

REPORT NUMBER: 5FEM-MGA-2001-026

35 MPH FRONTAL BARRIER IMPACT TEST

**Ford Motor Company
2001 Ford Escape 4WD
NHTSA NUMBER: M10211**

**PREPARED BY:
MGA RESEARCH CORPORATION
5000 WARREN ROAD
BURLINGTON, WI 53105**



April 20, 2001

FINAL REPORT

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

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Date of Acceptance

COTR, Frontal Barrier Impact Program

Date of Acceptance

Technical Report Documentation Page

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16. Abstract A 35 mph (56.3 km/h) frontal barrier impact was conducted on a 2001 Ford Escape 4WD at MGA Research Corporation on April 20, 2001. This test was conducted to obtain data indicant of FMVSS 208, 212, 219 (partial), 301, and footwell intrusion performance. The impact velocity was 56.5 km/h. The ambient temperature at the barrier face at the time of impact was 22 degrees Celsius. The vehicle's maximum post test static crush is 536 mm located at the vehicle centerline. The test vehicle is equipped with a 3-point continuous belt system and a second generation supplemental airbag in both front outboard seating positions. With respect to FMVSS 208 "Occupant Crash Protection", the occupant injury criteria summary is as follows:																																																																	
<table border="1"> <thead> <tr> <th><u>Measurement Description</u></th> <th><u>Units</u></th> <th><u>Threshold</u></th> <th><u>Driver ATD</u></th> <th><u>Pass. ATD</u></th> </tr> </thead> <tbody> <tr> <td>Head Injury Criteria (HIC₁₅)</td> <td>N/A</td> <td>700</td> <td>289</td> <td>285</td> </tr> <tr> <td>N_{te}</td> <td>N/A</td> <td>1.0</td> <td>0.3</td> <td>0.2</td> </tr> <tr> <td>N_{tf}</td> <td>N/A</td> <td>1.0</td> <td>0.9</td> <td>0.2</td> </tr> <tr> <td>N_{ce}</td> <td>N/A</td> <td>1.0</td> <td>0.4</td> <td>0.0</td> </tr> <tr> <td>N_{cf}</td> <td>N/A</td> <td>1.0</td> <td>0.1</td> <td>0.2</td> </tr> <tr> <td>Neck Tension</td> <td>Newtons</td> <td>2620</td> <td>2411</td> <td>753</td> </tr> <tr> <td>Neck Compression</td> <td>Newtons</td> <td>2520</td> <td>401</td> <td>534</td> </tr> <tr> <td>3 msec CLIP</td> <td>N/A</td> <td>60</td> <td>49</td> <td>57</td> </tr> <tr> <td>Chest Deflection</td> <td>mm</td> <td>52</td> <td>15</td> <td>13</td> </tr> <tr> <td>Left Femur</td> <td>Newtons</td> <td>6805</td> <td>898</td> <td>4108</td> </tr> <tr> <td>Right Femur</td> <td>Newtons</td> <td>6805</td> <td>1914</td> <td>2224</td> </tr> </tbody> </table>						<u>Measurement Description</u>	<u>Units</u>	<u>Threshold</u>	<u>Driver ATD</u>	<u>Pass. ATD</u>	Head Injury Criteria (HIC ₁₅)	N/A	700	289	285	N _{te}	N/A	1.0	0.3	0.2	N _{tf}	N/A	1.0	0.9	0.2	N _{ce}	N/A	1.0	0.4	0.0	N _{cf}	N/A	1.0	0.1	0.2	Neck Tension	Newtons	2620	2411	753	Neck Compression	Newtons	2520	401	534	3 msec CLIP	N/A	60	49	57	Chest Deflection	mm	52	15	13	Left Femur	Newtons	6805	898	4108	Right Femur	Newtons	6805	1914	2224
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SECTION 1

PURPOSE AND TEST PROCEDURE

1.1 PURPOSE

This 35 mph (56.3 km/h) frontal barrier crashworthiness evaluation program is sponsored by the National Highway Traffic Safety Administration (NHTSA) under Contract Number DTNH22-01-D-12005. The purpose of this test is to obtain vehicle crashworthiness, occupant restraint system performance, and lower leg data for a frontal barrier impact. The impact velocity used in this test is in excess of the current 30 mph (48.3 km/h) FMVSS 208/212/219/301 requirements.

1.2 TEST PROCEDURE

This 56.3 km/h frontal barrier impact test was conducted in accordance with the Office of Crashworthiness Standards (OCS) New Car Assessment Program (NCAP) Laboratory Test Procedure, dated December 1999 and the corresponding MGA Research Corporation Test Procedure NHTSA3, dated January 5, 2001. Data was obtained indicant of FMVSS 208, "Occupant Crash Protection"; FMVSS 212, "Windshield Retention"; FMVSS 219, "Windshield Zone Intrusion (Partial)"; and FMVSS 301, "Fuel System Integrity" performance. Procedures for receiving, inspection, and reporting of test results are described in the test procedures and are not repeated in this report.

The test was conducted at MGA Research Corporation on April 20, 2001 at a speed of 56.5 km/h. The test vehicle was instrumented with nine (9) accelerometers to measure longitudinal axis accelerations. The driver's and passenger's restraint systems were instrumented with four(4) seat belt load cells to measure lap and shoulder belt tension. The specified impact velocity range was 55.5 to 57.1 km/h. The frontal barrier impact event was documented by one (1) real-time panning motion picture camera and fourteen (14) high-speed motion picture cameras. The pre- and post-test conditions were recorded by one (1) real-time motion picture camera. Camera locations and pertinent camera information is documented in the data sheets. Pre- and post-test photographs of the vehicle and dummies can be found in Appendix A.

The test vehicle contained two (2) anthropomorphic test devices (ATDs). Two (2) part 572O 5th percentile female ATDs. Both ATDs were instrumented with head, chest, and pelvic tri-axial accelerometers, left and right femur load cells, upper and lower tibia sensors, and foot accelerometers. In addition, chest displacement and upper neck six-axis force and moment sensors were utilized. The ATDs were positioned in the front outboard seating positions according to the dummy placement procedures specified in the Laboratory Indicant Test Procedure. Nintety-seven (97) channels of data were recorded with an EME on-board data acquisition system. The data was digitally sampled at 10,000 samples per second and processed per section IP11 of the Laboratory Test Procedure.

The driver (Serial No. 273) and the right-front passenger (Serial No. 288) were calibrated 2 tests prior to this test. FMVSS 208 "Occupant Crash Protection" injury criteria were not exceeded by either ATD during these frontal barrier impact tests.

1.3 SUMMARY OF FRONTAL IMPACT TEST

A rigid load cell barrier was impacted by a 2001 Ford Escape 4WD at a velocity of 56.5 km/h. The test vehicle weight was 1740 kilograms with two (2) part 5720 5th percentile female ATDs. Six (6) load cell barrier data channels were obtained in conducting the test. The test vehicle is equipped with a longitudinally mounted 3.0-liter, 6-cylinder engine and an automatic transmission.

The occupant injury criteria summary is as follows:

	Requirement	Driver	Passenger
Head Injury Criteria (HIC ₁₅)	700	289	285
N _{te}	1.0	0.3	0.2
N _{ff}	1.0	0.9	0.2
N _{ce}	1.0	0.4	0.0
N _{cf}	1.0	0.1	0.2
Neck Tension (N)	2620	2411	753
Neck Compression (N)	2520	401	534
3 msec CLIP	60	49	57
Chest Deflection (mm)	52	15	13
Left Femur (N)	6805	898	4108
Right Femur (N)	6805	1914	2224

There was 100 percent windshield retention (minimum 50 percent required for passive restraint systems). No intrusion occurred into the protected or unprotected zone of the windshield. No Stoddard Solvent leakage occurred after impact or during any phase of the rollover.

The test vehicle sustained a maximum static crush of 536 mm located at the vehicle centerline. Both the driver and passenger side doors opened without the aid of tools.

1.4 GENERAL COMMENTS

The 2001 Ford Escape 4WD passed the requirements of FMVSS 208, FMVSS 212, FMVSS 219, and FMVSS 301-75. Data pertaining to these standards are presented in the data sheets.

The vehicle, occupant, camera, and measurement data are presented in Section 2. Appendix A contains the still photograph prints. Appendix B Contains the dummy and vehicle response data traces. Appendix C contains the dummy calibration data. Appendix D contains the instrumentation calibration data and Appendix E contains the owner's manual instructions for the occupant seating and restraint systems.

SECTION 2

OCCUPANT AND VEHICLE INFORMATION / DATA SHEETS

Test Vehicle: 2001/Ford/Escape/4WD

NHTSA No.: M10211

Test Program: 35 mph Frontal Barrier Impact

Test Date: April 20, 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	$=(tf - 32)/1.8$
Force	Dynamic Forces	lbf	N	4.448
Moment	Torque	lbf/ft	Nm	1.355

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

DATA SHEET NO. 1

CRASH TEST SUMMARY

Test Vehicle: 2001/Ford/Escape/4WD

NHTSA No.: M10211

Test Program: 35 mph Frontal Barrier Impact

Test Date: April 20, 2001

PRIMARY IMPACT DATA

Measured Parameter	Units	Value
Velocity at Impact	km/h	56.5
Test Weight	kg	1740.0
Impact Angle	degrees	90
Average Rebound	mm	1483
Maximum Static Crush	mm	536

DOOR OPENING AND SEAT TRACK INFORMATION

Description	Driver	Passenger
Front Door Opening	yes	yes
Rear Door Opening	yes	yes
Seat Track Shift (mm)	0	0
Seat Back Failure	none	none

TEST DUMMY INFORMATION

Description	Driver	Passenger
Dummy Type / Serial No.	HIII 5 th / 273	HIII 5 th / 288
Head Contact	airbag, headrest	airbag, headrest
Chest Contact	airbag	airbag
Abdomen Contact	steering wheel	no contact
Left Knee Contact	knee bolster, steering column	glovebox
Right Knee Contact	knee bolster, steering column	glovebox

16mm MOVIE COVERAGE

High Speed	14
Real Time	1
Total	15

Driver ATD Sensors	42
Passenger ATD Sensors	42
Belt Assessment Sensors	4
Vehicle Structure Accelerometers	9
Rigid Barrier Load Cells	6
Total	103

**DATA SHEET NO. 2
GENERAL TEST AND VEHICLE PARAMETER DATA**

Test Vehicle: 2001/Ford/Escape/4WD

NHTSA No.: M10211

Test Program: 35 mph Frontal Barrier Impact

Test Date: April 20, 2001

TEST VEHICLE INFORMATION

Manufacturer	Ford Motor Company
Model	Escape
Body Style	4WD
NHTSA No.	M10211
VIN	1FMYU02121KA29949
Color	Black
Delivery Date	3/28/01
Odometer Reading (mile)	145
Dealer	Heiser Ford
Transmission	Automatic
Final Drive	4WD
Number of Cylinders	6
Engine Displacement (L)	3.0
Engine Placement	Transverse

TEST VEHICLE OPTIONS

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

DATA FROM CERTIFICATION LABEL

Manufactured By	Ford Motor Company	GVWR (kg)	2053
Date of Manufacture	01/01	GAWR Front (kg)	1087
		GAWR Rear (kg)	1051

DATA FROM TIRE PLACARD

Measured Parameter	Front	Rear
Maximum Tire Pressure (kPa)	207	207
Cold Pressure (kPa)	207	207
Recommended Tire Size	P235/70R16	P235/70/R16
Tire Size on Vehicle	P235/70R16	P235/70/R16
Tire Manufacturer	Firestone	Firestone

Measured Parameter	Front	Rear	Third	Total
Type of Seats	bucket	bench		
Number of Occupants	2	3		5
Capacity Wt. (VCW) (kg)				407.8
Cargo Weight (RCLW) (kg)				67.6

DATA SHEET NO. 2...(continued)

GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle: 2001/Ford/Escape/4WD

NHTSA No.: M10211

Test Program: 35 mph Frontal Barrier Impact

Test Date: April 20, 2001

TEST VEHICLE WEIGHTS

	Units	As Delivered (UVW)			As Tested (ATW)		
		Front Axle	Rear Axle	Total	Front Axle	Rear Axle	Total
Left	kg	463.6	303.5		508.5	370.1	
Right	kg	454.5	299.4		499.0	362.4	
Ratio	%	60.4	39.6		57.9	42.1	
Totals	kg	918.1	602.9	1521.0	1007.5	732.5	1740.0

TARGET TEST WEIGHT CALCULATION

Measured Parameter	Units	Value
Total Delivered Weight (UVW)	kg	1521.0
Weight of 2 P572E ATDs	kg	156.0
Rated Cargo/Luggage Weight (RCLW)	kg	67.6
Calculated Vehicle Target Weight (TVTW)	kg	1744.6

TEST VEHICLE ATTITUDES AND CG

	Units	LF	RF	LR	RR	CG (aft of front axle)
As Delivered	mm	793	798	823	828	1037
As Tested	mm	777	783	803	808	1101
Post Test	mm	598	753	783	796	

Vehicle Wheelbase (mm): 2616

Weight of Ballast secured in cargo area (kg): 73.9

Vehicle Components Removed: Spare tire, rear bumper, exhaust system, taillights, rear bumper cover

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

FUEL SYSTEM DATA

Fuel System Capacity From Owner's Manual (L): 61

Usable Capacity Figure Furnished by COTR (L): 61

Actual Test Volume (L): 56.8

Test Fluid Type: Stoddard Solvent ; Specific Gravity: 0.77

Is Vehicle Fuel Pump Electric or Mechanical?: electric

If electric, does pump operate with ignition switch "ON" & engine "OFF"?: no

Fuel System Particulars: The fuel pump operates when the starter or engine is activated.

DATA SHEET NO. 3

POST IMPACT DATA

Test Vehicle: 2001/Ford/Escape/4WD

NHTSA No.: M10211

Test Program: 35 mph Frontal Barrier Impact

Test Date: April 20, 2001

Measured Parameter	Units	Requirement	Value
Trap No. 1 Velocity (Primary)	km/h	55.5 - 57.1	56.5
Trap No. 1 Entry Distance	mm	<1524	1300
Trap No. 1 Exit Distance	mm	<1524	300
Trap No. 2 Velocity (Redundant)	km/h	55.5 - 57.1	56.5
Trap No. 2 Entry Distance	mm	<1524	1425
Trap No. 2 Exit Distance	mm	<1524	425

VEHICLE STATIC CRUSH

Measured Parameter	Units	Pre-Test	Post-Test	Difference
Left Side	mm	4163	3914	249
Center	mm	4349	3813	536
Right Side	mm	4166	3896	270

VEHICLE REBOUND FROM BARRIER

Measured Parameter	Units	Value
Left Side	mm	1412
Center	mm	1475
Right Side	mm	1561
Average	mm	1483

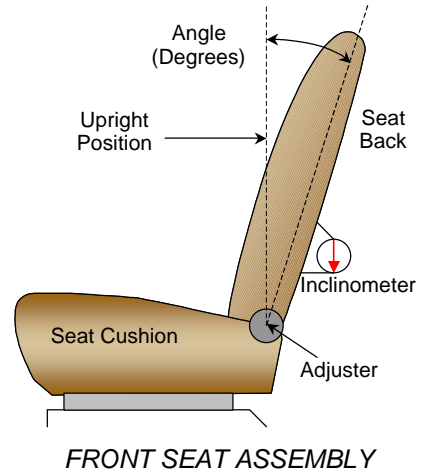
DATA SHEET NO. 4
TEST VEHICLE INFORMATION

Test Vehicle: 2001/Ford/Escape/4WD
Test Program: 35 mph Frontal Barrier Impact

NHTSA No.: M10211
Test Date: April 20, 2001

NORMAL DESIGN RIDING POSITION

The driver and passenger seat back is positioned according to a draft procedure supplied to MGA by NHTSA.



Driver seat back angle: 2nd latch, 1st as 0
Passenger seat back angle: 3rd latch, 1st as 0

SEAT FORE/AFT POSITIONS

Both driver and passenger seats have manual operated seats. The total travel on the seats is 25 seat positions.

Driver seat fore/aft total travel: 25 positions
Passenger seat fore/aft total travel: 25 positions
Driver seat fore/aft position: 2nd position, 1st as 1
Passenger seat fore/aft position: Full forward position

SEAT BELT UPPER ANCHORAGE

The test vehicle is equipped with adjustable anchorages for both the driver and passenger seat positions. There are 4 positions or detents. The anchorages are placed in second position from the lowest as one.

DATA SHEET NO. 4...(continued)

TEST VEHICLE INFORMATION

Test Vehicle: 2001/Ford/Escape/4WD

NHTSA No.: M10211

Test Program: 35 mph Frontal Barrier Impact

Test Date: April 20, 2001

FUEL TANK CAPACITY DATA

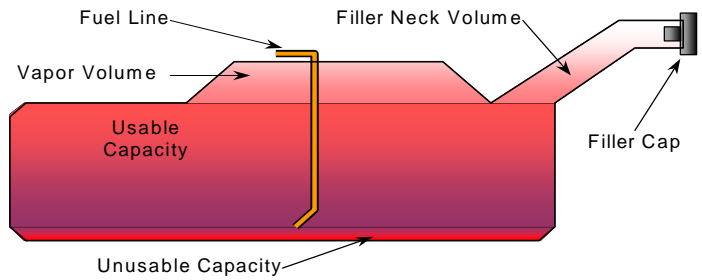
The "Usable Capacity" of the standard equipment fuel tank is: 61 liters

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

The "Usable Capacity" used for certification to FMVSS 301 requirements: 61 liters

Actual amount of Stoddard solvent added to vehicle for certification test: 56.8 liters

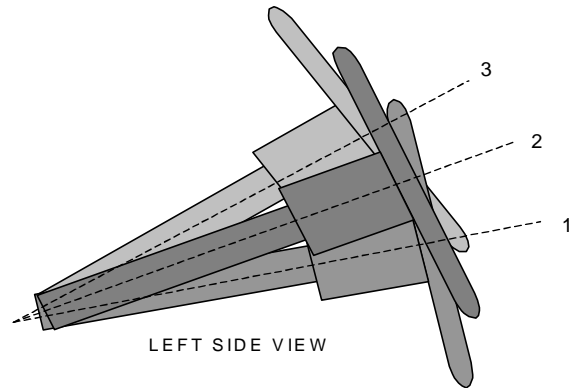
The test vehicle is equipped with an electric fuel pump. The fuel pump operates only when the starter or engine is activated. The fuel filler door is located on the left rear fender.



VEHICLE FUEL TANK ASSEMBLY

STEERING COLUMN ADJUSTMENT

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



STEERING COLUMN ASSEMBLY

Lowermost, position 1: 20.6°

Geometric center, position 2: 25.9°

Uppermost, position 3: 31.2°

DATA SHEET NO. 5

DUMMY POSITIONING IN VEHICLE

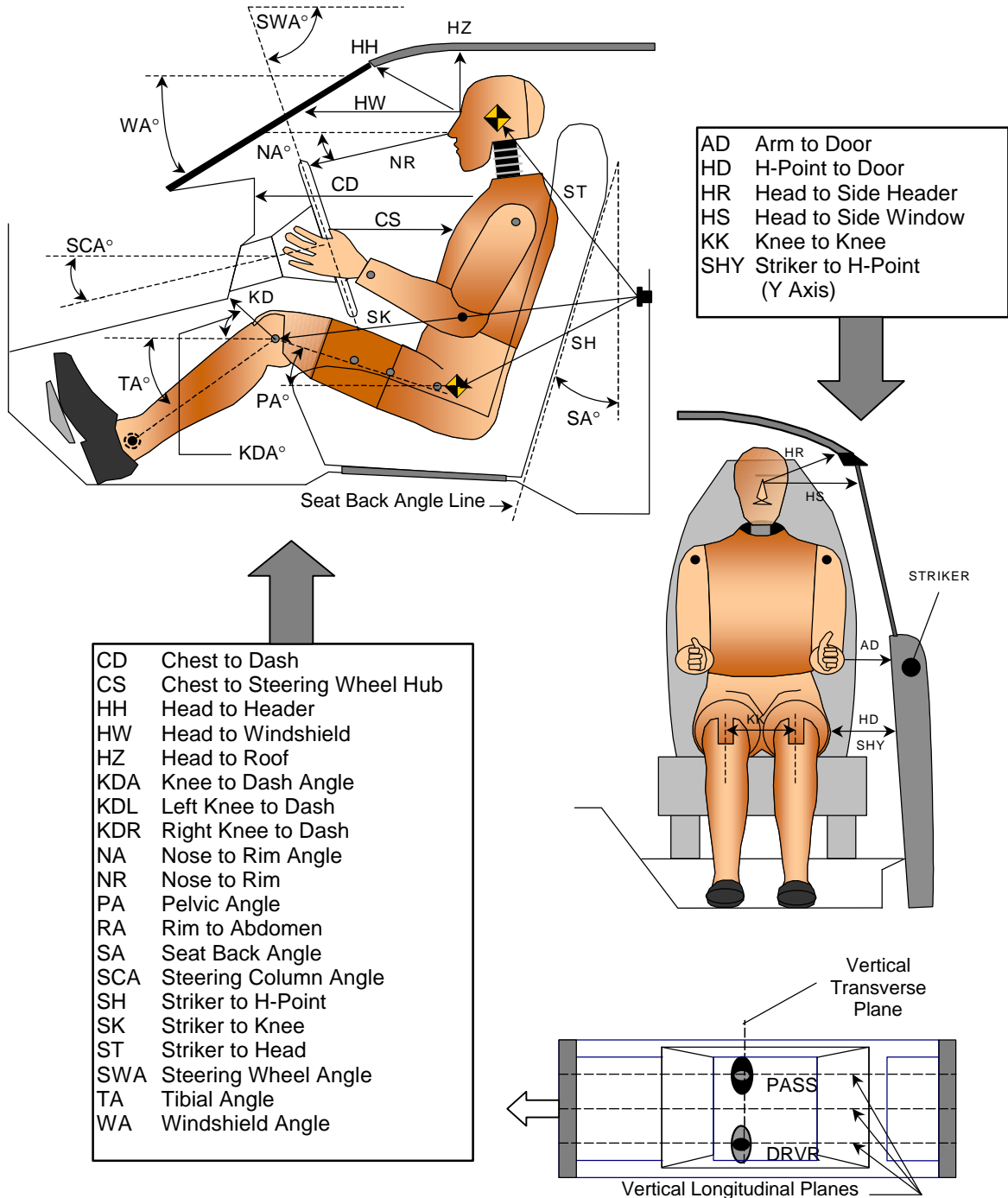
Test Vehicle: 2001/Ford/Escape/4WD

NHTSA No.: M10211

Test Program: 35 mph Frontal Barrier Impact

Test Date: April 20, 2001

DUMMY MEASUREMENTS FOR FRONT SEAT OCCUPANTS



DATA SHEET NO. 5...(continued)

DUMMY POSITIONING IN VEHICLE

Test Vehicle: 2001/Ford/Escape/4WD

NHTSA No.: M10211

Test Program: 35 mph Frontal Barrier Impact

Test Date: April 20, 2001

TEST DUMMY POSITION MEASUREMENTS

Code	Measurement Description	Driver		Passenger	
		Length (mm)	Angle (°)	Length (mm)	Angle (°)
WA	Windshield Angle		36.4		
SWA	Steering Wheel Angle		64.1		
SCA	Steering Column Angle		24.8		
SA	Seat Back Angle		2 nd latch		3 rd latch
HZ	Head to Roof (Z)	287	90.0	305	90.0
HH	Head to Header	342	48.1	363	44.7
HW	Head to Windshield	591	0.0	621	0.0
HR	Head to Side Header (Y)	295		315	
NR	Nose to Rim	291	12.8		
CD	Chest to Dash	454		585	
CS	Chest to Steering Hub	190	2.2		
RA	Rim to Abdomen	90	0.0		
KDL	Left Knee to Dash	69	0.0	58	
KDR	Right Knee to Dash	64		74	0.0
PA	Pelvic Angle		20.3		19.7
TA	Tibia Angle		67.7		55.4
KK	Knee to Knee (Y)	239		163	
SK	Striker to Knee	635	89.8	657	91.3
ST	Striker to Head	517	21.9	512	22.4
SH	Striker to H-Point	254	103.9	265	102.4
SHY	Striker to H-Point (Y)	303		292	
HS	Head to Side Window	342		332	
HD	H-Point to Door (Y)	188		176	
AD	Arm to Door (Y)	146		141	
AA	Ankle to Ankle	273		168	

DATA SHEET NO. 6

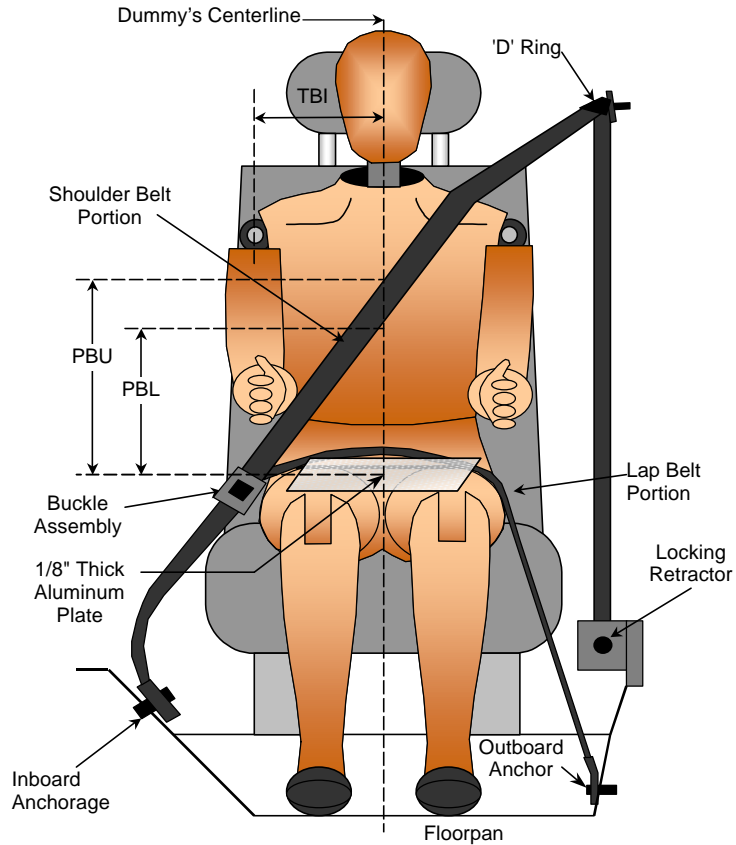
SEAT BELT POSITIONING DATA

Test Vehicle: 2001/Ford/Escape/4WD

NHTSA No.: M10211

Test Program: 35 mph Frontal Barrier Impact

Test Date: April 20, 2001



SEAT BELT POSITIONING MEASUREMENTS

Measurement Description	Units	Driver	Passenger
TBI - Dummy centerline to shoulder bolt	mm	161	161
PBU - Top surface of reference to belt upper edge	mm	275	275
PBL - To surface of reference to belt lower edge	mm	200	200

DATA SHEET NO. 7

VEHICLE ACCELEROMETER LOCATION AND DATA SUMMARY

Test Vehicle: 2001/Ford/Escape/4WD

NHTSA No.: M10211

Test Program: 35 mph Frontal Barrier Impact

Test Date: April 20, 2001

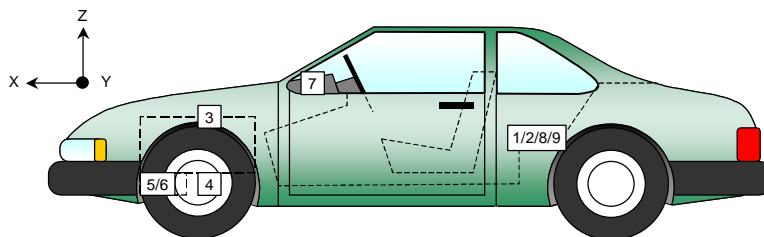
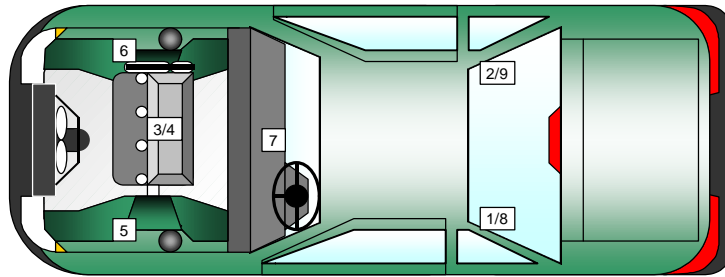
VEHICLE X-AXIS ACCELEROMETER PEAK DATA AND PRE-TEST LOCATIONS

No.	Accelerometer Location	Measurements (mm)			Peak Values				
		X	Y	Z	Units	Max	Time	Min	Time
1	Left Rear X-Member (Primary)	1545	-497	534	G's	3.0	111	46.9	31
2	Right Rear X-Member (Primary)	1545	497	549	G's	2.0	96	44.7	36
3	Engine Top	3881	0	920	G's	39.4	31	176.3	23
4	Engine Bottom	3506	-40	244	G's	11.9	39	125.4	26
5	Left Brake Caliper	3466	-678	256	G's	24.5	64	96.4	35
6	Right Brake Caliper	3469	678	278	G's	28.7	61	110.9	37
7	Instrument Panel	2711	0	1150	G's	5.9	80	56.1	44
8	Left Rear X-Member (Redundant)	1545	-497	534	G's	3.1	111	48.0	31
9	Right Rear X-Member (Redundant)	1545	497	549	G's	1.8	96	42.9	39

Reference Points: X - From Rear Surface of Vehicle (+ forward)

Y - Vehicle Centerline (+ to right)

Z - Ground Plane (+ up)



DATA SHEET NO. 8

HYBRID III ATD INJURY CRITERIA AND SENSOR DATA

Test Vehicle: 2001/Ford/Escape/4WD

NHTSA No.: M10211

Test Program: 35 mph Frontal Barrier Impact

Test Date: April 20, 2001

HEAD PRIMARY PEAK ACCELERATIONS

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Head CG	X	G's	30.6	185	53.5	59	1.0	13	52.6	64
Head CG	Y	G's	8.3	40	14.0	67	16.5	35	17.8	44
Head CG	Z	G's	21.6	39	14.3	105	28.8	64	11.4	110
Head CG Resultant	N/A	G's	54.9	67			58.8	64		

CHEST PRIMARY PEAK ACCELERATIONS

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Chest CG	X	G's	9.9	89	51.2	56	4.1	76	63.2	54
Chest CG	Y	G's	6.5	89	6.1	46	23.7	74	12.6	76
Chest CG	Z	G's	8.3	73	15.0	107	10.8	77	16.0	113
Chest CG Resultant	N/A	G's	51.4	56			63.6	54		

FEMUR PEAK FORCES

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Left Femur	Z	Newtons	1545	42	898	34	190	16	4108	48
Right Femur	Z	Newtons	228	15	1914	49	183	17	2224	48

SEAT BELT SENSOR PEAK VALUES

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Lap Belt Force	N/A	Newtons	5650	49			4077	48		
Shoulder Belt Force	N/A	Newtons	5347	64			4914	58		

HEAD INJURY CRITERIA (HIC₁₅)

Location	Driver				Passenger			
	HIC	Avg G's	T ¹	T ²	HIC	Avg G's	T ¹	T ²
Head CG Primary	289	51.8	55.3	70.3	285	51.5	57.6	72.6

CHEST CLIP (3MSEC)

Location	Driver			Passenger		
	CLIP	T ¹	T ²	CLIP	T ¹	T ²
Chest CG Primary	49.1	54.8	57.9	57.1	51.9	55.0

NECK INJURY CRITERIA

Location	Driver	Passenger
N _{te}	0.3	0.2
N _{tr}	0.9	0.2
N _{ce}	0.4	0.0
N _{cf}	0.1	0.2

DATA SHEET NO. 8...(continued)

HYBRID III ATD INJURY CRITERIA AND SENSOR DATA

Test Vehicle: 2001/Ford/Escape/4WD

NHTSA No.: M10211

Test Program: 35 mph Frontal Barrier Impact

Test Date: April 20, 2001

PELVIC PEAK ACCELERATIONS

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Pelvis	X	G's	7.1	99	59.5	49	9.4	97	72.6	48
Pelvis	Y	G's	10.1	88	6.1	49	10.2	87	13.0	56
Pelvis	Z	G's	2.2	197	23.9	51	3.9	74	24.8	54

UPPER NECK PEAK FORCES AND MOMENTS

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Neck Force	X	Newtons	65	29	883	68	594	55	264	144
Neck Force	Y	Newtons	123	190	312	108	170	77	76	35
Neck Force	Z	Newtons	2411	55	401	106	753	48	534	110
Neck Moment	X	N•m	11.5	41	21.9	119	12.5	66	19.5	50
Neck Moment	Y	N•m	73.0	68	32.2	135	36.2	55	7.4	200
Neck Moment	Z	N•m	11.4	91	10.1	136	14.7	80	6.3	131

FOOT PEAK ACCELERATIONS

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Left Foot Aft	X	G's	227.0	43	31.7	52	177.5	41	50.4	77
Left Foot Aft	Z	G's	42.2	89	70.4	43	25.7	77	46.7	45
Left Foot Fore	Z	G's	156.7	39	58.2	50	52.1	38	62.9	77
Right Foot Aft	X	G's	281.4	48	29.5	57	212.1	42	22.2	86
Right Foot Aft	Z	G's	120.2	47	20.7	61	36.5	87	59.9	44
Right Foot Fore	Z	G's	80.7	42	184.3	50	138.8	38	48.3	97

UPPER AND LOWER TIBIA PEAK FORCES AND MOMENTS

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Left Lower Moment	X	N•m	65.3	62	83.4	42	8.5	40	16.3	45
Left Lower Moment	Y	N•m	34.8	64	295.5	42	79.1	46	95.8	41
Left Lower Force	Z	Newtons	2494	44	229	33	1481	42	336	35
Left Upper Moment	X	N•m	20.6	126	67.3	44	16.8	98	22.0	47
Left Upper Moment	Y	N•m	12.9	190	209.0	42	79.8	48	31.4	64
Left Upper Force	Z	Newtons	1890	44	304	33	1295	44	495	36
Right Lower Moment	X	N•m	29.4	53	16.2	49	40.8	45	3.6	38
Right Lower Moment	Y	N•m	50.4	92	89.1	48	25.0	86	149.8	41
Right Lower Force	Z	Newtons	4801	49	259	107	2357	43	334	32
Right Upper Moment	X	N•m	18.9	126	40.7	48	58.6	56	9.8	78
Right Upper Moment	Y	N•m	31.1	94	146.7	49	34.4	88	101.3	43
Right Upper Force	Z	Newtons	3774	49	452	107	2042	44	446	36

DATA SHEET NO. 8...(continued)

HYBRID III ATD INJURY CRITERIA AND SENSOR DATA

Test Vehicle: 2001/Ford/Escape/4WD

NHTSA No.: M10211

Test Program: 35 mph Frontal Barrier Impact

Test Date: April 20, 2001

CHEST PEAK DISPLACEMENTS

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Chest CG	X	mm			14.7	66			12.8	62

HEAD REDUNDANT PEAK ACCELERATIONS

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Head CG	X	G's	30.3	186	51.8	56	1.1	25	50.1	66
Head CG	Y	G's	7.8	41	13.6	67	16.7	35	15.0	45
Head CG	Z	G's	19.8	39	13.7	105	29.5	63	11.3	110
Head CG Resultant	N/A	G's	52.7	68			57.3	64		

CHEST REDUNDANT PEAK ACCELERATIONS

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Chest CG	X	G's	10.3	89	50.2	56	3.9	76	60.6	54
Chest CG	Y	G's	5.7	99	7.3	46	23.8	74	12.4	76
Chest CG	Z	G's	9.7	51	16.2	107	11.9	77	15.1	113
Chest CG Resultant	N/A	G's	50.2	56			60.9	54		

REDUNDANT HEAD INJURY CRITERIA (HIC)

Location	Driver				Passenger			
	HIC	Avg G's	T ¹	T ²	HIC	Avg G's	T ¹	T ²
Head CG Primary Redundant	256	49.3	55.3	70.3	294	52.1	57.7	72.7

REDUNDANT CHEST CLIP (3MSEC)

Location	Driver			Passenger		
	CLIP	T ¹	T ²	CLIP	T ¹	T ²
Chest CG Primary Redundant	48.1	53.9	57.0	56.7	51.4	54.5

DATA SHEET NO. 9

SEAT BELT PERFORMANCE ASSESSMENT TEST DATA

Test Vehicle: 2001/Ford/Escape/4WD

NHTSA No.: M10211

Test Program: 35 mph Frontal Barrier Impact

Test Date: April 20, 2001

SEAT BELT PLACEMENT MEASUREMENTS

Measurement Description	Units	Driver	Passenger
TBI - Dummy centerline to shoulder bolt	mm	161	161
PBU - Top surface of reference to belt upper edge	mm	275	275
PBL - Top surface of reference to belt lower edge	mm	200	200

BELT LENGTH DATA

Measurement Description	Units	Driver	Passenger
Retractor reel to "D" ring	mm	242	210
Shoulder belt length as measured on ATD	mm	863	840
Lap belt length as measured on ATD	mm	832	829
Total belt length for continuous webbing systems	mm	1937	1879

SHOULDER BELT SPOOL-OUT DATA

Measurement Description	Units	Driver	Passenger
As determined mechanically	mm	**	**
As determined electronically	mm	**	**

** Not used at vehicle manufacturer's request

DATA SHEET NO. 10

SUMMARY OF FMVSS 212 DATA

Test Vehicle: 2001/Ford/Escape/4WD

NHTSA No.: M10211

Test Program: 35 mph Frontal Barrier Impact

Test Date: April 20, 2001

Windshield Mounting Details:

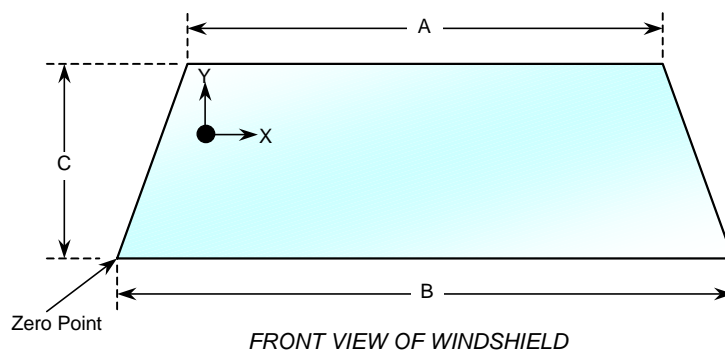
Windshield glass is secured to the vehicle frame with a rubber trim and glue.

The standard requires that the post-test retention measurement be a minimum of 75 percent of the pretest total periphery measurement for vehicles not equipped with occupant passive restraints and 50 percent for each side of the windshield for vehicles, which are equipped with occupant passive restraints.

Temperature of windshield molding during test: 22 °C

WINDSHIELD PERIPHERY MEASUREMENTS

Measurement	Pre-Test (mm)	Post-Test (mm)	% of Retention
Left Side	2027	2027	100
Right Side	2030	2030	100
Total	4057	4057	100



WINDSHIELD DIMENSIONS

Item	Units	Segment Length	Molding Width
A	mm	1180	17
B	mm	1464	20
C	mm	708	14

DATA SHEET NO. 11

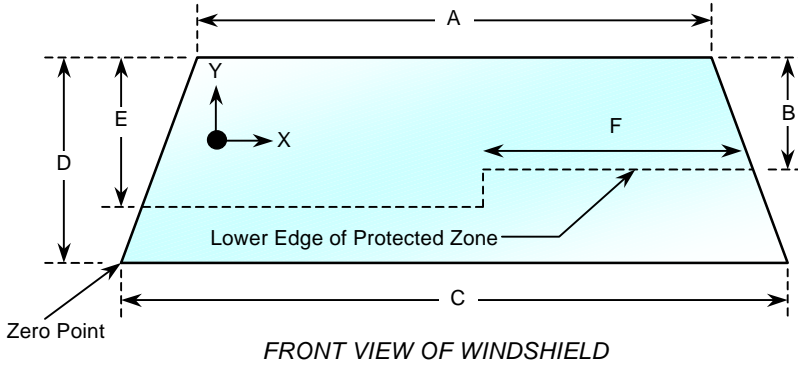
WINDSHIELD ZONE INTRUSION FMVSS 219 (Partial) DATA

Test Vehicle: 2001/Ford/Escape/4WD

NHTSA No.: M10211

Test Program: 35 mph Frontal Barrier Impact

Test Date: April 20, 2001



Item	Units	Value
A	mm	1180
B	mm	503
C	mm	1464
D	mm	708
E	mm	496
F	mm	518

AREA OF PROTECTED ZONE FAILURES - NONE

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

X	Y

B. Provide coordinates of the area beneath the protected zone that the inner surface of the windshield was penetrated by a vehicle component.

X	Y

DATA SHEET NO. 12

FMVSS 301 FUEL SYSTEM INTEGRITY POST IMPACT DATA

Test Vehicle: 2001/Ford/Escape/4WD

NHTSA No.: M10211

Test Program: 35 mph Frontal Barrier Impact

Test Date: April 20, 2001

Test Time: 10:25 AM

Temperature at Time of Impact: 22 °C

Stoddard Solvent Spillage Measurements

- A. From impact until vehicle motion ceases: 0 oz.
(Maximum Allowable = 1 ounce)
- B. For the 5 minute period after motion ceases: 0 oz.
(Maximum Allowable = 5 ounces)
- C. For the following 25 minutes: 0 oz.
(Maximum Allowable = 1 oz./minute)
- D. Spillage Details: None

DATA SHEET NO. 13

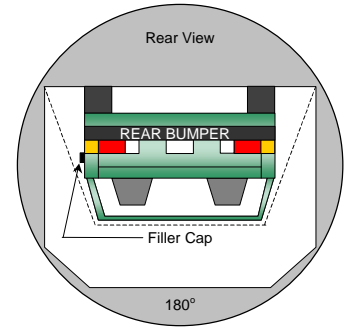
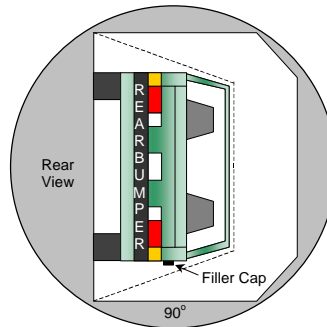
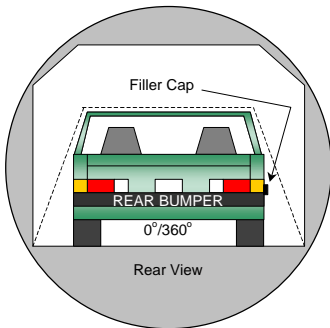
FMVSS 301 STATIC ROLLOVER DATA

Test Vehicle: 2001/Ford/Escape/4WD

NHTSA No.: M10211

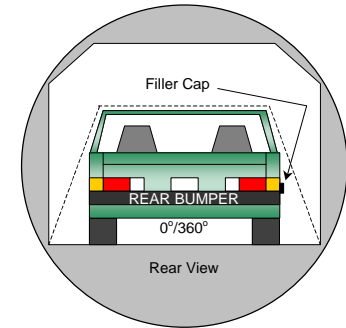
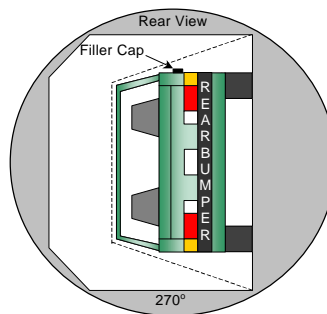
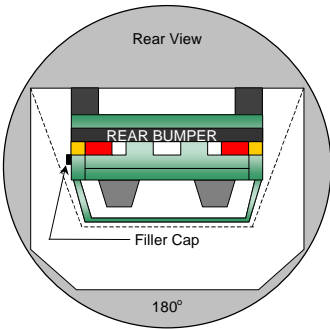
Test Program: 35 mph Frontal Barrier Impact

Test Date: April 20, 2001



0° TO 90°

90° TO 180°



180° TO 270°

270° TO 360°

1. The specified fixture rollover rate for each 90° of rotation is 60 to 180 seconds.
2. The position hold time at each position is 300 seconds (minimum).
3. Details of Stoddard Solvent spillage locations:

Test Phase	Rotation Time (sec.)	Hold Time (sec.)	Spillage (oz.)
0° TO 90°	164	300	0
90° TO 180°	141	300	0
180° TO 270°	146	300	0
270° TO 360°	166	300	0

DATA SHEET NO. 14
VEHICLE MEASUREMENTS

Test Vehicle: 2001/Ford/Escape/4WD

NHTSA No.: M10211

Test Program: 35 mph Frontal Barrier Impact

Test Date: April 20, 2001

No.	Measurement Description	Units	Pre-Test	Post-Test	Difference
1	Total length of vehicle at centerline	mm	4349	3813	536
2	RSOV to front of engine	mm	3759	3551	208
3	RSOV to firewall centerline	mm	3379	3252	127
4	RSOV to leading edge of right door	mm	2987	2972	15
5	RSOV to leading edge of left door	mm	2989	2967	22
6	RSOV to lower leading edge of right door	mm	2929	2920	9
7	RSOV to lower leading edge of left door	mm	2933	2908	25
8	RSOV to upper leading edge of right door	mm	1945	1933	12
9	RSOV to upper leading edge of left door	mm	1940	1928	12
10	RSOV to lower trailing edge of right door	mm	1953	1944	9
11	RSOV to lower trailing edge of left door	mm	1951	1929	22
12	RSOV to bottom of right 'A' pillar	mm	2937	2009	28
13	RSOV to bottom of left 'A' pillar	mm	2938	2911	27
14	RSOV to firewall on right side	mm	3419	3248	171
15	RSOV to firewall on left side	mm	3414	3338	76
16	RSOV to steering column	mm	2542	2529	13
17	Center of steering column to left 'A' pillar	mm	393	488	95
18	Center of steering column to headlining	mm	505	616	111
19	RSOV to right side of front bumper	mm	4166	3896	270
20	RSOV to left side of front bumper	mm	4163	3914	249
21	Length of engine block	mm	400	400	0
RD	RSOV to right side of dash panel	mm	2745	2713	32
CD	RSOV to center of dash panel	mm	2736	2709	27
LD	RSOV to left side of dash panel	mm	2756	2708	48

RSOV = Rear Surface of Vehicle

DATA SHEET NO. 14...(continued)

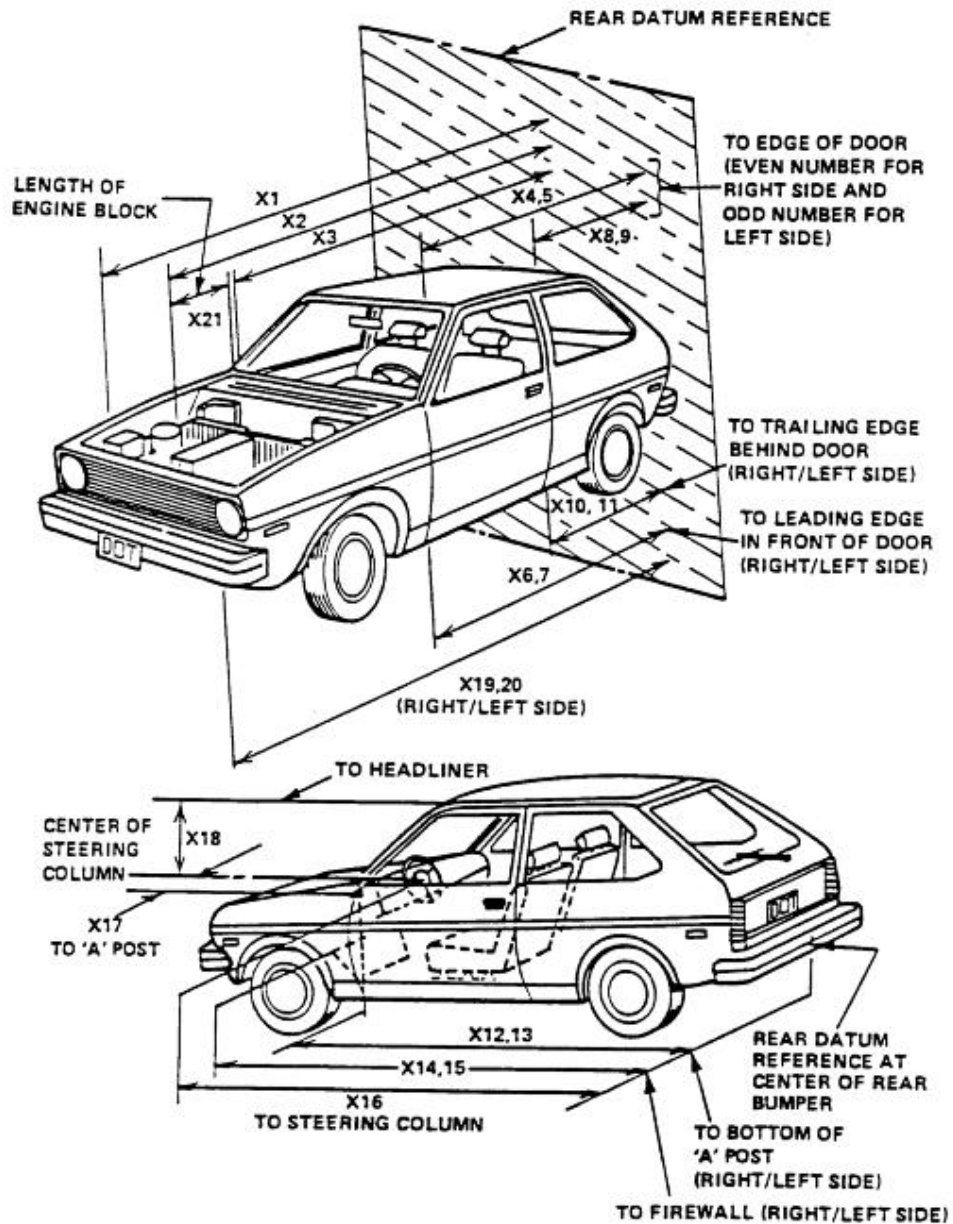
VEHICLE MEASUREMENTS

Test Vehicle: 2001/Ford/Escape/4WD

NHTSA No.: M10211

Test Program: 35 mph Frontal Barrier Impact

Test Date: April 20, 2001



DATA SHEET NO. 15
CAMERA LOCATIONS

Test Vehicle: 2001/Ford/Escape/4WD

NHTSA No.: M10211

Test Program: 35 mph Frontal Barrier Impact

Test Date: April 20, 2001

No.	Camera View	Location (mm) *			Lens (mm)	Speed (fps)
		X	Y	Z		
1	Real-Time Left Side View				17	32
2	Left Front View	1000	-7700	1580	25	1005
3	Steering Column Top	2000	-7600	1570	25	1036
4	Steering Column Bottom	2000	-7600	1038	25	1005
5	Driver Close-up	1500	-10100	1475	50	990
6	Driver Angle	4790	-5150	2020	50	976
7	Onboard Driver**					
8	Onboard Passenger**					
9	Right Overall	2000	6400	1620	13	1010
10	Right Passenger Half	1000	7130	1500	25	1010
11	Right Close-up	1400	7400	1600	50	***
12	Right Angle	4940	5649	2130	50	952
13	Windshield	-450	0	2700	13	889
14	Top Driver	70	-440	1780	13	1053
15	Top Passenger	80	400	1770	13	1015
16	Pit Front	1120	0	-3200	12	995
17	Pit Rear	2890	0	-3200	13	1010

*COORDINATES:

+X = film plane rearward of barrier

+Y = film plane to right of monorail centerline

+Z = film plane to above ground level

ORIGIN: For X and Y it is the Impact Point. For Z it is the Floor.

** camera not used

*** no timing

CAMERA LOCATIONS

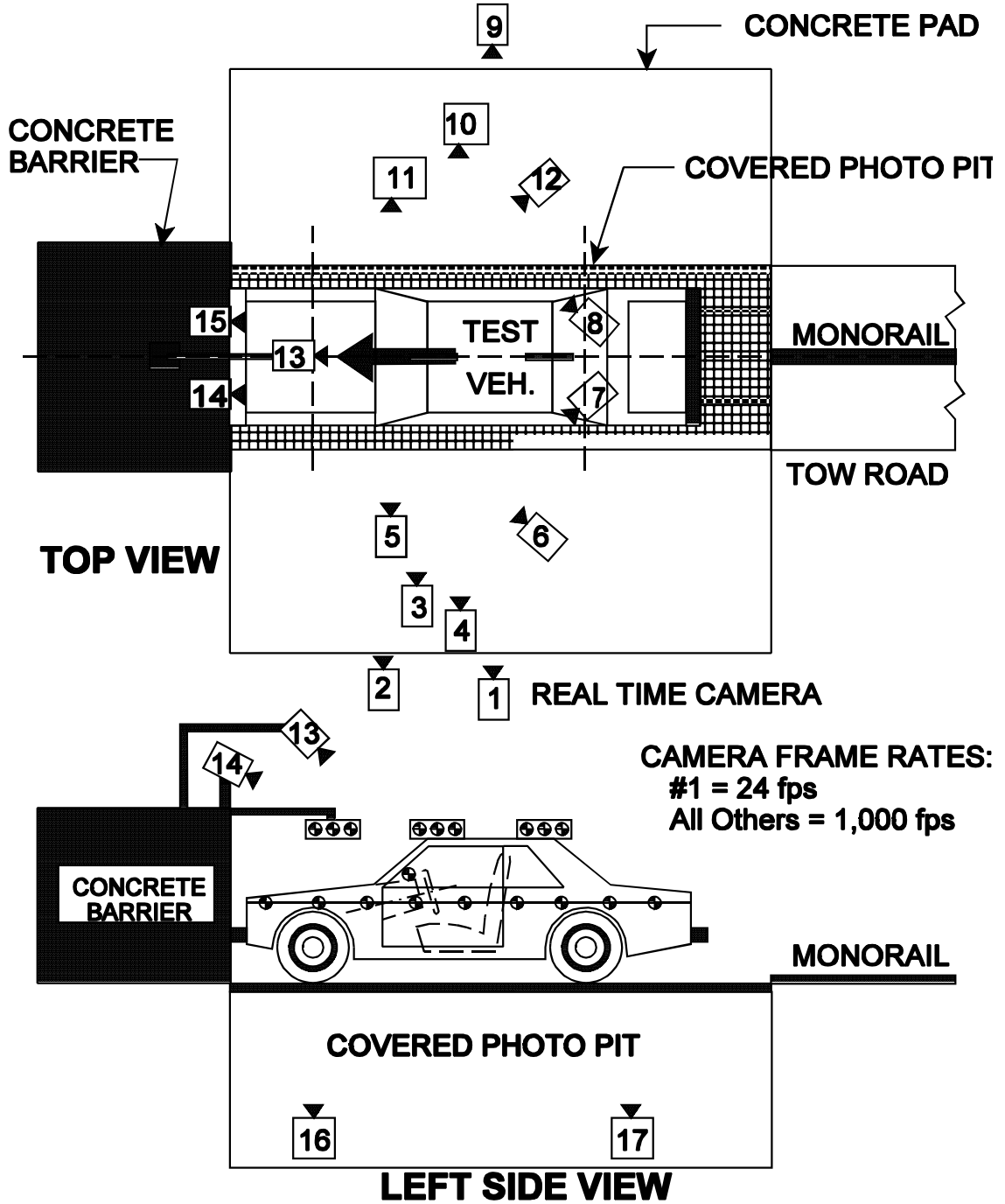
Test Vehicle: 2001/Ford/Escape/4WD

NHTSA No.: M10211

Test Program: 35 mph Frontal Barrier Impact

Test Date: April 20, 2001

CAMERA POSITIONS FOR FRONTAL IMPACTS



DATA SHEET NO. 16

PHOTOGRAPHIC REFERENCE TARGET LOCATIONS

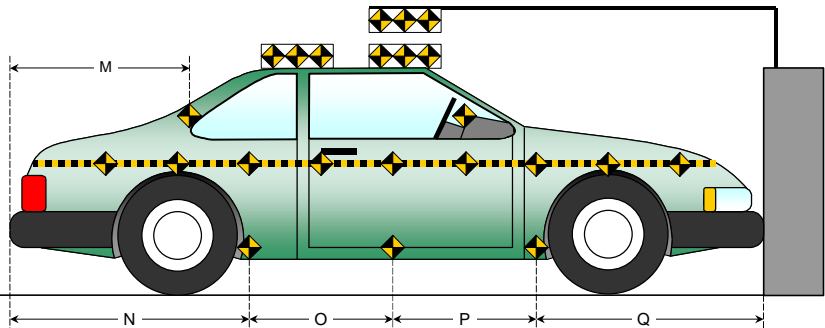
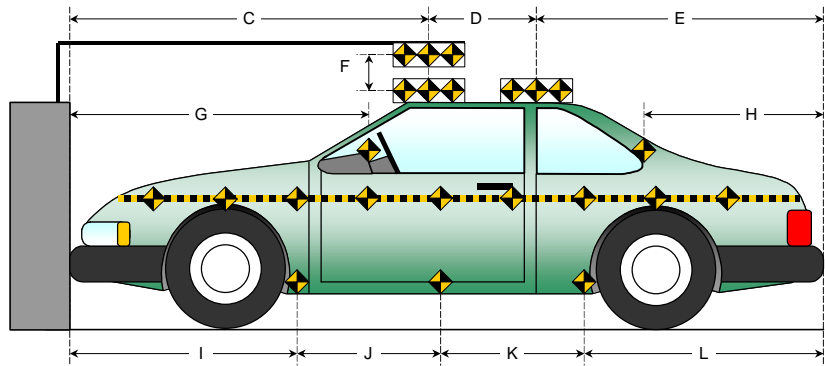
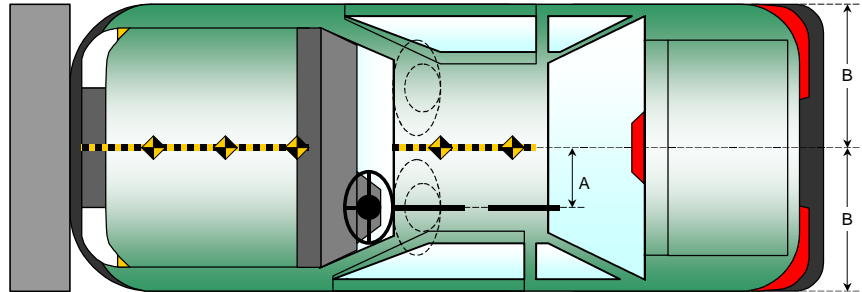
Test Vehicle: 2001/Ford/Escape/4WD

NHTSA No.: M10211

Test Program: 35 mph Frontal Barrier Impact

Test Date: April 20, 2001

Item	Value
A	390
B	792
C	1978
D	609
E	1762
F	305
G	1547
H	1018
I	1322
J	789
K	789
L	1449
M	1057
N	1447
O	791
P	784
Q	1327



DATA SHEET NO. 17

VEHICLE INTRUSION MEASUREMENTS

Test Vehicle: 2001/Ford/Escape/4WD

NHTSA No.: M10211

Test Program: 35 mph Frontal Barrier Impact

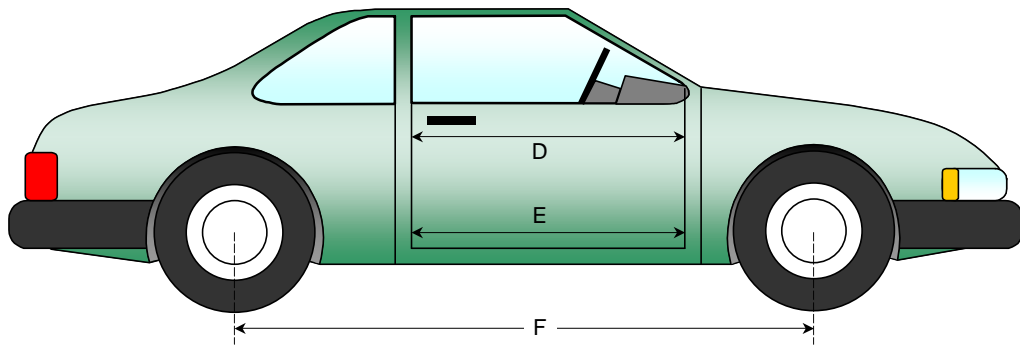
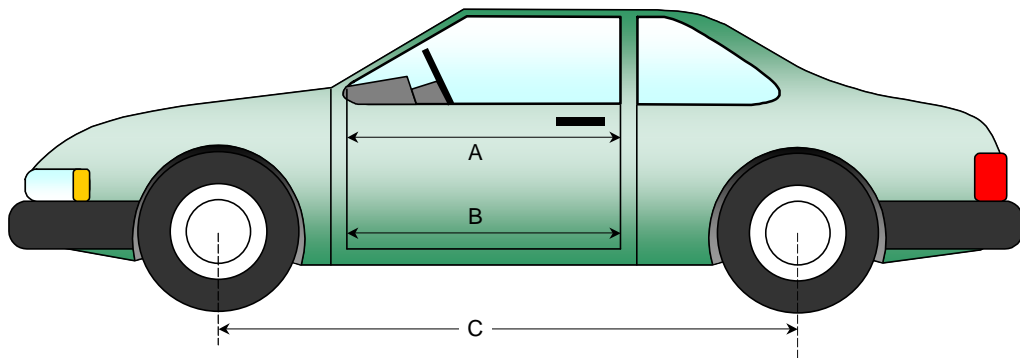
Test Date: April 20, 2001

DOOR OPENING WIDTH

Item	Description	Units	Pre-Test	Post-Test	Difference
A	Left Side Upper	mm	952	942	10
B	Left Side Lower	mm	921	918	3
D	Right Side Upper	mm	955	938	17
E	Right Side Lower	mm	920	913	7

WHEELBASE MEASUREMENTS

Item	Description	Units	Pre-Test	Post-Test	Difference
C	Left Side Wheelbase	mm	2622	2583	39
F	Right Side Wheelbase	mm	2620	2592	28



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

Test Vehicle: 2001/Ford/Escape/4WD

NHTSA No.: M10211

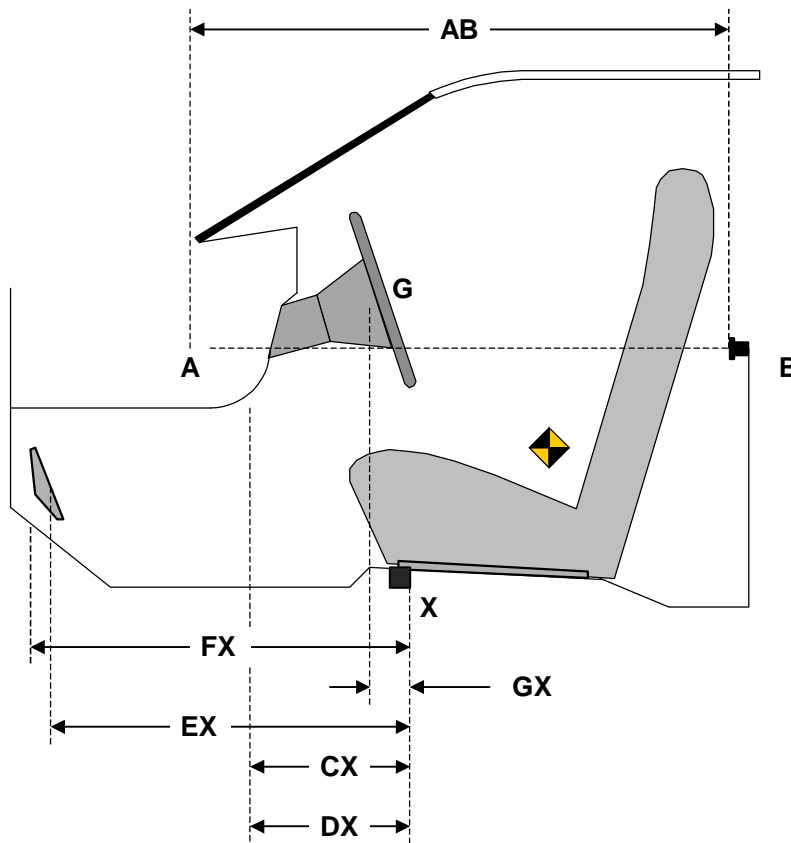
Test Program: 35 mph Frontal Barrier Impact

Test Date: April 20, 2001

DRIVER COMPARTMENT INTRUSION

Item	Description	Units	Pre-Test	Post-Test	Difference
AB	Door Opening (Inside window jam)	mm	952	942	10
CX	Left Knee Bolster to X	mm	277	283	-6
DX	Right Knee Bolster to X	mm	277	270	7
EX	Brake Pedal to X	mm	540	444	96
FX	Foot Rest to X	mm	556	520	36
GX	Center of Steering Column Wheel Hub to X	mm	80	73	7

X = Left Front Seat Front Outboard Anchor Bolt Head



DRIVER COMPARTMENT

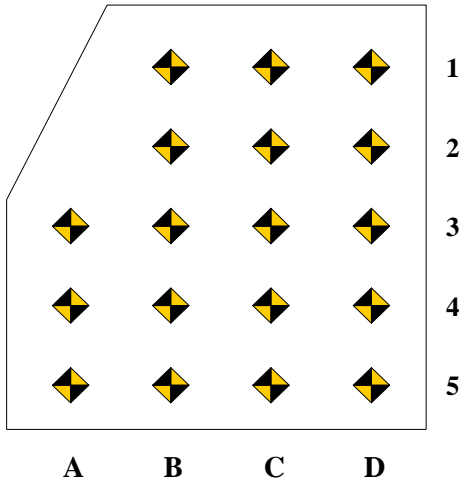
DATA SHEET NO. 17...(continued)
VEHICLE INTRUSION MEASUREMENTS

Test Vehicle: 2001/Ford/Escape/4WD

NHTSA No.: M10211

Test Program: 35 mph Frontal Barrier Impact

Test Date: April 20, 2001



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

Columns A through D are evenly spaced.

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

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

DRIVER FLOOR PAN X-AXIS

	Pre-Test				Post-Test				Difference			
	A	B	C	D	A	B	C	D	A	B	C	D
1	743	745	750		588	596	619		155	149	131	
2	705	706	707	710	603	596	590	604	102	110	117	106
3	651	651	651	651	618	617	597	624	33	34	54	27
4	585	585	585	585	575	571	574	576	10	14	11	9
5	508	508	508	508	508	504	507	508	0	4	1	0

DRIVER FLOOR PAN Z-AXIS

	Pre-Test				Post-Test				Difference			
	A	B	C	D	A	B	C	D	A	B	C	D
1	-44	-44	-40		-10	-18	-8		34	26	32	
2	-100	-100	-100	-100	-80	-86	-67	-85	20	14	33	15
3	-135	-135	-135	-135	-149	-155	-157	-149	-14	-10	-22	-14
4	-143	-143	-145	-145	-174	-181	-155	-159	-31	-38	-10	-14
5	-140	-140	-141	-141	-158	-164	-165	-158	-18	-24	-24	-17

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

Test Vehicle: 2001/Ford/Escape/4WD

NHTSA No.: M10211

Test Program: 35 mph Frontal Barrier Impact

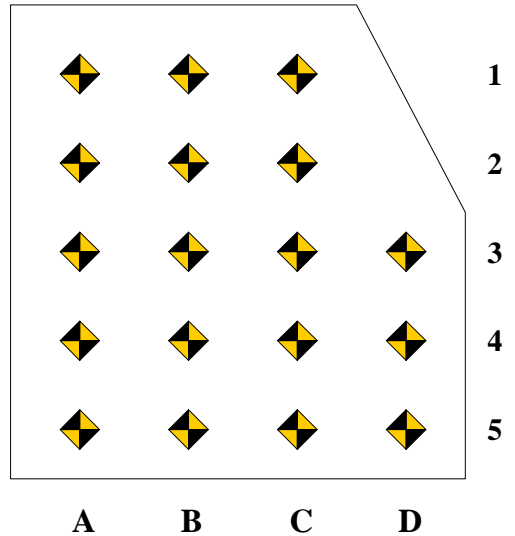
Test Date: April 20, 2001

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

Columns A through D are evenly spaced.

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

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



PASSENGER FLOOR PAN X-AXIS

	Pre-Test				Post-Test				Difference			
	A	B	C	D	A	B	C	D	A	B	C	D
1	765	771			749	737			16	34		
2	718	718	721		708	703	704		10	15	17	
3	657	660	662	671	650	659	663	671	7	1	-1	0
4	545	547	550	550	546	547	551	549	-1	0	-1	1
5	417	417	419	434	415	415	417	432	2	2	2	2

PASSENGER FLOOR PAN Z-AXIS

	Pre-Test				Post-Test				Difference			
	A	B	C	D	A	B	C	D	A	B	C	D
1	-94	-96			-86	-85			8	11		
2	-132	-136	-127		-142	-143	-128		-10	-7	-1	
3	-183	-179	-175	-171	-219	-208	-197	-145	-36	-29	-22	26
4	-193	-190	-189	-188	-210	-214	-216	-183	-17	-24	-27	5
5	-180	-181	-182	-183	-200	-200	-191	-192	-20	-19	-9	-9

DATA SHEET NO. 17...(continued)

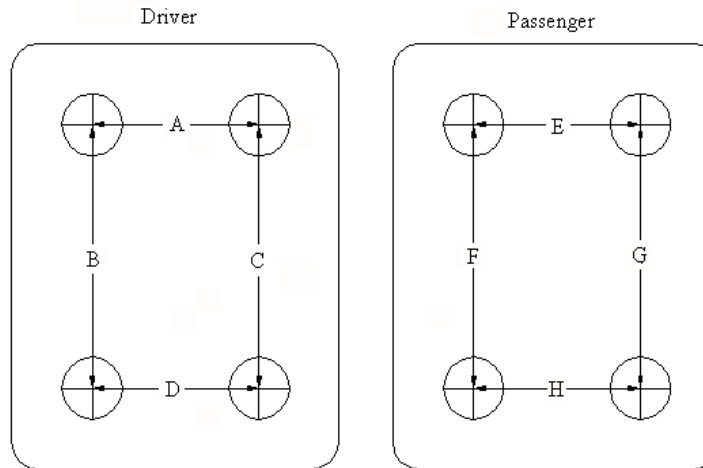
VEHICLE INTRUSION MEASUREMENTS

Test Vehicle: 2001/Ford/Escape/4WD

NHTSA No.: M10211

Test Program: 35 mph Frontal Barrier Impact

Test Date: April 20, 2001



UNDERBODY FLOORBOARD DEFORMATION

MEASUREMENT	PRE TEST	POST TEST	DIFFERENCE
A	223	221	2
B	236	235	1
C	227	222	5
D	255	253	2
E	215	208	7
F	221	215	6
G	222	221	1
H	213	217	4

DATA SHEET NO. 18

LOAD CELL LOCATIONS ON FIXED BARRIER

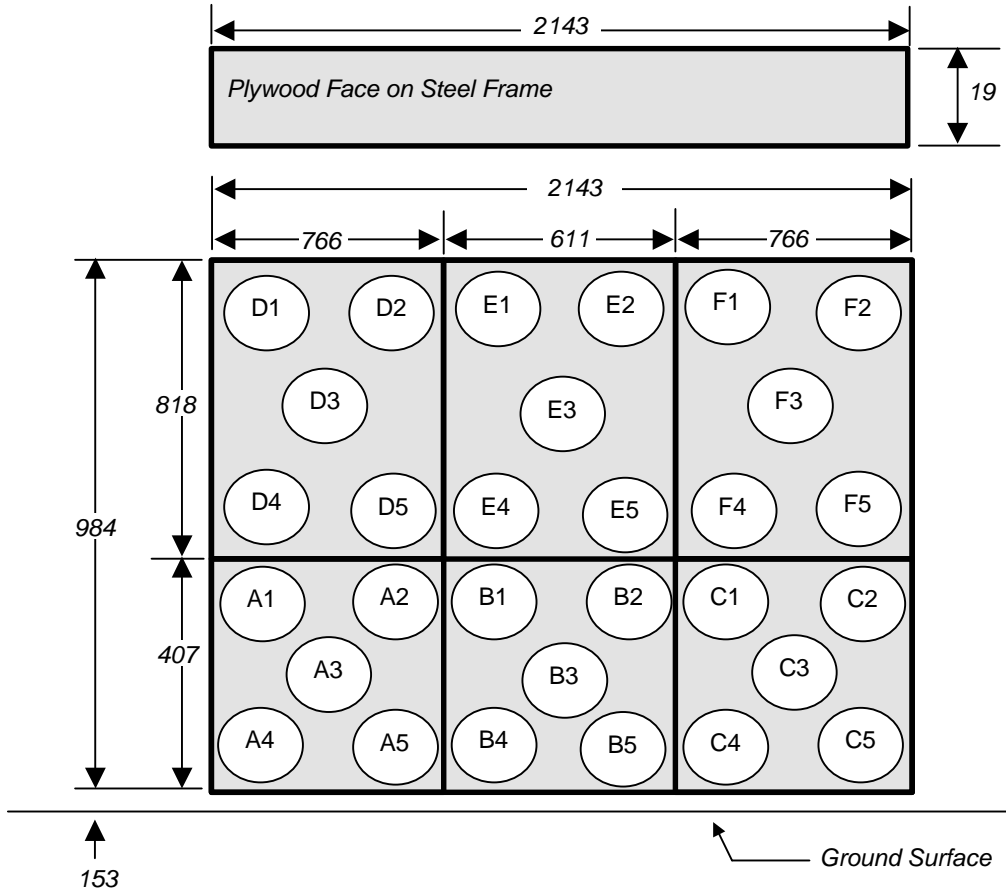
Test Vehicle: 2001/Ford/Escape/4WD

NHTSA No.: M10211

Test Program: 35 mph Frontal Barrier Impact

Test Date: April 20, 2001

30 Load Cell Rigid Barrier
Load Cell Locations on Fixed Barrier



Group 4 D1-D5	Group 5 E1-E5	Group 6 F1-F5
Group 1 A1-A5	Group 2 B1-B5	Group 3 C1-C5

6 Groups of 5 Load Cells Each

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

1. Data from 30 individual load cells
2. Sum data from 6 groupings shown above (5 cells/group)
3. Total or sum of all 30 individual load cells

DATA SHEET NO. 19

ACCIDENT INVESTIGATION DIVISION DATA

Test Vehicle: 2001/Ford/Escape/4WD

NHTSA No.: M10211

Test Program: 35 mph Frontal Barrier Impact

Test Date: April 20, 2001

VEHICLE INFORMATION

VIN: 1FMYU04141KA45163

Wheelbase (mm): 2616

Vehicle Size Category: Sport Utility Vehicle

Test Weight (kg): 1740.0

ACCELEROMETER DATA

Accelerometer Locations: As per measurements on page 13

Cal. Procedure/Interval: MGA procedure / 6 month

Integration Algorithm: Trapezoidal

Linearity: >99.9%

Impact Velocity (km/h): 56.5

Velocity Change (km/h): 63.6

Time of Separation (msec): 86

CRUSH PROFILE

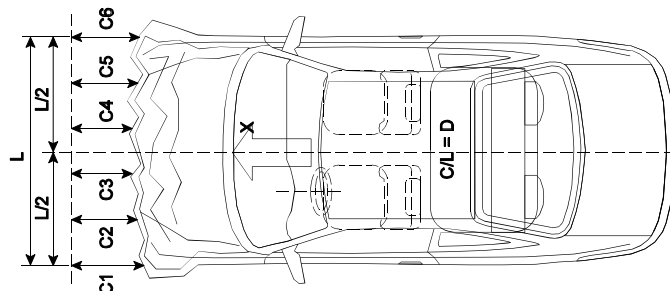
Collision Deformation Classification: Frontal

Midpoint of Damage: Centerline

Damage Region Length (mm): 1520

Impact Mode: Frontal

No.	Measurement Description	Units	Pre-Test	Post-Test	Difference
C1	Crush zone 1 at left side	mm	4163	3914	249
C2	Crush zone 2 at left side	mm	4297	3871	426
C3	Crush zone 3 at left side	mm	4330	3856	474
C4	Crush zone 4 at right side	mm	4338	3862	476
C5	Crush zone 5 at right side	mm	4300	3843	457
C6	Crush zone 6 at right side	mm	4166	3896	270



DATA SHEET NO. 20

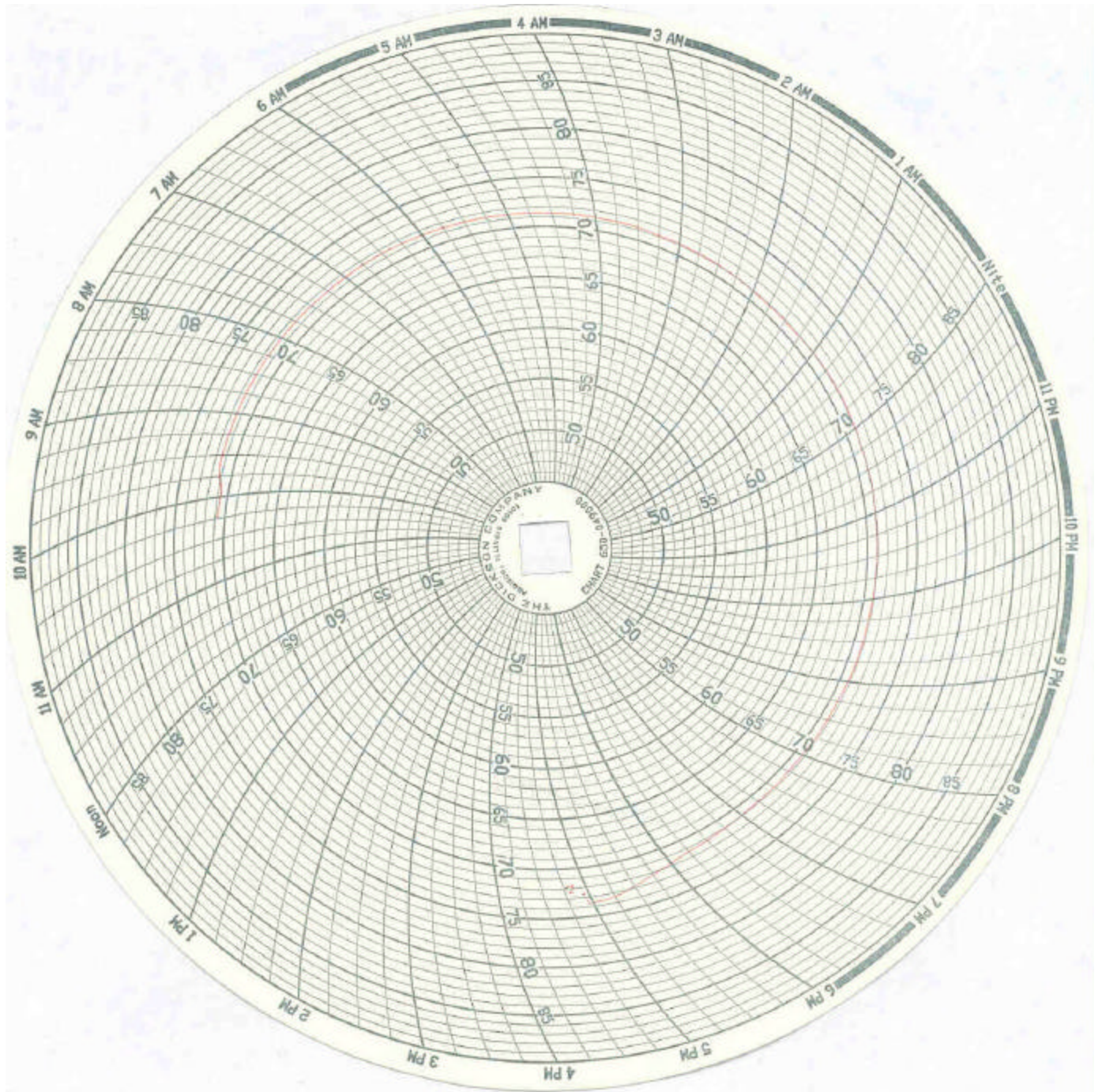
DUMMY / VEHICLE TEMPERATURE STABILIZATION CHART

Test Vehicle: 2001/Ford/Escape/4WD

NHTSA No.: M10211

Test Program: 35 mph Frontal Barrier Impact

Test Date: April 20, 2001



A = Dummies installed in vehicle at 6:00 a.m.

B = Test conducted at 10:25 a.m.

APPENDIX A

PHOTOGRAPHS

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

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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

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

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Photo No. A-5 - Pre-Test Left Side View of Test Vehicle

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Photo No. A-6 - Post-Test Left Side View of Test Vehicle

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Photo No. A-7 - Pre-Test Left Rear Three-Quarter View of Test Vehicle

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Photo No. A-8 - Post-Test Left Rear Three-Quarter View of Test Vehicle

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Photo No. A-9 - Pre-Test Right Side View of Test Vehicle

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Photo No. A-10 - Post-Test Right Side View of Test Vehicle



Photo No. A-11 - Pre-Test Right Front Three-Quarter View of Test Vehicle

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Photo No. A-12 - Post-Test Right Front Three-Quarter View of Test Vehicle

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Photo No. A-13 - Pre-Test Fuel Filler Cap View

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**35 MPH FRONTAL
2001 FORD ESCAPE
M10211 01042001
MGA RESEARCH CORP.**

Photo No. A-14 - Pre-Test Windshield View

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35 MPH FRONTAL
2001 FORD ESCAPE
M1021101042001
MGA RESEARCH CORP.

Photo No. A-15 - Post-Test Windshield View

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Photo No. A-16 - Pre-Test Driver Dummy Position Left Side View

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Photo No. A-17 - Post-Test Driver Dummy Position Left Side View

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Photo No. A-18 - Pre-Test Driver Dummy Position Left Side View (Door Open)

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Photo No. A-19 - Post-Test Driver Dummy Position Left Side View (Door Open)

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Photo No. A-20 - Pre-Test Driver Seat Position View

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Photo No. A-21 - Post-Test Driver Seat Position View



Photo No. A-22 - Pre-Test Driver Dummy Knee Position



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Photo No. A-23 - Post-Test Driver Dummy Knee Position

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Photo No. A-24 - Post-Test Driver Airbag Contact

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Photo No. A-26 - Post-Test Driver Windshield View

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Photo No. A-27 - Pre-Test Passenger Dummy Position Right Side View

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Photo No. A-29 - Pre-Test Passenger Dummy Position Right Side View (Door Open)

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Photo No. A-30 - Post-Test Passenger Dummy Position Right Side View (Door Open)

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Photo No. A-32 - Post-Test Passenger Seat Position View

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Photo No. A-33 - Pre-Test Passenger Dummy Knee Position

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Photo No. A-34 - Post-Test Passenger Dummy Knee Position

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Photo No. A-35 - Post-Test Passenger Airbag Contact

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Photo No. A-36 - Post-Test Passenger Knee Contact View

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Photo No. A-37 - Pre-Test Passenger Windshield View

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Photo No. A-38 - Post-Test Passenger Windshield View

MFD. BY FORD MOTOR CO. IN U.S.A.

DATE: 01/01
FRONT GAWR: 2398LB
1087KG
P225/70R15AS
15X6.5J
AT 207 kPa/30

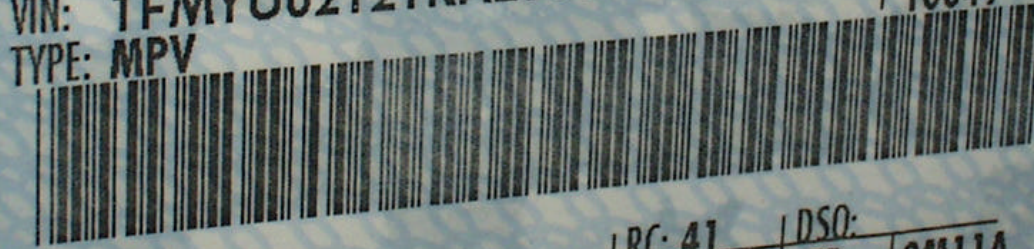
WITH
TIRES
RIMS
PSI COLD

GVWR: 4528LB / 2053KG
REAR GAWR: 2319LB
1051KG
P225/70R15AS
15X6.5J
AT 207 kPa/30

WITH
TIRES
RIMS
PSI COLD

THIS VEHICLE CONFORMS TO ALL APPLICABLE FEDERAL MOTOR
VEHICLE SAFETY AND THEFT PREVENTION STANDARDS IN
EFFECT ON THE DATE OF MANUFACTURE SHOWN ABOVE.
VIN: 1FMYU02121KA29949
TYPE: MPV

F0000
T0049



EXT PNT:	UA	TP/PS	R	AXLE	TR	DSO:	OM11A
WB	BRK	INT TR	6	69	4	SPR	305
103	2	Y2			GC		
			1200101171312		UTC	F85B-1520472-AB	

A-39

Photo No. A-39 - Vehicle Certification Label

**RECOMMENDED TIRE SIZE AND INFLATION PRESSURE (COLD)
DIMENSIONS DES PNEUS ET PRESSIONS DE GONFLAGE
(À FROID) RECOMMANDÉES**

TIRE SIZE DIMENSIONS DES PNEUS	TIRE PRESSURE FRONT/REAR	PRESSION DES PNEUS AVANT/ARRIÈRE
P215/70R16 99T P225/70R15 100S P235/70R16 104T	207 kPa 30 PSI	207 kPa 30 lb/po ²

VEHICLE CAPACITY WEIGHT **899 lbs**
CAPACITÉ MAXIMALE DU VÉHICULE **408 kg**

SEATING CAPACITY NOMBRE DE PLACES	FRONT SEAT SIÈGE AVANT	BACK SEAT SIÈGE ARRIÈRE	TOTAL TOTAL
	2	3	5

⚠ WARNING / AVERTISSEMENT 

TO AVOID SERIOUS INJURY OR DEATH FROM LOSS OF VEHICLE CONTROL: REPLACE TIRES WITH THE SAME SIZE, TYPE, AND SPEED RATED TIRES AS SHOWN ON THE CERTIFICATION LABEL.
POUR PRÉVENIR LES BLESSURES GRAVES OU MORTELLES RÉSULTANT DE LA PERTE DE CONTRÔLE DU VÉHICULE : REMPLACER LES PNEUS PAR DES PNEUS DE MÊMES DIMENSIONS, TYPE, ET INDICE DE VITESSE QUE CEUX INDICÉS SUR L'ÉTIQUETTE D'HOMOLOGATION.

1USA-1532-AB

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Photo No. A-40 - Tire Placard

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Photo No. A-41 - Vehicle Impact

APPENDIX B

DUMMY AND VEHICLE RESPONSE DATA TRACES

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VEHICLE DATA FILTER CHANNEL CLASS

Head Accelerations 1000 (1650 Hz)

Chest Accelerations 180 (300 Hz)

Vehicle Accelerations 60 (100 Hz)

Barrier Load Cells 60 (100 Hz)

Femur Load Cells 600 (1000 Hz)

Lap and Torso Belts 60 (100 Hz)

Tibia Load Cells 600 (1000Hz)

Foot Accelerations 180 (300Hz)

Occupant Data

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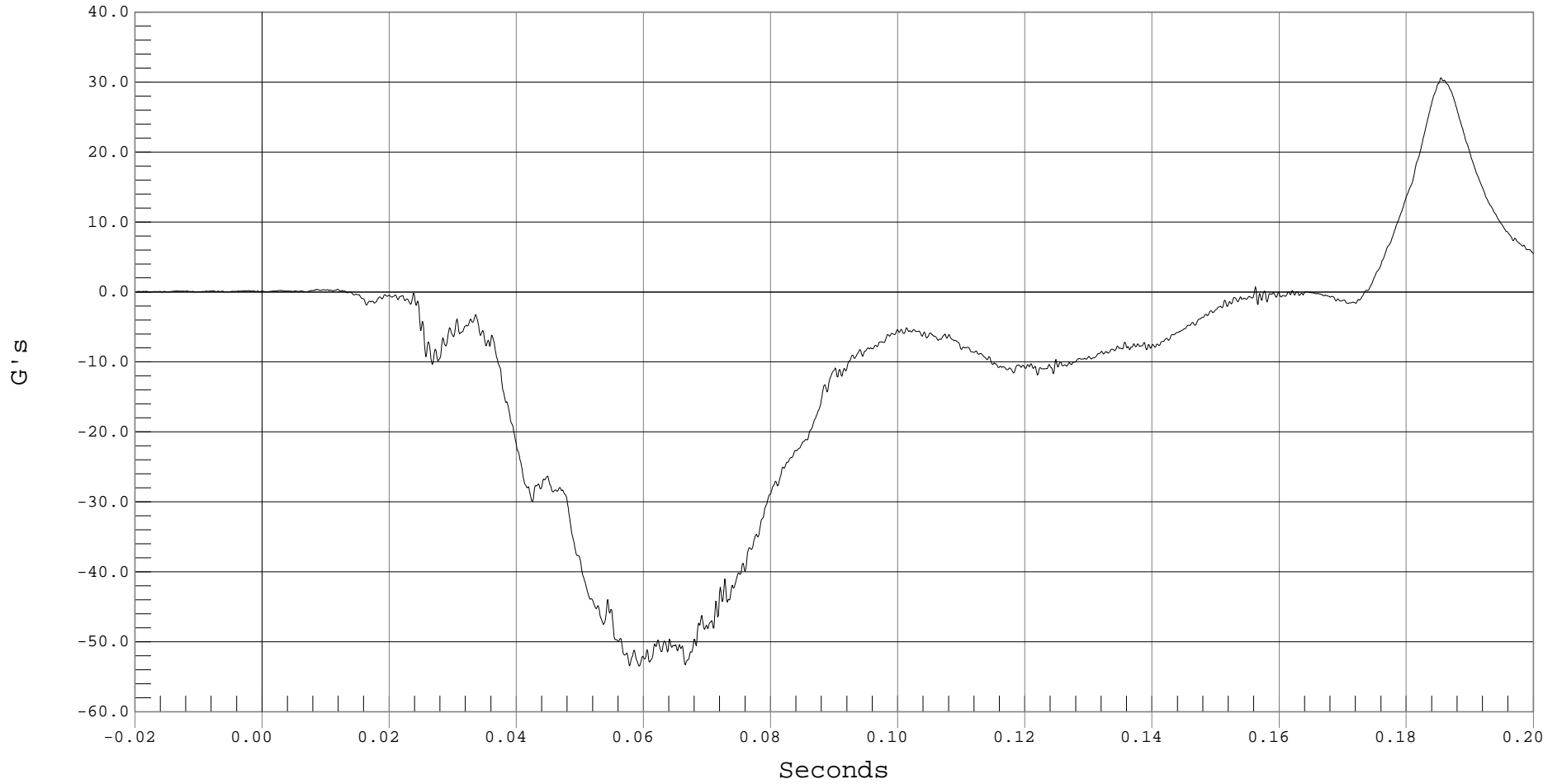
DRIVER HEAD X ACCELERATION

Test Desc.: 35 MPH FRONTAL
Component: 2001 FORD ESCAPE (M10211)
Other Info:

Test Date: 04-20-01
Speed: 35.1 MPH, 56.5 KPH
Filter Class: 1000

— 1 DRIVER HEAD X, B01044AT.A01

Ymin = -53.47 G's @ 0.0592 Seconds, Ymax = 30.62 G's @ 0.1854 Seconds



B-1



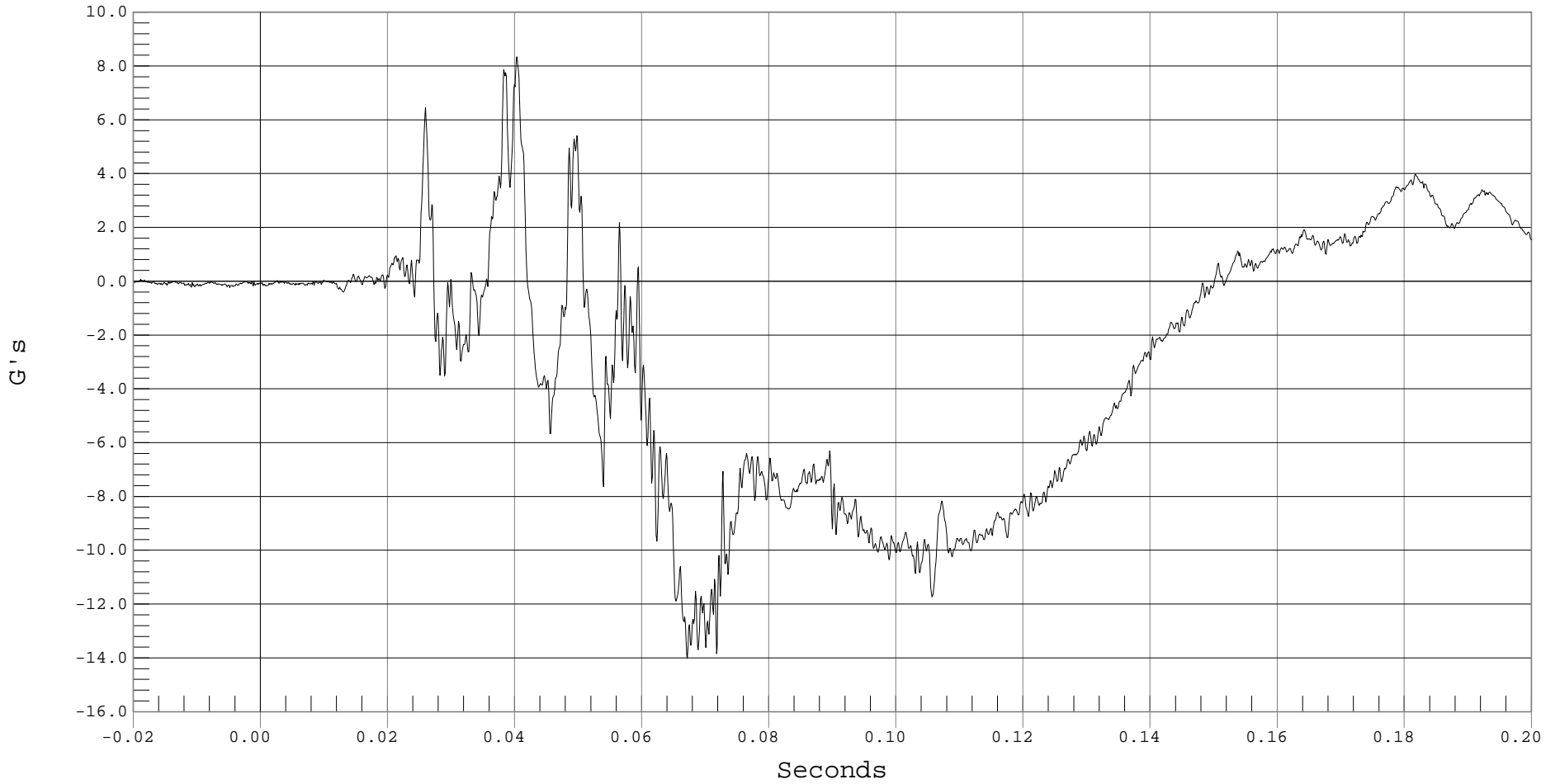
DRIVER HEAD Y ACCELERATION

Test Desc.: 35 MPH FRONTAL
Component: 2001 FORD ESCAPE (M10211)
Other Info:

Test Date: 04-20-01
Speed: 35.1 MPH, 56.5 KPH
Filter Class: 1000

— 1 DRIVER HEAD Y, B01044AT.A02

Ymin = -14.02 G's @ 0.0671 Seconds, Ymax = 8.34 G's @ 0.0403 Seconds



B-2



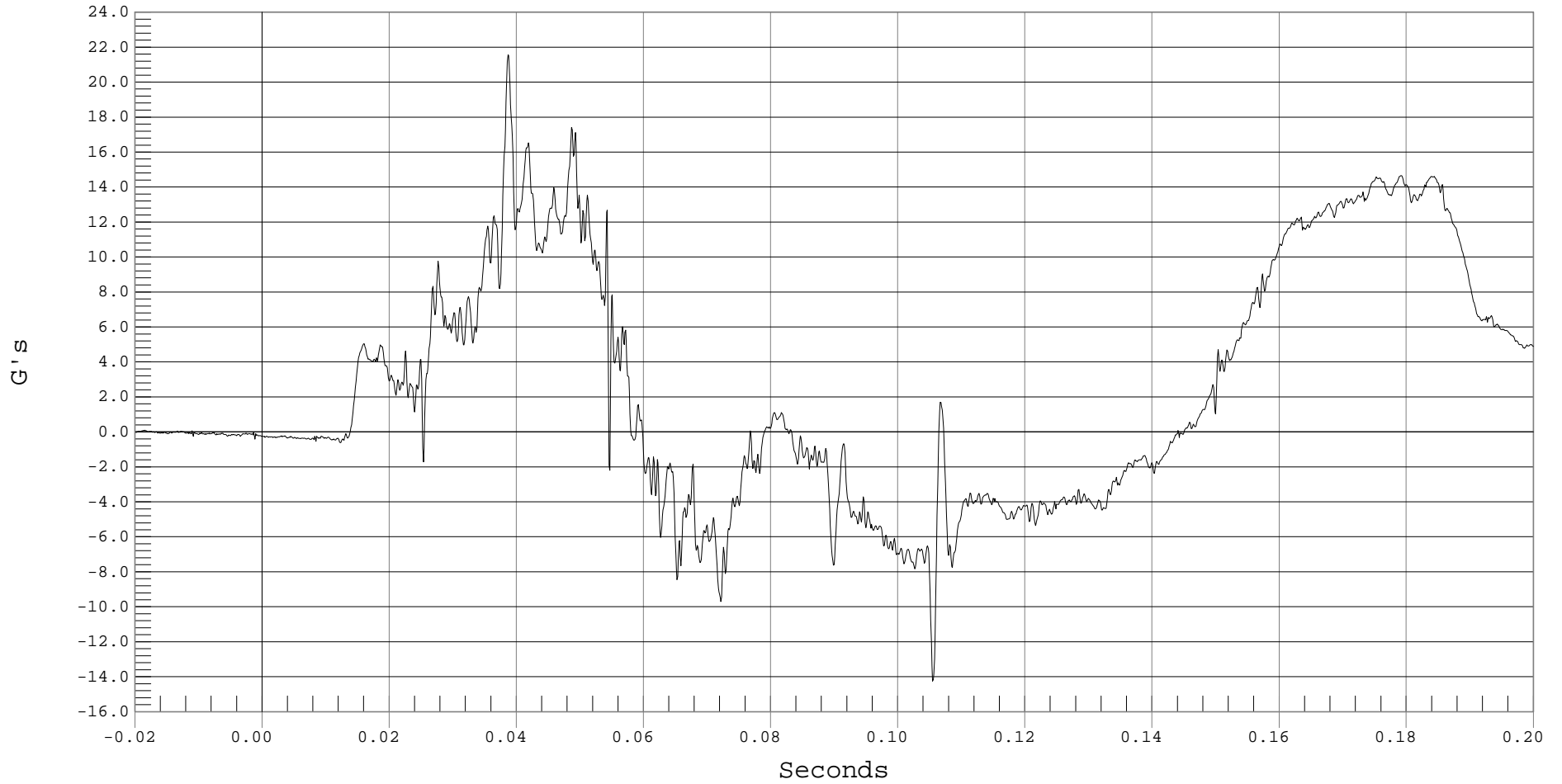
DRIVER HEAD Z ACCELERATION

Test Desc.: 35 MPH FRONTAL
Component: 2001 FORD ESCAPE (M10211)
Other Info:

Test Date: 04-20-01
Speed: 35.1 MPH, 56.5 KPH
Filter Class: 1000

— 1 DRIVER HEAD Z, B01044AT.A03

Ymin = -14.25 G's @ 0.1054 Seconds, Ymax = 21.55 G's @ 0.0386 Seconds



B-3



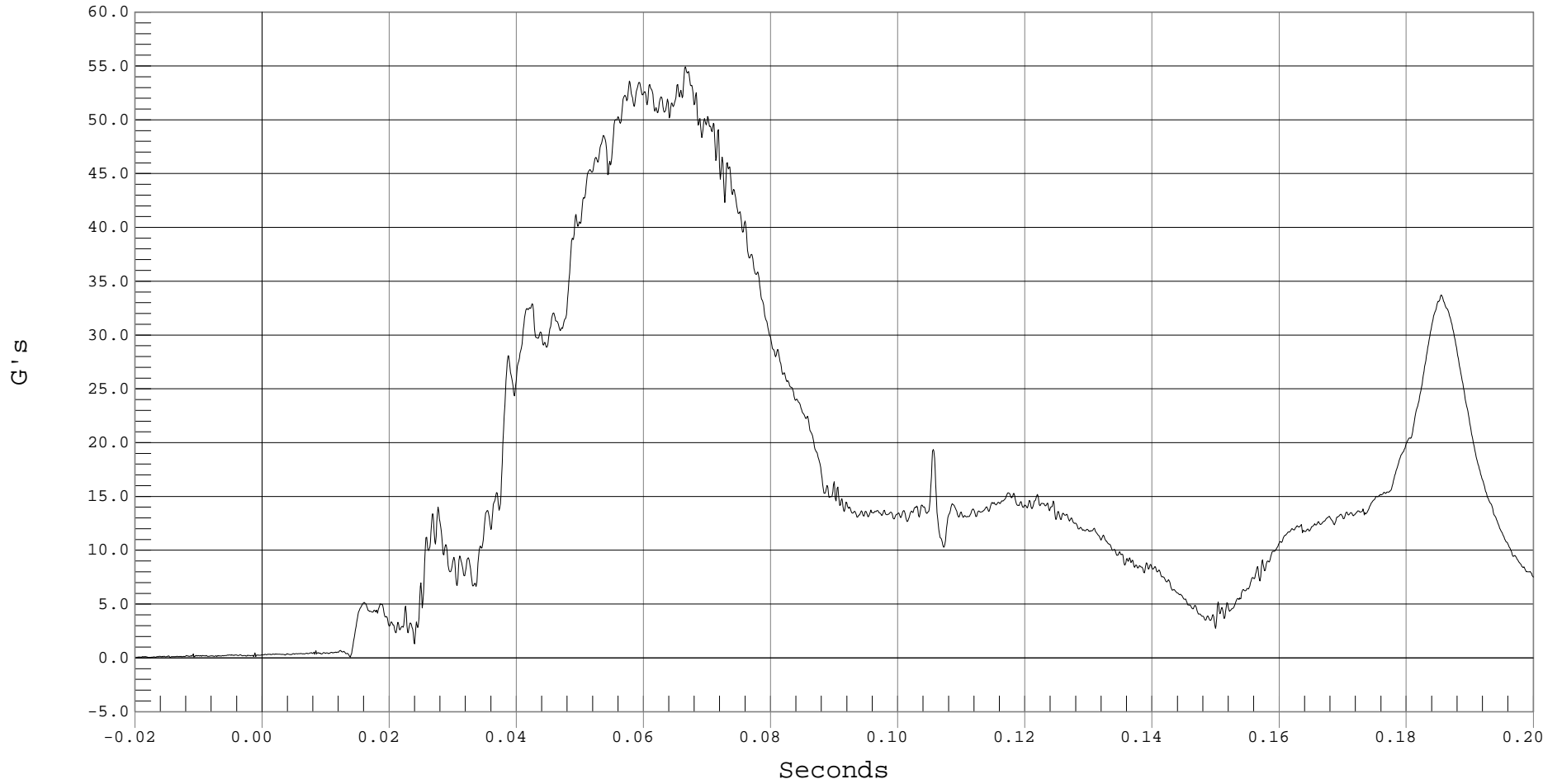
DRIVER HEAD RESULTANT ACCELERATION

Test Desc.: 35 MPH FRONTAL
Component: 2001 FORD ESCAPE (M10211)
Other Info:

Test Date: 04-20-01
Speed: 35.1 MPH, 56.5 KPH
Filter Class: 1000

— 1 DRIVER HEAD RESULTANT ACCELERATION, B01044AV.A01

Ymin = .04 G's @ -0.0191 Seconds, Ymax = 54.93 G's @ 0.0665 Seconds



B-4



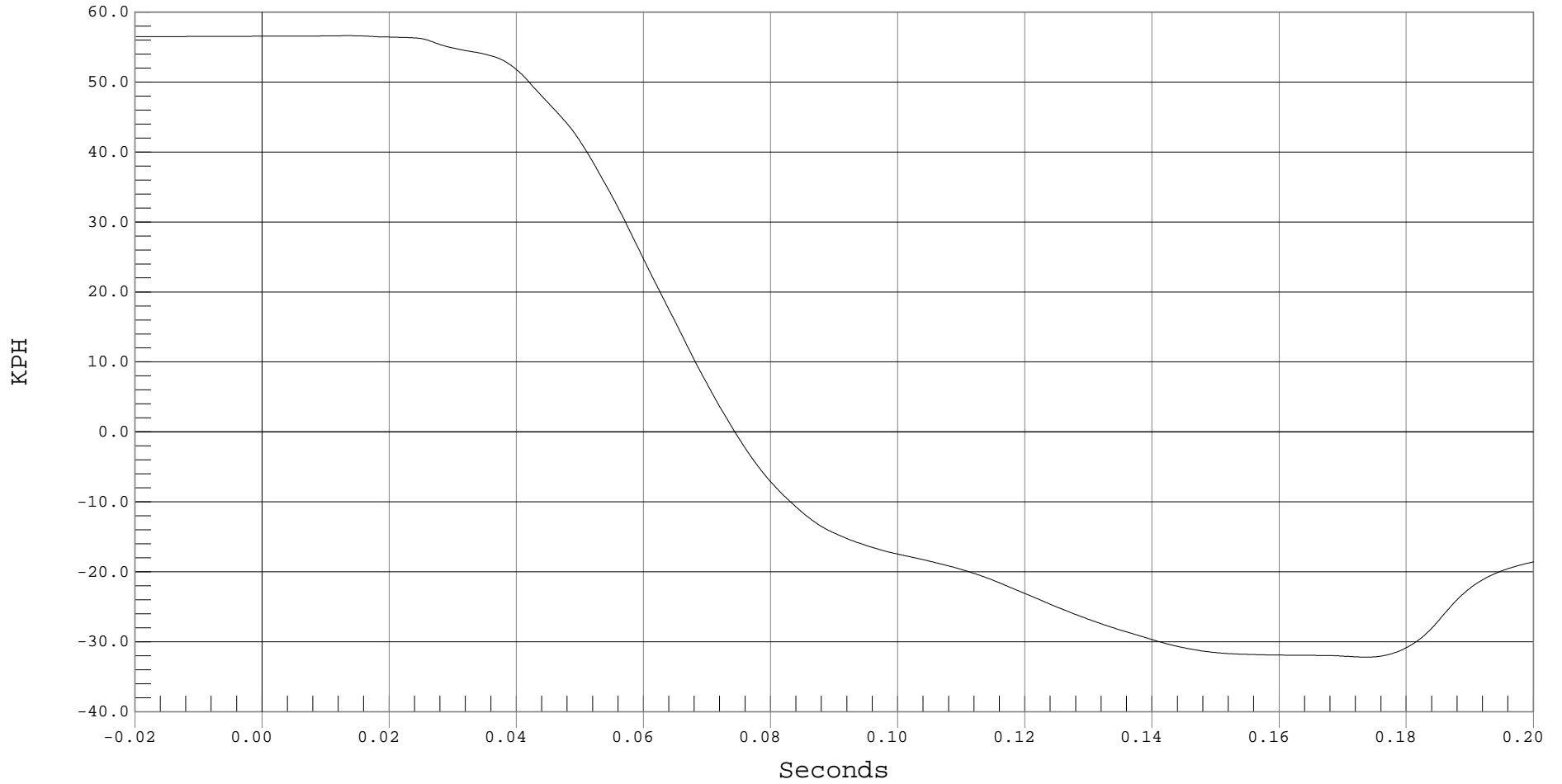
DRIVER HEAD X VELOCITY

Test Desc.: 35 MPH FRONTAL
Component: 2001 FORD ESCAPE (M10211)
Other Info:

Test Date: 04-20-01
Speed: 35.1 MPH, 56.5 KPH
Filter Class: 180

— 1 DRIVER HEAD X VELOCITY, B01044AI.V01

Ymin = -32.21 KPH @ 0.1736 Seconds, Ymax = 56.63 KPH @ 0.0133 Seconds



B-5



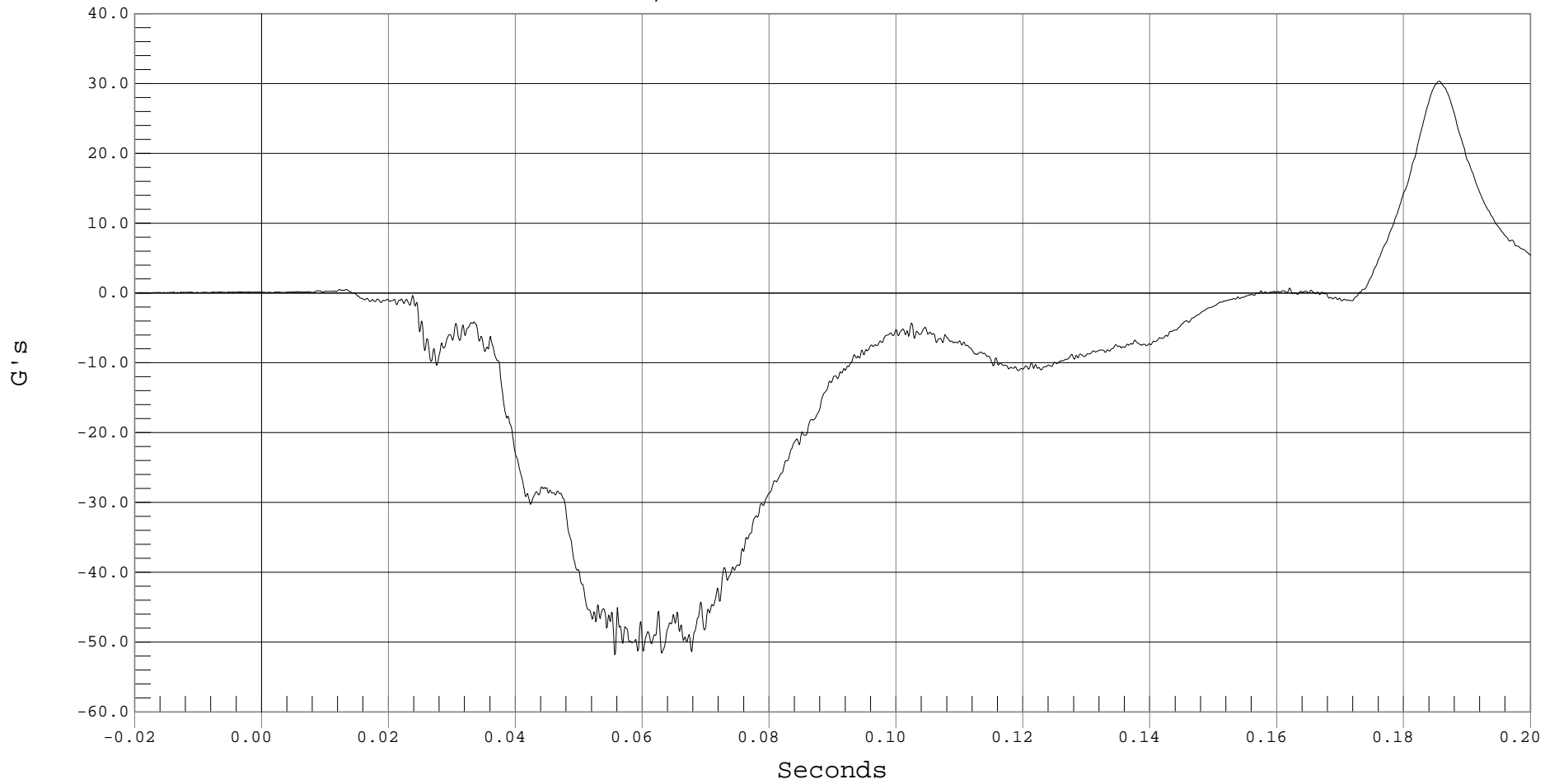
DRIVER HEAD REDUNDANT X ACCELERATION

Test Desc.: 35 MPH FRONTAL
Component: 2001 FORD ESCAPE (M10211)
Other Info:

Test Date: 04-20-01
Speed: 35.1 MPH, 56.5 KPH
Filter Class: 1000

— 1 DRIVER HEAD Xr, B01044AT.A33

Ymin = -51.83 G's @ 0.0556 Seconds, Ymax = 30.34 G's @ 0.1856 Seconds



B-6



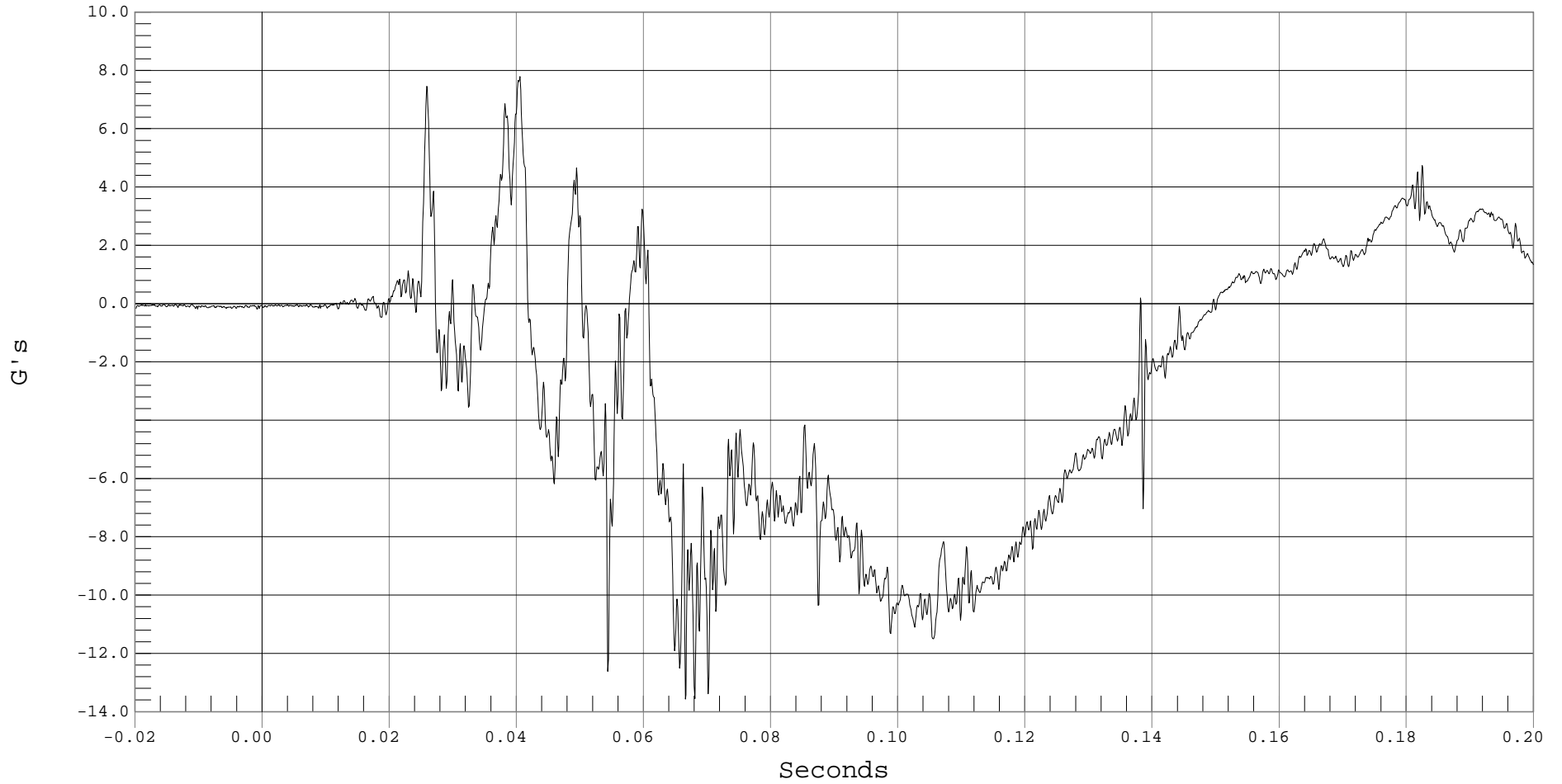
DRIVER HEAD REDUNDANT Y ACCELERATION

Test Desc.: 35 MPH FRONTAL
Component: 2001 FORD ESCAPE (M10211)
Other Info:

Test Date: 04-20-01
Speed: 35.1 MPH, 56.5 KPH
Filter Class: 1000

— 1 DRIVER HEAD Yr, B01044AT.A34

Ymin = -13.56 G's @ 0.0665 Seconds, Ymax = 7.79 G's @ 0.0405 Seconds



B-7



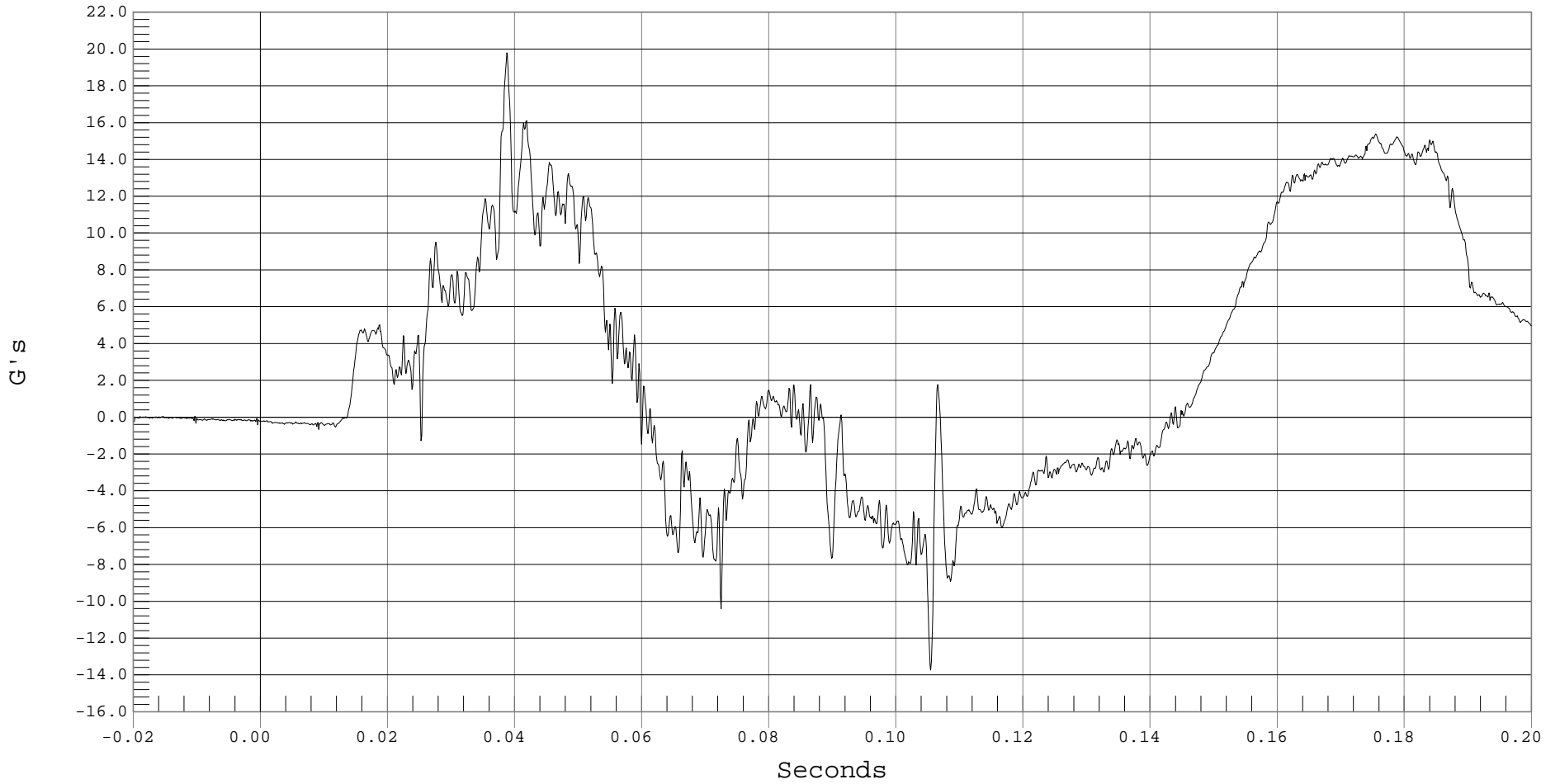
DRIVER HEAD REDUNDANT Z ACCELERATION

Test Desc.: 35 MPH FRONTAL
Component: 2001 FORD ESCAPE (M10211)
Other Info:

Test Date: 04-20-01
Speed: 35.1 MPH, 56.5 KPH
Filter Class: 1000

— 1 DRIVER HEAD Zr, B01044AT.A35

Ymin = -13.73 G's @ 0.1054 Seconds, Ymax = 19.79 G's @ 0.0387 Seconds





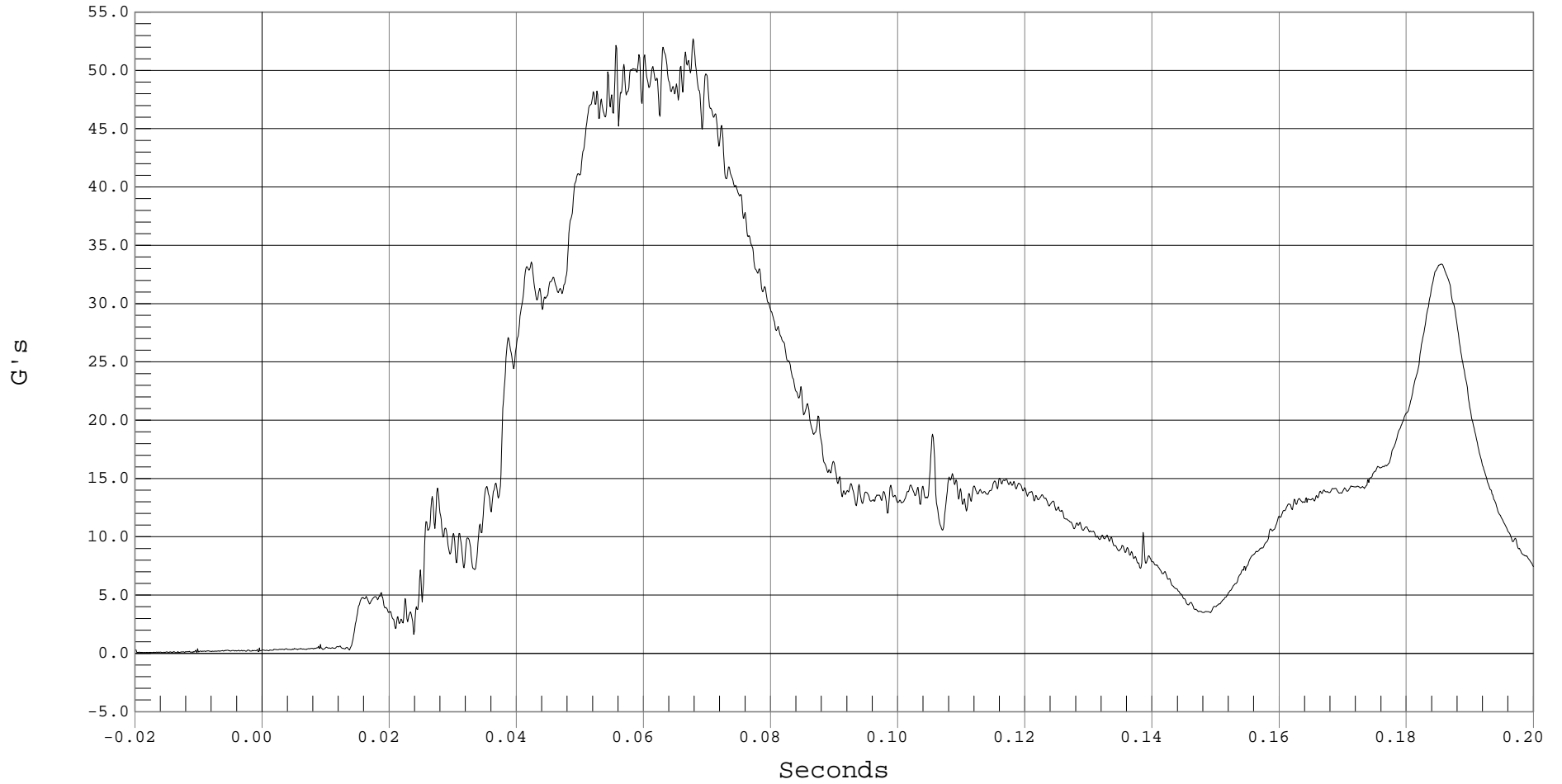
DRIVER HEAD REDUNDANT RESULTANT ACCELERATION

Test Desc.: 35 MPH FRONTAL
Component: 2001 FORD ESCAPE (M10211)
Other Info:

Test Date: 04-20-01
Speed: 35.1 MPH, 56.5 KPH
Filter Class: 1000

— 1 DRIVER HEAD REDUNDANT RESULTANT ACCELERATION, B01044AV.A33

Ymin = .05 G's @ -0.0174 Seconds, Ymax = 52.7 G's @ 0.0677 Seconds



B-9



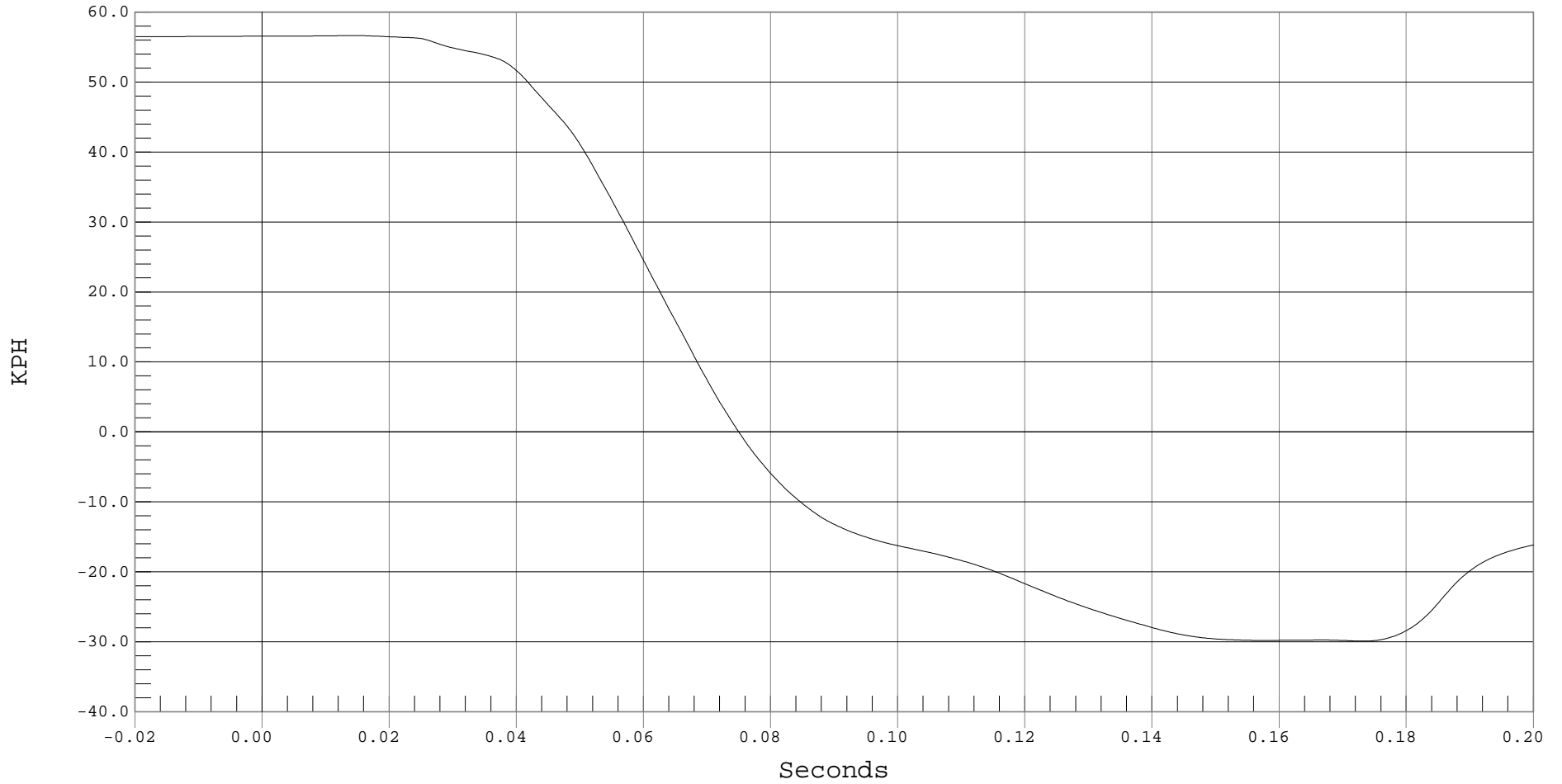
DRIVER HEAD REDUNDANT X VELOCITY

Test Desc.: 35 MPH FRONTAL
Component: 2001 FORD ESCAPE (M10211)
Other Info:

Test Date: 04-20-01
Speed: 35.1 MPH, 56.5 KPH
Filter Class: 180

— 1 DRIVER HEAD REDUNDANT X VELOCITY, B01044AI.V33

Ymin = -29.91 KPH @ 0.1730 Seconds, Ymax = 56.66 KPH @ 0.0144 Seconds



B-10



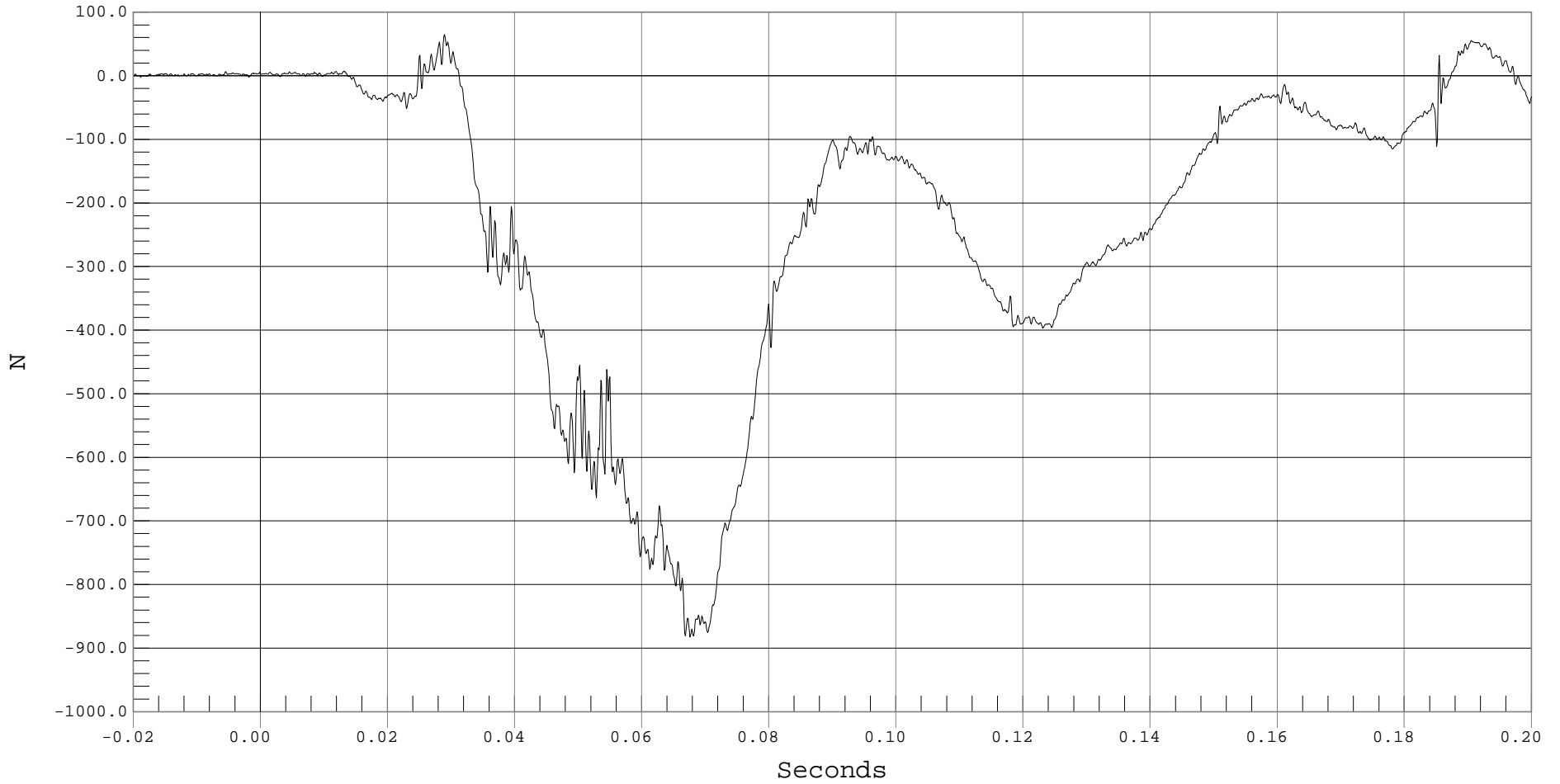
DRIVER NECK FORCE X

Test Desc.: 35 MPH FRONTAL
Component: 2001 FORD ESCAPE (M10211)
Other Info:

Test Date: 04-20-01
Speed: 35.1 MPH, 56.5 KPH
Filter Class: 1000

— 1 DRIVER NECK FX, B01044FT.F04

Ymin = -882.63 N @ 0.0675 Seconds, Ymax = 64.84 N @ 0.0289 Seconds



B-11



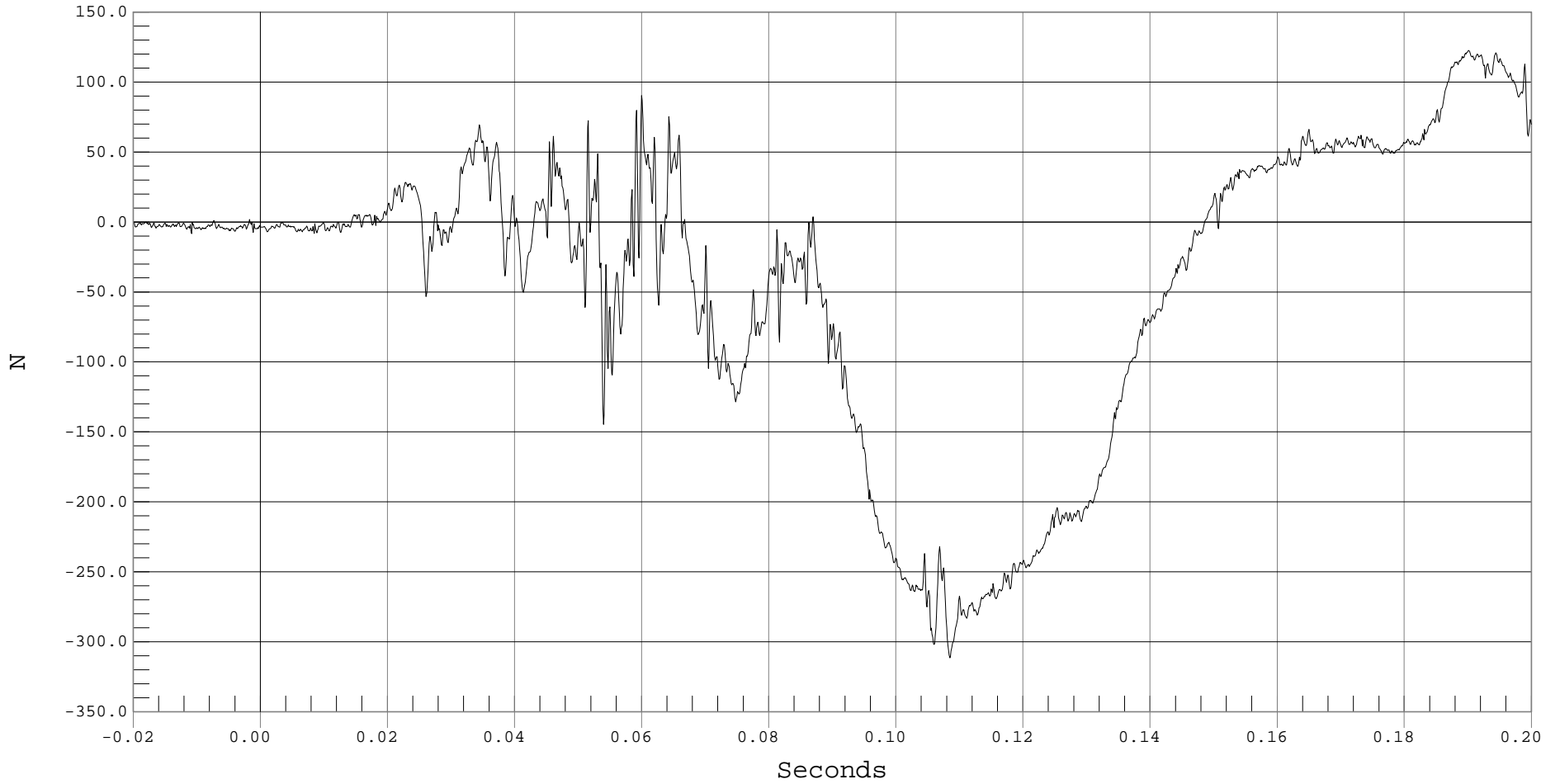
DRIVER NECK FORCE Y

Test Desc.: 35 MPH FRONTAL
Component: 2001 FORD ESCAPE (M10211)
Other Info:

Test Date: 04-20-01
Speed: 35.1 MPH, 56.5 KPH
Filter Class: 1000

— 1 DRIVER NECK FY, B01044FT.F05

Ymin = -311.52 N @ 0.1084 Seconds, Ymax = 122.71 N @ 0.1900 Seconds



B-12



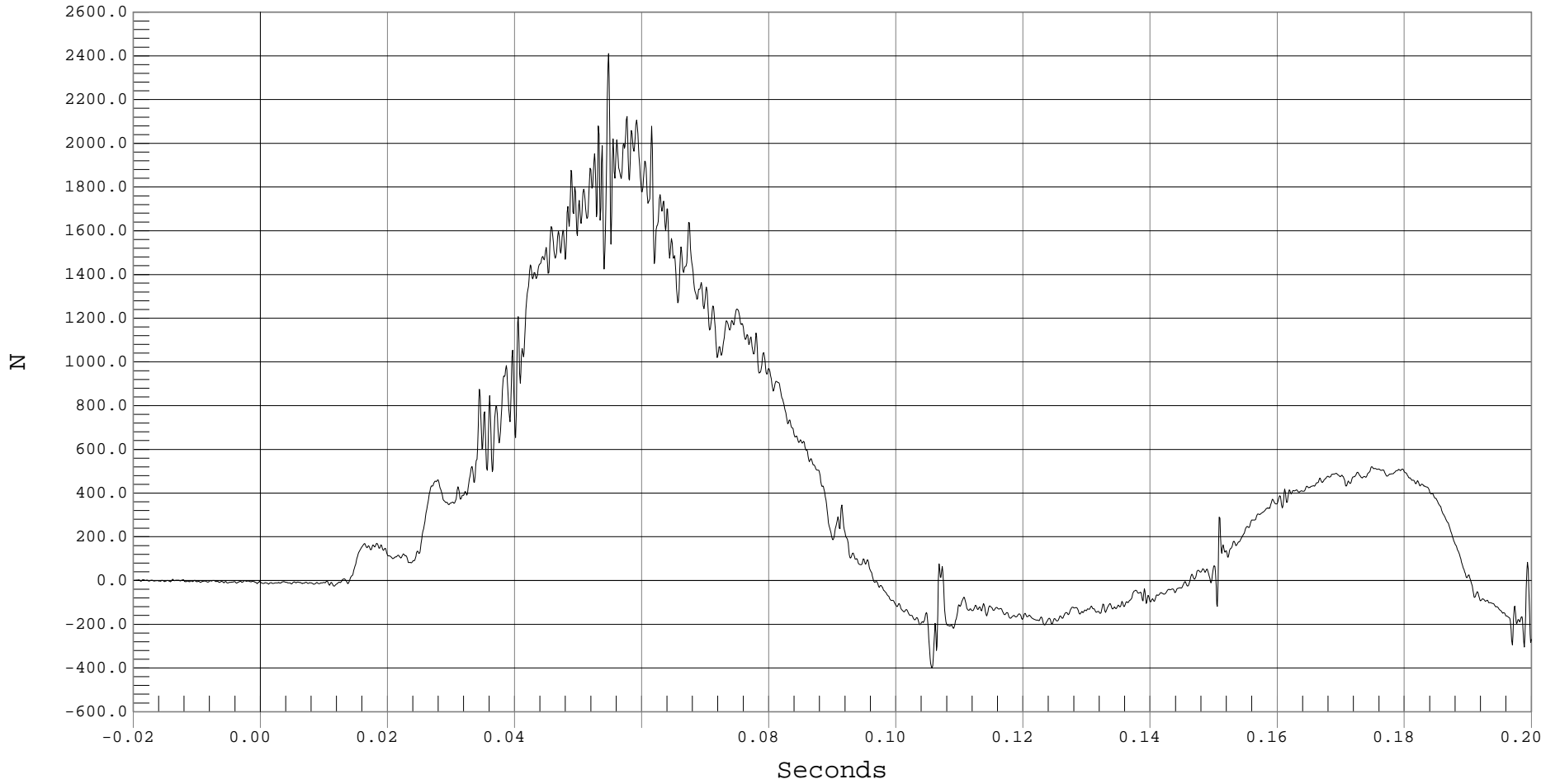
DRIVER NECK FORCE Z

Test Desc.: 35 MPH FRONTAL
Component: 2001 FORD ESCAPE (M10211)
Other Info:

Test Date: 04-20-01
Speed: 35.1 MPH, 56.5 KPH
Filter Class: 1000

— 1 DRIVER NECK FZ, B01044FT.F06

Ymin = -401.35 N @ 0.1056 Seconds, Ymax = 2410.53 N @ 0.0547 Seconds



B-13



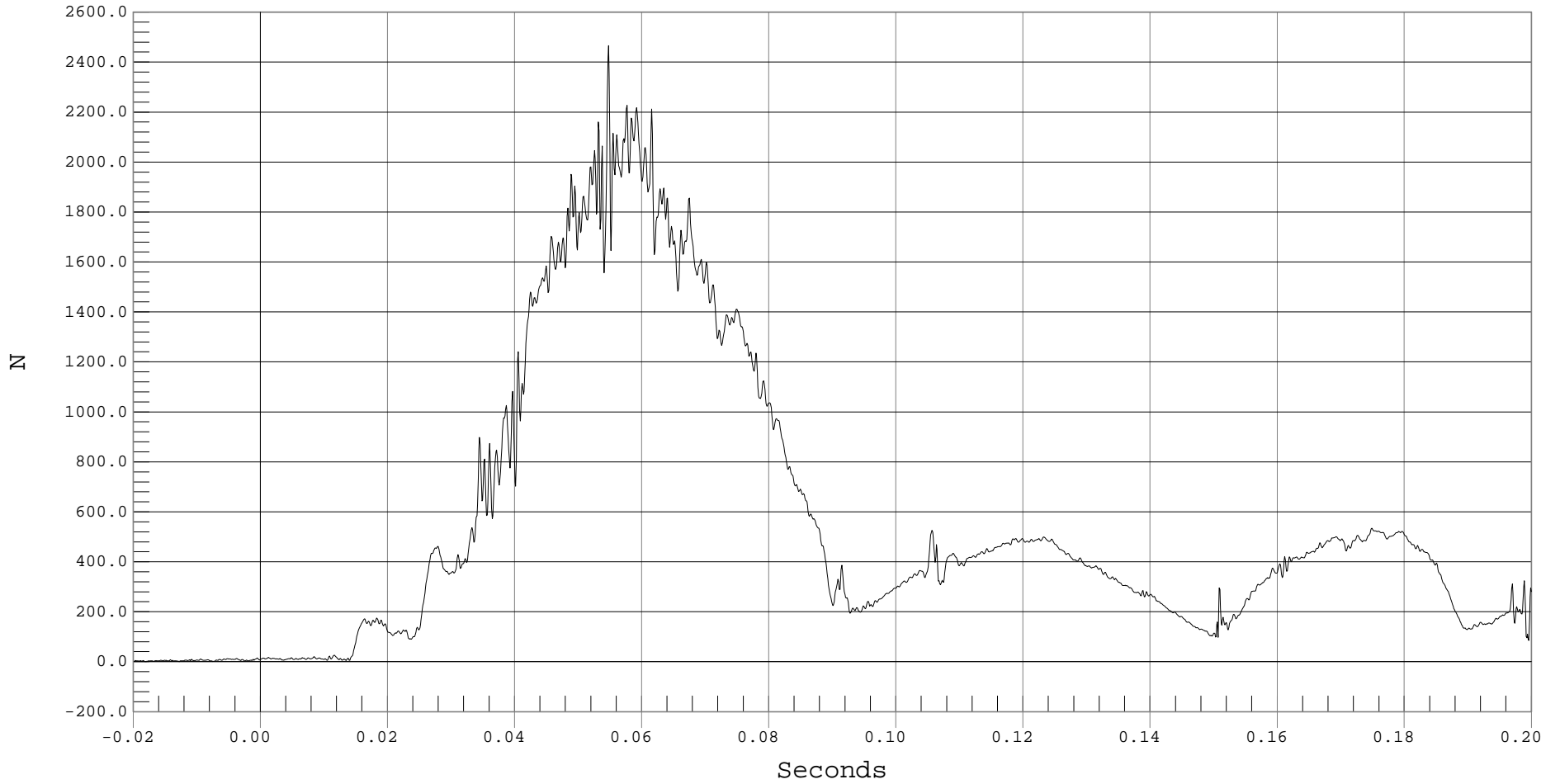
DRIVER NECK FORCE RESULTANT

Test Desc.: 35 MPH FRONTAL
Component: 2001 FORD ESCAPE (M10211)
Other Info:

Test Date: 04-20-01
Speed: 35.1 MPH, 56.5 KPH
Filter Class: 1000

— 1 DRIVER NECK FORCE RESULTANT, B01044FV.F04

Ymin = .64 N @ -0.0181 Seconds, Ymax = 2465.61 N @ 0.0547 Seconds



B-14



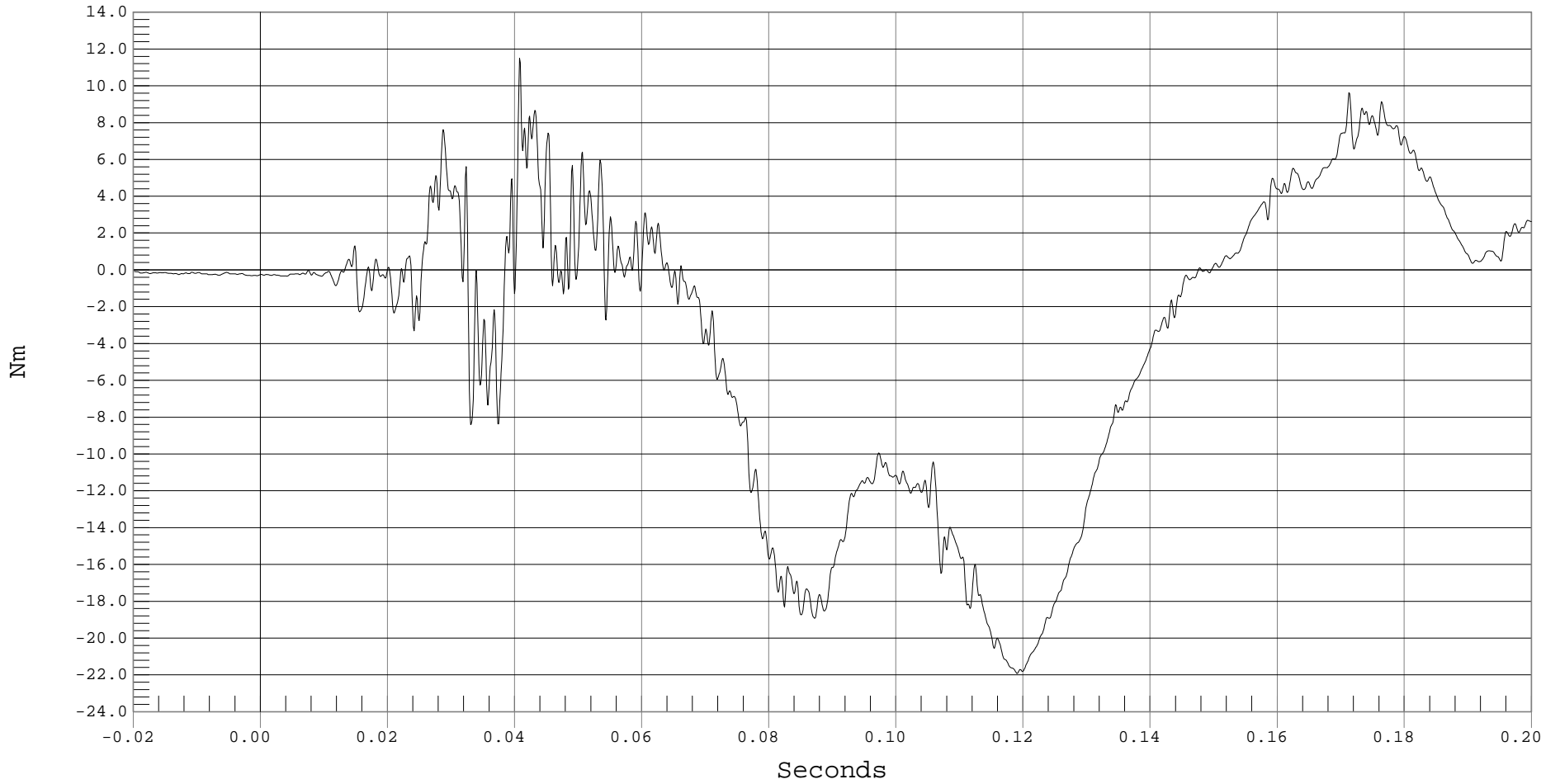
DRIVER NECK MOMENT X

Test Desc.: 35 MPH FRONTAL
Component: 2001 FORD ESCAPE (M10211)
Other Info:

Test Date: 04-20-01
Speed: 35.1 MPH, 56.5 KPH
Filter Class: 600

— 1 DRIVER NECK MX, B01044MF.M07

Ymin = -21.92 Nm @ 0.1190 Seconds, Ymax = 11.49 Nm @ 0.0407 Seconds



B-15



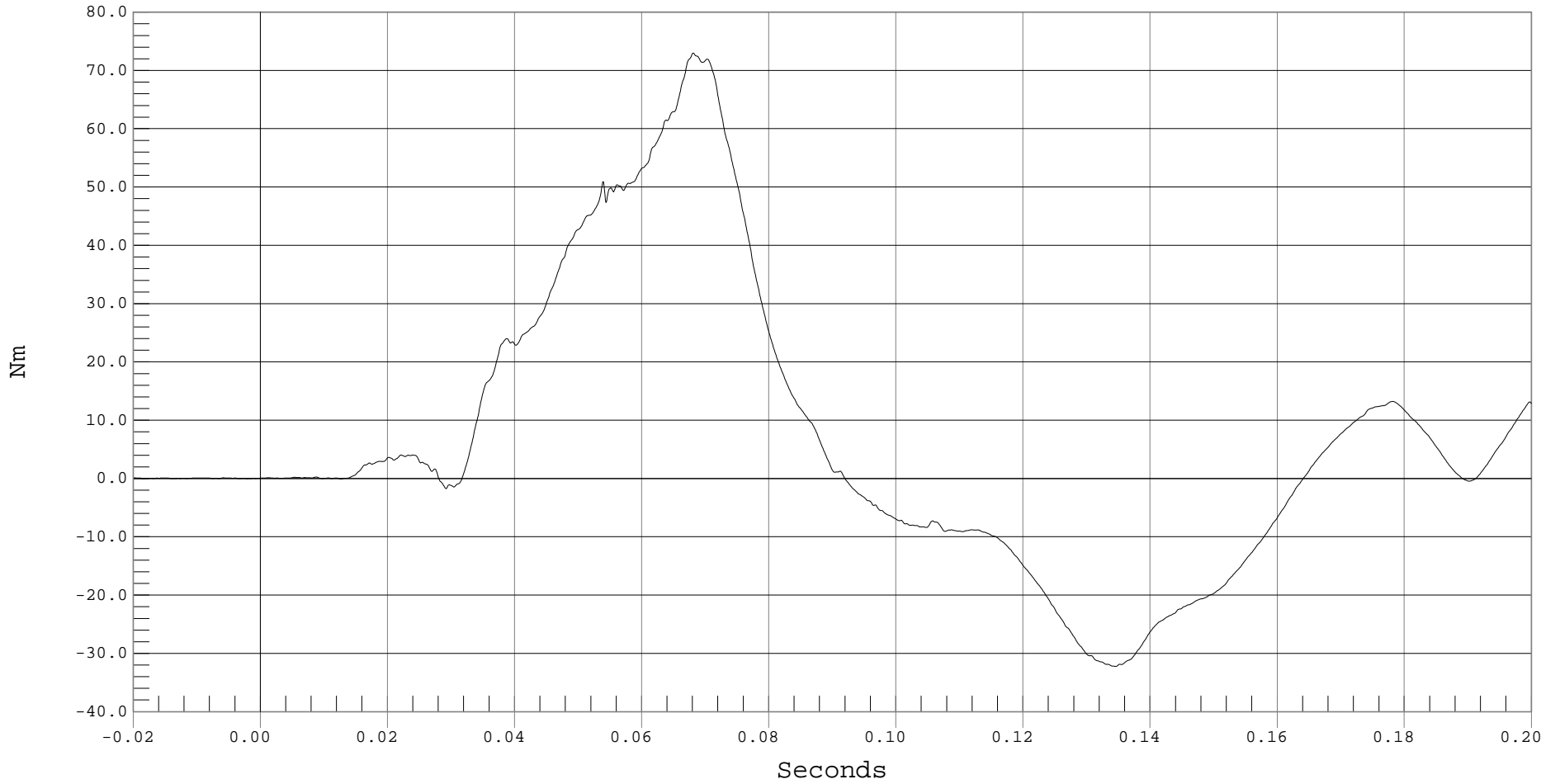
DRIVER NECK MOMENT Y

Test Desc.: 35 MPH FRONTAL
Component: 2001 FORD ESCAPE (M10211)
Other Info:

Test Date: 04-20-01
Speed: 35.1 MPH, 56.5 KPH
Filter Class: 600

— 1 DRIVER NECK MY, B01044MF.M08

Ymin = -32.24 Nm @ 0.1345 Seconds, Ymax = 73.01 Nm @ 0.0680 Seconds





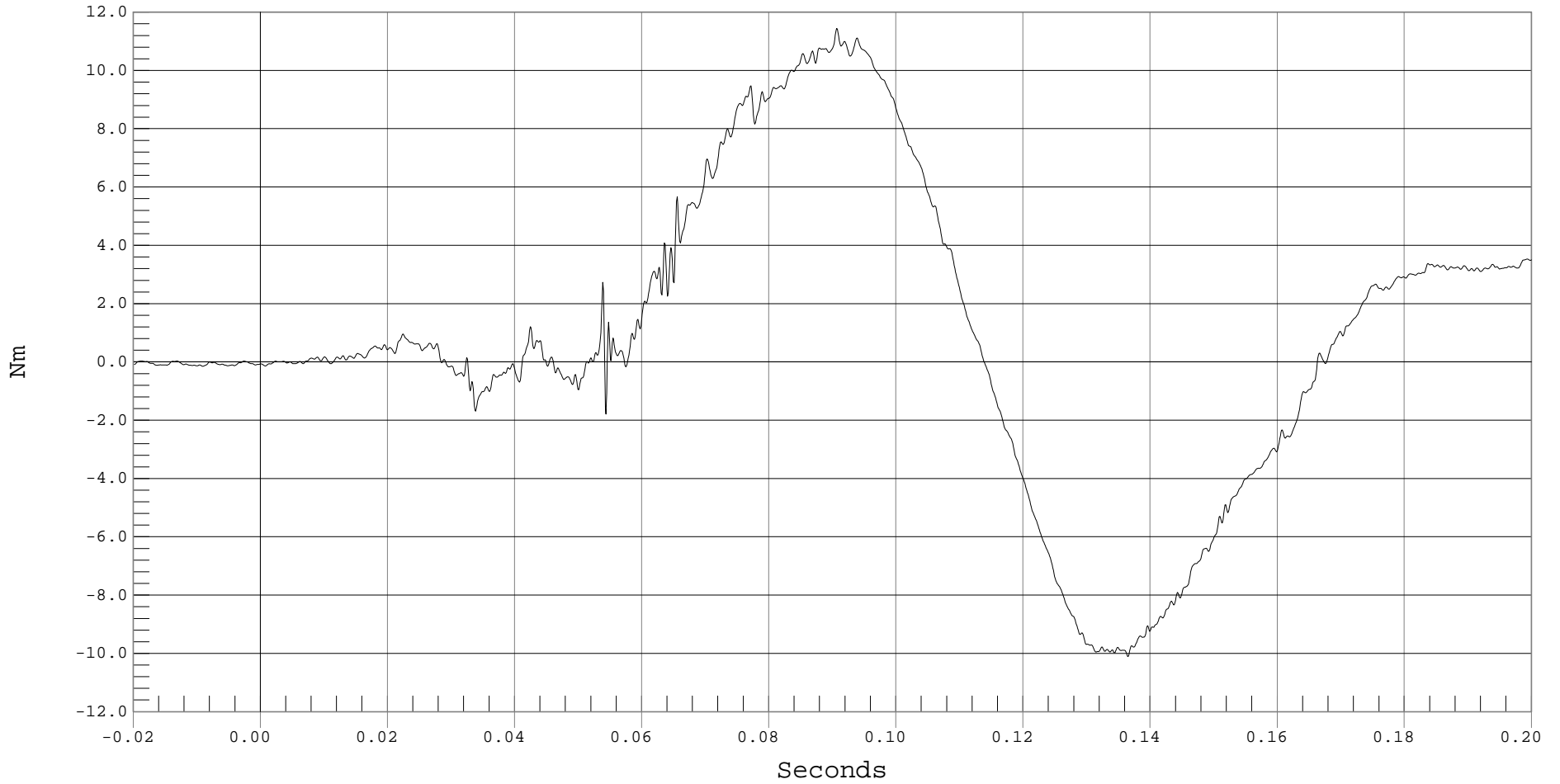
DRIVER NECK MOMENT Z

Test Desc.: 35 MPH FRONTAL
Component: 2001 FORD ESCAPE (M10211)
Other Info:

Test Date: 04-20-01
Speed: 35.1 MPH, 56.5 KPH
Filter Class: 600

— 1 DRIVER NECK MZ, B01044MF.M09

Ymin = -10.11 Nm @ 0.1364 Seconds, Ymax = 11.44 Nm @ 0.0906 Seconds



B-17



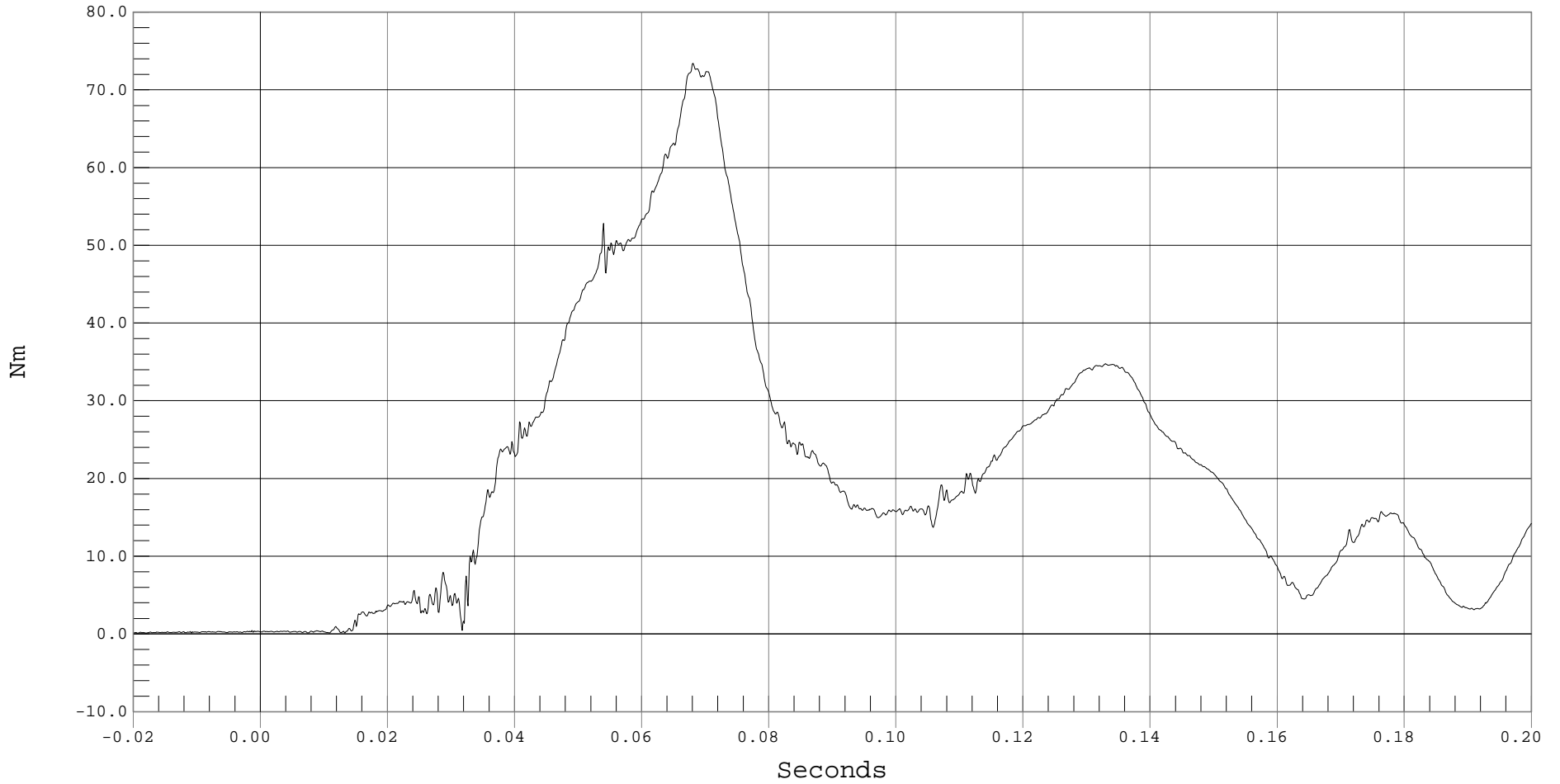
DRIVER NECK MOMENT RESULTANT

Test Desc.: 35 MPH FRONTAL
Component: 2001 FORD ESCAPE (M10211)
Other Info:

Test Date: 04-20-01
Speed: 35.1 MPH, 56.5 KPH
Filter Class: 600

— 1 DRIVER NECK MOMENT RESULTANT, B01044MV.M07

Ymin = .1 Nm @ -0.0193 Seconds, Ymax = 73.43 Nm @ 0.0680 Seconds



B-18



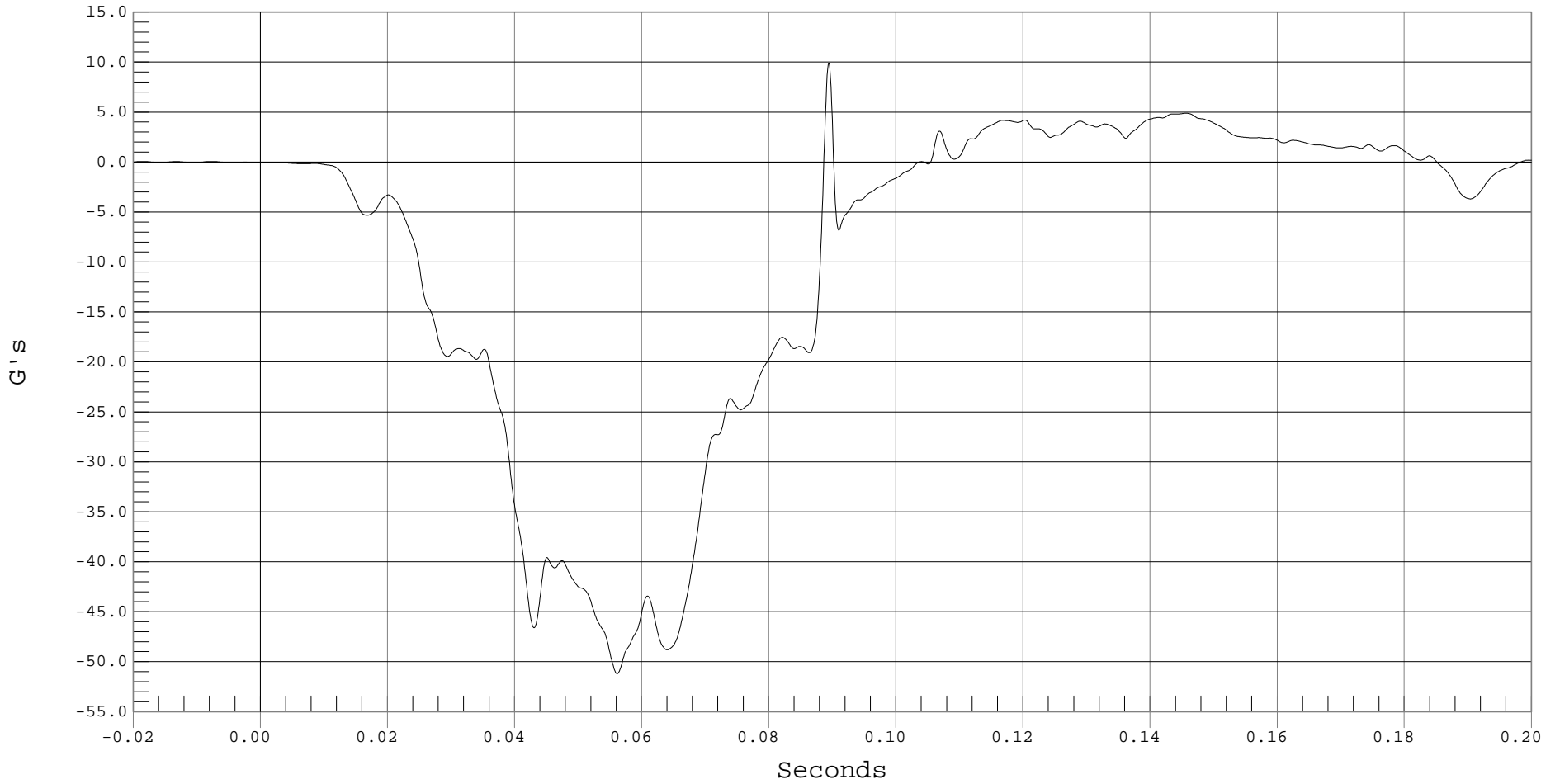
DRIVER CHEST X ACCELERATION

Test Desc.: 35 MPH FRONTAL
Component: 2001 FORD ESCAPE (M10211)
Other Info:

Test Date: 04-20-01
Speed: 35.1 MPH, 56.5 KPH
Filter Class: 180

— 1 DRIVER CHEST X, B01044AF.A10

Ymin = -51.2 G's @ 0.0561 Seconds, Ymax = 9.92 G's @ 0.0894 Seconds



B-19



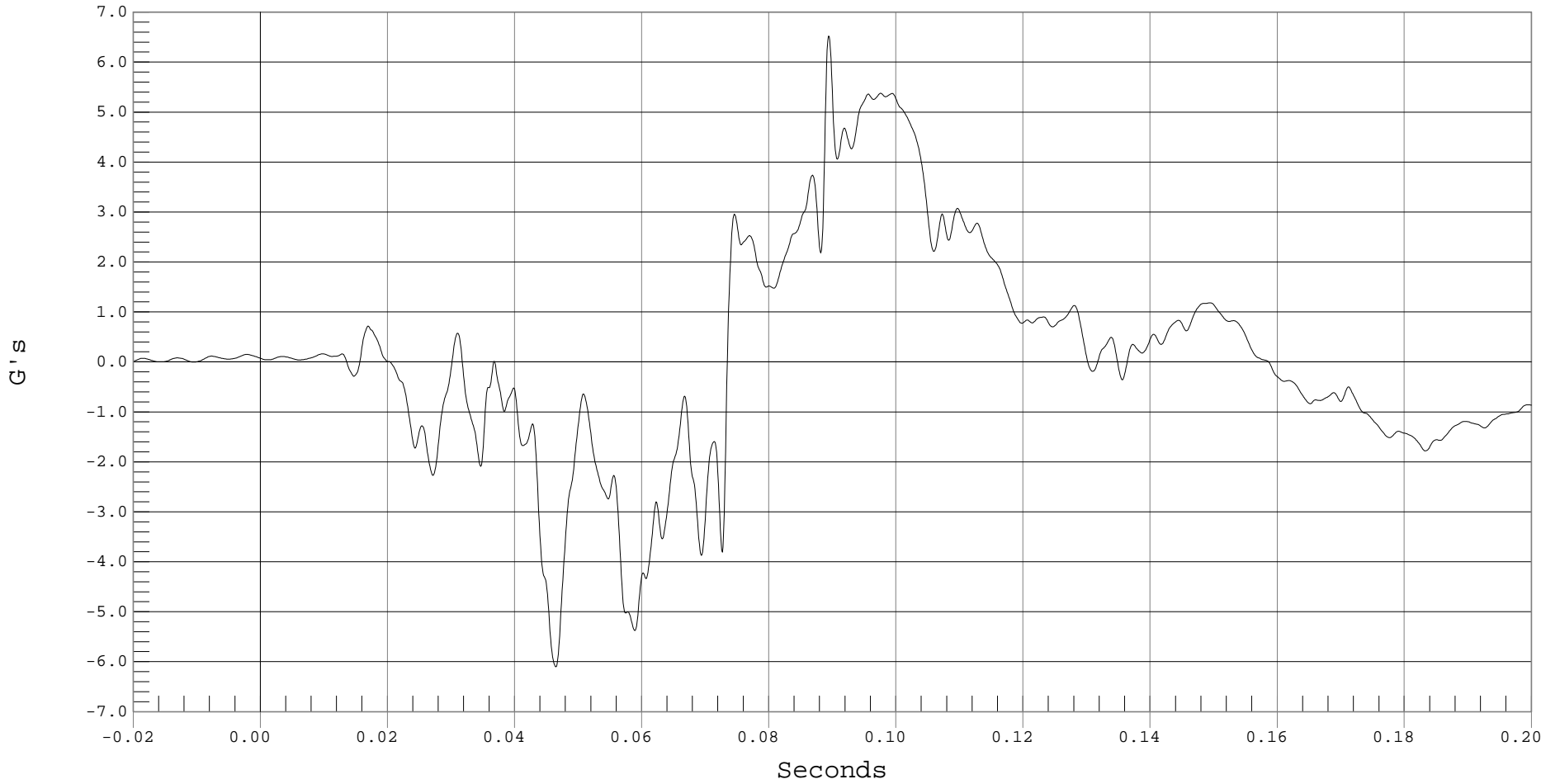
DRIVER CHEST Y ACCELERATION

Test Desc.: 35 MPH FRONTAL
Component: 2001 FORD ESCAPE (M10211)
Other Info:

Test Date: 04-20-01
Speed: 35.1 MPH, 56.5 KPH
Filter Class: 180

— 1 DRIVER CHEST Y, B01044AF.A11

Ymin = -6.1 G's @ 0.0464 Seconds, Ymax = 6.52 G's @ 0.0893 Seconds



B-20



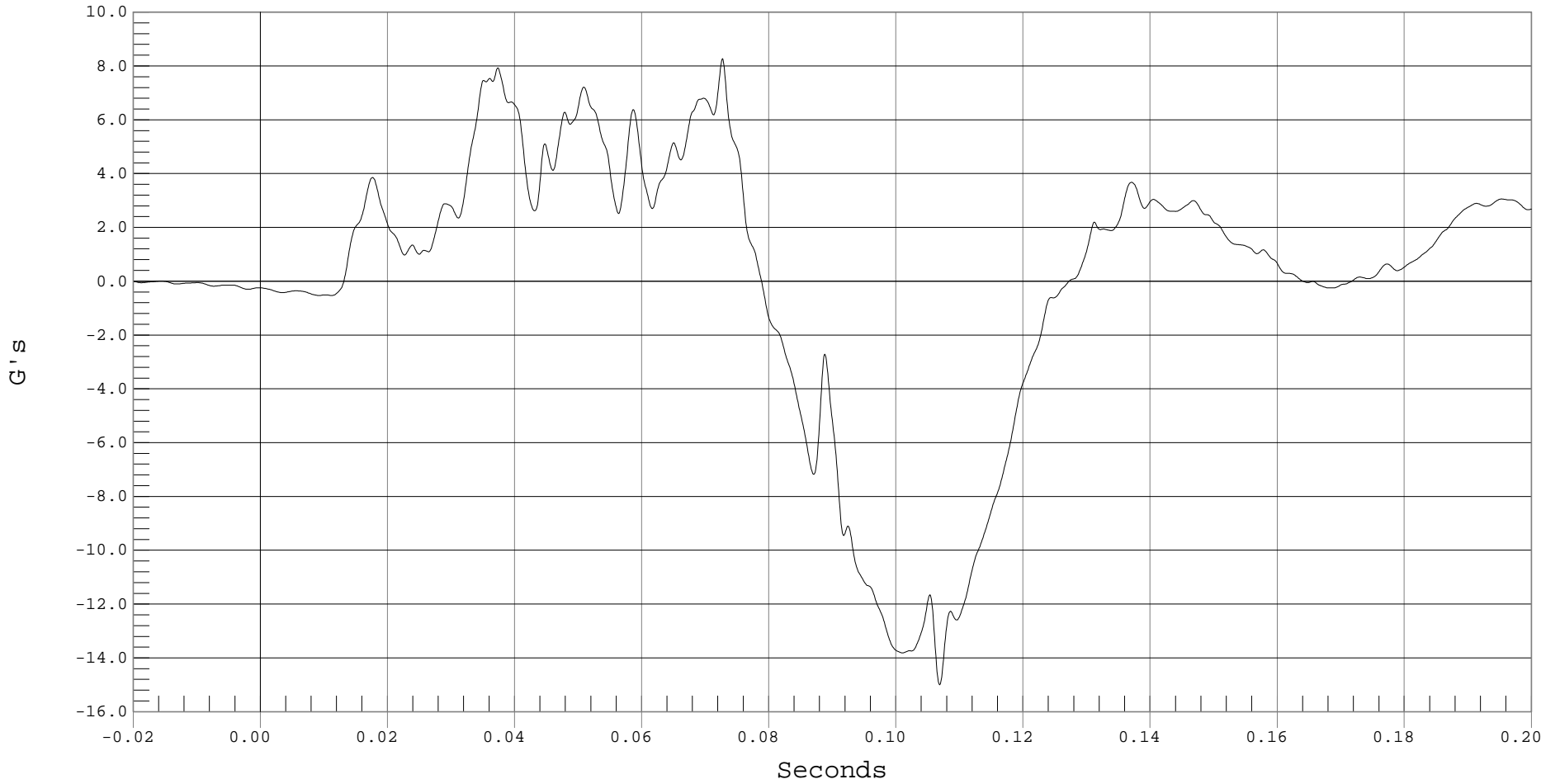
DRIVER CHEST Z ACCELERATION

Test Desc.: 35 MPH FRONTAL
Component: 2001 FORD ESCAPE (M10211)
Other Info:

Test Date: 04-20-01
Speed: 35.1 MPH, 56.5 KPH
Filter Class: 180

— 1 DRIVER CHEST Z, B01044AF.A12

Ymin = -15 G's @ 0.1068 Seconds, Ymax = 8.27 G's @ 0.0726 Seconds



B-21



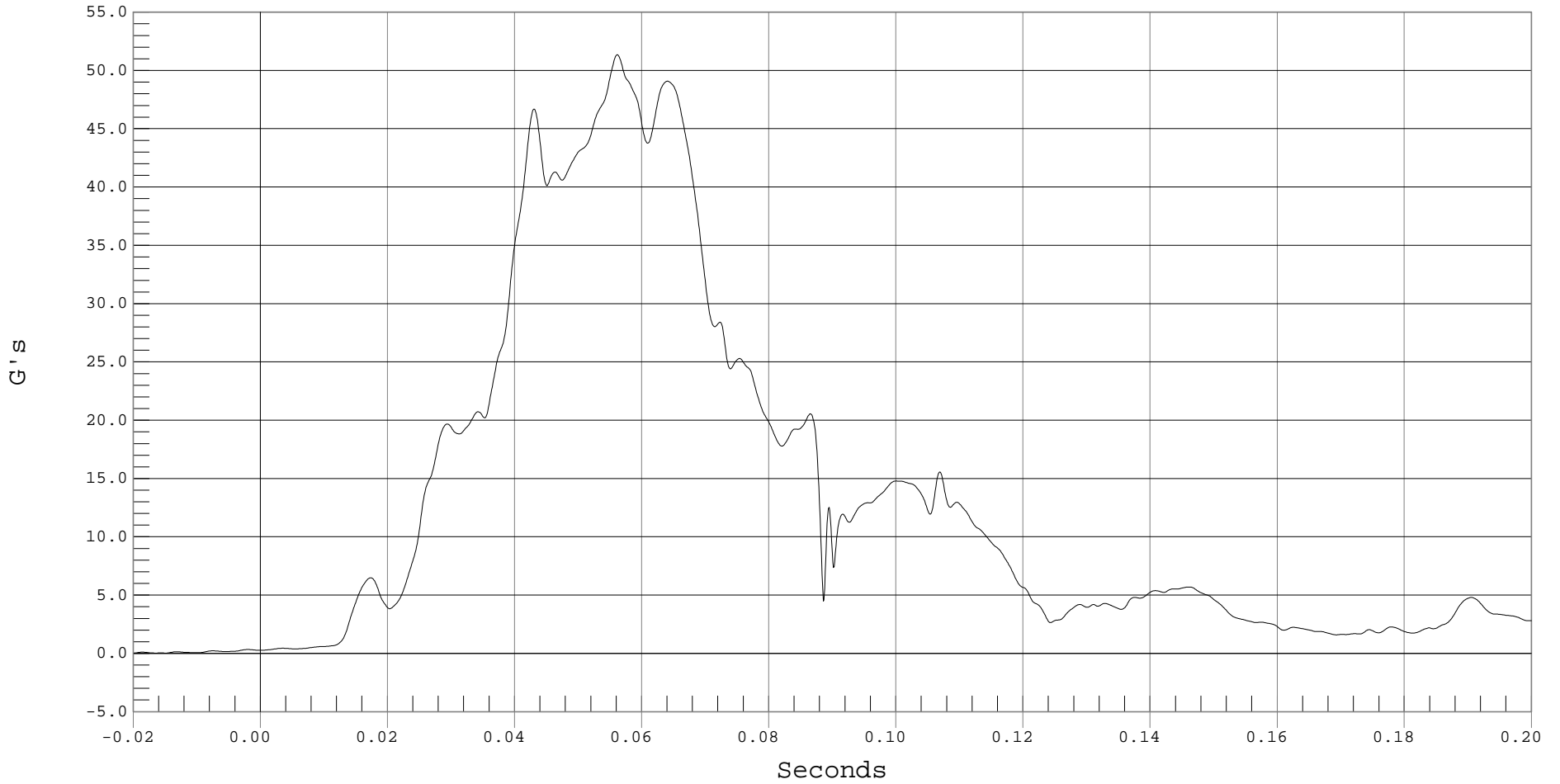
DRIVER CHEST RESULTANT ACCELERATION

Test Desc.: 35 MPH FRONTAL
Component: 2001 FORD ESCAPE (M10211)
Other Info:

Test Date: 04-20-01
Speed: 35.1 MPH, 56.5 KPH
Filter Class: 180

— 1 DRIVER CHEST RESULTANT ACCELERATION, B01044AV.A10

Ymin = .02 G's @ -0.0150 Seconds, Ymax = 51.35 G's @ 0.0561 Seconds



B-22



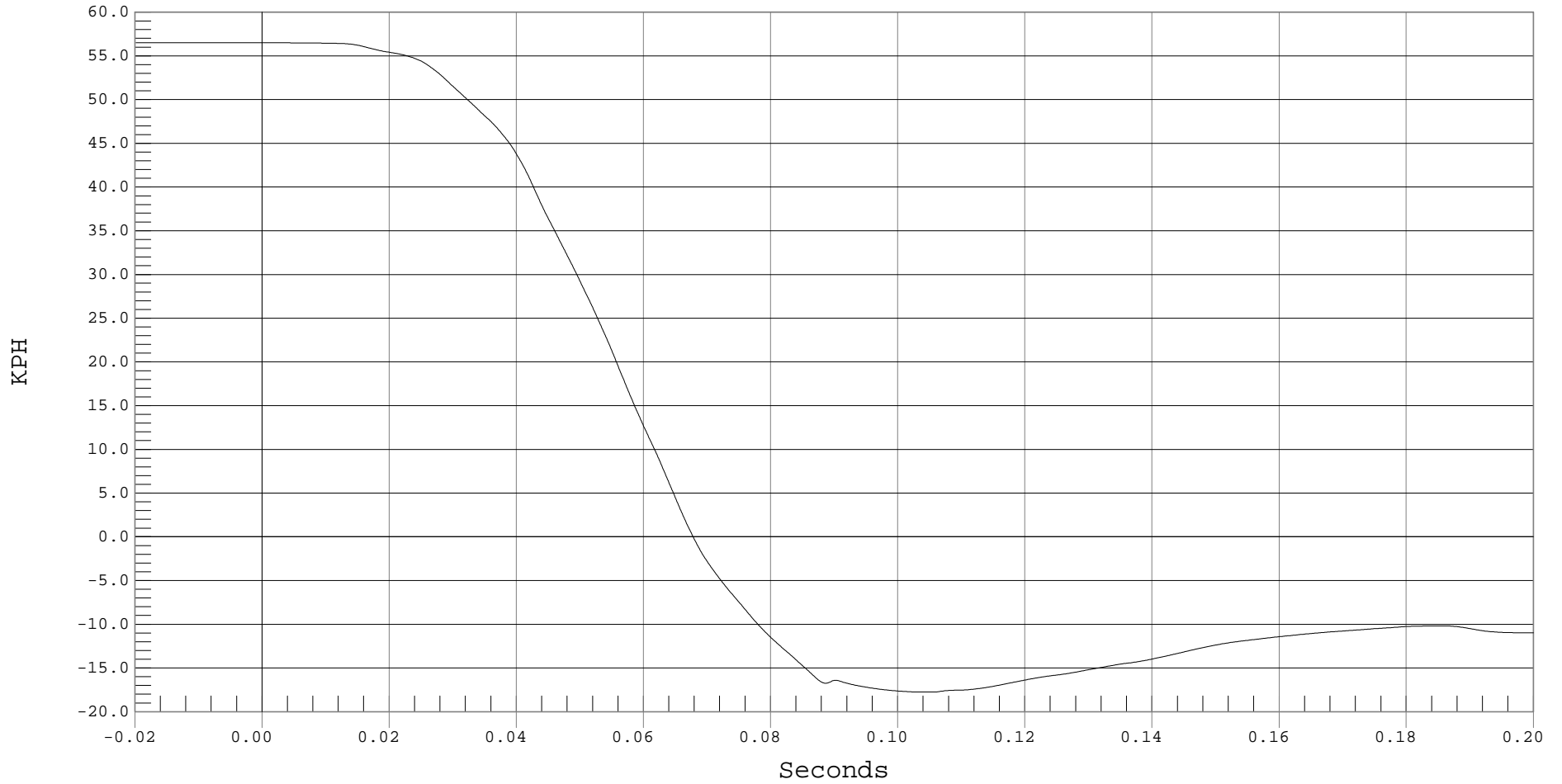
DRIVER CHEST X VELOCITY

Test Desc.: 35 MPH FRONTAL
Component: 2001 FORD ESCAPE (M10211)
Other Info:

Test Date: 04-20-01
Speed: 35.1 MPH, 56.5 KPH
Filter Class: 180

— 1 DRIVER CHEST X VELOCITY, B01044AI.V10

Ymin = -17.75 KPH @ 0.1054 Seconds, Ymax = 56.5 KPH @ -0.0063 Seconds





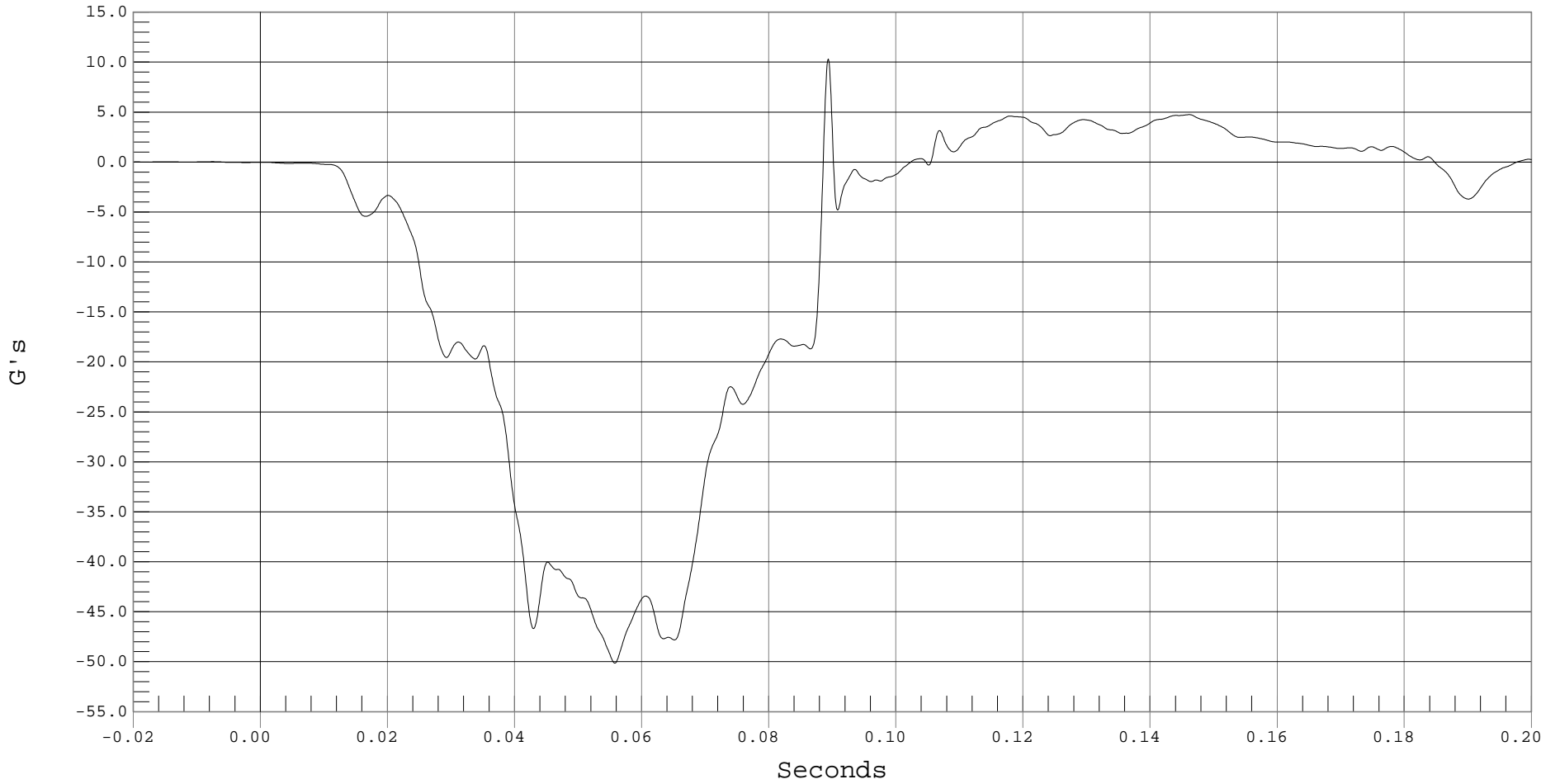
DRIVER CHEST REDUNDANT X ACCELERATION

Test Desc.: 35 MPH FRONTAL
Component: 2001 FORD ESCAPE (M10211)
Other Info:

Test Date: 04-20-01
Speed: 35.1 MPH, 56.5 KPH
Filter Class: 180

— 1 DRIVER CHEST Xr, B01044AF.A36

Ymin = -50.15 G's @ 0.0557 Seconds, Ymax = 10.3 G's @ 0.0893 Seconds



B-24



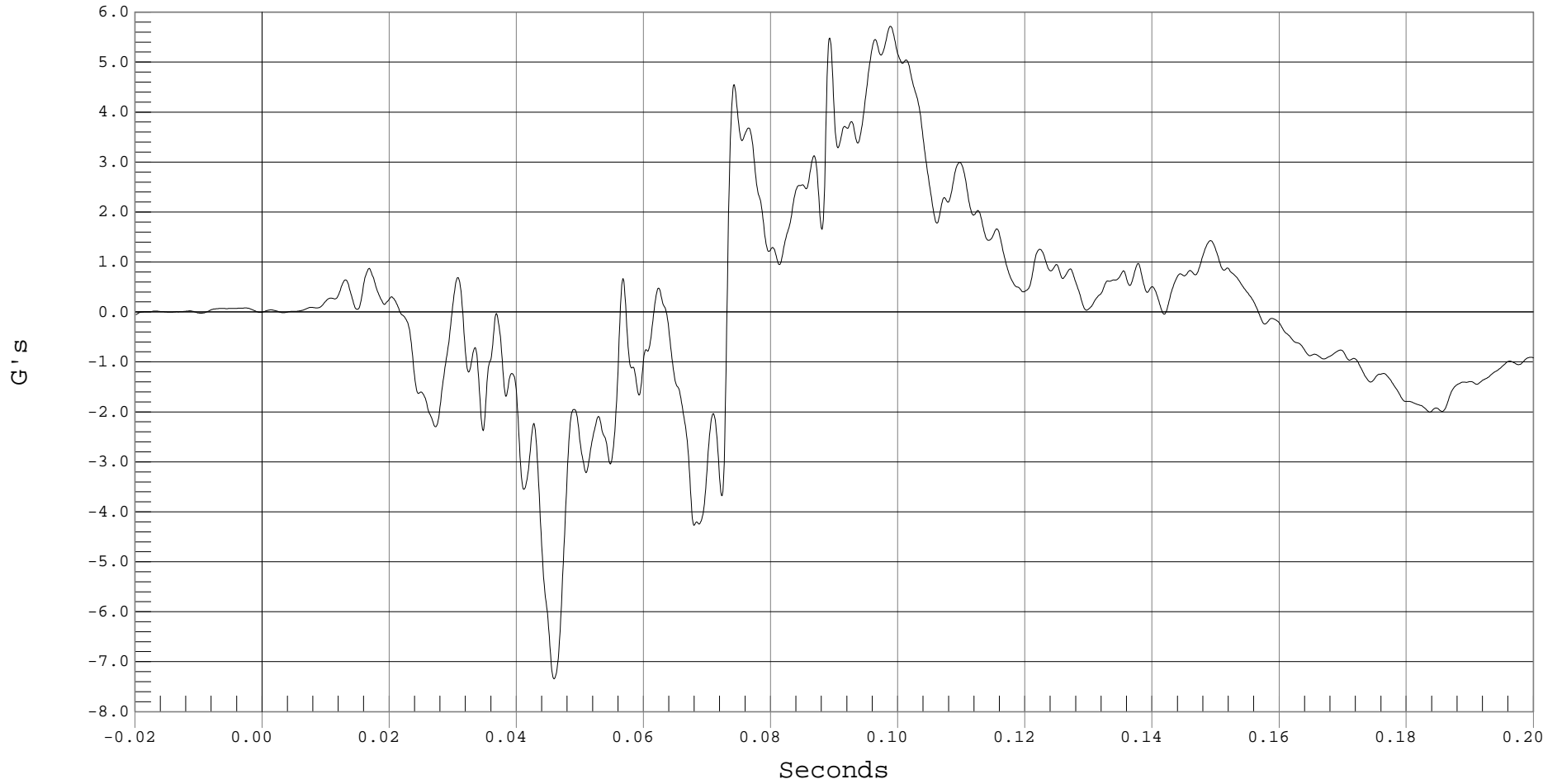
DRIVER CHEST REDUNDANT Y ACCELERATION

Test Desc.: 35 MPH FRONTAL
Component: 2001 FORD ESCAPE (M10211)
Other Info:

Test Date: 04-20-01
Speed: 35.1 MPH, 56.5 KPH
Filter Class: 180

— 1 DRIVER CHEST Yr, B01044AF.A37

Ymin = -7.34 G's @ 0.0458 Seconds, Ymax = 5.72 G's @ 0.0988 Seconds



B-25



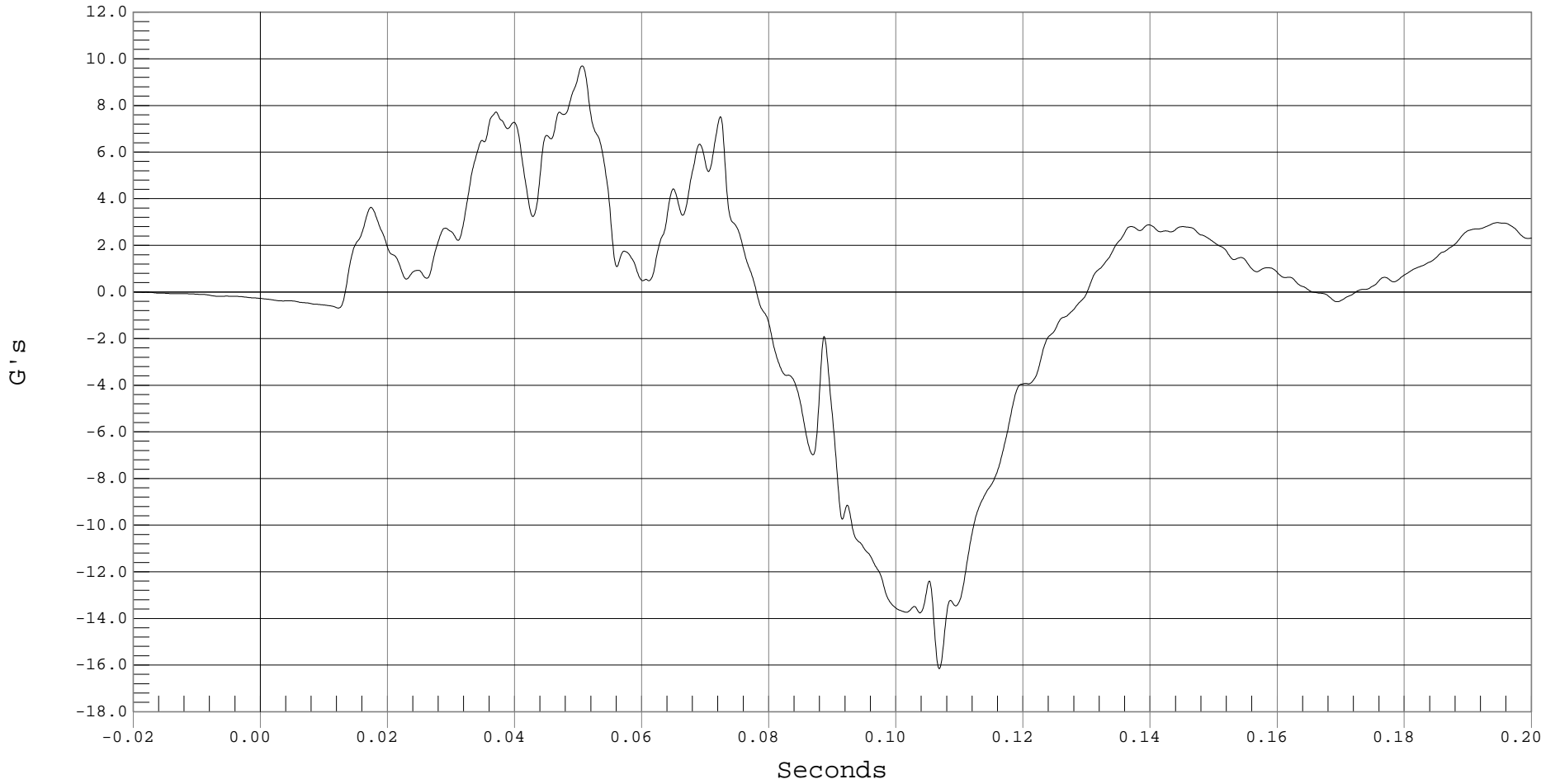
DRIVER CHEST REDUNDANT Z ACCELERATION

Test Desc.: 35 MPH FRONTAL
Component: 2001 FORD ESCAPE (M10211)
Other Info:

Test Date: 04-20-01
Speed: 35.1 MPH, 56.5 KPH
Filter Class: 180

— 1 DRIVER CHEST Zr, B01044AF.A38

Ymin = -16.15 G's @ 0.1067 Seconds, Ymax = 9.7 G's @ 0.0506 Seconds



B-26



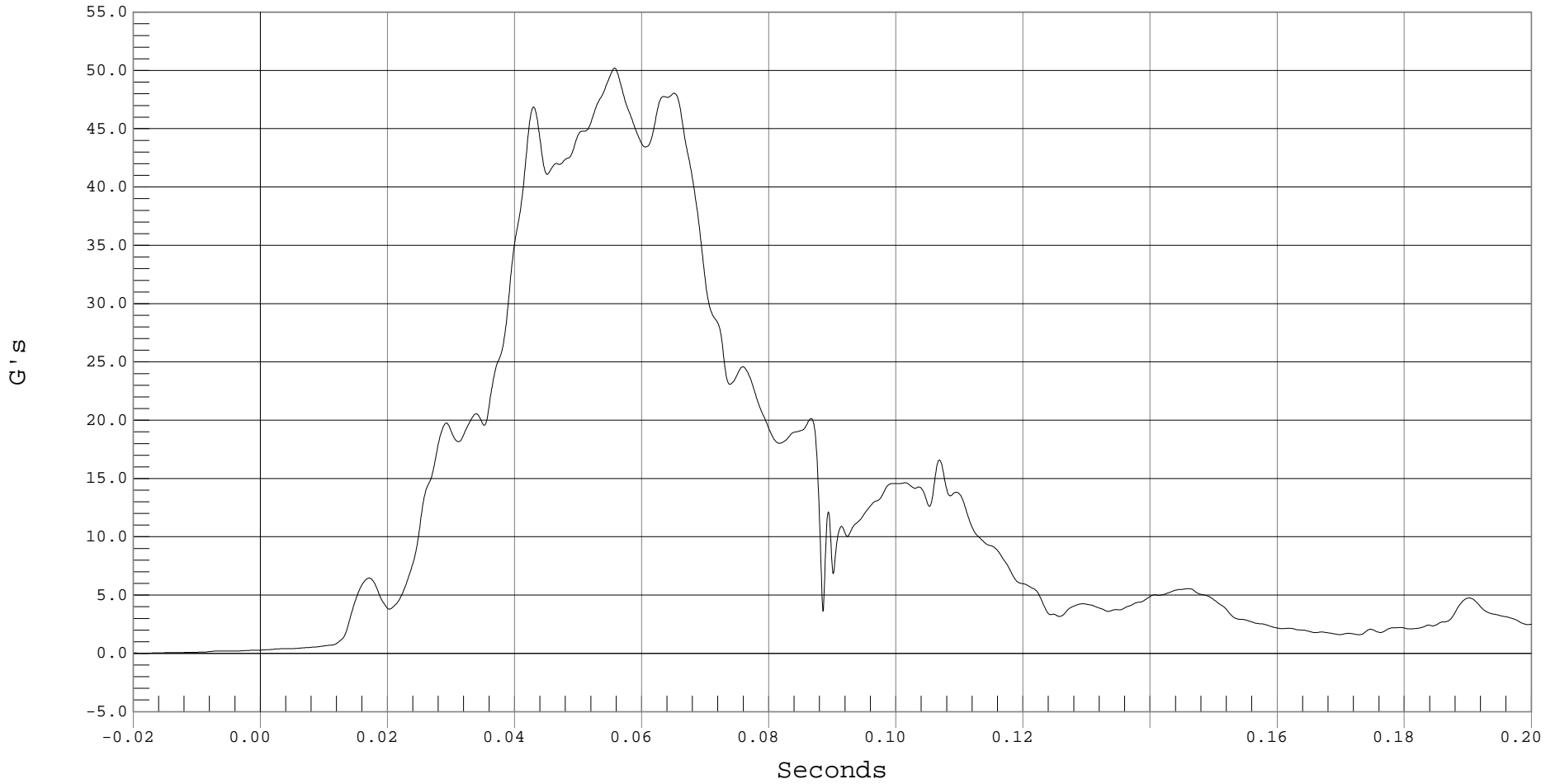
DRIVER CHEST REDUNDANT RESULTANT ACCELERATION

Test Desc.: 35 MPH FRONTAL
Component: 2001 FORD ESCAPE (M10211)
Other Info:

Test Date: 04-20-01
Speed: 35.1 MPH, 56.5 KPH
Filter Class: 180

— 1 DRIVER CHEST REDUNDANT RESULTANT ACCELERATION, B01044AV.A36

Ymin = .01 G's @ -0.0181 Seconds, Ymax = 50.2 G's @ 0.0557 Seconds



B-27



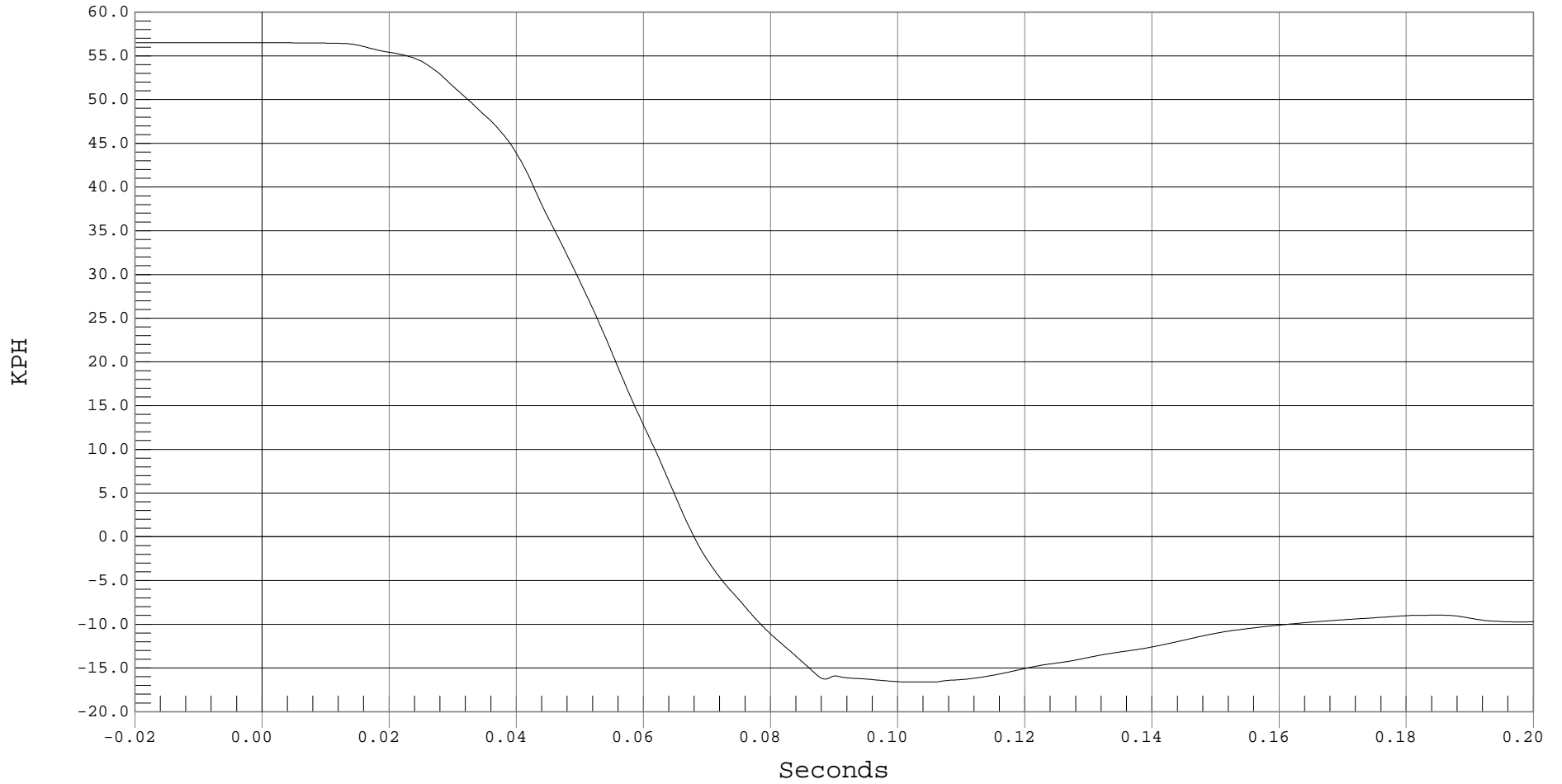
DRIVER CHEST REDUNDANT X VELOCITY

Test Desc.: 35 MPH FRONTAL
Component: 2001 FORD ESCAPE (M10211)
Other Info:

Test Date: 04-20-01
Speed: 35.1 MPH, 56.5 KPH
Filter Class: 180

— 1 DRIVER CHEST REDUNDANT X VELOCITY, B01044AI.V36

Ymin = -16.62 KPH @ 0.1022 Seconds, Ymax = 56.51 KPH @ -0.0061 Seconds



B-28



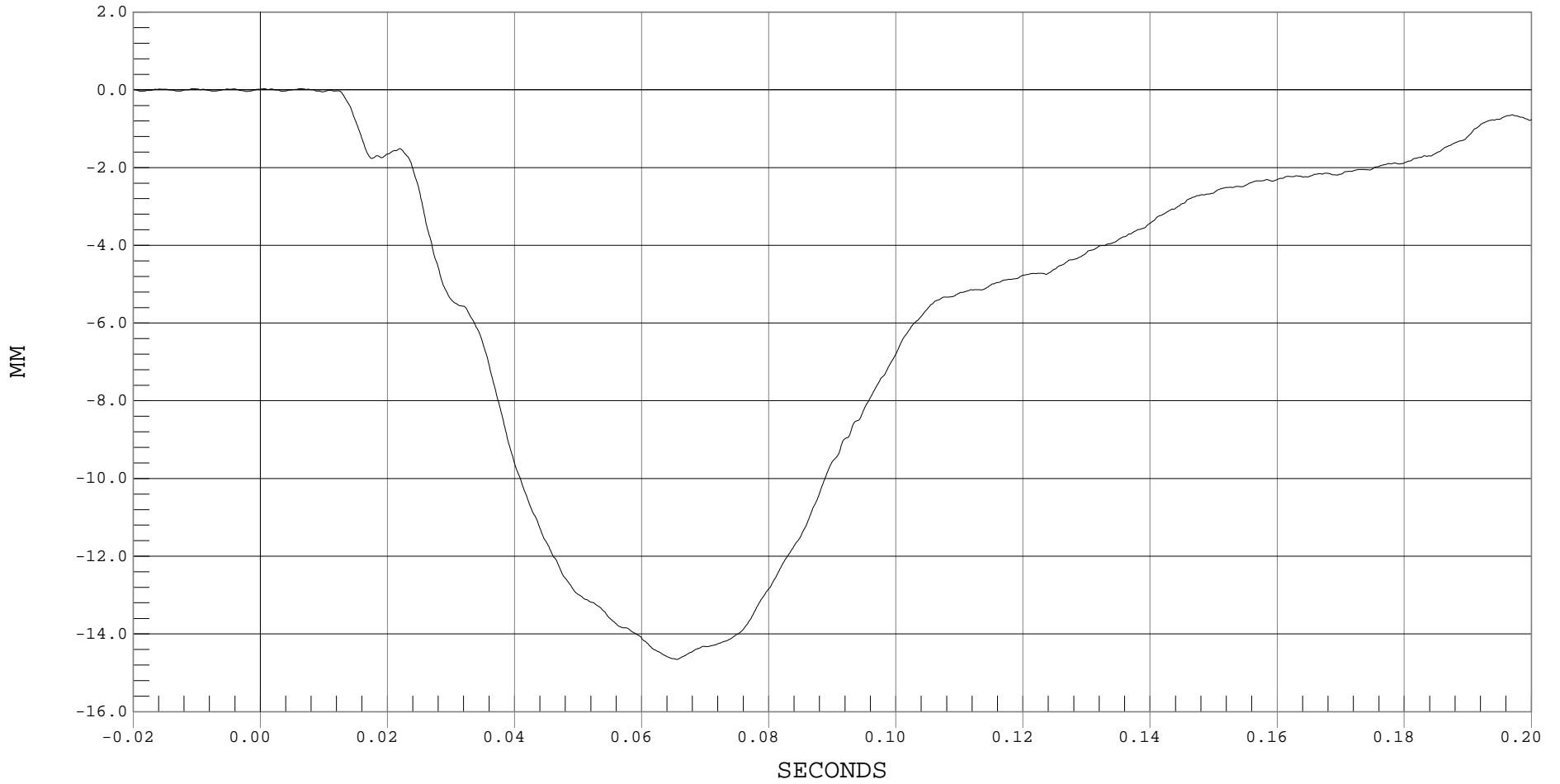
DRIVER CHEST COMPRESSION

Test Desc.: 35 MPH FRONTAL
Component: 2001 FORD ESCAPE (M10211)
Other Info:

Test Date: 04-20-01
Speed: 35.1 MPH, 56.5 KPH
Filter Class: 600

— 1 DISPLACEMENT, B01044DF.D13

Ymin = -14.66 MM @ 0.0655 SECONDS, Ymax = .03 MM @ 0.0061 SECONDS



B-29



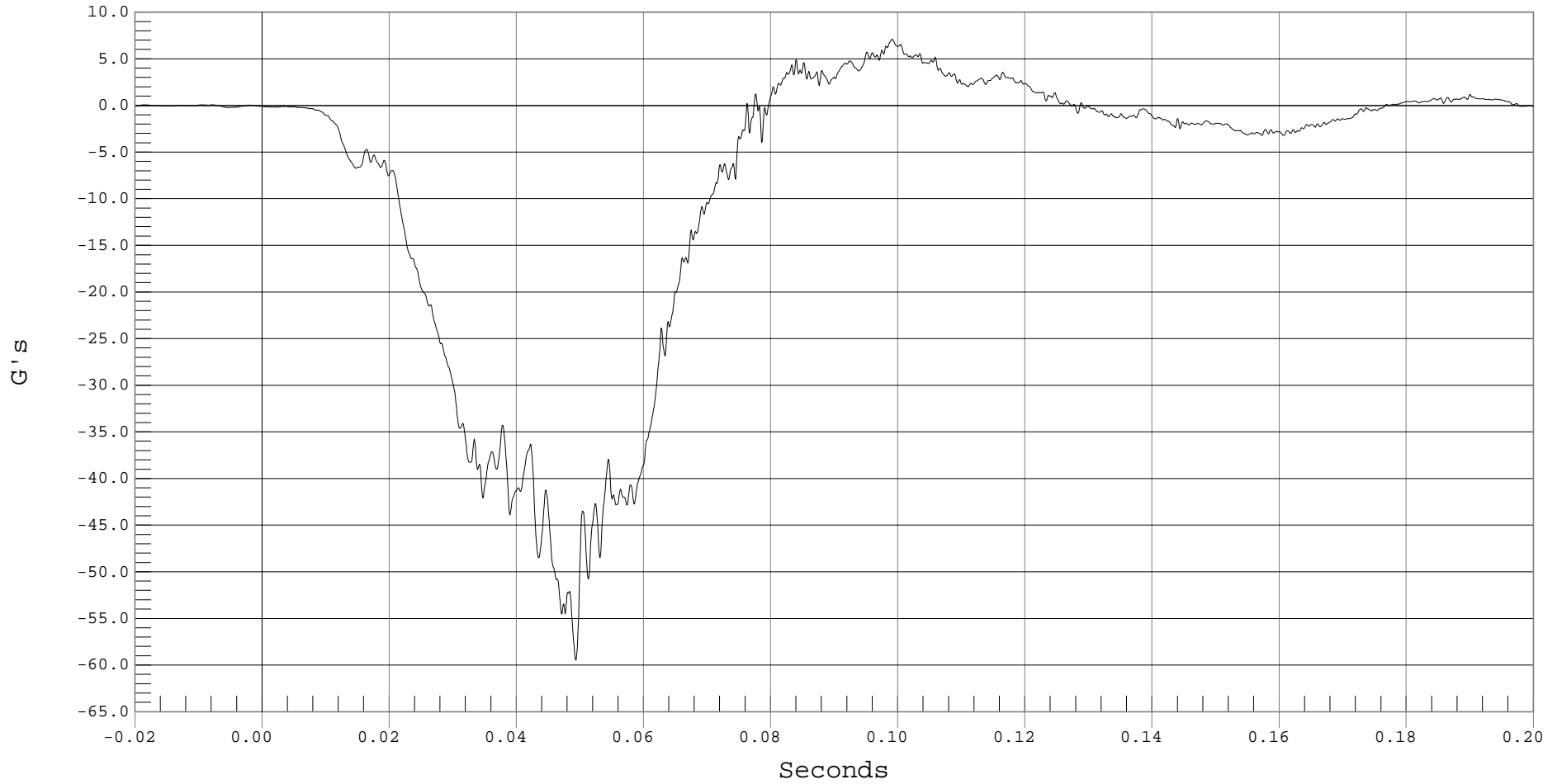
DRIVER PELVIS X ACCELERATION

Test Desc.: 35 MPH FRONTAL
Component: 2001 FORD ESCAPE (M10211)
Other Info:

Test Date: 04-20-01
Speed: 35.1 MPH, 56.5 KPH
Filter Class: 1000

— 1 DRIVER PELVIS X, B01044AT.A14

Ymin = -59.49 G's @ 0.0493 Seconds, Ymax = 7.08 G's @ 0.0990 Seconds



B-30



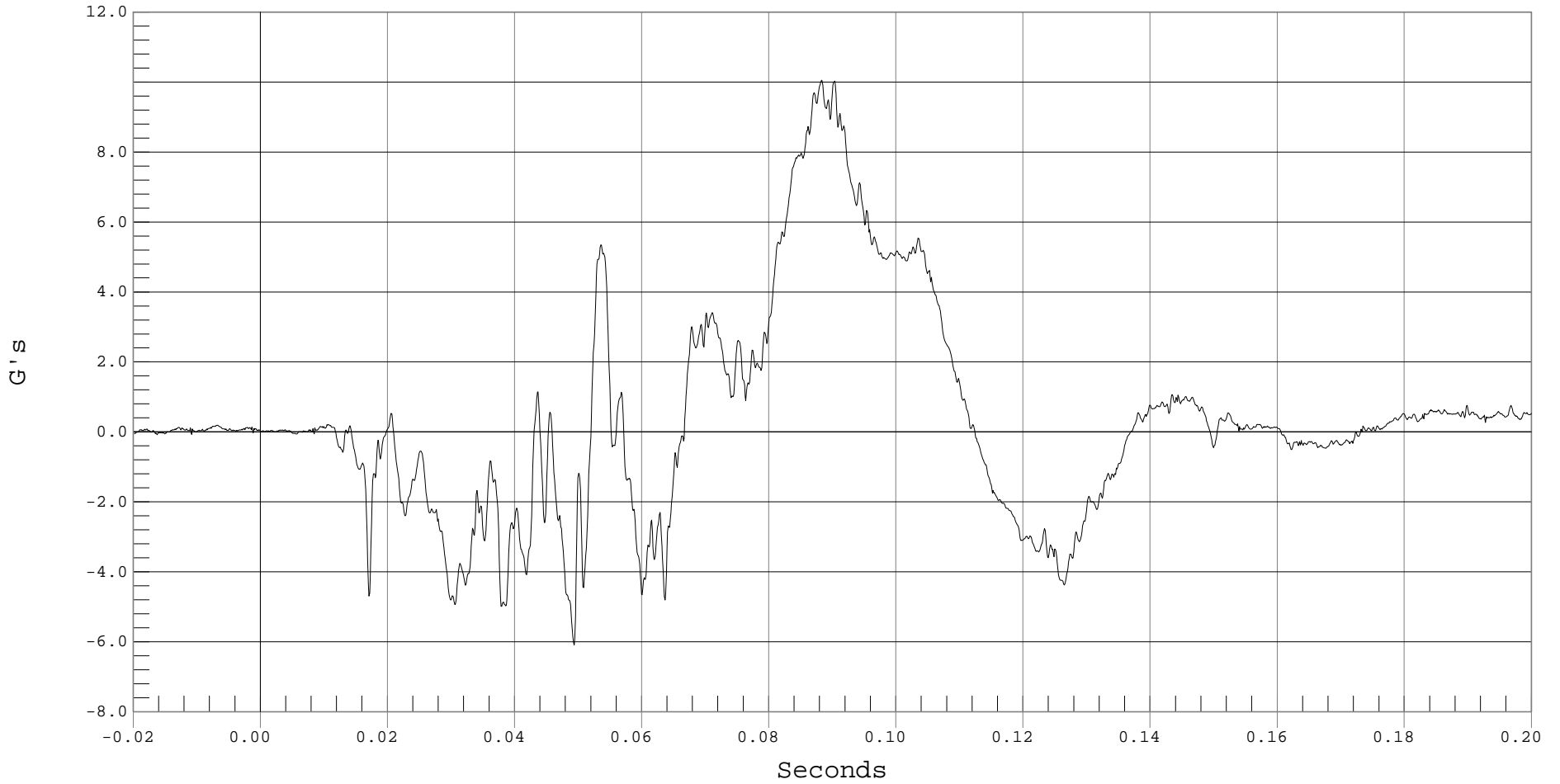
DRIVER PELVIS Y ACCELERATION

Test Desc.: 35 MPH FRONTAL
Component: 2001 FORD ESCAPE (M10211)
Other Info:

Test Date: 04-20-01
Speed: 35.1 MPH, 56.5 KPH
Filter Class: 1000

— 1 DRIVER PELVIS Y, B01044AT.A15

Ymin = -6.09 G's @ 0.0493 Seconds, Ymax = 10.05 G's @ 0.0882 Seconds



B-31



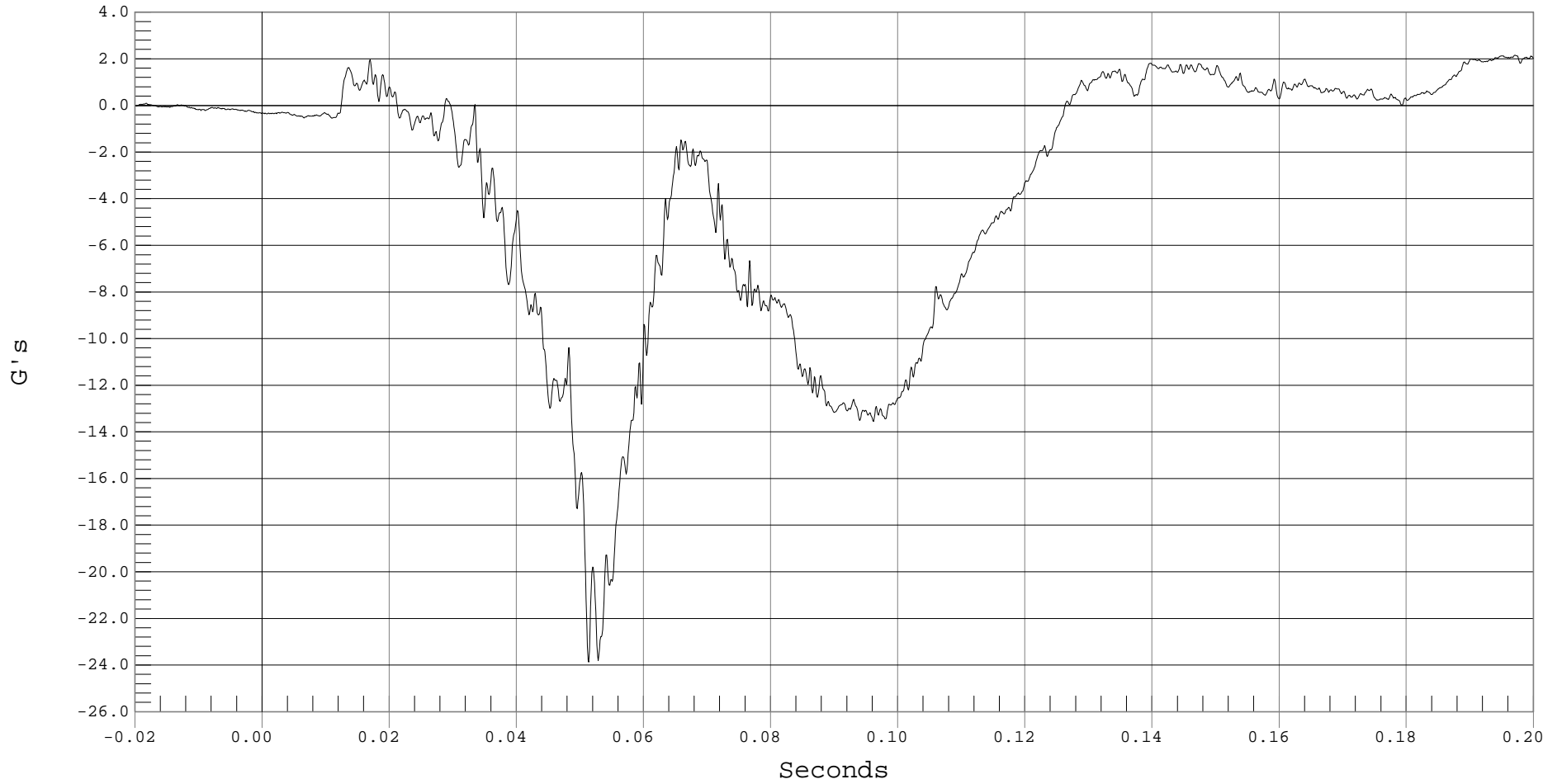
DRIVER PELVIS Z ACCELERATION

Test Desc.: 35 MPH FRONTAL
Component: 2001 FORD ESCAPE (M10211)
Other Info:

Test Date: 04-20-01
Speed: 35.1 MPH, 56.5 KPH
Filter Class: 1000

— 1 DRIVER PELVIS Z, B01044AT.A16

Ymin = -23.87 G's @ 0.0513 Seconds, Ymax = 2.16 G's @ 0.1970 Seconds





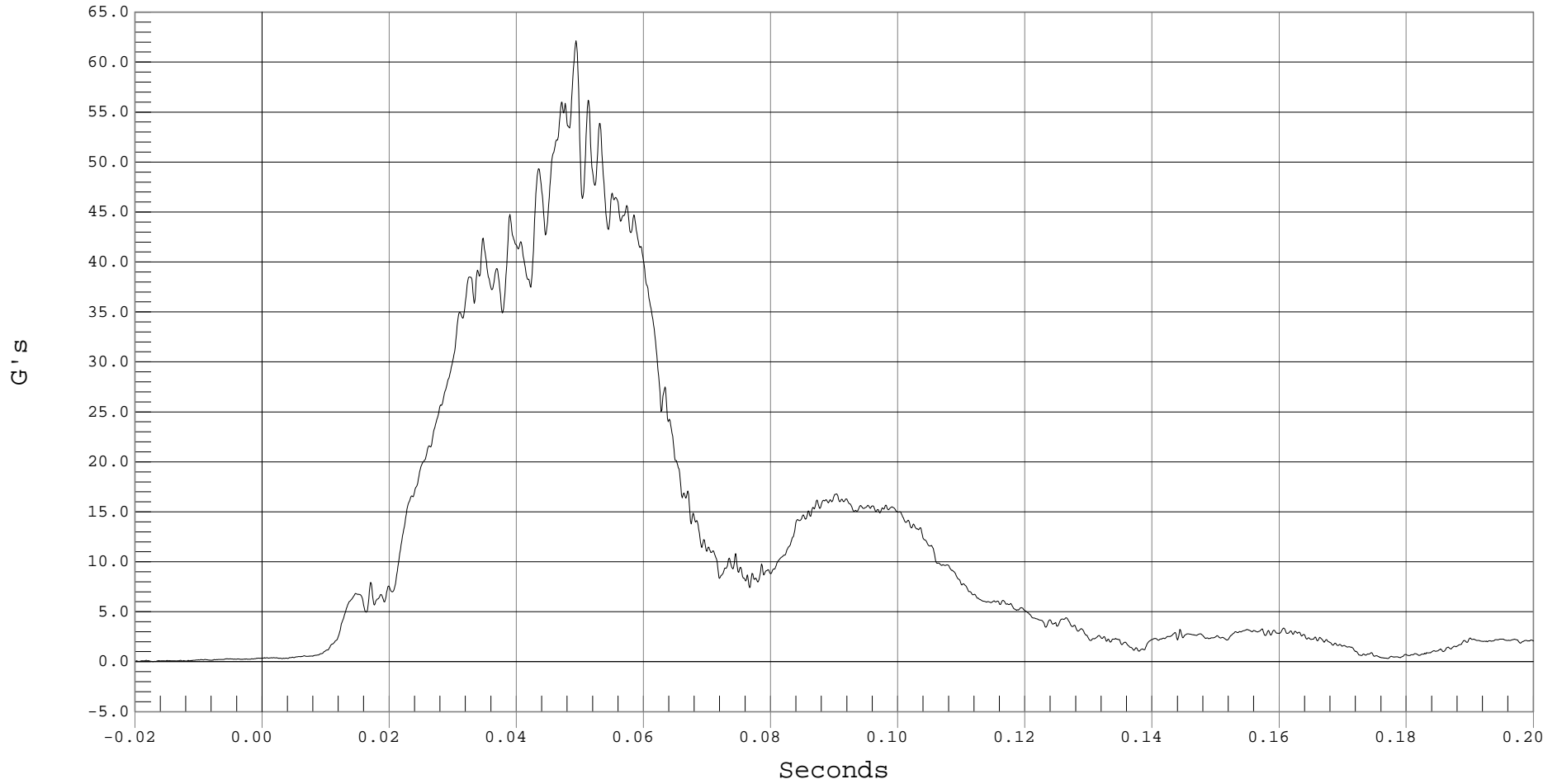
DRIVER PELVIS RESULTANT ACCELERATION

Test Desc.: 35 MPH FRONTAL
Component: 2001 FORD ESCAPE (M10211)
Other Info:

Test Date: 04-20-01
Speed: 35.1 MPH, 56.5 KPH
Filter Class: 1000

— 1 DRIVER PELVIS RESULTANT ACCELERATION, B01044AV.A14

Ymin = .01 G's @ -0.0172 Seconds, Ymax = 62.12 G's @ 0.0493 Seconds





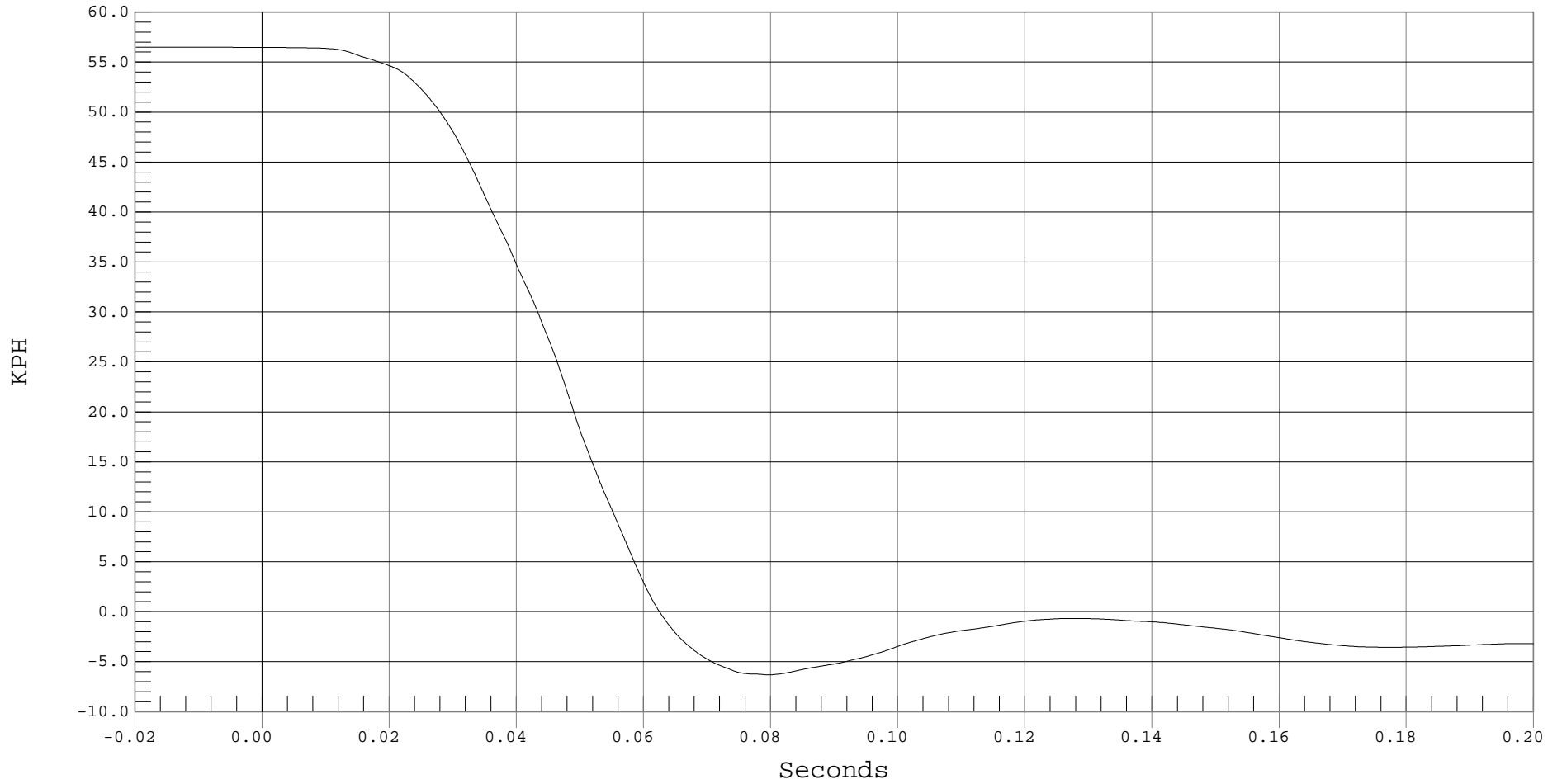
DRIVER PELVIS X VELOCITY

Test Desc.: 35 MPH FRONTAL
Component: 2001 FORD ESCAPE (M10211)
Other Info:

Test Date: 04-20-01
Speed: 35.1 MPH, 56.5 KPH
Filter Class: 180

— 1 DRIVER PELVIS X VELOCITY, B01044AI.V14

Ymin = -6.31 KPH @ 0.0796 Seconds, Ymax = 56.5 KPH @ -0.0174 Seconds





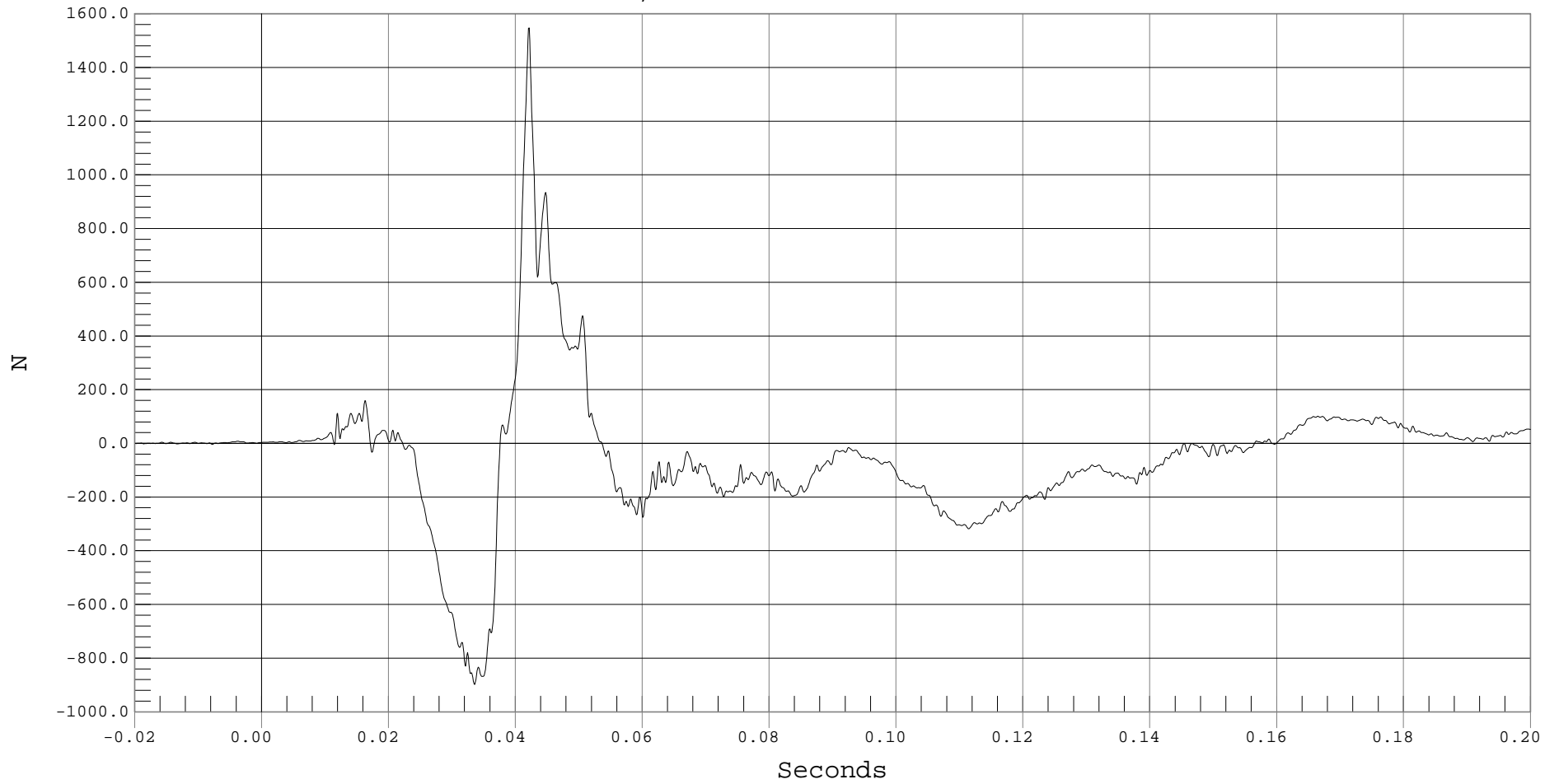
DRIVER LEFT FEMUR FORCE

Test Desc.: 35 MPH FRONTAL
Component: 2001 FORD ESCAPE (M10211)
Other Info:

Test Date: 04-20-01
Speed: 35.1 MPH, 56.5 KPH
Filter Class: 600

— 1 DRIVER LEFT FEMUR, B01044FF.F18

Ymin = -897.92 N @ 0.0335 Seconds, Ymax = 1547.71 N @ 0.0421 Seconds



B-35



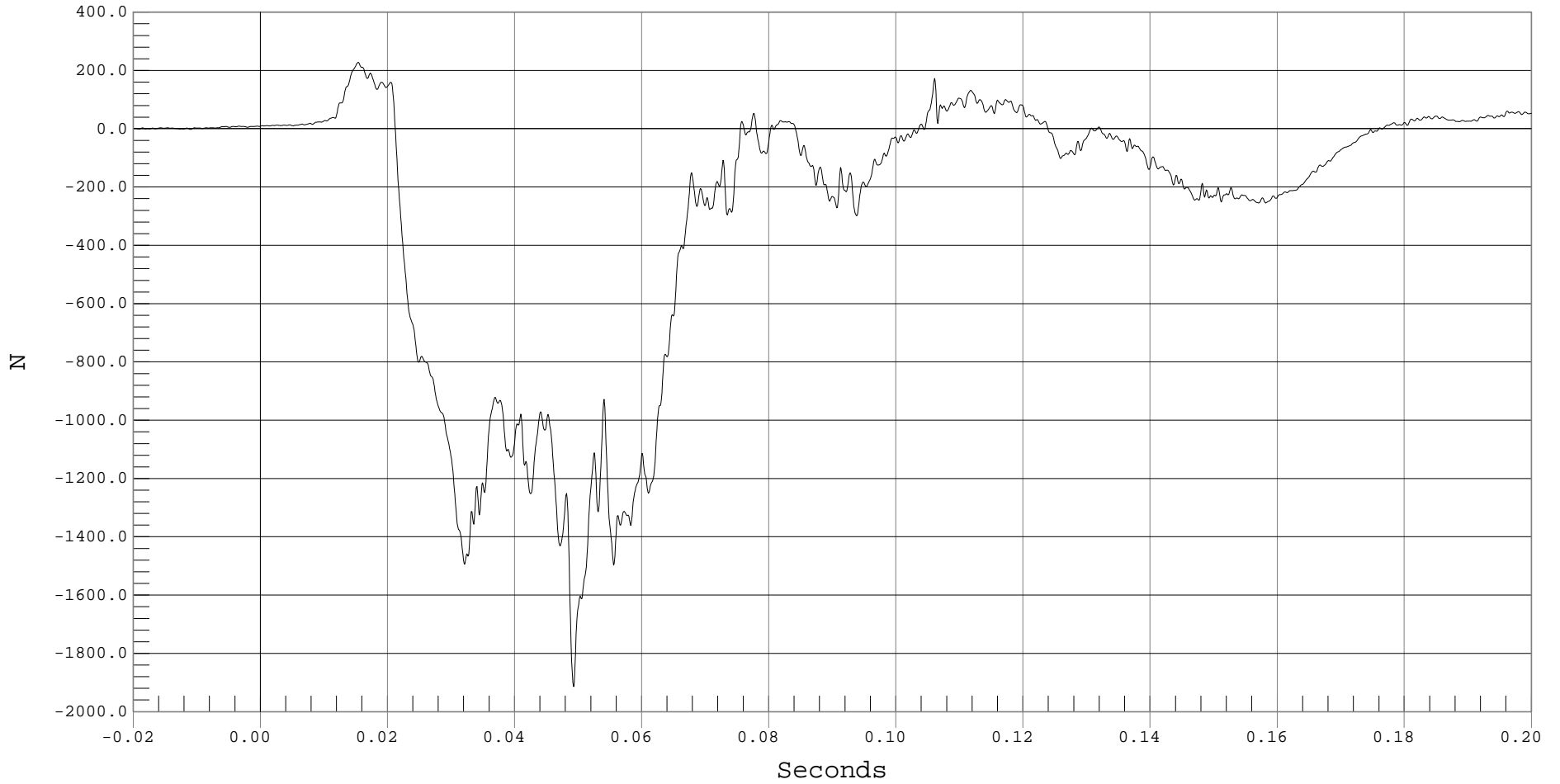
DRIVER RIGHT FEMUR FORCE

Test Desc.: 35 MPH FRONTAL
Component: 2001 FORD ESCAPE (M10211)
Other Info:

Test Date: 04-20-01
Speed: 35.1 MPH, 56.5 KPH
Filter Class: 600

— 1 DRIVER RIGHT FEMUR, B01044FF.F17

Ymin = -1914.32 N @ 0.0492 Seconds, Ymax = 227.81 N @ 0.0153 Seconds





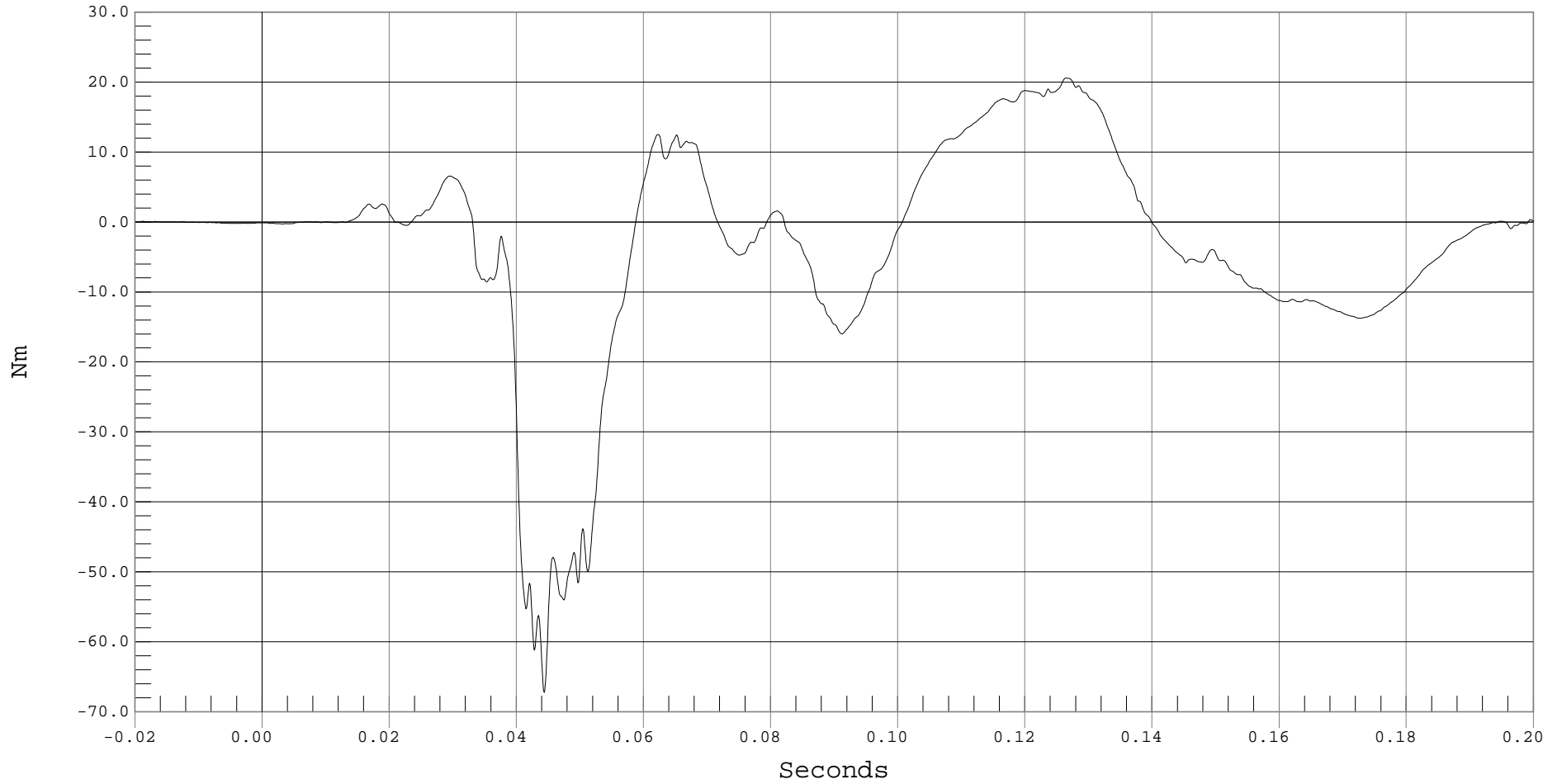
DRIVER LEFT UPPER TIBIA MOMENT X

Test Desc.: 35 MPH FRONTAL
Component: 2001 FORD ESCAPE (M10211)
Other Info:

Test Date: 04-20-01
Speed: 35.1 MPH, 56.5 KPH
Filter Class: 600

— 1 DRIVER LEFT UPPER TIBIA MX, B01044MF.M75

Ymin = -67.25 Nm @ 0.0443 Seconds, Ymax = 20.57 Nm @ 0.1264 Seconds





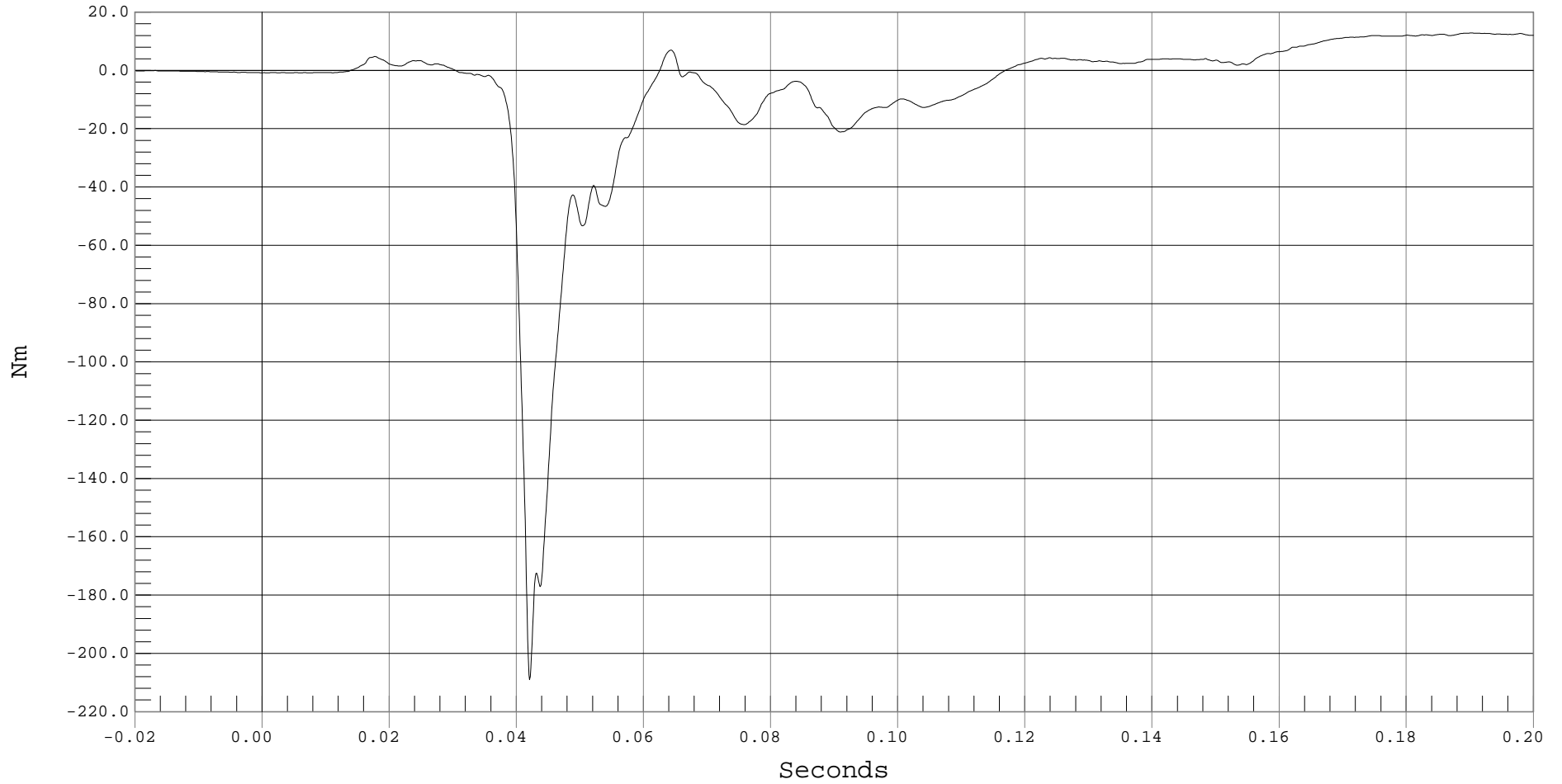
DRIVER LEFT UPPER TIBIA MOMENT Y

Test Desc.: 35 MPH FRONTAL
Component: 2001 FORD ESCAPE (M10211)
Other Info:

Test Date: 04-20-01
Speed: 35.1 MPH, 56.5 KPH
Filter Class: 600

— 1 DRIVER LEFT UPPER TIBIA MY, B01044MF.M76

Ymin = -208.98 Nm @ 0.0420 Seconds, Ymax = 12.85 Nm @ 0.1901 Seconds





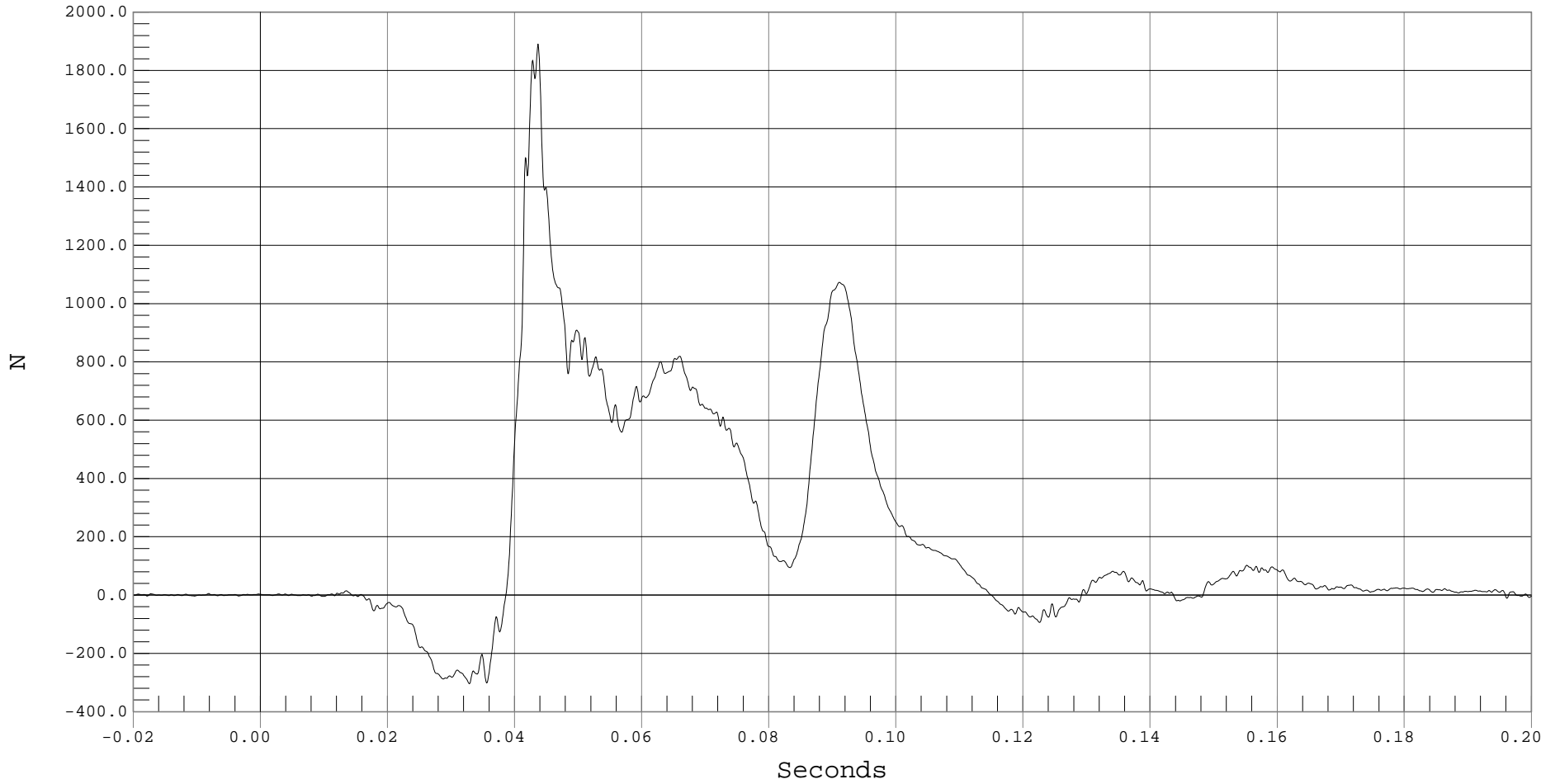
DRIVER LEFT UPPER TIBIA FORCE Z

Test Desc.: 35 MPH FRONTAL
Component: 2001 FORD ESCAPE (M10211)
Other Info:

Test Date: 04-20-01
Speed: 35.1 MPH, 56.5 KPH
Filter Class: 600

— 1 DRIVER LEFT UPPER TIBIA FZ, B01044FF.F77

Ymin = -303.86 N @ 0.0328 Seconds, Ymax = 1890.3 N @ 0.0436 Seconds





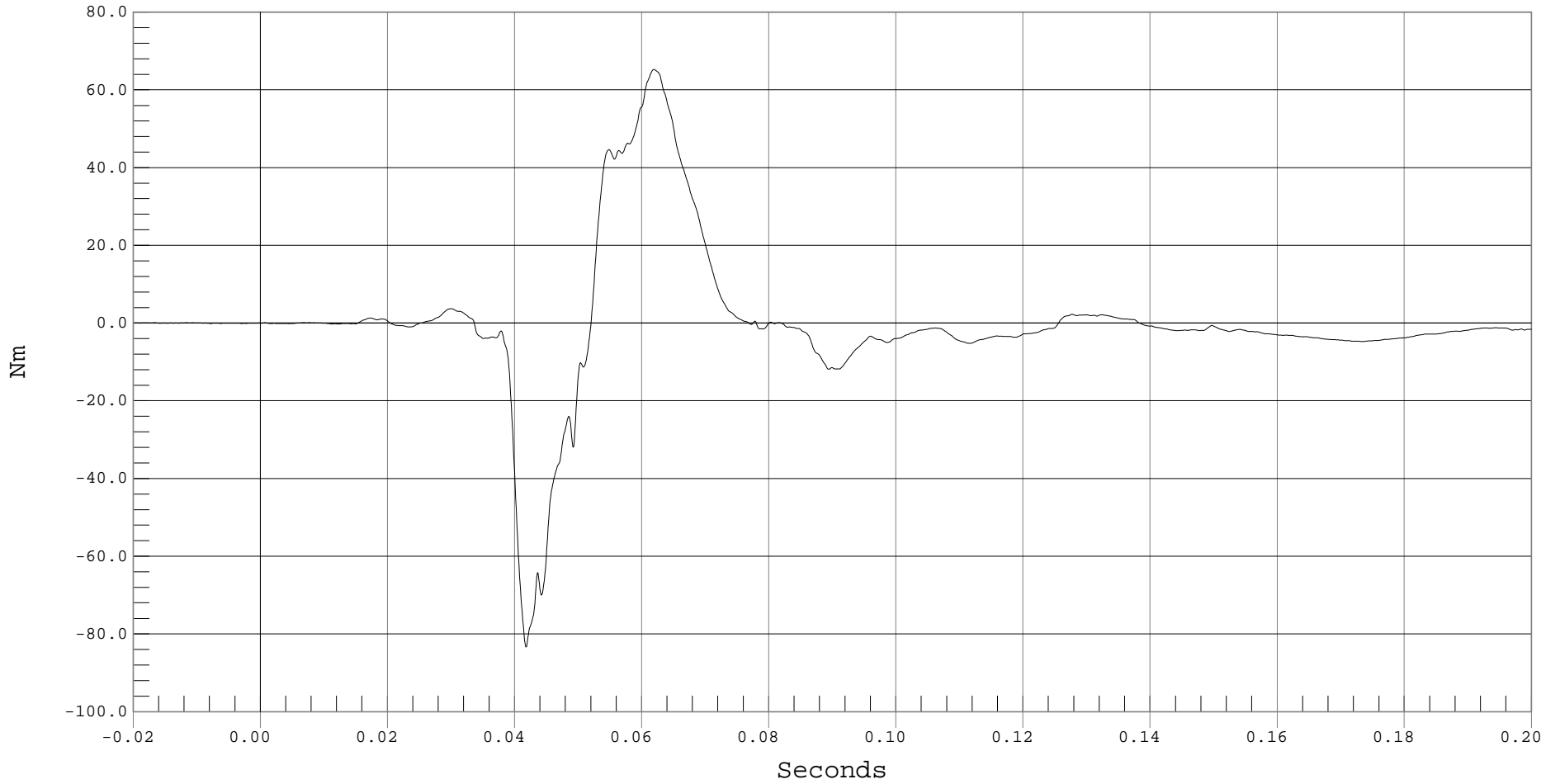
DRIVER LEFT LOWER TIBIA MOMENT X

Test Desc.: 35 MPH FRONTAL
Component: 2001 FORD ESCAPE (M10211)
Other Info:

Test Date: 04-20-01
Speed: 35.1 MPH, 56.5 KPH
Filter Class: 600

— 1 DRIVER LEFT LOWER TIBIA MX, B01044MF.M78

Ymin = -83.35 Nm @ 0.0417 Seconds, Ymax = 65.27 Nm @ 0.0618 Seconds



B-40



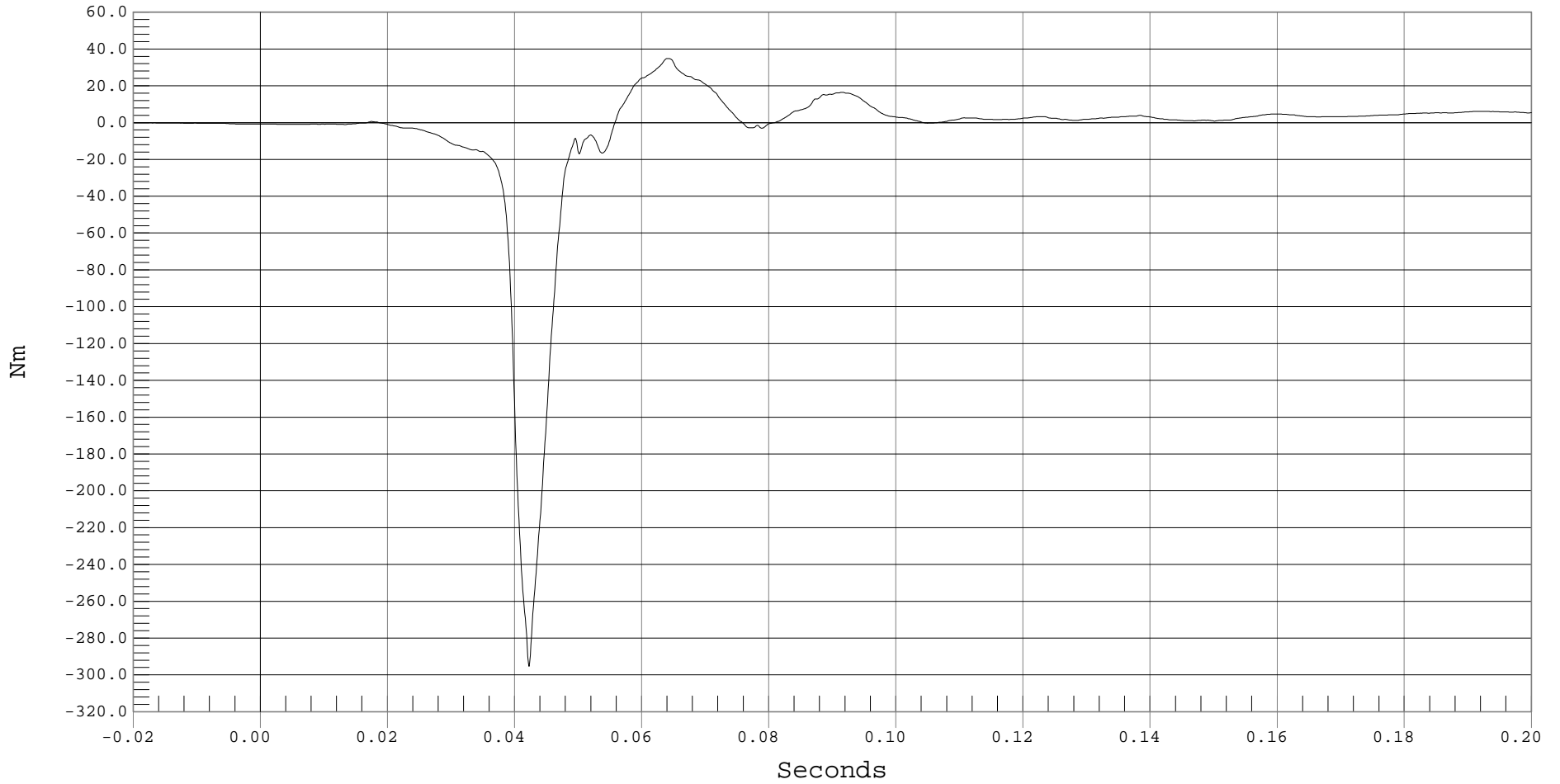
DRIVER LEFT LOWER TIBIA MOMENT Y

Test Desc.: 35 MPH FRONTAL
Component: 2001 FORD ESCAPE (M10211)
Other Info:

Test Date: 04-20-01
Speed: 35.1 MPH, 56.5 KPH
Filter Class: 600

— 1 DRIVER LEFT LOWER TIBIA MY, B01044MF.M79

Ymin = -295.45 Nm @ 0.0422 Seconds, Ymax = 34.84 Nm @ 0.0640 Seconds



B-41



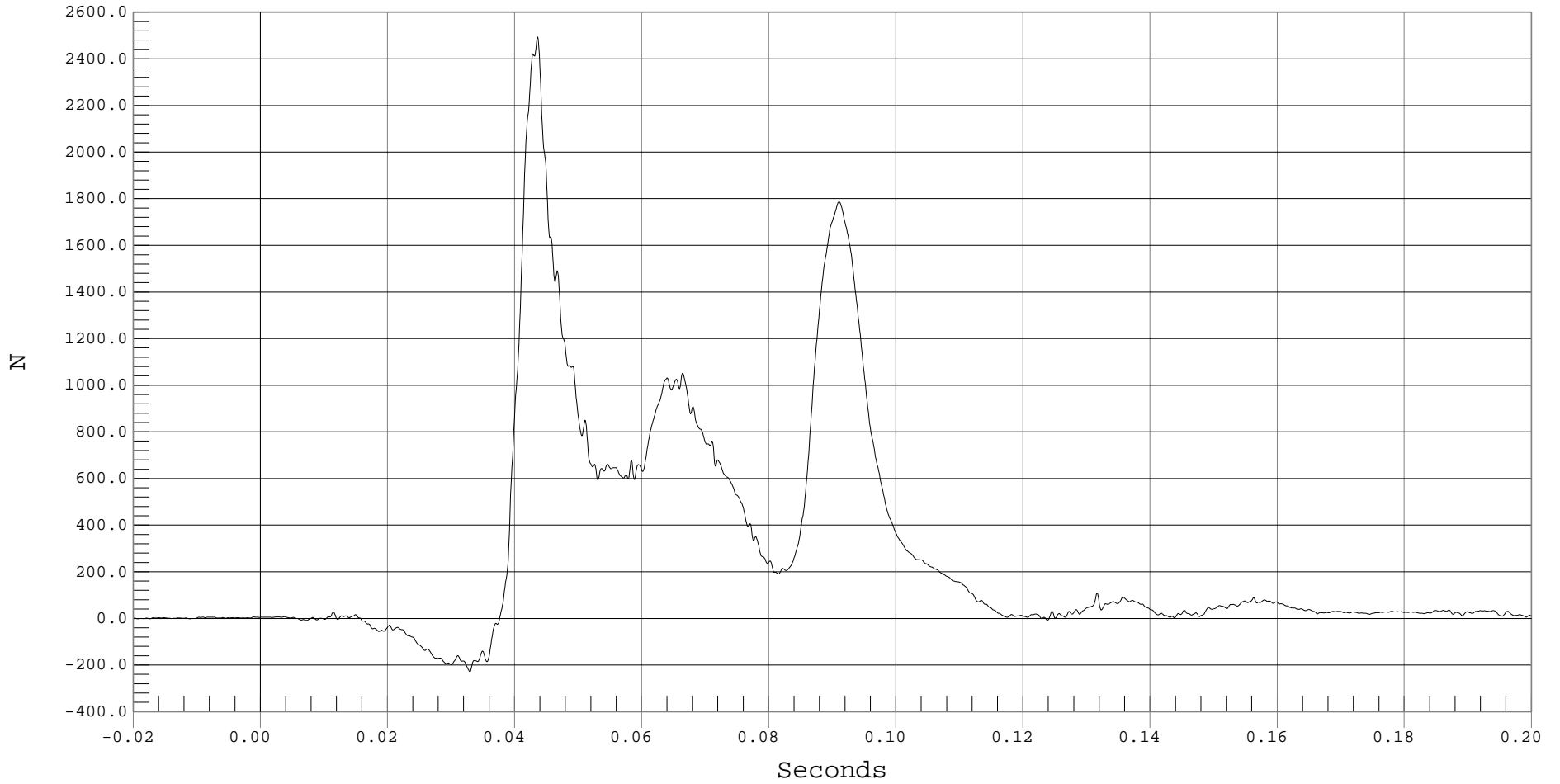
DRIVER LEFT LOWER TIBIA FORCE Z

Test Desc.: 35 MPH FRONTAL
Component: 2001 FORD ESCAPE (M10211)
Other Info:

Test Date: 04-20-01
Speed: 35.1 MPH, 56.5 KPH
Filter Class: 600

— 1 DRIVER LEFT LOWER TIBIA FZ, B01044FF.F80

Ymin = -228.64 N @ 0.0329 Seconds, Ymax = 2493.55 N @ 0.0435 Seconds





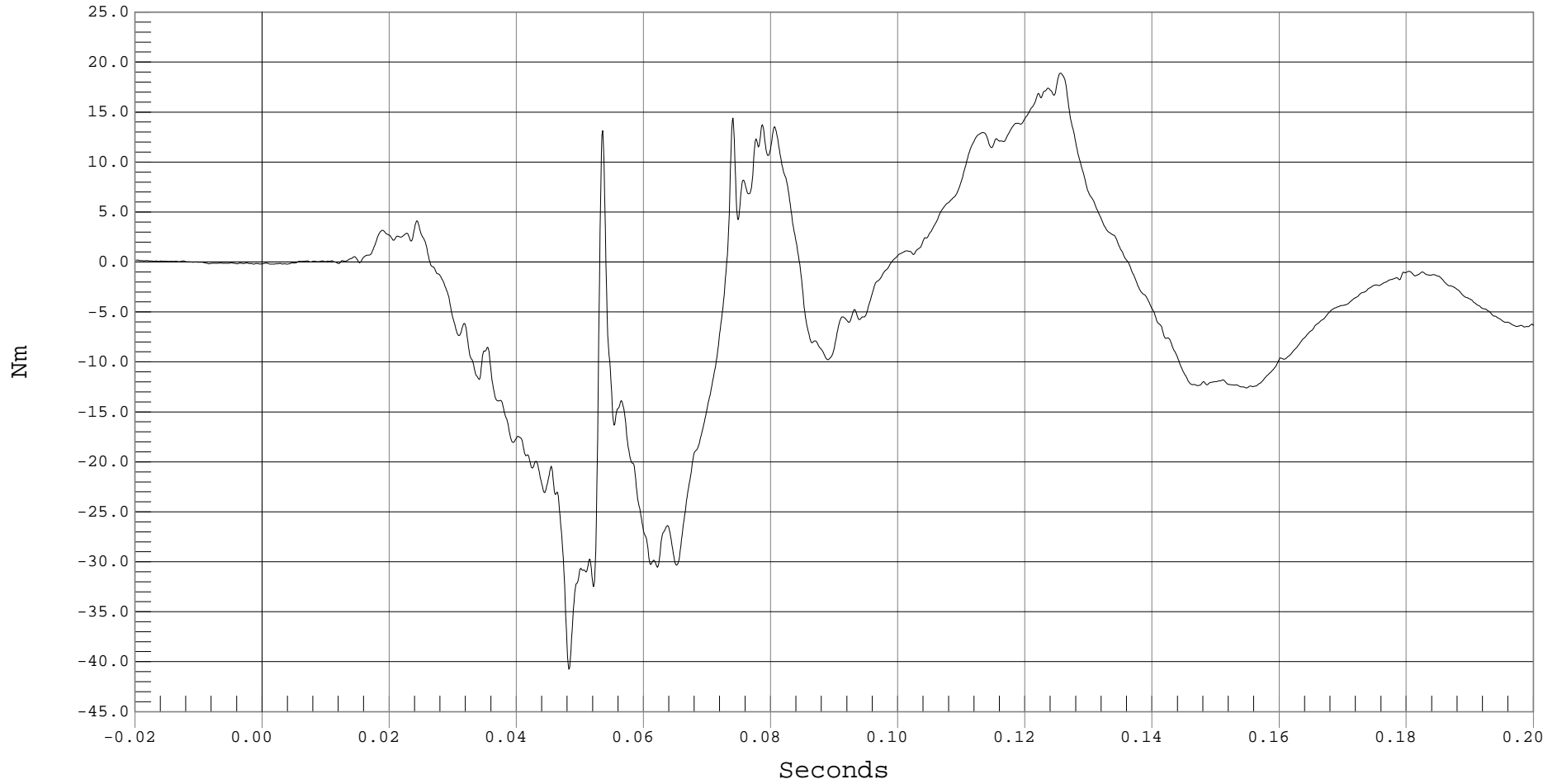
DRIVER RIGHT UPPER TIBIA MOMENT X

Test Desc.: 35 MPH FRONTAL
Component: 2001 FORD ESCAPE (M10211)
Other Info:

Test Date: 04-20-01
Speed: 35.1 MPH, 56.5 KPH
Filter Class: 600

— 1 DRIVER RIGHT UPPER TIBIA MX, B01044MF.M69

Ymin = -40.74 Nm @ 0.0482 Seconds, Ymax = 18.91 Nm @ 0.1255 Seconds



B-43



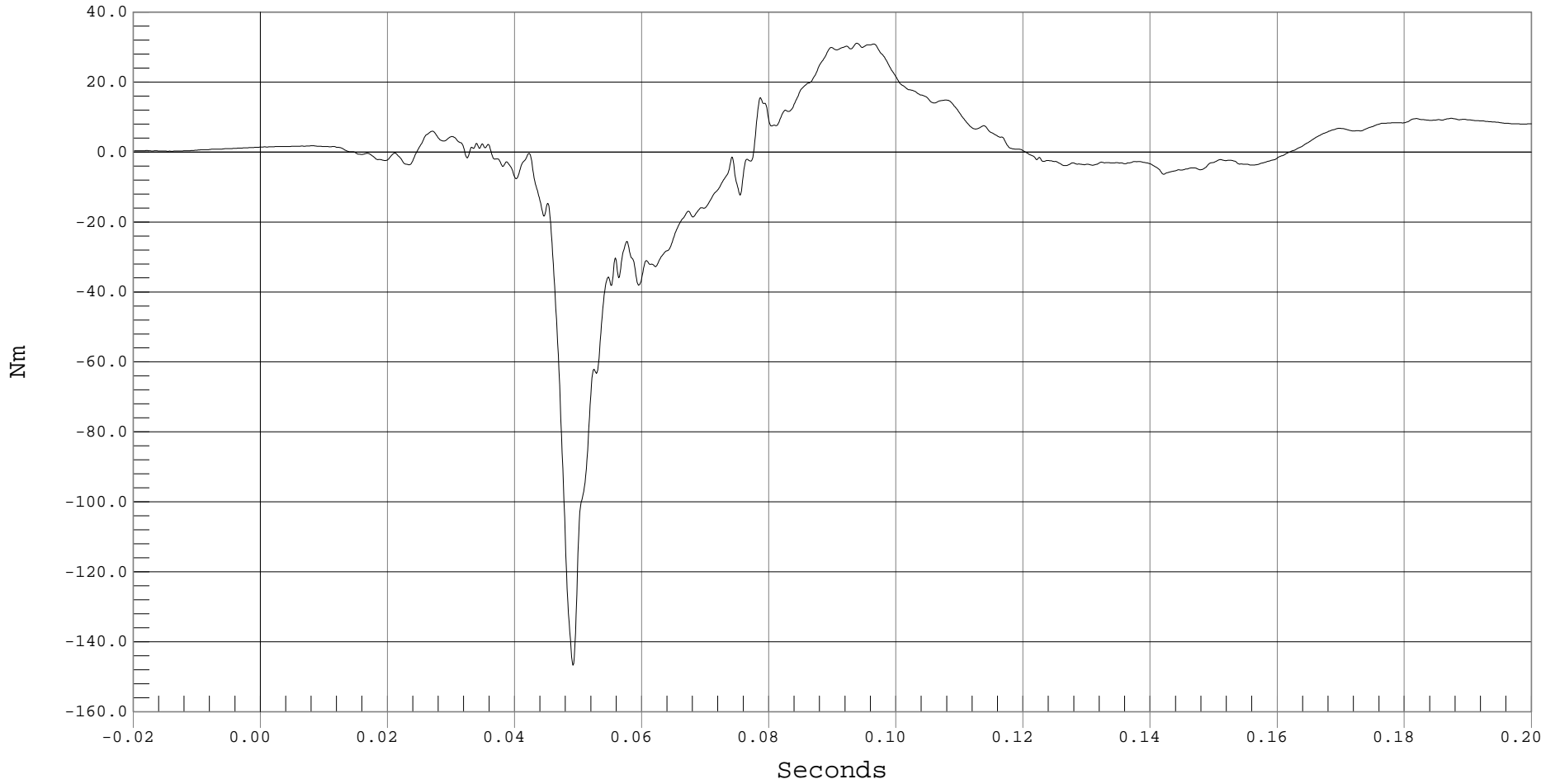
DRIVER RIGHT UPPER TIBIA MOMENT Y

Test Desc.: 35 MPH FRONTAL
Component: 2001 FORD ESCAPE (M10211)
Other Info:

Test Date: 04-20-01
Speed: 35.1 MPH, 56.5 KPH
Filter Class: 600

— 1 DRIVER RIGHT UPPER TIBIA MY, B01044MF.M70

Ymin = -146.72 Nm @ 0.0491 Seconds, Ymax = 31.14 Nm @ 0.0938 Seconds



B-44



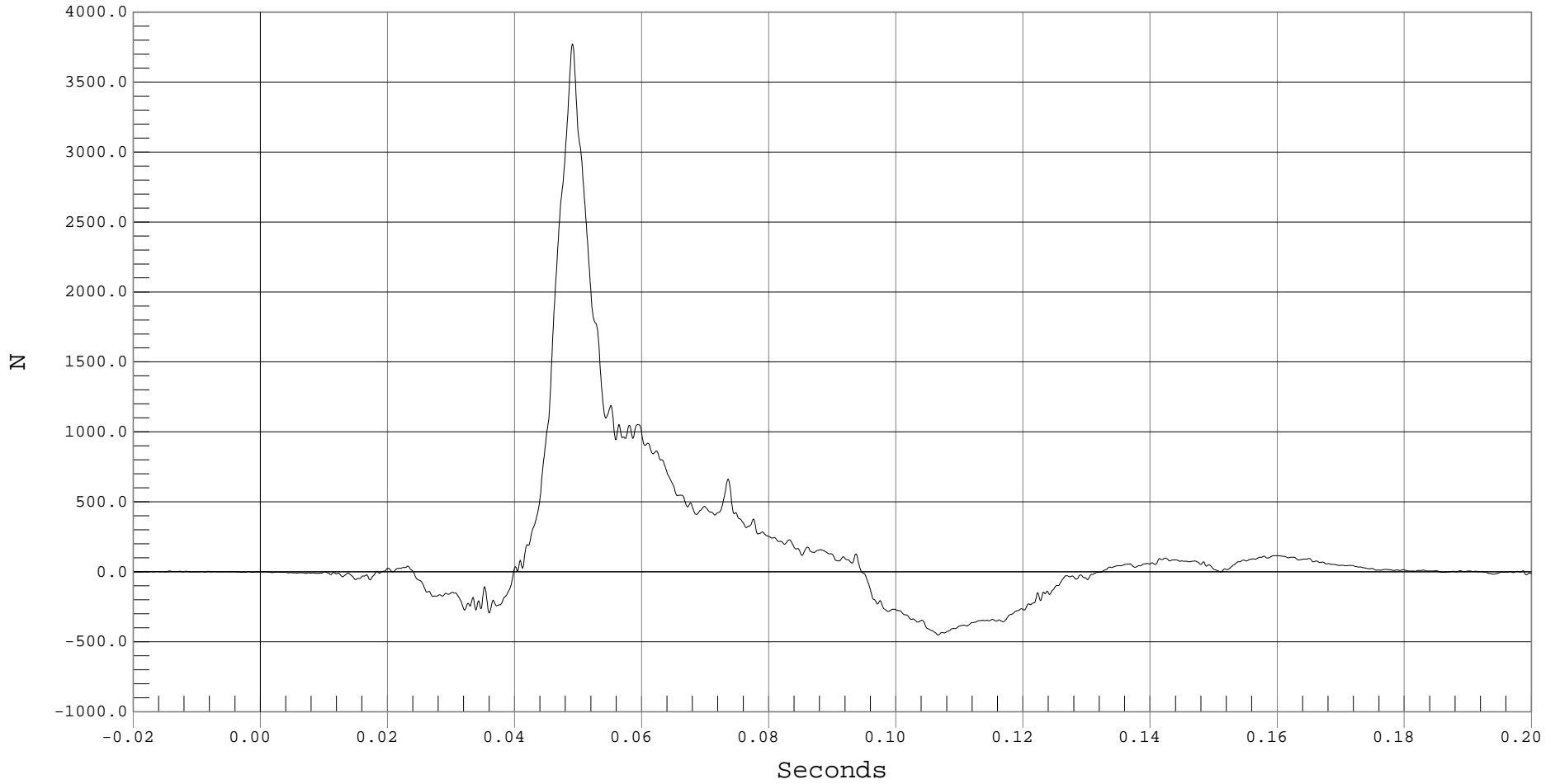
DRIVER RIGHT UPPER TIBIA FORCE Z

Test Desc.: 35 MPH FRONTAL
Component: 2001 FORD ESCAPE (M10211)
Other Info:

Test Date: 04-20-01
Speed: 35.1 MPH, 56.5 KPH
Filter Class: 600

— 1 DRIVER RIGHT UPPER TIBIA FZ, B01044FF.F71

Ymin = -451.79 N @ 0.1066 Seconds, Ymax = 3773.66 N @ 0.0490 Seconds



B-45



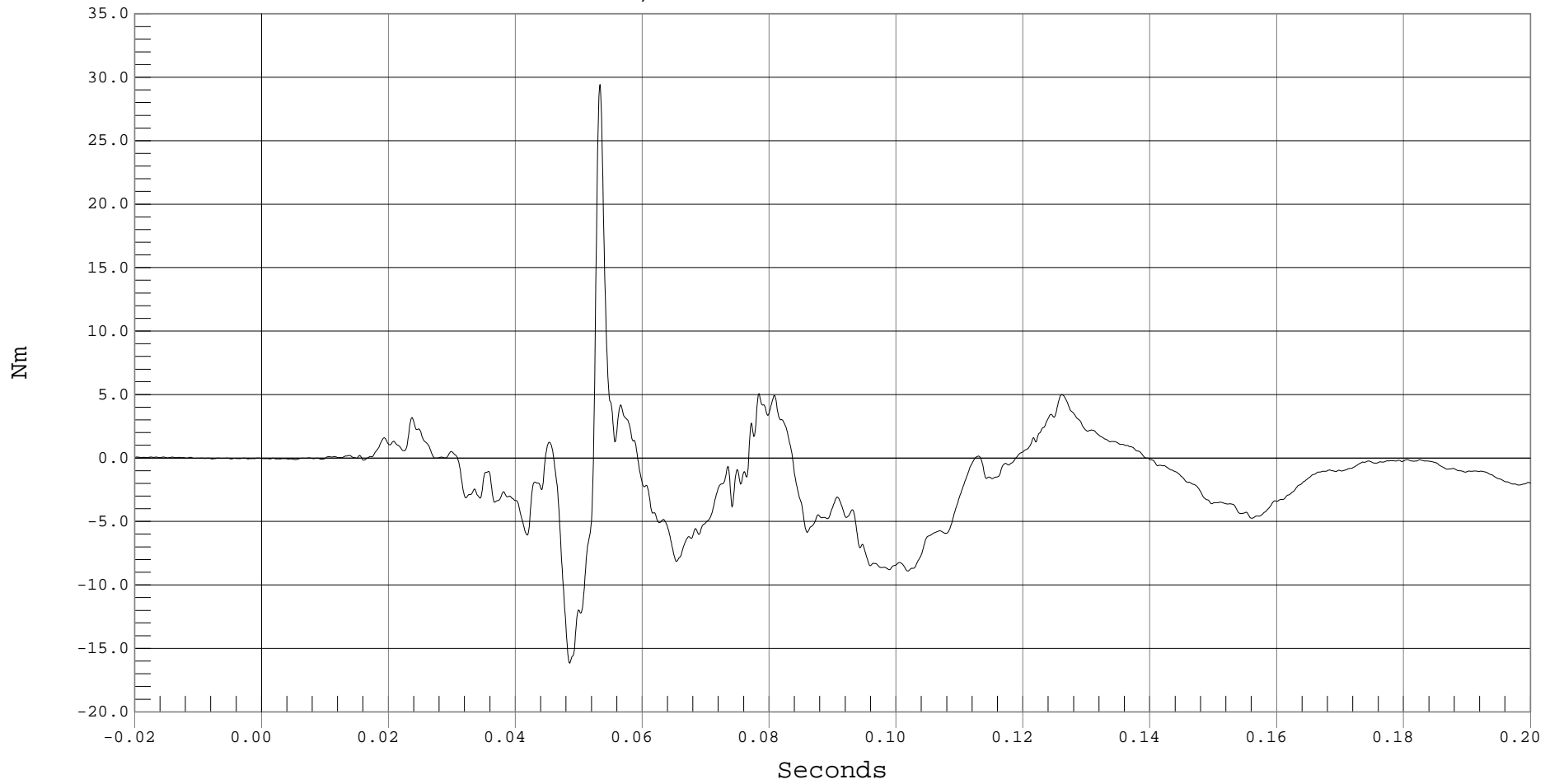
DRIVER RIGHT LOWER TIBIA MOMENT X

Test Desc.: 35 MPH FRONTAL
Component: 2001 FORD ESCAPE (M10211)
Other Info:

Test Date: 04-20-01
Speed: 35.1 MPH, 56.5 KPH
Filter Class: 600

— 1 DRIVER RIGHT LOWER TIBIA MX, B01044MF.M72

Ymin = -16.15 Nm @ 0.0485 Seconds, Ymax = 29.43 Nm @ 0.0533 Seconds





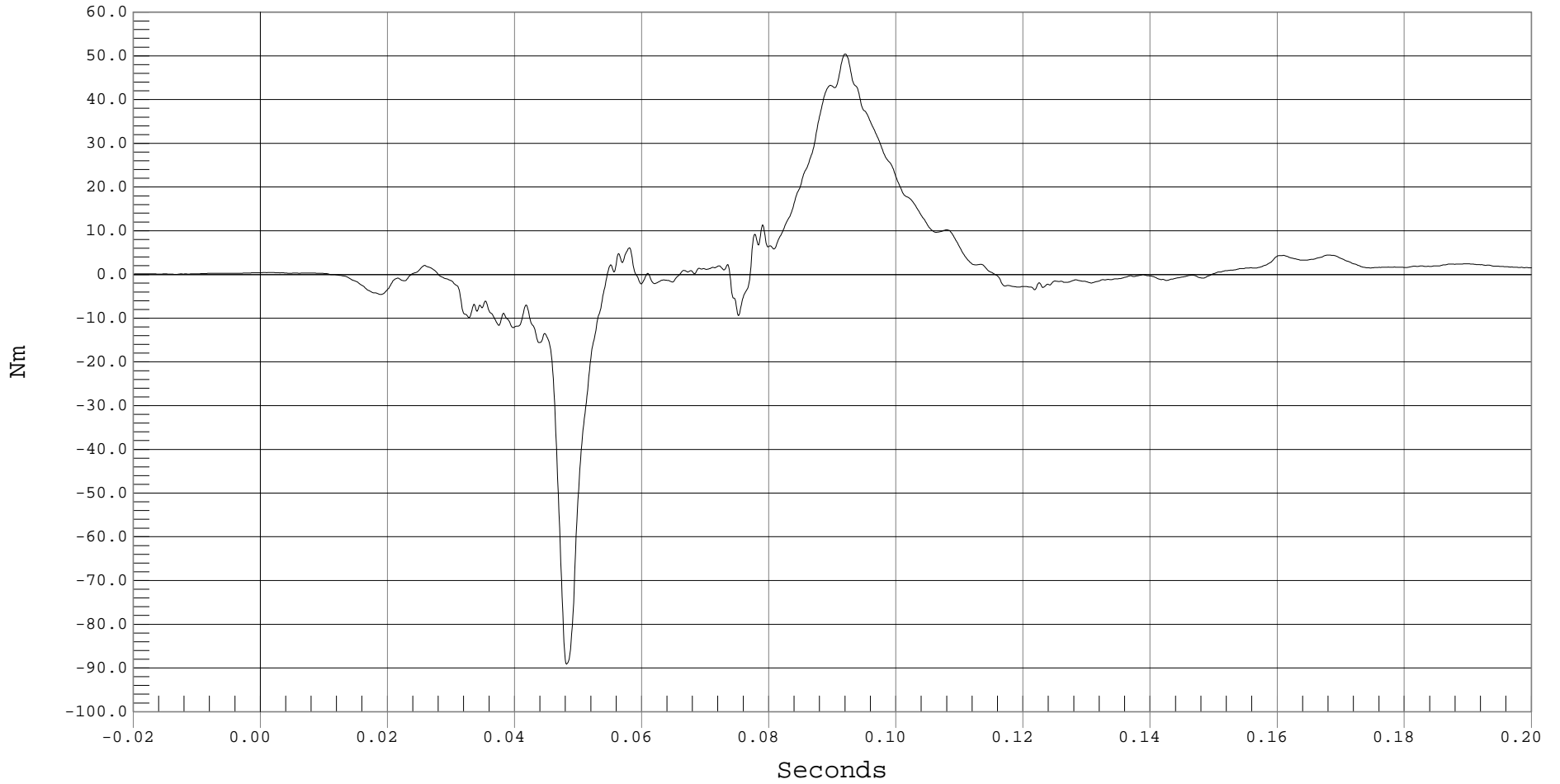
DRIVER RIGHT LOWER TIBIA MOMENT Y

Test Desc.: 35 MPH FRONTAL
Component: 2001 FORD ESCAPE (M10211)
Other Info:

Test Date: 04-20-01
Speed: 35.1 MPH, 56.5 KPH
Filter Class: 600

— 1 DRIVER RIGHT LOWER TIBIA MY, B01044MF.M73

Ymin = -89.12 Nm @ 0.0481 Seconds, Ymax = 50.44 Nm @ 0.0919 Seconds



B-47



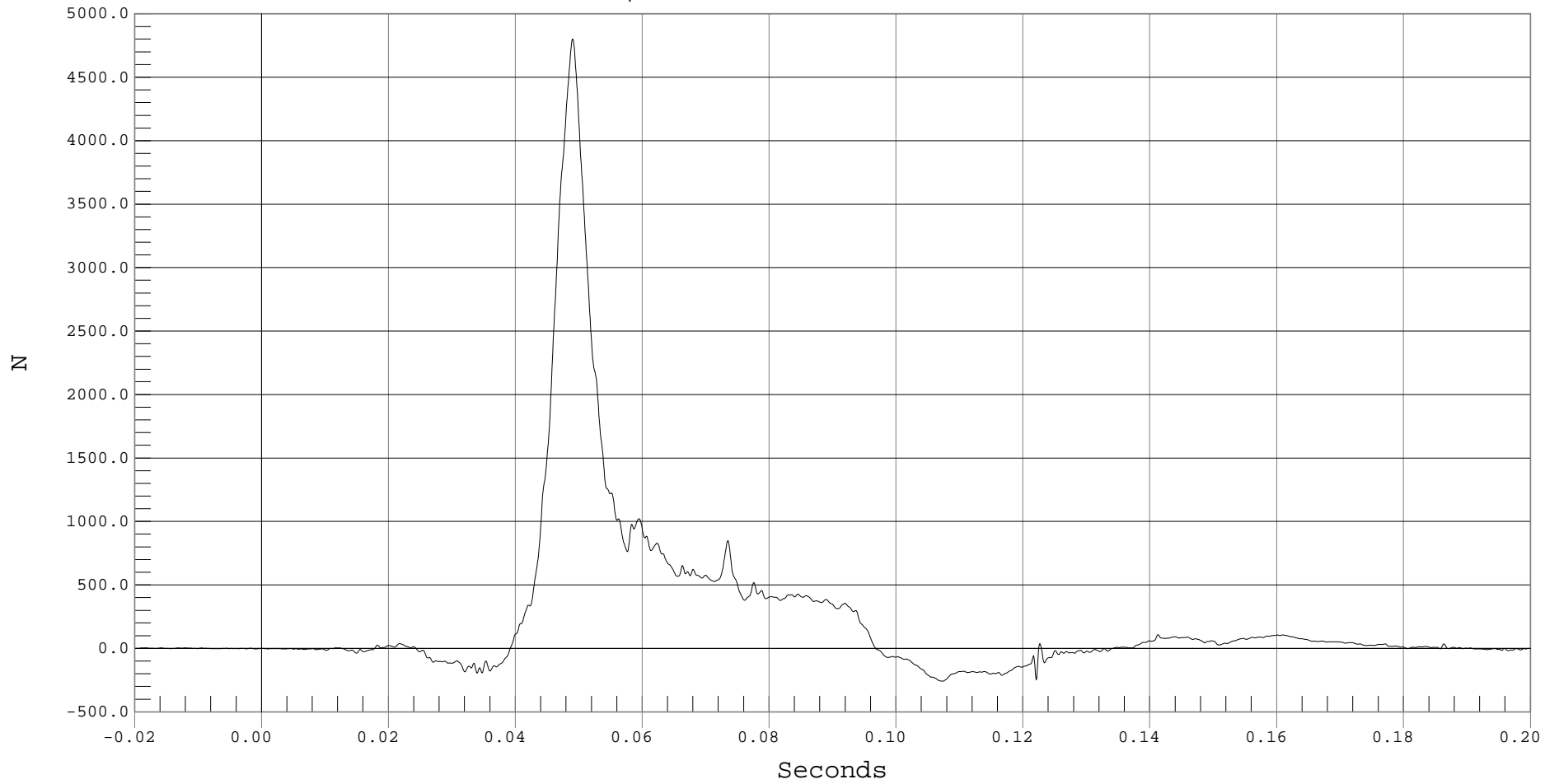
DRIVER RIGHT LOWER TIBIA FORCE Z

Test Desc.: 35 MPH FRONTAL
Component: 2001 FORD ESCAPE (M10211)
Other Info:

Test Date: 04-20-01
Speed: 35.1 MPH, 56.5 KPH
Filter Class: 600

— 1 DRIVER RIGHT LOWER TIBIA FZ, B01044FF.F74

Ymin = -258.7 N @ 0.1073 Seconds, Ymax = 4801.12 N @ 0.0489 Seconds



B-48



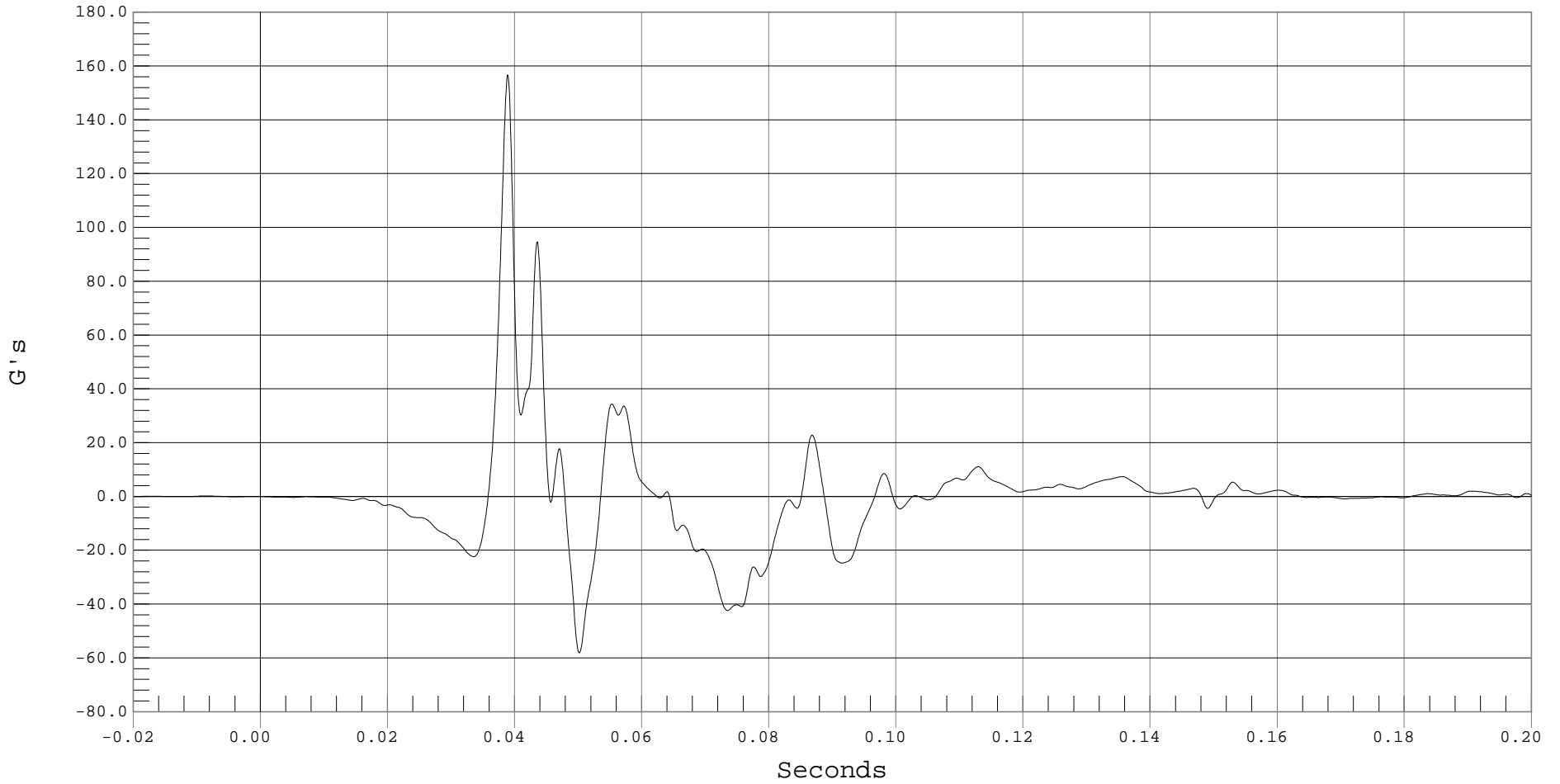
DRIVER LEFT FOOT @ BALL Z ACCELERATION

Test Desc.: 35 MPH FRONTAL
Component: 2001 FORD ESCAPE (M10211)
Other Info:

Test Date: 04-20-01
Speed: 35.1 MPH, 56.5 KPH
Filter Class: 180

— 1 DRIVER LEFT FOOT @ BALL Z, B01044AF.A12

Ymin = -58.17 G's @ 0.0501 Seconds, Ymax = 156.66 G's @ 0.0388 Seconds



B-49



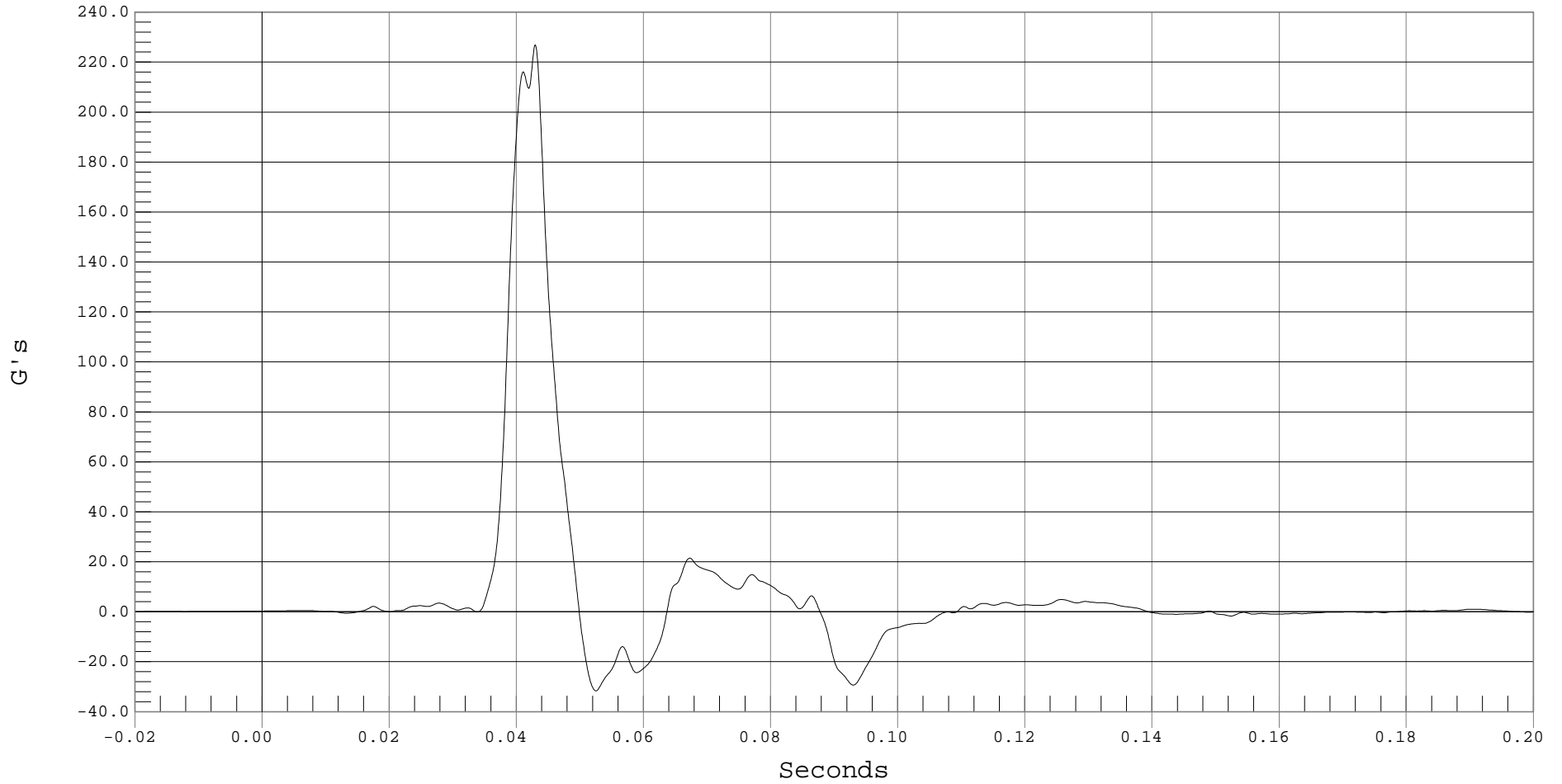
DRIVER LEFT FOOT @ HEEL X ACCELERATION

Test Desc.: 35 MPH FRONTAL
Component: 2001 FORD ESCAPE (M10211)
Other Info:

Test Date: 04-20-01
Speed: 35.1 MPH, 56.5 KPH
Filter Class: 180

— 1 DRIVER LEFT FOOT @ HEEL X, B01044AF.A10

Ymin = -31.67 G's @ 0.0524 Seconds, Ymax = 226.95 G's @ 0.0429 Seconds



B-50



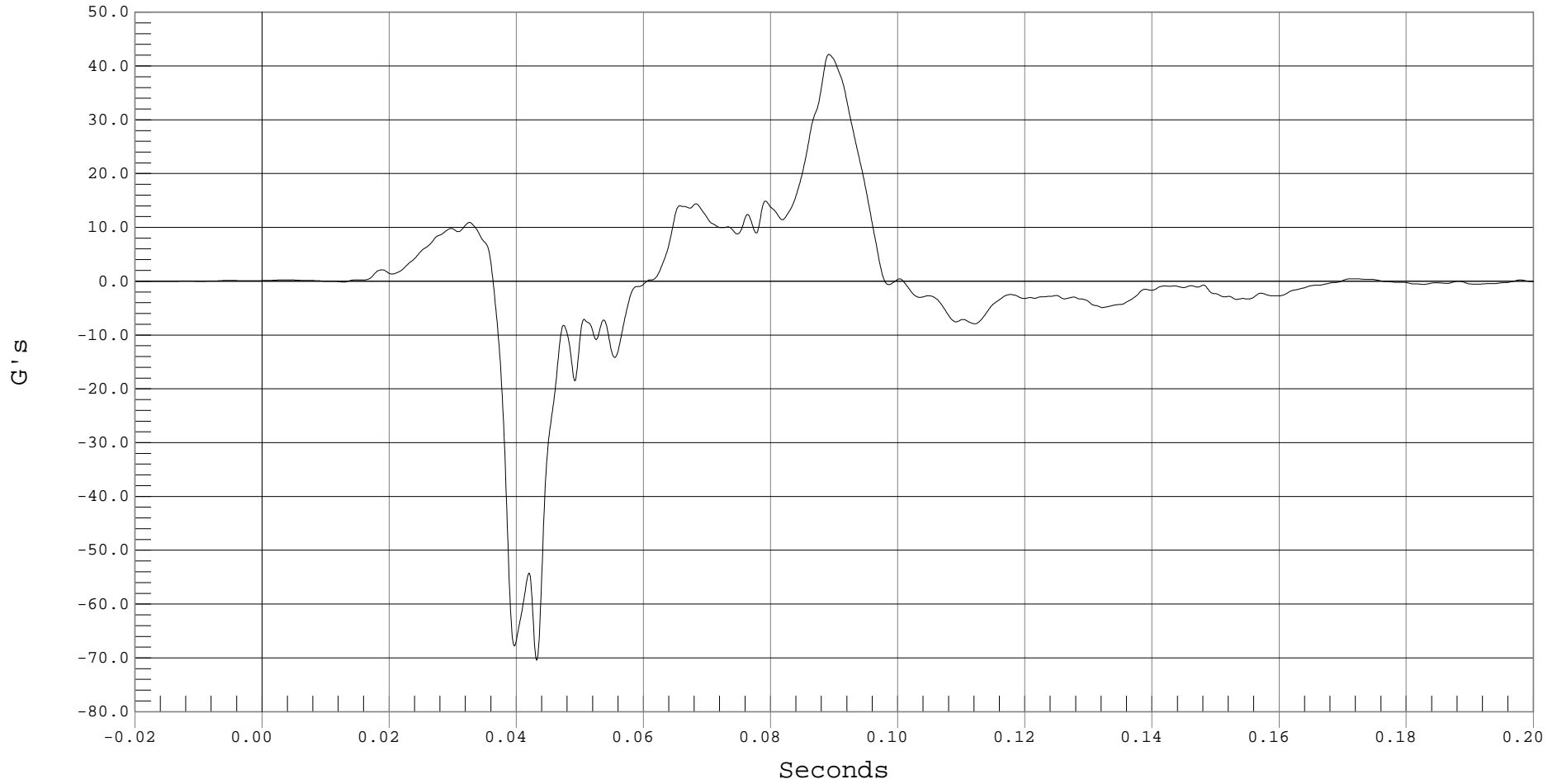
DRIVER LEFT FOOT @ HEEL Z ACCELERATION

Test Desc.: 35 MPH FRONTAL
Component: 2001 FORD ESCAPE (M10211)
Other Info:

Test Date: 04-20-01
Speed: 35.1 MPH, 56.5 KPH
Filter Class: 180

— 1 DRIVER LEFT FOOT @ HEEL Z, B01044AF.A11

Ymin = -70.44 G's @ 0.0431 Seconds, Ymax = 42.16 G's @ 0.0891 Seconds



B-51



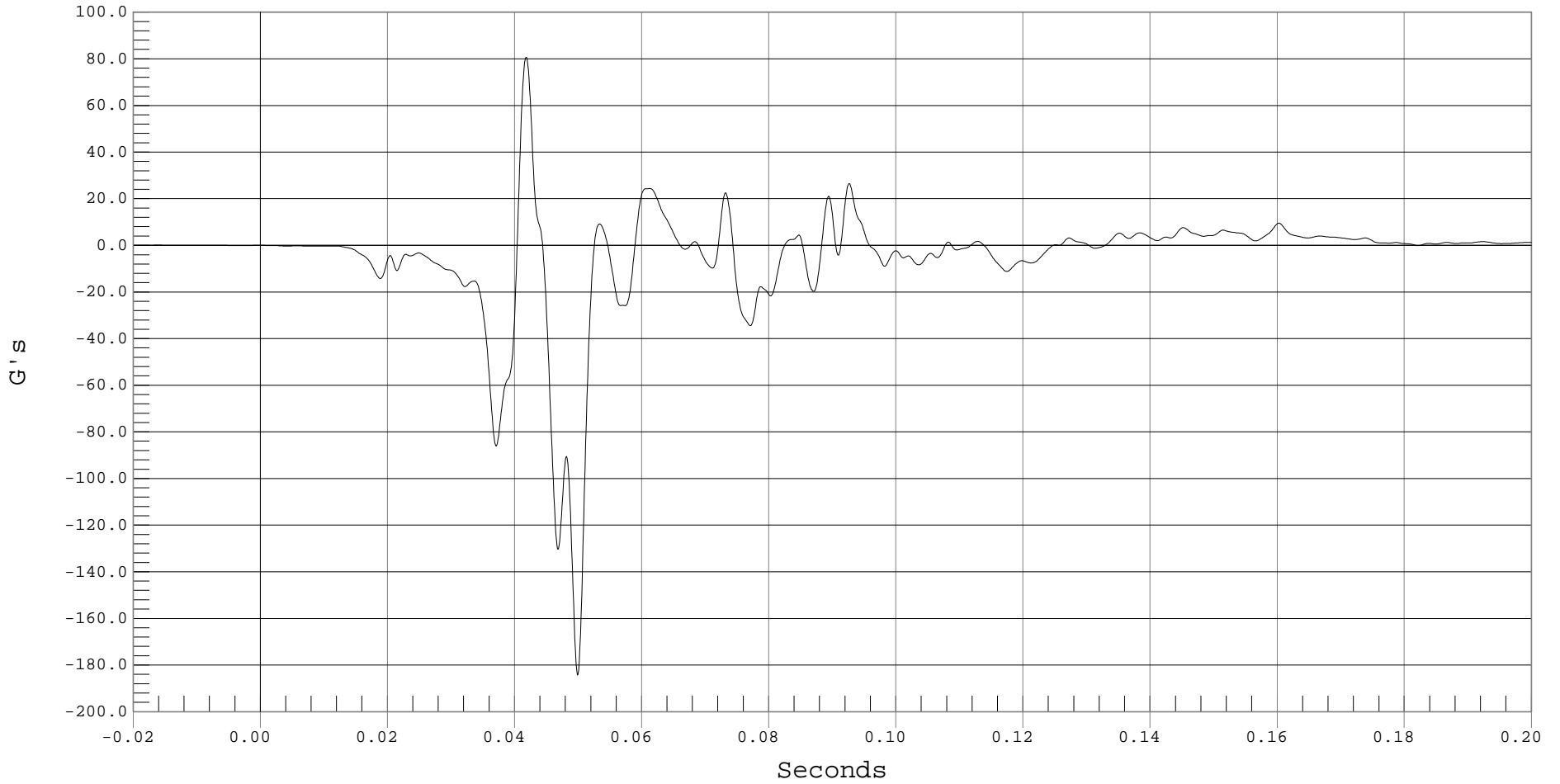
DRIVER RIGHT FOOT @ BALL Z ACCELERATION

Test Desc.: 35 MPH FRONTAL
Component: 2001 FORD ESCAPE (M10211)
Other Info:

Test Date: 04-20-01
Speed: 35.1 MPH, 56.5 KPH
Filter Class: 180

— 1 DRIVER RIGHT FOOT @ BALL Z, B01044AF.A95

Ymin = -184.28 G's @ 0.0498 Seconds, Ymax = 80.72 G's @ 0.0417 Seconds



B-52



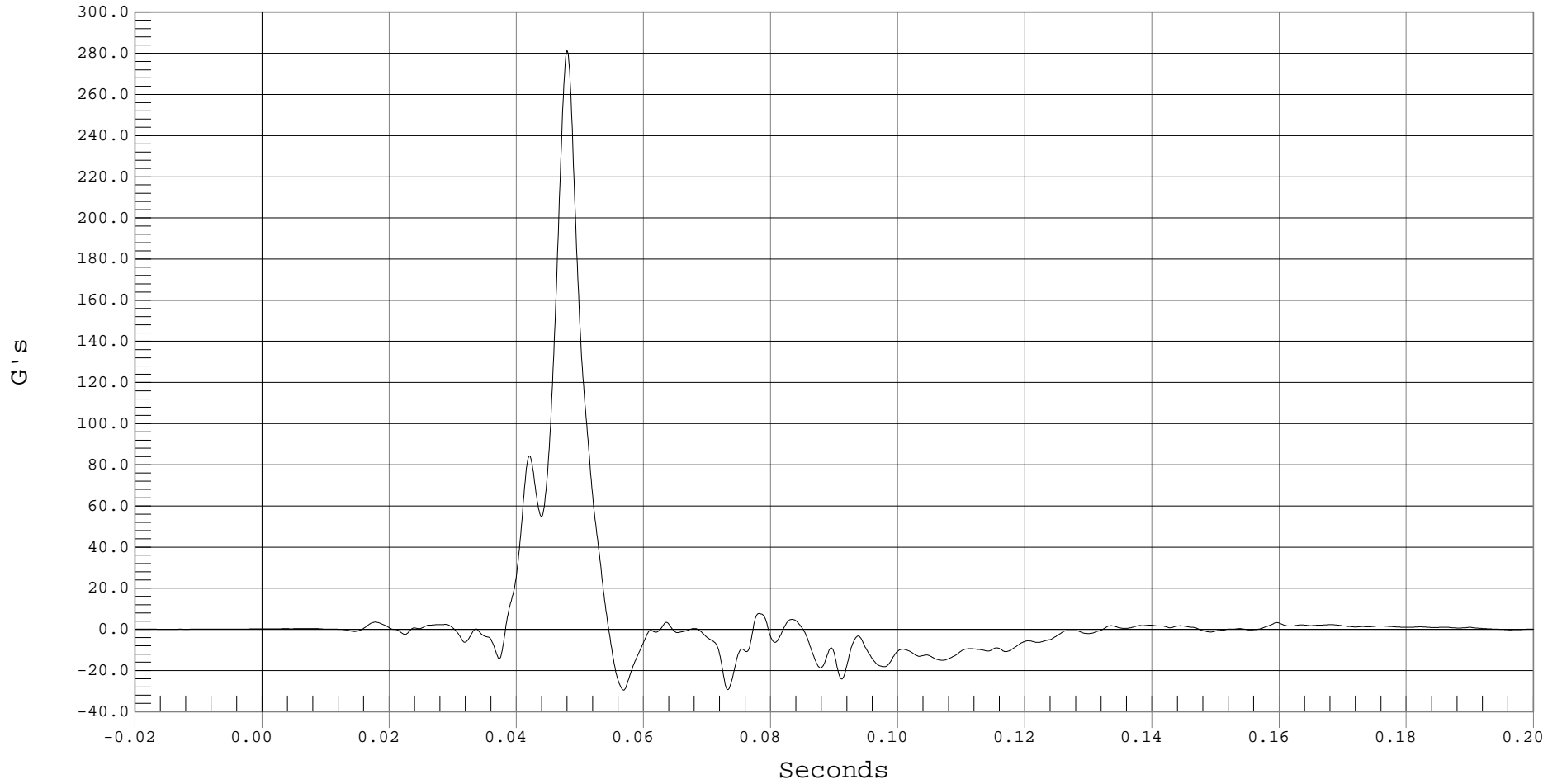
DRIVER RIGHT FOOT @ HEEL X ACCELERATION

Test Desc.: 35 MPH FRONTAL
Component: 2001 FORD ESCAPE (M10211)
Other Info:

Test Date: 04-20-01
Speed: 35.1 MPH, 56.5 KPH
Filter Class: 180

— 1 DRIVER RIGHT FOOT @ HEEL X, B01044AF.A93

Ymin = -29.54 G's @ 0.0568 Seconds, Ymax = 281.35 G's @ 0.0479 Seconds



B-53



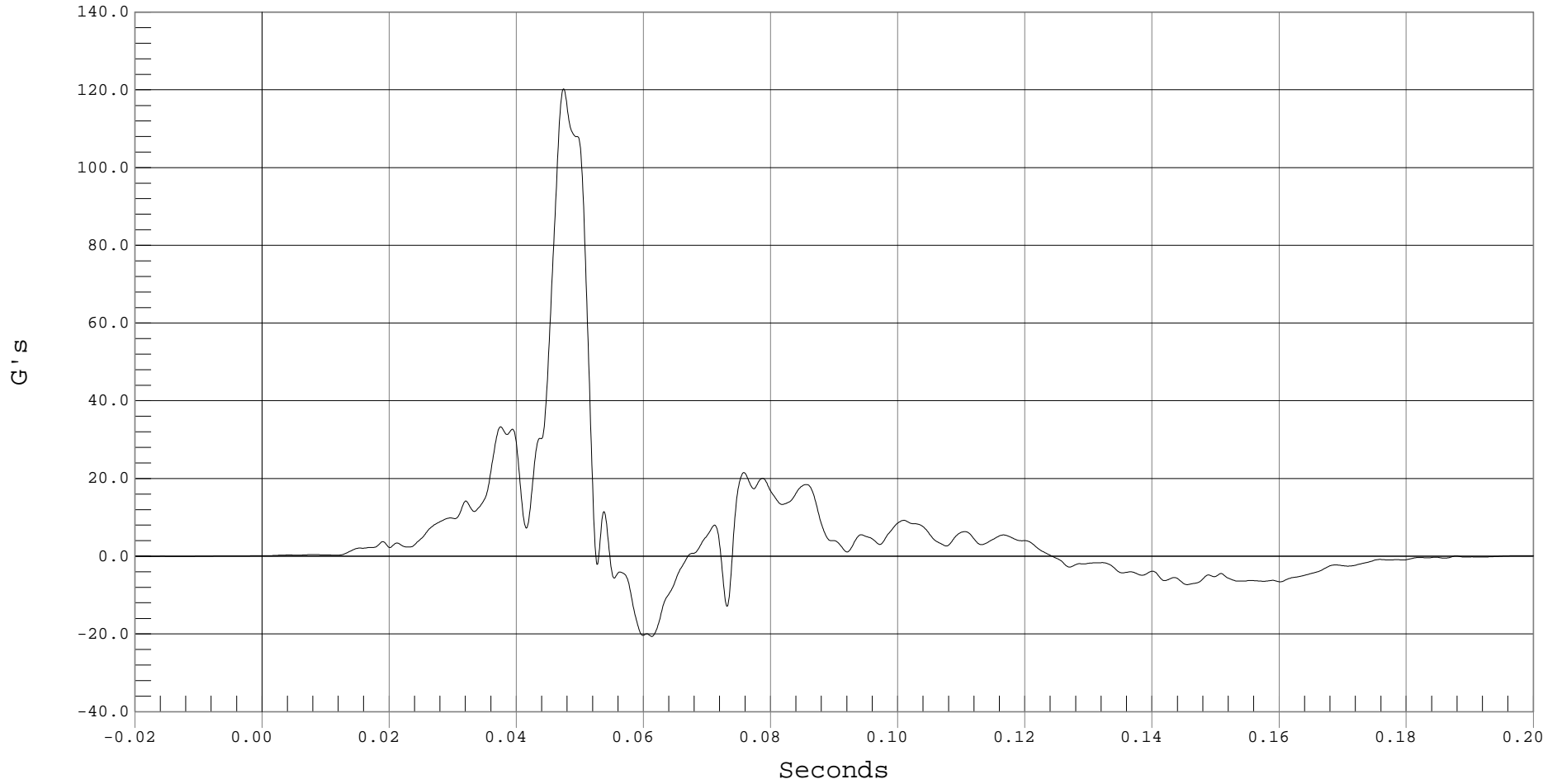
DRIVER RIGHT FOOT @ HEEL Z ACCELERATION

Test Desc.: 35 MPH FRONTAL
Component: 2001 FORD ESCAPE (M10211)
Other Info:

Test Date: 04-20-01
Speed: 35.1 MPH, 56.5 KPH
Filter Class: 180

— 1 DRIVER RIGHT FOOT @ HEEL Z, B01044AF.A94

Ymin = -20.65 G's @ 0.0612 Seconds, Ymax = 120.24 G's @ 0.0473 Seconds



B-54



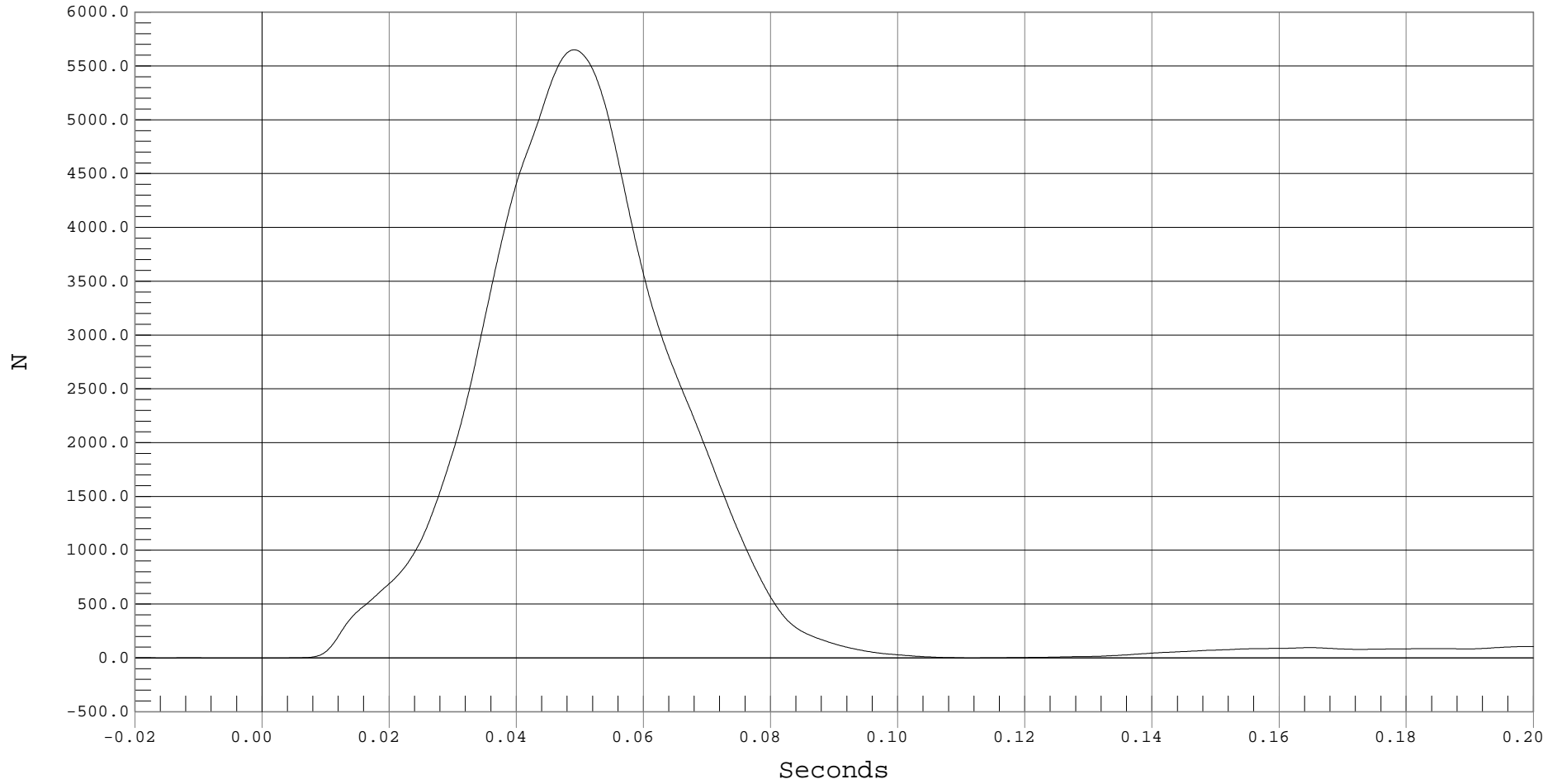
DRIVER LAP BELT FORCE

Test Desc.: 35 MPH FRONTAL
Component: 2001 FORD ESCAPE (M10211)
Other Info:

Test Date: 04-20-01
Speed: 35.1 MPH, 56.5 KPH
Filter Class: 60

— 1 DRIVER LAP BELT, B01044FF.F66

Ymin = -2.05 N @ 0.0008 Seconds, Ymax = 5649.87 N @ 0.0490 Seconds



B-55



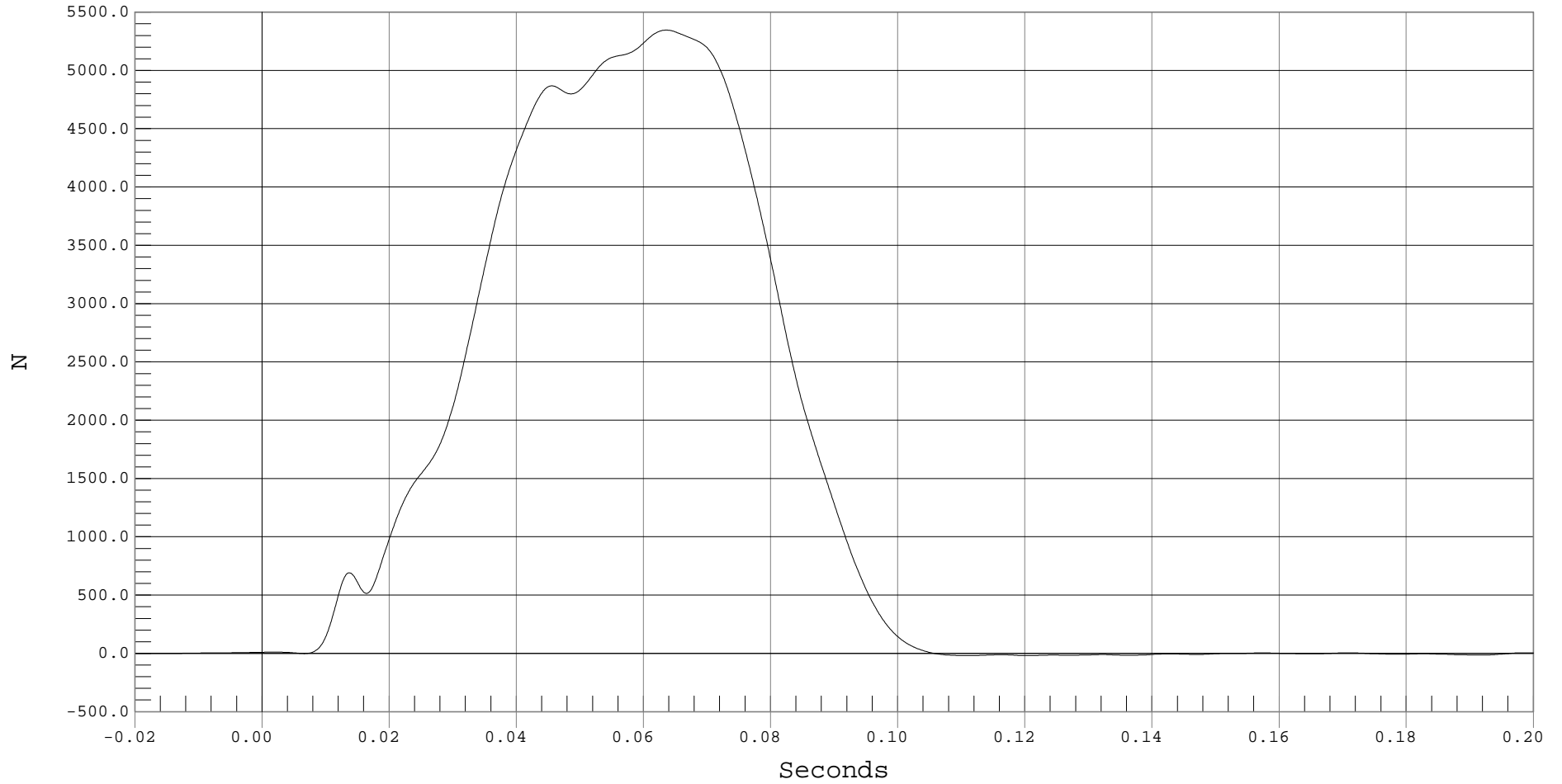
DRIVER SHOULDER BELT FORCE

Test Desc.: 35 MPH FRONTAL
Component: 2001 FORD ESCAPE (M10211)
Other Info:

Test Date: 04-20-01
Speed: 35.1 MPH, 56.5 KPH
Filter Class: 60

— 1 DRIVER SHOULDER BELT, B01044FF.F65

Ymin = -18.46 N @ 0.1202 Seconds, Ymax = 5346.56 N @ 0.0635 Seconds



B-56



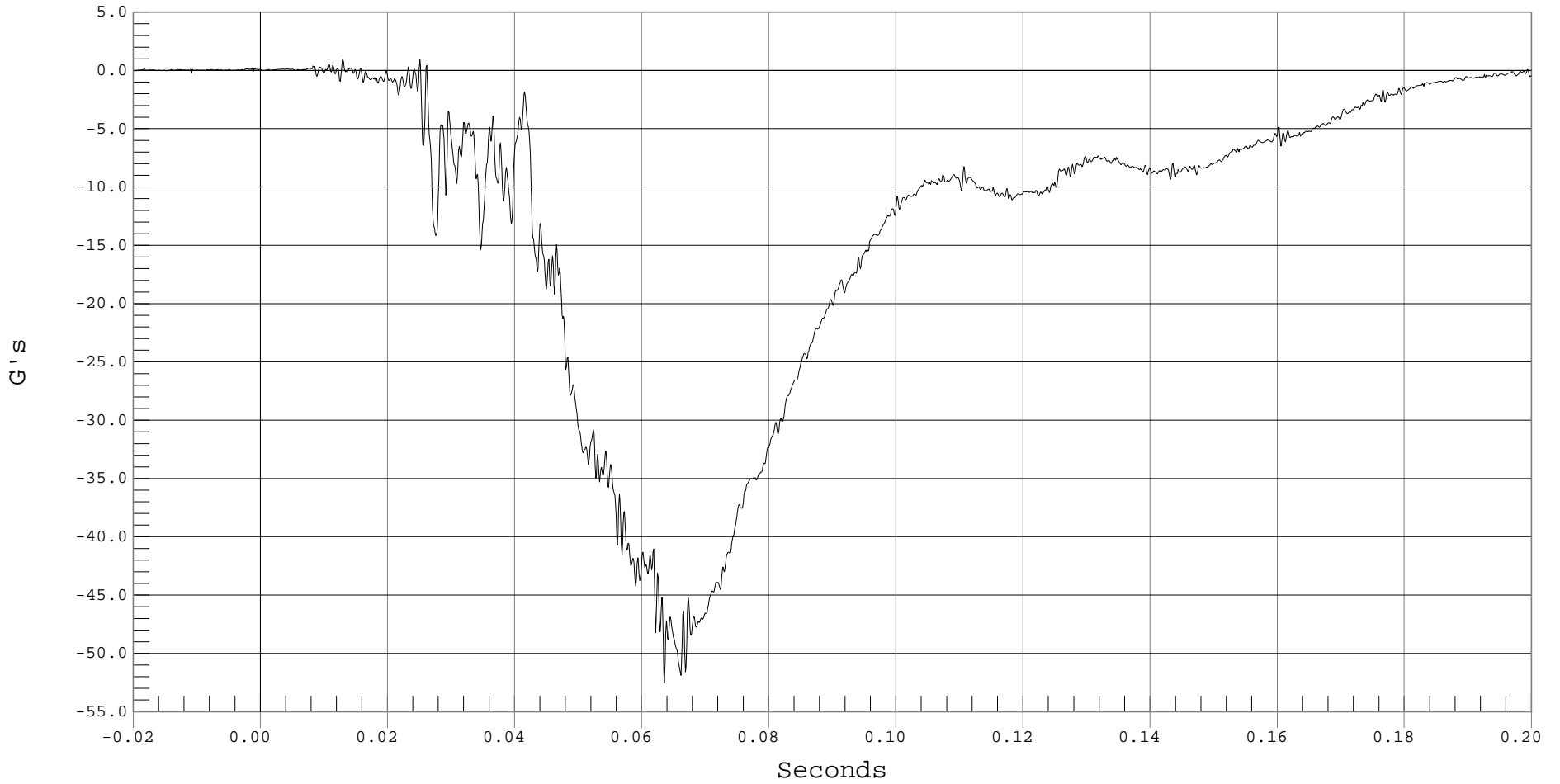
PASSENGER HEAD X ACCELERATION

Test Desc.: 35 MPH FRONTAL
Component: 2001 FORD ESCAPE (M10211)
Other Info:

Test Date: 04-20-01
Speed: 35.1 MPH, 56.5 KPH
Filter Class: 1000

— 1 PASSENGER HEAD X, B01044AT.A19

Ymin = -52.57 G's @ 0.0635 Seconds, Ymax = .96 G's @ 0.0129 Seconds



B-57



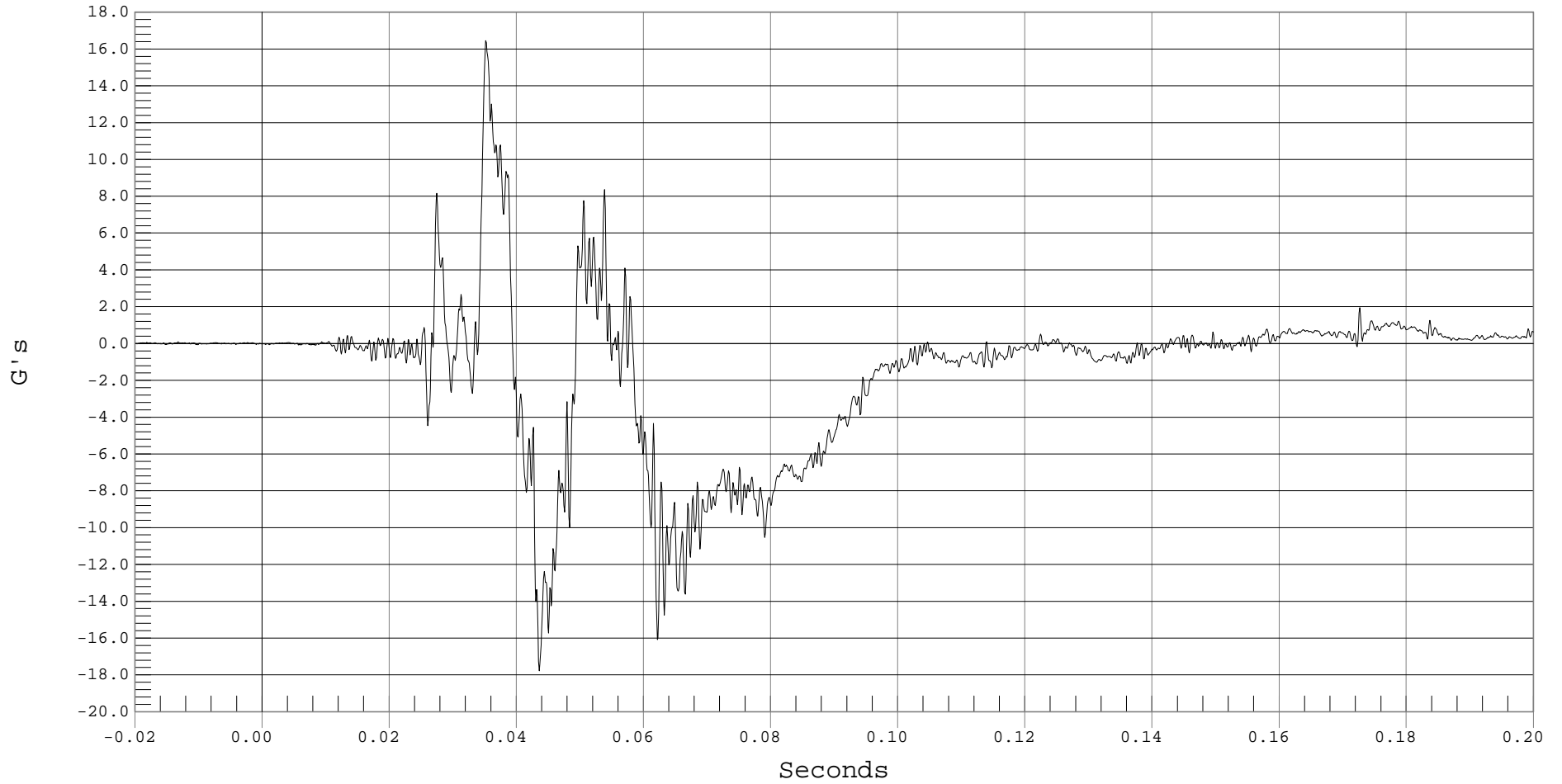
PASSENGER HEAD Y ACCELERATION

Test Desc.: 35 MPH FRONTAL
Component: 2001 FORD ESCAPE (M10211)
Other Info:

Test Date: 04-20-01
Speed: 35.1 MPH, 56.5 KPH
Filter Class: 1000

— 1 PASSENGER HEAD Y, B01044AT.A20

Ymin = -17.77 G's @ 0.0435 Seconds, Ymax = 16.46 G's @ 0.0351 Seconds



B-58



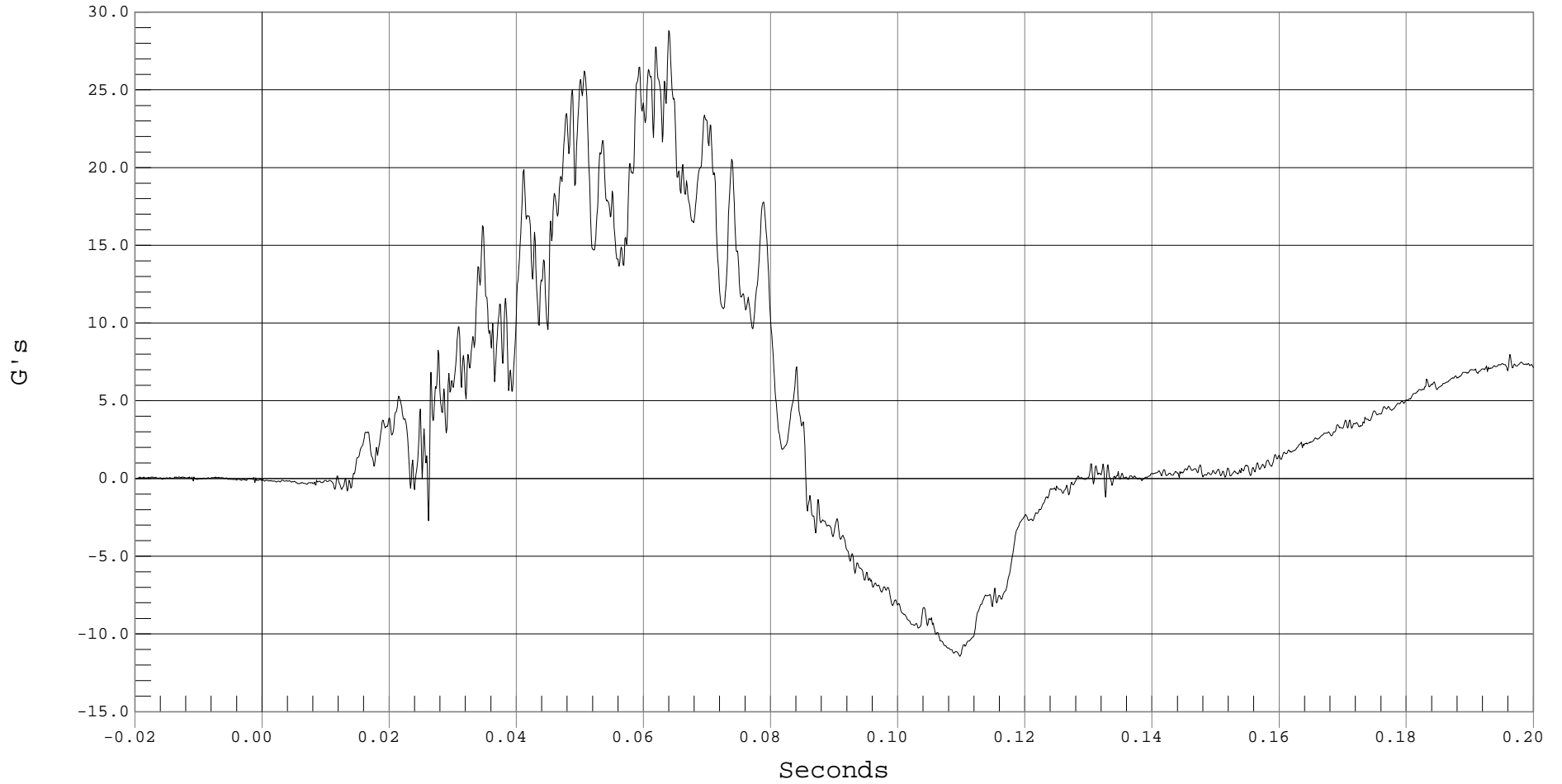
PASSENGER HEAD Z ACCELERATION

Test Desc.: 35 MPH FRONTAL
Component: 2001 FORD ESCAPE (M10211)
Other Info:

Test Date: 04-20-01
Speed: 35.1 MPH, 56.5 KPH
Filter Class: 1000

— 1 PASSENGER HEAD Z, B01044AT.A21

Ymin = -11.44 G's @ 0.1097 Seconds, Ymax = 28.81 G's @ 0.0639 Seconds





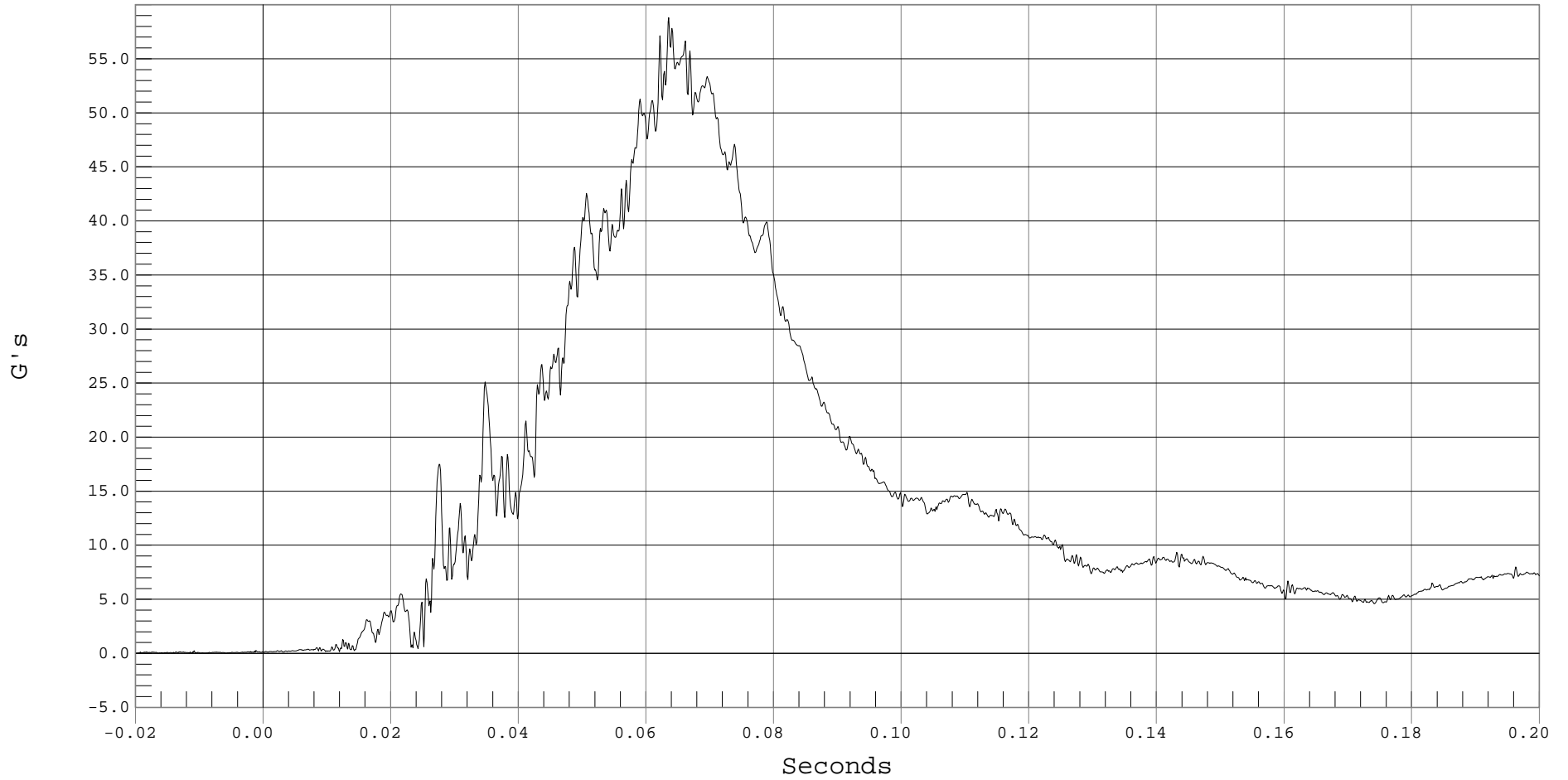
PASSENGER HEAD RESULTANT ACCELERATION

Test Desc.: 35 MPH FRONTAL
Component: 2001 FORD ESCAPE (M10211)
Other Info:

Test Date: 04-20-01
Speed: 35.1 MPH, 56.5 KPH
Filter Class: 1000

— 1 PASSENGER HEAD RESULTANT ACCELERATION, B01044AV.A19

Ymin = .02 G's @ -0.0107 Seconds, Ymax = 58.79 G's @ 0.0635 Seconds



B-60



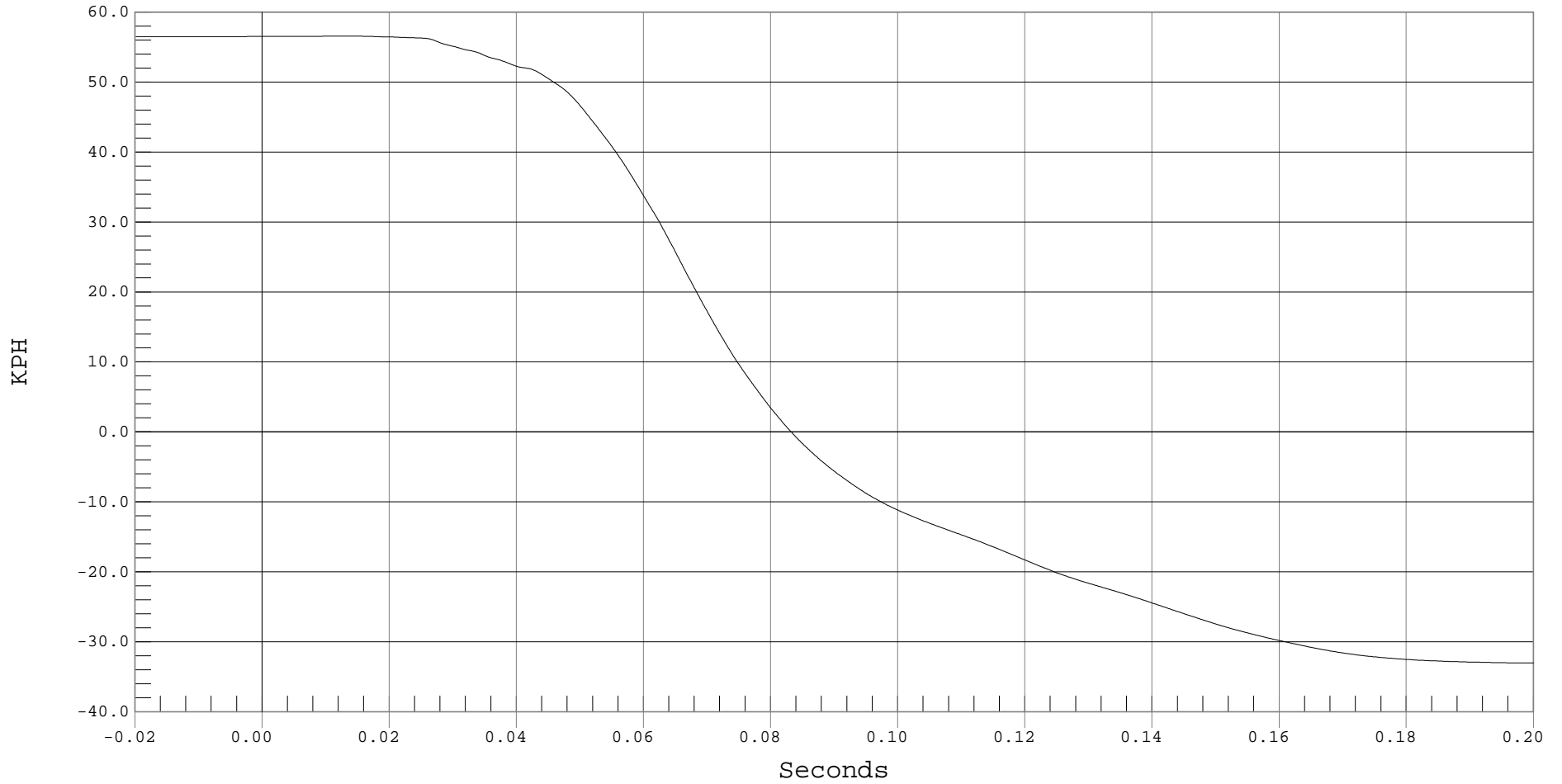
PASSENGER HEAD X VELOCITY

Test Desc.: 35 MPH FRONTAL
Component: 2001 FORD ESCAPE (M10211)
Other Info:

Test Date: 04-20-01
Speed: 35.1 MPH, 56.5 KPH
Filter Class: 180

— 1 PASSENGER HEAD X VELOCITY, B01044AI.V19

Ymin = -33.04 KPH @ 0.2000 Seconds, Ymax = 56.56 KPH @ 0.0143 Seconds



B-61



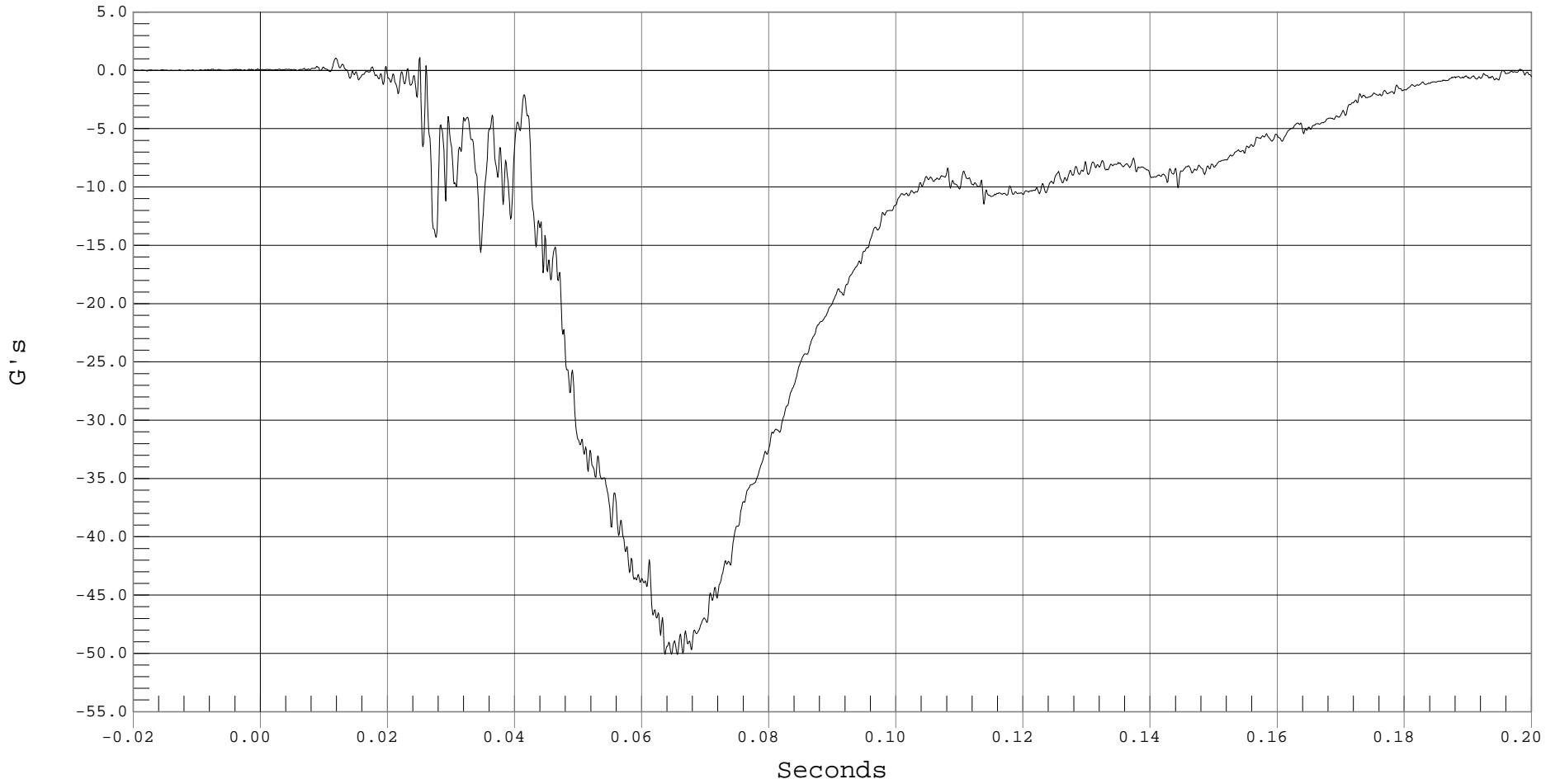
PASSENGER HEAD REDUNDANT X ACCELERATION

Test Desc.: 35 MPH FRONTAL
Component: 2001 FORD ESCAPE (M10211)
Other Info:

Test Date: 04-20-01
Speed: 35.1 MPH, 56.5 KPH
Filter Class: 1000

— 1 PASSENGER HEAD Xr, B01044AT.A41

Ymin = -50.09 G's @ 0.0655 Seconds, Ymax = 1.11 G's @ 0.0250 Seconds



B-62



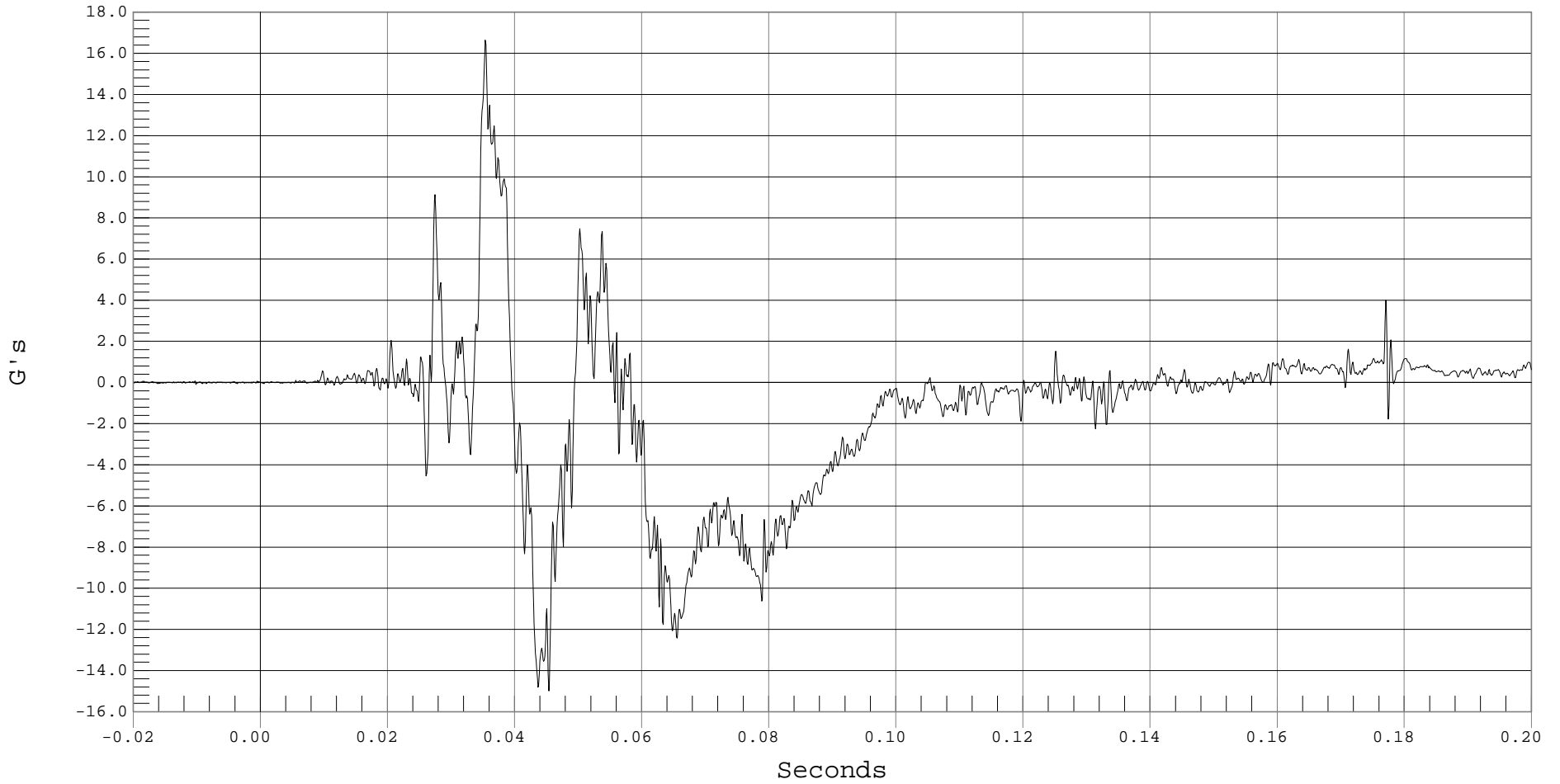
PASSENGER HEAD REDUNDANT Y ACCELERATION

Test Desc.: 35 MPH FRONTAL
Component: 2001 FORD ESCAPE (M10211)
Other Info:

Test Date: 04-20-01
Speed: 35.1 MPH, 56.5 KPH
Filter Class: 1000

— 1 PASSENGER HEAD Yr, B01044AT.A42

Ymin = -14.99 G's @ 0.0453 Seconds, Ymax = 16.65 G's @ 0.0353 Seconds



B-63



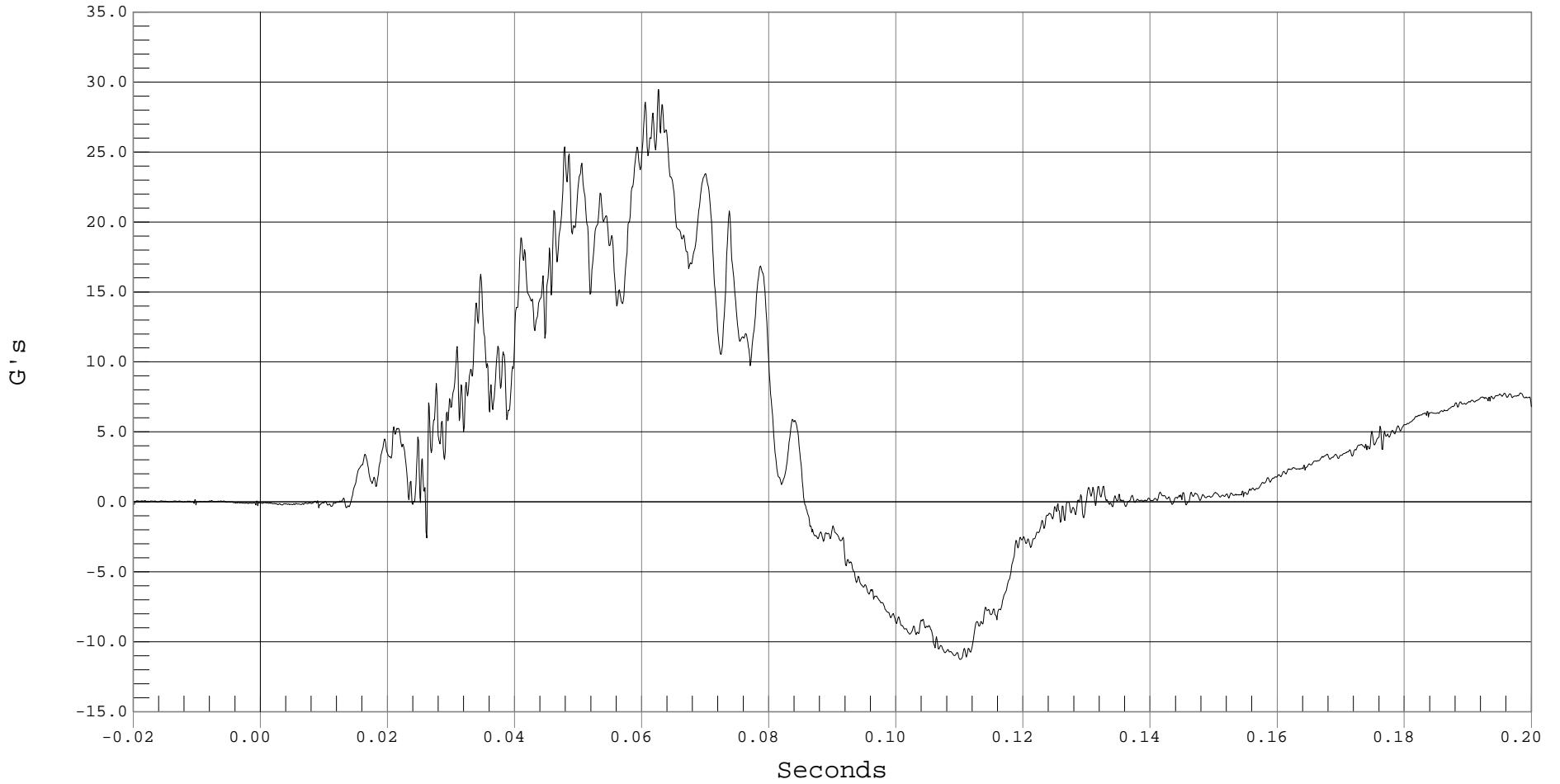
PASSENGER HEAD REDUNDANT Z ACCELERATION

Test Desc.: 35 MPH FRONTAL
Component: 2001 FORD ESCAPE (M10211)
Other Info:

Test Date: 04-20-01
Speed: 35.1 MPH, 56.5 KPH
Filter Class: 1000

— 1 PASSENGER HEAD Zr, B01044AT.A43

Ymin = -11.28 G's @ 0.1100 Seconds, Ymax = 29.48 G's @ 0.0625 Seconds



B-64



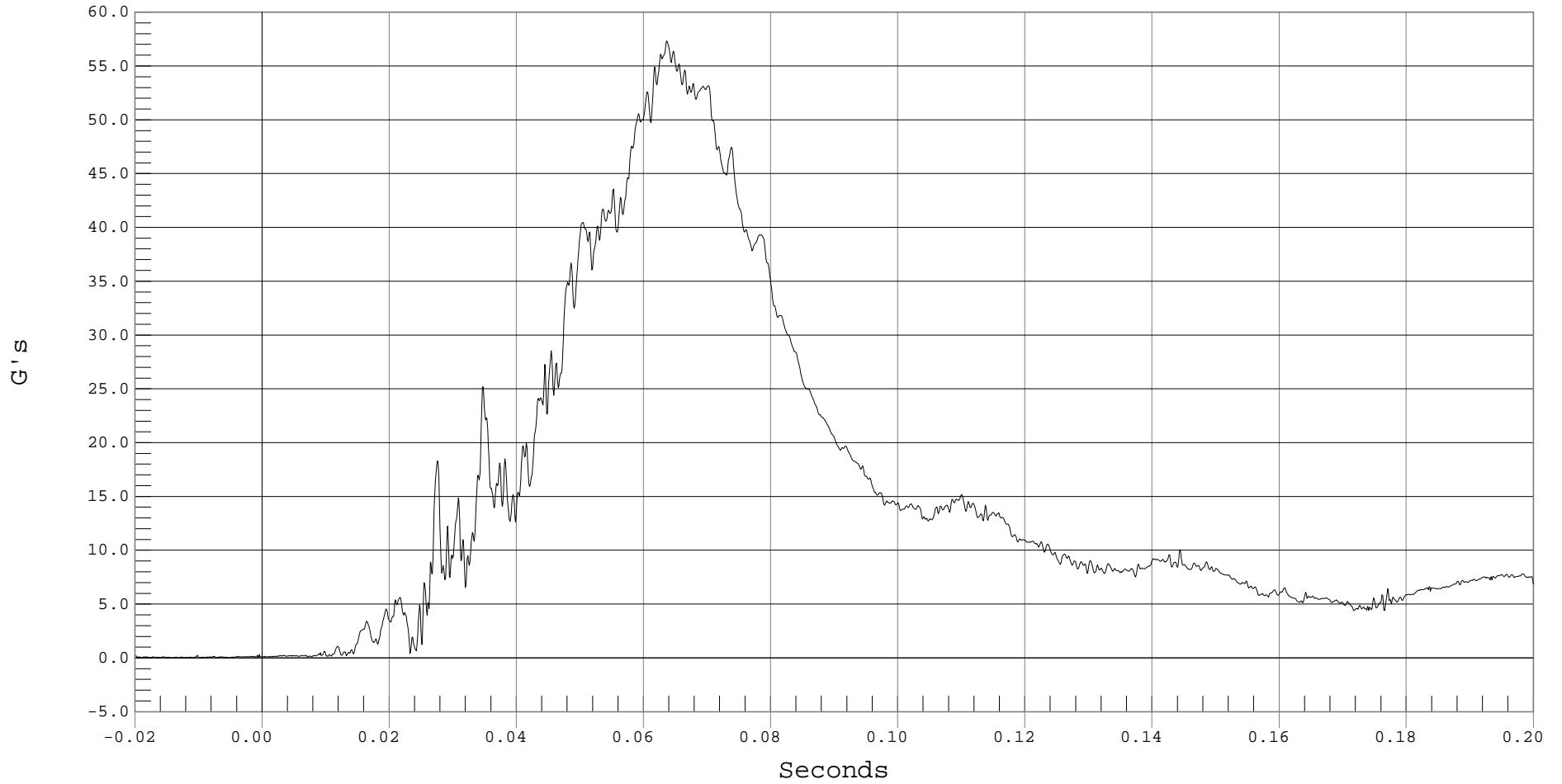
PASSENGER HEAD REDUNDANT RESULTANT ACCELERATION

Test Desc.: 35 MPH FRONTAL
Component: 2001 FORD ESCAPE (M10211)
Other Info:

Test Date: 04-20-01
Speed: 35.1 MPH, 56.5 KPH
Filter Class: 1000

— 1 PASSENGER HEAD REDUNDANT RESULTANT ACCELERATION, B01044AV.A41

Ymin = 0 G's @ -0.0125 Seconds, Ymax = 57.33 G's @ 0.0636 Seconds



B-65



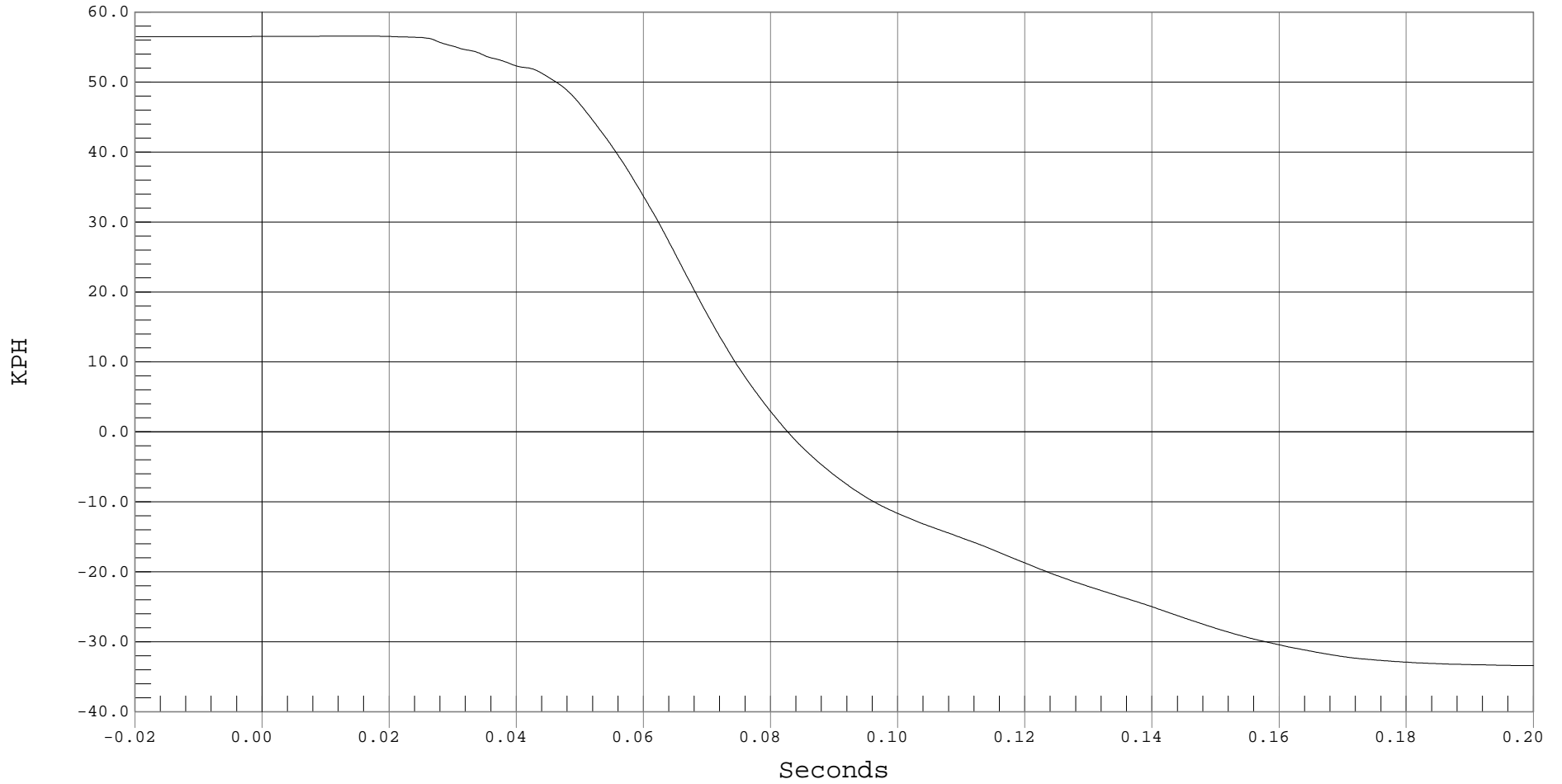
PASSENGER HEAD REDUNDANT X VELOCITY

Test Desc.: 35 MPH FRONTAL
Component: 2001 FORD ESCAPE (M10211)
Other Info:

Test Date: 04-20-01
Speed: 35.1 MPH, 56.5 KPH
Filter Class: 180

— 1 PASSENGER HEAD REDUNDANT X VELOCITY, B01044AI.V41

Ymin = -33.4 KPH @ 0.2000 Seconds, Ymax = 56.6 KPH @ 0.0135 Seconds



B-66



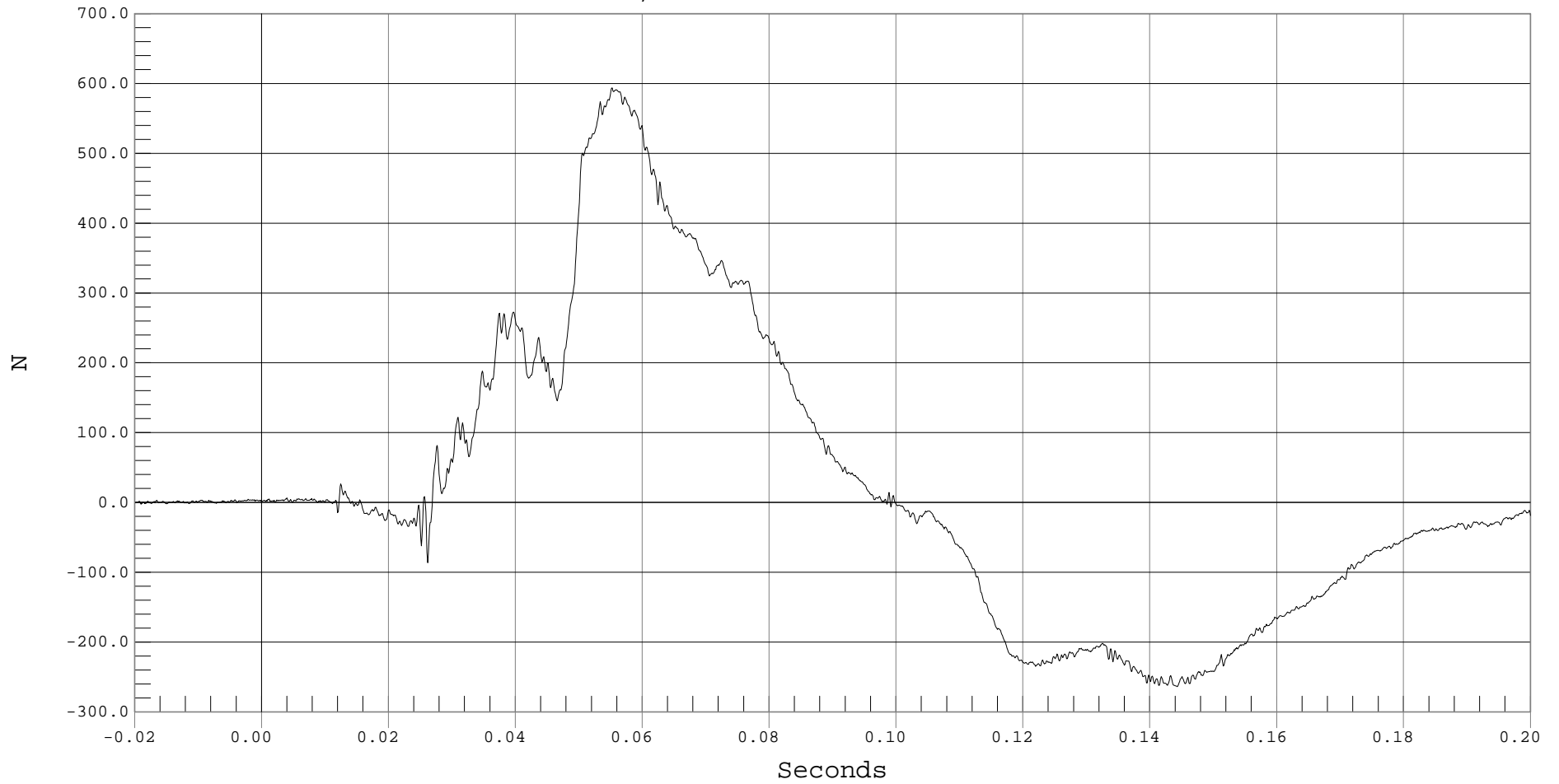
PASSENGER NECK FORCE X

Test Desc.: 35 MPH FRONTAL
Component: 2001 FORD ESCAPE (M10211)
Other Info:

Test Date: 04-20-01
Speed: 35.1 MPH, 56.5 KPH
Filter Class: 1000

— 1 PASSENGER NECK FX, B01044FT.F44

Ymin = -263.87 N @ 0.1442 Seconds, Ymax = 593.66 N @ 0.0551 Seconds



B-67



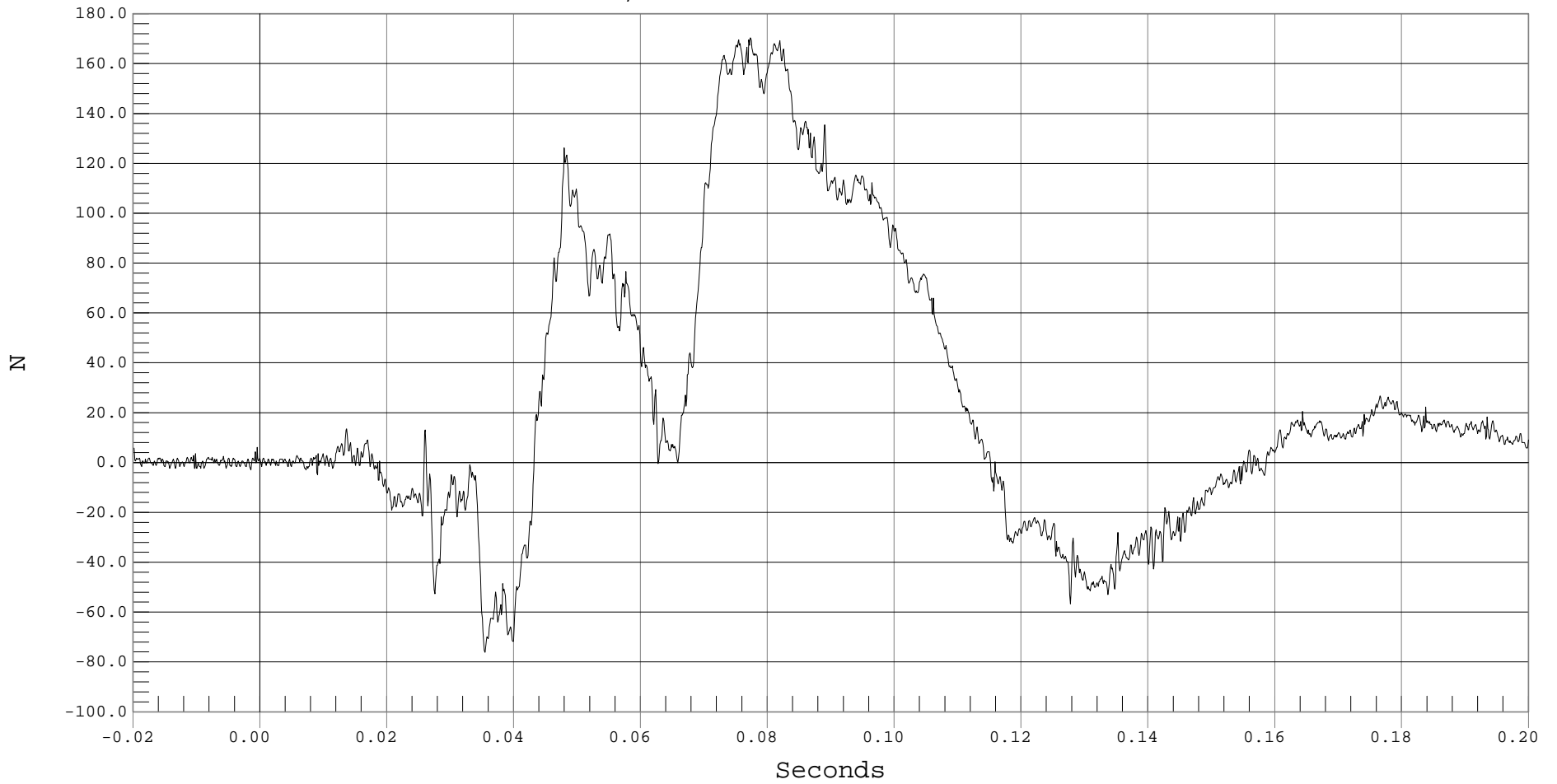
PASSENGER NECK FORCE Y

Test Desc.: 35 MPH FRONTAL
Component: 2001 FORD ESCAPE (M10211)
Other Info:

Test Date: 04-20-01
Speed: 35.1 MPH, 56.5 KPH
Filter Class: 1000

— 1 PASSENGER NECK FY, B01044FT.F45

Ymin = -76.13 N @ 0.0354 Seconds, Ymax = 170.29 N @ 0.0772 Seconds





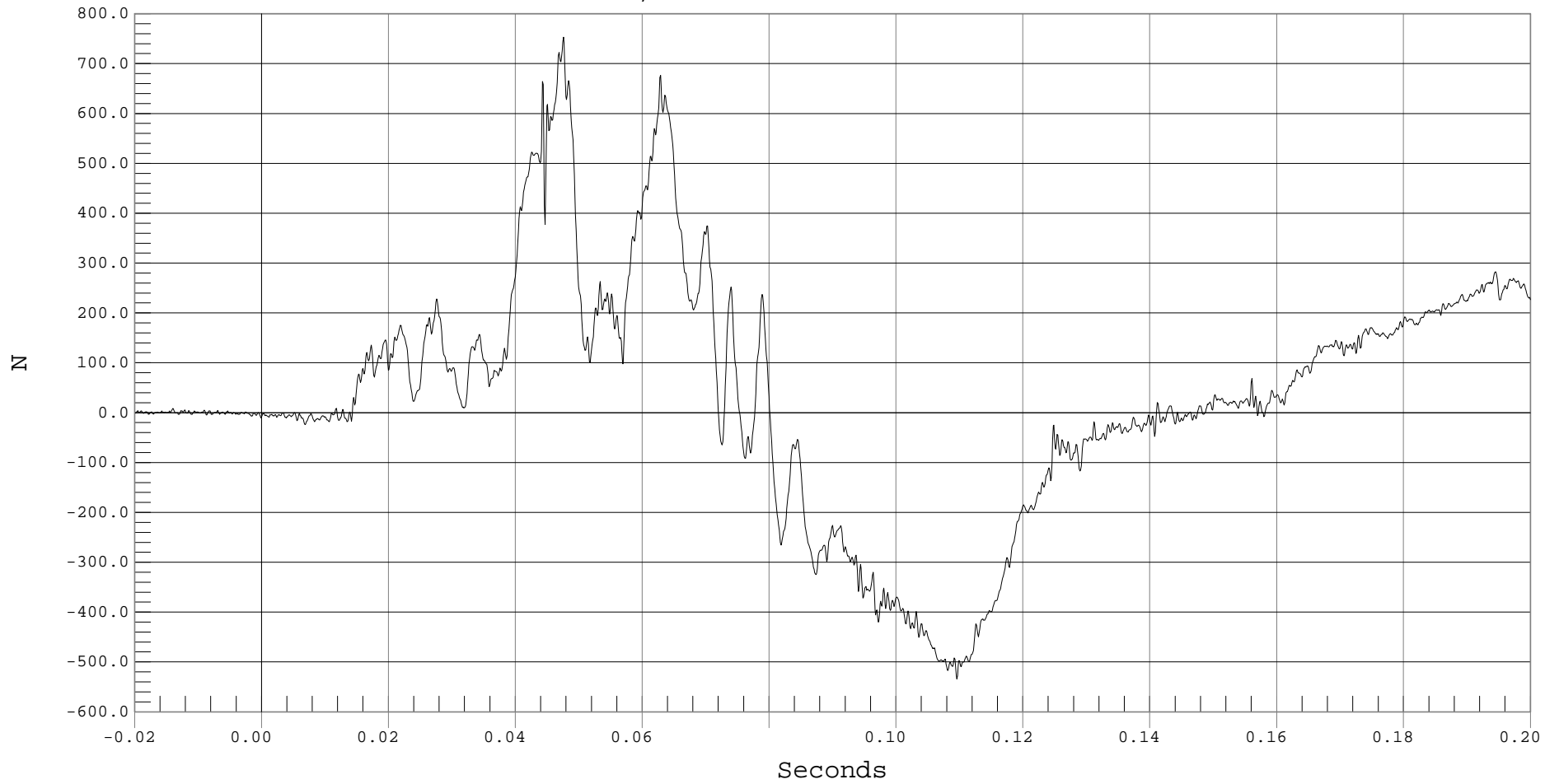
PASSENGER NECK FORCE Z

Test Desc.: 35 MPH FRONTAL
Component: 2001 FORD ESCAPE (M10211)
Other Info:

Test Date: 04-20-01
Speed: 35.1 MPH, 56.5 KPH
Filter Class: 1000

— 1 PASSENGER NECK FZ, B01044FT.F46

Ymin = -533.88 N @ 0.1095 Seconds, Ymax = 752.88 N @ 0.0475 Seconds



B-69



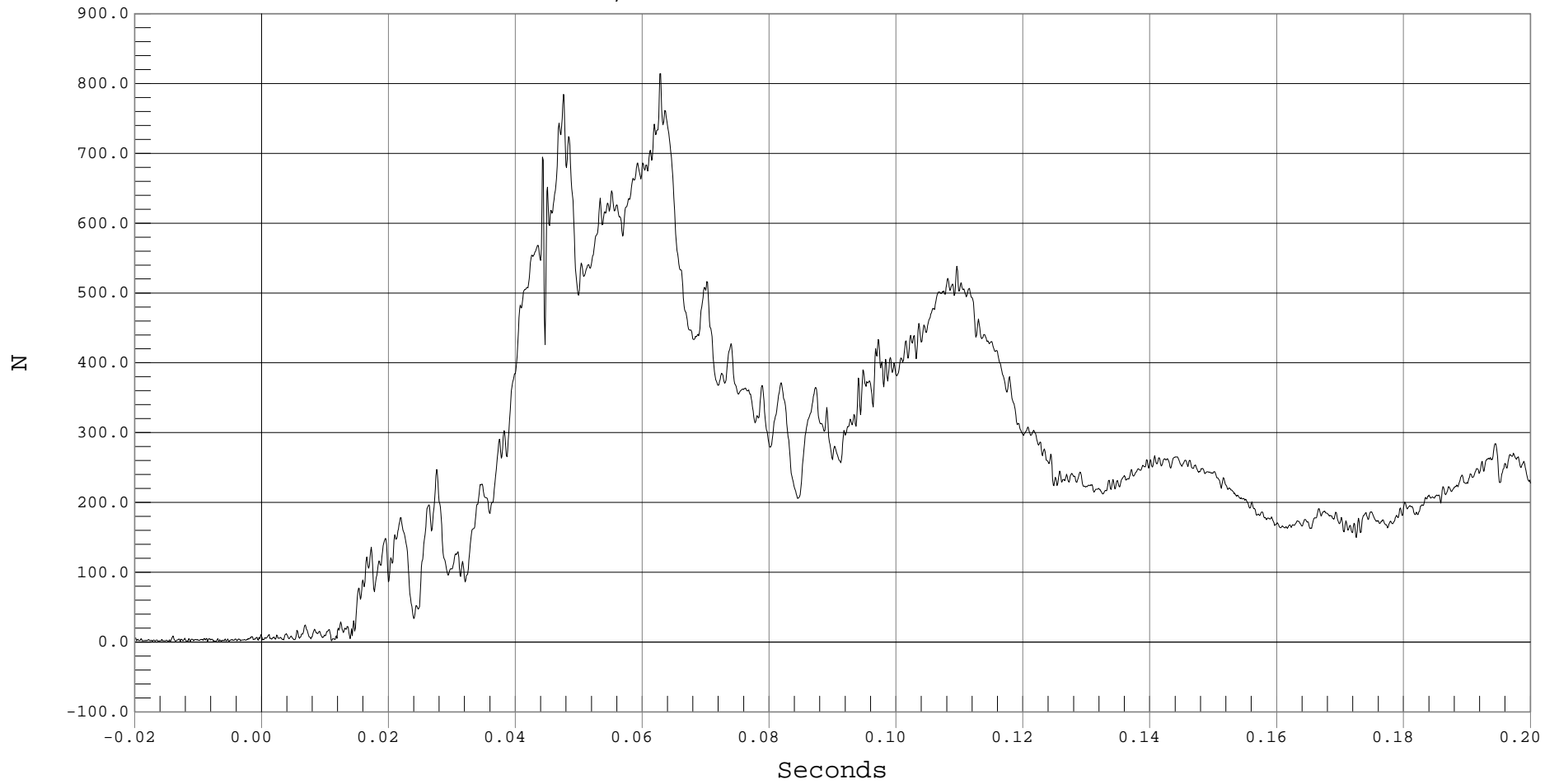
PASSENGER NECK FORCE RESULTANT

Test Desc.: 35 MPH FRONTAL
Component: 2001 FORD ESCAPE (M10211)
Other Info:

Test Date: 04-20-01
Speed: 35.1 MPH, 56.5 KPH
Filter Class: 1000

— 1 PASSENGER NECK FORCE RESULTANT, B01044FV.F44

Ymin = .43 N @ -0.0145 Seconds, Ymax = 814.29 N @ 0.0628 Seconds



B-70



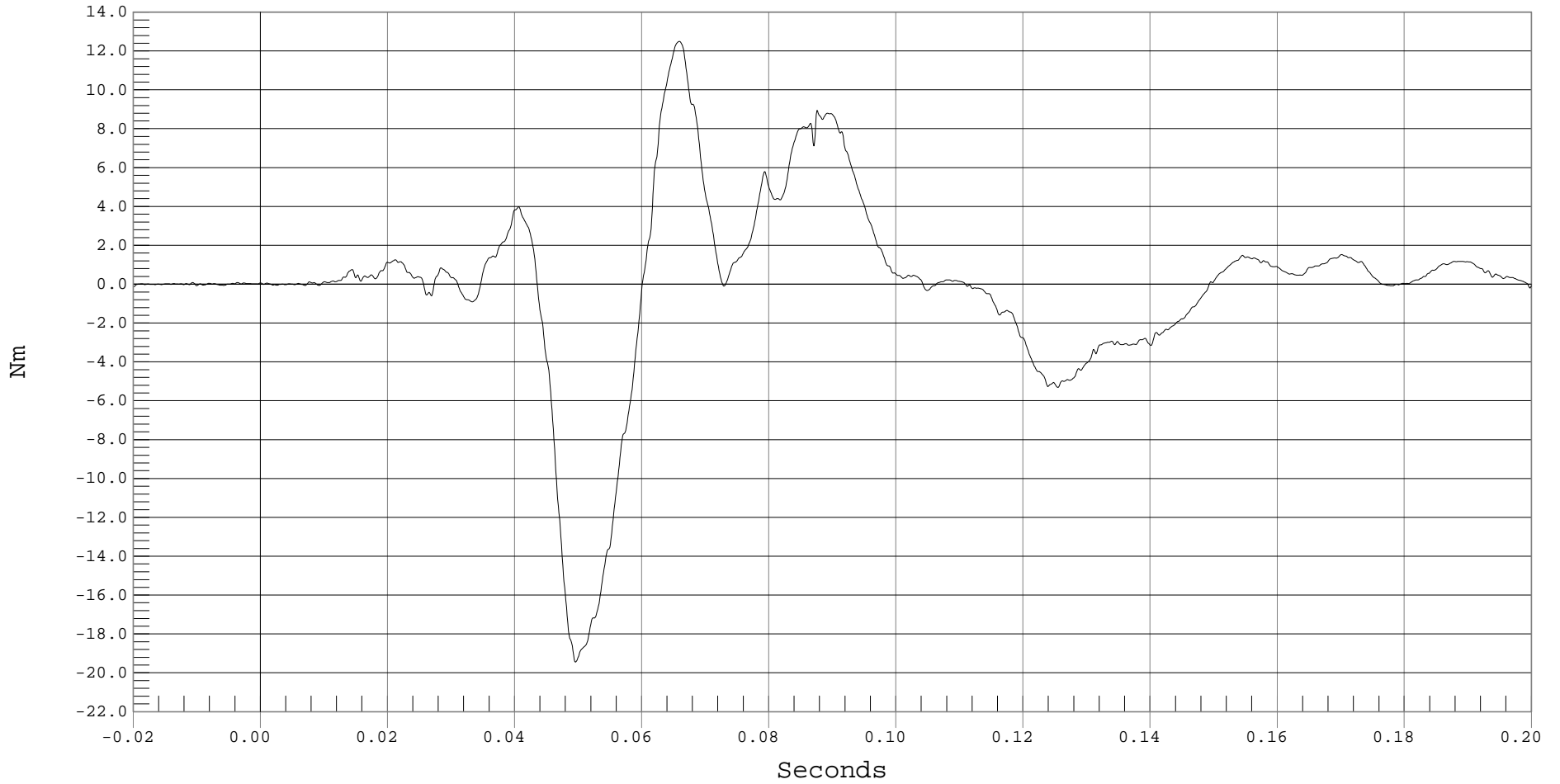
PASSENGER NECK MOMENT X

Test Desc.: 35 MPH FRONTAL
Component: 2001 FORD ESCAPE (M10211)
Other Info:

Test Date: 04-20-01
Speed: 35.1 MPH, 56.5 KPH
Filter Class: 600

— 1 PASSENGER NECK MX, B01044MF.M47

Ymin = -19.46 Nm @ 0.0495 Seconds, Ymax = 12.5 Nm @ 0.0658 Seconds



B-71



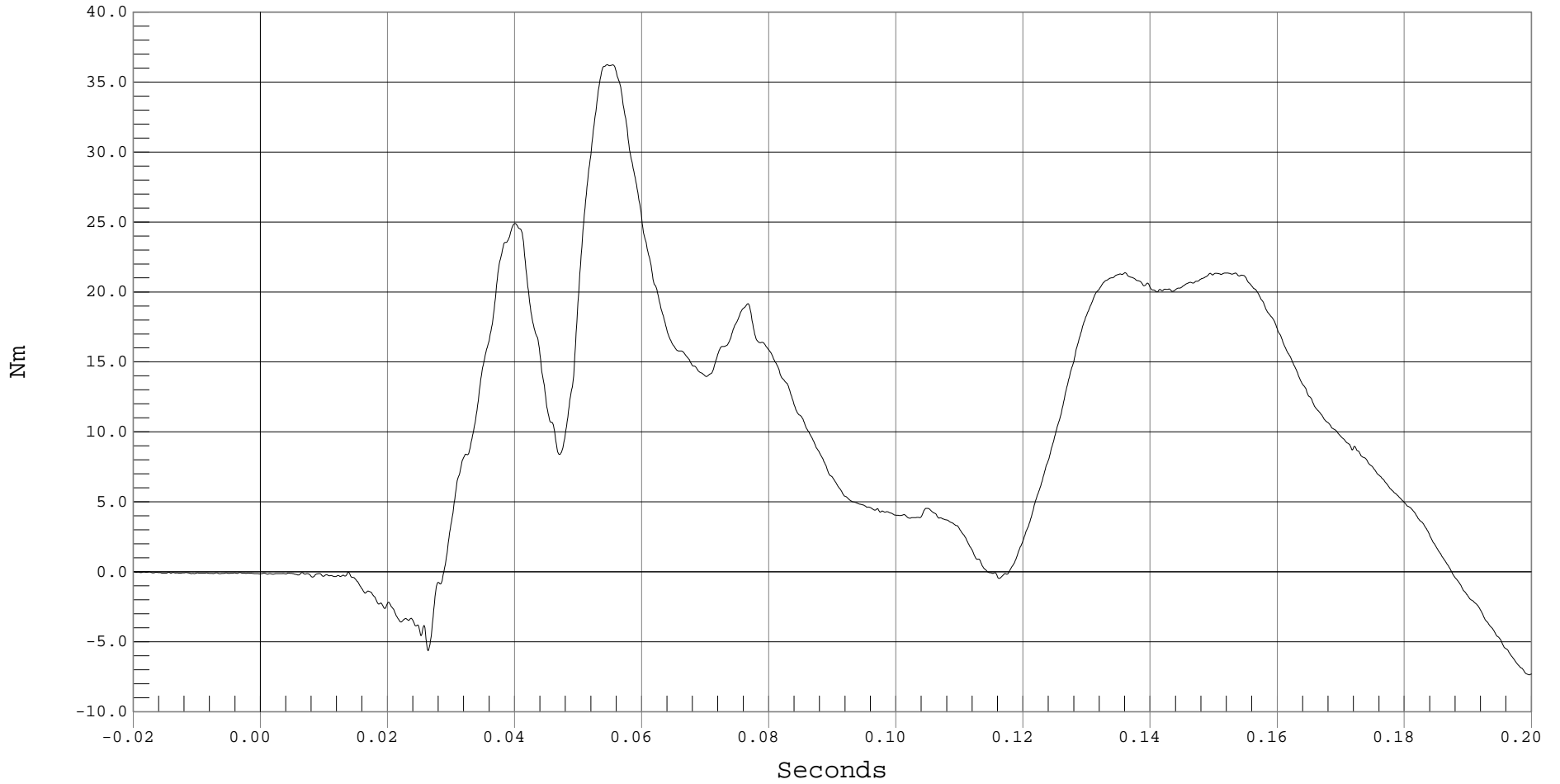
PASSENGER NECK MOMENT Y

Test Desc.: 35 MPH FRONTAL
Component: 2001 FORD ESCAPE (M10211)
Other Info:

Test Date: 04-20-01
Speed: 35.1 MPH, 56.5 KPH
Filter Class: 600

— 1 PASSENGER NECK MY, B01044MF.M48

Ymin = -7.35 Nm @ 0.1996 Seconds, Ymax = 36.24 Nm @ 0.0545 Seconds



B-72



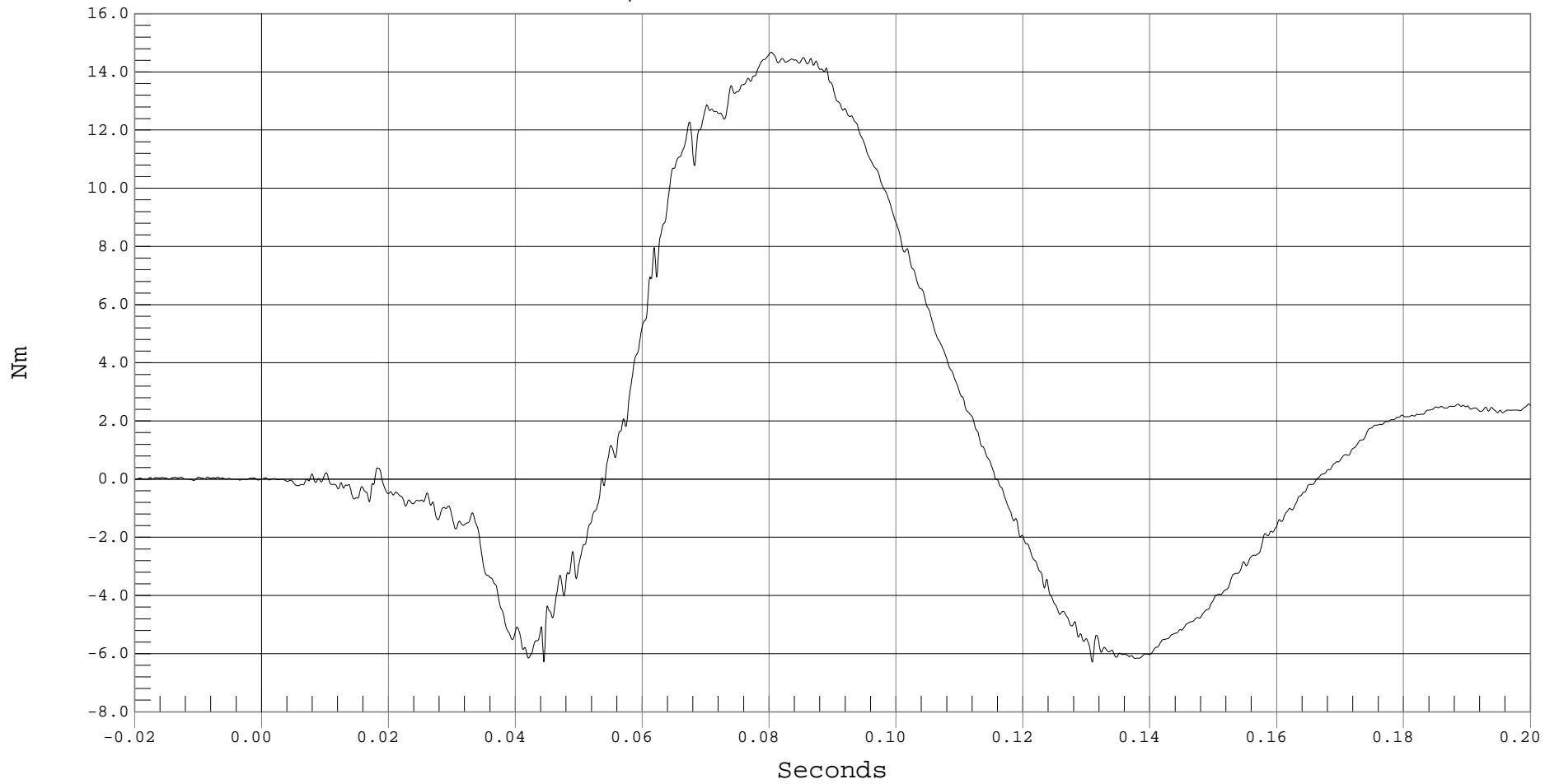
PASSENGER NECK MOMENT Z

Test Desc.: 35 MPH FRONTAL
Component: 2001 FORD ESCAPE (M10211)
Other Info:

Test Date: 04-20-01
Speed: 35.1 MPH, 56.5 KPH
Filter Class: 600

— 1 PASSENGER NECK MZ, B01044MF.M49

Ymin = -6.29 Nm @ 0.1308 Seconds, Ymax = 14.68 Nm @ 0.0802 Seconds





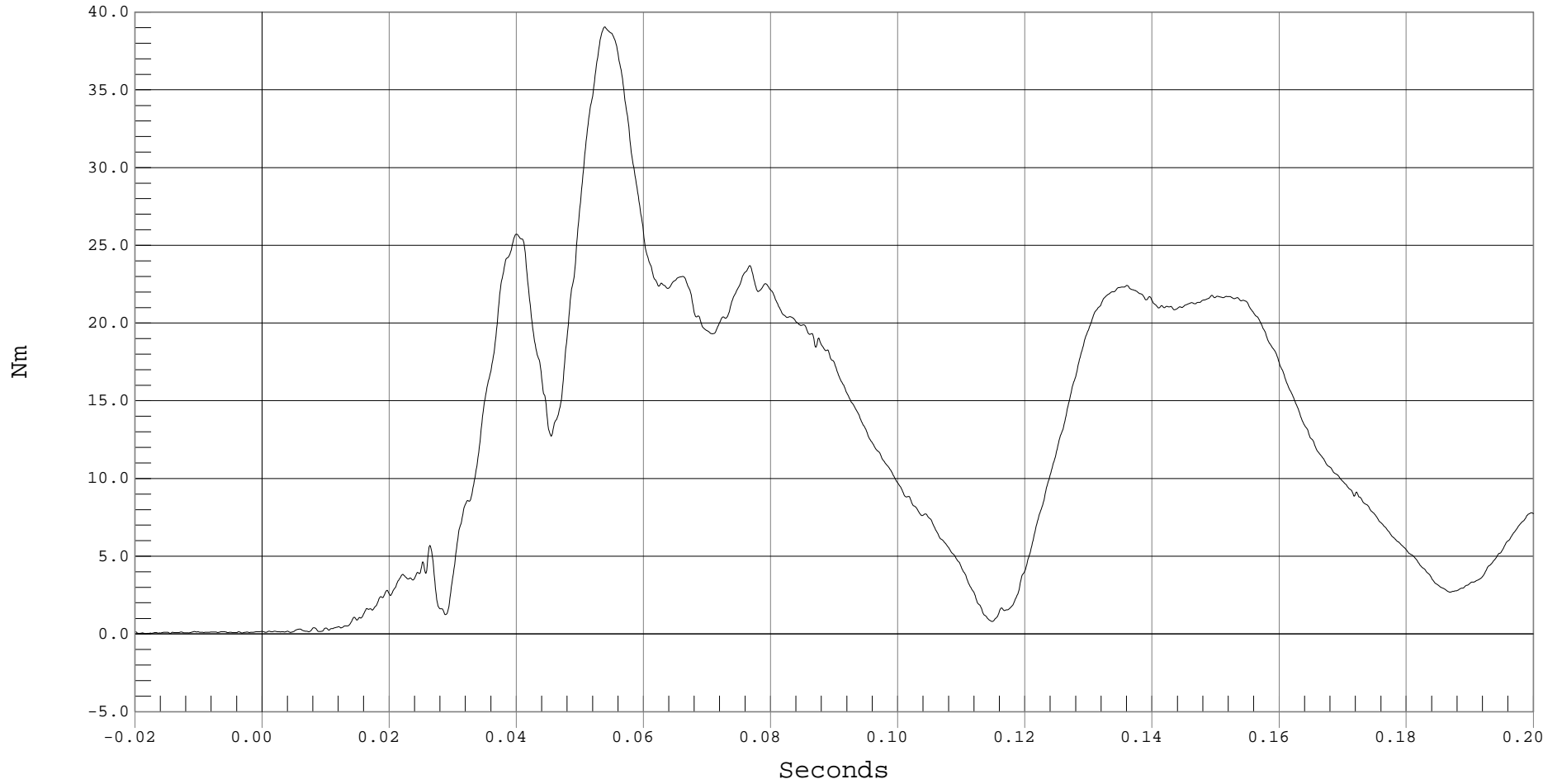
PASSENGER NECK MOMENT RESULTANT

Test Desc.: 35 MPH FRONTAL
Component: 2001 FORD ESCAPE (M10211)
Other Info:

Test Date: 04-20-01
Speed: 35.1 MPH, 56.5 KPH
Filter Class: 600

— 1 PASSENGER NECK MOMENT RESULTANT, B01044MV.M47

Ymin = .02 Nm @ -0.0185 Seconds, Ymax = 39.06 Nm @ 0.0538 Seconds



B-74



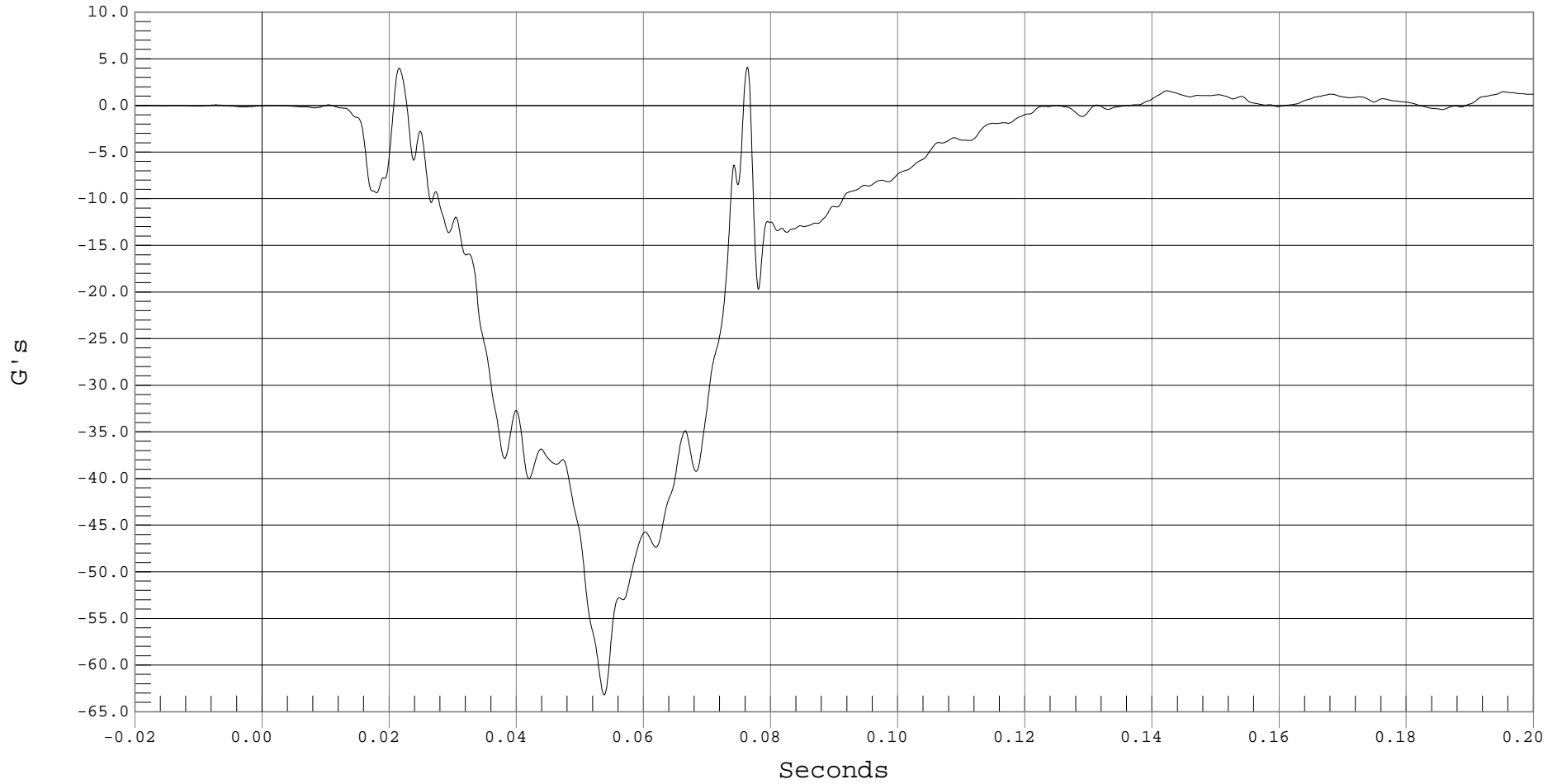
PASSENGER CHEST X ACCELERATION

Test Desc.: 35 MPH FRONTAL
Component: 2001 FORD ESCAPE (M10211)
Other Info:

Test Date: 04-20-01
Speed: 35.1 MPH, 56.5 KPH
Filter Class: 180

— 1 PASSENGER CHEST X, B01044AF.A22

Ymin = -63.2 G's @ 0.0537 Seconds, Ymax = 4.07 G's @ 0.0763 Seconds



B-75



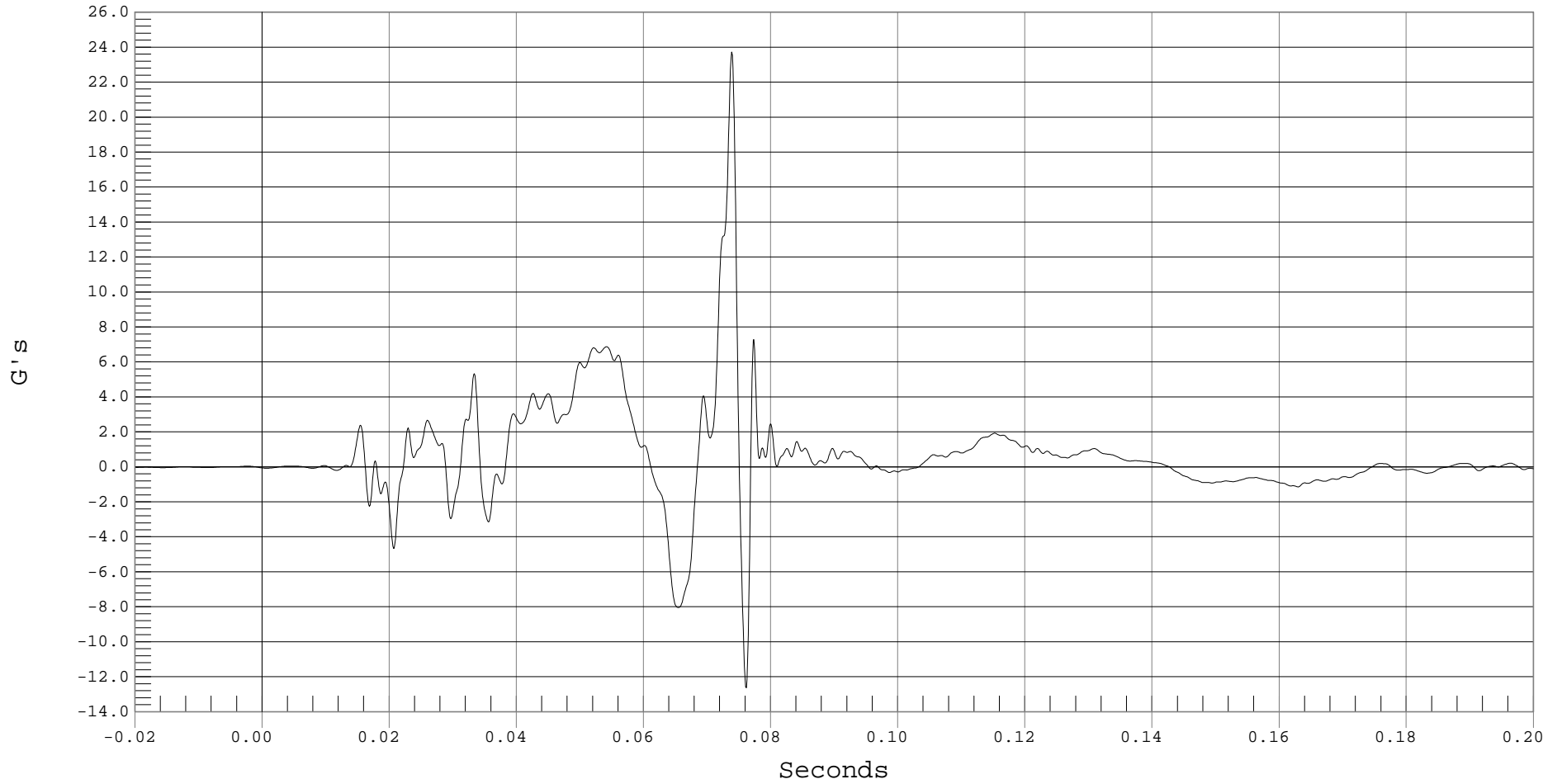
PASSENGER CHEST Y ACCELERATION

Test Desc.: 35 MPH FRONTAL
Component: 2001 FORD ESCAPE (M10211)
Other Info:

Test Date: 04-20-01
Speed: 35.1 MPH, 56.5 KPH
Filter Class: 180

— 1 PASSENGER CHEST Y, B01044AF.A23

Ymin = -12.64 G's @ 0.0761 Seconds, Ymax = 23.72 G's @ 0.0738 Seconds



B-76



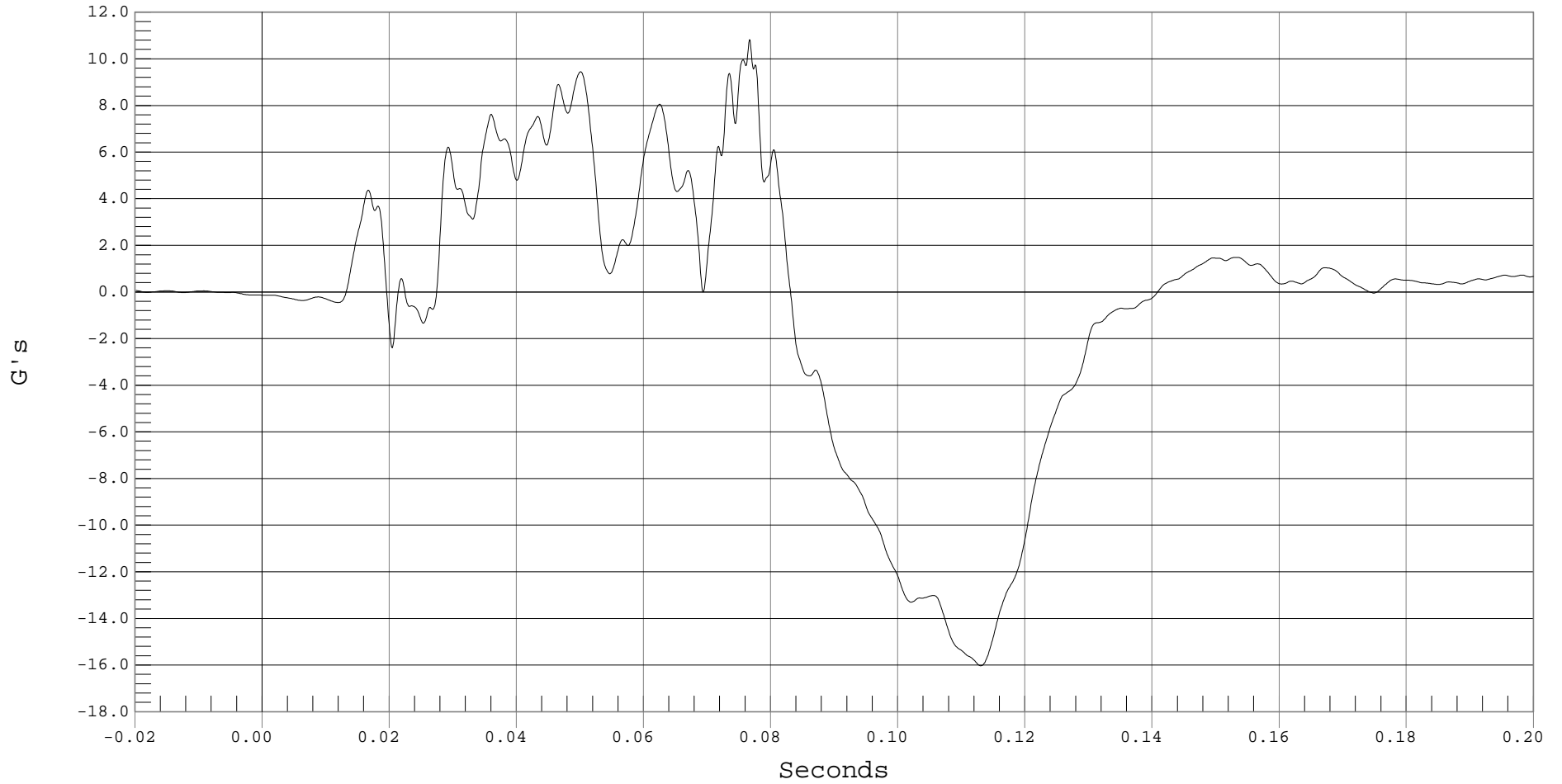
PASSENGER CHEST Z ACCELERATION

Test Desc.: 35 MPH FRONTAL
Component: 2001 FORD ESCAPE (M10211)
Other Info:

Test Date: 04-20-01
Speed: 35.1 MPH, 56.5 KPH
Filter Class: 180

— 1 PASSENGER CHEST Z, B01044AF.A24

Ymin = -16.03 G's @ 0.1130 Seconds, Ymax = 10.83 G's @ 0.0766 Seconds



B-77



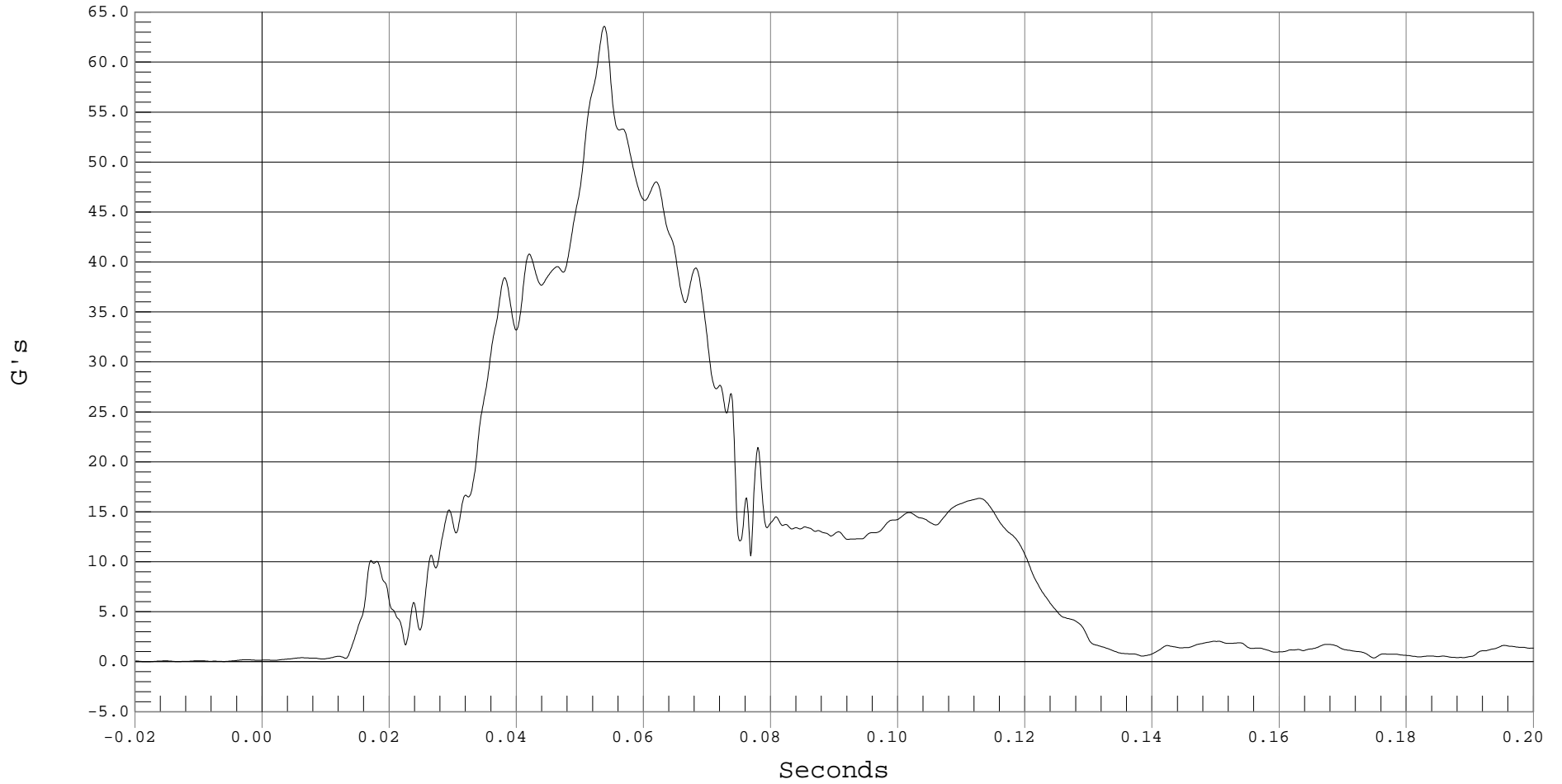
PASSENGER CHEST RESULTANT ACCELERATION

Test Desc.: 35 MPH FRONTAL
Component: 2001 FORD ESCAPE (M10211)
Other Info:

Test Date: 04-20-01
Speed: 35.1 MPH, 56.5 KPH
Filter Class: 180

— 1 PASSENGER CHEST RESULTANT ACCELERATION, B01044AV.A22

Ymin = .01 G's @ -0.0133 Seconds, Ymax = 63.58 G's @ 0.0537 Seconds



B-78



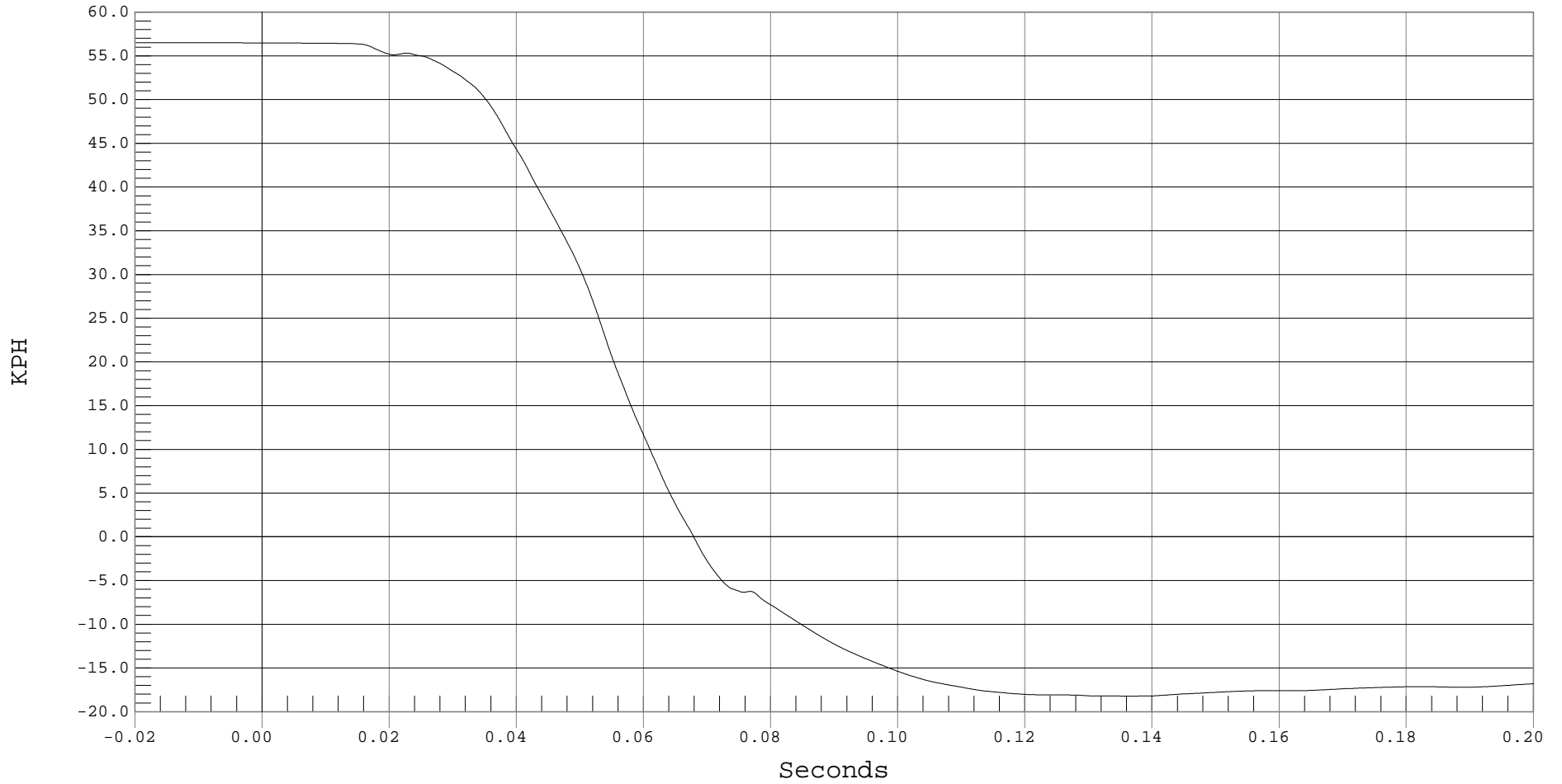
PASSENGER CHEST X VELOCITY

Test Desc.: 35 MPH FRONTAL
Component: 2001 FORD ESCAPE (M10211)
Other Info:

Test Date: 04-20-01
Speed: 35.1 MPH, 56.5 KPH
Filter Class: 180

— 1 PASSENGER CHEST X VELOCITY, B01044AI.V22

Ymin = -18.22 KPH @ 0.1364 Seconds, Ymax = 56.5 KPH @ -0.0175 Seconds



B-79



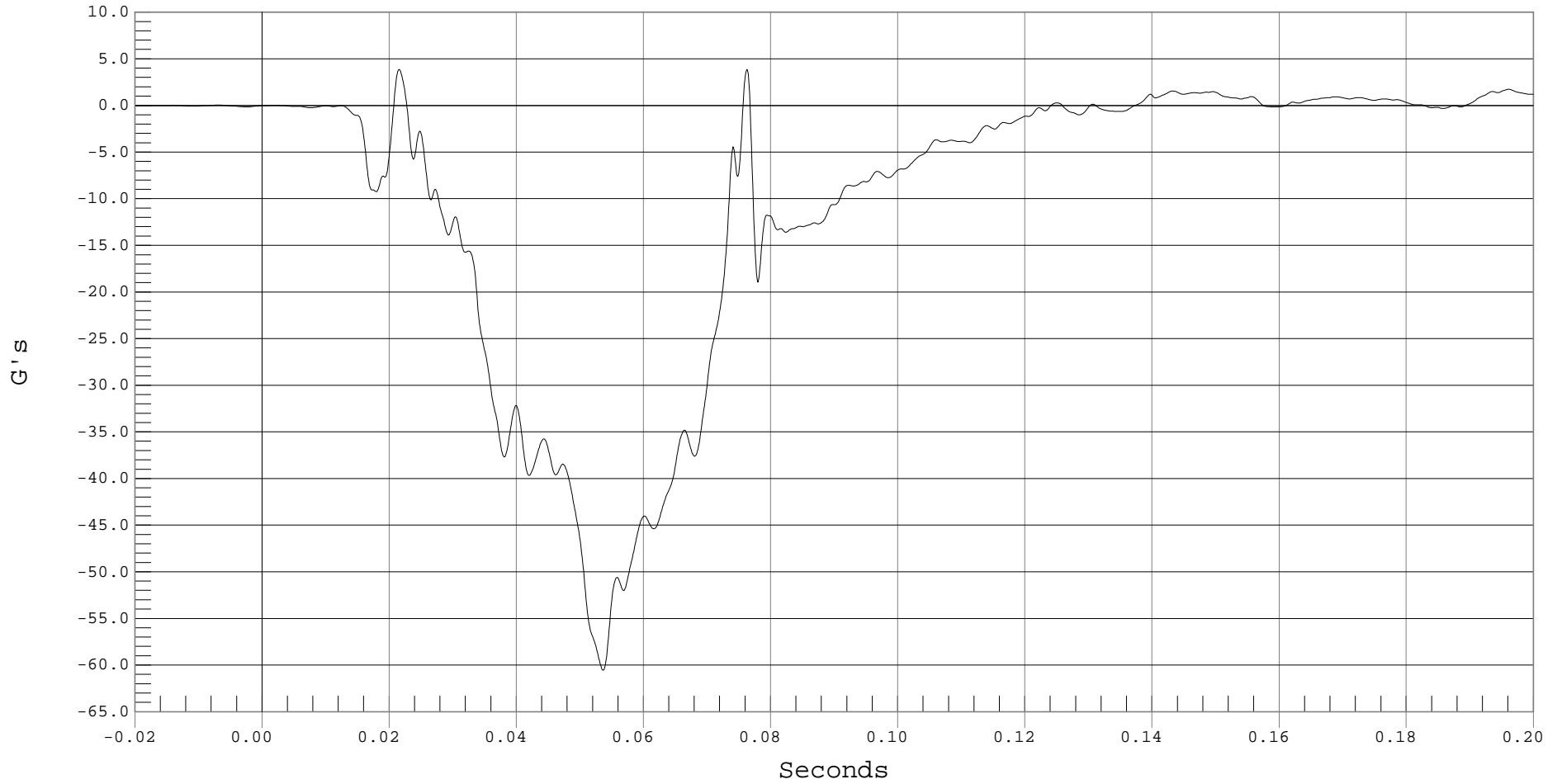
PASSENGER CHEST REDUNDANT X ACCELERATION

Test Desc.: 35 MPH FRONTAL
Component: 2001 FORD ESCAPE (M10211)
Other Info:

Test Date: 04-20-01
Speed: 35.1 MPH, 56.5 KPH
Filter Class: 180

— 1 PASSENGER CHEST Xr, B01044AF.A50

Ymin = -60.56 G's @ 0.0536 Seconds, Ymax = 3.87 G's @ 0.0762 Seconds



B-80



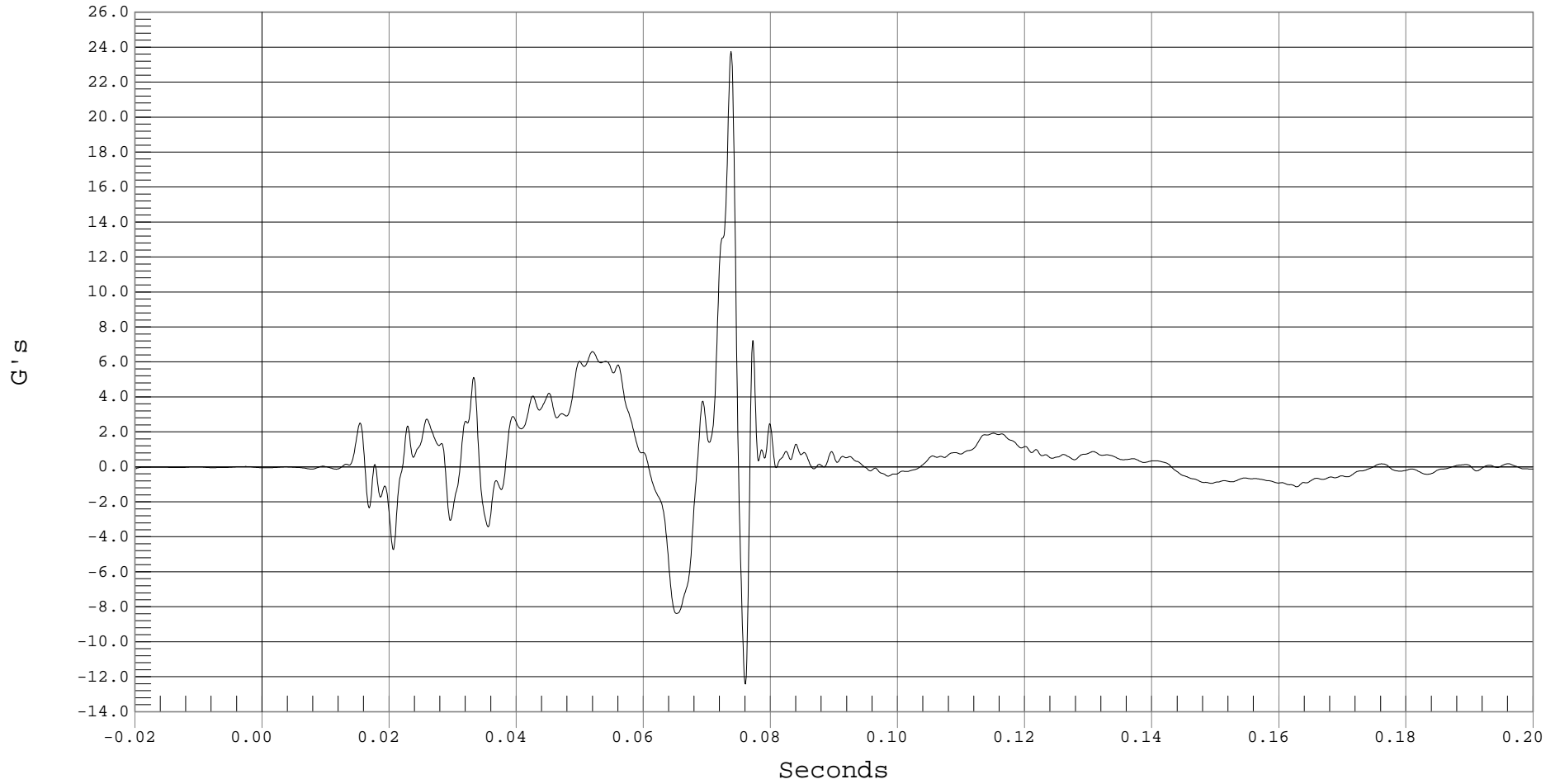
PASSENGER CHEST REDUNDANT Y ACCELERATION

Test Desc.: 35 MPH FRONTAL
Component: 2001 FORD ESCAPE (M10211)
Other Info:

Test Date: 04-20-01
Speed: 35.1 MPH, 56.5 KPH
Filter Class: 180

— 1 PASSENGER CHEST Yr, B01044AF.A51

Ymin = -12.43 G's @ 0.0760 Seconds, Ymax = 23.75 G's @ 0.0737 Seconds



B-81



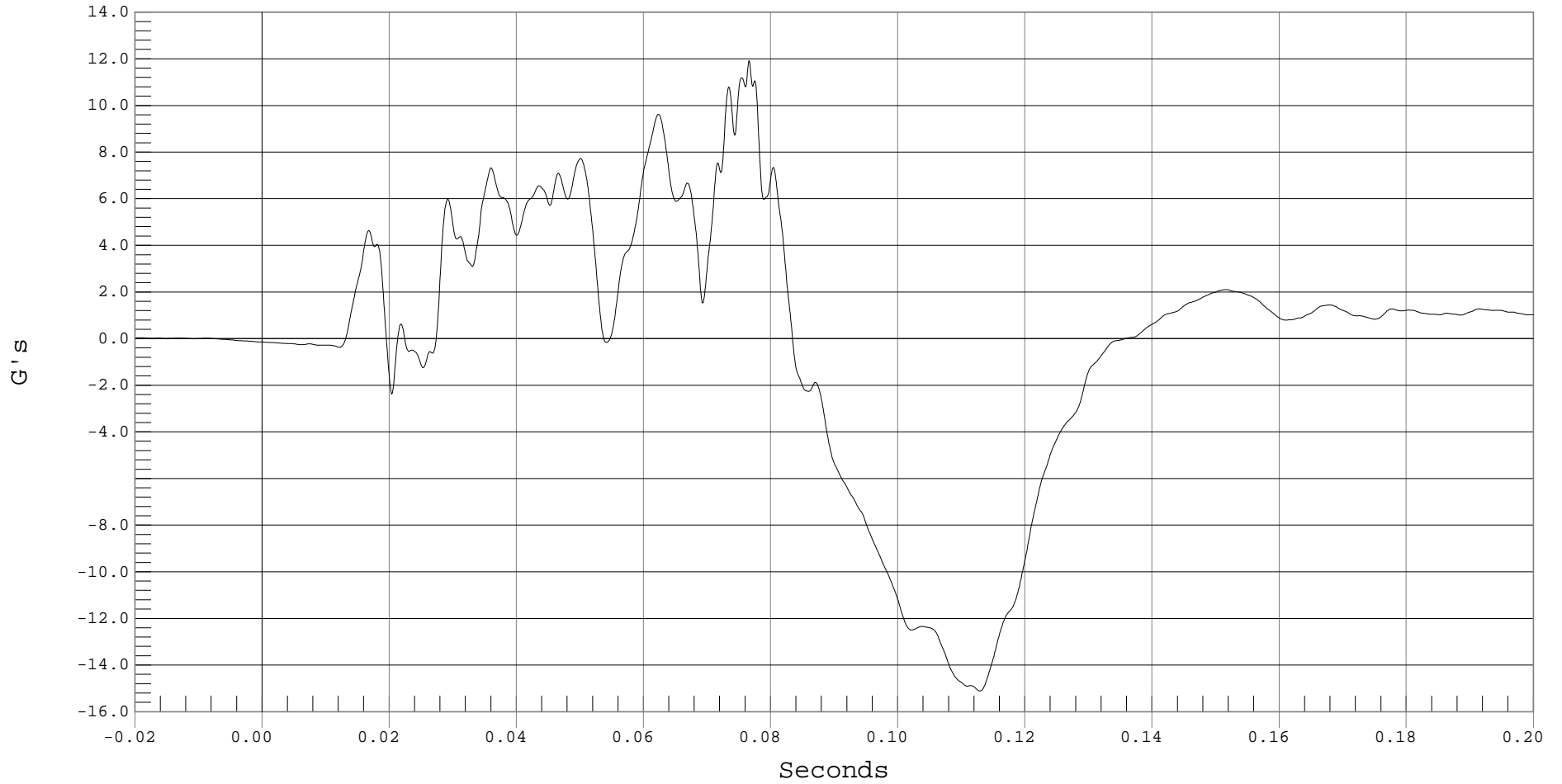
PASSENGER CHEST REDUNDANT Z ACCELERATION

Test Desc.: 35 MPH FRONTAL
Component: 2001 FORD ESCAPE (M10211)
Other Info:

Test Date: 04-20-01
Speed: 35.1 MPH, 56.5 KPH
Filter Class: 180

— 1 PASSENGER CHEST Zr, B01044AF.A52

Ymin = -15.11 G's @ 0.1128 Seconds, Ymax = 11.91 G's @ 0.0765 Seconds



B-82



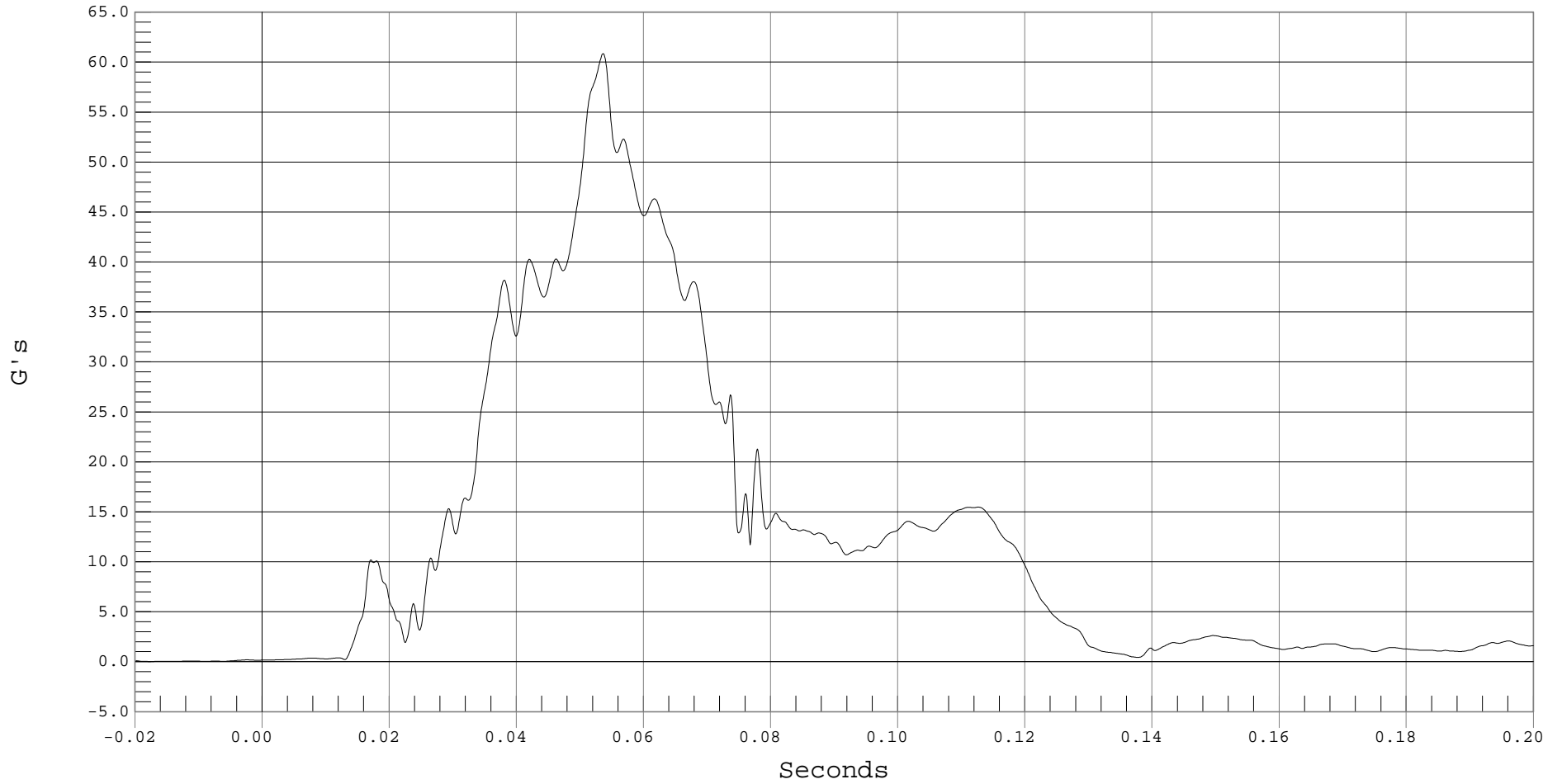
PASSENGER CHEST REDUNDANT RESULTANT ACCELERATION

Test Desc.: 35 MPH FRONTAL
Component: 2001 FORD ESCAPE (M10211)
Other Info:

Test Date: 04-20-01
Speed: 35.1 MPH, 56.5 KPH
Filter Class: 180

— 1 PASSENGER CHEST REDUNDANT RESULTANT ACCELERATION, B01044AV.A50

Ymin = .02 G's @ -0.0175 Seconds, Ymax = 60.86 G's @ 0.0536 Seconds





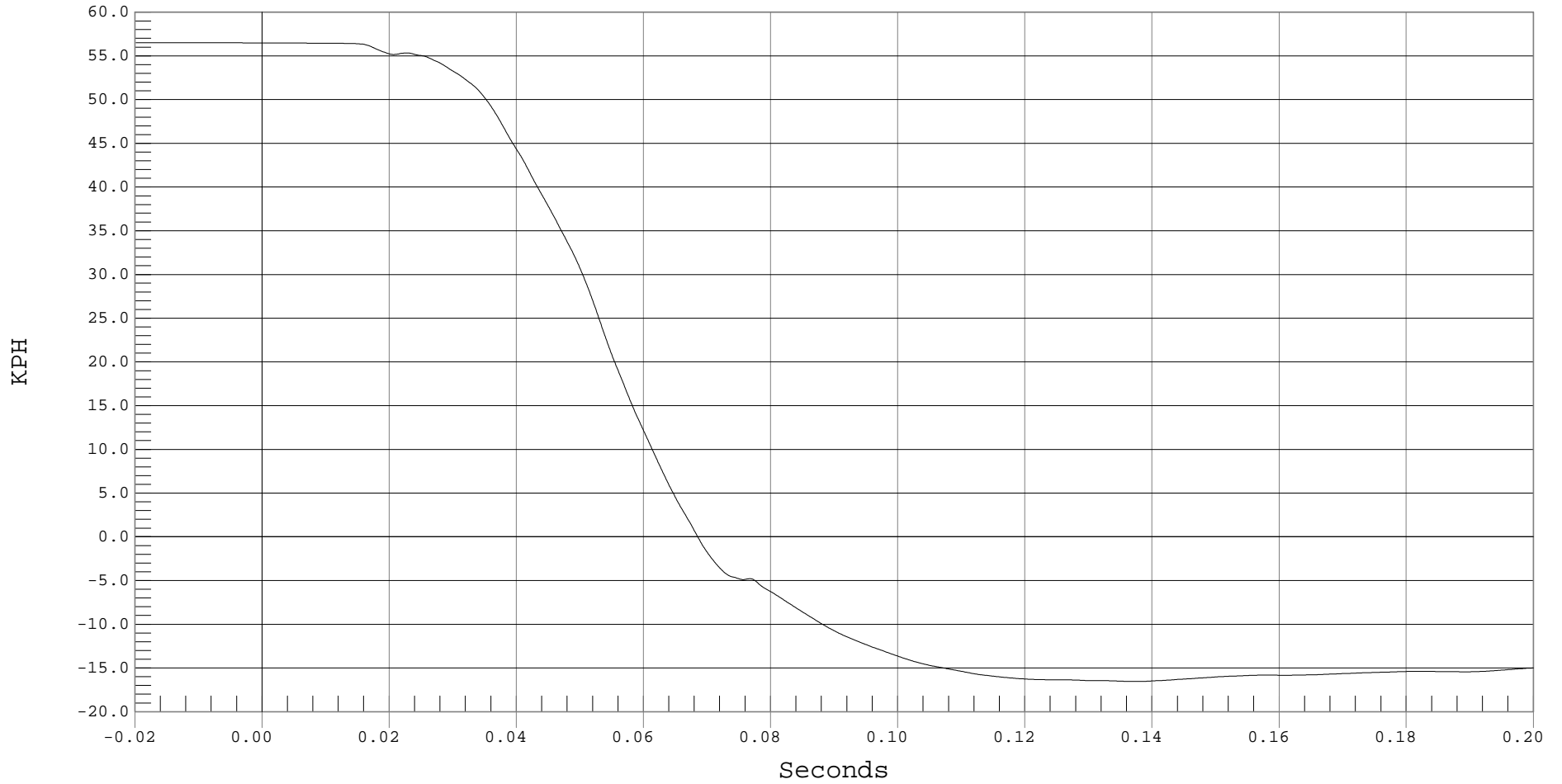
PASSENGER CHEST REDUNDANT X VELOCITY

Test Desc.: 35 MPH FRONTAL
Component: 2001 FORD ESCAPE (M10211)
Other Info:

Test Date: 04-20-01
Speed: 35.1 MPH, 56.5 KPH
Filter Class: 180

— 1 PASSENGER CHEST REDUNDANT X VELOCITY, B01044AI.V50

Ymin = -16.54 KPH @ 0.1372 Seconds, Ymax = 56.5 KPH @ -0.0199 Seconds



B-84



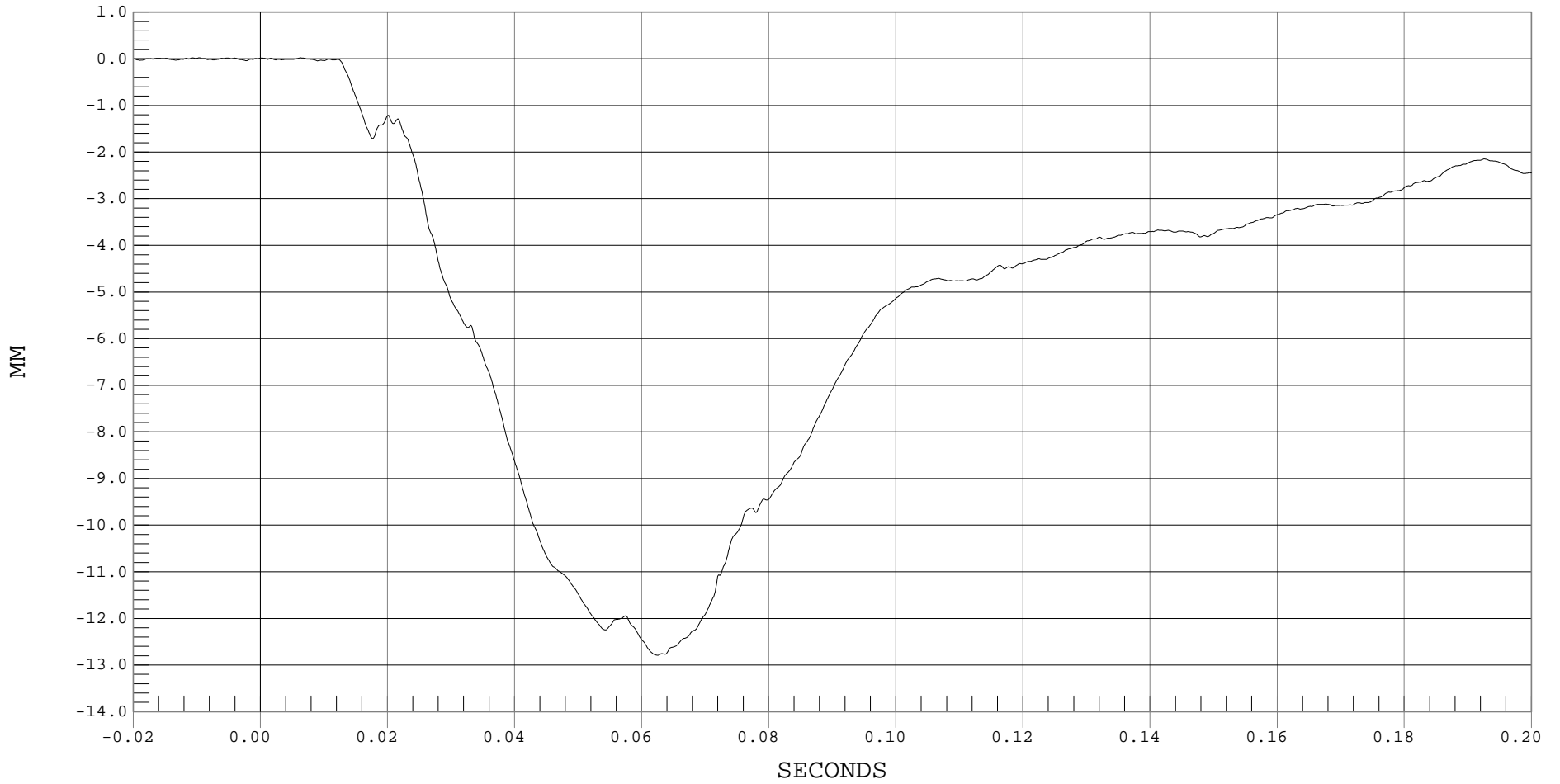
PASSENGER CHEST COMPRESSION

Test Desc.: 35 MPH FRONTAL
Component: 2001 FORD ESCAPE (M10211)
Other Info:

Test Date: 04-20-01
Speed: 35.1 MPH, 56.5 KPH
Filter Class: 600

— 1 DISPLACEMENT, B01044DF.D25

Ymin = -12.79 MM @ 0.0624 SECONDS, Ymax = .02 MM @ -0.0097 SECONDS





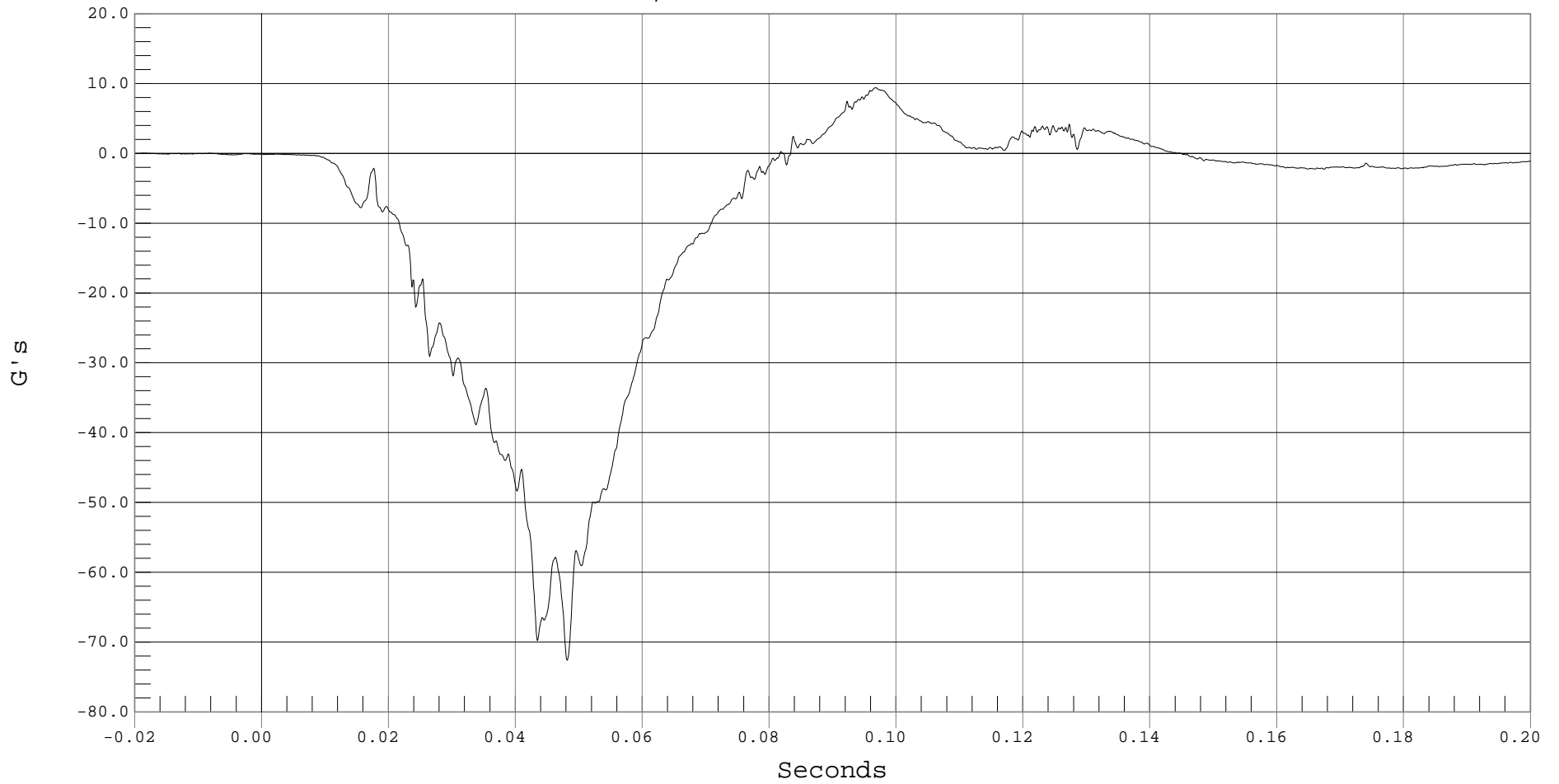
PASSENGER PELVIS X ACCELERATION

Test Desc.: 35 MPH FRONTAL
Component: 2001 FORD ESCAPE (M10211)
Other Info:

Test Date: 04-20-01
Speed: 35.1 MPH, 56.5 KPH
Filter Class: 1000

— 1 PASSENGER PELVIS X, B01044AT.A26

Ymin = -72.62 G's @ 0.0481 Seconds, Ymax = 9.42 G's @ 0.0967 Seconds



B-86



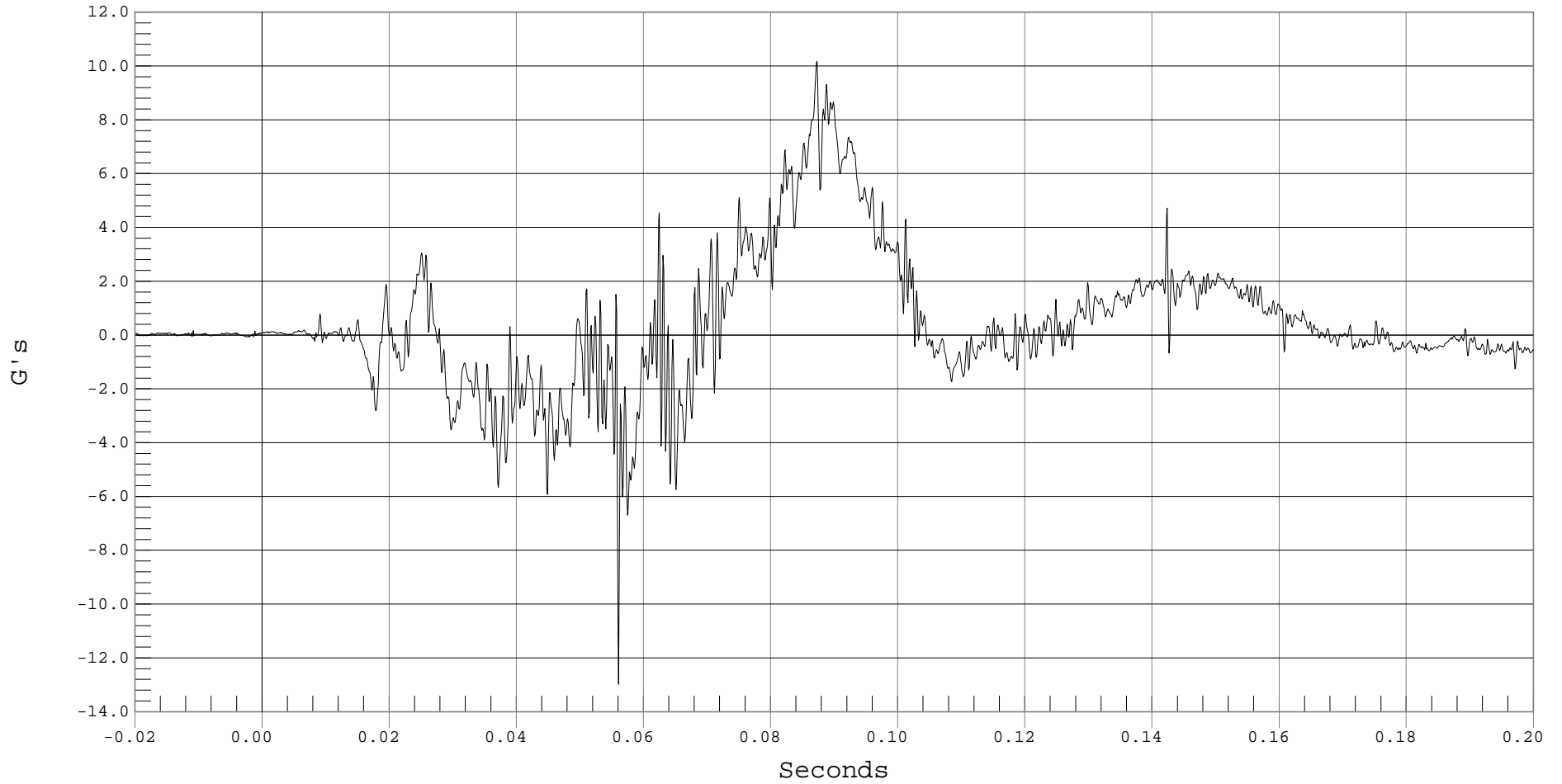
PASSENGER PELVIS Y ACCELERATION

Test Desc.: 35 MPH FRONTAL
Component: 2001 FORD ESCAPE (M10211)
Other Info:

Test Date: 04-20-01
Speed: 35.1 MPH, 56.5 KPH
Filter Class: 1000

— 1 PASSENGER PELVIS Y, B01044AT.A27

Ymin = -12.98 G's @ 0.0560 Seconds, Ymax = 10.18 G's @ 0.0872 Seconds



B-87



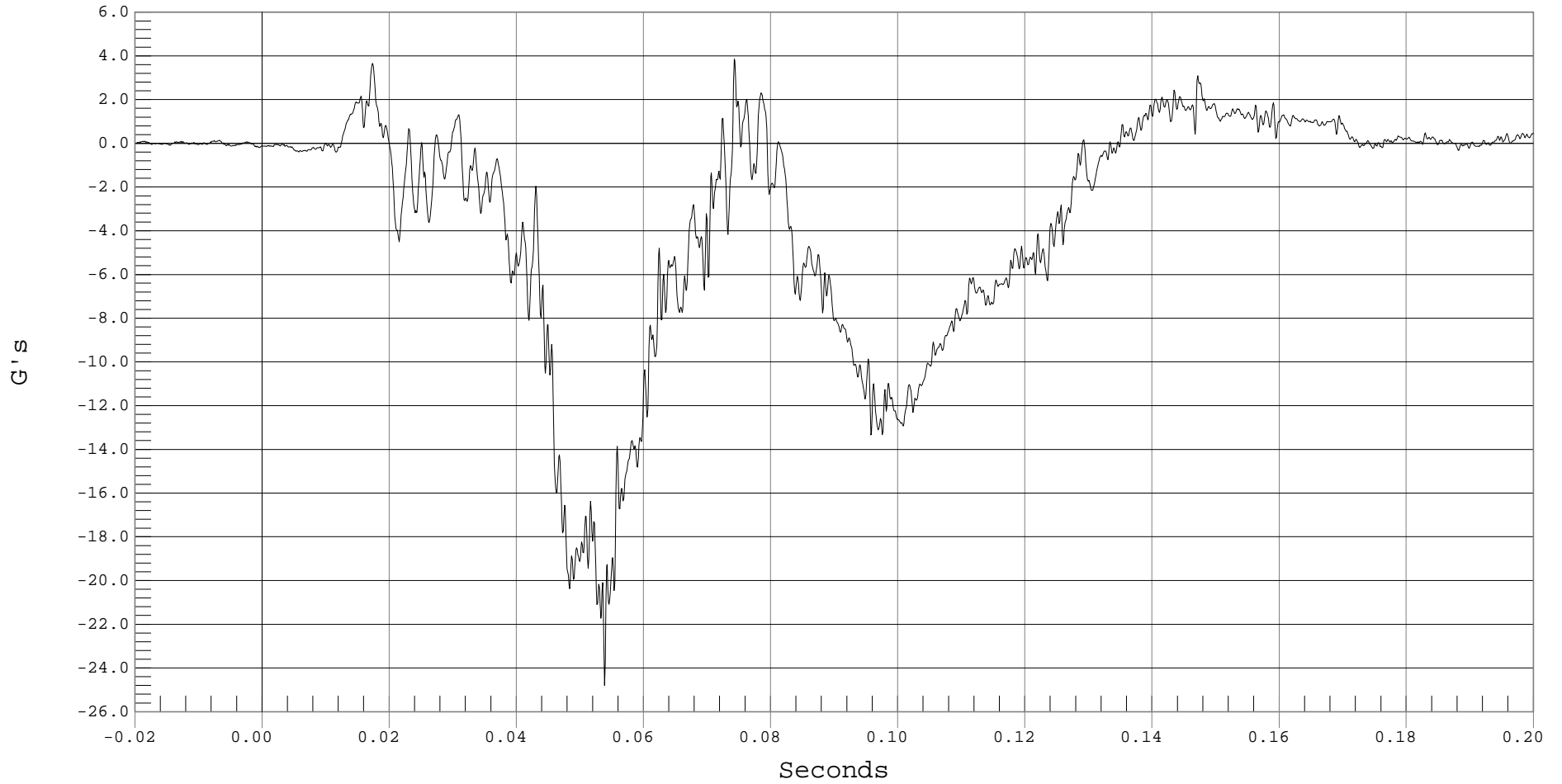
PASSENGER PELVIS Z ACCELERATION

Test Desc.: 35 MPH FRONTAL
Component: 2001 FORD ESCAPE (M10211)
Other Info:

Test Date: 04-20-01
Speed: 35.1 MPH, 56.5 KPH
Filter Class: 1000

— 1 PASSENGER PELVIS Z, B01044AT.A28

Ymin = -24.79 G's @ 0.0538 Seconds, Ymax = 3.85 G's @ 0.0742 Seconds





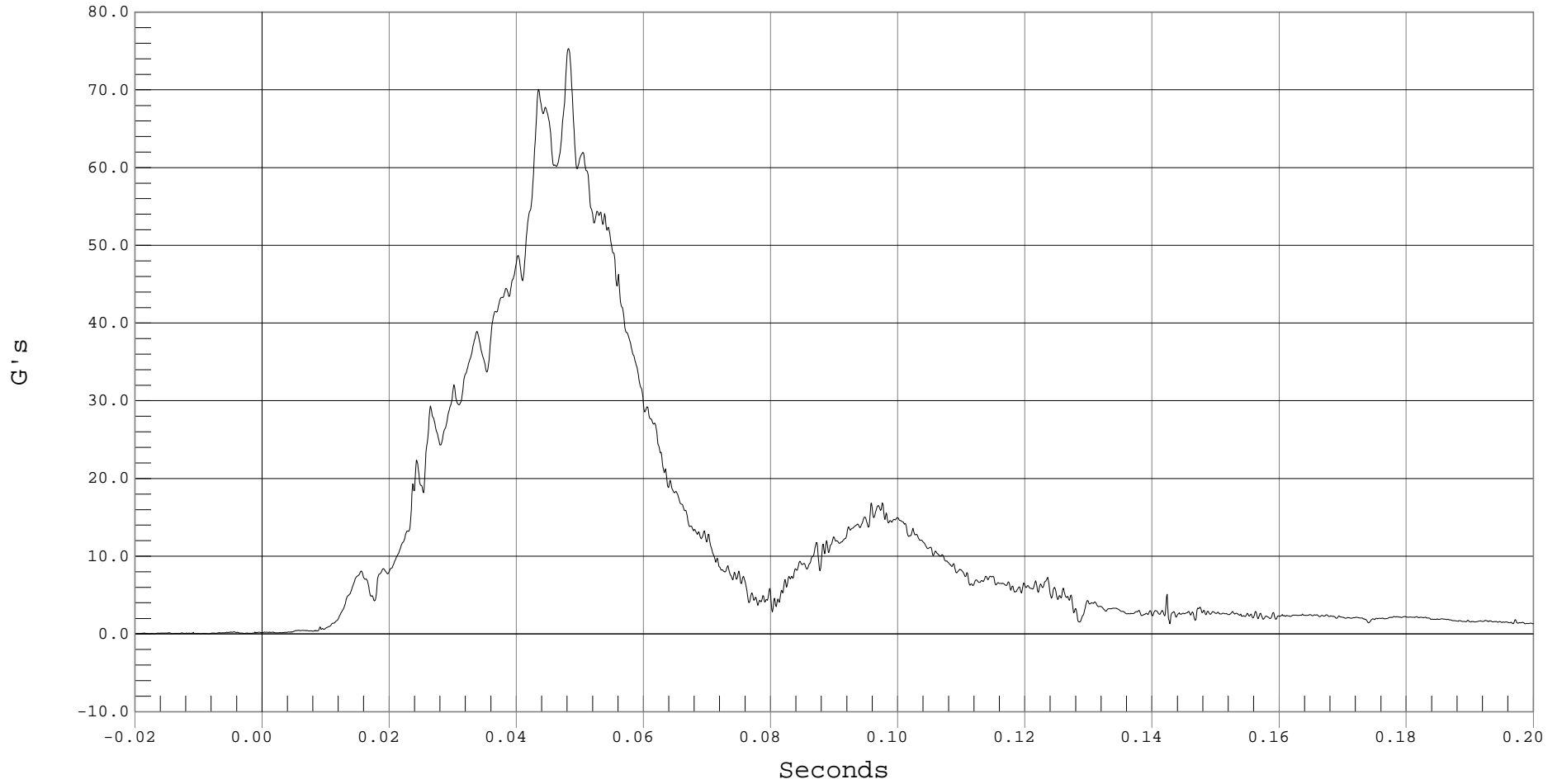
PASSENGER PELVIS RESULTANT ACCELERATION

Test Desc.: 35 MPH FRONTAL
Component: 2001 FORD ESCAPE (M10211)
Other Info:

Test Date: 04-20-01
Speed: 35.1 MPH, 56.5 KPH
Filter Class: 1000

— 1 PASSENGER PELVIS RESULTANT ACCELERATION, B01044AV.A26

Ymin = .02 G's @ -0.0085 Seconds, Ymax = 75.33 G's @ 0.0481 Seconds





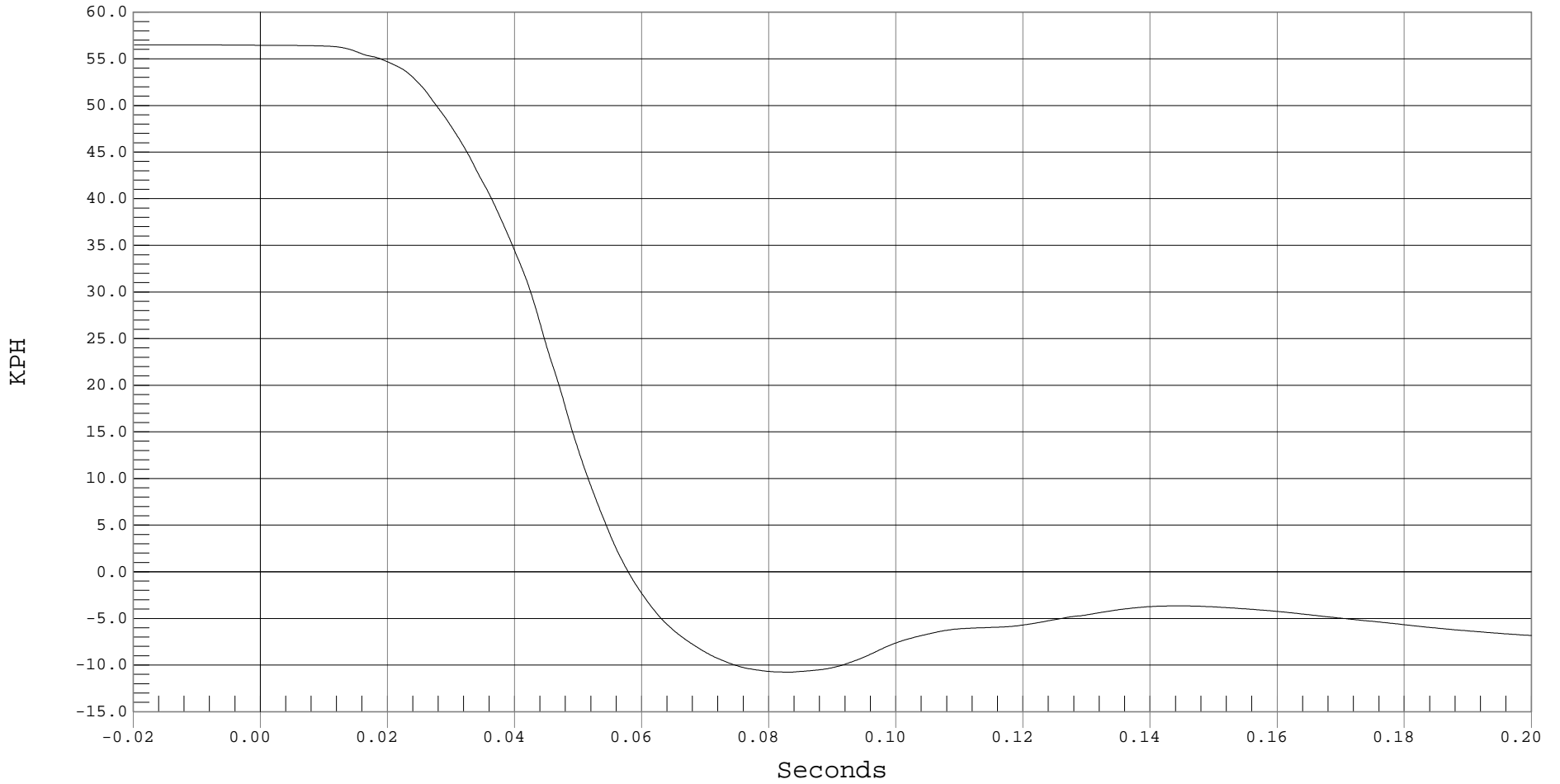
PASSENGER PELVIS X VELOCITY

Test Desc.: 35 MPH FRONTAL
Component: 2001 FORD ESCAPE (M10211)
Other Info:

Test Date: 04-20-01
Speed: 35.1 MPH, 56.5 KPH
Filter Class: 180

— 1 PASSENGER PELVIS X VELOCITY, B01044AI.V26

Ymin = -10.76 KPH @ 0.0831 Seconds, Ymax = 56.5 KPH @ -0.0178 Seconds



B-90



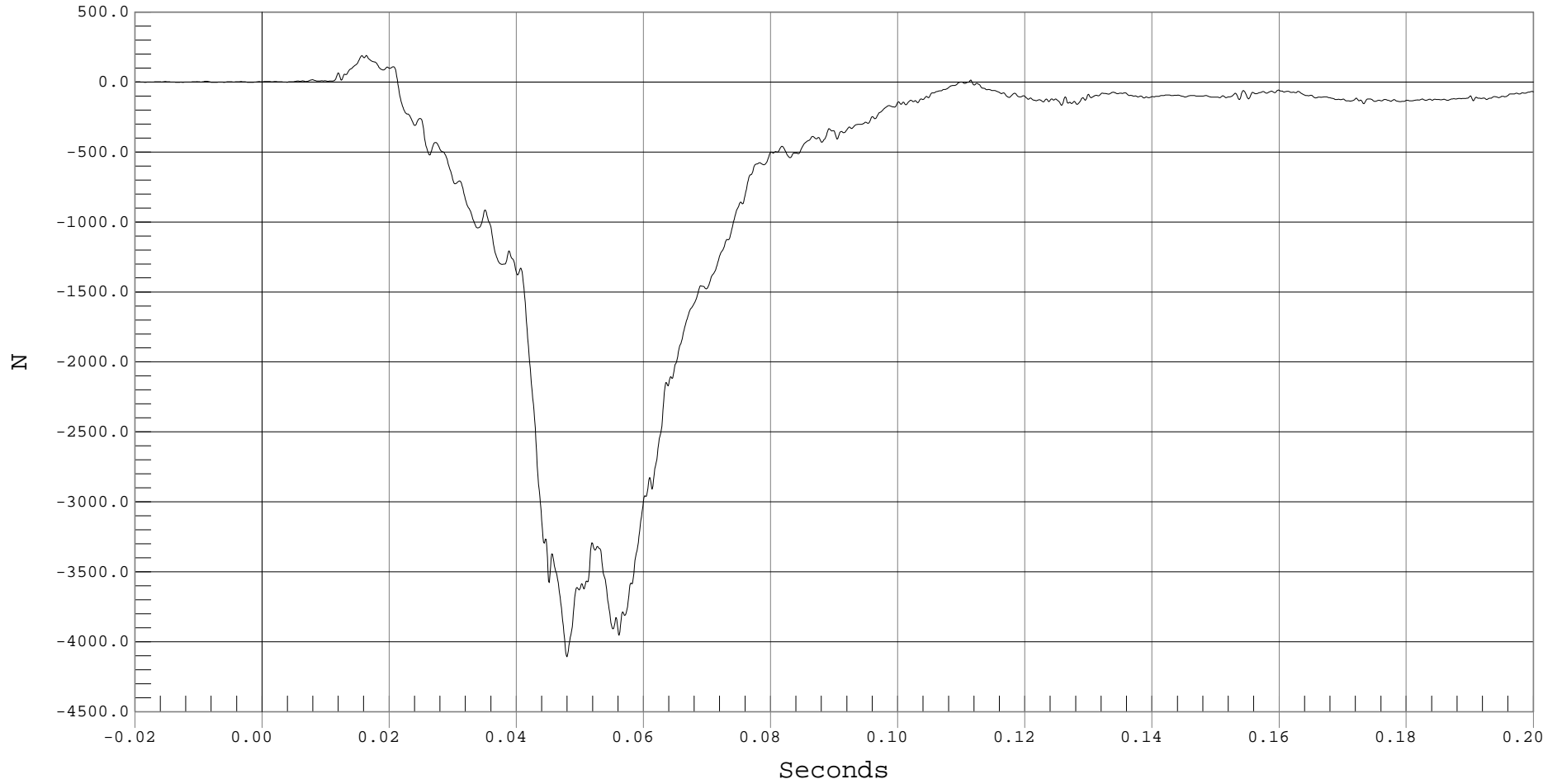
PASSENGER LEFT FEMUR FORCE

Test Desc.: 35 MPH FRONTAL
Component: 2001 FORD ESCAPE (M10211)
Other Info:

Test Date: 04-20-01
Speed: 35.1 MPH, 56.5 KPH
Filter Class: 600

— 1 PASSENGER LEFT FEMUR X, B01044FF.F30

Ymin = -4108.24 N @ 0.0479 Seconds, Ymax = 190.31 N @ 0.0163 Seconds



B-91



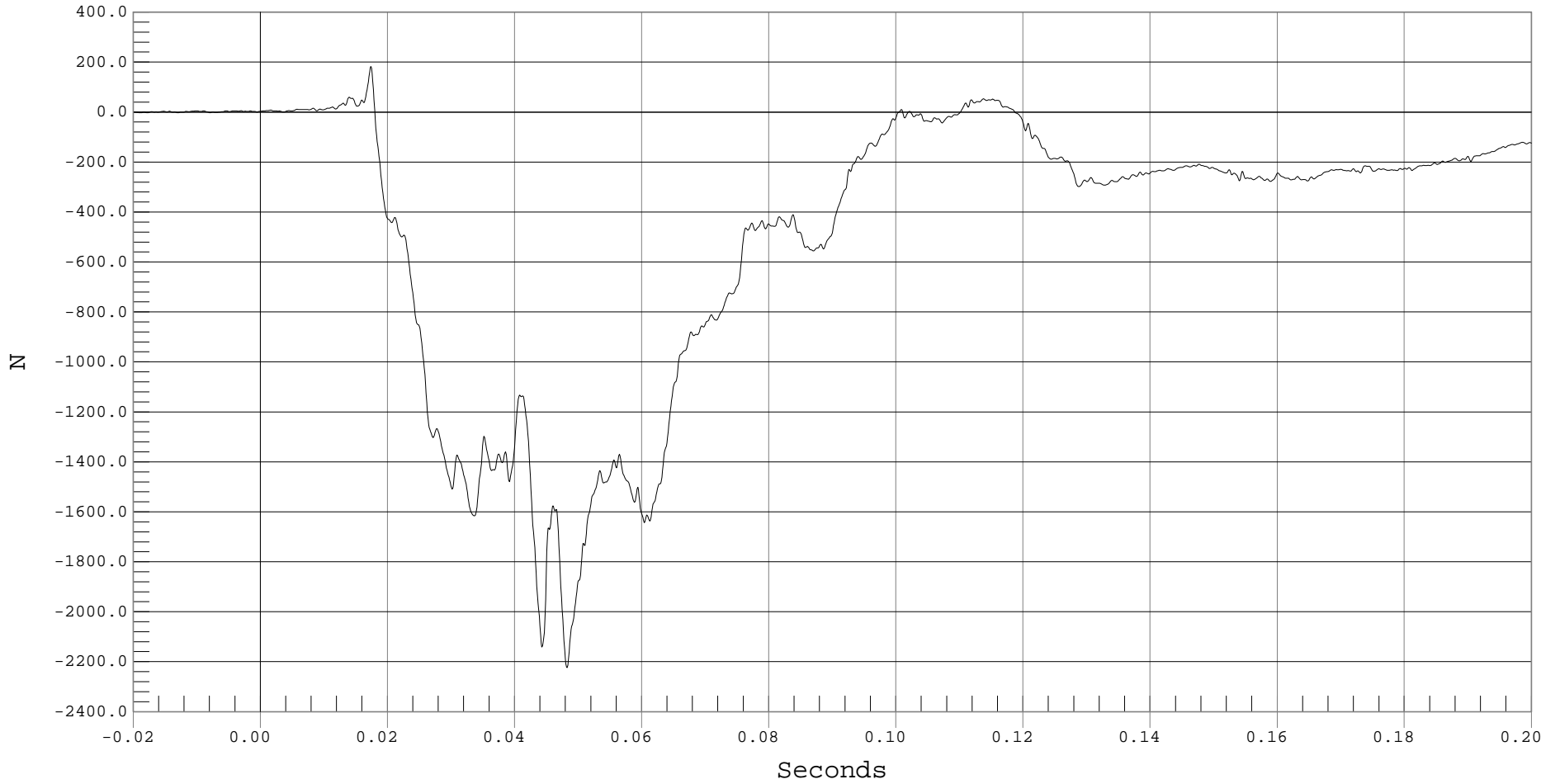
PASSENGER RIGHT FEMUR FORCE

Test Desc.: 35 MPH FRONTAL
Component: 2001 FORD ESCAPE (M10211)
Other Info:

Test Date: 04-20-01
Speed: 35.1 MPH, 56.5 KPH
Filter Class: 600

— 1 PASSENGER RIGHT FEMUR X, B01044FF.F29

Ymin = -2224.07 N @ 0.0482 Seconds, Ymax = 182.71 N @ 0.0173 Seconds



B-92



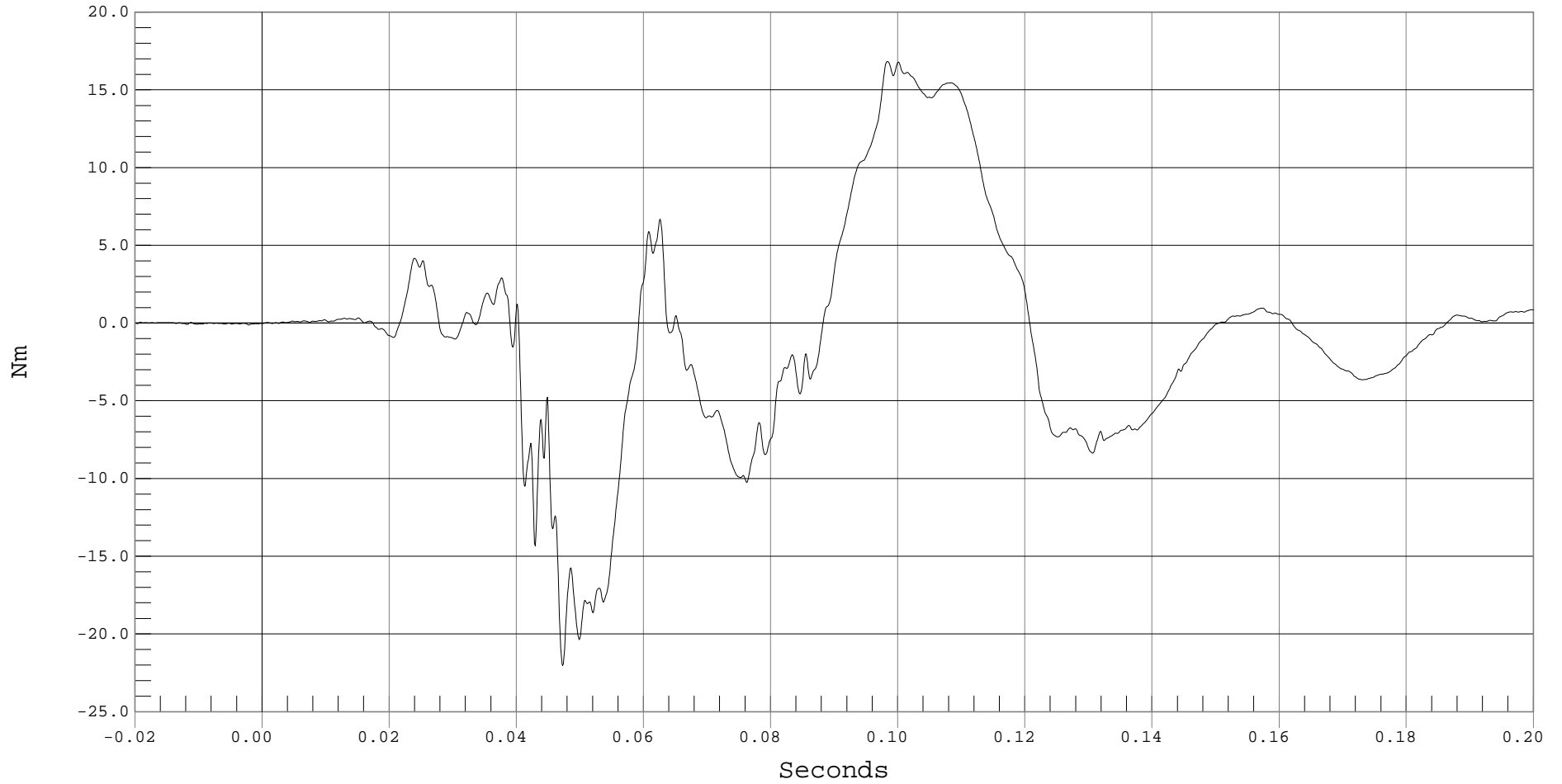
PASSENGER LEFT UPPER TIBIA MOMENT X

Test Desc.: 35 MPH FRONTAL
Component: 2001 FORD ESCAPE (M10211)
Other Info:

Test Date: 04-20-01
Speed: 35.1 MPH, 56.5 KPH
Filter Class: 600

— 1 PASSENGER LEFT UPPER TIBIA MX, B01044MF.M87

Ymin = -22.04 Nm @ 0.0472 Seconds, Ymax = 16.83 Nm @ 0.0983 Seconds





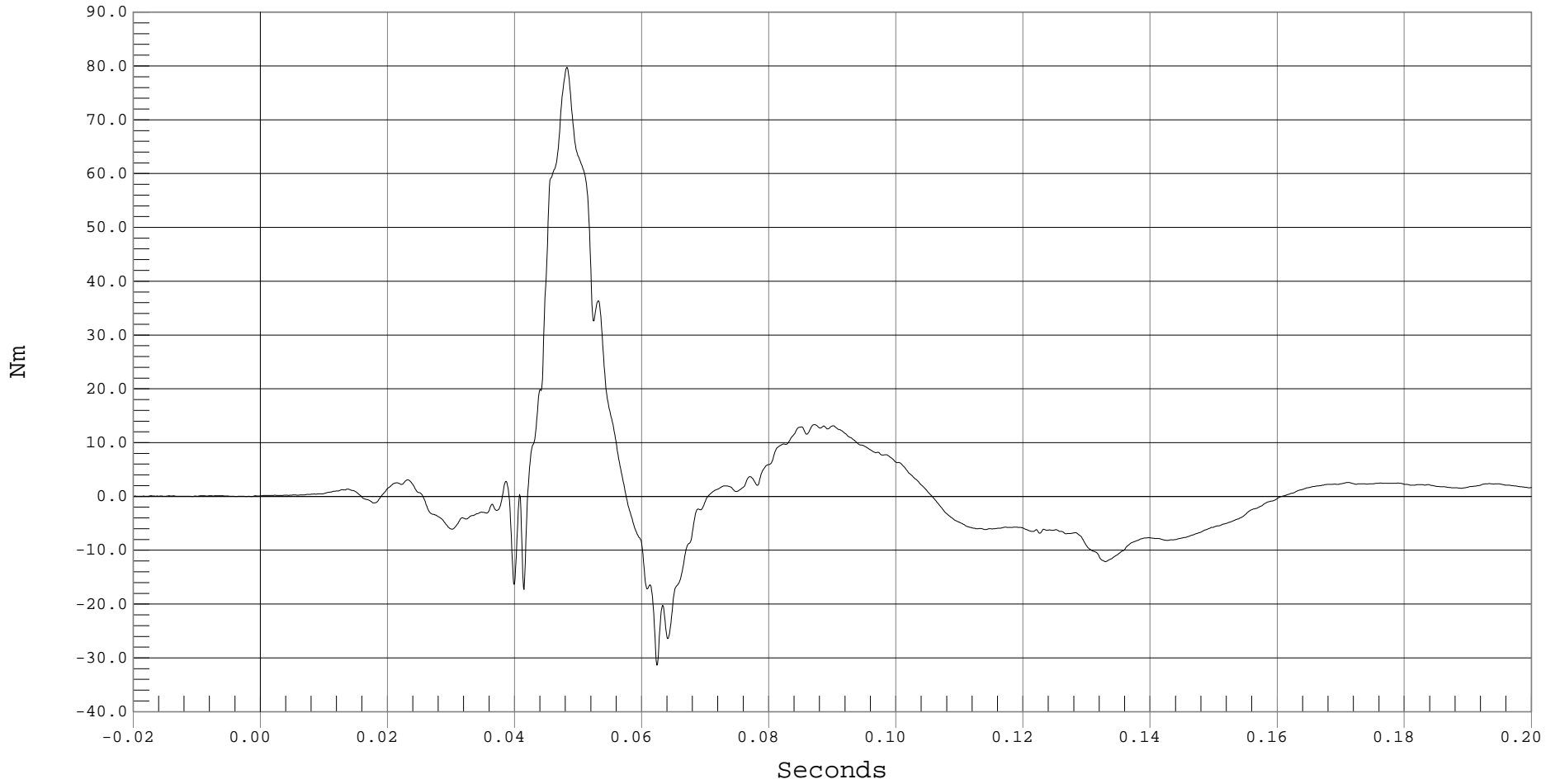
PASSENGER LEFT UPPER TIBIA MOMENT Y

Test Desc.: 35 MPH FRONTAL
Component: 2001 FORD ESCAPE (M10211)
Other Info:

Test Date: 04-20-01
Speed: 35.1 MPH, 56.5 KPH
Filter Class: 600

— 1 PASSENGER LEFT UPPER TIBIA MY, B01044MF.M88

Ymin = -31.39 Nm @ 0.0623 Seconds, Ymax = 79.75 Nm @ 0.0482 Seconds



B-94



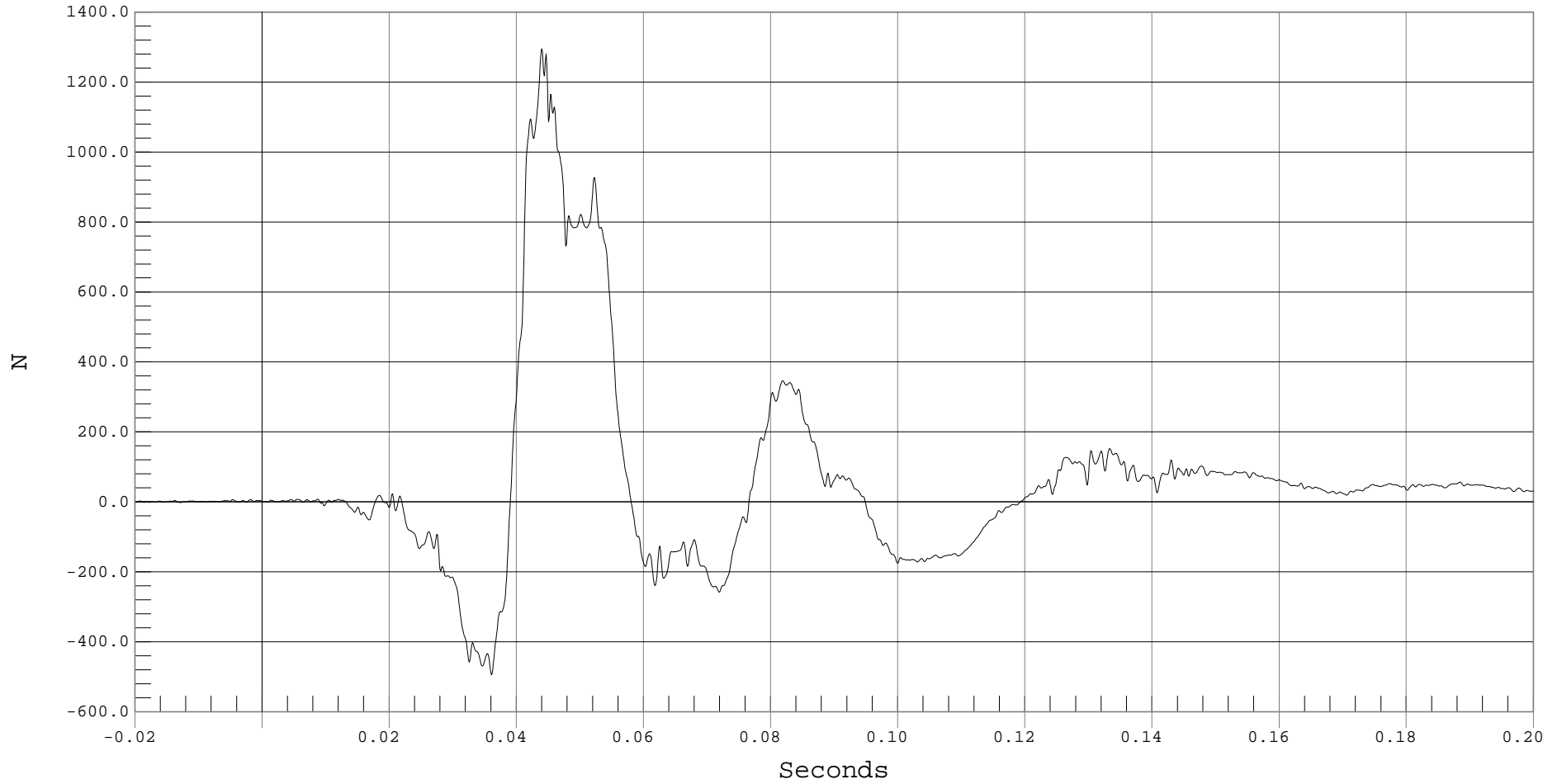
PASSENGER LEFT UPPER TIBIA FORCE Z

Test Desc.: 35 MPH FRONTAL
Component: 2001 FORD ESCAPE (M10211)
Other Info:

Test Date: 04-20-01
Speed: 35.1 MPH, 56.5 KPH
Filter Class: 600

— 1 PASSENGER LEFT UPPER TIBIA FZ, B01044FF.F89

Ymin = -494.9 N @ 0.0360 Seconds, Ymax = 1295.37 N @ 0.0439 Seconds



B-95



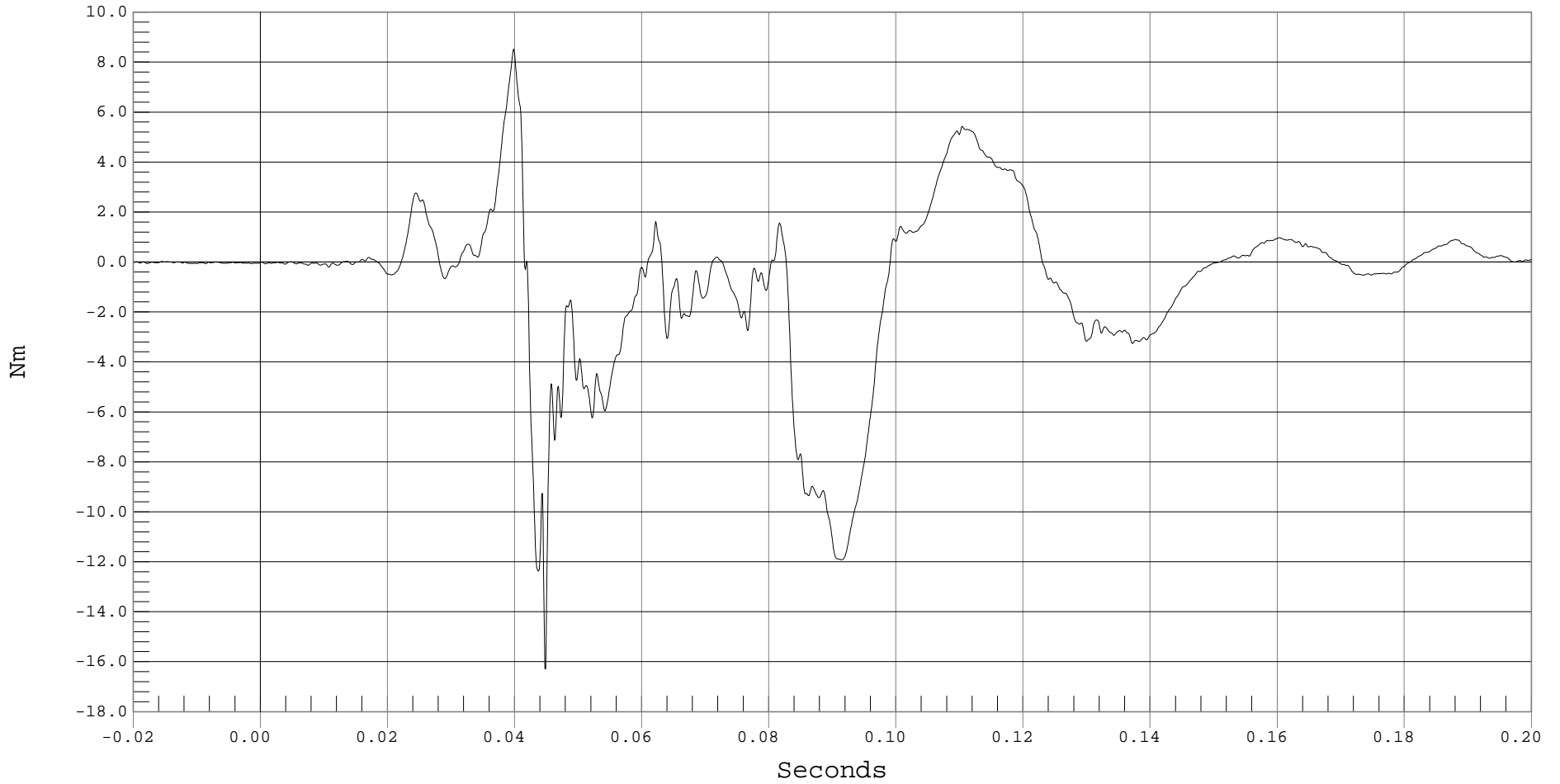
PASSENGER LEFT LOWER TIBIA MOMENT X

Test Desc.: 35 MPH FRONTAL
Component: 2001 FORD ESCAPE (M10211)
Other Info:

Test Date: 04-20-01
Speed: 35.1 MPH, 56.5 KPH
Filter Class: 600

— 1 PASSENGER LEFT LOWER TIBIA MX, B01044MF.M90

Ymin = -16.29 Nm @ 0.0448 Seconds, Ymax = 8.52 Nm @ 0.0398 Seconds





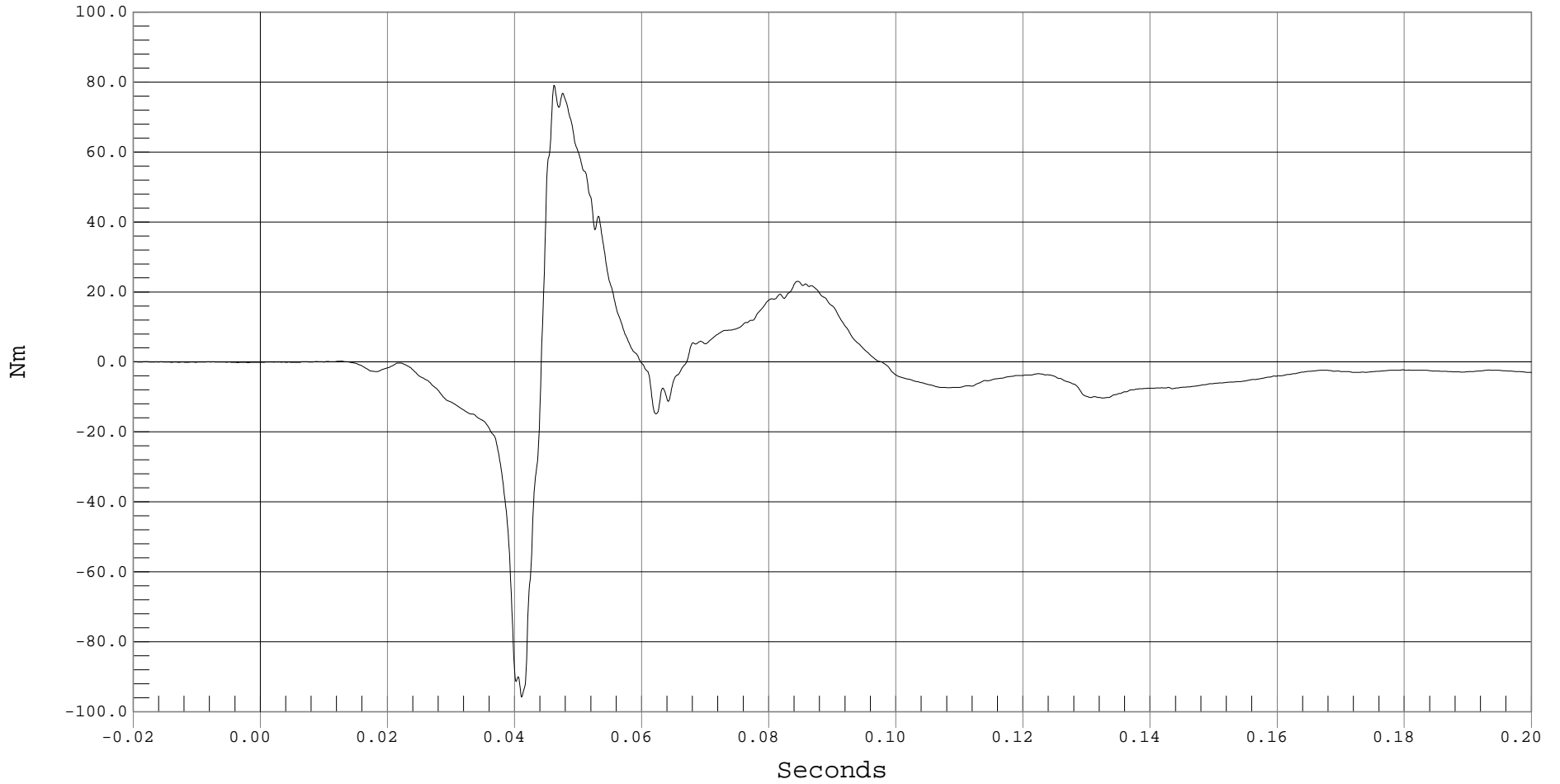
PASSENGER LEFT LOWER TIBIA MOMENT Y

Test Desc.: 35 MPH FRONTAL
Component: 2001 FORD ESCAPE (M10211)
Other Info:

Test Date: 04-20-01
Speed: 35.1 MPH, 56.5 KPH
Filter Class: 600

— 1 PASSENGER LEFT LOWER TIBIA MY, B01044MF.M91

Ymin = -95.78 Nm @ 0.0410 Seconds, Ymax = 79.07 Nm @ 0.0461 Seconds



B-97



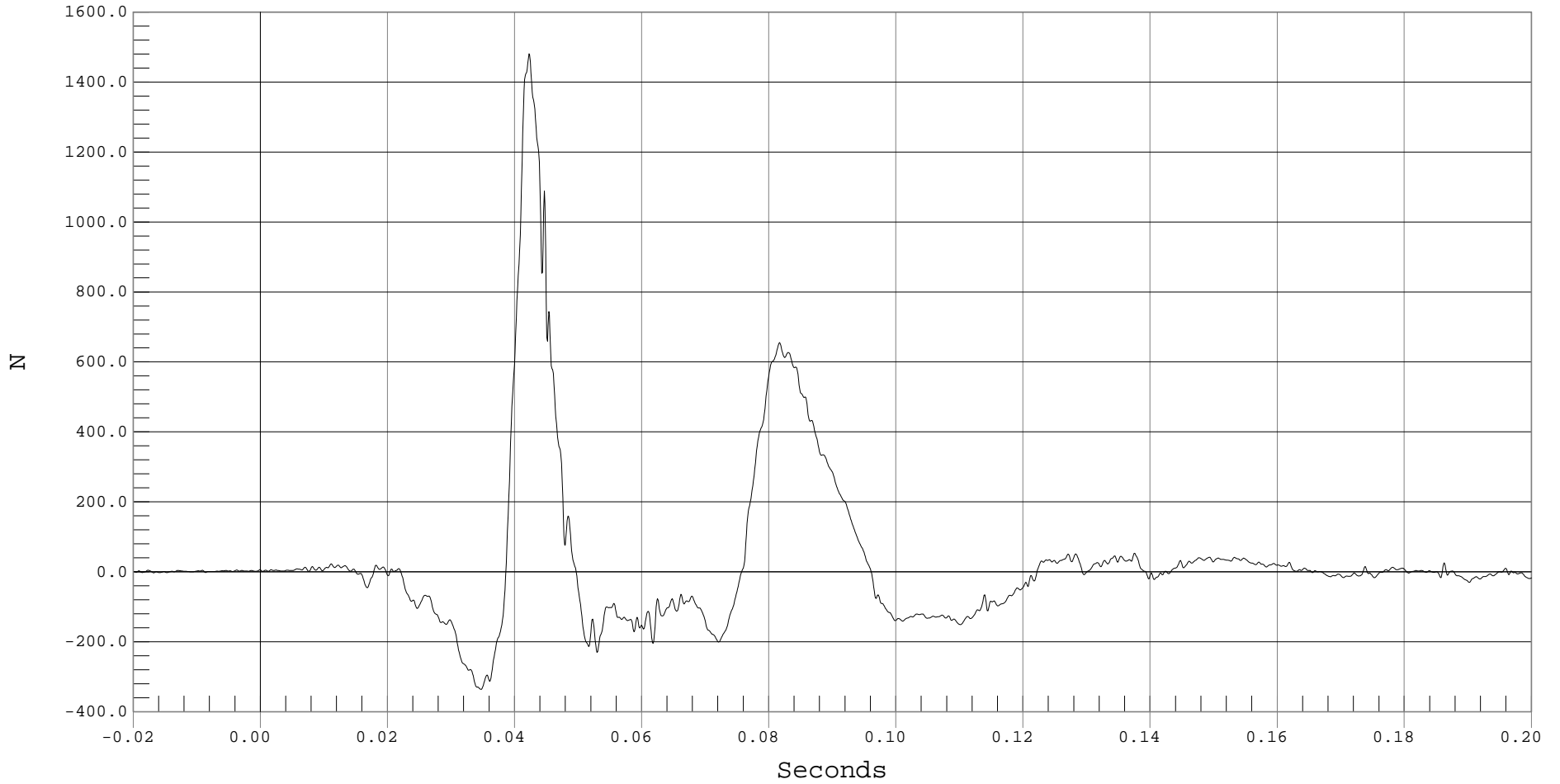
PASSENGER LEFT LOWER TIBIA FORCE Z

Test Desc.: 35 MPH FRONTAL
Component: 2001 FORD ESCAPE (M10211)
Other Info:

Test Date: 04-20-01
Speed: 35.1 MPH, 56.5 KPH
Filter Class: 600

— 1 PASSENGER LEFT LOWER TIBIA FZ, B01044FF.F92

Ymin = -336.34 N @ 0.0346 Seconds, Ymax = 1481.04 N @ 0.0422 Seconds



B-98



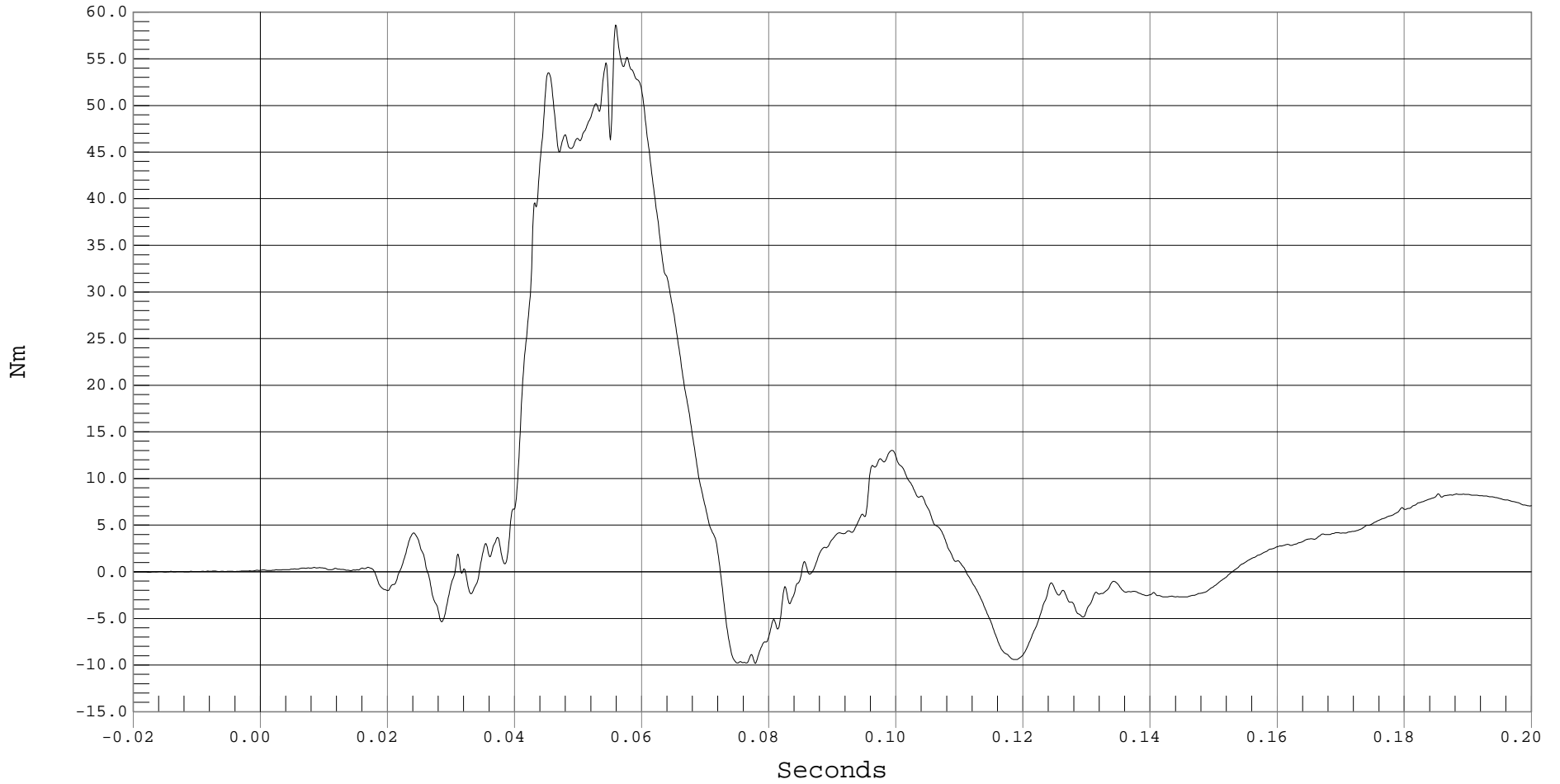
PASSENGER RIGHT UPPER TIBIA MOMENT X

Test Desc.: 35 MPH FRONTAL
Component: 2001 FORD ESCAPE (M10211)
Other Info:

Test Date: 04-20-01
Speed: 35.1 MPH, 56.5 KPH
Filter Class: 600

— 1 PASSENGER RIGHT UPPER TIBIA MX, B01044MF.M81

Ymin = -9.82 Nm @ 0.0778 Seconds, Ymax = 58.62 Nm @ 0.0558 Seconds





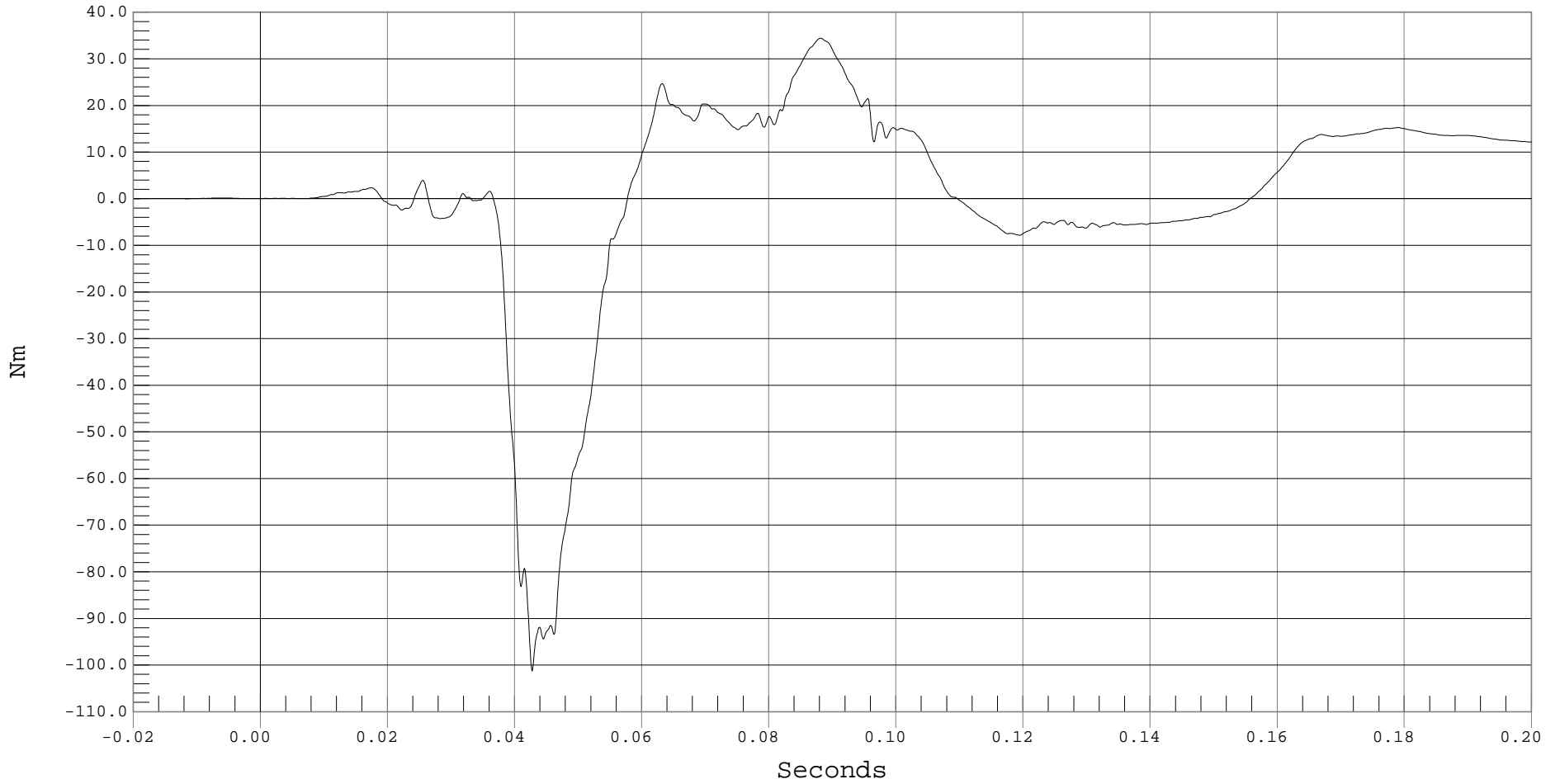
PASSENGER RIGHT UPPER TIBIA MOMENT Y

Test Desc.: 35 MPH FRONTAL
Component: 2001 FORD ESCAPE (M10211)
Other Info:

Test Date: 04-20-01
Speed: 35.1 MPH, 56.5 KPH
Filter Class: 600

— 1 PASSENGER RIGHT UPPER TIBIA MY, B01044MF.M82

Ymin = -101.31 Nm @ 0.0427 Seconds, Ymax = 34.43 Nm @ 0.0881 Seconds



B-100



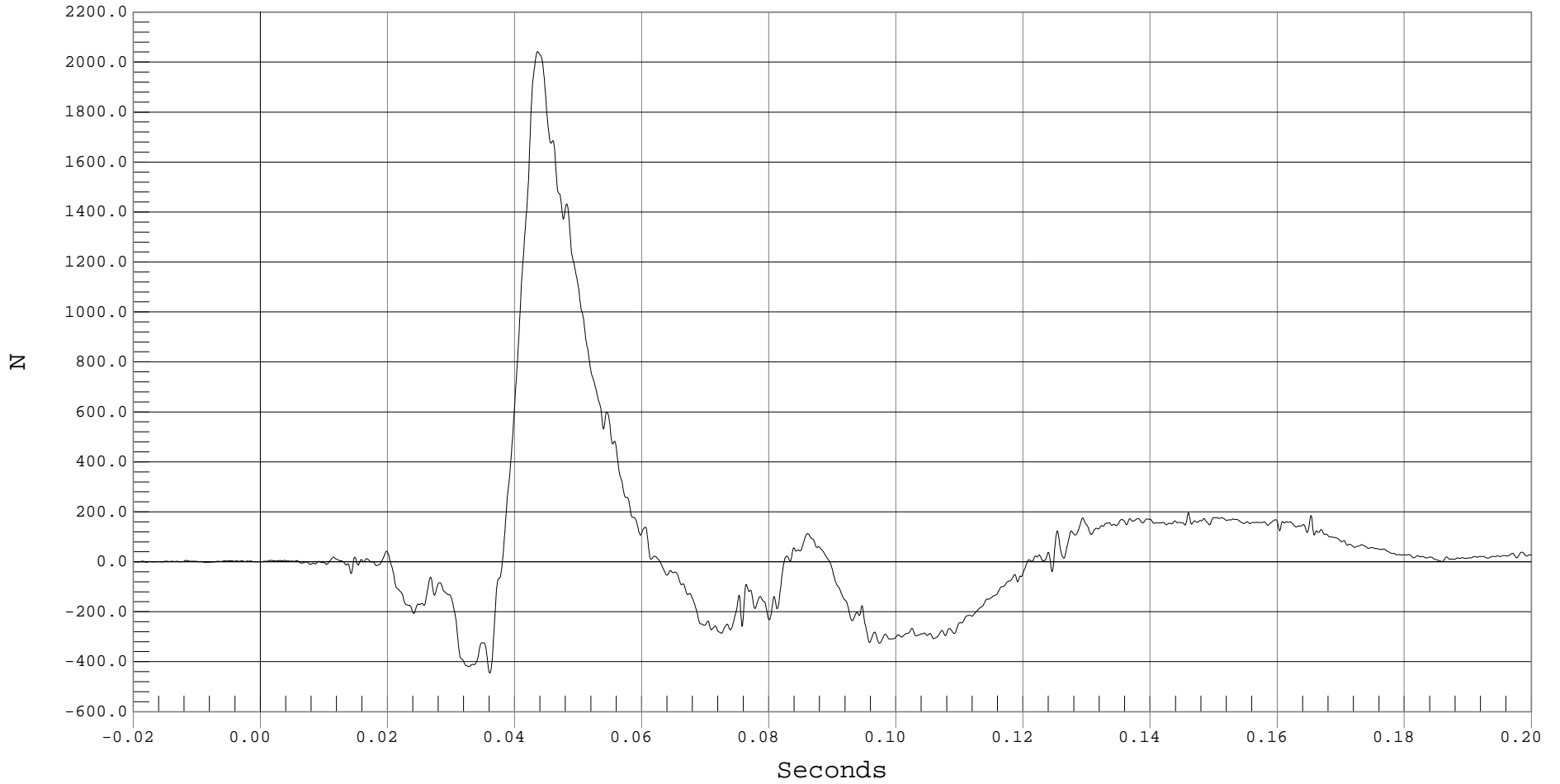
PASSENGER RIGHT UPPER TIBIA FORCE Z

Test Desc.: 35 MPH FRONTAL
Component: 2001 FORD ESCAPE (M10211)
Other Info:

Test Date: 04-20-01
Speed: 35.1 MPH, 56.5 KPH
Filter Class: 600

— 1 PASSENGER RIGHT UPPER TIBIA FZ, B01044FF.F83

Ymin = -445.85 N @ 0.0360 Seconds, Ymax = 2042.34 N @ 0.0435 Seconds



B-101



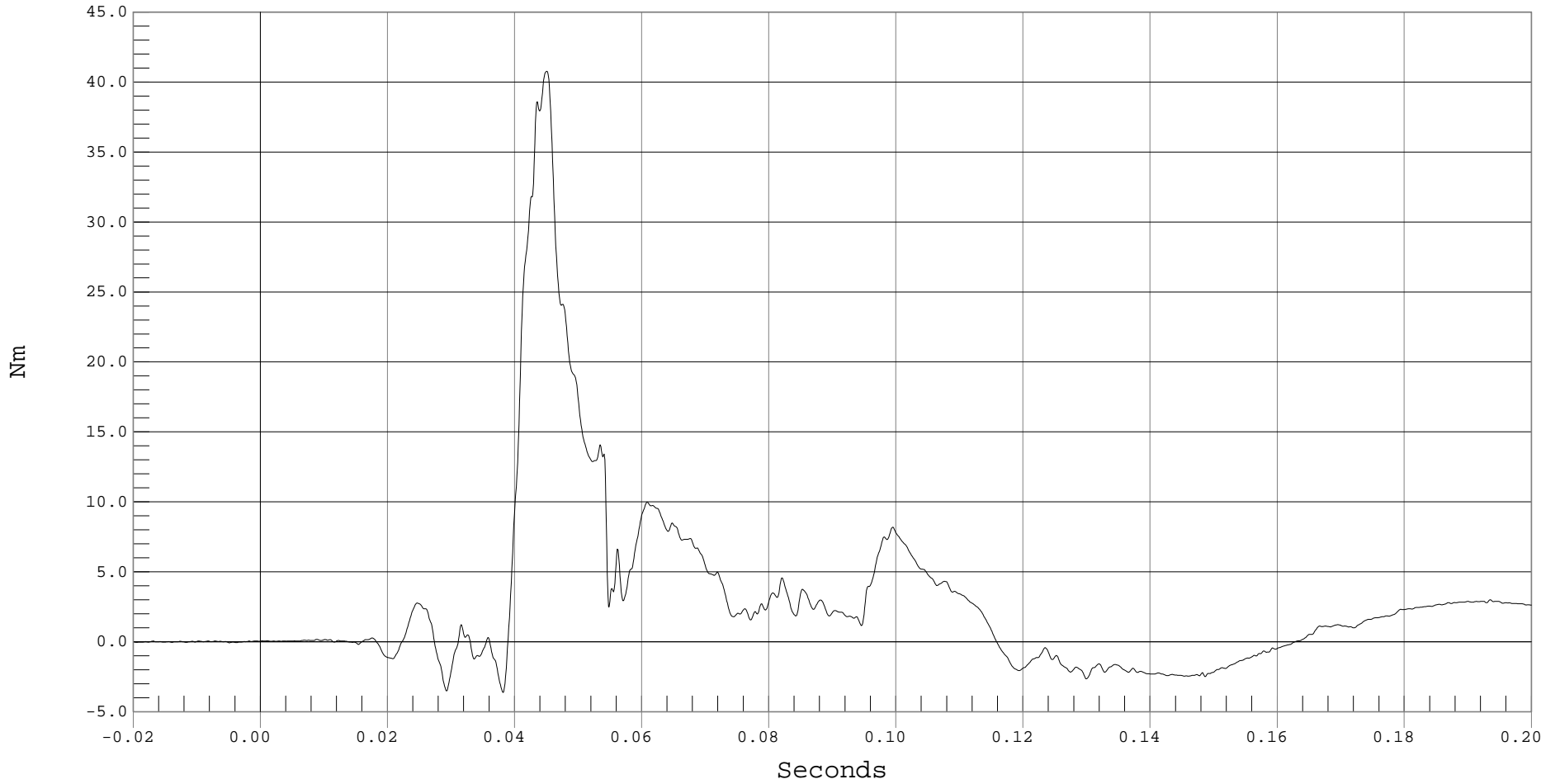
PASSENGER RIGHT LOWER TIBIA MOMENT X

Test Desc.: 35 MPH FRONTAL
Component: 2001 FORD ESCAPE (M10211)
Other Info:

Test Date: 04-20-01
Speed: 35.1 MPH, 56.5 KPH
Filter Class: 600

— 1 PASSENGER RIGHT LOWER TIBIA MX, B01044MF.M84

Ymin = -3.63 Nm @ 0.0381 Seconds, Ymax = 40.78 Nm @ 0.0450 Seconds





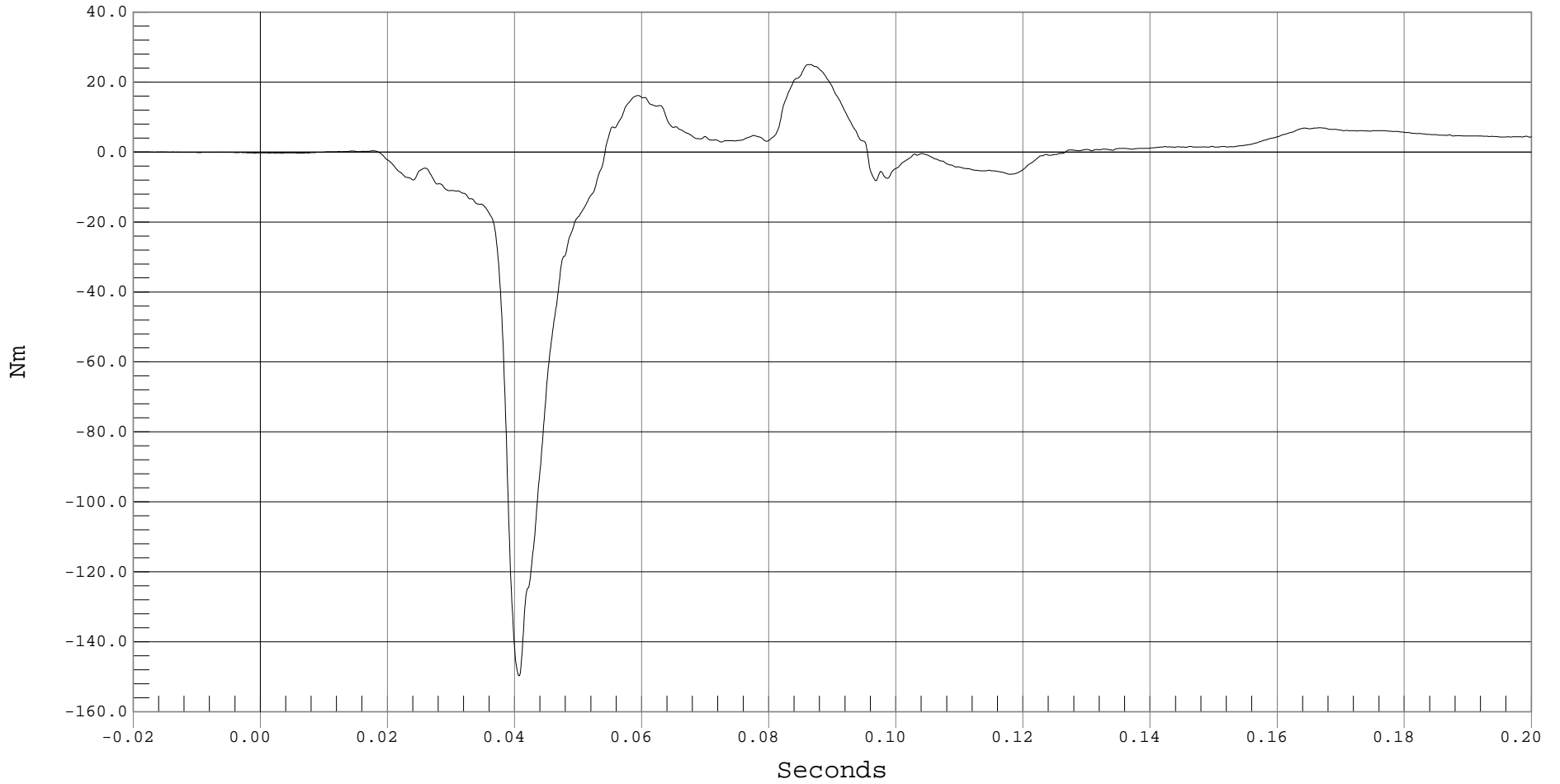
PASSENGER RIGHT LOWER TIBIA MOMENT Y

Test Desc.: 35 MPH FRONTAL
Component: 2001 FORD ESCAPE (M10211)
Other Info:

Test Date: 04-20-01
Speed: 35.1 MPH, 56.5 KPH
Filter Class: 600

— 1 PASSENGER RIGHT LOWER TIBIA MY, B01044MF.M85

Ymin = -149.78 Nm @ 0.0406 Seconds, Ymax = 24.99 Nm @ 0.0860 Seconds





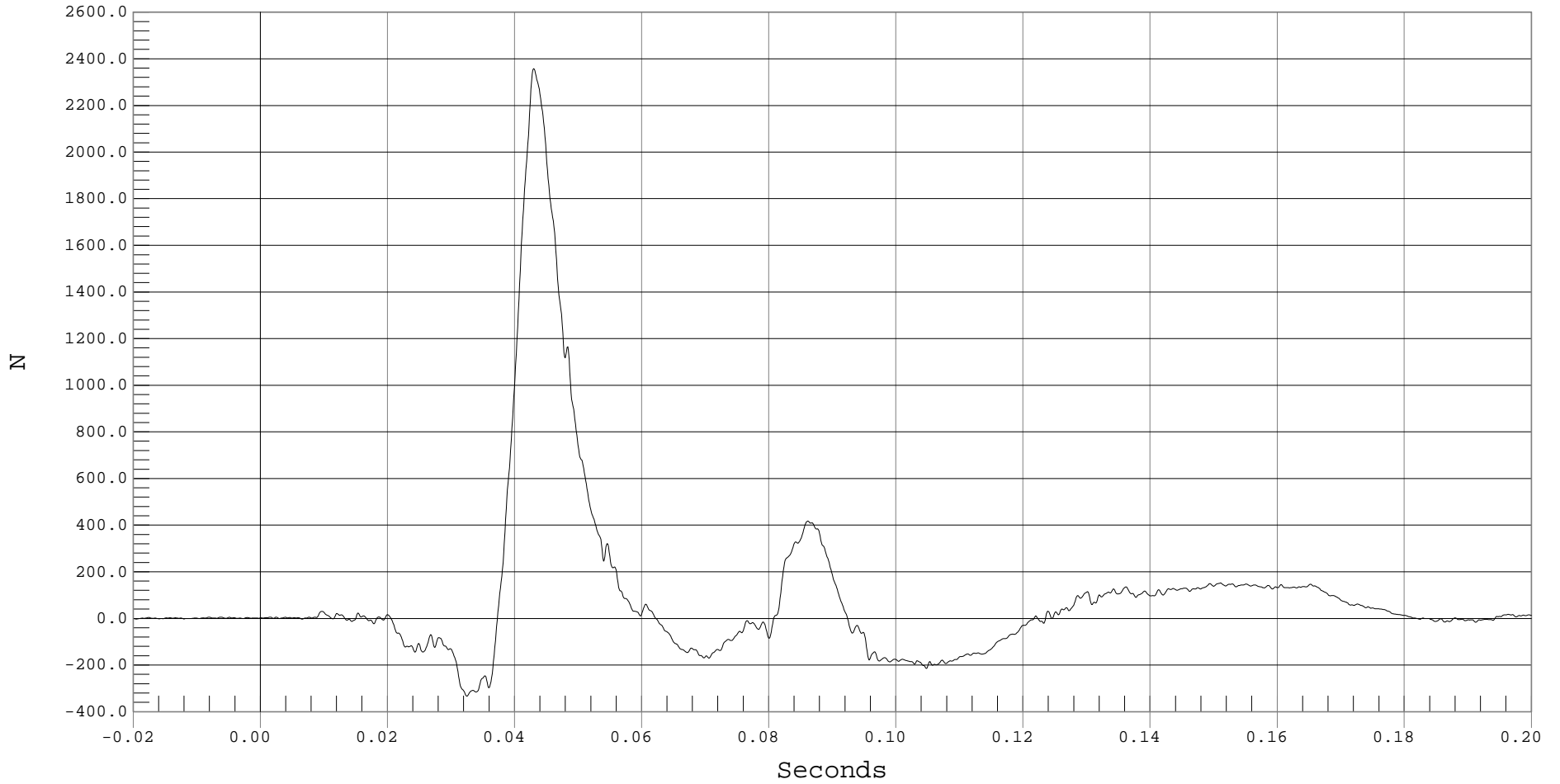
PASSENGER RIGHT LOWER TIBIA FORCE Z

Test Desc.: 35 MPH FRONTAL
Component: 2001 FORD ESCAPE (M10211)
Other Info:

Test Date: 04-20-01
Speed: 35.1 MPH, 56.5 KPH
Filter Class: 600

— 1 PASSENGER RIGHT LOWER TIBIA FZ, B01044FF.F86

Ymin = -333.58 N @ 0.0324 Seconds, Ymax = 2357.33 N @ 0.0429 Seconds



B-104



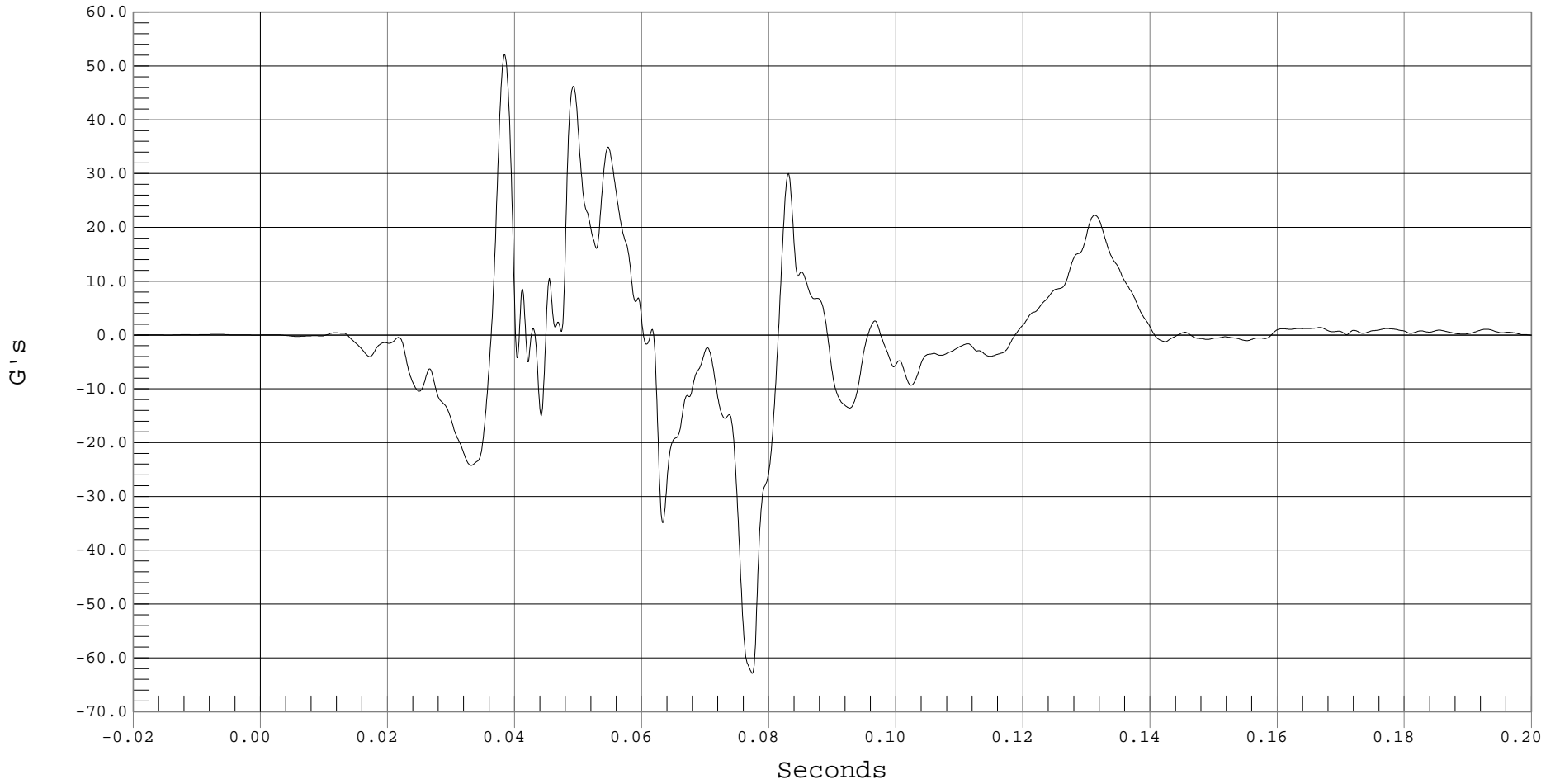
PASSENGER LEFT FOOT @ BALL Z ACCELERATION

Test Desc.: 35 MPH FRONTAL
Component: 2001 FORD ESCAPE (M10211)
Other Info:

Test Date: 04-20-01
Speed: 35.1 MPH, 56.5 KPH
Filter Class: 180

— 1 PASSENGER LEFT FOOT @ BALL Z, B01044AF.A09

Ymin = -62.88 G's @ 0.0773 Seconds, Ymax = 52.11 G's @ 0.0383 Seconds



B-105



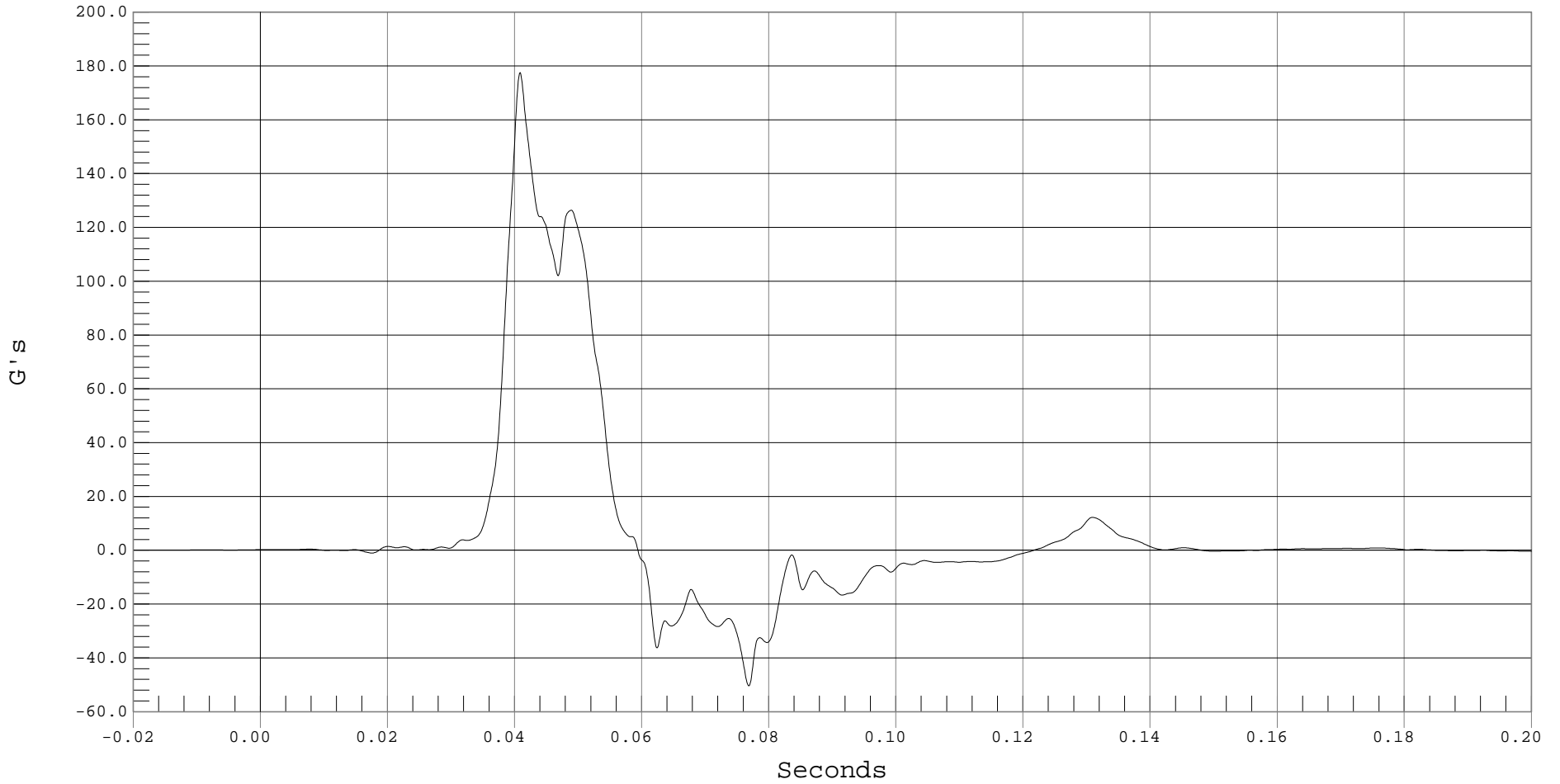
PASSENGER LEFT FOOT @ HEEL X ACCELERATION

Test Desc.: 35 MPH FRONTAL
Component: 2001 FORD ESCAPE (M10211)
Other Info:

Test Date: 04-20-01
Speed: 35.1 MPH, 56.5 KPH
Filter Class: 180

— 1 PASSENGER LEFT FOOT @ HEEL X, B01044AF.A07

Ymin = -50.41 G's @ 0.0768 Seconds, Ymax = 177.51 G's @ 0.0408 Seconds



B-106



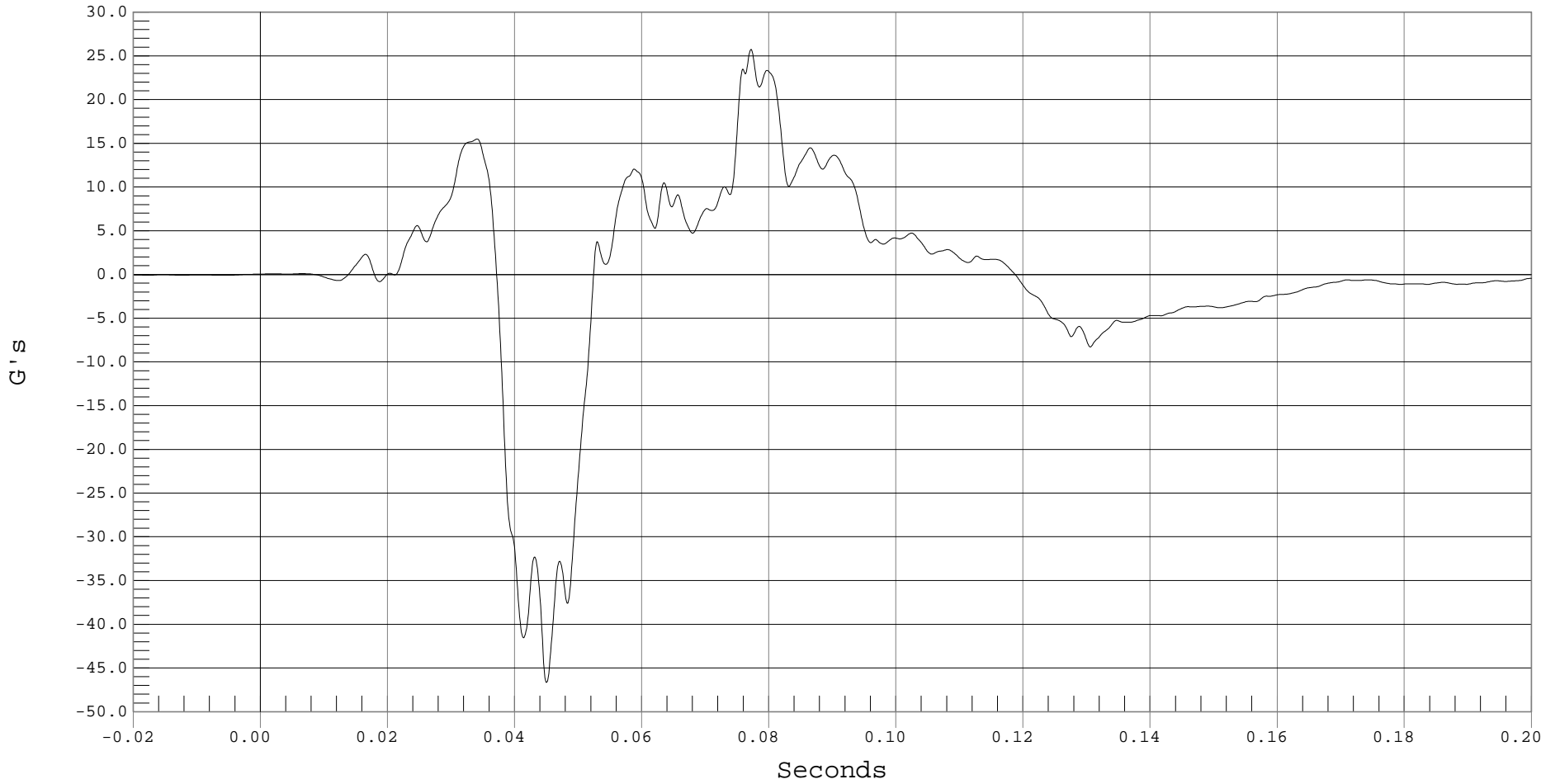
PASSENGER LEFT FOOT @ HEEL Z ACCELERATION

Test Desc.: 35 MPH FRONTAL
Component: 2001 FORD ESCAPE (M10211)
Other Info:

Test Date: 04-20-01
Speed: 35.1 MPH, 56.5 KPH
Filter Class: 180

— 1 PASSENGER LEFT FOOT @ HEEL Z, B01044AF.A08

Ymin = -46.65 G's @ 0.0449 Seconds, Ymax = 25.74 G's @ 0.0771 Seconds



B-107



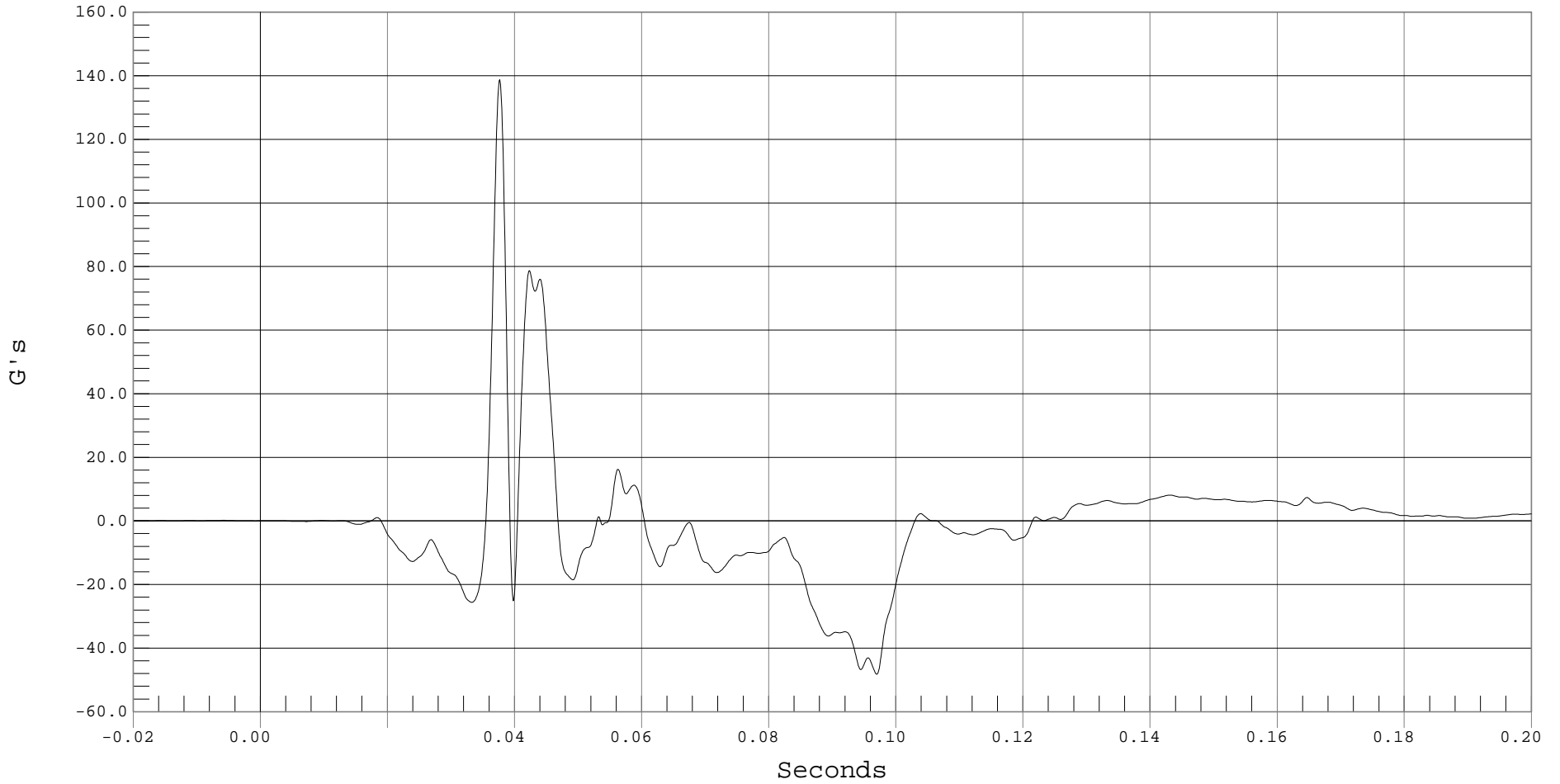
PASSENGER RIGHT FOOT @ BALL Z ACCELERATION

Test Desc.: 35 MPH FRONTAL
Component: 2001 FORD ESCAPE (M10211)
Other Info:

Test Date: 04-20-01
Speed: 35.1 MPH, 56.5 KPH
Filter Class: 180

— 1 PASSENGER RIGHT FOOT @ BALL Z, B01044AF.A06

Ymin = -48.25 G's @ 0.0969 Seconds, Ymax = 138.8 G's @ 0.0376 Seconds



B-108



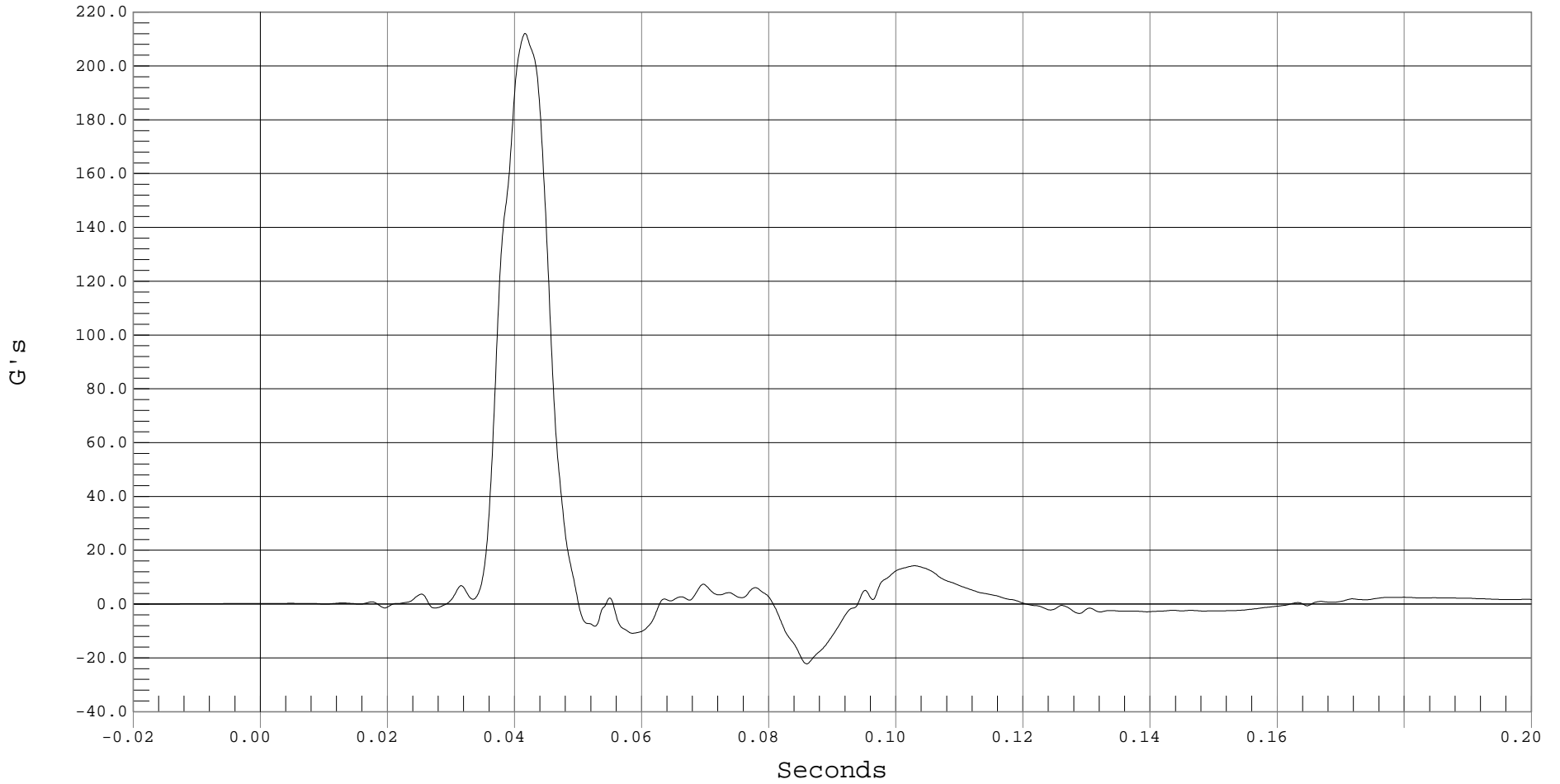
PASSENGER RIGHT FOOT @ HEEL X ACCELERATION

Test Desc.: 35 MPH FRONTAL
Component: 2001 FORD ESCAPE (M10211)
Other Info:

Test Date: 04-20-01
Speed: 35.1 MPH, 56.5 KPH
Filter Class: 180

— 1 PASSENGER RIGHT FOOT @ HEEL X, B01044AF.A04

Ymin = -22.23 G's @ 0.0859 Seconds, Ymax = 212.08 G's @ 0.0416 Seconds



B-109



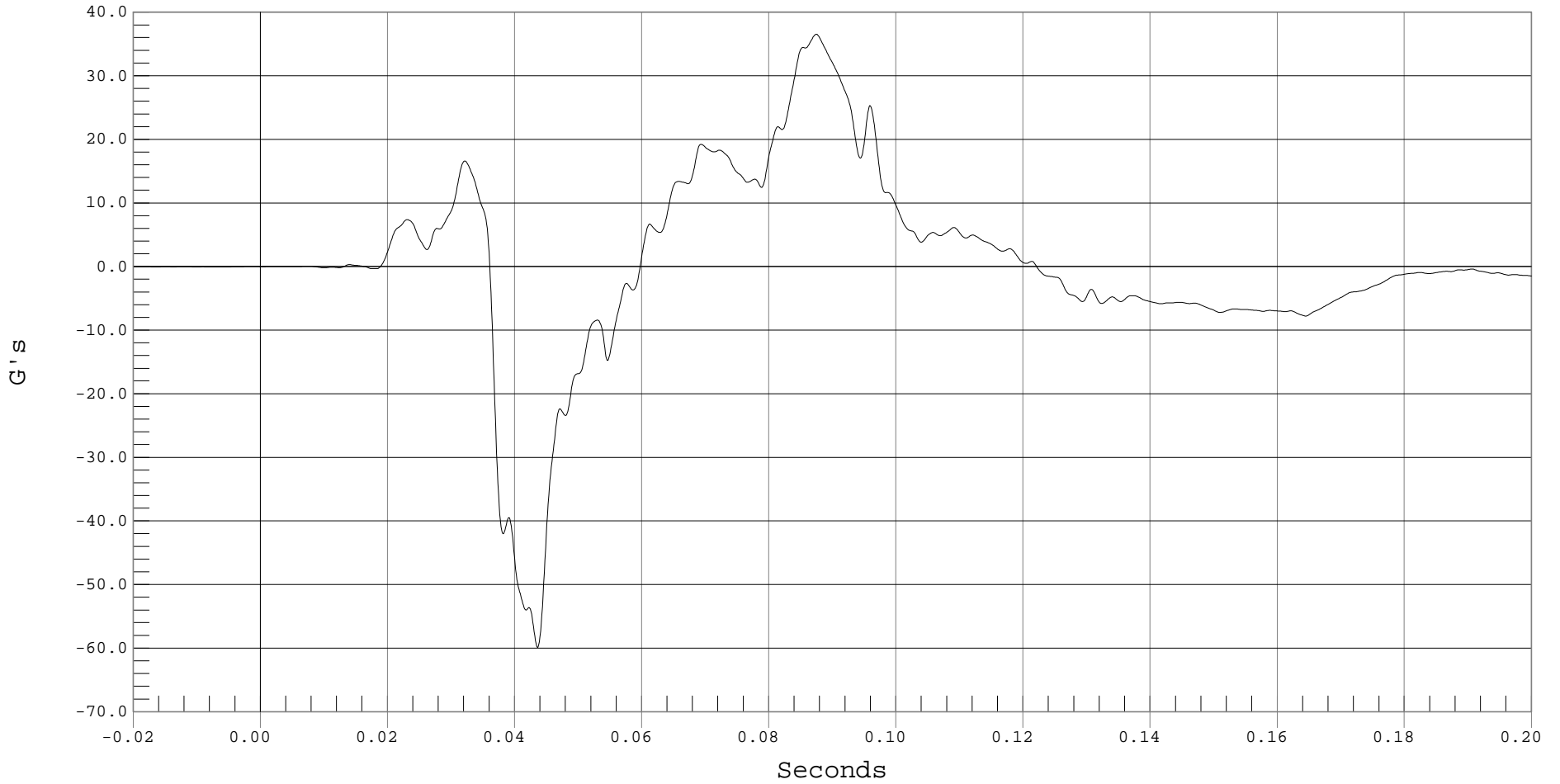
PASSENGER RIGHT FOOT @ HEEL Z ACCELERATION

Test Desc.: 35 MPH FRONTAL
Component: 2001 FORD ESCAPE (M10211)
Other Info:

Test Date: 04-20-01
Speed: 35.1 MPH, 56.5 KPH
Filter Class: 180

— 1 PASSENGER RIGHT FOOT @ HEEL Z, B01044AF.A05

Ymin = -59.92 G's @ 0.0435 Seconds, Ymax = 36.54 G's @ 0.0874 Seconds



B-110



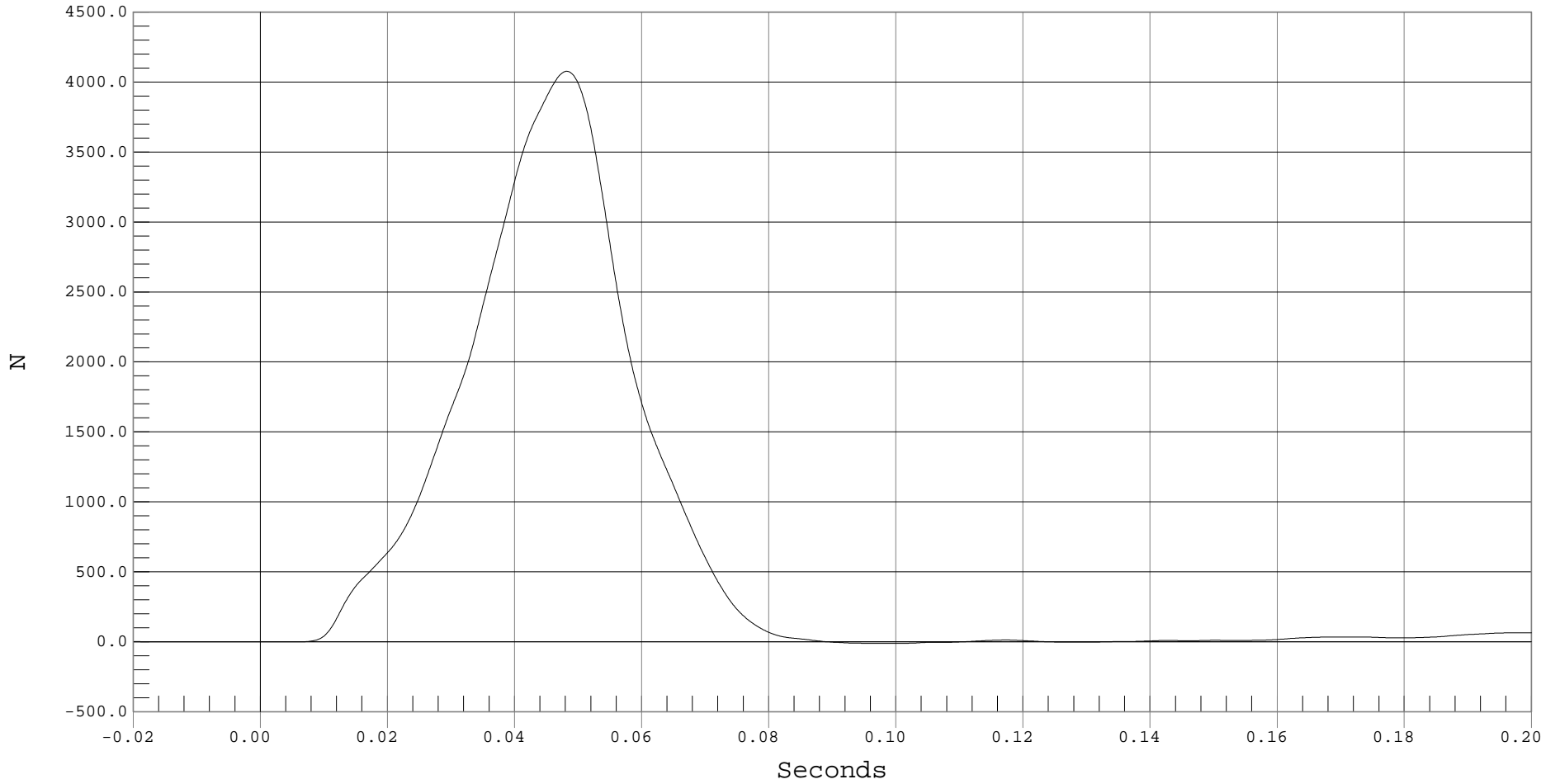
PASSENGER LAP BELT FORCE

Test Desc.: 35 MPH FRONTAL
Component: 2001 FORD ESCAPE (M10211)
Other Info:

Test Date: 04-20-01
Speed: 35.1 MPH, 56.5 KPH
Filter Class: 60

— 1 PASSENGER LAP BELT, B01044FF.F68

Ymin = -12.13 N @ 0.1004 Seconds, Ymax = 4076.94 N @ 0.0481 Seconds



B-111



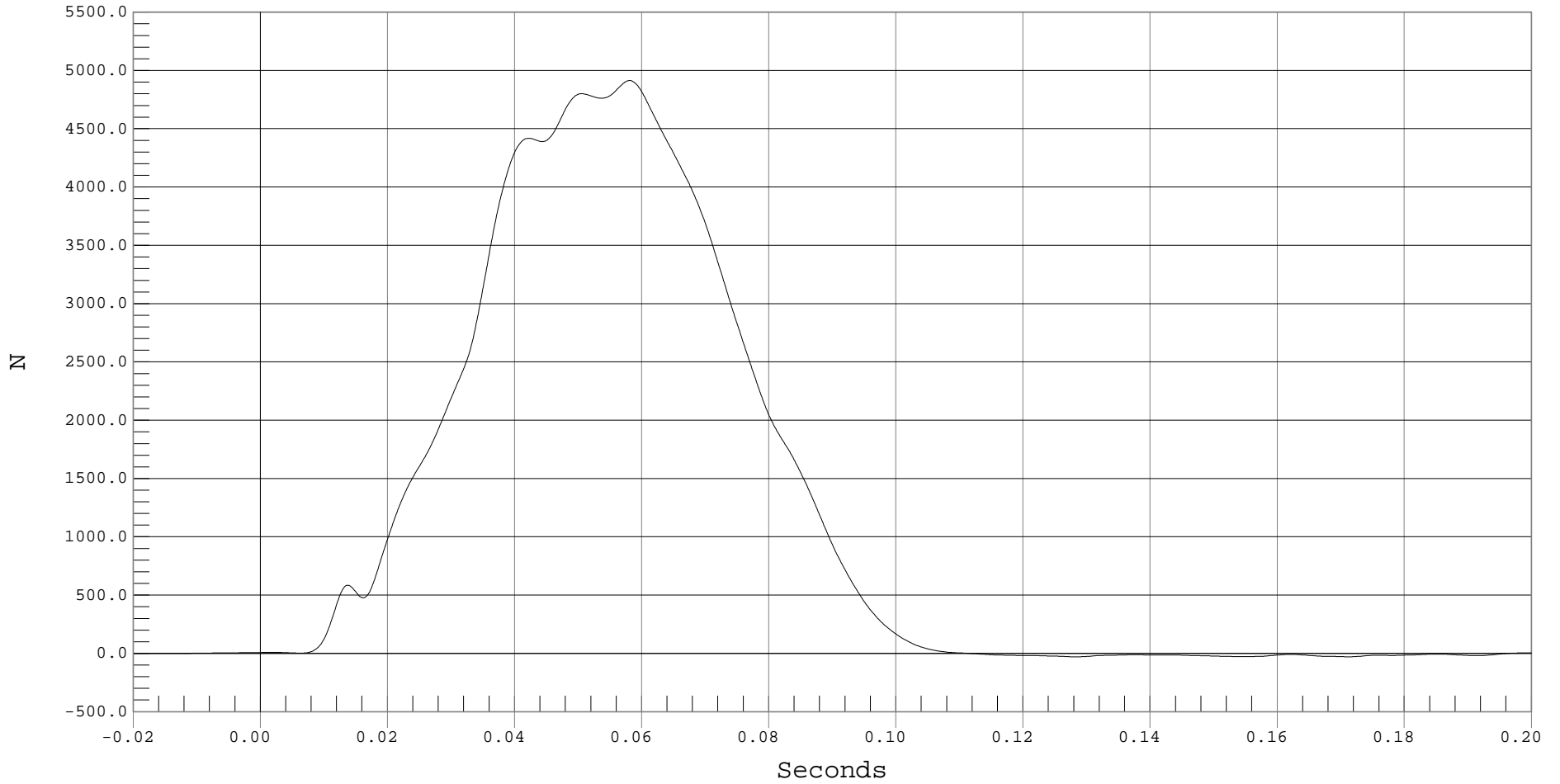
PASSENGER SHOULDER BELT FORCE

Test Desc.: 35 MPH FRONTAL
Component: 2001 FORD ESCAPE (M10211)
Other Info:

Test Date: 04-20-01
Speed: 35.1 MPH, 56.5 KPH
Filter Class: 60

— 1 PASSENGER SHOULDER BELT, B01044FF.F67

Ymin = -29.13 N @ 0.1281 Seconds, Ymax = 4913.58 N @ 0.0580 Seconds



B-112



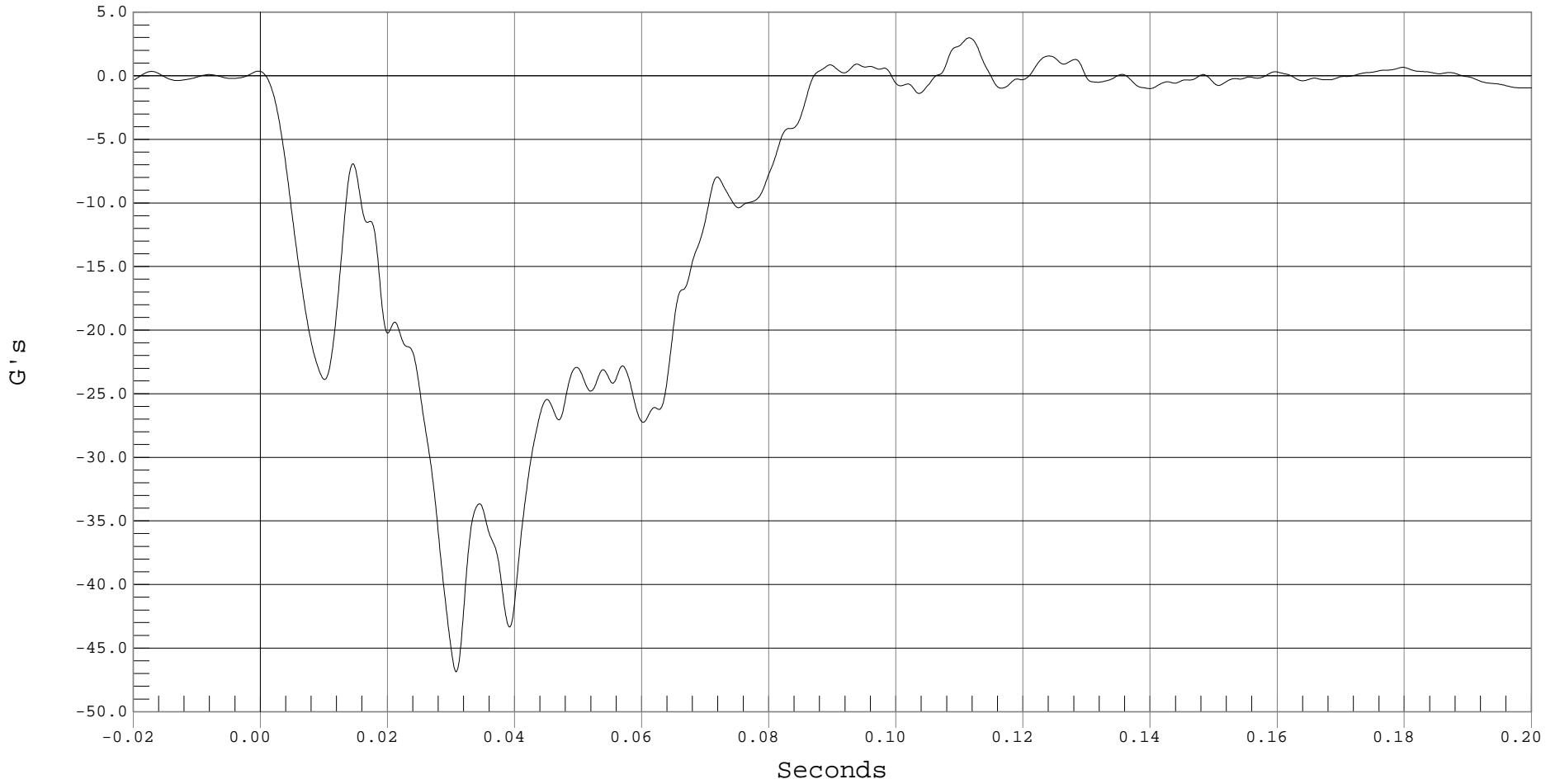
LEFT REAR SEAT CROSSMEMBER X ACCELERATION

Test Desc.: 35 MPH FRONTAL
Component: 2001 FORD ESCAPE (M10211)
Other Info:

Test Date: 04-20-01
Speed: 35.1 MPH, 56.5 KPH
Filter Class: 60

— 1 LEFT REAR SEAT CROSSMEMBER X, B01044AF.A59

Ymin = -46.86 G's @ 0.0307 Seconds, Ymax = 2.99 G's @ 0.1114 Seconds



B-113



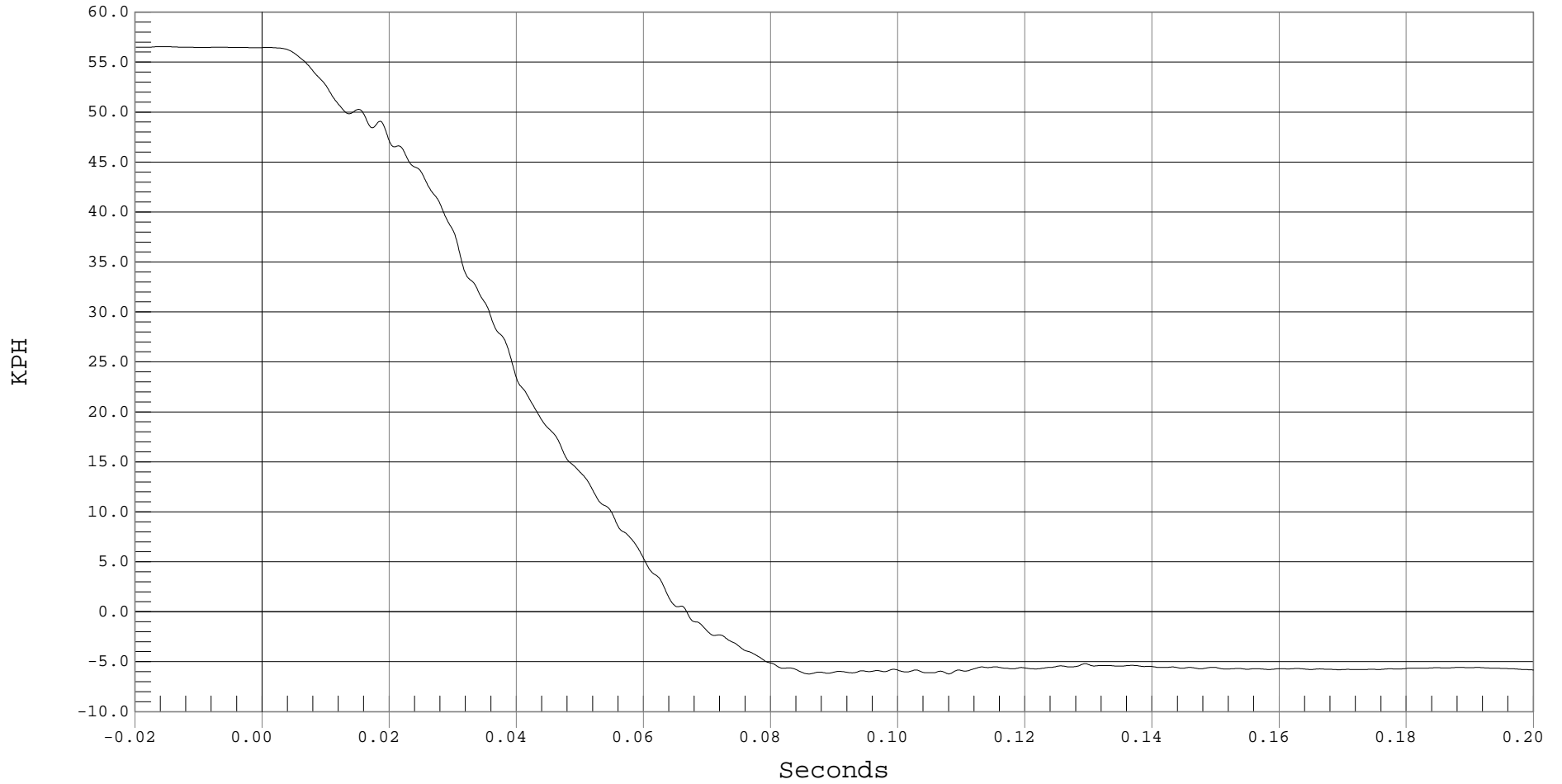
LEFT REAR SEAT CROSSMEMBER X VELOCITY

Test Desc.: 35 MPH FRONTAL
Component: 2001 FORD ESCAPE (M10211)
Other Info:

Test Date: 04-20-01
Speed: 35.1 MPH, 56.5 KPH
Filter Class: 180

— 1 LEFT REAR SEAT CROSSMEMBER X VELOCITY, B01044AI.V59

Ymin = -6.22 KPH @ 0.0859 Seconds, Ymax = 56.55 KPH @ -0.0158 Seconds



B-114



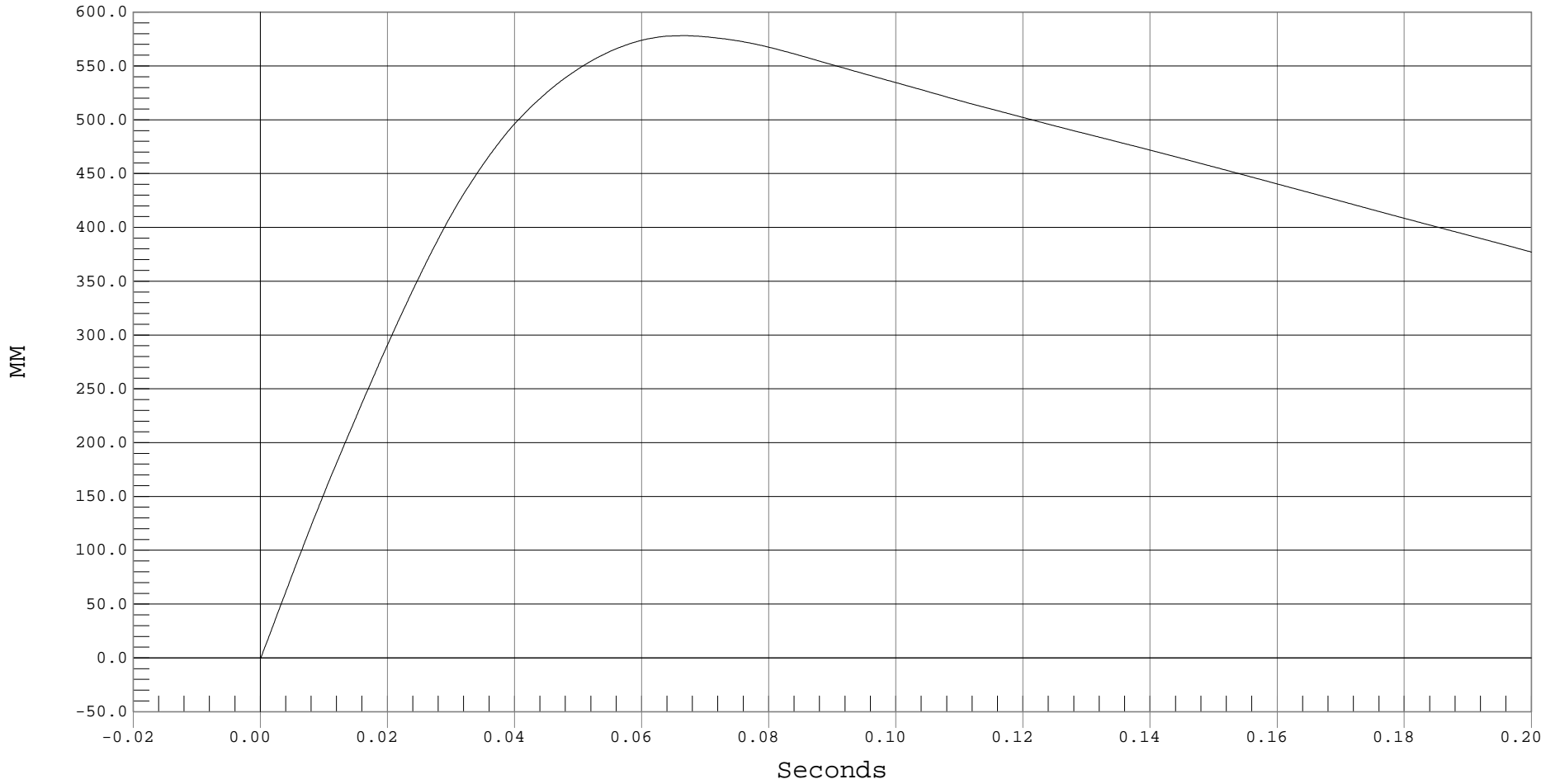
LEFT REAR SEAT CROSSMEMBER X DISPLACEMENT

Test Desc.: 35 MPH FRONTAL
Component: 2001 FORD ESCAPE (M10211)
Other Info:

Test Date: 04-20-01
Speed: 35.1 MPH, 56.5 KPH
Filter Class: 180

— 1 LEFT REAR SEAT CROSSMEMBER X DISPLACEMENT, B01044AI.D59

Ymin = 0 MM @ 0.0000 Seconds, Ymax = 578.13 MM @ 0.0666 Seconds



B-115



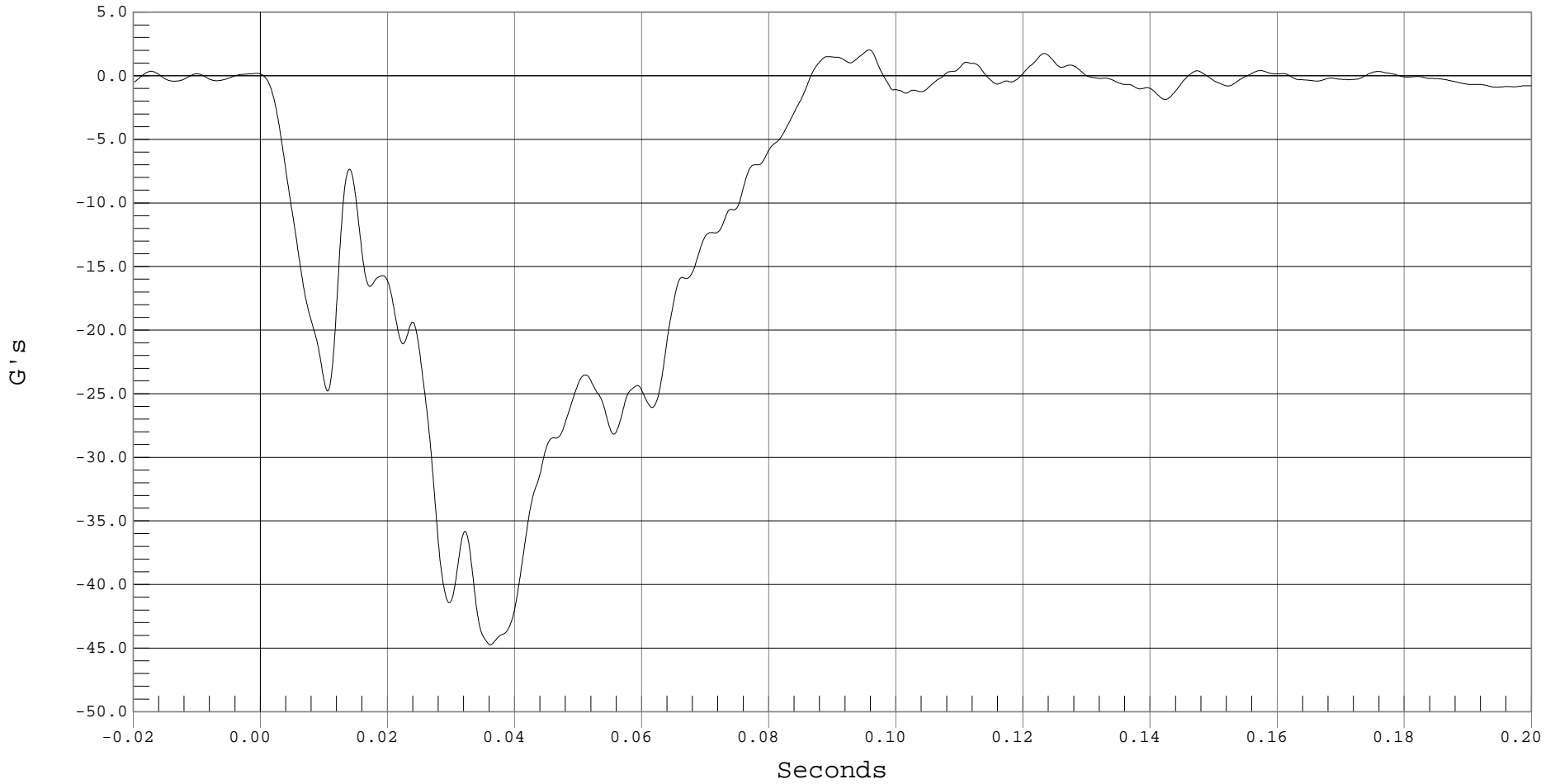
RIGHT REAR SEAT CROSSMEMBER X ACCELERATION

Test Desc.: 35 MPH FRONTAL
Component: 2001 FORD ESCAPE (M10211)
Other Info:

Test Date: 04-20-01
Speed: 35.1 MPH, 56.5 KPH
Filter Class: 60

— 1 RIGHT REAR SEAT CROSSMEMBER X, B01044AF.A58

Ymin = -44.74 G's @ 0.0361 Seconds, Ymax = 2.04 G's @ 0.0957 Seconds



B-116



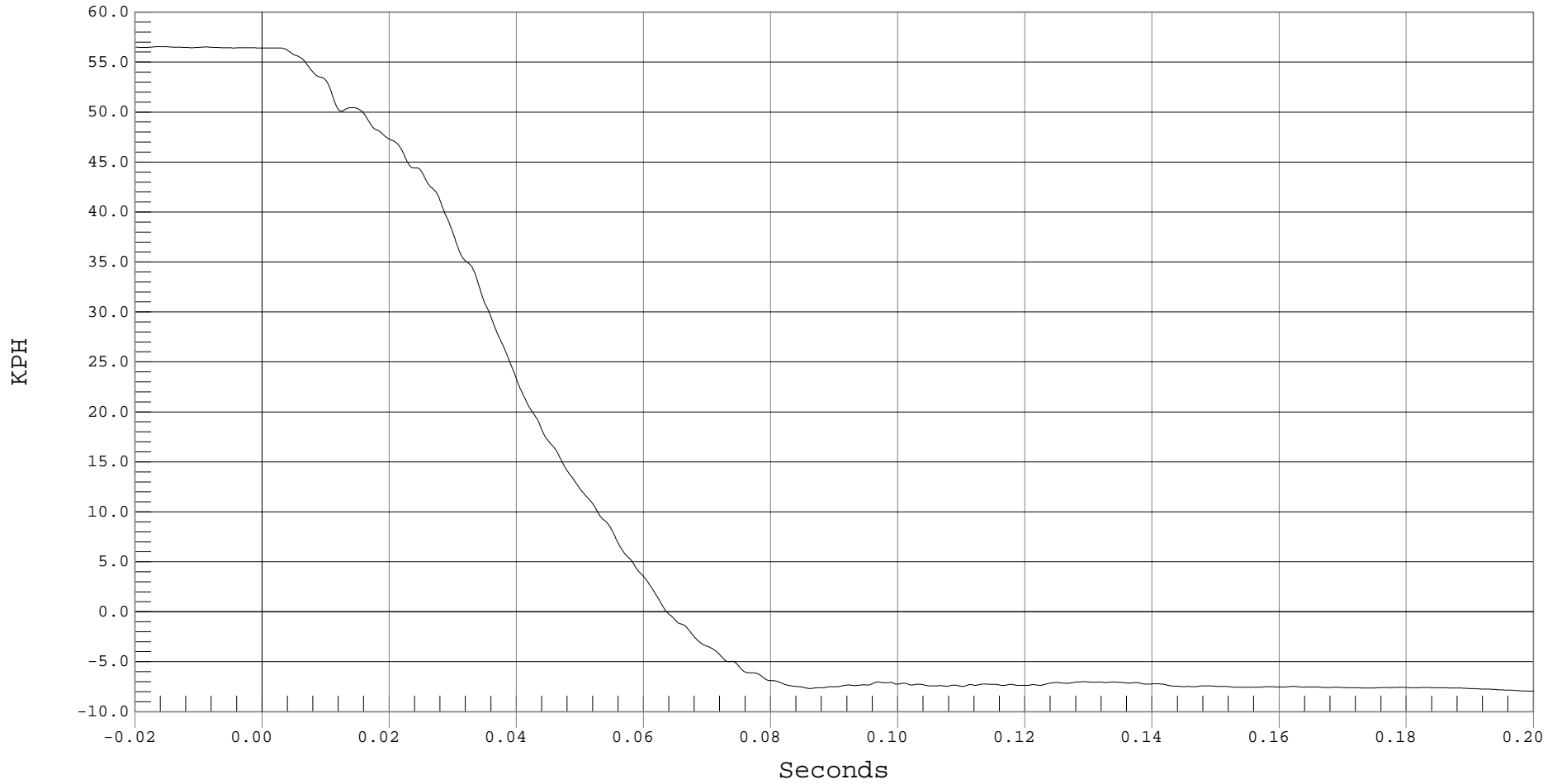
RIGHT REAR SEAT CROSSMEMBER X VELOCITY

Test Desc.: 35 MPH FRONTAL
Component: 2001 FORD ESCAPE (M10211)
Other Info:

Test Date: 04-20-01
Speed: 35.1 MPH, 56.5 KPH
Filter Class: 180

— 1 RIGHT REAR SEAT CROSSMEMBER X VELOCITY, B01044AI.V58

Ymin = -7.94 KPH @ 0.2000 Seconds, Ymax = 56.55 KPH @ -0.0159 Seconds



B-117



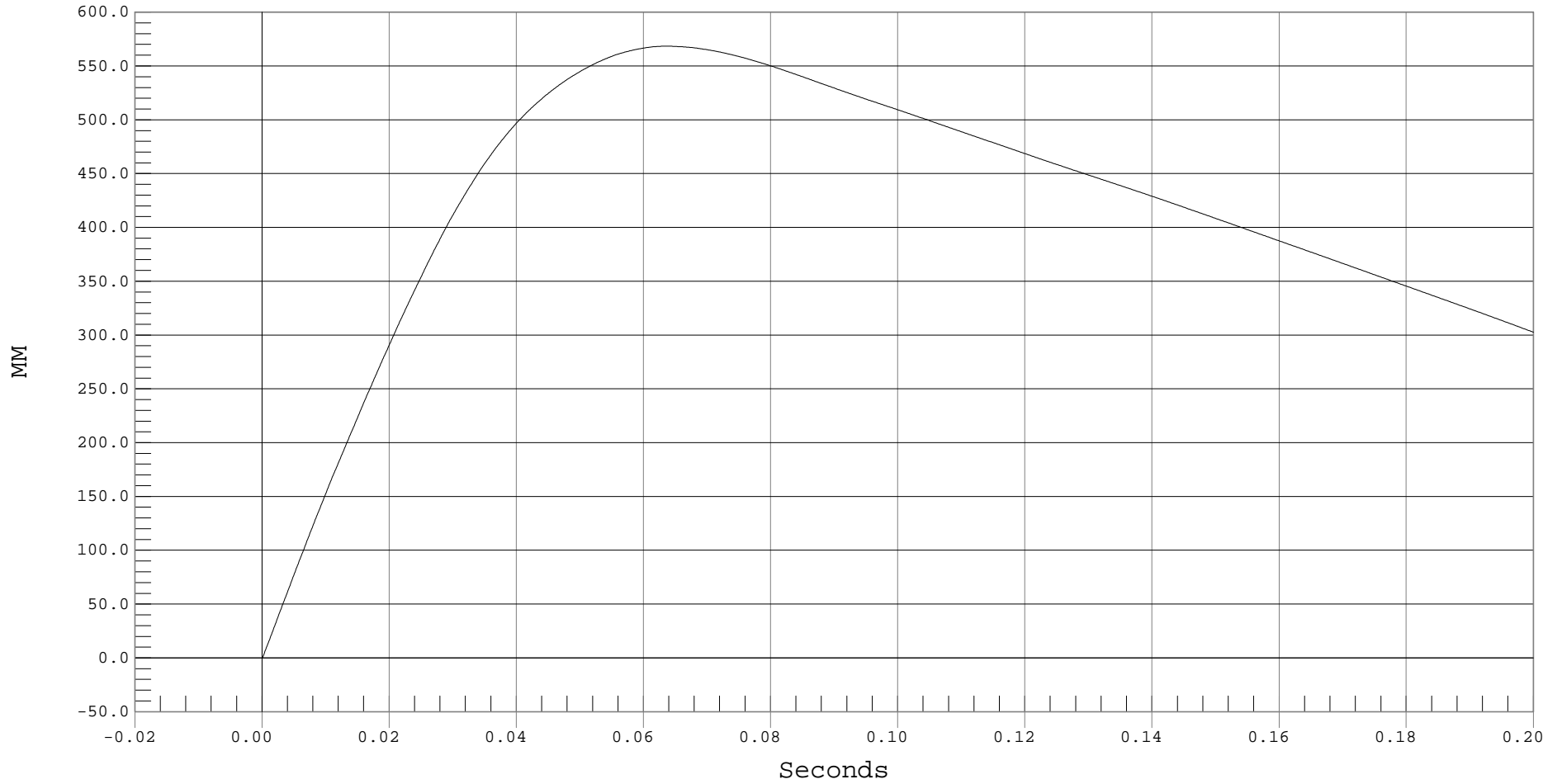
RIGHT REAR SEAT CROSSMEMBER X DISPLACEMENT

Test Desc.: 35 MPH FRONTAL
Component: 2001 FORD ESCAPE (M10211)
Other Info:

Test Date: 04-20-01
Speed: 35.1 MPH, 56.5 KPH
Filter Class: 180

— 1 RIGHT REAR SEAT CROSSMEMBER X DISPLACEMENT, B01044AI.D58

Ymin = 0 MM @ 0.0000 Seconds, Ymax = 568.34 MM @ 0.0634 Seconds



B-118



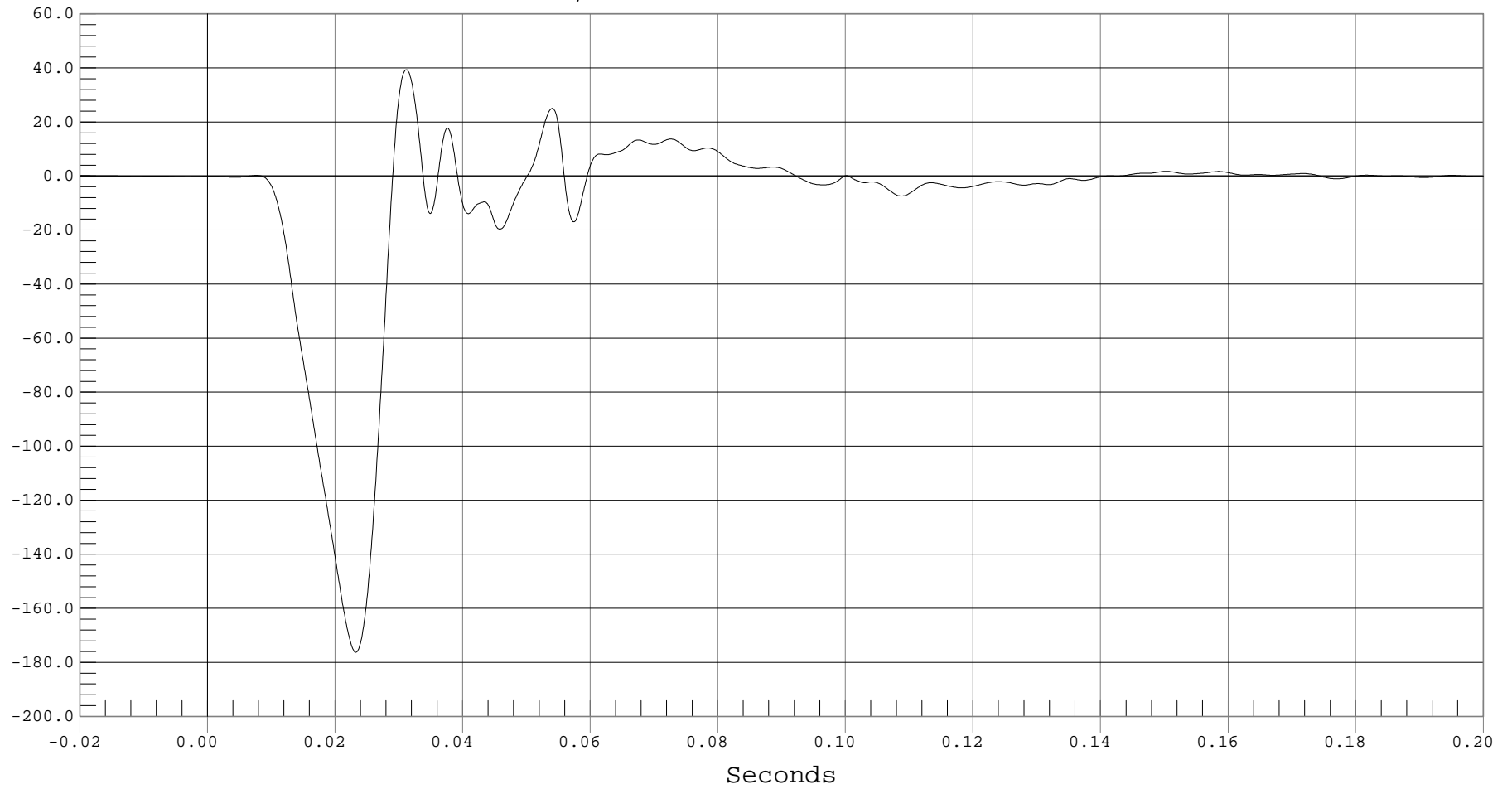
UPPER ENGINE X ACCELERATION

Test Desc.: 35 MPH FRONTAL
Component: 2001 FORD ESCAPE (M10211)
Other Info:

Test Date: 04-20-01
Speed: 35.1 MPH, 56.5 KPH
Filter Class: 60

— 1 ENGINE UPPER X, B01044AF.A55

Ymin = -176.31 @ 0.0232 Seconds, Ymax = 39.36 @ 0.0311 Seconds



B-119



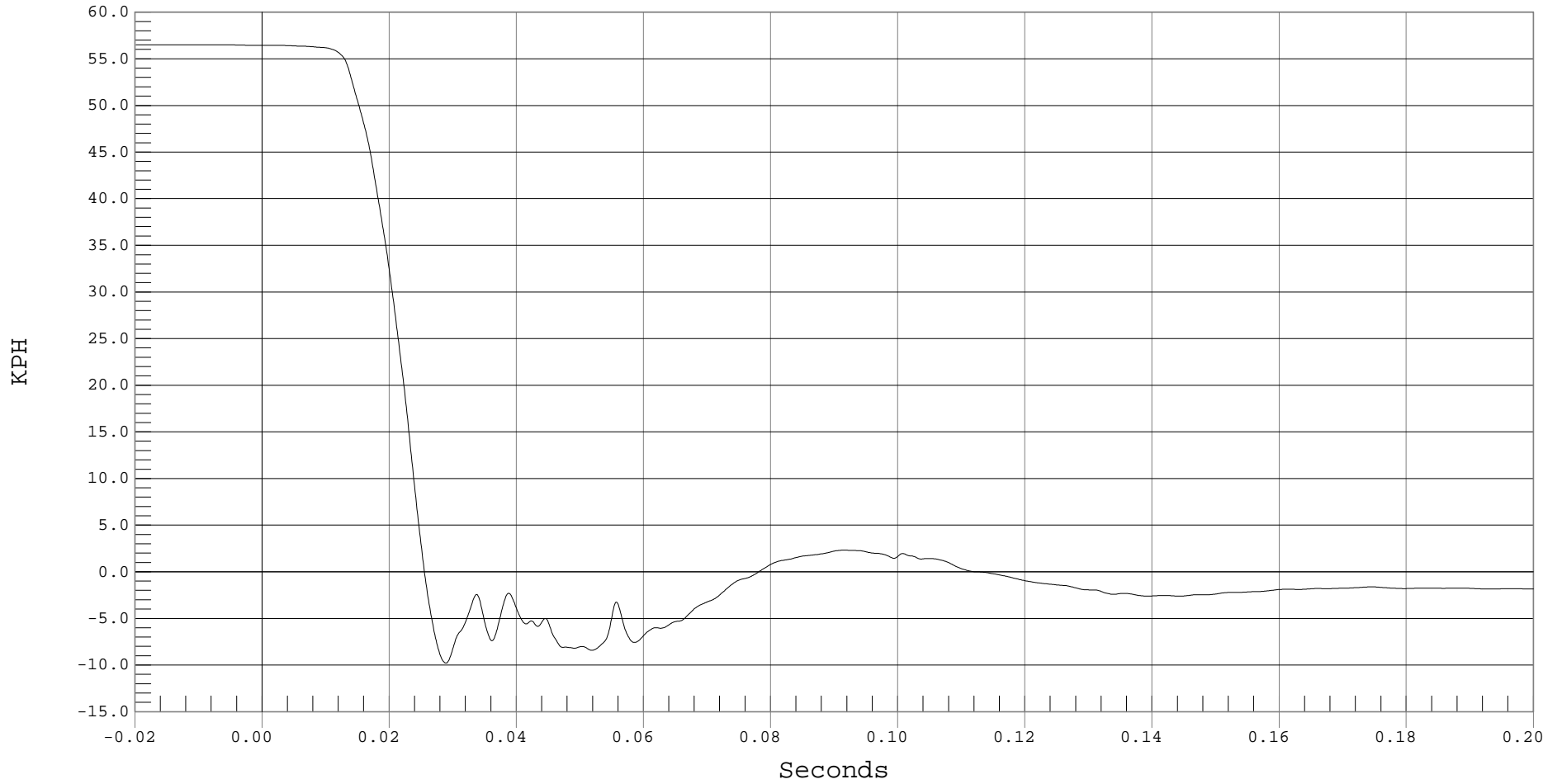
UPPER ENGINE X VELOCITY

Test Desc.: 35 MPH FRONTAL
Component: 2001 FORD ESCAPE (M10211)
Other Info:

Test Date: 04-20-01
Speed: 35.1 MPH, 56.5 KPH
Filter Class: 180

— 1 TOP OF ENGINE BLOCK X VELOCITY, B01044AI.V55

Ymin = -9.79 KPH @ 0.0288 Seconds, Ymax = 56.51 KPH @ -0.0139 Seconds



B-120



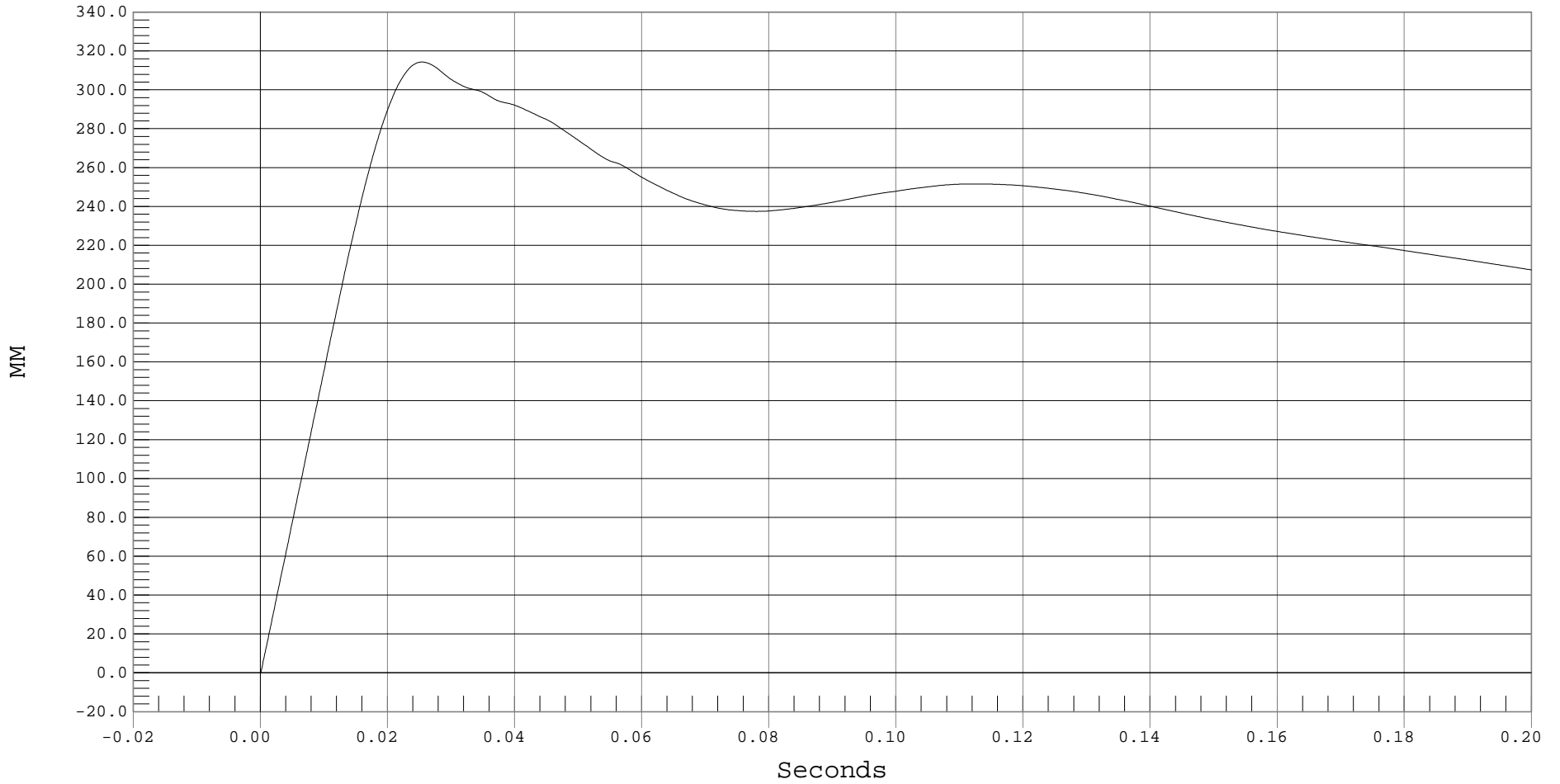
UPPER ENGINE X DISPLACEMENT

Test Desc.: 35 MPH FRONTAL
Component: 2001 FORD ESCAPE (M10211)
Other Info:

Test Date: 04-20-01
Speed: 35.1 MPH, 56.5 KPH
Filter Class: 180

— 1 TOP OF ENGINE BLOCK X DISPLACEMENT, B01044AI.D55

Ymin = 0 MM @ 0.0000 Seconds, Ymax = 314.32 MM @ 0.0254 Seconds



B-121



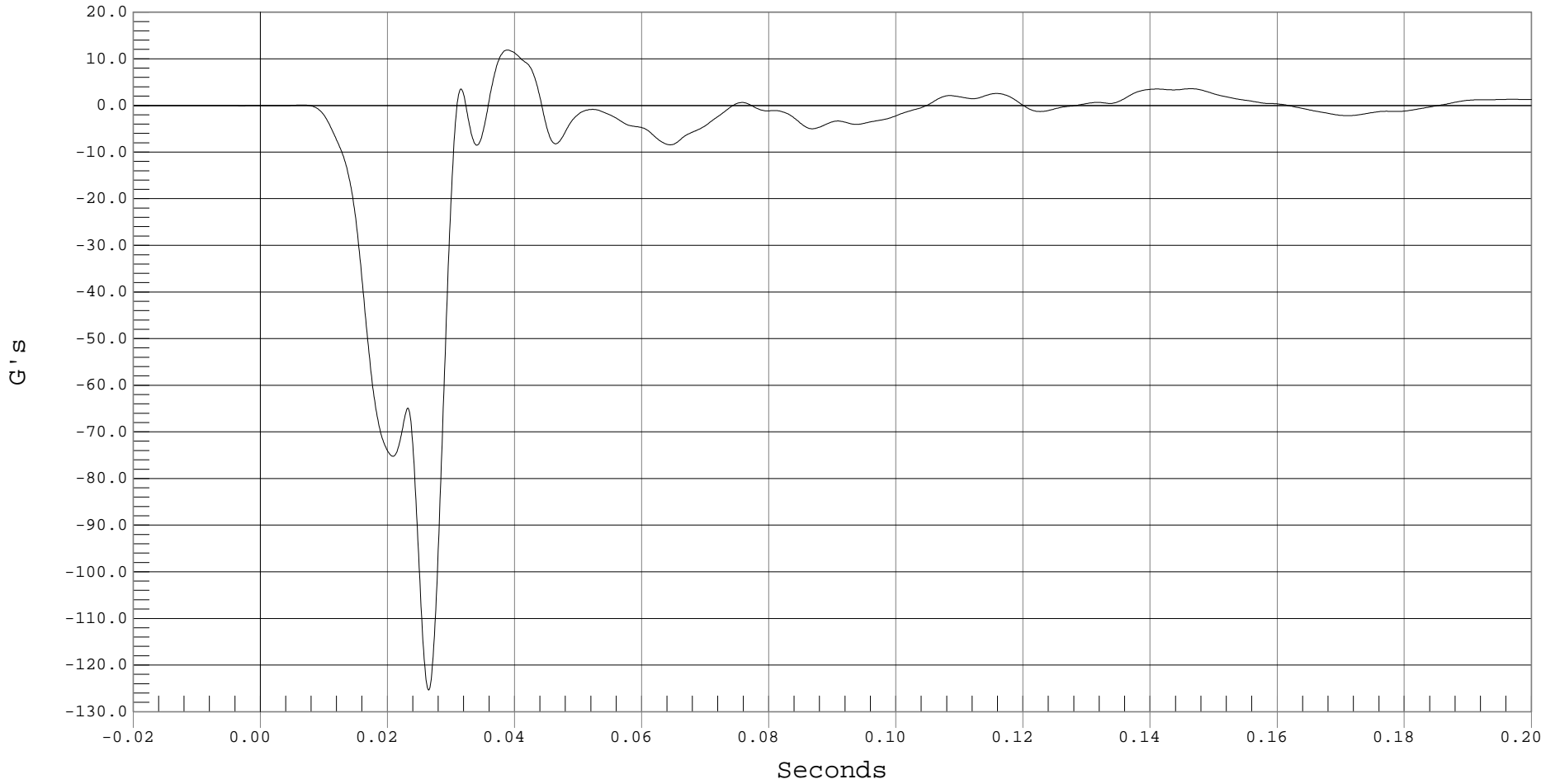
LOWER ENGINE X ACCELERATION

Test Desc.: 35 MPH FRONTAL
Component: 2001 FORD ESCAPE (M10211)
Other Info:

Test Date: 04-20-01
Speed: 35.1 MPH, 56.5 KPH
Filter Class: 60

— 1 ENGINE LOWER X, B01044AF.A56

Ymin = -125.4 G's @ 0.0264 Seconds, Ymax = 11.85 G's @ 0.0388 Seconds



B-122



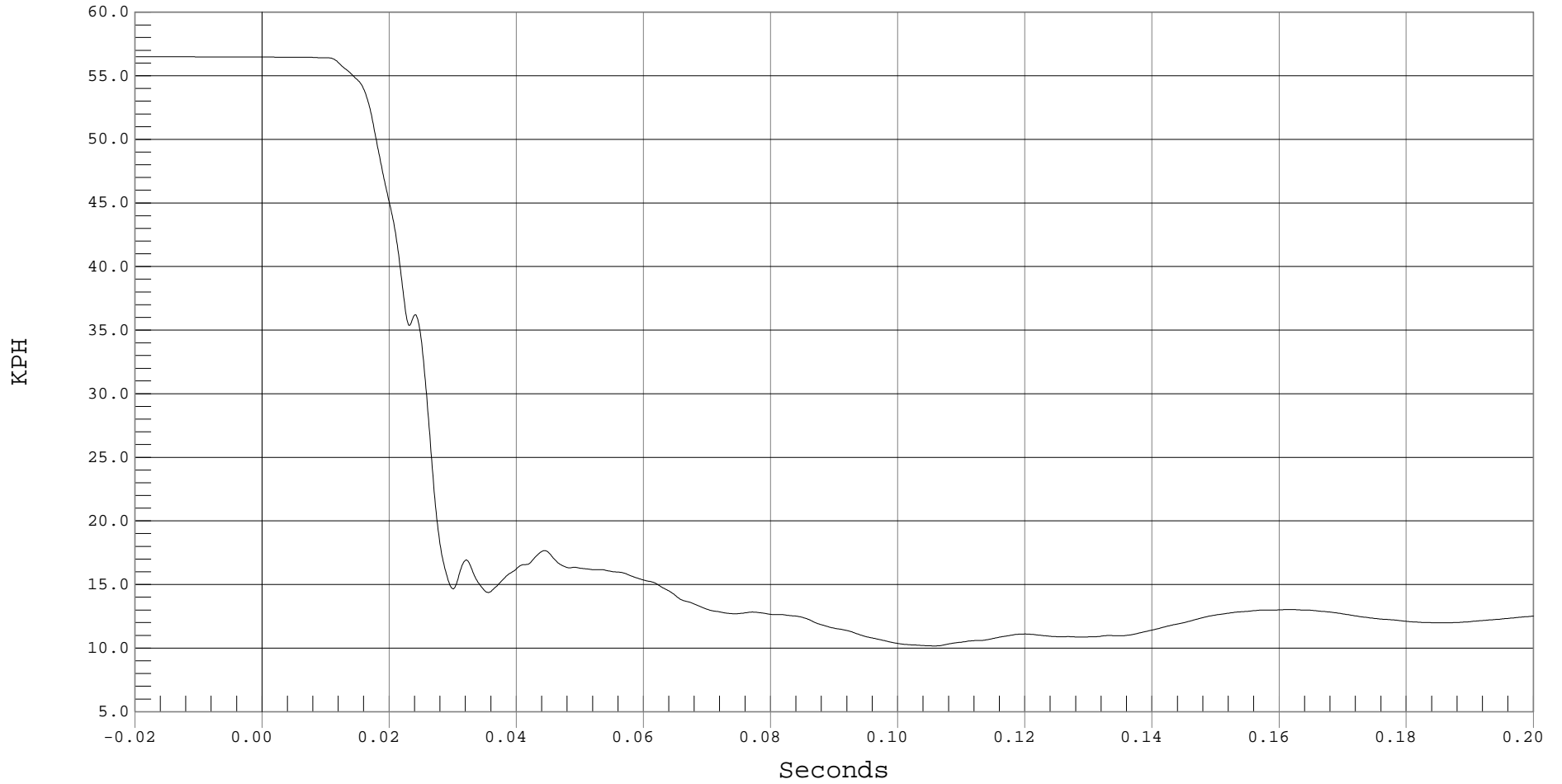
LOWER ENGINE X VELOCITY

Test Desc.: 35 MPH FRONTAL
Component: 2001 FORD ESCAPE (M10211)
Other Info:

Test Date: 04-20-01
Speed: 35.1 MPH, 56.5 KPH
Filter Class: 180

— 1 BOTTOM OF ENGINE X VELOCITY, B01044AI.V56

Ymin = 10.17 KPH @ 0.1057 Seconds, Ymax = 56.5 KPH @ -0.0199 Seconds



B-123



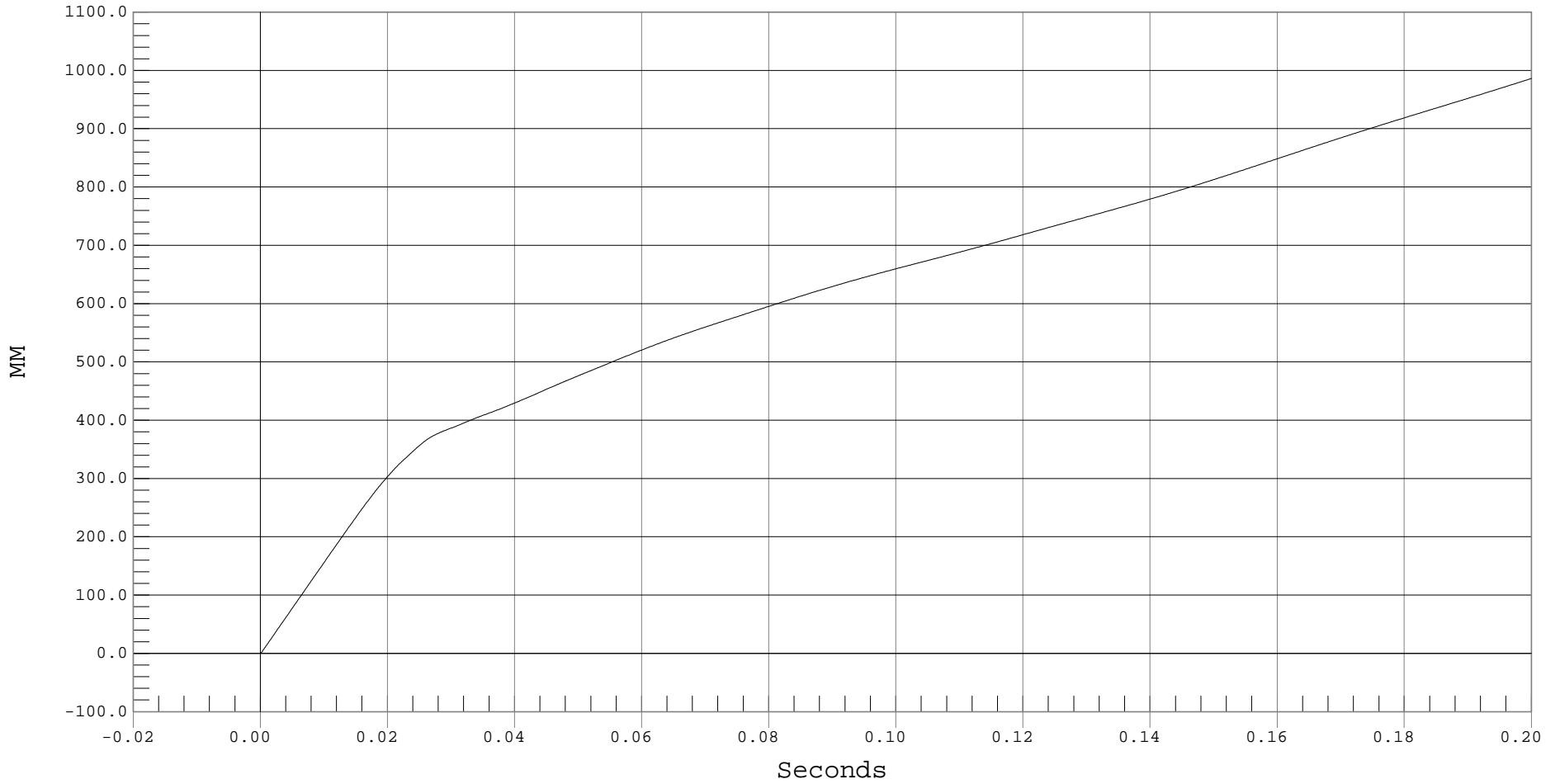
LOWER ENGINE X DISPLACEMENT

Test Desc.: 35 MPH FRONTAL
Component: 2001 FORD ESCAPE (M10211)
Other Info:

Test Date: 04-20-01
Speed: 35.1 MPH, 56.5 KPH
Filter Class: 180

— 1 BOTTOM OF ENGINE X DISPLACEMENT, B01044AI.D56

Ymin = 0 MM @ 0.0000 Seconds, Ymax = 986.21 MM @ 0.1999 Seconds



B-124



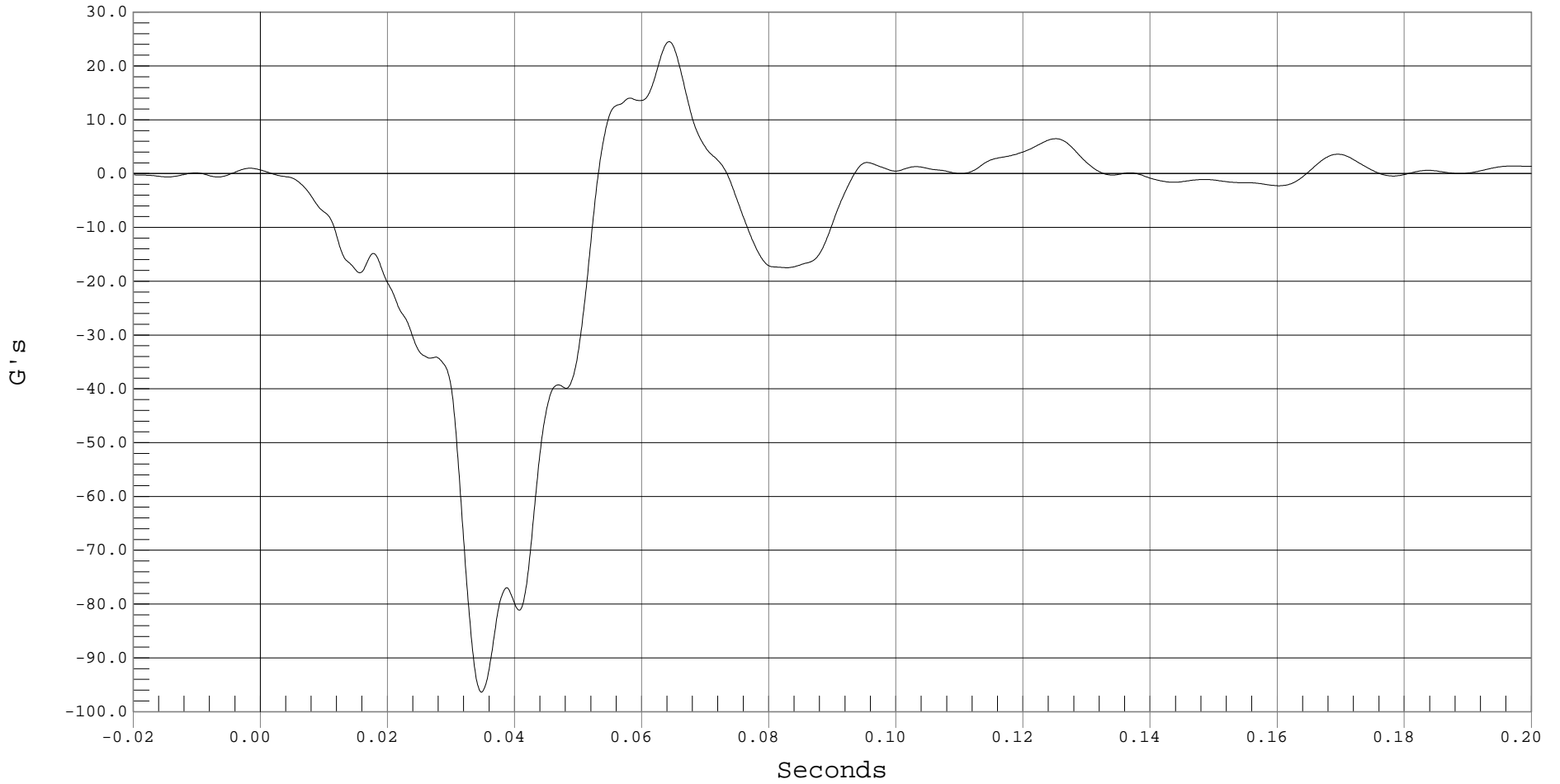
LEFT BRAKE CALIPER X ACCELERATION

Test Desc.: 35 MPH FRONTAL
Component: 2001 FORD ESCAPE (M10211)
Other Info:

Test Date: 04-20-01
Speed: 35.1 MPH, 56.5 KPH
Filter Class: 60

— 1 LEFT BRAKE CALIPER X, B01044AF.A61

Ymin = -96.37 G's @ 0.0347 Seconds, Ymax = 24.52 G's @ 0.0642 Seconds



B-125



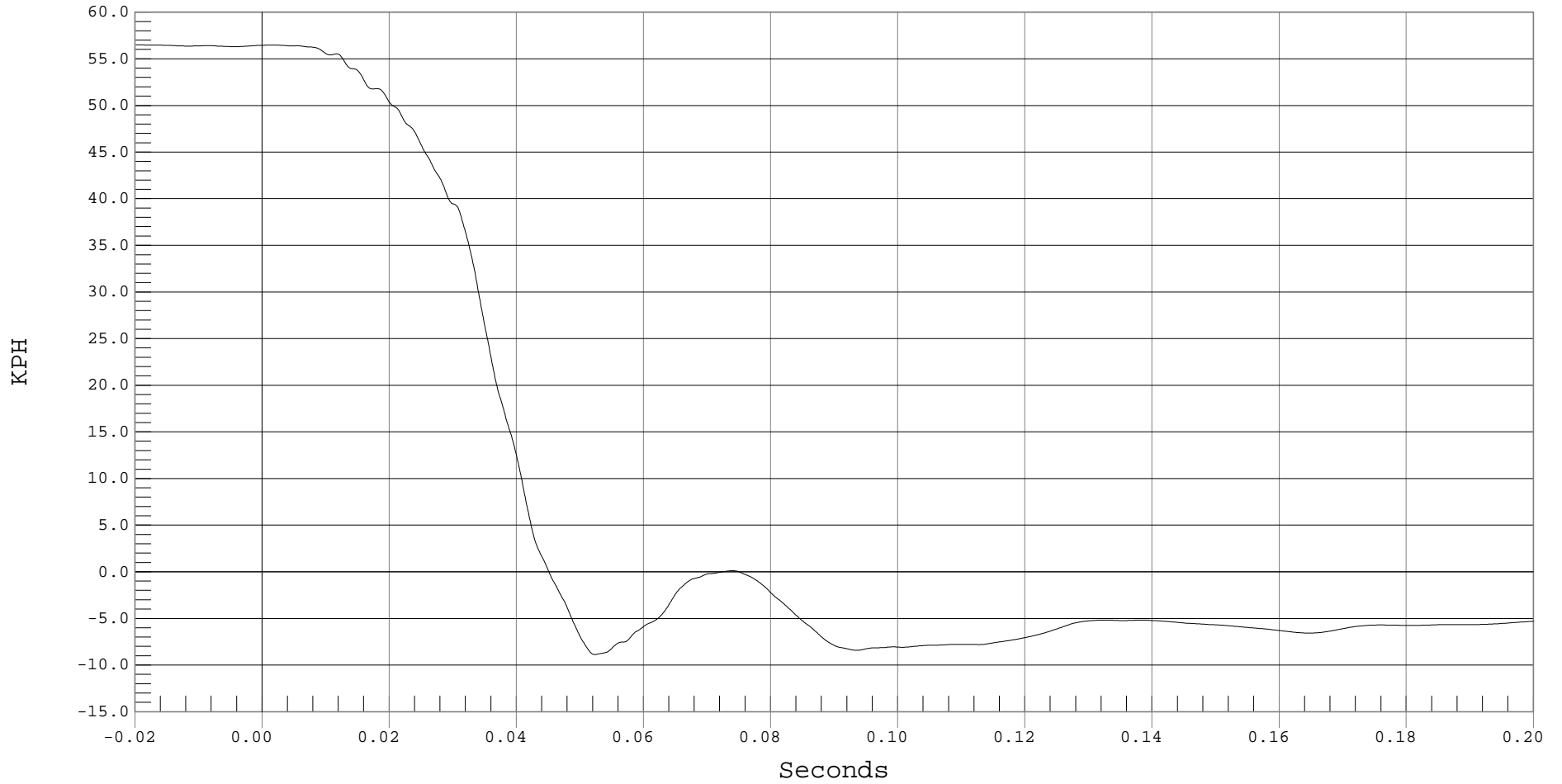
LEFT BRAKE CALIPER X VELOCITY

Test Desc.: 35 MPH FRONTAL
Component: 2001 FORD ESCAPE (M10211)
Other Info:

Test Date: 04-20-01
Speed: 35.1 MPH, 56.5 KPH
Filter Class: 180

— 1 LEFT BRAKE CALIPER X VELOCITY, B01044AI.V61

Ymin = -8.88 KPH @ 0.0523 Seconds, Ymax = 56.5 KPH @ -0.0199 Seconds



B-126



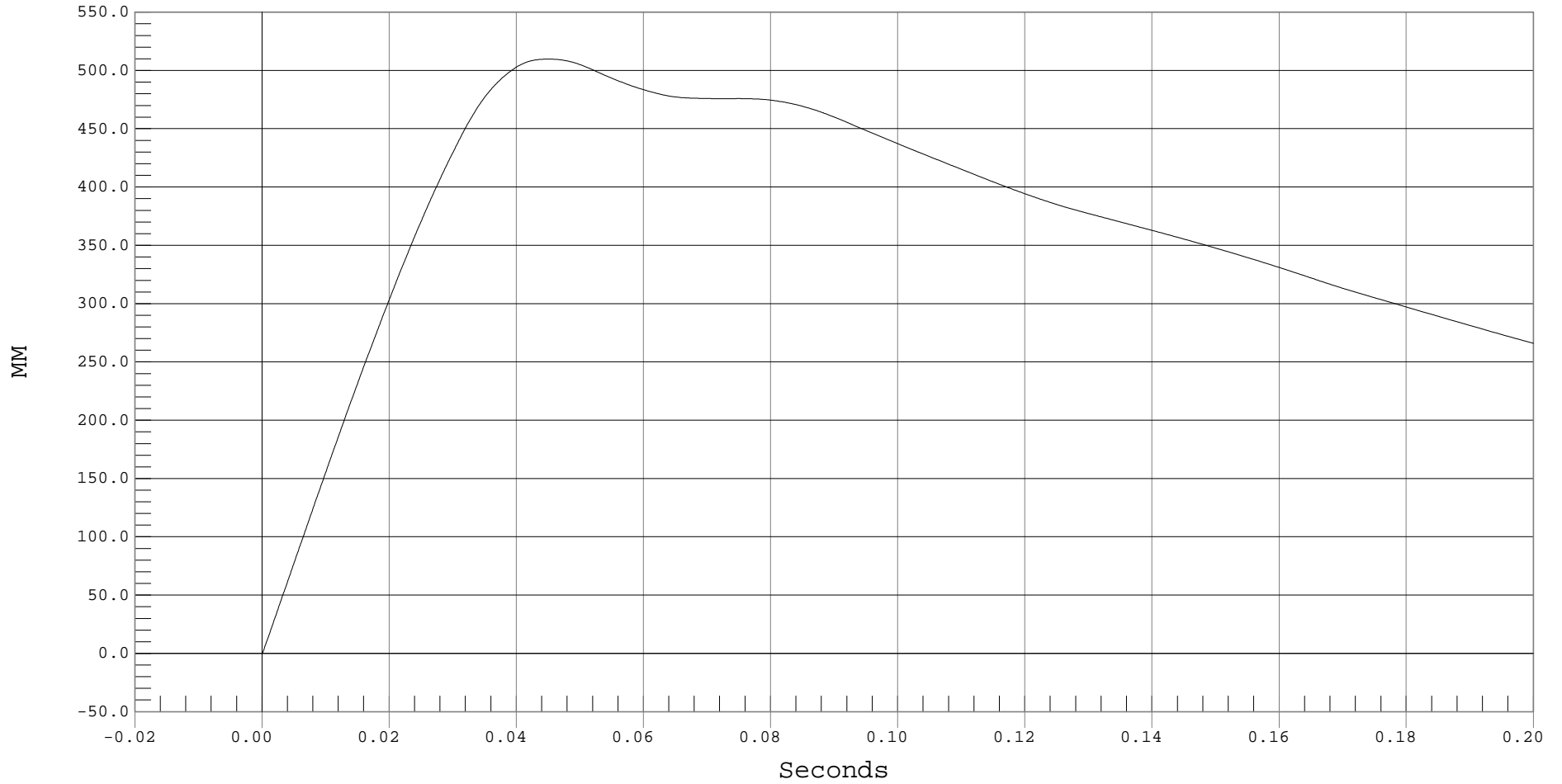
LEFT BRAKE CALIPER X DISPLACEMENT

Test Desc.: 35 MPH FRONTAL
Component: 2001 FORD ESCAPE (M10211)
Other Info:

Test Date: 04-20-01
Speed: 35.1 MPH, 56.5 KPH
Filter Class: 180

— 1 LEFT BRAKE CALIPER X DISPLACEMENT, B01044AI.D61

Ymin = 0 MM @ 0.0000 Seconds, Ymax = 509.8 MM @ 0.0449 Seconds



B-127



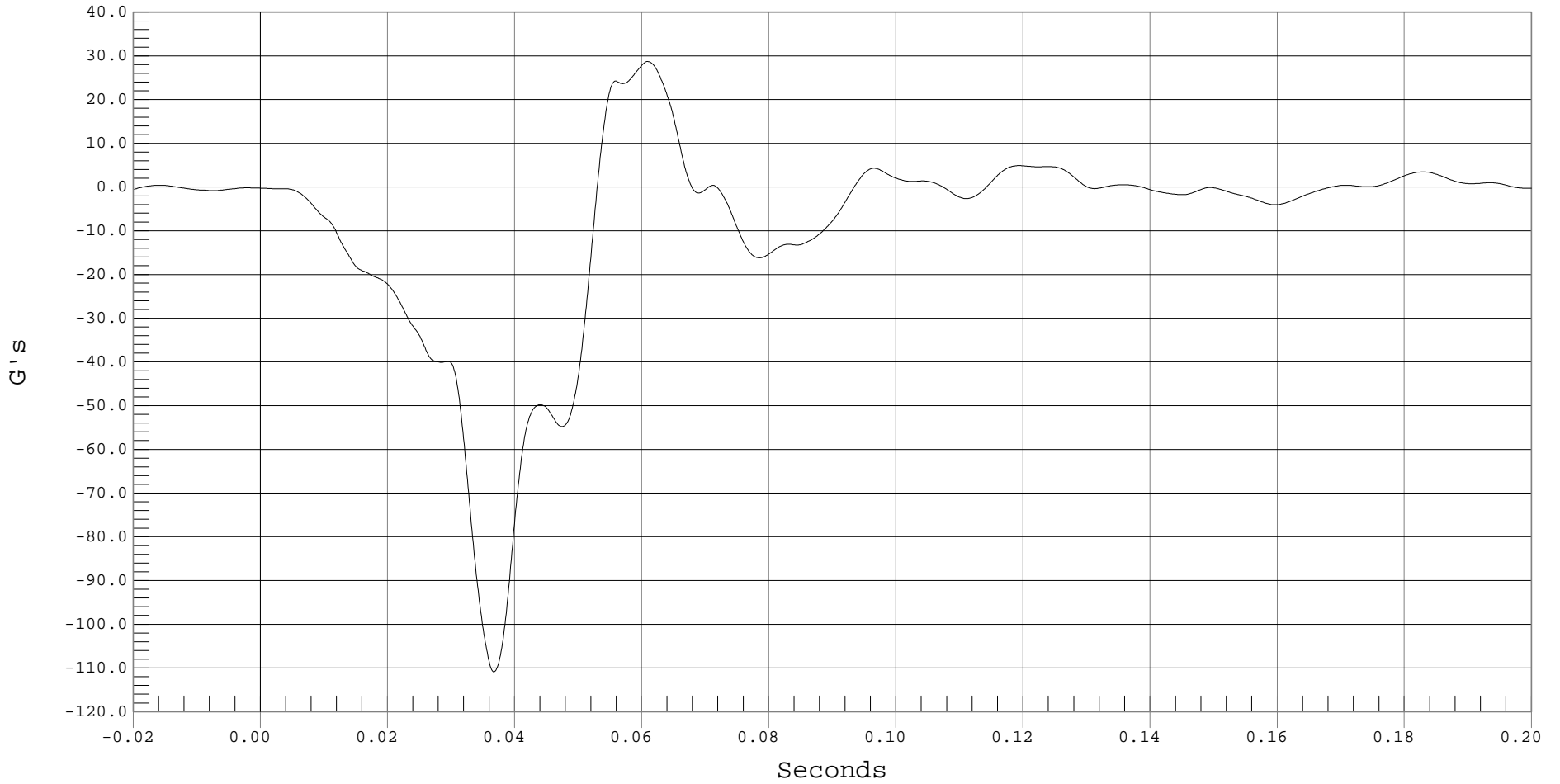
RIGHT BRAKE CALIPER X ACCELERATION

Test Desc.: 35 MPH FRONTAL
Component: 2001 FORD ESCAPE (M10211)
Other Info:

Test Date: 04-20-01
Speed: 35.1 MPH, 56.5 KPH
Filter Class: 60

— 1 RIGHT BRAKE CALIPER X, B01044AF.A60

Ymin = -110.89 G's @ 0.0367 Seconds, Ymax = 28.71 G's @ 0.0608 Seconds



B-128



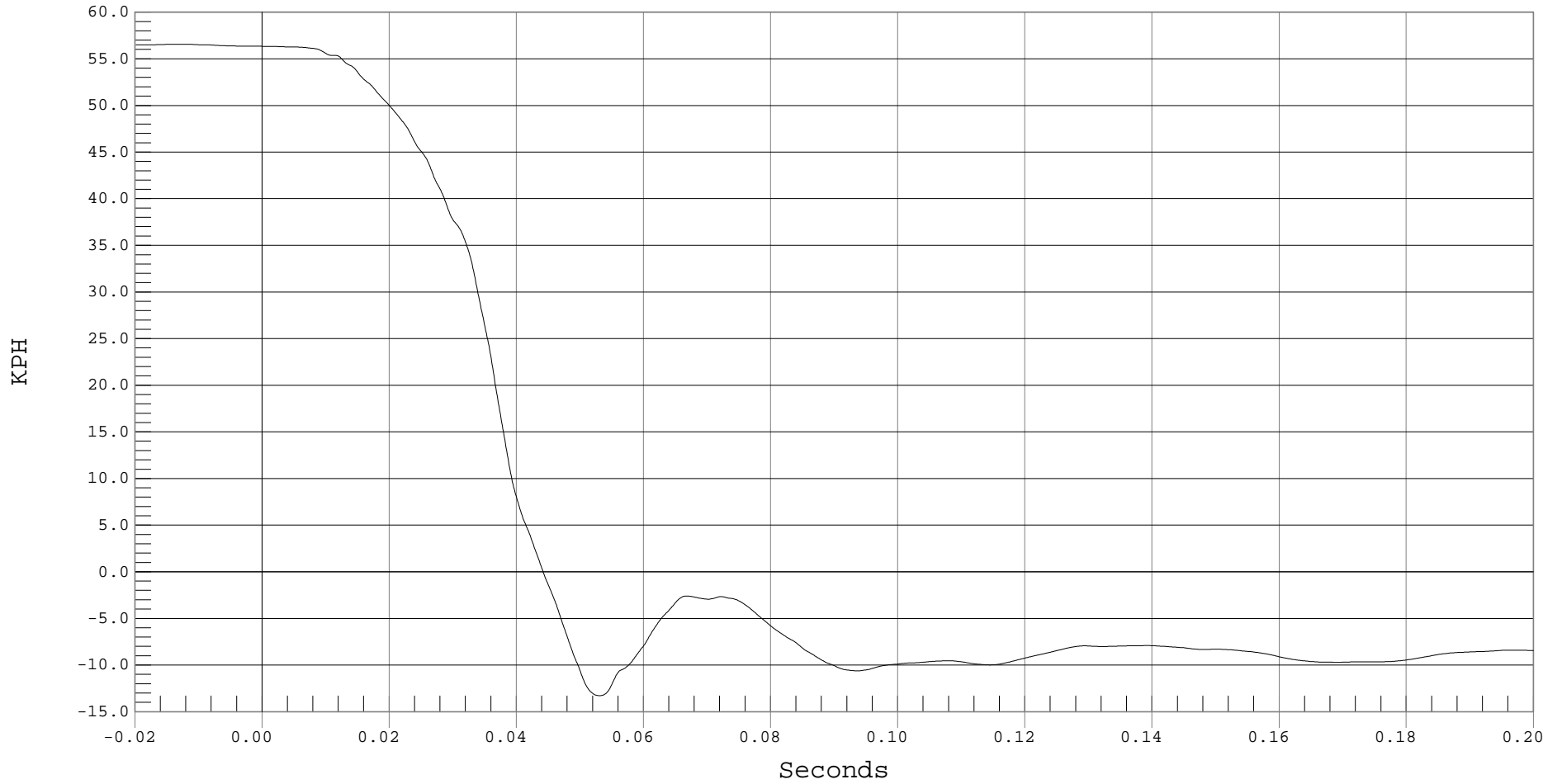
RIGHT BRAKE CALIPER X VELOCITY

Test Desc.: 35 MPH FRONTAL
Component: 2001 FORD ESCAPE (M10211)
Other Info:

Test Date: 04-20-01
Speed: 35.1 MPH, 56.5 KPH
Filter Class: 180

— 1 RIGHT BRAKE CALIPER X VELOCITY, B01044AI.V60

Ymin = -13.29 KPH @ 0.0530 Seconds, Ymax = 56.56 KPH @ -0.0136 Seconds



B-129



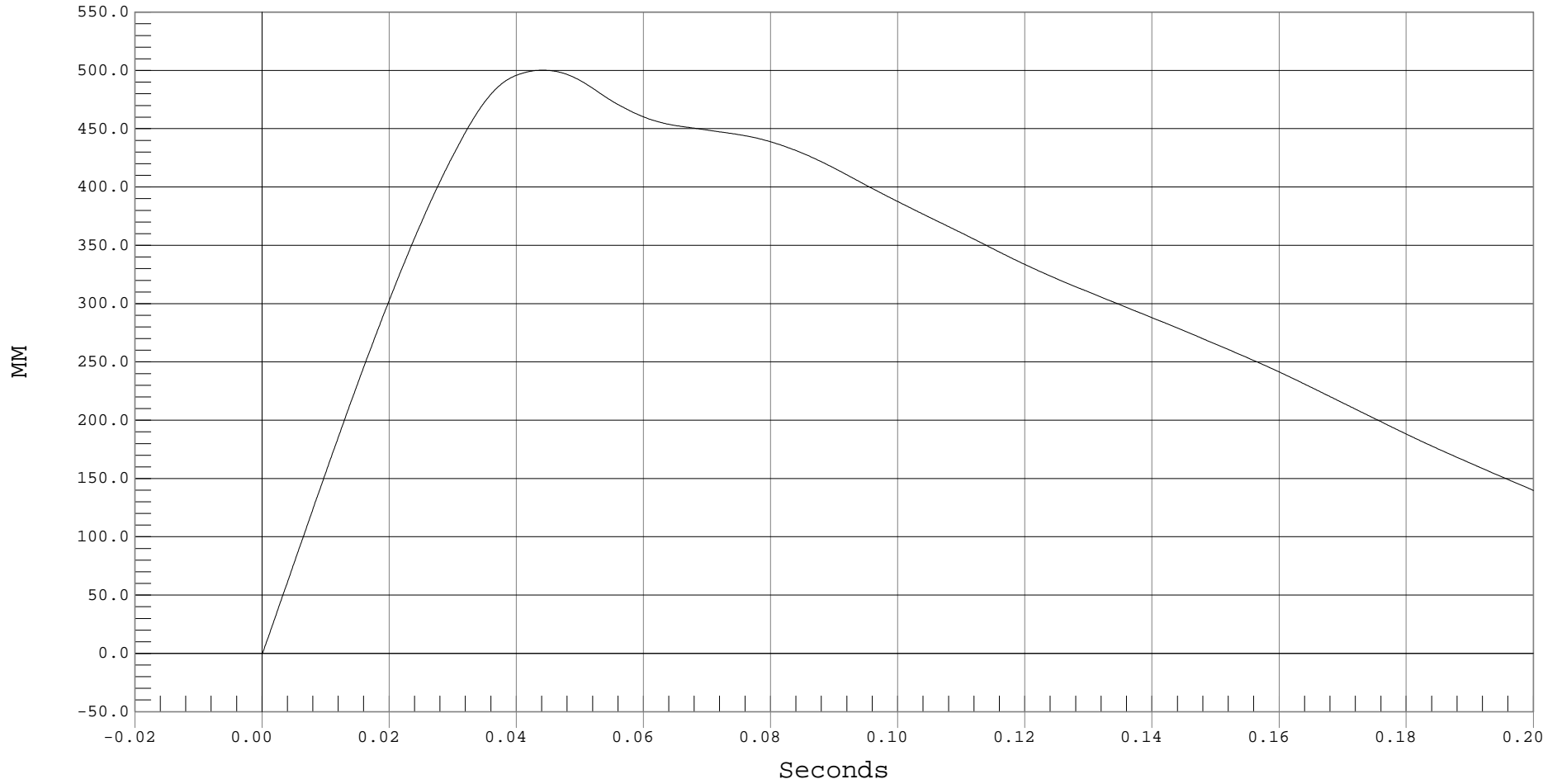
RIGHT BRAKE CALIPER X DISPLACEMENT

Test Desc.: 35 MPH FRONTAL
Component: 2001 FORD ESCAPE (M10211)
Other Info:

Test Date: 04-20-01
Speed: 35.1 MPH, 56.5 KPH
Filter Class: 180

— 1 RIGHT BRAKE CALIPER X DISPLACEMENT, B01044AI.D60

Ymin = 0 MM @ 0.0000 Seconds, Ymax = 500.22 MM @ 0.0440 Seconds



B-130



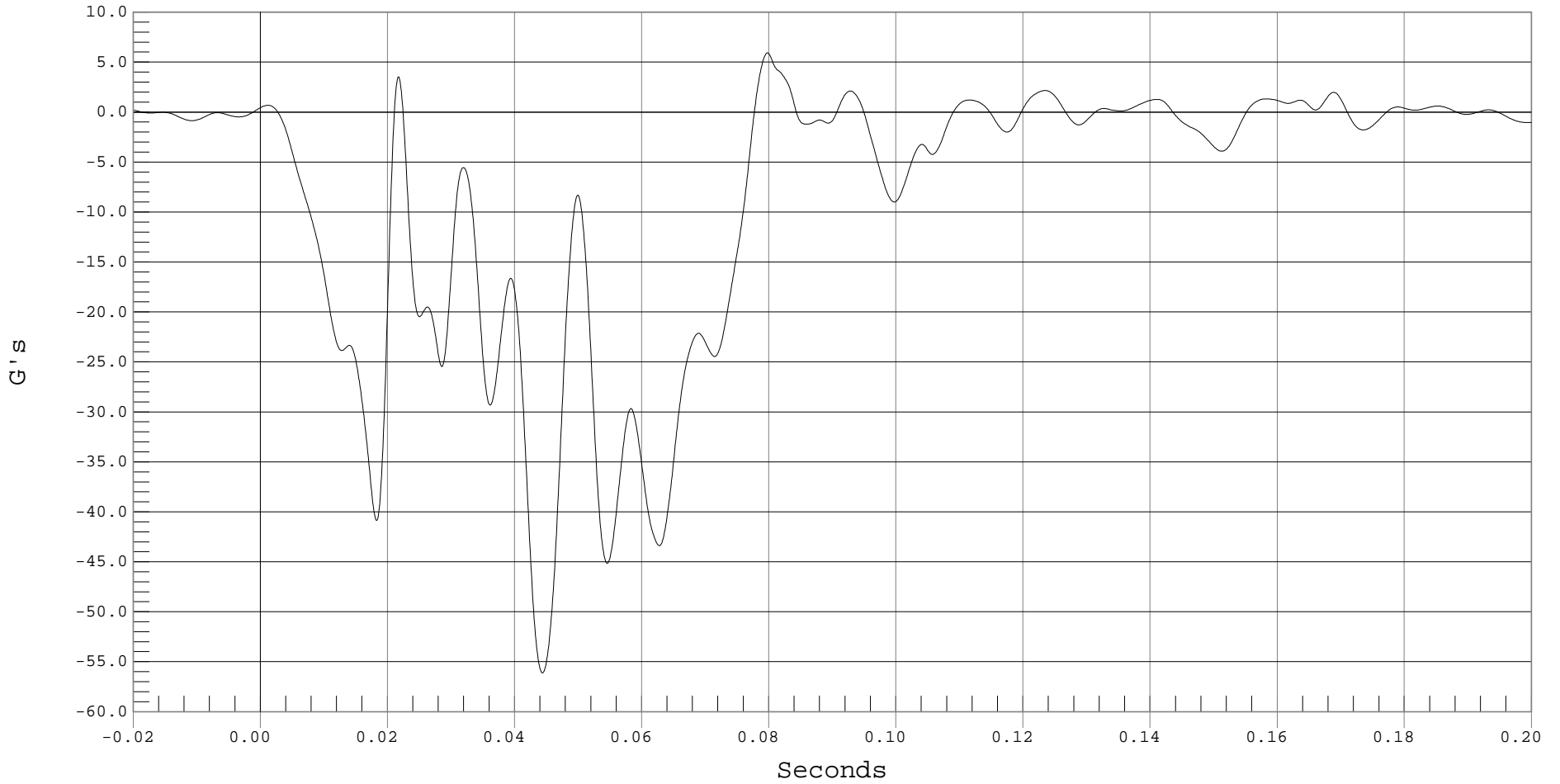
INSTRUMENT PANEL X ACCELERATION

Test Desc.: 35 MPH FRONTAL
Component: 2001 FORD ESCAPE (M10211)
Other Info:

Test Date: 04-20-01
Speed: 35.1 MPH, 56.5 KPH
Filter Class: 60

— 1 INSTRUMENT PANEL X, B01044AF.A57

Ymin = -56.13 G's @ 0.0443 Seconds, Ymax = 5.93 G's @ 0.0797 Seconds



B-131



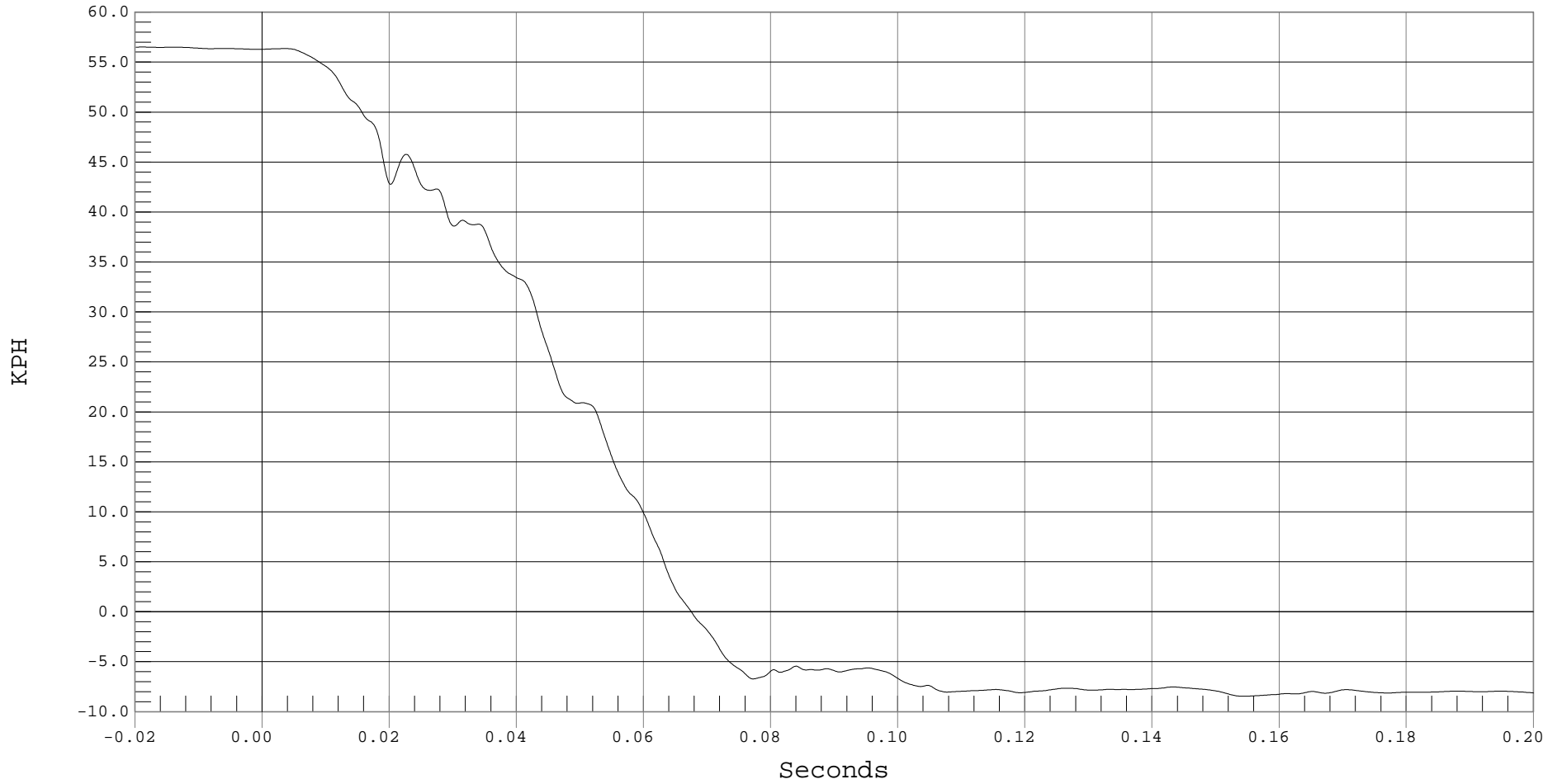
INSTRUMENT PANEL X VELOCITY

Test Desc.: 35 MPH FRONTAL
Component: 2001 FORD ESCAPE (M10211)
Other Info:

Test Date: 04-20-01
Speed: 35.1 MPH, 56.5 KPH
Filter Class: 180

— 1 INSTRUMENT PANEL X VELOCITY, B01044AI.V57

Ymin = -8.46 KPH @ 0.1543 Seconds, Ymax = 56.51 KPH @ -0.0189 Seconds





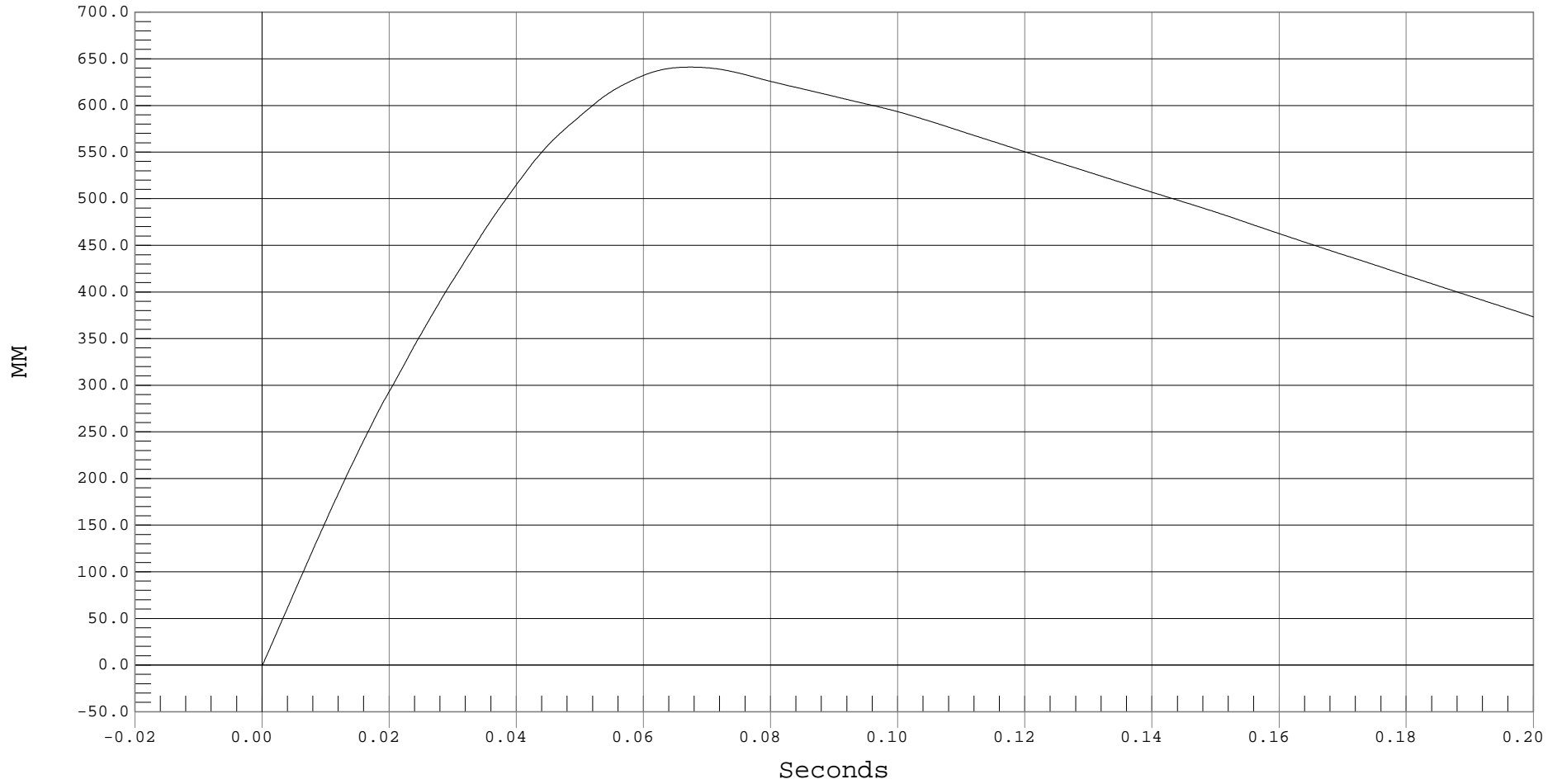
INSTRUMENT PANEL X DISPLACEMENT

Test Desc.: 35 MPH FRONTAL
Component: 2001 FORD ESCAPE (M10211)
Other Info:

Test Date: 04-20-01
Speed: 35.1 MPH, 56.5 KPH
Filter Class: 180

— 1 INSTRUMENT PANEL X DISPLACEMENT, B01044AI.D57

Ymin = 0 MM @ 0.0000 Seconds, Ymax = 641.1 MM @ 0.0673 Seconds





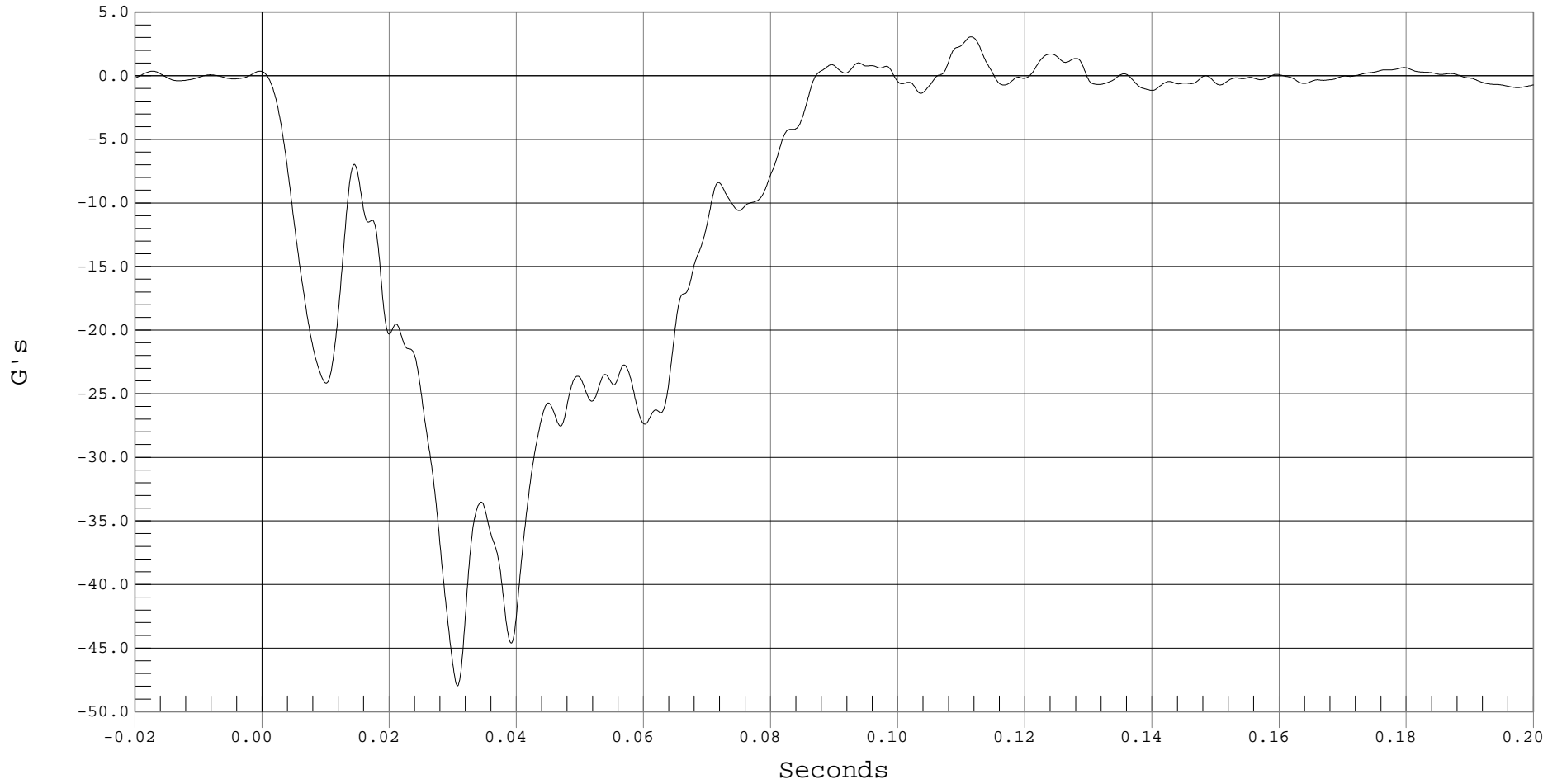
LEFT REAR SEAT CROSSMEMBER REDUNDANT X ACCELERATION

Test Desc.: 35 MPH FRONTAL
Component: 2001 FORD ESCAPE (M10211)
Other Info:

Test Date: 04-20-01
Speed: 35.1 MPH, 56.5 KPH
Filter Class: 60

— 1 LEFT REAR SEAT X-MEMBER Xr, B01044AF.A03

Ymin = -47.96 G's @ 0.0307 Seconds, Ymax = 3.06 G's @ 0.1114 Seconds



B-134



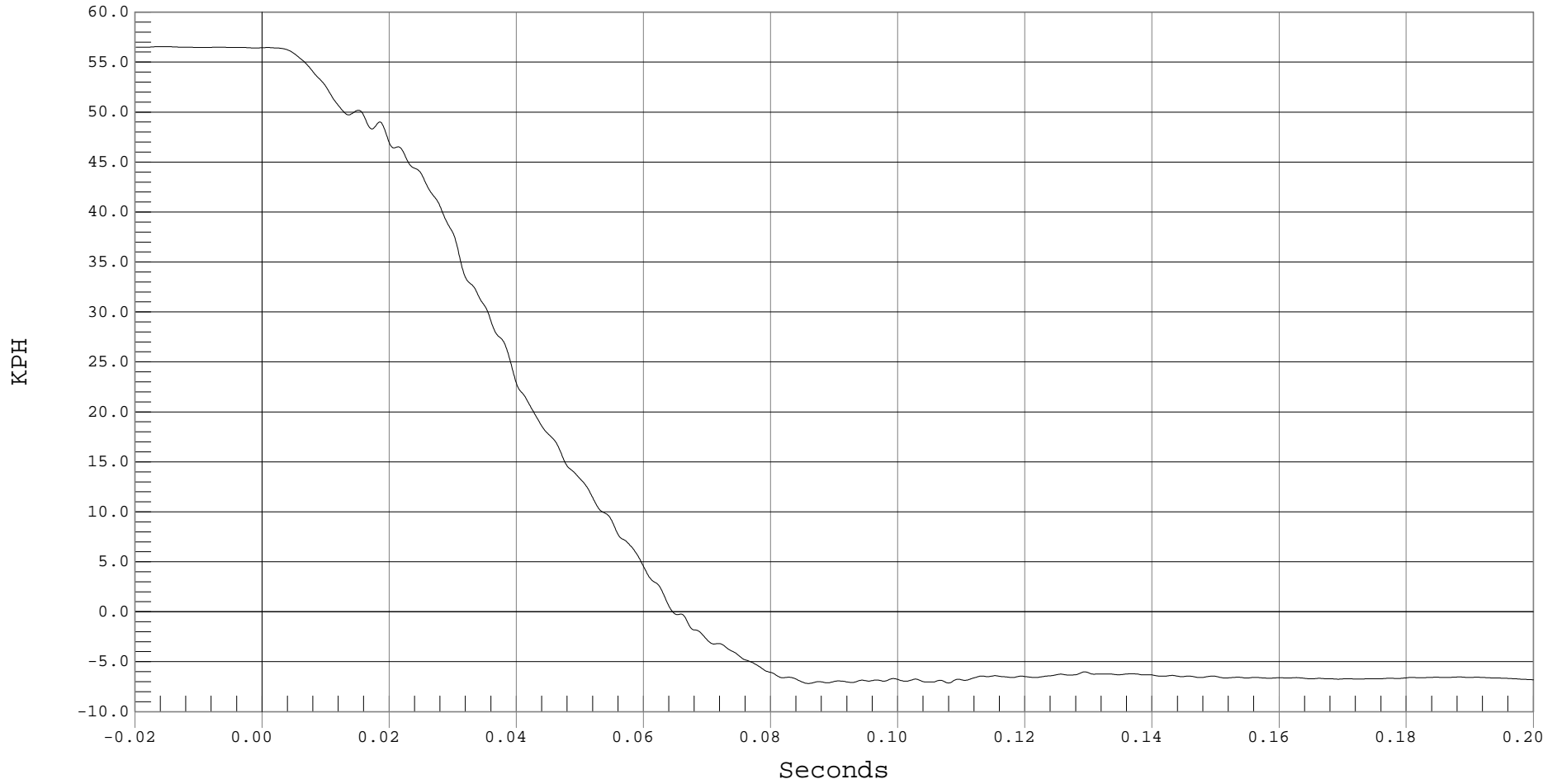
LEFT REAR SEAT CROSSMEMBER REDUNDANT X VELOCITY

Test Desc.: 35 MPH FRONTAL
Component: 2001 FORD ESCAPE (M10211)
Other Info:

Test Date: 04-20-01
Speed: 35.1 MPH, 56.5 KPH
Filter Class: 180

— 1 LEFT REAR SEAT CROSSMEMBER REDUNDANT X VELOCITY, B01044AI.V03

Ymin = -7.18 KPH @ 0.0859 Seconds, Ymax = 56.55 KPH @ -0.0159 Seconds



B-135



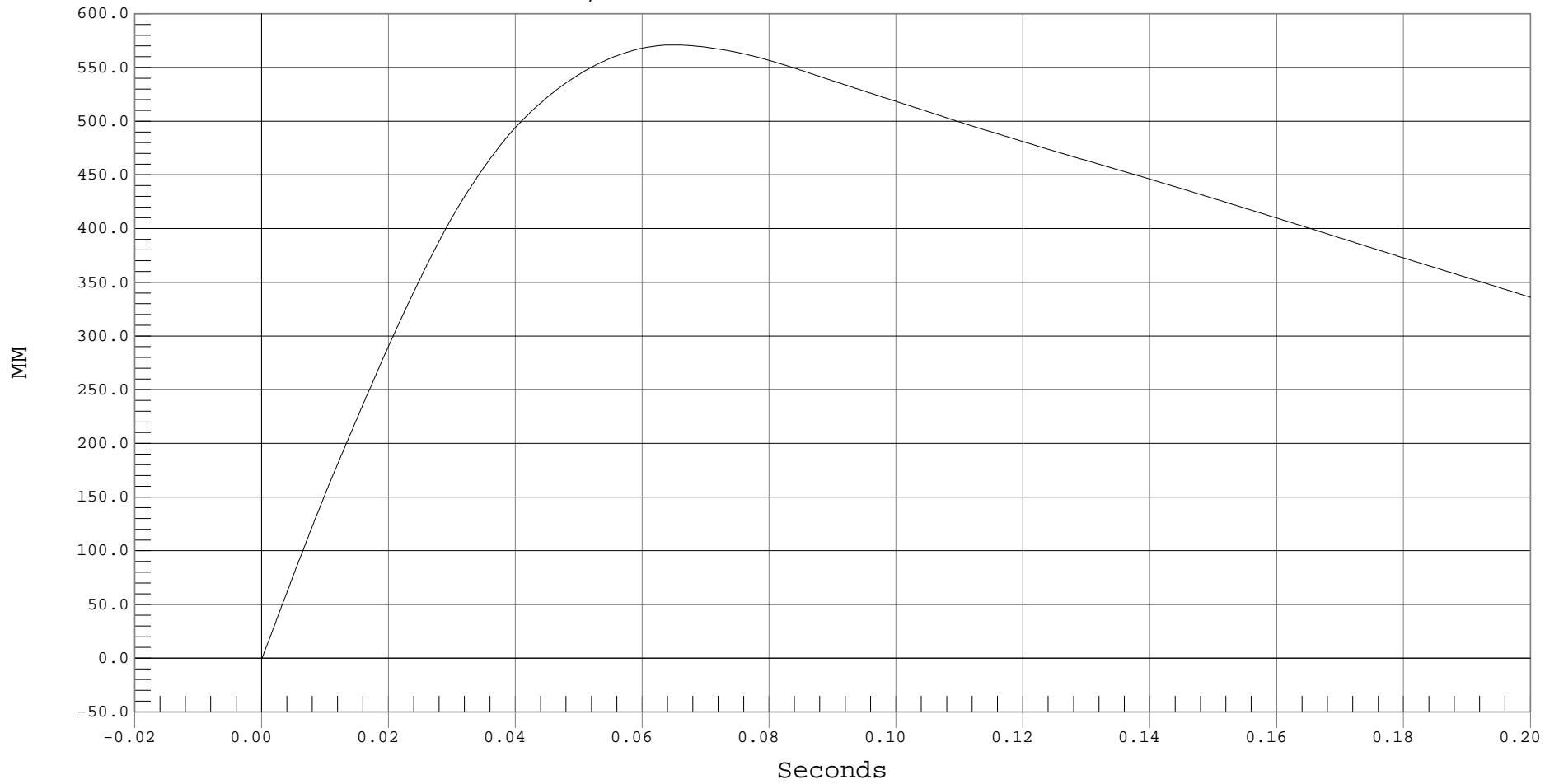
LEFT REAR SEAT CROSSMEMBER REDUNDANT X DISPLACEMENT

Test Desc.: 35 MPH FRONTAL
Component: 2001 FORD ESCAPE (M10211)
Other Info:

Test Date: 04-20-01
Speed: 35.1 MPH, 56.5 KPH
Filter Class: 180

— 1 LEFT REAR SEAT CROSSMEMBER REDUNDANT X DISPLACEMENT, B01044AI.D03

Ymin = 0 MM @ 0.0000 Seconds, Ymax = 570.87 MM @ 0.0644 Seconds





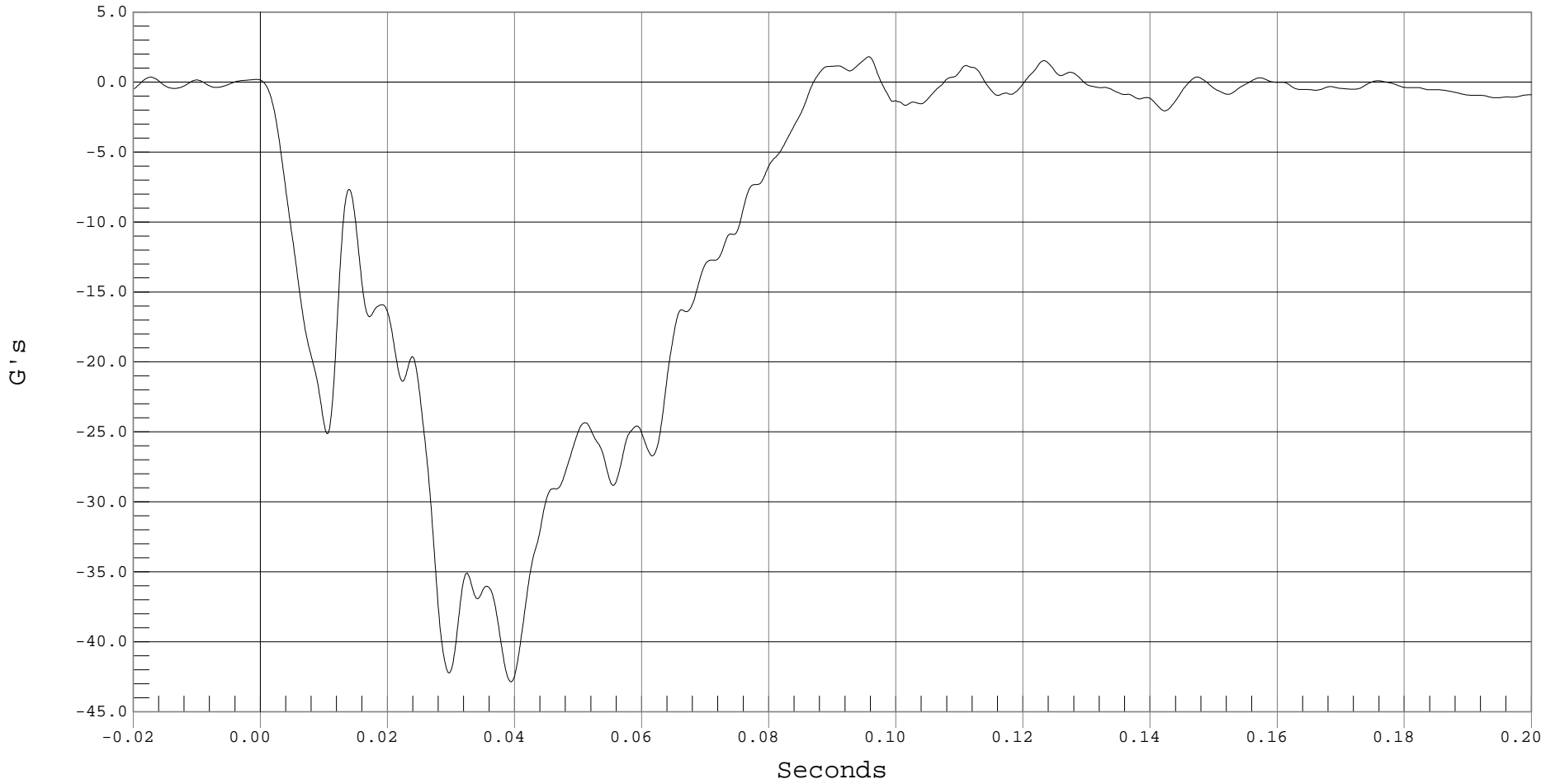
RIGHT REAR SEAT CROSSMEMBER REDUNDANT X ACCELERATION

Test Desc.: 35 MPH FRONTAL
Component: 2001 FORD ESCAPE (M10211)
Other Info:

Test Date: 04-20-01
Speed: 35.1 MPH, 56.5 KPH
Filter Class: 60

— 1 RIGHT REAR SEAT X-MEMBER Xr, B01044AF.A02

Ymin = -42.86 G's @ 0.0394 Seconds, Ymax = 1.81 G's @ 0.0957 Seconds



B-137



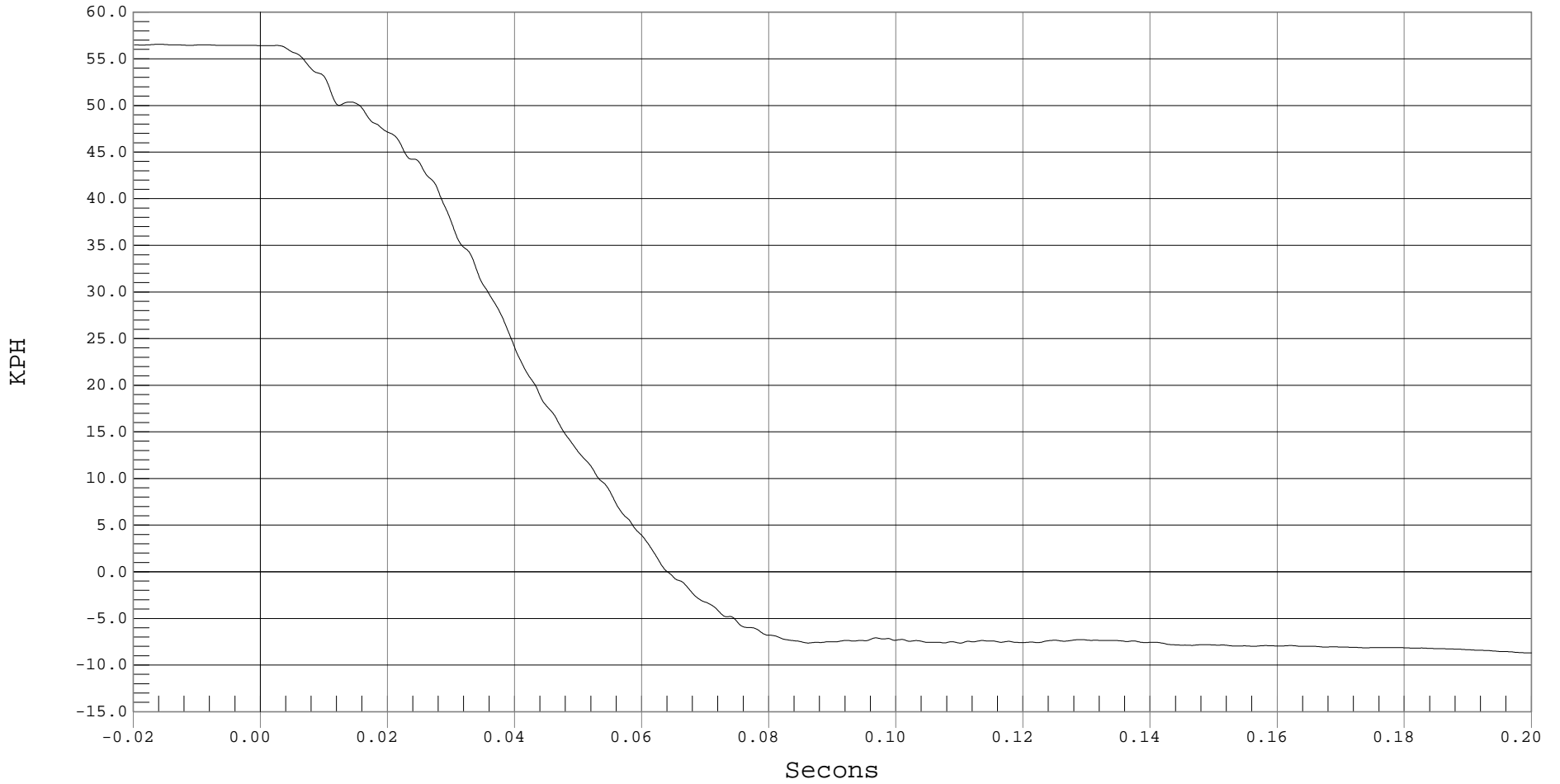
RIGHT REAR SEAT CROSSMEMBER REDUNDANT X VELOCITY

Test Desc.: 35 MPH FRONTAL
Component: 2001 FORD ESCAPE (M10211)
Other Info:

Test Date: 04-20-01
Speed: 35.1 MPH, 56.5 KPH
Filter Class: 180

— 1 RIGHT REAR SEAT CROSSMEMBER REDUNDANT X VELOCITY, B01044AI.V02

Ymin = -9.35 KPH @ 0.2400 Secons, Ymax = 56.55 KPH @ -0.0160 Secons





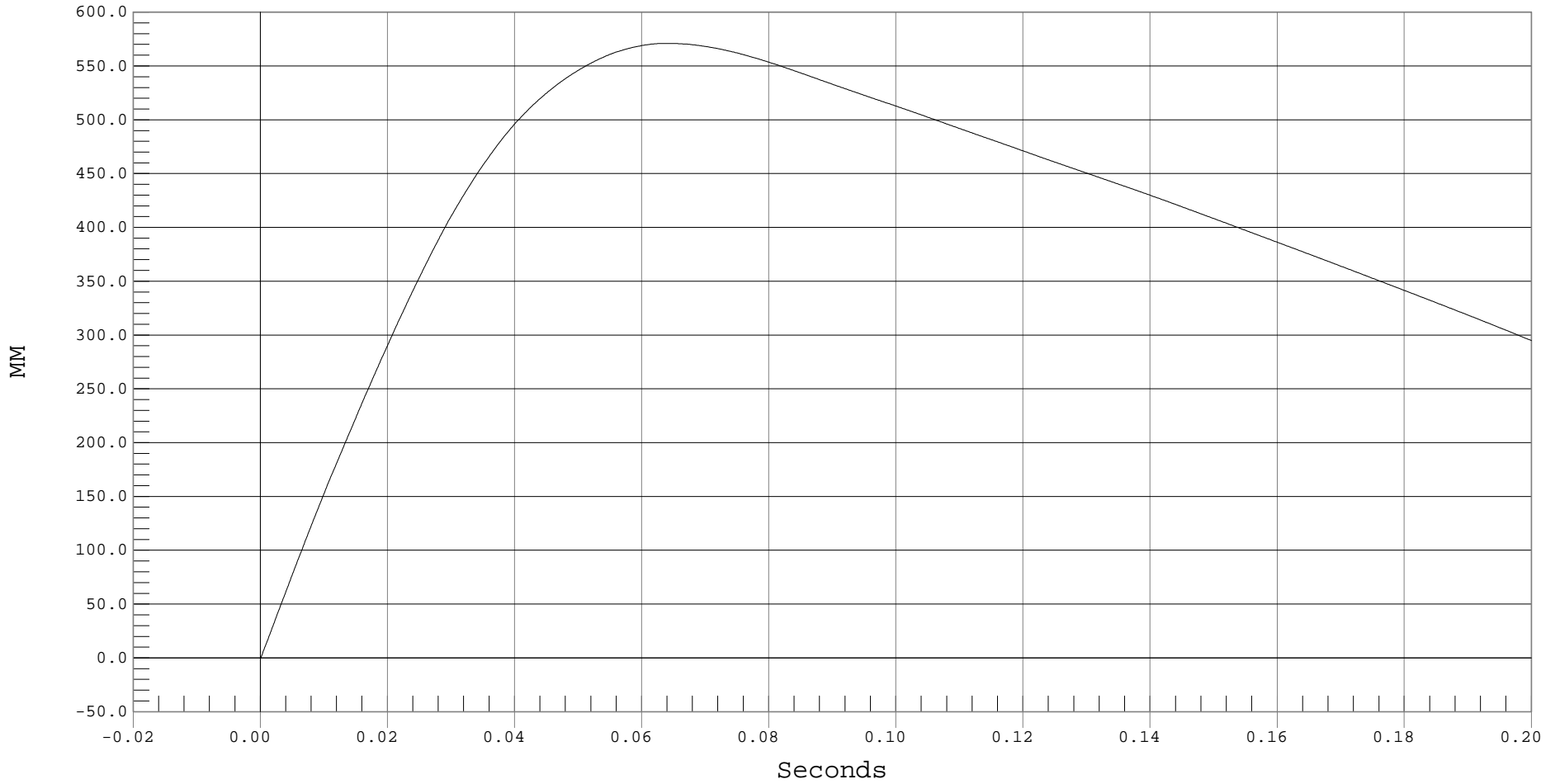
RIGHT REAR SEAT CROSSMEMBER REDUNDANT X DISPLACEMENT

Test Desc.: 35 MPH FRONTAL
Component: 2001 FORD ESCAPE (M10211)
Other Info:

Test Date: 04-20-01
Speed: 35.1 MPH, 56.5 KPH
Filter Class: 180

— 1 RIGHT REAR SEAT CROSSMEMBER REDUNDANT X DISPLACEMENT, B01044AI.D02

Ymin = 0 MM @ 0.0000 Seconds, Ymax = 570.97 MM @ 0.0639 Seconds



B-139



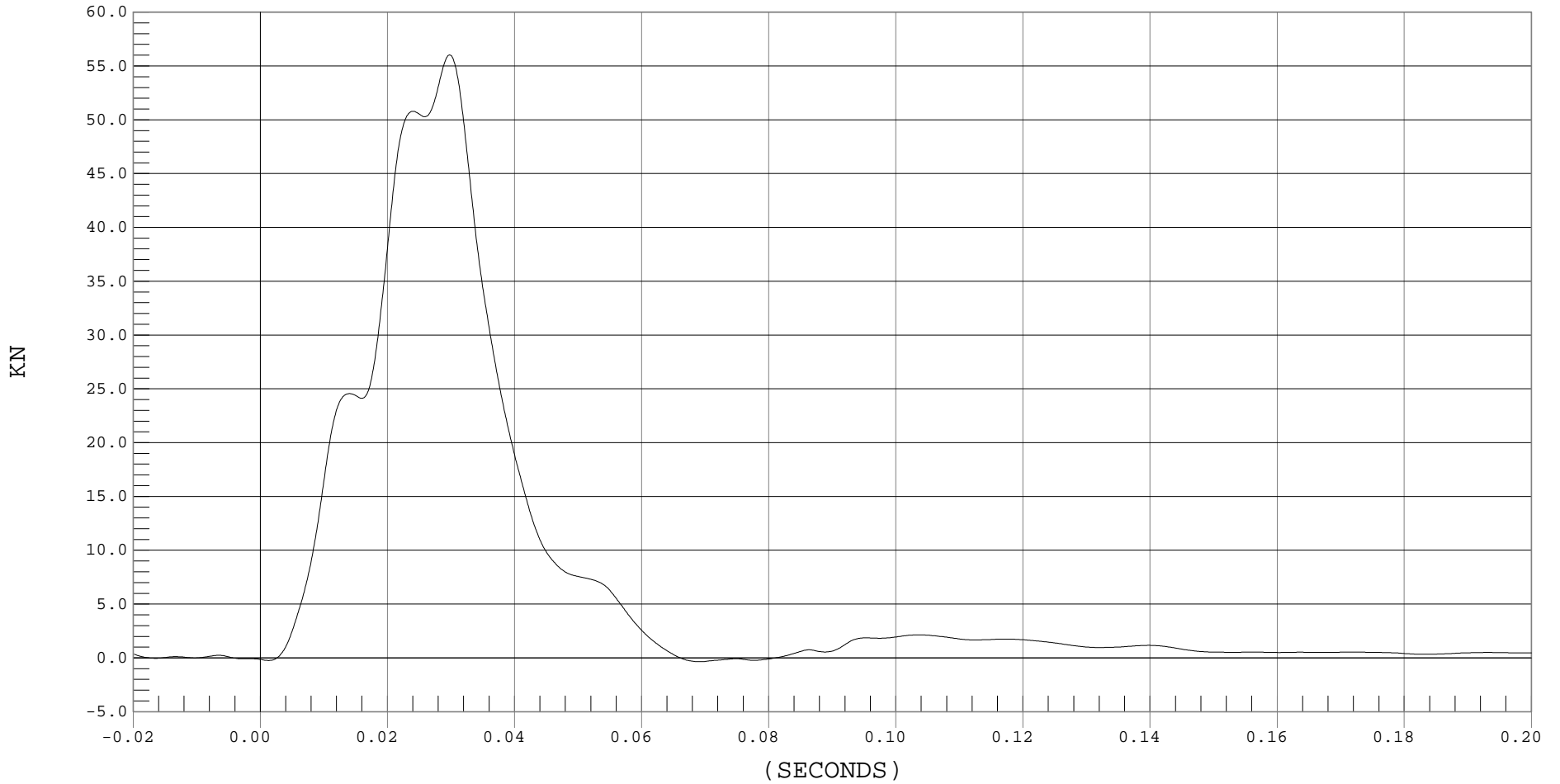
UPPER LEFT BARRIER FORCE

Test Desc.: 35 MPH FRONTAL
Component: 2001 FORD ESCAPE (M10211)
Other Info:

Test Date: 04-20-01
Speed: 35.1 MPH, 56.5 KPH
Filter Class: 60

— 1 BARRIER UPPER LEFT, B01044FF.F02

Ymin = -.35 KN @ 0.0690 SECONDS, Ymax = 56.03 KN @ 0.0297 SECONDS



B-140



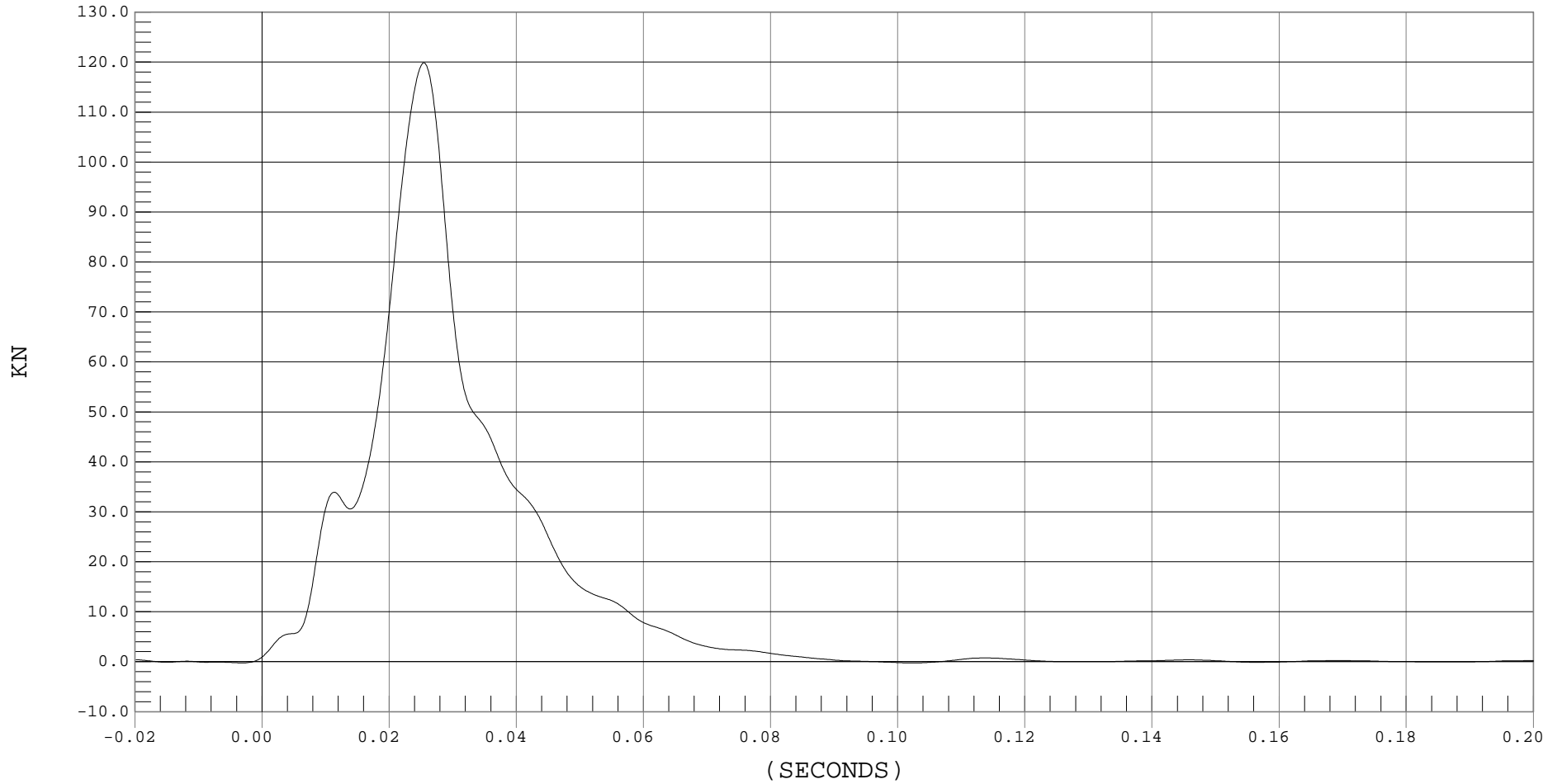
UPPER CENTER BARRIER FORCE

Test Desc.: 35 MPH FRONTAL
Component: 2001 FORD ESCAPE (M10211)
Other Info:

Test Date: 04-20-01
Speed: 35.1 MPH, 56.5 KPH
Filter Class: 60

— 1 BARRIER UPPER CENTER, B01044FF.F03

Ymin = -.24 KN @ 0.1023 SECONDS, Ymax = 119.88 KN @ 0.0254 SECONDS



B-141



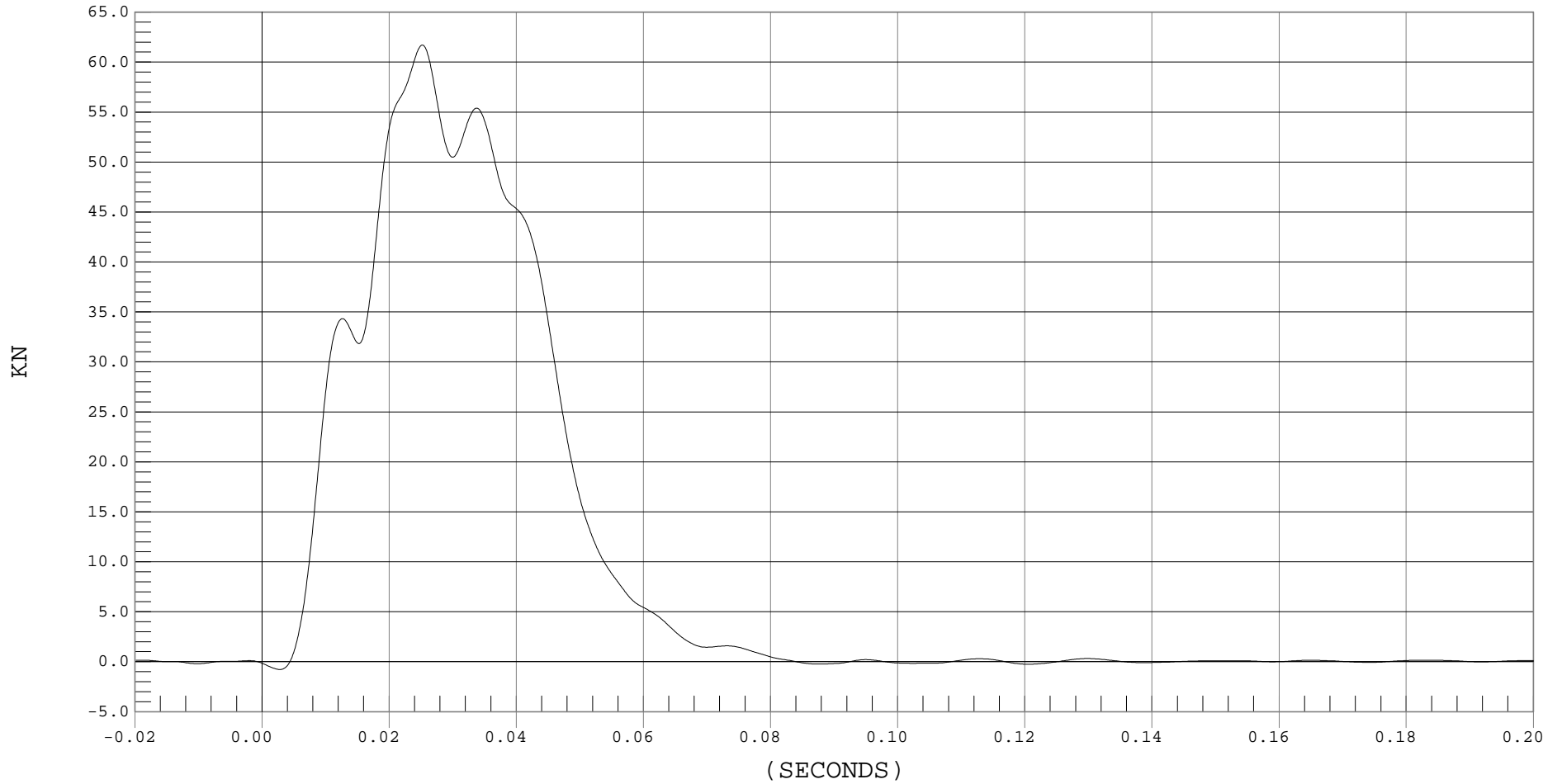
UPPER RIGHT BARRIER FORCE

Test Desc.: 35 MPH FRONTAL
Component: 2001 FORD ESCAPE (M10211)
Other Info:

Test Date: 04-20-01
Speed: 35.1 MPH, 56.5 KPH
Filter Class: 60

— 1 BARRIER UPPER RIGHT, B01044FF.F04

Ymin = -0.78 KN @ 0.0027 SECONDS, Ymax = 61.71 KN @ 0.0251 SECONDS



B-142



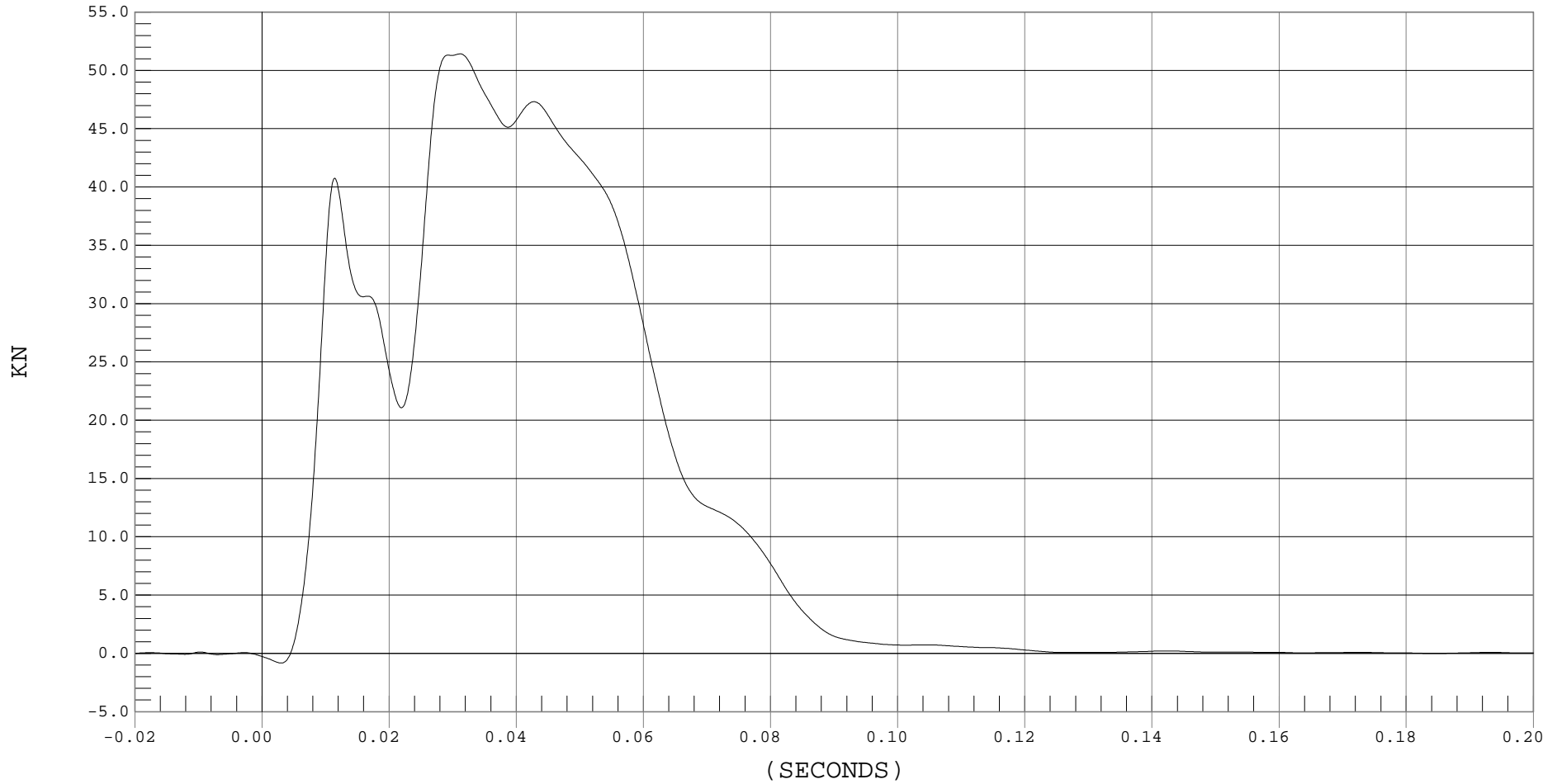
LOWER LEFT BARRIER FORCE

Test Desc.: 35 MPH FRONTAL
Component: 2001 FORD ESCAPE (M10211)
Other Info:

Test Date: 04-20-01
Speed: 35.1 MPH, 56.5 KPH
Filter Class: 60

— 1 BARRIER LOWER LEFT, B01044FF.F05

Ymin = -.83 KN @ 0.0029 SECONDS, Ymax = 51.42 KN @ 0.0311 SECONDS



B-143



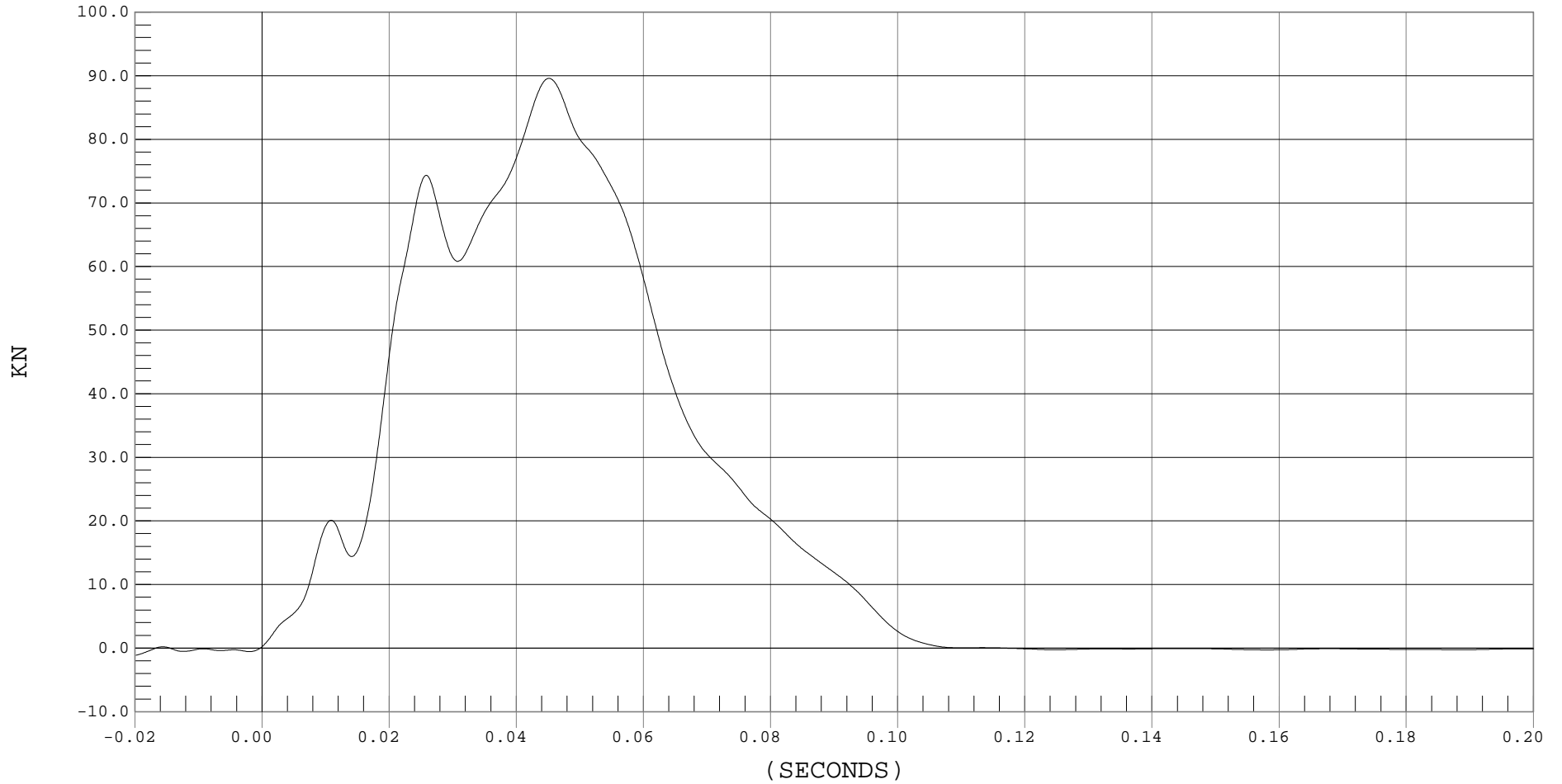
LOWER CENTER BARRIER FORCE

Test Desc.: 35 MPH FRONTAL
Component: 2001 FORD ESCAPE (M10211)
Other Info:

Test Date: 04-20-01
Speed: 35.1 MPH, 56.5 KPH
Filter Class: 60

— 1 BARRIER LOWER CENTER, B01044FF.F06

Ymin = -1.13 KN @ -0.0199 SECONDS, Ymax = 89.59 KN @ 0.0450 SECONDS



B-144



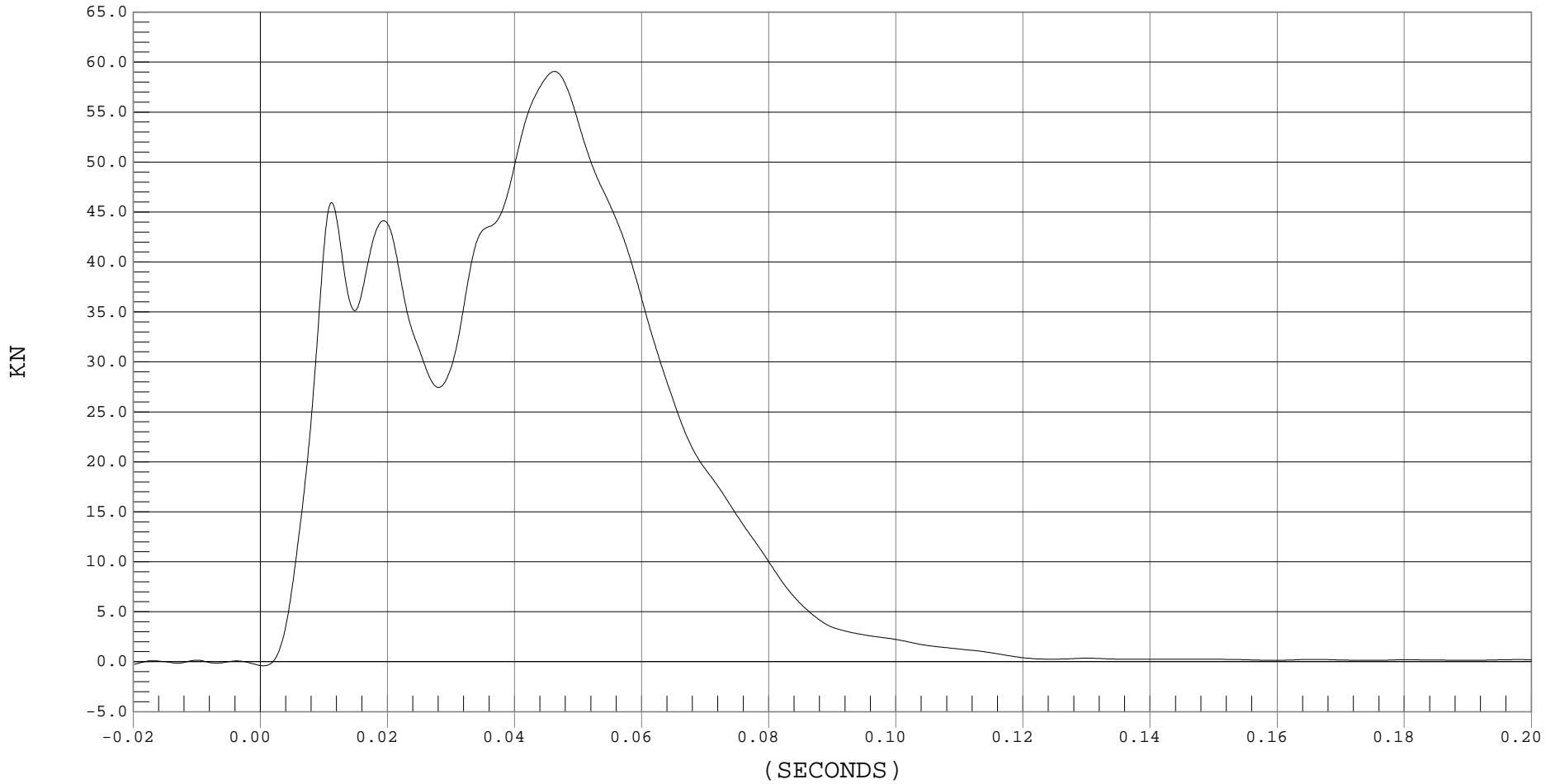
LOWER RIGHT BARRIER FORCE

Test Desc.: 35 MPH FRONTAL
Component: 2001 FORD ESCAPE (M10211)
Other Info:

Test Date: 04-20-01
Speed: 35.1 MPH, 56.5 KPH
Filter Class: 60

— 1 BARRIER LOWER RIGHT, B01044FF.F07

Ymin = -.41 KN @ 0.0004 SECONDS, Ymax = 59.07 KN @ 0.0462 SECONDS



B-145



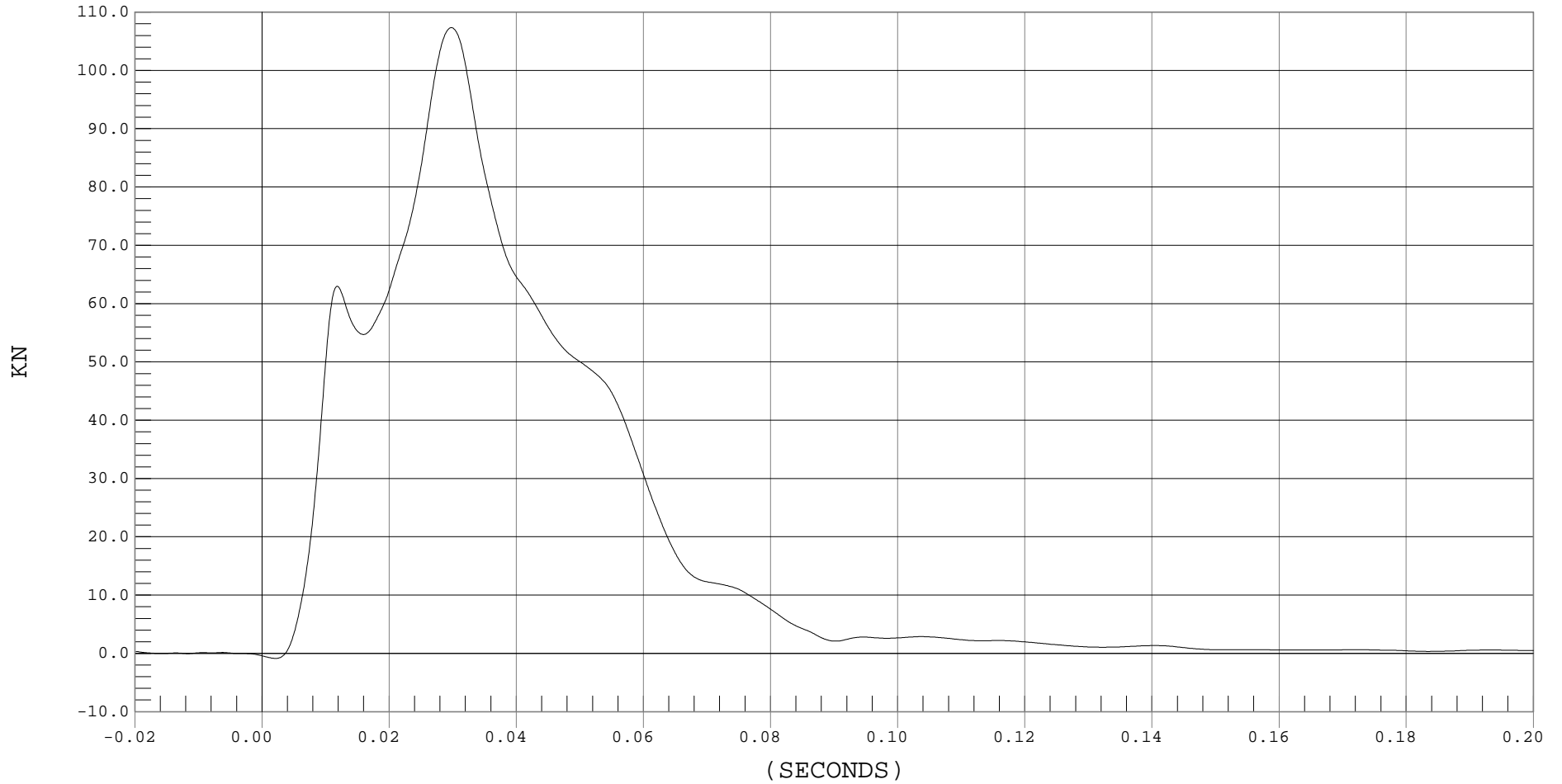
SUM OF LEFT BARRIER FORCES

Test Desc.: 35 MPH FRONTAL
Component: 2001 FORD ESCAPE (M10211)
Other Info:

Test Date: 04-20-01
Speed: 35.1 MPH, 56.5 KPH
Filter Class: 60

— 1 SUM OF LEFT BARRIER FORCES, B01044FU.F02

Ymin = -0.87 KN @ 0.0021 SECONDS, Ymax = 107.33 KN @ 0.0297 SECONDS





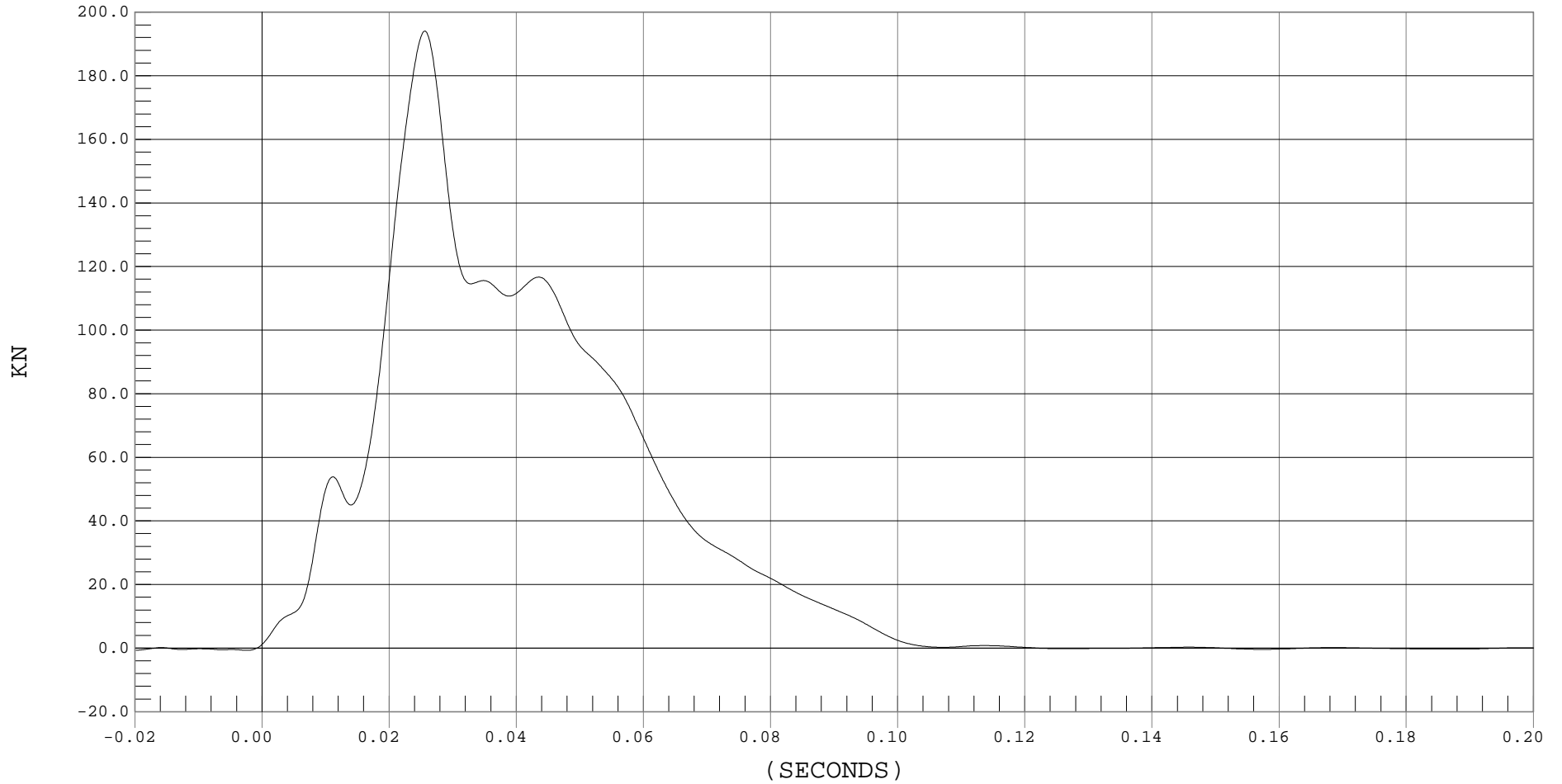
SUM OF CENTER BARRIER FORCES

Test Desc.: 35 MPH FRONTAL
Component: 2001 FORD ESCAPE (M10211)
Other Info:

Test Date: 04-20-01
Speed: 35.1 MPH, 56.5 KPH
Filter Class: 60

— 1 SUM OF CENTER BARRIER FORCES, B01044FU.F03

Ymin = -.72 KN @ -0.0199 SECONDS, Ymax = 194.04 KN @ 0.0255 SECONDS



B-147



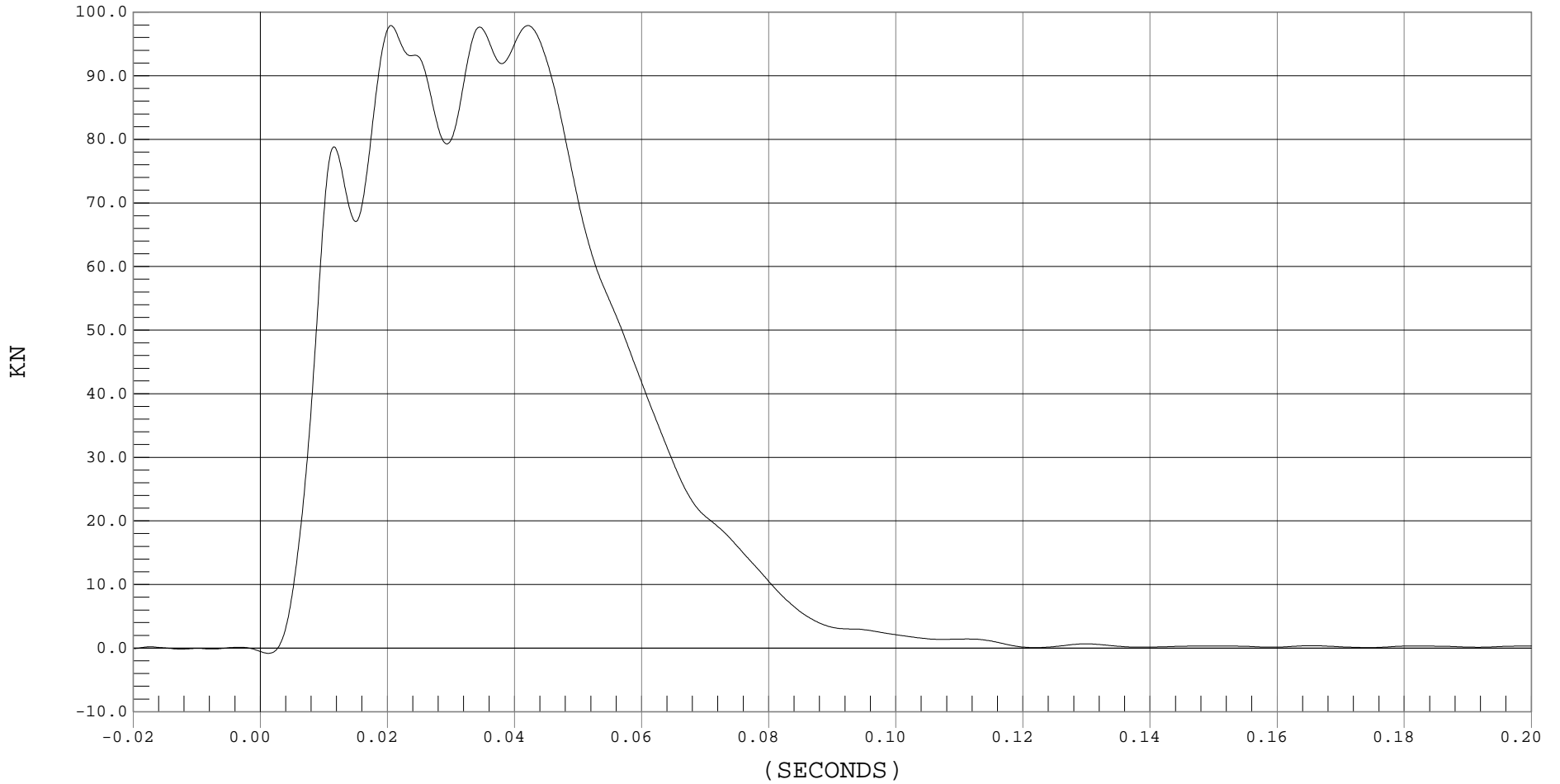
SUM OF RIGHT BARRIER FORCES

Test Desc.: 35 MPH FRONTAL
Component: 2001 FORD ESCAPE (M10211)
Other Info:

Test Date: 04-20-01
Speed: 35.1 MPH, 56.5 KPH
Filter Class: 60

— 1 SUM OF RIGHT BARRIER FORCES, B01044FU.F04

Ymin = -.83 KN @ 0.0012 SECONDS, Ymax = 97.9 KN @ 0.0420 SECONDS



B-148



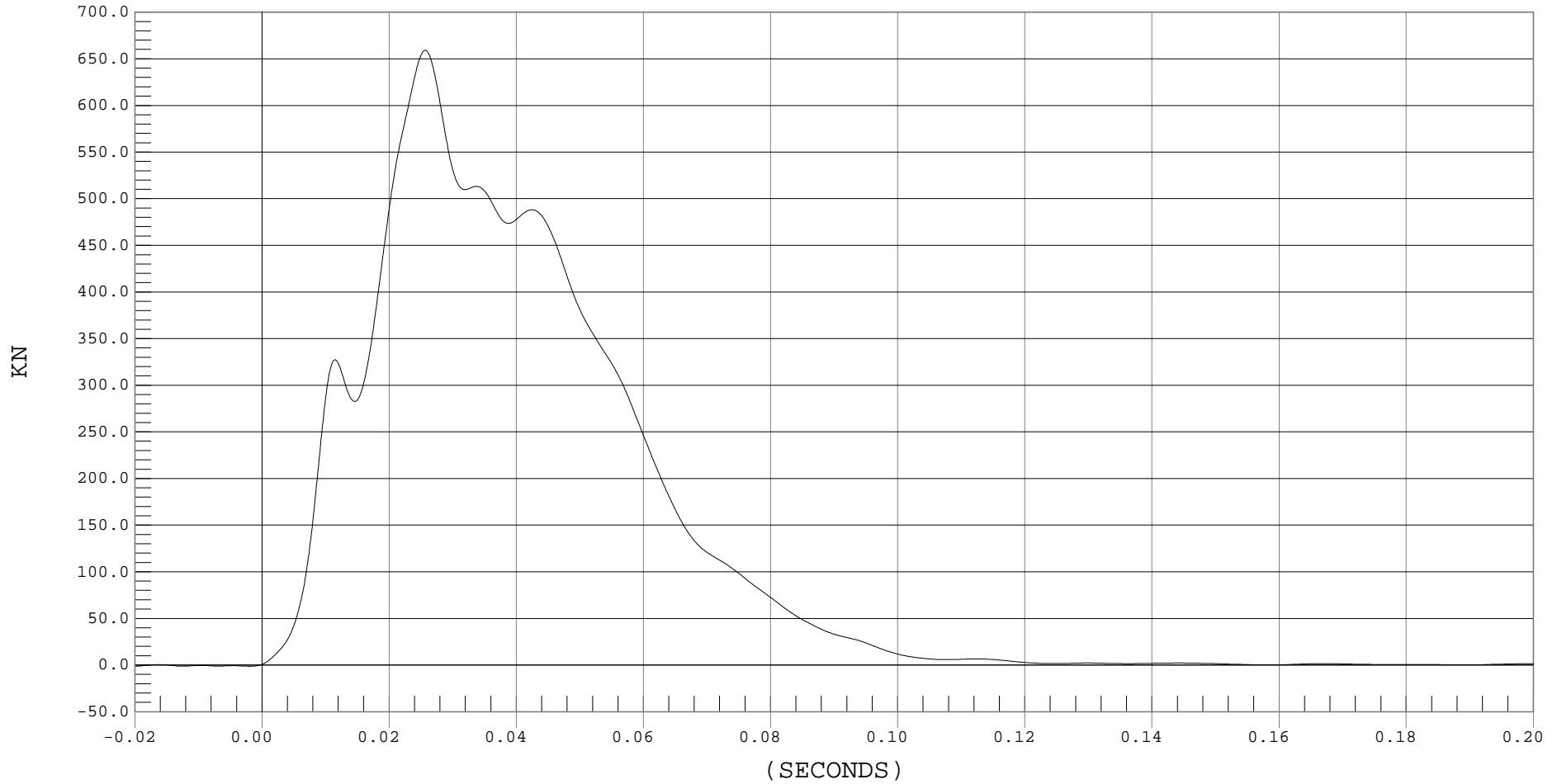
SUM OF BARRIER FORCES

Test Desc.: 35 MPH FRONTAL
Component: 2001 FORD ESCAPE (M10211)
Other Info:

Test Date: 04-20-01
Speed: 35.1 MPH, 56.5 KPH
Filter Class: 60

— 1 SUM OF BARRIER FORCES, B01044FU.F05

Ymin = -1.34 KN @ -0.0020 SECONDS, Ymax = 659.14 KN @ 0.0256 SECONDS



APPENDIX C

DUMMY CALIBRATION DATA TRACES AND TABLES

Hybrid III Calibration Data Sheet
5th Percentile Female
Left Knee Impact Test

ATD Serial No.: 273

Test I.D.: D01426

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	18.9 to 25.6	21.9	Pass
Laboratory Relative Humidity	%	10 to 70	33	Pass
Probe Velocity	m/s	2.07 to 2.13	2.12	Pass
Peak Probe Force	kN	3.45 – 4.06	3.58	Pass
Overall Test Results				Pass

 Laboratory Technician

 4/10/01
 Test Date

 Approved By



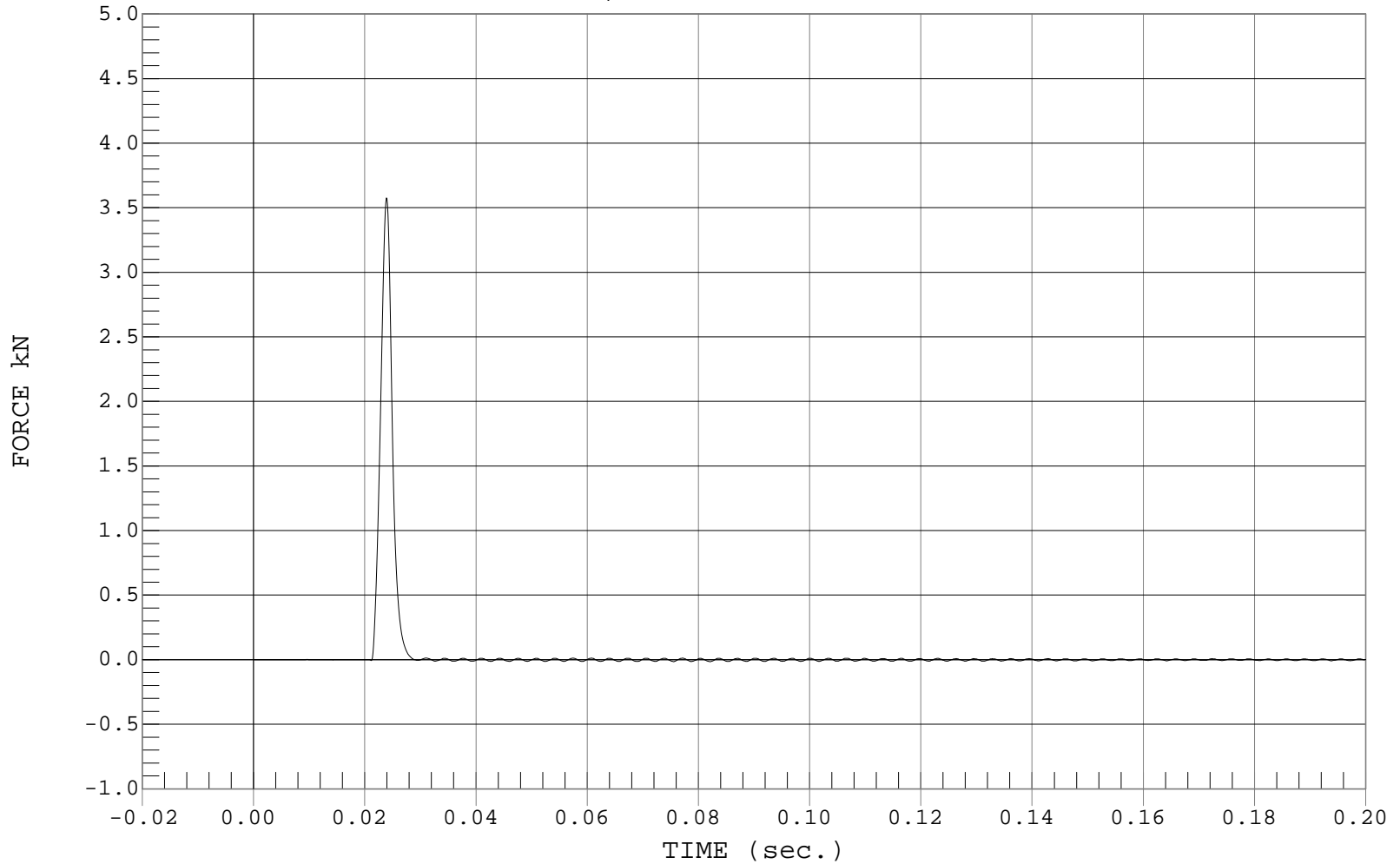
LEFT KNEE IMPACT

Test Desc.: Dummy Calibration - Left Knee Impact
Component: Dummy #273

Test Date: 04-10-01
Speed: 6.97 FT/SEC, 2.12 M/SEC

— 1 FORCE, D01426FF.F09

Ymin = -.01 kN @ 0.0821 sec., Ymax = 3.58 kN @ 0.0239 sec.



Hybrid III Calibration Data Sheet
5th Percentile Female
Right Knee Impact Test

ATD Serial No.: 273

Test I.D.: D01425

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	18.9 to 25.6	21.9	Pass
Laboratory Relative Humidity	%	10 to 70	33	Pass
Probe Velocity	m/s	2.07 to 2.13	2.12	Pass
Peak Probe Force	kN	3.45 – 4.06	3.5	Pass
Overall Test Results				Pass

 Laboratory Technician

4/10/01

 Test Date

 Approved By



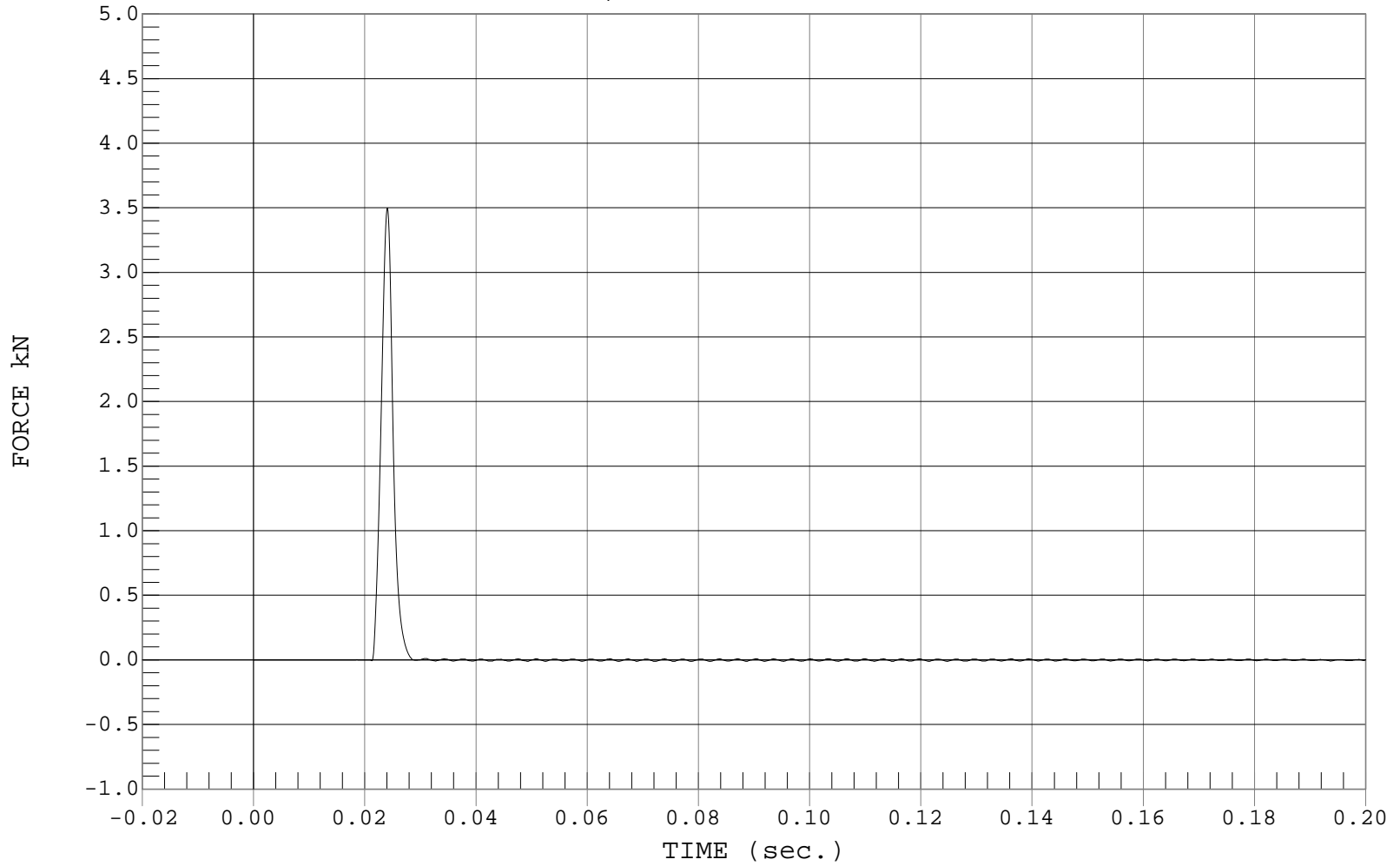
RIGHT KNEE IMPACT

Test Desc.: Dummy Calibration - Right Knee Impact
Component: Dummy #273

Test Date: 04-10-01
Speed: 6.97 FT/SEC, 2.12 M/SEC

— 1 FORCE, D01425FF.F09

Ymin = -.01 kN @ 0.0787 sec., Ymax = 3.5 kN @ 0.0241 sec.



Hybrid III Calibration Data Sheet
5th Percentile Female
Head Drop Calibration

ATD Serial No.: 273

Test I.D.: D01421

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	18.9 to 25.6	22.0	Pass
Laboratory Relative Humidity	%	10 to 70	33	Pass
Peak Resultant Acceleration	G's	250 to 300	276	Pass
Peak Lateral Acceleration	G's	≤ ± 15.0	-5.3	Pass
Is Acceleration Unimodal?	Yes/No	< 10% Peak	Yes	Pass
Overall Test Results				Pass

 Laboratory Technician

4/10/01

 Test Date

 Approved By



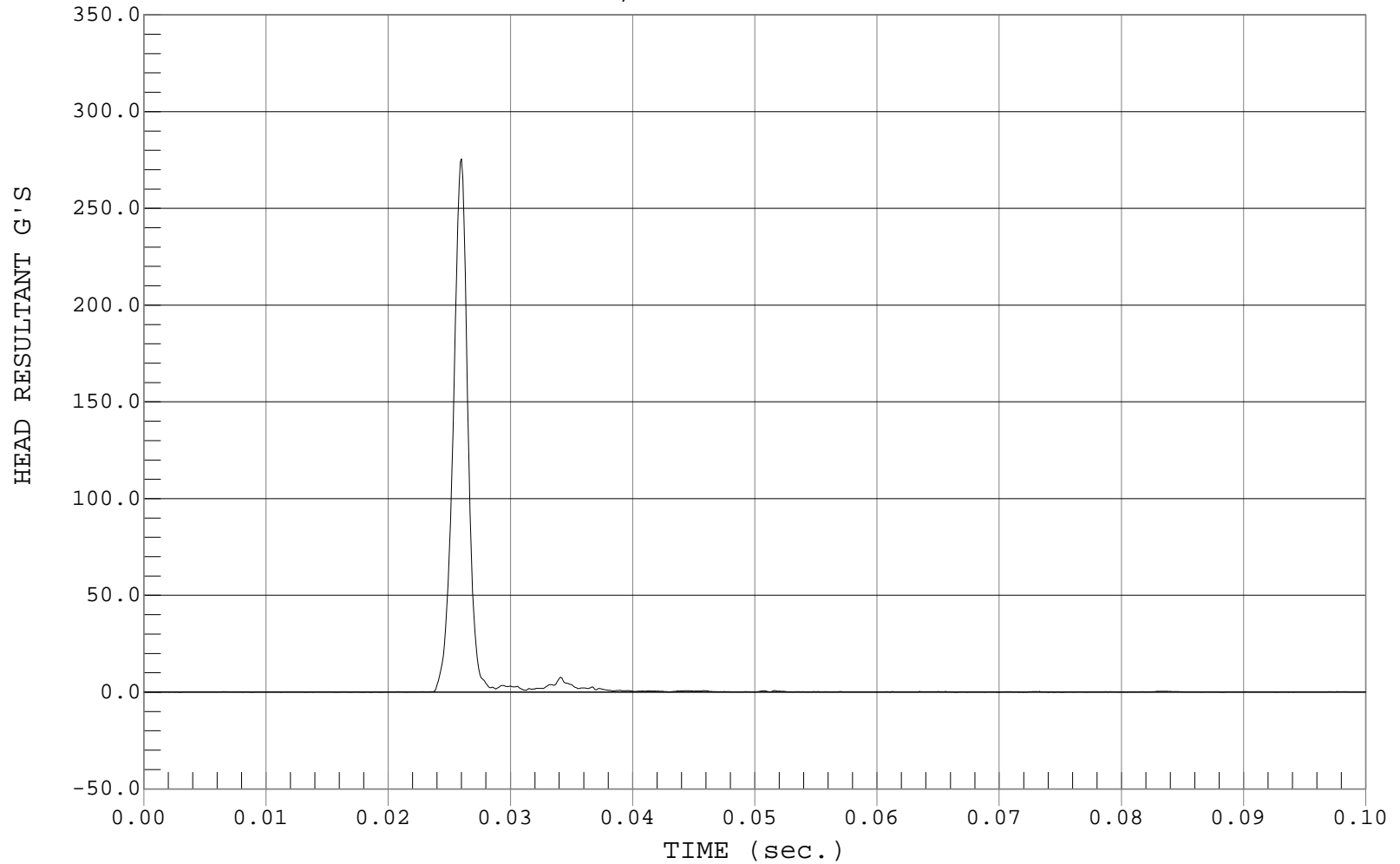
PEAK RESULTANT ACCELERATION

Test Desc.: Dummy Calibration - Head Drop
Component: Dummy #273

Test Date: 04-10-01
Speed: 0.00 FT/SEC, 0.00 M/SEC

— 1 HEAD RESULTANT, D01421AV.A01

Ymin = .06 G'S @ 0.0002 sec., Ymax = 275.58 G'S @ 0.0260 sec.





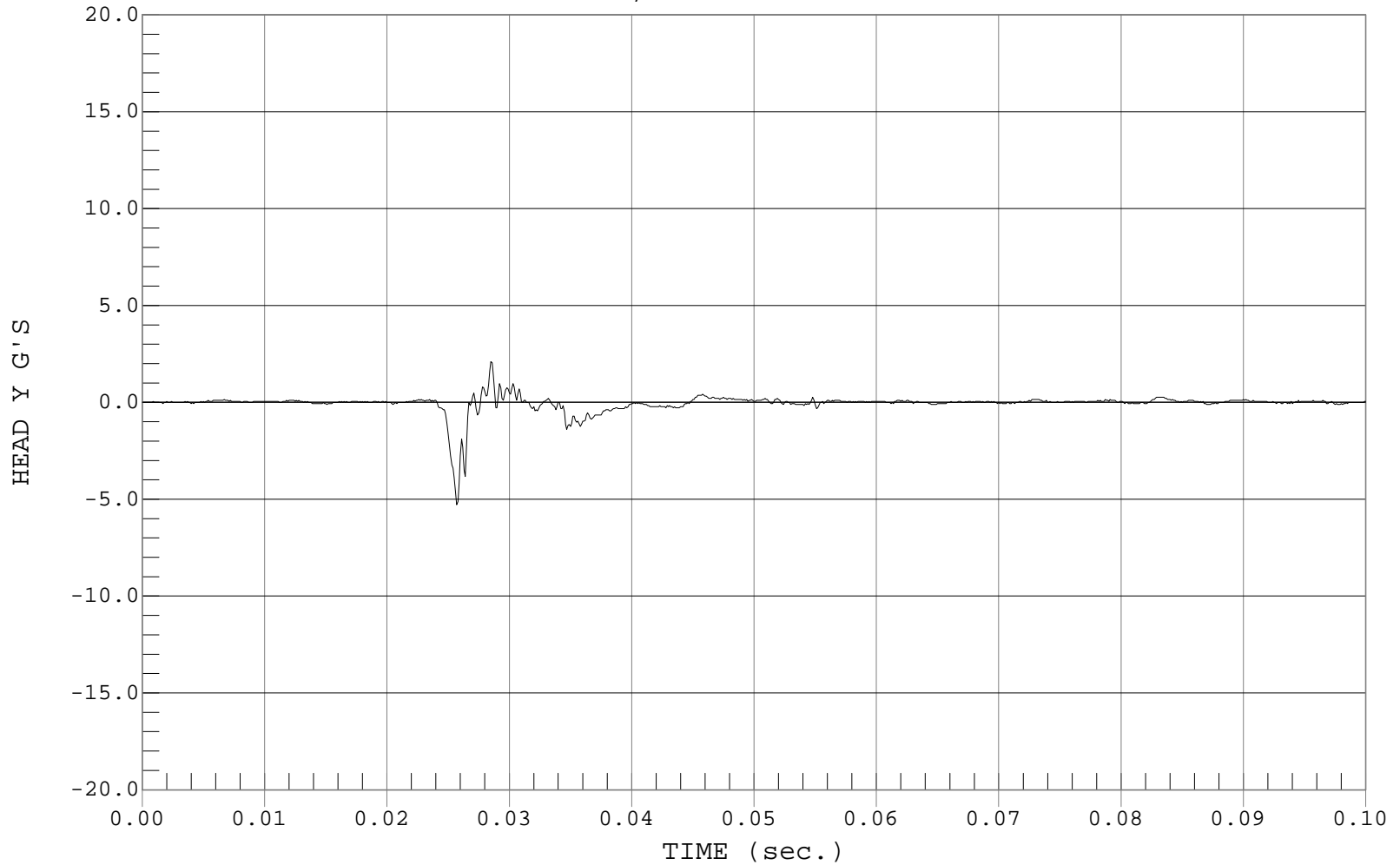
PEAK LATERAL ACCELARATION

Test Desc.: Dummy Calibration - Head Drop
Component: Dummy #273

Test Date: 04-10-01
Speed: 0.00 FT/SEC, 0.00 M/SEC

— 1 HEAD Y, D01421AR.A02

Ymin = -5.28 G'S @ 0.0257 sec., Ymax = 2.1 G'S @ 0.0285 sec.



Hybrid III Calibration Data Sheet
5th Percentile Female
Thorax Impact Test

ATD Serial No.: 273

Test I.D.: D01424

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	22.0	Pass
Laboratory Relative Humidity	%	10 to 70	36	Pass
Probe Velocity	m/s	6.59 to 6.83	6.74	Pass
Peak Deflection	mm	50 – 58	52.4	Pass
Peak Resistive Force within Deflection Corridor	kN	3.9 – 4.4	4.3	Pass
Peak Force 18mm – 50mm	%	<105% of Peak Force in Deflection Corridor	100	Pass
Internal Hysteresis	%	69 to 85	73	Pass
Overall Test Results				Pass

Laboratory Technician

4/9/01

Test Date

Approved By



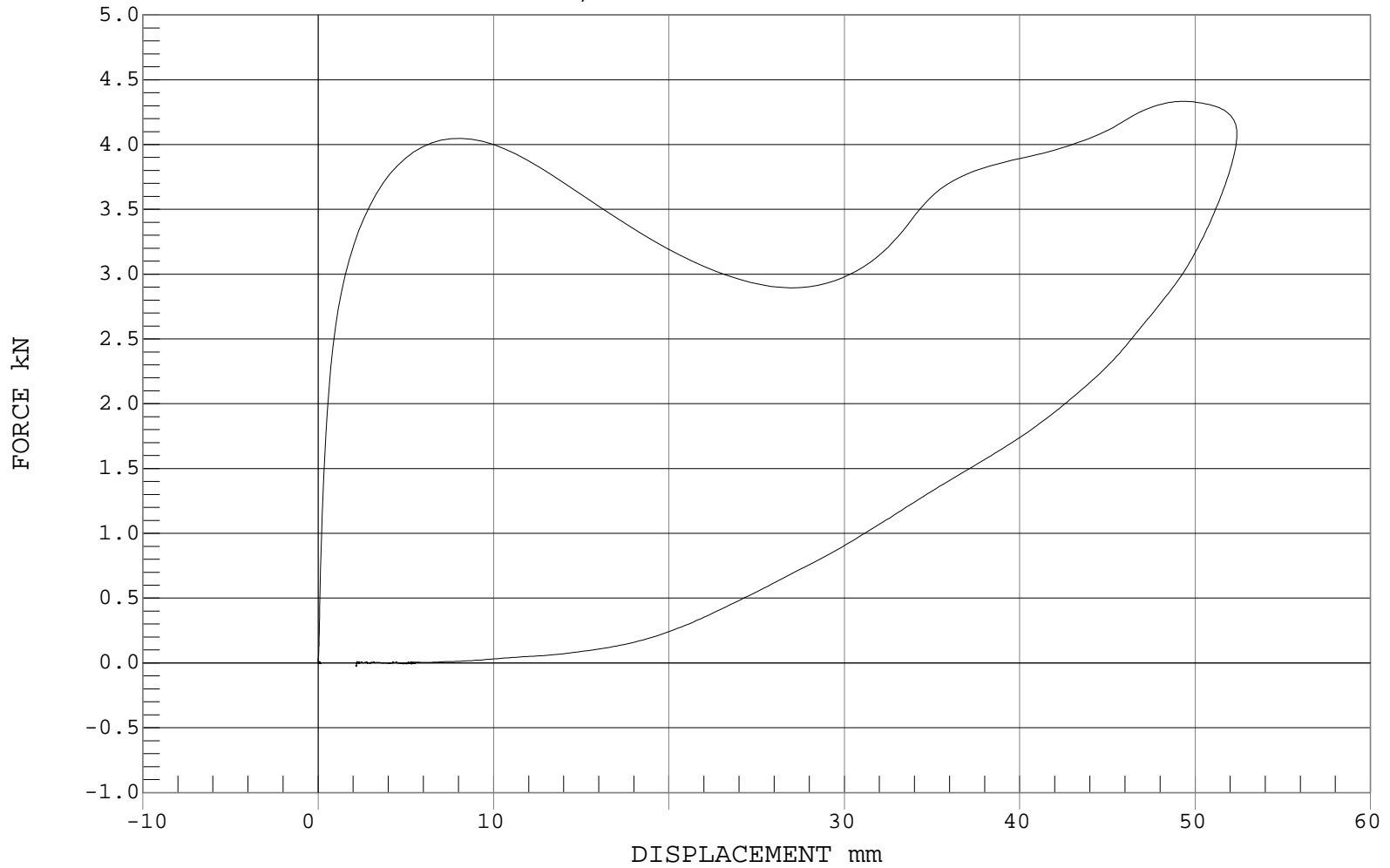
THORAX IMPACT

Test Desc.: Dummy Calibration - Chest Impact
Component: Dummy #273

Test Date: 04-09-01
Speed: 22.11 FT/SEC, 6.74 M/SEC

— 1 FORCE, D01424CH.FVD

Ymin = -.02 kN @ 2.1821 mm, Ymax = 4.33 kN @ 49.3440 mm



Hybrid III Calibration Data Sheet
5th Percentile Female
Neck Flexion Test

ATD Serial No.: 273

Test I.D.: D01422

Tested Parameter		Units	Specification	Result	Pass/Fail
Laboratory Temperature		°C	20.6 to 22.2	22.1	Pass
Laboratory Relative Humidity		%	10 to 70	33	Pass
Pendulum Velocity		m/s	6.89 to 7.13	6.99	Pass
Pendulum Deceleration	10 msec	m/s	2.1 to 2.5	2.2	Pass
	20 msec	m/s	4.0 to 5.0	4.6	Pass
	30 msec	m/s	5.8 to 7.0	6.5	Pass
Maximum "D" Plane Rotation	Maximum	Degrees	77 – 91	87	Pass
Moment About Occipital Condyle within Deflection Corridor	Maximum	Nm	69 – 83	71	Pass
Positive Moment Time Curve Decay to 10 Nm		ms	80 – 100	87	Pass
Overall Test Results					Pass

Laboratory Technician

4/10/01
Test Date

Approved By



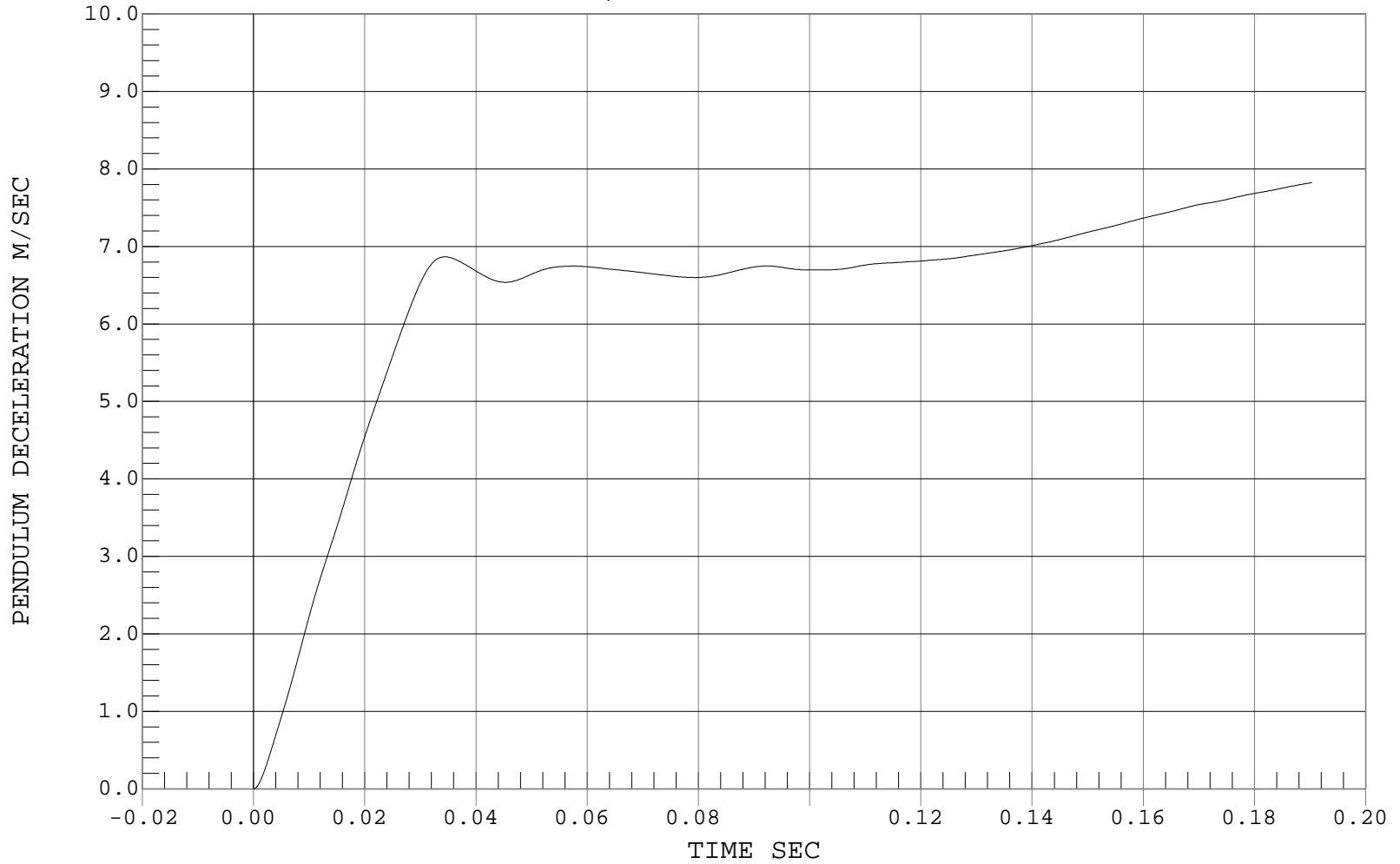
PENDULUM DECELERATION

Test Desc.: Dummy Calibration - Neck Flexion
Component: Dummy #273

Test Date: 04-10-01
Speed: 22.93 FT/SEC, 6.99 M/SEC

— 1 PENDULUM DECELERATION, D01422AI.V04

Ymin = 0 M/SEC @ 0.0001 SEC, Ymax = 7.82 M/SEC @ 0.1903 SEC





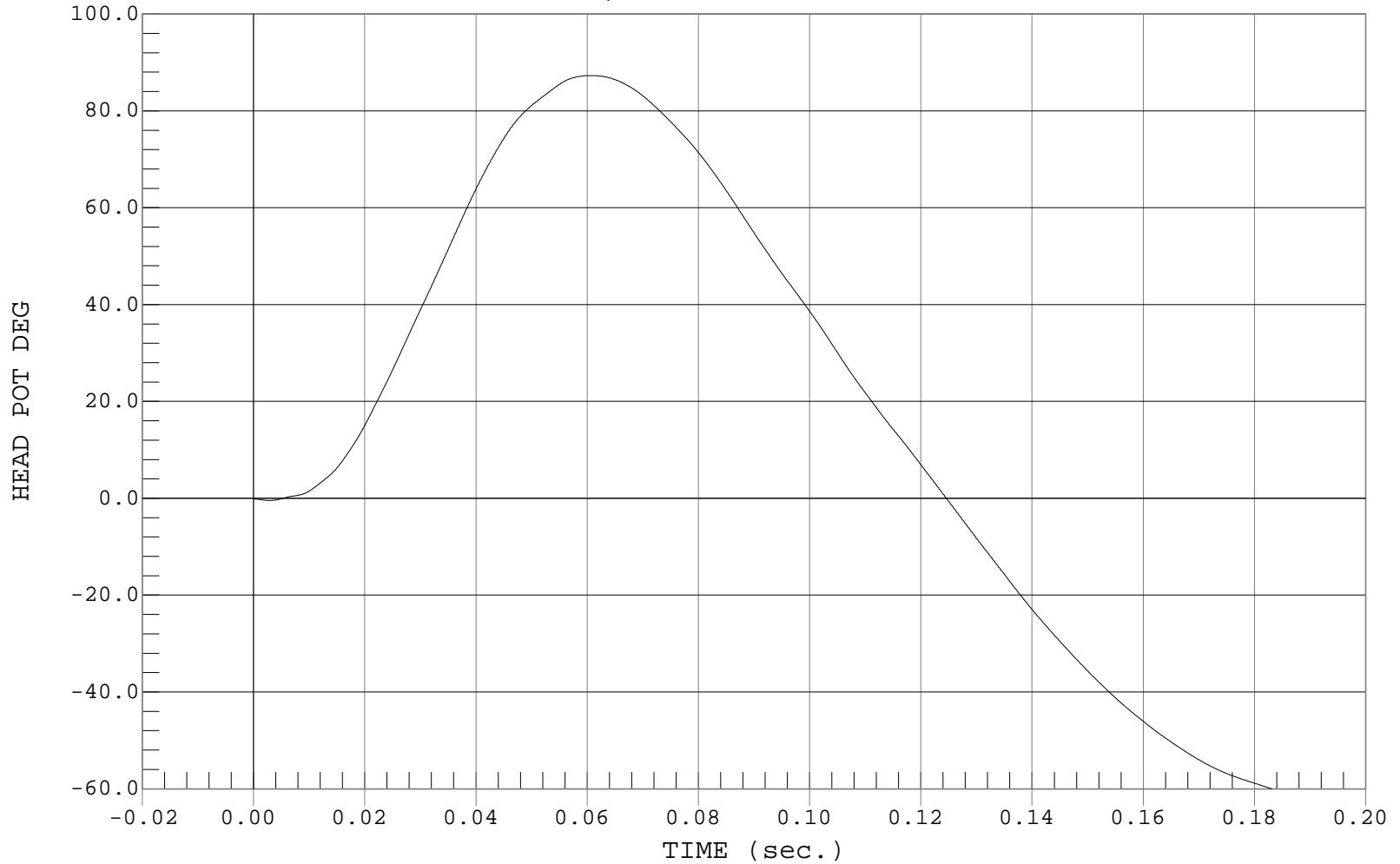
NECK ROTATION

Test Desc.: Dummy Calibration - Neck Flexion
Component: Dummy #273

Test Date: 04-10-01
Speed: 22.93 FT/SEC, 6.99 M/SEC

— 1 HEAD POT, D01422DU.D05

Ymin = -61 DEG @ 0.1895 sec., Ymax = 87.29 DEG @ 0.0607 sec.





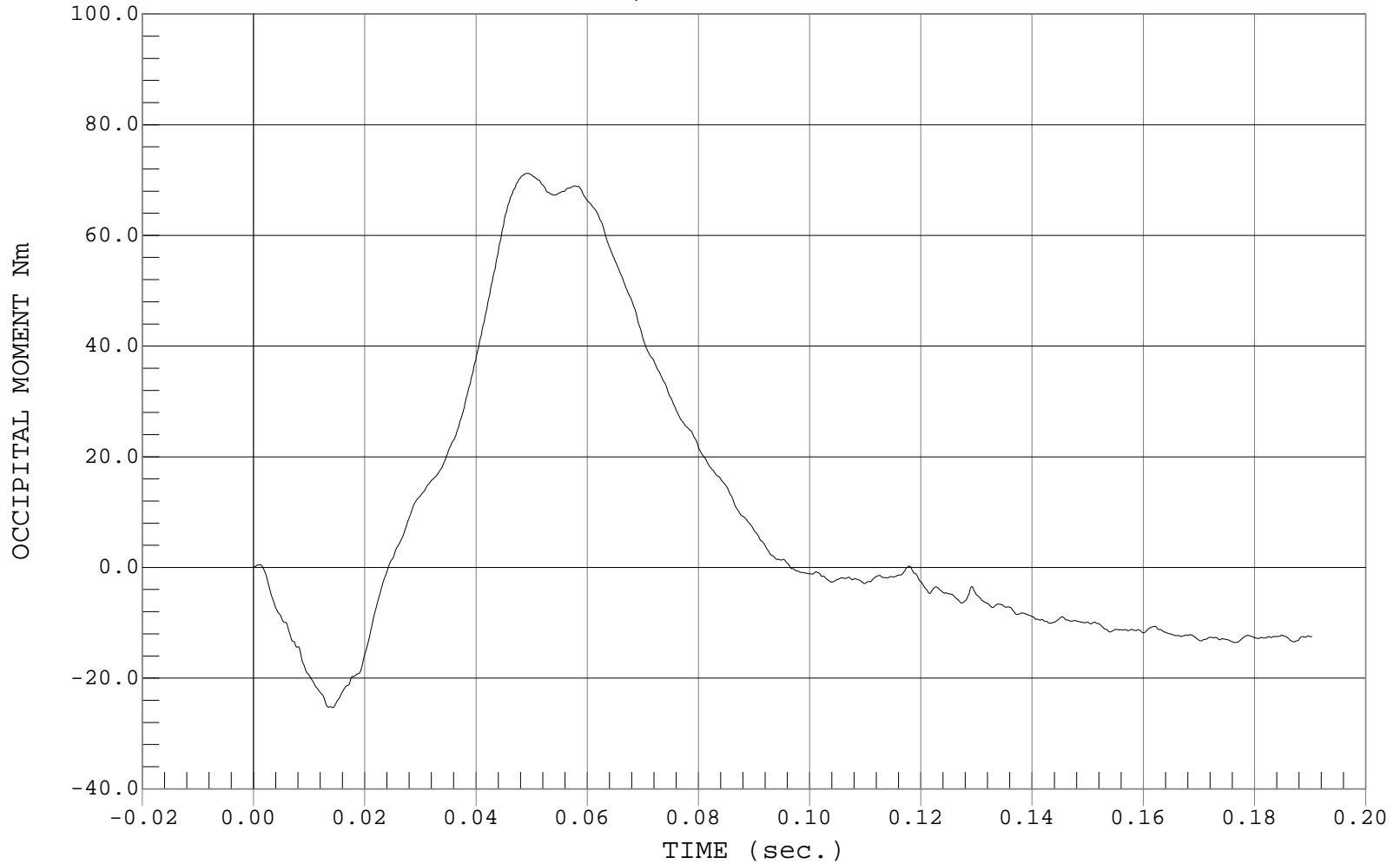
OCCIPITAL MOMENT

Test Desc.: Dummy Calibration - Neck Flexion
Component: Dummy #273

Test Date: 04-10-01
Speed: 22.93 FT/SEC, 6.99 M/SEC

— 1 OCCIPITAL MOMENT, D01422NK.MNT

Ymin = -25.34 Nm @ 0.0142 sec., Ymax = 71.21 Nm @ 0.0493 sec.



Hybrid III Calibration Data Sheet
5th Percentile Female
Neck Extension Test

ATD Serial No.: 273

Test I.D.: D01423

Tested Parameter		Units	Specification	Result	Pass/Fail
Laboratory Temperature		°C	20.6 to 22.3	22.0	Pass
Laboratory Relative Humidity		%	10 to 70	33	Pass
Pendulum Velocity		m/s	5.95 to 6.19	6.08	Pass
Pendulum Deceleration	10 msec	m/sec	1.5 – 1.9	1.8	Pass
	20 msec	m/sec	3.1 – 3.9	3.7	Pass
	30 msec	m/sec	4.6 – 5.6	5.3	Pass
Maximum “D” Plane Rotation	Maximum	Degrees	99 – 114	111	Pass
Moment About Occipital Condyle in Deflection Corridor	Minimum	Nm	-65 - -53	-54	Pass
Negative Moment Time Curve Decay to -10 Nm		msec	94 – 114	100	Pass
Overall Test Results					Pass

Laboratory Technician

4/10/01

Test Date

Approved By



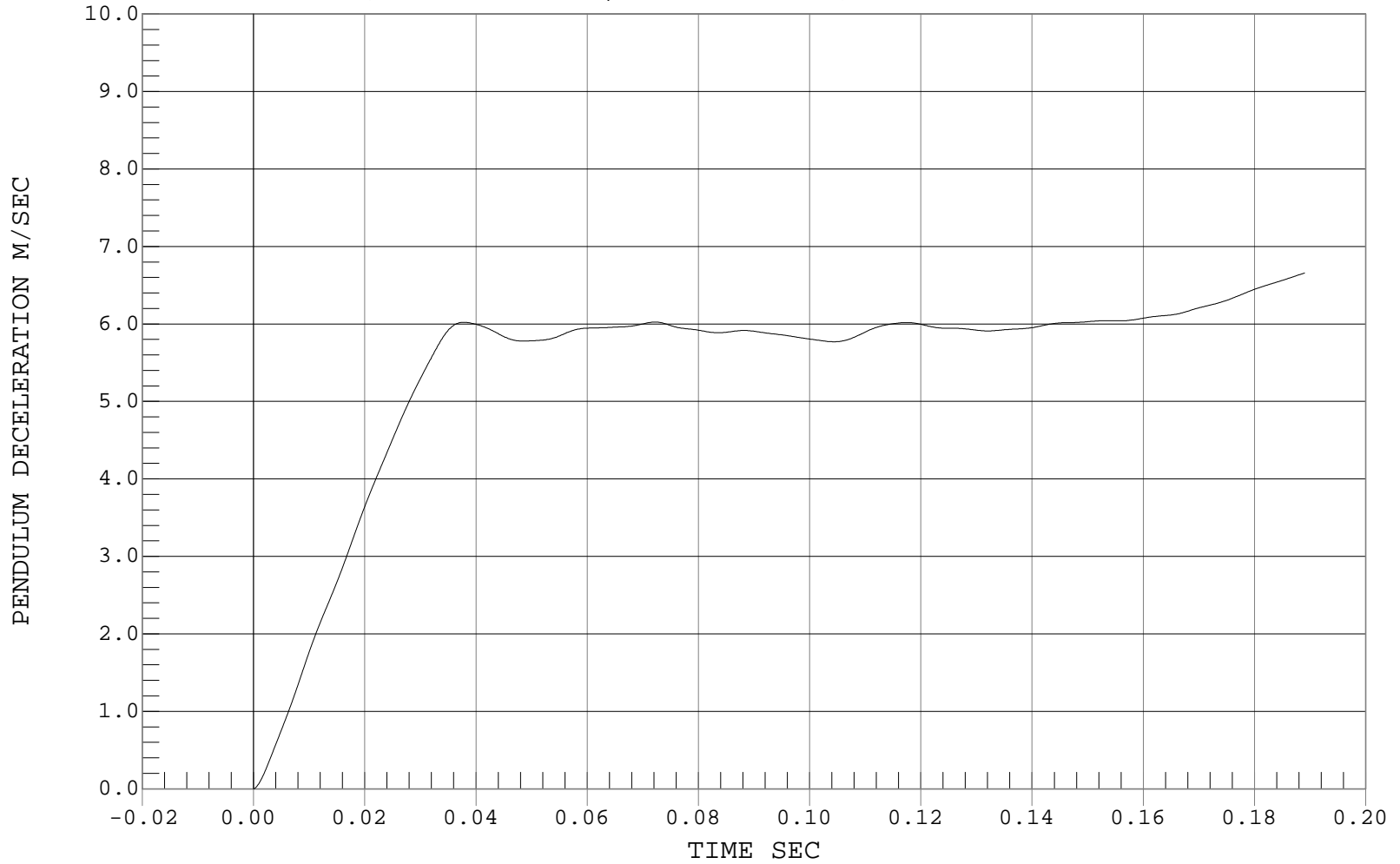
PENDULUM DECELERATION

Test Desc.: Dummy Calibration - Neck Extension
Component: Dummy #273

Test Date: 04-10-01
Speed: 19.96 FT/SEC, 6.08 M/SEC

— 1 PENDULUM DECELERATION, D01423AI.V04

Ymin = 0 M/SEC @ 0.0001 SEC, Ymax = 6.66 M/SEC @ 0.1890 SEC





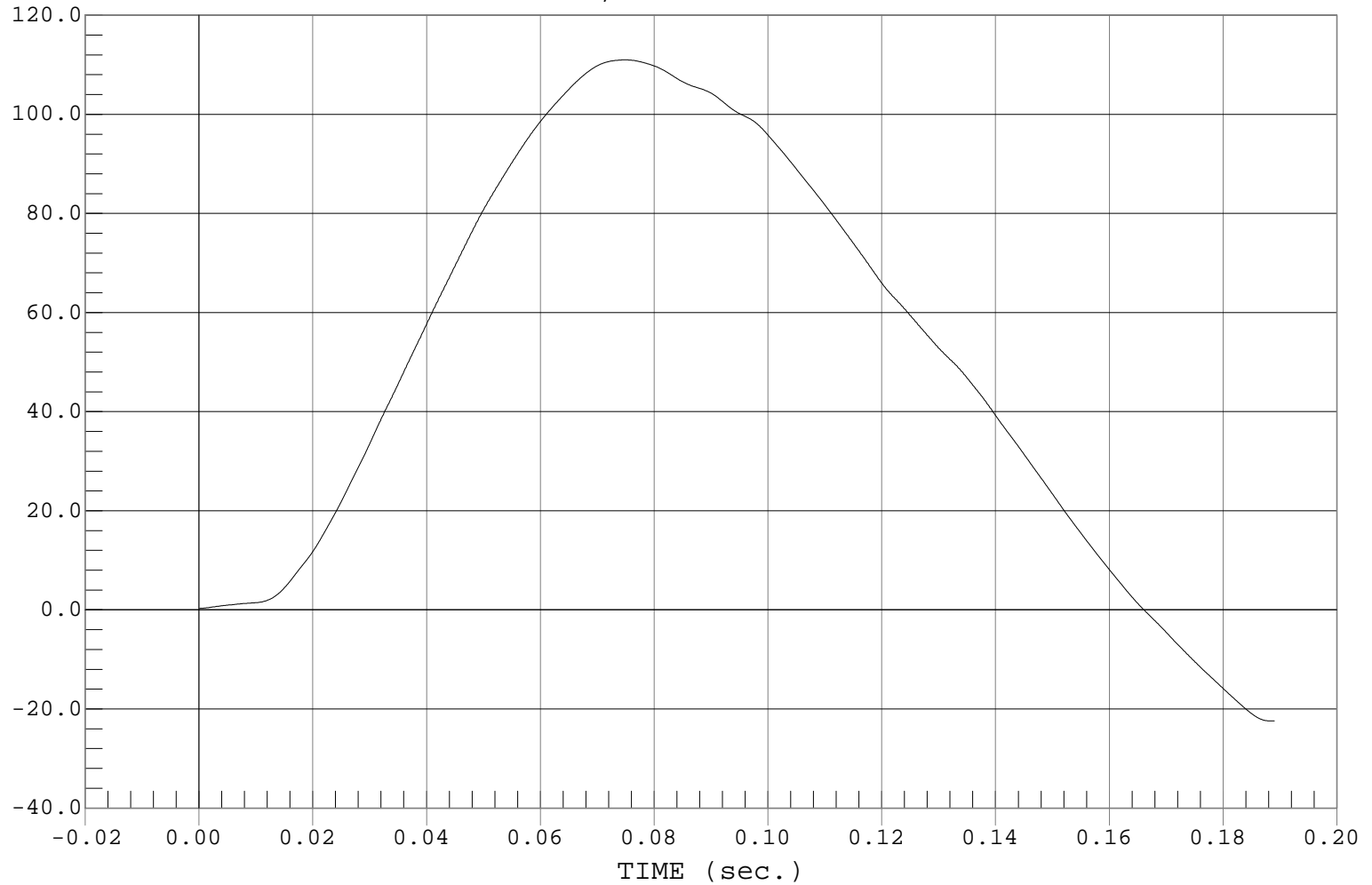
NECK ROTATION

Test Desc.: Dummy Calibration - Neck Extension
Component: Dummy #273

Test Date: 04-10-01
Speed: 19.96 FT/SEC, 6.08 M/SEC

— 1 HEAD POT, D01423DU.D05

Ymin = -22.41 DEG @ 0.1883 sec., Ymax = 110.99 DEG @ 0.0748 sec.





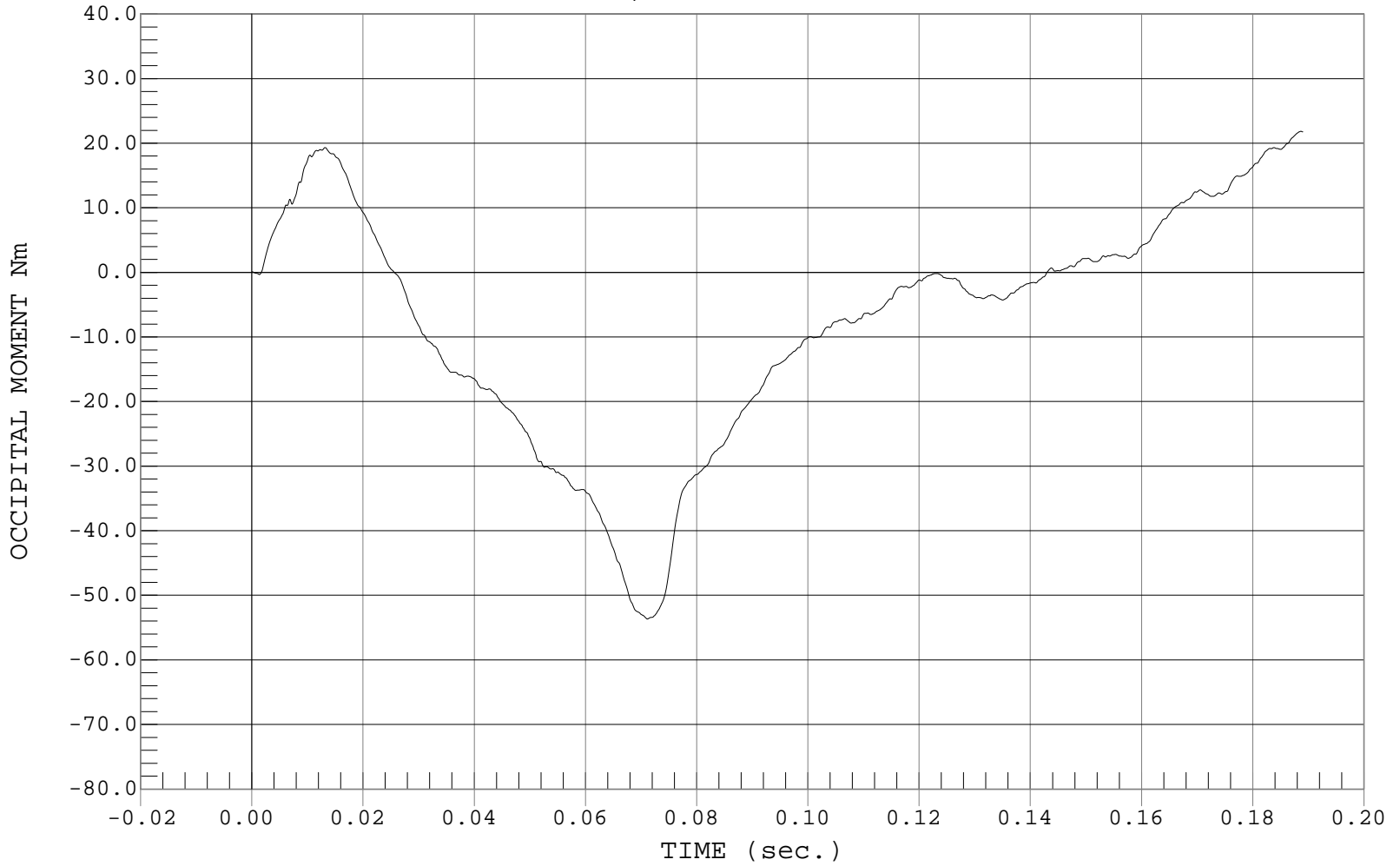
OCCIPITAL MOMENT

Test Desc.: Dummy Calibration - Neck Extension
Component: Dummy #273

Test Date: 04-10-01
Speed: 19.96 FT/SEC, 6.08 M/SEC

— 1 OCCIPITAL MOMENT, D01423NK.MNT

Ymin = -53.67 Nm @ 0.0711 sec., Ymax = 21.84 Nm @ 0.1886 sec.



Hybrid III Calibration Data Sheet
5th Percentile Female
Torso Flexion Test

ATD Serial No.: 273

Test I.D.: D0142A

Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	°C	18.9 to 25.6	22.1	Pass
Relative Humidity	%	10 to 70	36	Pass
Initial Angle	Deg	0 – 20	11	Pass
Return Angle	Deg	0 – 8	7	Pass
Force @ 45°	N	320 – 390	358	Pass
Overall Test Results				Pass

 Laboratory Technician

4/9/01

 Test Date

 Approved By

Hybrid III Calibration Data Sheet

5th Percentile Female

External Measurements

ATD Serial No.: 273

Test I.D.: D0142

External Measurement Data				
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6-22.2	21.9	Pass
Laboratory Relative Humidity	%	10-70	33	Pass
A – Total sitting height	mm	775 – 800	785	Pass
B – Shoulder pivot height	mm	432 – 457	442	Pass
C – “H” point height	mm	81 – 86	84	Pass
D – “H” point from back line	mm	145 – 150	147	Pass
E – Shoulder pivot from back line	mm	69 – 84	74	Pass
F – Thigh clearance	mm	119 – 135	125	Pass
G – Back of elbow to wrist pivot	mm	244 – 259	254	Pass
H – Head back from back line	mm	43 – 48	46	Pass
I – Shoulder to elbow length	mm	277 – 297	290	Pass
J – Elbow rest height	mm	183 – 203	196	Pass
K – Buttock to knee length	mm	521 – 546	536	Pass
L – Popliteal length	mm	356 – 376	366	Pass
M – Knee pivot height	mm	394 – 419	406	Pass
N – Buttock popliteal length	mm	414 – 439	432	Pass
O – Chest depth without jacket	mm	175 – 191	183	Pass
P – Foot length	mm	218 – 234	226	Pass
R – Buttock to knee pivot length	mm	457 – 483	470	Pass
S – Head breadth	mm	137 – 147	145	Pass
T – Head depth	mm	178 – 188	183	Pass
U – Hip breadth	mm	300 – 315	310	Pass
V – Shoulder breadth	mm	351 – 366	358	Pass
W – Foot breadth	mm	79 – 94	87	Pass
X – Head circumference	mm	528 – 549	536	Pass
Y – Chest circumference with jacket	mm	851 – 881	866	Pass
Z – Waist circumference	mm	759 – 790	775	Pass
AA – Location for chest circumference	mm	300 – 310	305	Pass
BB – Location for waist circumference	mm	160 – 170	165	Pass
Overall Test Results				Pass

Laboratory Technician

4/10/01

Test Date

Approved By

Hybrid III Calibration Data Sheet
5th Percentile Female
Left Knee Impact Test

ATD Serial No.: 288

Test I.D.: D01436

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	18.9 to 25.6	21.9	Pass
Laboratory Relative Humidity	%	10 to 70	33	Pass
Probe Velocity	m/s	2.07 to 2.13	2.11	Pass
Peak Probe Force	kN	3.45 – 4.06	3.69	Pass
Overall Test Results				Pass

 Laboratory Technician

 4/10/01
 Test Date

 Approved By



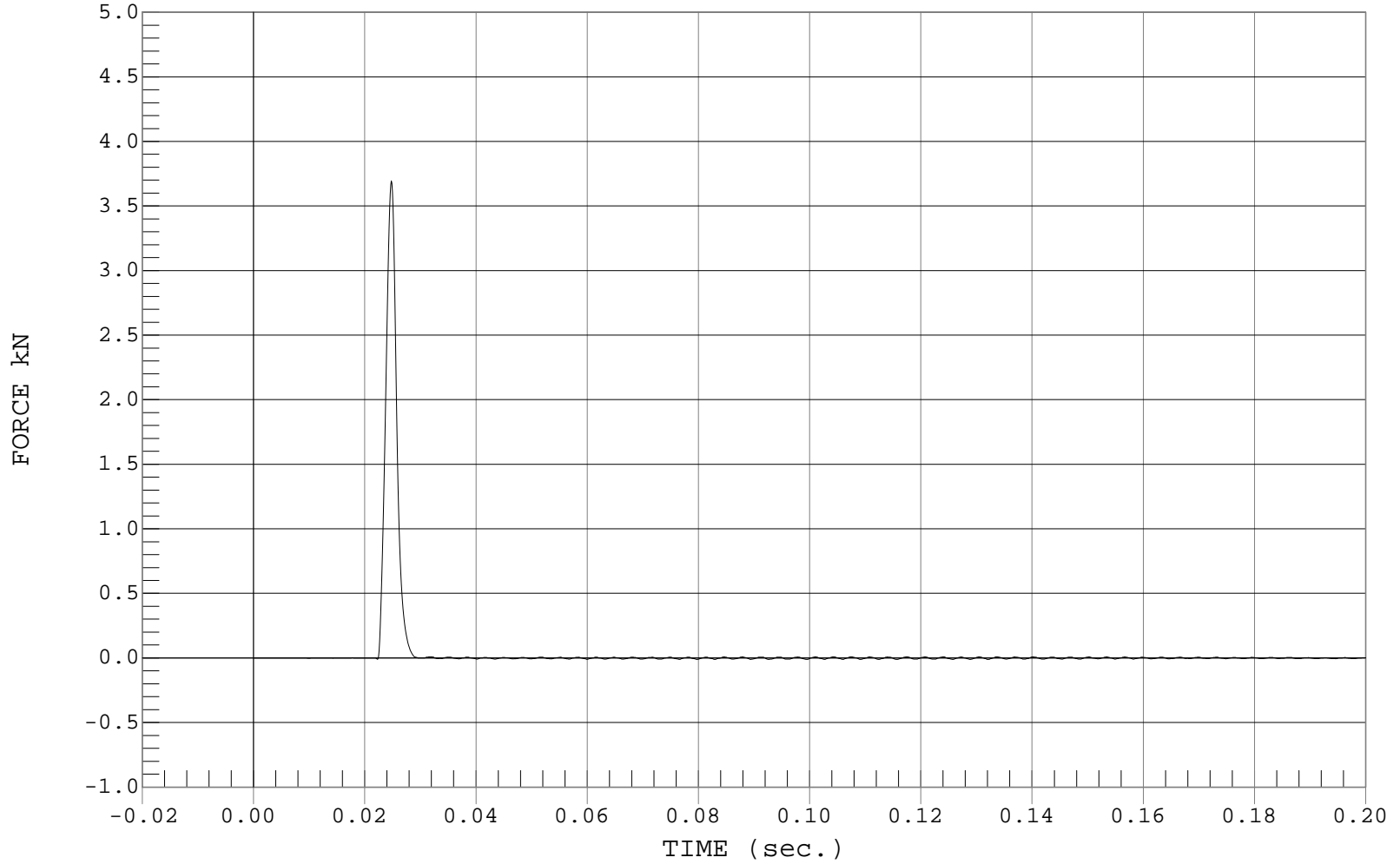
LEFT KNEE IMPACT

Test Desc.: Dummy Calibration - Left Knee Impact
Component: Dummy #288

Test Date: 04-10-01
Speed: 6.92 FT/SEC, 2.11 M/SEC

— 1 FORCE, D01436FF.F09

Ymin = -.01 kN @ 0.1321 sec., Ymax = 3.69 kN @ 0.0248 sec.



Hybrid III Calibration Data Sheet
5th Percentile Female
Right Knee Impact Test

ATD Serial No.: 288

Test I.D.: D01435

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	18.9 to 25.6	21.9	Pass
Laboratory Relative Humidity	%	10 to 70	33	Pass
Probe Velocity	m/s	2.07 to 2.13	2.12	Pass
Peak Probe Force	kN	3.45 – 4.06	3.72	Pass
Overall Test Results				Pass

 Laboratory Technician

4/10/01

 Test Date

 Approved By



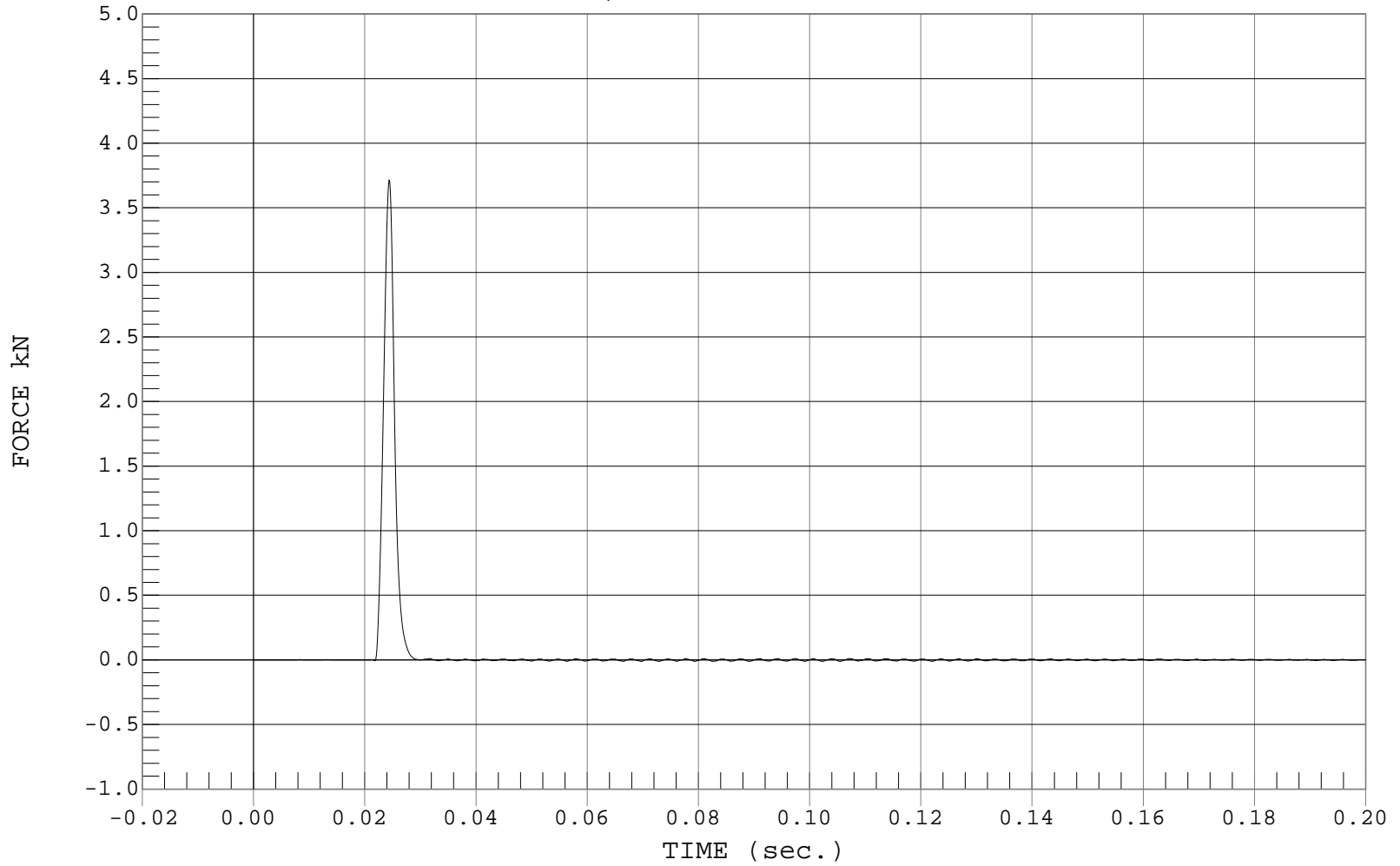
RIGHT KNEE IMPACT

Test Desc.: Dummy Calibration - Right Knee Impact
Component: Dummy #288

Test Date: 04-10-01
Speed: 6.96 FT/SEC, 2.12 M/SEC

— 1 FORCE, D01435FF.F09

Ymin = -.01 kN @ 0.1023 sec., Ymax = 3.72 kN @ 0.0244 sec.



Hybrid III Calibration Data Sheet
5th Percentile Female
Head Drop Calibration

ATD Serial No.: 288

Test I.D.: D01431

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	18.9 to 25.6	22.0	Pass
Laboratory Relative Humidity	%	10 to 70	33	Pass
Peak Resultant Acceleration	G's	250 to 300	268	Pass
Peak Lateral Acceleration	G's	≤ ± 15.0	-10	Pass
Is Acceleration Unimodal?	Yes/No	< 10% Peak	Yes	Pass
Overall Test Results				Pass

 Laboratory Technician

4/10/01

 Test Date

 Approved By



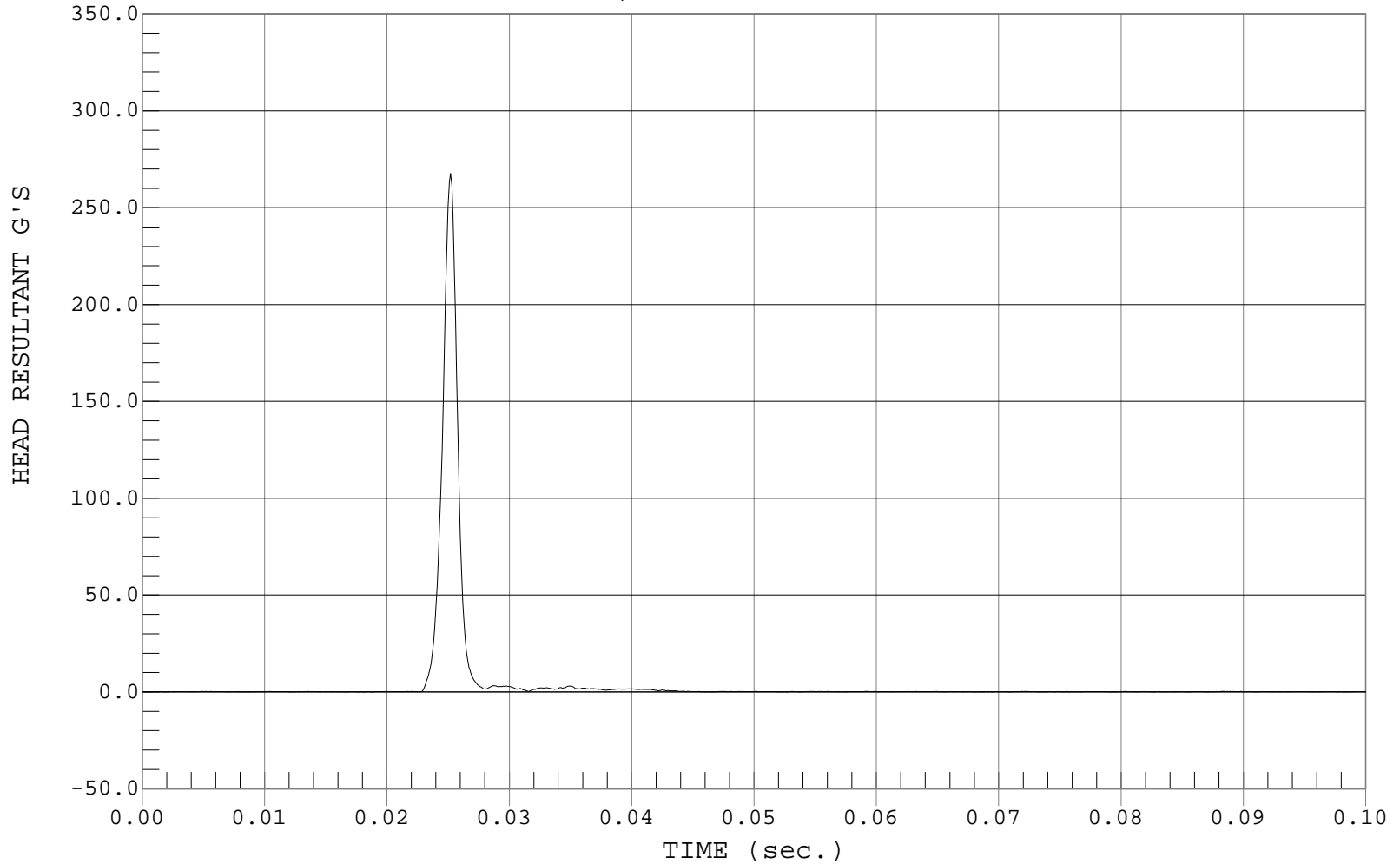
PEAK RESULTANT ACCELERATION

Test Desc.: Dummy Calibration - Head Drop
Component: Dummy #288

Test Date: 04-10-01
Speed: 0.00 FT/SEC, 0.00 M/SEC

— 1 HEAD RESULTANT, D01431AV.A01

Ymin = .04 G'S @ 0.0004 sec., Ymax = 267.67 G'S @ 0.0252 sec.





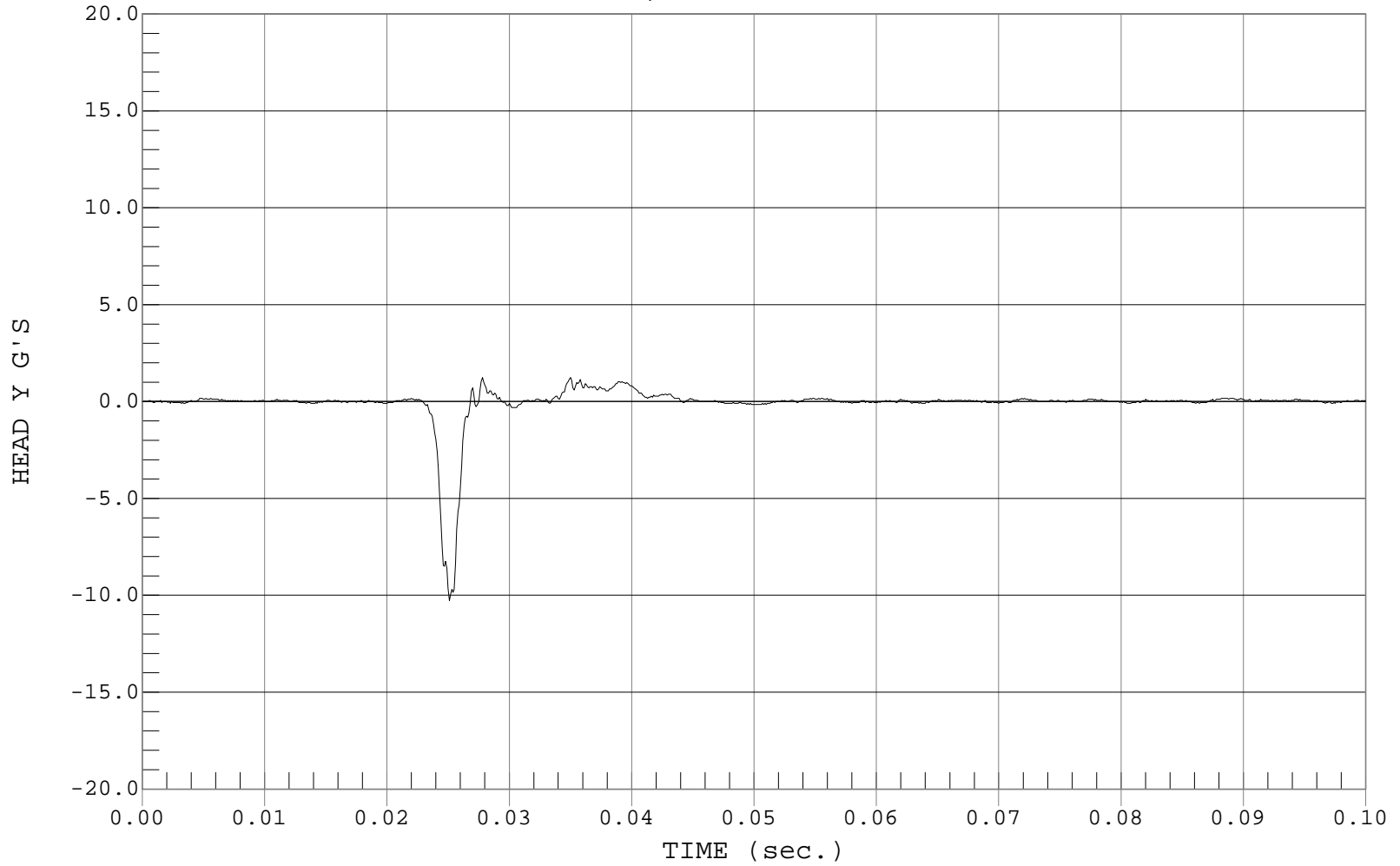
PEAK LATERAL ACCELARATION

Test Desc.: Dummy Calibration - Head Drop
Component: Dummy #288

Test Date: 04-10-01
Speed: 0.00 FT/SEC, 0.00 M/SEC

— 1 HEAD Y, D01431AR.A02

Ymin = -10.28 G'S @ 0.0251 sec., Ymax = 1.24 G'S @ 0.0278 sec.



Hybrid III Calibration Data Sheet
5th Percentile Female
Thorax Impact Test

ATD Serial No.: 288

Test I.D.: D01434

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	22.0	Pass
Laboratory Relative Humidity	%	10 to 70	36	Pass
Probe Velocity	m/s	6.59 to 6.83	6.66	Pass
Peak Deflection	mm	50 – 58	54.2	Pass
Peak Resistive Force within Deflection Corridor	kN	3.9 – 4.4	4.32	Pass
Peak Force 18mm – 50mm	%	<105% of Peak Force in Deflection Corridor	99	Pass
Internal Hysteresis	%	69 to 85	74	Pass
Overall Test Results				Pass

 Laboratory Technician

 4/9/01
 Test Date

 Approved By



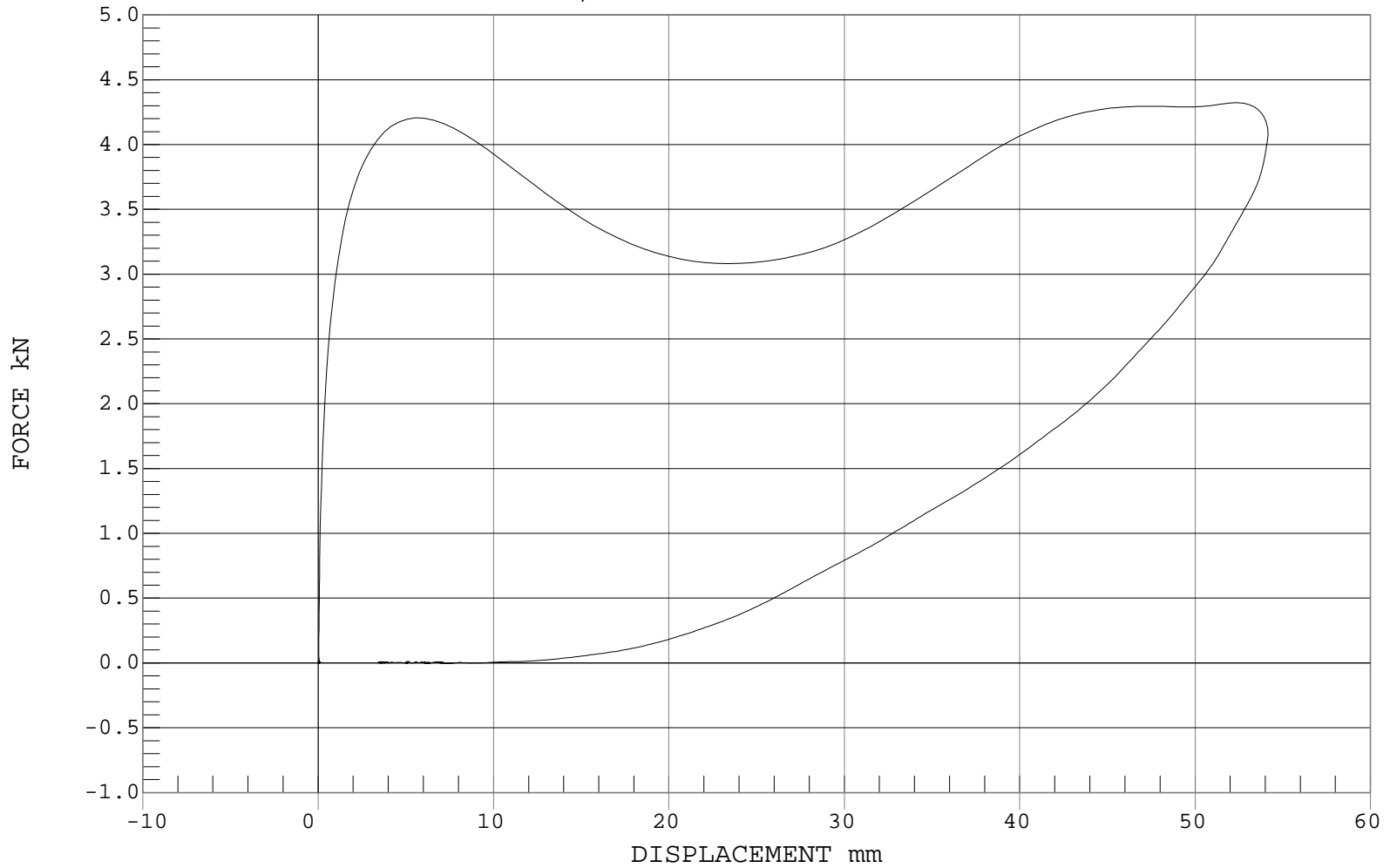
THORAX IMPACT

Test Desc.: Dummy Calibration - Chest Impact
Component: Dummy #288

Test Date: 04-09-01
Speed: 21.84 FT/SEC, 6.66 M/SEC

— 1 FORCE, D01434CH.FVD

Ymin = -.01 kN @ 6.0981 mm, Ymax = 4.32 kN @ 52.3270 mm



C-28

Hybrid III Calibration Data Sheet
5th Percentile Female
Neck Flexion Test

ATD Serial No.: 288

Test I.D.: D01432

Tested Parameter		Units	Specification	Result	Pass/Fail
Laboratory Temperature		°C	20.6 to 22.2	22.1	Pass
Laboratory Relative Humidity		%	10 to 70	33	Pass
Pendulum Velocity		m/s	6.89 to 7.13	7.02	Pass
Pendulum Deceleration	10 msec	m/s	2.1 to 2.5	2.2	Pass
	20 msec	m/s	4.0 to 5.0	4.5	Pass
	30 msec	m/s	5.8 to 7.0	6.5	Pass
Maximum "D" Plane Rotation	Maximum	Degrees	77 – 91	84	Pass
Moment About Occipital Condyle within Deflection Corridor	Maximum	Nm	69 – 83	71	Pass
Positive Moment Time Curve Decay to 10 Nm		ms	80 – 100	87	Pass
				Overall Test Results	Pass

Laboratory Technician

4/10/01
Test Date

Approved By



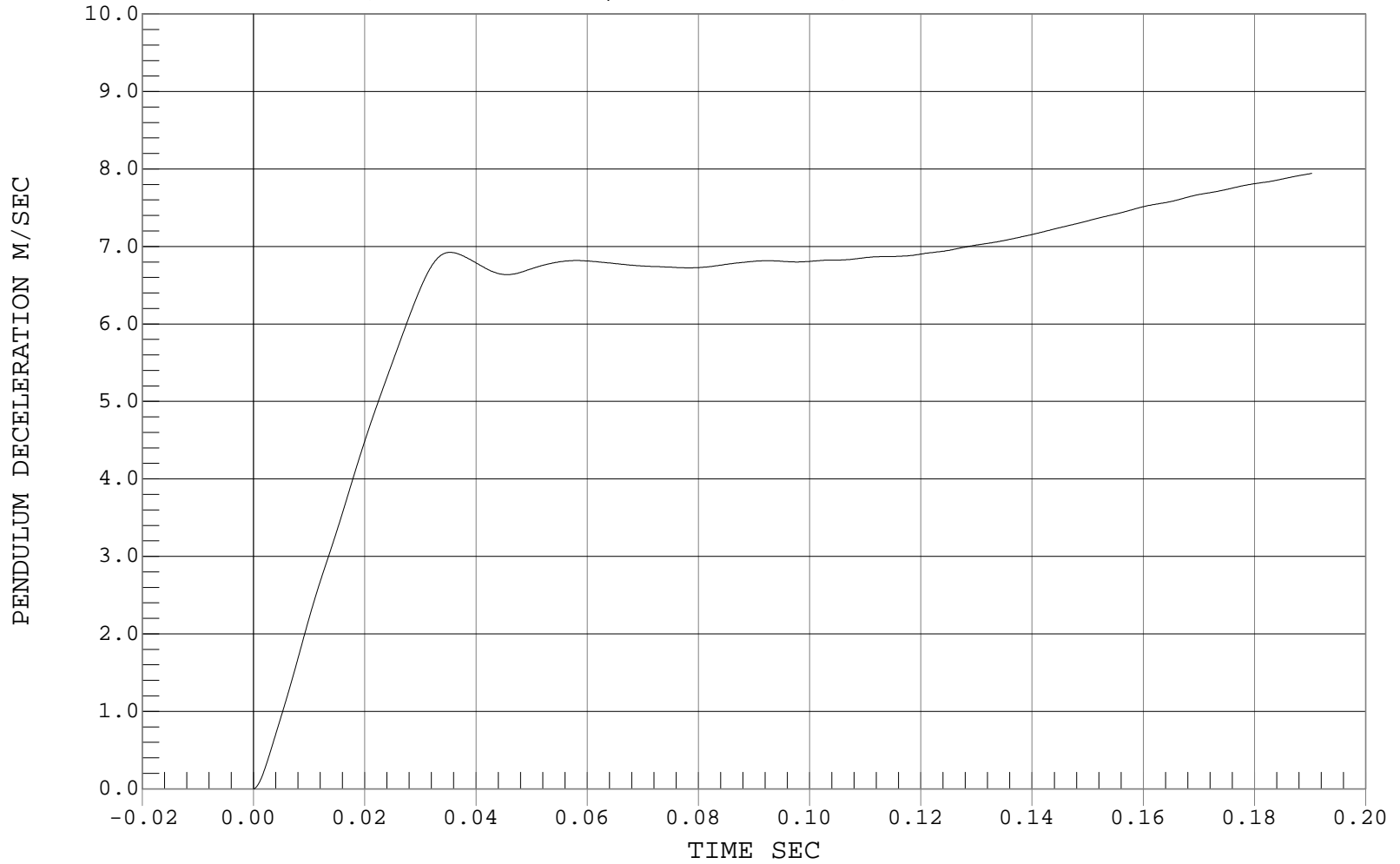
PENDULUM DECELERATION

Test Desc.: Dummy Calibration - Neck Flexion
Component: Dummy #288

Test Date: 04-10-01
Speed: 23.02 FT/SEC, 7.02 M/SEC

— 1 PENDULUM DECELERATION, D01432AI.V04

Ymin = 0 M/SEC @ 0.0001 SEC, Ymax = 7.94 M/SEC @ 0.1903 SEC





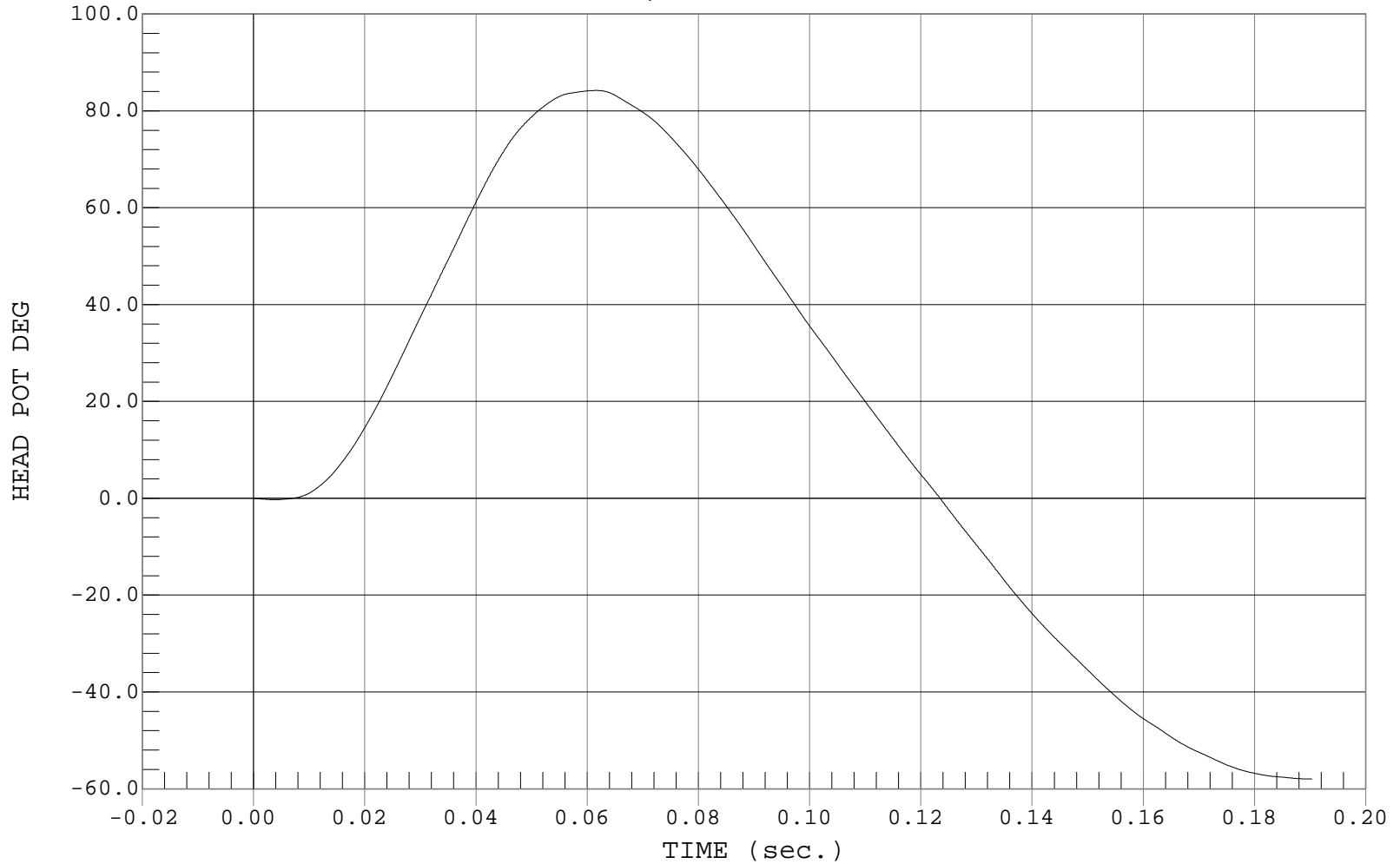
NECK ROTATION

Test Desc.: Dummy Calibration - Neck Flexion
Component: Dummy #288

Test Date: 04-10-01
Speed: 23.02 FT/SEC, 7.02 M/SEC

— 1 HEAD POT, D01432DU.D05

Ymin = -57.95 DEG @ 0.1895 sec., Ymax = 84.22 DEG @ 0.0616 sec.





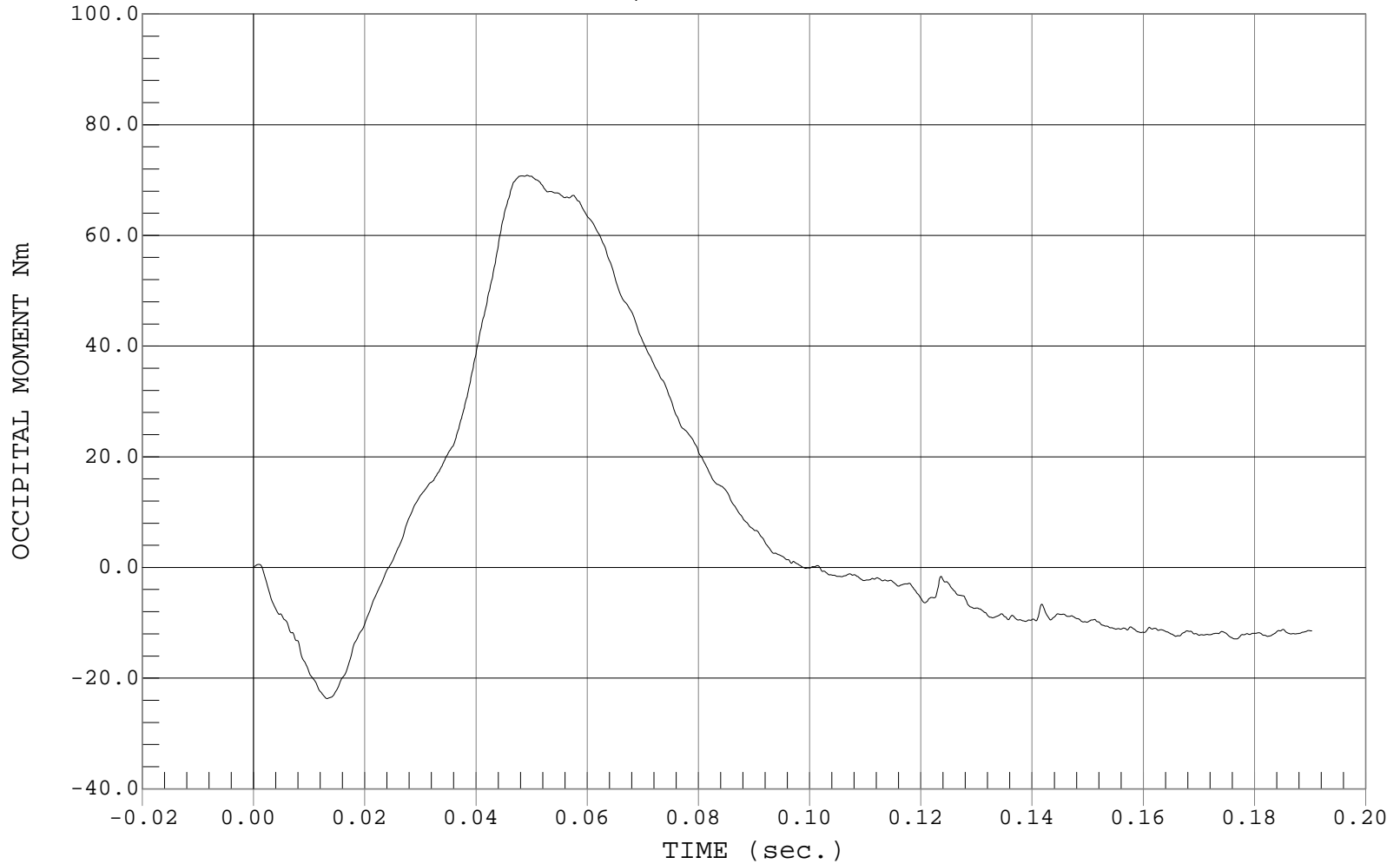
OCCIPITAL MOMENT

Test Desc.: Dummy Calibration - Neck Flexion
Component: Dummy #288

Test Date: 04-10-01
Speed: 23.02 FT/SEC, 7.02 M/SEC

— 1 OCCIPITAL MOMENT, D01432NK.MNT

Ymin = -23.68 Nm @ 0.0133 sec., Ymax = 70.87 Nm @ 0.0492 sec.



Hybrid III Calibration Data Sheet
5th Percentile Female
Neck Extension Test

ATD Serial No.: 288

Test I.D.: D01433

Tested Parameter		Units	Specification	Result	Pass/Fail
Laboratory Temperature		°C	20.6 to 22.3	22.1	Pass
Laboratory Relative Humidity		%	10 to 70	33	Pass
Pendulum Velocity		m/s	5.95 to 6.19	6.05	Pass
Pendulum Deceleration	10 msec	m/sec	1.5 – 1.9	1.7	Pass
	20 msec	m/sec	3.1 – 3.9	3.6	Pass
	30 msec	m/sec	4.6 – 5.6	5.3	Pass
Maximum “D” Plane Rotation	Maximum	Degrees	99 – 114	111	Pass
Moment About Occipital Condyle in Deflection Corridor	Minimum	Nm	-65 - -53	-54	Pass
Negative Moment Time Curve Decay to -10 Nm		msec	94 – 114	99	Pass
Overall Test Results					Pass

Laboratory Technician

4/10/01

Test Date

Approved By



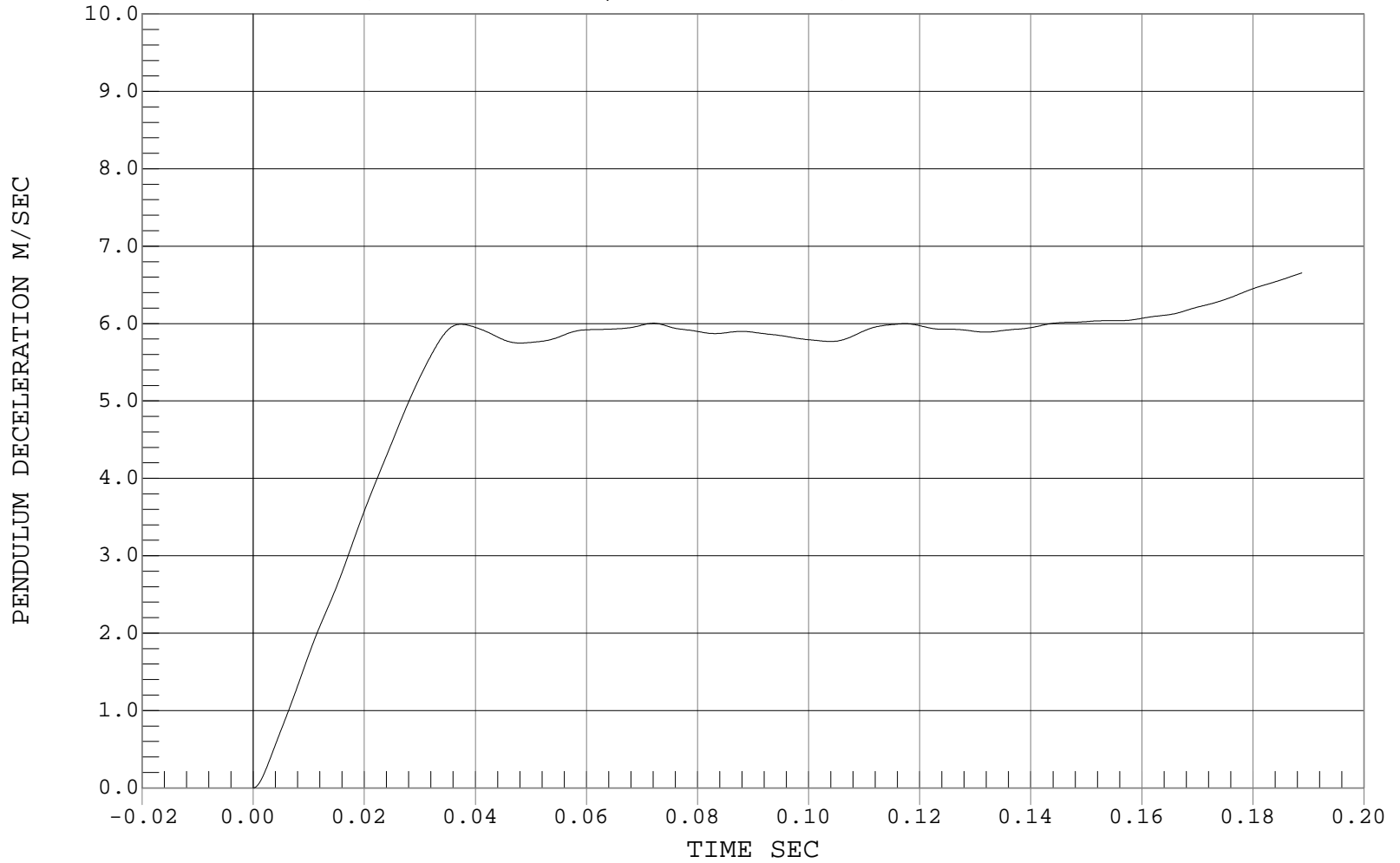
PENDULUM DECELERATION

Test Desc.: Dummy Calibration - Neck Extension
Component: Dummy #288

Test Date: 04-10-01
Speed: 19.83 FT/SEC, 6.05 M/SEC

— 1 PENDULUM DECELERATION, D01433AI.V04

Ymin = 0 M/SEC @ 0.0001 SEC, Ymax = 6.66 M/SEC @ 0.1888 SEC





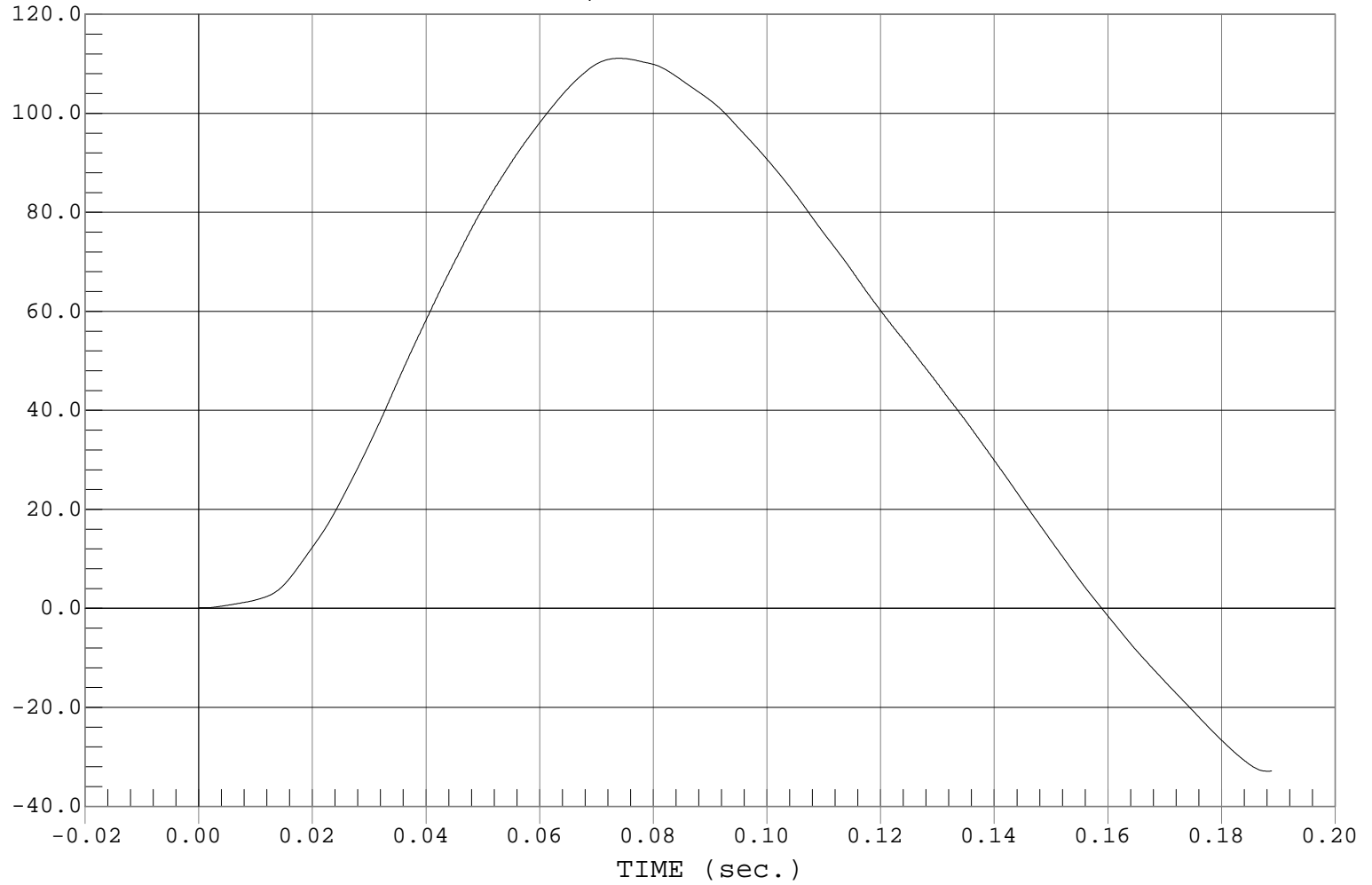
NECK ROTATION

Test Desc.: Dummy Calibration - Neck Extension
Component: Dummy #288

Test Date: 04-10-01
Speed: 19.83 FT/SEC, 6.05 M/SEC

— 1 HEAD POT, D01433DU.D05

Ymin = -32.9 DEG @ 0.1880 sec., Ymax = 111.12 DEG @ 0.0739 sec.



C-35



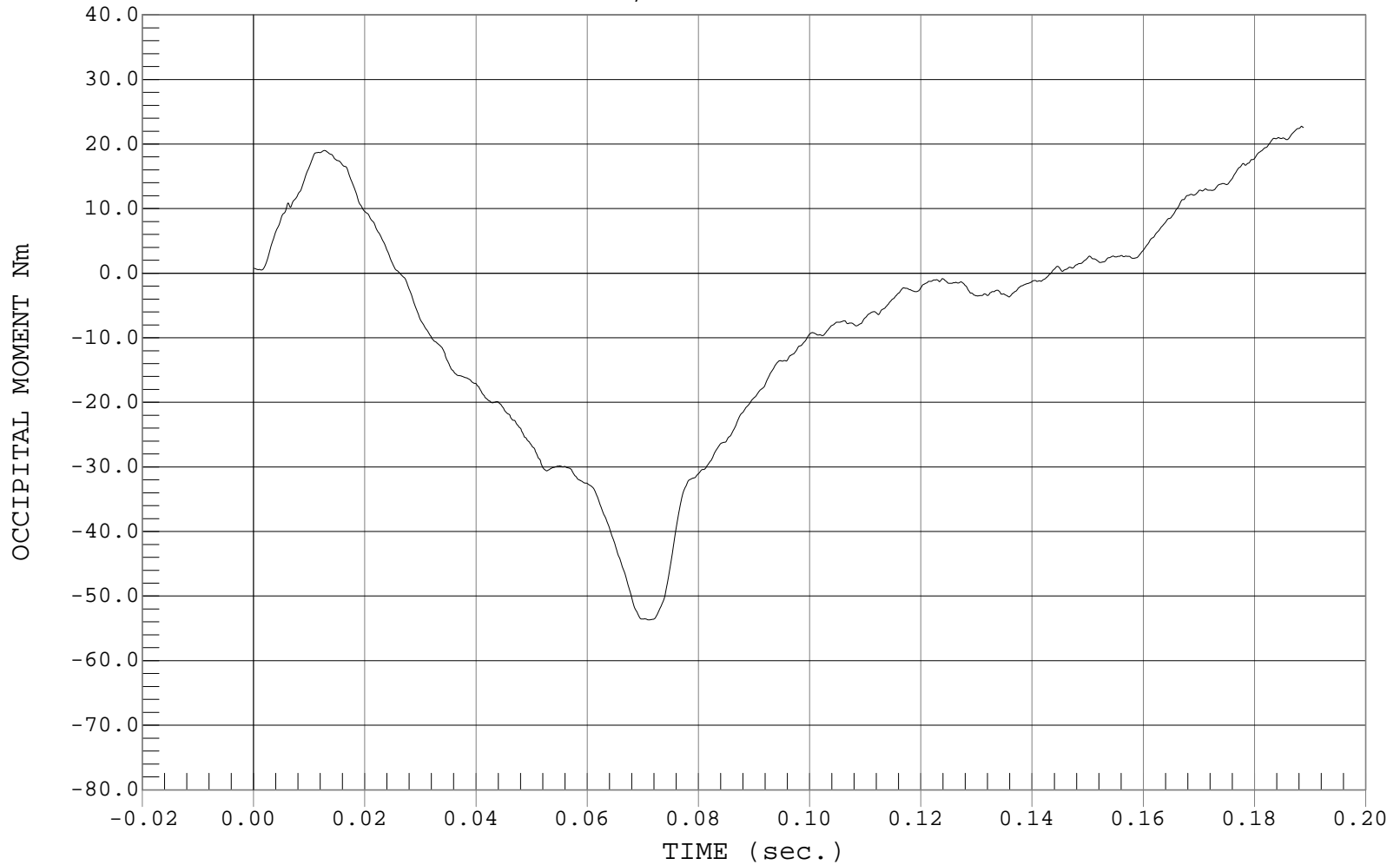
OCCIPITAL MOMENT

Test Desc.: Dummy Calibration - Neck Extension
Component: Dummy #288

Test Date: 04-10-01
Speed: 19.83 FT/SEC, 6.05 M/SEC

— 1 OCCIPITAL MOMENT, D01433NK.MNT

Ymin = -53.69 Nm @ 0.0711 sec., Ymax = 22.75 Nm @ 0.1885 sec.



Hybrid III Calibration Data Sheet
5th Percentile Female
Torso Flexion Test

ATD Serial No.: 288

Test I.D.: D0143A

Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	°C	18.9 to 25.6	22.0	Pass
Relative Humidity	%	10 to 70	36	Pass
Initial Angle	Deg	0 – 20	9	Pass
Return Angle	Deg	0 – 8	6	Pass
Force @ 45°	N	320 – 390	349	Pass
Overall Test Results				Pass

 Laboratory Technician

4/9/01

 Test Date

 Approved By

Hybrid III Calibration Data Sheet

5th Percentile Female

External Measurements

ATD Serial No.: 288

Test I.D.: D0143

External Measurement Data				
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6-22.2	21.9	Pass
Laboratory Relative Humidity	%	10-70	33	Pass
A – Total sitting height	mm	775 – 800	787	Pass
B – Shoulder pivot height	mm	432 – 457	446	Pass
C – “H” point height	mm	81 – 86	84	Pass
D – “H” point from back line	mm	145 – 150	147	Pass
E – Shoulder pivot from back line	mm	69 – 84	75	Pass
F – Thigh clearance	mm	119 – 135	128	Pass
G – Back of elbow to wrist pivot	mm	244 – 259	252	Pass
H – Head back from back line	mm	43 – 48	46	Pass
I – Shoulder to elbow length	mm	277 – 297	292	Pass
J – Elbow rest height	mm	183 – 203	191	Pass
K – Buttock to knee length	mm	521 – 546	537	Pass
L – Popliteal length	mm	356 – 376	362	Pass
M – Knee pivot height	mm	394 – 419	405	Pass
N – Buttock popliteal length	mm	414 – 439	422	Pass
O – Chest depth without jacket	mm	175 – 191	186	Pass
P – Foot length	mm	218 – 234	226	Pass
R – Buttock to knee pivot length	mm	457 – 483	471	Pass
S – Head breadth	mm	137 – 147	144	Pass
T – Head depth	mm	178 – 188	181	Pass
U – Hip breadth	mm	300 – 315	307	Pass
V – Shoulder breadth	mm	351 – 366	359	Pass
W – Foot breadth	mm	79 – 94	86	Pass
X – Head circumference	mm	528 – 549	535	Pass
Y – Chest circumference with jacket	mm	851 – 881	862	Pass
Z – Waist circumference	mm	759 – 790	772	Pass
AA – Location for chest circumference	mm	300 – 310	305	Pass
BB – Location for waist circumference	mm	160 – 170	165	Pass
Overall Test Results				Pass

Laboratory Technician

4/10/01

Test Date

Approved By

APPENDIX D

TEST EQUIPMENT AND INSTRUMENTATION CALIBRATION

DUMMY, VEHICLE, AND LABORATORY INSTRUMENT CALIBRATION
INSTRUMENTS FOR DUMMY NO. 273

INSTRUMENTS FOR DRIVER DUMMY NO. 273			
	SERIAL NO.	MANUFACTURER	CALIBRATION DATE
Head X	J27523	Endevco	11/5/00
Head Y	J29023	Endevco	11/15/00
Head Z	J29006	Endevco	11/15/00
Head X Redundant	J35562	Endevco	11/15/00
Head Y Redundant	J27461	Endevco	11/15/00
Head Z Redundant	J27457	Endevco	11/15/00
Chest X	J27466	Endevco	11/15/00
Chest Y	J27470	Endevco	11/15/00
Chest Z	J27509	Endevco	11/15/00
Chest X Redundant	AAL32	Endevco	11/15/00
Chest Y Redundant	AGT82	Endevco	11/15/00
Chest Z Redundant	AGR67	Endevco	11/15/00
Right Femur Load Cell	259	Denton	4/12/01
Left Femur Load Cell	260	Denton	4/12/01
Pelvis X	AAKA1	Endevco	11/15/00
Pelvis Y	AF9Y5	Endevco	11/15/00
Pelvis Z	AAKA2	Endevco	11/15/00
Neck Force X	442	Denton	1/3/01
Neck Force Y	442	Denton	1/3/01
Neck Force Z	442	Denton	1/3/01
Neck Moment X	442	Denton	1/3/01
Neck Moment Y	442	Denton	1/3/01
Neck Moment Z	442	Denton	1/3/01
Chest Deflection Gauge	273	Servo	2/22/01
Lap Belt Load Cell	191	Denton	10/6/00
Shoulder Belt Load Cell	M01122	Entran	1/22/01

DUMMY, VEHICLE, AND LABORATORY INSTRUMENT CALIBRATION
INSTRUMENTS FOR DUMMY NO. 273

INSTRUMENTS FOR DRIVER DUMMY NO. 273			
	SERIAL NO.	MANUFACTURER	CALIBRATION DATE
Upper Right Tibia Moment X	694	Denton	12/8/00
Upper Right Tibia Moment Y	694	Denton	12/8/00
Upper Right Tibia Force Z	694	Denton	12/8/00
Lower Right Tibia Moment X	554	Denton	12/14/00
Lower Right Tibia Moment Y	554	Denton	12/14/00
Lower Right Tibia Force Z	554	Denton	12/14/00
Upper Left Tibia Moment X	695	Denton	12/8/00
Upper Left Tibia Moment Y	695	Denton	12/8/00
Upper Left Tibia Force Z	695	Denton	12/8/00
Lower Left Tibia Moment X	555	Denton	12/14/00
Lower Left Tibia Moment Y	555	Denton	12/14/00
Lower Left Tibia Force Z	555	Denton	12/14/00
Left Foot Ball Z Acceleration	AP2D6	Endevco	11/16/00
Left Heel X Acceleration	J11548	Endevco	11/16/00
Left Heel Z Acceleration	J10866	Endevco	11/16/00
Right Foot Ball Z Acceleration	AGMT2	Endevco	11/16/00
Right Heel X Acceleration	AH0A2	Endevco	11/16/00
Right Heel Z Acceleration	AJ837	Endevco	11/16/00

DUMMY, VEHICLE, AND LABORATORY INSTRUMENT CALIBRATION
INSTRUMENTS FOR DUMMY NO. 288

INSTRUMENTS FOR PASSENGER DUMMY NO. 288			
	SERIAL NO.	MANUFACTURER	CALIBRATION DATE
Head X	AJ9H0	Endevco	1/5/01
Head Y	ANAN3	Endevco	1/5/01
Head Z	ANAN6	Endevco	1/5/01
Head X Redundant	AP120	Endevco	1/5/01
Head Y Redundant	ALEK9	Endevco	1/5/01
Head Z Redundant	AP042	Endevco	1/5/01
Chest X	AMRR4	Endevco	1/8/01
Chest Y	ALCR0	Endevco	1/8/01
Chest Z	AMP44	Endevco	1/8/01
Chest X Redundant	AC9B7	Endevco	1/8/01
Chest Y Redundant	AMR94	Endevco	1/8/01
Chest Z Redundant	AMTB1	Endevco	1/8/01
Right Femur Load Cell	261	Denton	4/12/01
Left Femur Load Cell	262	Denton	4/12/01
Pelvis X	AHY98	Endevco	1/8/01
Pelvis Y	AHTW6	Endevco	1/8/01
Pelvis Z	AHWP2	Endevco	1/8/01
Neck Force X	443	Denton	11/11/00
Neck Force Y	443	Denton	11/11/00
Neck Force Z	443	Denton	11/11/00
Neck Moment X	443	Denton	11/11/00
Neck Moment Y	443	Denton	11/11/00
Neck Moment Z	443	Denton	11/11/00
Chest Deflection Gauge	288	Servo	3/9/01
Lap Belt Load Cell	103	Denton	10/6/00
Shoulder Belt Load Cell	M01119	Denton	1/22/01

DUMMY, VEHICLE, AND LABORATORY INSTRUMENT CALIBRATION
INSTRUMENTS FOR DUMMY NO. 288

	INSTRUMENTS FOR PASSENGER DUMMY NO. 288		
	SERIAL NO.	MANUFACTURER	CALIBRATION DATE
Upper Right Tibia Moment X	696	Denton	12/8/00
Upper Right Tibia Moment Y	696	Denton	12/8/00
Upper Right Tibia Force Z	696	Denton	12/8/00
Lower Right Tibia Moment X	556	Denton	12/14/00
Lower Right Tibia Moment Y	556	Denton	12/14/00
Lower Right Tibia Force Z	556	Denton	12/14/00
Upper Left Tibia Moment X	705	Denton	1/10/01
Upper Left Tibia Moment Y	705	Denton	1/10/01
Upper Left Tibia Force Z	705	Denton	1/10/01
Lower Left Tibia Moment X	557	Denton	12/14/00
Lower Left Tibia Moment Y	557	Denton	12/14/00
Lower Left Tibia Force Z	557	Denton	12/14/00
Right Foot Ball Z Acceleration	AH0A5	Endevco	11/16/00
Right Heel X Acceleration	AJ9C4	Endevco	11/16/00
Right Heel Z Acceleration	AN8A4	Endevco	11/16/00
Left Foot Ball Z Acceleration	ALDD6	Endevco	11/16/00
Left Heel X Acceleration	J20392	Endevco	11/16/00
Left Heel Z Acceleration	AGT18	Endevco	11/16/00

VEHICLE INSTRUMENT CALIBRATION

	VEHICLE ACCELEROMETERS		
	SERIAL NO.	MANUFACTURER	CALIBRATION DATE
Left Rear Seat Crossmember X	F20-G11	Entran	3/21/01
Right Rear Seat Crossmember X	F11-G08	Entran	3/21/01
Top of Engine Block X	A22-F42	Entran	3/21/01
Bottom of Engine X	F07-A24	Entran	2/7/01
Left Brake Caliper X	A08-A13	Entran	2/8/01
Right Brake Caliper X	A08-A14	Entran	2/8/01
Instrument Panel X	E10-F05	Entran	3/21/01
Redundant Left Rear Seat Crossmember X	I25-F05	Entran	3/21/01
Redundant Right Rear Seat Crossmember X	K16-X10	Entran	3/21/01

	LABORATORY INSTRUMENTS		
	SERIAL NO.	MANUFACTURER	CALIBRATION DATE
Neck Bending Pendulum Accelerometer	C12885	Endevco	1/17/01
Neck Bending Head Rotary Potentiometer	018	Spectrol	10/2/00
Neck Bending Pendulum Rotary Potentiometer	019	Spectrol	10/2/00
Chest Probe Accelerometer	J14396	Endevco	1/11/01
Knee Impact Accelerometer	J14398	Endevco	1/11/01

APPENDIX E

VEHICLE OWNER'S MANUAL OCCUPANT RESTRAINT INSTRUCTIONS

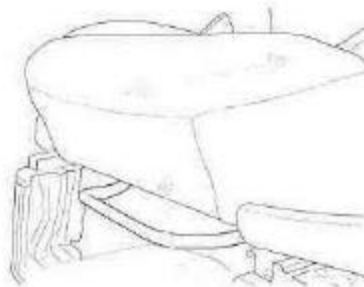
Seating and safety restraints

SEATING

Adjusting the front manual seat

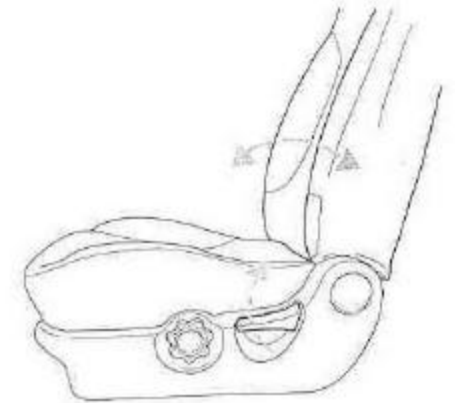
- ⚠ Never adjust the driver's seat or seatback when the vehicle is moving.
- ⚠ Do not pile cargo higher than the seatbacks to reduce the risk of injuring people in a collision or sudden stop.
- ⚠ Always drive and ride with your seatback upright and the lap belt snug and low across the hips.
- ⚠ Reclining the seatback can reduce the effectiveness of the seat's safety belt in the event of a collision.

Lift handle to move seat forward or backward.

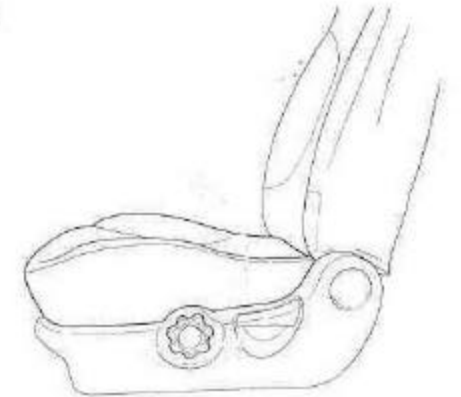


Seating and safety restraints

Pull lever up to adjust seatback.




Rotate control to raise or lower seat cushion.




Adjusting the front power seat (if equipped)

- ⚠ Never adjust the driver's seat or seatback when the vehicle is moving.
- ⚠ Do not pile cargo higher than the seatbacks to avoid injuring people in a collision or sudden stop.

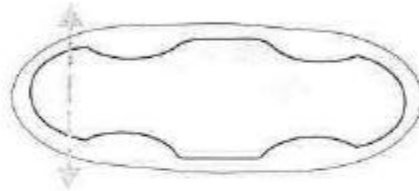
Seating and safety restraints

 Always drive and ride with your seatback upright and the lap belt snug and low across the hips.

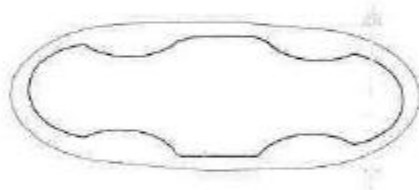
 Reclining the seatback can reduce the effectiveness of the seat's safety belt in the event of a collision.

The control is located on the outboard side of the seat cushion.

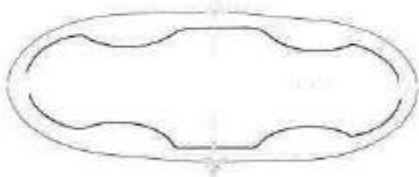
Press front to raise or lower the front portion of the seat cushion.



Press rear to raise or lower the rear portion of the seat cushion.



Press the control to move the seat forward, backward, up or down.



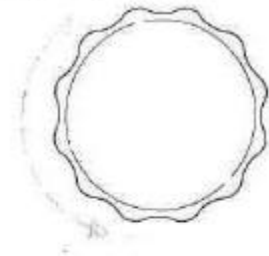
Seating and safety restraints

Using the manual lumbar support (if equipped)

The lumbar support control is located on the inboard side of the driver's seat.

Turn the lumbar support control clockwise to increase firmness.

Turn the lumbar support control counterclockwise to increase softness.

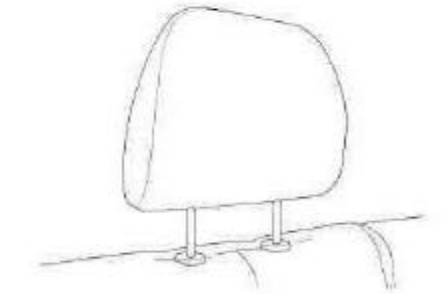


REAR SEATS

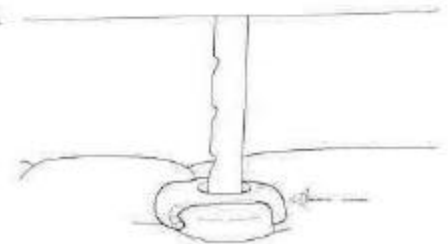
Head restraints

Your vehicle's seats may be equipped with head restraints which are vertically adjustable. The purpose of these head restraints is to help limit head motion in the event of a rear collision. To properly adjust your head restraints, lift the head restraint so that it is located directly behind your head or as close to that position as possible. Refer to the following to raise and lower the head restraints.

The head restraints can be moved up and down.



Push control to lower head restraint.



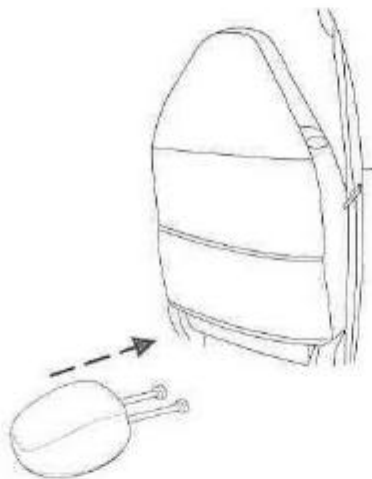
Seating and safety restraints

Folding down rear seats

1. Raise the rear seat head restraint and remove.

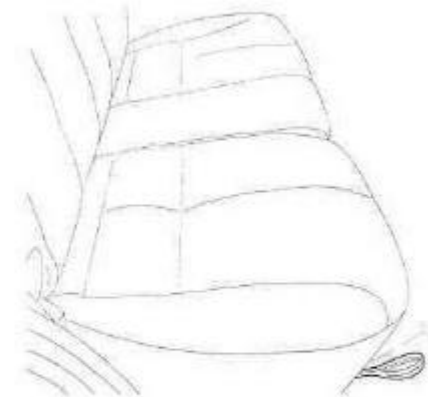


2. Place the head restraint under the front seat for storage.



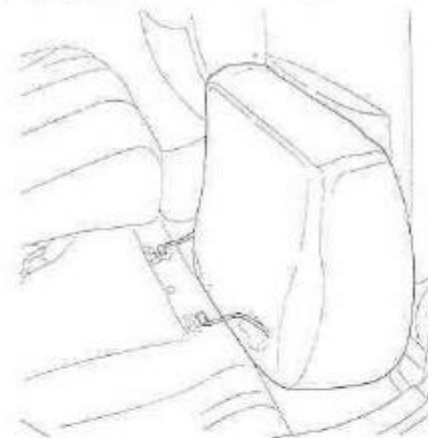
Seating and safety restraints

3. Pull the seat release control.



NOTE: Make sure the floor is clear of all objects before folding the seat.

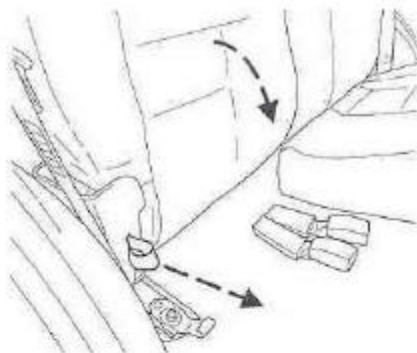
4. Flip seat forward.



Seating and safety restraints

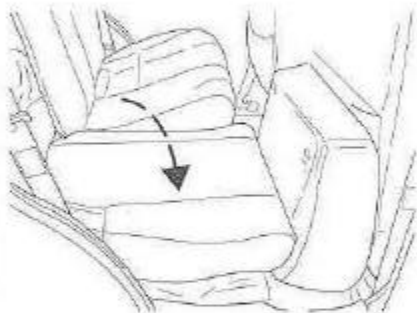
5. Pull the seatback release strap toward the front seat. Make sure the seat belt buckle heads are fully extended towards the front of the vehicle and are away from the seatback.

NOTE: When the seatback release strap is pulled use your other hand to guide the seatback.



6. Rotate seatback down into load floor position.

! Make sure seat belt buckle heads are not trapped underneath the seatback and that the seat belt buckle heads are fully extended towards the front of the vehicle. Seat belt buckle heads may break if they are trapped underneath the seatback as the seatback is rotated down.



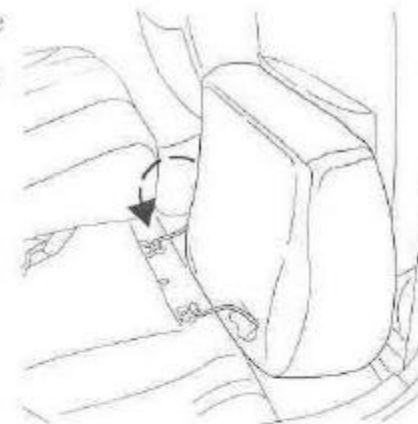
Returning the rear seats to upright position

1. Pull seatback up and into upright position making sure seatback locks into place. While holding the seatback, pull the release and push seatback backward into the desired position.

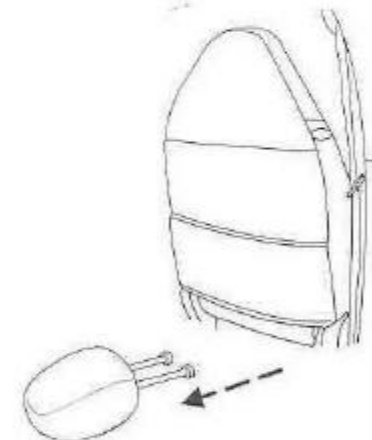


Seating and safety restraints

2. Rotate seat cushion down into the seating position making sure that the seat cushion is locked into place and that the seat belt buckles are exposed.



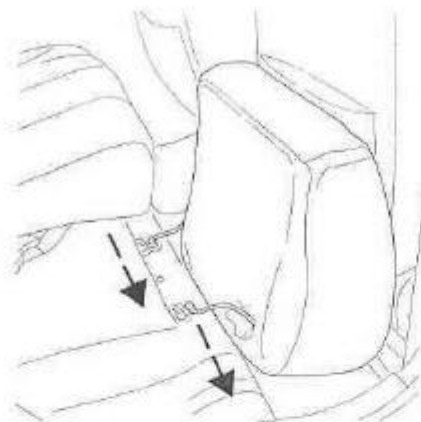
3. Remove the head restraint stored under the front seat and return it to the original position on the seat back.



Seating and safety restraints

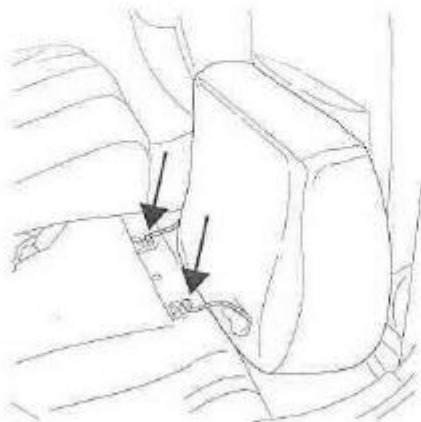
To remove the rear cushion

1. Pull the Yellow tab
2. Pull the cushion to the outboard side of the vehicle.



To install the rear cushion

1. Push the cushion to the inboard side of the vehicle.
2. Make sure that the hinges are locked into place.



Seating and safety restraints

SAFETY RESTRAINTS

Safety restraints precautions

- ⚠ Always drive and ride with your seatback upright and the lap belt snug and low across the hips.
- ⚠ To reduce the risk of injury, make sure children sit where they can be properly restrained.
- ⚠ Never let a passenger hold a child on his or her lap while the vehicle is moving. The passenger cannot protect the child from injury in a collision.
- ⚠ All occupants of the vehicle, including the driver, should always properly wear their safety belts, even when an air bag SRS is provided.
- ⚠ It is extremely dangerous to ride in a cargo area, inside or outside of a vehicle. In a collision, people riding in these areas are more likely to be seriously injured or killed. Do not allow people to ride in any area of your vehicle that is not equipped with seats and safety belts. Be sure everyone in your vehicle is in a seat and using a safety belt properly.
- ⚠ In a rollover crash, an unbelted person is significantly more likely to die than a person wearing a safety belt.
- ⚠ Each seating position in your vehicle has a specific safety belt assembly which is made up of one buckle and one tongue that are designed to be used as a pair. 1) Use the shoulder belt on the outside shoulder only. Never wear the shoulder belt under the arm. 2) Never swing the safety belt around your neck over the inside shoulder. 3) Never use a single belt for more than one person.

Seating and safety restraints

- ⚠ Always transport children 12 years old and under in the back seat and always properly use appropriate child restraints.

Energy Management Feature

- This vehicle has a safety belt system with an energy management feature at the front passenger seating position to help further reduce the risk of injury in the event of a head-on collision.
- This safety belt system has a retractor assembly that is designed to pay out webbing in a controlled manner. This feature is designed to help reduce the belt force acting on the occupant's chest.

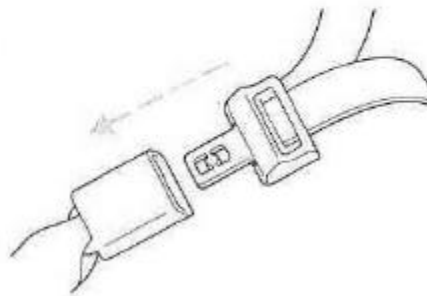
- ⚠ After any vehicle collision, the safety belt system at all outboard seating positions (except driver, which has no "automatic locking retractor" feature) must be checked by a qualified technician to verify that the "automatic locking retractor" feature for child seats is still functioning properly. In addition, all safety belts should be checked for proper function.

- ⚠ BELT AND RETRACTOR ASSEMBLY MUST BE REPLACED if the safety belt assembly "automatic locking retractor" feature or any other safety belt function is not operating properly when checked according to the procedures in Workshop Manual.

- ⚠ Failure to replace the Belt and Retractor assembly could increase the risk of injury in collisions.

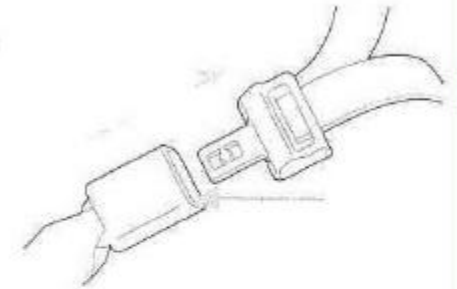
Combination lap and shoulder belts

1. Insert the belt tongue into the proper buckle (the buckle closest to the direction the tongue is coming from) until you hear a snap and feel it latch. Make sure the tongue is securely fastened in the buckle.



Seating and safety restraints

2. To unfasten, push the release button and remove the tongue from the buckle.



The front and rear outboard safety restraints in the vehicle are combination lap and shoulder belts. The front passenger and rear seat outboard safety belts have two types of locking modes described below:

Vehicle sensitive mode

The vehicle sensitive mode is the normal retractor mode, allowing free-shoulder belt length adjustment to your movements and locking in response to vehicle movement. For example, if the driver brakes suddenly or turns a corner sharply, or the vehicle receives an impact of approximately 8 km/h (5 mph) or more, the combination safety belts will lock to help reduce forward movement of the driver and passengers.

Automatic locking mode

In this mode, the shoulder belt is automatically pre-locked. The belt will still retract to remove any slack in the shoulder belt.

The automatic locking mode is not available on the driver safety belt.

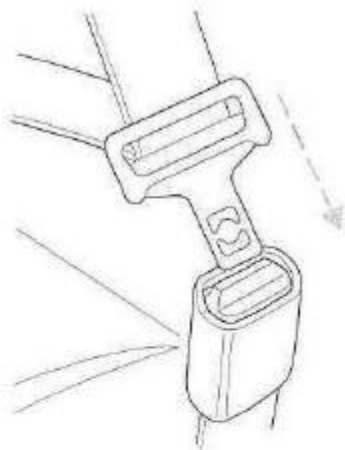
When to use the automatic locking mode

- **Anytime** a child safety seat is installed in a passenger front or outboard rear seating position (if equipped). Children 12 years old and under should be properly restrained in the rear seat whenever possible. Refer to *Safety Restraints for Children* or *Safety Seats for Children* later in this chapter.

Seating and safety restraints

How to use the automatic locking mode

- Buckle the combination lap and shoulder belt.



- Grasp the shoulder portion and pull downward until the entire belt is extracted.



- Allow the belt to retract. As the belt retracts, you will hear a clicking sound. This indicates the safety belt is now in the automatic locking mode.

How to disengage the automatic locking mode

Disconnect the combination lap/shoulder belt and allow it to retract completely to disengage the automatic locking mode and activate the vehicle sensitive (emergency) locking mode.

Seating and safety restraints

! After any vehicle collision, the front passenger outboard seat belt system must be checked by a qualified technician to verify that the "automatic locking retractor" feature for child seats is still functioning properly. In addition, all seat belts should be checked for proper function.

! BELT AND RETRACTOR ASSEMBLY MUST BE REPLACED if the seat belt assembly "automatic locking retractor" feature or any other seat belt function is not operating properly when checked according to the procedures in Workshop Manual.

! Failure to replace the Belt and Retractor assembly could increase the risk of injury in collisions.

Front safety belt height adjustment

Your vehicle has safety belt height adjustments for the driver and front passenger. Adjust the height of the shoulder belt so the belt rests across the middle of your shoulder.

To lower the shoulder belt height, push the button and slide the height adjuster down. To raise the height of the shoulder belt, slide the height adjuster up. Pull down on the height adjuster to make sure it is locked in place.

! Position the shoulder belt height adjusters so that the belt rests across the middle of your shoulder. Failure to adjust the safety belt properly could reduce the effectiveness of the seat belt and increase the risk of injury in a collision.




Seating and safety restraints

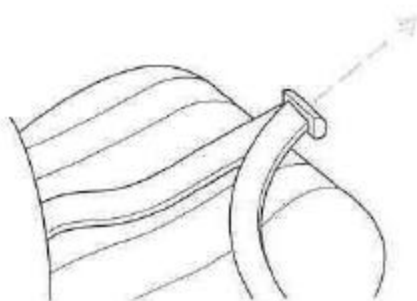
Lap belts

Adjusting the center lap belt

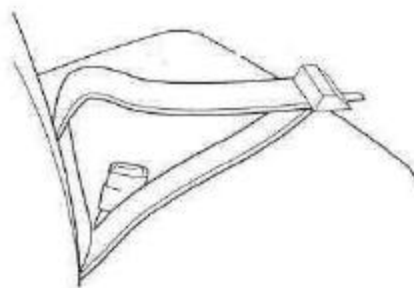
The lap belt does not adjust automatically.

 The lap belt should fit snugly and as low as possible around the hips, not across the waist.

Insert the tongue into the correct buckle (the buckle closest to the direction the tongue is coming from). To lengthen the belt, turn the tongue at a right angle to the belt and pull across your lap until it reaches the buckle. To tighten the belt, pull the loose end of the belt through the tongue until it fits snugly across the hips.



Shorten and fasten the belt when not in use.



Safety belt extension assembly

If the safety belt assembly is too short for you, even when fully extended, 20 cm (8 inches) can be added to the safety belt assembly by adding a safety belt extension assembly (part number 611C22). Safety belt extension assemblies can be obtained from your dealer at no cost.

Use only extensions manufactured by the same supplier as the safety belt. Manufacturer identification is located at the end of the webbing on the label. Also, use the safety belt extension only if the safety belt is too short for you when fully extended. Do not use extensions to change the fit of the shoulder belt across the torso.

Seating and safety restraints

Safety belt warning light and indicator chime

The seat belt warning light illuminates in the instrument cluster and a chime sounds to remind the occupants to fasten their safety belts.

Conditions of operation

If...	Then...
The driver's safety belt is not buckled before the ignition switch is turned to the ON position...	The safety belt warning light illuminates 1 minute and the warning chime sounds 6 seconds.
The driver's safety belt is buckled while the indicator light is illuminated and the warning chime is sounding...	The safety belt warning light and warning chime turn off.
The driver's safety belt is buckled before the ignition switch is turned to the ON position...	The safety belt warning light and indicator chime remain off.

Belt minder

The Belt Minder feature is a supplemental warning to the safety belt warning function. This feature provides additional reminders to the driver that the driver's safety belt is unbuckled by intermittently sounding a chime and illuminating the safety belt warning lamp in the instrument cluster.

If...	Then...
The driver's safety belt is not buckled approximately 5 seconds after the safety belt warning light has turned off and vehicle speed exceeds 8km/h (3 mph)...	The Belt Minder feature is activated - the safety belt warning light illuminates and the warning chime sounds for 6 seconds every 30 seconds, repeating for approximately 5 minutes or until safety belt is buckled.
The driver's safety belt is buckled while the safety belt indicator light is illuminated and the safety belt warning chime is sounding...	The Belt Minder feature will not activate.
The driver's safety belt is buckled before the ignition switch is turned to the ON position...	The Belt Minder feature will not activate.

Seating and safety restraints

The purpose of the Belt Minder is to remind occasional wearers to wear safety belts all of the time.

The following are reasons most often given for not wearing safety belts: (All statistics based on U.S. data)

Reasons given...	Consider...
"Crashes are rare events"	36 700 crashes occur every day. The more we drive, the more we are exposed to "rare" events, even for good drivers. <i>1 in 4 of us will be seriously injured in a crash during our lifetime.</i>
"I'm not going far"	3 of 4 fatal crashes occur within 25 miles of home.
"Belts are uncomfortable"	Ford designs its safety belts to enhance comfort. If you are uncomfortable - try different positions for the safety belt upper anchorage and seatback which should be as upright as possible; this can improve comfort.
"I was in a hurry"	Prime time for an accident. Belt Minder reminds us to take a few seconds to buckle up.
"Seat belts don't work"	Safety belts, when used properly, reduce risk of death to front seat occupants by 45% in cars, and by 60% in light trucks.
"Traffic is light"	Nearly 1 of 2 deaths occur in single-vehicle crashes, many when no other vehicles are around.
"Belts wrinkle my clothes"	Possibly, but a serious crash can do much more than wrinkle your clothes, particularly if you are unbelted.
"The people I'm with don't wear belts"	Set the example, teen deaths occur 4 times more often in vehicles with TWO or MORE people. Children and younger brothers/sisters imitate behavior they see.
"I have an air bag"	Air bags offer greater protection when used with safety belts. Frontal airbags are not designed to inflate in rear and side crashes or rollovers.
"I'd rather be thrown clear"	Not a good idea. People who are ejected are 40 times more likely to DIE. Safety belts help prevent ejection. WE CAN'T "PICK OUR CRASH".

Seating and safety restraints



Do not sit on top of a buckled safety belt to avoid the Belt Minder chime. Sitting on the safety belt will increase the risk of injury in an accident. To disable (one-time) or deactivate the Belt Minder feature please follow the directions stated below.

One time disable

Anytime the safety belt is buckled and then unbuckled during an ignition ON cycle, Belt Minder will be disabled for that ignition cycle only.

Deactivating/activating the belt minder feature

Read steps 1 - 9 thoroughly before proceeding with the deactivation/activation programming procedure.

The Belt Minder feature can be deactivated/activated by performing the following procedure:

Before following the procedure, make sure that:

- the parking brake is set
- the gearshift is in P (Park) (automatic transmission) or the neutral position (manual transmission).
- the ignition switch is in the OFF position
- all vehicle doors are closed
- the driver's safety belt is unbuckled
- the parklamps/headlamps are in OFF position (If vehicle is equipped with Autolamps, this will not affect the procedure.)



To reduce the risk of injury, do not deactivate/activate the Belt Minder feature while driving the vehicle.


1. Turn the ignition switch to the RUN (or ON) position. (DO NOT START THE ENGINE)
2. Wait until the safety belt warning light turns off. (Approximately 1-2 minutes)
 - Steps 3-5 must be completed within 60 seconds or the procedure will have to be repeated.
3. Uncoil then retract the safety belt three times, ending with the safety belt retracted. This can be done before or during Belt Minder warning activation.

Seating and safety restraints

4. Turn on the parklamps/headlamps, turn off the parklamps/headlamps.
5. Uncoil then retract the safety belt three times, ending with the safety belt retracted.
 - After step 5 the safety belt warning light will be turned on for three seconds.
6. Within seven seconds of the safety belt warning light turning off, uncoil then retract the safety belt.
 - This will disable Belt Minder if it is currently enabled, or enable Belt Minder if it is currently disabled.
7. Confirmation of disabling Belt Minder is provided by flashing the safety belt warning light four times per second for three seconds.
8. Confirmation of enabling Belt Minder is provided by flashing the safety belt warning light four times per second for three seconds, followed by three seconds with the safety belt warning light off, then followed by flashing the safety belt warning light four times per second for three seconds again.
9. After receiving confirmation, the deactivation/activation procedure is complete.

Safety belt maintenance

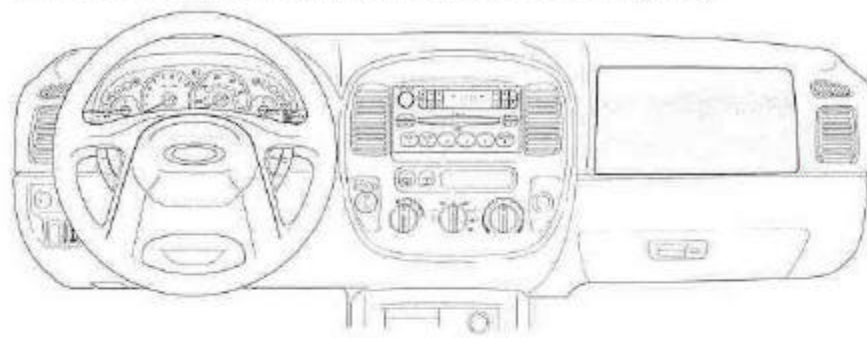
Inspect the safety belt systems periodically to make sure they work properly and are not damaged. Inspect the safety belts to make sure there are no nicks, wears or cuts, replacing if necessary. All safety belt assemblies, including retractors, buckles, front seat belt buckle assemblies, buckle support assemblies (slide bar-if equipped), shoulder belt height adjusters (if equipped), shoulder belt guide on seatback (if equipped), child safety seat tether bracket assemblies (if equipped), and attaching hardware, should be inspected after a collision. Ford recommends that all safety belt assemblies used in vehicles involved in a collision be replaced. However, if the collision was minor and a qualified technician finds that the belts do not show damage and continue to operate properly, they do not need to be replaced. Safety belt assemblies not in use during a collision should also be inspected and replaced if either damage or improper operation is noted.

 Failure to inspect and if necessary replace the safety belt assembly under the above conditions could result in severe personal injuries in the event of a collision.

Seating and safety restraints

Refer to *Cleaning and maintaining the safety belts* in the *Maintenance and care* section.

AIR BAG SUPPLEMENTAL RESTRAINT SYSTEM (SRS)



Your vehicle is equipped with a crash sensing and diagnostic module which records information about the air bag and sensor systems. In the event of a collision this module may save information related to the collision including information about the air bag system and impact severity. This information will assist Ford in the servicing of your vehicle and may help Ford better understand real world collisions and further improve the safety of future vehicles.

Important supplemental restraint system (SRS) precautions

The supplemental restraint system is designed to work with the safety belt to help protect the driver and right front passenger from certain upper body injuries.

Air bags DO NOT inflate slowly or gently and the risk of injury from a deploying air bag is greatest close to the trim covering the air bag module.



Seating and safety restraints

! All occupants of the vehicle, including the driver, should always properly wear their safety belts, even when an air bag SRS is provided.

! Always transport children 12 years old and under in the back seat and always properly use appropriate child restraints.

! National Highway Traffic Safety Administration (NHTSA) recommends a minimum distance of at least 25 cm (10 inches) between an occupant's chest and the driver air bag module.

! Never place your arm over the air bag module as a deploying air bag can result in serious arm fractures or other injuries.

Steps you can take to properly position yourself away from the air bag:

- Move your seat to the rear as far as you can while still reaching the pedals comfortably.
- Recline the seat slightly (one or two degrees) from the upright position.

! Do not put anything on or over the air bag module. Placing objects on or over the air bag inflation area may cause those objects to be propelled by the air bag into your face and torso causing serious injury.

! Do not attempt to service, repair, or modify the Air Bag Supplemental Restraint System or its fuses. See your Ford or Lincoln Mercury dealer.

! Modifications to the front end of the vehicle, including frame, bumper, front end body structure and tow hooks may effect the performance of the air bag sensors increasing the risk of injury. Do not modify the front end of the vehicle.

Seating and safety restraints

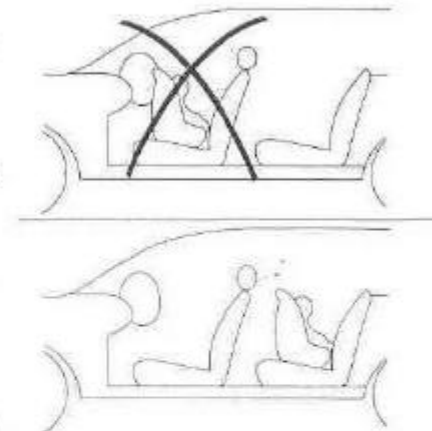
! Additional equipment may effect the performance of the air bag sensors increasing the risk of injury. Please refer to the Body Builders Layout Book for instructions about the appropriate installation of additional equipment.

Children and air bags

For additional important safety information, read all information on safety restraints in this guide.

Children must always be properly restrained. Accident statistics suggest that children are safer when properly restrained in the rear seating positions than in the front seating position. Failure to follow these instructions may increase the risk of injury in a collision.

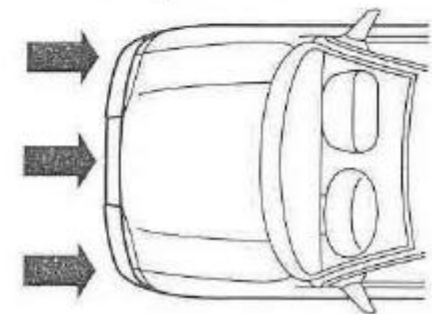
! Air bags can kill or injure a child in a child seat. **NEVER** place a rear-facing child seat in front of an active air bag. If you must use a forward-facing child seat in the front seat, move the seat all the way back.



How does the air bag supplemental restraint system work?

The air bag SRS is designed to activate when the vehicle sustains longitudinal deceleration sufficient to cause the sensors to close an electrical circuit that initiates air bag inflation.

The fact that the air bags did not inflate in a collision does not mean that something is wrong with the system. Rather, it means the forces were not of the type sufficient to



Seating and safety restraints

cause activation. Air bags are designed to inflate in frontal and near-frontal collisions, not rollover, side-impact, or rear-impacts unless the collision causes sufficient longitudinal deceleration.

The air bags inflate and deflate rapidly upon activation. After air bag deployment, it is normal to notice a smoke-like, powdery residue or smell the burnt propellant. This may consist of cornstarch, talcum powder (to lubricate the bag) or sodium compounds (e.g., baking soda) that result from the combustion process that inflates the air bag. Small amounts of sodium hydroxide may be present which may irritate the skin and eyes, but none of the residue is toxic.

While the system is designed to help reduce serious injuries, contact with a deploying air bag may also cause abrasions, swelling or temporary hearing loss. Because air bags must inflate rapidly and with considerable force, there is the risk of death or serious injuries such as fractures, facial and eye injuries or internal injuries, particularly to occupants who are not properly restrained or are otherwise out of position at the time of air bag deployment. Thus, it is extremely important that occupants be properly restrained as far away from the air bag module as possible while maintaining vehicle control.

The SRS consists of:

- driver and passenger air bag modules (which include the inflators and air bags),
- one or more impact and safing sensors,
- a readiness light and tone
- a diagnostic module
- and the electrical wiring which connects the components.

The diagnostic module monitors its own internal circuits and the supplemental air bag electrical system warning (including the impact sensors), the system wiring, the air bag system readiness light, the air bag back up power and the air bag igniters.



Seating and safety restraints



Several air bag system components get hot after inflation. Do not touch them after inflation.



If the air bag has deployed, **the air bag will not function again and must be replaced immediately.** If the air bag is not replaced, the unrepaired area will increase the risk of injury in a collision.

Determining if the system is operational

The SRS uses a readiness light in the instrument cluster or a tone to indicate the condition of the system. Refer to the *Air bag readiness* section in the *Instrumentation* chapter. Routine maintenance of the air bag is not required.

A difficulty with the system is indicated by one or more of the following:

- The readiness light will either flash or stay lit.
- The readiness light will not illuminate immediately after ignition is turned on.
- A series of five beeps will be heard. The tone pattern will repeat periodically until the problem and/or light are repaired.



If any of these things happen, even intermittently, have the SRS serviced at your dealership or by a qualified technician immediately. Unless serviced, the system may not function properly in the event of a collision.

Side air bag system (if equipped)



Do not place objects or mount equipment on or near the air bag cover on the side of the seatbacks of the front seats or in front seat areas that may come into contact with a deploying air bag. Failure to follow these instructions may increase the risk of personal injury in the event of a collision.

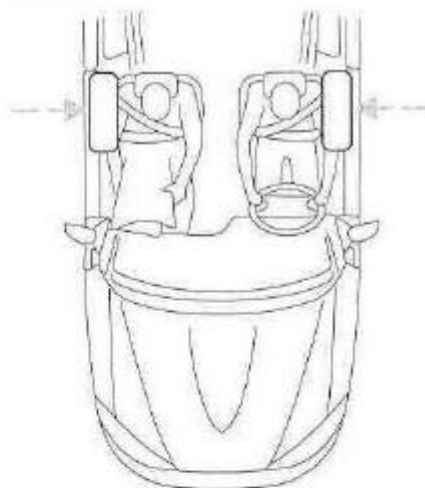
Seating and safety restraints

- ⚠ Do not use accessory seat covers. The use of accessory seat covers may prevent the deployment of the side air bags and increase the risk of injury in an accident.
- ⚠ Do not lean your head on the door. The side air bag could injure you as it deploys from the side of the seatback.
- ⚠ Do not attempt to service, repair, or modify the air bag Supplemental Restraint System, its fuses or the seat cover on a seat containing an air bag. See your Ford or Lincoln Mercury dealer.
- ⚠ All occupants of the vehicle including the driver should always wear their safety belts even when an air bag SRS is provided.

How does the side air bag system work?

The side air bag system consists of the following:

- An inflatable nylon bag (air bag) with a gas generator concealed behind the outboard bolster of the driver and front passenger seatbacks.
- A special seat cover designed to allow airbag deployment.
- The same warning light, electronic control and diagnostic unit as used for the front air bags.
- The two side sensors are located on the lower portion of the b-pillar.



Side air bags, in combination with seat belts, can help reduce the risk of severe injuries in the event of a significant side impact collision.

The side air bags are fitted on the outboard side of the seatbacks of the front seats. In certain lateral collisions, the air bag on the side affected by the collision will be inflated, even if the respective seat is not

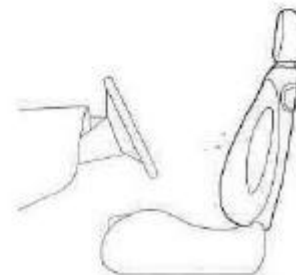
Seating and safety restraints

occupied. The air bag was designed to inflate between the door panel and occupant to further enhance the protection provided occupants in side impact collisions.

The air bag SRS is designed to activate when the vehicle sustains lateral deceleration sufficient to cause the sensors to close an electrical circuit that initiates air bag inflation.

The fact that the air bags did not inflate in a collision does not mean that something is wrong with the system. Rather, it means the forces were not of the type sufficient to cause activation. Side air bags are designed to inflate in side-impact collisions, not roll-over, rear-impact, frontal or near-frontal collisions, unless the collision causes sufficient lateral deceleration.

- ⚠ Several air bag system components get hot after inflation. Do not touch them after inflation.



- ⚠ If the side air bag has deployed, the air bag will not function again. The side air bag system (including the seat) must be inspected and serviced by a qualified technician in accordance with the vehicle service manual. If the air bag is not replaced, the unrepaired area will increase the risk of injury in a collision.

Determining if the system is operational

The SRS uses a readiness light in the instrument cluster or a tone to indicate the condition of the system. Refer to the *Air bag readiness* section in the *Instrumentation* chapter. Routine maintenance of the air bag is not required.

A difficulty with the system is indicated by one or more of the following:

- The readiness light (same light as for front air bag system) will either flash or stay lit.

Seating and safety restraints

- The readiness light will not illuminate immediately after ignition is turned on.
- A series of five beeps will be heard. The tone pattern will repeat periodically until the problem and light are repaired.

If any of these things happen, even intermittently, have the SRS serviced at your dealership or by a qualified technician immediately. Unless serviced, the system may not function properly in the event of a collision.

Disposal of air bags and air bag equipped vehicles (including pretensioners)


For disposal of air bags or air bag equipped vehicles, see your local dealership or qualified technician. Air bags **MUST BE** disposed of by qualified personnel.

SAFETY RESTRAINTS FOR CHILDREN

See the following sections for directions on how to properly use safety restraints for children. Also see *Air Bag Supplemental Restraint System (SRS)* in this chapter for special instructions about using air bags.

Important child restraint precautions

You are required by law to use safety restraints for children in the U.S. and Canada. If small children ride in your vehicle (generally children who are four years old or younger and who weigh 18 kg [40 lbs] or less), you must put them in safety seats made especially for children. Check your local and state or provincial laws for specific requirements regarding the safety of children in your vehicle.

 Never let a passenger hold a child on his or her lap while the vehicle is moving. The passenger cannot protect the child from injury in a collision.

Always follow the instructions and warnings that come with any infant or child restraint you might use.

When possible, always place children under age 12 in the rear seat of your vehicle. Accident statistics suggest that children are safer when properly restrained in the rear seating positions than in the front seating position.

Seating and safety restraints


Children and safety belts

If the child is the proper size, restrain the child in a safety seat.

Children who are too large for child safety seats (as specified by your child safety seat manufacturer) should always wear safety belts.

Follow all the important safety restraint and air bag precautions that apply to adult passengers in your vehicle.

If the shoulder belt portion of a combination lap and shoulder belt can be positioned so it does not cross or rest in front of the child's face or neck, the child should wear the lap and shoulder belt. Moving the child closer to the center of the vehicle may help provide a good shoulder belt fit.

 Do not leave children, unreliable adults, or pets unattended in your vehicle.

To improve the fit of lap and shoulder belts on children who have outgrown child safety seats, Ford recommends use of a belt-positioning booster seat that is labelled as conforming to all applicable Federal motor vehicle safety standards. Belt-positioning booster seats raise the child and provide a shorter, firmer seating cushion that encourages safer seating posture and better fit of lap and shoulder belts on the child.

A belt-positioning booster should be used if the shoulder belt rests in front of the child's face or neck, or if the lap belt does not fit snugly on both thighs, or if the thighs are too short to let the child sit all the way back on the seat cushion when the lower legs hang over the edge of the seat cushion. You may wish to discuss the special needs of your child with your pediatrician.

SAFETY SEATS FOR CHILDREN



Seating and safety restraints


Child and infant or child safety seats

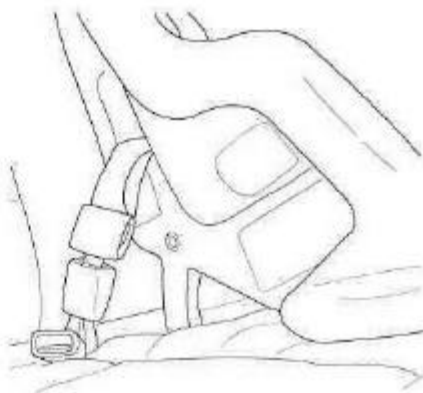
Use a safety seat that is recommended for the size and weight of the child. Carefully follow all of the manufacturer's instructions with the safety seat you put in your vehicle. If you do not install and use the safety seat properly, the child may be injured in a sudden stop or collision.

When installing a child safety seat:

- Review and follow the information presented in the *Air Bag Supplemental Restraint System* section in this chapter.
- Use the correct safety belt buckle for that seating position (the buckle closest to the direction the tongue is coming from).
- Insert the belt tongue into the proper buckle until you hear a snap and feel it latch. Make sure the tongue is securely fastened in the buckle.
- Keep the buckle release button pointing up and away from the safety seat, with the tongue between the child seat and the release button, to prevent accidental unbuckling.
- Place seat back in upright position.
- Put the safety belt in the automatic locking mode. Refer to *Automatic locking mode* (passenger side front and outboard rear seating positions) (if equipped).

Ford recommends the use of a child safety seat having a top tether strap. Install the child safety seat in a seating position which is capable of providing a tether anchorage. For more information on top tether straps, refer to *Attaching safety seats with tether straps*.


 Carefully follow all of the manufacturer's instructions included with the safety seat you put in your vehicle. If you do not install and use the safety seat properly, the child may be injured in a sudden stop or collision.



Seating and safety restraints


Installing child safety seats in combination lap and shoulder belt seating positions

The rear seat head restraints must be removed when using a child seat.

 Air bags can kill or injure a child in a child seat. **NEVER** place a rear-facing child seat in front of an active air bag. If you must use a forward-facing child seat in the front seat, move the seat all the way back.

1. Position the child safety seat in a seat with a combination lap and shoulder belt.



 Children 12 and under should be properly restrained in the rear seat whenever possible.

2. Pull down on the shoulder belt and then grasp the shoulder belt and lap belt together.



Seating and safety restraints

3. While holding the shoulder and lap belt portions together, route the tongue through the child seat according to the child seat manufacturer's instructions. Be sure the belt webbing is not twisted.



4. Insert the belt tongue into the proper buckle (the buckle closest to the direction the tongue is coming from) for that seating position until you hear a snap and feel the latch engage. Make sure the tongue is latched securely by pulling on it.



5. To put the retractor in the automatic locking mode, grasp the shoulder portion of the belt and pull downward until all of the belt is extracted and a click is heard.



6. Allow the belt to retract. The belt will click as it retracts to indicate it is in the automatic locking mode.

Seating and safety restraints

7. Pull the lap belt portion across the child seat toward the buckle and pull up on the shoulder belt while pushing down with your knee on the child seat.



8. Allow the safety belt to retract to remove any slack in the belt.

9. Before placing the child in the seat, forcibly tilt the seat forward and back to make sure the seat is securely held in place.



10. Try to pull the belt out of the retractor to make sure the retractor is in the automatic locking mode (you should not be able to pull more belt out). If the retractor is not locked, unbuckle the belt and repeat steps two through nine.

Check to make sure the child seat is properly secured before each use.

Attaching child safety seats with tether straps


Most new forward-facing child safety seats include a tether strap which goes over the back of the seat and hooks to an anchoring point. Tether straps are available as an accessory for many older safety seats. Contact the manufacturer of your child seat for information about ordering a tether strap.

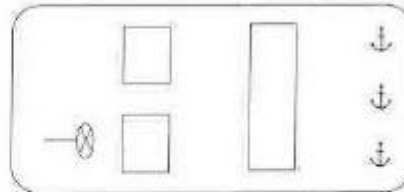
The rear seats of your vehicle are equipped with built-in tether strap anchors located behind the seats as described below.

The tether anchors in your vehicle are located on the roof panel in the cargo area.

Seating and safety restraints

The tether strap anchors in your vehicle are in the following positions:

 Attach the tether strap only to the appropriate tether anchor as shown. The tether strap may not work properly if attached somewhere other than the correct tether anchor.

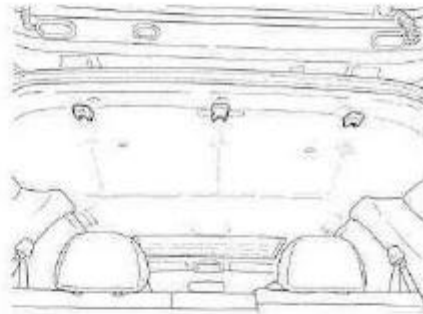


1. Position the child safety seat on the seat cushion.
2. Route the child safety seat tether strap over the back of the seat.

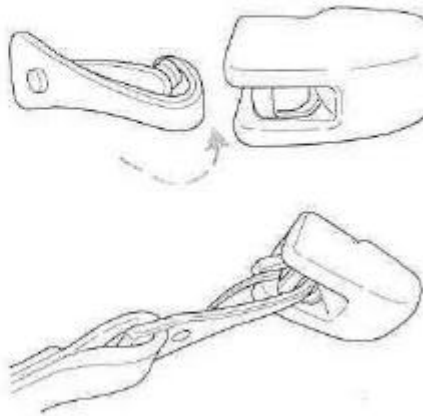
For vehicles with adjustable head restraints, route the tether strap under the head restraint and between the head restraint posts, otherwise route the tether strap over the top of the seatback.

3. Locate the correct anchor for the selected seating position.


There are three tether anchors located on the headliner at the rear of the vehicle.




4. Clip the tether strap to the anchor as shown.



Seating and safety restraints

 If the tether strap is clipped incorrectly, the child safety seat may not be retained properly in the event of a collision.

5. Refer to the *Installing child safety seats in combination lap and shoulder belt seating positions* section of this chapter for further instructions to secure the child safety seat.
6. Tighten the child safety seat tether strap according to the manufacturer's instructions.

 If the safety seat is not anchored properly, the risk of a child being injured in a collision greatly increases.

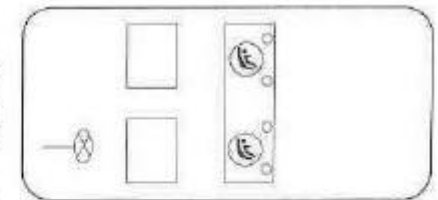
Attaching child safety seats with Lower Anchor and Tethers for Children (LATCH) attachments for child seat anchors


Some child safety seats are labeled as LATCH or LATCH-compatible child seats. These seats include two rigid or webbing mounted attachments that connect to two anchors at specific seating positions in your vehicle. This type of child seat eliminates the need to use seat belts to attach the child seat. For forward-facing child seats, the tether strap must also be attached to the proper tether anchor point. For information on using tether straps with the child safety seats, refer to *Attaching safety seats with tether straps* in this chapter.

LATCH anchors for child seat installation have been provided in your vehicle at the following locations:

The anchors at the center of the rear seat are further apart than the sets of lower anchors for child seat installation at other seating positions.

A child seat with rigid LATCH attachments cannot be installed at this seating position. LATCH compatible child seat (with attachments on belt webbing) can be used at this seating position only if the child seat instructions state that the child seat can be installed to anchors that are 500 mm apart. Do not attach a child seat to any lower anchor if an adjacent child seat is attached to that anchor.

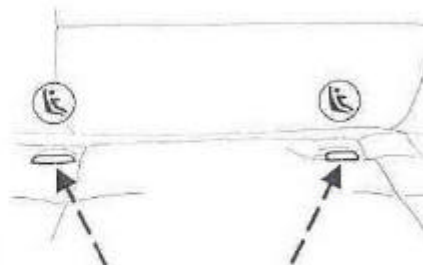


 Do not attach a child seat to any lower anchors used for child seat installation if an adjacent child seat is attached to that anchor. In a crash, one anchor may not be strong enough to hold two child seat attachments and may break, causing serious injury or death.

Seating and safety restraints

The lower anchors for child seat installation are located at the rear section of the rear seat between the cushion and seat back. Each lower anchor for child seat installation is located 2-3 inches below the locator symbols.

Follow the child seat manufacturer's instructions to properly install safety seats with LATCH lower anchors and LATCH-compatible attachments.



! Attach the lower anchors for child seat installation or lower anchors for child seat installation-compatible child seat only to the appropriate locations shown.

If you install a child seat with rigid LATCH attachments, do not tighten the tether strap enough to lift the child seat off the seat when the child is seated in it. Keep the tether strap just snug without raising the front of the child seat. Keeping the child seat just touching the front of the vehicle seat gives the best protection in a severe crash. Once you have installed the lower anchors for child seat installation safety seat, assure that the seat is properly attached to the lower anchors for child seat installation and tether anchors. Also, test the safety seat before you place the child in it. Tilt the seat from side to side. Also try to tug the seat forward. Check to see if the anchors hold the seat in place.

! If the safety seat is not anchored properly, the risk of a child being injured in a collision greatly increases.