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V30710

REPORT NUMBER 214-CAL-01-9

**SAFETY COMPLIANCE TESTING FOR FMVSS 214
SIDE IMPACT PROTECTION
INDICANT**

KIA MOTORS CO
2001 KIA RIO
4-DOOR SEDAN

NHTSA NUMBER C10510

VERIDIAN ENGINEERING
TRANSPORTATION SCIENCES CENTER
P O BOX 400
BUFFALO, NEW YORK 14225



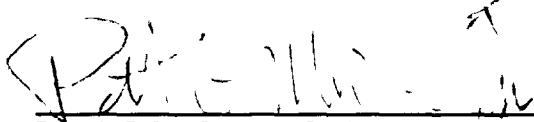
March 6, 2001

FINAL REPORT


U S DEPARTMENT OF TRANSPORTATION
National Highway Traffic Safety Administration
Safety Assurance
Office of Vehicle Compliance
400 Seventh Street, SW
Room 6111 (NSA-30)
Washington, DC 20590

This Final Test Report was prepared for the U S Department of Transportation, National Highway Traffic Safety Administration, under Contract No DTNH22-97-C-01033 This publication is distributed by the U S Department of Transportation, National Highway Traffic Safety Administration, in the interest of information exchange The opinions, findings and conclusions expressed in this publication are those of the author(s) and not necessarily those of the Department of Transportation or the National Highway Traffic Safety Administration The United States Government assumes no liability for its contents or use thereof If trade or manufactures' names or products are mentioned, it is only because they are considered essential to the object of the publication and should not be construed as an endorsement The United States Government does not endorse products or manufacturers

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15 Supplementary Notes																																	
16 Abstract <p>A 55/28 kph 90° Side Impact (Moving Deformable Barrier) Indicant Test was conducted on the subject 2001 Kia Rio 4-Door Sedan This test was performed at the New Car Assessment Program (NCAP) target test velocity of 62.0 kph, which is 8 kph faster than the target velocity required by the Office of Vehicle Safety Compliance's Laboratory Test Procedure (TP-214D-04, dated September 1, 1995) This test was conducted at the Veridian Engineering Crash Test Facility in Buffalo, New York, on March 6, 2001</p> <p>The impact velocity of the Moving Deformable Barrier (MDB) was 61.48 kph, and the ambient temperature at the struck (driver's) side of the target vehicle at the time of impact was 21 °C The target vehicle post-test maximum crush was 363 mm at level 2</p> <p>The test or target vehicle's performance is given below</p> <table border="0" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 40%;"></th> <th style="width: 15%; text-align: center;"><u>Front SID</u></th> <th style="width: 10%;"></th> <th style="width: 15%; text-align: center;"><u>Rear SID</u></th> <th style="width: 10%;"></th> </tr> </thead> <tbody> <tr> <td>Left Upper Rib Acceleration</td> <td style="text-align: center;">74</td> <td style="text-align: center;">g's</td> <td style="text-align: center;">71</td> <td style="text-align: center;">g's</td> </tr> <tr> <td>Left Lower Rib Acceleration</td> <td style="text-align: center;">72</td> <td style="text-align: center;">g's</td> <td style="text-align: center;">109</td> <td style="text-align: center;">g's</td> </tr> <tr> <td>Lower Spine Acceleration</td> <td style="text-align: center;">92</td> <td style="text-align: center;">g's</td> <td style="text-align: center;">72</td> <td style="text-align: center;">g's</td> </tr> <tr> <td>Thoracic Trauma Index (TTI)</td> <td style="text-align: center;">83</td> <td style="text-align: center;">g's</td> <td style="text-align: center;">90</td> <td style="text-align: center;">g's</td> </tr> <tr> <td>Pelvis Acceleration (PEV)</td> <td style="text-align: center;">94</td> <td style="text-align: center;">g's</td> <td style="text-align: center;">73</td> <td style="text-align: center;">g's</td> </tr> </tbody> </table> <p>The two doors on the struck side of the vehicle did not separate from the body at the hinges or latches and the opposite doors did not open during the side impact event</p>					<u>Front SID</u>		<u>Rear SID</u>		Left Upper Rib Acceleration	74	g's	71	g's	Left Lower Rib Acceleration	72	g's	109	g's	Lower Spine Acceleration	92	g's	72	g's	Thoracic Trauma Index (TTI)	83	g's	90	g's	Pelvis Acceleration (PEV)	94	g's	73	g's
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17 Key Words Compliance Testing Side Impact Protection FMVSS 214 Side Impact Dummy (SID) New Car Assessment Program (NCAP)		18 Distribution Statement Copies of this report are available from National Highway Traffic Safety Administration Technical Reference Division Room 5108 (NAD-52) 400 Seventh st , S W Washington, D C 20590 Telephone No (202) 366-4946 ATTN Robert Hornicle																															
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SECTION 1

PURPOSE AND TEST PROCEDURE

This Side Impact Indicant Test is part of the FMVSS 214 Side Impact Protection Compliance Test Program sponsored by the National Highway Traffic Safety Administration (NHTSA) under Contract No. DTNH22-97-C-01033. The purpose of this indicant test was to evaluate side impact protection in a 2001 Kia Rio 4-Door Sedan when tested at the New Car Assessment Program (NCAP) target test velocity of 62.0 kph, which is 8 kph faster than the target velocity required by the Office of Vehicle Safety Compliance's Laboratory Test Procedure (TP-214D-04, dated September 1, 1995).

SECTION 2

SUMMARY OF SIDE IMPACT TEST

This Side Impact Protection Indicant Test was performed at the New Car Assessment Program (NCAP) target test velocity of 62.0 kph, which is 8 kph faster than the target velocity required by the Office of Vehicle Safety Compliance's Laboratory Test Procedure (TP-214D-04, dated September 1, 1995)

A 2001 Kia Rio 4-Door Sedan was impacted on the left or driver's side by a Moving Deformable Barrier (MDB) which was moving forward in a 27° crabbed position to the monorail at a velocity of 61.48 kph (38.2 mph). The target vehicle was stationary and was positioned at an angle of 63° to the line of forward motion. The side impact test was conducted by the Veridian Engineering Transportation Sciences Center in Buffalo, New York on March 6, 2001. Pre- and post-test photographs of the test vehicle, the moving deformable barrier (MDB), and the side impact dummies (SIDs) are included in Appendix A.

Two restrained Side Impact Dummies (SIDs) were placed in the driver (Pos #1) and left rear (Pos #4) designated seating positions according to the instructions specified in the OVSC Side Impact Laboratory Test Procedure. Both SIDs were certified prior to this test. The side impact test was documented by one real-time camera and 10 high-speed cameras. Camera locations and other pertinent camera information are included in this report.

The SIDs were instrumented with the following accelerometers:

1. Head triaxial accelerometer (X,Y,Z-direction)
2. Left Upper Rib (LUR) uniaxial and redundant accelerometer (Y-direction)
3. Left Lower Rib (LLR) uniaxial and redundant accelerometer (Y-direction)
4. Lower Thoracic Spine (T₁₂) uniaxial and redundant accelerometer (Y-direction)
5. Pelvic (PEV) section uniaxial and redundant accelerometer (Y-direction)

A summary of the side impact dummy (SID) configuration and verification test data can be found in Appendix C. A total of 50 channels of data were recorded. Appendix B contains the vehicle, MDB and dummy response data traces.

The following table summarizes the results of the test:

Injury Criteria	Front SID	Rear SID
TTI (g)	83	90
PEV (g)	94	73

SECTION 3

SUMMARY OF TEST RESULTS

DATA SHEET 1

GENERAL TEST AND VEHICLE PARAMETER DATA

TEST VEHICLE INFORMATION

Year/Make/Model/Body Style 2001 Kia Rio 4-Door Sedan

Vehicle Body Color White VIN KNADC123716507513

Vehicle NHTSA No C10510 Month & Year of Manufacture 5/2/00

Engine Data 4 Cylinders, - CID, 1.5 Liters - cc

Engine Placement - Longitudinal, or X Lateral

Transmission 5 Speed, X Manual, - Automatic X Overdrive

Final Drive - Rear Wheel Drive, X Front Wheel Drive, - Four Wheel

Odometer Reading 61 km

Options - A/C, X Power Steering, X Pwr Brakes, - Pwr Windows

DATA FROM TIRE PLACARD

Tire Pressure* (at capacity), 200 kPa FRONT
200 kPa REAR

Recommended Tire Size P175/70R13

Tires on Test Vehicle P175/70R13, Manufacturer Kumho

Vehicle Capacity Data

Number of Occupants 2 Front, 3 Rear - 3rd Seat, 5 Total

Type of Front Seats X Bucket, - Bench, - Split Bench

Type of Front Seat Back - Fixed, X Adjustable with X Lever or - Knob

Vehicle Max Capacity Loading = 415 kg (A)

No of Occupants x 68.04 kg = 340.2 kg (B)

Vehicle Cargo Capacity = 74.8 kg (A-B)

TEST VEHICLE DELIVERED WEIGHT WITH MAXIMUM FLUIDS

Left Front	=	<u>314.0</u> kg	Left Rear	=	<u>218.5</u> kg
Right Front	=	<u>312.0</u> kg	Right Rear	=	<u>202.5</u> kg
TOTAL FRONT	=	<u>626.0</u> kg	TOTAL REAR	=	<u>421.0</u> kg
% of Total Weight	=	<u>59.8</u> %	% of Total Weight	=	<u>40.2</u> %
TOTAL WEIGHT	=	<u>1047.0</u> kg			

* Tire pressure used in test

DATA SHEET 1 (continued)

GENERAL TEST VEHICLE PARAMETER DATA

Vehicle 2001 Kia R10

NHTSA No C10510

CALCULATION OF VEHICLE'S TARGET TEST WEIGHT

Total Test Vehicle Delivered Weight with Max Fluids	=	<u>1047 0</u>	kg (A)
Maximum Cargo Carrying Capacity of Test Vehicle	=	<u>74 8</u>	kg (B)
Weight of two instrumented Side Impact Dummies	=	<u>162 4</u>	kg (C)
TEST VEHICLE TARGET WEIGHT	=	<u>1284 2</u>	kg (A+B+C)

FULLY LOADED TEST VEHICLE (UDVW + 1 or 2 SID(s) + CARGO)

Left Front	=	<u>354 0</u>	kg	Left Rear	=	<u>334 5</u>	kg
Right Front	=	<u>322 0</u>	kg	Right Rear	=	<u>278 0</u>	kg
TOTAL FRONT	=	<u>676 0</u>	kg	TOTAL REAR	=	<u>612 5</u>	kg
% of Total Weight	=	<u>52 5</u>	%	% of Total Weight	=	<u>47 5</u>	%
TOTAL TEST WEIGHT	=	<u>1288 5</u>	kg				

AS TESTED WEIGHT OF TEST VEHICLE (1 OR 2 SID(s) + CARGO + EQUIPMENT & INSTRUMENTATION)

Left Front	=	<u>334 0</u>	kg	Left Rear	=	<u>321 5</u>	kg
Right Front	=	<u>323 0</u>	kg	Right Rear	=	<u>301 0</u>	kg
TOTAL FRONT	=	<u>657 0</u>	kg	TOTAL REAR	=	<u>622 5</u>	kg
% of Total Weight	=	<u>51 3</u>	%	% of Total Weight	=	<u>48 7</u>	%
TOTAL TEST WEIGHT	=	<u>1279 5</u>	kg				

TEST VEHICLE ATTITUDE (all dimensions in millimeters),

AS DELIVERED

Left Front	<u>641</u>	Right Front	<u>647</u>	Left Rear	<u>636</u>	Right Rear	<u>642</u>
------------	------------	-------------	------------	-----------	------------	------------	------------

FULLY LOADED

Left Front	<u>619</u>	Right Front	<u>639</u>	Left Rear	<u>579</u>	Right Rear	<u>599</u>
------------	------------	-------------	------------	-----------	------------	------------	------------

READY FOR TEST

Left Front	<u>635</u>	Right Front	<u>644</u>	Left Rear	<u>587</u>	Right Rear	<u>599</u>
------------	------------	-------------	------------	-----------	------------	------------	------------

Test Vehicle Wheelbase 2412 millimeters

C G = 1173 5 millimeters rearward of front wheel centerline

TOTAL VEHICLE LENGTH

Right Side	=	<u>4105</u>	millimeters
Left Side	=	<u>4105</u>	millimeters
Centerline	=	<u>4218</u>	millimeters

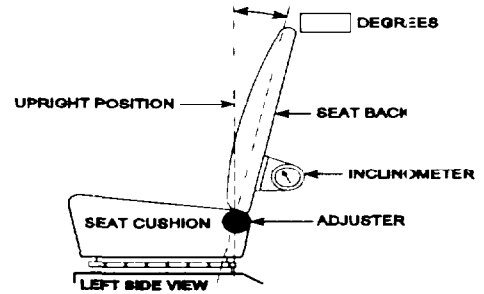
DATA SHEET 1 (continued)

GENERAL TEST VEHICLE PARAMETER DATA

Vehicle 2001 Kia Rio

NHTSA No C10510

Nominal Design Riding Position for adjustable driver and passenger seat backs. Please describe how to position the inclinometer to measure the seat back angle. Include description of the location of the adjustment latch/detent if applicable.



FRONT SEAT ASSEMBLY

FRONT SEAT TRACK POSITION Placed in mid-track position (Detent 9 from full forward - detent 0)

Total Length of Adjustment Travel 210 millimeters

Total Number of Adjustment Positions or Detents 19

FRONT SEAT BACK ADJUSTMENT POSITION Recline seatback to 24° torso angle

Seat Back Torso Angle 24 degrees

SECOND POSITION SEAT

Total Length of Fore/Aft Adjustment Travel 0 millimeters

Seat Back Adjustment Position N/A

ADJUSTABLE STEERING COLUMN POSITION Not Adjustable

WINDOW POSITIONS Left Front Closed Left Rear Closed
Right Front Removed Right Rear Removed

Note: Windows will be in closed position on struck side of test vehicle and in open position on opposite side.

AMOUNT OF STODDARD SOLVENT IN FUEL TANK

45.0 liters (Fuel Tank Usable Capacity)

41.6 liters used for test (92%-94% of Fuel Tank Usable Capacity)

LOCATION OF IMPACT POINT ON TEST VEHICLE SIDE TO BE IMPACTED

Wheelbase = 2412 millimeters

Impact Point is 266 millimeters rearward of front axle centerline

(which is 940 millimeters forward of the wheelbase midpoint)

Actual Impact Point is 263 millimeters rearward of front axle centerline

DATA SHEET 2

TEST VEHICLE SUMMARY OF RESULTS

VEHICLE IDENTIFICATION

Vehicle Year/Make/Model 2001 Kia Rio

Body Style 4-Door Sedan

VIN KNADC123716507513

NHTSA No C10510

Test Date March 6, 2001

Overall Length = 4218 millimeters, Overall Width = 1682 millimeters

VEHICLE TEST WEIGHT (Pre-Test)

Left Front = 334 0 kg Left Rear = 321 5 kg

Right Front = 323 0 kg Right Rear = 301 0 kg

TOTAL FRONT = 657 0 kg TOTAL REAR = 622 5 kg

TOTAL VEHICLE WEIGHT 1279 5 kg

Wheelbase = 2412 millimeters

Longitudinal C G from Center of Front Axle = 1173 5 millimeters

Impact Angle with Respect to Impactor = 90 degrees

ACTUAL IMPACT POINT

Actual Impact Point is 3 mm forward of nominal impact ref line (Lateral)

Actual Impact Point is 0 mm on the nominal impact point (Vertical)

MAXIMUM EXTERIOR STATIC CRUSH

1 LEVEL 1 (238 mm above ground) = 203 millimeters

2 LEVEL 2 (458 mm above ground) = 363 millimeters

3 LEVEL 3 (563 mm above ground) = 355 millimeters

4 LEVEL 4 (775 mm above ground) = 323 millimeters

5 LEVEL 5 (1314 mm above ground) = 54 millimeters

Maximum Post-Test Intrusion = 363 millimeters

OCCUPANTS

Front Passenger

Rear Passenger

Dummy Identification 013

268

Restraints Used 3-Point Safety Belt

3-Point Safety Belt

INSTRUMENTATION

Number of Vehicle Data Channels = 45

Number of Cameras Onboard = 3

Offboard = 7

TOTAL = 10

DATA SHEET 3

MOVING DEFORMABLE BARRIER (MDB) SUMMARY

Vehicle 2001 Kia Rio

NHTSA No C10510

MDB FACE MANUFACTURER AND SERIAL NUMBER

Plascore, Inc 083C1200-1 001B1200

POSITION OF IMPACT (MDB) ON MONORAIL

Crabbed 27° to left

MDB DETAILS

Overall Width of Framework Carriage	=	<u>1250</u>	millimeters
Overall Length of MDB (incl honeycomb impact face)	=	<u>4120</u>	millimeters
Wheelbase of Framework Carriage	=	<u>2590</u>	millimeters
Tread of Framework Carriage (Front & Rear)	=	<u>1875</u>	millimeters
C/G Location Rearward of Front Axle	=	<u>1104</u>	millimeters

MDB WEIGHT

Left Front	=	<u>409.5</u>	kg	Left Rear	=	<u>281.5</u>	kg
Right Front	=	<u>372.5</u>	kg	Right Rear	=	<u>299.0</u>	kg
TOTAL FRONT =		<u>782.0</u>	kg	TOTAL REAR =		<u>580.5</u>	kg
TOTAL MDB WEIGHT =		<u>1362.5</u>	kg				
Impact Angle (MDB C/L to Target Vehicle C/L)	=	<u>90</u>	degrees				
Impact Speed	=	<u>61.48</u>	kph				

MAXIMUM STATIC CRUSH OF HONEYCOMB IMPACT FACE

1 Row A at Center of Bumper Level	=	<u>89</u>	millimeters
2 Row B at Top of Bumper Level	=	<u>49</u>	millimeters
3 Row C at Mid Level	=	<u>131</u>	millimeters
4 Row D at Top of Stack Level	=	<u>153</u>	millimeters

INSTRUMENTATION

Number of MDB Data Channels = 5

DATA SHEET 4

POST-TEST OBSERVATIONS

Vehicle 2001 Kia R10

NHTSA No C10510

VISIBLE DUMMY CONTACT POINTS

	<u>LEFT FRONT SID</u>	<u>LEFT REAR SID</u>
Head	<u>Side of head to the left shoulder</u>	<u>Side of the head to the C-Pillar</u>
Upper Torso	<u>Door Trim</u>	<u>Door Trim</u>
Lower Torso	<u>Door Trim</u>	<u>Door Trim</u>
Left Knee	<u>Door Trim</u>	<u>Door Trim</u>
Right Knee	<u>Left Knee</u>	<u>Left Knee</u>

DOOR OPENING

	<u>LEFT DOOR</u>	<u>RIGHT DOOR</u>
Front	<u>Closed/Inoperable</u>	<u>Closed/Operable</u>
Rear	<u>Closed/Inoperable</u>	<u>Closed/Operable</u>

MDB DISTANCE FROM TARGET IMPACT POINT

Vertical 0 mm
Horizontal 3 mm forward

ARM REST LOCATIONS

Front	<u>The armrest moved inboard during the event</u>
Rear	<u>The armrest moved inboard during the event</u>

SEAT MOVEMENT

Front	<u>None</u>
Rear	<u>Seat cushion was moved inboard during the event</u>

GLAZING DAMAGE

Windshield	<u>None</u>
Window	<u>The side glass shattered upon impact</u>

PILLAR PERFORMANCE

The A- and B-Pillar were moved inboard during the event

SILL SEPARATION

No visible tears or separations

AIR BAG DEPLOYMENT STATUS

	DRIVER	FRONT PASSENGER	REAR PASSENGER
FRONT	Yes	Yes	N/A
SIDE	N/A	N/A	N/A

OTHER NOTABLE IMPACT EFFECTS

MDB onboard driver view is not available The film broke upon spool-up

SECTION 4

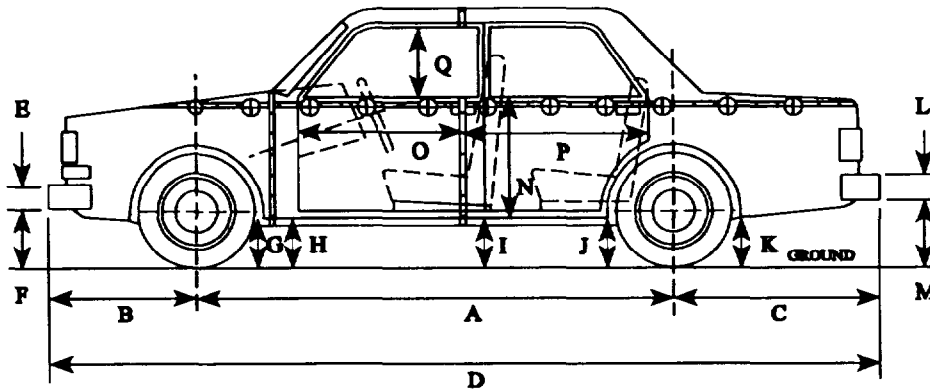
OCCUPANT AND VEHICLE INFORMATION

DATA SHEET 6

VEHICLE SIDE MEASUREMENTS

Vehicle 2001 Kia R10

NHTSA No C10510



LEFT SIDE VIEW

NOTE all dimensions are in millimeters with tolerance of ± 3 mm

	PRE TFST (as delivered)	PRE TFST (as tested)	POST TFST (as tested)	Δ CHANGE
A	2416		2374	42
B	983		1129	146
C	819		702	117
D	4218		4205	13
E	172		172	0
F	368	376	304	72
G	212	187	286	99
H	211	186	293	107
I	214	178	270	92
J1	179	167	187	20
J2	212	131	141	10
K	215	164	176	12
L	302		302	0
M	303	227	244	17
N	603		572	31
O	686		690	4
P	1106		1032	74
Q	483		452	31
R	4105		4110	5
S	4105		4081	24
T	1682		1574	108

D = Length at C centerline
T = Width at B Pillar

E&I = Bumper Thickness
J1 = To Pinch Weld

R = Right Side Length
J2 = To Sill

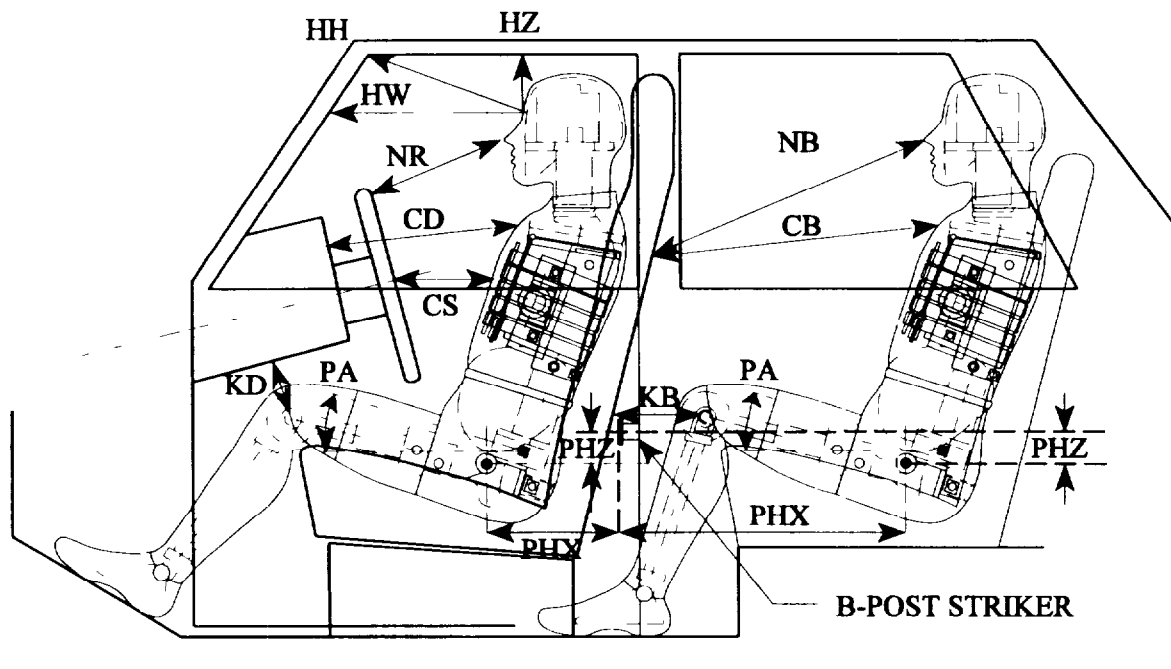
S = Left Side Length

DATA SHEET 7

SID LONGITUDINAL CLEARANCE DIMENSIONS

Vehicle 2001 Kia Rio

NHTSA No C10510



LEFT SIDE VIEW

NOTE 2-DOOR VEHICLE SHOWN
REAR DUMMY PHX & PHZ
MEASUREMENTS FOR A 4-DOOR
VEHICLE WOULD USE THE C-POST
STRIKER AS A REFERENCE POINT

NOTE All dimensions are in millimeters with tolerance of ± 3 mm

	DRIVER ID# <u>013</u>	LEFT REAR PASS ID# <u>263</u>
HH	409	N/A
HW	690	N/A
HZ	176	142
NR/NB	485	540
CD/CB	588	453
CS	320	N/A
KDL(KDA°)/KBL(KDA°)	200 / (18°)	143 / (40°)
KDR(KBA°)/KBR(KBA°)	186 / (18°)	139 / (40°)
PA°	24.5°	24.0°
PHX	159	294
PHZ	103	239

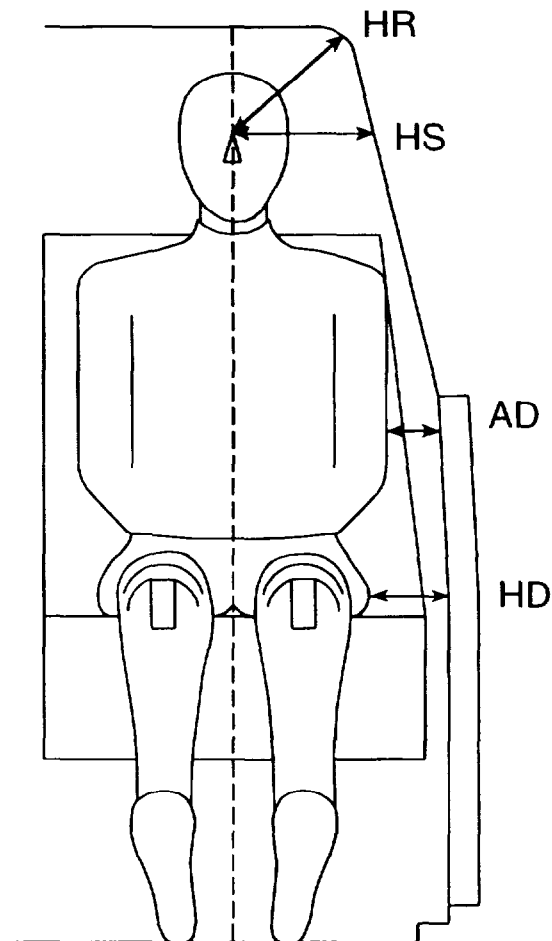
Note 2-door vehicle shown Rear dummy PHX & PHZ measurements for 4-door vehicle would use the C-post striker as a reference point

DATA SHEET 8

SID LATERAL CLEARANCE DIMENSIONS

Vehicle 2001 Kia Rio

NHTSA No C10510



NOTE All dimensions are in millimeters with tolerance of ± 3 mm

	DRIVER ID # <u>013</u>				LEFT REAR PASS ID # <u>268</u>			
HR	205				207			
HS	318				325			
AD*	LOWER	100	UPPER	122	LOWER	134	UPPER	120
HD	181				182			

* Lower measurement is taken laterally at the center of the lower rib accelerometer height from the SID arm segment to the closest part of the vehicle side

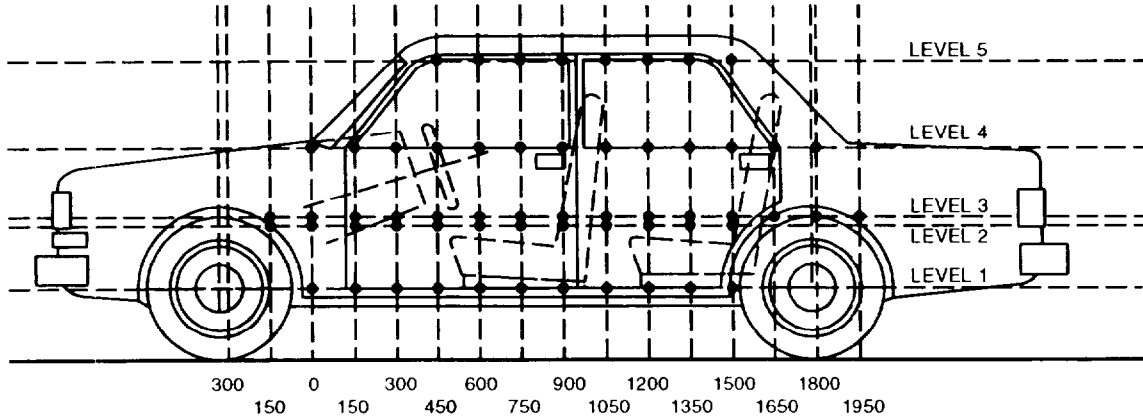
Upper measurement is taken laterally at the center of the upper rib accelerometer height from the SID arm segment to the closest part of the vehicle side

DATA SHEET 9

VEHICLE SIDE MEASUREMENTS

Vehicle 2001 Kia Rio

NHTSA No C10510



LEFT SIDE VIEW

NOTE. All measurements are in millimeters (mm)

- LEVEL 5 WINDOW TOP
- LEVEL 4 WINDOW SILL
- LEVEL 3 - MID-DOOR
- LEVEL 2 OCCUPANT H-POINT
- LEVEL 1 SILL TOP HEIGHT

MEASUREMENTS ARE TAKEN WHEN THE VEHICLE IS IN THE "AS TESTED" CONFIGURATION
 Measurements Along the Vertical 750 mm Line Shown Above

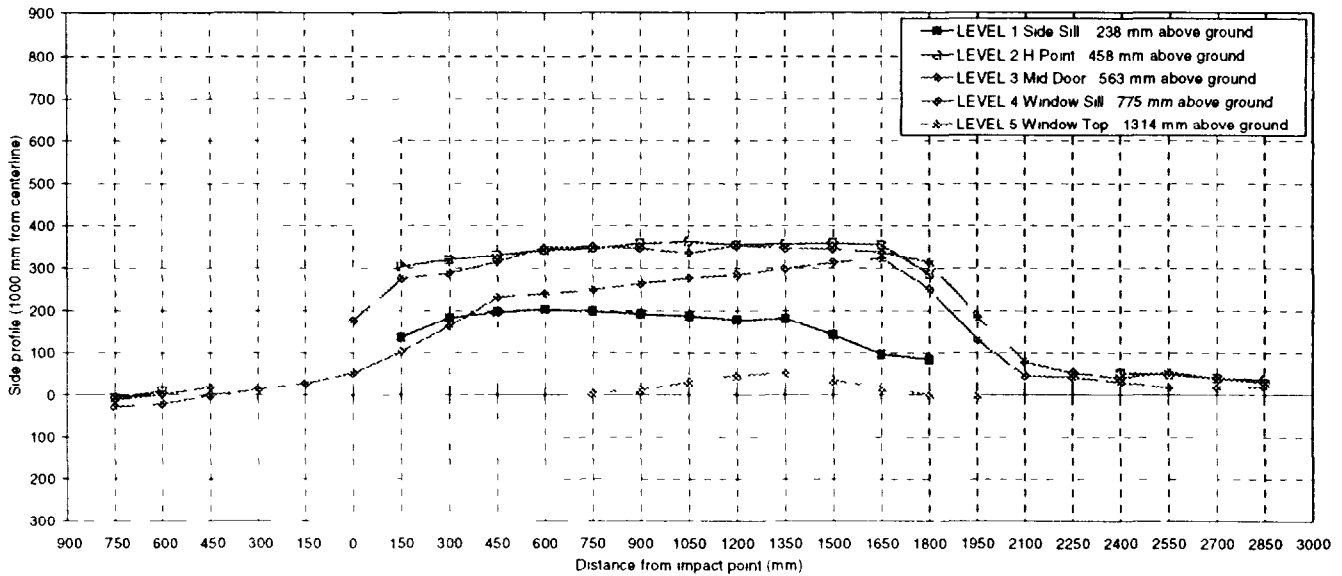
Level 5 @ Window Top	=	<u>1314</u>	millimeters
Level 4 @ Window Sill	=	<u>775</u>	millimeters
Level 3 @ Mid Door	=	<u>563</u>	millimeters
Level 2 @ Occupant H-Point	=	<u>458</u>	millimeters
Level 1 @ Sill Top Height	=	<u>238</u>	millimeters

DATA SHEET 10

VEHICLE EXTERIOR CRUSH PROFILES - ALL LEVELS

Vehicle 2001 Kia Rio

NHTSA No C10510



NOTE All dimensions are in millimeters with a tolerance of ± 3 mm

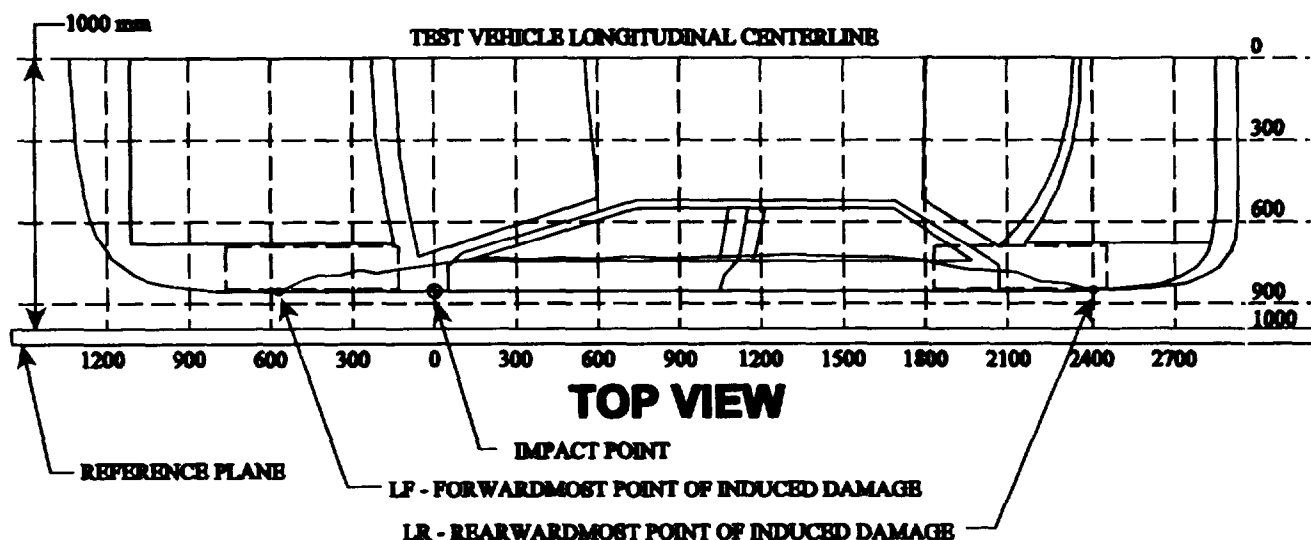
LEVEL	HEIGHT (mm)		DISTANCE IN MILLIMETERS (mm) FROM IMPACT POINT																													
			900	750	600	450	300	150	0	150	300	450	600	750	900	1050	1200	1350	1500	1650	1800	1950	2100	2250	2400	2550	2700	2850	3000			
LEVEL 1 SIDF SILL	238	PRE							~	625	630	631	633	631	634	636	636	629	633	635	638											
		POST							~	489	447	435	430	432	442	449	458	448	491	538	553											
		CRUSH	N/A	N/A	N/A	N/A	N/A	N/A	N/A	~	136	183	196	203	199	192	187	178	181	142	97	85	N/A	N/A	N/A	N/A	N/A	N/A	N/A			
LEVEL 2 H POINT	458	PRE		619	651		--		~	674	675	-675	678	677	676	674	674	674	675	677	675	--	--		-673	660	639	-601				
		POST		626	642				~	371	355	344	335	331	317	311	317	316	314	321	390		--	--	619	610	598	563				
		CRUSH	N/A	7	9	N/A	N/A	N/A	N/A	~	303	320	331	343	346	359	363	357	358	361	356	285	N/A	N/A	N/A	54	50	41	38	N/A		
LEVEL 3 MID DOOR	563	PRE		595	642	-666			~	-676	679	-676	-676	676	675	677	673	673	672	671	674	671	674	671	674	672	-661	651	-647	617	569	--
		POST		606	641	647			~	-676	404	389	362	327	323	330	337	318	324	325	336	357	489	593	-607	610	591	577	538			
		CRUSH	N/A	11	1	19	N/A	N/A	N/A	~	178	275	287	314	349	352	347	336	355	348	346	338	314	185	79	54	41	56	40	31	N/A	
LEVEL 4 WINDOW SILL	775	PRE		454	538	586	605	622	~	-652	636	640	648	647	-650	656	658	655	656	658	656	654	654	650	-641	635	619	607	570	--		
		POST		482	560	587	592	594	~	-679	533	478	417	408	402	393	382	371	358	345	333	403	524	603	598	604	601	589	550			
		CRUSH	N/A	28	22	1	13	28	~	33	103	162	231	239	248	263	276	284	298	313	323	251	130	47	43	31	18	18	20	N/A		
LEVEL 5 WINDOW TOP	1314	PRE							~						107	356	387	389	389	386	378	362	228	--	--							
		POST							~						101	344	355	341	335	350	360	361	228	--	--							
		CRUSH	N/A	N/A	N/A	N/A	N/A	N/A	N/A	~	N/A	N/A	N/A	N/A	N/A	6	12	32	48	54	36	18	1	0	N/A	N/A	N/A	N/A	N/A	N/A		

DATA SHEET 11

VEHICLE DAMAGE PROFILE DISTANCES

Vehicle 2001 Kia Rio

NHTSA No C10510



MEASUREMENT CONVENTIONS:

Forward of the impact point (towards front of vehicle) is considered negative (-).
Rearward of the impact point (toward rear of vehicle) is considered positive (+).

NOTE: All dimensions are in millimeters with tolerance of ± 3 mm.

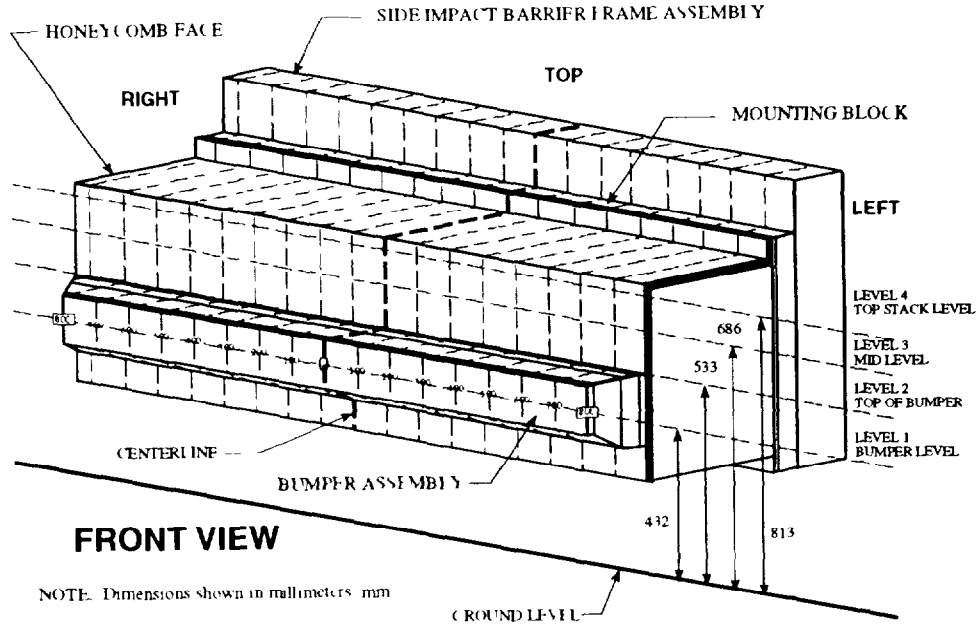
DPD MEASUREMENTS	POST TEST (mm)	PRETEST (mm)	STATIC CRUSH (mm)
1 (LR = <u>2800</u> mm)	575	614	-39
2 2160	599	668	-69
3 1520	315	675	360
4 880	329	677	-348
5 240	361	675	314
6 (LF = <u>-400</u> mm)	592	589	3

DATA SHEET 12

EXTERIOR STATIC CRUSH FOR IMPACTOR FACE
(Grid as looking at MDB from front)

Vehicle 2001 Kia Rio

NHTSA No C10510



NOTE: Dimensions shown in millimeters mm

NOTE: All dimensions are in millimeters with a tolerance of ± 3 mm

LEVEL	HEIGHT AT CL (mm)*		DISTANCE RIGHT OF CENTER (mm)									R	DISTANCE LEFT OF CENTER (mm)							
			800	700	600	500	400	300	200	100	100		200	300	400	500	600	700	800	
LEVEL 4 TOP STACK	813	PRE	619	619	619	619	619	619	619	619	619	619	619	619	619	619	619	619	619	
		POST	663	615	600	604	608	612	617	619	619	622	623	625	633	663	704	740	772	
		CRUSH	44	4	19	15	11	7	2	0	0	3	4	6	14	44	85	121	153	
LEVEL 3 MID LEVEL	686	PRE	619	619	619	619	619	619	619	619	619	619	619	619	619	619	619	619	619	
		POST	635	609	608	612	616	626	631	630	630	622	622	619	626	632	649	707	750	
		CRUSH	16	10	11	7	3	7	12	11	11	3	3	0	7	13	30	88	131	
LEVEL 2 TOP BUMPER	533	PRE	619	619	619	619	619	619	619	619	619	619	619	619	619	619	619	619	619	
		POST	655	647	648	648	648	651	646	641	637	640	641	643	642	641	651	655	668	
		CRUSH	36	28	29	29	29	32	27	22	18	21	22	24	23	22	32	36	49	
LEVEL 1 MID BUMPER	432	PRE	535	519	518	518	518	518	518	518	518	518	518	518	518	518	519	535	535	
		POST	592	584	587	589	588	591	588	584	584	585	586	584	588	589	595	606	624	
		CRUSH	57	65	69	71	70	73	70	66	66	67	68	66	70	71	77	87	89	

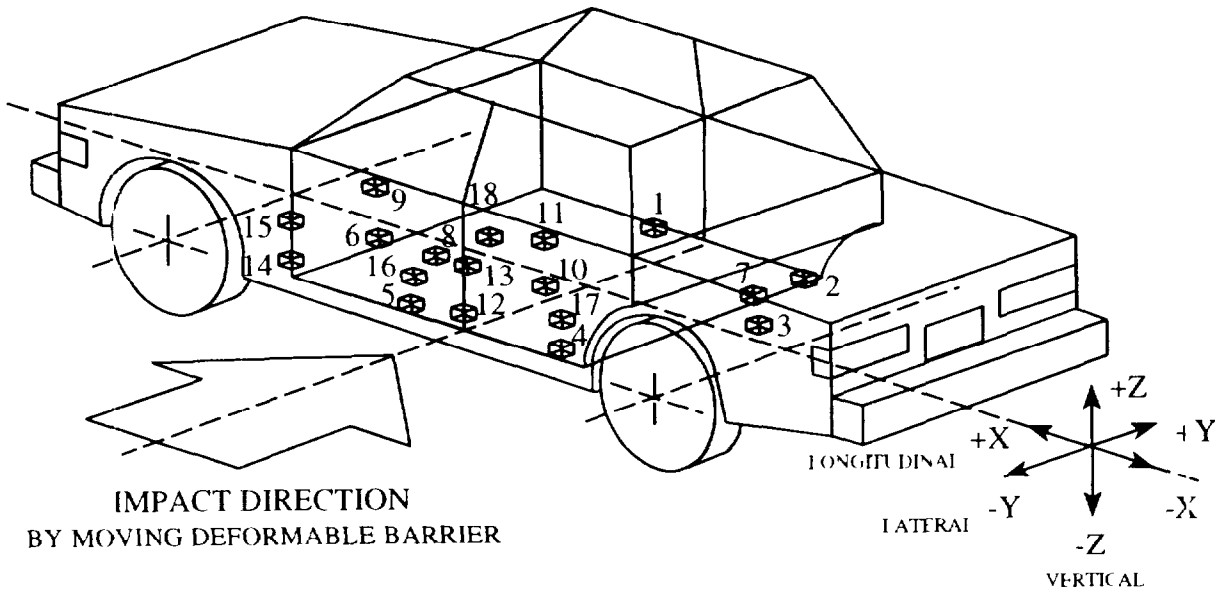
*Heights measured above ground level

DATA SHEET 13

TEST VEHICLE ACCELEROMETER LOCATIONS AND DATA SUMMARY

Vehicle 2001 Kia Rio

NHTSA No C10510



- 1 Right Side Sill @ Front Seat
- 2-Right Side Sill @ Rear Seat
- 3-Rear Floorpan Above Axle
- 4-Left Side Sill @ Rear Seat
- 5-Left Side Sill @ Front Seat
- 6-Left Front Door on Centerline
- 7 Right Rear Occupant Compartment
- 8-Midrear of Left Front Door
- 9-Left Front Door Upper Centerline

- 10-Midrear of Left Rear Door
- 11-Left Rear Door Upper Centerline
- 12-Left Lower B-Pillar
- 13-Left Middle B-Pillar
- 14-Left Lower A-Pillar
- 15-Left Middle A-Pillar
- 16 Front Seat Track
- 17-Rear Seat Track
- 18-Vehicle CG

DATA SHEET 13 (continued)

VEHICLE ACCELEROMETER LOCATIONS AND DATA SUMMARY

Vehicle 2001 Kia Rio

NHTSA No C10510

Accel No	Location	Coordinates (mm)±3			Lat (y)			Vert (z)			Resultant	
		X*	Y*	Z*	Max (g)	Time (msec)	Max (g)	Time (msec)	Max (g)	Time (msec)	Max (g)	Time (msec)
12	Left Lower B-Pillar	1893	641	-239	pos	-	A	-	-	-	-	-
					neg	-	A	-	-	-	-	-
13	Left Middle B-Pillar	1883	642	-693	pos	-	A	-	-	-	-	-
					neg	-	A	-	-	-	-	-
14	Left Lower A-Pillar	2953	644	-451	pos	-	B	-	-	-	-	-
					neg	-	B	-	-	-	-	-
15	Left Middle A-Pillar	2885	619	-928	pos	-	55.5	20.0	-	-	-	-
					neg	-	-70.2	129.2	-	-	-	-
16	Front Seat Track	2092	533	-236	pos	-	93.4	12.7	-	-	-	-
					neg	-	-26.6	17.3	-	-	-	-
17	Rear Seat Track	873	461	-469	pos	-	36.0	14.9	-	-	-	-
					neg	-	-3.2	102.9	-	-	-	-
18	Vehicle CG	2076	-8	-375	pos	8.4	125.2	17.6	15.4	30.6	126.0	17.6
					neg	-18.8	-44.1	22.8	-11.3	43.6	0.0	-17.3

*Reference X - Rear Bumper (+ Forward)

A - Data is Clipped

Y - Vehicle Centerline (+ To Right)

B - Data not accurate after 7 ms

Z - Ground Level (+ Down)

DATA SHEET 13 (continued)

VEHICLE ACCELEROMETER LOCATIONS AND DATA SUMMARY

Vehicle 2001 Kia Rio

NHTSA No C10510

Accel No	Location	Coordinates (mm)±3			Long (x)		Lat (y)		Vert (z)		Resultant	
		X*	Y*	Z*	Max (g)	Time (msec)	Max (g)	Time (msec)	Max (g)	Time (msec)	Max (g)	Time (msec)
1	Right Side Sill at Front Seat	2753	-575	-220	2.9	58.4	24.1	5.6	10.5	30.2	24.6	5.7
					-8.5	14.3	-3.2	144.6	-9.4	21.1	0.0	-11.4
2	Right Side Sill at Rear Seat	1843	-563	-170	3.9	56.6	29.6	6.3	12.4	27.4	30.5	6.5
					-6.5	13.6	-3.2	144.4	-8.3	7.2	0.0	-17.6
3	Rear Floorpan Above Axle	1006	-86	-439	1.6	100.6	27.6	16.0	14.6	17.7	31.4	16.3
					-13.0	15.1	-3.0	112.4	-11.5	10.3	0.0	-16.4
4	Left Side Sill at Rear Seat	1649	505	-183	-	-	32.0	5.2	-	-	-	-
					-	-	-3.0	144.8	-	-	-	-
5	Left Side Sill at Front Seat	2724	589	-209	-	-	28.2	4.4	-	-	-	-
					-	-	-3.6	68.4	-	-	-	-
6	Left Front Door on Centerline	-	-	-	-	-	-	-	-	-	-	-
					-	-	-	-	-	-	-	-
7	Right Rear Occupant Compartment	1800	-289	-178	-	-	29.7	6.1	-	-	-	-
					-	-	-3.2	144.3	-	-	-	-
8	Midrear of Left Front Door	-	-	-	-	-	-	-	-	-	-	-
					-	-	-	-	-	-	-	-
9	Left Front Door Upper Centerline	-	-	-	-	-	-	-	-	-	-	-
					-	-	-	-	-	-	-	-
10	Midrear of Left Rear Door	-	-	-	-	-	-	-	-	-	-	-
					-	-	-	-	-	-	-	-
11	Left Rear Door Upper Centerline	-	-	-	-	-	-	-	-	-	-	-
					-	-	-	-	-	-	-	-

*Reference X - Rear Bumper (+ Forward)

Y - Vehicle Centerline (+ To Right)

Z - Ground Level (+ Down)

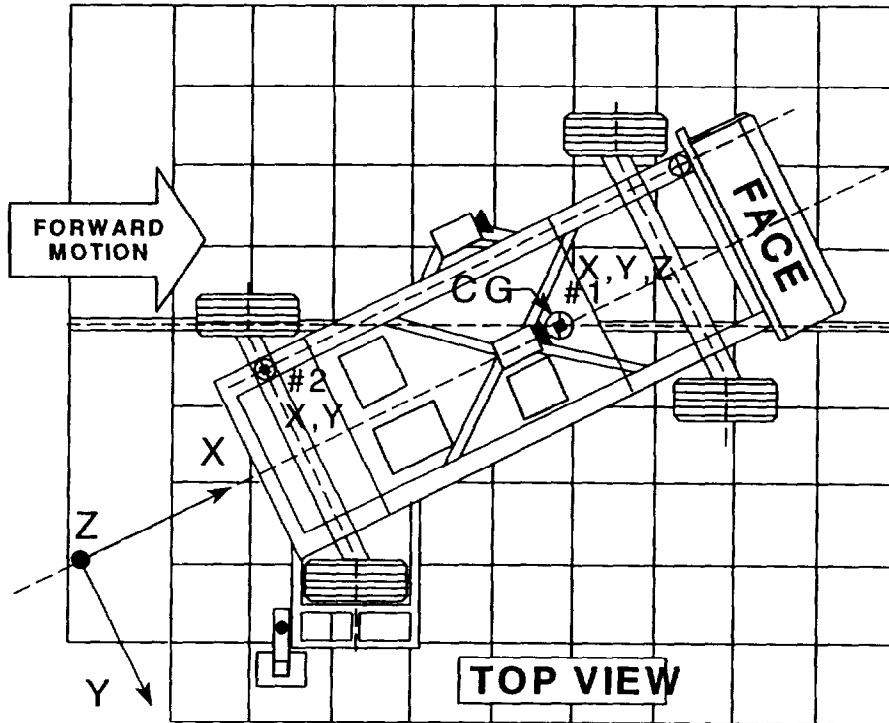
**Accelerometer was not requested by COTR

DATA SHEET 14

MDB ACCELEROMETER LOCATIONS AND DATA SUMMARY

Vehicle 2001 Kia Rio

NHTSA No C10510



Accel No	Location	Coordinates (millimeters)			Pos Direct		Neg Direct	
		X*	Y*	Z*	Max (g)	Time (msec)	Max (g)	Time (msec)
1	MDB Center of Gravity							
	Longitudinal X	1859	0	-330	1.3	122.9	-18.0	37.1
	Lateral Y				1.0	74.4	-8.1	26.3
	Vertical Z				12.0	57.4	-11.5	89.6
	Resultant R				20.3	43.7	0.3	92.3
2	Rear Frame Member							
	Longitudinal X	386	-660	-660	1.8	115.4	-20.2	31.2
	Lateral Y				4.6	24.0	-0.9	72.5

*Reference X = Rear Bumper (+ Forward)
 Y = Vehicle Centerline (+ To Right)
 Z = Ground Level (+ Down)

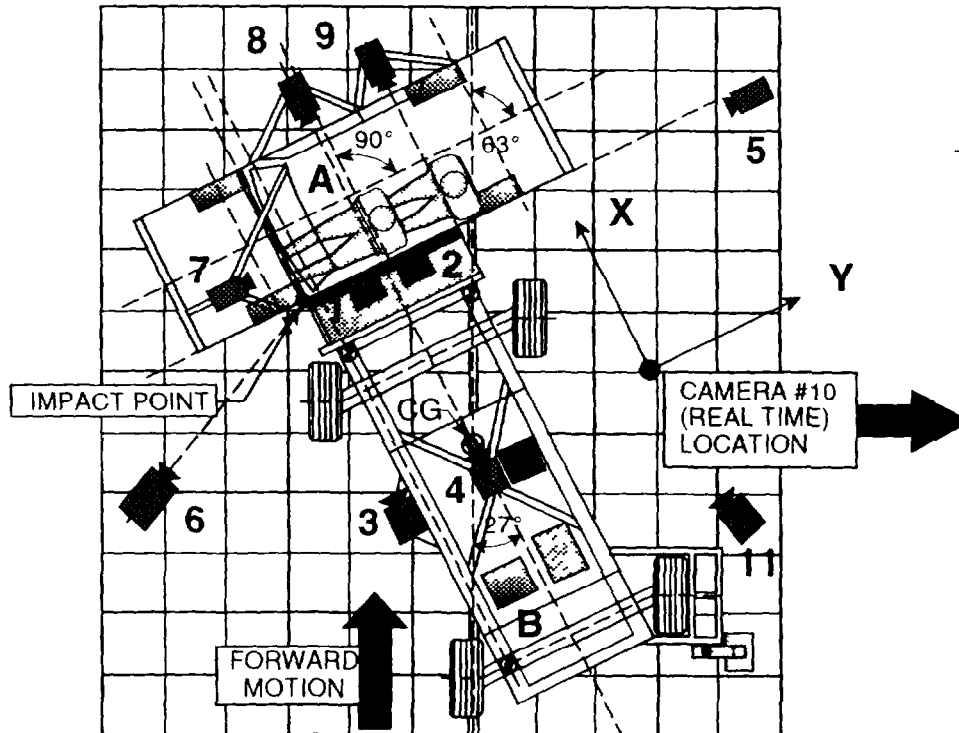
All measurements accurate to within ±3 mm

DATA SHEET 15

HIGH SPEED CAMERA LOCATIONS AND DATA SUMMARY

Vehicle 2001 Kia R10

NHTSA No. 010510



Camera No	View	Coordinates (millimeters)			Angle (deg)	Lens (mm)	Film Speed (fps)
		X*	Y*	Z*			
1	Overhead view of test vehicle	113	835	4880	-90	8	1060
2	Overhead closeup view of impact plane	244	889	4880	-90	12.5	1005
3	MDB onboard closeup view of impact point	-1470	0	847	0	13	1040
4	MDB onboard view of driver dummy	-1140	838	1586	-17	7.5	N/A
5	Right side ground level overall view	120	9058	1061	-4	25	1000
6	Left side ground level overall view	-1772	-1663	1067	-9	13	1010
7	Test vehicle onboard driver front view	495	-222	1230	-13	13	1010
8	Test vehicle onboard driver side view	1622	823	942	-10	8	1015
9	Test vehicle onboard passenger side view	1610	1676	964	-8	8	945
10	Real time film coverage of test	-	-	-	-	-	24

* Reference (from point of impact) all measurements accurate to within ± 6 mm

+X = Forward

+Y = To Right

+Z = Upward

SECTION 5

FUEL SYSTEM INTEGRITY

DATA SHEET 16

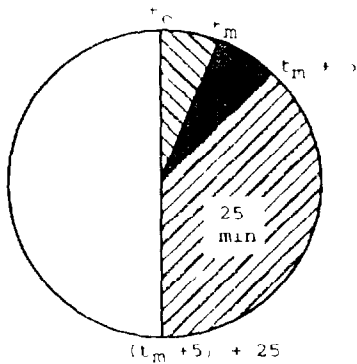
FMVSS 301 FUEL SYSTEM INTEGRITY DATA

NHTSA No C10510 TEST DATE March 6, 2001
 Vehicle Mfg/Make/Model 2001 Kia Rio 4-Door Sedan

TEST VEHICLE IMPACT TYPE

- Frontal (48 28 kph)
- Oblique (48 28 kph) with barrier face first
 contacting the side
 (driver/passenger)
- Rear Moving Barrier (48 28 kph)
- Lateral Moving Barrier (32 19 kph)
- X Side Impact Moving Deformable Barrier (61 48 kph)
 contacting the driver side side
 (driver/passenger)

FUEL SPILLAGE MEASUREMENT



- 1 From impact until vehicle motion ceases
- 2 For five minute period after vehicle motion ceases
- 3 For next 25 minutes

ACTUAL	MAX ALLOWED
0 g	28 g
0 g	142 g
0 g	28 g/1 min

SOLVENT SPILLAGE DETAILS

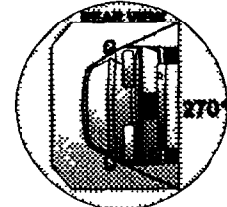
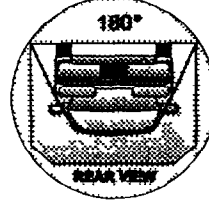
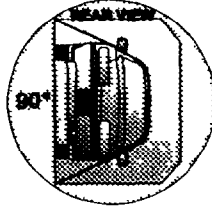
None

DATA SHEET 17

ROLLOVER DATA

Vehicle 2001 Kia Rio

NHTSA No C10510



I DETERMINATION OF SOLVENT COLLECTION TIME PERIOD

Rollover Stage	Rotation Time (spec 1-3 min)				FMVSS 301 Hold Time		Total Time				Next Whole Minute Interval	
	1	minutes	seconds	seconds	5	minutes	6	minutes	seconds	seconds	7	minutes
0° - 90°	1	minutes	19	seconds	5	minutes	6	minutes	19	seconds	7	minutes
90° - 180°	1	minutes	07	seconds	5	minutes	6	minutes	7	seconds	7	minutes
180° - 270°	1	minutes	01	seconds	5	minutes	6	minutes	1	seconds	7	minutes
270° - 360°	1	minutes	11	seconds	5	minutes	6	minutes	11	seconds	7	minutes

II FMVSS 301 REQUIREMENTS (Maximum allowable solvent spillage)

First 5 minutes from onset of rotation	6th min	7th min	8th min (if required)
142 g	28 g	28 g	28 g

III ACTUAL TEST VEHICLE SOLVENT SPILLAGE

Rollover Stage	First 5 minutes from onset of rotation (g)	6th min (g)	7th min (g)	8th min (if required) (g)
0° - 90°	0	0	0	N/A
90° - 180°	0	0	0	N/A
180° - 270°	0	0	0	N/A
270° - 360°	0	0	0	N/A

Note Record spillage for whole minute intervals only as determined above

IV SOLVENT SPILLAGE LOCATION(S)

Rollover Stage	Spillage Location
0° - 90°	None
90° - 180°	None
180° - 270°	None
270° - 360°	None

APPENDIX A

PHOTOGRAPHS

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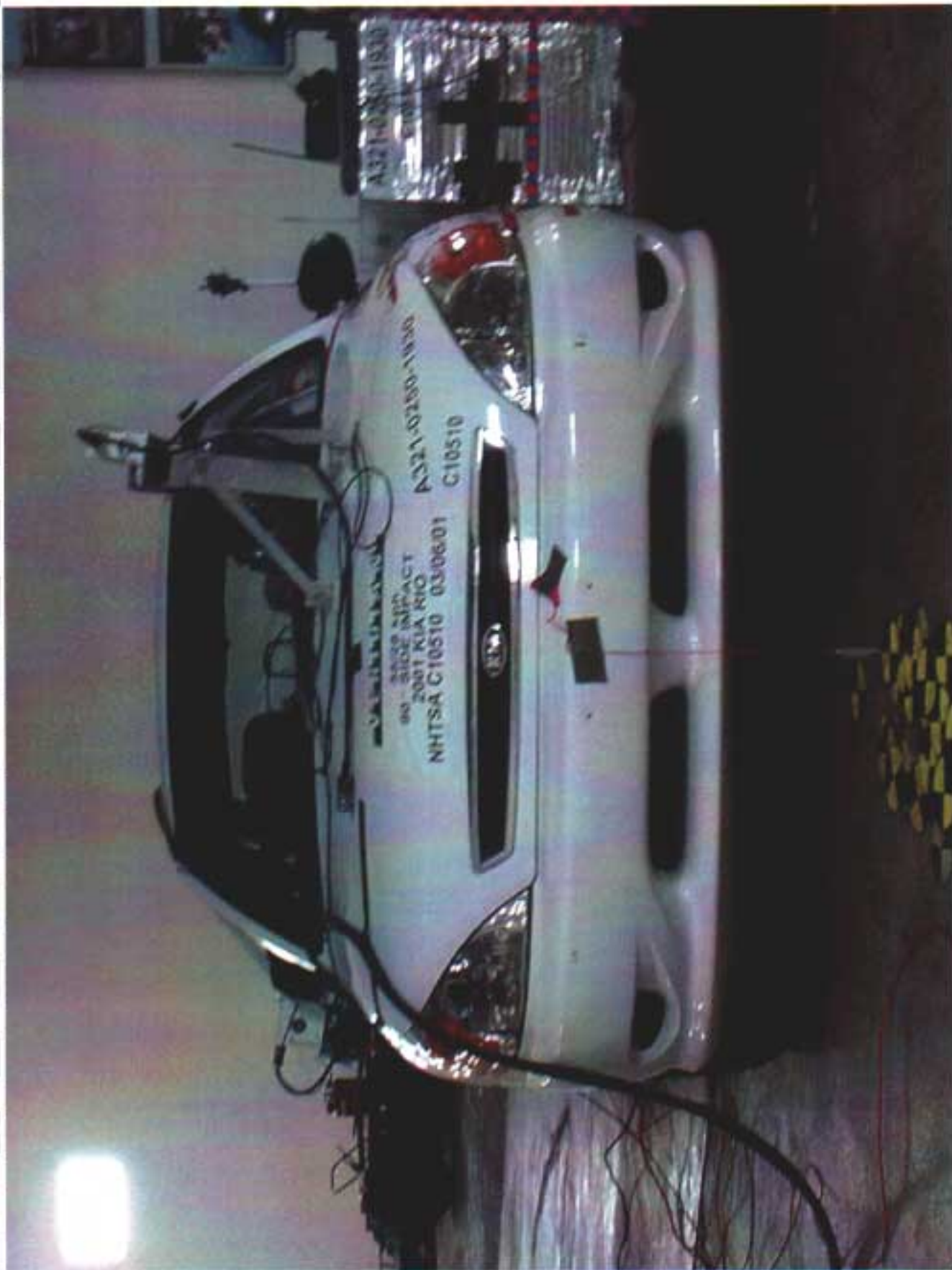


Figure A-1 PRE-TEST FRONTAL VIEW OF TEST VEHICLE



Figure A-2 POST-TEST FRONTAL VIEW OF TEST VEHICLE



Figure A-3 PRE-TEST REAR VIEW OF TEST VEHICLE



Figure A-4 POST-TEST REAR VIEW OF TEST VEHICLE



Figure A-5 PRE-TEST IMPACTED SIDE VIEW OF TEST VEHICLE



Figure A-6 POST-TEST IMPACTED SIDE VIEW OF TEST VEHICLE

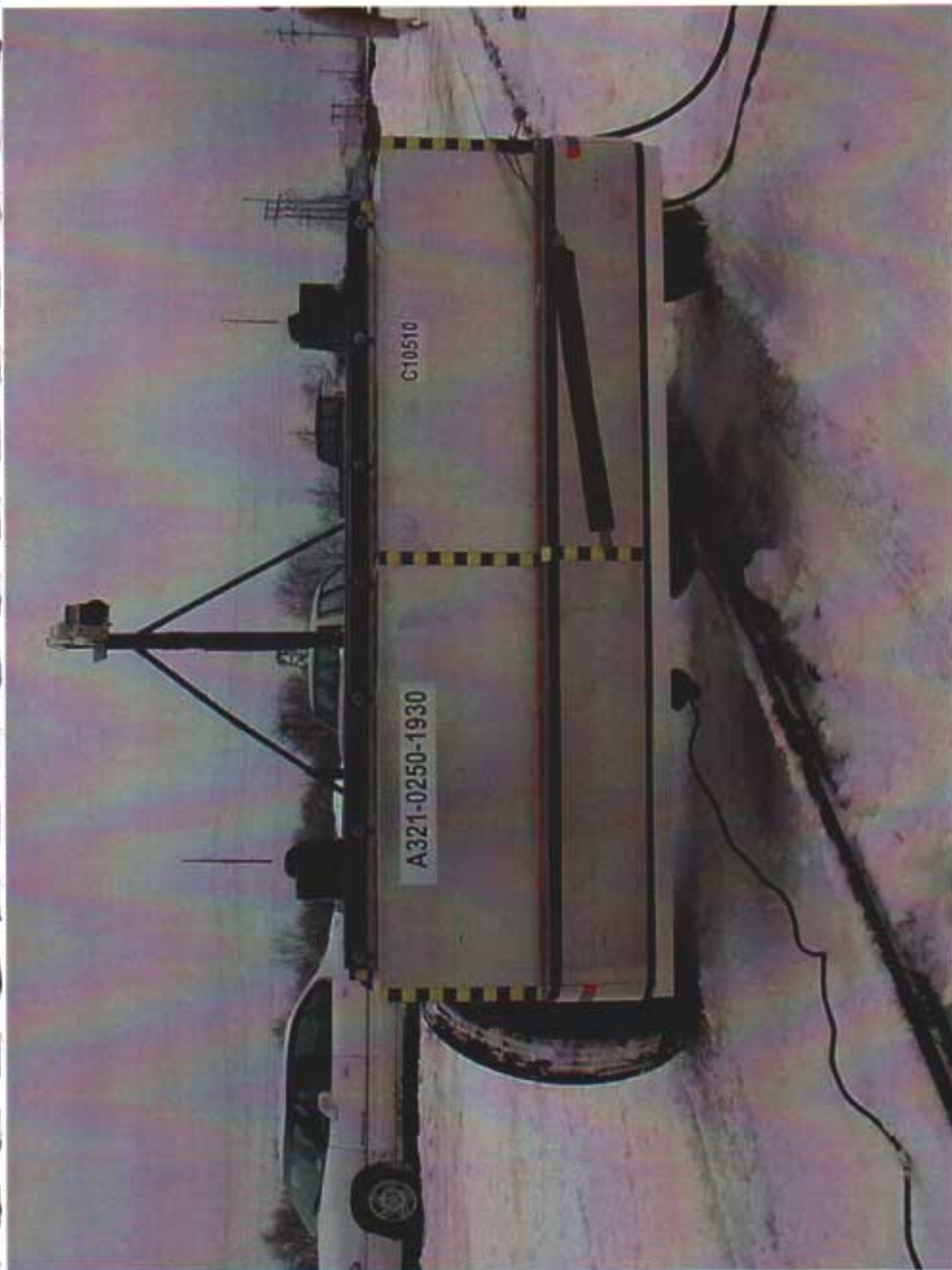


Figure A-7 PRE-TEST FRONTAL VIEW OF IMPACTOR FACE



Figure A-8 POST-TEST FRONTAL VIEW OF IMPACTOR FACE

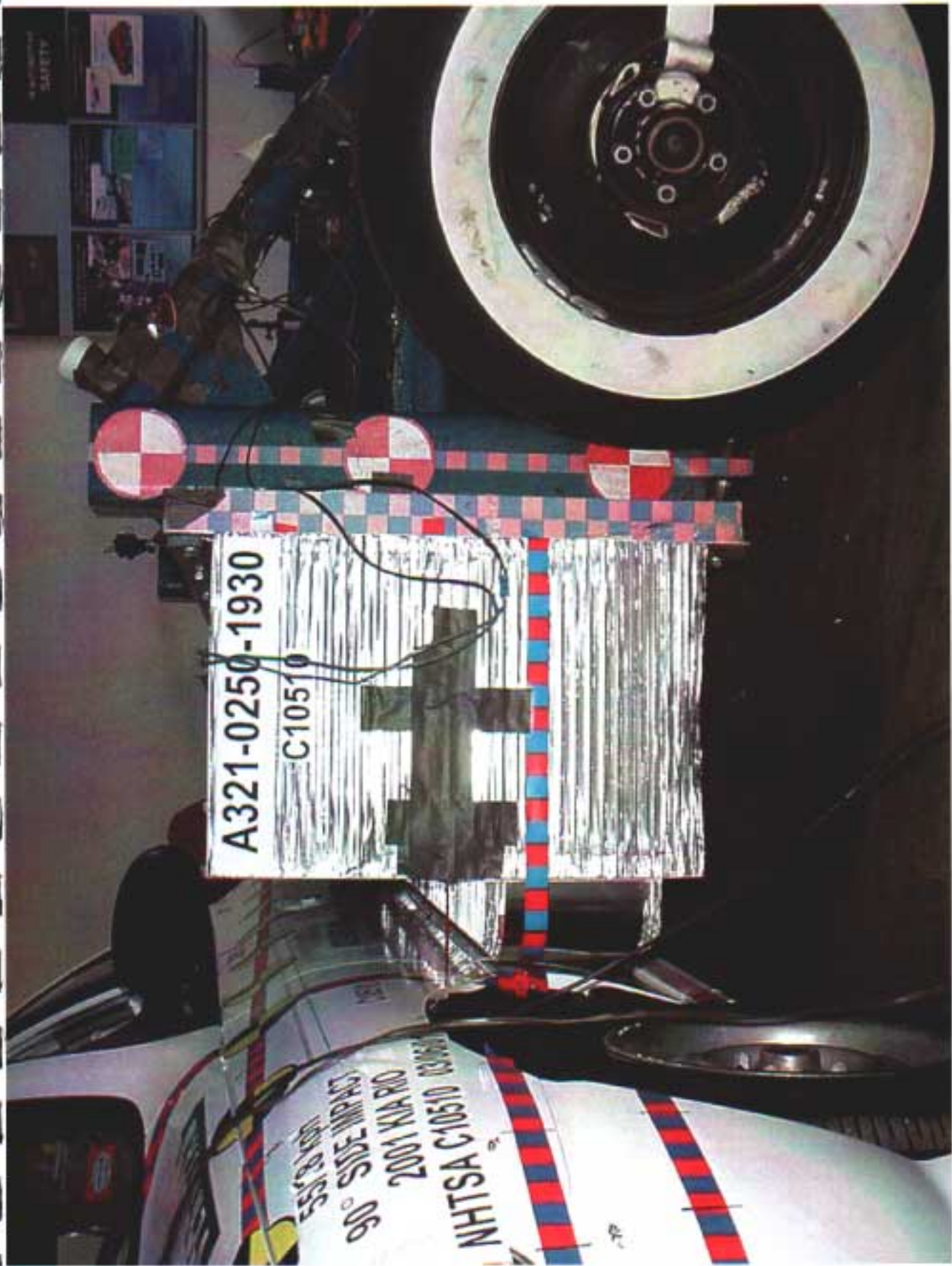


Figure A-9 PRE-TEST LEFT SIDE VIEW OF IMPACTOR FACE

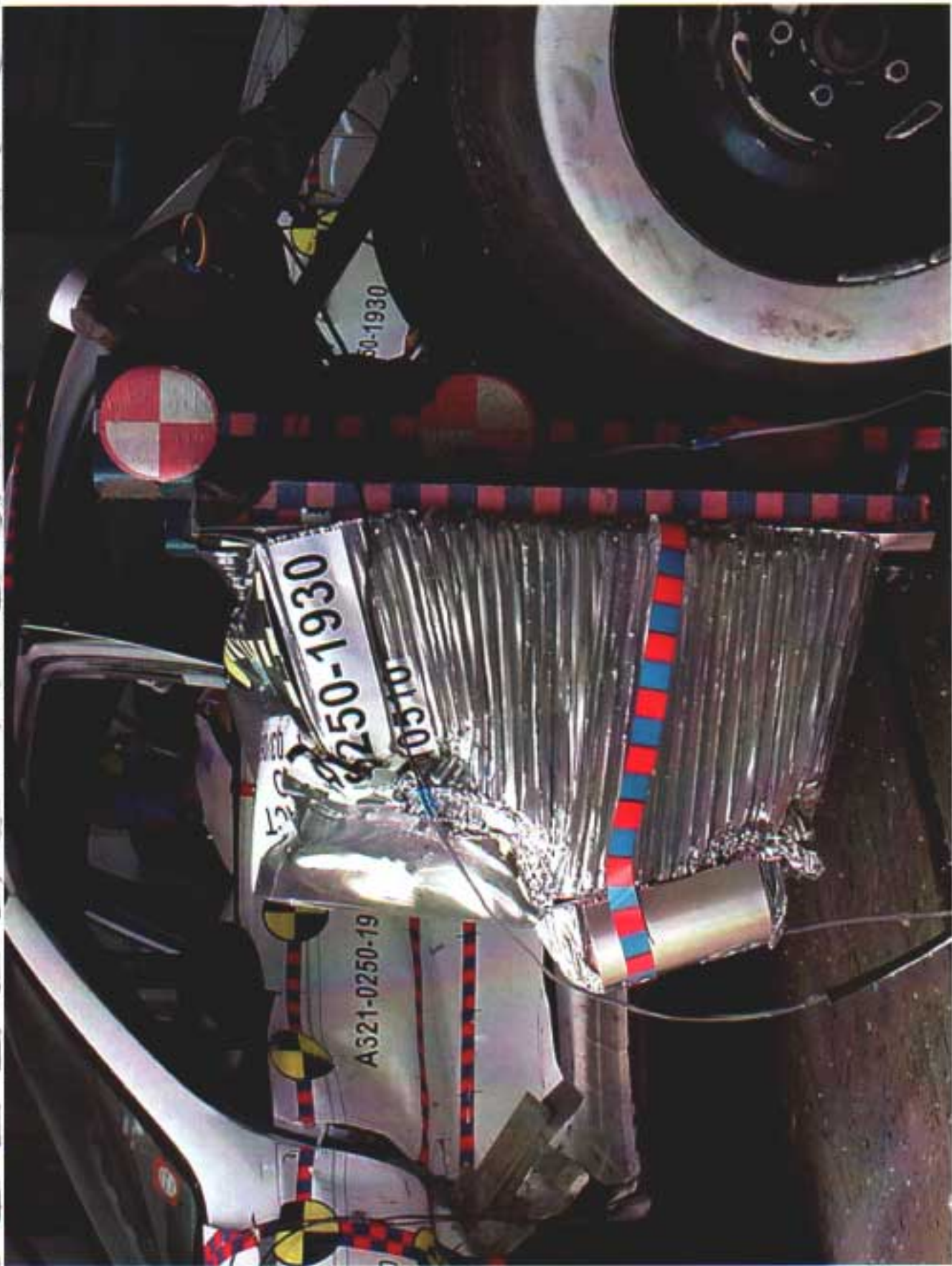


Figure A-10 POST-TEST LEFT SIDE VIEW OF IMPACTOR FACE

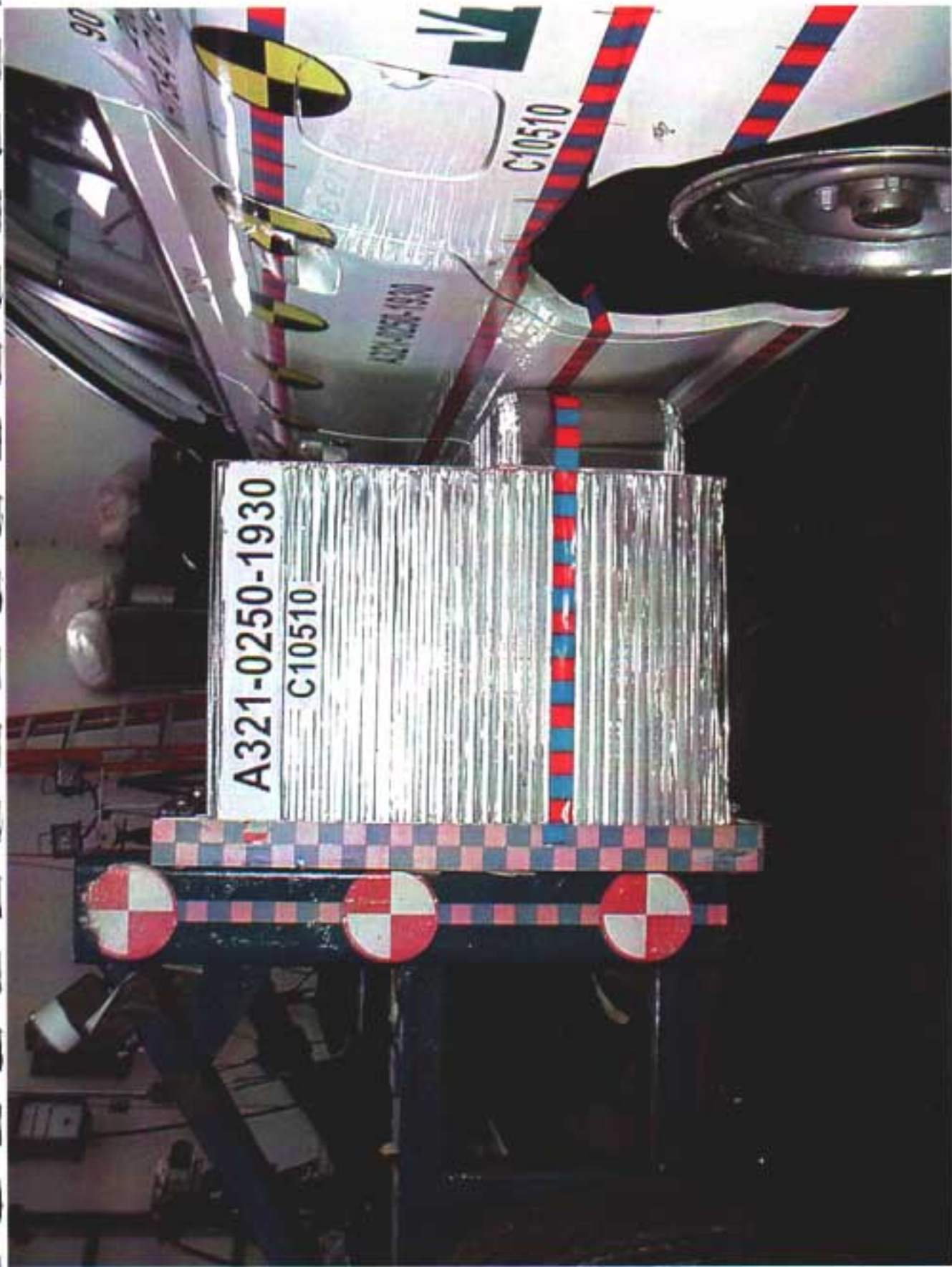


Figure A-11 PRE-TEST RIGHT SIDE VIEW OF IMPACTOR FACE

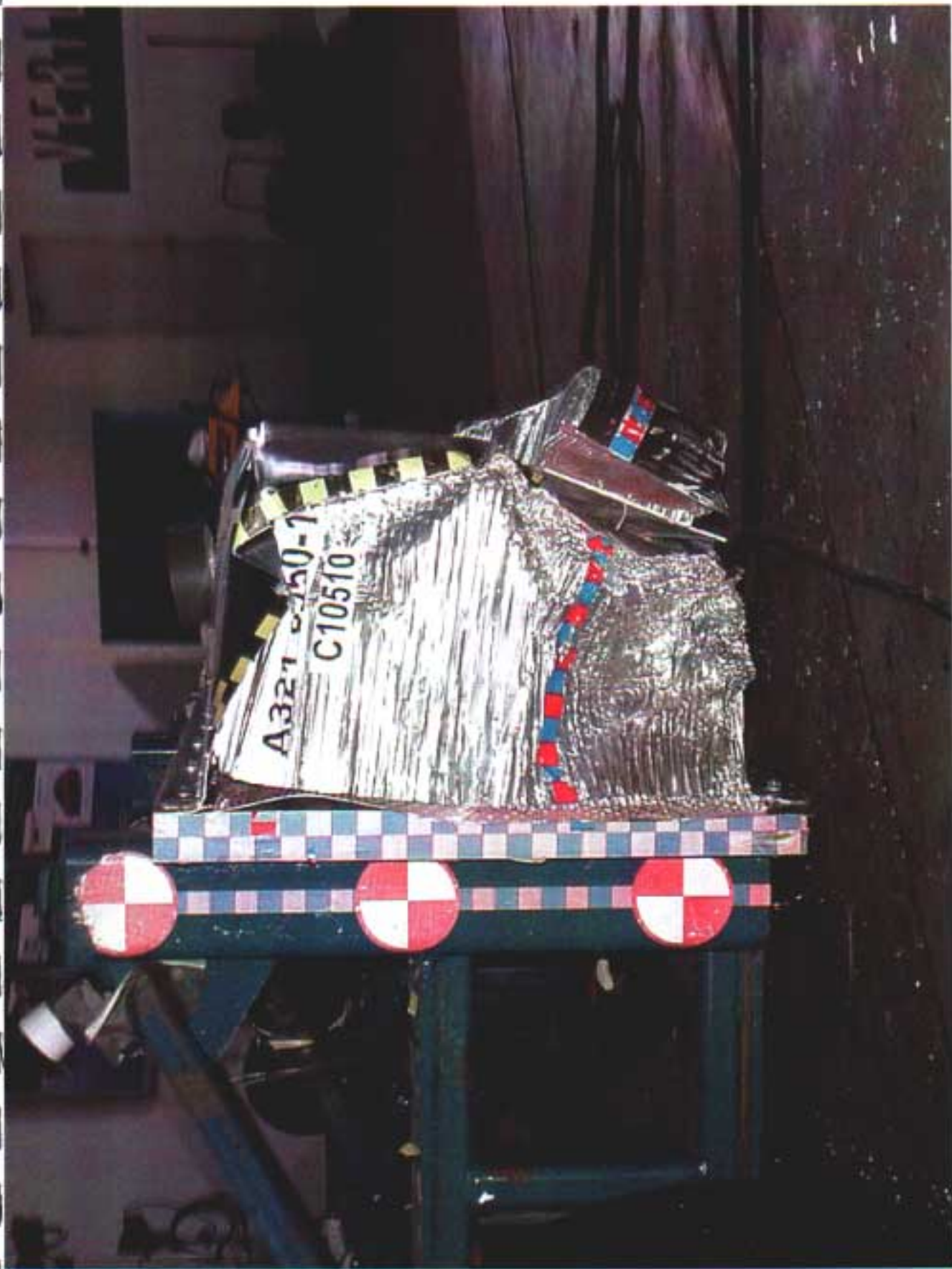


Figure A-12 POST-TEST RIGHT SIDE VIEW OF IMPACTOR FACE

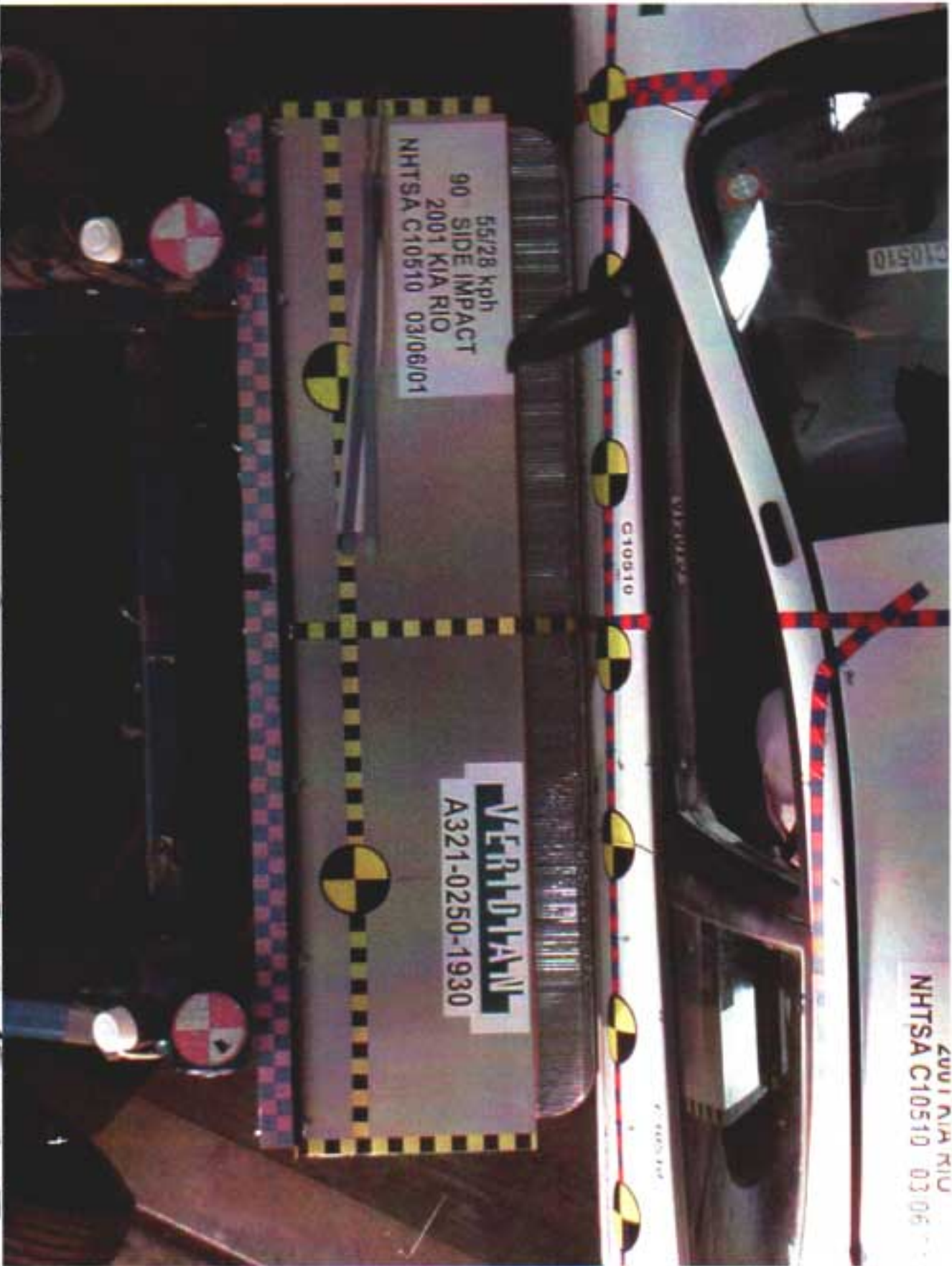


Figure A-13 PRE-TEST TOP VIEW OF IMPACTOR FACE

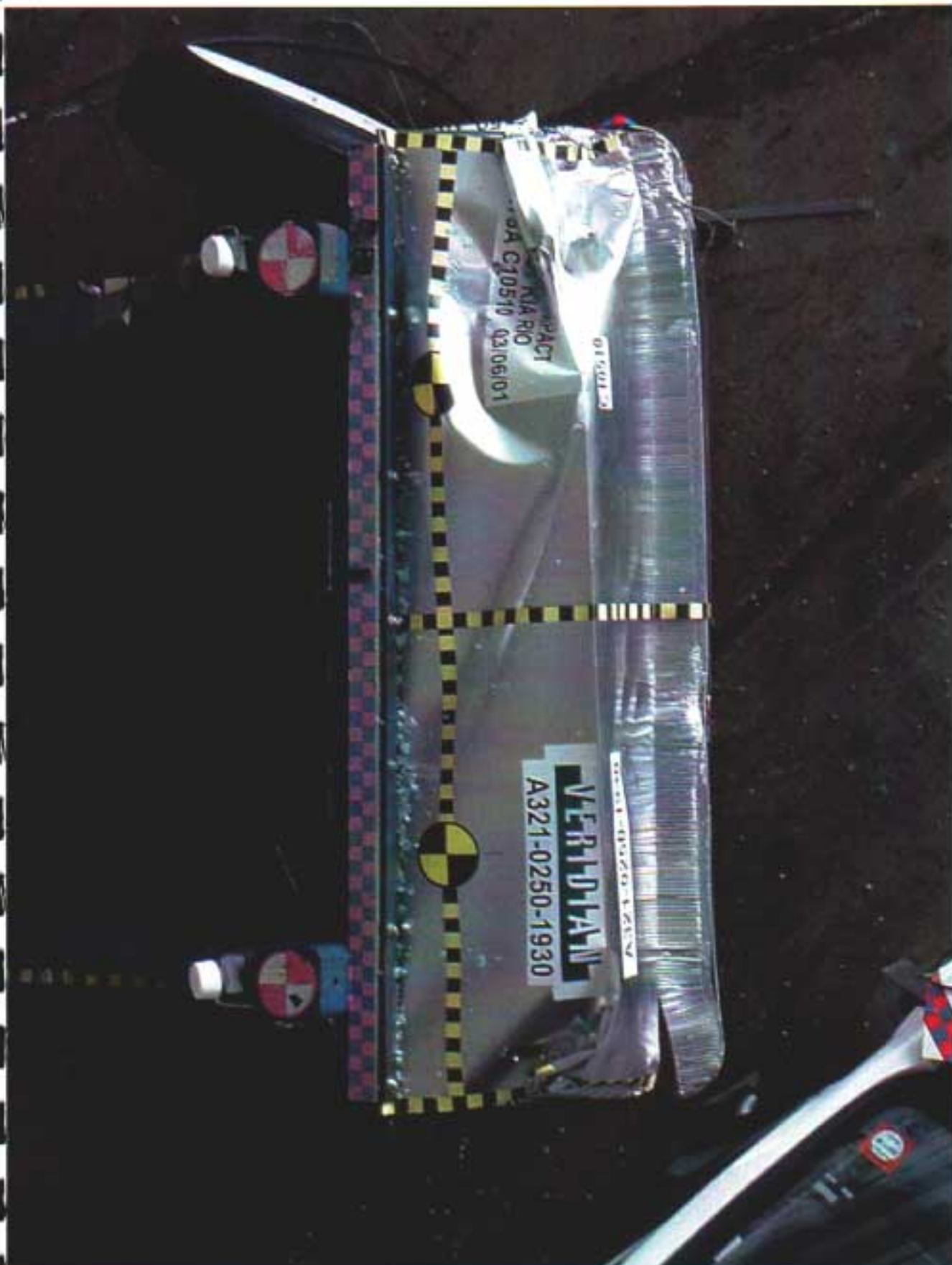


Figure A-14 POST-TEST TOP VIEW OF IMPACTOR FACE

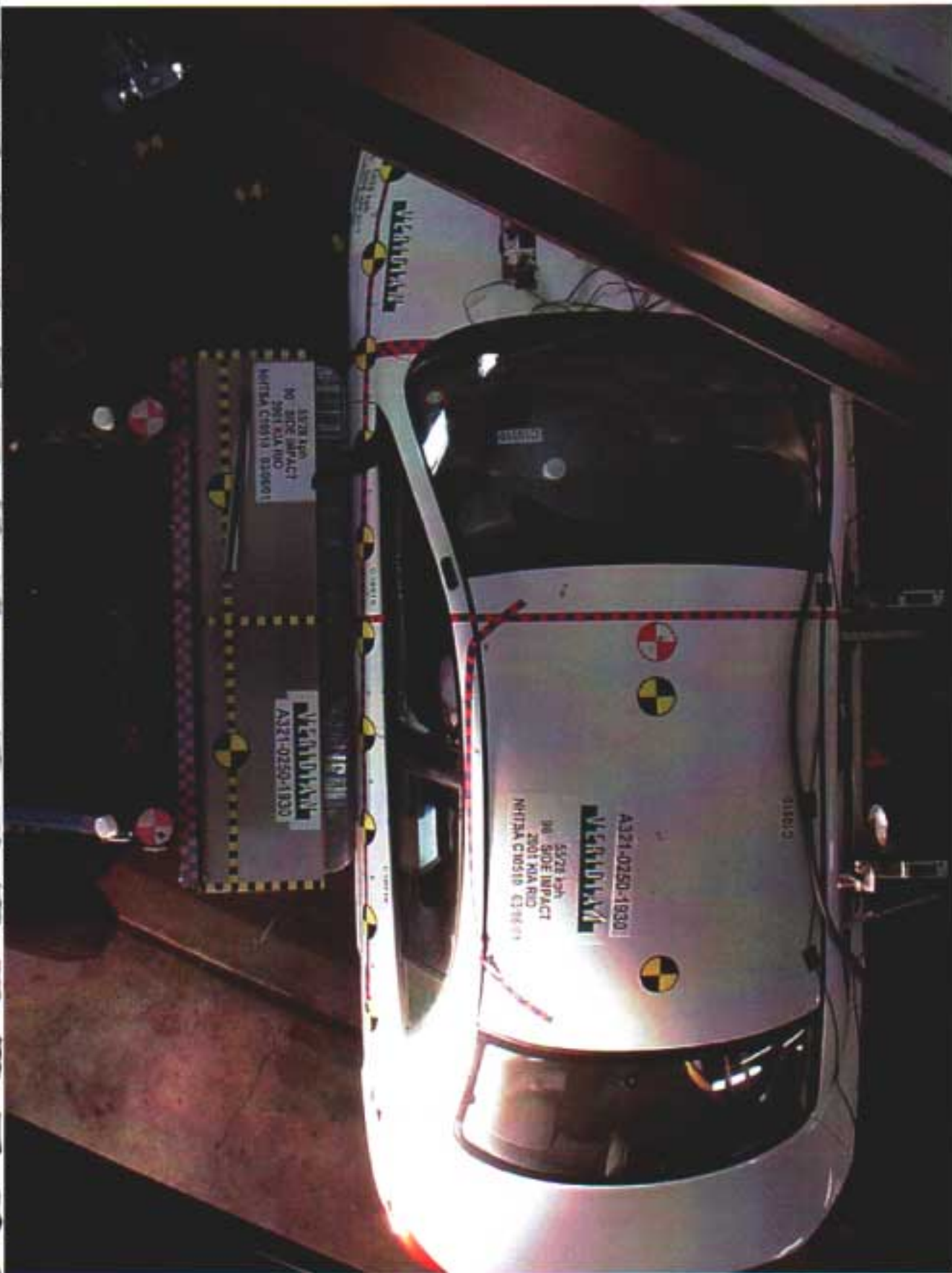


Figure A-15 PRE-TEST OVERHEAD VIEW OF ALIGNED MDB AND VEHICLE

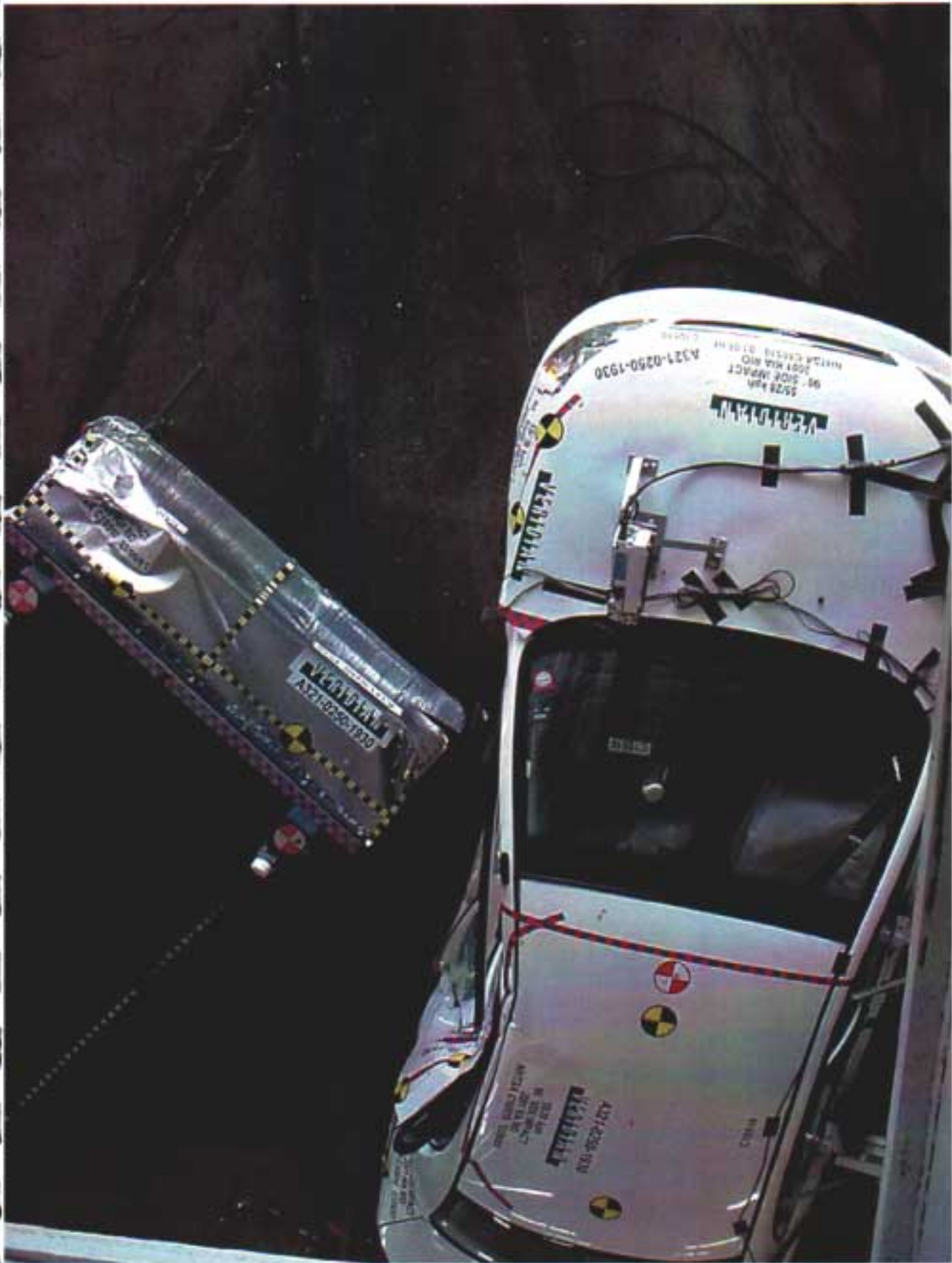


Figure A-16 POST-TEST OVERHEAD VIEW OF MDB AND VEHICLE

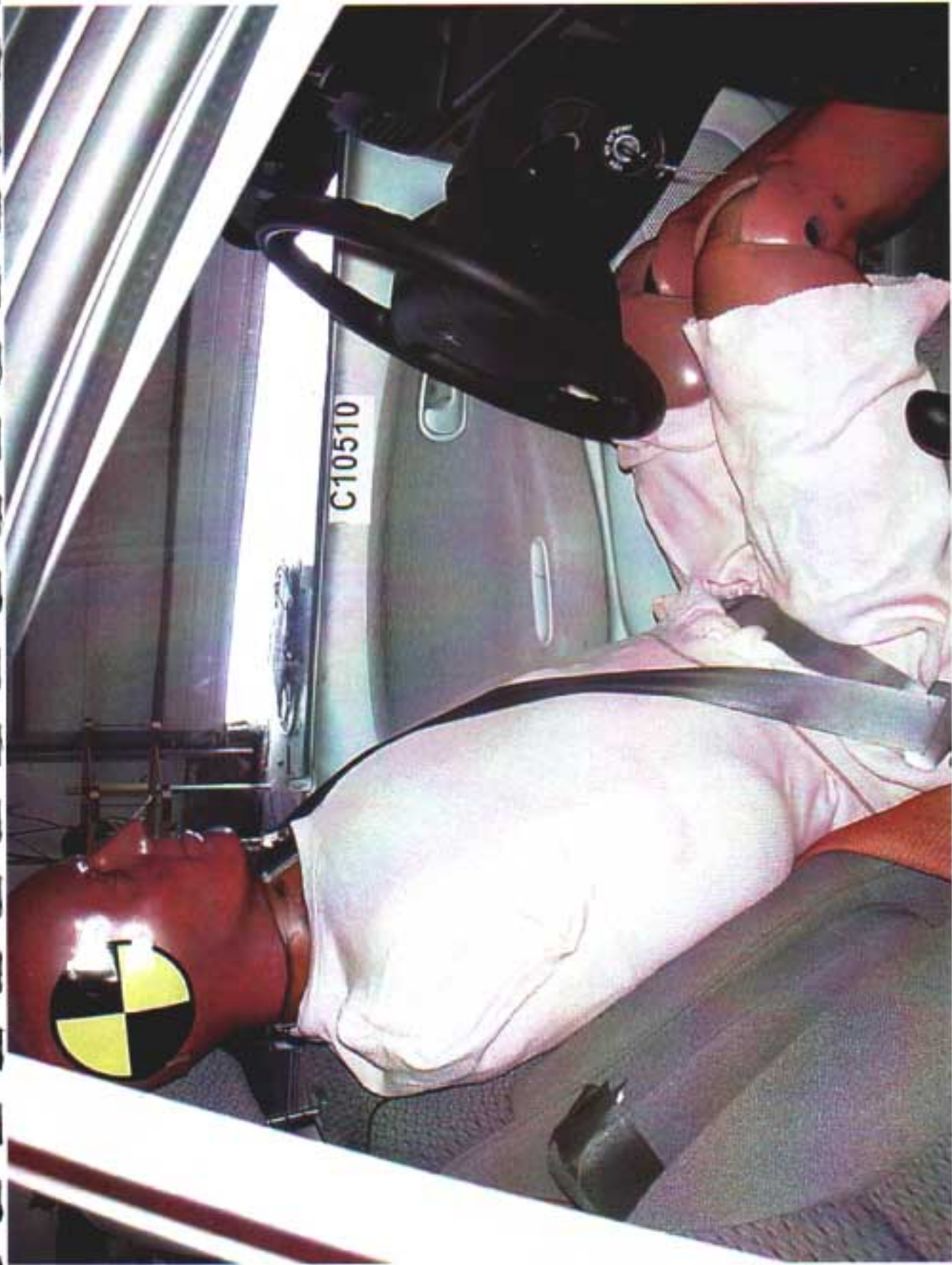


Figure A-17 PRE-TEST RIGHT OCCUPANT COMPARTMENT VIEW OF FRONT SID



Figure A-18 POST-TEST RIGHT OCCUPANT COMPARTMENT VIEW OF FRONT SID



Figure A-19 PRE-TEST RIGHT OCCUPANT COMPARTMENT VIEW OF REAR SID

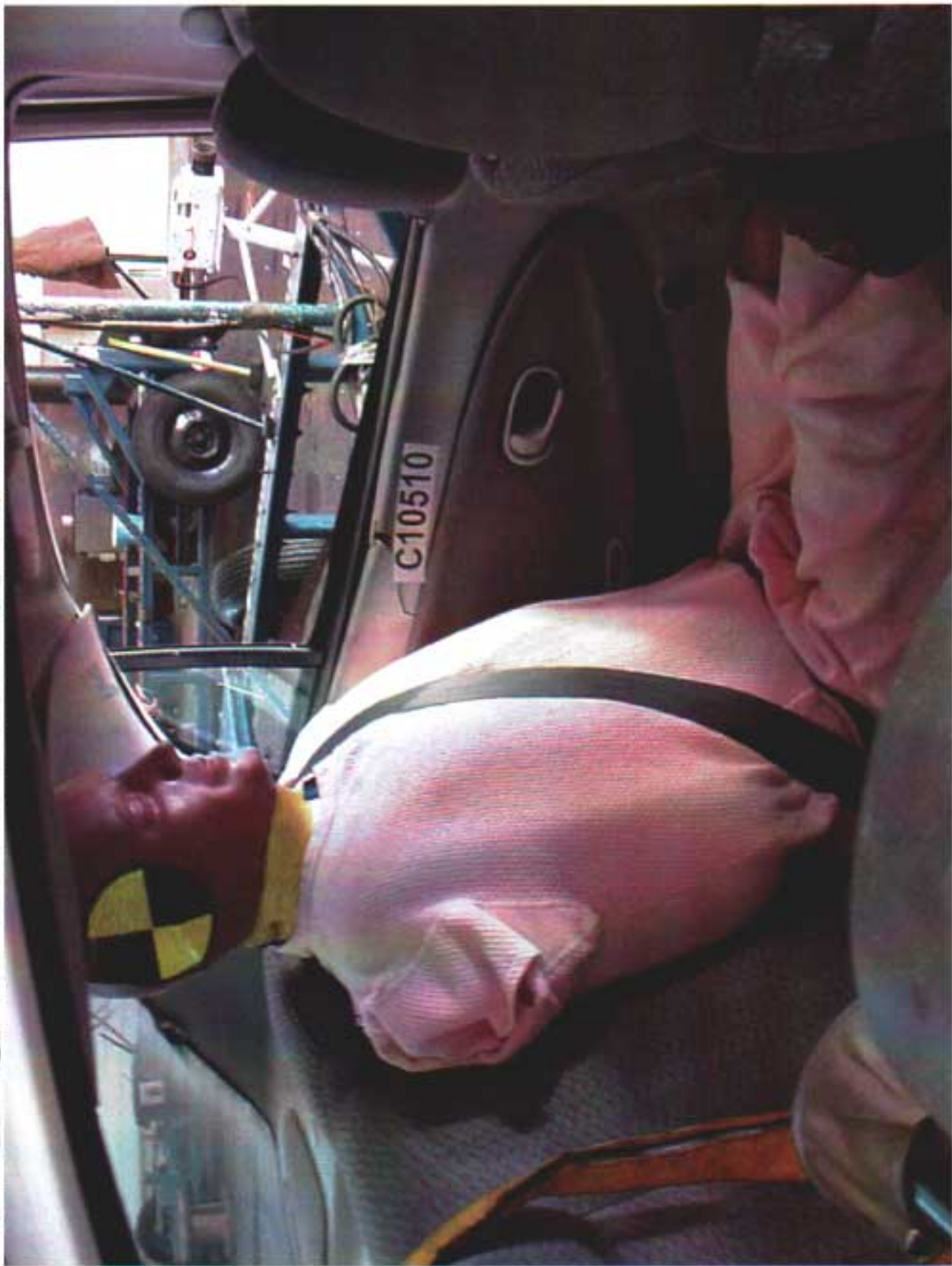


Figure A-20 POST-TEST RIGHT OCCUPANT COMPARTMENT VIEW OF REAR SID



Figure A-21 PRE-TEST LEFT OCCUPANT COMPARTMENT VIEW OF FRONT SID



Figure A-22 POST-TEST LEFT OCCUPANT COMPARTMENT VIEW OF FRONT SID

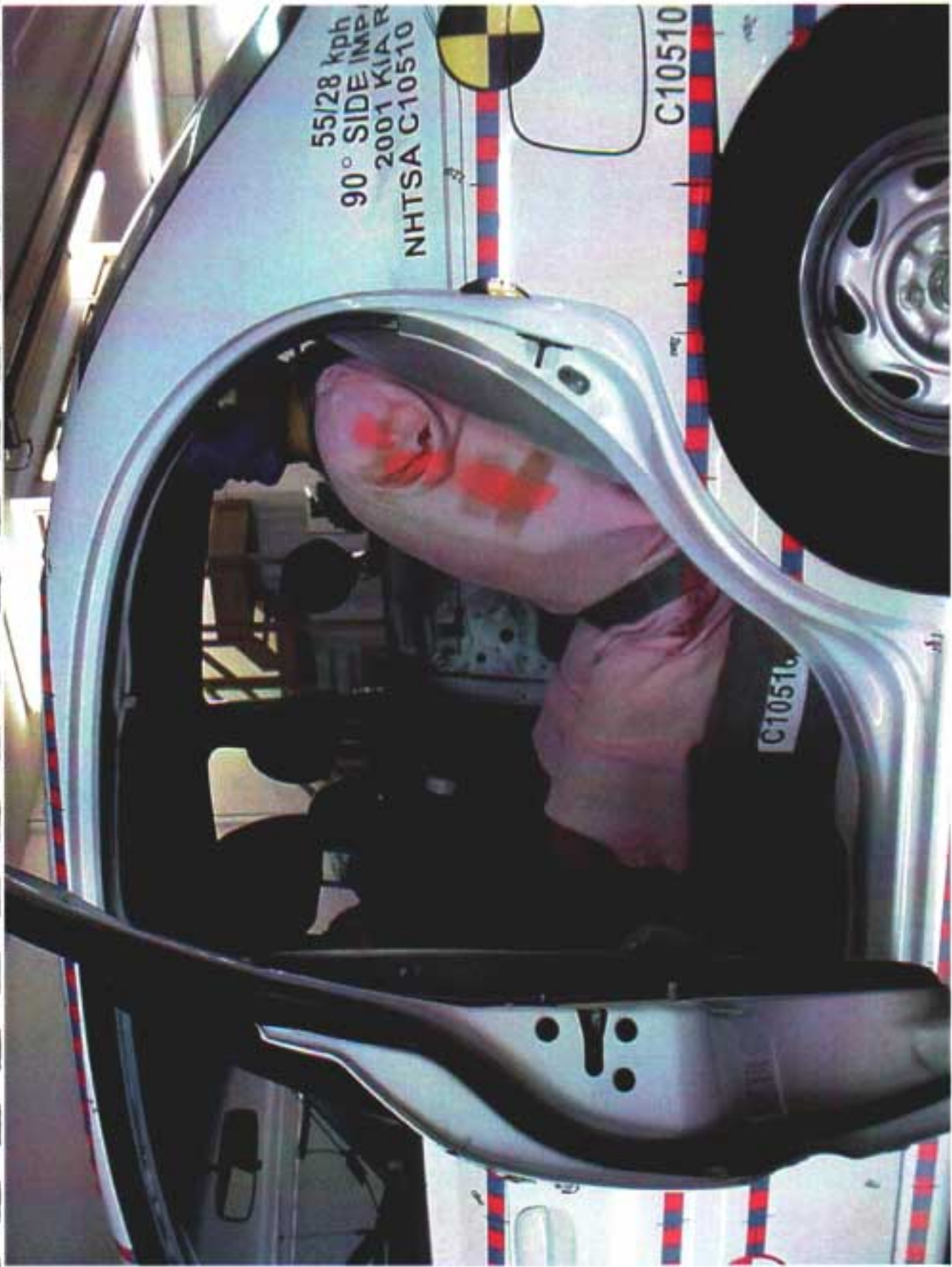


Figure A-23 PRE-TEST LEFT OCCUPANT COMPARTMENT VIEW OF REAR SID

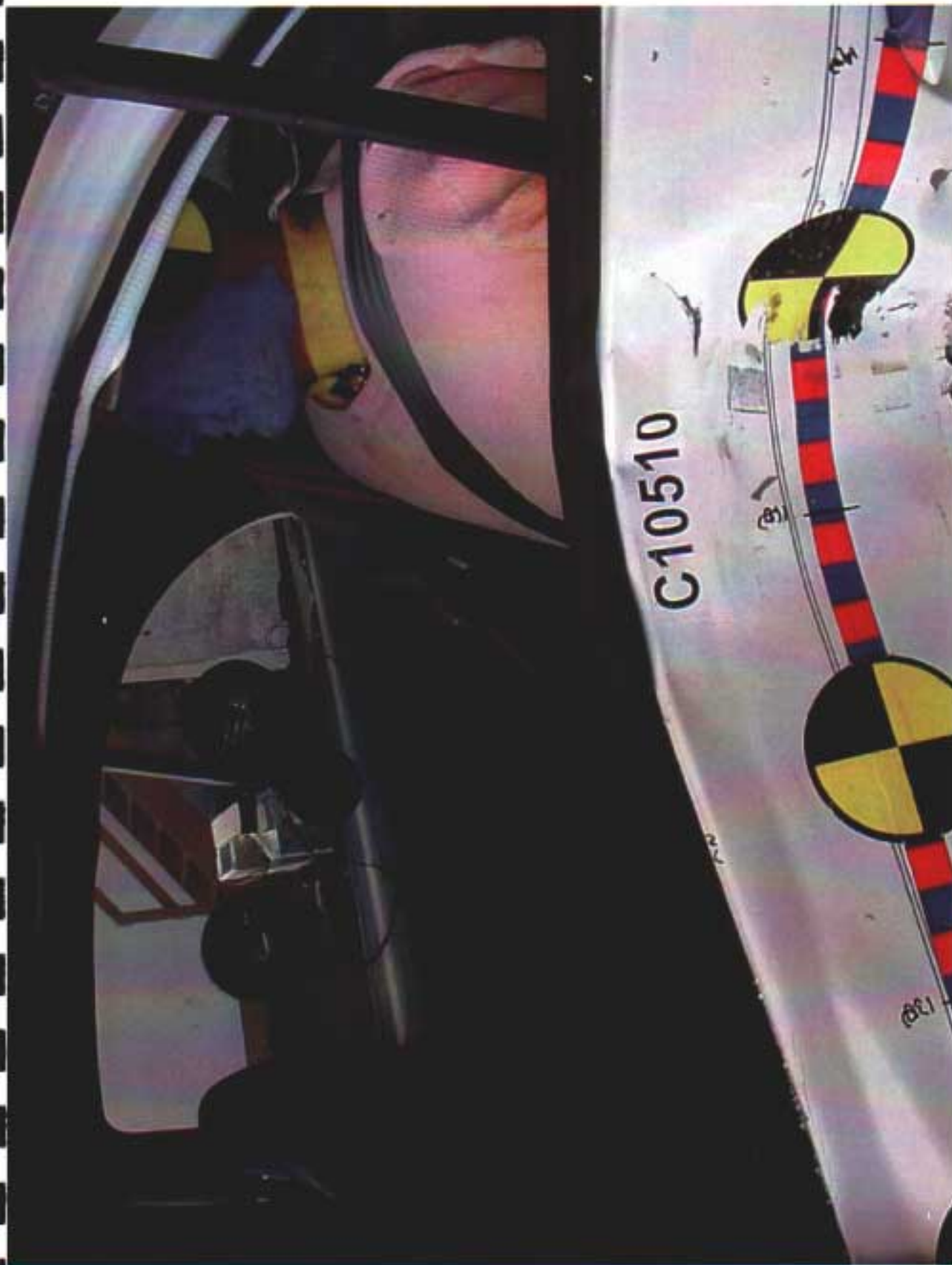


Figure A-24 POST-TEST LEFT OCCUPANT COMPARTMENT VIEW OF REAR SID

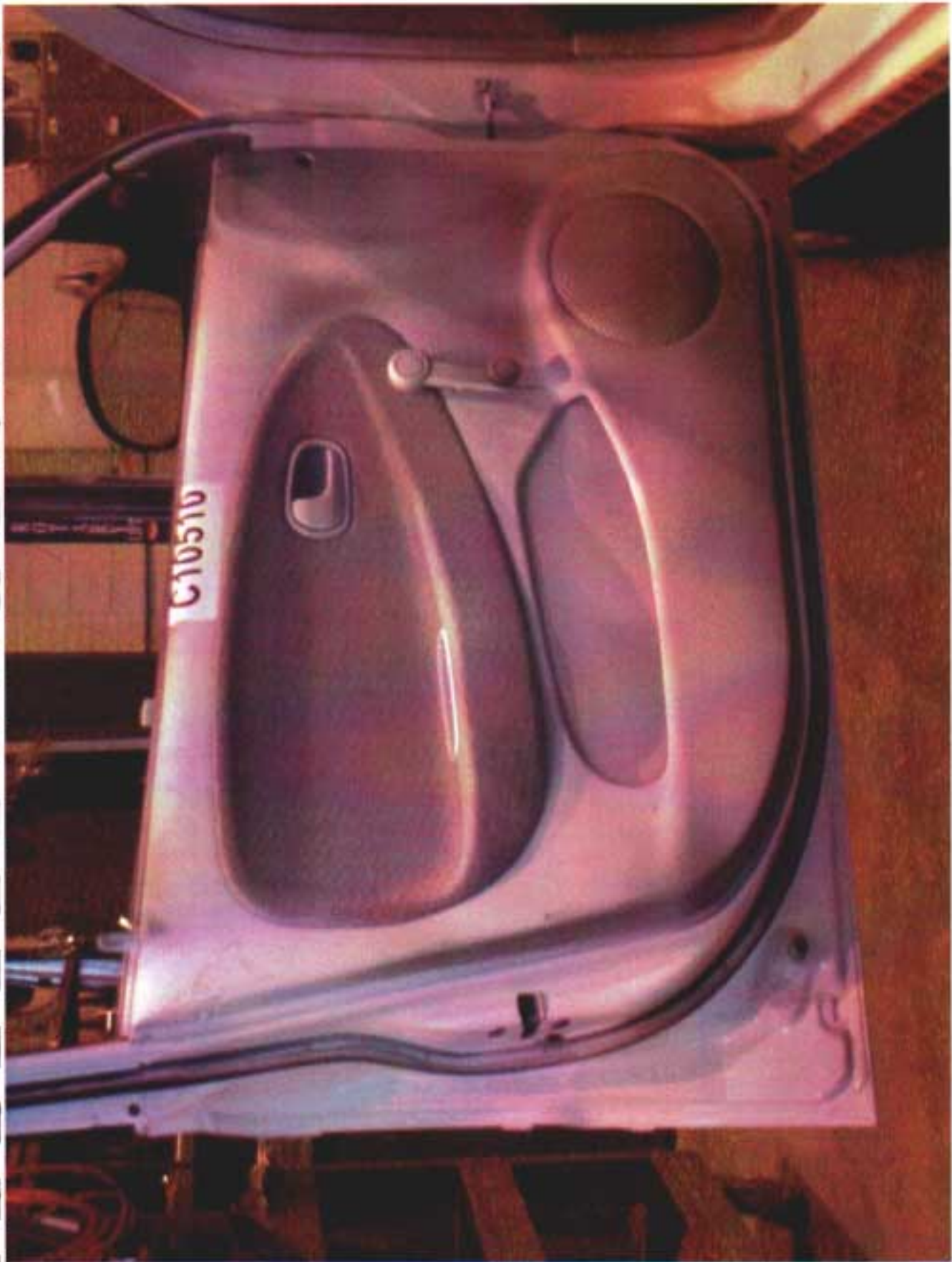


Figure A-25 PRE-TEST INTERIOR OF FRONT DOOR



Figure A-26 POST-TEST INTERIOR OF FRONT DOOR SHOWING SID IMPACT LOCATIONS

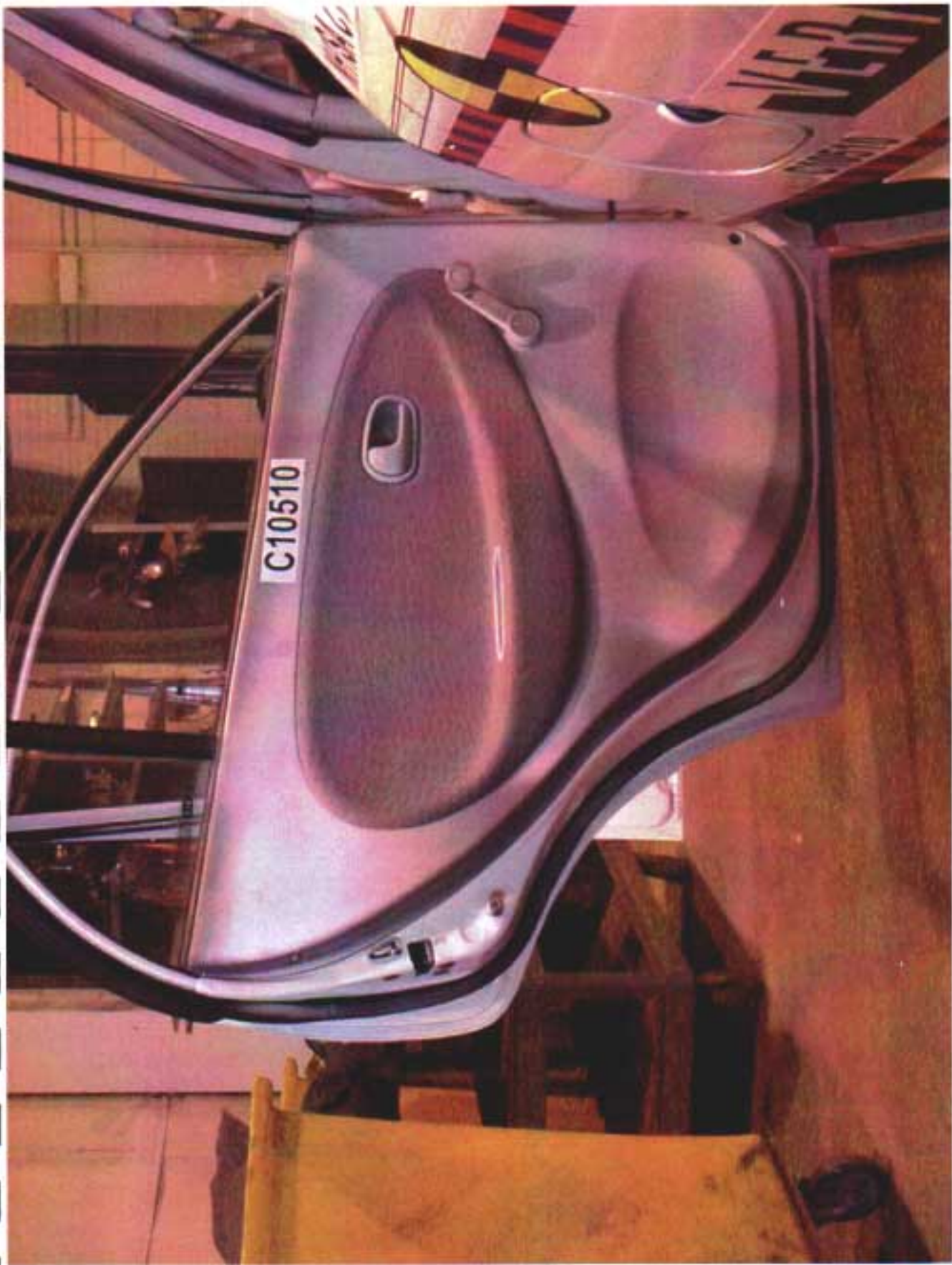


Figure A-27 PRE-TEST INTERIOR OF REAR DOOR

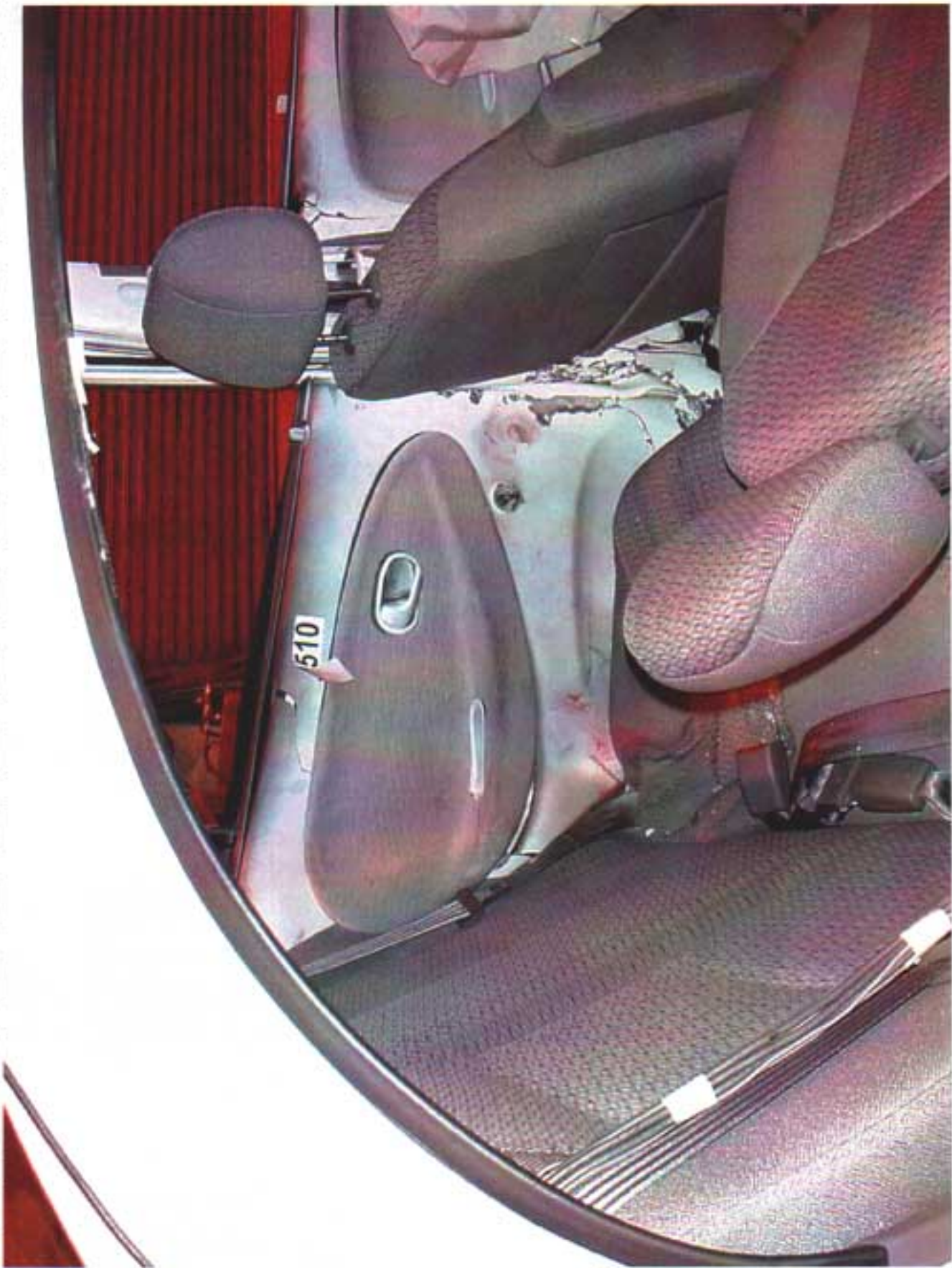


Figure A-28 POST-TEST INTERIOR OF REAR DOOR SHOWING SID IMPACT LOCATIONS

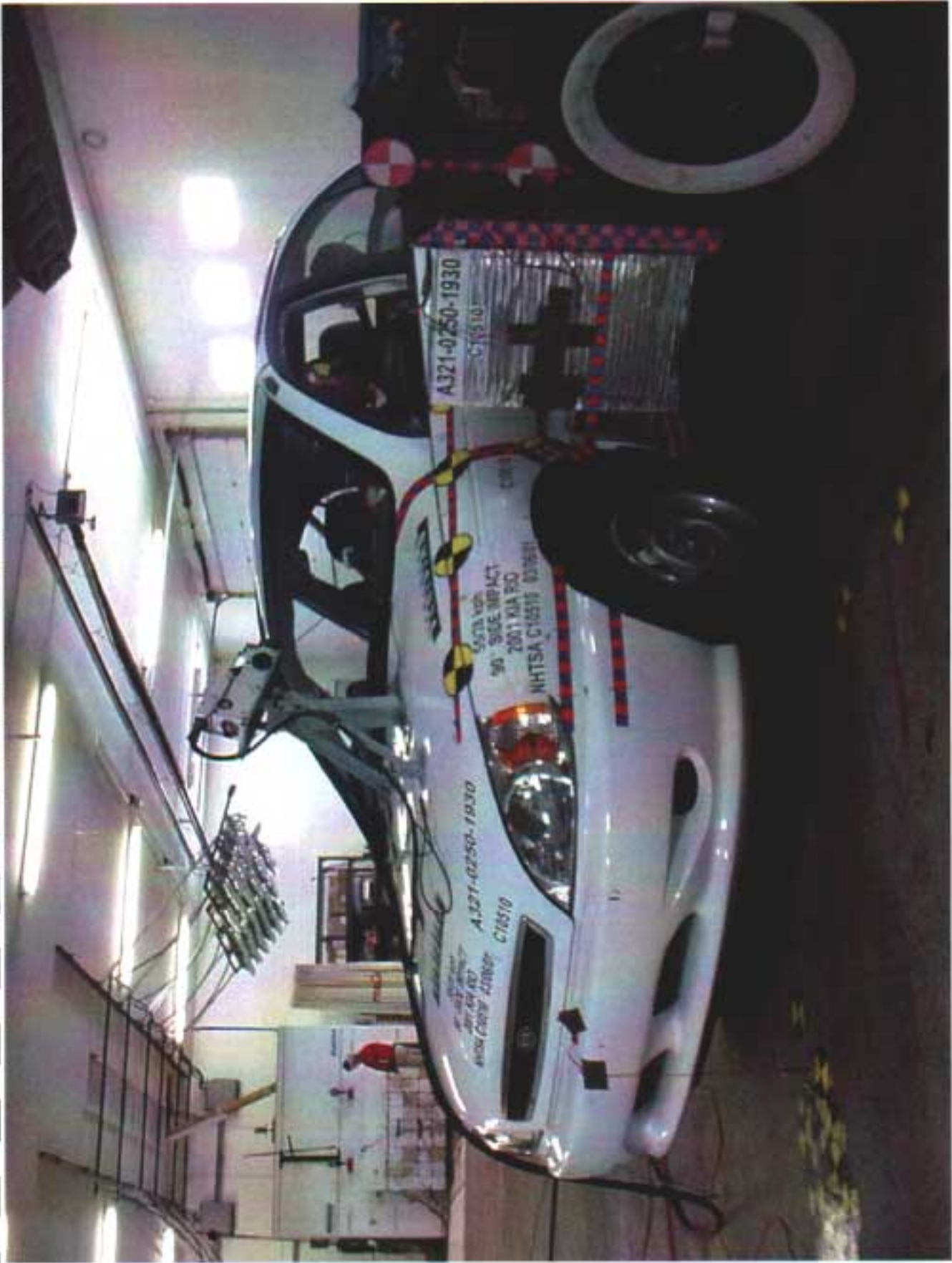


Figure A-29 PRE-TEST LEFT SIDE VIEW OF MDB WITH IMPACTOR FACE IN POSITION



Figure A-30 PRE-TEST RIGHT SIDE VIEW OF MDB WITH IMPACTOR FACE IN POSITION



Figure A-31 POST-TEST CLOSE-UP VIEW OF IMPACT POINT TARGET

MAZDA MOTOR CO

DATE: 05/22/00
VIN: 3195 UB GUMB FT 1634 UB SURE IS 1551 UB
1449 KG PWR FT 741 KG PWR IS 708 KG

THIS VEHICLE CONFORMS TO ALL APPLICABLE FEDERAL MOTOR VEHICLE SAFETY STANDARDS AND TEST PREVENTION STANDARDS IN EFFECT ON THE DATE OF MANUFACTURE SHOWN ABOVE.

VIN: KNADG123716507513
TYPE: PASSENGER CAR

EXCESSIVE WEIGHT COULD AFFECT PERFORMANCE

EXCESSIVE WEIGHT COULD AFFECT PERFORMANCE

MADE IN KOREA

VIN LABEL



137
+

Figure A-32 CLOSE-UP VIEW OF VEHICLE'S CERTIFICATION LABEL

RECOMMENDED TIRE SIZE AND INFLATION PRESSURE (COLD) RECOMMANDÉS DES PNEUS ET PRESSIONS DE GONFLAGE RECOMMANDÉES (À FROID)			
TIRE TYPE / TYPE DE PNEU	TIRE LOAD RANGE (COLD NOT PERMISSIBLE) PNEUS (CHARGES NOMINALES C'EST À FROID PERMISSE)	PRESSURE / PRESSION	
		FRONT / AVANT	REAR / ARRIÈRE
STD	P155/80R13 79T P175/70R13 82T P175/65R14 82T	29 psi 200 kPa	29 psi 200 kPa
T	T105/70D14 TEMPORARY SPARE T105/70R14 TEMPORARY SPARE PNEU DE SECOURS PROVISOIRE	60 psi 415 kPa	60 psi 415 kPa
TOTAL LOAD = OCCUPANTS PLUS LUGGAGE CHARGE GLOBALE = OCCUPANTS PLUS BAGAGES			
MODEL / MODÈLE	MAXIMUM LOAD CHARGE MAXIMALE	DISTRIBUTION / RÉPARTITION	
		FRONT / AVANT	REAR / ARRIÈRE
ALL TOUS	915 lb/415 kg	2	3
SEE OWNER'S MANUAL FOR ADDITIONAL INFORMATION		VOIR MANUEL DE CONDUCTEUR POUR DES INFORMATIONS SUPPLÉMENTAIRES	

Figure A-33 CLOSE-UP VIEW OF VEHICLE'S TIRE PLACARD LABEL



Figure A-34 IMPACT PHOTO

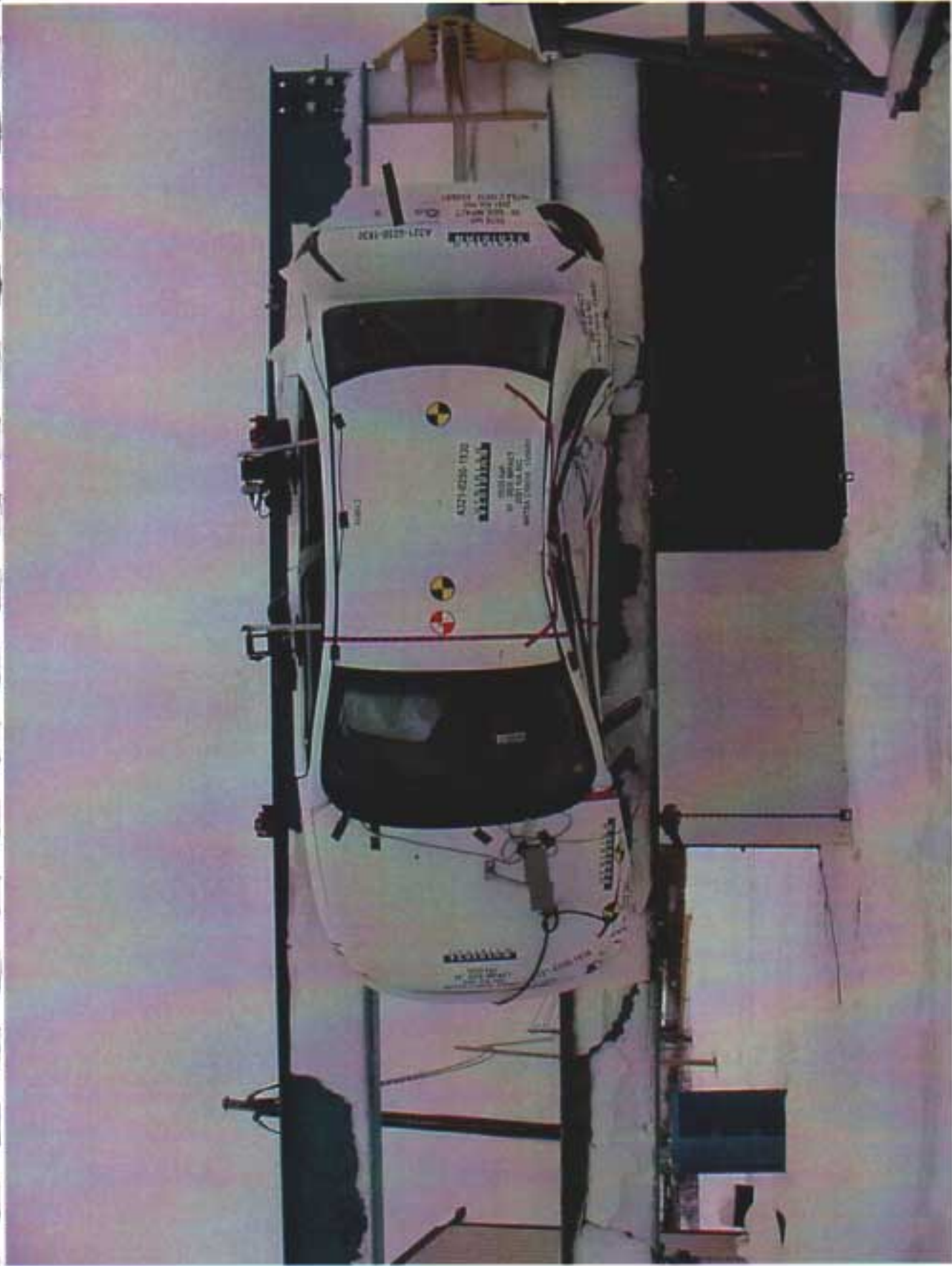


Figure A-35 ROLLOVER 90 DEGREES



Figure A-36 ROLLOVER 180 DEGREES

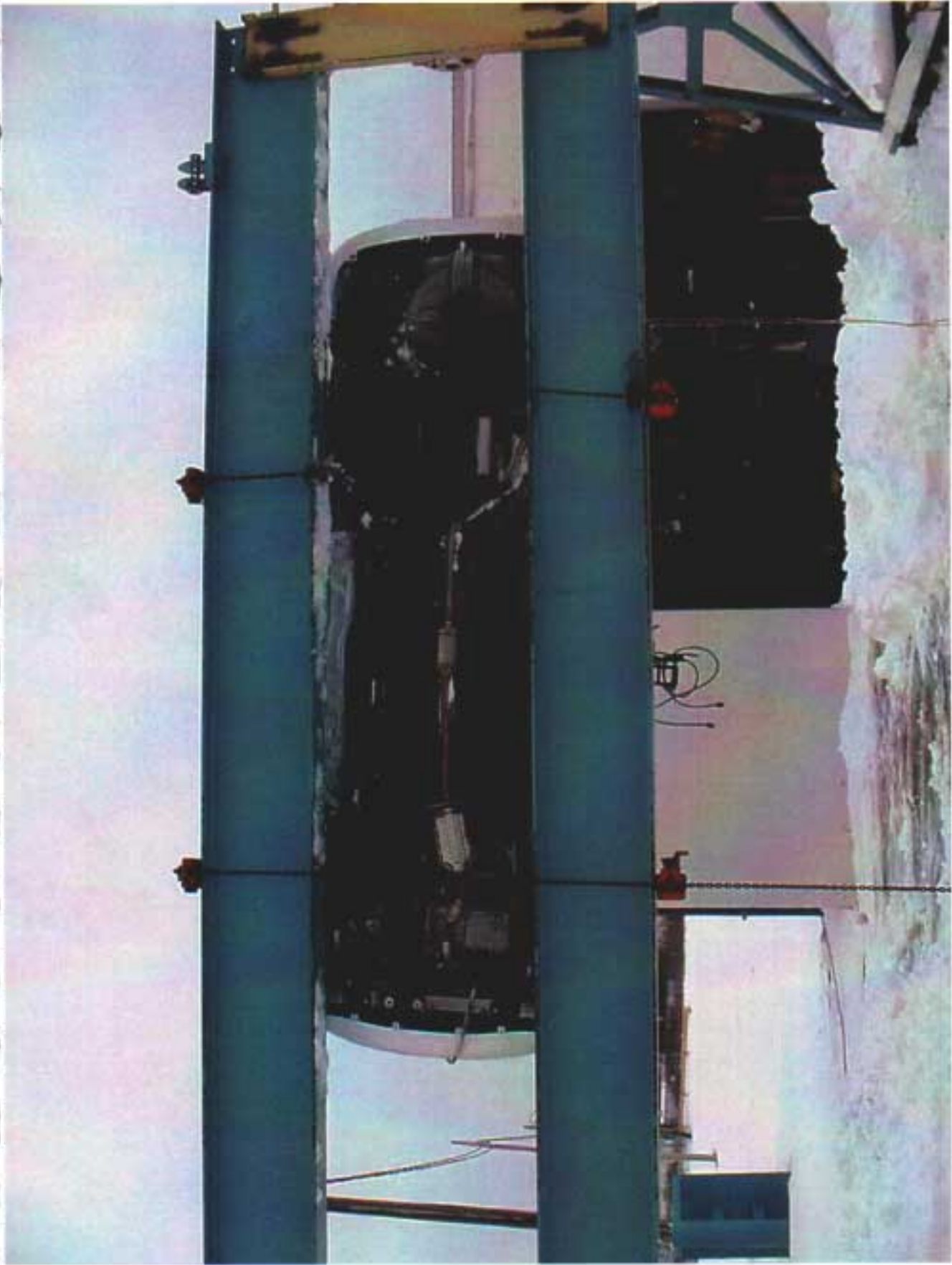


Figure A-37 ROLLOVER 270 DEGREES



Figure A-38 ROLLOVER 360 DEGREES

APPENDIX B

VEHICLE, MDB AND SID RESPONSE DATA

TABLE OF DATA PLOTS

DRIVER AND PASSENGER DUMMY INSTRUMENTATION PLOTS ACCELERATION DATA FILTER CLASS 1000 INTEGRATION DATA FILTER CLASS 180

<u>Plot No</u>	<u>Data Plot Title</u>	<u>Page</u>
1	DRIVER HEAD (X) ACCELERATION VS TIME	B 6
2	DRIVER HEAD (X) VELOCITY VS TIME	B 7
3	DRIVER HEAD (Y) ACCELERATION VS TIME	B 8
4	DRIVER HEAD (Y) VELOCITY VS TIME	B 9
5	DRIVER HEAD (Z) ACCELERATION VS TIME	B 10
6	DRIVER HEAD (Z) VELOCITY VS TIME	B 11
7	DRIVER HEAD RESULTANT VS TIME	B 12
8	DRIVER UPPER RIB (Y) ACCELERATION VS TIME	B 13
9	DRIVER UPPER RIB (Y) VELOCITY VS TIME	B 14
10	DRIVER LOWER RIB (Y) ACCELERATION VS TIME	B 15
11	DRIVER LOWER RIB (Y) VELOCITY VS TIME	B 16
12	DRIVER LOWER SPINE (Y) ACCELERATION VS TIME	B 17
13	DRIVER LOWER SPINE (Y) VELOCITY VS TIME	B 18
14	DRIVER PELVIC (Y) ACCELERATION VS TIME	B 19
15	DRIVER PELVIC (Y) VELOCITY VS TIME	B 20
16	PASSENGER HEAD (X) ACCELERATION VS TIME	B 21
17	PASSENGER HEAD (X) VELOCITY VS TIME	B 22
18	PASSENGER HEAD (Y) ACCELERATION VS TIME	B 23
19	PASSENGER HEAD (Y) VELOCITY VS TIME	B 24
20	PASSENGER HEAD (Z) ACCELERATION VS TIME	B 25
21	PASSENGER HEAD (Z) VELOCITY VS TIME	B 26
22	PASSENGER HEAD RESULTANT VS TIME	B 27
23	PASSENGER UPPER RIB (Y) ACCELERATION VS TIME	B 28
24	PASSENGER UPPER RIB (Y) VELOCITY VS TIME	B 29
25	PASSENGER LOWER RIB (Y) ACCELERATION VS TIME	B 30
26	PASSENGER LOWER RIB (Y) VELOCITY VS TIME	B 31
27	PASSENGER LOWER SPINE (Y) ACCELERATION VS TIME	B 32
28	PASSENGER LOWER SPINE (Y) VELOCITY VS TIME	B 33
29	PASSENGER PELVIC (Y) ACCELERATION VS TIME	B 34
30	PASSENGER PELVIC (Y) VELOCITY VS TIME	B 35

DRIVER & PASSENGER DUMMY INSTRUMENTATION PLOTS ACCELERATION DATA FIR FILTERED

<u>Plot No</u>	<u>Data Plot Title</u>	<u>Page</u>
31	DRIVER UPPER RIB (Y) ACCELERATION VS TIME	B 36
32	DRIVER LOWER RIB (Y) ACCELERATION VS TIME	B 37
33	DRIVER LOWER SPINE (Y) ACCELERATION VS TIME	B 38
34	DRIVER PELVIC (Y) ACCELERATION VS TIME	B 39
35	PASSENGER UPPER RIB (Y) ACCELERATION VS TIME	B 40
36	PASSENGER LOWER RIB (Y) ACCELERATION VS TIME	B 41
37	PASSENGER LOWER SPINE (Y) ACCELERATION VS TIME	B 42
38	PASSENGER PELVIC (Y) ACCELERATION VS TIME	B 43

TEST VEHICLE INSTRUMENTATION PLOTS
ACCELERATION DATA FILTER CLASS 60
INTTEGRATION DATA FILTER CLASS 180

<u>Plot No</u>	<u>Data Plot Title</u>	<u>Page</u>
39	RIGHT SIDE SILL AT FRONT SEAT (X) ACCELERATION VS TIME	B 44
40	RIGHT SIDE SILL AT FRONT SEAT (X) VELOCITY VS TIME	B 45
41	RIGHT SIDE SILL AT FRONT SEAT (Y) ACCELERATION VS TIME	B 46
42	RIGHT SIDE SILL AT FRONT SEAT (Y) VELOCITY VS TIME	B 47
43	RIGHT SIDE SILL AT FRONT SEAT (Z) ACCELERATION VS TIME	B 48
44	RIGHT SIDE SILL AT FRONT SEAT (Z) VELOCITY VS TIME	B 49
45	RIGHT SIDE SILL AT FRONT SEAT RESULTANT ACCELERATION VS TIME	B 50
46	RIGHT SIDE SILL AT REAR SEAT (X) ACCELERATION VS TIME	B 51
47	RIGHT SIDE SILL AT REAR SEAT (X) VELOCITY VS TIME	B 52
48	RIGHT SIDE SILL AT REAR SEAT (Y) ACCELERATION VS TIME	B 53
49	RIGHT SIDE SILL AT REAR SEAT (Y) VELOCITY VS TIME	B 54
50	RIGHT SIDE SILL AT REAR SEAT (Z) ACCELERATION VS TIME	B 55
51	RIGHT SIDE SILL AT REAR SEAT (Z) VELOCITY VS TIME	B 56
52	RIGHT SIDE SILL AT REAR SEAT RESULTANT ACCELERATION VS TIME	B 57
53	REAR FLOORPAN ABOVE AXLE (X) ACCELERATION VS TIME	B 58
54	REAR FLOORPAN ABOVE AXLE (X) VELOCITY VS TIME	B 59
55	REAR FLOORPAN ABOVE AXLE (Y) ACCELERATION VS TIME	B 60
56	REAR FLOORPAN ABOVE AXLE (Y) VELOCITY VS TIME	B 61
57	REAR FLOORPAN ABOVE AXLE (Z) ACCELERATION VS TIME	B 62
58	REAR FLOORPAN ABOVE AXLE (Z) VELOCITY VS TIME	B 63
59	REAR FLOORPAN ABOVE AXLE RESULTANT ACCELERATION VS TIME	B 64
60	LEFT SIDE SILL AT REAR SEAT (Y) ACCELERATION VS TIME	B 65
61	LEFT SIDE SILL AT REAR SEAT (Y) VELOCITY VS TIME	B 66
62	LEFT SIDE SILL AT FRONT SEAT (Y) ACCELERATION VS TIME	B 67
63	LEFT SIDE SILL AT FRONT SEAT (Y) VELOCITY VS TIME	B 68
64	RIGHT REAR OCCUPANT COMPARTMENT (Y) ACCELERATION VS TIME	B 69
65	RIGHT REAR OCCUPANT COMPARTMENT (Y) VELOCITY VS TIME	B 70
66	LOWER B POST (Y) ACCELERATION VS TIME	B 71
67	LOWER B POST (Y) VELOCITY VS TIME	B 72
68	UPPER B POST (Y) ACCELERATION VS TIME	B 73
69	UPPER B POST (Y) VELOCITY VS TIME	B 74
70	LOWER A POST (Y) ACCELERATION VS TIME	B 75
71	LOWER A POST (Y) VELOCITY VS TIME	B 76
72	UPPER A POST (Y) ACCELERATION VS TIME	B 77
73	UPPER A POST (Y) VELOCITY VS TIME	B 78
74	FRONT SEAT TRACK (Y) ACCELERATION VS TIME	B 79
75	FRONT SEAT TRACK (Y) VELOCITY VS TIME	B 80
76	REAR SEAT TRACK (Y) ACCELERATION VS TIME	B 81
77	REAR SEAT TRACK (Y) VELOCITY VS TIME	B 82

TEST VEHICLE INSTRUMENTATION PLOTS
ACCELERATION DATA FILTER CLASS 60
INTEGRATION DATA FILTER CLASS 180

<u>Plot No</u>	<u>Data Plot Title</u>	<u>Page</u>
78	VEHICLE CENTER OF GRAVITY (X) ACCELERATION VS TIME	B 83
79	VEHICLE CENTER OF GRAVITY (X) VELOCITY VS TIME	B 84
80	VEHICLE CENTER OF GRAVITY (Y) ACCELERATION VS TIME	B 85
81	VEHICLE CENTER OF GRAVITY (Y) VELOCITY ACCELERATION VS TIME	B 86
82	VEHICLE CENTER OF GRAVITY (Z) ACCELERATION VS TIME	B 87
83	VEHICLE CENTER OF GRAVITY (Z) VELOCITY VS TIME	B 88
84	VEHICLE CENTER OF GRAVITY RESULTANT ACCELERATION VS TIME	B 89

MDB INSTRUMENTATION PLOTS
ACCELERATION DATA FILTER CLASS 60
INTEGRATION DATA FILTER CLASS 180

<u>Plot No</u>	<u>Data Plot Title</u>	<u>Page</u>
85	MDB CENTER OF GRAVITY (X) ACCELERATION VS TIME	B 90
86	MDB CENTER OF GRAVITY (X) VELOCITY VS TIME	B 91
87	MDB CENTER OF GRAVITY (Y) ACCELERATION VS TIME	B 92
88	MDB CENTER OF GRAVITY (Y) VELOCITY VS TIME	B 93
89	MDB CENTER OF GRAVITY (Z) ACCELERATION VS TIME	B 94
90	MDB CENTER OF GRAVITY (Z) VELOCITY VS TIME	B 95
91	MDB CENTER OF GRAVITY RESULTANT ACCELERATION VS TIME	B 96
92	MDB REAR (X) ACCELERATION VS TIME	B 97
93	MDB REAR (X) VELOCITY VS TIME	B 98
94	MDB REAR (Y) ACCELERATION VS TIME	B 99
95	MDB REAR (Y) VELOCITY VS TIME	B 100

DRIVER & PASSENGER DUMMY INSTRUMENTATION PLOTS (REDUNDANT)

ACCELERATION DATA FILTER CLASS 1000

INTEGRATION DATA FILTER CLASS 180

<u>Plot No</u>	<u>Data Plot Title</u>	<u>Page</u>
96	DRIVER UPPER RIB (Y) ACCELERATION VS TIME	B 101
97	DRIVER UPPER RIB (Y) VELOCITY VS TIME	B 102
98	DRIVER LOWER RIB (Y) ACCELERATION VS TIME	B 103
99	DRIVER LOWER RIB (Y) VELOCITY VS TIME	B 104
100	DRIVER LOWER SPINE (Y) ACCELERATION VS TIME	B- 105
101	DRIVER LOWER SPINE (Y) VELOCITY VS TIME	B 106
102	DRIVER PELVIC (Y) ACCELERATION VS TIME	B 107
103	DRIVER PELVIC (Y) VELOCITY VS TIME	B 108
104	PASSENGER UPPER RIB (Y) ACCELERATION VS TIME	B 109
105	PASSENGER UPPER RIB (Y) VELOCITY VS TIME	B 110
106	PASSENGER LOWER RIB (Y) ACCELERATION VS TIME	B 111
107	PASSENGER LOWER RIB (Y) VELOCITY VS TIME	B 112
108	PASSENGER LOWER SPINE (Y) ACCELERATION VS TIME	B 113
109	PASSENGER LOWER SPINE (Y) VELOCITY VS TIME	B 114
110	PASSENGER PELVIC (Y) ACCELERATION VS TIME	B 115
111	PASSENGER PELVIC (Y) VELOCITY VS TIME	B 116

DRIVER & PASSENGER DUMMY INSTRUMENTATION PLOTS (REDUNDANT)

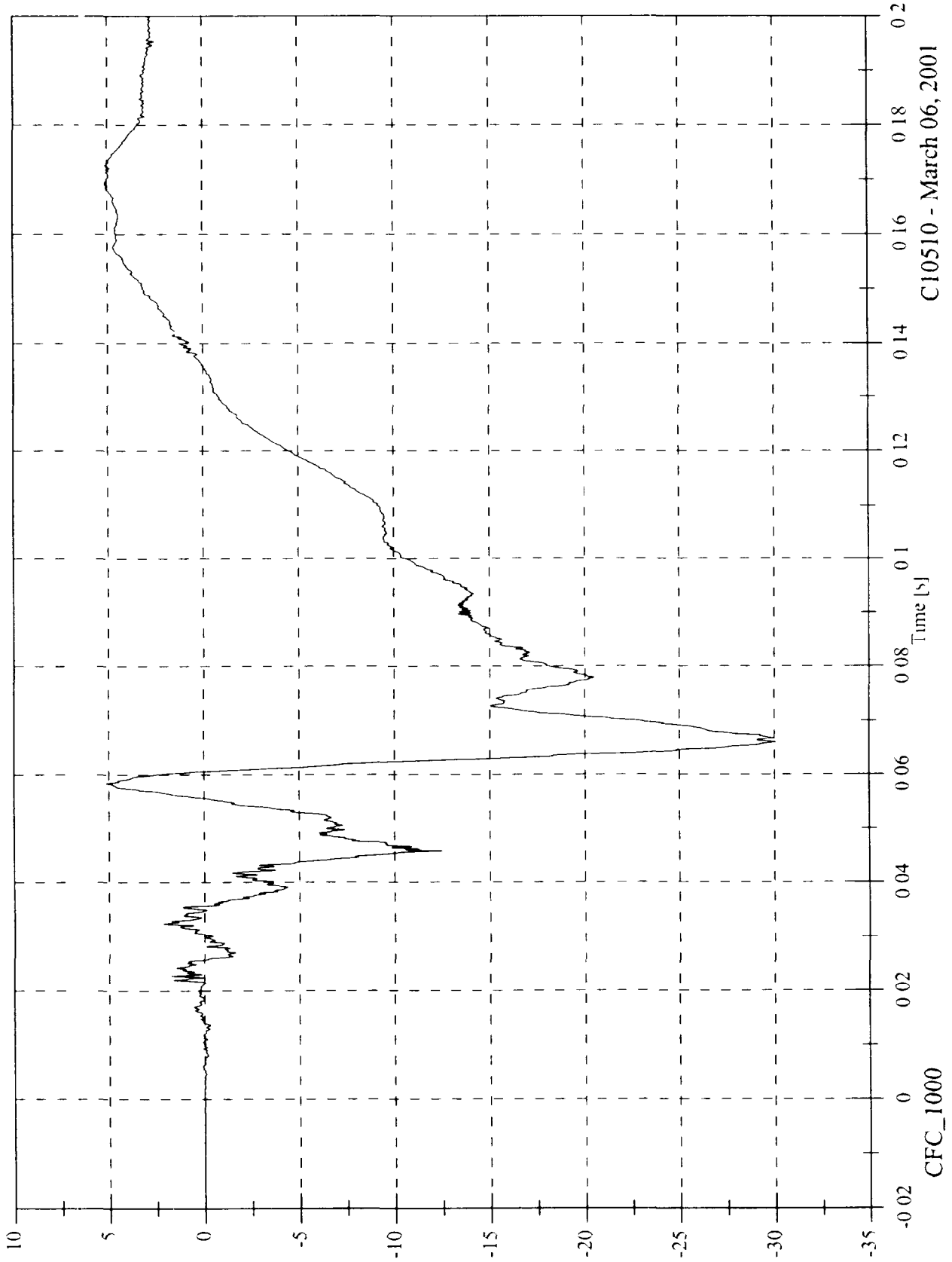
ACCELERATION DATA FIR FILTERED

<u>Plot No</u>	<u>Data Plot Title</u>	<u>Page</u>
112	DRIVER UPPER RIB (Y) ACCELERATION VS TIME	B 117
113	DRIVER LOWER RIB (Y) ACCELERATION VS TIME	B 118
114	DRIVER LOWER SPINE (Y) ACCELERATION VS TIME	B 119
115	DRIVER PELVIC (Y) ACCELERATION VS TIME	B 120
116	PASSENGER UPPER RIB (Y) ACCELERATION VS TIME	B 121
117	PASSENGER LOWER RIB (Y) ACCELERATION VS TIME	B 122
118	PASSENGER LOWER SPINE (Y) ACCELERATION VS TIME	B 123
119	PASSENGER PELVIC (Y) ACCELERATION VS TIME	B 124

FMVSS 214D Indicant Test 25 2001 Kia Rio

Max 5.1 [g] at 0.058 [s]
Min -30.1 [g] at 0.066 [s]

P1 Head x

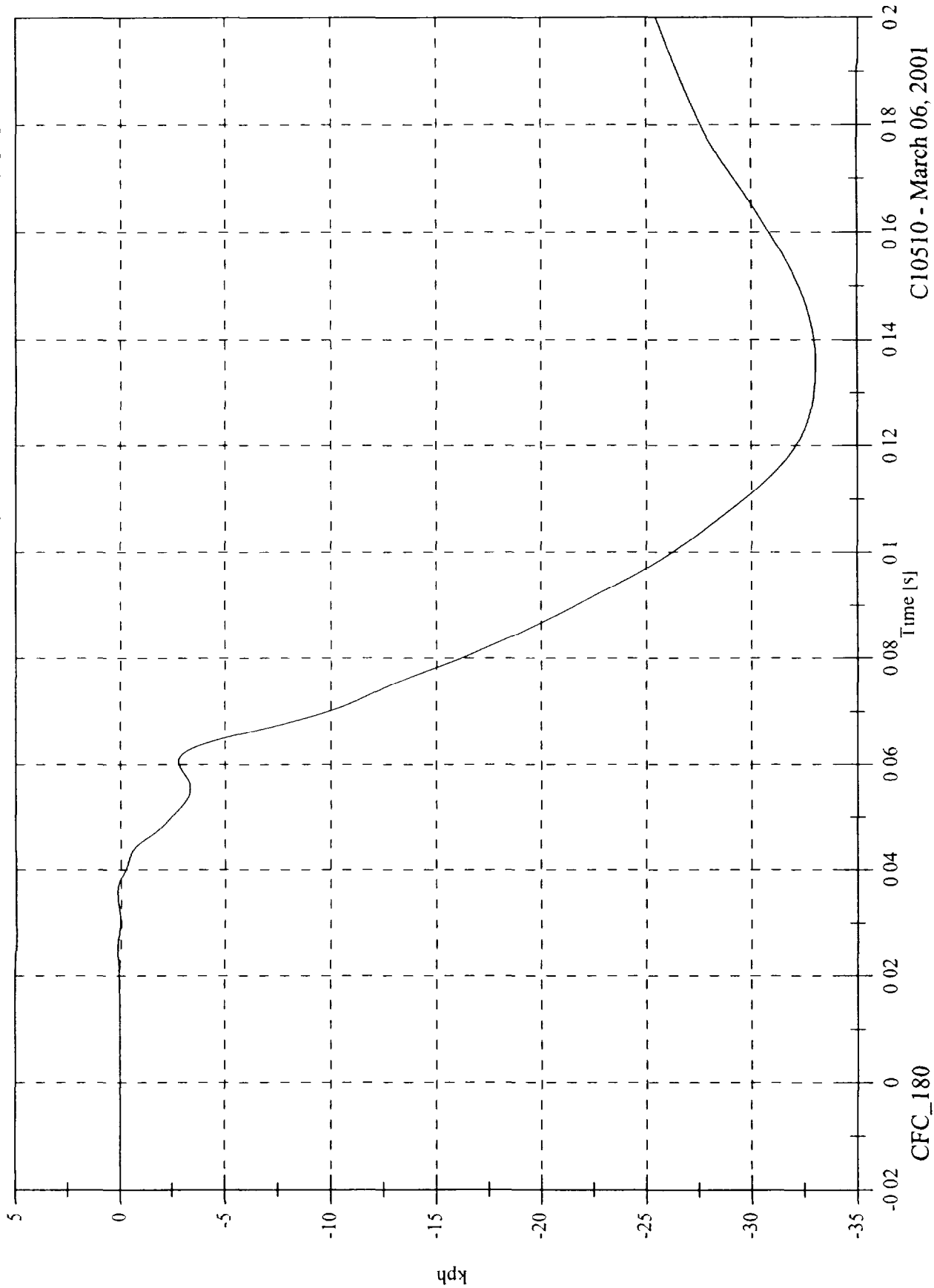


C10510 - March 06, 2001

FMVSS 214D Inducant Test 25 2001 Kia Rio

Max 0.2 [kph] at 0.036 [s]
Min -33.0 [kph] at 0.136 [s]

P1 Head x Velocity



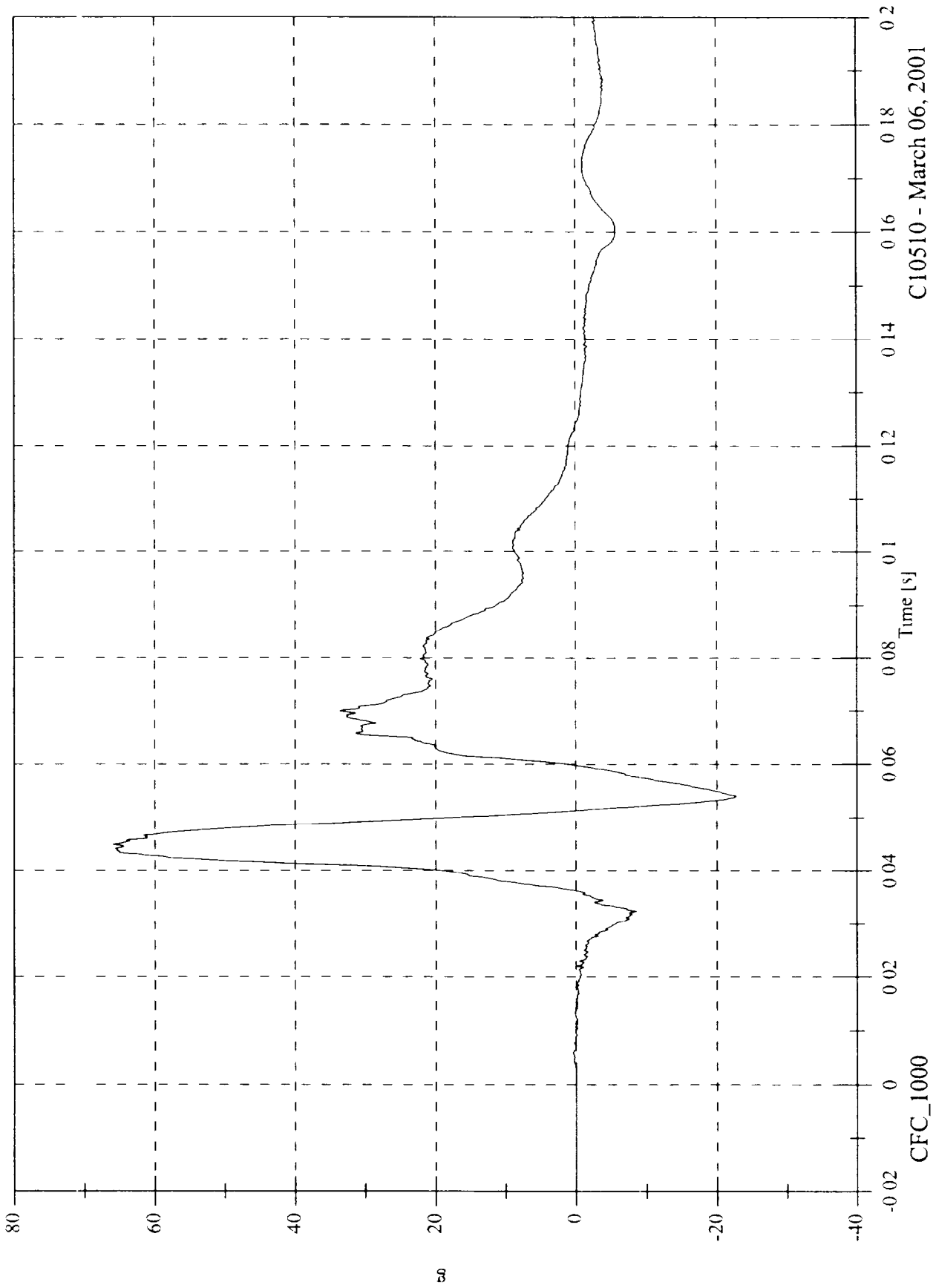
C10510 - March 06, 2001

CFC_180

FMVSS 214D Indicant Test 25 2001 Kia Rio

Max 65.9 [g] at 0.045 [s]
Min -22.8 [g] at 0.054 [s]

P1 Head y

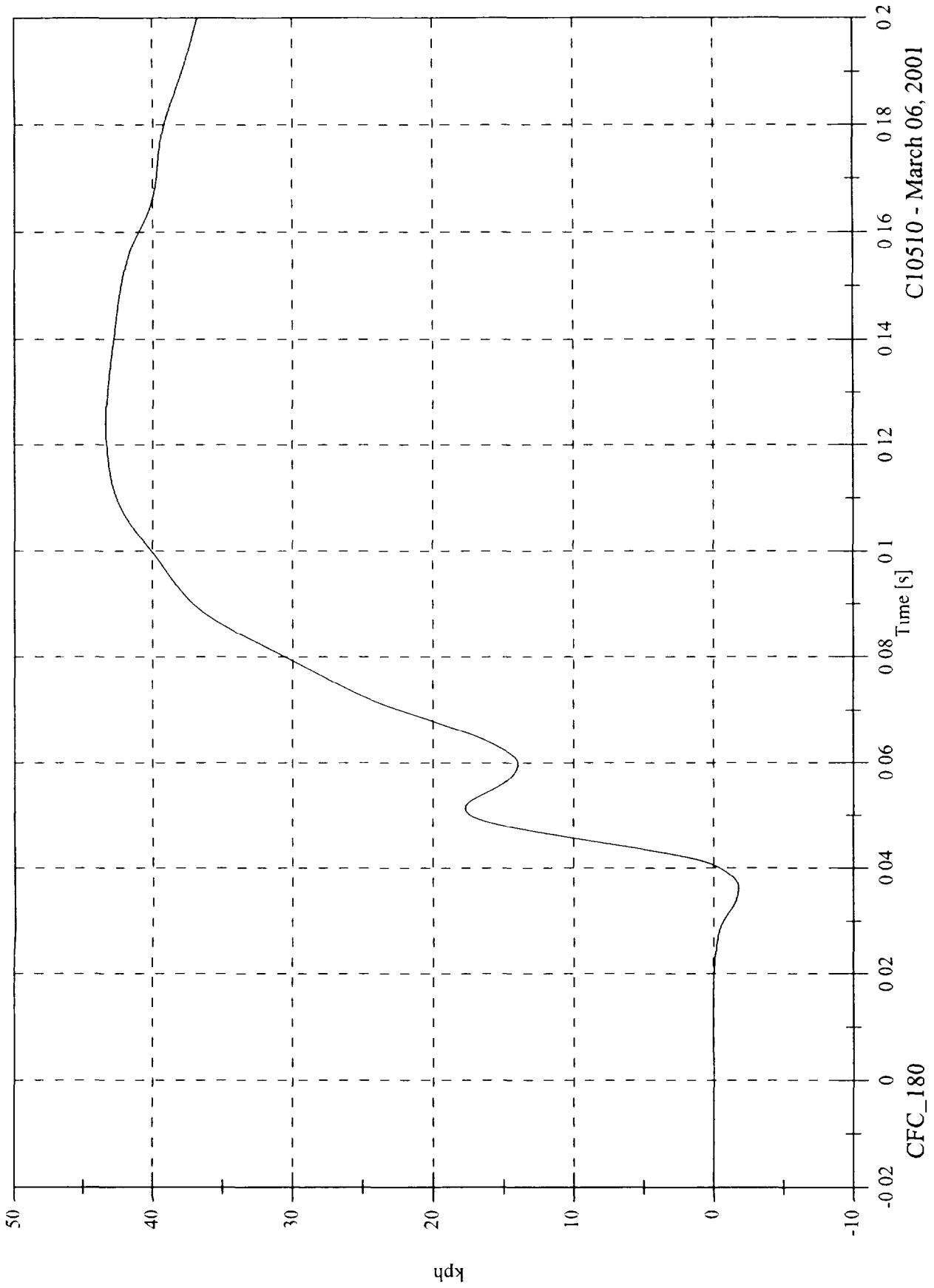


C10510 - March 06, 2001

FMVSS 214D Indicant Test 25 2001 Kia Rio

Max 43.4 [kph] at 0.124 [s]
Min -1.8 [kph] at 0.036 [s]

P1 Head y Velocity



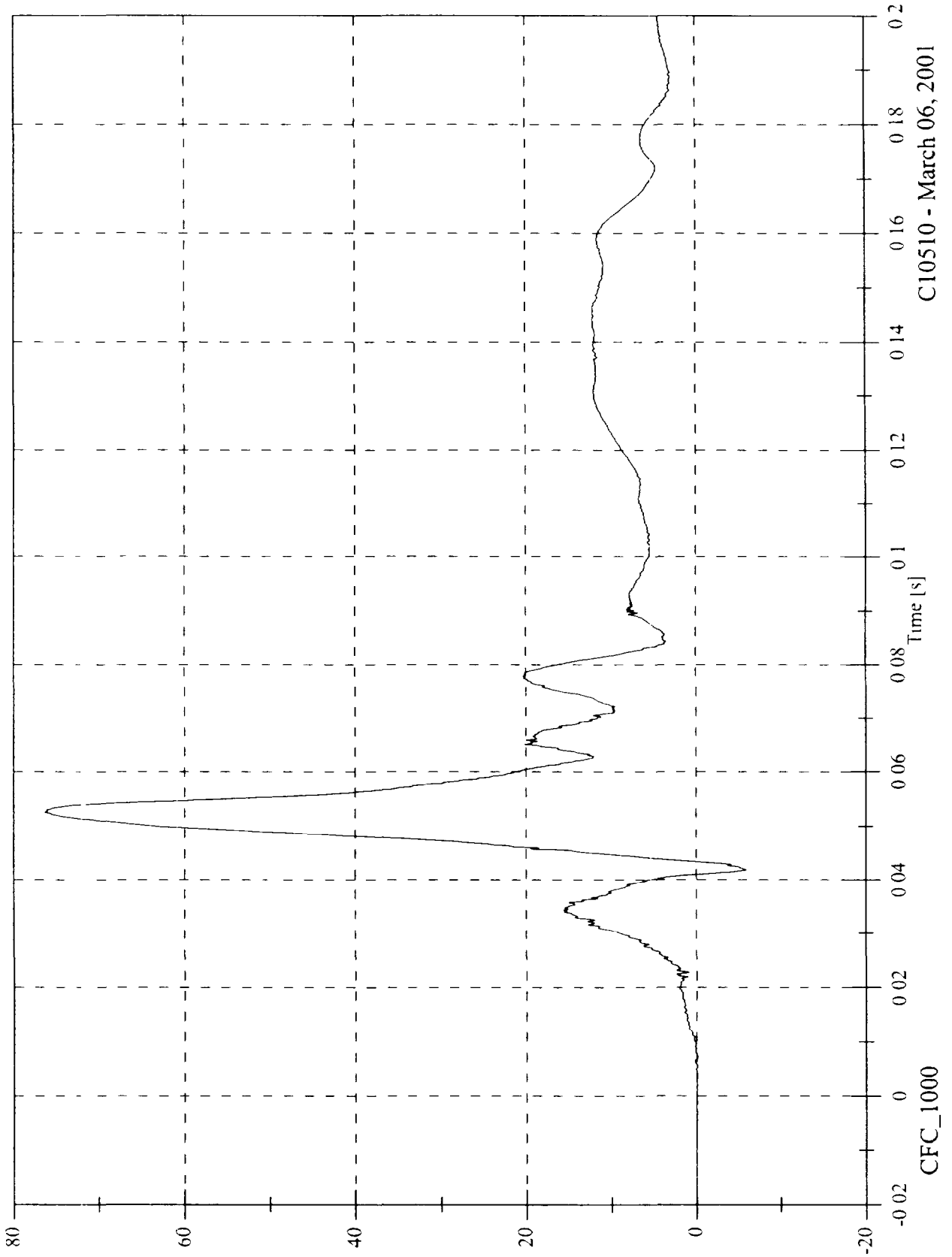
C10510 - March 06, 2001

CFC_180

FMVSS 214D Indicant Test 25 2001 K1a R10

Max 76.4 [g] at 0.053 [s]
Min -5.9 [g] at 0.042 [s]

P1 Head z

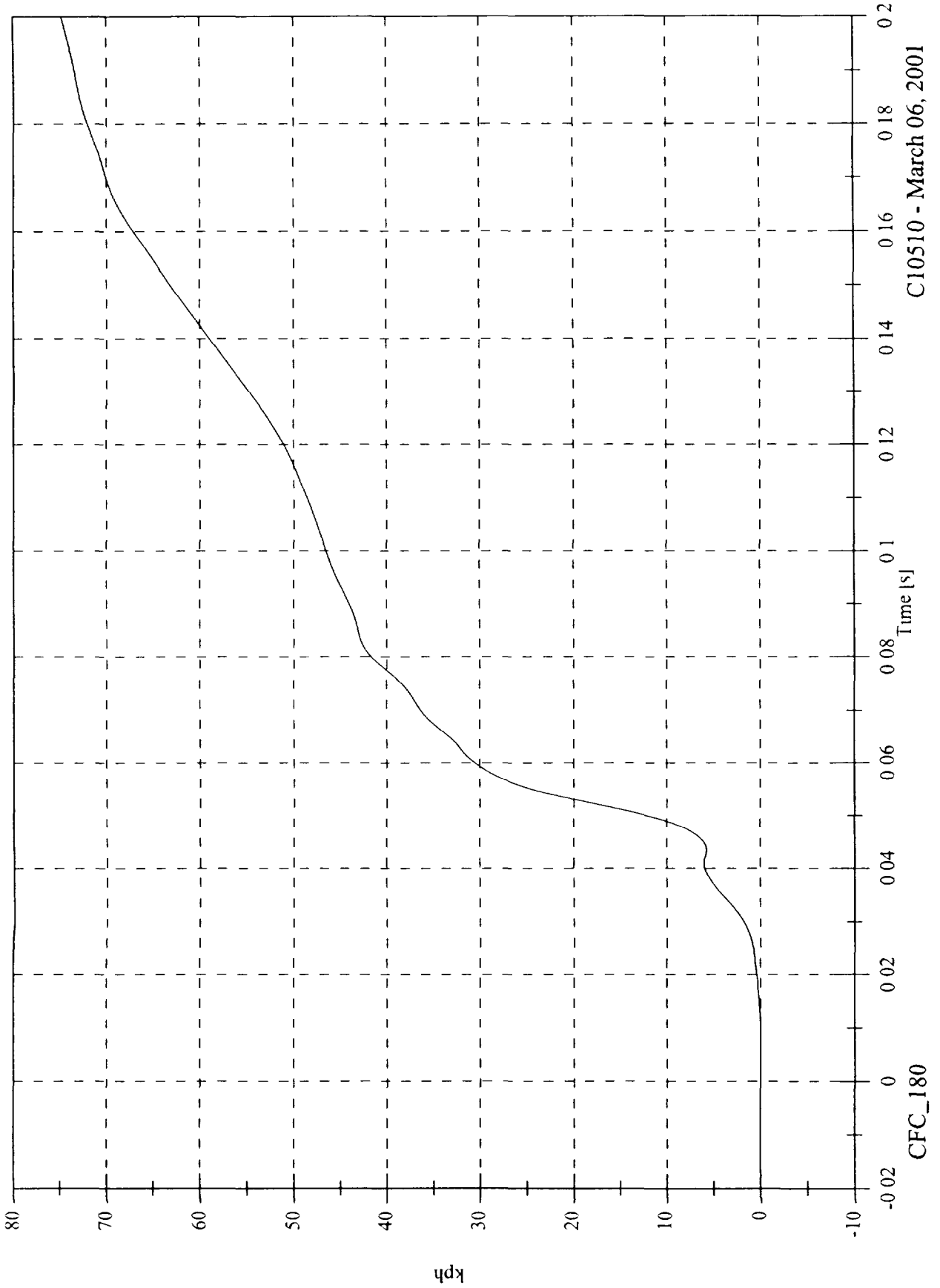


C10510 - March 06, 2001

FMVSS 214D Indicant Test 25 2001 Kia Rio

Max. 74.8 [kph] at 0.200 [s]
Min -0.0 [kph] at 0.0006 [s]

P1 Head z Velocity



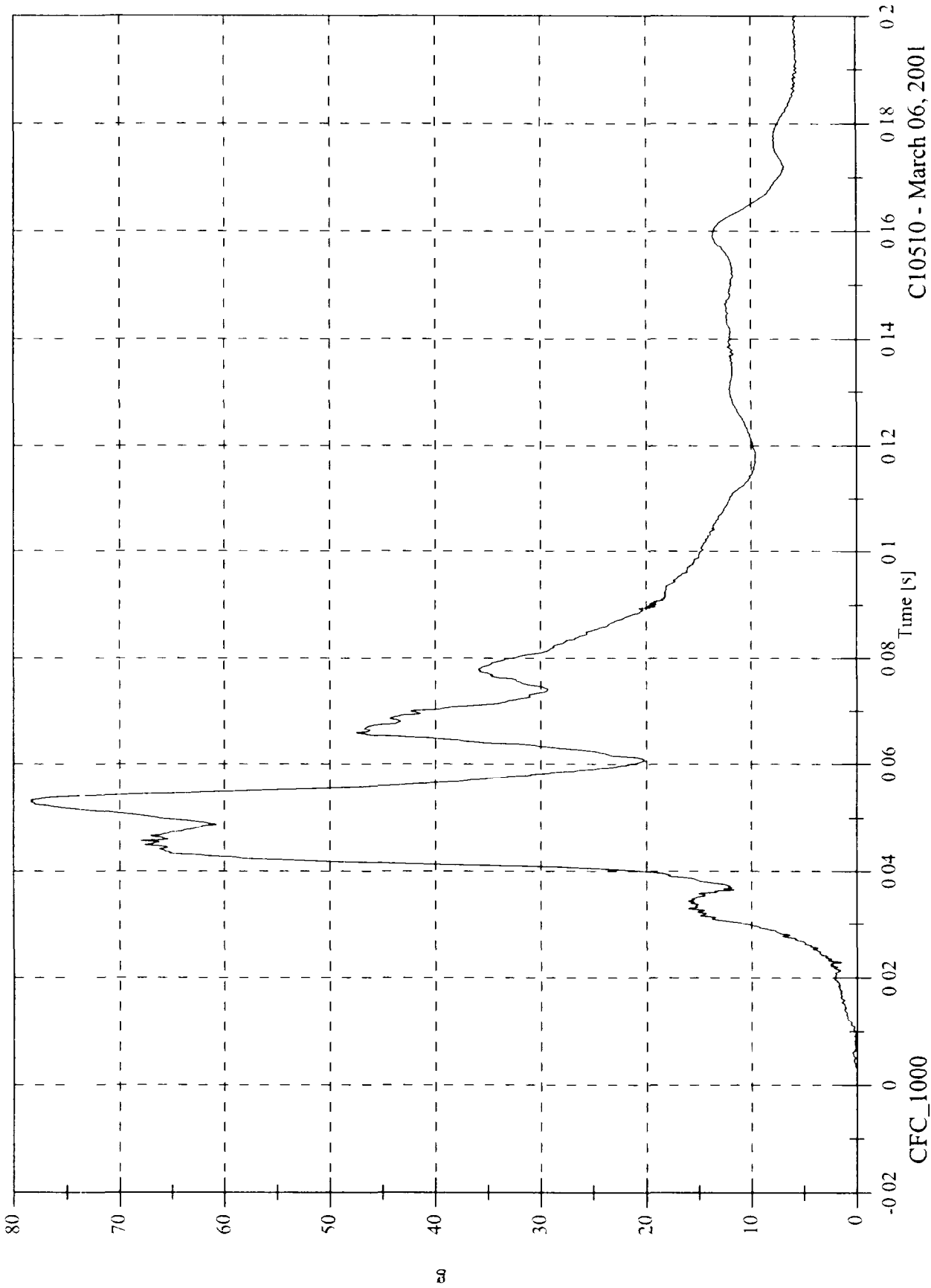
C10510 - March 06, 2001

CFC_180

FMVSS 214D Indicant Test 25 2001 Kia Rio

Max 78.4 [g] at 0.053 [s]
Min 0.0 [g] at -0.004 [s]

PI Head Resultant

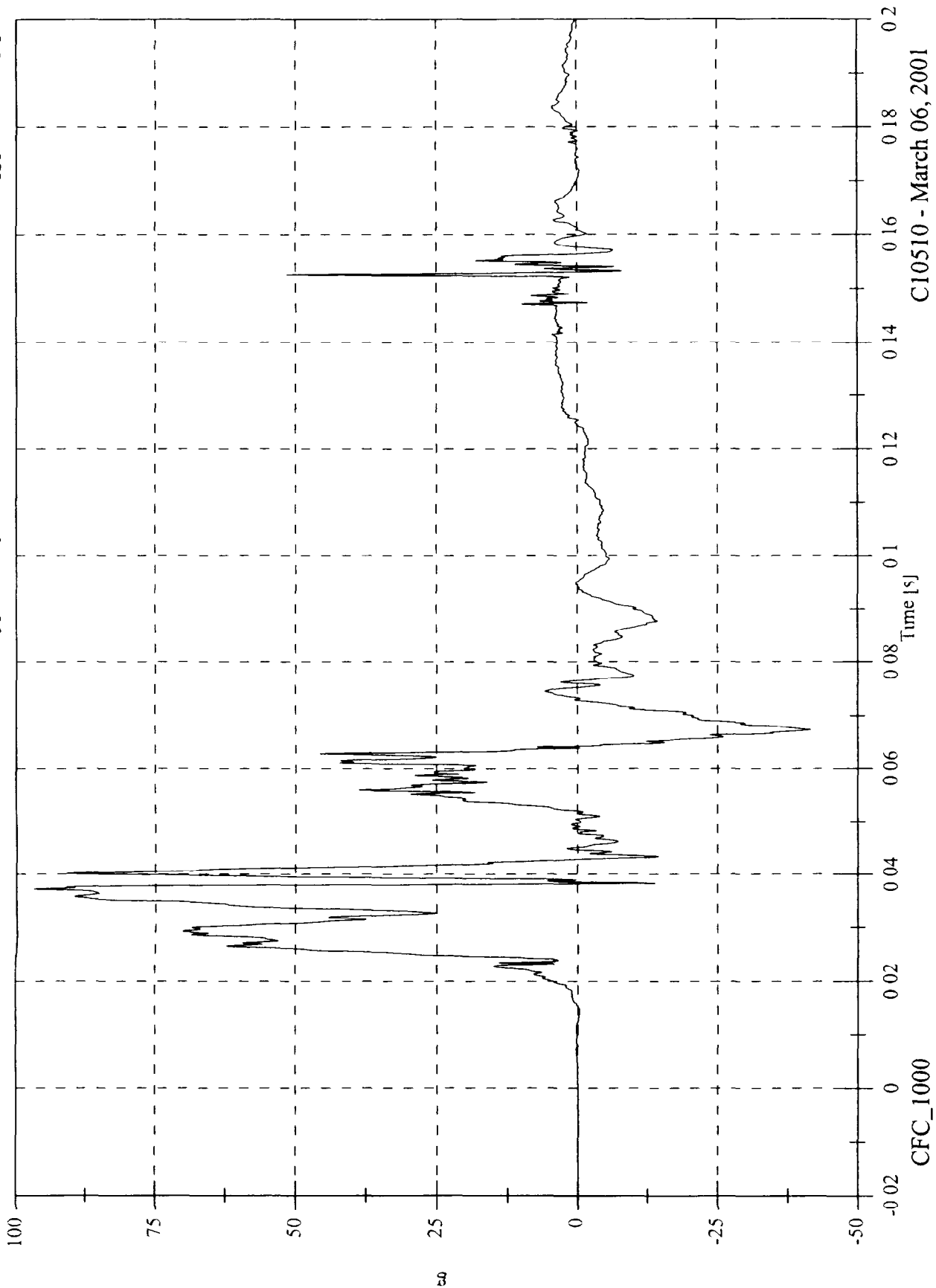


C10510 - March 06, 2001

FMVSS 214D Indicant Test 25 2001 Kia Rio

Max 96.9 [g] at 0.037 [s]
Min -41.6 [g] at 0.067 [s]

P1 Upper Rib y

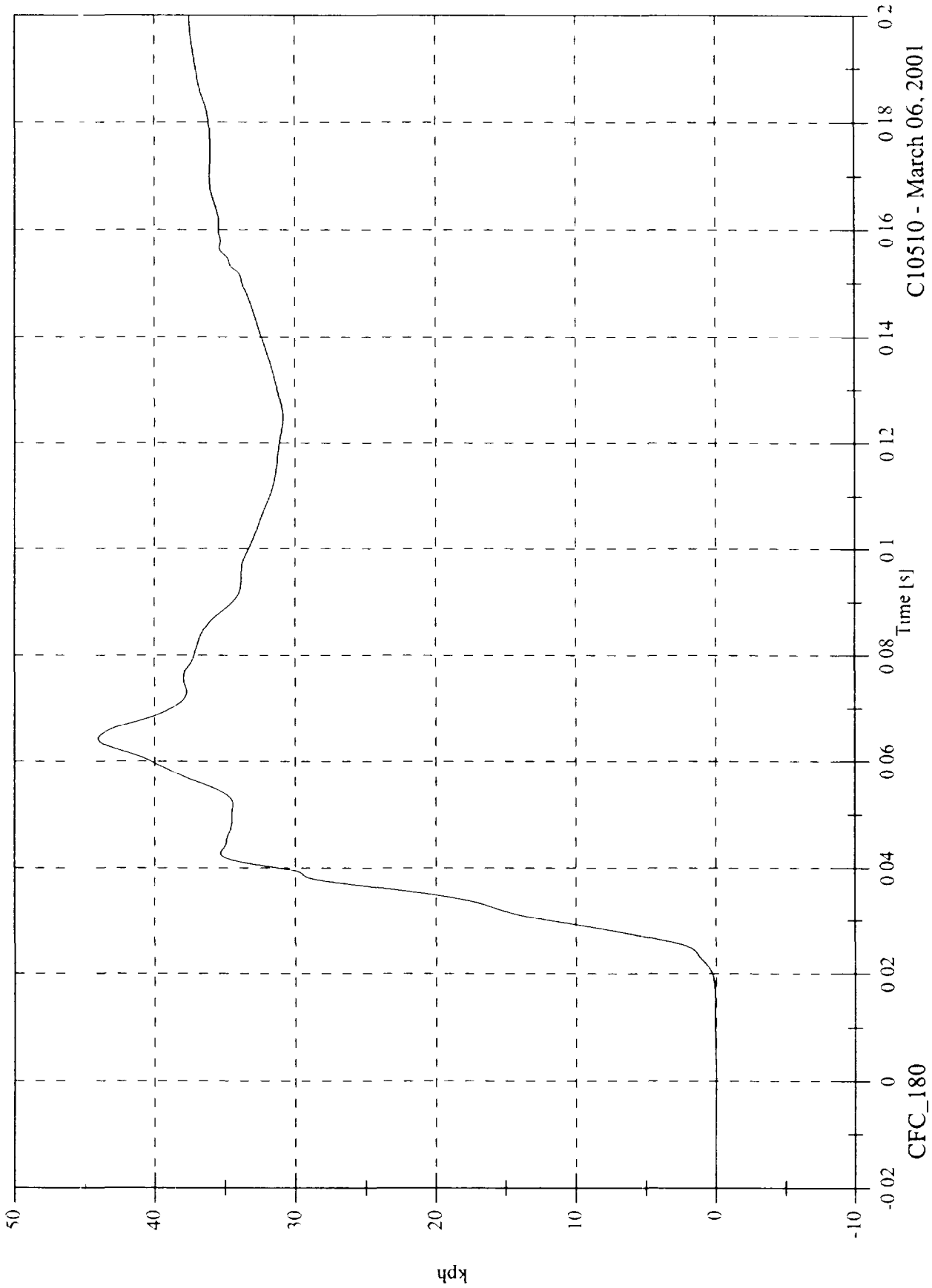


C10510 - March 06, 2001

FMVSS 214D Inducant Test 25 2001 Kia Rio

Max 44.0 [kph] at 0.064 [s]
Min -0.0 [kph] at -0.020 [s]

P1 Upper Rib y Velocity

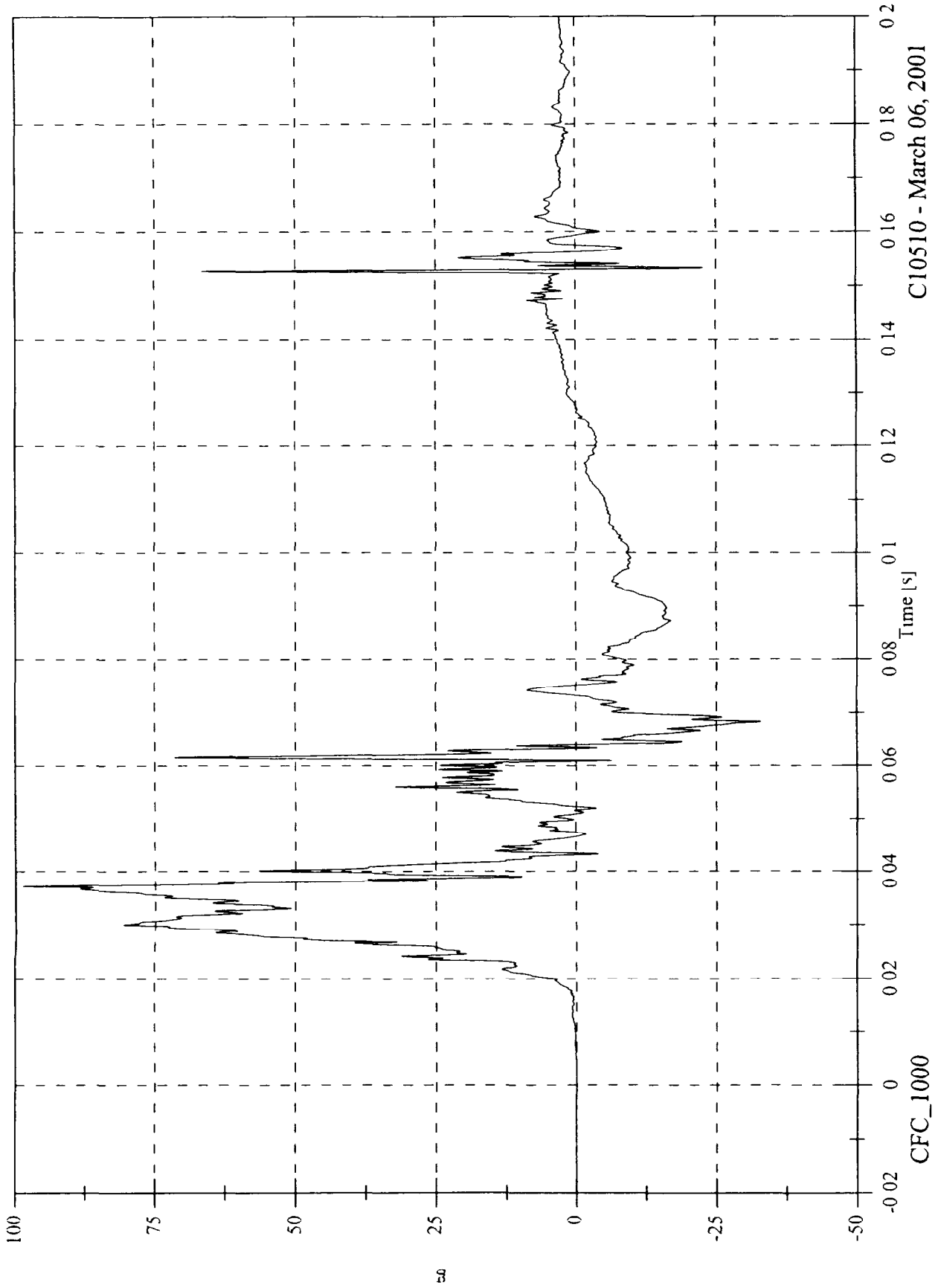


C10510 - March 06, 2001

FMVSS 214D Indicant Test 25 2001 Kia Rio

Max 98.7 [g] at 0.037 [s]
Min -33.0 [g] at 0.068 [s]

P1 Lower Ribby



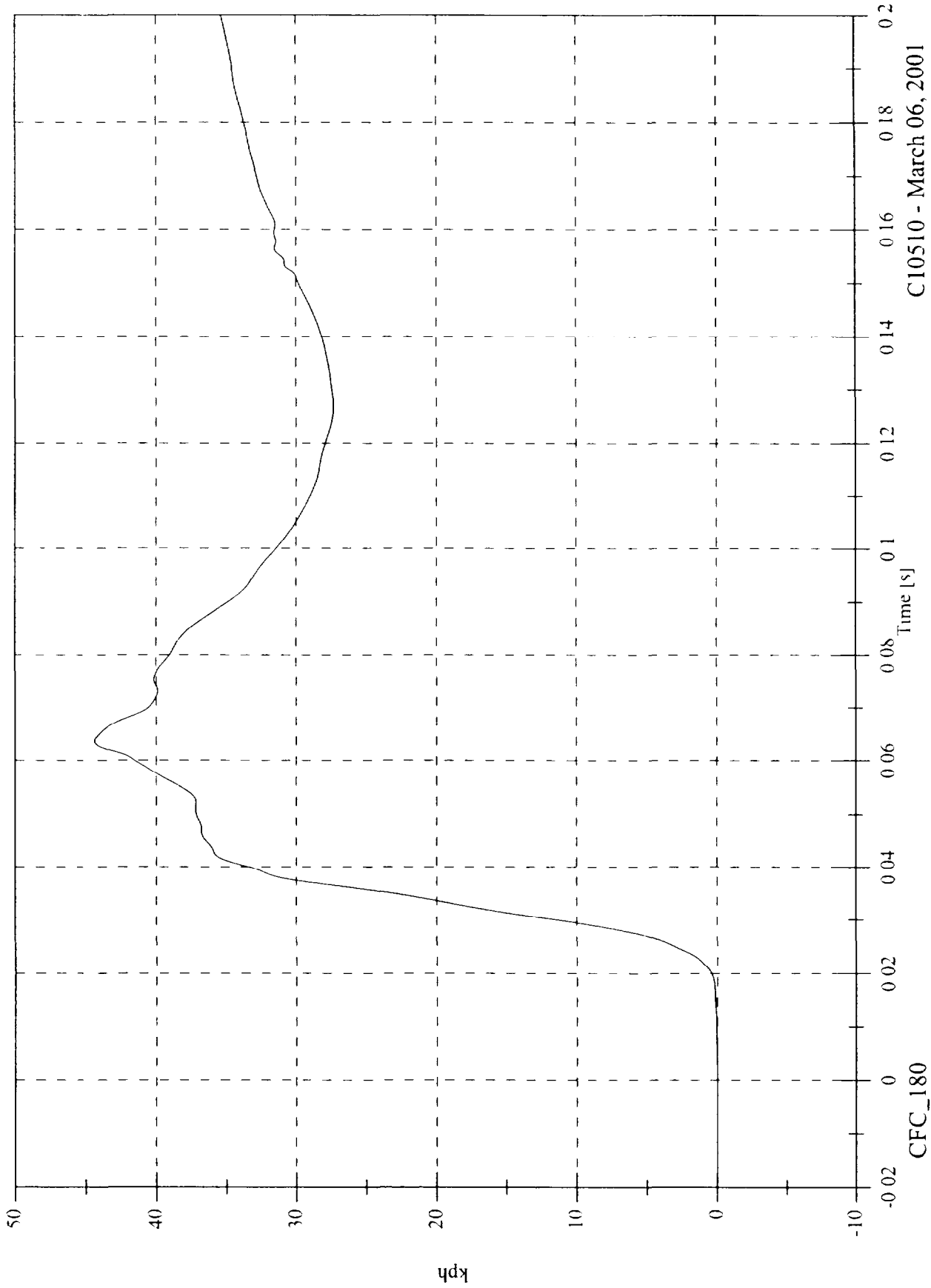
C10510 - March 06, 2001

FMVSS 214D Inducant Test 25 2001 Kia Rio

Max 44.4 [kph] at 0.064 [s]

Min -0.0 [kph] at -0.015 [s]

P1 Lower Rib y Velocity



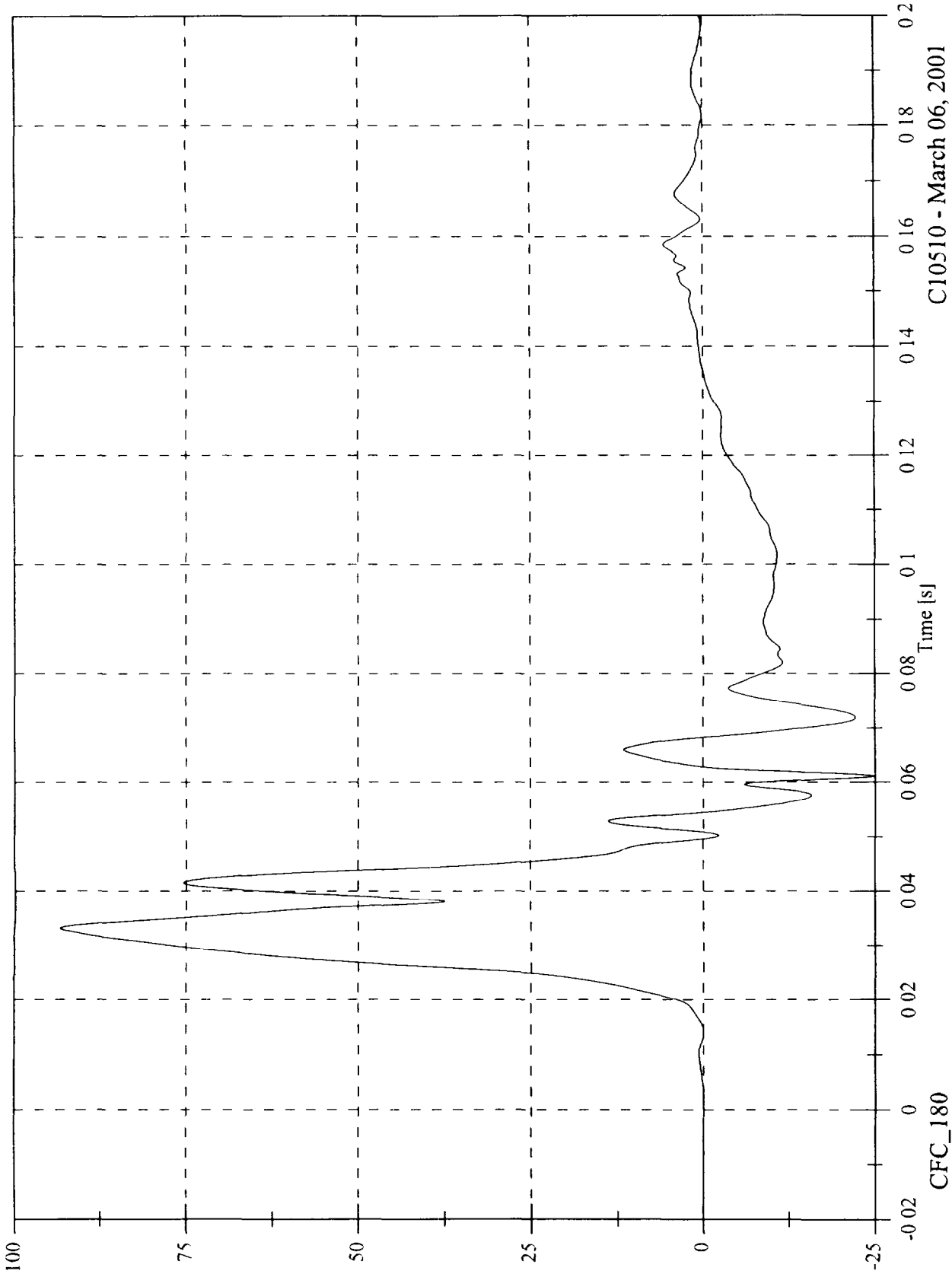
C10510 - March 06, 2001



FMVSS 214D Indicant Test 25 2001 Kia Rio

P1 Lower Spine y

Max. 93.3 [g] at 0.033 [s]
Min -24.8 [g] at 0.061 [s]

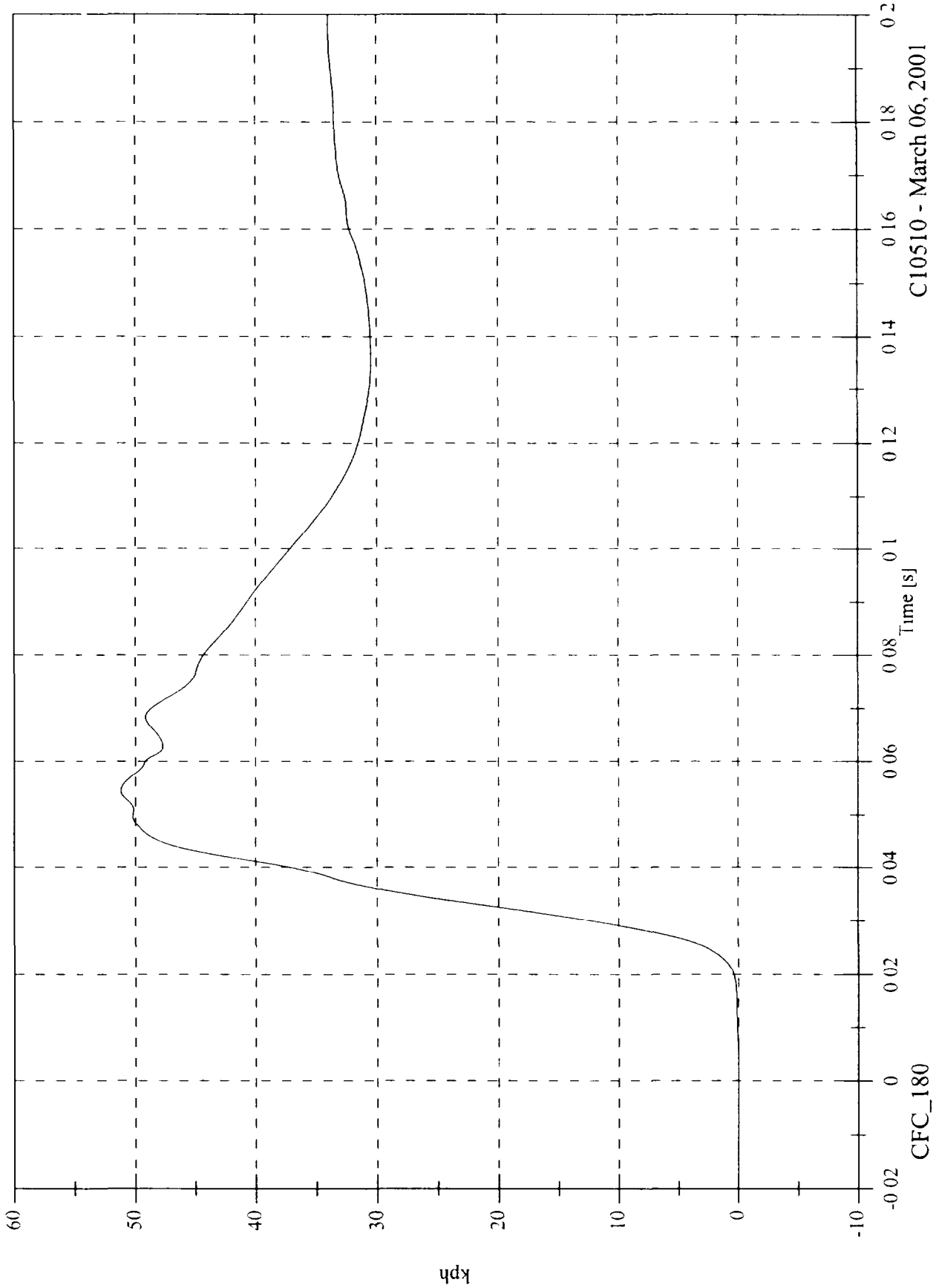


C10510 - March 06, 2001

FMVSS 214D Indicant Test 25 2001 Kia Rio

Max 51.2 [kph] at 0.054 [s]
Min -0.0 [kph] at -0.020 [s]

P1 Lower Spine y Velocity

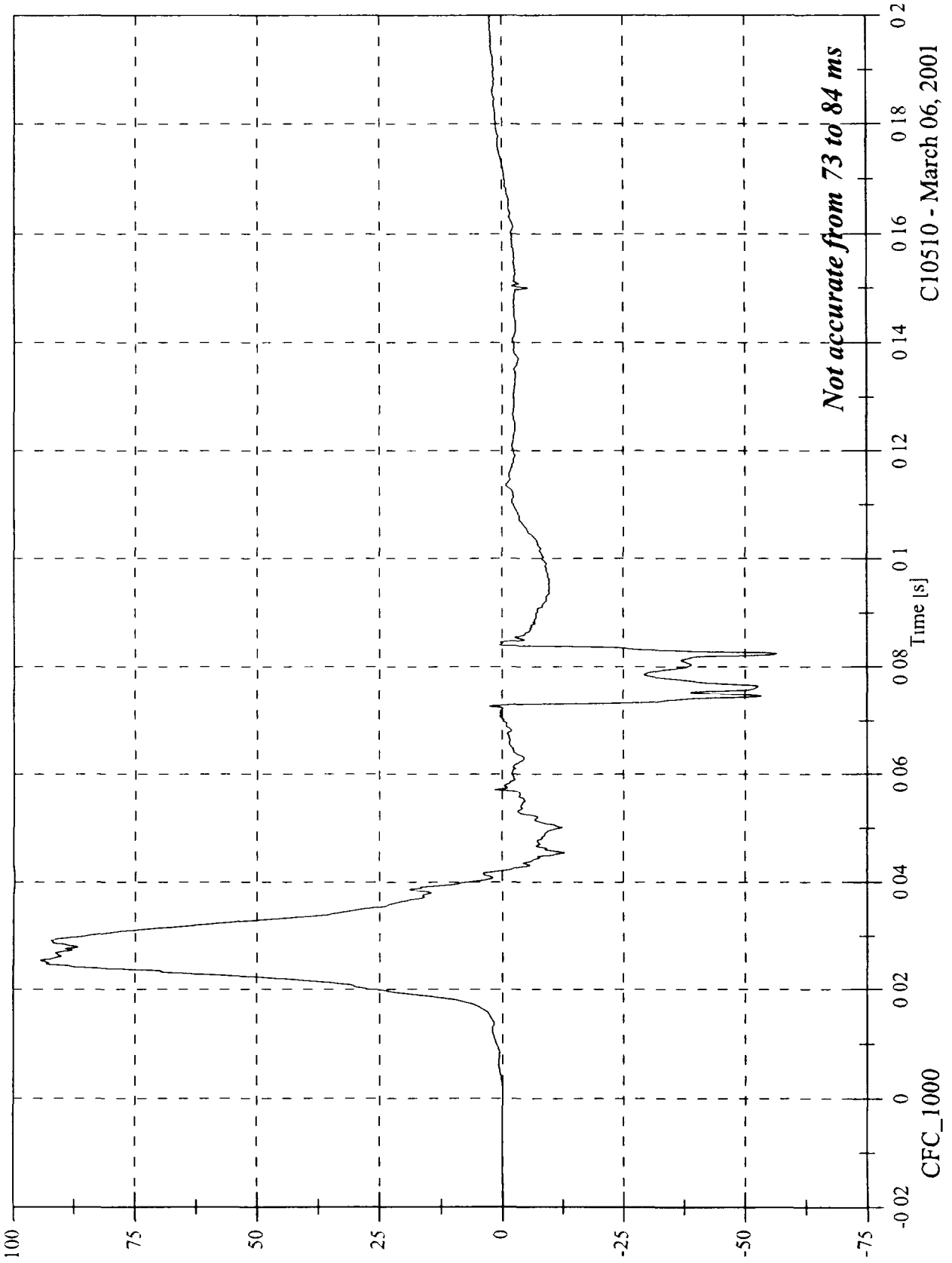


C10510 - March 06, 2001

FMVSS 214D Inducant Test 25 2001 Kia Rio

Max 94.4 [g] at 0.025 [s]
Min -56.5 [g] at 0.082 [s]

P1 Pelvic y



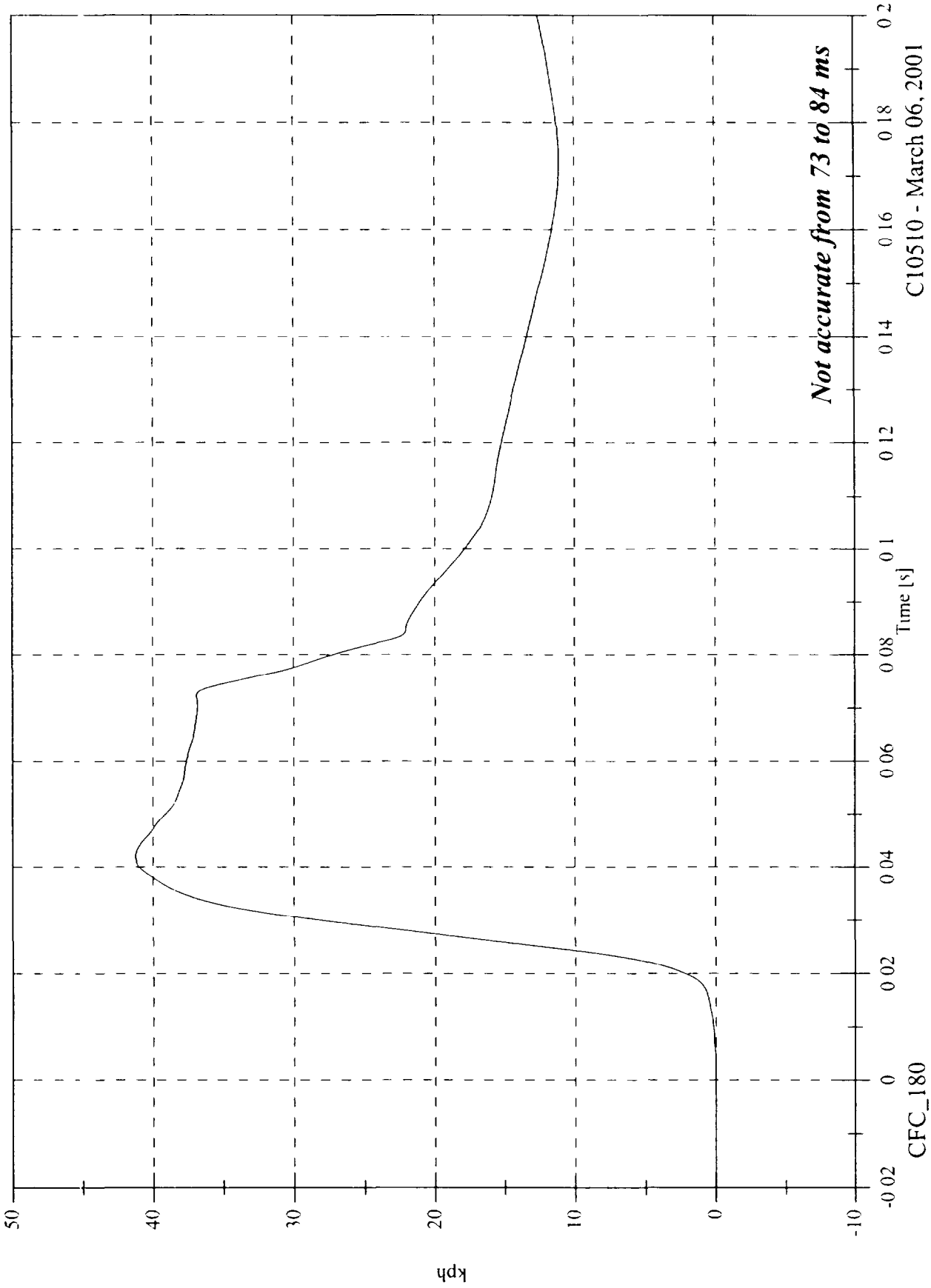
Not accurate from 73 to 84 ms

C10510 - March 06, 2001

FMVSS 214D Indicant Test 25 2001 Kia Rio

Max 41.3 [kph] at 0.042 [s]
Min -0.0 [kph] at -0.020 [s]

PI Pelvic y Velocity



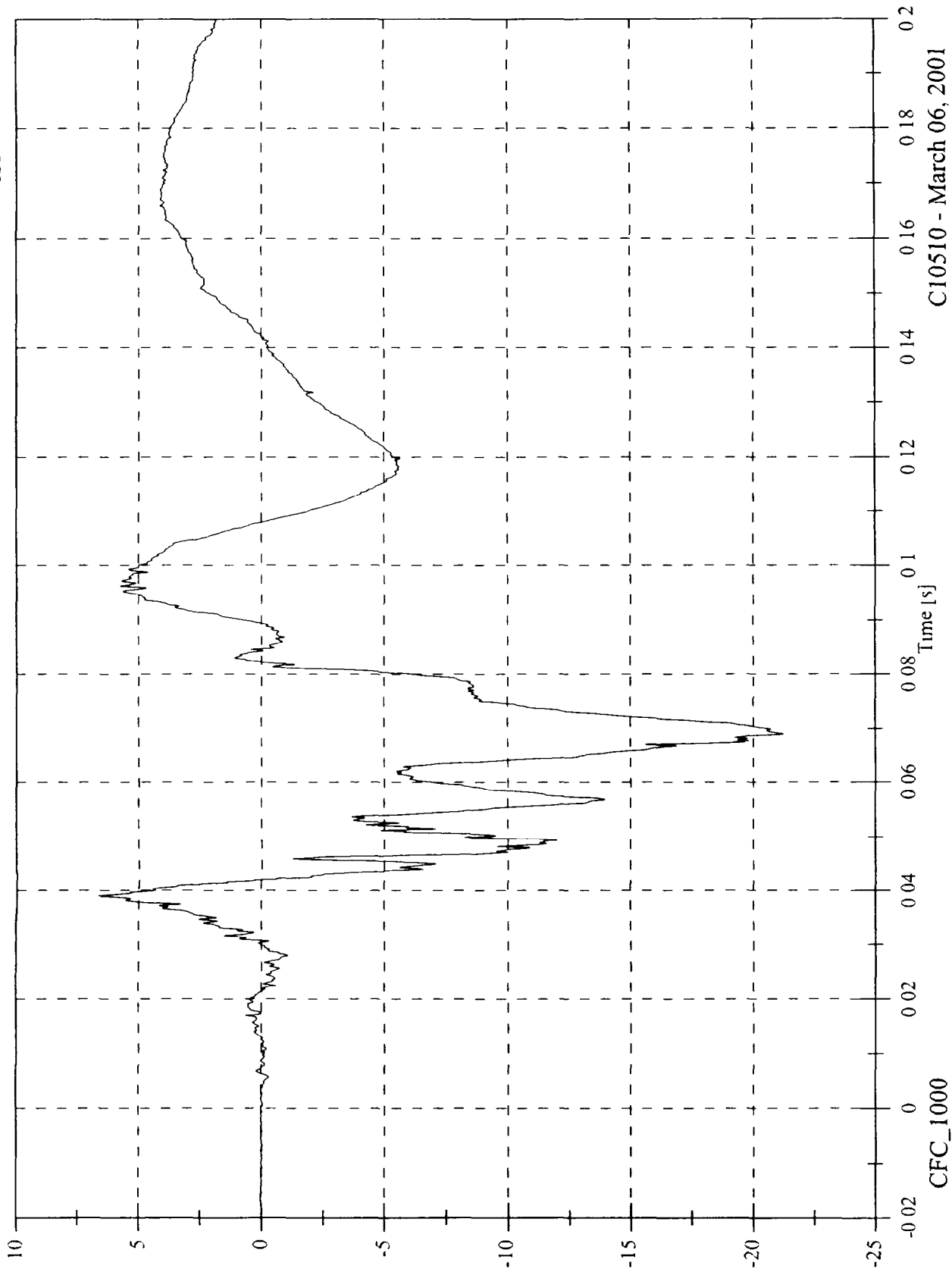
Not accurate from 73 to 84 ms

C10510 - March 06, 2001

FMVSS 214D Indicant Test 25 2001 Kia Rio

Max 6.6 [g] at 0.039 [s]
Min -21.2 [g] at 0.069 [s]

P4 Head x

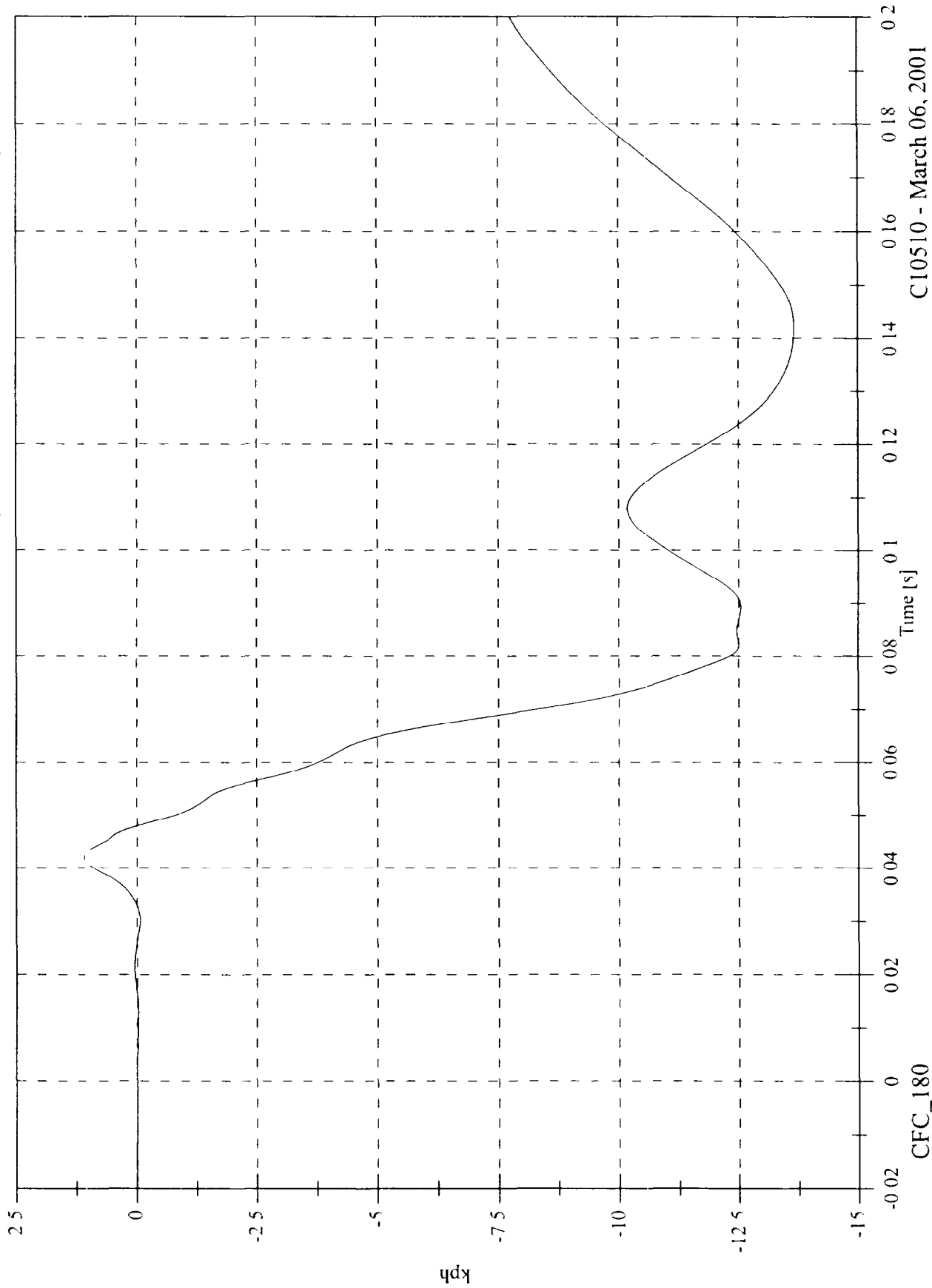


C10510 - March 06, 2001

FMVSS 214D Indicant Test 25 2001 Kia Rio

Max 1.1 [kph] at 0.042 [s]
Min -13.7 [kph] at 0.142 [s]

P4 Head x Velocity

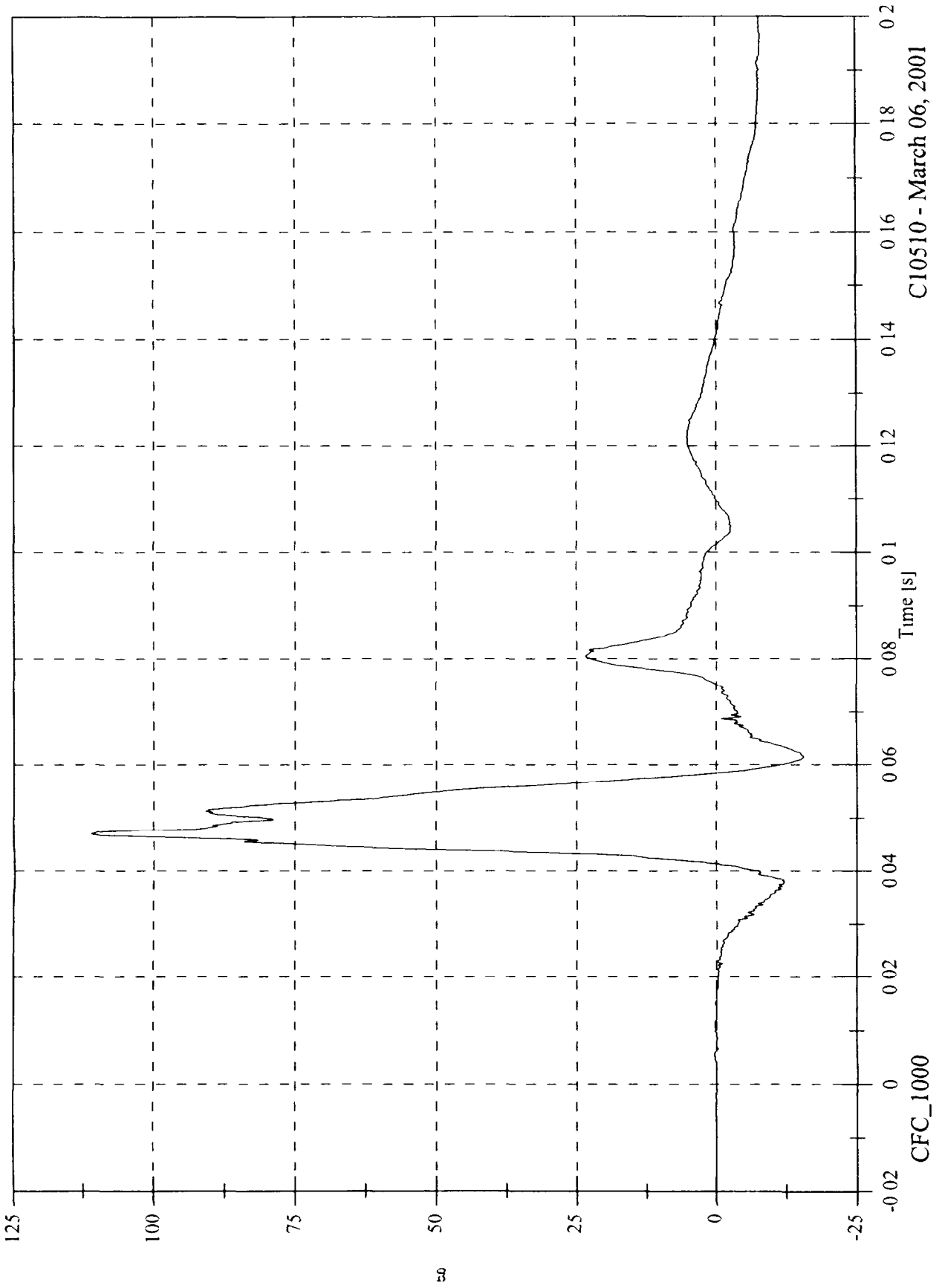


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Max 111.1 [g] at 0.047 [s]
Min -15.7 [g] at 0.061 [s]

P4 Head y

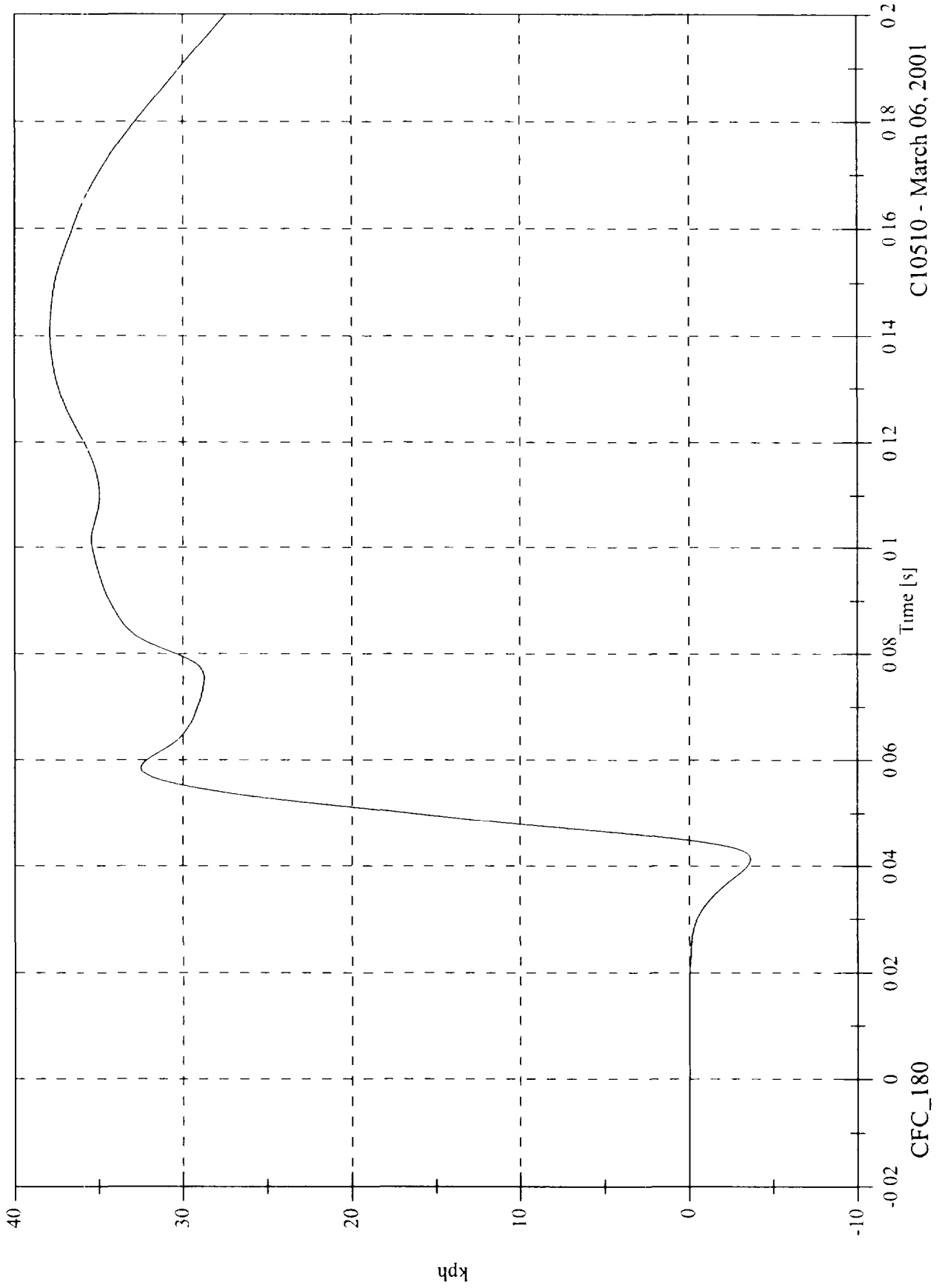


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Max 37.9 [kph] at 0.141 [s]
Min -3.6 [kph] at 0.041 [s]

P4 Head y Velocity

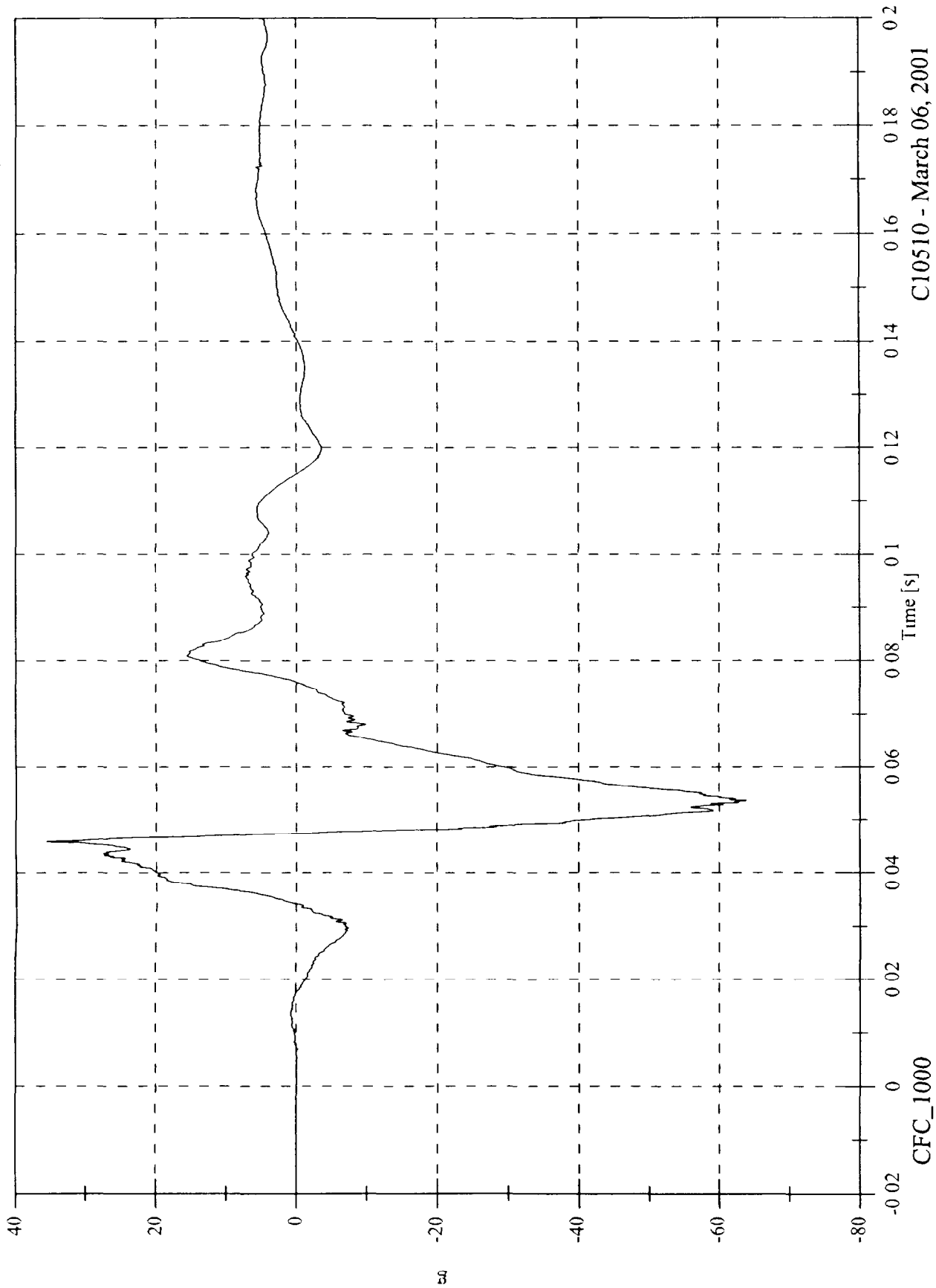


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Max. 35.6 [g] at 0.046 [s]
Min -63.9 [g] at 0.054 [s]

P4 Head z

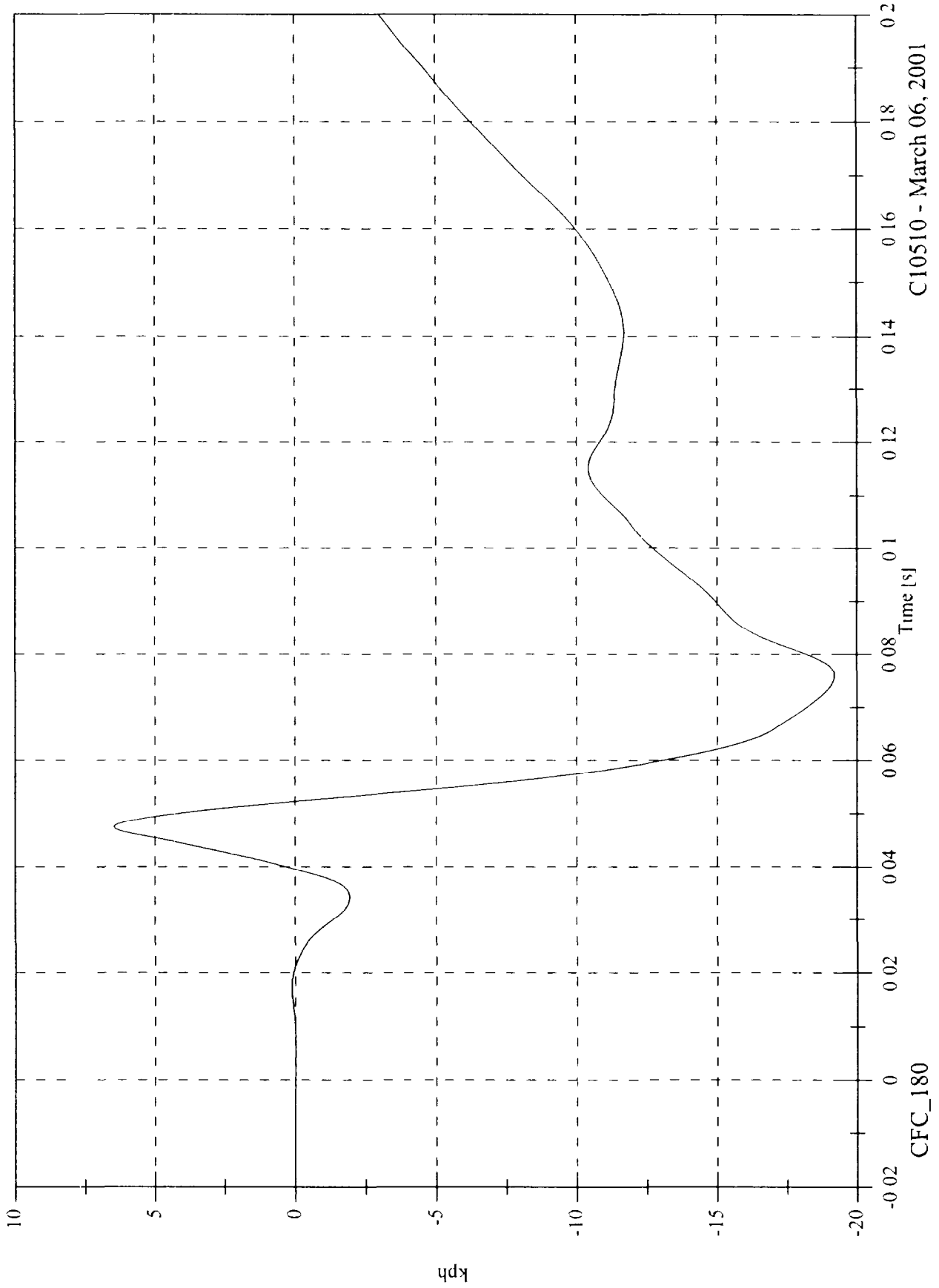


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P4 Head z Velocity

Max 6.5 [kph] at 0.047 [s]
Min -19.2 [kph] at 0.076 [s]

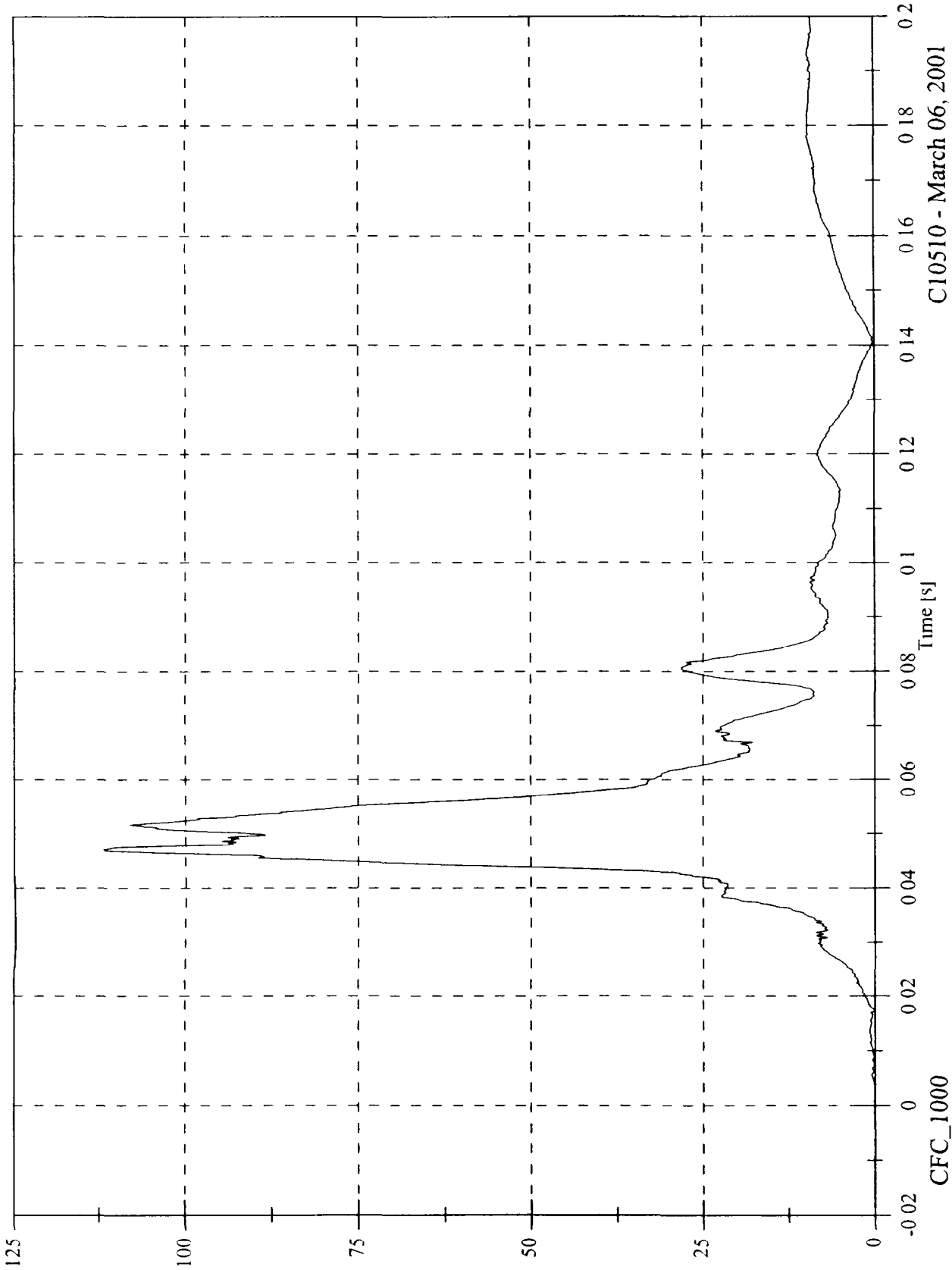


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P4 Head Resultant

Max 111.9 [g] at 0.047 [s]
Min 0.0 [g] at -0.019 [s]

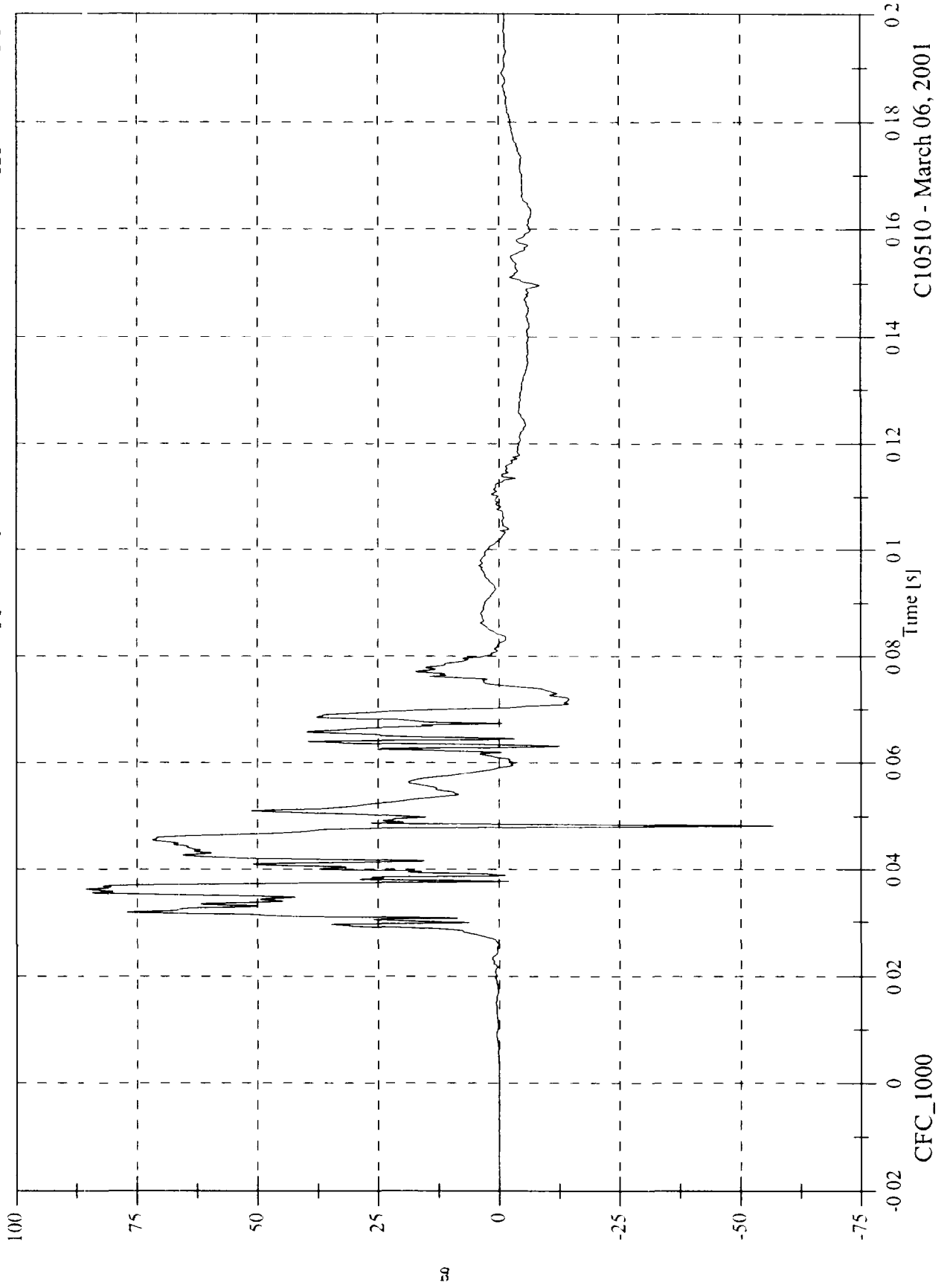


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Max 85.5 [g] at 0.036 [s]
Min -56.9 [g] at 0.048 [s]

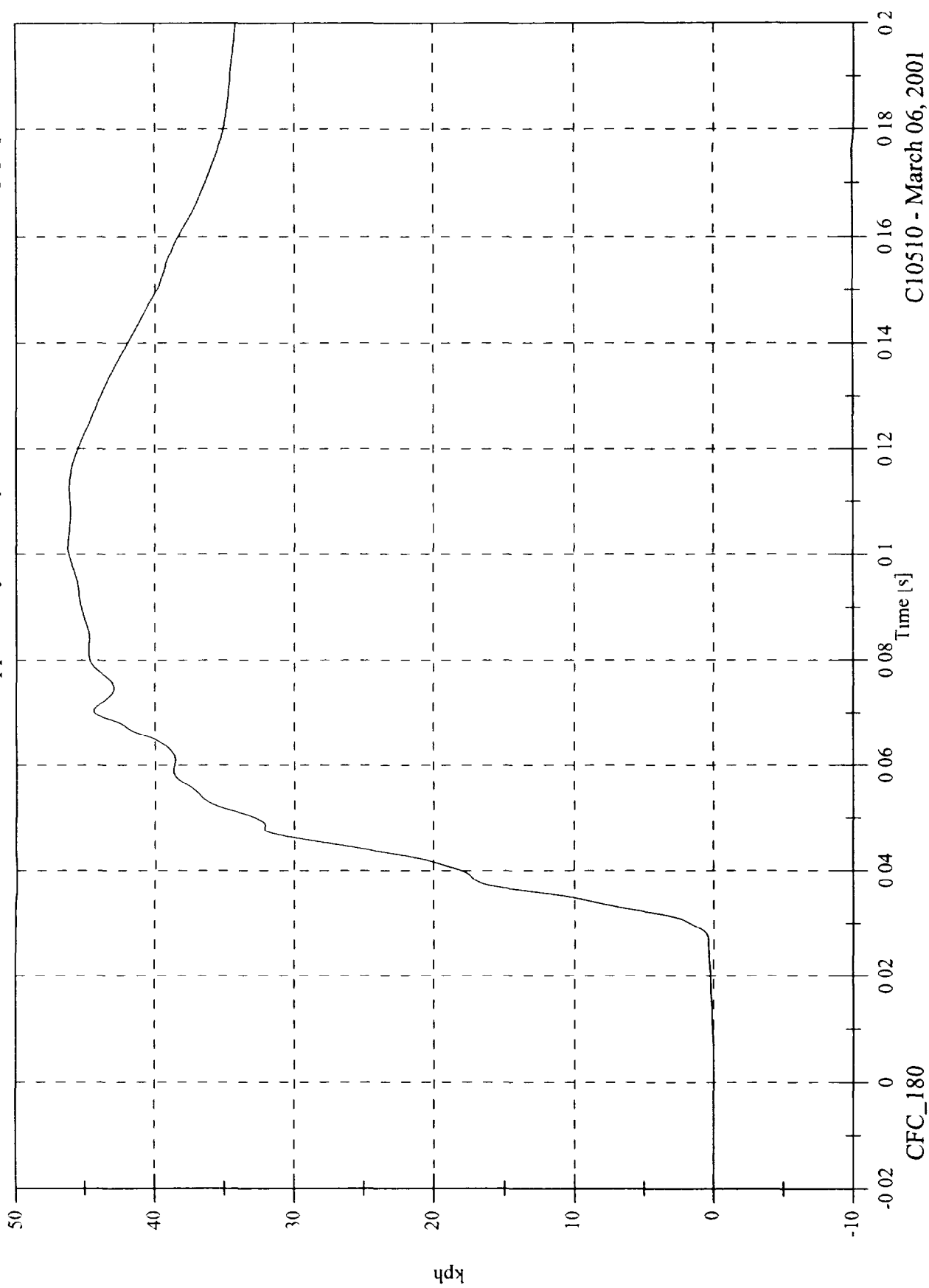
P4 Upper Rib y



FMVSS 214D Indicant Test 25 2001 Kia Rio

P4 Upper Rib y Velocity

Max 46.3 [kph] at 0.102 [s]
Min -0.0 [kph] at -0.015 [s]

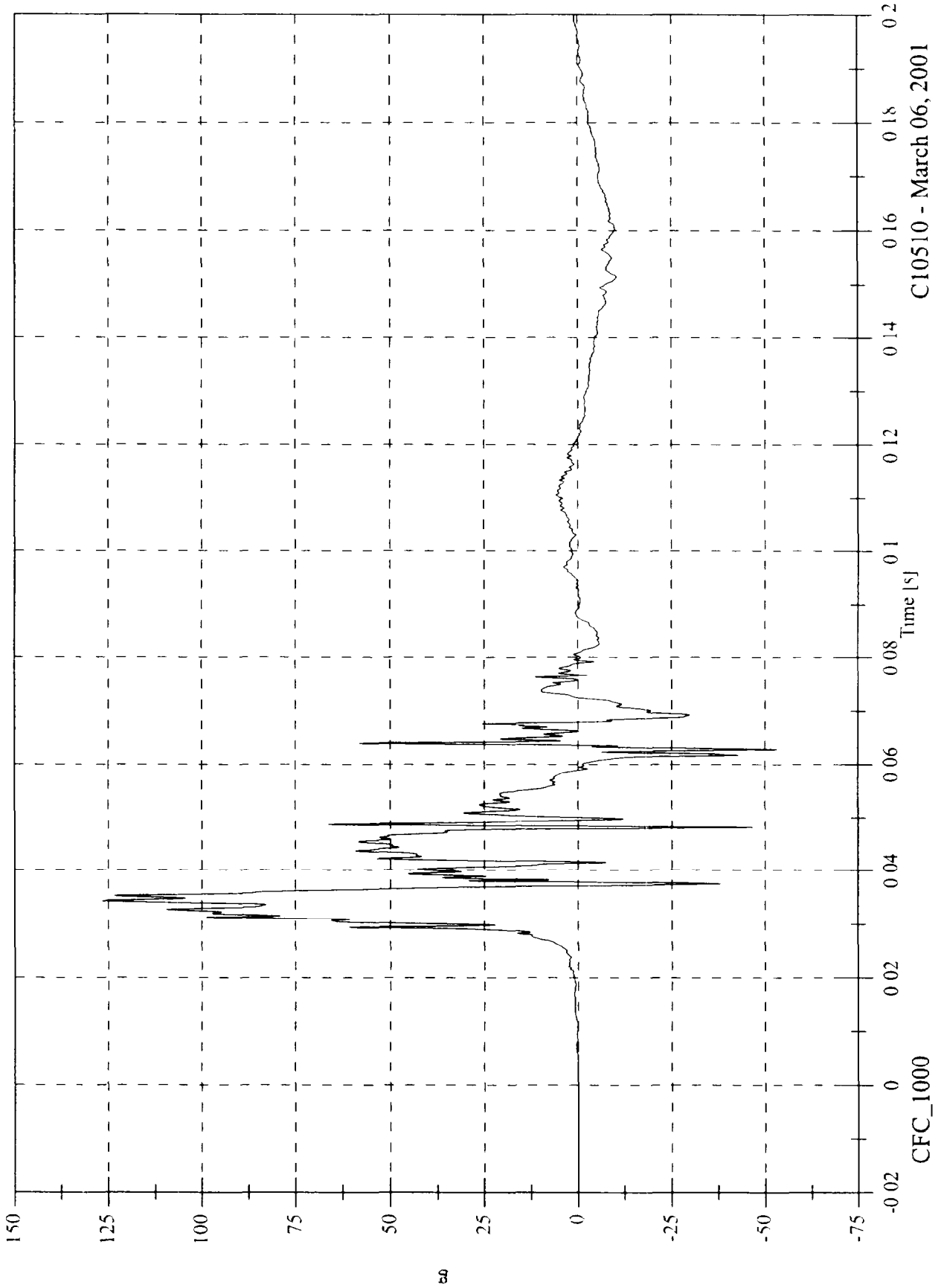


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FMVSS 214D Inducant Test 25 2001 Kia Rio

Max 126.6 [g] at 0.034 [s]
Min -53.2 [g] at 0.063 [s]

P4 Lower Rib y

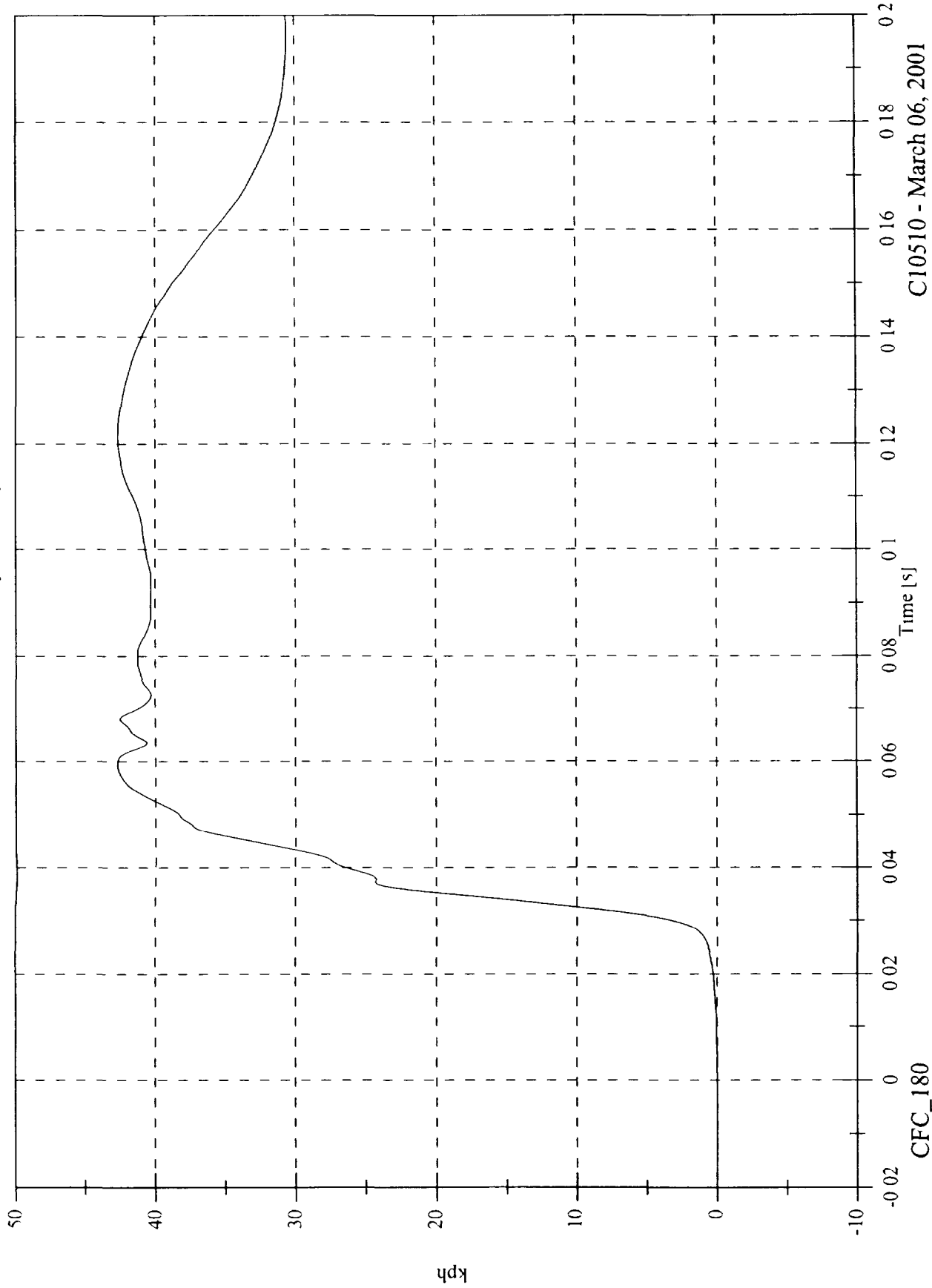


FMVSS 214D Indicant Test 25 2001 Kia Rio

P4 Lower Rib y Velocity

Max. 42.7 [kph] at 0.059 [s]

Min -0.0 [kph] at -0.020 [s]

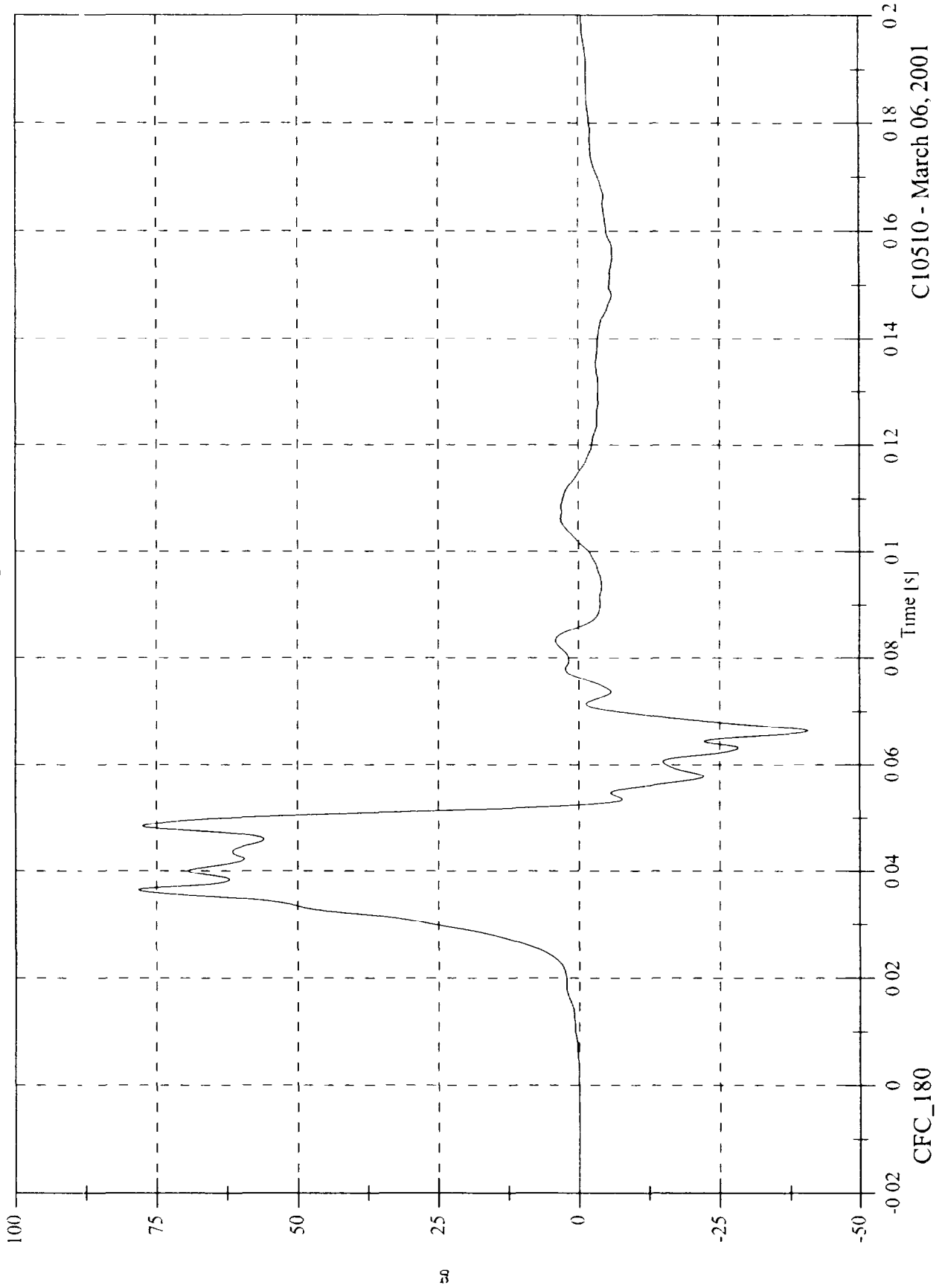


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FMVSS 214D Inducant Test 25 2001 Kia Rio

Max 78.3 [g] at 0.036 [s]
Min -40.7 [g] at 0.066 [s]

P4 Lower Spine y

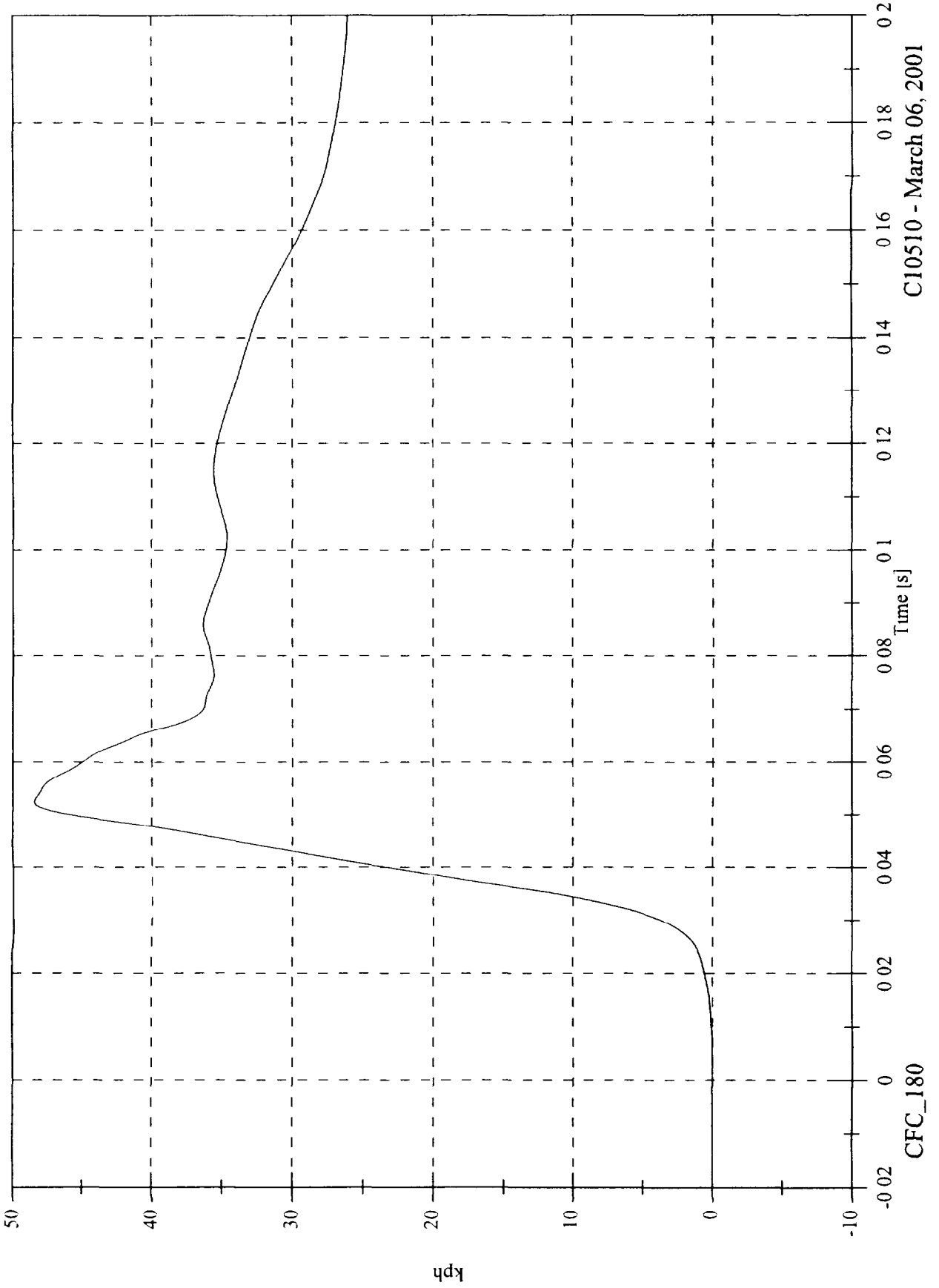


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FMVSS 214D Inducant Test 25 2001 Kia Rio

Max 48.4 [kph] at 0.052 [s]
Min -0.0 [kph] at -0.007 [s]

P4 Lower Spine y Velocity

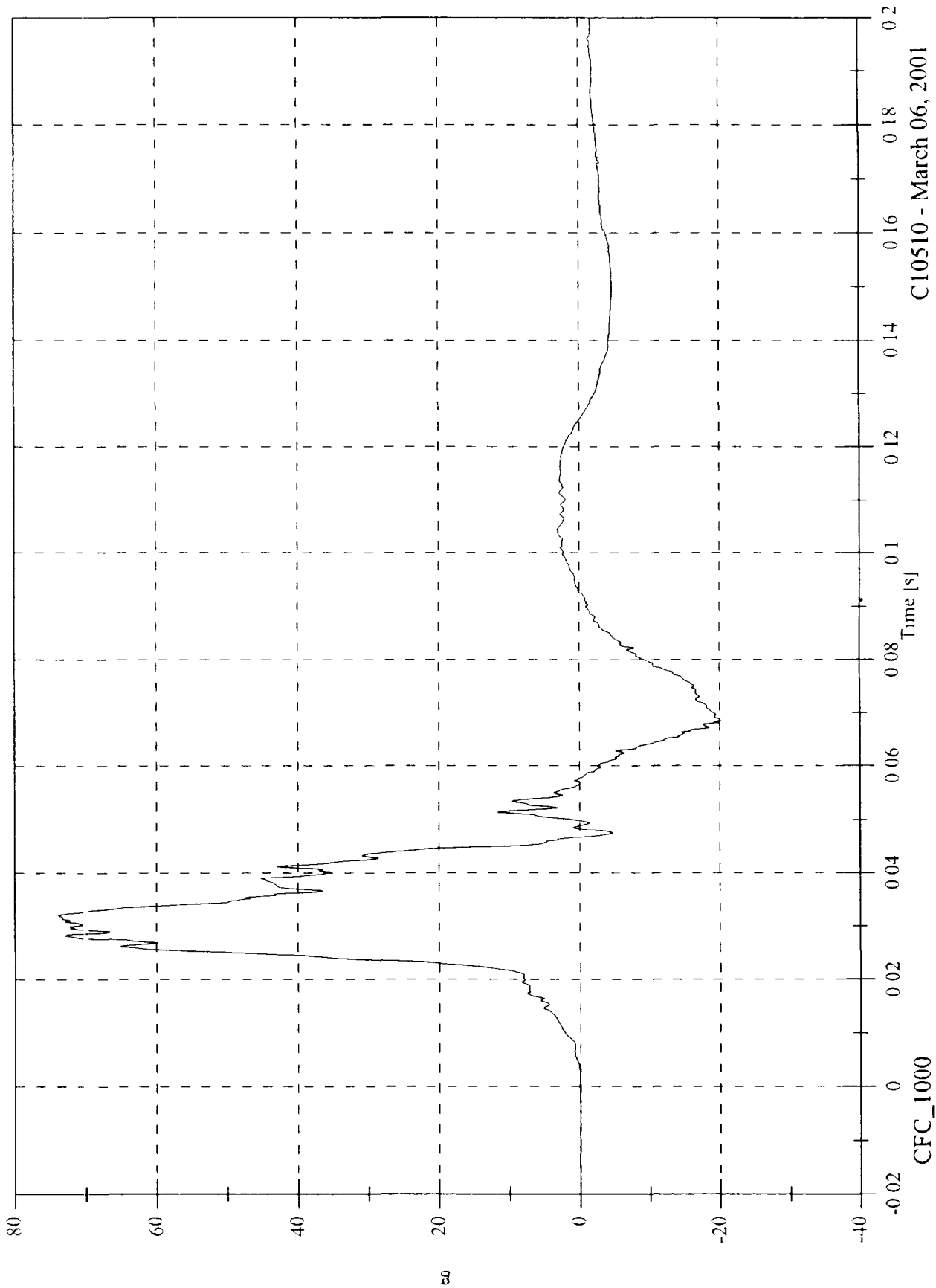


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FMVSS 214D Indicant Test 25 2001 Kia Rio

Max 73.9 [g] at 0.032 [s]
Min -20.2 [g] at 0.069 [s]

P4 Pelvic y



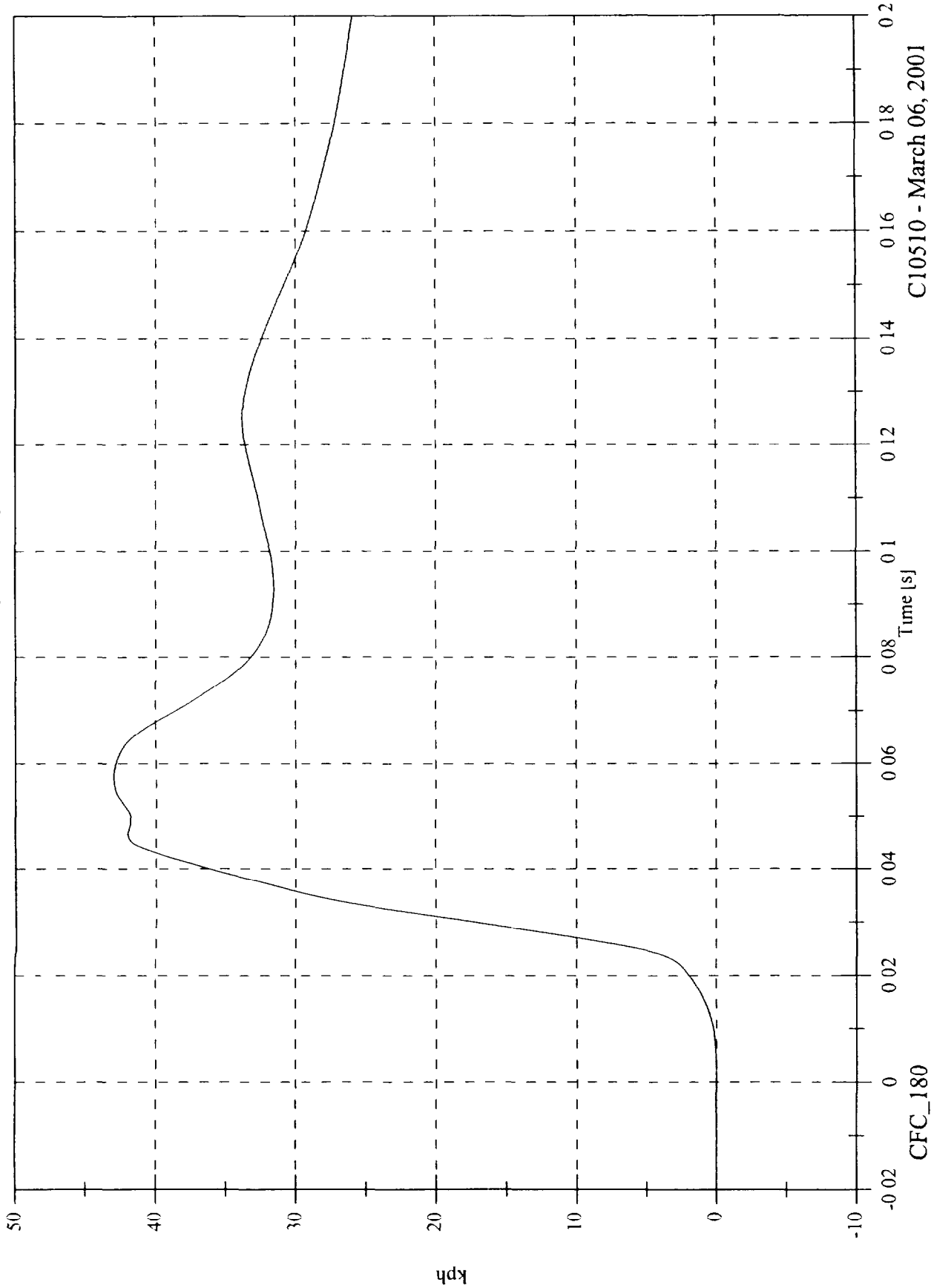
C10510 - March 06, 2001

FMVSS 214D Indicant Test 25 2001 Kia Rio

Max. 43.0 [kph] at 0.058 [s]

Min -0.0 [kph] at -0.020 [s]

P4 Pelvic y Velocity

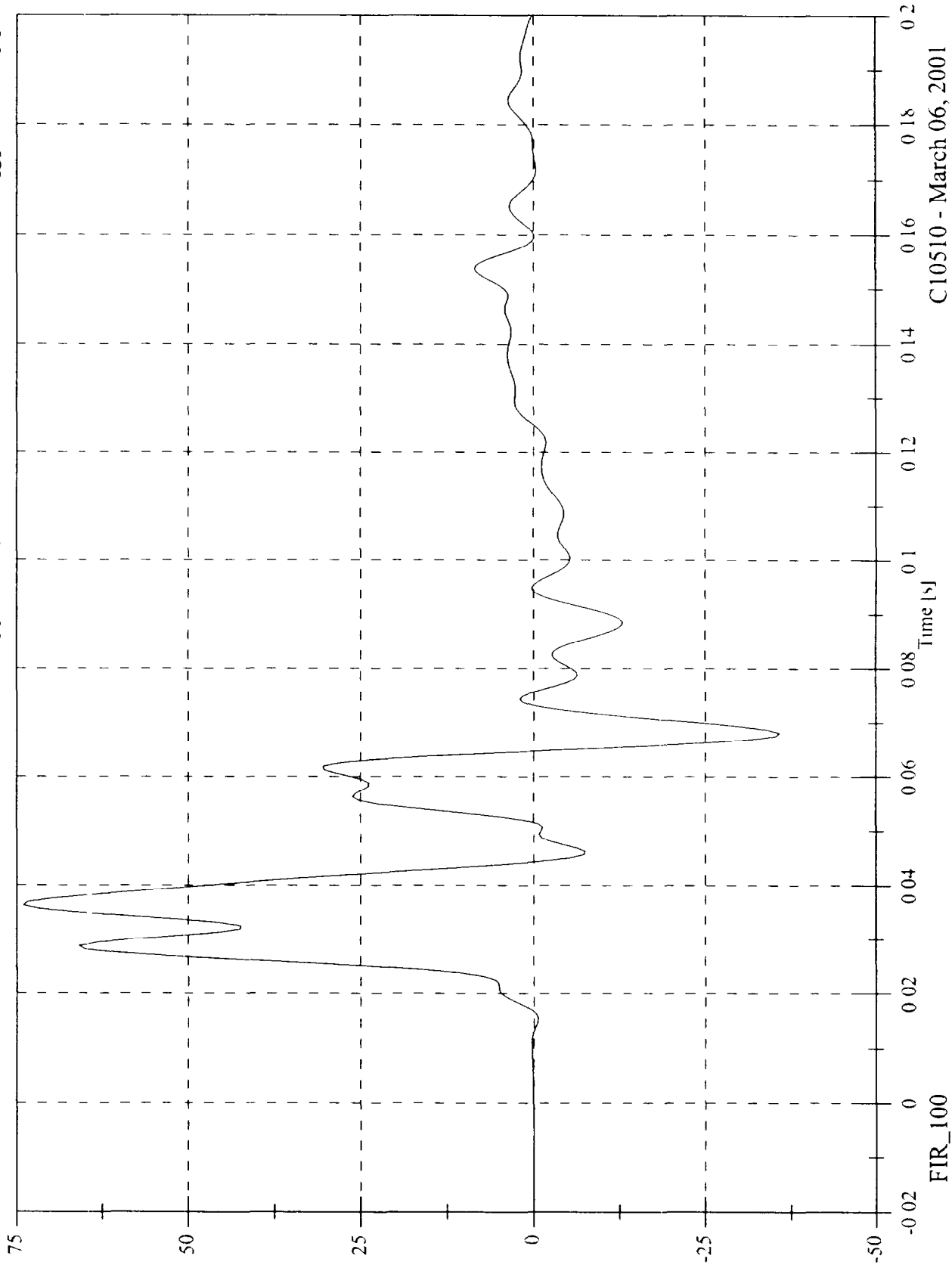


C10510 - March 06, 2001

FMVSS 214D Indicant Test 25 2001 Kia Rio

Max 74.0 [g] at 0.036 [s]
Min -35.8 [g] at 0.068 [s]

P1 Upper Rib y

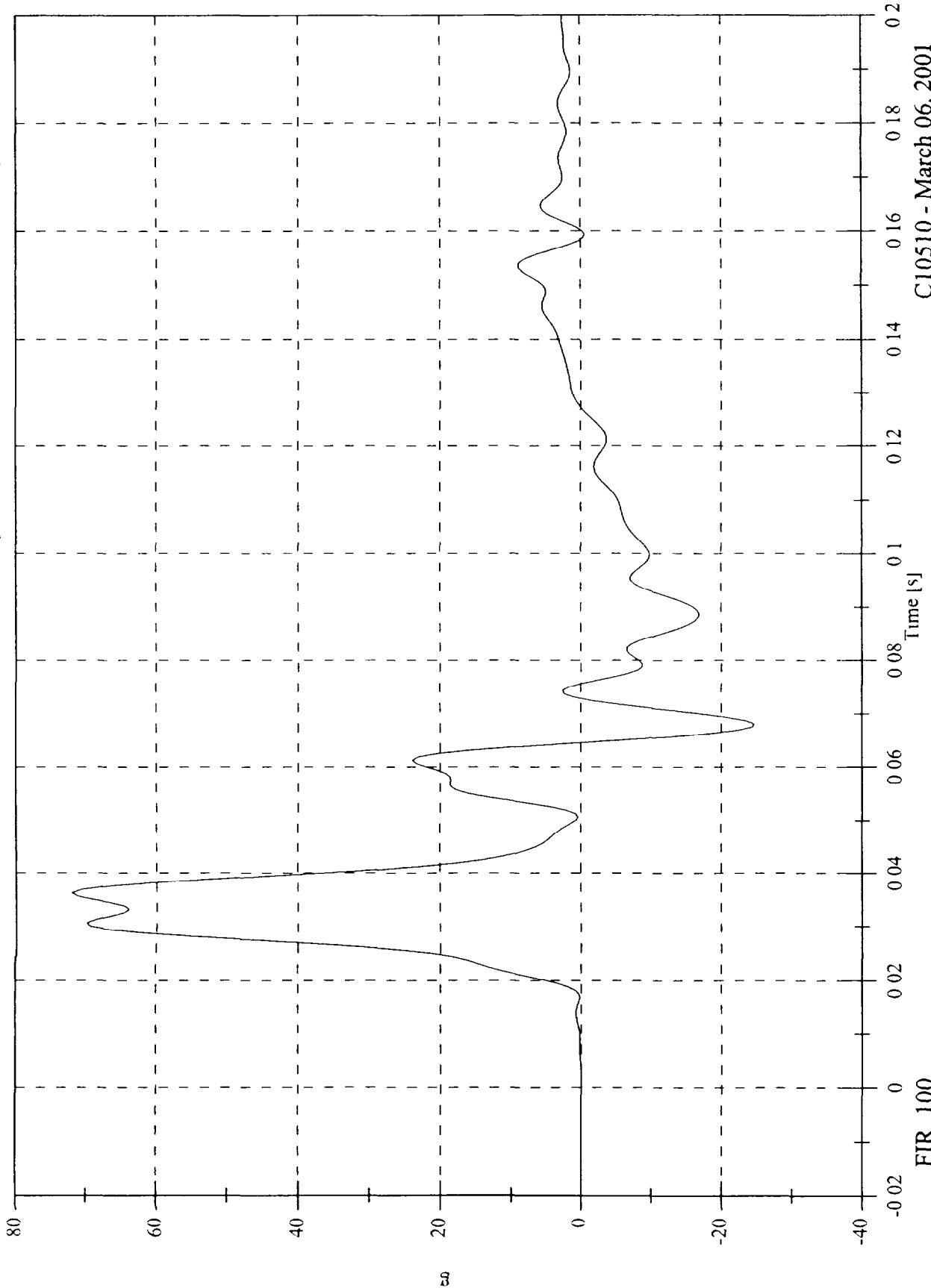


C10510 - March 06, 2001

FMVSS 214D Indicant Test 25 2001 Kia Rio

P1 Lower Rib y

Max 72.1 [g] at 0.036 [s]
Min -24.7 [g] at 0.068 [s]



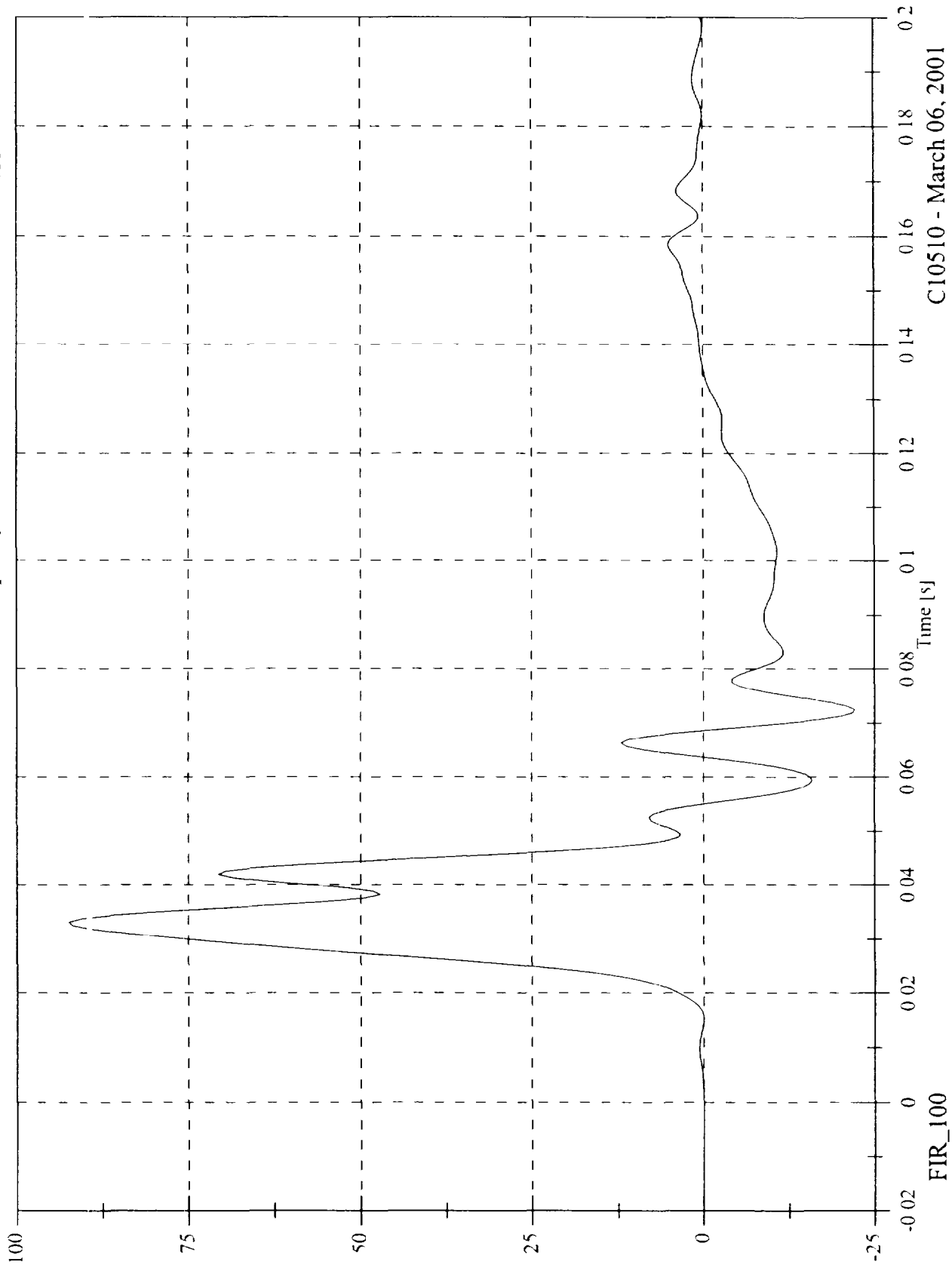
C10510 - March 06, 2001

FIR_100

FMVSS 214D Indicant Test 25 2001 Kia Rio

Max 92.4 [g] at 0.033 [s]
Min -22.1 [g] at 0.073 [s]

P1 Lower Spine y

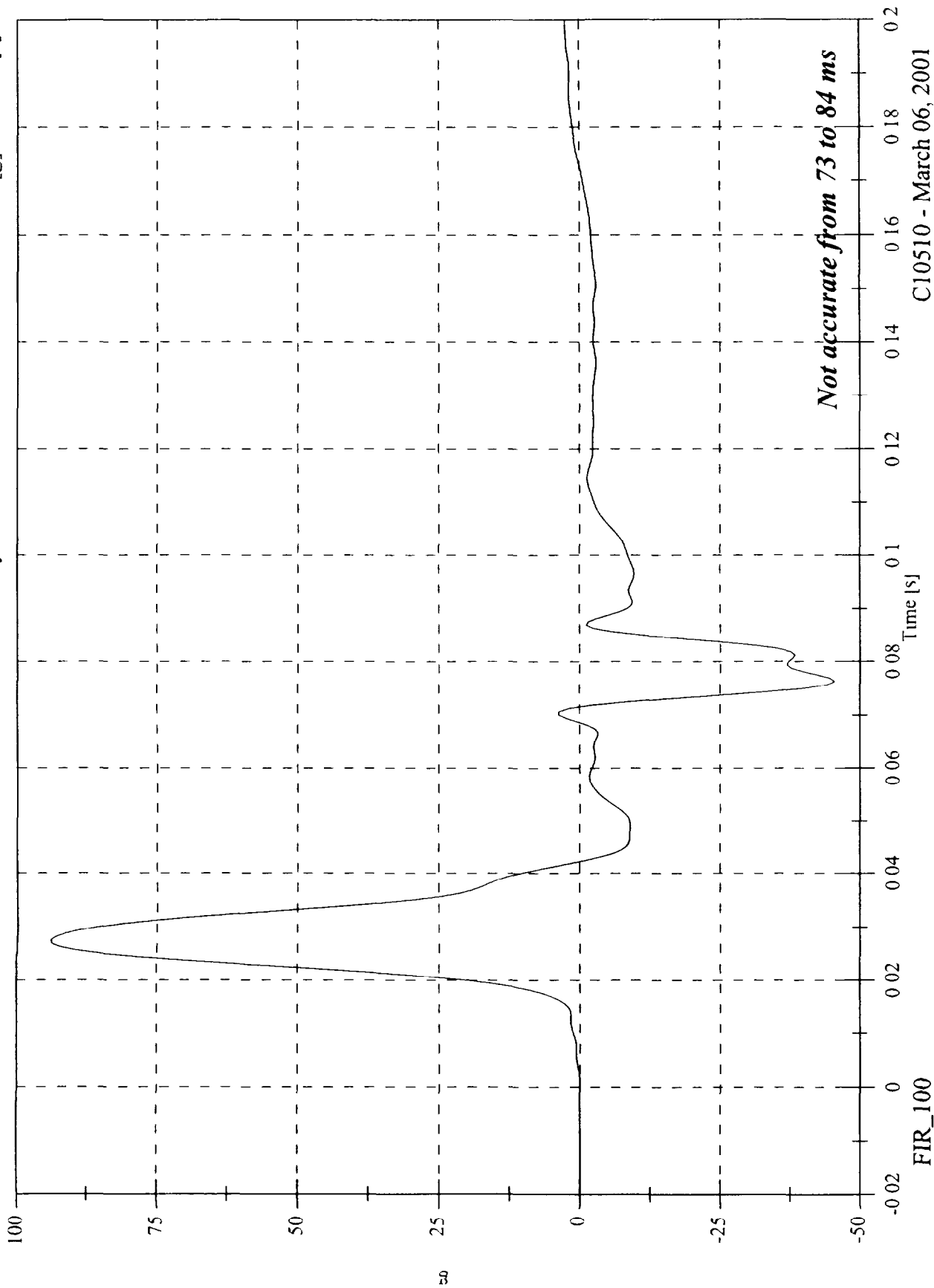


C10510 - March 06, 2001

FMVSS 214D Inducant Test 25 2001 Kia Rio

Max 93.9 [g] at 0.028 [s]
Min -45.5 [g] at 0.076 [s]

P1 Pelvic y



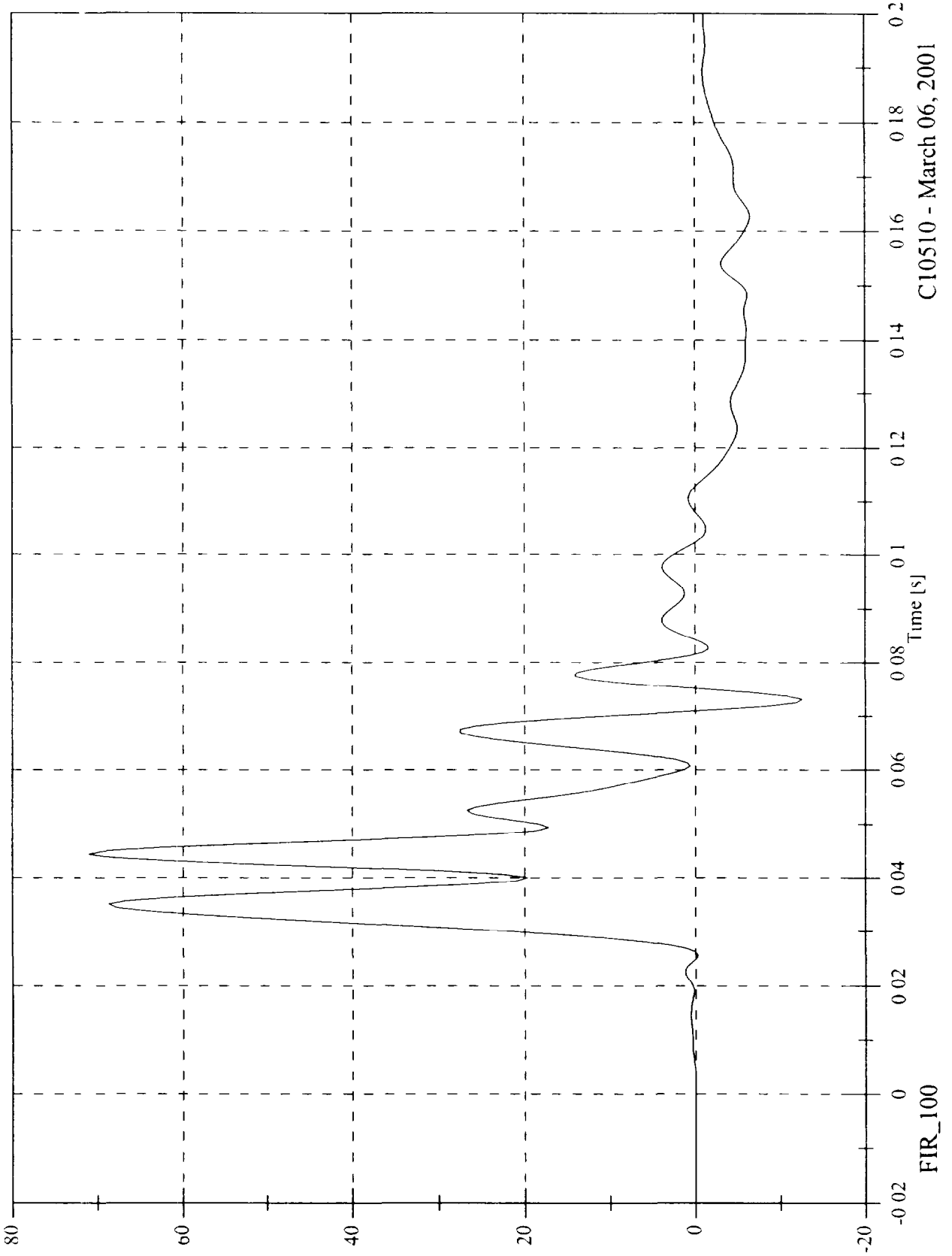
Not accurate from 73 to 84 ms

C10510 - March 06, 2001

FMVSS 214D Indrulant Test 25 2001 Kia Rio

Max 71.0 [g] at 0.044 [s]
Min -12.5 [g] at 0.073 [s]

P4 Upper Rib y

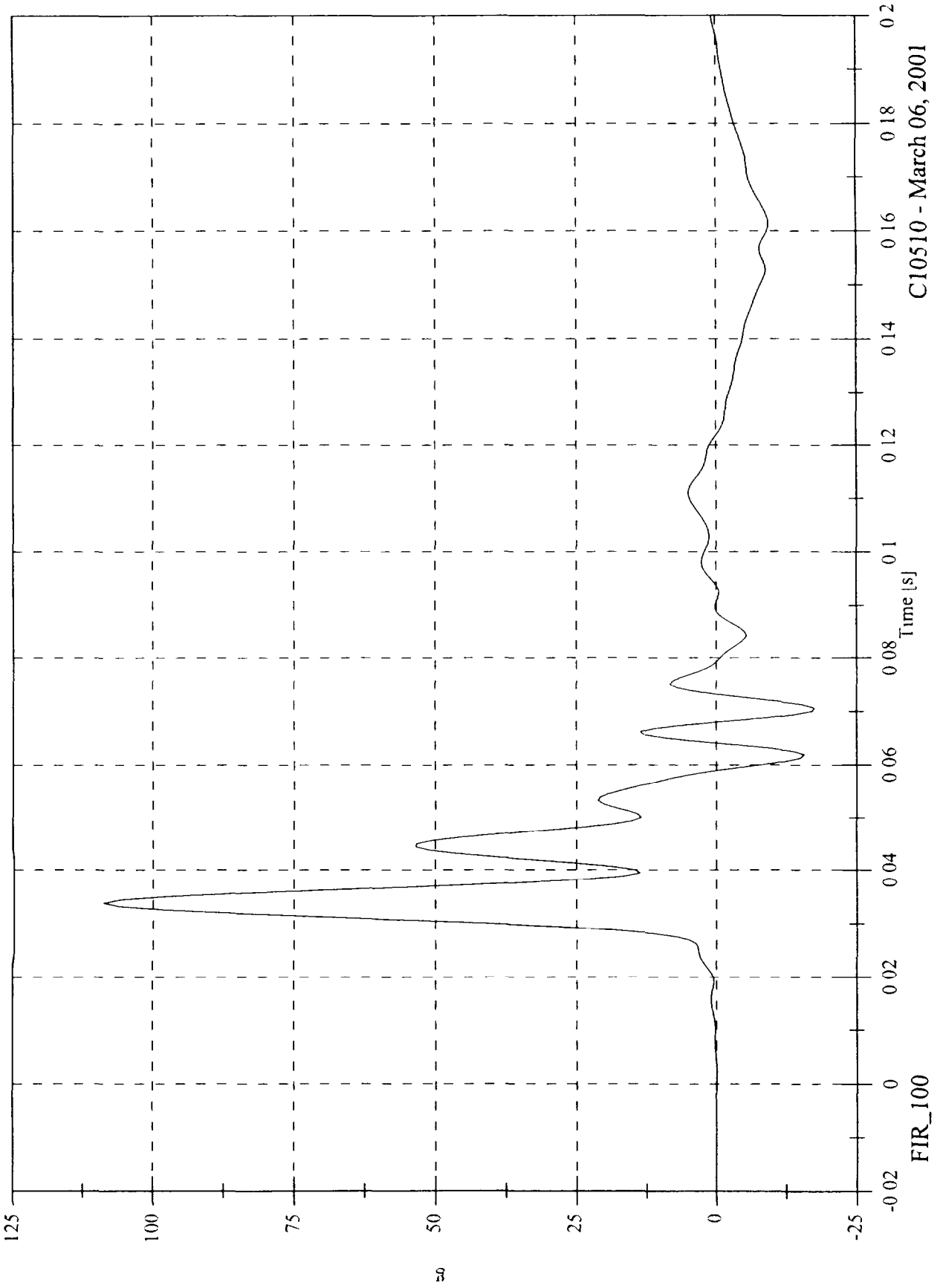


C10510 - March 06, 2001

FMVSS 214D Indicant Test 25 2001 Kia Rio

P4 Lower Rib y

Max 108.9 [g] at 0.034 [s]
Min -17.5 [g] at 0.071 [s]

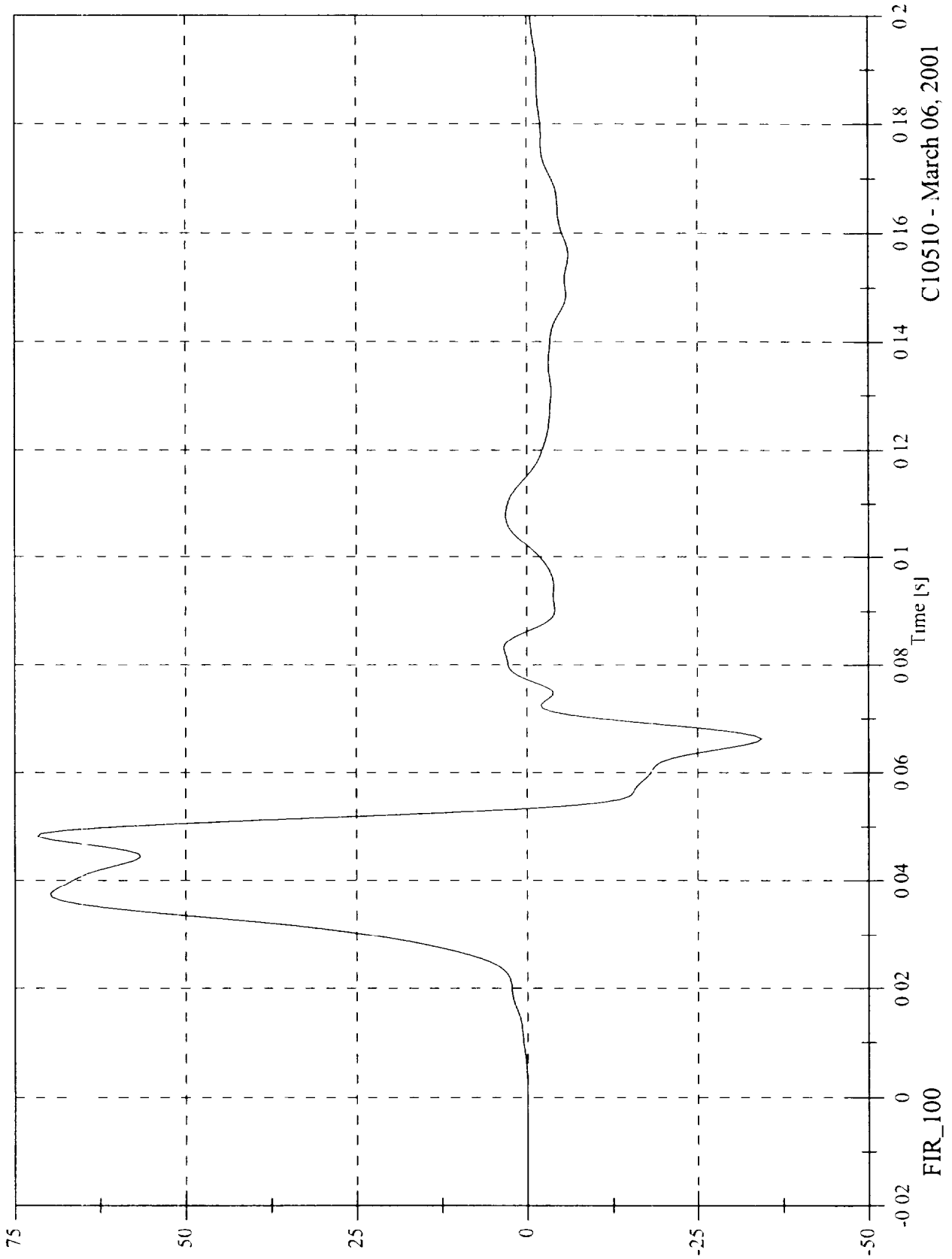


C10510 - March 06, 2001

FMVSS 214D Indrçant Test 25 2001 Kia Rio

Max 71.7 [g] at 0.048 [s]
Min -34.4 [g] at 0.066 [s]

P4 Lower Spine y

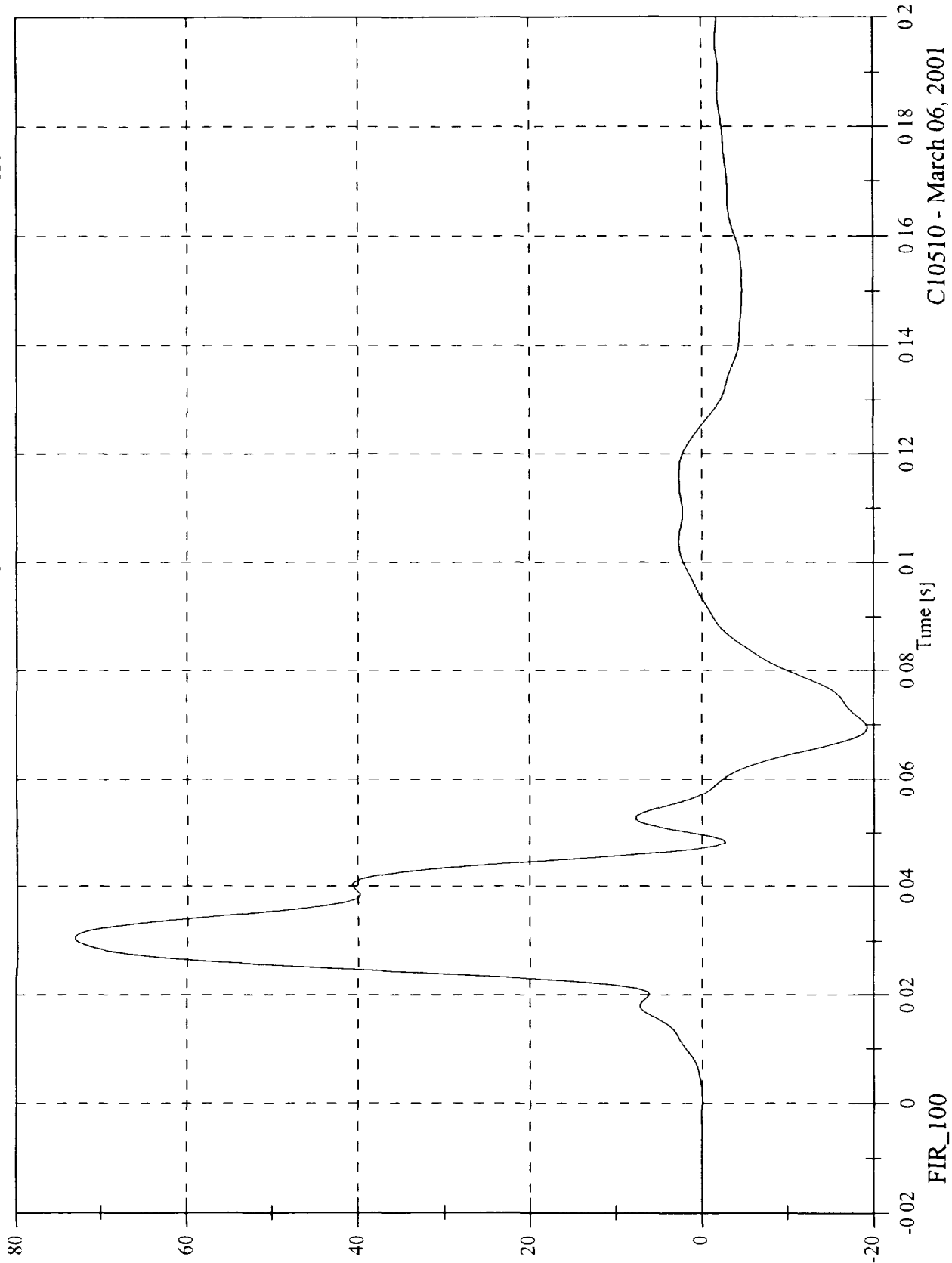


C10510 - March 06, 2001

FMVSS 214D Indicant Test 25 2001 Kia Rio

P4 Pelvic y

Max 73.3 [g] at 0.031 [s]
Min -19.3 [g] at 0.069 [s]



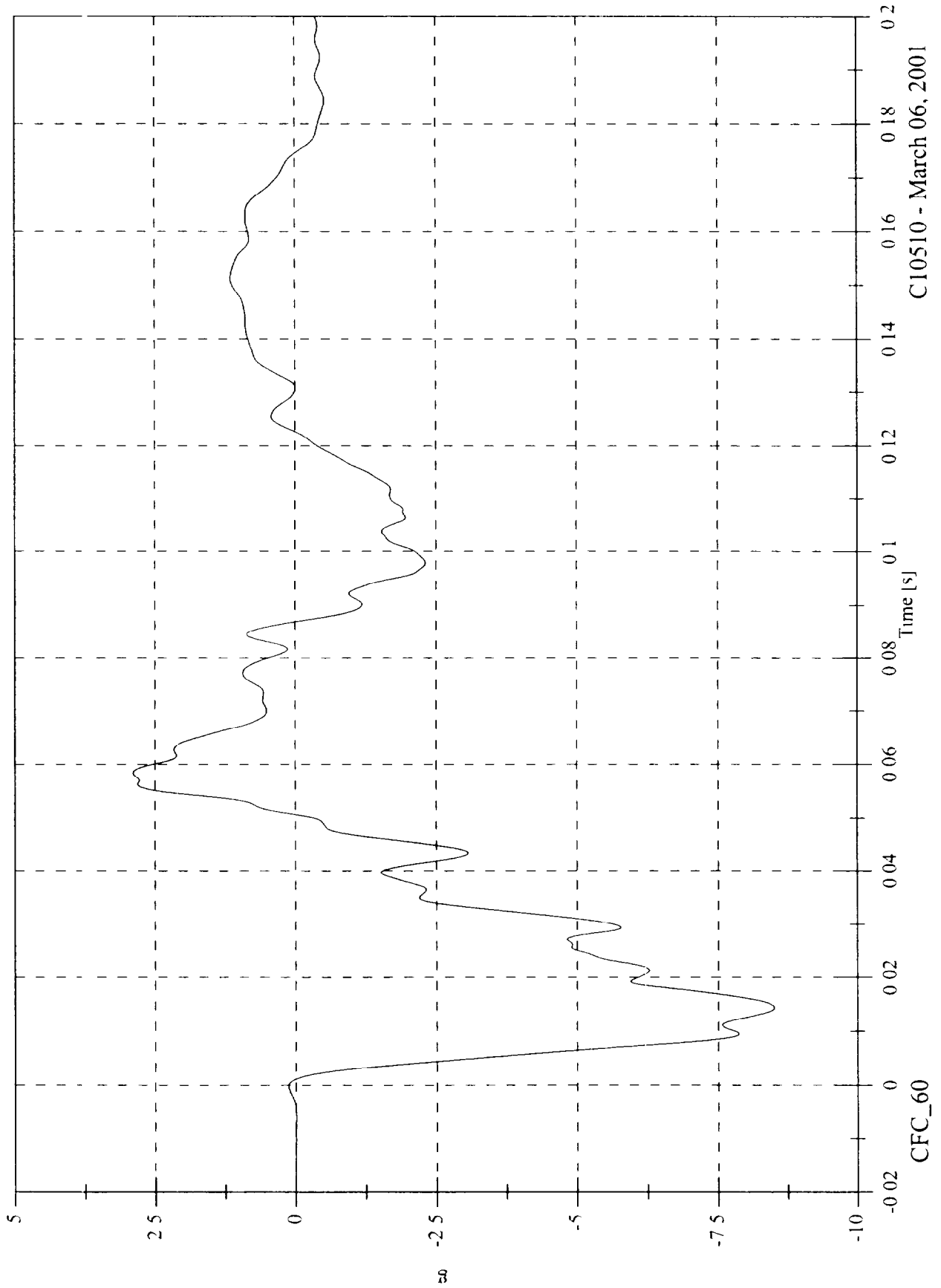
C10510 - March 06, 2001

FIR_100

FMVSS 214D Indicant Test 25 2001 Kia R10

A1 Right Front Sill X

Max 2.9 [g] at 0.058 [s]
Min -8.5 [g] at 0.014 [s]

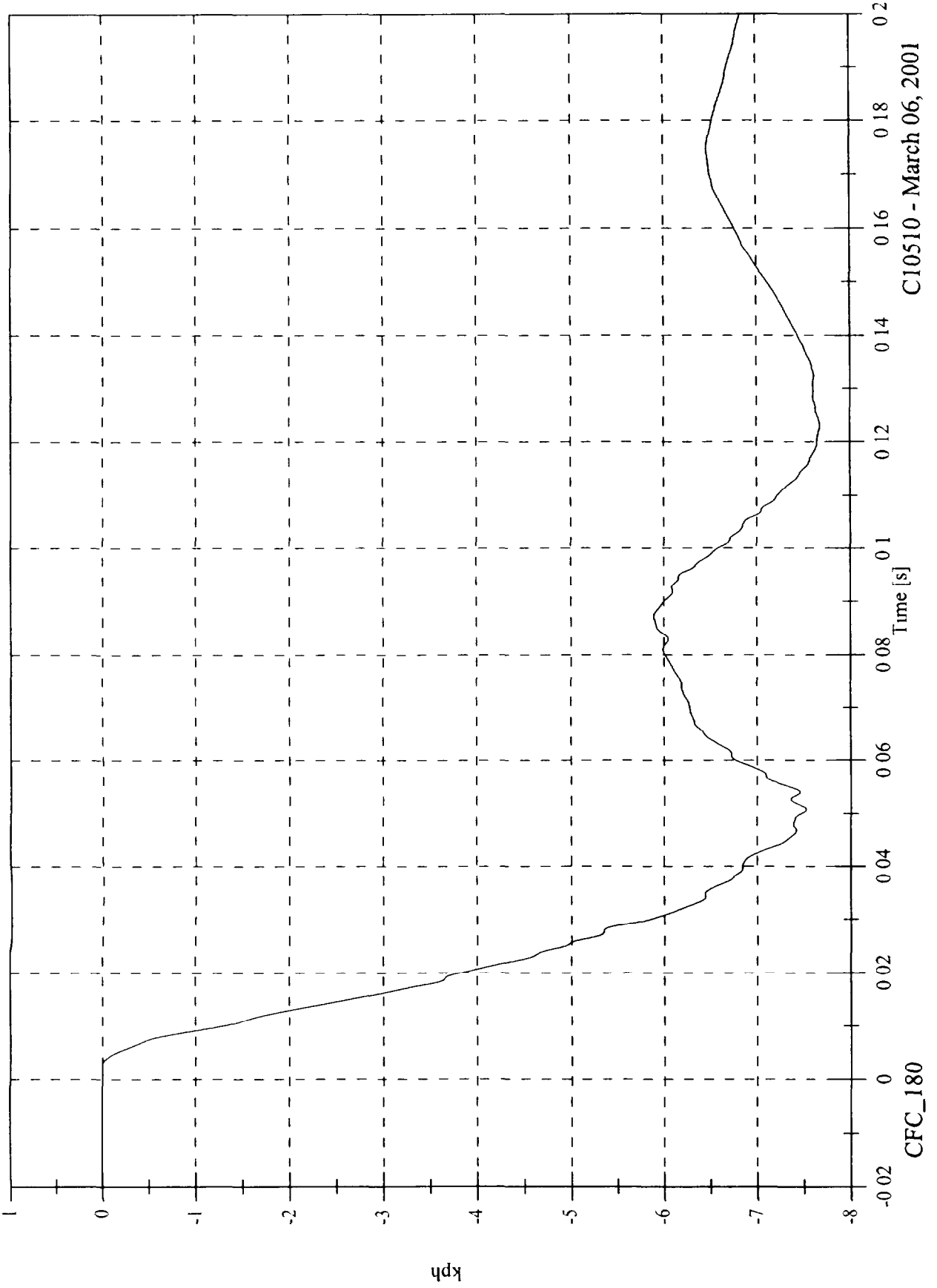


C10510 - March 06, 2001

FMVSS 214D Indicant Test 25 2001 Kia Rio

AI Right Front Sill X Velocity

Max 0.0 [kph] at -0.018 [s]
Min -7.7 [kph] at 0.123 [s]

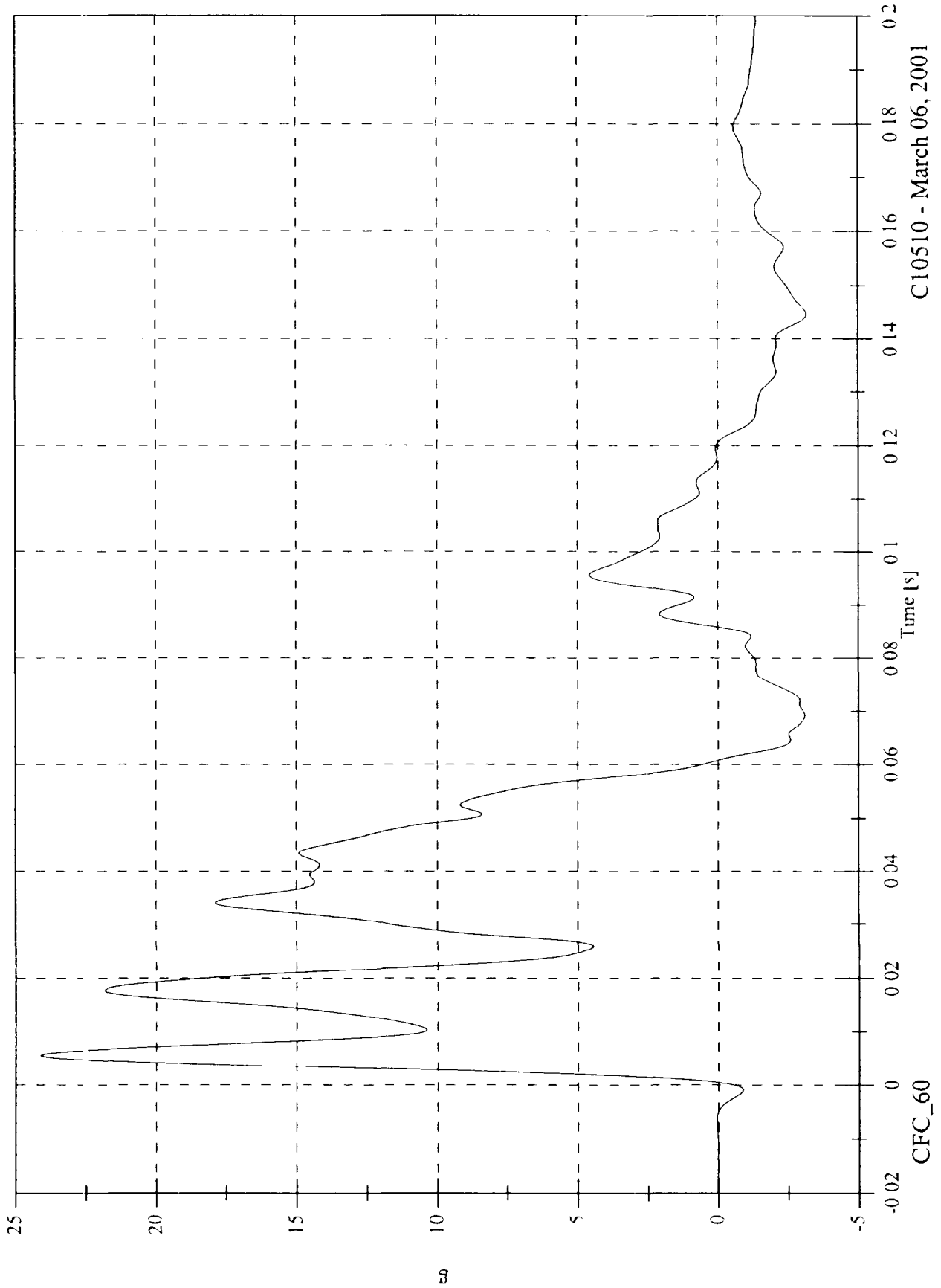


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Max 24.1 [g] at 0.006 [s]
Min -3.2 [g] at 0.145 [s]

A1 Right Front Sill Y

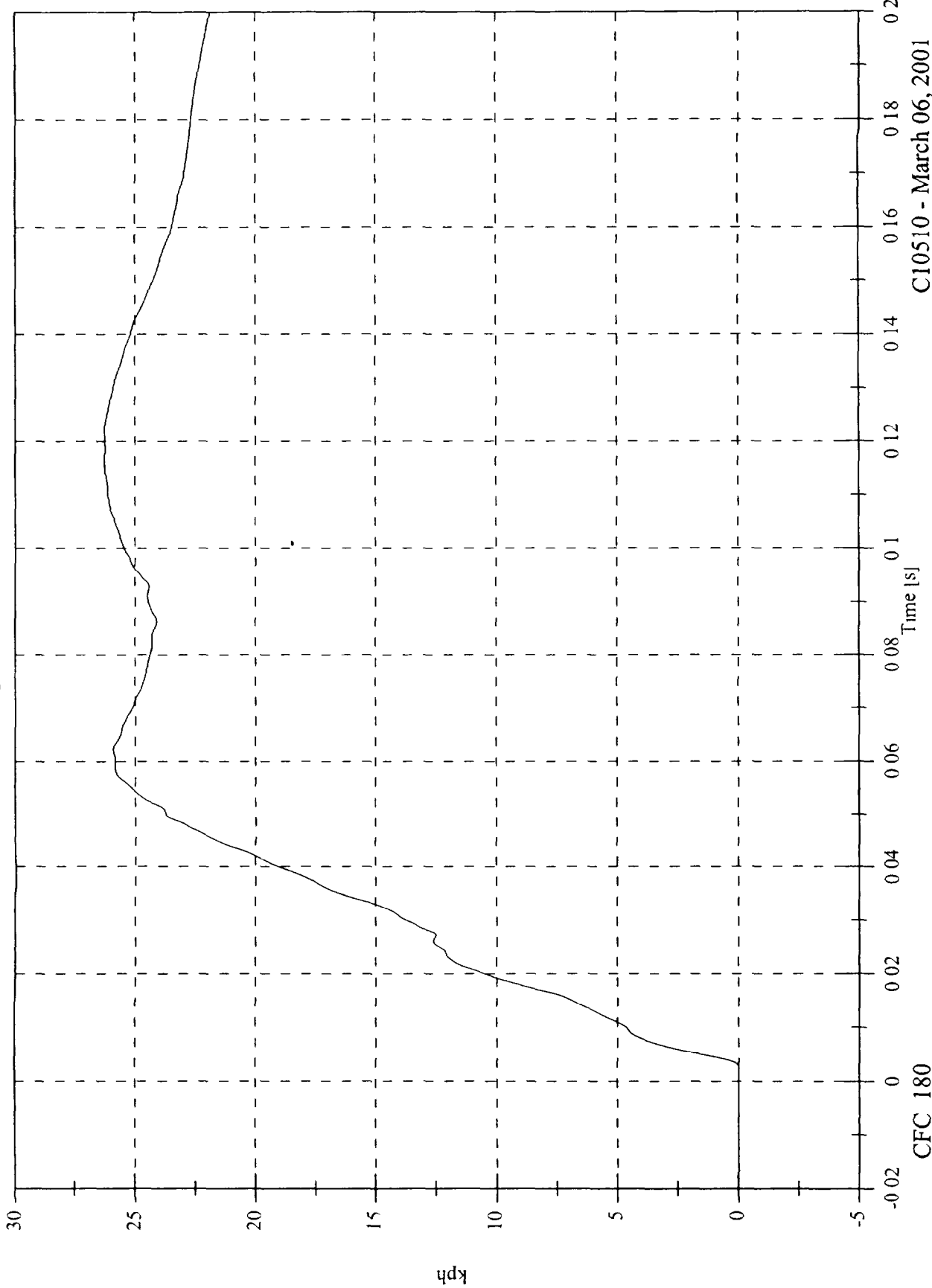


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Max. 26.3 [kph] at 0.122 [s]
Min -0.0 [kph] at 0.002 [s]

A1 Right Front Sill Y Velocity

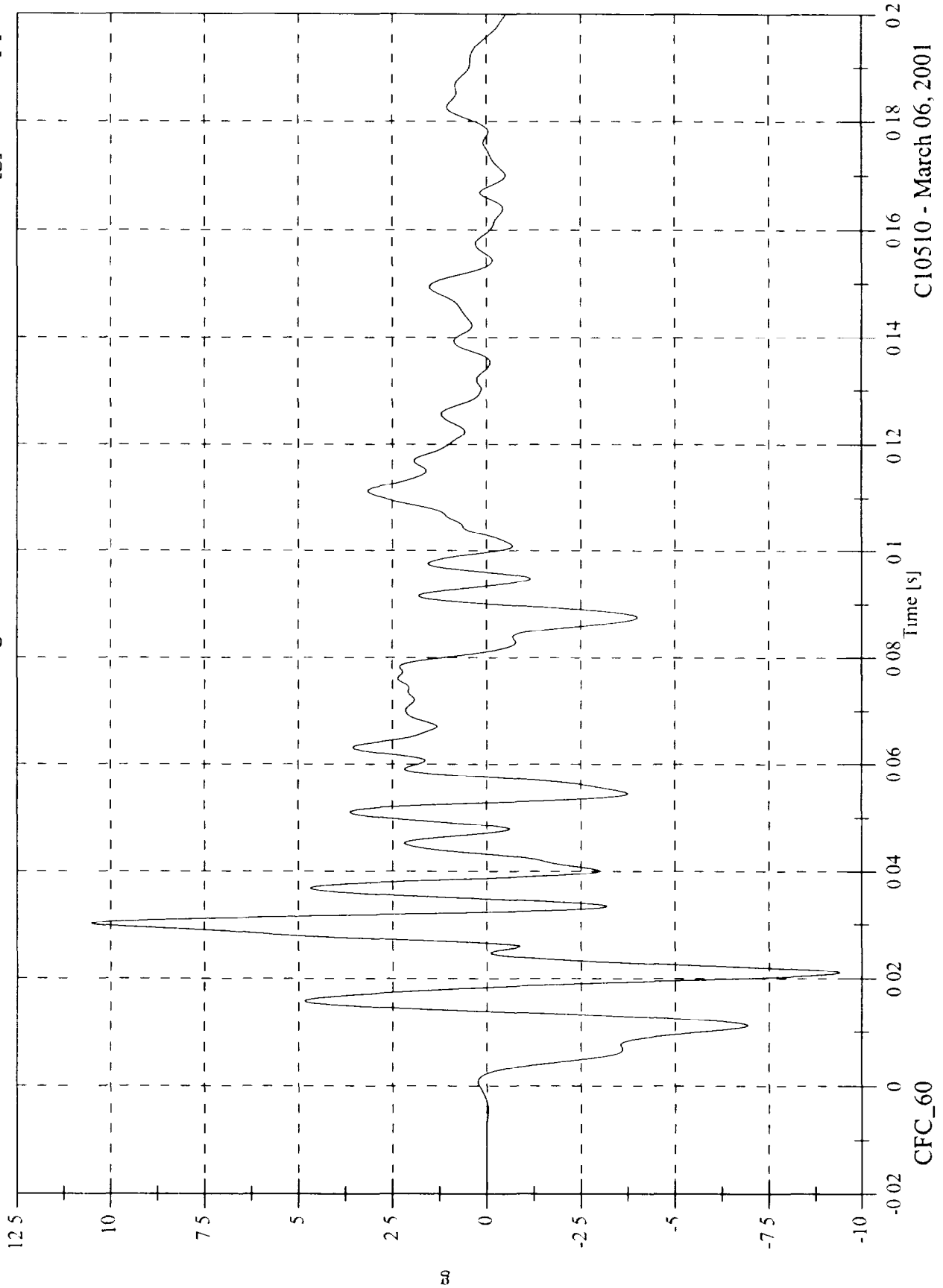


C10510 - March 06, 2001

FMVSS 214D Inducant Test 25 2001 Kia Rio

A1 Right Front Sill Z

Max 10.5 [g] at 0.030 [s]
Min -9.4 [g] at 0.021 [s]

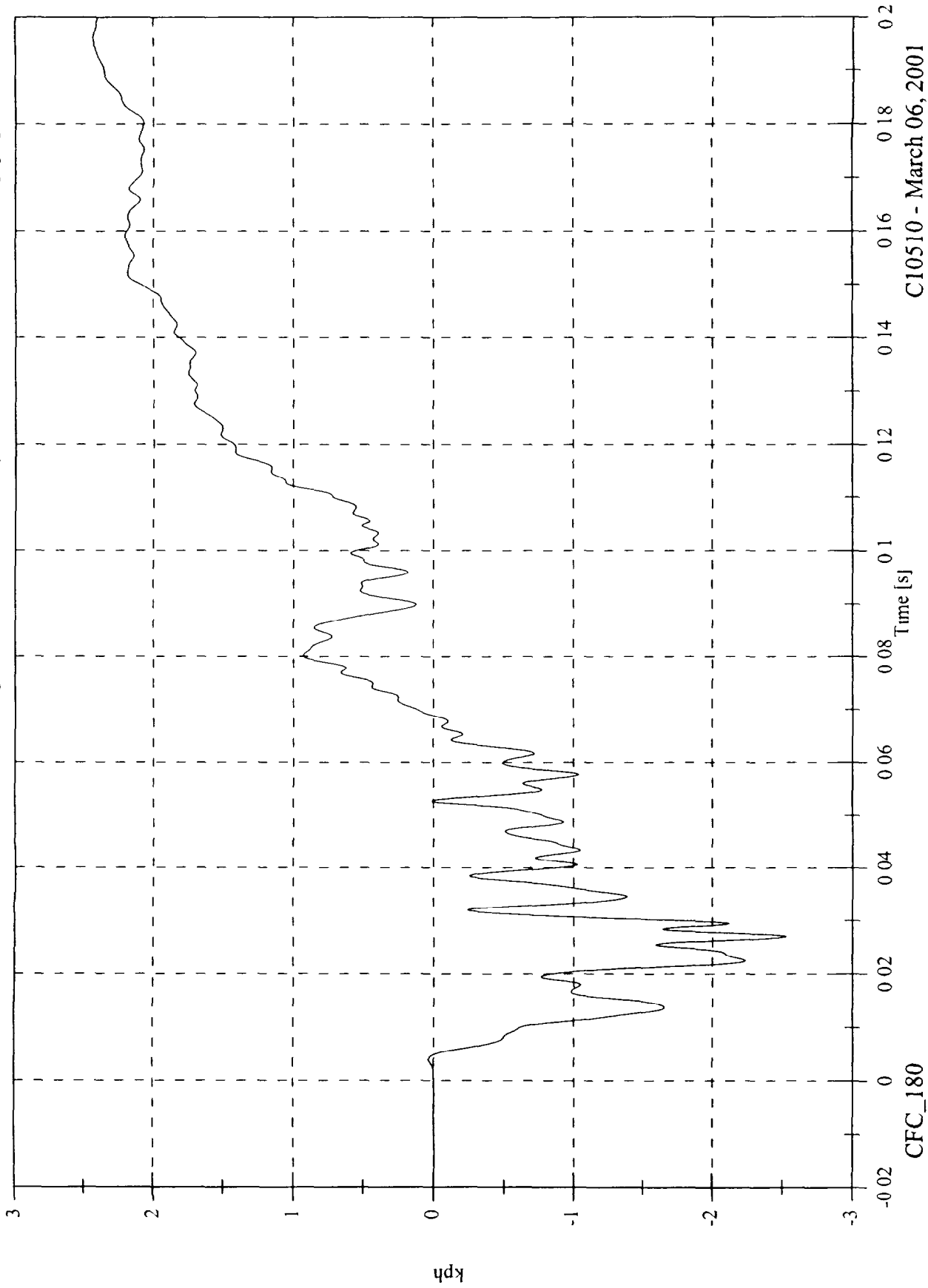


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A1 Right Front Sill Z Velocity

Max 2.4 [kph] at 0.196 [s]
Min -2.5 [kph] at 0.027 [s]

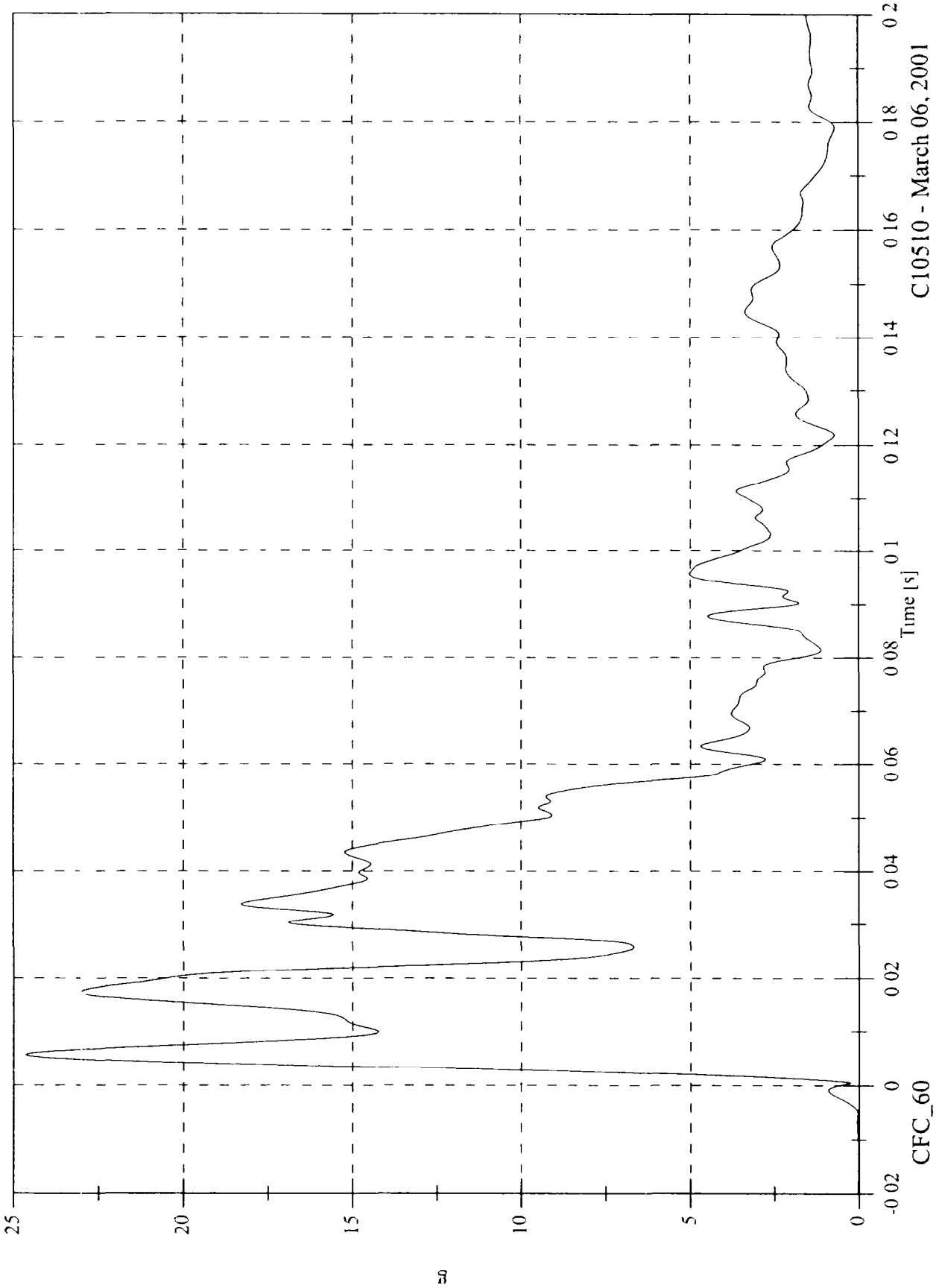


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FMVSS 214D Indicant Test 25 2001 Kia Rio

AI Right Front Sill Resultant

Max 24.6 [g] at 0.006 [s]
Min 0.0 [g] at -0.011 [s]

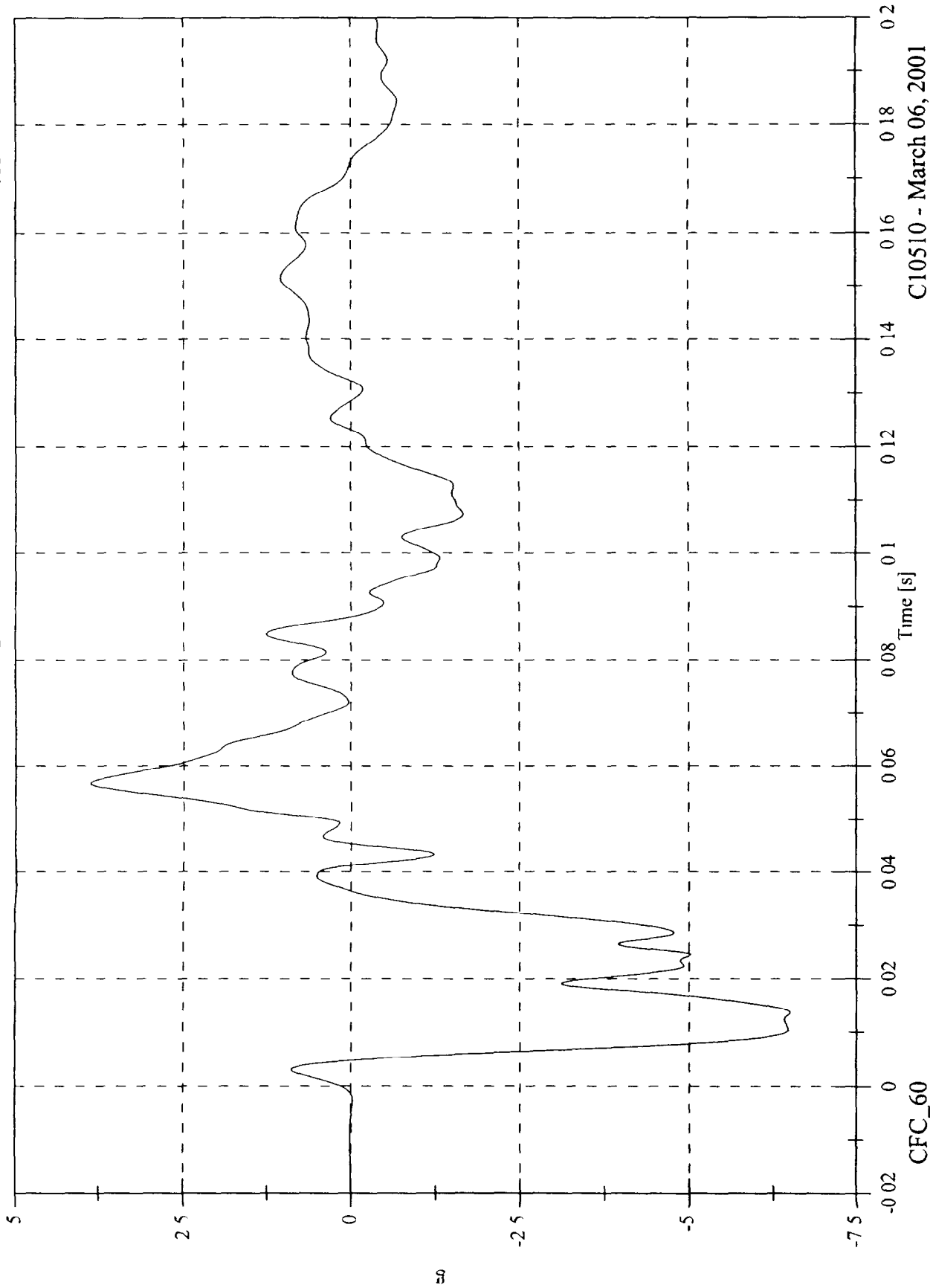


C10510 - March 06, 2001

FMVSS 214D Inducant Test 25 2001 Kia Rio

A2 Right Rear Sill X

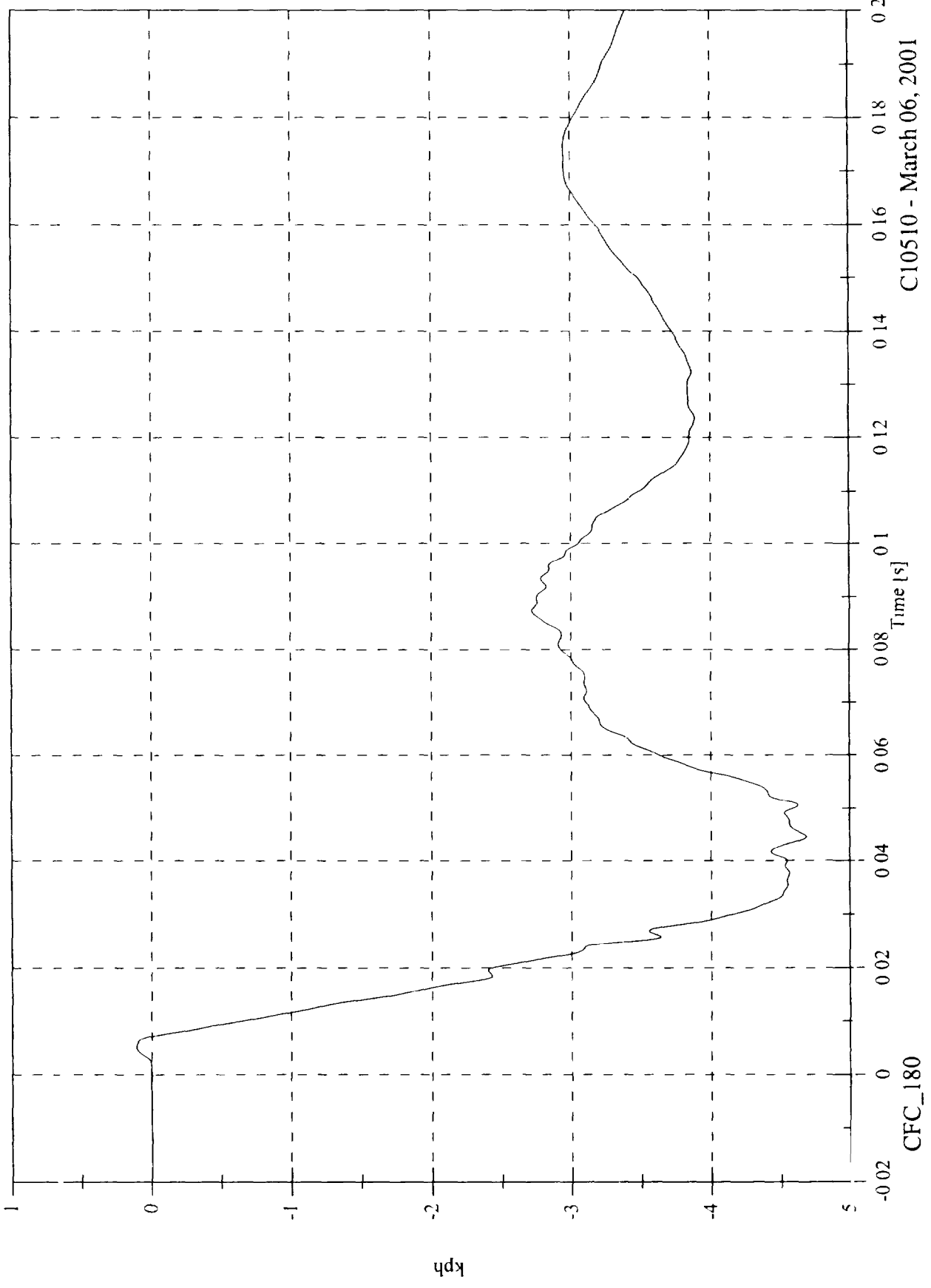
Max 3.9 [g] at 0.057 [s]
Min -6.5 [g] at 0.014 [s]



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FMVSS 214D Indicant Test 25 2001 Kia Rio
A2 Right Rear Sill X Velocity

Max 0.1 [kph] at 0.005 [s]
Min -4.7 [kph] at 0.045 [s]

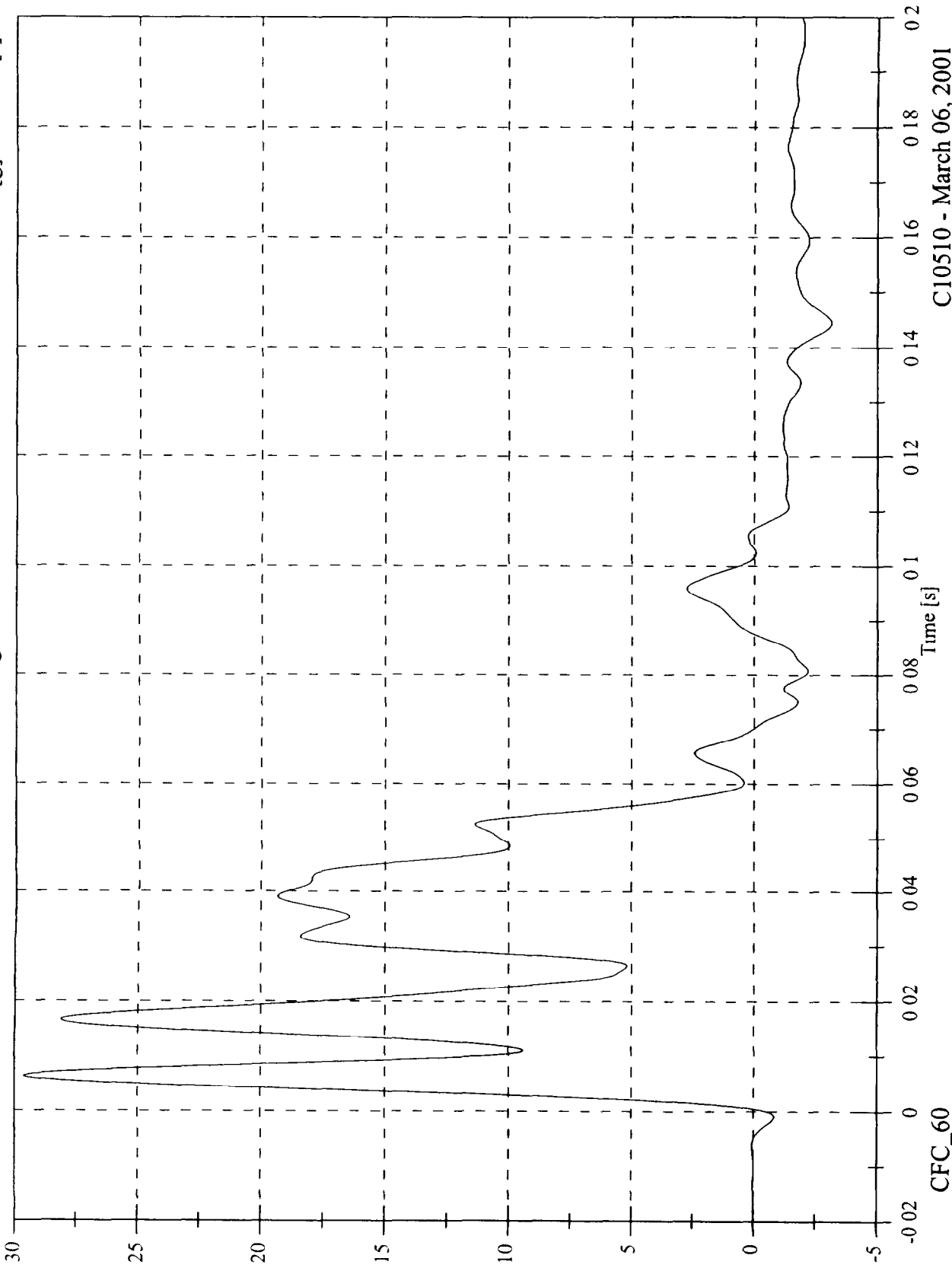


C10510 - March 06, 2001

FMVSS 214D Inducant Test 25 2001 Kia Rio

A2 Right Rear Sill Y

Max 29.6 [g] at 0.006 [s]
Min -3.2 [g] at 0.144 [s]

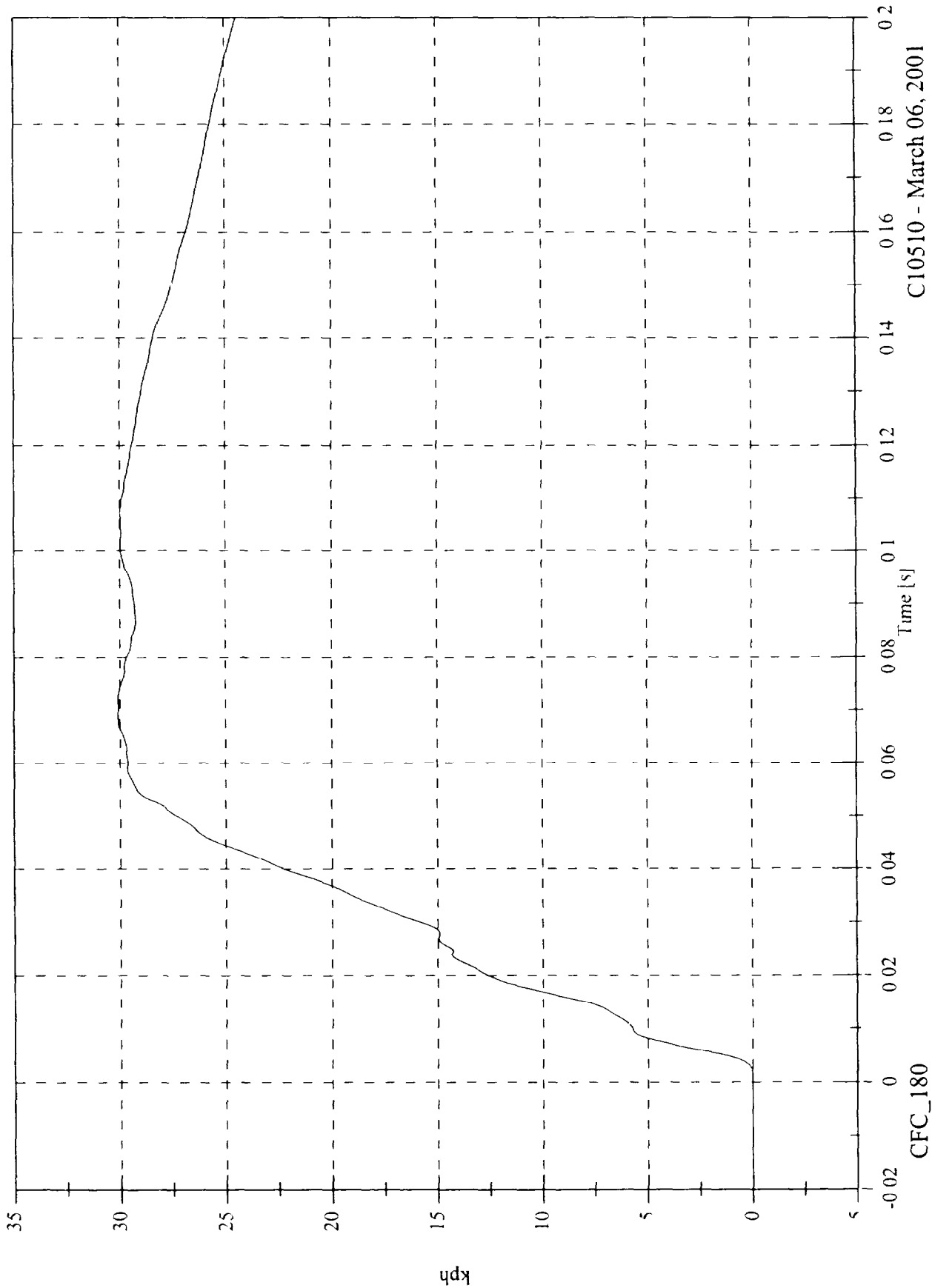


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A2 Right Rear Sill Y Velocity

Max 30.1 [kph] at 0.068 [s]

Min -0.0 [kph] at -0.017 [s]

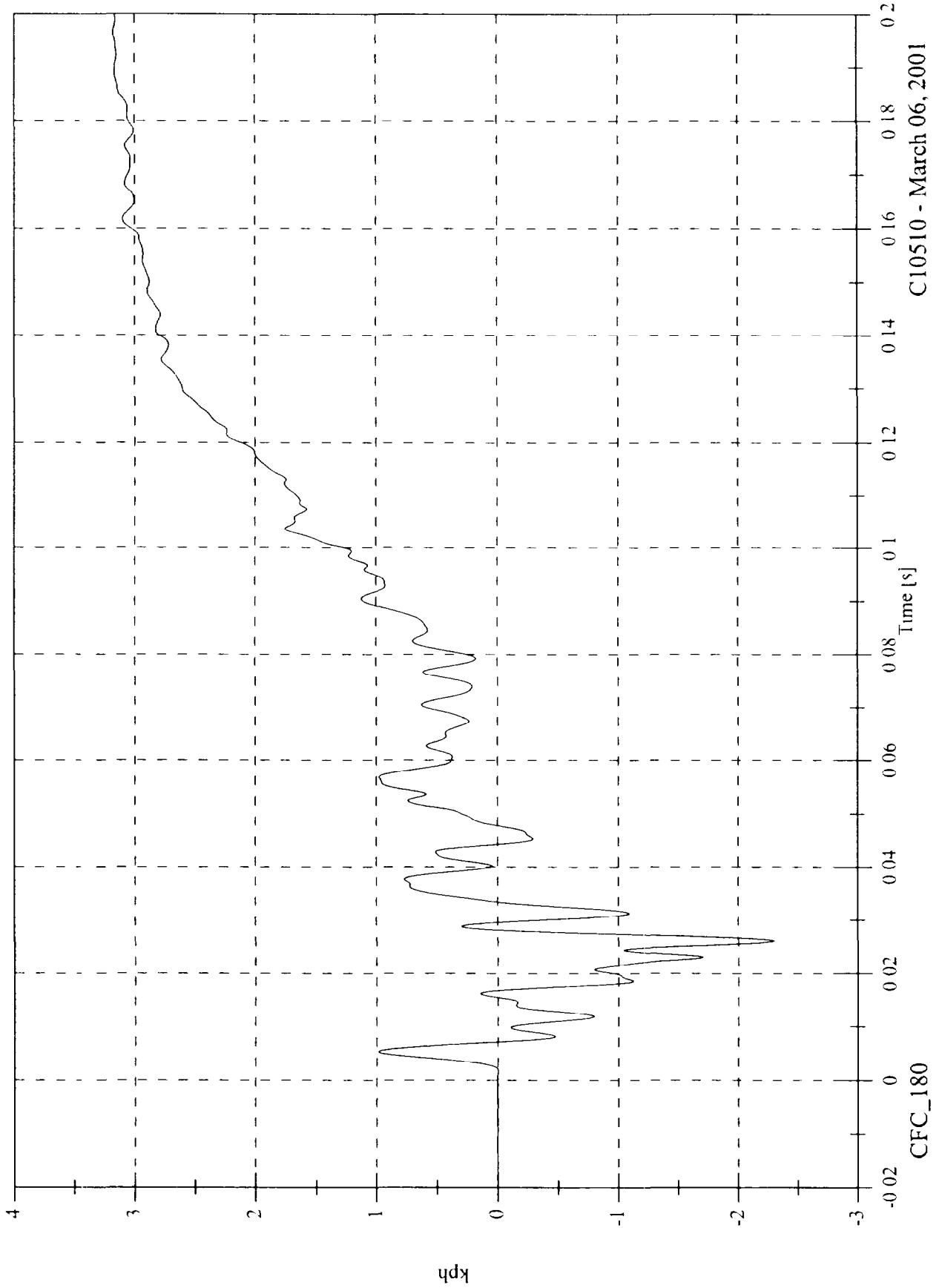


C10510 - March 06, 2001

FMVSS 214D Indicant Test 25 2001 Kia Rio

Max 3.2 [kph] at 0.196 [s]
Min -2.3 [kph] at 0.026 [s]

A2 Right Rear Sill Z Velocity

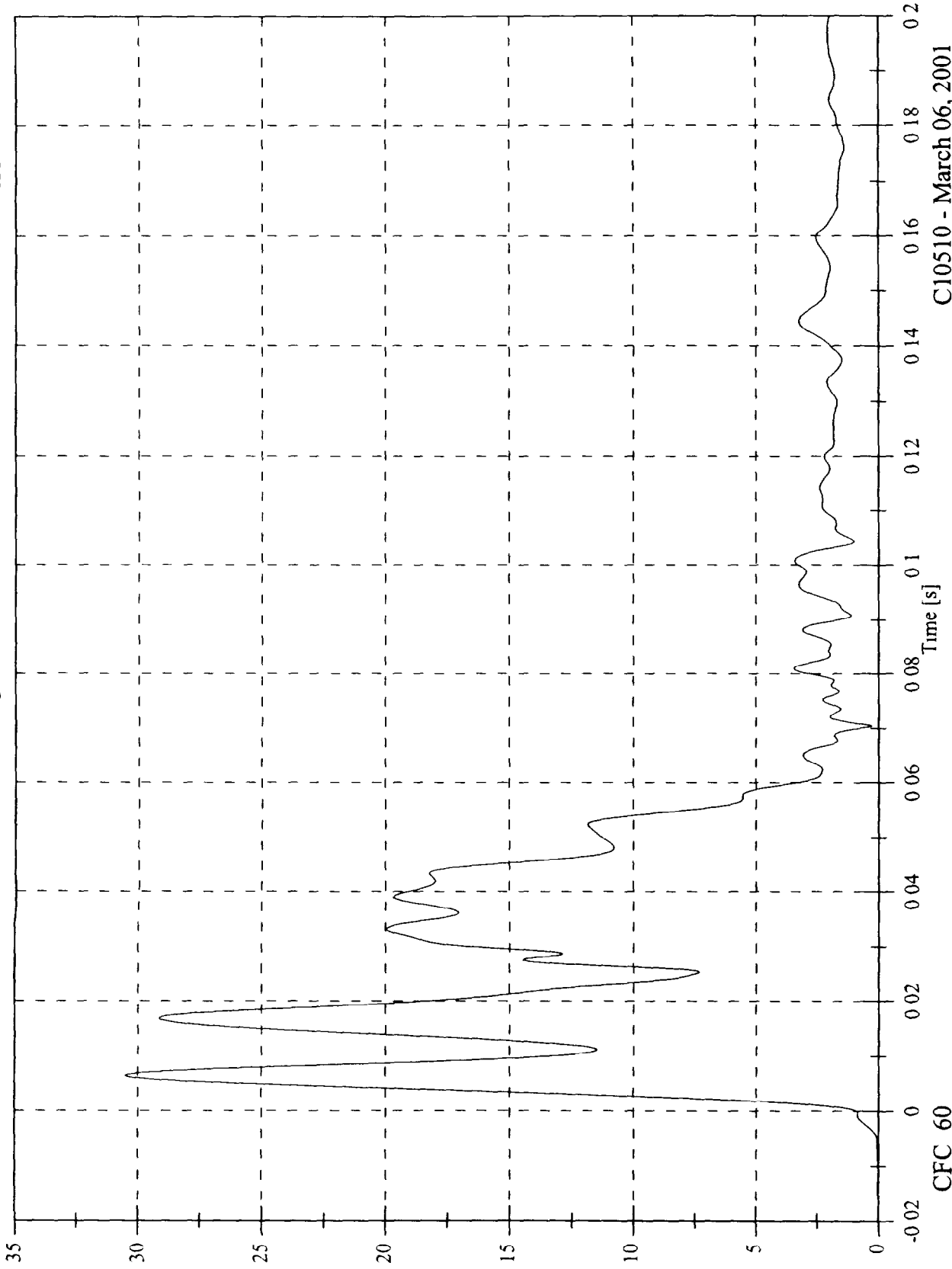


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A2 Right Rear Sill Resultant

Max: 30.5 [g] at 0.006 [s]
Min: 0.0 [g] at -0.018 [s]

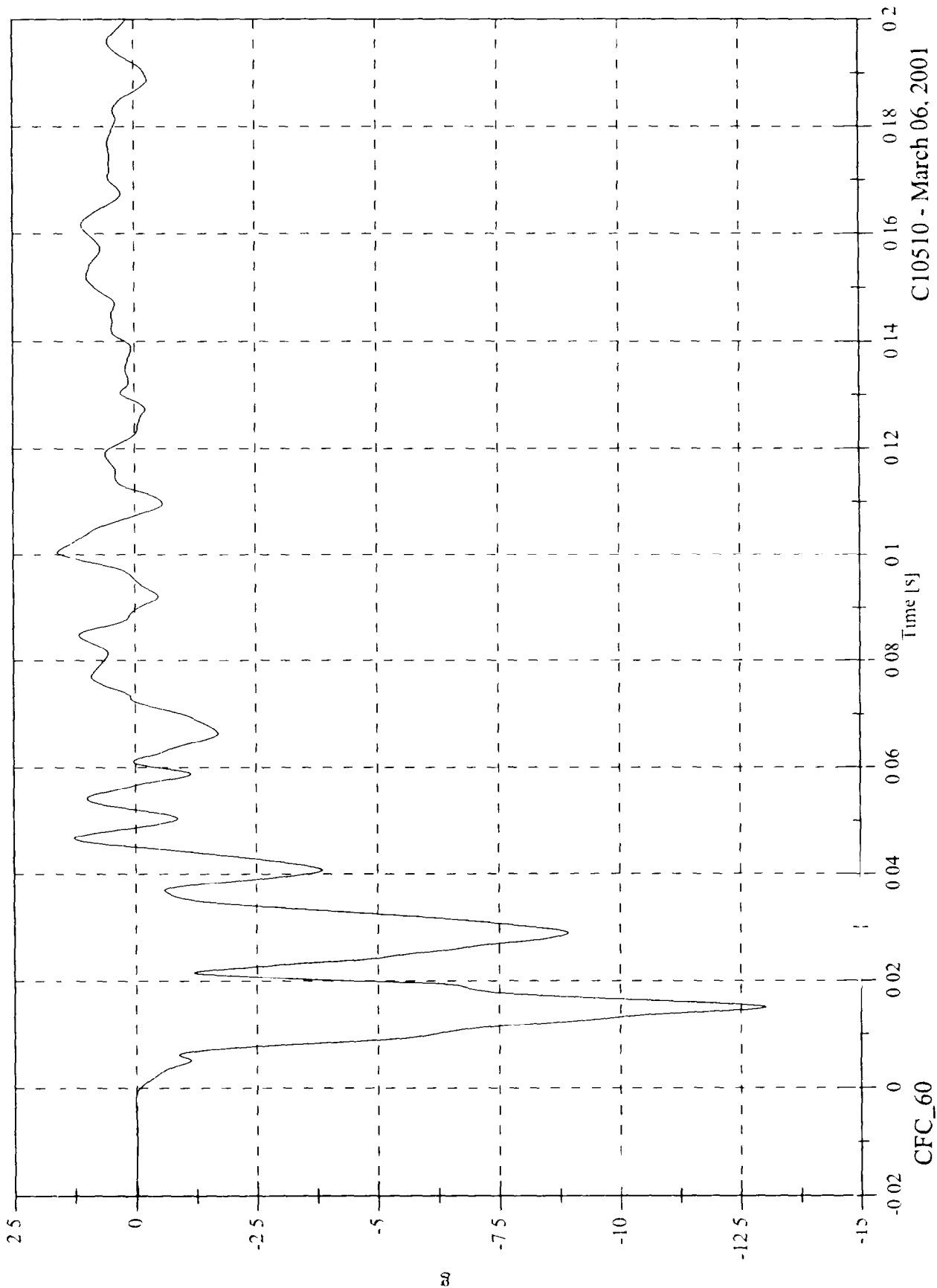


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Max 1.6 [g] at 0.101 [s]
Min -13.0 [g] at 0.015 [s]

A3 Rear Floorpan X

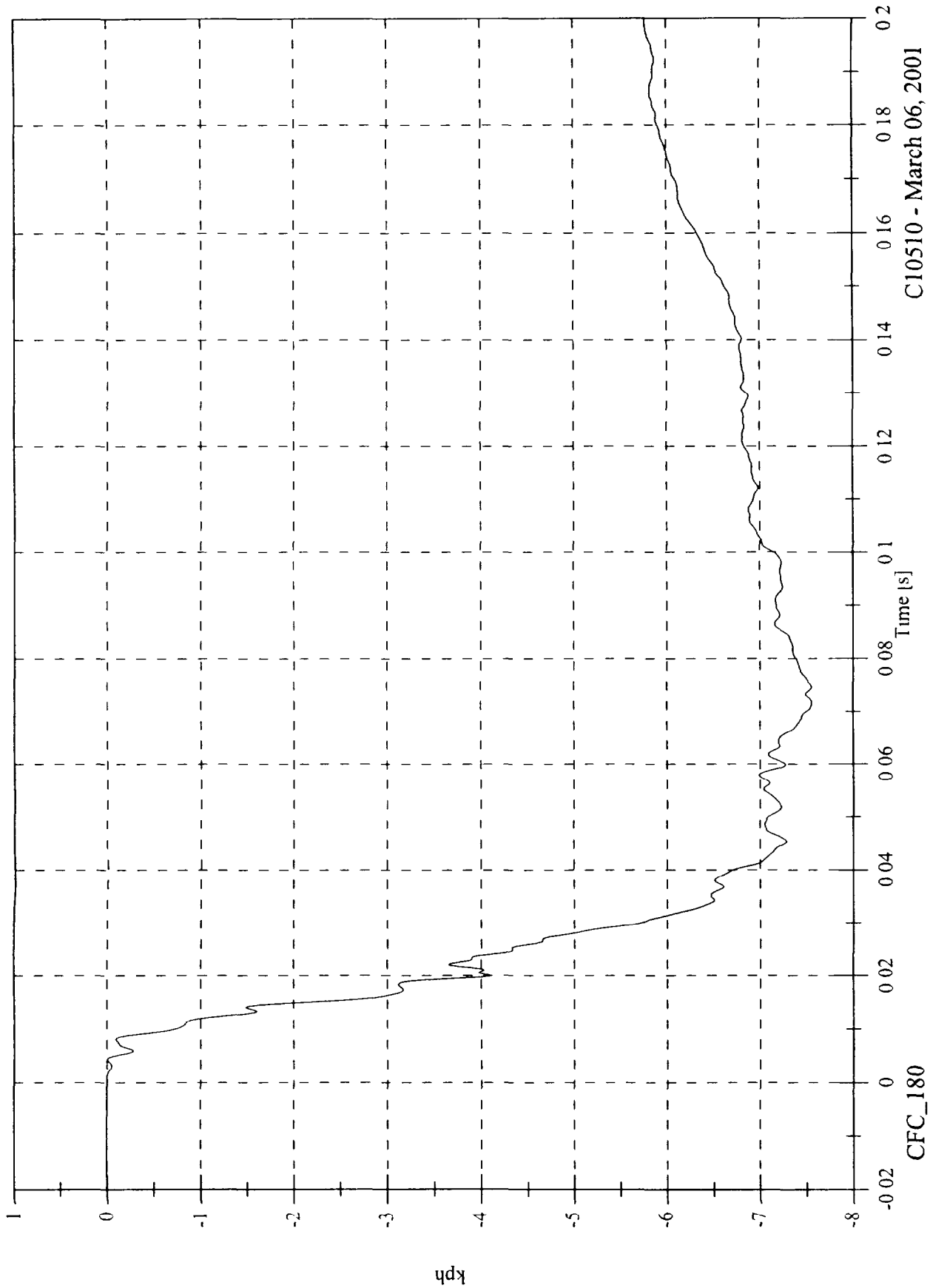


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A3 Rear Floorpan X Velocity

Max. 0.0 [kph] at -0.020 [s]
Min -7.6 [kph] at 0.075 [s]

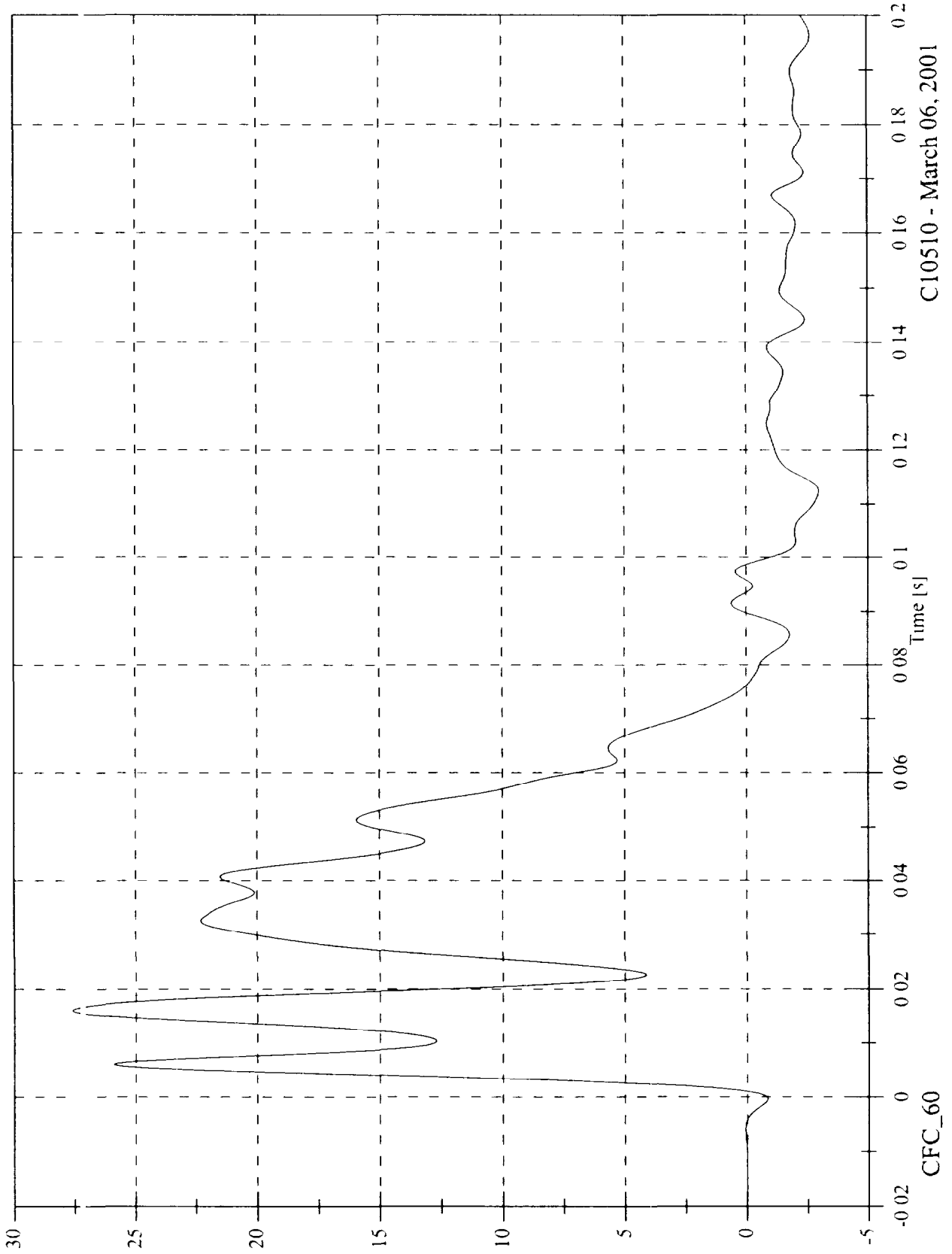


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FMVSS 214D Inducant Test 25 2001 Kia Rio

A3 Rear Floorpan Y

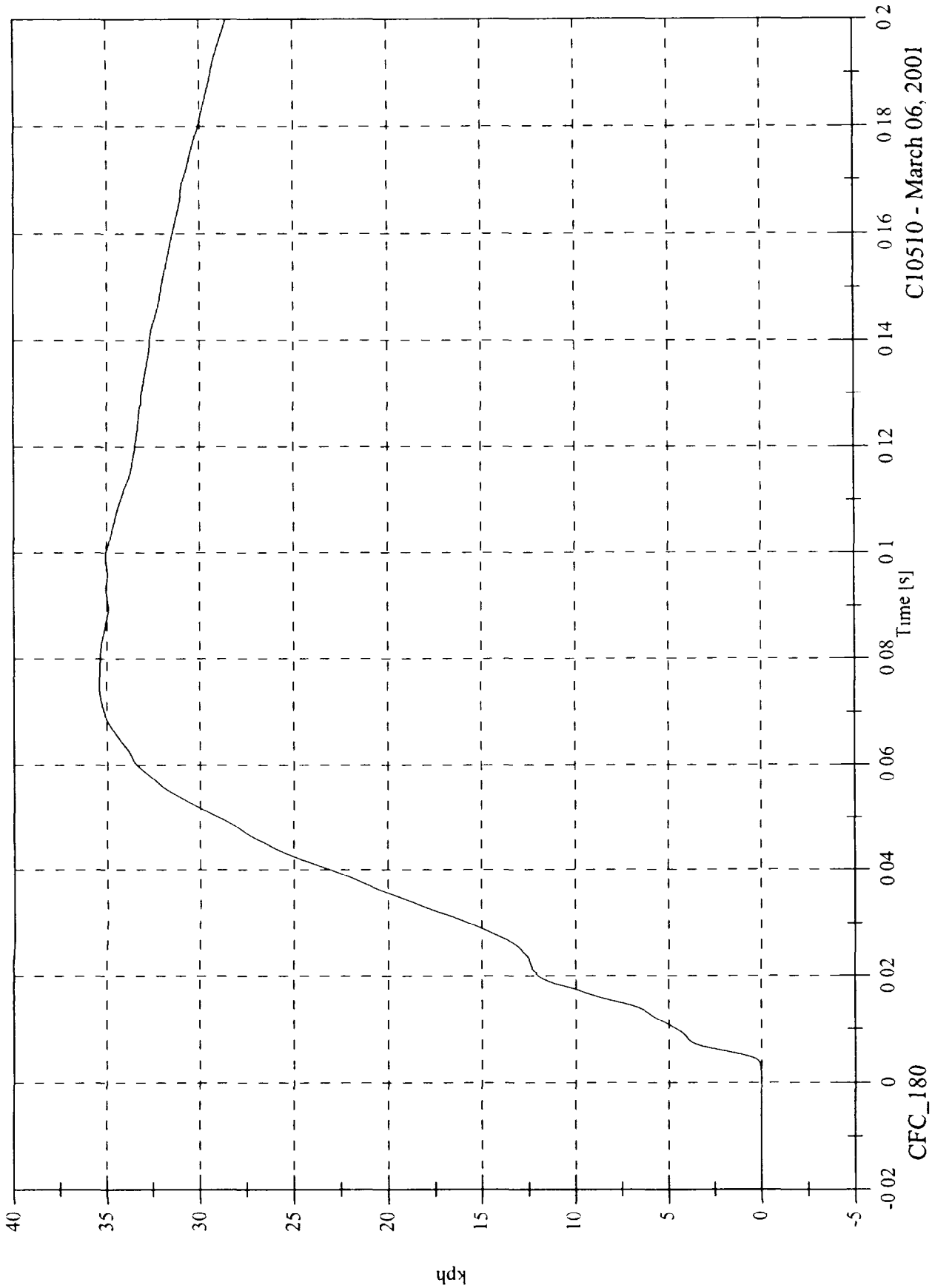
Max 27.6 [g] at 0.016 [s]
Min -3.0 [g] at 0.112 [s]



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A3 Rear Floorpan Y Velocity

Max 35.4 [kph] at 0.076 [s]
Min -0.0 [kph] at -0.020 [s]

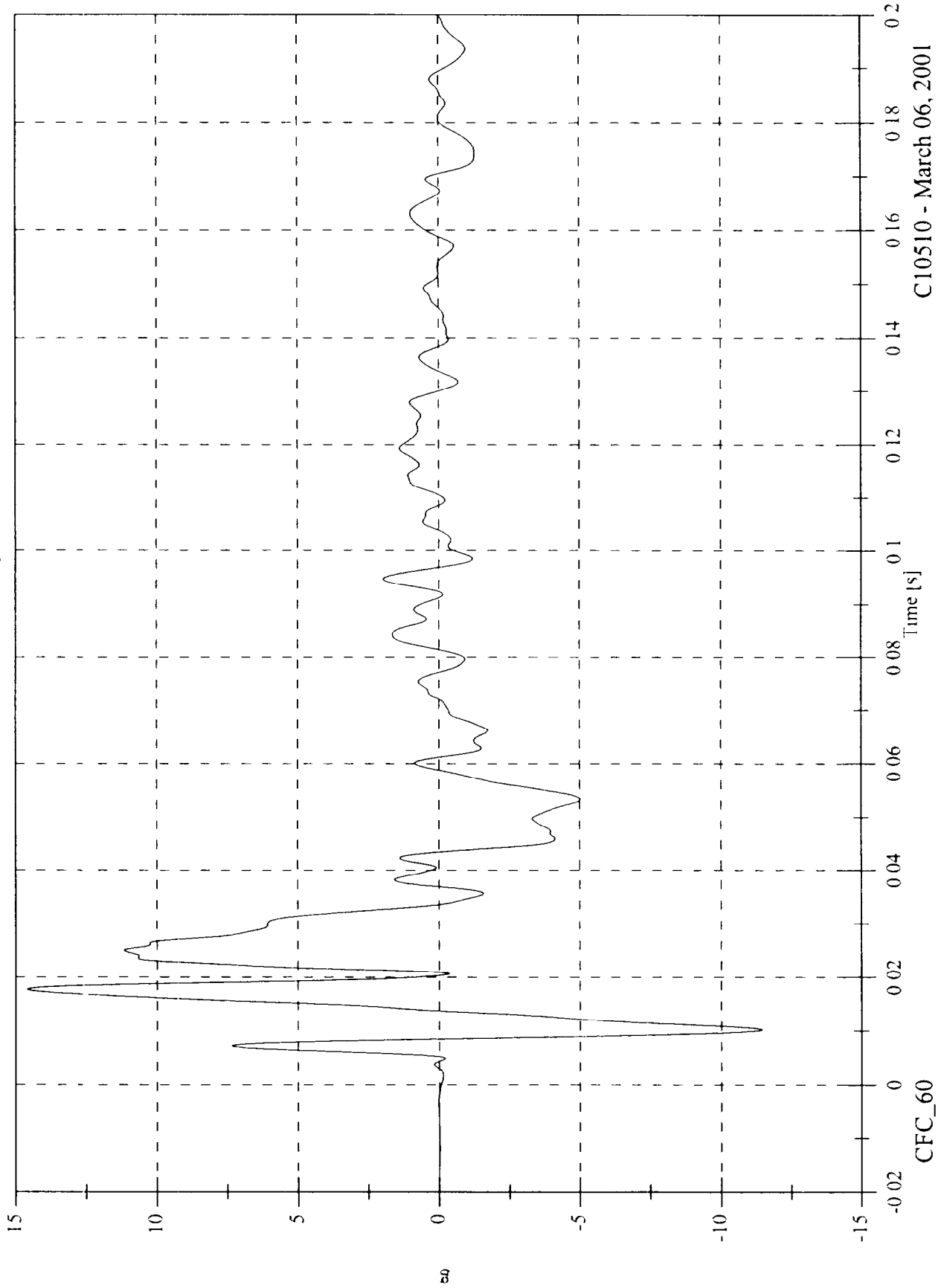


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FMVSS 214D Indicant Test 25 2001 Kia Rio

Max 14.6 [g] at 0.018 [s]
Min -11.5 [g] at 0.010 [s]

A3 Rear Floorplan Z

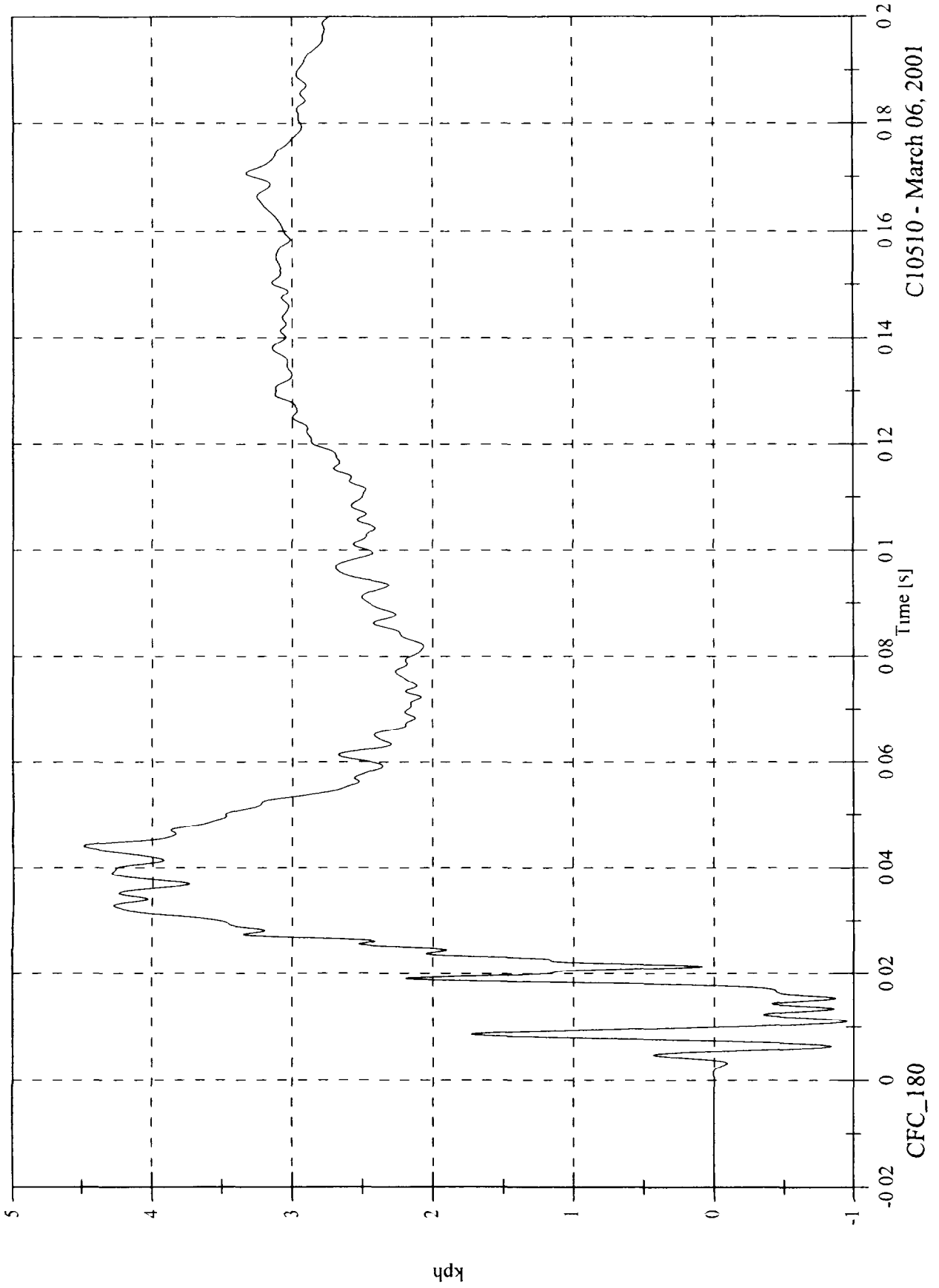


C10510 - March 06, 2001

FMVSS 214D Indicant Test 25 2001 Kia Rio

A3 Rear Floorplan Z Velocity

Max 4.5 [kph] at 0.044 [s]
Min -1.0 [kph] at 0.011 [s]



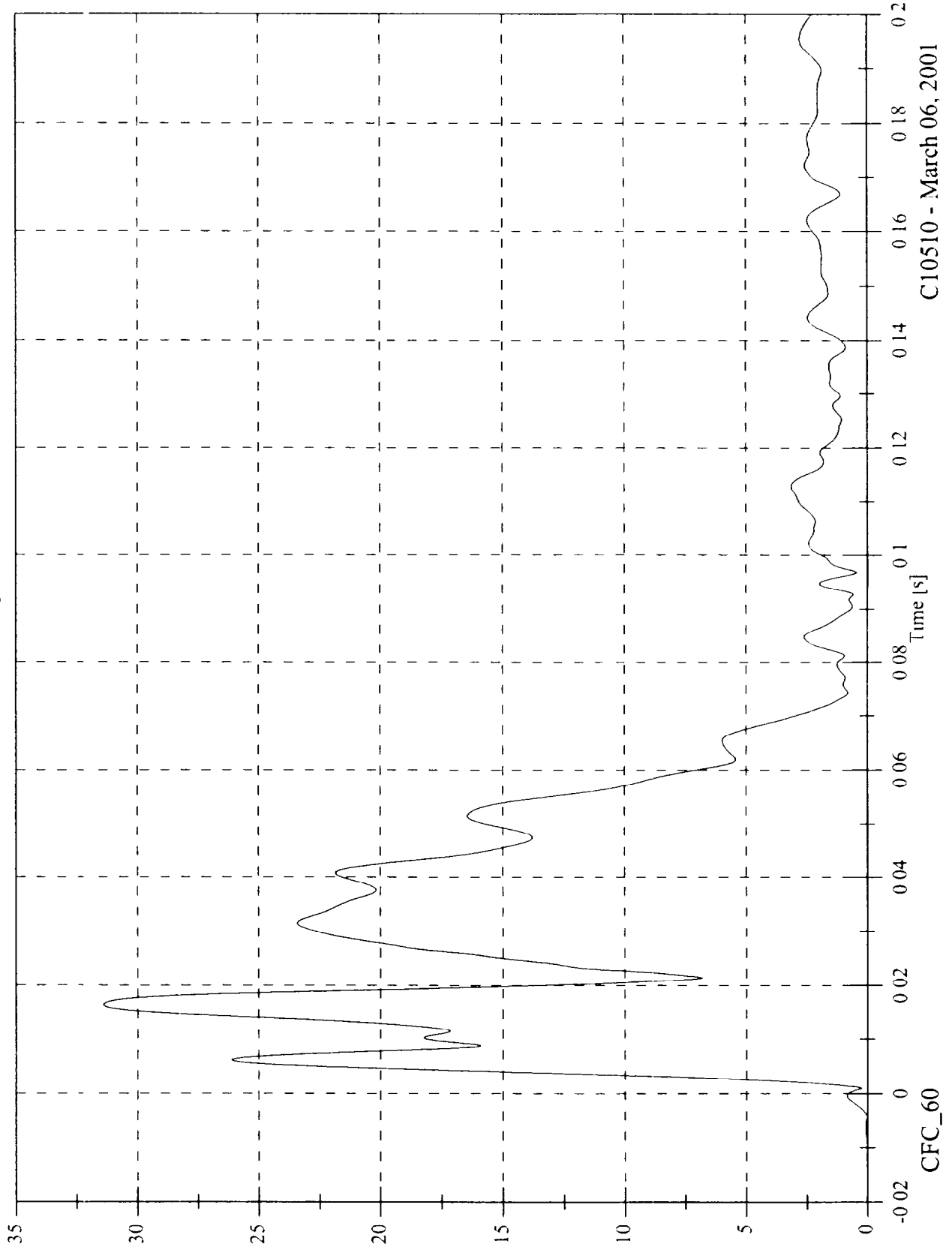
C10510 - March 06, 2001

FMVSS 214D Indicant Test 25 2001 Kia Rio

A3 Rear Floorpan Resultant

Max 31.4 [g] at 0.016 [s]

Min 0.0 [g] at -0.016 [s]

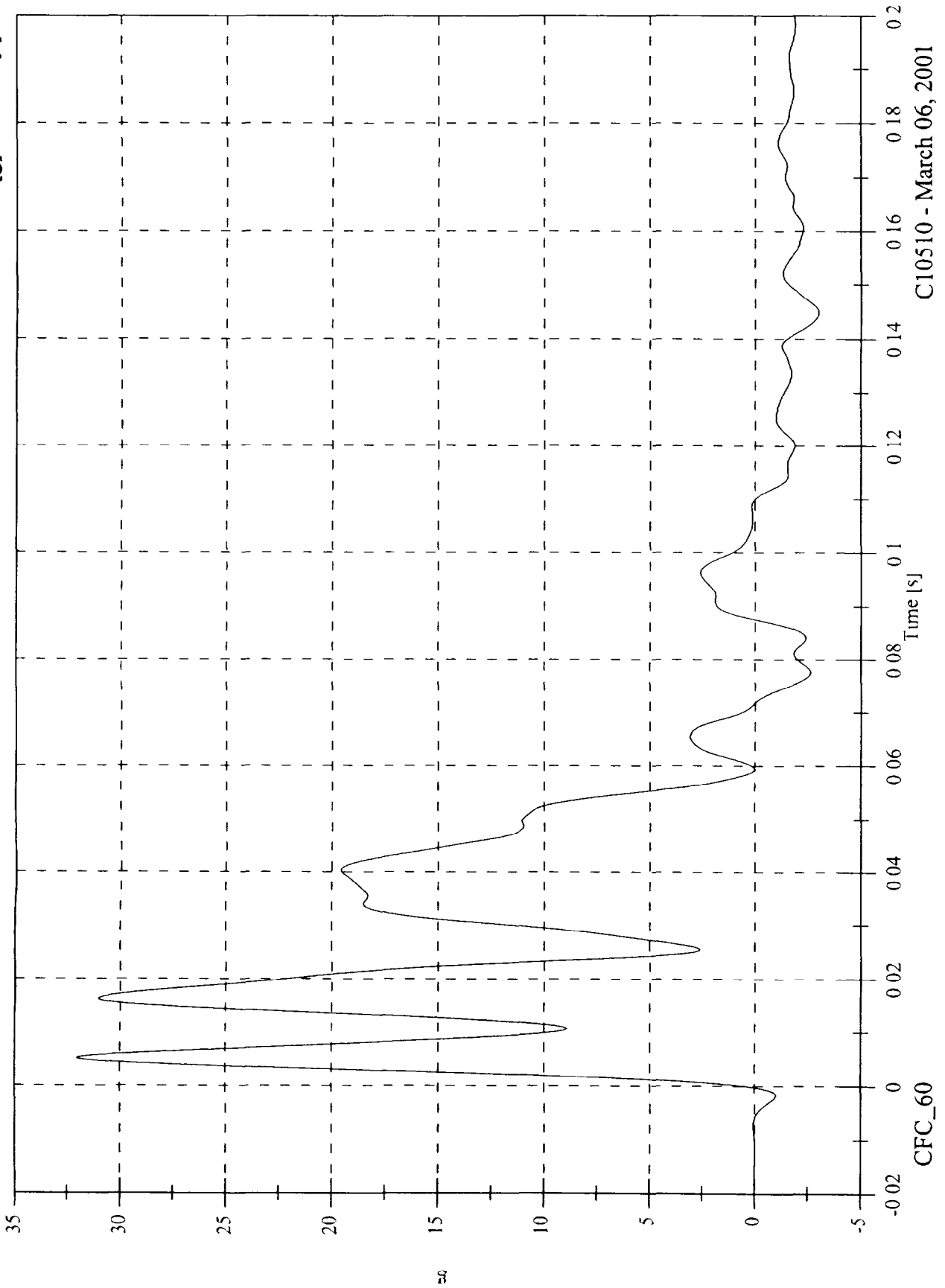


C10510 - March 06, 2001

FMVSS 214D Inducant Test 25 2001 Kia Rio

A4 Left Rear Sill Y

Max. 32.0 [g] at 0.005 [s]
Min. -3.0 [g] at 0.145 [s]

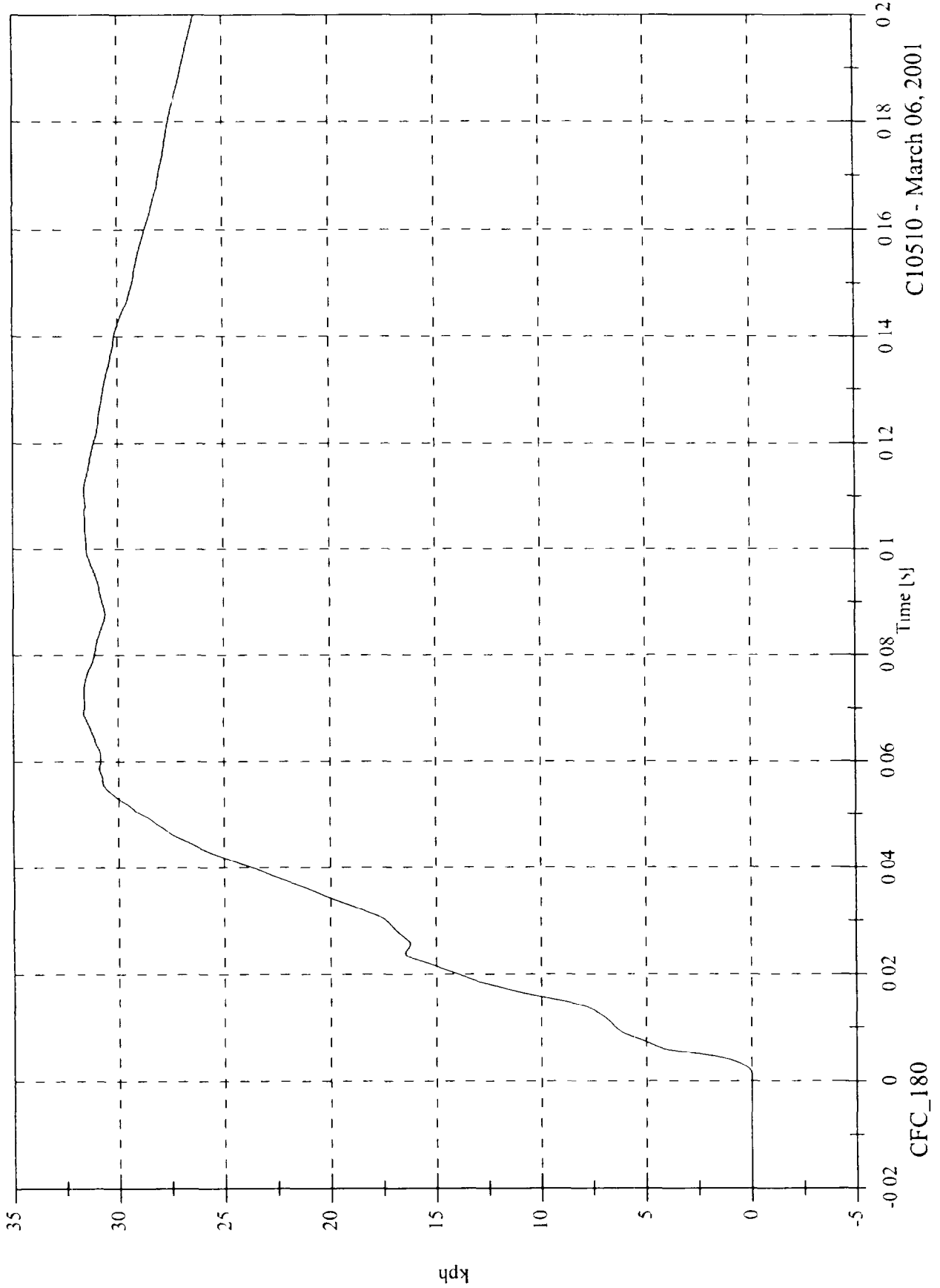


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FMVSS 214D Indrlicant Test 25 2001 Kia Rio

A4 Left Rear Sill Y Velocity

Max 31.6 [kph] at 0.073 [s]
Min -0.0 [kph] at 0.001 [s]

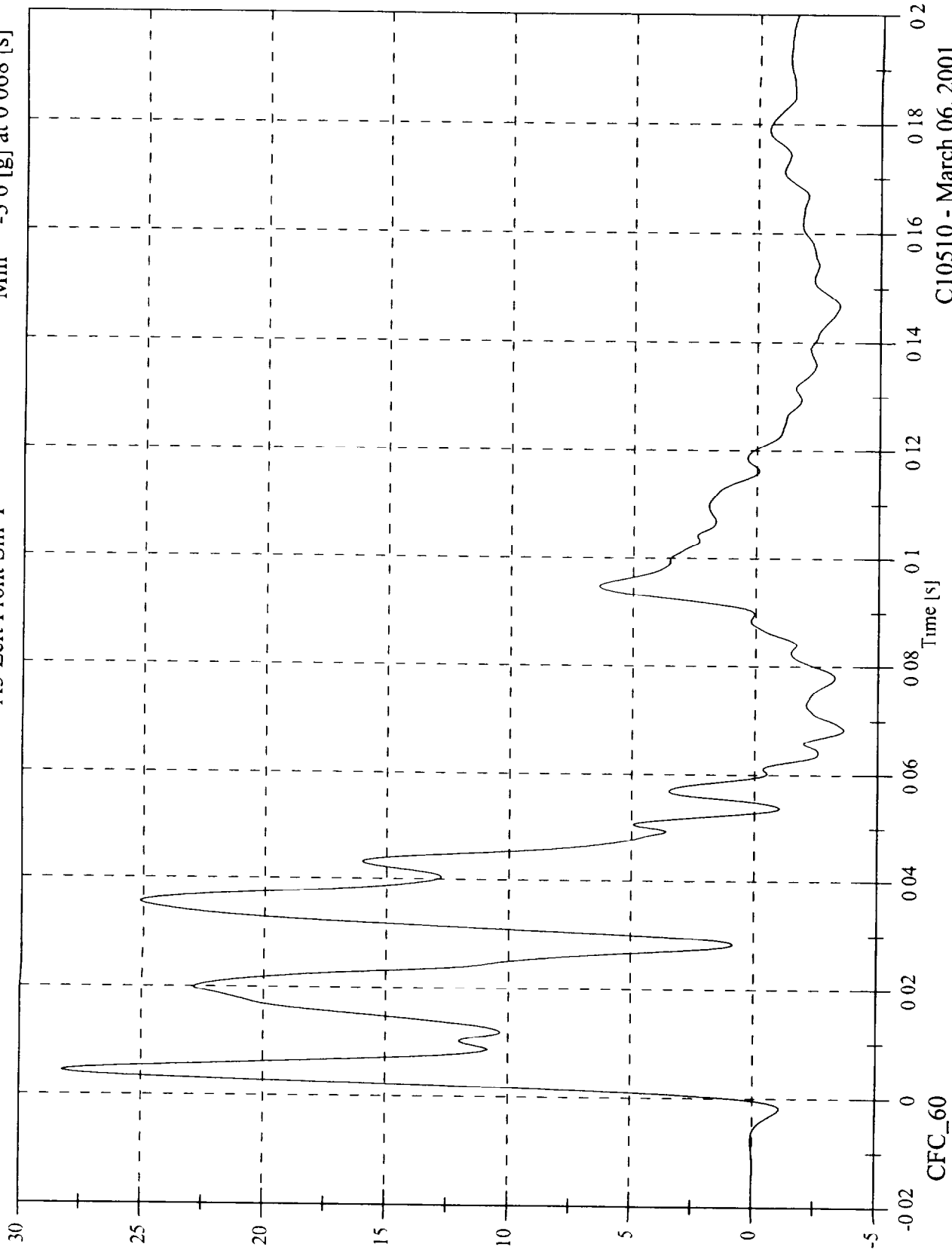


C10510 - March 06, 2001

FMVSS 214D Indrlicant Test 25 2001 Kia Rio

A5 Left Front Sill Y

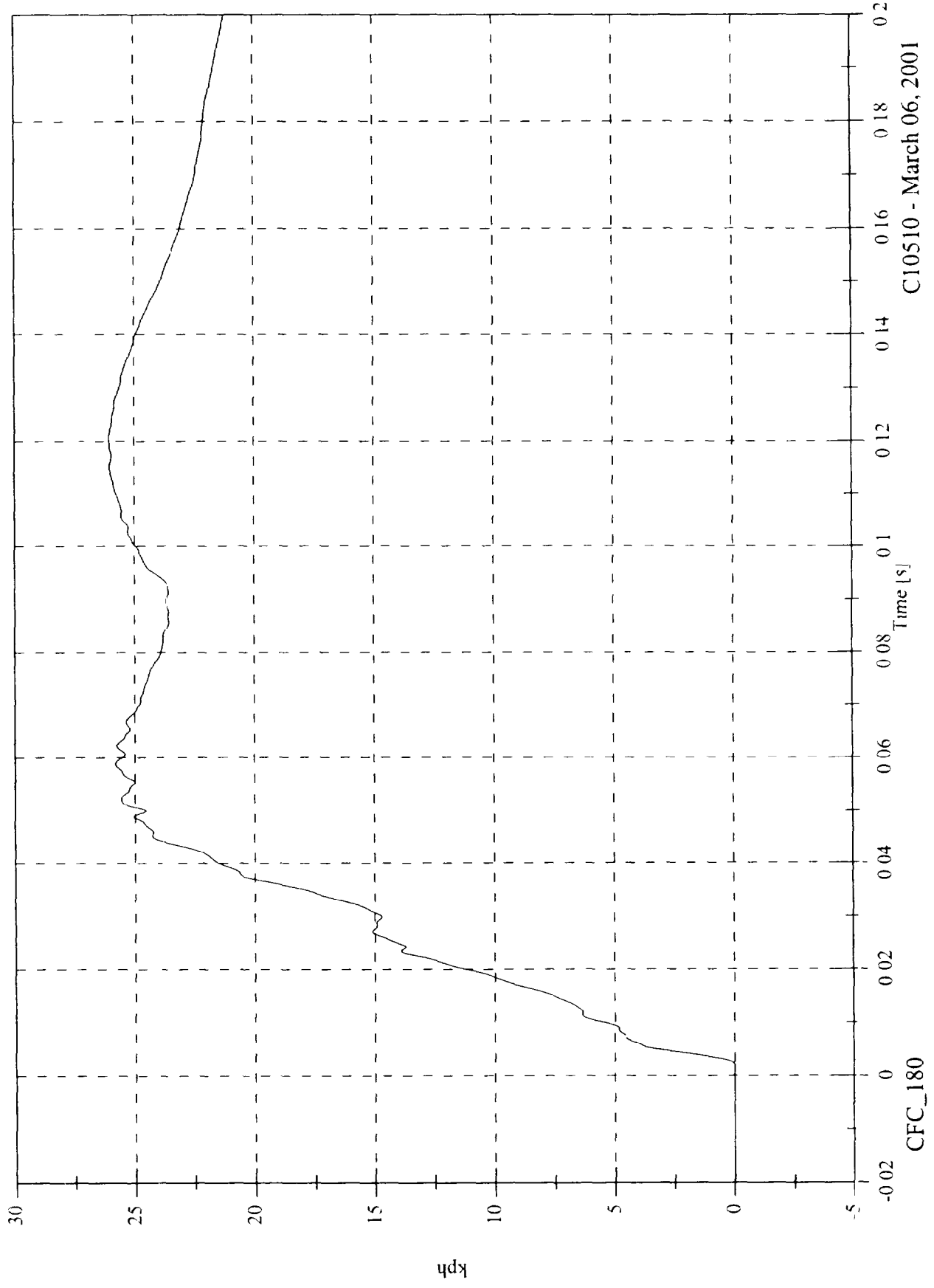
Max 28.2 [g] at 0.004 [s]
Min -3.6 [g] at 0.068 [s]



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FMVSS 214D Indicant Test 25 2001 Kia Rio
A5 Left Front Sill Y Velocity

Max 26.0 [kph] at 0.120 [s]
Min -0.0 [kph] at 0.002 [s]

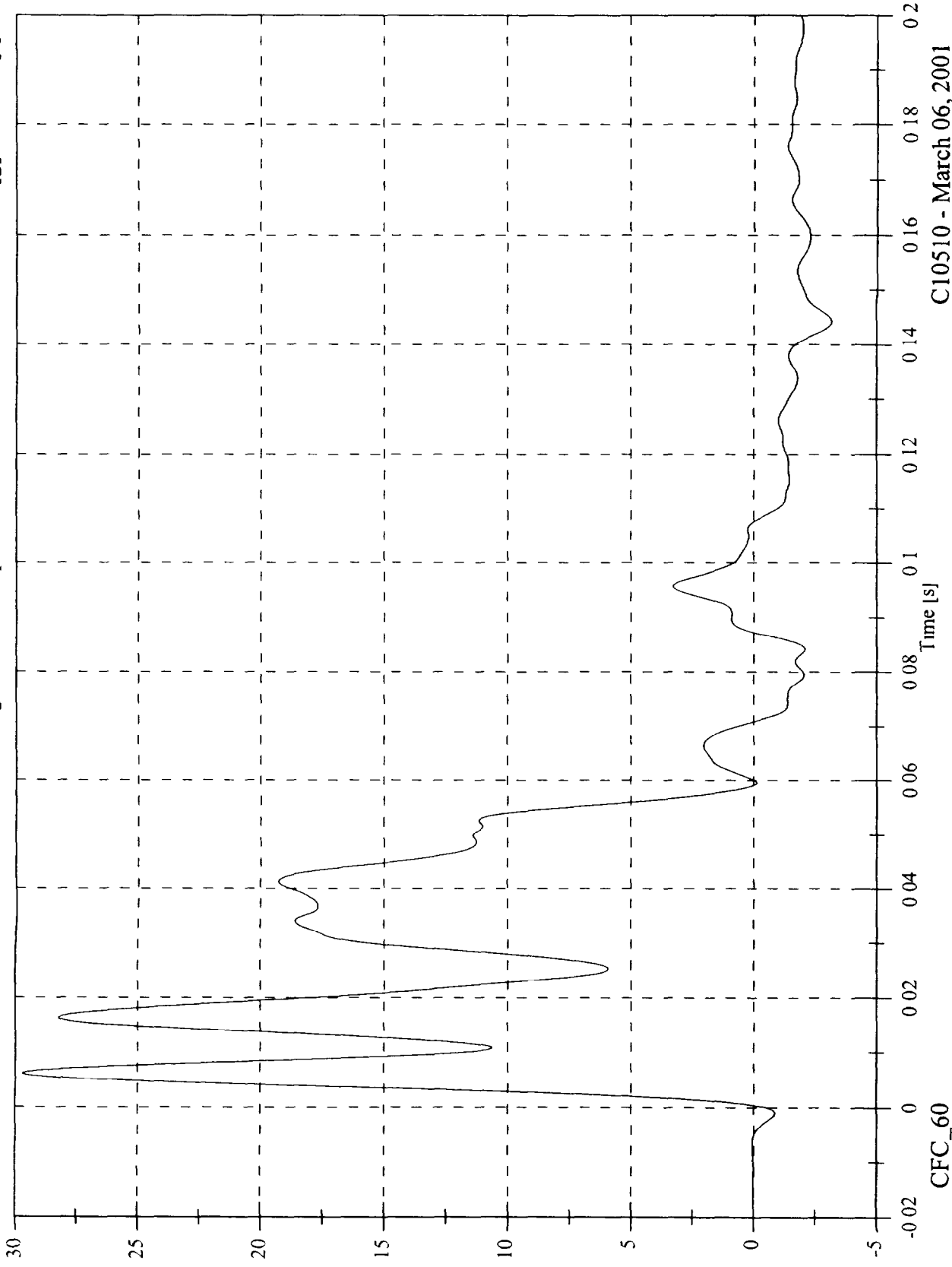


C10510 - March 06, 2001

FMVSS 214D Inducant Test 25 2001 Kia Rio

A7 Right Rear Compartment Y

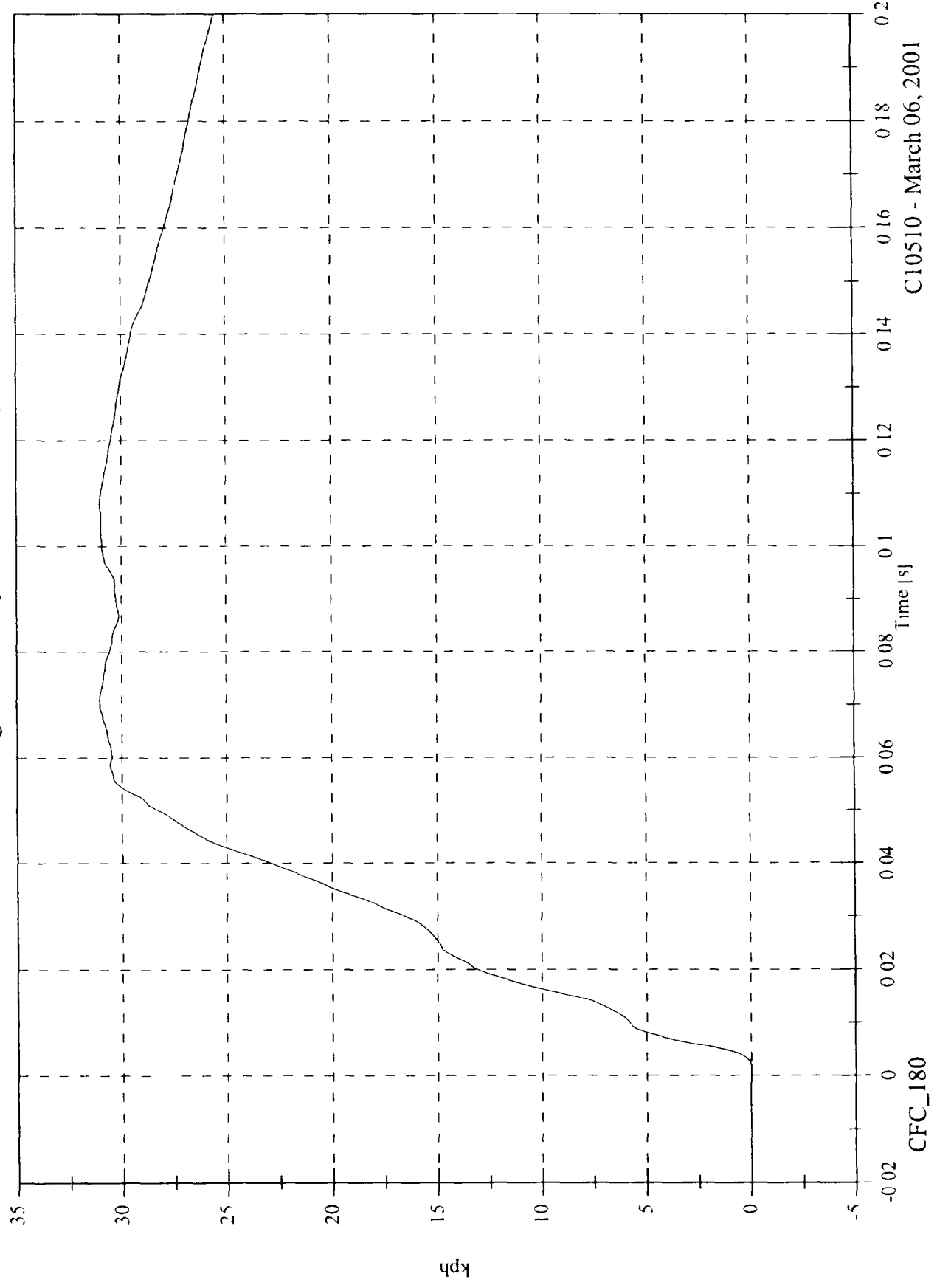
Max. 29.7 [g] at 0.006 [s]
Min -3.2 [g] at 0.144 [s]



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FMVSS 214D Indicant Test 25 2001 Kia Rio
A7 Right Rear Compartment Y Velocity

Max 31.1 [kph] at 0.071 [s]
Min -0.0 [kph] at -0.019 [s]

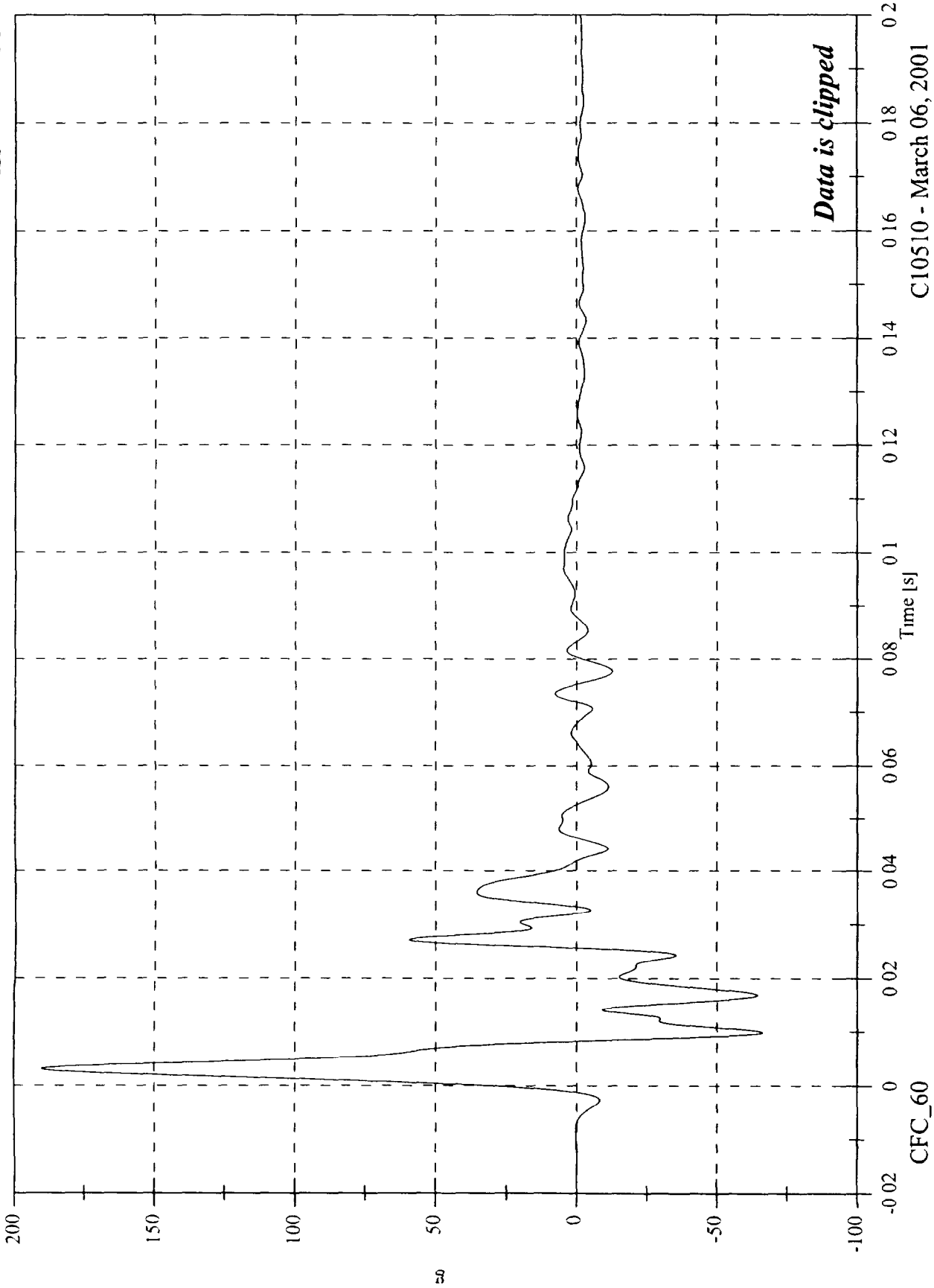


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FMVSS 214D Inducant Test 25 2001 Kia Rio

A12 Left Lower B Post Y

Max 190.2 [g] at 0.003 [s]
Min -66.3 [g] at 0.010 [s]

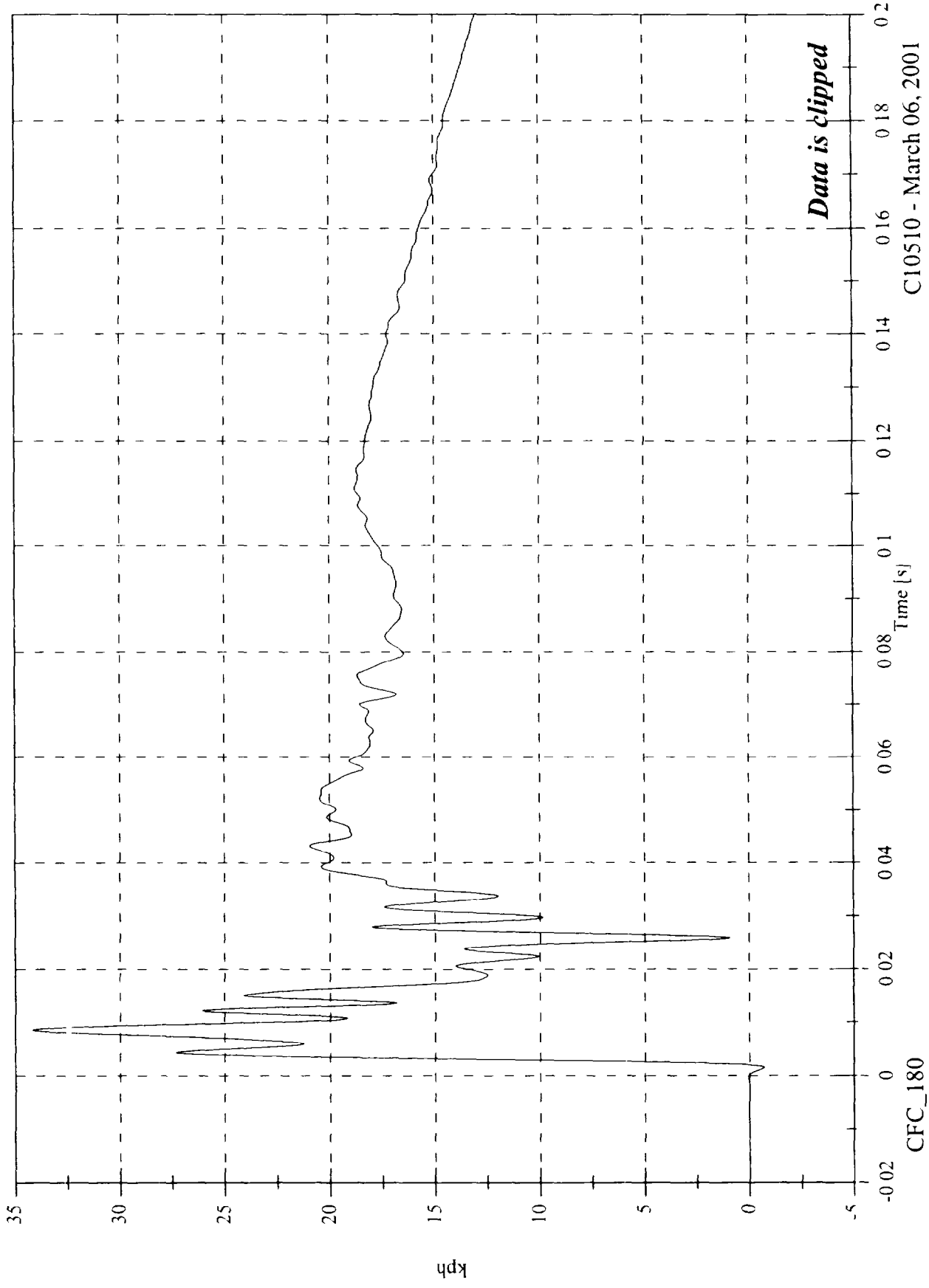


C10510 - March 06, 2001

FMVSS 214D Indicant Test 25 2001 Kia Rio

A12 Left Lower B Post Y Velocity

Max 34.2 [kph] at 0.009 [s]
Min -0.7 [kph] at 0.002 [s]



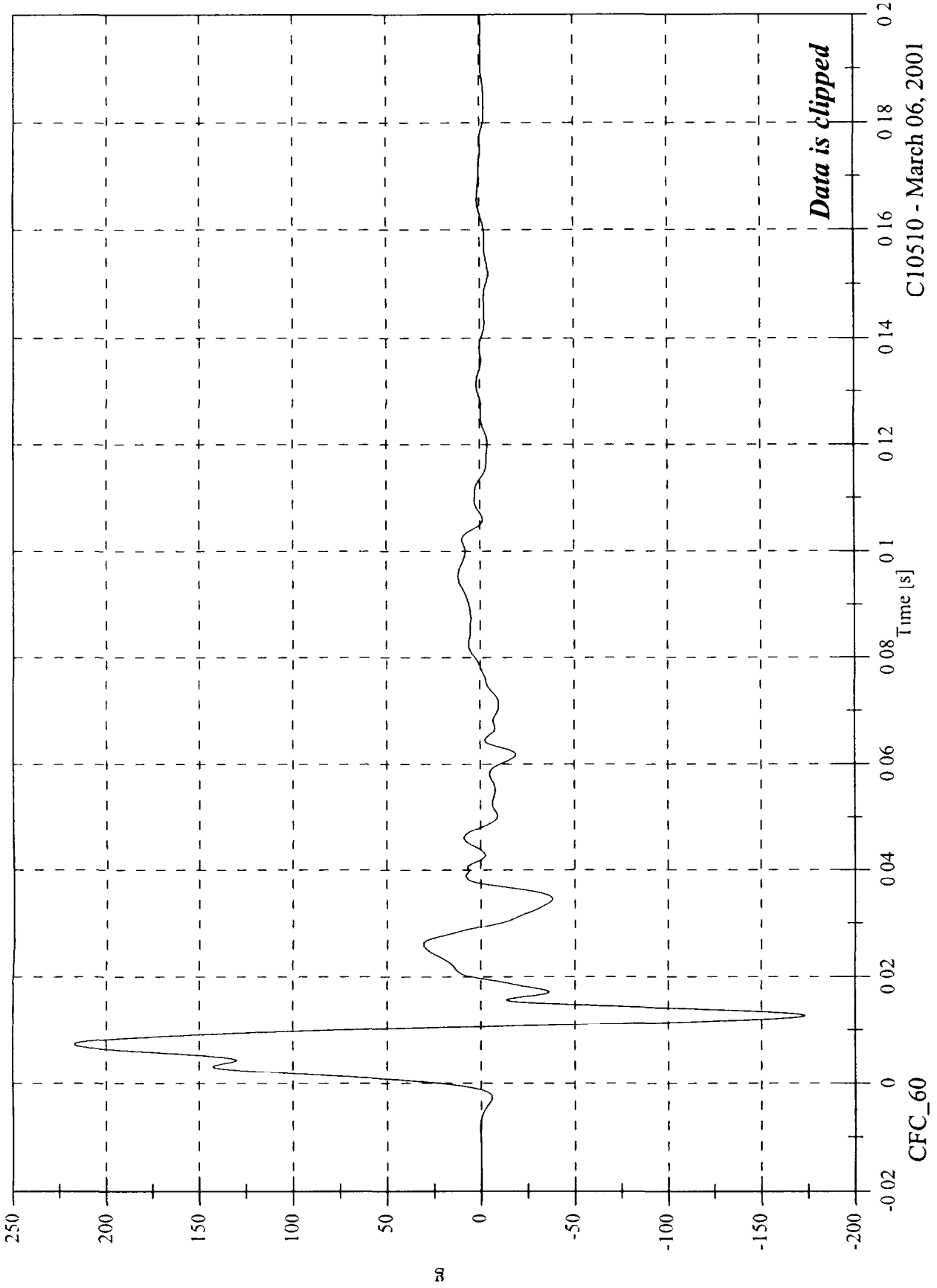
Data is clipped

C10510 - March 06, 2001

FMVSS 214D Indicant Test 25 2001 Kia Rio

A13 Left Mird B Post Y

Max 217.1 [g] at 0.007 [s]
Min -173.4 [g] at 0.013 [s]



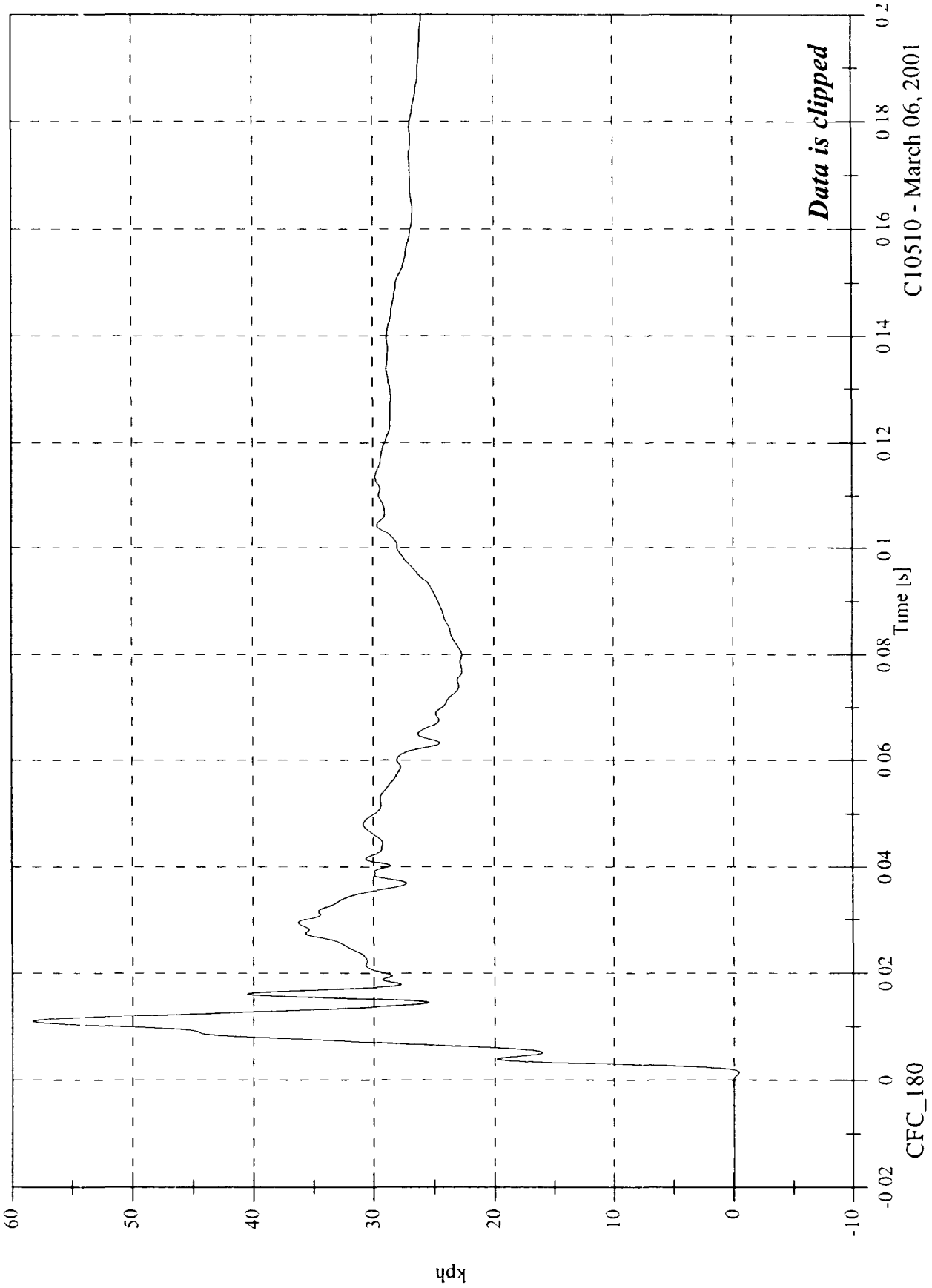
C10510 - March 06, 2001

FMVSS 214D Indicant Test 25 2001 Kia Rio

Max 58.3 [kph] at 0.011 [s]

Min -0.4 [kph] at 0.001 [s]

A13 Left Mid B Post Y Velocity



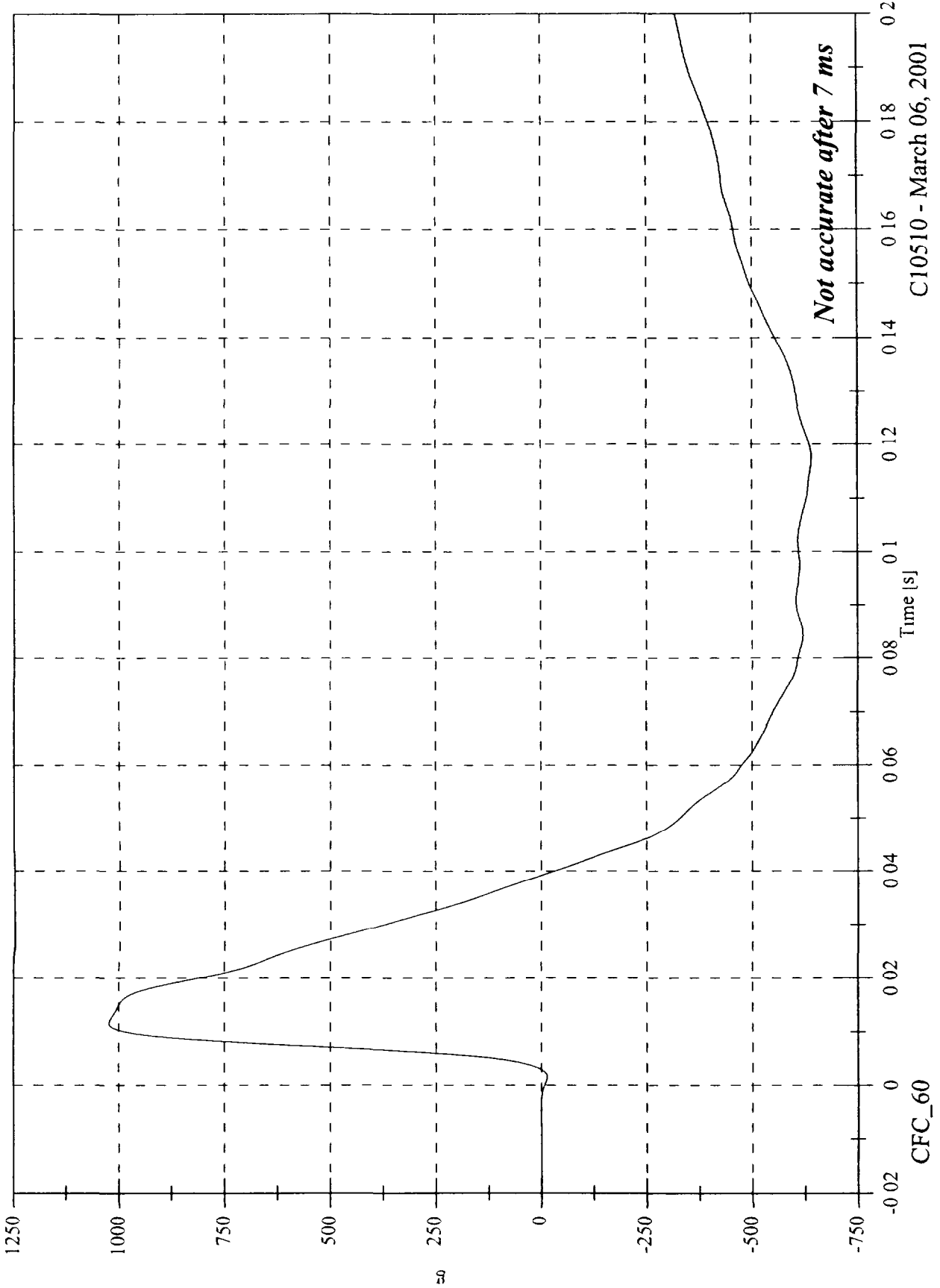
Data is clipped

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FMVSS 214D Indicant Test 25 2001 Kia Rio

A14 Left Lower A Post Y

Max. 1023.0 [g] at 0.012 [s]
Min -641.1 [g] at 0.117 [s]

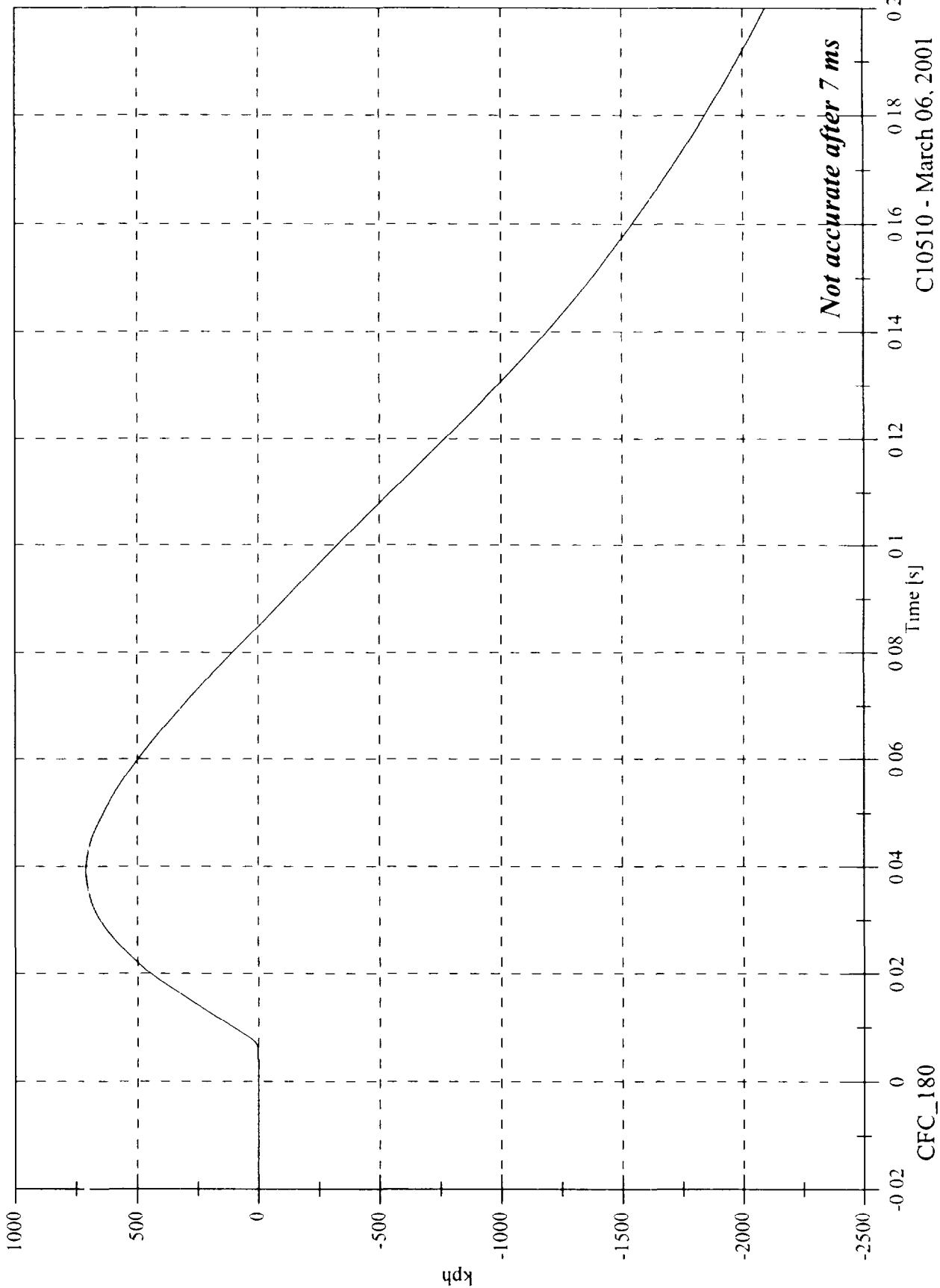


Not accurate after 7 ms

C10510 - March 06, 2001

FMVSS 214D Indicant Test 25 2001 Kia Rio
A14 Left Lower A Post Y Velocity

Max 710.2 [kph] at 0.039 [s]
Min -2092.7 [kph] at 0.200 [s]



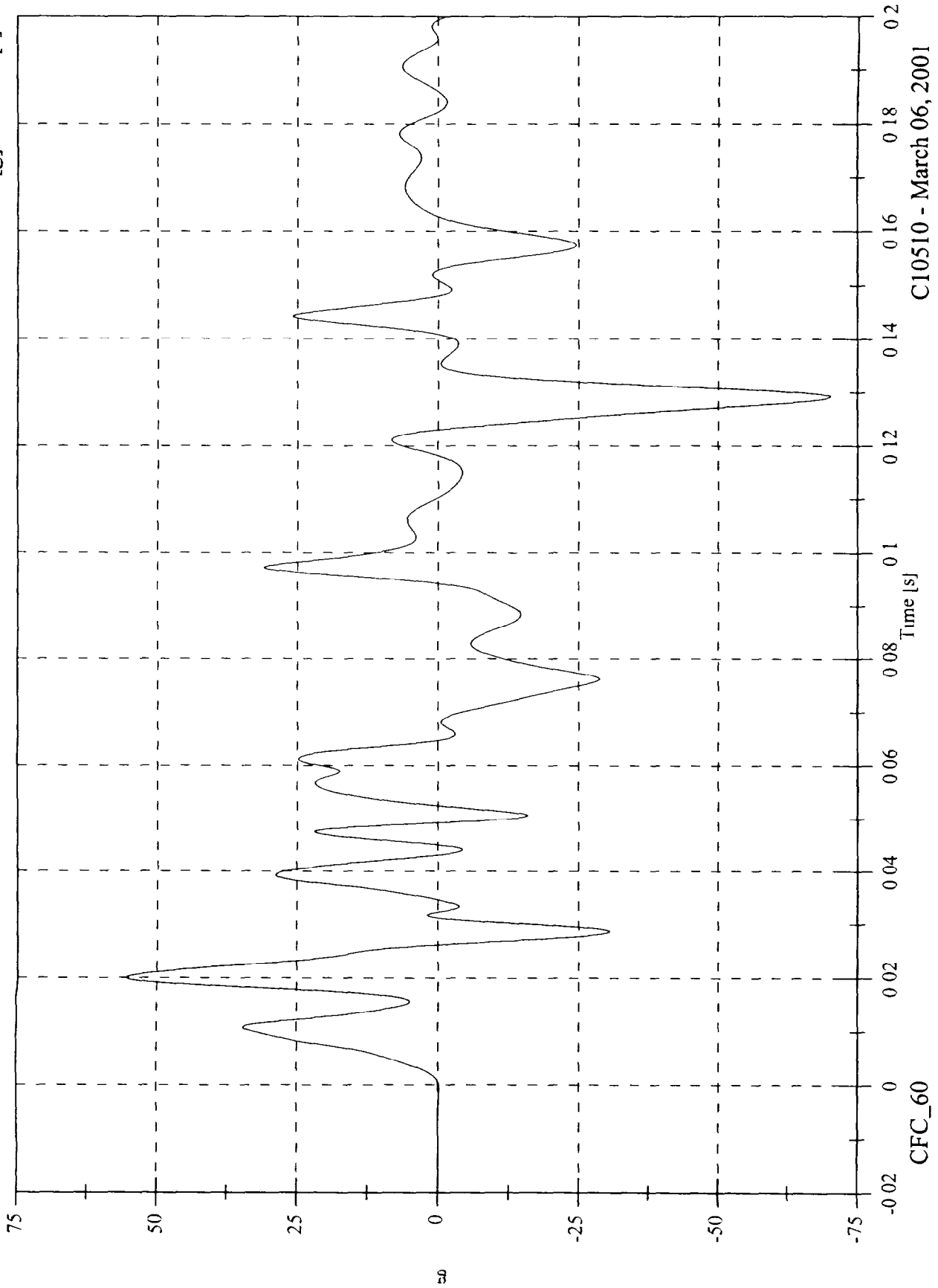
Not accurate after 7 ms

C10510 - March 06, 2001

FMVSS 214D Inducant Test 25 2001 Kia Rio

A15 Left Mid A Post Y

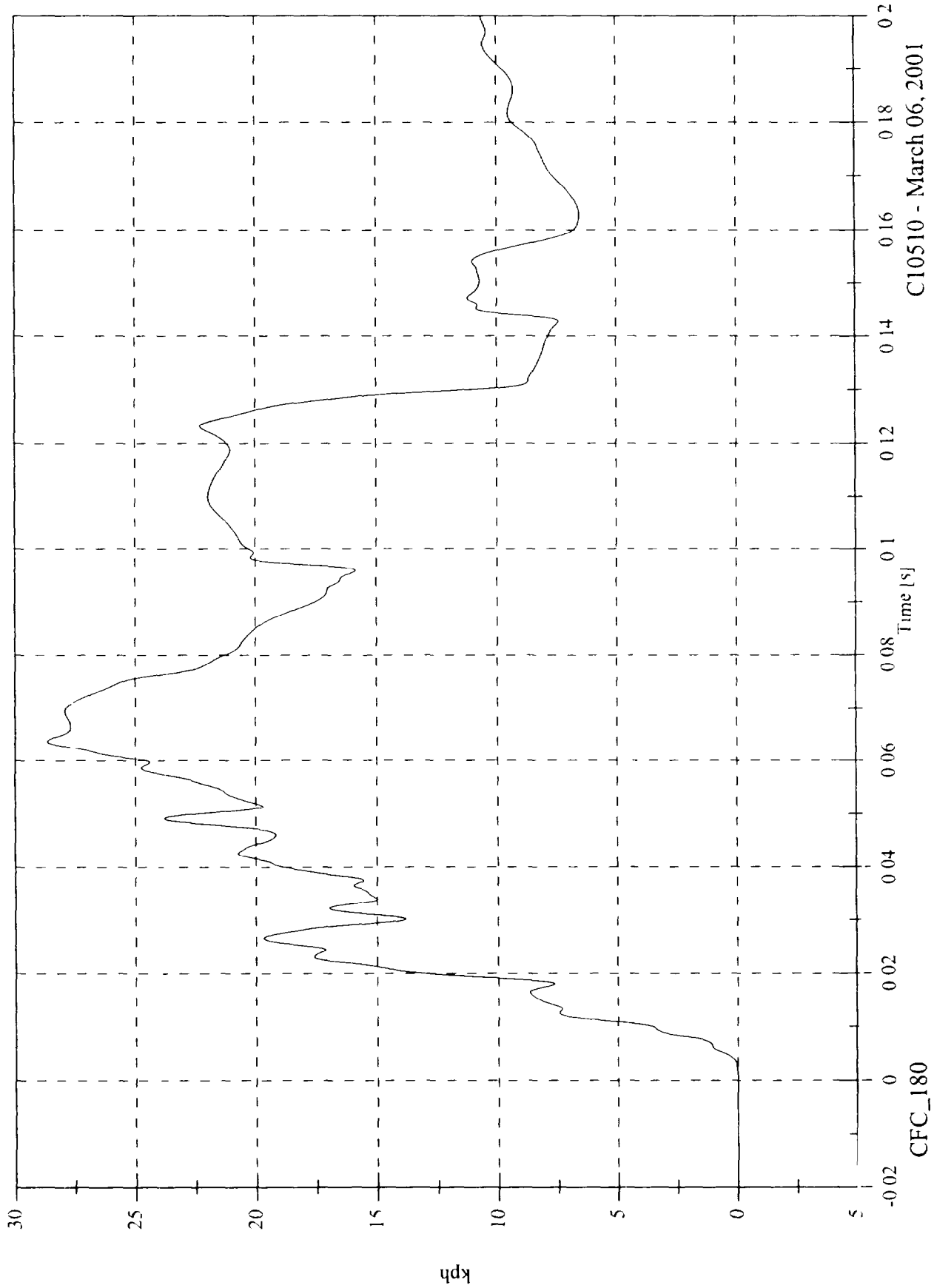
Max 55.5 [g] at 0.020 [s]
Min. -70.2 [g] at 0.129 [s]



C10510 - March 06, 2001

FMVSS 214D Indicant Test 25 2001 Kia Rio
A15 Left Mtd A Post Y Velocity

Max 28.7 [kph] at 0.064 [s]
Min -0.0 [kph] at -0.018 [s]

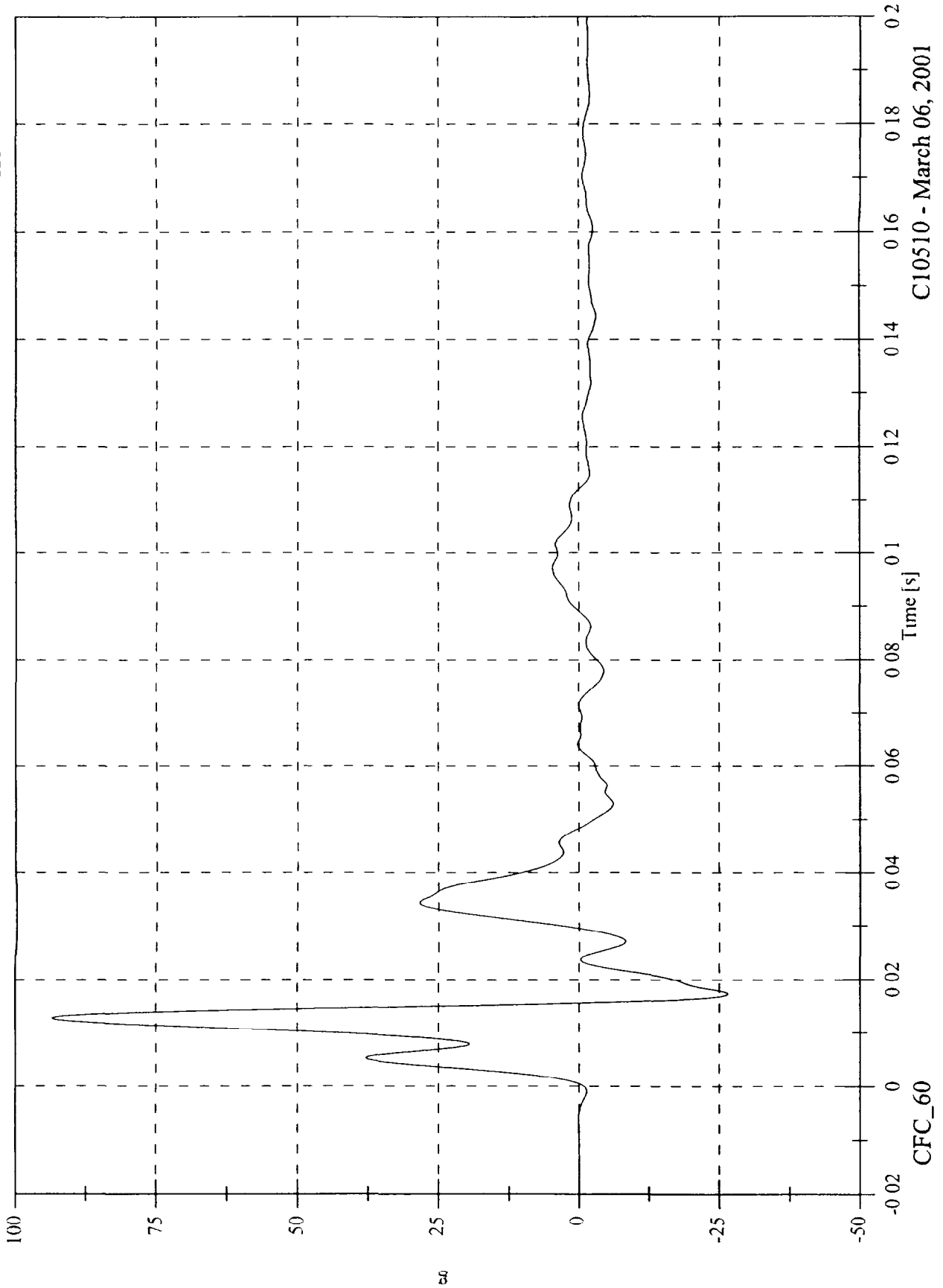


C10510 - March 06, 2001

FMVSS 214D Inducant Test 25 2001 Kia Rio

A16 Front Seat Track Y

Max. 93.4 [g] at 0.013 [s]
Min -26.6 [g] at 0.017 [s]



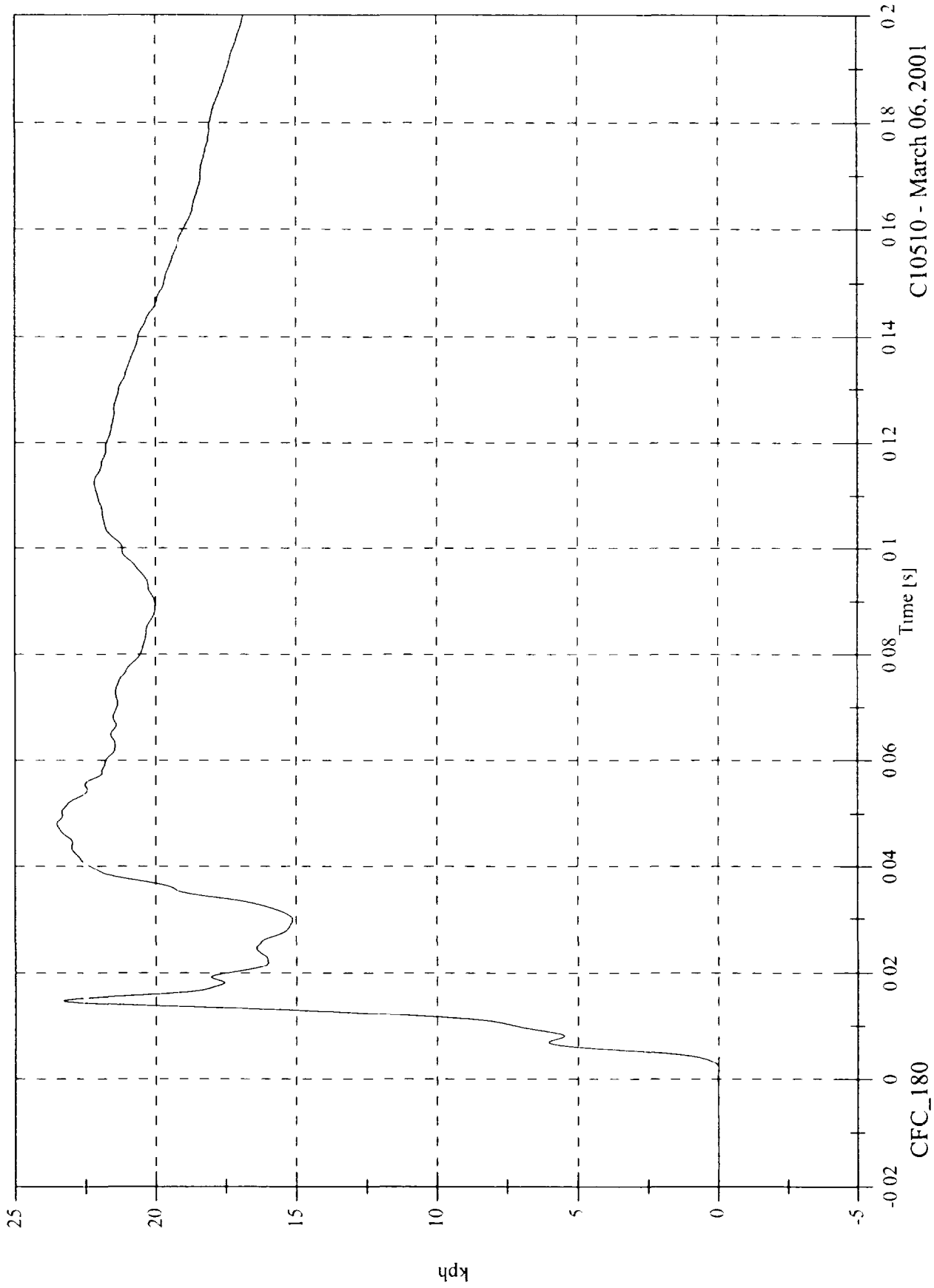
C10510 - March 06, 2001

FMVSS 214D Indicant Test 25 2001 Kia Rio

A16 Front Seat Track Y Velocity

Max 23.5 [kph] at 0.048 [s]

Min -0.0 [kph] at 0.002 [s]



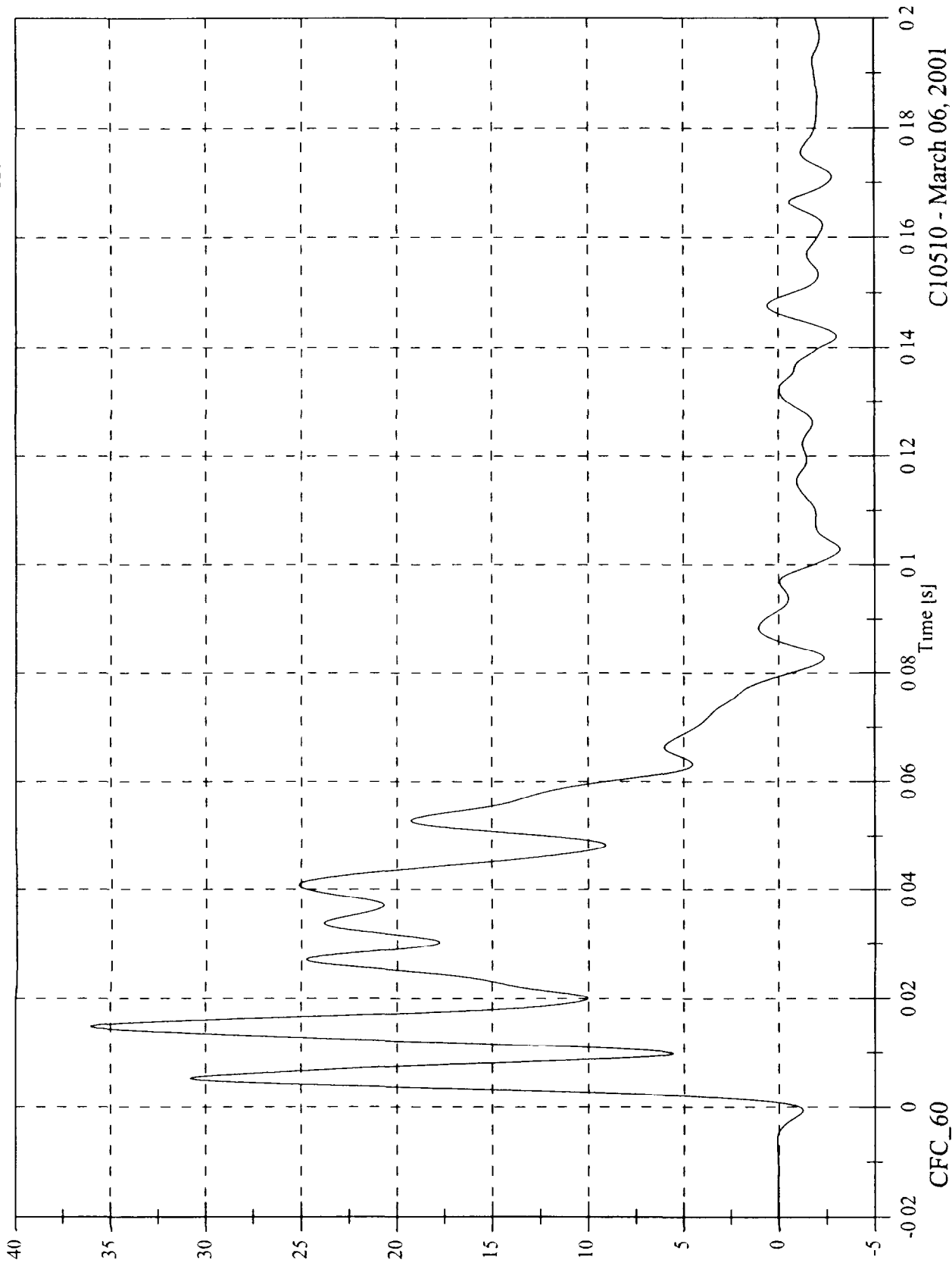
C10510 - March 06, 2001

FMVSS 214D Inducant Test 25 2001 Kia Rio

A17 Rear Seat Track Y

Max. 36.0 [g] at 0.015 [s]

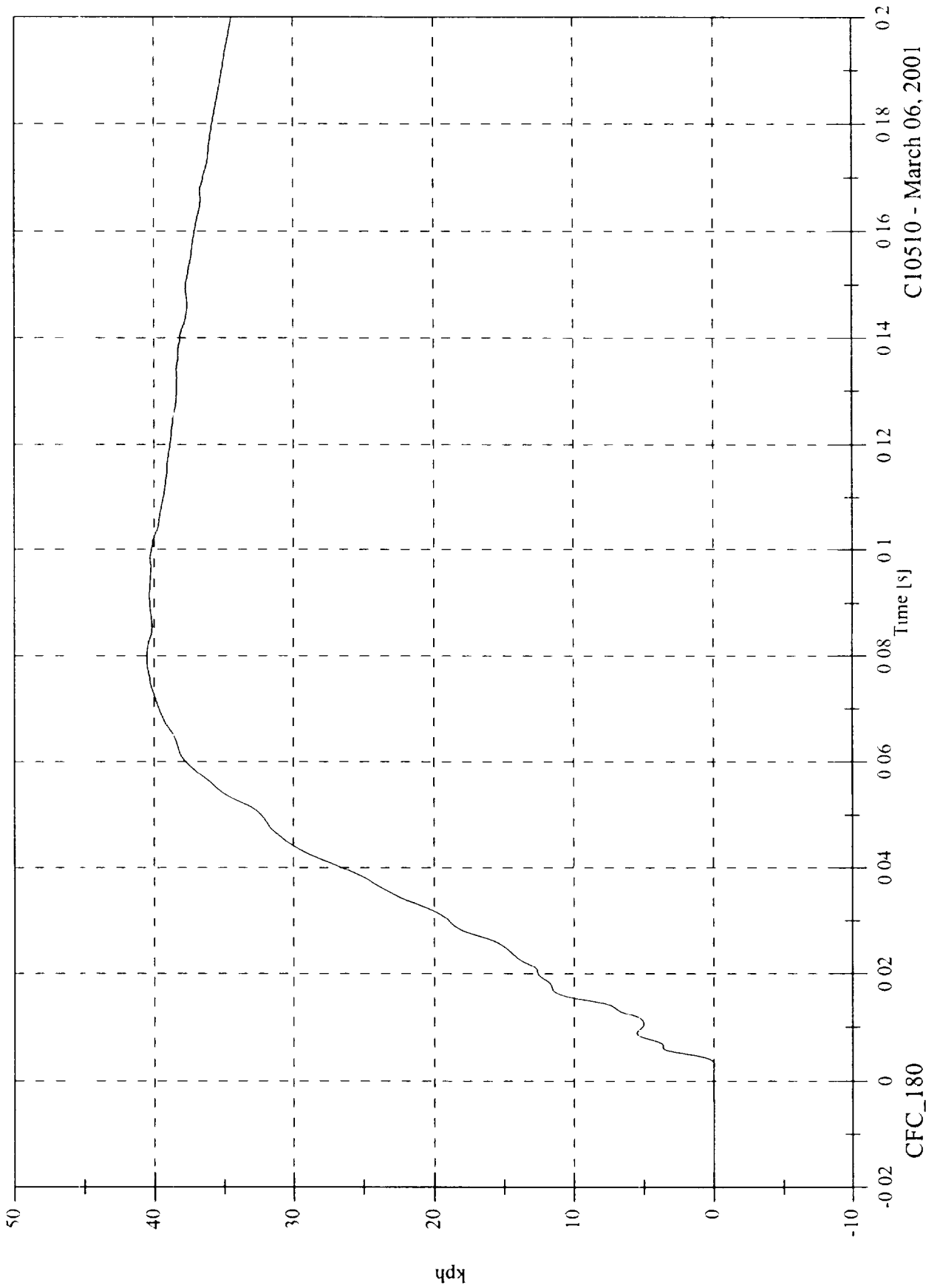
Mmn' -3.2 [g] at 0.103 [s]



C10510 - March 06, 2001

FMVSS 214D Indicant Test 25 2001 Kia Rio
A17 Rear Seat Track Y Velocity

Max 40.5 [kph] at 0.080 [s]
Min -0.0 [kph] at 0.003 [s]

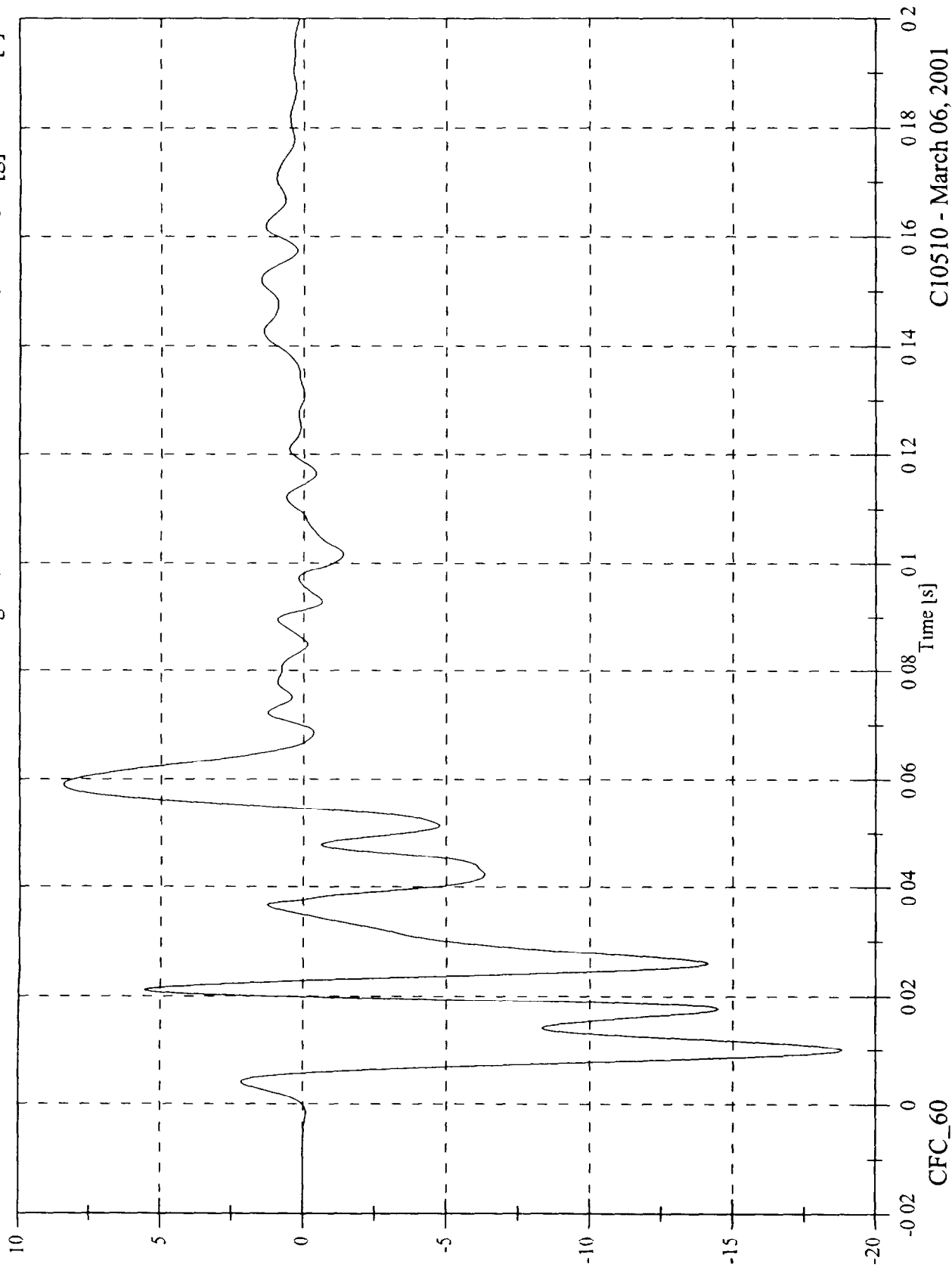


C10510 - March 06, 2001

FMVSS 214D Indicant Test 25 2001 Kia Rio

A18 Target CG X

Max. 8.4 [g] at 0.059 [s]
Min. -18.8 [g] at 0.010 [s]

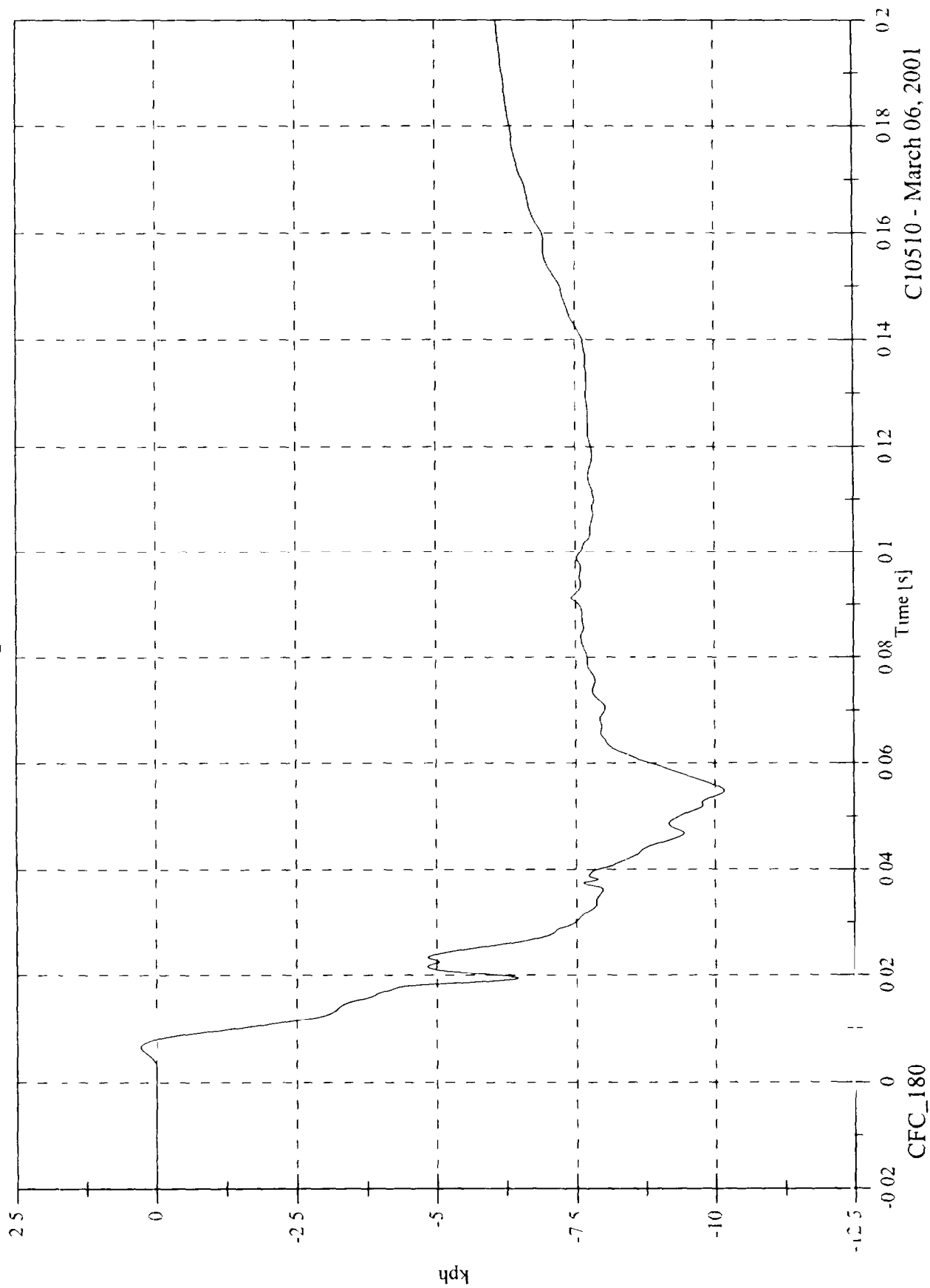


C10510 - March 06, 2001

FMVSS 214D Inducant Test 25 2001 Kia Rio

Max 0.3 [kph] at 0.007 [s]
Min -10.2 [kph] at 0.055 [s]

A18 Target CG X Velocity

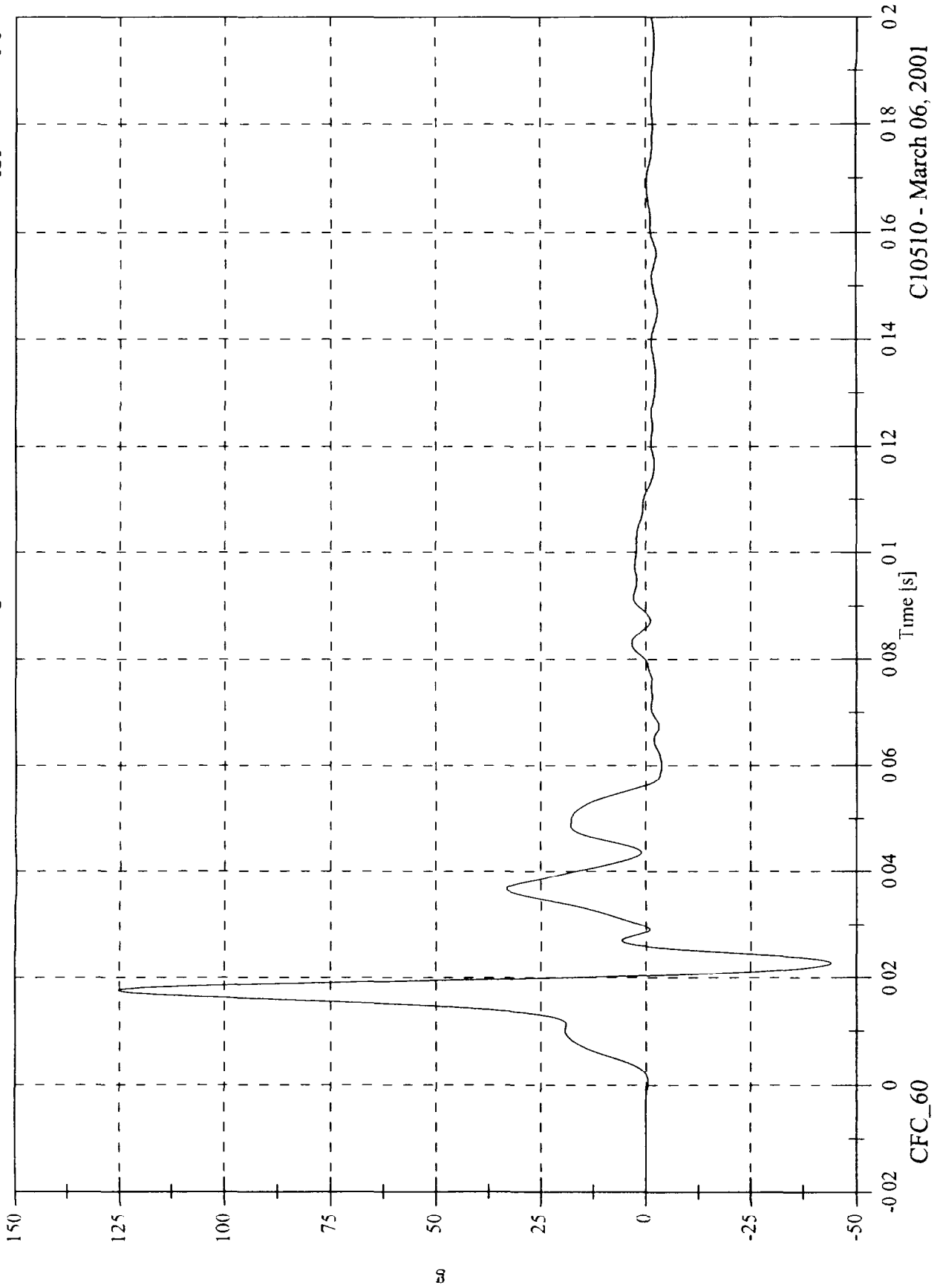


C10510 - March 06, 2001

FMVSS 214D Indicant Test 25 2001 Kia Rio

A18 Target CG Y

Max 125.2 [g] at 0.018 [s]
Min -44.1 [g] at 0.023 [s]



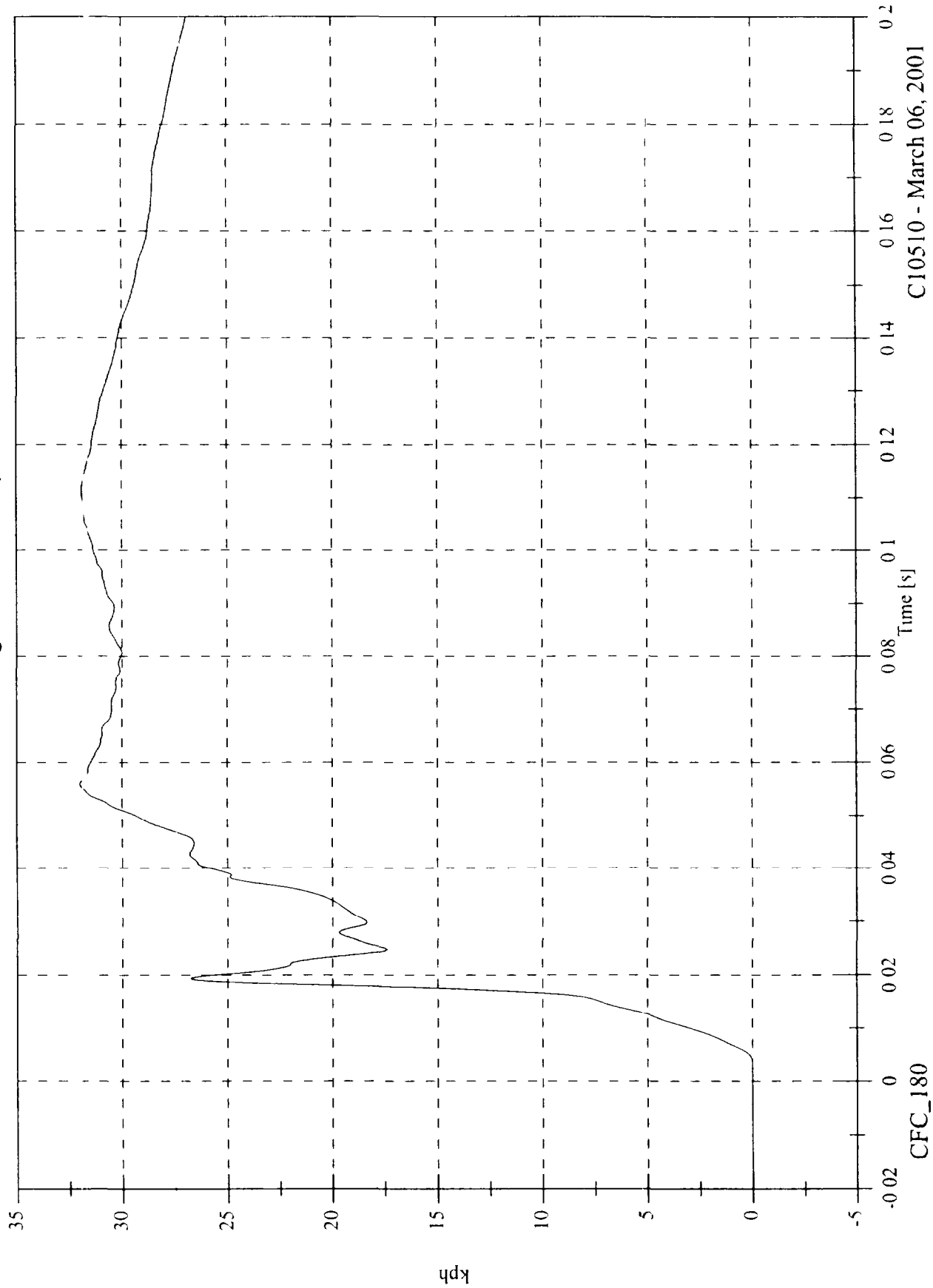
C10510 - March 06, 2001

FMVSS 214D Indicant Test 25 2001 Kia Rio

Max 32.0 [kph] at 0.056 [s]

Min -0.0 [kph] at -0.017 [s]

A18 Target CG Y Velocity



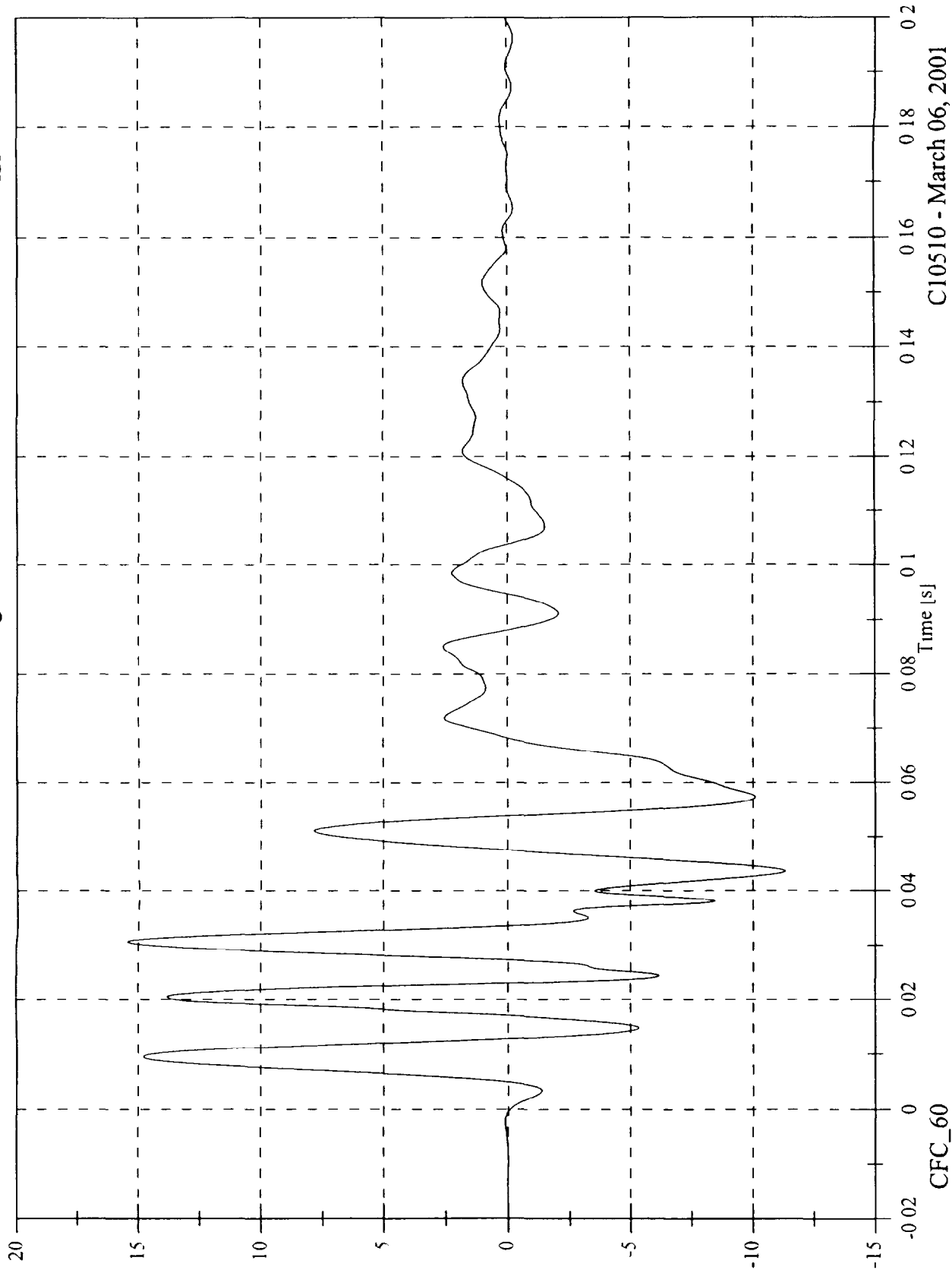
C10510 - March 06, 2001

CFC_180

FMVSS 214D Indicant Test 25 2001 Kia Rio

A18 Target CGZ

Max 15.4 [g] at 0.031 [s]
Min -11.3 [g] at 0.044 [s]

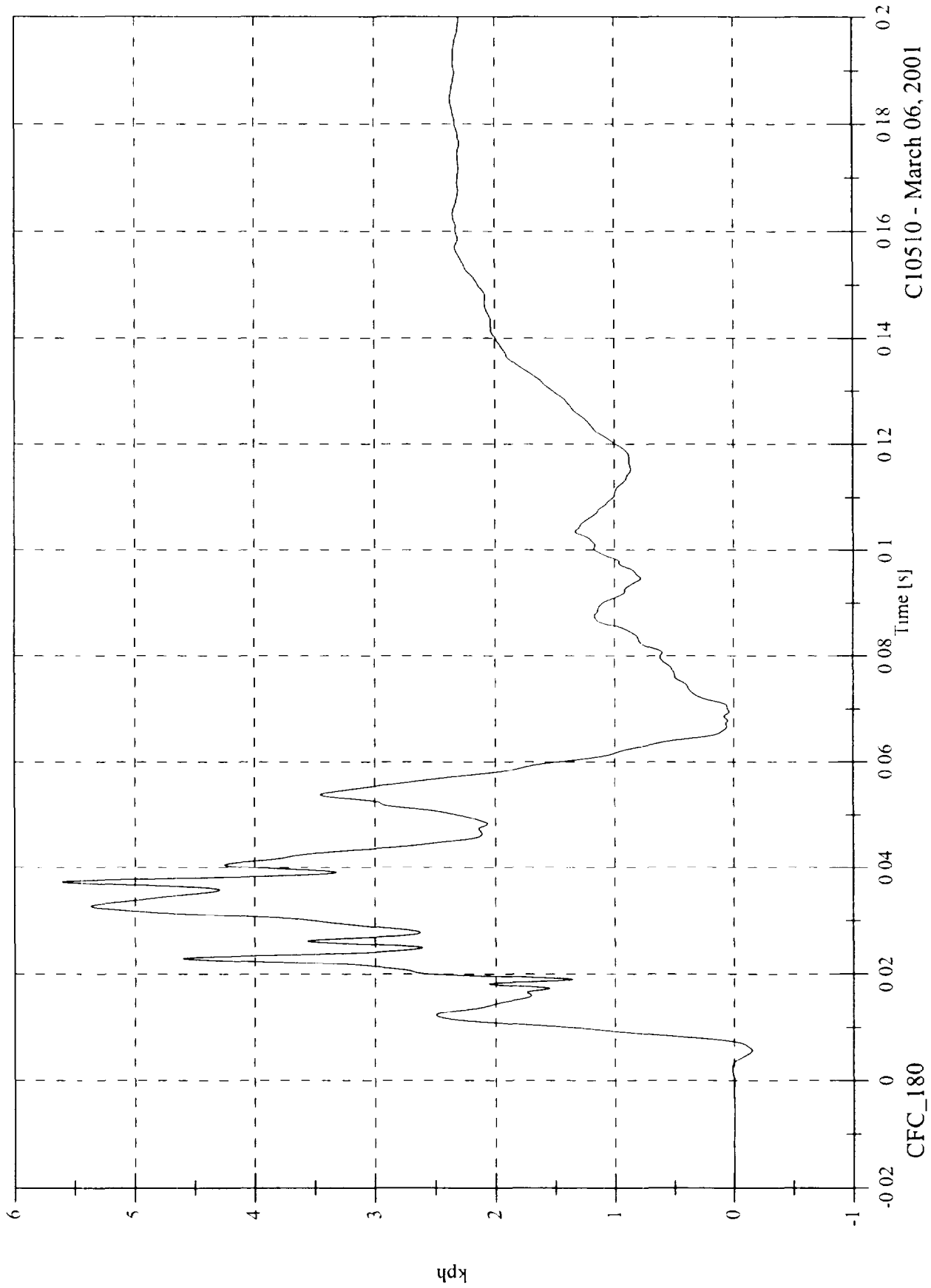


C10510 - March 06, 2001

FMVSS 214D Indicant Test 25 2001 Kia R10

Max 5.6 [kph] at 0.037 [s]
Min -0.2 [kph] at 0.006 [s]

A18 Target CG Z Velocity

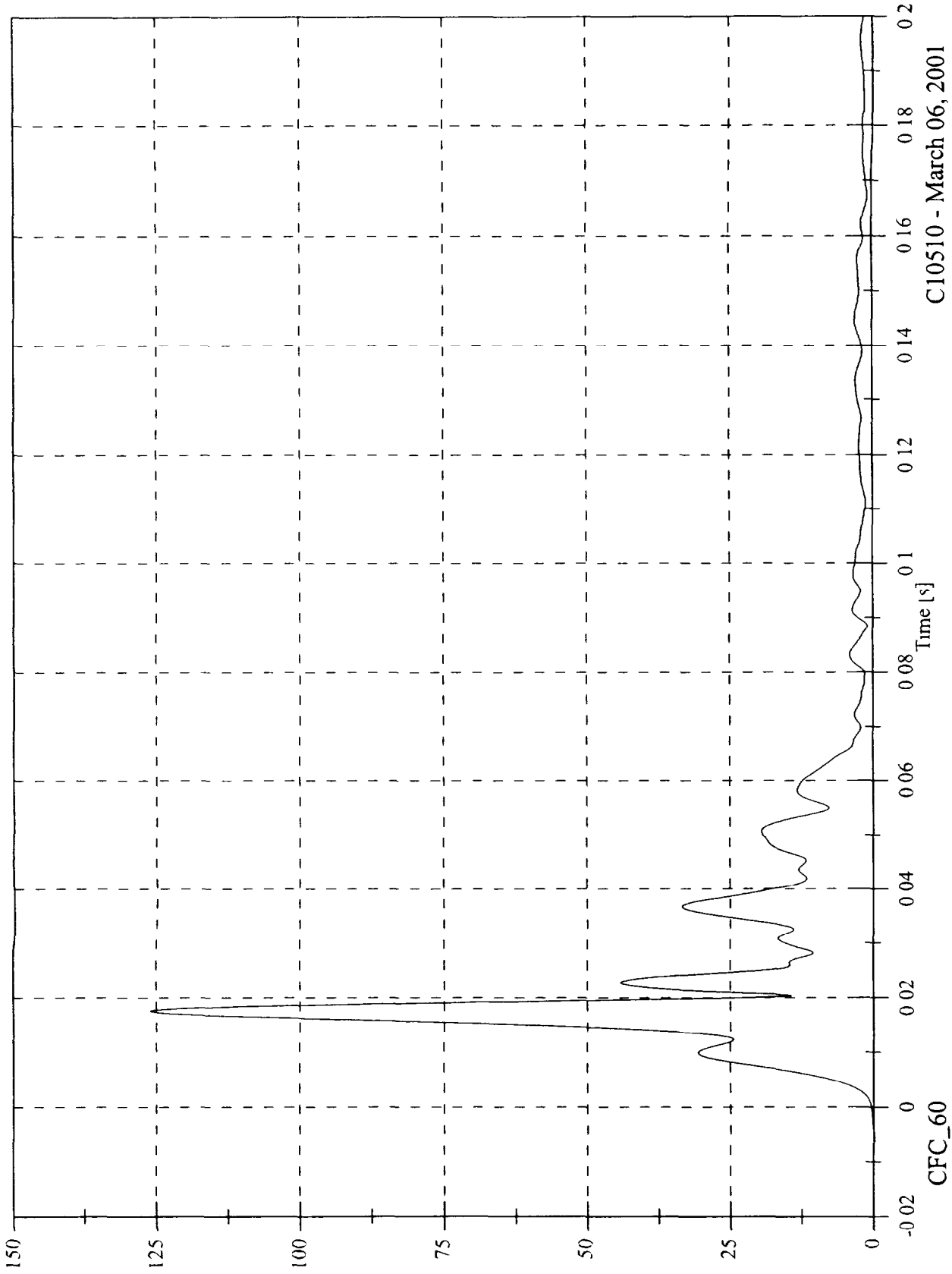


C10510 - March 06, 2001

FMVSS 214D Indicant Test 25 2001 Kia Rio

A18 Target CG Resultant

Max: 126.0 [g] at 0.018 [s]
Min: 0.0 [g] at -0.017 [s]

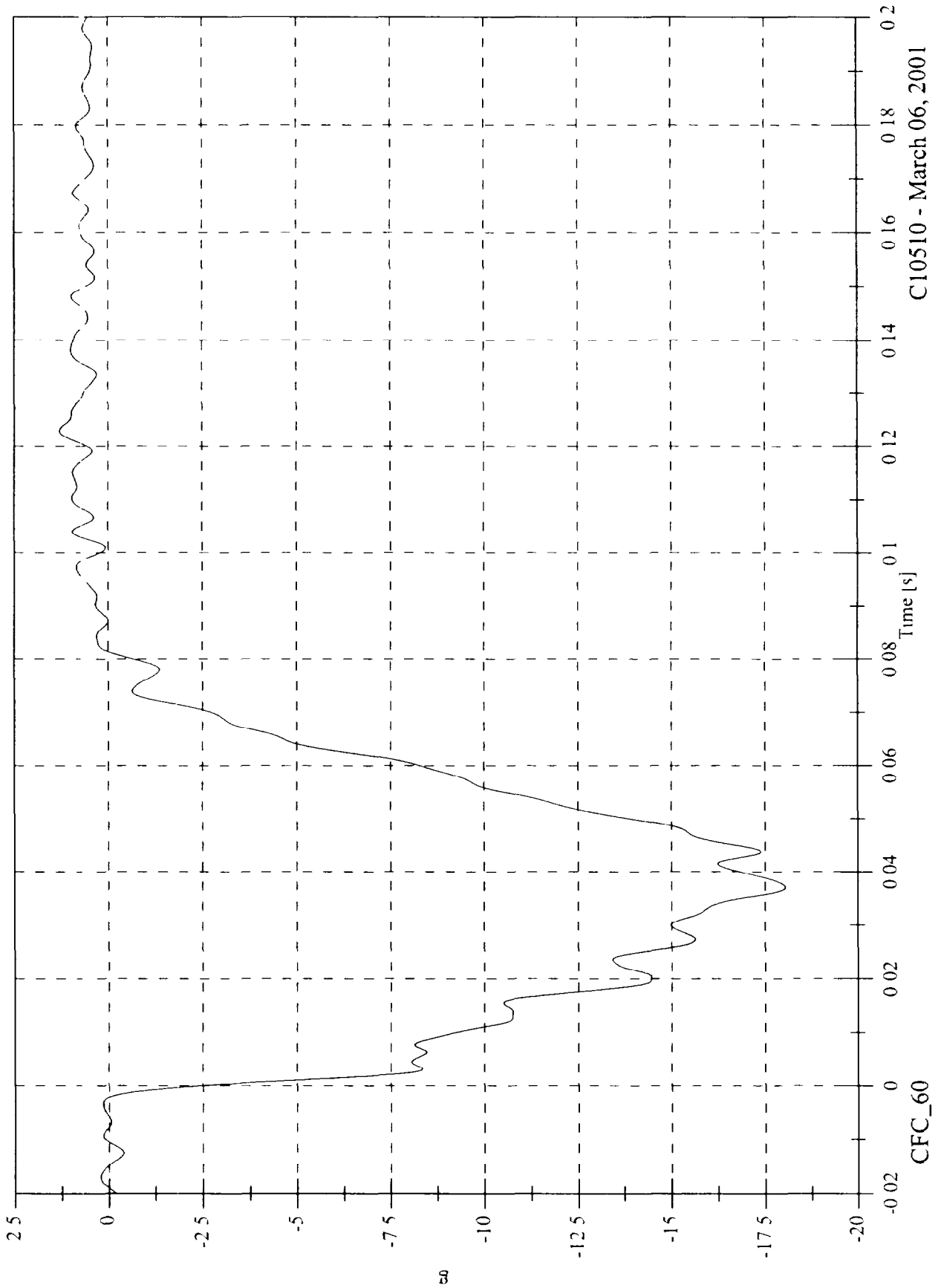


C10510 - March 06, 2001

FMVSS 214D Indicant Test 25 2001 Kia Rio

Max 1.3 [g] at 0.123 [s]
Min -18.0 [g] at 0.037 [s]

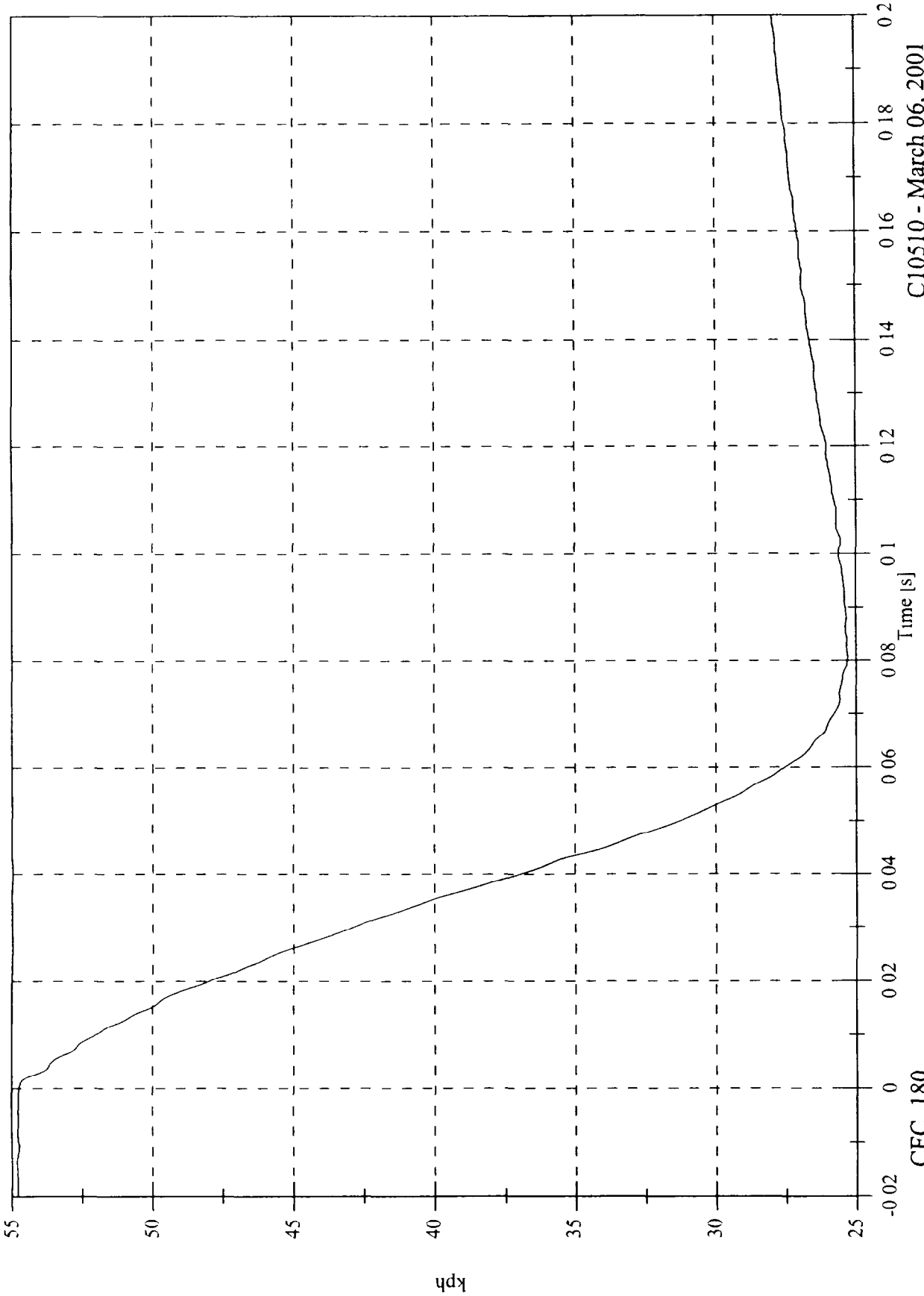
Moving Barrier CG X



C10510 - March 06, 2001

FMVSS 214D Inducant Test 25 2001 Kia Rio
Moving Barrier CG X Velocity

Max 54.8 [kph] at -0.014 [s]
Min 25.3 [kph] at 0.081 [s]

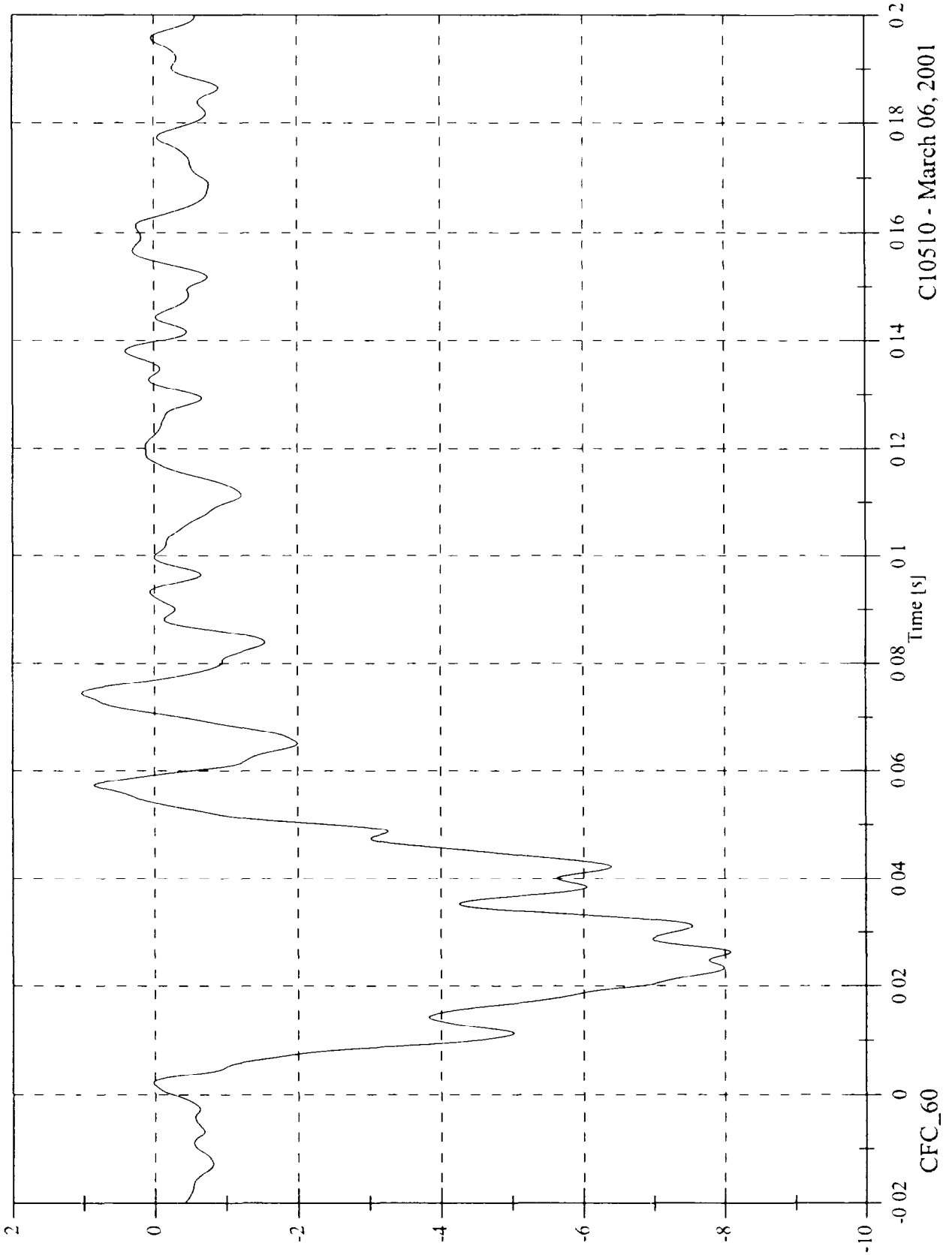


C10510 - March 06, 2001

FMVSS 214D Indicant Test 25 2001 Kia Rio

Max 1 0 [g] at 0 074 [s]
Min -8 1 [g] at 0 026 [s]

Moving Barrier CG Y

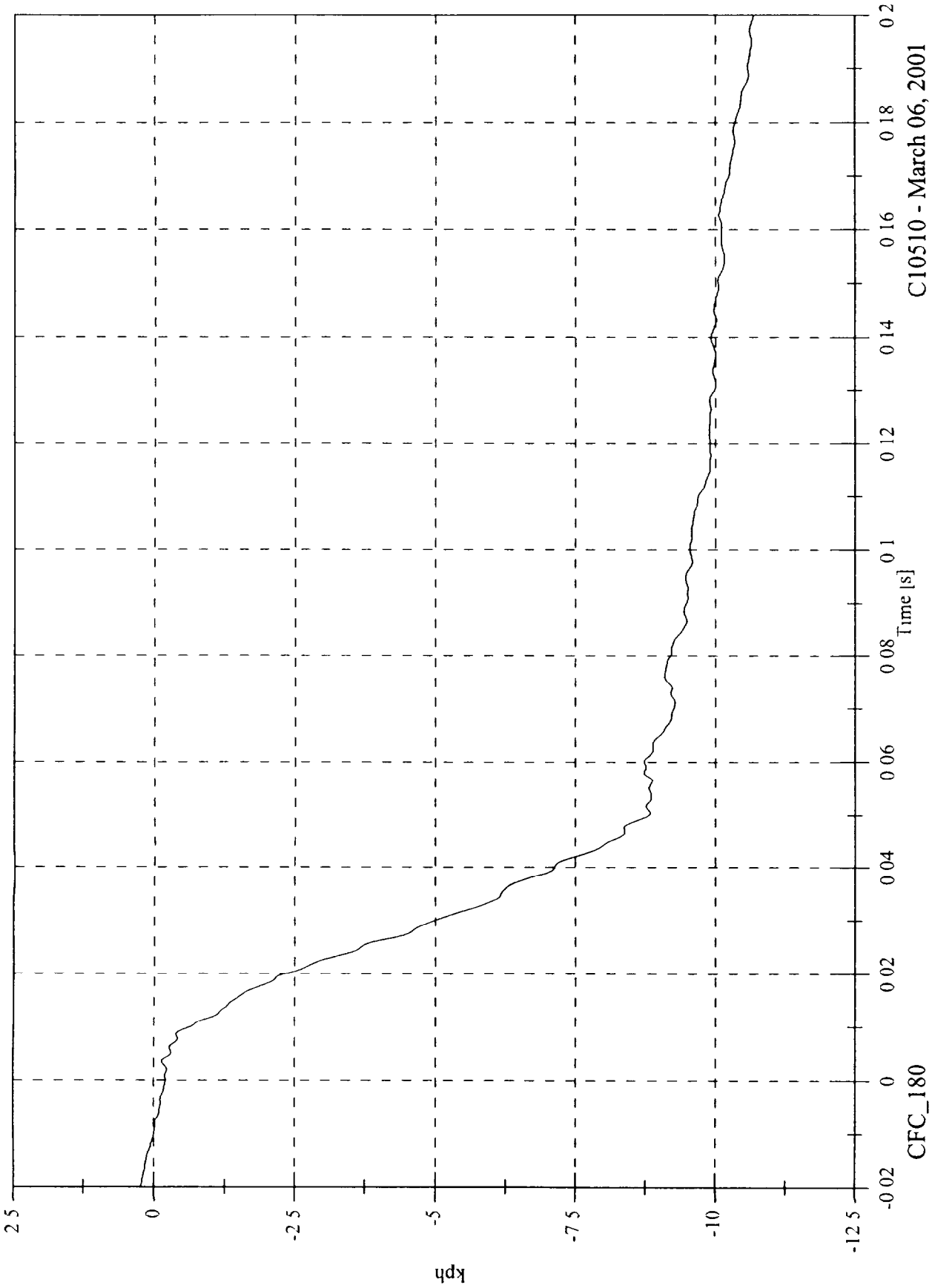


C10510 - March 06, 2001

FMVSS 214D Indicant Test 25 2001 Kia Rio

Max 0.2 [kph] at -0.020 [s]
Min. -10.7 [kph] at 0.200 [s]

Moving Barrier CG Y Velocity

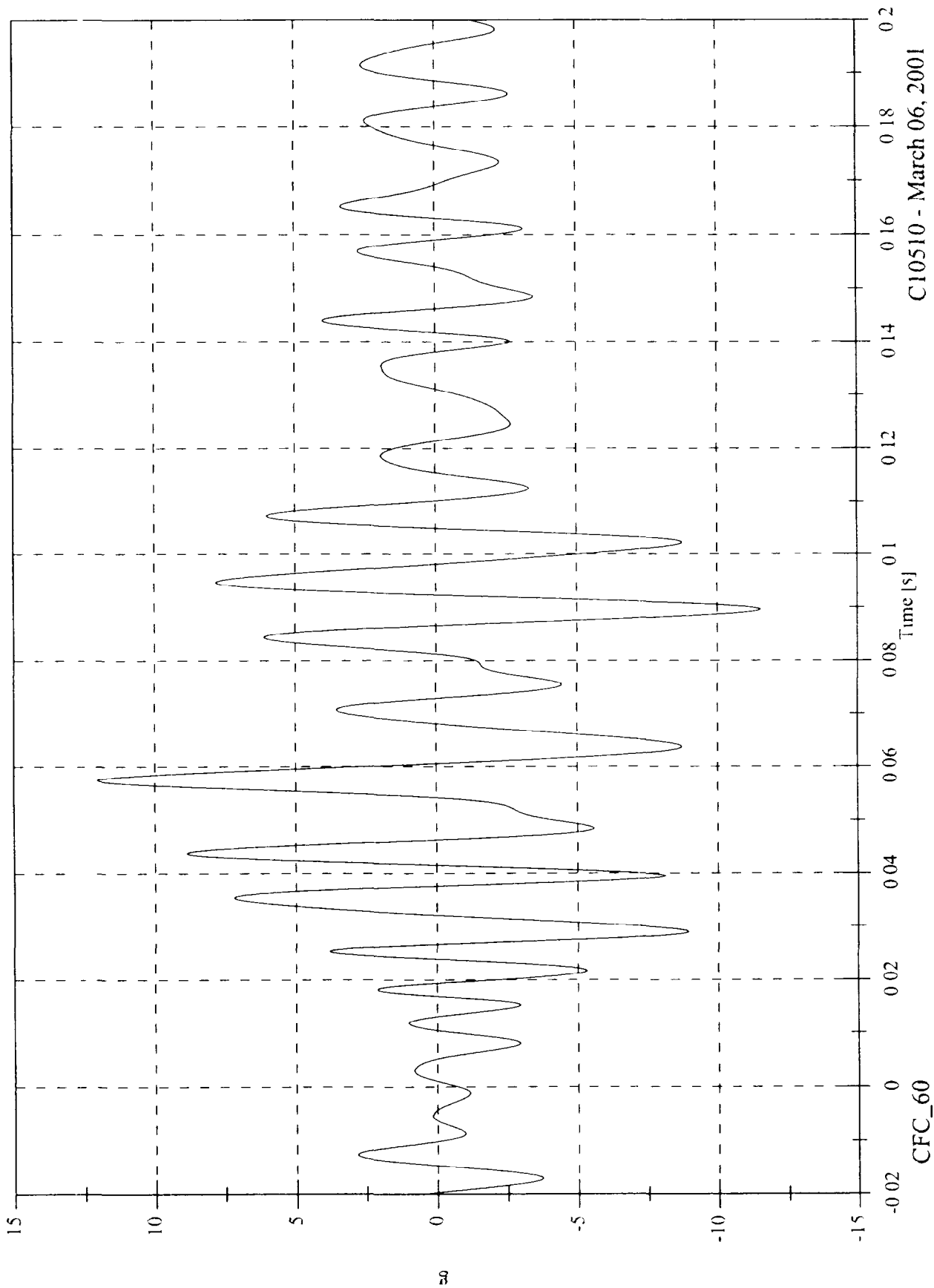


C10510 - March 06, 2001

FMVSS 214D Indicant Test 25 2001 Kia Rio

Max 12.0 [g] at 0.057 [s]
Min -11.5 [g] at 0.090 [s]

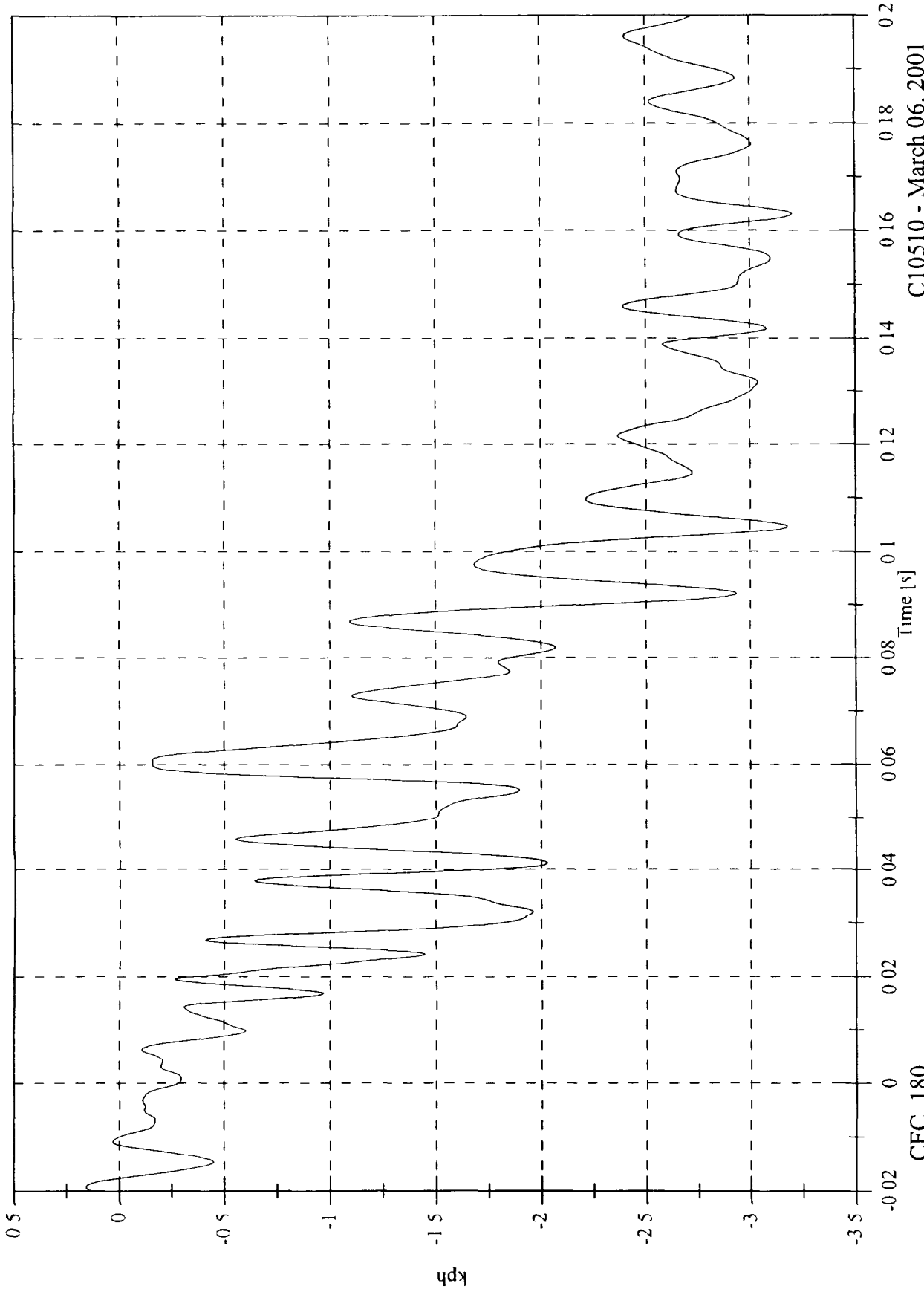
Moving Barrier CG Z



FMVSS 214D Indicant Test 25 2001 Kia Rio

Max. 0.2 [kph] at -0.019 [s]
Min. -3.2 [kph] at 0.163 [s]

Moving Barrier CG Z Velocity

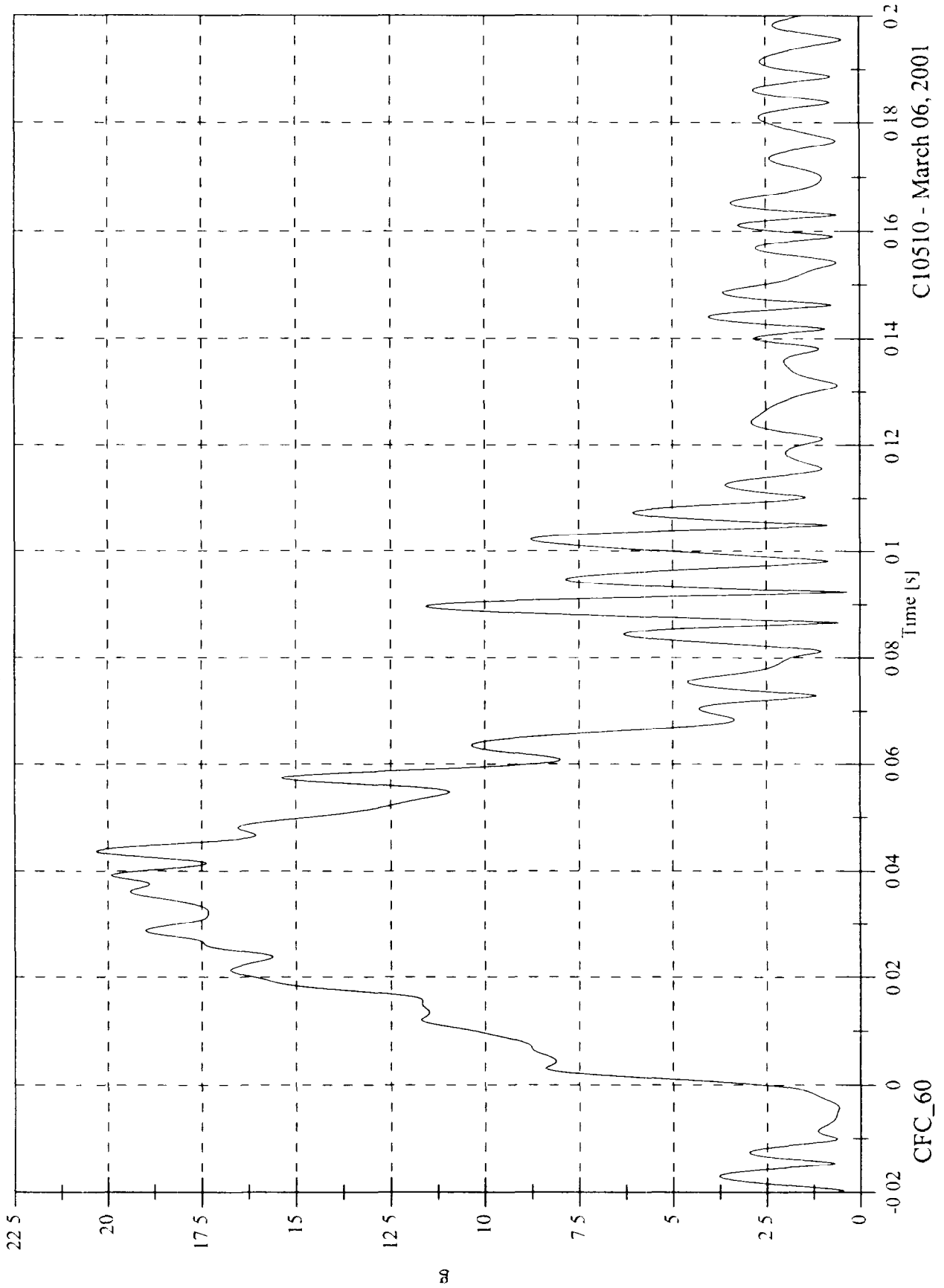


C10510 - March 06, 2001

FMVSS 214D Inducant Test 25 2001 Kia Rio

Max 20.3 [g] at 0.044 [s]
Min 0.3 [g] at 0.092 [s]

Moving Barrier CG Resultant



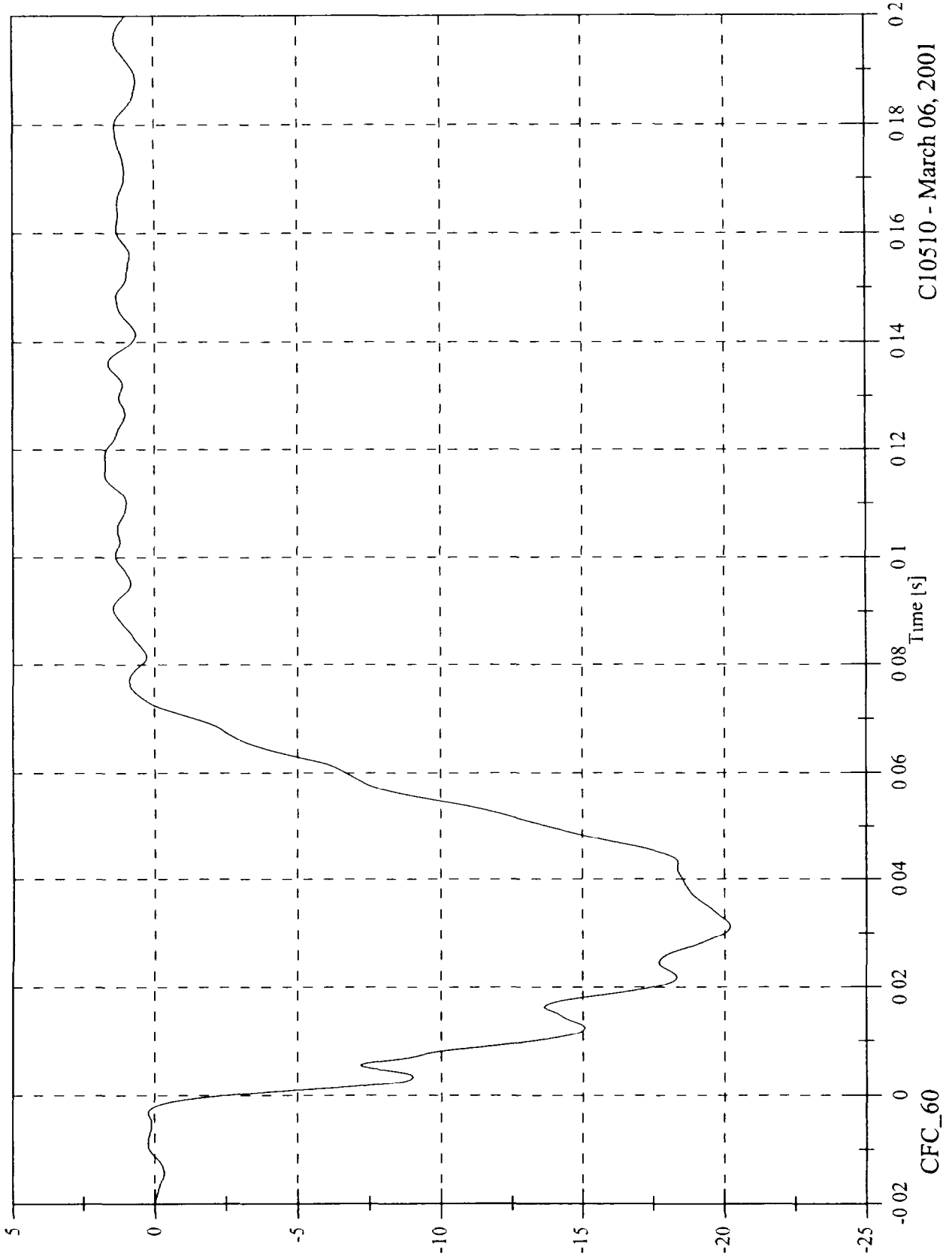
C10510 - March 06, 2001

FMVSS 214D Inducant Test 25 2001 Kia Rio

Moving Barrier Left Rail X

Max 1.8 [g] at 0.115 [s]

Min. -20.2 [g] at 0.031 [s]

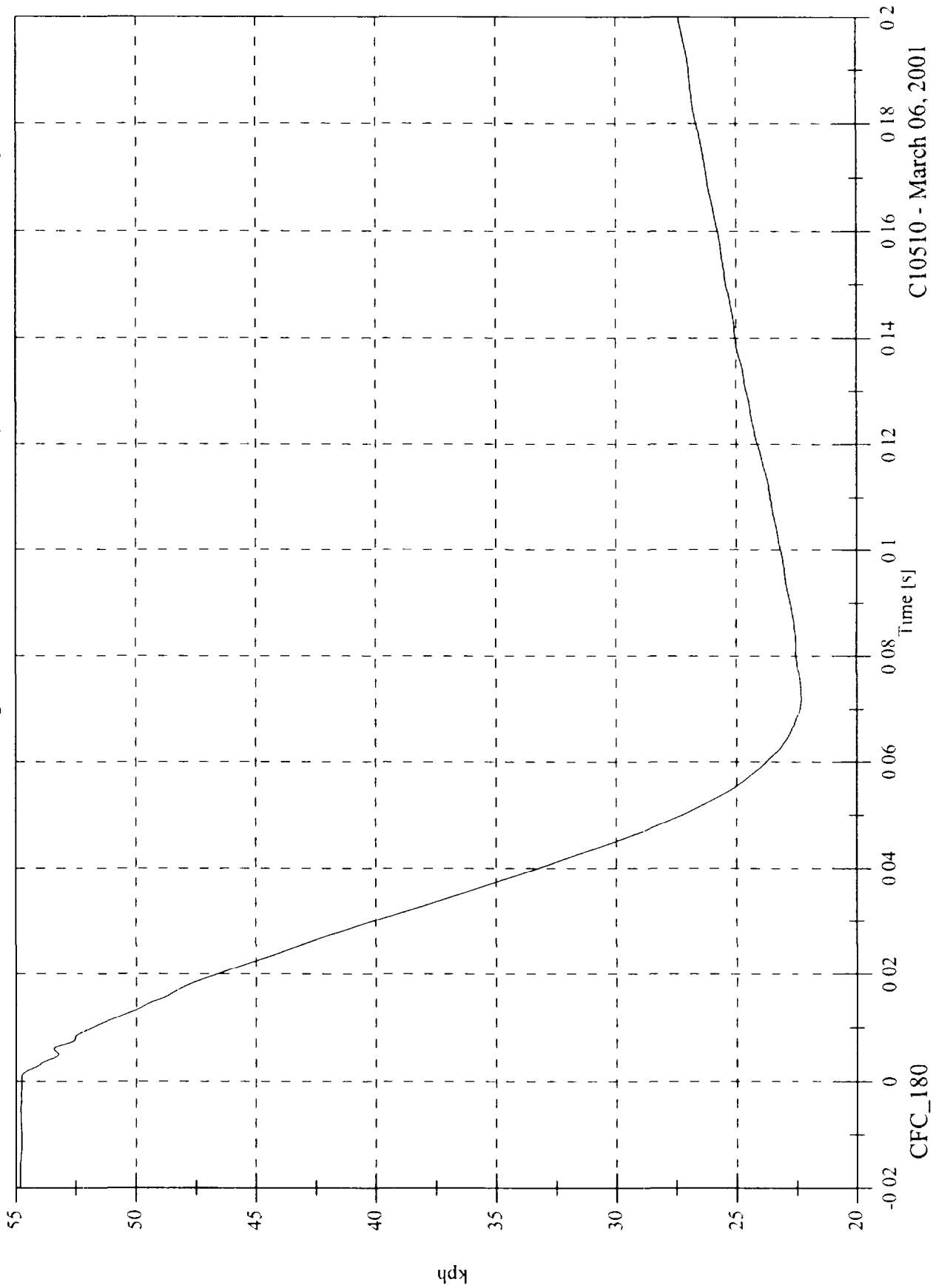


C10510 - March 06, 2001

FMVSS 214D Inducant Test 25 2001 Kia Rio

Max 54.8 [kph] at -0.019 [s]
Min 22.3 [kph] at 0.072 [s]

Moving Barrier Left Rail X Velocity

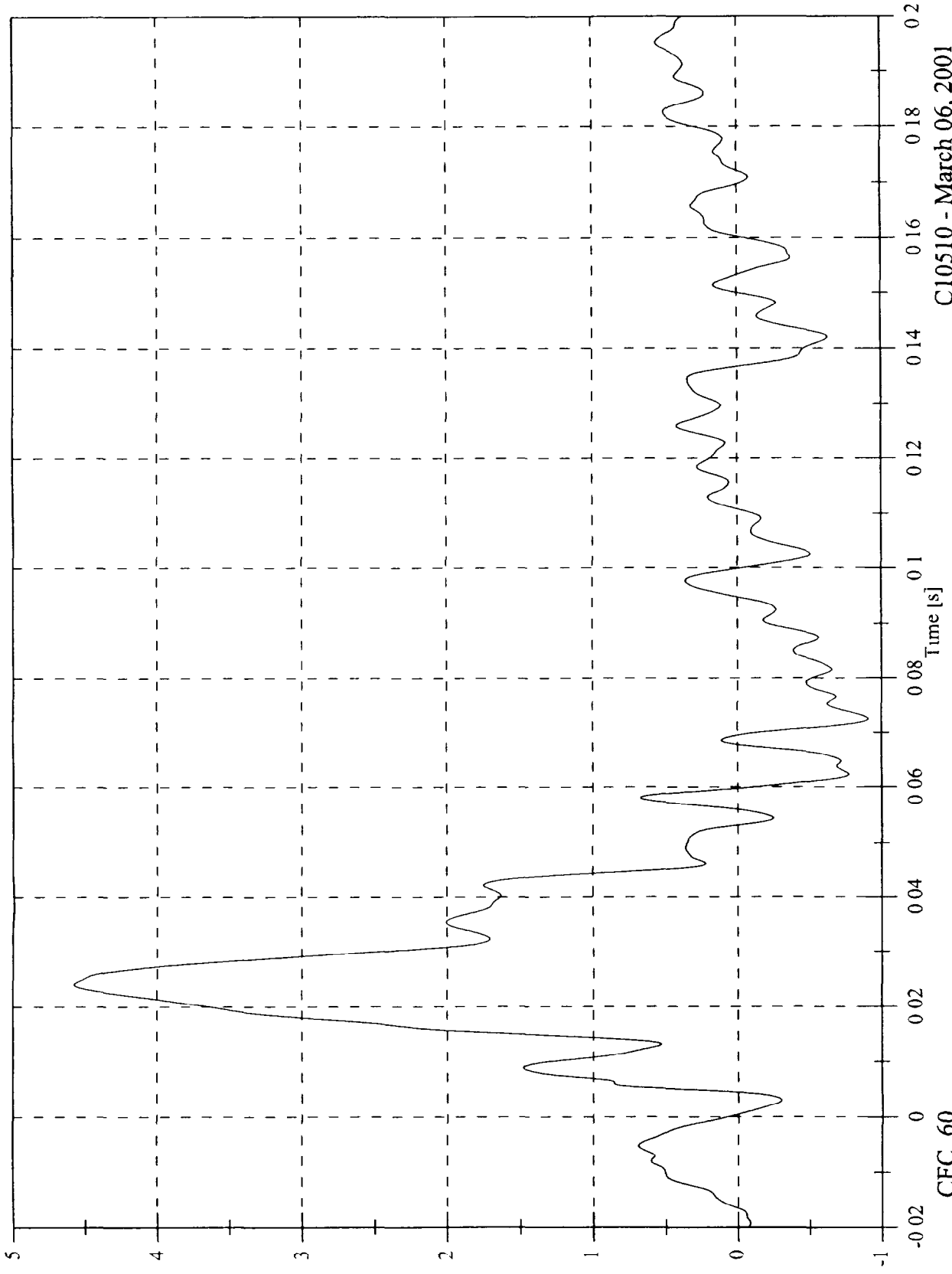


C10510 - March 06, 2001

FMVSS 214D Inducant Test 25 2001 Kia Rio

Moving Barrier Left Rail Y

Max 4.6 [g] at 0.024 [s]
Min -0.9 [g] at 0.072 [s]



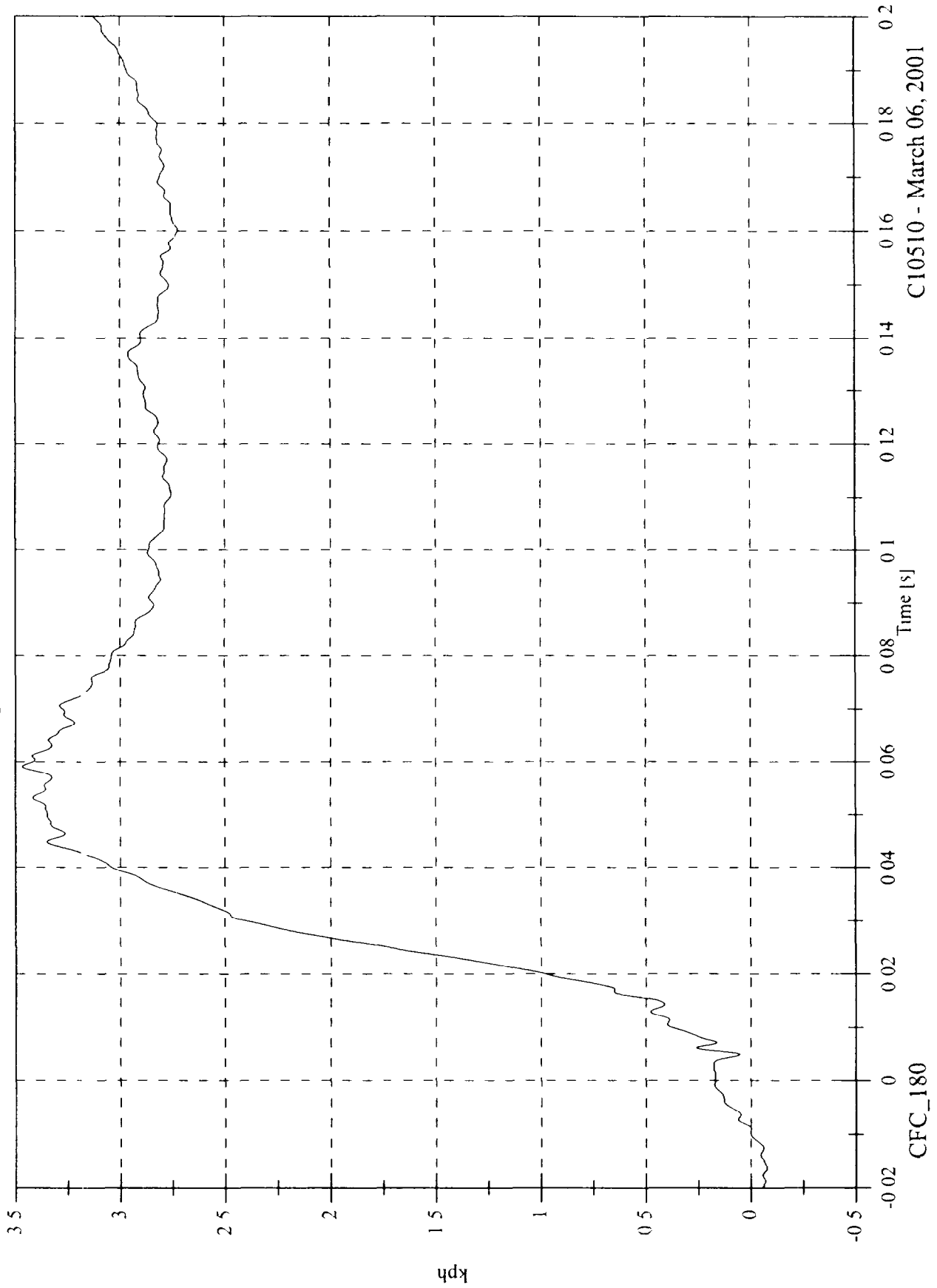
C10510 - March 06, 2001

CFC_60

FMVSS 214D Inducant Test 25 2001 Kia Rio

Max 3.5 [kph] at 0.059 [s]
Min -0.1 [kph] at -0.016 [s]

Moving Barrier Left Rail Y Velocity

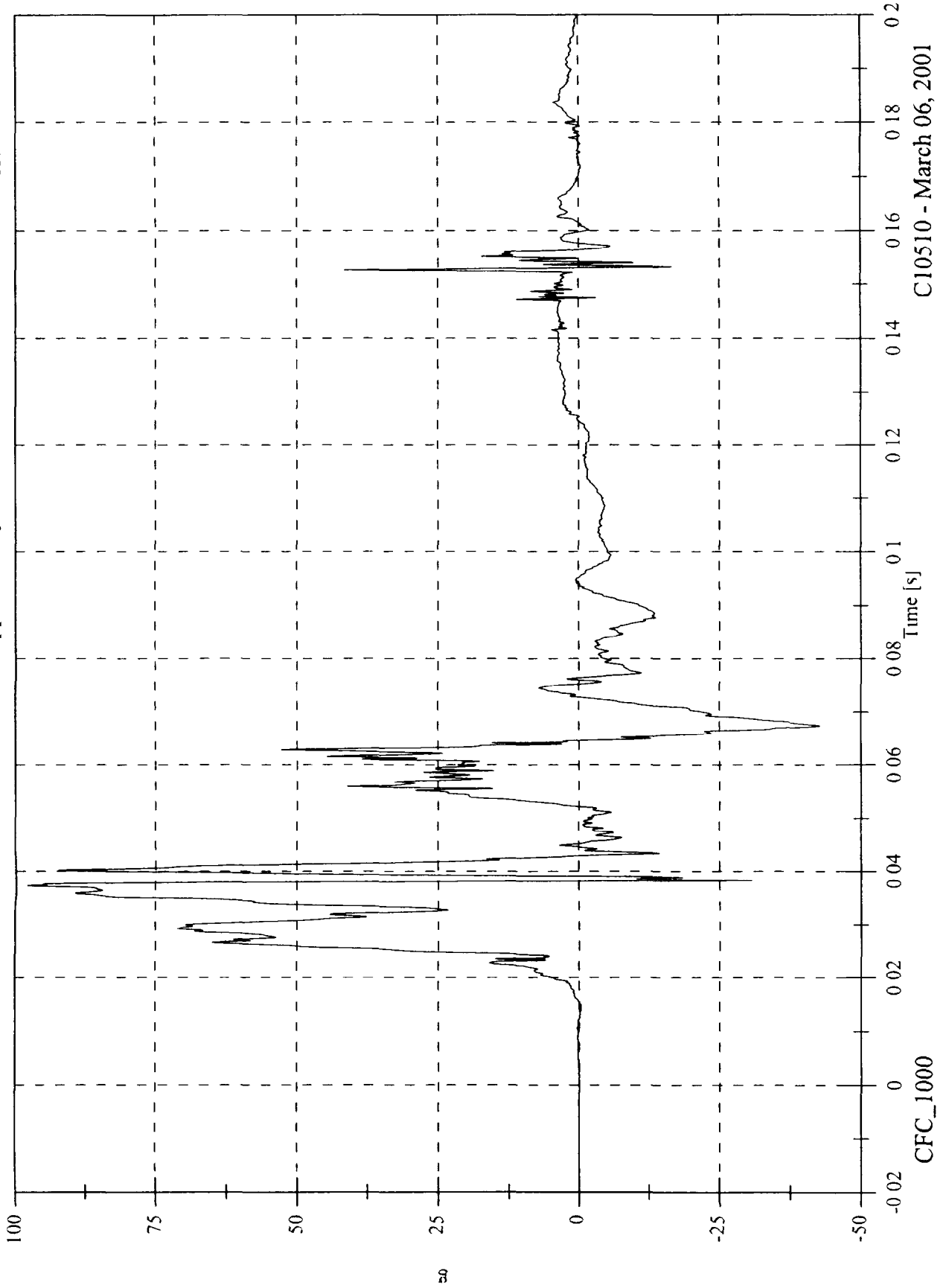


C10510 - March 06, 2001

FMVSS 214D Inducant Test 25 2001 Kia Rio

P1 Upper Rib Ry

Max 98.0 [g] at 0.037 [s]
Min -42.8 [g] at 0.067 [s]

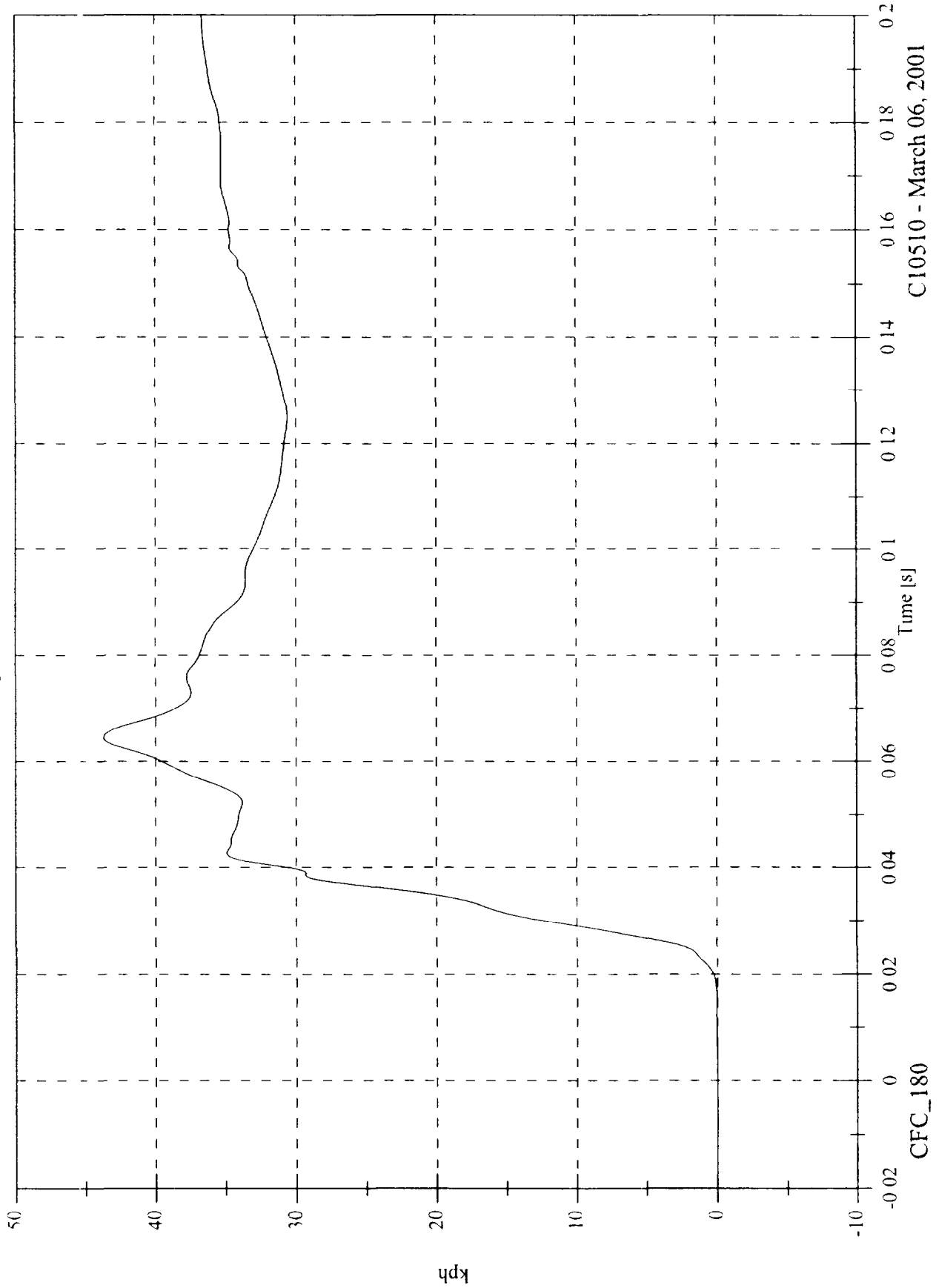


C10510 - March 06, 2001

FMVSS 214D Inducant Test 2.5 2001 Kia Rio

Max 43.7 [kph] at 0.064 [s]
Min -0.0 [kph] at -0.015 [s]

P1 Upper Rib Ry Velocity

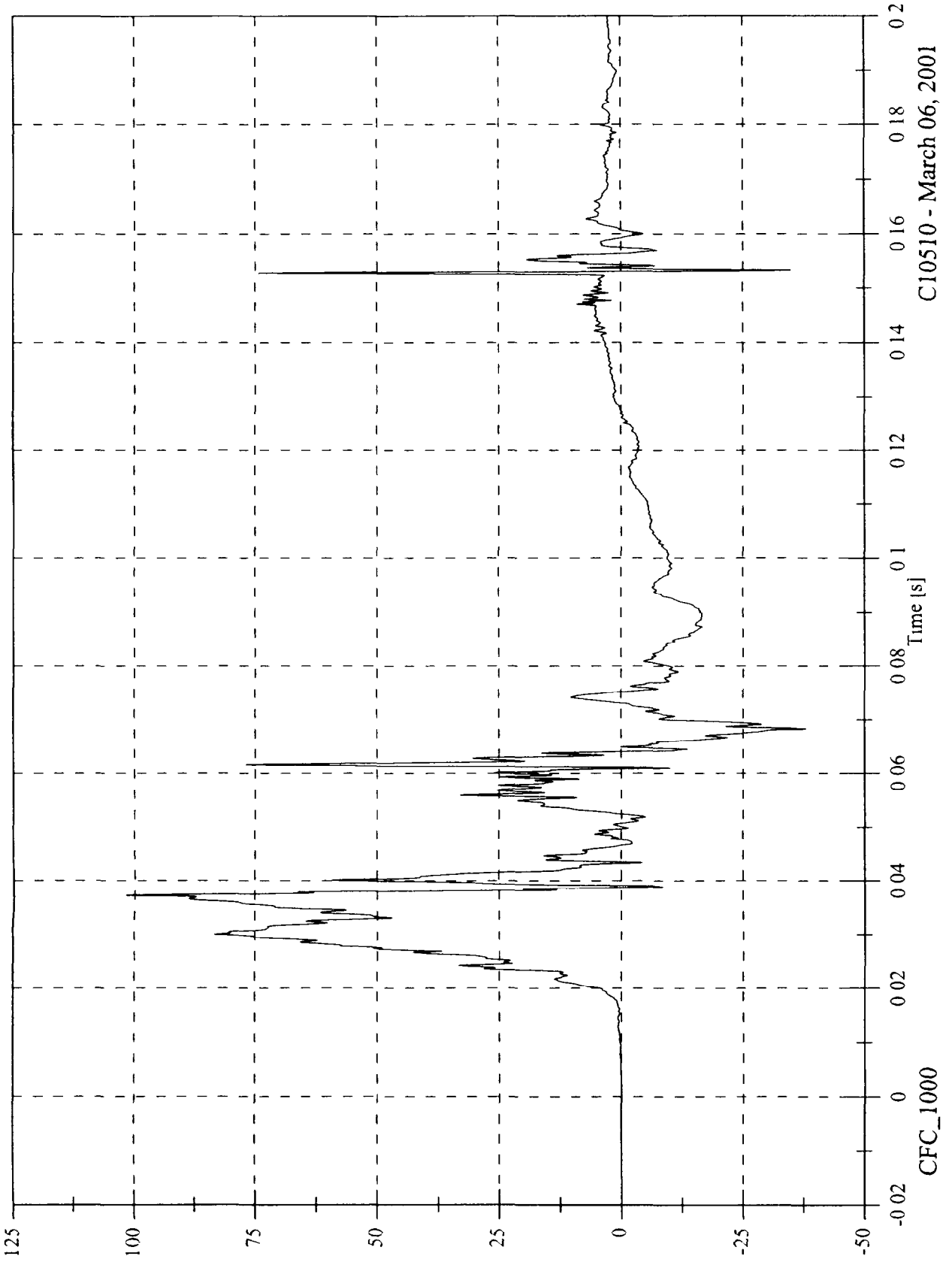


CI0510 - March 06, 2001

FMVSS 214D Inducant Test 25 2001 Kia Rio

Max 101.7 [g] at 0.037 [s]
Min -37.9 [g] at 0.068 [s]

P1 Lower Rib Ry

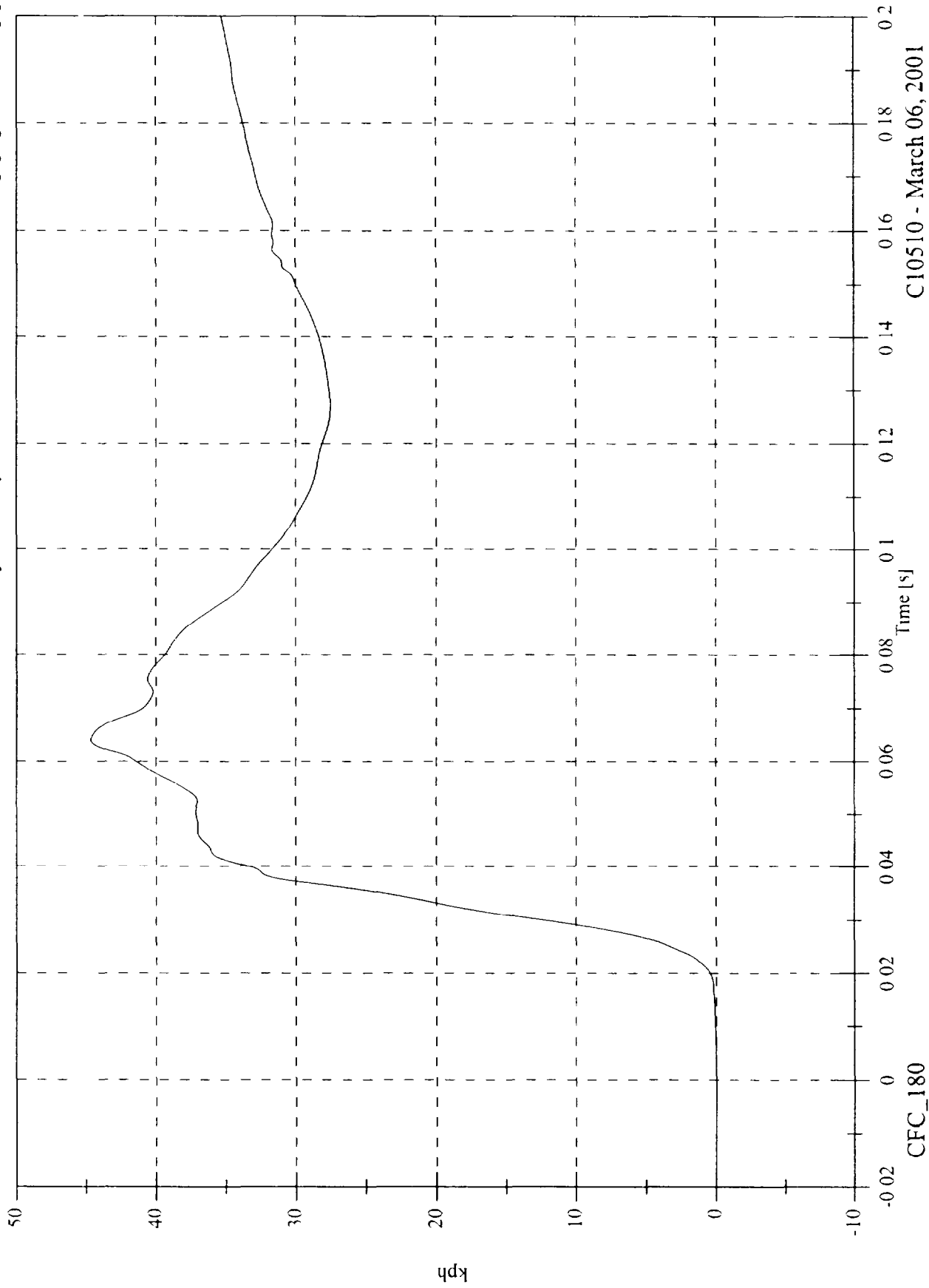


C10510 - March 06, 2001

FMVSS 214D Inducant Test 25 2001 Kia Rio

Max 44.7 [kph] at 0.064 [s]
Min -0.0 [kph] at -0.020 [s]

P1 Lower Rib Ry Velocity

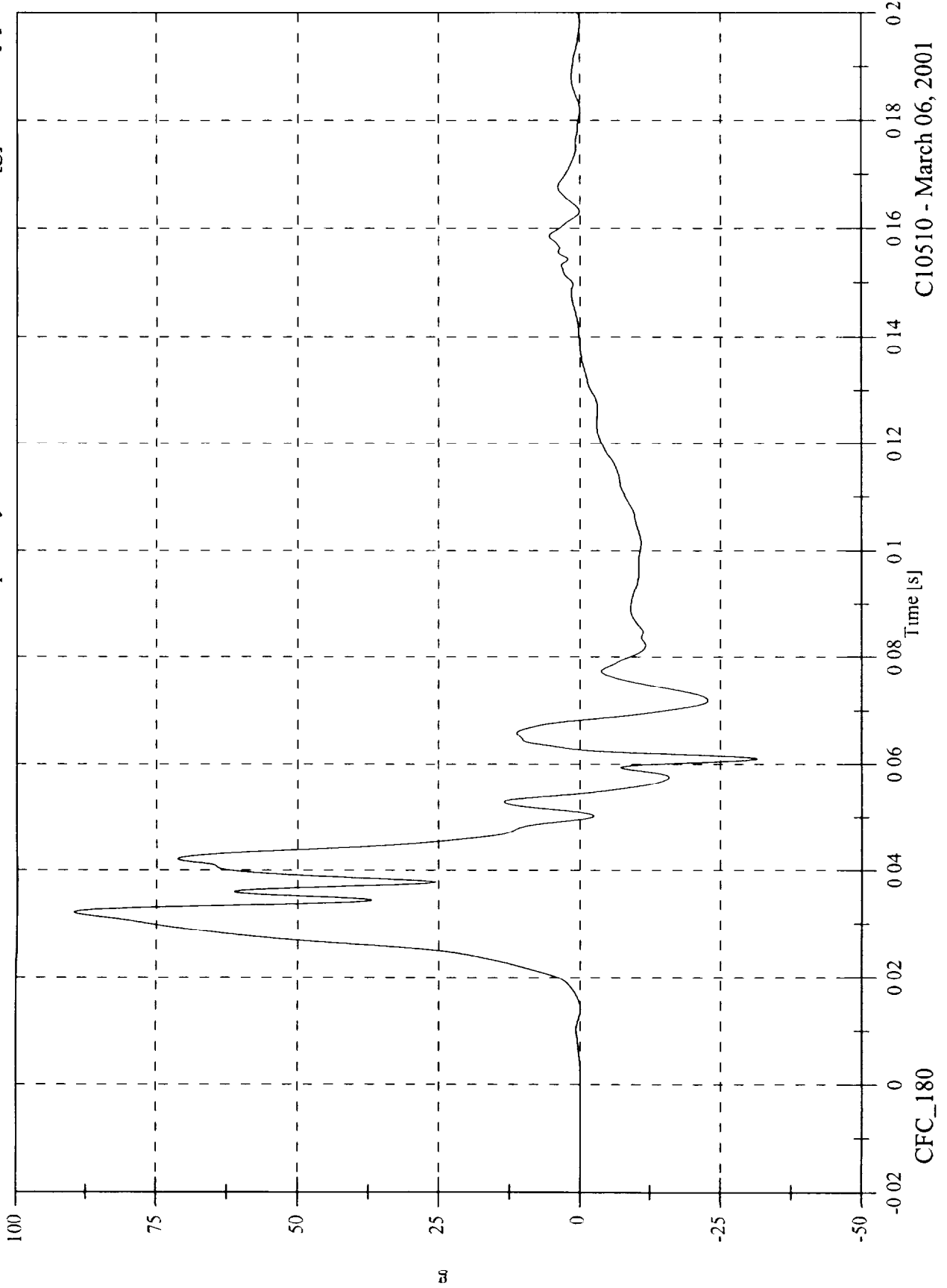


C10510 - March 06, 2001

FMVSS 214D Indicant Test 25 2001 Kia R10

Max. 89.8 [g] at 0.032 [s]
Min -31.5 [g] at 0.061 [s]

P1 Lower Spine Ry

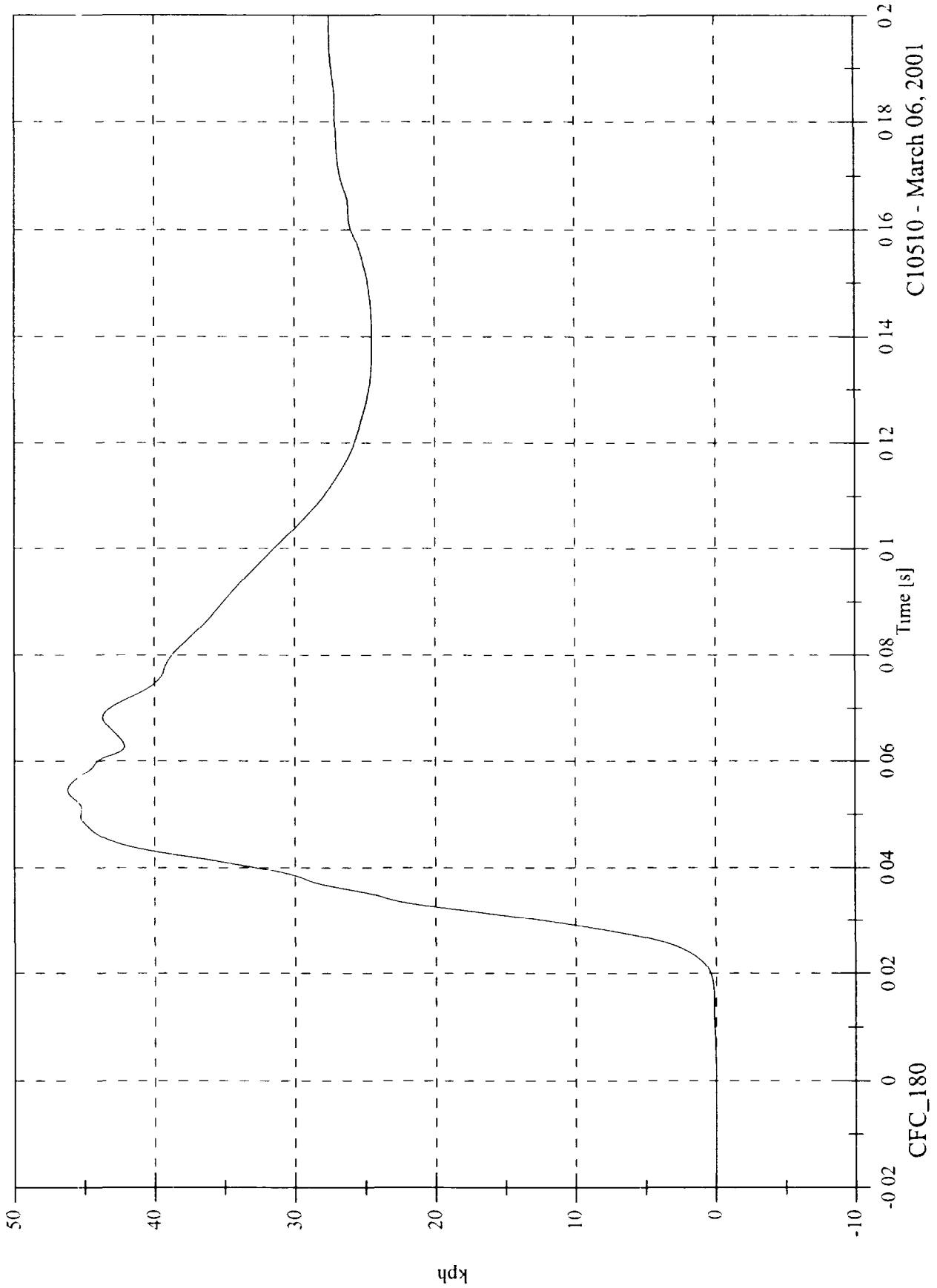


C10510 - March 06, 2001

FMVSS 214D Indicant Test 25 2001 Kia Rio

Max 46.2 [kph] at 0.054 [s]
Min -0.0 [kph] at -0.020 [s]

P1 Lower Spine Ry Velocity

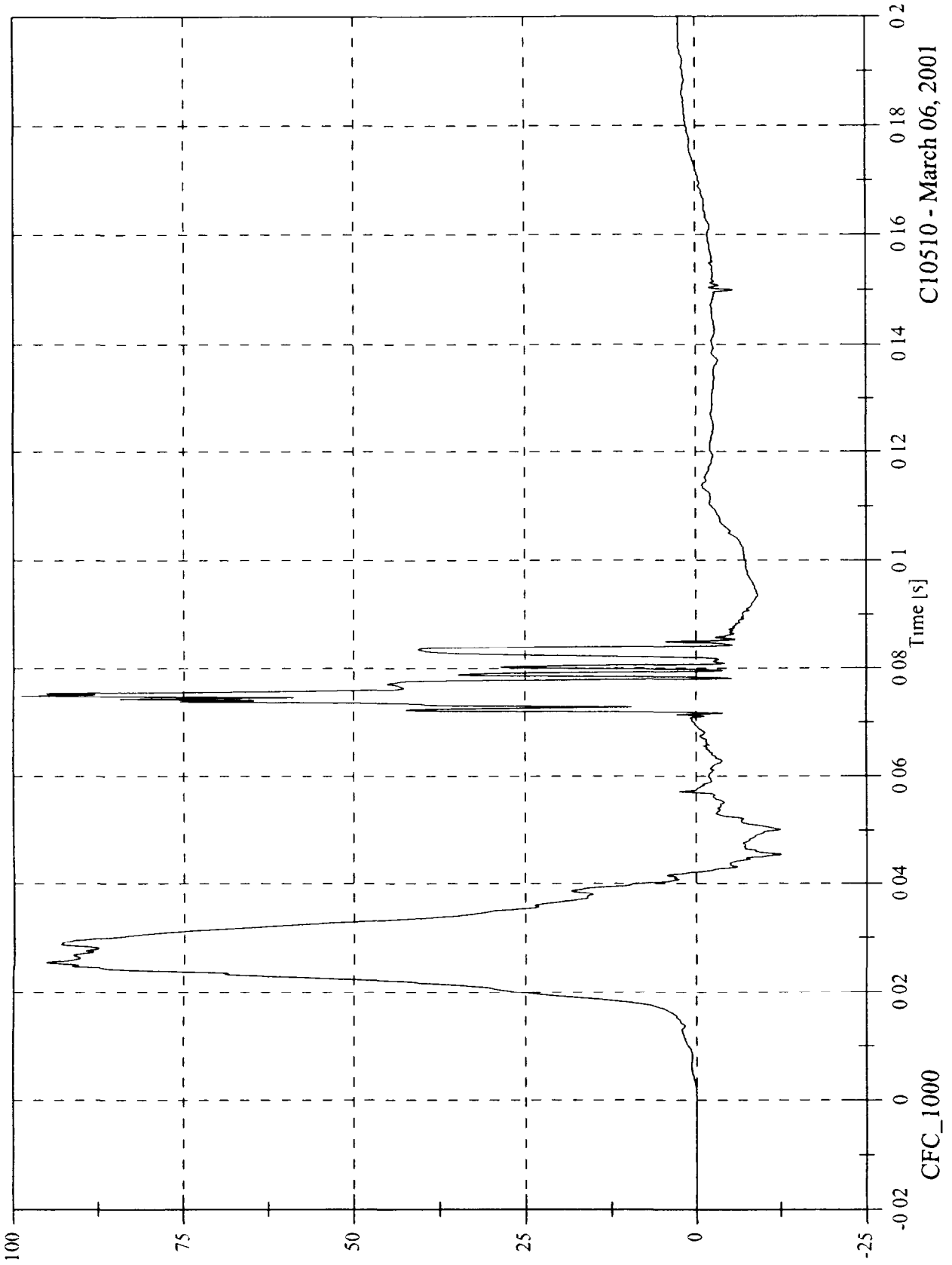


C10510 - March 06, 2001

FMVSS 214D Inducant Test 25 2001 Kia Rio

Max 98.8 [g] at 0.075 [s]
Min -12.6 [g] at 0.045 [s]

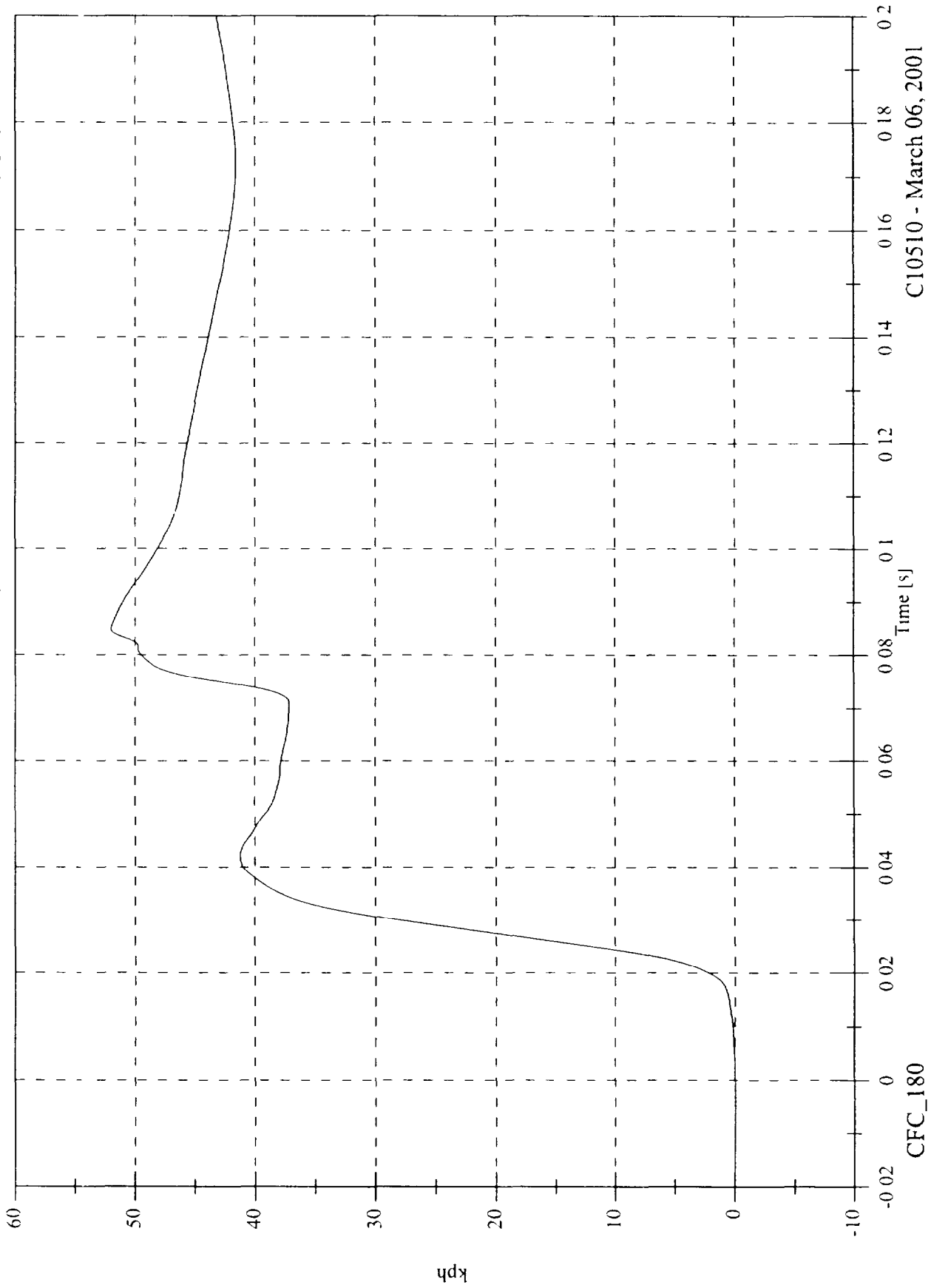
P1 Pelvic Ry



FMVSS 214D Indicant Test 25 2001 Kia Rio

Max 52.0 [kph] at 0.085 [s]
Min -0.0 [kph] at -0.020 [s]

P1 Pelvic Ry Velocity

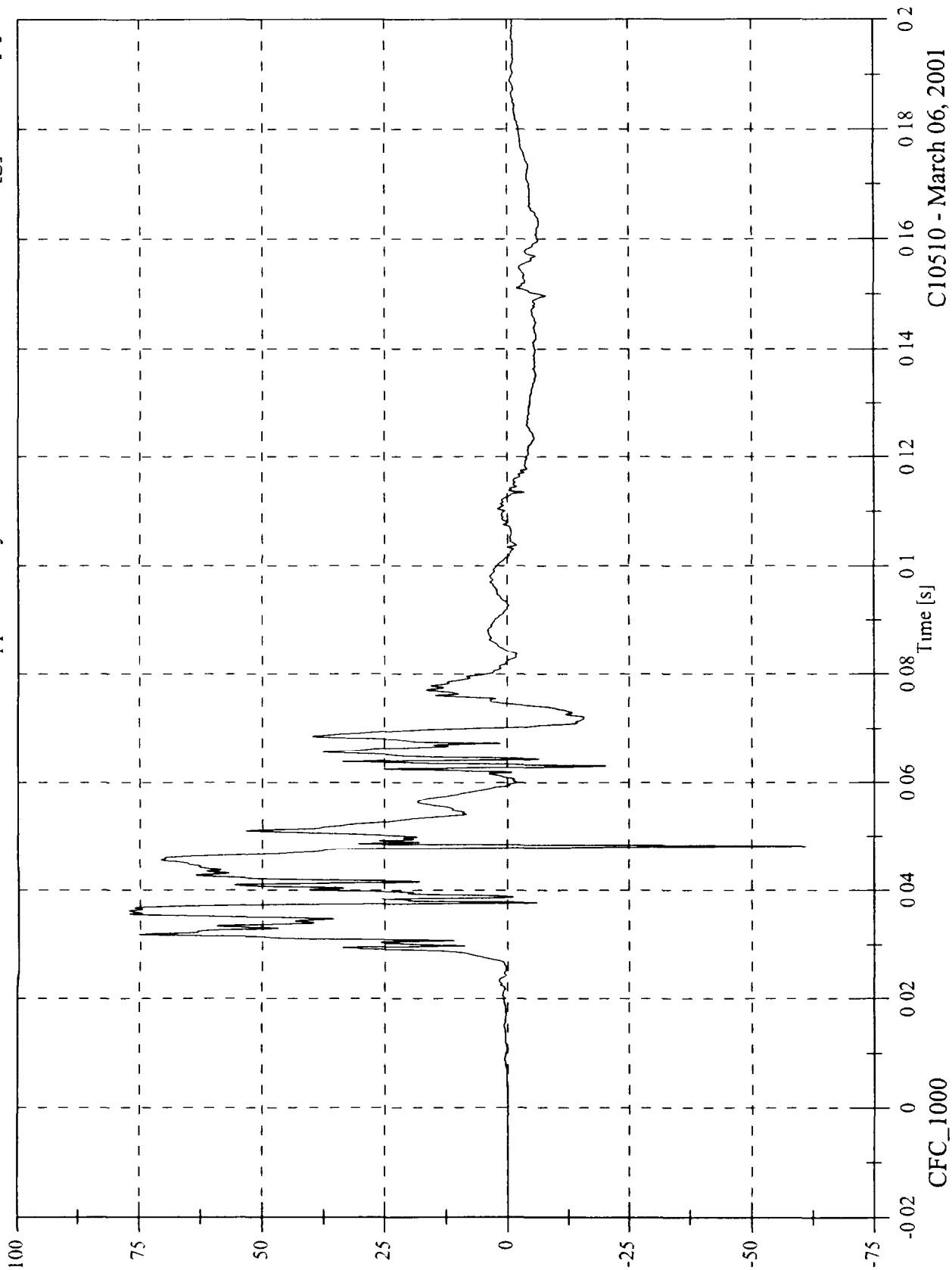


C10510 - March 06, 2001

FMVSS 214D Inducant Test 25 2001 Kia Rio

Max 77.3 [g] at 0.036 [s]
Min -61.2 [g] at 0.048 [s]

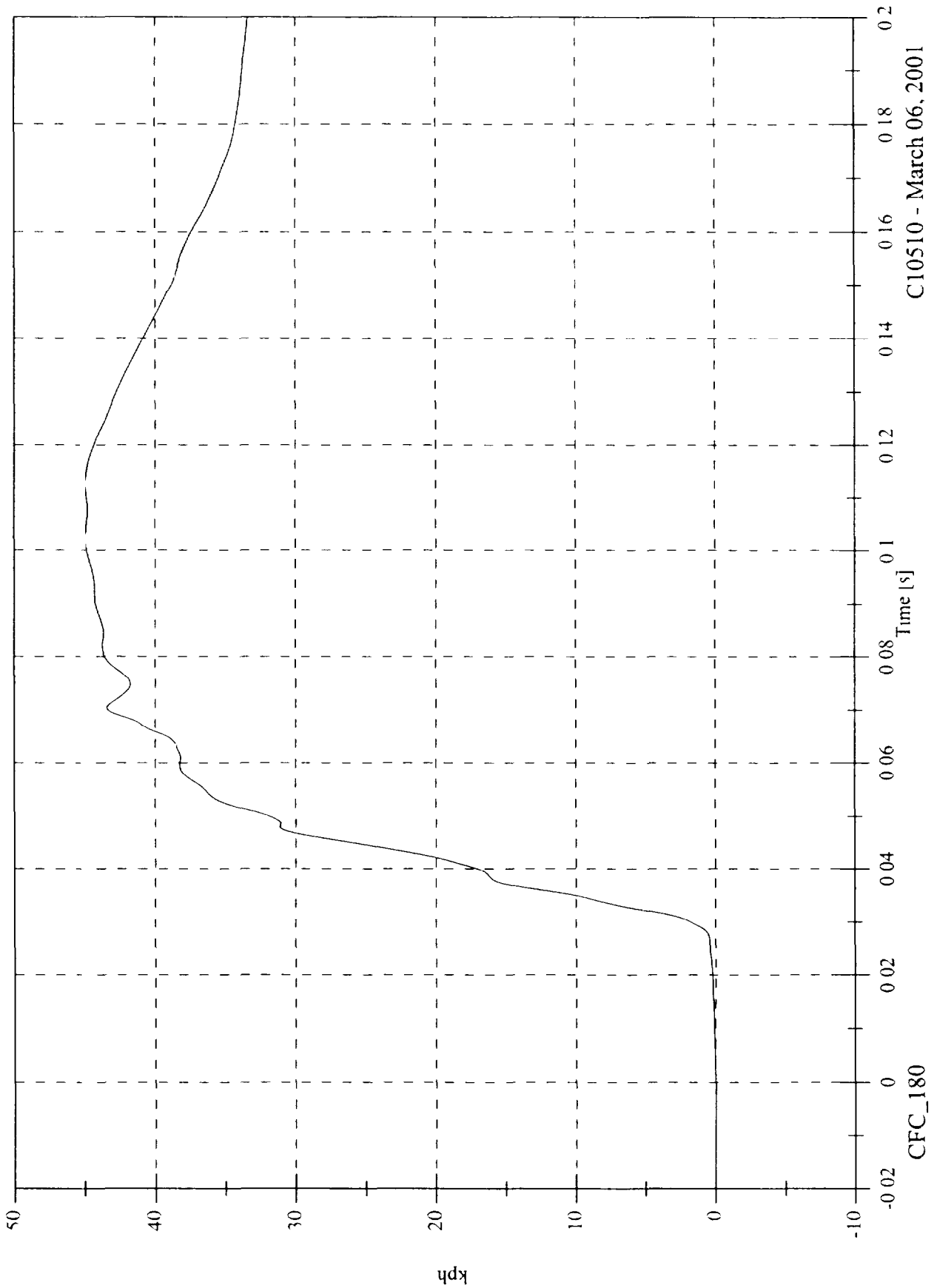
P4 Upper Rib Ry



C10510 - March 06, 2001

FMVSS 214D Indicant Test 25 2001 K1a R10
P4 Upper Rib Ry Velocity

Max 45.0 [kph] at 0.113 [s]
Min -0.0 [kph] at -0.020 [s]



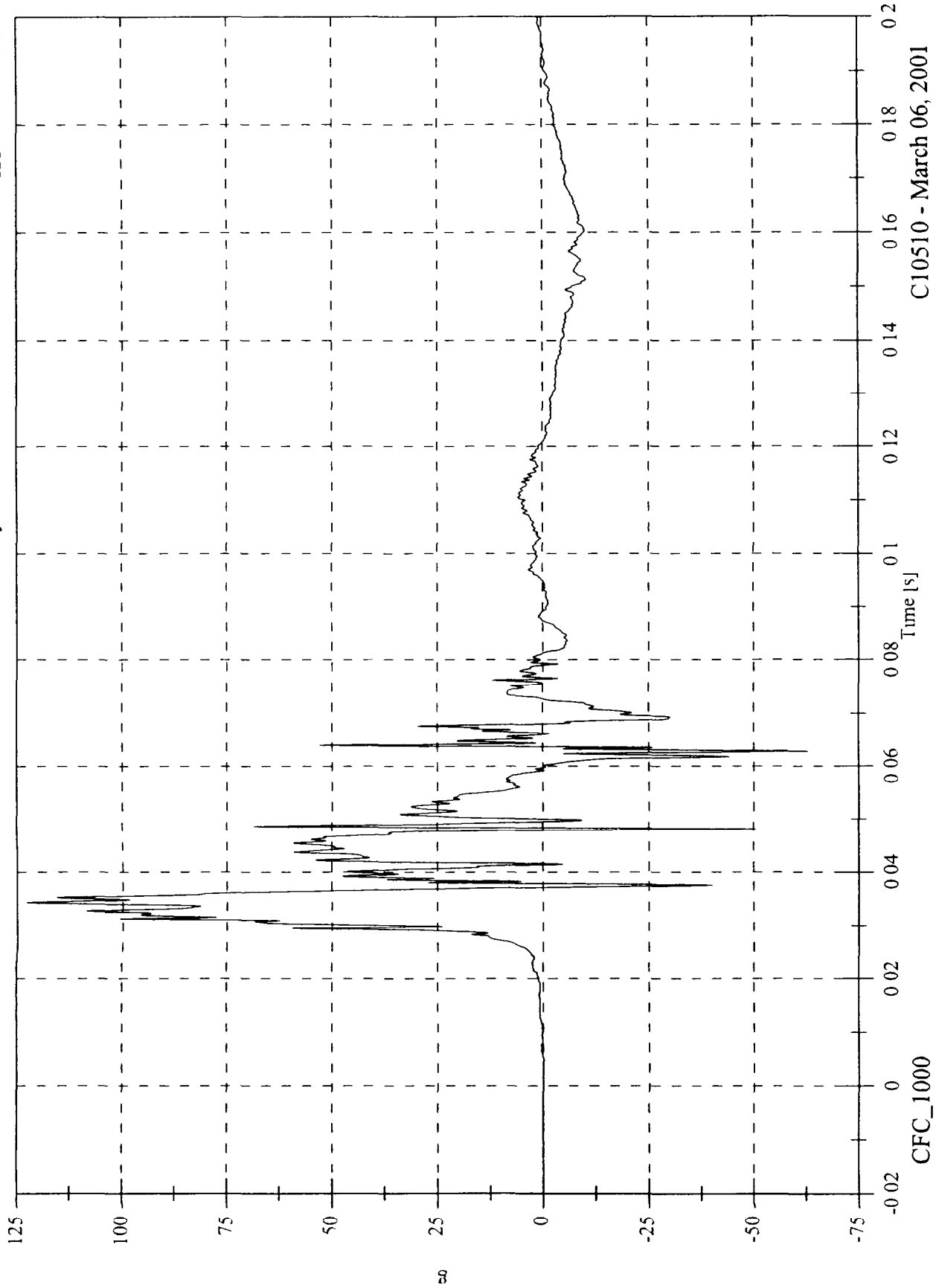
C10510 - March 06, 2001



FMVSS 214D Indicant Test 25 2001 Kia Rio

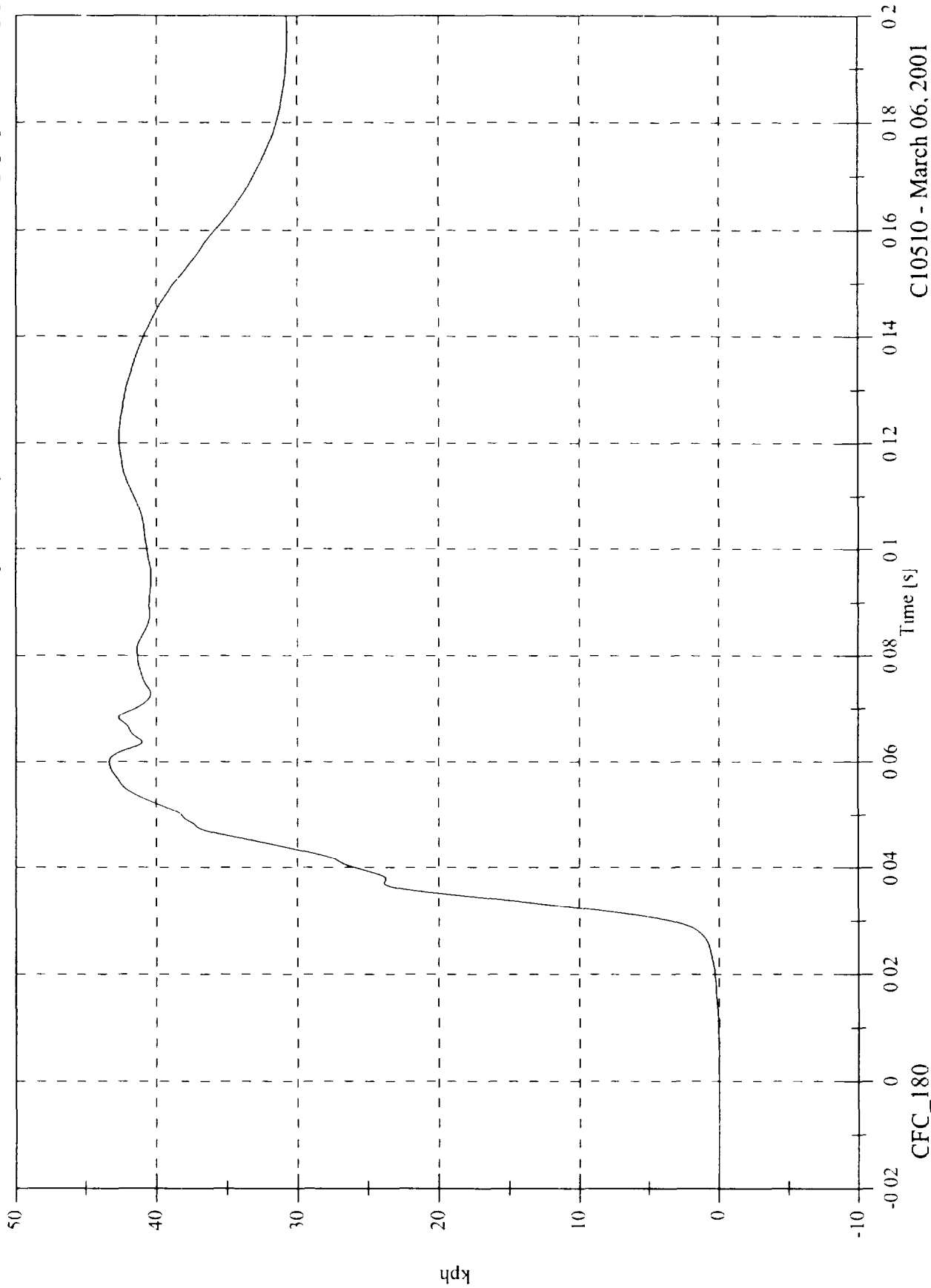
Max 122.7 [g] at 0.034 [s]
Min -62.9 [g] at 0.063 [s]

P4 Lower Rib Ry



FMVSS 214D Inducant Test 25 2001 Kia Rio
P4 Lower Rib Ry Velocity

Max 43.3 [kph] at 0.060 [s]
Min -0.0 [kph] at -0.020 [s]

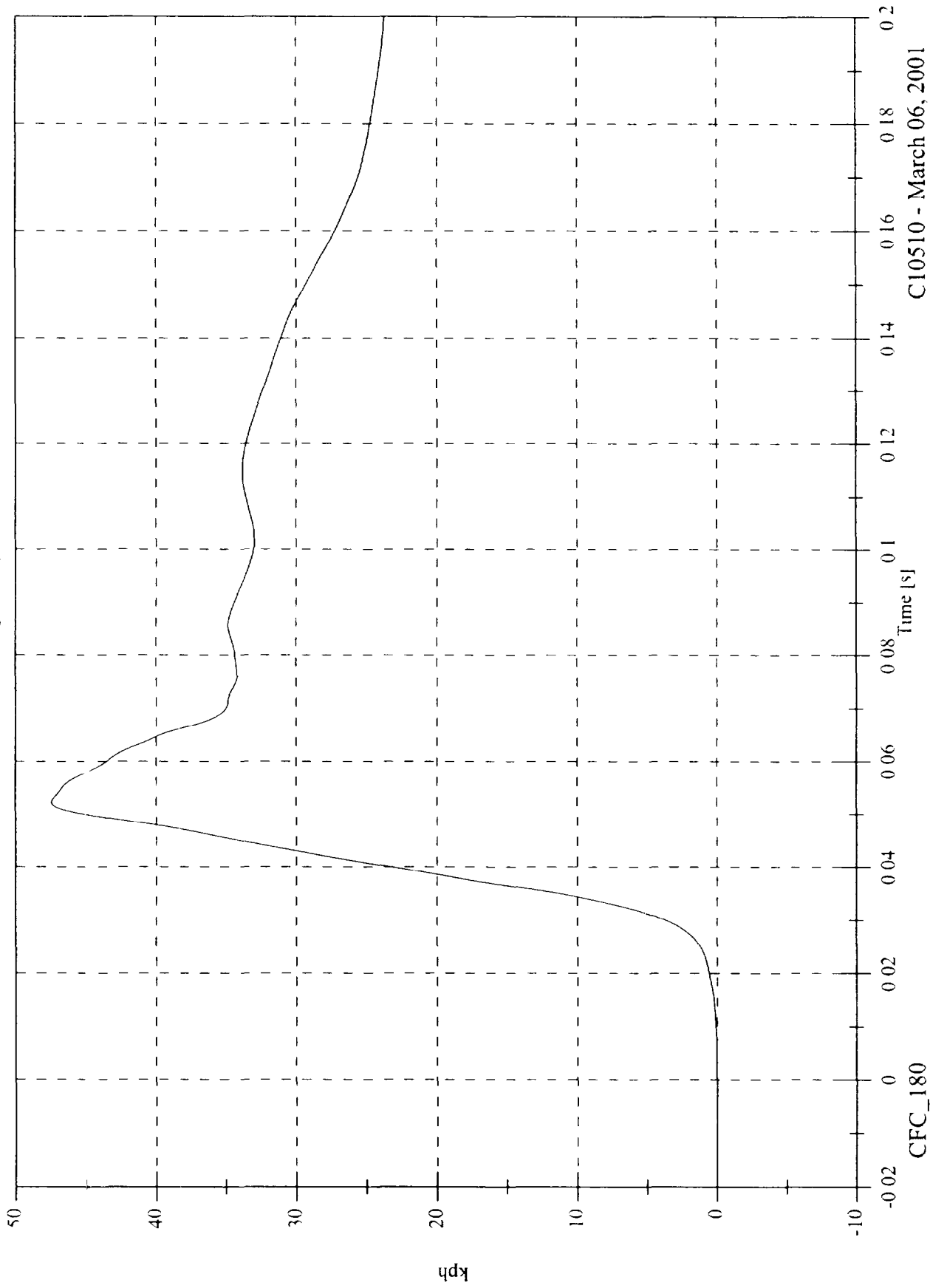


C10510 - March 06, 2001

FMVSS 214D Indicant Test 25 2001 Kia Rio

Max 47.5 [kph] at 0.052 [s]
Min -0.0 [kph] at -0.020 [s]

P4 Lower Spine Ry Velocity

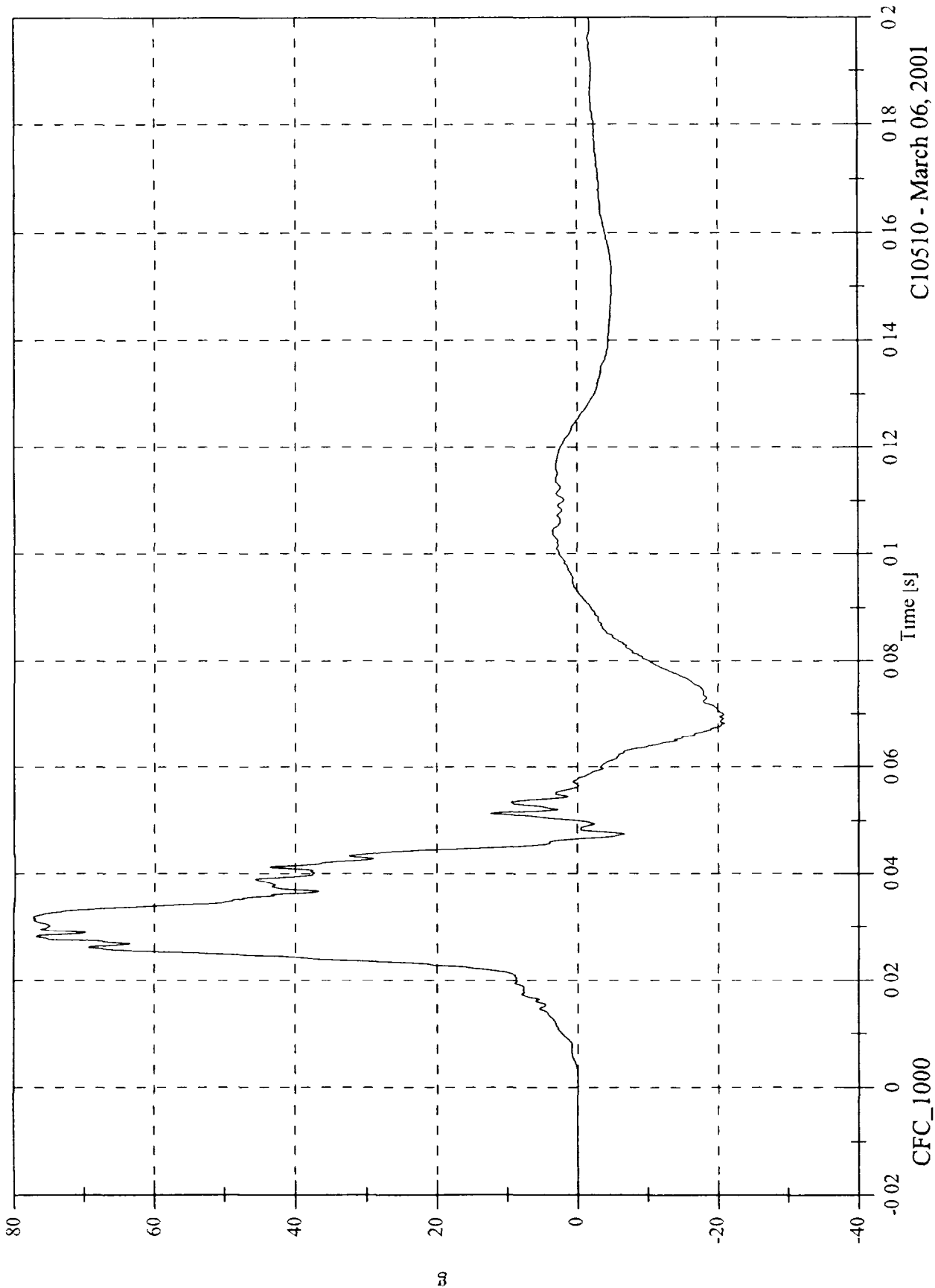


C10510 - March 06, 2001

FMVSS 214D Indicant Test 25 2001 Kia Rio

P4 Pelvic Ry

Max 77.3 [g] at 0.032 [s]
Min -21.0 [g] at 0.068 [s]

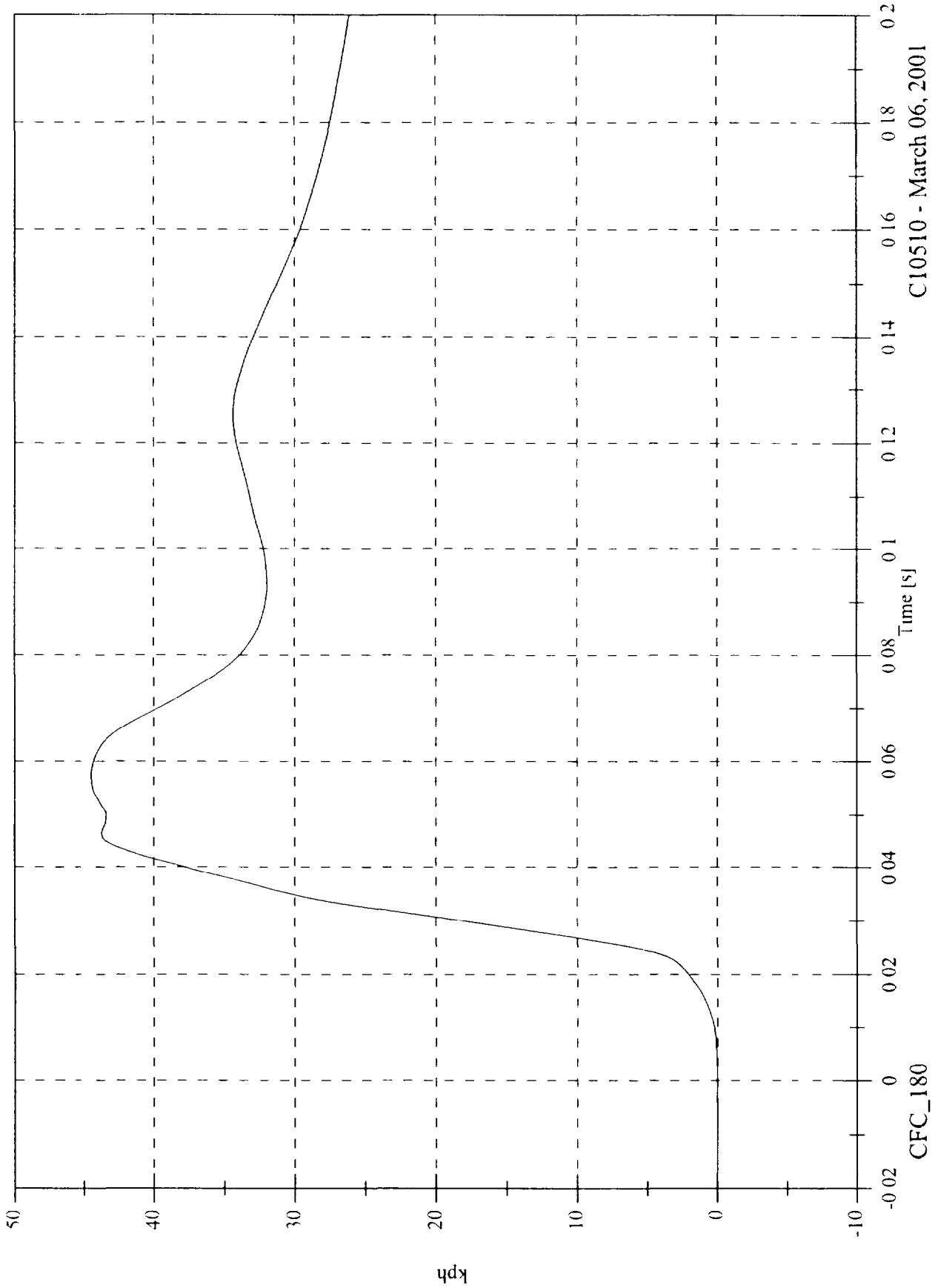


C10510 - March 06, 2001

FMVSS 214D Inducant Test 25 2001 Kia Rio

Max 44.5 [kph] at 0.058 [s]
Min -0.0 [kph] at -0.020 [s]

P4 Pelvic Ry Velocity

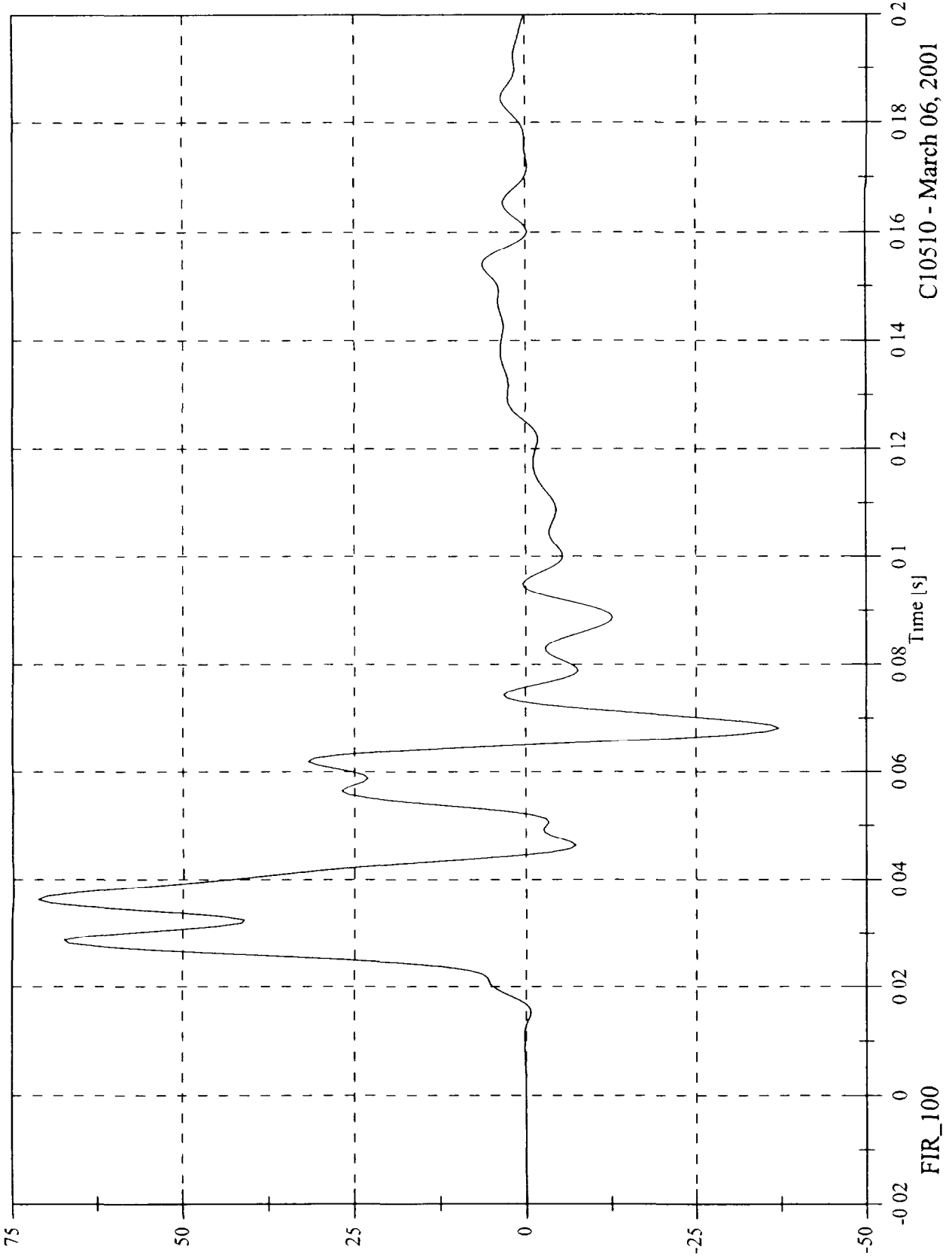


C10510 - March 06, 2001

FMVSS 214D Indicant Test 25 2001 Kia Rio

P1 Upper Rib Ry

Max 71.4 [g] at 0.036 [s]
Min -37.2 [g] at 0.068 [s]

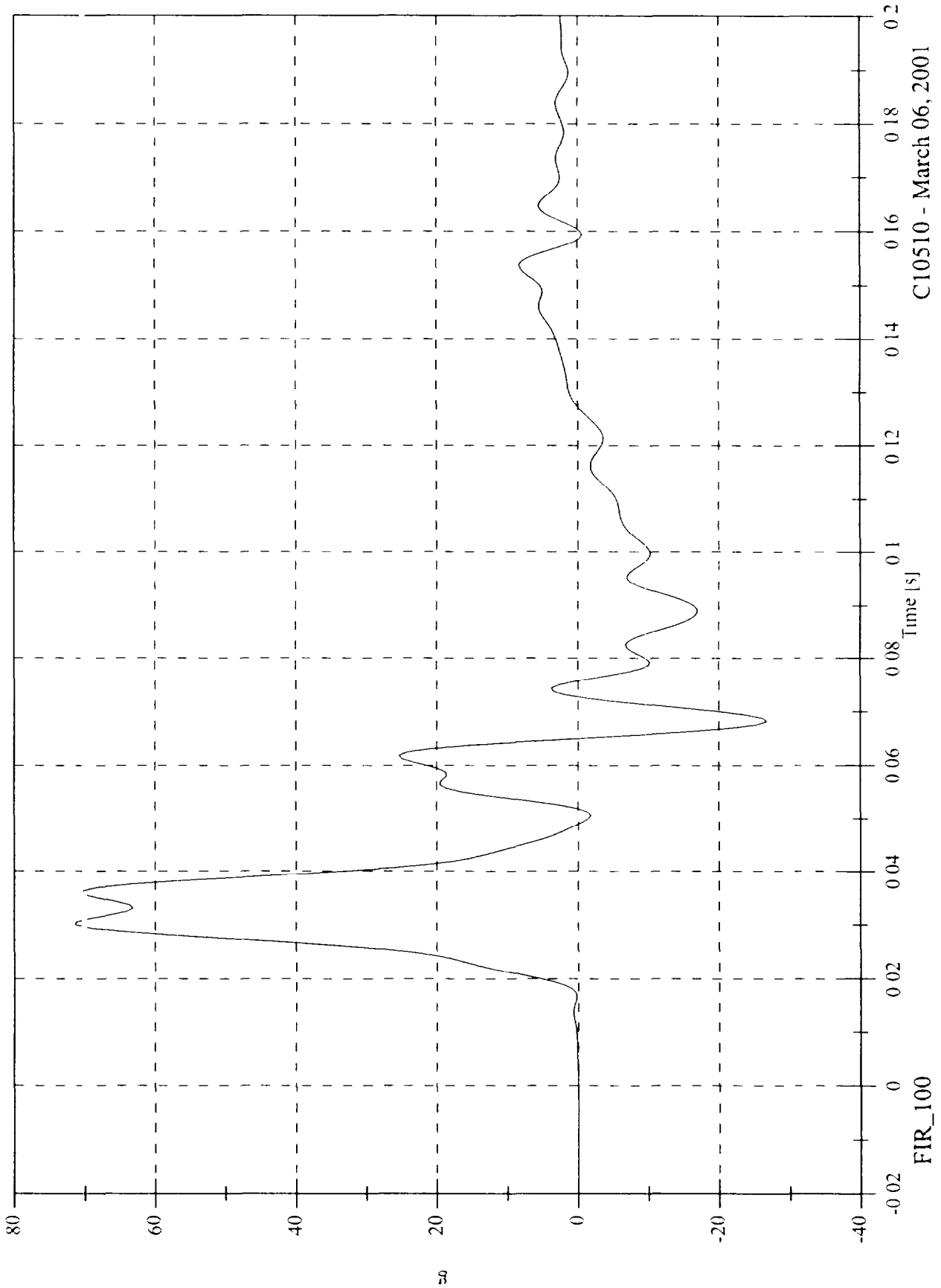


C10510 - March 06, 2001

FMVSS 214D Inducant Test 25 2001 Kia Rio

Max 71.4 [g] at 0.030 [s]
Min -26.7 [g] at 0.068 [s]

P1 Lower Rib Ry

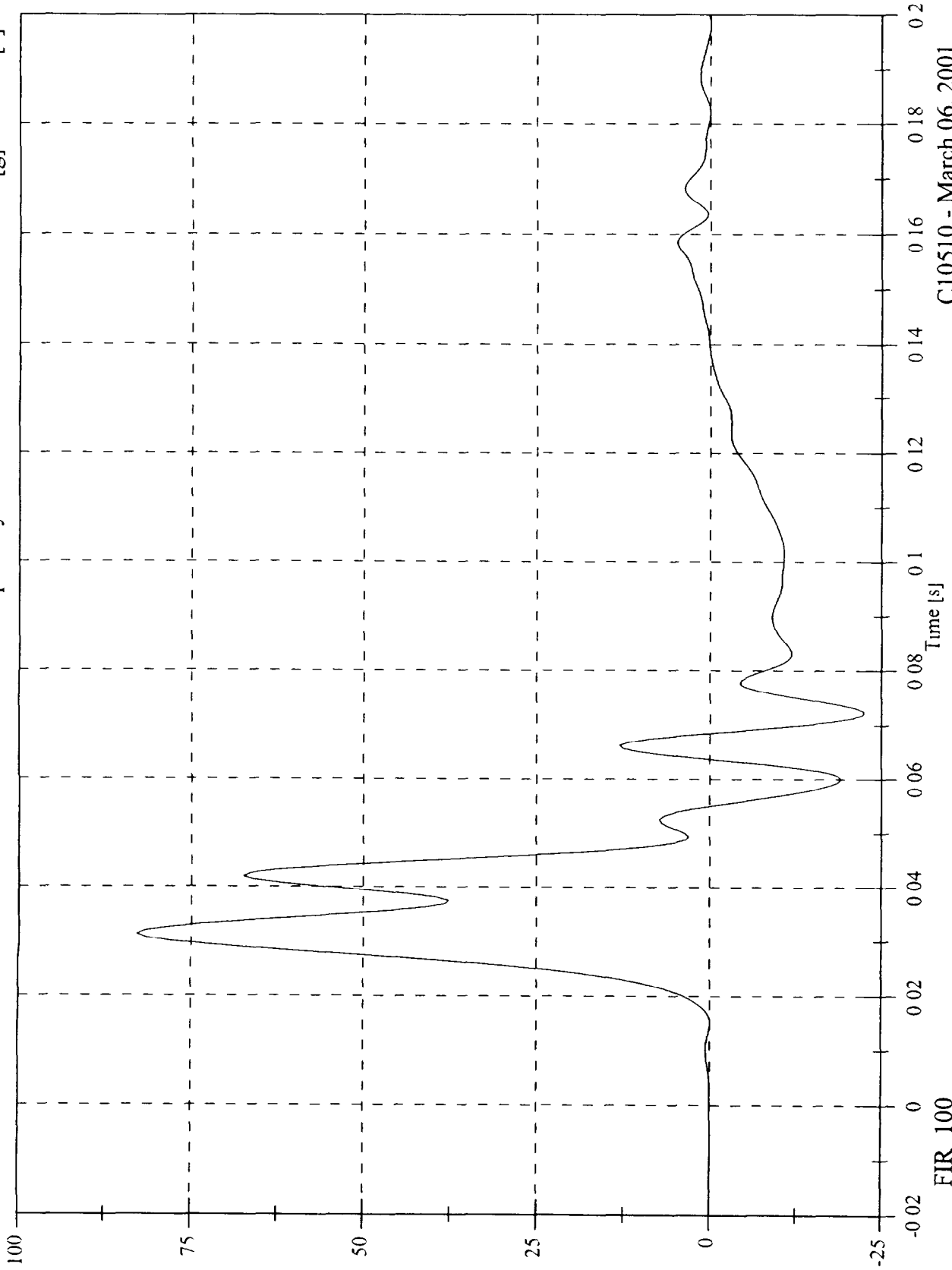


C10510 - March 06, 2001

FMVSS 214D Indicant Test 25 2001 K1a R10

Max 82.8 [g] at 0.031 [s]
Min -22.4 [g] at 0.073 [s]

P1 Lower Spine Ry

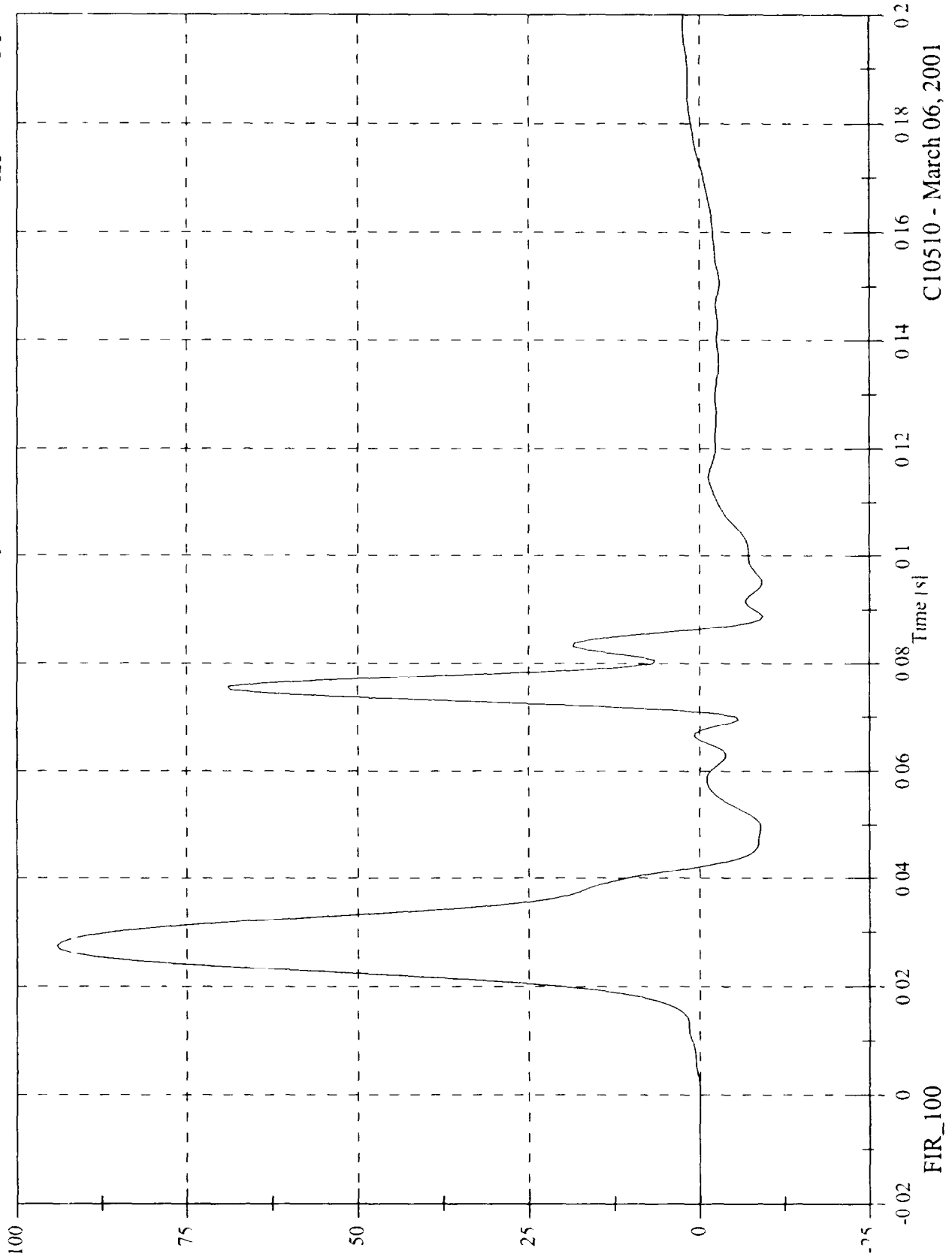


C10510 - March 06, 2001

FMVSS 214D Indicant Test 25 2001 Kia Rio

Max 94.2 [g] at 0.028 [s]
Min -9.3 [g] at 0.089 [s]

P1 Pelvic Ry

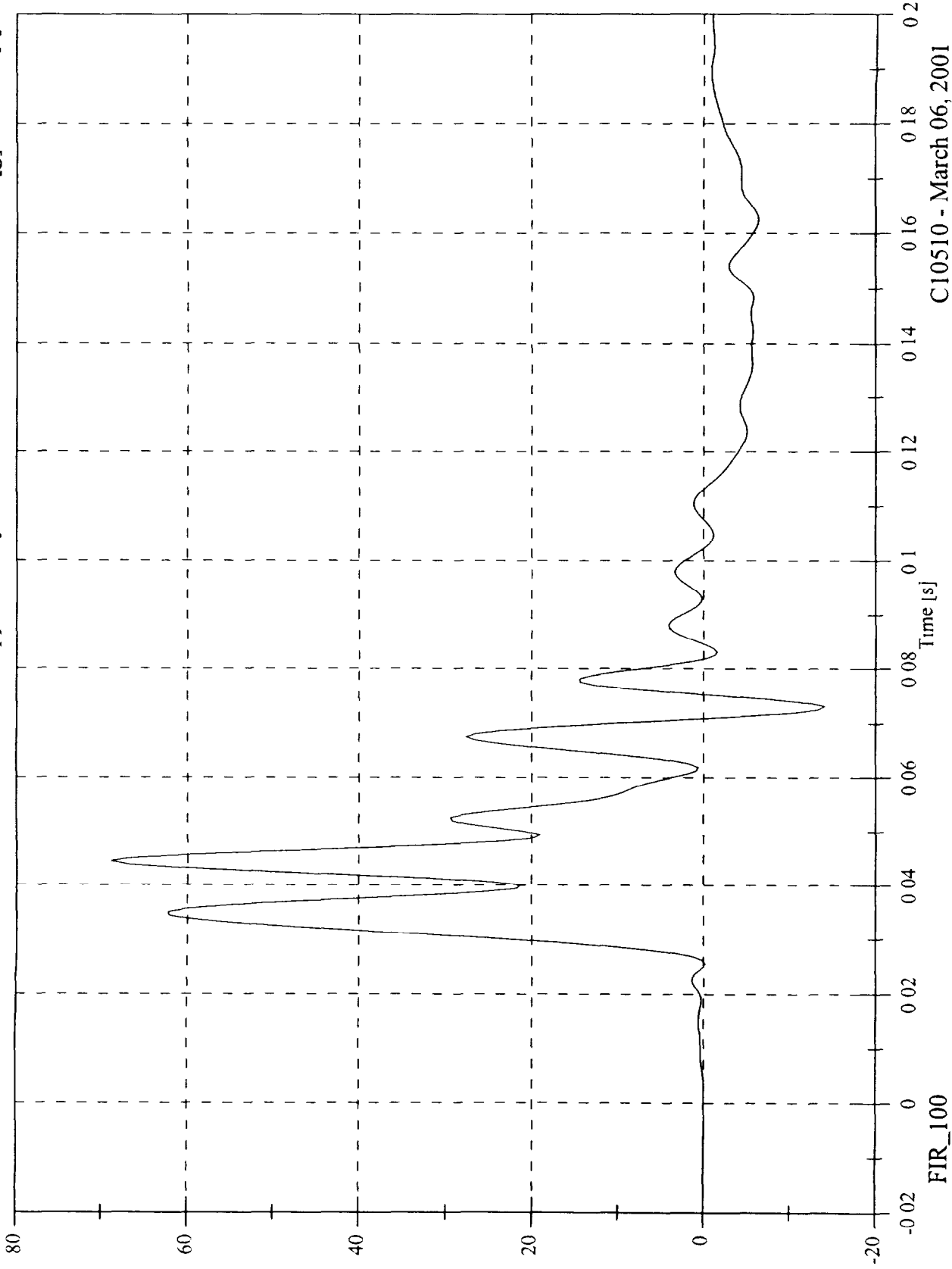


C10510 - March 06, 2001

FMVSS 214D Inducant Test 25 2001 Kia Rio

P4 Upper Rib Ry

Max 69.0 [g] at 0.044 [s]
Min -14.0 [g] at 0.073 [s]

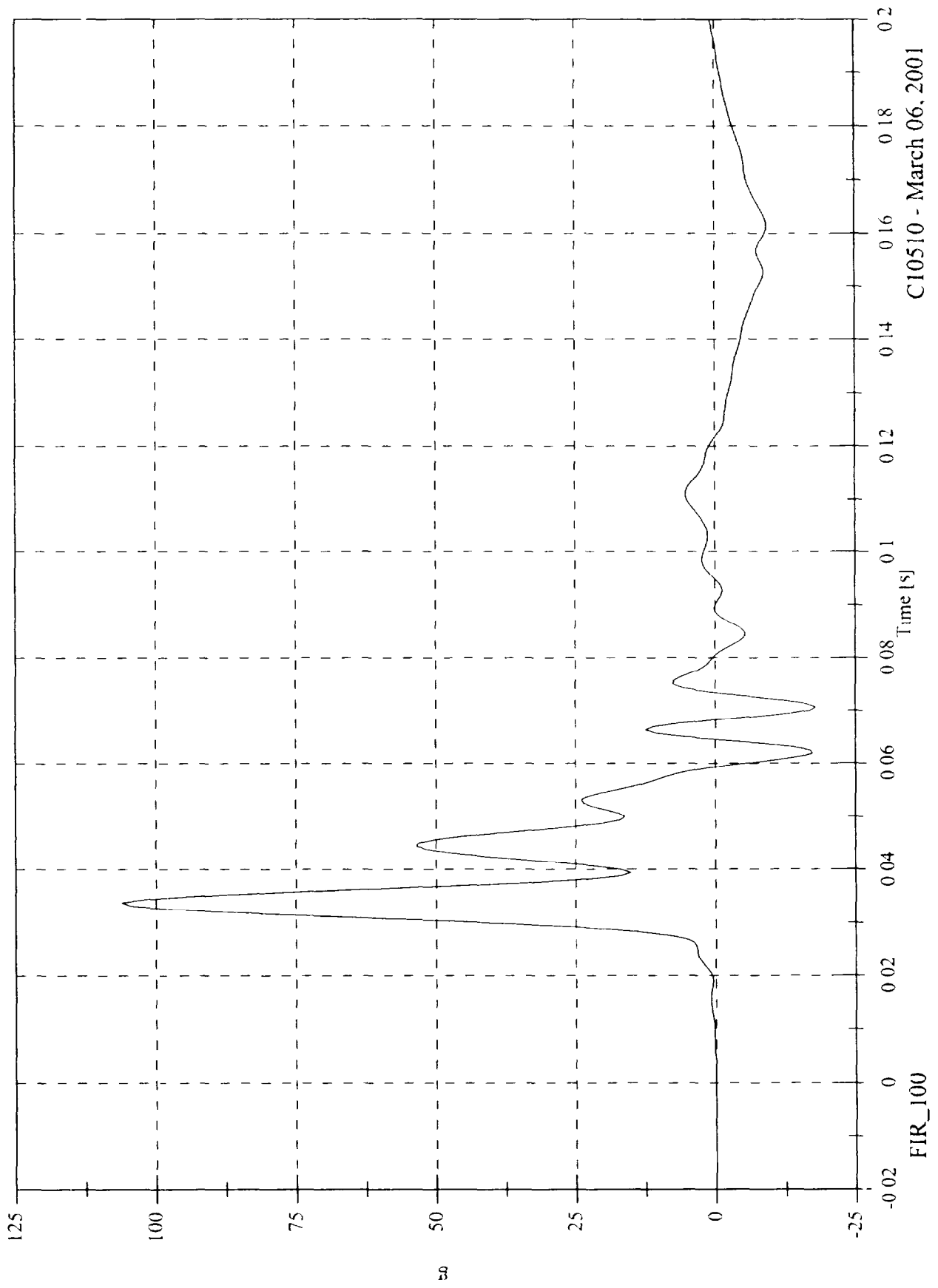


C10510 - March 06, 2001

FMVSS 214D Inducant Test 25 2001 Kia Rio

Max 106.1 [g] at 0.034 [s]
Min -17.9 [g] at 0.071 [s]

P4 Lower Rib Ry



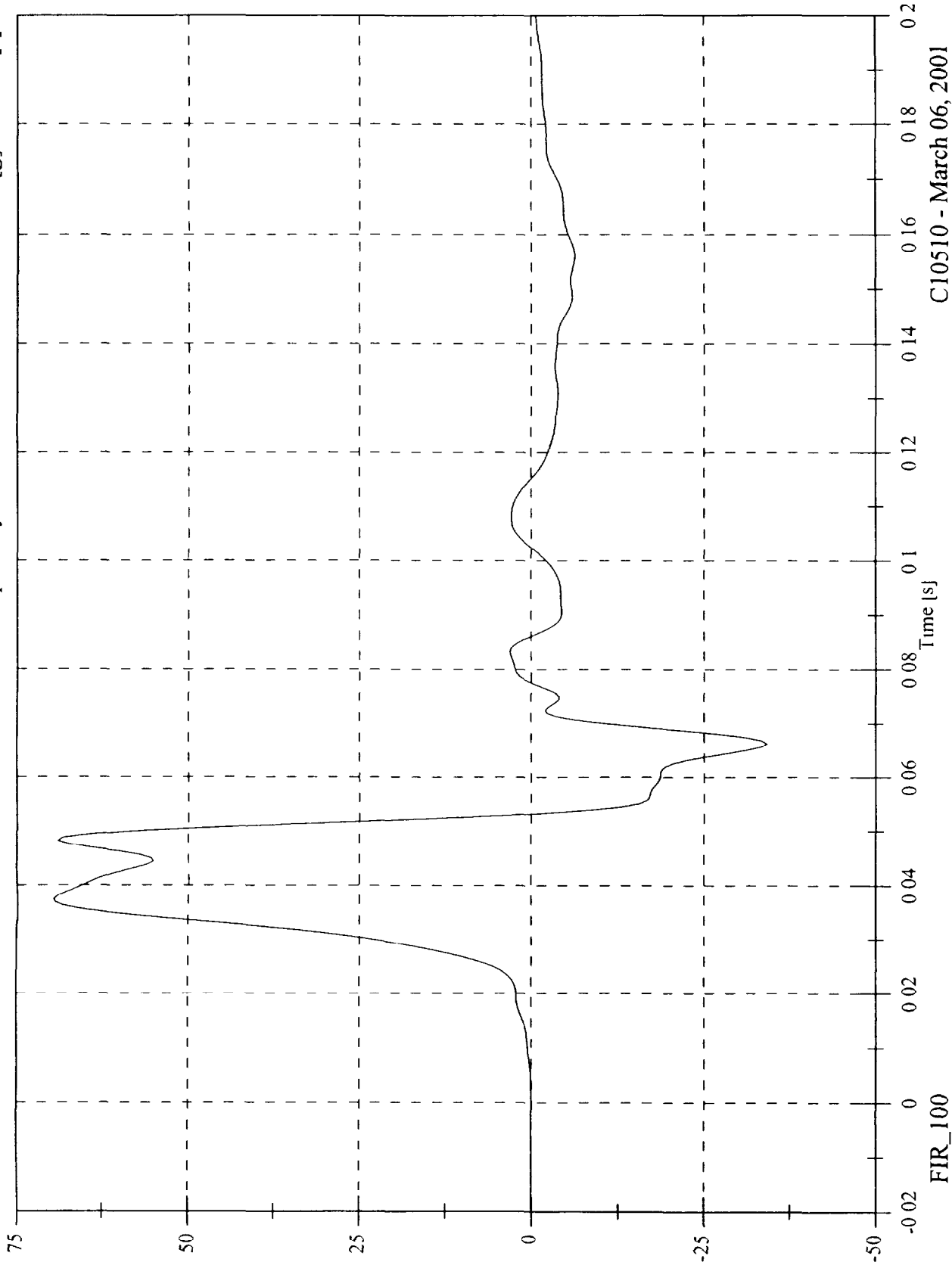
C10510 - March 06, 2001



FMVSS 214D Inducant Test 25 2001 Kia Rio

P4 Lower Spine Ry

Max 69.7 [g] at 0.038 [s]
Min -34.2 [g] at 0.066 [s]

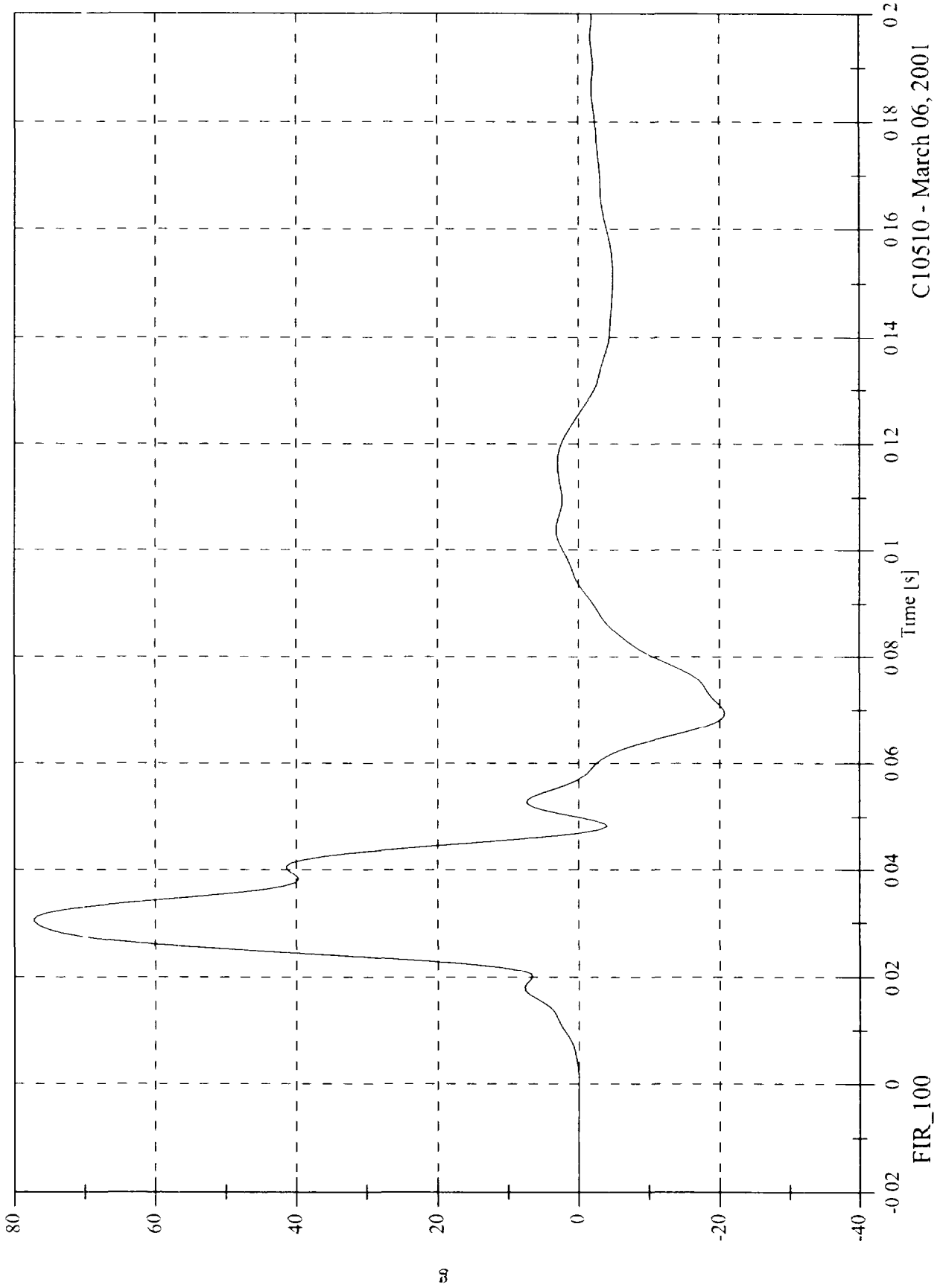


C10510 - March 06, 2001

FMVSS 214D Indicant Test 25 2001 Kia Rio

Max 77.3 [g] at 0.031 [s]
Min -20.7 [g] at 0.069 [s]

P4 Pelvic Ry



C10510 - March 06, 2001

APPENDIX C

SID CONFIGURATION AND PERFORMANCE VERIFICATION DATA

SUMMARY
SID PRE & POST TEST CALIBRATION

CONFIGURED FOR LEFT SIDE IMPACT

Date March 1, 2001, Sequential Test Number 2, 3, 4,5
Laboratory Technician B Swiecicki

TEST PARAMETER	SPECIFICATION	SID NO 013		SID NO 268	
		PRE TEST	POST TEST	PRE TEST	POST TEST
SH- Seated Height (mm)	889 - 909	899	902	899	899
RH- Rib Height (mm)	501 - 521	511	511	513	511
HP- Hip Pivot Height (mm)	99 ref	99	99	99	99
RD- Rib from Back Line (mm)	229 - 241	236	236	236	236
KV- Knee Pivot from Back Line (mm)	511 - 526	518	518	518	518
SW- Knee Pivot to Floor (mm)	490 - 505	493	493	495	495
HW- Hip Width (mm)	356 - 391	377	376	380	379
THORAX IMPACTS					
TEMPERATURE (°C)	18.9 - 25.5	21.7	21.7	21.7	21.7
RELATIVE HUMIDITY (%)	10 - 70	31	30	32	30
PROBE SPEED (m/s)	4.27 - 4.33	4.32	4.31	4.33	4.32
UPPER RIB (g's)	37 - 46	37.8	39.6	41.9	42.6
LOWER RIB (g's)	37 - 46	40.2	38.5	39.5	41.3
LOWER SPINE (g's)	15 - 22	21.0	21.7	20.8	20.7
PELVIS IMPACT					
TEMPERATURE (°C)	18.9 - 25.5	21.7	21.7	21.7	21.7
RELATIVE HUMIDITY (%)	10 - 70	32	30	32	30
PROBE SPEED (m/s)	4.27 - 4.33	4.27	4.27	4.32	4.27
PELVIS (g's)	40 - 60	44.3	41.5	45.5	49.2

REMARKS: None

**CALIBRATION TEST RESULTS
PRE-TEST**

SID NO.: 013

CONFIGURED FOR LEFT SIDE IMPACT

**CALIBRATION TEST RESULTS SUMMARY
PRE-TEST**

CONFIGURED FOR LEFT SIDE IMPACT

SID Serial No 013 Sequential Test Number 2
Date March 1, 2001 Laboratory Technician B Swiectcki

TEST	COMMENTS
EXTERNAL DIMENSIONS	Passed all requirements
THORACIC SHOCK ABSORBER TEST	Passed all requirements
LATERAL THORAX IMPACT TEST	Passed all requirements
LATERAL PELVIS IMPACT TEST	Passed all requirements
HEAD DROP TEST*	Passed all requirements
ABDOMINAL COMPRESSION TEST*	Passed all requirements
LUMBAR FLEXION TEST*	Passed all requirements

* Test not required for SID certification

REMARKS: None

**EXTERNAL DIMENSIONS
PRE-TEST**

CONFIGURED FOR LEFT SIDE IMPACT

SID Serial No 013 Sequential Test Number 2
Date March 1, 2001 Laboratory Technician B Swiecicki

TEST PARAMETER	SPECIFICATION	TEST RESULTS
SH- Seated Height (mm)	889 - 909	899
RH- Rib Height (mm)	502 - 520	511
HP- Hip Pivot Height (mm)	99 ref	99
RD- Rib from Back Line (mm)	229 - 241	236
KH- Knee Pivot from Back Line (mm)	511 - 526	518
KV- Knee Pivot to Floor (mm)	490 - 505	493
HW- Hip Width (mm)	356 - 391	377

REMARKS: None

**THORACIC SHOCK ABSORBER TESTS
PRE-TEST**

CONFIGURED FOR LEFT SIDE IMPACT

SID Serial No 013 Sequential Test Number 2
 Date February 14, 2001 Laboratory Technician B. Swiecicki

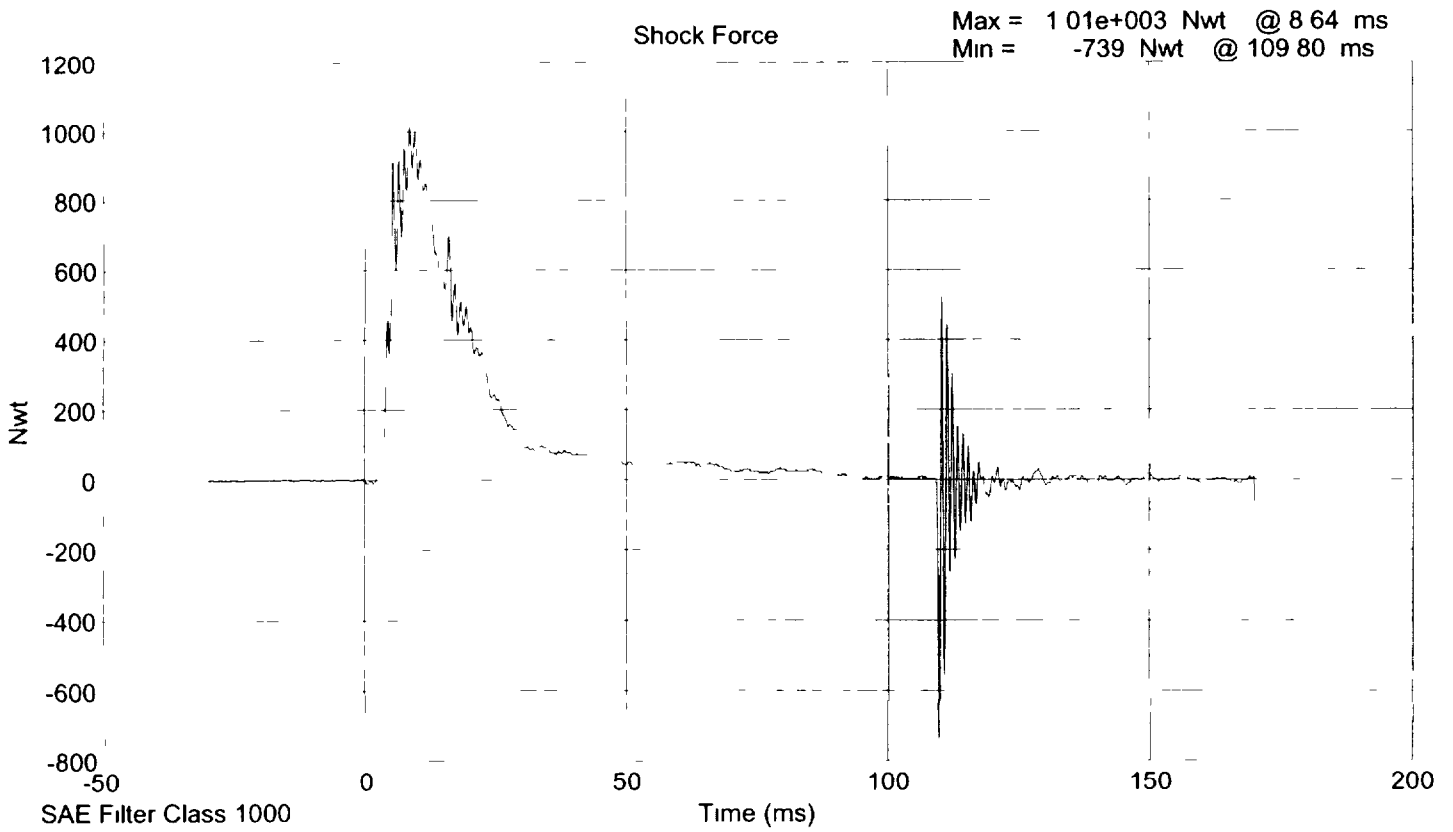
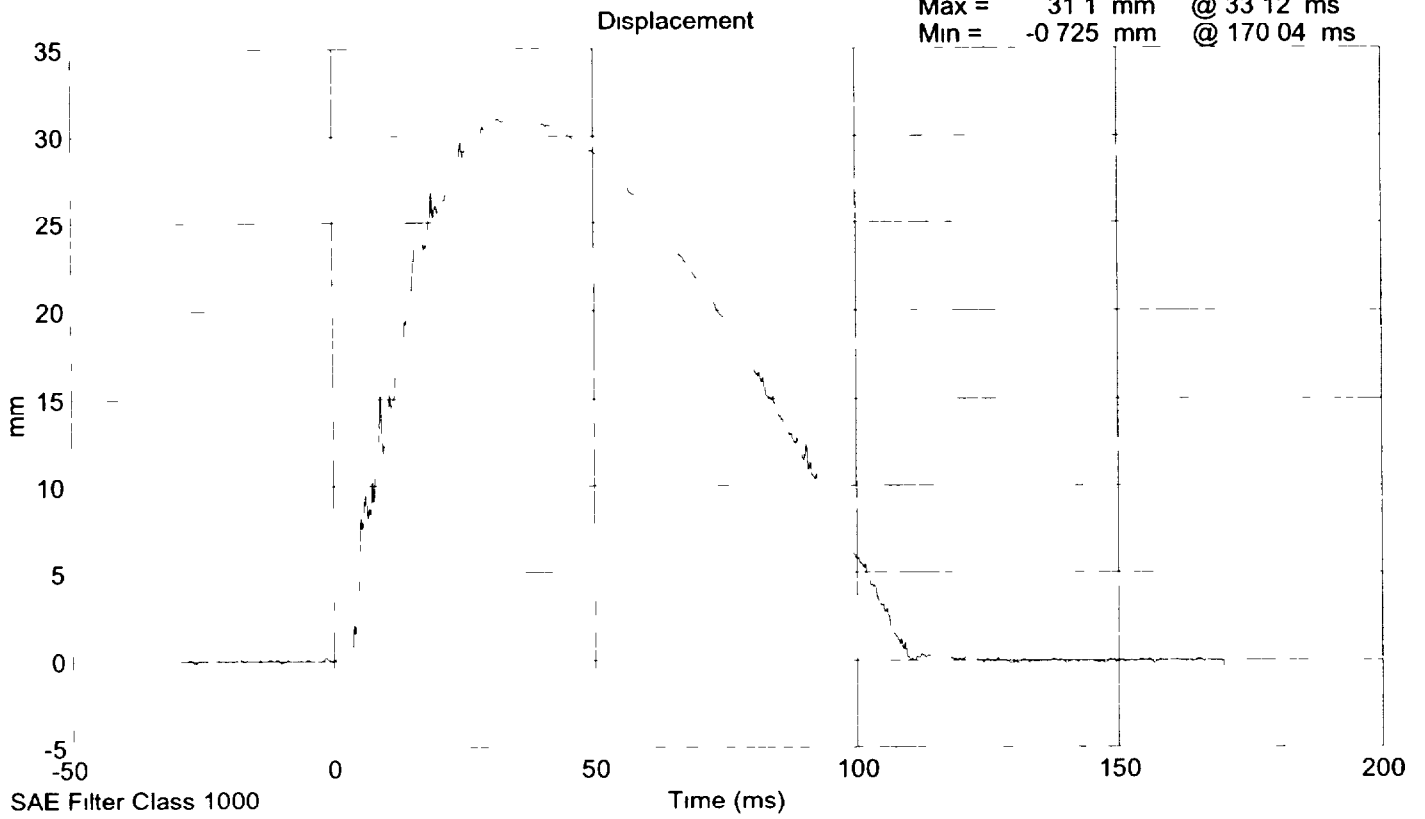
DAMPER IDENTIFICATION 013

TEST PARAMETER		SPECIFICATION	TEST RESULTS
TEMPERATURE (°C)		18.9 - 25.5	21.7
RELATIVE HUMIDITY (%)		10 - 70	31.0
VELOCITY 3.05 m/s	FORCE (N)	836 - 1125	1014.5
	DISPLACEMENT (mm)	30 - 35	31.1
VELOCITY 4.27 m/s	FORCE (N)	1730 - 2099	1932.2
	DISPLACEMENT (mm)	32 - 37	34.7
VELOCITY 6.10 m/s	FORCE (N)	3741 - 4448	3908.4
	DISPLACEMENT (mm)	33 - 40	38.2

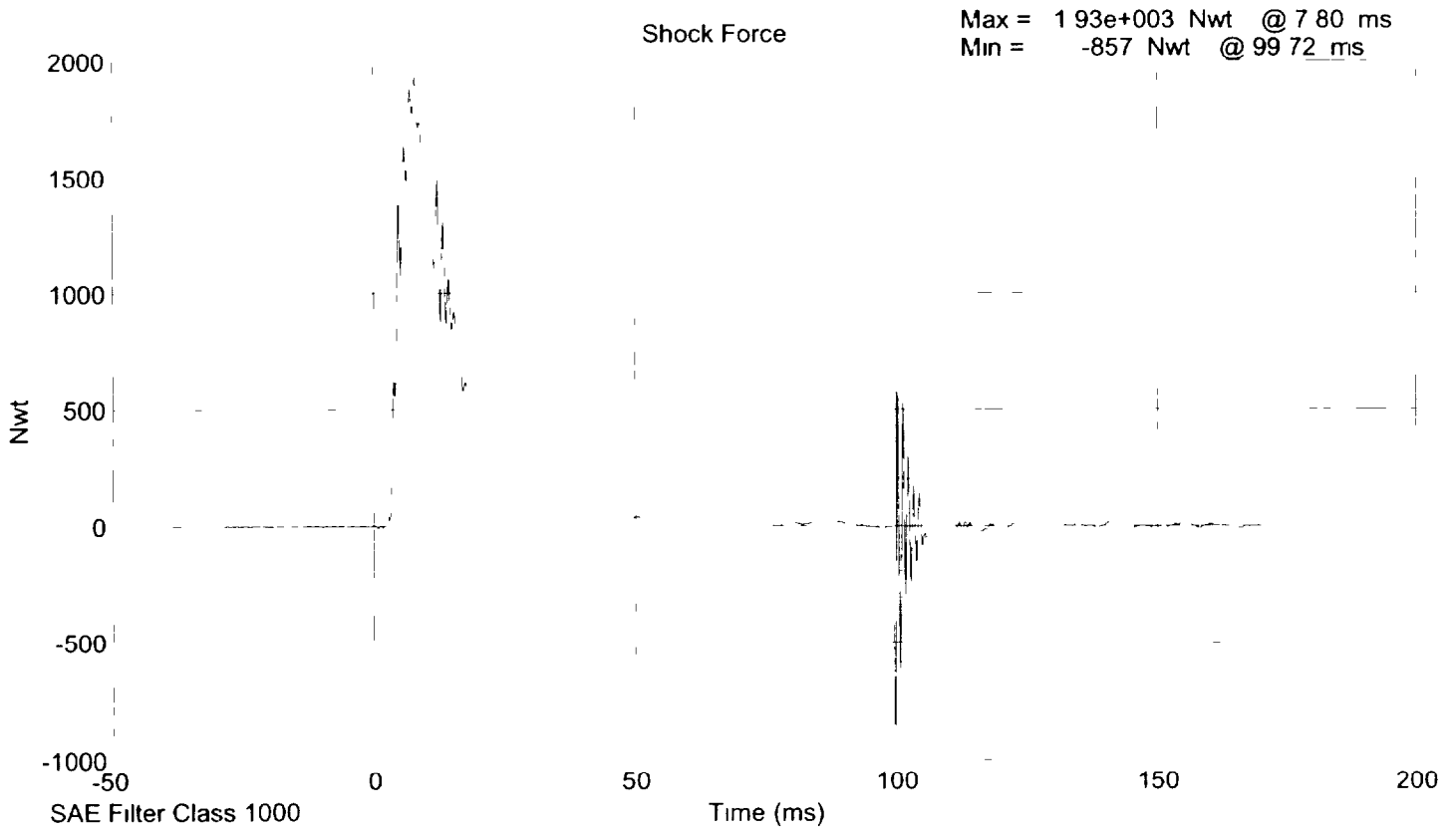
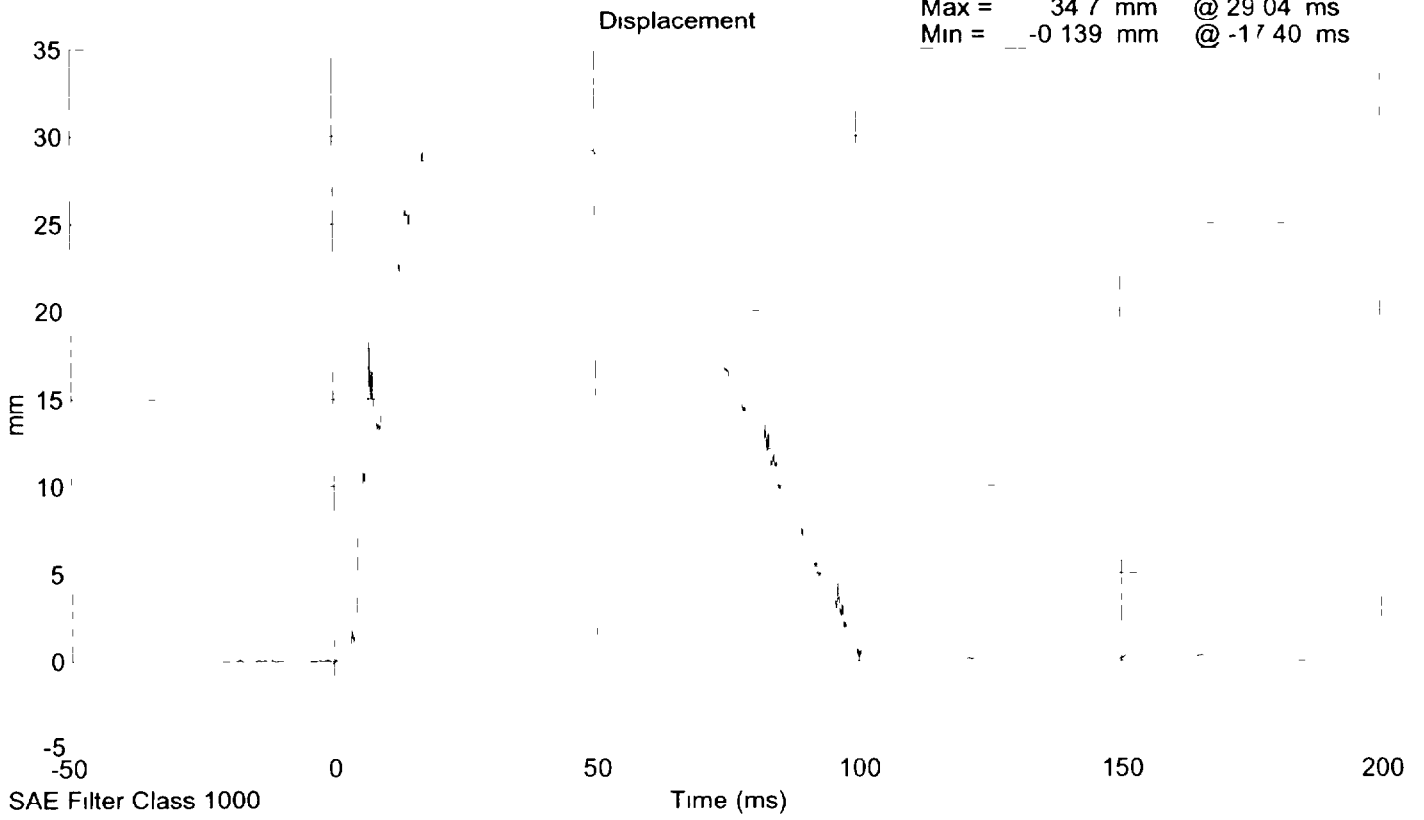
DAMPER SETTING 5

REMARKS: None

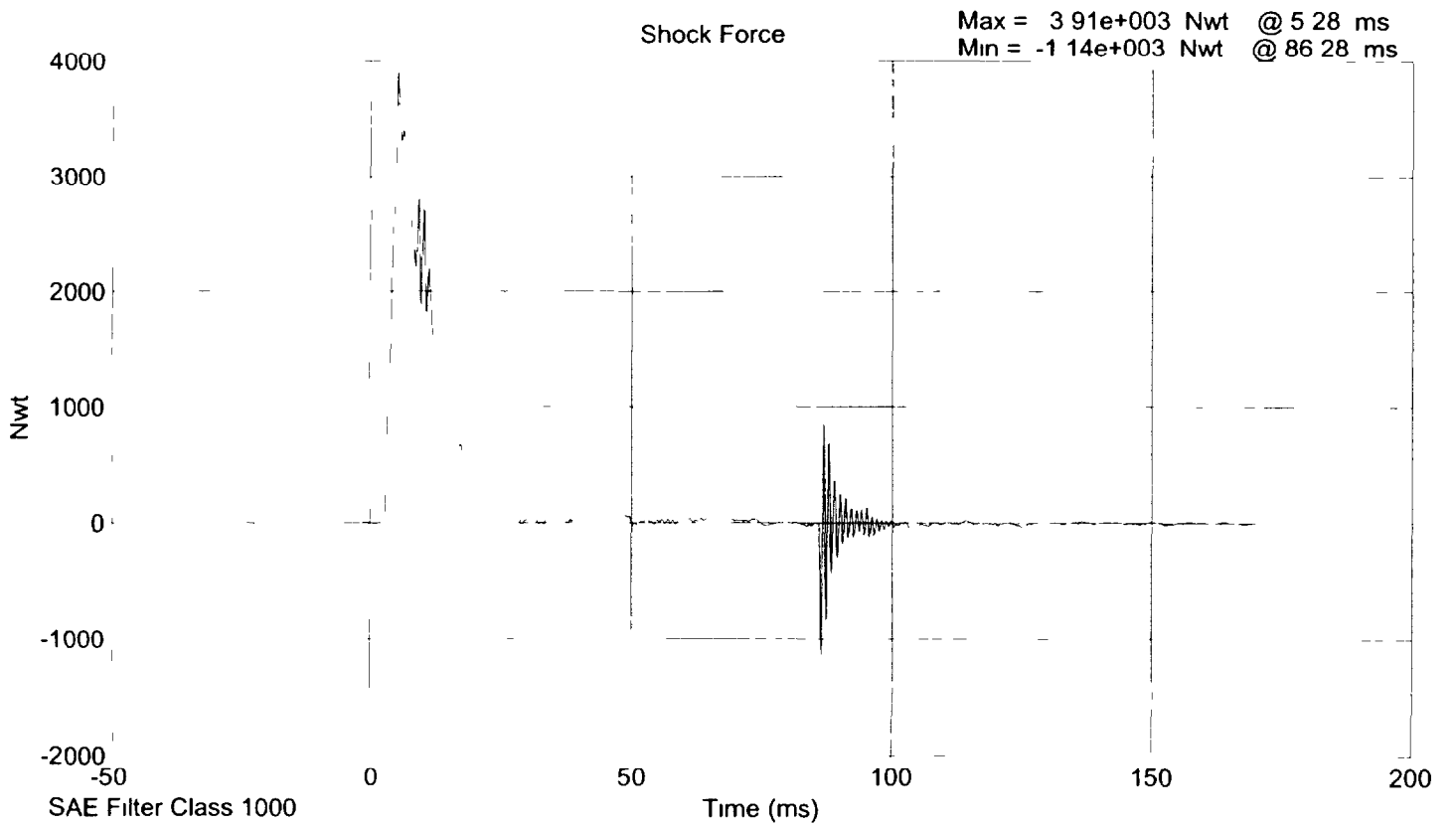
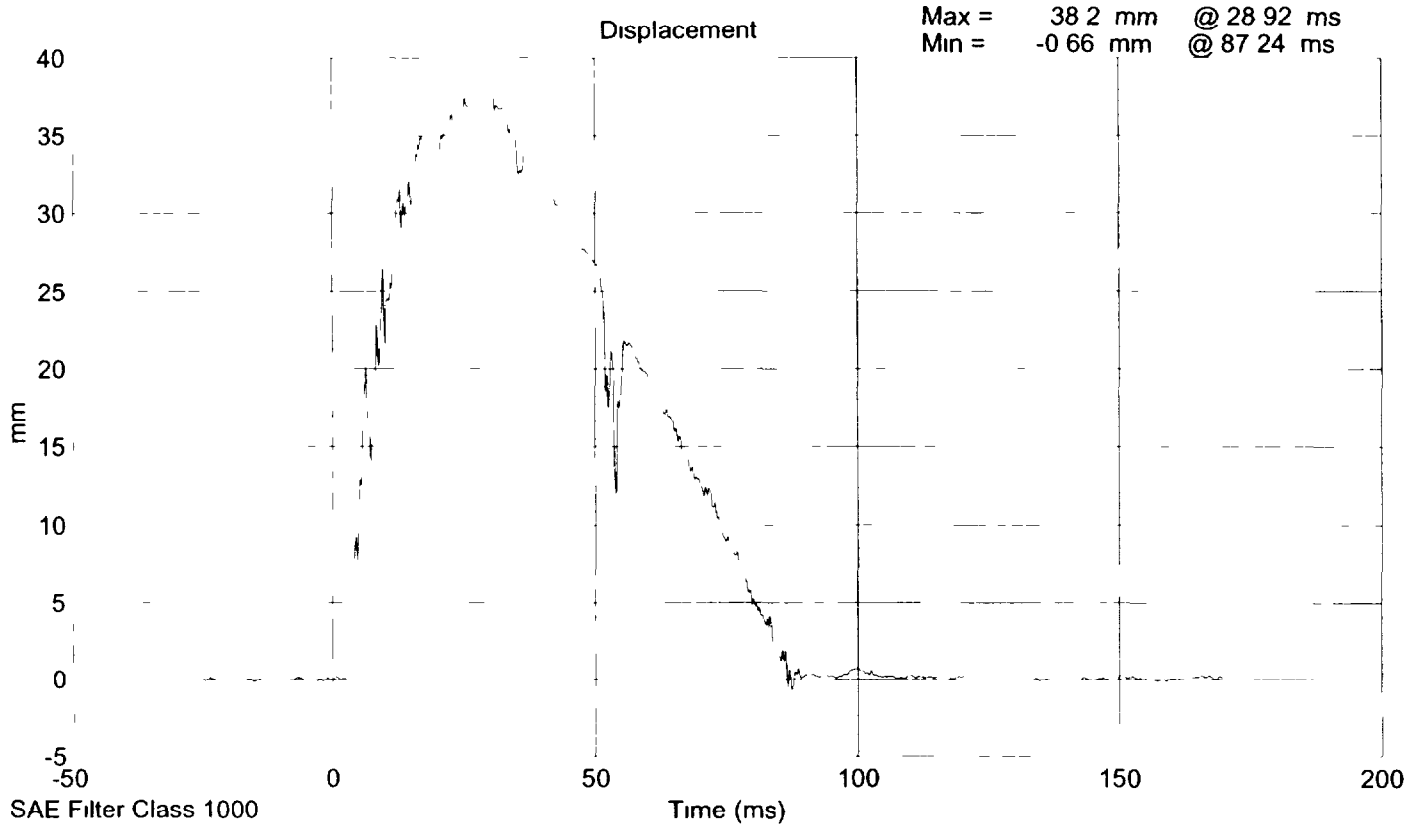
SID 013 Shock Absorber Impact Test @ 3 048 m/s



SID 013 Shock Absorber Impact Test @ 4 2672 m/s



SID 013 Shock Absorber Impact Test @ 6 096 m/s



**LATERAL THORAX IMPACT TEST
PRE-TEST**

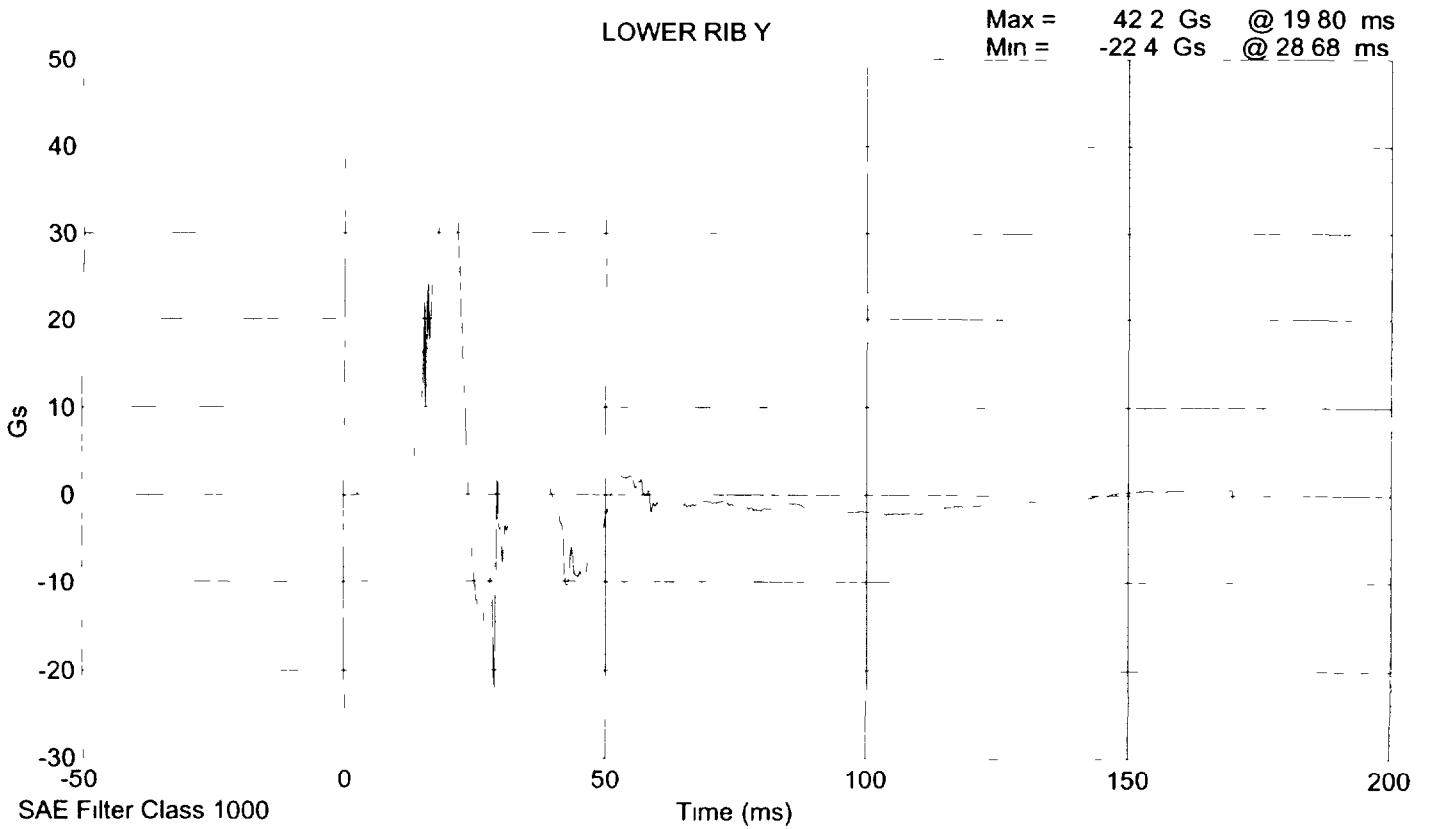
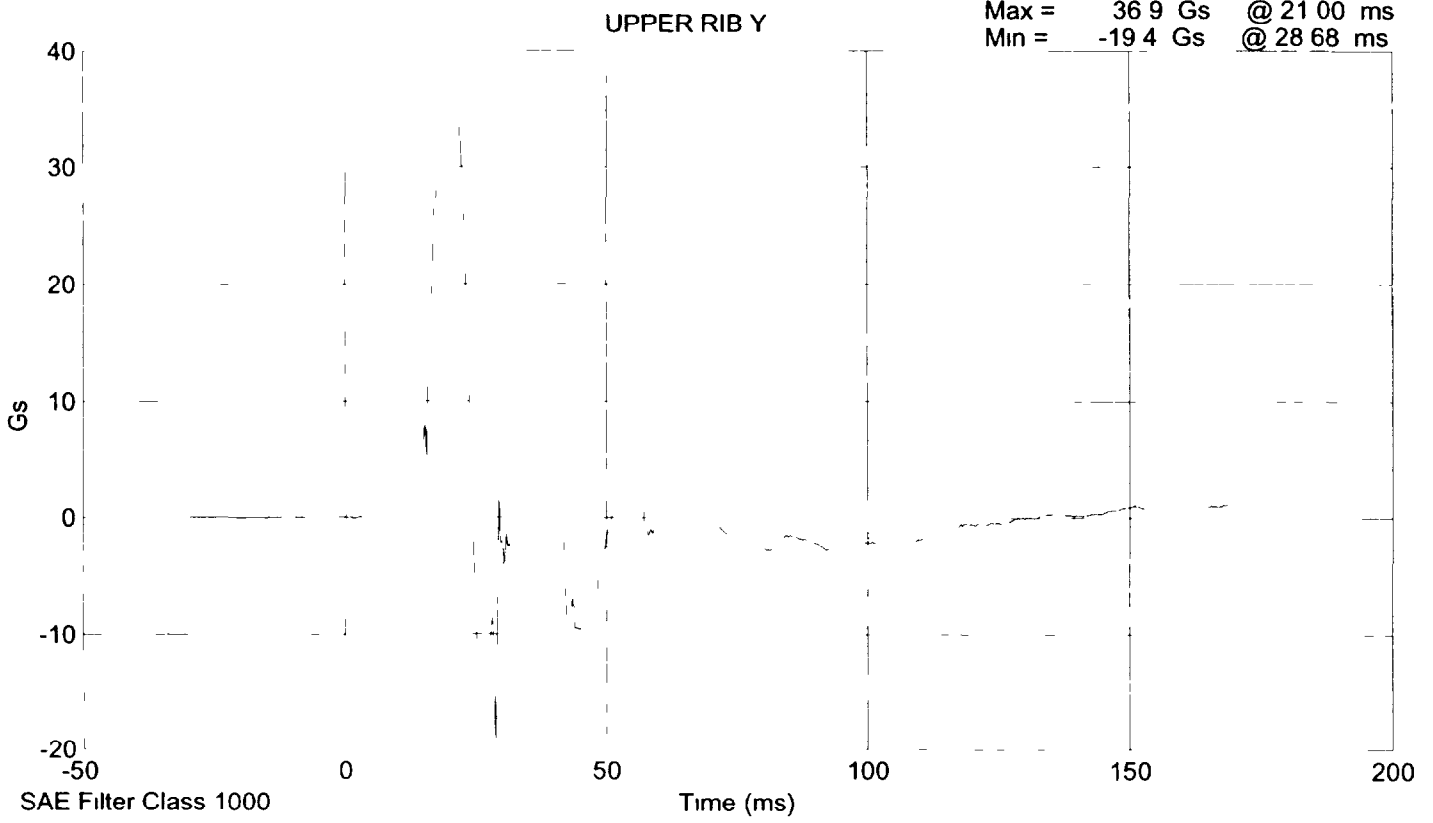
CONFIGURED FOR LEFT SIDE IMPACT

SID Serial No 013 Sequential Test Number 2
Date February 28, 2001 Laboratory Technician B. Swiecicki

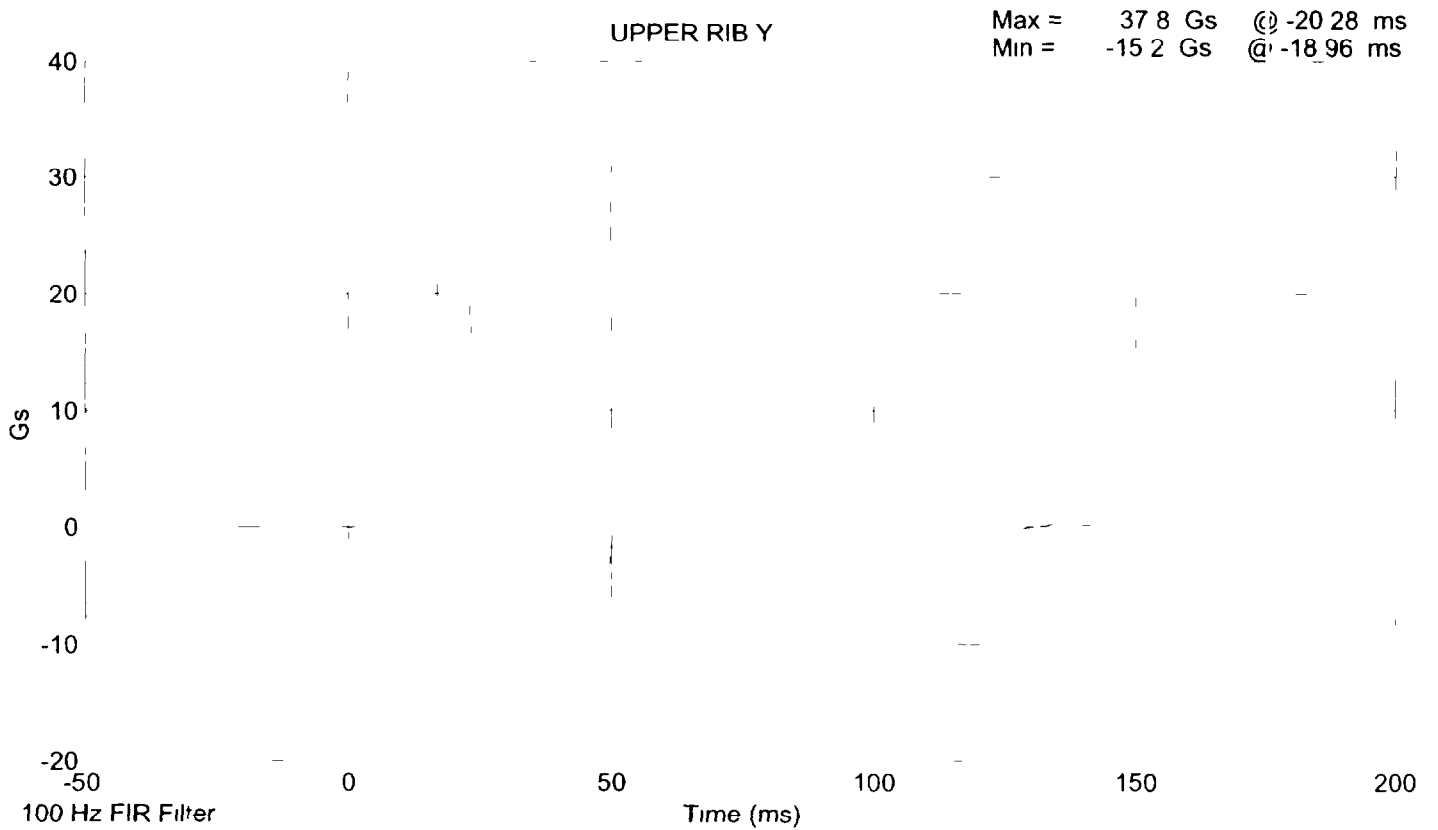
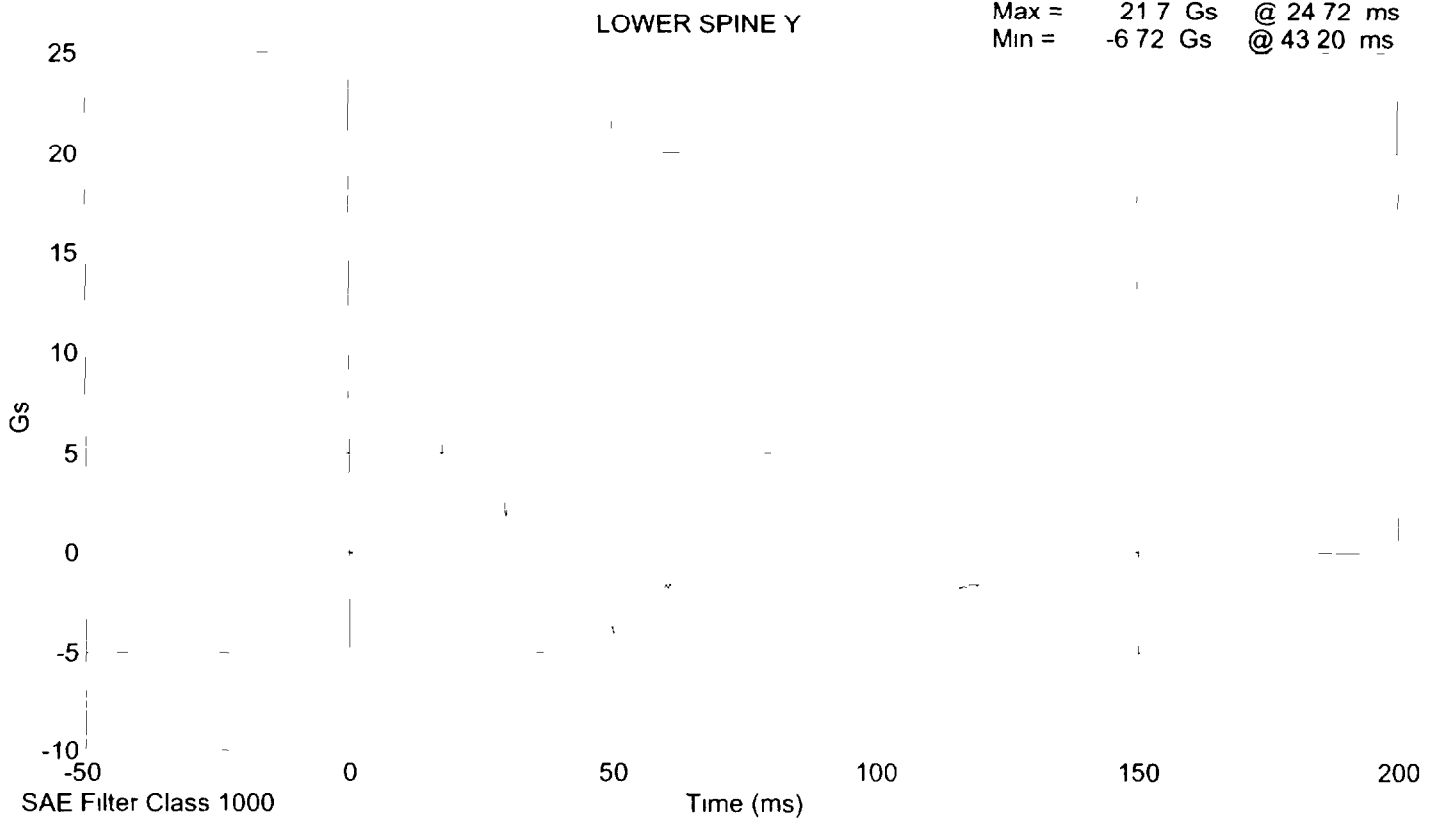
TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE (°C)	18.9 - 25.5	21.7
RELATIVE HUMIDITY (%)	10 - 70	31.0
PROBE SPEED (m/s)	4.27 - 4.33	4.32
UPPER RIB (g/s)	37 - 46	37.82
LOWER RIB (g/s)	37 - 46	40.21
LOWER SPINE (g/s)	15 - 22	21.03

REMARKS: None

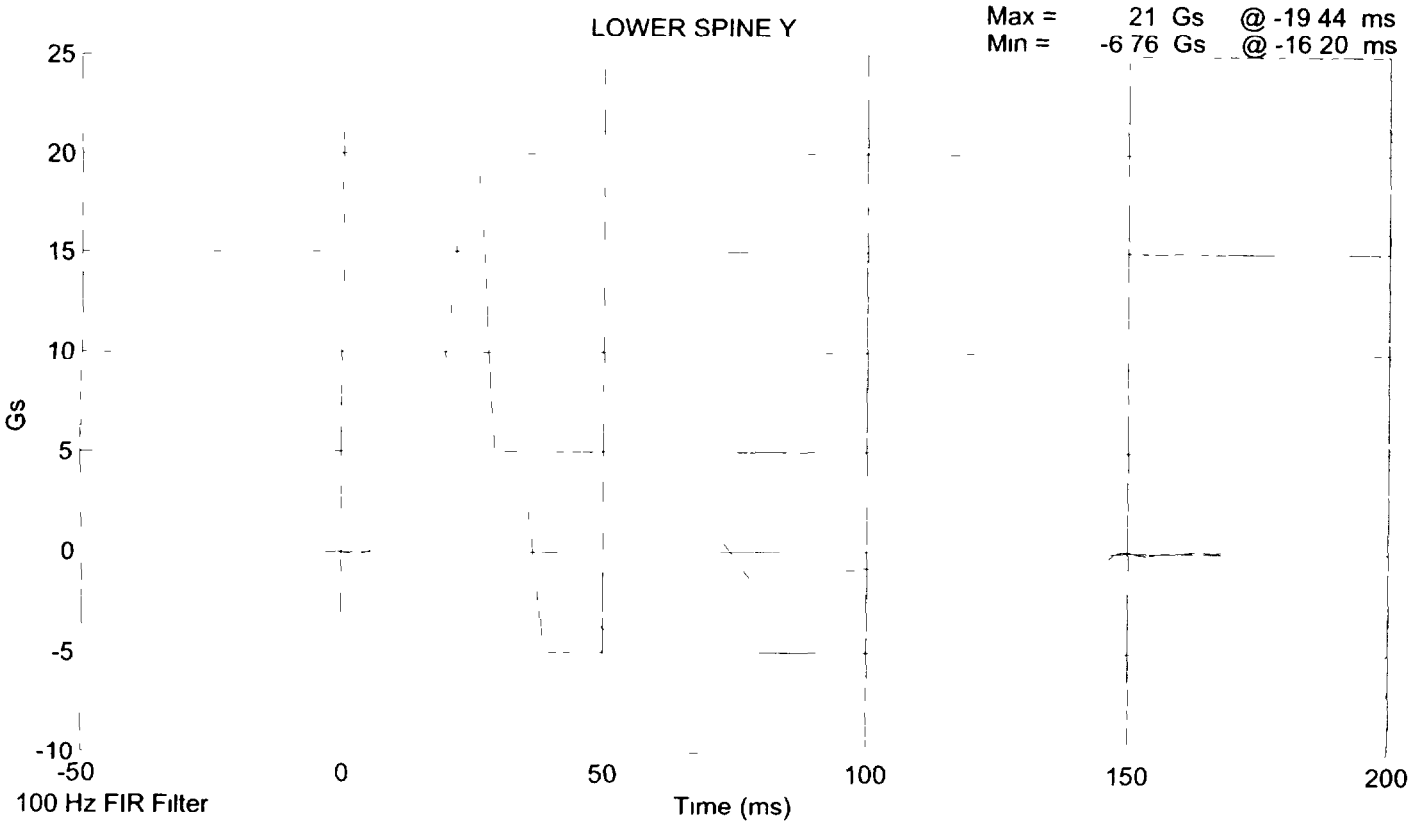
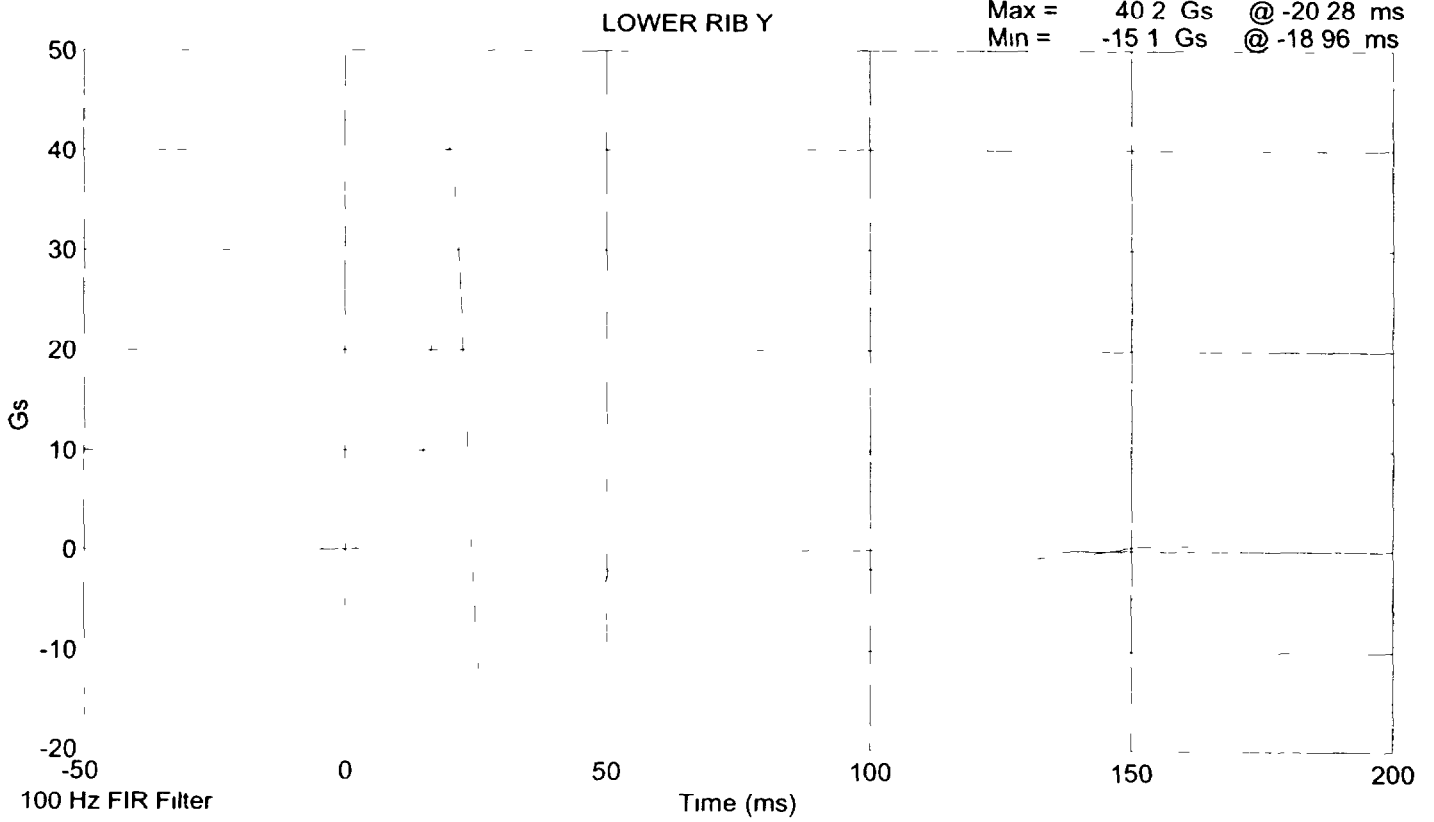
SID 013 Thorax Impact Test @ 4 319 m/s



SID 013 Thorax Impact Test @ 4 319 m/s



SID 013 Thorax Impact Test @ 4 319 m/s



**LATERAL PELVIS IMPACT TEST
PRE-TEST**

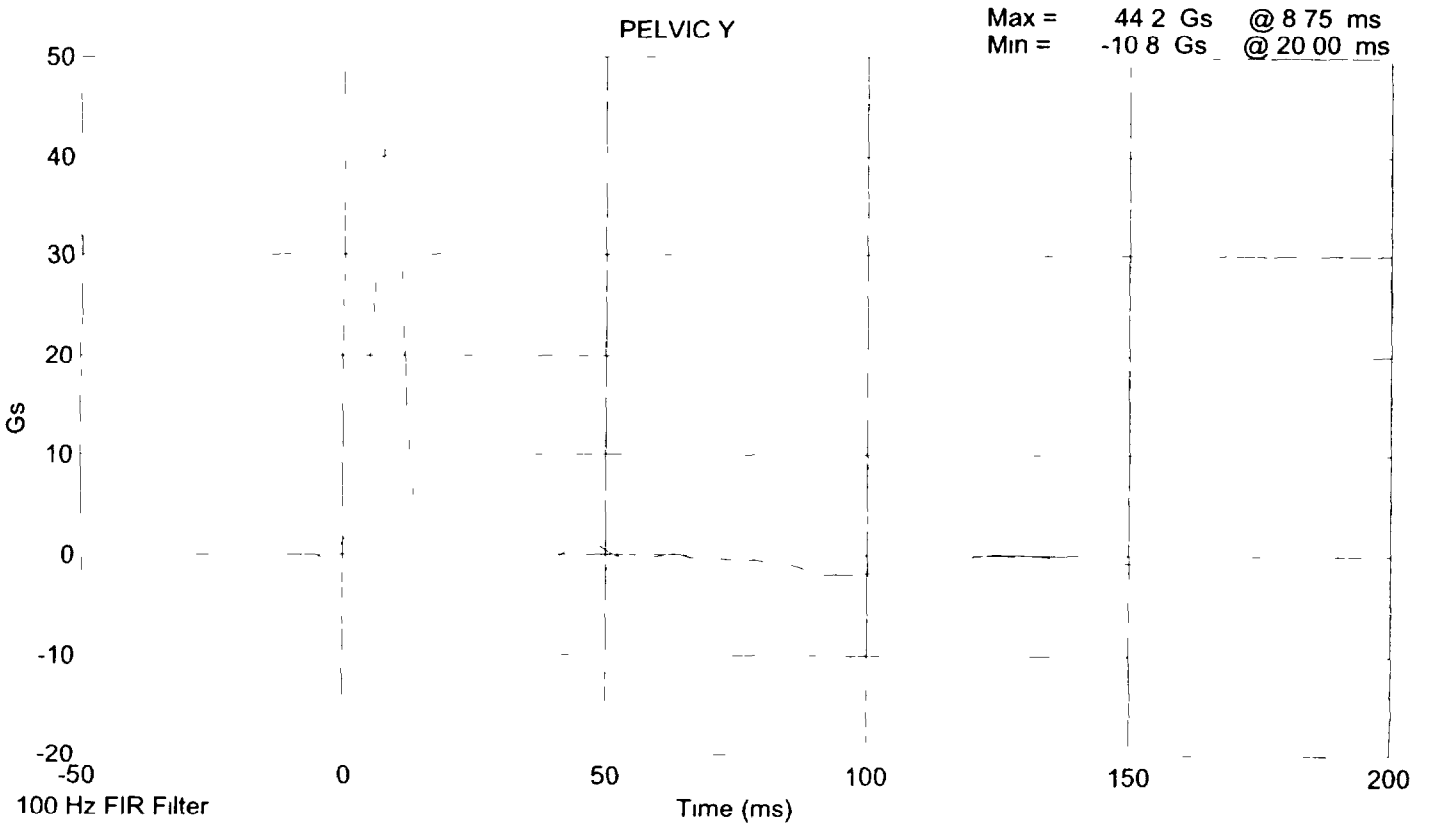
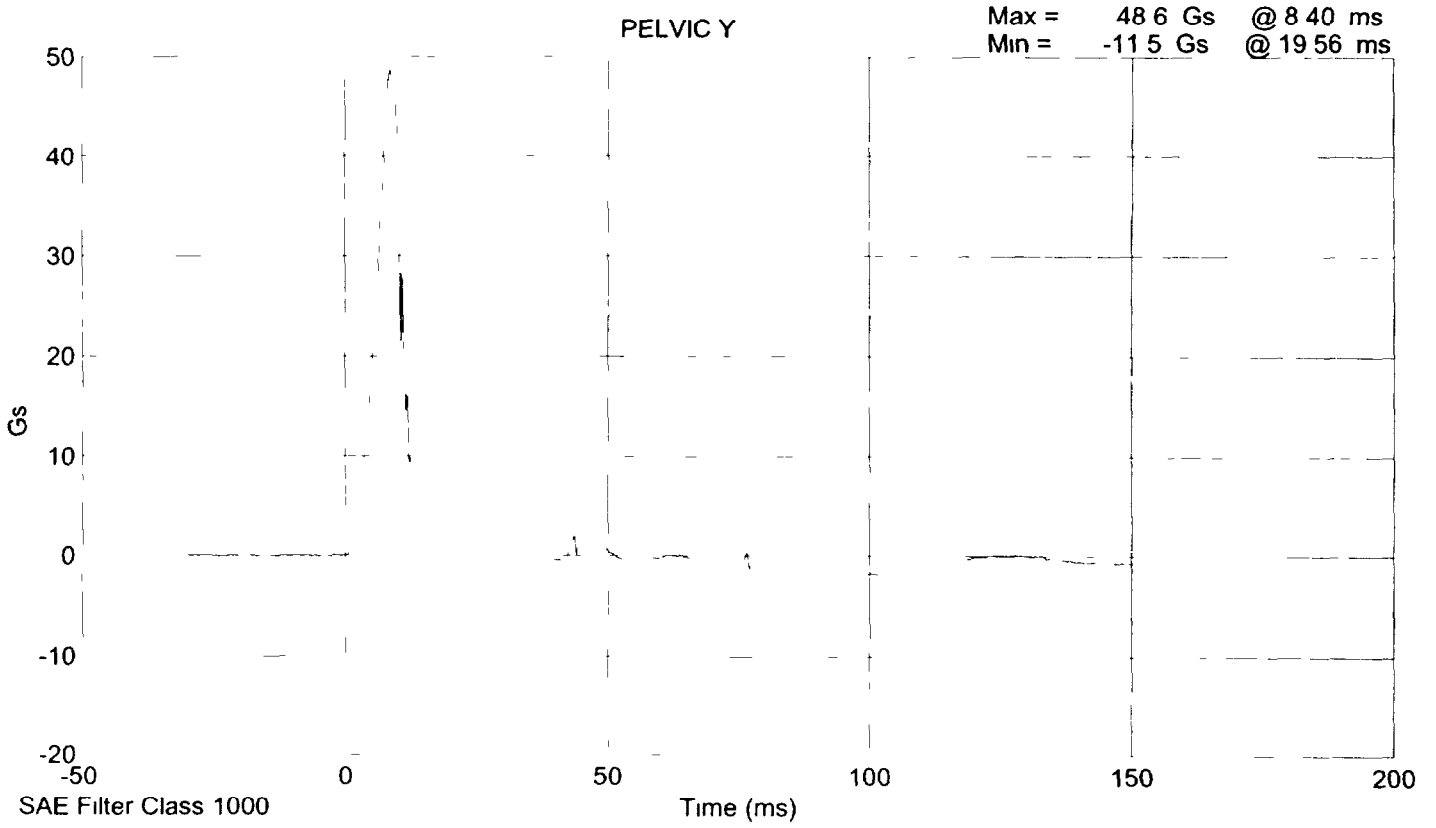
CONFIGURED FOR LEFT SIDE IMPACT

SID Serial No 013 Sequential Test Number 2
Date March 1, 2001 Laboratory Technician B Swiecicki

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE (°C)	18.9 - 25.5	21.7
RELATIVE HUMIDITY (%)	10 - 70	32.0
PROBE SPEED (m/s)	4.27 - 4.33	4.27
PELVIS ACCELERATION (g's)	40 - 60	44.25

REMARKS: None

SID 013 Pelvic Impact Test @ 4 2702 m/s



HEAD DROP TEST

PRE-TEST

(Test not required for SID certification)

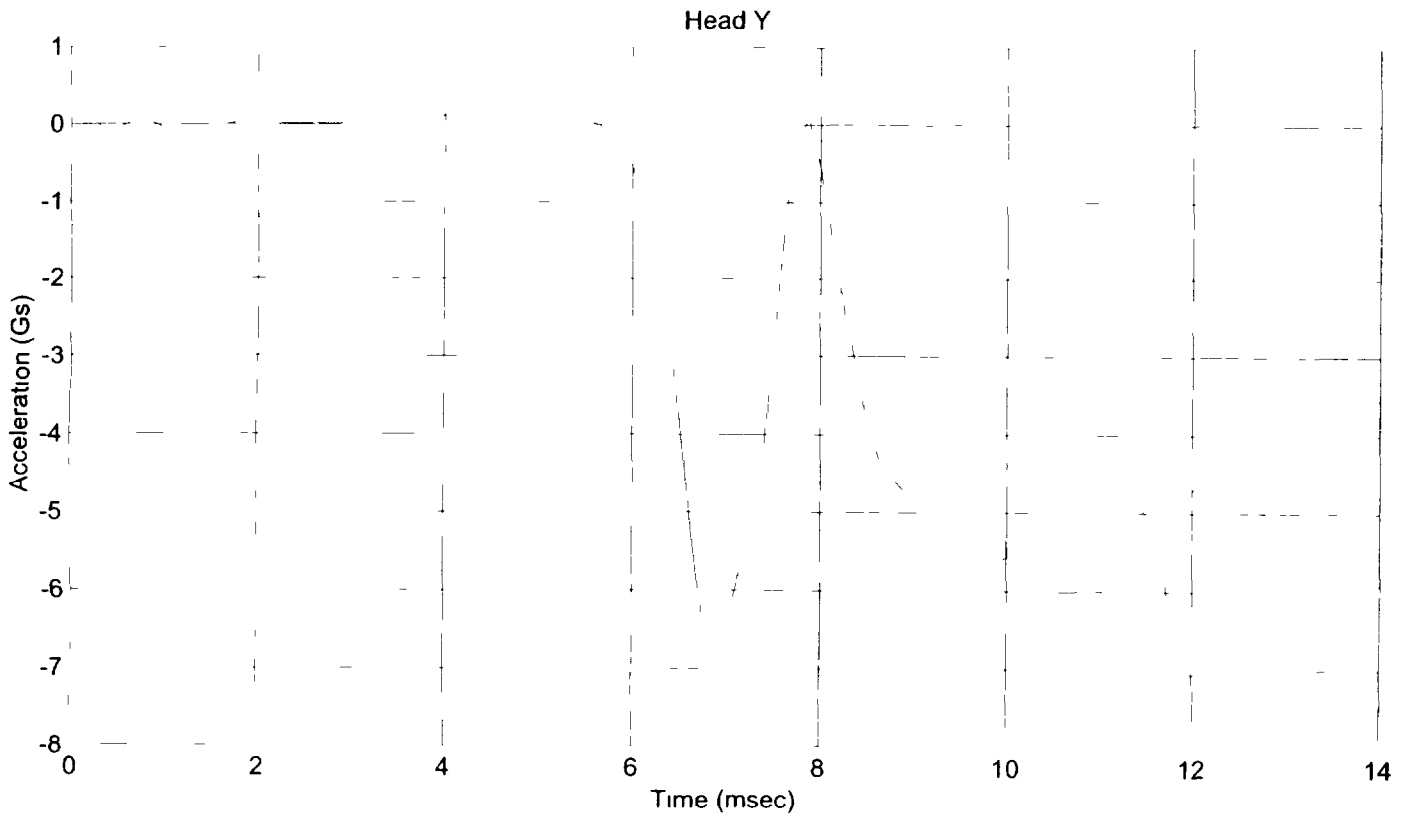
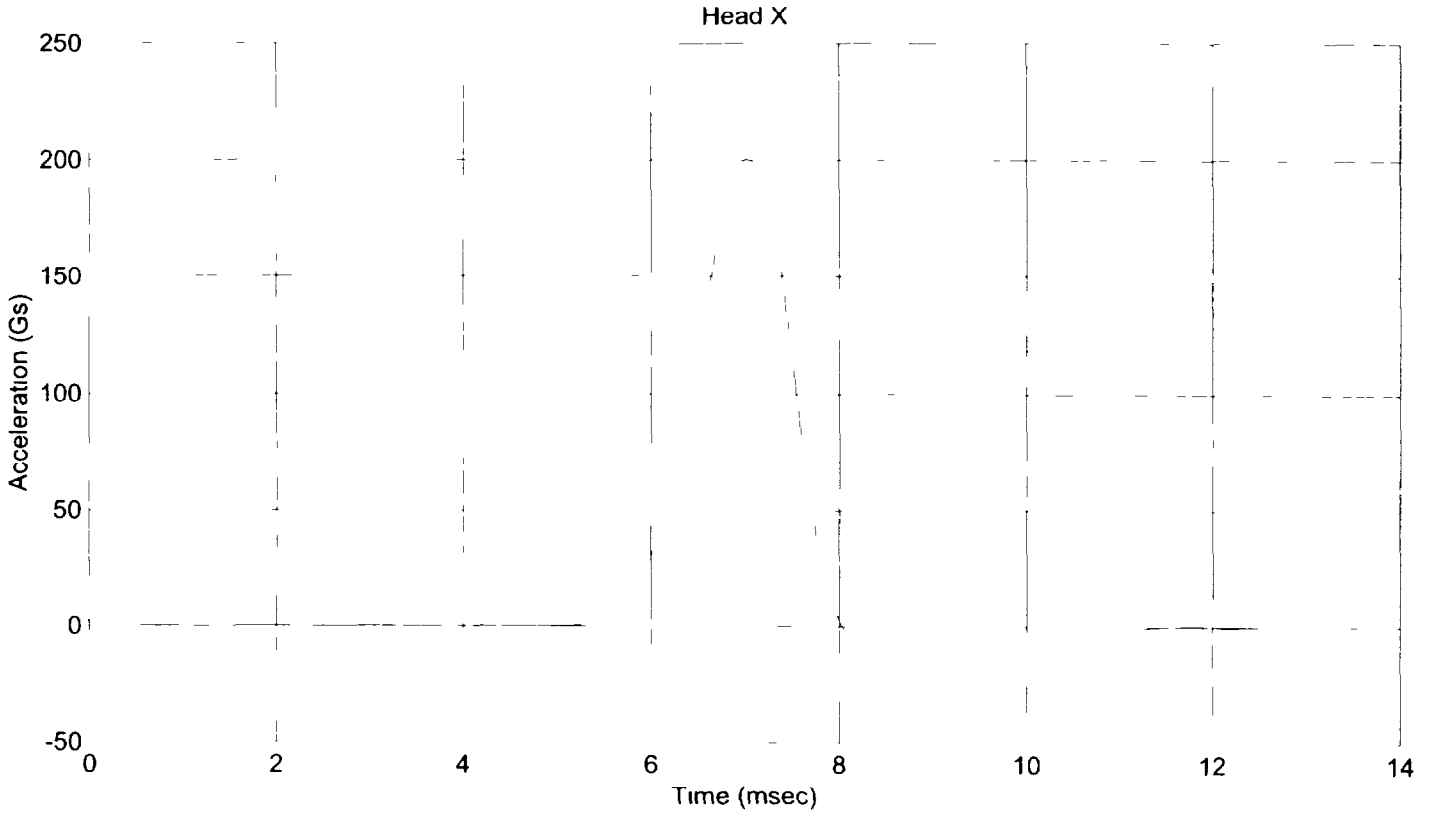
CONFIGURED FOR LEFT SIDE IMPACT

SID Serial No 013 Sequential Test Number 2
Date February 27, 2001 Laboratory Technician B Swiecicki

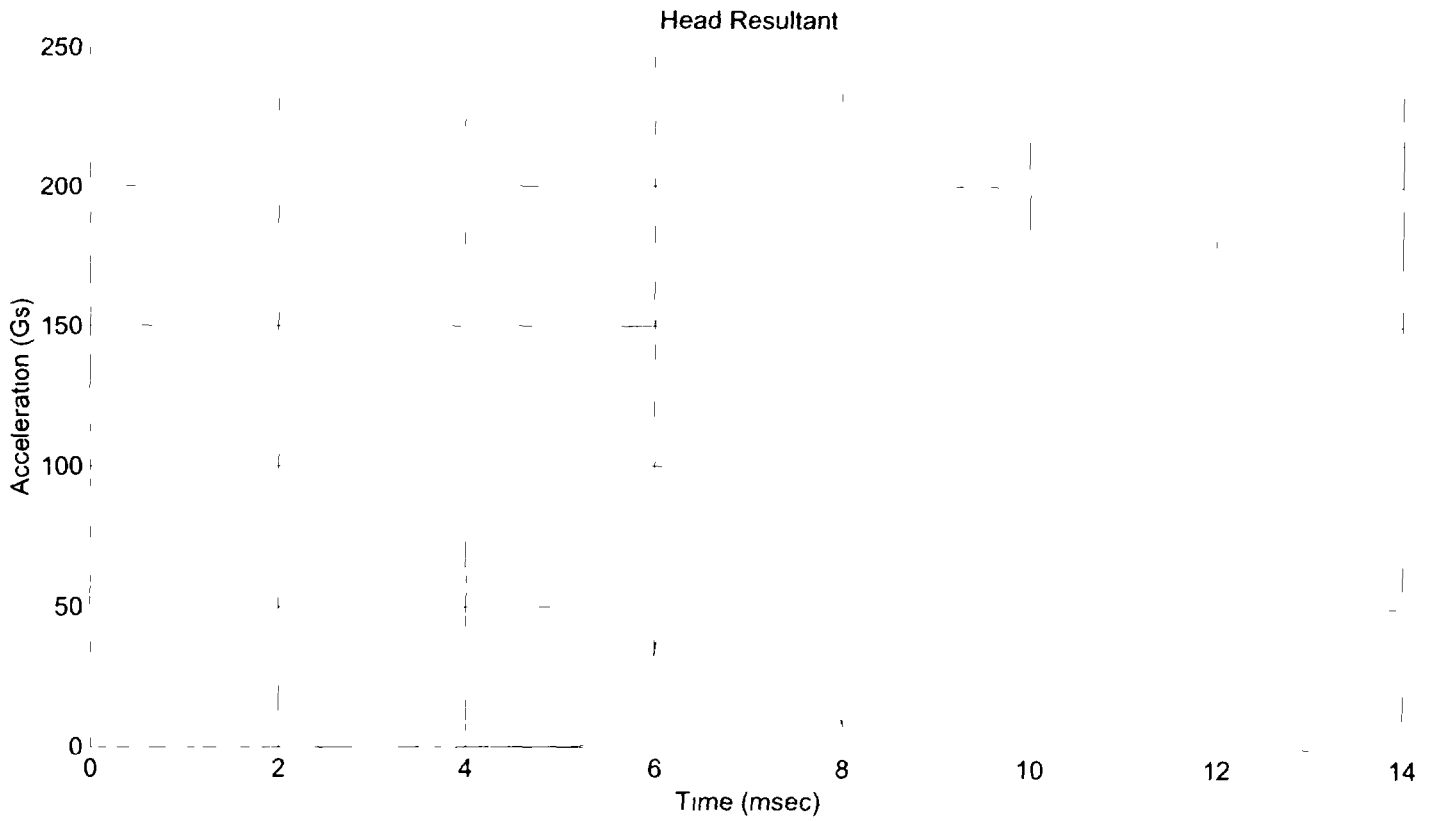
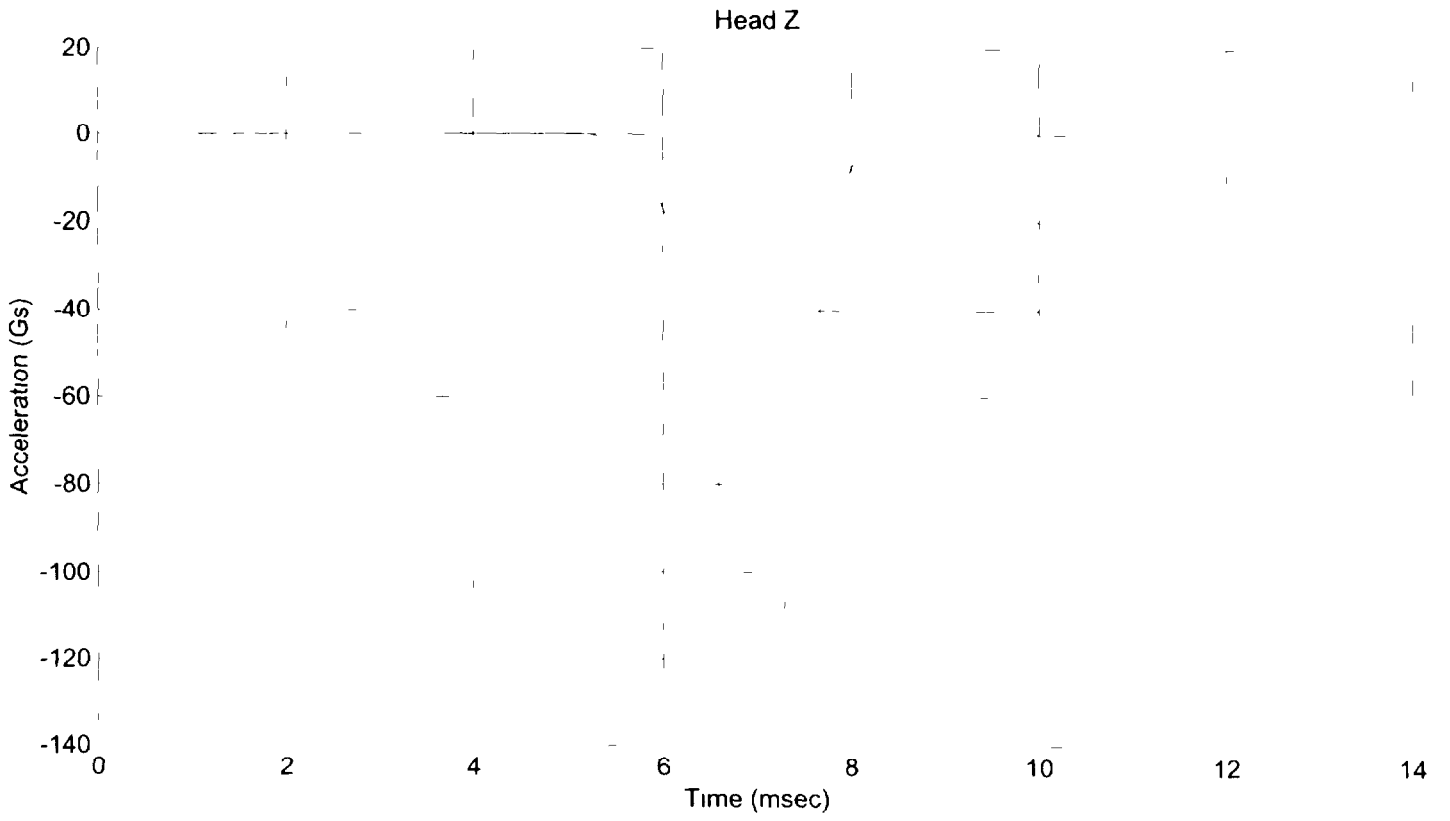
TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE (°C)	18.9 - 25.5	21.7
RELATIVE HUMIDITY (%)	10 - 70	31.0
PEAK RESULTANT ACCELERATION (Gs)	210 - 260	237.24
PEAK LATERAL ACCELERATION (Gs)	Not to Exceed 10	7.10
UNIMODAL CRITERIA ABOVE 100 Gs (ms)	0.9 - 1.5	1.25

REMARKS: None

Hybrid II Head Drop Calibration 013401 hdp



Hybrid II Head Drop Calibration 013401 hdp



ABDOMINAL COMPRESSION TEST

PRE-TEST

(Test not required for SID certification)

CONFIGURED FOR LEFT SIDE IMPACT

SID Serial No 013 Sequential Test Number 2
Date March 1, 2001 Laboratory Technician B Swiecicki

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE (°C)	18.9 - 25.5	21.1
RELATIVE HUMIDITY (%)	10 - 70	32.0
FORCE @ 13 mm (N)	104 - 162	111.2
FORCE @ 19 mm (N)	163 - 221	173.5
FORCE @ 25 mm (N)	222 - 280	245.5
FORCE @ 33 mm (N)	325 - 391	355.9

REMARKS: None

Dummy S/N 013

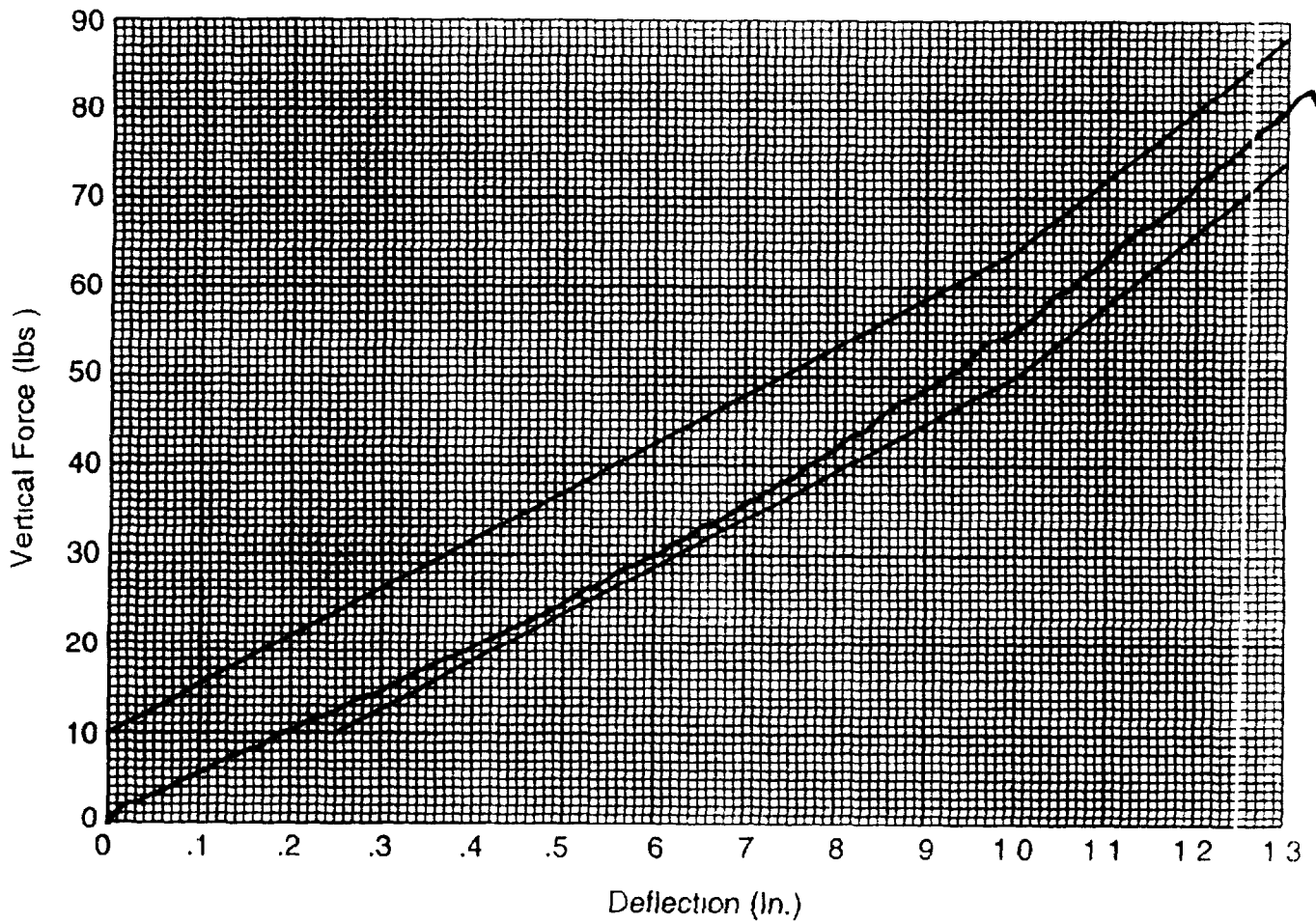
W/A _____

Date 3-1-2001

Performed By [Signature]

Temp 70°

Humidity 32%



Hybrid II
Abdomen Static Press

LUMBAR FLEXION TEST
PRE-TEST
(Test not required for SID certification)

CONFIGURED FOR LEFT SIDE IMPACT

SID Serial No 013 Sequential Test Number 2
Date March 1, 2001 Laboratory Technician B. Swiecicki


TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE (°C)	18.9 - 25.5	21.1
RELATIVE HUMIDITY (%)	10 - 70	32.0
FORCE @ 0° (N)	0 - 26.7	0
FORCE @ 20° (N)	97.8 - 151.2	109.0
FORCE @ 30° (N)	151.2 - 204.6	162.4
FORCE @ 40° (N)	204.6 - 258	228.0
RETURN ANGLE	12° max	4.3°

REMARKS: None

Dummy S/N --- 013

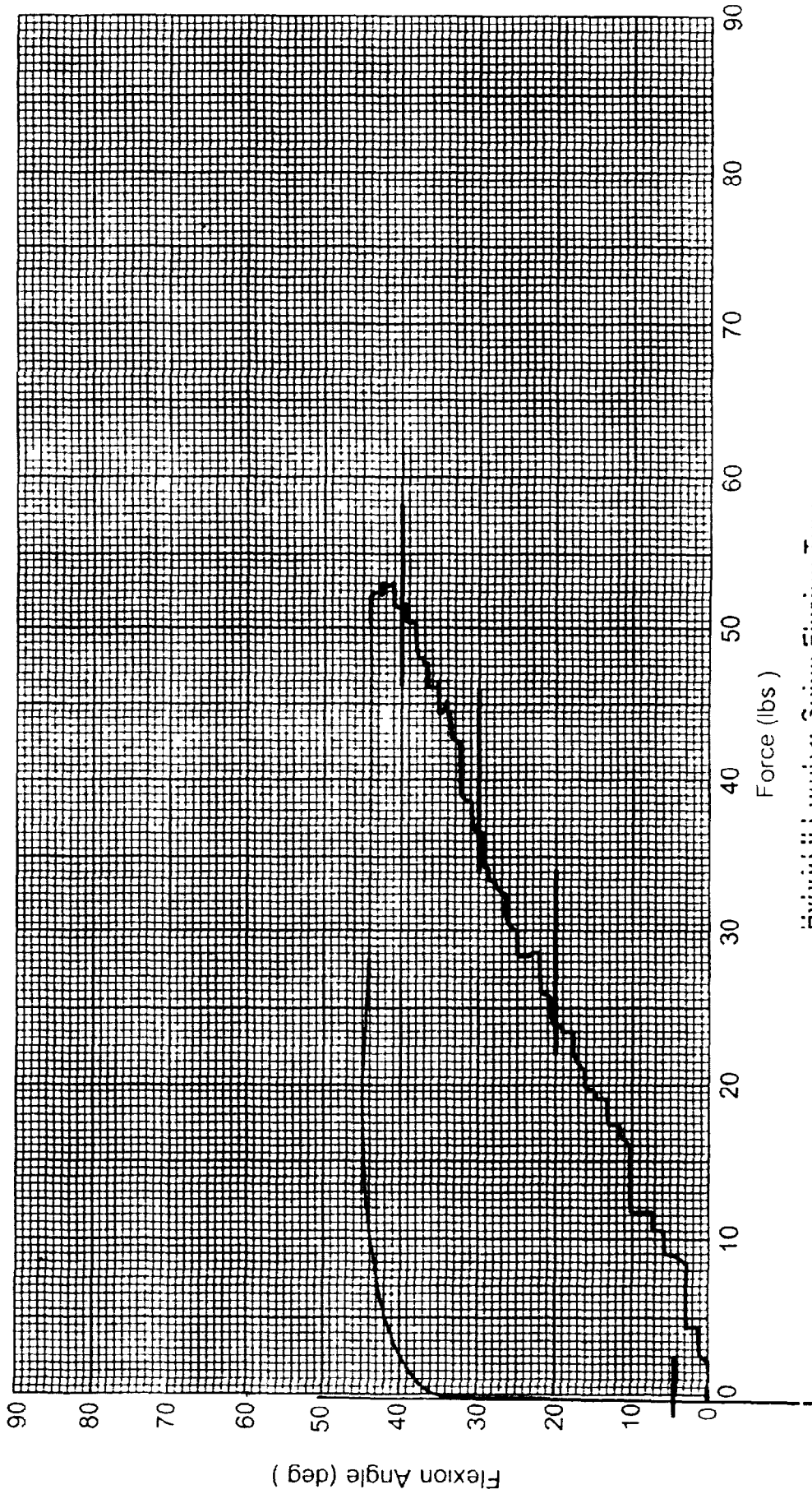
W/A ---

Date --- 3-1-2001

Performed By 

Temp. --- 70°

Humidity --- 32%



Hybrid II Lumbar Spine Flexion Test

PRE-TEST DUMMY INSPECTION LIST

CONFIGURED FOR LEFT SIDE IMPACT

SID Serial No 013 Sequential Test Number 2
 Date March 1, 2001 Laboratory Technician B. Swiecicki

PART	ITEMS CHECKED	COMMENTS
SKIN	VISUAL INSPECTION	OK
HEAD	VISUAL, BALLAST, ACCELEROMETER MOUNT	OK
NECK	VISUAL, CABLE TORQUE	OK
SPINE BOX	VISUAL, BALLAST, WELDMENT, ACCELEROMETER MOUNT	OK
RIB CAGE	VISUAL, MEASURE, STIFFENERS	OK
STERNUM	VISUAL	OK
LUMBAR SPINE	VISUAL	OK
ABDOMEN	VISUAL	OK
PELVIS	VISUAL PALPATE ACCELEROMETER MOUNT	OK
UPPER LEGS	VISUAL	OK
KNEES	VISUAL, STOPS, INSERTS	OK
LOWER LEGS	VISUAL RANGE OF MOTION	OK
ANKLES	VISUAL, RANGE OF MOTION	OK
FEET	VISUAL, RANGE OF MOTION	OK
JOINTS	1 TO 2 g RANGE	OK
OTHER	NONE	-

REMARKS: None

**CALIBRATION TEST RESULTS
PRE-TEST**

SID NO.: 268

CONFIGURED FOR LEFT SIDE IMPACT

**CALIBRATION TEST RESULTS SUMMARY
PRE-TEST**

CONFIGURED FOR LEFT SIDE IMPACT

SID Serial No 268 Sequential Test Number 4
Date March 1, 2001 Laboratory Technician B Swiecicki

TEST	COMMENTS
EXTERNAL DIMENSIONS	Passed all requirements
THORACIC SHOCK ABSORBER TEST	Passed all requirements
LATERAL THORAX IMPACT TEST	Passed all requirements
LATERAL PELVIS IMPACT TEST	Passed all requirements
HEAD DROP TEST*	Passed all requirements
ABDOMINAL COMPRESSION TEST*	Passed all requirements
LUMBAR FLEXION TEST*	Passed all requirements

* Test not required for SID certification

REMARKS: None

**EXTERNAL DIMENSIONS
PRE-TEST**

CONFIGURED FOR LEFT SIDE IMPACT

SID Serial No 268 Sequential Test Number 4
Date March 1, 2001 Laboratory Technician B Swiecicki

TEST PARAMETER	SPECIFICATION	TEST RESULTS
SH- Seated Height (mm)	889 - 909	899
RH- Rib Height (mm)	502 - 520	513
HP- Hip Pivot Height (mm)	99 ref	99
RD- Rib from Back Line (mm)	229 - 241	236
KH Knee Pivot from Back Line (mm)	511 - 526	518
KV Knee Pivot to Floor (mm)	490 - 505	495
HW- Hip Width (mm)	356 - 391	380

REMARKS: None

**THORACIC SHOCK ABSORBER TESTS
PRE-TEST**

CONFIGURED FOR LEFT SIDE IMPACT

SID Serial No 268 Sequential Test Number 4
Date April 19, 2000 Laboratory Technician B Swiecicki

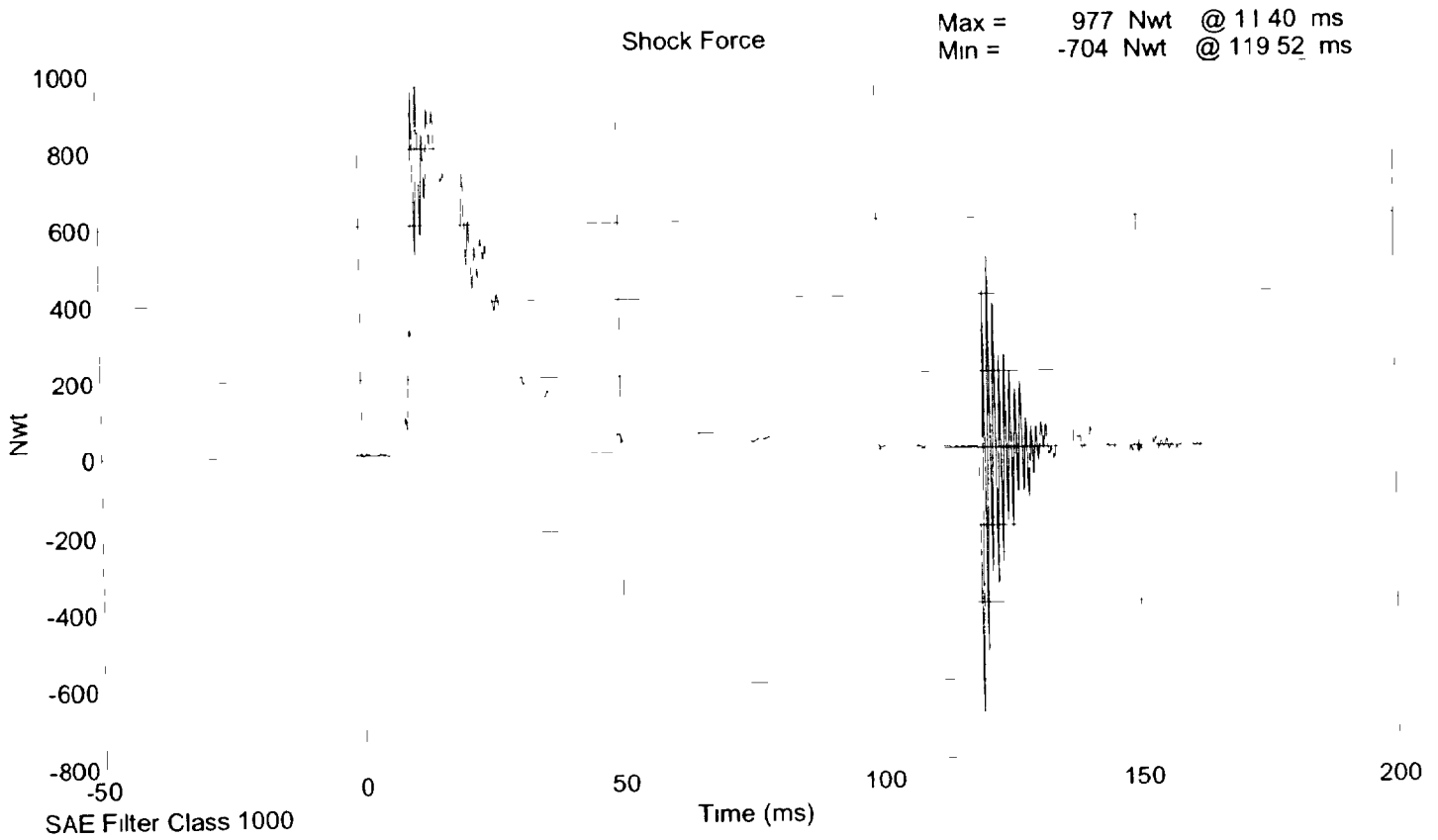
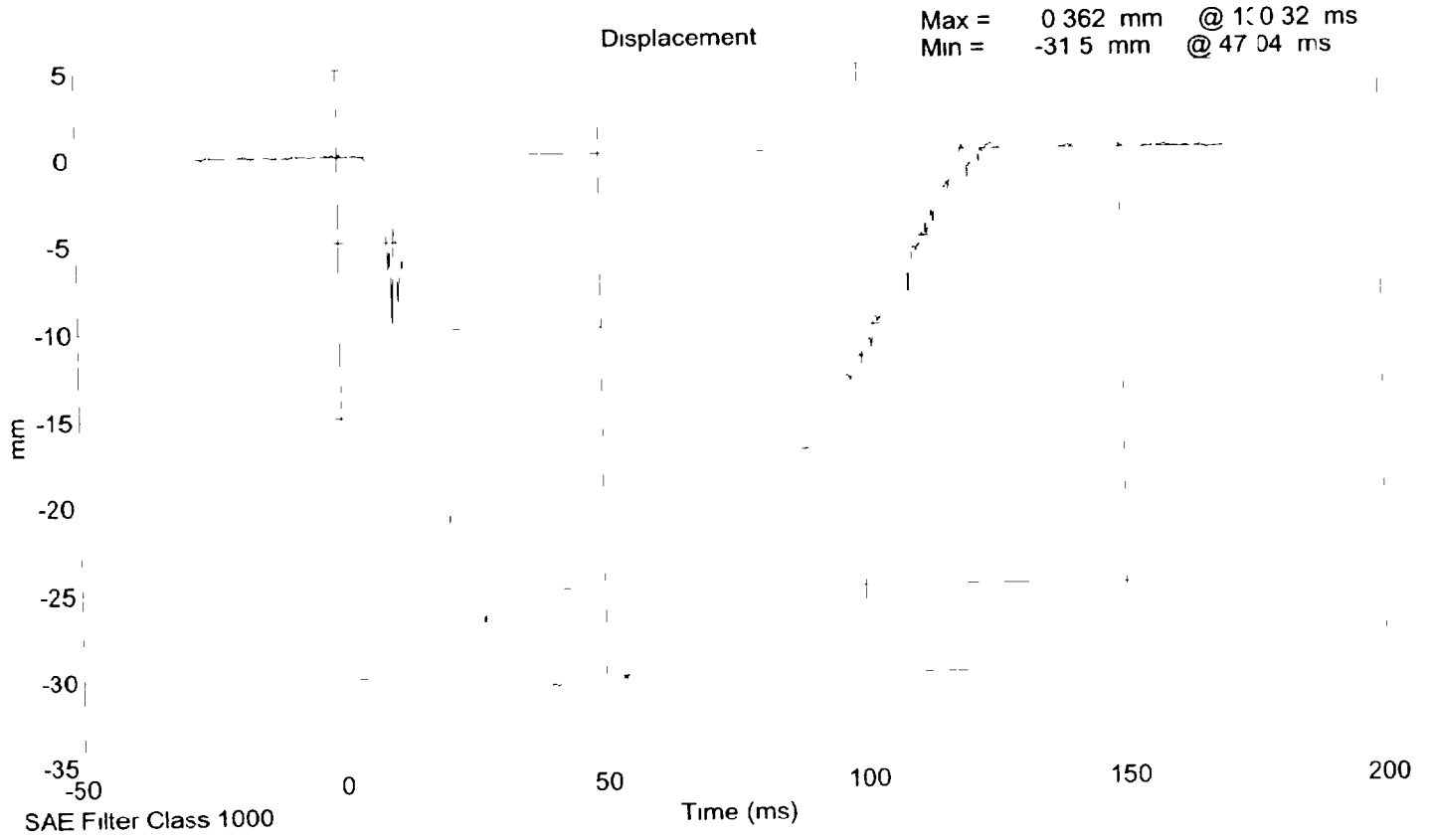
DAMPER IDENTIFICATION 268

TEST PARAMETER		SPECIFICATION	TEST RESULTS
TEMPERATURE (°C)		18.9 - 25.5	21.7
RELATIVE HUMIDITY (%)		10 - 70	31
VELOCITY 3.05 m/s	FORCE (N)	836 - 1125	976.7
	DISPLACEMENT (mm)	30 - 35	31.5
VELOCITY 4.27 m/s	FORCE (N)	1730 - 2099	1811.0
	DISPLACEMENT (mm)	32 - 37	34.7
VELOCITY 6.10 m/s	FORCE (N)	3741 - 4448	3872.7
	DISPLACEMENT (mm)	33 - 40	35.3

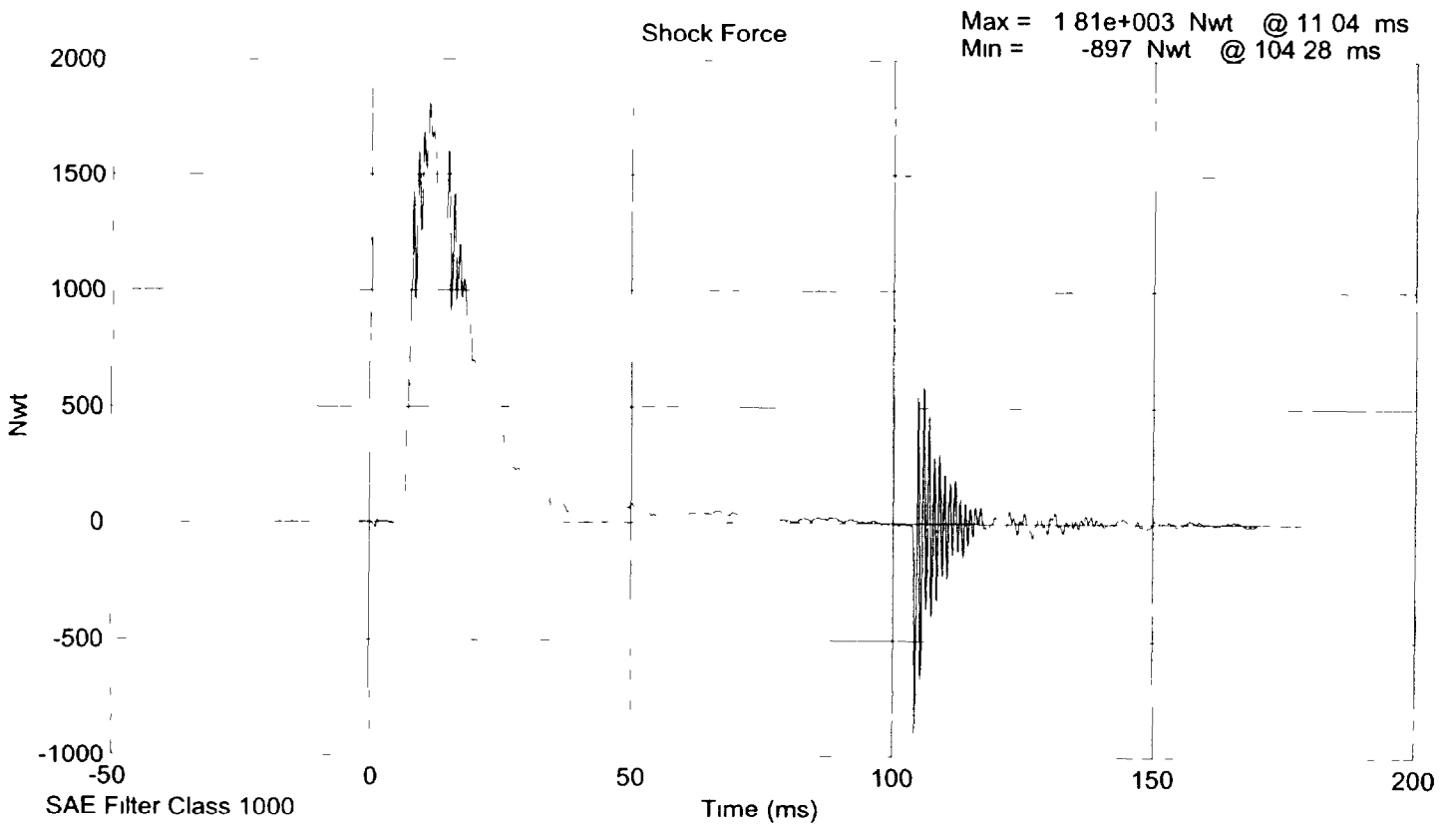
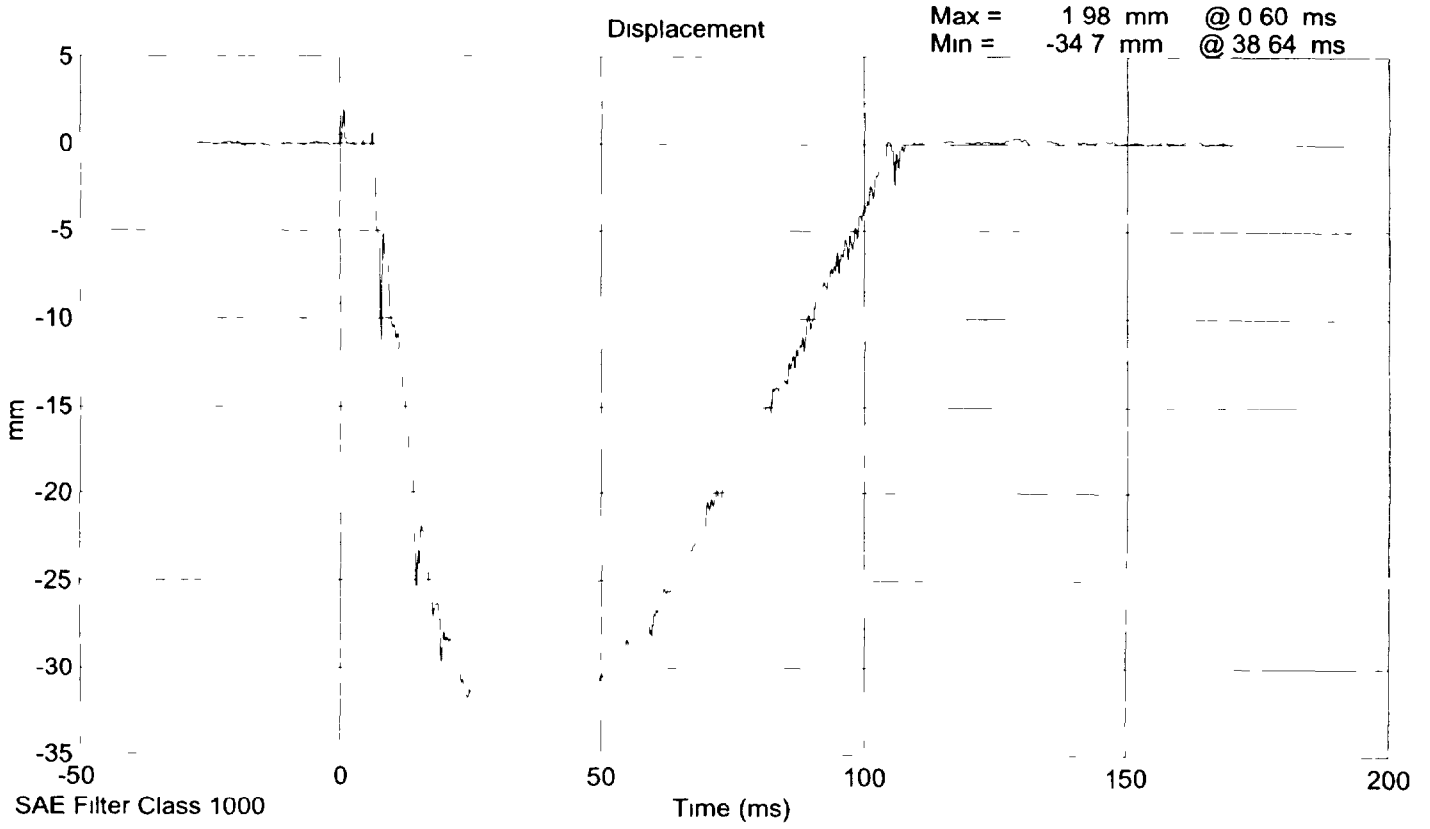
DAMPER SETTING 5

REMARKS: None

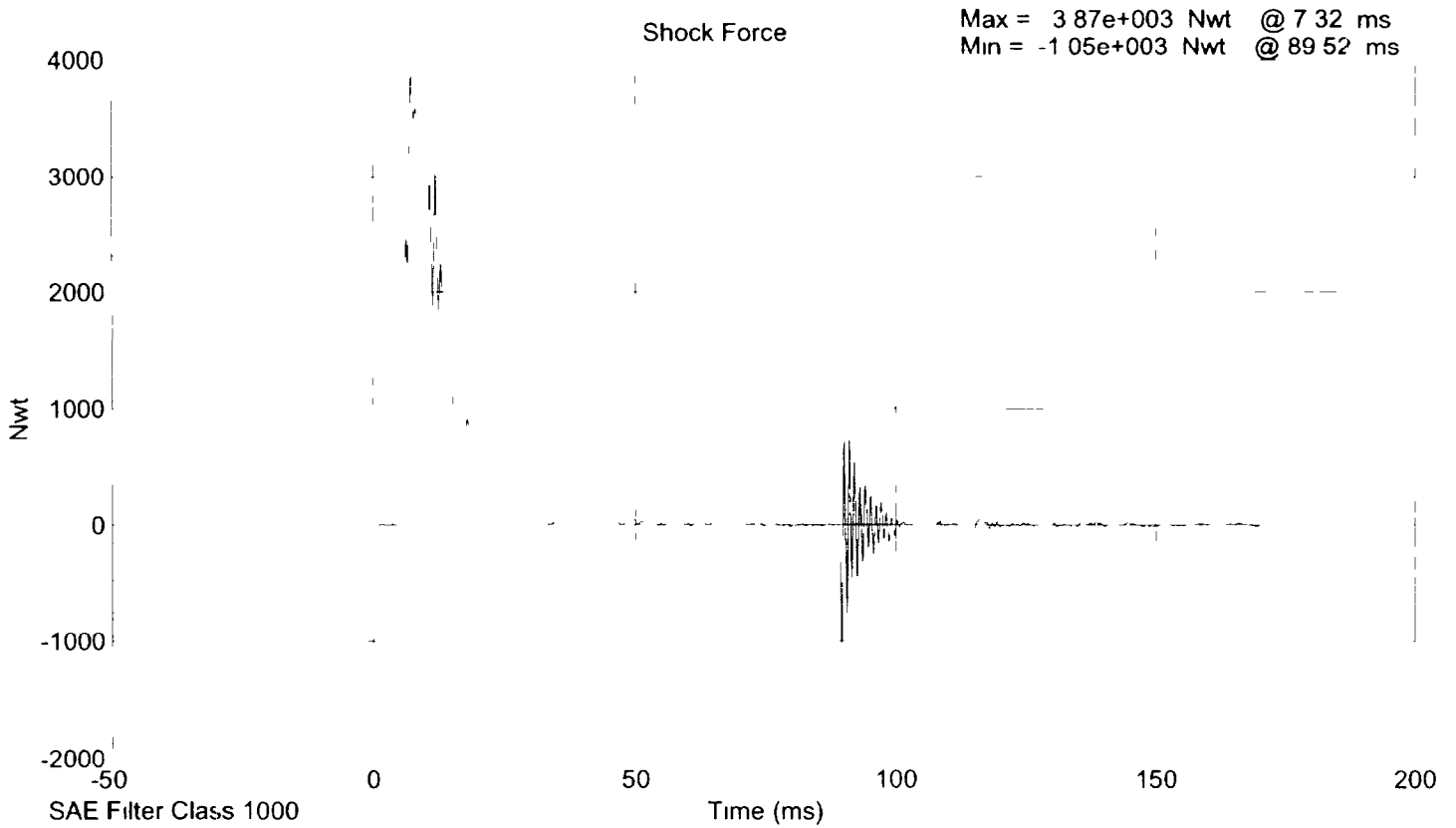
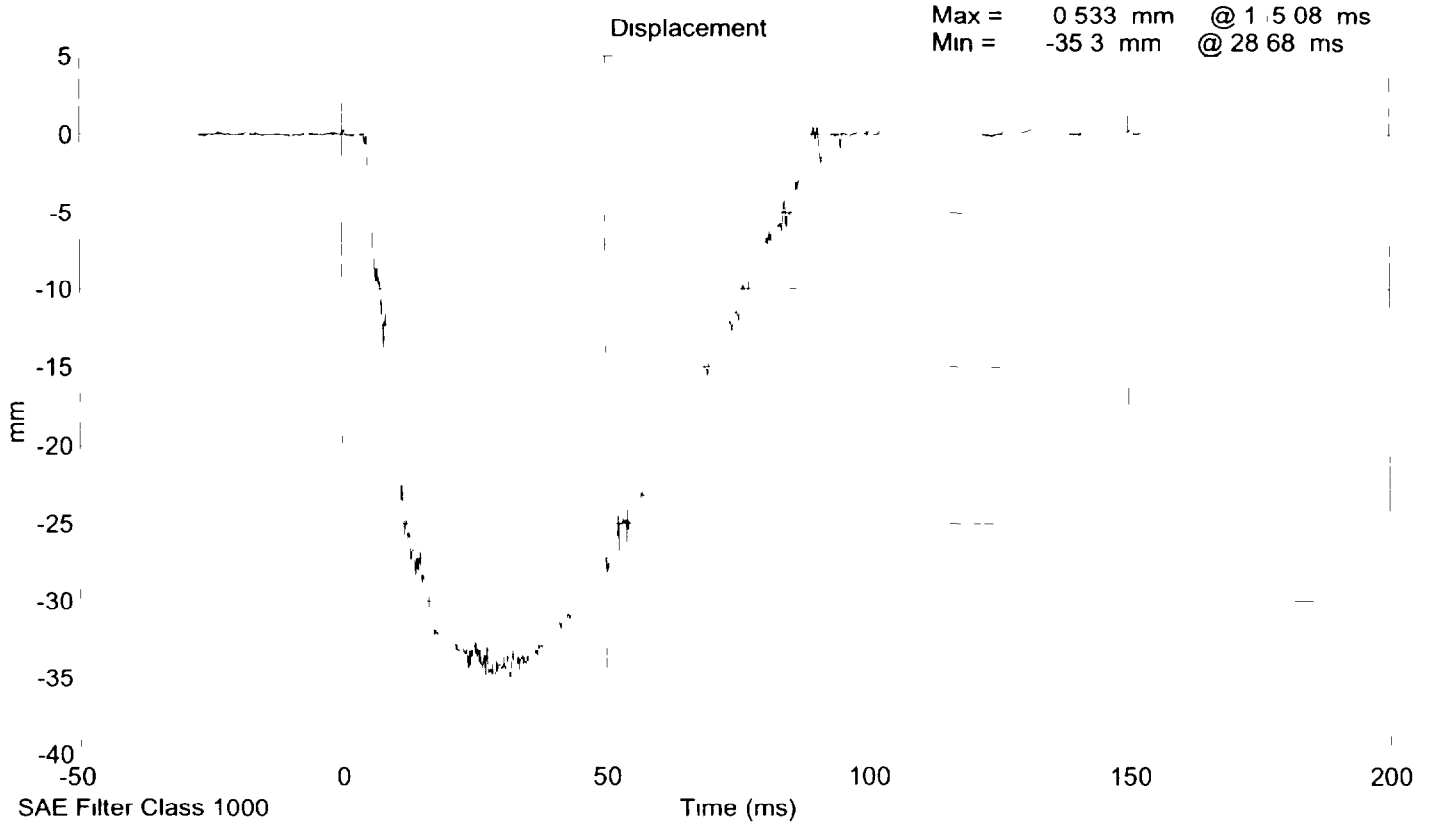
SID 268 Shock Absorber Impact Test @ 3 048 m/s



SID 268 Shock Absorber Impact Test @ 4.572 m/s



SID 268 Shock Absorber Impact Test @ 6 096 m/s



LATERAL THORAX IMPACT TEST
PRE-TEST

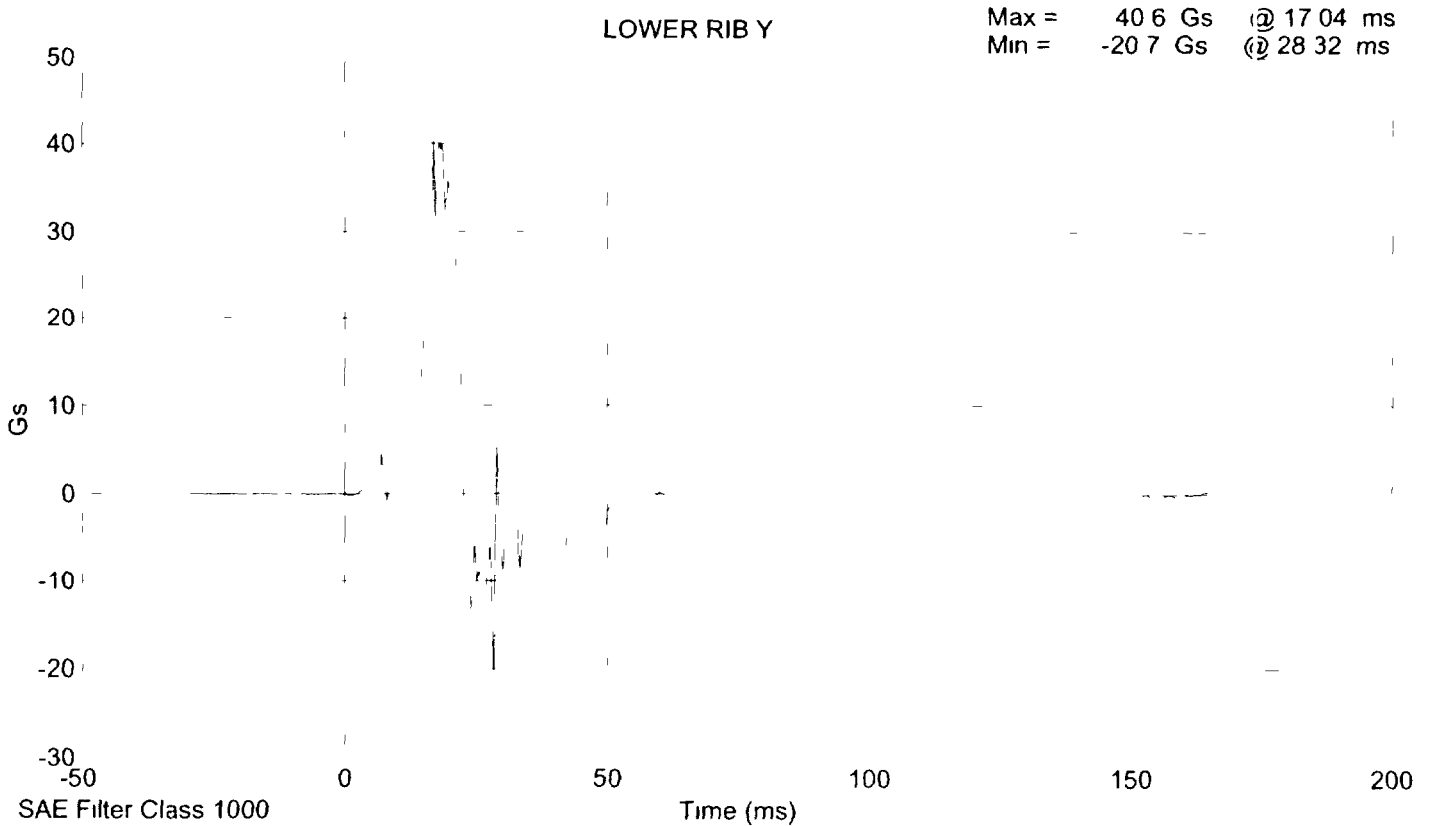
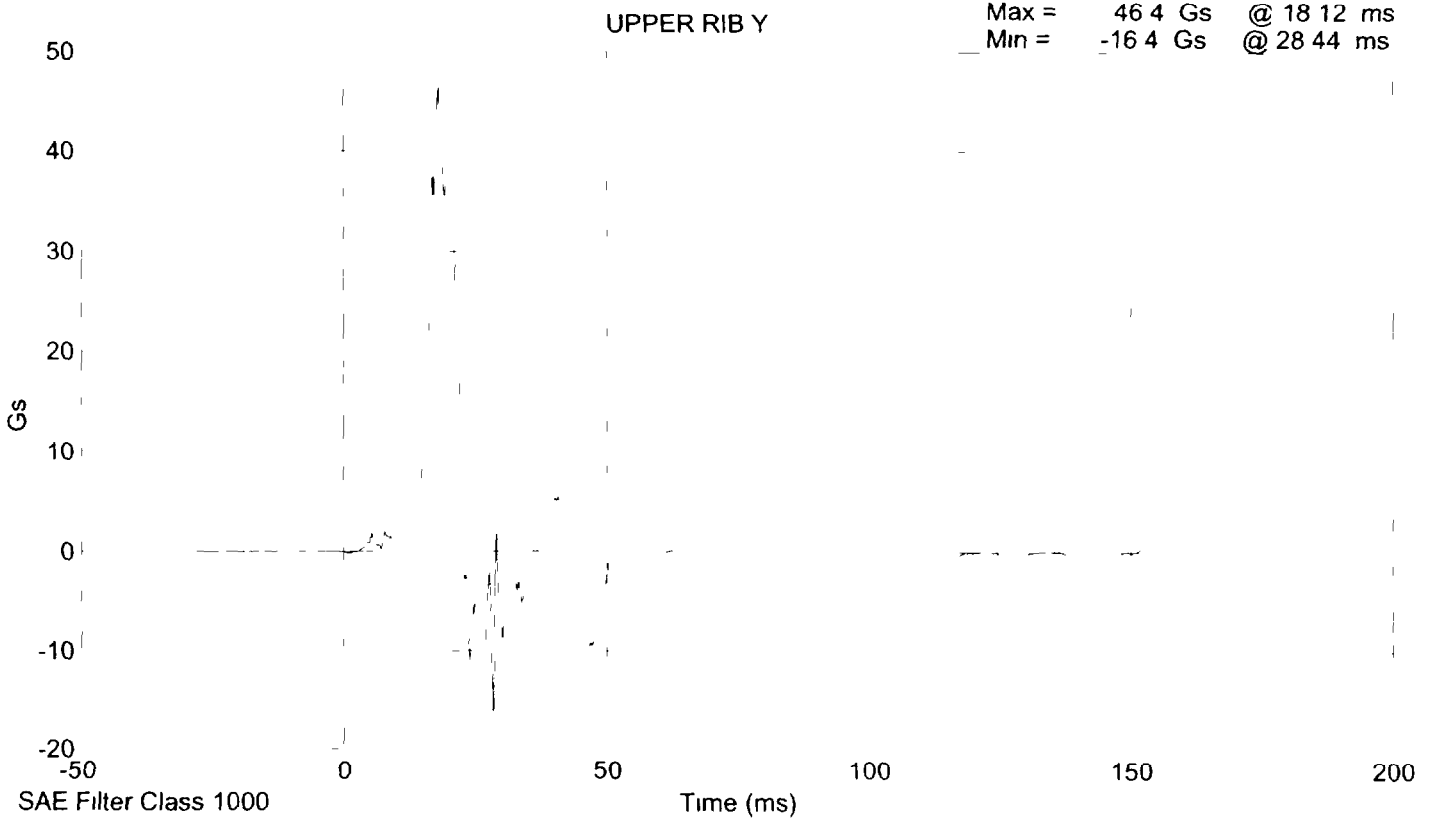
CONFIGURED FOR LEFT SIDE IMPACT

SID Serial No 268 Sequential Test Number 4
Date February 28, 2001 Laboratory Technician B Swiecicki

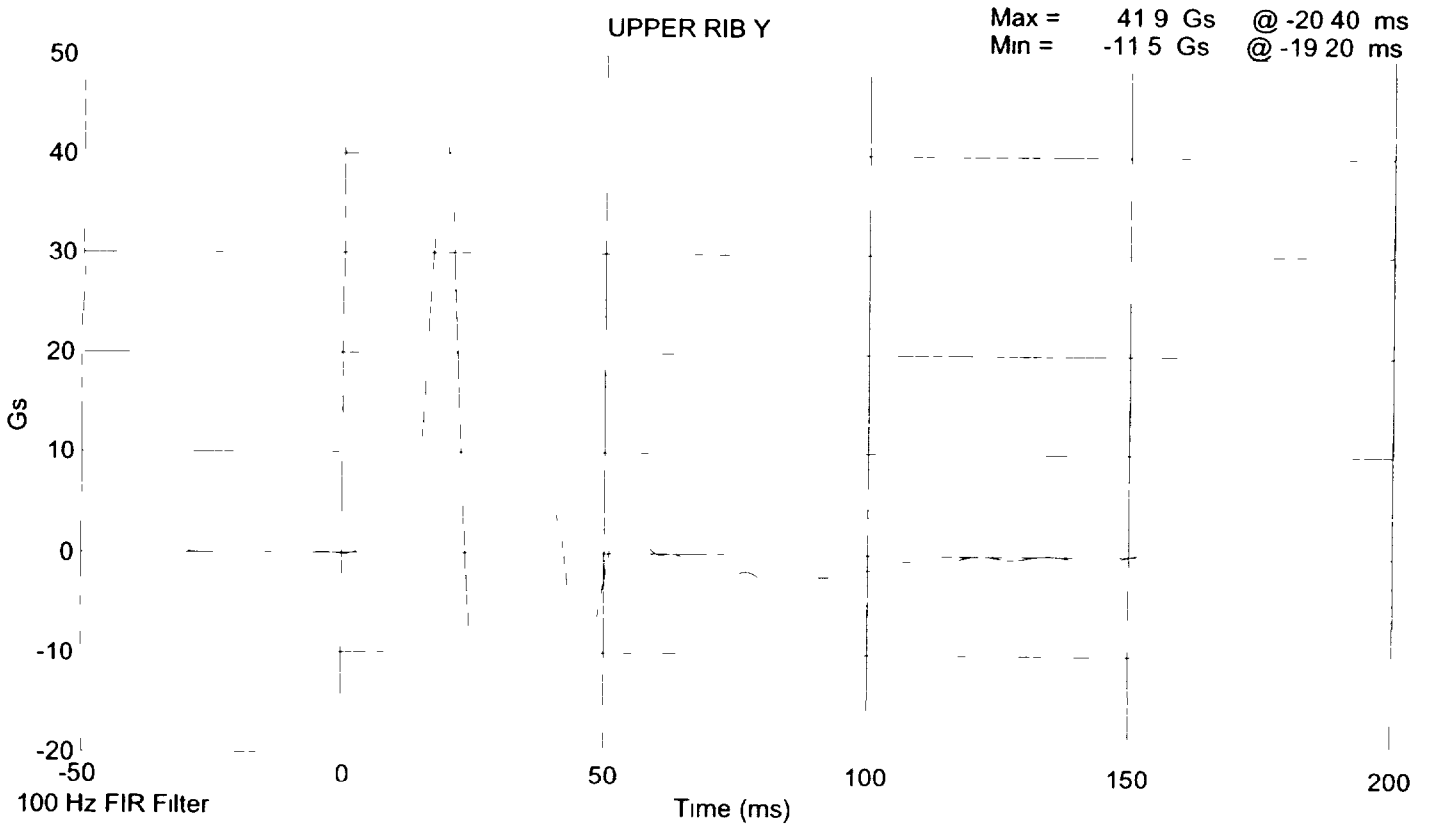
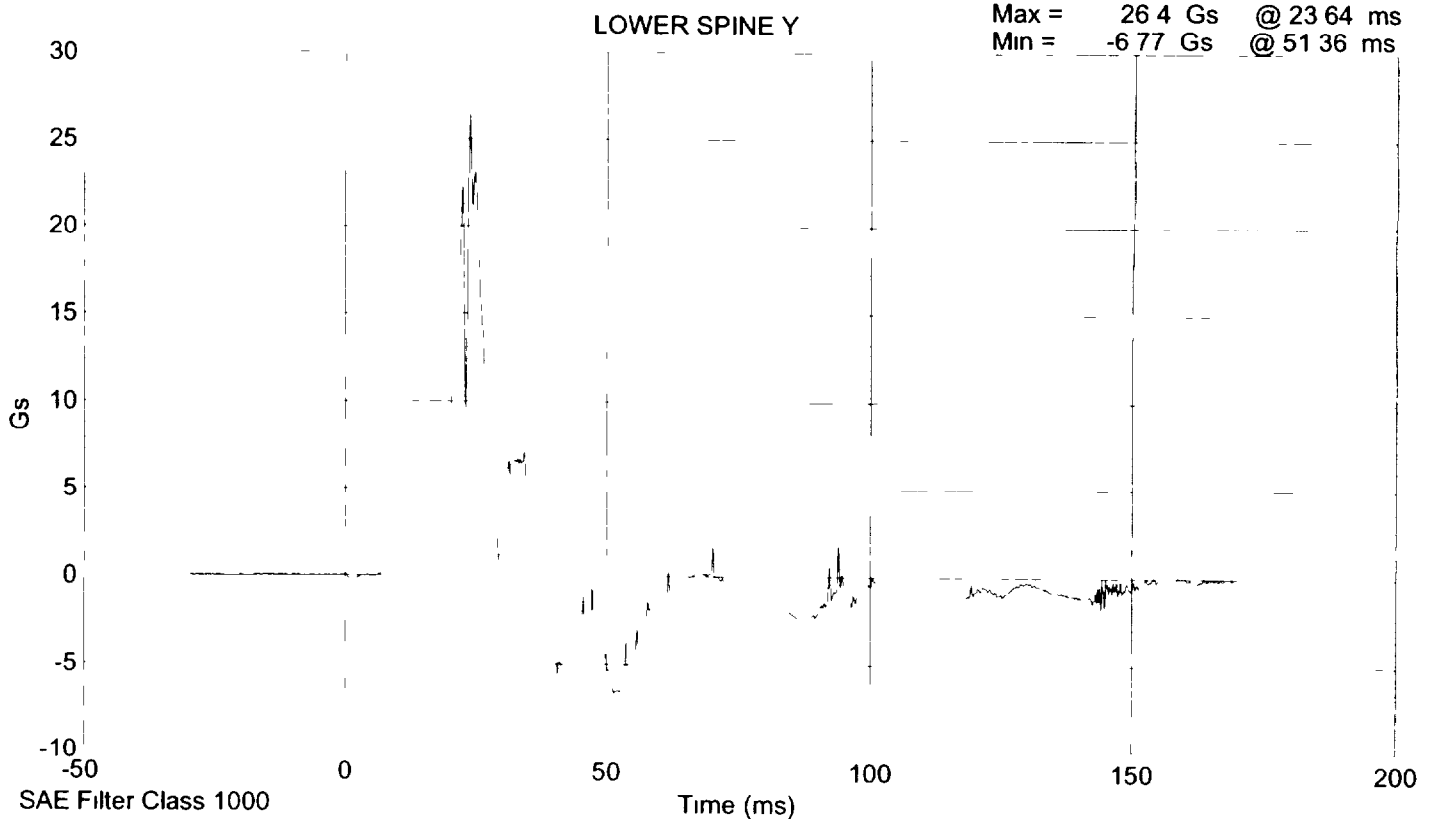
TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE (°C)	18.9 - 25.5	21.7
RELATIVE HUMIDITY (%)	10 - 70	32.0
PROBE SPEED (m/s)	4.27 - 4.33	4.33
UPPER RIB (g's)	37 - 46	41.93
LOWER RIB (g's)	37 - 46	39.45
LOWER SPINE (g's)	15 - 22	20.80

REMARKS: None

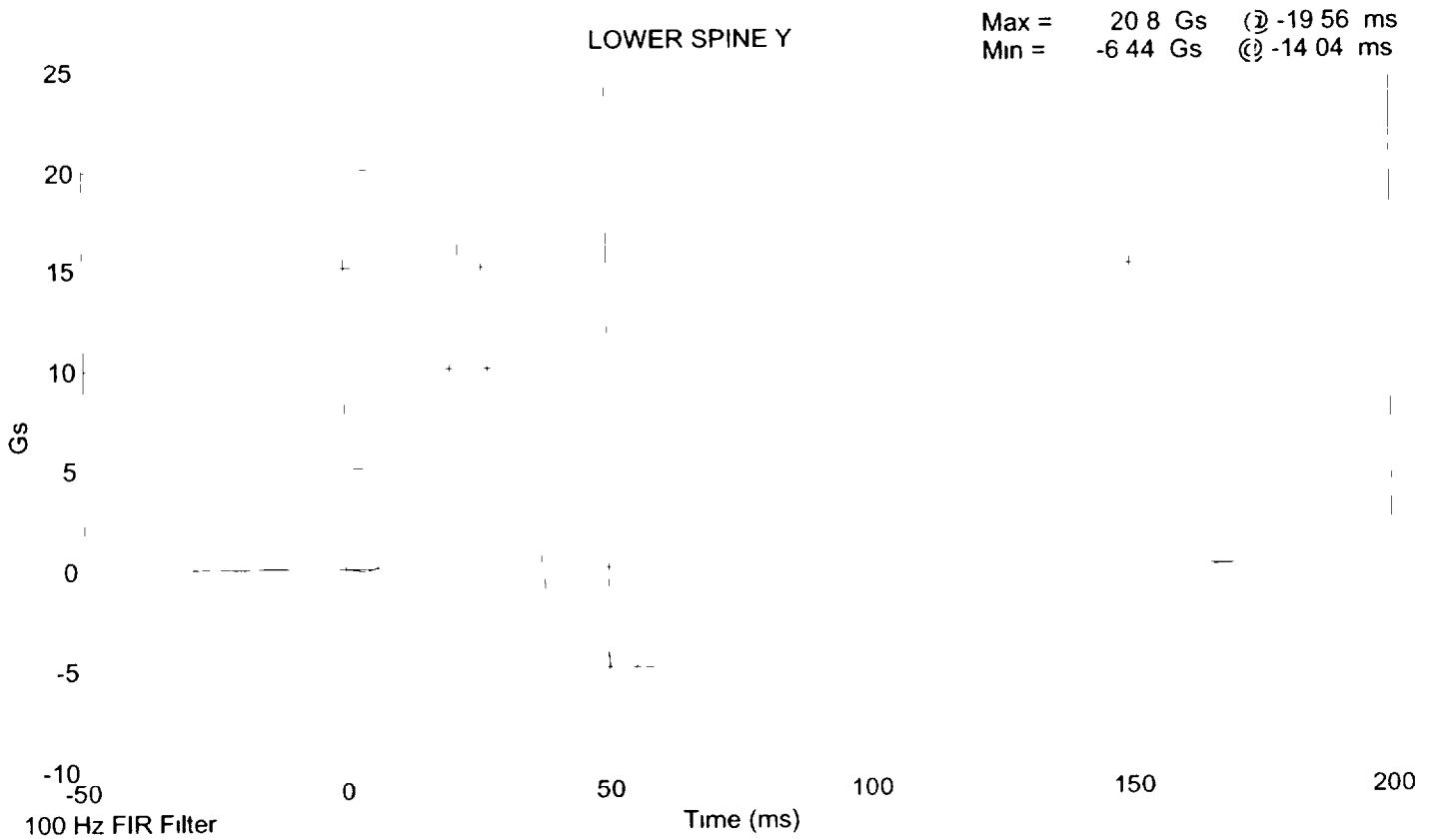
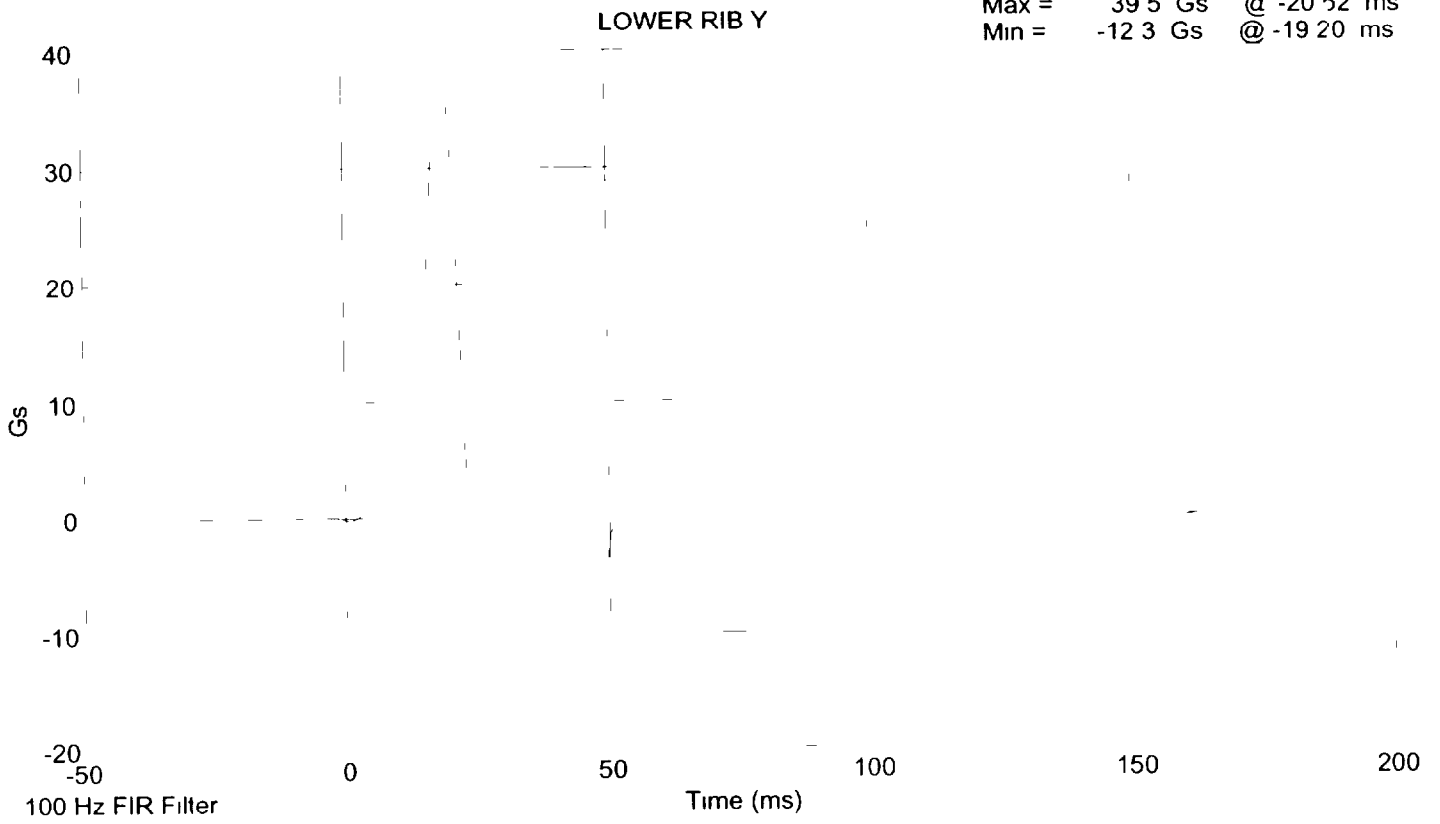
SID 268 Thorax Impact Test @ 4 3251 m/s



SID 268 Thorax Impact Test @ 4 3251 m/s



SID 268 Thorax Impact Test @ 4 3251 m/s



LATERAL PELVIS IMPACT TEST
PRE-TEST

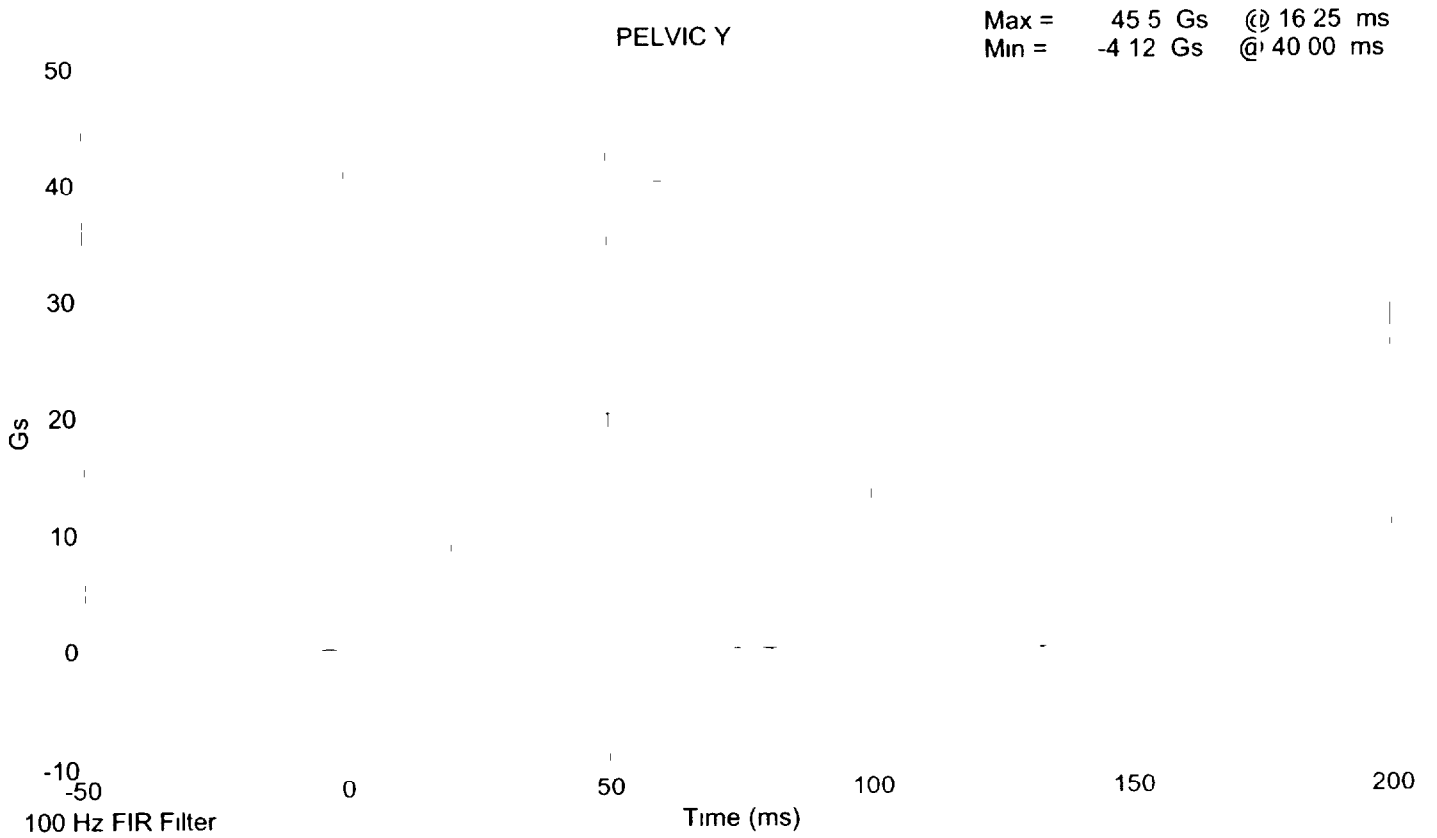
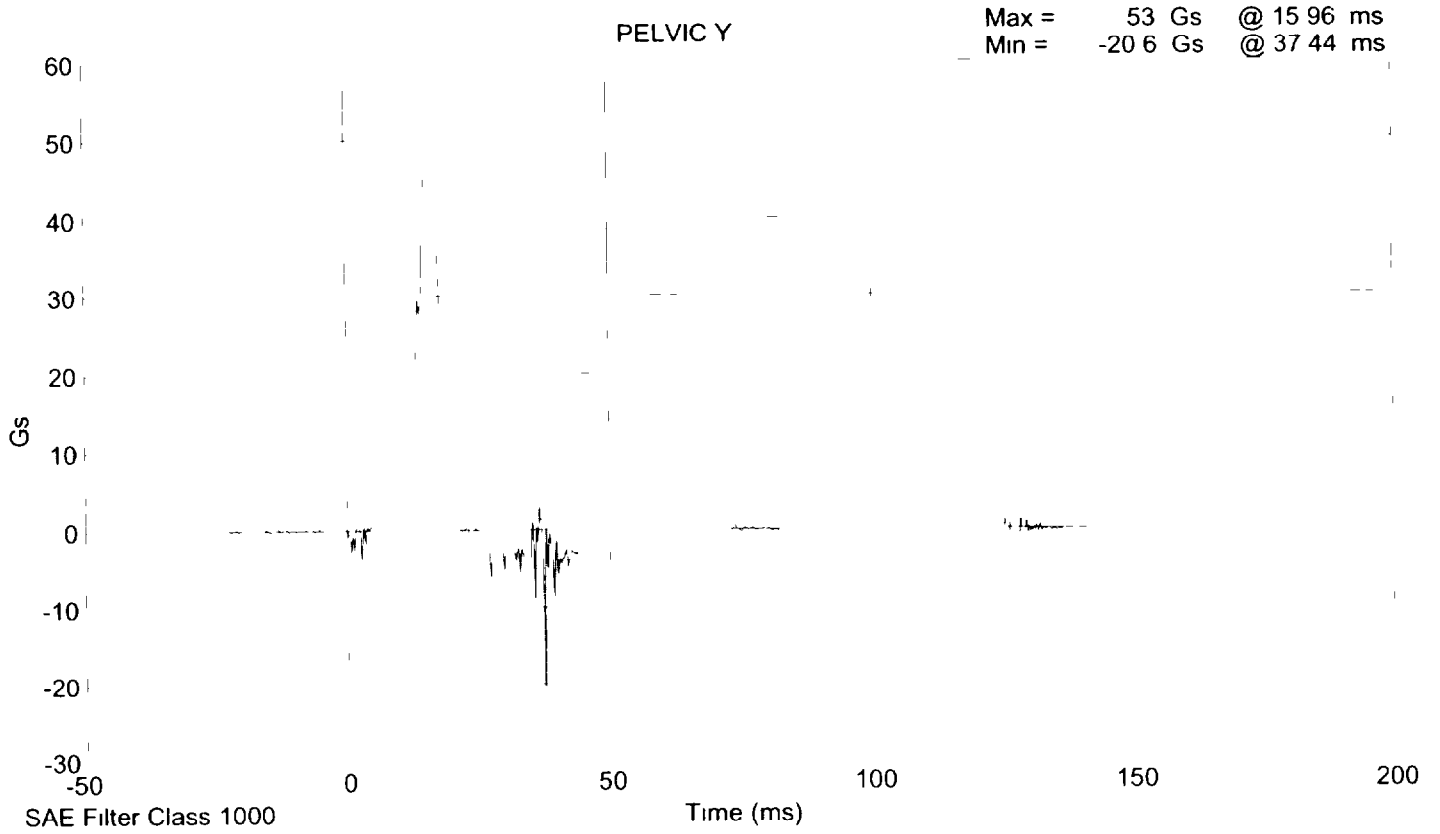
CONFIGURED FOR LEFT SIDE IMPACT

SID Serial No 268 Sequential Test Number 4
Date February 28, 2001 Laboratory Technician B Swiecicki

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE (°C)	18.9 - 25.5	21.7
RELATIVE HUMIDITY (%)	10 - 70	32.0
PROBE SPEED (m/s)	4.27 - 4.33	4.32
PELVIS ACCELERATION (g's)	40 - 60	45.53

REMARKS: None

SID 268 Pelvic Impact Test @ 4 319 m/s



HEAD DROP TEST
PRE-TEST
(Test not required for SID certification)

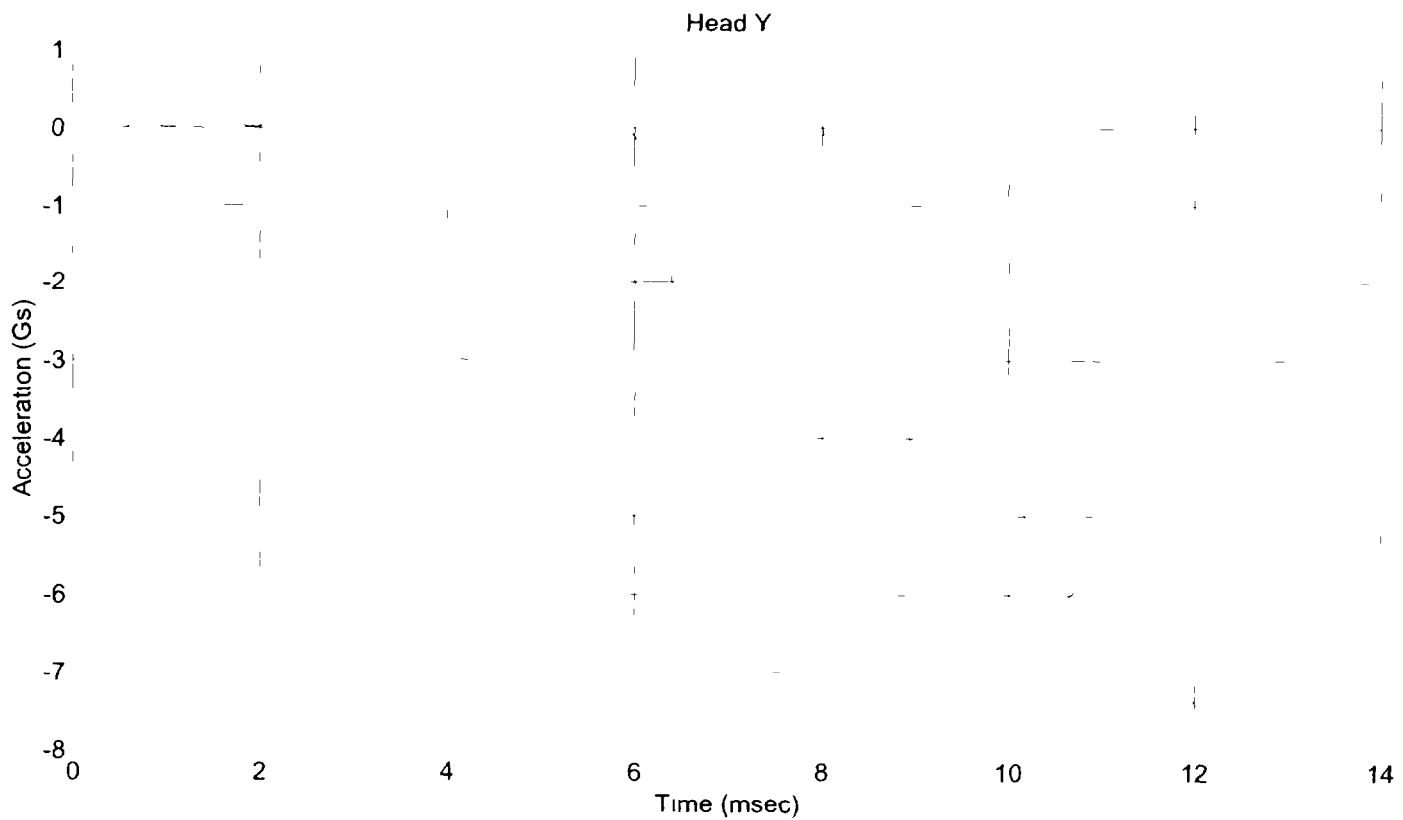
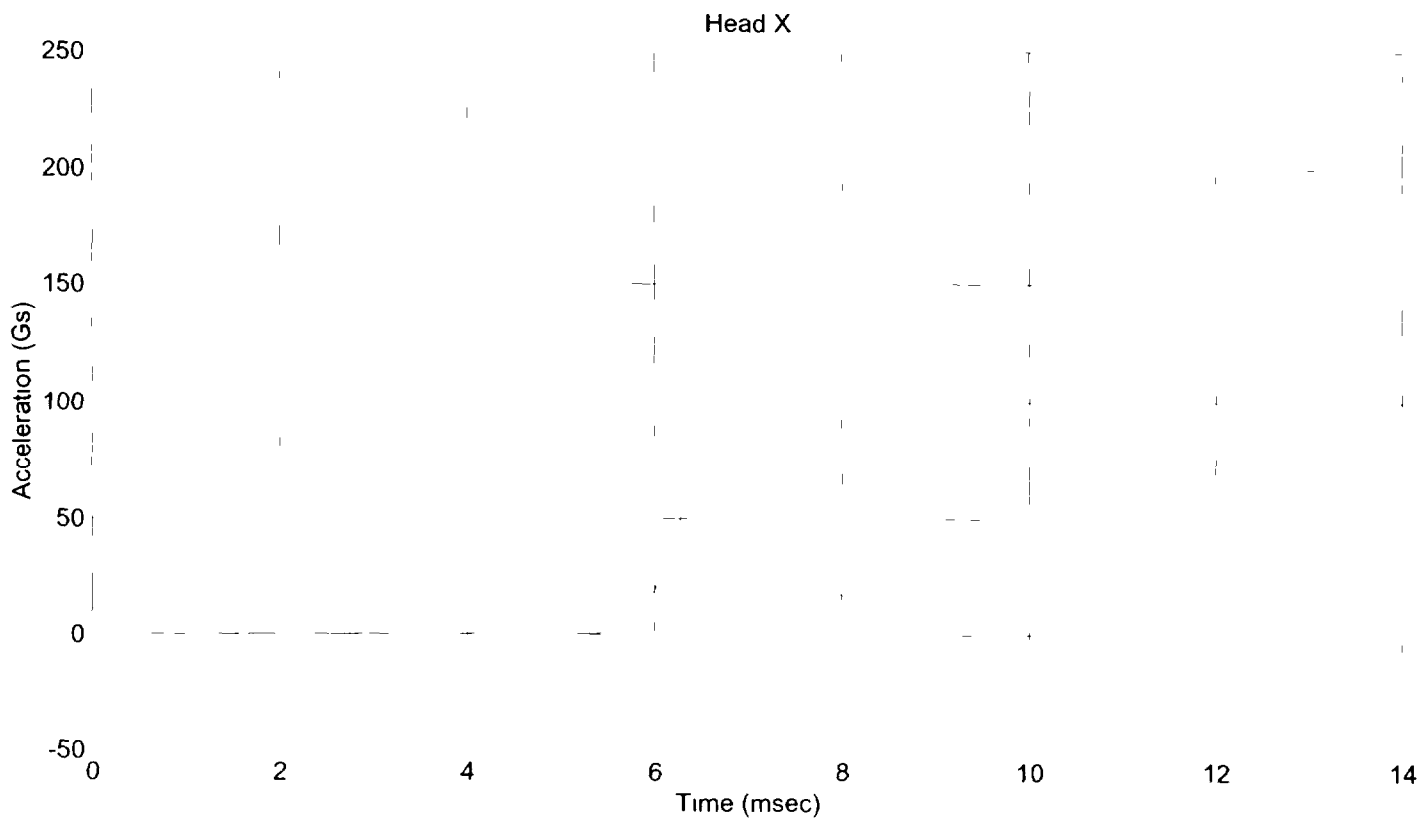
CONFIGURED FOR LEFT SIDE IMPACT

SID Serial No 268 Sequential Test Number 4
Date February 27, 2001 Laboratory Technician B Swiecicki

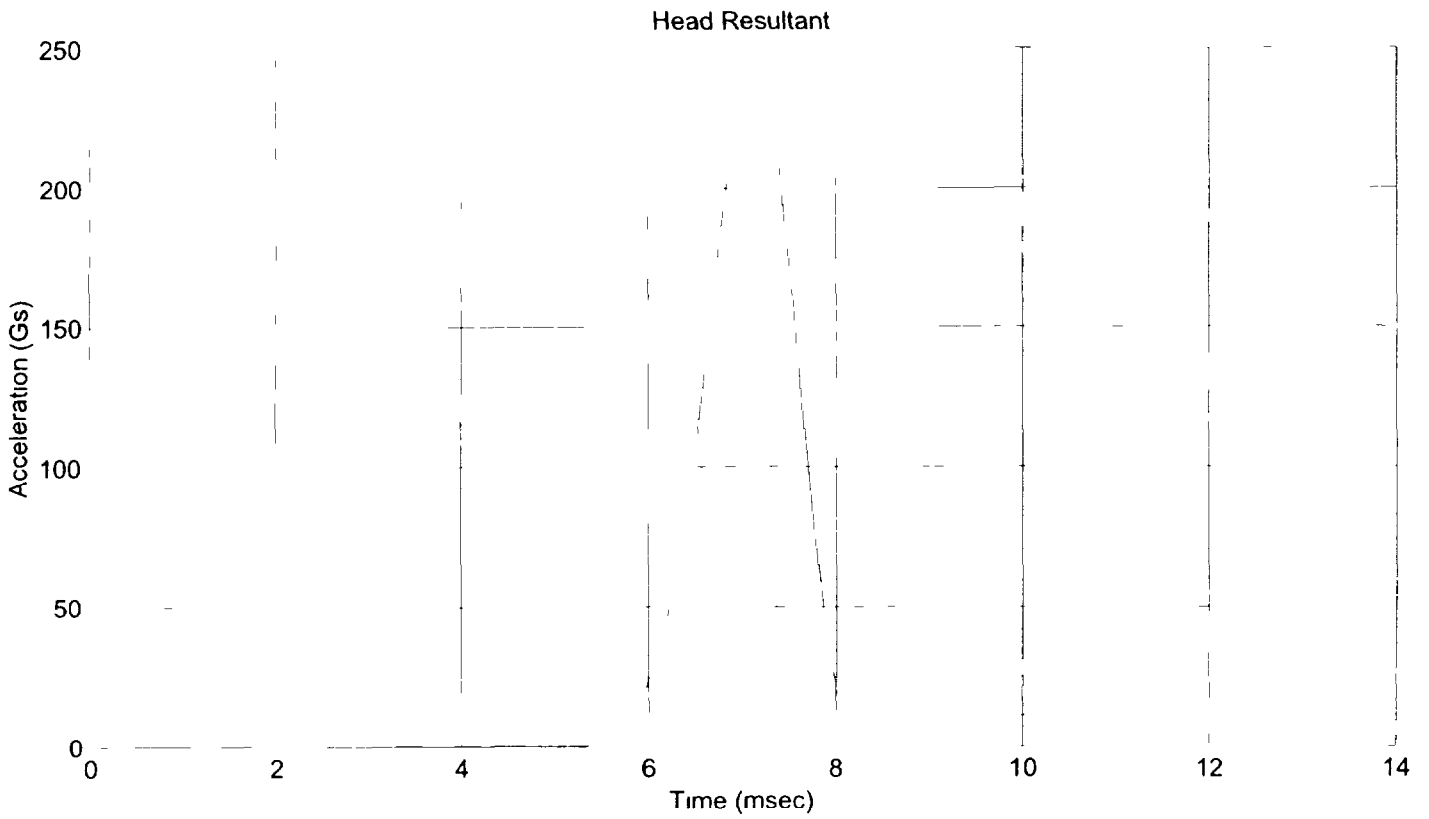
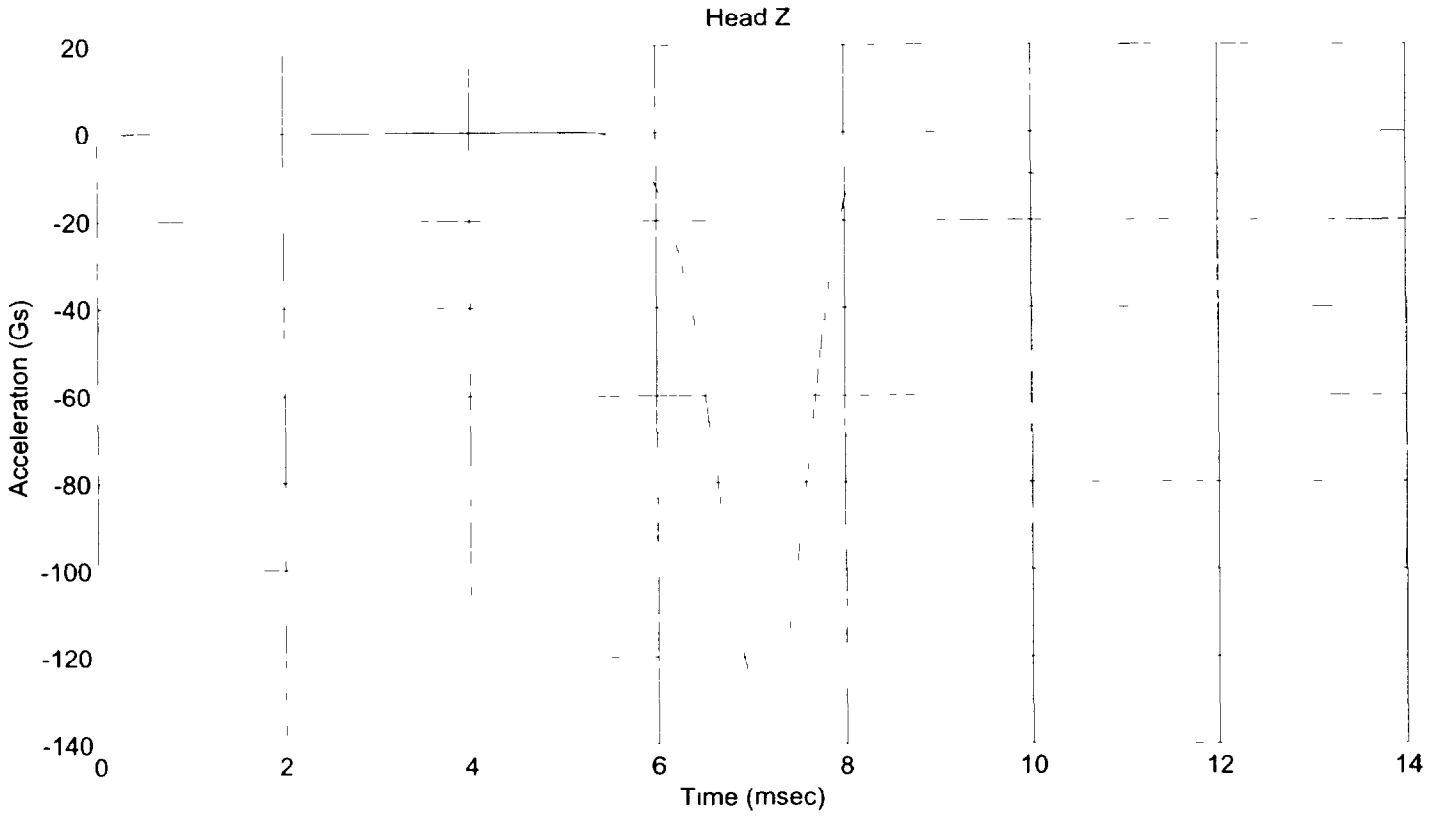
TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE (°C)	18.9 - 25.5	21.7
RELATIVE HUMIDITY (%)	10 - 70	31.0
PEAK RESULTANT ACCELERATION (Gs)	210 - 260	245.92
PEAK LATERAL ACCELERATION (Gs)	Not to Exceed 10	7.54
UNIMODAL CRITERIA ABOVE 100 Gs (ms)	0.9 - 1.5	1.25

REMARKS: None

Hybrid II Head Drop Calibration 268201 hdp



Hybrid II Head Drop Calibration 268201 hdp



ABDOMINAL COMPRESSION TEST

PRE-TEST

(Test not required for SID certification)

CONFIGURED FOR LEFT SIDE IMPACT

SID Serial No 268 Sequential Test Number 4
Date March 1, 2001 Laboratory Technician B Swiecicki

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE (°C)	18.9 - 25.5	21.1
RELATIVE HUMIDITY (%)	10 - 70	32.0
FORCE @ 13 mm (N)	104 - 162	120.1
FORCE @ 19 mm (N)	163 - 221	180.2
FORCE @ 25 mm (N)	222 - 280	258.0
FORCE @ 33 mm (N)	325 - 391	387.0

REMARKS: None

Dummy S/N _____

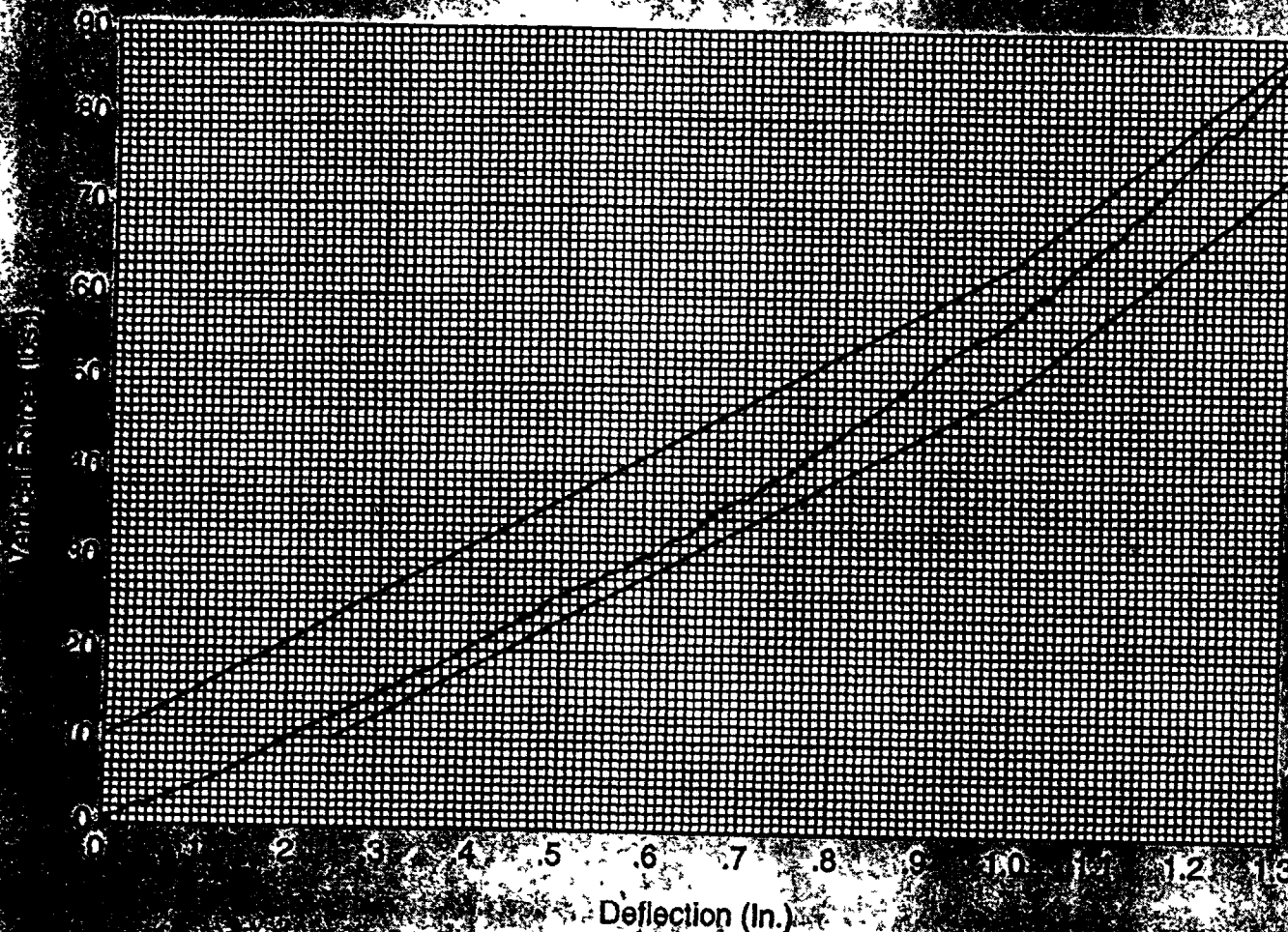
W/A _____

Date _____

Performed By _____

Temp _____

Humidity _____



Deflection (In.)
Hybrid II
Abdomen Static Press

LUMBAR FLEXION TEST
PRE-TEST
 (Test not required for SID certification)

CONFIGURED FOR LEFT SIDE IMPACT

SID Serial No 268 Sequential Test Number 4
 Date March 1, 2001 Laboratory Technician B Swiecicki

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE (°C)	18.9 - 25.5	21.1
RELATIVE HUMIDITY (%)	10 - 70	32.0
FORCE @ 0° (N)	0 - 26.7	0
FORCE @ 20° (N)	97.8 - 151.2	108.5
FORCE @ 30° (N)	151.2 - 204.6	169.0
FORCE @ 40° (N)	204.6 - 258	244.7
RETURN ANGLE	12° max	2.9°

REMARKS: None

Dummy S/N 168

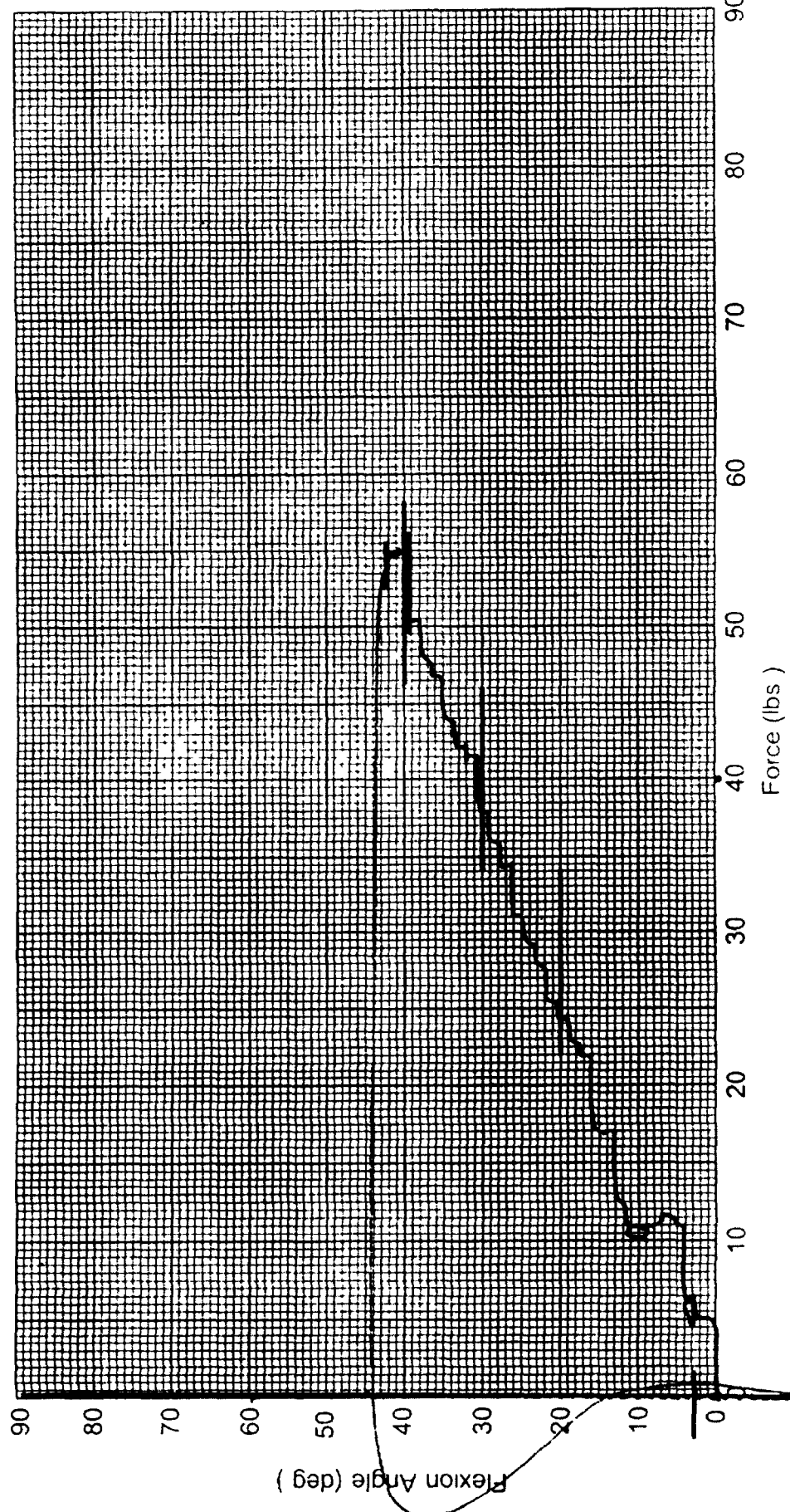
W/A

Date 3-1-2001

Performed By [Signature]

Temp 70°

Humidity 35%



Hybrid II Lumbar Spine Flexion Test

FM 01/CR/T 005111

PRE-TEST DUMMY INSPECTION LIST
CONFIGURED FOR LEFT SIDE IMPACT

SID Serial No 268 Sequential Test Number 4
 Date March 1, 2001 Laboratory Technician B Swiecicki

PART	ITEMS CHECKED	COMMENTS
SKIN	VISUAL INSPECTION	OK
HEAD	VISUAL, BALLAST, ACCELEROMETER MOUNT	OK
NECK	VISUAL CABLE TORQUE	OK
SPINE BOX	VISUAL, BALLAST, WELDMENT, ACCELEROMETER MOUNT	OK
RIB CAGE	VISUAL MEASURE, STIFFENERS	OK
STERNUM	VISUAL	OK
LUMBAR SPINE	VISUAL	OK
ABDOMEN	VISUAL	OK
PELVIS	VISUAL PALPATE, ACCELEROMETER MOUNT	OK
UPPER LEGS	VISUAL	OK
KNEES	VISUAL STOPS INSERTS	OK
LOWER LEGS	VISUAL RANGE OF MOTION	OK
ANKLES	VISUAL RANGE OF MOTION	OK
FEET	VISUAL RANGE OF MOTION	OK
JOINTS	1 TO 2 g RANGE	OK
OTHER	NONE	-

REMARKS: None

**CALIBRATION TEST RESULTS
POST TEST**

SID NO.: 013

CONFIGURED FOR LEFT SIDE IMPACT

**CALIBRATION TEST RESULTS SUMMARY
POST TEST**

CONFIGURED FOR LEFT SIDE IMPACT

SID Serial No 013 Sequential Test Number 3
Date March 13, 2001 Laboratory Technician B Swiecicki

TEST	COMMENTS
EXTERNAL DIMENSIONS	Passed all requirements
LATERAL THORAX IMPACT TEST	Passed all requirements
LATERAL PELVIS IMPACT TEST	Passed all requirements
HEAD DROP TEST*	Passed all requirements
ABDOMINAL COMPRESSION TEST*	Passed all requirements
LUMBAR FLEXION TEST*	Passed all requirements

* Test not required for SID certification

REMARKS: None

EXTERNAL DIMENSIONS
POST TEST

CONFIGURED FOR LEFT SIDE IMPACT

SID Serial No 013 Sequential Test Number 3
Date March 13, 2001 Laboratory Technician B. Swiecicki

TEST PARAMETER	SPECIFICATION	TEST RESULTS
SH- Seated Height (mm)	889 - 909	902
RH- Rib Height (mm)	502 - 520	511
HP- Hip Pivot Height (mm)	99 ref	99
RD- Rib from Back Line (mm)	229 - 241	236
KH- Knee Pivot from Back Line (mm)	511 - 526	518
KV- Knee Pivot to Floor (mm)	490 - 505	493
HW- Hip Width (mm)	356 - 391	376

REMARKS: None

**LATERAL THORAX IMPACT TEST
POST TEST**

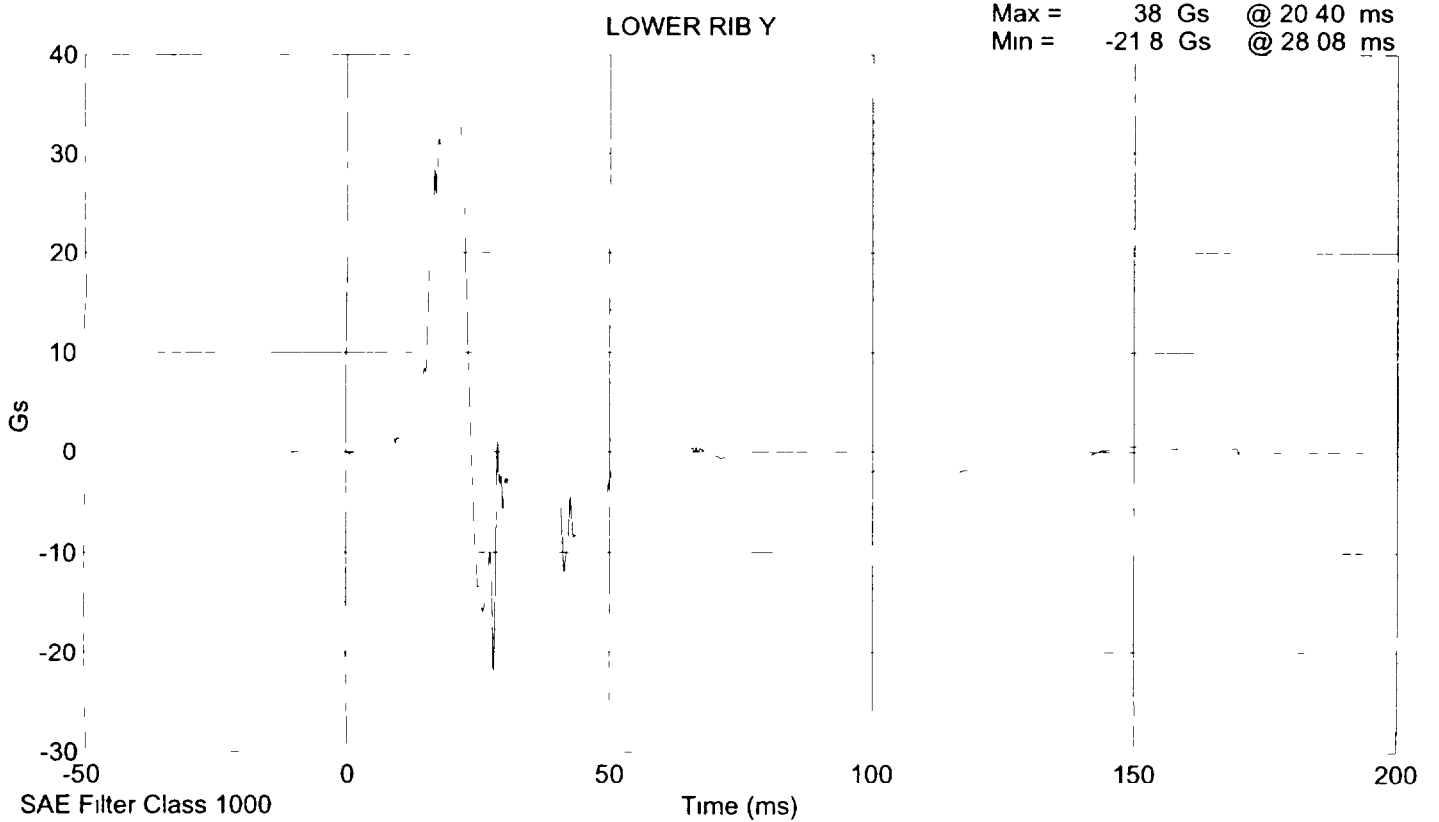
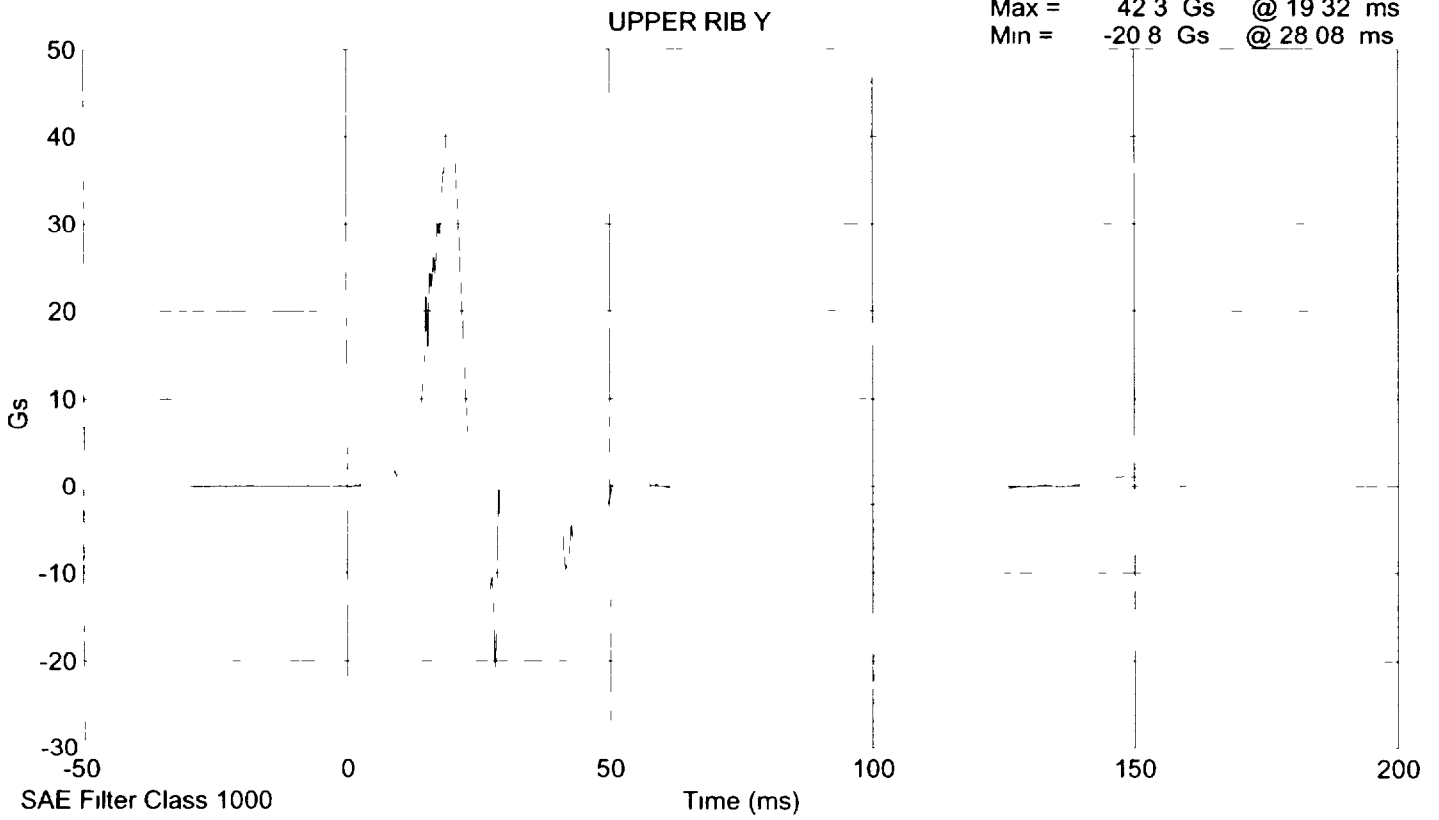
CONFIGURED FOR LEFT SIDE IMPACT

SID Serial No 013 Sequential Test Number 3
Date March 12, 2001 Laboratory Technician B Swiecicki

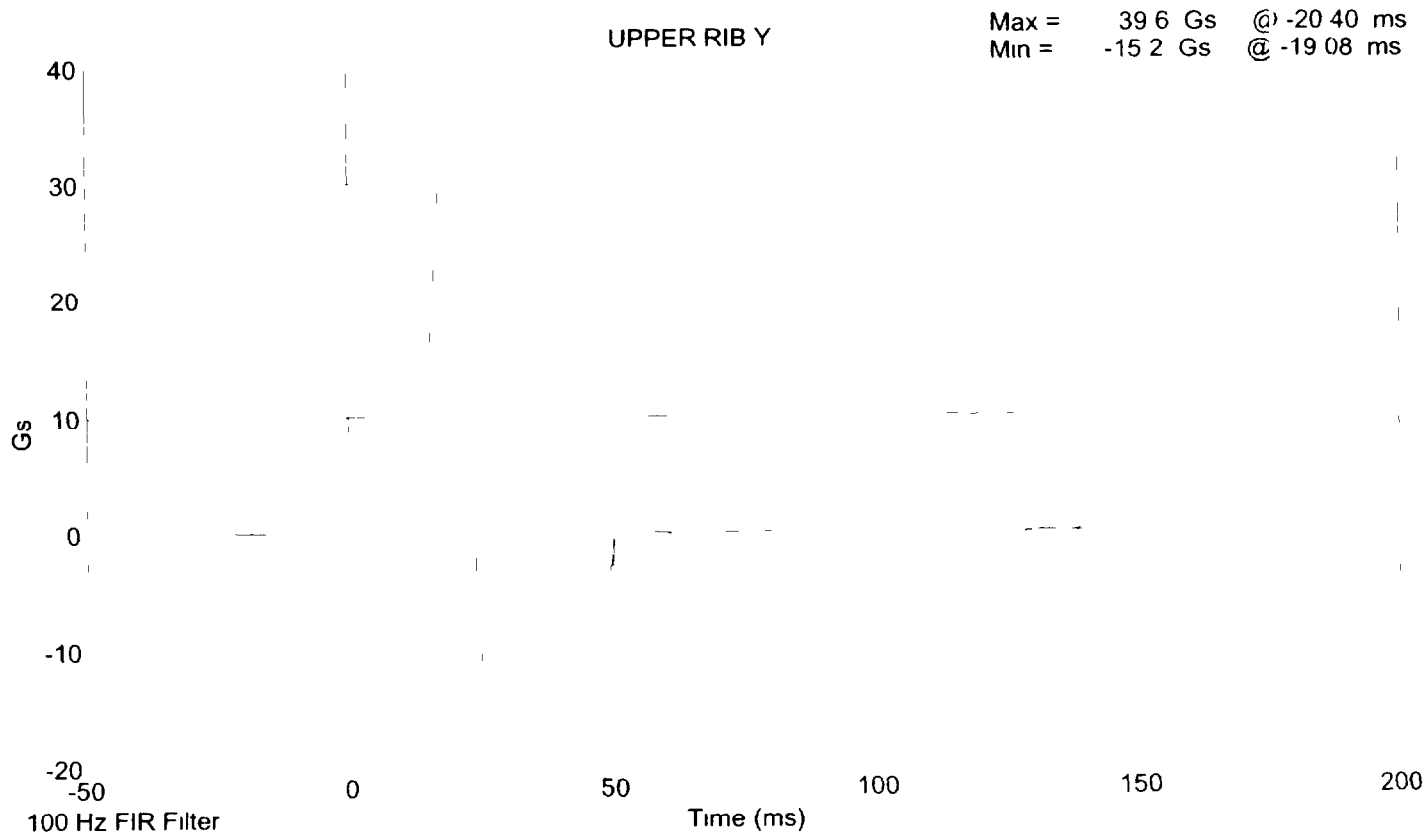
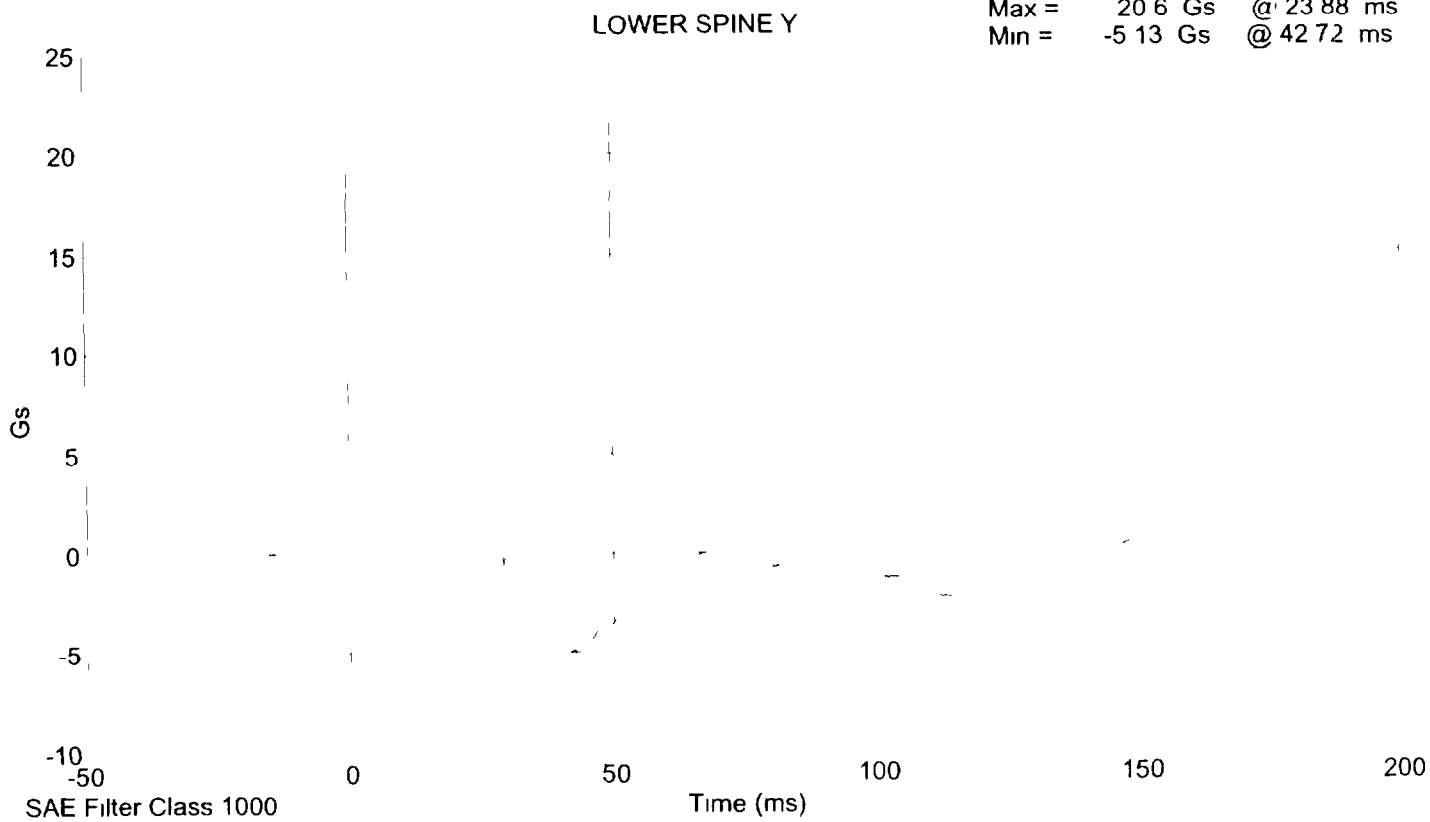
TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE (°C)	18.9 - 25.5	21.7
RELATIVE HUMIDITY (%)	10 - 70	30
PROBE SPEED (m/s)	4.27 - 4.33	4.31
UPPER RIB (g's)	37 - 46	39.6
LOWER RIB (g's)	37 - 46	38.5
LOWER SPINE (g's)	15 - 22	20.0

REMARKS: None

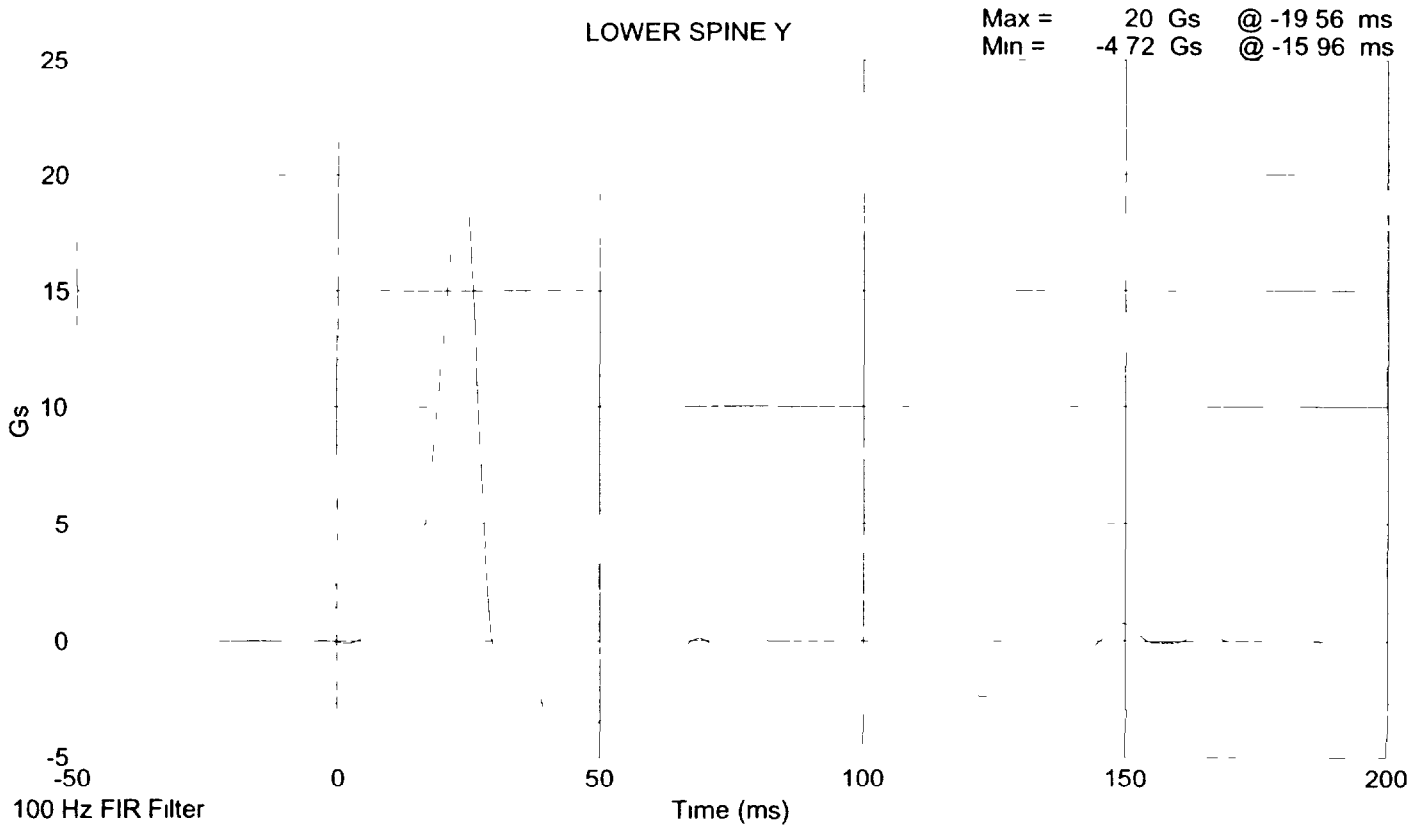
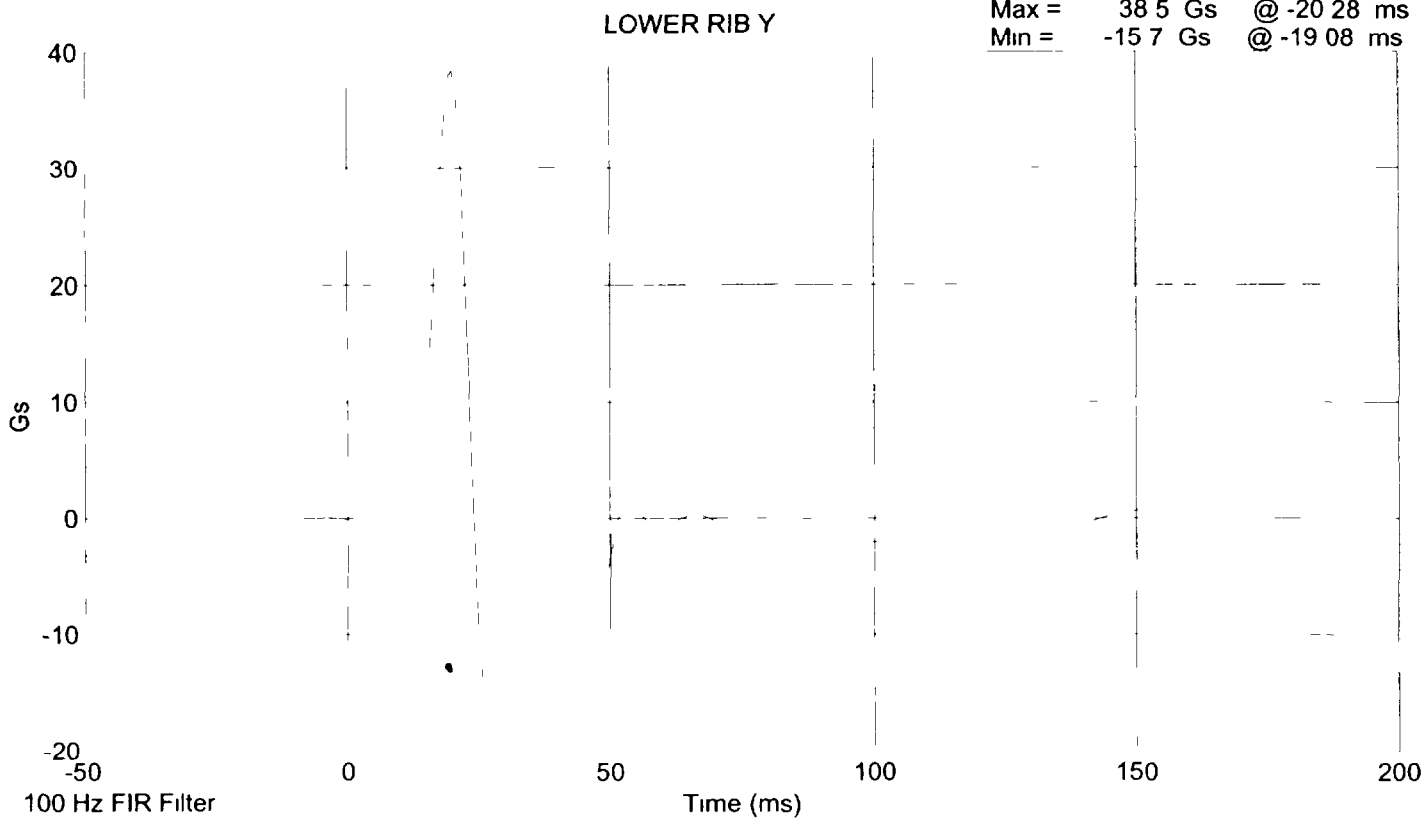
SID 013 Thorax Impact Test @ 4 3129 m/s



SID 013 Thorax Impact Test @ 4 3129 m/s



SID 013 Thorax Impact Test @ 4 3129 m/s



**LATERAL PELVIS IMPACT TEST
POST TEST I**

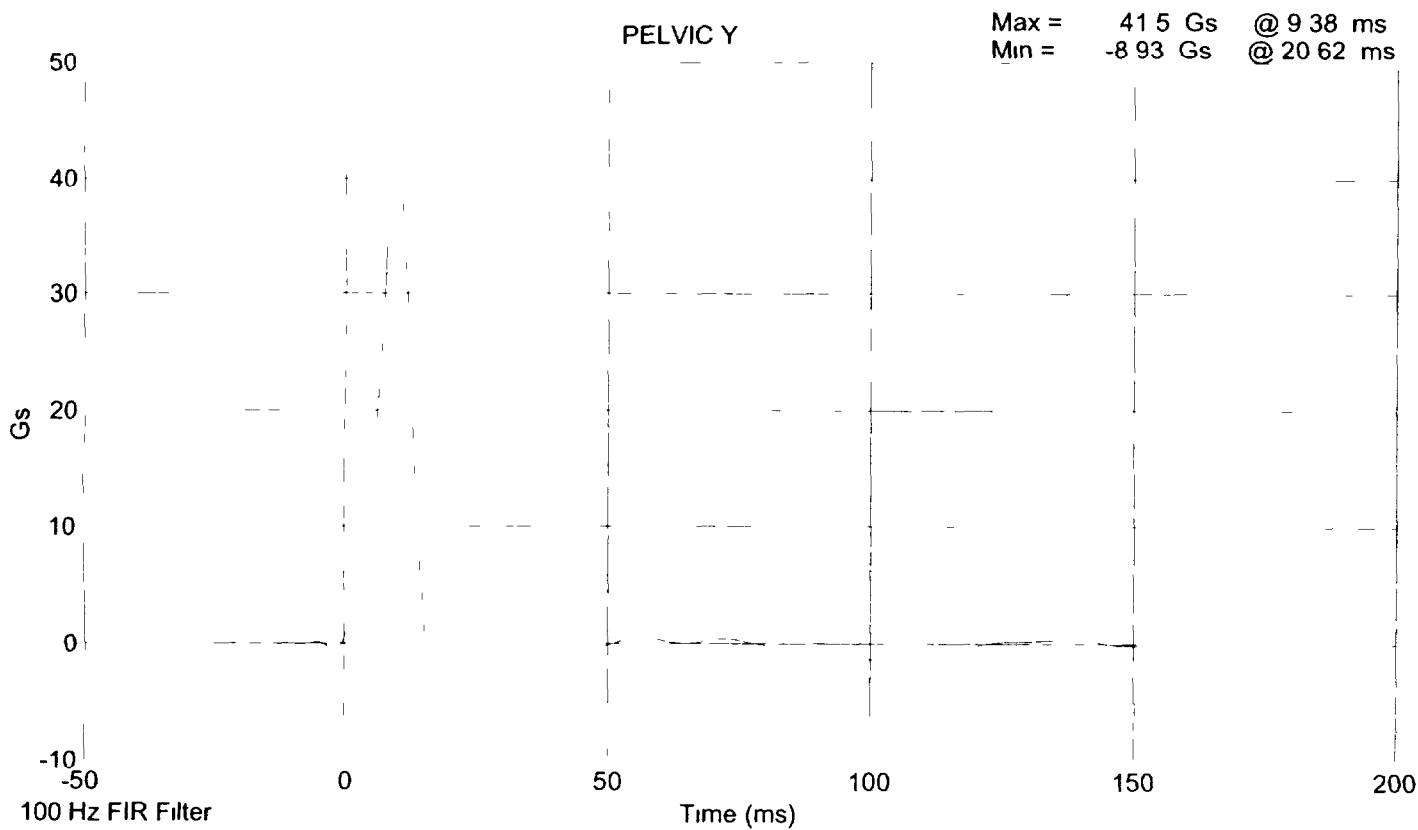
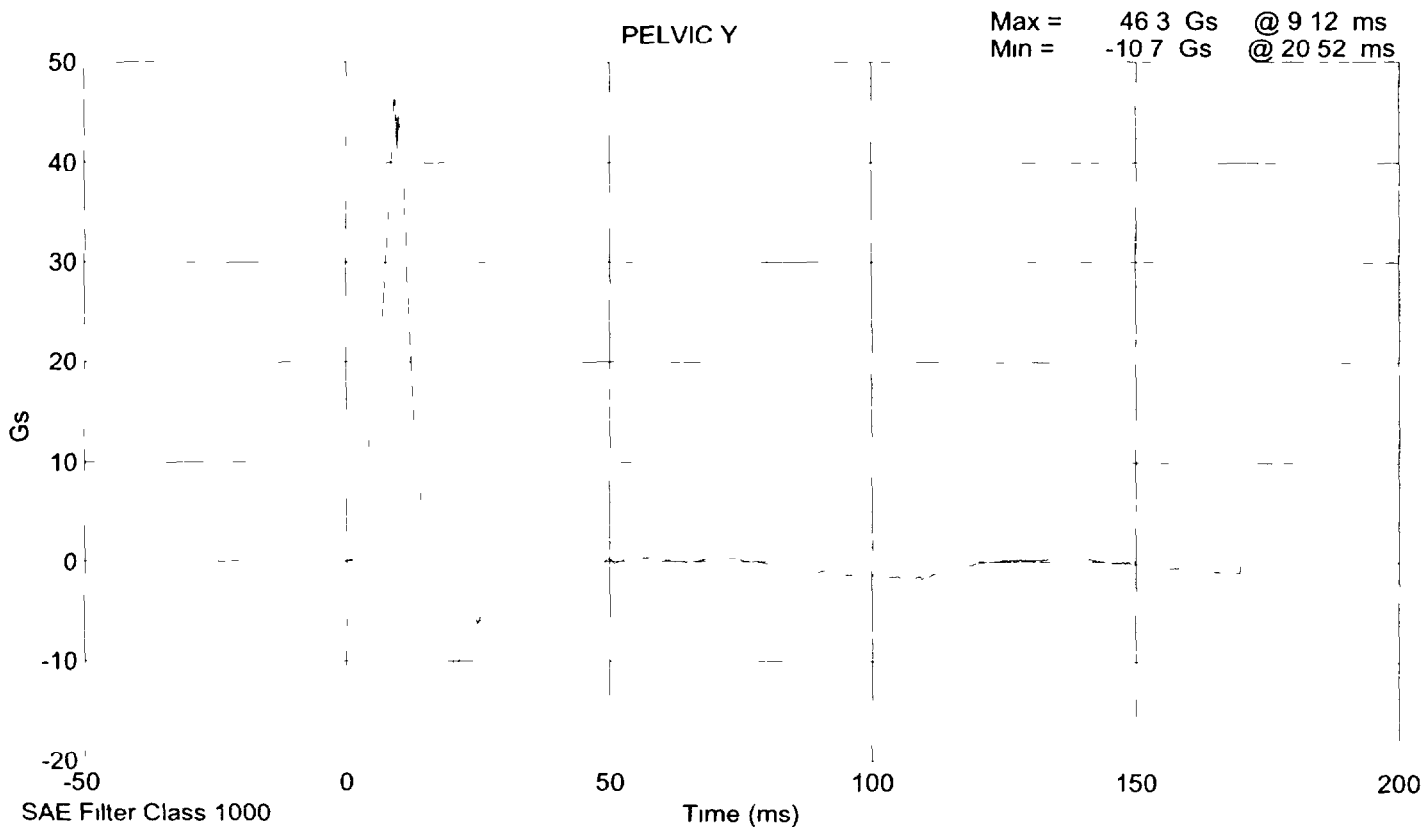
CONFIGURED FOR LEFT SIDE IMPACT

SID Serial No 013 Sequential Test Number 3
Date March 12, 2001 Laboratory Technician B. Swiecicki

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE (°C)	18.9 - 25.5	21.7
RELATIVE HUMIDITY (%)	10 - 70	30
PROBE SPEED (m/s)	4.27 - 4.33	4.27
PELVIS ACCELERATION (g's)	40 - 60	41.5

REMARKS: None

SID 013 Pelvic Impact Test @ 4 2733 m/s



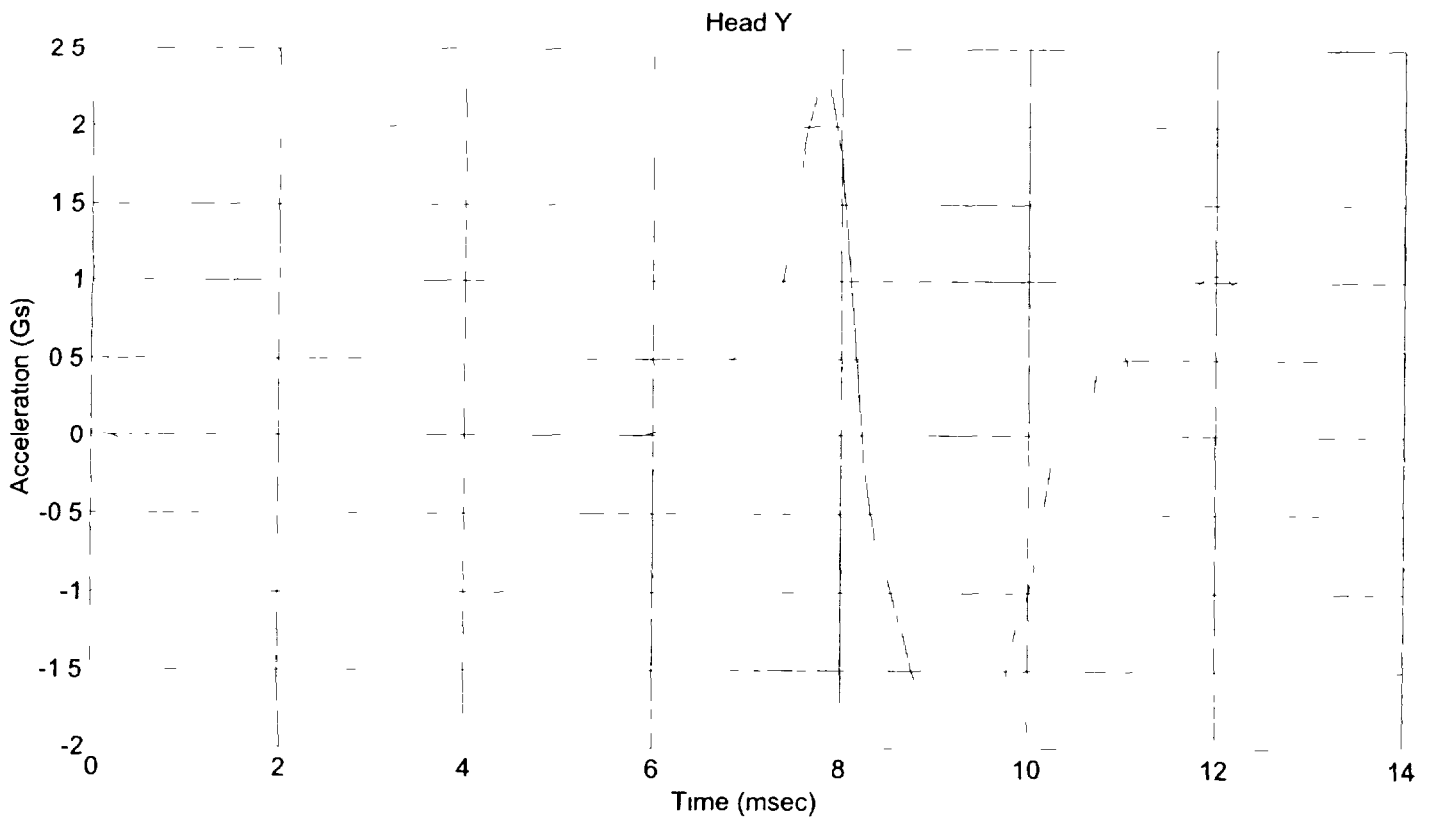
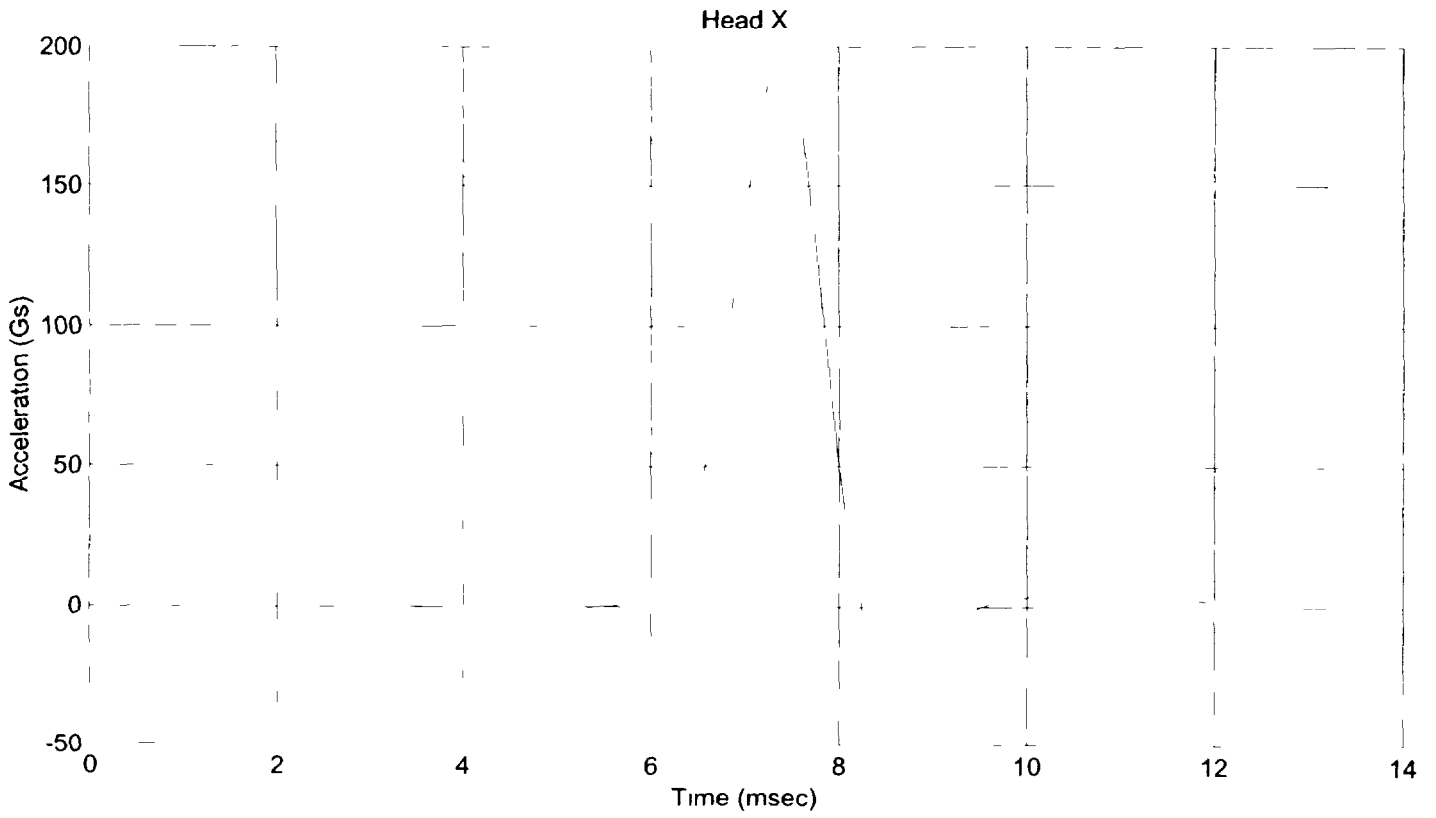
HEAD DROP TEST
POST-TEST
(Test not required for SID certification)

CONFIGURED FOR LEFT SIDE IMPACT

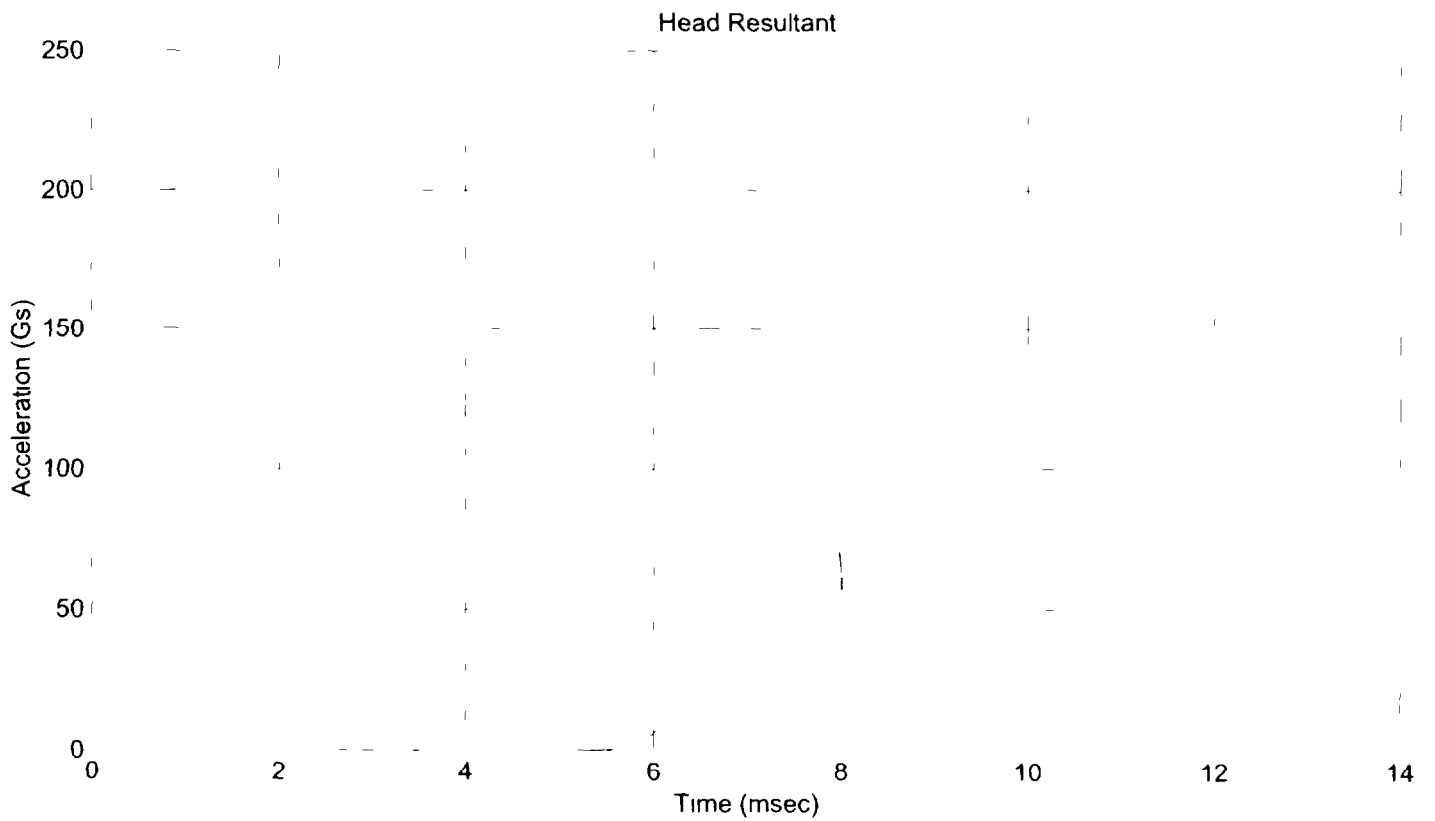
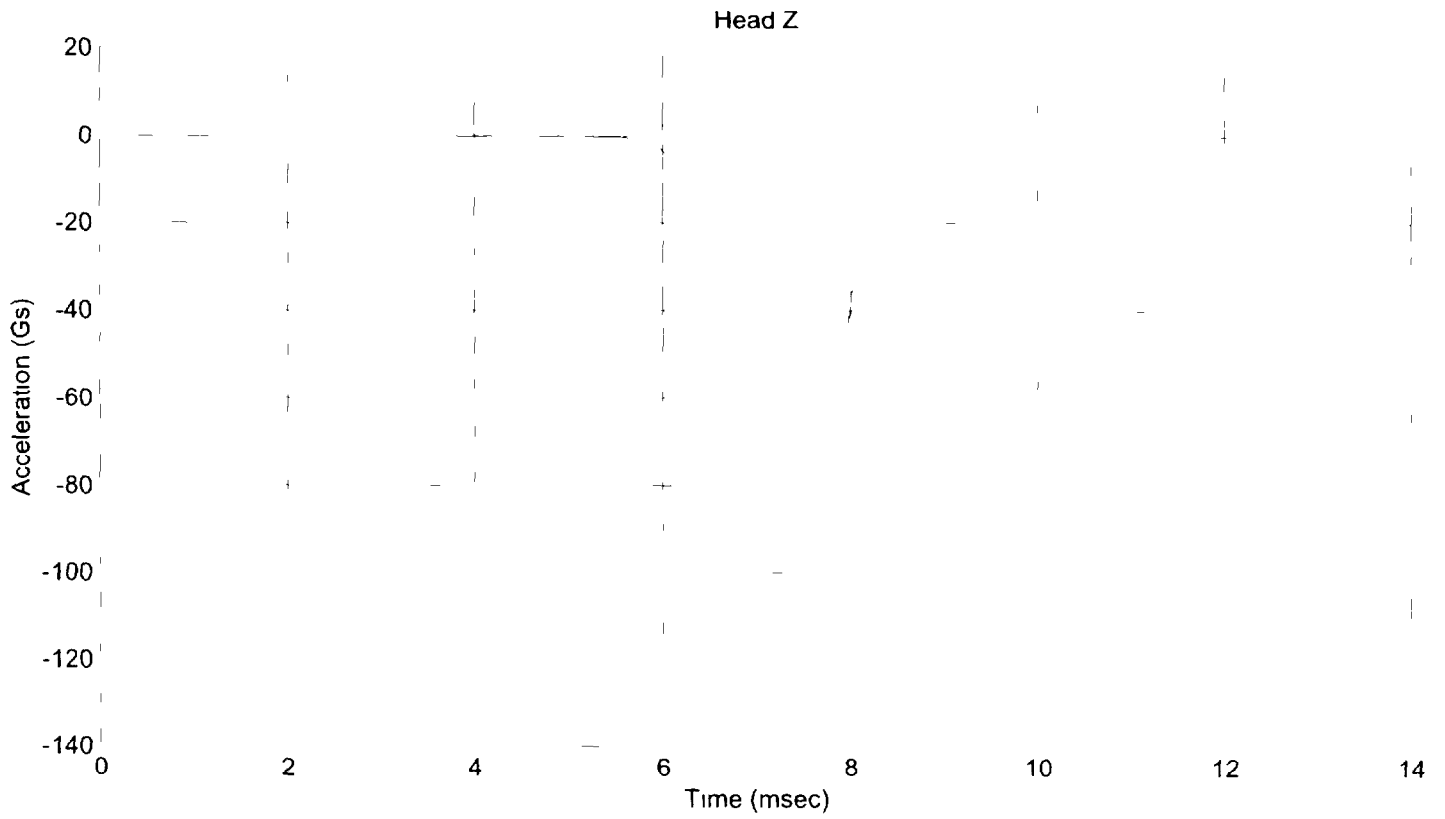
SID Serial No 013 Sequential Test Number 3
Date March 9, 2001 Laboratory Technician B Swiecicki

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE (°C)	18.9 - 25.5	21.7
RELATIVE HUMIDITY (%)	10 - 70	31.0
PEAK RESULTANT ACCELERATION (Gs)	210 - 260	234.99
PEAK LATERAL ACCELERATION (Gs)	Not to Exceed 10	2.21
UNIMODAL CRITERIA ABOVE 100 Gs (ms)	0.9 - 1.5	1.12

REMARKS: None



Hybrid II Head Drop Calibration 013501 hdp



ABDOMINAL COMPRESSION TEST

POST TEST

(Test not required for SID certification)

CONFIGURED FOR LEFT SIDE IMPACT

SID Serial No 013 Sequential Test Number 3
Date March 13, 2001 Laboratory Technician B Swiecicki

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE (°C)	18.9 - 25.5	21.1
RELATIVE HUMIDITY (%)	10 - 70	33
FORCE @ 13 mm (N)	104 - 162	116
FORCE @ 19 mm (N)	163 - 221	174
FORCE @ 25 mm (N)	222 - 280	240
FORCE @ 33 mm (N)	325 - 391	356

REMARKS: None

Dummy S/N --- 013 ---

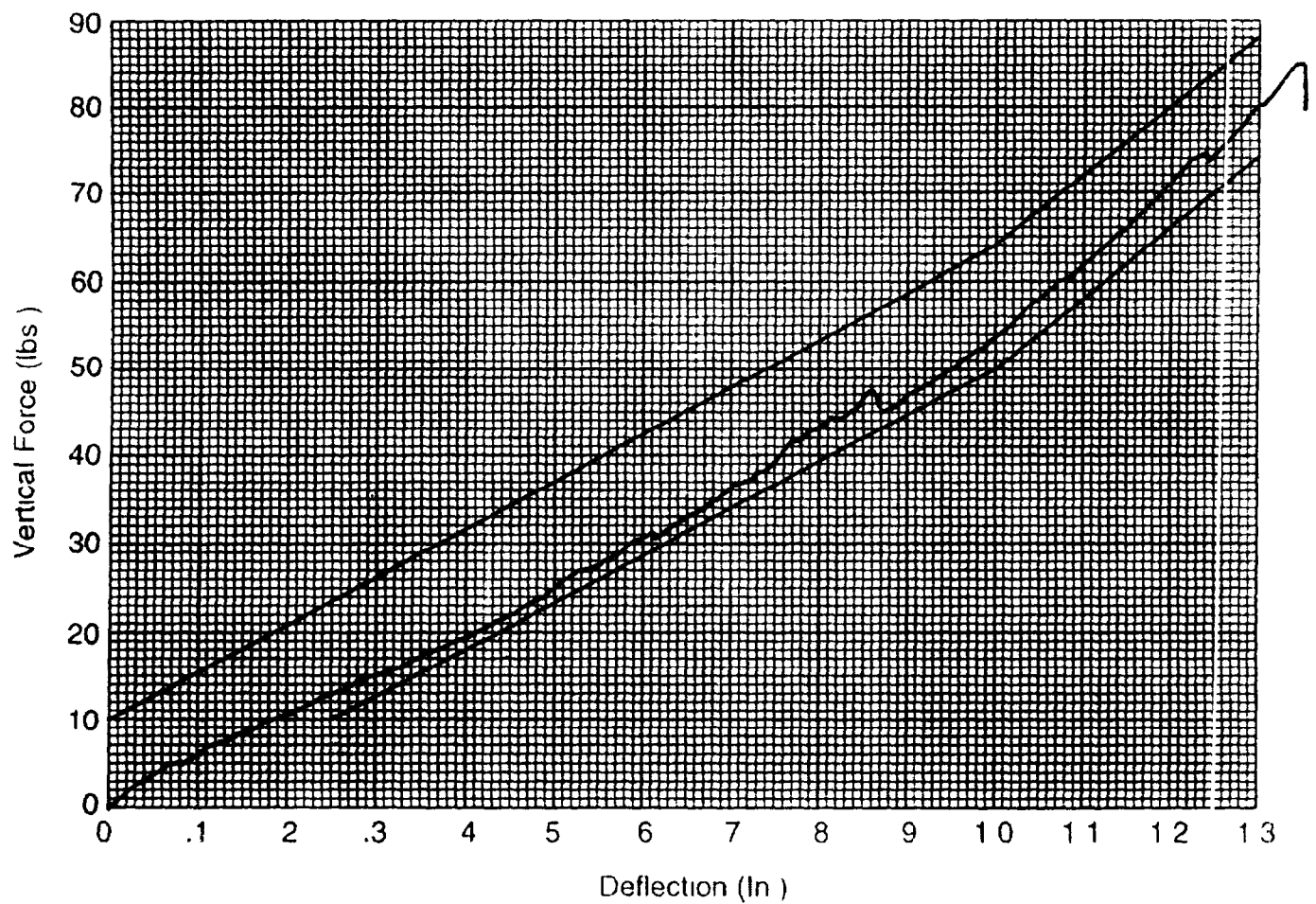
W/A _____

Date 3-13-2001

Performed By [Signature]

Temp 70°

Humidity 33%



Hybrid II
Abdomen Static Press

LUMBAR FLEXION TEST
POST TEST
(Test not required for SID certification)

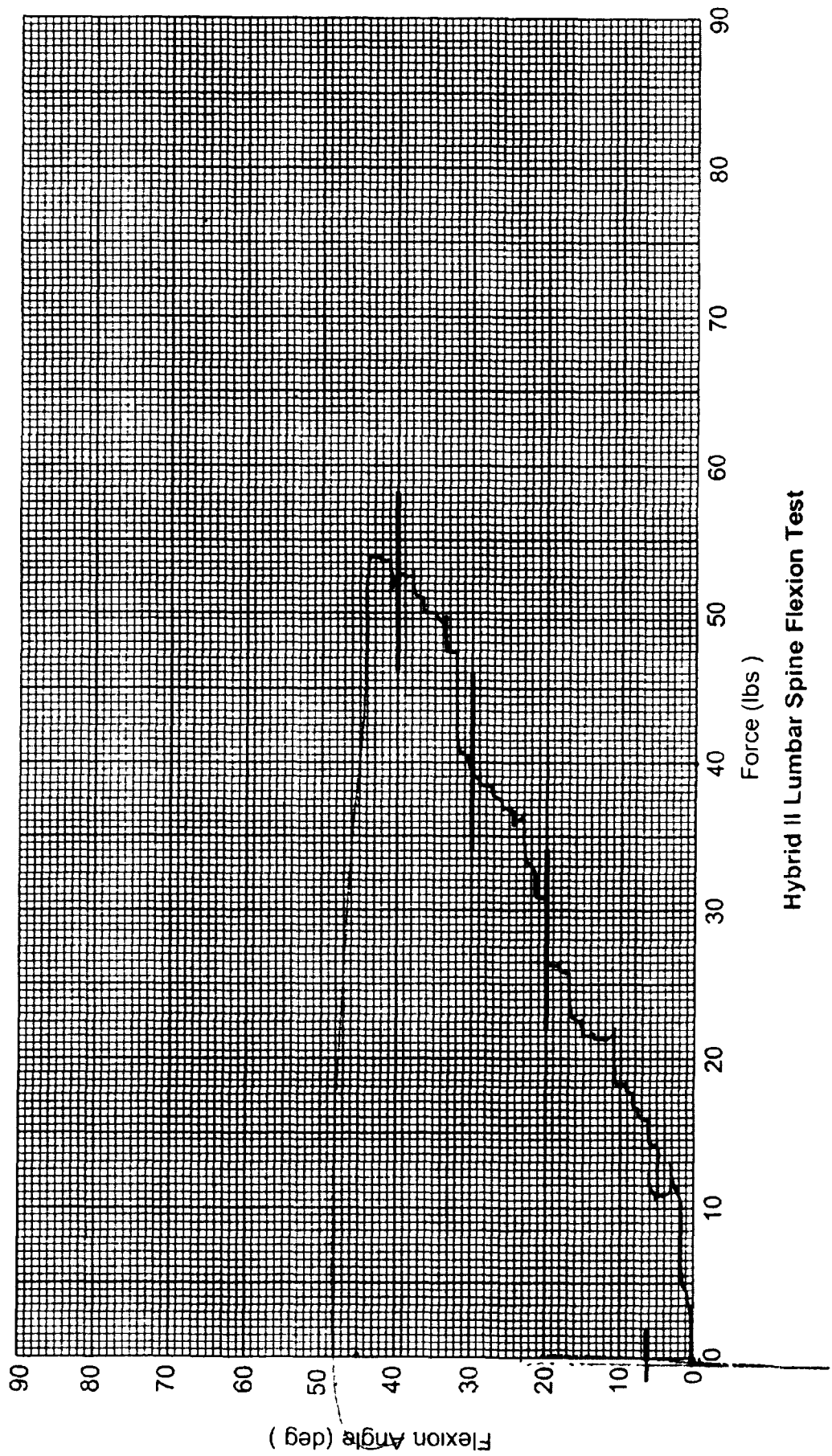
CONFIGURED FOR LEFT SIDE IMPACT

SID Serial No 013 Sequential Test Number 3
Date March 13, 2001 Laboratory Technician B Swięcicki

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE (°C)	18.9 - 25.5	21.1
RELATIVE HUMIDITY (%)	10 - 70	32.0
FORCE @ 0° (N)	0 - 267	0
FORCE @ 20° (N)	97.8 - 151.2	118.0
FORCE @ 30° (N)	151.2 - 204.6	173.5
FORCE @ 40° (N)	204.6 - 258	233.5
RETURN ANGLE	12° max	6.1°

REMARKS: None

Dummy S/N 013
 W/A _____
 Date 3-13-2001
 Performed By [Signature]
 Temp. 70°
 Humidity 32%



Hybrid II Lumbar Spine Flexion Test

C-60

8502-25

POST TEST DUMMY INSPECTION LIST

CONFIGURED FOR LEFT SIDE IMPACT

SID Serial No 013 Sequential Test Number 3
 Date March 13, 2001 Laboratory Technician B Swiecicki

PART	ITEMS CHECKED	COMMENTS
SKIN	VISUAL INSPECTION	OK
HEAD	VISUAL, BALLAST, ACCELEROMETER MOUNT	OK
NECK	VISUAL, CABLE TORQUE	OK
SPINE BOX	VISUAL, BALLAST, WELDMENT, ACCELEROMETER MOUNT	OK
RIB CAGE	VISUAL, MEASURE, STIFFENERS	OK
STERNUM	VISUAL	OK
LUMBAR SPINE	VISUAL	OK
ABDOMEN	VISUAL	OK
PELVIS	VISUAL, PALPATE, ACCELEROMETER MOUNT	OK
UPPER LEGS	VISUAL	OK
KNEES	VISUAL STOPS, INSERTS	OK
LOWER LEGS	VISUAL, RANGE OF MOTION	OK
ANKLES	VISUAL RANGE OF MOTION	OK
FEET	VISUAL RANGE OF MOTION	OK
JOINTS	1 TO 2 g RANGE	OK
OTHER	NONE	-

REMARKS: None

**CALIBRATION TEST RESULTS
POST TEST**

SID NO.: 268

CONFIGURED FOR LEFT SIDE IMPACT

**CALIBRATION TEST RESULTS SUMMARY
POST TEST**

CONFIGURED FOR LEFT SIDE IMPACT

SID Serial No 268 Sequential Test Number 5
Date March 13, 2001 Laboratory Technician B Swiecicki

TEST	COMMENTS
EXTERNAL DIMENSIONS	Passed all requirements
LATERAL THORAX IMPACT TEST	Passed all requirements
LATERAL PELVIS IMPACT TEST	Passed all requirements
HEAD DROP TEST*	Passed all requirements
ABDOMINAL COMPRESSION TEST*	Passed all requirements
LUMBAR FLEXION TEST*	Passed all requirements

* Test not required for SID certification

REMARKS: None

**EXTERNAL DIMENSIONS
POST TEST**

CONFIGURED FOR LEFT SIDE IMPACT

SID Serial No 268 Sequential Test Number 5
Date March 13, 2001 Laboratory Technician B Swiecicki

TEST PARAMETER	SPECIFICATION	TEST RESULTS
SH- Seated Height (mm)	889 - 909	899
RH- Rib Height (mm)	502 - 520	511
HP- Hip Pivot Height (mm)	99 ref	99
RD- Rib from Back Line (mm)	229 - 241	236
KH- Knee Pivot from Back Line (mm)	511 - 526	518
KV- Knee Pivot to Floor (mm)	490 - 505	495
HW- Hip Width (mm)	356 - 391	379

REMARKS: None

LATERAL THORAX IMPACT TEST
POST TEST

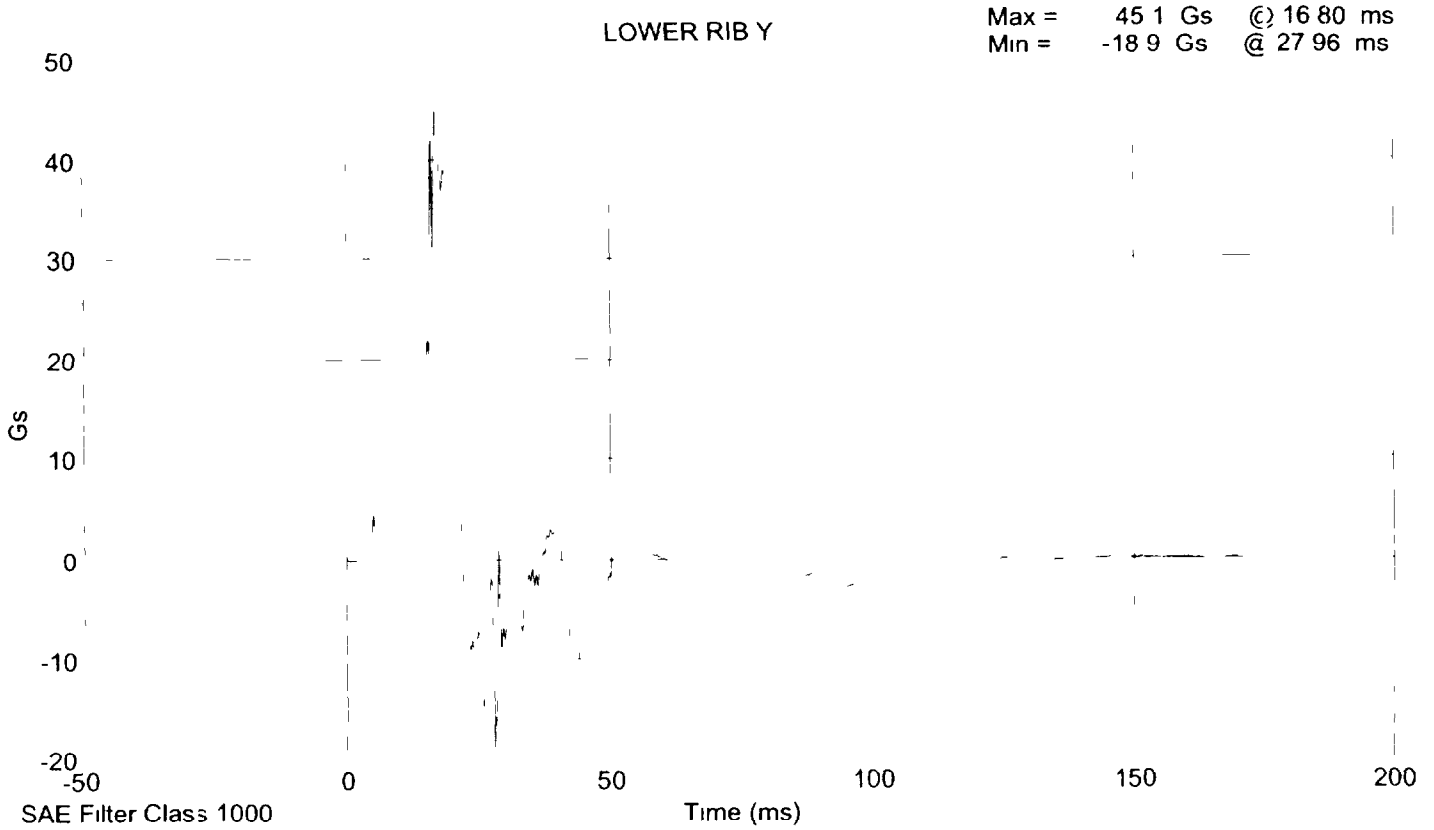
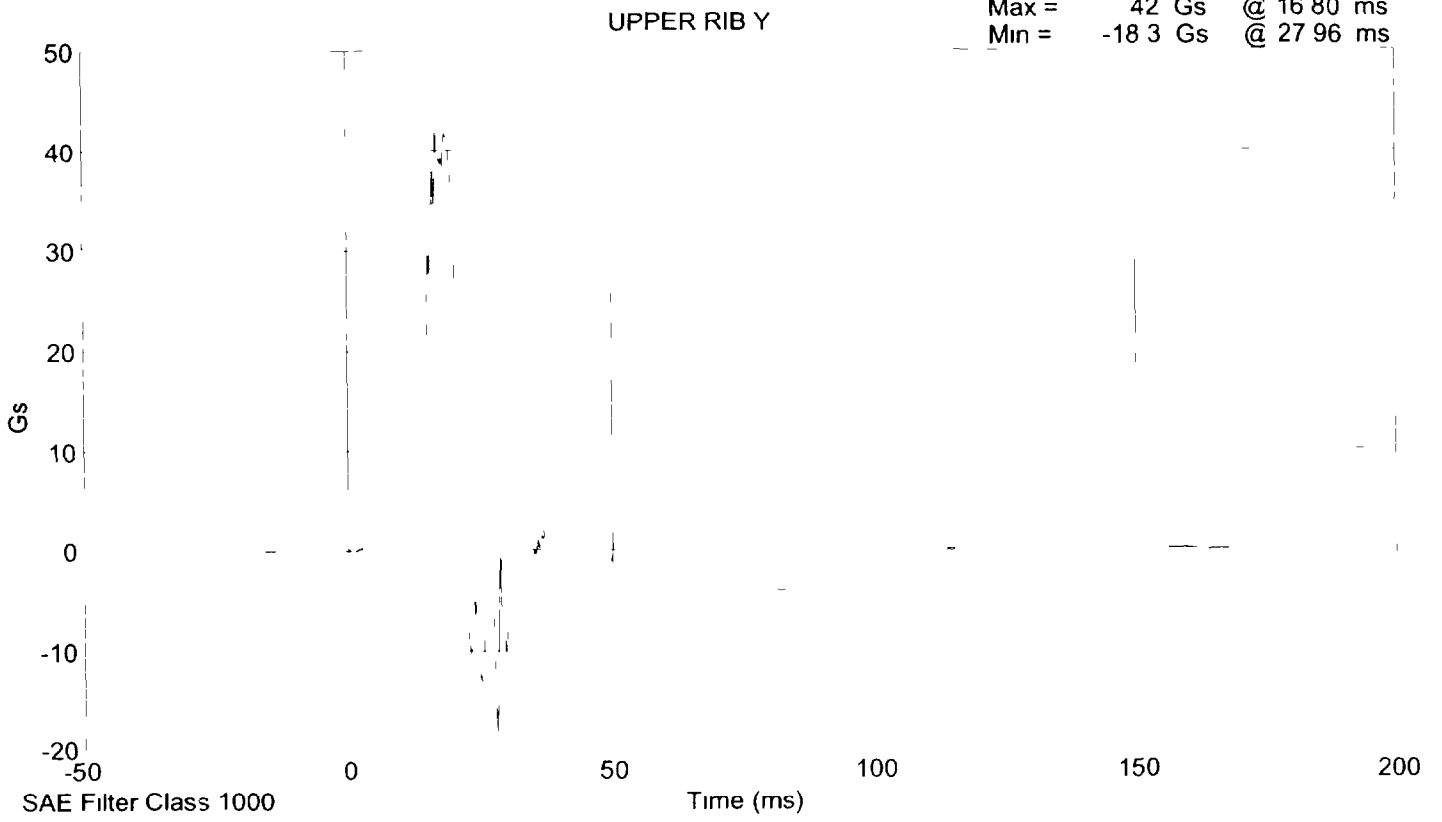
CONFIGURED FOR LEFT SIDE IMPACT

SID Serial No 268 Sequential Test Number 5
Date March 12, 2001 Laboratory Technician B Swiecicki

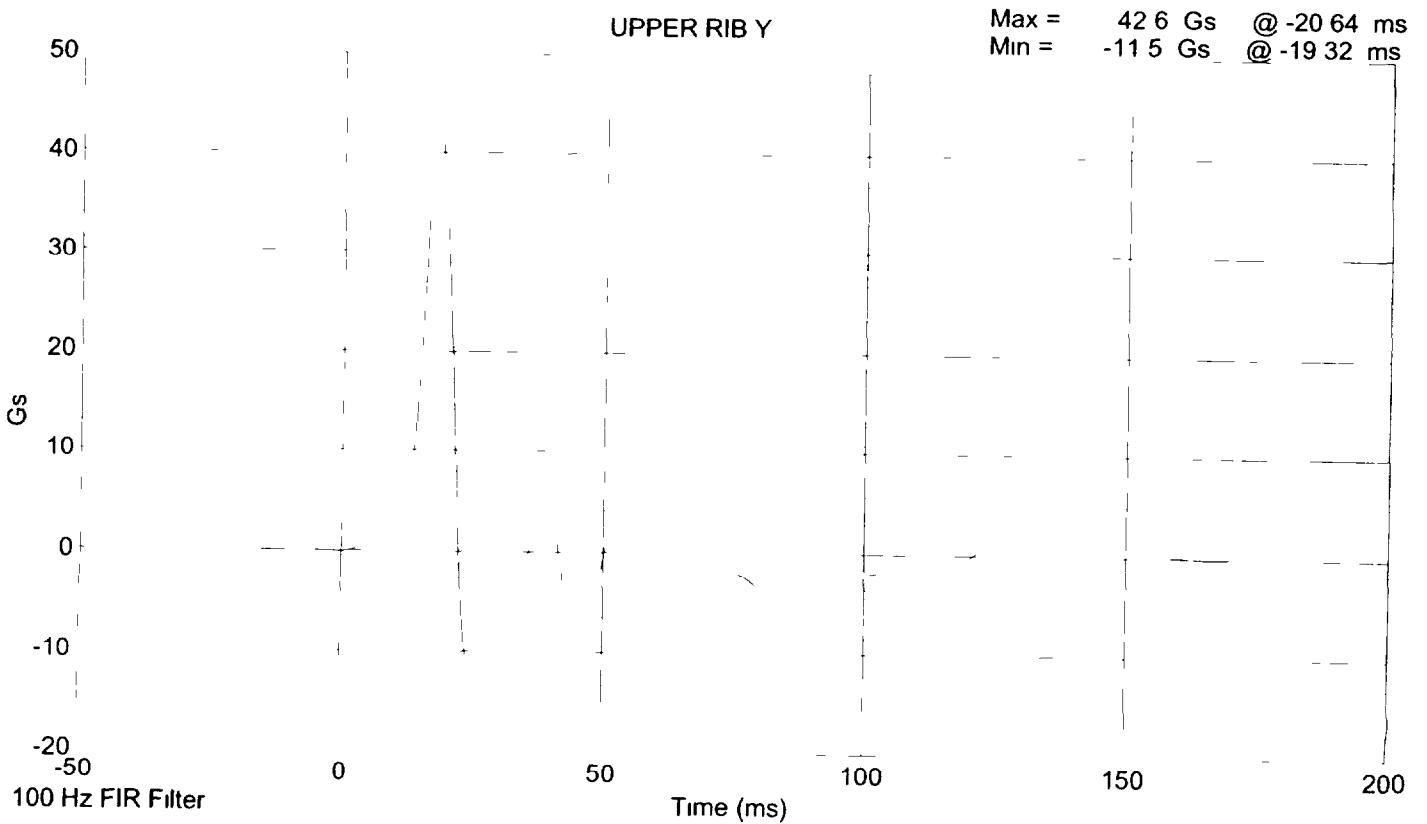
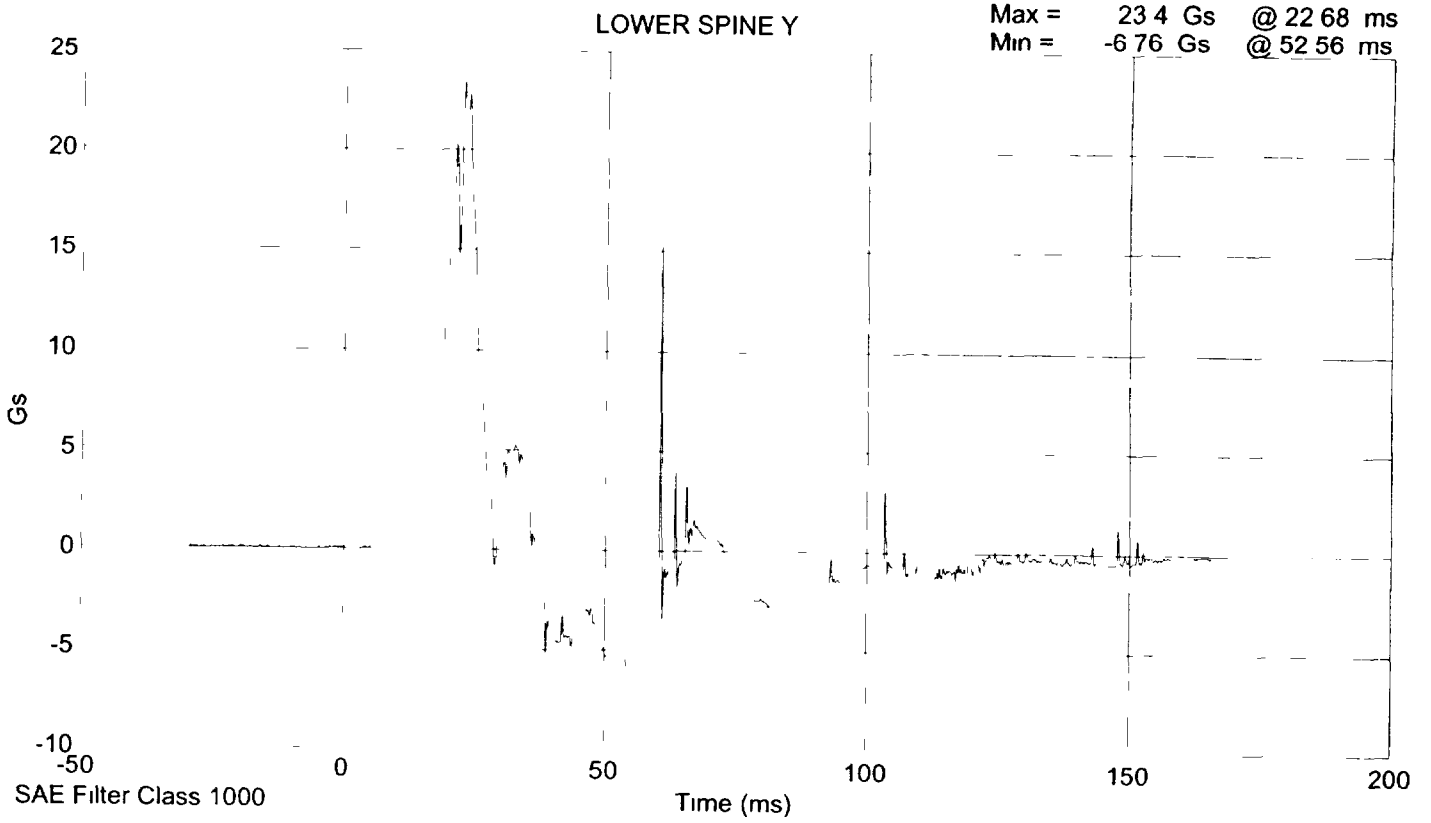
TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE (°C)	18.9 - 25.5	21.7
RELATIVE HUMIDITY (%)	10 - 70	30
PROBE SPEED (m/s)	4.27 - 4.33	4.32
UPPER RIB (g's)	37 - 46	42.6
LOWER RIB (g's)	37 - 46	41.3
LOWER SPINE (g's)	15 - 22	20.7

REMARKS: None

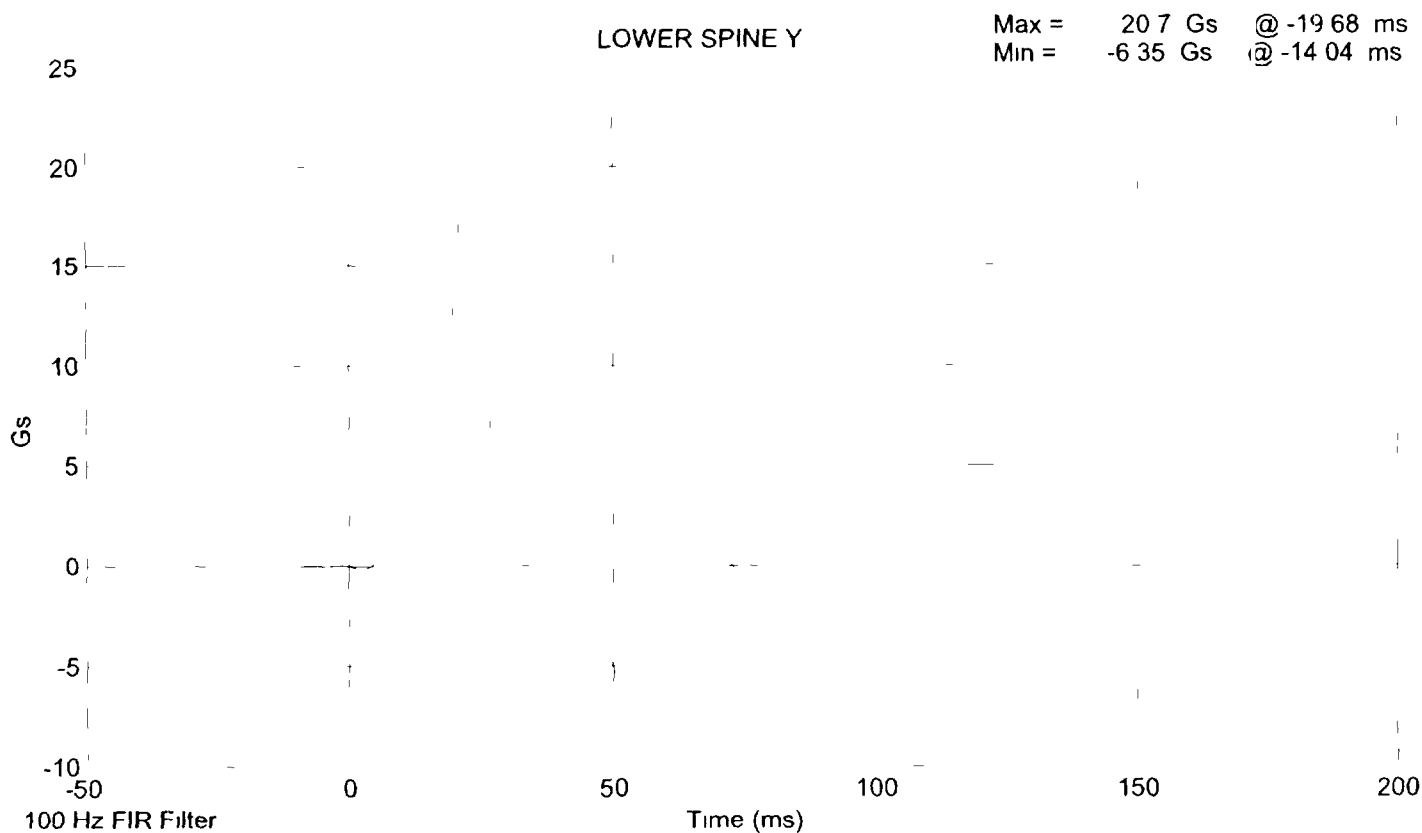
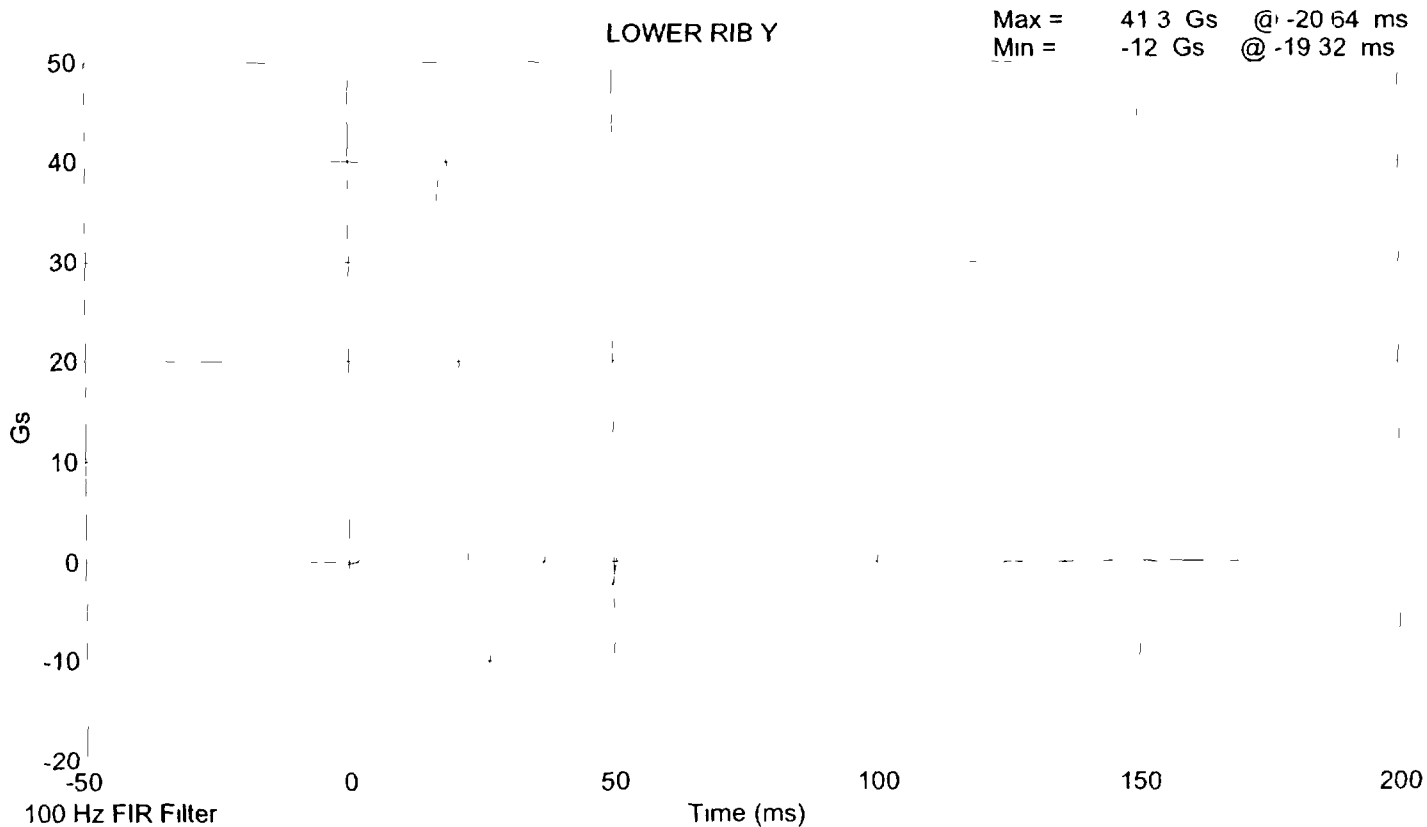
SID 268 Thorax Impact Test @ 4 319 m/s



SID 268 Thorax Impact Test @ 4 319 m/s



SID 268 Thorax Impact Test @ 4 319 m/s



LATERAL PELVIS IMPACT TEST
POST TEST

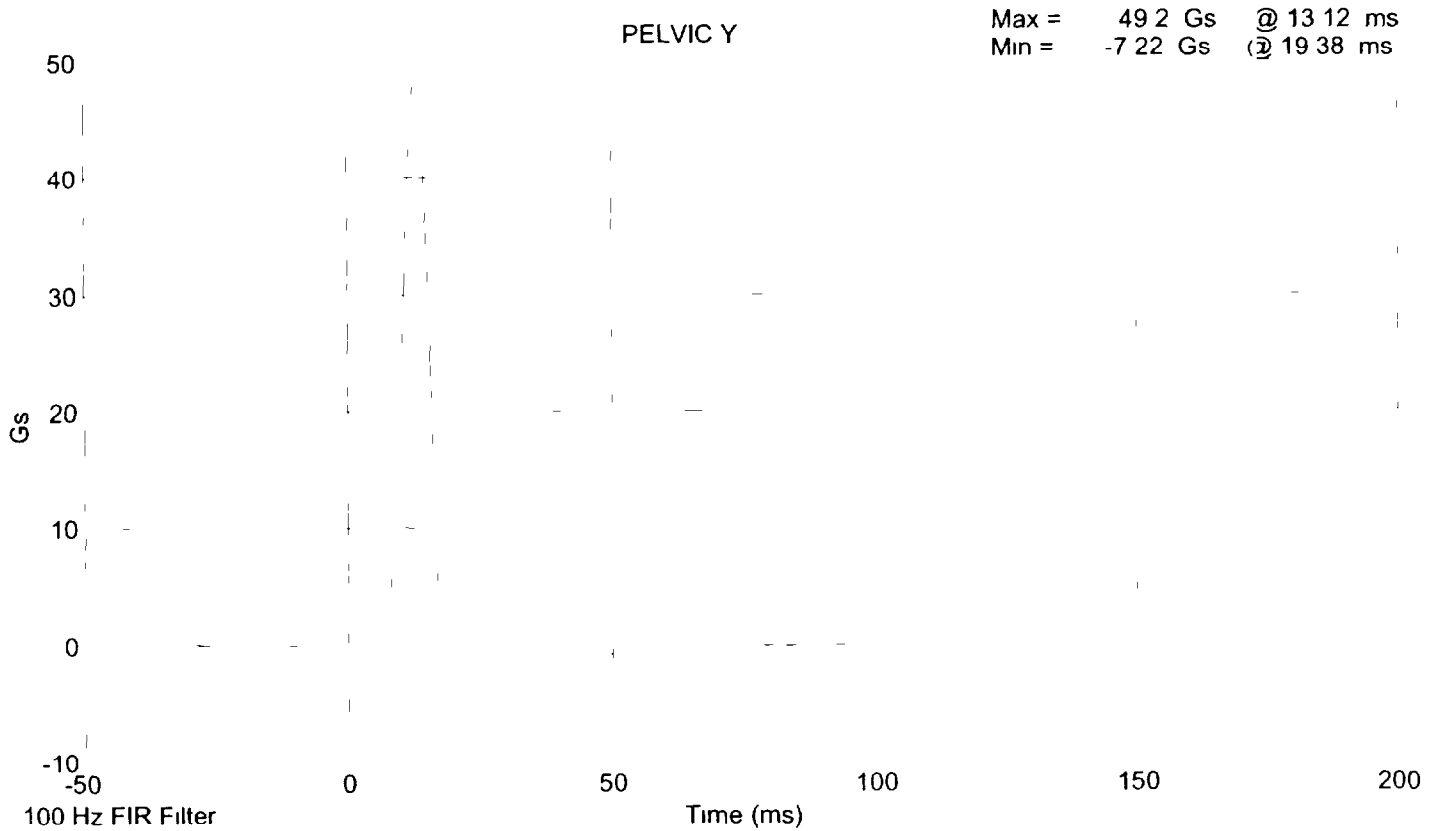
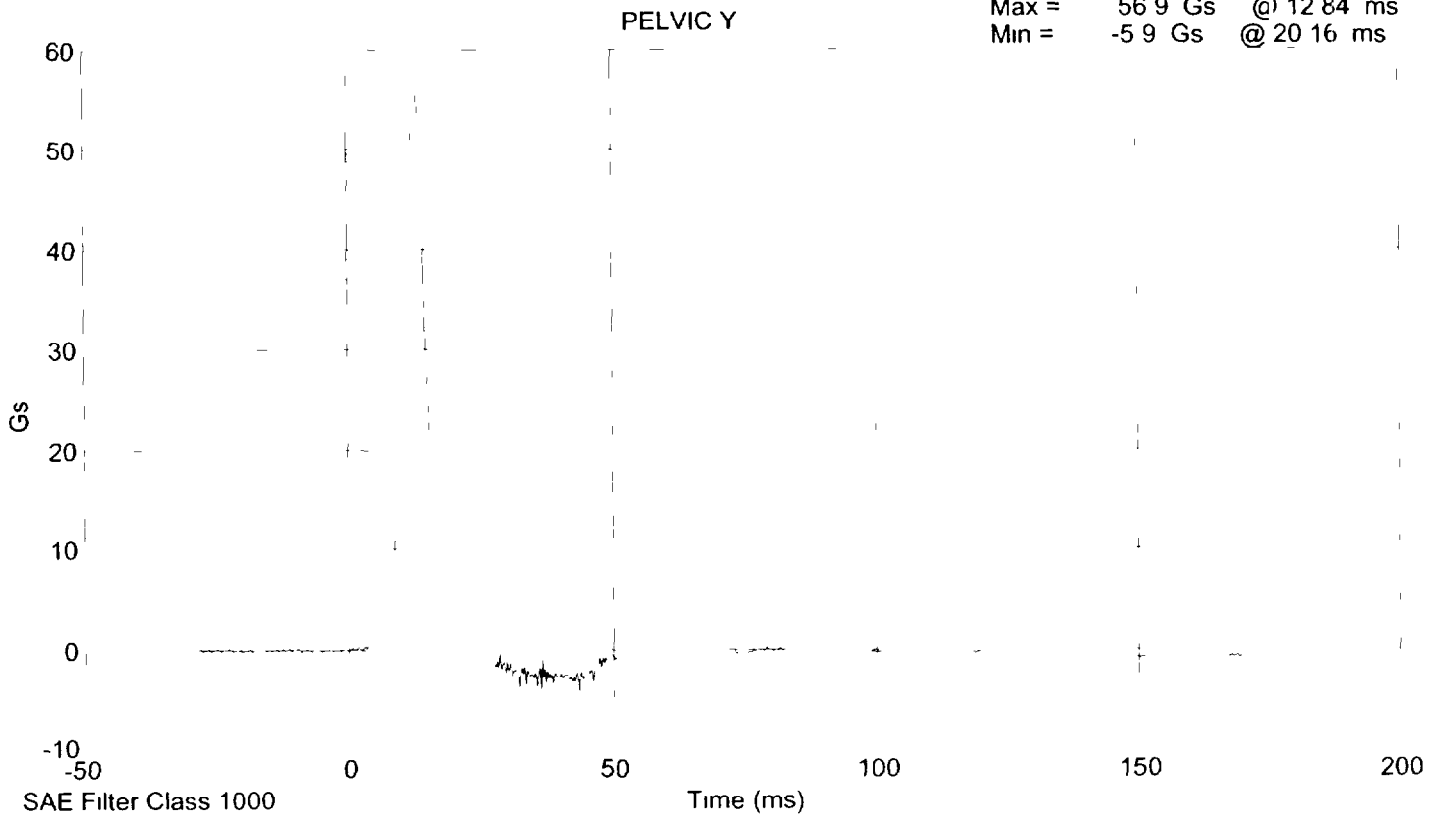
CONFIGURED FOR LEFT SIDE IMPACT

SID Serial No 268 Sequential Test Number 5
Date March 12, 2001 Laboratory Technician B Swiecicki

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE (°C)	18.9 - 25.5	21.7
RELATIVE HUMIDITY (%)	10 - 70	30
PROBE SPEED (m/s)	4.27 - 4.33	4.27
PELVIS ACCELERATION (g's)	40 - 60	49.2

REMARKS: None

SID 268 Pelvic Impact Test @ 4 2702 m/s



HEAD DROP TEST
POST-TEST
(Test not required for SID certification)

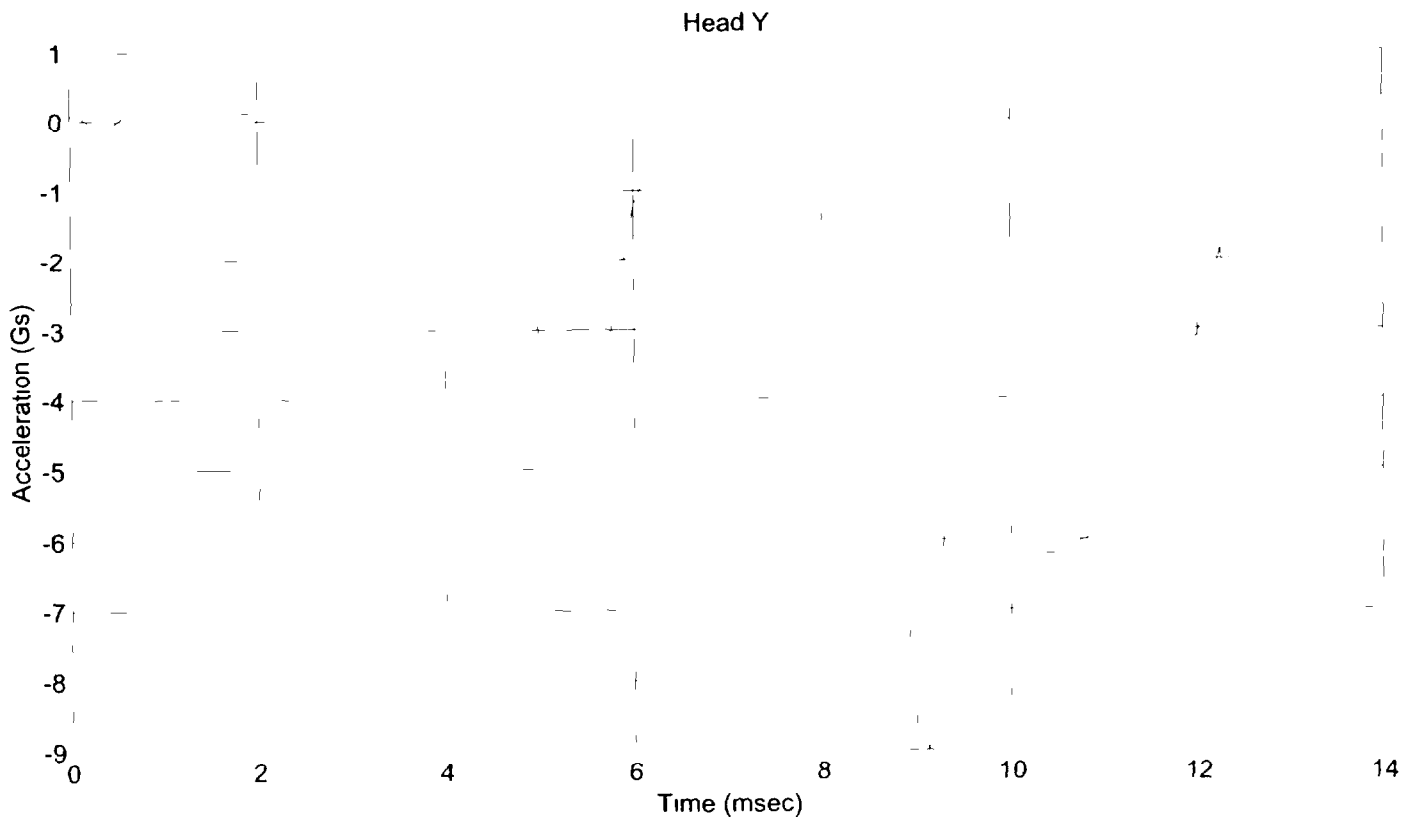
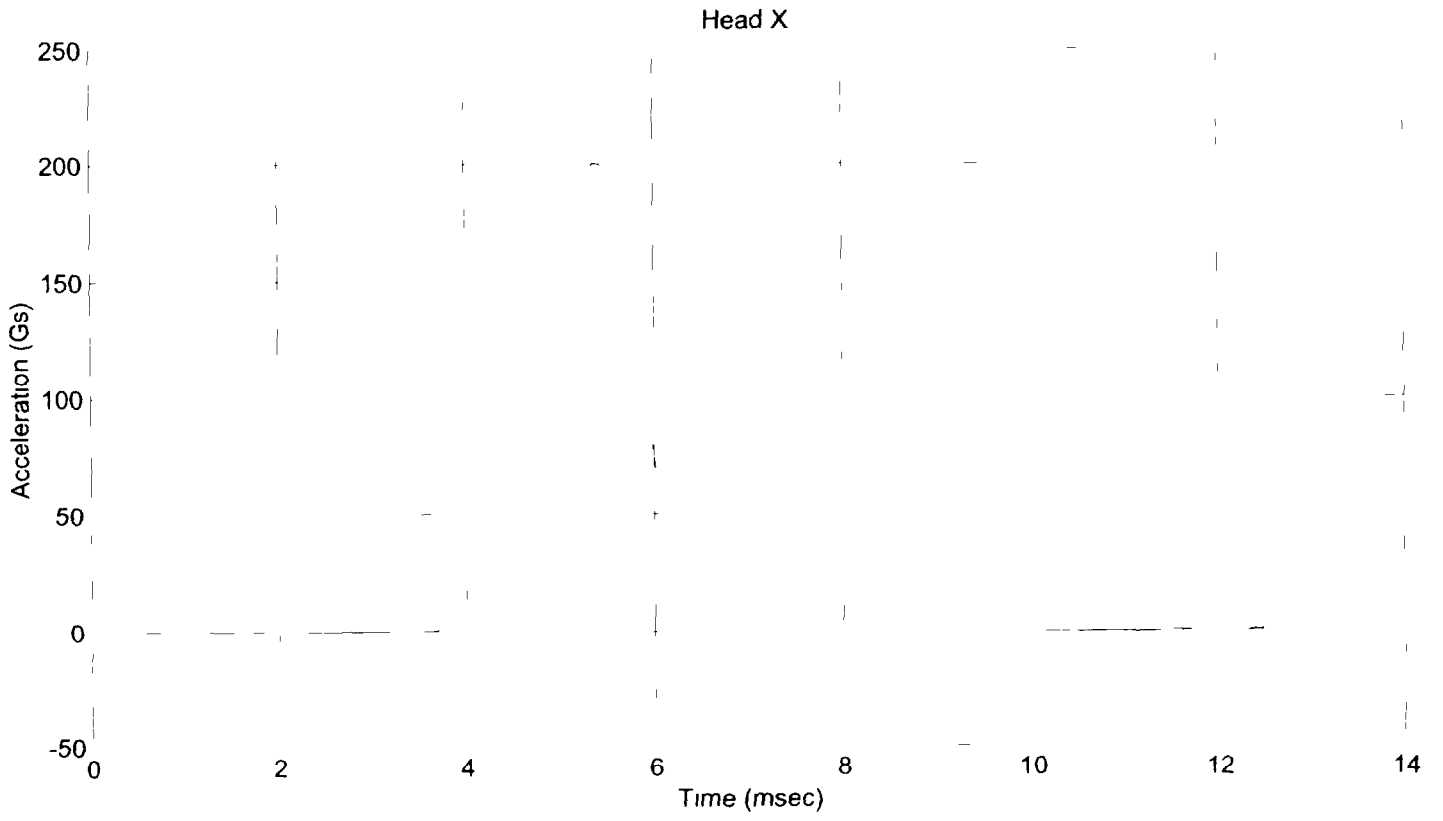
CONFIGURED FOR LEFT SIDE IMPACT

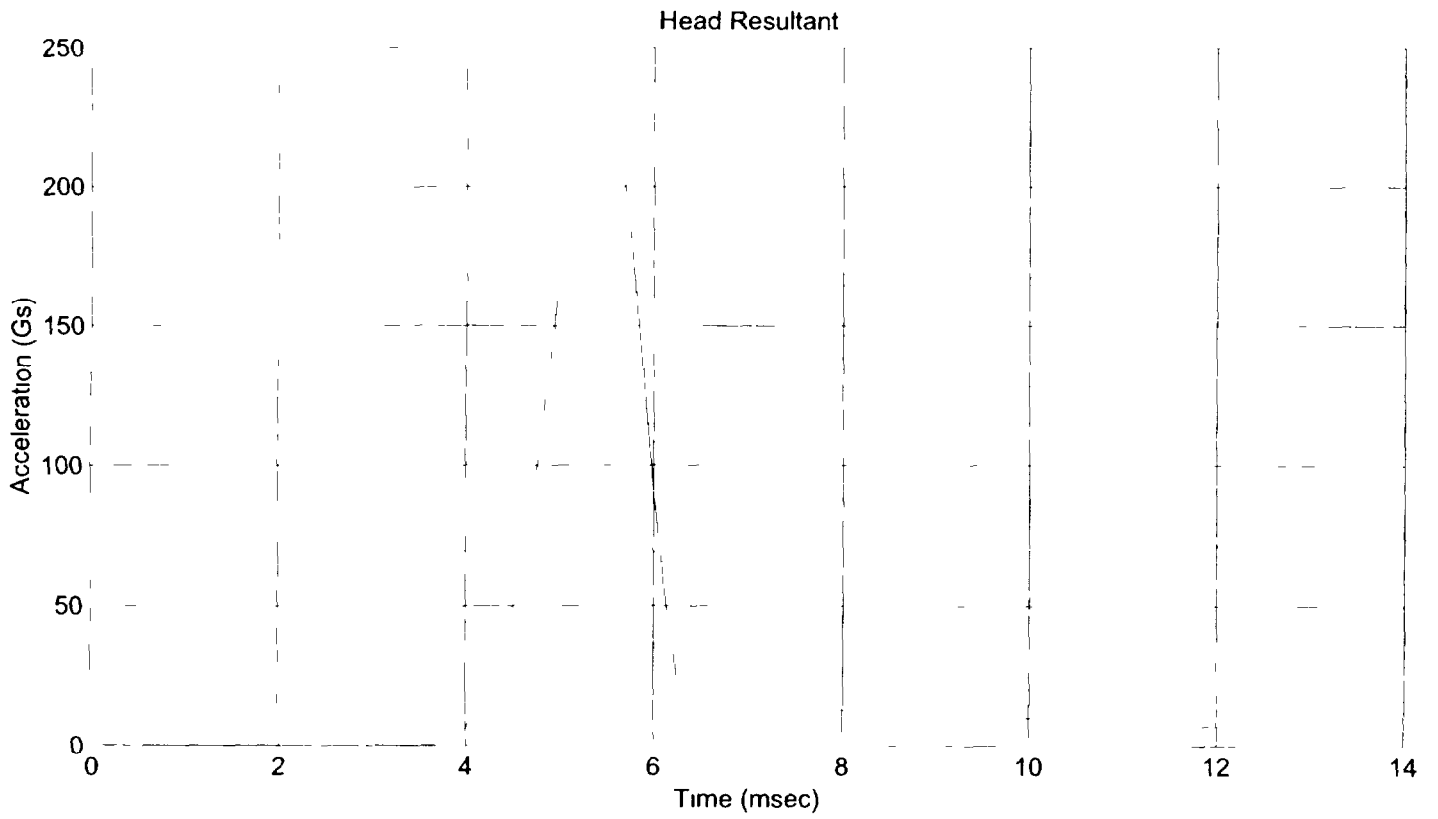
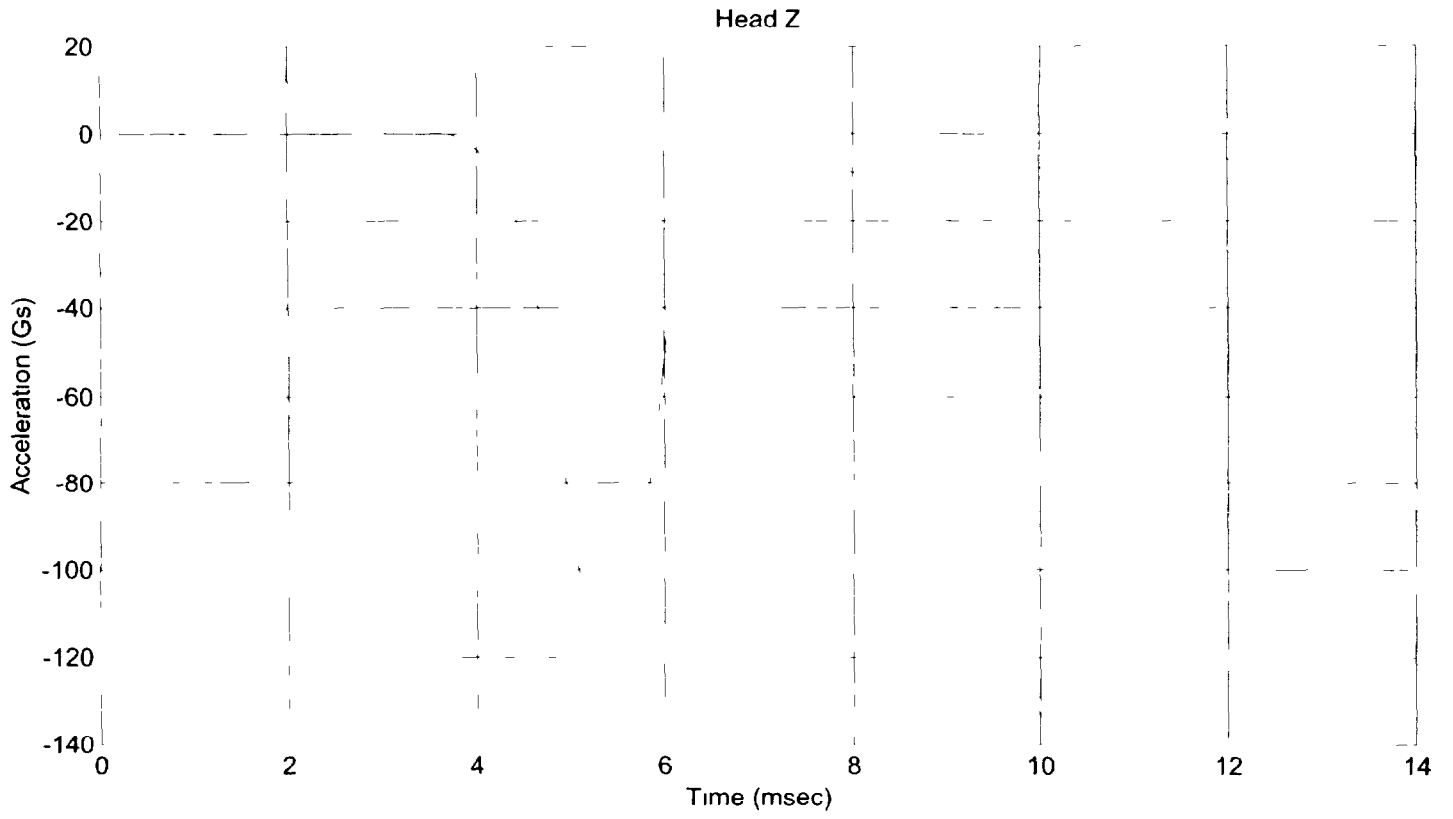
SID Serial No 268 Sequential Test Number 5
Date March 9, 2001 Laboratory Technician B Swiecicki

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE (°C)	18.9 - 25.5	21.7
RELATIVE HUMIDITY (%)	10 - 70	31.0
PEAK RESULTANT ACCELERATION (Gs)	210 - 260	237.88
PEAK LATERAL ACCELERATION (Gs)	Not to Exceed 10	9.00
UNIMODAL CRITERIA ABOVE 100 Gs (ms)	0.9 - 1.5	1.25

REMARKS: None

Hybrid II Head Drop Calibration 268301 hdp





ABDOMINAL COMPRESSION TEST
POST TEST
(Test not required for SID certification)

CONFIGURED FOR LEFT SIDE IMPACT

SID Serial No 268 Sequential Test Number 5
Date March 13, 2001 Laboratory Technician B Swiecicki

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE (°C)	18.9 - 25.5	21.1
RELATIVE HUMIDITY (%)	10 - 70	33
FORCE @ 13 mm (N)	104 - 162	106.8
FORCE @ 19 mm (N)	163 - 221	177.5
FORCE @ 25 mm (N)	222 - 280	258.0
FORCE @ 33 mm (N)	325 - 391	382.5

REMARKS: None

Dummy S/N 268

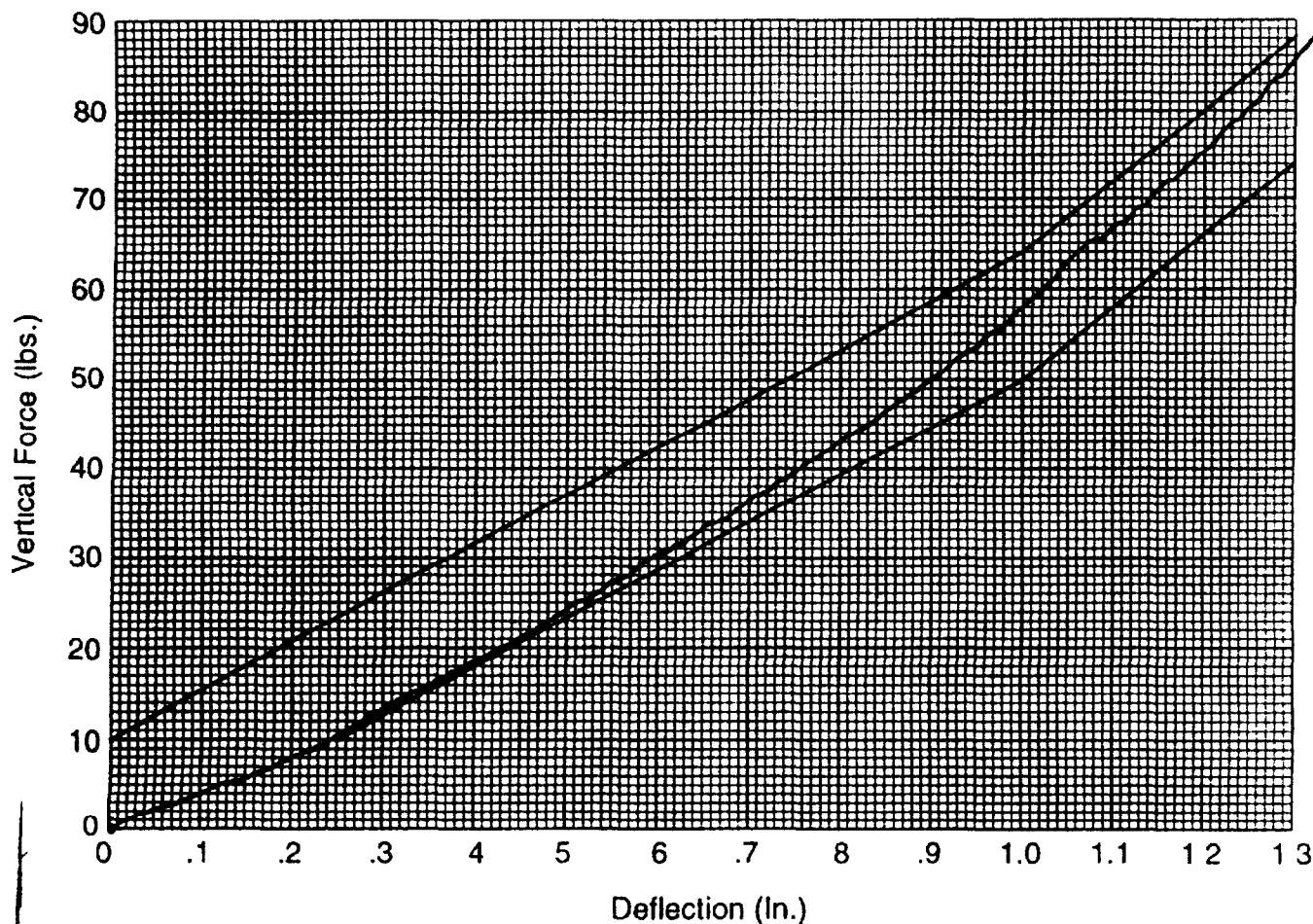
W/A _____

Date 3-13-2001

Performed By ESR

Temp 70°

Humidity 33%



**Hybrid II
Abdomen Static Press**

LUMBAR FLEXION TEST
POST TEST
 (Test not required for SID certification)

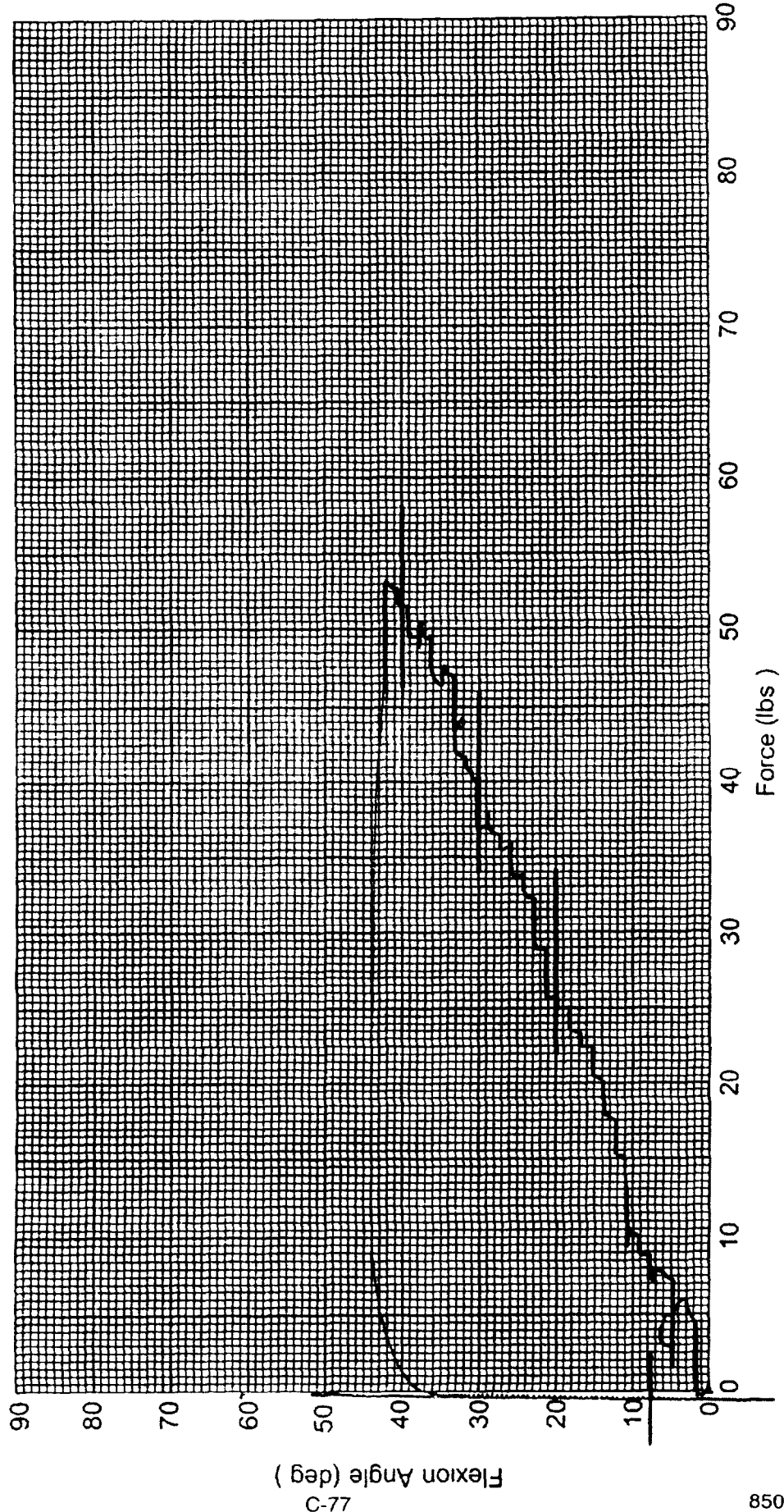
CONFIGURED FOR LEFT SIDE IMPACT

SID Serial No 268 Sequential Test Number 5
 Date March 13, 2001 Laboratory Technician B Swiecicki

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE (°C)	18.9 - 25.5	21.1
RELATIVE HUMIDITY (%)	10 - 70	32.0
FORCE @ 0° (N)	0 - 26.7	0
FORCE @ 20° (N)	97.8 - 151.2	113.4
FORCE @ 30° (N)	151.2 - 204.6	164.6
FORCE @ 40° (N)	204.6 - 258	229.1
RETURN ANGLE	12° max	7.9°

REMARKS: None

Dummy S/N 268
 W/A _____
 Date 3-13-2001
 Performed By [Signature]
 Temp. 70°
 Humidity 32%



Hybrid II Lumbar Spine Flexion Test

8502-25

POST TEST DUMMY INSPECTION LIST

CONFIGURED FOR LEFT SIDE IMPACT

SID Serial No 268

Sequential Test Number _____

Date _____

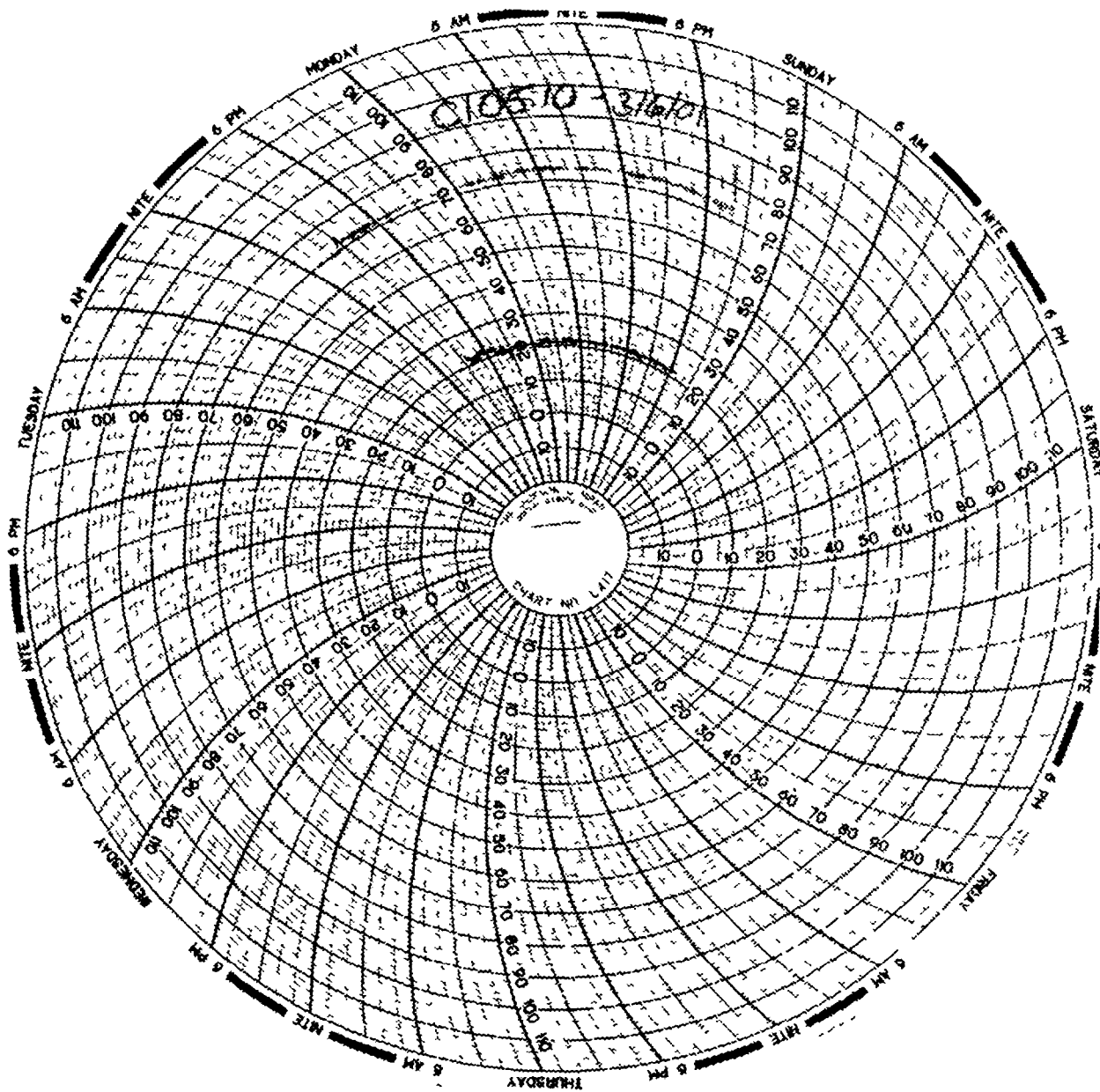
Laboratory Technician _____

B Swiecicki

PART	ITEMS CHECKED	COMMENTS
SKIN	VISUAL INSPECTION	OK
HEAD	VISUAL, BALLAST, ACCELEROMETER MOUNT	OK
NECK	VISUAL CABLE TORQUE	OK
SPINE BOX	VISUAL, BALLAST, WELDMENT, ACCELEROMETER MOUNT	OK
RIB CAGE	VISUAL MEASURE STIFFENERS	OK
STERNUM	VISUAL	OK
LUMBAR SPINE	VISUAL	OK
ABDOMEN	VISUAL	OK
PELVIS	VISUAL, PALPATE, ACCELEROMETER MOUNT	OK
UPPER LEGS	VISUAL	OK
KNEES	VISUAL, STOPS, INSERTS	OK
LOWER LEGS	VISUAL RANGE OF MOTION	OK
ANKLES	VISUAL RANGE OF MOTION	OK
FEET	VISUAL RANGE OF MOTION	OK
JOINTS	1 TO 2 g RANGE	OK
OTHER	NONE	-

REMARKS: None

TEMPERATURE TRACE



APPENDIX D

TEST EQUIPMENT LIST AND CALIBRATION INFORMATION

TEST EQUIPMENT LIST AND CALIBRATION INFORMATION

SID INSTRUMENTATION

FRONT SID NO 013			
	SERIAL NUMBER	MANUFACTURER	CALIBRATION DATE
HEAD (X)	AC-P16813	ENDEVCO	01-Mar-01
HEAD (Y)	AC-P17255	ENDEVCO	01-Mar-01
HEAD (Z)	AC P17145	ENDEVCO	01-Mar-01
UPPER RIB (Y)	AC-P16761	ENDEVCO	01 Mar-01
LOWER RIB (Y)	AC-P17131	ENDEVCO	01-Mar-01
LOWER SPINE (Y)	AC-P15736	ENDEVCO	01-Mar-01
PELVIS (Y)	AC-P16628	ENDEVCO	01-Mar-01
UPPER RIB REDUNDANT (Y)	AC-J33032	ENDEVCO	01-Mar-01
LOWER RIB REDUNDANT (Y)	AC-P17247	ENDEVCO	01-Mar-01
LOWER SPINE REDUNDANT (Y)	AC-P16616	ENDEVCO	01 Mar-01
PELVIS REDUNDANT (Y)	AC-P17288	ENDEVCO	01-Mar-01

REAR SID NO 268			
	SERIAL NUMBER	MANUFACTURER	CALIBRATION DATE
HEAD (X)	AC-J32186	ENDEVCO	01-Mar-01
HEAD (Y)	AC-J32098	ENDEVCO	01-Mar-01
HEAD (Z)	AC-J32383	ENDEVCO	01-Mar-01
UPPER RIB (Y)	AC-P14388	ENDEVCO	01-Mar-01
LOWER RIB (Y)	AC-P17236	ENDEVCO	01-Mar-01
LOWER SPINE (Y)	AC J31060	ENDEVCO	01-Mar-01
PELVIS (Y)	AC-J33032	ENDEVCO	01-Mar-01
UPPER RIB REDUNDANT (Y)	AC-P12587	ENDEVCO	01-Mar-01
LOWER RIB REDUNDANT (Y)	AC-P16625	ENDEVCO	01-Mar-01
LOWER SPINE REDUNDANT (Y)	AC-J31050	ENDEVCO	01-Mar-01
PELVIS REDUNDANT (Y)	AC-P16593	ENDEVCO	01-Mar-01

REMARKS: None

TEST EQUIPMENT LIST AND CALIBRATION INFORMATION

VEHICLE AND MDB INSTRUMENTATION

	VEHICLE AND MDB INSTRUMENTS		
	SERIAL NUMBER	MANUFACTURER	CALIBRATION DATE
RIGHT FRONT SILL (X)	ENDEVCO	AC-J32174	05-Sep-00
RIGHT FRONT SILL (Y)	ENDEVCO	AC-J32143	30-Nov-00
RIGHT FRONT SILL (Z)	ENDEVCO	AC-J32838	30-Nov-00
RIGHT REAR SILL (X)	ENDEVCO	AC-AP064	18-Sep-00
RIGHT REAR SILL (Y)	ENDEVCO	AC-BB14	18-Sep-00
RIGHT REAR SILL (Z)	ENDEVCO	AC-B10955	18-Sep-00
REAR FLOORPAN ABOVE AXLE (X)	ENDEVCO	AC-J33021	16-Jan-01
REAR FLOORPAN ABOVE AXLE (Y)	ENDEVCO	AC-J33030	16-Jan-01
REAR FLOORPAN ABOVE AXLE (Z)	ENDEVCO	AC-J27941	15-Feb-01
LEFT REAR SILL (Y)	ICS	AC-Y05	15-Feb-01
LEFT FRONT SILL (Y)	ICS	AC-D30	15-Feb-01
RIGHT REAR SEAT OCCUPANT COMP (Y)	ICS	AC-D77	15-Feb-01
LOWER LEFT B-PILLAR (Y)	ENDEVCO	AC-B11073	15-Feb-01
MIDDLE LEFT B-PILLAR (Y)	ENDEVCO	AC-B10481	23-Feb-01
LOWER LEFT A-PILLAR (Y)	ENDEVCO	AC-B10954	15-Feb-01
UPPER LEFT A-PILLAR (Y)	ENDEVCO	AC-A13513	12-Jan-01
FRONT SEAT TRACK (Y)	ENDEVCO	AC-A14433	15-Feb-01
REAR SEAT TRACK (Y)	ENDEVCO	AC-B10951	28-Sep-00
VEHICLE CG (X)	ENDEVCO	AC-B11407	14-Feb-01
VEHICLE CG (Y)	ENDEVCO	AC-B10827	14-Feb-01
VEHICLE CG (Z)	ENDEVCO	AC-B11408	14-Feb-01
MDB CG (X)	ENDEVCO	AC-C16682	28-Feb-01
MDB CG (Y)	ENDEVCO	AC-CJ54	28-Feb-01
MDB CG (Z)	ENDEVCO	AC-GK12	28-Feb-01
MDB REAR FRAME MEMBER (X)	ENDEVCO	AC-CX05	28-Feb-01
MDB REAR FRAME MEMBER (Y)	ENDEVCO	AC-C16685	28-Feb-01

REMARKS: None