

REPORT NUMBER: 214D-MGA-2001-014

**TESTING FOR FMVSS 214
SIDE IMPACT PROTECTION**

**General Motors
1996 Pontiac Grand Am 4 door
NHTSA NUMBER: PT0100**

**PREPARED BY:
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May 4, 2001

FINAL REPORT

**PREPARED FOR:
U.S. DEPARTMENT OF TRANSPORTATION
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
OFFICE OF VEHICLE SAFETY COMPLIANCE
400 SEVENTH STREET, SW, ROOM 5208
WASHINGTON, D.C. 20590**

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16. Abstract A 48/24 km/h 90° Moving Deformable Barrier Compliance Test was conducted on the subject vehicle in accordance with the specifications of the Office of Vehicle Safety Compliance Test Procedure No. TP-214D-05 Side Impact Protection for determination of FMVSS No. 214 Side Impact Protection. The test was conducted at MGA Research Corporation, in Burlington, Wisconsin, on May 4, 2001. The impact velocity of the Moving Deformable Barrier (MDB) was 53.1 kph, and the ambient temperature at the struck (passenger's) side of the vehicle was 22°C. The target vehicle's maximum post test static crush was 293 mm at level 4. The test vehicle's occupant performance is as follows: <table style="margin-left: auto; margin-right: auto; border: none;"> <thead> <tr> <th></th> <th style="text-align: center;"><u>RIGHT FRONT</u></th> <th style="text-align: center;"><u>RIGHT REAR</u></th> </tr> </thead> <tbody> <tr> <td>Right Upper Rib (RUR) Accel., g</td> <td style="text-align: center;">63</td> <td style="text-align: center;">79</td> </tr> <tr> <td>Right Lower Rib (RLR) Accel., g</td> <td style="text-align: center;">58</td> <td style="text-align: center;">69</td> </tr> <tr> <td>Lower Spine (T₁₂) Accel., g</td> <td style="text-align: center;">61</td> <td style="text-align: center;">63</td> </tr> <tr> <td>Thoracic Trauma Index (TTI)</td> <td style="text-align: center;">62</td> <td style="text-align: center;">71</td> </tr> <tr> <td>Pelvis (PEV) Accel., g</td> <td style="text-align: center;">66</td> <td style="text-align: center;">68</td> </tr> <tr> <td>HIC</td> <td style="text-align: center;">172</td> <td style="text-align: center;">727</td> </tr> </tbody> </table> The doors on the struck side of the vehicle did not separate from the body at the hinges or latches and the opposite doors did not open during the side impact event.					<u>RIGHT FRONT</u>	<u>RIGHT REAR</u>	Right Upper Rib (RUR) Accel., g	63	79	Right Lower Rib (RLR) Accel., g	58	69	Lower Spine (T ₁₂) Accel., g	61	63	Thoracic Trauma Index (TTI)	62	71	Pelvis (PEV) Accel., g	66	68	HIC	172	727
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SECTION 1
PURPOSE AND TEST PROCEDURE

1.1 PURPOSE

This side impact test is conducted as part of the FY' 2001 test program sponsored by the National Highway Traffic Safety Administration (NHTSA), under contract No. DTNH22-97-C-11033. The purpose of this test was to evaluate side impact protection in a 1996 Pontiac Grand Am 4 door manufactured by General Motors.

1.2 TEST PROCEDURE

The side impact test was conducted in accordance with the current National Highway Traffic Safety Administration (NHTSA), Office of Vehicle Safety Compliance (OVSC), laboratory test procedure Side Impact Testing TP-214D-05, dated August 2, 1999 and the corresponding MGA Research Corporation Test Procedure MGA-NHTSA2. The procedures for receiving, inspection, testing, and reporting of test results are described in the test procedures and are not repeated in this report.

MGA does not endorse or certify products. The manufacturer's name appears solely for identification purposes.

SECTION 2

SUMMARY OF SIDE IMPACT TEST

2.1 SUMMARY OF SIDE IMPACT TEST

A model year 1996 Pontiac Grand Am 4 door was impacted on the right 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 53.1 km/h. The specified impact velocity range is from 52.1 to 53.8 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 1572.6 kg and the test weight of the MDB was 1361.5 kg. The test was conducted at MGA Research Corporation in Burlington, Wisconsin, on May 4, 2001.

One (1) real-time motion picture camera and nine (9) high-speed motion picture cameras were used to document the impact event. Camera locations and pertinent camera information are documented in the data sheets. Pre- and post-test photographs of the vehicle and Side Impact Dummies (SID's) can be found in Appendix A. Two 50th percentile adult male SID's were placed in the right front and right rear passenger designated seating positions according to instructions specified in the OVSC Side Impact Laboratory Test Procedure dated August 2, 1999. Each SID was instrumented with eleven accelerometers in the following locations:

- Right Upper Rib (RUR) uni-axial accelerometer (Y-axis primary and redundant)
- Right Lower Rib (RLR) 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 (20) structural accelerometers and the MDB was instrumented with five (5) accelerometers and two (2) contact switches on the bumper to compare left side to right side bumper impact timing. All data channels were recorded with a fully self contained on-board EME Data Acquisition System. 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 4, 1500 mm rearward of the right vertical impact point. The right front and right rear passenger SID's, Serial Nos. 037 and 036 respectively, were calibrated just prior to this test. The SID's injury criteria is summarized as follows:

Measurements	Units	Right Front	Right Rear
Thoracic Trauma Index (TTI)	G's	62	71
Peak Pelvic G's (PEV)	G's	66	68
Head Injury Criteria (HIC)	none	172	727

Test 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 right front and right rear 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.

TEST NOTES

The following accelerometers were not used for this test:

- Left Front Door on Centerline
- Midrear of Left Front Door
- Left Front Door Upper Centerline
- Midrear of Left Rear door
- Left Rear Door Upper Centerline
- Rear Seat Track

Test vehicle attitude measurements were taken from the bottom of the wheel well to the ground.

SECTION 3

SIDE IMPACT DUMMY (SID) AND VEHICLE TEST DATA

Test Vehicle: 1996/Pontiac/Grand Am/4 door

NHTSA No.: PT0100

Test Program: FMVSS 214

Test Date: May 4, 2001

CONVERSION FACTORS USED IN THIS REPORT*

Quantity	Typical Application	Old 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 Pressure	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: 1996/Pontiac/Grand Am/4 doorNHTSA No.: PT0100Test Program: FMVSS 214Test Date: May 4, 2001**TEST VEHICLE INFORMATION**

Make	Pontiac
Model	Grand Am
Body Style	4 door
NHTSA No.	PT0100
VIN	1G2NE52M0TC714478
Color	Red
Delivery Date	4/5/01
Odometer Reading (mile)	129,546
Dealer	Roger's Auto Sales
Transmission	automatic
Final Drive	front
Number of Cylinders	6
Engine Displacement (L)	3.1
Engine Placement	lateral

TEST VEHICLE OPTIONS

Front Airbags	yes
Side Airbags	no
Power Windows	no
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	no
Cruise Control	yes

DATA FROM CERTIFICATION LABEL

Manufactured By	General Motors
Date of Manufacture	9/96

GVWR (kg)	1753
GAWR Front (kg)	985
GAWR Rear (kg)	768

DATA FROM TIRE PLACARD

Measured Parameter	Front	Rear
Maximum Tire Pressure (kPa)	210	210
Cold Pressure (kPa)	210	210
Recommend Tire Size	P195/65R15	P195/65R15
Tire Size on Vehicle	P195/65R15	P195/65R15
Tire Manufacturer	Bridgestone	Bridgestone

Measured Parameter	Front	Rear	Third	Total
Type of Seats	bucket	bench		
Number of Occupants	2	3		5
Capacity Wt. (VCW) (kg)				400.1
Cargo Weight (RCLW) (kg)				59.9

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

Test Vehicle: 1996/Pontiac/Grand Am/4 door

NHTSA No.: PT0100

Test Program: FMVSS 214

Test Date: May 4, 2001

TEST VEHICLE WEIGHTS

	Units	As Delivered (UVW)			As Tested (ATW)		
		Front Axle	Rear Axle	Total	Front Axle	Rear Axle	Total
Left	kg	450.4	227.7		473.1	284.0	
Right	kg	447.7	233.1		513.9	301.6	
Ratio	%	66.1	33.9		62.8	37.2	
Totals	kg	898.1	460.8	1358.9	987.0	585.6	1572.6

TARGET TEST WEIGHT CALCULATION*

Measured Parameter	Units	Value
Total Delivered Weight (UVW)	kg	1358.9
Weight of 2 P572F Side Impact Dummies	kg	161.5
Rated Cargo/Luggage Weight (RCLW)	kg	59.9
Calculated Vehicle Target Weight (TVTW)	kg	1580.3

*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	669	660	706	701	891
As Tested	mm	671	664	668	664	979
Fully Loaded	mm	645	660	675	655	

GENERAL TEST VEHICLE DATA

Measurement Description	Units	Value
Test Vehicle Wheel Base	mm	2628
Total Vehicle Length at Left Side	mm	4065
Total Vehicle Length at Centerline	mm	4732
Total Vehicle Length at Right Side	mm	4065
Weight of Ballast in Cargo Area	kg	0

TEST VEHICLE VERTICAL IMPACT LINE DATA

Measurement Description	Units	Value
Test Vehicle Wheel Base	mm	2628
Target Impact Point Aft of Front Axle	mm	374
Actual Impact Point Aft of Front Axle	mm	362

DATA SHEET NO. 1...(continued)

GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle: 1996/Pontiac/Grand Am/4 door

NHTSA No.: PT0100

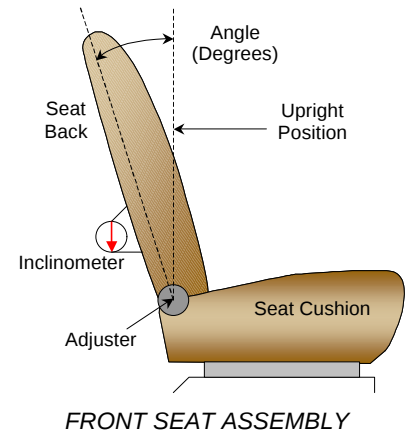
Test Program: FMVSS 214

Test Date: May 4, 2001

NORMAL DESIGN RIDING POSITION

Right front passenger seat back angle: 21 deg, 5th notch, 1st as 0

Right rear passenger seat back angle: non adjustable



SEAT FORE/AFT POSITIONS

Right front passenger seat fore/aft total travel: 10 seat positions

Right rear passenger seat fore/aft total travel: non adjustable

Right front passenger seat fore/aft position: 6th notch rearward, 1st as 0

Right rear passenger seat fore/aft position: non adjustable

SEAT BELT UPPER ANCHORAGE

The seat belt anchorage was placed in the full up position.

STEERING COLUMN ADJUSTMENT

The steering column was in the mid position.

DATA SHEET NO. 2**TEST VEHICLE SUMMARY OF RESULTS**Test Vehicle: 1996/Pontiac/Grand Am/4 doorNHTSA No.: PT0100Test Program: FMVSS 214Test Date: May 4, 2001**TEST VEHICLE WEIGHTS**

	Units	As Delivered (UVW)			As Tested (ATW)		
		Front Axle	Rear Axle	Total	Front Axle	Rear Axle	Total
Left	kg	450.4	227.7		473.1	284.0	
Right	kg	447.7	233.1		513.9	301.6	
Weight Ratio	%	66.1	33.9		62.8	37.2	
Totals	kg	898.1	460.8	1358.9	987.0	585.6	1572.6

MAXIMUM EXTERIOR STATIC CRUSH

Level	Measured Parameter	Units	Maximum Crush	Above Ground
Level 1	Sill Top Height	mm	216	254
Level 2	Occupant H-Point	mm	182	500
Level 3	Mid Door	mm	288	583
Level 4	Window Sill	mm	293	871
Level 5	Window Top	mm	81	1292
N/A	Maximum Penetration	mm	293	871

INSTRUMENTATION

Driver SID Accelerometers	11
Passenger SID Accelerometers	11
Vehicle Structure Accelerometers	20
MDB Accelerometers	5
Total	47

DATA SHEET NO. 3**MOVING DEFORMABLE BARRIER (MDB) SUMMARY OF RESULTS**Test Vehicle: 1996/Pontiac/Grand Am/4 doorNHTSA No.: PT0100Test Program: FMVSS 214Test Date: May 4, 2001**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	385.5	283.7	
Right	kg	398.8	293.5	
Ratio	%	57.6	42.4	
Totals	kg	784.3	577.2	1361.5

SPEED AND IMPACT ANGLE DATA

Measured Parameter	Units	Requirement	Value
Trap No. 1 Velocity (Primary)	km/h	52.1 to 53.8	53.1
Trap No. 2 Velocity (Redundant)	km/h	52.1 to 53.8	53.1
MDB CL to Target Vehicle CL	degrees	88.5 to 91.5	90.2

MAXIMUM STATIC CRUSH OF HONEYCOMB FACE (mm)

Vertical Location			From Centerline		Max. Crush
Row	Description	Height	Distance	Direction	
A	Center of Bumper	432	800	Right	185
B	Top of Bumper	533	800	Right	59
C	Mid Level	686	800	Right	79
D	Top of Stack	813	800	Right	137

MDB INSTRUMENTATION AND CAMERAS

Accelerometers	5
Contact Switches	2
High Speed Cameras	2

DATA SHEET NO. 4**POST TEST OBSERVATIONS**Test Vehicle: 1996/Pontiac/Grand Am/4 doorNHTSA No.: PT0100Test Program: FMVSS 214Test Date: May 4, 2001**TEST DUMMY INFORMATION AND CONTACT POINTS**

Description	Right Front Seat SID	Right Rear Seat SID
Dummy Type / Serial No.	SID/037	SID/036
Head Contact	no contact	seatback, C post
Upper Torso Contact	door trim panel	door trim panel
Lower Torso Contact	door trim panel	door trim panel
Left Knee Contact	door trim panel	door trim panel
Right Knee Contact	left knee	left knee

POST TEST DOOR OPENING AND SEAT TRACK INFORMATION

Description	Right Front	Right Rear
Left Side Door Opening	remained closed	remained closed
Right Side Door Opening	remained closed	remained closed
Seat Movement	0	0
Seat Back Failure	none	none

POST TEST STRUCTURAL OBSERVATIONS

Critical Areas of Performance	Observations and Conclusions
Pillar Performance	no failures
Sill Separation	no separation
Windshield Damage	cracked
Window Damage	both right side windows broke
Other Notable Effects	none noted

AIRBAG DEPLOYMENT

	Driver	Right Front Passenger	Right Rear Passenger
Front	no	no	
Side			

MDB LEFT EDGE IMPACT POINT DATA

Measured Parameter	Units	Requirement	Value
Horizontal Offset	mm	+/- 50	12 rearward
Vertical Offset	mm	+/-20	8 down

SECTION 4
OCCUPANT AND VEHICLE INFORMATION

DATA SHEET NO. 5

SID INJURY CRITERIA AND SENSOR DATA

Test Vehicle: 1996/Pontiac/Grand Am/4 door

NHTSA No.: PT0100

Test Program: FMVSS 214

Test Date: May 4, 2001

THORAX AND PELVIS PEAK ACCELERATIONS (FIR 100 Filtered)

Location	Axis	Units	Right Front Passenger				Right Rear Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Upper Rib (RUR)	Y	G's	19.9	68	62.7	37	7.9	57	79.2	42
Upper Rib (RUR)	Y	G's	19.7	68	62.1	37	9.4	57	81.5	42
Lower Rib (RLR)	Y	G's	13.2	67	57.6	37	15.2	69	69.2	41
Lower Rib (RLR)	Y	G's	13.5	67	58.8	37	15.6	68	70.0	41
Lower Spine (T ₁₂)	Y	G's	10.8	94	61.3	33	25.5	64	63.2	44
Lower Spine (T ₁₂)	Y	G's	10.6	95	60.2	34	25.0	64	64.3	43
Pelvis (PEV)	Y	G's	10.5	99	66.1	30	8.6	79	67.6	35
Pelvis (PEV) (R)	Y	G's	11.2	98	66.8	30	9.1	74	68.4	35

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

Location	Right Front Passenger				Right Rear Passenger			
	RUR	T ₁₂	TTI(q)	PEV(q)	RUR	T ₁₂	TTI(q)	PEV(q)
Rib, Spine, and Pelvis	62.7	61.3	62	66.1	79.2	63.2	71	67.6
Rib, Spine, and Pelvis (R)	62.1	60.2	61	66.8	81.5	64.3	73	68.4

HEAD CG PEAK ACCELERATIONS (SAE CLASS 1000 Filtered)

Location	Axis	Units	Right Front Passenger				Right Rear Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Head CG	X	G's	44.9	56	33.5	55	4.7	44	12.4	69
Head CG	Y	G's	25.6	56	84.9	55	11.8	45	113.6	54
Head CG	Z	G's	100.9	55	5.2	25	20.3	42	69.5	58
Head CG		G's	134.5	55			114.4	54		

HEAD INJURY CRITERIA (SAE CLASS 1000 Filtered)

Location	Right Front Passenger				Right Rear Passenger			
	HIC	T ¹	T ²	Avg G's	HIC	T ¹	T ²	Avg
Head CG	172	42.8	78.8	29.6	727	50.6	60.9	87.0

Positive Acceleration Polarities:
(Conforms to SAE J211)

Longitudinal (X) = Forward
Lateral (Y) = Right
Vertical (Z) = Down

DATA SHEET NO. 6

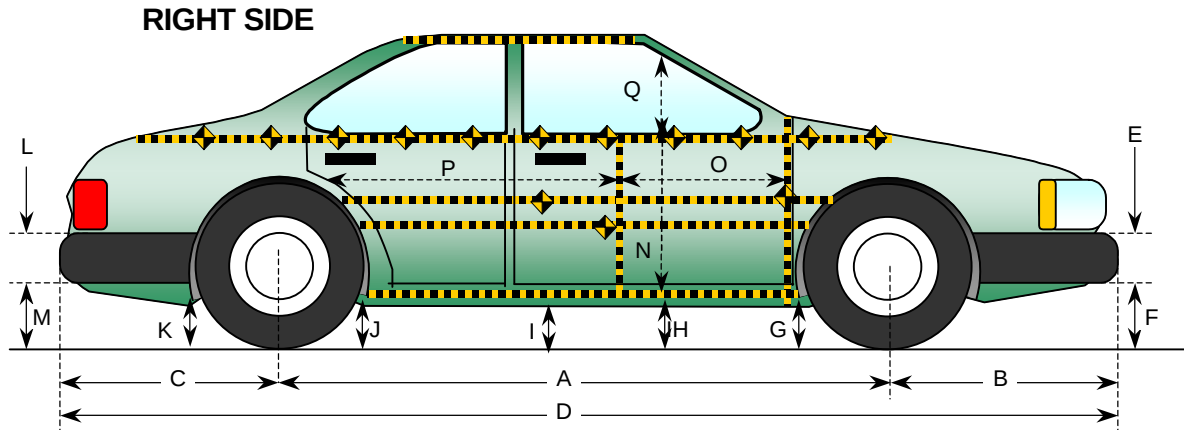
VEHICLE PRE-TEST AND POST-TEST MEASUREMENTS

Test Vehicle: 1996/Pontiac/Grand Am/4 door

NHTSA No.: PT0100

Test Program: FMVSS 214

Test Date: May 4, 2001



All Measurements in mm

Code	Measurement Description	Pre-Test	Post-Test	Difference
A	Wheelbase	2628	2590	-38
B	Front Axle to FSOV	1064	1053	-11
C	Rear Axle to RSOV	1040	1030	-10
D	Total Length at Centerline	4732	4673	-59
E	Front Bumper Thickness	105	105	0
F	Front Bumper Bottom to Ground	422	437	15
G	Sill Height at Front Wheel Well	204	218	14
H	Sill Height at Front Door Leading Edge	196	212	16
I	Sill Height at "B" Pillar	188	186	-2
J1	Sill Height at Rear Wheel Well	190	208	18
J2	Pinch Weld Height at Rear Wheel Well	190	164	-26
K	Sill Height Aft of Rear Wheel Well	228	230	-2
L	Rear Bumper Thickness	280	280	0
M	Rear Bumper Bottom to Ground	358	365	-7
N	Sill Height to Window Bottom Sill	690	641	-49
O	Front Door Leading Edge to Impact CL	720	718	-2
P	Rear Door Trailing Edge to Impact CL	1075	1000	-75
Q	Front Window Opening	415	397	-18
R	Right Side Length	4065	4014	-51
S	Left Side Length	4065	4070	5
T	Vehicle Width at "B" Post	1840	1498	-342

DATA SHEET NO. 7

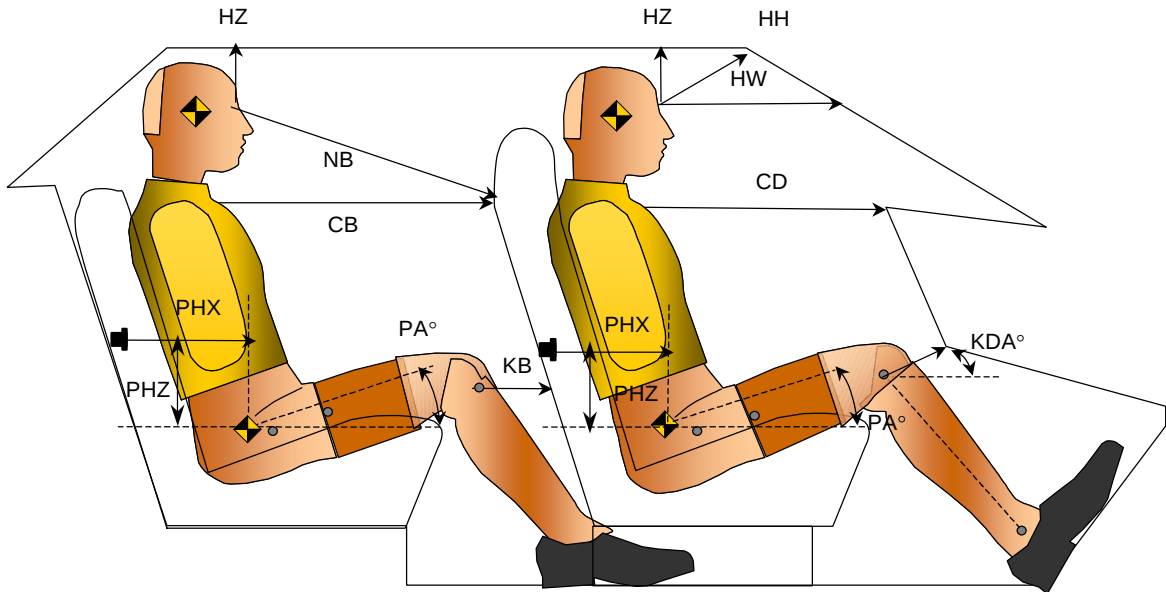
SID LONGITUDINAL CLEARANCE DIMENSIONS

Test Vehicle: 1996/Pontiac/Grand Am/4 door

NHTSA No.: PT0100

Test Program: FMVSS 214

Test Date: May 4, 2001



Front Code	Rear Code	Measurement Description	Right Front 037		Right Rear 036	
			Length(mm)	Angle(°)	Length(mm)	Angle(°)
HH		Head to Header	332			
HW		Head to Windshield	555			
HZ	HZ	Head to Roof	145		154	
ND	NB	Nose to Dash/Nose to Seatback	641		590	
CD	CB	Chest to Dash or Seatback	542		514	
KDL	KBL	Left Knee to Dash or Seatback	34	0.0	186	0.0
KDR	KBR	Right Knee to Dash or Seatback	124	32.8	208	0.0
PA	PA	Pelvic Angle		23.5		24.5
PHX	PHX	H-Point to Striker (X-Axis)	205		265	
PHZ	PHZ	H-Point to Striker (Z-Axis)	112		353	

DATA SHEET NO. 8

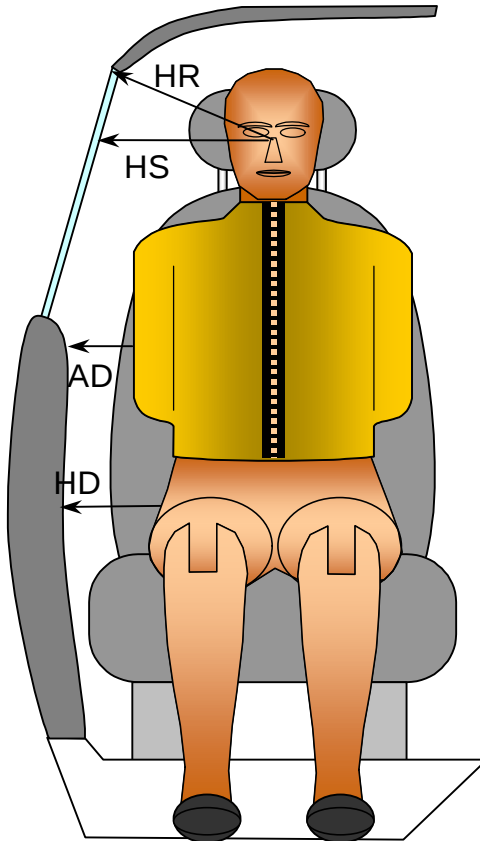
SID LATERAL CLEARANCE DIMENSIONS

Test Vehicle: 1996/Pontiac/Grand Am/4 door

NHTSA No.: PT0100

Test Program: FMVSS 214

Test Date: May 4, 2001



FRONT VIEW OF DUMMY

Code	Measurement Description	Units	Right Front Passenger 037	Right Rear Passenger 036
HR	Head to Side Header	mm	157	175
HS	Head to Side Window	mm	279	275
AD	Arm to Door	mm	90	80
HD	H-Point to Door	mm	112	113

DATA SHEET NO. 9

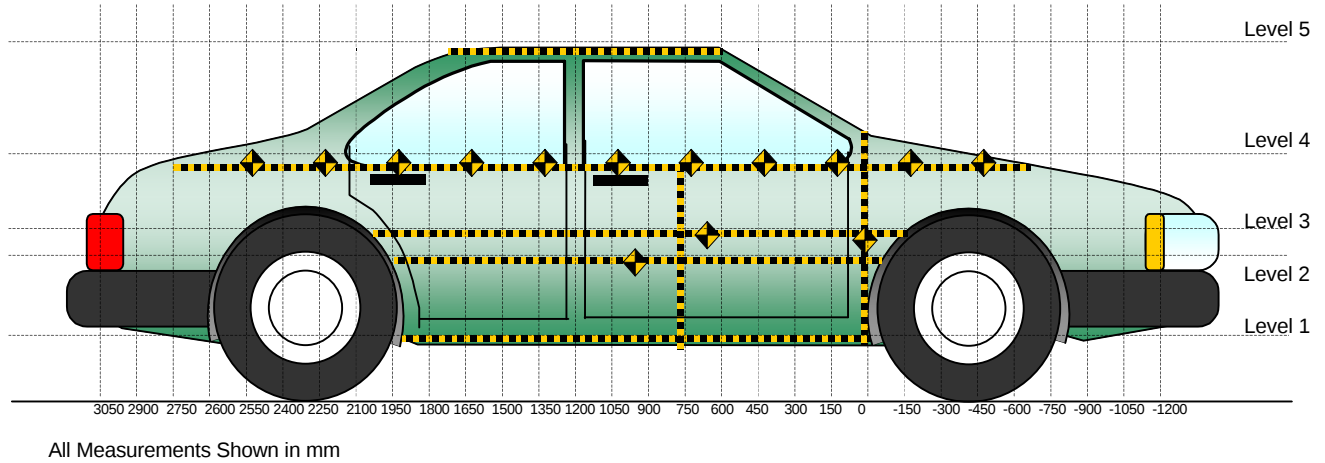
VEHICLE SIDE MEASUREMENTS

Test Vehicle: 1996/Pontiac/Grand Am/4 door

NHTSA No.: PT0100

Test Program: FMVSS 214

Test Date: May 4, 2001



RIGHT SIDE VIEW

Measurements are taken with vehicle in the as tested condition.

Measurements along the vertical 800 mm.

All measurements below in mm.

Level	Measurement Description	Height Above Ground
5	Window	1292
4	Window Sill	871
3	Mid Door	583
2	Occupant H-Point	500
1	Sill Top	254

DATA SHEET NO. 10

VEHICLE EXTERIOR CRUSH PROFILES

Test Vehicle: 1996/Pontiac/Grand Am/4 door

NHTSA No.: PT0100

Test Program: FMVSS 214

Test Date: May 4, 2001

	Pre-Test					Post-Test					Difference				
	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
-900			485	553				503	556				18	3	
-750			456	529				476	552				20	23	
-600				512					540					28	
-450				505					537					32	
-300				495					532					37	
-150				488					532					44	
0		400	405	480			410	544	533			10	139	53	
150	460	400	405	479		520	518	618	576		60	118	213	97	
300	461	398	402	476		602	547	626	607		141	149	224	131	
450	460	395	398	475		645	568	641	622		185	173	243	147	
600	460	395	398	473		637	575	648	639		177	180	250	166	
750	462	392	396	475		645	574	651	654		183	182	255	179	
900	462	392	395	470	758	652	573	653	669	752	190	181	258	199	-6
1050	462	390	393	470	760	664	564	657	684	766	202	174	264	214	6
1200	463	395	396	474	760	674	575	684	735	778	211	180	288	261	18
1350	463	389	394	474	766	679	566	680	726	818	216	177	286	252	52
1500	464	390	392	475	765	630	567	676	768	775	166	177	284	293	10
1650	463	390	392	478	766	600	554	667	674	731	137	164	275	196	-35
1800	463	390	392	478	770	566	484	604	600	692	103	94	212	122	-78
1950			392	484	779			490	550	860			98	66	81
2100				488	796				506	838				18	42
2250				495					540					45	
2400				502					540					38	
2550			417	515				491	546				74	31	
2700			433	527				451	554				18	27	
2850			449	545				466	565				17	20	
3000			472					488					16		

Reference plane is parallel to test vehicle longitudinal centerline

Given dimensions = Reference plane to car body

DATA SHEET NO. 10...(continued)

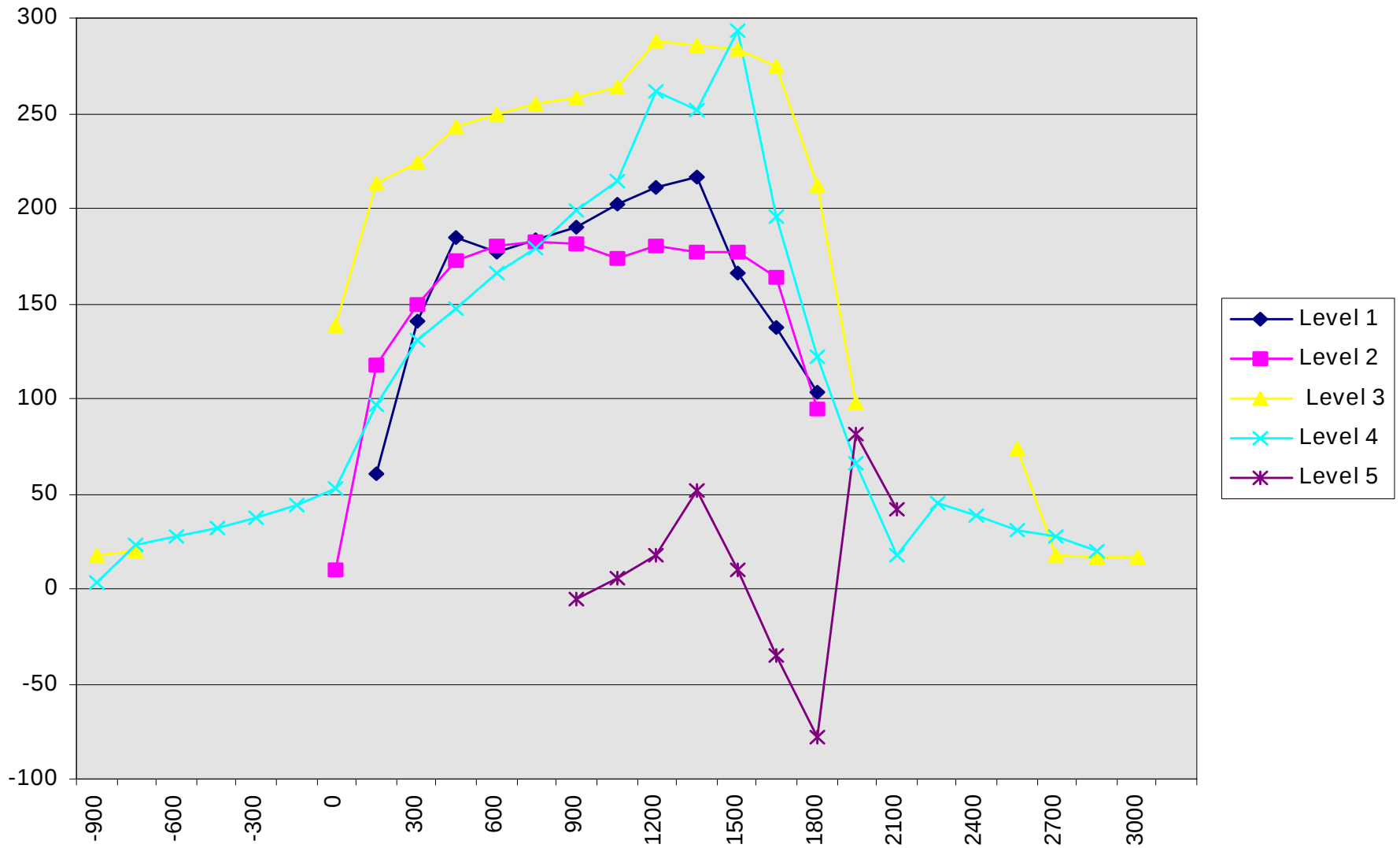
VEHICLE EXTERIOR CRUSH PROFILES

Test Vehicle: 1996/Pontiac/Grand Am/4 door

NHTSA No.: PT0100

Test Program: FMVSS 214

Test Date: May 4 2001



DATA SHEET NO. 11

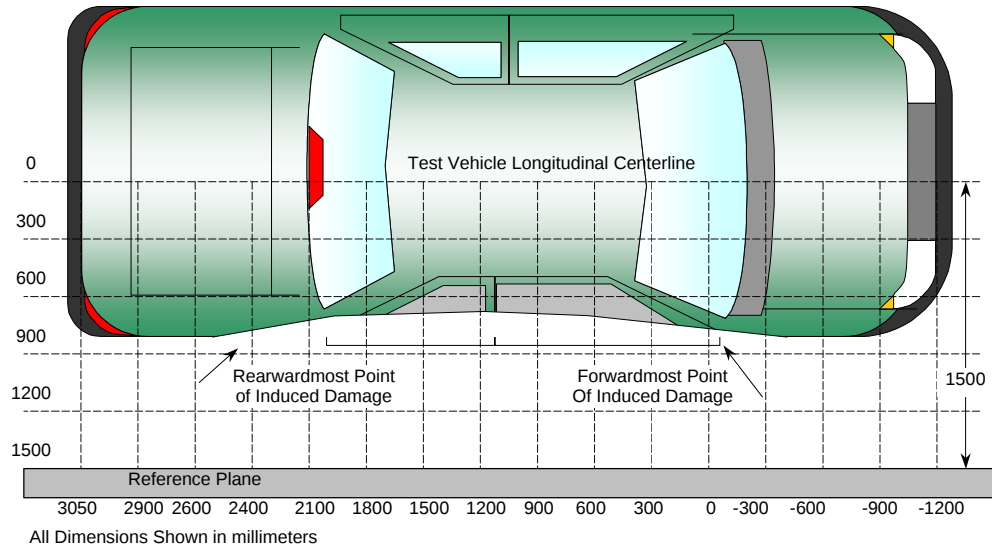
VEHICLE DAMAGE PROFILE DISTANCES

Test Vehicle: 1996/Pontiac/Grand Am/4 door

NHTSA No.: PT0100

Test Program: FMVSS 214

Test Date: May 4, 2001



TOP VIEW

Damage Profile Distances

DPD	Distance from Impact Point in mm	Level	Pre-Test (mm)	Post-Test (mm)	Max Static Crush (mm)
1	2550 mm	3	417	491	74
2	1897 mm	3	392	555	163
3	1256 mm	3	396	683	287
4	568 mm	3	398	647	249
5	-22 mm	3	405	498	93
6	-600 mm	3	529	552	23

Reference plane is parallel to test vehicle longitudinal centerline
 Given dimensions = Reference plane to car body

DATA SHEET NO. 12

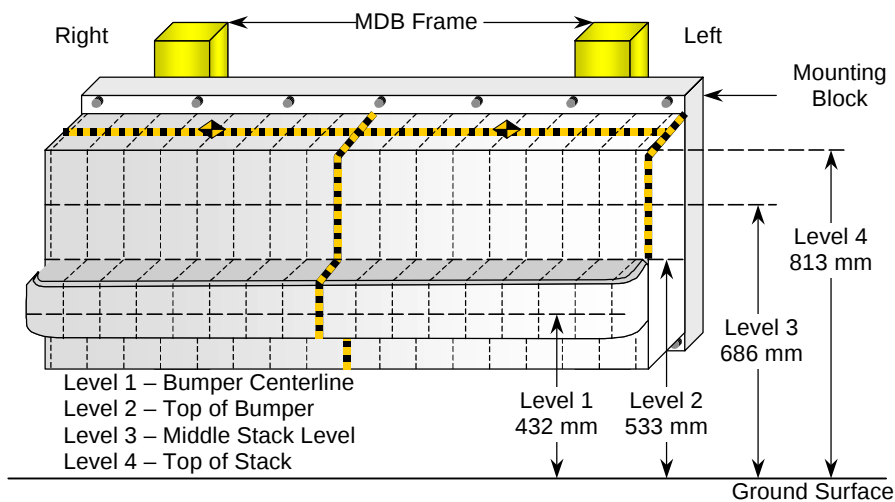
DEFORMABLE BARRIER HONEYCOMB FACE STATIC CRUSH

Test Vehicle: 1996/Pontiac/Grand Am/4 door

NHTSA No.: PT0100

Test Program: FMVSS 214

Test Date: May 4, 2001



DEFORMABLE BARRIER STATIC CRUSH

Stack Level	Distance Right of Center								C _L	Distance Left of Center							
	800	700	600	500	400	300	200	100		100	200	300	400	500	600	700	800
1	185	79	59	52	52	48	47	48	46	45	44	56	53	50	53	64	81
2	59	54	47	44	39	37	34	35	35	35	31	33	33	32	30	34	50
3	79	46	17	12	11	11	9	7	5	5	5	4	1	0	-2	-5	-3
4	137	103	61	45	33	24	18	13	9	7	8	4	-2	-6	-8	1	32

All Dimensions in mm

DATA SHEET NO. 13

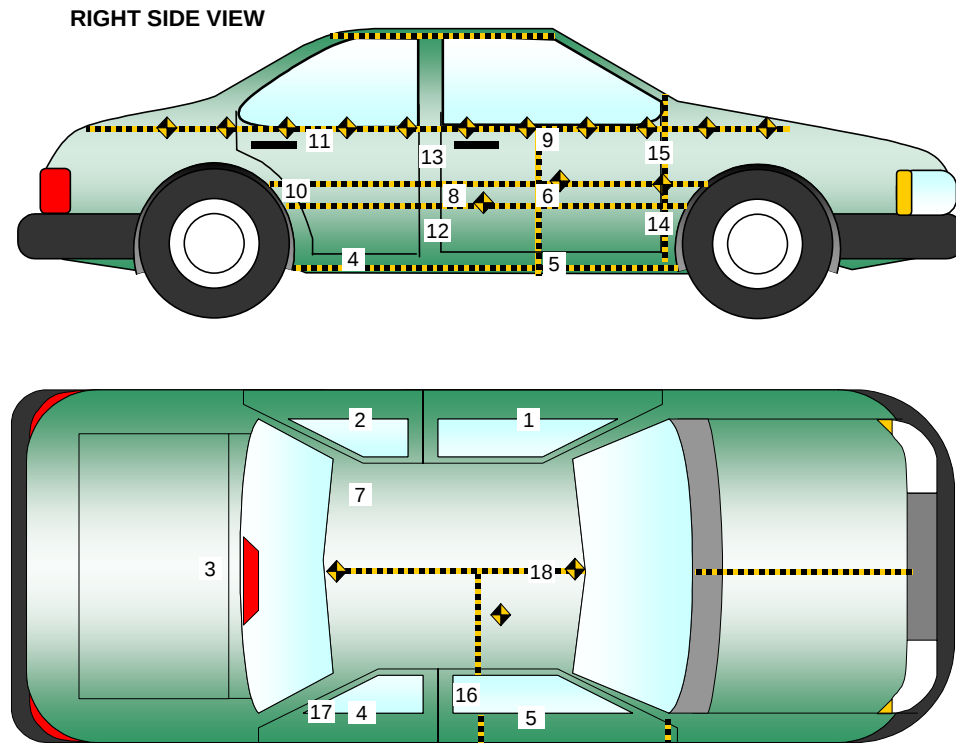
VEHICLE ACCELEROMETER LOCATIONS AND DATA SUMMARY

Test Vehicle: 1996/Pontiac/Grand Am/4 door

NHTSA No.: PT0100

Test Program: FMVSS 214

Test Date: May 4, 2001



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

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

DATA SHEET NO. 13...(continued)

VEHICLE ACCELEROMETER LOCATION AND DATA SUMMARY

Test Vehicle: 1996/Pontiac/Grand Am/4 door

NHTSA No.: PT0100

Test Program: FMVSS 214

Test Date: May 4, 2001

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	Left Sill at Front Seat	2545	-650	218	X	5.5	58	6.1	20
					Y	3.8	59	19.0	9
					Z	5.2	84	7.2	30
					RES	19.9	9		
2	Left Sill at Rear Seat	1553	-650	228	X	5.7	59	7.4	19
					Y	2.9	134	20.3	37
					Z	2.9	61	5.3	24
					RES	21.5	18		
3	Rear Floorpan Above Axle	1120	0	500	X	6.0	10	12.0	19
					Y	2.9	105	21.1	37
					Z	9.3	30	53.7	19
					RES	57.2	19		
4	Right Sill at Rear Seat*	1551	637	222	Y	10.0	4	60.5	14
5	Right Sill at Front Seat	2542	637	215	Y	16.0	22	53.2	7
7	Left Rear Occupant	1856	-395	302	Y	2.7	136	20.1	9
12	Right B-Post Lower	2107	638	315	Y	43.4	15	140.5	6
13	Right B-Post Middle	2028	675	770	Y	43.7	38	143.9	6
14	Right A-Post Lower	3132	627	400	Y	8.8	32	74.2	5
15	Right A-Post Middle	3085	713	830	Y	14.0	23	47.1	16
16	Right Front Seat Track	2330	500	320	Y	37.6	26	91.3	18
18	Vehicle CG	2492	0	484	X	10.0	32	25.2	28
					Y	10.6	30	27.2	25
					Z	15.9	31	10.7	23
					RES	28.4	25		

Reference Points X - Rear of Vehicle (+ Forward)
 Y - Vehicle Centerline (+ to Right)
 Z - Ground Plane (+ Up)

*No valid data after 20 msec.

DATA SHEET NO. 14

MDB ACCELEROMETER LOCATIONS AND DATA SUMMARY

Test Vehicle: 1996/Pontiac/Grand Am/4 door

NHTSA No.: PT0100

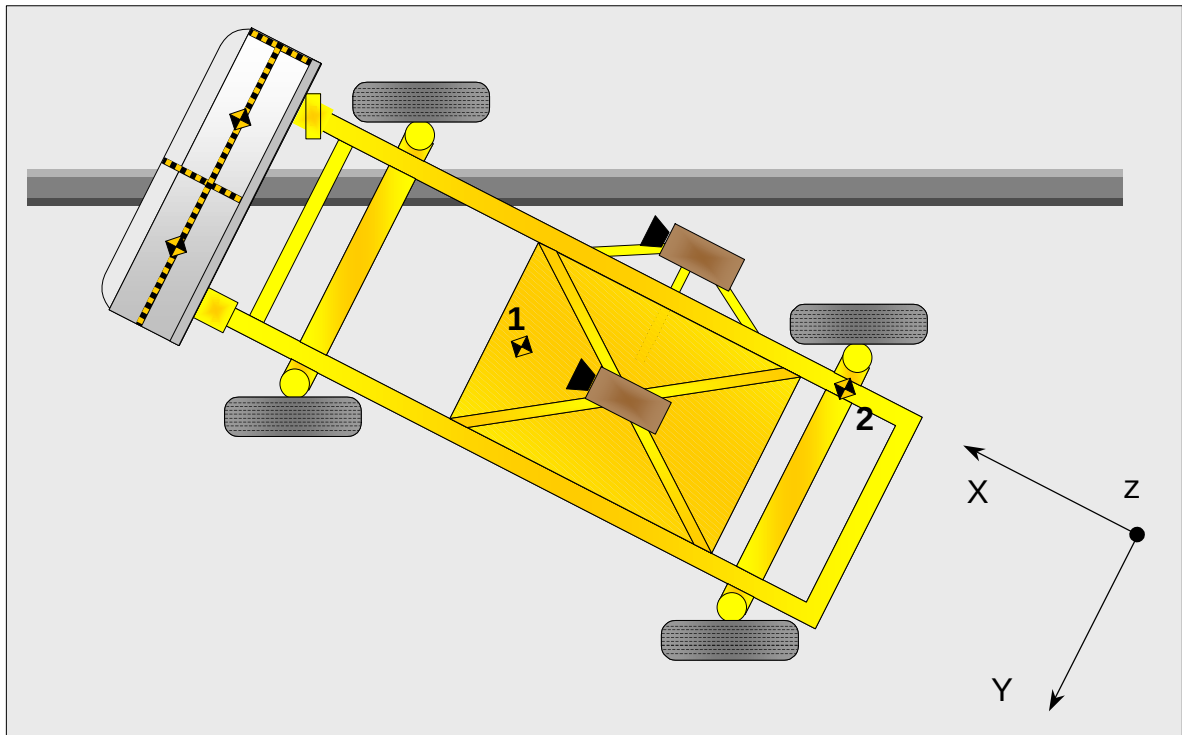
Test Program: FMVSS 214

Test Date: May 4, 2001

MDB ACCELEROMETER PEAK DATA AND LOCATIONS

Loc. No.	Accelerometer Location	Measurement (mm)			Peak Values (G's)				
		X	Y	Z	Axis	Max	Time	Min	Time
1	MDB CG	-1092	0	483	X	1.2	123	17.4	44
					Y	6.8	28	3.5	59
					Z	12.9	16	14.9	67
					RES	19.1	47		
2	MDB Rear	-2591	-625	622	X	1.8	23	15.3	43
					Y	1.5	172	5.1	27

Reference Points
 X - MDB Front Axle (+ Forward)
 Y - MDB Centerline (+ to Right)
 Z - Ground Plane (+ Up)



DATA SHEET NO. 15

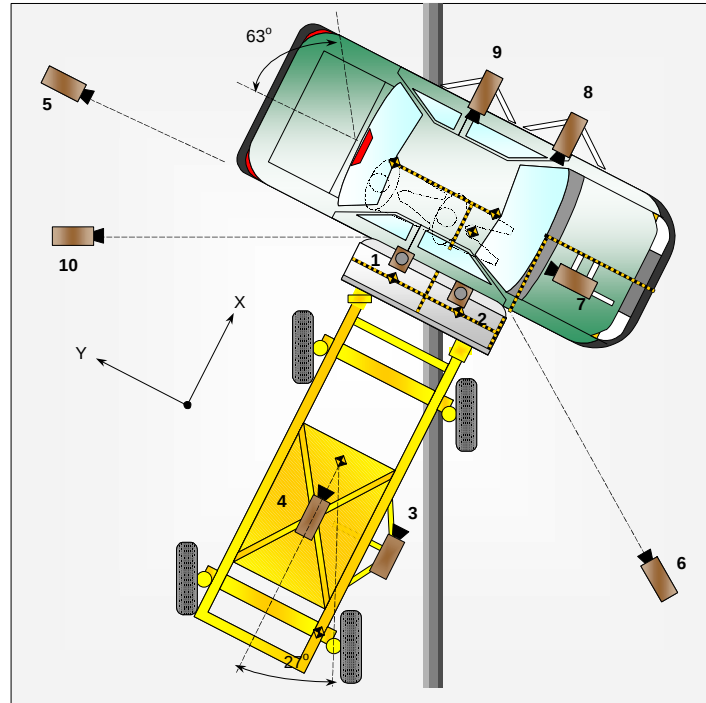
HIGH SPEED CAMERA LOCATIONS AND DATA

Test Vehicle: 1996/Pontiac/Grand Am/4 door

NHTSA No.: PT0100

Test Program: FMVSS 214

Test Date: May 4, 2001



No.	Camera View	Location (mm)			Lens (mm)	Film Speed (fps)
		X	Y	Z		
1	Overhead Overall	-280	-1050	5000	13	749
2	Overhead Close-up	710	0	5000	35	939
3	MDB Onboard, Impact Point Close-up				35	1000
4	MDB Onboard, Centerline of Impact				13	1000
5	Right Side, Ground Level, Overall	-1000	2360	1710	13	1005
6	Left Side, Ground Level, Overall	-500	-10017	1660	25	1010
7	Vehicle Onboard Front SID, Front				xx	xx
8	Vehicle Onboard Front SID, Side				xx	xx
9	Vehicle Onboard Rear SID, Side				xx	xx
10	Real Time Coverage				13	32

Reference Points X - MDB Front Axle (+ Forward)
Y - MDB Centerline (+ to Right)
Z - Ground Plane (+ Up)

xx - Camera did not run

APPENDIX A

PHOTOGRAPHS

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Photo No. A-1 - Pre-Test Front View of Test Vehicle



Photo No. A-2 - Post-Test Front View of Test Vehicle

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Photo No. A-3 - Pre-Test Rear View of Test Vehicle



Photo No. A-4 - Post-Test Rear View of Test Vehicle



Photo No. A-5 - Pre-Test MDB Positioned Against Vehicle (left side)



Photo No. A-6 - Pre-Test MDB Positioned Against Vehicle (right side)



Photo No. A-7 - Pre-Test MDB Positioned Against Vehicle (overhead view)

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Photo No. A-8 - Post-Test MDB and Vehicle (right side)



Photo No. A-9 – Post-Test MDB and Vehicle (overhead view)

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Photo No. A-10 - Pre-Test MDB Top View

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Photo No. A-11 - Post-Test MDB Top View

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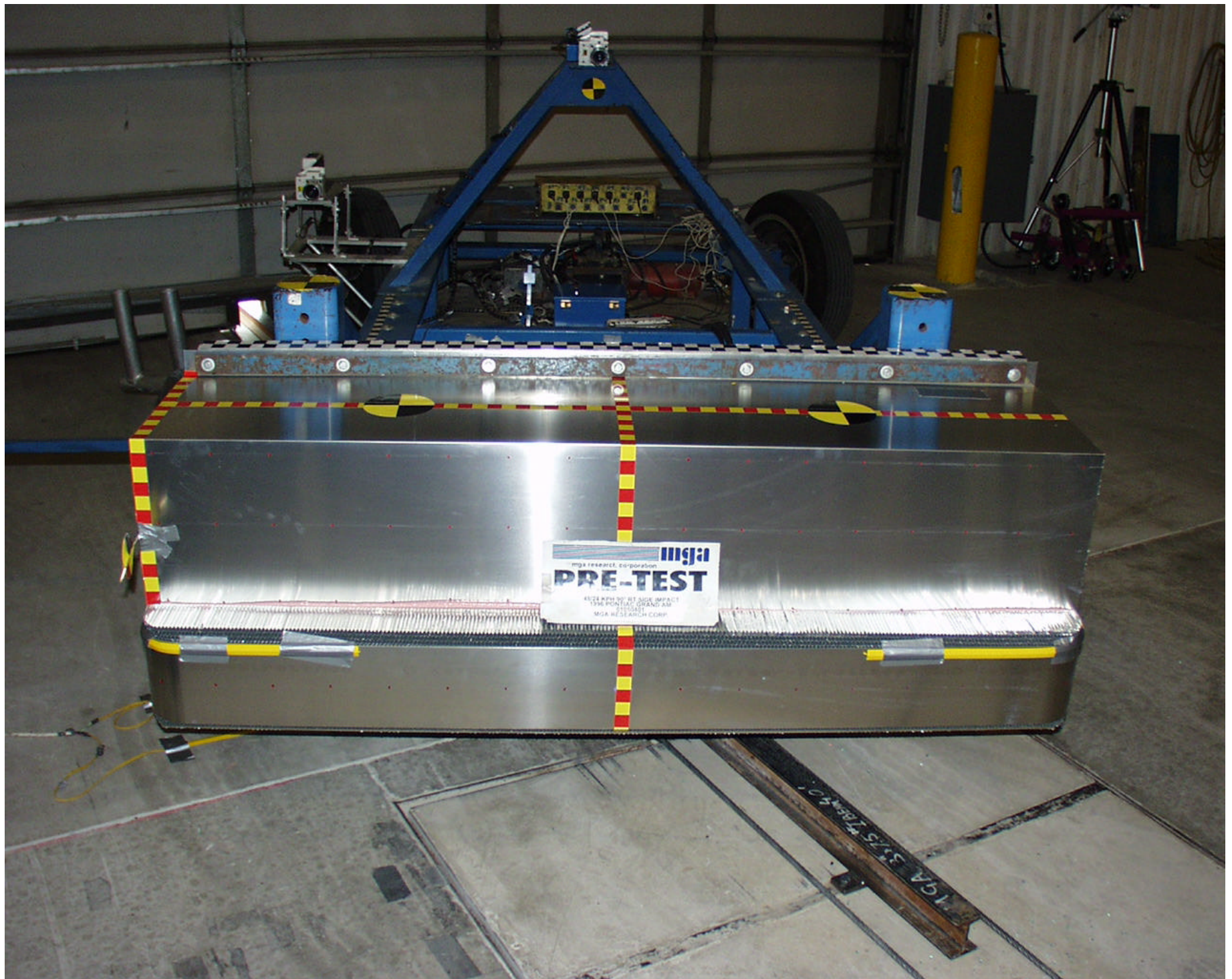


Photo No. A-12 - Pre-Test MDB Front View



Photo No. A-13 - Post-Test MDB Front View

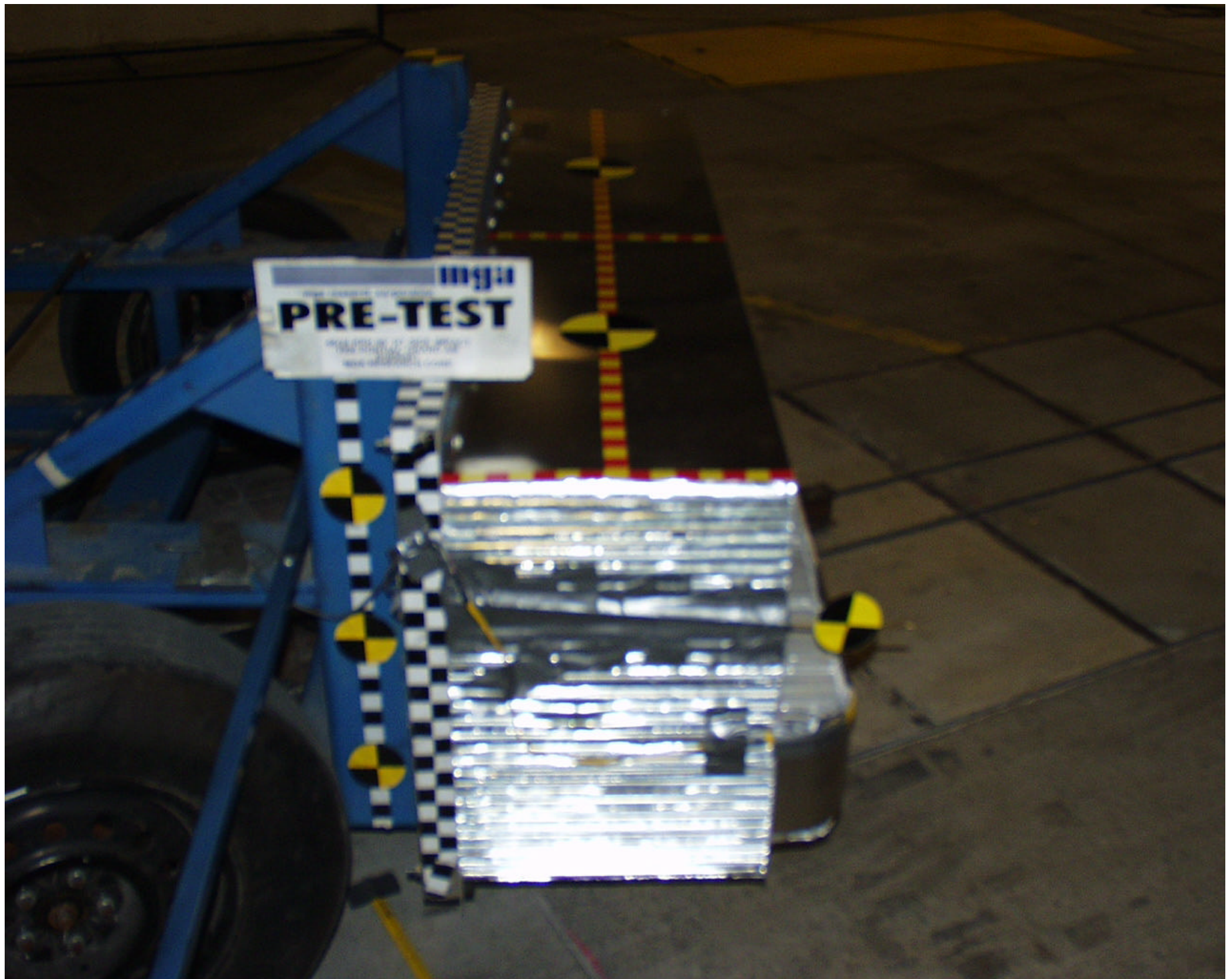


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Photo No. A-15 - Post-Test MDB Right Side View



Photo No. A-16 - Pre-Test MDB Left Side View



Photo No. A-17 - Post-Test MDB Left Side View

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Photo No. A-18 - Pre-Test RFP Dummy Right Side View

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Photo No. A-19 - Post-Test RFP Dummy Right Side View

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Photo No. A-20 - Pre-Test RFP Dummy Left Side View



Photo No. A-21 - Post-Test RFP Dummy Left Side View

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Photo No. A-22 - Pre-Test RFP Dummy Right Side View (Door Open)



Photo No. A-23 - Pre-Test RFP Dummy Shoulder and Door Top View



Photo No. A-24 - Post-Test RFP Dummy Shoulder and Door Top View

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Photo No. A-25 - Post-Test RFP Dummy Contact



Photo No. A-26 - Pre-Test RRP Dummy Right Side View



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Photo No. A-28 - Pre-Test RRP Dummy Left Side View

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Photo No. A-29 - Post-Test RRP Dummy Left Side View

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Photo No. A-30 - Pre-Test RRP Dummy Left Side View (Door Open)



Photo No. A-31 - Pre-Test RRP Dummy Shoulder and Door Top View



Photo No. A-32 - Post-Test RRP Dummy Shoulder and Door Top View

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Photo No. A-33 - Post-Test RRP Dummy Contact



Photo No. A-34 - Post-Test RRP Dummy Head Contact

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Photo No. A-35 – Vehicle Impact

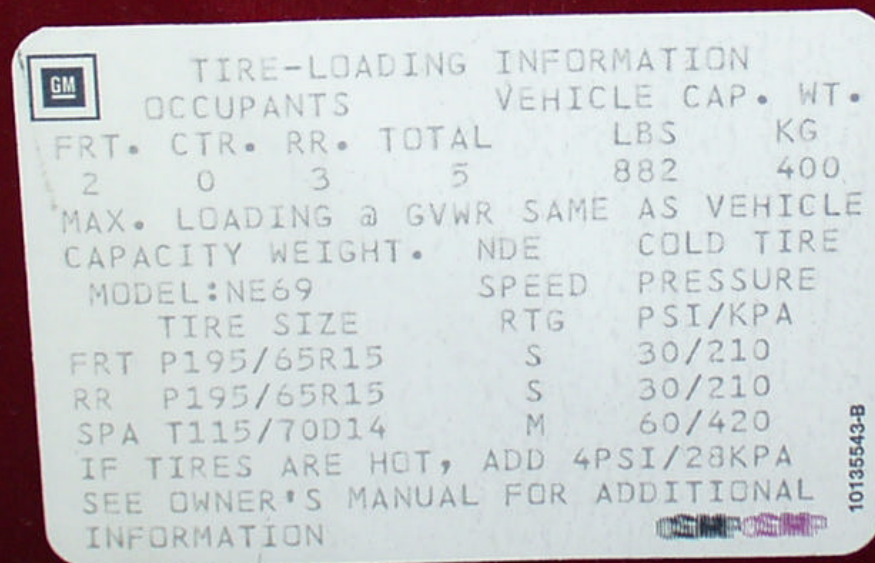
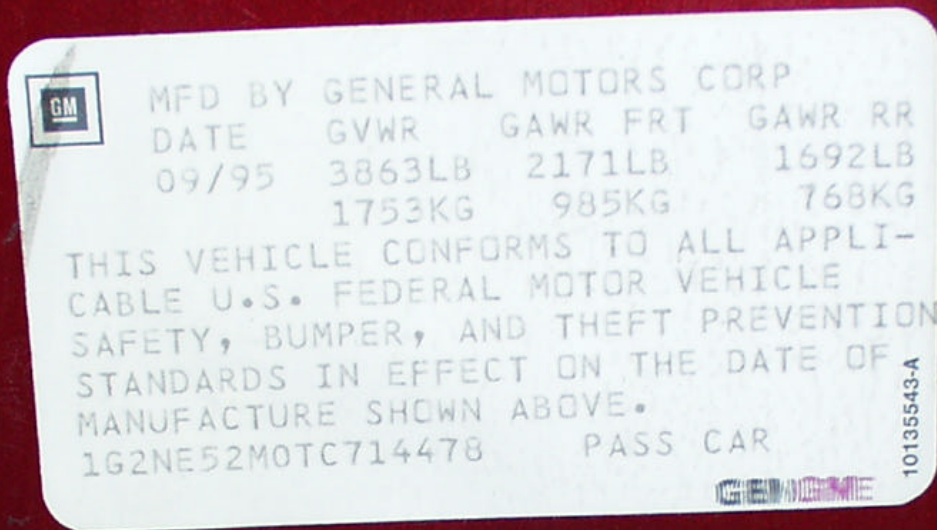


Photo No. A-36 - Tire Placard and Vehicle Certification Label

APPENDIX B

SID, VEHICLE, AND MDB RESPONSE DATA

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*No valid data after 20 msec.

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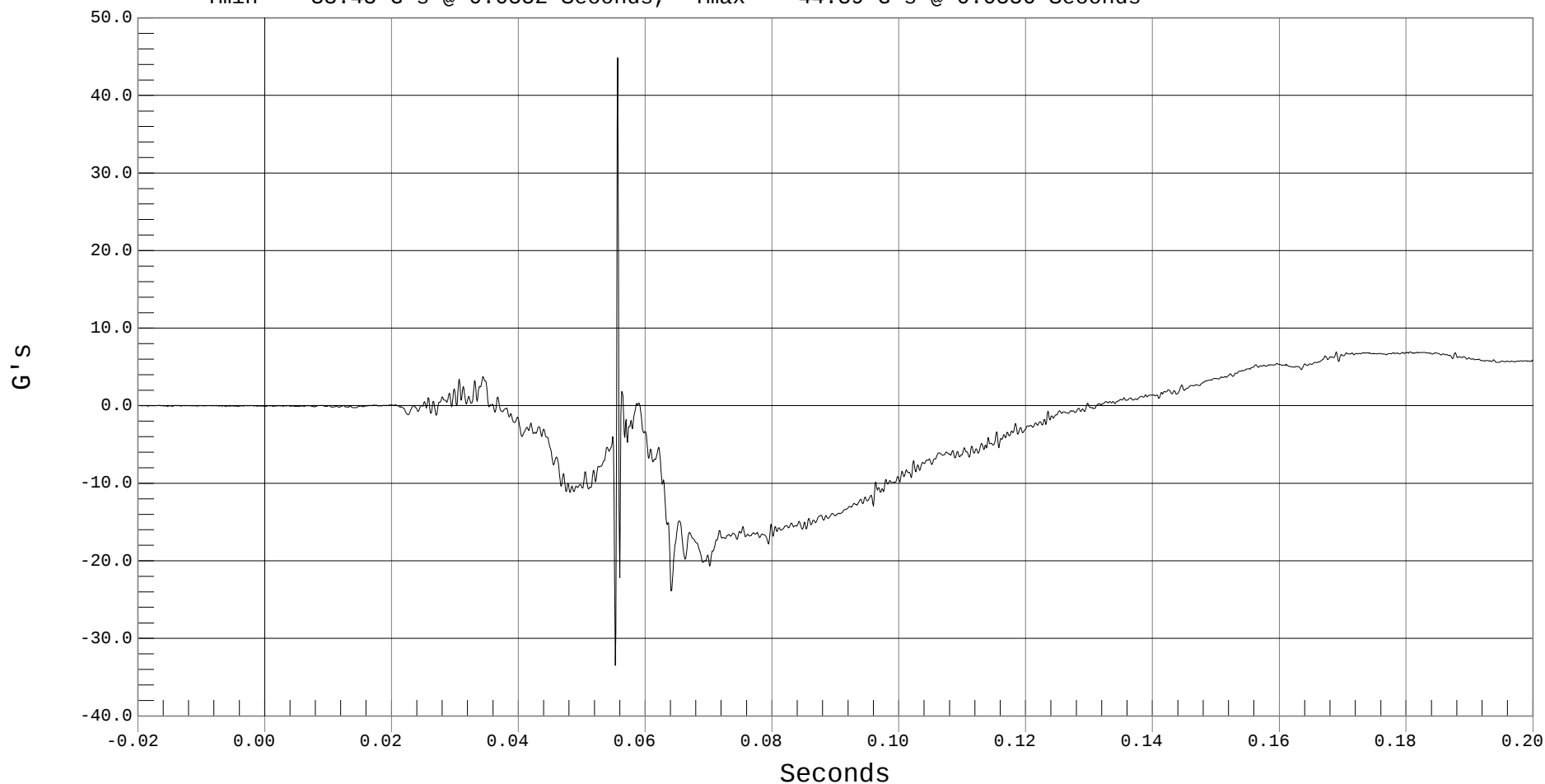
RIGHT FRONT PASSENGER HEAD X ACCELERATION

Test Desc.: FMVSS 214 SIDE IMPACT
Component: 1996 PONTIAC GRAND AM
Other Info:

Test Date: 05-04-01
Speed: 33.0 MPH, 53.1 KPH
Filter Class: 1000

1 RIGHT FRONT PASSENGER HEAD X ACCELERATION, b01052AT.A01

Ymin = -33.48 G's @ 0.0552 Seconds, Ymax = 44.89 G's @ 0.0556 Seconds





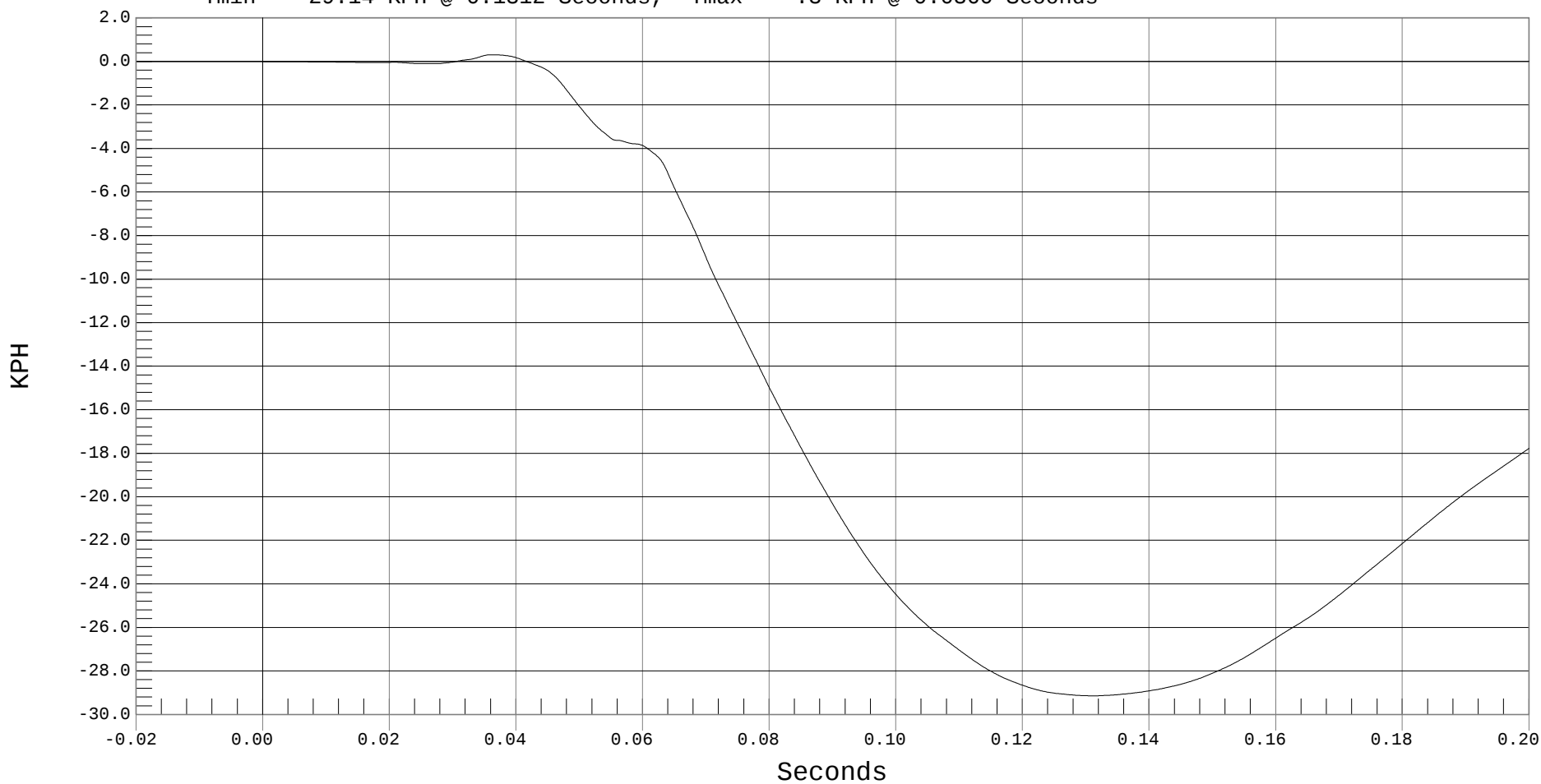
RIGHT FRONT PASSENGER HEAD X VELOCITY

Test Desc.: FMVSS 214 SIDE IMPACT
Component: 1996 PONTIAC GRAND AM
Other Info:

Test Date: 05-04-01
Speed: 33.0 MPH, 53.1 KPH
Filter Class: 180

— 1 RIGHT FRONT PASSENGER HEAD X VELOCITY, b01052AI.V01

Ymin = -29.14 KPH @ 0.1312 Seconds, Ymax = .3 KPH @ 0.0360 Seconds





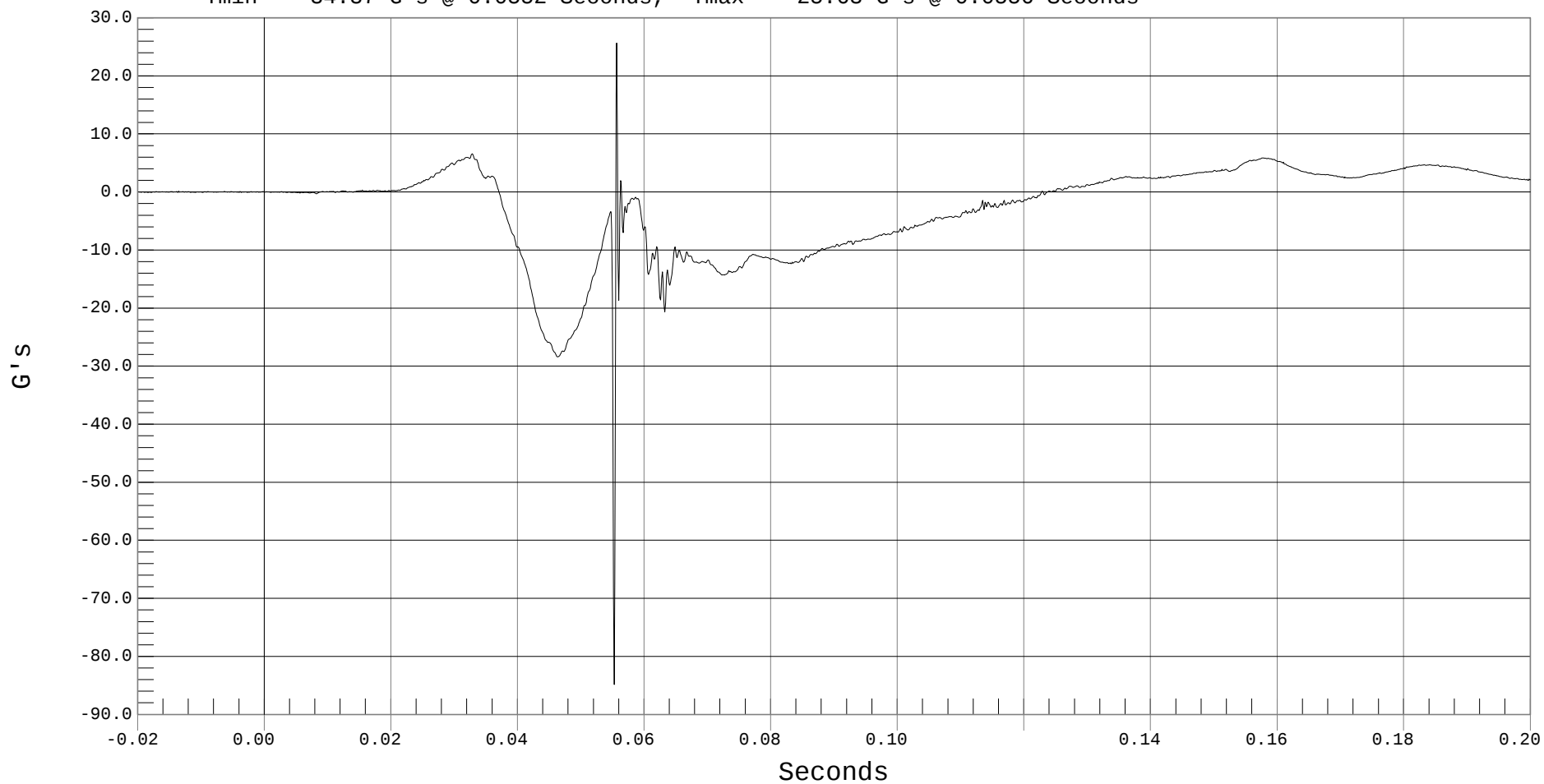
RIGHT FRONT PASSENGER HEAD Y ACCELERATION

Test Desc.: FMVSS 214 SIDE IMPACT
Component: 1996 PONTIAC GRAND AM
Other Info:

Test Date: 05-04-01
Speed: 33.0 MPH, 53.1 KPH
Filter Class: 1000

— 1 RIGHT FRONT PASSENGER HEAD Y ACCELERATION, b01052AT.A02

Ymin = -84.87 G's @ 0.0552 Seconds, Ymax = 25.63 G's @ 0.0556 Seconds





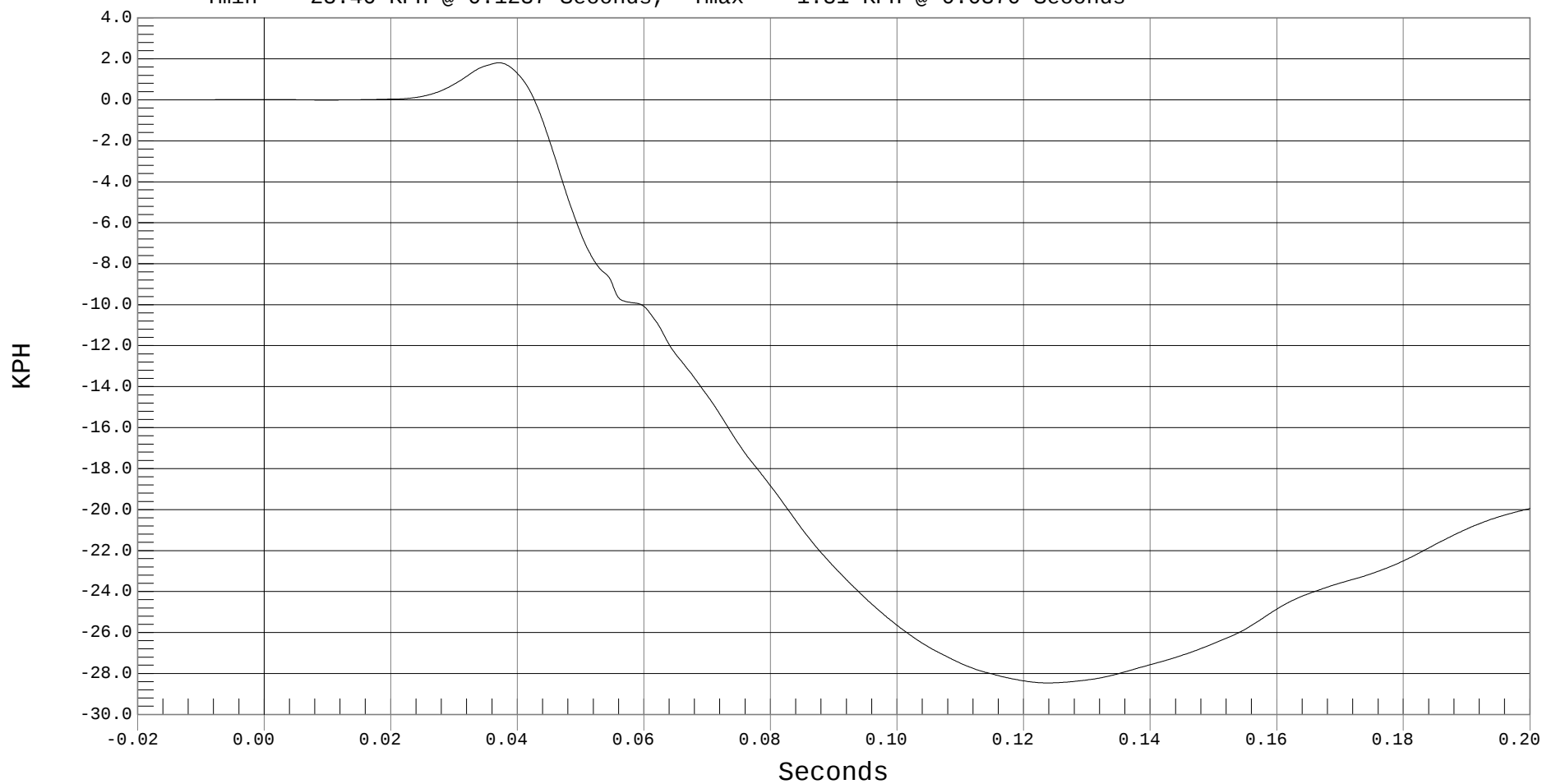
RIGHT FRONT PASSENGER HEAD Y VELOCITY

Test Desc.: FMVSS 214 SIDE IMPACT
Component: 1996 PONTIAC GRAND AM
Other Info:

Test Date: 05-04-01
Speed: 33.0 MPH, 53.1 KPH
Filter Class: 180

— 1 RIGHT FRONT PASSENGER HEAD Y VELOCITY, b01052AI.V02

Ymin = -28.46 KPH @ 0.1237 Seconds, Ymax = 1.81 KPH @ 0.0370 Seconds





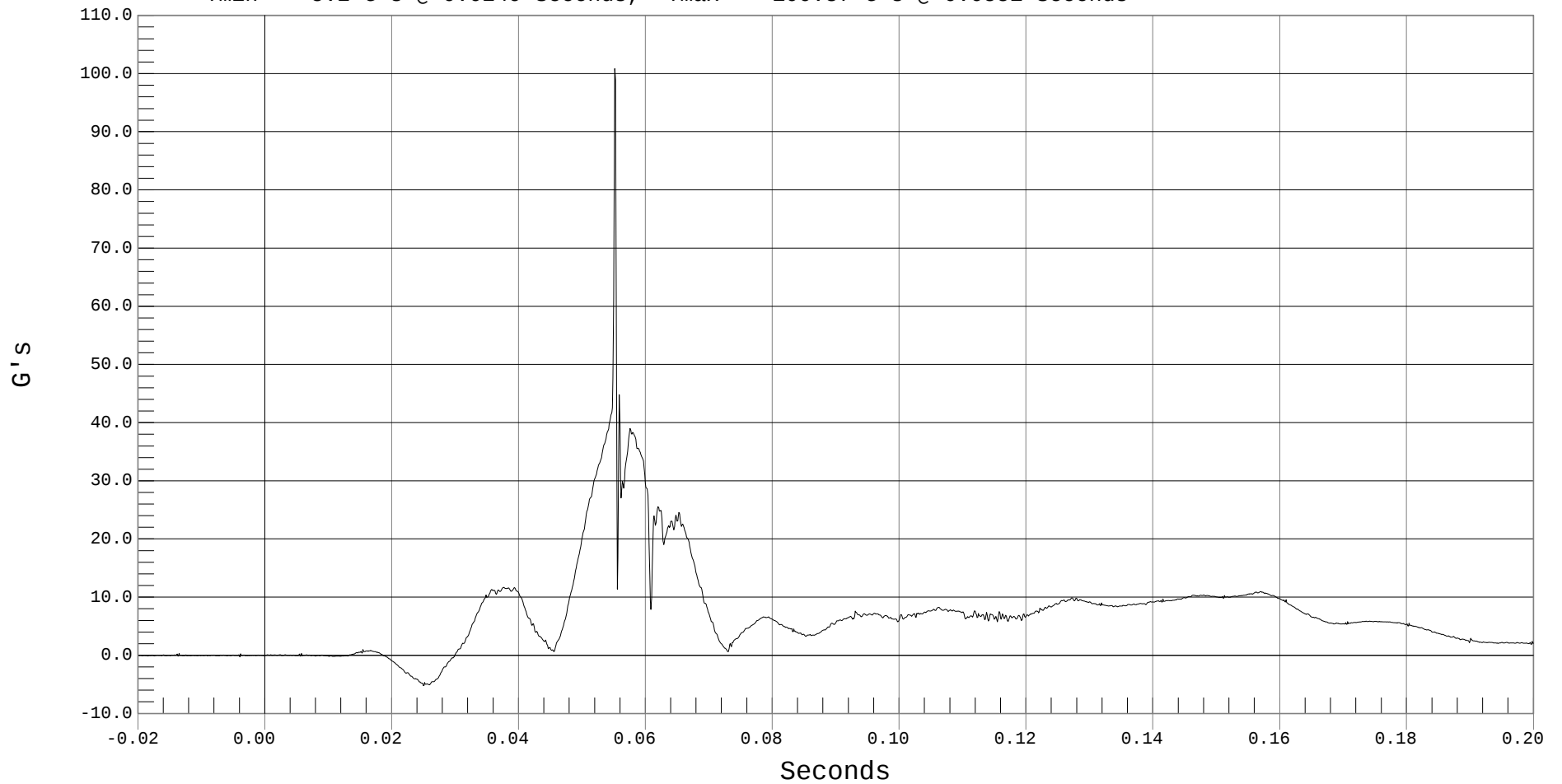
RIGHT FRONT PASSENGER HEAD Z ACCELERATION

Test Desc.: FMVSS 214 SIDE IMPACT
Component: 1996 PONTIAC GRAND AM
Other Info:

Test Date: 05-04-01
Speed: 33.0 MPH, 53.1 KPH
Filter Class: 1000

1 RIGHT FRONT PASSENGER HEAD Z ACCCELERATION, b01052AT.A03

Ymin = -5.2 G's @ 0.0249 Seconds, Ymax = 100.87 G's @ 0.0551 Seconds





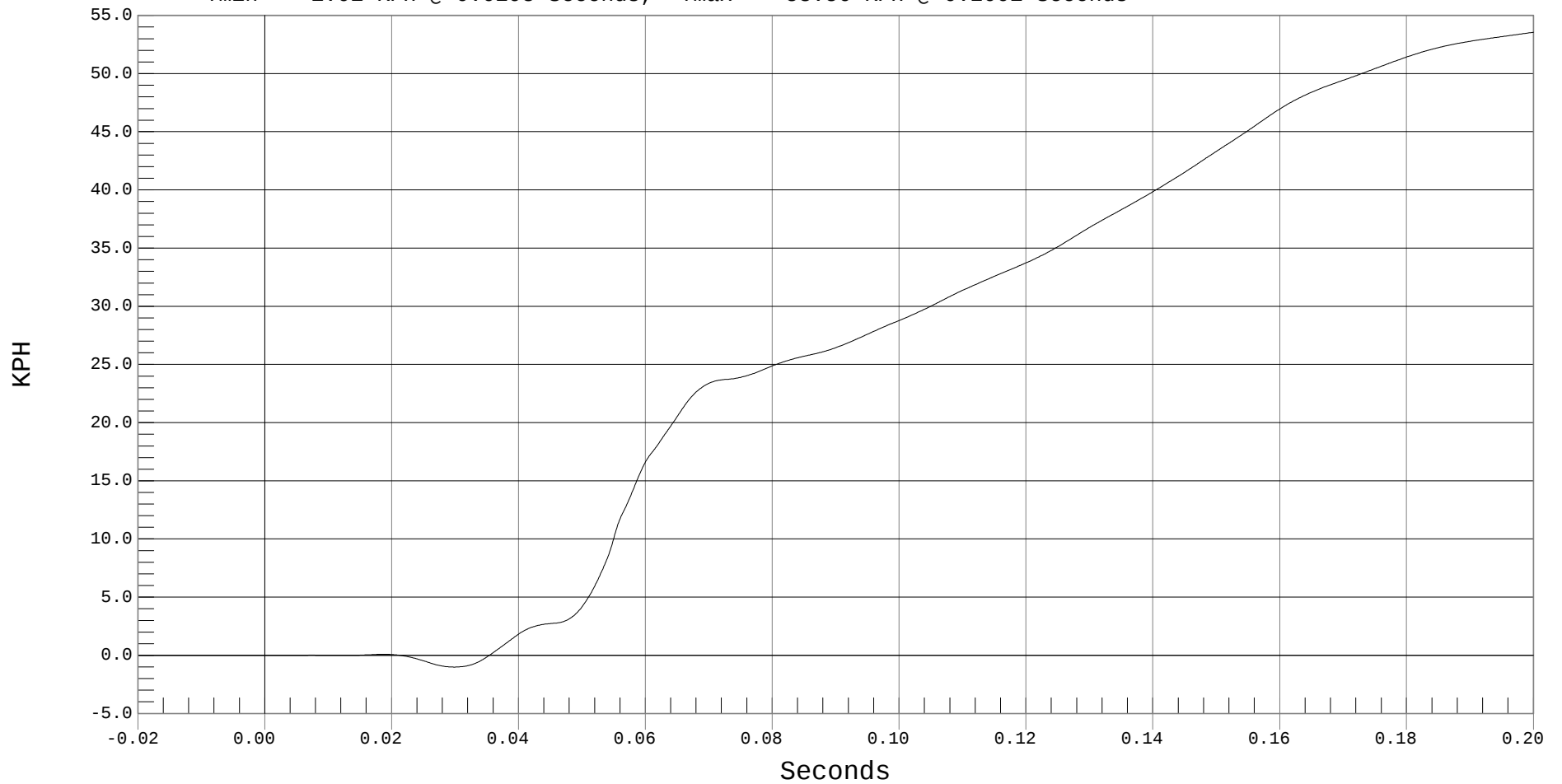
RIGHT FRONT PASSENGER HEAD Z VELOCITY

Test Desc.: FMVSS 214 SIDE IMPACT
Component: 1996 PONTIAC GRAND AM
Other Info:

Test Date: 05-04-01
Speed: 33.0 MPH, 53.1 KPH
Filter Class: 180

— 1 RIGHT FRONT PASSENGER HEAD Z VELOCITY, b01052AI.V03

Ymin = -1.01 KPH @ 0.0298 Seconds, Ymax = 53.56 KPH @ 0.2001 Seconds





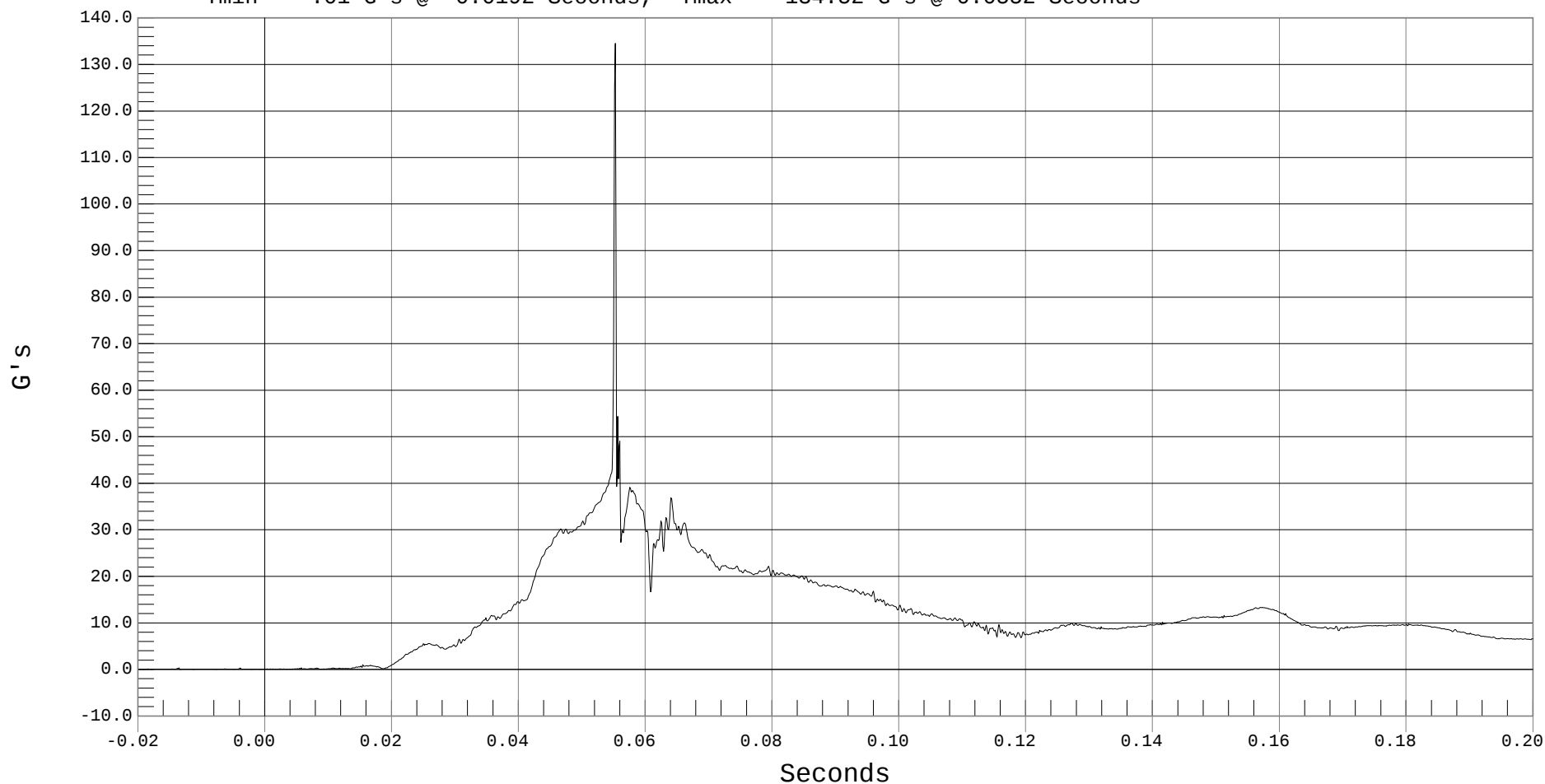
RIGHT FRONT PASSENGER HEAD RESULTANT ACCELERATION

Test Desc.: FMVSS 214 SIDE IMPACT
Component: 1996 PONTIAC GRAND AM
Other Info:

Test Date: 05-04-01
Speed: 33.0 MPH, 53.1 KPH
Filter Class: 1000

— 1 RIGHT FRONT PASSENGER HEAD RESULTANT ACCELERATION, b01052AV.A01

Ymin = .01 G's @ -0.0192 Seconds, Ymax = 134.52 G's @ 0.0552 Seconds





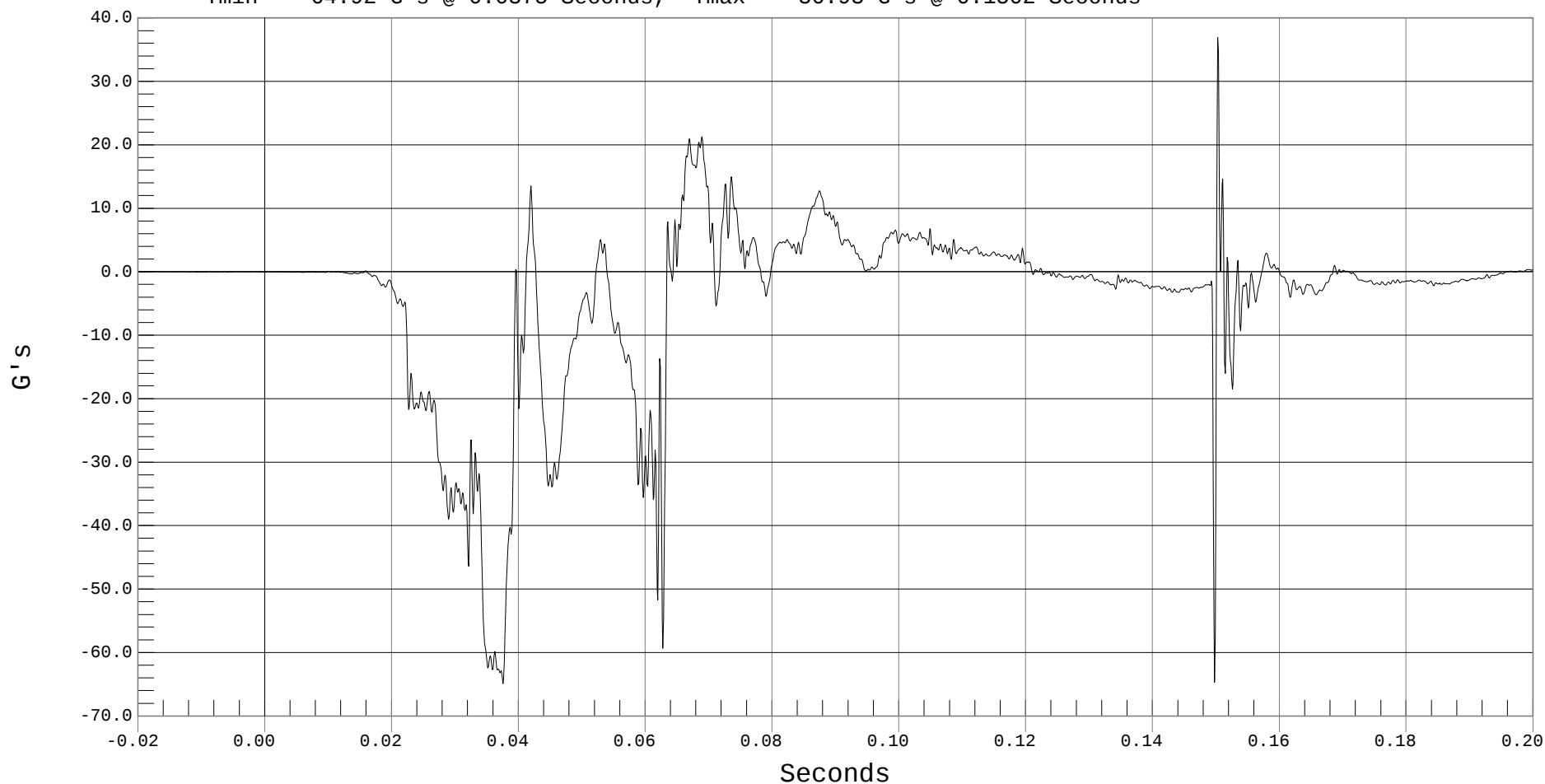
RIGHT FRONT PASSENGER UPPER RIB Y ACCELERATION

Test Desc.: FMVSS 214 SIDE IMPACT
Component: 1996 PONTIAC GRAND AM
Other Info:

Test Date: 05-04-01
Speed: 33.0 MPH, 53.1 KPH
Filter Class: 1000

1 RIGHT FRONT PASSENGER UPPER RIB Y ACCELERATION, b01052AT.A04

Ymin = -64.92 G's @ 0.0375 Seconds, Ymax = 36.93 G's @ 0.1502 Seconds





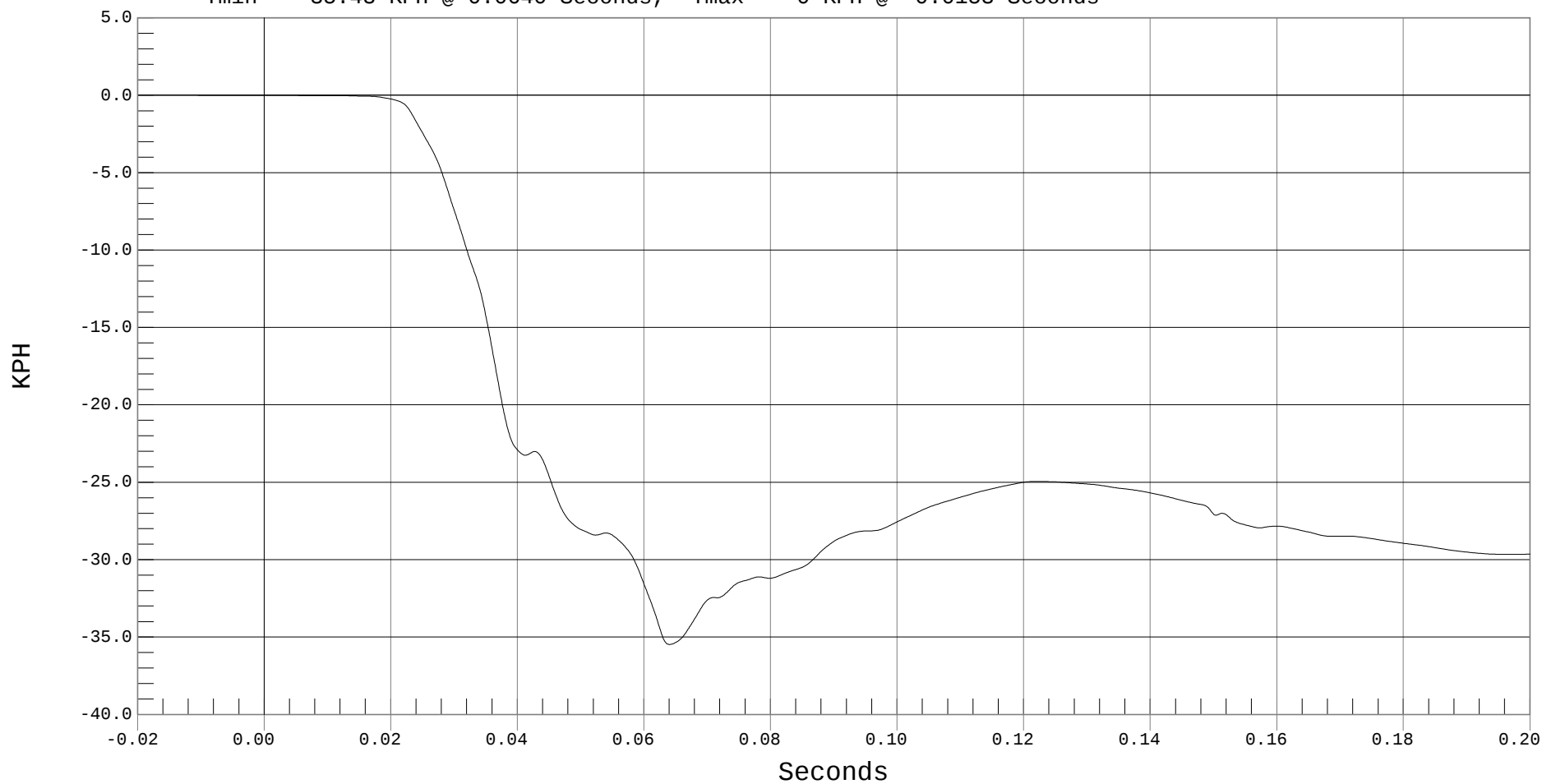
RIGHT FRONT PASSENGER UPPER RIB Y VELOCITY

Test Desc.: FMVSS 214 SIDE IMPACT
Component: 1996 PONTIAC GRAND AM
Other Info:

Test Date: 05-04-01
Speed: 33.0 MPH, 53.1 KPH
Filter Class: 180

1 RIGHT FRONT PASSENGER UPPER RIB Y VELOCITY, b01052AI.V04

Ymin = -35.48 KPH @ 0.0640 Seconds, Ymax = 0 KPH @ -0.0153 Seconds





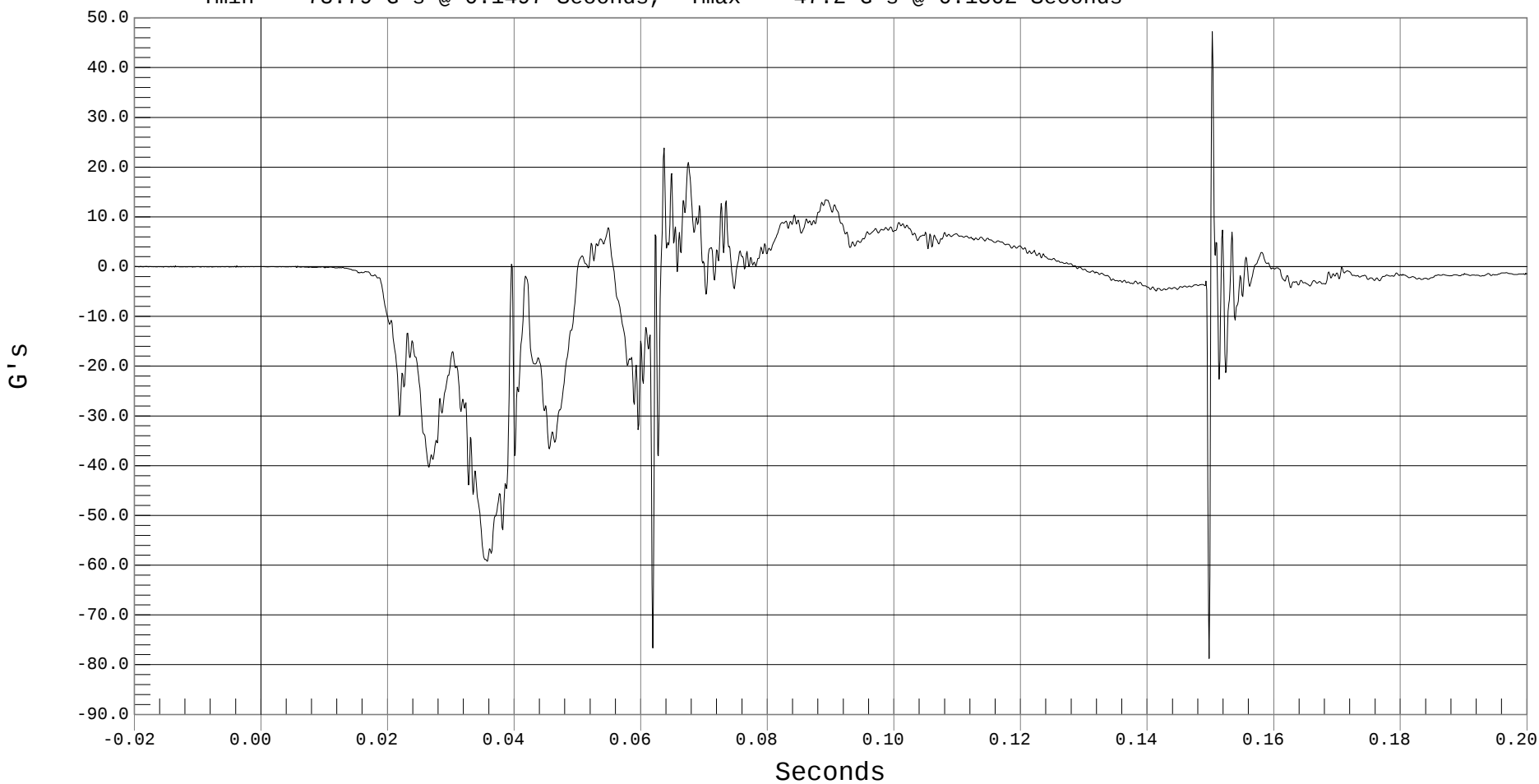
RIGHT FRONT PASSENGER LOWER RIB Y ACCELERATION

Test Desc.: FMVSS 214 SIDE IMPACT
Component: 1996 PONTIAC GRAND AM
Other Info:

Test Date: 05-04-01
Speed: 33.0 MPH, 53.1 KPH
Filter Class: 1000

1 RIGHT FRONT PASSENGER LOWER RIB Y ACCELERATION, b01052AT.A05

Ymin = -78.79 G's @ 0.1497 Seconds, Ymax = 47.2 G's @ 0.1502 Seconds





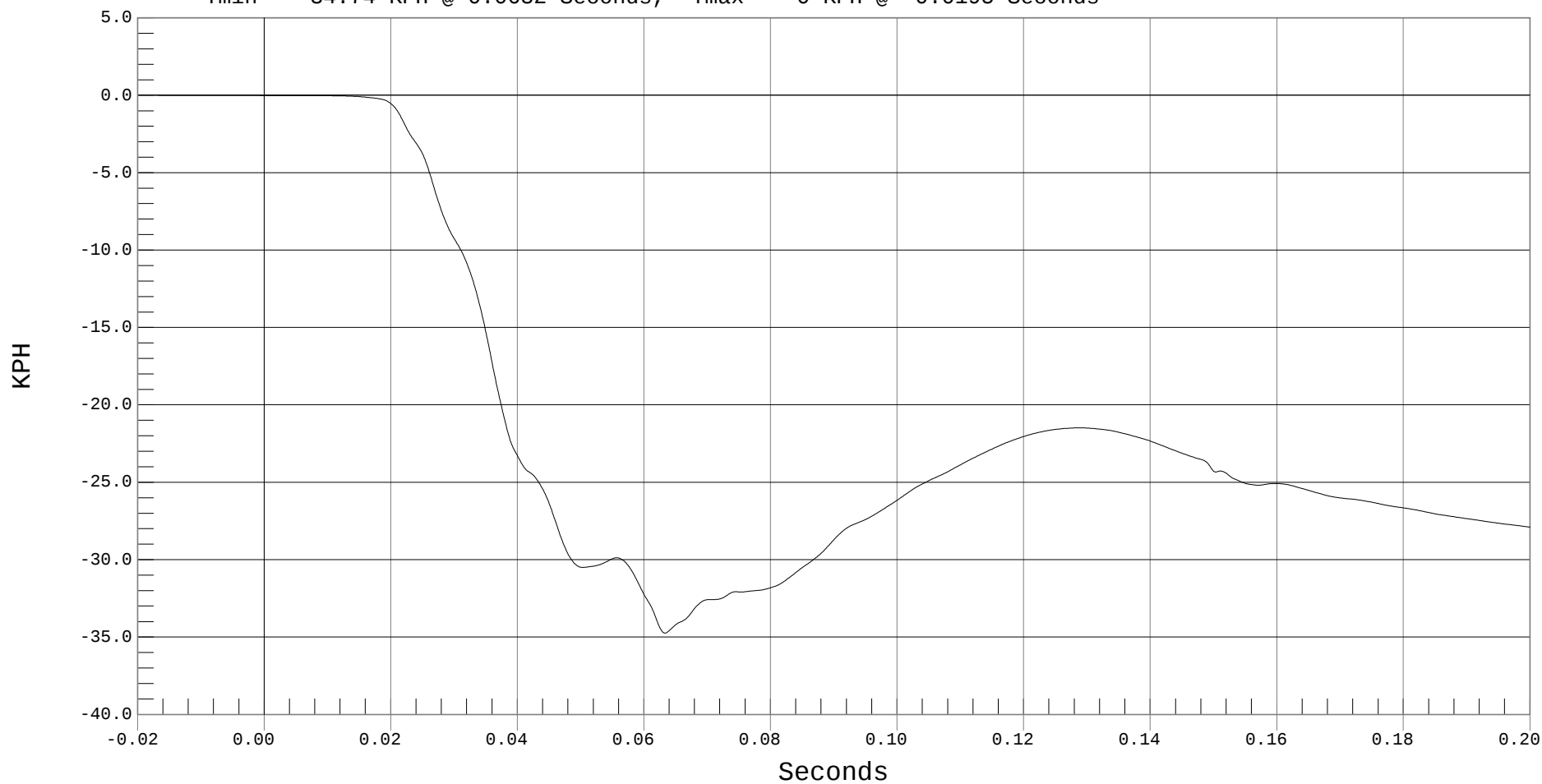
RIGHT FRONT PASSENGER LOWER RIB Y VELOCITY

Test Desc.: FMVSS 214 SIDE IMPACT
Component: 1996 PONTIAC GRAND AM
Other Info:

Test Date: 05-04-01
Speed: 33.0 MPH, 53.1 KPH
Filter Class: 180

1 RIGHT FRONT PASSENGER LOWER RIB Y VELOCITY, b01052AI.V05

Ymin = -34.74 KPH @ 0.0632 Seconds, Ymax = 0 KPH @ -0.0195 Seconds





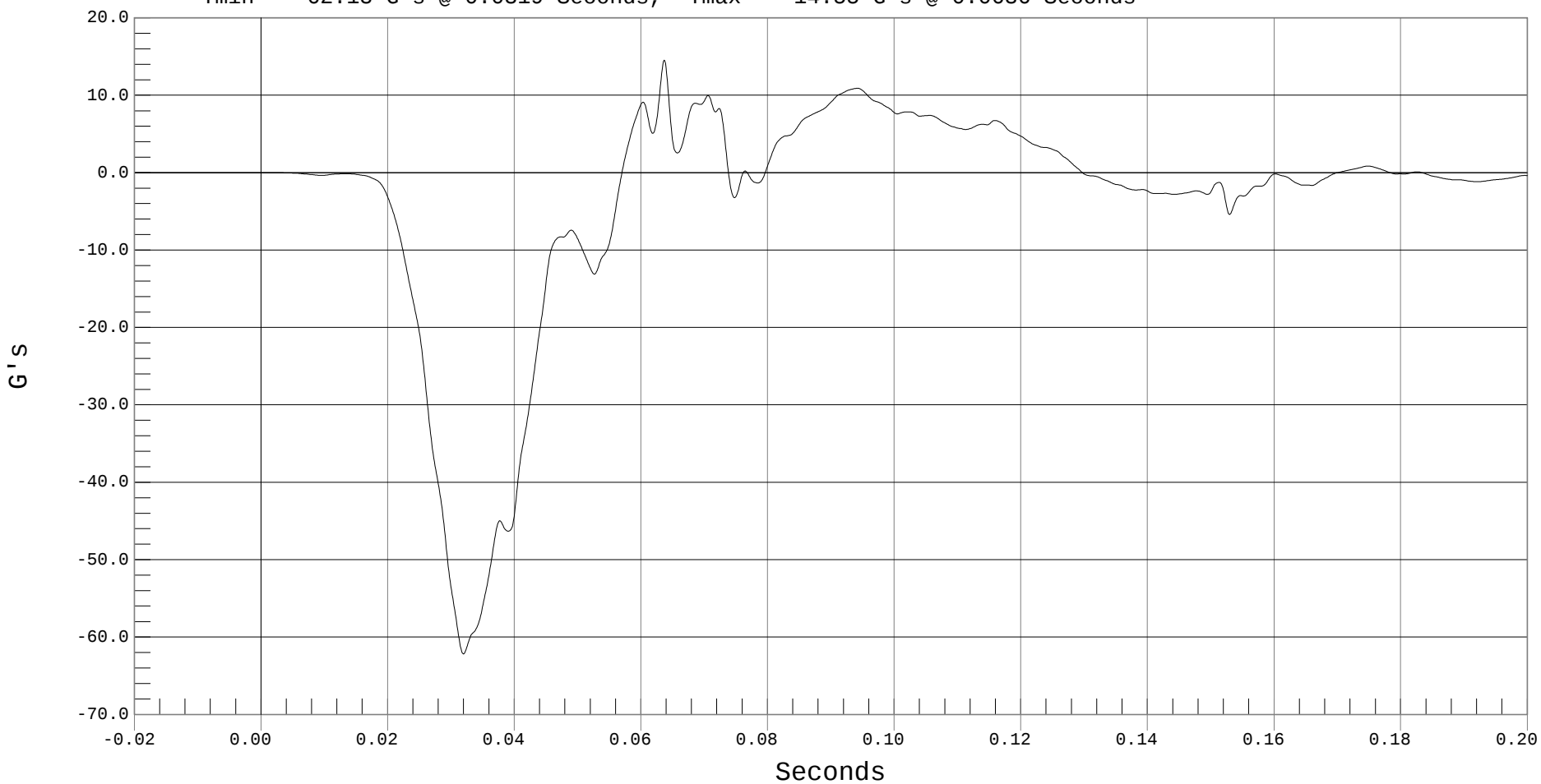
RIGHT FRONT PASSENGER LOWER SPINE Y ACCELERATION

Test Desc.: FMVSS 214 SIDE IMPACT
Component: 1996 PONTIAC GRAND AM
Other Info:

Test Date: 05-04-01
Speed: 33.0 MPH, 53.1 KPH
Filter Class: 180

1 RIGHT FRONT PASSENGER LOWER SPINE Y ACCELERATION, b01052AF.A06

Ymin = -62.18 G's @ 0.0319 Seconds, Ymax = 14.55 G's @ 0.0636 Seconds





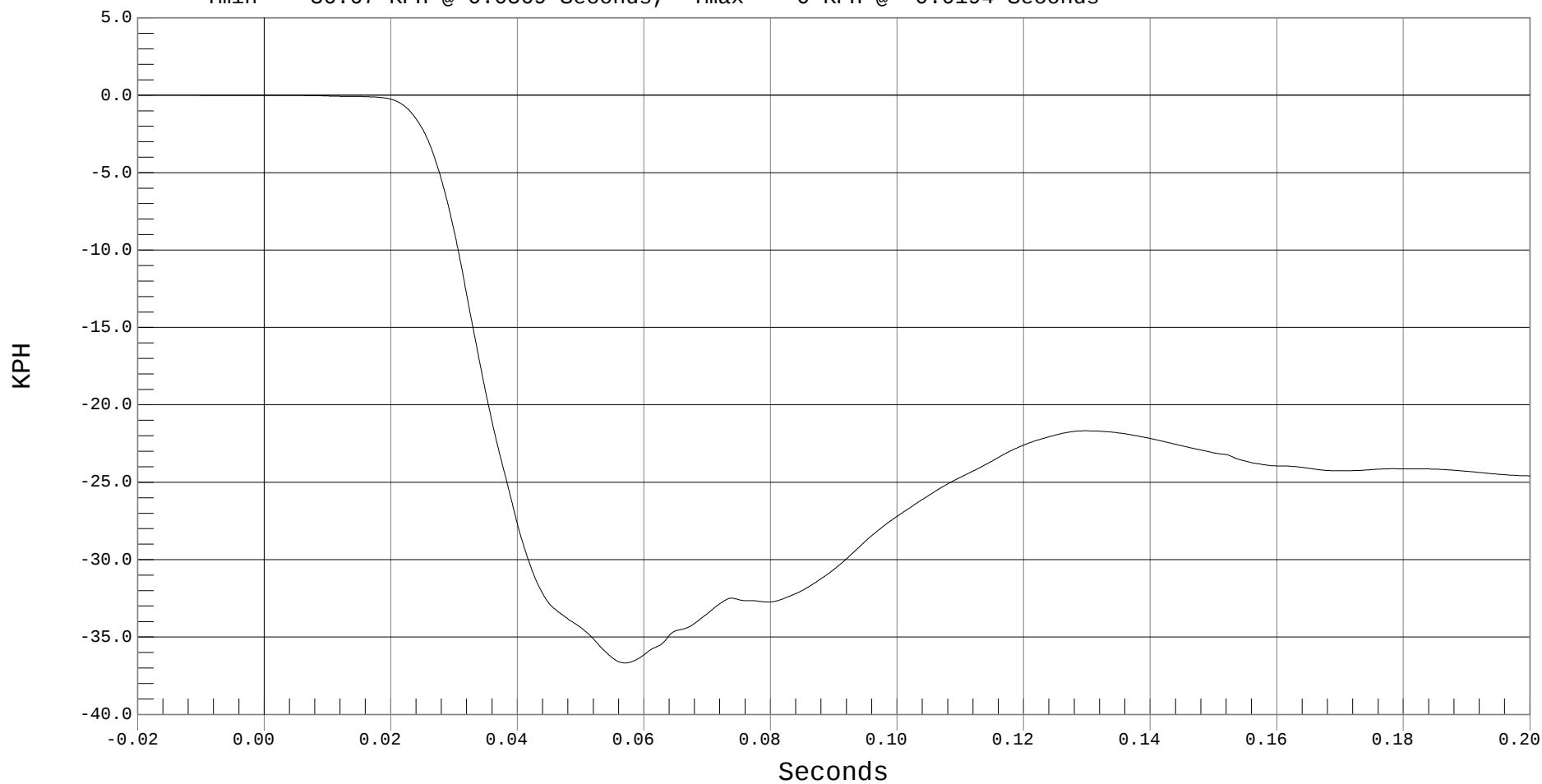
RIGHT FRONT PASSENGER LOWER SPINE Y VELOCITY

Test Desc.: FMVSS 214 SIDE IMPACT
Component: 1996 PONTIAC GRAND AM
Other Info:

Test Date: 05-04-01
Speed: 33.0 MPH, 53.1 KPH
Filter Class: 180

1 RIGHT FRONT PASSENGER LOWER SPINE Y VELOCITY, b01052AI.V06

Ymin = -36.67 KPH @ 0.0569 Seconds, Ymax = 0 KPH @ -0.0194 Seconds





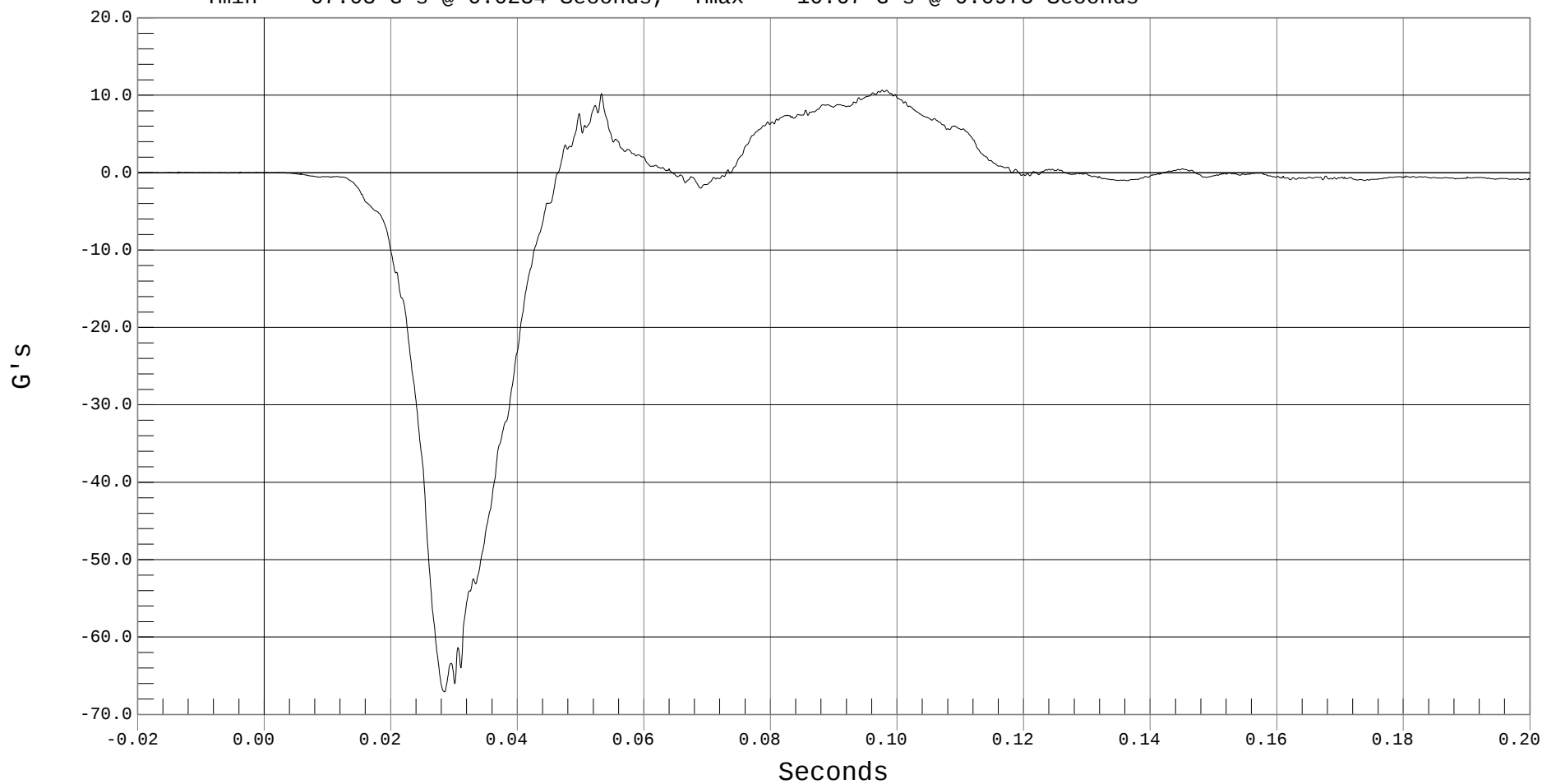
RIGHT FRONT PASSENGER PELVIS Y ACCELERATION

Test Desc.: FMVSS 214 SIDE IMPACT
Component: 1996 PONTIAC GRAND AM
Other Info:

Test Date: 05-04-01
Speed: 33.0 MPH, 53.1 KPH
Filter Class: 1000

1 RIGHT FRONT PASSENGER PELVIS Y ACCELERATION, b01052AT.A07

Ymin = -67.08 G's @ 0.0284 Seconds, Ymax = 10.67 G's @ 0.0975 Seconds





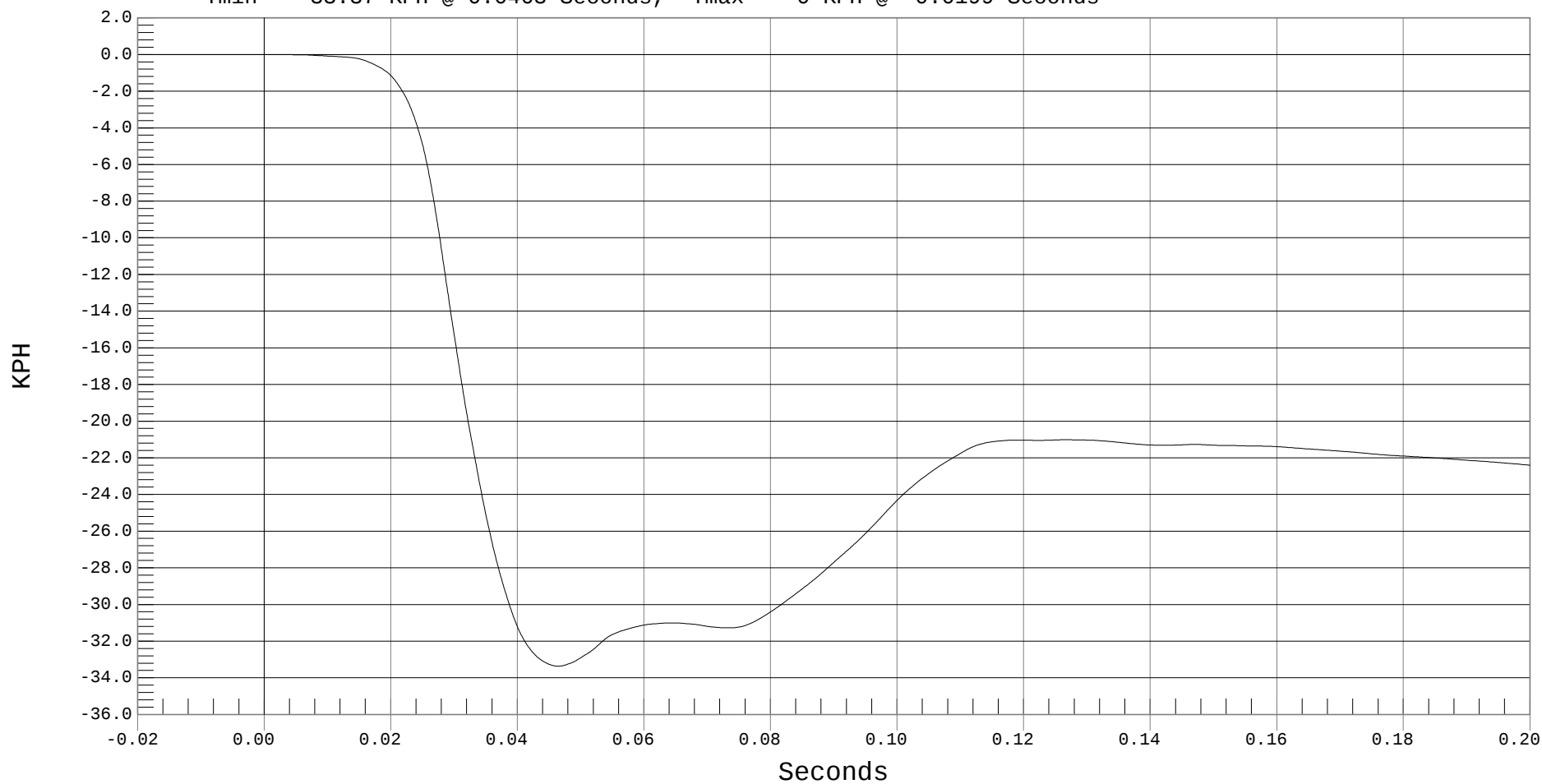
RIGHT FRONT PASSENGER PELVIS Y VELOCITY

Test Desc.: FMVSS 214 SIDE IMPACT
Component: 1996 PONTIAC GRAND AM
Other Info:

Test Date: 05-04-01
Speed: 33.0 MPH, 53.1 KPH
Filter Class: 180

— 1 RIGHT FRONT PASSENGER PELVIS Y VELOCITY, b01052AI.V07

Ymin = -33.37 KPH @ 0.0463 Seconds, Ymax = 0 KPH @ -0.0199 Seconds





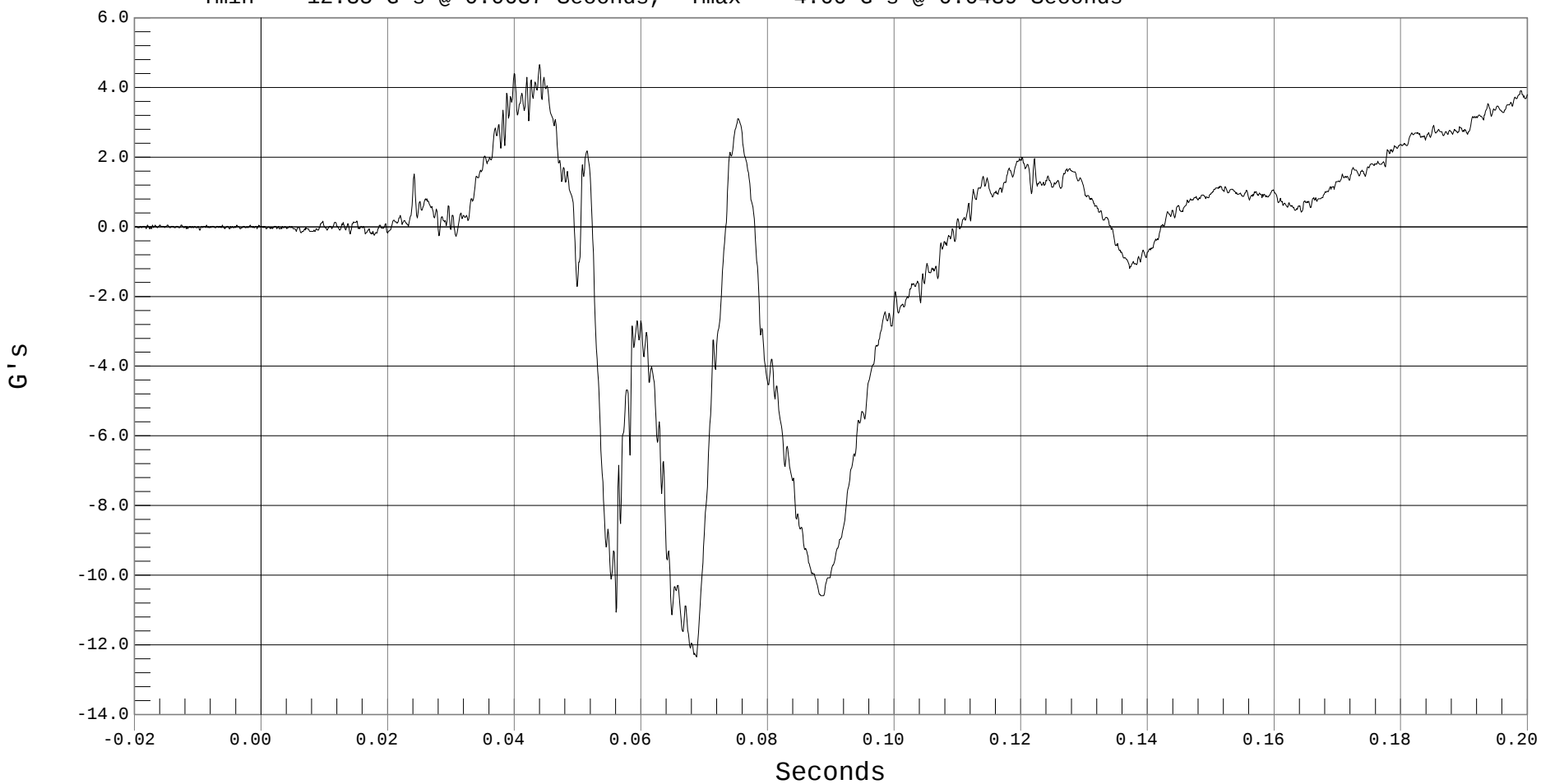
RIGHT REAR PASSENGER HEAD X ACCELERATION

Test Desc.: FMVSS 214 SIDE IMPACT
Component: 1996 PONTIAC GRAND AM
Other Info:

Test Date: 05-04-01
Speed: 33.0 MPH, 53.1 KPH
Filter Class: 1000

— 1 RIGHT REAR PASSENGER HEAD X ACCELERATION, b01052AT.A08

Ymin = -12.35 G's @ 0.0687 Seconds, Ymax = 4.66 G's @ 0.0439 Seconds





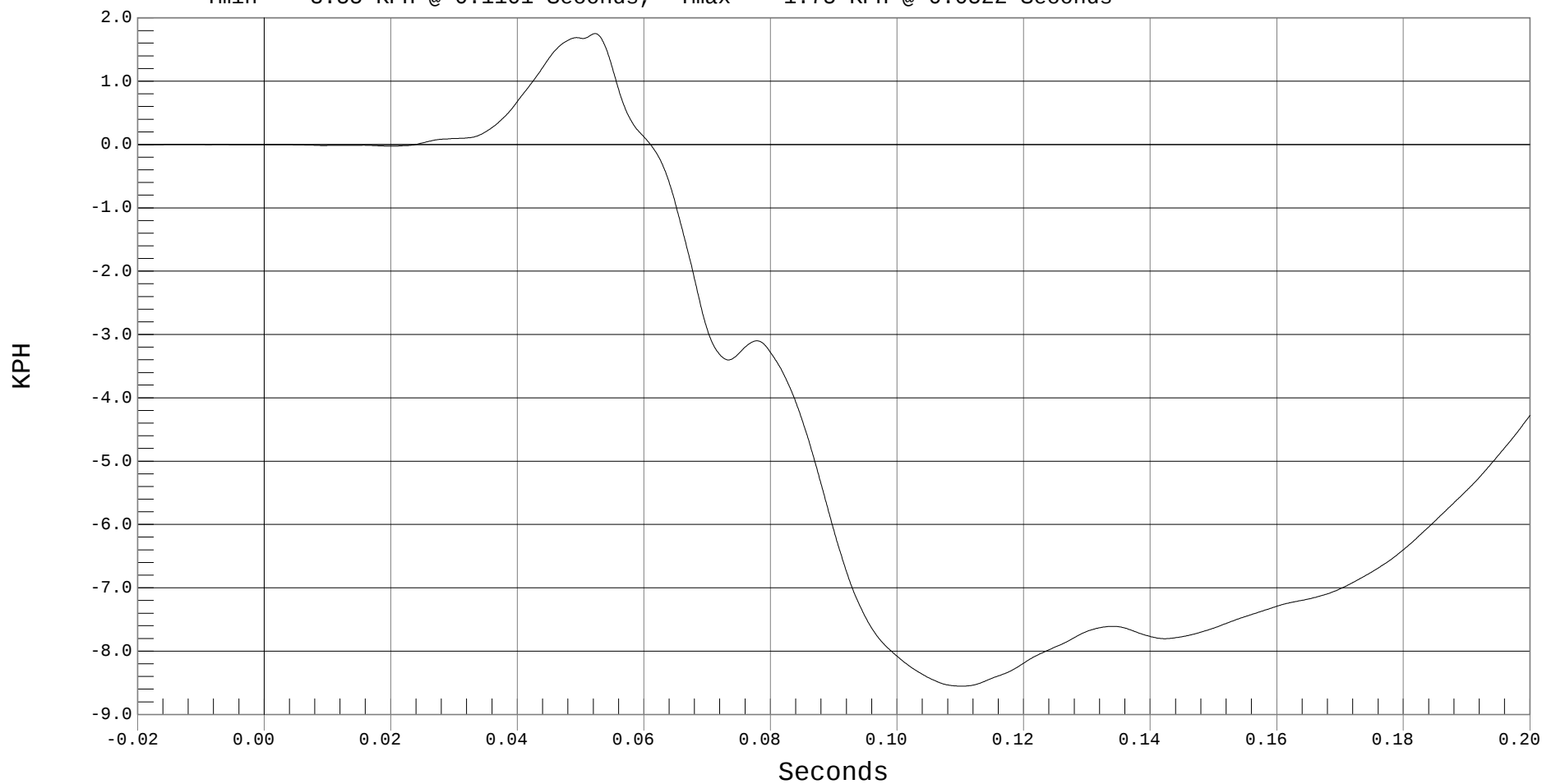
RIGHT REAR PASSENGER HEAD X VELOCITY

Test Desc.: FMVSS 214 SIDE IMPACT
Component: 1996 PONTIAC GRAND AM
Other Info:

Test Date: 05-04-01
Speed: 33.0 MPH, 53.1 KPH
Filter Class: 180

— 1 RIGHT REAR PASSENGER HEAD X VELOCITY, b01052AI.V08

Ymin = -8.55 KPH @ 0.1101 Seconds, Ymax = 1.75 KPH @ 0.0522 Seconds





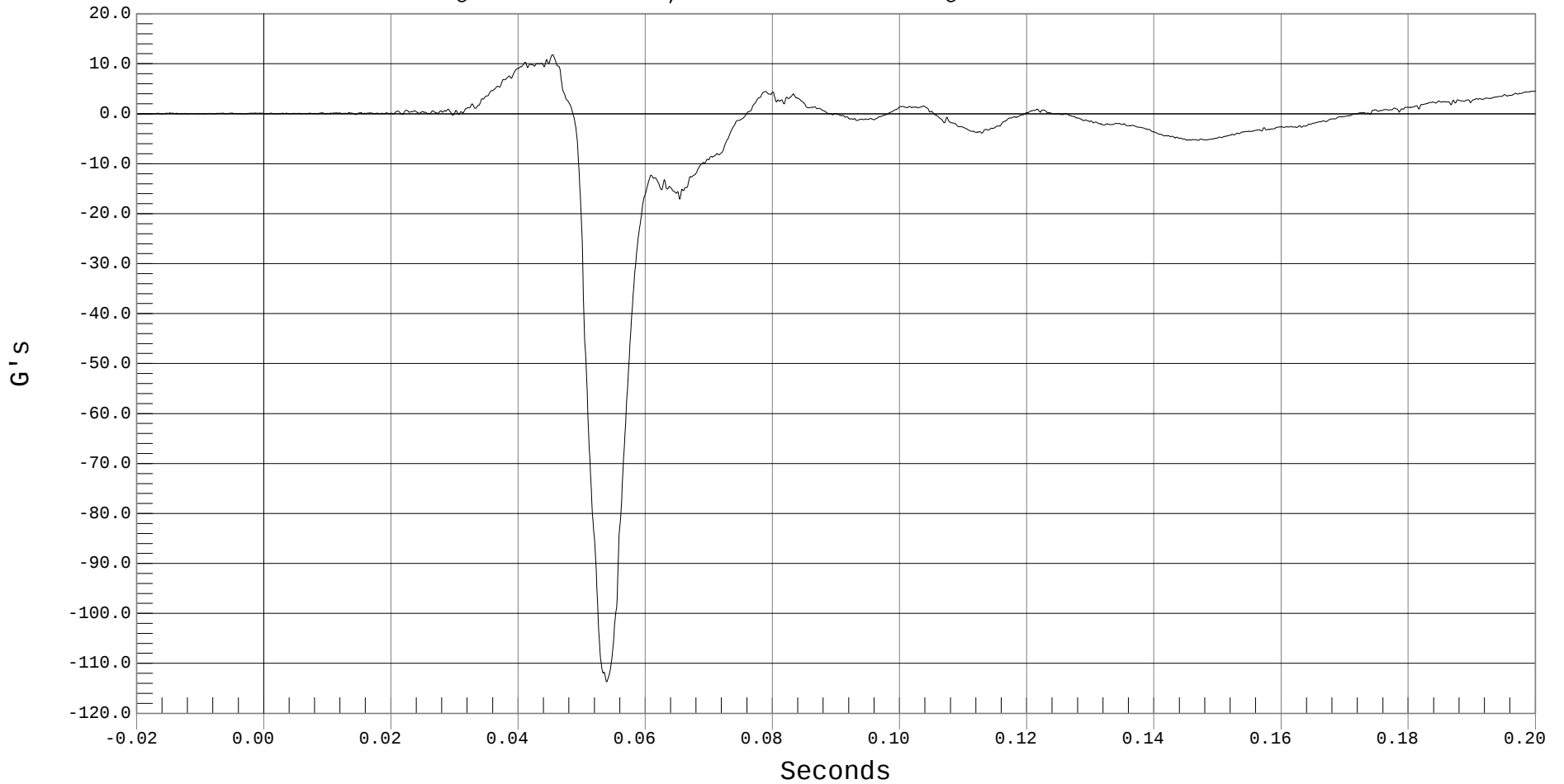
RIGHT REAR PASSENGER HEAD Y ACCELERATION

Test Desc.: FMVSS 214 SIDE IMPACT
Component: 1996 PONTIAC GRAND AM
Other Info:

Test Date: 05-04-01
Speed: 33.0 MPH, 53.1 KPH
Filter Class: 1000

— 1 RIGHT REAR PASSENGER HEAD Y ACCELERATION, b01052AT.A09

Ymin = -113.64 G's @ 0.0538 Seconds, Ymax = 11.82 G's @ 0.0453 Seconds





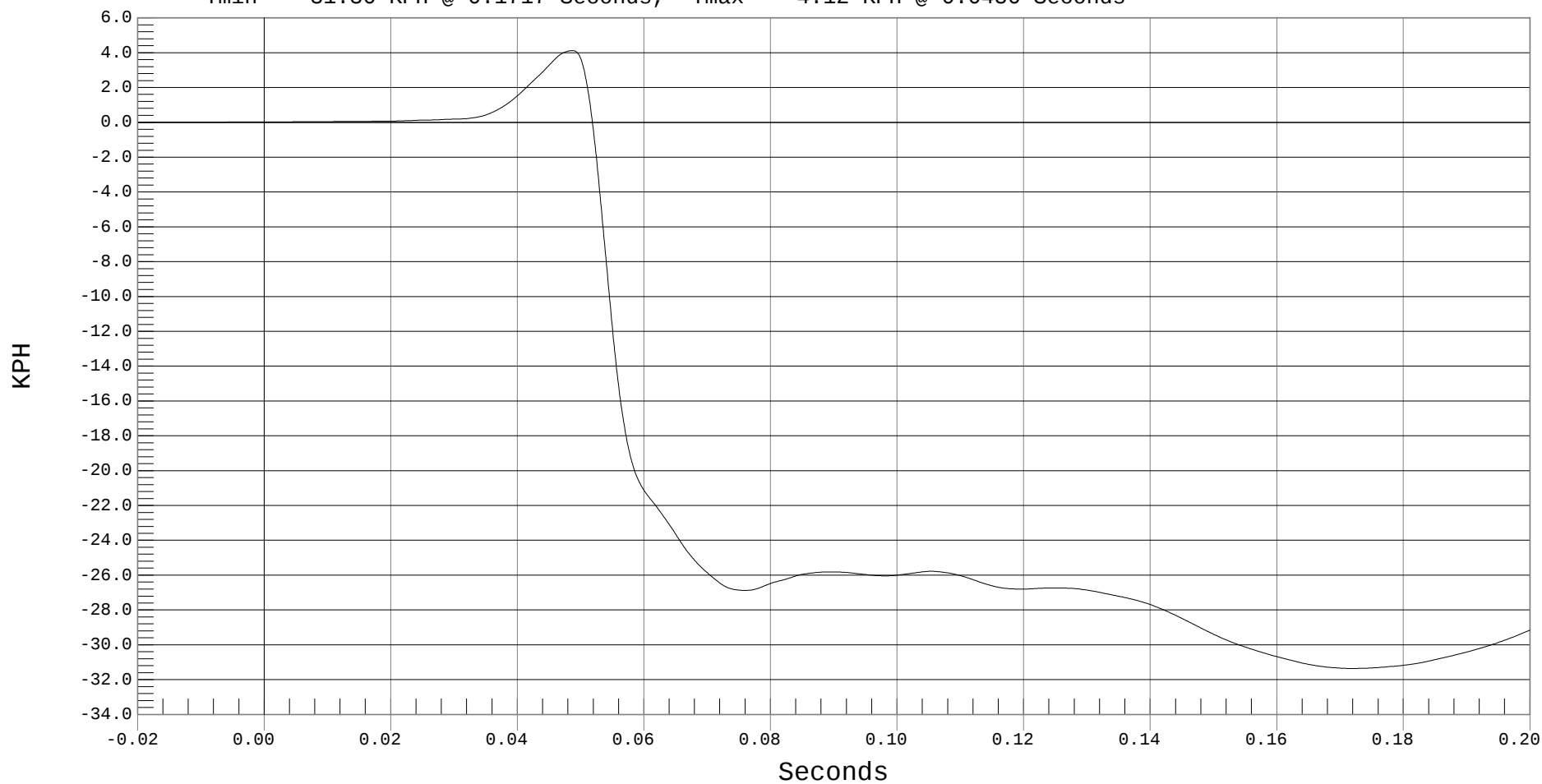
RIGHT REAR PASSENGER HEAD Y VELOCITY

Test Desc.: FMVSS 214 SIDE IMPACT
Component: 1996 PONTIAC GRAND AM
Other Info:

Test Date: 05-04-01
Speed: 33.0 MPH, 53.1 KPH
Filter Class: 180

— 1 RIGHT REAR PASSENGER HEAD Y VELOCITY, b01052AI.V09

Ymin = -31.36 KPH @ 0.1717 Seconds, Ymax = 4.12 KPH @ 0.0486 Seconds





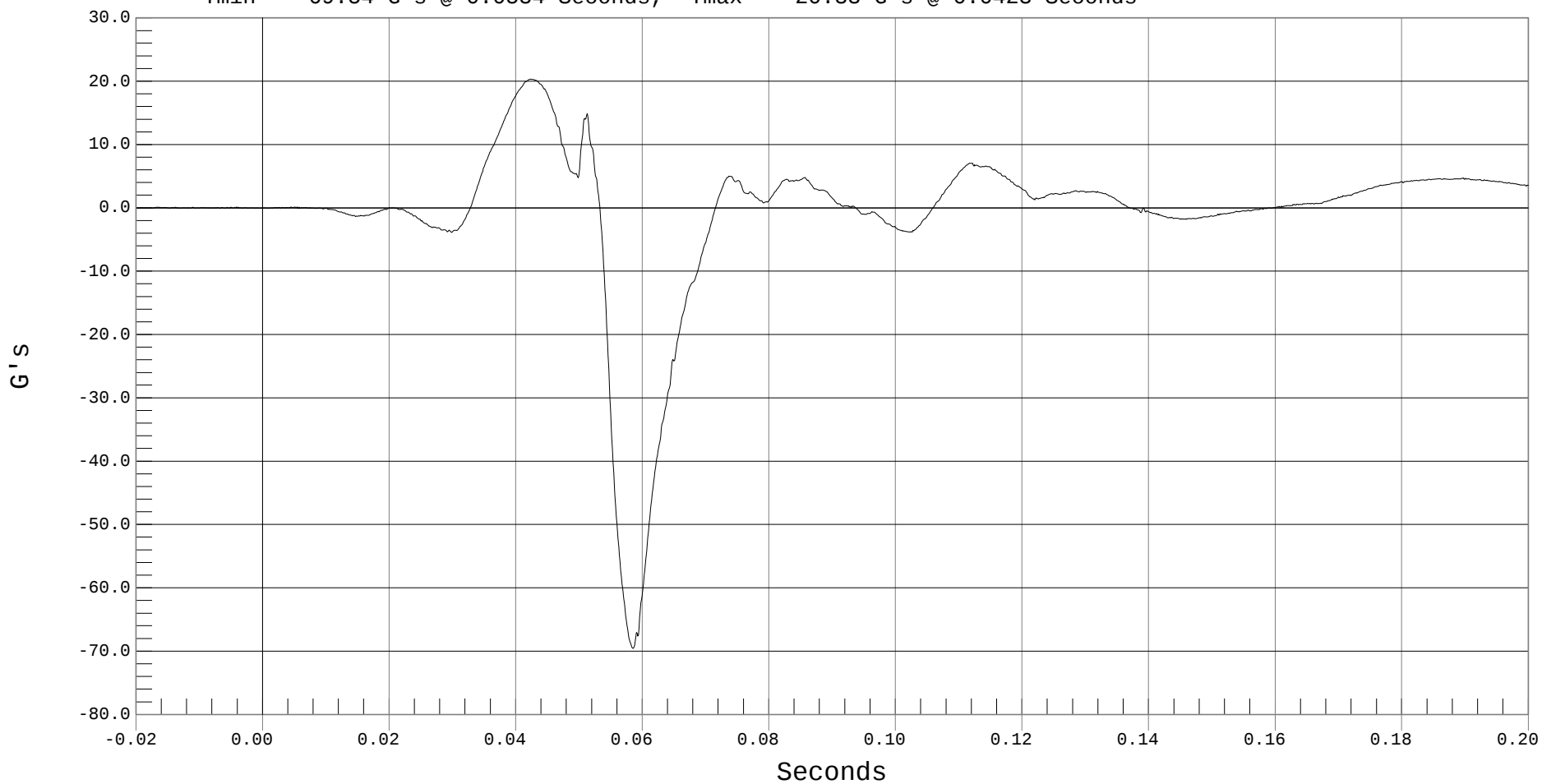
RIGHT REAR PASSENGER HEAD Z ACCELERATION

Test Desc.: FMVSS 214 SIDE IMPACT
Component: 1996 PONTIAC GRAND AM
Other Info:

Test Date: 05-04-01
Speed: 33.0 MPH, 53.1 KPH
Filter Class: 1000

— 1 RIGHT REAR PASSENGER HEAD Z ACCELERATION, b01052AT.A10

Ymin = -69.54 G's @ 0.0584 Seconds, Ymax = 20.33 G's @ 0.0423 Seconds





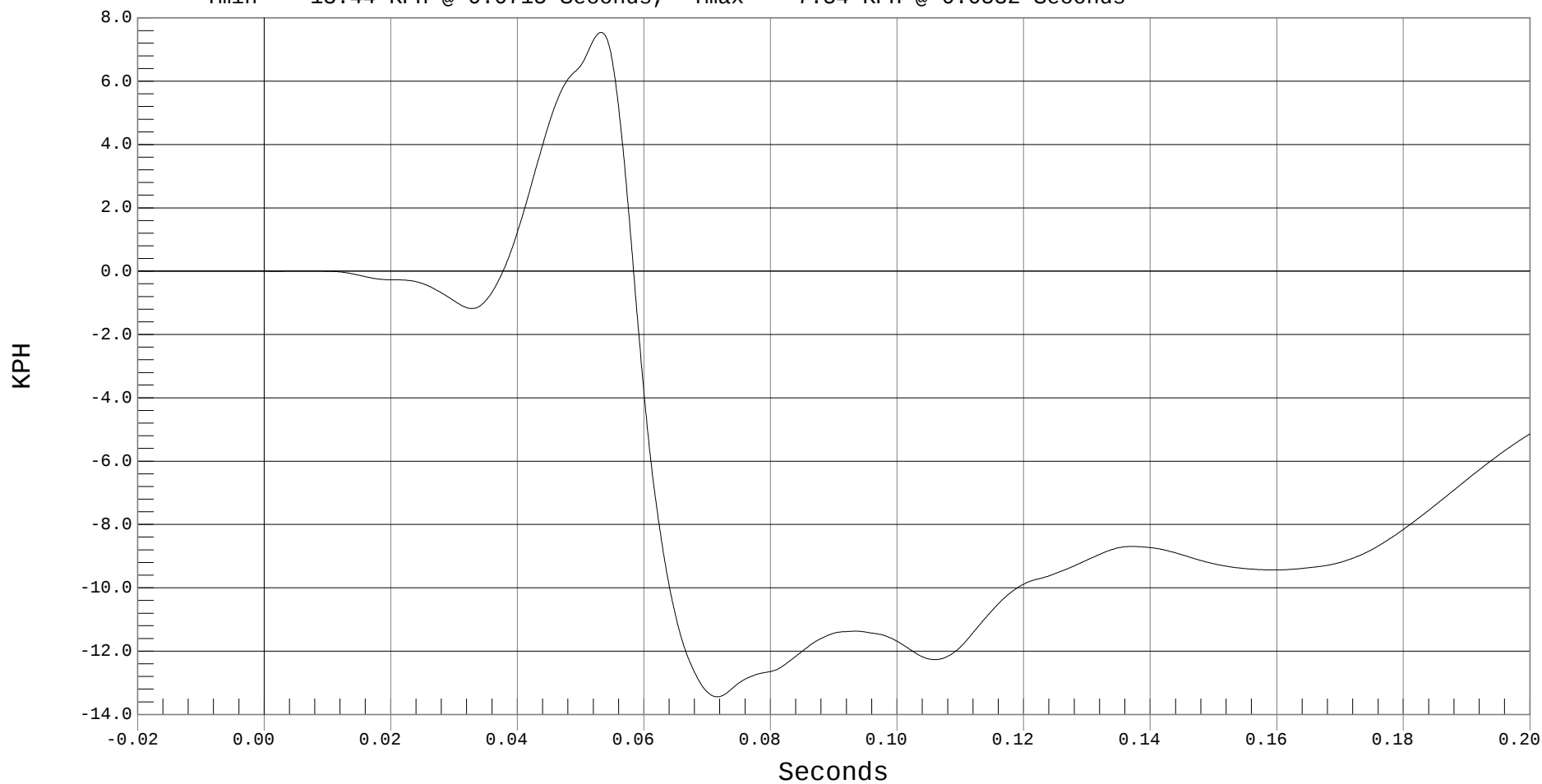
RIGHT REAR PASSENGER HEAD Z VELOCITY

Test Desc.: FMVSS 214 SIDE IMPACT
Component: 1996 PONTIAC GRAND AM
Other Info:

Test Date: 05-04-01
Speed: 33.0 MPH, 53.1 KPH
Filter Class: 180

— 1 RIGHT REAR PASSENGER HEAD Z VELOCITY, b01052AI.V10

Ymin = -13.44 KPH @ 0.0715 Seconds, Ymax = 7.54 KPH @ 0.0532 Seconds





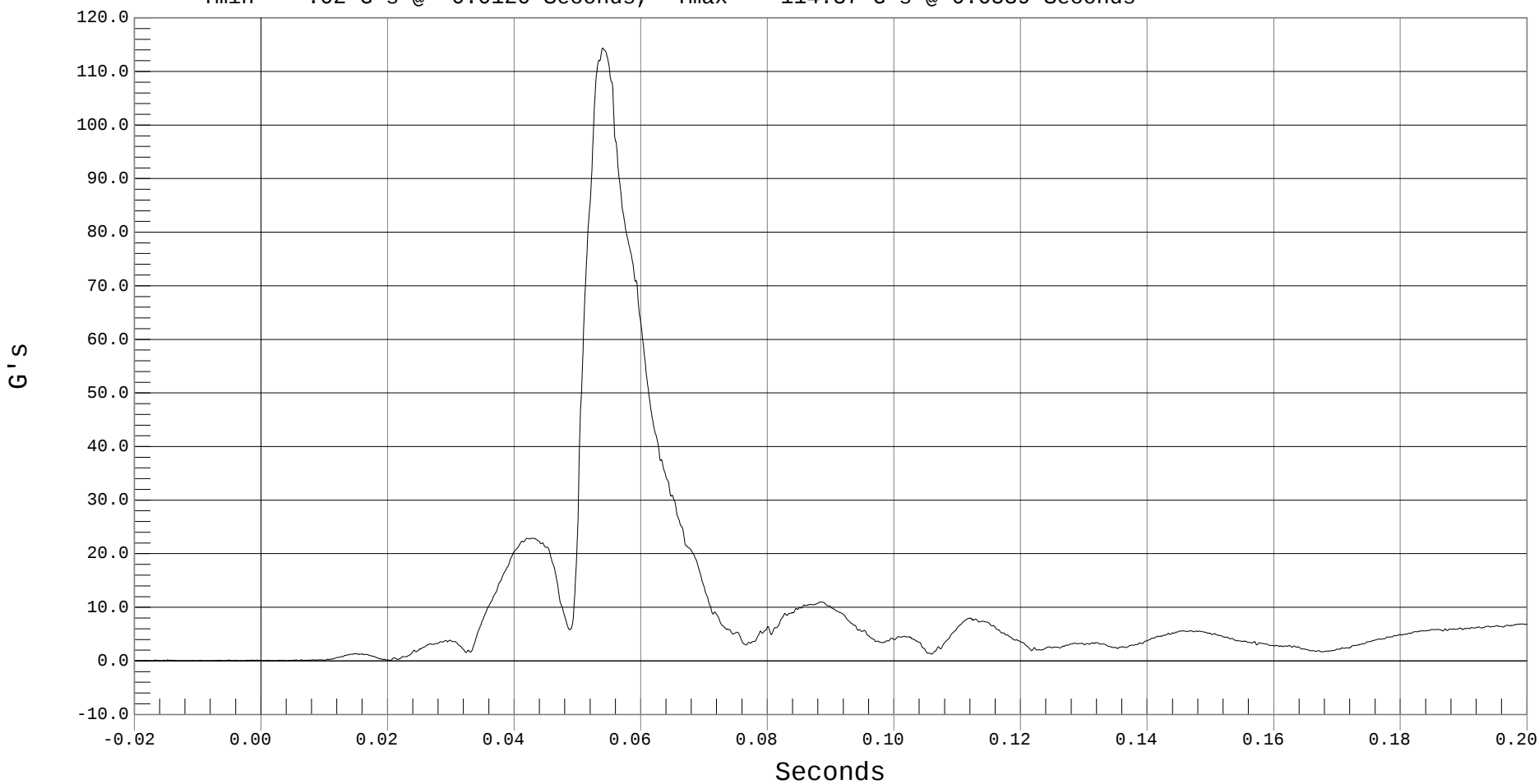
RIGHT REAR PASSENGER HEAD RESULTANT ACCELERATION

Test Desc.: FMVSS 214 SIDE IMPACT
Component: 1996 PONTIAC GRAND AM
Other Info:

Test Date: 05-04-01
Speed: 33.0 MPH, 53.1 KPH
Filter Class: 1000

— 1 RIGHT REAR PASSENGER HEAD RESULTANT ACCELERATION, b01052AV.A08

Ymin = .02 G's @ -0.0120 Seconds, Ymax = 114.37 G's @ 0.0539 Seconds





RIGHT REAR PASSENGER UPPER RIB Y ACCELERATION

Test Desc.: FMVSS 214 SIDE IMPACT

Component: 1996 PONTIAC GRAND AM

Other Info:

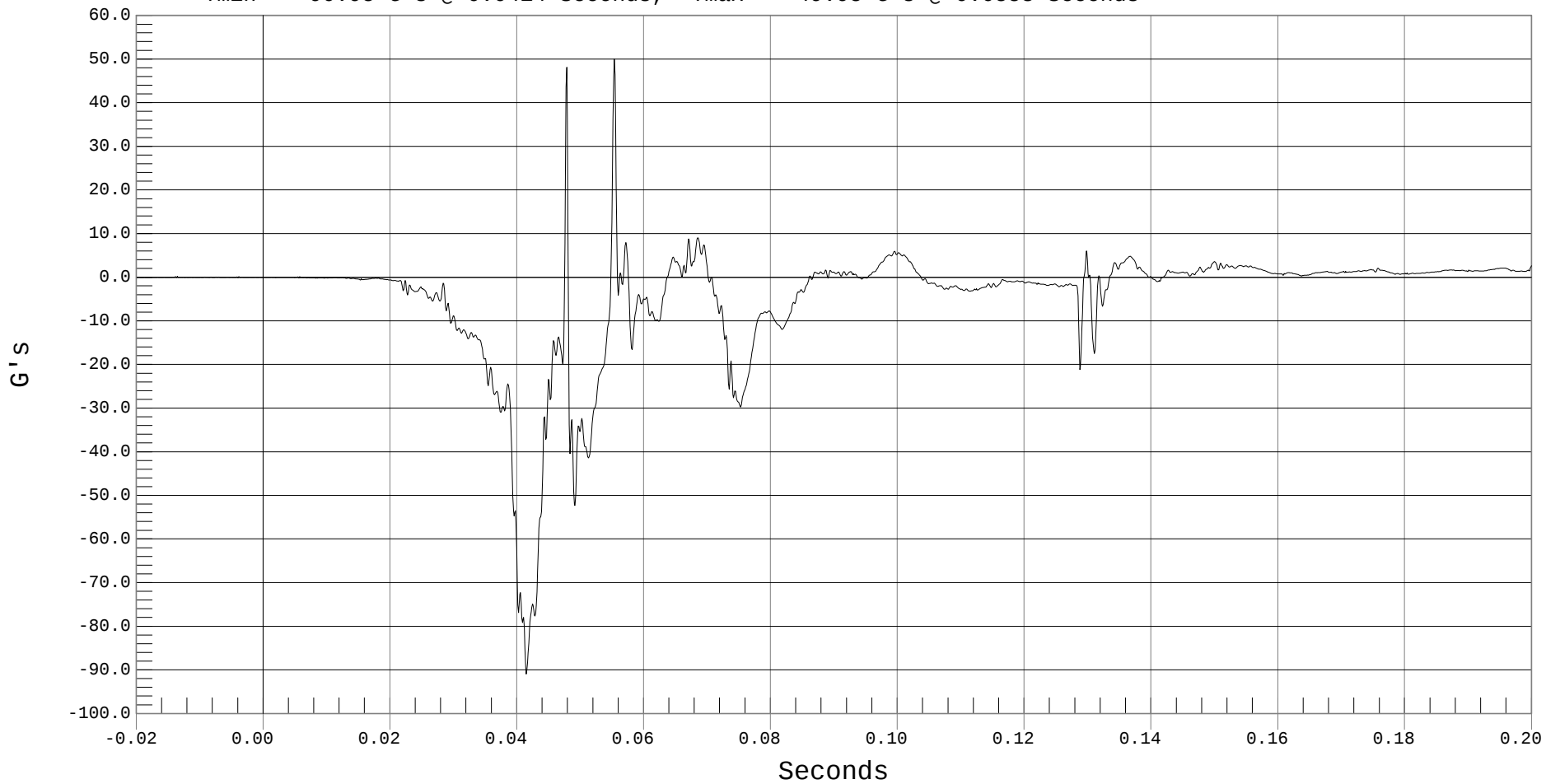
Test Date: 05-04-01

Speed: 33.0 MPH, 53.1 KPH

Filter Class: 1000

— 1 RIGHT REAR PASSENGER UPPER RIB Y ACCELERATION, b01052AT.A11

Ymin = -90.95 G's @ 0.0414 Seconds, Ymax = 49.95 G's @ 0.0553 Seconds





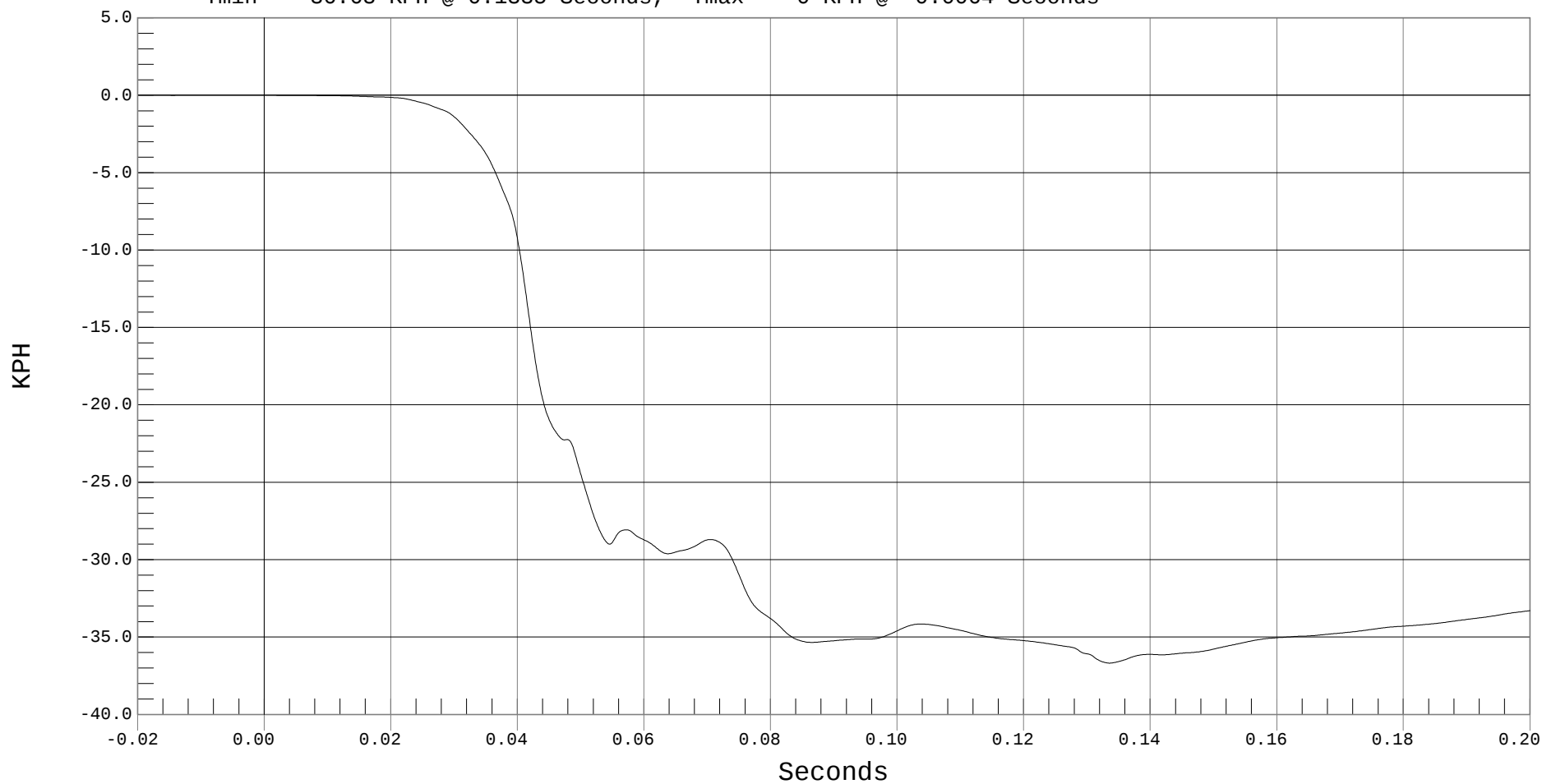
RIGHT REAR PASSENGER UPPER RIB Y VELOCITY

Test Desc.: FMVSS 214 SIDE IMPACT
Component: 1996 PONTIAC GRAND AM
Other Info:

Test Date: 05-04-01
Speed: 33.0 MPH, 53.1 KPH
Filter Class: 180

1 RIGHT REAR PASSENGER UPPER RIB Y VELOCITY, b01052AI.V11

Ymin = -36.68 KPH @ 0.1335 Seconds, Ymax = 0 KPH @ -0.0064 Seconds





RIGHT REAR PASSENGER LOWER RIB Y ACCELERATION

Test Desc.: FMVSS 214 SIDE IMPACT

Component: 1996 PONTIAC GRAND AM

Other Info:

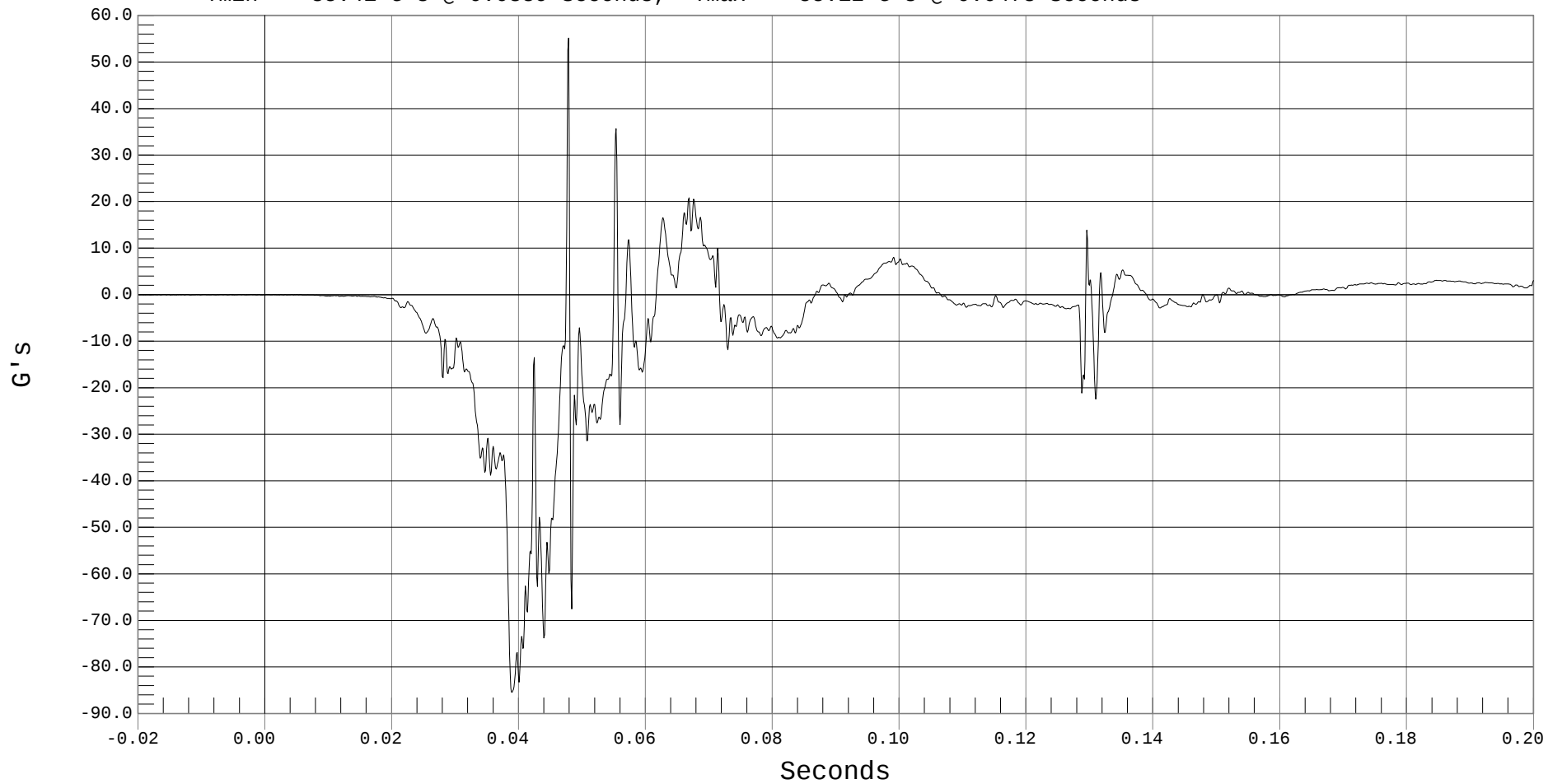
Test Date: 05-04-01

Speed: 33.0 MPH, 53.1 KPH

Filter Class: 1000

— 1 RIGHT REAR PASSENGER LOWER RIB Y ACCELERATION, b01052AT.A12

Ymin = -85.41 G's @ 0.0389 Seconds, Ymax = 55.12 G's @ 0.0478 Seconds





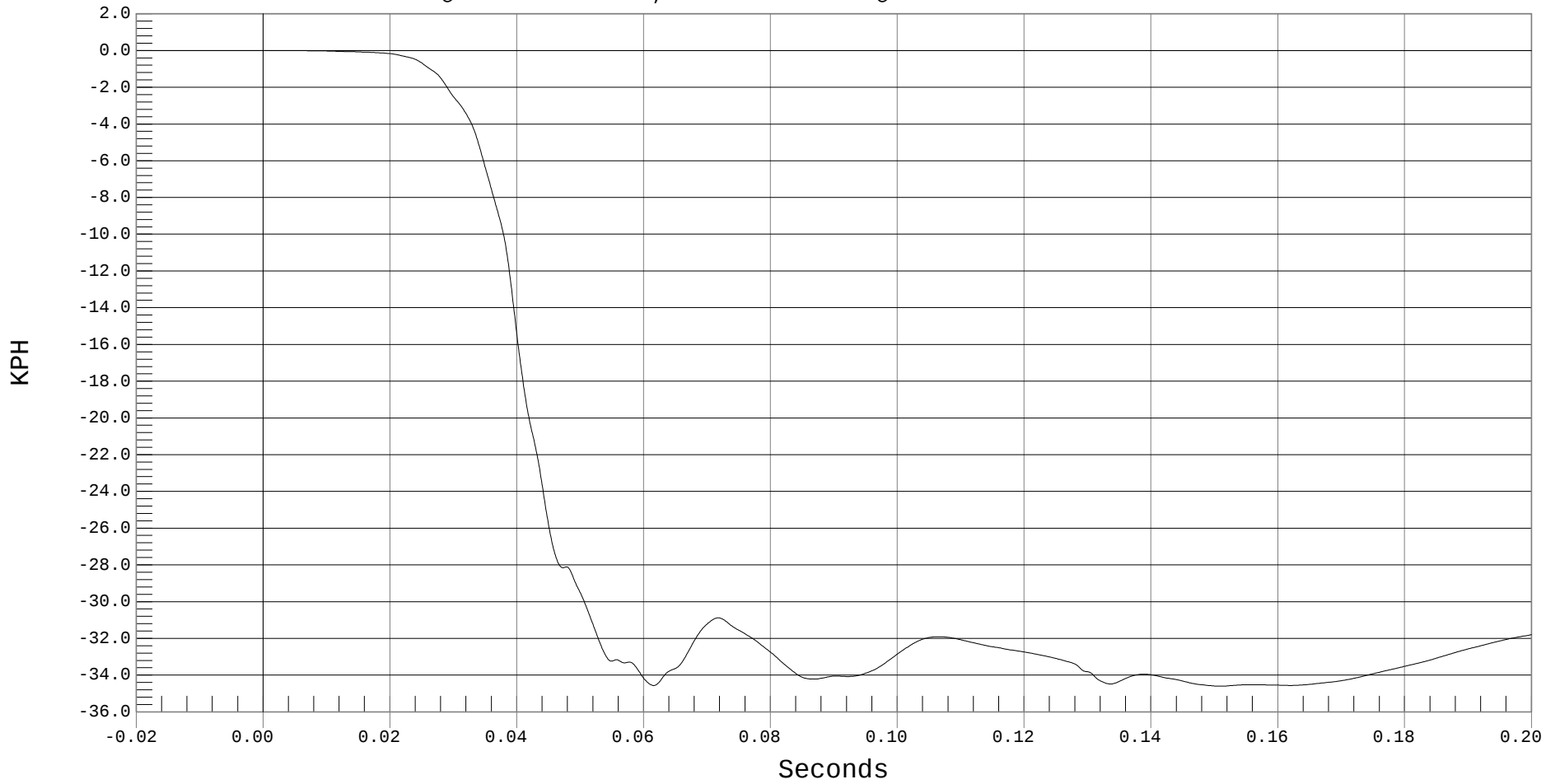
RIGHT REAR PASSENGER LOWER RIB Y VELOCITY

Test Desc.: FMVSS 214 SIDE IMPACT
Component: 1996 PONTIAC GRAND AM
Other Info:

Test Date: 05-04-01
Speed: 33.0 MPH, 53.1 KPH
Filter Class: 180

— 1 RIGHT REAR PASSENGER LOWER RIB Y VELOCITY, b01052AI.V12

Ymin = -34.61 KPH @ 0.1509 Seconds, Ymax = 0 KPH @ -0.0174 Seconds





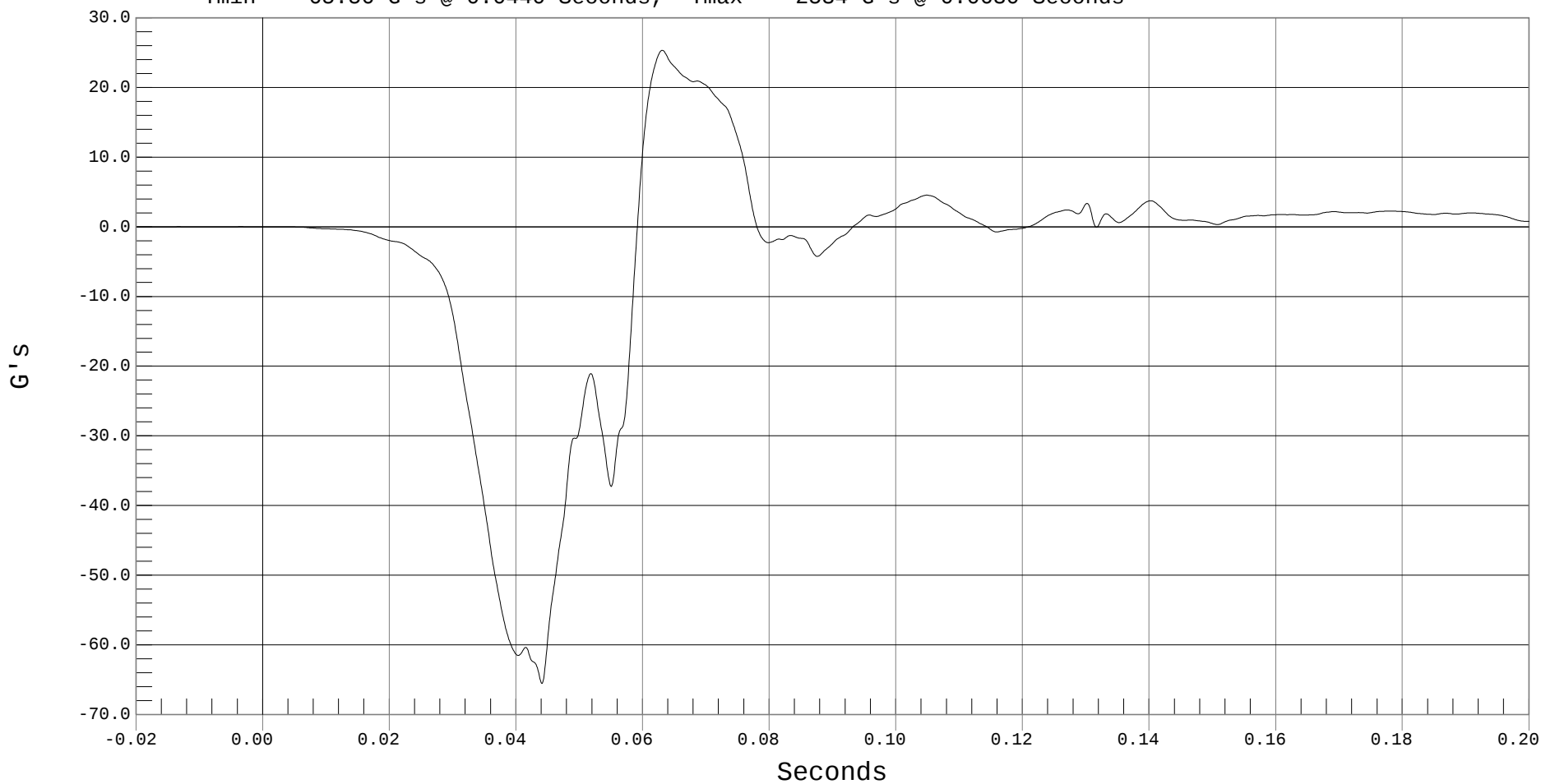
RIGHT REAR PASSENGER LOWER SPINE Y ACCELERATION

Test Desc.: FMVSS 214 SIDE IMPACT
Component: 1996 PONTIAC GRAND AM
Other Info:

Test Date: 05-04-01
Speed: 33.0 MPH, 53.1 KPH
Filter Class: 1000

1 RIGHT REAR PASSENGER LOWER SPINE Y ACCELERATION, b01052AF.A13

Ymin = -65.56 G's @ 0.0440 Seconds, Ymax = 2534 G's @ 0.0630 Seconds





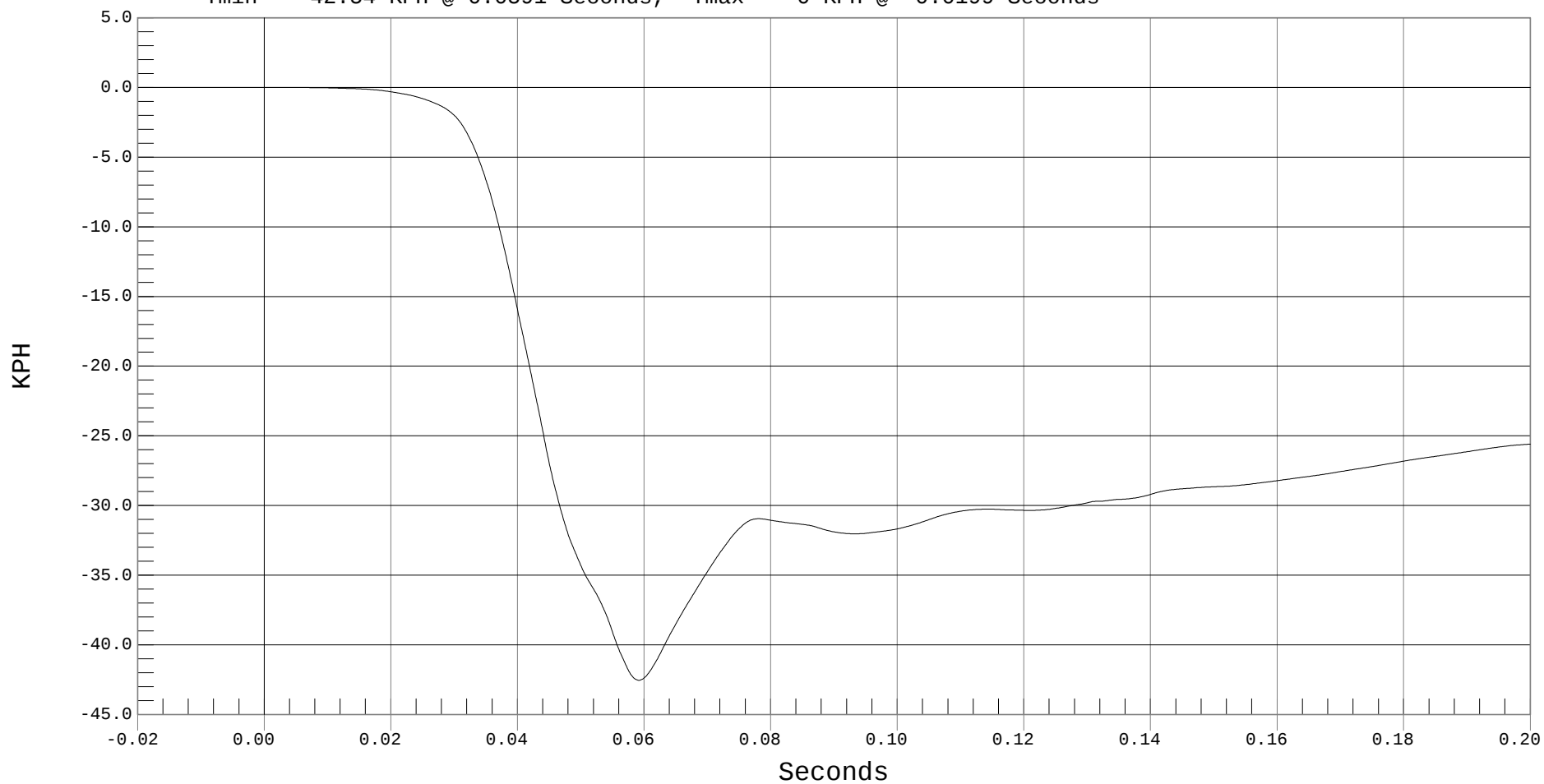
RIGHT REAR PASSENGER LOWER SPINE Y VELOCITY

Test Desc.: FMVSS 214 SIDE IMPACT
Component: 1996 PONTIAC GRAND AM
Other Info:

Test Date: 05-04-01
Speed: 33.0 MPH, 53.1 KPH
Filter Class: 180

1 RIGHT REAR PASSENGER LOWER SPINE Y VELOCITY, b01052AI.V13

Ymin = -42.54 KPH @ 0.0591 Seconds, Ymax = 0 KPH @ -0.0199 Seconds





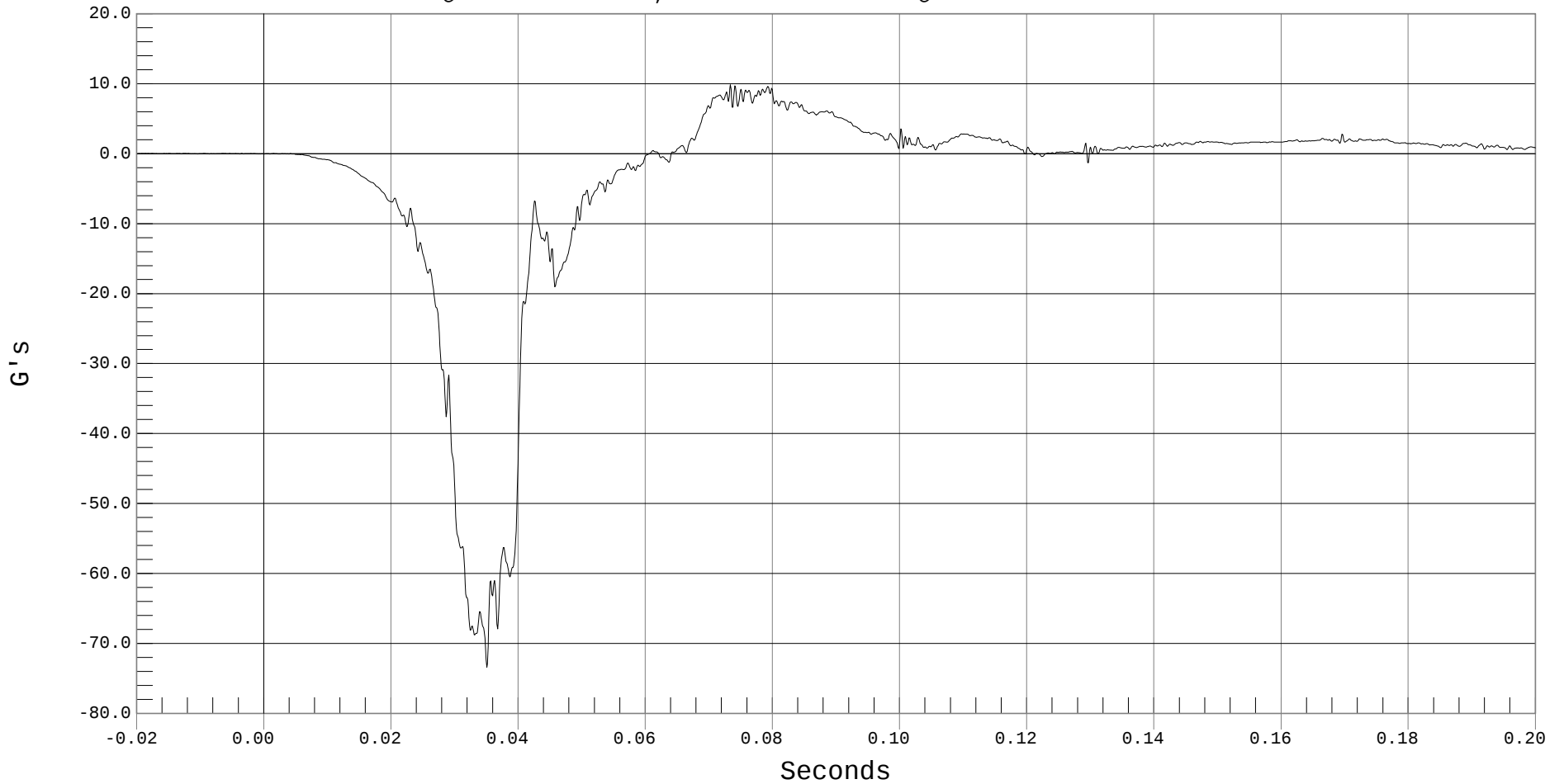
RIGHT REAR PASSENGER PELVIS Y ACCELERATION

Test Desc.: FMVSS 214 SIDE IMPACT
Component: 1996 PONTIAC GRAND AM
Other Info:

Test Date: 05-04-01
Speed: 33.0 MPH, 53.1 KPH
Filter Class: 1000

1 RIGHT REAR PASSENGER PELVIS Y ACCELERATION, b01052AT.A14

Ymin = -73.38 G's @ 0.0350 Seconds, Ymax = 9.85 G's @ 0.0733 Seconds





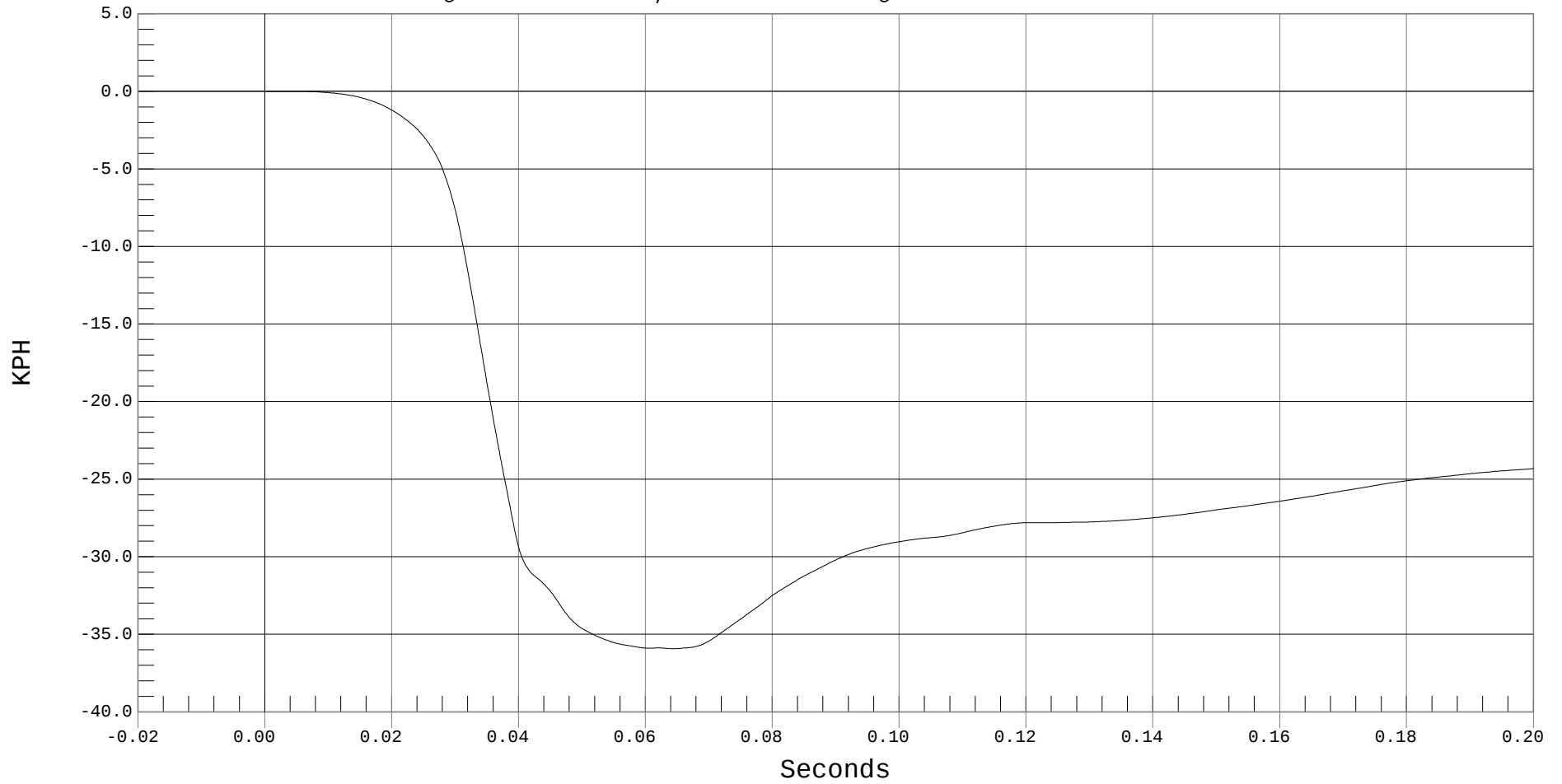
RIGHT REAR PASSENGER PELVIS Y VELOCITY

Test Desc.: FMVSS 214 SIDE IMPACT
Component: 1996 PONTIAC GRAND AM
Other Info:

Test Date: 05-04-01
Speed: 33.0 MPH, 53.1 KPH
Filter Class: 180

1 RIGHT REAR PASSENGER PELVIS Y VELOCITY, b01052AI.V14

Ymin = -35.93 KPH @ 0.0643 Seconds, Ymax = 0 KPH @ -0.0118 Seconds





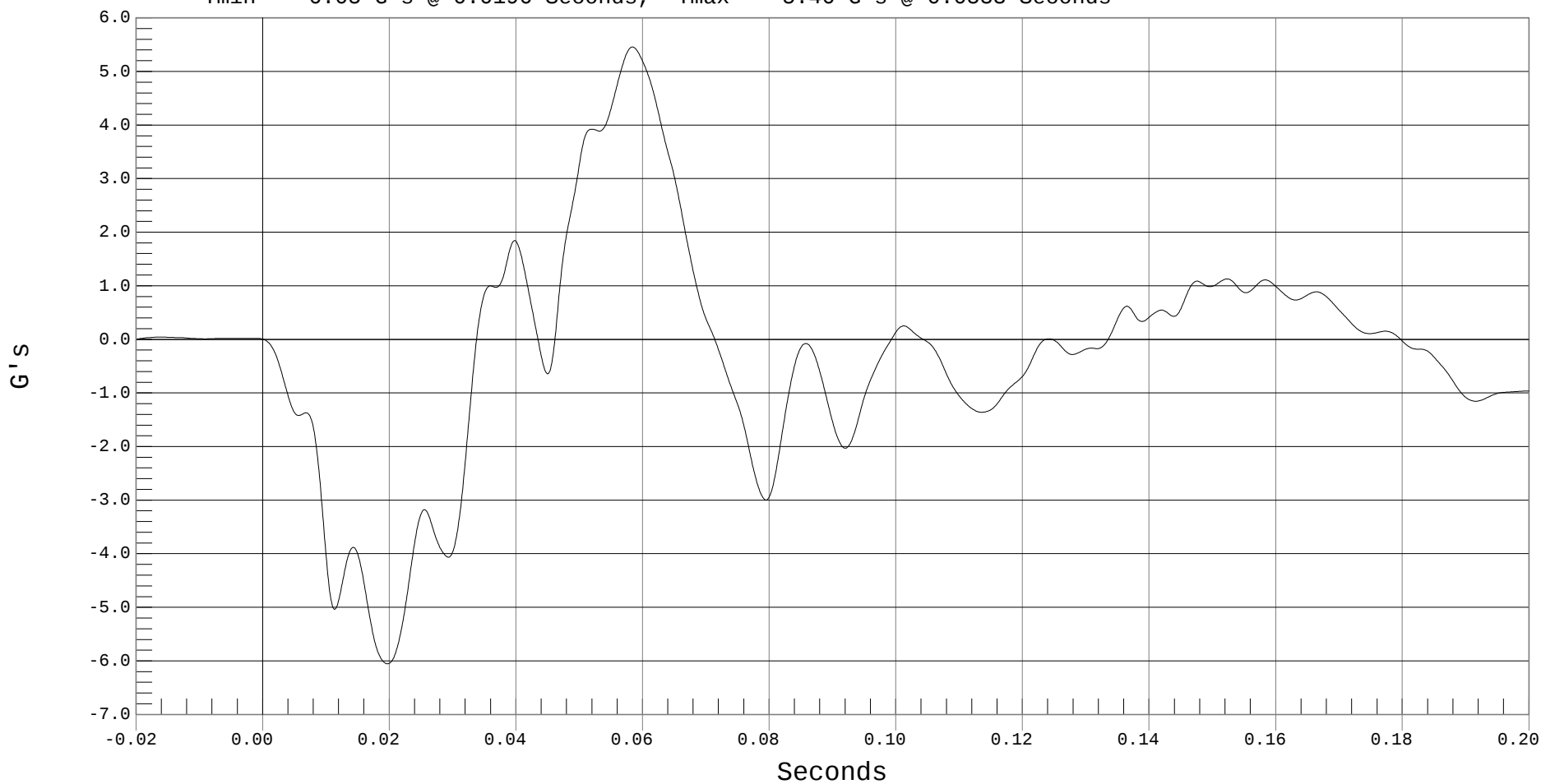
LEFT SIDE SILL AT FRONT SEAT X ACCELERATION

Test Desc.: FMVSS 214 SIDE IMPACT
Component: 1996 PONTIAC GRAND AM
Other Info:

Test Date: 05-04-01
Speed: 33.0 MPH, 53.1 KPH
Filter Class: 60

— 1 LEFT SIDE SILL AT FRONT SEAT X ACCELERATION, b01052AF.A15

Ymin = -6.05 G's @ 0.0196 Seconds, Ymax = 5.46 G's @ 0.0583 Seconds





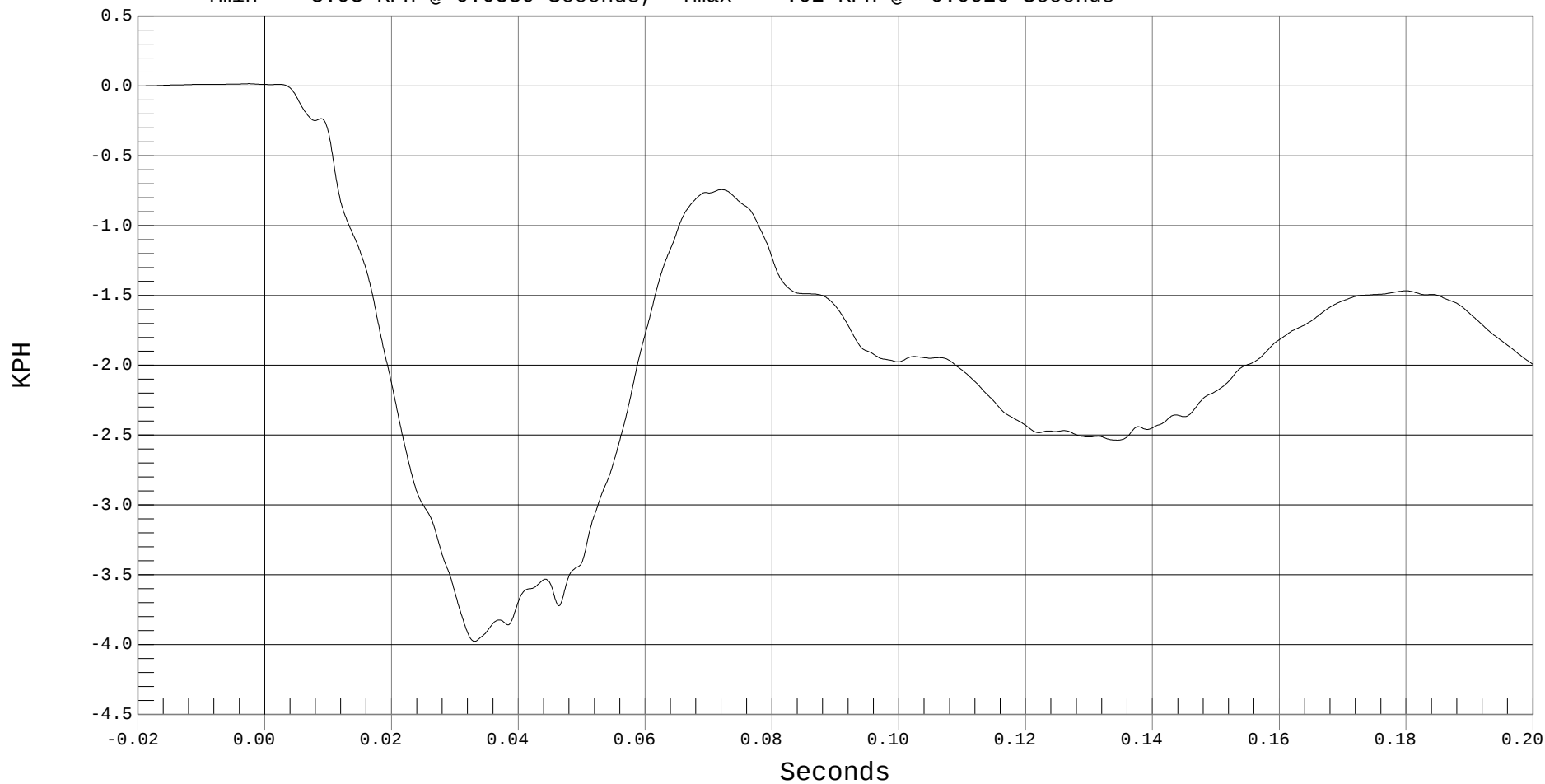
LEFT SIDE SILL AT FRONT SEAT X VELOCITY

Test Desc.: FMVSS 214 SIDE IMPACT
Component: 1996 PONTIAC GRAND AM
Other Info:

Test Date: 05-04-01
Speed: 33.0 MPH, 53.1 KPH
Filter Class: 180

— 1 LEFT SIDE SILL AT FRONT SEAT X VELOCITY, b01052AI.V15

Ymin = -3.98 KPH @ 0.0330 Seconds, Ymax = .02 KPH @ -0.0026 Seconds





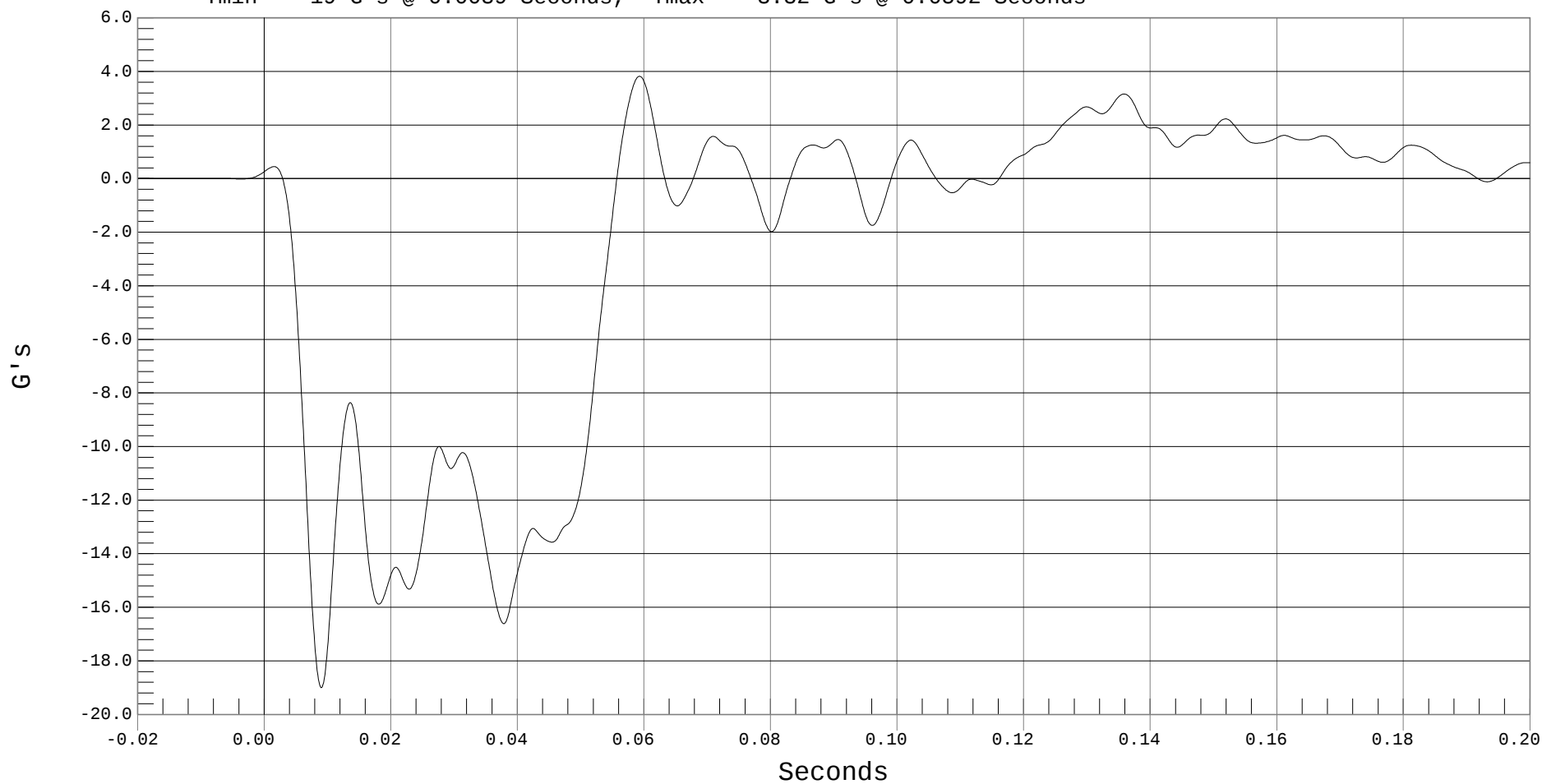
LEFT SIDE SILL AT FRONT SEAT Y ACCELERATION

Test Desc.: FMVSS 214 SIDE IMPACT
Component: 1996 PONTIAC GRAND AM
Other Info:

Test Date: 05-04-01
Speed: 33.0 MPH, 53.1 KPH
Filter Class: 60

— 1 LEFT SIDE SILL AT FRONT SEAT Y ACCELERATION, b01052AF.A16

Ymin = -19 G's @ 0.0089 Seconds, Ymax = 3.82 G's @ 0.0592 Seconds





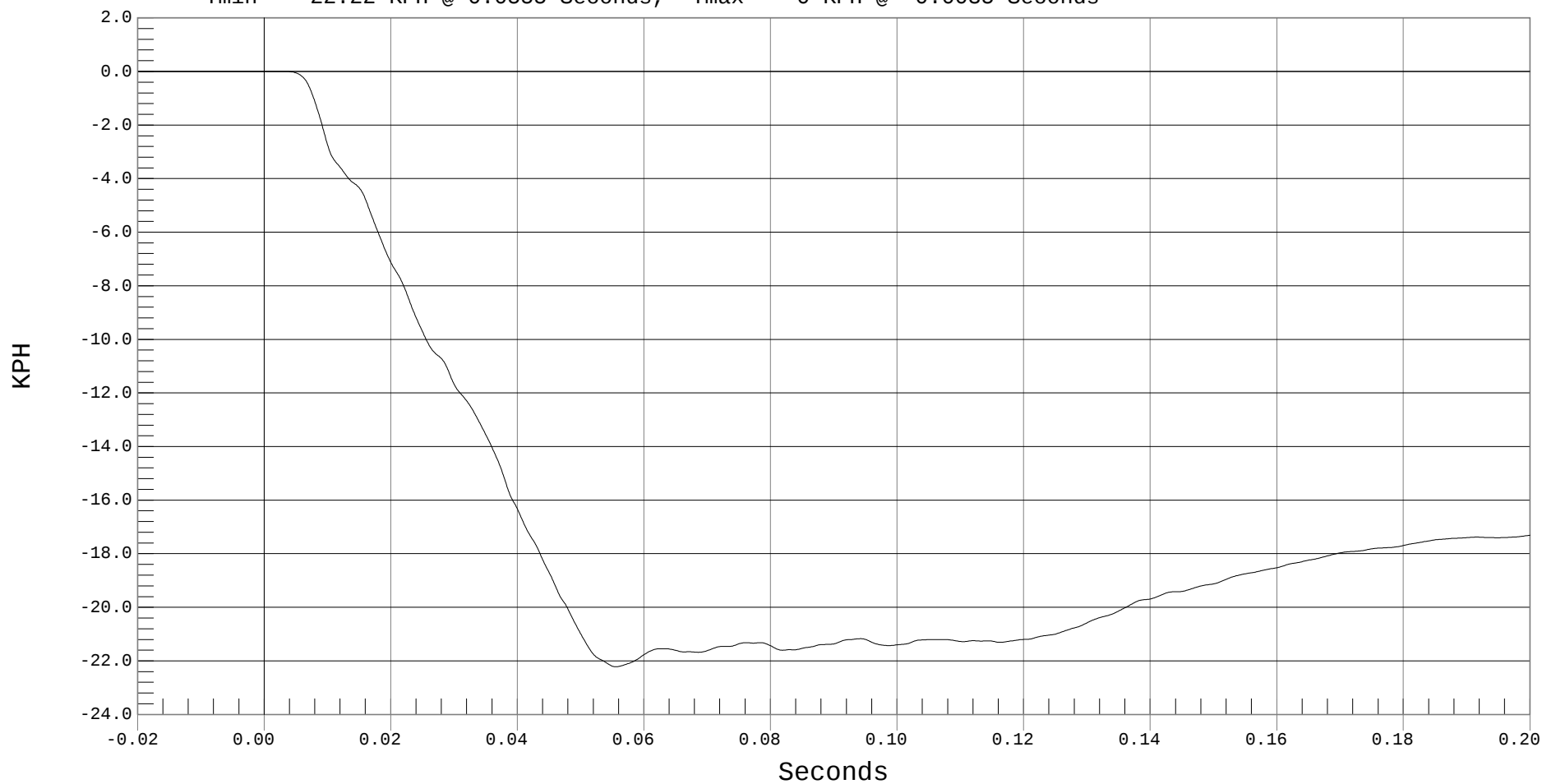
LEFT SIDE SILL AT FRONT SEAT Y VELOCITY

Test Desc.: FMVSS 214 SIDE IMPACT
Component: 1996 PONTIAC GRAND AM
Other Info:

Test Date: 05-04-01
Speed: 33.0 MPH, 53.1 KPH
Filter Class: 180

— 1 LEFT SIDE SILL AT FRONT SEAT Y VELOCITY, b01052AI.V16

Ymin = -22.22 KPH @ 0.0555 Seconds, Ymax = 0 KPH @ -0.0035 Seconds





LEFT SIDE SILL AT FRONT SEAT Z ACCELERATION

Test Desc.: FMVSS 214 SIDE IMPACT

Component: 1996 PONTIAC GRAND AM

Other Info:

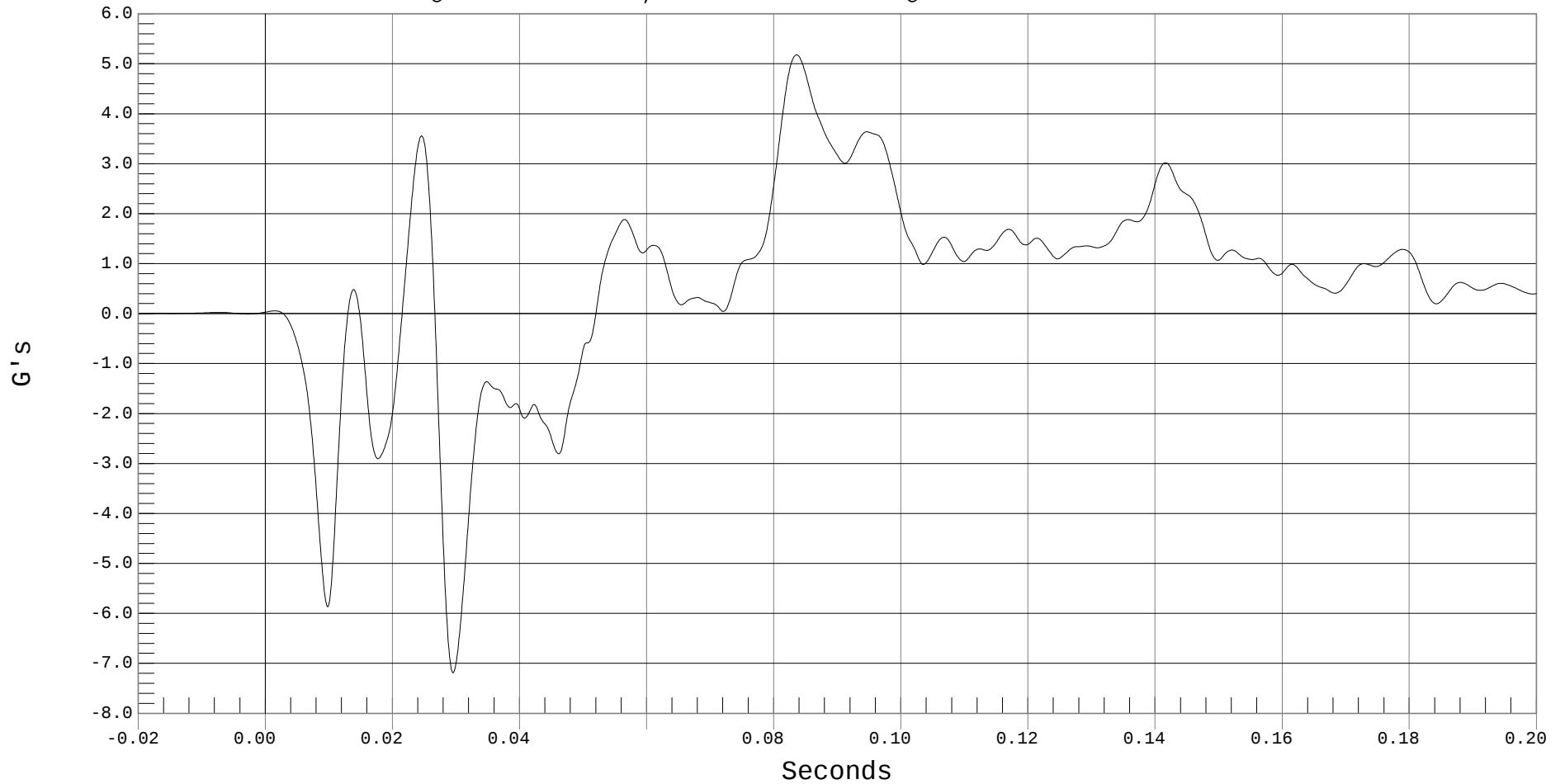
Test Date: 05-04-01

Speed: 33.0 MPH, 53.1 KPH

Filter Class: 60

— 1 LEFT SIDE SILL AT FRONT SEAT Z ACCELERATION, b01052AF.A17

Ymin = -7.19 G's @ 0.0295 Seconds, Ymax = 5.18 G's @ 0.0835 Seconds





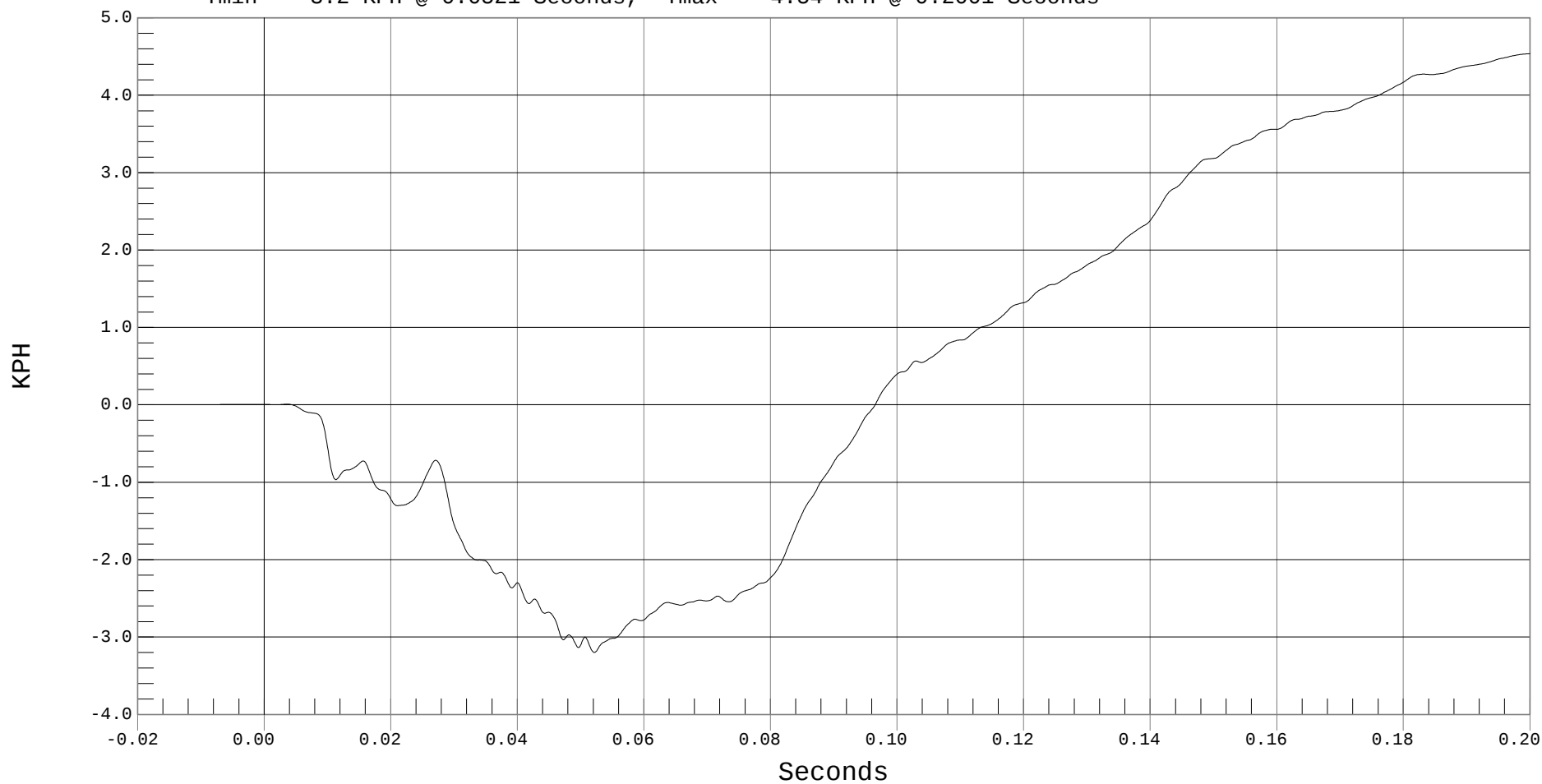
LEFT SIDE SILL AT FRONT SEAT Z VELOCITY

Test Desc.: FMVSS 214 SIDE IMPACT
Component: 1996 PONTIAC GRAND AM
Other Info:

Test Date: 05-04-01
Speed: 33.0 MPH, 53.1 KPH
Filter Class: 180

— 1 LEFT SIDE SILL AT FRONT SEAT Z VELOCITY, b01052AI.V17

Ymin = -3.2 KPH @ 0.0521 Seconds, Ymax = 4.54 KPH @ 0.2001 Seconds





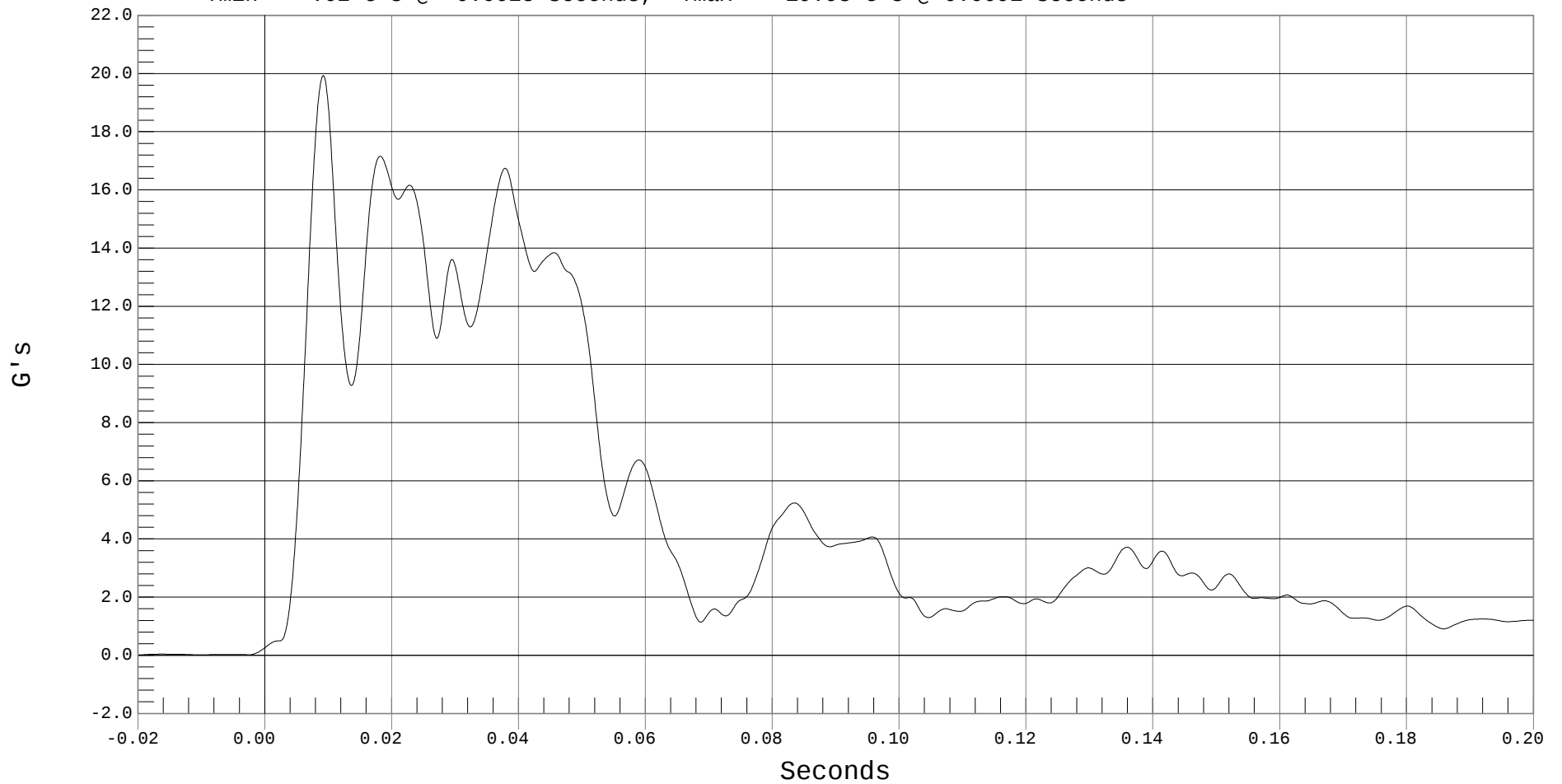
LEFT SIDE SILL AT FRONT SEAT RESULTANT ACCELERATION

Test Desc.: FMVSS 214 SIDE IMPACT
Component: 1996 PONTIAC GRAND AM
Other Info:

Test Date: 05-04-01
Speed: 33.0 MPH, 53.1 KPH
Filter Class: 60

— 1 LEFT SIDE SILL AT FRONT SEAT RESULTANT ACCELERATION, b01052AV.A15

Ymin = .02 G's @ -0.0025 Seconds, Ymax = 19.93 G's @ 0.0091 Seconds





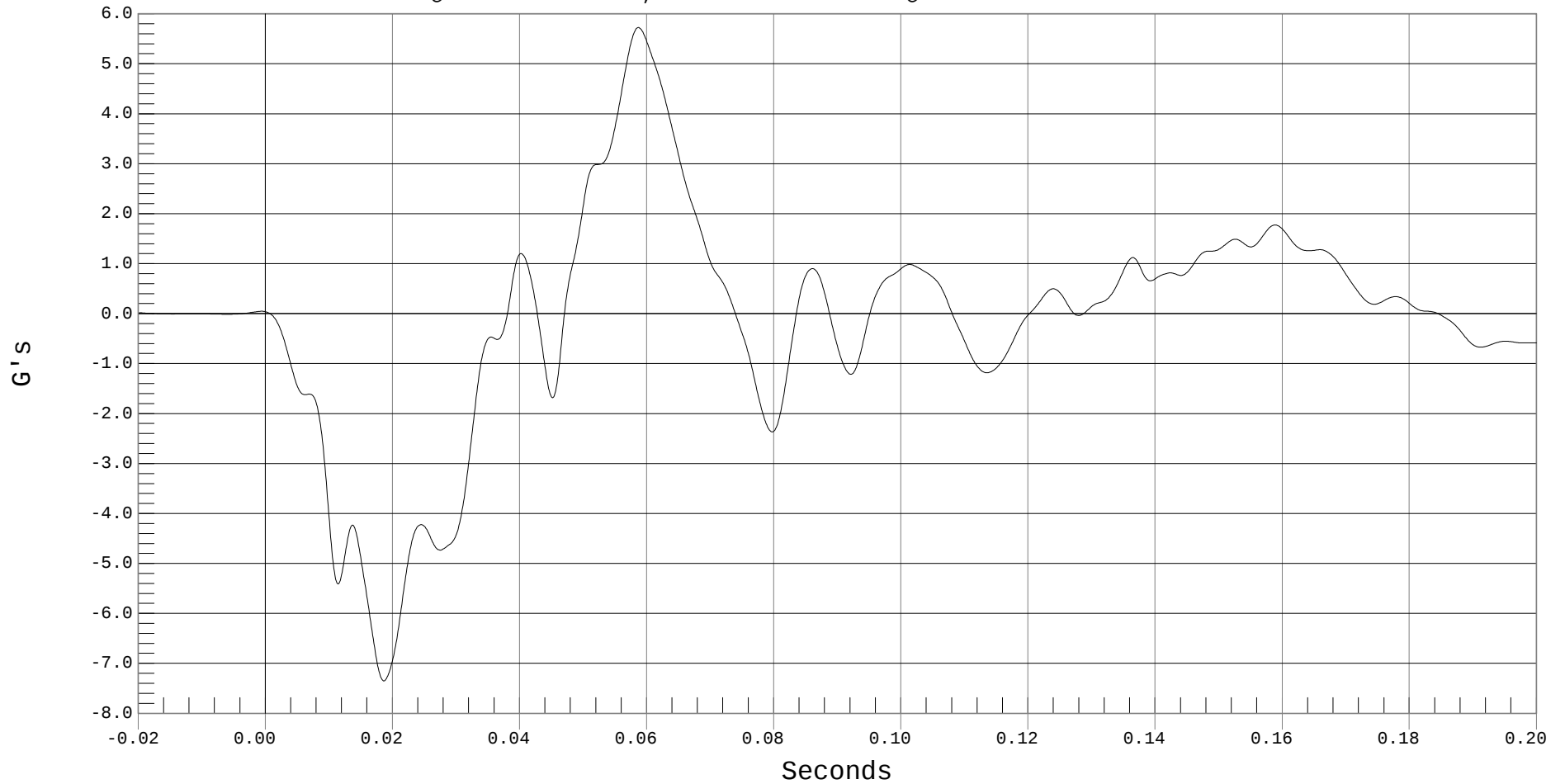
LEFT SIDE SILL AT REAR SEAT X ACCELERATION

Test Desc.: FMVSS 214 SIDE IMPACT
Component: 1996 PONTIAC GRAND AM
Other Info:

Test Date: 05-04-01
Speed: 33.0 MPH, 53.1 KPH
Filter Class: 60

— 1 LEFT SIDE SILL AT REAR SEAT X ACCELERATION, b01052AF.A18

Ymin = -7.35 G's @ 0.0186 Seconds, Ymax = 5.73 G's @ 0.0586 Seconds





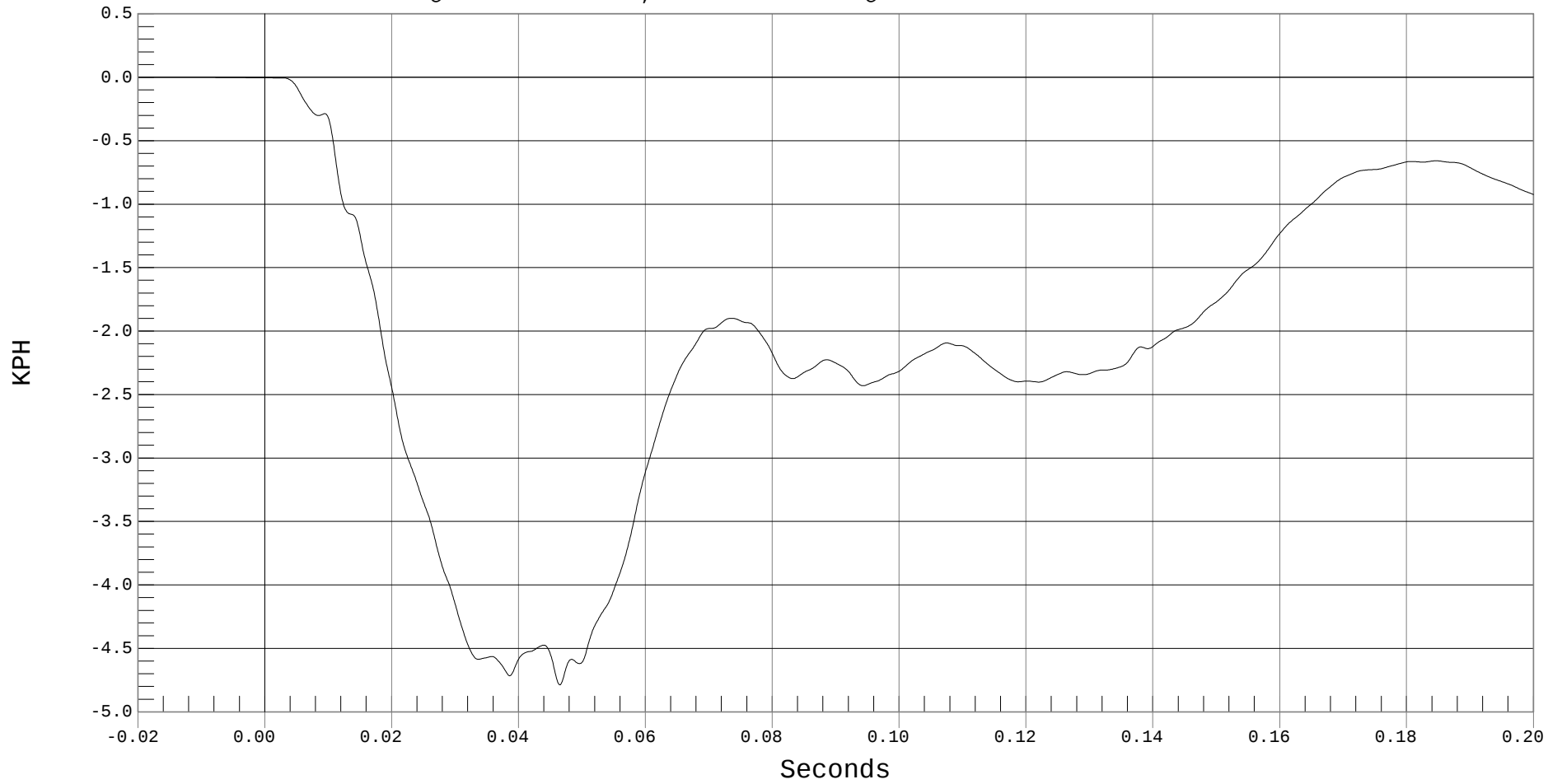
LEFT SIDE SILL AT RIGHT REAR SEAT X VELOCITY

Test Desc.: FMVSS 214 SIDE IMPACT
Component: 1996 PONTIAC GRAND AM
Other Info:

Test Date: 05-04-01
Speed: 33.0 MPH, 53.1 KPH
Filter Class: 180

— 1 LEFT SIDE SILL AT RIGHT REAR SEAT X VELOCITY, b01052AI.V18

Ymin = -4.79 KPH @ 0.0464 Seconds, Ymax = 0 KPH @ -0.0171 Seconds





LEFT SIDE SILL AT REAR SEAT Y ACCELERATION

Test Desc.: FMVSS 214 SIDE IMPACT

Component: 1996 PONTIAC GRAND AM

Other Info:

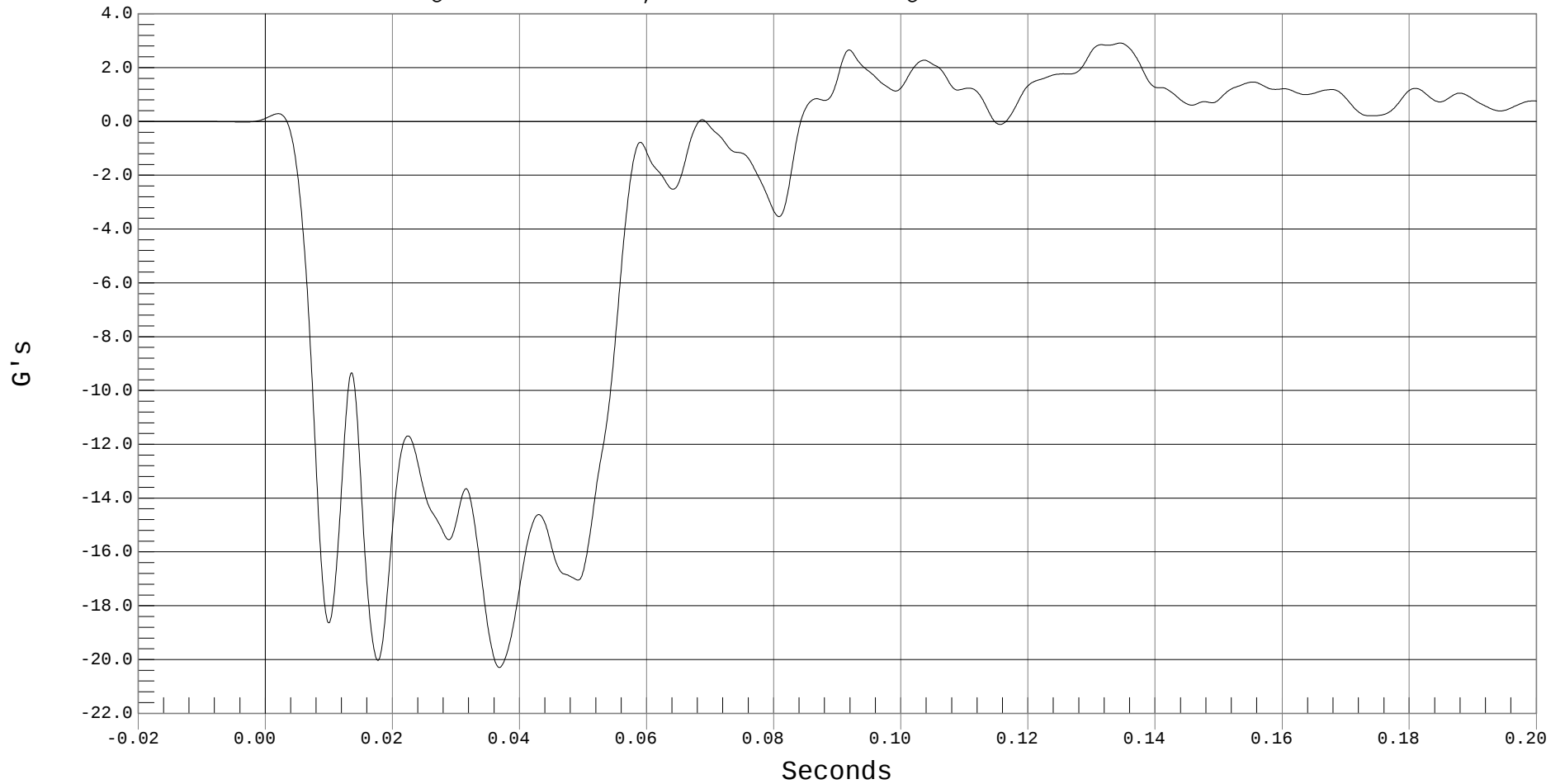
Test Date: 05-04-01

Speed: 33.0 MPH, 53.1 KPH

Filter Class: 60

— 1 LEFT SIDE SILL AT REAR SEAT Y ACCELERATION, b01052AF.A19

Ymin = -20.3 G's @ 0.0367 Seconds, Ymax = 2.91 G's @ 0.1344 Seconds





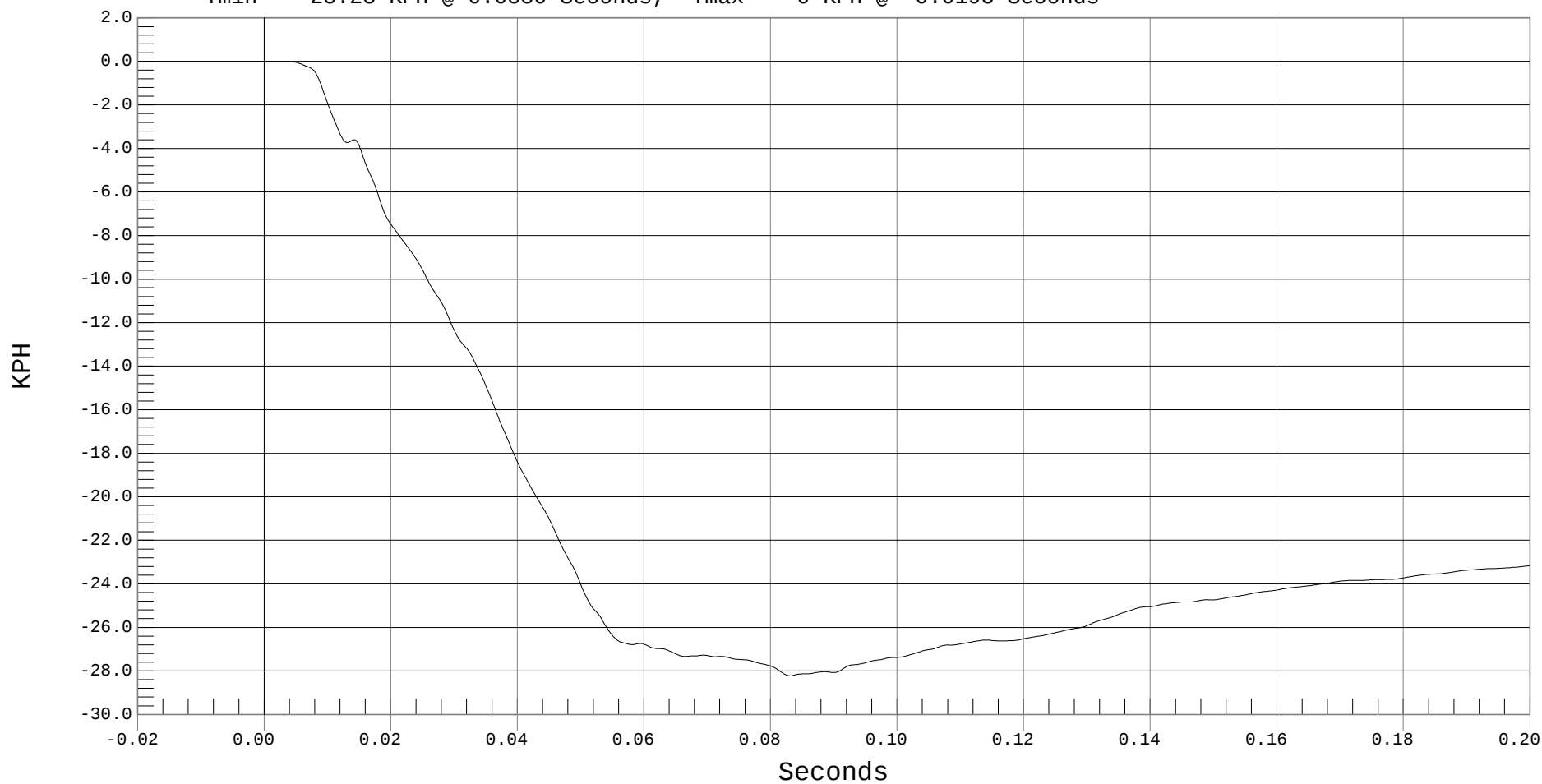
LEFT SIDE SILL AT RIGHT REAR SEAT Y VELOCITY

Test Desc.: FMVSS 214 SIDE IMPACT
Component: 1996 PONTIAC GRAND AM
Other Info:

Test Date: 05-04-01
Speed: 33.0 MPH, 53.1 KPH
Filter Class: 180

— 1 LEFT SIDE SILL AT RIGHT REAR SEAT Y VELOCITY, b01052AI.V19

Ymin = -28.23 KPH @ 0.0830 Seconds, Ymax = 0 KPH @ -0.0198 Seconds





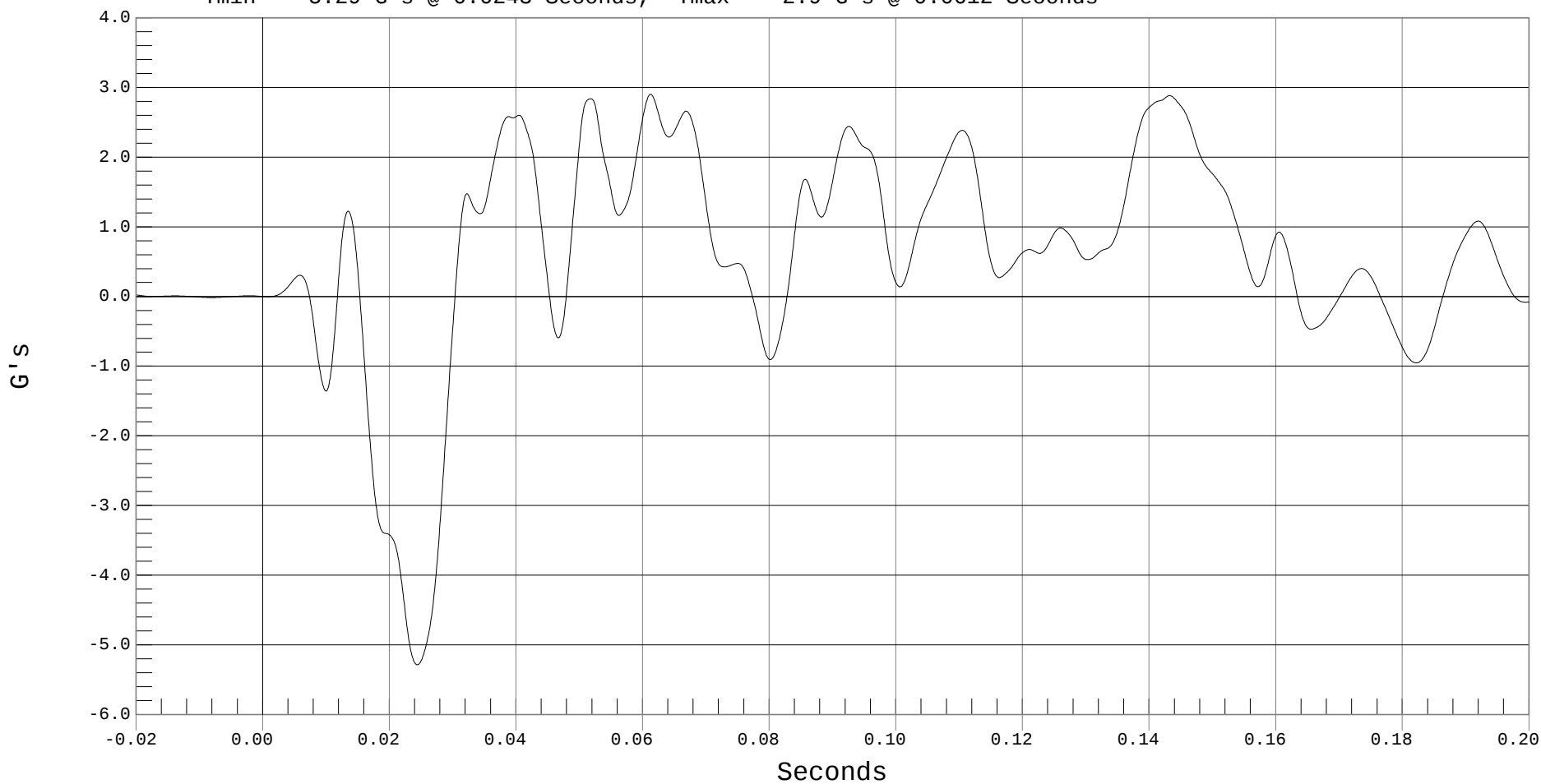
LEFT SIDE SILL AT REAR SEAT Z ACCELERATION

Test Desc.: FMVSS 214 SIDE IMPACT
Component: 1996 PONTIAC GRAND AM
Other Info:

Test Date: 05-04-01
Speed: 33.0 MPH, 53.1 KPH
Filter Class: 60

— 1 LEFT SIDE SILL AT REAR SEAT Z ACCELERATION, b01052AF.A20

Ymin = -5.29 G's @ 0.0243 Seconds, Ymax = 2.9 G's @ 0.0612 Seconds





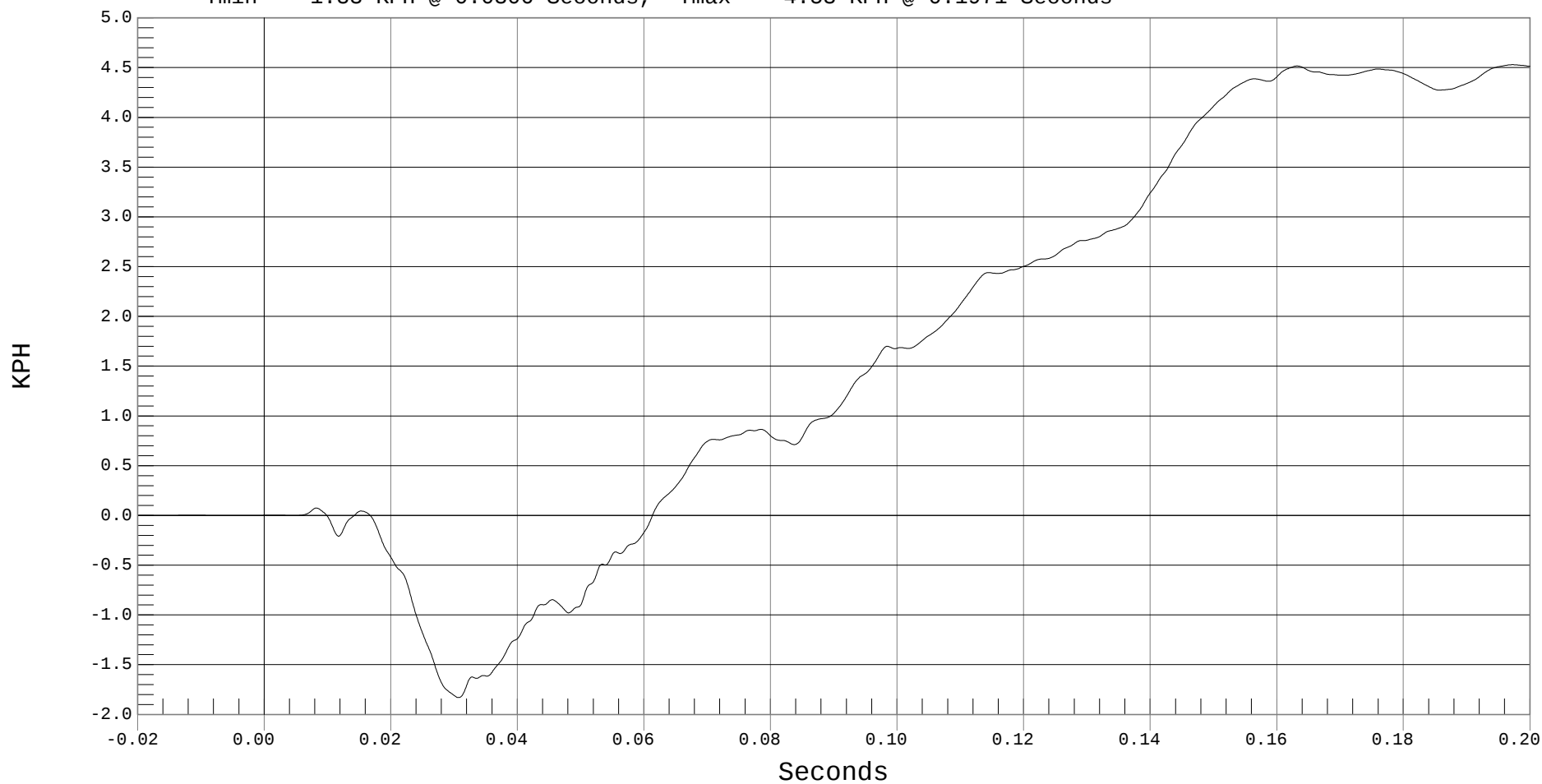
LEFT SIDE SILL AT RIGHT REAR SEAT Z VELOCITY

Test Desc.: FMVSS 214 SIDE IMPACT
Component: 1996 PONTIAC GRAND AM
Other Info:

Test Date: 05-04-01
Speed: 33.0 MPH, 53.1 KPH
Filter Class: 180

— 1 LEFT SIDE SILL AT RIGHT REAR SEAT Z VELOCITY, b01052AI.V20

Ymin = -1.83 KPH @ 0.0306 Seconds, Ymax = 4.53 KPH @ 0.1971 Seconds





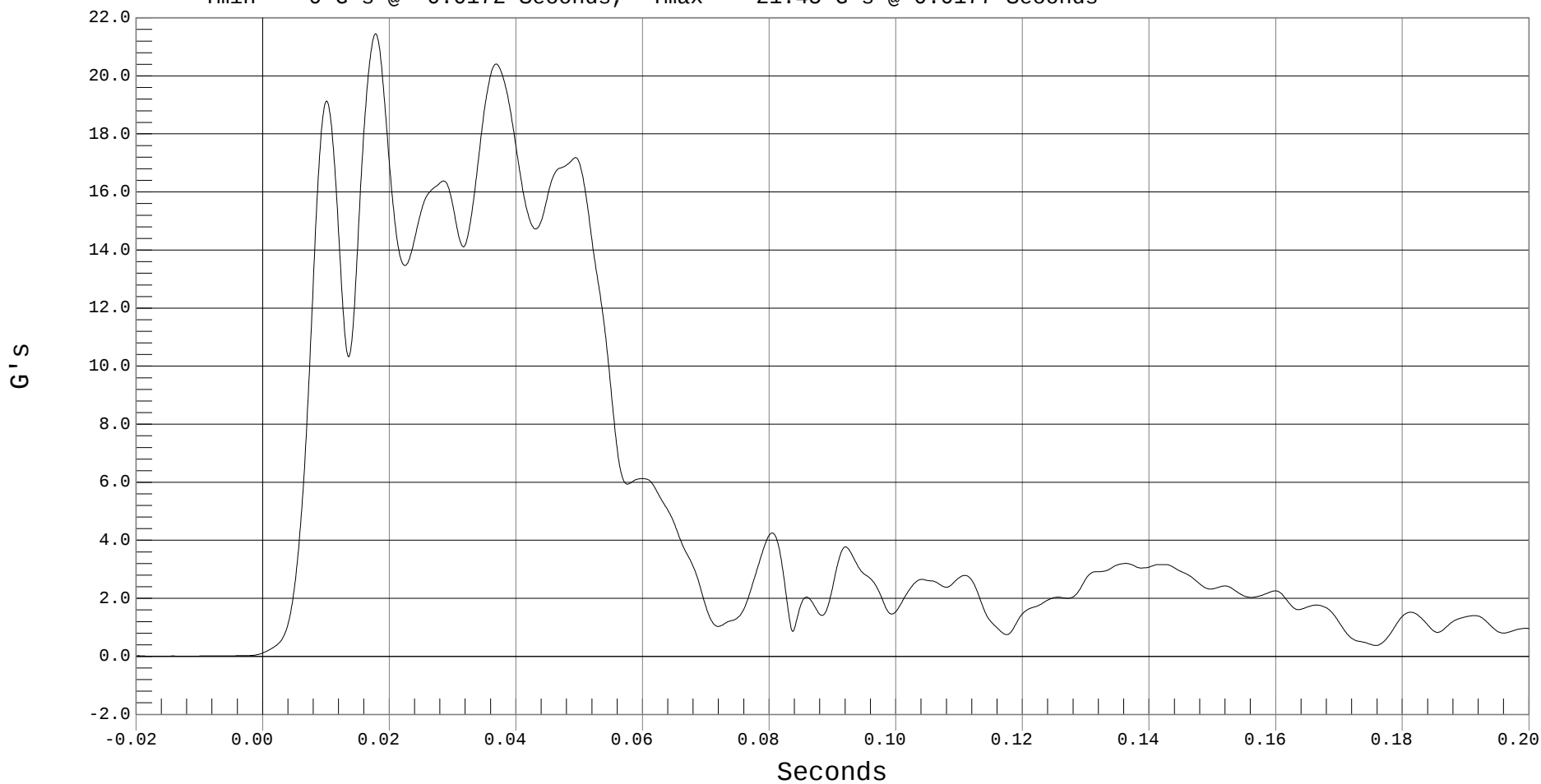
LEFT SIDE SILL AT RIGHT REAR SEAT RESULTANT ACCELERATION

Test Desc.: FMVSS 214 SIDE IMPACT
Component: 1996 PONTIAC GRAND AM
Other Info:

Test Date: 05-04-01
Speed: 33.0 MPH, 53.1 KPH
Filter Class: 60

— 1 LEFT SIDE SILL AT RIGHT REAR SEAT RESULTANT ACCELERATION, b01052AV.A18

Ymin = 0 G's @ -0.0172 Seconds, Ymax = 21.45 G's @ 0.0177 Seconds





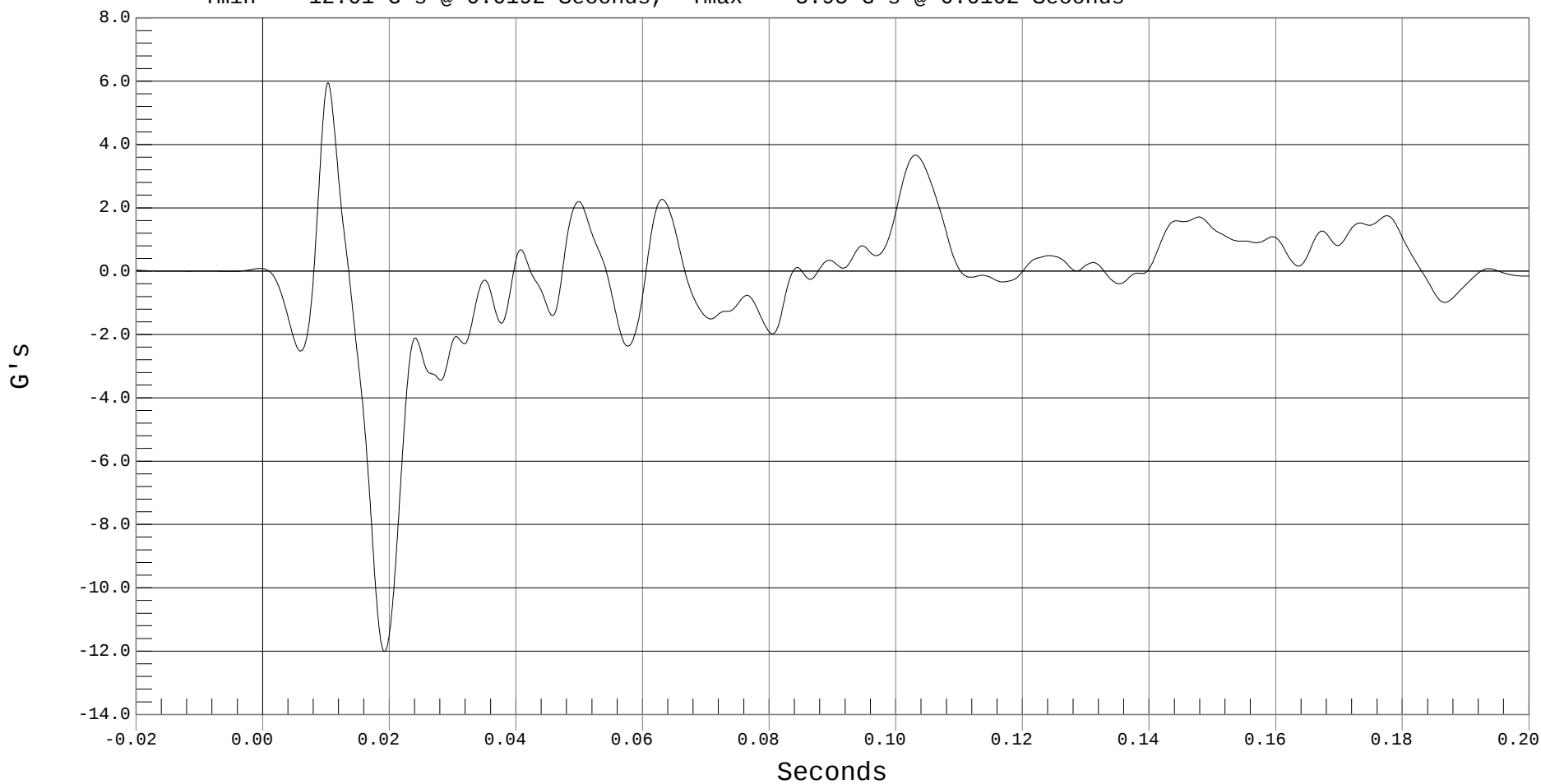
REAR FLOORPAN ABOVE AXLE X ACCELERATION

Test Desc.: FMVSS 214 SIDE IMPACT
Component: 1996 PONTIAC GRAND AM
Other Info:

Test Date: 05-04-01
Speed: 33.0 MPH, 53.1 KPH
Filter Class: 60

1 REAR FLOORPAN ABOVE AXLE X ACCELERATION, b01052AF.A23

Ymin = -12.01 G's @ 0.0192 Seconds, Ymax = 5.95 G's @ 0.0102 Seconds





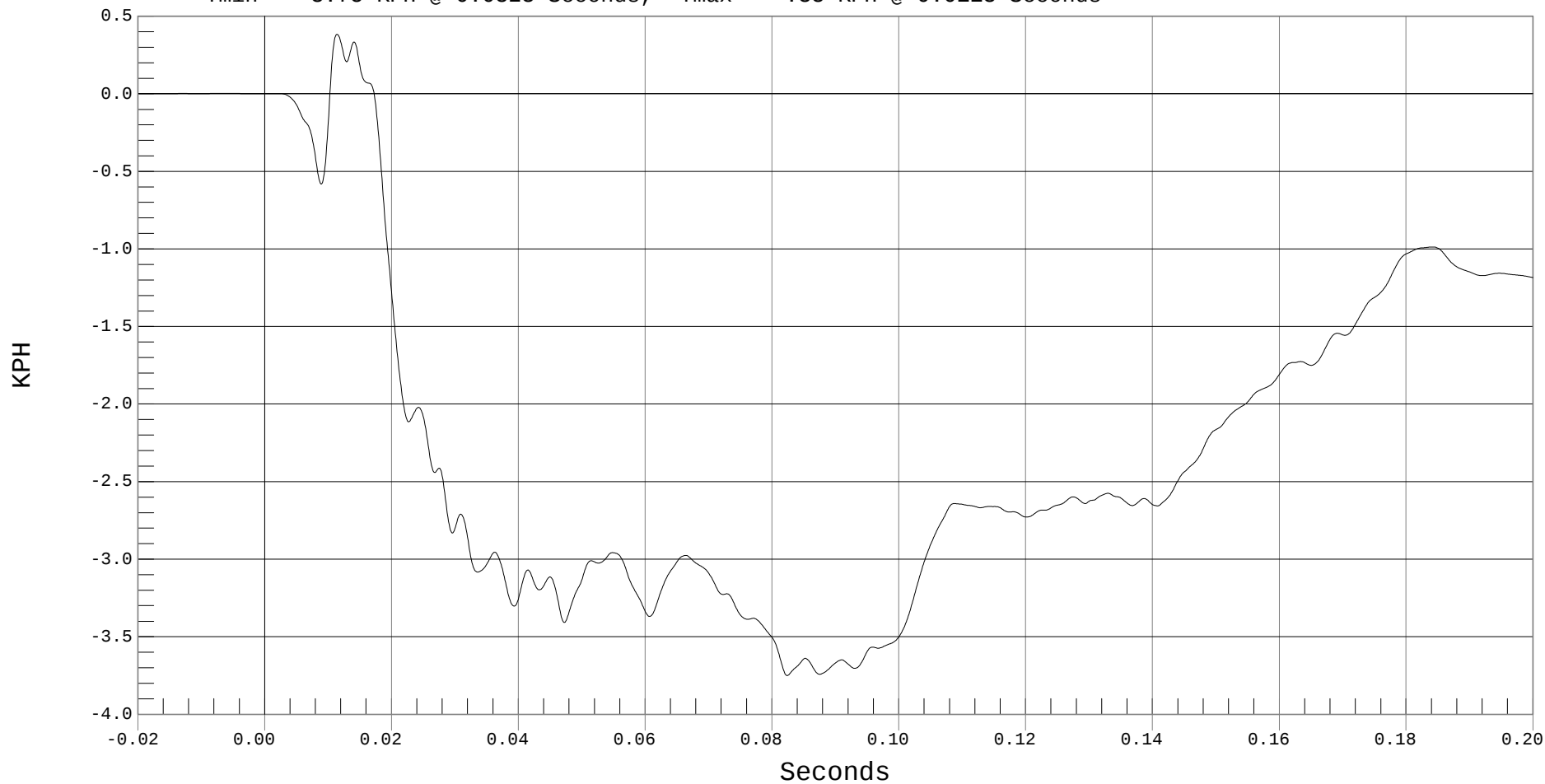
REAR FLOORPAN ABOVE AXLE X VELOCITY

Test Desc.: FMVSS 214 SIDE IMPACT
Component: 1996 PONTIAC GRAND AM
Other Info:

Test Date: 05-04-01
Speed: 33.0 MPH, 53.1 KPH
Filter Class: 180

1 REAR FLOORPAN ABOVE AXLE X VELOCITY, b01052AI.V23

Ymin = -3.75 KPH @ 0.0823 Seconds, Ymax = .38 KPH @ 0.0113 Seconds





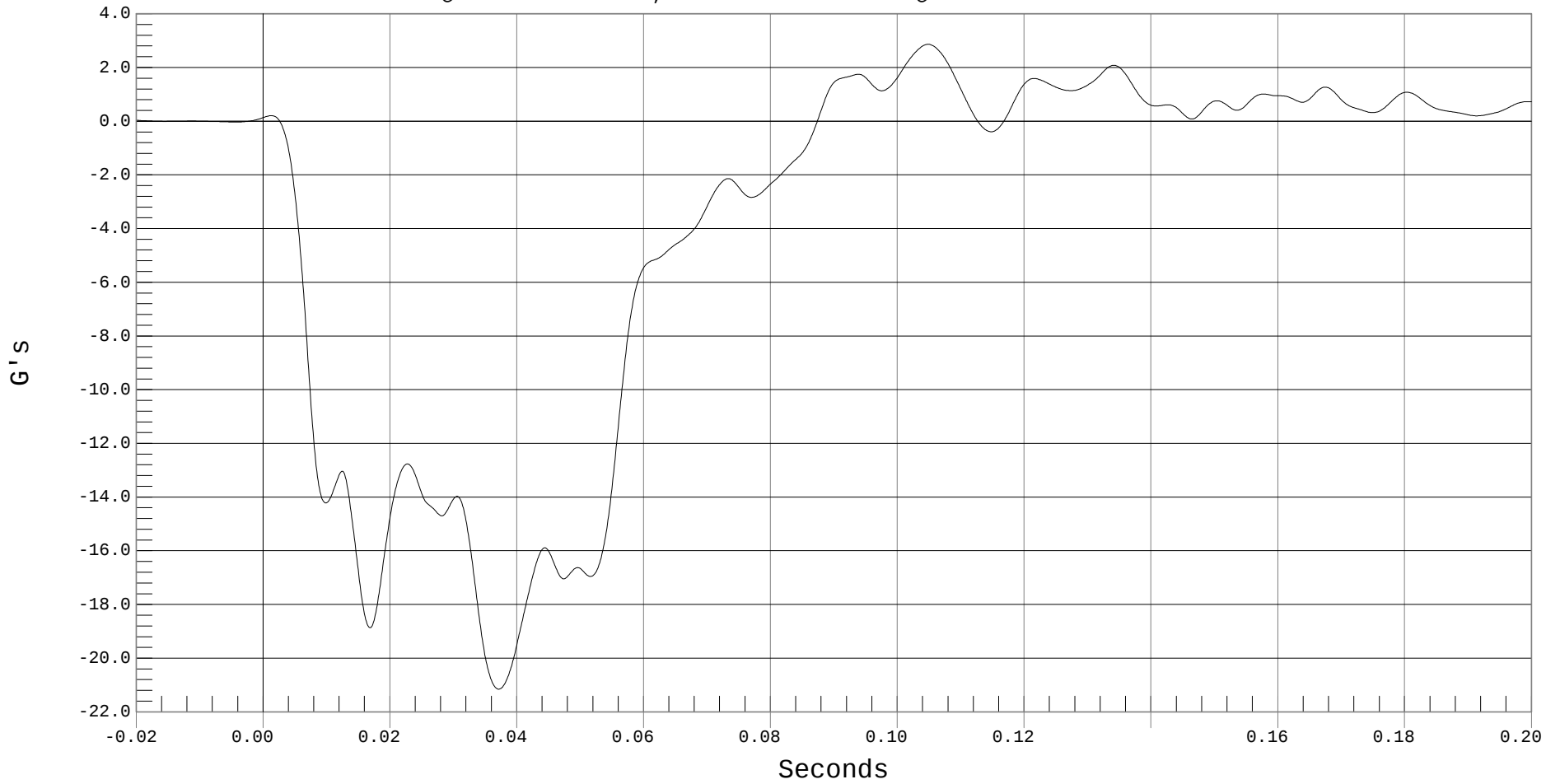
REAR FLOORPAN ABOVE AXLE Y ACCELERATION

Test Desc.: FMVSS 214 SIDE IMPACT
Component: 1996 PONTIAC GRAND AM
Other Info:

Test Date: 05-04-01
Speed: 33.0 MPH, 53.1 KPH
Filter Class: 60

1 REAR FLOORPAN ABOVE AXLE Y ACCELERATION, b01052AF.A24

Ymin = -21.16 G's @ 0.0371 Seconds, Ymax = 2.86 G's @ 0.1048 Seconds





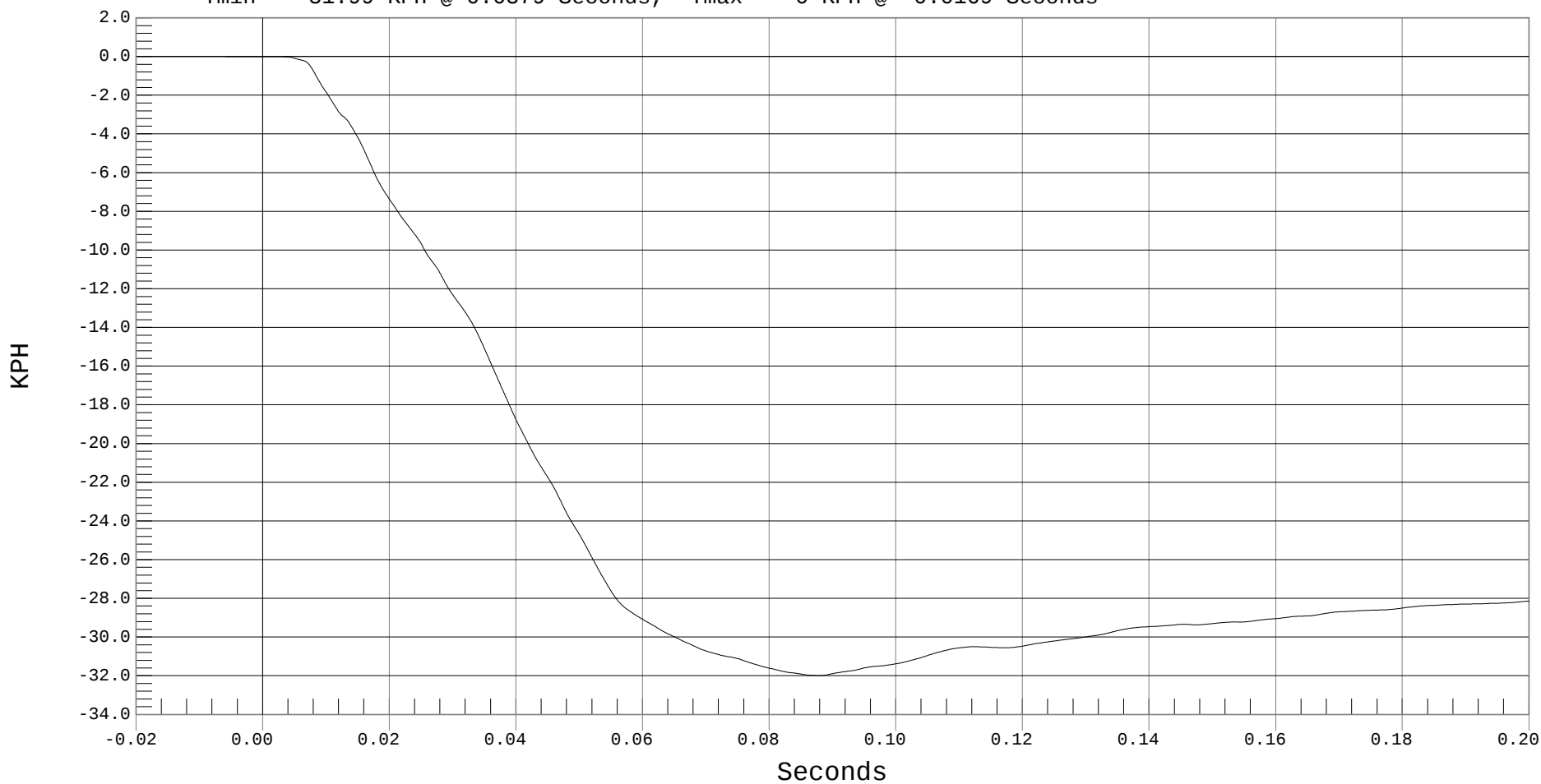
REAR FLOORPAN ABOVE AXLE Y VELOCITY

Test Desc.: FMVSS 214 SIDE IMPACT
Component: 1996 PONTIAC GRAND AM
Other Info:

Test Date: 05-04-01
Speed: 33.0 MPH, 53.1 KPH
Filter Class: 180

1 REAR FLOORPAN ABOVE AXLE Y VELOCITY, b01052AI.V24

Ymin = -31.99 KPH @ 0.0879 Seconds, Ymax = 0 KPH @ -0.0169 Seconds





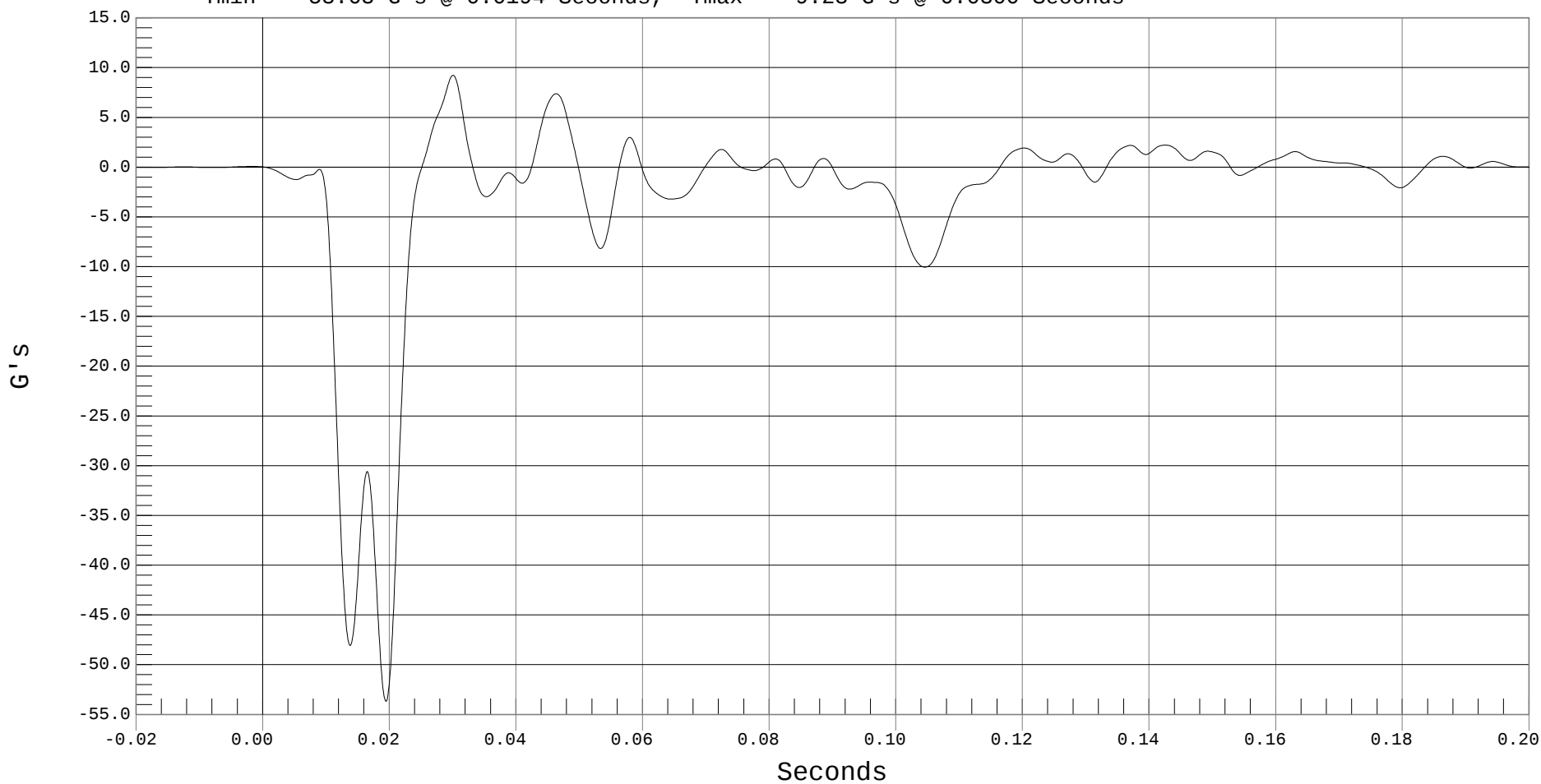
REAR FLOORPAN ABOVE AXLE Z ACCELERATION

Test Desc.: FMVSS 214 SIDE IMPACT
Component: 1996 PONTIAC GRAND AM
Other Info:

Test Date: 05-04-01
Speed: 33.0 MPH, 53.1 KPH
Filter Class: 60

1 REAR FLOORPAN ABOVE AXLE Z ACCELERATION, b01052AF.A25

Ymin = -53.68 G's @ 0.0194 Seconds, Ymax = 9.23 G's @ 0.0300 Seconds





REAR FLOORPAN ABOVE AXLE Z VELOCITY

Test Desc.: FMVSS 214 SIDE IMPACT

Component: 1996 PONTIAC GRAND AM

Other Info:

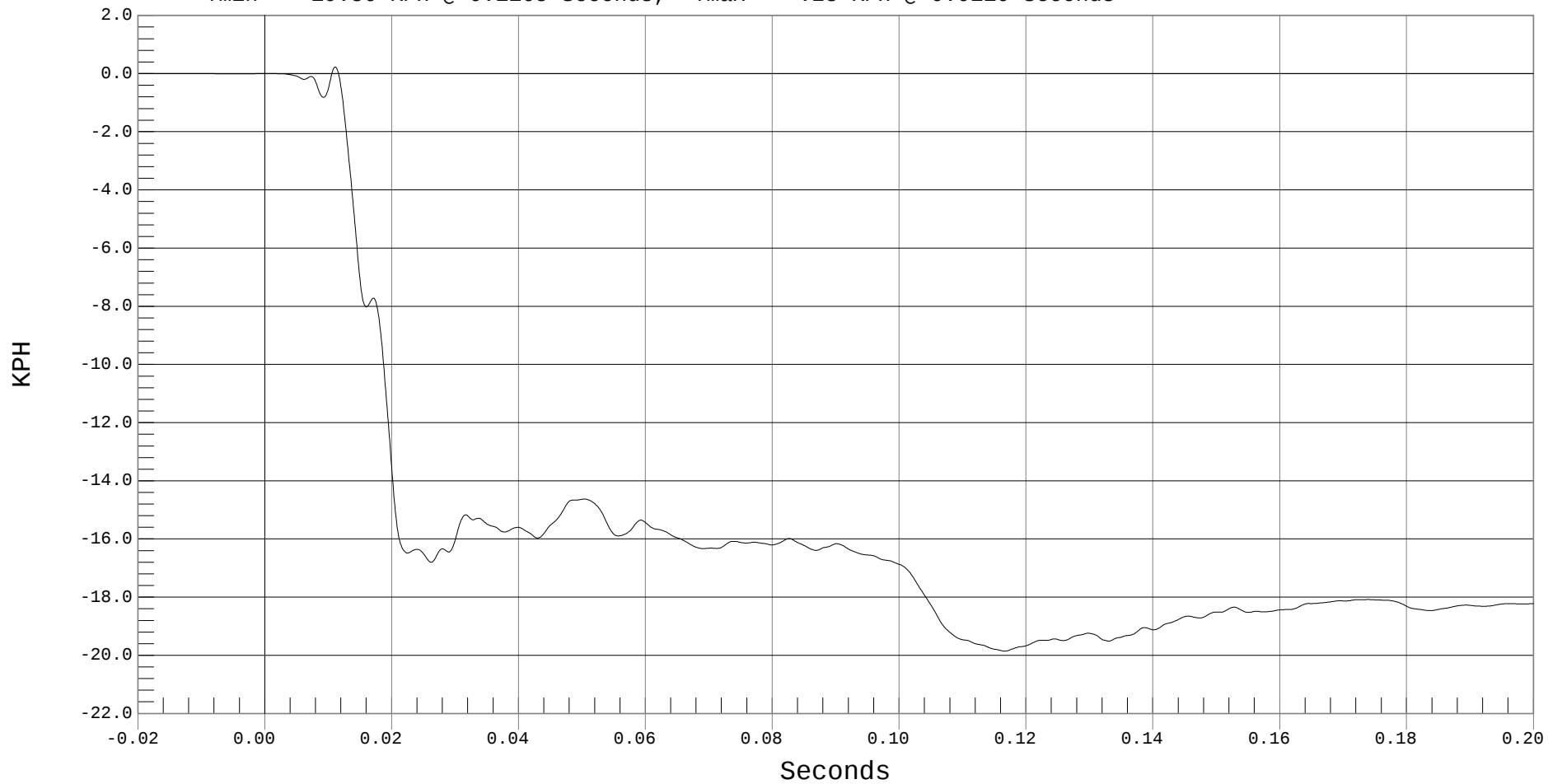
Test Date: 05-04-01

Speed: 33.0 MPH, 53.1 KPH

Filter Class: 180

1 REAR FLOORPAN ABOVE AXLE Z VELOCITY, b01052AI.V25

Ymin = -19.86 KPH @ 0.1165 Seconds, Ymax = .23 KPH @ 0.0110 Seconds





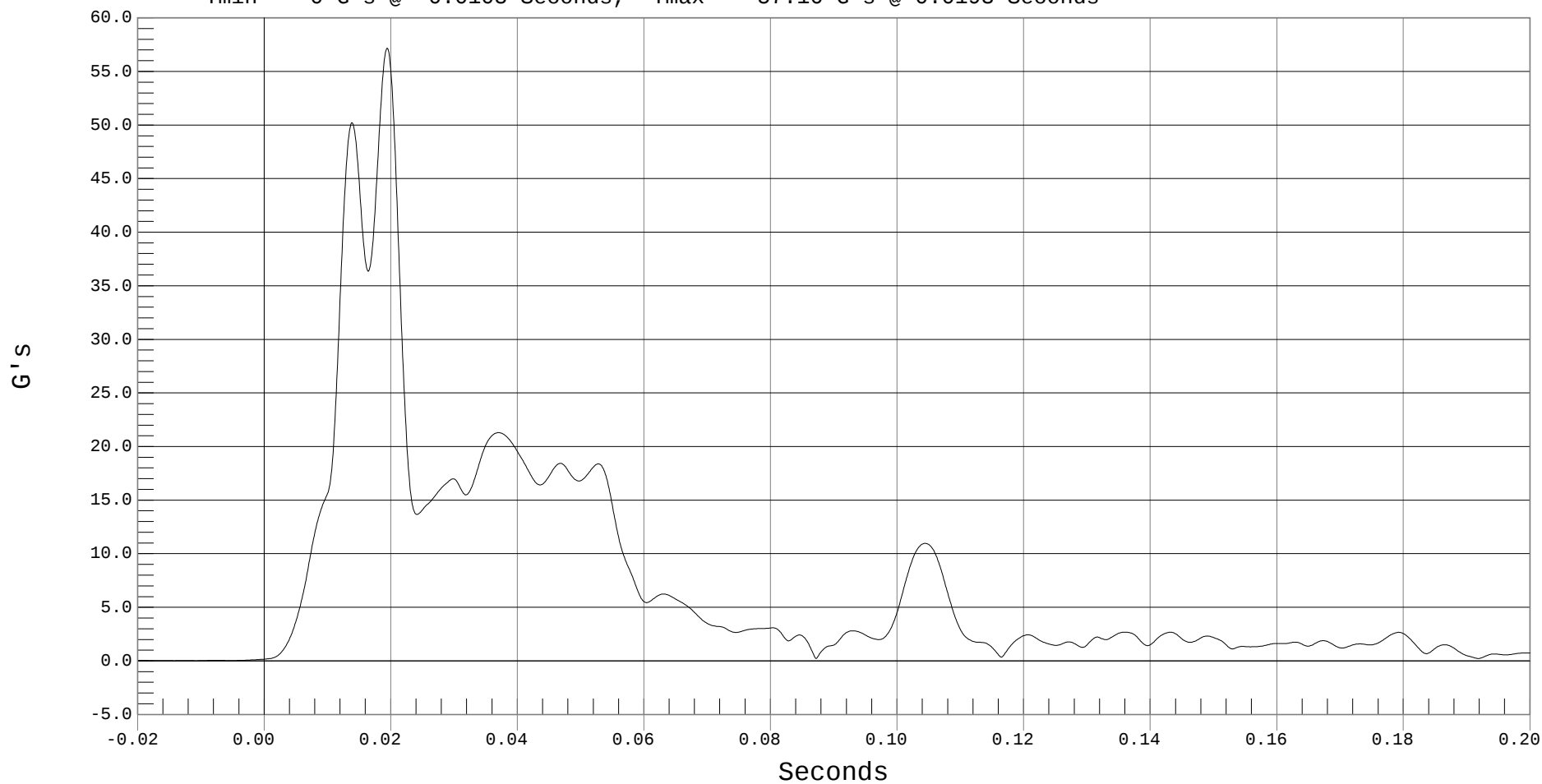
REAR FLOORPAN ABOVE AXLE RESULTANT ACCELERATION

Test Desc.: FMVSS 214 SIDE IMPACT
Component: 1996 PONTIAC GRAND AM
Other Info:

Test Date: 05-04-01
Speed: 33.0 MPH, 53.1 KPH
Filter Class: 60

1 REAR FLOORPAN ABOVE AXLE RESULTANT ACCELERATION, b01052AV.A23

Ymin = 0 G's @ -0.0108 Seconds, Ymax = 57.16 G's @ 0.0193 Seconds





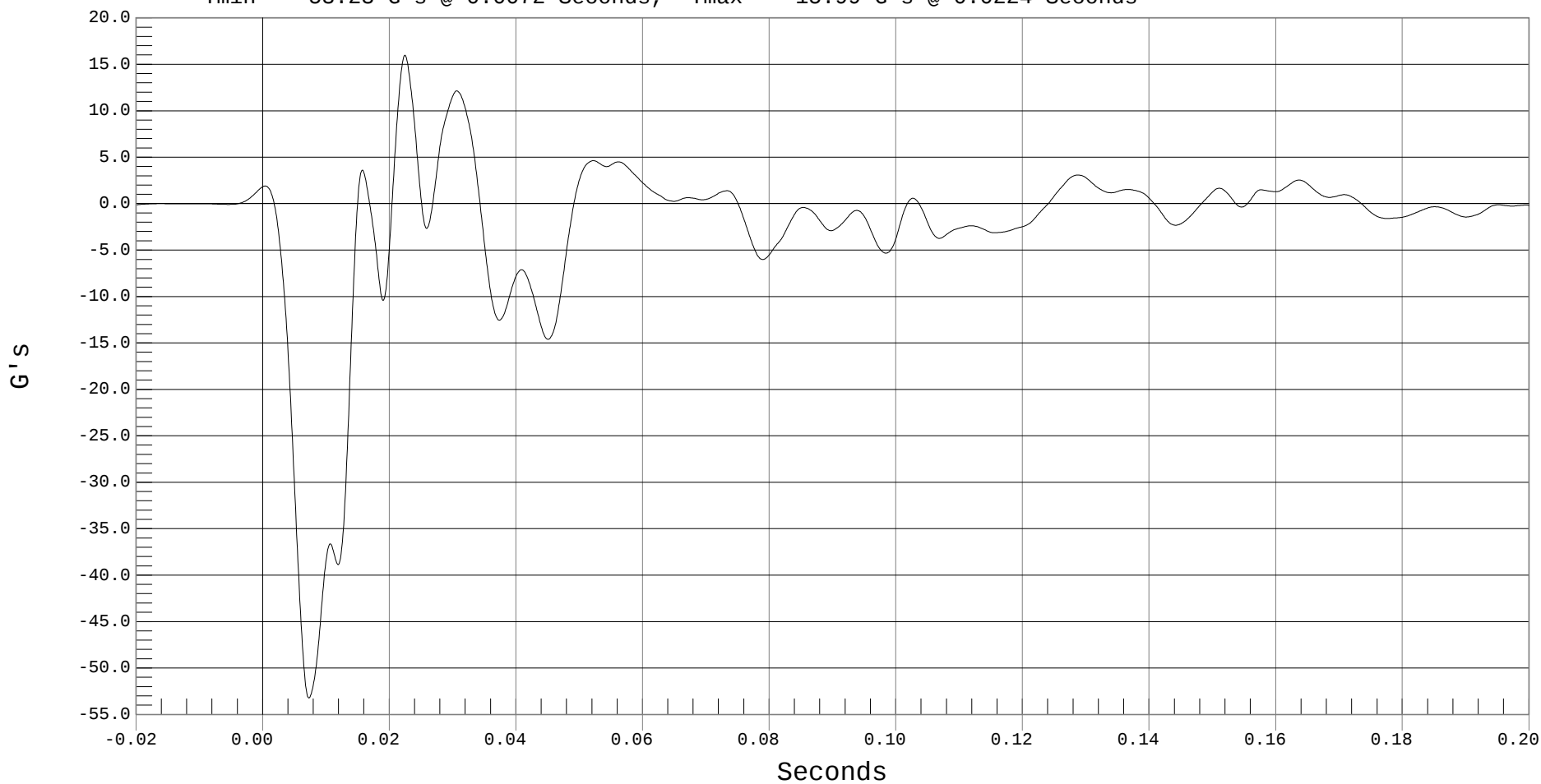
RIGHT SIDE SILL AT FRONT SEAT Y ACCELERATION

Test Desc.: FMVSS 214 SIDE IMPACT
Component: 1996 PONTIAC GRAND AM
Other Info:

Test Date: 05-04-01
Speed: 33.0 MPH, 53.1 KPH
Filter Class: 60

1 RIGHT SIDE SILL AT FRONT SEAT Y ACCELERATION, b01052AF.A21

Ymin = -53.23 G's @ 0.0072 Seconds, Ymax = 15.99 G's @ 0.0224 Seconds





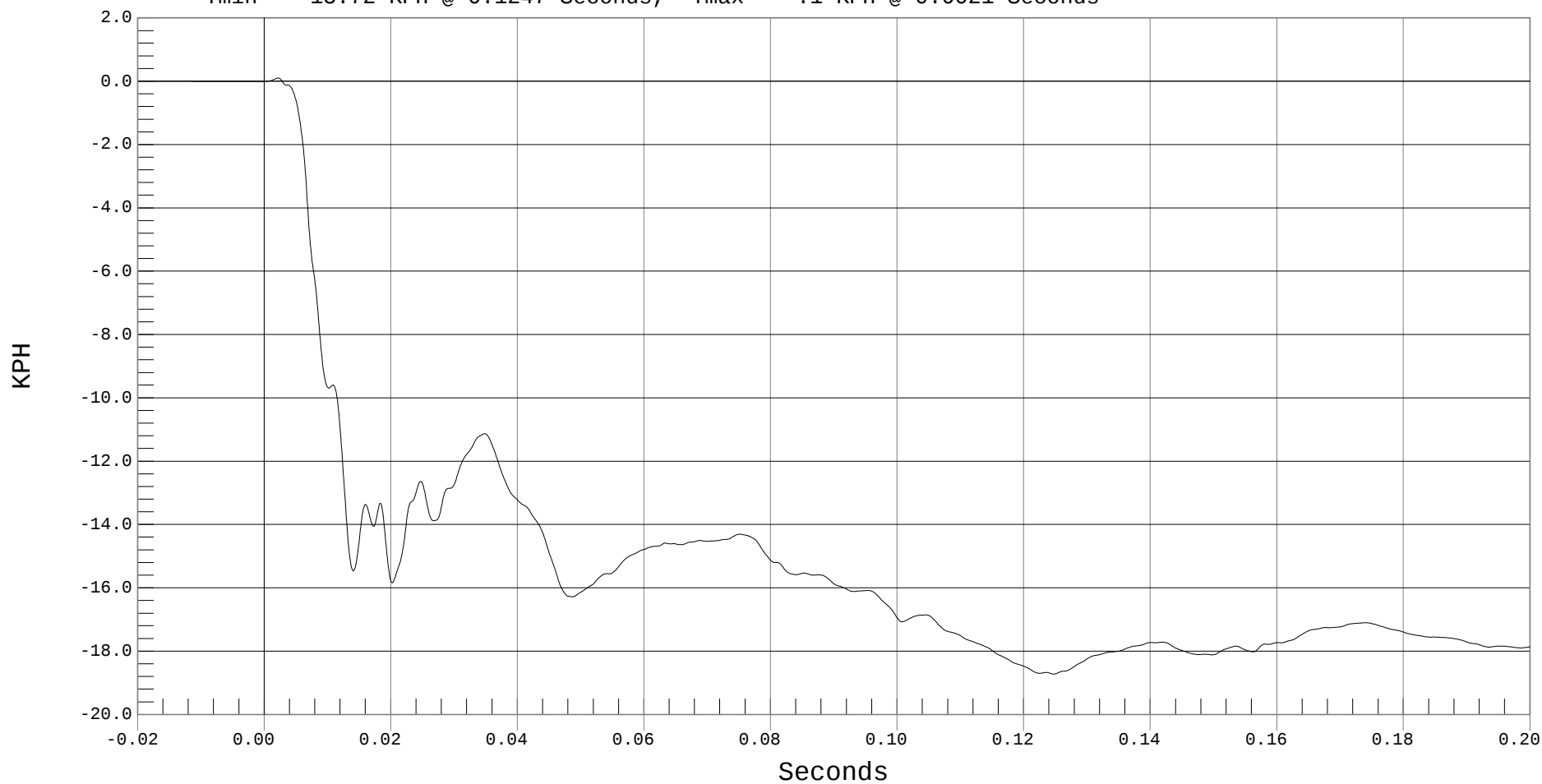
RIGHT SIDE SILL AT FRONT SEAT Y VELOCITY

Test Desc.: FMVSS 214 SIDE IMPACT
Component: 1996 PONTIAC GRAND AM
Other Info:

Test Date: 05-04-01
Speed: 33.0 MPH, 53.1 KPH
Filter Class: 180

— 1 RIGHT SIDE SILL AT FRONT SEAT Y VELOCITY, b01052AI.V21

Ymin = -18.72 KPH @ 0.1247 Seconds, Ymax = .1 KPH @ 0.0021 Seconds





RIGHT SIDE SILL AT REAR SEAT Y ACCELERATION

Test Desc.: FMVSS 214 SIDE IMPACT

Component: 1996 PONTIAC GRAND AM

Other Info:

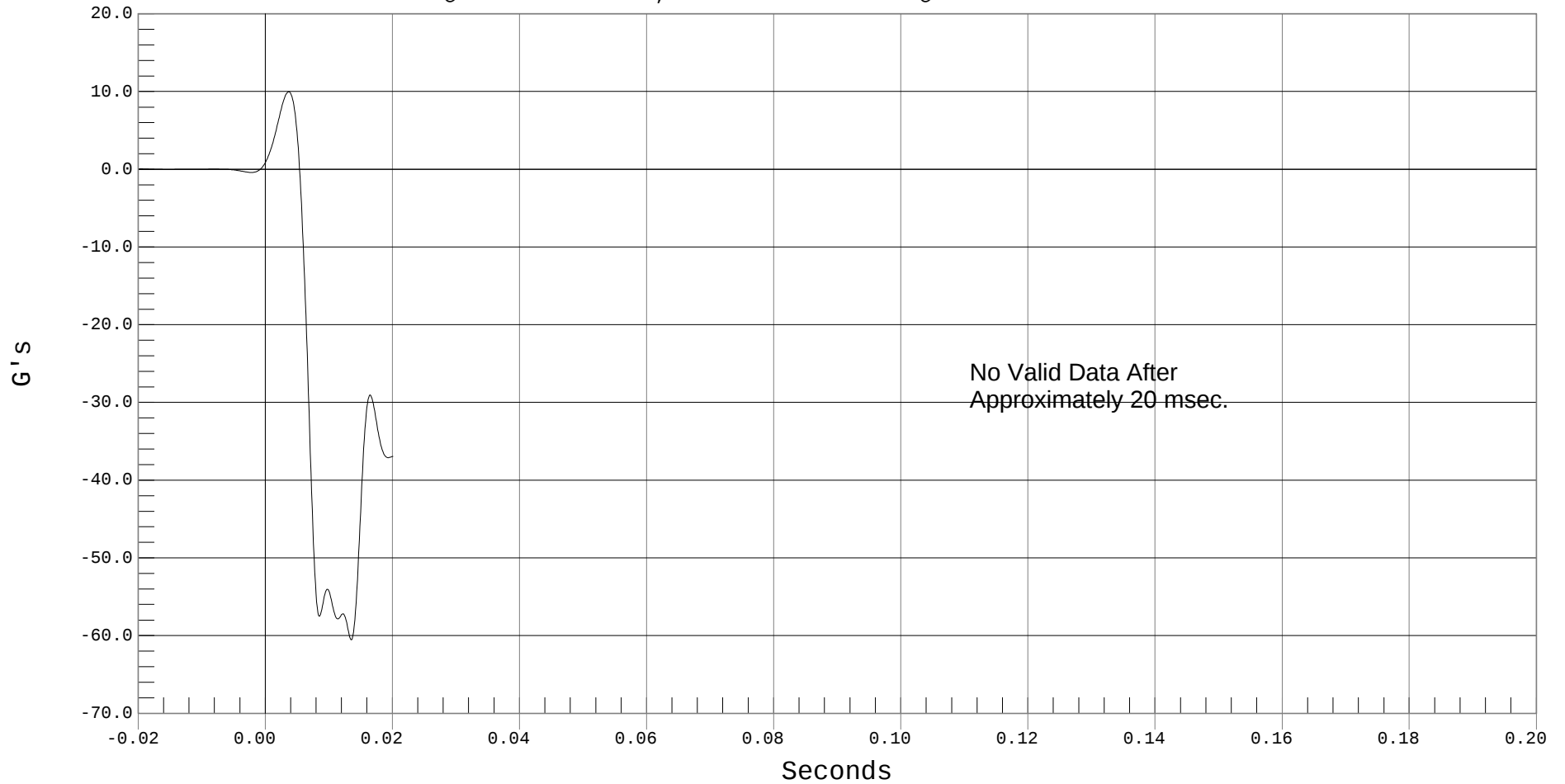
Test Date: 05-04-01

Speed: 33.0 MPH, 53.1 KPH

Filter Class: 60

1 RIGHT SIDE SILL AT REAR SEAT Y ACCELERATION, b01052AF.A22

Ymin = -60.53 G's @ 0.0135 Seconds, Ymax = 9.97 G's @ 0.0036 Seconds





RIGHT SIDE SILL AT REAR SEAT Y VELOCITY

Test Desc.: FMVSS 214 SIDE IMPACT

Component: 1996 PONTIAC GRAND AM

Other Info:

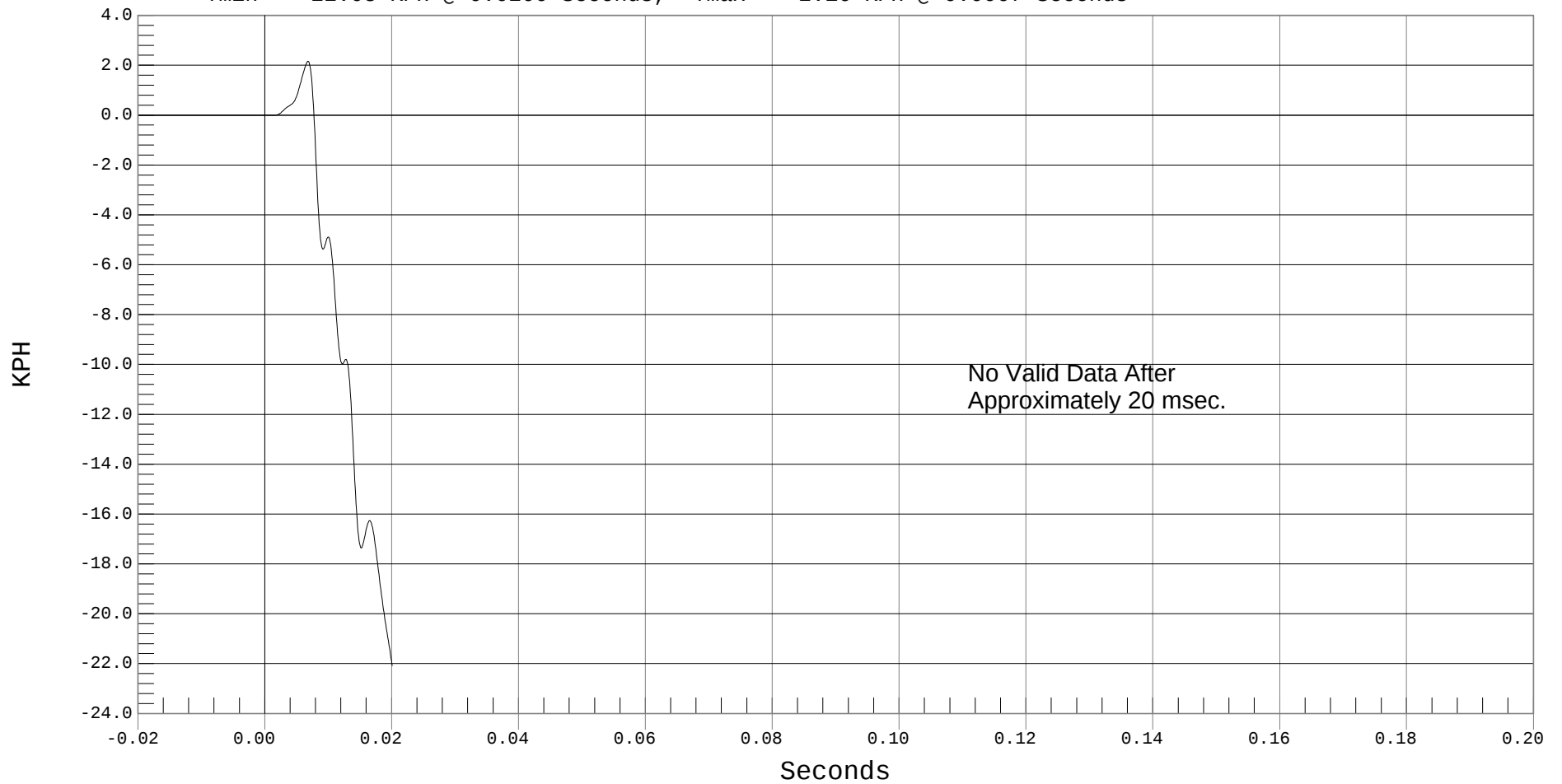
Test Date: 05-04-01

Speed: 33.0 MPH, 53.1 KPH

Filter Class: 180

1 RIGHT SIDE SILL AT RIGHT REAR SEAT Y VELOCITY, b01052AI.V22

Ymin = -22.08 KPH @ 0.0200 Seconds, Ymax = 2.16 KPH @ 0.0067 Seconds





LEFT REAR OCCUPANT COMPARTMENT Y ACCELERATION

Test Desc.: FMVSS 214 SIDE IMPACT

Component: 1996 PONTIAC GRAND AM

Other Info:

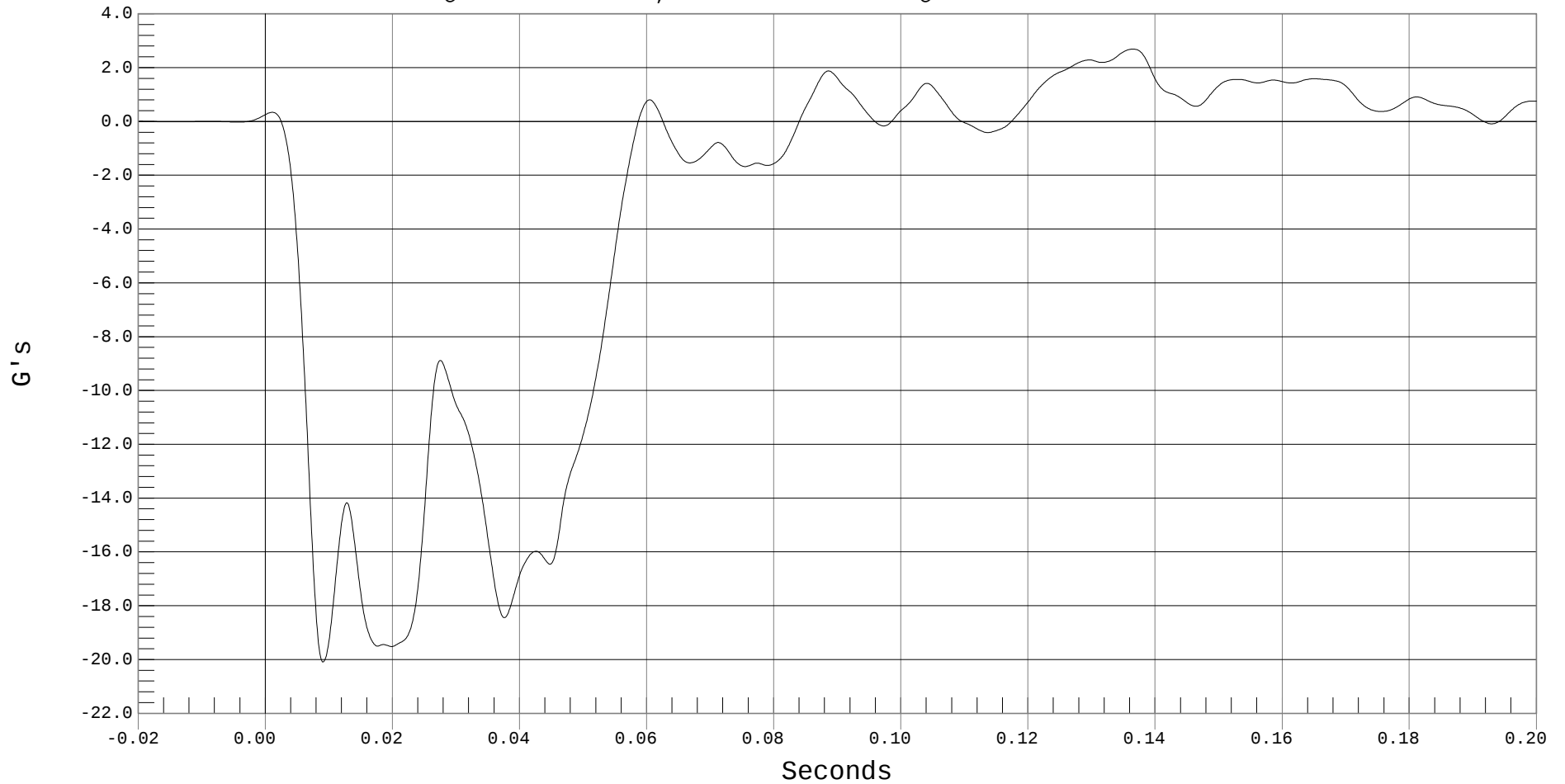
Test Date: 05-04-01

Speed: 33.0 MPH, 53.1 KPH

Filter Class: 60

— 1 LEFT REAR OCCUPANT COMPARTMENT Y ACCELERATION, b01052AF.A31

Ymin = -20.09 G's @ 0.0090 Seconds, Ymax = 2.69 G's @ 0.1364 Seconds





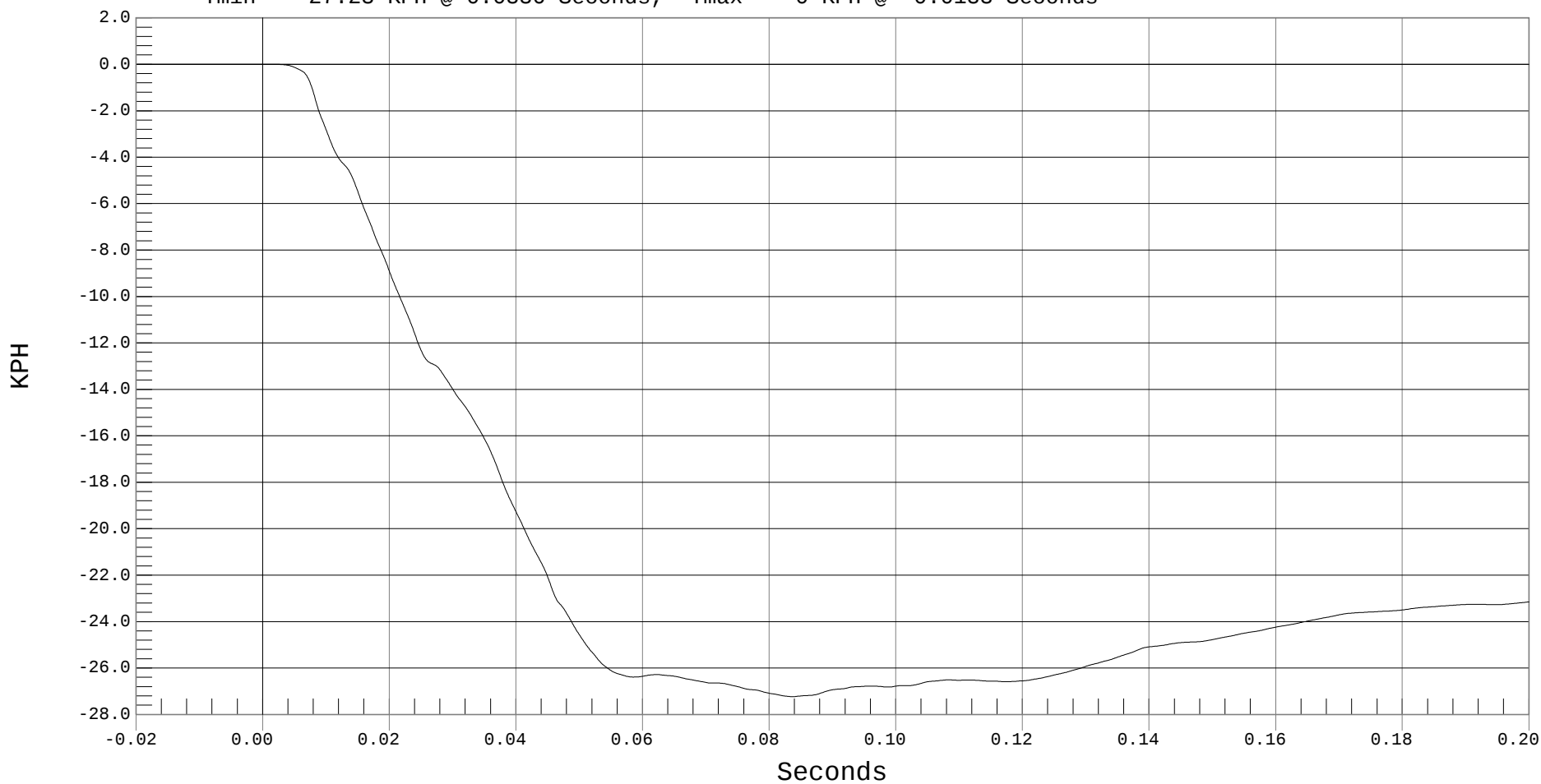
LEFT REAR OCCUPANT COMPARTMENT Y VELOCITY

Test Desc.: FMVSS 214 SIDE IMPACT
Component: 1996 PONTIAC GRAND AM
Other Info:

Test Date: 05-04-01
Speed: 33.0 MPH, 53.1 KPH
Filter Class: 180

— 1 LEFT REAR OCCUPANT COMPARTMENT Y VELOCITY, b01052AI.V31

Ymin = -27.23 KPH @ 0.0836 Seconds, Ymax = 0 KPH @ -0.0183 Seconds





RIGHT LOWER A-POST Y ACCELERATION

Test Desc.: FMVSS 214 SIDE IMPACT

Component: 1996 PONTIAC GRAND AM

Other Info:

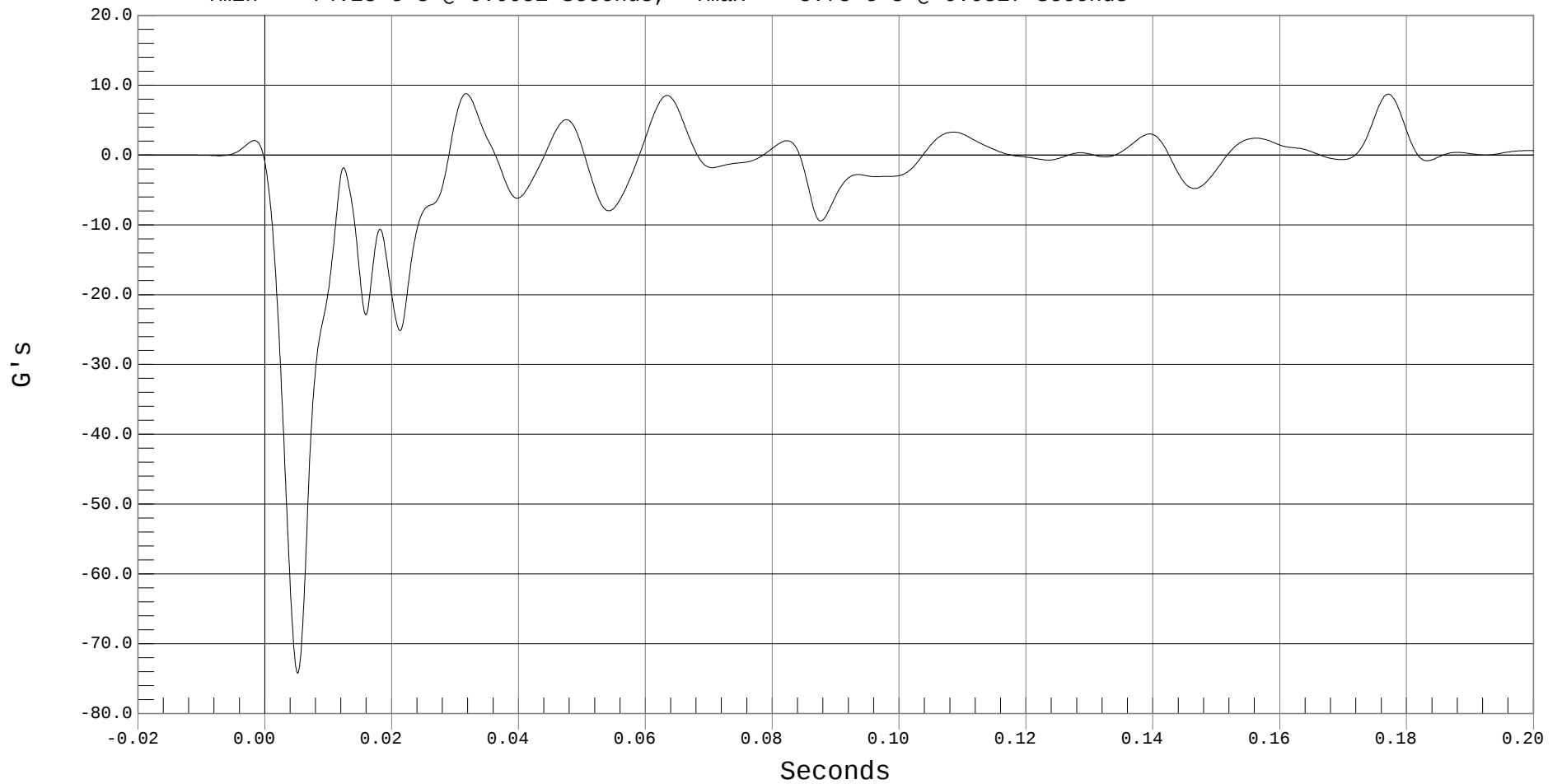
Test Date: 05-04-01

Speed: 33.0 MPH, 53.1 KPH

Filter Class: 60

1 RIGHT LOWER A-POST Y ACCELERATION, b01052AF.A27

Ymin = -74.23 G's @ 0.0051 Seconds, Ymax = 8.78 G's @ 0.0317 Seconds





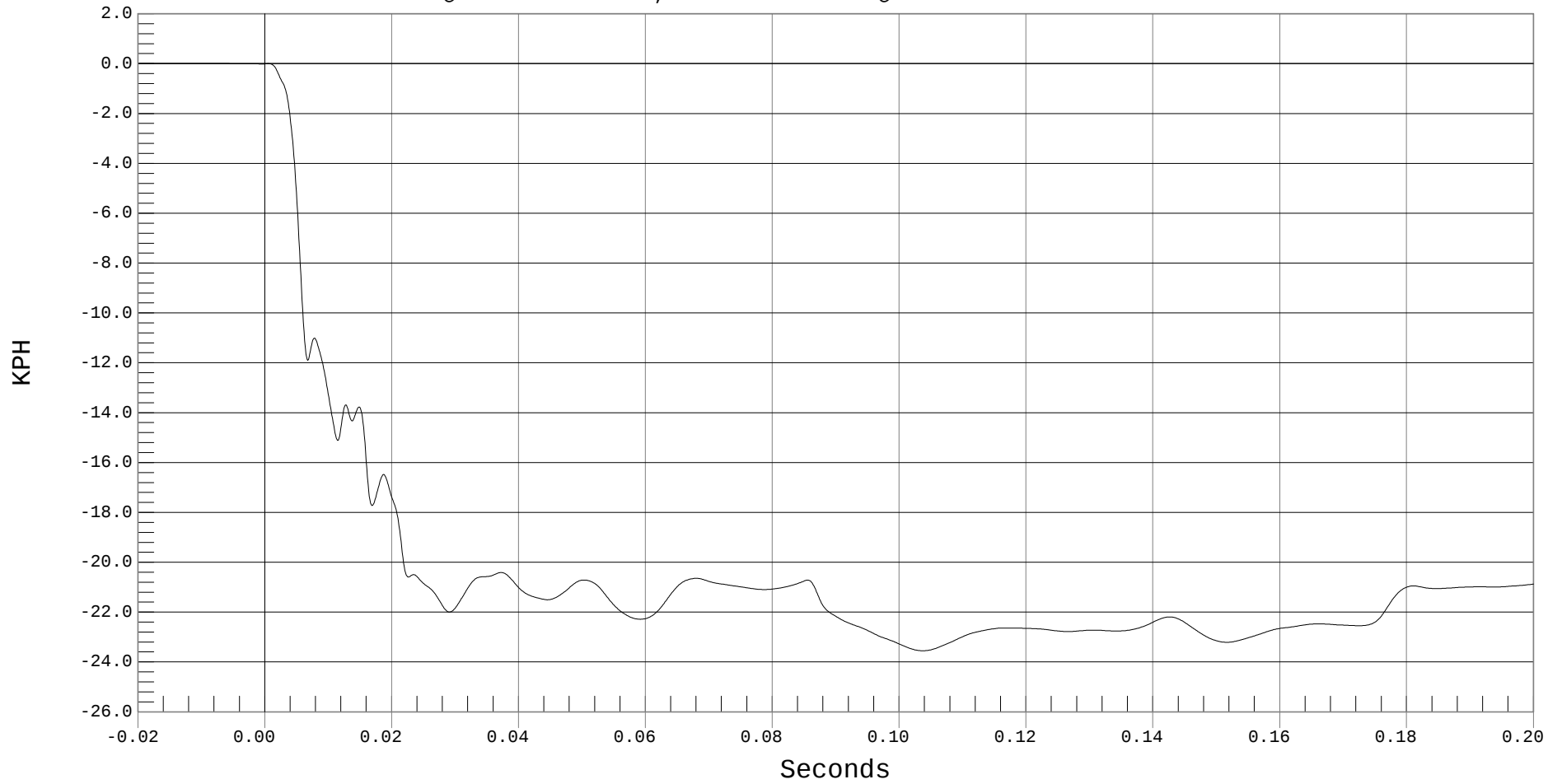
RIGHT LOWER A-POST Y VELOCITY

Test Desc.: FMVSS 214 SIDE IMPACT
Component: 1996 PONTIAC GRAND AM
Other Info:

Test Date: 05-04-01
Speed: 33.0 MPH, 53.1 KPH
Filter Class: 180

— 1 RIGHT LOWER A-POST Y VELOCITY, b01052AI.V27

Ymin = -23.55 KPH @ 0.1037 Seconds, Ymax = 0 KPH @ -0.0162 Seconds





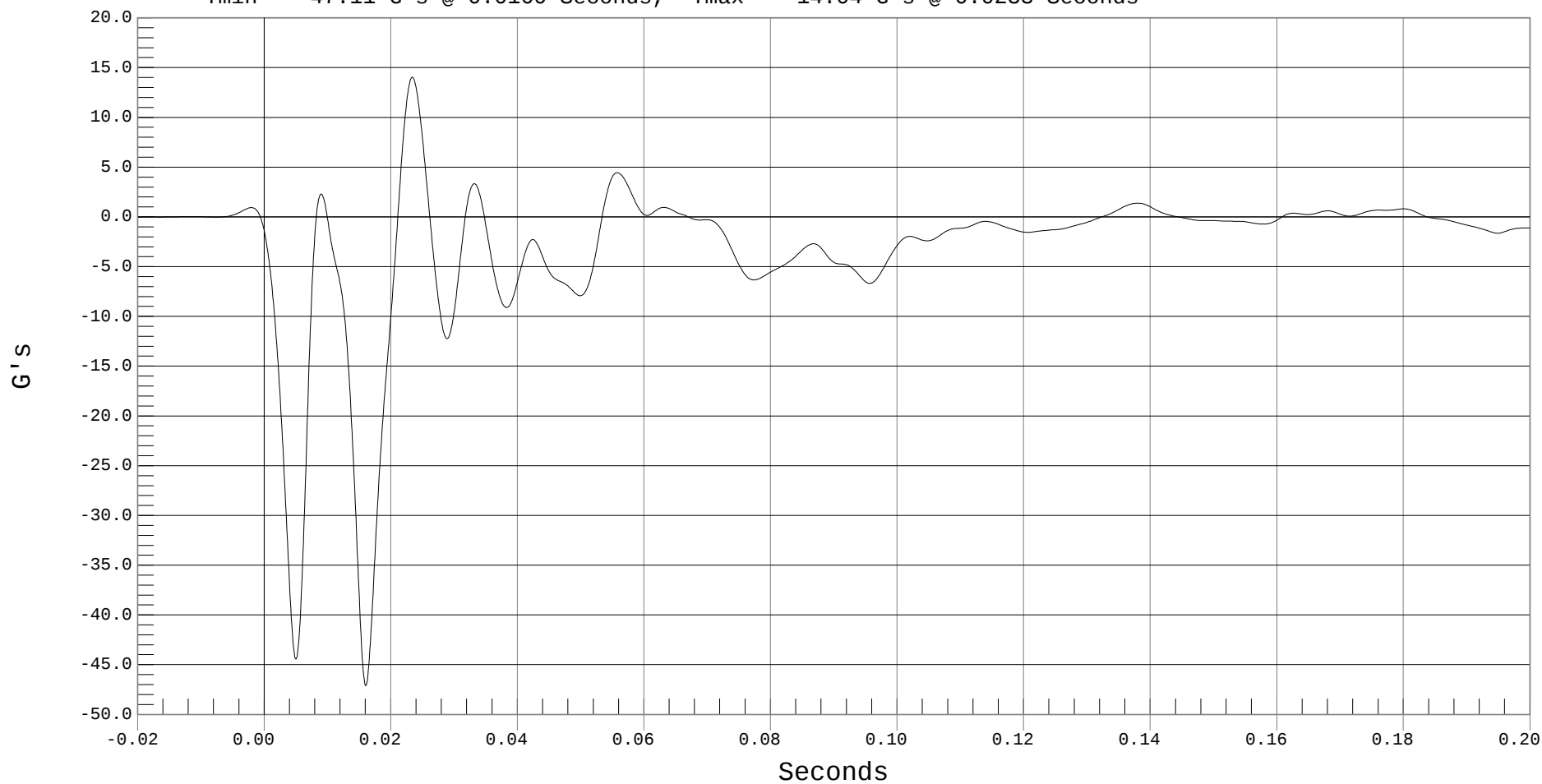
RIGHT MID A-POST Y ACCELERATION

Test Desc.: FMVSS 214 SIDE IMPACT
Component: 1996 PONTIAC GRAND AM
Other Info:

Test Date: 05-04-01
Speed: 33.0 MPH, 53.1 KPH
Filter Class: 60

— 1 RIGHT MID A-POST Y ACCELERATION, b01052AF.A26

Ymin = -47.11 G's @ 0.0160 Seconds, Ymax = 14.04 G's @ 0.0233 Seconds





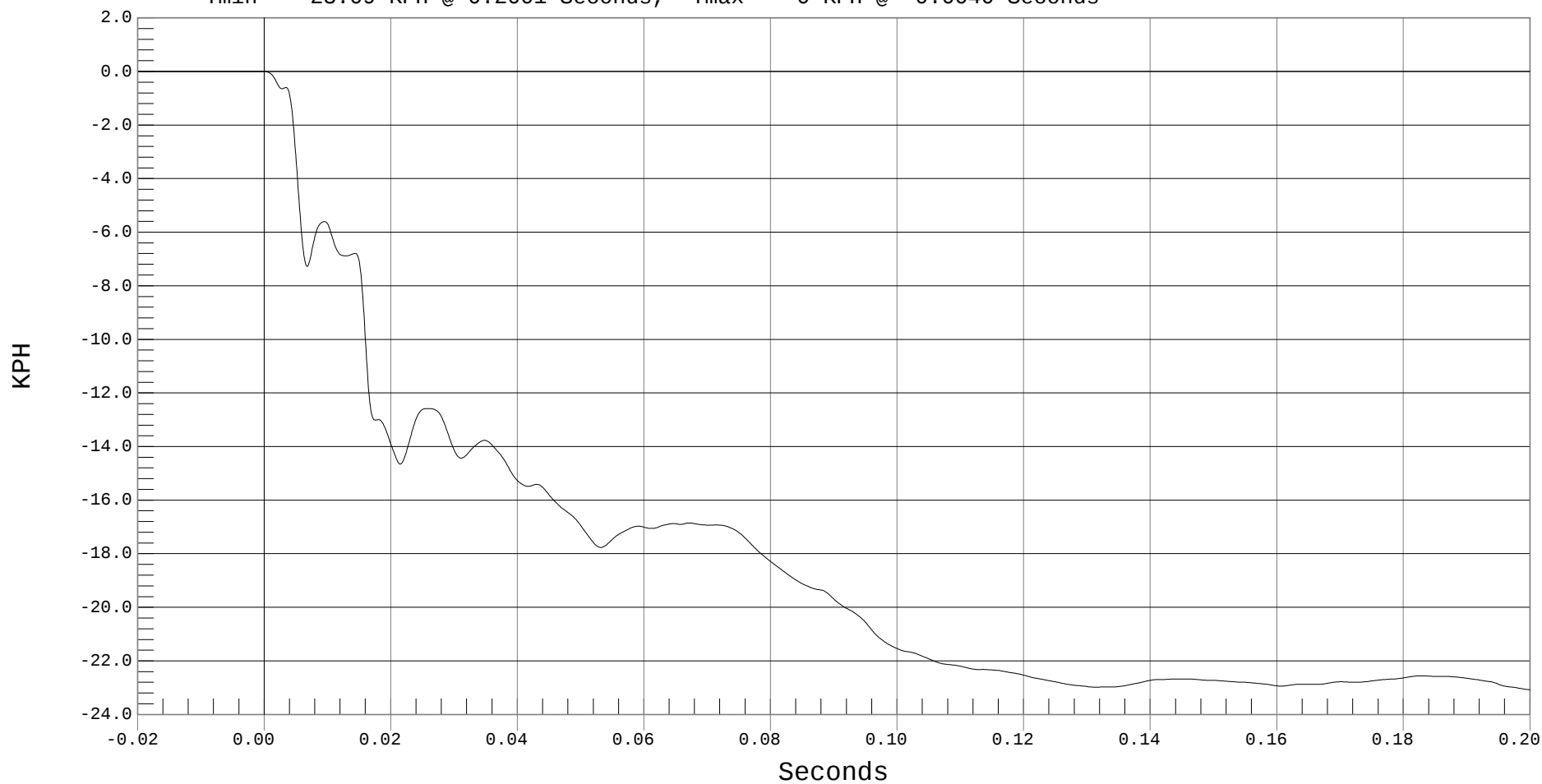
RIGHT MID A-POST Y VELOCITY

Test Desc.: FMVSS 214 SIDE IMPACT
Component: 1996 PONTIAC GRAND AM
Other Info:

Test Date: 05-04-01
Speed: 33.0 MPH, 53.1 KPH
Filter Class: 180

— 1 RIGHT MID A-POST Y VELOCITY, b01052AI.V26

Ymin = -23.09 KPH @ 0.2001 Seconds, Ymax = 0 KPH @ -0.0040 Seconds





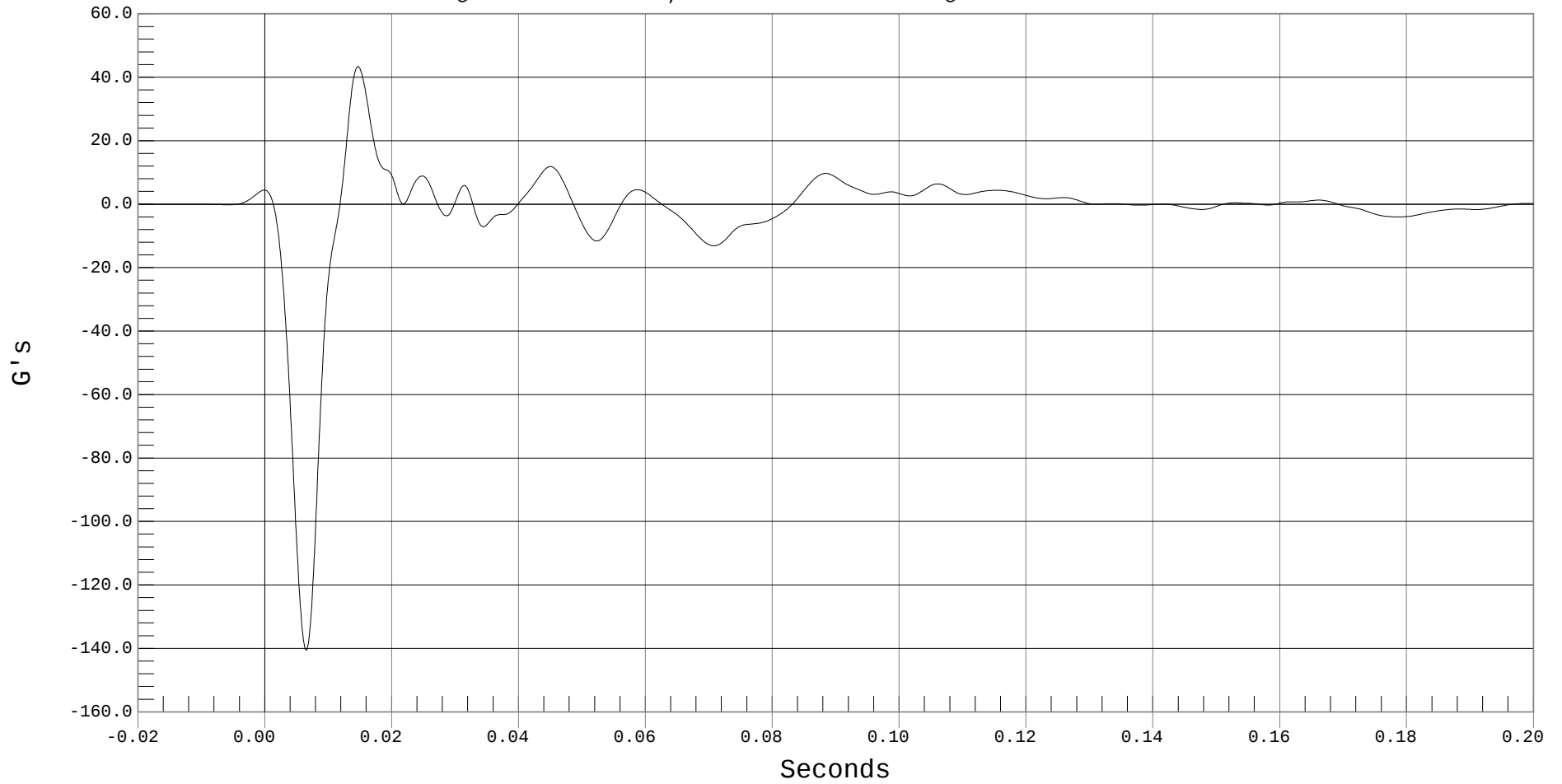
RIGHT LOWER B-POST Y ACCELERATION

Test Desc.: FMVSS 214 SIDE IMPACT
Component: 1996 PONTIAC GRAND AM
Other Info:

Test Date: 05-04-01
Speed: 33.0 MPH, 53.1 KPH
Filter Class: 60

1 RIGHT LOWER B-POST ACCELERATION, b01052AF.A29

Ymin = -140.53 G's @ 0.0064 Seconds, Ymax = 43.35 G's @ 0.0146 Seconds





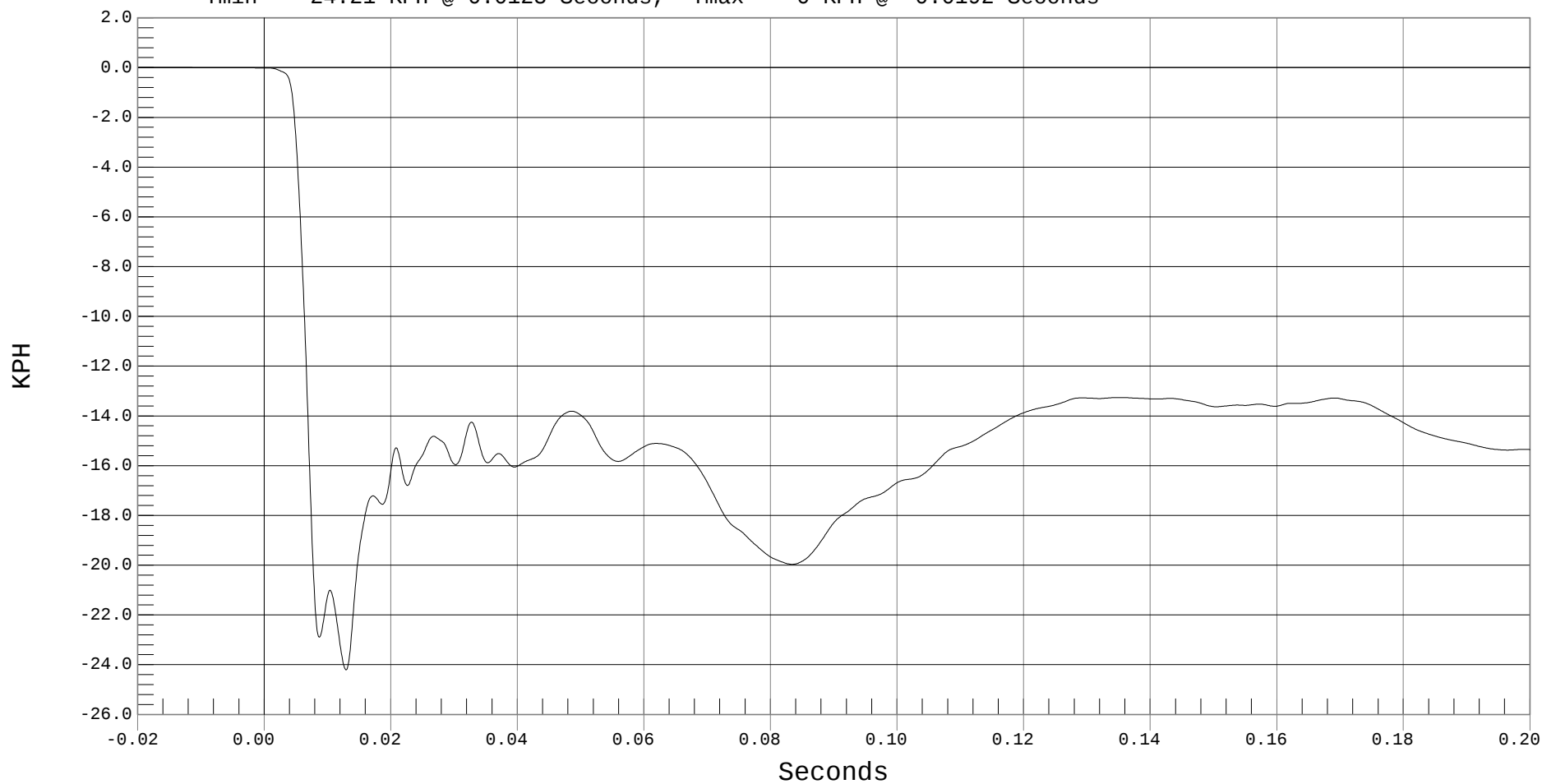
RIGHT LOWER B-POST Y VELOCITY

Test Desc.: FMVSS 214 SIDE IMPACT
Component: 1996 PONTIAC GRAND AM
Other Info:

Test Date: 05-04-01
Speed: 33.0 MPH, 53.1 KPH
Filter Class: 180

1 RIGHT LOWER B-POST Y VELOCITY, b01052AI.V29

Ymin = -24.21 KPH @ 0.0128 Seconds, Ymax = 0 KPH @ -0.0192 Seconds





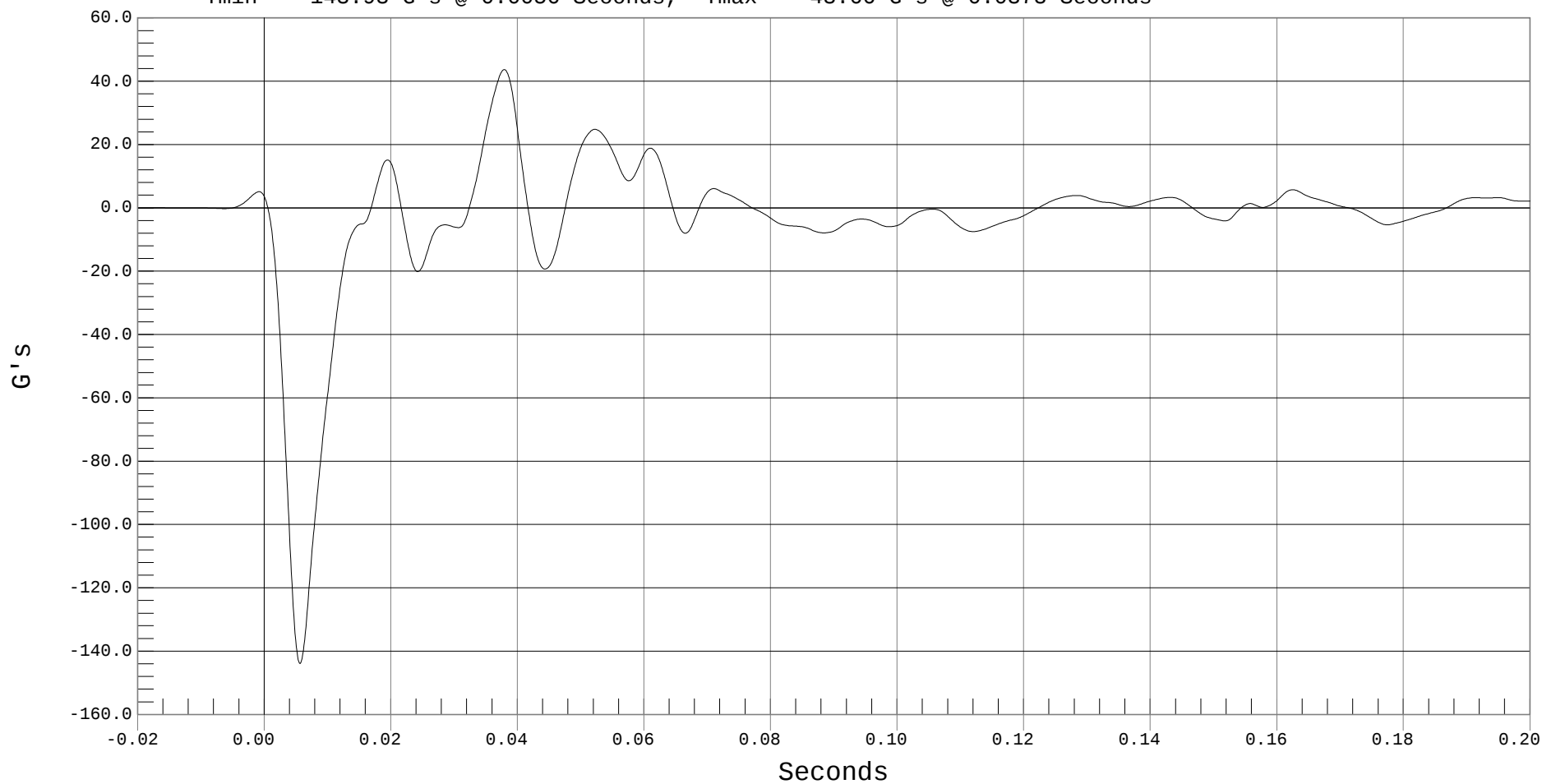
RIGHT MID B-POST Y ACCELERATION

Test Desc.: FMVSS 214 SIDE IMPACT
Component: 1996 PONTIAC GRAND AM
Other Info:

Test Date: 05-04-01
Speed: 33.0 MPH, 53.1 KPH
Filter Class: 60

— 1 RIGHT MID B-POST Y ACCELERATION, b01052AF.A28

Ymin = -143.93 G's @ 0.0056 Seconds, Ymax = 43.66 G's @ 0.0378 Seconds





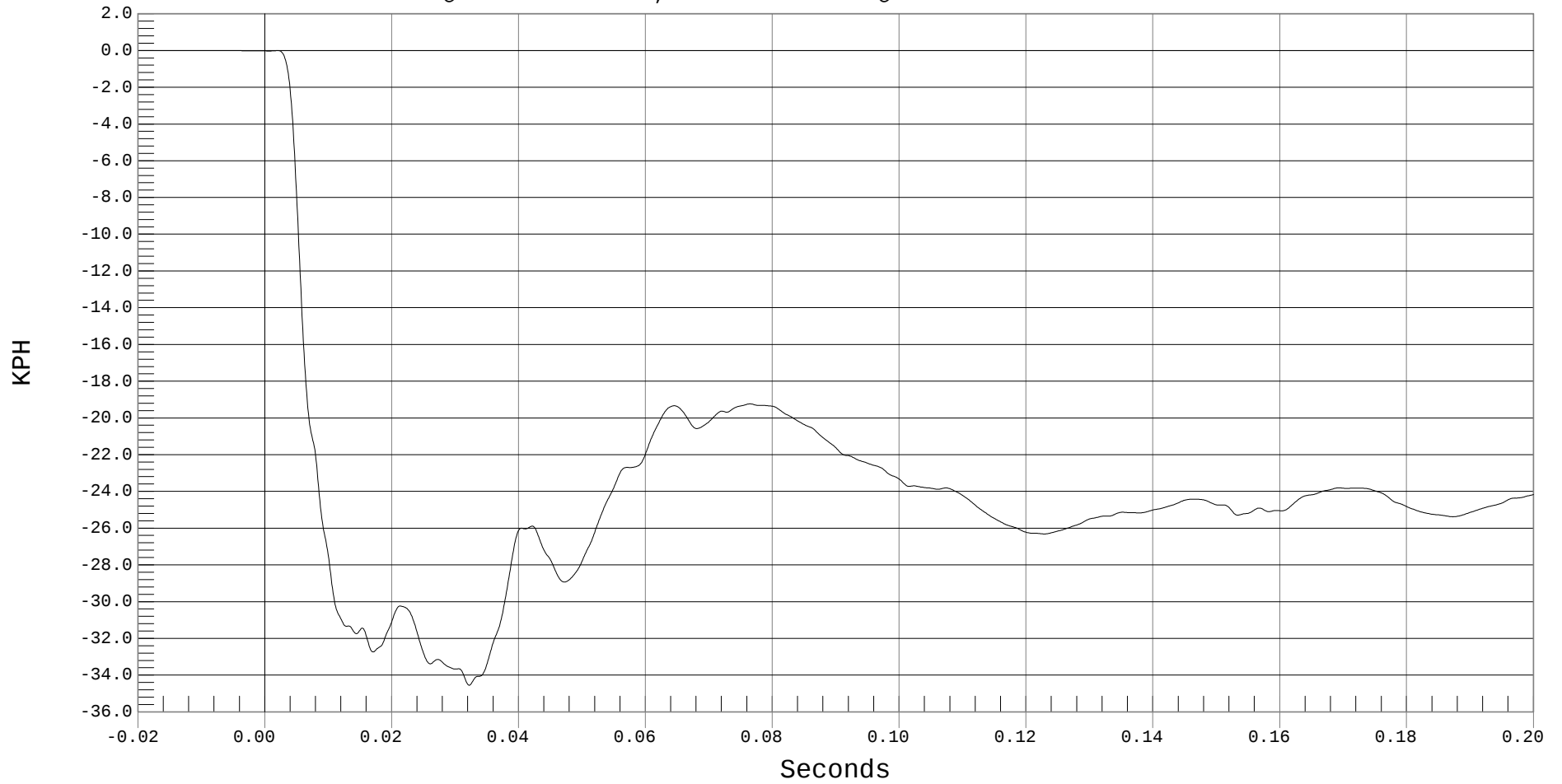
RIGHT MID B-POST Y VELOCITY

Test Desc.: FMVSS 214 SIDE IMPACT
Component: 1996 PONTIAC GRAND AM
Other Info:

Test Date: 05-04-01
Speed: 33.0 MPH, 53.1 KPH
Filter Class: 180

— 1 RIGHT MID B-POST Y VELOCITY, b01052AI.V28

Ymin = -34.55 KPH @ 0.0321 Seconds, Ymax = 0 KPH @ -0.0149 Seconds





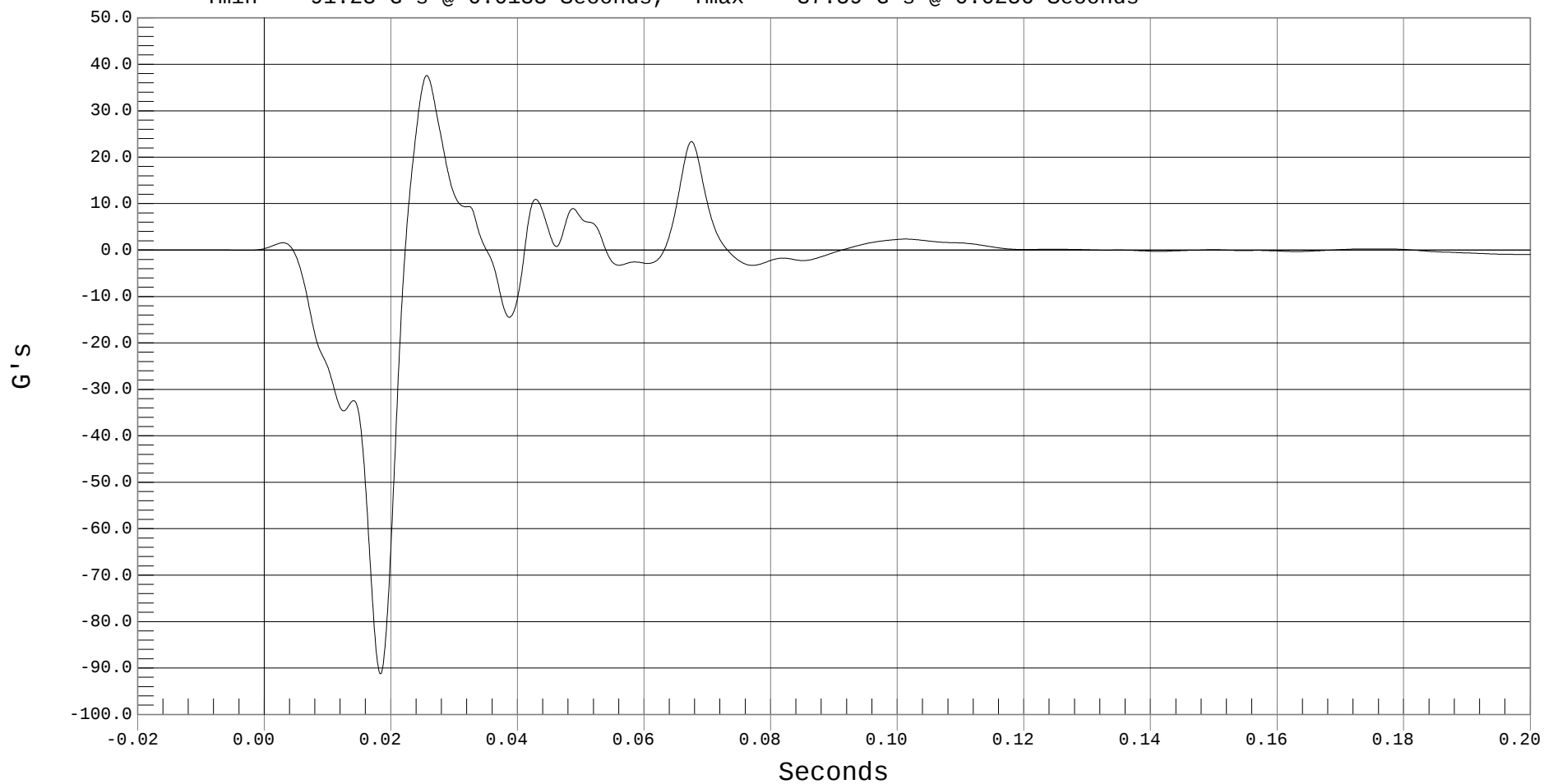
RIGHT FRONT SEAT TRACK Y ACCELERATION

Test Desc.: FMVSS 214 SIDE IMPACT
Component: 1996 PONTIAC GRAND AM
Other Info:

Test Date: 05-04-01
Speed: 33.0 MPH, 53.1 KPH
Filter Class: 60

1 RIGHT FRONT SEAT TRACK Y ACCELERATION, b01052AF.A30

Ymin = -91.28 G's @ 0.0183 Seconds, Ymax = 37.59 G's @ 0.0256 Seconds





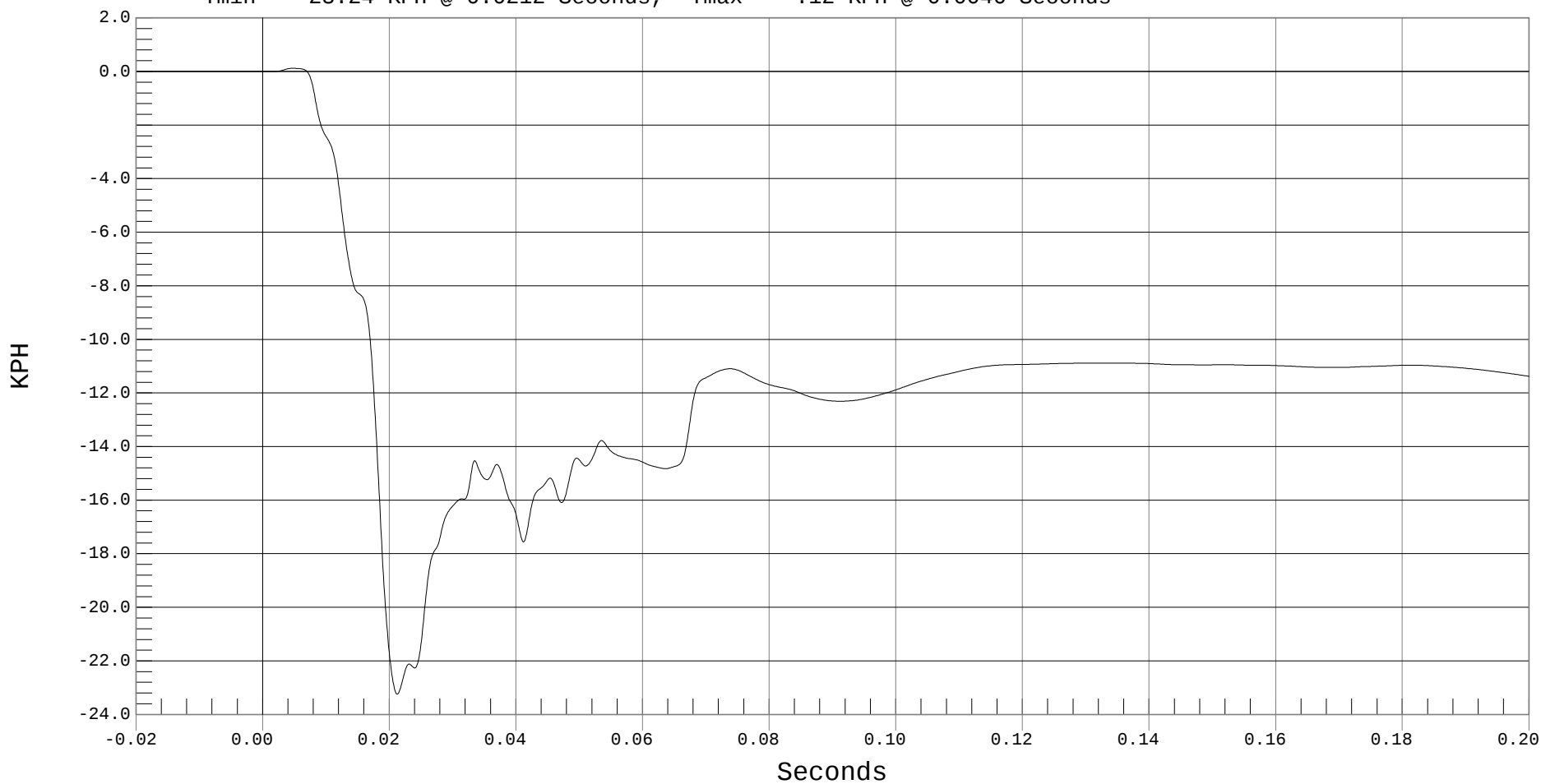
RIGHT FRONT SEAT TRACK Y VELOCITY

Test Desc.: FMVSS 214 SIDE IMPACT
Component: 1996 PONTIAC GRAND AM
Other Info:

Test Date: 05-04-01
Speed: 33.0 MPH, 53.1 KPH
Filter Class: 180

— 1 RIGHT FRONT SEAT TRACK Y VELOCITY, b01052AI.V30

Ymin = -23.24 KPH @ 0.0212 Seconds, Ymax = .12 KPH @ 0.0046 Seconds





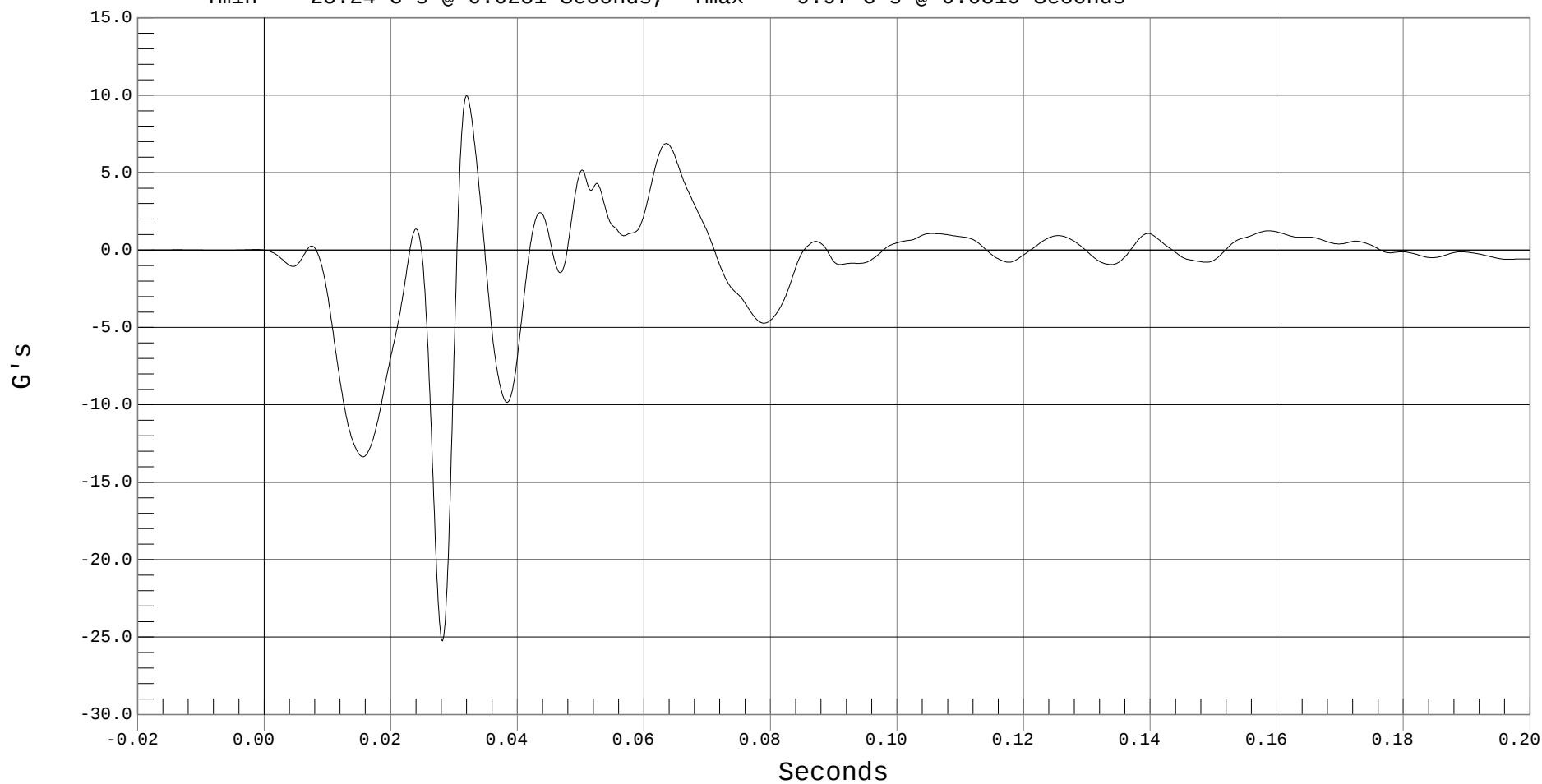
VEHICLE CG X ACCELERATION

Test Desc.: FMVSS 214 SIDE IMPACT
Component: 1996 PONTIAC GRAND AM
Other Info:

Test Date: 05-04-01
Speed: 33.0 MPH, 53.1 KPH
Filter Class: 60

— 1 VEHICLE CG X ACCELERATION, b01052AF.A33

Ymin = -25.24 G's @ 0.0281 Seconds, Ymax = 9.97 G's @ 0.0319 Seconds





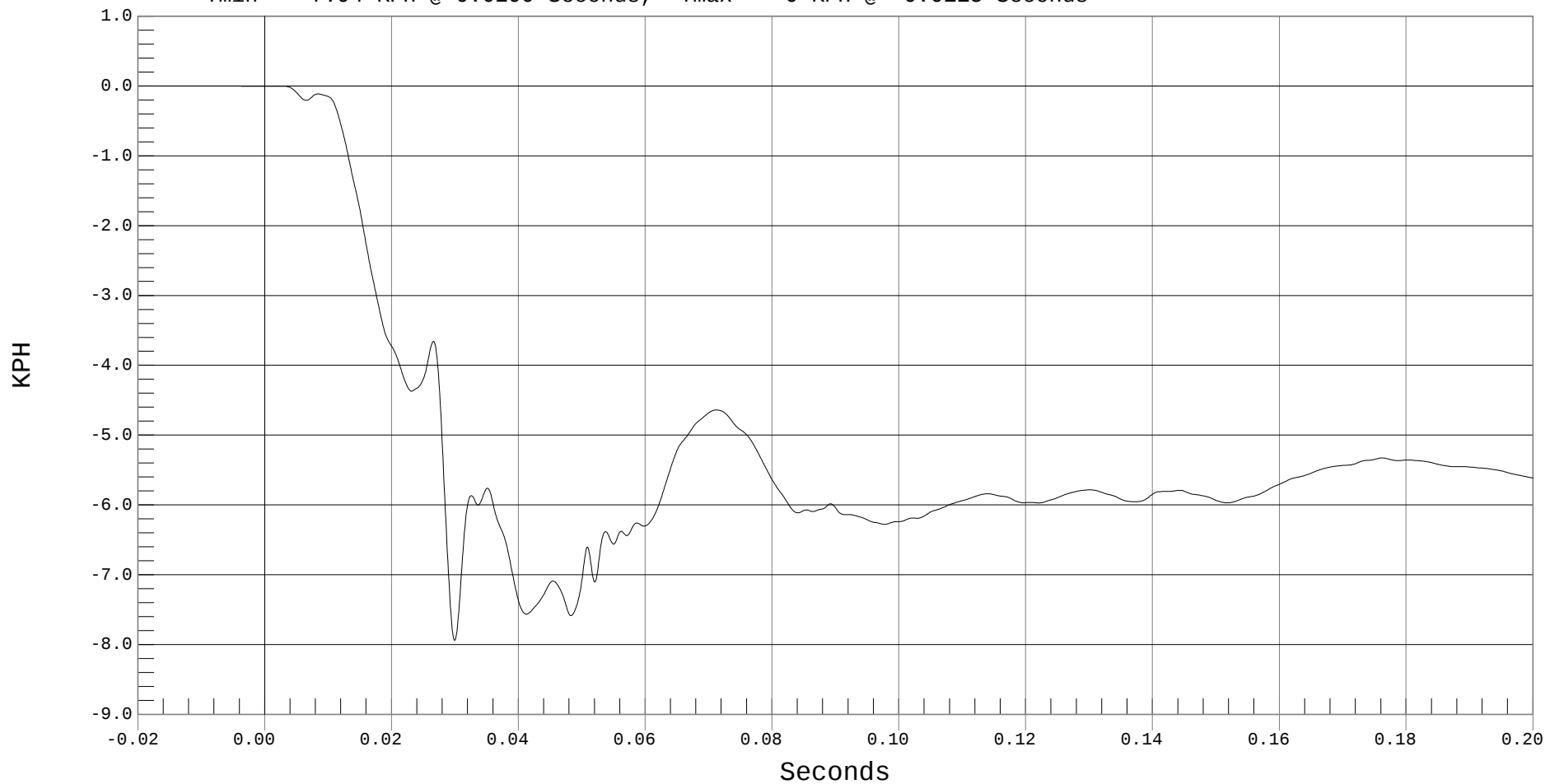
VEHICLE CG X VELOCITY

Test Desc.: FMVSS 214 SIDE IMPACT
Component: 1996 PONTIAC GRAND AM
Other Info:

Test Date: 05-04-01
Speed: 33.0 MPH, 53.1 KPH
Filter Class: 180

— 1 VEHICLE CG X VELOCITY, b01052AI.V33

Ymin = -7.94 KPH @ 0.0299 Seconds, Ymax = 0 KPH @ -0.0115 Seconds





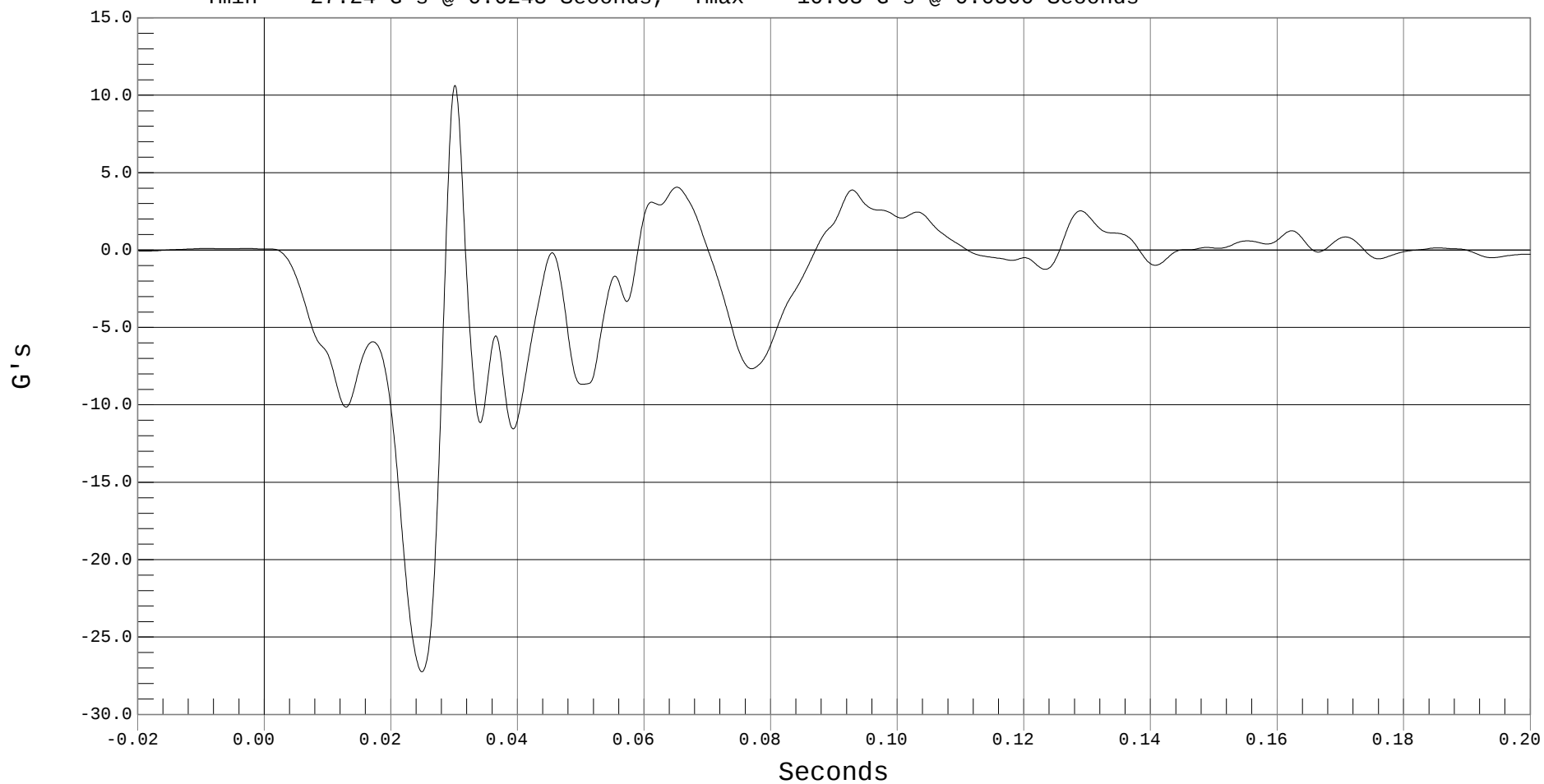
VEHICLE CG Y ACCELERATION

Test Desc.: FMVSS 214 SIDE IMPACT
Component: 1996 PONTIAC GRAND AM
Other Info:

Test Date: 05-04-01
Speed: 33.0 MPH, 53.1 KPH
Filter Class: 60

— 1 VEHICLE CG Y ACCELERATION, b01052AF.A34

Ymin = -27.24 G's @ 0.0248 Seconds, Ymax = 10.63 G's @ 0.0300 Seconds





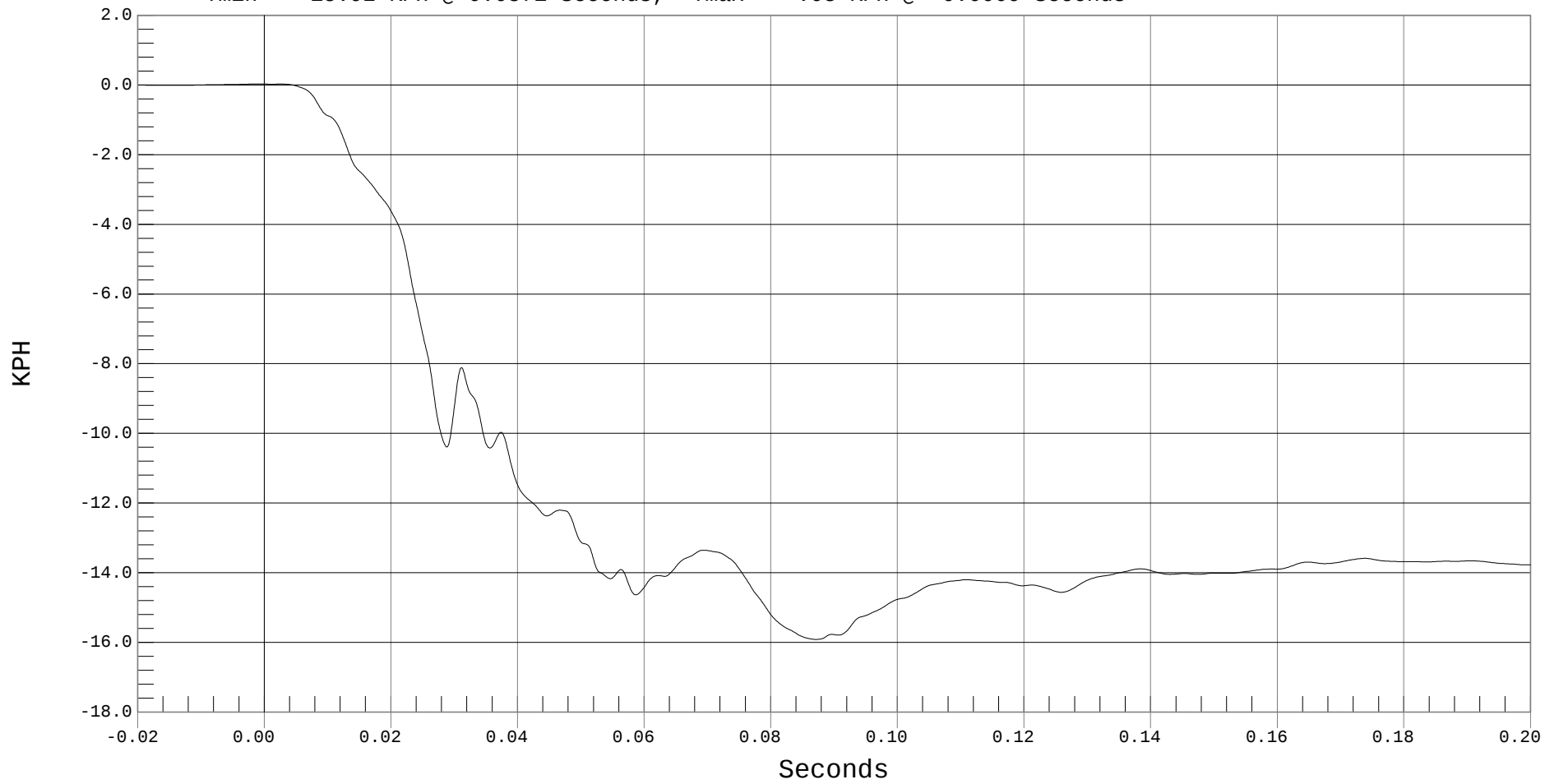
VEHICLE CG Y VELOCITY

Test Desc.: FMVSS 214 SIDE IMPACT
Component: 1996 PONTIAC GRAND AM
Other Info:

Test Date: 05-04-01
Speed: 33.0 MPH, 53.1 KPH
Filter Class: 180

— 1 VEHICLE CG Y VELOCITY, b01052AI.V34

Ymin = -15.92 KPH @ 0.0871 Seconds, Ymax = .03 KPH @ -0.0009 Seconds





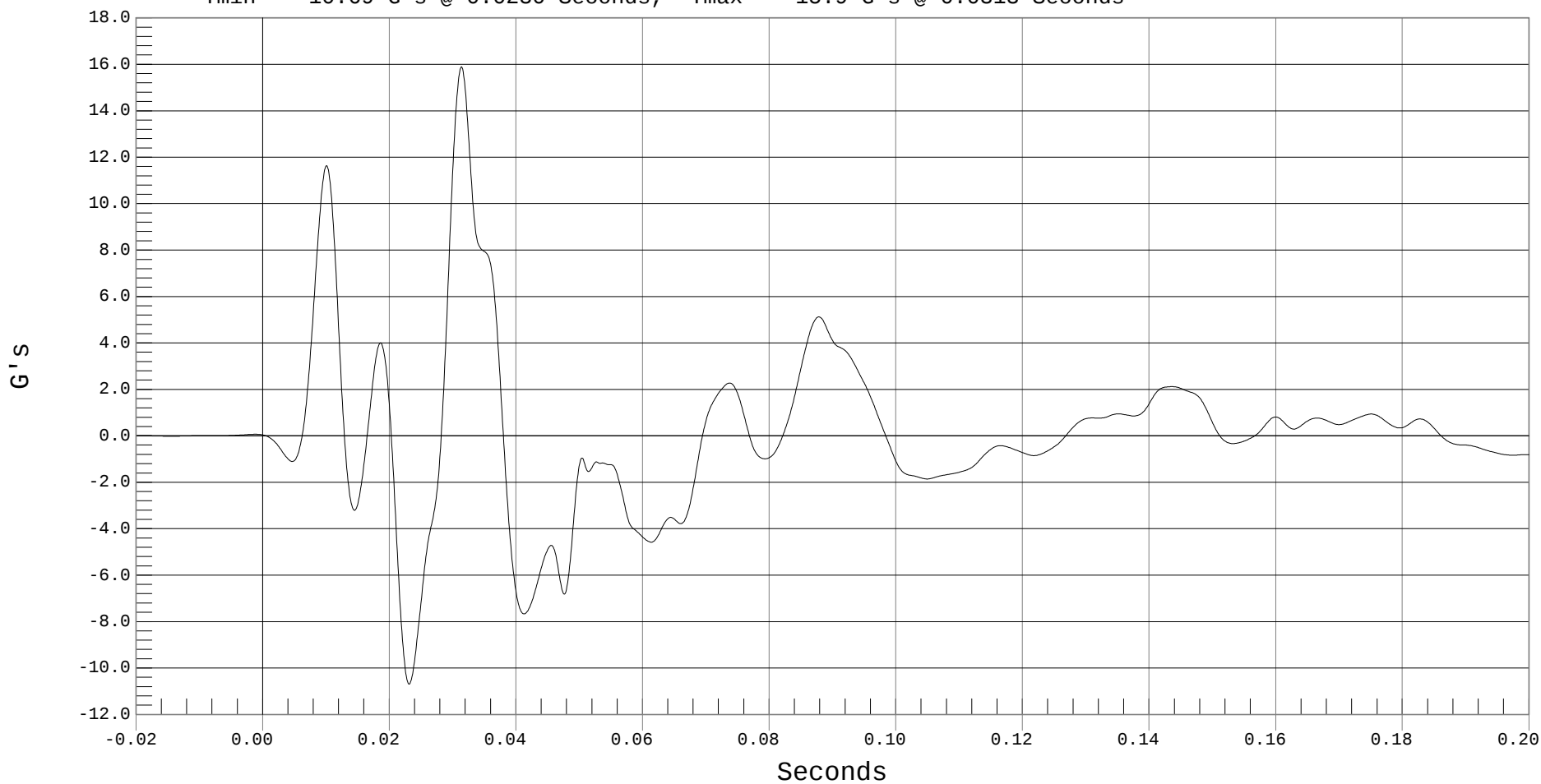
VEHICLE CG Z ACCELERATION

Test Desc.: FMVSS 214 SIDE IMPACT
Component: 1996 PONTIAC GRAND AM
Other Info:

Test Date: 05-04-01
Speed: 33.0 MPH, 53.1 KPH
Filter Class: 60

— 1 VEHICLE CG Z ACCELERATION, b01052AF.A35

Ymin = -10.69 G's @ 0.0230 Seconds, Ymax = 15.9 G's @ 0.0313 Seconds





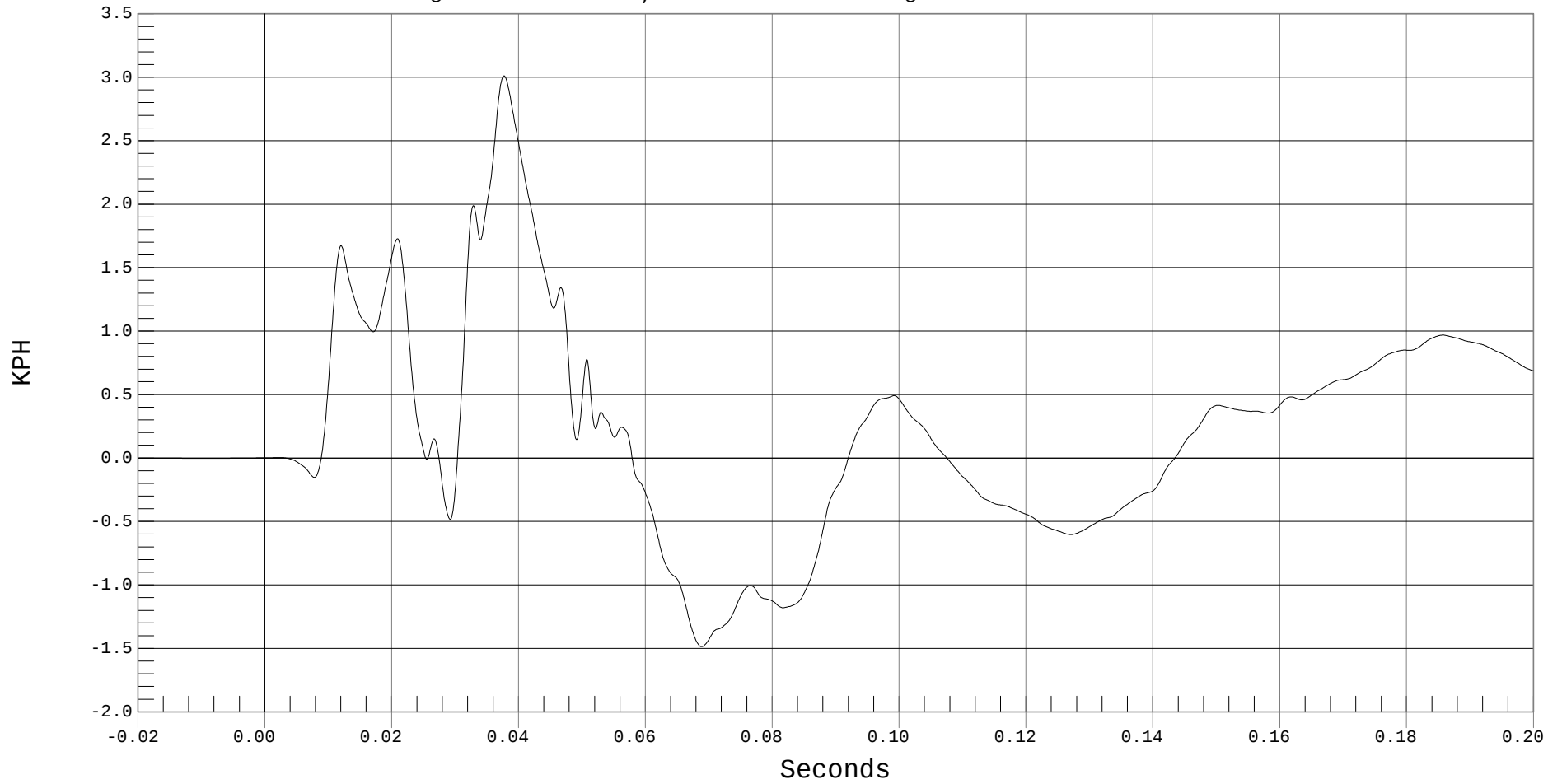
VEHICLE CG Z VELOCITY

Test Desc.: FMVSS 214 SIDE IMPACT
Component: 1996 PONTIAC GRAND AM
Other Info:

Test Date: 05-04-01
Speed: 33.0 MPH, 53.1 KPH
Filter Class: 180

— 1 VEHICLE CG Z VELOCITY, b01052AI.V35

Ymin = -1.49 KPH @ 0.0688 Seconds, Ymax = 3.01 KPH @ 0.0376 Seconds





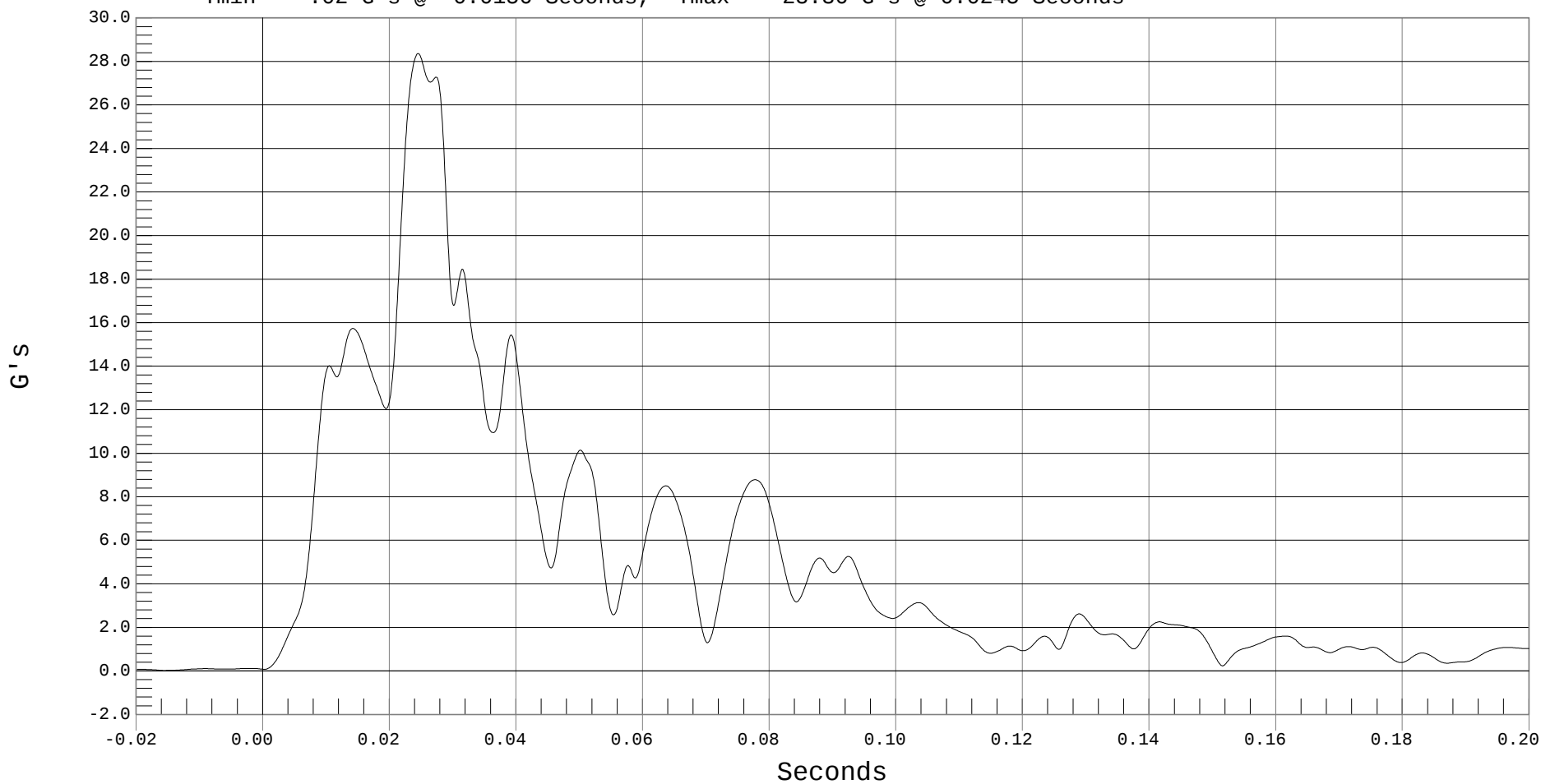
VEHICLE CG RESULTANT ACCELERATION

Test Desc.: FMVSS 214 SIDE IMPACT
Component: 1996 PONTIAC GRAND AM
Other Info:

Test Date: 05-04-01
Speed: 33.0 MPH, 53.1 KPH
Filter Class: 60

— 1 VEHICLE CG RESULTANT ACCELERATION, b01052AV.A33

Ymin = .02 G's @ -0.0156 Seconds, Ymax = 28.36 G's @ 0.0245 Seconds





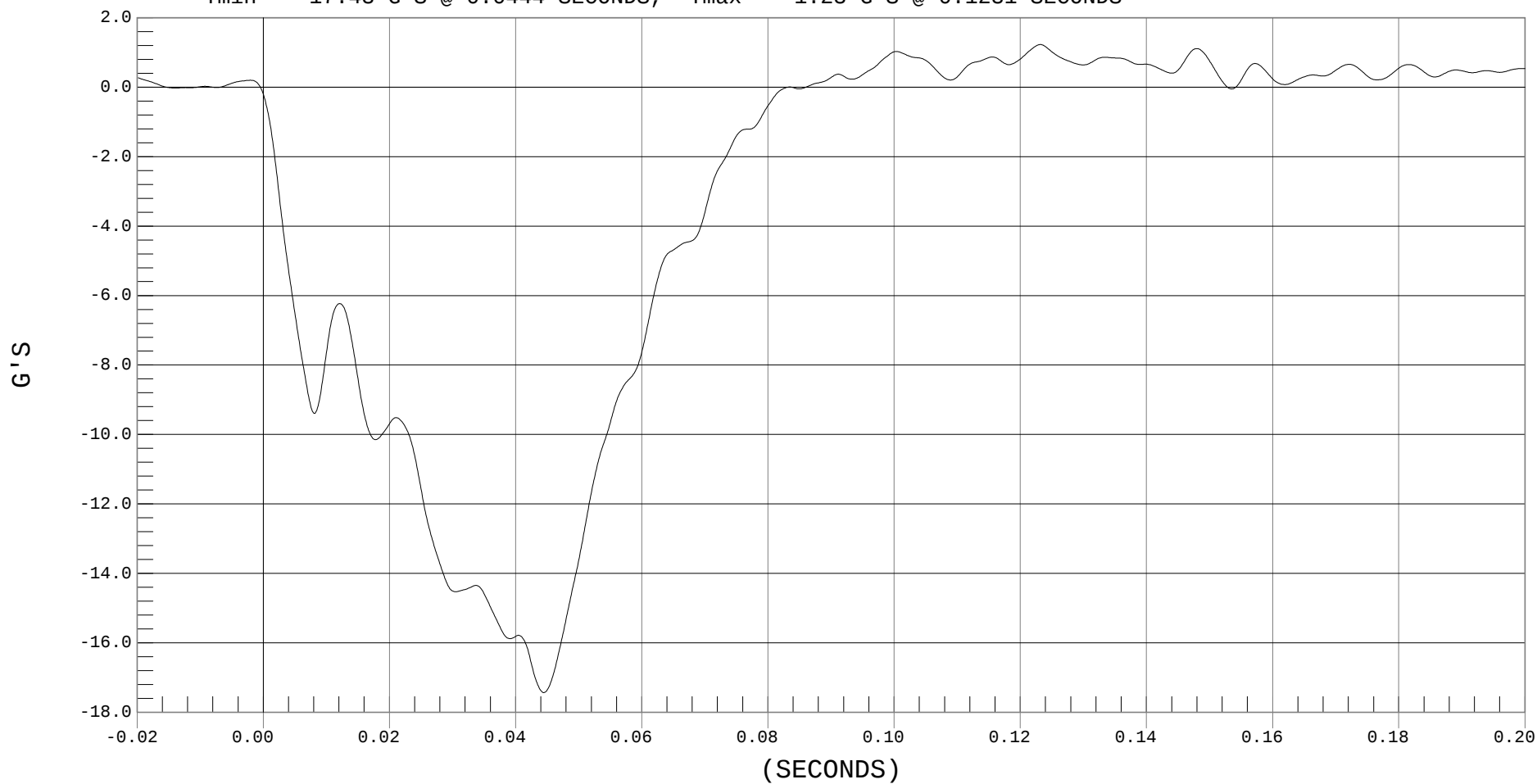
MOVING BARRIER CG X ACCELERATION

Test Desc.: FMVSS 214 SIDE IMPACT
Component: 1996 PONTIAC GRAND AM
Other Info:

Test Date: 05-04-01
Speed: 33.0 MPH, 53.1 KPH
Filter Class: 60

— 1 MOVING BARRIER CG X ACCELERATION, b01052AF.A02

Ymin = -17.43 G'S @ 0.0444 SECONDS, Ymax = 1.23 G'S @ 0.1231 SECONDS





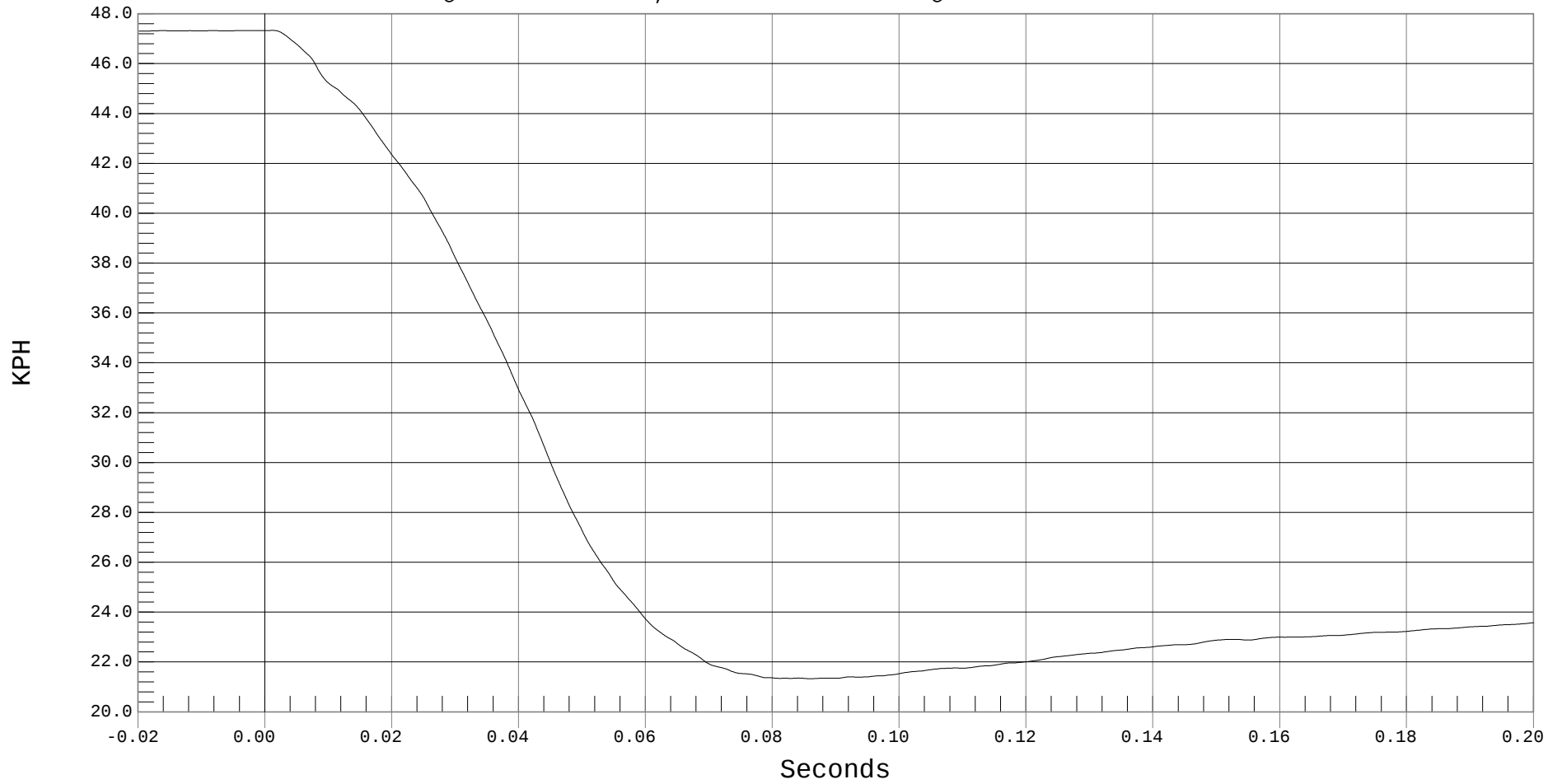
MOVING BARRIER CG X VELOCITY

Test Desc.: FMVSS 214 SIDE IMPACT
Component: 1996 PONTIAC GRAND AM
Other Info:

Test Date: 05-04-01
Speed: 33.0 MPH, 53.1 KPH
Filter Class: 180

— 1 MOVING BARRIER CG X VELOCITY, b01052AI.V02

Ymin = 21.33 KPH @ 0.0859 Seconds, Ymax = 47.33 KPH @ 0.0011 Seconds





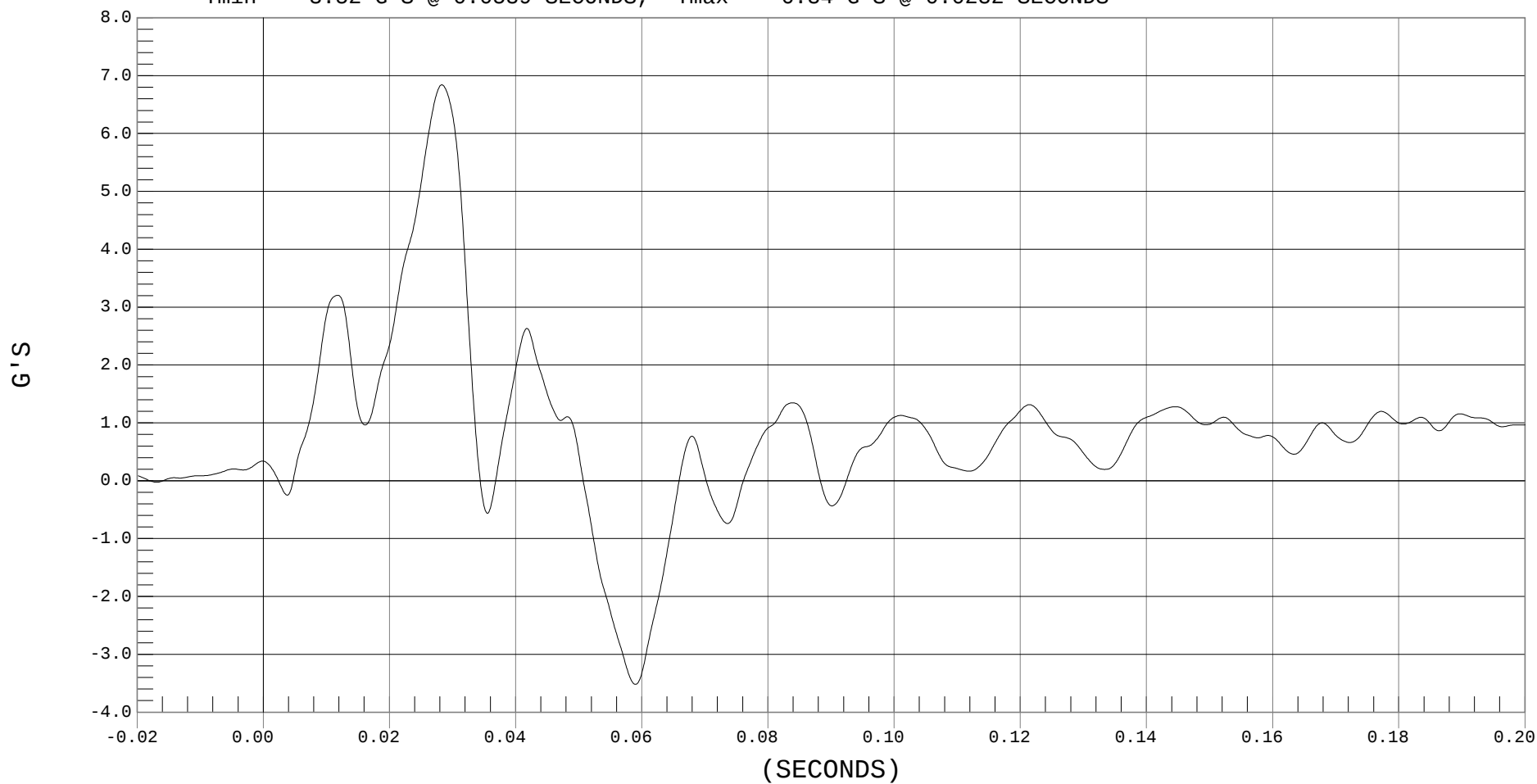
MOVING BARRIER CG Y ACCELERATION

Test Desc.: FMVSS 214 SIDE IMPACT
Component: 1996 PONTIAC GRAND AM
Other Info:

Test Date: 05-04-01
Speed: 33.0 MPH, 53.1 KPH
Filter Class: 60

— 1 MOVING BARRIER CG Y ACCELERATION, b01052AF.A03

Ymin = -3.52 G'S @ 0.0589 SECONDS, Ymax = 6.84 G'S @ 0.0282 SECONDS





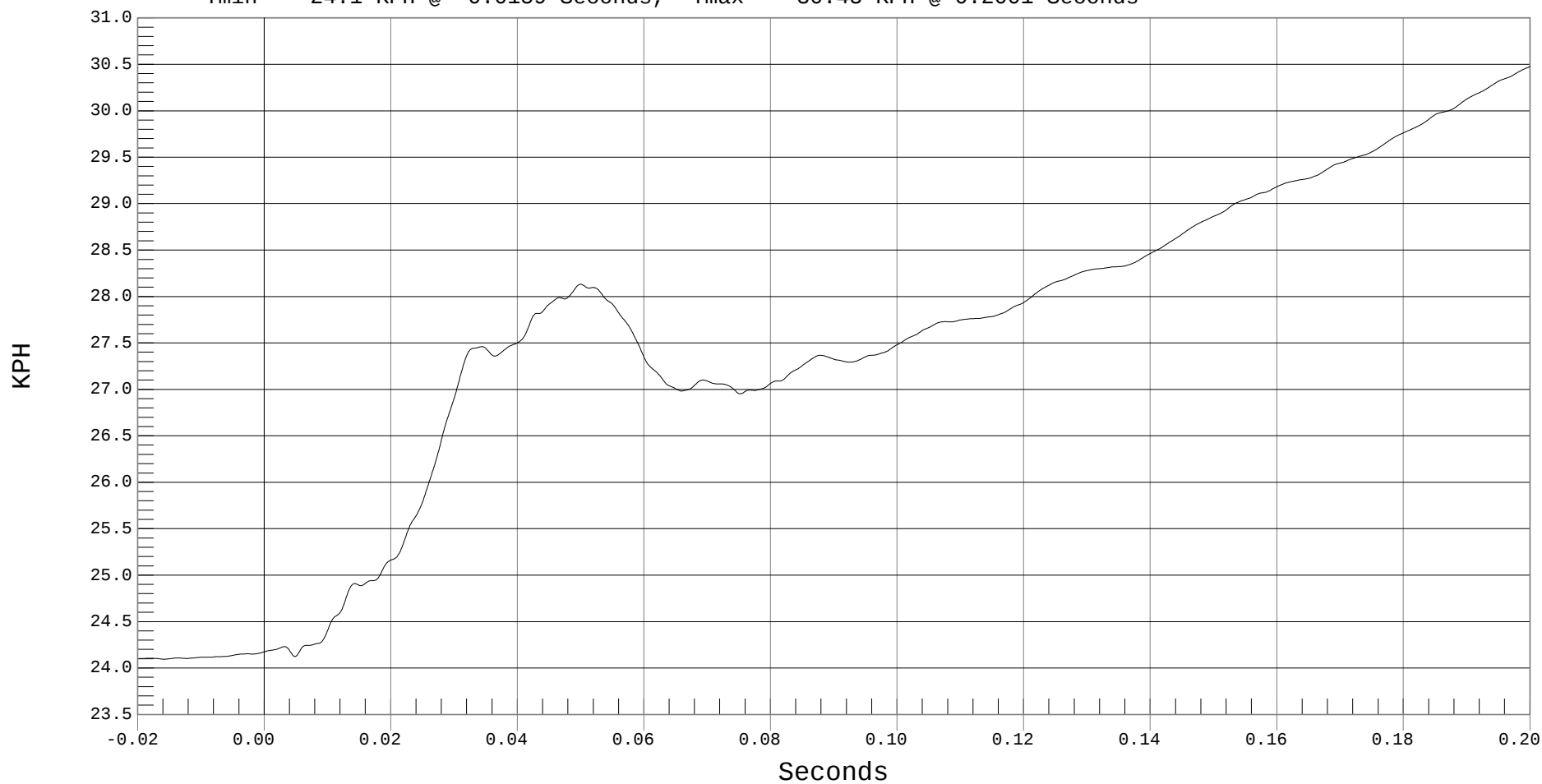
MOVING BARRIER CG Y VELOCITY

Test Desc.: FMVSS 214 SIDE IMPACT
Component: 1996 PONTIAC GRAND AM
Other Info:

Test Date: 05-04-01
Speed: 33.0 MPH, 53.1 KPH
Filter Class: 180

— 1 MOVING BARRIER CG Y VELOCITY, b01052AI.V03

Ymin = 24.1 KPH @ -0.0159 Seconds, Ymax = 30.48 KPH @ 0.2001 Seconds





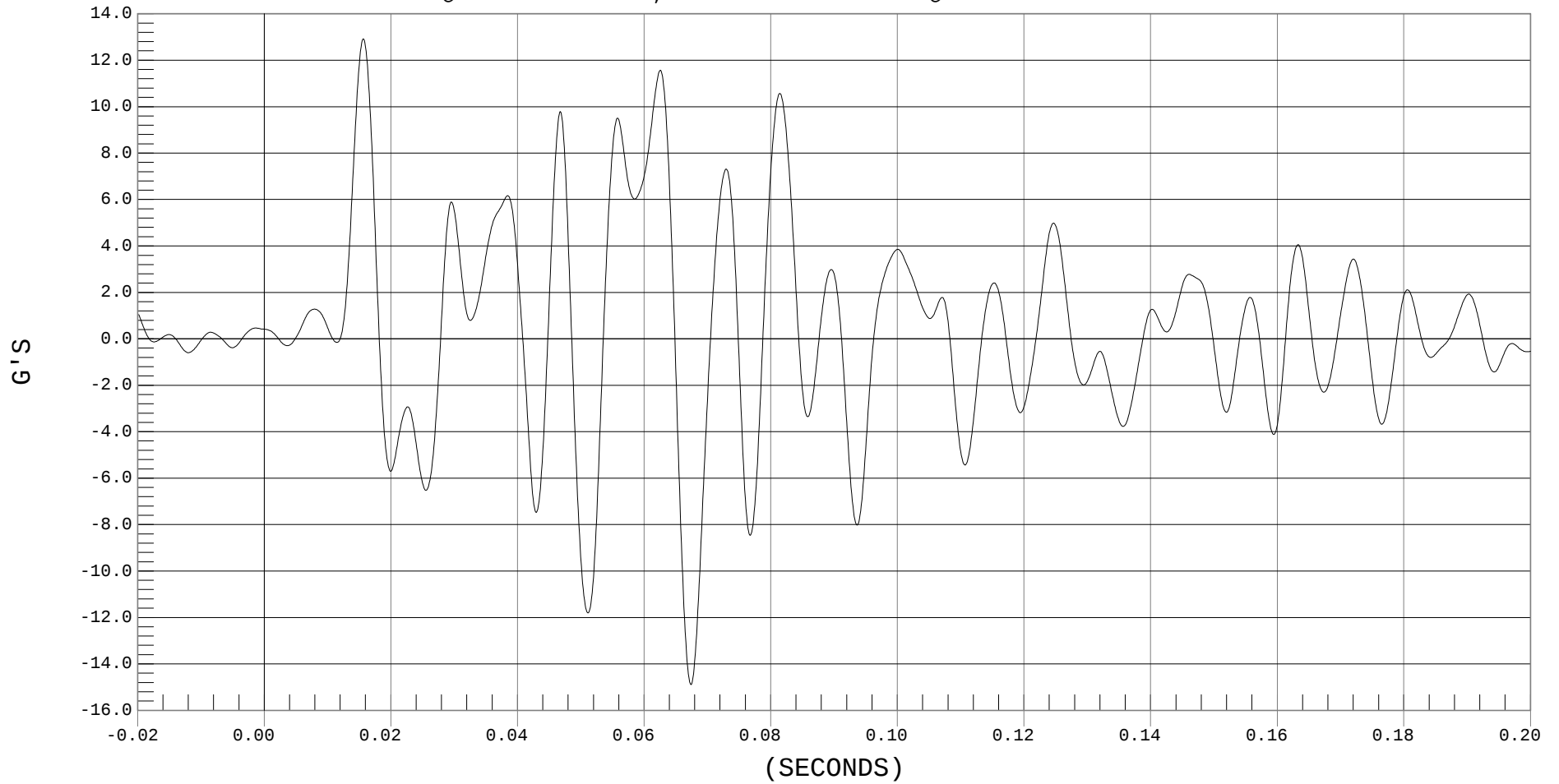
MOVING BARRIER CG Z ACCELERATION

Test Desc.: FMVSS 214 SIDE IMPACT
Component: 1996 PONTIAC GRAND AM
Other Info:

Test Date: 05-04-01
Speed: 33.0 MPH, 53.1 KPH
Filter Class: 60

— 1 MOVING BARRIER CG Z ACCELERATION, b01052AF.A04

Ymin = -14.89 G'S @ 0.0673 SECONDS, Ymax = 12.91 G'S @ 0.0156 SECONDS





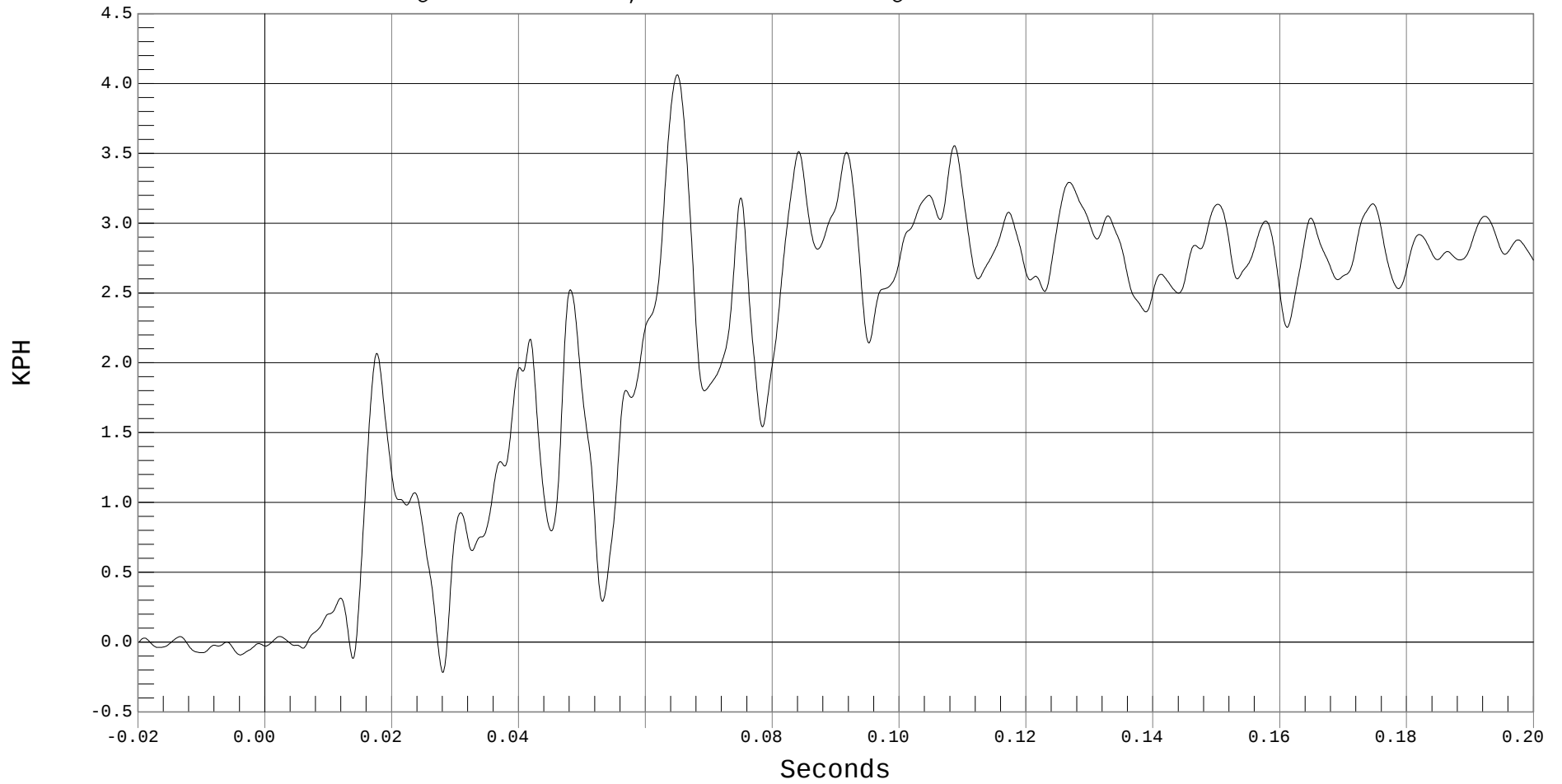
MOVING BARRIER CG Z VELOCITY

Test Desc.: FMVSS 214 SIDE IMPACT
Component: 1996 PONTIAC GRAND AM
Other Info:

Test Date: 05-04-01
Speed: 33.0 MPH, 53.1 KPH
Filter Class: 180

— 1 MOVING BARRIER CG Z VELOCITY, b01052AI.V04

Ymin = -.22 KPH @ 0.0280 Seconds, Ymax = 4.06 KPH @ 0.0649 Seconds





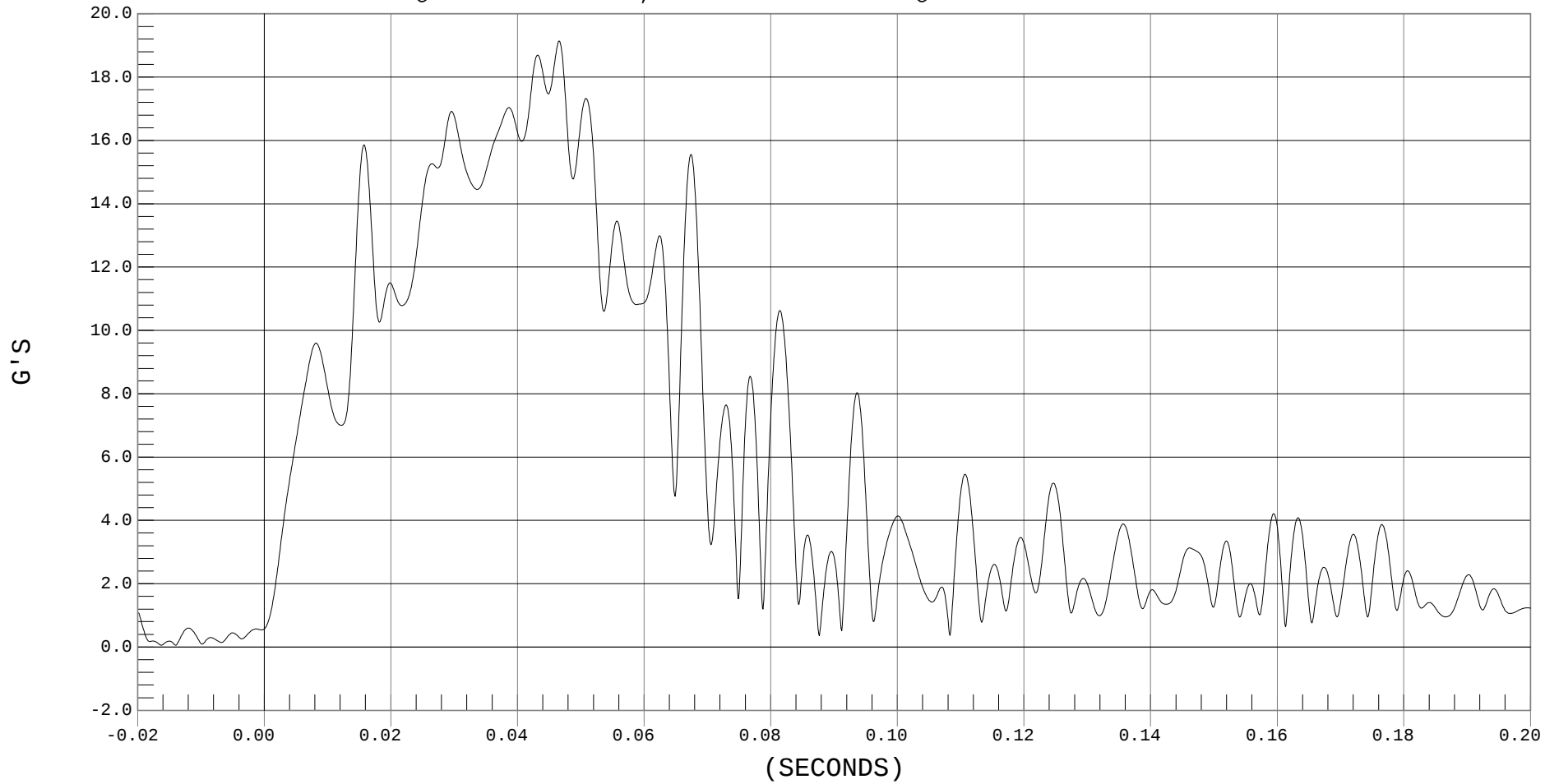
MOVING BARRIER CG RESULTANT ACCELERATION

Test Desc.: FMVSS 214 SIDE IMPACT
Component: 1996 PONTIAC GRAND AM
Other Info:

Test Date: 05-04-01
Speed: 33.0 MPH, 53.1 KPH
Filter Class: 60

— 1 MOVING BARRIER CG RESULTANT ACCELERATION, b01052AV.A02

Ymin = .06 G'S @ -0.0141 SECONDS, Ymax = 19.14 G'S @ 0.0465 SECONDS





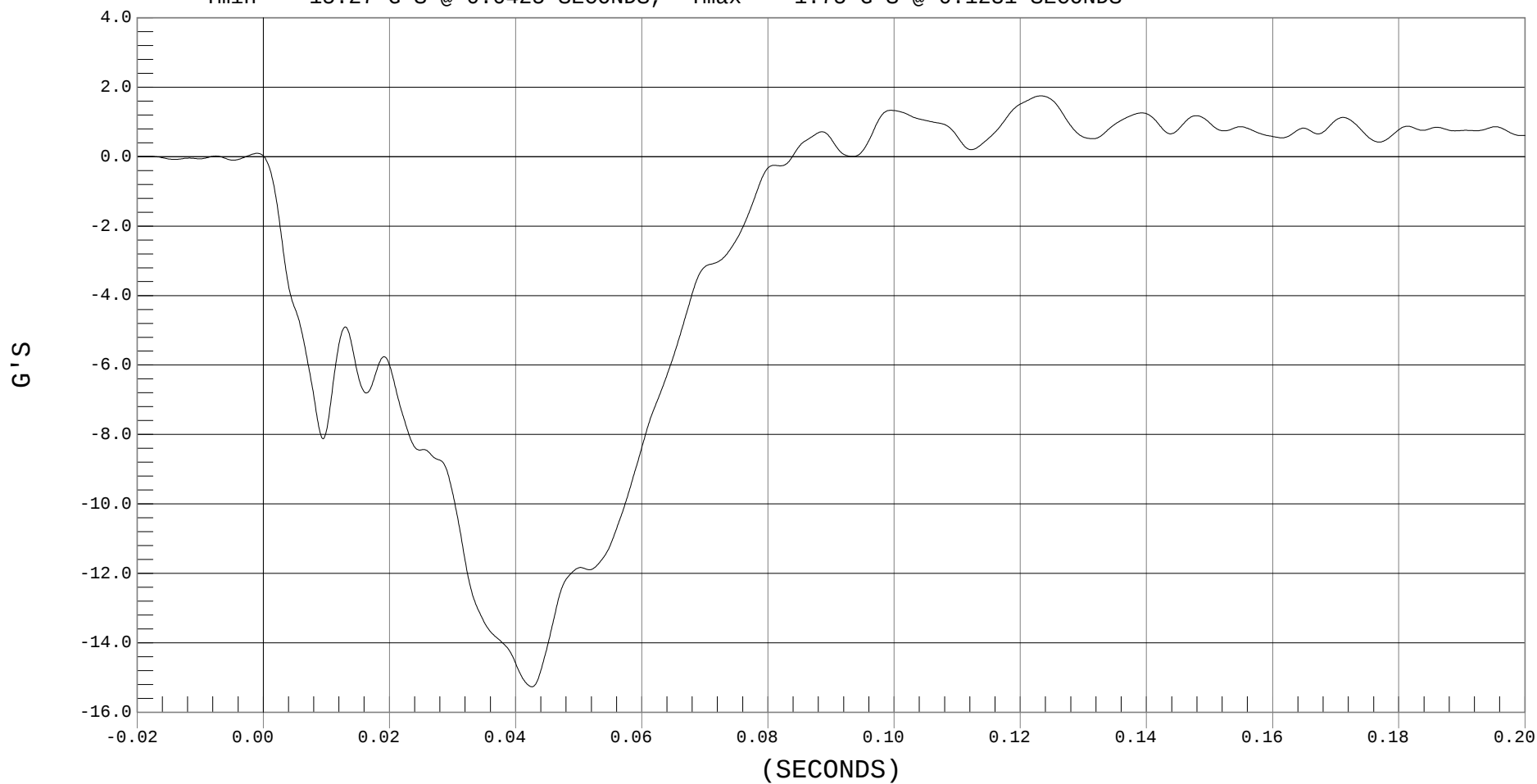
MOVING BARRIER REAR AXLE X ACCELERATION

Test Desc.: FMVSS 214 SIDE IMPACT
Component: 1996 PONTIAC GRAND AM
Other Info:

Test Date: 05-04-01
Speed: 33.0 MPH, 53.1 KPH
Filter Class: 60

1 MOVING BARRIER REAR AXLE X ACCELERATION, b01052AF.A05

Ymin = -15.27 G'S @ 0.0425 SECONDS, Ymax = 1.75 G'S @ 0.1231 SECONDS





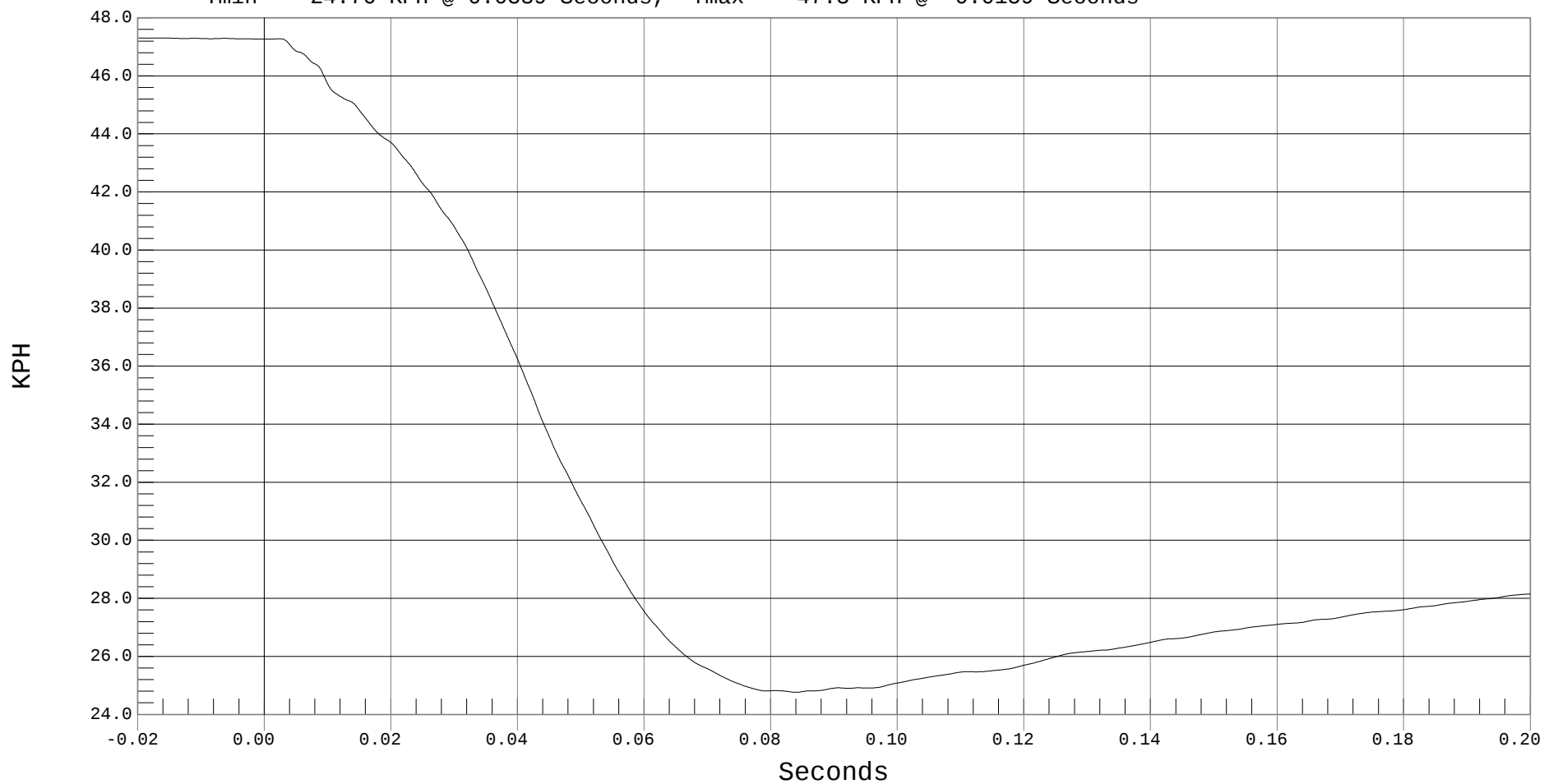
MOVING BARRIER REAR AXLE X VELOCITY

Test Desc.: FMVSS 214 SIDE IMPACT
Component: 1996 PONTIAC GRAND AM
Other Info:

Test Date: 05-04-01
Speed: 33.0 MPH, 53.1 KPH
Filter Class: 180

— 1 MOVING BARRIER REAR AXLE X VELOCITY, b01052AI.V05

Ymin = 24.76 KPH @ 0.0839 Seconds, Ymax = 47.3 KPH @ -0.0159 Seconds





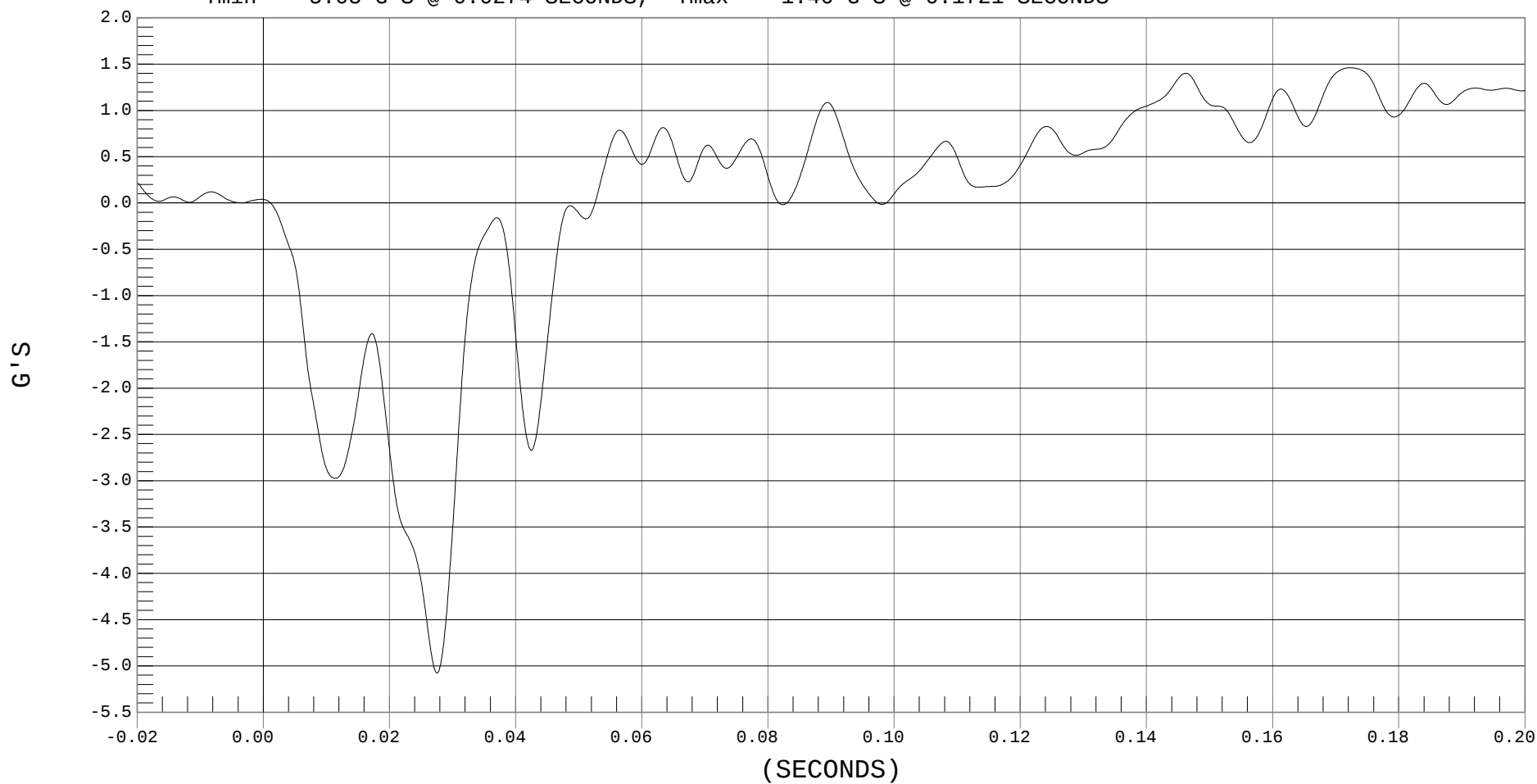
MOVING BARRIER REAR AXLE Y ACCELERATION

Test Desc.: FMVSS 214 SIDE IMPACT
Component: 1996 PONTIAC GRAND AM
Other Info:

Test Date: 05-04-01
Speed: 33.0 MPH, 53.1 KPH
Filter Class: 60

— 1 MOVING BARRIER REAR AXLE Y ACCELERATION, b01052AF.A06

Ymin = -5.08 G'S @ 0.0274 SECONDS, Ymax = 1.46 G'S @ 0.1721 SECONDS





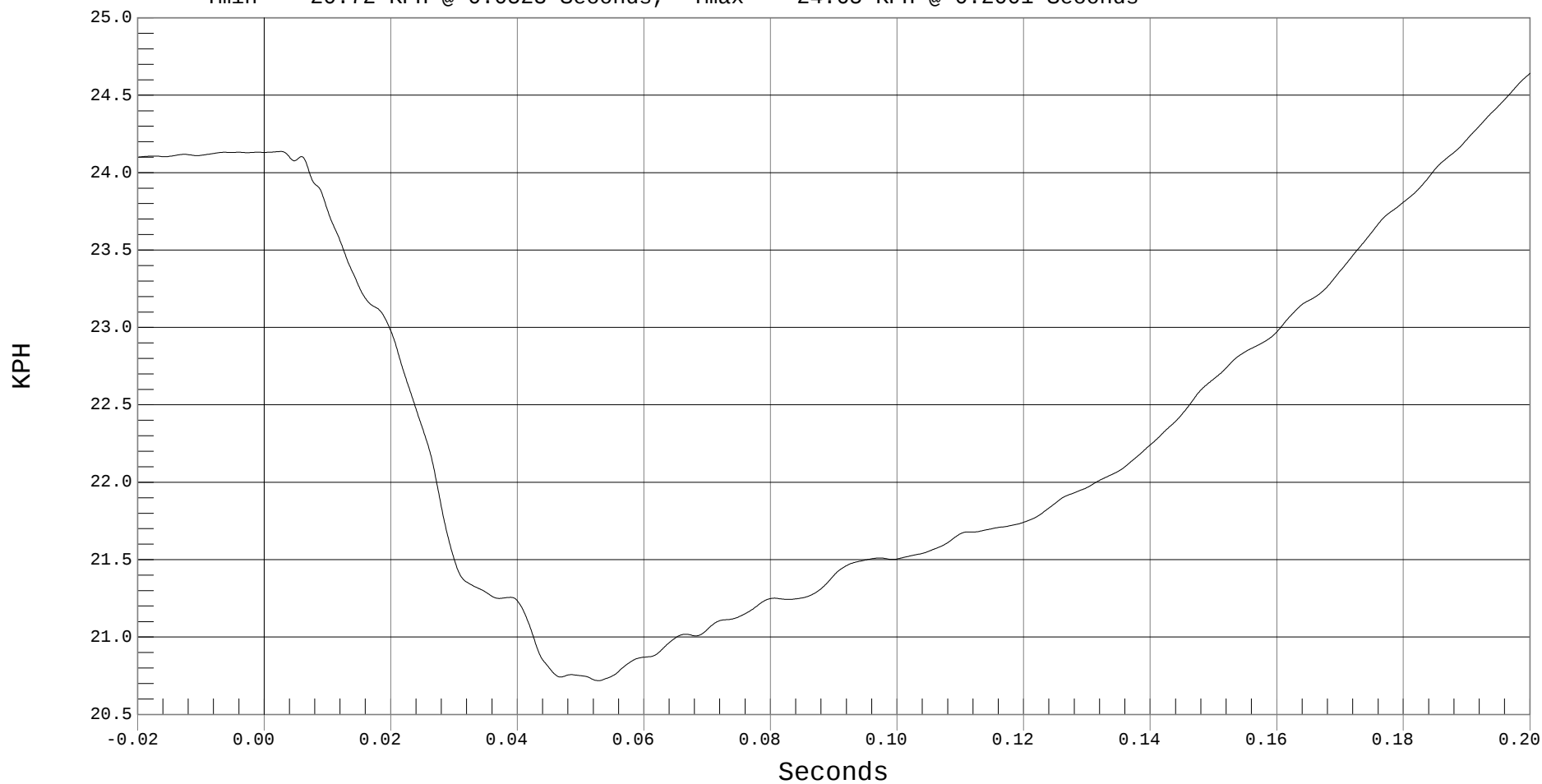
MOVING BARRIER REAR AXLE Y VELOCITY

Test Desc.: FMVSS 214 SIDE IMPACT
Component: 1996 PONTIAC GRAND AM
Other Info:

Test Date: 05-04-01
Speed: 33.0 MPH, 53.1 KPH
Filter Class: 180

— 1 MOVING BARRIER REAR AXLE Y VELOCITY, b01052AI.V06

Ymin = 20.72 KPH @ 0.0528 Seconds, Ymax = 24.65 KPH @ 0.2001 Seconds





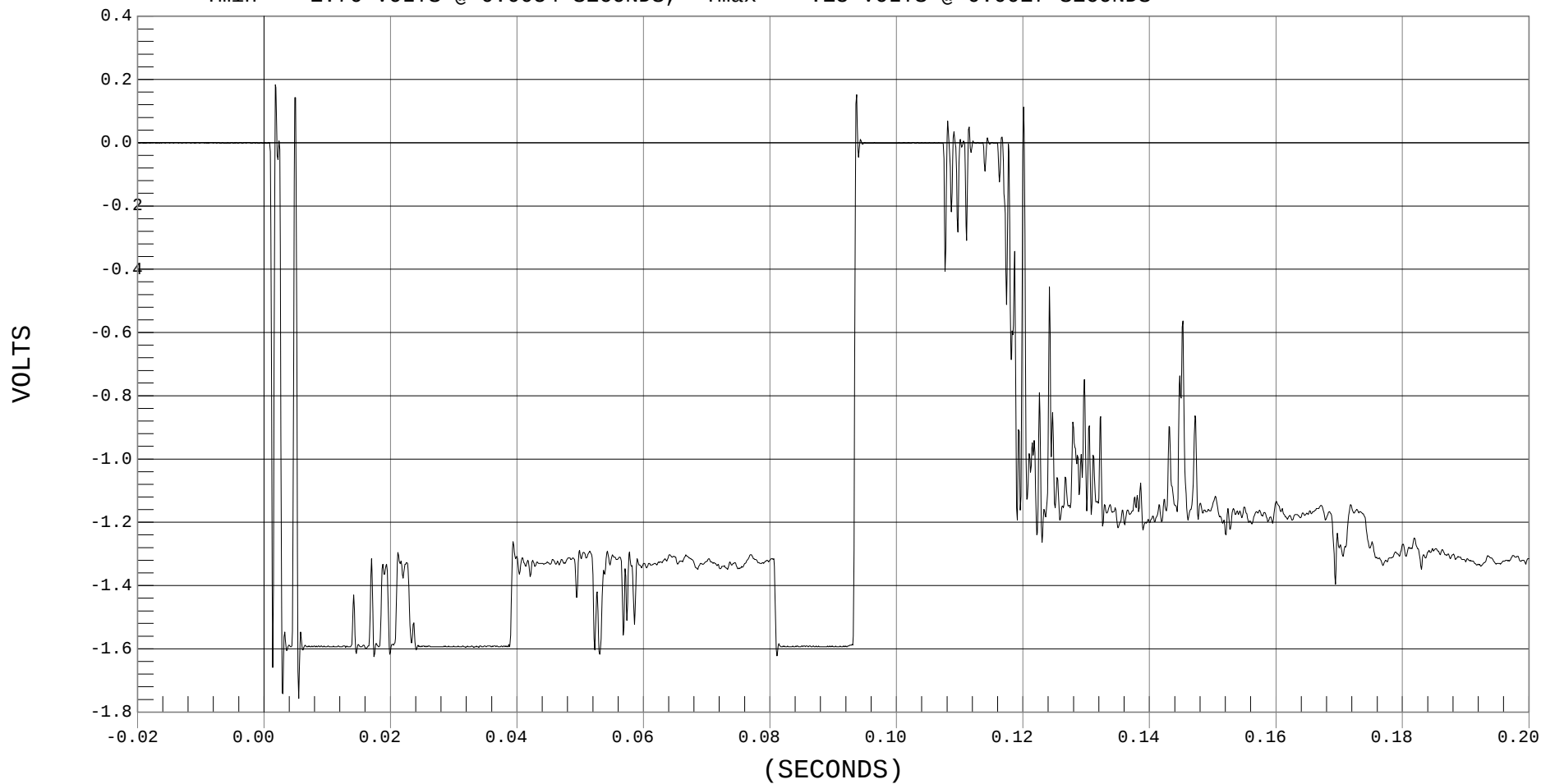
LEFT BARRIER CONTACT

Test Desc.: FMVSS 214 SIDE IMPACT
Component: 1996 PONTIAC GRAND AM
Other Info:

Test Date: 05-04-01
Speed: 33.0 MPH, 53.1 KPH
Filter Class: 1000

— 1 LEFT BARRIER CONTACT, b010520T.009

Ymin = -1.76 VOLTS @ 0.0054 SECONDS, Ymax = .18 VOLTS @ 0.0017 SECONDS





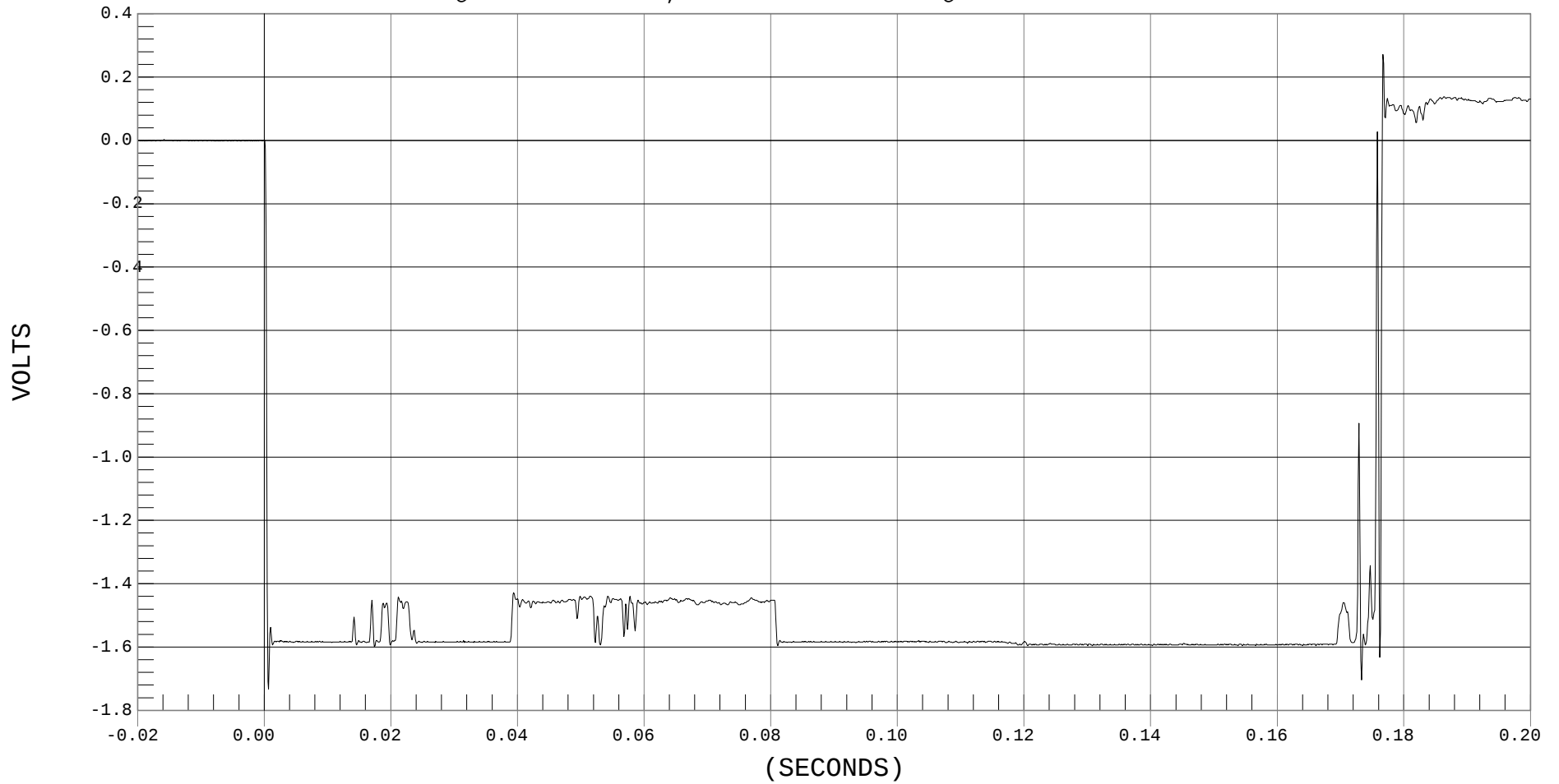
RIGHT BARRIER CONTACT

Test Desc.: FMVSS 214 SIDE IMPACT
Component: 1996 PONTIAC GRAND AM
Other Info:

Test Date: 05-04-01
Speed: 33.0 MPH, 53.1 KPH
Filter Class: 1000

— 1 RIGHT BARRIER CONTACT, b010520T.010

Ymin = -1.73 VOLTS @ 0.0006 SECONDS, Ymax = .27 VOLTS @ 0.1766 SECONDS





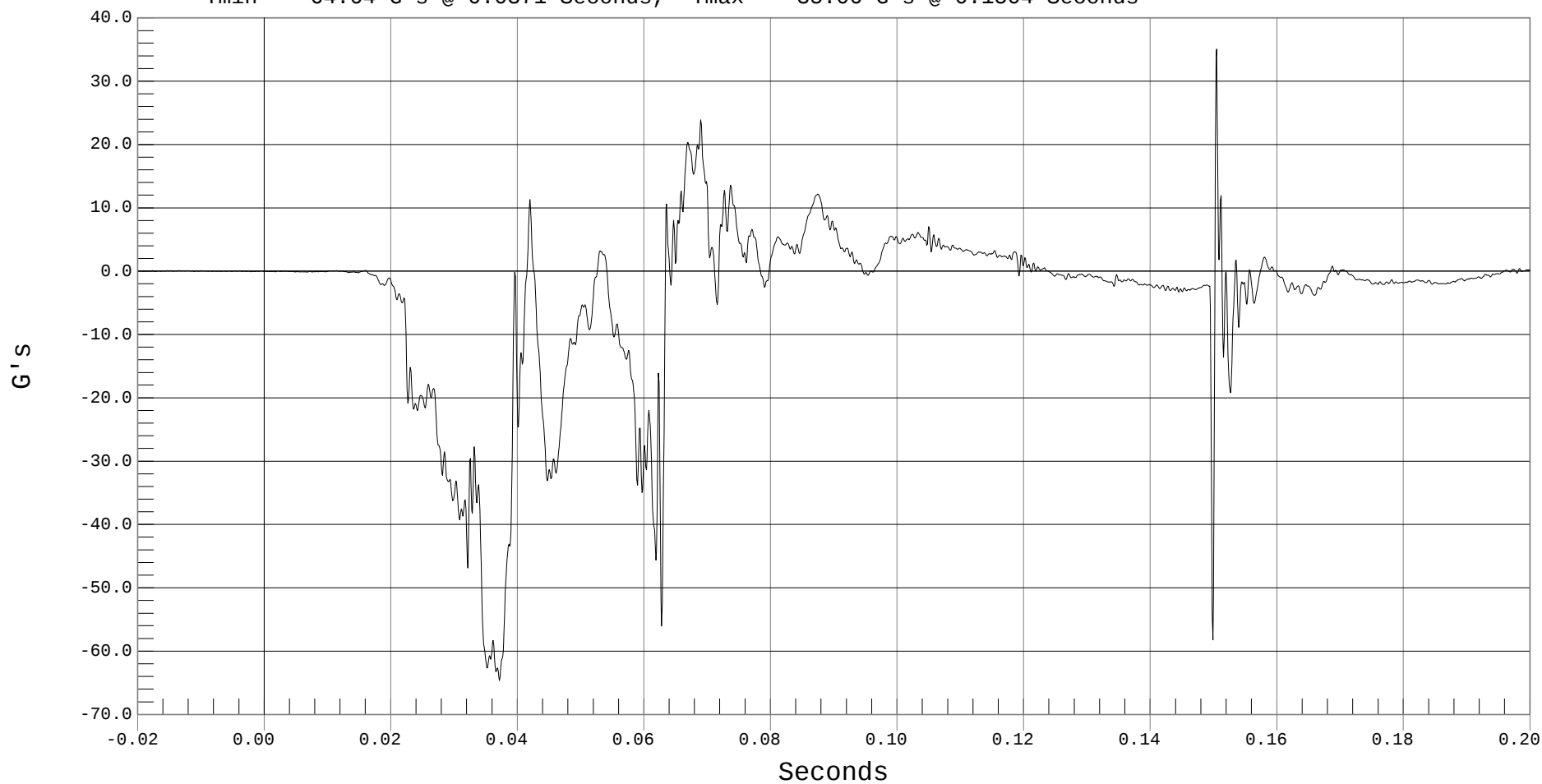
RIGHT FRONT PASSENGER UPPER RIB REDUNDANT Y ACCELERATION

Test Desc.: FMVSS 214 SIDE IMPACT
Component: 1996 PONTIAC GRAND AM
Other Info:

Test Date: 05-04-01
Speed: 33.0 MPH, 53.1 KPH
Filter Class: 1000

1 RIGHT FRONT PASSENGER UPPER RIB REDUNDANT Y ACCELERATION, b01052AT.A41

Ymin = -64.64 G's @ 0.0371 Seconds, Ymax = 35.06 G's @ 0.1504 Seconds





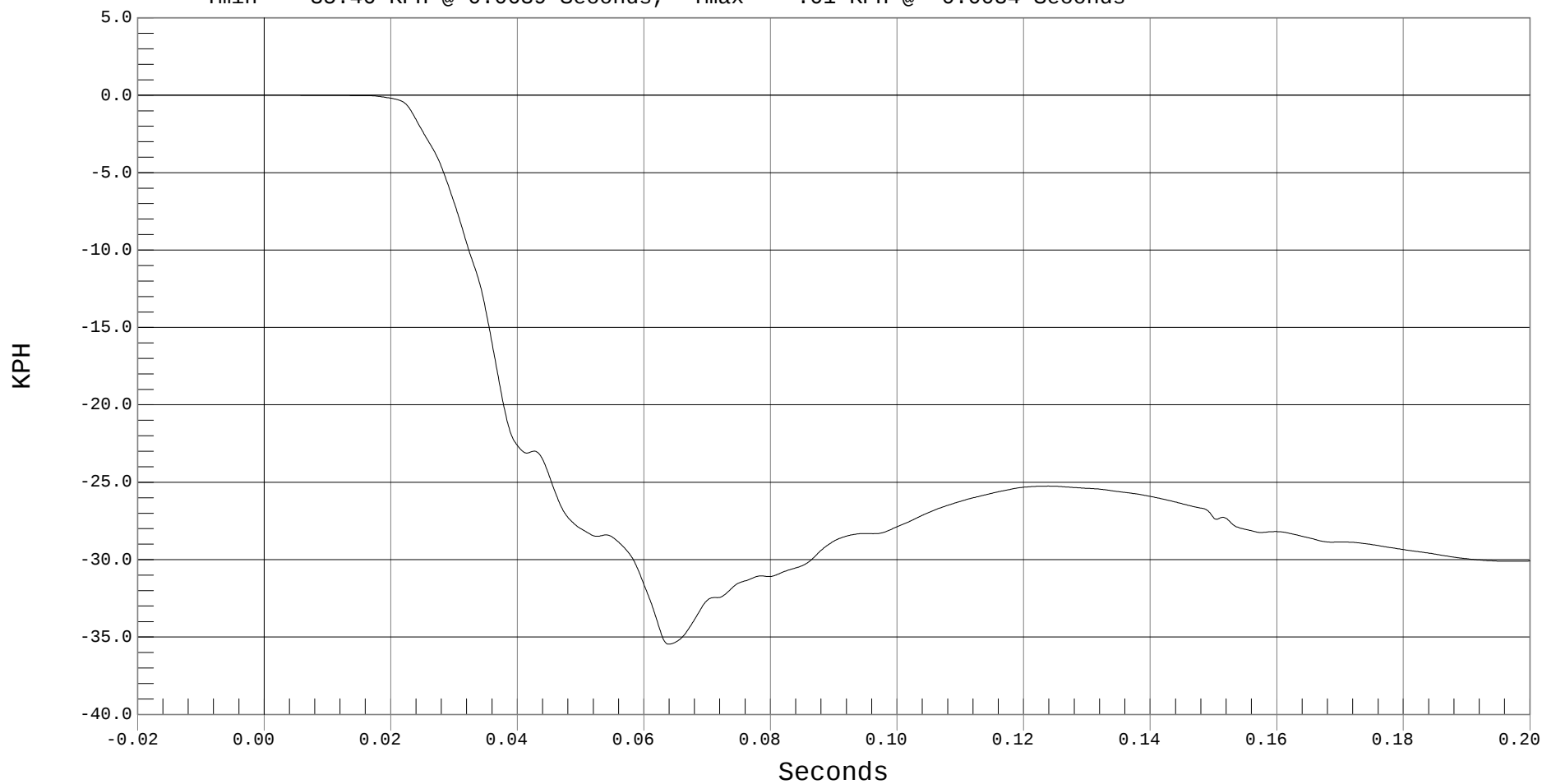
RIGHT FRONT PASSENGER UPPER RIB REDUNDANT Y VELOCITY

Test Desc.: FMVSS 214 SIDE IMPACT
Component: 1996 PONTIAC GRAND AM
Other Info:

Test Date: 05-04-01
Speed: 33.0 MPH, 53.1 KPH
Filter Class: 180

1 RIGHT FRONT PASSENGER UPPER RIB Y REDUNDANT VELOCITY, b01052AI.V41

Ymin = -35.46 KPH @ 0.0639 Seconds, Ymax = .01 KPH @ -0.0084 Seconds





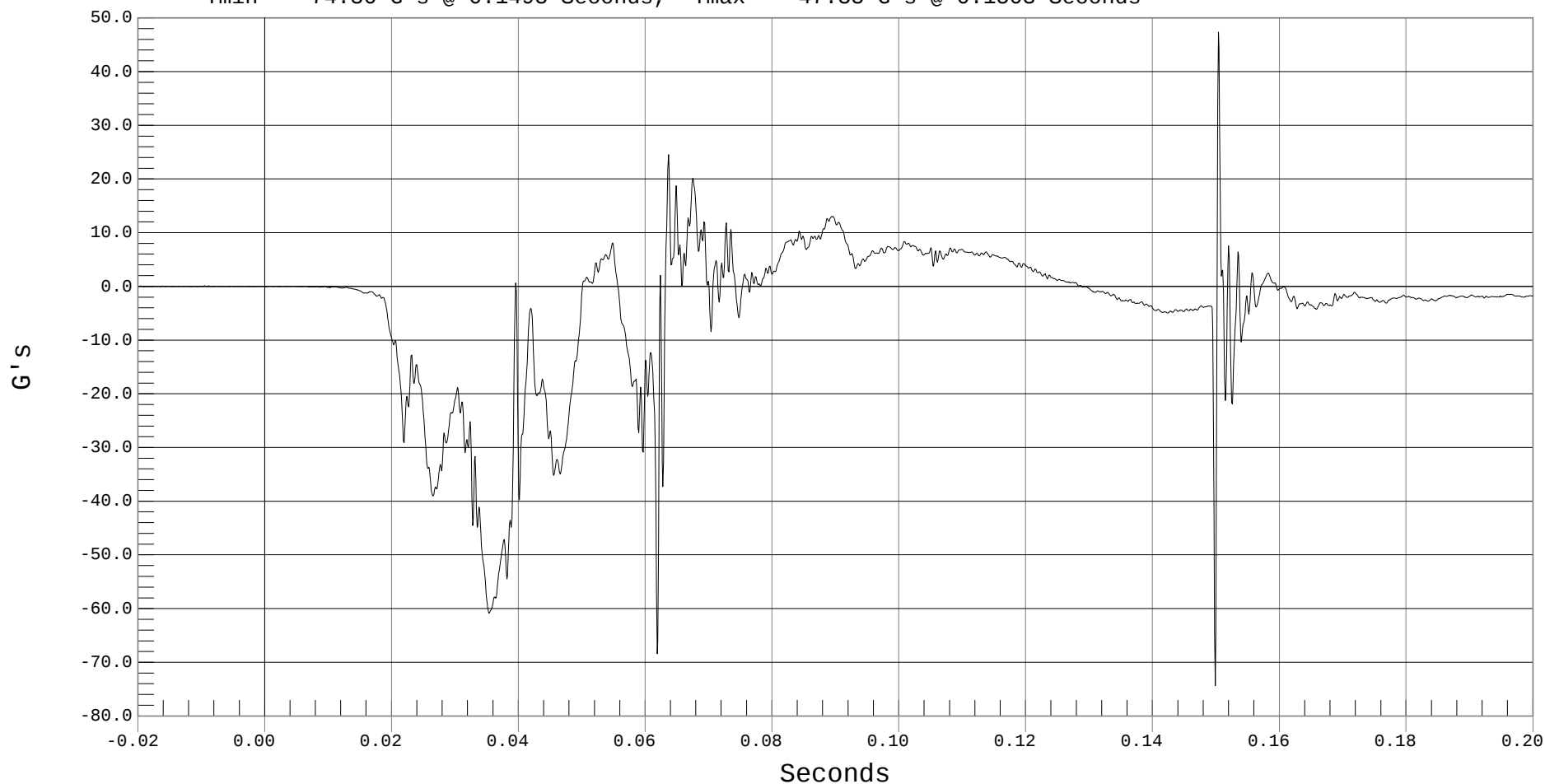
RIGHT FRONT PASSENGER LOWER RIB REDUNDANT Y ACCELERATION

Test Desc.: FMVSS 214 SIDE IMPACT
Component: 1996 PONTIAC GRAND AM
Other Info:

Test Date: 05-04-01
Speed: 33.0 MPH, 53.1 KPH
Filter Class: 1000

— 1 RIGHT FRONT PASSENGER LOWER RIB REDUNDANT Y ACCELERATION, b01052AT.A42

Ymin = -74.36 G's @ 0.1498 Seconds, Ymax = 47.38 G's @ 0.1503 Seconds





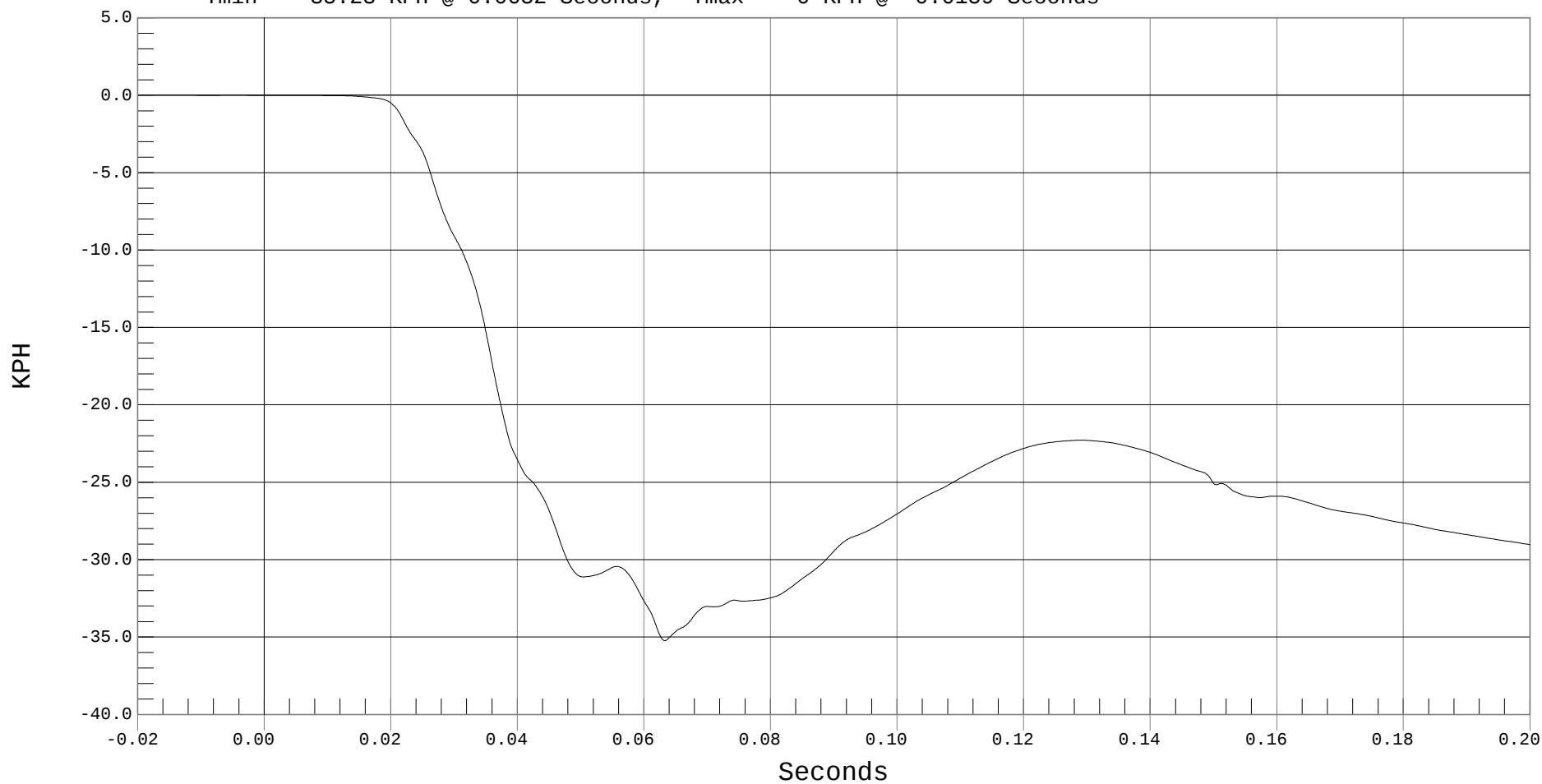
RIGHT FRONT PASSENGER LOWER RIB REDUNDANT Y VELOCITY

Test Desc.: FMVSS 214 SIDE IMPACT
Component: 1996 PONTIAC GRAND AM
Other Info:

Test Date: 05-04-01
Speed: 33.0 MPH, 53.1 KPH
Filter Class: 180

— 1 RIGHT FRONT PASSENGER LOWER RIB REDUNDANT Y VELOCITY, b01052AI.V42

Ymin = -35.23 KPH @ 0.0632 Seconds, Ymax = 0 KPH @ -0.0159 Seconds





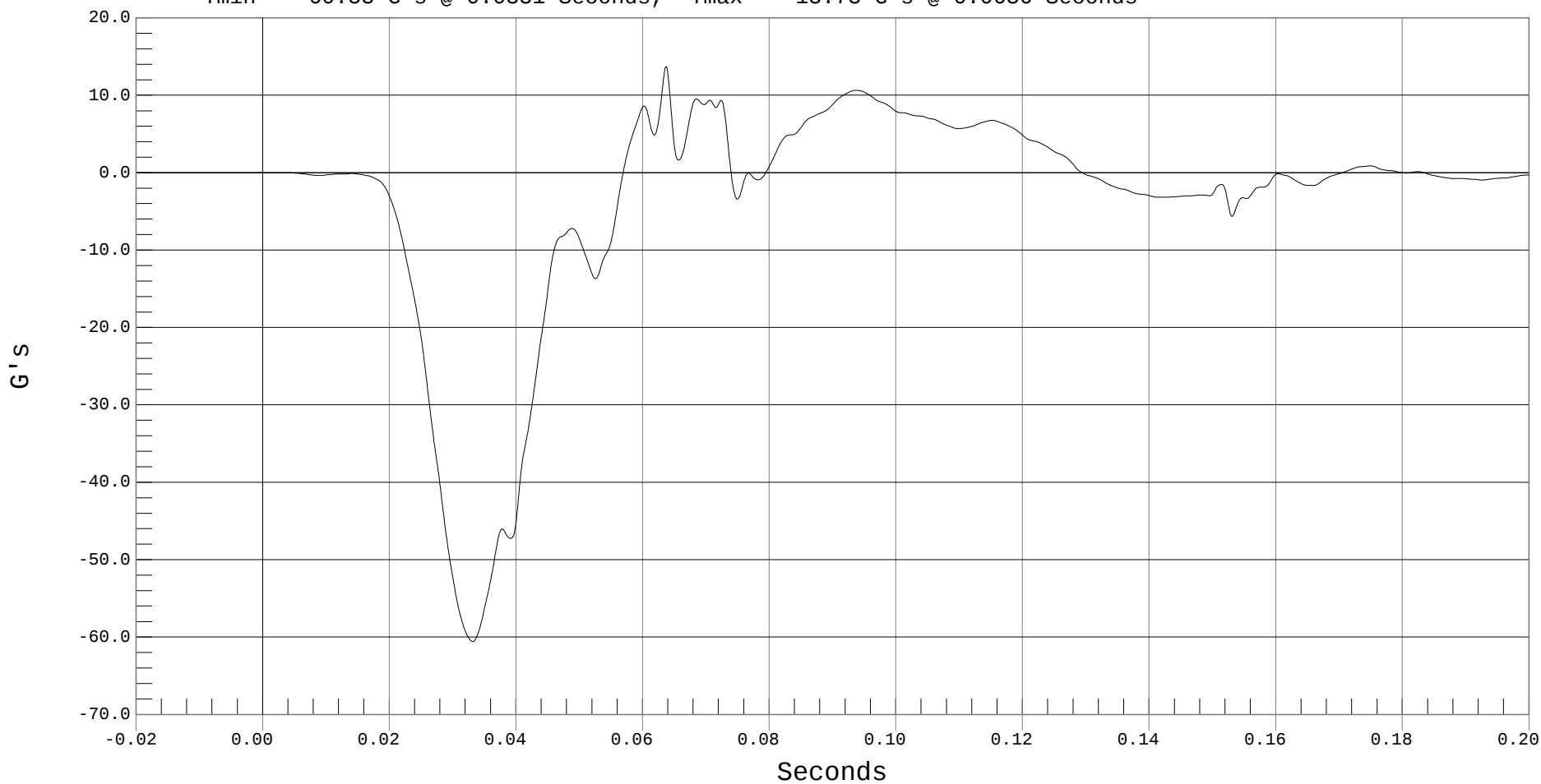
RIGHT FRONT PASSENGER LOWER SPINE REDUNDANT Y ACCELERATION

Test Desc.: FMVSS 214 SIDE IMPACT
Component: 1996 PONTIAC GRAND AM
Other Info:

Test Date: 05-04-01
Speed: 33.0 MPH, 53.1 KPH
Filter Class: 180

1 RIGHT FRONT PASSENGER LOWER SPINE REDUNDANT Y ACCELERATION, b01052AF.A43

Ymin = -60.58 G's @ 0.0331 Seconds, Ymax = 13.73 G's @ 0.0636 Seconds





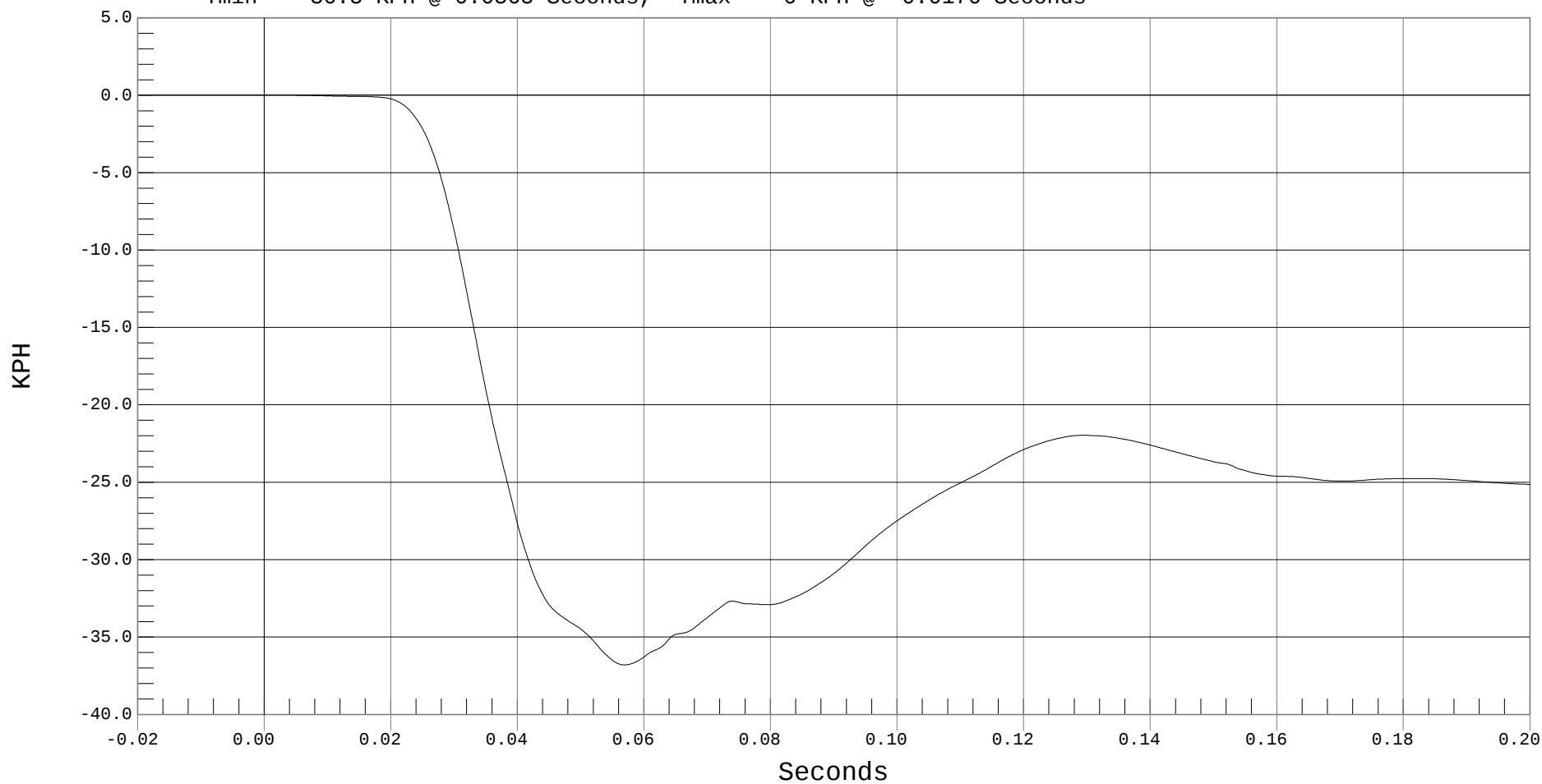
RIGHT FRONT PASSENGER LOWER SPINE REDUNDANT Y VELOCITY

Test Desc.: FMVSS 214 SIDE IMPACT
Component: 1996 PONTIAC GRAND AM
Other Info:

Test Date: 05-04-01
Speed: 33.0 MPH, 53.1 KPH
Filter Class: 180

— 1 RIGHT FRONT PASSENGER LOWER SPINE REDUNDANT Y VELOCITY, b01052AI.V43

Ymin = -36.8 KPH @ 0.0568 Seconds, Ymax = 0 KPH @ -0.0176 Seconds





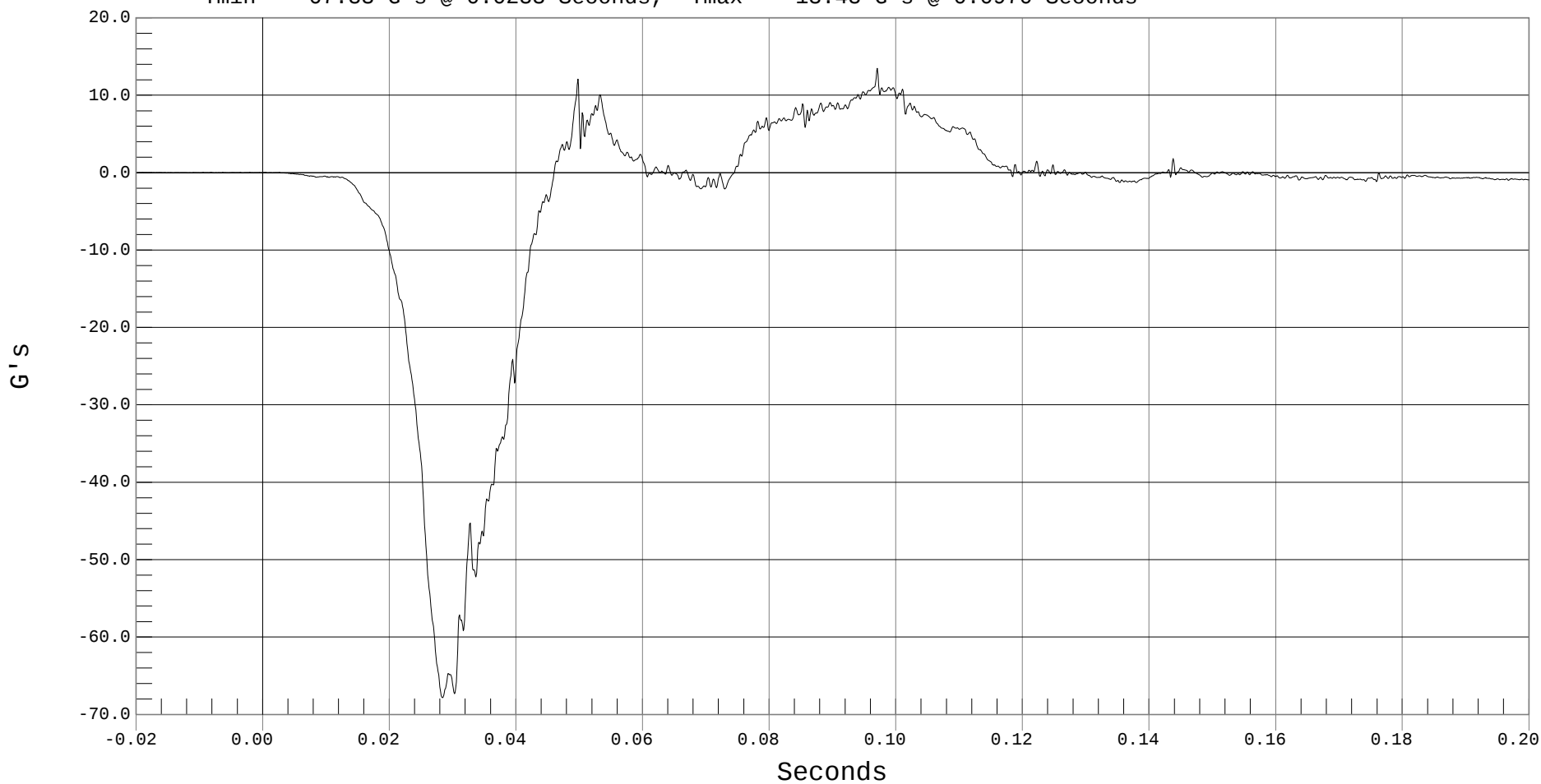
RIGHT FRONT PASSENGER PELVIS REDUNDANT Y ACCELERATION

Test Desc.: FMVSS 214 SIDE IMPACT
Component: 1996 PONTIAC GRAND AM
Other Info:

Test Date: 05-04-01
Speed: 33.0 MPH, 53.1 KPH
Filter Class: 1000

— 1 RIGHT FRONT PASSENGER PELVIS REDUNDANT Y ACCELERATION, b01052AT.A44

Ymin = -67.83 G's @ 0.0283 Seconds, Ymax = 13.48 G's @ 0.0970 Seconds





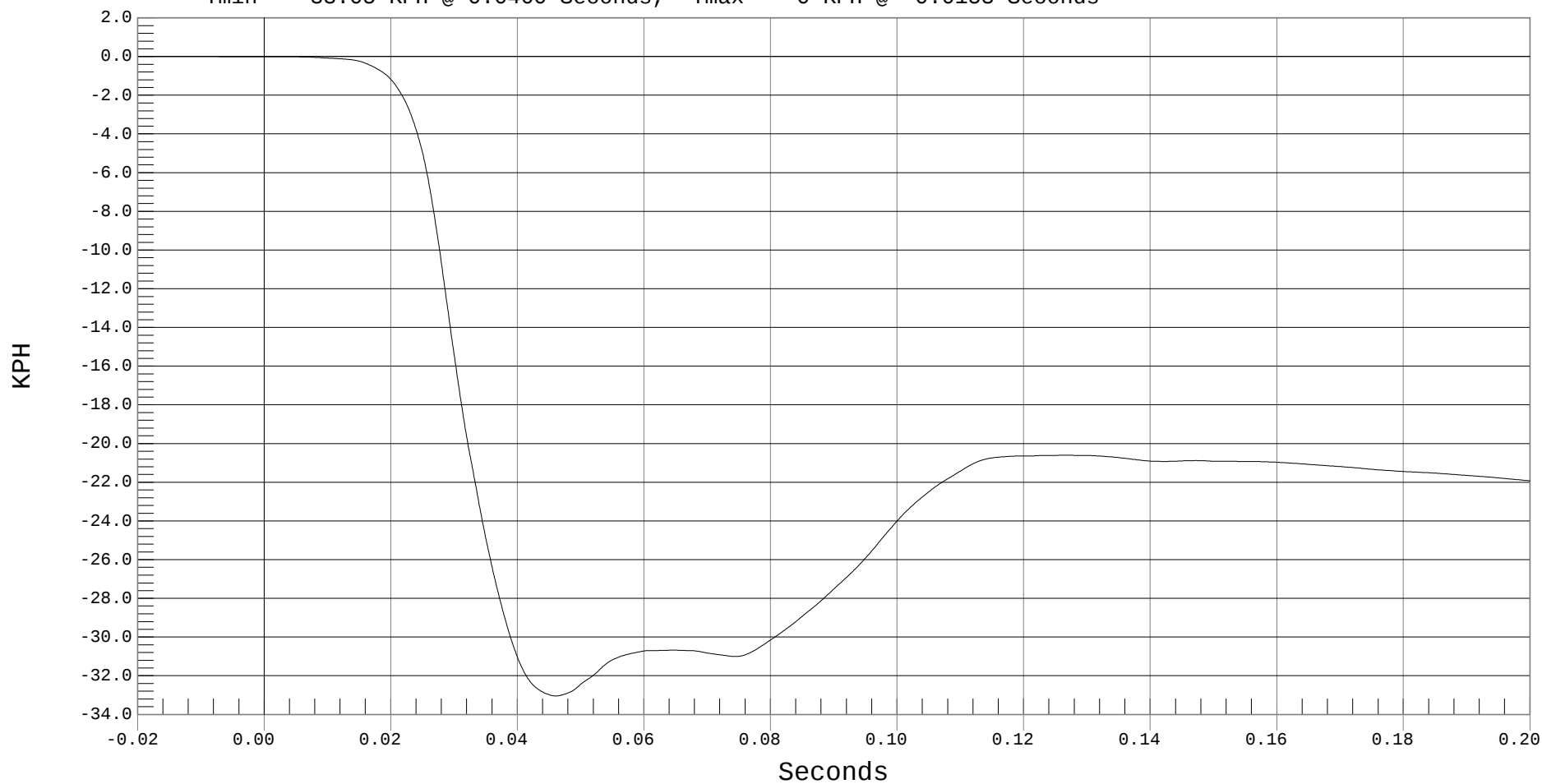
RIGHT FRONT PASSENGER PELVIS REDUNDANT Y VELOCITY

Test Desc.: FMVSS 214 SIDE IMPACT
Component: 1996 PONTIAC GRAND AM
Other Info:

Test Date: 05-04-01
Speed: 33.0 MPH, 53.1 KPH
Filter Class: 180

1 RIGHT FRONT PASSENGER PELVIS REDUNDANT Y VELOCITY, b01052AI.V44

Ymin = -33.05 KPH @ 0.0460 Seconds, Ymax = 0 KPH @ -0.0153 Seconds





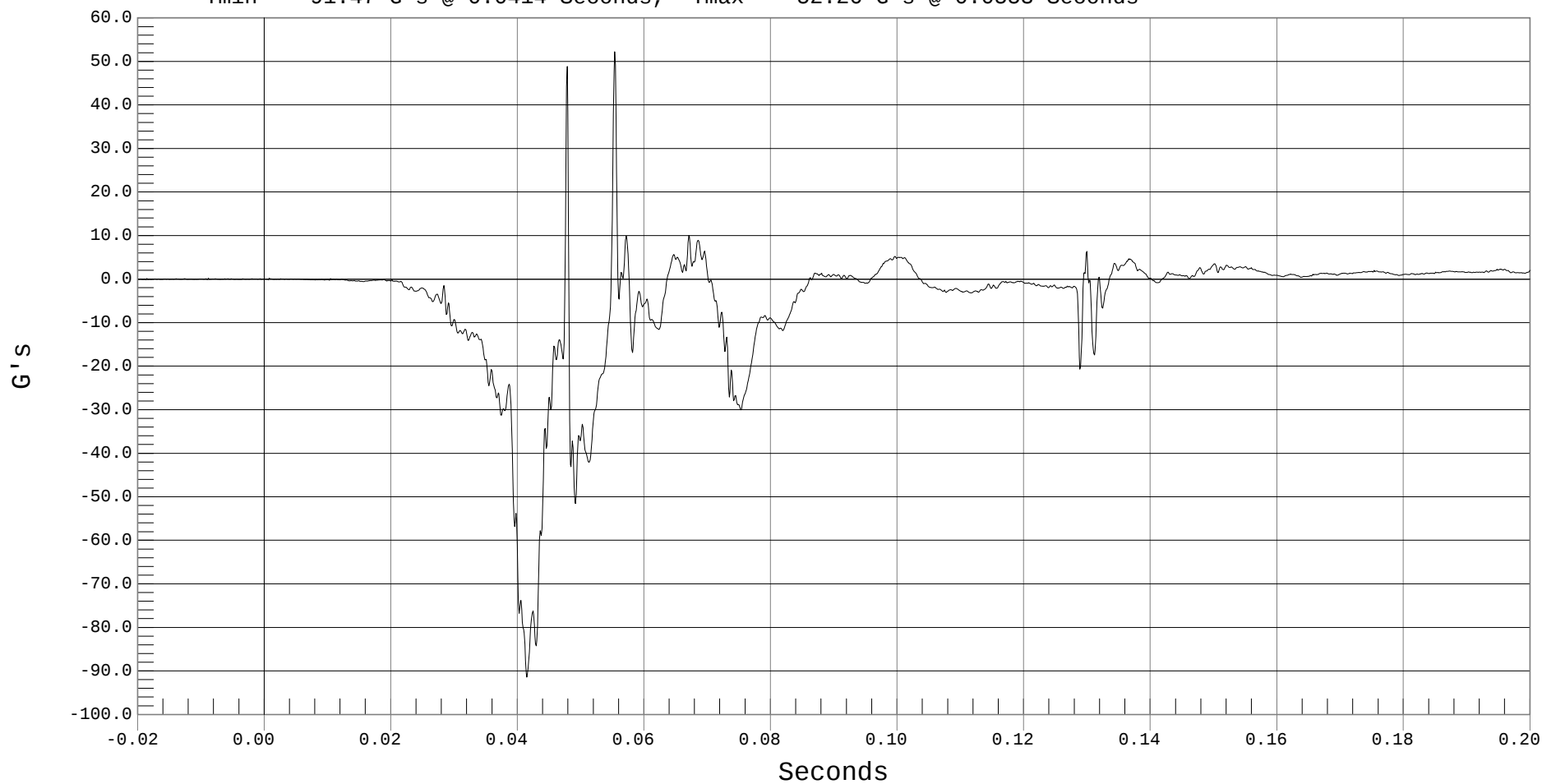
RIGHT REAR PASSENGER UPPER RIB REDUNDANT Y ACCELERATION

Test Desc.: FMVSS 214 SIDE IMPACT
Component: 1996 PONTIAC GRAND AM
Other Info:

Test Date: 05-04-01
Speed: 33.0 MPH, 53.1 KPH
Filter Class: 1000

1 RIGHT REAR PASSENGER UPPER RIB REDUNDANT Y ACCELERATION, b01052AT.A45

Ymin = -91.47 G's @ 0.0414 Seconds, Ymax = 52.26 G's @ 0.0553 Seconds





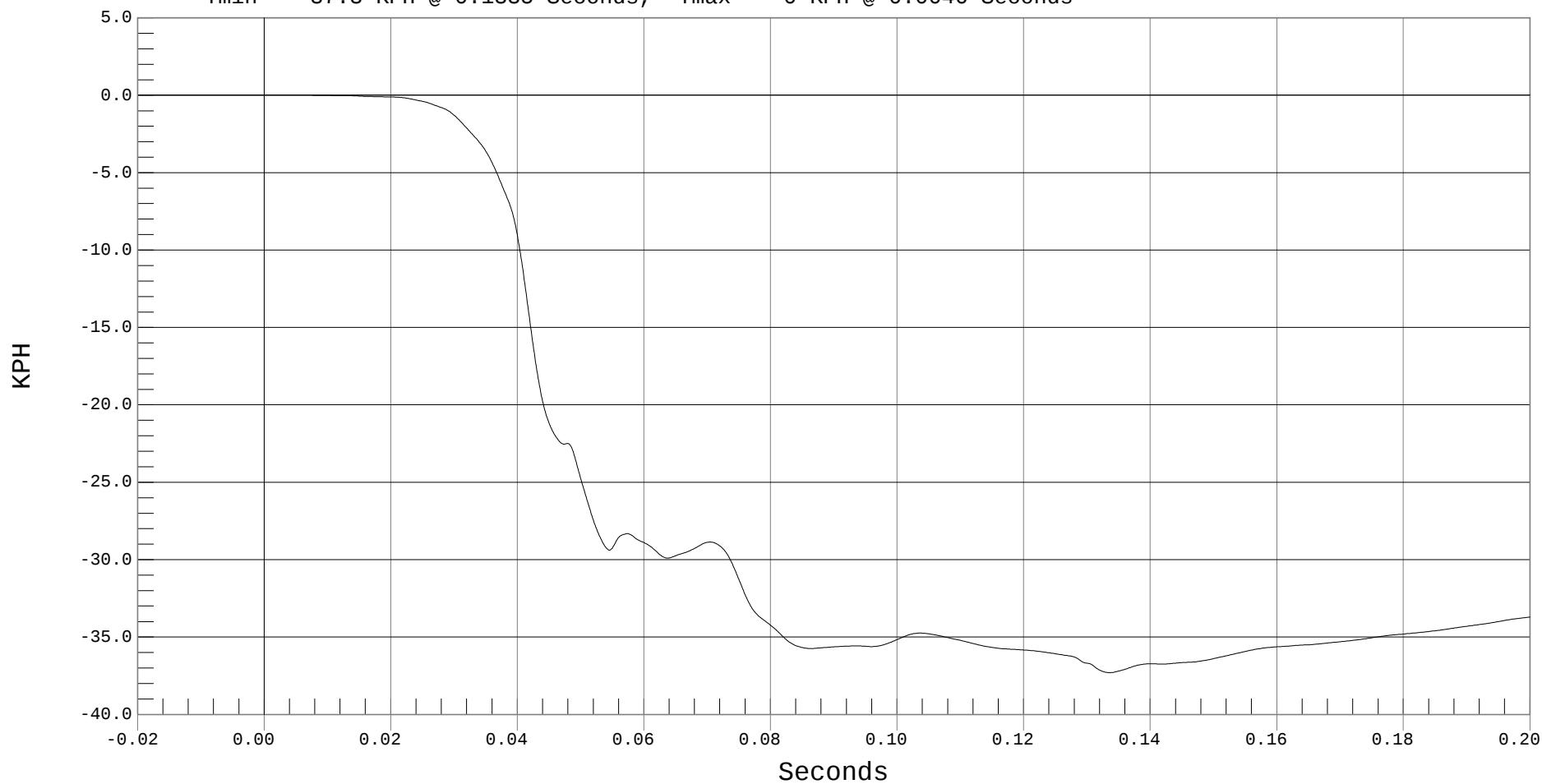
RIGHT REAR PASSENGER UPPER RIB REDUNDANT Y VELOCITY

Test Desc.: FMVSS 214 SIDE IMPACT
Component: 1996 PONTIAC GRAND AM
Other Info:

Test Date: 05-04-01
Speed: 33.0 MPH, 53.1 KPH
Filter Class: 180

1 RIGHT REAR PASSENGER UPPER RIB REDUNDANT Y VELOCITY, b01052AI.V45

Ymin = -37.3 KPH @ 0.1335 Seconds, Ymax = 0 KPH @ 0.0046 Seconds





RIGHT REAR PASSENGER LOWER RIB REDUNDANT Y ACCELERATION

Test Desc.: FMVSS 214 SIDE IMPACT

Component: 1996 PONTIAC GRAND AM

Other Info:

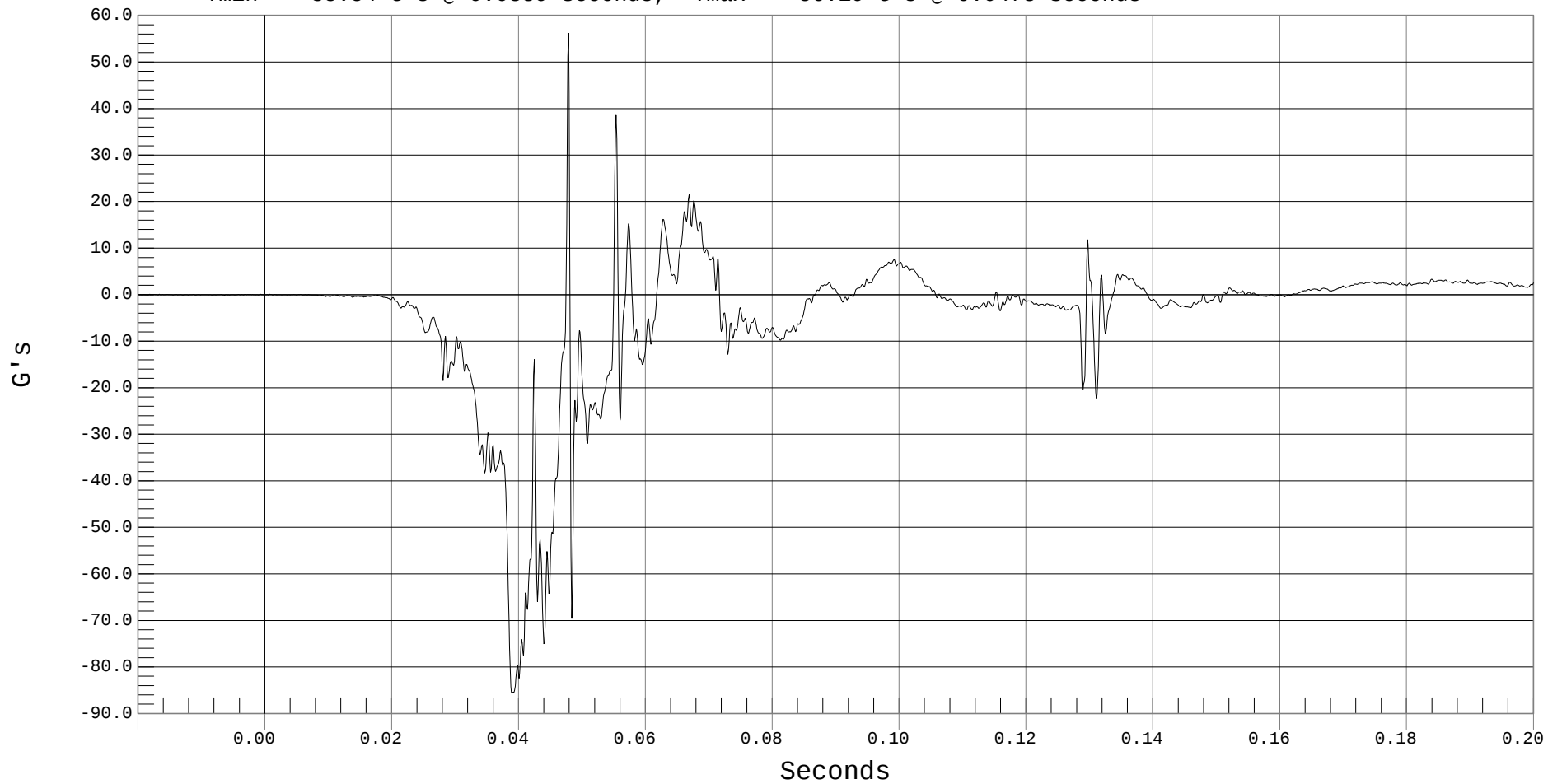
Test Date: 05-04-01

Speed: 33.0 MPH, 53.1 KPH

Filter Class: 1000

1 RIGHT REAR PASSENGER LOWER RIB REDUNDANT Y ACCELERATION, b01052AT.A46

Ymin = -85.54 G's @ 0.0389 Seconds, Ymax = 56.19 G's @ 0.0478 Seconds





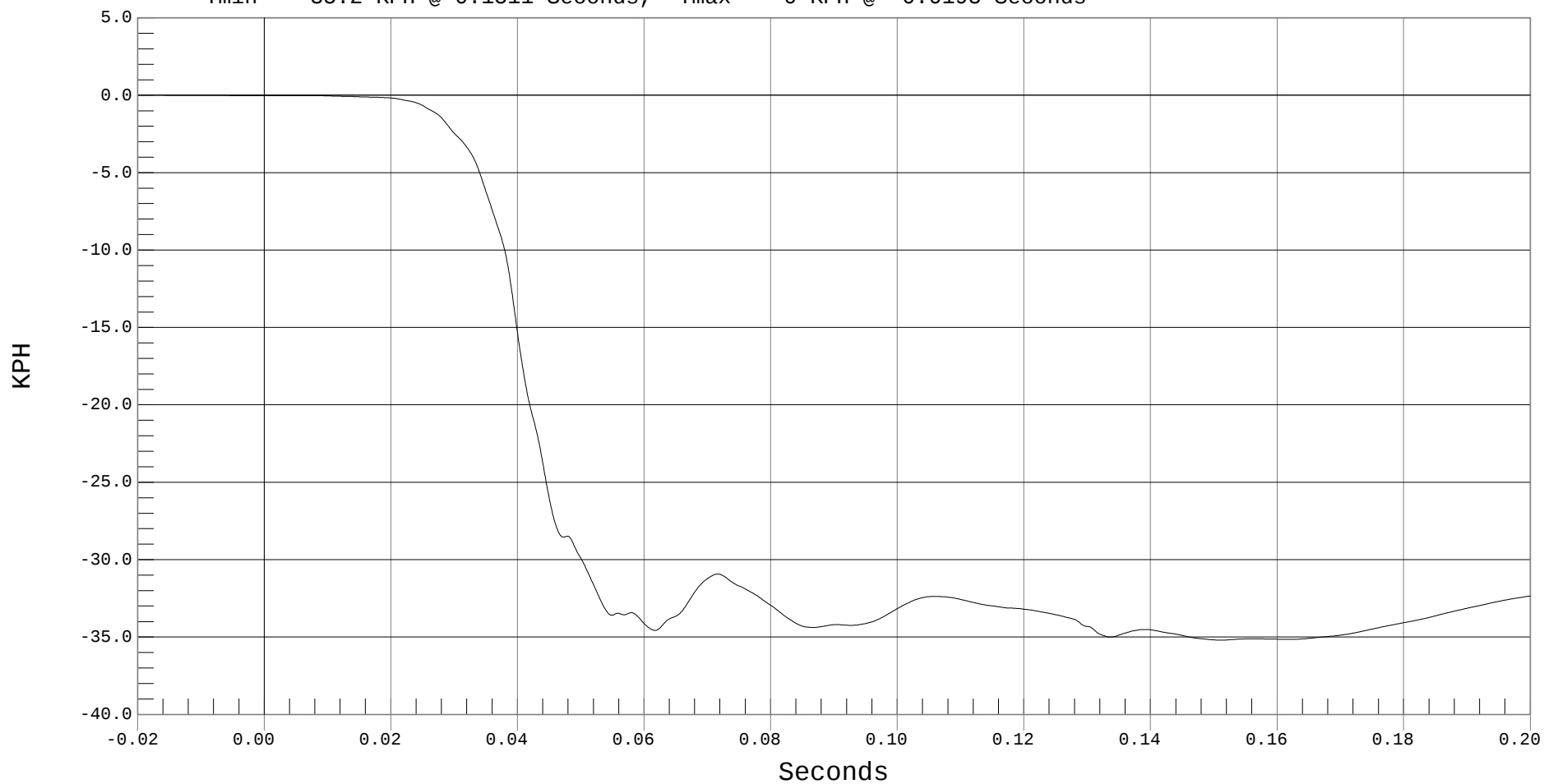
RIGHT REAR PASSENGER LOWER RIB REDUNDANT Y VELOCITY

Test Desc.: FMVSS 214 SIDE IMPACT
Component: 1996 PONTIAC GRAND AM
Other Info:

Test Date: 05-04-01
Speed: 33.0 MPH, 53.1 KPH
Filter Class: 180

1 RIGHT REAR PASSENGER LOWER RIB REDUNDANT Y VELOCITY, b01052AI.V46

Ymin = -35.2 KPH @ 0.1511 Seconds, Ymax = 0 KPH @ -0.0198 Seconds





RIGHT REAR PASSENGER LOWER SPINE REDUNDANT Y ACCELERATION

Test Desc.: FMVSS 214 SIDE IMPACT

Component: 1996 PONTIAC GRAND AM

Other Info:

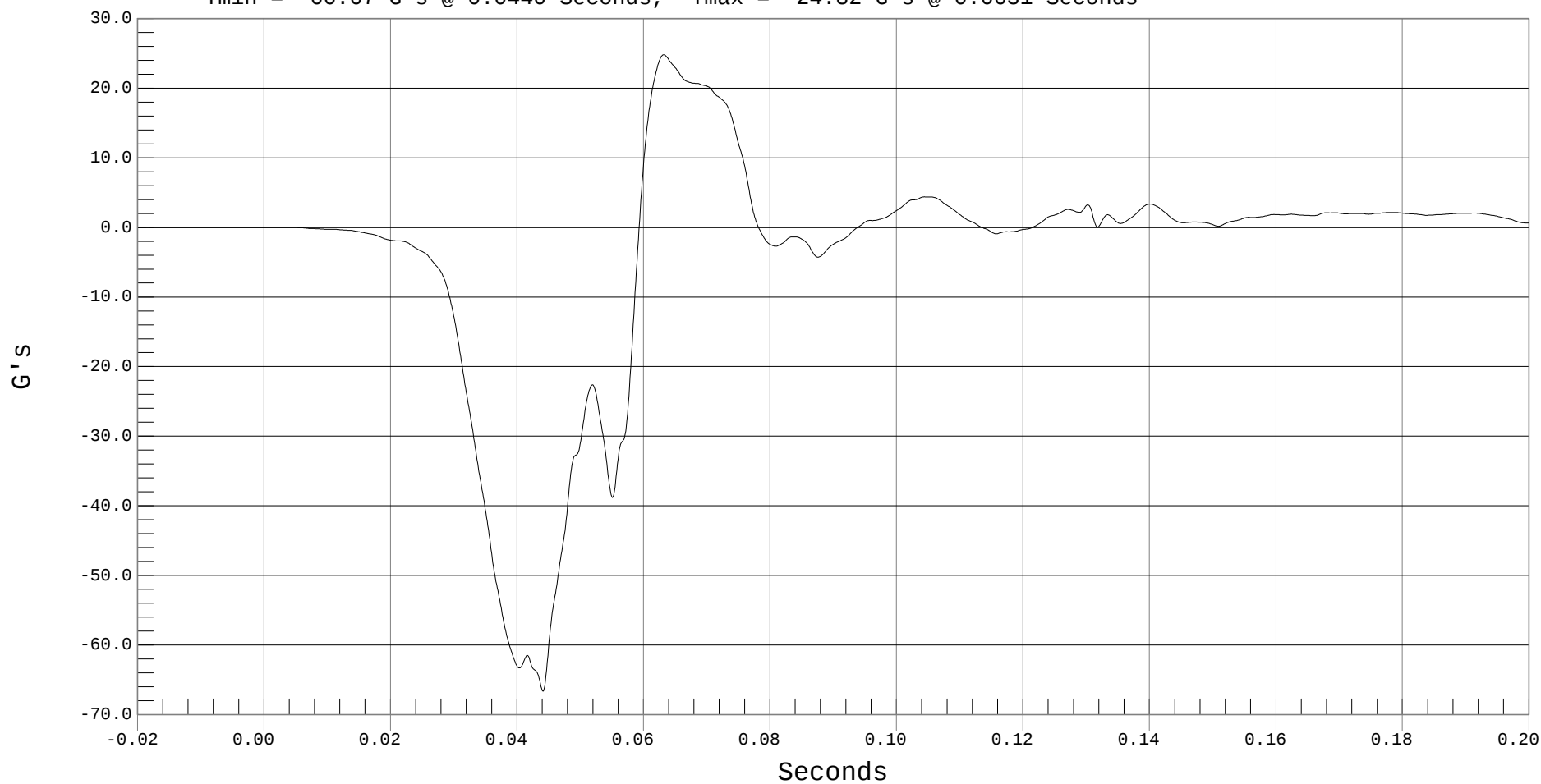
Test Date: 05-04-01

Speed: 33.0 MPH, 53.1 KPH

Filter Class: 180

— 1 RIGHT REAR PASSENGER LOWER SPINE REDUNDANT Y ACCELERATION, b01052AF.A47

Ymin = -66.67 G's @ 0.0440 Seconds, Ymax = 24.82 G's @ 0.0631 Seconds





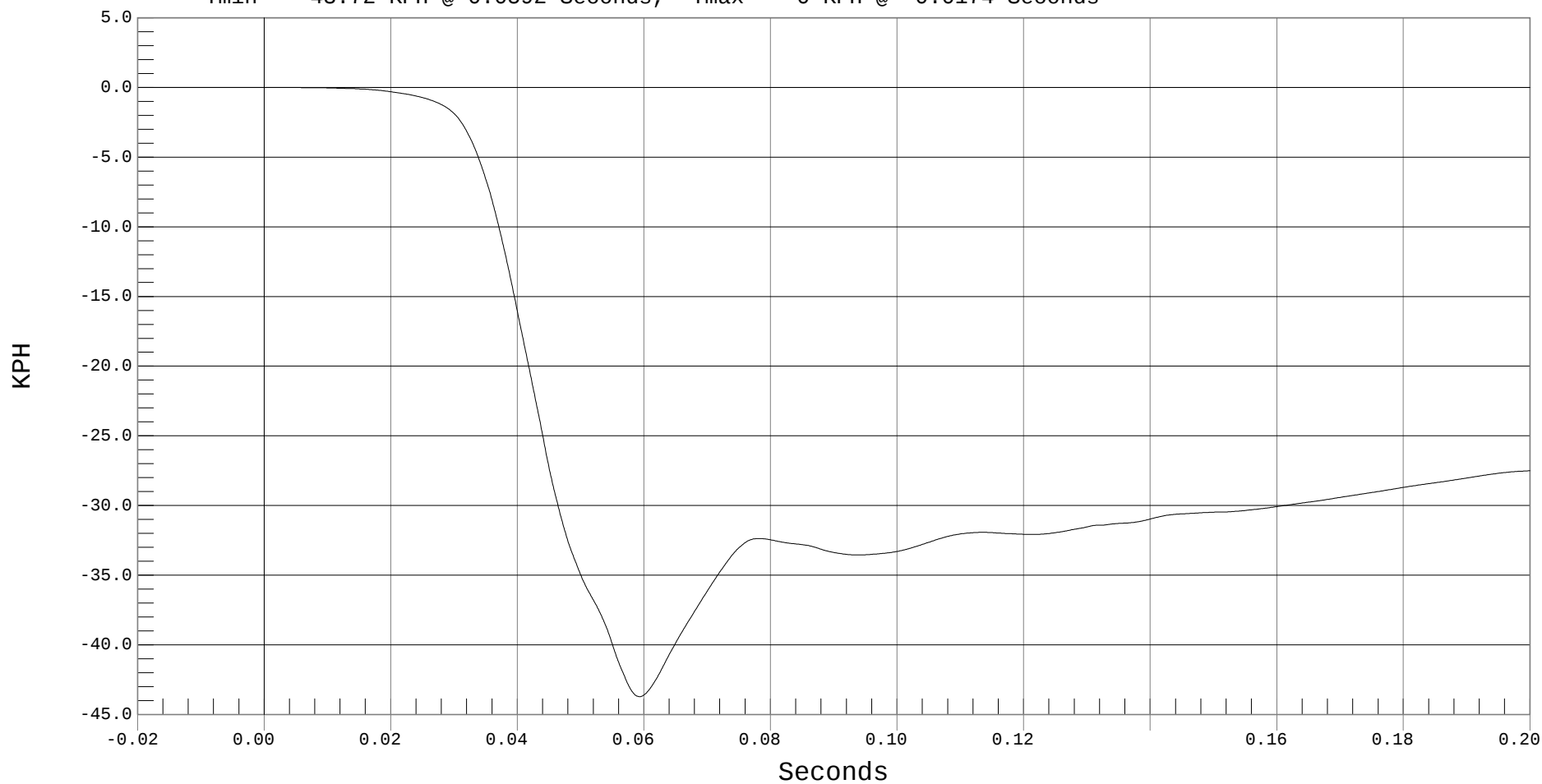
RIGHT REAR PASSENGER LOWER SPINE REDUNDANT Y VELOCITY

Test Desc.: FMVSS 214 SIDE IMPACT
Component: 1996 PONTIAC GRAND AM
Other Info:

Test Date: 05-04-01
Speed: 33.0 MPH, 53.1 KPH
Filter Class: 180

— 1 RIGHT REAR PASSENGER LOWER SPINE REDUNDANT Y VELOCITY, b01052AI.V47

Ymin = -43.72 KPH @ 0.0592 Seconds, Ymax = 0 KPH @ -0.0174 Seconds





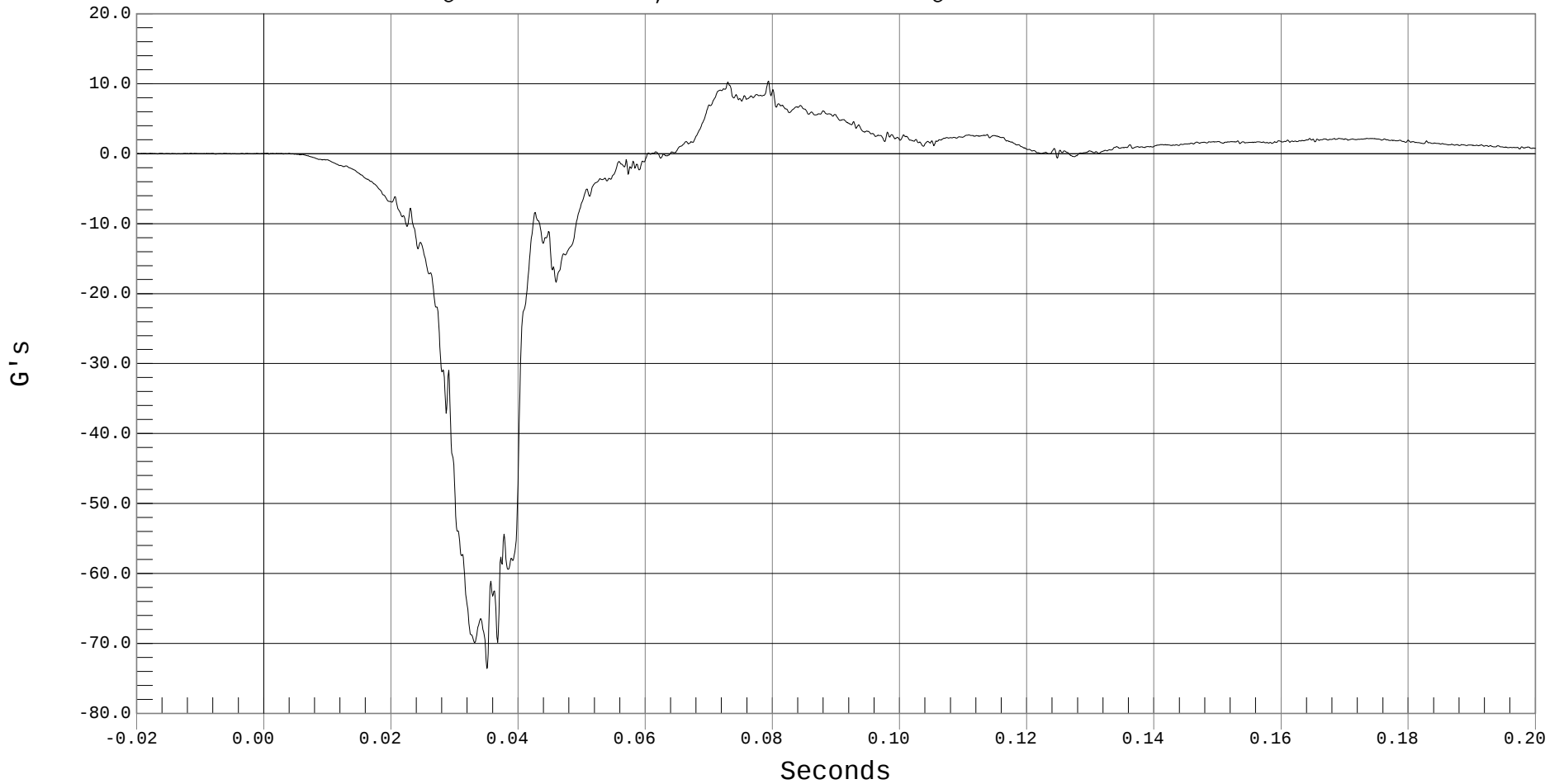
RIGHT REAR PASSENGER PELVIS REDUNDANT Y ACCELERATION

Test Desc.: FMVSS 214 SIDE IMPACT
Component: 1996 PONTIAC GRAND AM
Other Info:

Test Date: 05-04-01
Speed: 33.0 MPH, 53.1 KPH
Filter Class: 1000

— 1 RIGHT REAR PASSENGER PELVIS REDUNDANT Y ACCELERATION, b01052AT.A48

Ymin = -73.62 G's @ 0.0350 Seconds, Ymax = 10.38 G's @ 0.0793 Seconds





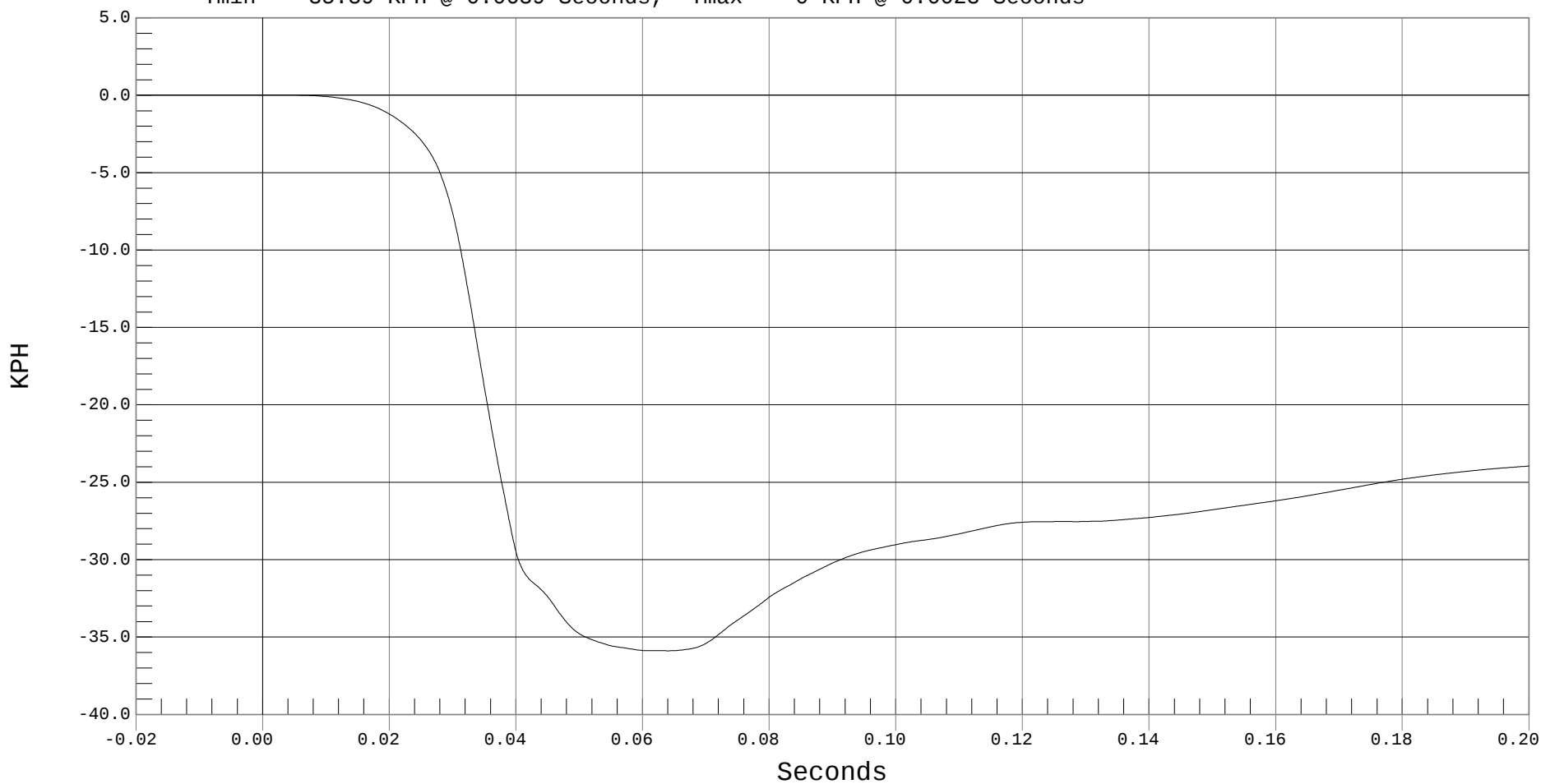
RIGHT REAR PASSENGER PELVIS REDUNDANT Y VELOCITY

Test Desc.: FMVSS 214 SIDE IMPACT
Component: 1996 PONTIAC GRAND AM
Other Info:

Test Date: 05-04-01
Speed: 33.0 MPH, 53.1 KPH
Filter Class: 180

— 1 RIGHT REAR PASSENGER PELVIS REDUNDANT Y VELOCITY, b01052AI.V48

Ymin = -35.89 KPH @ 0.0639 Seconds, Ymax = 0 KPH @ 0.0028 Seconds





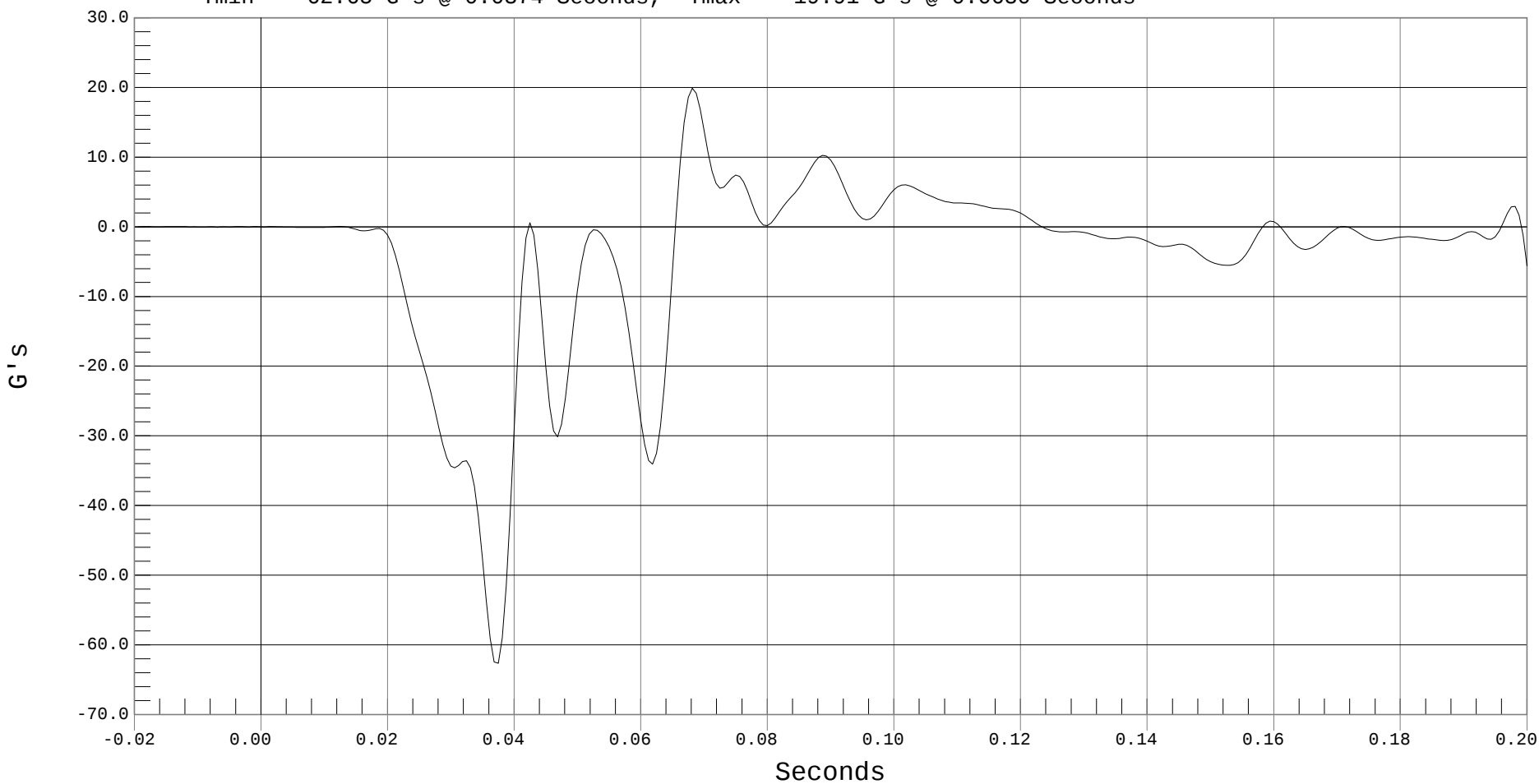
RIGHT FRONT PASSENGER UPPER RIB Y ACCELERATION

Test Desc.: FMVSS 214 SIDE IMPACT
Component: 1996 PONTIAC GRAND AM
Other Info:

Test Date: 05-04-01
Speed: 33.0 MPH, 53.1 KPH
Fir Filtered

— 1 RIGHT FRONT PASSENGER UPPER RIB Y ACCELERATION, b01052FI.R04

Ymin = -62.65 G's @ 0.0374 Seconds, Ymax = 19.91 G's @ 0.0680 Seconds





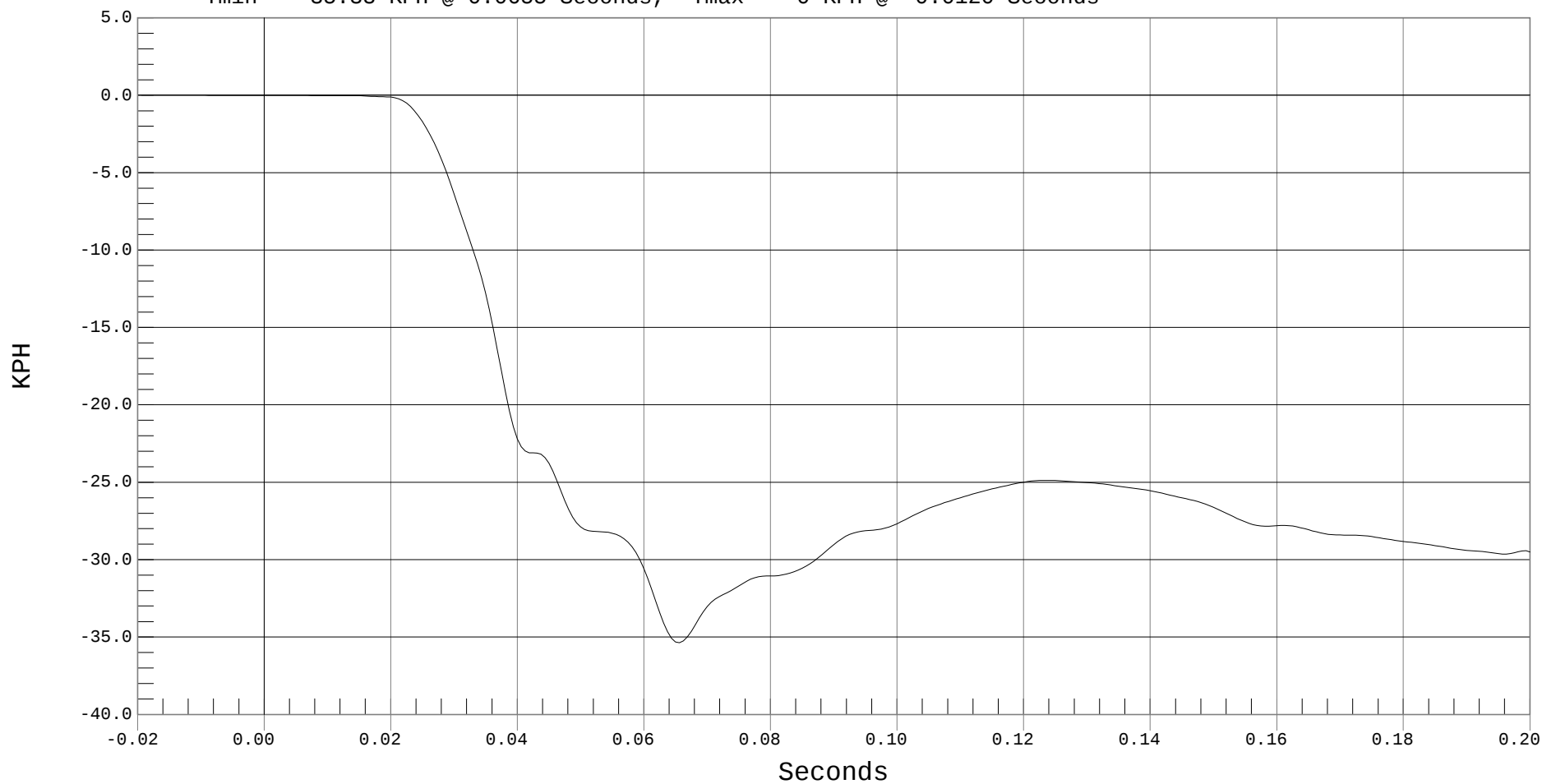
RIGHT FRONT PASSENGER UPPER RIB Y VELOCITY

Test Desc.: FMVSS 214 SIDE IMPACT
Component: 1996 PONTIAC GRAND AM
Other Info:

Test Date: 05-04-01
Speed: 33.0 MPH, 53.1 KPH
Fir Filtered

1 RIGHT FRONT PASSENGER UPPER RIB Y VELOCITY, b01052FI.V04

Ymin = -35.38 KPH @ 0.0655 Seconds, Ymax = 0 KPH @ -0.0120 Seconds





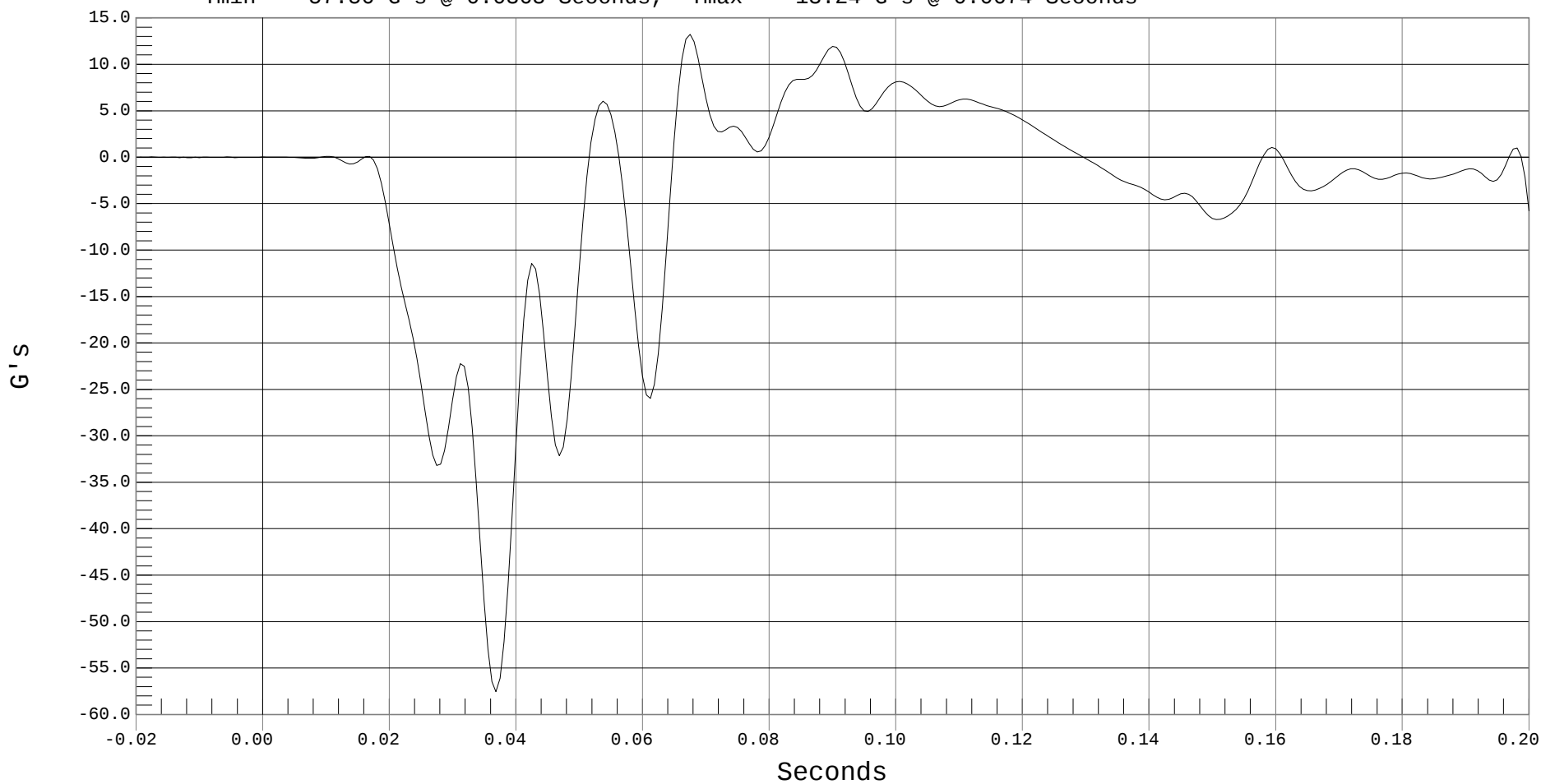
RIGHT FRONT PASSENGER LOWER RIB Y ACCELERATION

Test Desc.: FMVSS 214 SIDE IMPACT
Component: 1996 PONTIAC GRAND AM
Other Info:

Test Date: 05-04-01
Speed: 33.0 MPH, 53.1 KPH
Fir Filtered

— 1 RIGHT FRONT PASSENGER LOWER RIB Y ACCELERATION, b01052FI.R05

Ymin = -57.56 G's @ 0.0368 Seconds, Ymax = 13.24 G's @ 0.0674 Seconds





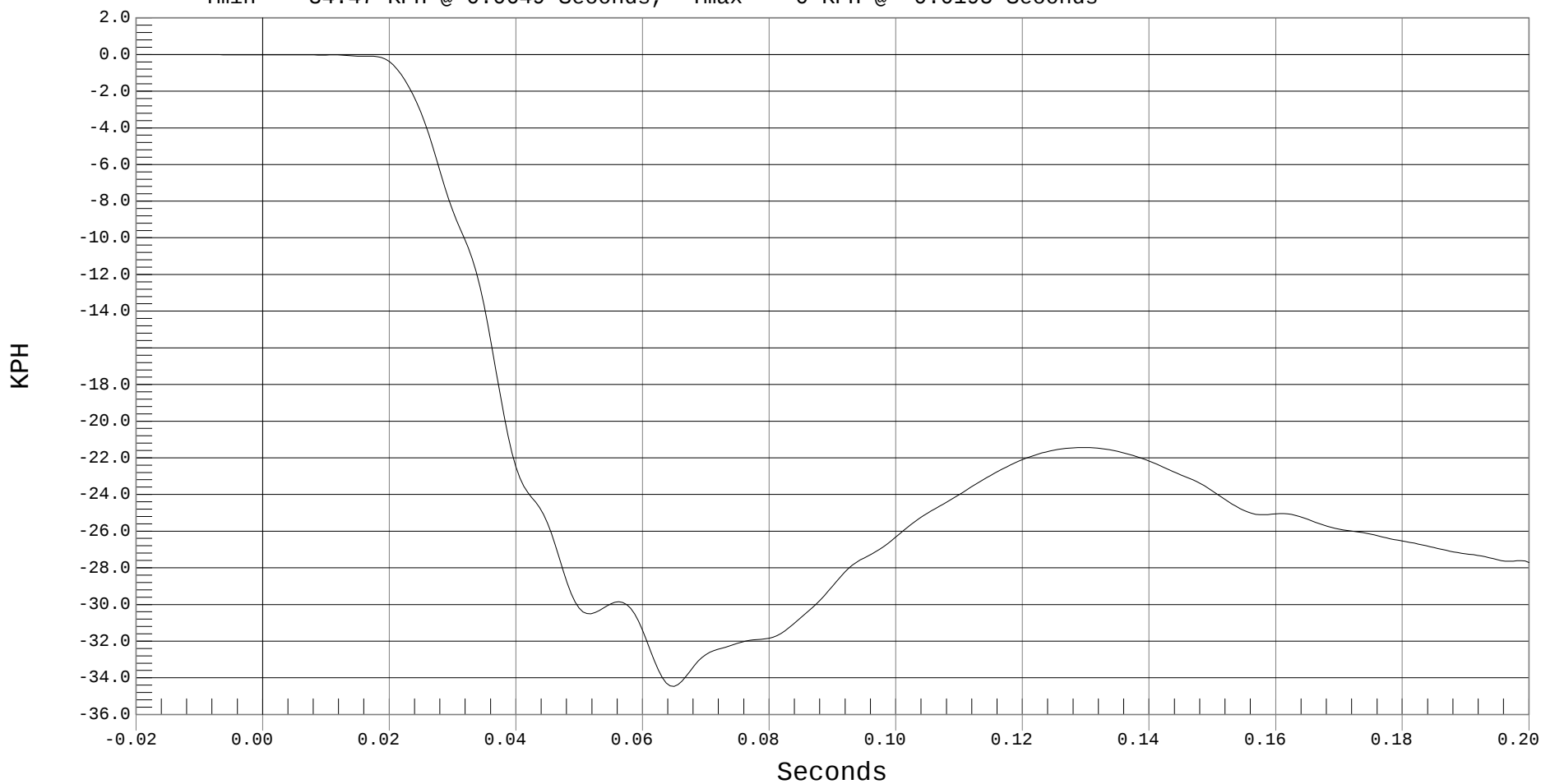
RIGHT FRONT PASSENGER LOWER RIB Y VELOCITY

Test Desc.: FMVSS 214 SIDE IMPACT
Component: 1996 PONTIAC GRAND AM
Other Info:

Test Date: 05-04-01
Speed: 33.0 MPH, 53.1 KPH
Fir Filtered

— 1 RIGHT FRONT PASSENGER LOWER RIB Y VELOCITY, b01052FI.V05

Ymin = -34.47 KPH @ 0.0649 Seconds, Ymax = 0 KPH @ -0.0195 Seconds





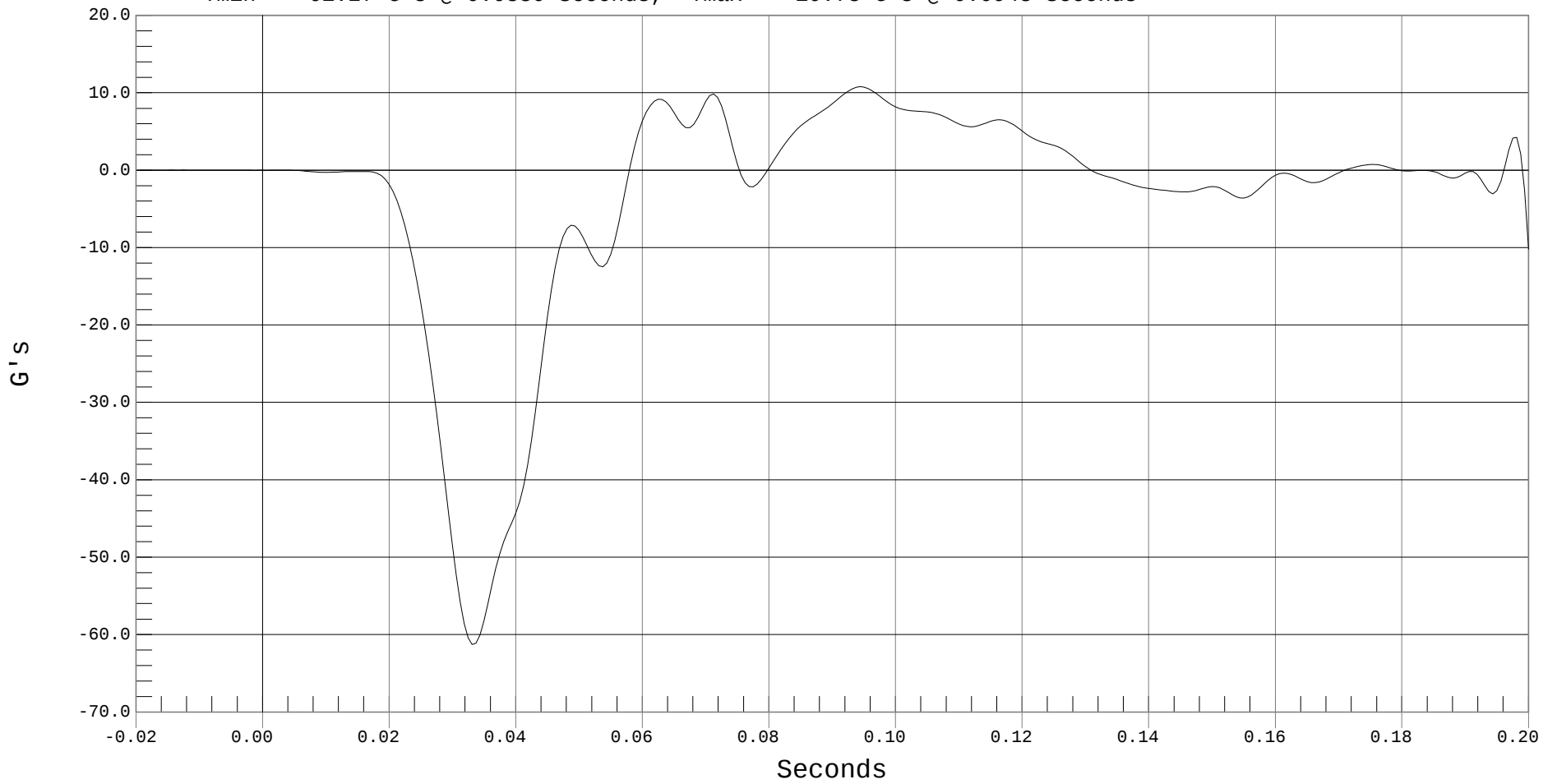
RIGHT FRONT PASSENGER LOWER SPINE Y ACCELERATION

Test Desc.: FMVSS 214 SIDE IMPACT
Component: 1996 PONTIAC GRAND AM
Other Info:

Test Date: 05-04-01
Speed: 33.0 MPH, 53.1 KPH
Fir Filtered

— 1 RIGHT FRONT PASSENGER LOWER SPINE Y ACCELERATION, b01052FI.R06

Ymin = -61.27 G's @ 0.0330 Seconds, Ymax = 10.78 G's @ 0.0943 Seconds





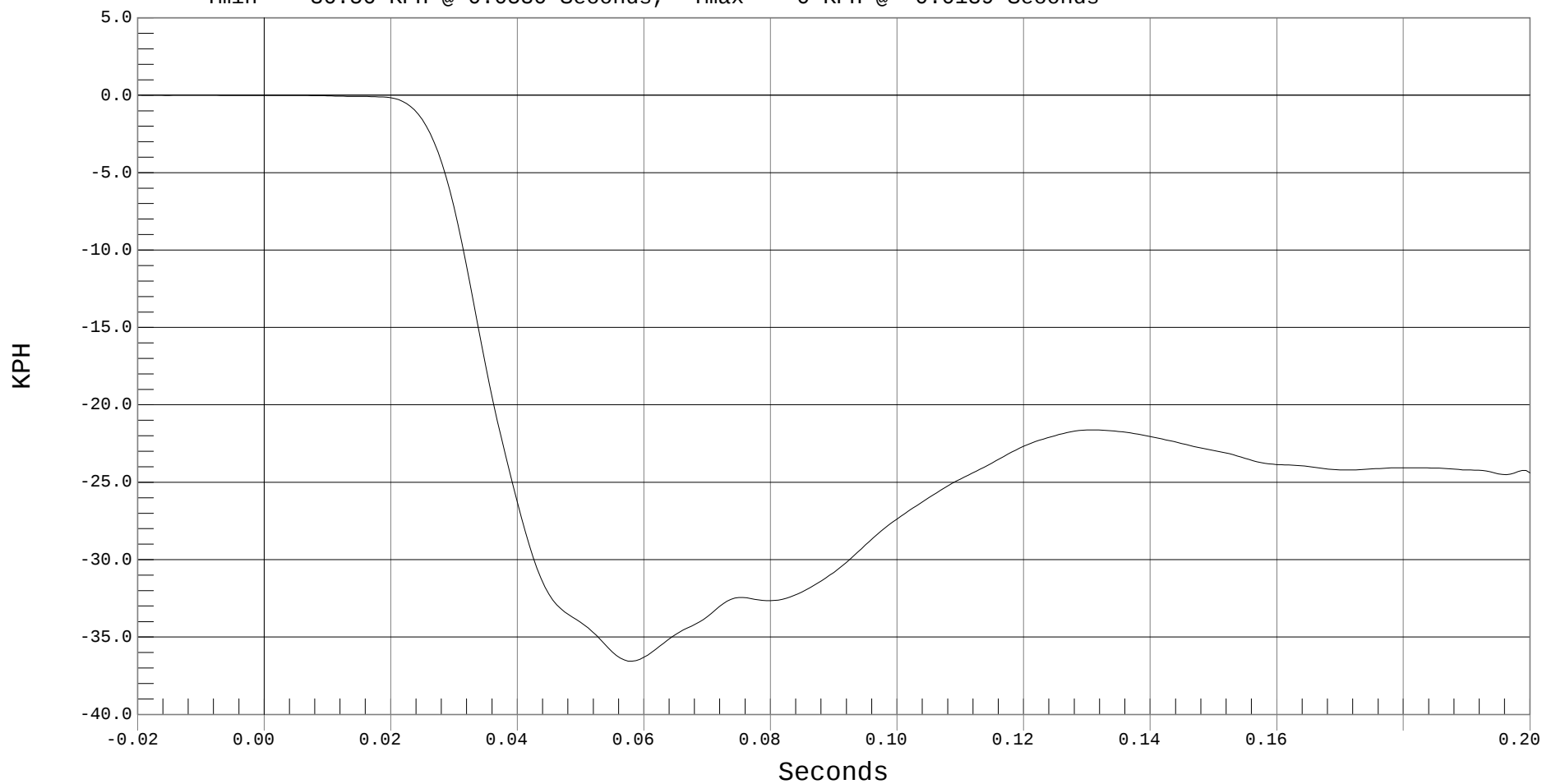
RIGHT FRONT PASSENGER LOWER SPINE Y VELOCITY

Test Desc.: FMVSS 214 SIDE IMPACT
Component: 1996 PONTIAC GRAND AM
Other Info:

Test Date: 05-04-01
Speed: 33.0 MPH, 53.1 KPH
Fir Filtered

— 1 RIGHT FRONT PASSENGER LOWER SPINE Y VELOCITY, b01052FI.V06

Ymin = -36.56 KPH @ 0.0580 Seconds, Ymax = 0 KPH @ -0.0189 Seconds





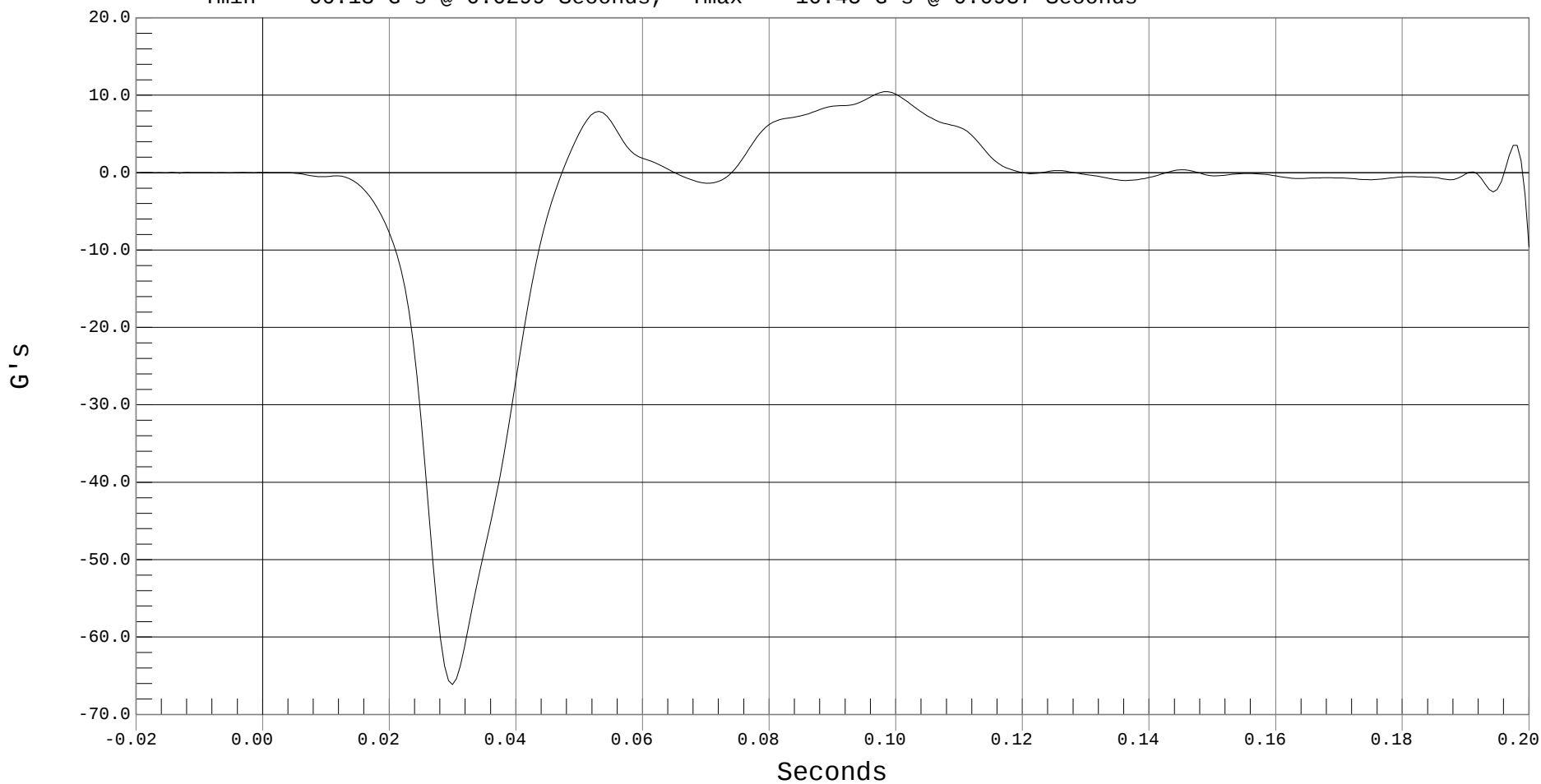
RIGHT FRONT PASSENGER PELVIS Y ACCELERATION

Test Desc.: FMVSS 214 SIDE IMPACT
Component: 1996 PONTIAC GRAND AM
Other Info:

Test Date: 05-04-01
Speed: 33.0 MPH, 53.1 KPH
Fir Filtered

— 1 RIGHT FRONT PASSENGER PELVIS Y ACCELERATION, b01052FI.R07

Ymin = -66.13 G's @ 0.0299 Seconds, Ymax = 10.45 G's @ 0.0987 Seconds





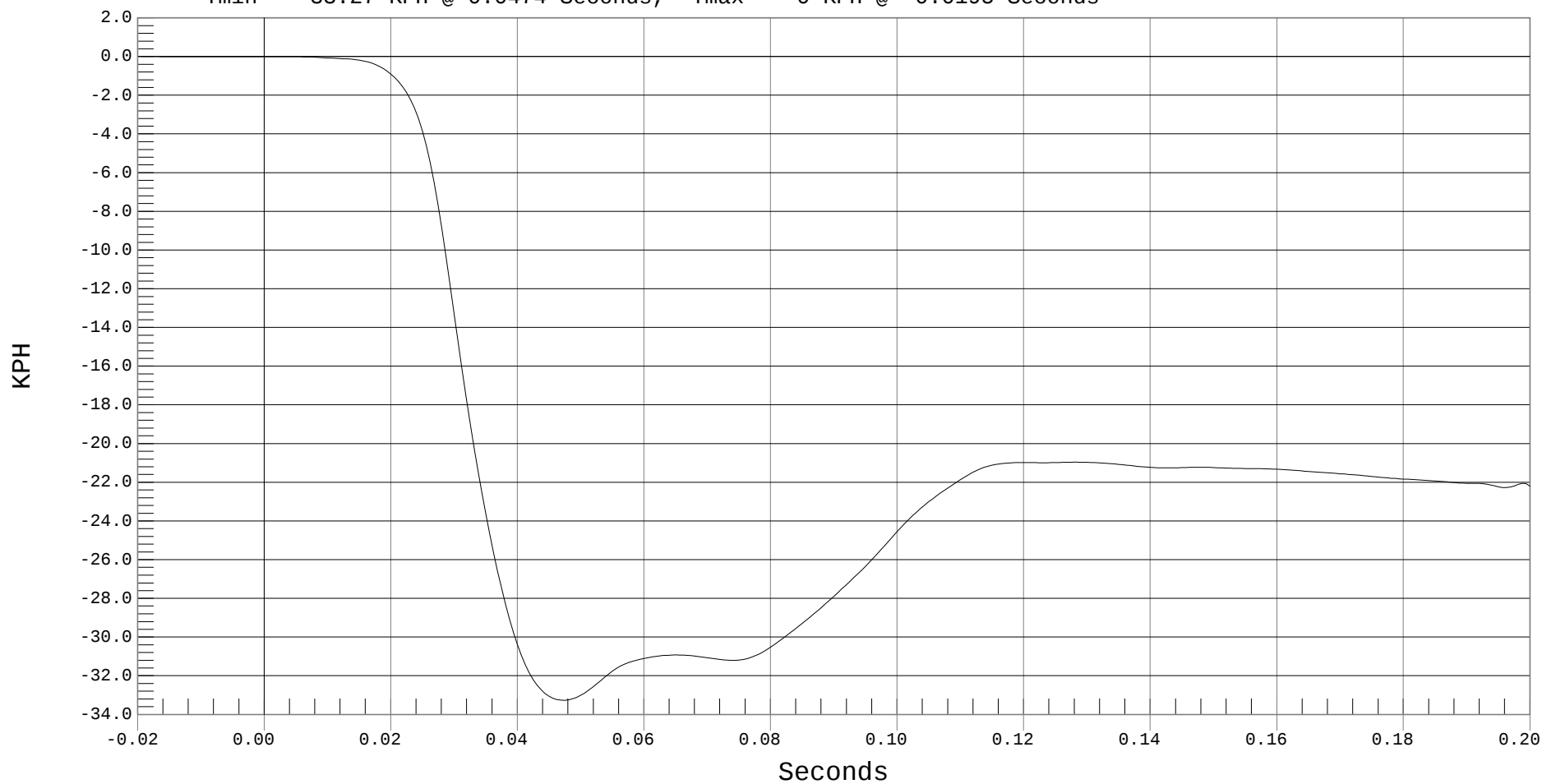
RIGHT FRONT PASSENGER PELVIS Y VELOCITY

Test Desc.: FMVSS 214 SIDE IMPACT
Component: 1996 PONTIAC GRAND AM
Other Info:

Test Date: 05-04-01
Speed: 33.0 MPH, 53.1 KPH
Fir Filtered

— 1 RIGHT FRONT PASSENGER PELVIS Y VELOCITY, b01052FI.V07

Ymin = -33.27 KPH @ 0.0474 Seconds, Ymax = 0 KPH @ -0.0195 Seconds





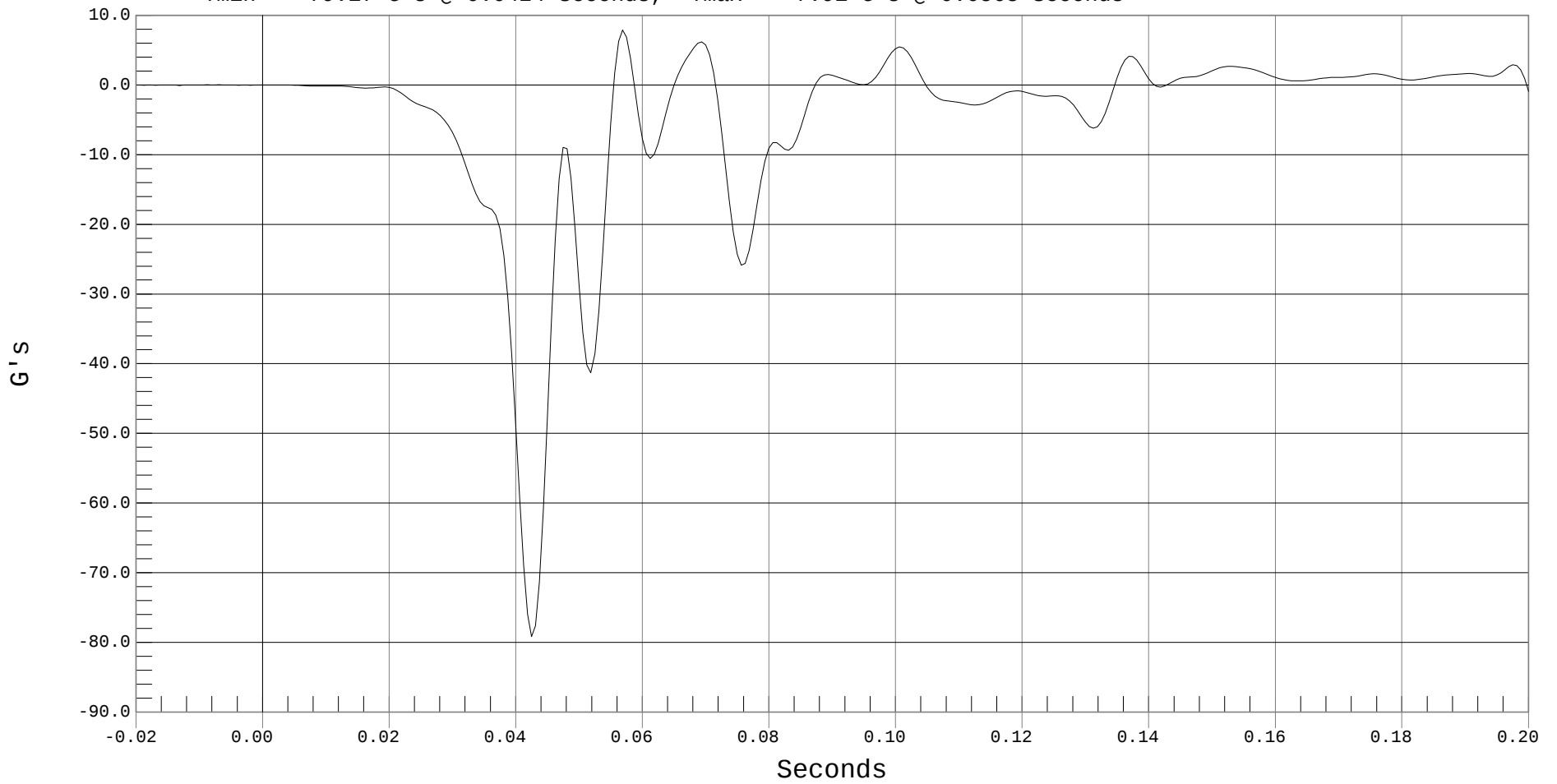
RIGHT REAR PASSENGER UPPER RIB Y ACCELERATION

Test Desc.: FMVSS 214 SIDE IMPACT
Component: 1996 PONTIAC GRAND AM
Other Info:

Test Date: 05-04-01
Speed: 33.0 MPH, 53.1 KPH
Fir Filtered

— 1 RIGHT REAR PASSENGER UPPER RIB Y ACCELERATION, b01052FI.R11

Ymin = -79.17 G's @ 0.0424 Seconds, Ymax = 7.91 G's @ 0.0568 Seconds





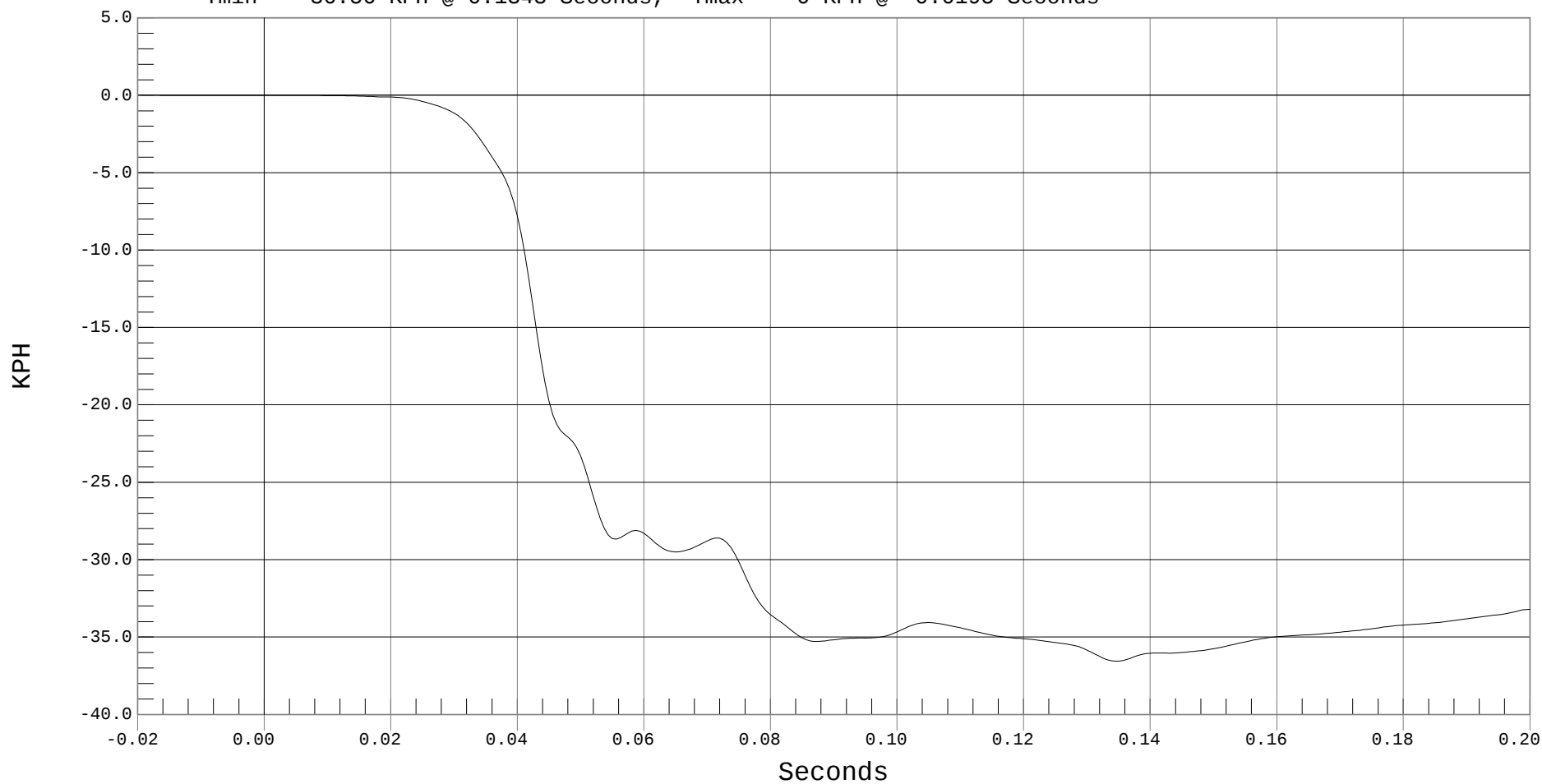
RIGHT REAR PASSENGER UPPER RIB Y VELOCITY

Test Desc.: FMVSS 214 SIDE IMPACT
Component: 1996 PONTIAC GRAND AM
Other Info:

Test Date: 05-04-01
Speed: 33.0 MPH, 53.1 KPH
Fir Filtered

— 1 RIGHT RIGHT REAR PASSENGER UPPER RIB Y VELOCITY, b01052FI.V11

Ymin = -36.56 KPH @ 0.1343 Seconds, Ymax = 0 KPH @ -0.0195 Seconds





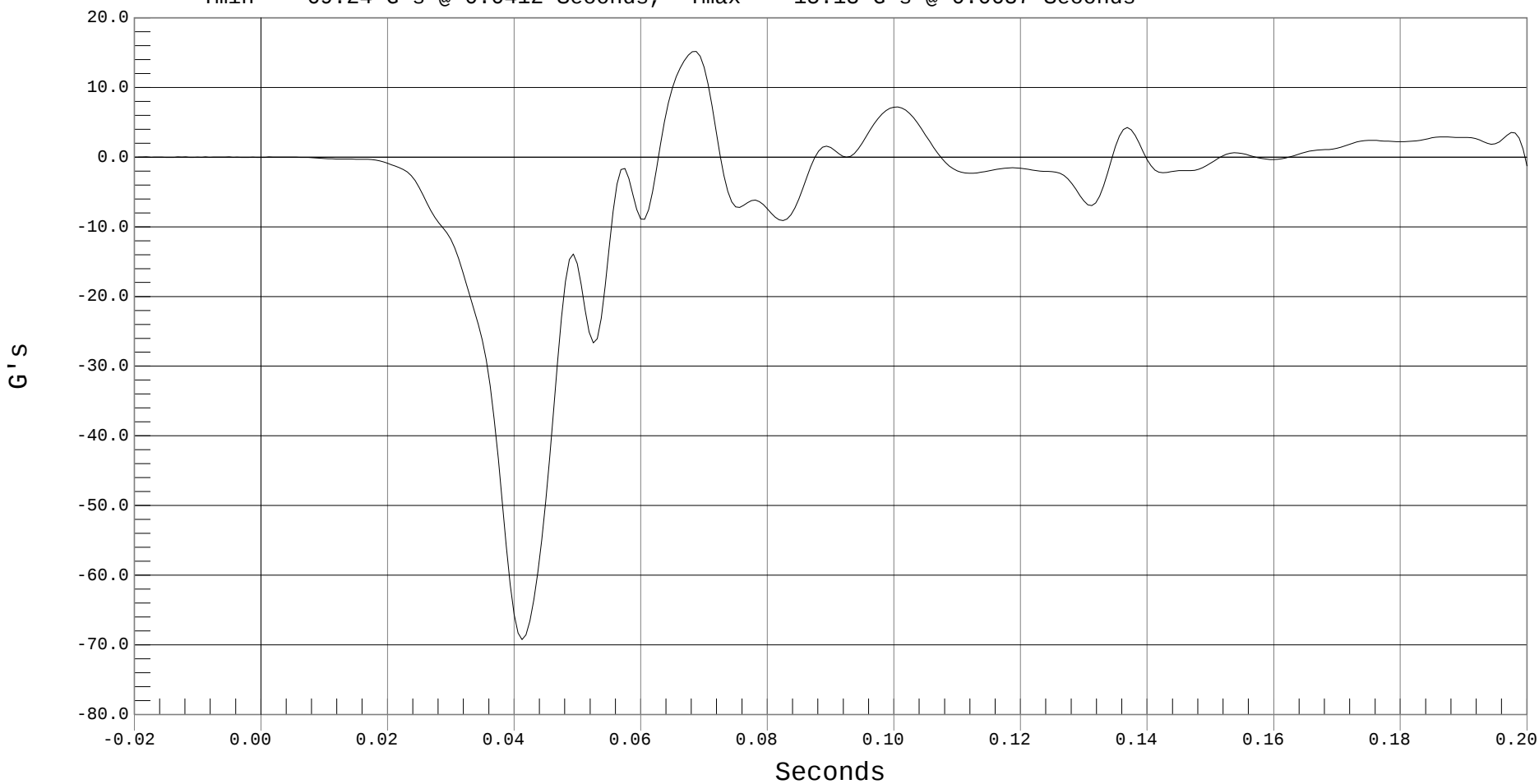
RIGHT REAR PASSENGER LOWER RIB Y ACCELERATION

Test Desc.: FMVSS 214 SIDE IMPACT
Component: 1996 PONTIAC GRAND AM
Other Info:

Test Date: 05-04-01
Speed: 33.0 MPH, 53.1 KPH
Fir Filtered

1 RIGHT REAR PASSENGER LOWER RIB Y ACCELERATION, b01052FI.R12

Ymin = -69.24 G's @ 0.0412 Seconds, Ymax = 15.18 G's @ 0.0687 Seconds





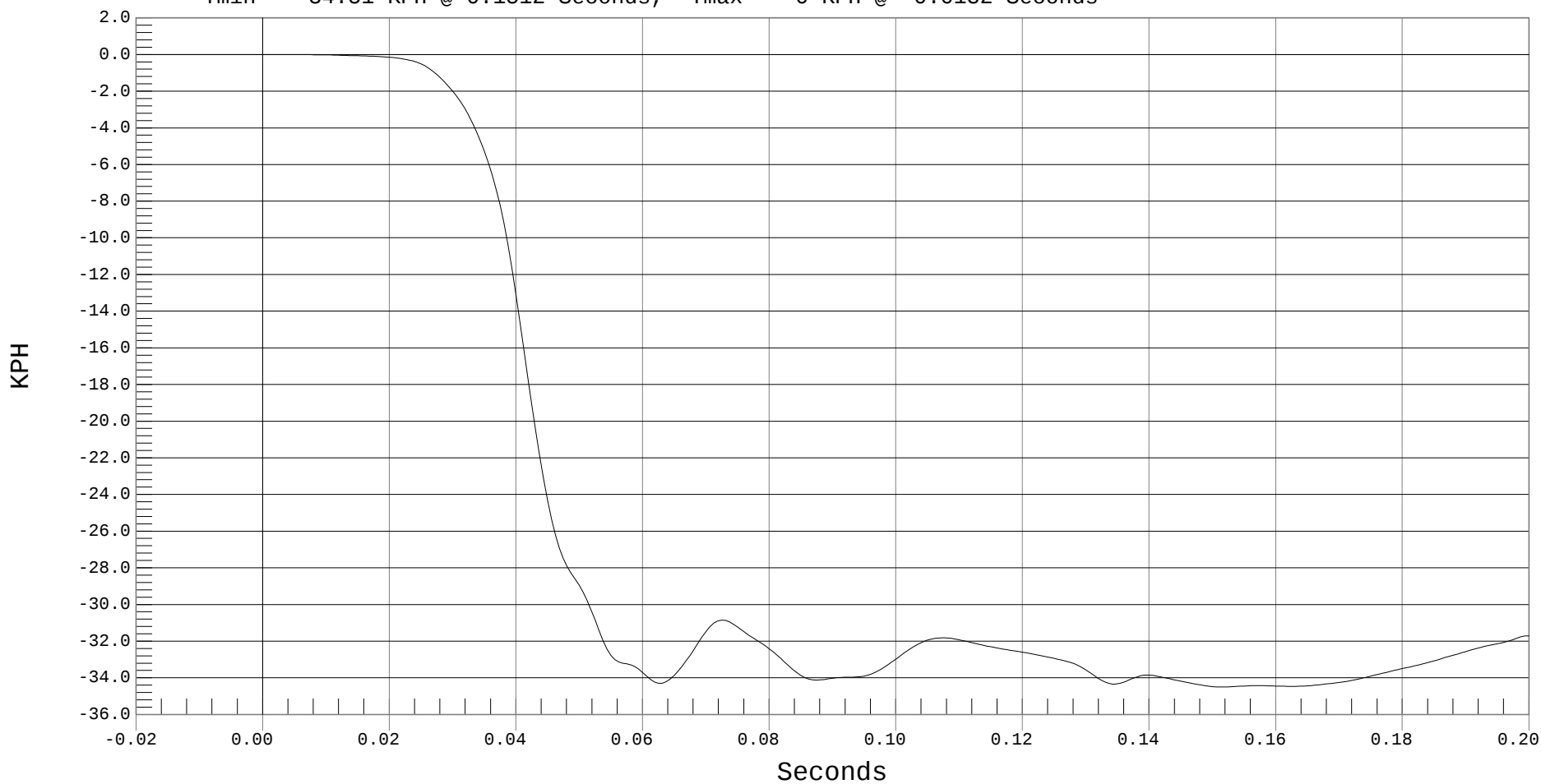
RIGHT REAR PASSENGER LOWER RIB Y VELOCITY

Test Desc.: FMVSS 214 SIDE IMPACT
Component: 1996 PONTIAC GRAND AM
Other Info:

Test Date: 05-04-01
Speed: 33.0 MPH, 53.1 KPH
Fir Filtered

— 1 RIGHT REAR PASSENGER LOWER RIB Y VELOCITY, b01052FI.V12

Ymin = -34.51 KPH @ 0.1512 Seconds, Ymax = 0 KPH @ -0.0182 Seconds





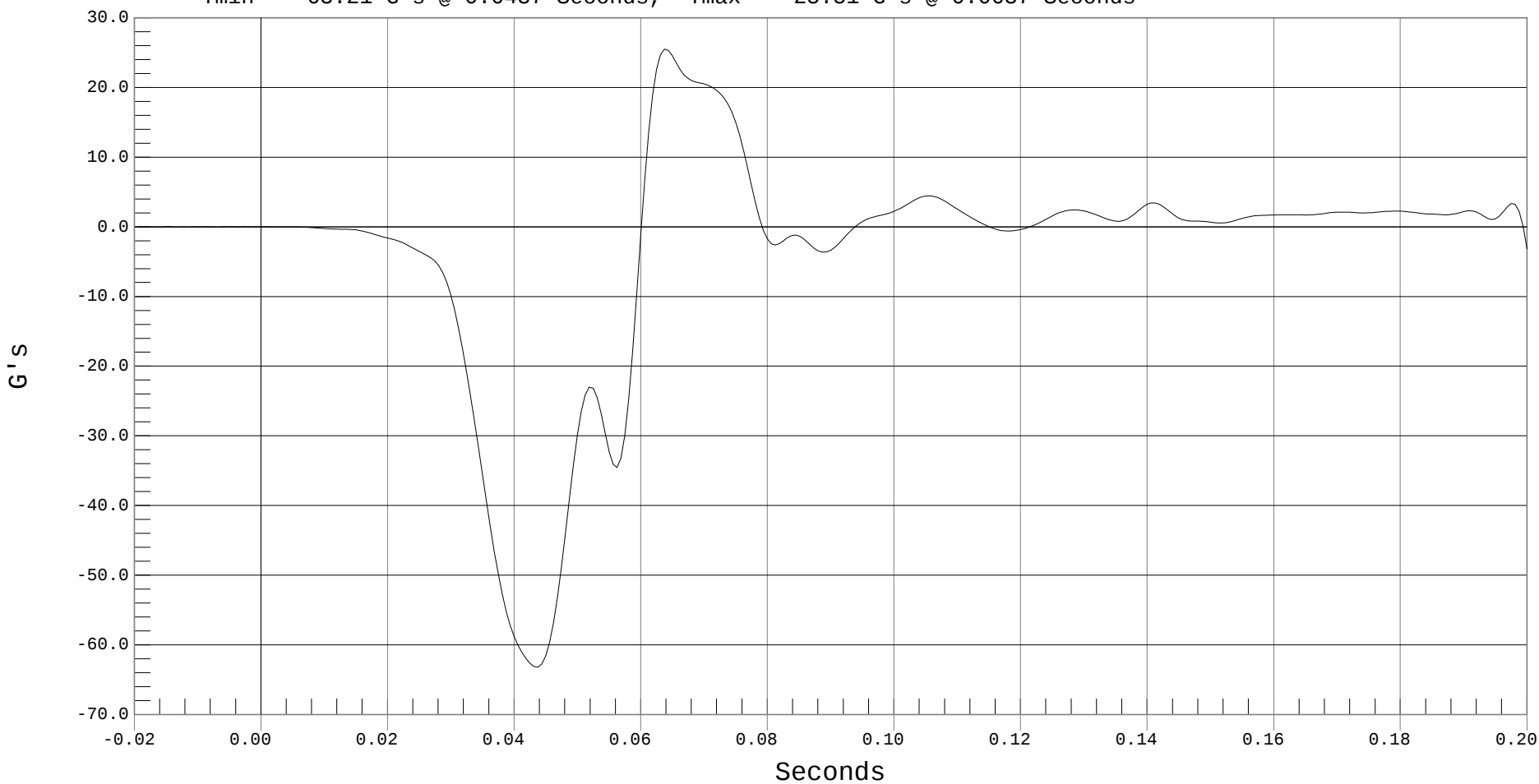
RIGHT REAR PASSENGER LOWER SPINE Y ACCELERATION

Test Desc.: FMVSS 214 SIDE IMPACT
Component: 1996 PONTIAC GRAND AM
Other Info:

Test Date: 05-04-01
Speed: 33.0 MPH, 53.1 KPH
Fir Filtered

— 1 RIGHT REAR PASSENGER LOWER SPINE Y ACCELERATION, b01052FI.R13

Ymin = -63.21 G's @ 0.0437 Seconds, Ymax = 25.51 G's @ 0.0637 Seconds





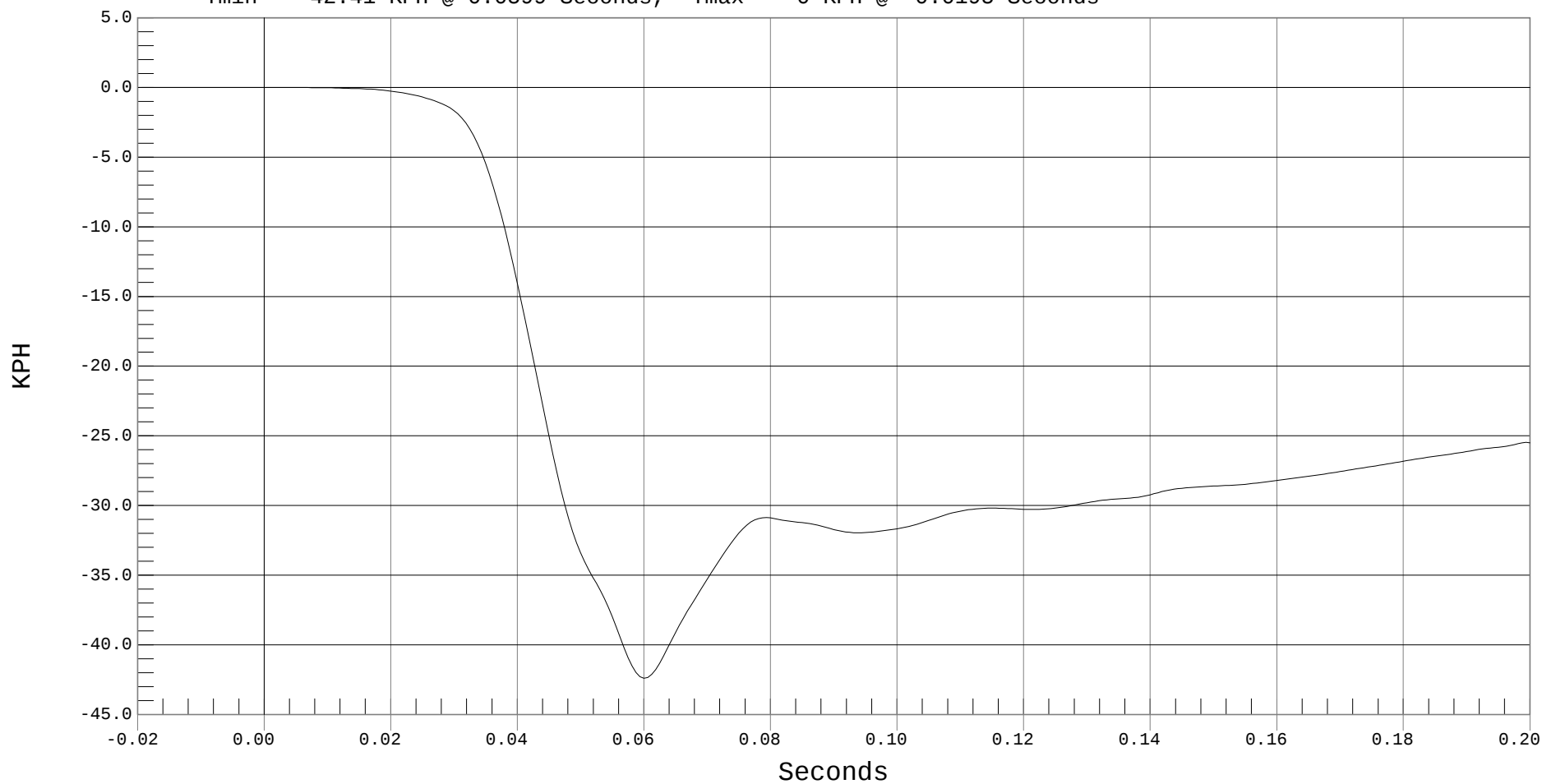
RIGHT REAR PASSENGER LOWER SPINE Y VELOCITY

Test Desc.: FMVSS 214 SIDE IMPACT
Component: 1996 PONTIAC GRAND AM
Other Info:

Test Date: 05-04-01
Speed: 33.0 MPH, 53.1 KPH
Fir Filtered

1 RIGHT REAR PASSENGER LOWER SPINE Y VELOCITY, b01052FI.V13

Ymin = -42.41 KPH @ 0.0599 Seconds, Ymax = 0 KPH @ -0.0195 Seconds





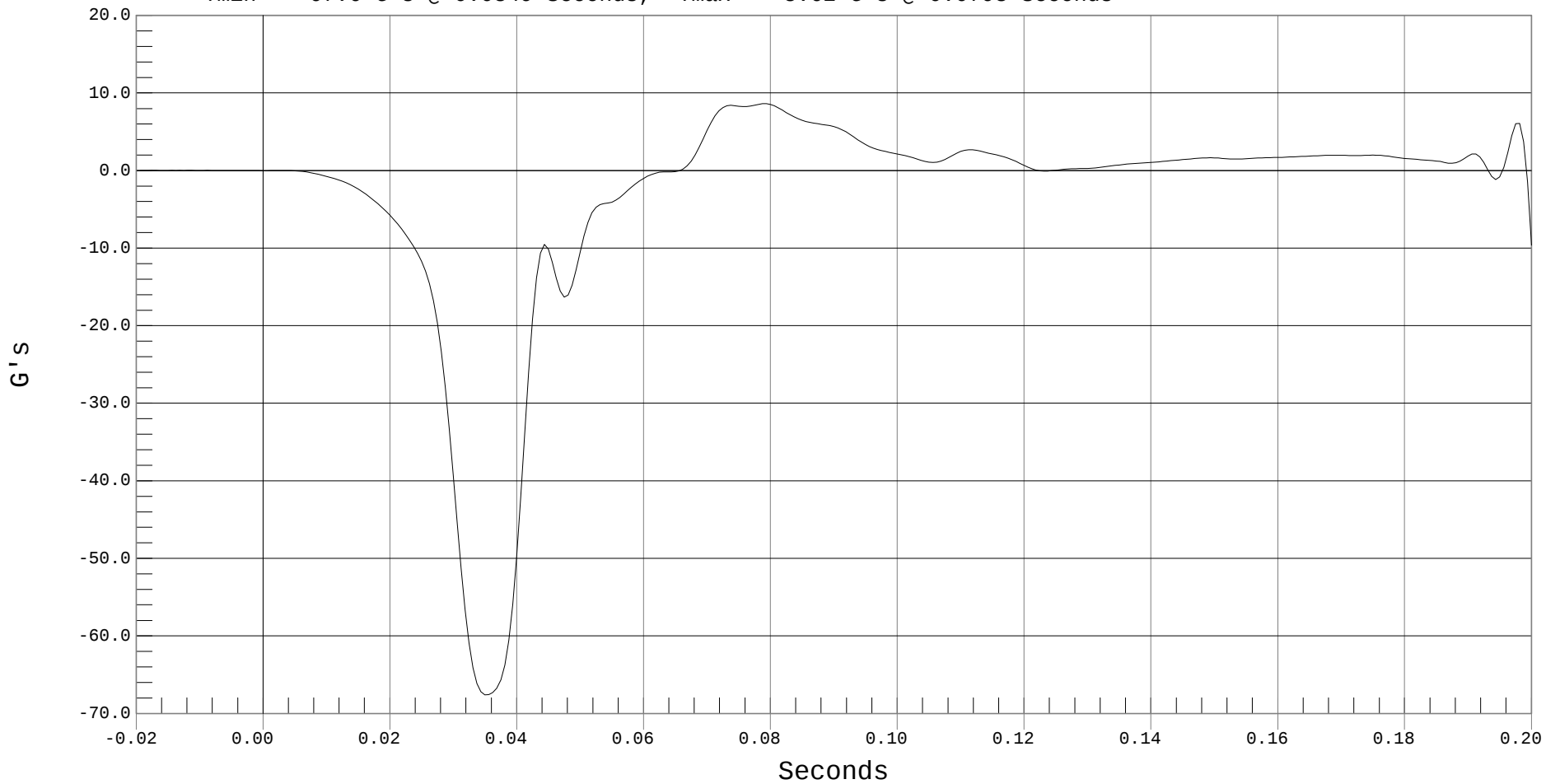
RIGHT REAR PASSENGER PELVIS Y ACCELERATION

Test Desc.: FMVSS 214 SIDE IMPACT
Component: 1996 PONTIAC GRAND AM
Other Info:

Test Date: 05-04-01
Speed: 33.0 MPH, 53.1 KPH
Fir Filtered

1 RIGHT REAR PASSENGER PELVIS Y ACCELERATION, b01052FI.R14

Ymin = -67.6 G's @ 0.0349 Seconds, Ymax = 8.62 G's @ 0.0793 Seconds





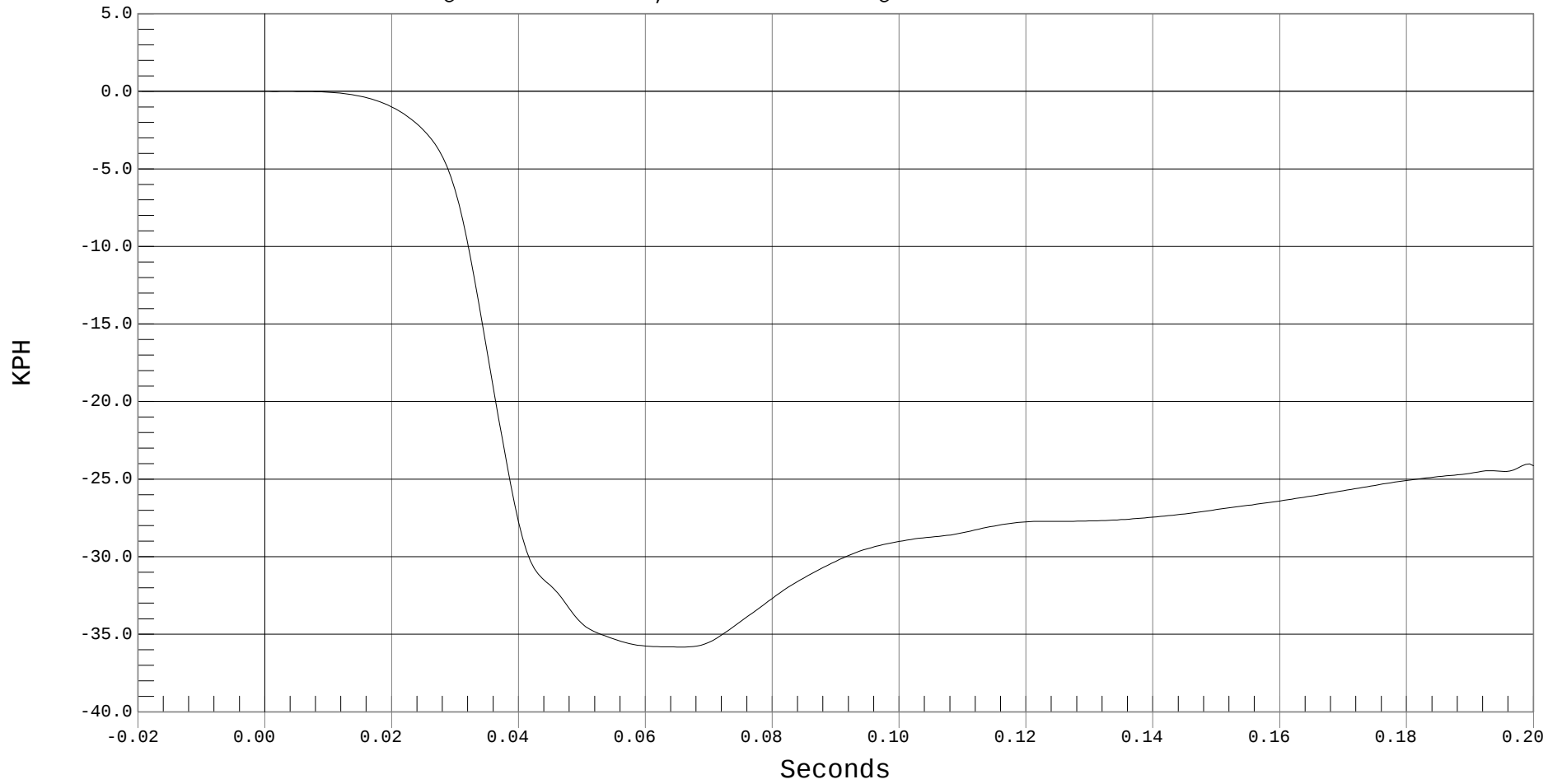
RIGHT REAR PASSENGER PELVIS Y VELOCITY

Test Desc.: FMVSS 214 SIDE IMPACT
Component: 1996 PONTIAC GRAND AM
Other Info:

Test Date: 05-04-01
Speed: 33.0 MPH, 53.1 KPH
Fir Filtered

1 RIGHT REAR PASSENGER PELVIS Y VELOCITY, b01052FI.V14

Ymin = -35.82 KPH @ 0.0655 Seconds, Ymax = 0 KPH @ -0.0114 Seconds





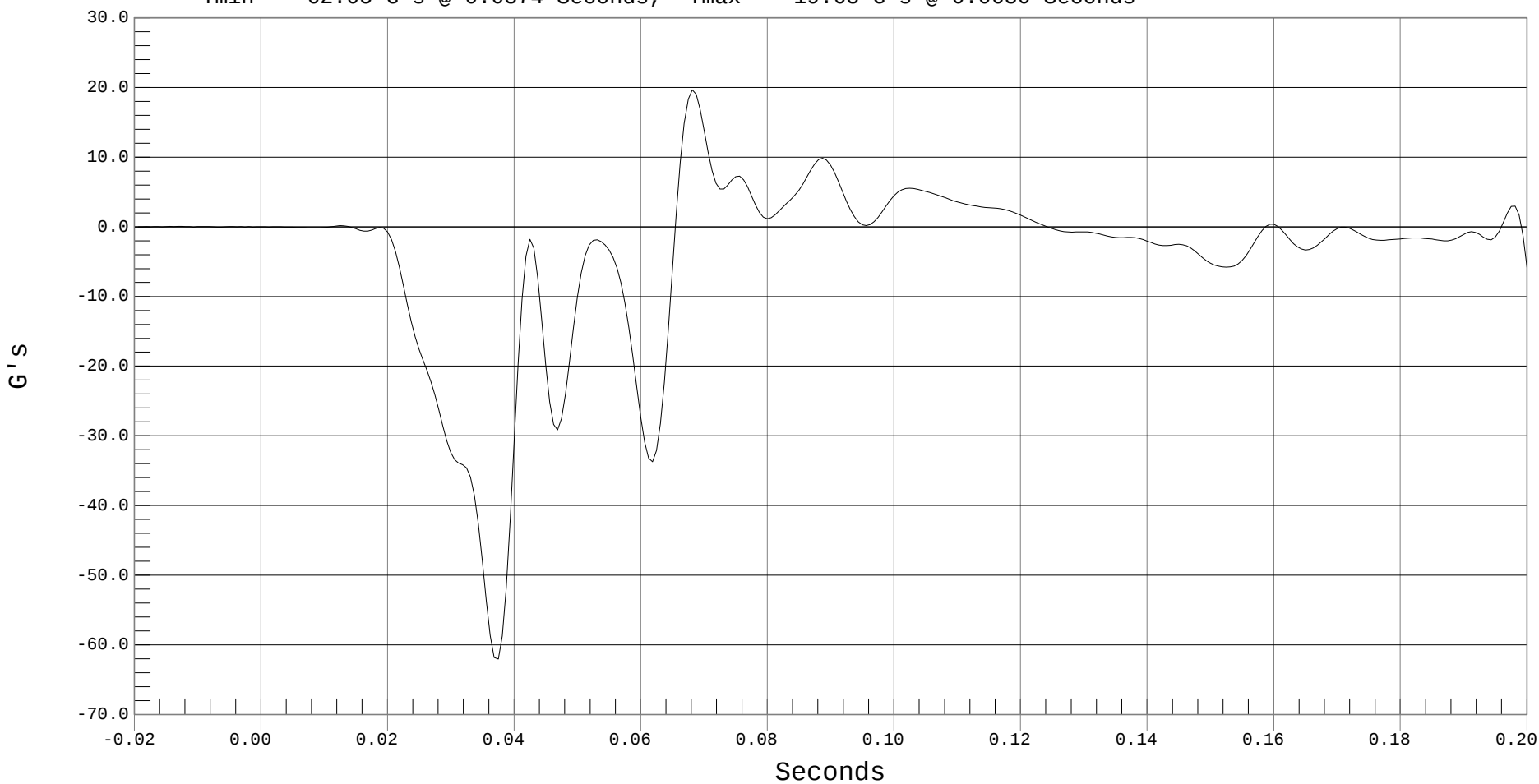
RIGHT FRONT PASSENGER UPPER RIB REDUNDANT Y ACCELERATION

Test Desc.: FMVSS 214 SIDE IMPACT
Component: 1996 PONTIAC GRAND AM
Other Info:

Test Date: 05-04-01
Speed: 33.0 MPH, 53.1 KPH
Fir Filtered

— 1 RIGHT FRONT PASSENGER UPPER RIB REDUNDANT Y ACCELERATION, b01052FI.R41

Ymin = -62.05 G's @ 0.0374 Seconds, Ymax = 19.68 G's @ 0.0680 Seconds





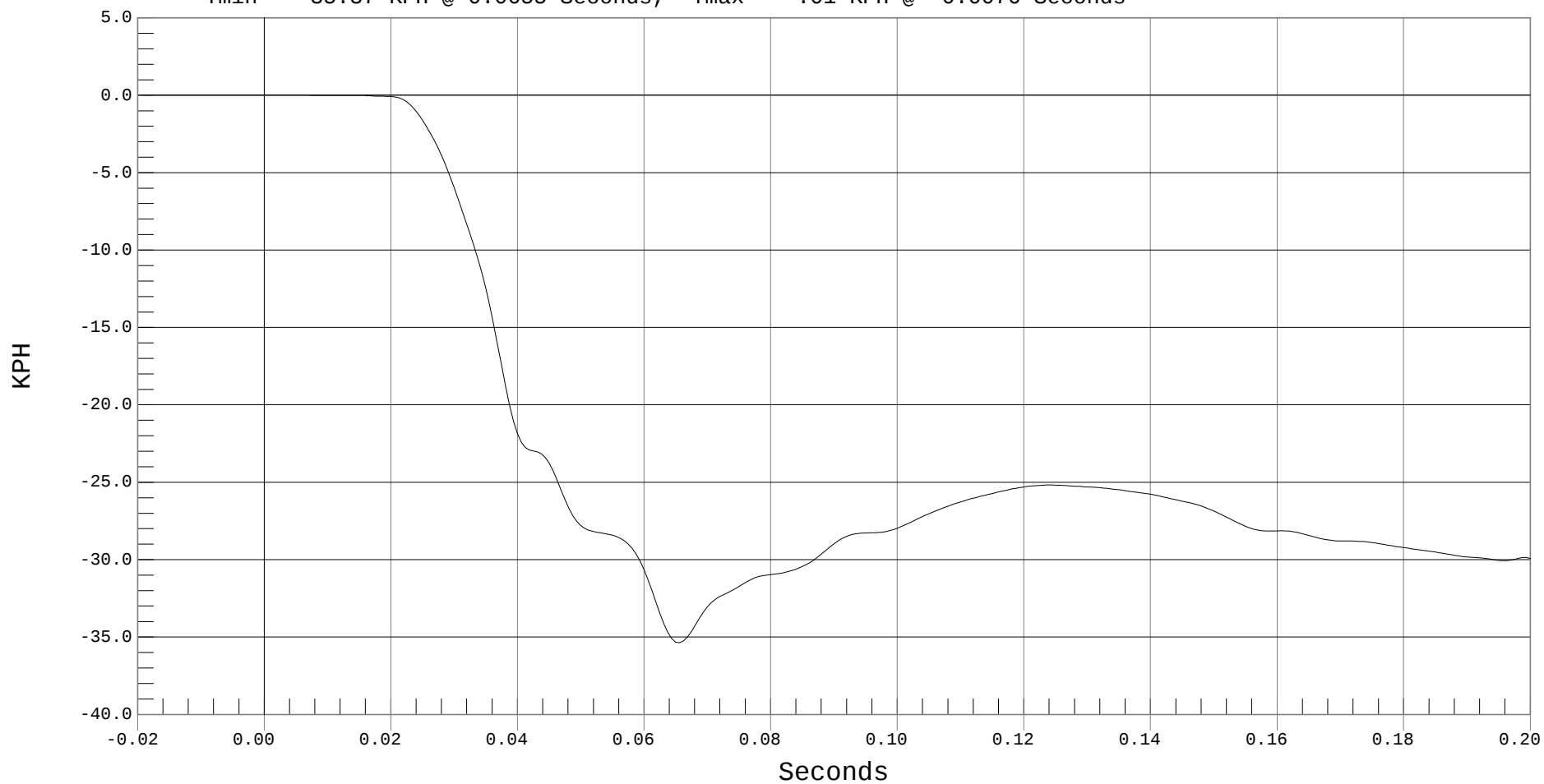
RIGHT FRONT PASSENGER UPPER RIB REDUNDANT Y VELOCITY

Test Desc.: FMVSS 214 SIDE IMPACT
Component: 1996 PONTIAC GRAND AM
Other Info:

Test Date: 05-04-01
Speed: 33.0 MPH, 53.1 KPH
Fir Filtered

1 RIGHT FRONT PASSENGER UPPER RIB REDUNDANT Y VELOCITY, b01052FI.V41

Ymin = -35.37 KPH @ 0.0655 Seconds, Ymax = .01 KPH @ -0.0076 Seconds





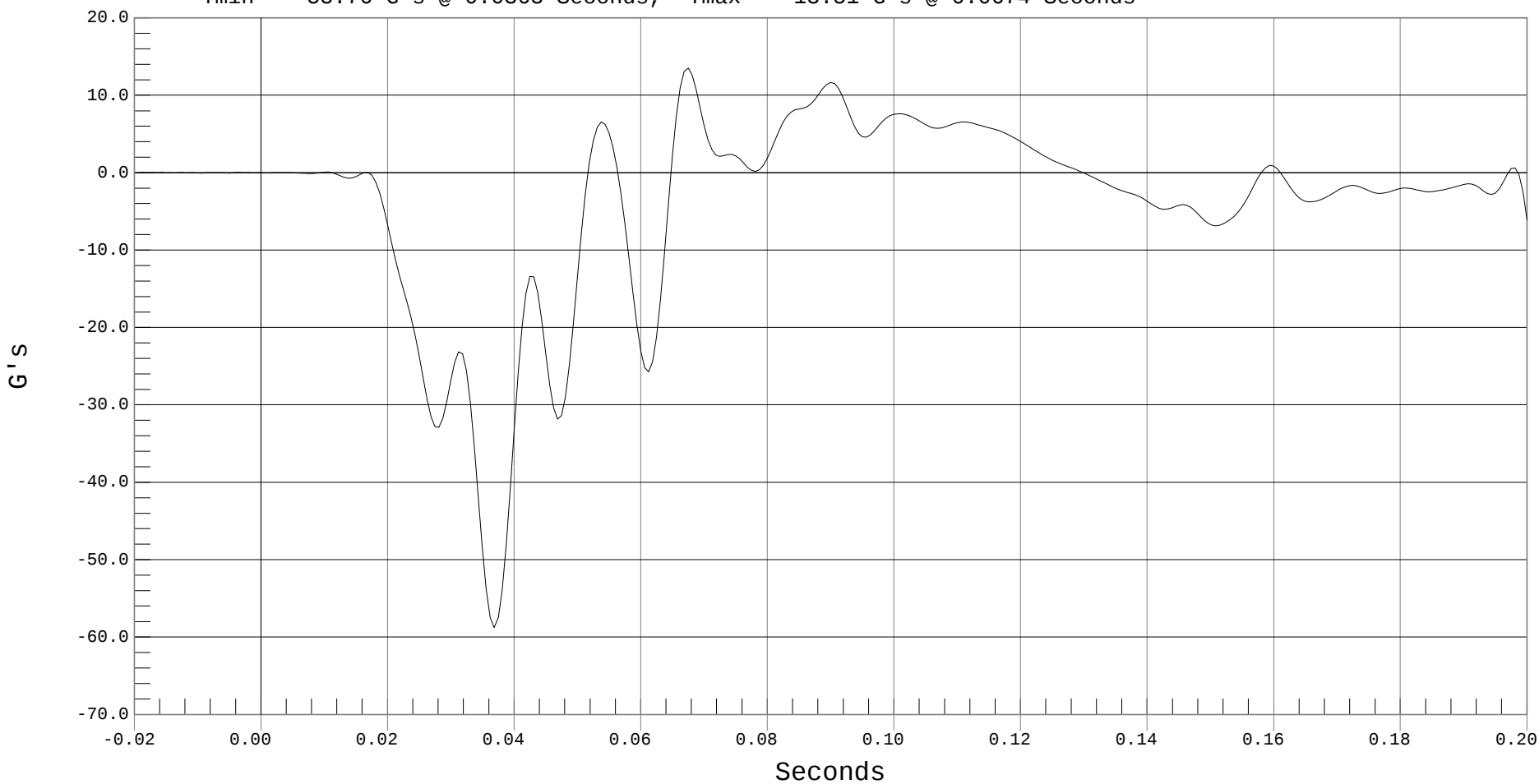
RIGHT FRONT PASSENGER LOWER RIB REDUNDANT Y ACCELERATION

Test Desc.: FMVSS 214 SIDE IMPACT
Component: 1996 PONTIAC GRAND AM
Other Info:

Test Date: 05-04-01
Speed: 33.0 MPH, 53.1 KPH
Fir Filtered

— 1 RIGHT FRONT PASSENGER LOWER RIB REDUNDANT Y ACCELERATION, b01052FI.R42

Ymin = -58.76 G's @ 0.0368 Seconds, Ymax = 13.51 G's @ 0.0674 Seconds





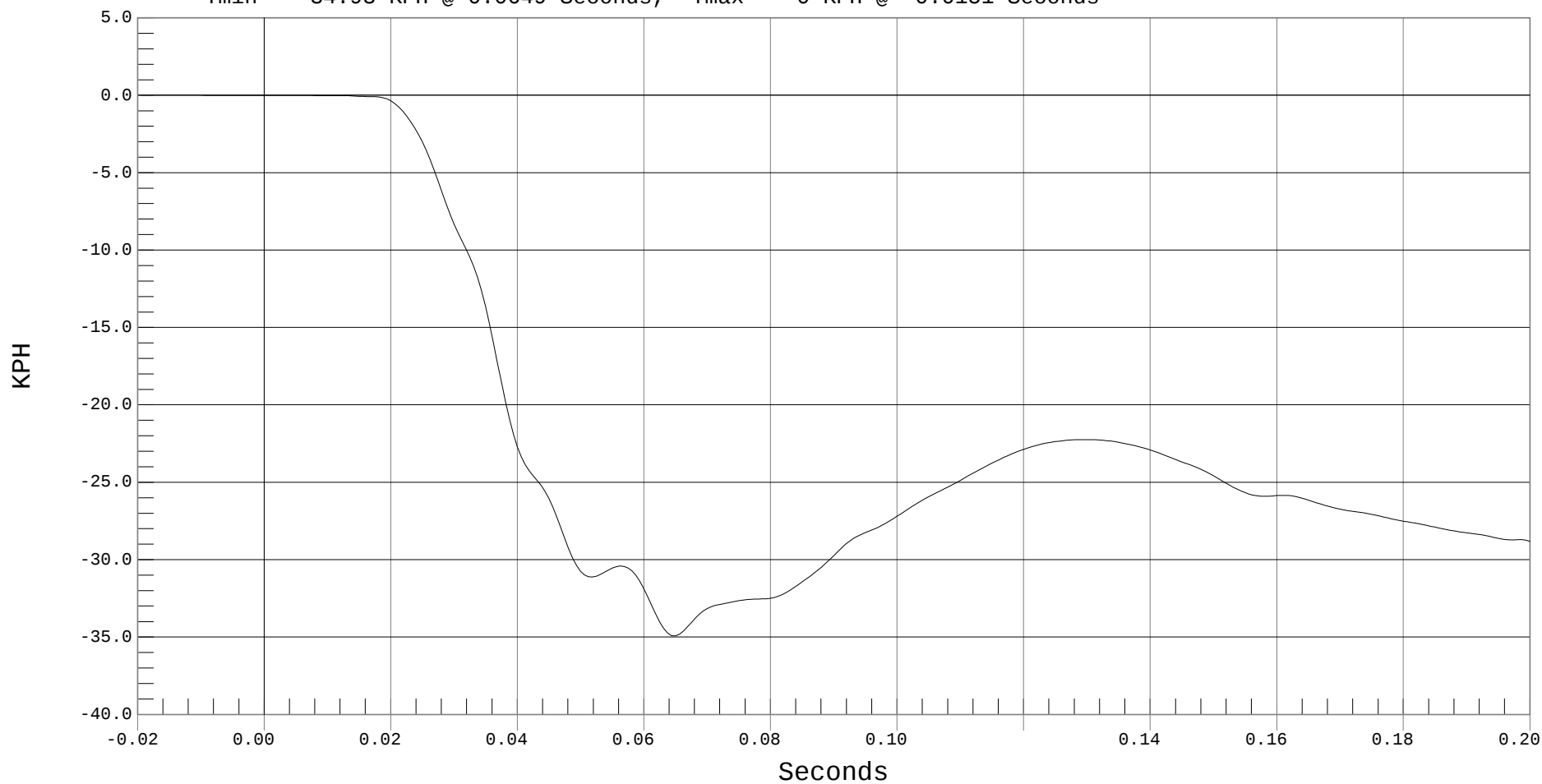
RIGHT FRONT PASSENGER LOWER RIB REDUNDANT Y VELOCITY

Test Desc.: FMVSS 214 SIDE IMPACT
Component: 1996 PONTIAC GRAND AM
Other Info:

Test Date: 05-04-01
Speed: 33.0 MPH, 53.1 KPH
Fir Filtered

1 RIGHT FRONT PASSENGER LOWER RIB REDUNDANT Y VELOCITY, b01052FI.V42

Ymin = -34.93 KPH @ 0.0649 Seconds, Ymax = 0 KPH @ -0.0151 Seconds





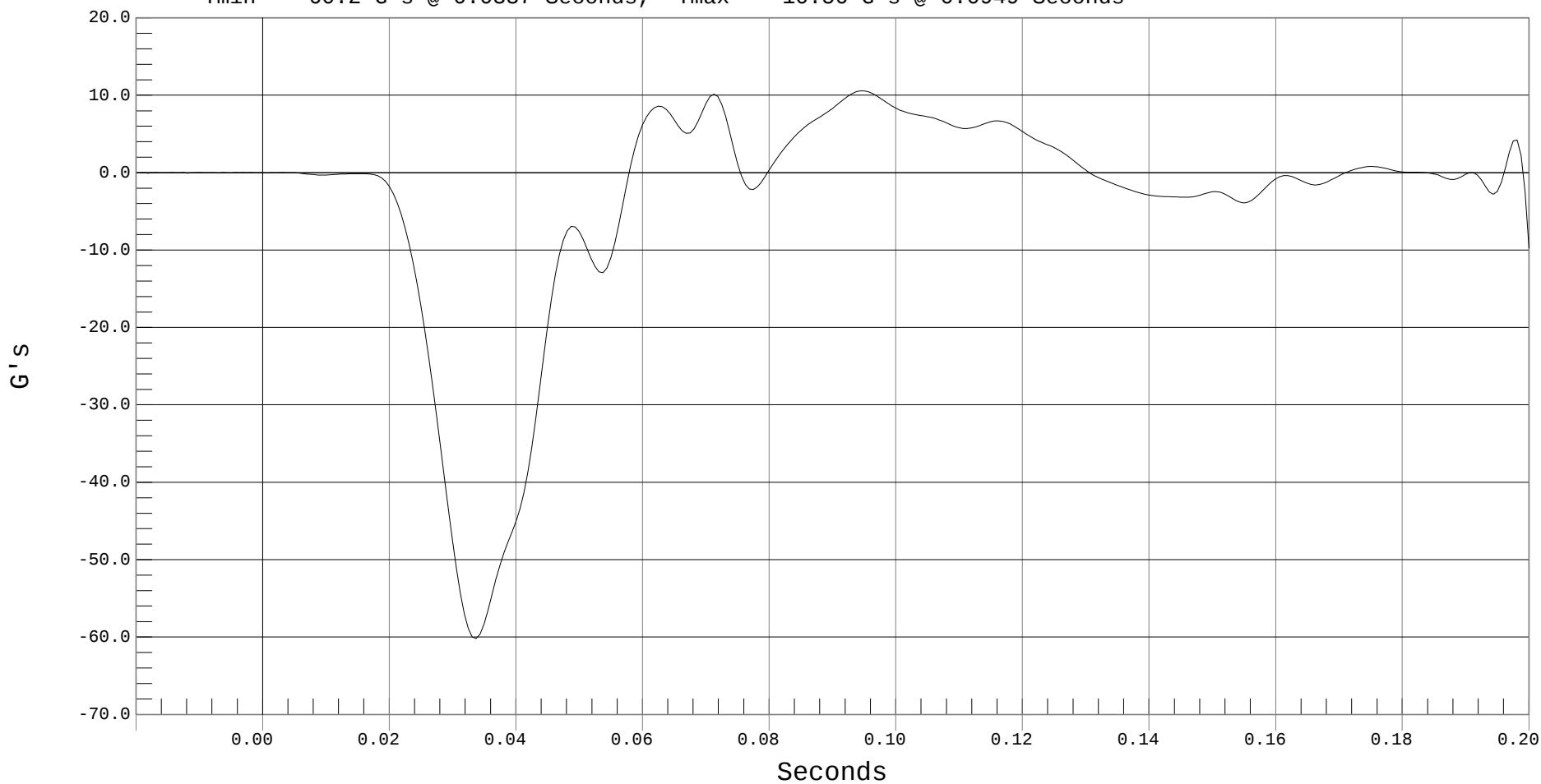
RIGHT FRONT PASSENGER LOWER SPINE REDUNDANT Y ACCELERATION

Test Desc.: FMVSS 214 SIDE IMPACT
Component: 1996 PONTIAC GRAND AM
Other Info:

Test Date: 05-04-01
Speed: 33.0 MPH, 53.1 KPH
Fir Filtered

1 RIGHT FRONT PASSENGER LOWER SPINE REDUNDANT Y ACCELERATION, b01052FI.R43

Ymin = -60.2 G's @ 0.0337 Seconds, Ymax = 10.56 G's @ 0.0949 Seconds





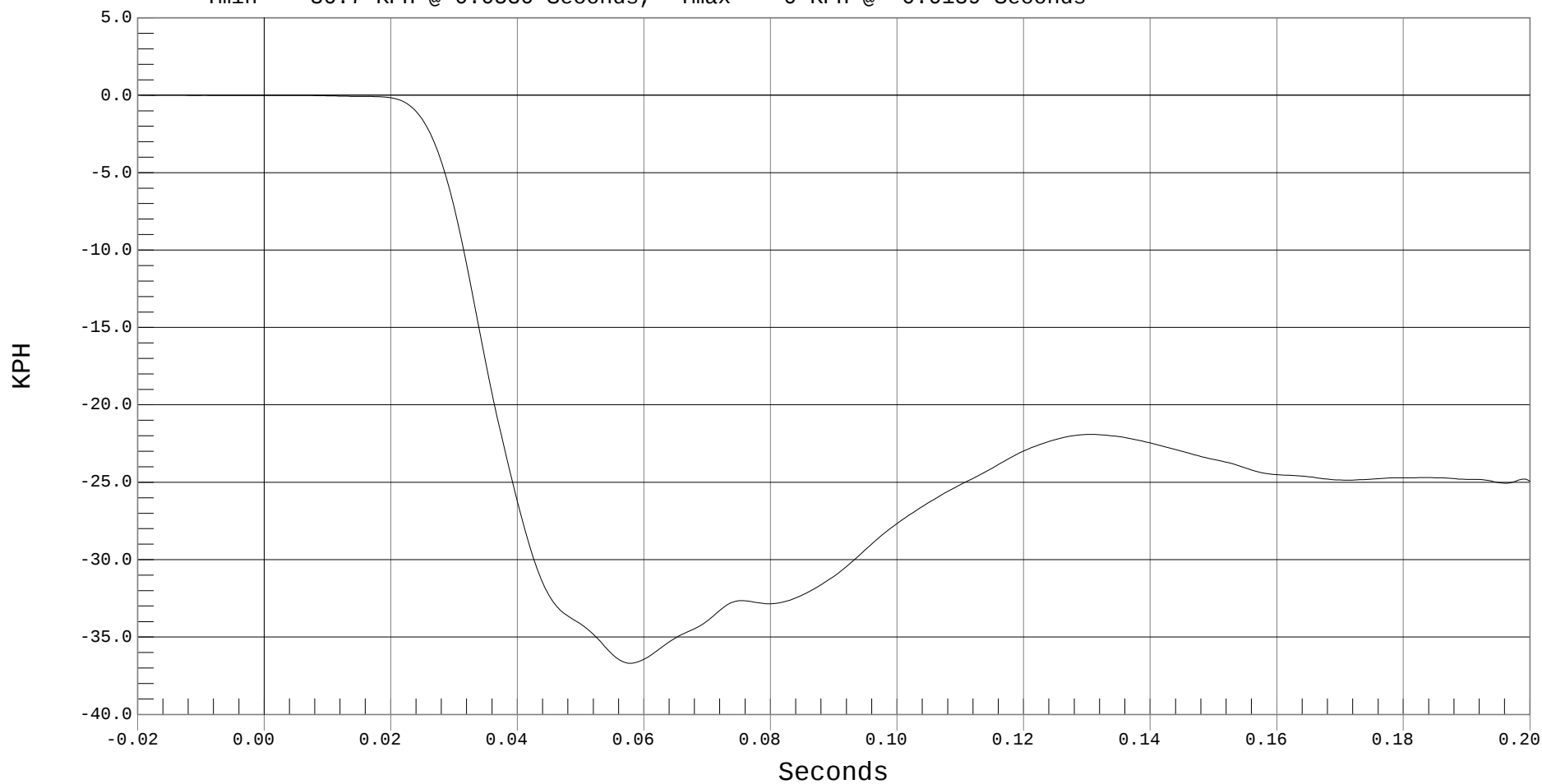
RIGHT FRONT PASSENGER LOWER SPINE REDUNDANT Y VELOCITY

Test Desc.: FMVSS 214 SIDE IMPACT
Component: 1996 PONTIAC GRAND AM
Other Info:

Test Date: 05-04-01
Speed: 33.0 MPH, 53.1 KPH
Fir Filtered

— 1 RIGHT FRONT PASSENGER LOWER SPINE REDUNDANT Y VELOCITY, b01052FI.V43

Ymin = -36.7 KPH @ 0.0580 Seconds, Ymax = 0 KPH @ -0.0189 Seconds





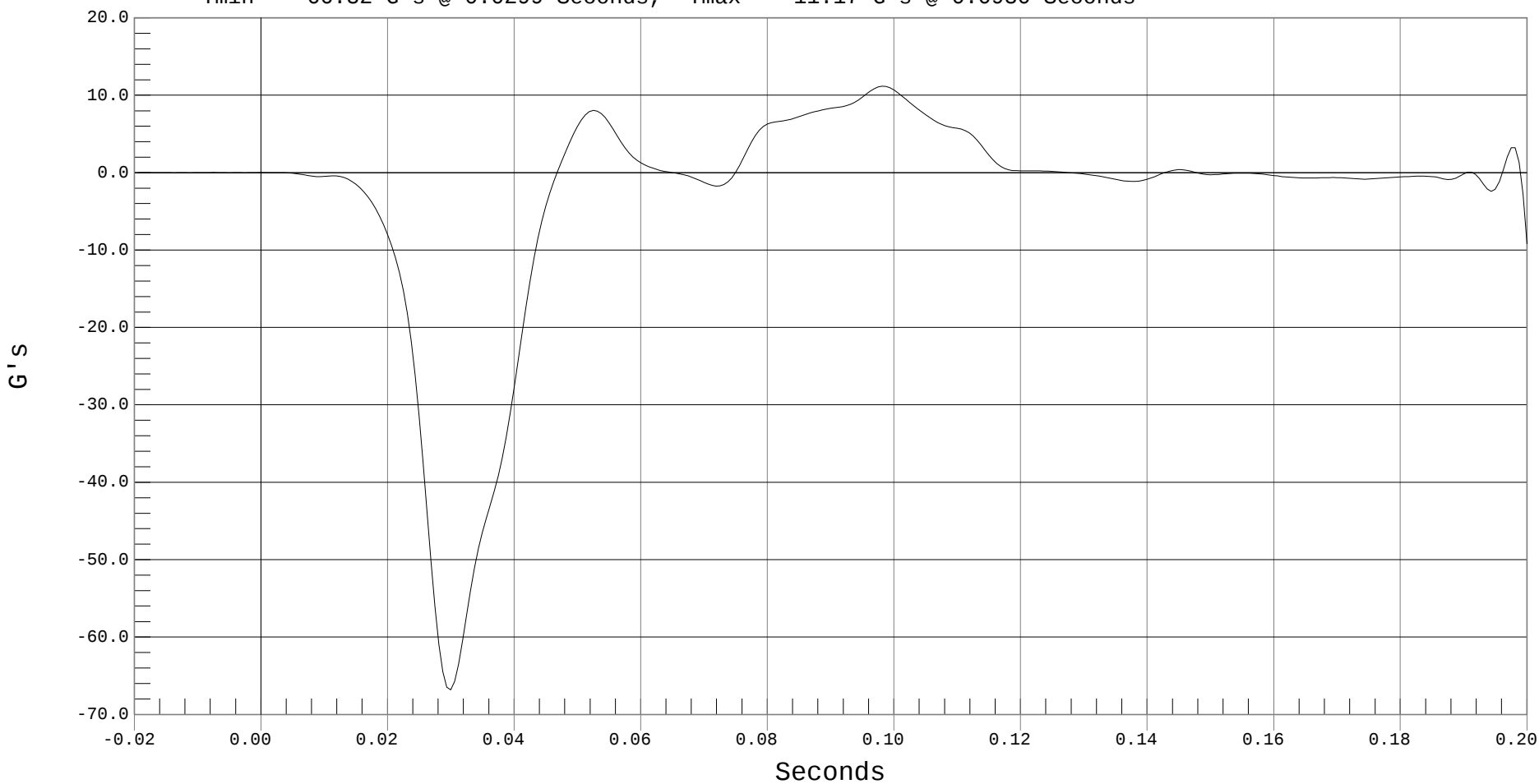
RIGHT FRONT PASSENGER PELVIS REDUNDANT Y ACCELERATION

Test Desc.: FMVSS 214 SIDE IMPACT
Component: 1996 PONTIAC GRAND AM
Other Info:

Test Date: 05-04-01
Speed: 33.0 MPH, 53.1 KPH
Fir Filtered

— 1 RIGHT FRONT PASSENGER PELVIS REDUNDANT Y ACCELERATION, b01052FI.R44

Ymin = -66.82 G's @ 0.0299 Seconds, Ymax = 11.17 G's @ 0.0980 Seconds





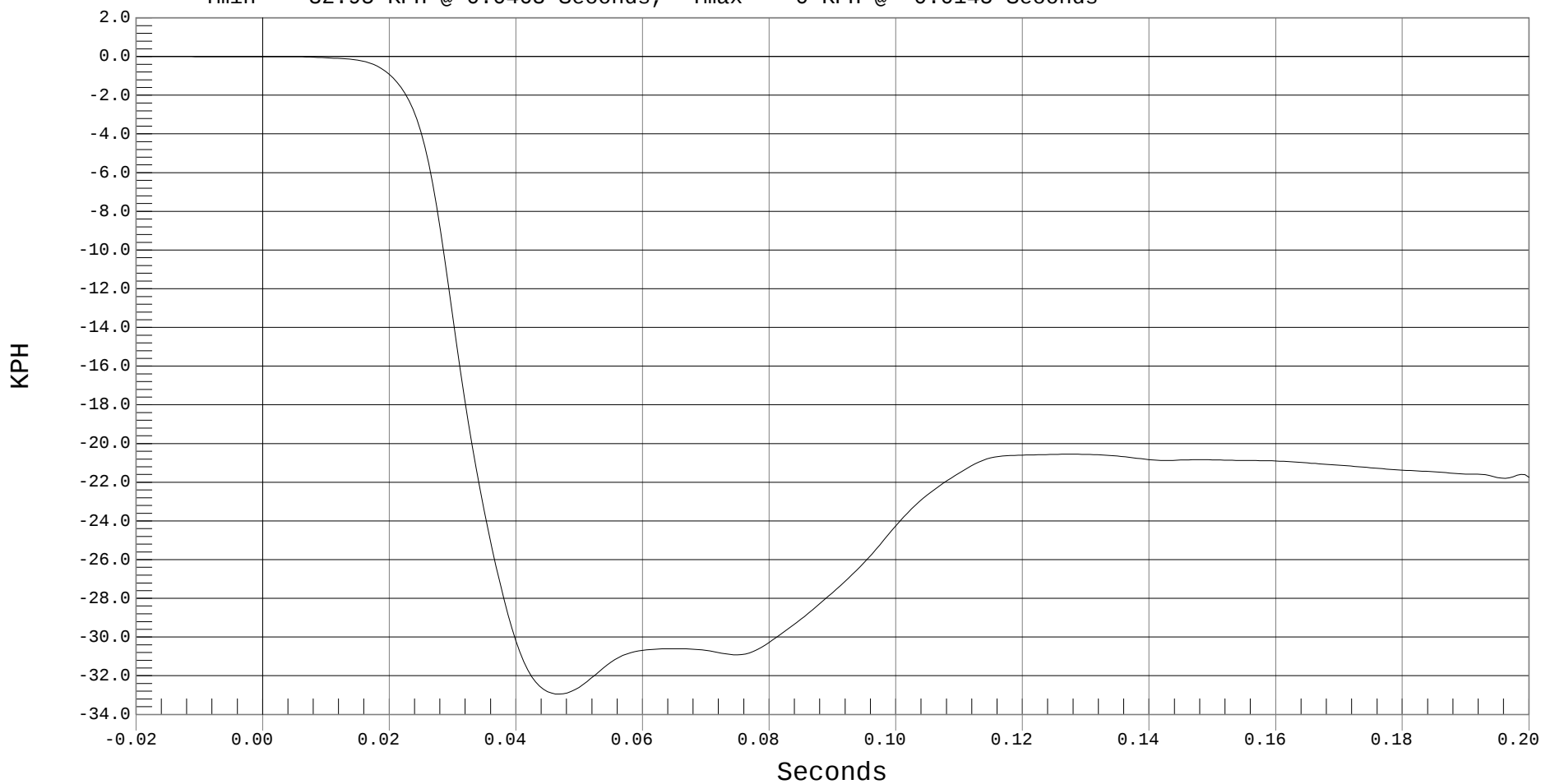
RIGHT FRONT PASSENGER PELVIS REDUNDANT Y VELOCITY

Test Desc.: FMVSS 214 SIDE IMPACT
Component: 1996 PONTIAC GRAND AM
Other Info:

Test Date: 05-04-01
Speed: 33.0 MPH, 53.1 KPH
Fir Filtered

1 RIGHT FRONT PASSENGER PELVIS REDUNDANT Y VELOCITY, b01052FI.V44

Ymin = -32.95 KPH @ 0.0468 Seconds, Ymax = 0 KPH @ -0.0145 Seconds





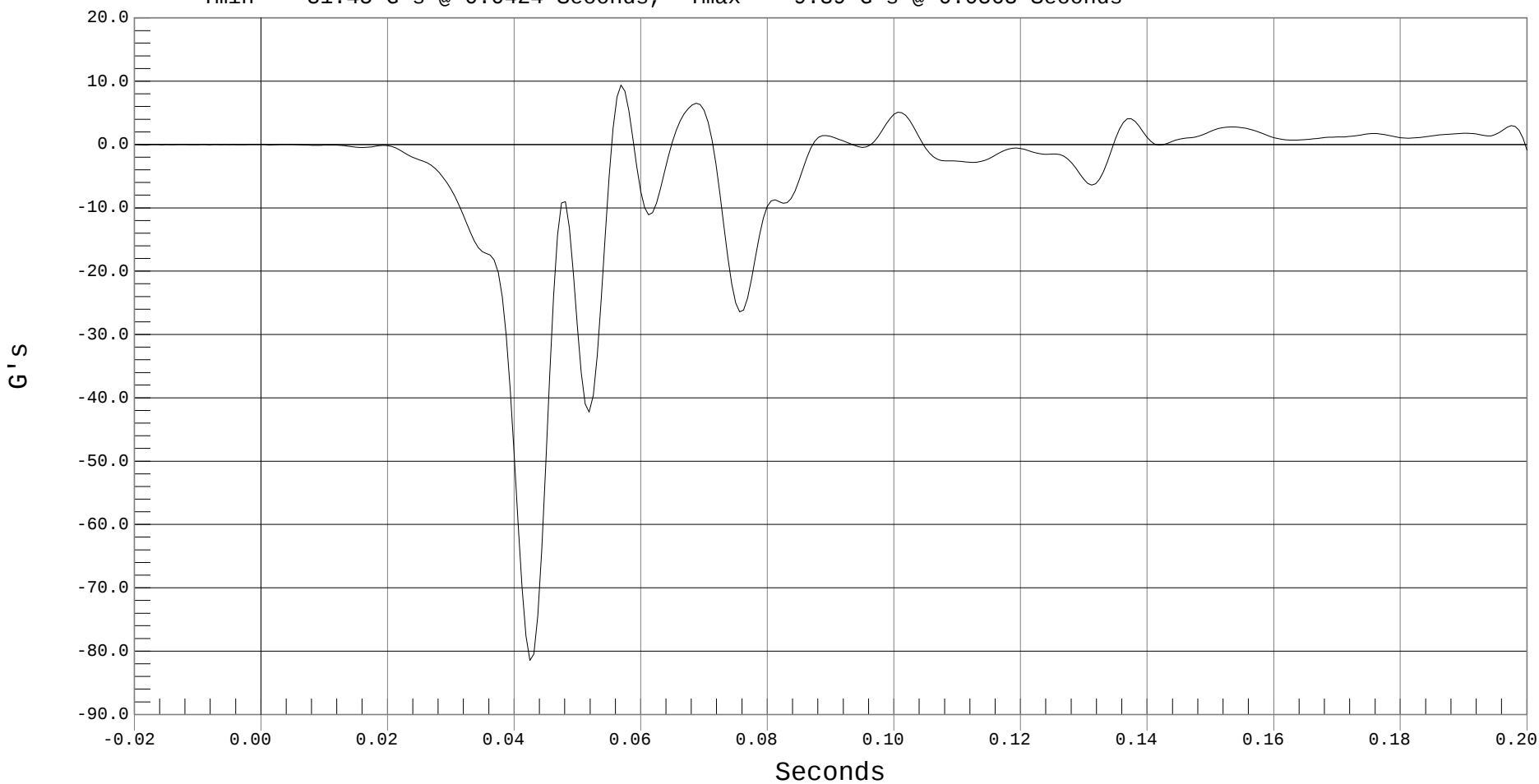
RIGHT REAR PASSENGER UPPER RIB REDUNDANT Y ACCELERATION

Test Desc.: FMVSS 214 SIDE IMPACT
Component: 1996 PONTIAC GRAND AM
Other Info:

Test Date: 05-04-01
Speed: 33.0 MPH, 53.1 KPH
Fir Filtered

— 1 RIGHT REAR PASSENGER UPPER RIB REDUNDANT Y ACCELERATION, b01052FI.R45

Ymin = -81.45 G's @ 0.0424 Seconds, Ymax = 9.39 G's @ 0.0568 Seconds





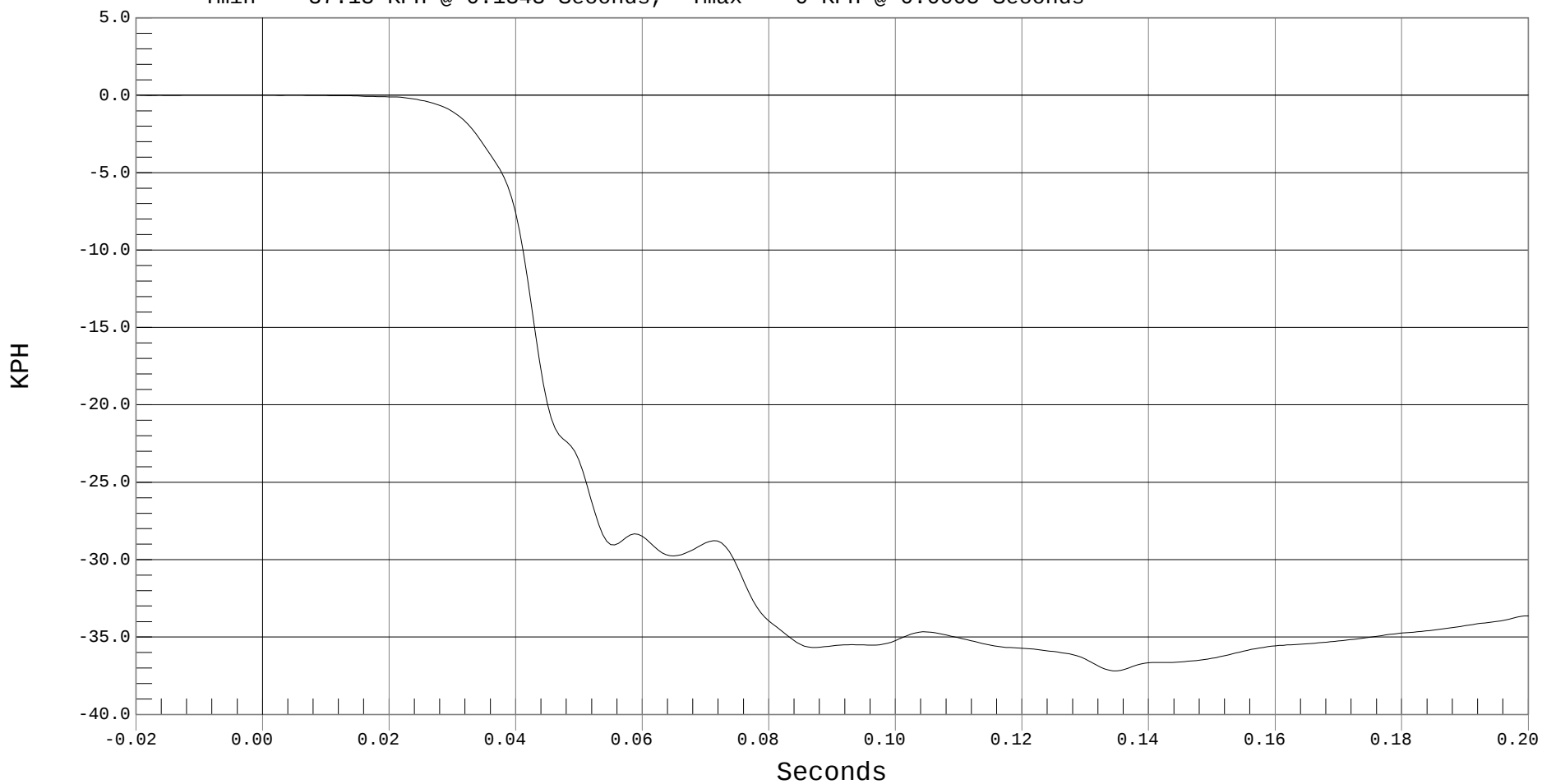
RIGHT REAR PASSENGER UPPER RIB REDUNDANT Y VELOCITY

Test Desc.: FMVSS 214 SIDE IMPACT
Component: 1996 PONTIAC GRAND AM
Other Info:

Test Date: 05-04-01
Speed: 33.0 MPH, 53.1 KPH
Fir Filtered

— 1 RIGHT REAR PASSENGER UPPER RIB REDUNDANT Y VELOCITY, b01052FI.V45

Ymin = -37.18 KPH @ 0.1343 Seconds, Ymax = 0 KPH @ 0.0005 Seconds





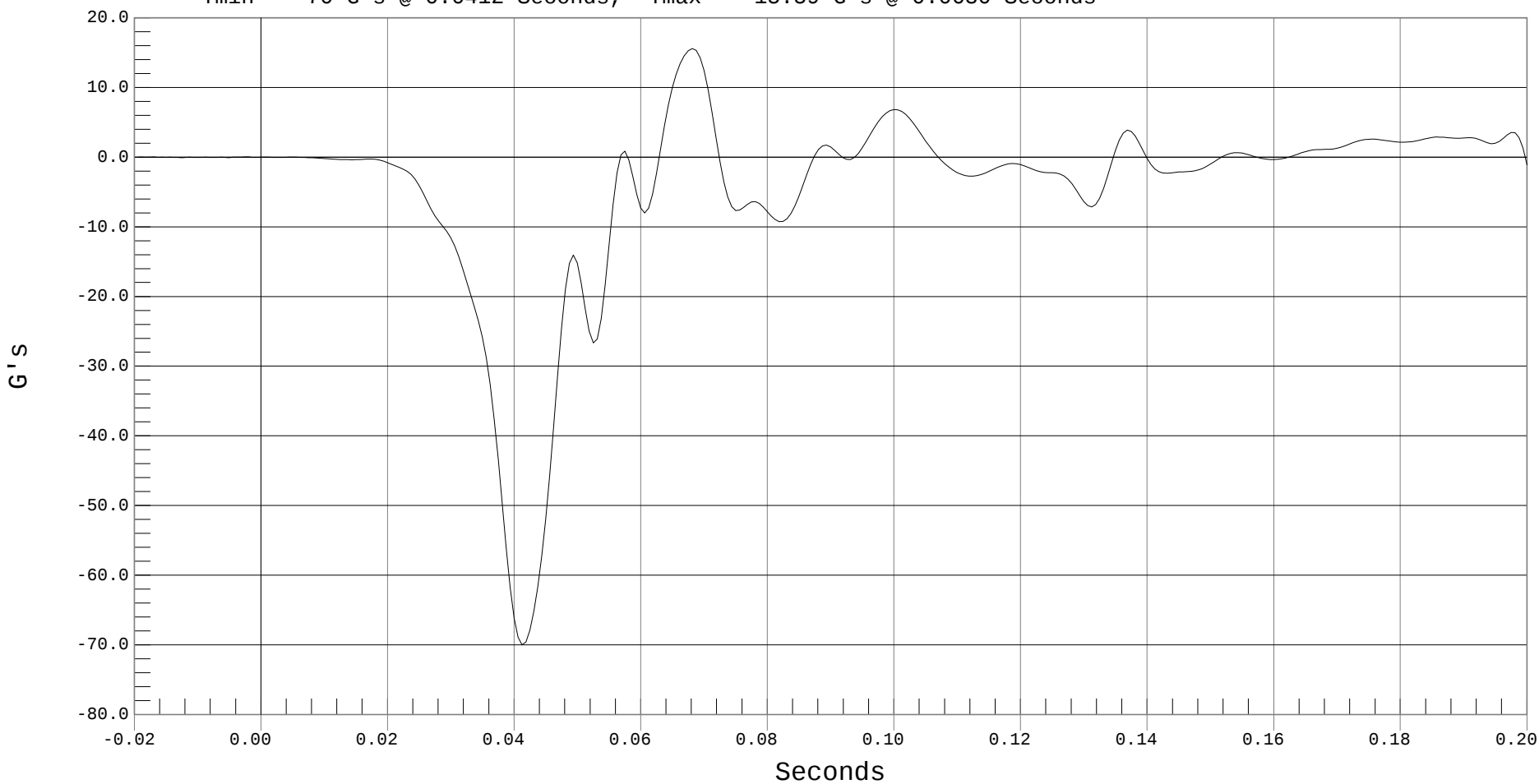
RIGHT REAR PASSENGER LOWER RIB REDUNDANT Y ACCELERATION

Test Desc.: FMVSS 214 SIDE IMPACT
Component: 1996 PONTIAC GRAND AM
Other Info:

Test Date: 05-04-01
Speed: 33.0 MPH, 53.1 KPH
Fir Filtered

— 1 RIGHT REAR PASSENGER LOWER RIB REDUNDANT Y ACCELERATION, b01052FI.R46

Ymin = -70 G's @ 0.0412 Seconds, Ymax = 15.59 G's @ 0.0680 Seconds





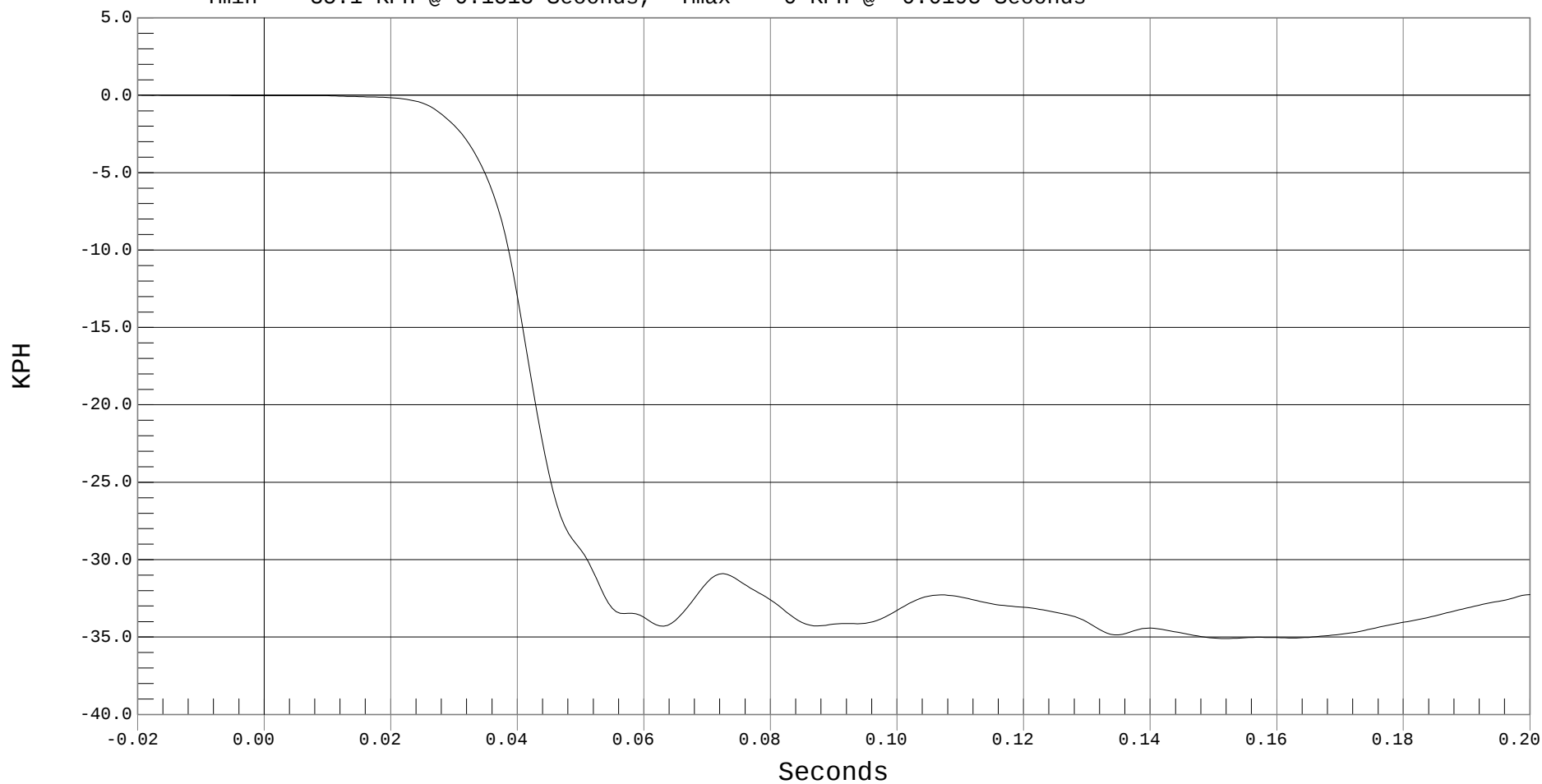
RIGHT REAR PASSENGER LOWER RIB REDUNDANT Y VELOCITY

Test Desc.: FMVSS 214 SIDE IMPACT
Component: 1996 PONTIAC GRAND AM
Other Info:

Test Date: 05-04-01
Speed: 33.0 MPH, 53.1 KPH
Fir Filtered

1 RIGHT REAR PASSENGER LOWER RIB REDUNDANT Y VELOCITY, b01052FI.V46

Ymin = -35.1 KPH @ 0.1518 Seconds, Ymax = 0 KPH @ -0.0195 Seconds





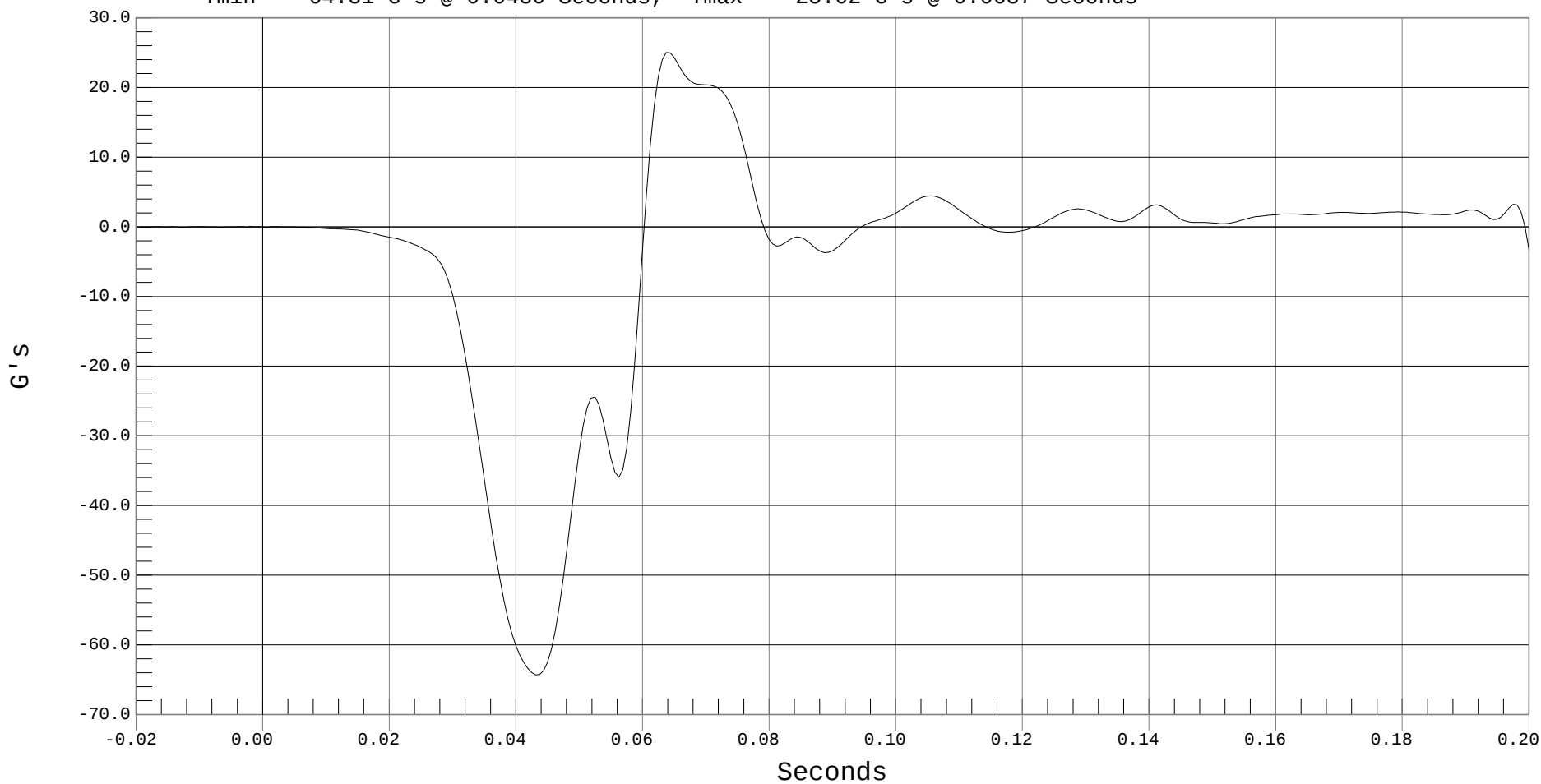
RIGHT REAR PASSENGER LOWER SPINE REDUNDANT Y ACCELERATION

Test Desc.: FMVSS 214 SIDE IMPACT
Component: 1996 PONTIAC GRAND AM
Other Info:

Test Date: 05-04-01
Speed: 33.0 MPH, 53.1 KPH
Fir Filtered

— 1 RIGHT REAR PASSENGER LOWER SPINE REDUNDANT Y ACCELERATION, b01052FI.R47

Ymin = -64.31 G's @ 0.0430 Seconds, Ymax = 25.02 G's @ 0.0637 Seconds





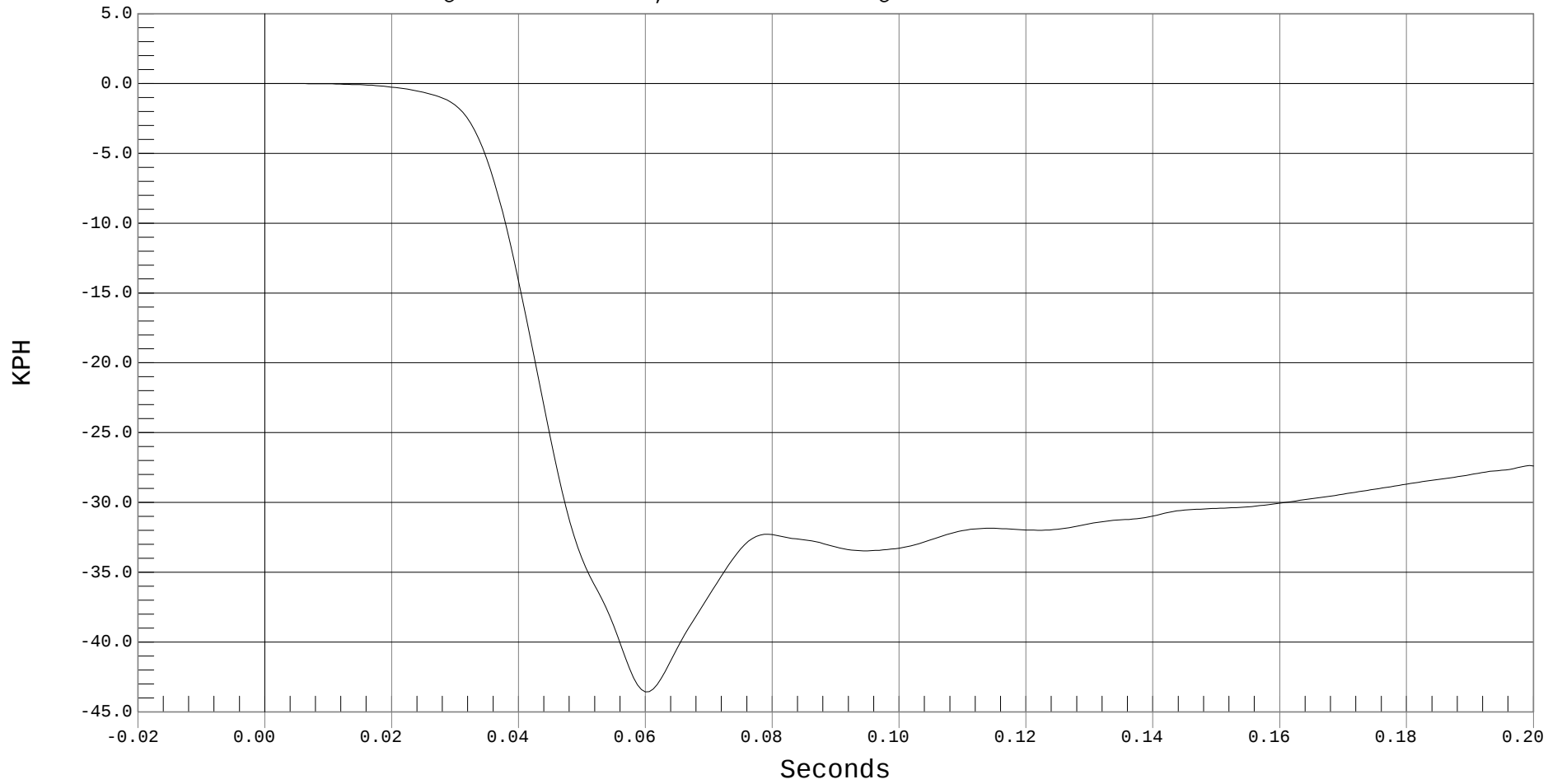
RIGHT REAR PASSENGER LOWER SPINE REDUNDANT Y VELOCITY

Test Desc.: FMVSS 214 SIDE IMPACT
Component: 1996 PONTIAC GRAND AM
Other Info:

Test Date: 05-04-01
Speed: 33.0 MPH, 53.1 KPH
Fir Filtered

— 1 RIGHT REAR PASSENGER LOWER SPINE REDUNDANT Y VELOCITY, b01052FI.V47

Ymin = -43.57 KPH @ 0.0599 Seconds, Ymax = 0 KPH @ -0.0195 Seconds





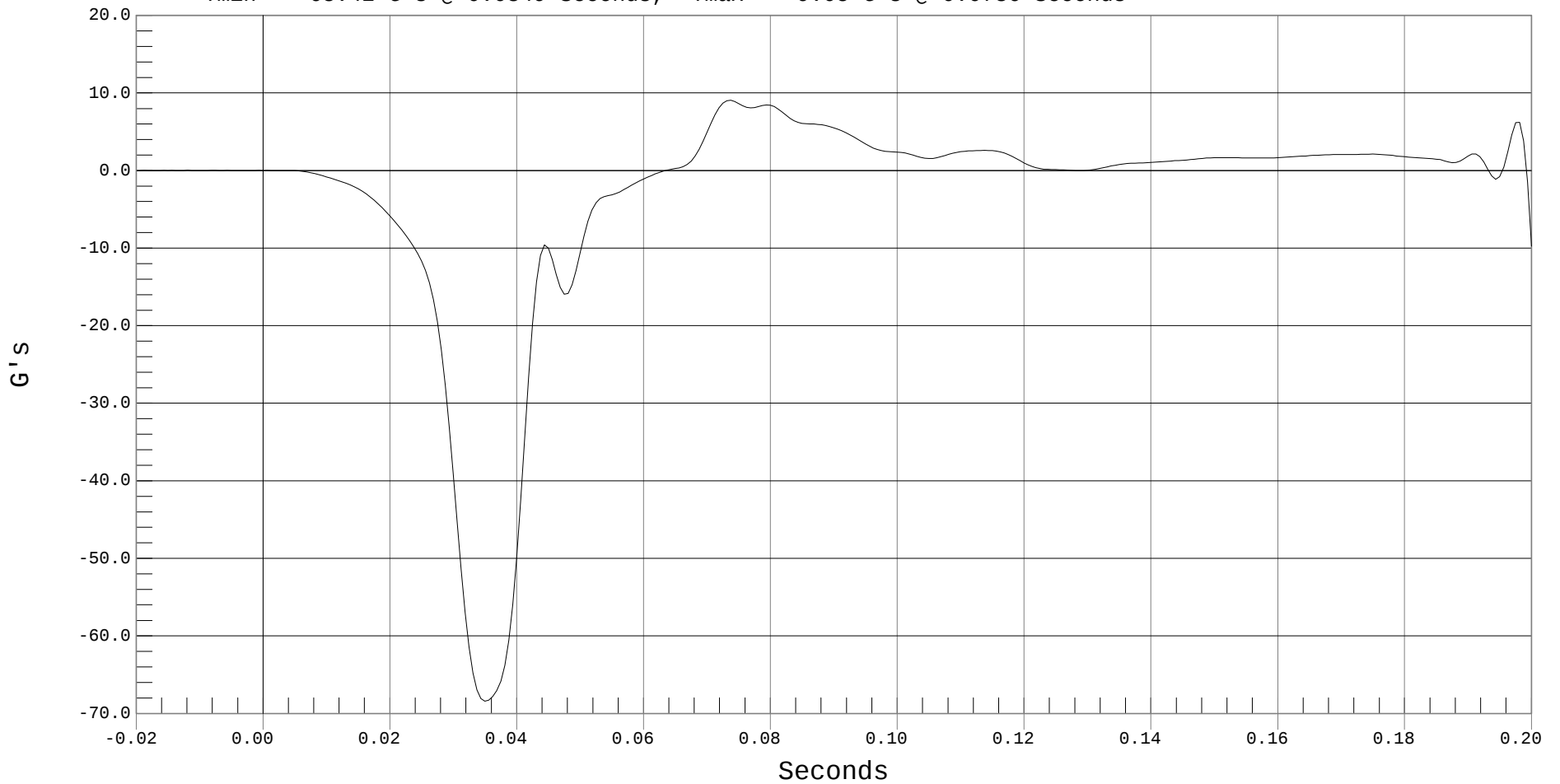
RIGHT REAR PASSENGER PELVIS REDUNDANT Y ACCELERATION

Test Desc.: FMVSS 214 SIDE IMPACT
Component: 1996 PONTIAC GRAND AM
Other Info:

Test Date: 05-04-01
Speed: 33.0 MPH, 53.1 KPH
Fir Filtered

— 1 RIGHT REAR PASSENGER PELVIS REDUNDANT Y ACCELERATION, b01052FI.R48

Ymin = -68.42 G's @ 0.0349 Seconds, Ymax = 9.05 G's @ 0.0736 Seconds





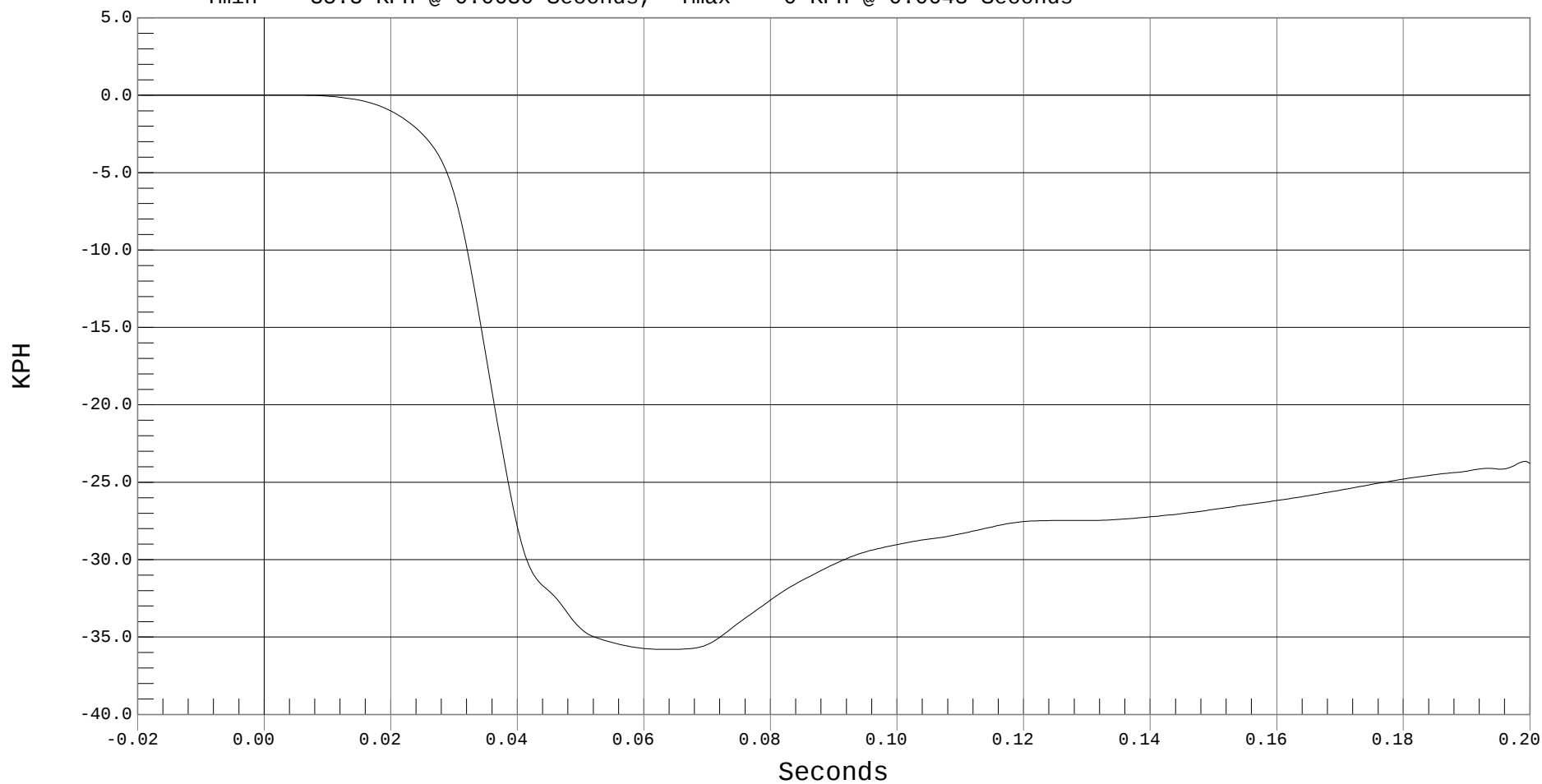
RIGHT REAR PASSENGER PELVIS REDUNDANT Y VELOCITY

Test Desc.: FMVSS 214 SIDE IMPACT
Component: 1996 PONTIAC GRAND AM
Other Info:

Test Date: 05-04-01
Speed: 33.0 MPH, 53.1 KPH
Fir Filtered

— 1 RIGHT REAR PASSENGER PELVIS REDUNDANT Y VELOCITY, b01052FI.V48

Ymin = -35.8 KPH @ 0.0630 Seconds, Ymax = 0 KPH @ 0.0043 Seconds



APPENDIX C

SID CONFIGURATION AND PERFORMANCE VERIFICATION DATA

CALIBRATION DATA SUMMARY
SIDE IMPACT DUMMY (SID)
CONFIGURED TO RIGHT SIDE IMPACT

Report Date: 5/3/01

Technician: Tim Michnay

Test Parameter	Specification	Dummy Serial Number: 037	Dummy Serial Number: 036
		Pre-Test	Pre-Test
SH-Seated Height (mm)	889 – 909	901	901
RH-Rib Height (mm)	501 – 521	511	505
HP-Hip Pivot Height (mm)	99 ref.	99	99
RD-Rib from Back Line (mm)	229 – 241	236	234
KV-Knee Pivot from Back Line (mm)	511 – 526	520	520
SW-Knee Pivot to Floor (mm)	490 – 505	494	496
HW-Hip Width (mm)	356 - 391	380	372
Thorax Impact			
Temperature (°C)	18.9 – 25.5	20.8	20.7
Relative Humidity (%)	10 – 70	44	44
Probe Speed (m/s)	4.27 – 4.33	4.28	4.28
Upper Rib (g's)	37 – 46	45	42
Lower Rib (g's)	37 – 46	46	46
Lower Spine (g's)	15 – 22	20	21
Pelvis Impact			
Temperature (°C)	18.9 – 25.5	20.8	20.8
Relative Humidity (%)	10 – 70	44	44
Probe Speed (m/s)	4.27 – 4.33	4.27	4.28
Pelvis (g's)	40 - 60	45	41

REMARKS:

CERTIFICATION DATA

Dummy Serial Number: 037

Calibration Test Results Summary

Dummy Serial Number: 037

Pre-Test Calibration

External Dimensions:	The dummy passed all external dimension requirements.
Thorax Impact Test:	The thorax passed all impact test requirements.
Pelvic Impact Test:	The pelvis passed all impact test requirements.
Abdominal Compression Test:	The abdomen passed all compression test requirements.
Lumbar Flexion Test:	The lumbar passed all flexion test requirements.

SIDE IMPACT DUMMY CONFIGURATION AND PERFORMANCE VERIFICATION DATA

Dummy Serial Number: 037

Date of Verification: 5/3/01

Test Number: D0159

DESCRIPTION	SPECIFICATION	TEST RESULTS
SH-Seated Height (mm)	889 – 909	901
RH-Rib Height (mm)	501 – 521	511
HP-Hip Pivot Height (mm)	99 ref.	99
RD-Rib From Back Line (mm)	229 - 241	236
KV-Knee Pivot From Back Line (mm)	511 – 526	520
SW-Knee Pivot to Floor (mm)	490 – 505	494
HW – Hip Width (mm)	356 – 391	380

Technician: _____

Approved By: _____

MGA RESEARCH CORPORATION
THORAX IMPACT TEST
SIDE IMPACT DUMMY (SID)

Date: 5/3/01
Dummy Serial Number: 037
Test Number: D01592

TEST PARAMETER	SPECIFICATION	TEST RESULTS
Temperature (°C)	18.9 – 25.5	20.8
Relative Humidity (%)	10 – 70	44
Probe Speed (m/s)	4.27 – 4.33	4.28
Upper Rib (g's)	37 – 46	45
Lower Rib (g's)	37 – 46	46
Lower Spine (g's)	15 - 22	20

TEST MEETS SPECIFICATIONS

Technician: _____

Approved By: _____



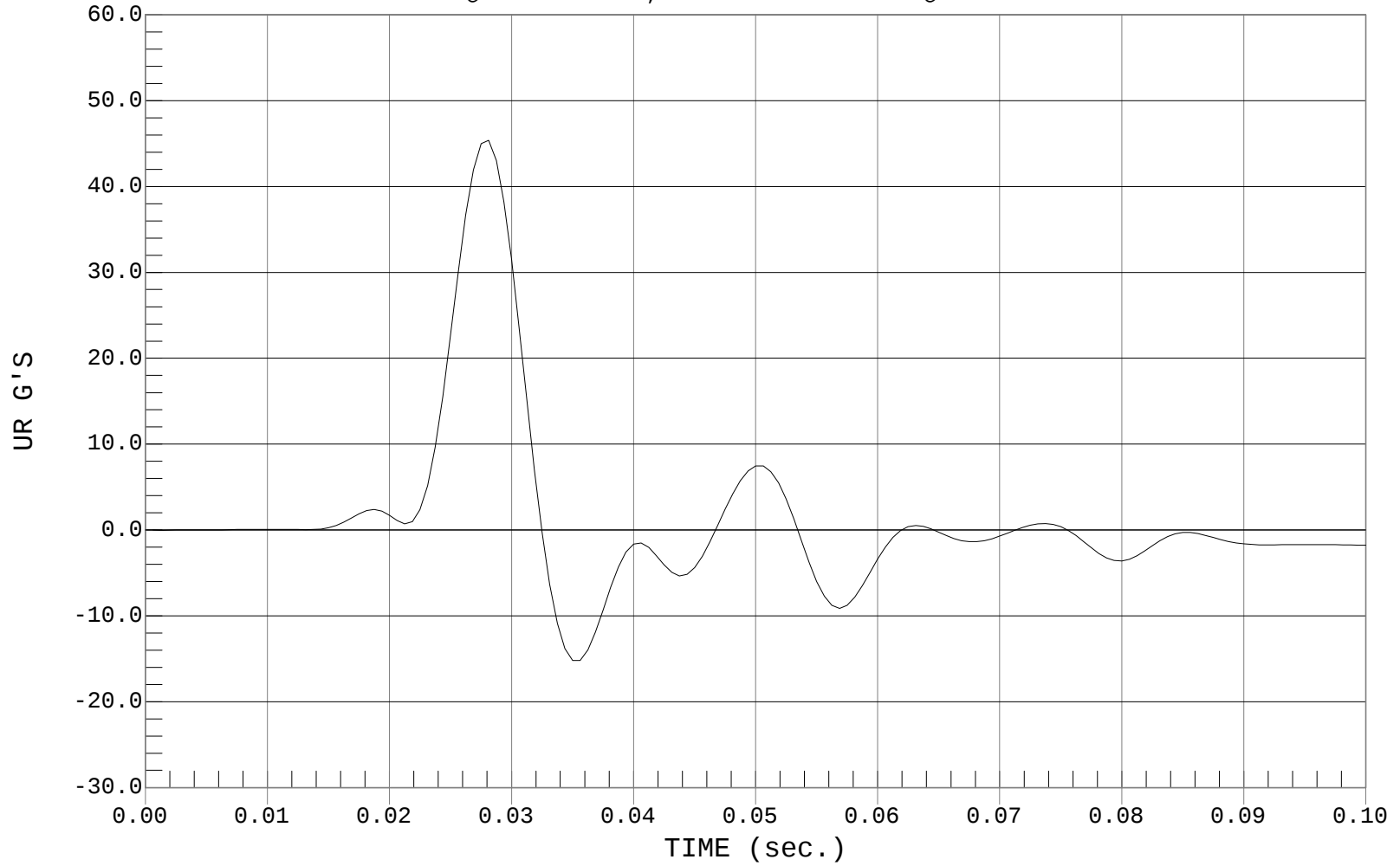
UPPER RIB ACCELERATION

Test Desc.: Dummy Calibration - Thorax Impact
Component: Dummy #037

Test Date: 05-03-01
Speed: 14.04 FT/SEC, 4.28 M/SEC

1 UR, D01592FI.R08

Ymin = -15.21 G'S @ 0.0350 sec., Ymax = 45.4 G'S @ 0.0281 sec.





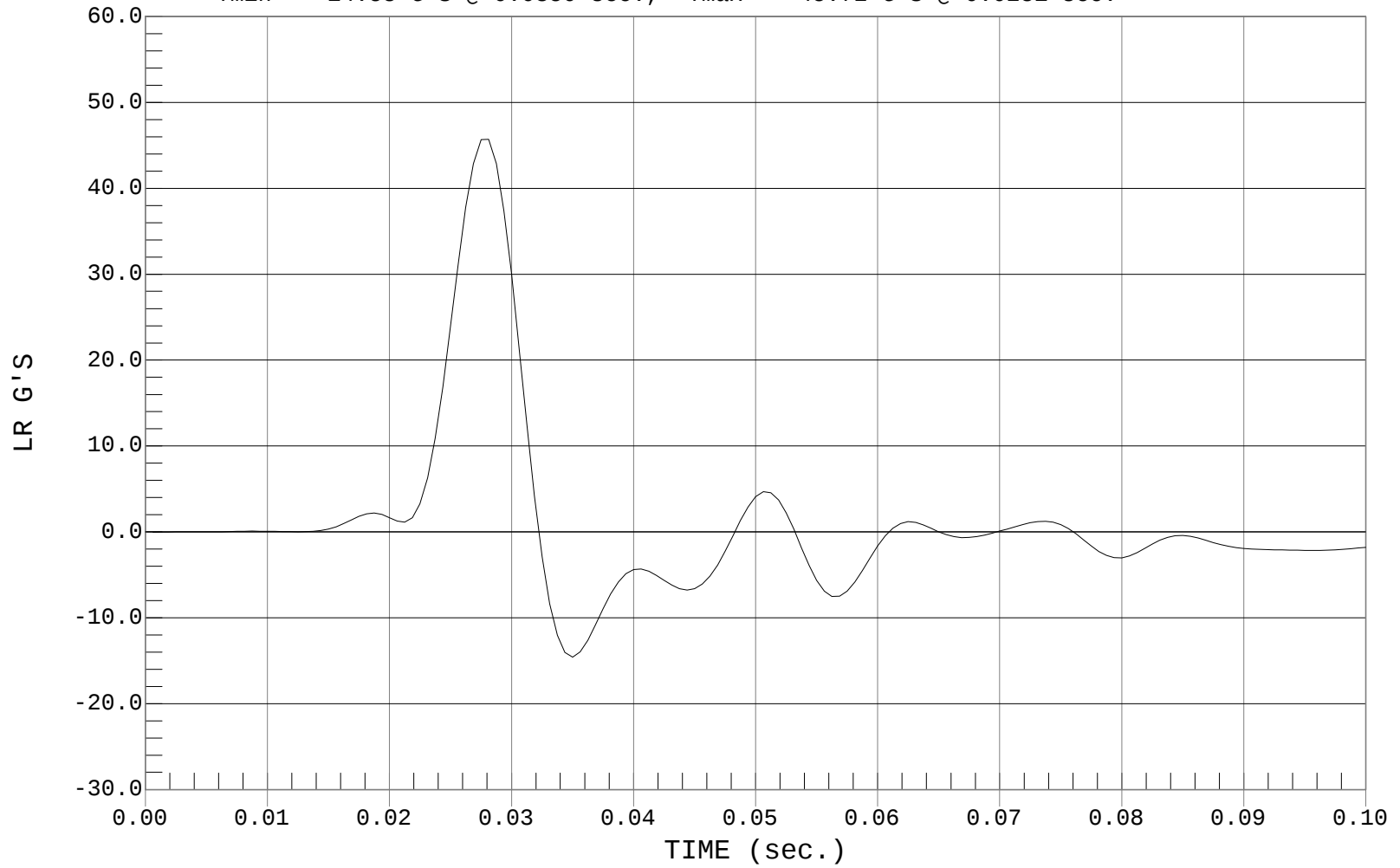
LOWER RIB ACCELERATION

Test Desc.: Dummy Calibration - Thorax Impact
Component: Dummy #037

Test Date: 05-03-01
Speed: 14.04 FT/SEC, 4.28 M/SEC

— 1 LR, D01592FI.R09

Ymin = -14.58 G'S @ 0.0350 sec., Ymax = 45.72 G'S @ 0.0281 sec.





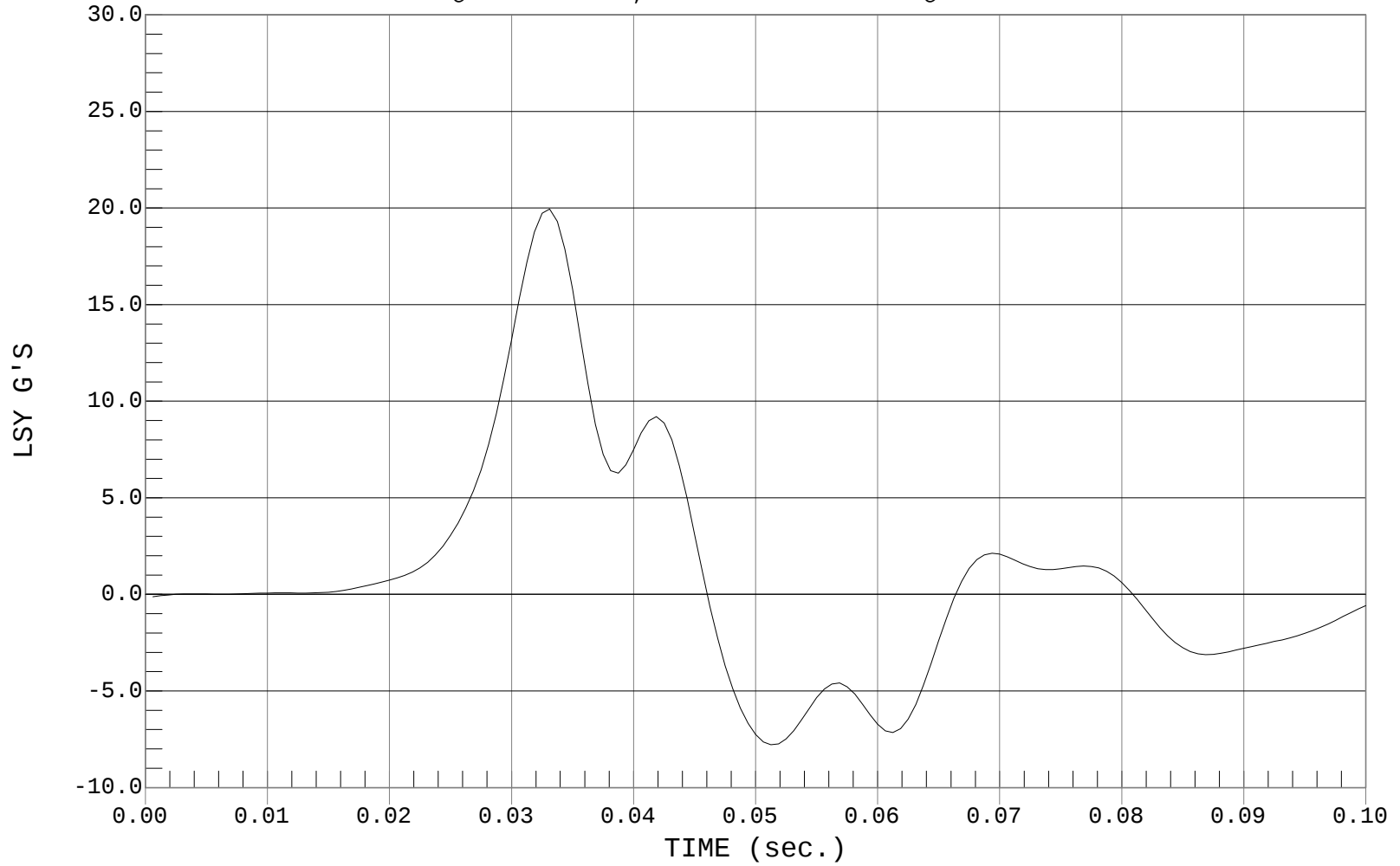
LOWER SPINE ACCELERATION

Test Desc.: Dummy Calibration - Thorax Impact
Component: Dummy #037

Test Date: 05-03-01
Speed: 14.04 FT/SEC, 4.28 M/SEC

— 1 LSY, D01592FI.R10

Ymin = -7.79 G'S @ 0.0513 sec., Ymax = 19.94 G'S @ 0.0331 sec.



MGA RESEARCH CORPORATION
PELVIS IMPACT TEST
SIDE IMPACT DUMMY (SID)

Date: 5/3/01
Dummy Serial Number: 037
Test Number: D01592

TEST PARAMETER	SPECIFICATION	TEST RESULTS
Temperature (°C)	18.9 – 25.5	20.8
Relative Humidity (%)	10 – 70	44
Probe Speed (m/s)	4.27 – 4.33	4.27
Pelvis Acceleration (g's)	40 – 60	45

TEST MEETS SPECIFICATIONS

Technician: _____

Approved By: _____



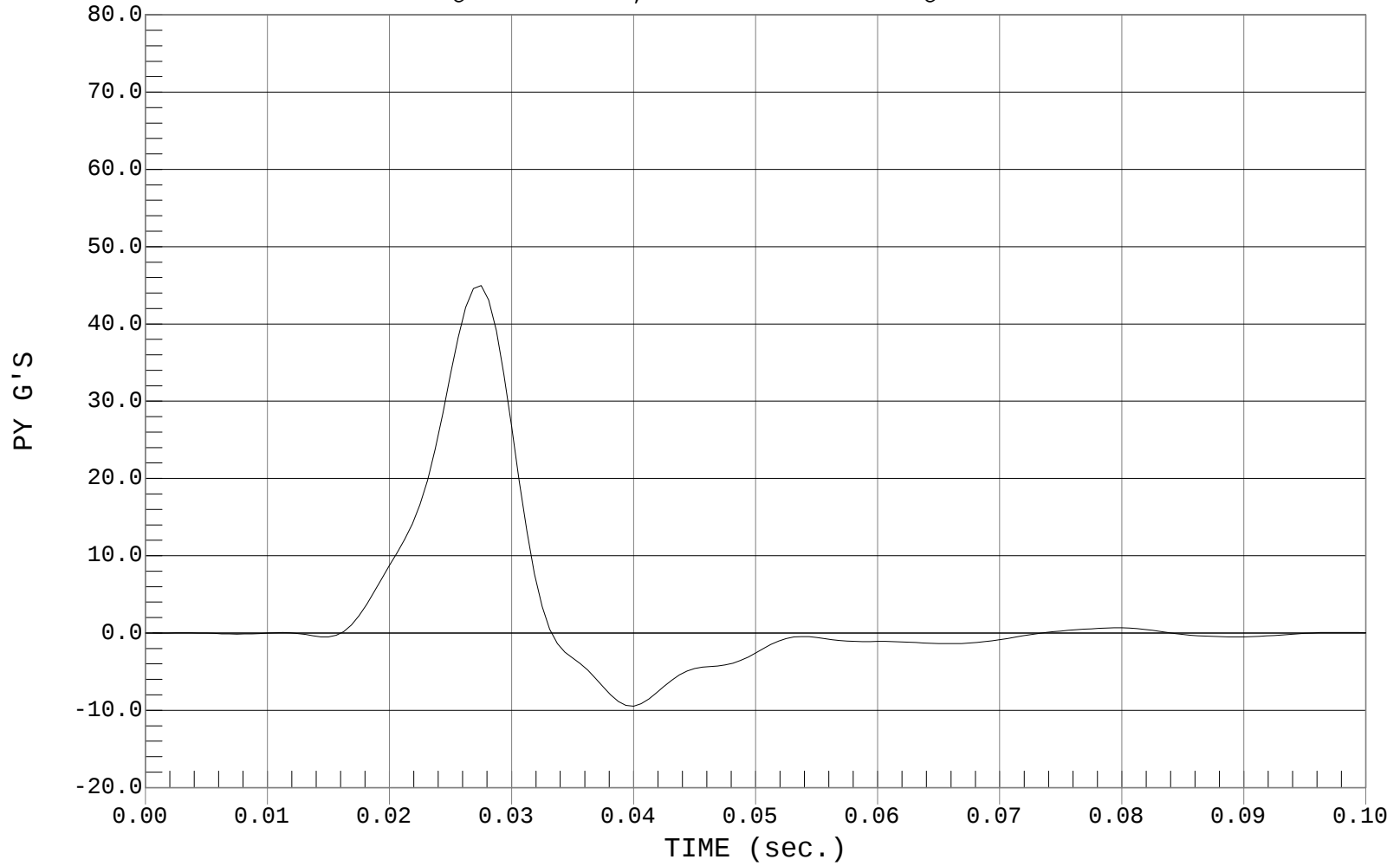
PELVIS ACCELERATION

Test Desc.: Dummy Calibration - Pelvis Impact
Component: Dummy #037

Test Date: 05-03-01
Speed: 14.02 FT/SEC, 4.27 M/SEC

— 1 PY, D01593FI.R11

Ymin = -9.46 G'S @ 0.0400 sec., Ymax = 44.96 G'S @ 0.0275 sec.



MGA RESEARCH CORPORATION
ABDOMINAL COMPRESSION TEST (PRELOAD = 10 LBS)
SIDE IMPACT DUMMY (SID)

Date: 5/3/01
Dummy Serial Number: 037
Test Number: D01594

TEST PARAMETER	SPECIFICATION	TEST RESULTS
Temperature (°C)	18.9 – 25.5	21.1
Relative Humidity (%)	10 – 70	51
Force @ 12.7 mm	104 – 162	138
Force @ 19 mm	163 – 222	188
Force @ 25.4 mm	222 – 280	257
Force @ 33 mm	325 - 391	358

TEST MEETS SPECIFICATIONS

Technician: _____

Approved By: _____



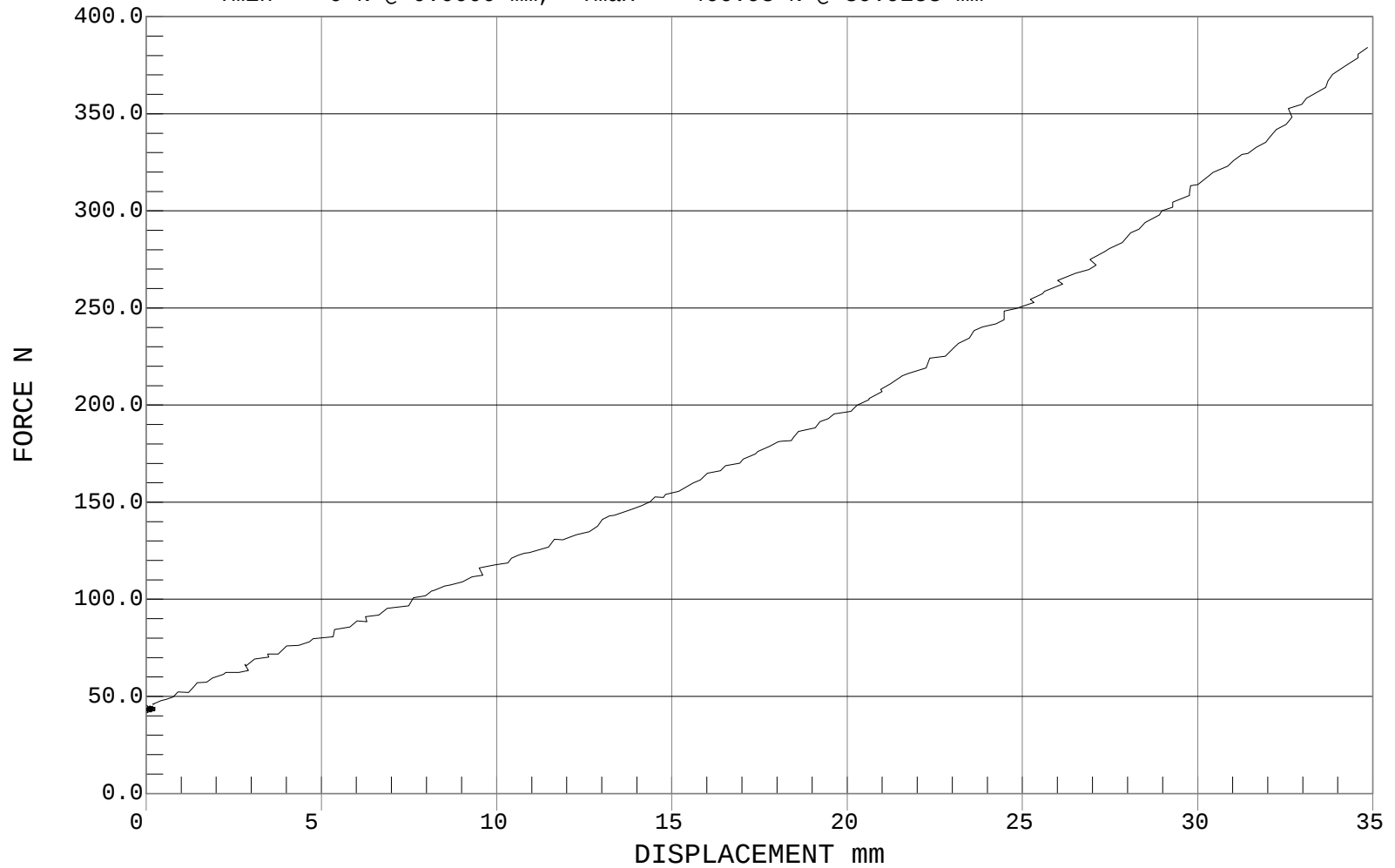
ABDOMEN COMPRESSION

Test Desc.: DUMMY CALIBRATION - ABDOMEN COMPRESSION
Component: DUMMY # 037

Test Date: 05-03-01
Speed: 0.00 FT/SEC, 0.00 M/SEC

— 1 FORCE, D01594FC.F16

Ymin = 0 N @ 0.0000 mm, Ymax = 466.93 N @ 39.9253 mm



MGA RESEARCH CORPORATION
LUMBAR FLEXION TEST
SIDE IMPACT DUMMY (SID)

Date: 5/3/01
Dummy Serial Number: 037
Test Number: D01595

TEST PARAMETER	SPECIFICATION	TEST RESULTS
Temperature (°C)	18.9 – 25.5	21.1
Relative Humidity (%)	10 – 70	51
Force @ 0°	0 – 26.7	0
Force @ 20°	97.9 – 151.2	114.0
Force @ 30°	151.2 – 204.6	162.5
Force @ 40°	204.6 – 258.0	210.9
Return Angle	12° maximum	6

TEST MEETS SPECIFICATIONS

Technician: _____

Approved By: _____



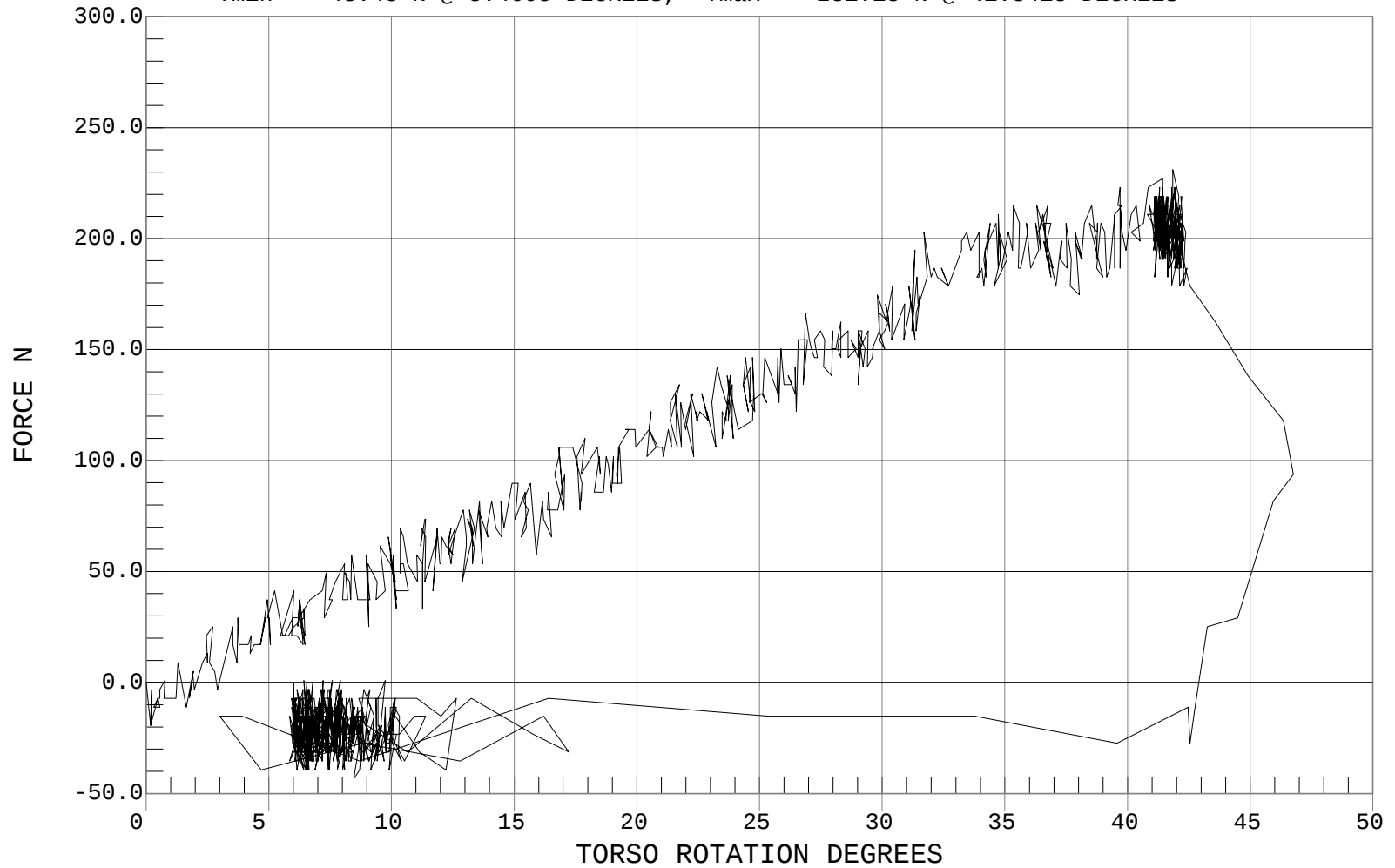
LUMBAR FLEXION

Test Desc.: DUMMY CALIBRATION - LUMBAR FLEXION
Component: DUMMY # 037

Test Date: 05-03-01
Speed: 0.00 FT/SEC, 0.00 M/SEC

— 1 FORCE, D01595FC.F14

Ymin = -43.48 N @ 8.4605 DEGREES, Ymax = 231.13 N @ 41.8418 DEGREES



DUMMY INSPECTION CHECKLIST

Type: Side Impact Dummy

Dummy Serial Number: 037

Inspected By: Tim Michnay

Date: 5/3/01

<u>Part</u>	<u>Items Checked</u>	<u>Comments</u>
Skin	visual inspection	OK
Head	visual, ballast, accelerometer mount	OK
Neck	visual	OK
Spine box	visual, ballast, weldment, accelerometer mount	OK
Rib cage	visual, measure	OK
Sternum	visual	OK
Lumbar spine	visual	OK
Abdomen	visual	OK
Pelvis	visual, palpate, accelerometer mount	OK
Upper legs	visual	OK
Knees	visual	OK
Lower legs	visual, range of motion	OK
Ankles	visual, range of motion	OK
Feet	visual, range of motion	OK
Joints	1 to 2 g range	OK
Other		

Notes (include component/problem/action/reason):

CERTIFICATION DATA

Dummy Serial Number: 036

Calibration Test Results Summary

Dummy Serial Number: 036

Pre-Test Calibration

External Dimensions:	The dummy passed all external dimension requirements.
Thorax Impact Test:	The thorax passed all impact test requirements.
Pelvic Impact Test:	The pelvis passed all impact test requirements.
Abdominal Compression Test:	The abdomen passed all compression test requirements.
Lumbar Flexion Test:	The lumbar passed all flexion test requirements.

SIDE IMPACT DUMMY CONFIGURATION AND PERFORMANCE VERIFICATION DATA

Dummy Serial Number: 036

Date of Verification: 5/3/01

Test Number: D0158

DESCRIPTION	SPECIFICATION	TEST RESULTS
SH-Seated Height (mm)	889 – 909	901
RH-Rib Height (mm)	501 – 521	505
HP-Hip Pivot Height (mm)	99 ref.	99
RD-Rib From Back Line (mm)	229 - 241	234
KV-Knee Pivot From Back Line (mm)	511 – 526	520
SW-Knee Pivot to Floor (mm)	490 – 505	496
HW – Hip Width (mm)	356 – 391	372

Technician: _____

Approved By:_____

MGA RESEARCH CORPORATION
THORAX IMPACT TEST
SIDE IMPACT DUMMY (SID)

Date: 5/3/01
Dummy Serial Number: 036
Test Number: D01582

TEST PARAMETER	SPECIFICATION	TEST RESULTS
Temperature (°C)	18.9 – 25.5	20.7
Relative Humidity (%)	10 – 70	44
Probe Speed (m/s)	4.27 – 4.33	4.28
Upper Rib (g's)	37 – 46	42
Lower Rib (g's)	37 – 46	46
Lower Spine (g's)	15 - 22	21

TEST MEETS SPECIFICATIONS

Technician: _____

Approved By: _____



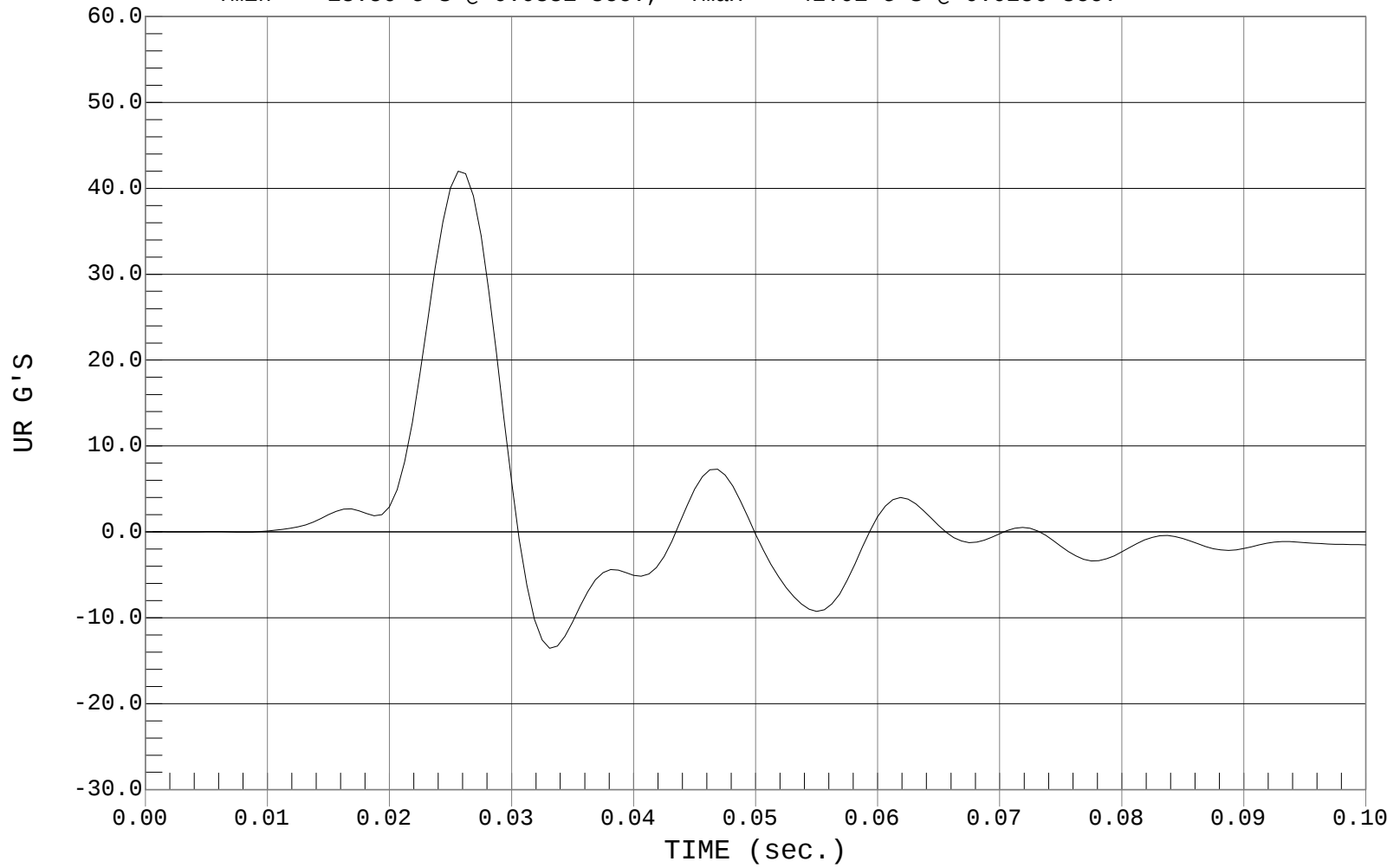
UPPER RIB ACCELERATION

Test Desc.: Dummy Calibration - Thorax Impact
Component: Dummy #036

Test Date: 05-03-01
Speed: 14.04 FT/SEC, 4.28 M/SEC

— 1 UR, D01582FI.R08

Ymin = -13.56 G'S @ 0.0331 sec., Ymax = 42.01 G'S @ 0.0256 sec.





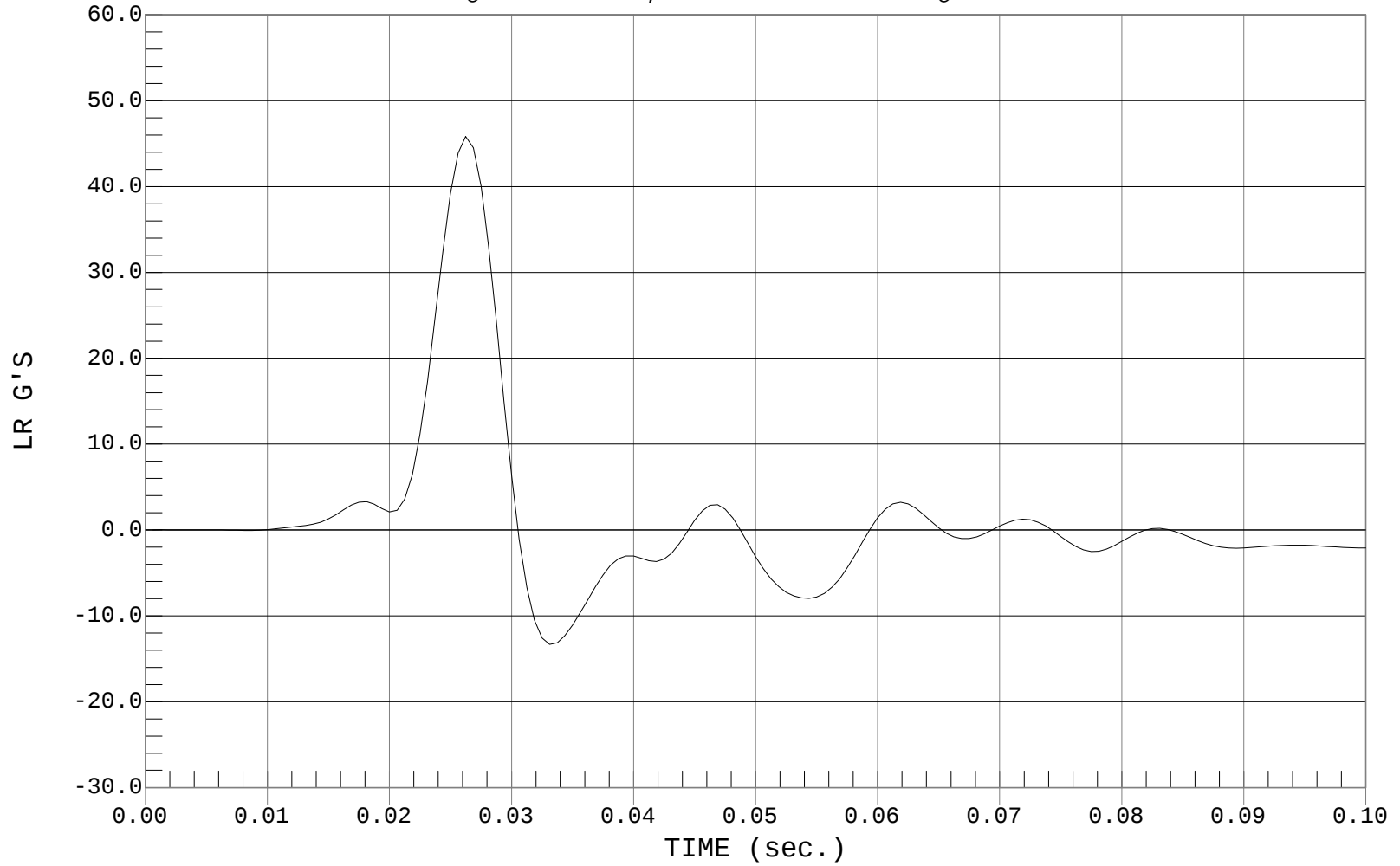
LOWER RIB ACCELERATION

Test Desc.: Dummy Calibration - Thorax Impact
Component: Dummy #036

Test Date: 05-03-01
Speed: 14.04 FT/SEC, 4.28 M/SEC

— 1 LR, D01582FI.R09

Ymin = -13.34 G'S @ 0.0331 sec., Ymax = 45.84 G'S @ 0.0263 sec.





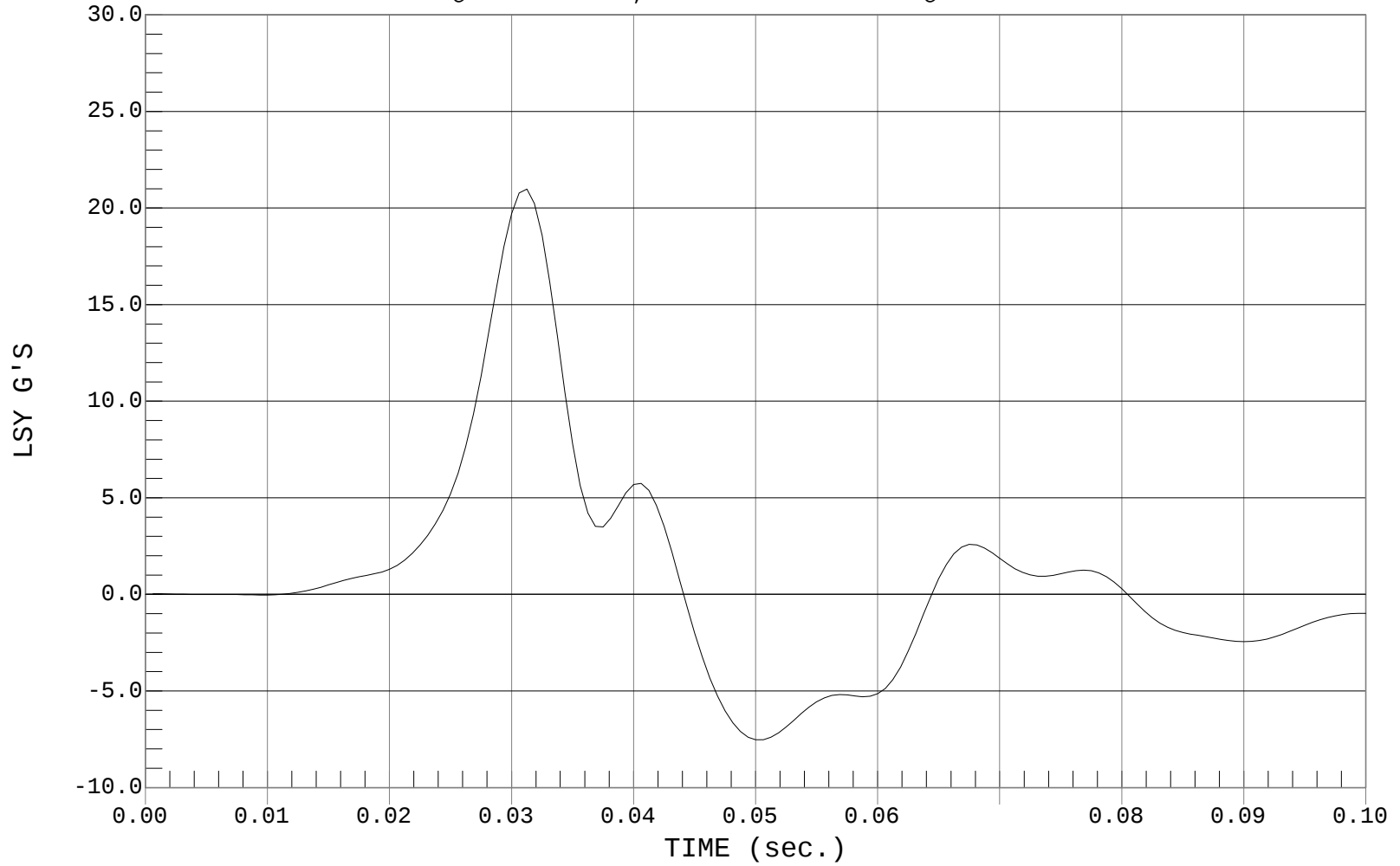
LOWER SPINE ACCELERATION

Test Desc.: Dummy Calibration - Thorax Impact
Component: Dummy #036

Test Date: 05-03-01
Speed: 14.04 FT/SEC, 4.28 M/SEC

— 1 LSY, D01582FI.R10

Ymin = -7.53 G'S @ 0.0500 sec., Ymax = 20.98 G'S @ 0.0313 sec.



MGA RESEARCH CORPORATION
PELVIS IMPACT TEST
SIDE IMPACT DUMMY (SID)

Date: 5/3/01
Dummy Serial Number: 036
Test Number: D01583

TEST PARAMETER	SPECIFICATION	TEST RESULTS
Temperature (°C)	18.9 – 25.5	20.8
Relative Humidity (%)	10 – 70	44
Probe Speed (m/s)	4.27 – 4.33	4.28
Pelvis Acceleration (g's)	40 – 60	41

TEST MEETS SPECIFICATIONS

Technician: _____

Approved By: _____



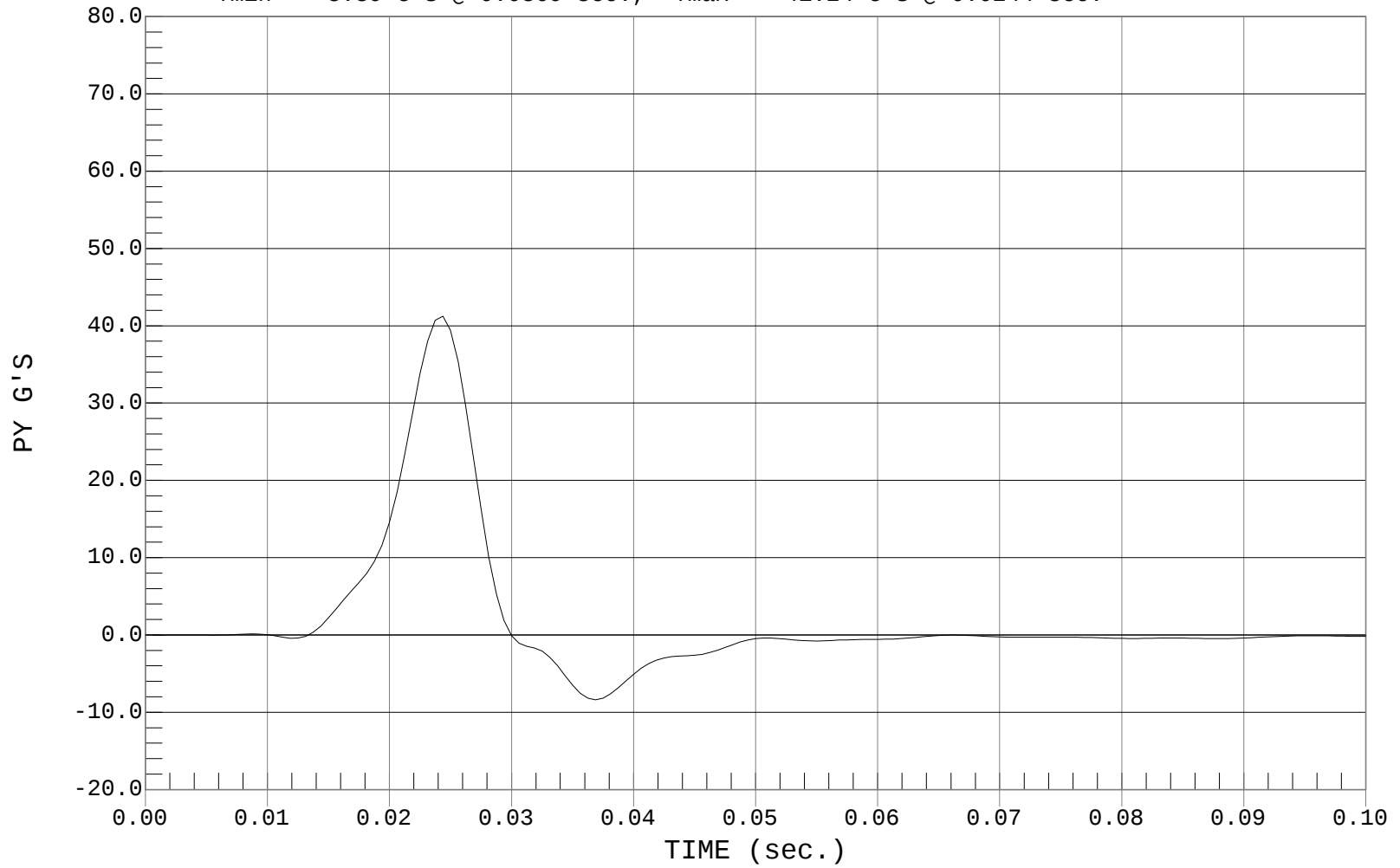
PELVIS ACCELERATION

Test Desc.: Dummy Calibration - Pelvis Impact
Component: Dummy #036

Test Date: 05-03-01
Speed: 14.04 FT/SEC, 4.28 M/SEC

— 1 PY, D01583FI.R11

Ymin = -8.39 G'S @ 0.0369 sec., Ymax = 41.24 G'S @ 0.0244 sec.



MGA RESEARCH CORPORATION
ABDOMINAL COMPRESSION TEST (PRELOAD = 10 LBS)
SIDE IMPACT DUMMY (SID)

Date: 5/3/01
Dummy Serial Number: 036
Test Number: D01584

TEST PARAMETER	SPECIFICATION	TEST RESULTS
Temperature (°C)	18.9 – 25.5	21.1
Relative Humidity (%)	10 – 70	51
Force @ 12.7 mm	104 – 162	148
Force @ 19 mm	163 – 222	203
Force @ 25.4 mm	222 – 280	266
Force @ 33 mm	325 - 391	364

TEST MEETS SPECIFICATIONS

Technician: _____

Approved By: _____



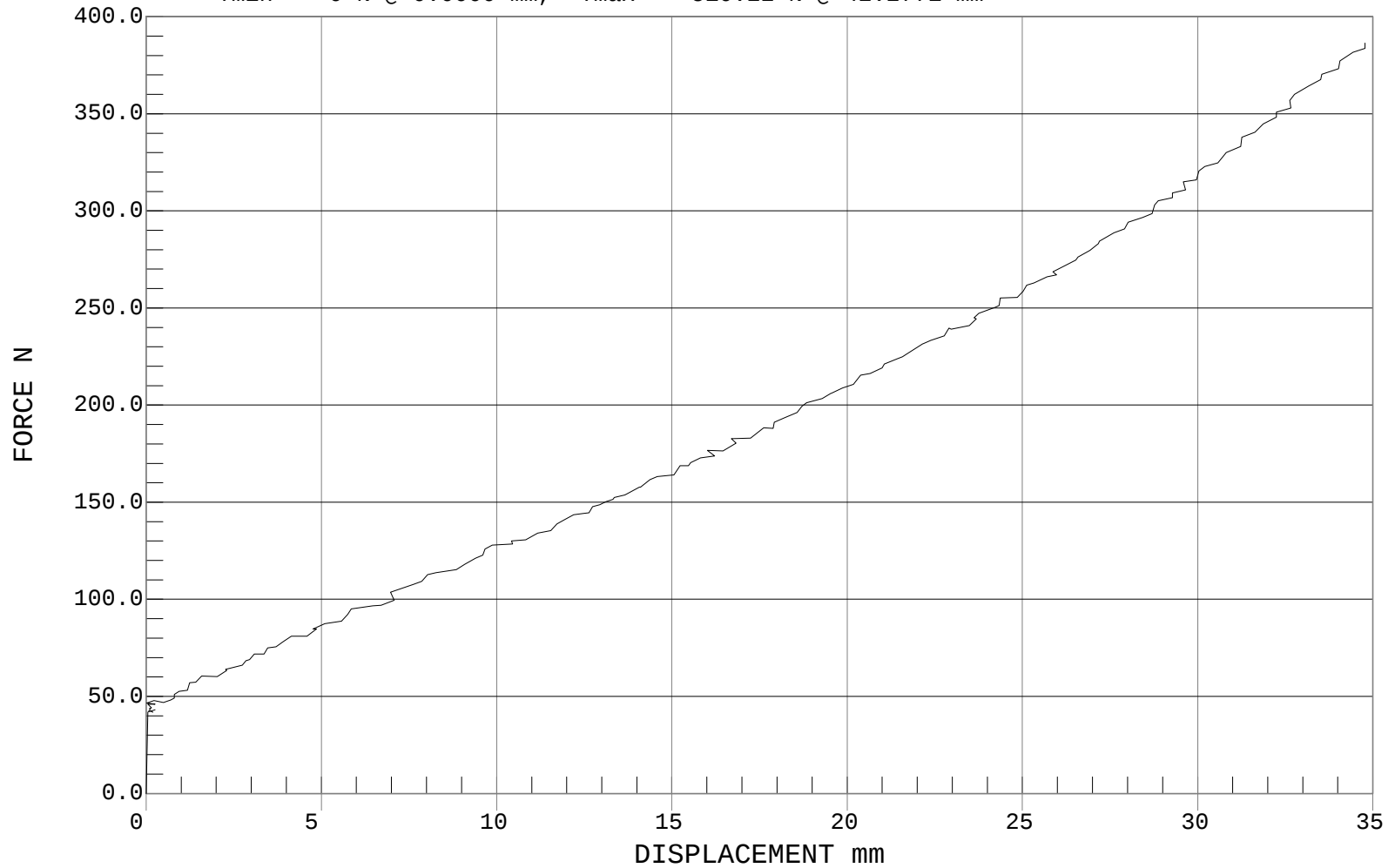
ABDOMEN COMPRESSION

Test Desc.: DUMMY CALIBRATION - ABDOMEN COMPRESSION
Component: DUMMY # 036

Test Date: 05-03-01
Speed: 0.00 FT/SEC, 0.00 M/SEC

— 1 FORCE, D01584FC.F16

Ymin = 0 N @ 0.0000 mm, Ymax = 510.22 N @ 42.2771 mm



MGA RESEARCH CORPORATION
LUMBAR FLEXION TEST
SIDE IMPACT DUMMY (SID)

Date: 5/3/01

Dummy Serial Number: 036

Test Number:

TEST PARAMETER	SPECIFICATION	TEST RESULTS
Temperature (°C)	18.9 – 25.5	21.1
Relative Humidity (%)	10 – 70	51
Force @ 0°	0 – 26.7	0
Force @ 20°	97.9 – 151.2	111.0
Force @ 30°	151.2 – 204.6	179.6
Force @ 40°	204.6 – 258.0	228.1
Return Angle	12° maximum	4

TEST MEETS SPECIFICATIONS

Technician: _____

Approved By: _____



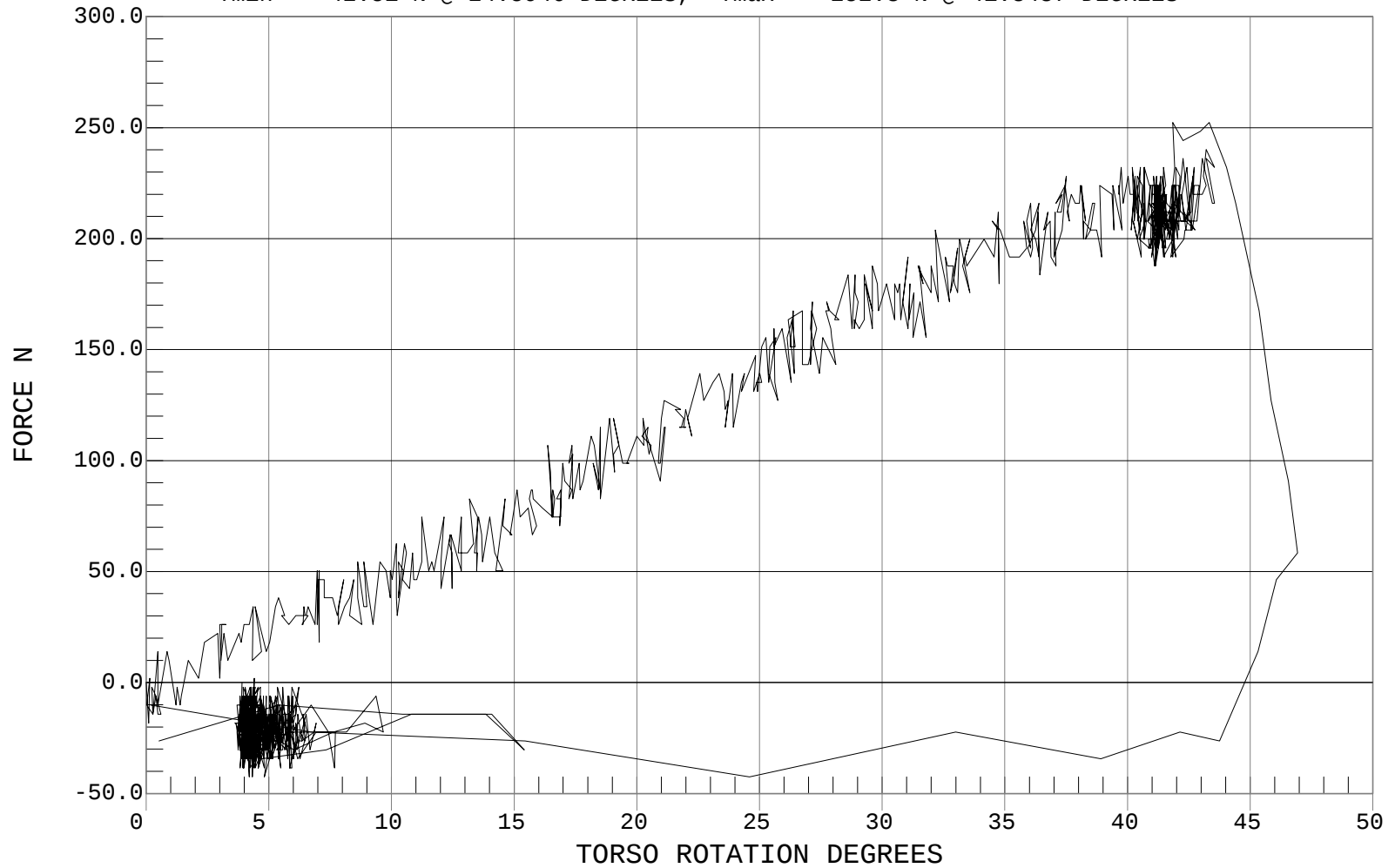
LUMBAR FLEXION

Test Desc.: DUMMY CALIBRATION - LUMBAR FLEXION
Component: DUMMY # 036

Test Date: 05-03-01
Speed: 0.00 FT/SEC, 0.00 M/SEC

— 1 FORCE, D01585FC.F14

Ymin = -42.51 N @ 24.5946 DEGREES, Ymax = 252.3 N @ 41.8437 DEGREES



DUMMY INSPECTION CHECKLIST

Type: Side Impact Dummy

Dummy Serial Number: 036

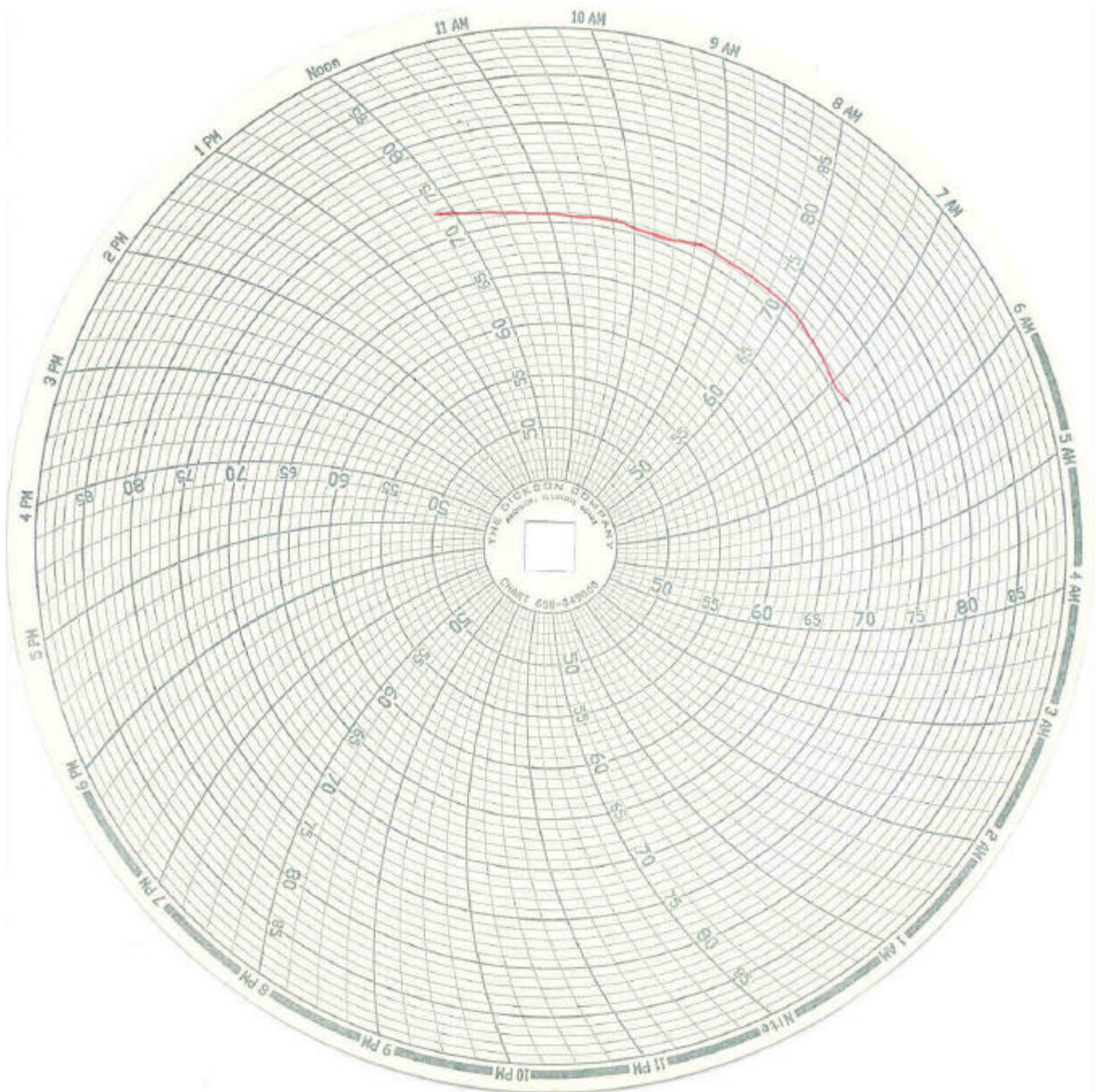
Inspected By: Tim Michnay

Date: 5/3/01

<u>Part</u>	<u>Items Checked</u>	<u>Comments</u>
Skin	visual inspection	OK
Head	visual, ballast, accelerometer mount	OK
Neck	visual	OK
Spine box	visual, ballast, weldment, accelerometer mount	OK
Rib cage	visual, measure	OK
Sternum	visual	OK
Lumbar spine	visual	OK
Abdomen	visual	OK
Pelvis	visual, palpate, accelerometer mount	OK
Upper legs	visual	OK
Knees	visual	OK
Lower legs	visual, range of motion	OK
Ankles	visual, range of motion	OK
Feet	visual, range of motion	OK
Joints	1 to 2 g range	OK
Other		

Notes (include component/problem/action/reason):

VEHICLE AND DUMMY TEMPERATURE



*Dummies were installed in the vehicle at 6:45 am.

*Test time was at 12:11 pm.

APPENDIX D

TEST EQUIPMENT LIST AND CALIBRATION INFORMATION

DUMMY AND VEHICLE CALIBRATION DATA

	INSTRUMENTS FOR RIGHT FRONT DUMMY NO. 037		
	SERIAL NO.	MANUFACTURER	CALIBRATION DATE
Upper Rib Y	AN8M6	Endevco	11/17/00
Lower Rib Y	AP170	Endevco	1/8/01
Lower Spine Y	ALDY8	Endevco	11/17/00
Pelvis Y	J11784	Endevco	12/12/00
Upper Rib Redundant Y	AN8P9	Endevco	11/17/00
Lower Rib Redundant Y	AP2G9	Endevco	1/8/01
Lower Spine Redundant Y	AP0E1	Endevco	11/17/00
Pelvis Redundant Y	J11046	Endevco	12/12/00
Head Center of Gravity X	J13930	Endevco	12/12/00
Head Center of Gravity Y	J13631	Endevco	12/12/00
Head Center of Gravity Z	J13990	Endevco	12/12/00

	INSTRUMENTS FOR RIGHT REAR PASSENGER DUMMY NO. 036		
	SERIAL NO.	MANUFACTURER	CALIBRATION DATE
Upper Rib Y	AP138	Endevco	12/19/00
Lower Rib Y	J18260	Endevco	1/8/01
Lower Spine Y	AHT13	Endevco	12/12/00
Pelvis Y	AMP12	Endevco	11/17/00
Upper Rib Redundant Y	AP0G2	Endevco	12/19/00
Lower Rib Redundant Y	AKAH1	Endevco	1/8/01
Lower Spine Redundant Y	ADAB3	Endevco	12/12/00
Pelvis Redundant Y	AGWA4	Endevco	11/17/00
Head Center of Gravity X	AHTW6	Endevco	1/8/01
Head Center of Gravity Y	AHWP2	Endevco	1/8/01
Head Center of Gravity Z	AHY98	Endevco	1/8/01

VEHICLE INSTRUMENT CALIBRATION

	VEHICLE ACCELEROMETERS		
	SERIAL NO.	MANUFACTURER	CALIBRATION DATE
Moving Barrier CG X	I25-F09	Entran	12/13/00
Moving Barrier CG Y	I25-F07	Entran	12/13/00
Moving Barrier CG Z	I25-F08	Entran	12/13/00
Moving Barrier Rear Axle X	G13-B07	Entran	12/13/00
Moving Barrier Rear Axle Y	F11-G02	Entran	1/4/01
Right Mid A-Post Y	G13-F01	Entran	2/7/01
Right Lower A-Post Y	J16-F02	Entran	2/7/01
Right Mid B-Post Y	I25-F04	Entran	12/13/00
Right Lower B-Post Y	I25-J02	Entran	3/21/01
Rear Floorpan Above Axle X	F18-G07	Entran	9/14/00
Rear Floorpan Above Axle Y	K19-A11	Entran	9/14/00
Rear Floorpan Above Axle Z	A08-A05	Entran	2/8/01
Right Front Seat Track Y	I18-E02	Entran	2/7/01
Left Side Sill at Front Seat X	K11-J08	Entran	2/7/01
Left Side Sill at Front Seat Y	J10-E12	Entran	3/21/01
Left Side Sill at Front Seat Z	D05-R10	Entran	2/15/01
Left Side Sill at Rear Seat X	G13-F16	Entran	4/4/01
Left Side Sill at Rear Seat Y	G13-F18	Entran	4/4/01
Left Side Sill at Rear Seat Z	G13-F03	Entran	4/4/01
Right Side Sill at Front Seat Y	A08-A13	Entran	2/8/01
Right Side Sill at Rear Seat Y	F20-G11	Entran	3/21/01
Left Rear Occupant Compartment Y	G13-F07	Entran	2/15/01
Vehicle CG X	I25-J06	Entran	2/7/01
Vehicle CG Y	E10-F05	Entran	3/21/01
Vehicle CG Z	E13-D06	Entran	2/15/01

Note: All Endevco accelerometers are Model No. 7264-2000

All Entran accelerometers are Model No. EGE-72