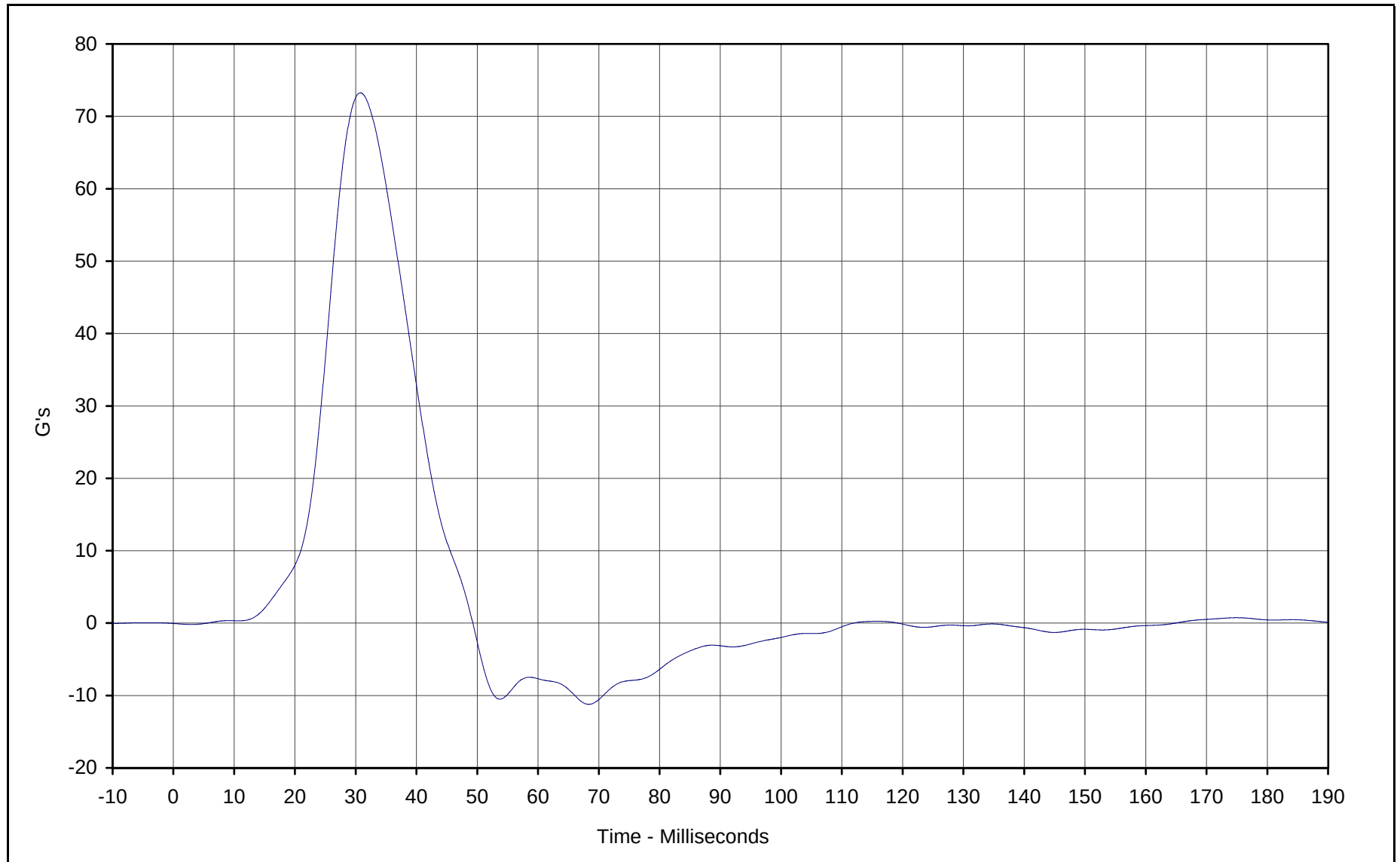
Date of Test: 02/15/01

Curve Number: FIR-006

Test Program: 55/28 km/h Side Impact NCAP No.: SUB001

Test Vehicle: 2001 Subaru Forester AWD Wagon

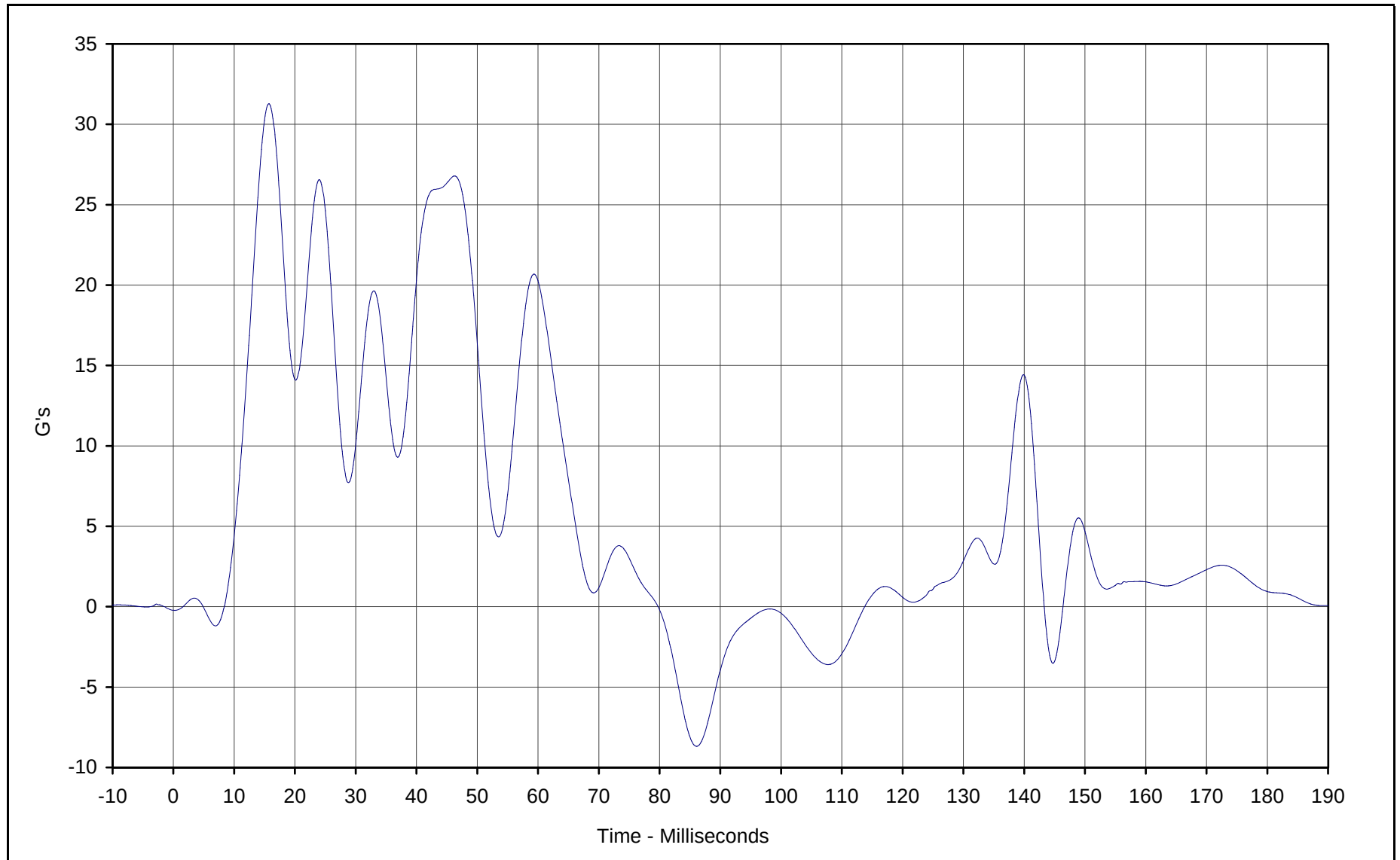




Curve Description: Driver Pelvis Primary Y
Maximum Value: 73.3 at 30.8 Milliseconds
Minimum Value: -11.2 at 68.3 Milliseconds
SAE Filter Class: FIR 100
Date of Test: 02/15/01
Curve Number: FIR-007

Test Program: 55/28 km/h Side Impact NCAP No.: SUB001
Test Vehicle: 2001 Subaru Forester AWD Wagon

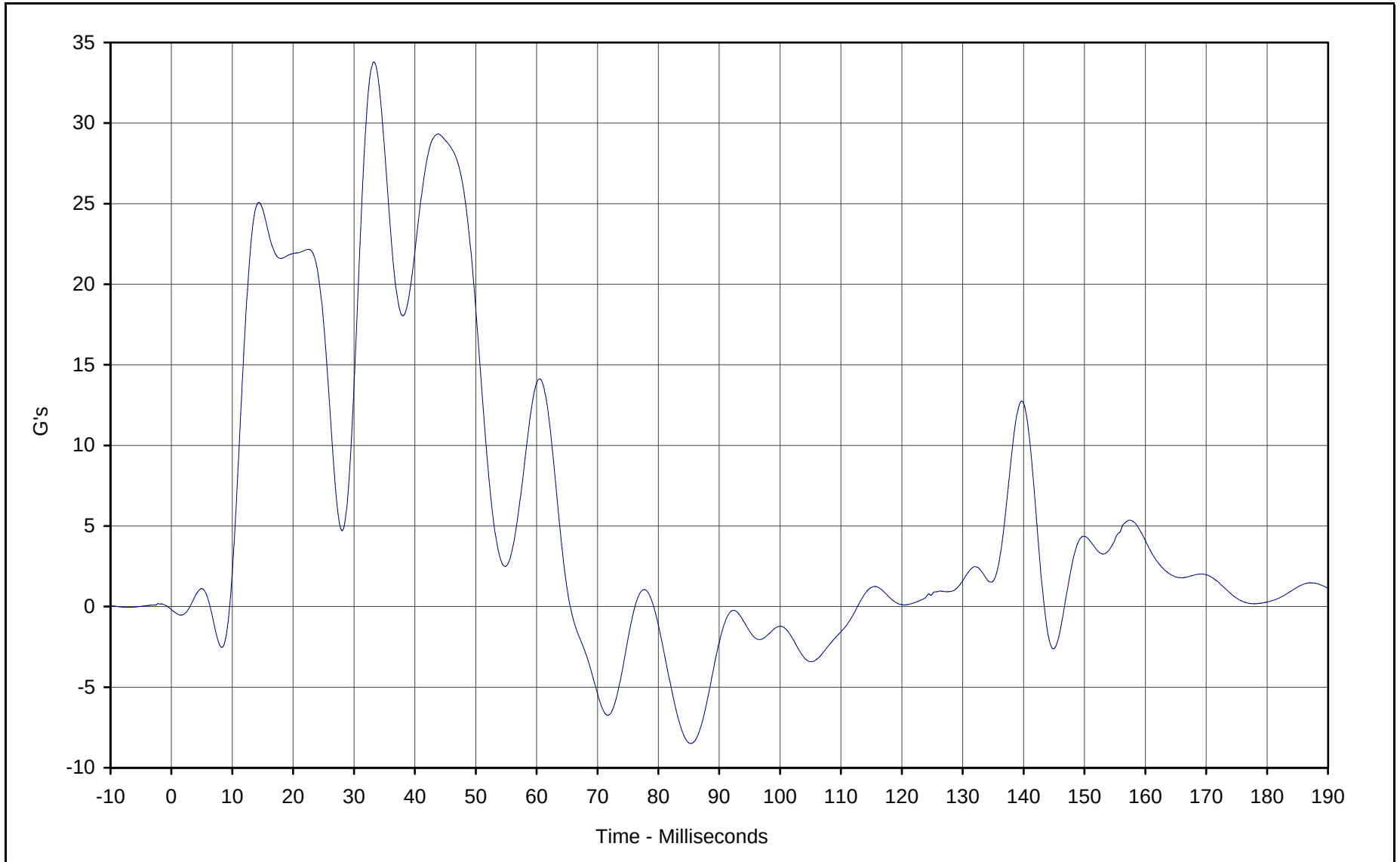




Curve Description: Driver Upper Rib Redundant Y
Maximum Value: 31.3 at 15.7 Milliseconds
Minimum Value: -8.7 at 86.1 Milliseconds
SAE Filter Class: FIR 100
Date of Test: 02/15/01
Curve Number: FIR-008

Test Program: 55/28 km/h Side Impact NCAP No.: SUB001
Test Vehicle: 2001 Subaru Forester AWD Wagon

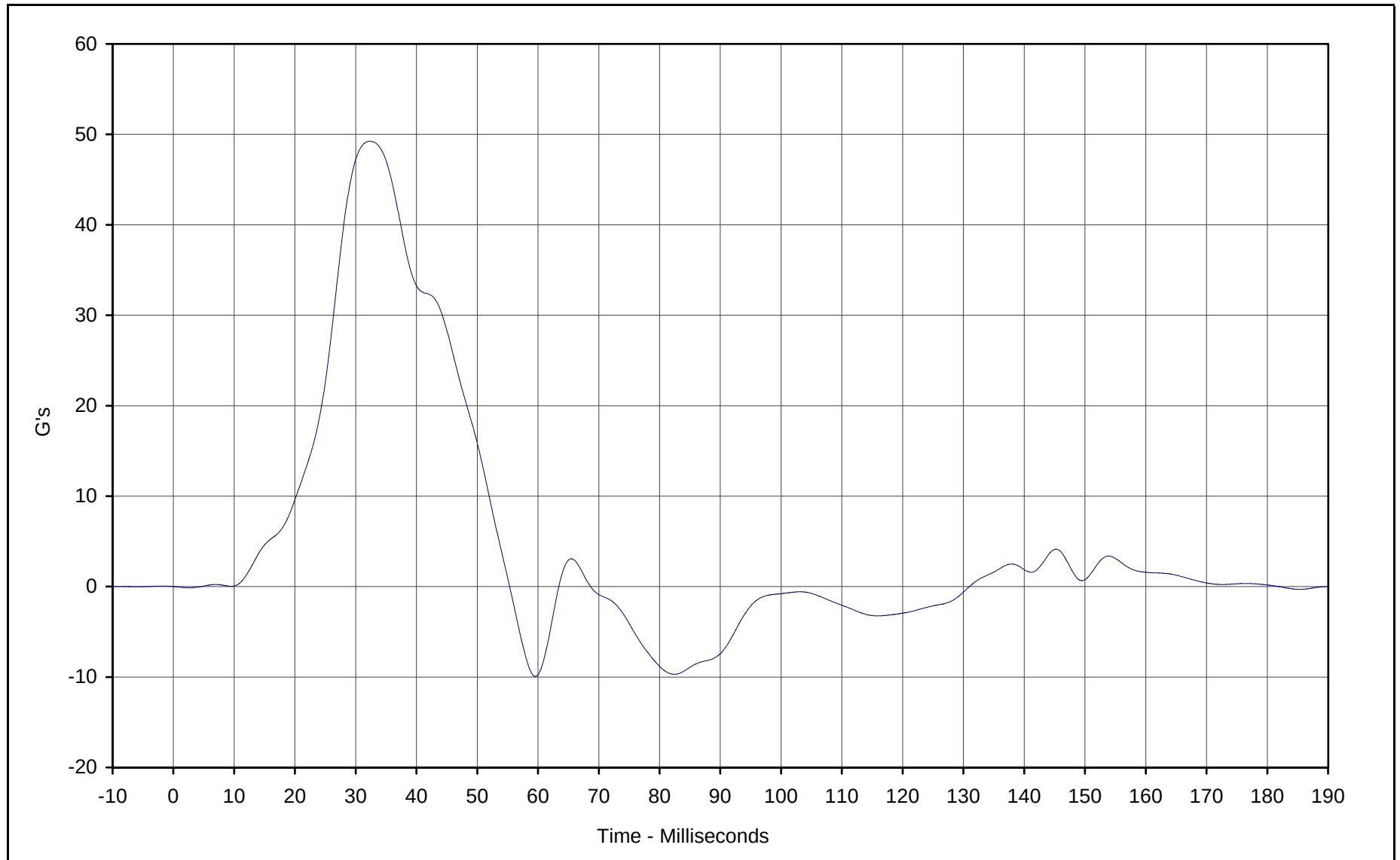




Curve Description: Driver Lower Rib Redundant Y
Maximum Value: 33.8 at 33.3 Milliseconds
Minimum Value: -8.5 at 85.4 Milliseconds
SAE Filter Class: FIR 100
Date of Test: 02/15/01
Curve Number: FIR-009

Test Program: 55/28 km/h Side Impact NCAP No.: SUB001
Test Vehicle: 2001 Subaru Forester AWD Wagon

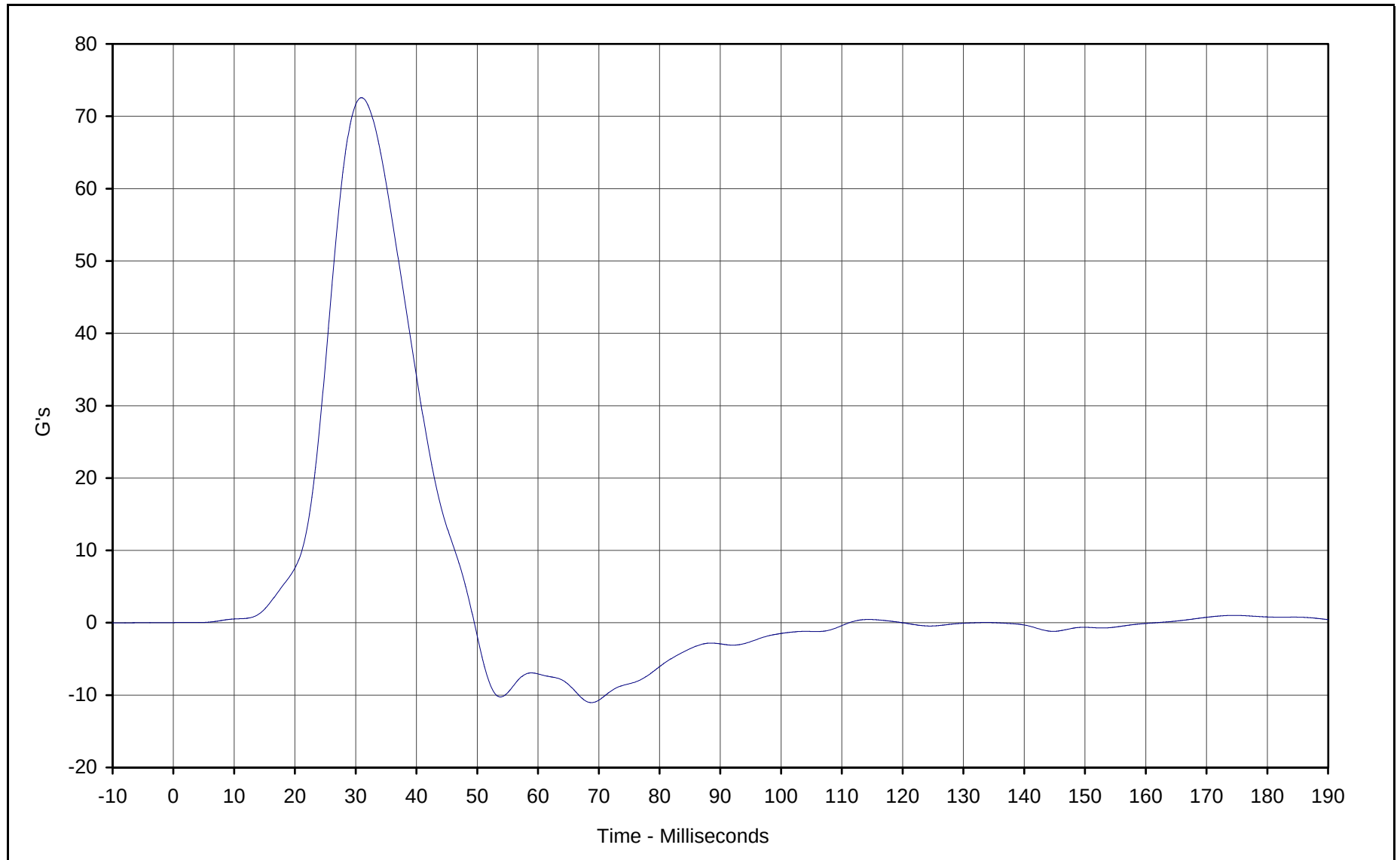




Curve Description: Driver Lower Spine Redundant Y
Maximum Value: 49.2 at 32.4 Milliseconds
Minimum Value: -9.9 at 59.6 Milliseconds
SAE Filter Class: FIR 100
Date of Test: 02/15/01
Curve Number: FIR-010

Test Program: 55/28 km/h Side Impact NCAP No.: SUB001
Test Vehicle: 2001 Subaru Forester AWD Wagon

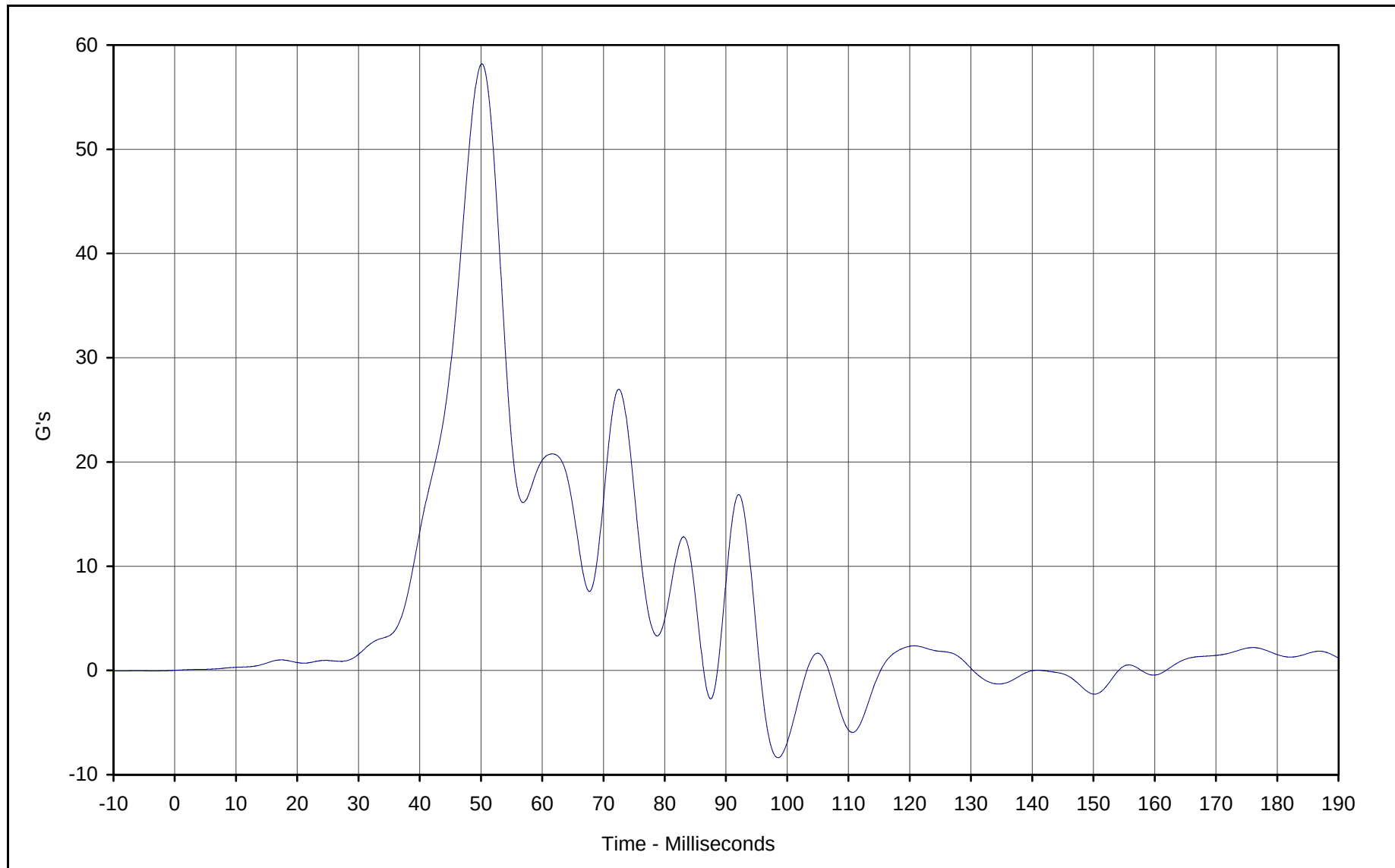




Curve Description: Driver Pelvis Redundant Y
Maximum Value: 72.6 at 31.0 Milliseconds
Minimum Value: -11.0 at 68.8 Milliseconds
SAE Filter Class: FIR 100
Date of Test: 02/15/01
Curve Number: FIR-011

Test Program: 55/28 km/h Side Impact NCAP No.: SUB001
Test Vehicle: 2001 Subaru Forester AWD Wagon

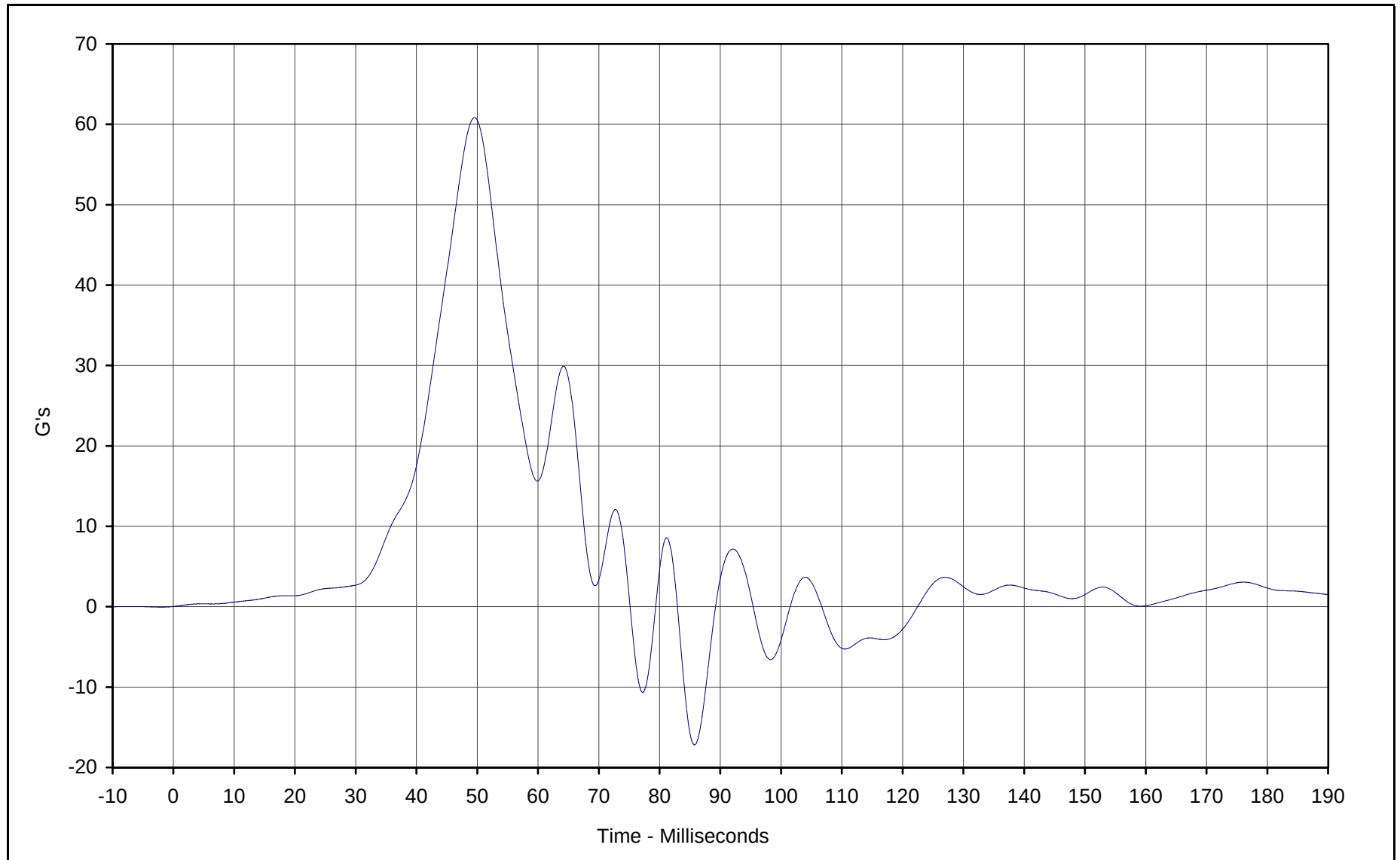




Curve Description: Pass. Upper Rib Primary Y
Maximum Value: 58.2 at 50.1 Milliseconds
Minimum Value: -8.4 at 98.5 Milliseconds
SAE Filter Class: FIR 100
Date of Test: 02/15/01
Curve Number: FIR-017

Test Program: 55/28 km/h Side Impact NCAP No.: SUB001
Test Vehicle: 2001 Subaru Forester AWD Wagon

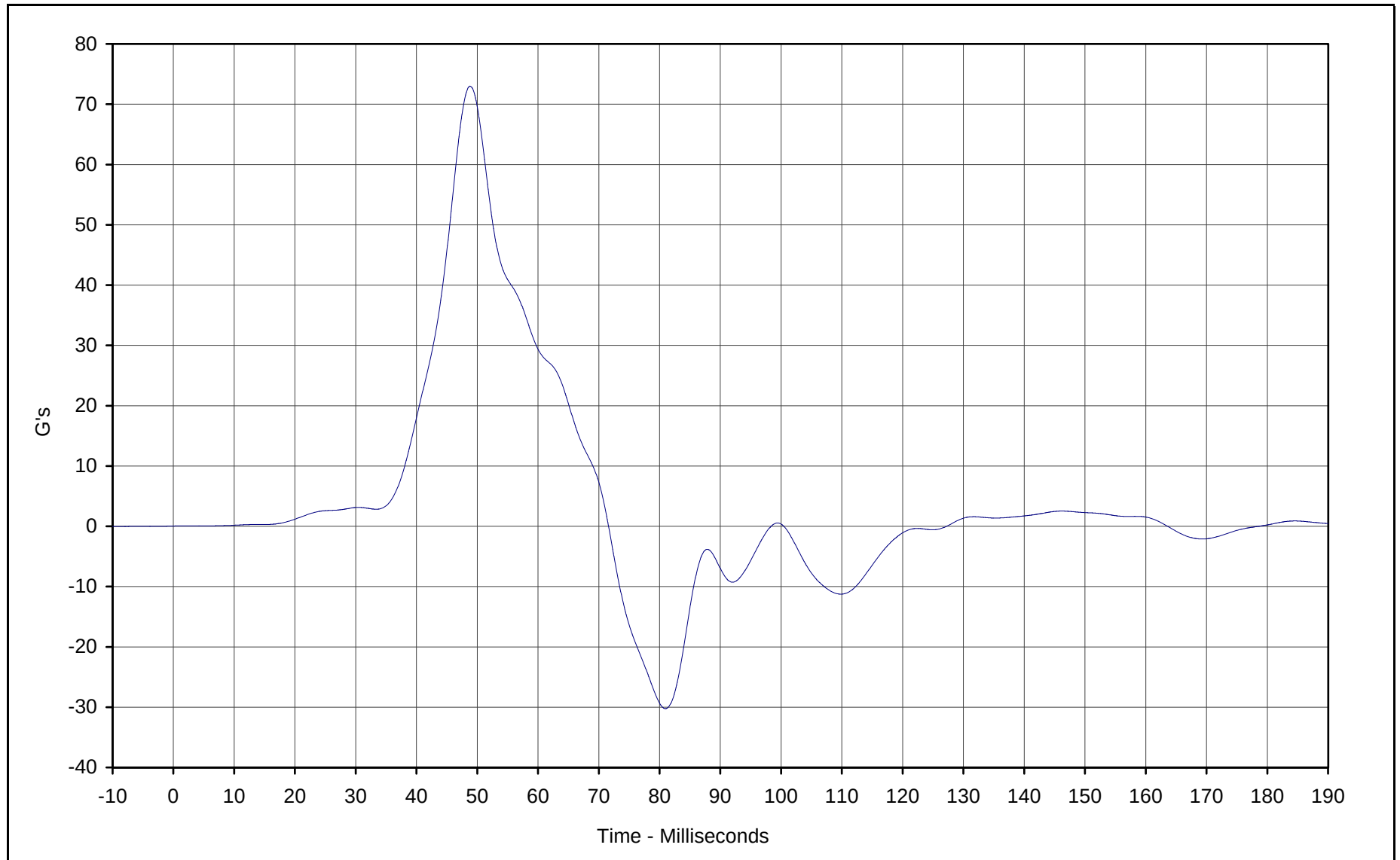




Curve Description: Pass. Lower Rib Primary Y
Maximum Value: 60.8 at 49.5 Milliseconds
Minimum Value: -17.2 at 85.8 Milliseconds
SAE Filter Class: FIR 100
Date of Test: 02/15/01
Curve Number: FIR-018

Test Program: 55/28 km/h Side Impact NCAP No.: SUB001
Test Vehicle: 2001 Subaru Forester AWD Wagon

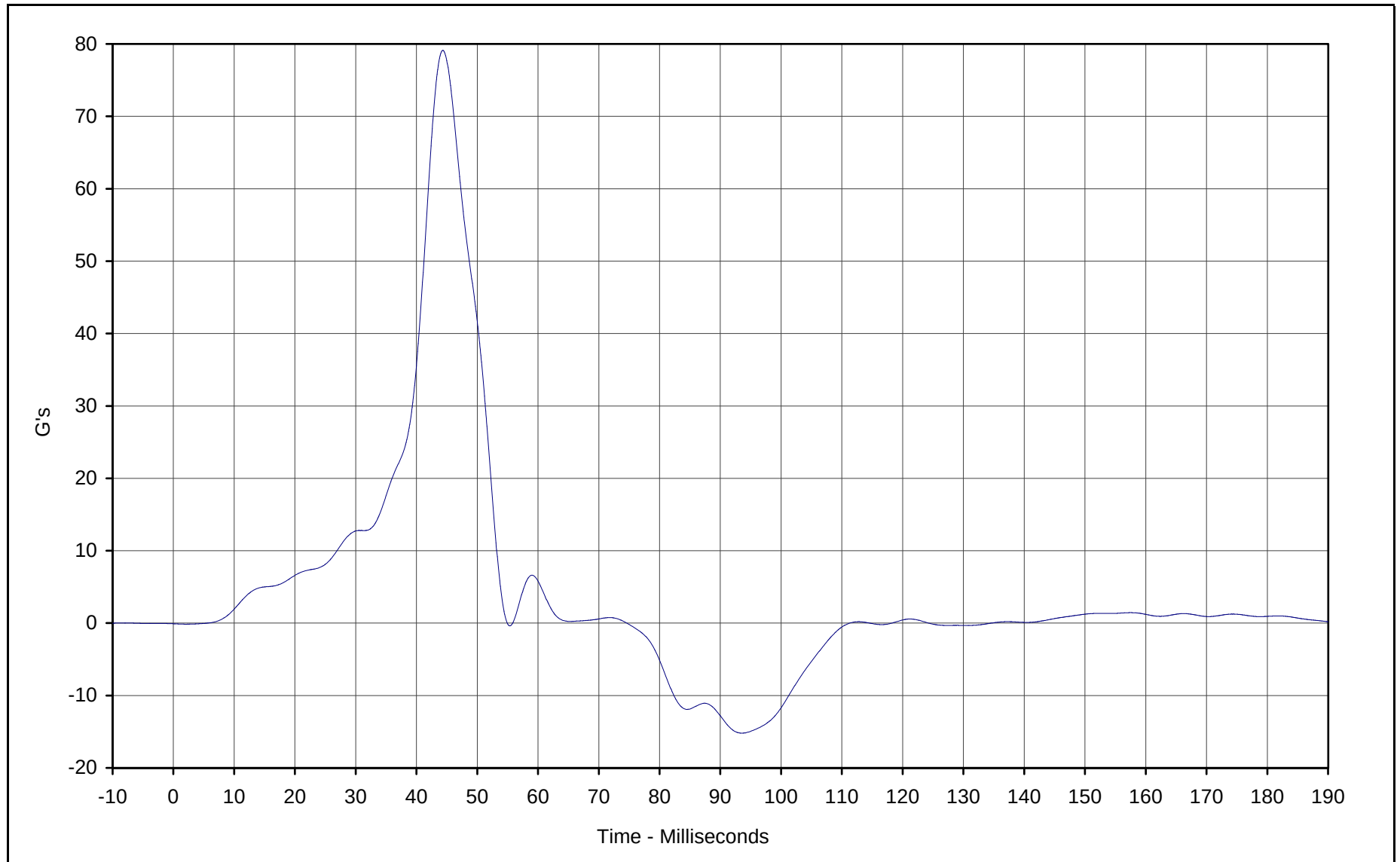




Curve Description: Pass. Lower Spine Primary Y
Maximum Value: 73.0 at 48.8 Milliseconds
Minimum Value: -30.2 at 81.0 Milliseconds
SAE Filter Class: FIR 100
Date of Test: 02/15/01
Curve Number: FIR-019

Test Program: 55/28 km/h Side Impact NCAP No.: SUB001
Test Vehicle: 2001 Subaru Forester AWD Wagon

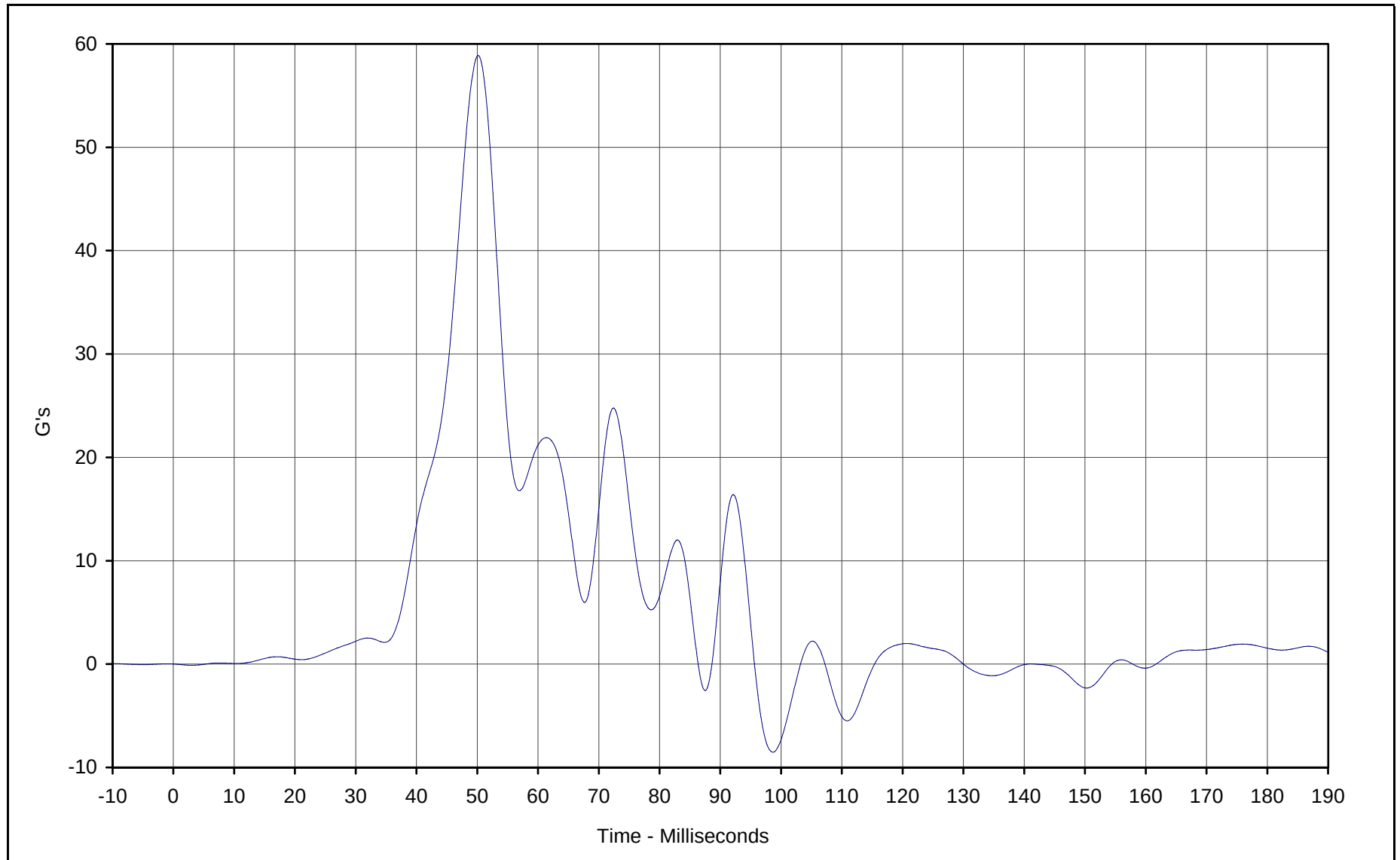




Curve Description: Pass. Pelvis Primary Y
Maximum Value: 79.1 at 44.3 Milliseconds
Minimum Value: -15.2 at 93.6 Milliseconds
SAE Filter Class: FIR 100
Date of Test: 02/15/01
Curve Number: FIR-020

Test Program: 55/28 km/h Side Impact NCAP No.: SUB001
Test Vehicle: 2001 Subaru Forester AWD Wagon

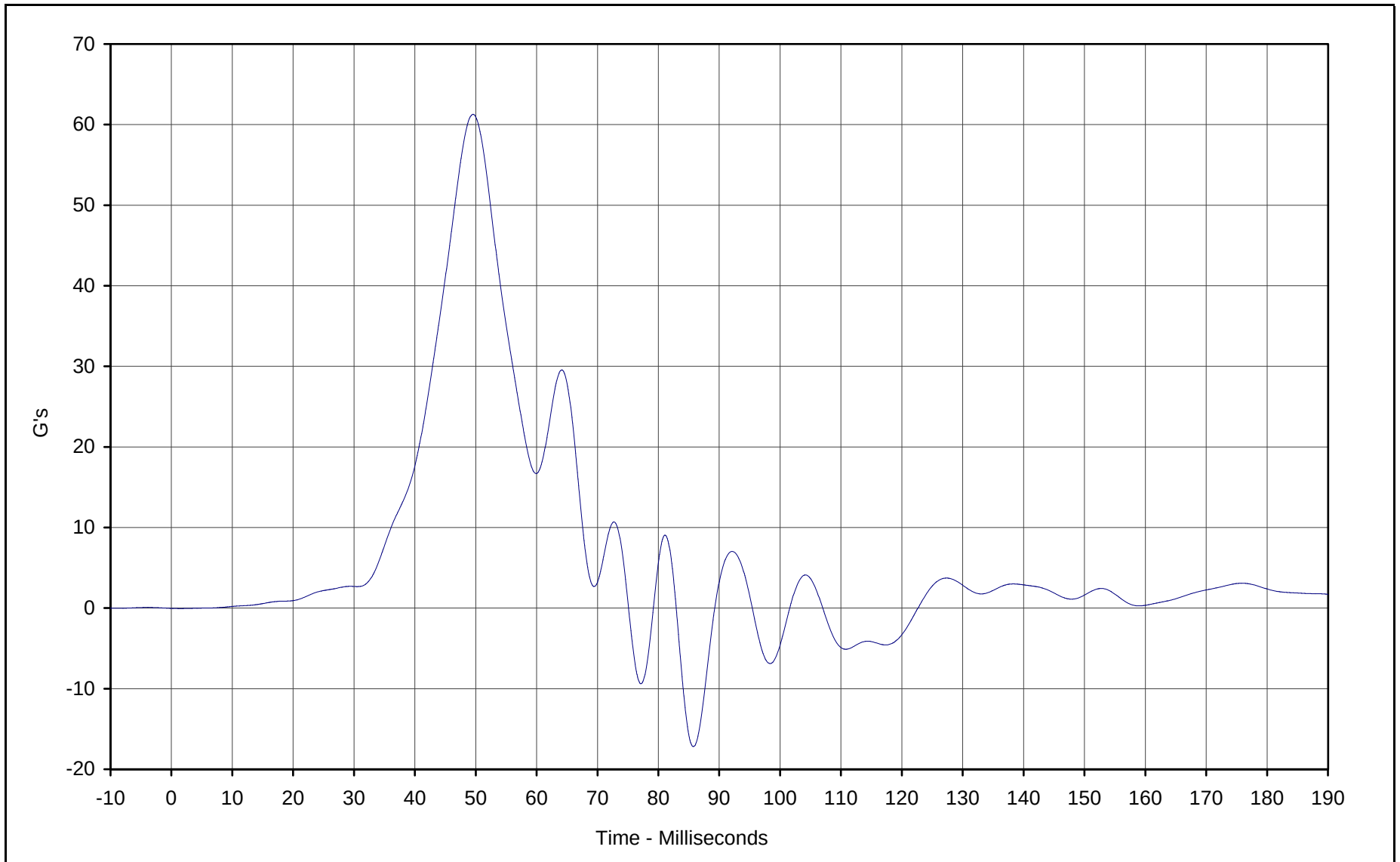




Curve Description: Pass. Upper Rib Redundant Y
Maximum Value: 58.9 at 50.2 Milliseconds
Minimum Value: -8.5 at 98.7 Milliseconds
SAE Filter Class: FIR 100
Date of Test: 02/15/01
Curve Number: FIR-021

Test Program: 55/28 km/h Side Impact NCAP No.: SUB001
Test Vehicle: 2001 Subaru Forester AWD Wagon

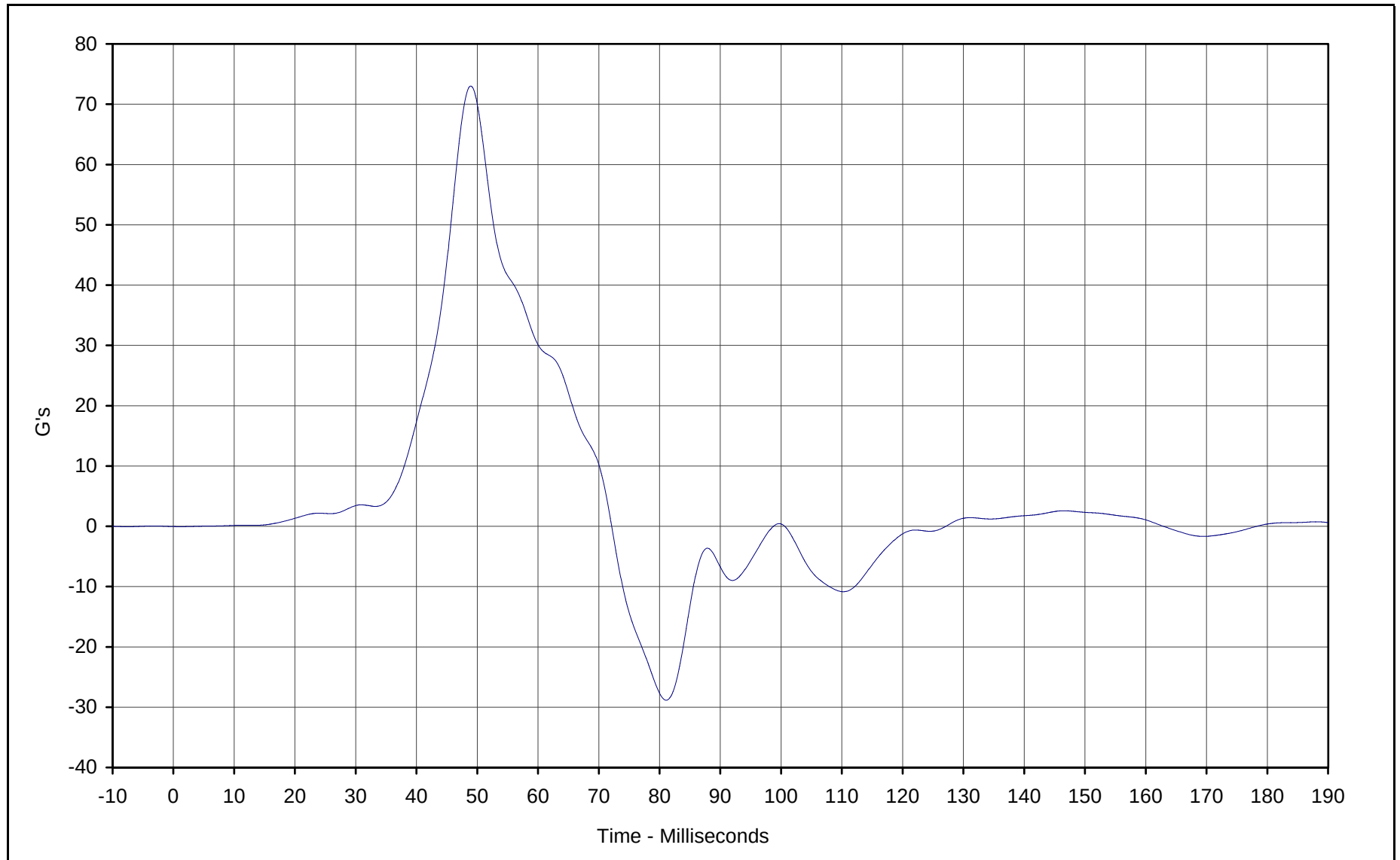




Curve Description: Pass. Lower Rib Redundant Y
Maximum Value: 61.3 at 49.5 Milliseconds
Minimum Value: -17.2 at 85.8 Milliseconds
SAE Filter Class: FIR 100
Date of Test: 02/15/01
Curve Number: FIR-022

Test Program: 55/28 km/h Side Impact NCAP No.: SUB001
Test Vehicle: 2001 Subaru Forester AWD Wagon

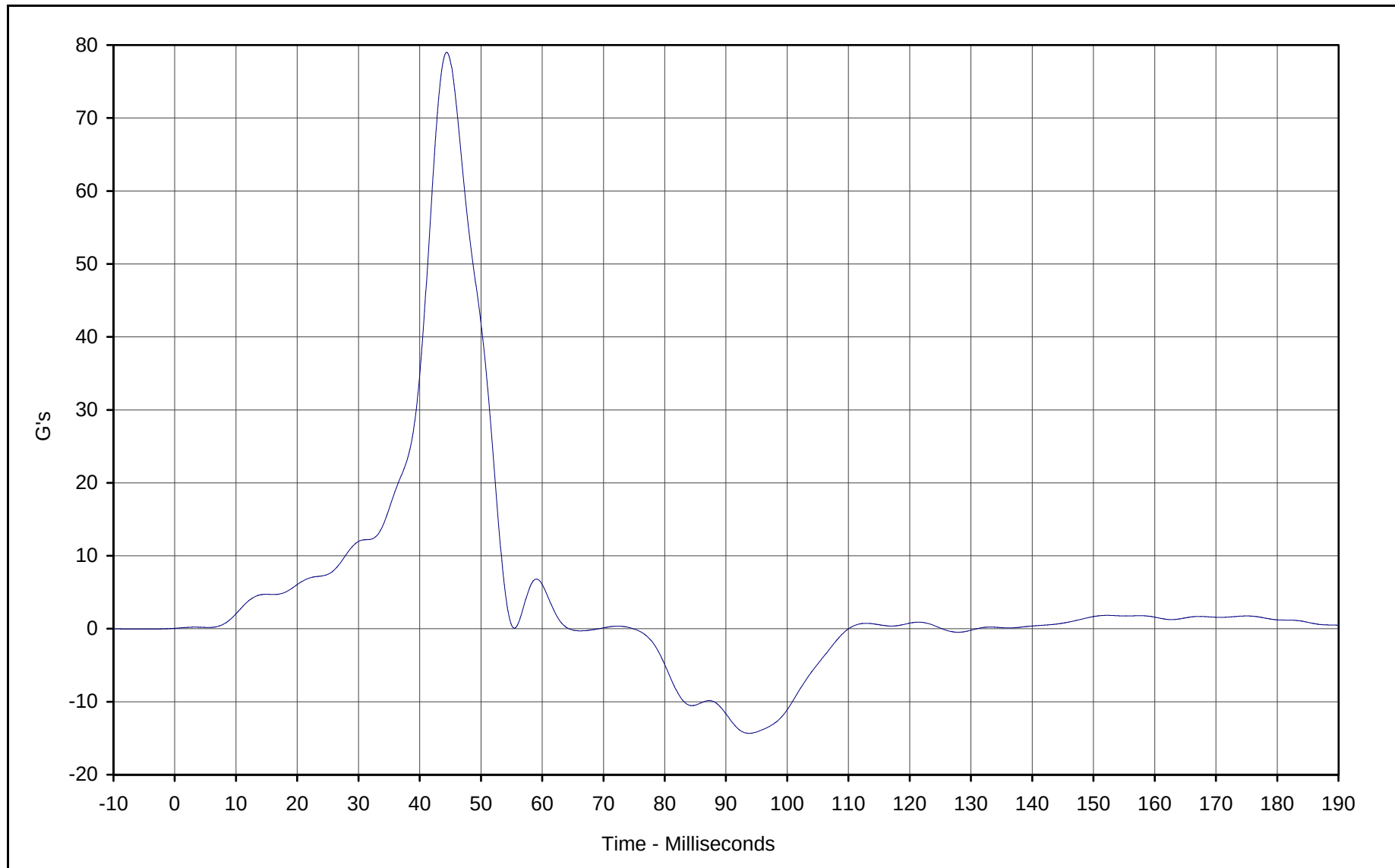




Curve Description: Pass. Lower Spine Redundant Y
Maximum Value: 73.0 at 48.9 Milliseconds
Minimum Value: -28.8 at 81.1 Milliseconds
SAE Filter Class: FIR 100
Date of Test: 02/15/01
Curve Number: FIR-023

Test Program: 55/28 km/h Side Impact NCAP No.: SUB001
Test Vehicle: 2001 Subaru Forester AWD Wagon





Curve Description: Pass. Pelvis Redundant Y
Maximum Value: 79.0 at 44.4 Milliseconds
Minimum Value: -14.3 at 93.8 Milliseconds
SAE Filter Class: FIR 100
Date of Test: 02/15/01
Curve Number: FIR-024

Test Program: 55/28 km/h Side Impact NCAP No.: SUB001
Test Vehicle: 2001 Subaru Forester AWD Wagon



APPENDIX C
SID CONFIGURATION AND PERFORMANCE VERIFICATION DATA

APPENDIX C
PRE-TEST SID CONFIGURATION AND PERFORMANCE VERIFICATION DATA



Performance Verification Data Side Impact Dummy (SID) External Dimensions

ATD Serial No.: 274

Part Serial No.: N/A

Test I.D.: N/A

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory temperature	°C	20.4 to 22.1	21.1	Pass
Laboratory relative humidity	%	10 to 70	30	Pass
SH- Seated Height	mm	889 to 909	907	Pass
HP- Hip Point Height	mm	99 (reference)	99	Pass
RH- Rib Height	mm	502 to 520	510	Pass
KH- Knee Pivot From Back Line	mm	511 to 526	515	Pass
KV- Knee Pivot From Floor	mm	490 to 505	500	Pass
HW- Hip Width	mm	356 to 391	360	Pass
Overall Test Results				Pass

Laboratory Technician

February 9, 2001

Test Date

Approved By

Date



Performance Verification Data Side Impact Dummy (SID) Thorax Lateral Impact

ATD Serial No.: 274

Part Serial No.: N/A

Test I.D.: TI01D

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	18.9 to 25.5	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Probe Velocity	m/s	4.21 to 4.33	4.30	Pass
Left Upper Rib Acceleration	G's	37.0 to 46.0	41.4	Pass
Left Lower Rib Acceleration	G's	37.0 to 46.0	42.4	Pass
Thoracic Spine Acceleration	G's	15.0 to 22.0	19.9	Pass
Overall Test Results				Pass

Laboratory Technician

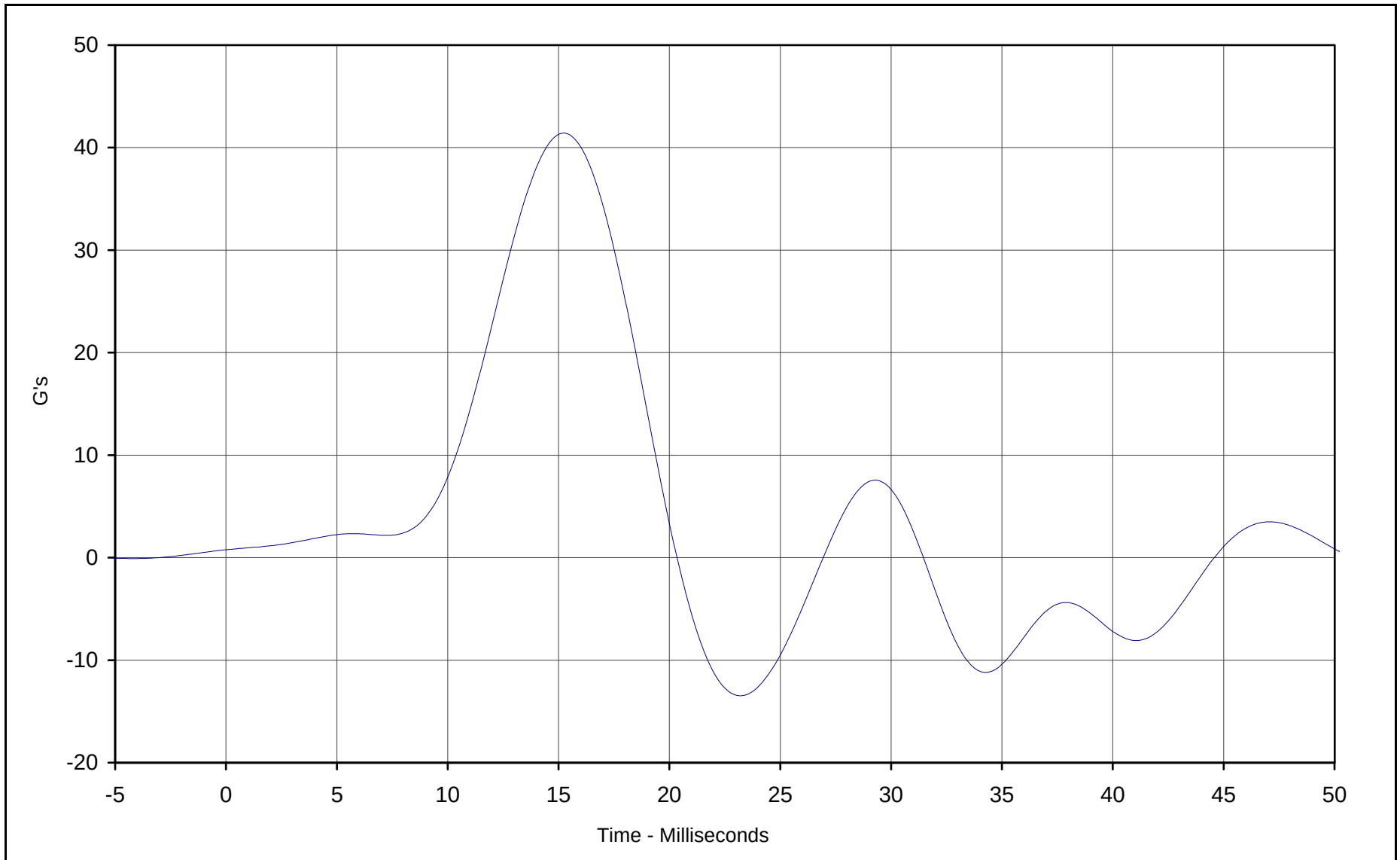
February 9, 2001

Test Date

Approved By

Date

C-3



Curve Description: Left Upper Rib Y Acceleration

Maximum Value: 41.4 at 15.2 Milliseconds

Minimum Value: -13.5 at 23.2 Milliseconds

SAE Filter Class: FIR 100

Date of Test: 2/9/01

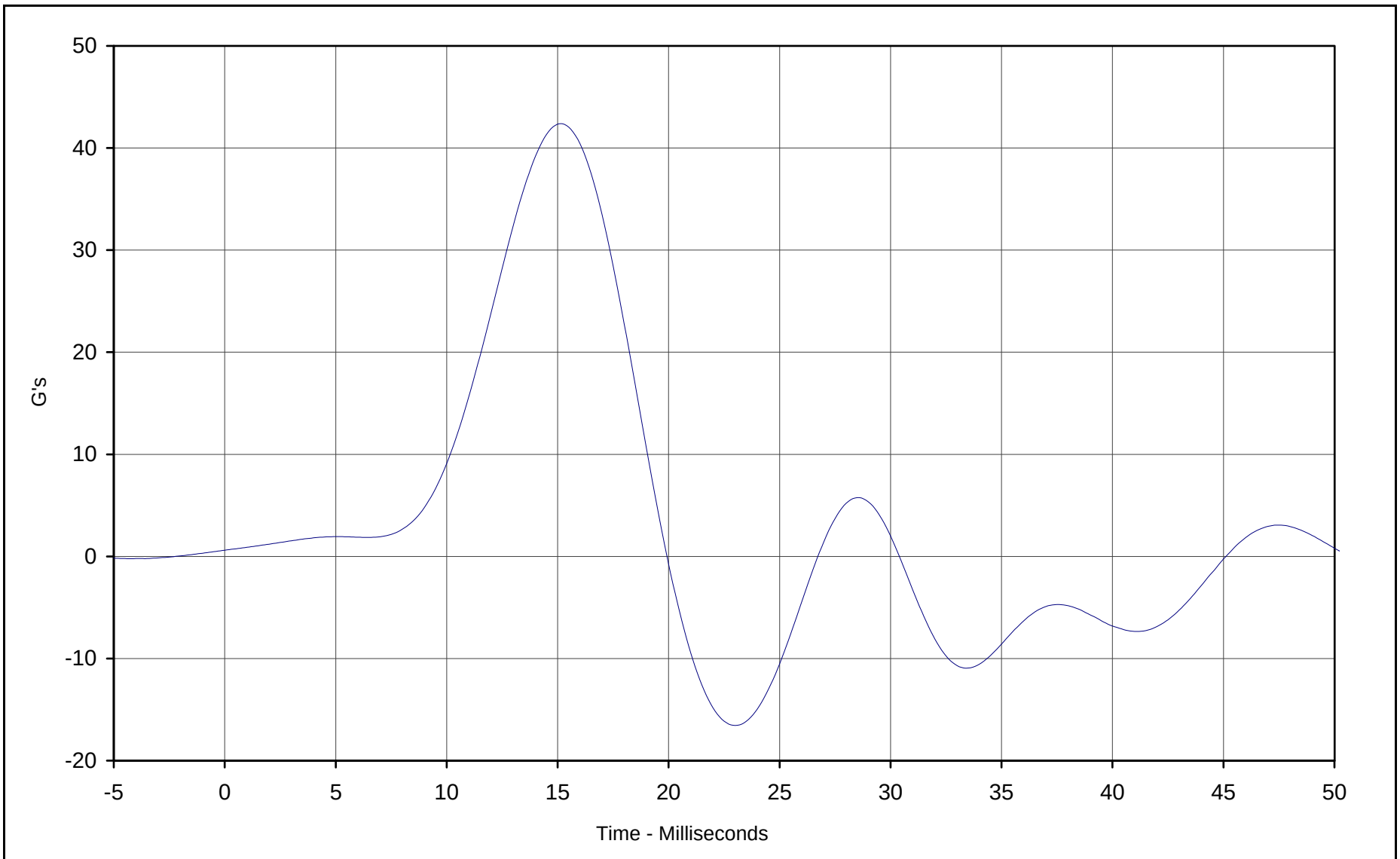
Test Program: SID Thorax Lateral Impact Test

Test Information: SID S/N: 274 Test I.D.: TI01D



KAR21006-02

C-4



Curve Description: Left Lower Rib Y Acceleration

Maximum Value: 42.4 at 15.1 Milliseconds

Minimum Value: -16.6 at 23.0 Milliseconds

SAE Filter Class: FIR 100

Date of Test: 2/9/01

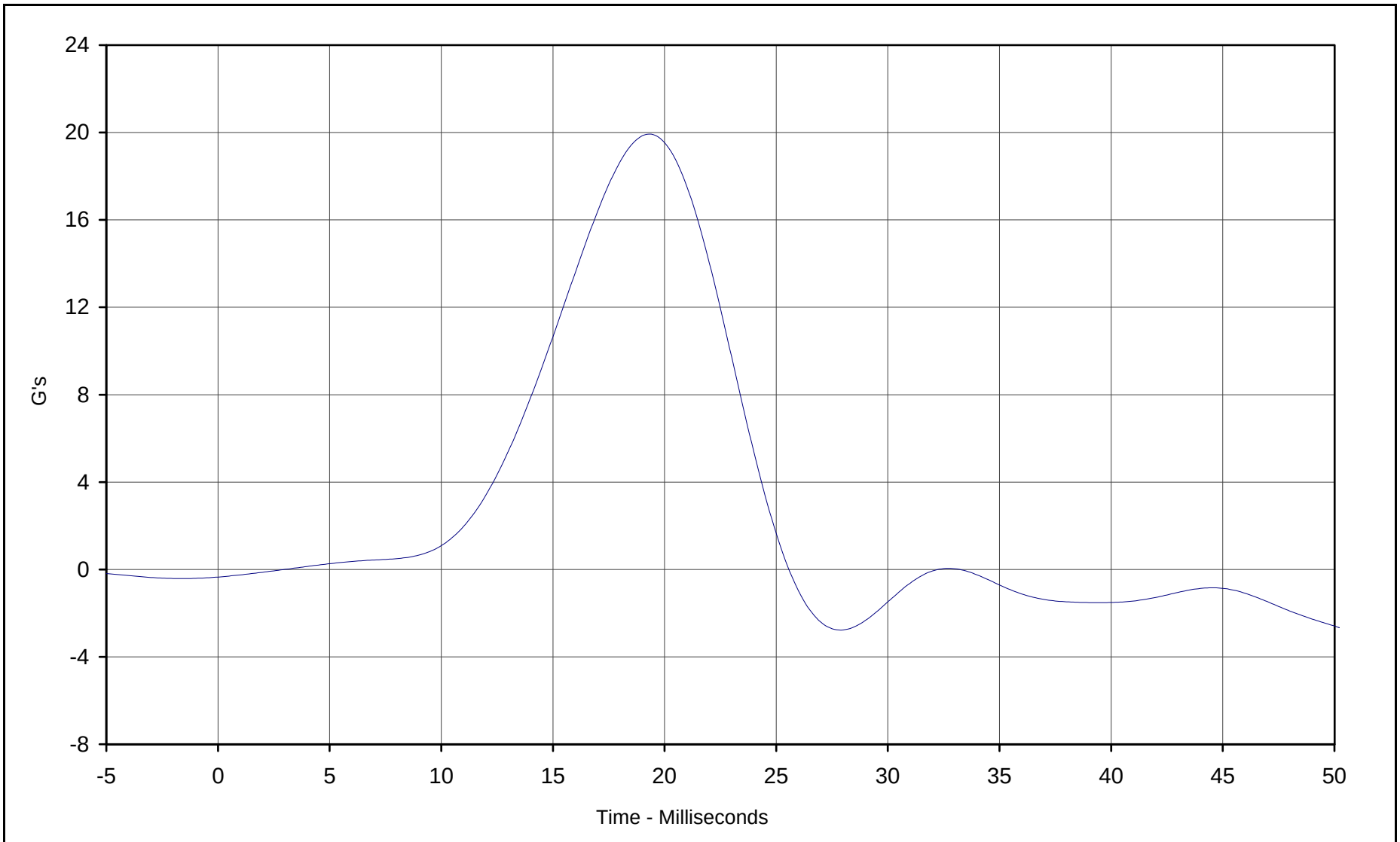
Test Program: SID Thorax Lateral Impact Test

Test Information: SID S/N: 274 Test I.D.: TI01D



KAR21006-02

C-5



Curve Description: Lower Spine Y Acceleration
Maximum Value: 19.9 at 19.3 Milliseconds
Minimum Value: -4.2 at 54.3 Milliseconds
SAE Filter Class: FIR 100
Date of Test: 2/9/01

Test Program: SID Thorax Lateral Impact Test
Test Information: SID S/N: 274 Test I.D.: TI01D



KAR21006-02



Performance Verification Data Side Impact Dummy (SID) Left Side Pelvis Lateral Impact

ATD Serial No.: 274

Part Serial No.: N/A

Test I.D.: PI01D

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	18.9 to 25.5	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Probe Velocity	m/s	4.21 to 4.33	4.28	Pass
Pelvis Acceleration	G's	40.0 to 60.0	42.1	Pass
Acceleration Time Above 20 G's	Msec.	3.0 to 7.0 Msec.	6.4	Pass
Is Acceleration Unimodal?	Yes/No	Yes	Yes	Pass
Overall Test Results				Pass

Laboratory Technician

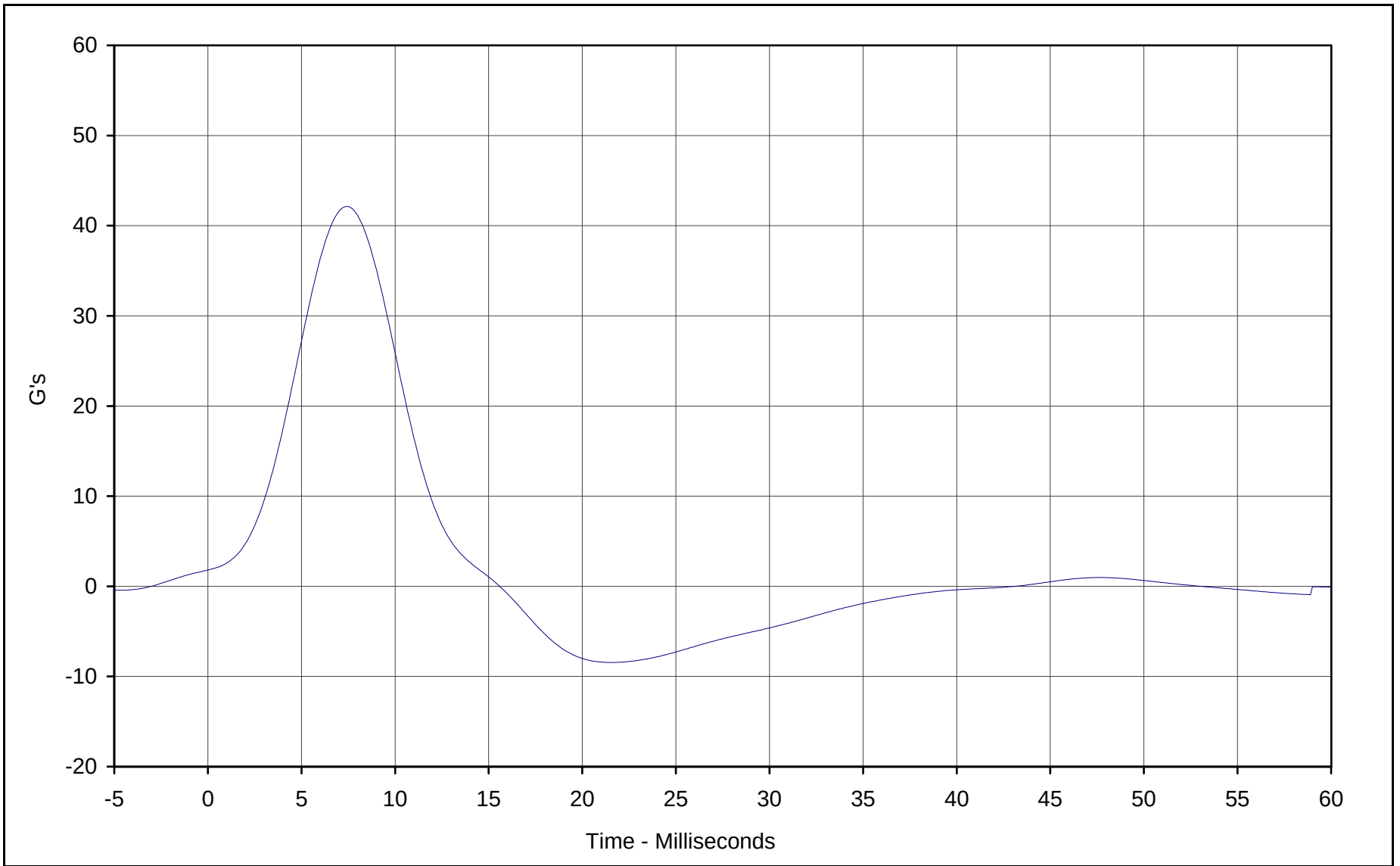
February 9, 2001

Test Date

Approved By

Date

C-7



Curve Description: Pelvis Y Axis Acceleration
Maximum Value: 42.1 at 7.4 Milliseconds
Minimum Value: -8.4 at 21.6 Milliseconds
SAE Filter Class: FIR 100
Date of Test: 2/9/01

Test Program: SID Left Side Pelvis Lateral Impact
Test Information: SID S/N: 274 Test I.D.: PI01D



KAR21006-02



Performance Verification Data Side Impact Dummy (SID) Abdominal Compression Test

ATD Serial No.: 274

Part Serial No.: N/A

Test I.D.: AB12Z

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°F	66 to 78	70	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Force at 0.5 Inches of Displacement	Pounds	23.0 to 36.0	26.4	Pass
Force at 0.75 Inches of Displacement	Pounds	36.0 to 50.0	39.0	Pass
Force at 1.0 Inches of Displacement	Pounds	50.0 to 63.0	54.1	Pass
Force at 1.3 Inches of Displacement	Pounds	73.0 to 88.0	74.8	Pass
Overall Test Results				Pass

Laboratory Technician

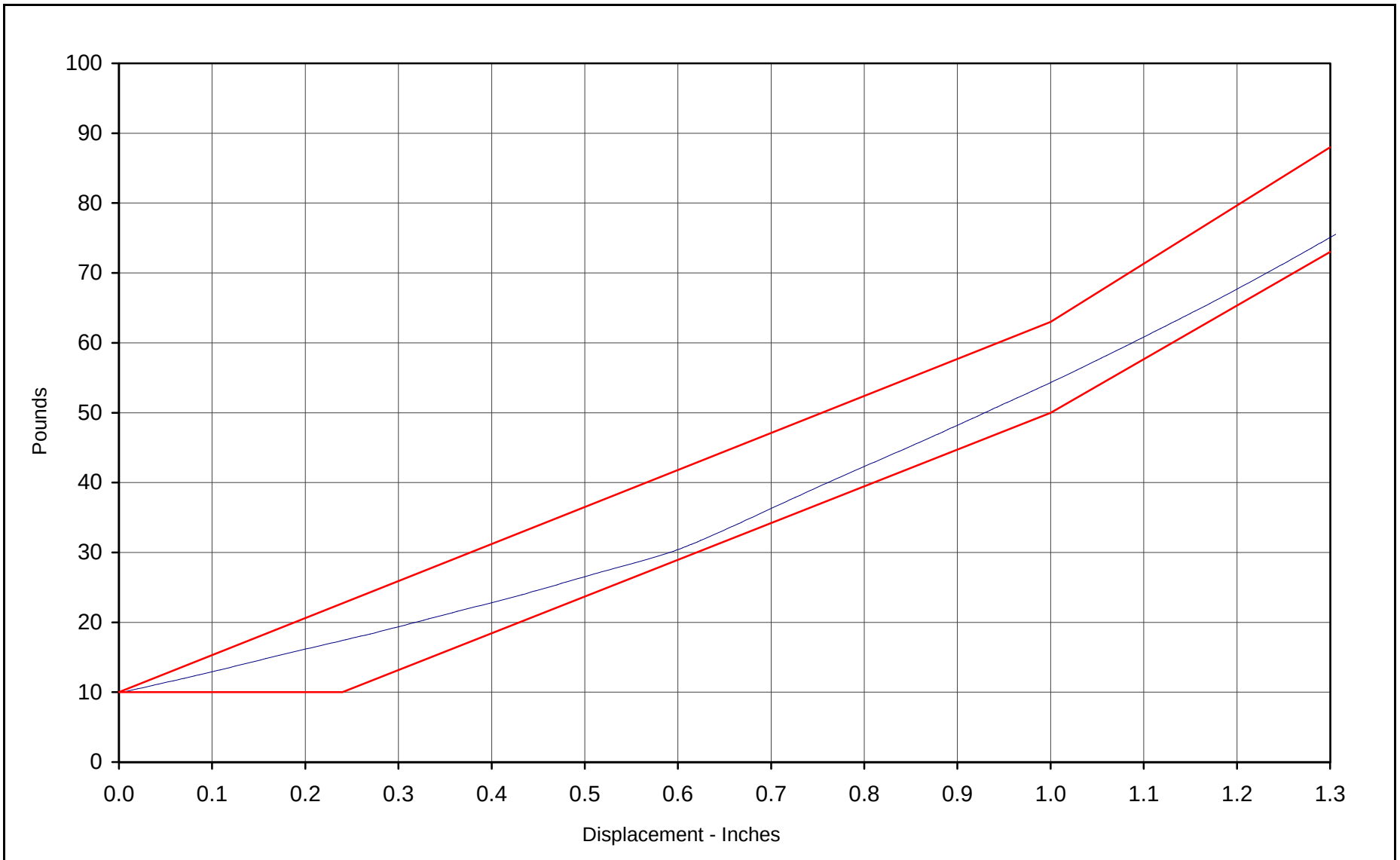
February 8, 2001

Test Date

Approved By

Date

C-9

Curve Description: Abdomen Force vs. DisplacementForce at 0.5 In.: 26.4 PoundsForce at 0.75 In.: 39.0 PoundsForce at 1.0 In.: 54.1 PoundsForce at 1.3 In.: 74.8 PoundsDate of Test: 2/8/01Test Program: SID Abdominal CompressionTest Information: SID S/N: 274 Test I.D.: AB12Z

KAR21006-02



Performance Verification Data Side Impact Dummy (SID) Head Drop Calibration

ATD Serial No.: 274

Part Serial No.: N/A

Test I.D.: SH12F

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°F	66 to 78	70	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Peak Resultant Acceleration	G's	210.0 to 260.0	257.9	Pass
Peak Lateral Acceleration	G's	≤10.0	6.4	Pass
Time Above 100 G's	Msec.	0.9 to 1.5	1.1	Pass
Is Resultant Acceleration Unimodal?	Yes/No	Yes	Yes	Pass
Overall Test Results				Pass

Laboratory Technician

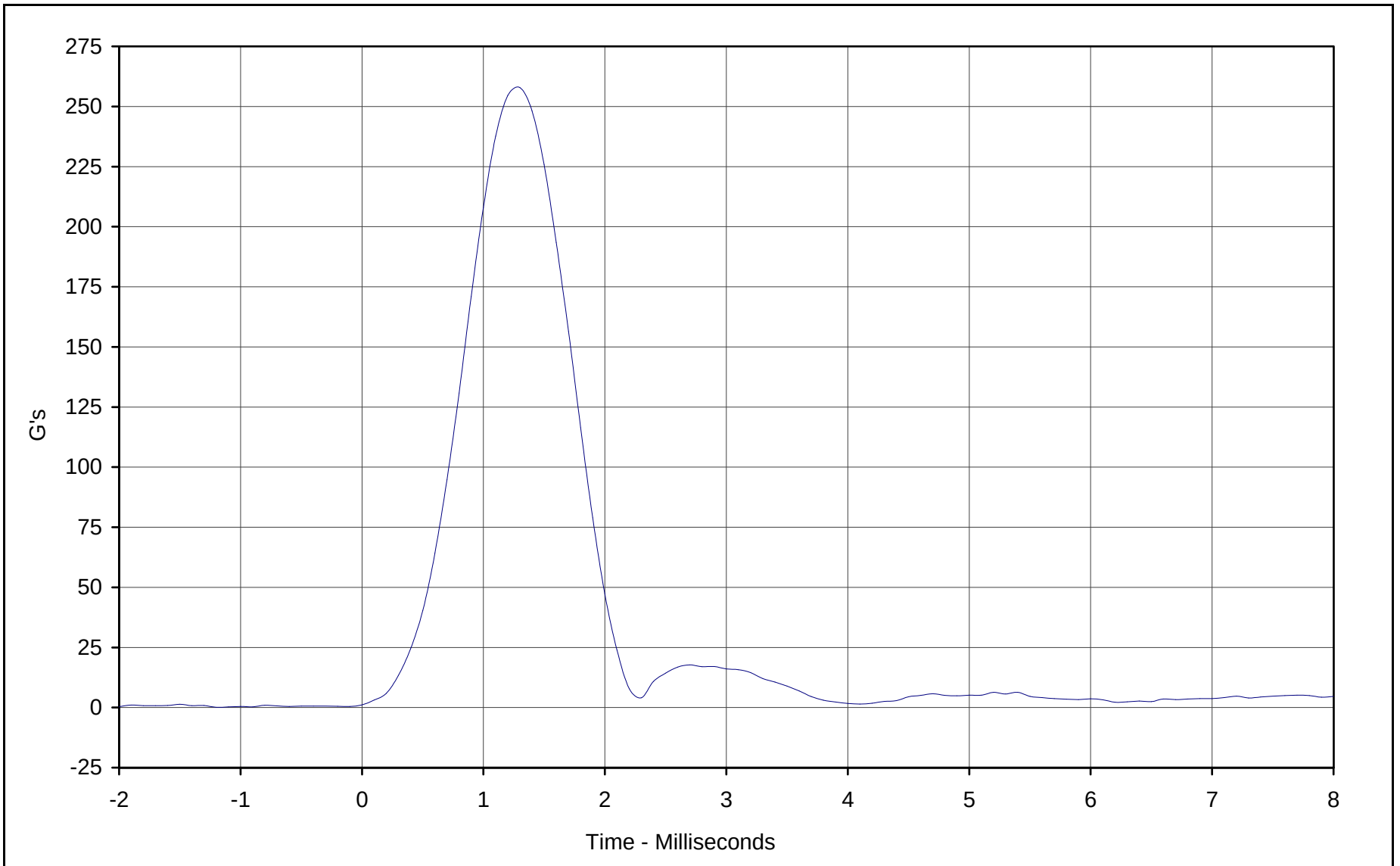
February 8, 2001

Test Date

Approved By

Date

C-11



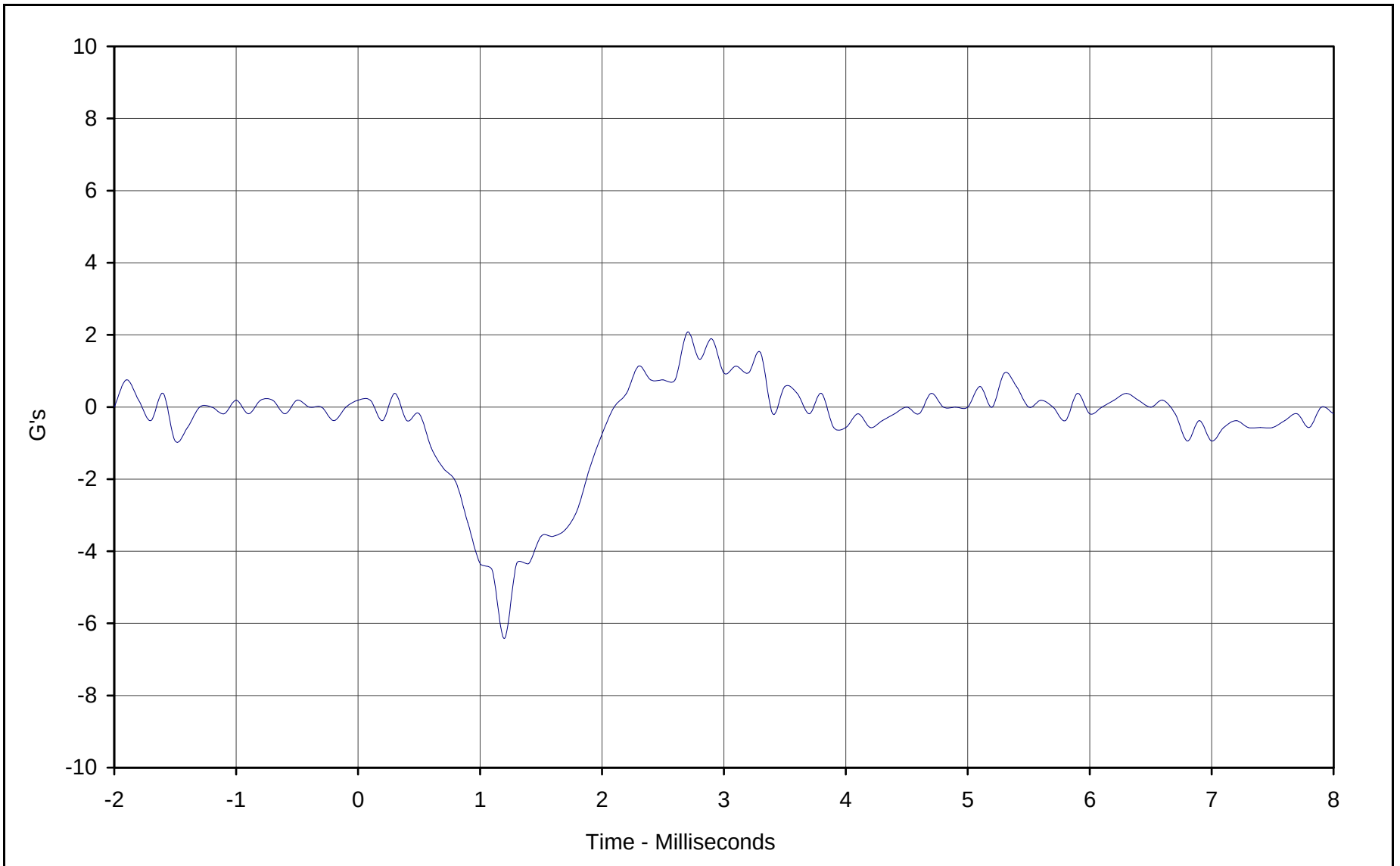
Curve Description: Head Resultant Acceleration
Maximum Value: 257.9 at 1.3 Milliseconds
Minimum Value: 1.1 at 0.0 Milliseconds
SAE Filter Class: 1000
Date of Test: 2/8/01

Test Program: SID Head Drop Calibration
Test Information: SID S/N: 274 Test I.D.: SH12F



KAR21006-02

C-12



Curve Description: Head Y Axis Acceleration

Maximum Value:	<u>2.1</u>	at	<u>2.7</u>	Milliseconds
Minimum Value:	<u>-6.4</u>	at	<u>1.2</u>	Milliseconds
SAE Filter Class:	<u>1000</u>			
Date of Test:	<u>2/8/01</u>			

Test Program: SID Head Drop Calibration

Test Information: SID S/N: 274 Test I.D.: SH12F



KAR21006-02



Performance Verification Data Side Impact Dummy (SID) External Dimensions

ATD Serial No.: 275

Part Serial No.: N/A

Test I.D.: N/A

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory temperature	°C	20.4 to 22.1	21.1	Pass
Laboratory relative humidity	%	10 to 70	30	Pass
SH- Seated Height	mm	889 to 909	905	Pass
HP- Hip Point Height	mm	99 (reference)	99	Pass
RH- Rib Height	mm	502 to 520	515	Pass
KH- Knee Pivot From Back Line	mm	511 to 526	520	Pass
KV- Knee Pivot From Floor	mm	490 to 505	500	Pass
HW- Hip Width	mm	356 to 391	360	Pass
Overall Test Results				Pass

Laboratory Technician

February 9, 2001

Test Date

Approved By

Date



Performance Verification Data Side Impact Dummy (SID) Thorax Lateral Impact

ATD Serial No.: 275

Part Serial No.: N/A

Test I.D.: TI01E

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	18.9 to 25.5	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Probe Velocity	m/s	4.21 to 4.33	4.27	Pass
Left Upper Rib Acceleration	G's	37.0 to 46.0	42.6	Pass
Left Lower Rib Acceleration	G's	37.0 to 46.0	42.9	Pass
Thoracic Spine Acceleration	G's	15.0 to 22.0	21.3	Pass
Overall Test Results				Pass

Laboratory Technician

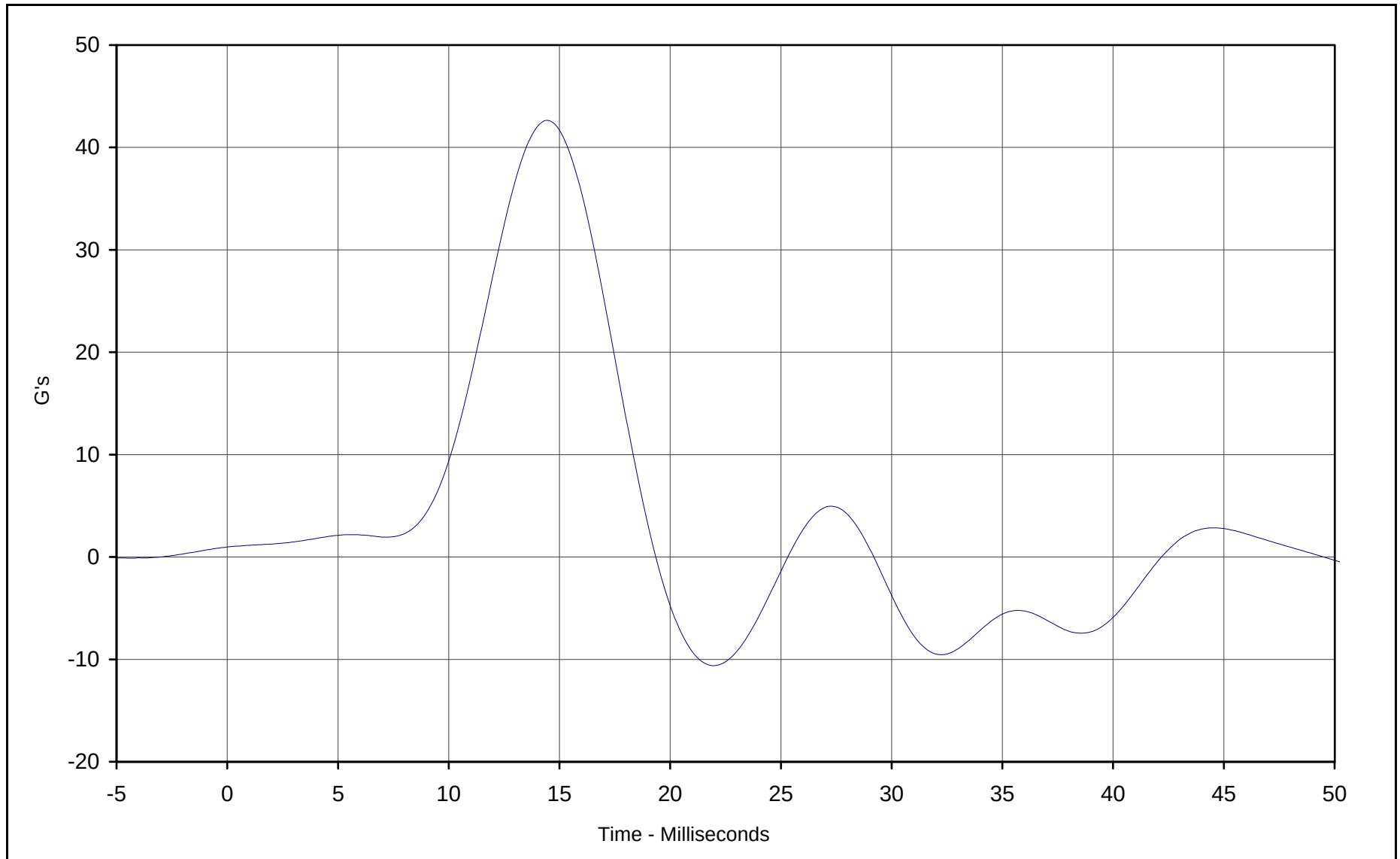
February 9, 2001

Test Date

Approved By

Date

C-15



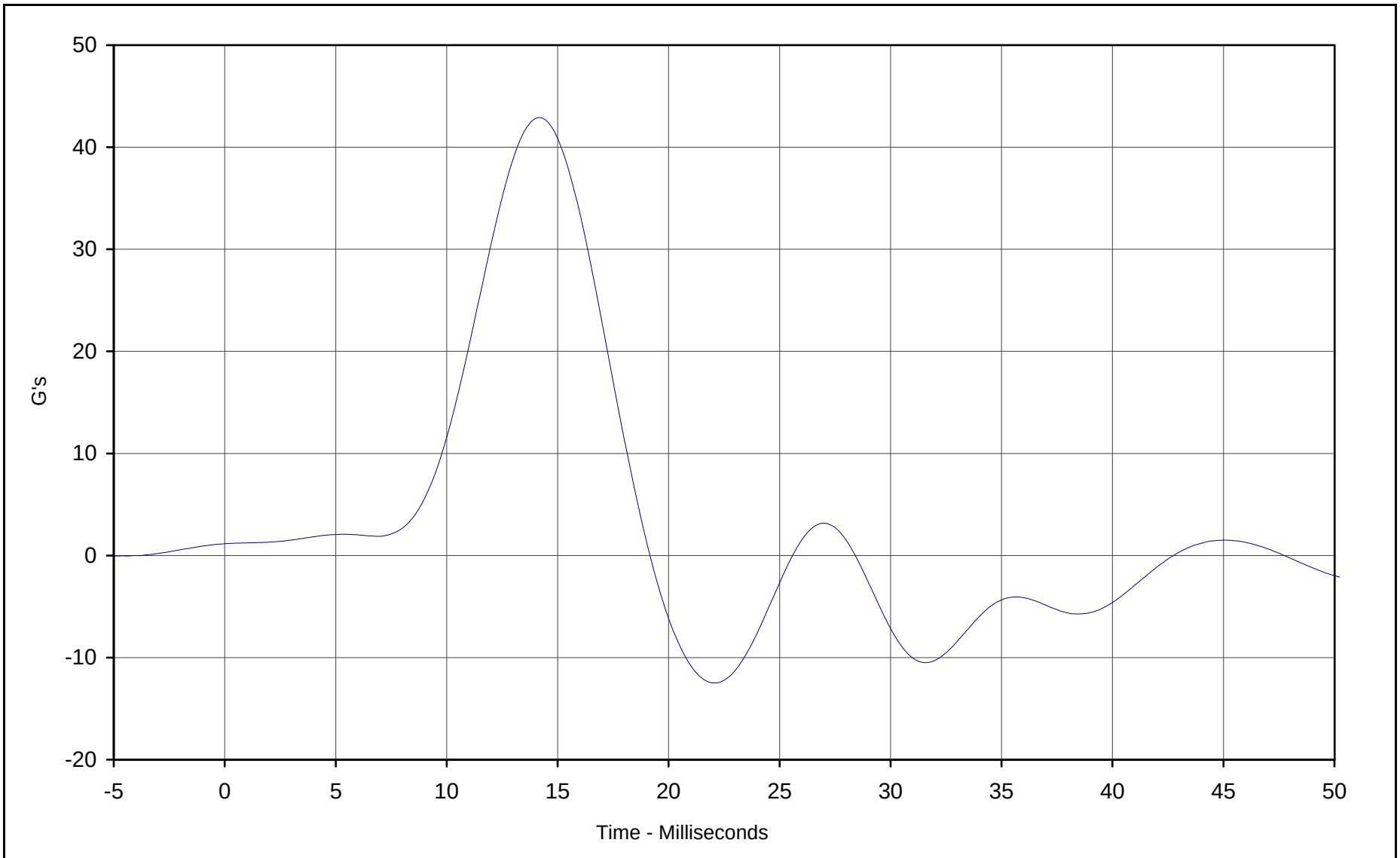
Curve Description: Left Upper Rib Y Acceleration
Maximum Value: 42.6 at 14.4 Milliseconds
Minimum Value: -10.6 at 22.0 Milliseconds
SAE Filter Class: FIR 100
Date of Test: 2/9/01

Test Program: SID Thorax Lateral Impact Test
Test Information: SID S/N: 275 Test I.D.: TI01E



KAR21006-02

C-16



Curve Description: Left Lower Rib Y Acceleration

Maximum Value: 42.9 at 14.2 Milliseconds

Minimum Value: -12.5 at 22.1 Milliseconds

SAE Filter Class: FIR 100

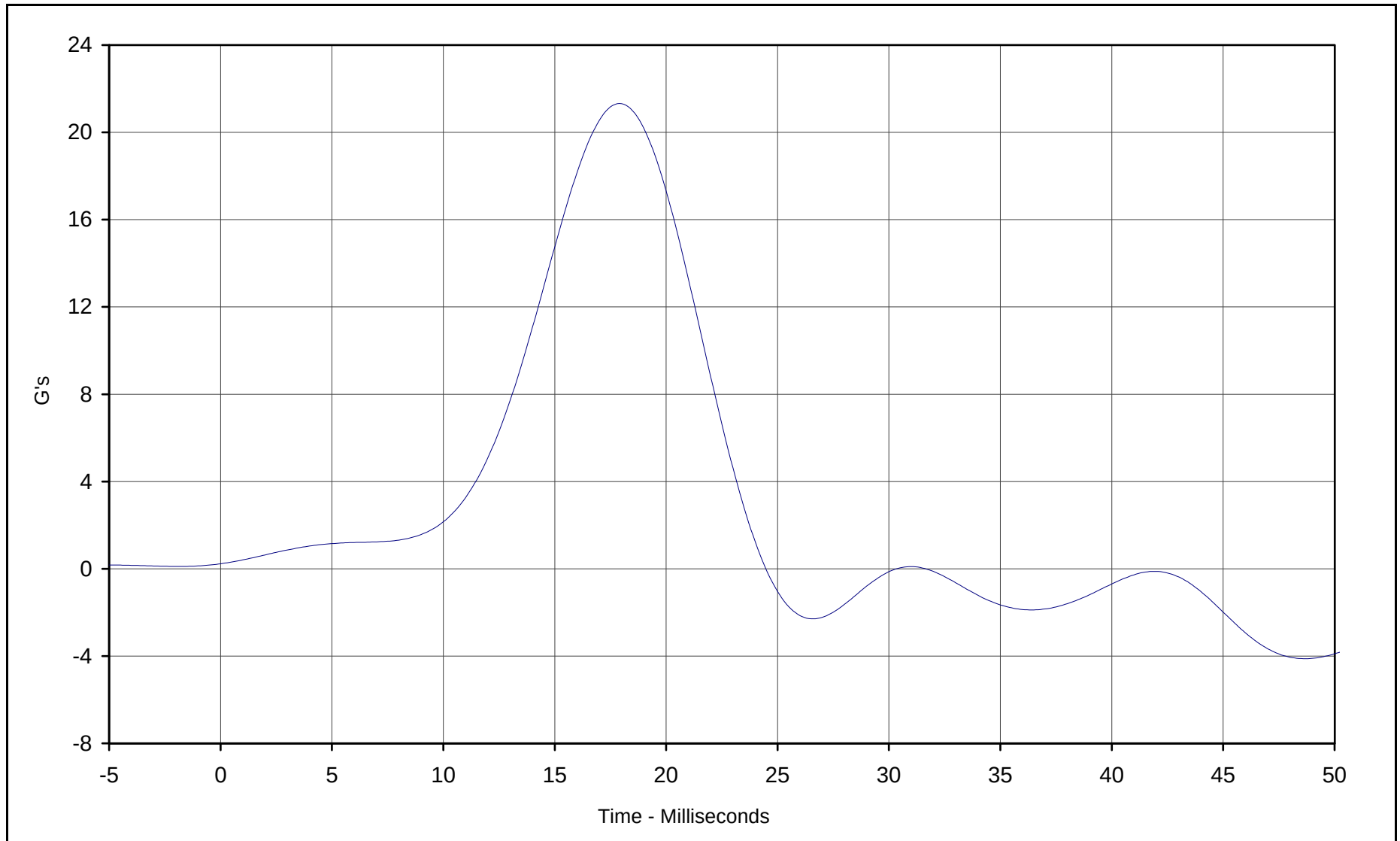
Date of Test: 2/9/01

Test Program: SID Thorax Lateral Impact Test

Test Information: SID S/N: 275 Test I.D.: TI01E



KAR21006-02



Curve Description: Lower Spine Y Acceleration
Maximum Value: 21.3 at 17.9 Milliseconds
Minimum Value: -4.1 at 48.6 Milliseconds
SAE Filter Class: FIR 100
Date of Test: 2/9/01

Test Program: SID Thorax Lateral Impact Test
Test Information: SID S/N: 275 Test I.D.: TI01E





Performance Verification Data Side Impact Dummy (SID) Left Side Pelvis Lateral Impact

ATD Serial No.: 275

Part Serial No.: N/A

Test I.D.: PI01E

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	18.9 to 25.5	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Probe Velocity	m/s	4.21 to 4.33	4.27	Pass
Pelvis Acceleration	G's	40.0 to 60.0	43.5	Pass
Acceleration Time Above 20 G's	Msec.	3.0 to 7.0 Msec.	5.6	Pass
Is Acceleration Unimodal?	Yes/No	Yes	Yes	Pass
Overall Test Results				Pass

Laboratory Technician

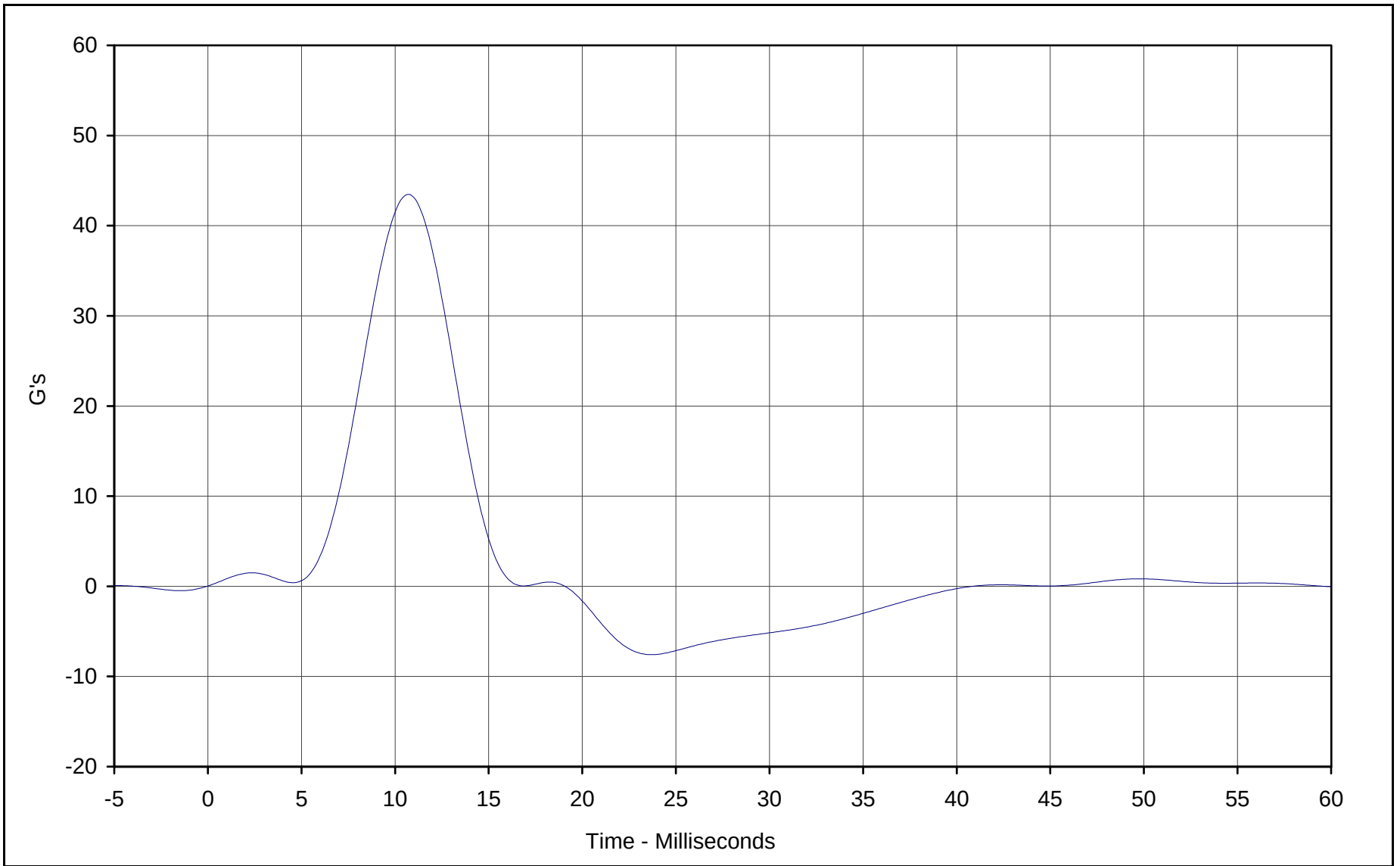
February 9, 2001

Test Date

Approved By

Date

C-19



Curve Description: Pelvis Y Axis Acceleration
Maximum Value: 43.5 at 10.7 Milliseconds
Minimum Value: -7.6 at 23.7 Milliseconds
SAE Filter Class: FIR 100
Date of Test: 2/9/01

Test Program: SID Left Side Pelvis Lateral Impact
Test Information: SID S/N: 275 Test I.D.: PI01E



KAR21006-02



Performance Verification Data Side Impact Dummy (SID) Abdominal Compression Test

ATD Serial No.: 275

Part Serial No.: N/A

Test I.D.: AB12X

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°F	66 to 78	70	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Force at 0.5 Inches of Displacement	Pounds	23.0 to 36.0	27.6	Pass
Force at 0.75 Inches of Displacement	Pounds	36.0 to 50.0	41.4	Pass
Force at 1.0 Inches of Displacement	Pounds	50.0 to 63.0	56.9	Pass
Force at 1.3 Inches of Displacement	Pounds	73.0 to 88.0	78.8	Pass
Overall Test Results				Pass

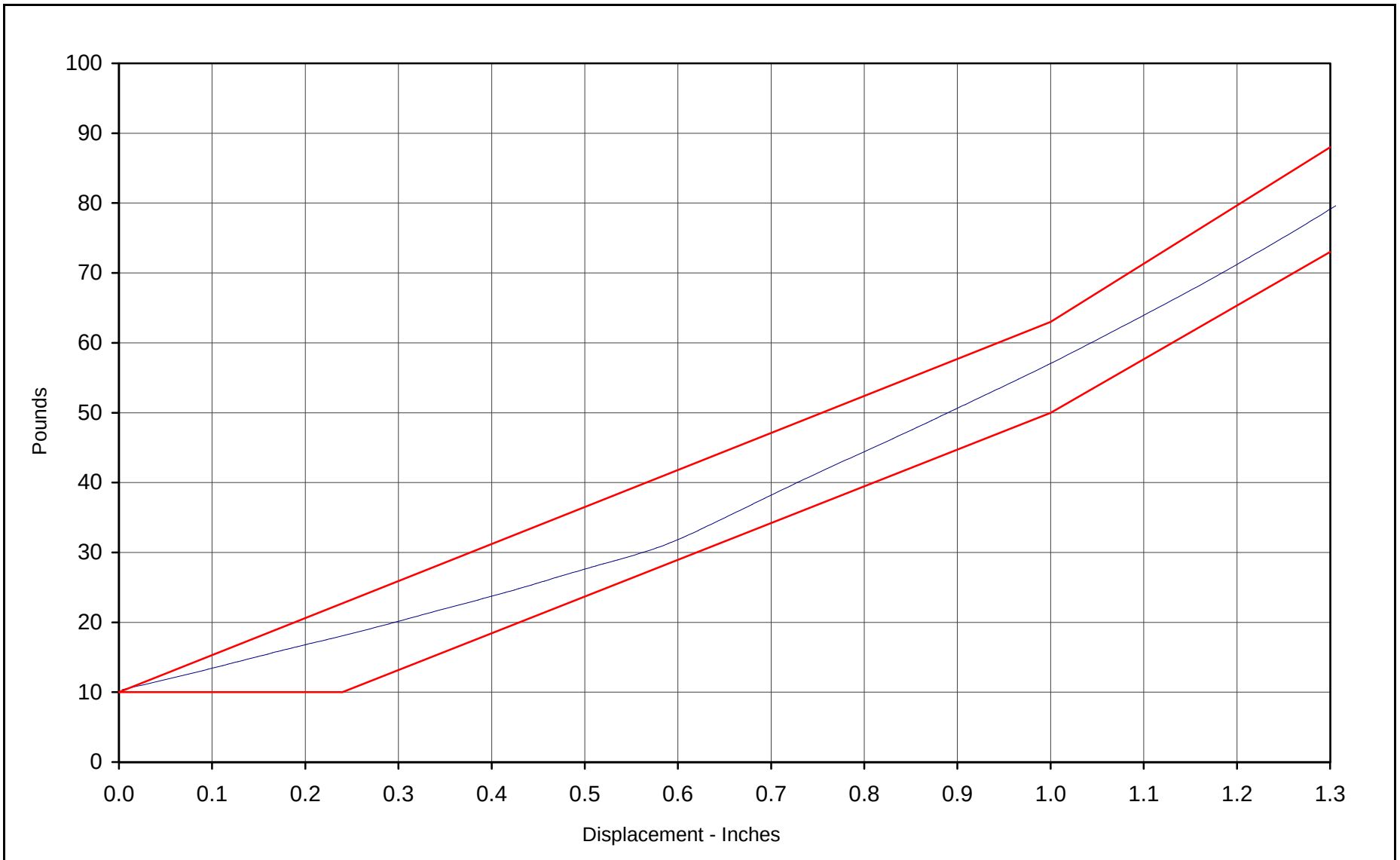
Laboratory Technician

February 8, 2001

Test Date

Approved By

Date



Curve Description: Abdomen Force vs. Displacement

Force at 0.5 In.: 27.6 Pounds

Force at 0.75 In.: 41.4 Pounds

Force at 1.0 In.: 56.9 Pounds

Force at 1.3 In.: 78.8 Pounds

Date of Test: 2/8/01

Test Program: SID Abdominal Compression

Test Information: SID S/N: 275 Test I.D.: AB12X





Performance Verification Data Side Impact Dummy (SID) Head Drop Calibration

ATD Serial No.: 275

Part Serial No.: N/A

Test I.D.: SH12H

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°F	66 to 78	70	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Peak Resultant Acceleration	G's	210.0 to 260.0	247.7	Pass
Peak Lateral Acceleration	G's	≤10.0	3.4	Pass
Time Above 100 G's	Msec.	0.9 to 1.5	1.1	Pass
Is Resultant Acceleration Unimodal?	Yes/No	Yes	Yes	Pass
Overall Test Results				Pass

Laboratory Technician

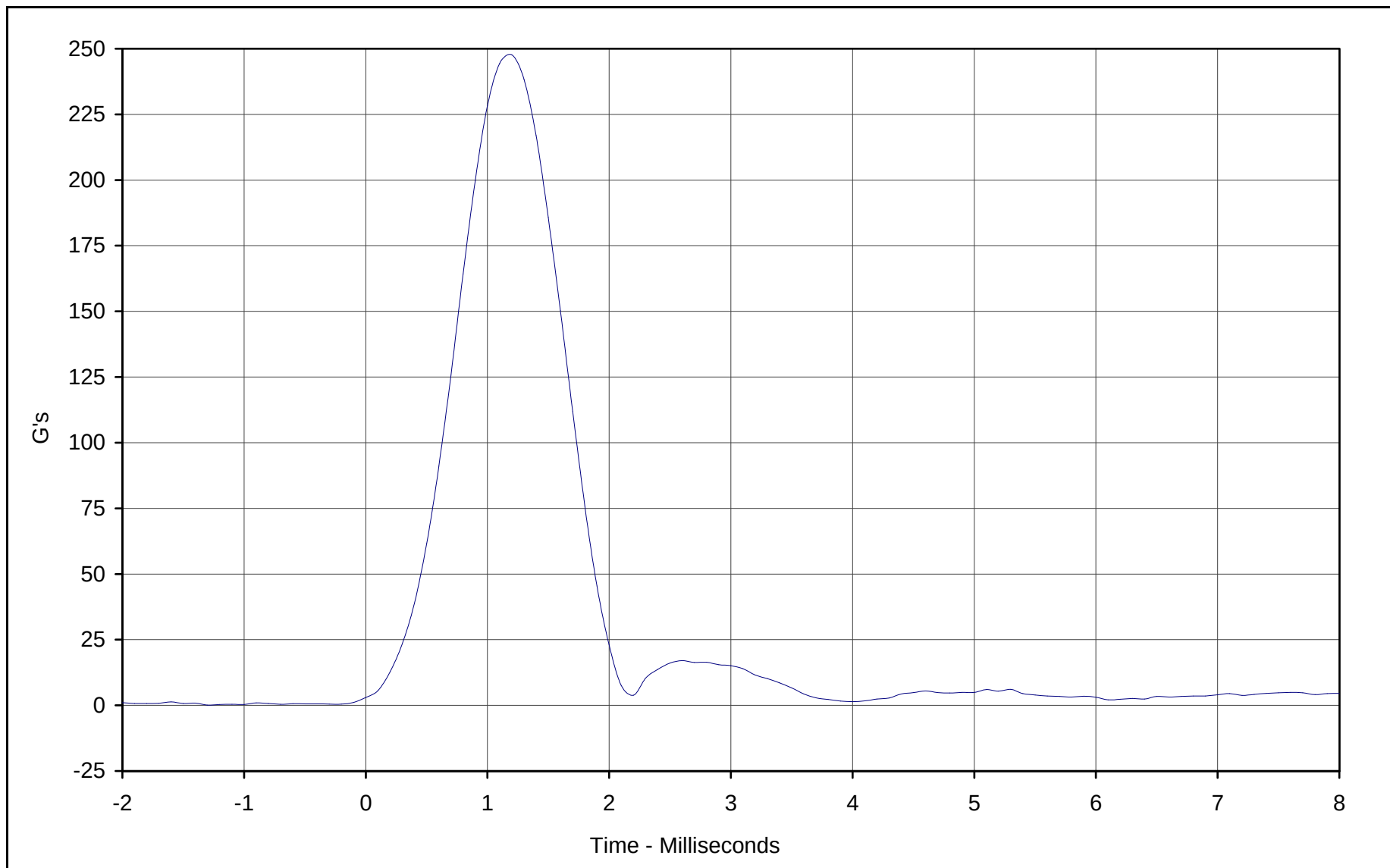
February 8, 2001

Test Date

Approved By

Date

C-23



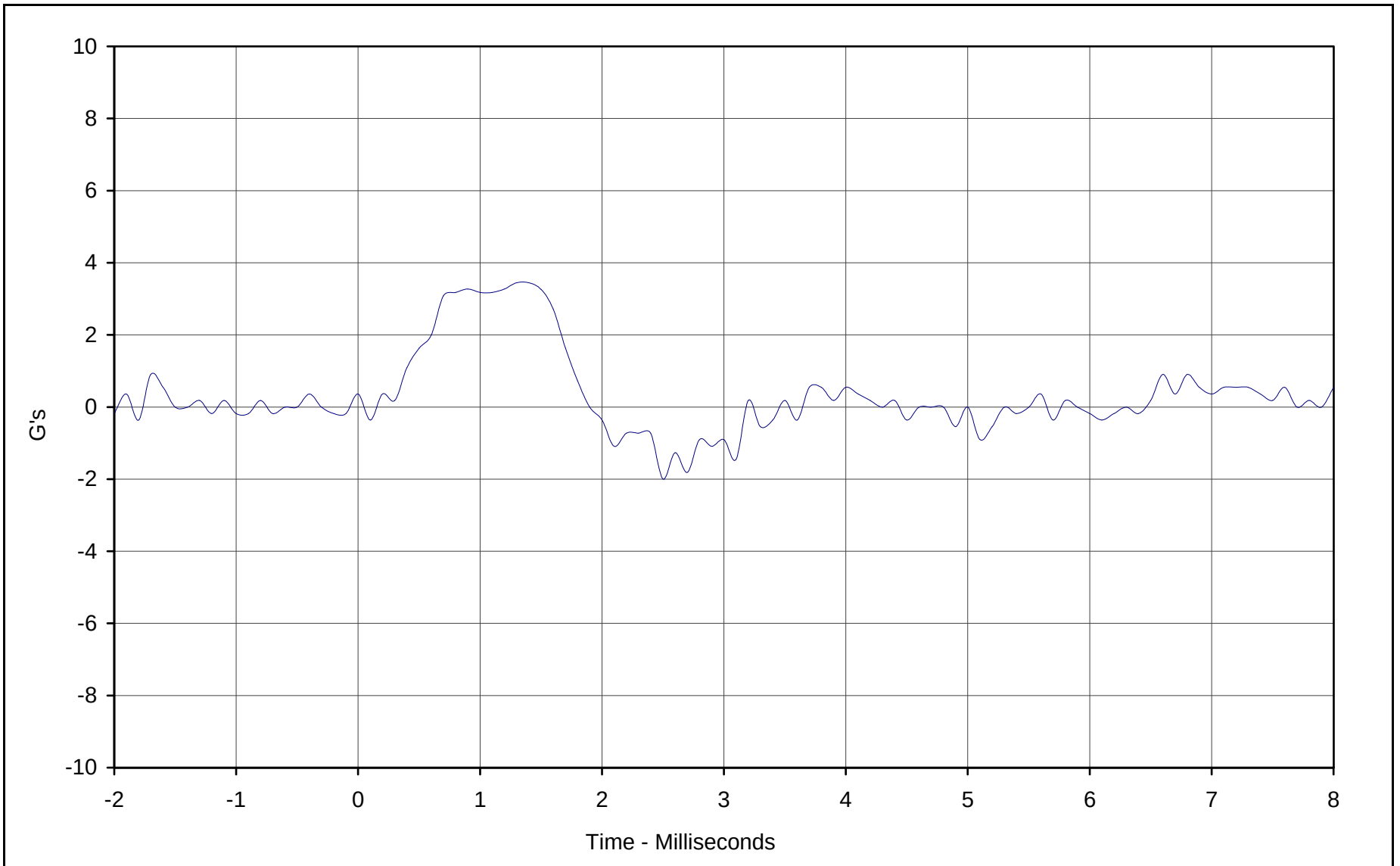
Curve Description: Head Resultant Acceleration
Maximum Value: 247.7 at 1.2 Milliseconds
Minimum Value: 1.4 at 4.0 Milliseconds
SAE Filter Class: 1000
Date of Test: 2/8/01

Test Program: SID Head Drop Calibration
Test Information: SID S/N: 275 Test I.D.: SH12H



KAR21006-02

C-24



Curve Description: Head Y Axis Acceleration

Maximum Value:	3.4	at	1.3	Milliseconds
Minimum Value:	-2.0	at	2.5	Milliseconds
SAE Filter Class:	1000			
Date of Test:	2/8/01			

Test Program: SID Head Drop Calibration

Test Information: SID S/N: 275 Test I.D.: SH12H



KAR21006-02

APPENDIX C
POST-TEST SID CONFIGURATION AND PERFORMANCE VERIFICATION DATA



Performance Verification Data Side Impact Dummy (SID) External Dimensions

ATD Serial No.: 274

Part Serial No.: N/A

Test I.D.: N/A

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory temperature	°C	20.4 to 22.1	21.1	Pass
Laboratory relative humidity	%	10 to 70	30	Pass
SH- Seated Height	mm	889 to 909	890	Pass
HP- Hip Point Height	mm	99 (reference)	99	Pass
RH- Rib Height	mm	502 to 520	510	Pass
KH- Knee Pivot From Back Line	mm	511 to 526	515	Pass
KV- Knee Pivot From Floor	mm	490 to 505	495	Pass
HW- Hip Width	mm	356 to 391	370	Pass
Overall Test Results				Pass

Laboratory Technician

February 20, 2001

Test Date

Approved By

Date



Performance Verification Data Side Impact Dummy (SID) Thorax Lateral Impact

ATD Serial No.: 274

Part Serial No.: N/A

Test I.D.: TI02A

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	18.9 to 25.5	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Probe Velocity	m/s	4.21 to 4.33	4.27	Pass
Left Upper Rib Acceleration	G's	37.0 to 46.0	44.4	Pass
Left Lower Rib Acceleration	G's	37.0 to 46.0	42.3	Pass
Thoracic Spine Acceleration	G's	15.0 to 22.0	18.7	Pass
Overall Test Results				Pass

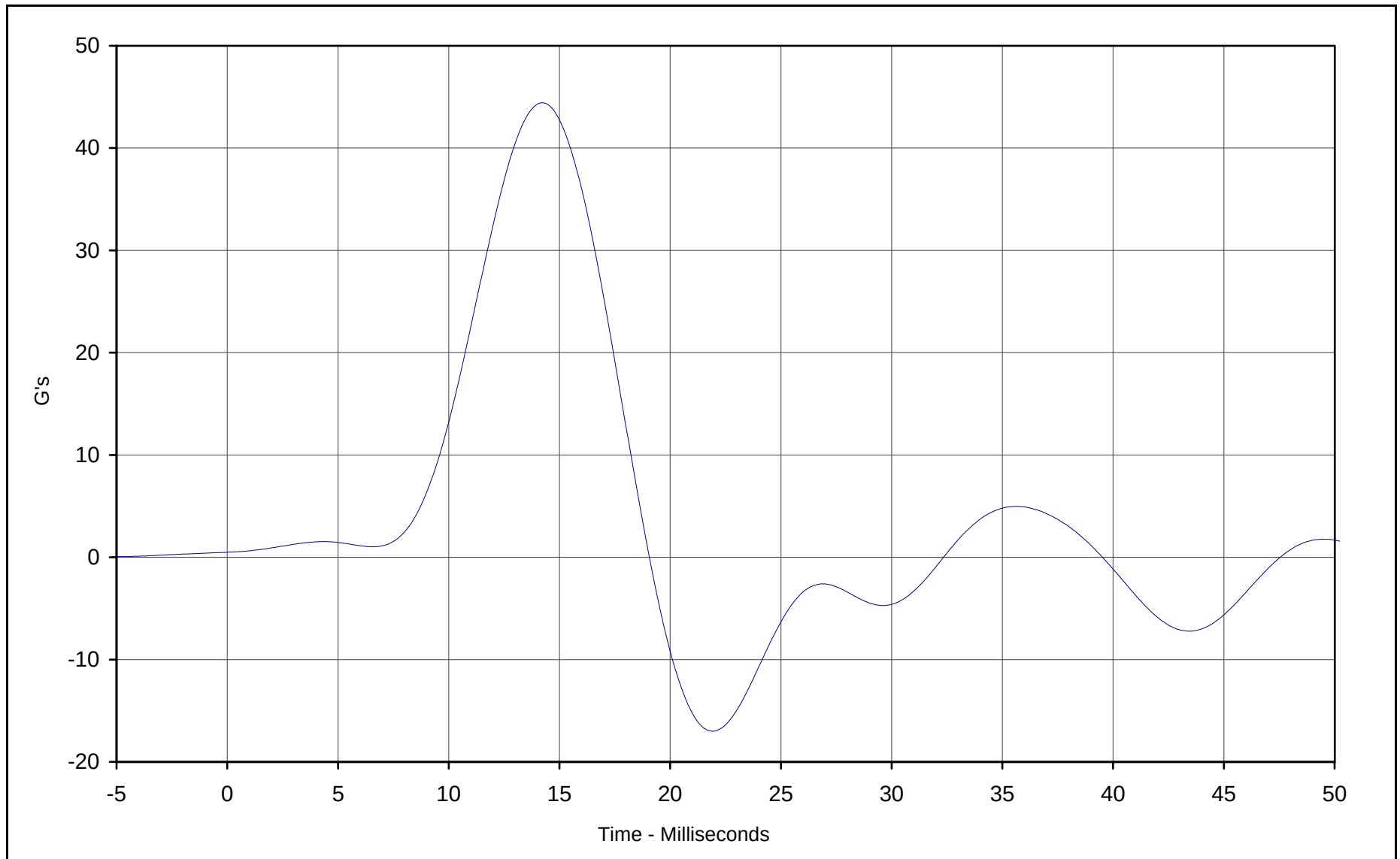
Laboratory Technician

February 16, 2001

Test Date

Approved By

Date

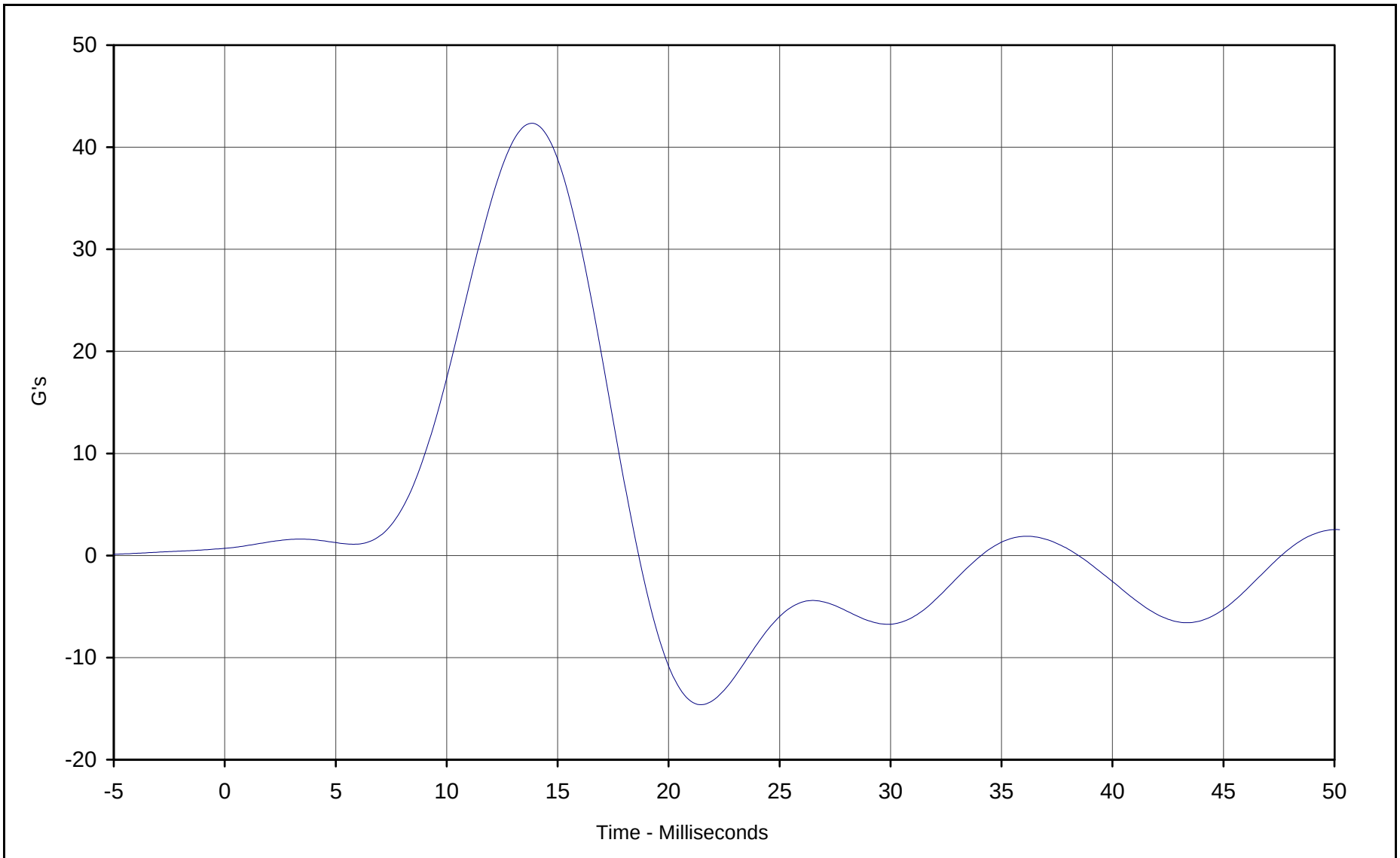


Curve Description: Left Upper Rib Y Acceleration
Maximum Value: 44.4 at 14.2 Milliseconds
Minimum Value: -17.0 at 21.9 Milliseconds
SAE Filter Class: FIR 100
Date of Test: 2/16/01

Test Program: SID Thorax Lateral Impact Test
Test Information: SID S/N: 274 Test I.D.: TI02A



C-28



Curve Description: Left Lower Rib Y Acceleration

Maximum Value: 42.3 at 13.8 Milliseconds

Minimum Value: -14.6 at 21.5 Milliseconds

SAE Filter Class: FIR 100

Date of Test: 2/16/01

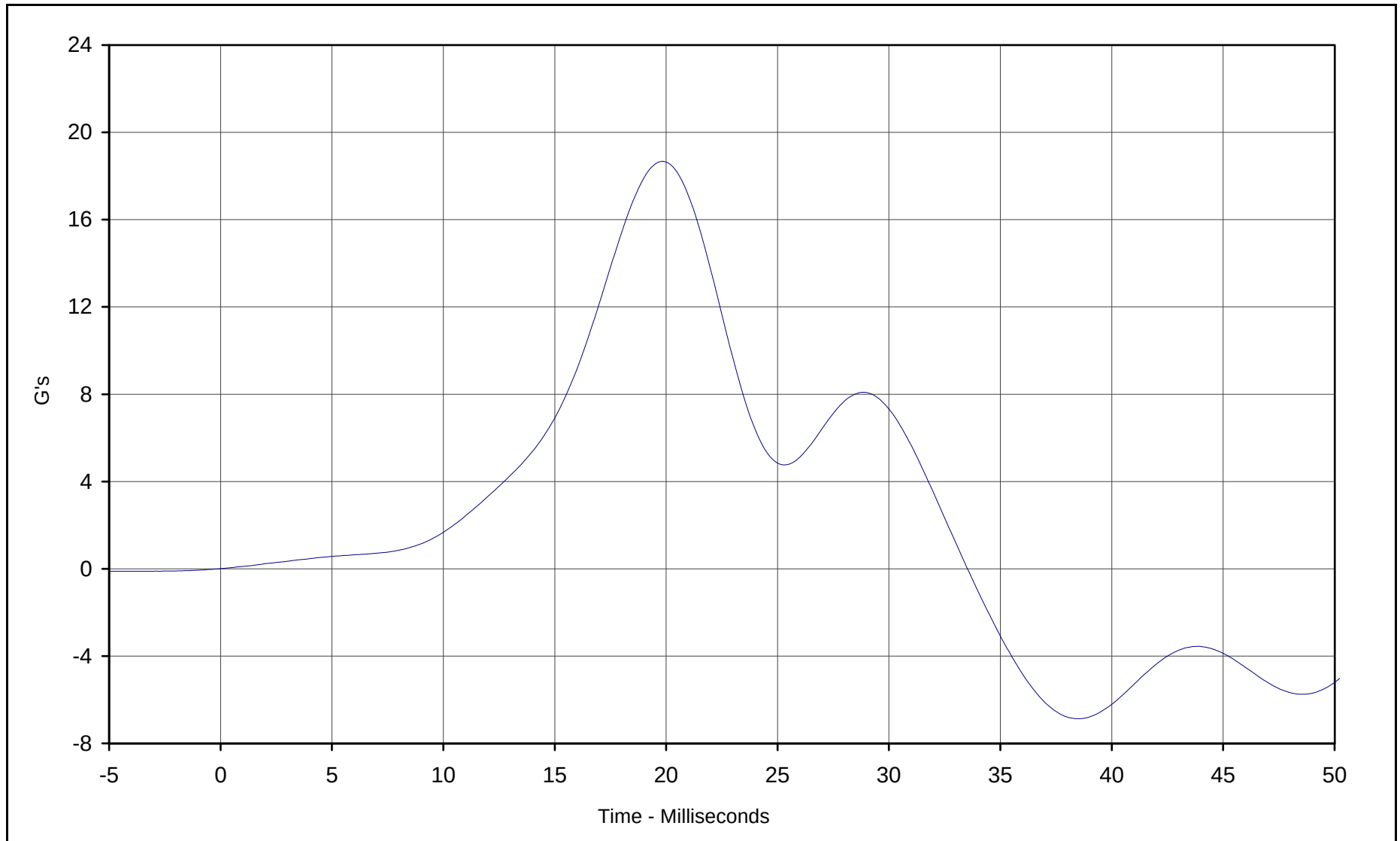
Test Program: SID Thorax Lateral Impact Test

Test Information: SID S/N: 274 Test I.D.: TI02A



KAR21006-02

C-29



Curve Description: Lower Spine Y Acceleration
Maximum Value: 18.7 at 19.8 Milliseconds
Minimum Value: -6.9 at 38.5 Milliseconds
SAE Filter Class: FIR 100
Date of Test: 2/16/01

Test Program: SID Thorax Lateral Impact Test
Test Information: SID S/N: 274 Test I.D.: TI02A



KAR21006-02



Performance Verification Data

Side Impact Dummy (SID)

Left Side Pelvis Lateral Impact

ATD Serial No.: 274

Part Serial No.: N/A

Test I.D.: PI02B

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	18.9 to 25.5	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Probe Velocity	m/s	4.21 to 4.33	4.33	Pass
Pelvis Acceleration	G's	40.0 to 60.0	42.2	Pass
Acceleration Time Above 20 G's	Msec.	3.0 to 7.0 Msec.	6.8	Pass
Is Acceleration Unimodal?	Yes/No	Yes	Yes	Pass
Overall Test Results				Pass

Laboratory Technician

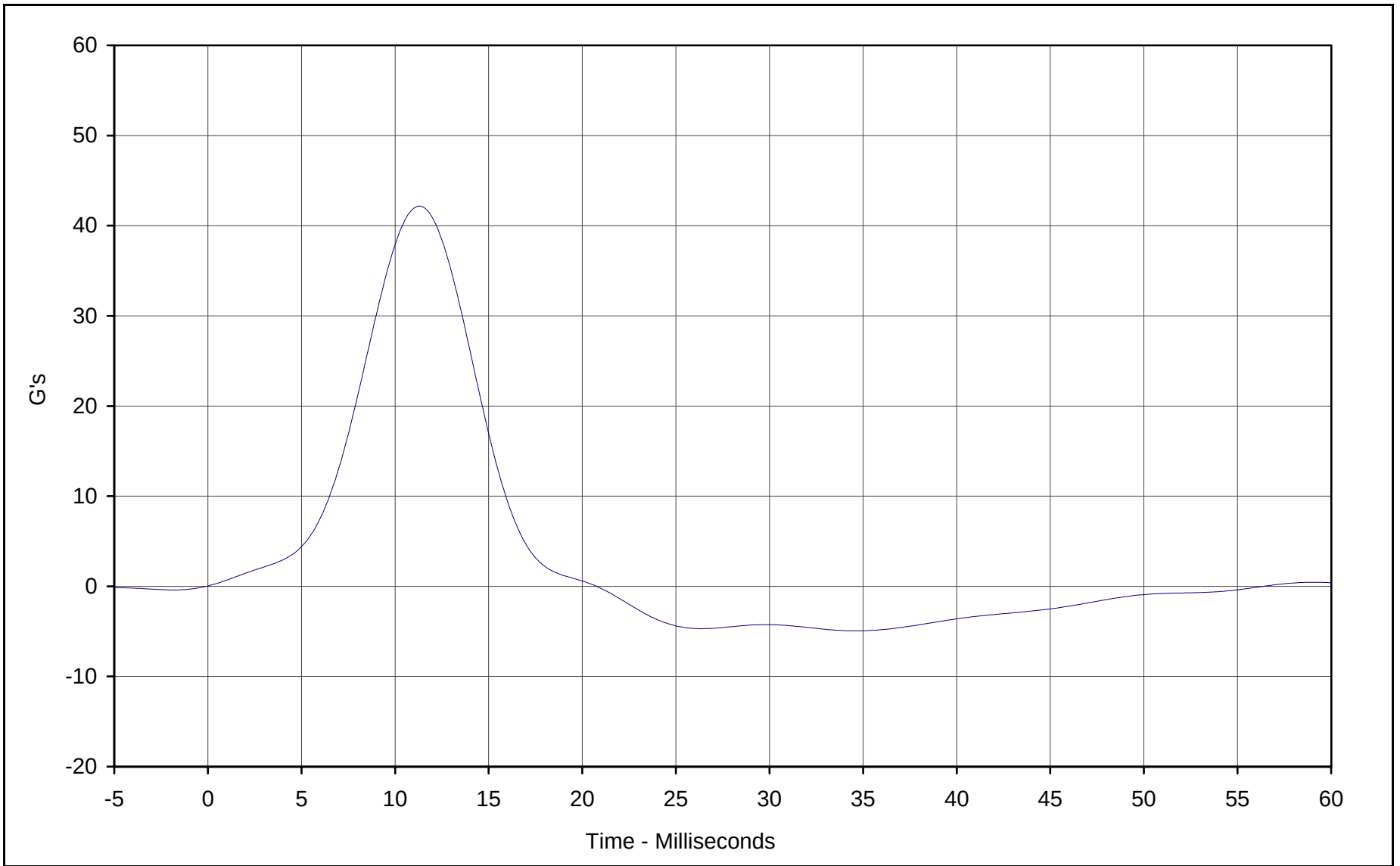
February 16, 2001

Test Date

Approved By

Date

C-31



Curve Description: Pelvis Y Axis Acceleration
Maximum Value: 42.2 at 11.3 Milliseconds
Minimum Value: -4.9 at 34.6 Milliseconds
SAE Filter Class: FIR 100
Date of Test: 2/16/01

Test Program: SID Left Side Pelvis Lateral Impact
Test Information: SID S/N: 274 Test I.D.: PI02B



KAR21006-02



Performance Verification Data Side Impact Dummy (SID) Abdominal Compression Test

ATD Serial No.: 274

Part Serial No.: N/A

Test I.D.: AB02A

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°F	66 to 78	70	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Force at 0.5 Inches of Displacement	Pounds	23.0 to 36.0	26.4	Pass
Force at 0.75 Inches of Displacement	Pounds	36.0 to 50.0	39.0	Pass
Force at 1.0 Inches of Displacement	Pounds	50.0 to 63.0	54.1	Pass
Force at 1.3 Inches of Displacement	Pounds	73.0 to 88.0	74.8	Pass
Overall Test Results				Pass

Laboratory Technician

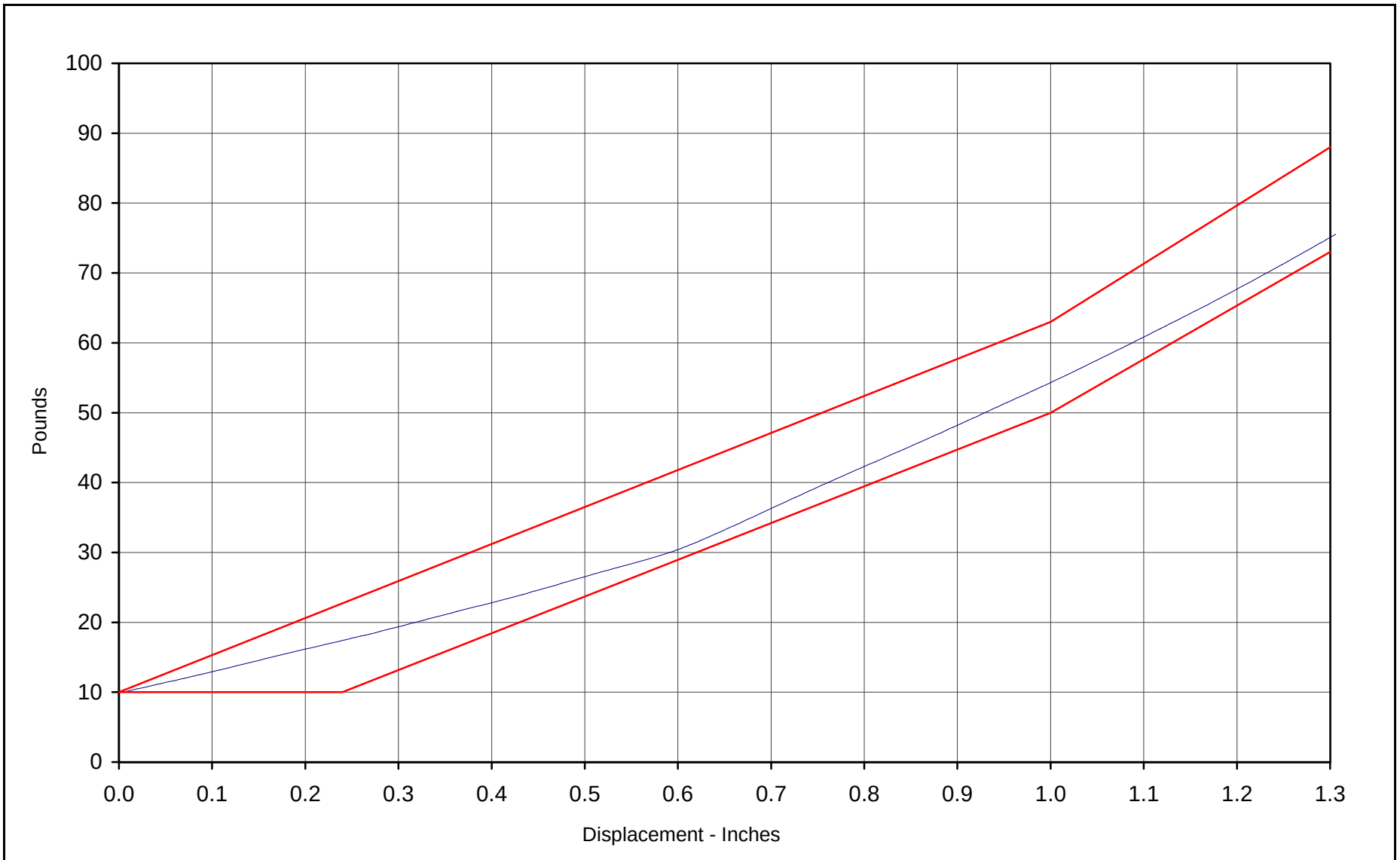
February 19, 2001

Test Date

Approved By

Date

C-33

Curve Description: Abdomen Force vs. DisplacementForce at 0.5 In.: 26.4 PoundsForce at 0.75 In.: 39.0 PoundsForce at 1.0 In.: 54.1 PoundsForce at 1.3 In.: 74.8 PoundsDate of Test: 2/19/01Test Program: SID Abdominal CompressionTest Information: SID S/N: 274 Test I.D.: AB02A

KAR21006-02



Performance Verification Data Side Impact Dummy (SID) Head Drop Calibration

ATD Serial No.: 274

Part Serial No.: N/A

Test I.D.: HD02A

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°F	66 to 78	70	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Peak Resultant Acceleration	G's	210.0 to 260.0	255.3	Pass
Peak Lateral Acceleration	G's	≤10.0	4.2	Pass
Time Above 100 G's	Msec.	0.9 to 1.5	1.1	Pass
Is Resultant Acceleration Unimodal?	Yes/No	Yes	Yes	Pass
Overall Test Results				Pass

Laboratory Technician

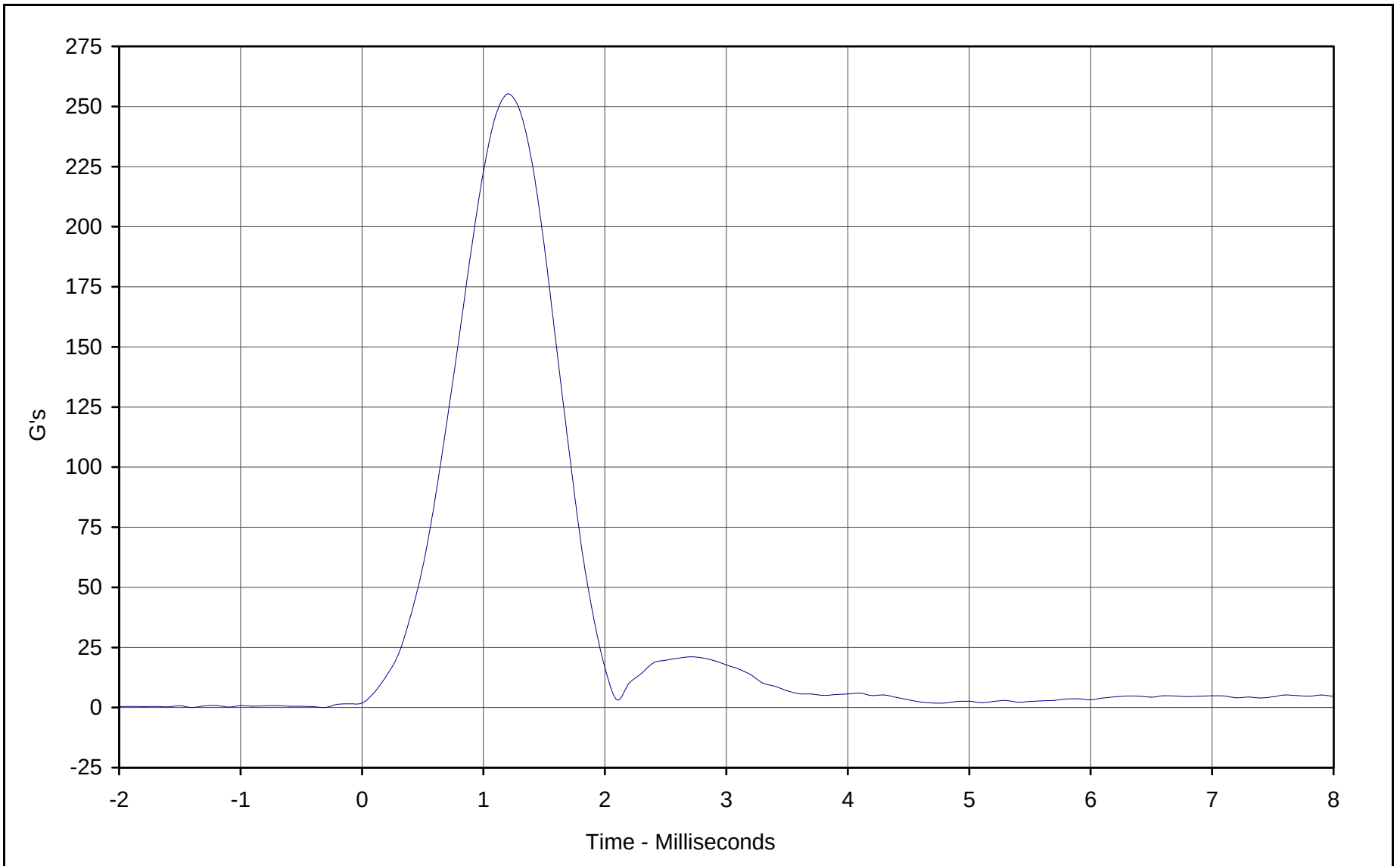
February 18, 2001

Test Date

Approved By

Date

C-35

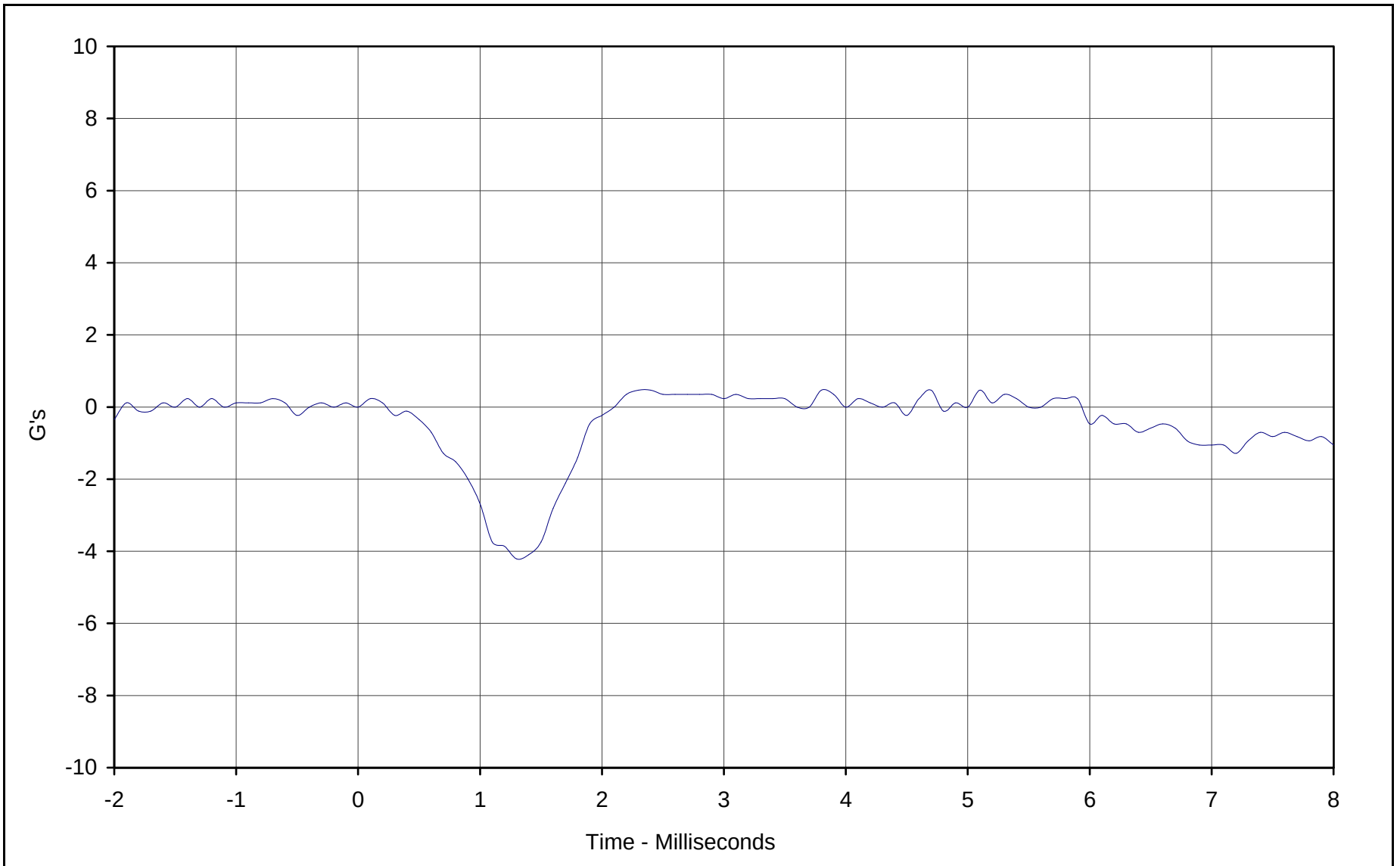


Curve Description: Head Resultant Acceleration
Maximum Value: 255.3 at 1.2 Milliseconds
Minimum Value: 1.9 at 0.0 Milliseconds
SAE Filter Class: 1000
Date of Test: 2/18/01

Test Program: SID Head Drop Calibration
Test Information: SID S/N: 274 Test I.D.: HD02A



KAR21006-02



Curve Description: Head Y Axis Acceleration
Maximum Value: 0.5 at 2.3 Milliseconds
Minimum Value: -4.2 at 1.3 Milliseconds
SAE Filter Class: 1000
Date of Test: 2/18/01

Test Program: SID Head Drop Calibration
Test Information: SID S/N: 274 Test I.D.: HD02A





Performance Verification Data Side Impact Dummy (SID) External Dimensions

ATD Serial No.: 275

Part Serial No.: N/A

Test I.D.: N/A

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory temperature	°C	20.4 to 22.1	21.1	Pass
Laboratory relative humidity	%	10 to 70	30	Pass
SH- Seated Height	mm	889 to 909	905	Pass
HP- Hip Point Height	mm	99 (reference)	99	Pass
RH- Rib Height	mm	502 to 520	515	Pass
KH- Knee Pivot From Back Line	mm	511 to 526	520	Pass
KV- Knee Pivot From Floor	mm	490 to 505	495	Pass
HW- Hip Width	mm	356 to 391	365	Pass
Overall Test Results				Pass

Laboratory Technician

February 20, 2001

Test Date

Approved By

Date



Performance Verification Data Side Impact Dummy (SID) Thorax Lateral Impact

ATD Serial No.: 275

Part Serial No.: N/A

Test I.D.: TI02B

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	18.9 to 25.5	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Probe Velocity	m/s	4.21 to 4.33	4.27	Pass
Left Upper Rib Acceleration	G's	37.0 to 46.0	43.6	Pass
Left Lower Rib Acceleration	G's	37.0 to 46.0	42.6	Pass
Thoracic Spine Acceleration	G's	15.0 to 22.0	20.2	Pass
Overall Test Results				Pass

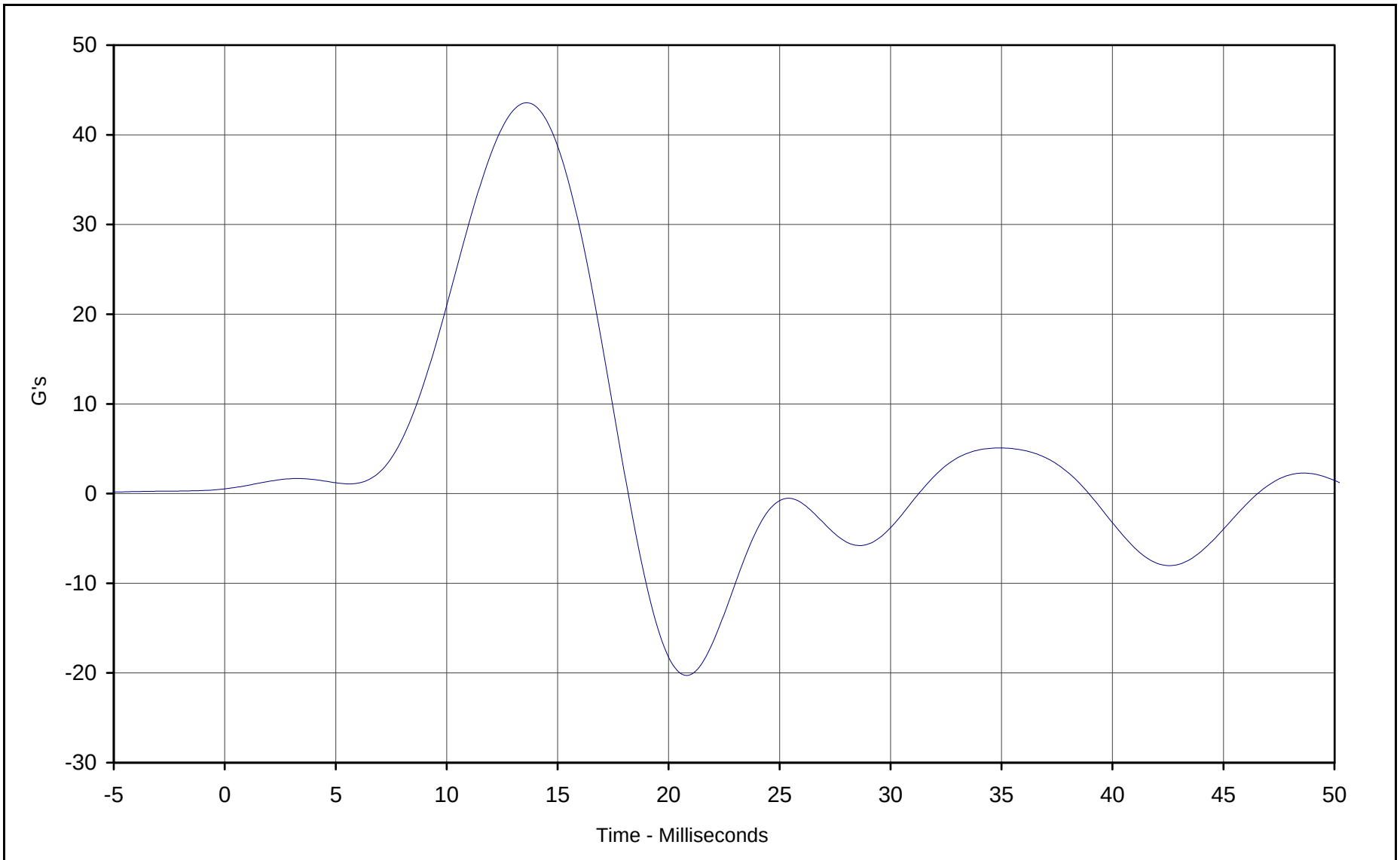
Laboratory Technician

February 16, 2001

Test Date

Approved By

Date

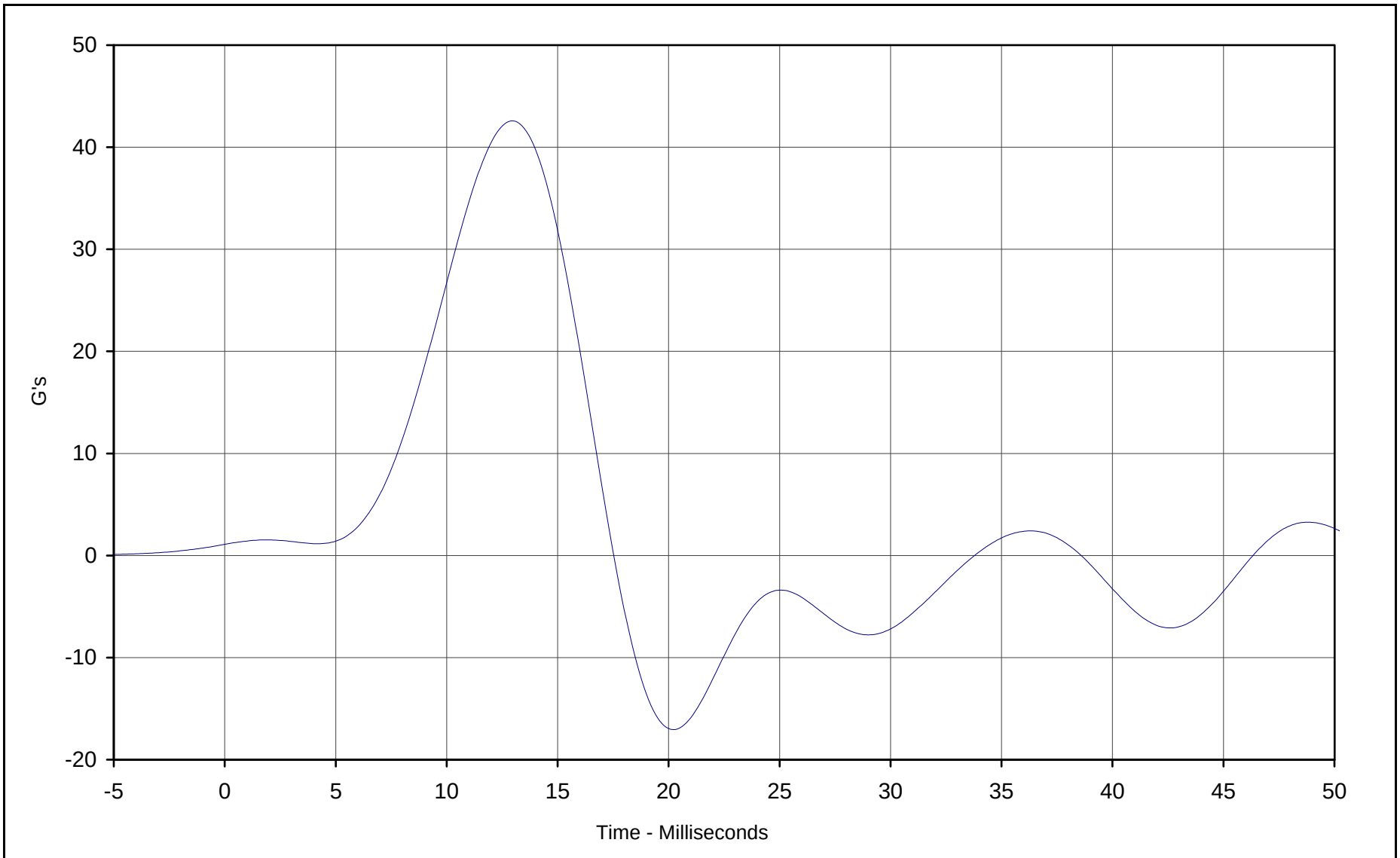


Curve Description: Left Upper Rib Y Acceleration
Maximum Value: 43.6 at 13.6 Milliseconds
Minimum Value: -20.3 at 20.8 Milliseconds
SAE Filter Class: FIR 100
Date of Test: 2/16/01

Test Program: SID Thorax Lateral Impact Test
Test Information: SID S/N: 275 Test I.D.: TI02B



C-40



Curve Description: Left Lower Rib Y Acceleration

Maximum Value: 42.6 at 13.0 Milliseconds

Minimum Value: -17.1 at 20.2 Milliseconds

SAE Filter Class: FIR 100

Date of Test: 2/16/01

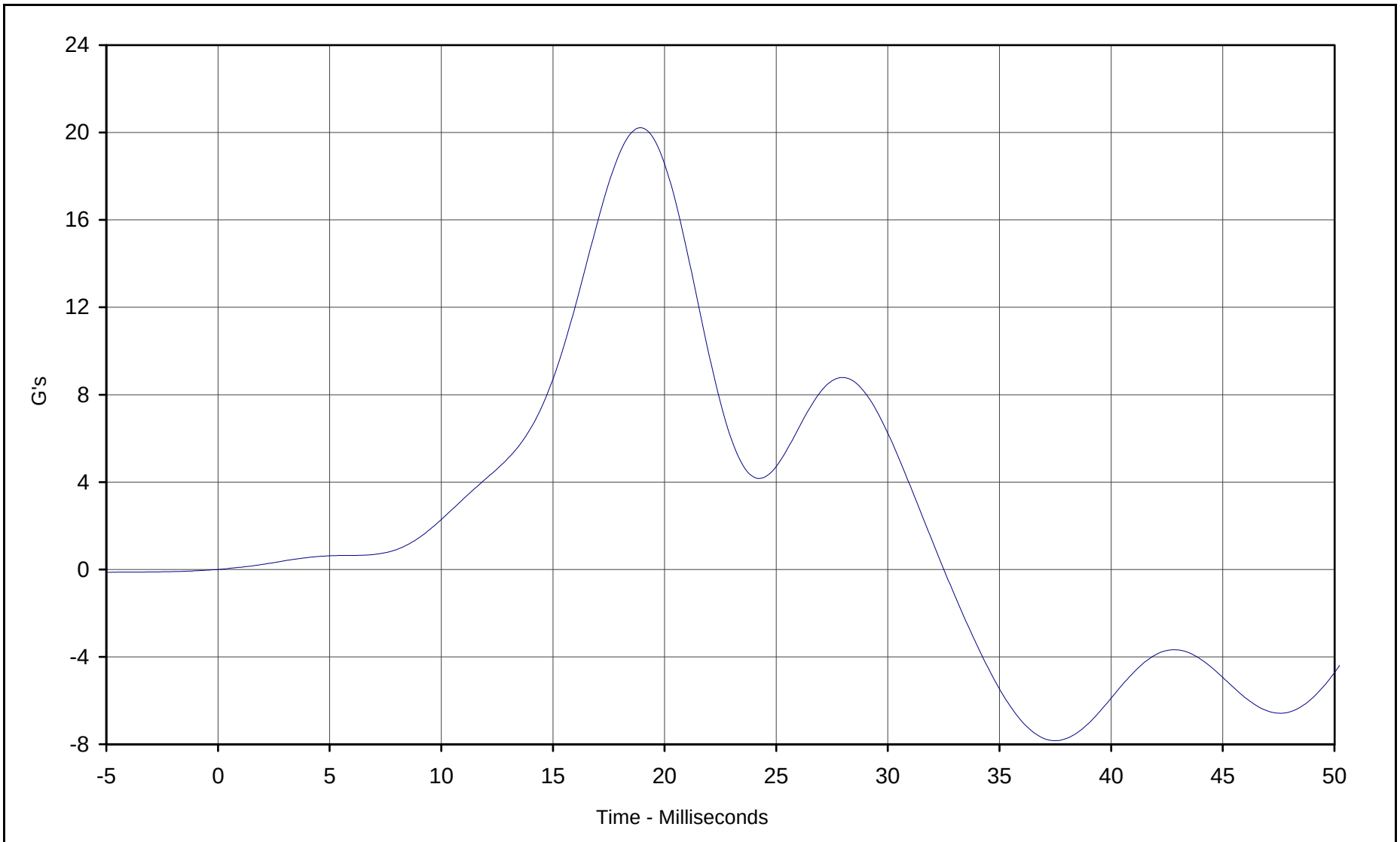
Test Program: SID Thorax Lateral Impact Test

Test Information: SID S/N: 275 Test I.D.: TI02B



KAR21006-02

C-41



Curve Description: Lower Spine Y Acceleration
Maximum Value: 20.2 at 18.9 Milliseconds
Minimum Value: -7.8 at 37.5 Milliseconds
SAE Filter Class: FIR 100
Date of Test: 2/16/01

Test Program: SID Thorax Lateral Impact Test
Test Information: SID S/N: 275 Test I.D.: TI02B



KAR21006-02



Performance Verification Data

Side Impact Dummy (SID)

Left Side Pelvis Lateral Impact

ATD Serial No.: 275

Part Serial No.: N/A

Test I.D.: PI02C

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	18.9 to 25.5	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Probe Velocity	m/s	4.21 to 4.33	4.33	Pass
Pelvis Acceleration	G's	40.0 to 60.0	42.8	Pass
Acceleration Time Above 20 G's	Msec.	3.0 to 7.0 Msec.	7.0	Pass
Is Acceleration Unimodal?	Yes/No	Yes	Yes	Pass
Overall Test Results				Pass

Laboratory Technician

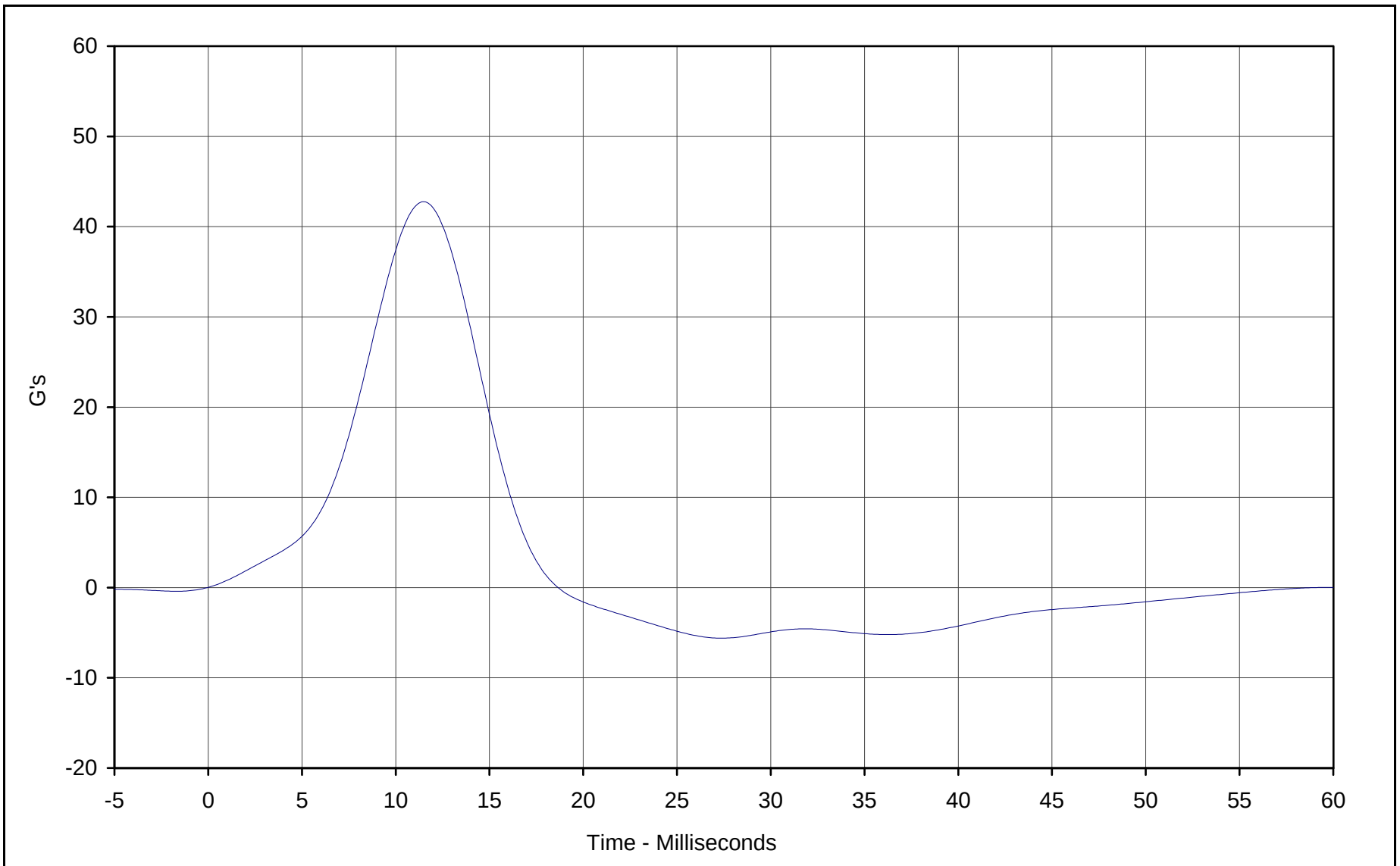
February 16, 2001

Test Date

Approved By

Date

C-43



Curve Description: Pelvis Y Axis Acceleration
Maximum Value: 42.8 at 11.5 Milliseconds
Minimum Value: -5.6 at 27.4 Milliseconds
SAE Filter Class: FIR 100
Date of Test: 2/16/01

Test Program: SID Left Side Pelvis Lateral Impact
Test Information: SID S/N: 275 Test I.D.: PI02C



KAR21006-02



Performance Verification Data Side Impact Dummy (SID) Abdominal Compression Test

ATD Serial No.: 275

Part Serial No.: N/A

Test I.D.: AB02B

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°F	66 to 78	70	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Force at 0.5 Inches of Displacement	Pounds	23.0 to 36.0	26.8	Pass
Force at 0.75 Inches of Displacement	Pounds	36.0 to 50.0	38.8	Pass
Force at 1.0 Inches of Displacement	Pounds	50.0 to 63.0	53.7	Pass
Force at 1.3 Inches of Displacement	Pounds	73.0 to 88.0	73.6	Pass
Overall Test Results				Pass

Laboratory Technician

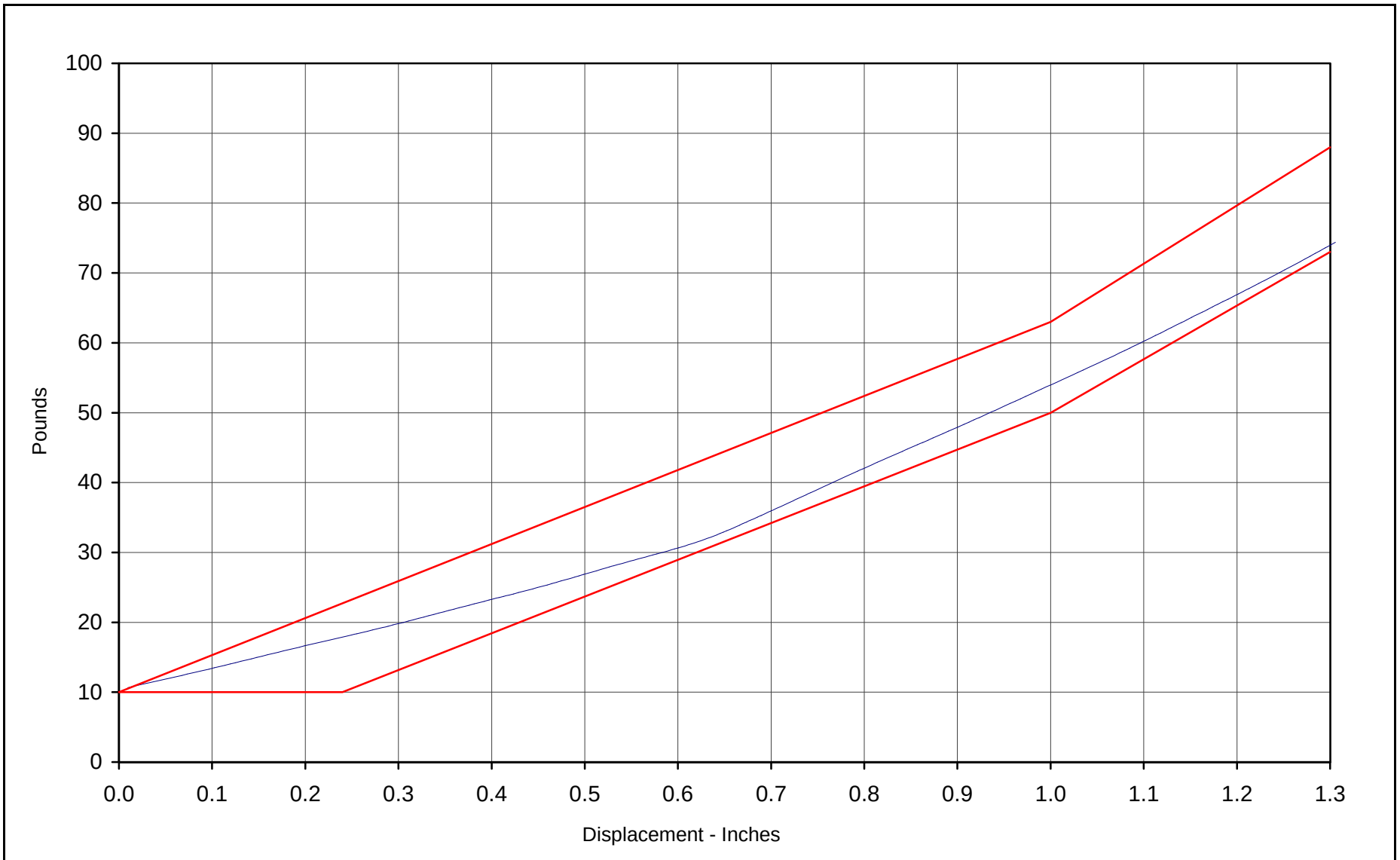
February 19, 2001

Test Date

Approved By

Date

C-45



Curve Description: Abdomen Force vs. Displacement

Force at 0.5 In.: 26.8 Pounds

Force at 0.75 In.: 38.8 Pounds

Force at 1.0 In.: 53.7 Pounds

Force at 1.3 In.: 73.6 Pounds

Date of Test: 2/19/01

Test Program: SID Abdominal Compression

Test Information: SID S/N: 275 Test I.D.: AB02B



KAR21006-02



Performance Verification Data Side Impact Dummy (SID) Head Drop Calibration

ATD Serial No.: 275

Part Serial No.: N/A

Test I.D.: HD02B

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°F	66 to 78	70	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Peak Resultant Acceleration	G's	210.0 to 260.0	250.1	Pass
Peak Lateral Acceleration	G's	≤10.0	4.1	Pass
Time Above 100 G's	Msec.	0.9 to 1.5	1.1	Pass
Is Resultant Acceleration Unimodal?	Yes/No	Yes	Yes	Pass
Overall Test Results				Pass

Laboratory Technician

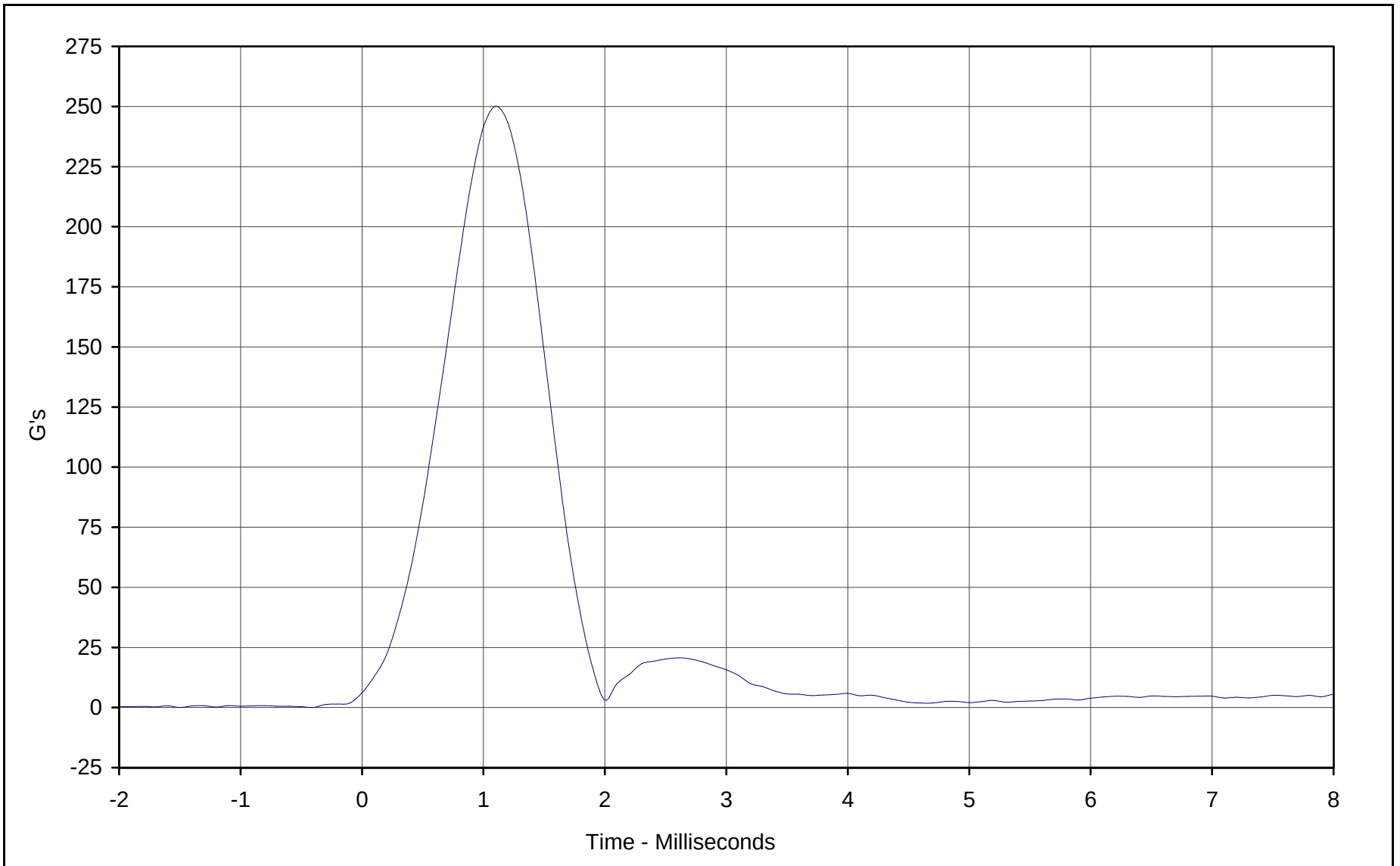
February 18, 2001

Test Date

Approved By

Date

C-47



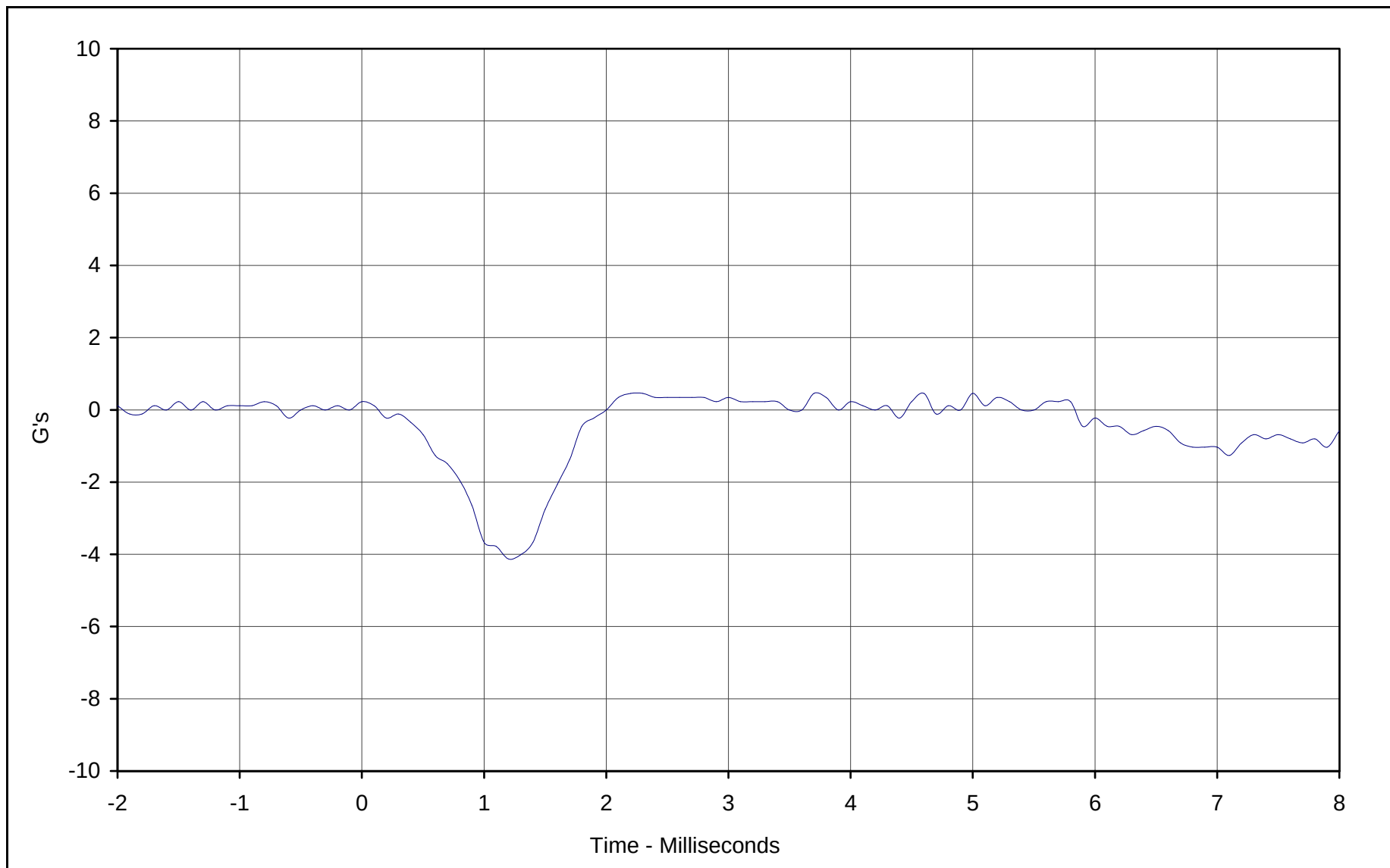
Curve Description: Head Resultant Acceleration
Maximum Value: 250.1 at 1.1 Milliseconds
Minimum Value: 1.9 at 4.6 Milliseconds
SAE Filter Class: 1000
Date of Test: 2/18/01

Test Program: SID Head Drop Calibration
Test Information: SID S/N: 275 Test I.D.: HD02B



KAR21006-02

C-48



Curve Description: Head Y Axis Acceleration

Maximum Value:	0.5	at	2.2	Milliseconds
Minimum Value:	-4.1	at	1.2	Milliseconds
SAE Filter Class:	1000			
Date of Test:	2/18/01			

Test Program: SID Head Drop Calibration

Test Information: SID S/N: 275 Test I.D.: HD02B



KAR21006-02

APPENDIX D
TEST EQUIPMENT LIST AND CALIBRATION INFORMATION

55/28 km/h Side Impact NCAP
Instrumentation Data Channel Assignments
Driver S.I.D. Serial Number 274
02/15/01
2001 Subaru Forester AWD Wagon

CH.	LOCATION	AXIS	IDENT. NO.	DESCRIPTION	MFR	MODEL	UNITS
1	Head CG	X	KEAC086	Accel.,1/2 bridge	Endevco	7264-2000X	G
2	Head CG	Y	KEAC087	Accel.,1/2 bridge	Endevco	7264-2000Y	G
3	Head CG	Z	KEAC088	Accel.,1/2 bridge	Endevco	7264-2000Z	G
4	Upper Rib Primary	Y	KEAC070	Accel.,1/2 bridge	Endevco	7264-2000X	G
5	Lower Rib, Primary	Y	KEAC071	Accel.,1/2 bridge	Endevco	7264-2000Y	G
6	Lower Spine, Primary	Y	KEAC072	Accel.,1/2 bridge	Endevco	7264-2000Z	G
7	Pelvis, Primary	Y	KEAC090	Accel.,Full bridge	Endevco	7264-2000X	G
8	Upper Rib Redundant	Y	KEAC076	Accel.,1/2 bridge	Endevco	7264-2000X	G
9	Lower Rib, Redundant	Y	KEAC077	Accel.,1/2 bridge	Endevco	7264-2000Y	G
10	Lower Spine, Redundant	Y	KEAC078	Accel.,1/2 bridge	Endevco	7264-2000Z	G
11	Pelvis, Redundant	Y	KEAC089	Accel.,1/2 bridge	Endevco	7264-2000X	G
12	Thorax Contact	N/A	T0	Contact Switch	Tapeswitch	8 oz. Yellow	%
13	Pelvis Contact	N/A	T0	Contact Switch	Tapeswitch	8 oz. Yellow	%

**55/28 km/h Side Impact NCAP
Instrumentation Data Channel Assignments
Passenger S.I.D. Serial Number 275
02/15/01
2001 Subaru Forester AWD Wagon**

CH.	LOCATION	AXIS	IDENT. NO.	DESCRIPTION	MFR	MODEL	UNITS
14	Head CG	X	KEAC069	Accel.,1/2 bridge	Endevco	7264-2000X	G
15	Head CG	Y	KEAC080	Accel.,1/2 bridge	Endevco	7264-2000Y	G
16	Head CG	Z	KEAC082	Accel.,1/2 bridge	Endevco	7264-2000Z	G
17	Upper Rib Primary	Y	KEAC066	Accel.,1/2 bridge	Endevco	7264-2000X	G
18	Lower Rib, Primary	Y	KEAC067	Accel.,1/2 bridge	Endevco	7264-2000Y	G
19	Lower Spine, Primary	Y	KEAC068	Accel.,1/2 bridge	Endevco	7264-2000Z	G
20	Pelvis, Primary	Y	KEAC079	Accel.,1/2 bridge	Endevco	7264-2000X	G
21	Upper Rib Redundant	Y	KEAC073	Accel.,1/2 bridge	Endevco	7264-2000X	G
22	Lower Rib, Redundant	Y	KEAC074	Accel.,1/2 bridge	Endevco	7264-2000Y	G
23	Lower Spine, Redundant	Y	KEAC075	Accel.,1/2 bridge	Endevco	7264-2000Z	G
24	Pelvis, Redundant	Y	KEAC081	Accel.,1/2 bridge	Endevco	7264-2000X	G
25	Thorax Contact	Y	T0	Contact Switch	Tapeswitch	8 oz. Yellow	%
26	Pelvis Contact	Y	T0	Contact Switch	Tapeswitch	8 oz. Yellow	%

55/28 km/h Side Impact NCAP
Instrumentation Data Channel Assignments
Vehicle Accelerometers

02/15/01

2001 Subaru Forester AWD Wagon

CH.	LOCATION	AXIS	IDENT. NO.	DESCRIPTION	MFR	MODEL	UNITS
27	Right at Sill Front Seat	X	KETX2A	Accel., Triax	I.C. Sensor	3031-200	G
28	Right at Sill Front Seat	Y	KETX2B	Accel., Triax	I.C. Sensor	3031-200	G
29	Right at Sill Front Seat	Z	KETX2C	Accel., Triax	I.C. Sensor	3031-200	G
30	Right at Sill Rear Seat	X	KETX3A	Accel., Triax	I.C. Sensor	3031-500	G
31	Right at Sill Rear Seat	Y	KETX3B	Accel., Triax	I.C. Sensor	3031-500	G
32	Right at Sill Rear Seat	Z	KETX3C	Accel., Triax	I.C. Sensor	3031-500	G
33	Rear Floorpan Above Axle	X	KETX4A	Accel., Triax	I.C. Sensor	3031-500	G
34	Rear Floorpan Above Axle	Y	KETX4B	Accel., Triax	I.C. Sensor	3031-500	G
35	Rear Floorpan Above Axle	Z	KETX4C	Accel., Triax	I.C. Sensor	3031-500	G
36	Left Sill at Rear Door	Y	KEVA012	Accel., Vehicle block	I.C. Sensor	3031-500	G
37	Left Sill at Front Door	Y	KEVA001	Accel., Vehicle block	I.C. Sensor	3031-500	G
38	Left Front Door Centerline	Y	ICST004X	Accel., Triax	I.C. Sensor	3031-500	G
39	Rear Occupant Compartment	Y	KEVA006	Accel., Vehicle block	I.C. Sensor	3031-200	G
40	Left Front Door Mid-Rear	Y	ICST004Y	Accel., Triax	I.C. Sensor	3031-500	G
41	Left Front Door Upper Centerline	Y	ICST004Z	Accel., Triax	I.C. Sensor	3031-500	G
42	Rear Door Mid-Rear	Y	ICST005X	Accel., Triax	I.C. Sensor	3031-500	G
43	Rear Door Upper Centerline	Y	ICST005Y	Accel., Triax	I.C. Sensor	3031-500	G
44	B-Post Lower	Y	KEBX2A	Accel., Biax	I.C. Sensor	3031-500	G
45	B-Post Middle	Y	KEBX2B	Accel., Biax	I.C. Sensor	3031-500	G
46	A-Post Lower	Y	KEBX1A	Accel., Biax	I.C. Sensor	3031-200	G
47	A-Post Middle	Y	KEBX1B	Accel., Biax	I.C. Sensor	3031-500	G
48	Front Seat Track	Y	KEIC008Y	Single	I.C. Sensor	3031-500	G
49	Rear Seat Structure	Y	N/A	N/A	N/A	N/A	N/A
50	Vehicle CG	X	KETX2A	Accel., Triax	I.C. Sensor	3031-200	G
51	Vehicle CG	Y	KETX2B	Accel., Triax	I.C. Sensor	3031-200	G
52	Vehicle CG	Z	KETX2C	Accel., Triax	I.C. Sensor	3031-200	G

**55/28 km/h Side Impact NCAP
Instrumentation Data Channel Assignments
Moving Deformable Barrier
02/15/01
2001 Subaru Forester AWD Wagon**

CH.	LOCATION	AXIS	IDENT. NO.	DESCRIPTION	MFR	MODEL	UNITS
53	MDB CG	X	ICST001X	Accel., Triax	I.C. Sensor	3031-100	G
54	MDB CG	Y	ICST001Y	Accel., Triax	I.C. Sensor	3031-100	G
55	MDB CG	Z	ICST001Z	Accel., Triax	I.C. Sensor	3031-100	G
56	MDB Rear Centerline	X	ICST002X	Accel., Biax	I.C. Sensor	3031-100	G
57	MDB Rear Centerline	Y	ICST002Y	Accel., Biax	I.C. Sensor	3031-100	G
58	Right Bumper Contact	N/A	T0	Contact Switch	Tapeswitch	40 oz. Grey	%