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REPORT NUMBER: 214-CAL-00-07

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

SUZUKI MOTOR CORPORATION
2000 SUZUKI ESTEEM
STATION WAGON

NHTSA NUMBER: CY0501

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



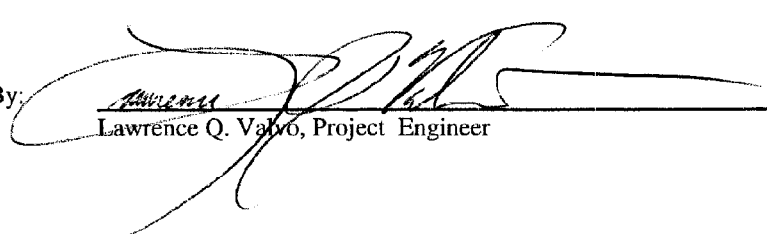
March 21, 2000

FINAL REPORT

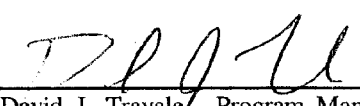
U. S. DEPARTMENT OF TRANSPORTATION
National Highway Traffic Safety Administration
Safety Assurance
Office of Vehicle Compliance
400 Seventh Street, SW
Room 6115 (NSA-30)
Washington, DC 20590

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Prepared By:


Lawrence Q. Valvo, Project Engineer

Approved By:

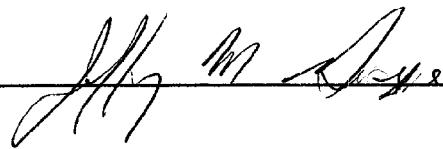

David J. Travale, Program Manager
Transportation Sciences Center

Approval Date:

April 7, 2000

FINAL REPORT ACCEPTANCE BY:

Accepted By:



Acceptance Date:

5/9/2000

TECHNICAL REPORT STANDARD TITLE PAGE

1. Report No. 214-CAL-00-07		2. Government Accession No.		3. Recipient's Catalog No.																															
4. Title and Subtitle Final Report of FMVSS 214 Compliance Side Impact Testing of a 2000 Suzuki Esteem Station Wagon NHTSA No.: CY0501				5. Report Date March 21, 2000																															
				6. Performing Organization Code CAL																															
7. Author(s) Lawrence Q. Valvo, Project Engineer David J. Travale, Program Manager				8. Performing Organization Report No. 8502-15																															
9. Performing Organization Name and Address Veridian Engineering Transportation Sciences Center P.O. Box 400 Buffalo, New York 14225				10. Work Unit No.																															
				11. Contract or Grant No. DTNH22-97-C-01033																															
12. Sponsoring Agency Name and Address U.S. Department of Transportation National Highway Traffic Safety Administration Office of Vehicle Compliance 400 Seventh Street, SW, Room 6115 Washington, DC 20590				13. Type of Report and Period Covered Final Report March 2000 - April 2000																															
				14. Sponsoring Agency Code NSA-30																															
15. Supplementary Notes																																			
16. Abstract A 48/24 kph 90° Impact (Moving Deformable Barrier) Compliance Test was conducted on the subject 2000 Suzuki Esteem Station Wagon in accordance with the specifications of the Office of Vehicle Safety Compliance Test Procedure No. TP-214D-04 to determine FMVSS 214 Side Impact Protection compliance. This test was conducted at the Veridian Engineering Crash Test Facility in Buffalo, New York, on March 21, 2000. The impact velocity of the Moving Deformable Barrier (MDB) was 52.9 kph, and the ambient temperature at the struck (driver's) side of the target vehicle at the time of impact was 22.8 °C. The target vehicle post-test maximum crush was 322 mm at level 2. The test or target vehicle's performance is given below: <table border="0"> <thead> <tr> <th></th> <th align="center"><u>Front SID</u></th> <th></th> <th align="center"><u>Rear SID</u></th> <th></th> </tr> </thead> <tbody> <tr> <td>Left Upper Rib Acceleration:</td> <td align="center"><u>70</u></td> <td align="center">g's</td> <td align="center"><u>50</u></td> <td align="center">g's</td> </tr> <tr> <td>Left Lower Rib Acceleration:</td> <td align="center"><u>52</u></td> <td align="center">g's</td> <td align="center"><u>72</u></td> <td align="center">g's</td> </tr> <tr> <td>Lower Spine Acceleration:</td> <td align="center"><u>71</u></td> <td align="center">g's</td> <td align="center"><u>54</u></td> <td align="center">g's</td> </tr> <tr> <td>Thoracic Trauma Index (TTI):</td> <td align="center"><u>70</u></td> <td align="center">g's</td> <td align="center"><u>63</u></td> <td align="center">g's</td> </tr> <tr> <td>Pelvis Acceleration (PEV):</td> <td align="center"><u>68</u></td> <td align="center">g's</td> <td align="center"><u>83</u></td> <td align="center">g's</td> </tr> </tbody> </table> 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.							<u>Front SID</u>		<u>Rear SID</u>		Left Upper Rib Acceleration:	<u>70</u>	g's	<u>50</u>	g's	Left Lower Rib Acceleration:	<u>52</u>	g's	<u>72</u>	g's	Lower Spine Acceleration:	<u>71</u>	g's	<u>54</u>	g's	Thoracic Trauma Index (TTI):	<u>70</u>	g's	<u>63</u>	g's	Pelvis Acceleration (PEV):	<u>68</u>	g's	<u>83</u>	g's
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17. Key Words Compliance Testing Side Impact Protection FMVSS 214 Side Impact Dummy (SID)			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																																
19. Security Classification of Report UNCLASSIFIED		20. Security Classification of Page UNCLASSIFIED		21. No. of Pages 259																															
22. Price																																			

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SECTION 1

PURPOSE AND TEST PROCEDURE

This side impact 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 test was to evaluate side impact protection in a 2000 Suzuki Esteem Station Wagon. The test was conducted in accordance with the Office of Vehicle Safety Compliance's Laboratory Test Procedure (TP-214D-04, dated September 1, 1995).

SECTION 2

SUMMARY OF SIDE IMPACT TEST

A 2000 Suzuki Esteem Station Wagon 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 52.9 kph (32.9 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 21, 2000. 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 (TP-214D-04, dated September 1, 1995). Both SIDs were certified prior to this test. The side impact test was documented by one real-time camera and 9 high-speed cameras. Camera locations and other pertinent camera information are included in this report.

The SIDs were instrumented with the following accelerometers:

1. Left Upper Rib (LUR) uniaxial and redundant accelerometer (Y-direction)
2. Left Lower Rib (LLR) uniaxial and redundant accelerometer (Y-direction)
3. Lower Thoracic Spine (T₁₂) uniaxial and redundant accelerometer (Y-direction)
4. 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 42 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)	70	63
PEV (g)	68	83

FMVSS 214D requires that the TTI not exceed 85 for 4 door vehicles and not exceed 90 for 2 door vehicles. Peak lateral pelvis acceleration shall not exceed 130 g's.

SECTION 3

SUMMARY OF TEST RESULTS

DATA SHEET 1

GENERAL TEST AND VEHICLE PARAMETER DATA

TEST VEHICLE INFORMATION:

Year/Make/Model/Body Style: 2000 Suzuki Esteem Station Wagon
 Vehicle Body Color: Silver VIN: JS2GB41W8Y5181551
 Vehicle NHTSA No.: CY0501 Month & Year of Manufacture: 7/99
 Engine Data: 4 Cylinders; - CID; 1.8 Liters; - cc
 Engine Placement: - Longitudinal; or X Lateral
 Transmission: 5 Speed; X Manual; - Automatic; - Overdrive
 Final Drive: - Rear Wheel Drive; X Front Wheel Drive; - Four Wheel
 Odometer Reading 367 km
 Options: X A/C; X Power Steering; X Pwr.Brakes; - Pwr. Windows

DATA FROM TIRE PLACARD

Tire Pressure* (at capacity); 210 kPa FRONT
210 kPa REAR
 Recommended Tire Size: 185/60R14
 Tires on Test Vehicle: 185/60R14 ; Manufacturer: Bridgestone
 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 = 394.6 kg (A)
 No. of Occupants x 68.04 kg. = 340.2 kg (B)
 Vehicle Cargo Capacity = 54.4 kg (A-B)

TEST VEHICLE DELIVERED WEIGHT WITH MAXIMUM FLUIDS:

Left Front	=	<u>319.5</u> kg	Left Rear	=	<u>228.5</u> kg
Right Front	=	<u>316.5</u> kg	Right Rear	=	<u>231.5</u> kg
TOTAL FRONT	=	<u>636.0</u> kg	TOTAL REAR	=	<u>460.0</u> kg
% of Total Weight	=	<u>58.0</u> %	% of Total Weight	=	<u>42.0</u> %
TOTAL WEIGHT	=	<u>1096.0</u> kg			

* Tire pressure used in test.

DATA SHEET 1 (continued)

GENERAL TEST VEHICLE PARAMETER DATA

Vehicle: 2000 Suzuki Esteem

NHTSA No. CY0501

CALCULATION OF VEHICLE'S TARGET TEST WEIGHT:

Total Test Vehicle Delivered Weight with Max. Fluids	=	<u>1096.0</u>	kg (A)
Maximum Cargo Carrying Capacity of Test Vehicle	=	<u>54.4</u>	kg (B)
Weight of instrumented Side Impact Dummies (1 or 2 X <u>81.2</u> kg)	=	<u>162.4</u>	kg (C)
TEST VEHICLE TARGET WEIGHT:	=	<u>1312.8</u>	kg (A+B+C)

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

Left Front	=	<u>364.5</u>	kg	Left Rear	=	<u>335.5</u>	kg
Right Front	=	<u>315.5</u>	kg	Right Rear	=	<u>298.0</u>	kg
TOTAL FRONT	=	<u>680.0</u>	kg	TOTAL REAR	=	<u>633.5</u>	kg
% of Total Weight	=	<u>51.8</u>	%	% of Total Weight	=	<u>48.2</u>	%
TOTAL TEST WEIGHT	=	<u>1313.5</u>	kg				

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

Left Front	=	<u>365.0</u>	kg	Left Rear	=	<u>324.5</u>	kg
Right Front	=	<u>325.0</u>	kg	Right Rear	=	<u>291.5</u>	kg
TOTAL FRONT	=	<u>690.0</u>	kg	TOTAL REAR	=	<u>616.0</u>	kg
% of Total Weight	=	<u>52.8</u>	%	% of Total Weight	=	<u>47.2</u>	%
TOTAL TEST WEIGHT	=	<u>1306.0</u>	kg				

TEST VEHICLE ATTITUDE (all dimensions in millimeters):

AS DELIVERED:

Left Front	<u>665</u>	Right Front	<u>665</u>	Left Rear	<u>655</u>	Right Rear	<u>656</u>
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FULLY LOADED:

Left Front	<u>646</u>	Right Front	<u>665</u>	Left Rear	<u>603</u>	Right Rear	<u>619</u>
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READY FOR TEST:

Left Front	<u>650</u>	Right Front	<u>665</u>	Left Rear	<u>603</u>	Right Rear	<u>622</u>
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Test Vehicle Wheelbase: 2481 millimeters

C.G. = 1170 millimeters rearward of front wheel centerline

TOTAL VEHICLE LENGTH:

Right Side	=	<u>4230</u>	millimeters
Left Side	=	<u>4230</u>	millimeters
Centerline	=	<u>4376</u>	millimeters

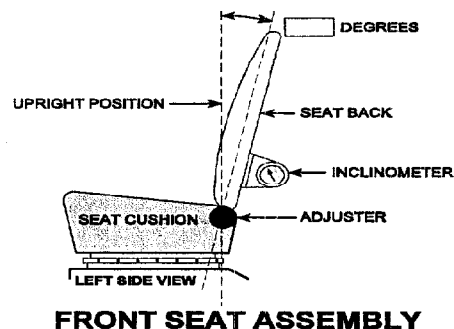
DATA SHEET 1 (continued)

GENERAL TEST VEHICLE PARAMETER DATA

Vehicle: 2000 Suzuki Esteem

NHTSA No. CY0501

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 TRACK POSITION: Seat cushion is placed in detent 7, where the forward-most position is detent 0.

Total Length of Adjustment Travel: 207 millimeters

Total Number of Adjustment Positions or Detents: 15

FRONT SEAT BACK ADJUSTMENT POSITION: Seat back is placed in detent 3, where the most upright position is detent 0.

Seat Back Torso Angle: 24 degrees

SECOND POSITION SEAT:

Total Length of Fore/Aft Adjustment Travel: 0 millimeters

Seat Back Adjustment Position: fixed

ADJUSTABLE STEERING COLUMN POSITION: Fixed

WINDOW POSITIONS: Left Front: Closed Left Rear: Closed

Right Front: Open Right Rear: Open

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:

48 liters (Fuel Tank Usable Capacity)

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

LOCATION OF IMPACT POINT ON TEST VEHICLE SIDE TO BE IMPACTED:

Wheelbase = 2481 millimeters

Impact Point is 301 millimeters rearward of front axle centerline

(which is 940 millimeters forward of the wheelbase midpoint)

Actual Impact Point is 306 millimeters rearward of front axle centerline

DATA SHEET 2

TEST VEHICLE SUMMARY OF RESULTS

VEHICLE IDENTIFICATION:

Vehicle Year/Make/Model: 2000 Suzuki Esteem

Body Style: Station Wagon

VIN: JS2GB41W8Y5181551

NHTSA No.: CY0501

Test Date: March 21, 2000

Overall Length = 4376 millimeters; Overall Width = 1699 millimeters

VEHICLE TEST WEIGHT (Pre-Test):

Left Front = 365.0 kg Left Rear = 324.5 kg

Right Front = 325.0 kg Right Rear = 291.5 kg

TOTAL FRONT = 690.0 kg TOTAL REAR = 616.0 kg

TOTAL VEHICLE WEIGHT 1306.0 kg

Wheelbase = 2481 millimeters

Longitudinal C.G. from Center of Front Axle = 1170 millimeters

Impact Angle with Respect to Impactor = 90 degrees

ACTUAL IMPACT POINT

Actual Impact Point is 5 mm rearward of nominal impact ref. line (Lateral)

Actual Impact Point is 3 mm below nominal impact point (Vertical)

MAXIMUM EXTERIOR STATIC CRUSH:

1. LEVEL 1 (242 mm above ground) = 167 millimeters

2. LEVEL 2 (445 mm above ground) = 322 millimeters

3. LEVEL 3 (581 mm above ground) = 297 millimeters

4. LEVEL 4 (828 mm above ground) = 260 millimeters

5. LEVEL 5 (1319 mm above ground) = 55 millimeters

Maximum Post-Test Intrusion = 322 millimeters

OCCUPANTS:

Front Passenger:

Rear Passenger:

Dummy Identification 015 027

Restraints Used 3-point active seat belt 3-point active seat belt

INSTRUMENTATION:

Number of Vehicle Data Channels: = 21

Number of Cameras: Onboard = 3

Offboard = 6

TOTAL = 9

DATA SHEET 3

MOVING DEFORMABLE BARRIER (MDB) SUMMARY

Vehicle: 2000 Suzuki Esteem

NHTSA No. CY0501

MDB FACE MANUFACTURER AND SERIAL NUMBER:

Plascore Inc.: 044C1299-3; 017B1299

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>52.9</u>	kph				

MAXIMUM STATIC CRUSH OF HONEYCOMB IMPACT FACE:

1. Row A at Center of Bumper Level	=	<u>74</u>	millimeters
2. Row B at Top of Bumper Level	=	<u>56</u>	millimeters
3. Row C at Mid Level	=	<u>88</u>	millimeters
4. Row D at Top of Stack Level	=	<u>116</u>	millimeters

INSTRUMENTATION:

Number of MDB Data Channels	=	<u>5</u>
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DATA SHEET 4

POST-TEST OBSERVATIONS

Vehicle: 2000 Suzuki Esteem

NHTSA No. CY0501

VISIBLE DUMMY CONTACT POINTS:

	<u>LEFT FRONT SID</u>	<u>LEFT REAR SID</u>
Head:	<u>Back of head to front edge of upper B-pillar</u>	<u>Left side of head to upper C-pillar trim</u>
Upper Torso:	<u>Left arm to rear portion of door trim above armrest</u>	<u>Left arm to rear portion of door trim above armrest</u>
Lower Torso:	<u>Pelvis to rear portion of door trim below arm rest</u>	<u>Pelvis to rear portion of door trim below arm rest</u>
Left Knee:	<u>Left knee to mid front of door trim</u>	<u>Left knee to mid front of door trim</u>
Right Knee:	<u>Right knee to left knee</u>	<u>Right knee to 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:

<u>Vertical: 3 mm below</u>
<u>Horizontal: 5 mm rearward</u>

ARM REST LOCATIONS:

Front:	<u>252 mm below bottom of window opening</u>
Rear:	<u>260 mm below bottom of window opening</u>

SEAT MOVEMENT:

Front:	<u>Driver seat deformed inboard against the center console</u>
Rear:	<u>None</u>

GLAZING DAMAGE:

Windshield:	<u>Left edge of window cracked during the impact</u>
Window:	<u>Driver and left rear passenger windows shattered during the impact</u>

PILLAR PERFORMANCE:

No visible tears or separations

SILL SEPARATION:

None

AIR BAG DEPLOYMENT STATUS:

	<u>DRIVER</u>	<u>FRONT PASSENGER</u>	<u>REAR PASSENGER</u>
<u>FRONT</u>	<u>Yes</u>	<u>Yes</u>	<u>N/A</u>
<u>SIDE</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>

OTHER NOTABLE IMPACT EFFECTS:

None

SECTION 4

OCCUPANT AND VEHICLE INFORMATION

DATA SHEET 5

SID INSTRUMENTATION DATA

Vehicle: 2000 Suzuki Esteem

NHTSA No. CY0501

	Front Dummy ID# 015				Rear Dummy ID# 027			
	Pos. Direction		Neg. Direction		Pos. Direction		Neg. Direction	
	Max (g)	Time (msec)	Max (g)	Time (msec)	Max (g)	Time (msec)	Max (g)	Time (msec)
RIB ACCELERATIONS:								
Upper Rib Lateral . . Y	70.1	23.2	-13.4	68.8	50.2	42.5	-11.2	106.9
Upper Rib Lateral . . Y(R)	75.3	23.2	-14.2	69.4	47.5	42.5	-12.8	107.5
Lower Rib Lateral . Y	51.6	41.9	-23.0	67.5	71.5	42.5	-16.4	66.3
Lower Rib Lateral . Y(R)	50.3	41.9	-22.5	67.5	67.4	42.5	-18.4	66.9
SPINE ACCELERATIONS:								
Lower Lateral Y	70.9	26.3	-11.1	64.3	54.4	40.6	-25.0	71.2
Lower Lateral Y(R)	70.1	26.3	-11.0	85.0	54.2	40.0	-25.0	71.2
PELVIC ACCELERATIONS:								
Lateral Y	67.8	32.5	-11.9	86.2	83.2	33.7	-12.6	65.7
Lateral Y(R)	66.5	32.5	-11.9	86.2	83.3	33.7	-12.8	63.8

REFERENCE: Positive Direction - Longitudinal (X) = forward
 Lateral (Y) = to right
 Vertical (Z) = up
 Negative Direction - Longitudinal (X) = rearward
 Lateral (Y) = to left
 Vertical (Z) = down

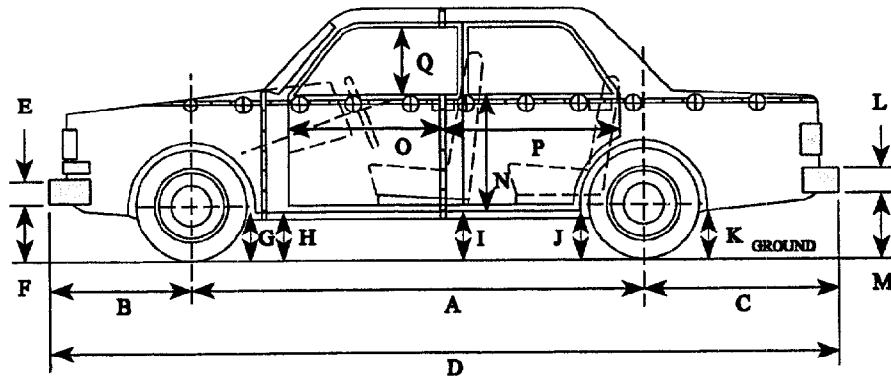
Note: Above data has been FIR filtered, Y(R) denotes redundant Y direction accelerometer.

DATA SHEET 6

VEHICLE SIDE MEASUREMENTS

Vehicle: 2000 Suzuki Esteem

NHTSA No. CY0501



LEFT SIDE VIEW

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

	PRE-TEST (as delivered)	PRE-TEST (as tested)	POST-TEST (as tested)	Δ CHANGE
A	2481	-	2431	-50
B	854	-	889	35
C	1041	-	1036	-5
D	4376	-	4356	-20
E	131	-	131	0
F	396	396	418	22
G	216	190	212	22
H	215	191	213	22
I	222	187	206	19
J1	202	159	161	2
J2	222	180	178	-2
K	269	220	225	5
L	242	-	242	0
M	321	260	272	12
N	624	-	585	-39
O	729	-	724	-5
P	1163	-	1092	-71
Q	463	-	437	-26
R	4230	-	4238	8
S	4230	-	4184	-46
T	1699	-	1502	-197

D = Length at Centerline
T = Width at B-Pillar

E&L = Bumper Thickness
J1 = To Pinch Weld

R = Right Side Length
J2 = To Sill

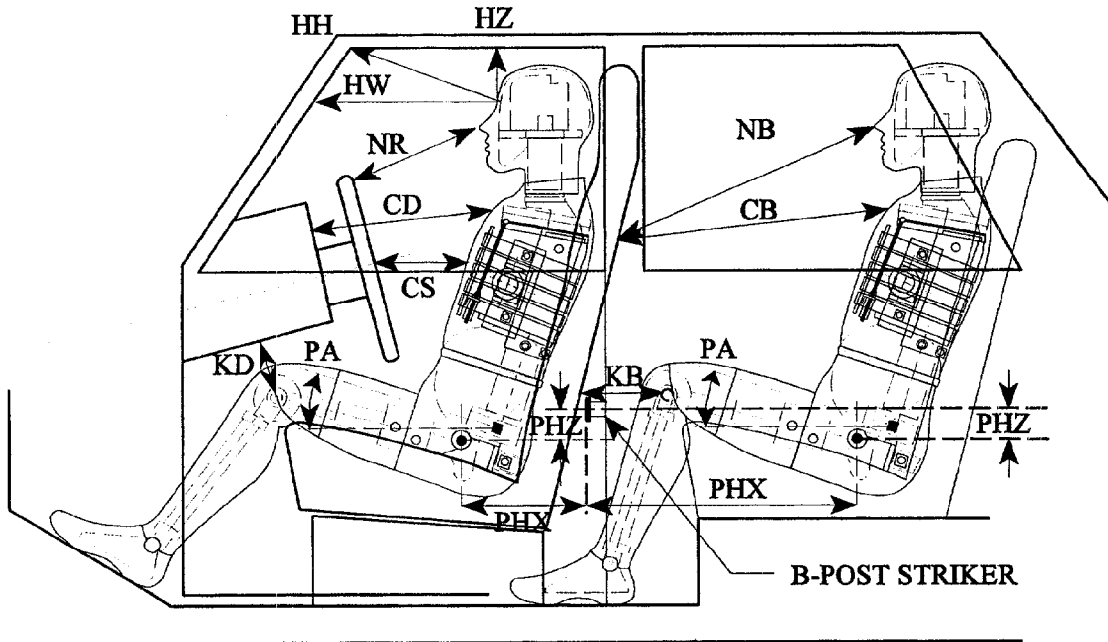
S = Left Side Length

DATA SHEET 7

SID LONGITUDINAL CLEARANCE DIMENSIONS

Vehicle: 2000 Suzuki Esteem

NHTSA No. CY0501



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>015</u>	LEFT REAR PASS. ID# <u>027</u>
HH	429	N/A
HW	655	N/A
HZ	172	174
NR/NB	495	571
CD/CB	585	492
CS	320	N/A
KDL(KDA°)/KBL(KDA°)	142 / (37°)	178 / (29°)
KDR(KBA°)/KBR(KBA°)	145 / (35°)	173 / (28°)
PA°	23.9°	23.5°
PHX	188	275
PHZ	162	270

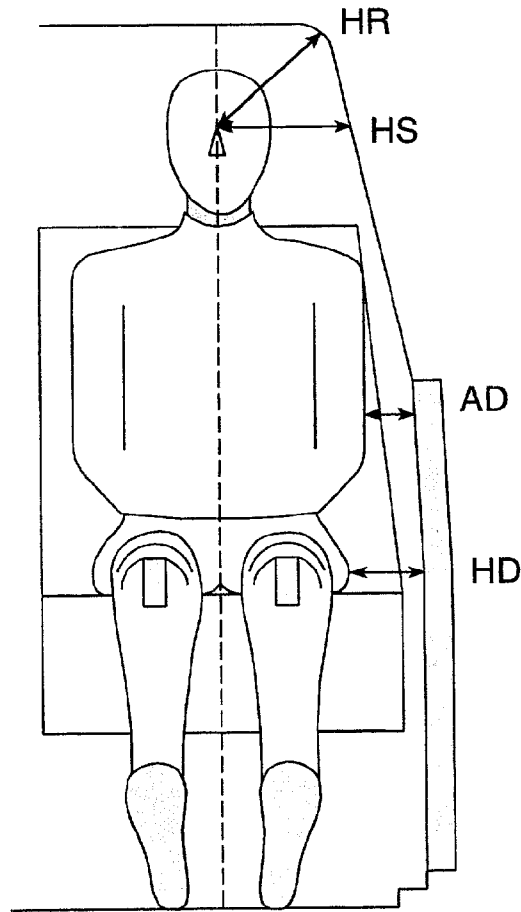
Note: 2-door vehicle shown. Rear dummy PHX & PHZ measurements for 4-door vehicle would use the C-post striker as a reference point.

DATA SHEET 8

SID LATERAL CLEARANCE DIMENSIONS

Vehicle: 2000 Suzuki Esteem

NHTSA No. CY0501



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

	DRIVER ID # <u>015</u>		LEFT REAR PASS. ID # <u>027</u>	
HR	189		160	
HS	287		190	
AD*	LOWER: 68	UPPER: 90	LOWER: 83	UPPER: 65
HD	145		150	

* 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.

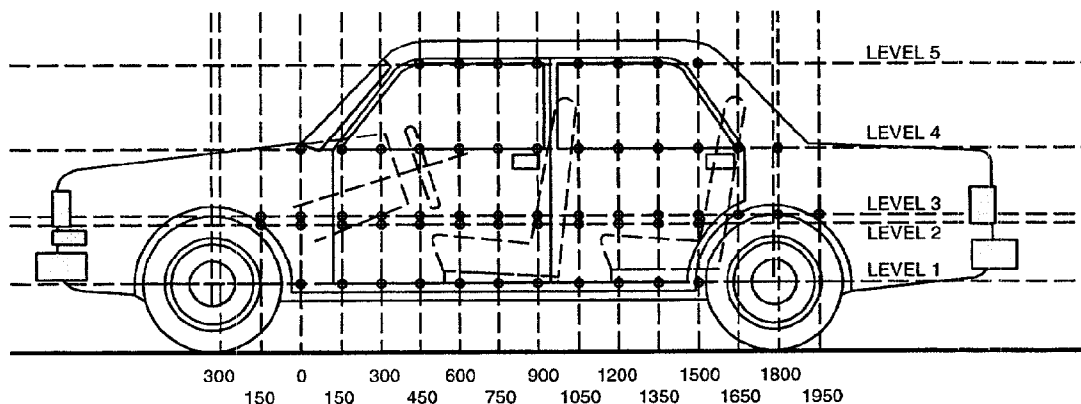
Upper measurement is taken laterally at the center of the upper rib accelerometer height from the SID arm segment to the closest part of the vehicle side.

DATA SHEET 9

VEHICLE SIDE MEASUREMENTS

Vehicle: 2000 Suzuki Esteem

NHTSA No. CY0501



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>1319</u>	millimeters
Level 4 @ Window Sill	=	<u>828</u>	millimeters
Level 3 @ Mid Door	=	<u>581</u>	millimeters
Level 2 @ Occupant H-Point	=	<u>445</u>	millimeters
Level 1 @ Sill Top Height	=	<u>242</u>	millimeters

DATA SHEET 10

VEHICLE EXTERIOR CRUSH PROFILES - ALL LEVELS

Vehicle: 2000 Suzuki Esteem

NHTSA No. CY0501

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

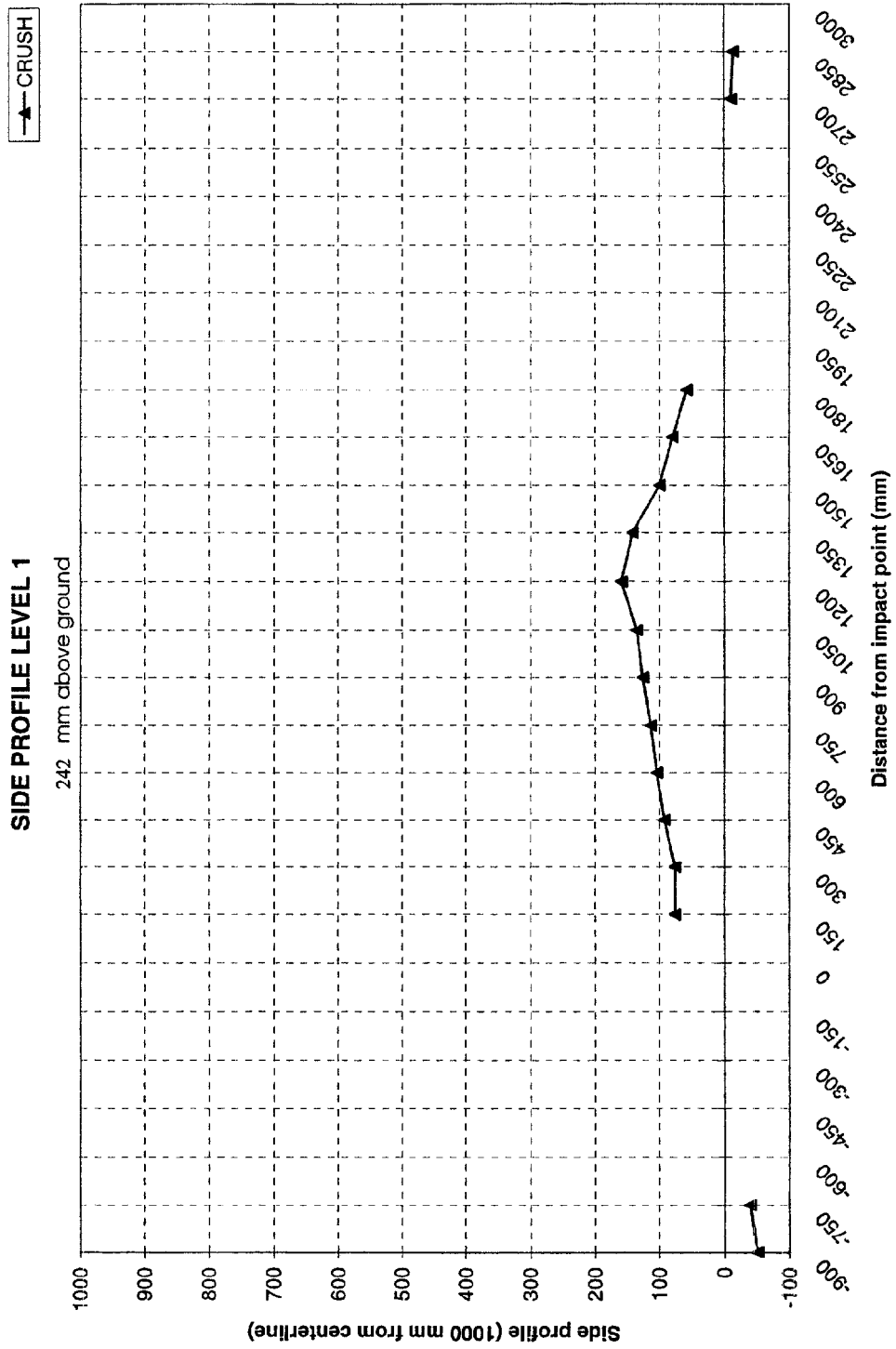
DISTANCE IN MILLIMETERS (mm) FROM IMPACT POINT																														
LEVEL	HEIGHT T (mm)	-900	-750	-600	-450	-300	-150	0	150	300	450	600	750	900	1050	1200	1350	1500	1650	1800	1950	2100	2250	2400	2550	2700	2850	3000		
LEVEL 1 SIDE SILL	242	PRE	313	261	--	--	--	--	270	271	264	261	262	259	258	255	254	256	254	244	--	--	--	--	--	--	263	285	--	
		POST	282	222	--	--	--	--	--	346	347	356	365	376	385	393	414	396	356	334	302	--	--	--	--	253	272	--		
		CRUSH	-51	-39	N/A	N/A	N/A	N/A	N/A	76	76	92	104	114	126	135	159	142	100	80	58	N/A	N/A	N/A	N/A	N/A	-10	-13	N/A	
LEVEL 2 H POINT	445	PRE	264	228	--	--	--	--	192	191	190	187	186	187	184	182	183	183	188	185	--	--	--	--	205	215	223	237		
		POST	216	187	--	--	--	--	--	377	426	446	459	469	473	460	477	497	481	450	351	--	--	--	197	203	210	225		
		CRUSH	-48	-41	N/A	N/A	N/A	N/A	N/A	185	235	256	272	283	286	276	295	314	298	282	166	N/A	N/A	N/A	N/A	-8	-12	-13	-12	
LEVEL 3 MID DOOR	581	PRE	300	242	213	--	--	--	183	190	187	186	183	180	179	178	180	181	182	182	179	176	180	194	207	217	235	269		
		POST	259	215	187	--	--	--	--	283	341	362	378	395	413	426	441	469	448	432	406	381	267	225	215	198	203	207	221	254
		CRUSH	-41	-27	-26	N/A	N/A	N/A	N/A	100	151	175	192	212	233	247	263	289	267	250	224	199	88	49	35	4	-4	-10	-14	-15
LEVEL 4 WINDOW SILL	828	PRE	--	--	--	--	291	264	248	239	235	227	220	216	211	210	208	206	207	208	204	214	216	225	233	241	257	283		
		POST	--	--	--	--	283	270	271	284	358	368	381	395	405	427	462	447	436	417	350	253	213	246	243	240	241	252	274	
		CRUSH	N/A	N/A	N/A	N/A	-8	6	23	45	123	141	161	179	194	216	252	239	230	210	142	49	-1	30	18	7	0	-5	-9	
LEVEL 5 WINDOW TOP	1319	PRE	--	--	--	--	--	--	--	--	--	--	--	--	527	493	482	478	480	483	485	491	495	503	514	529	565	--	--	
		POST	--	--	--	--	--	--	--	--	--	--	--	--	--	545	524	529	512	507	505	501	502	506	512	521	534	566	--	--
		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	N/A	18	31	47	34	27	22	16	11	11	9	7	5	1	N/A	N/A

DATA SHEET 10 (continued)

VEHICLE EXTERIOR CRUSH PROFILES

Vehicle: 2000 Suzuki Esteem

NHTSA No. CY0501



DATA SHEET 10 (continued)

VEHICLE EXTERIOR CRUSH PROFILES

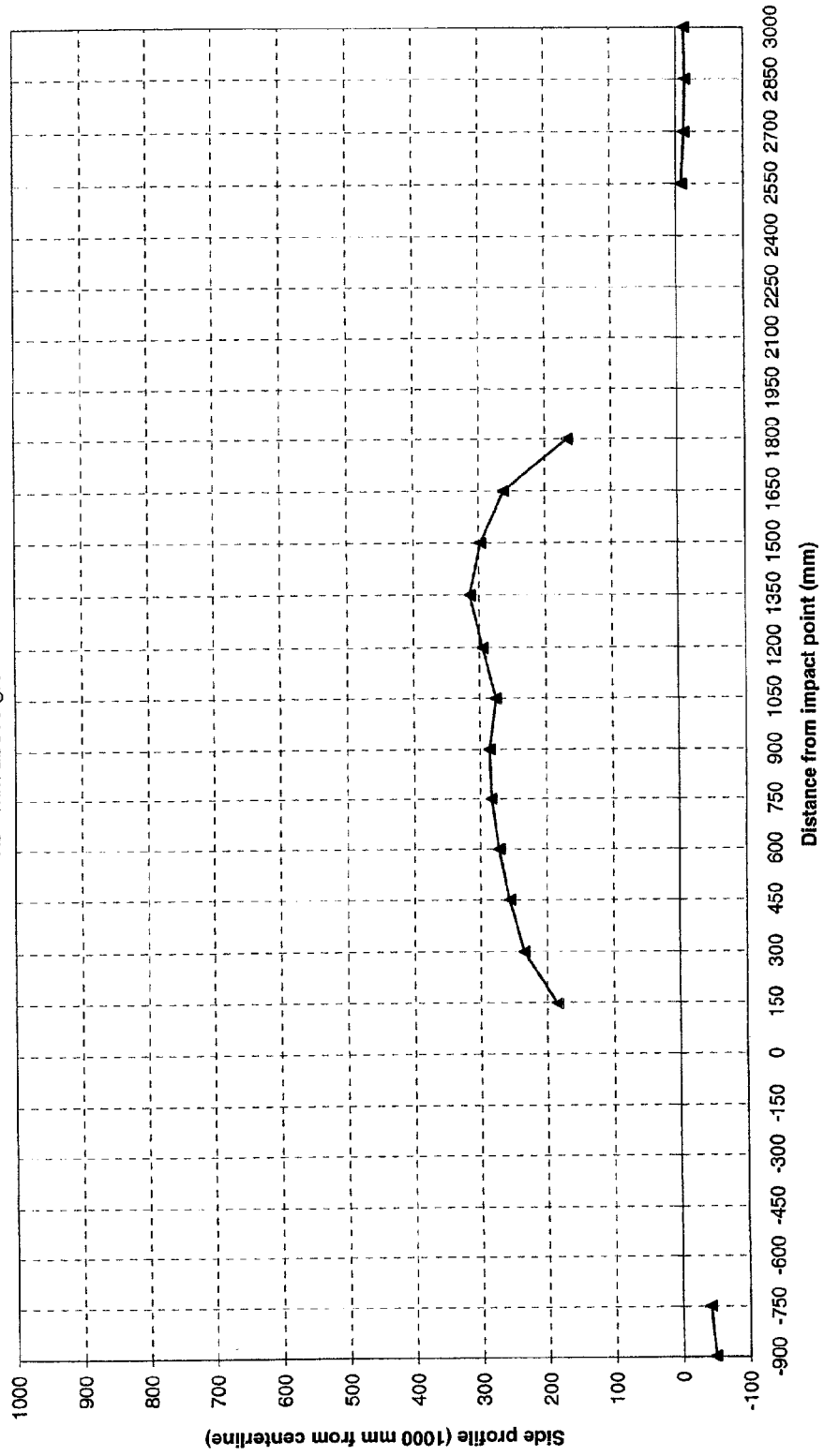
NHTSA No. CY0501

Vehicle: 2000 Suzuki Esteem

→ CRUSH

SIDE PROFILE LEVEL 2

445 mm above ground

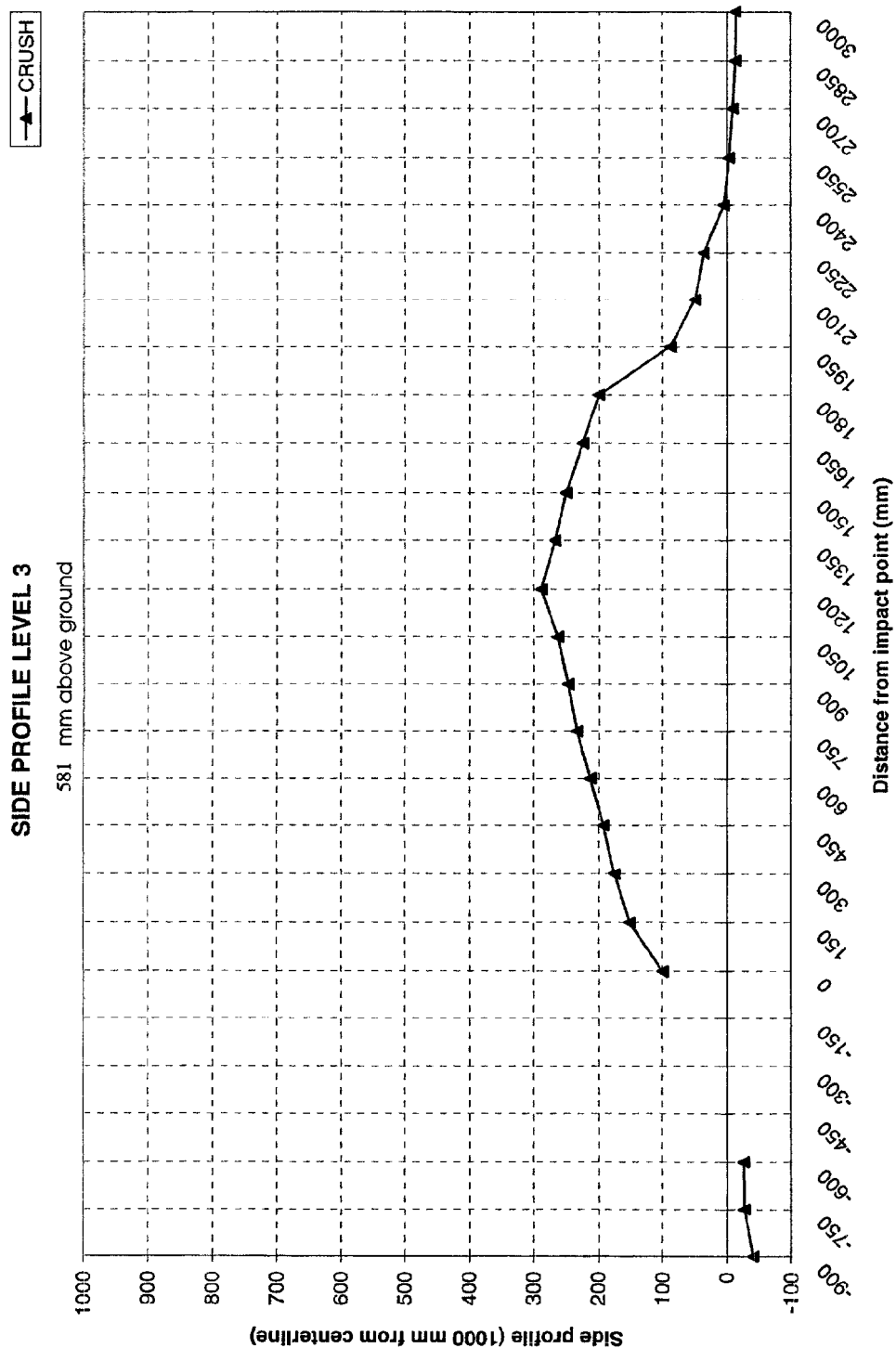


DATA SHEET 10 (continued)

VEHICLE EXTERIOR CRUSH PROFILES

Vehicle: 2000 Suzuki Esteem

NHTSA No. CY0501

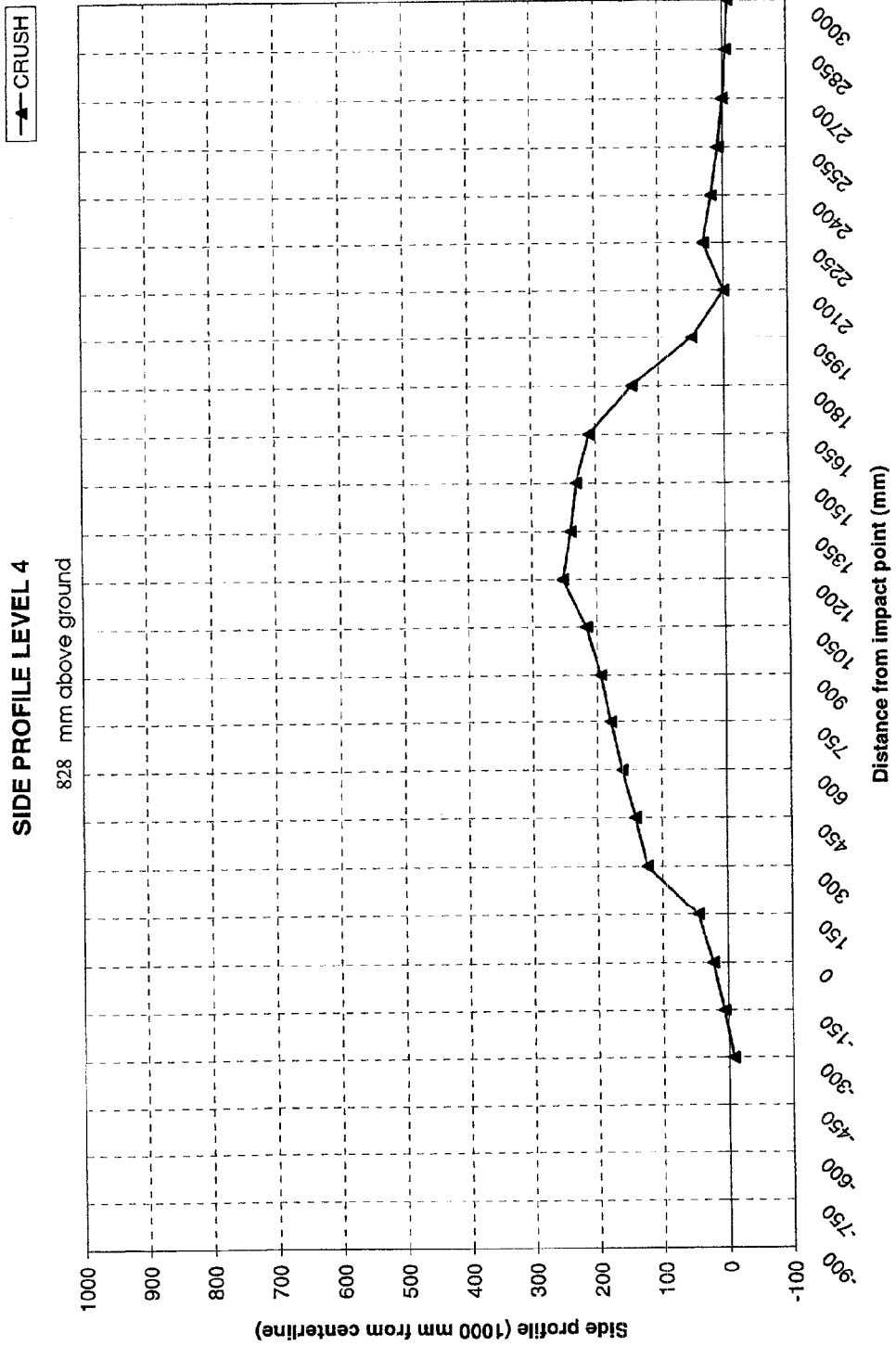


DATA SHEET 10 (continued)

VEHICLE EXTERIOR CRUSH PROFILES

NHTSA No. CY0501

Vehicle: 2000 Suzuki Esteem

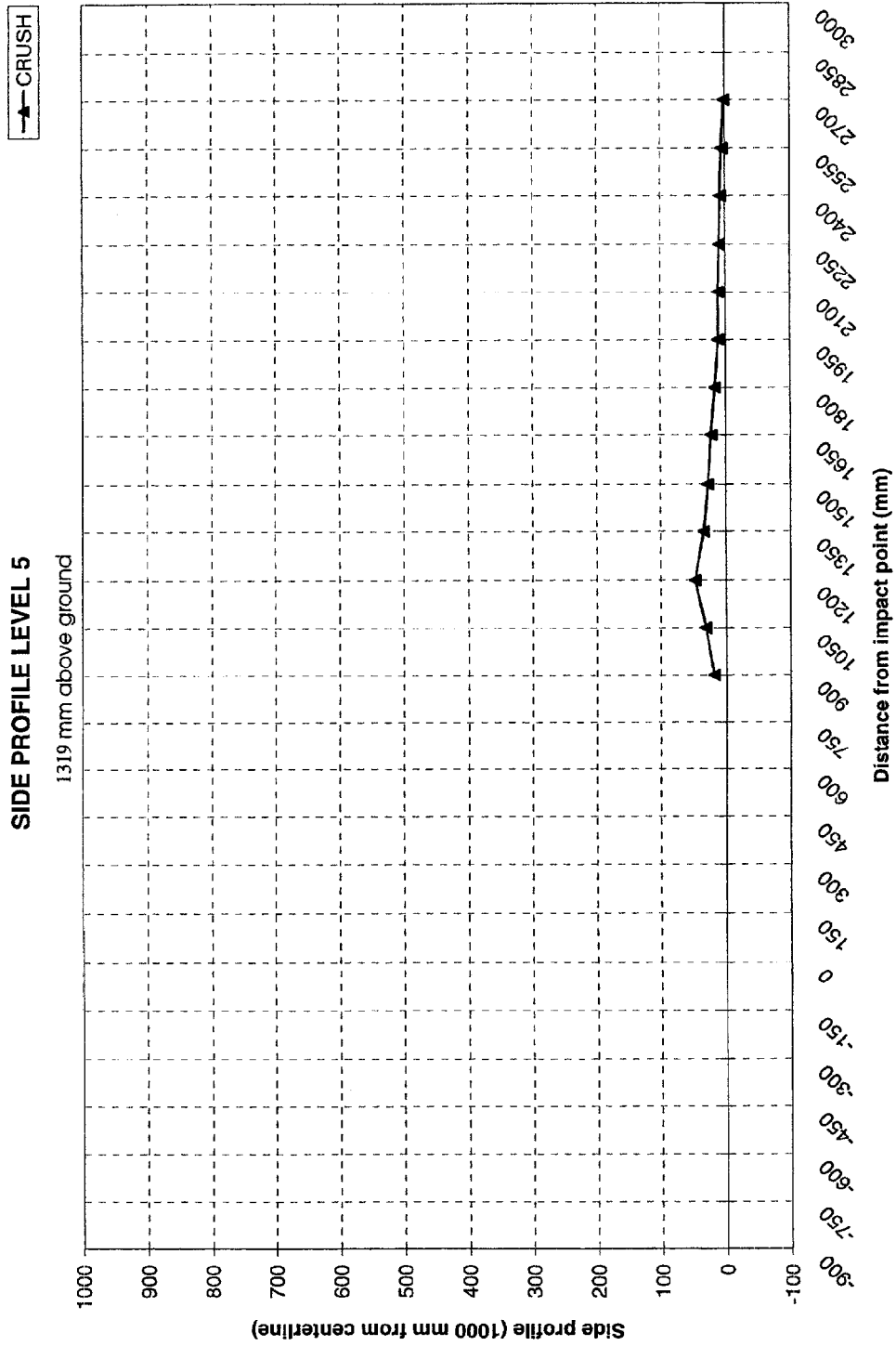


DATA SHEET 10 (continued)

VEHICLE EXTERIOR CRUSH PROFILES

Vehicle: 2000 Suzuki Esteem

NHTSA No. CY0501

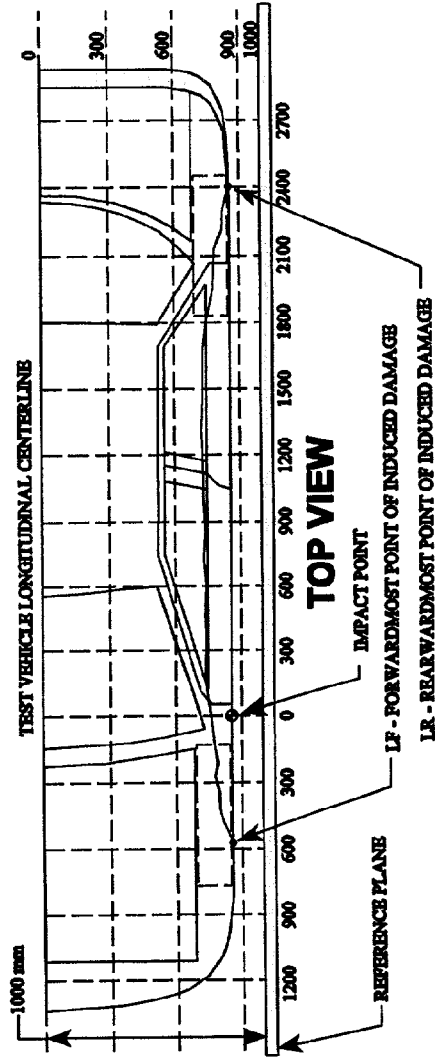


DATA SHEET 11

VEHICLE DAMAGE PROFILE DISTANCES

NHTSA No. CY0501

Vehicle: 2000 Suzuki Esteem



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 = 2850 mm)	260	257	3
2	2222	225	179	46
3	1594	470	186	284
4	966	475	186	289
5	338	439	191	248
6	(LF = -290 mm)	190	289	-99

DATA SHEET 12

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

Vehicle: 2000 Suzuki Esteem

NHTSA No. CY0501

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

		DISTANCE RIGHT OF CENTER (mm)								DISTANCE LEFT OF CENTER (mm)								
LEVEL	HEIGHT T AT CL (mm)*	800	700	600	500	400	300	200	100	0	100	200	300	400	500	600	700	800
LEVEL 4	813	PRE	619	619	619	619	619	619	619	619	619	619	619	619	619	619	619	619
TOP		POST	675	629	613	610	609	610	614	614	615	615	617	621	632	643	687	735
STACK		CRUSH	56	10	-6	-9	-10	-10	-9	-5	-5	-4	-4	-2	2	13	24	68
LEVEL 3	686	PRE	619	619	619	619	619	619	619	619	619	619	619	619	619	619	619	619
MID		POST	660	626	617	615	610	610	611	613	614	615	615	616	617	619	627	659
LEVEL		CRUSH	41	7	-2	-4	-9	-9	-8	-6	-6	-4	-4	-3	-2	0	8	40
LEVEL 2	533	PRE	619	619	619	619	619	619	619	619	619	619	619	619	619	619	619	619
TOP		POST	661	636	630	631	635	636	638	636	638	639	639	643	644	649	652	662
BUMPER		CRUSH	42	17	11	12	16	17	19	17	14	20	20	24	25	30	33	43
LEVEL 1	432	PRE	535	519	518	518	518	518	518	518	518	518	518	518	518	518	519	535
MID		POST	601	566	546	542	544	554	556	555	545	547	551	553	557	558	566	588
BUMPER		CRUSH	66	47	28	24	26	36	38	37	27	29	33	35	39	40	48	69

*Heights measured above ground level.

NHTSA No. CY0501

EXTERIOR STATIC CRUSH FOR IMPACTOR FACE

Vehicle: 2000 Suzuki Esteem

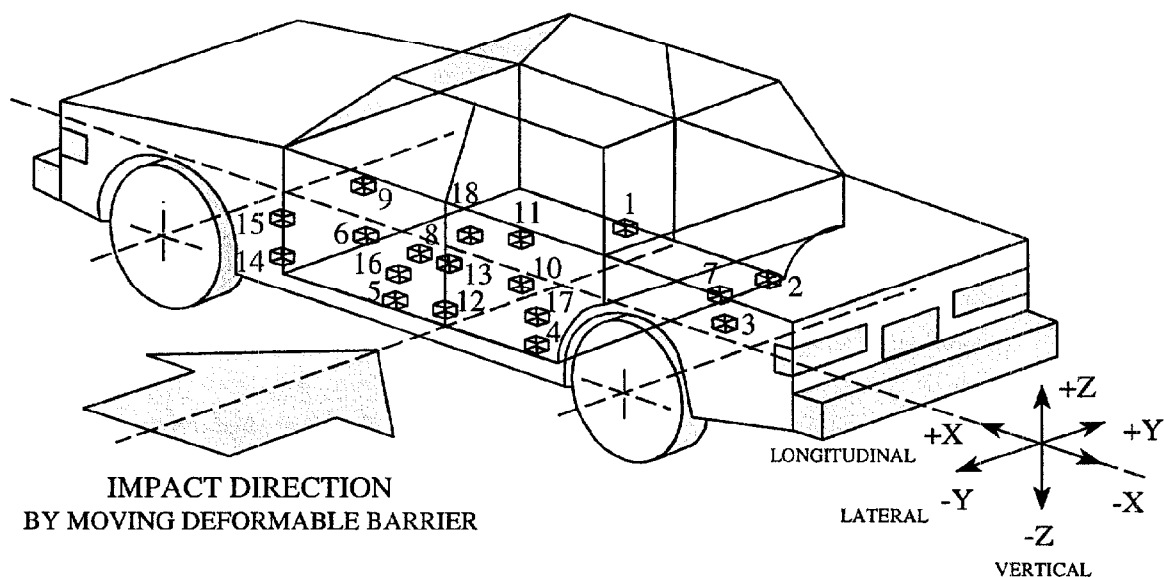


DATA SHEET 13

TEST VEHICLE ACCELEROMETER LOCATIONS AND DATA SUMMARY

Vehicle: 2000 Suzuki Esteem

NHTSA No. CY0501



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: 2000 Suzuki Esteem

NHTSA No. CY0501

Accel. No.	Location	Coordinates (mm)±3			Long. (x)		Lat. (y)		Vert. (z)		Resultant		
		mm			Max (g)	Time (msec)	Max (g)	Time (msec)	Max (g)	Time (msec)	Max (g)	Time (msec)	
		X*	Y*	Z*									
1	Right Side Sill at Front Seat	2614	640	327	pos.	4.9	30.5	20.9	6.4	5.7	21.5	21.2	6.5
					neg.	-12.0	17.2	-2.1	122.6	-8.5	27.2	-	-
2	Right Side Sill at Rear Seat	1818	648	322	pos.	3.3	30.5	23.0	7.4	7.6	39.6	23.5	7.4
					neg.	-12.2	17.3	-2.0	120.9	-7.8	29.7	-	-
3	Rear Floorpan Above Axle	1000	0	603	pos.	5.1	97.0	21.3	10.0	21.7	34.6	26.2	34.4
					neg.	-13.0	13.7	-2.8	126.7	-16.9	29.7	-	-
4	Left Side Sill at Rear Seat	1818	-683	245	pos.	-	-	†	†	-	-	-	-
					neg.	-	-	†	†	-	-	-	-
5	Left Side Sill at Front Seat	2614	-675	262	pos.	-	-	28.6	18.8	-	-	-	-
					neg.	-	-	-4.0	52.1	-	-	-	-
6	Left Front Door on Centerline	-	-	-	pos.	-	-	-	-	-	-	-	-
					neg.	-	-	-	-	-	-	-	-
7	Right Rear Occupant Compartment	1880	341	198	pos.	-	-	23.0	7.3	-	-	-	-
					neg.	-	-	-2.6	59.8	-	-	-	-
8	Midrear of Left Front Door	-	-	-	pos.	-	-	-	-	-	-	-	-
					neg.	-	-	-	-	-	-	-	-
9	Left Front Door Upper Centerline	-	-	-	pos.	-	-	-	-	-	-	-	-
					neg.	-	-	-	-	-	-	-	-
10	Midrear of Left Rear Door	-	-	-	pos.	-	-	-	-	-	-	-	-
					neg.	-	-	-	-	-	-	-	-
11	Left Rear Door Upper Centerline	-	-	-	pos.	-	-	-	-	-	-	-	-
					neg.	-	-	-	-	-	-	-	-

*Reference: X - Rear Bumper (+ Forward)

**Accelerometer was not requested by COTR.

† Transducer failed during the impact, data is invalid.

Y - Vehicle Centerline (+ To Right) Z - Ground Level (+ Up)

DATA SHEET 13 (continued)

VEHICLE ACCELEROMETER LOCATIONS AND DATA SUMMARY

Vehicle: 2000 Suzuki Esteem

NHTSA No. CY0501

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)
12	Left Lower B-Pillar	2054	-673	375	pos. neg.	- -		189.5 -151.4	4.5 10.3		- -	- -
13	Left Middle B-Pillar	2054	-673	801	pos. neg.	- -		152.1 -58.8	6.1 25.4		- -	- -
14	Left Lower A-Pillar	3063	-678	320	pos. neg.	- -		95.1 -14.5	4.6 24.2		- -	- -
15	Left Middle A-Pillar	2983	-638	895	pos. neg.	- -		28.4 -24.0	9.7 46.9		- -	- -
16	Front Seat Track	2180	-534	424	pos. neg.	- -		60.5 -13.9	19.8 26.8		- -	- -
17	Rear Seat Track	1185	-405	522	pos. neg.	- -		22.7 -3.1	9.4 126.7		- -	- -
18	Vehicle CG	2430	32	431	pos. neg.	8.4 -13.5	29.6 25.6	44.5 -17.8	27.3 58.6	27.1 -23.9	50.6 -	26.9 -

*Reference: X - Rear Bumper (+ Forward)

Y - Vehicle Centerline (+ To Right)

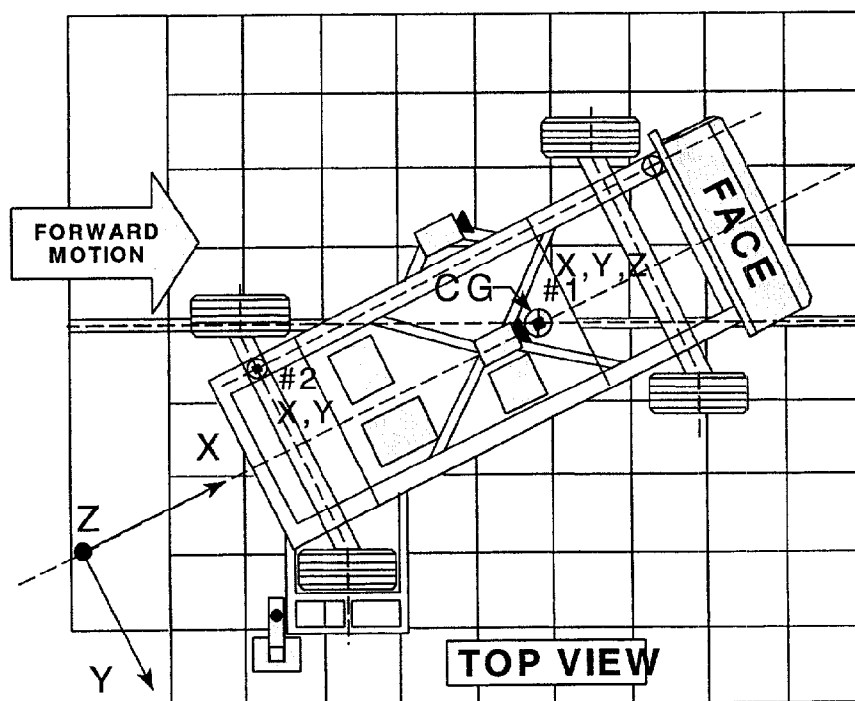
Z - Ground Level (+ Up)

DATA SHEET 14

MDB ACCELEROMETER LOCATIONS AND DATA SUMMARY

Vehicle: 2000 Suzuki Esteem

NHTSA No. CY0501



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	1.4	102.4	-18.9	41.1
	Lateral..... Y				3.1	55.5	-8.6	23.1
	Vertical..... Z				12.1	36.0	-9.1	30.4
	Resultant..... R				21.2	35.9	-	-
2	Rear Frame Member							
	Longitudinal... X	386	-660	660	1.7	193.6	-19.1	31.8
	Lateral..... Y				4.3	21.2	-1.3	163.2

*Reference: X = Rear Bumper (+ Forward)

Y = Vehicle Centerline (+ To Right)

Z = Ground Level (+ Up)

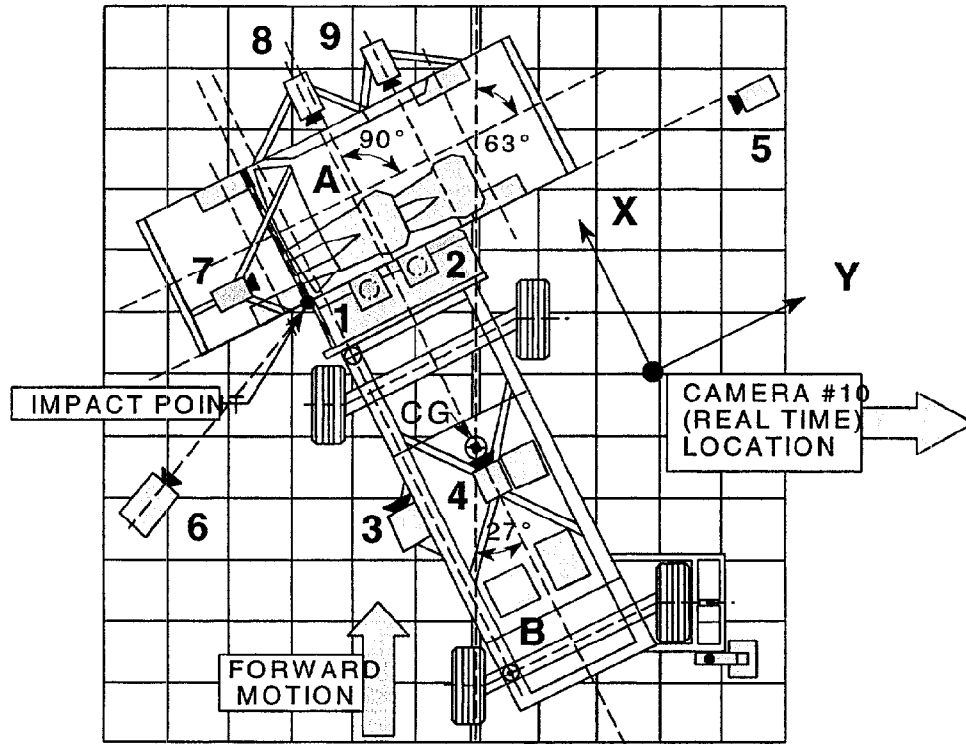
All measurements accurate to within ± 3 mm.

DATA SHEET 15

HIGH SPEED CAMERA LOCATIONS AND DATA SUMMARY

Vehicle: 2000 Suzuki Esteem

NHTSA No. CY0501



Camera No.	View	Coordinates (millimeters)			Angle (deg.)	Lens (mm)	Film Speed (fps)
		X*	Y*	Z*			
1	Overhead view of test vehicle	126	818	4880	-90	8	1010
2	Overhead closeup view of impact plane	467	990	4880	-90	12.5	1005
3	MDB onboard closeup view of impact point	-1470	0	847	0	13	1025
4	MDB onboard view of driver dummy	-1140	838	1586	-17	7.5	1020
5	Right side ground level overall view	228	9040	1036	-3	25	1015
6	Left side ground level overall view	-1748	-1485	1030	-7	13	1000
7	Test vehicle onboard driver front view	492	-204	1224	-15	13	750
8	Test vehicle onboard driver side view	1602	789	962	-14	8	1010
9	Test vehicle onboard passenger side view	1578	1652	990	-12	8	1010
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

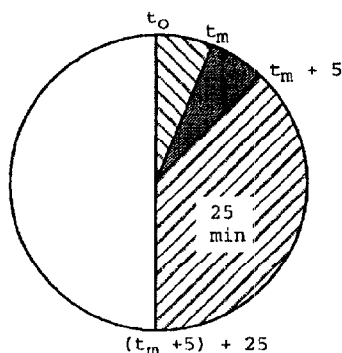
FMVSS 301 FUEL SYSTEM INTEGRITY DATA

NHTSA No.: CY0501 TEST DATE: March 21, 2000
 Vehicle Mfgr./Make/Model : 2000 Suzuki Esteem Station Wagon

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 (52.9 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

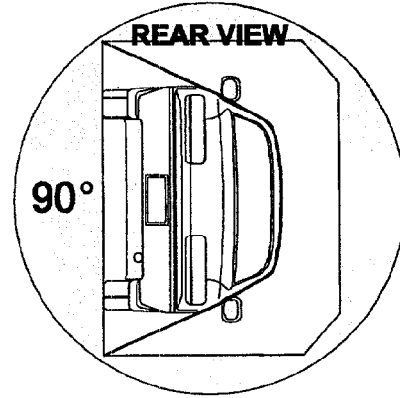
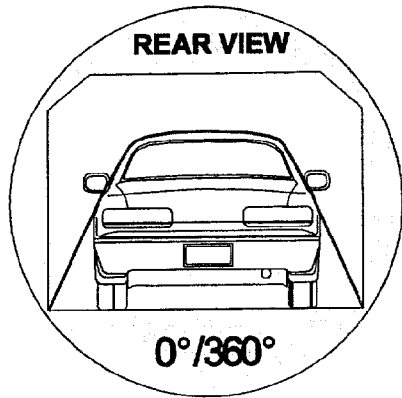
DATA SHEET 17

ROLLOVER DATA

Vehicle: 2000 Suzuki Esteem

NHTSA No. CY0501

0 - 90 Degrees



I. DETERMINATION OF SOLVENT COLLECTION TIME PERIOD :

Rollover Fixture 90° Rotation Time

1 minutes 18 seconds

(Spec. Range = 1 to 3 minutes)

FMVSS 301 Position Hold Time +

5 minutes 0 seconds

TOTAL

6 minutes 18 seconds

Next whole minute interval

7 minutes

II. FMVSS 301 REQUIREMENTS :

(1) Time Period

First 5 minutes FROM onset of rotation	6th min.	7th min.	8th min. (if required)
--	----------	----------	------------------------

(2) Maximum Allowable Solvent Spillage

142 g	28 g	28 g	28 g
-------	------	------	------

III. ACTUAL TEST VEHICLE SOLVENT SPILLAGE:

0 g	0 g	0 g	N/A
-----	-----	-----	-----

Note: Record spillage for whole minute intervals only as determined above.

IV. SOLVENT SPILLAGE LOCATION(S) :

None

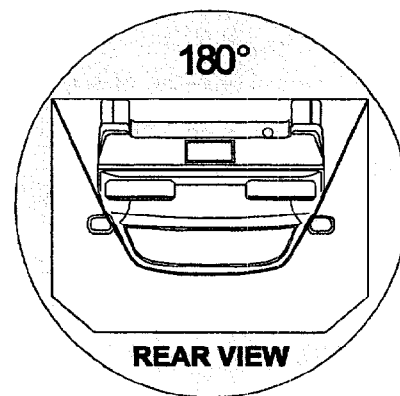
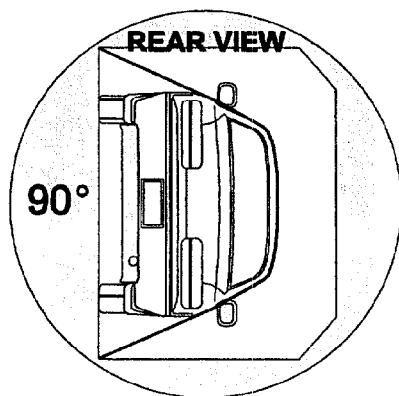
DATA SHEET 17 (continued)

ROLLOVER DATA

Vehicle: 2000 Suzuki Esteem

NHTSA No. CY0501

90 - 180 Degrees



I. DETERMINATION OF SOLVENT COLLECTION TIME PERIOD :

Rollover Fixture 90° Rotation Time	<u>1</u> minutes <u>2</u> seconds
(Spec. Range = 1 to 3 minutes)	
FMVSS 301 Position Hold Time +	<u>5</u> minutes <u>0</u> seconds
TOTAL	<u>6</u> minutes <u>2</u> seconds
Next whole minute interval	<u>7</u> minutes

II. FMVSS 301 REQUIREMENTS :

(1) Time Period

First 5 minutes FROM onset of rotation	6th min.	7th min.	8th min. (if required)
--	----------	----------	------------------------

(2) Maximum Allowable Solvent Spillage

142 g	28 g	28 g	28 g
-------	------	------	------

III. ACTUAL TEST VEHICLE SOLVENT SPILLAGE:

0 g	0 g	0 g	N/A
-----	-----	-----	-----

Note: Record spillage for whole minute intervals only as determined above.

IV. SOLVENT SPILLAGE LOCATION(S) :

None

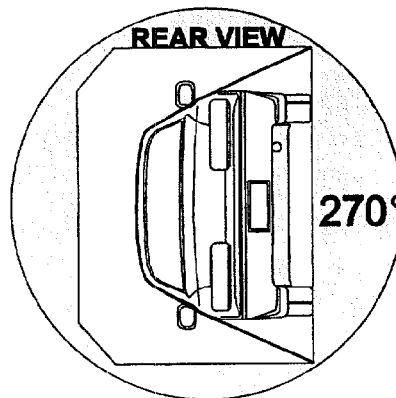
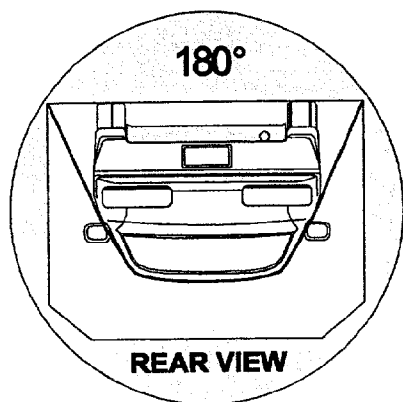
DATA SHEET 17 (continued)

ROLLOVER DATA

Vehicle: 2000 Suzuki Esteem

NHTSA No. CY0501

180 - 270 Degrees



I. DETERMINATION OF SOLVENT COLLECTION TIME PERIOD :

Rollover Fixture 90° Rotation Time

(Spec. Range = 1 to 3 minutes)

FMVSS 301 Position Hold Time +

TOTAL

Next whole minute interval

1 minutes 2 seconds

5 minutes 0 seconds

6 minutes 2 seconds

7 minutes

II. FMVSS 301 REQUIREMENTS :

(1) Time Period

First 5 minutes FROM onset of rotation	6th min.	7th min.	8th min. (if required)
--	----------	----------	------------------------

(2) Maximum Allowable Solvent Spillage

142 g	28 g	28 g	28 g
-------	------	------	------

III. ACTUAL TEST VEHICLE SOLVENT SPILLAGE:

0 g	0 g	0 g	N/A
-----	-----	-----	-----

Note: Record spillage for whole minute intervals only as determined above.

IV. SOLVENT SPILLAGE LOCATION(S) :

None

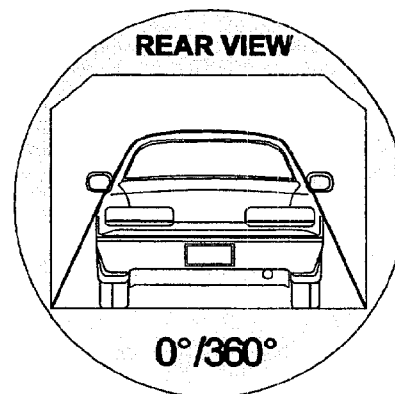
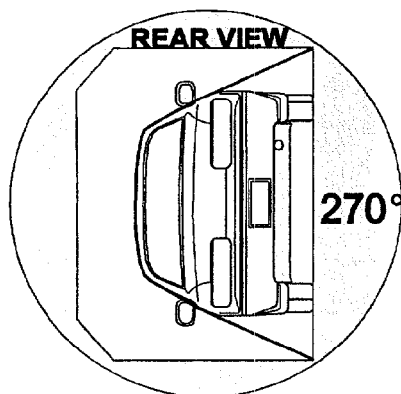
DATA SHEET 17 (continued)

ROLLOVER DATA

Vehicle: 2000 Suzuki Esteem

NHTSA No. CY0501

270 - 360 Degrees



I. DETERMINATION OF SOLVENT COLLECTION TIME PERIOD :

Rollover Fixture 90° Rotation Time	<u>1</u> minutes	<u>12</u> seconds
(Spec. Range = 1 to 3 minutes)		
FMVSS 301 Position Hold Time +	<u>5</u> minutes	<u>0</u> seconds
TOTAL	<u>6</u> minutes	<u>12</u> seconds
Next whole minute interval	<u>7</u> minutes	

II. FMVSS 301 REQUIREMENTS :

(1) Time Period

First 5 minutes FROM onset of rotation	6th min.	7th min.	8th min. (if required)
--	----------	----------	------------------------

(2) Maximum Allowable Solvent Spillage

142 g	28 g	28 g	28 g
-------	------	------	------

III. ACTUAL TEST VEHICLE SOLVENT SPILLAGE:

0 g	0 g	0 g	N/A
-----	-----	-----	-----

Note: Record spillage for whole minute intervals only as determined above.

IV. SOLVENT SPILLAGE LOCATION(S) :

None

APPENDIX A

PHOTOGRAPHS

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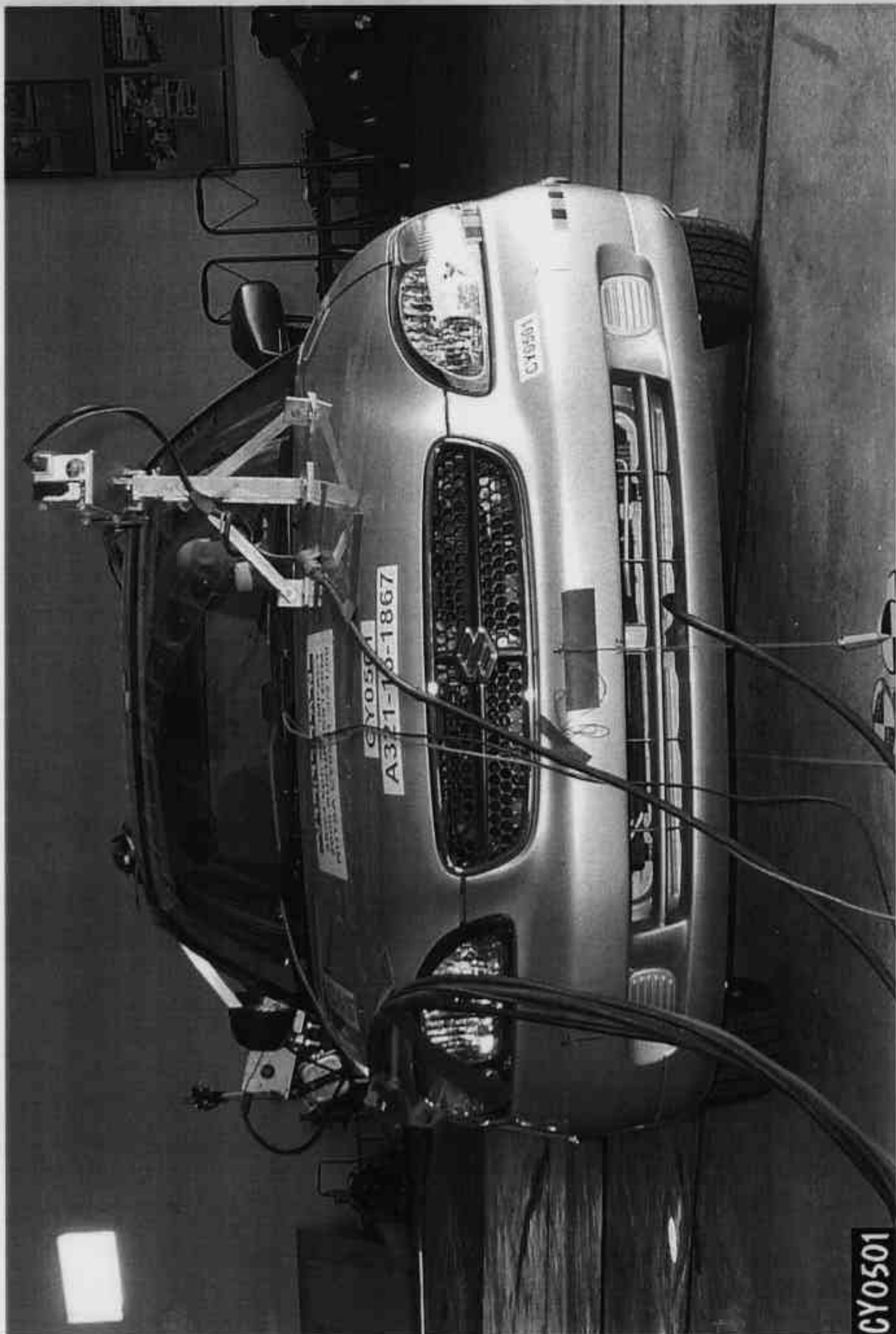


Figure A-1: PRE-TEST FRONTAL VIEW OF TEST VEHICLE

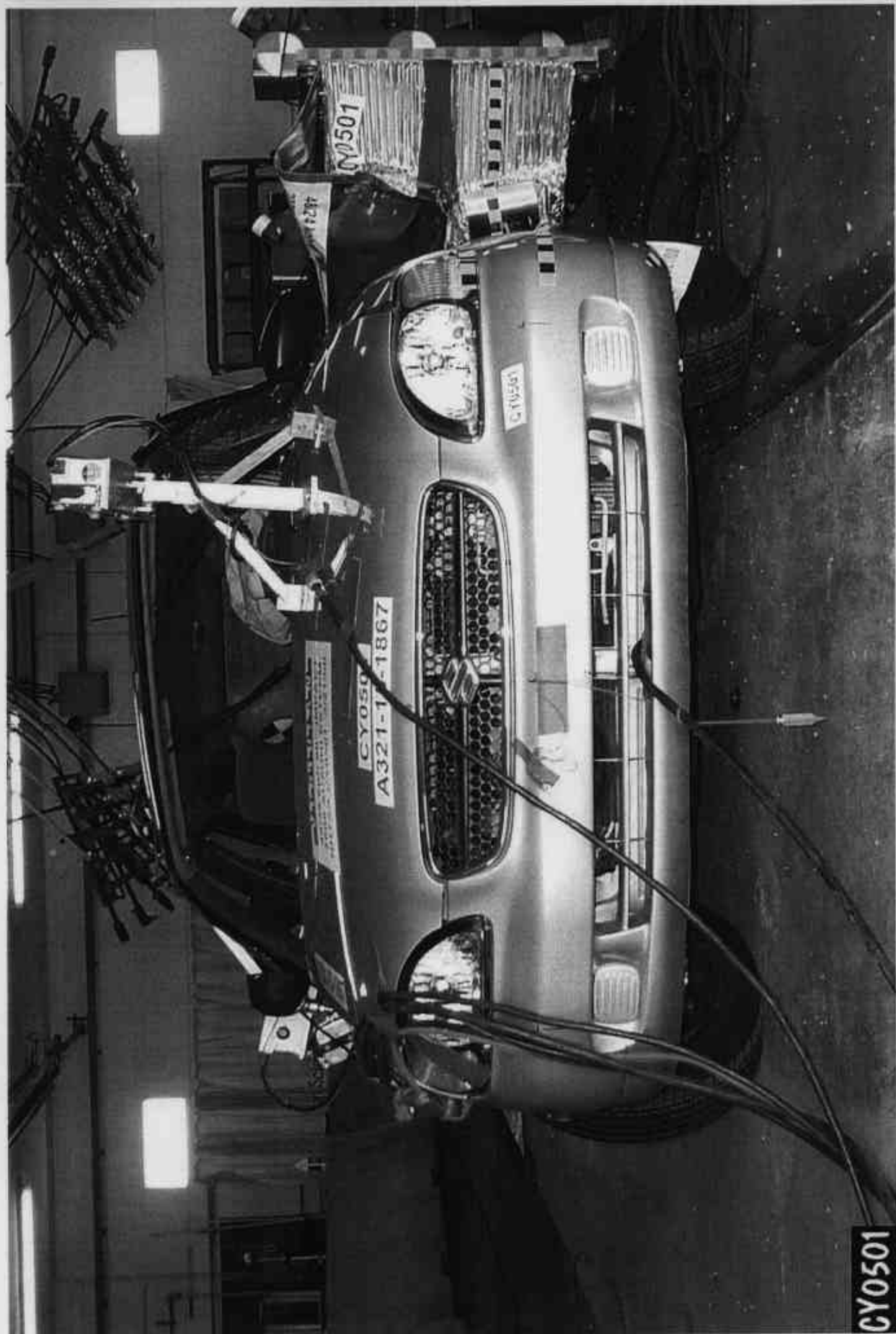


Figure A-2: POST-TEST FRONTAL VIEW OF TEST VEHICLE



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

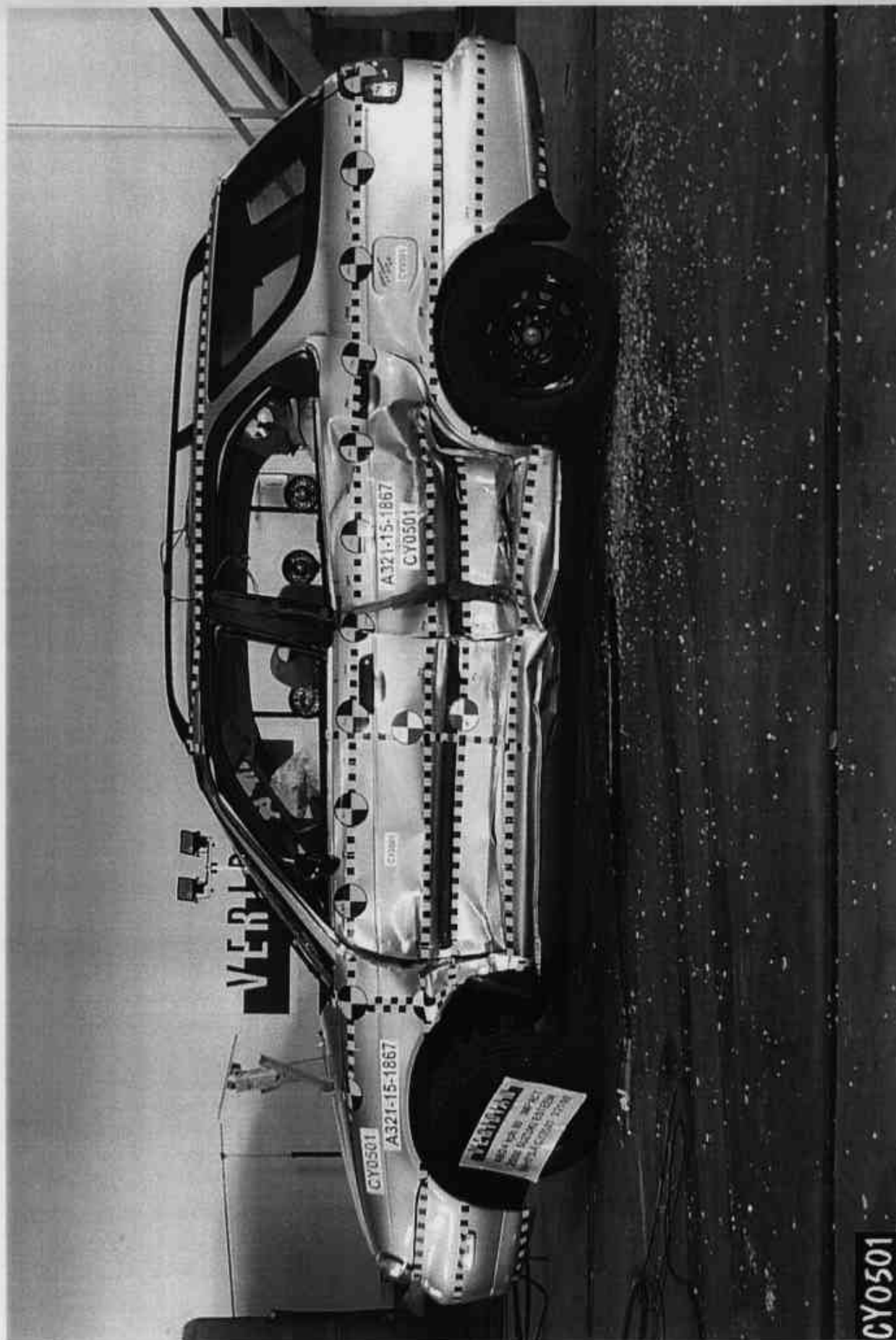


Figure A-6: POST-TEST IMPACTED SIDE VIEW OF TEST VEHICLE

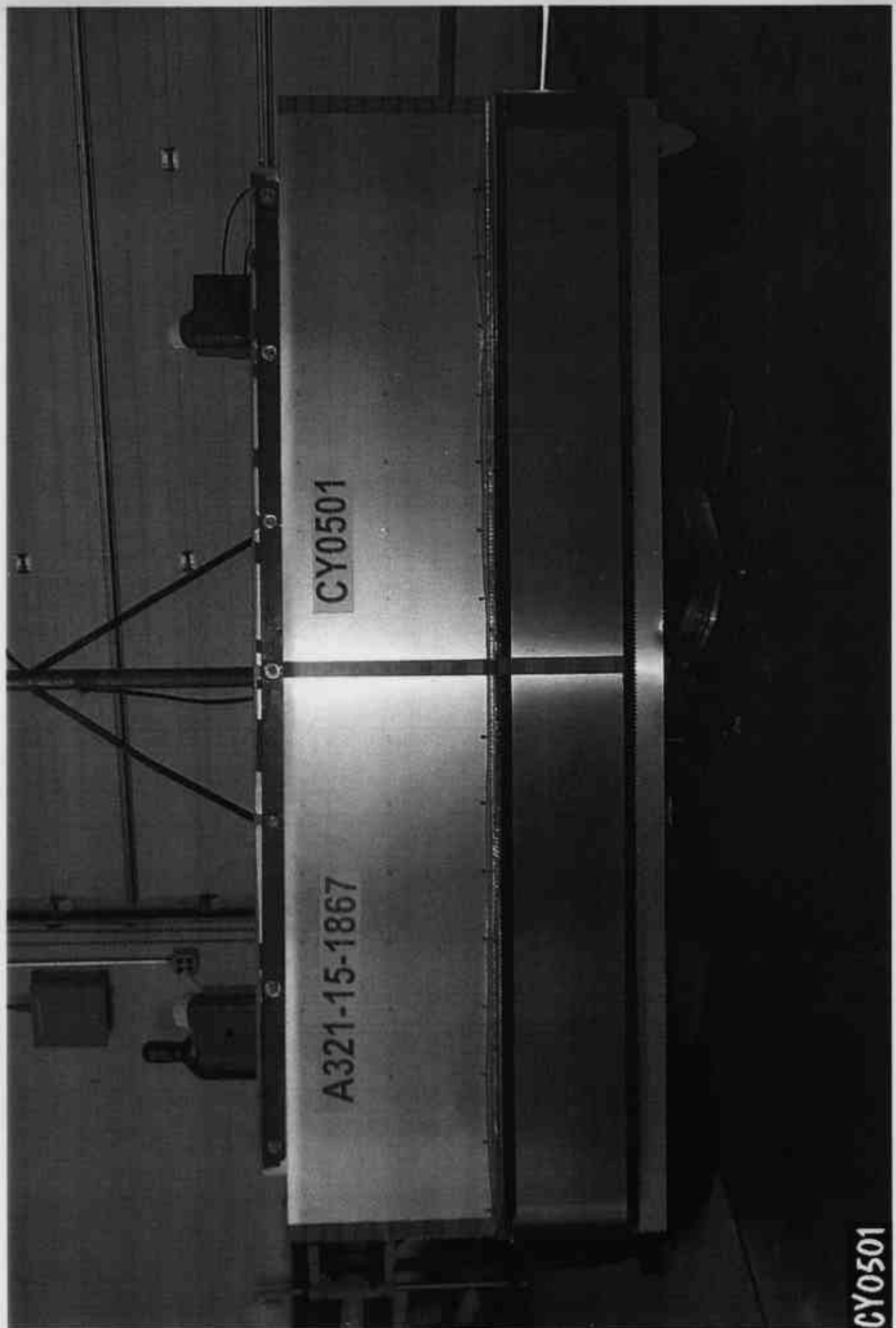


Figure A-7: PRE-TEST FRONTAL VIEW OF IMPACTOR FACE



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

CY0501

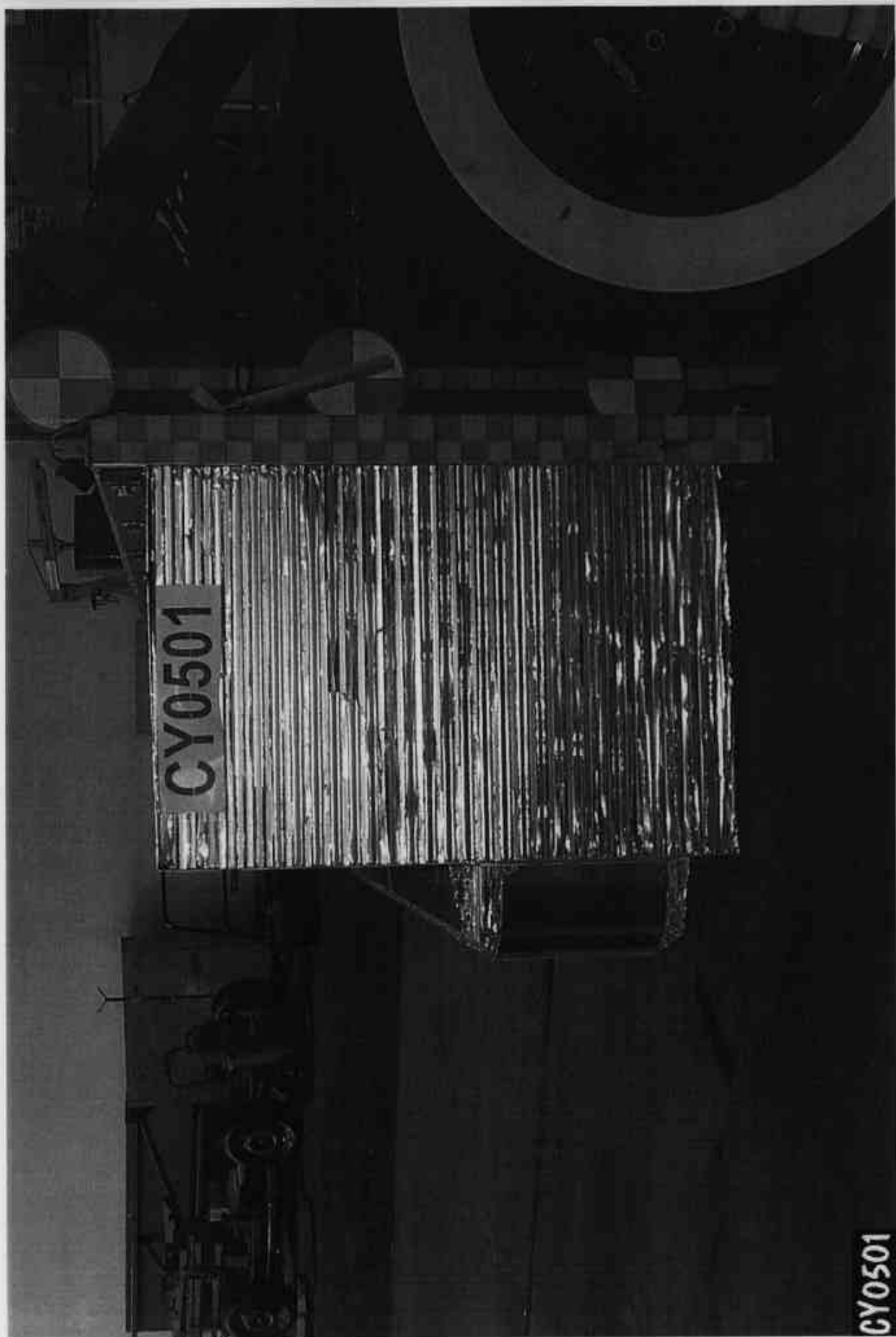


Figure A-9: PRE-TEST LEFT SIDE VIEW OF IMPACTOR FACE

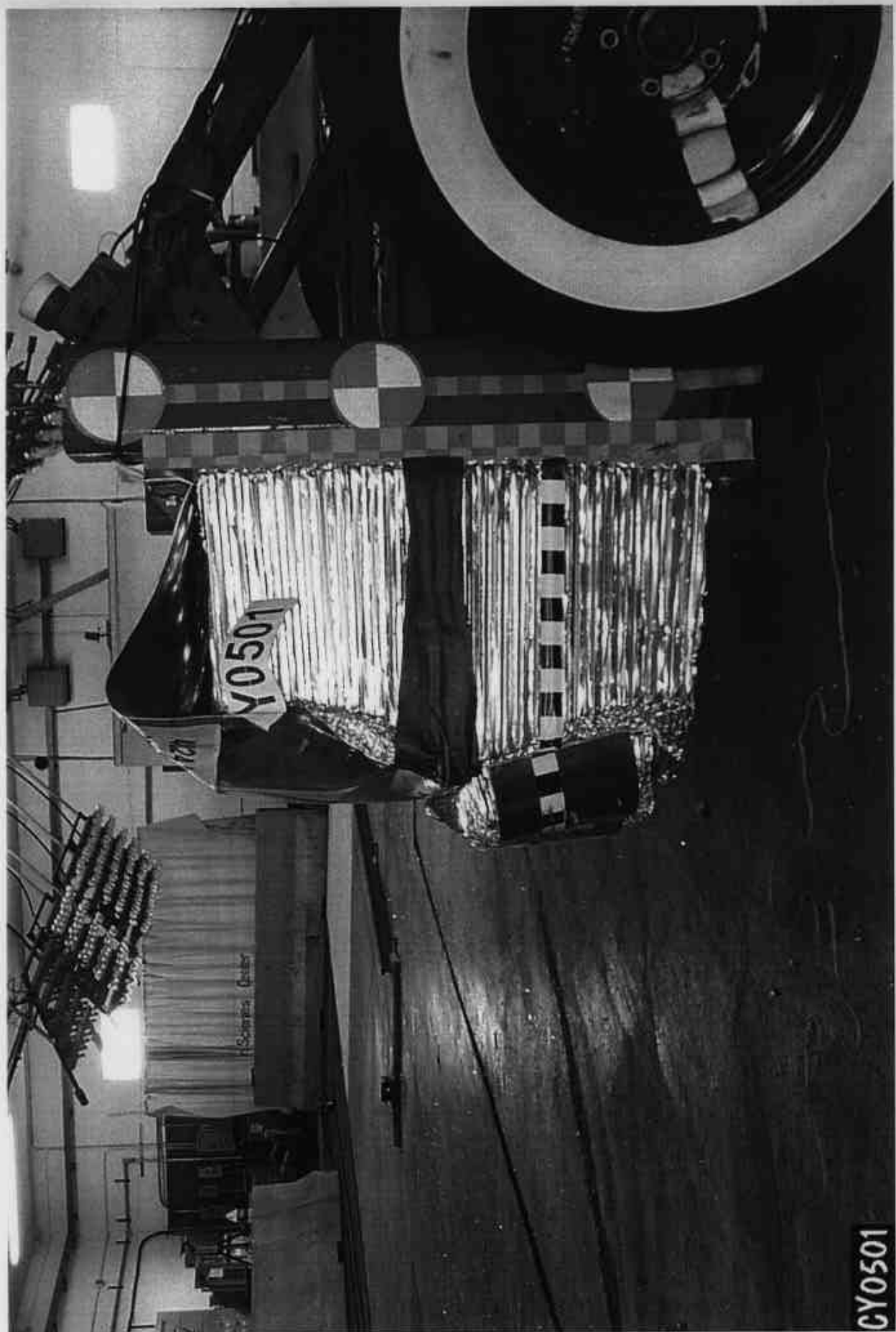


Figure A-10: POST-TEST LEFT SIDE VIEW OF IMPACTOR FACE

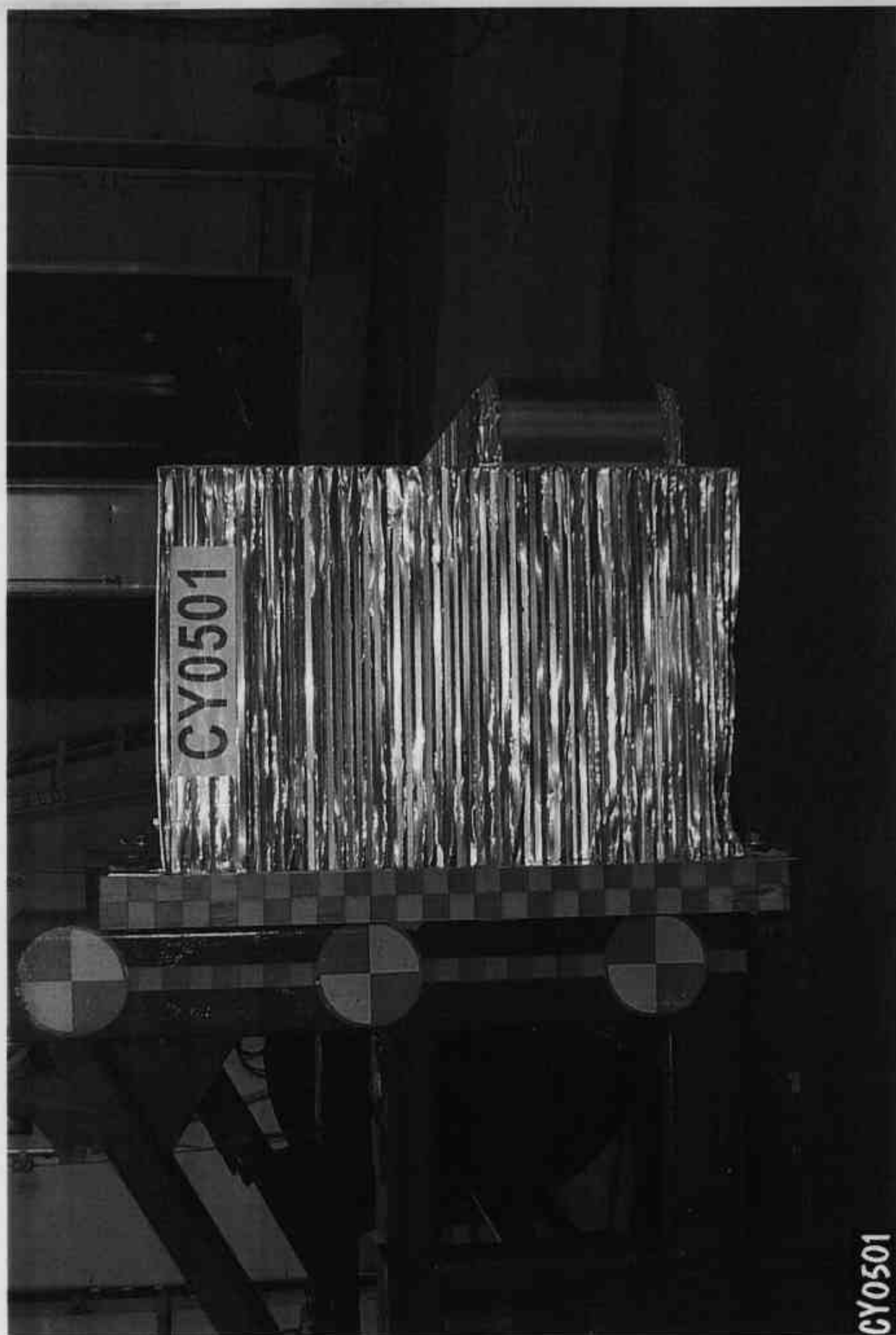


Figure A-11: PRE-TEST RIGHT SIDE VIEW OF IMPACTOR FACE

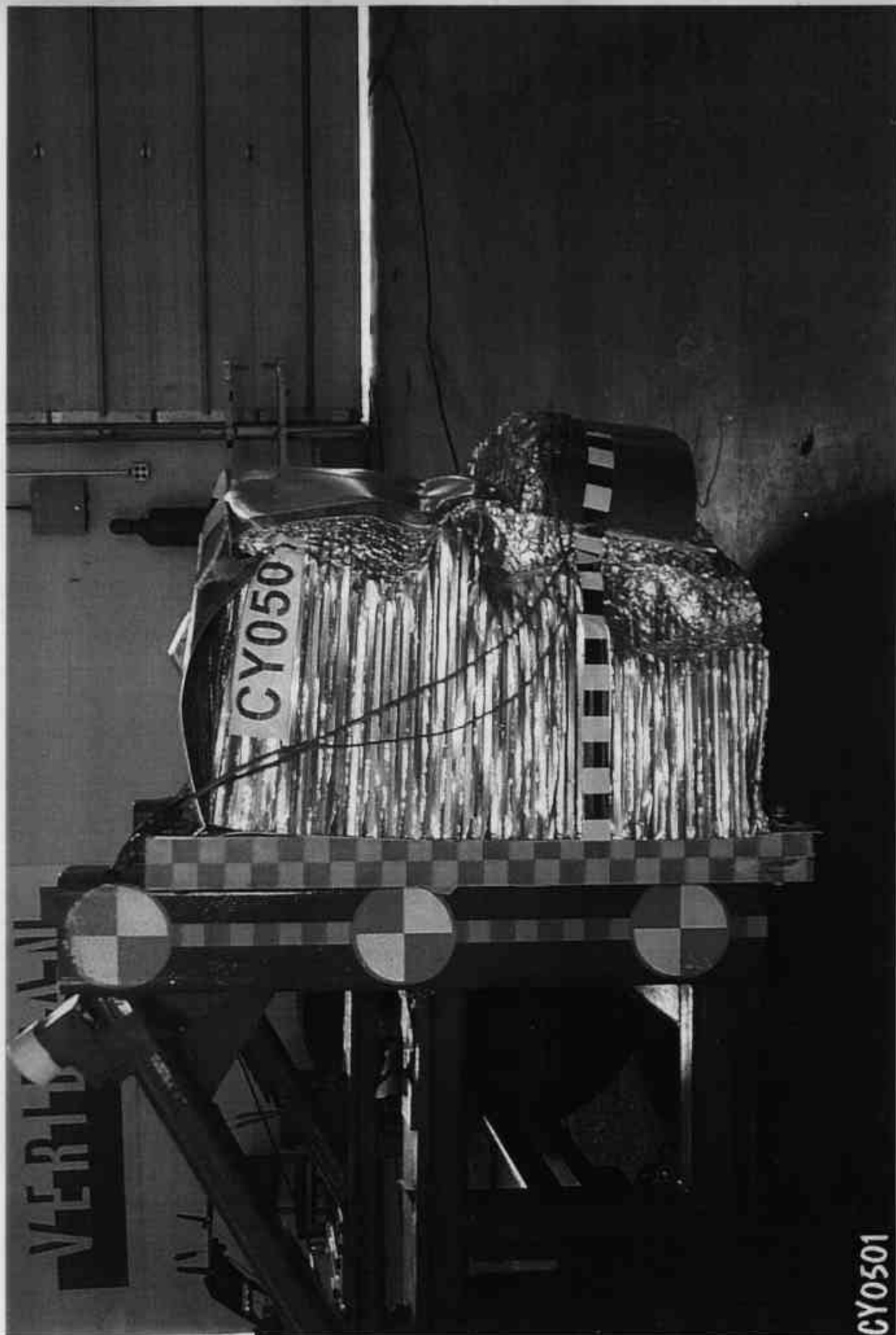


Figure A-12: POST-TEST RIGHT SIDE VIEW OF IMPACTOR FACE

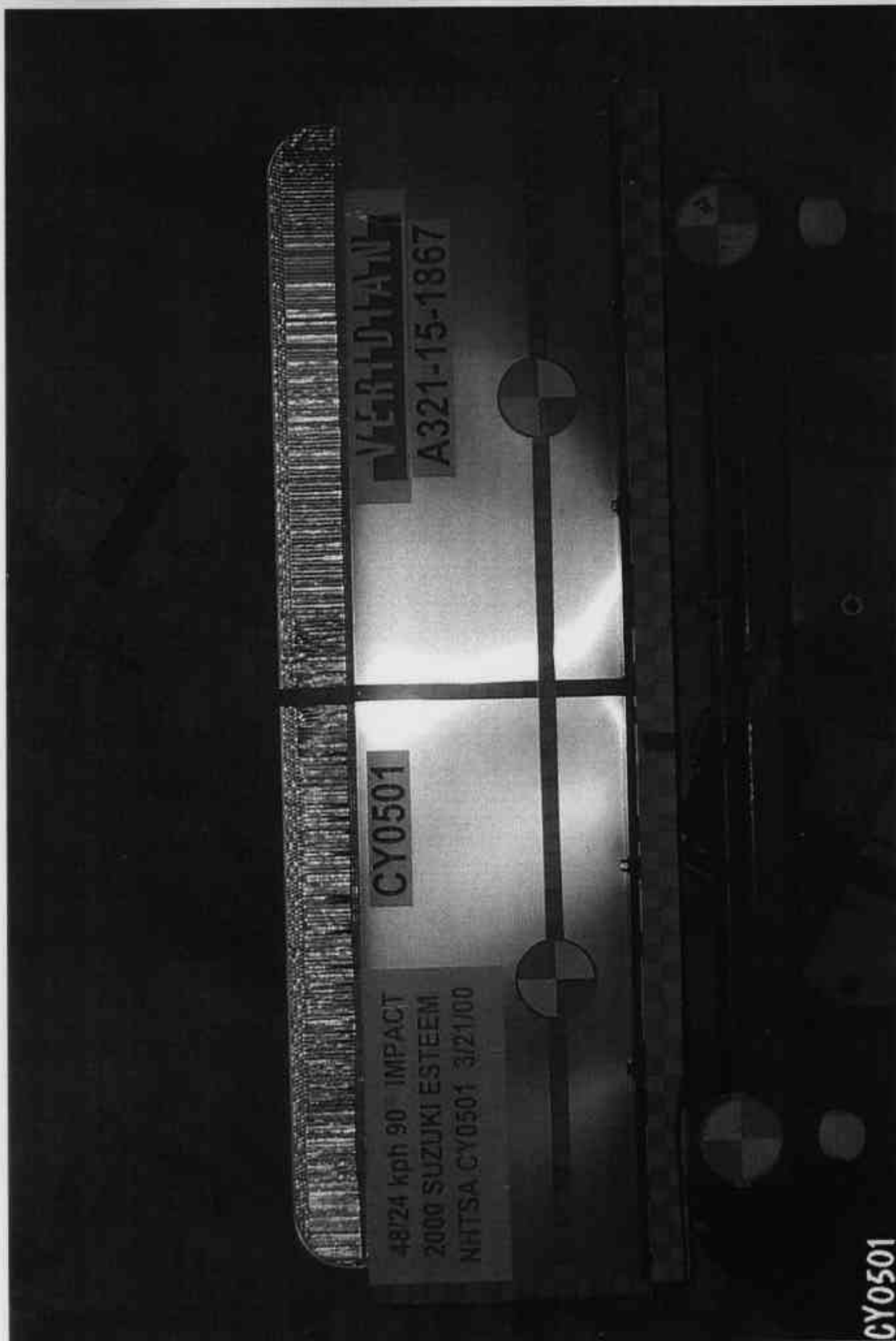


Figure A-13: PRE-TEST TOP VIEW OF IMPACTOR FACE



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



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

CY0501

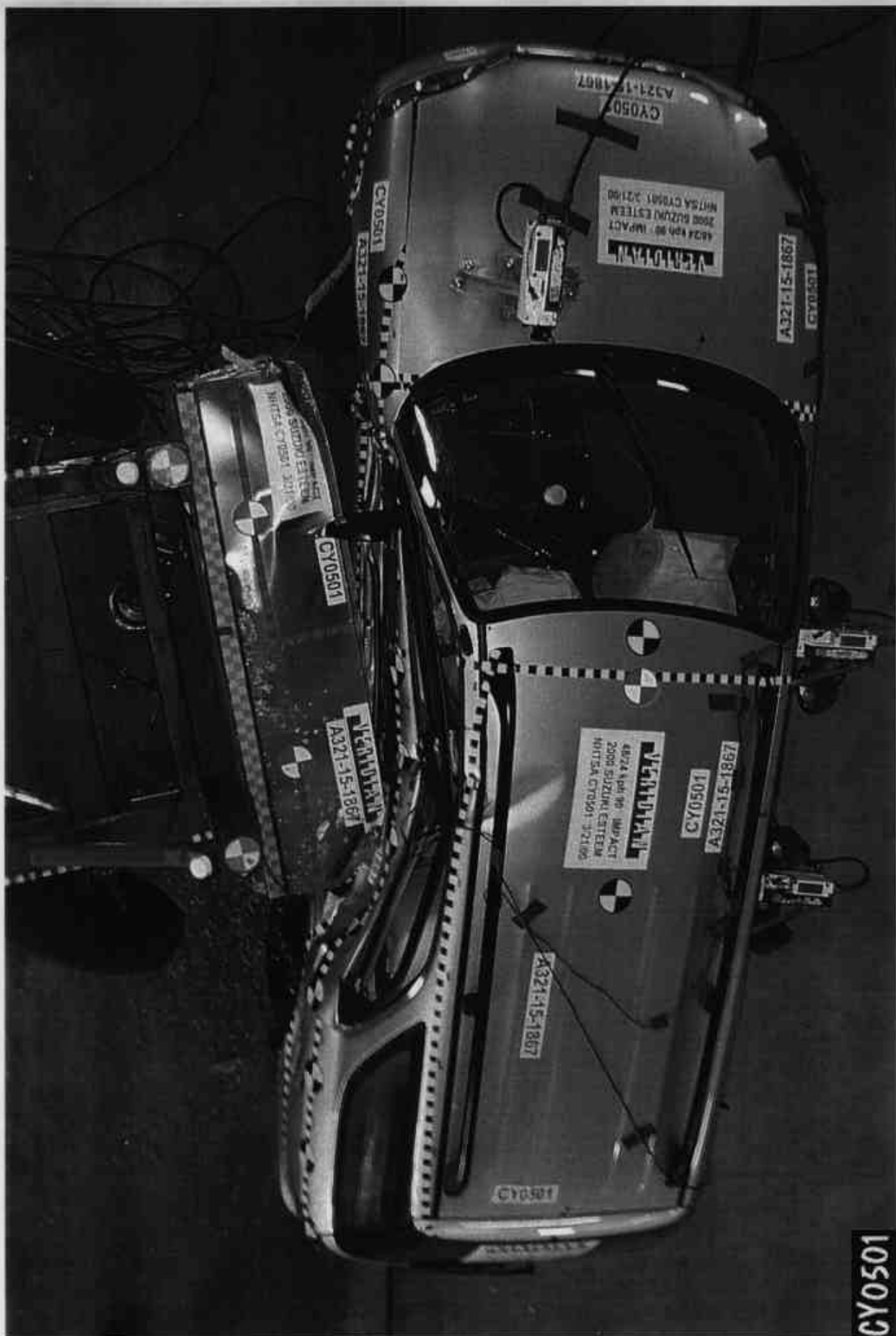


Figure A-16: POST-TEST OVERHEAD VIEW OF MDB AND VEHICLE

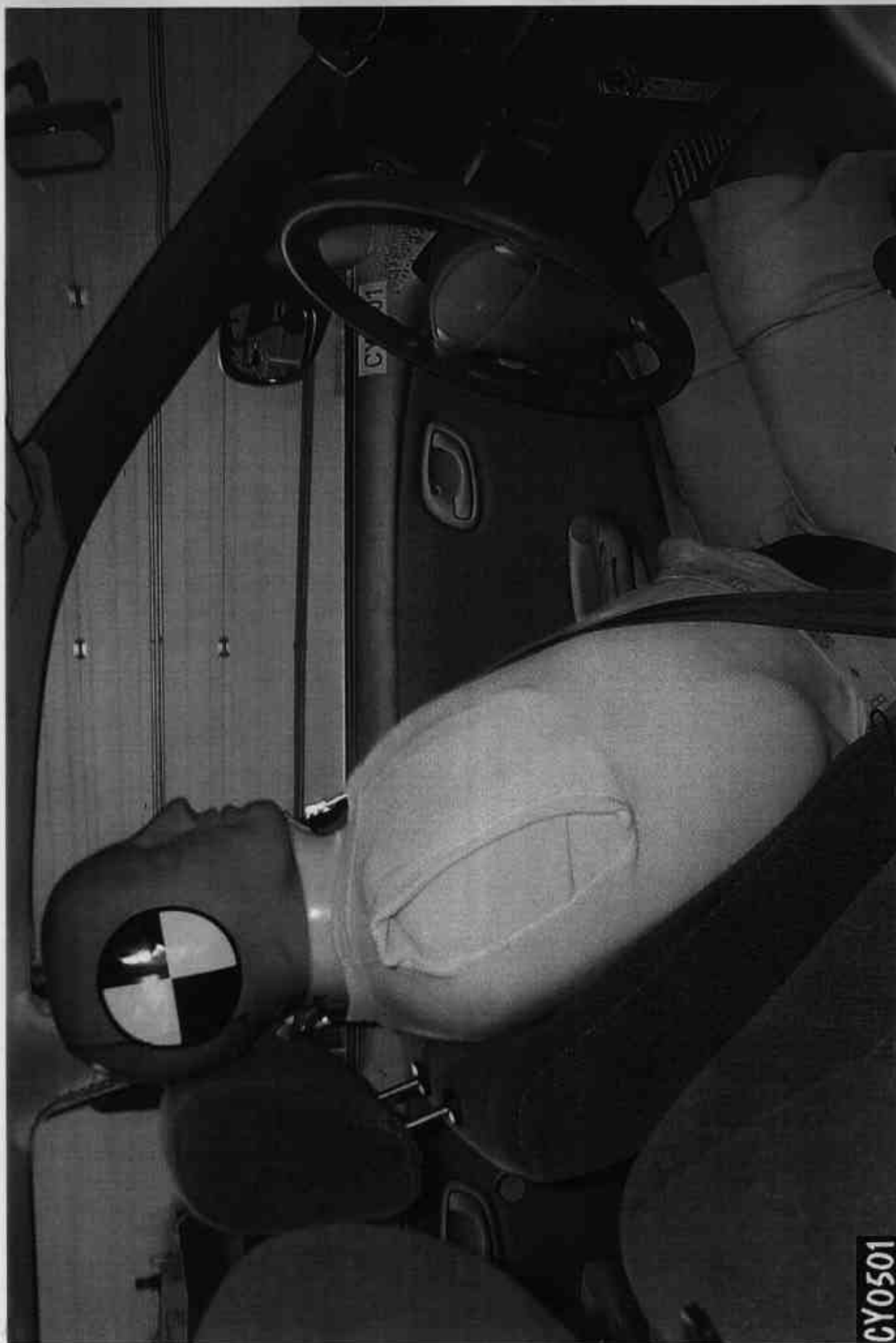


Figure A-17: PRE-TEST RIGHT OCCUPANT COMPARTMENT VIEW OF FRONT SID

CY0501

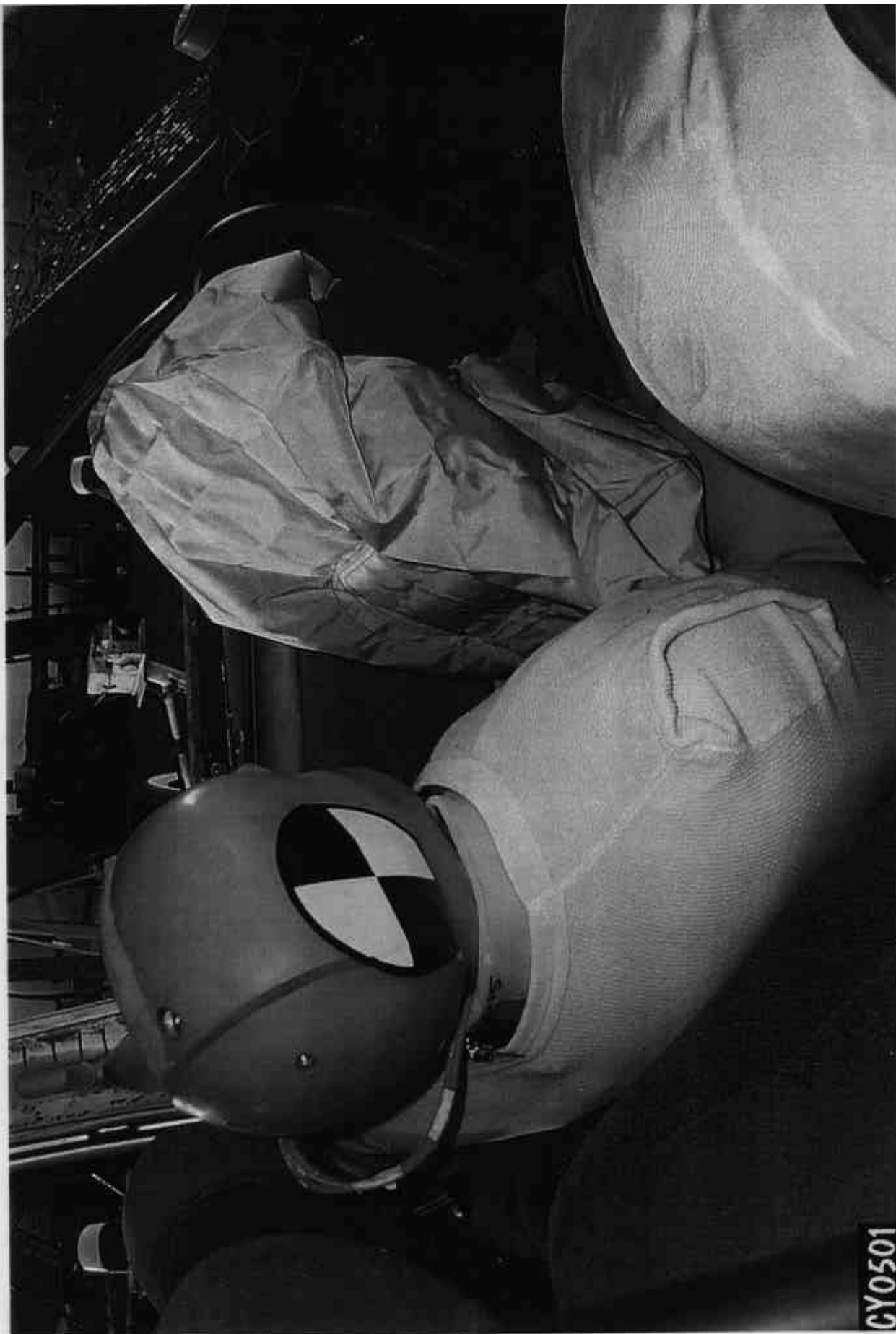


Figure A-18: POST-TEST RIGHT OCCUPANT COMPARTMENT VIEW OF FRONT SID

CY0501

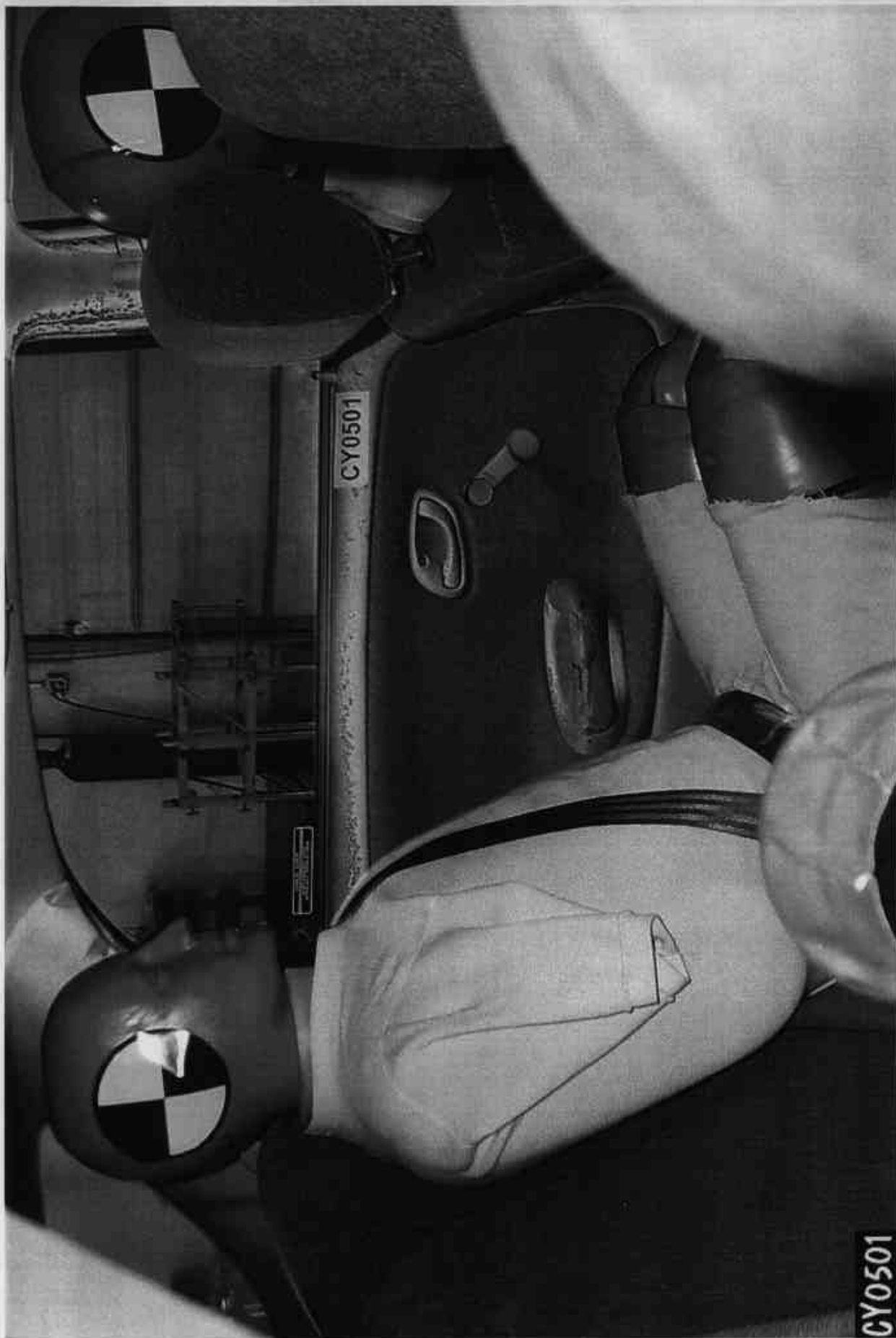


Figure A-19: PRE-TEST RIGHT OCCUPANT COMPARTMENT VIEW OF REAR SID

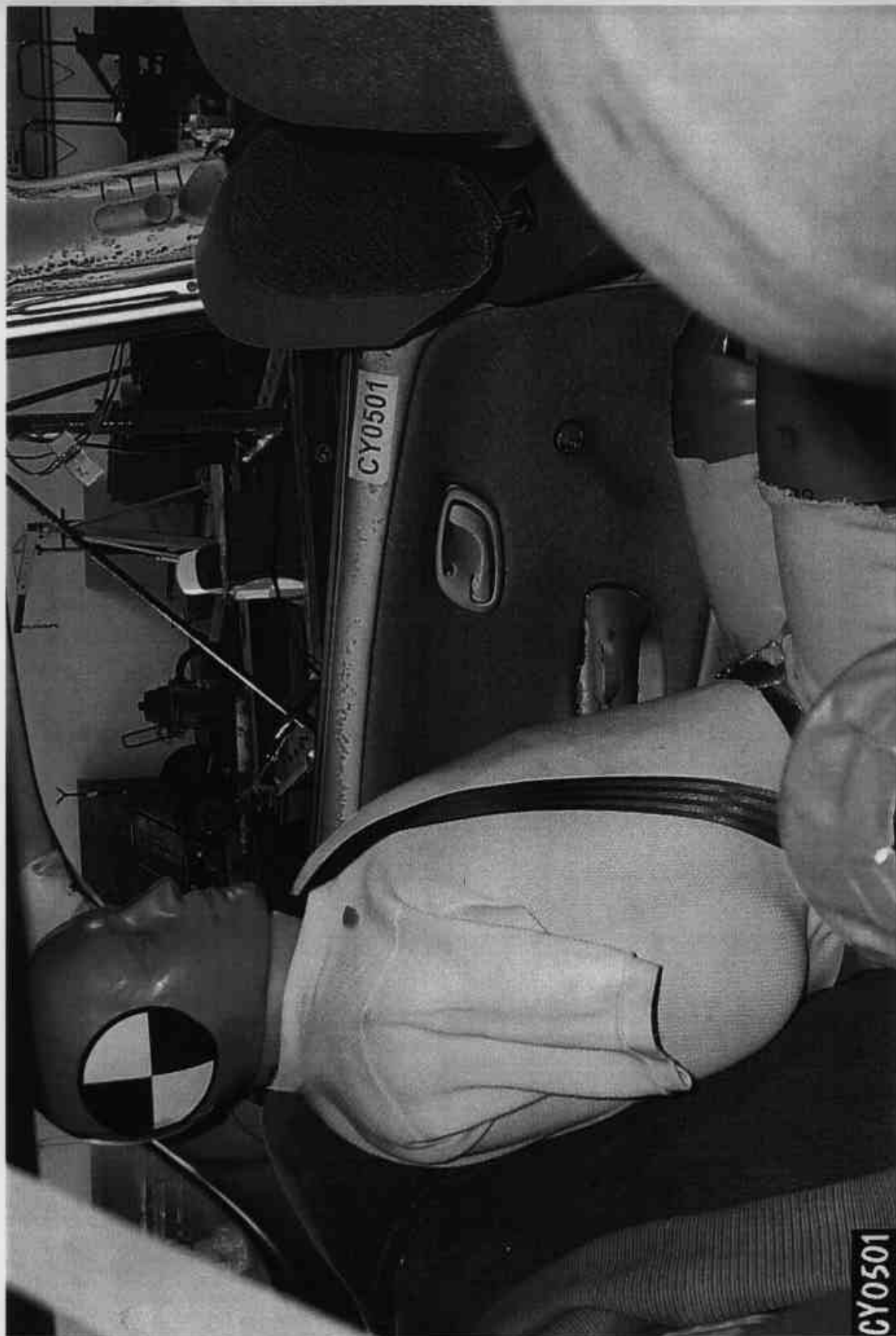


Figure A-20: POST-TEST RIGHT OCCUPANT COMPARTMENT VIEW OF REAR SID

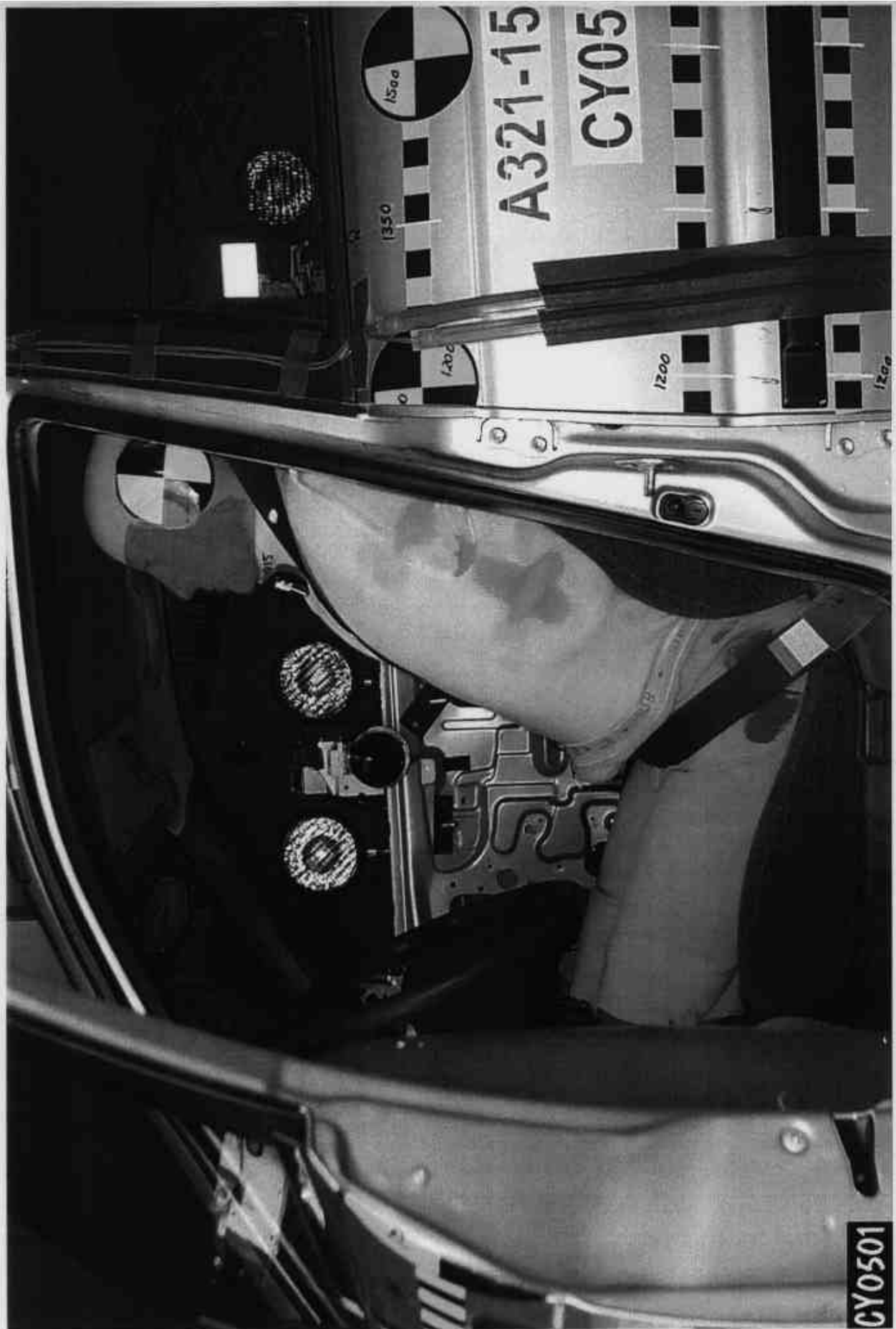


Figure A-21: PRE-TEST LEFT OCCUPANT COMPARTMENT VIEW OF FRONT SID

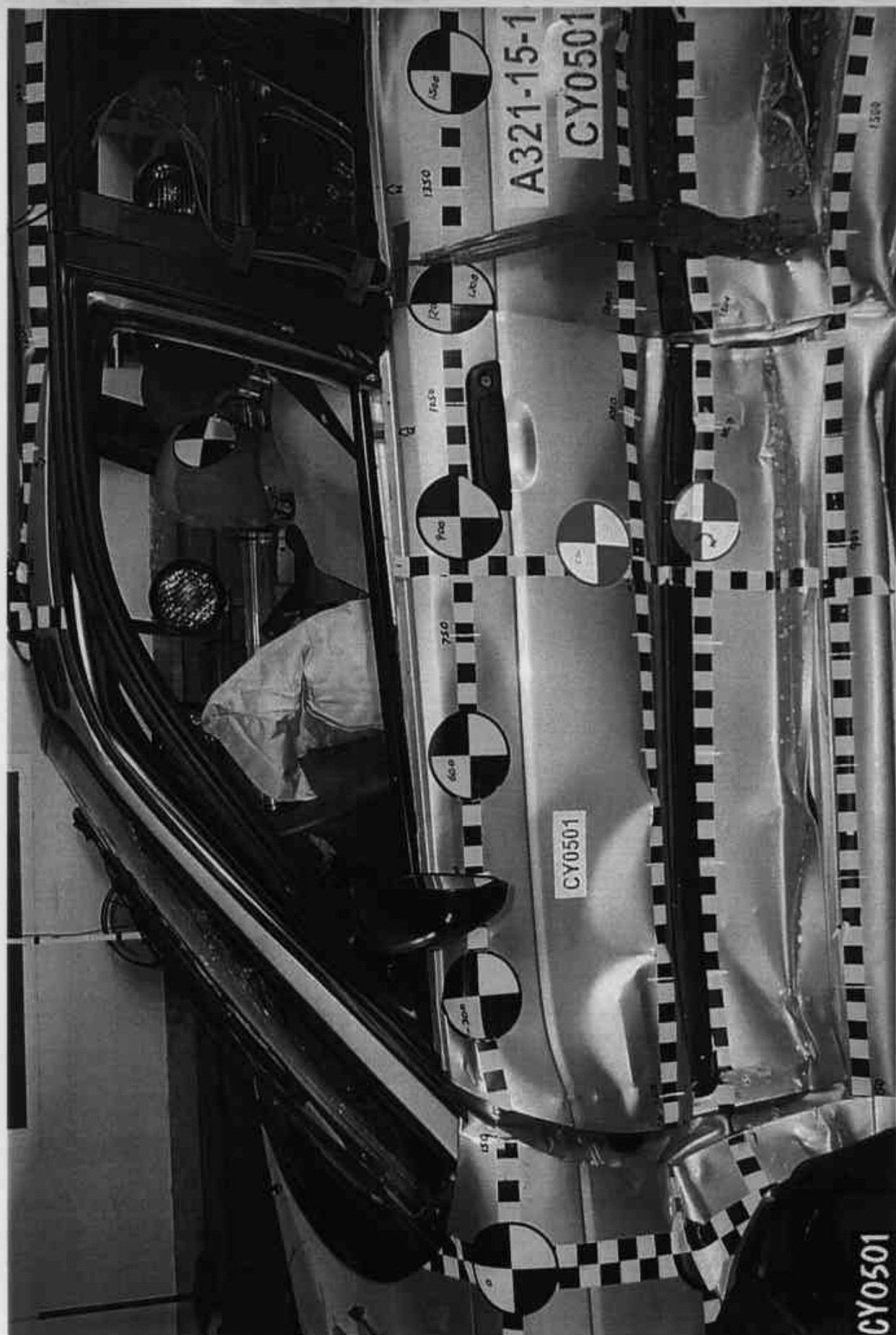


Figure A-22: POST-TEST LEFT OCCUPANT COMPARTMENT VIEW OF FRONT SID

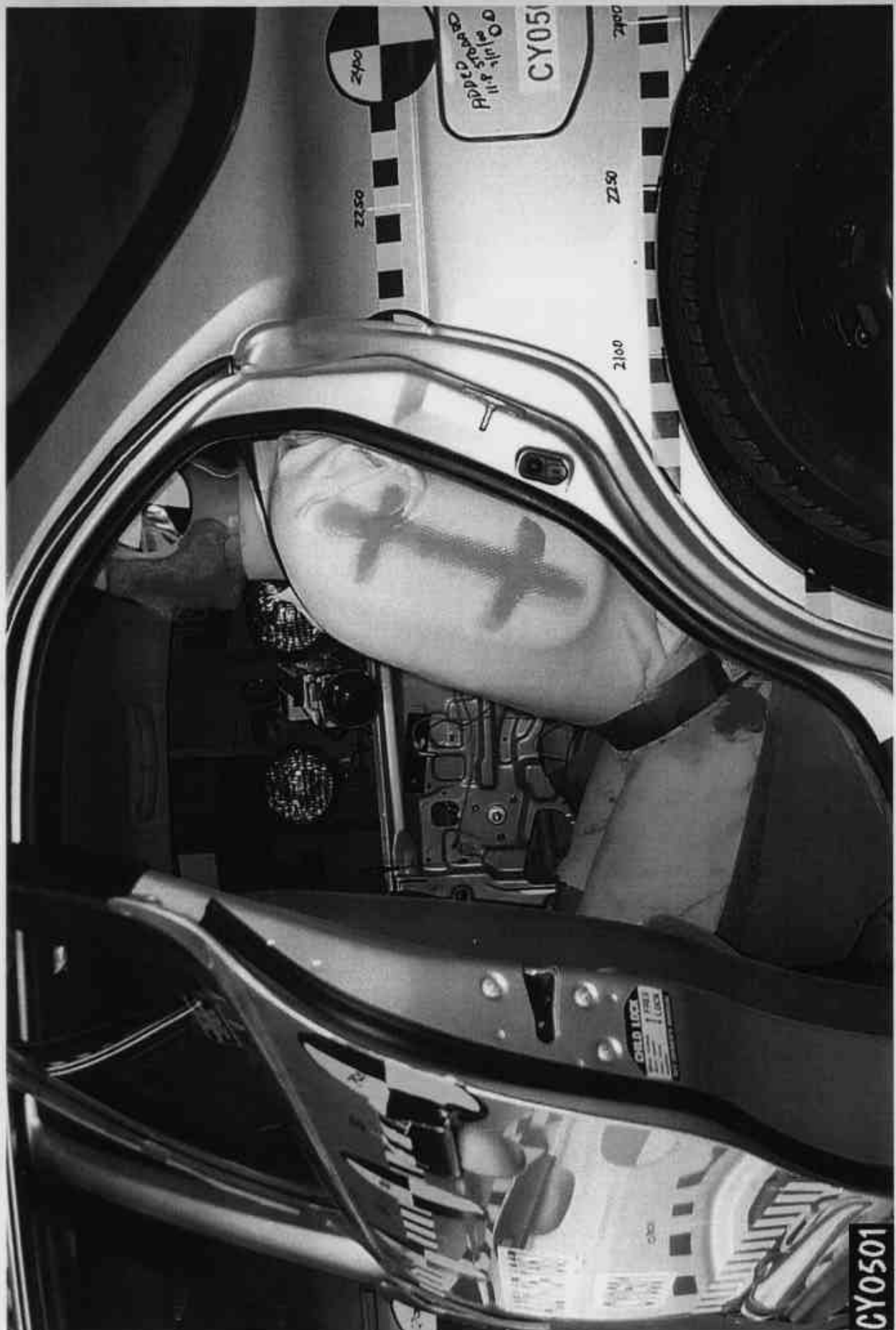


Figure A-23: PRE-TEST LEFT OCCUPANT COMPARTMENT VIEW OF REAR SID

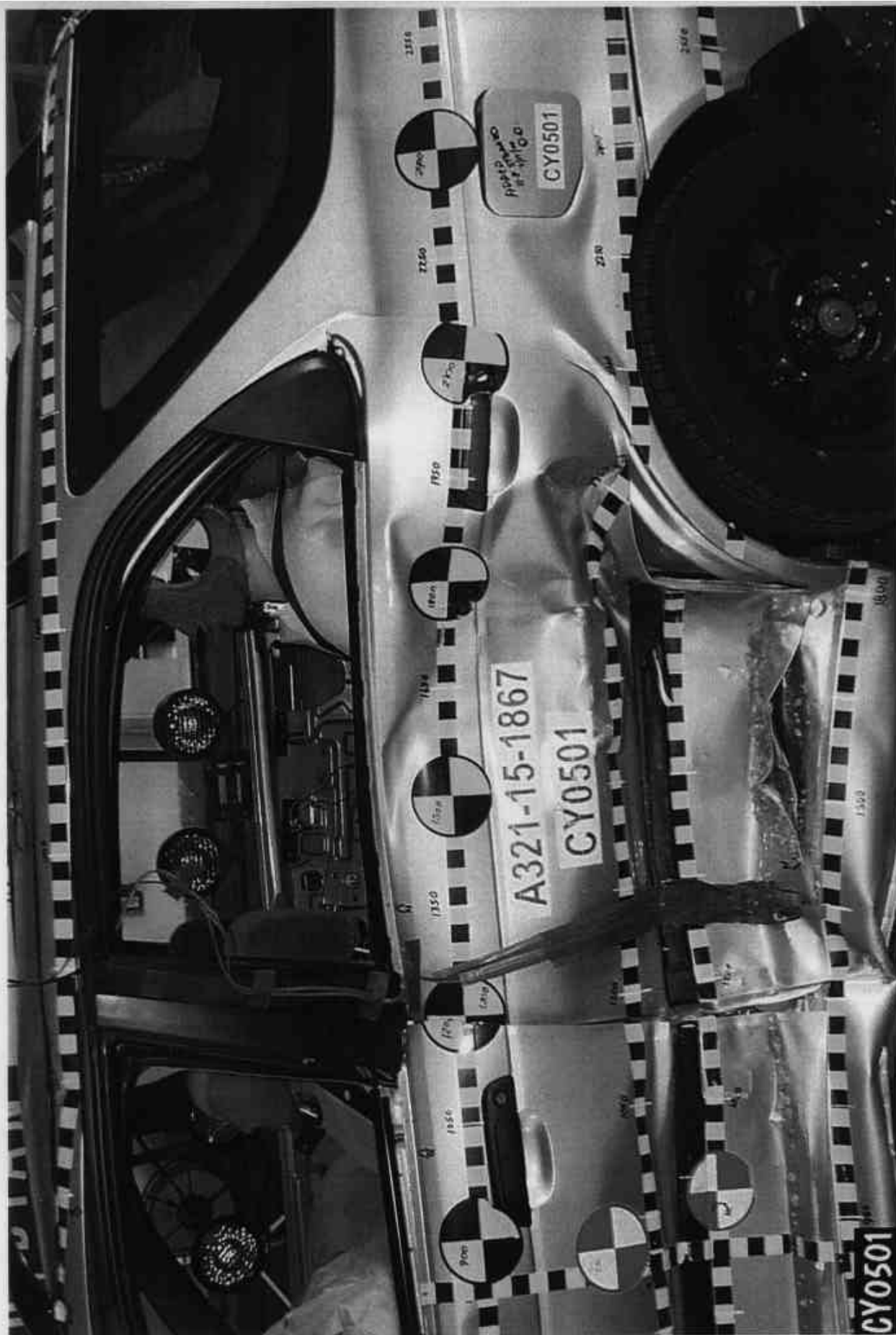


Figure A-24: POST-TEST LEFT OCCUPANT COMPARTMENT VIEW OF REAR SID



Figure A-25: PRE-TEST FRONT INTERIOR TRIM



Figure A-26: POST-TEST FRONT INTERIOR TRIM SHOWING SID IMPACT LOCATIONS



Figure A-27: PRE-TEST REAR INTERIOR TRIM



Figure A-28: POST-TEST REAR INTERIOR TRIM SHOWING SID IMPACT LOCATIONS

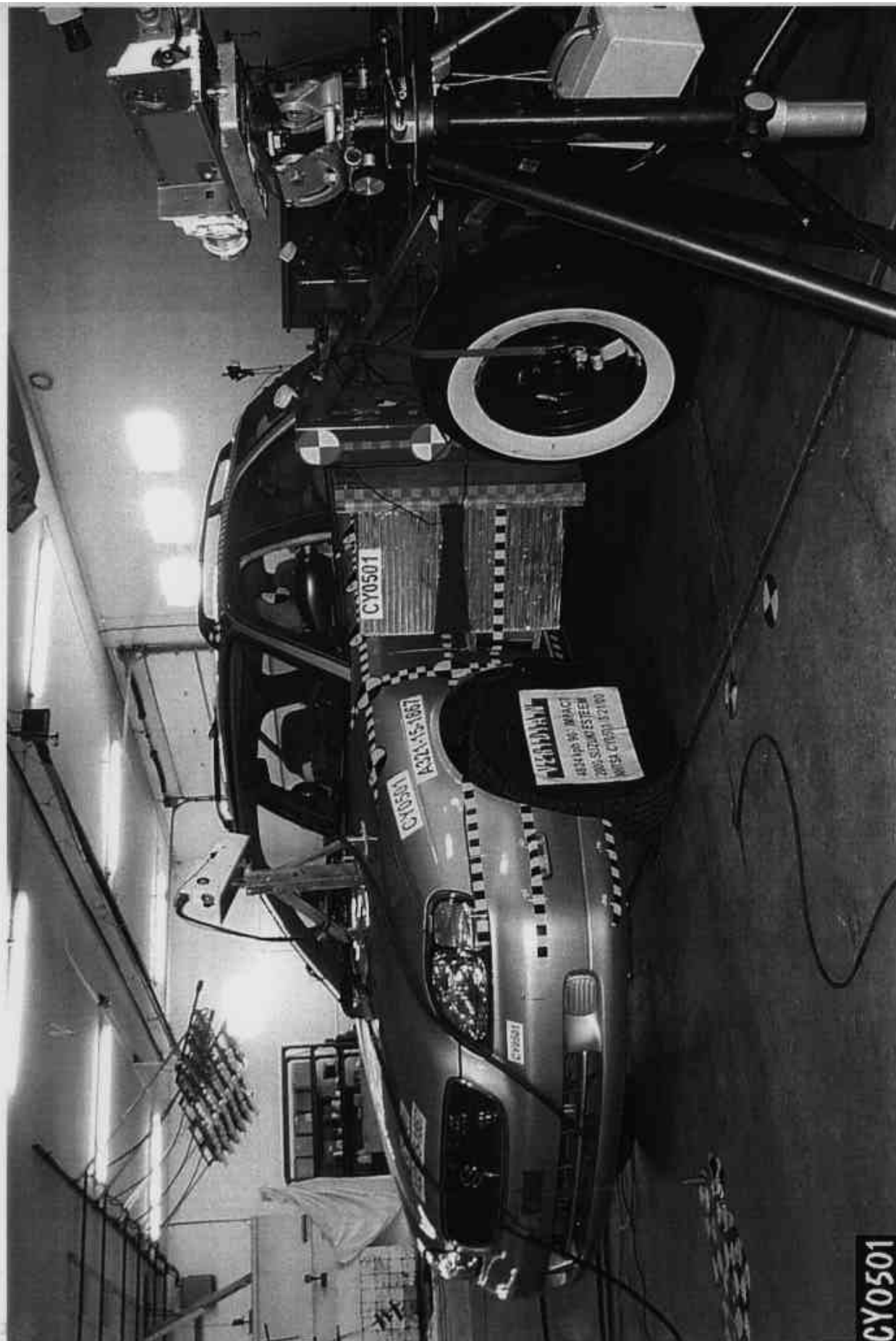


Figure A-29: PRE-TEST LEFT SIDE VIEW OF MDB WITH IMPACTOR FACE IN POSITION

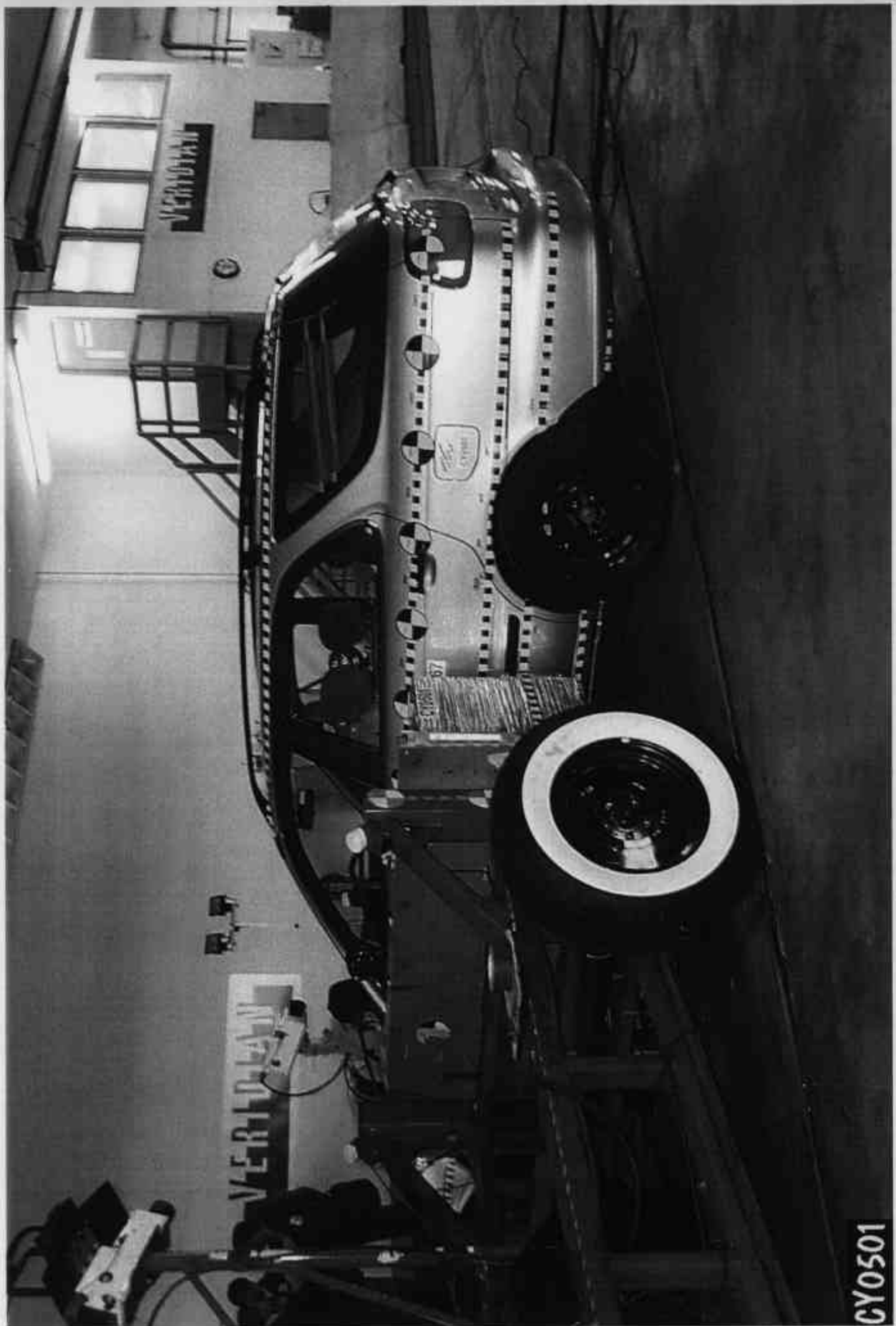


Figure A-30: PRE-TEST RIGHT SIDE VIEW OF MDB WITH IMPACTOR FACE IN POSITION

CY0501

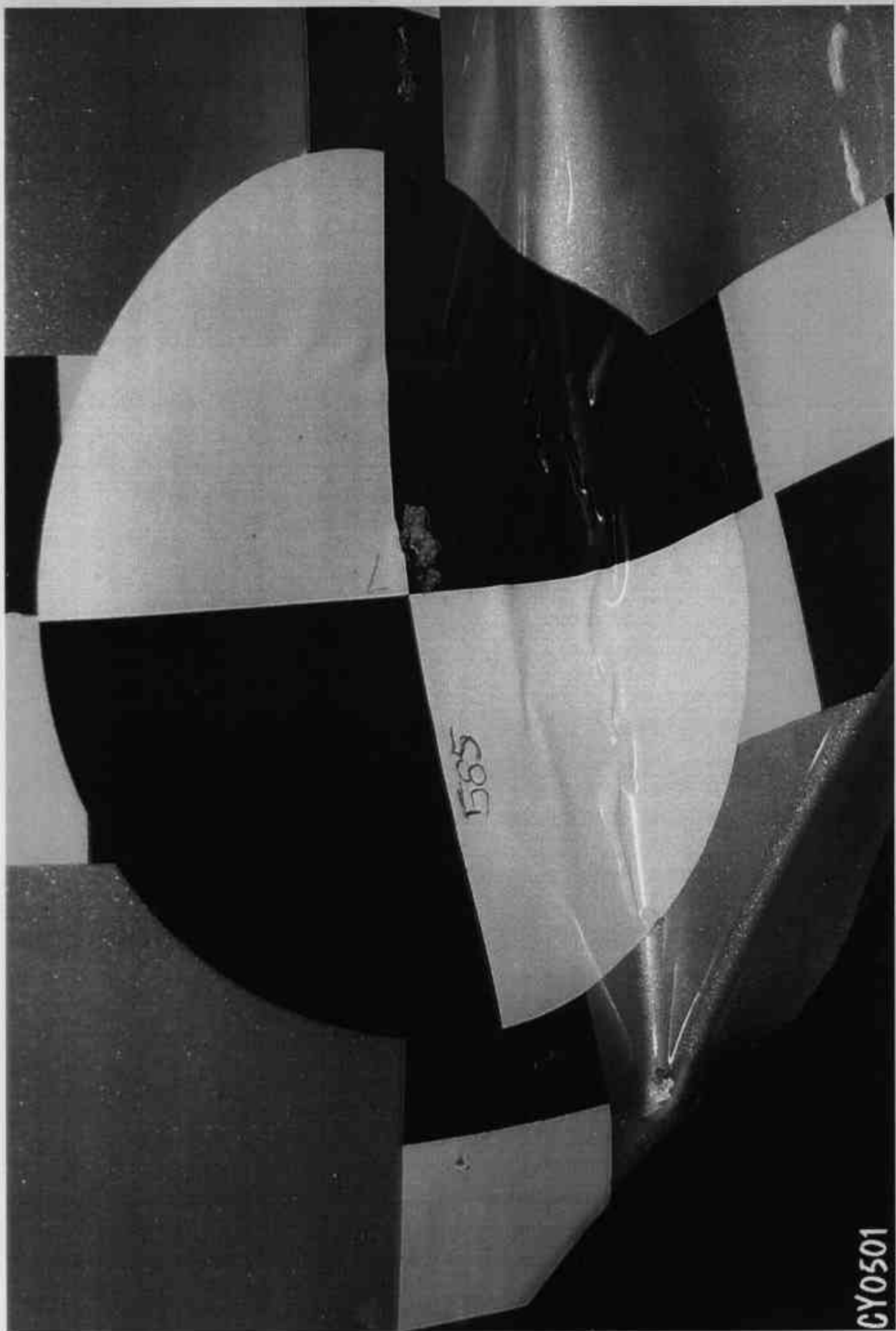


Figure A-31: POST-TEST CLOSE-UP VIEW OF IMPACT POINT TARGET

CY0501

MAHINDRA SUZUKI MOTOR CORPORATION JAPAN

DATE 7/99 GVWR 3384LB
1535Kg

GAWR FRT 1731LB
785kg
GAWR RR 1687LB
765Kg

THIS VEHICLE CONFORMS TO ALL
APPLICABLE U.S. FEDERAL MOTOR
VEHICLE SAFETY, BUMPER AND
THEFT PREVENTION STANDARDS IN
EFFECT ON THE DATE OF MANUFACTURE
SHOWN ABOVE.

WJ2GB41W8Y5181551

PASS CAR
ワゴン 1.8L US

CY0501

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

RECOMMENDED

	FRONT	REAR	FRONT	REAR	SPARE TIRE
TIRE SIZE	P185/60R14		P195/55R15		T115/70D14
COLD TIRE PRESSURE AT MAX. LOAD	30 p.s.i. 210 kPa		29 p.s.i. 200 kPa		60 p.s.i. 420 kPa

VEHICLE CAPACITY

MAX. LOAD (LBS.)	870 (OCCUPANTS PLUS LUGGAGE)		
OCCUPANTS	FRONT	2	REAR 3

SEE OWNER'S MANUAL FOR ADDITIONAL INFORMATION.

79161-65G4

CY0501

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

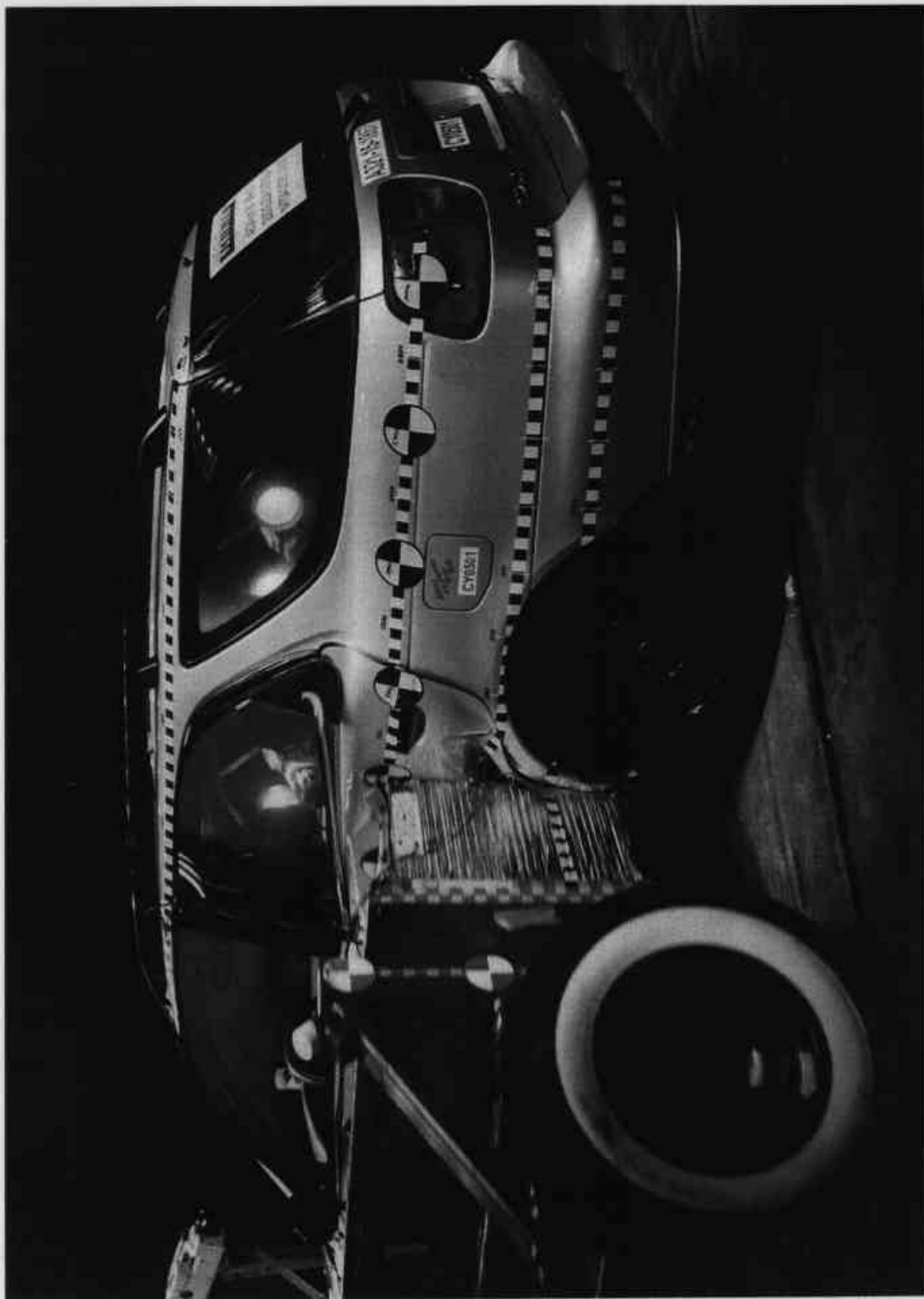


Figure A-34: IMPACT PHOTO

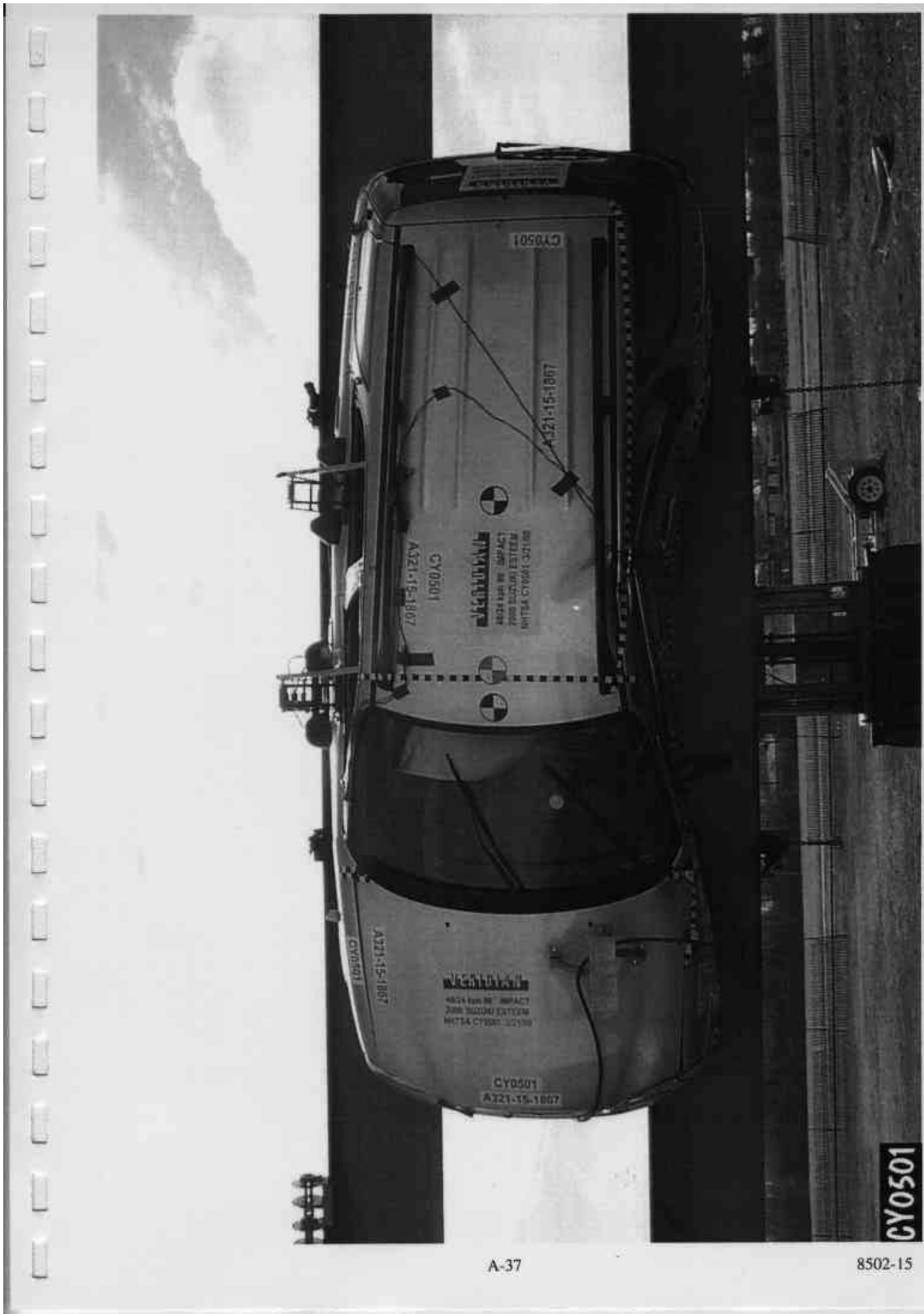


Figure A-35: ROLLOVER 90 DEGREES



Figure A-36: ROLLOVER 180 DEGREES

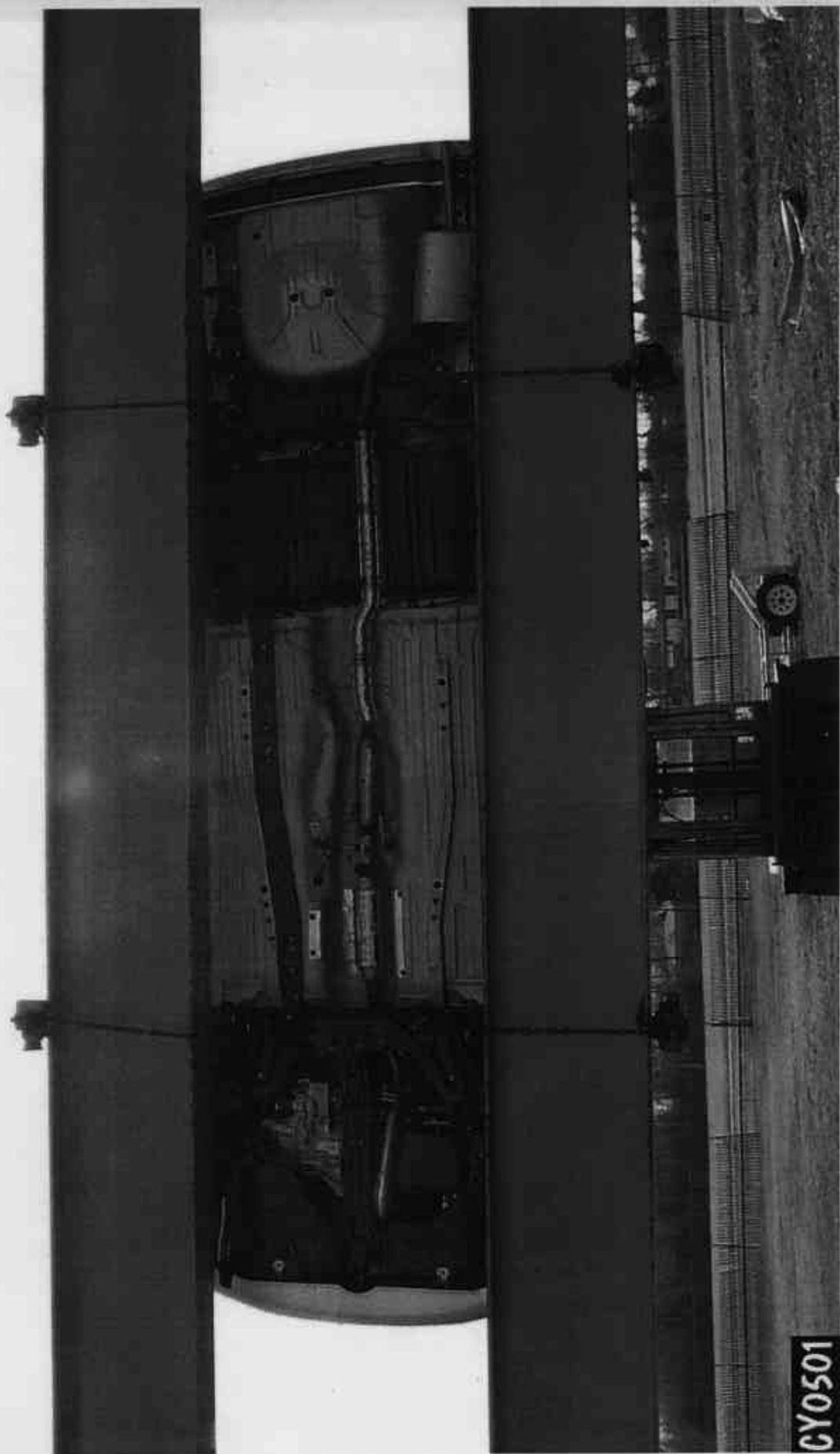


Figure A-37: ROLLOVER 270 DEGREES



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 UPPER RIB (Y) ACCELERATION VS TIME	B- 6
2	DRIVER UPPER RIB (Y) VELOCITY VS TIME	B- 7
3	DRIVER LOWER RIB (Y) ACCELERATION VS TIME	B- 8
4	DRIVER LOWER RIB (Y) VELOCITY VS TIME	B- 9
5	DRIVER LOWER SPINE (Y) ACCELERATION VS TIME	B- 10
6	DRIVER LOWER SPINE (Y) VELOCITY VS TIME	B- 11
7	DRIVER PELVIC (Y) ACCELERATION VS TIME	B- 12
8	DRIVER PELVIC (Y) VELOCITY VS TIME	B- 13
9	PASSENGER UPPER RIB (Y) ACCELERATION VS TIME	B- 14
10	PASSENGER UPPER RIB (Y) VELOCITY VS TIME	B- 15
11	PASSENGER LOWER RIB (Y) ACCELERATION VS TIME	B- 16
12	PASSENGER LOWER RIB (Y) VELOCITY VS TIME	B- 17
13	PASSENGER LOWER SPINE (Y) ACCELERATION VS TIME	B- 18
14	PASSENGER LOWER SPINE (Y) VELOCITY VS TIME	B- 19
15	PASSENGER PELVIC (Y) ACCELERATION VS TIME	B- 20
16	PASSENGER PELVIC (Y) VELOCITY VS TIME	B- 21

DRIVER & PASSENGER DUMMY INSTRUMENTATION PLOTS ACCELERATION DATA - FIR FILTERED

<u>Plot No.</u>	<u>Data Plot Title</u>	<u>Page</u>
17	DRIVER UPPER RIB (Y) ACCELERATION VS TIME	B- 22
18	DRIVER LOWER RIB (Y) ACCELERATION VS TIME	B- 23
19	DRIVER LOWER SPINE (Y) ACCELERATION VS TIME	B- 24
20	DRIVER PELVIC (Y) ACCELERATION VS TIME	B- 25
21	PASSENGER UPPER RIB (Y) ACCELERATION VS TIME	B- 26
22	PASSENGER LOWER RIB (Y) ACCELERATION VS TIME	B- 27
23	PASSENGER LOWER SPINE (Y) ACCELERATION VS TIME	B- 28
24	PASSENGER PELVIC (Y) ACCELERATION VS TIME	B- 29

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>
25	RIGHT SIDE SILL AT FRONT SEAT (X) ACCELERATION VS TIME	B- 30
26	RIGHT SIDE SILL AT FRONT SEAT (X) VELOCITY VS TIME	B- 31
27	RIGHT SIDE SILL AT FRONT SEAT (Y) ACCELERATION VS TIME	B- 32
28	RIGHT SIDE SILL AT FRONT SEAT (Y) VELOCITY VS TIME	B- 33
29	RIGHT SIDE SILL AT FRONT SEAT (Z) ACCELERATION VS TIME	B- 34
30	RIGHT SIDE SILL AT FRONT SEAT (Z) VELOCITY VS TIME	B- 35
31	RIGHT SIDE SILL AT FRONT SEAT RESULTANT ACCELERATION VS TIME	B- 36
32	RIGHT SIDE SILL AT REAR SEAT (X) ACCELERATION VS TIME	B- 37
33	RIGHT SIDE SILL AT REAR SEAT (X) VELOCITY VS TIME	B- 38
34	RIGHT SIDE SILL AT REAR SEAT (Y) ACCELERATION VS TIME	B- 39
35	RIGHT SIDE SILL AT REAR SEAT (Y) VELOCITY VS TIME	B- 40
36	RIGHT SIDE SILL AT REAR SEAT (Z) ACCELERATION VS TIME	B- 41
37	RIGHT SIDE SILL AT REAR SEAT (Z) VELOCITY VS TIME	B- 42
38	RIGHT SIDE SILL AT REAR SEAT RESULTANT ACCELERATION VS TIME	B- 43
39	REAR FLOORPAN ABOVE AXLE (X) ACCELERATION VS TIME	B- 44
40	REAR FLOORPAN ABOVE AXLE (X) VELOCITY VS TIME	B- 45
41	REAR FLOORPAN ABOVE AXLE (Y) ACCELERATION VS TIME	B- 46
42	REAR FLOORPAN ABOVE AXLE (Y) VELOCITY VS TIME	B- 47
43	REAR FLOORPAN ABOVE AXLE (Z) ACCELERATION VS TIME	B- 48
44	REAR FLOORPAN ABOVE AXLE (Z) VELOCITY VS TIME	B- 49
45	REAR FLOORPAN ABOVE AXLE RESULTANT ACCELERATION VS TIME	B- 50
46	LEFT SIDE SILL AT REAR SEAT (Y) ACCELERATION VS TIME	B- 51
47	LEFT SIDE SILL AT REAR SEAT (Y) VELOCITY VS TIME	B- 52
48	LEFT SIDE SILL AT FRONT SEAT (Y) ACCELERATION VS TIME	B- 53
49	LEFT SIDE SILL AT FRONT SEAT (Y) VELOCITY VS TIME	B- 54
50	RIGHT REAR OCCUPANT COMPARTMENT (Y) ACCELERATION VS TIME	B- 55
51	RIGHT REAR OCCUPANT COMPARTMENT (Y) VELOCITY VS TIME	B- 56
52	LOWER B-POST (Y) ACCELERATION VS TIME	B- 57
53	LOWER B-POST (Y) VELOCITY VS TIME	B- 58
54	UPPER B-POST (Y) ACCELERATION VS TIME	B- 59
55	UPPER B-POST (Y) VELOCITY VS TIME	B- 60
56	LOWER A-POST (Y) ACCELERATION VS TIME	B- 61
57	LOWER A-POST (Y) VELOCITY VS TIME	B- 62
58	UPPER A-POST (Y) ACCELERATION VS TIME	B- 63
59	UPPER A-POST (Y) VELOCITY VS TIME	B- 64
60	FRONT SEAT TRACK (Y) ACCELERATION VS TIME	B- 65
61	FRONT SEAT TRACK (Y) VELOCITY VS TIME	B- 66
62	REAR SEAT TRACK (Y) ACCELERATION VS TIME	B- 67
63	REAR SEAT TRACK (Y) VELOCITY VS TIME	B- 68

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>
64	VEHICLE CENTER OF GRAVITY (X) ACCELERATION VS TIME	B- 69
65	VEHICLE CENTER OF GRAVITY (X) VELOCITY VS TIME	B- 70
66	VEHICLE CENTER OF GRAVITY (Y) ACCELERATION VS TIME	B- 71
67	VEHICLE CENTER OF GRAVITY (Y) VELOCITY ACCELERATION VS TIME	B- 72
68	VEHICLE CENTER OF GRAVITY (Z) ACCELERATION VS TIME	B- 73
69	VEHICLE CENTER OF GRAVITY (Z) VELOCITY VS TIME	B- 74
70	VEHICLE CENTER OF GRAVITY RESULTANT ACCELERATION VS TIME	B- 75

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>
71	MDB CENTER OF GRAVITY (X) ACCELERATION VS TIME	B- 76
72	MDB CENTER OF GRAVITY (X) VELOCITY VS TIME	B- 77
73	MDB CENTER OF GRAVITY (Y) ACCELERATION VS TIME	B- 78
74	MDB CENTER OF GRAVITY (Y) VELOCITY VS TIME	B- 79
75	MDB CENTER OF GRAVITY (Z) ACCELERATION VS TIME	B- 80
76	MDB CENTER OF GRAVITY (Z) VELOCITY VS TIME	B- 81
77	MDB CENTER OF GRAVITY RESULTANT ACCELERATION VS TIME	B- 82
78	MDB REAR (X) ACCELERATION VS TIME	B- 83
79	MDB REAR (X) VELOCITY VS TIME	B- 84
80	MDB REAR (Y) ACCELERATION VS TIME	B- 85
81	MDB REAR (Y) VELOCITY VS TIME	B- 86

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>
82	DRIVER UPPER RIB (Y) ACCELERATION VS TIME	B- 87
83	DRIVER UPPER RIB (Y) VELOCITY VS TIME	B- 88
84	DRIVER LOWER RIB (Y) ACCELERATION VS TIME	B- 89
85	DRIVER LOWER RIB (Y) VELOCITY VS TIME	B- 90
86	DRIVER LOWER SPINE (Y) ACCELERATION VS TIME	B- 91
87	DRIVER LOWER SPINE (Y) VELOCITY VS TIME	B- 92
88	DRIVER PELVIC (Y) ACCELERATION VS TIME	B- 93
89	DRIVER PELVIC (Y) VELOCITY VS TIME	B- 94
90	PASSENGER UPPER RIB (Y) ACCELERATION VS TIME	B- 95
91	PASSENGER UPPER RIB (Y) VELOCITY VS TIME	B- 96
92	PASSENGER LOWER RIB (Y) ACCELERATION VS TIME	B- 97
93	PASSENGER LOWER RIB (Y) VELOCITY VS TIME	B- 98
94	PASSENGER LOWER SPINE (Y) ACCELERATION VS TIME	B- 99
95	PASSENGER LOWER SPINE (Y) VELOCITY VS TIME	B- 100
96	PASSENGER PELVIC (Y) ACCELERATION VS TIME	B- 101
97	PASSENGER PELVIC (Y) VELOCITY VS TIME	B- 102

DRIVER & PASSENGER DUMMY INSTRUMENTATION PLOTS (REDUNDANT)

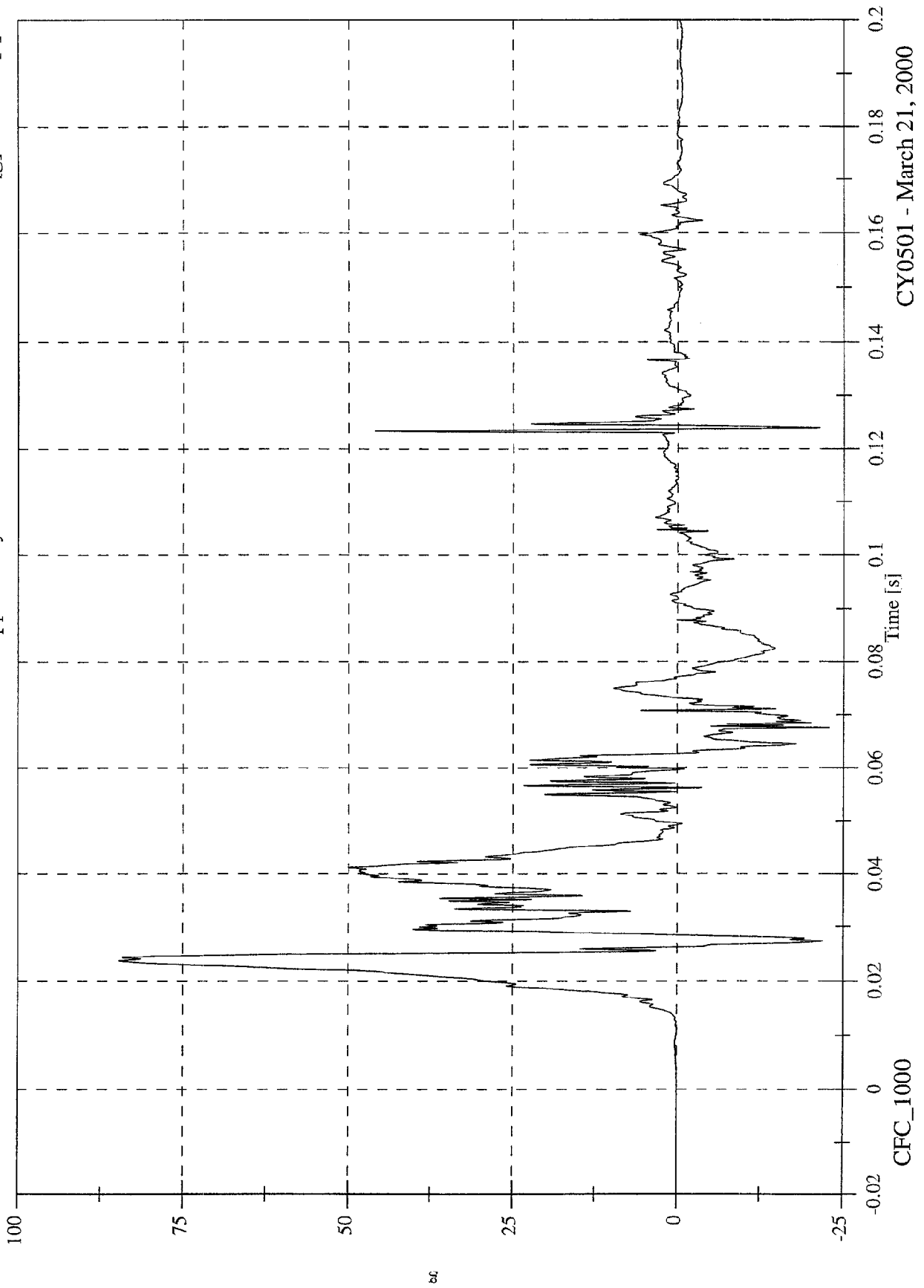
ACCELERATION DATA - FIR FILTERED

<u>Plot No.</u>	<u>Data Plot Title</u>	<u>Page</u>
98	DRIVER UPPER RIB (Y) ACCELERATION VS TIME	B- 103
99	DRIVER LOWER RIB (Y) ACCELERATION VS TIME	B- 104
100	DRIVER LOWER SPINE (Y) ACCELERATION VS TIME	B- 105
101	DRIVER PELVIC (Y) ACCELERATION VS TIME	B- 106
102	PASSENGER UPPER RIB (Y) ACCELERATION VS TIME	B- 107
103	PASSENGER LOWER RIB (Y) ACCELERATION VS TIME	B- 108
104	PASSENGER LOWER SPINE (Y) ACCELERATION VS TIME	B- 109
105	PASSENGER PELVIC (Y) ACCELERATION VS TIME	B- 110

FMVSS 214D Test 7 - Suzuki Esteem Wagon

P1 Upper Rib y

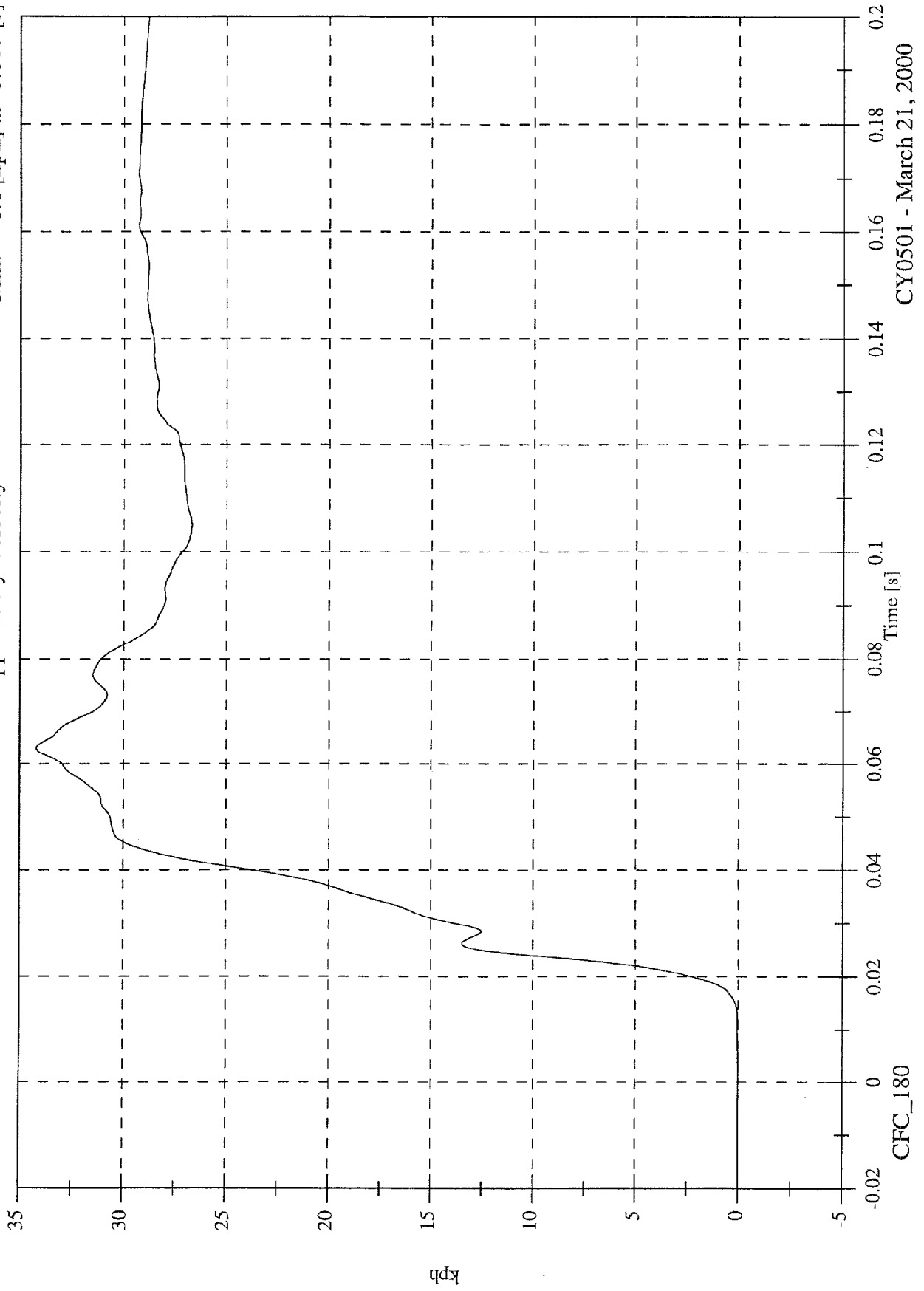
Max: 84.6 [g] at 0.024 [s]
Min: -22.9 [g] at 0.068 [s]



FMVSS 214D Test / - Suzuki Esteem Wagon

Max: 34.2 [kph] at 0.063 [s]
Min: -0.0 [kph] at -0.007 [s]

P1 Upper Rib y Velocity

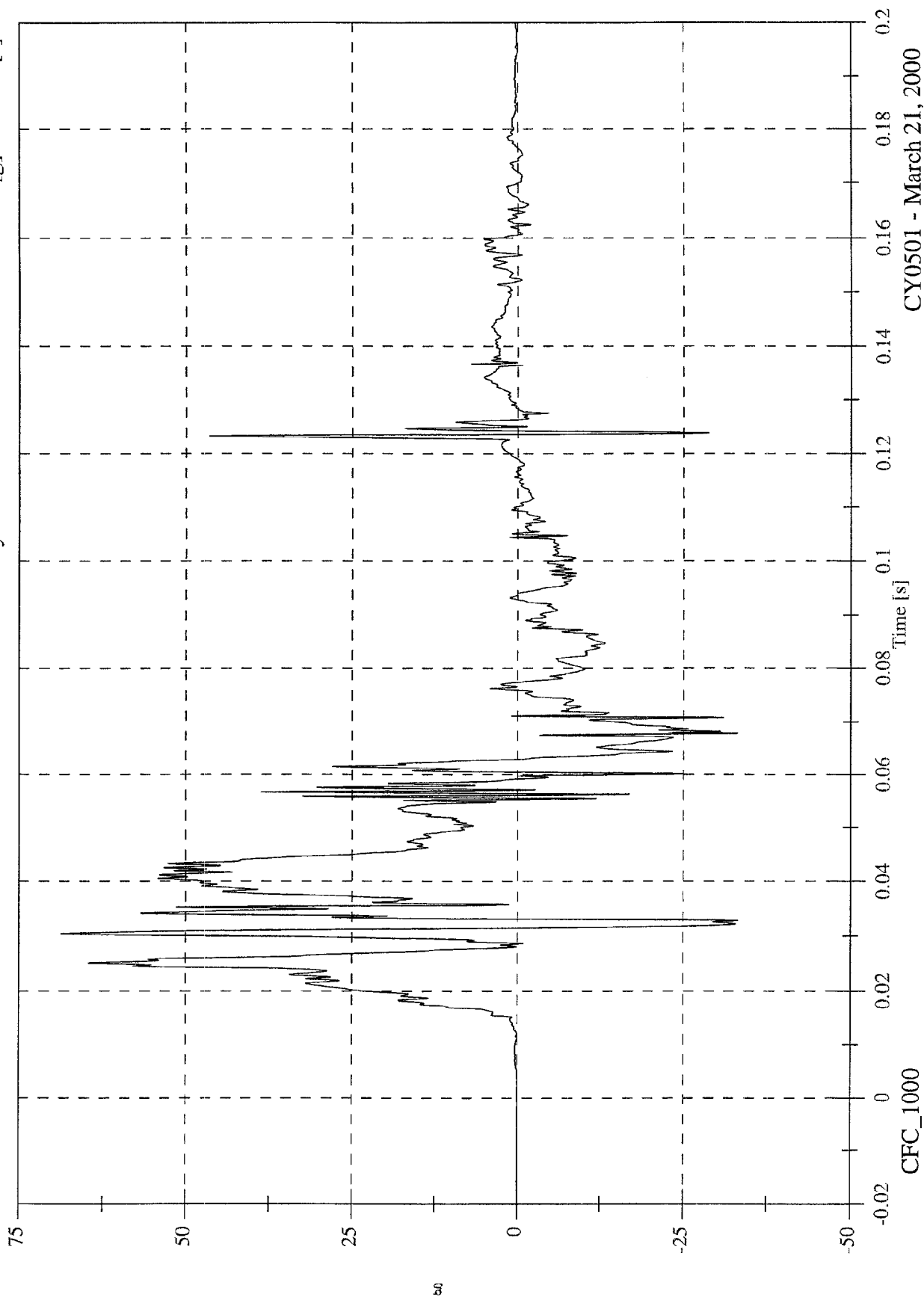


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FMVSS 214D Test 7 - Suzuki Esteem Wagon

P1 Lower Rib y

Max: 68.7 [g] at 0.030 [s]
Min: -33.2 [g] at 0.033 [s]

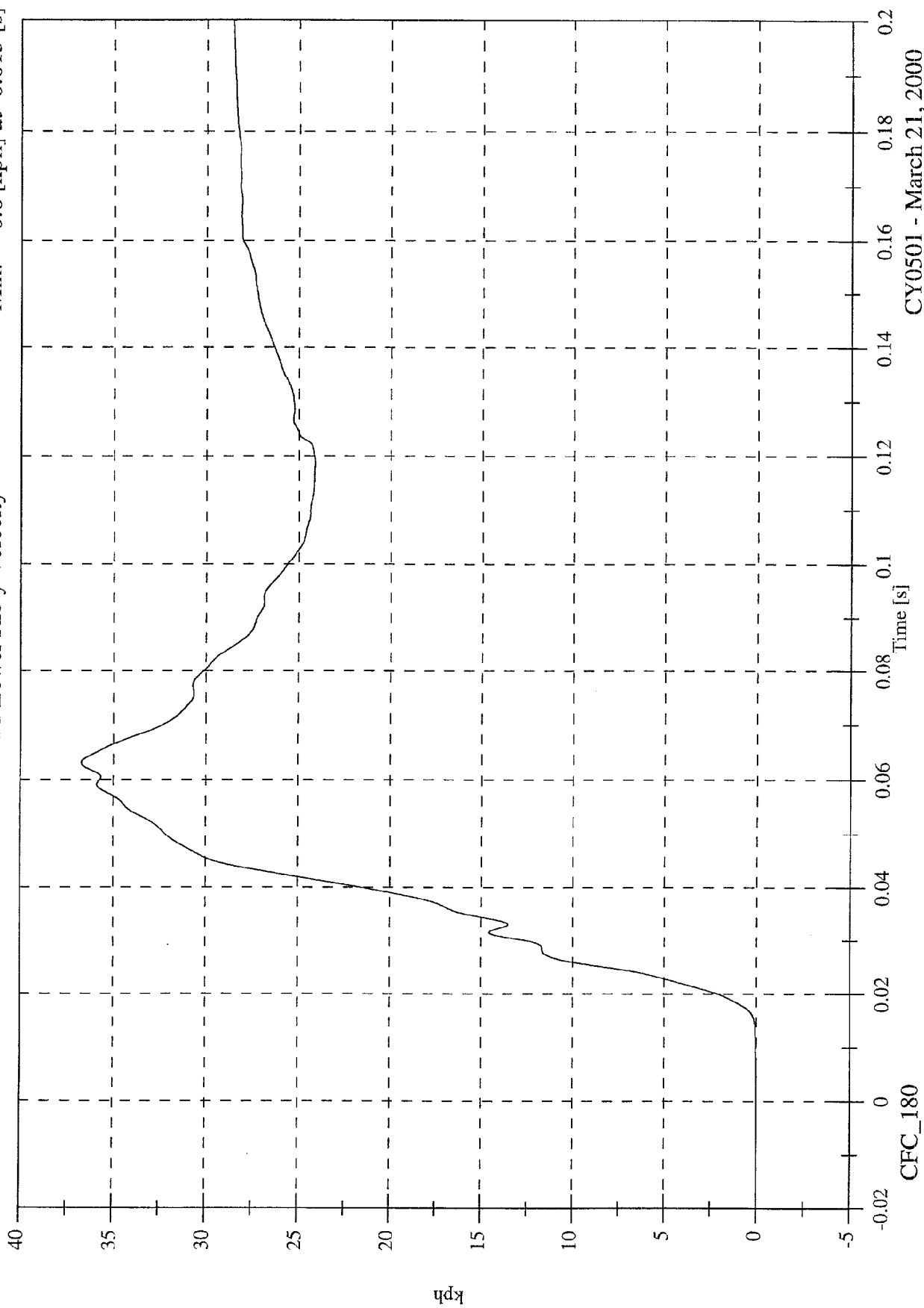


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FMVSS 214D Test 7 - Suzuki Esteem Wagon

Max: 36.7 [kph] at 0.063 [s]
 Min: -0.0 [kph] at -0.013 [s]

P1 Lower Rib y Velocity

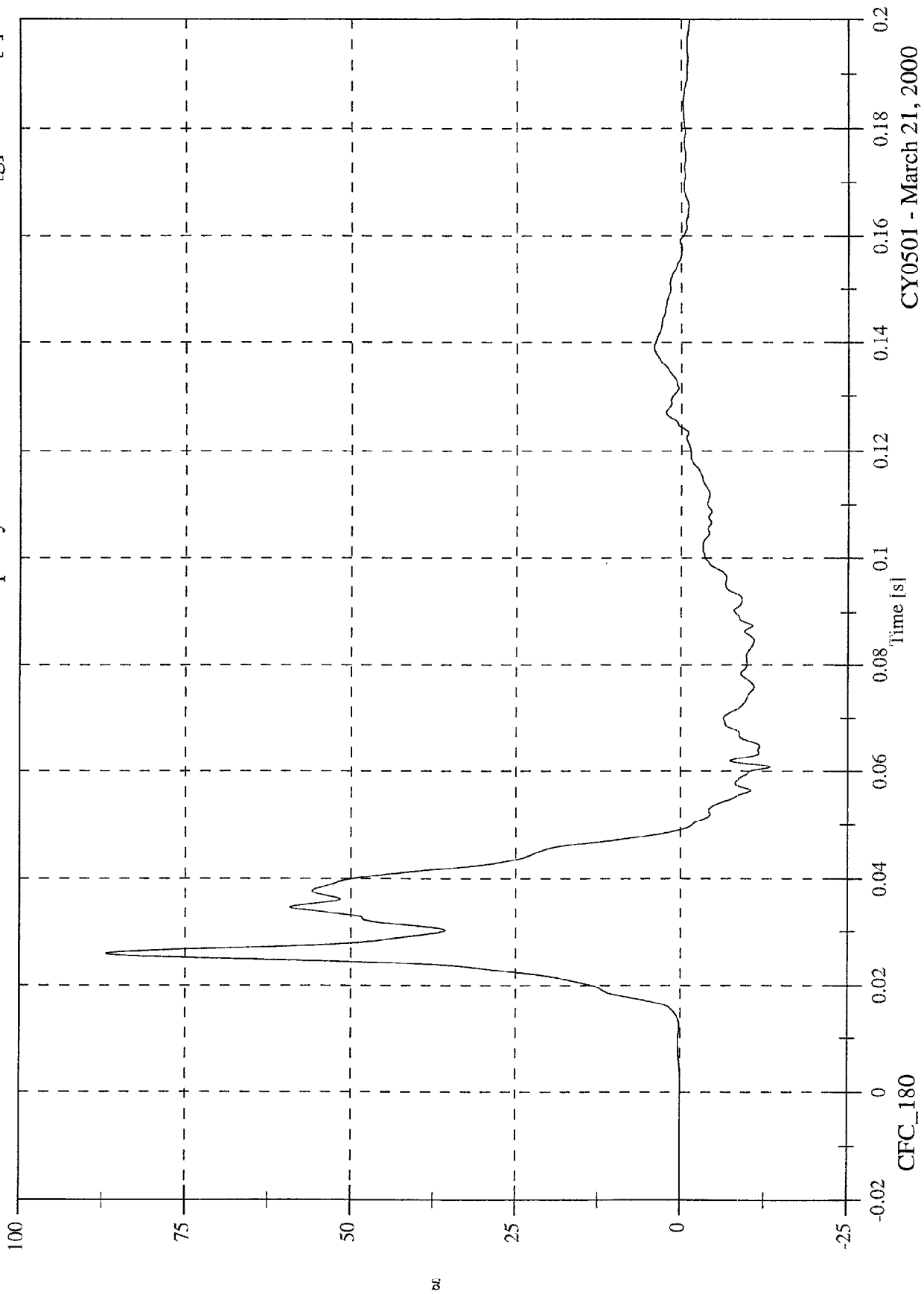


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FMVSS 214D Test 7 - Suzuki Esteem Wagon

P1 Lower Spine y

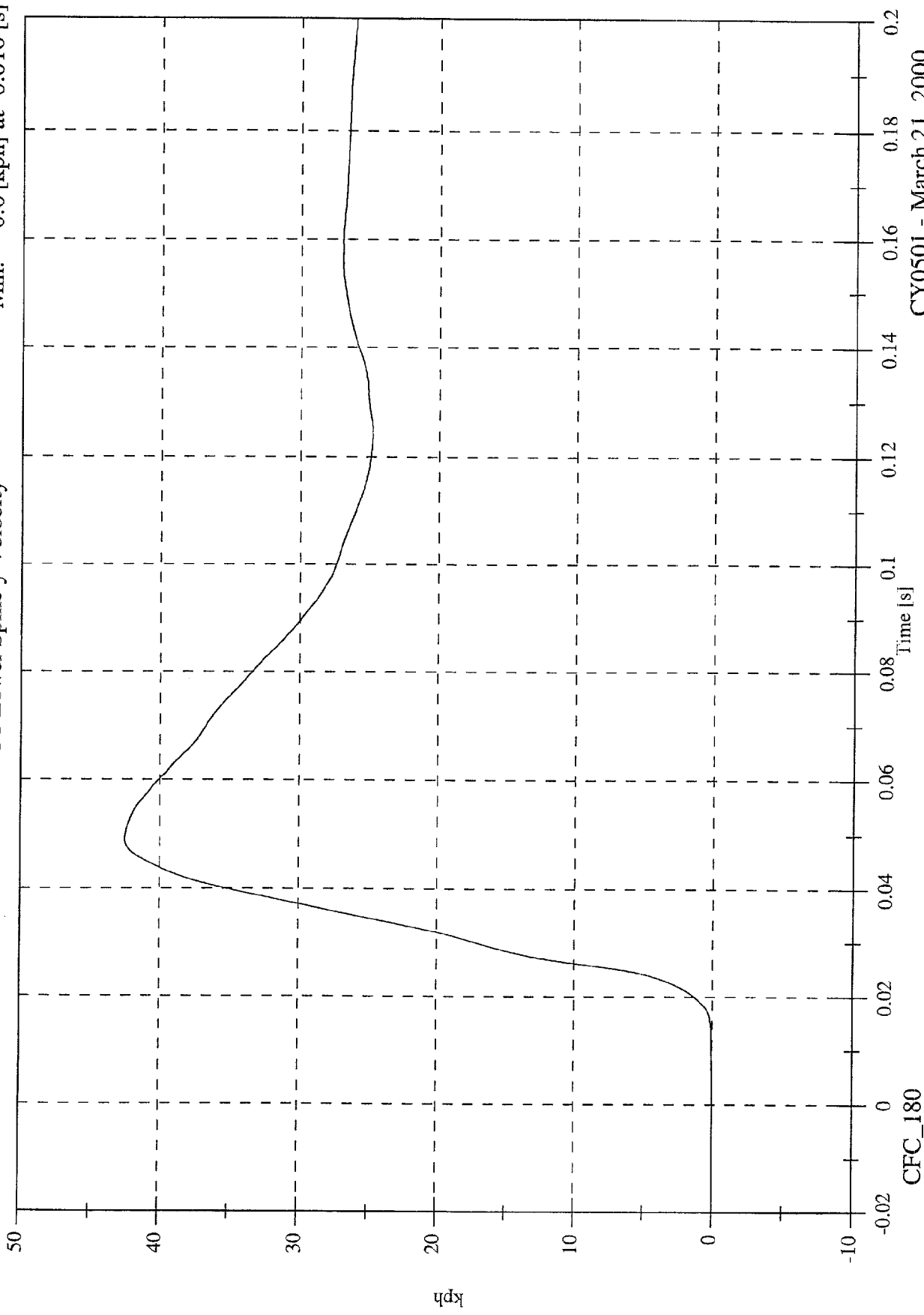
Max: 86.9 [g] at 0.026 [s]
Min: -13.3 [g] at 0.061 [s]



FMVSS 214D Test 7 - Suzuki Esteem Wagon

P1 Lower Spine y Velocity

Max: 42.5 [kph] at 0.049 [s]
 Min: -0.0 [kph] at -0.016 [s]

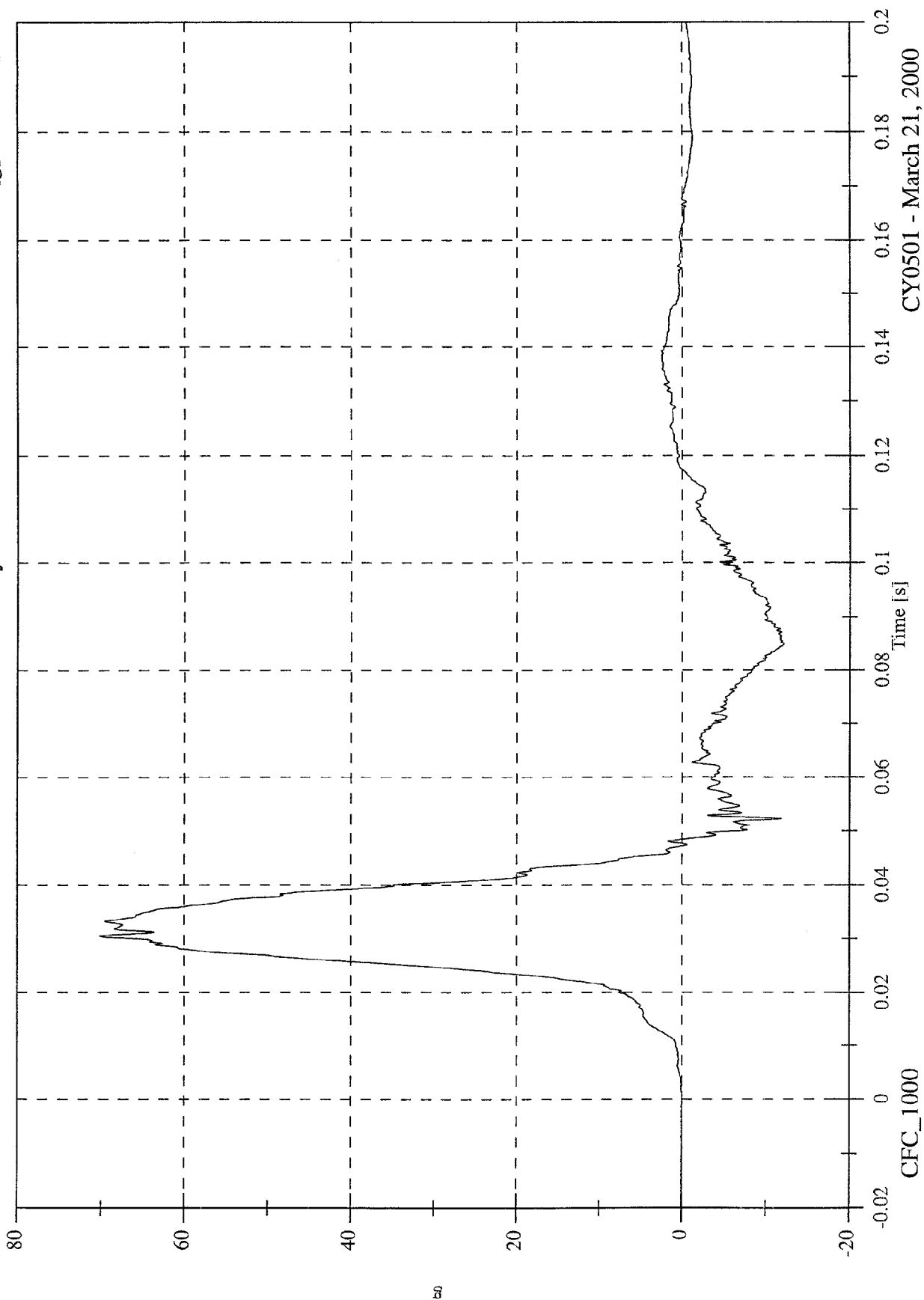


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FMVSS 214D Test 7 - Suzuki Esteem Wagon

P1 Pelvic y

Max: 70.2 [g] at 0.031 [s]
Min: -12.2 [g] at 0.085 [s]

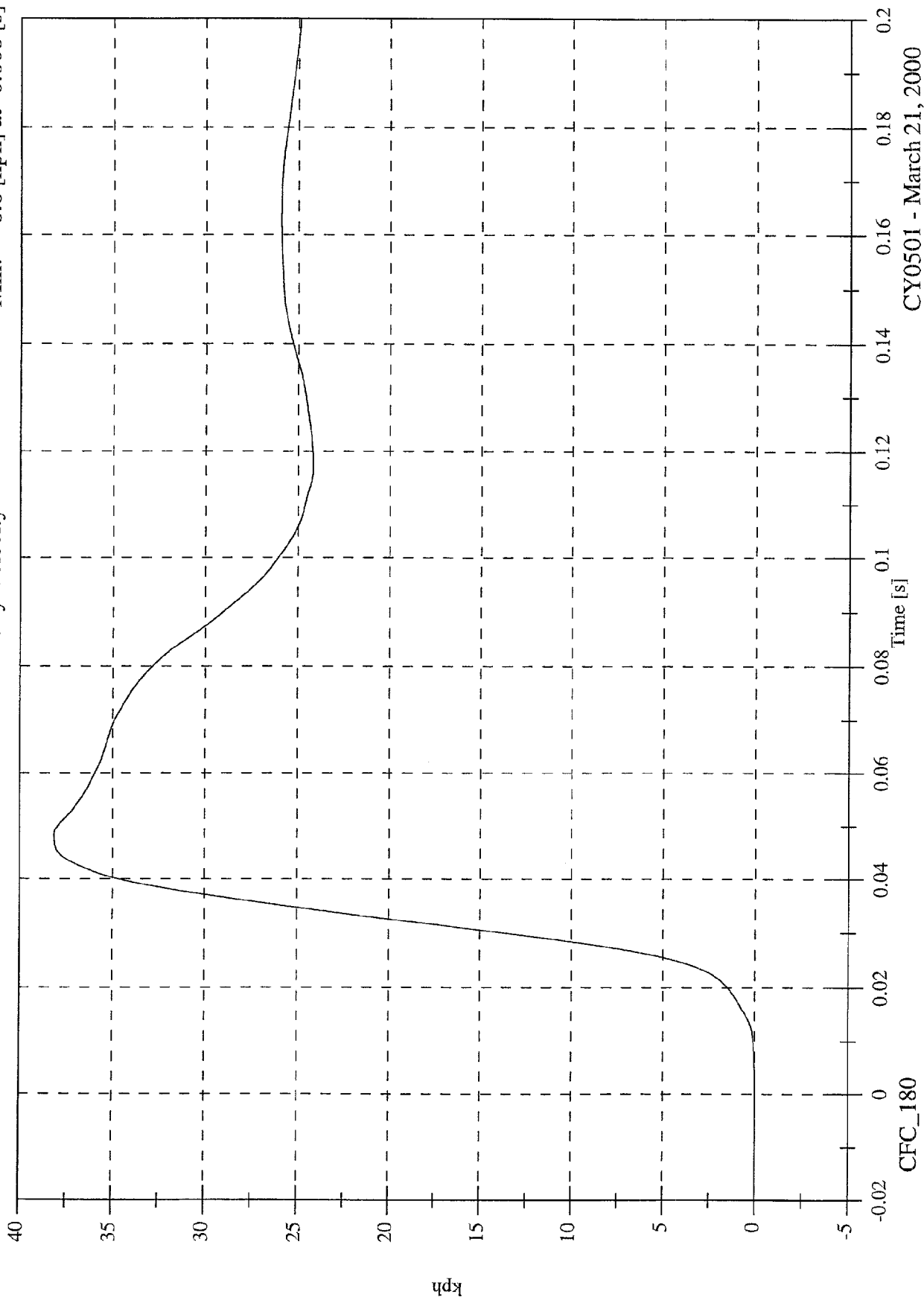


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FMVSS 214D Test 7 - Suzuki Esteem Wagon

Max: 38.1 [kph] at 0.048 [s]
 Min: -0.0 [kph] at -0.008 [s]

P1 Pelvic y Velocity

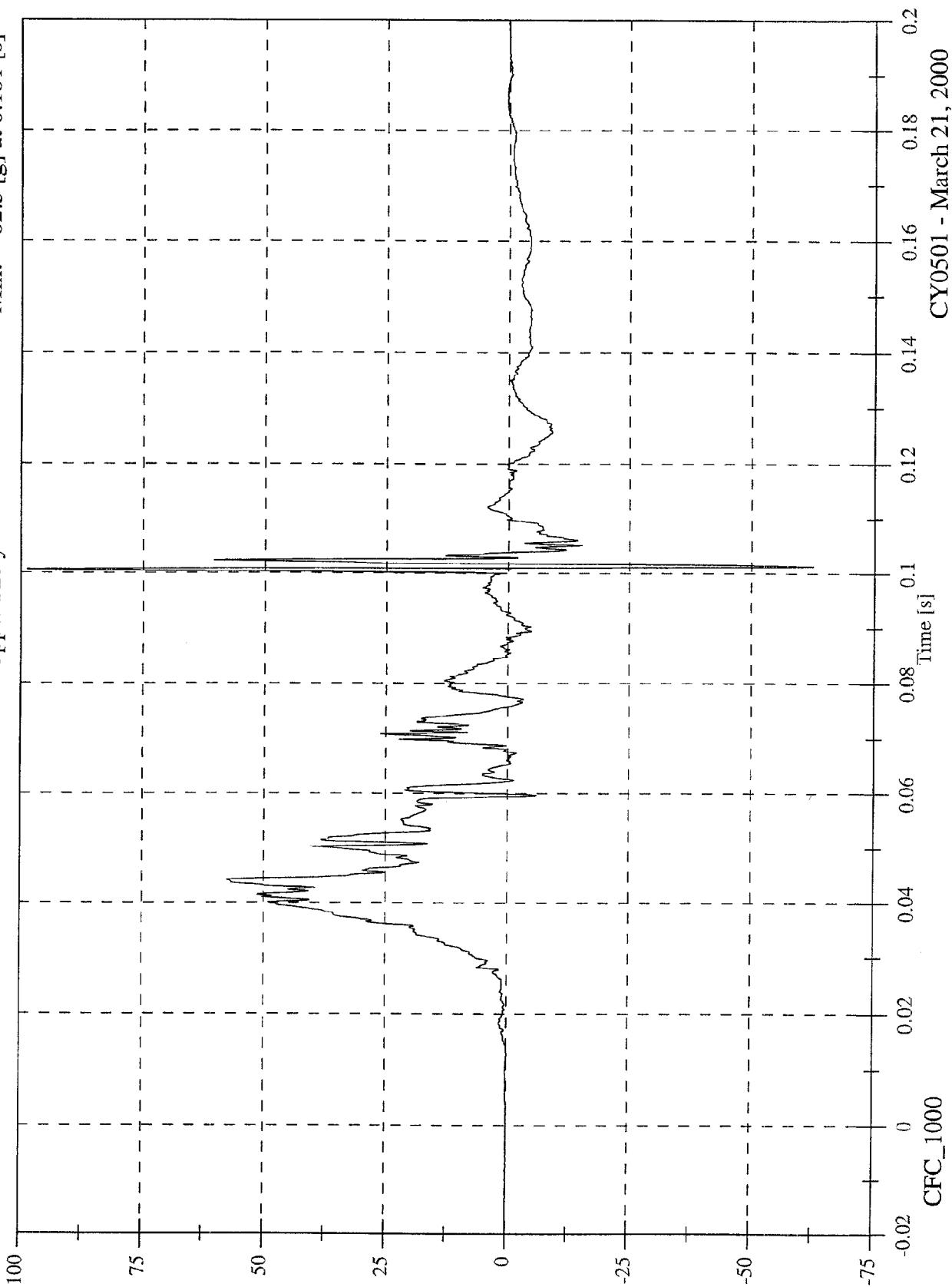


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FMVSS 214D Test 7 - Suzuki Esteem Wagon

Max: 98.7 [g] at 0.101 [s]
 Min: -62.5 [g] at 0.101 [s]

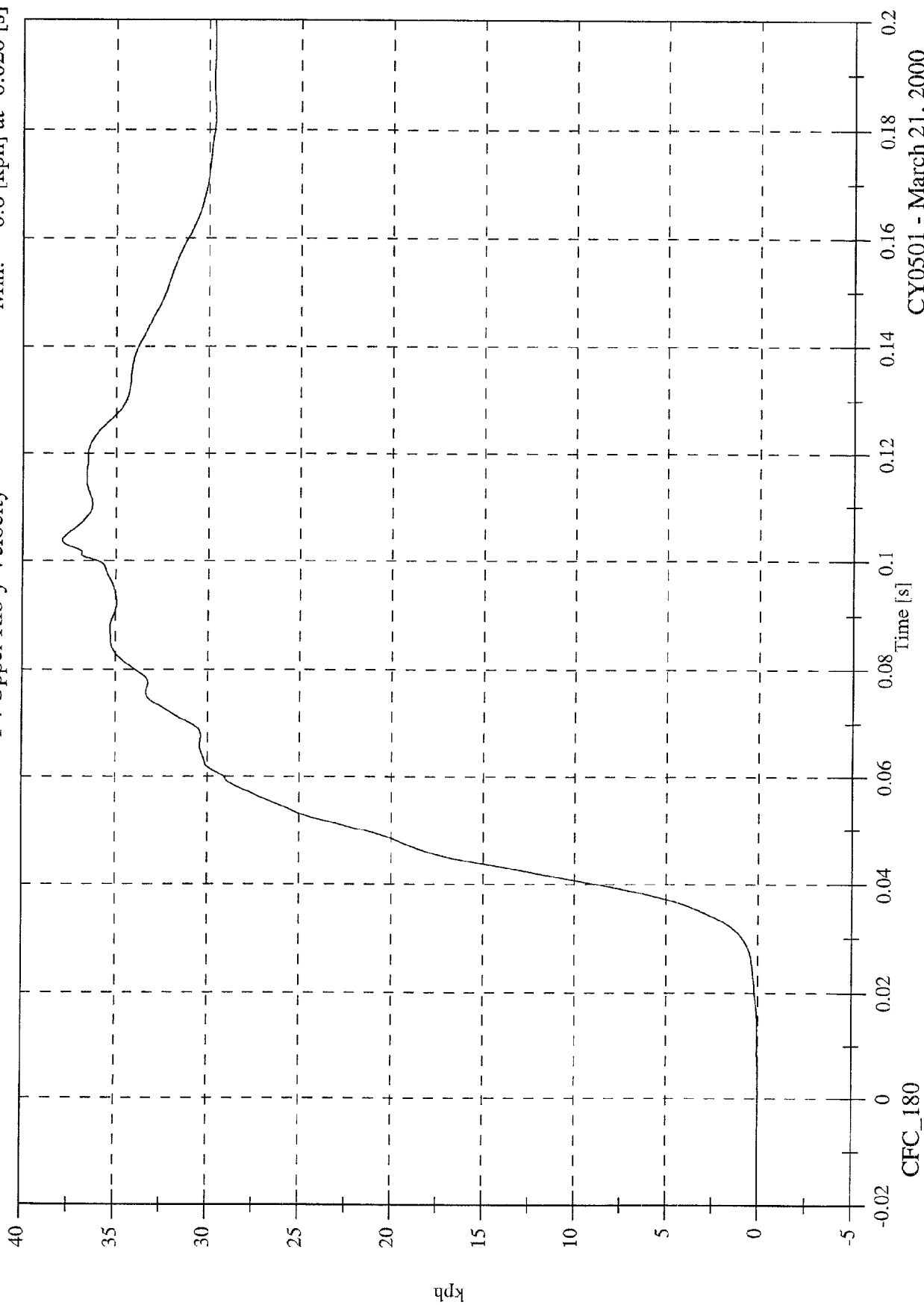
P4 Upper Rib y



FMVSS 214D Test 7 - Suzuki Esteem Wagon

P4 Upper Rib y Velocity

Max: 37.9 [kph] at 0.104 [s]
Min: -0.0 [kph] at -0.020 [s]

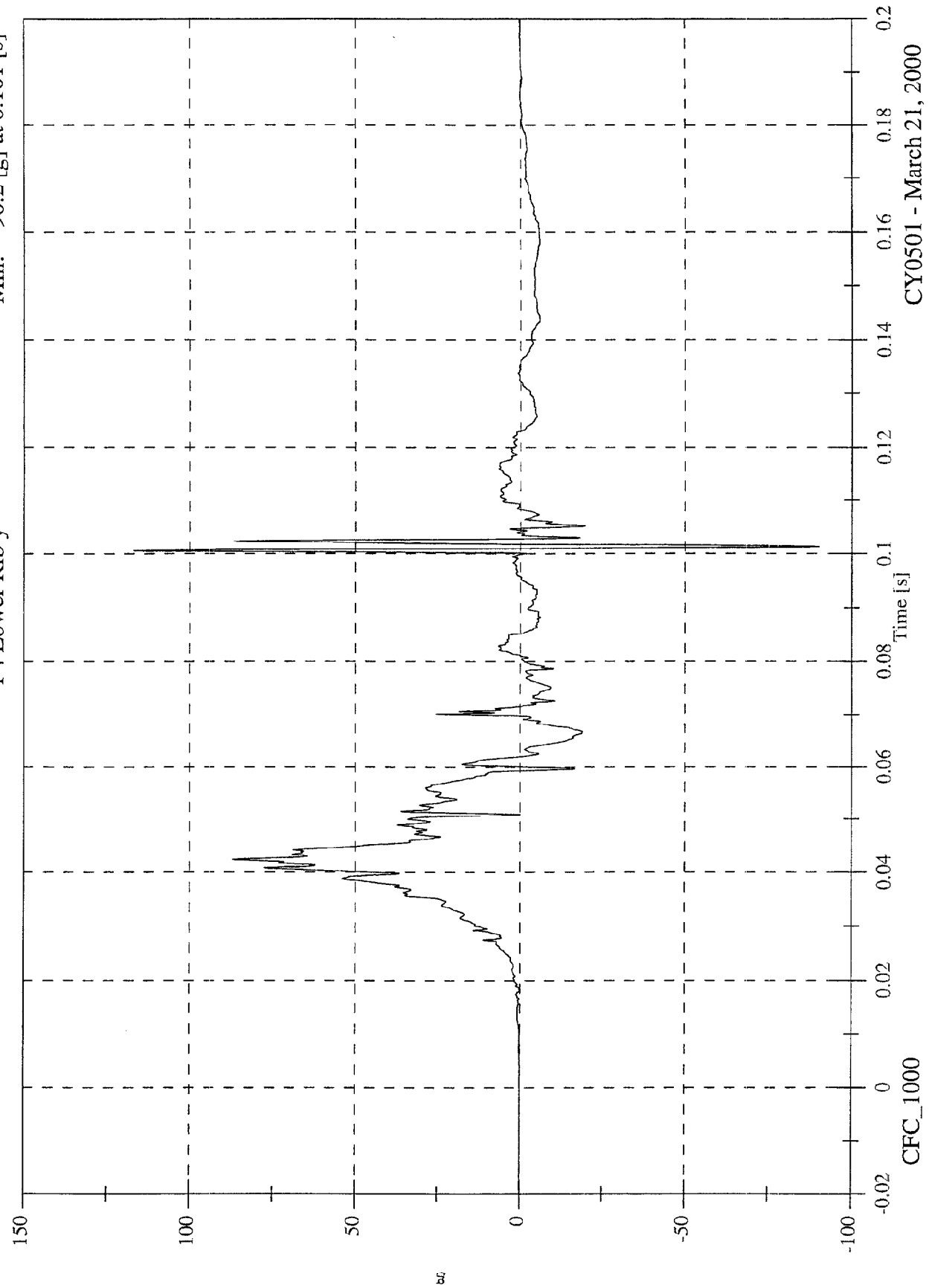


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FMVSS 214D Test 7 - Suzuki Esteem Wagon

P4 Lower Rib y

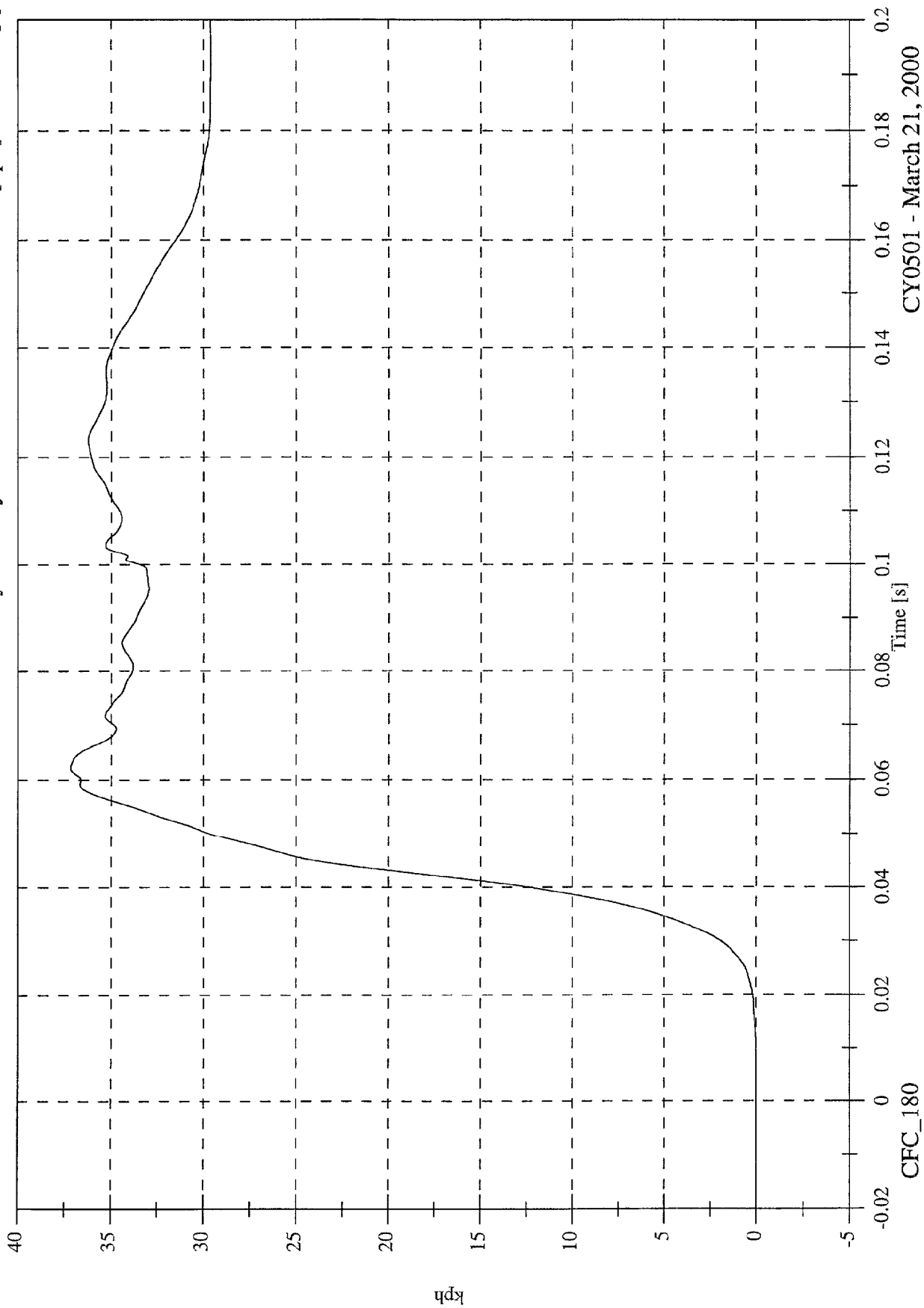
Max: 117.0 [g] at 0.101 [s]
Min: -90.2 [g] at 0.101 [s]



FMVSS 214D Test 7 - Suzuki Esteem Wagon

P4 Lower Rib y Velocity

Max: 37.2 [kph] at 0.062 [s]
Min: -0.0 [kph] at -0.020 [s]

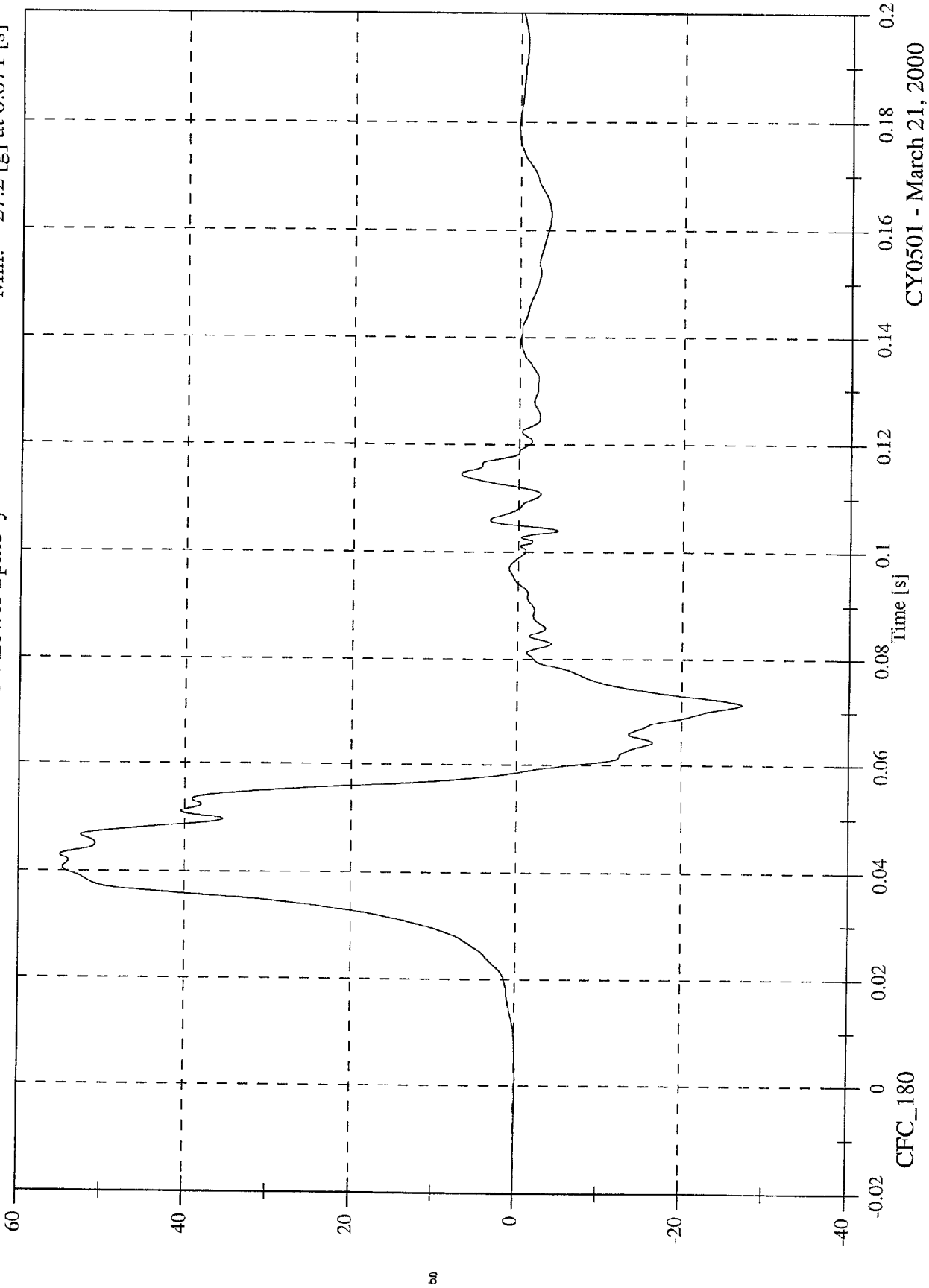


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FMVSS 214D Test 7 - Suzuki Esteem Wagon

Max: 55.0 [g] at 0.043 [s]
 Min: -27.2 [g] at 0.071 [s]

P4 Lower Spine y

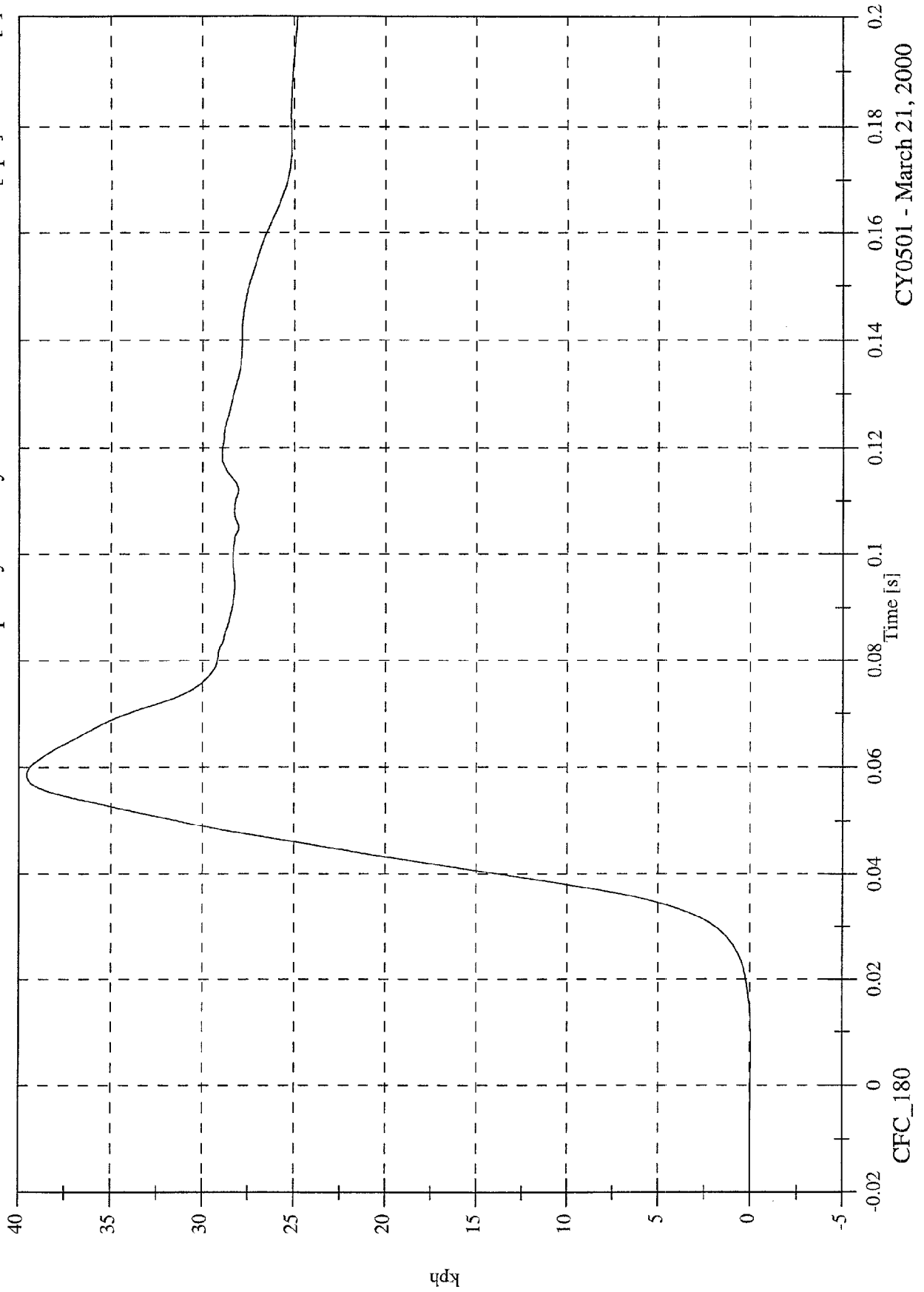


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FMVSS 214D Test 7 - Suzuki Esteem Wagon

Max: 39.6 [kph] at 0.058 [s]
 Min: -0.0 [kph] at 0.006 [s]

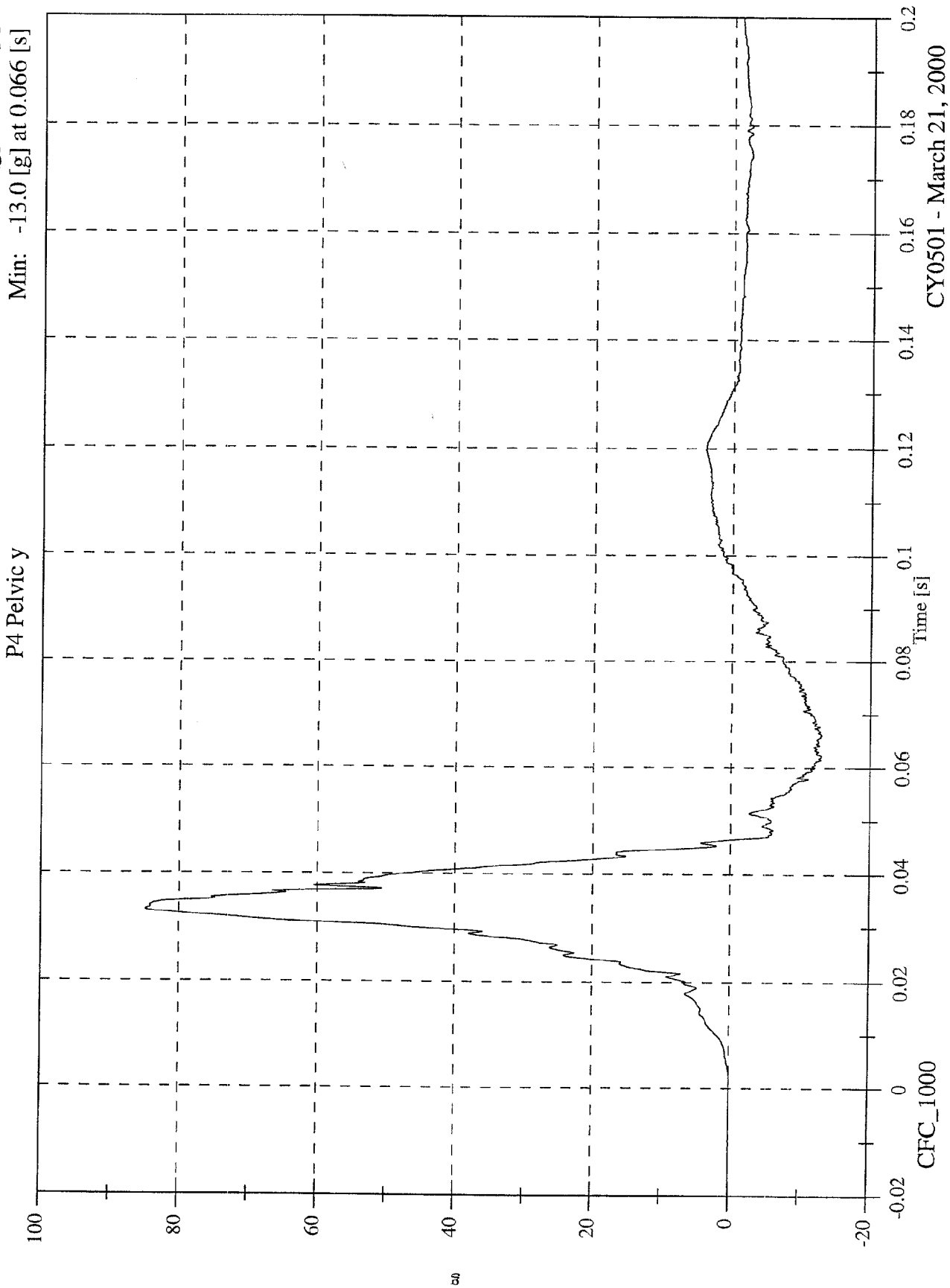
P4 Lower Spine y Velocity



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FMVSS 214D Test 7 - Suzuki Esteem Wagon

Max: 84.8 [g] at 0.033 [s]
 Min: -13.0 [g] at 0.066 [s]

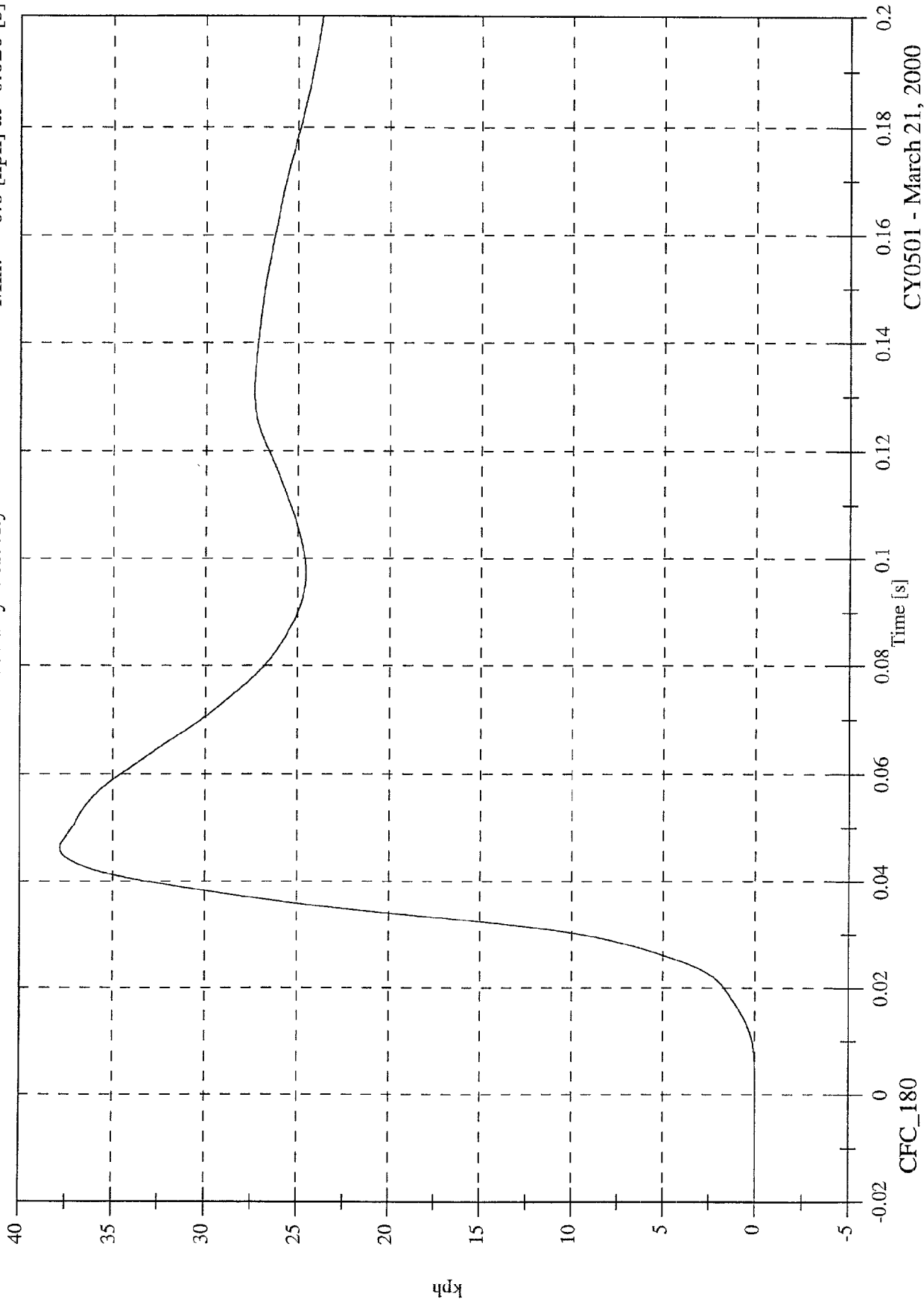


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FMVSS 214D Test 7 - Suzuki Esteem Wagon

P4 Pelvic y Velocity

Max: 37.8 [kph] at 0.046 [s]
Min: -0.0 [kph] at -0.020 [s]

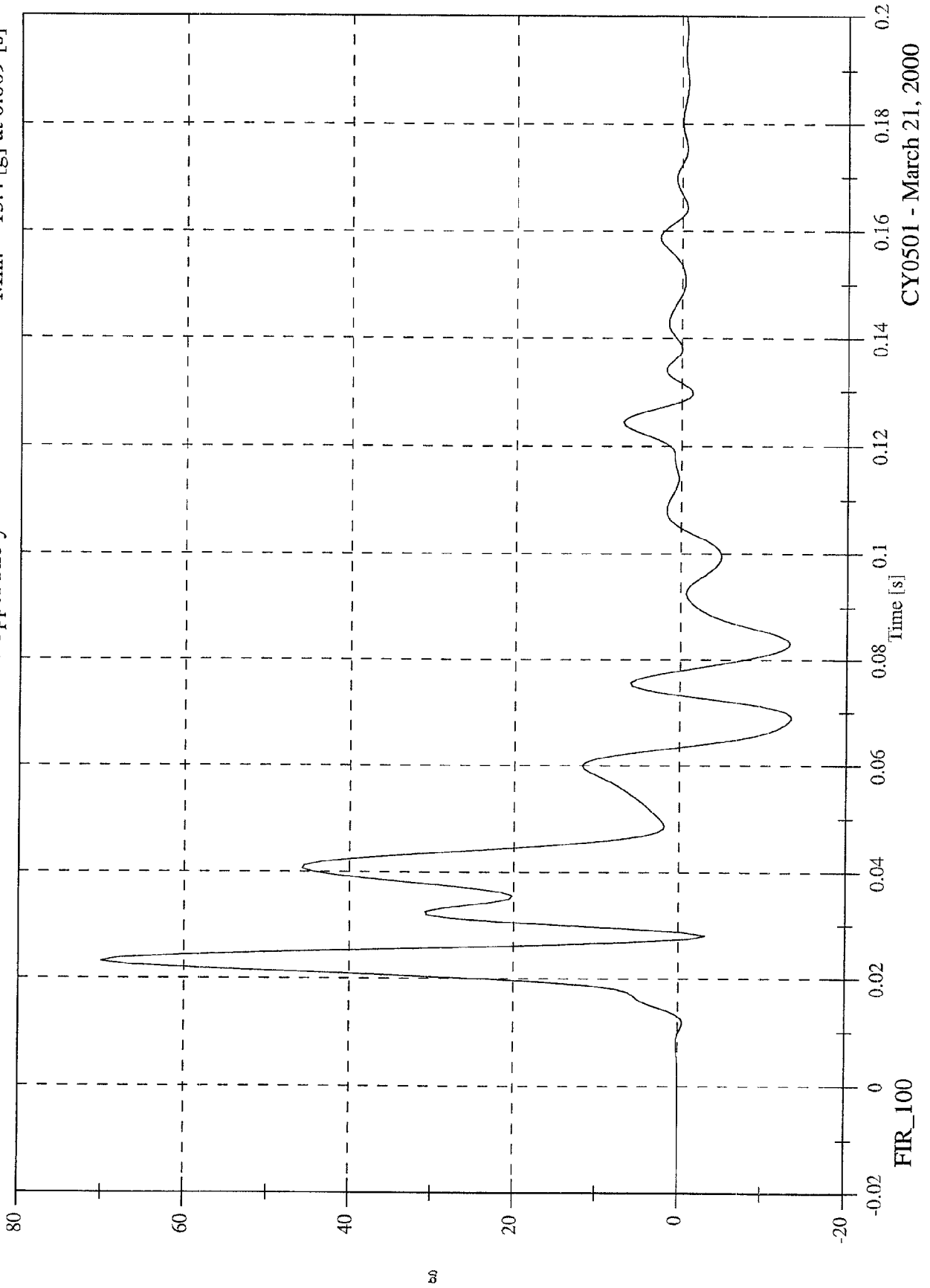


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FMVSS 214D Test 7 - Suzuki Esteem Wagon

Max: 70.1 [g] at 0.023 [s]
 Min: -13.4 [g] at 0.069 [s]

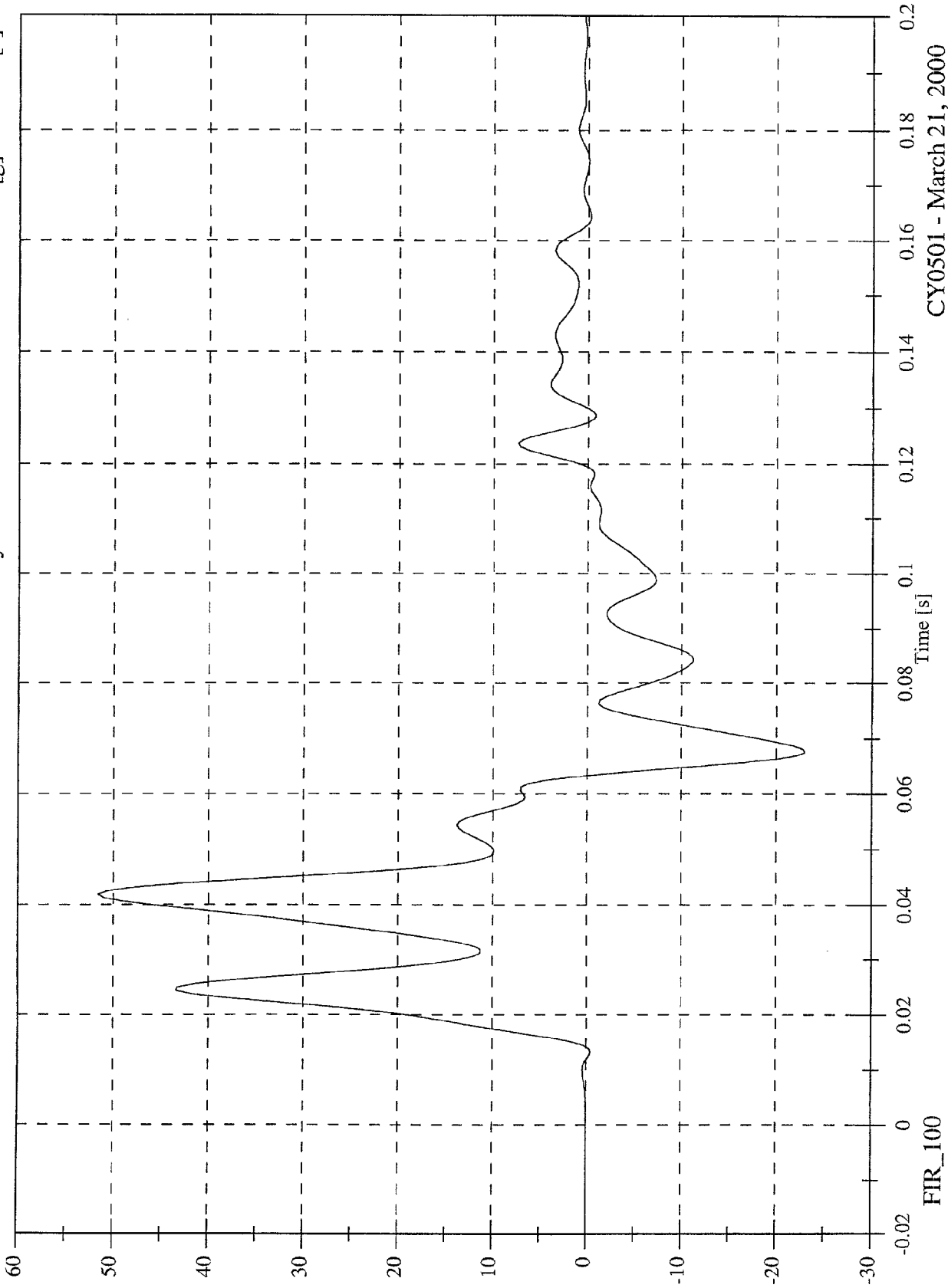
P1 Upper Rib y



FMVSS 214D Test 7 - Suzuki Esteem Wagon

P1 Lower Rib y

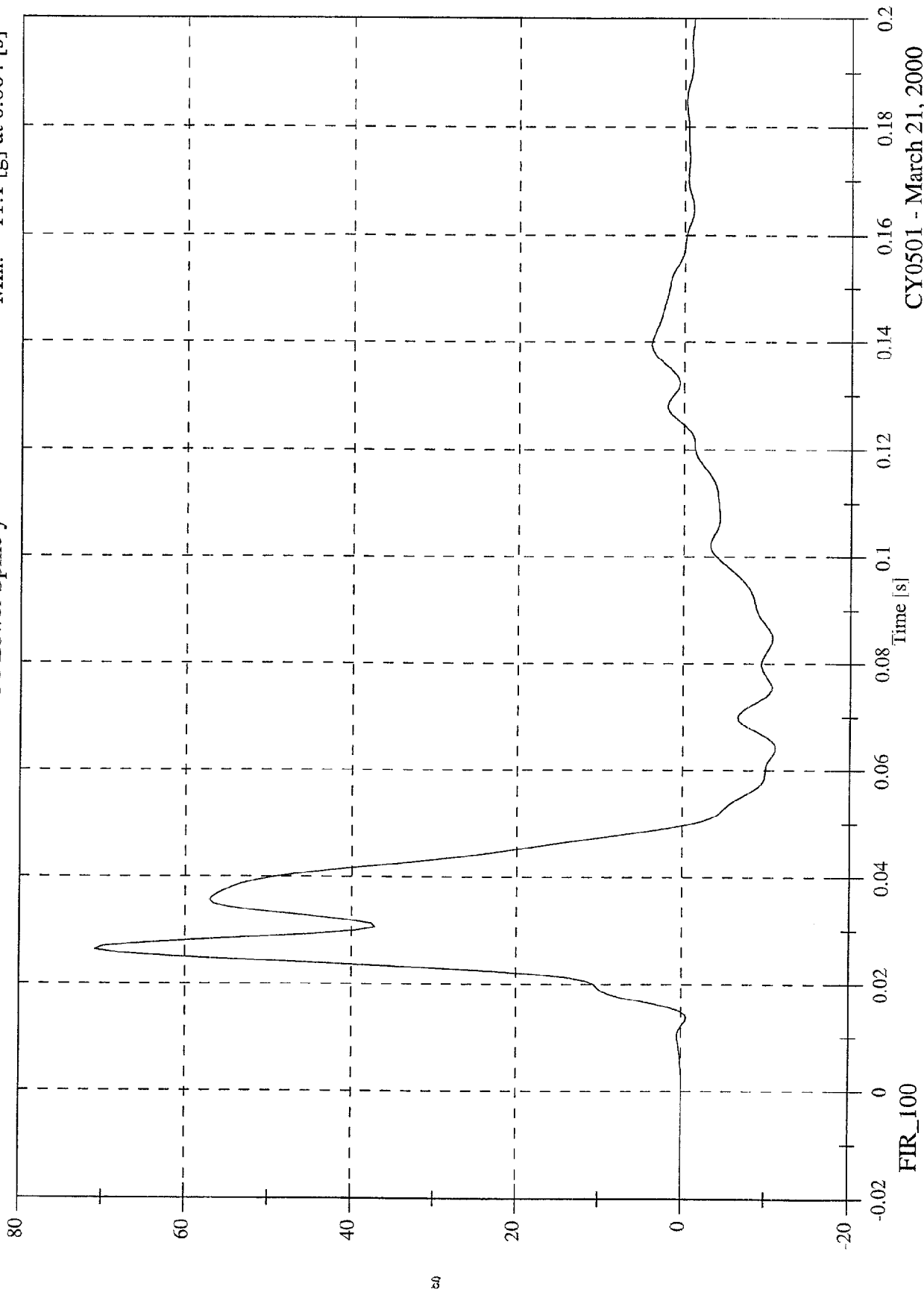
Max: 51.6 [g] at 0.042 [s]
Min: -23.0 [g] at 0.067 [s]



FMVSS 214D Test 7 - Suzuki Esteem Wagon

Max: 70.9 [g] at 0.026 [s]
 Min: -11.1 [g] at 0.064 [s]

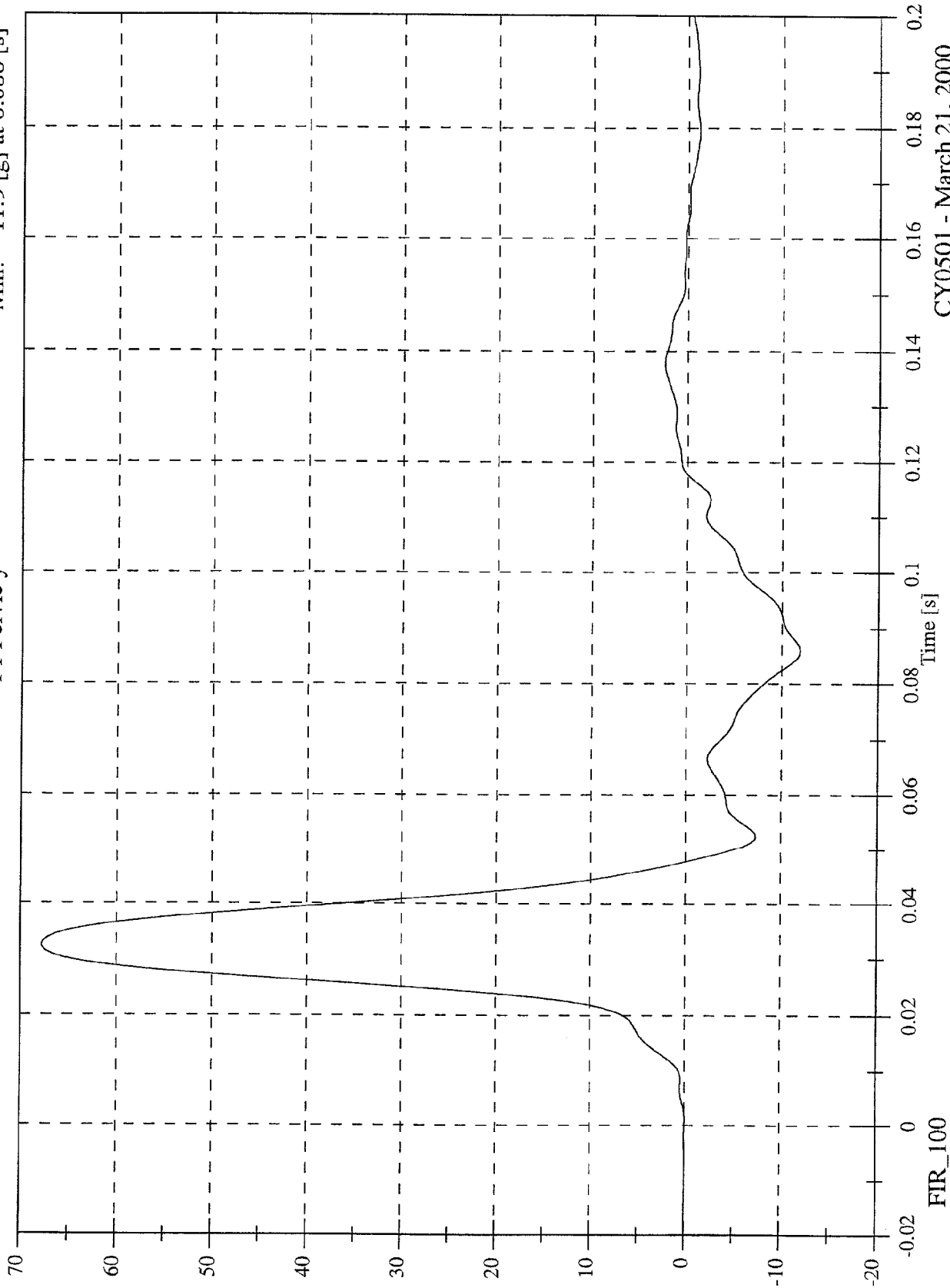
P1 Lower Spine y



FMVSS 214D Test 7 - Suzuki Esteem Wagon

P1 Pelvic y

Max: 67.8 [g] at 0.033 [s]
Min: -11.9 [g] at 0.086 [s]

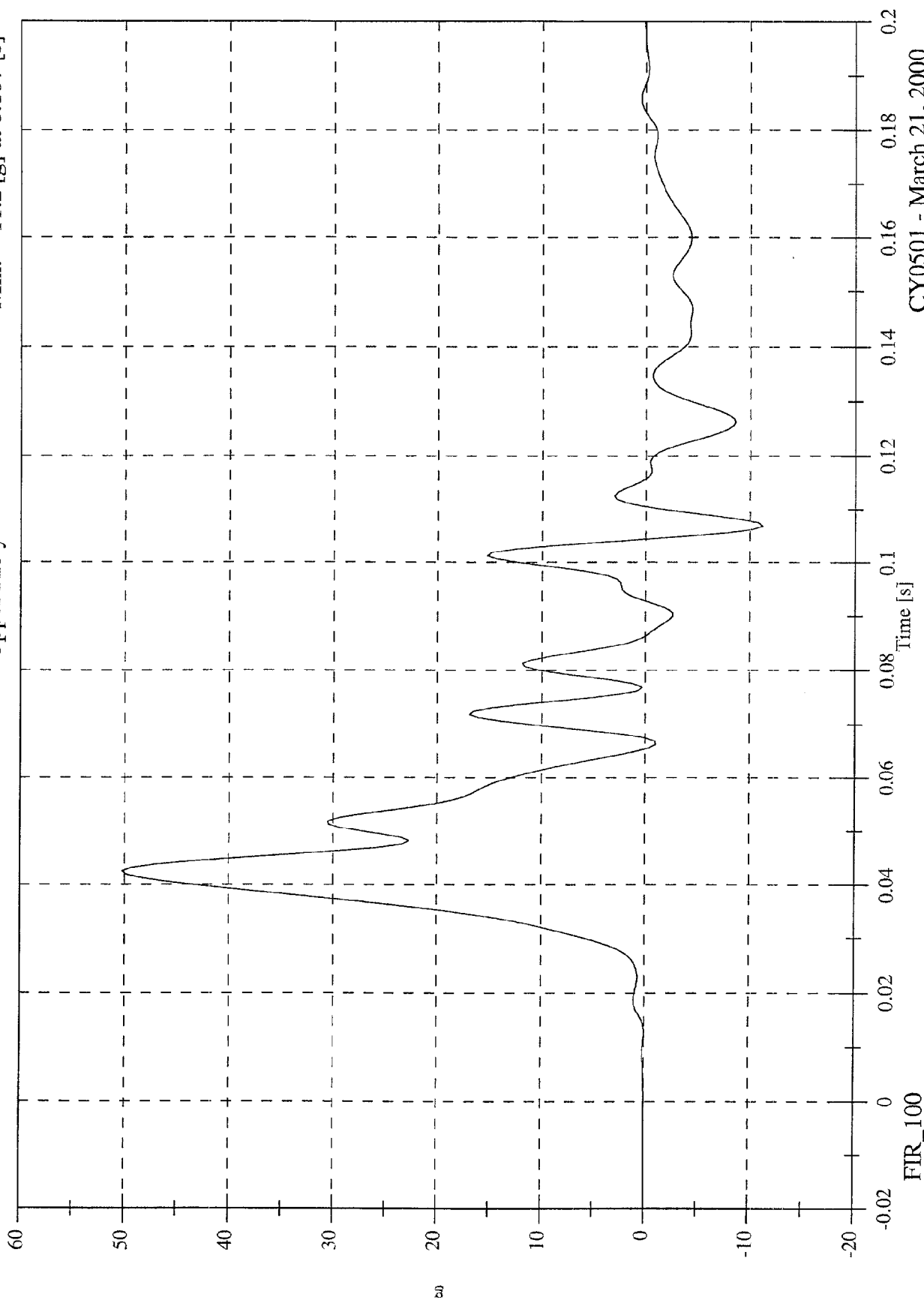


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FMVSS 214D Test 7 - Suzuki Esteem Wagon

P4 Upper Rib y

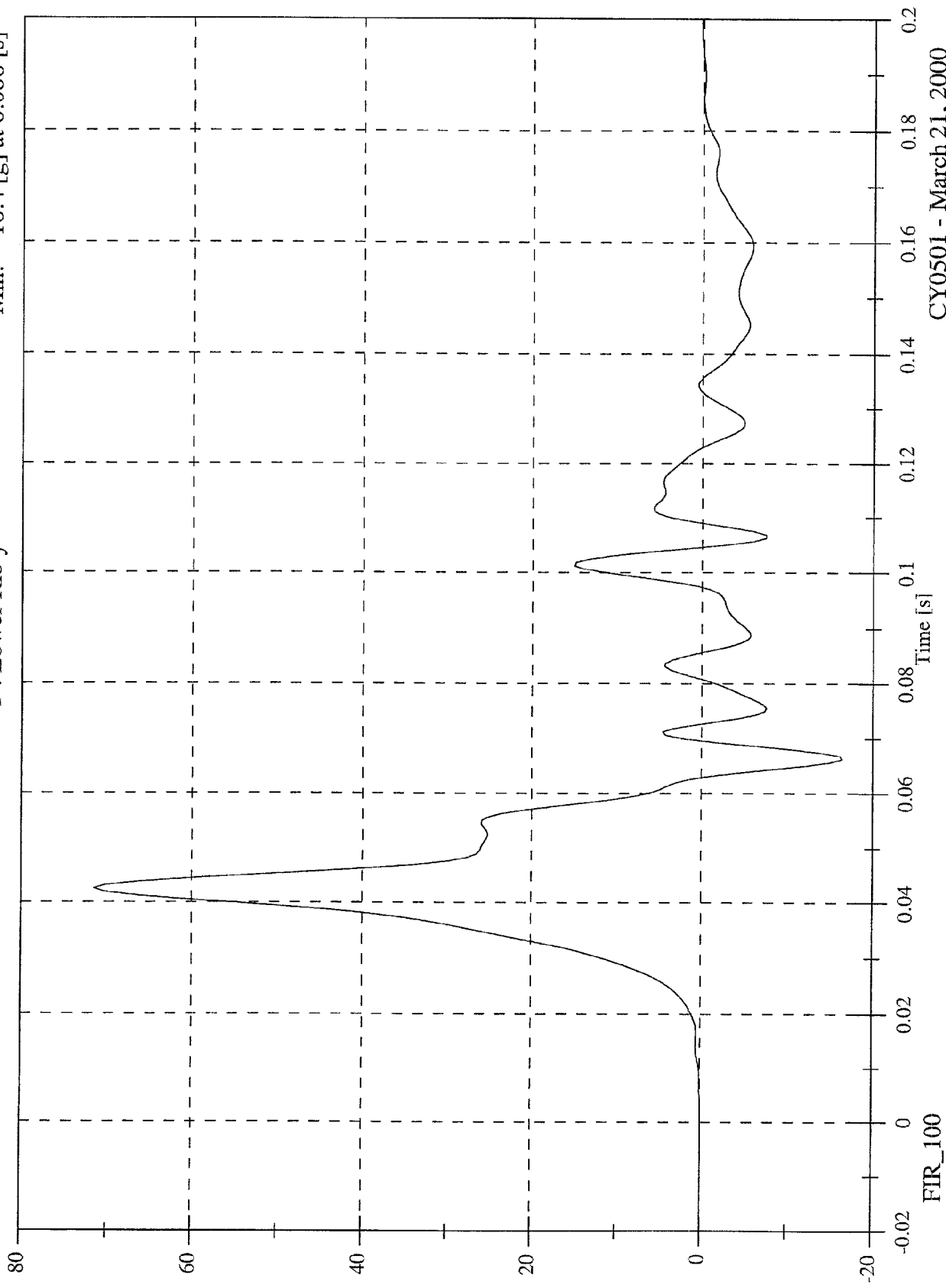
Max: 50.2 [g] at 0.043 [s]
Min: -11.2 [g] at 0.107 [s]



FMVSS 214D Test 7 - Suzuki Esteem Wagon

P4 Lower Rib y

Max: 71.5 [g] at 0.043 [s]
Min: -16.4 [g] at 0.066 [s]

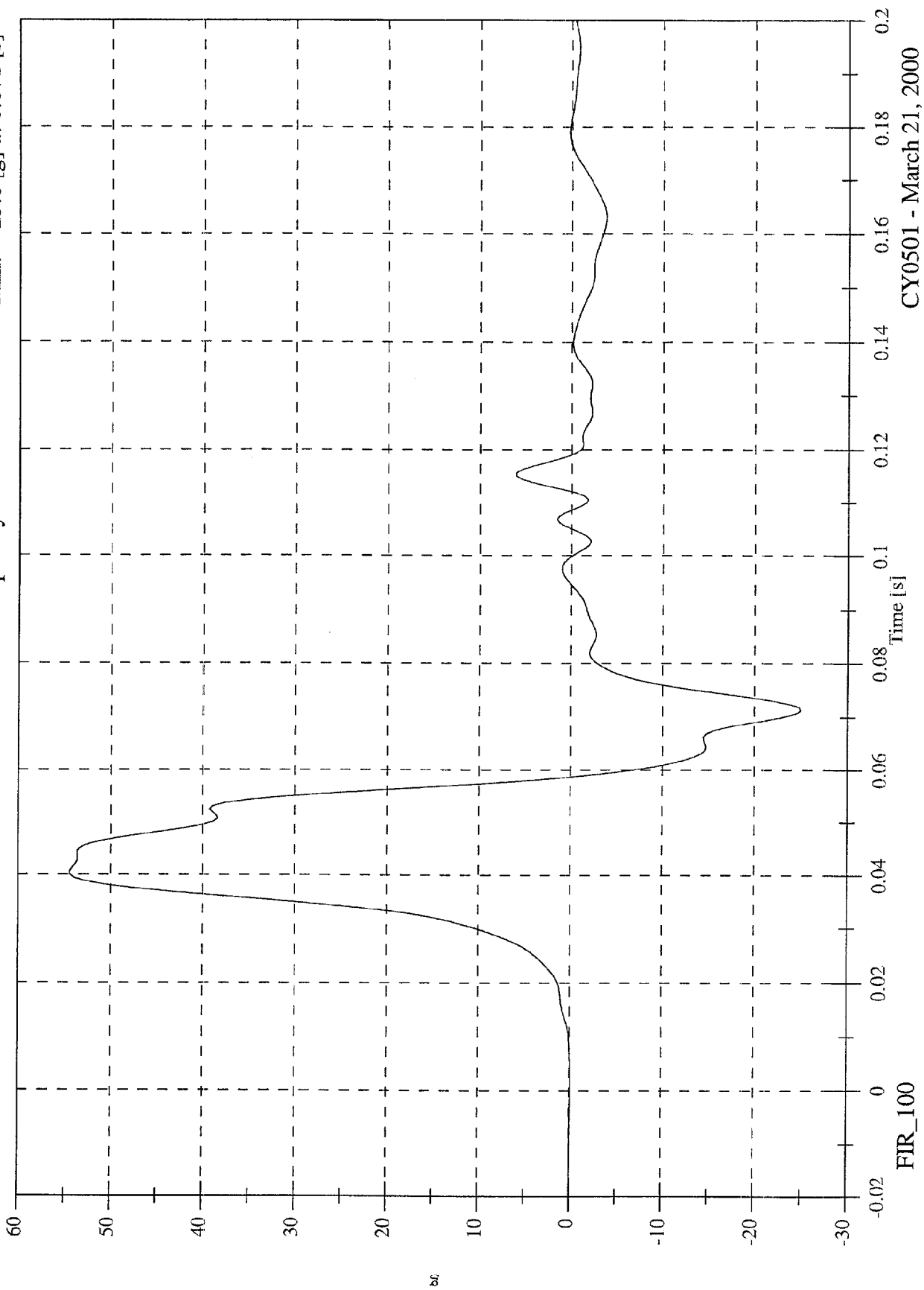


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FMVSS 214D Test 7 - Suzuki Esteem Wagon

P4 Lower Spine y

Max: 54.4 [g] at 0.041 [s]
Min: -25.0 [g] at 0.071 [s]

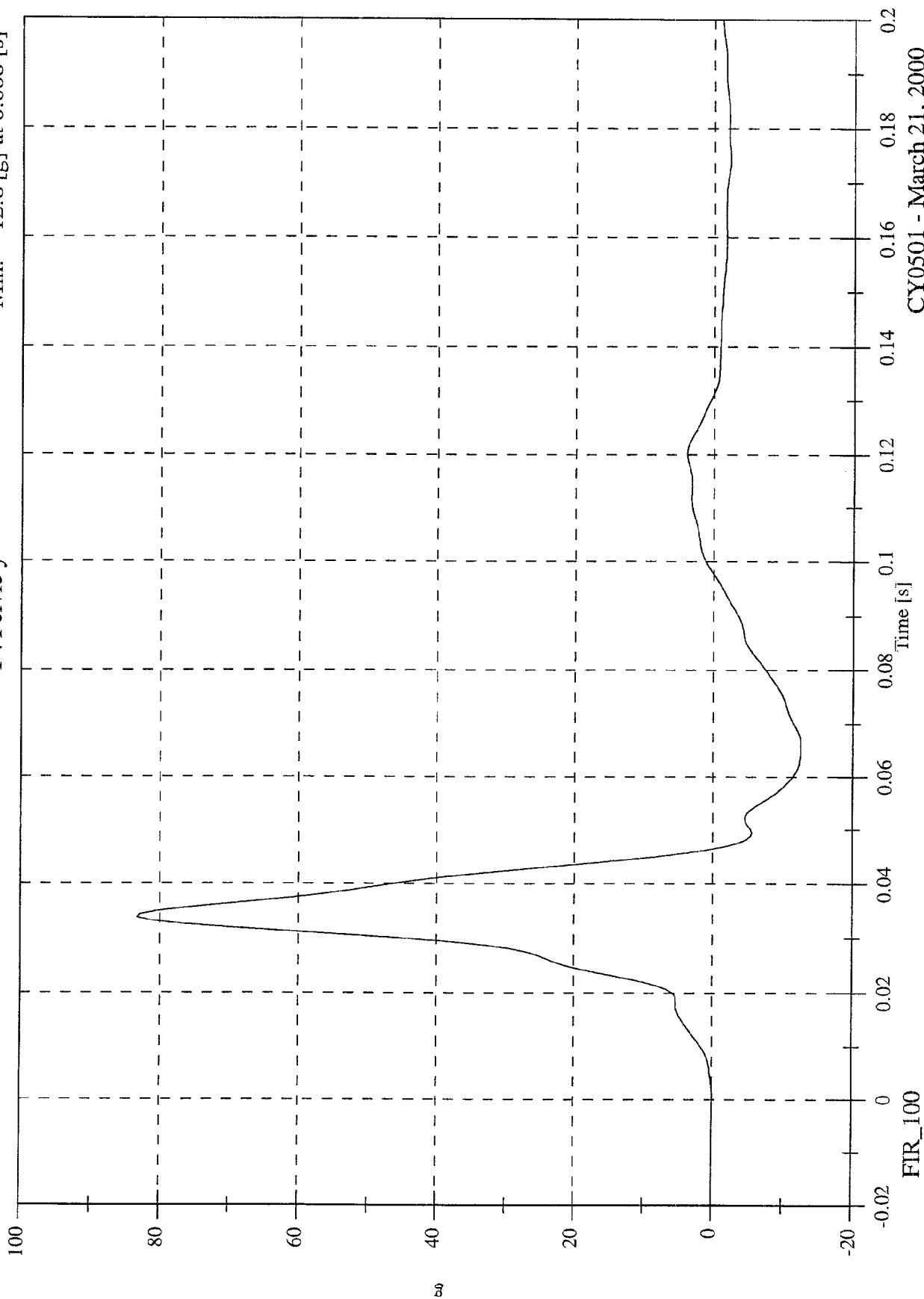


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FMVSS 214D Test 7 - Suzuki Esteem Wagon

P4 Pelvic y

Max: 83.2 [g] at 0.034 [s]
Min: -12.6 [g] at 0.066 [s]



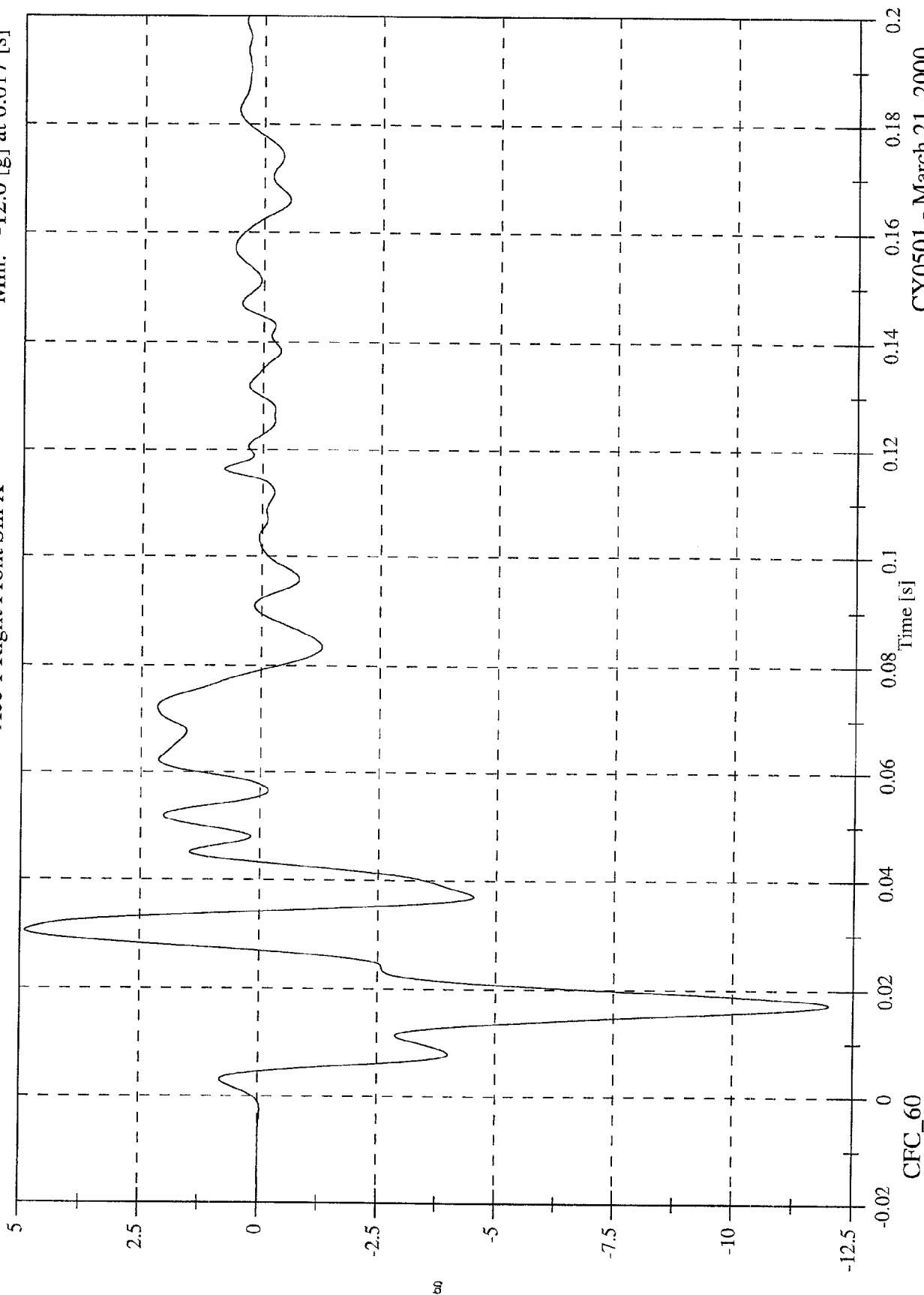
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FMVSS 214D Test 7 - Suzuki Esteem Wagon

Acc 1 Right Front Sill X

Max: 4.9 [g] at 0.030 [s]

Min: -12.0 [g] at 0.017 [s]

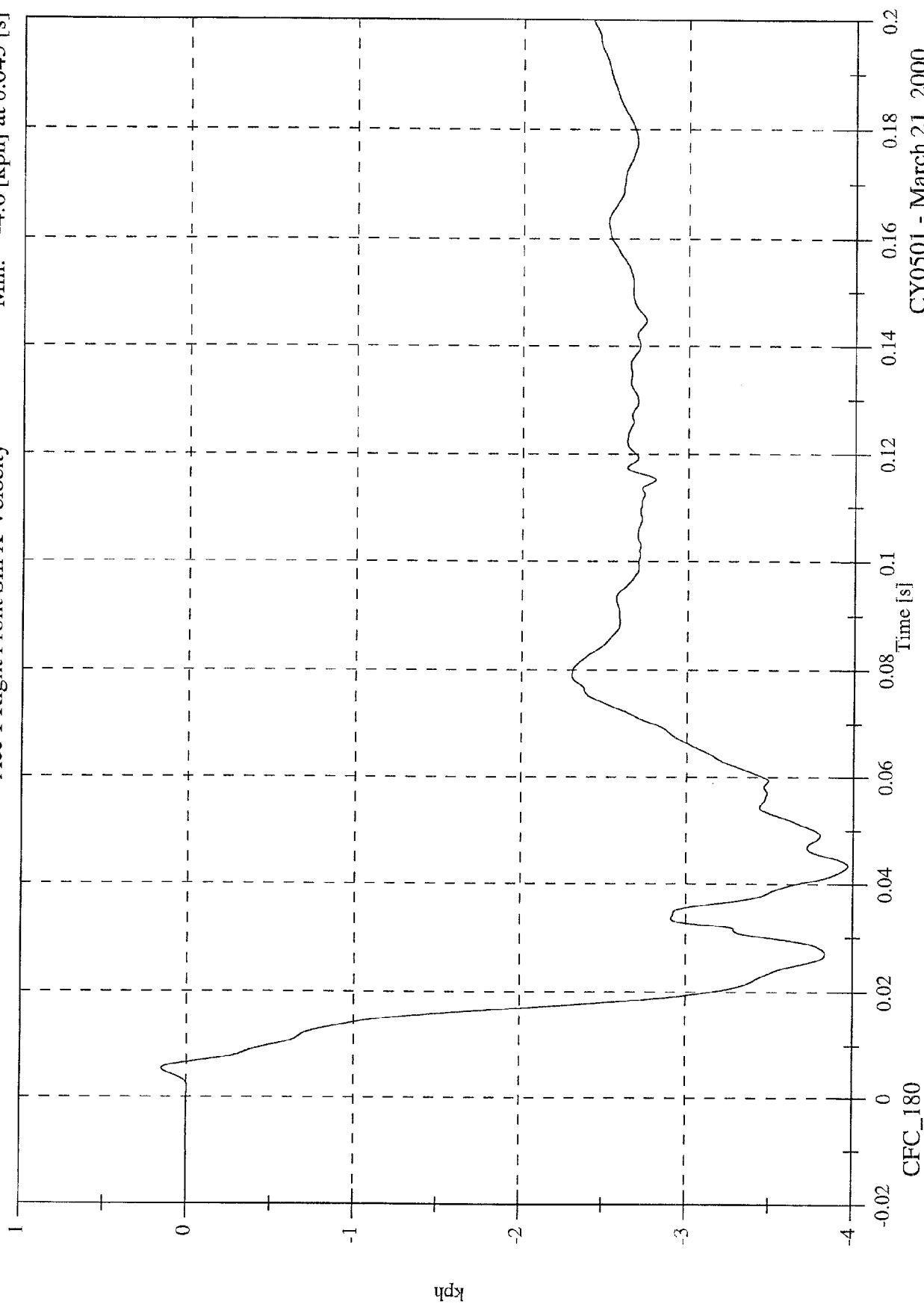


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FMVSS 214D Test 7 - Suzuki Esteem Wagon

Acc 1 Right Front Sill X Velocity

Max: 0.2 [kph] at 0.006 [s]
Min: -4.0 [kph] at 0.043 [s]



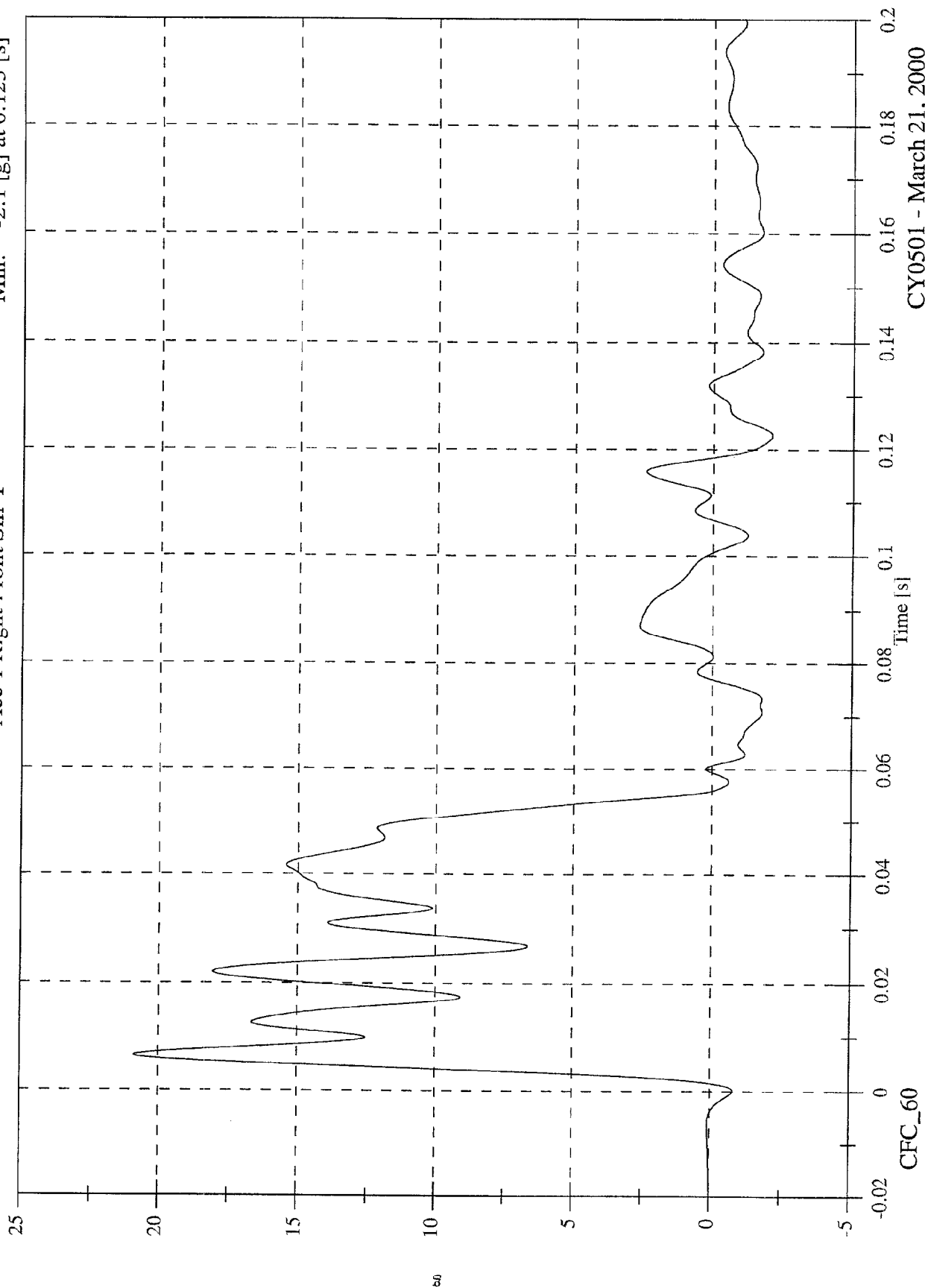
CFC_180

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FMVSS 214D Test 7 - Suzuki Esteem Wagon

Acc 1 Right Front Sill Y

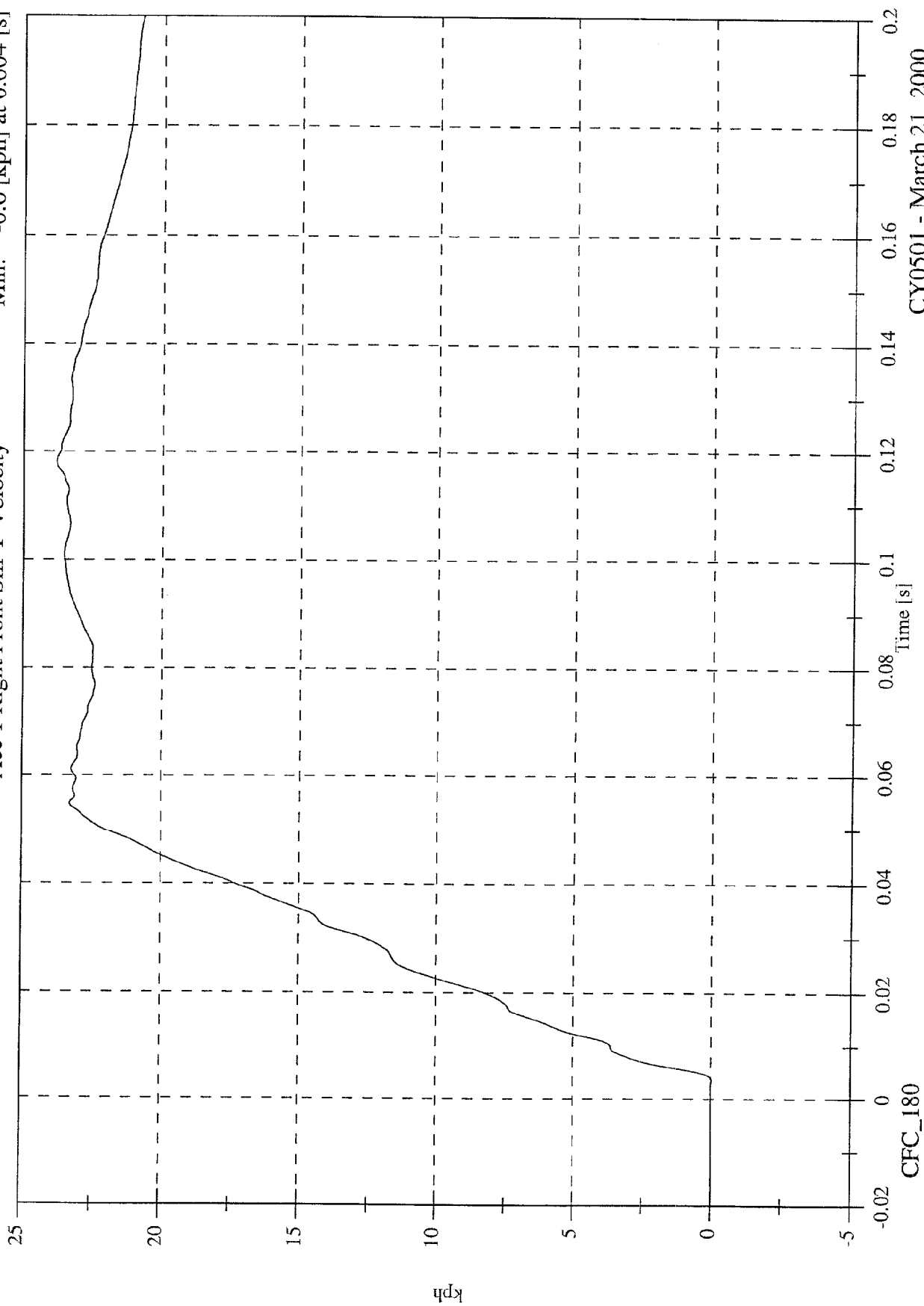
Max: 20.9 [g] at 0.006 [s]
Min: -2.1 [g] at 0.123 [s]



FMVSS 214D Test 7 - Suzuki Esteem Wagon

Max: 23.8 [kph] at 0.118 [s]
Min: -0.0 [kph] at 0.004 [s]

Acc 1 Right Front Sill Y Velocity

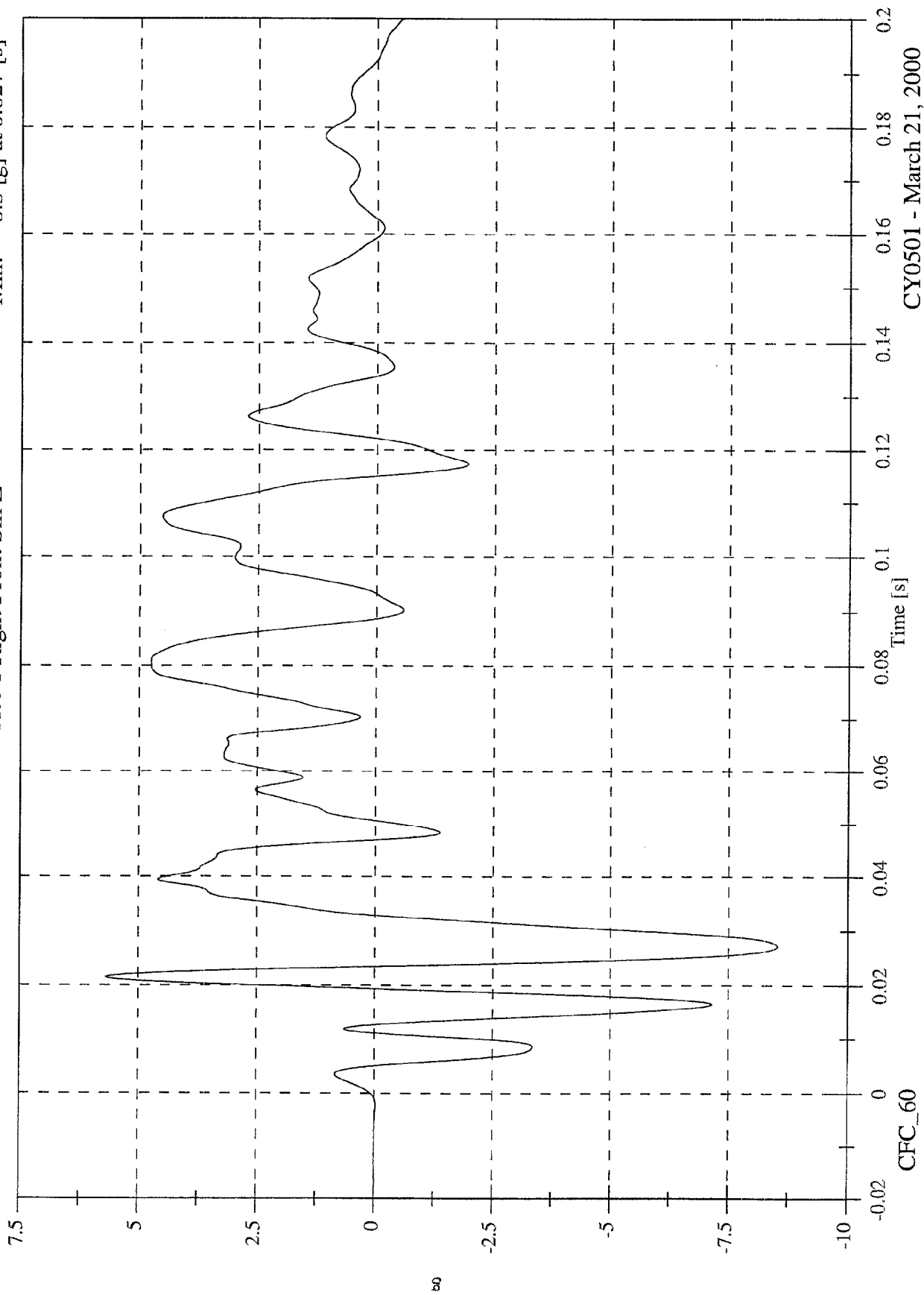


CY0501 - March 21, 2000

FMVSS 214D Test 7 - Suzuki Esteem Wagon

Max: 5.7 [g] at 0.021 [s]
 Min: -8.5 [g] at 0.027 [s]

Acc 1 Right Front Sill Z

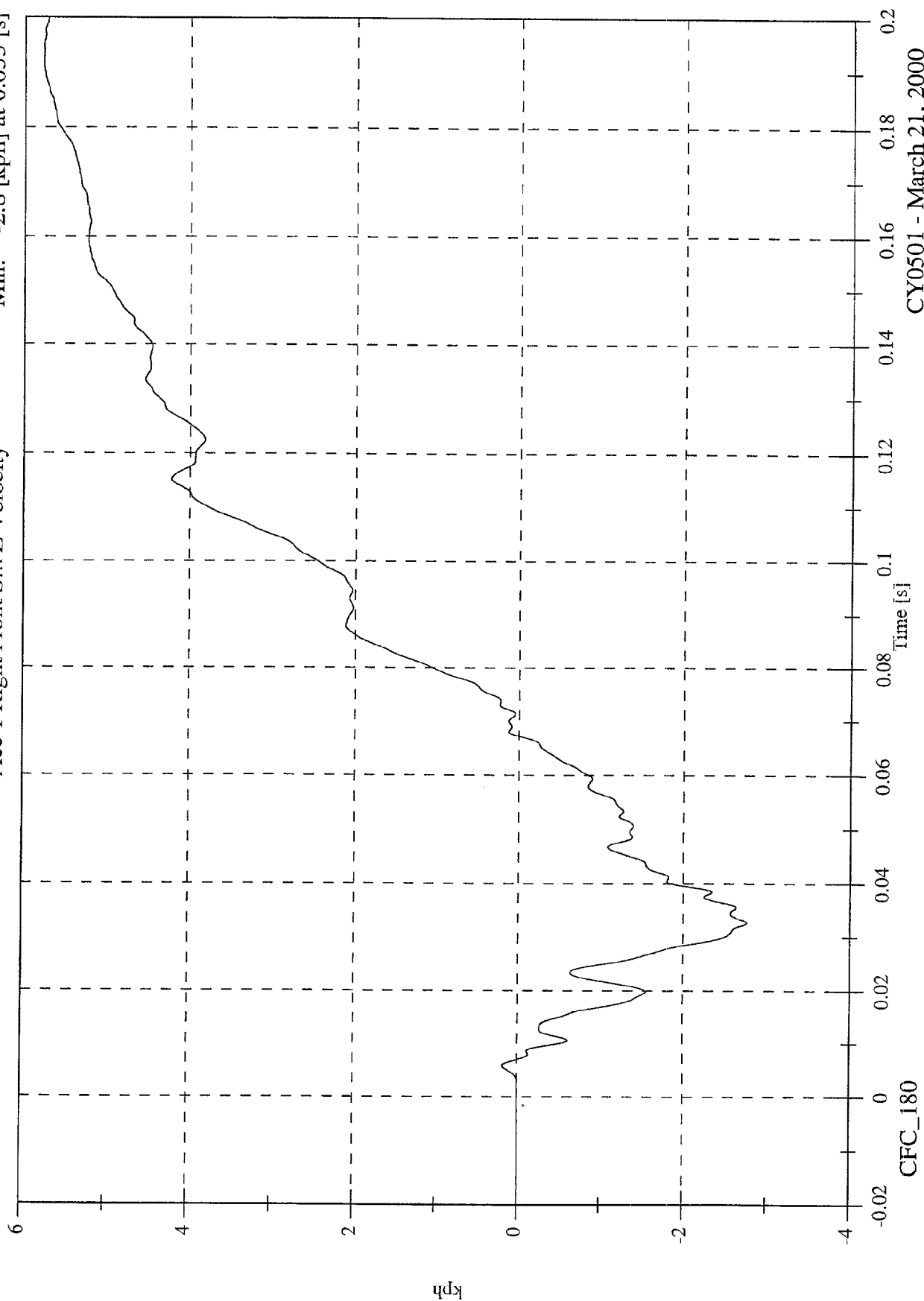


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FMVSS 214D Test 7 - Suzuki Esteem Wagon

Acc 1 Right Front Sill Z Velocity

Max: 5.8 [kph] at 0.192 [s]
Min: -2.8 [kph] at 0.033 [s]

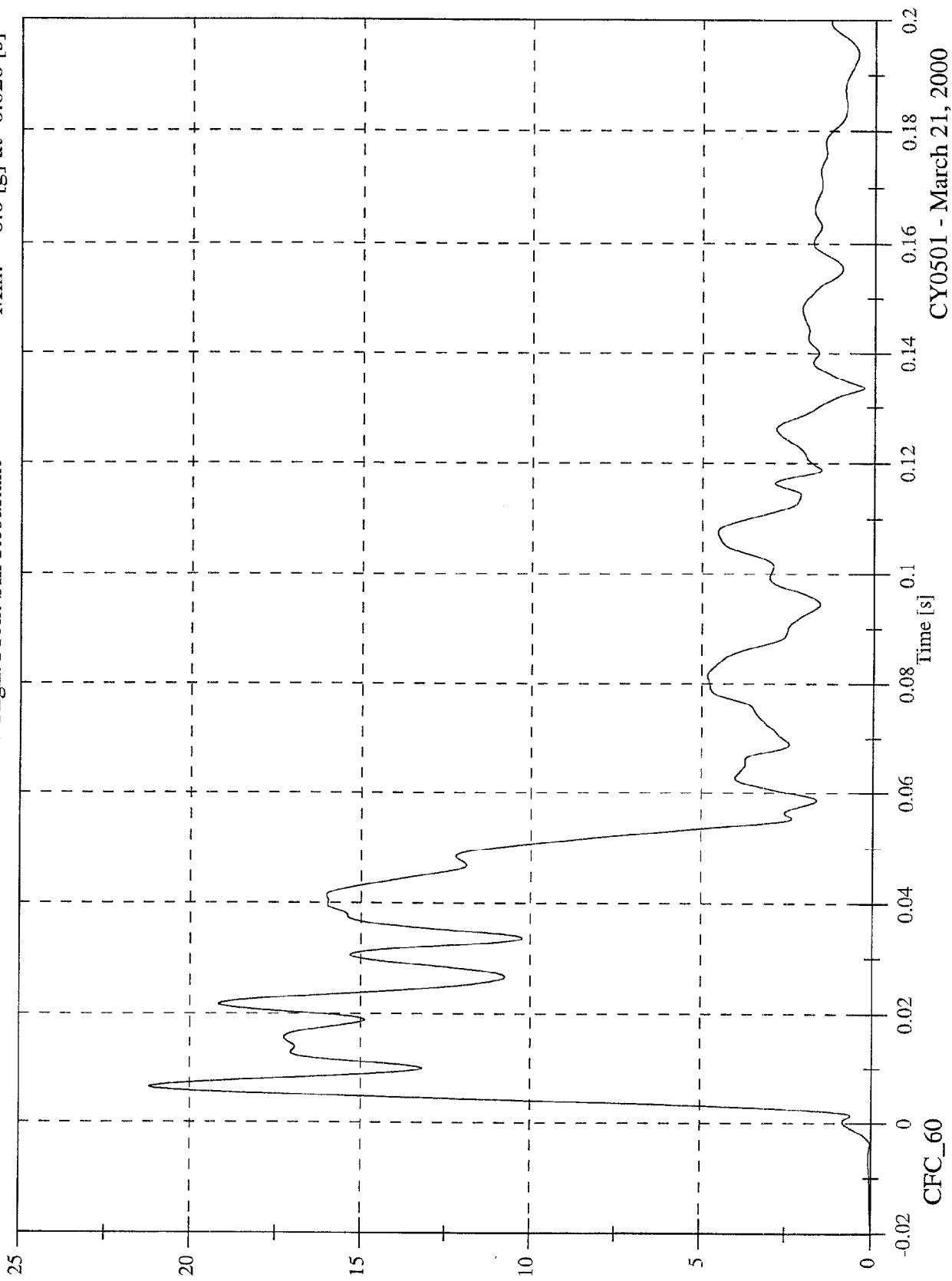


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FMVSS 214D Test 7 - Suzuki Esteem Wagon

Max: 21.2 [g] at 0.007 [s]
 Min: 0.0 [g] at -0.020 [s]

Acc 1 Right Front Sill Resultant

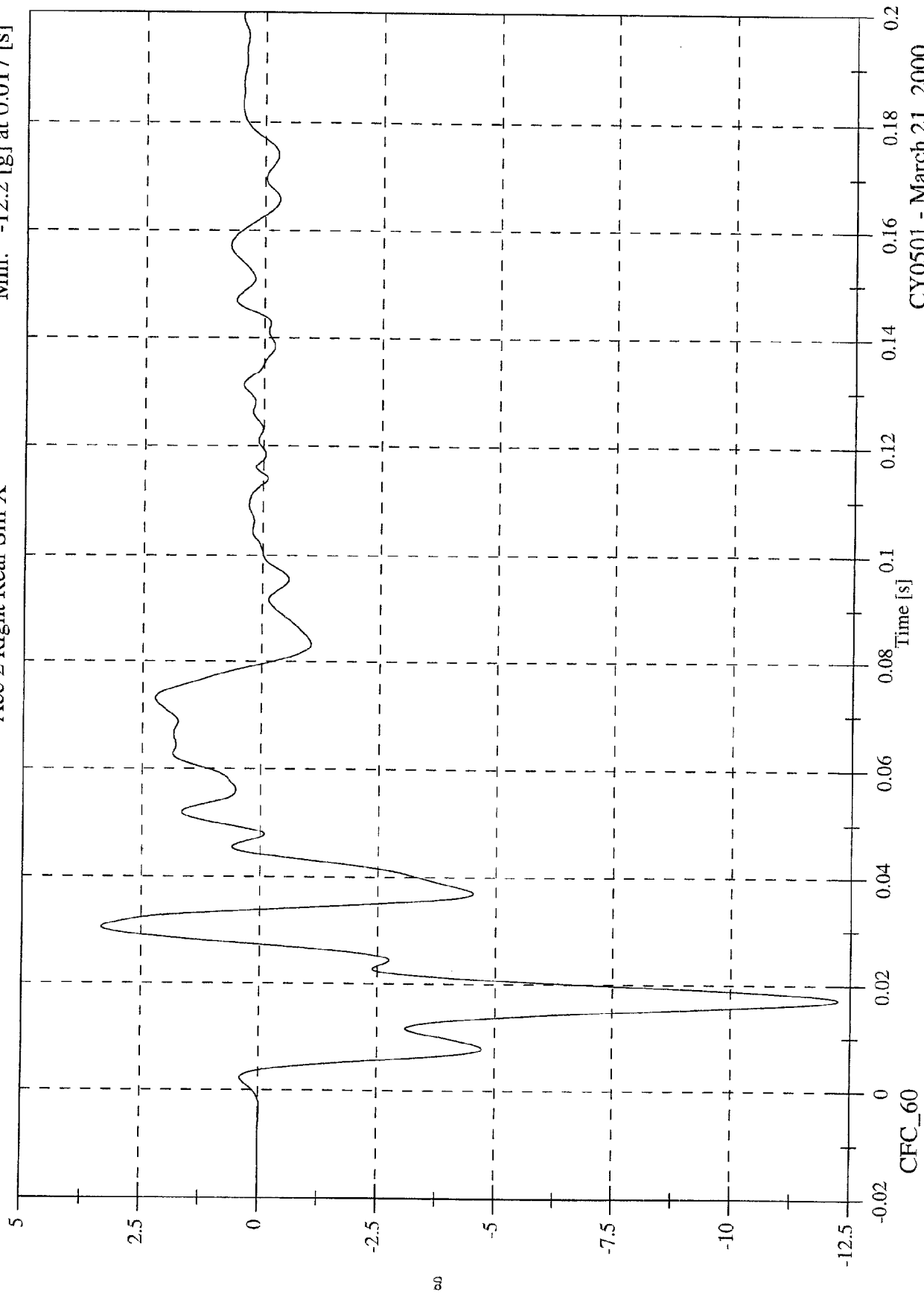


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FMVSS 214D Test 7 - Suzuki Esteem Wagon

Max: 3.3 [g] at 0.030 [s]
Min: -12.2 [g] at 0.017 [s]

Acc 2 Right Rear Sill X

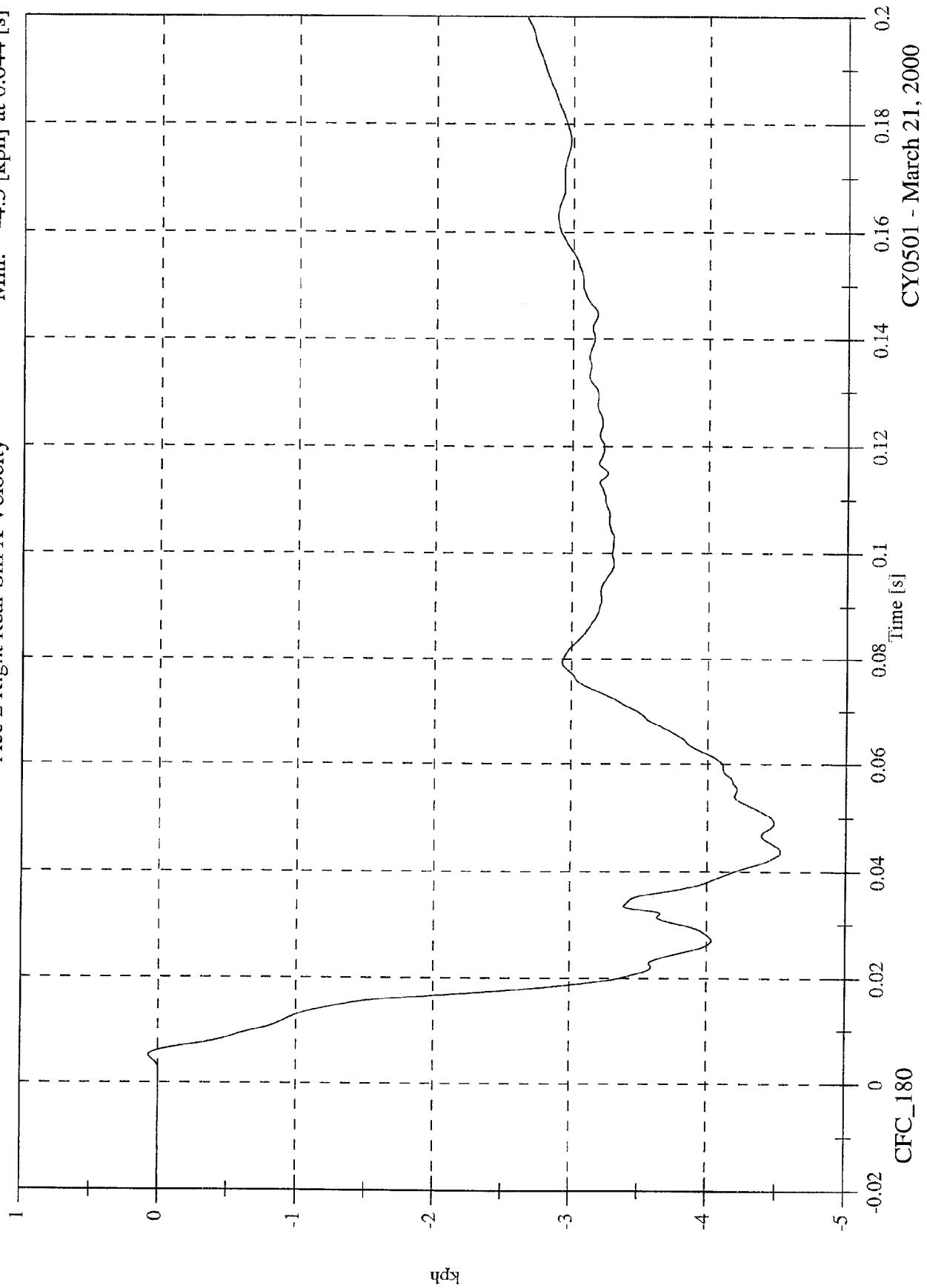


CY0501 - March 21, 2000

FMVSS 214D Test 7 - Suzuki Esteem Wagon

Acc 2 Right Rear Sill X Velocity

Max: 0.1 [kph] at 0.005 [s]
Min: -4.5 [kph] at 0.044 [s]

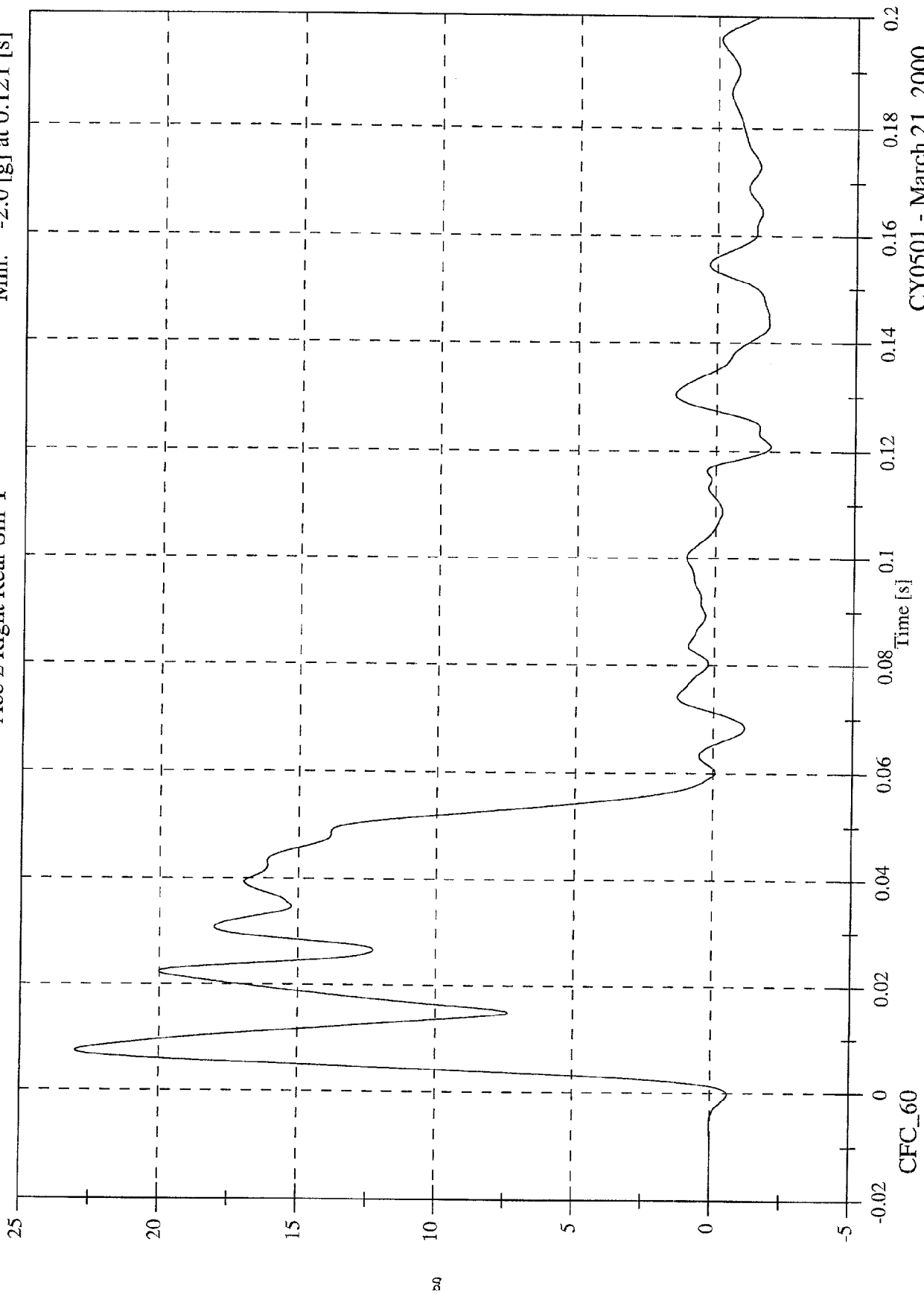


CY0501 - March 21, 2000

FMVSS 214D Test 7 - Suzuki Esteem Wagon

Acc 2 Right Rear Sill Y

Max: 23.0 [g] at 0.007 [s]
Min: -2.0 [g] at 0.121 [s]

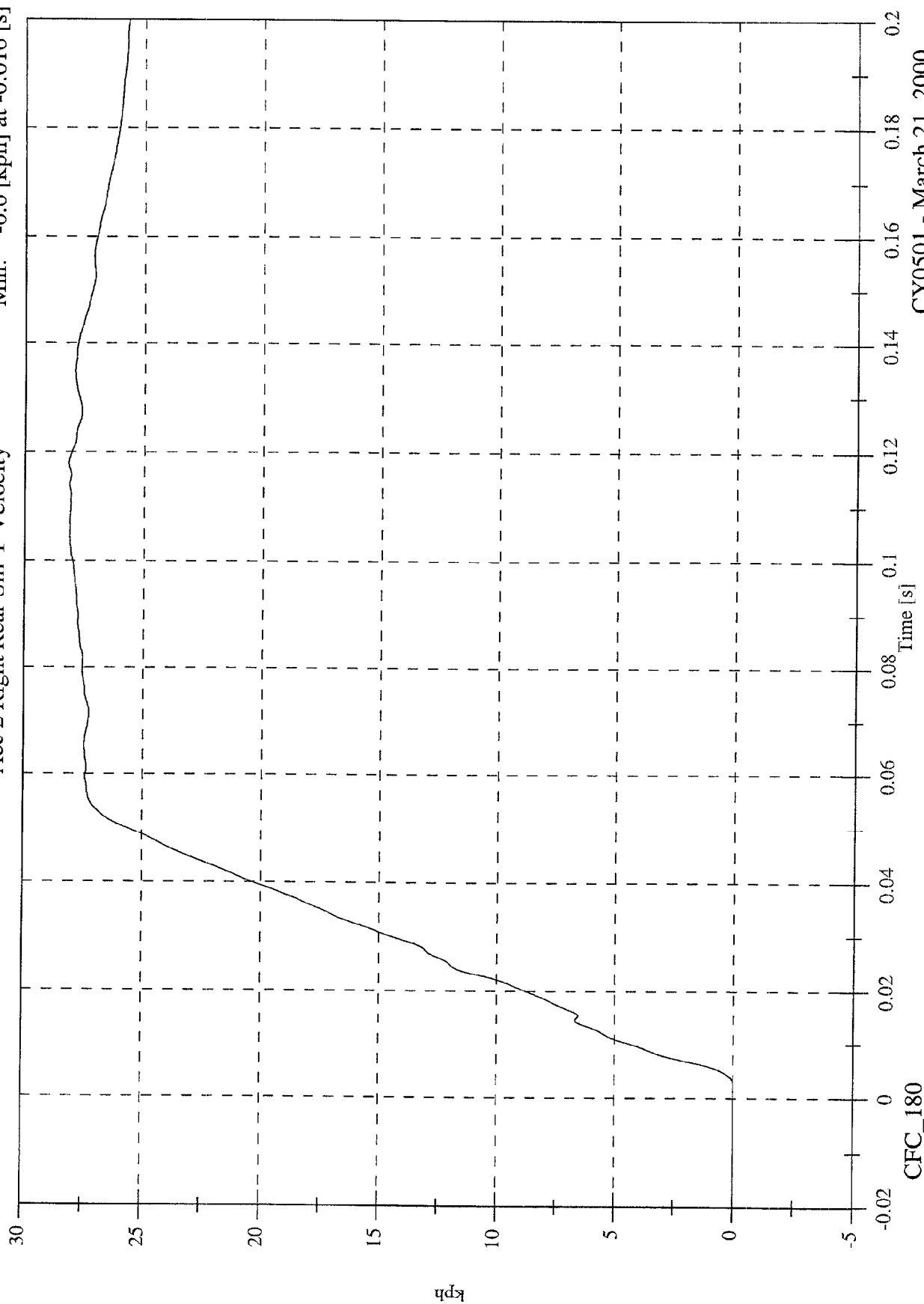


CY0501 - March 21, 2000

FMVSS 214D Test 7 - Suzuki Esteem Wagon

Max: 28.2 [kph] at 0.118 [s]
Min: -0.0 [kph] at -0.016 [s]

Acc 2 Right Rear Sill Y Velocity

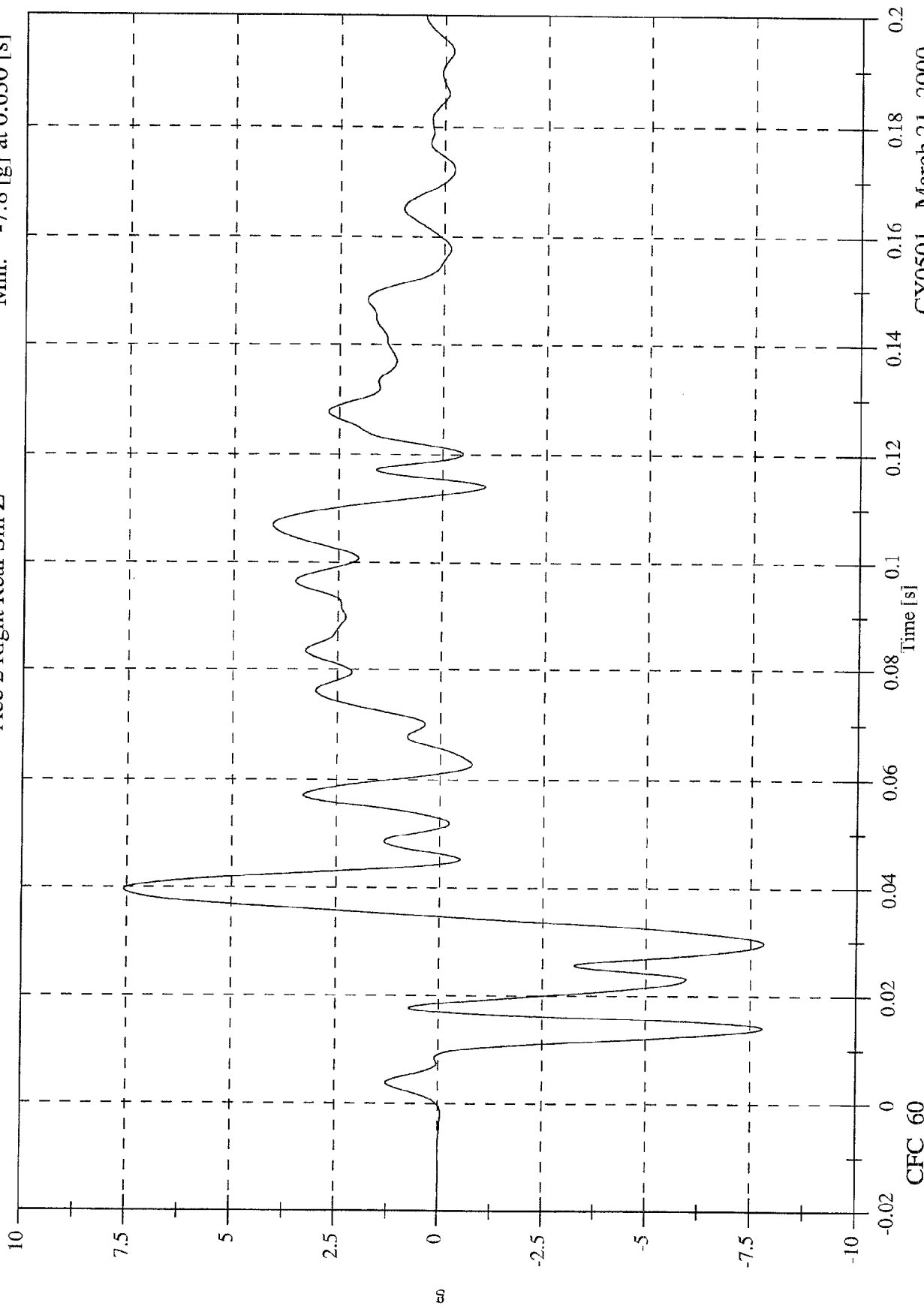


CY0501 - March 21, 2000

FMVSS 214D Test 7 - Suzuki Esteem Wagon

Acc 2 Right Rear Sill Z

Max: 7.6 [g] at 0.040 [s]
Min: -7.8 [g] at 0.030 [s]

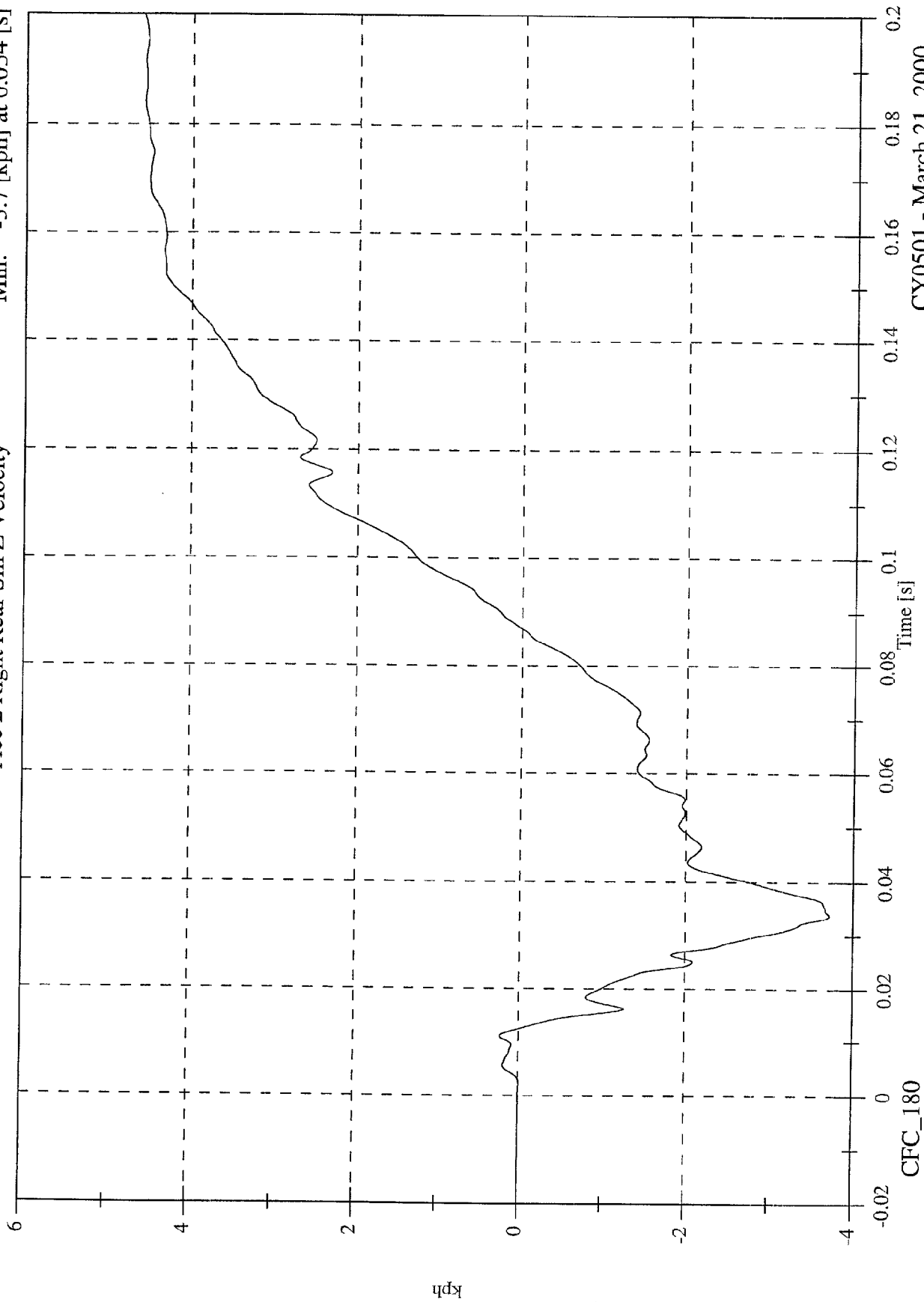


CY0501 - March 21, 2000

FMVSS 214D Test 7 - Suzuki Esteem Wagon

Acc 2 Right Rear Sill Z Velocity

Max: 4.6 [kph] at 0.200 [s]
 Min: -3.7 [kph] at 0.034 [s]

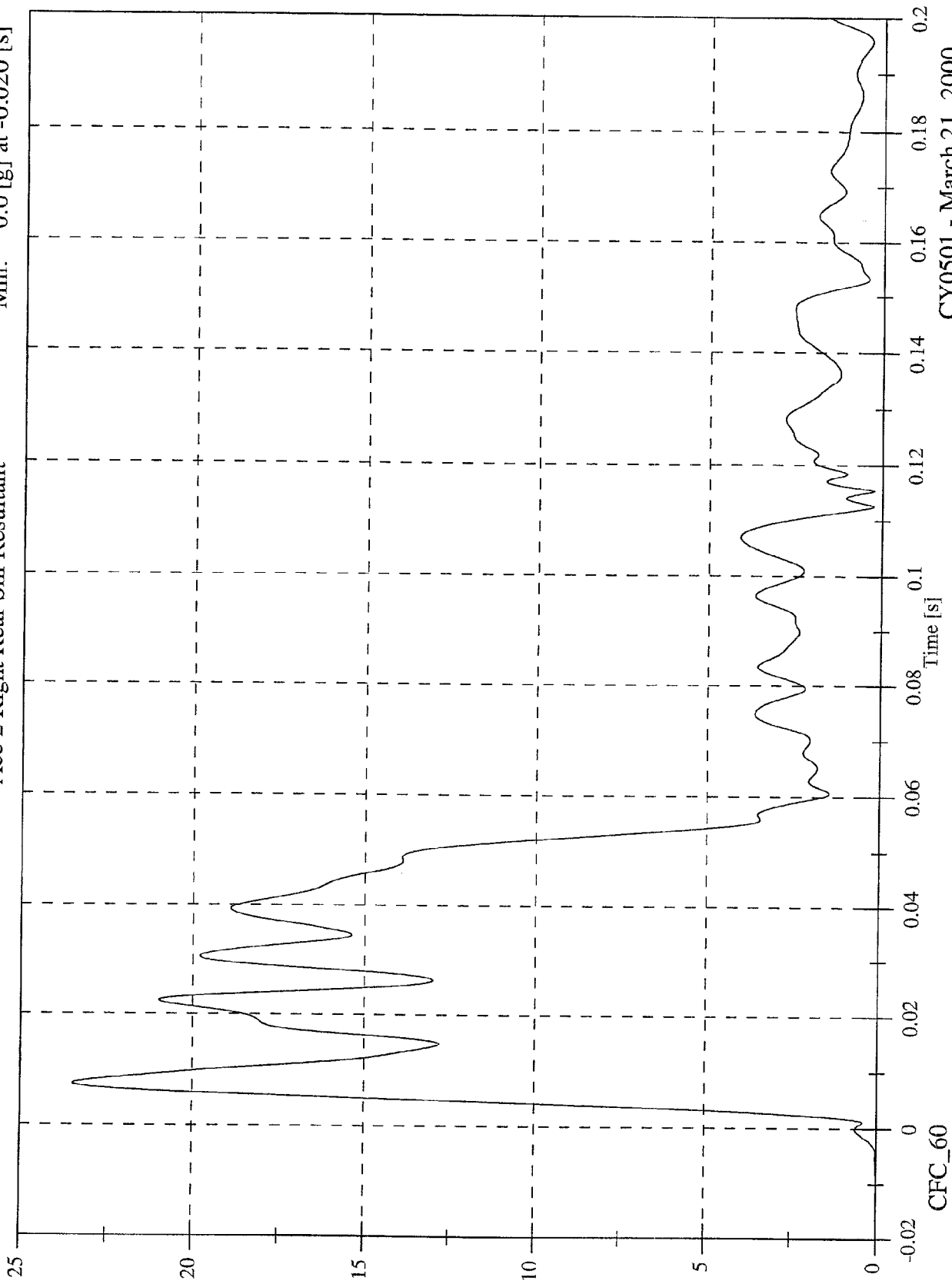


CY0501 - March 21, 2000

FMVSS 214D Test 7 - Suzuki Esteem Wagon

Max: 23.5 [g] at 0.007 [s]
 Min: 0.0 [g] at -0.020 [s]

Acc 2 Right Rear Sill Resultant

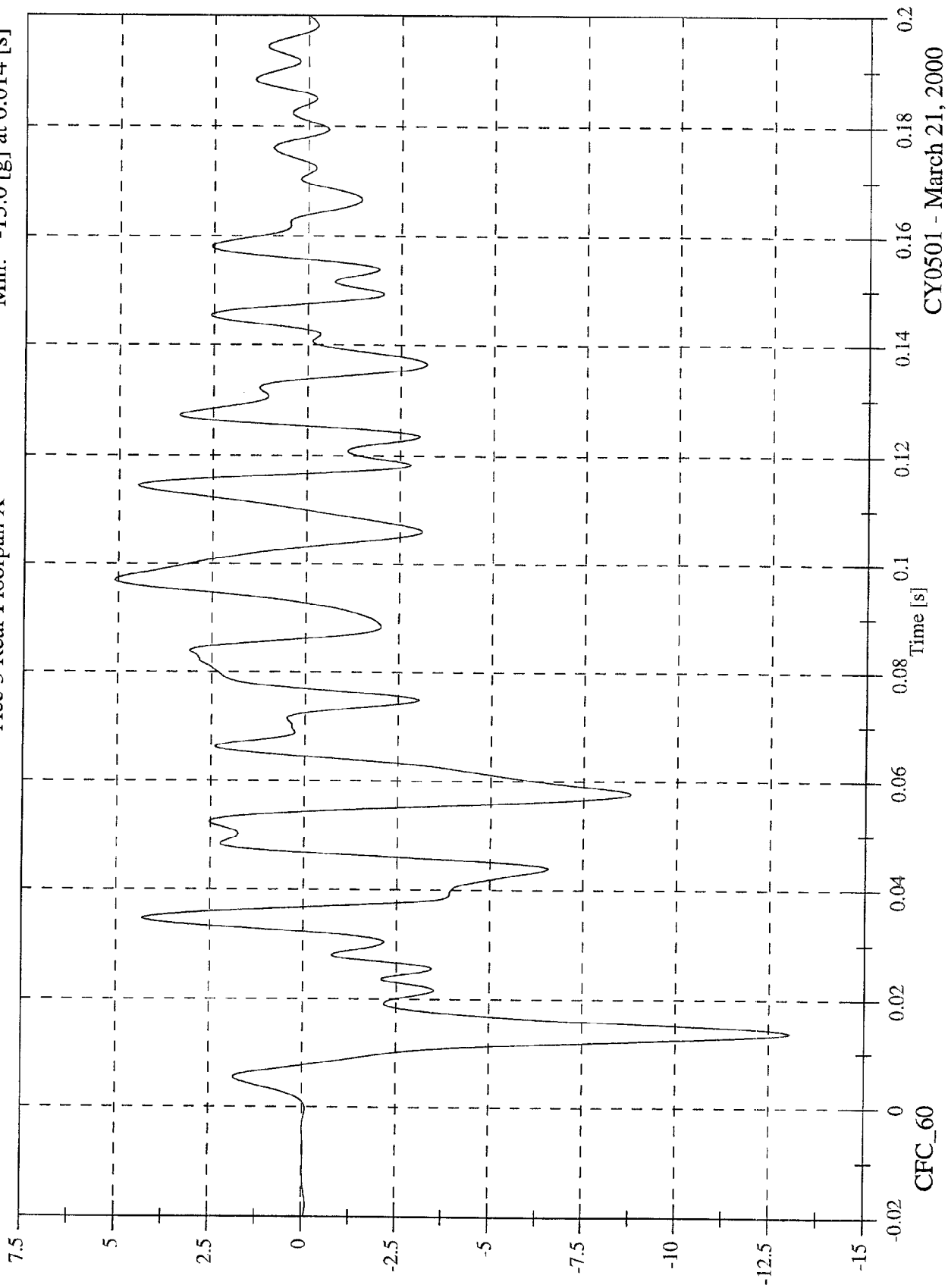


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FMVSS 214D Test 7 - Suzuki Esteem Wagon

Acc 3 Rear Floorpan X

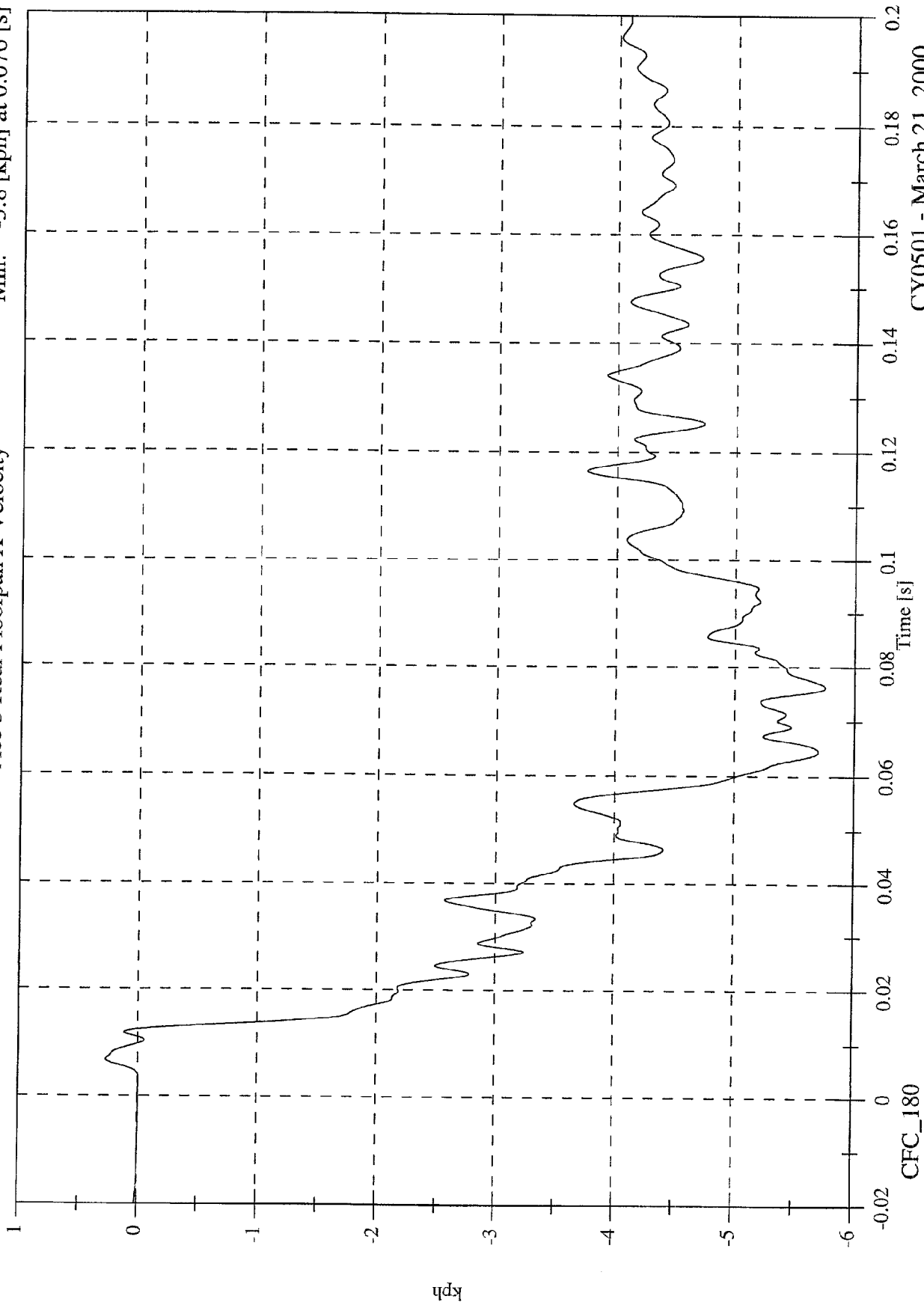
Max: 5.1 [g] at 0.097 [s]
Min: -13.0 [g] at 0.014 [s]



FMVSS 214D Test 7 - Suzuki Esteem Wagon

Acc 3 Rear Floorpan X Velocity

Max: 0.3 [kph] at 0.007 [s]
Min: -5.8 [kph] at 0.076 [s]

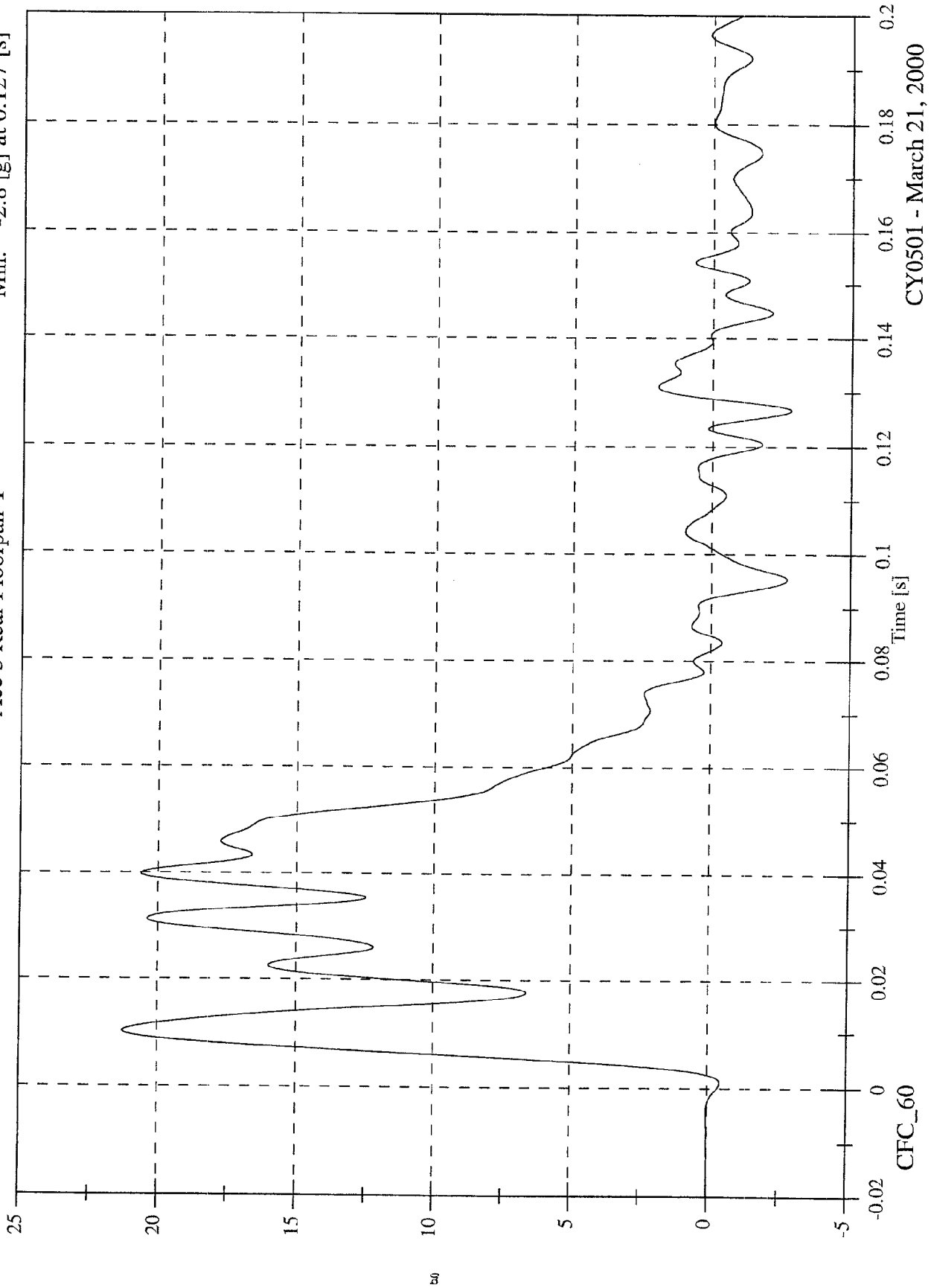


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FMVSS 214D Test 7 - Suzuki Esteem Wagon

Acc 3 Rear Floorpan Y

Max: 21.3 [g] at 0.010 [s]
Min: -2.8 [g] at 0.127 [s]

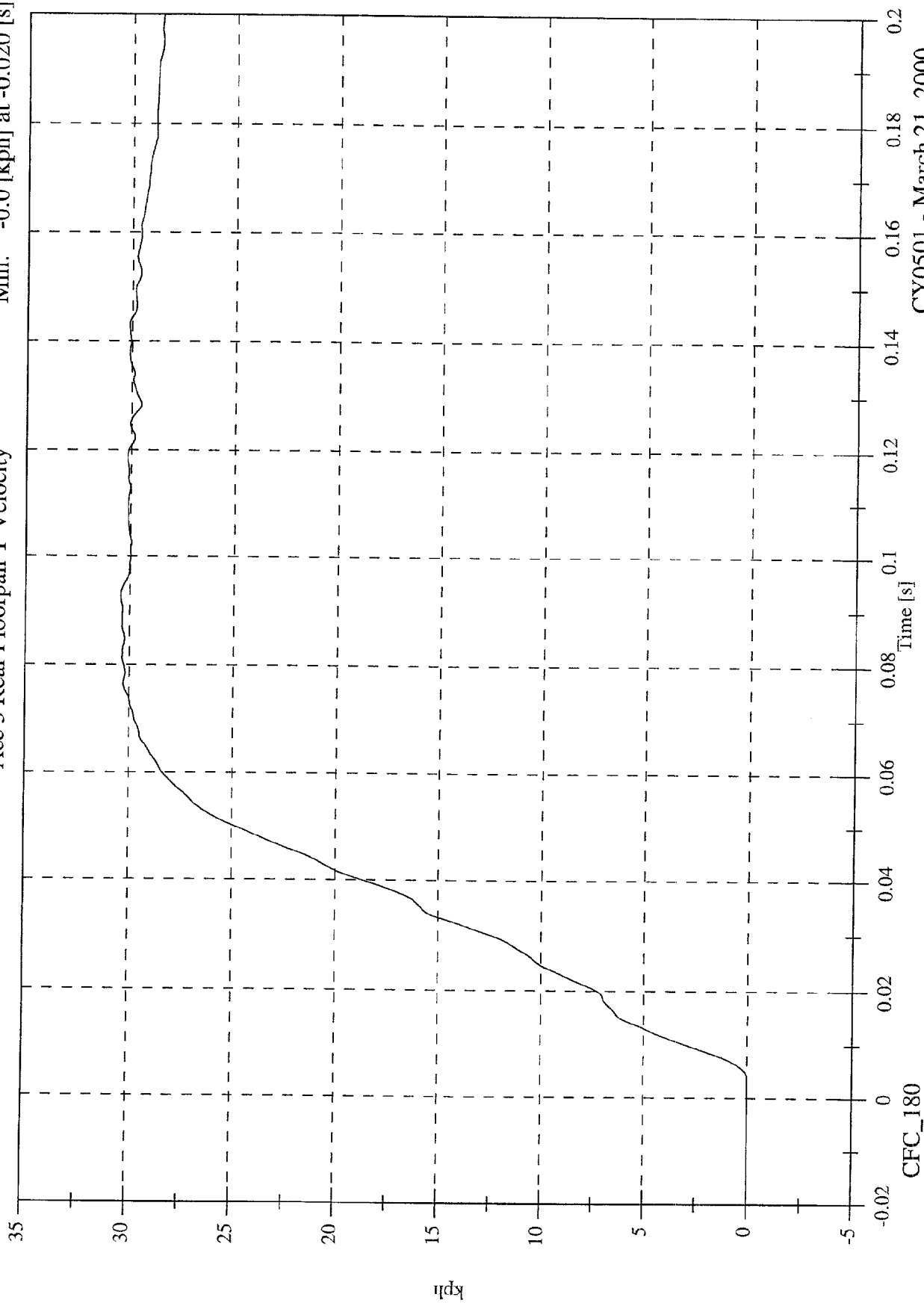


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FMVSS 214D Test 1 - Suzuki Esteem Wagon

Max: 30.5 [kph] at 0.093 [s]
Min: -0.0 [kph] at -0.020 [s]

Acc 3 Rear Floorpan Y Velocity

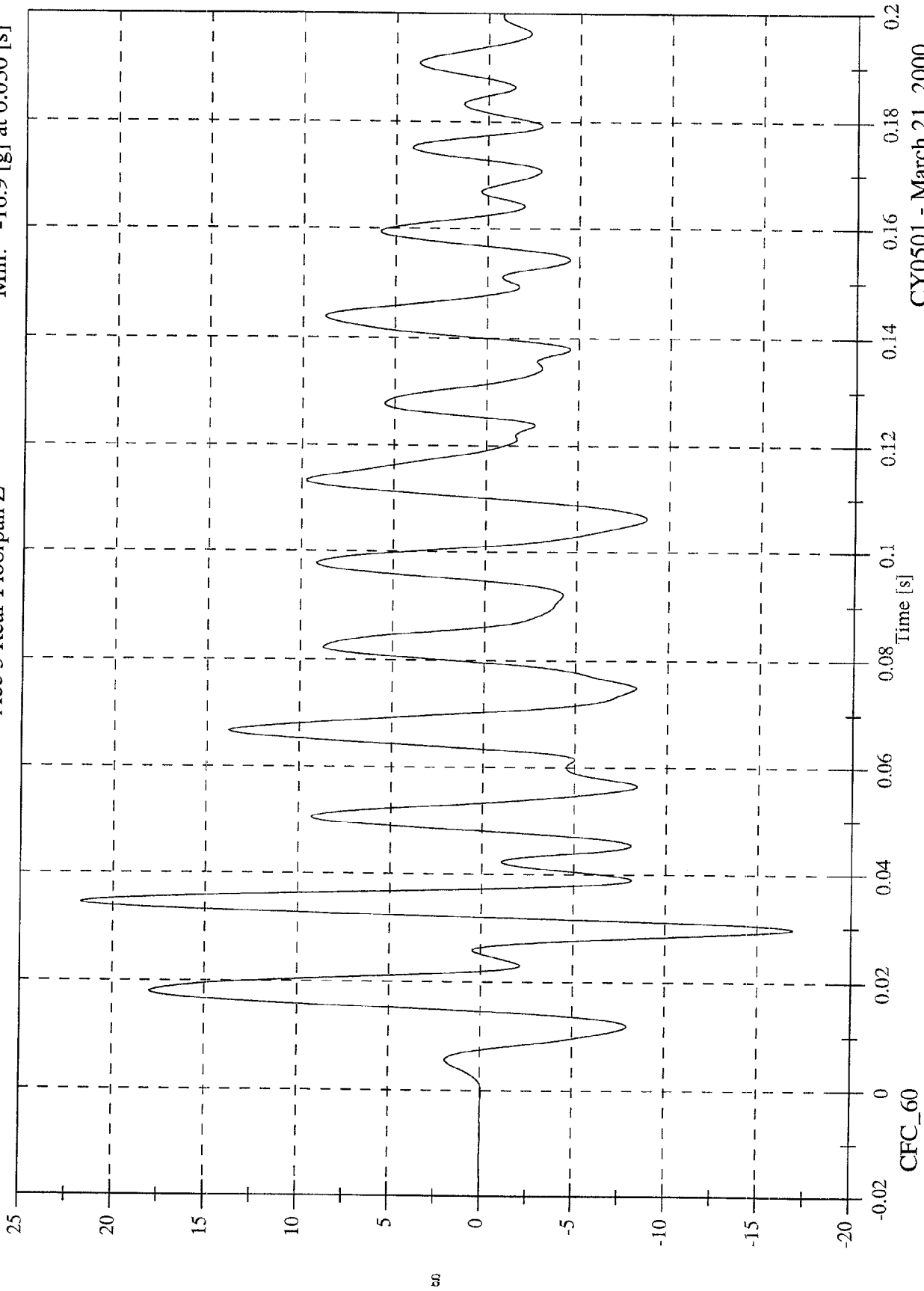


CY0501 - March 21, 2000

FMVSS 214D Test 7 - Suzuki Esteem Wagon

Max: 21.7 [g] at 0.035 [s]
 Min: -16.9 [g] at 0.030 [s]

Acc 3 Rear Floorpan Z

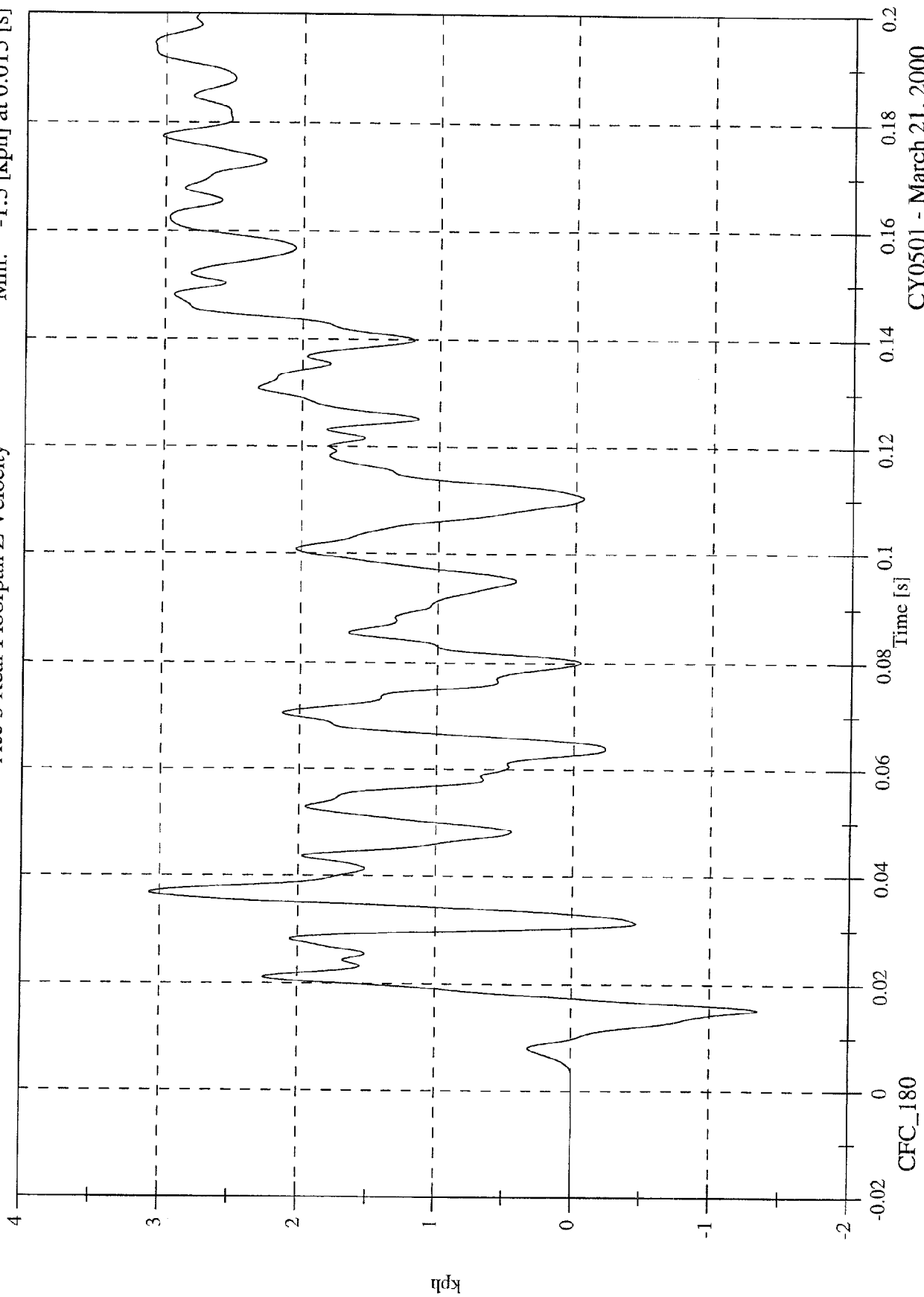


CY0501 - March 21, 2000

FMVSS 214D Test 7 - Suzuki Esteem Wagon

Acc 3 Rear Floorpan Z Velocity

Max: 3.1 [kph] at 0.195 [s]
Min: -1.3 [kph] at 0.015 [s]

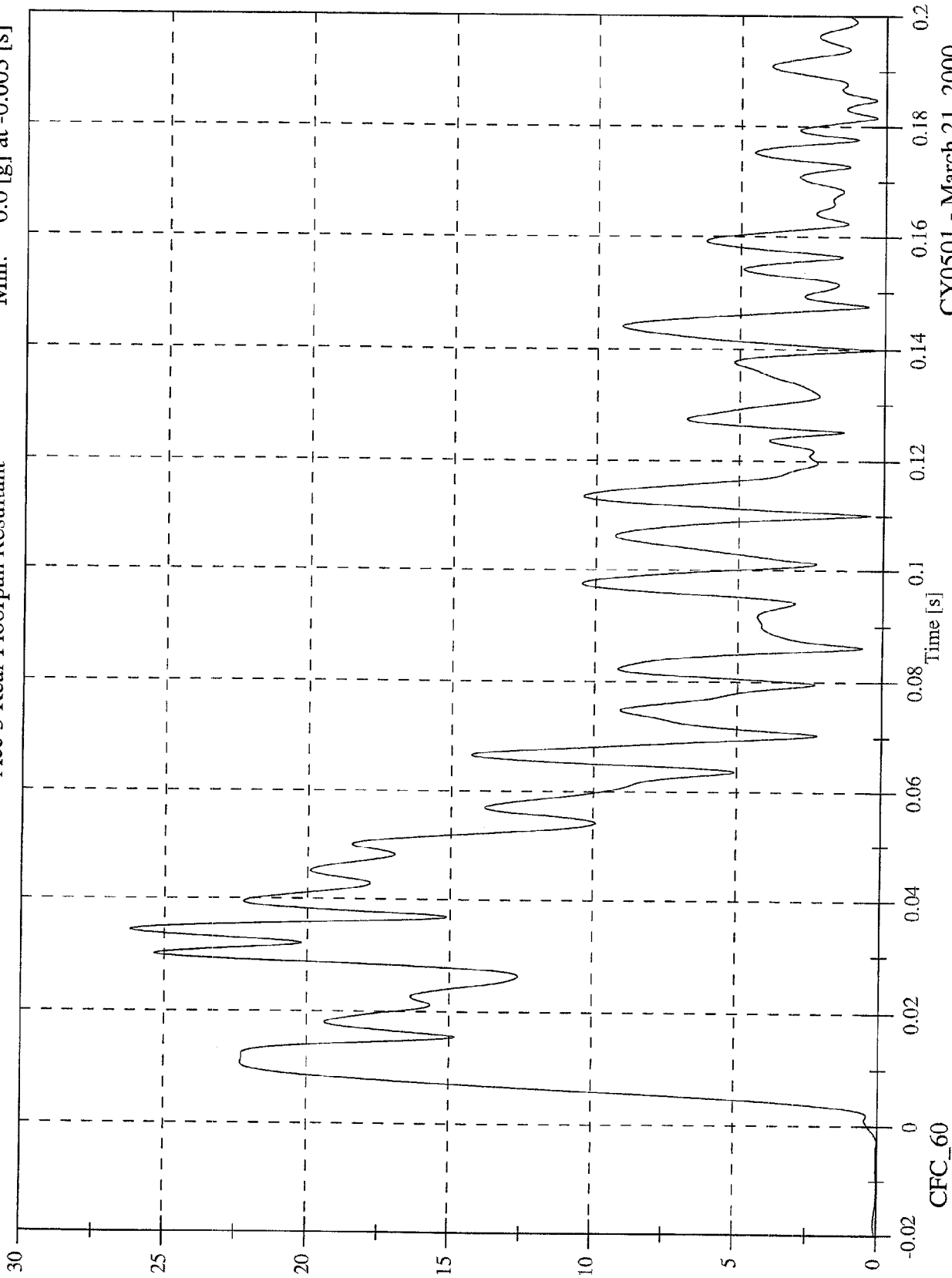


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FMVSS 214D Test 7 - Suzuki Esteem Wagon

Acc 3 Rear Floorpan Resultant

Max: 26.2 [g] at 0.034 [s]
Min: 0.0 [g] at -0.003 [s]

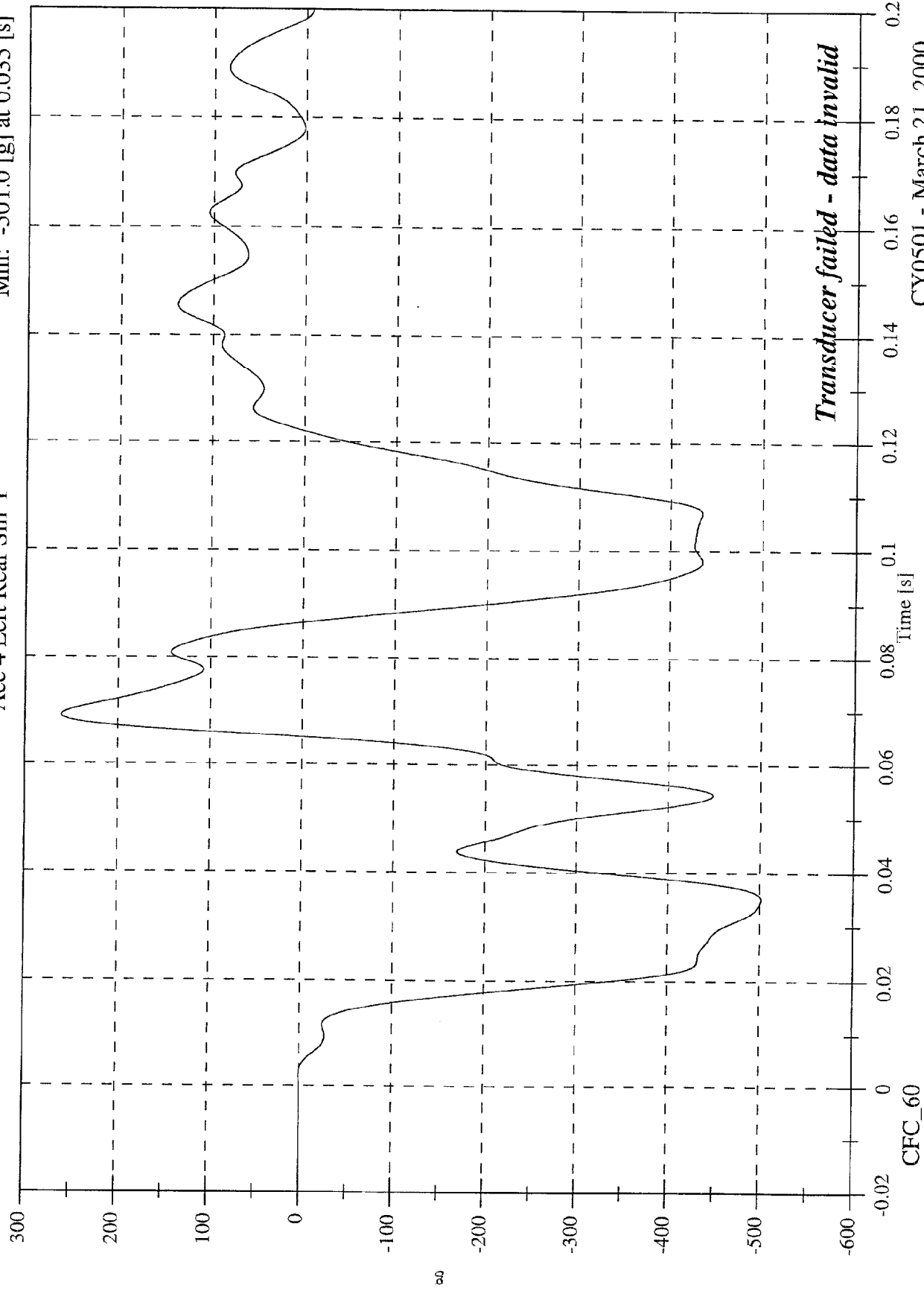


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FMVSS 214D Test 7 - Suzuki Esteem Wagon

Acc 4 Left Rear Sill Y

Max: 261.1 [g] at 0.069 [s]
Min: -501.0 [g] at 0.035 [s]



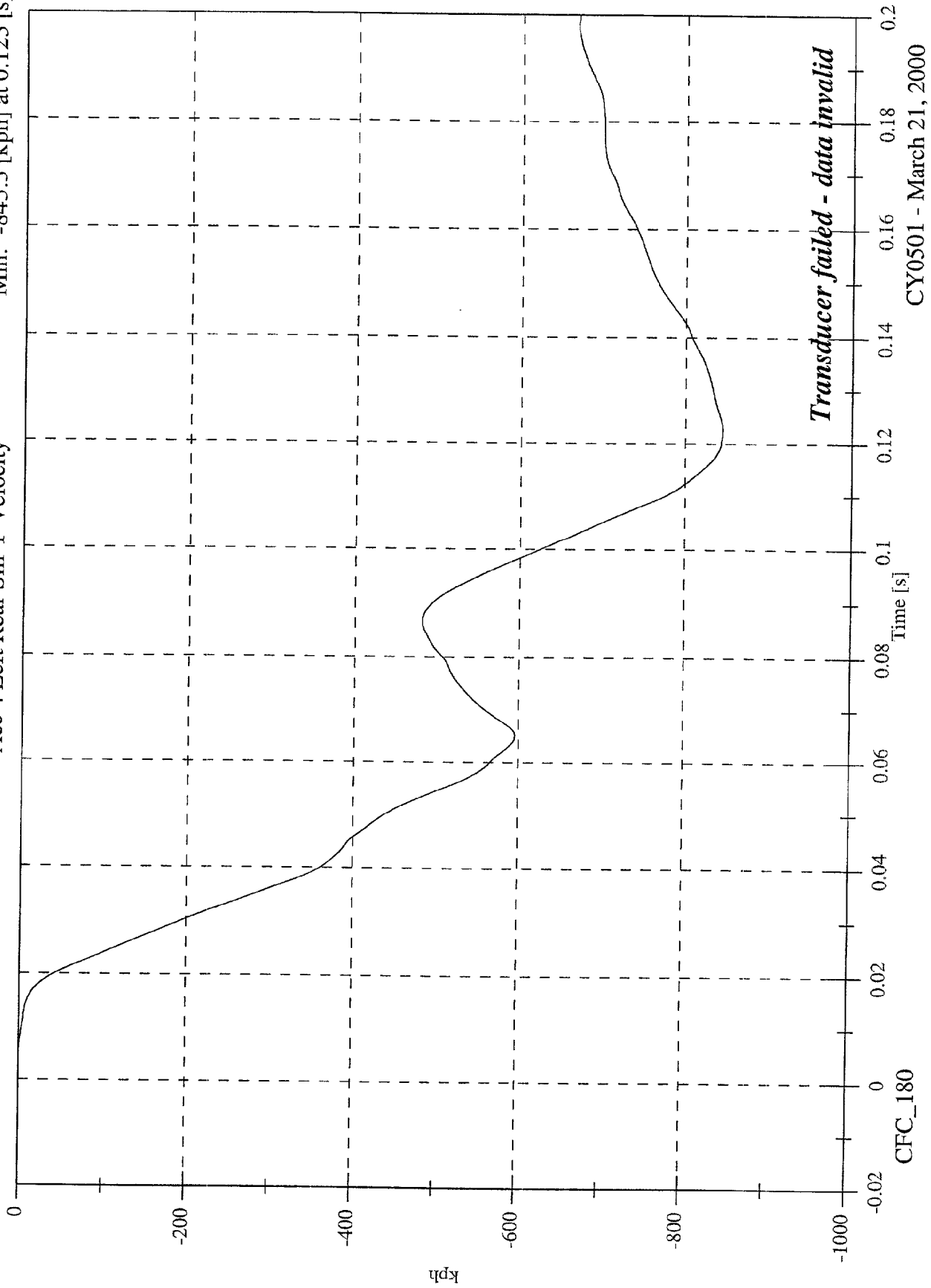
Transducer failed - data invalid

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FMVSS 214D Test 7 - Suzuki Esteem Wagon

Max: 0.0 [kph] at -0.000 [s]
 Min: -845.3 [kph] at 0.123 [s]

Acc 4 Left Rear Sill Y Velocity



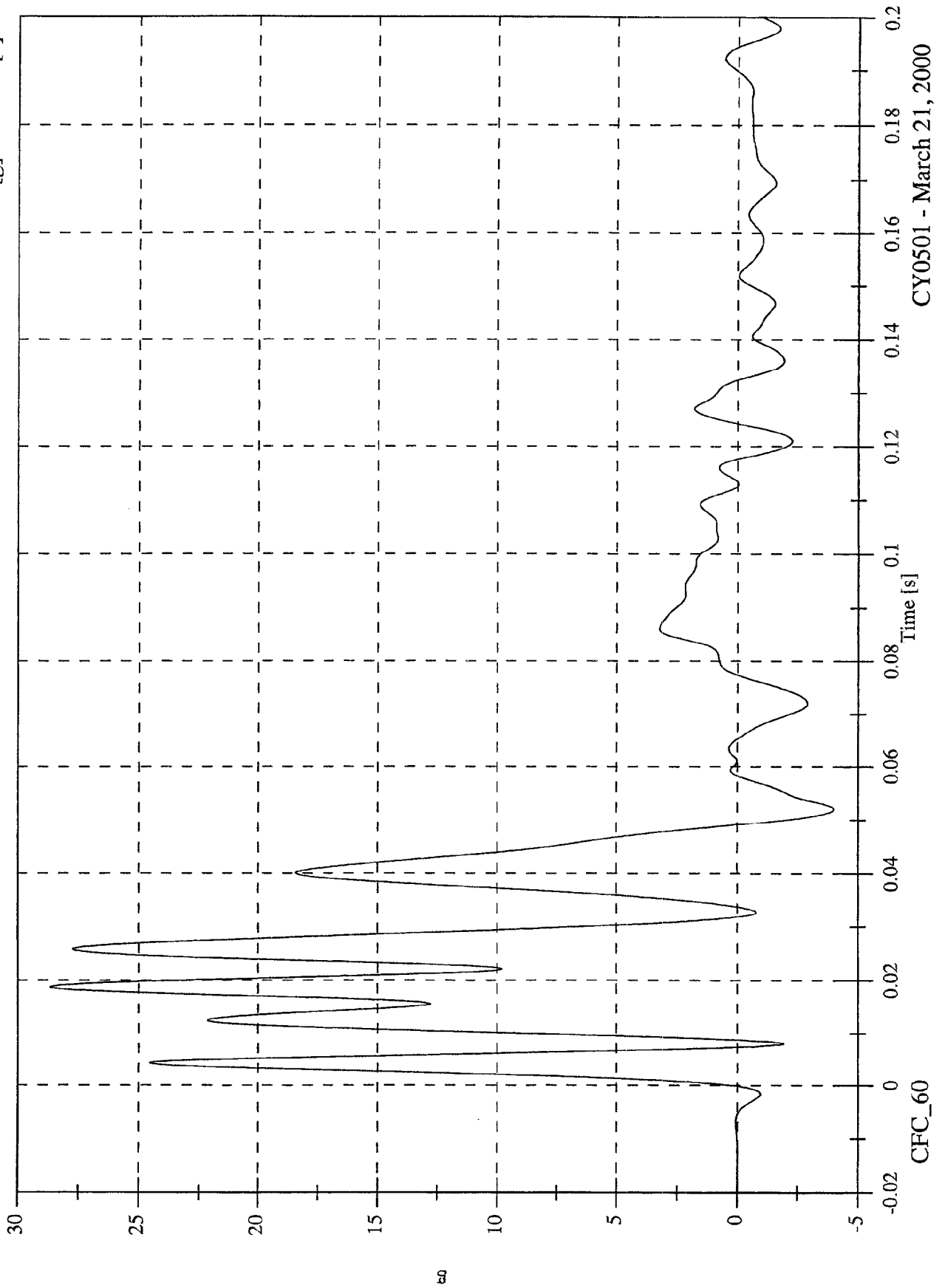
Transducer failed - data invalid

CY0501 - March 21, 2000

FMVSS 214D Test 7 - Suzuki Esteem Wagon

Acc 5 Left Front Sill Y

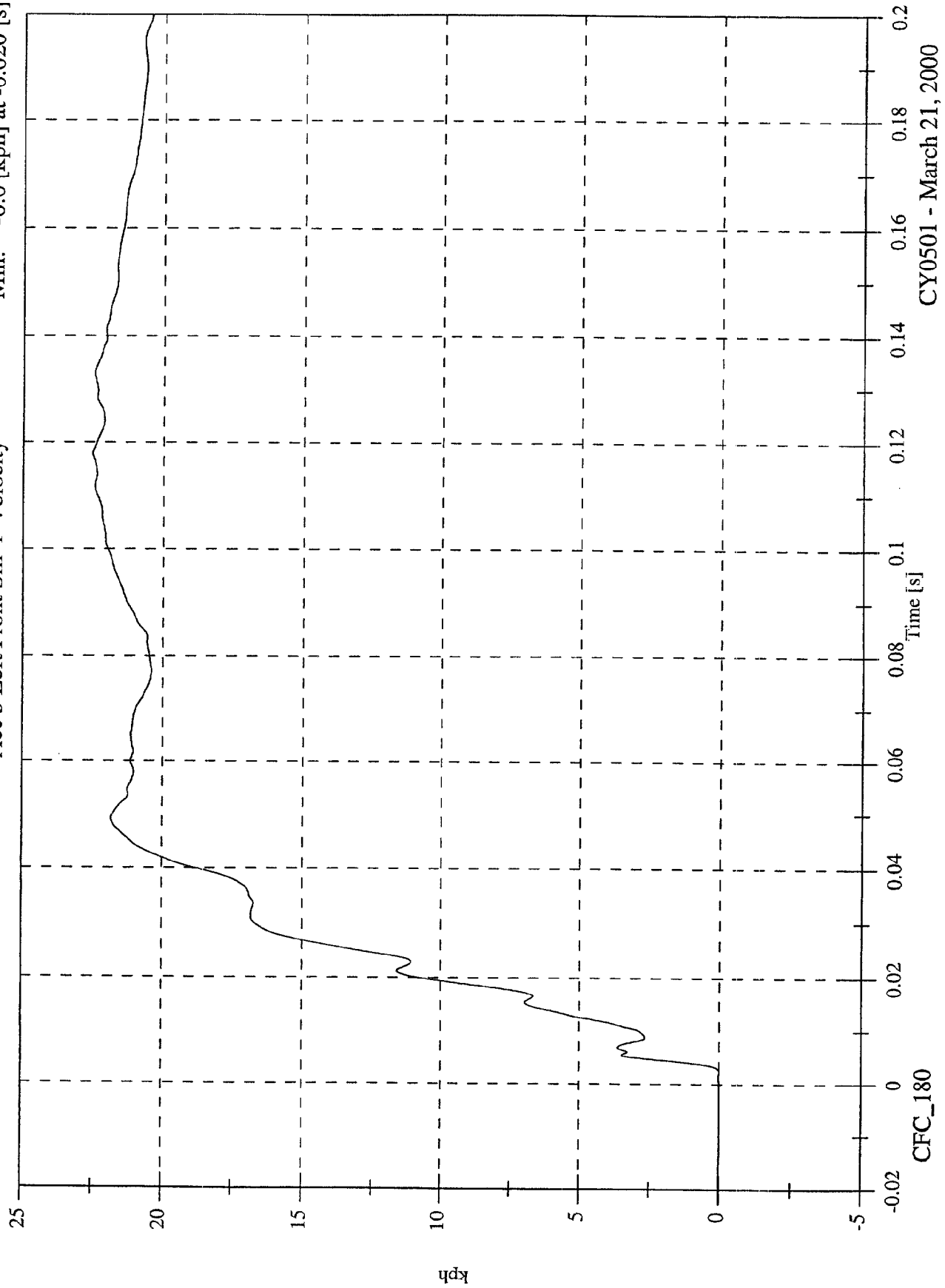
Max: 28.6 [g] at 0.019 [s]
Min: -4.0 [g] at 0.052 [s]



FMVSS 214D Test 7 - Suzuki Esteem Wagon

Max: 22.5 [kph] at 0.118 [s]
Min: -0.0 [kph] at -0.020 [s]

Acc 5 Left Front Sill Y Velocity

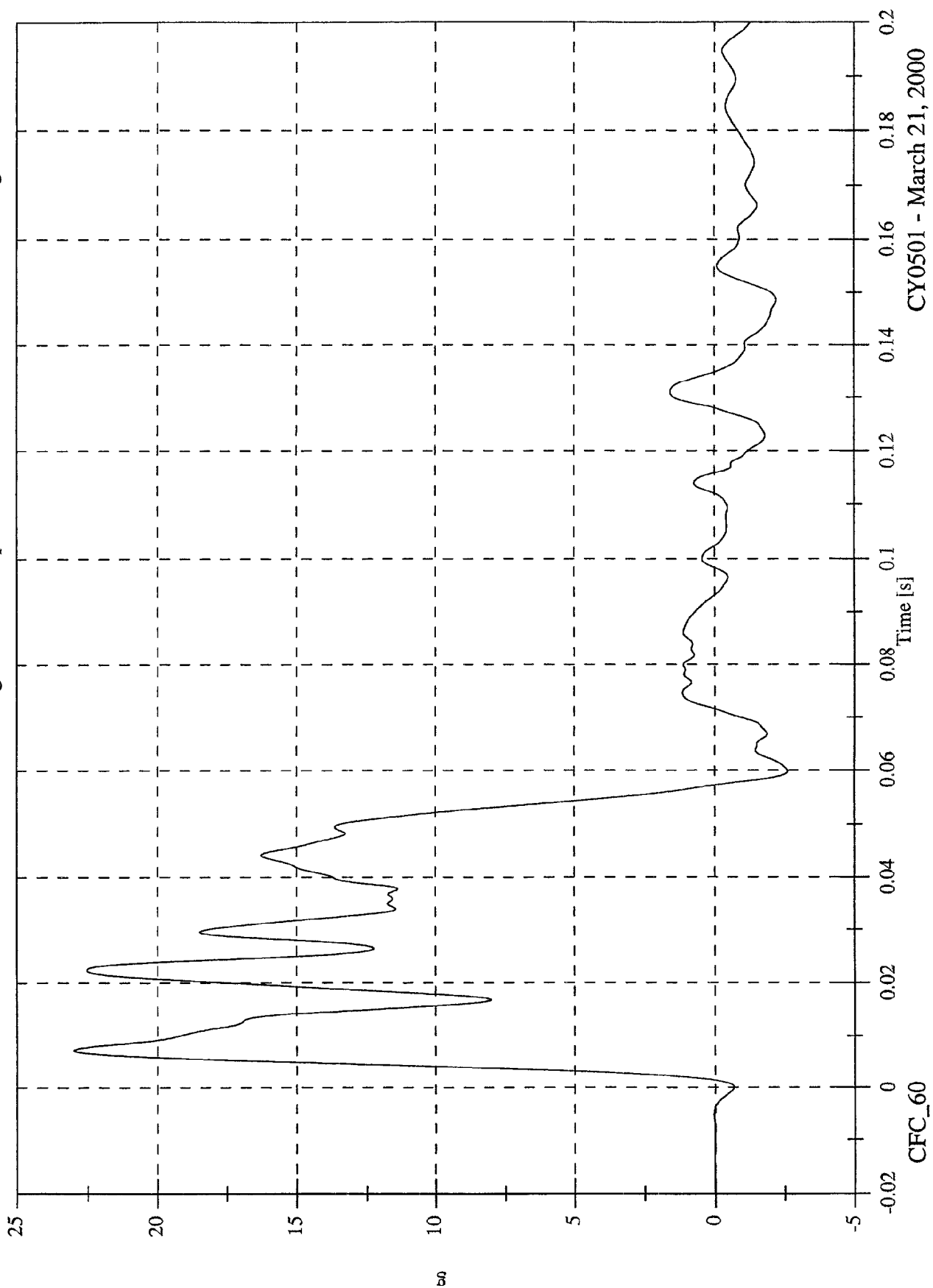


CY0501 - March 21, 2000

FMVSS 214D Test 7 - Suzuki Esteem Wagon

Acc 7 Right Rear Compartment Y

Max: 23.0 [g] at 0.007 [s]
Min: -2.6 [g] at 0.060 [s]

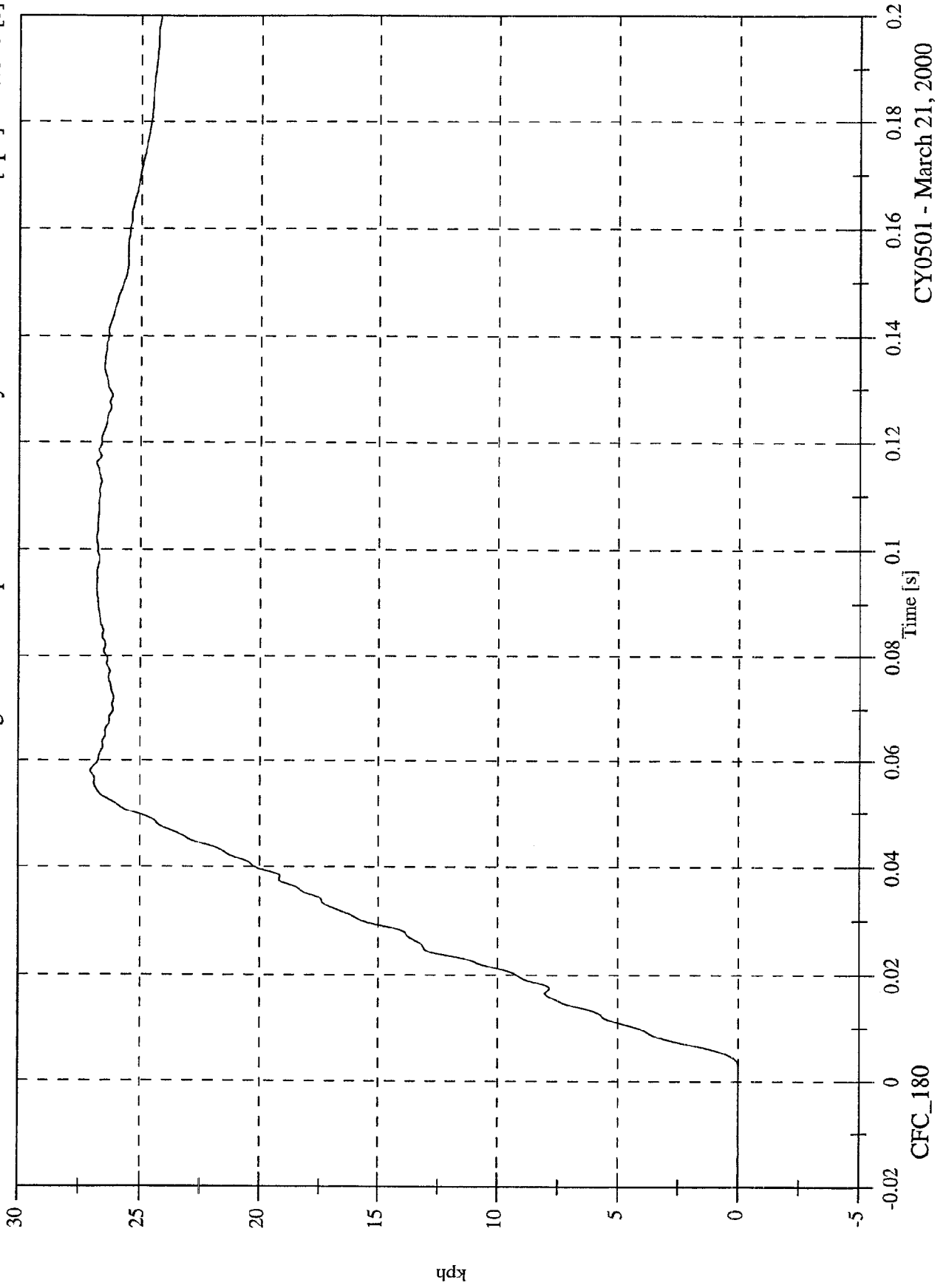


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FMVSS 214D Test 7 - Suzuki Esteem Wagon

Max: 27.0 [kph] at 0.058 [s]
Min: -0.0 [kph] at -0.020 [s]

Acc 7 Right Rear Compartment Y Velocity

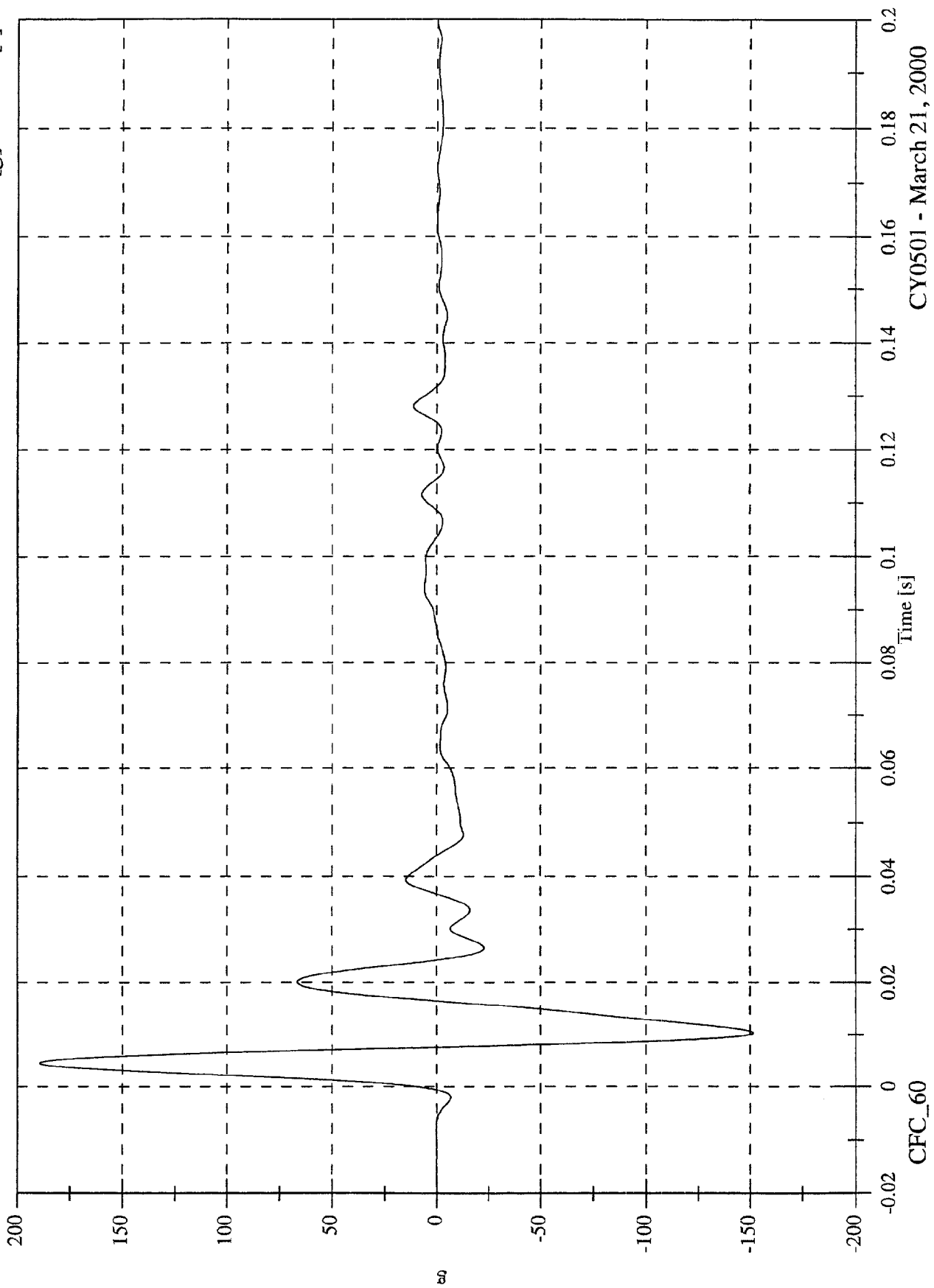


CY0501 - March 21, 2000

HMVSS 214D Test 7 - Suzuki Esteem Wagon

Acc 12 Left Lower B Post Y

Max: 189.5 [g] at 0.005 [s]
Min: -151.4 [g] at 0.010 [s]

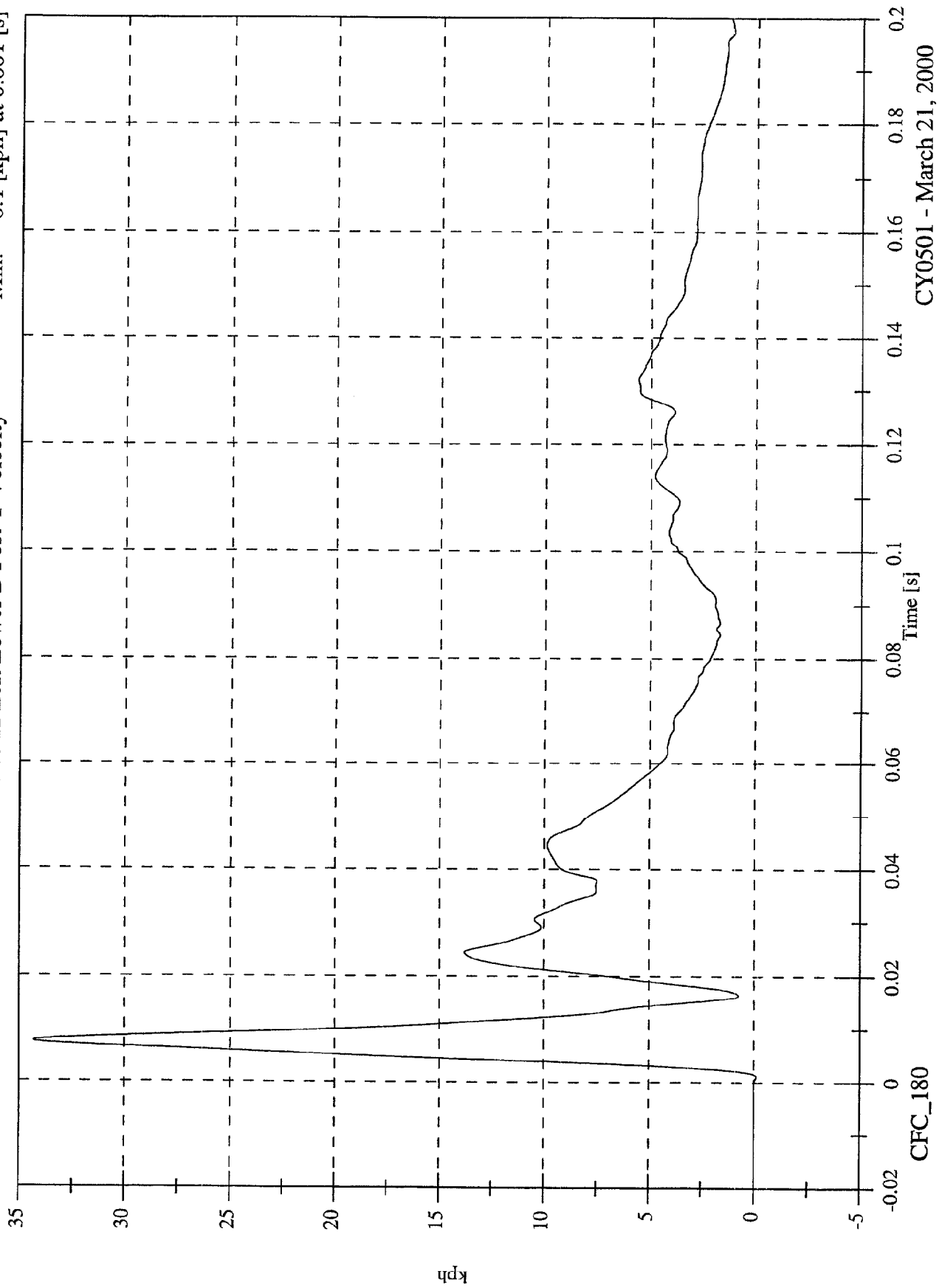


CY0501 - March 21, 2000

FMVSS 214D Test 7 - Suzuki Esteem Wagon

Acc 12 Left Lower B Post Y Velocity

Max: 34.3 [kph] at 0.008 [s]
Min: -0.1 [kph] at 0.001 [s]

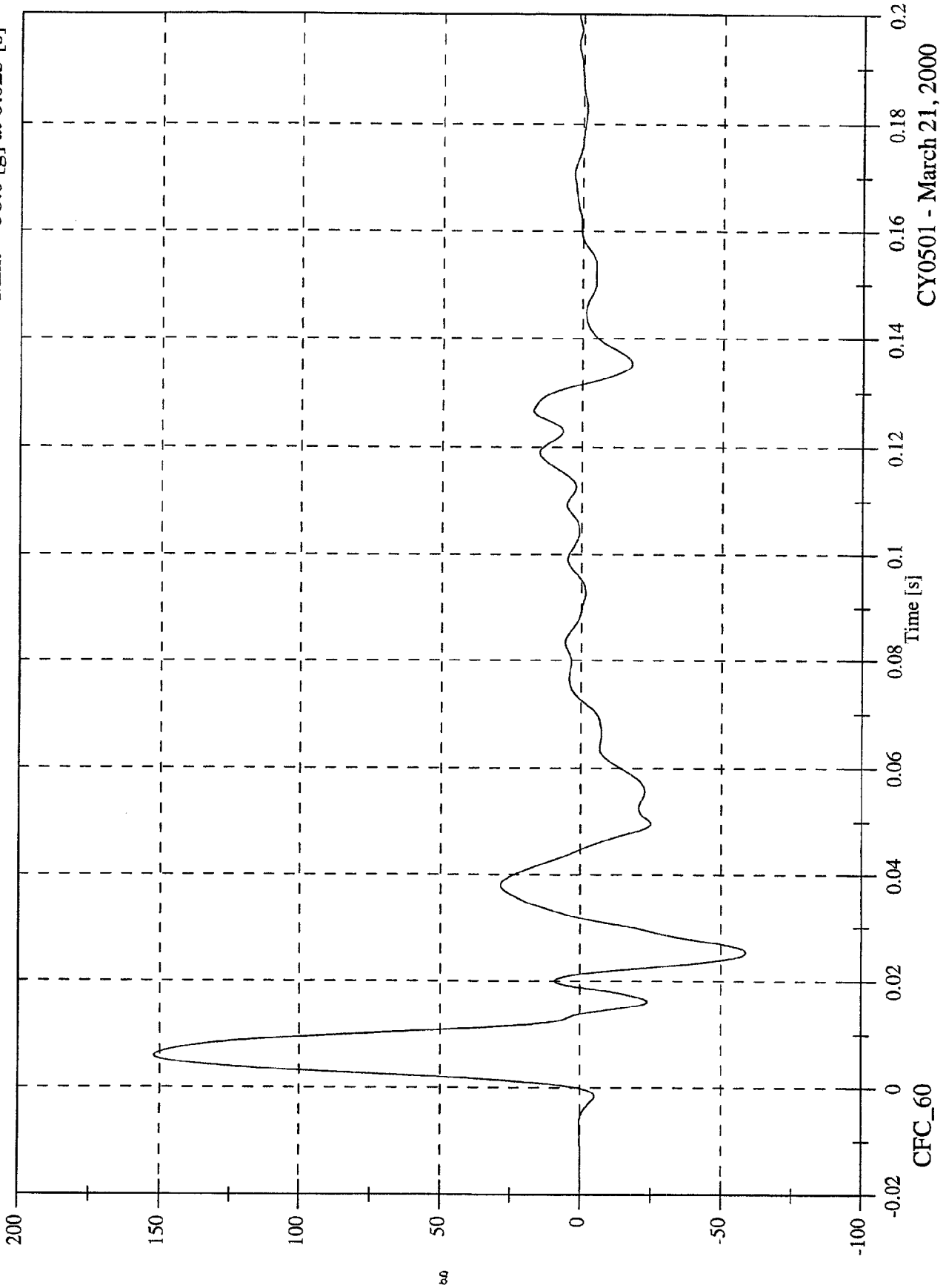


CY0501 - March 21, 2000

FMVSS 214D Test 7 - Suzuki Esteem Wagon

Acc 13 Left Mid B Post Y

Max: 152.1 [g] at 0.006 [s]
Min: -58.8 [g] at 0.025 [s]



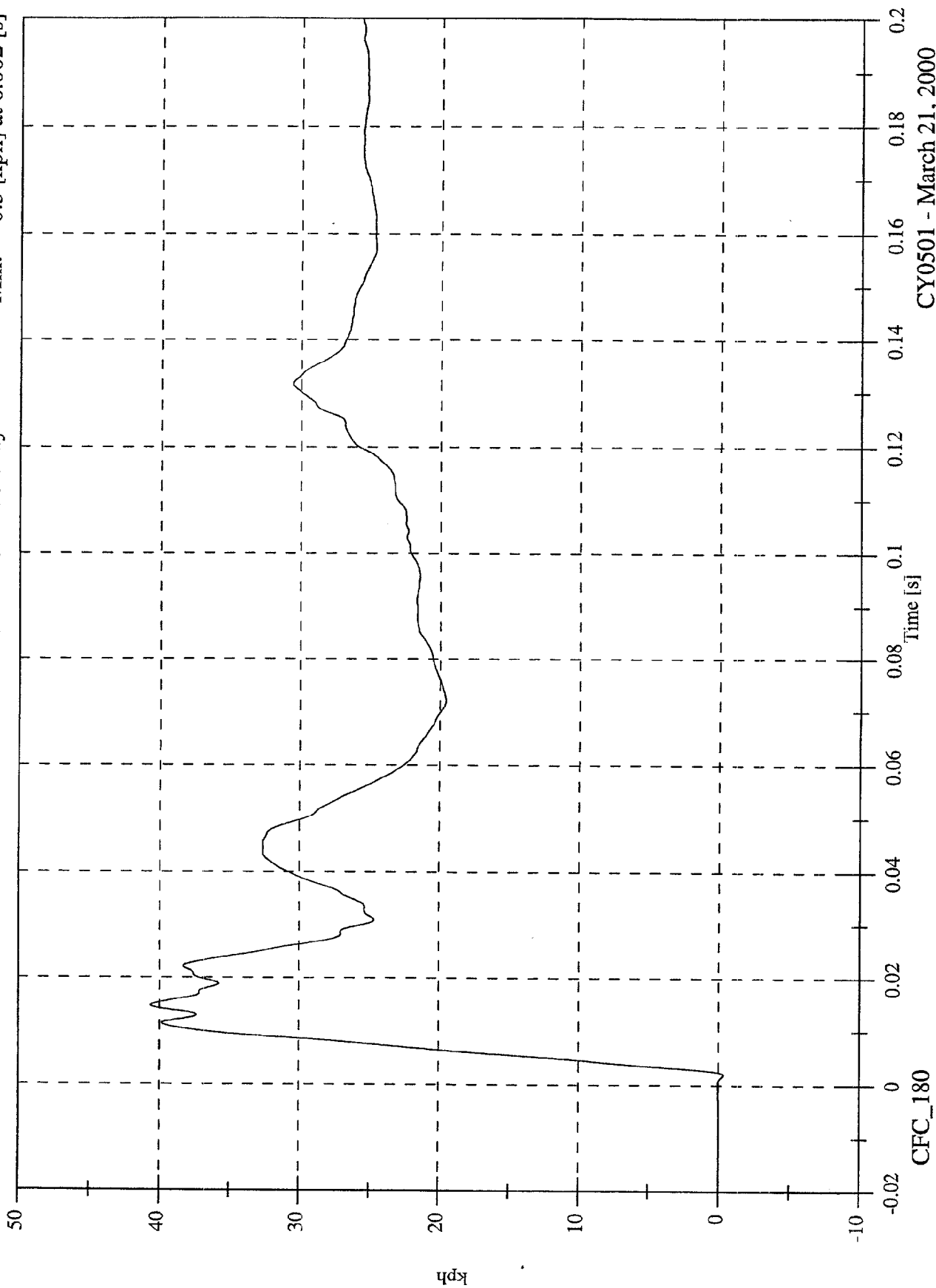
CY0501 - March 21, 2000

FMVSS 214D Test 7 - Suzuki Esteem Wagon

Acc 13 Left Mid B Post Y Velocity

Max: 40.7 [kph] at 0.015 [s]

Min: -0.3 [kph] at 0.002 [s]

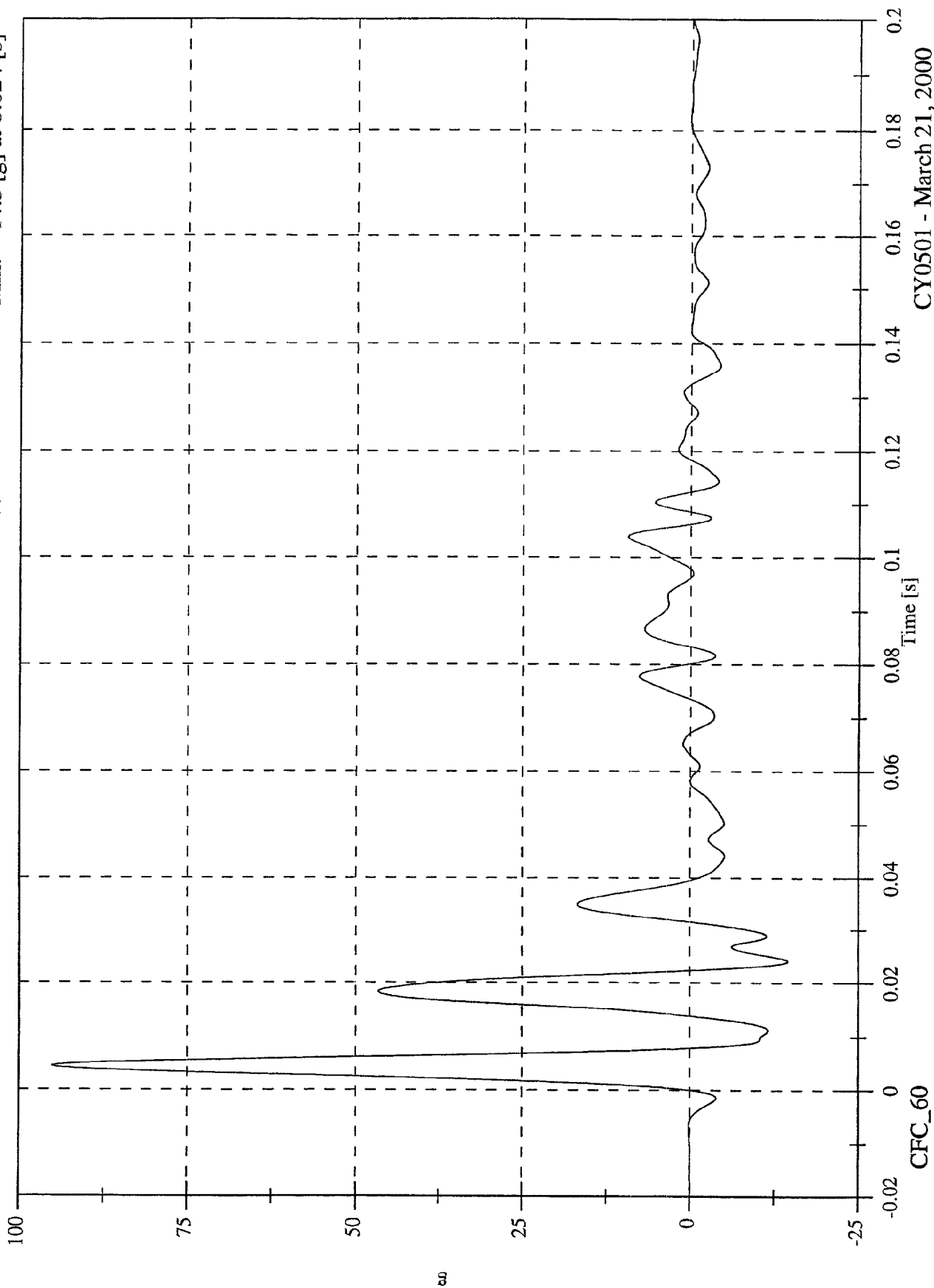


CY0501 - March 21, 2000

FMVSS 214D Test 7 - Suzuki Esteem Wagon

Acc 14 Left Lower A Post Y

Max: 95.1 [g] at 0.005 [s]
Min: -14.5 [g] at 0.024 [s]

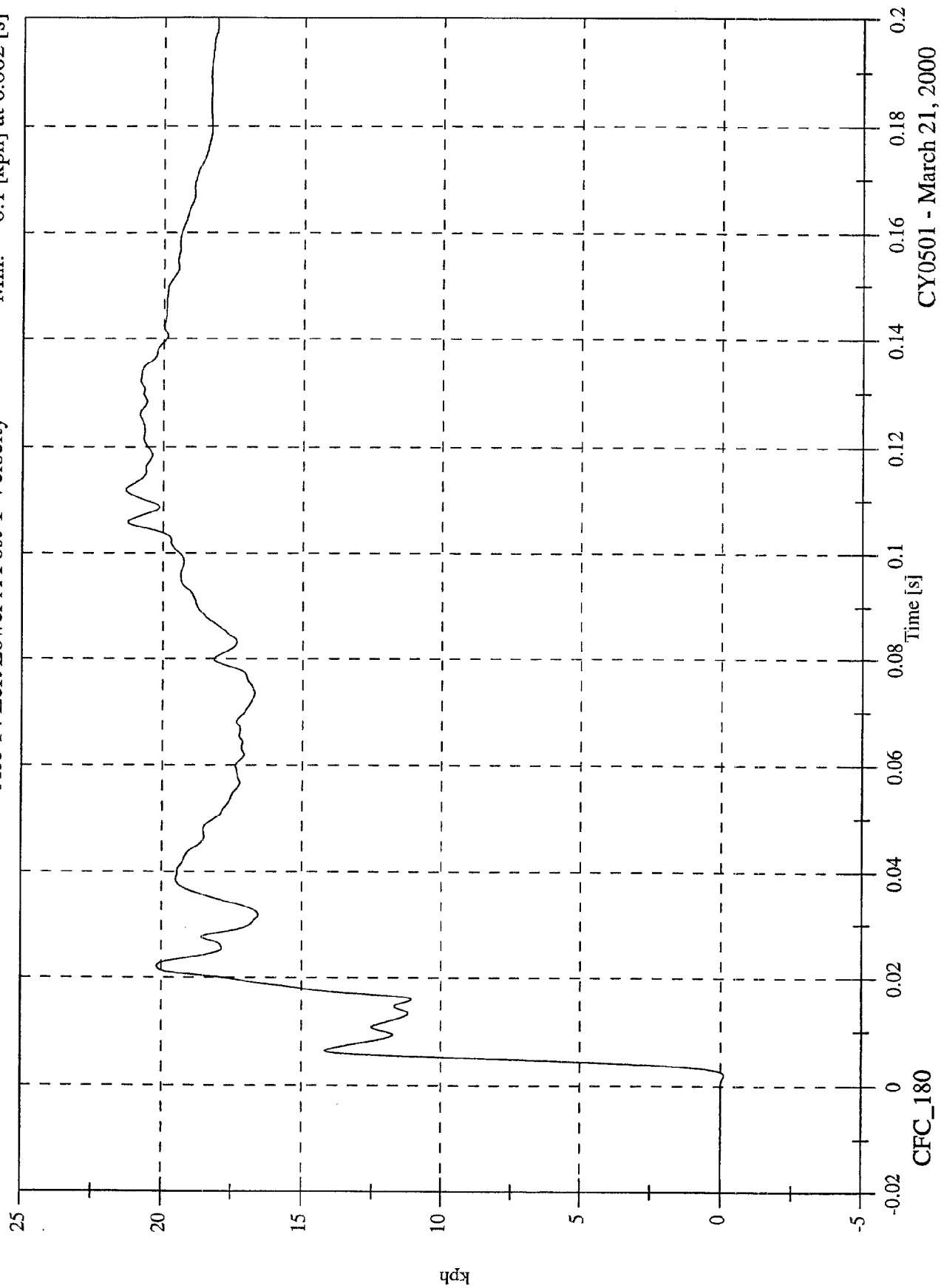


CY0501 - March 21, 2000

FMVSS 214D Test 7 - Suzuki Esteem Wagon

Acc 14 Left Lower A Post Y Velocity

Max: 21.3 [kph] at 0.112 [s]
Min: -0.1 [kph] at 0.002 [s]

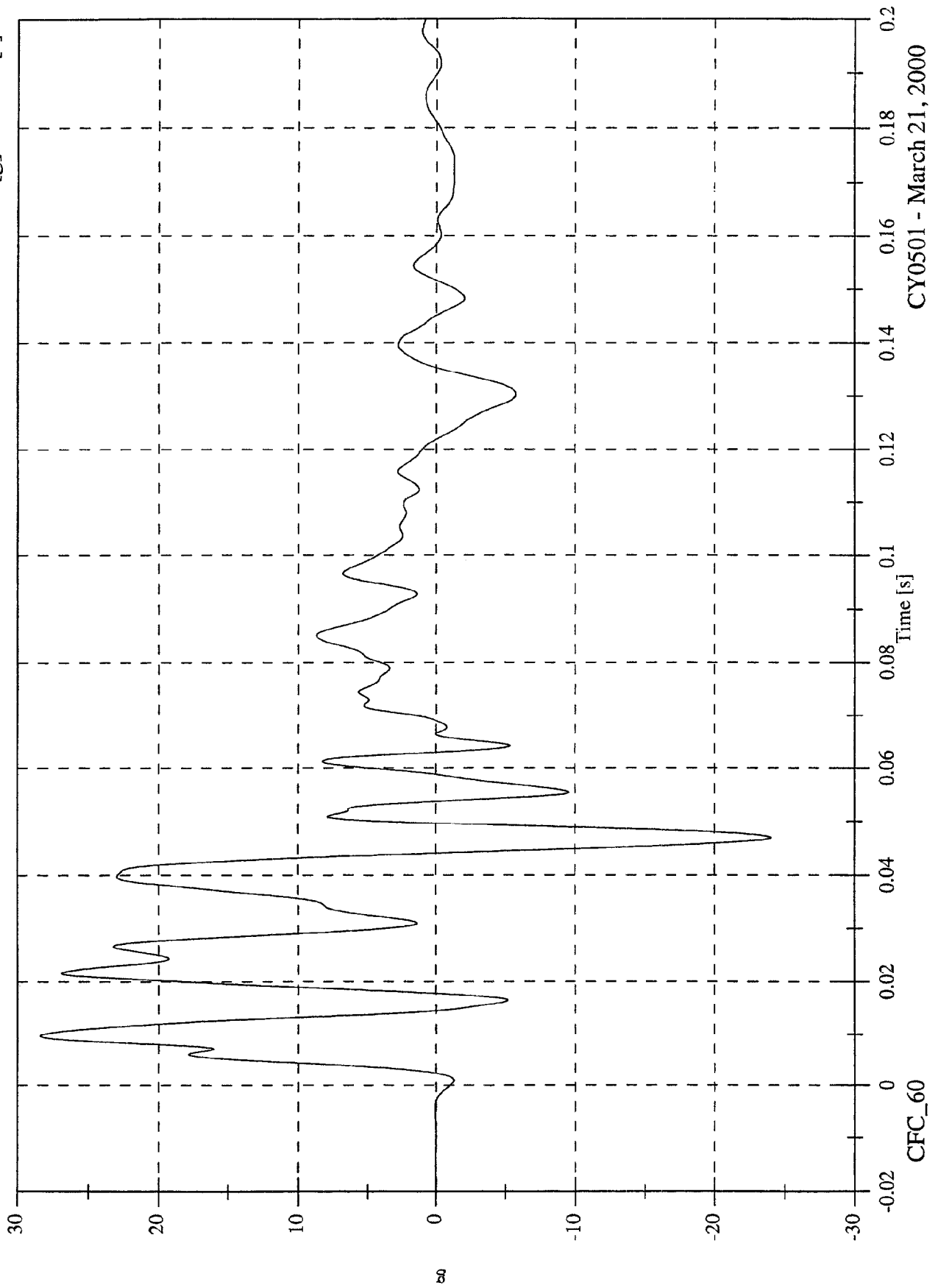


CY0501 - March 21, 2000

FMVSS 214D Test 7 - Suzuki Esteem Wagon

Acc 15 Left Mid A Post Y

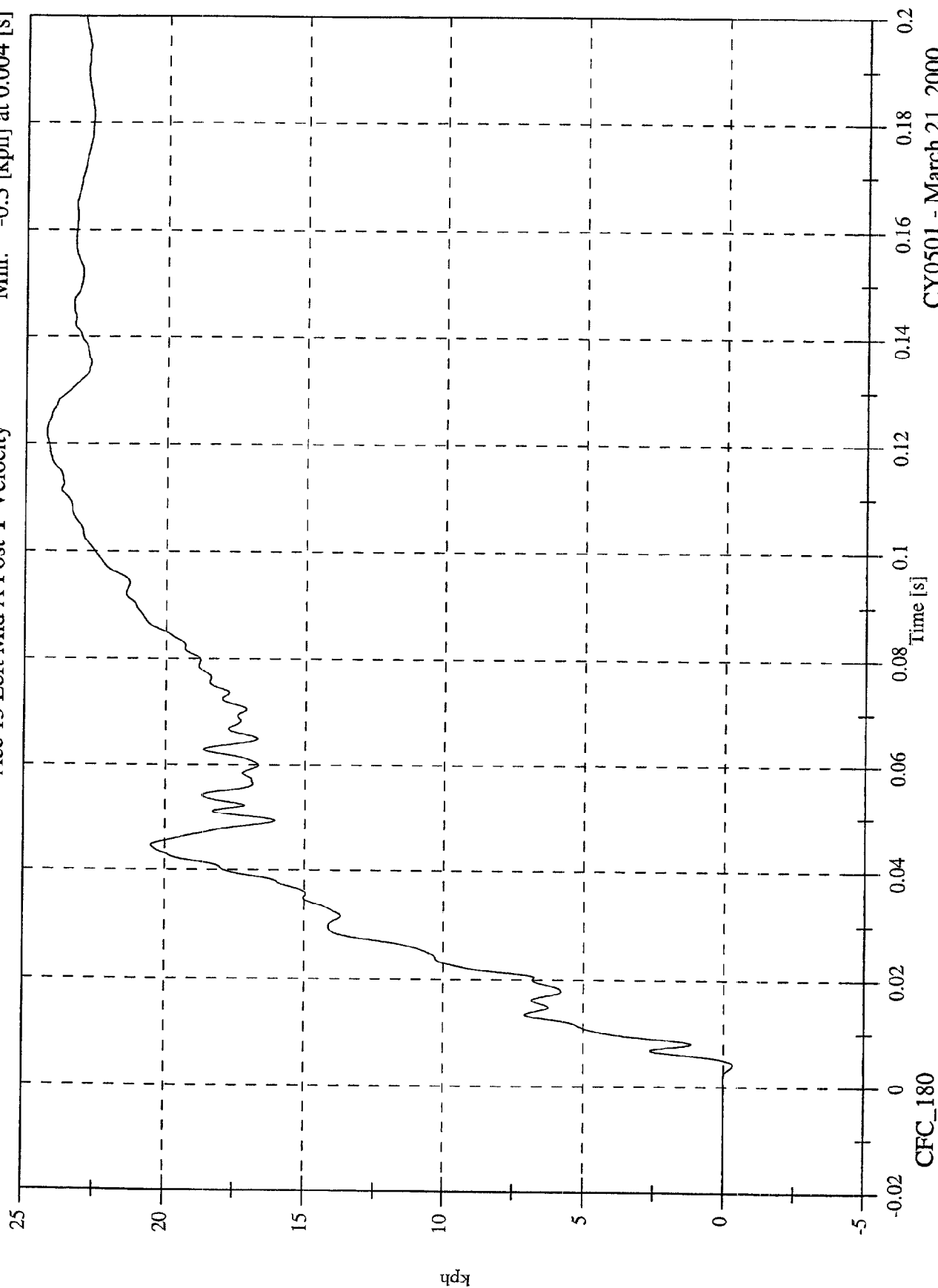
Max: 28.4 [g] at 0.010 [s]
Min: -24.0 [g] at 0.047 [s]



FMVSS 214D Test 7 - Suzuki Esteem Wagon

Acc 15 Left Mid A Post Y Velocity

Max: 24.3 [kph] at 0.122 [s]
Min: -0.3 [kph] at 0.004 [s]

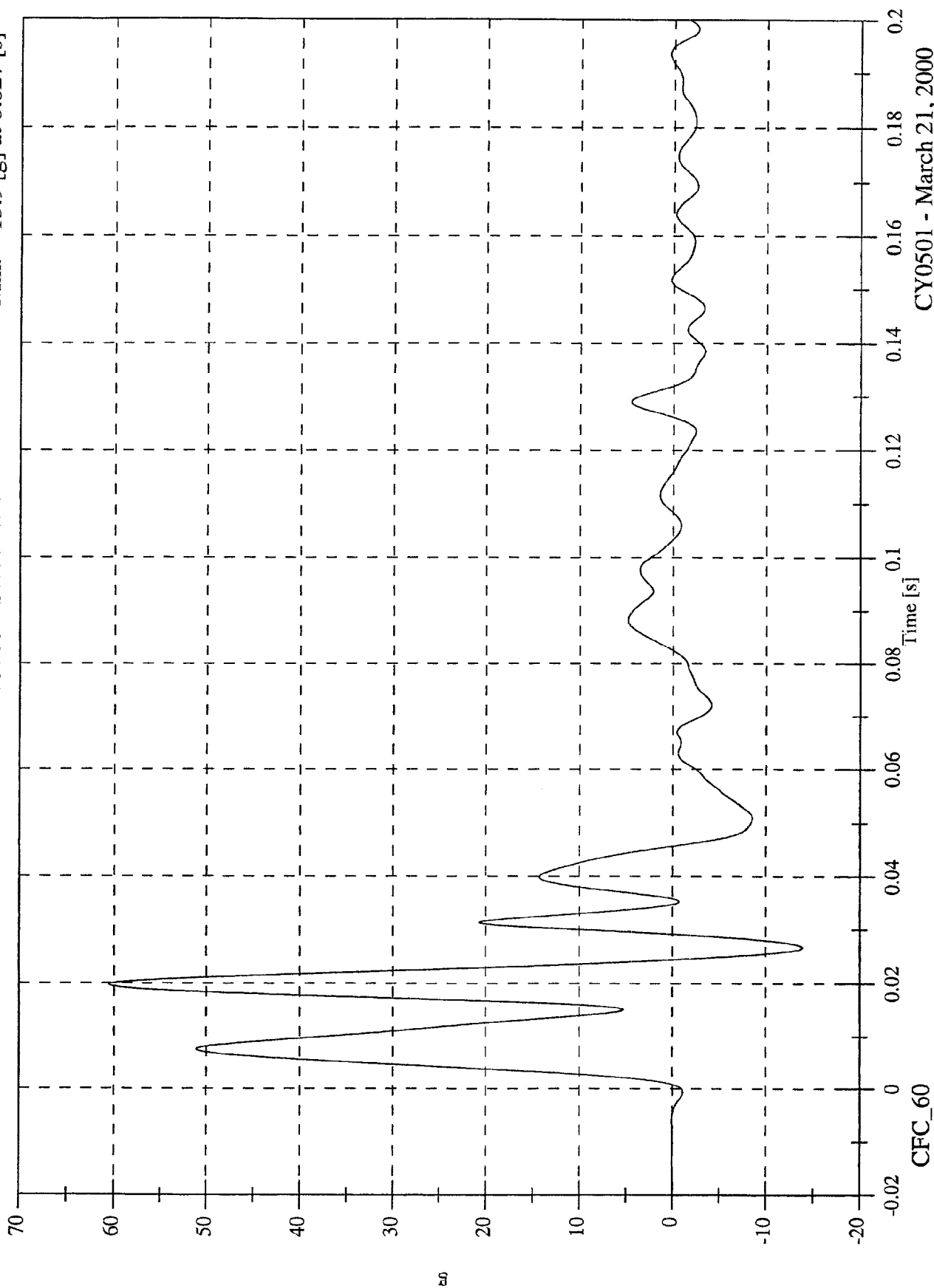


CY0501 - March 21, 2000

FMVSS 214D Test 7 - Suzuki Freem Wagon

Acc 16 Front Seat Track Y

Max: 60.5 [g] at 0.020 [s]
Min: -13.9 [g] at 0.027 [s]

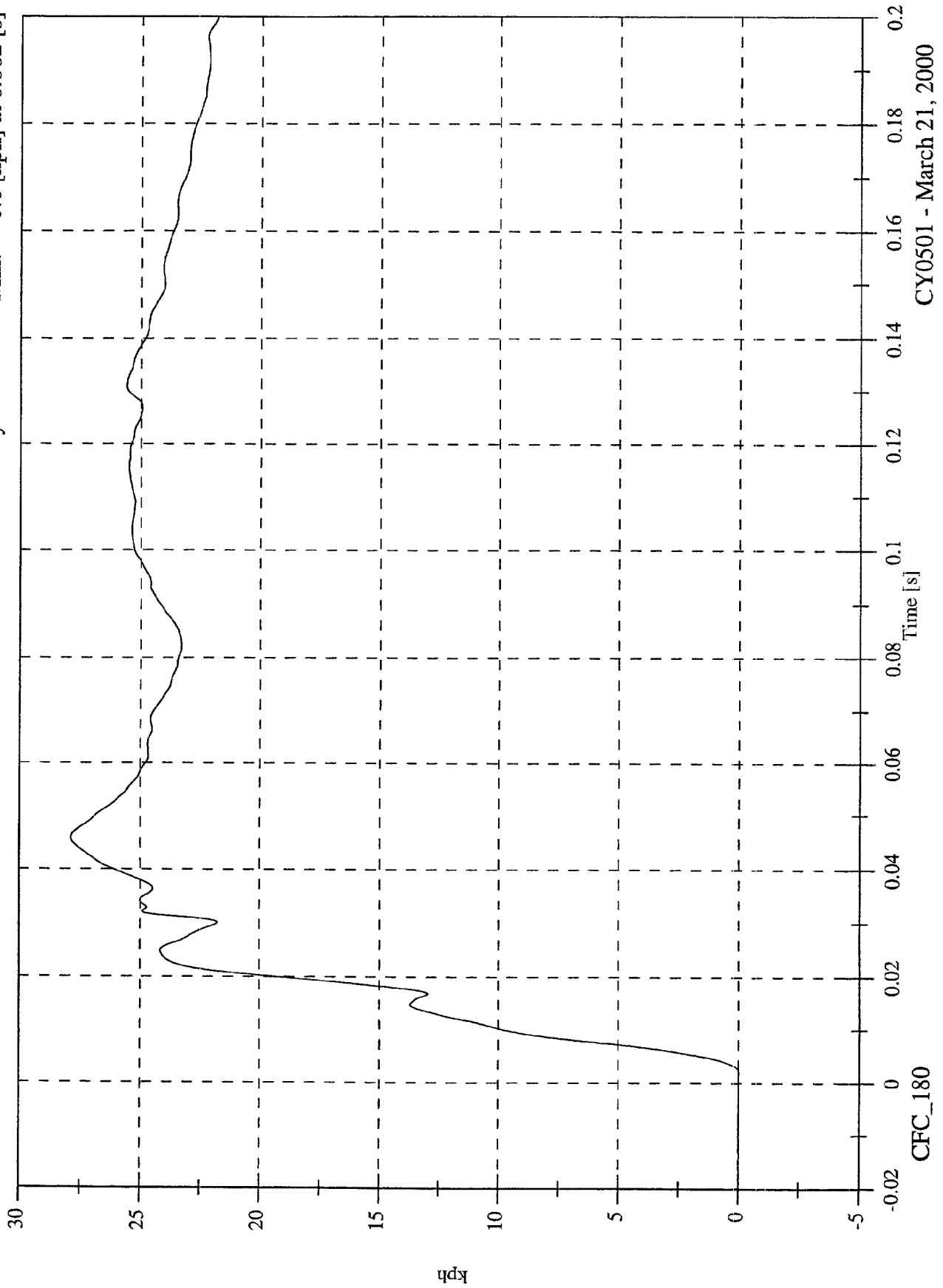


CY0501 - March 21, 2000

FMVSS 214D Test 7 - Suzuki Esteem Wagon

Acc 16 Front Seat Track Y Velocity

Max: 27.9 [kph] at 0.046 [s]
Min: -0.0 [kph] at 0.002 [s]



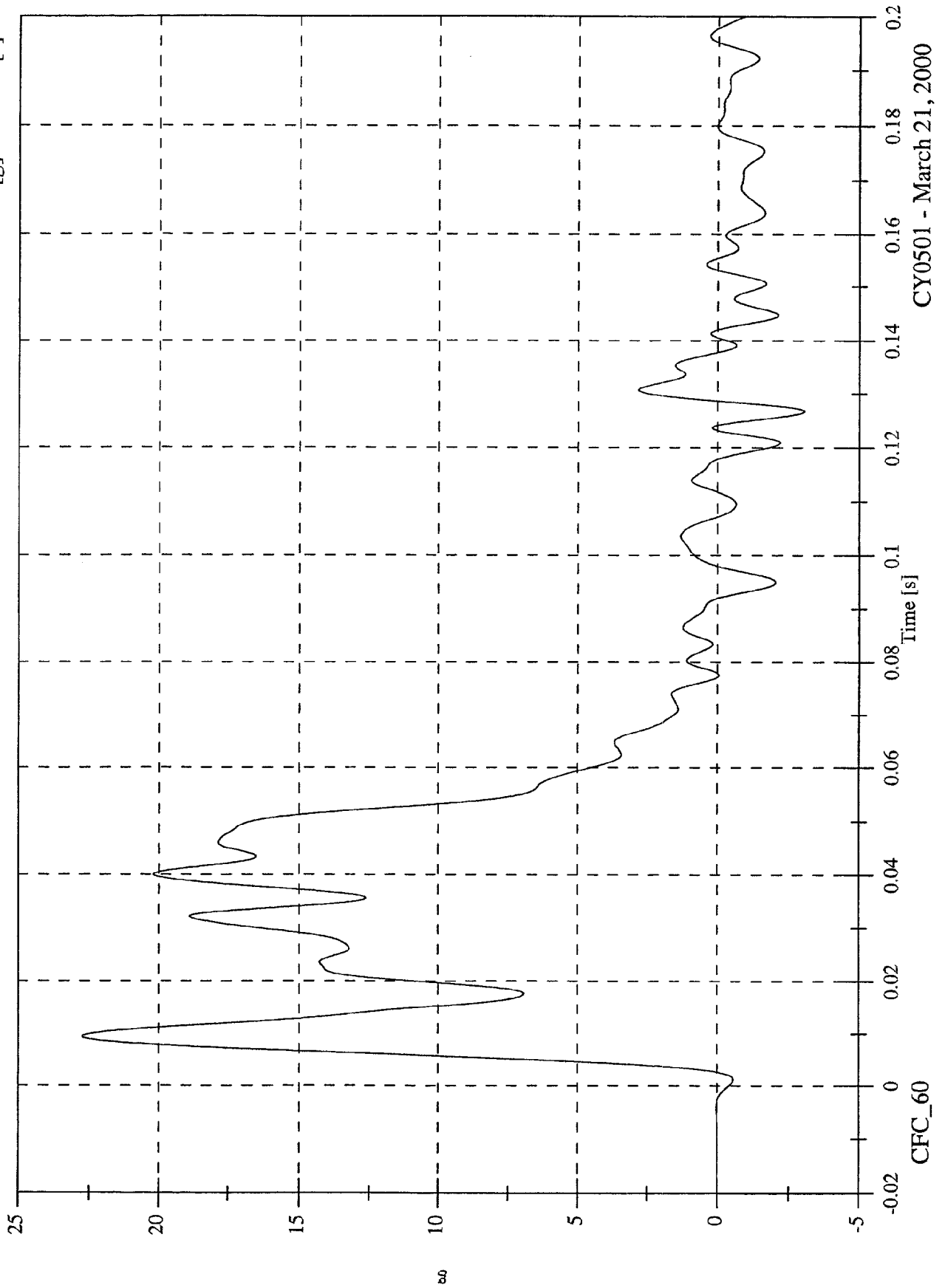
CY0501 - March 21, 2000

FMVSS 214D Test 7 - Suzuki Esteem Wagon

Acc 17 Rear Seat Track Y

Max: 22.7 [g] at 0.009 [s]

Min: -3.1 [g] at 0.127 [s]

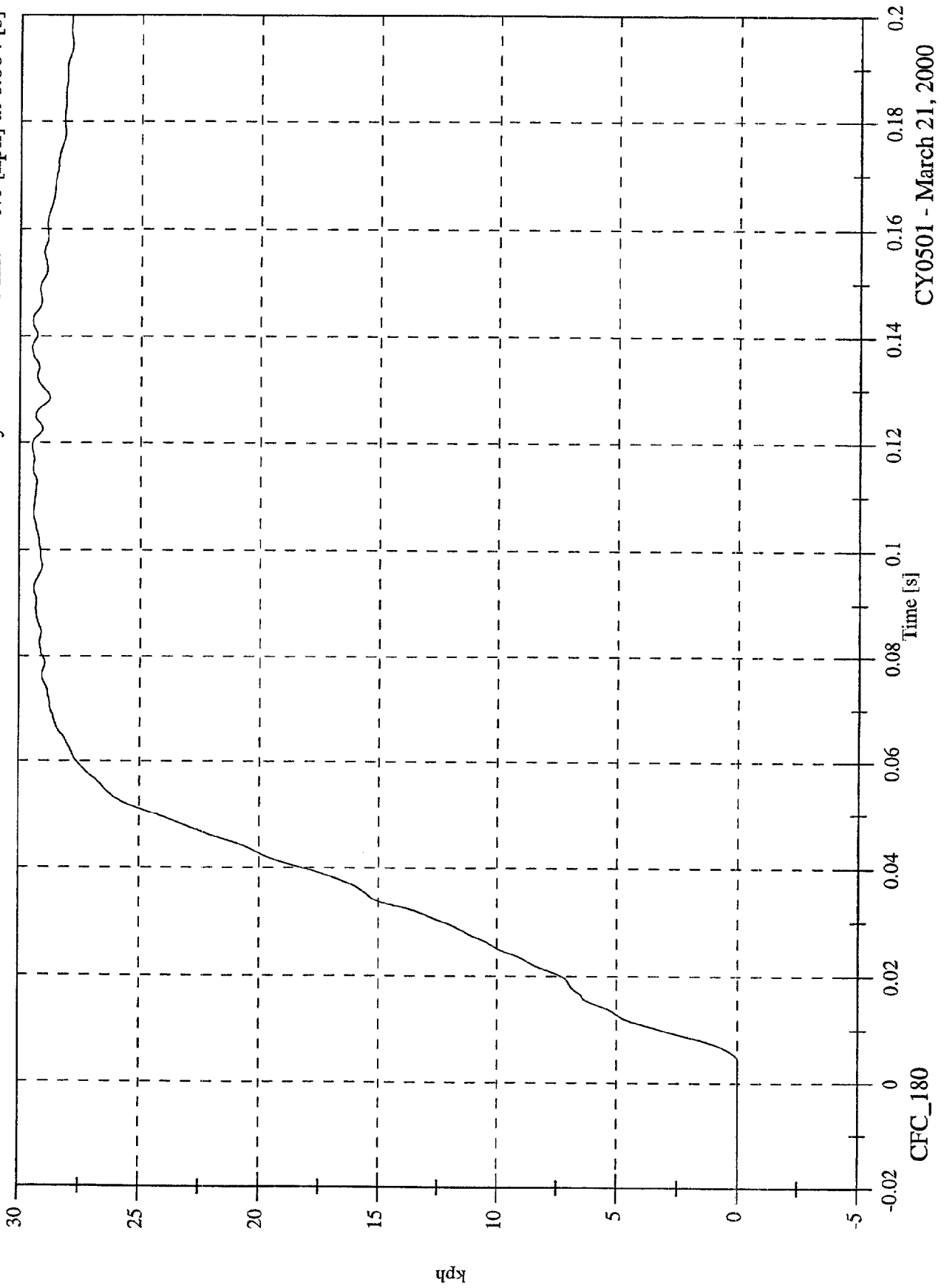


CY0501 - March 21, 2000

FMVSS 214D Test 7 - Suzuki Esteem Wagon

Acc 17 Rear Seat Track Y Velocity

Max: 29.5 [kph] at 0.138 [s]
Min: -0.0 [kph] at 0.004 [s]

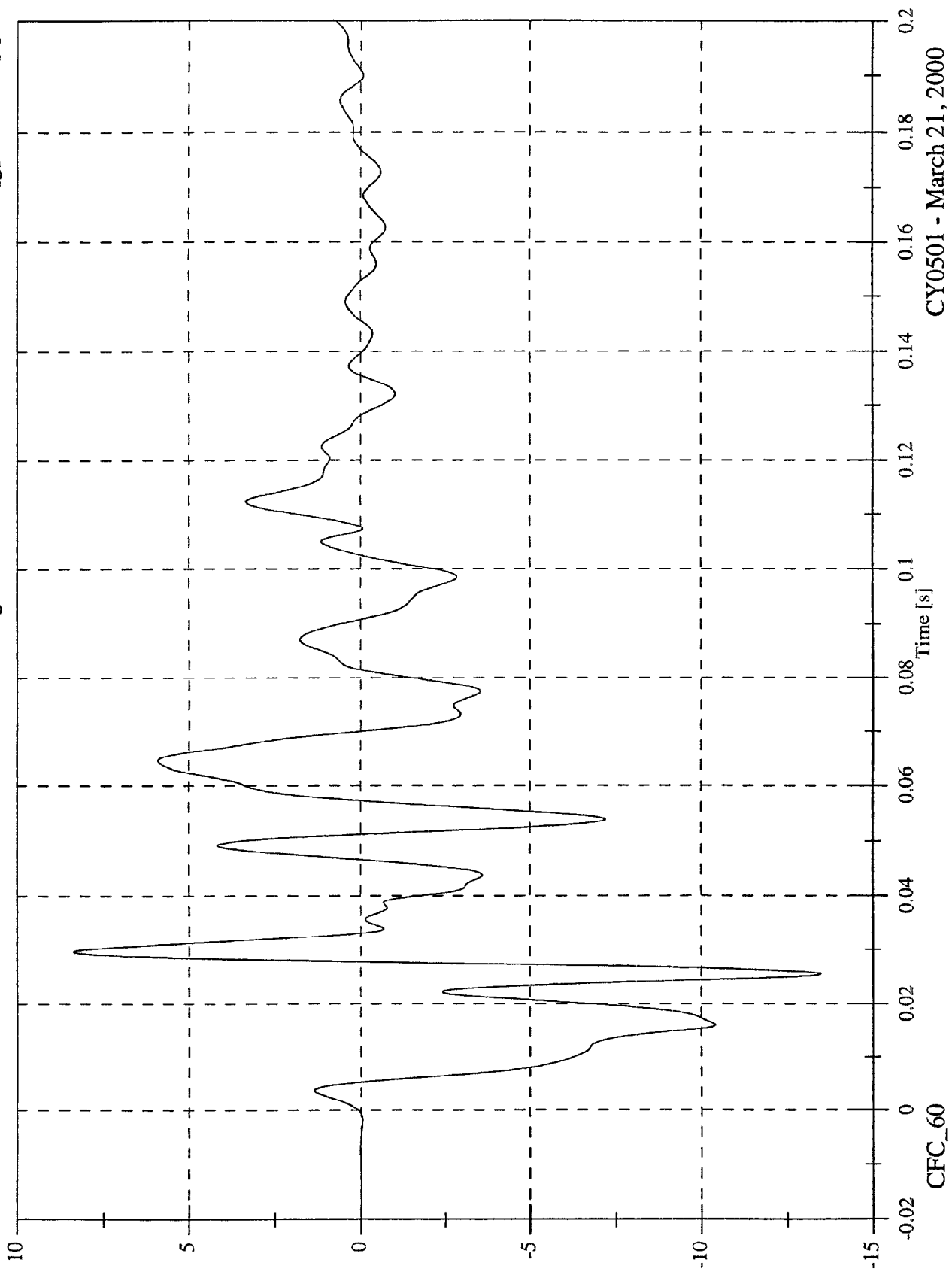


CY0501 - March 21, 2000

FMVSS 214D Test 7 - Suzuki Esteem Wagon

Acc 18 Target CG X

Max: 8.4 [g] at 0.030 [s]
Min: -13.5 [g] at 0.026 [s]

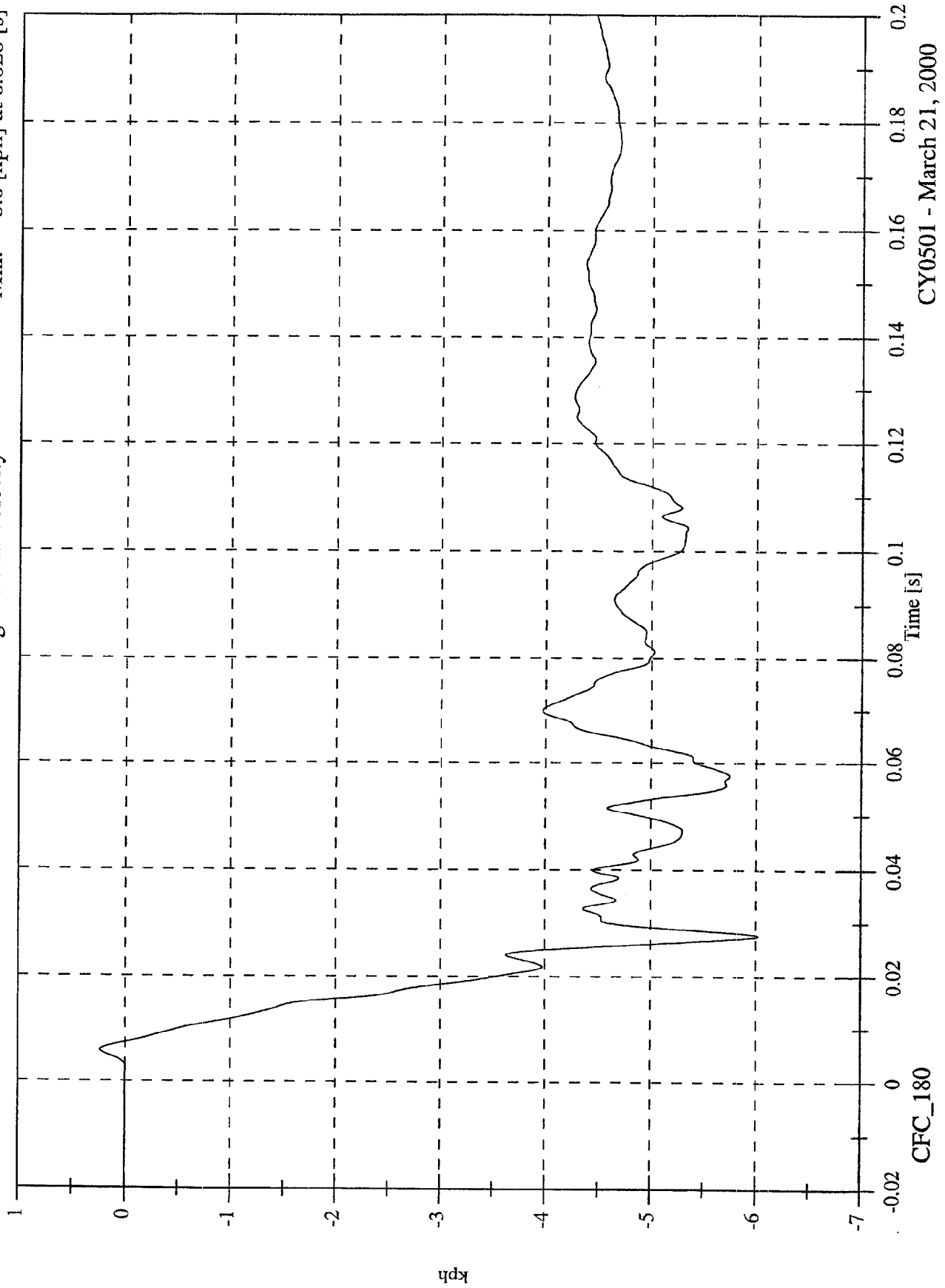


CY0501 - March 21, 2000

FMVSS 214D Test 7 - Suzuki Esteem Wagon

Acc 18 Target CG X Velocity

Max: 0.2 [kph] at 0.006 [s]
Min: -6.0 [kph] at 0.028 [s]

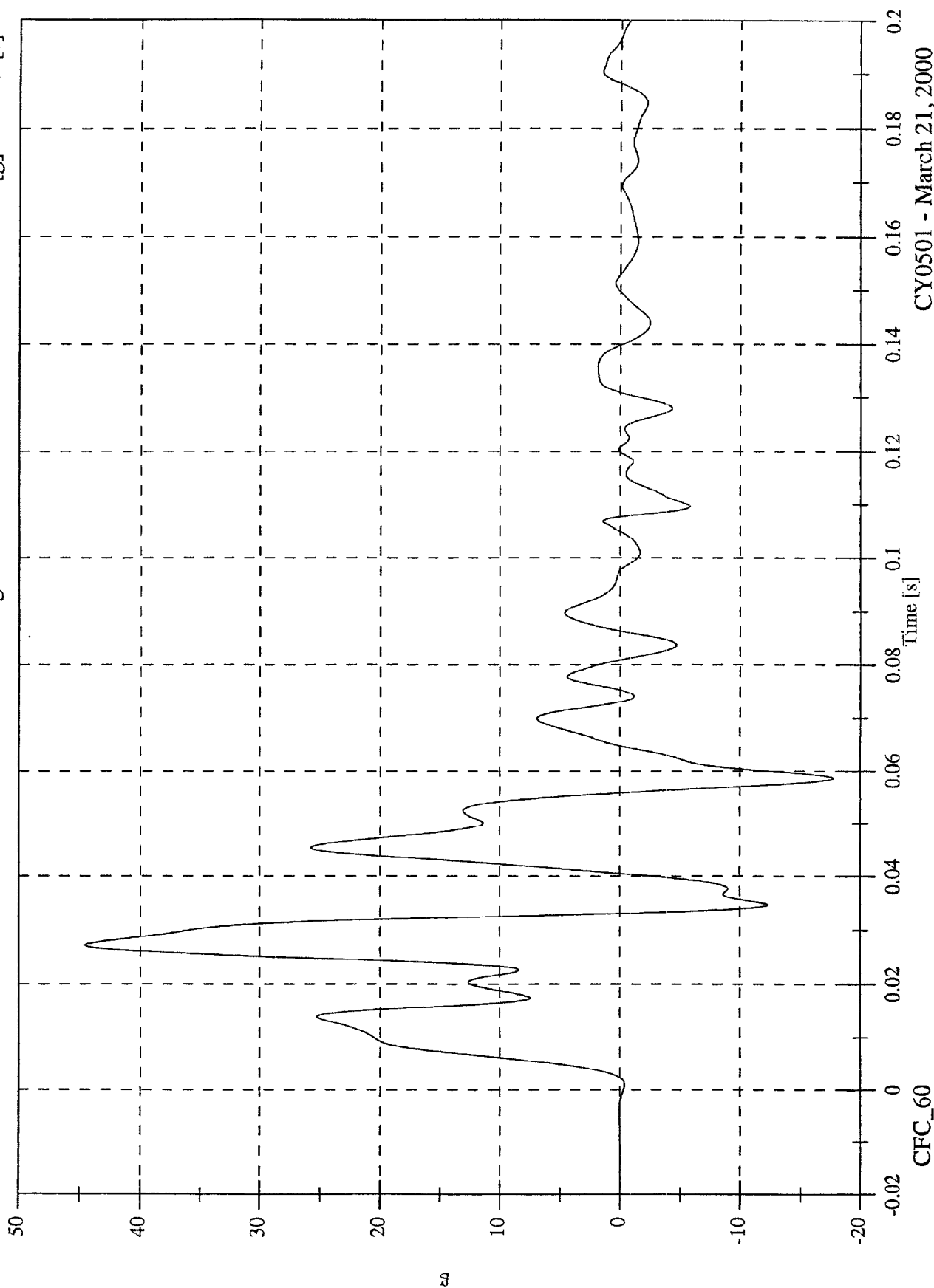


CY0501 - March 21, 2000

FMVSS 214D Test 7 - Suzuki Esteem Wagon

Acc 18 Target CG Y

Max: 44.5 [g] at 0.027 [s]
Min: -17.8 [g] at 0.059 [s]

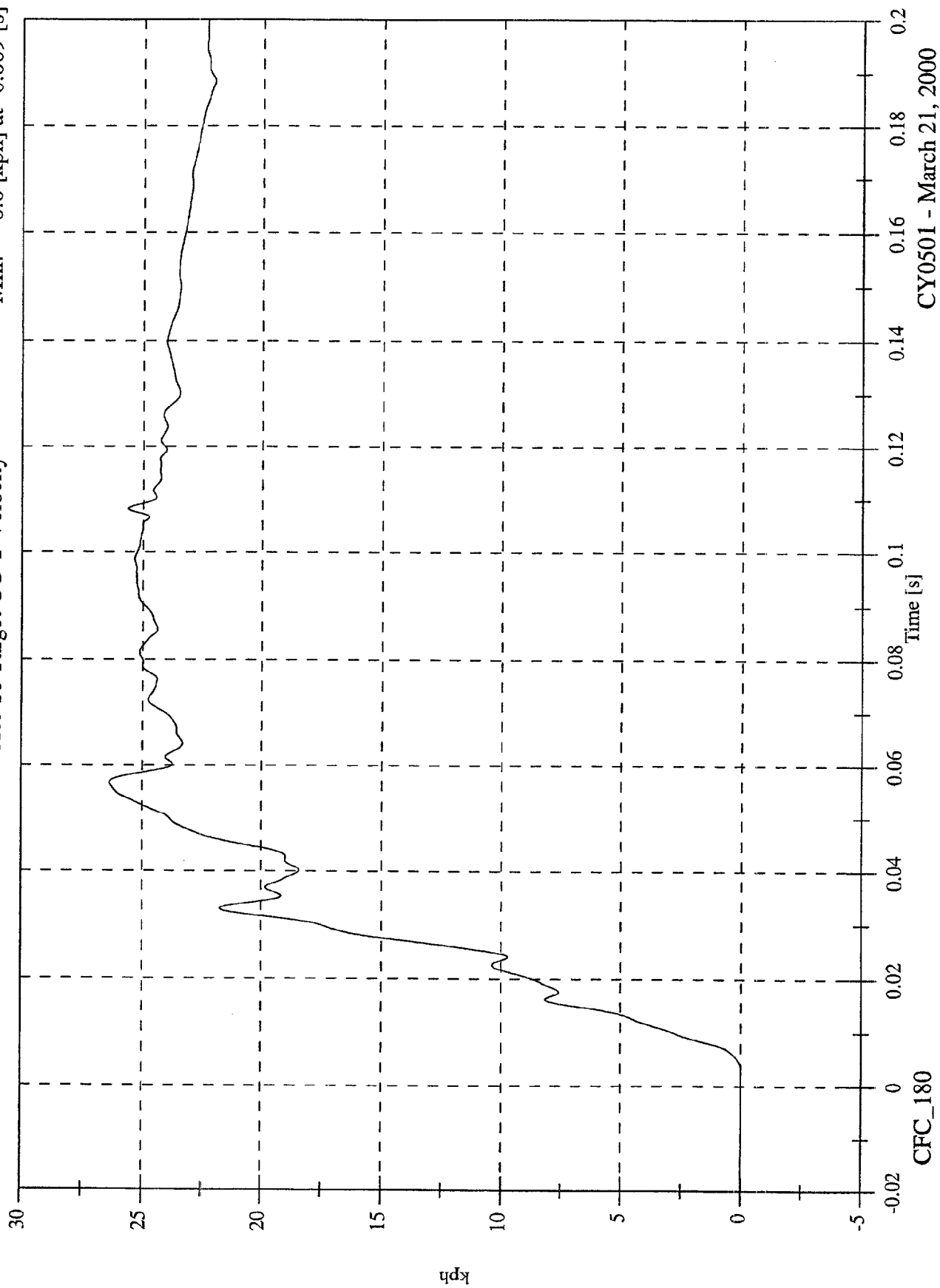


CY0501 - March 21, 2000

FMVSS 214D Test 7 - Suzuki Esteem Wagon

Max: 26.4 [kph] at 0.057 [s]
 Min: -0.0 [kph] at -0.009 [s]

Acc 18 Target CG Y Velocity

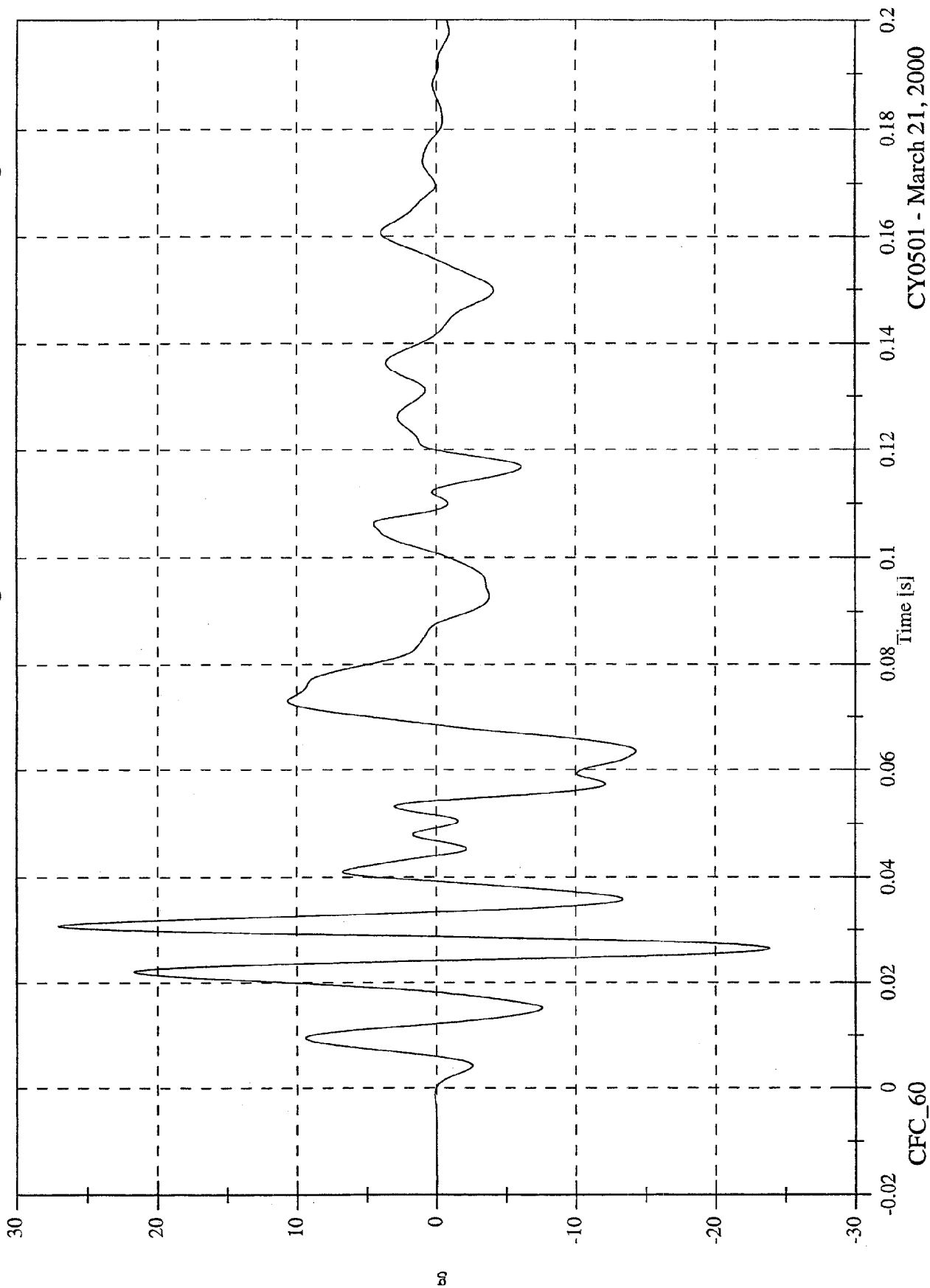


CY0501 - March 21, 2000

FMVSS 214D Test 7 - Suzuki Esteem Wagon

Acc 18 Target CG Z

Max: 27.1 [g] at 0.031 [s]
Min: -23.9 [g] at 0.026 [s]

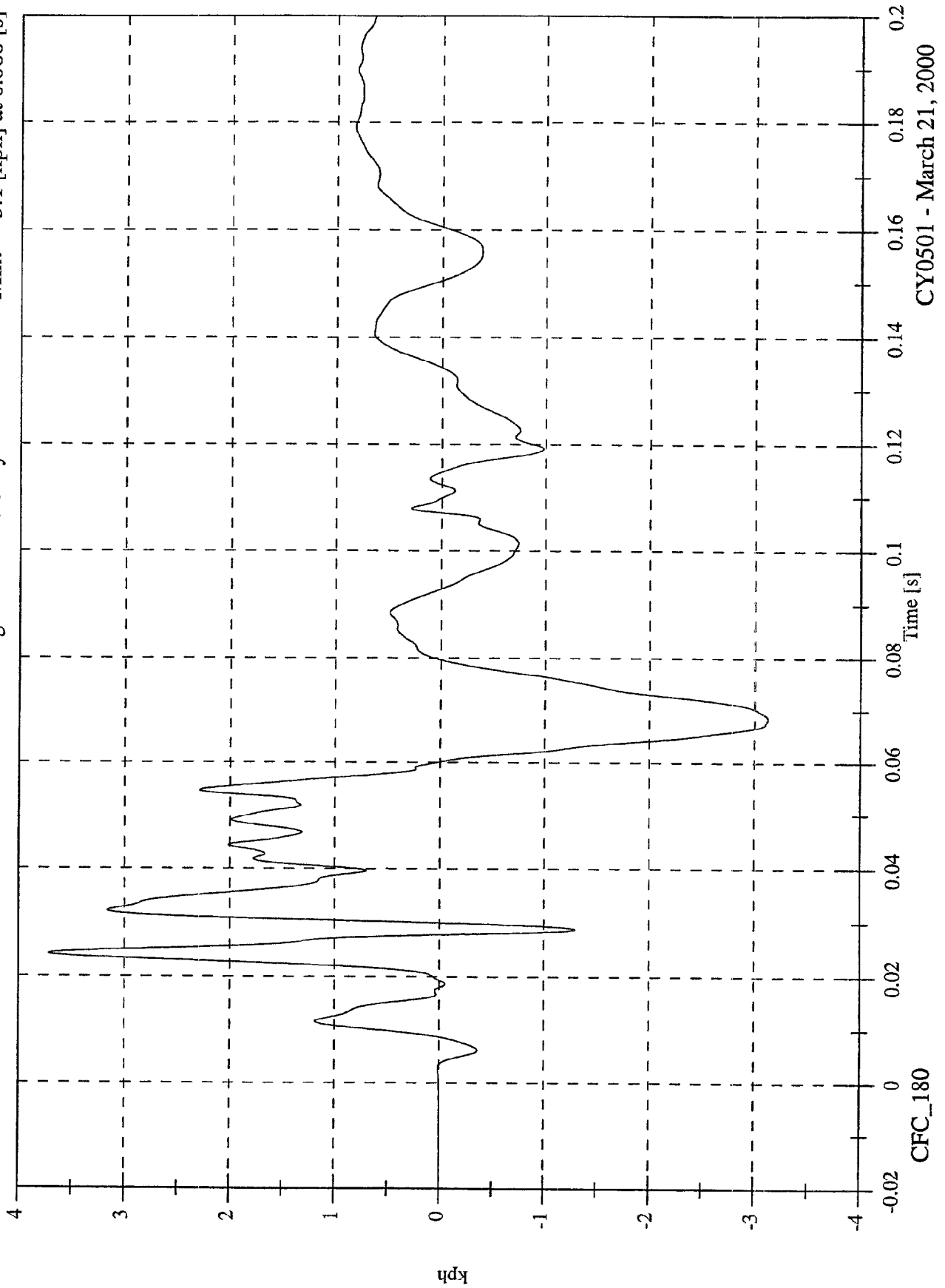


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FMVSS 214D Test 7 - Suzuki Esteem Wagon

Max: 3.7 [kph] at 0.024 [s]
 Min: -3.1 [kph] at 0.068 [s]

Acc 18 Target CG Z Velocity

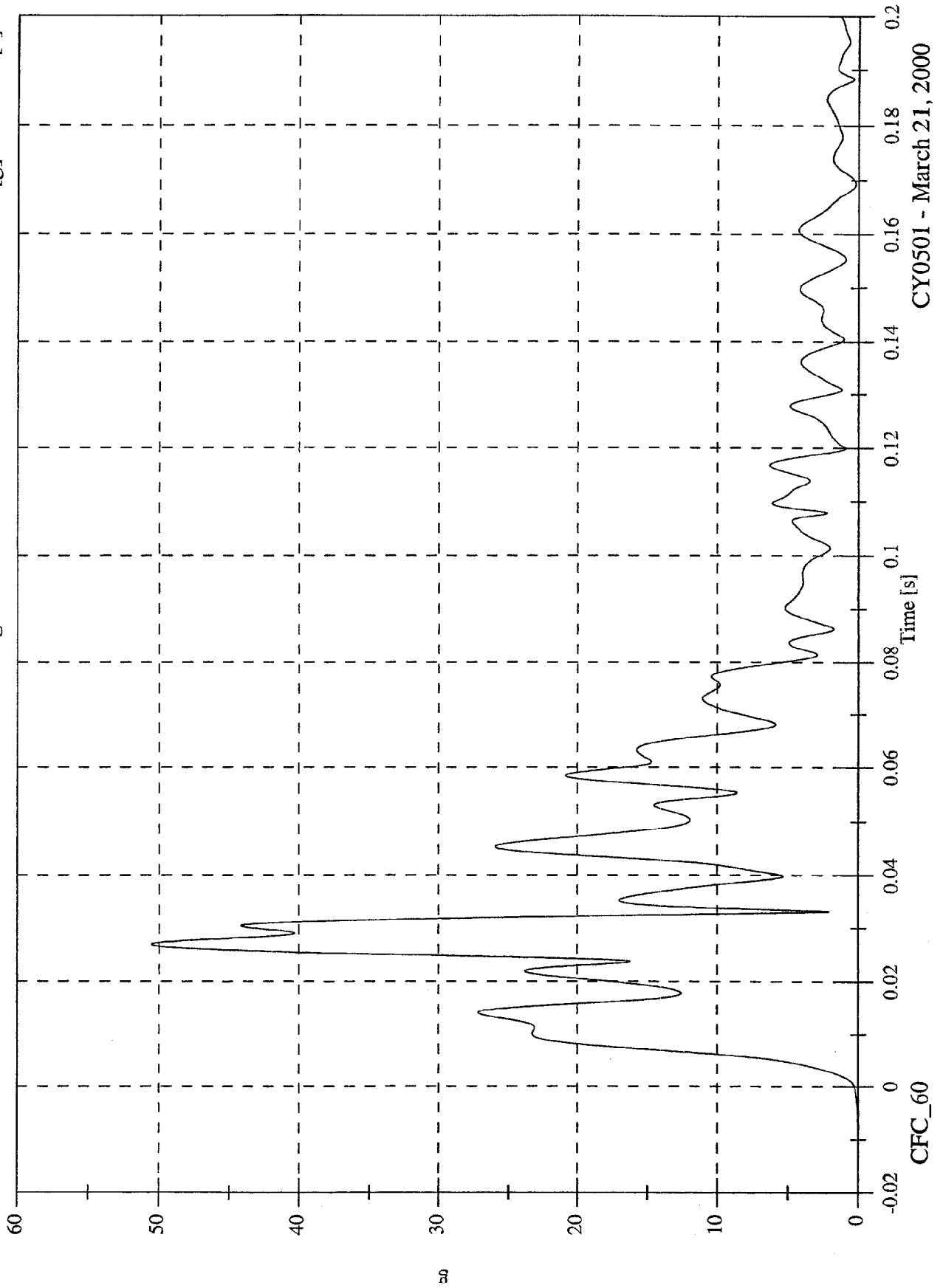


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FMVSS 214D Test 7 - Suzuki Esteem Wagon

Acc 18 Target CG Resultant

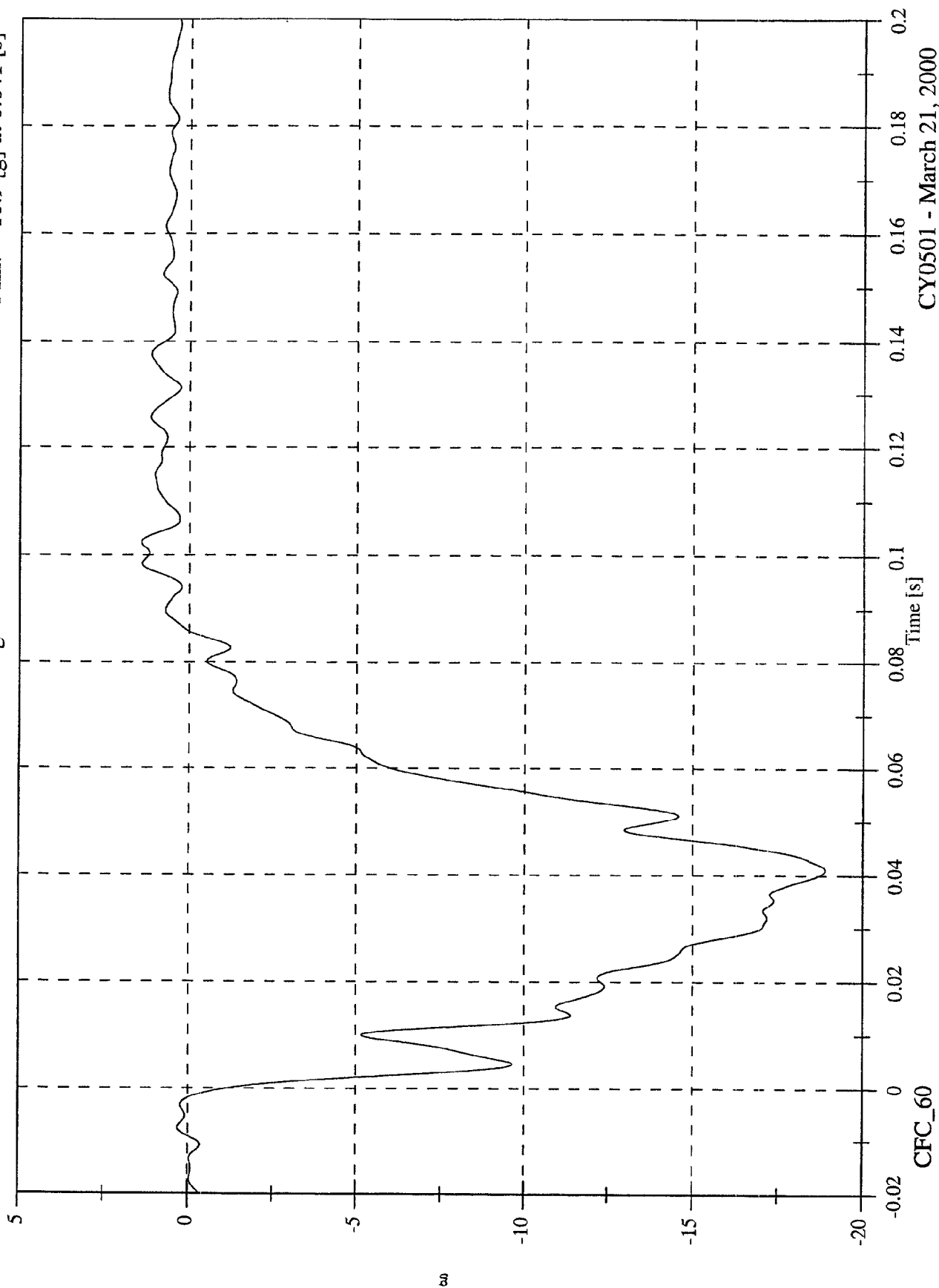
Max: 50.6 [g] at 0.027 [s]
Min: 0.0 [g] at -0.010 [s]



FMVSS 214D Test 7 - Suzuki Esteem Wagon

Moving Barrier CG X

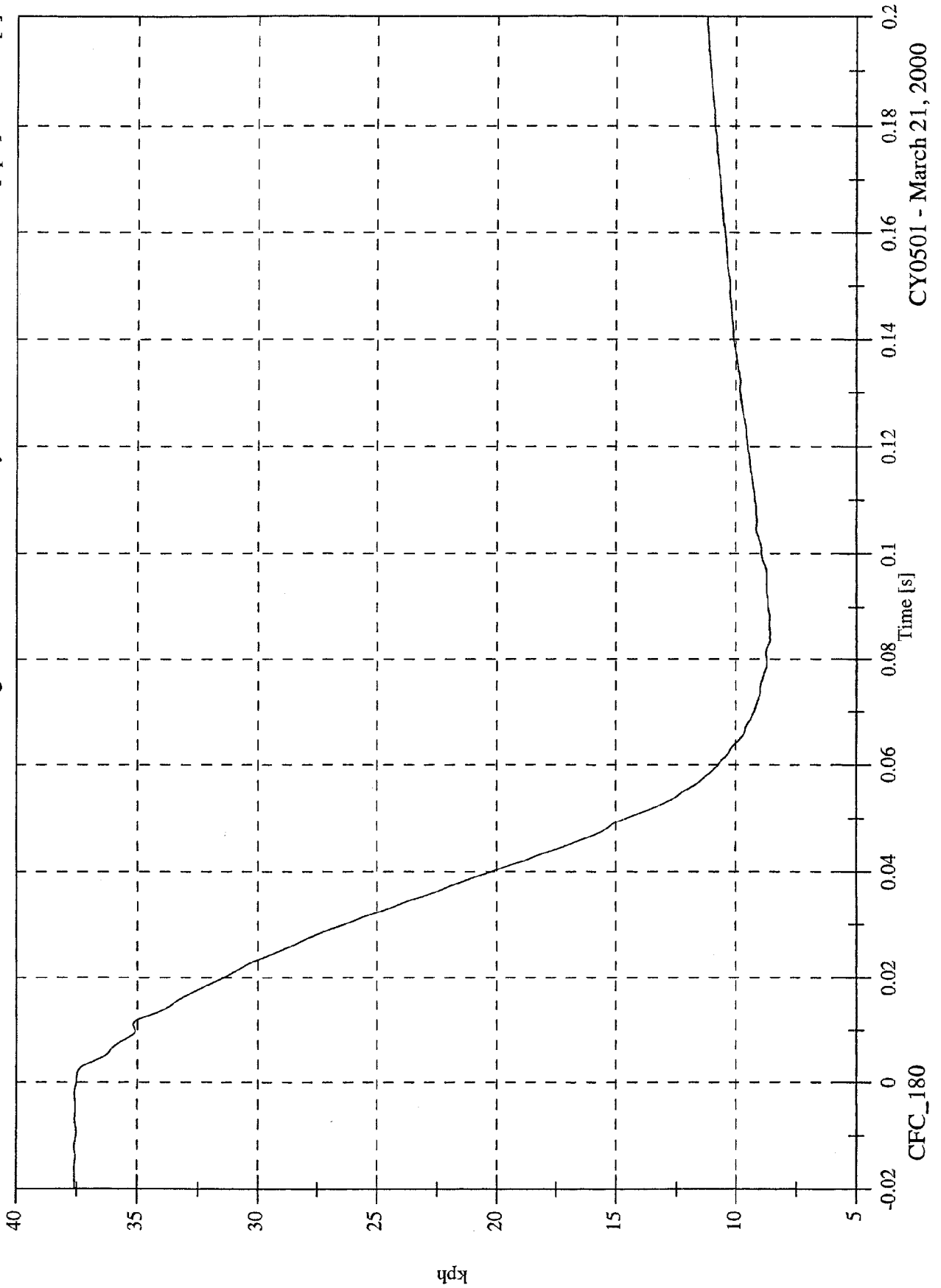
Max: 1.4 [g] at 0.102 [s]
Min: -18.9 [g] at 0.041 [s]



FMVSS 214D Test 7 - Suzuki Esteem Wagon

Moving Barrier CG X Velocity

Max: 37.6 [kph] at -0.012 [s]
 Min: 8.6 [kph] at 0.085 [s]

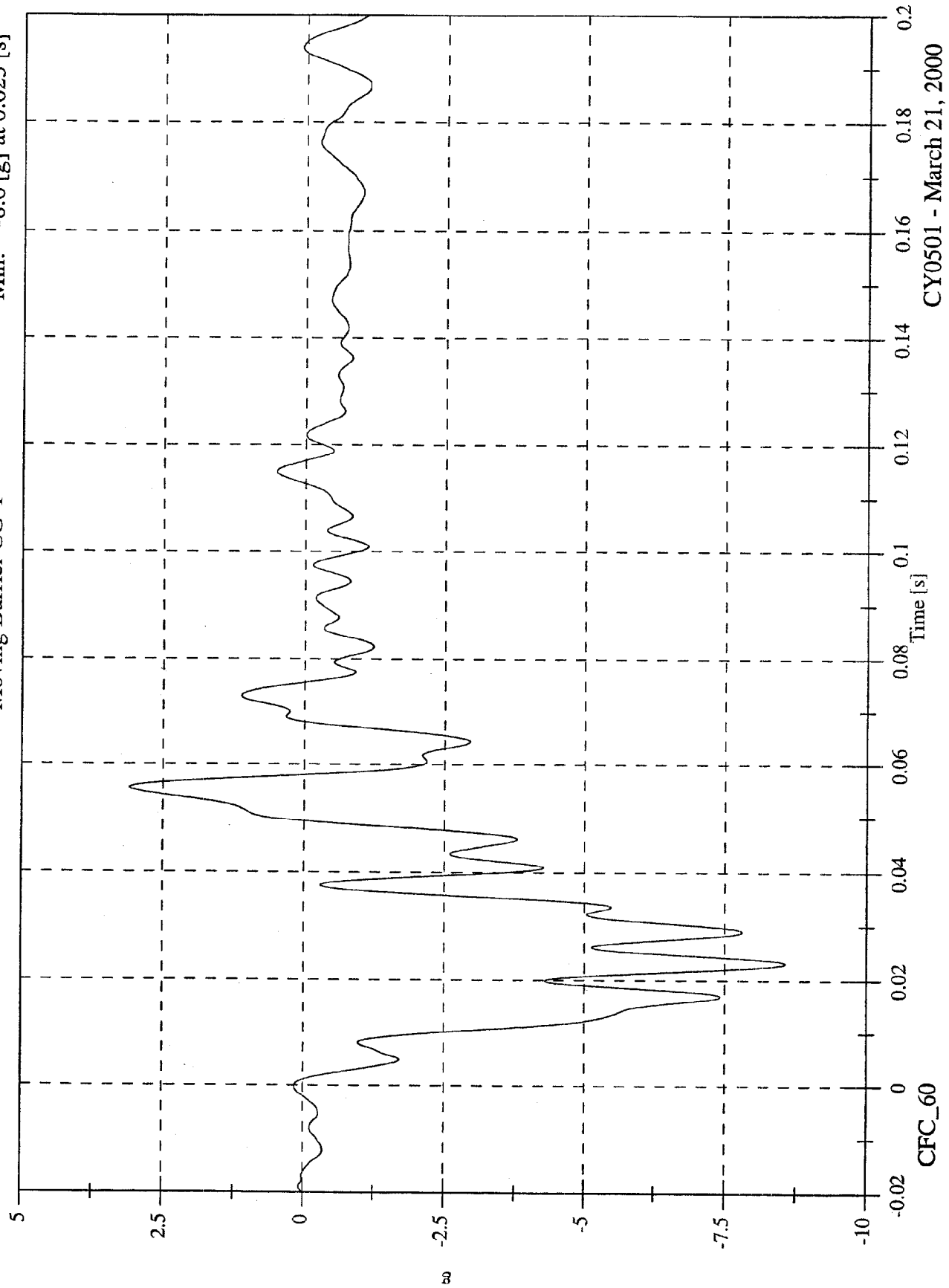


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FMVSS 214D Test 7 - Suzuki Esteem Wagon

Max: 3.1 [g] at 0.055 [s]
 Min: -8.6 [g] at 0.023 [s]

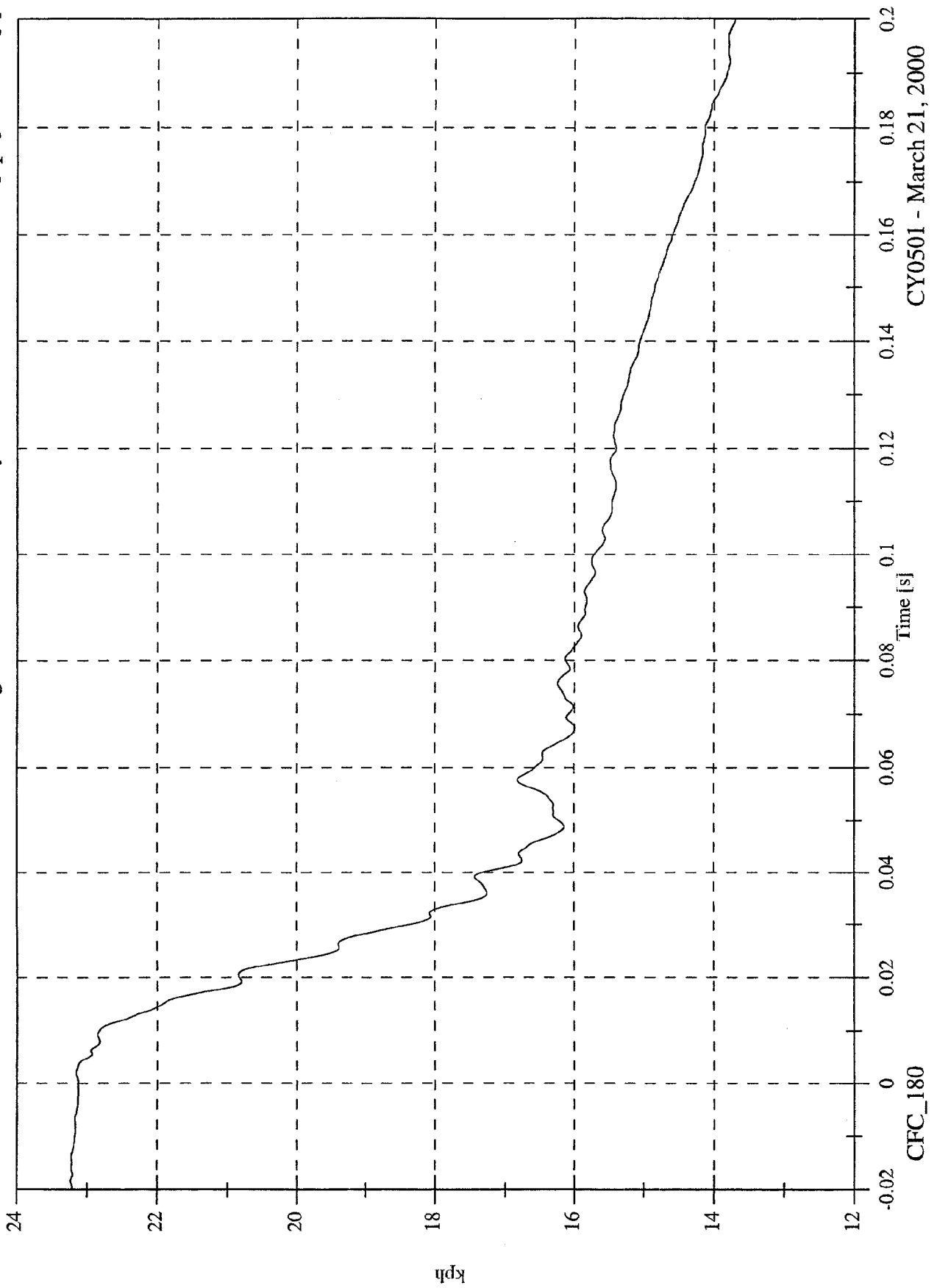
Moving Barrier CG Y



FMVSS 214D Test 7 - Suzuki Esteem Wagon

Max: 23.2 [kph] at -0.018 [s]
Min: 13.7 [kph] at 0.200 [s]

Moving Barrier CG Y Velocity

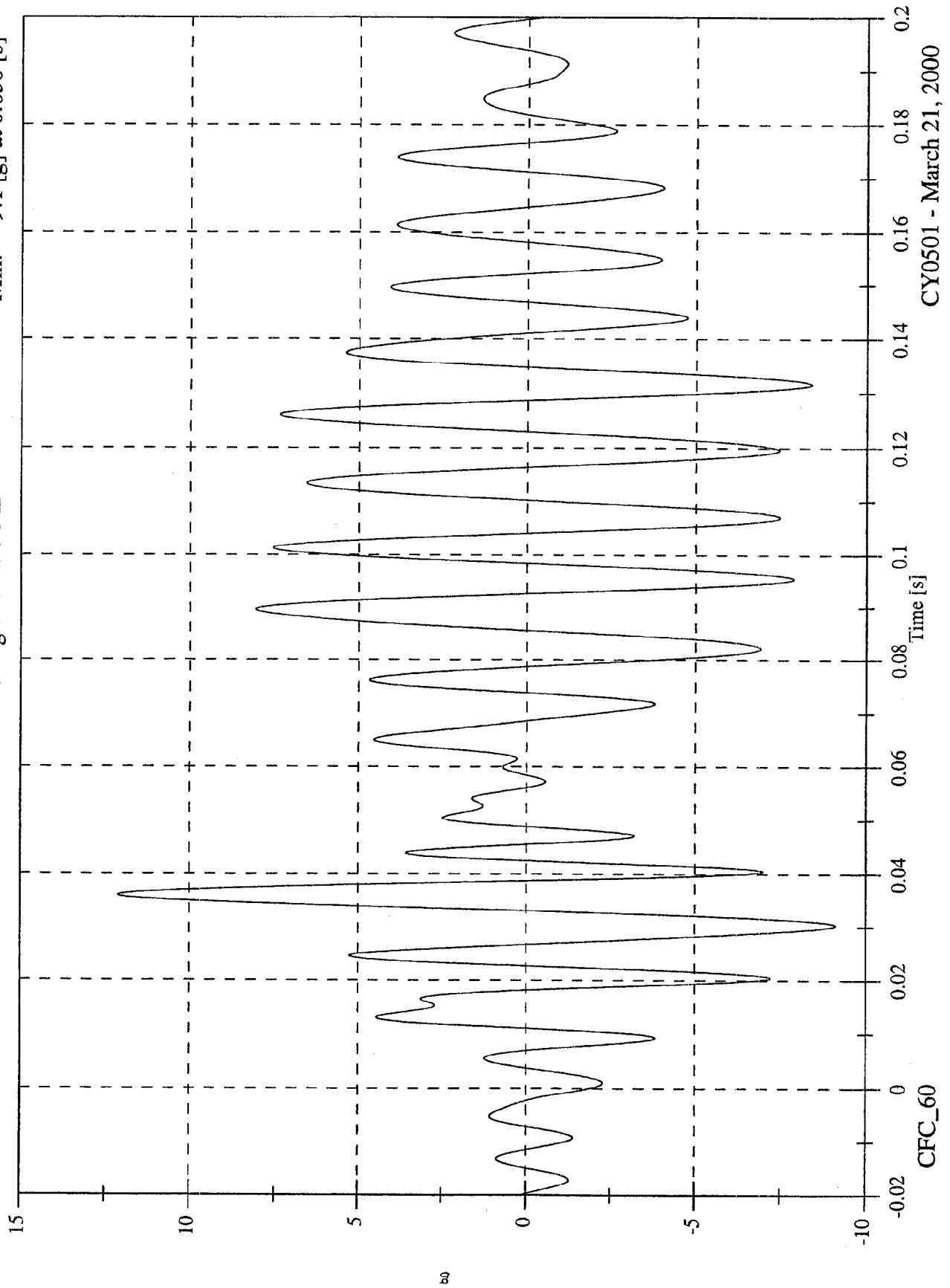


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FMVSS 214D Test 7 - Suzuki Esteem Wagon

Max: 12.1 [g] at 0.036 [s]
 Min: -9.1 [g] at 0.030 [s]

Moving Barrier CG Z

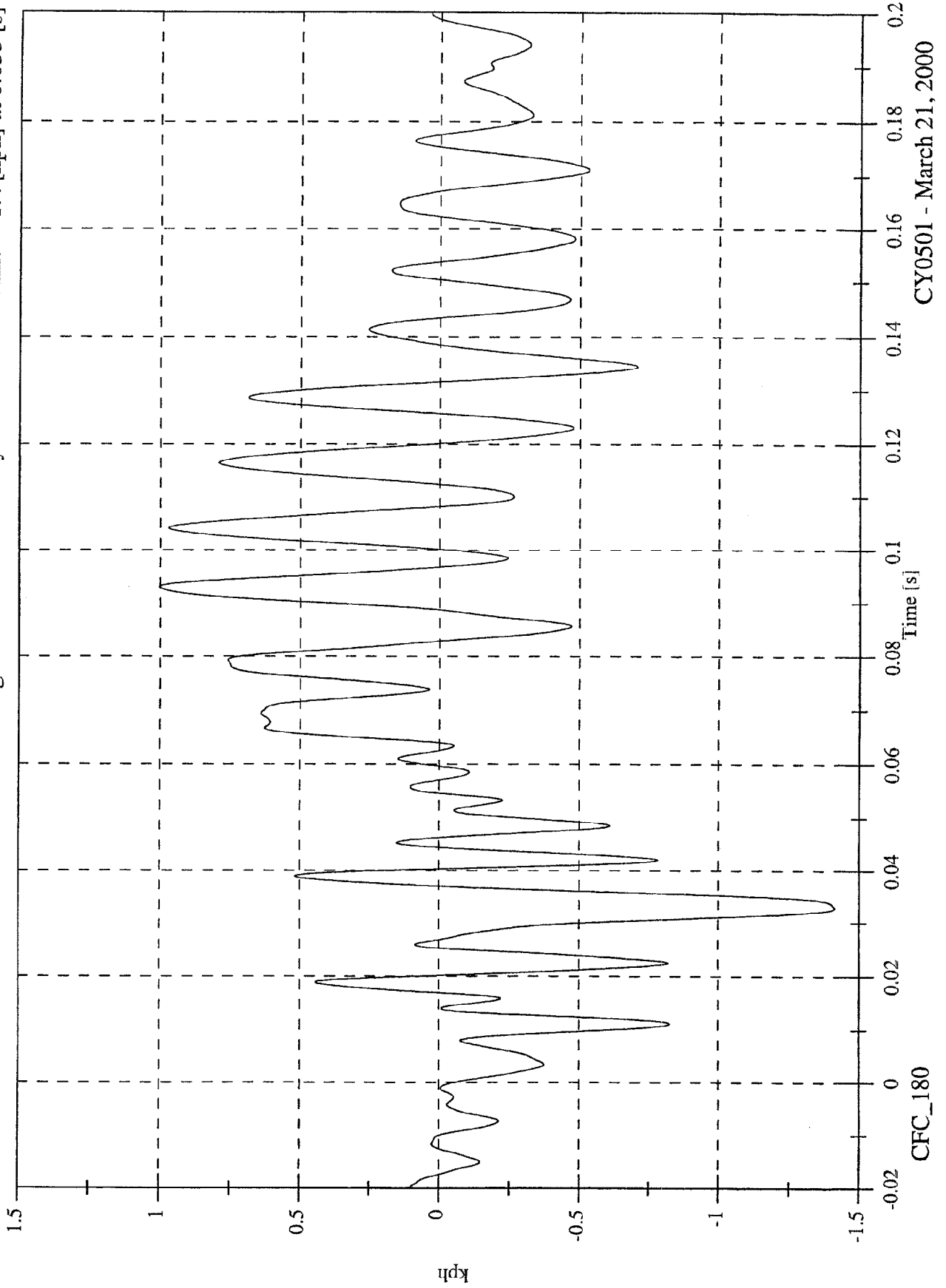


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FMVSS 214D Test 7 - Suzuki Esteem Wagon

Moving Barrier CG Z Velocity

Max: 1.0 [kph] at 0.093 [s]
Min: -1.4 [kph] at 0.033 [s]

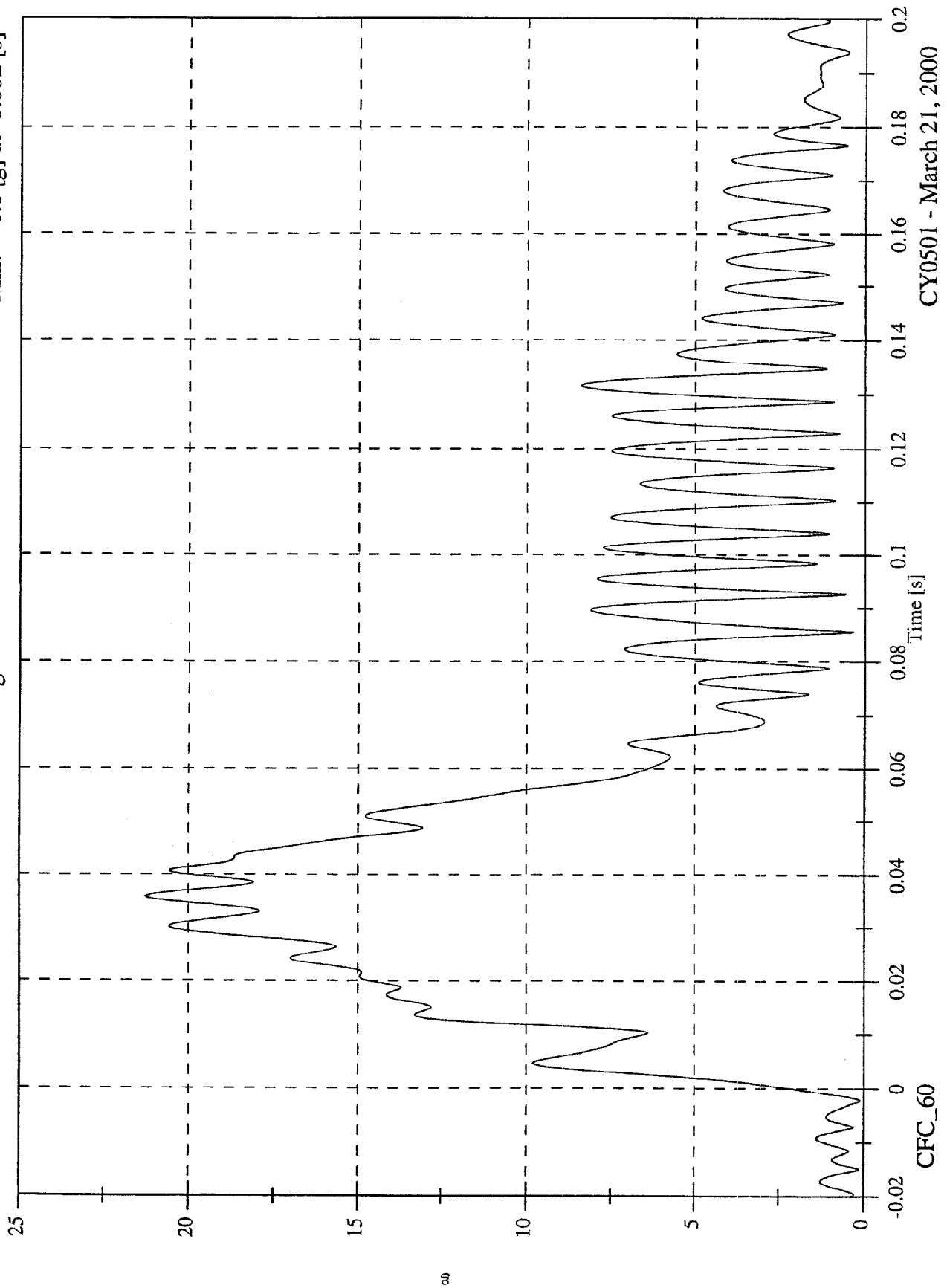


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FMVSS 214D Test 7 - Suzuki Esteem Wagon

Moving Barrier CG Resultant

Max: 21.2 [g] at 0.036 [s]
Min: 0.1 [g] at -0.002 [s]

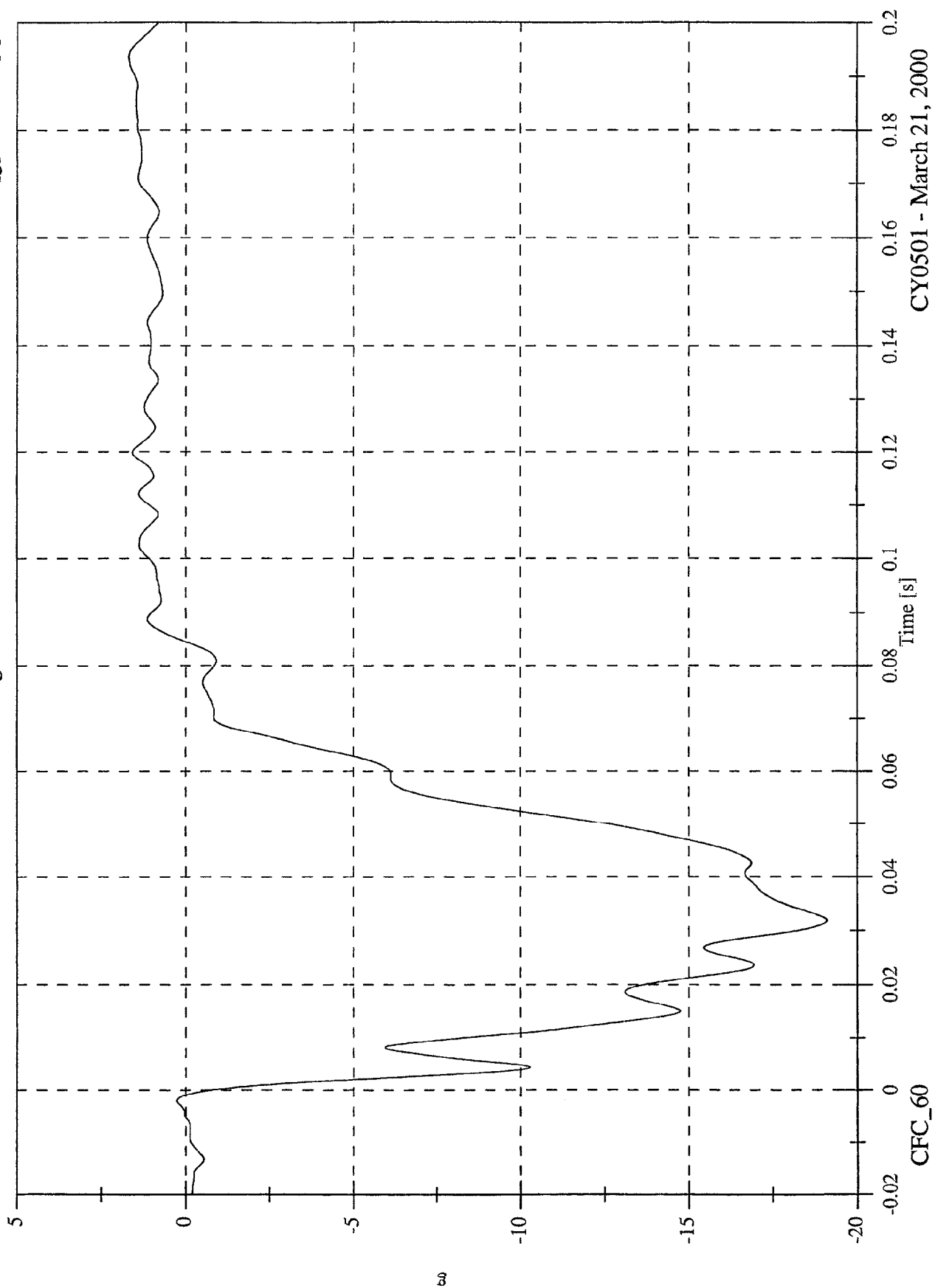


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FMVSS 214D Test 7 - Suzuki Esteem Wagon

Max: 1.7 [g] at 0.194 [s]
 Min: -19.1 [g] at 0.032 [s]

Moving Barrier Left Rail X

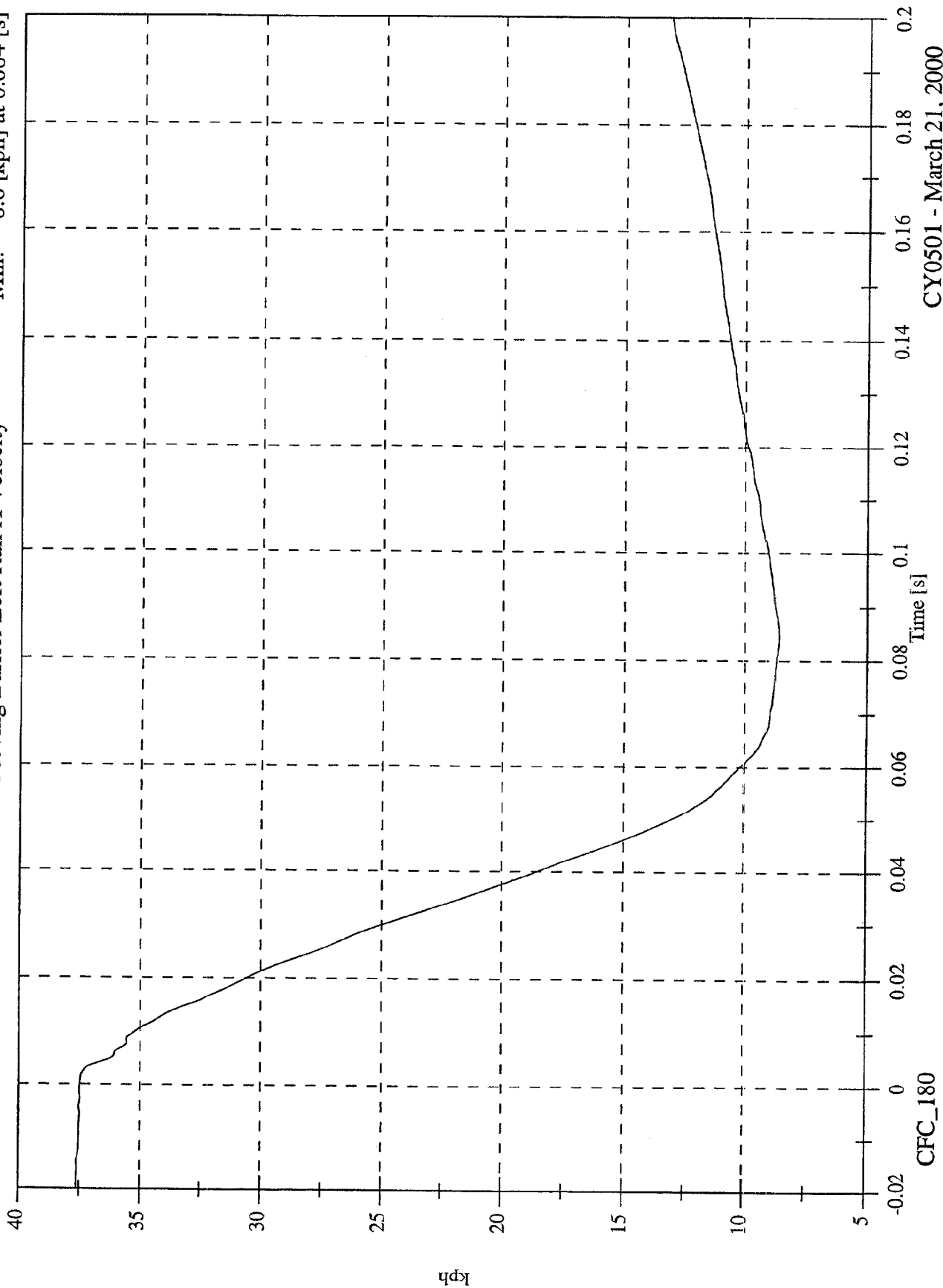


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FMVSS 214D Test 7 - Suzuki Esteem Wagon

Moving Barrier Left Rail X Velocity

Max: 37.6 [kph] at -0.020 [s]
Min: 8.6 [kph] at 0.084 [s]

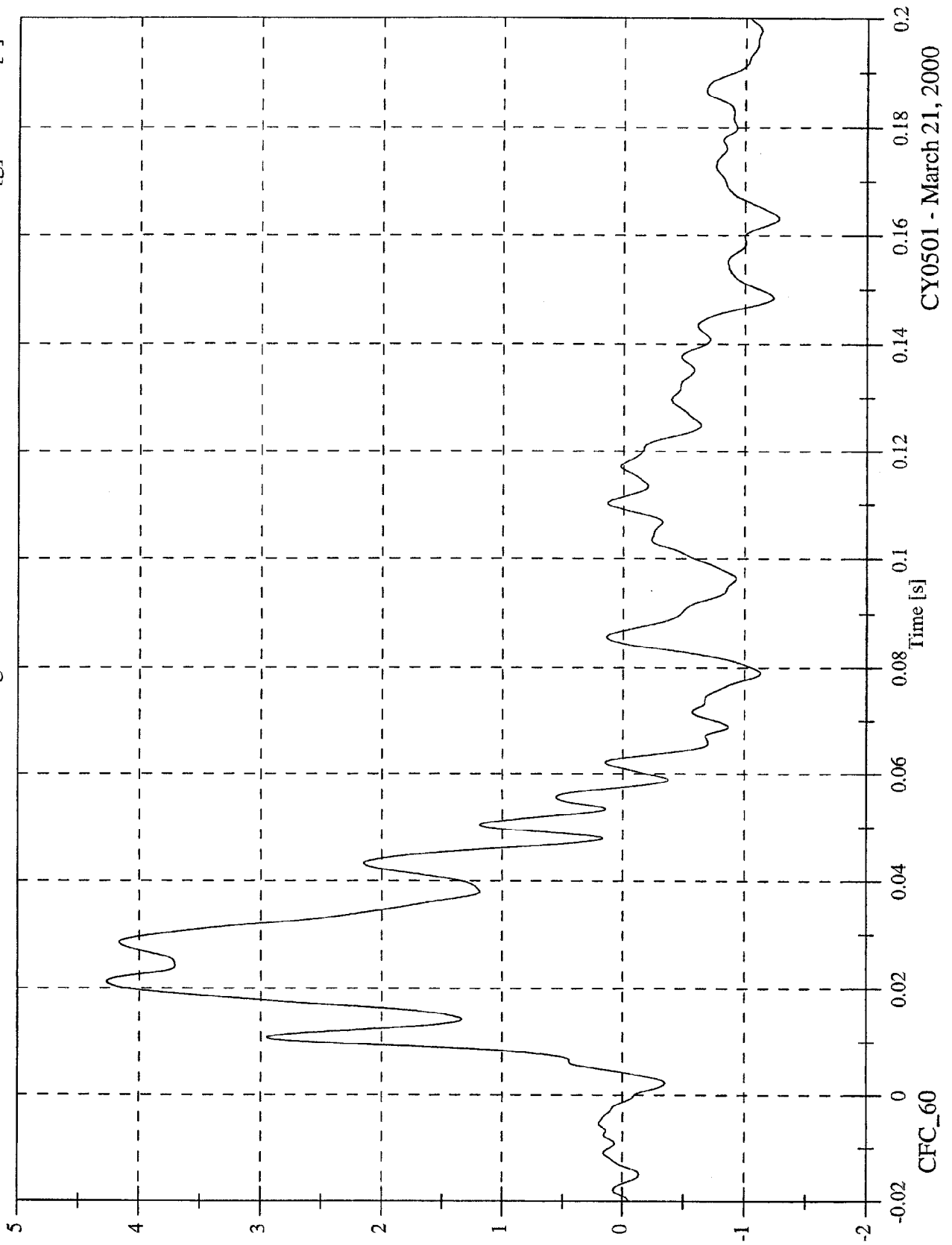


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FMVSS 214D Test 7 - Suzuki Esteem Wagon

Moving Barrier Left Rail Y

Max: 4.3 [g] at 0.021 [s]
Min: -1.3 [g] at 0.163 [s]

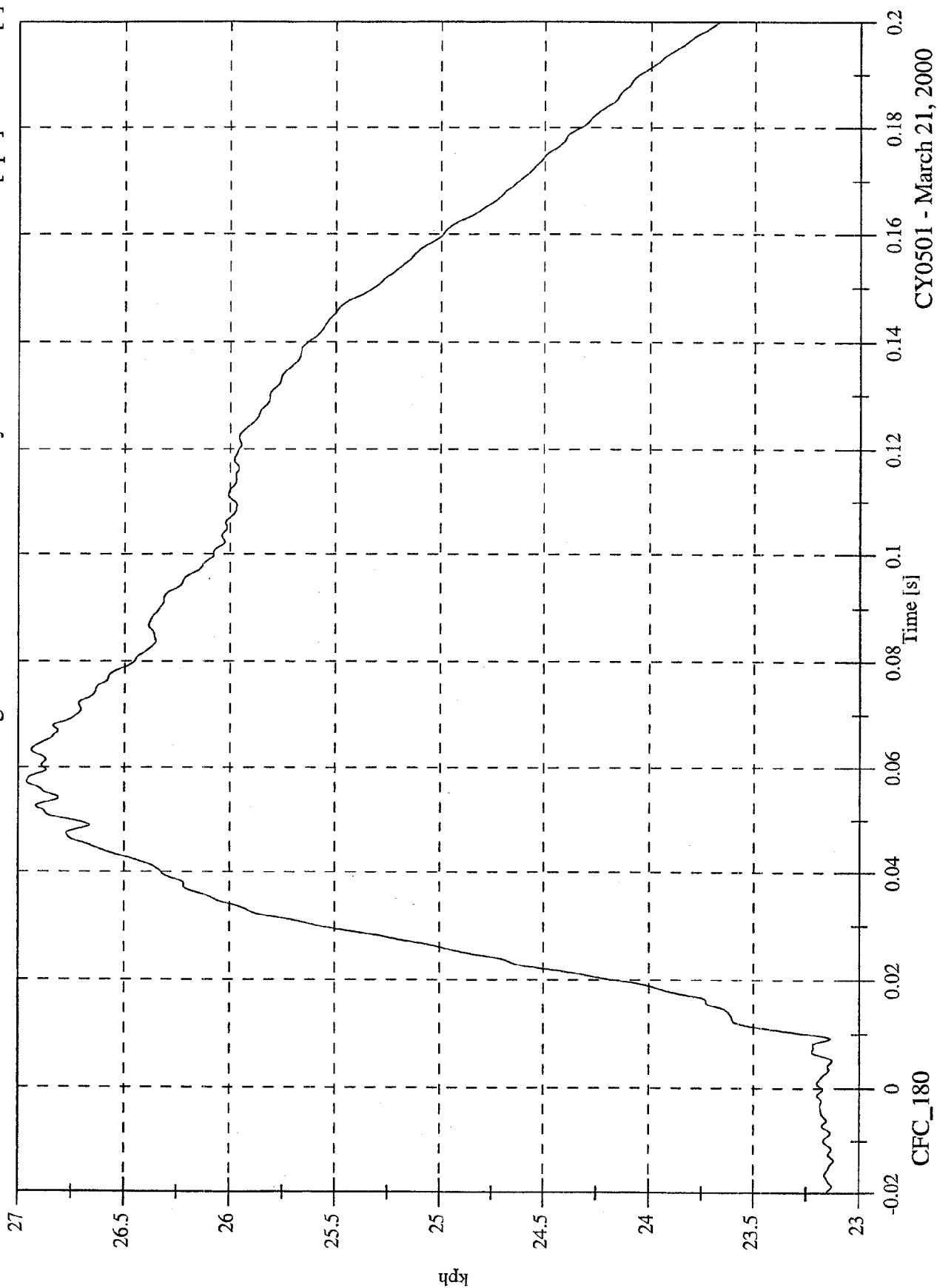


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FMVSS 214D Test 7 - Suzuki Esteem Wagon

Moving Barrier Left Rail Y Velocity

Max: 27.0 [kph] at 0.057 [s]
Min: 23.1 [kph] at -0.014 [s]

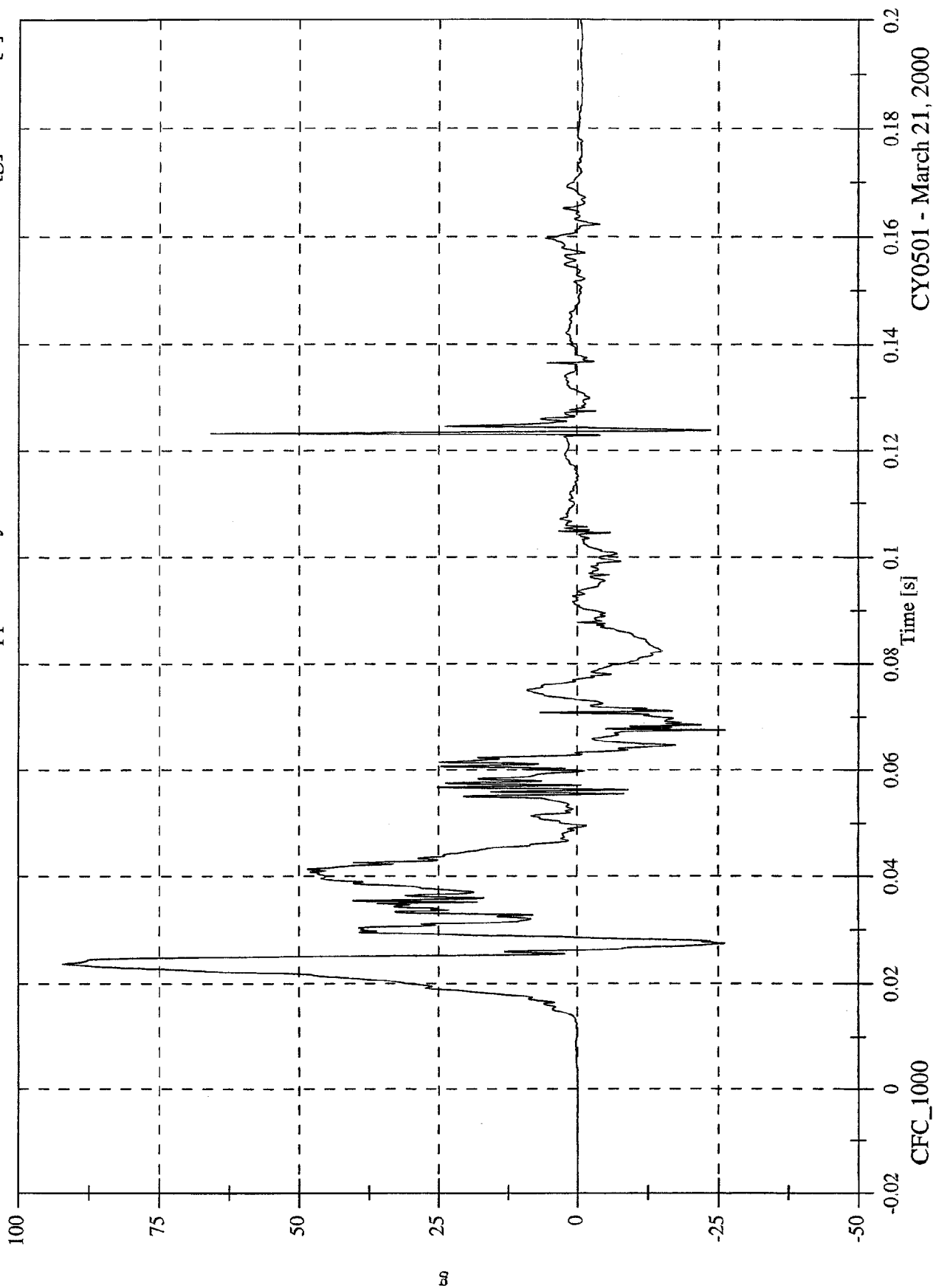


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FMVSS 214D Test 7 - Suzuki Esteem Wagon

Max: 92.1 [g] at 0.024 [s]
Min: -26.2 [g] at 0.068 [s]

P1 Upper Rib Ry

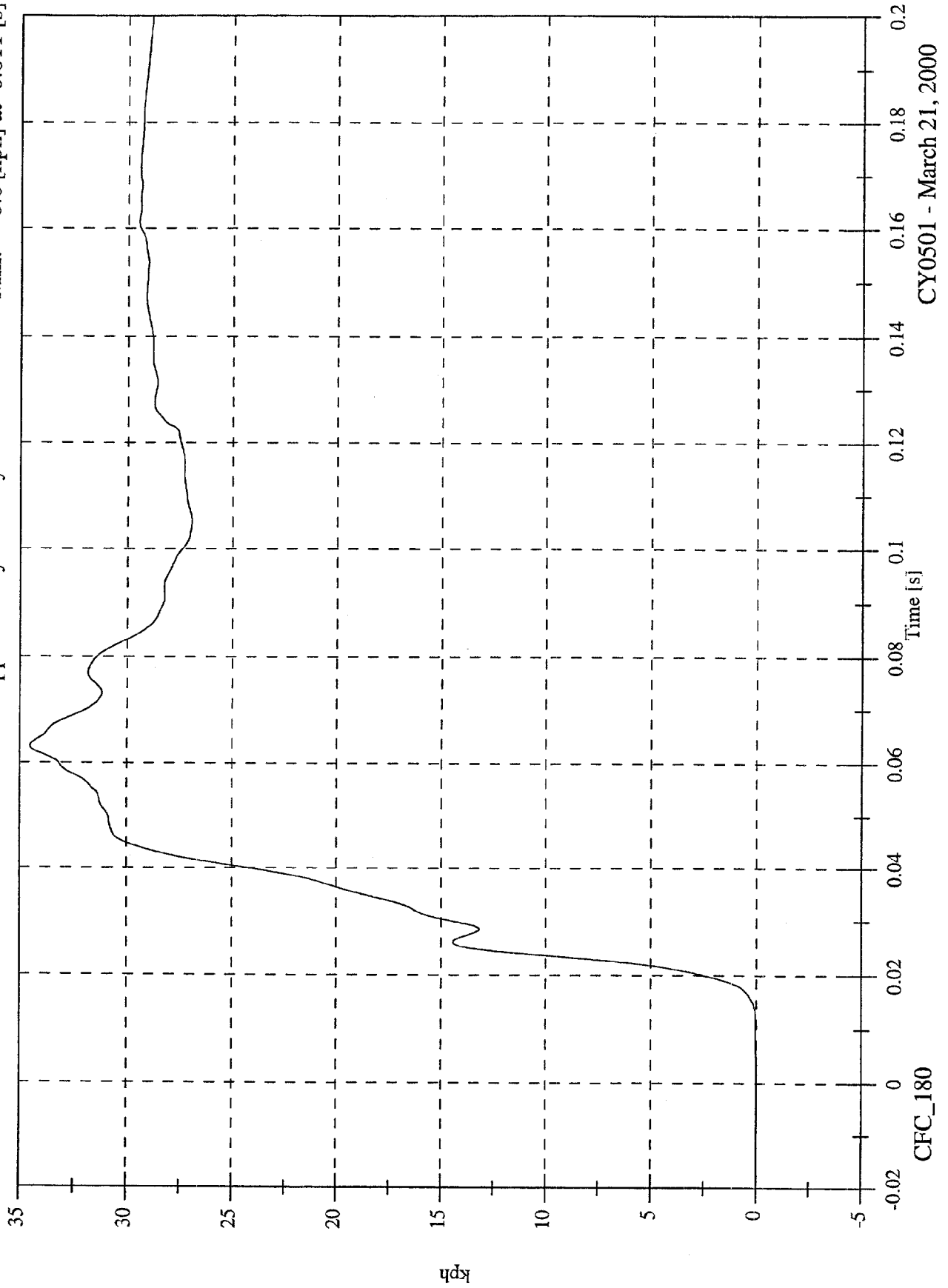


FMVSS 214D Test 7 - Suzuki Esteem Wagon

Max: 34.5 [kph] at 0.063 [s]

Min: -0.0 [kph] at -0.011 [s]

P1 Upper Rib Ry Velocity

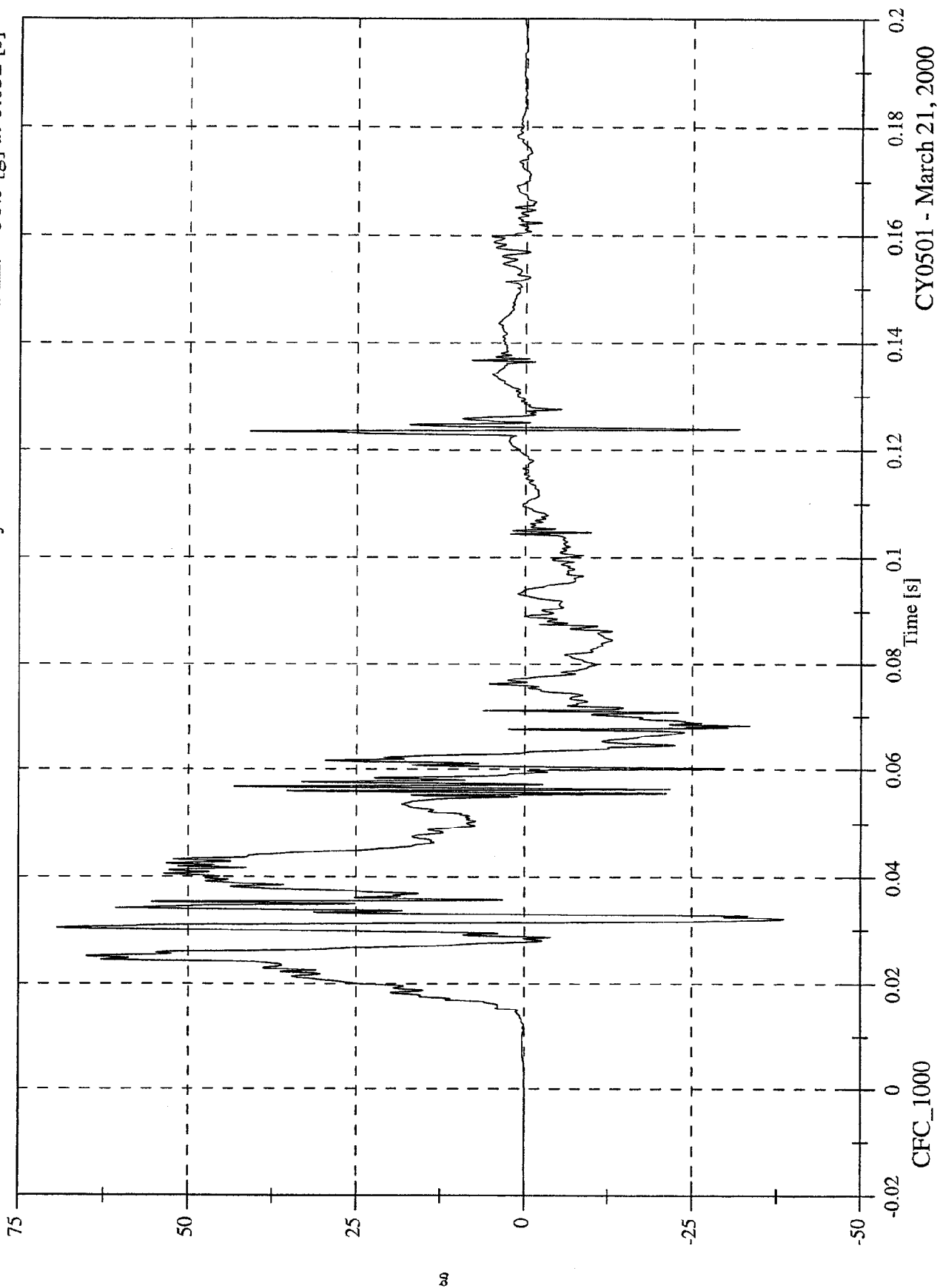


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FMVSS 214D Test 7 - Suzuki Esteem Wagon

P1 Lower Rib Ry

Max: 69.3 [g] at 0.030 [s]
Min: -38.5 [g] at 0.032 [s]

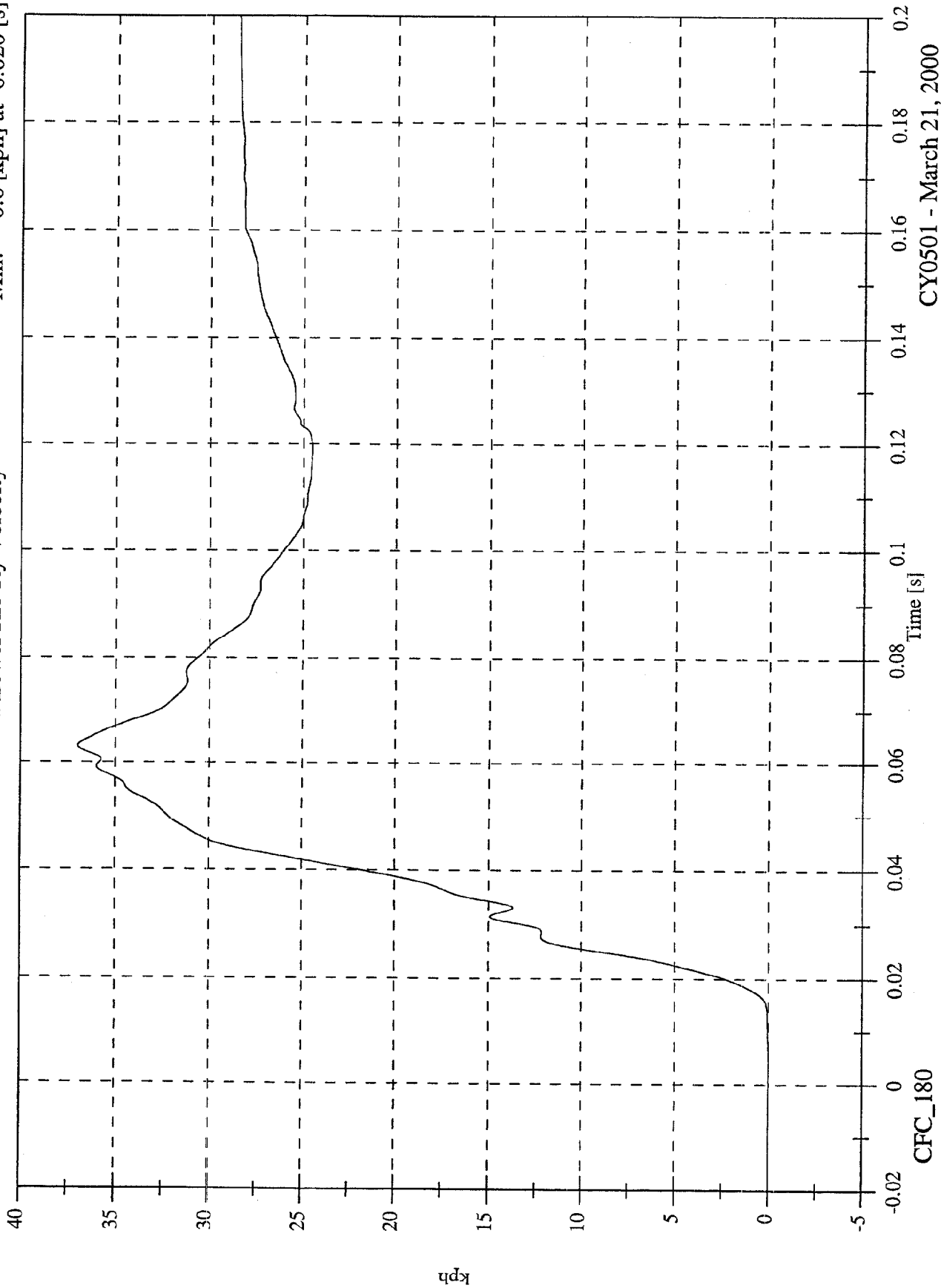


CY0501 - March 21, 2000

FMVSS 214D Test 7 - Suzuki Esteem Wagon

Max: 36.9 [kph] at 0.063 [s]
Min: -0.0 [kph] at -0.020 [s]

P1 Lower Rib Ry Velocity

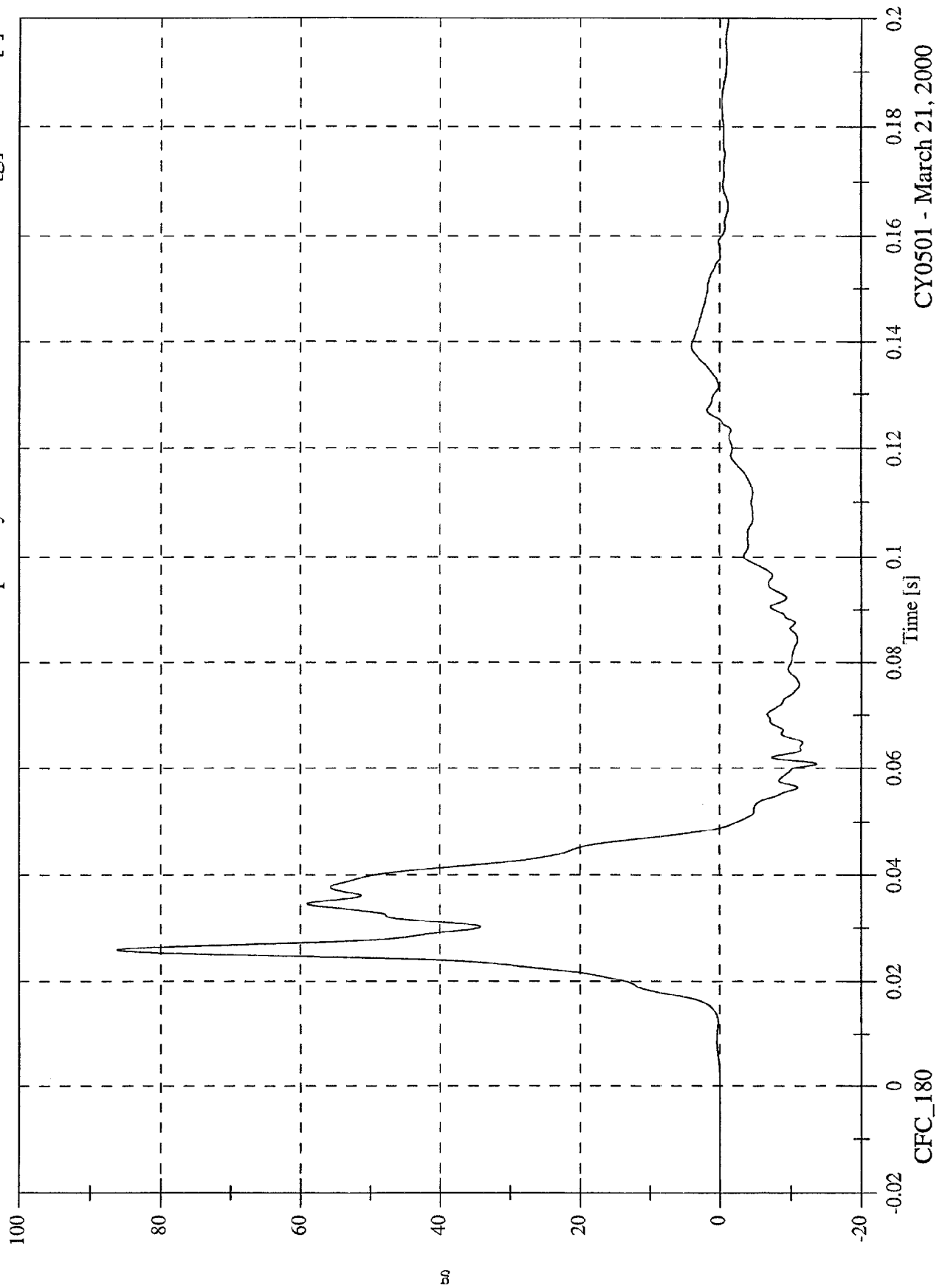


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FMVSS 214D Test 7 - Suzuki Esteem Wagon

P1 Lower Spine Ry

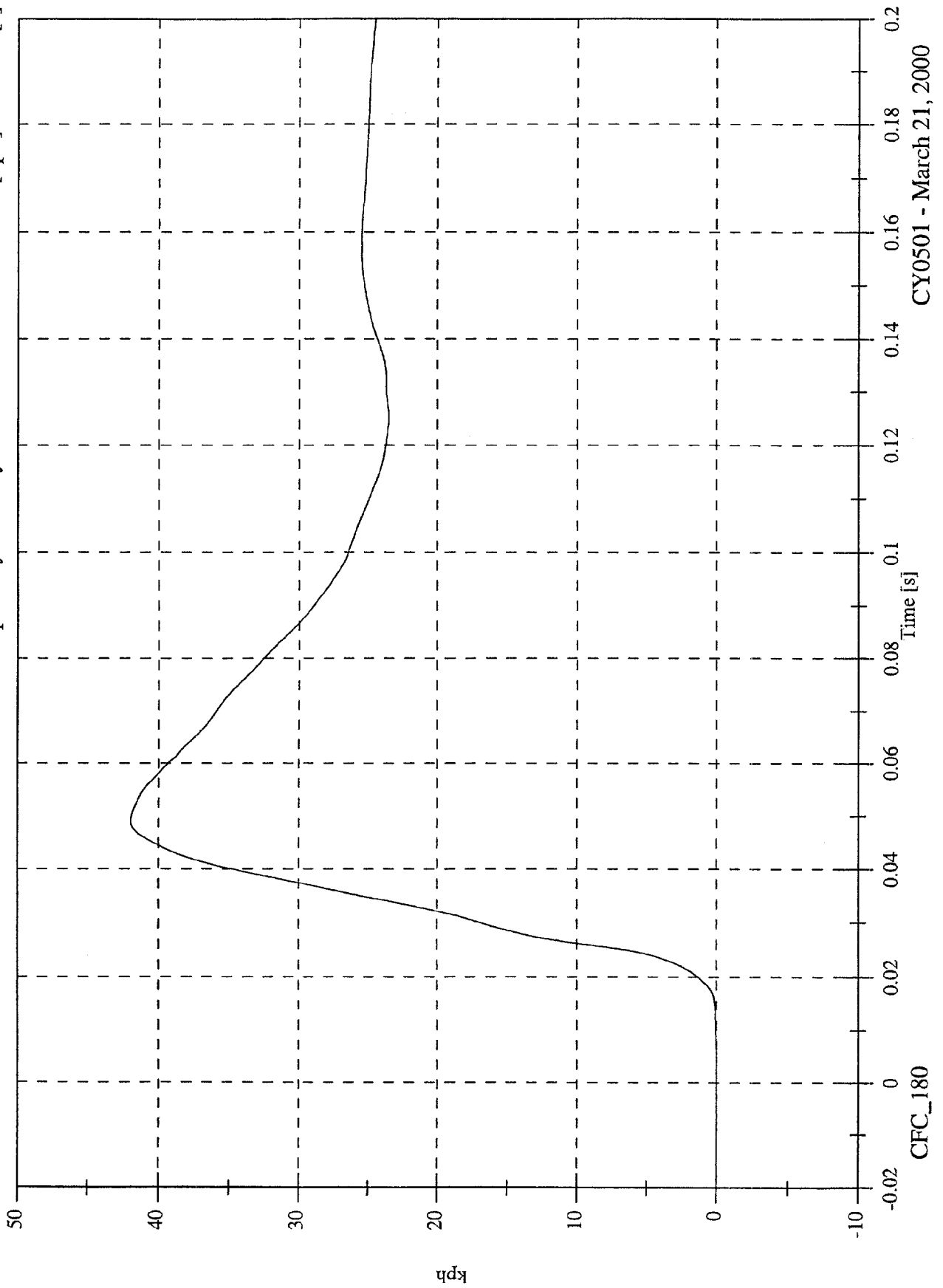
Max: 86.2 [g] at 0.026 [s]
Min: -13.7 [g] at 0.061 [s]



FMVSS 214D Test 7 - Suzuki Esteem Wagon

Max: 41.9 [kph] at 0.049 [s]
Min: -0.0 [kph] at -0.020 [s]

P1 Lower Spine Ry Velocity

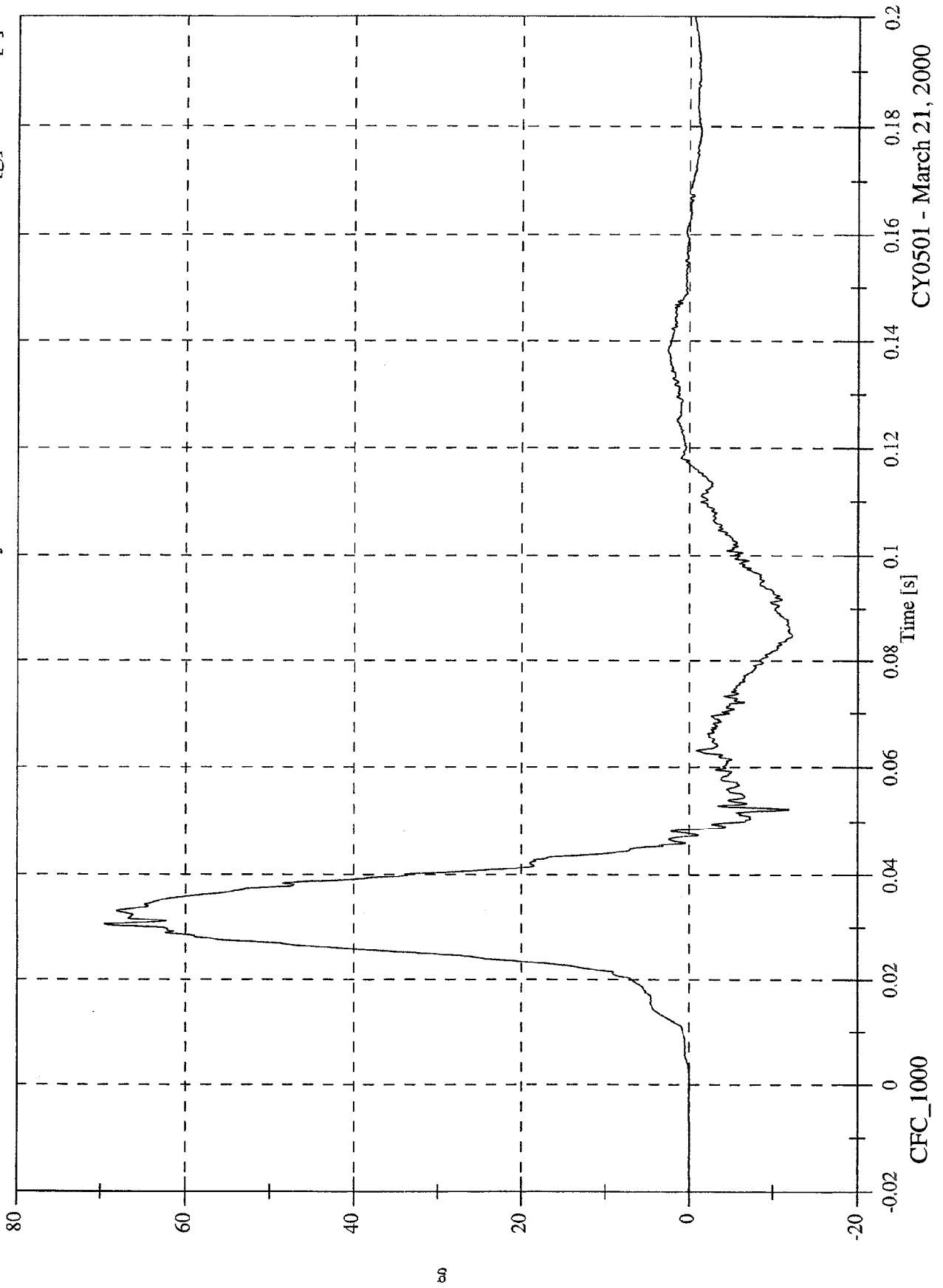


CFC_180

FMVSS 214D Test 7 - Suzuki Esteem Wagon

P1 Pelvic Ry

Max: 69.6 [g] at 0.030 [s]
Min: -12.2 [g] at 0.085 [s]

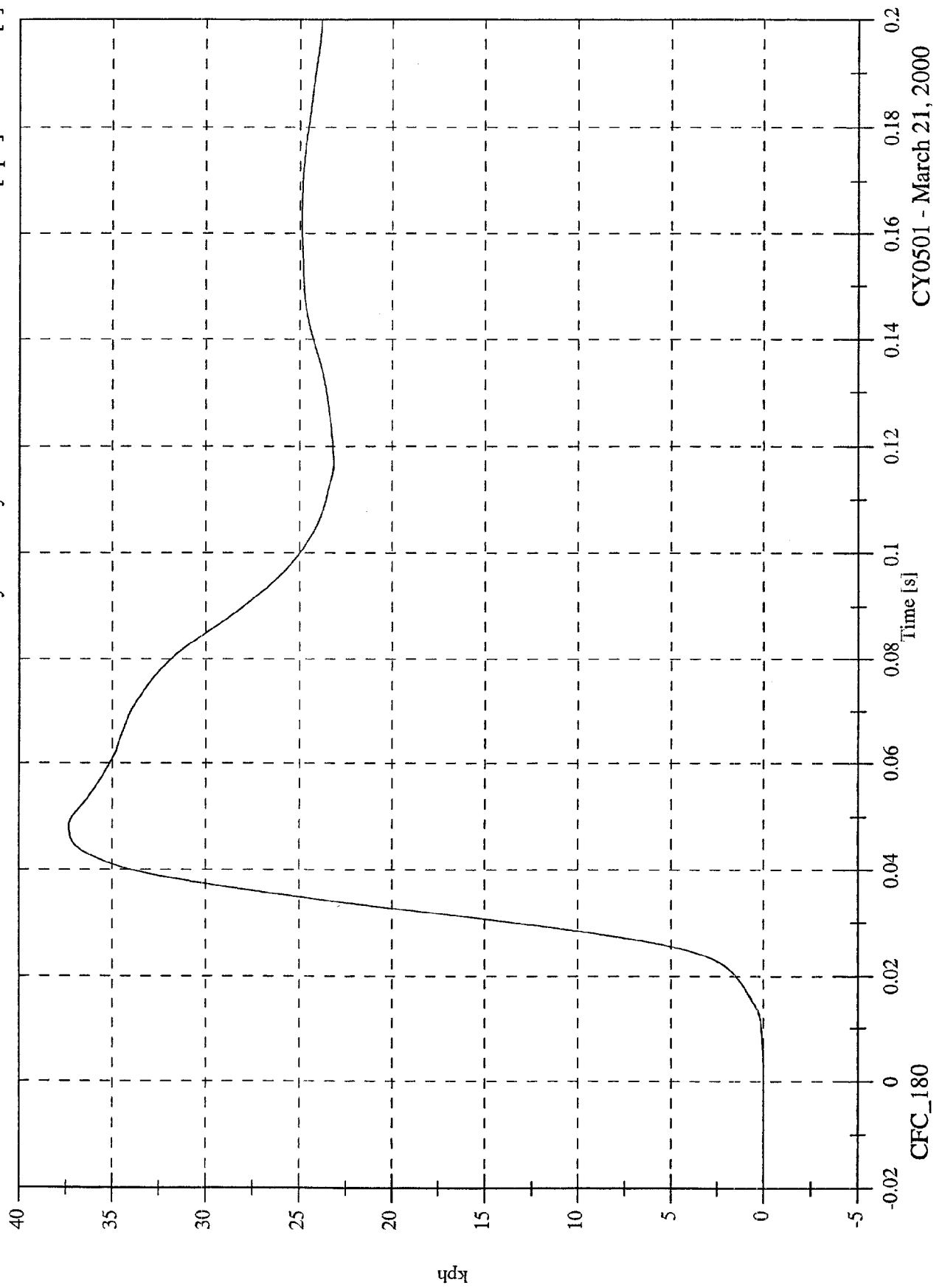


CY0501 - March 21, 2000

FMVSS 214D Test 7 - Suzuki Esteem Wagon

Max: 37.3 [kph] at 0.048 [s]
Min: -0.0 [kph] at -0.020 [s]

P1 Pelvic Ry Velocity

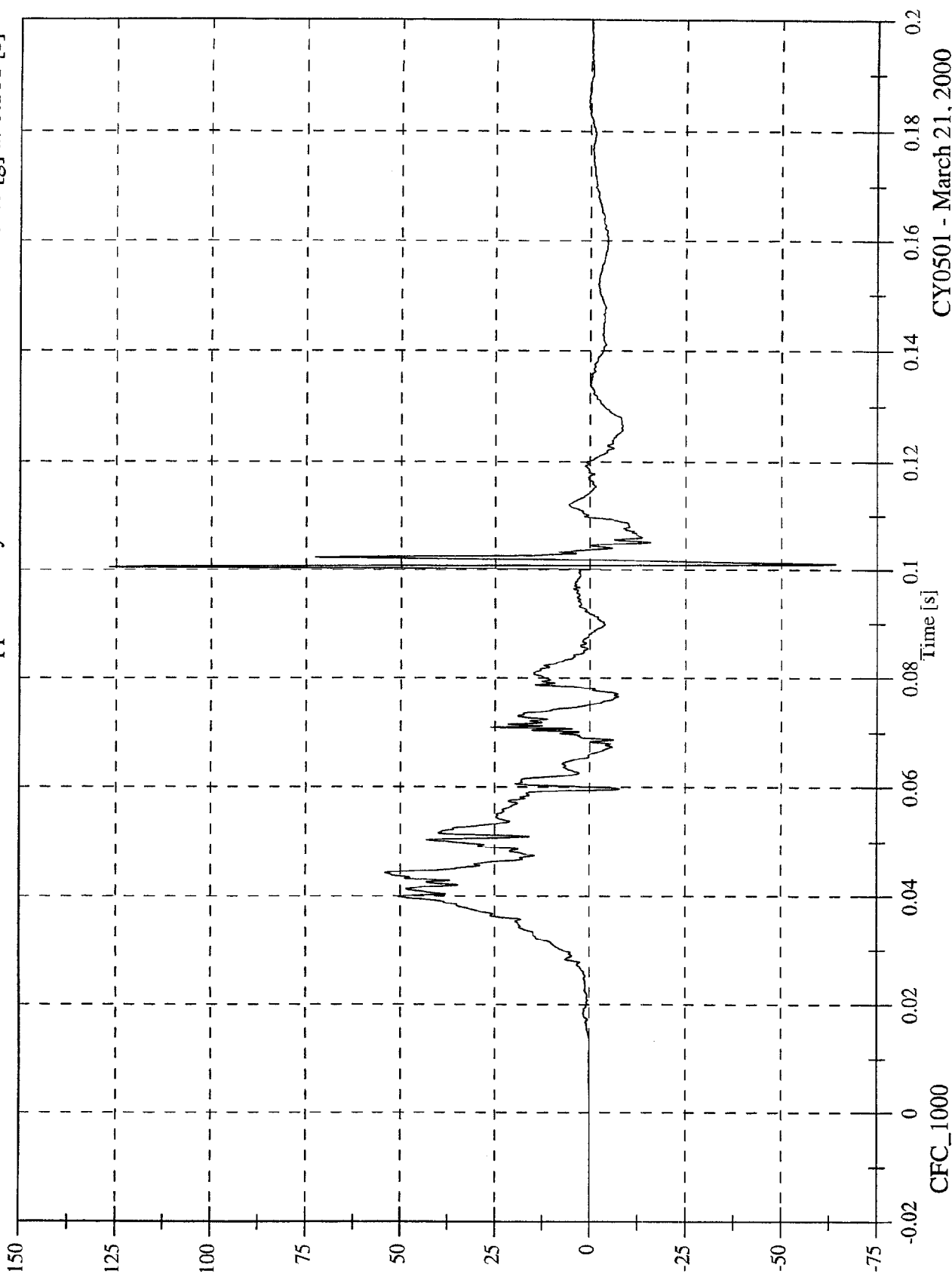


CY0501 - March 21, 2000

FMVSS 214D Test 7 - Suzuki Esteem Wagon

P4 Upper Rib Ry

Max: 126.8 [g] at 0.101 [s]
Min: -64.0 [g] at 0.101 [s]



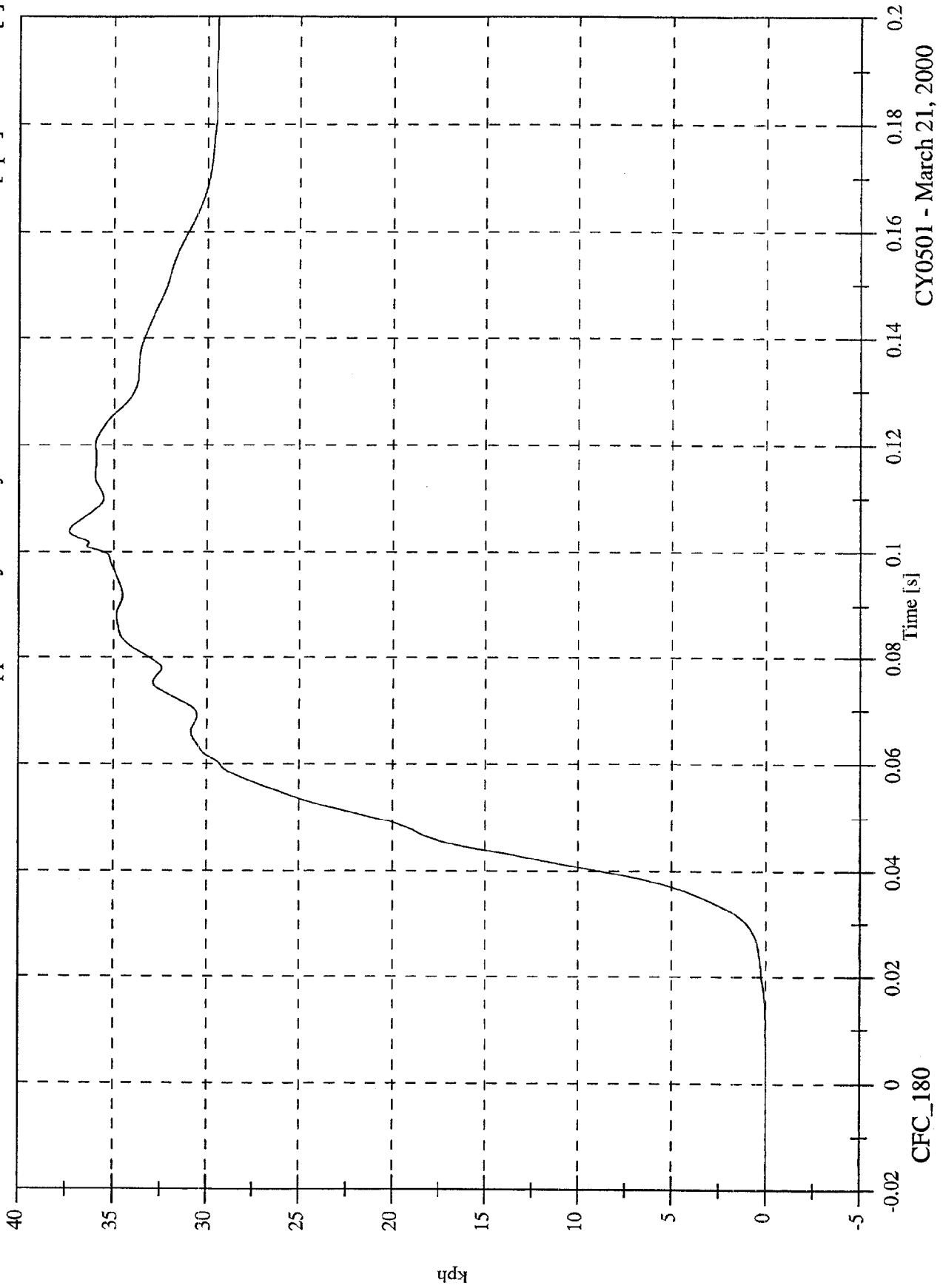
CFC_1000

CY0501 - March 21, 2000

FMVSS 214D Test 7 - Suzuki Esteem Wagon

Max: 37.3 [kph] at 0.104 [s]
Min: -0.0 [kph] at -0.020 [s]

P4 Upper Rib Ry Velocity

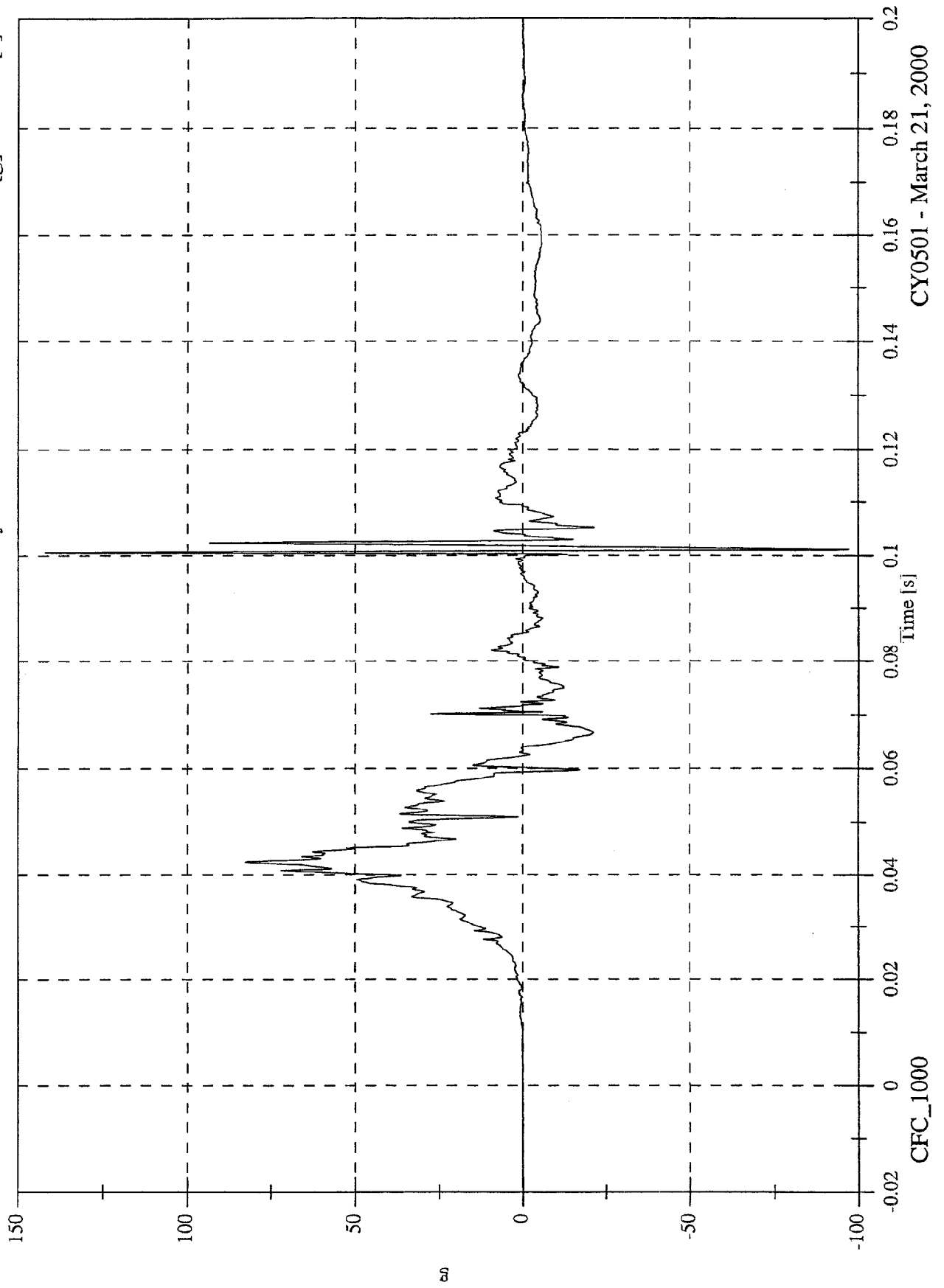


CY0501 - March 21, 2000

FMVSS 214D Test 7 - Suzuki Esteem Wagon

Max: 142.0 [g] at 0.101 [s]
Min: -97.0 [g] at 0.101 [s]

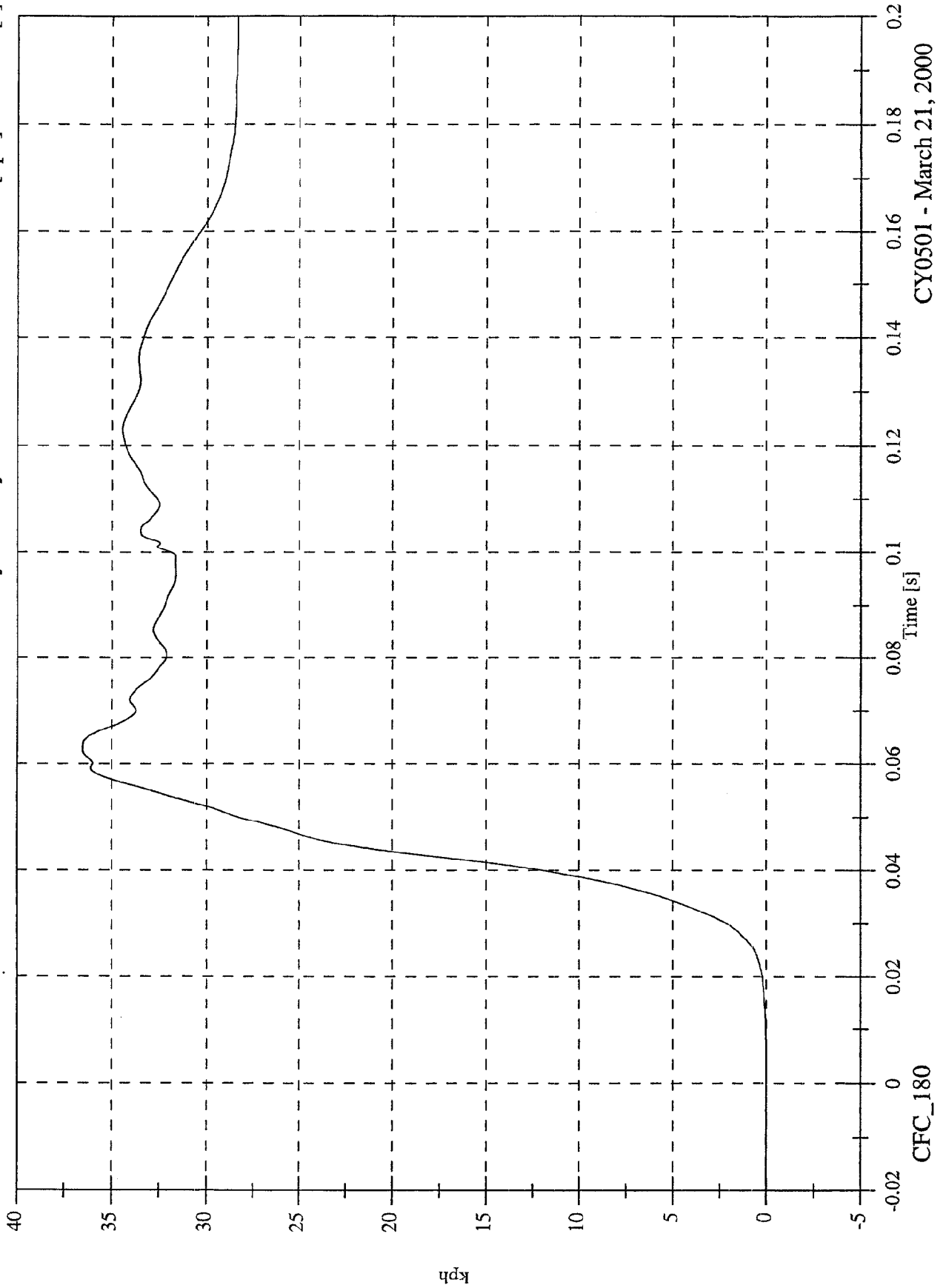
P4 Lower Rib Ry



FMVSS 214D Test 7 - Suzuki Esteem Wagon

Max: 36.5 [kph] at 0.063 [s]
Min: -0.0 [kph] at -0.014 [s]

P4 Lower Rib Ry Velocity

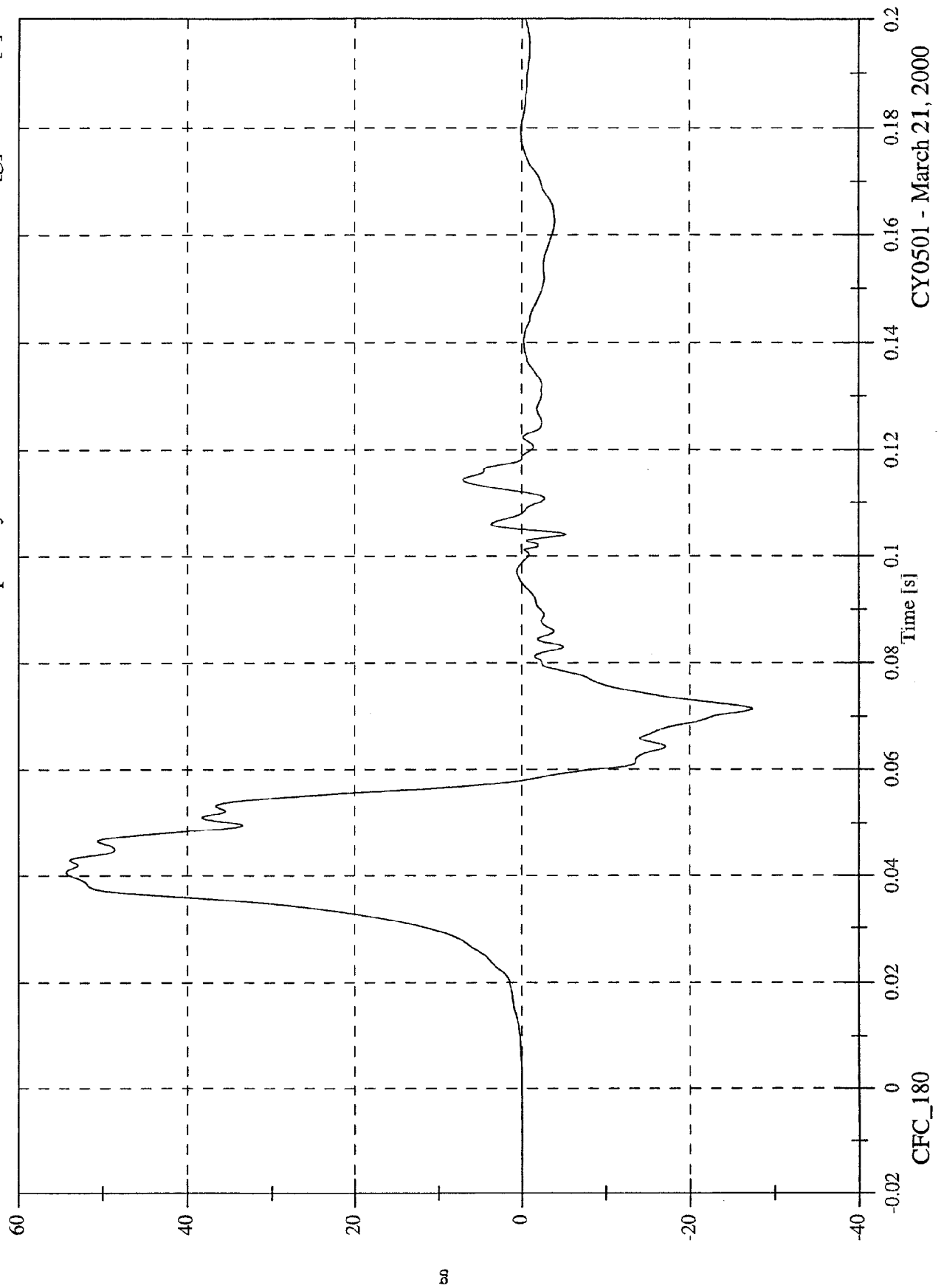


CY0501 - March 21, 2000

FMVSS 214D Test 7 - Suzuki Esteem Wagon

Max: 54.3 [g] at 0.041 [s]
Min: -27.4 [g] at 0.071 [s]

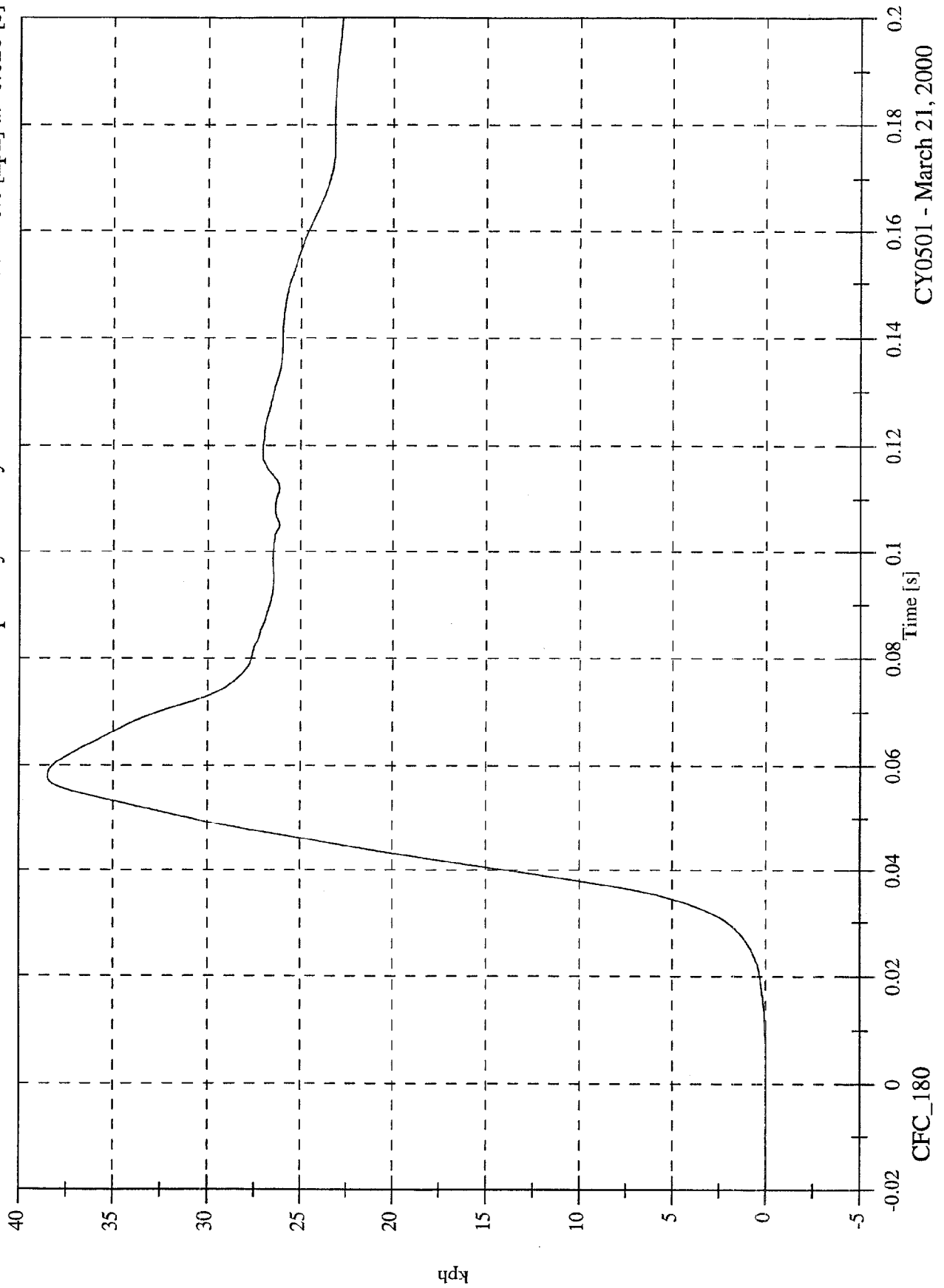
P4 Lower Spine Ry



FMVSS 214D Test 7 - Suzuki Esteem Wagon

Max: 38.5 [kph] at 0.058 [s]
Min: -0.0 [kph] at -0.020 [s]

P4 Lower Spine Ry Velocity

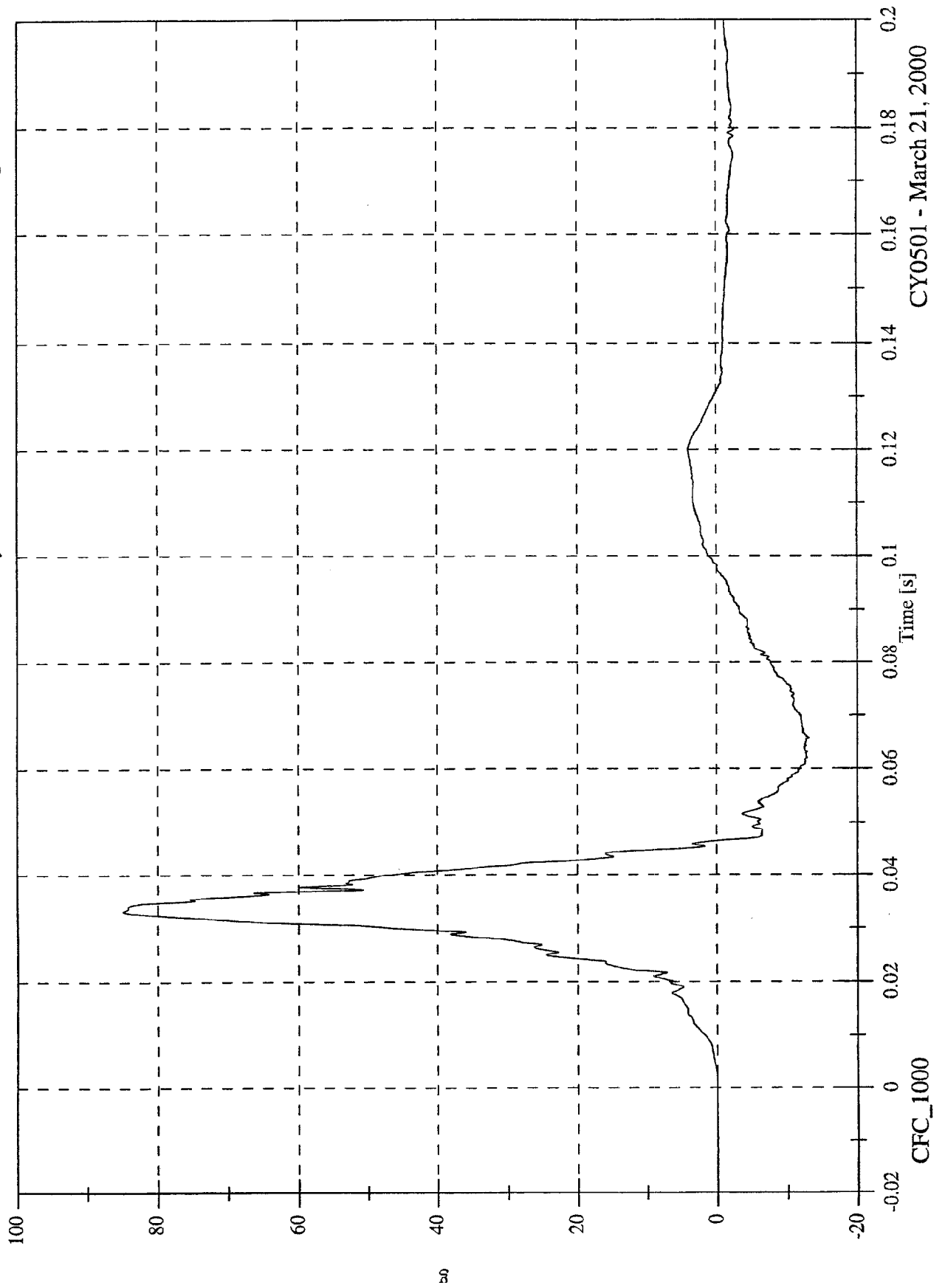


CY0501 - March 21, 2000

FMVSS 214D Test 7 - Suzuki Esteem Wagon

P4 Pelvic Ry

Max: 85.0 [g] at 0.033 [s]
Min: -13.1 [g] at 0.066 [s]

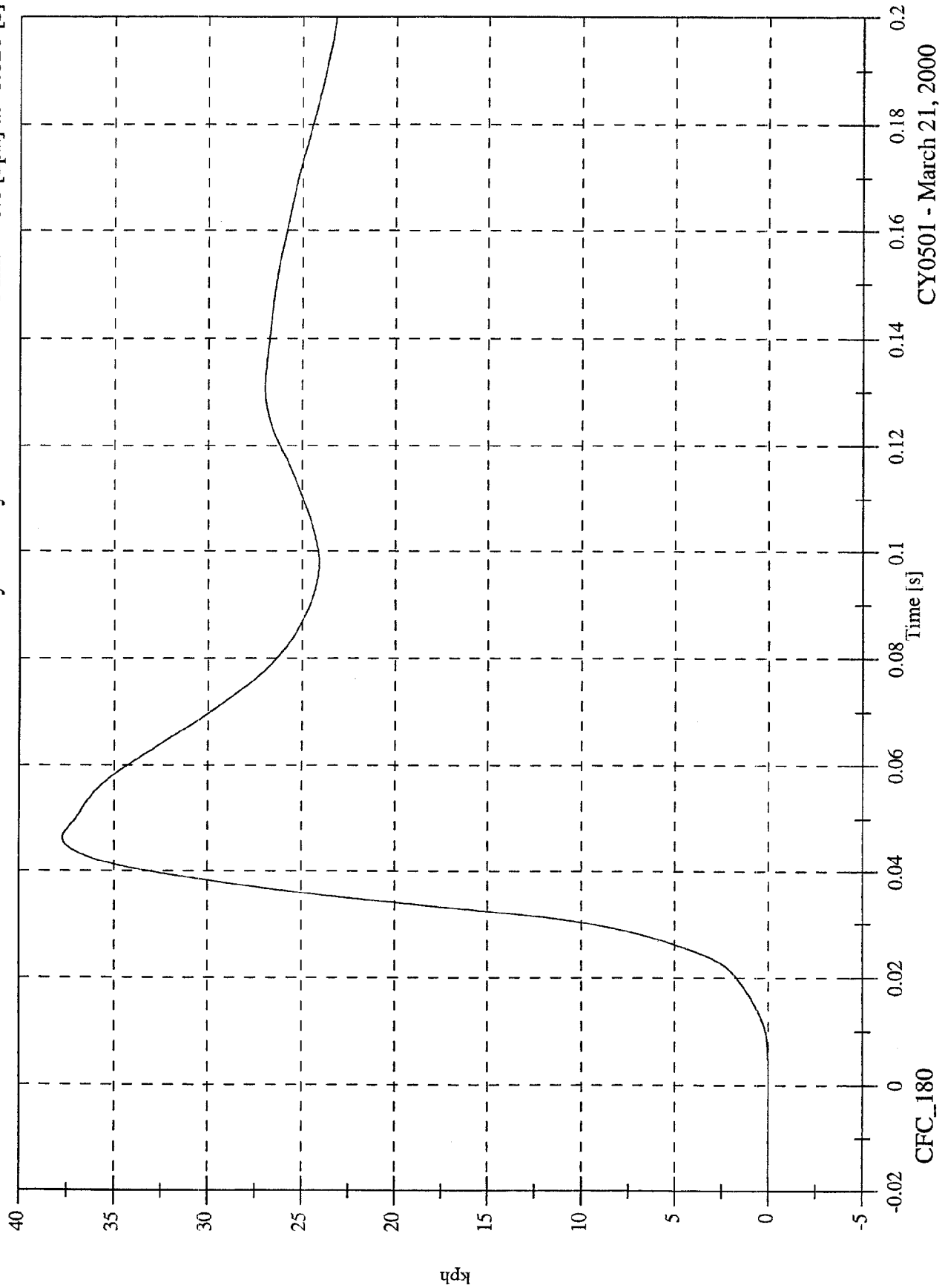


CY0501 - March 21, 2000

FMVSS 214D Test 7 - Suzuki Esteem Wagon

Max: 37.7 [kph] at 0.046 [s]
Min: -0.0 [kph] at -0.020 [s]

P4 Pelvic Ry Velocity

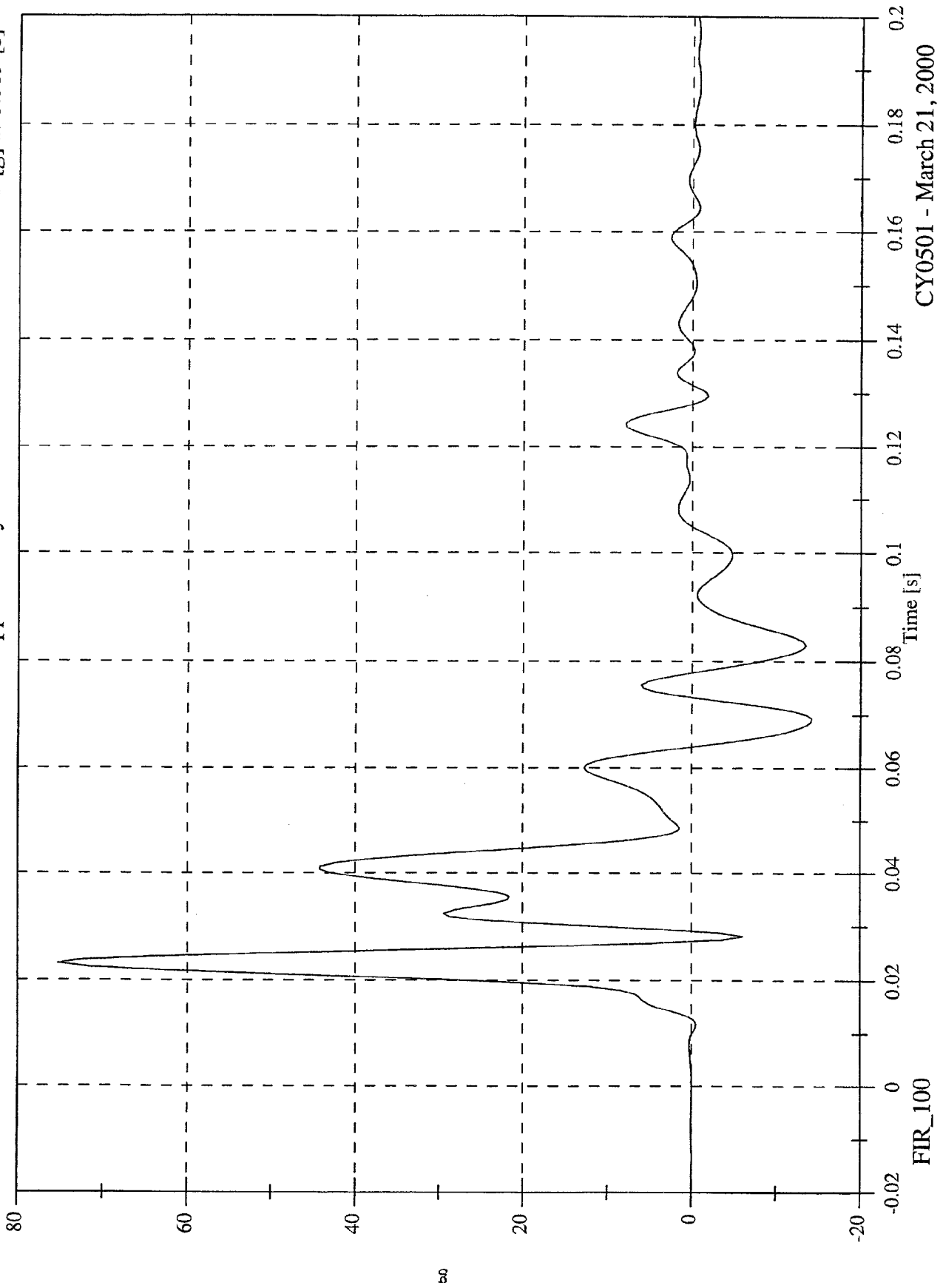


CY0501 - March 21, 2000

FMVSS 214D Test 1 - Suzuki Esteem Wagon

P1 Upper Rib Ry

Max: 75.3 [g] at 0.023 [s]
Min: -14.2 [g] at 0.069 [s]

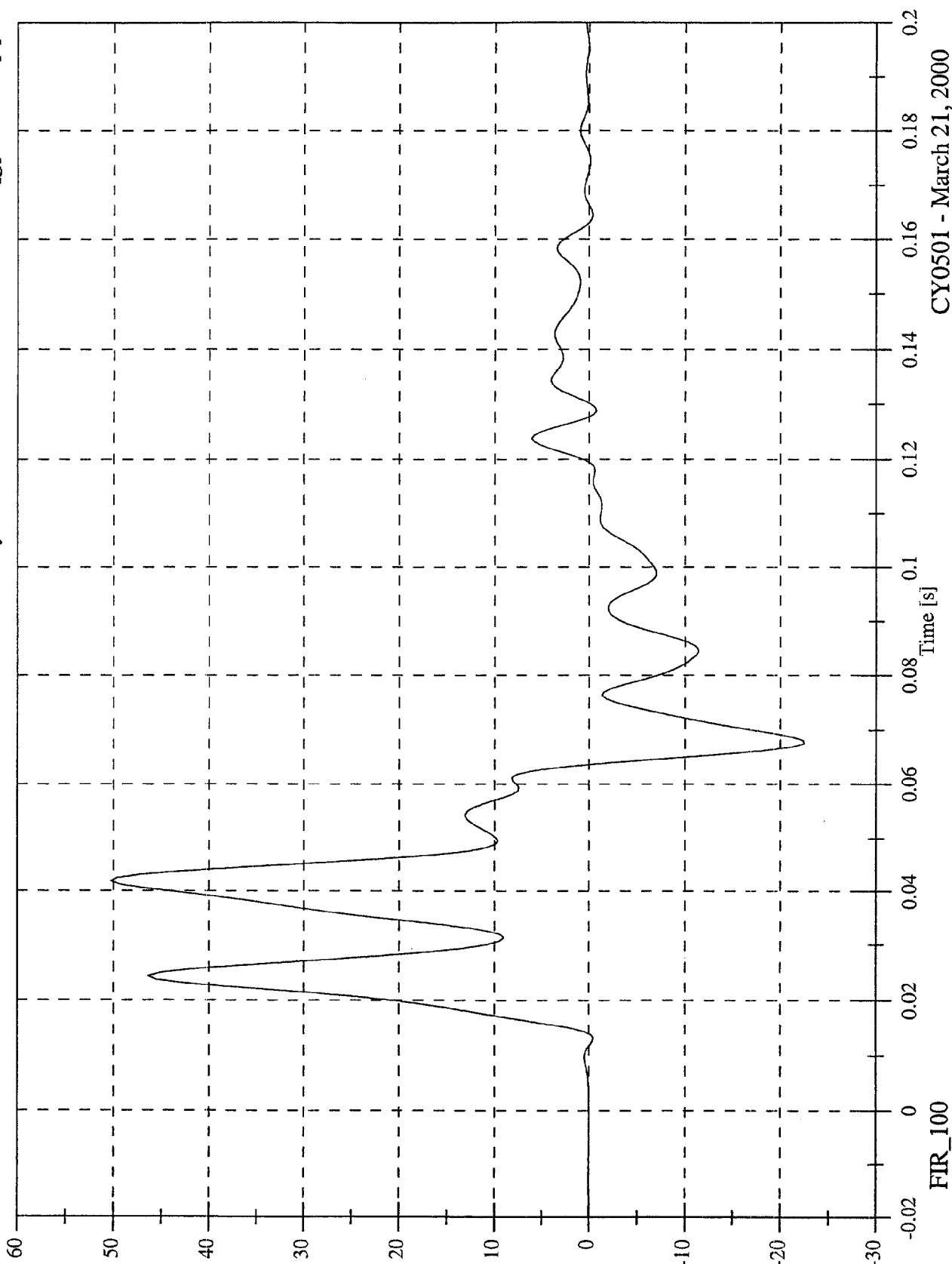


CY0501 - March 21, 2000

FMVSS 214D Test 7 - Suzuki Esteem Wagon

P1 Lower Rib Ry

Max: 50.3 [g] at 0.042 [s]
Min: -22.5 [g] at 0.067 [s]



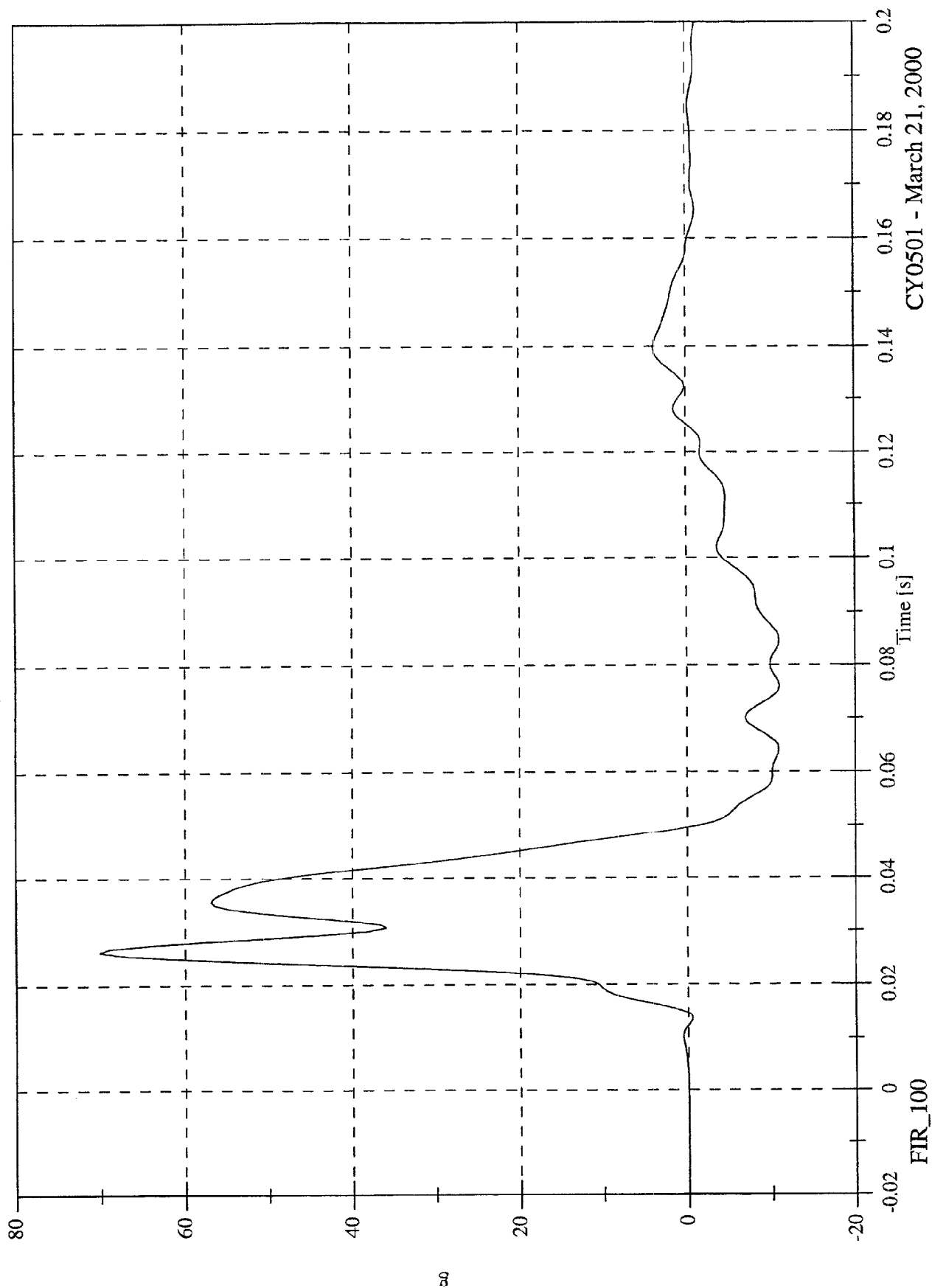
CY0501 - March 21, 2000

FMVSS 214D Test 7 - Suzuki Esteem Wagon

Max: 70.1 [g] at 0.026 [s]

Min: -11.0 [g] at 0.085 [s]

P1 Lower Spine Ry

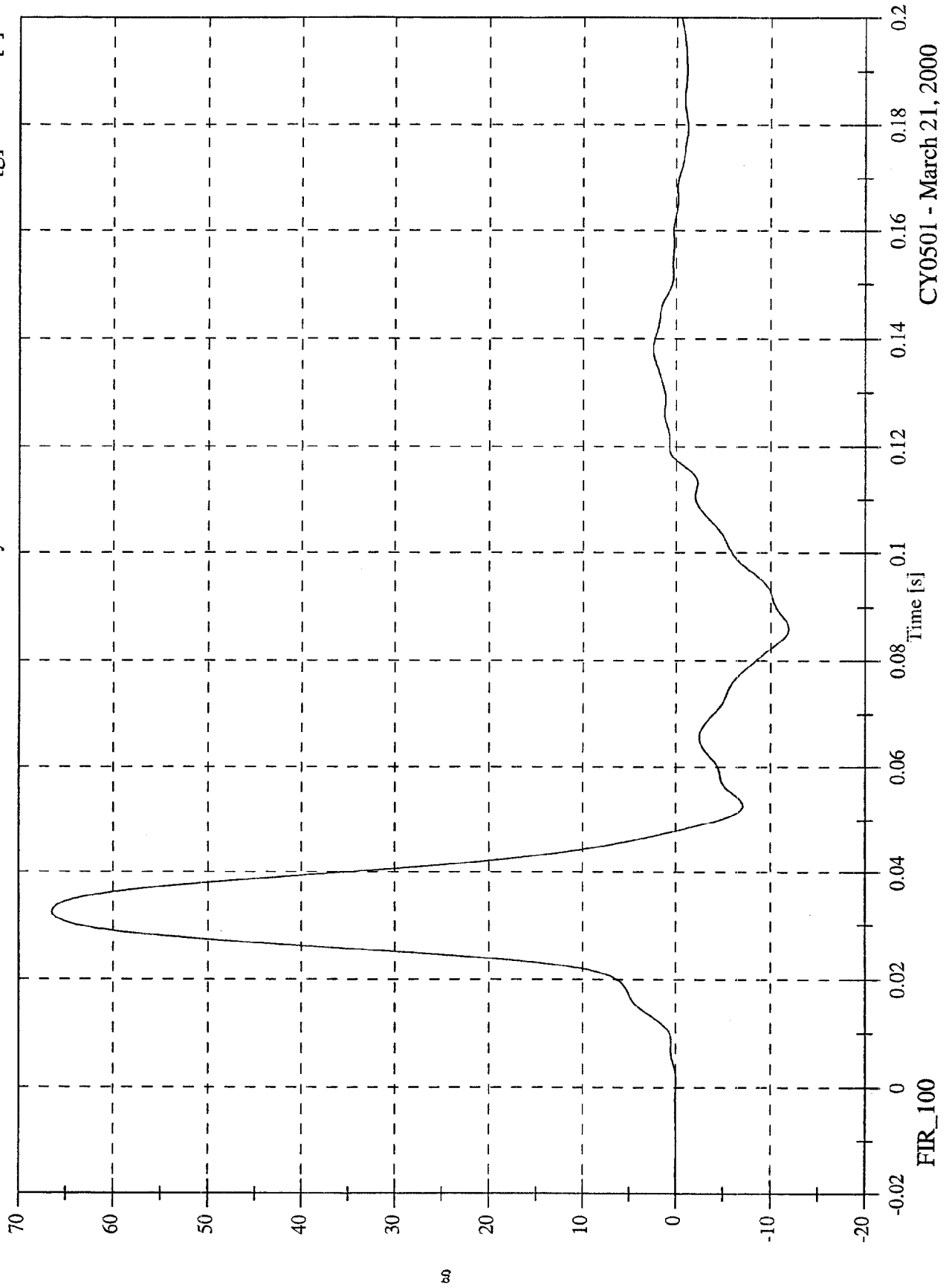


CY0501 - March 21, 2000

FMVSS 214D Test 7 - Suzuki Esteem Wagon

Max: 66.5 [g] at 0.033 [s]
Min: -11.9 [g] at 0.086 [s]

P1 Pelvic Ry

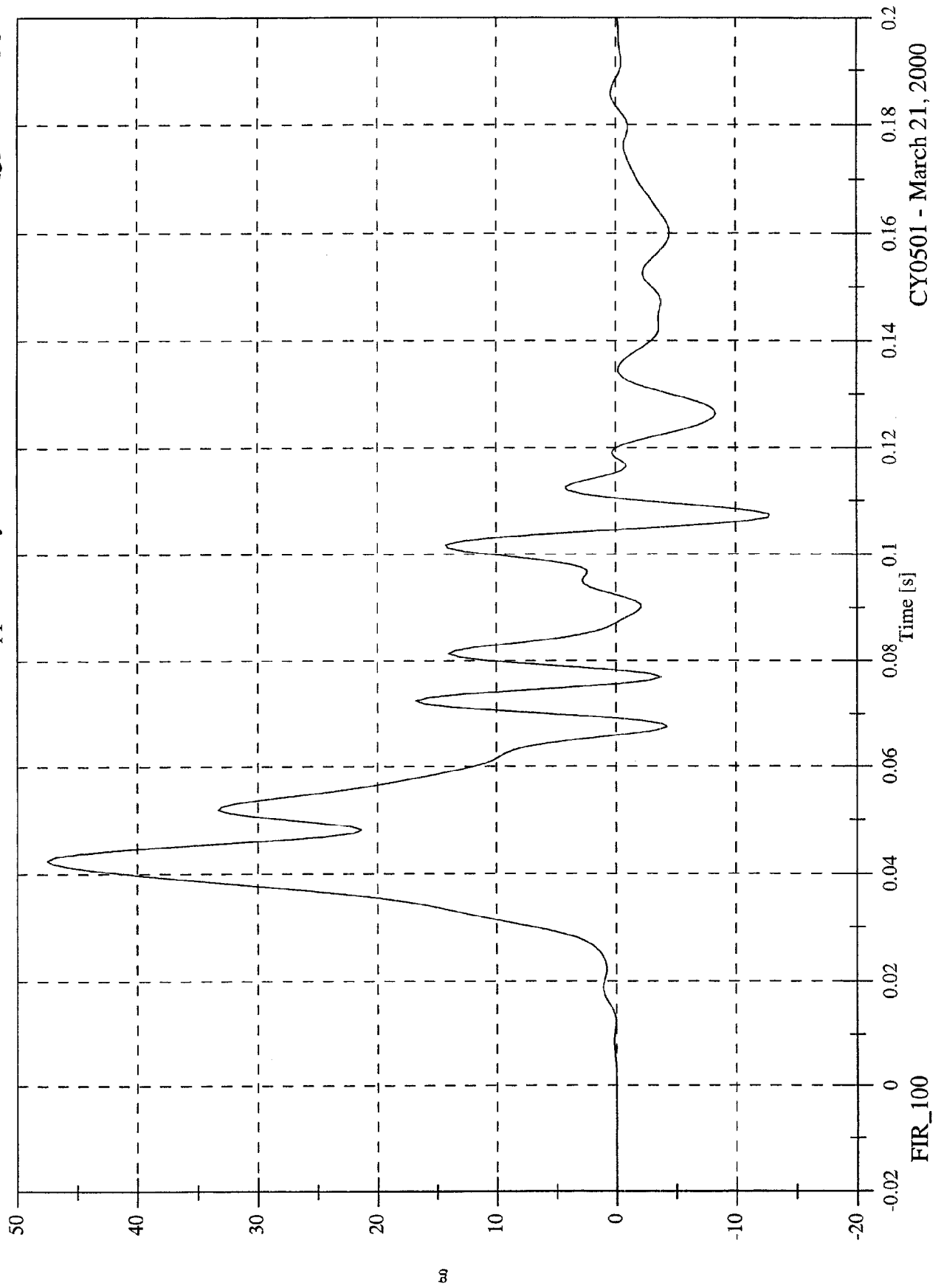


CY0501 - March 21, 2000

FMVSS 214D Test 7 - Suzuki Esteem Wagon

P4 Upper Rib Ry

Max: 47.5 [g] at 0.043 [s]
Min: -12.8 [g] at 0.107 [s]

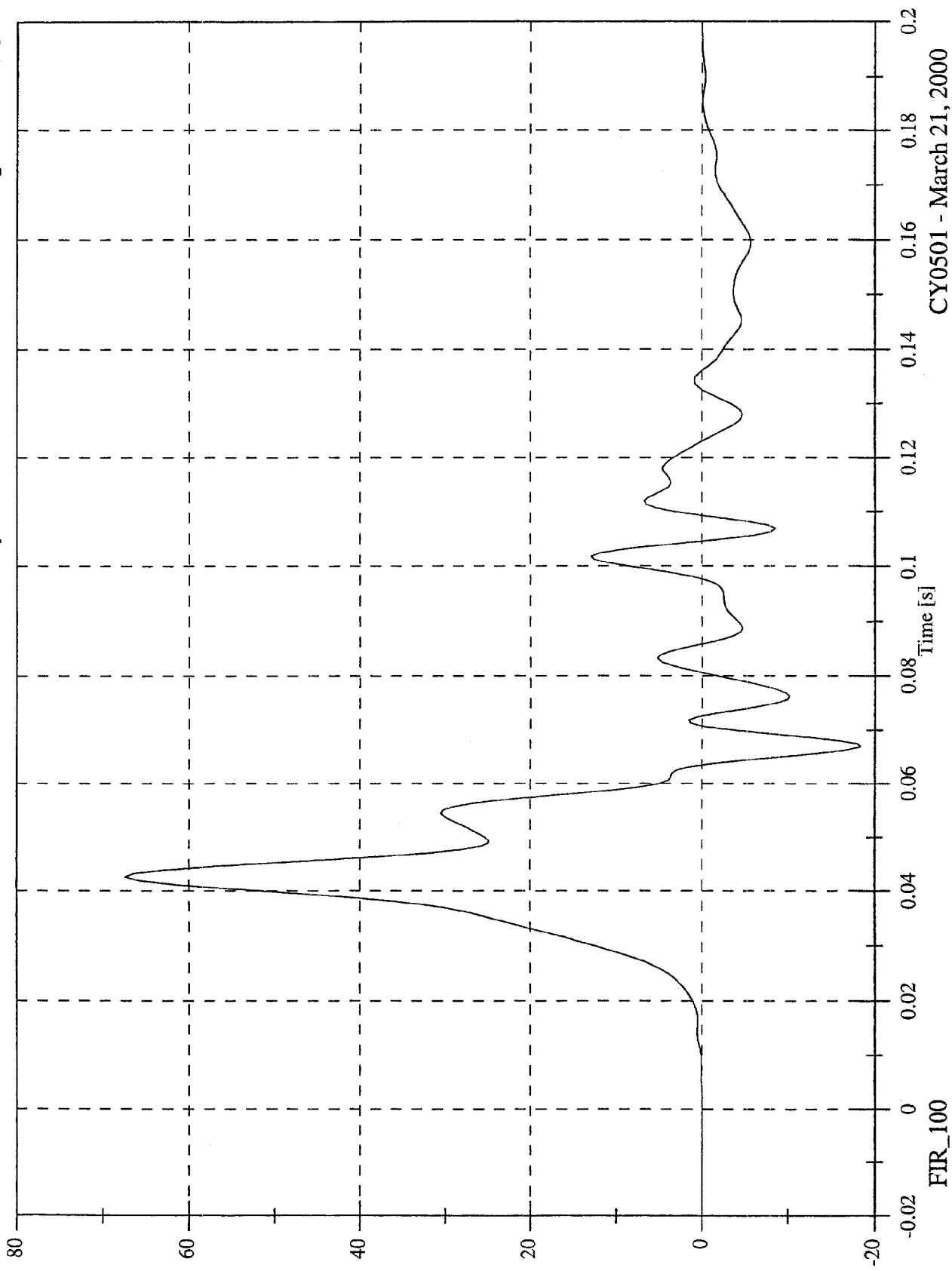


CY0501 - March 21, 2000

FMVSS 214D Test 7 - Suzuki Esteem Wagon

P4 Lower Rib Ry

Max: 67.4 [g] at 0.043 [s]
Min: -18.4 [g] at 0.067 [s]

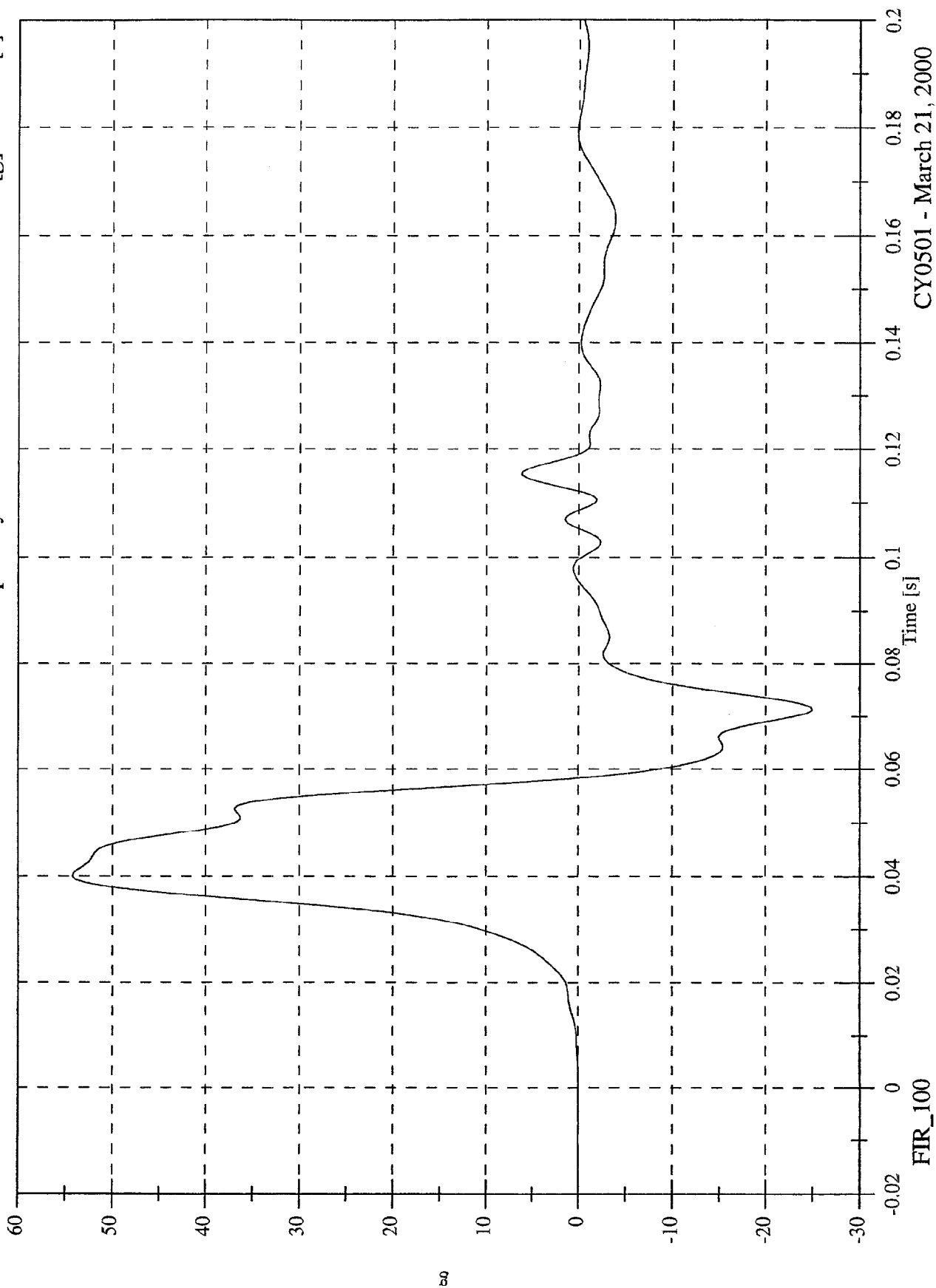


CY0501 - March 21, 2000

FMVSS 214D Test 7 - Suzuki Esteem Wagon

P4 Lower Spine Ry

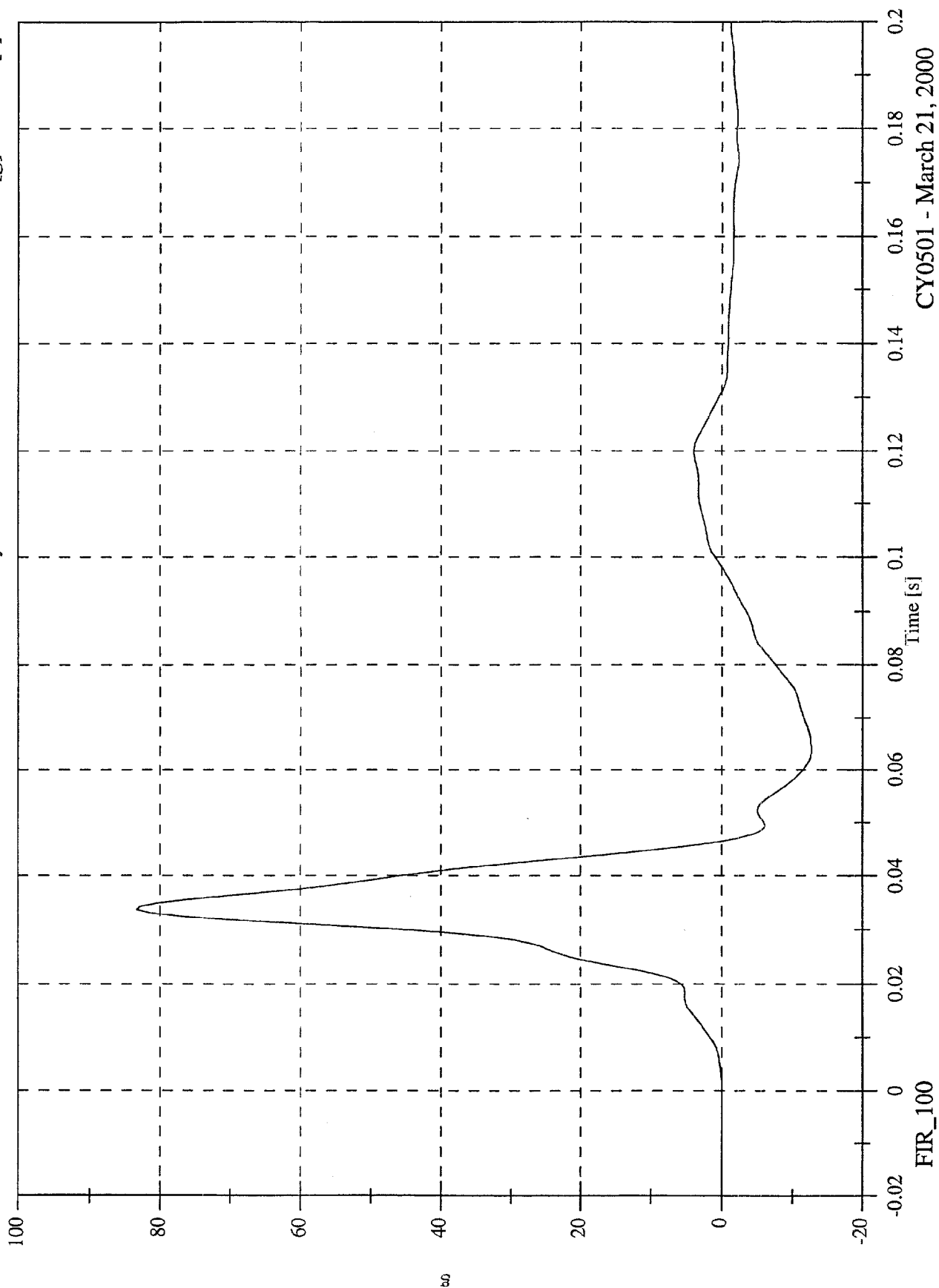
Max: 54.2 [g] at 0.040 [s]
Min: -25.0 [g] at 0.071 [s]



FMVSS 214D Test 7 - Suzuki Esteem Wagon

P4 Pelvic Ry

Max: 83.3 [g] at 0.034 [s]
Min: -12.8 [g] at 0.064 [s]



CY0501 - March 21, 2000

APPENDIX C

SID CONFIGURATION AND PERFORMANCE VERIFICATION DATA

SUMMARY
SID PRE & POST TEST CALIBRATION

CONFIGURED FOR LEFT SIDE IMPACT

Date: February 1, 2000; January 21, 2000

Sequential Test Number: 3; 2

Laboratory Technician: B. Swiecicki

TEST PARAMETER	SPECIFICATION	SID NO.: 015		SID NO.: 027	
		PRE TEST	POST TEST	PRE TEST	POST TEST
SH- Seated Height (mm)	889 - 909	904	904	907	907
RH- Rib Height (mm)	501 - 521	513	513	518	518
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	521	521	518	518
SW- Knee Pivot to Floor (mm)	490 - 505	493	493	493	493
HW- Hip Width (mm)	356 - 391	368	370	368	368
THORAX IMPACTS					
TEMPERATURE (°C)	18.9 - 25.5	21.1	21.1	21.1	21.1
RELATIVE HUMIDITY (%)	10 - 70	32	30	32	30
PROBE SPEED (m/s)	4.27 - 4.33	4.29	4.30	4.29	4.31
UPPER RIB (g's)	37 - 46	40.4	40.0	41.0	40.6
LOWER RIB (g's)	37 - 46	41.4	38.2	41.8	38.1
LOWER SPINE (g's)	15 - 22	21.5	21.1	22.0	21.4
PELVIS IMPACT					
TEMPERATURE (°C)	18.9 - 25.5	21.1	21.1	21.1	21.1
RELATIVE HUMIDITY (%)	10 - 70	32	30	32	30
PROBE SPEED (m/s)	4.27 - 4.33	4.27	4.30	4.27	4.28
PELVIS (g's)	40 - 60	44.7	42.7	42.1	53.0

REMARKS: None

CALIBRATION TEST RESULTS
PRE-TEST

SID NO.: 015

CONFIGURED FOR LEFT SIDE IMPACT

**CALIBRATION TEST RESULTS SUMMARY
PRE-TEST**

CONFIGURED FOR LEFT SIDE IMPACT

SID Serial No.: 015
Date: March 17, 2000

Sequential Test Number: 1
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.
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.: 015 Sequential Test Number: 1
Date: March 17, 2000 Laboratory Technician: B. Swiecicki

TEST PARAMETER	SPECIFICATION	TEST RESULTS
SH- Seated Height (mm)	889 - 909	904
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	521
KV- Knee Pivot to Floor (mm)	490 - 505	493
HW- Hip Width (mm)	356 - 391	368

REMARKS: None

THORACIC SHOCK ABSORBER TESTS
PRE-TEST

CONFIGURED FOR LEFT SIDE IMPACT

SID Serial No.: 015 Sequential Test Number: 2
Date: February 1, 2000 Laboratory Technician: B. Swiecicki

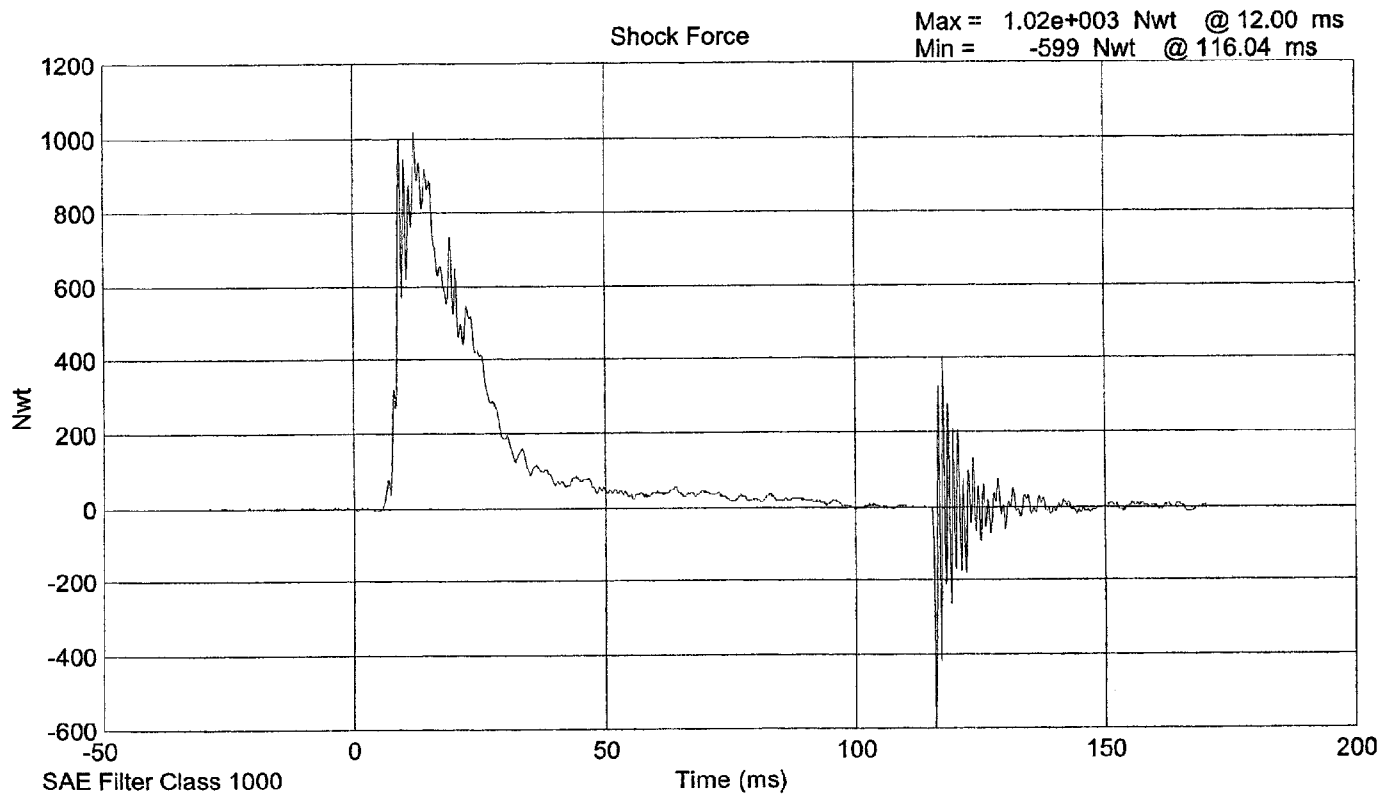
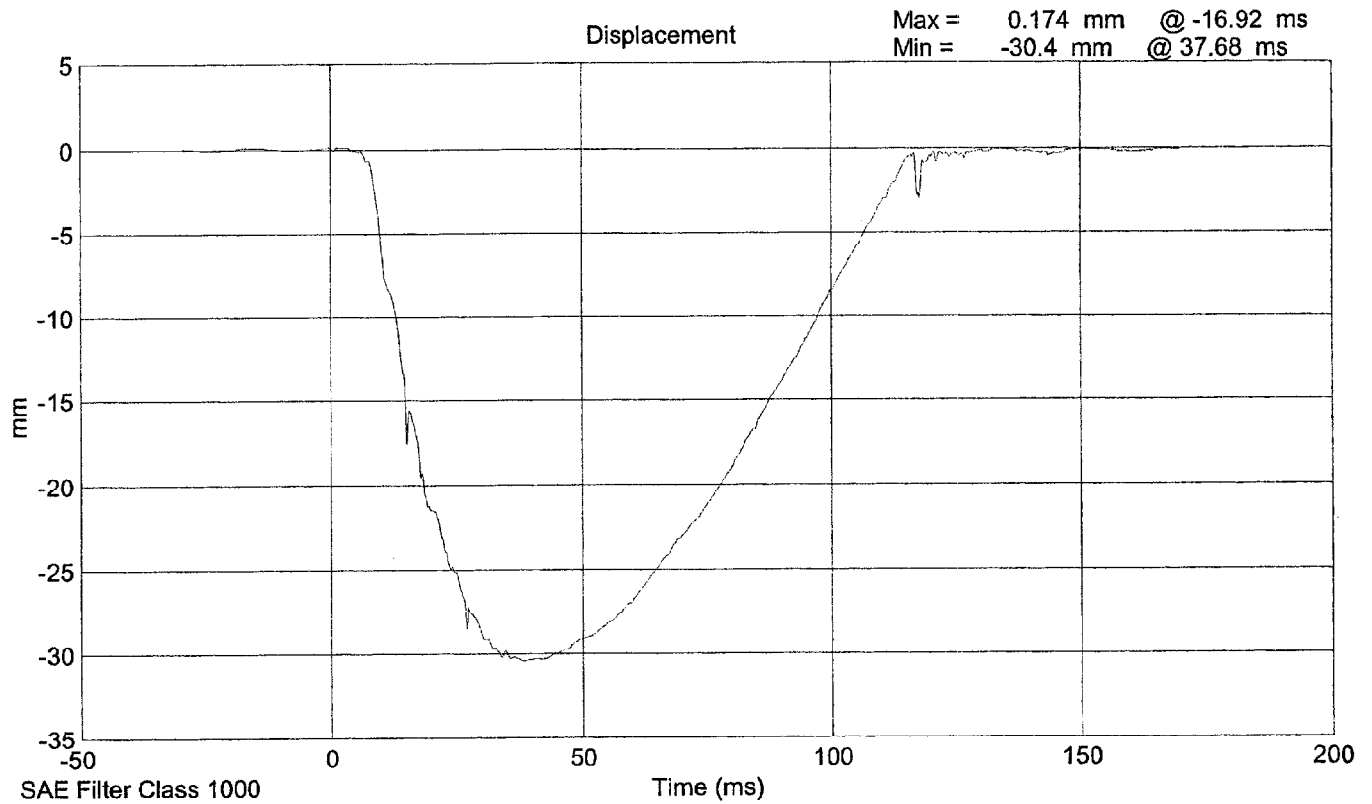
DAMPER IDENTIFICATION: 015

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	1016.4
	DISPLACEMENT (mm)	30 - 35	30.4
VELOCITY 4.27 m/s	FORCE (N)	1730 - 2099	1989.2
	DISPLACEMENT (mm)	32 - 37	33.7
VELOCITY 6.10 m/s	FORCE (N)	3741 - 4448	3837.5
	DISPLACEMENT (mm)	33 - 40	36.3

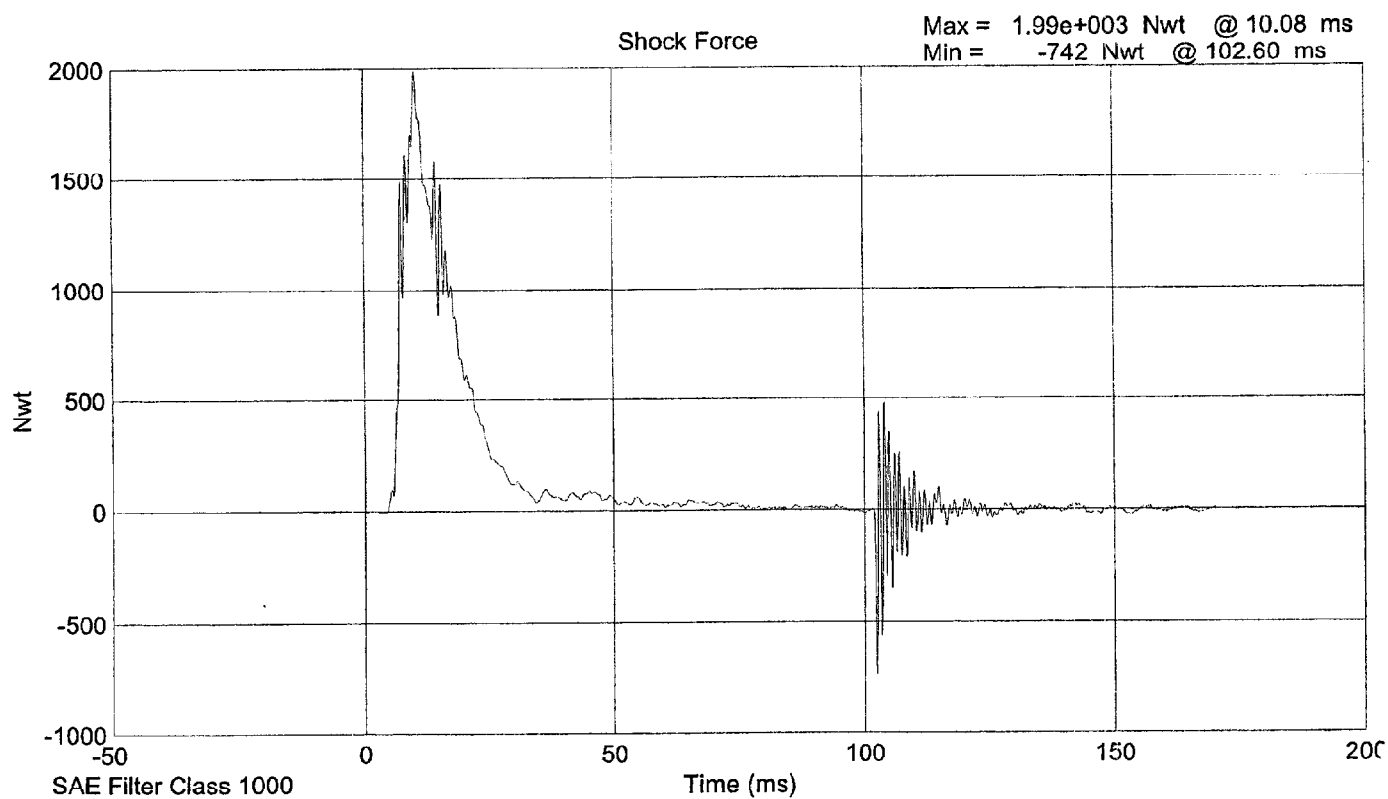
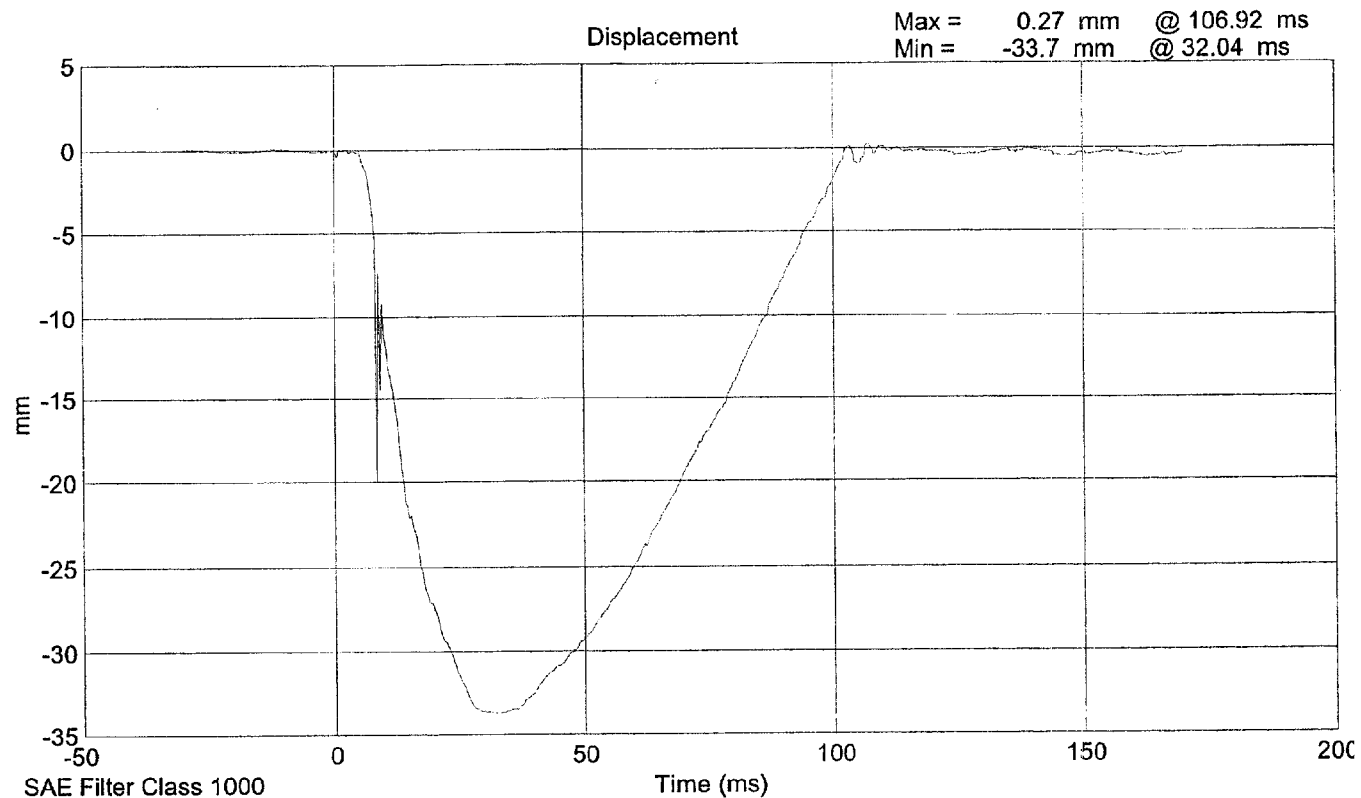
DAMPER SETTING: 5

REMARKS: None

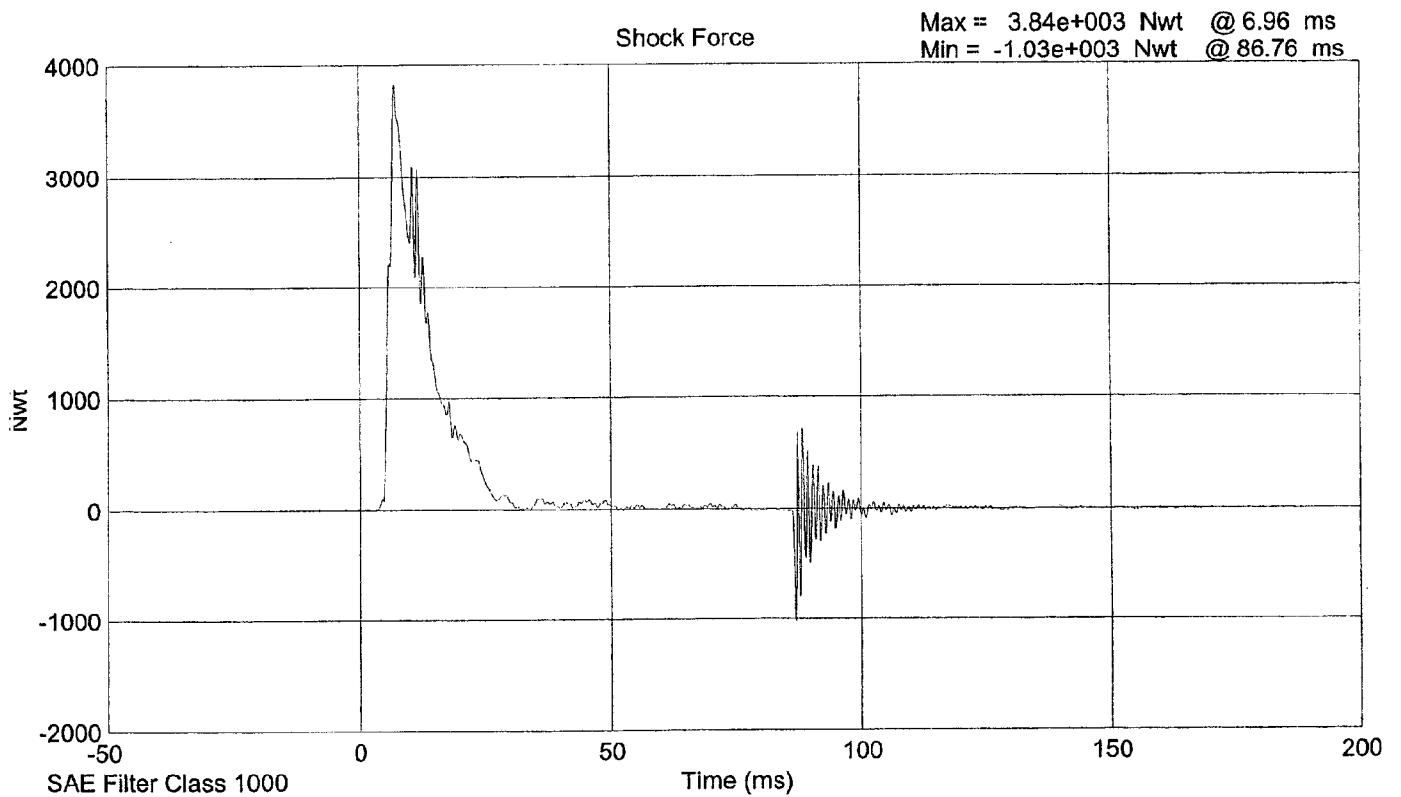
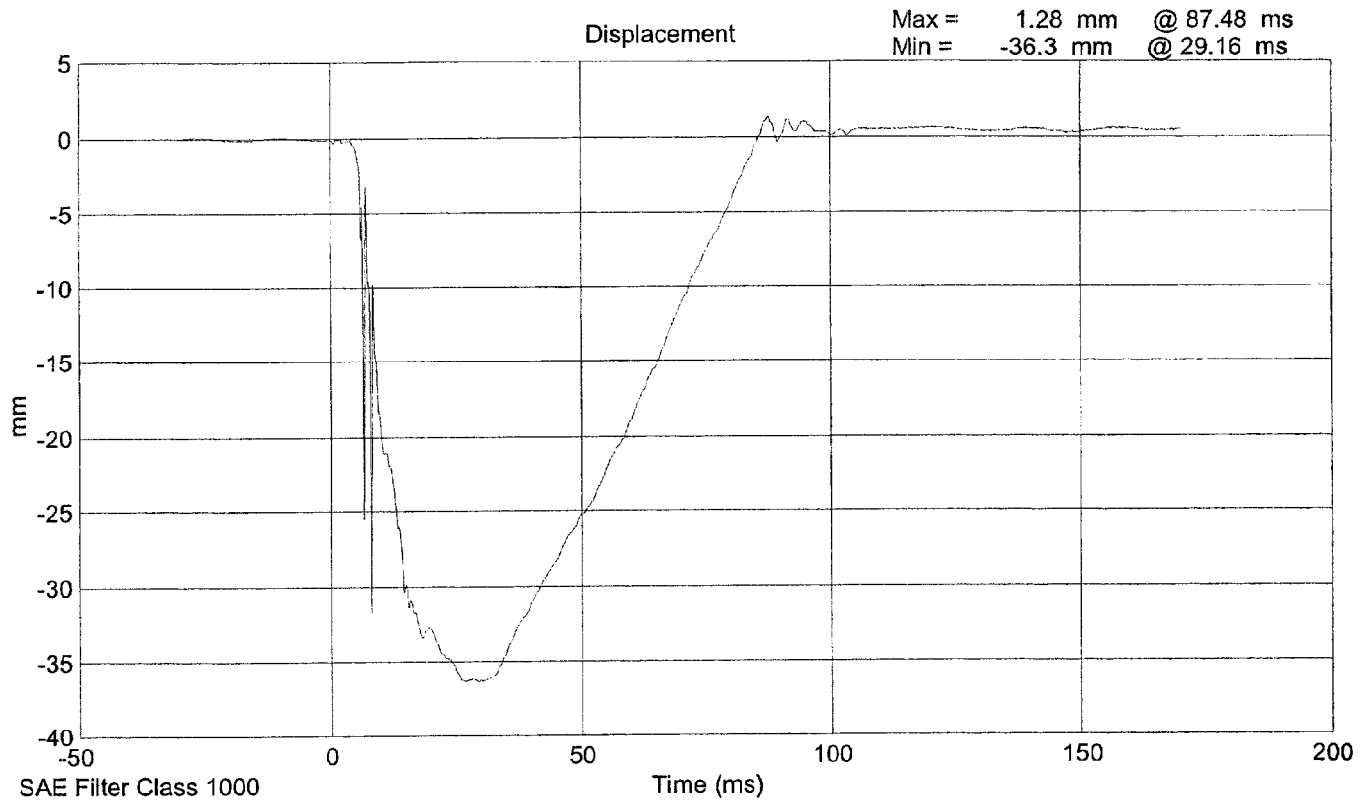
SID 015 Shock Absorber Impact Test @ 3.048 m/s



SID 015 Shock Absorber Impact Test @ 4.572 m/s



SID 015 Shock Absorber Impact Test @ 6.096 m/s



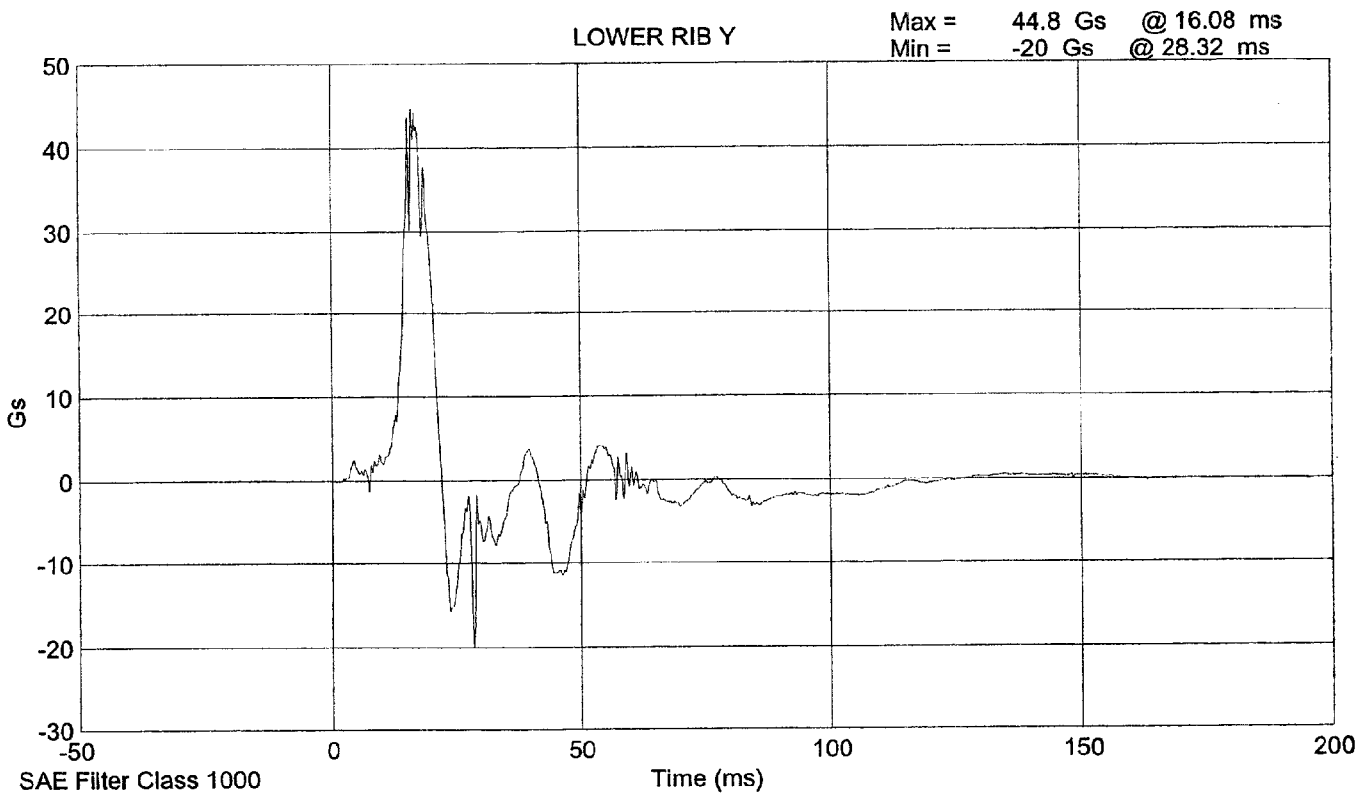
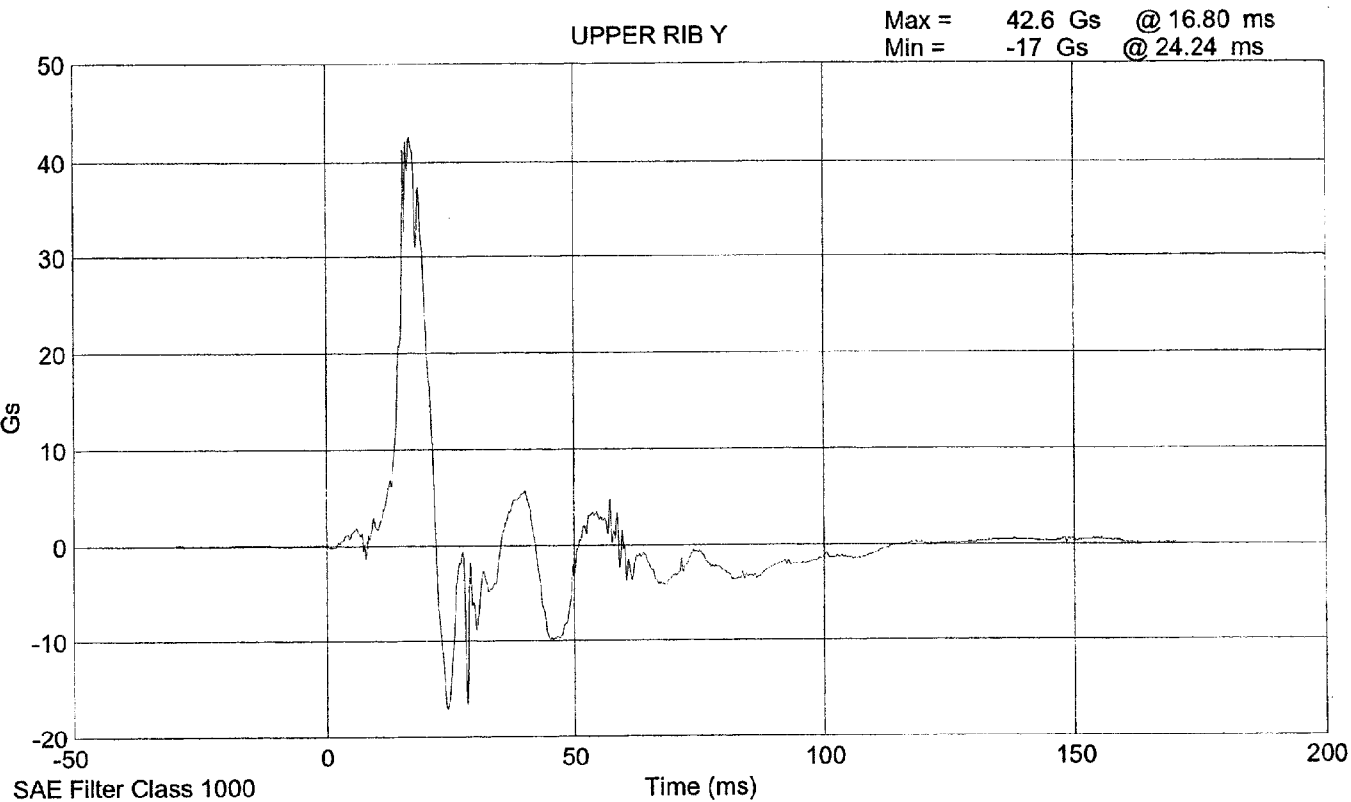
**LATERAL THORAX IMPACT TEST
PRE-TEST**

CONFIGURED FOR LEFT SIDE IMPACT

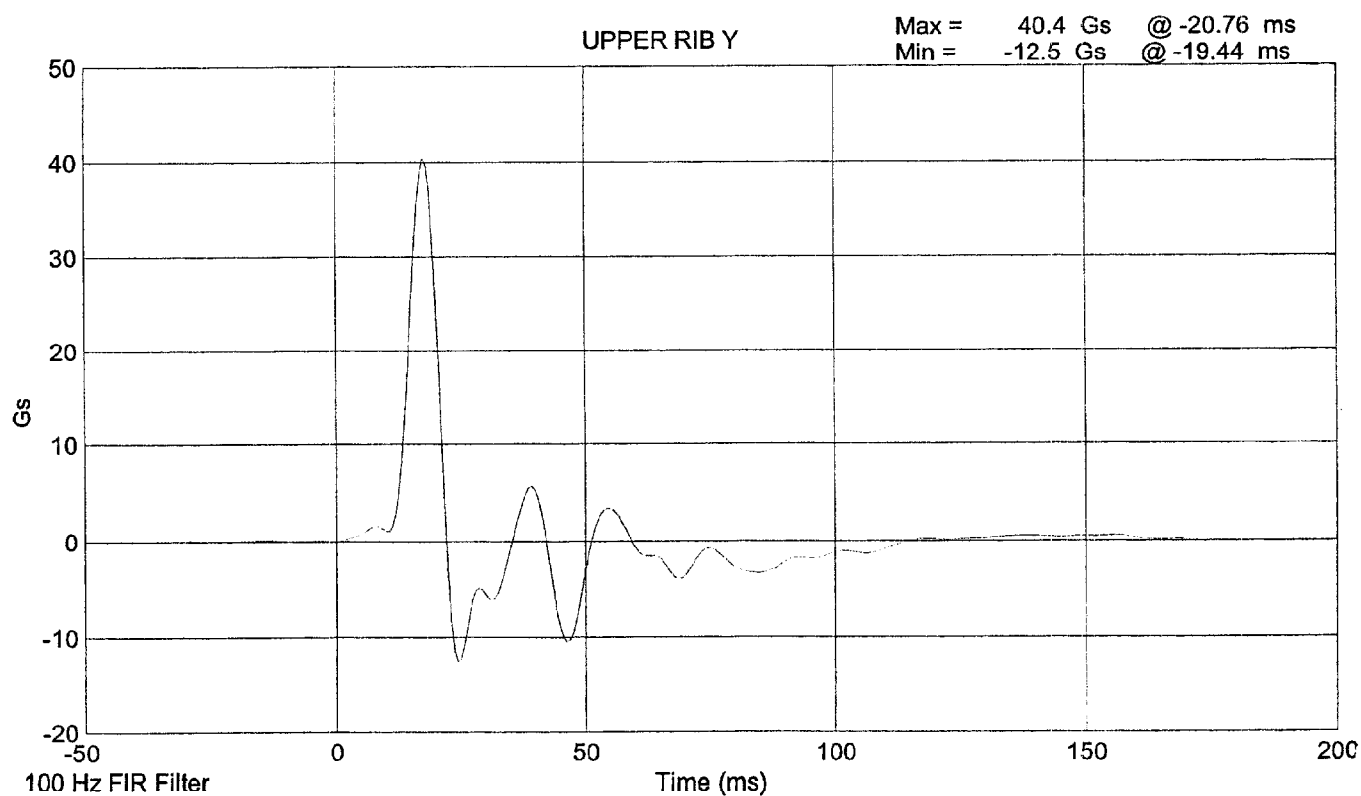
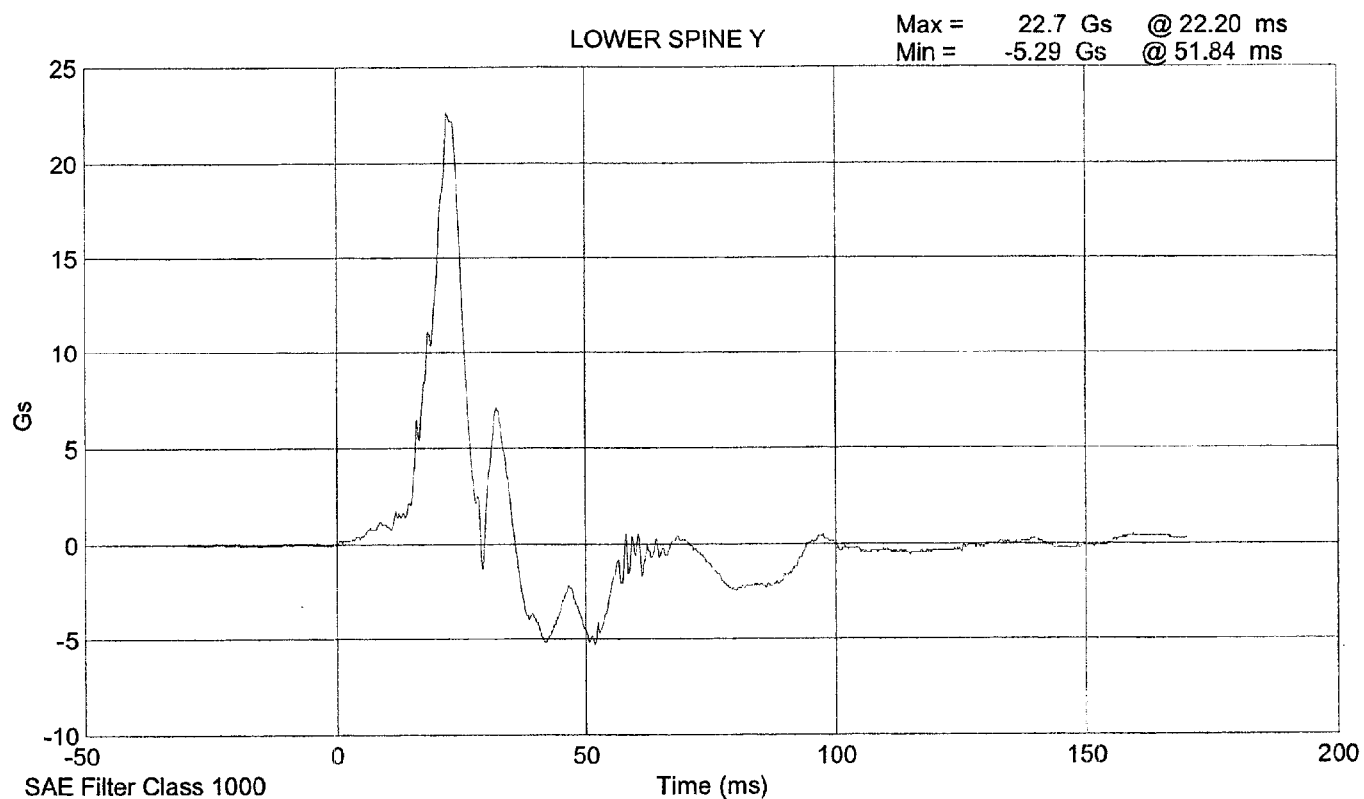
SID Serial No.: 015 Sequential Test Number: 1
Date: March 17, 2000 Laboratory Technician: B. Swiecicki

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE (°C)	18.9 - 25.5	21.1
RELATIVE HUMIDITY (%)	10 - 70	32
PROBE SPEED (m/s)	4.27 - 4.33	4.29
UPPER RIB (g's)	37 - 46	40.4
LOWER RIB (g's)	37 - 46	41.4
LOWER SPINE (g's)	15 - 22	21.5

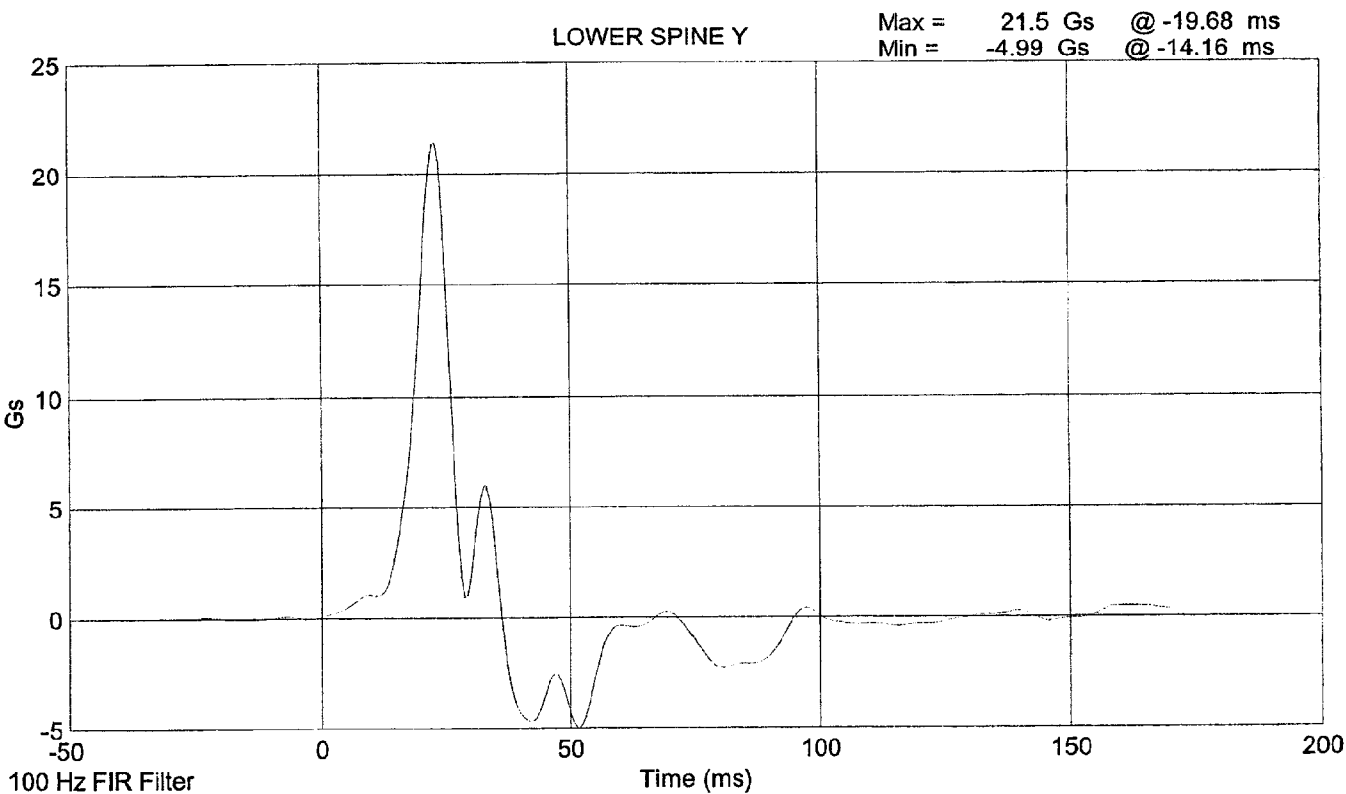
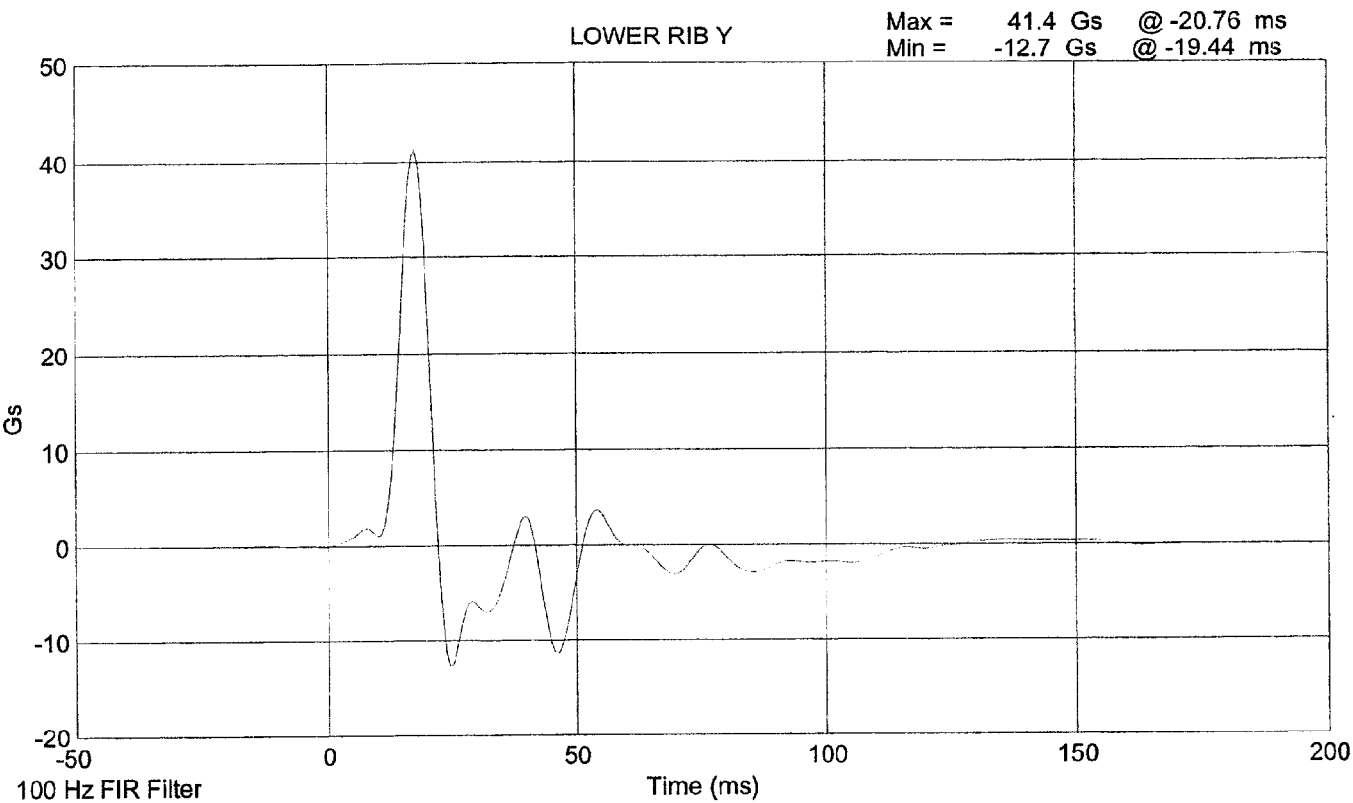
REMARKS: None



SID 015 Thorax Impact Test @ 4.2855 m/s



SID 015 Thorax Impact Test @ 4.2855 m/s



**LATERAL PELVIS IMPACT TEST
PRE-TEST**

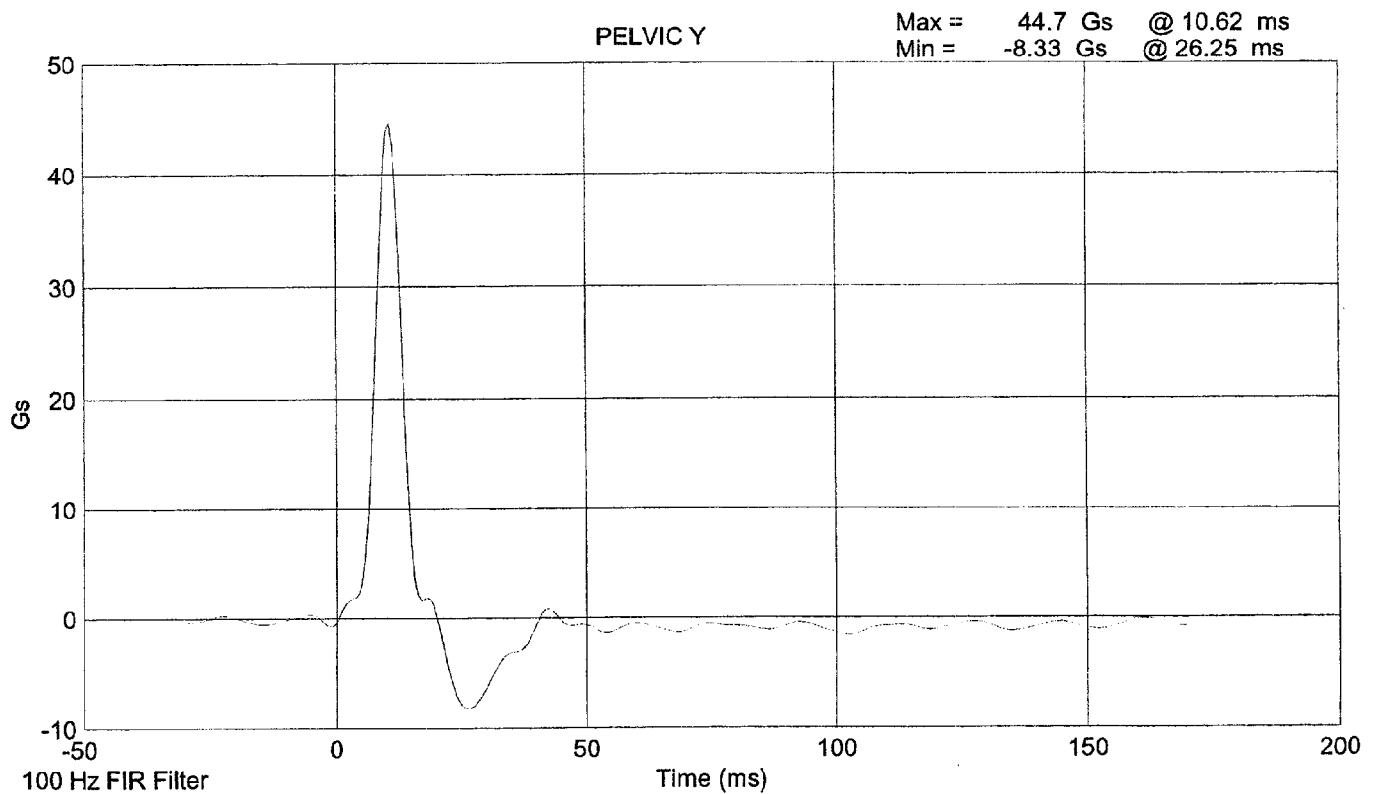
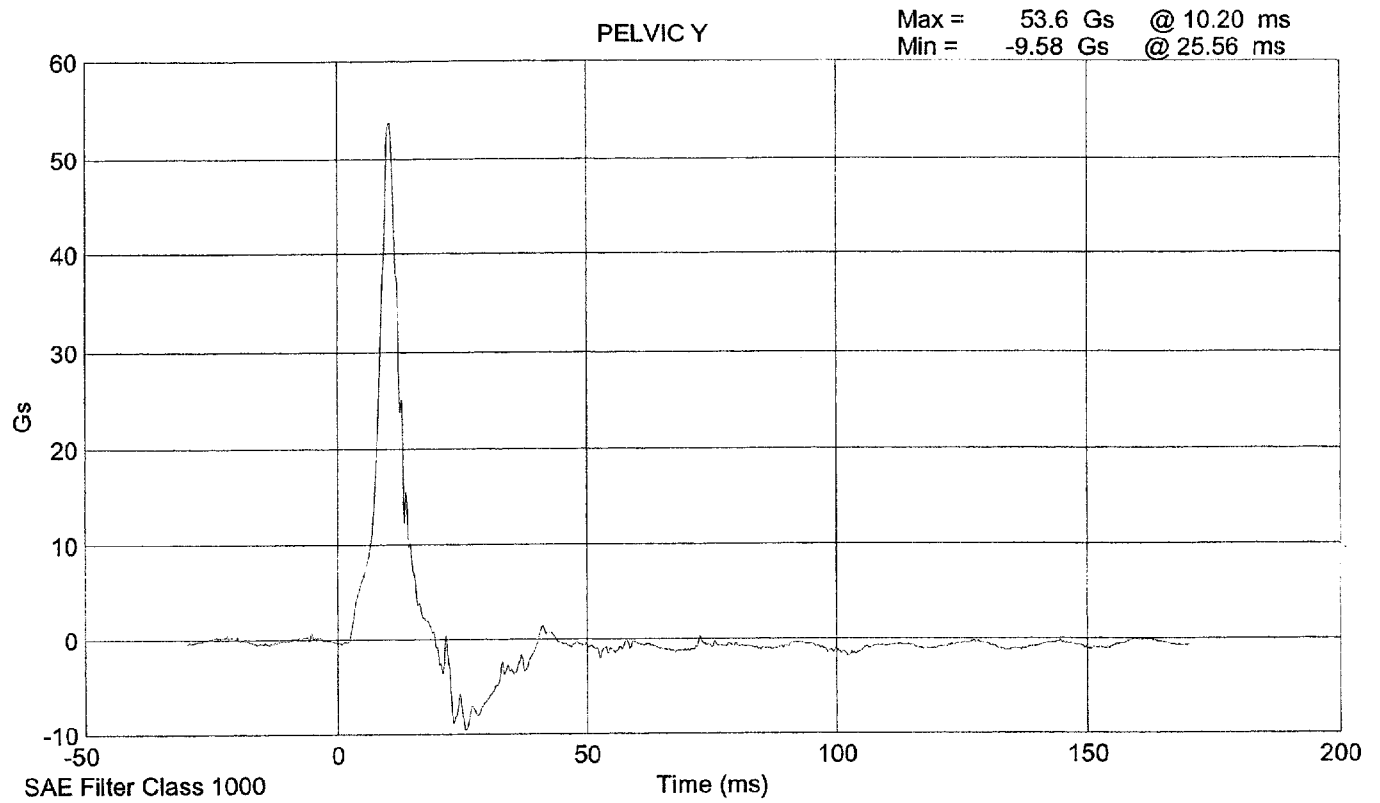
CONFIGURED FOR LEFT SIDE IMPACT

SID Serial No.: 015 Sequential Test Number: 1
Date: March 17, 2000 Laboratory Technician: B. Swiecicki

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE (°C)	18.9 - 25.5	21.1
RELATIVE HUMIDITY (%)	10 - 70	32
PROBE SPEED (m/s)	4.27 - 4.33	4.27
PELVIS ACCELERATION (g's)	40 - 60	44.7

REMARKS: None

SID 015 Pelvic Impact Test @ 4.2702 m/s



ABDOMINAL COMPRESSION TEST**PRE-TEST**

(Test not required for SID certification)

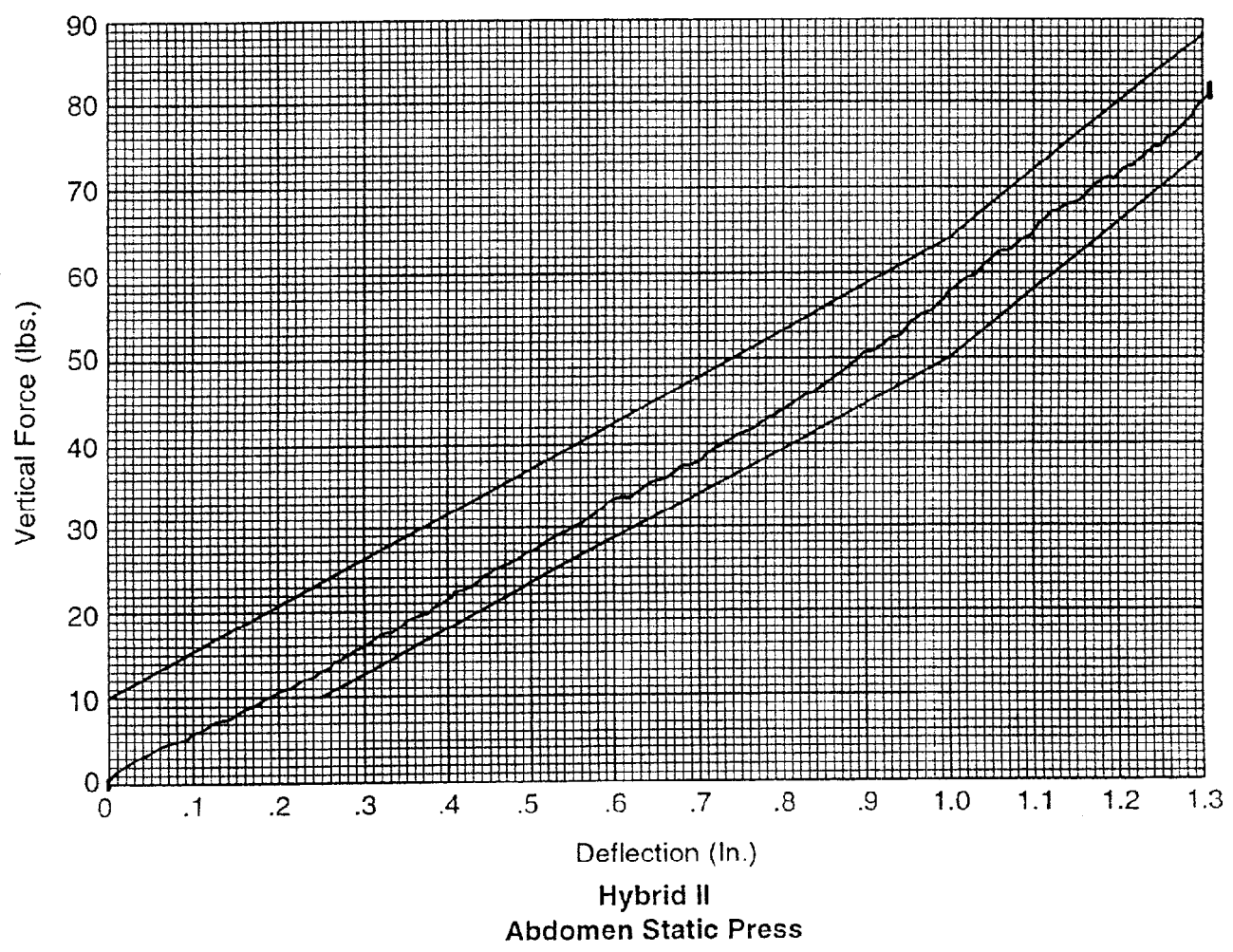
CONFIGURED FOR LEFT SIDE IMPACT

SID Serial No.: 015 Sequential Test Number: 1
Date: March 17, 2000 Laboratory Technician: B. Swiecicki

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE (°C)	18.9 - 25.5	21.1
RELATIVE HUMIDITY (%)	10 - 70	32
FORCE @ 13 mm (N)	104 - 162	120
FORCE @ 19 mm (N)	163 - 221	183
FORCE @ 25 mm (N)	222 - 280	256
FORCE @ 33 mm (N)	325 - 391	356

REMARKS: None

Dummy S/N 015
W/A _____
Date 3-17-2000
Performed By BS
Temp. 70°
Humidity 32%



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

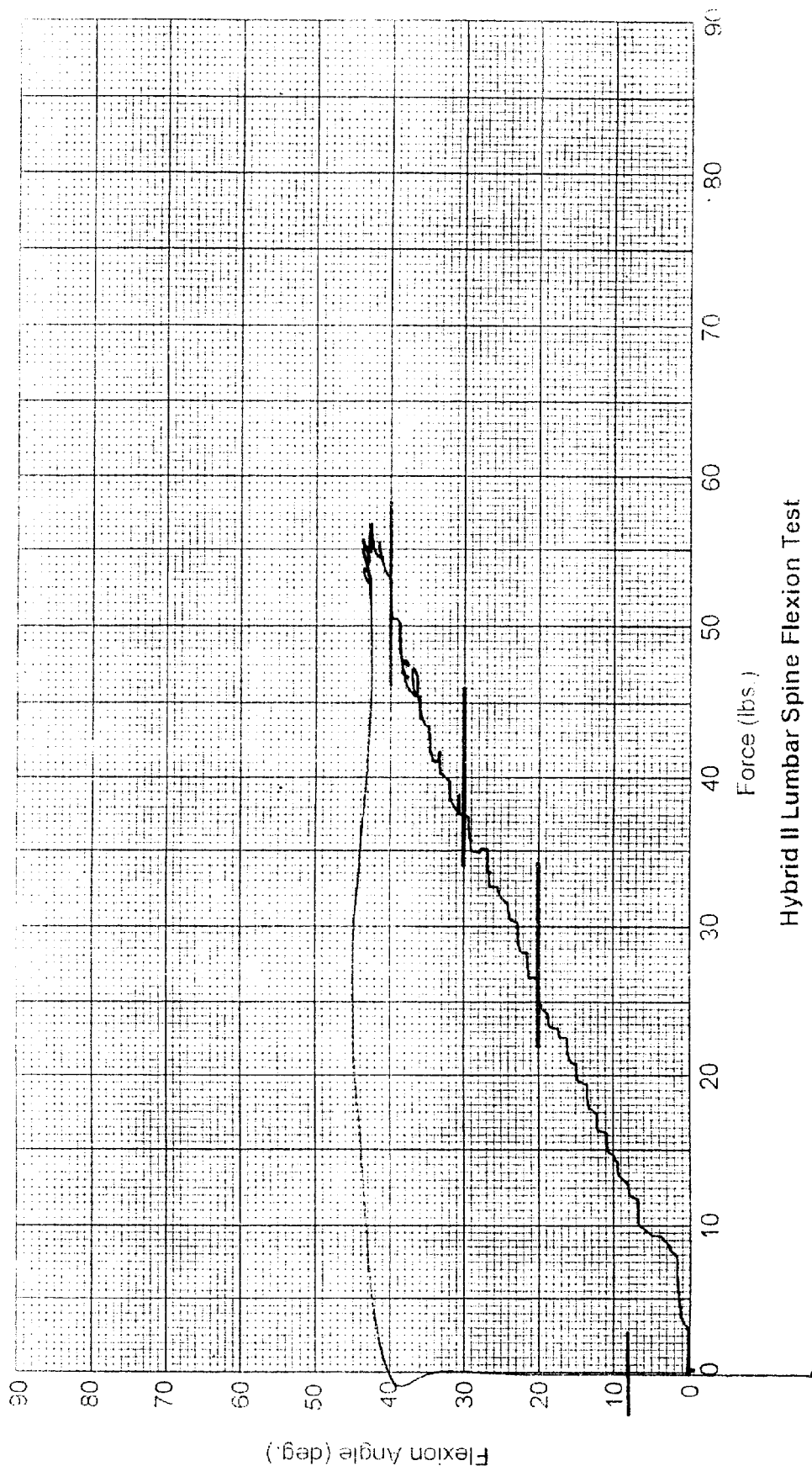
CONFIGURED FOR LEFT SIDE IMPACT

SID Serial No.: 015 Sequential Test Number: 1
Date: March 17, 2000 Laboratory Technician: B. Swiecicki

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE (°C)	18.9 - 25.5	21.7
RELATIVE HUMIDITY (%)	10 - 70	31
FORCE @ 0° (N)	0 - 26.7	0
FORCE @ 20° (N)	97.8 - 151.2	114.3
FORCE @ 30° (N)	151.2 - 204.6	166.4
FORCE @ 40° (N)	204.6 - 258	230.4
RETURN ANGLE	12° max.	8°

REMARKS: None

Dummy S/N 015
 W/A _____
 Date 3-17-2000
 Performed By RS
 Temp. 71°
 Humidity 31%



Hybrid II Lumbar Spine Flexion Test

PRE-TEST DUMMY INSPECTION LIST

CONFIGURED FOR LEFT SIDE IMPACT

SID Serial No.: 015 Sequential Test Number: 1
 Date: March 17, 2000 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.: 027

CONFIGURED FOR LEFT SIDE IMPACT

**CALIBRATION TEST RESULTS SUMMARY
PRE-TEST**

CONFIGURED FOR LEFT SIDE IMPACT

SID Serial No.: 027 Sequential Test Number: 1
Date: March 17, 2000 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.
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.: 027 Sequential Test Number: 1
Date: March 17, 2000 Laboratory Technician: B. Swiecicki

TEST PARAMETER	SPECIFICATION	TEST RESULTS
SH- Seated Height (mm)	889 - 909	907
RH- Rib Height (mm)	502 - 520	518
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	368

REMARKS: None

**THORACIC SHOCK ABSORBER TESTS
PRE-TEST**

CONFIGURED FOR LEFT SIDE IMPACT

SID Serial No.: 027 Sequential Test Number: 3
 Date: January 21, 2000 Laboratory Technician: B. Swiecicki

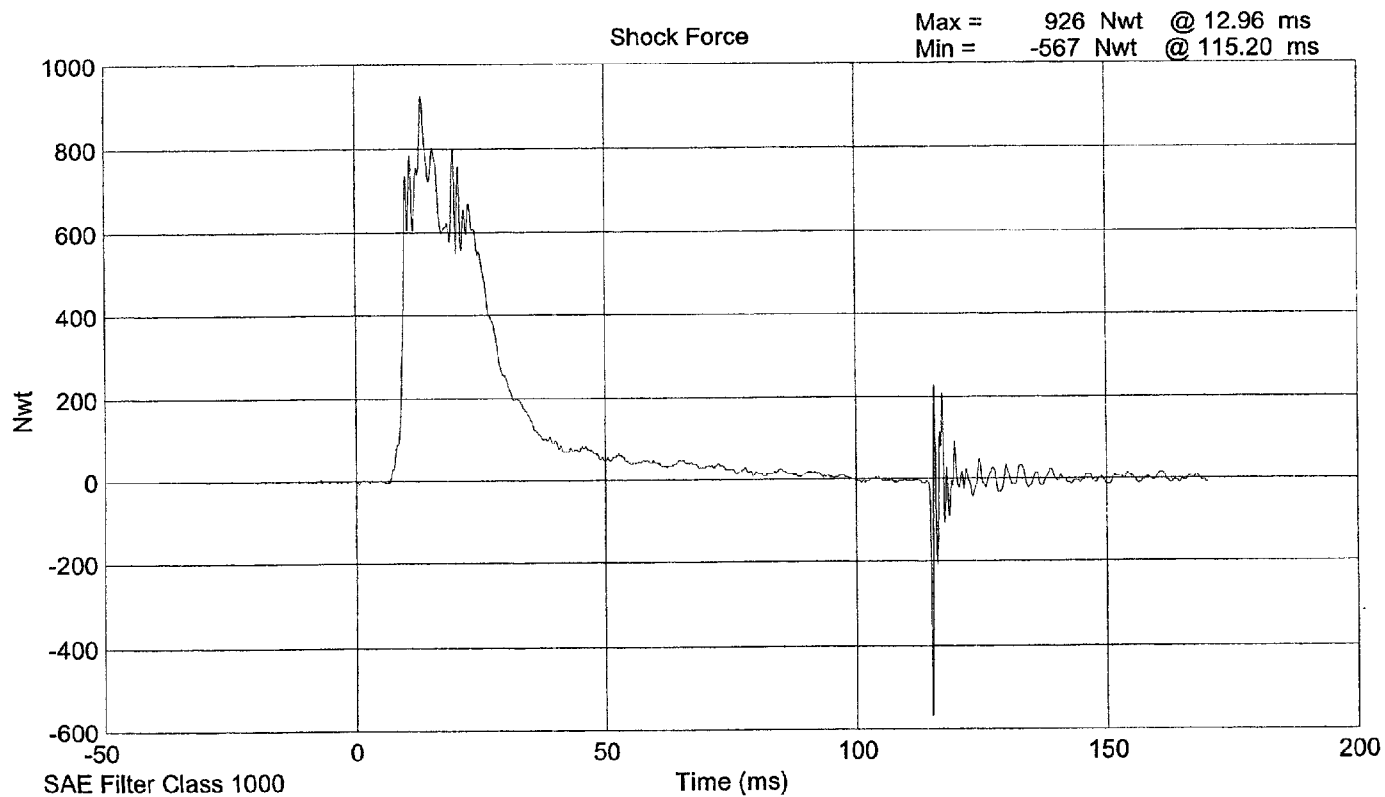
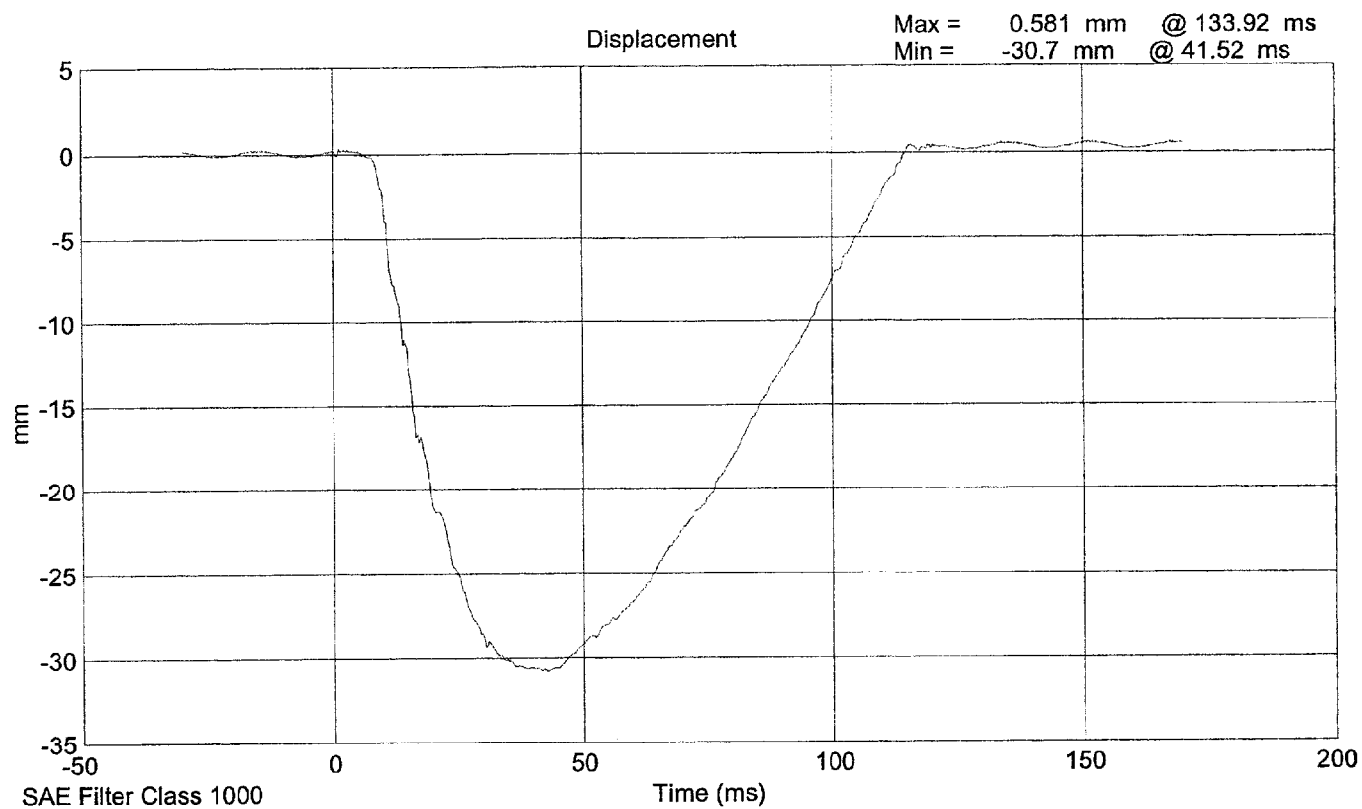
DAMPER IDENTIFICATION: 027

TEST PARAMETER		SPECIFICATION	TEST RESULTS
TEMPERATURE (°C)		18.9 - 25.5	21.7
RELATIVE HUMIDITY (%)		10 - 70	30
VELOCITY 3.05 m/s	FORCE (N)	836 - 1125	926.0
	DISPLACEMENT (mm)	30 - 35	30.7
VELOCITY 4.27 m/s	FORCE (N)	1730 - 2099	1887.9
	DISPLACEMENT (mm)	32 - 37	32.8
VELOCITY 6.10 m/s	FORCE (N)	3741 - 4448	4143.7
	DISPLACEMENT (mm)	33 - 40	35.6

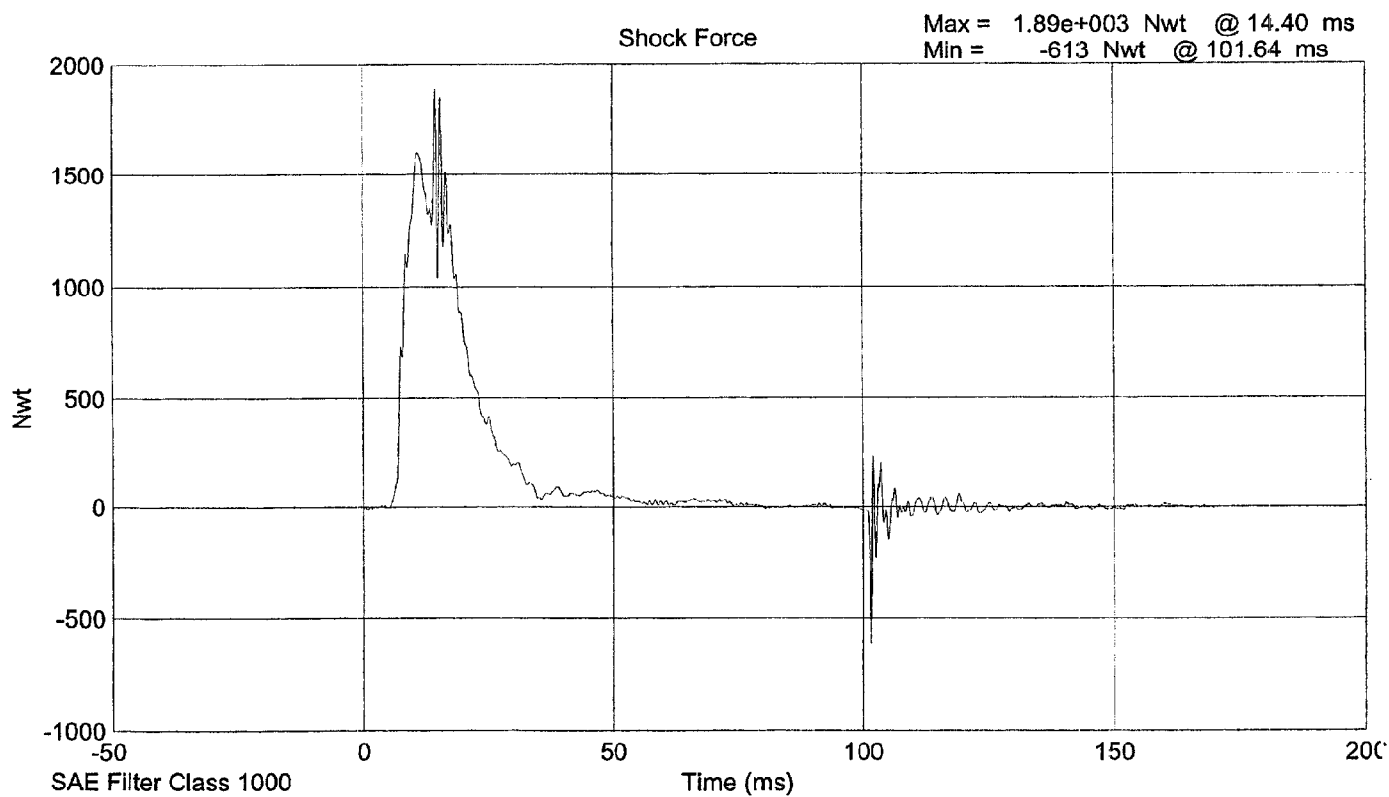
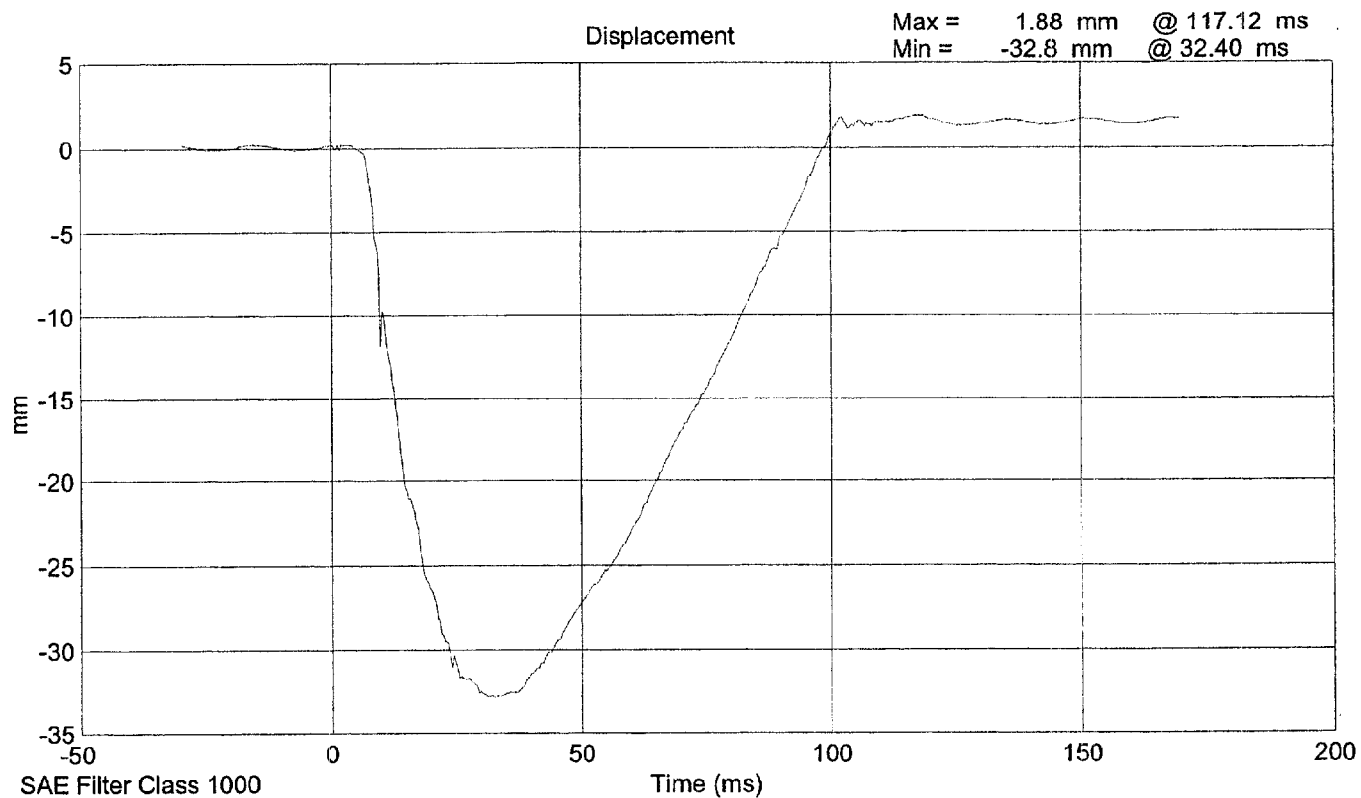
DAMPER SETTING: 5

REMARKS: None

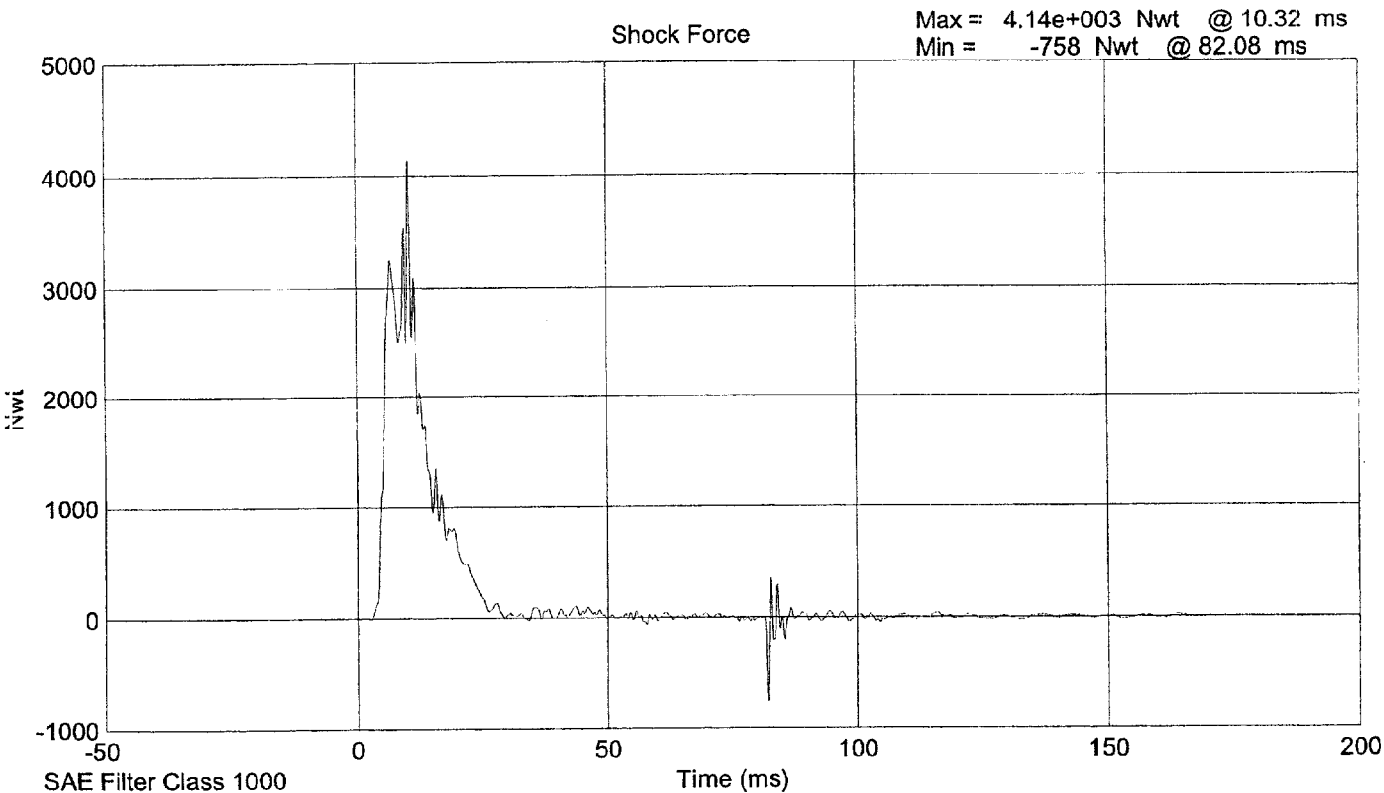
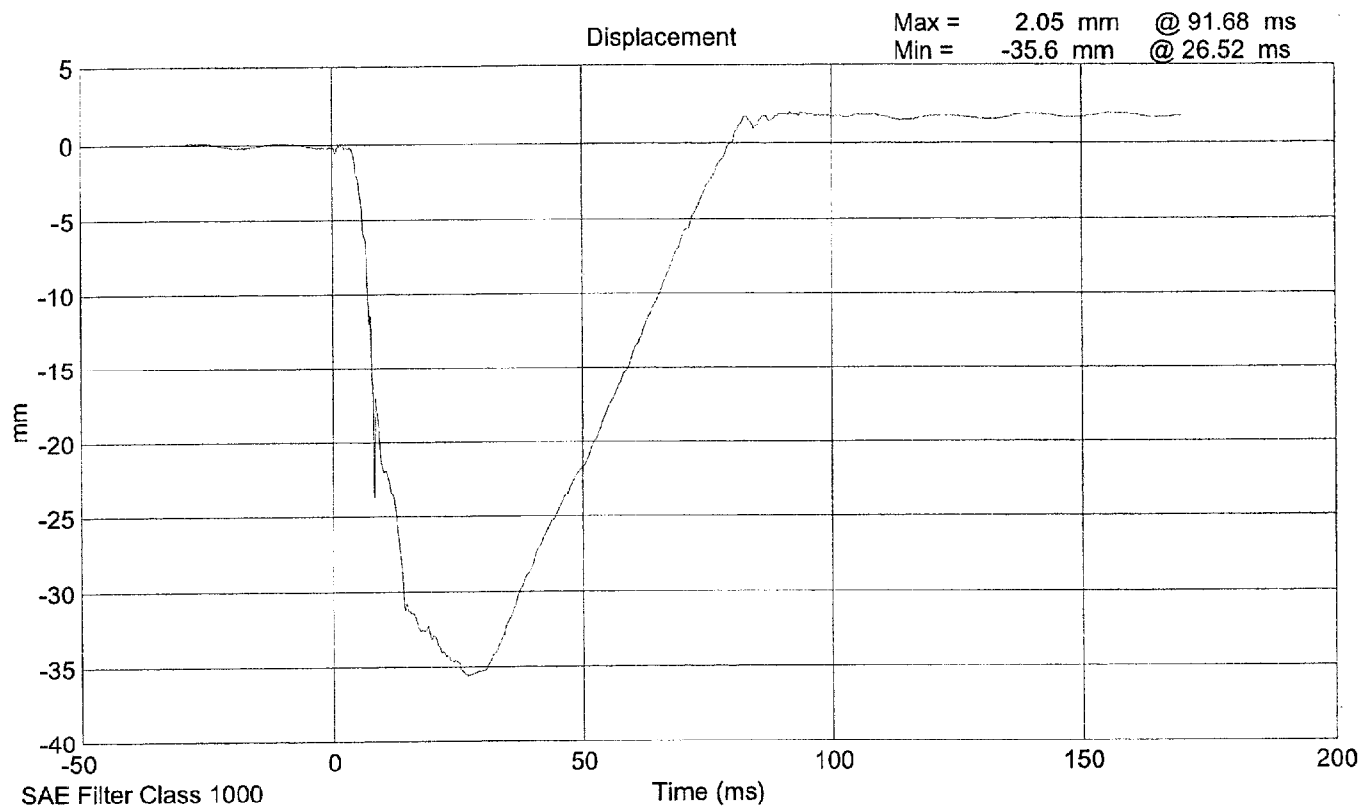
3ID 027 Shock Absorber Impact Test @ 3.048 m/s



SID 027 Shock Absorber Impact Test @ 4.572 m/s



SID 027 Shock Absorber Impact Test @ 6.096 m/s



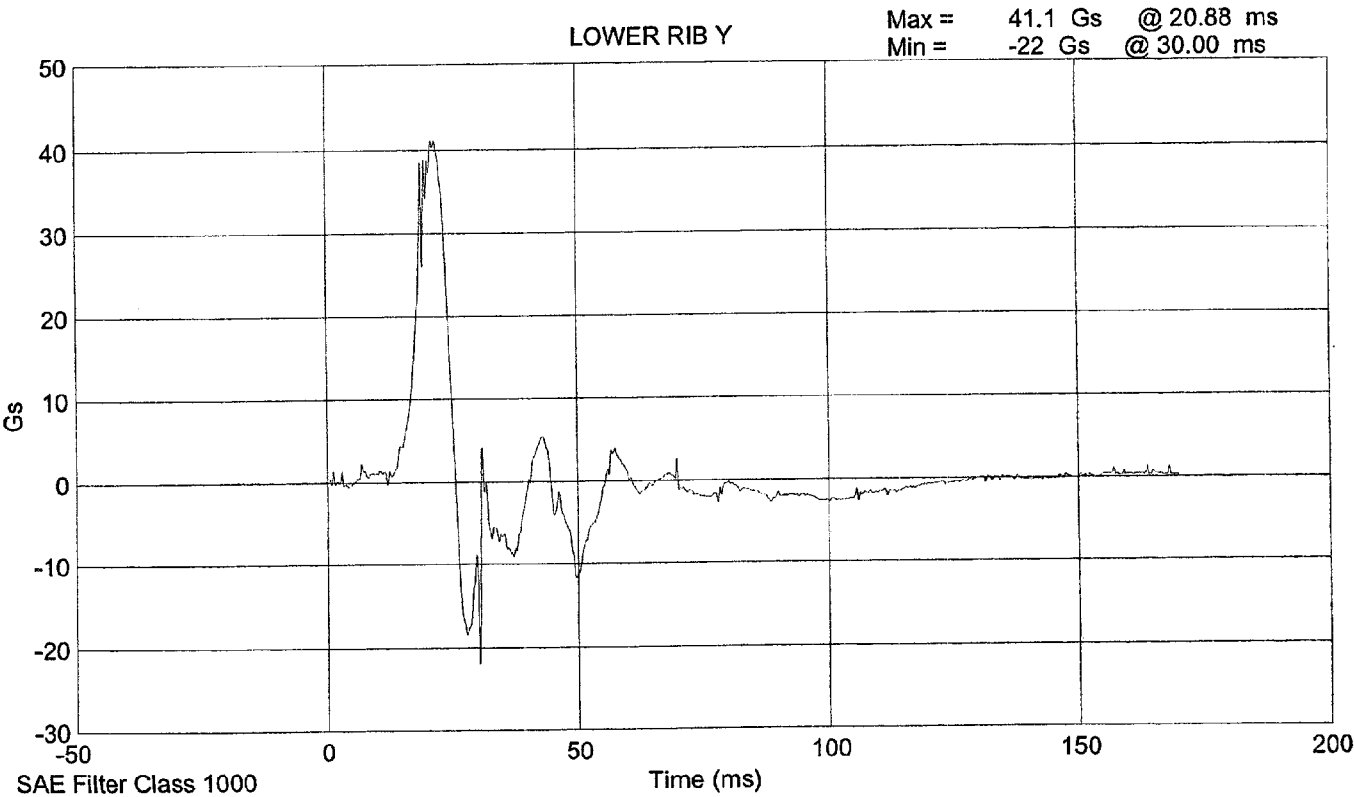
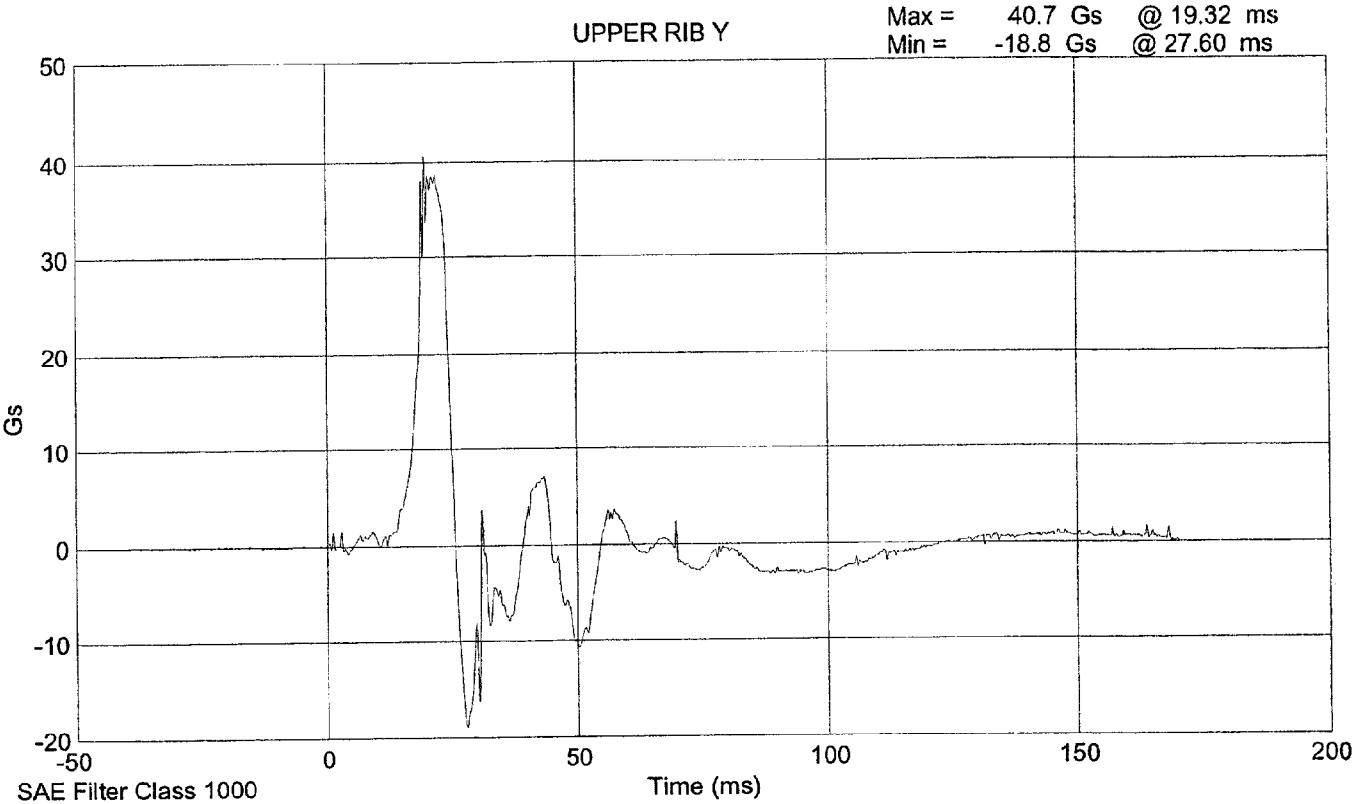
**LATERAL THORAX IMPACT TEST
PRE-TEST**

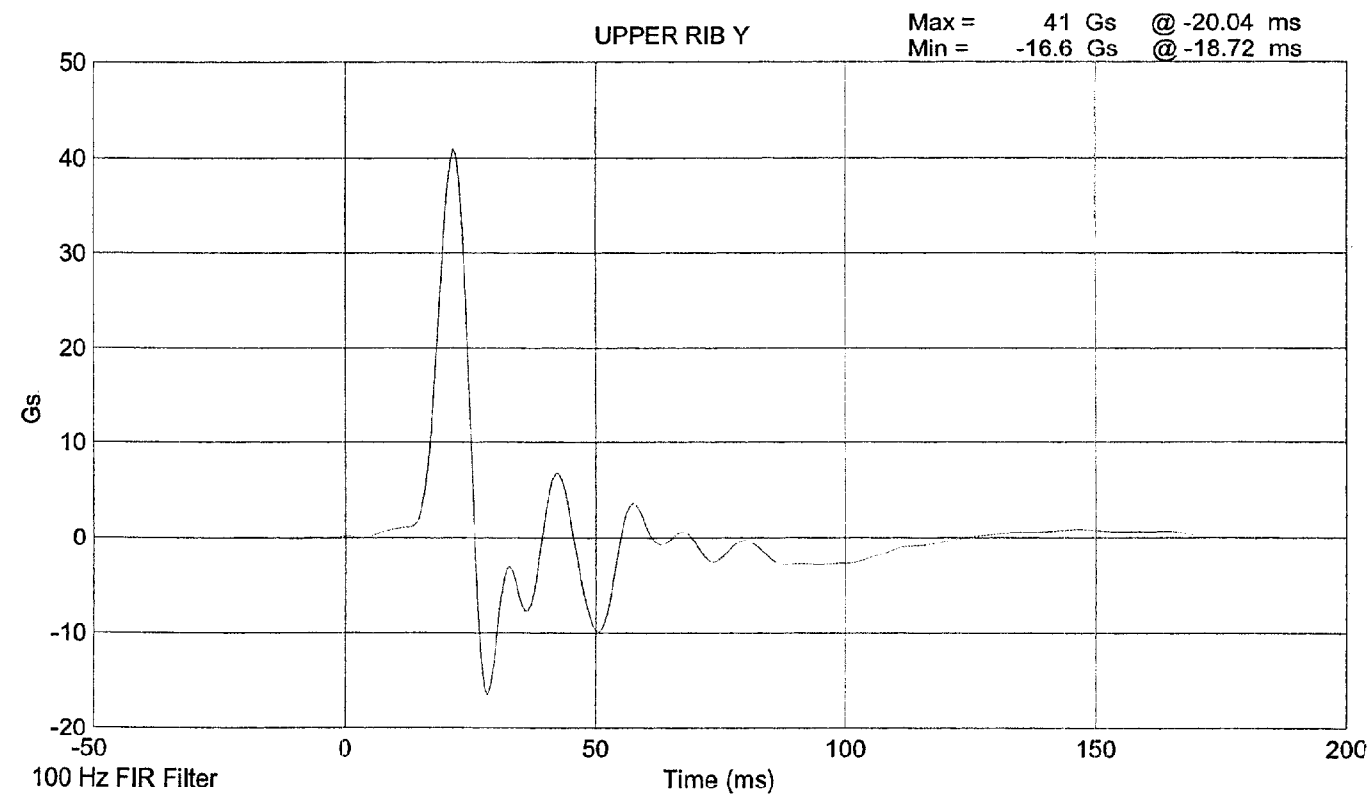
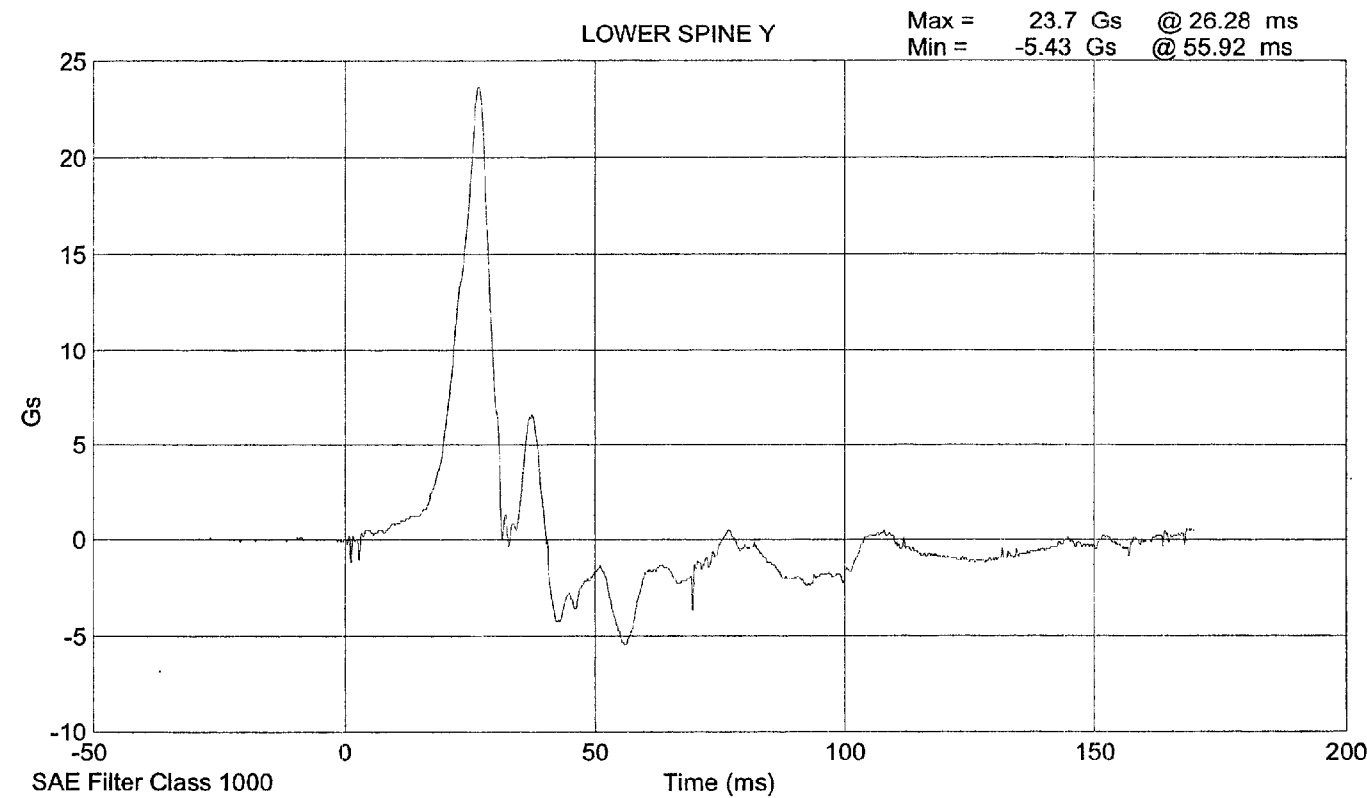
CONFIGURED FOR LEFT SIDE IMPACT

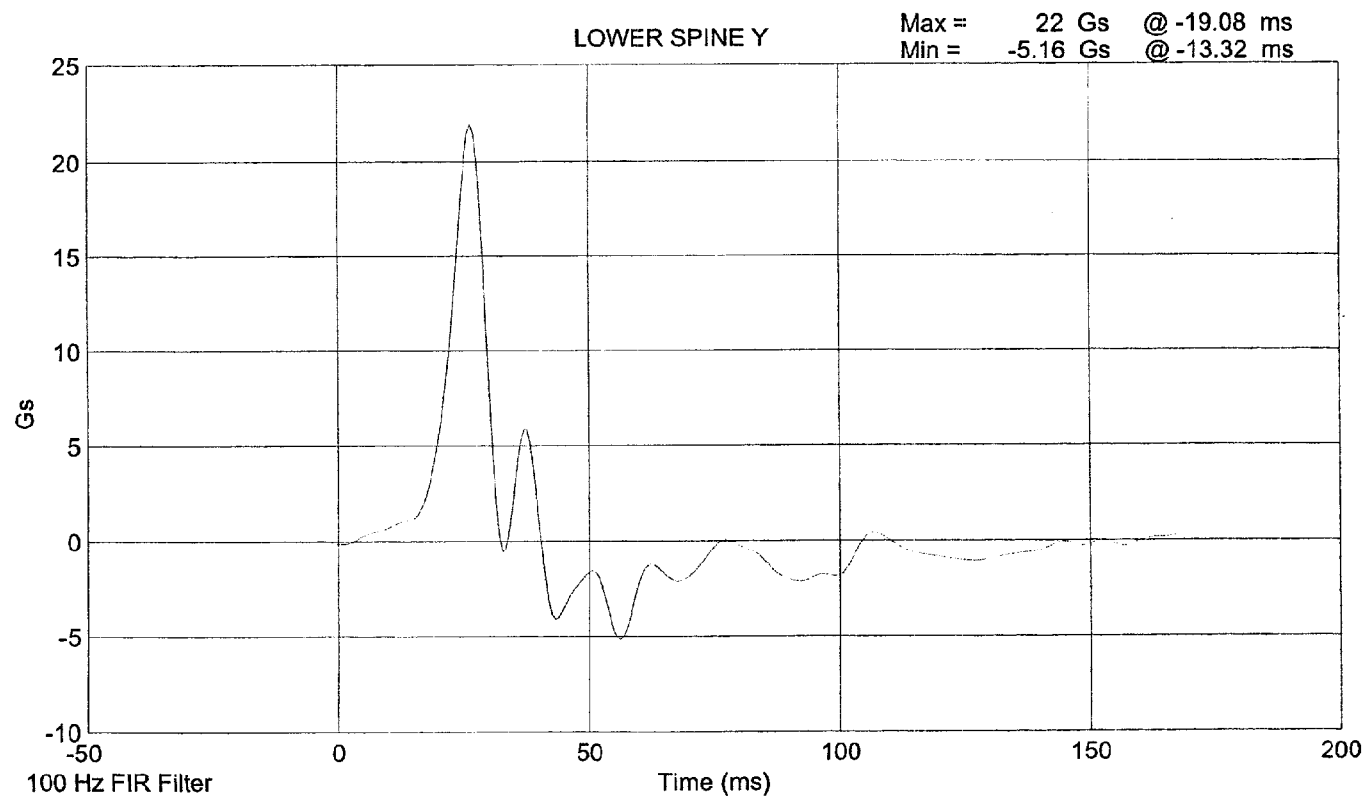
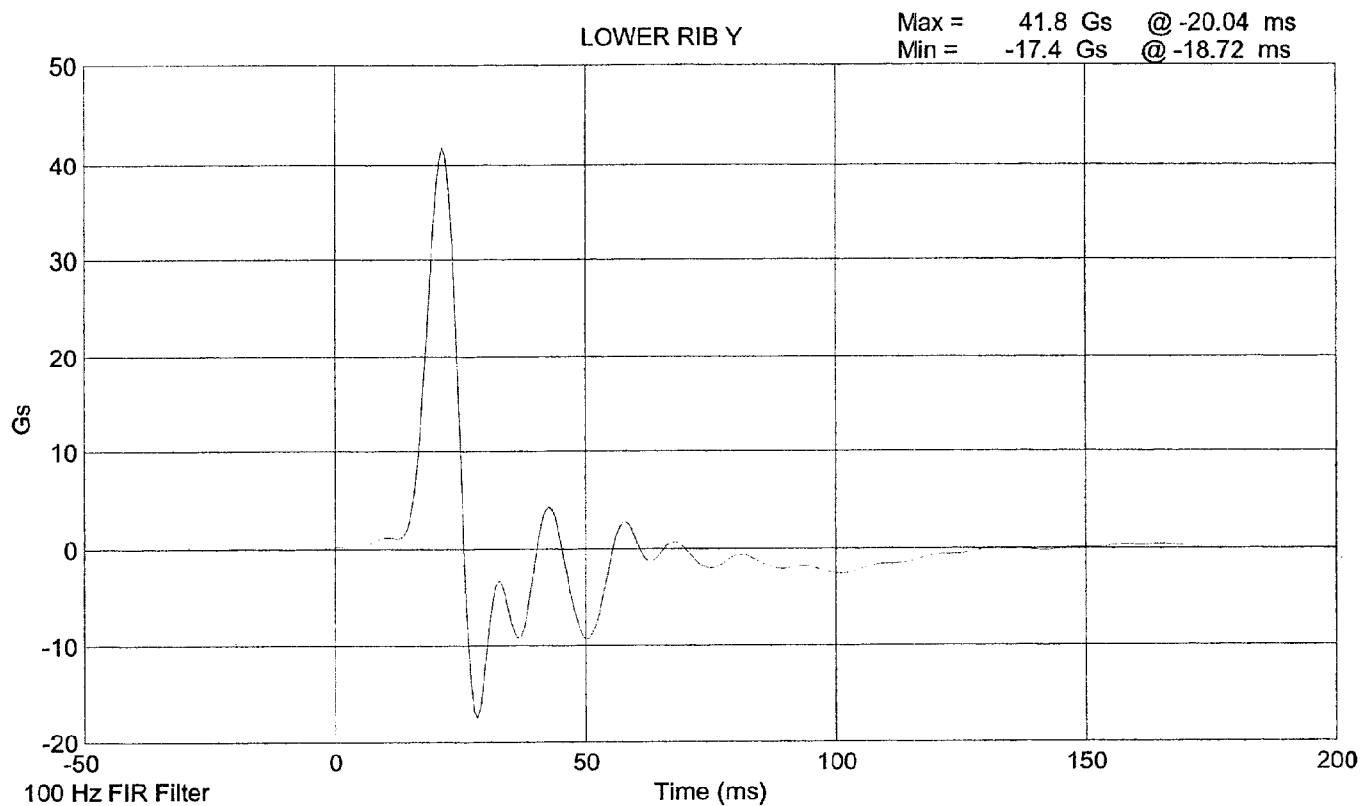
SID Serial No.: 027 Sequential Test Number: 1
Date: March 17, 2000 Laboratory Technician: B. Swiecicki

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE (°C)	18.9 - 25.5	21.1
RELATIVE HUMIDITY (%)	10 - 70	32
PROBE SPEED (m/s)	4.27 - 4.33	4.29
UPPER RIB (g's)	37 - 46	41.0
LOWER RIB (g's)	37 - 46	41.8
LOWER SPINE (g's)	15 - 22	22.0

REMARKS: None







**LATERAL PELVIS IMPACT TEST
PRE-TEST**

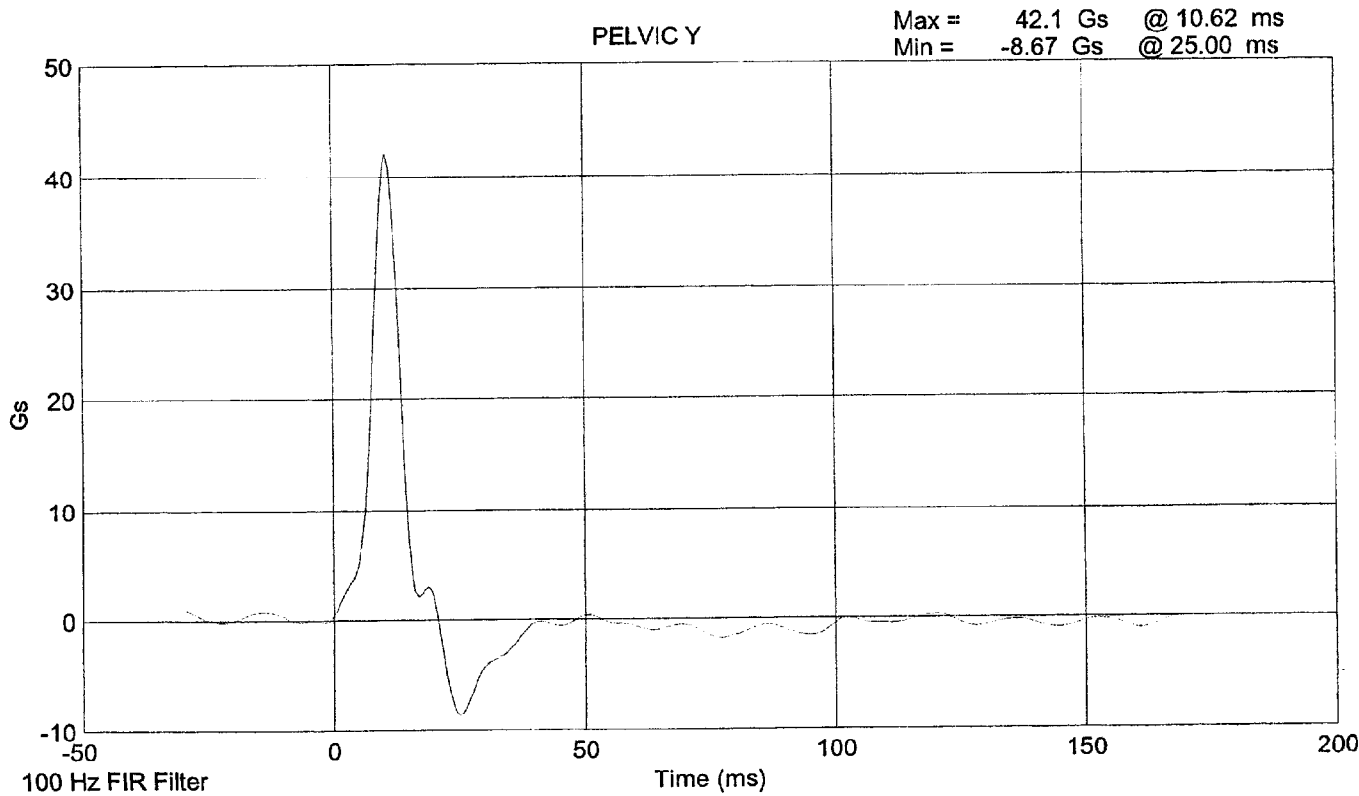
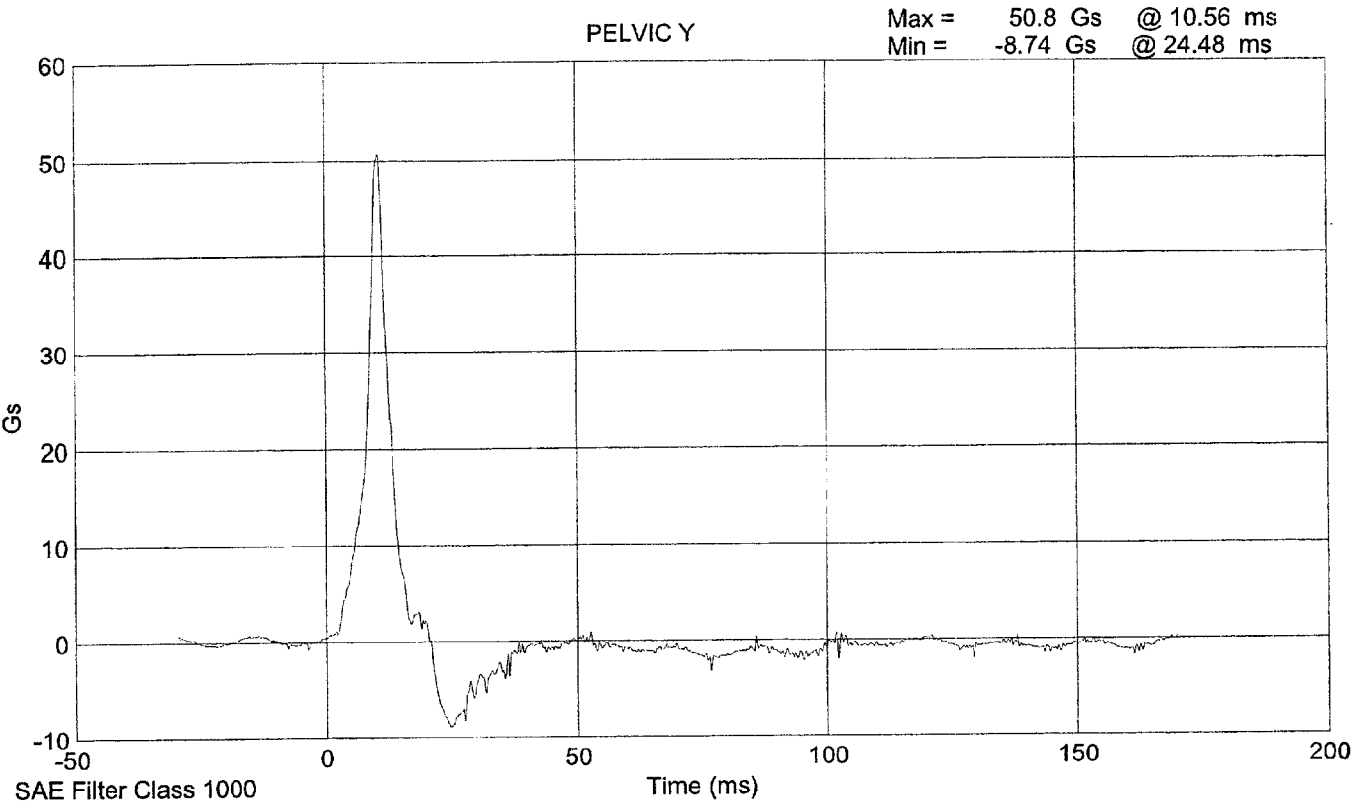
CONFIGURED FOR LEFT SIDE IMPACT

SID Serial No.: 027 Sequential Test Number: 1
Date: March 17, 2000 Laboratory Technician: B. Swiecicki

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE (°C)	18.9 - 25.5	21.1
RELATIVE HUMIDITY (%)	10 - 70	32
PROBE SPEED (m/s)	4.27 - 4.33	4.27
PELVIS ACCELERATION (g's)	40 - 60	42.1

REMARKS: None

SID 027 Pelvic Impact Test @ 4.2672 m/s



ABDOMINAL COMPRESSION TEST**PRE-TEST**

(Test not required for SID certification)

CONFIGURED FOR LEFT SIDE IMPACT

SID Serial No.: 027 Sequential Test Number: 1
Date: March 17, 2000 Laboratory Technician: B. Swiecicki

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE (°C)	18.9 - 25.5	21.1
RELATIVE HUMIDITY (%)	10 - 70	32
FORCE @ 13 mm (N)	104 - 162	119
FORCE @ 19 mm (N)	163 - 221	182
FORCE @ 25 mm (N)	222 - 280	253
FORCE @ 33 mm (N)	325 - 391	352

REMARKS: None

Dummy S/N 027

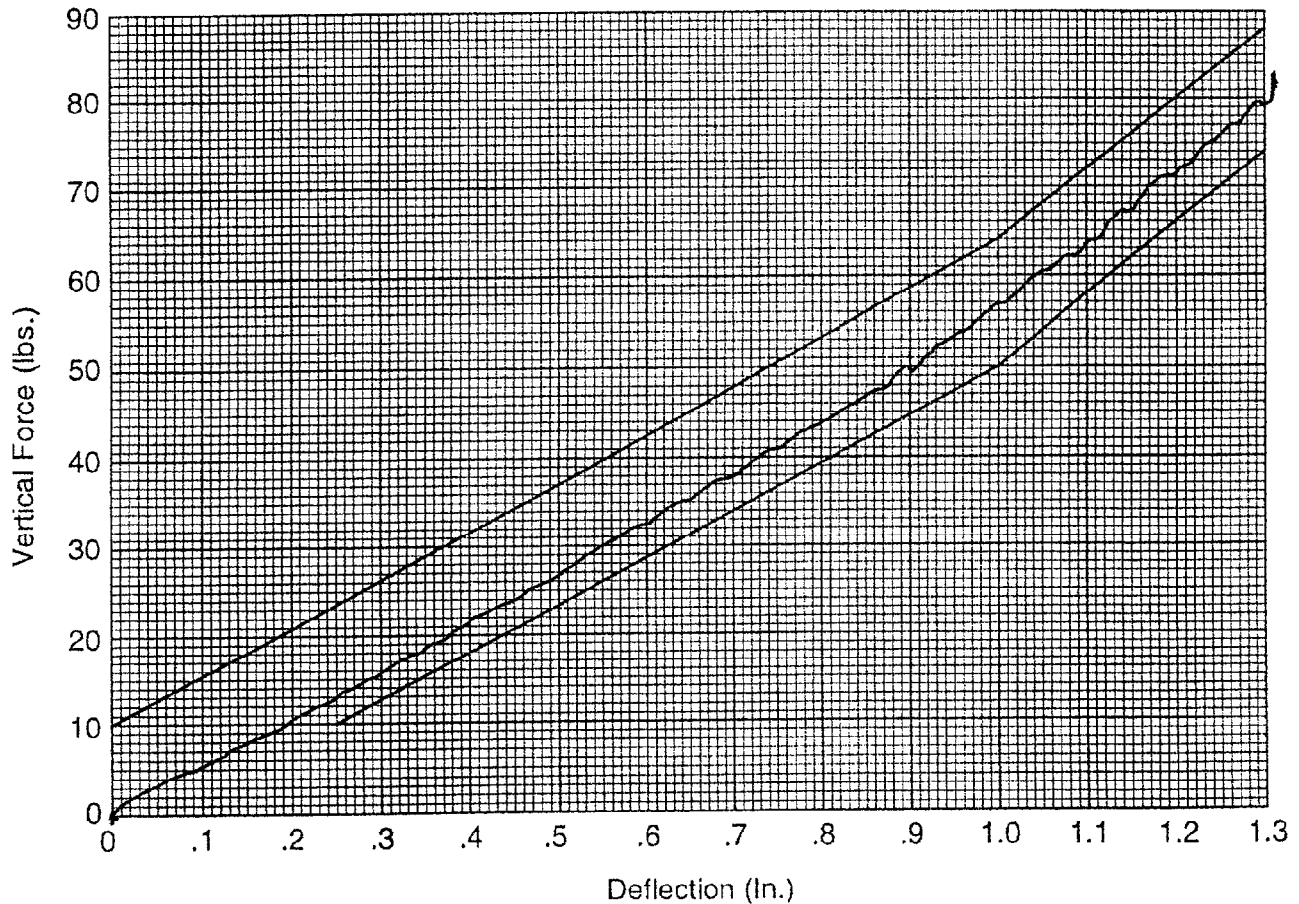
W/A _____

Date 3-17-2000

Performed By BS

Temp. 70°

Humidity 32%



Hybrid II
Abdomen Static Press

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

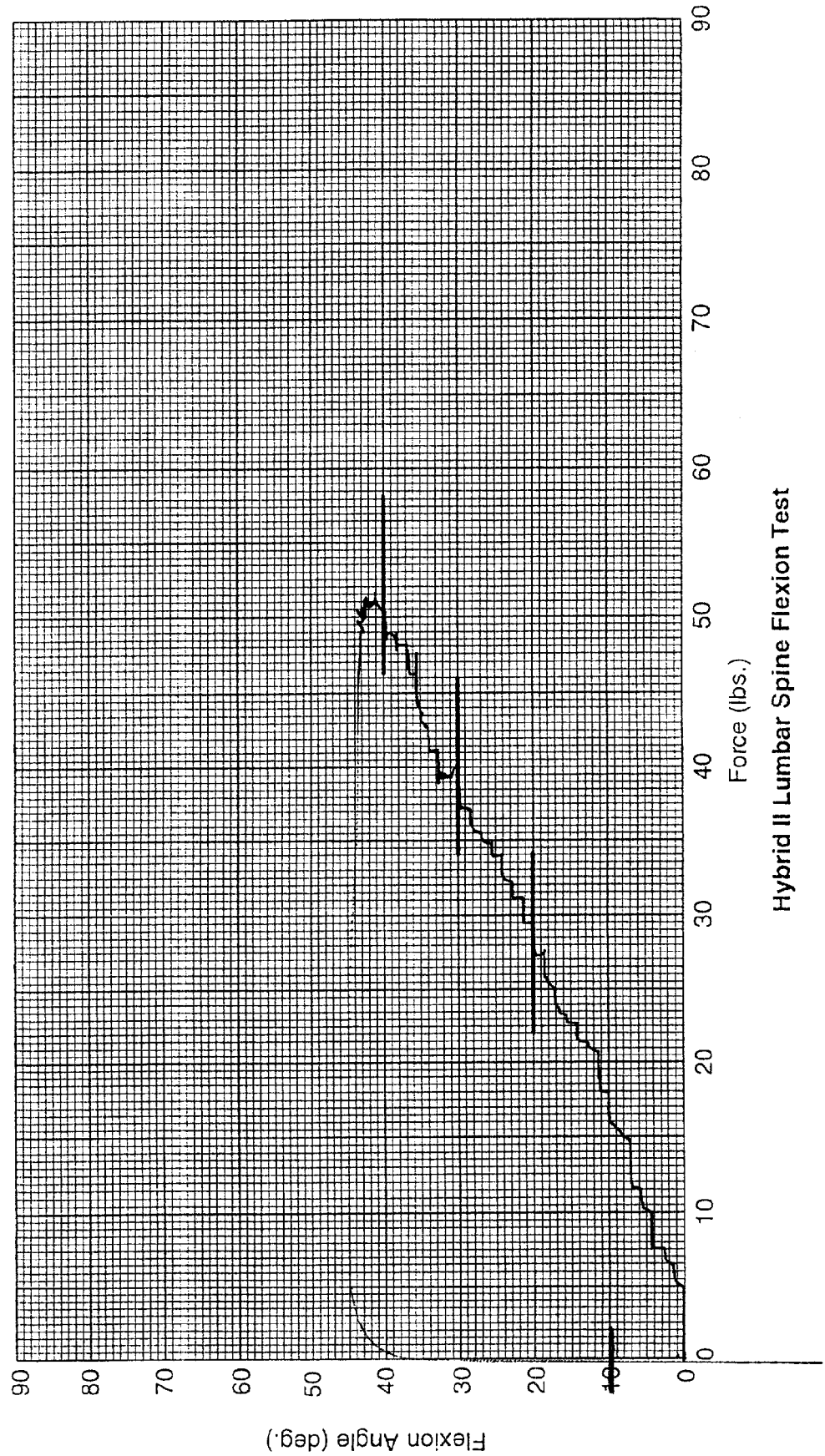
CONFIGURED FOR LEFT SIDE IMPACT

SID Serial No.: 027 Sequential Test Number: 1
Date: March 17, 2000 Laboratory Technician: B. Swiecicki

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE (°C)	18.9 - 25.5	21.7
RELATIVE HUMIDITY (%)	10 - 70	31
FORCE @ 0° (N)	0 - 26.7	0
FORCE @ 20° (N)	97.8 - 151.2	126.3
FORCE @ 30° (N)	151.2 - 204.6	174.3
FORCE @ 40° (N)	204.6 - 258	221.1
RETURN ANGLE	12° max.	10°

REMARKS: None

Dummy S/N 027
 W/A _____
 Date 3-17-2006
 Performed By [Signature]
 Temp. 71°
 Humidity 31%



Hybrid II Lumbar Spine Flexion Test

PRE-TEST DUMMY INSPECTION LIST

CONFIGURED FOR LEFT SIDE IMPACT

SID Serial No.: 027 Sequential Test Number: 1
Date: March 17, 2000 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.: 015

CONFIGURED FOR LEFT SIDE IMPACT

**CALIBRATION TEST RESULTS SUMMARY
POST TEST**

CONFIGURED FOR LEFT SIDE IMPACT

SID Serial No.: 015 Sequential Test Number: 1
Date: April 26, 2000 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.
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.: 015
Date: April 26, 2000

Sequential Test Number: 1
Laboratory Technician: B. Swiecicki

TEST PARAMETER	SPECIFICATION	TEST RESULTS
SH- Seated Height (mm)	889 - 909	904
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	521
KV- Knee Pivot to Floor (mm)	490 - 505	493
HW- Hip Width (mm)	356 - 391	370

REMARKS: None

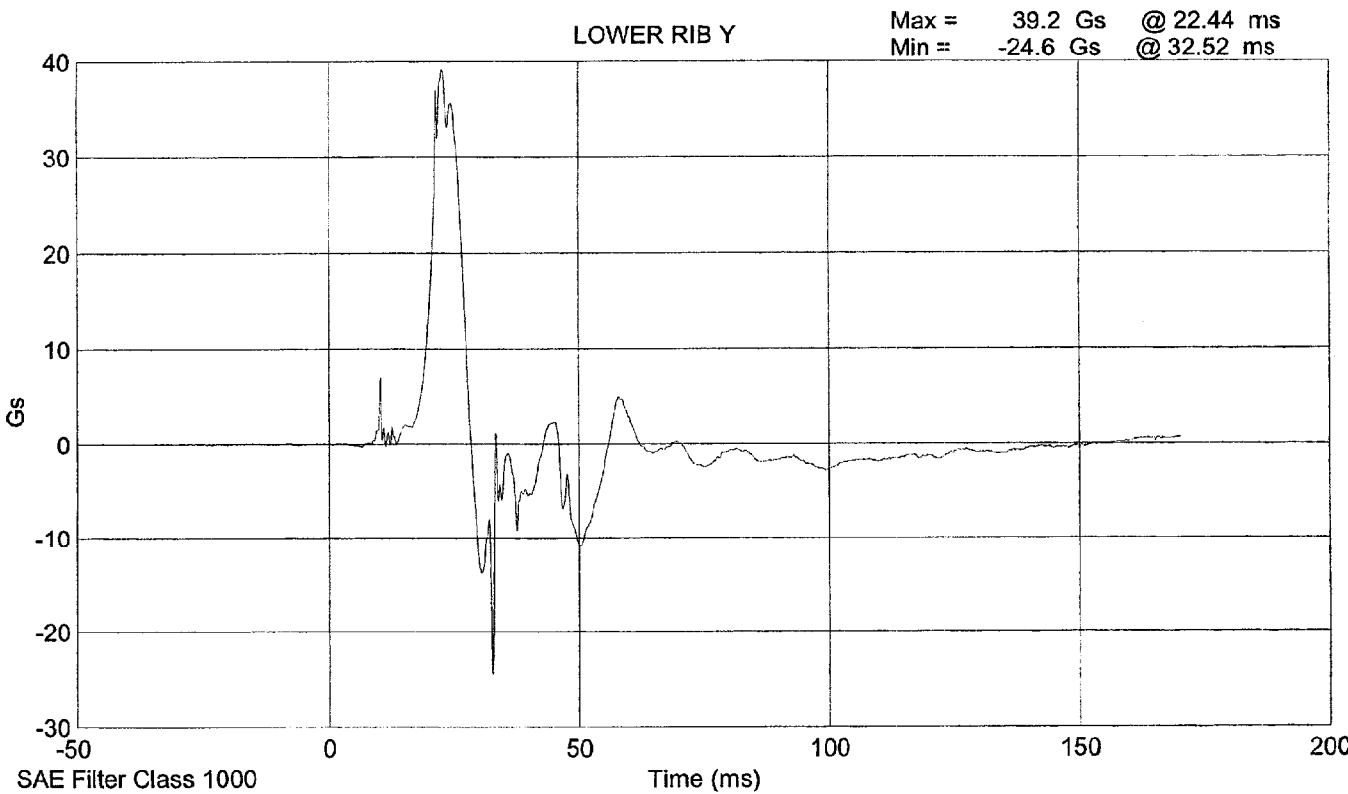
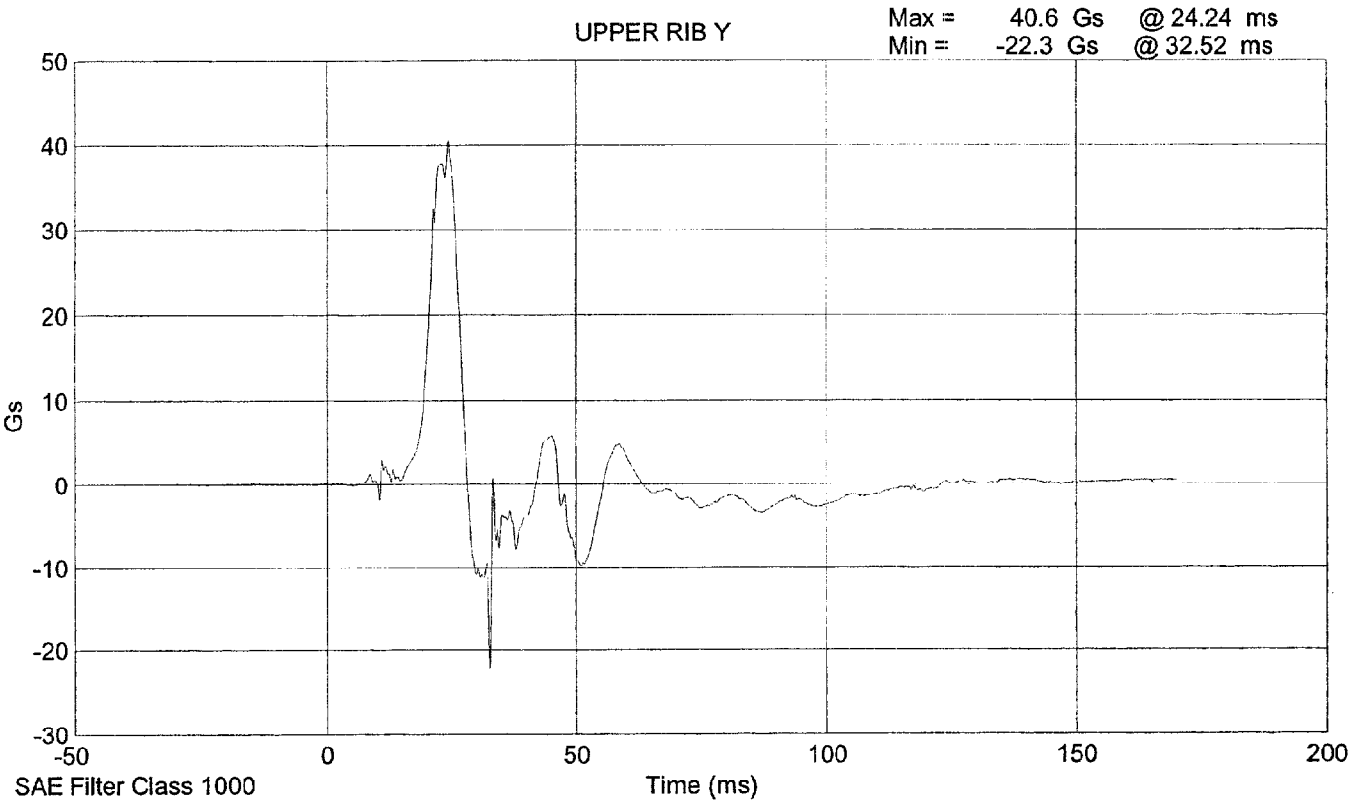
**LATERAL THORAX IMPACT TEST
POST TEST**

CONFIGURED FOR LEFT SIDE IMPACT

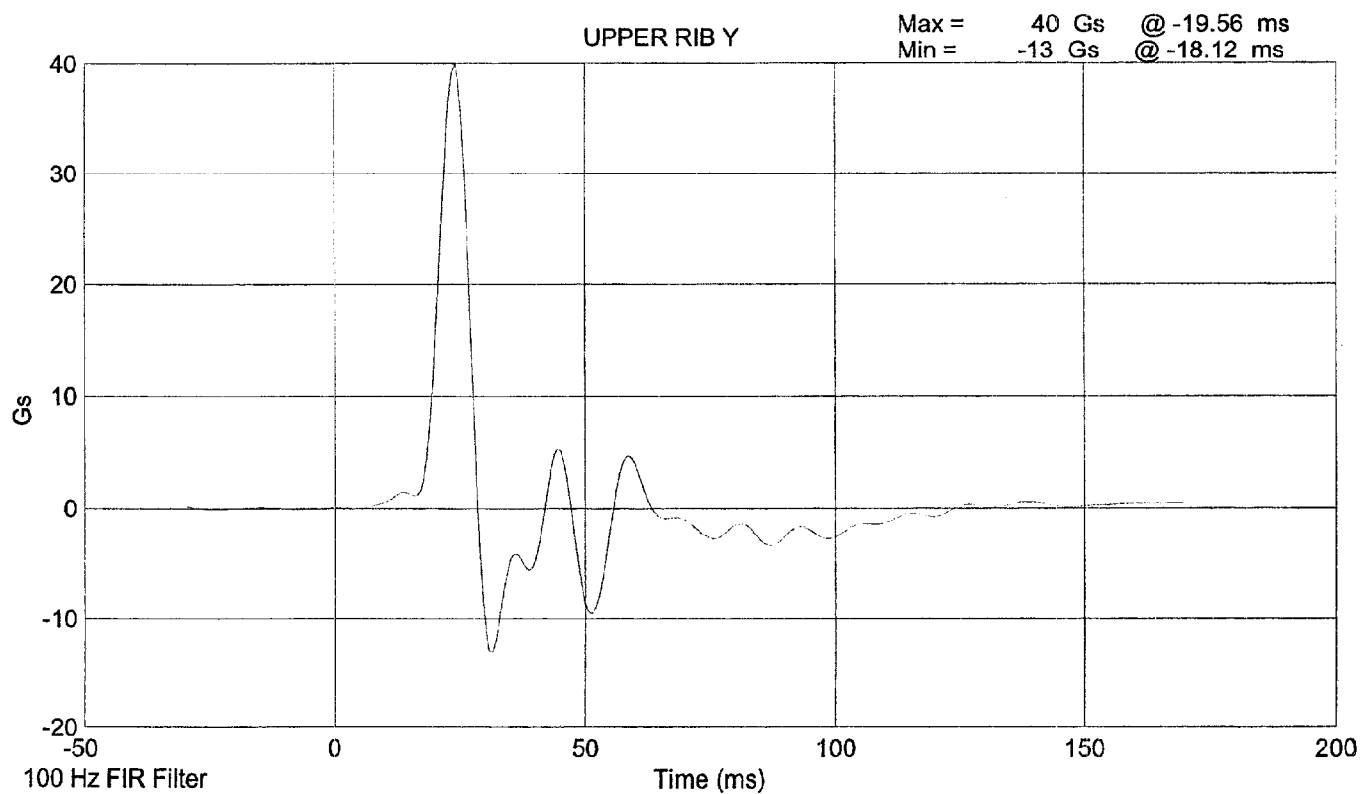
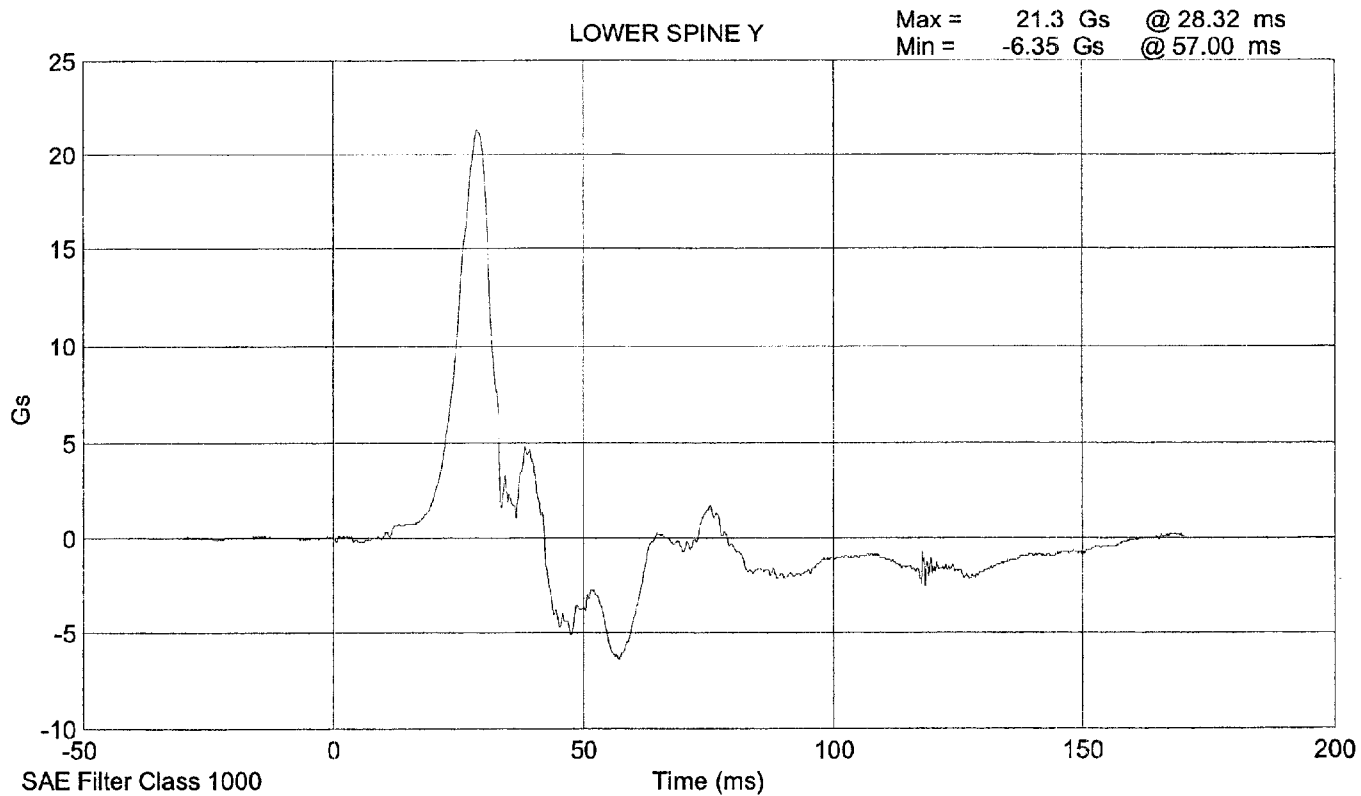
SID Serial No.: 015 Sequential Test Number: 1
Date: April 20, 2000 Laboratory Technician: B. Swiecicki

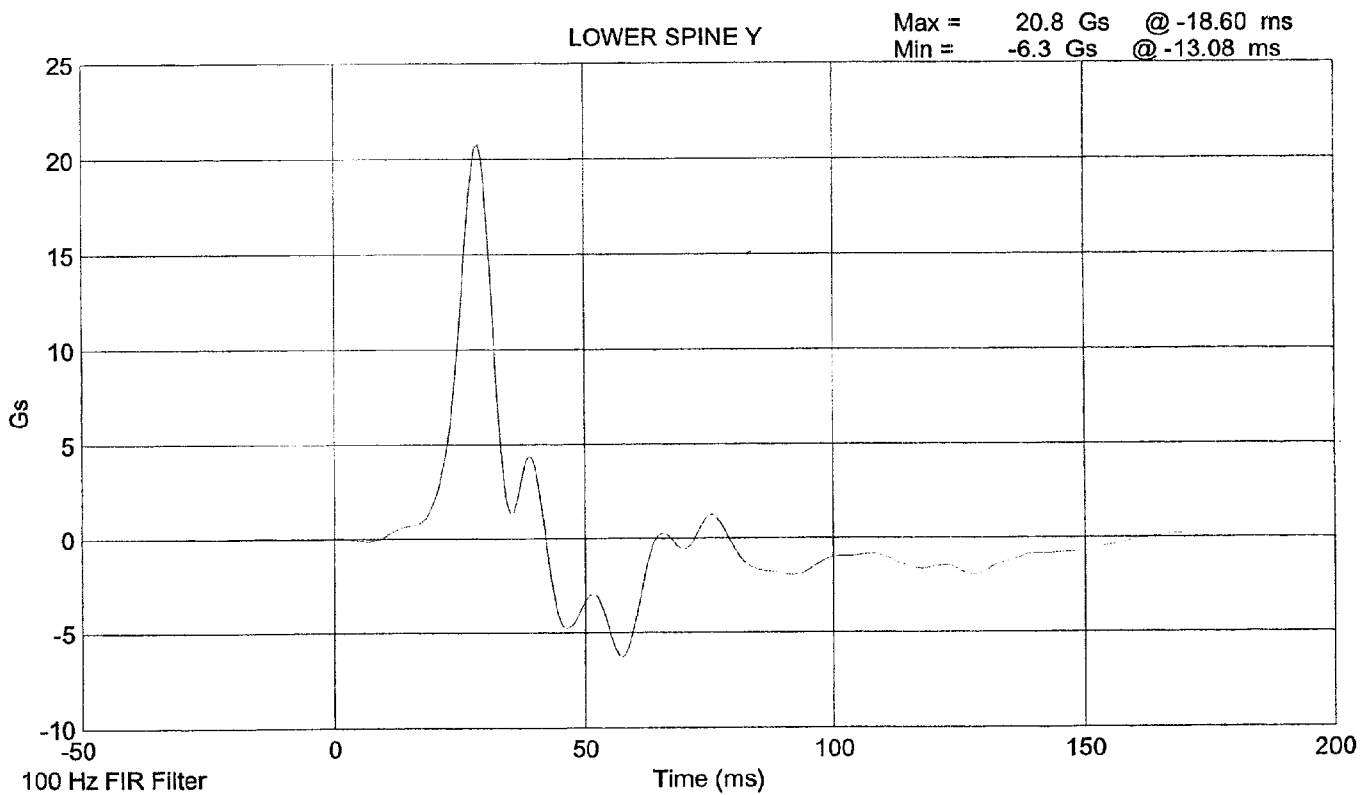
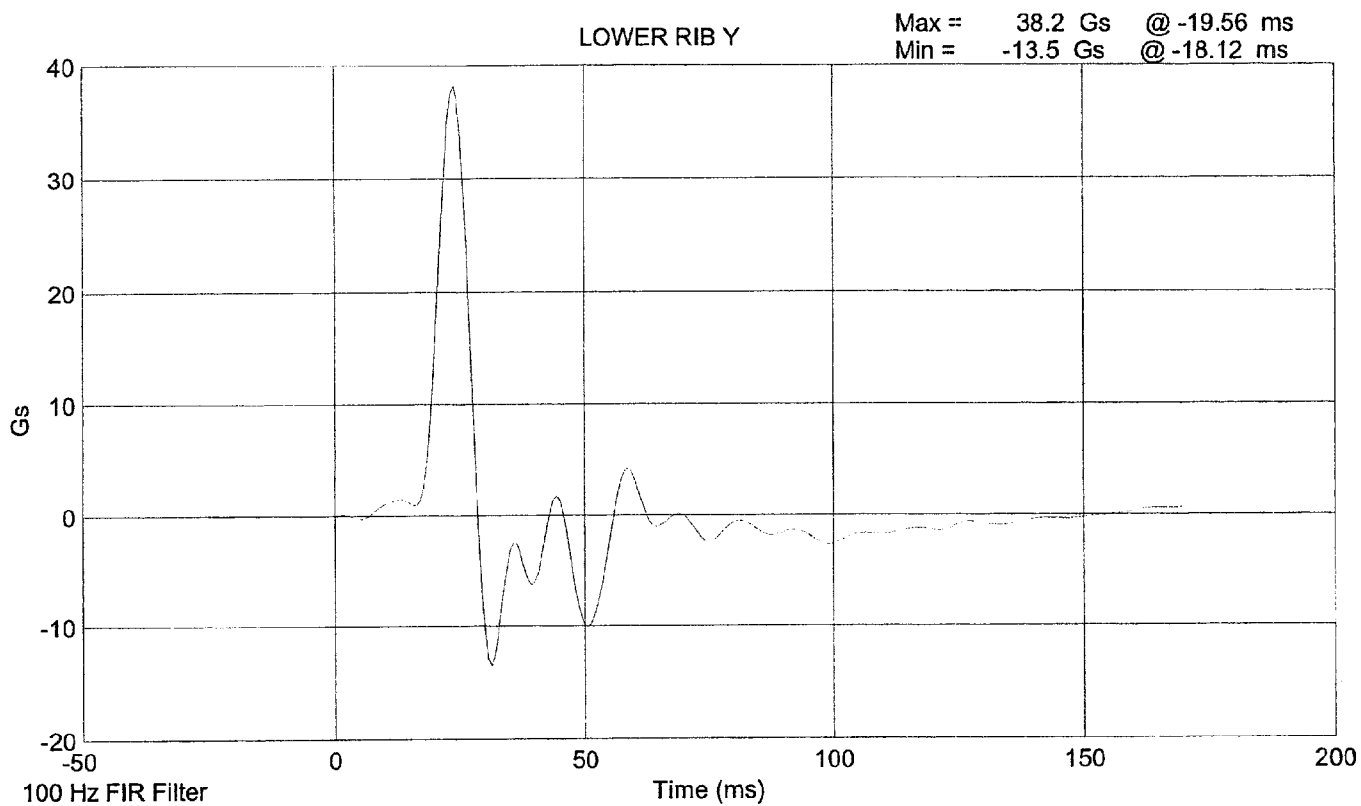
TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE (°C)	18.9 - 25.5	21.1
RELATIVE HUMIDITY (%)	10 - 70	30
PROBE SPEED (m/s)	4.27 - 4.33	4.30
UPPER RIB (g's)	37 - 46	40.0
LOWER RIB (g's)	37 - 46	38.2
LOWER SPINE (g's)	15 - 22	20.8

REMARKS: None



SID 015 Thorax Impact Test @ 4.3038 m/s





**LATERAL PELVIS IMPACT TEST
POST TEST**

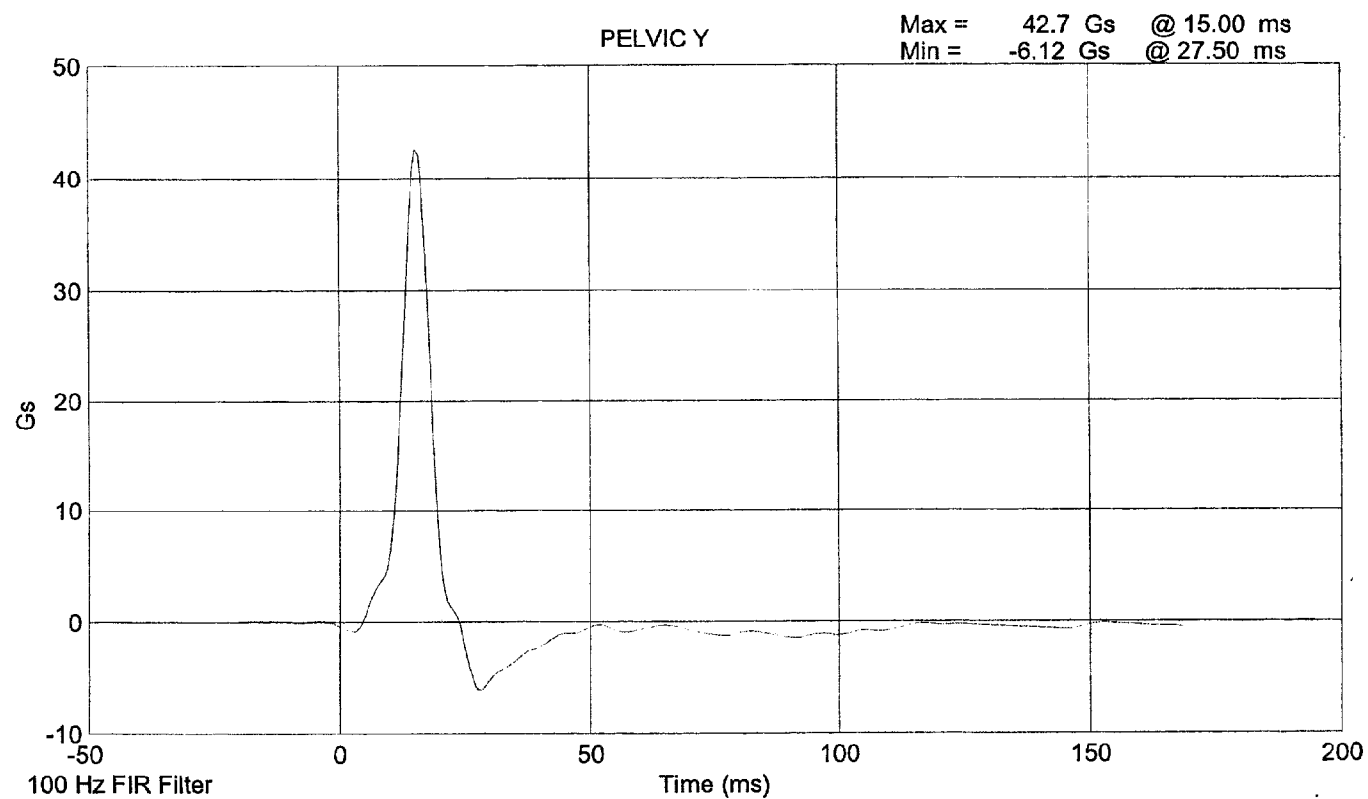
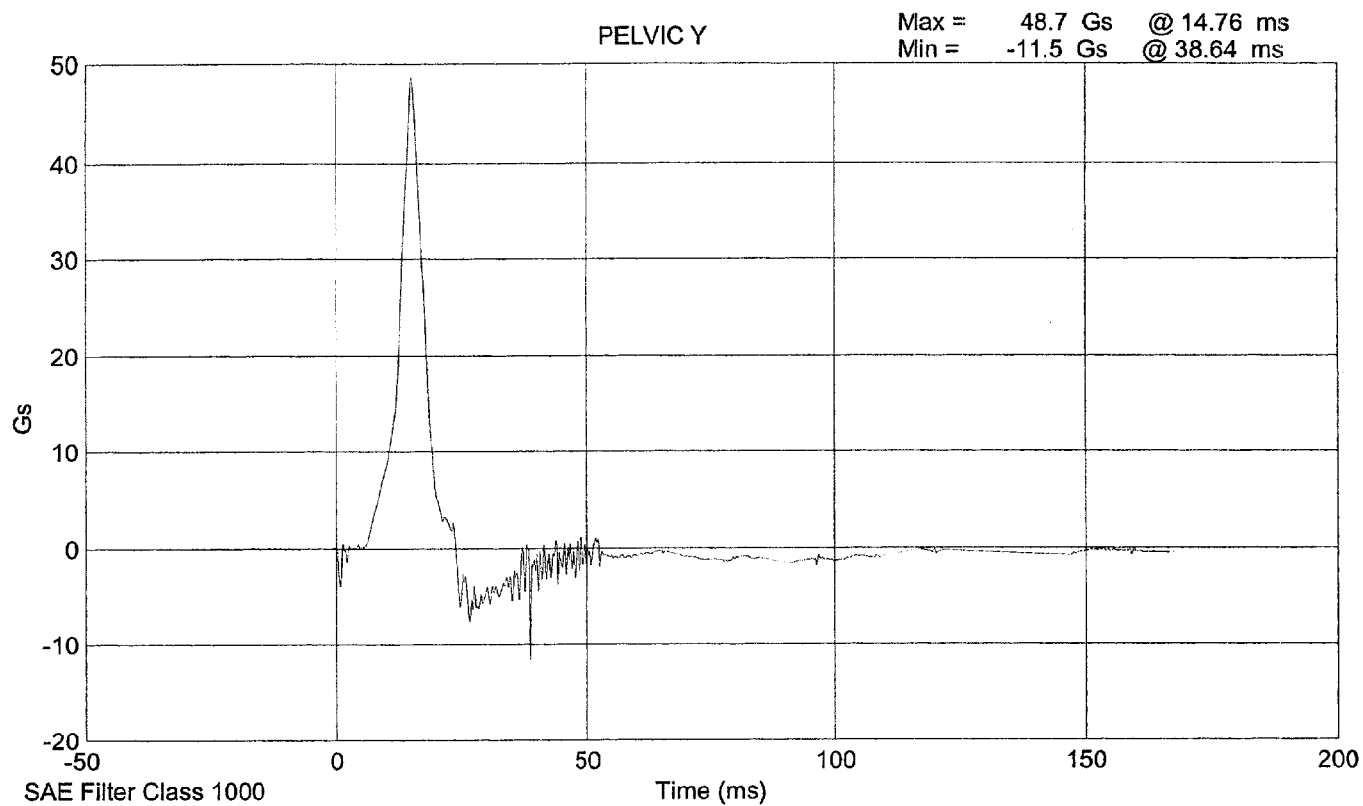
CONFIGURED FOR LEFT SIDE IMPACT

SID Serial No.: 015 Sequential Test Number: 1
Date: April 20, 2000 Laboratory Technician: B. Swiecicki

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE (°C)	18.9 - 25.5	21.1
RELATIVE HUMIDITY (%)	10 - 70	30
PROBE SPEED (m/s)	4.27 - 4.33	4.30
PELVIS ACCELERATION (g's)	40 - 60	42.7

REMARKS: None

SID 015 Pelvic Impact Test @ 4.2977 m/s



ABDOMINAL COMPRESSION TEST**POST TEST**

(Test not required for SID certification)

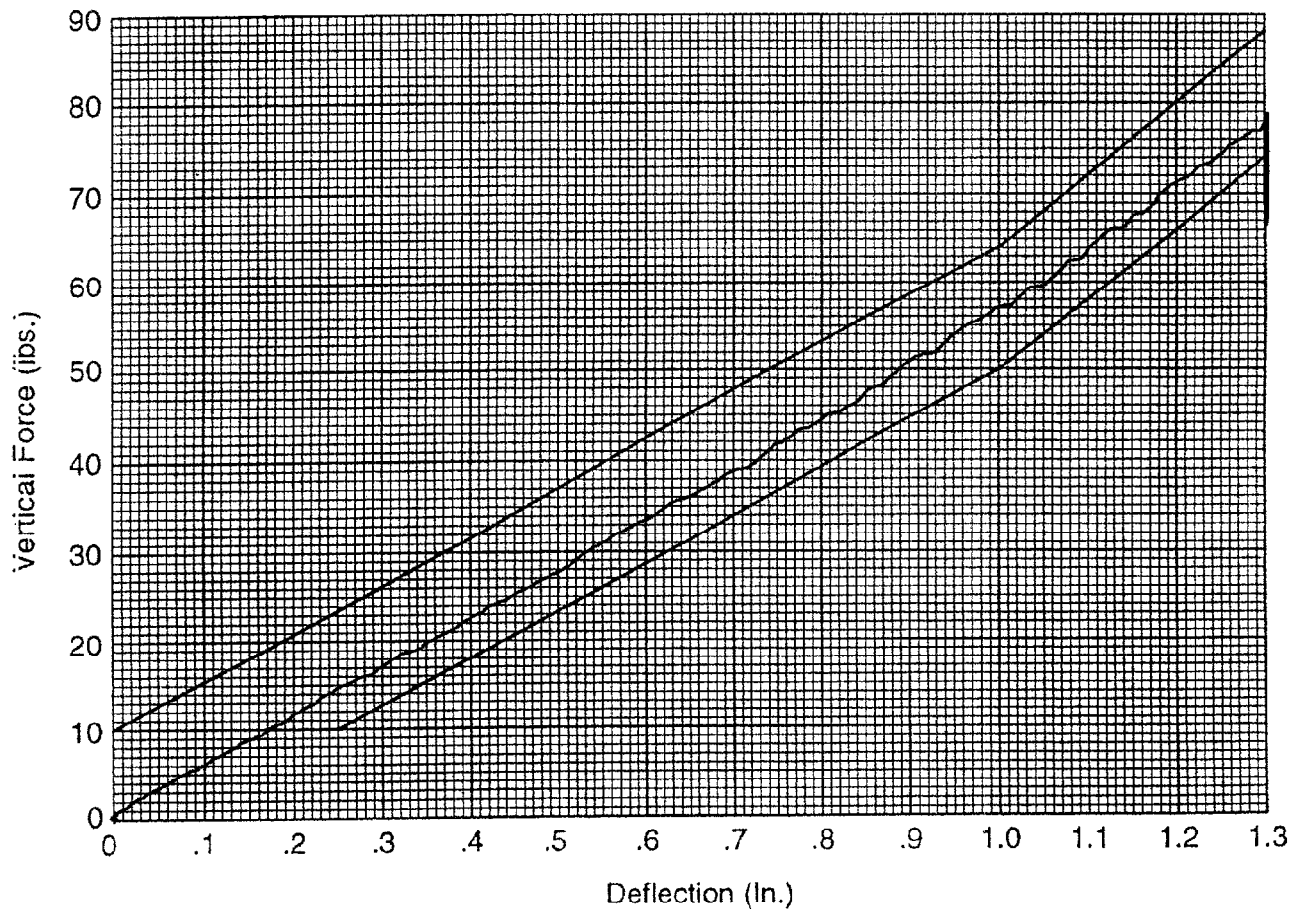
CONFIGURED FOR LEFT SIDE IMPACT

SID Serial No.: 015 Sequential Test Number: 1
Date: April 21, 2000 Laboratory Technician: B. Swiecicki

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE (°C)	18.9 - 25.5	21.1
RELATIVE HUMIDITY (%)	10 - 70	30
FORCE @ 13 mm (N)	104 - 162	123
FORCE @ 19 mm (N)	163 - 221	186
FORCE @ 25 mm (N)	222 - 280	254
FORCE @ 33 mm (N)	325 - 391	346

REMARKS: None

Dummy S/N 015
W/A _____
Date 4-21-2000
Performed By BS
Temp. 70°
Humidity 30%



Hybrid II
Abdomen Static Press

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

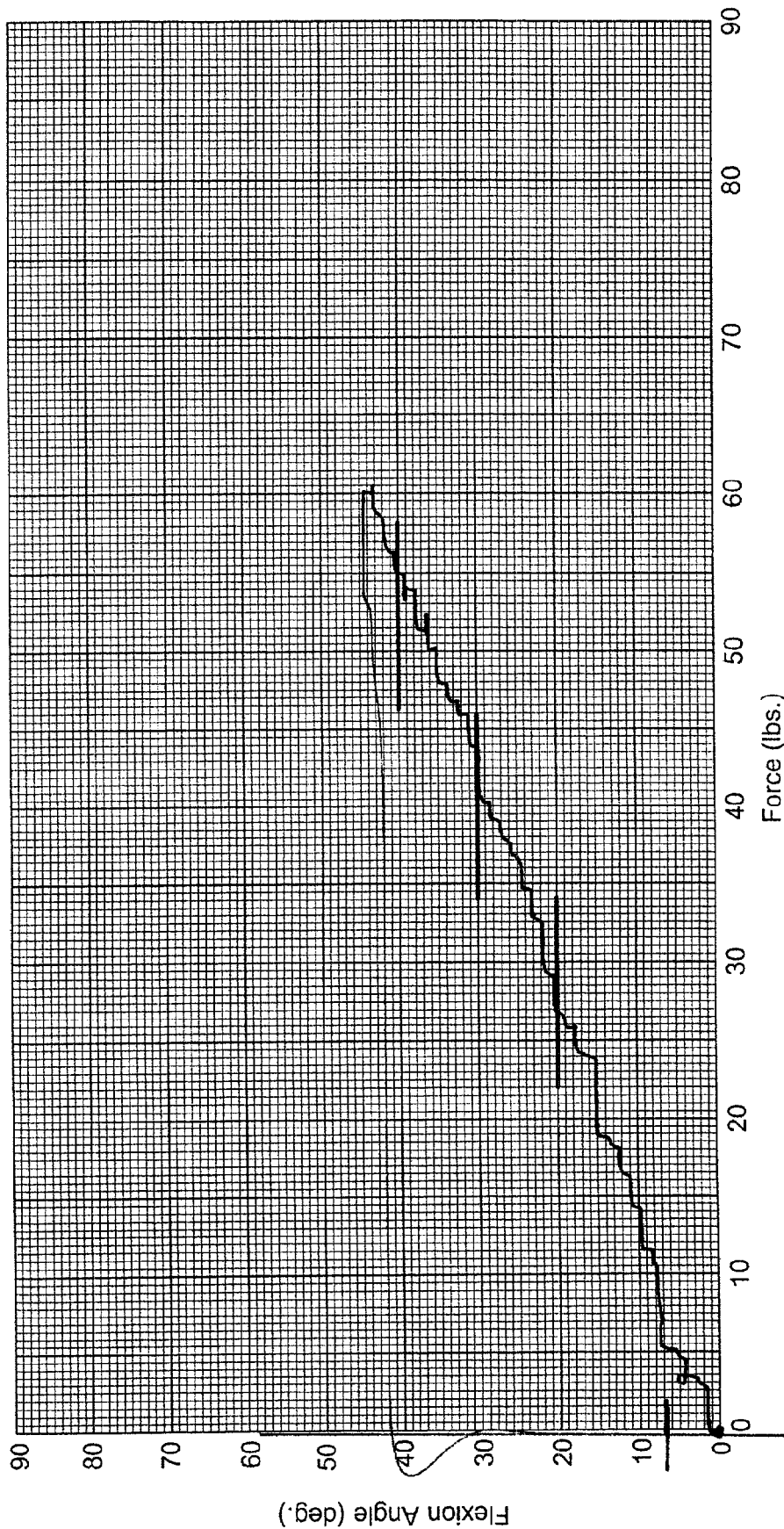
CONFIGURED FOR LEFT SIDE IMPACT

SID Serial No.: 015 Sequential Test Number: 1
Date: April 24, 2000 Laboratory Technician: B. Swiecicki

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE (°C)	18.9 - 25.5	21.1
RELATIVE HUMIDITY (%)	10 - 70	32
FORCE @ 0° (N)	0 - 26.7	0
FORCE @ 20° (N)	97.8 - 151.2	119.0
FORCE @ 30° (N)	151.2 - 204.6	194.8
FORCE @ 40° (N)	204.6 - 258	244.7
RETURN ANGLE	12° max.	6.7°

REMARKS: None

Dummy S/N 015
 W/A _____
 Date 4-24-2000
 Performed By BS
 Temp. 70°
 Humidity 32%



Hybrid II Lumbar Spine Flexion Test

**CALIBRATION TEST RESULTS
POST TEST**

SID NO.: 027

CONFIGURED FOR LEFT SIDE IMPACT

**CALIBRATION TEST RESULTS SUMMARY
POST TEST**

CONFIGURED FOR LEFT SIDE IMPACT

SID Serial No.: 027 Sequential Test Number: 1
Date: April 26, 2000 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.
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.: 027 Sequential Test Number: 1
Date: April 26, 2000 Laboratory Technician: B. Swiecicki

TEST PARAMETER	SPECIFICATION	TEST RESULTS
SH- Seated Height (mm)	889 - 909	907
RH- Rib Height (mm)	502 - 520	518
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	368

REMARKS: None

**LATERAL THORAX IMPACT TEST
POST TEST**

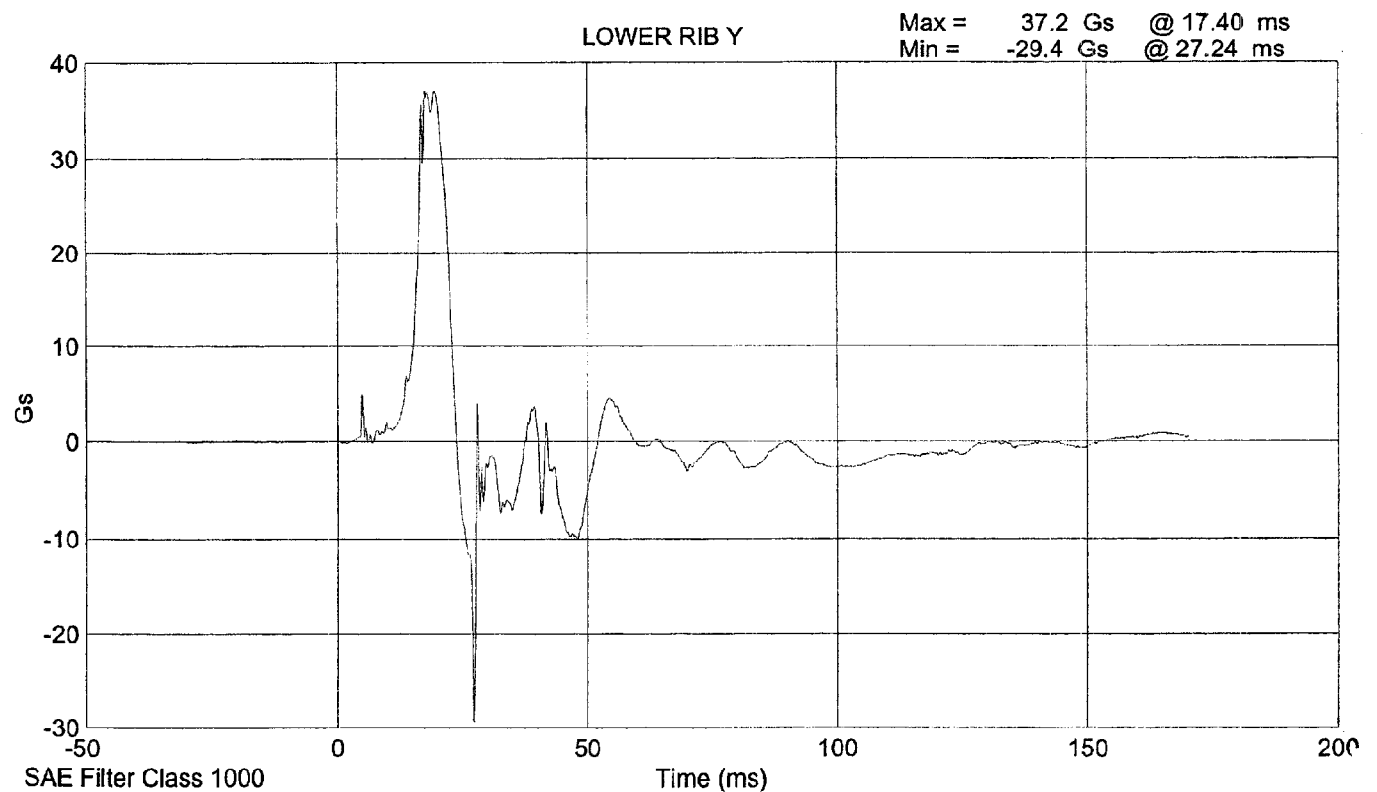
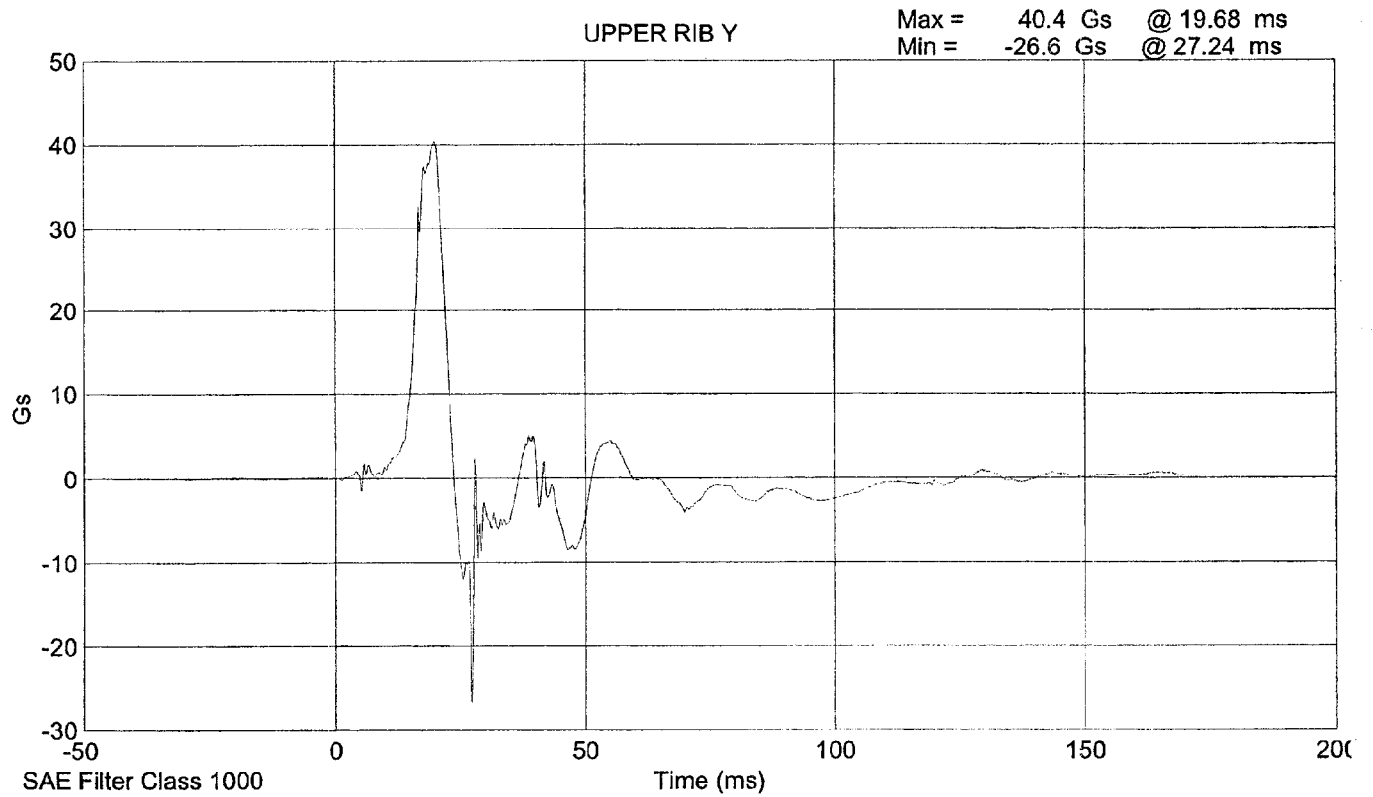
CONFIGURED FOR LEFT SIDE IMPACT

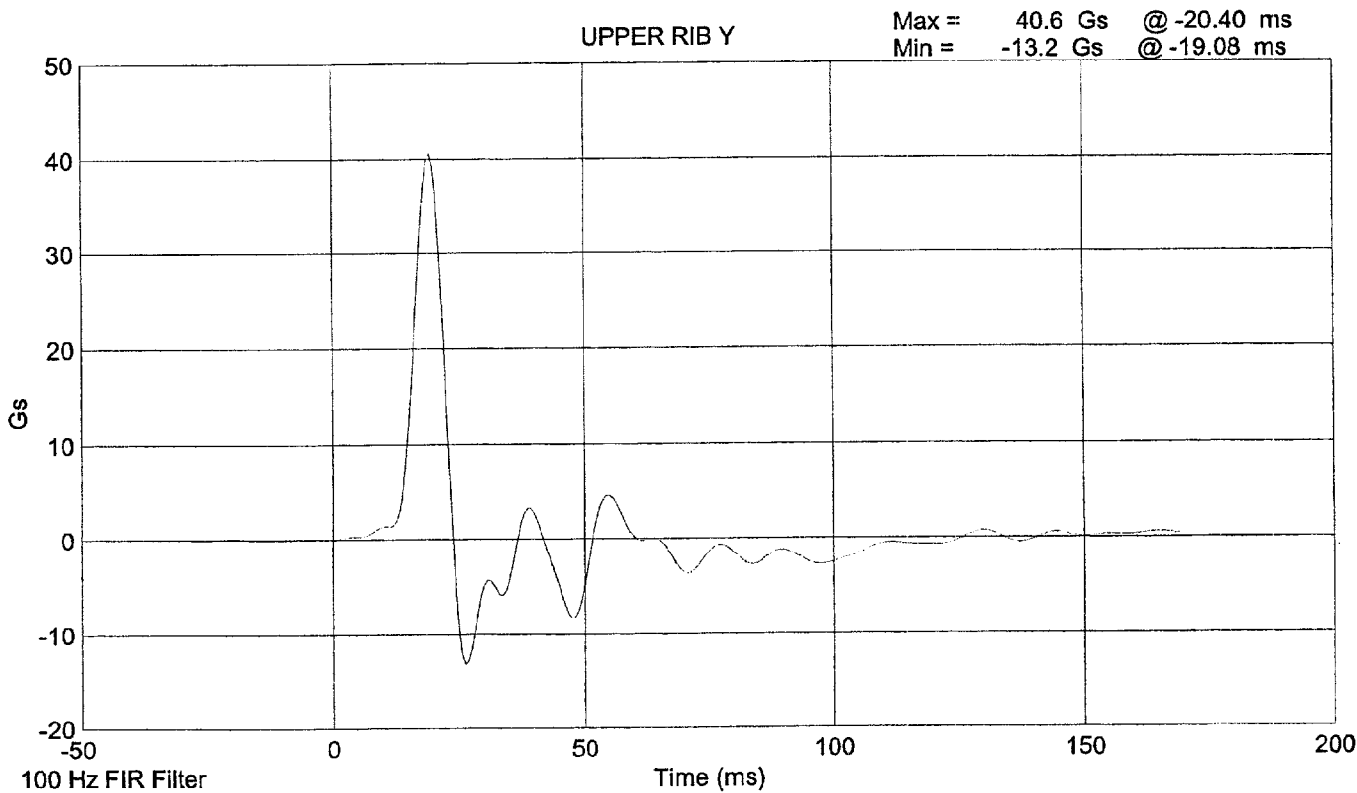
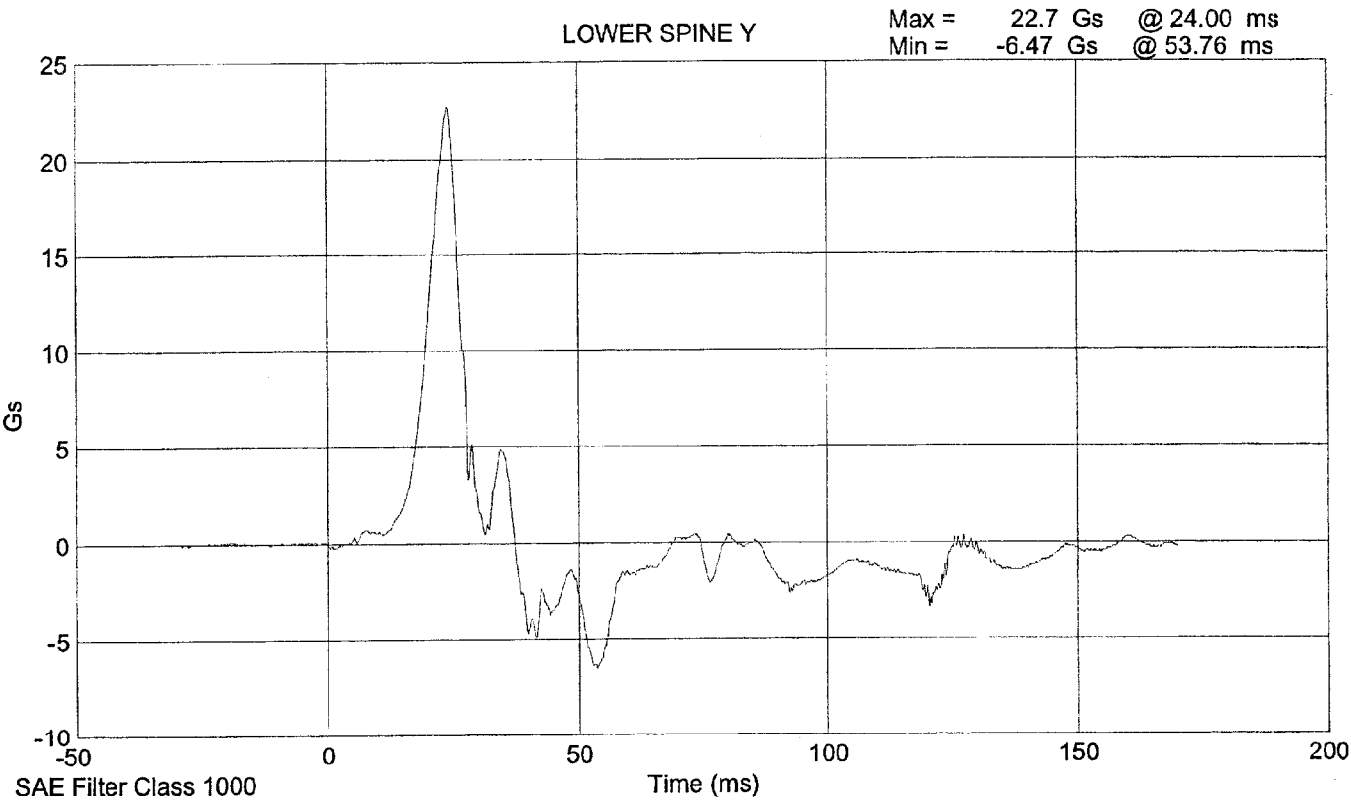
SID Serial No.: 027 Sequential Test Number: 1
Date: April 20, 2000 Laboratory Technician: B. Swiecicki

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE (°C)	18.9 - 25.5	21.1
RELATIVE HUMIDITY (%)	10 - 70	30
PROBE SPEED (m/s)	4.27 - 4.33	4.31
UPPER RIB (g's)	37 - 46	40.6
LOWER RIB (g's)	37 - 46	38.1
LOWER SPINE (g's)	15 - 22	21.4

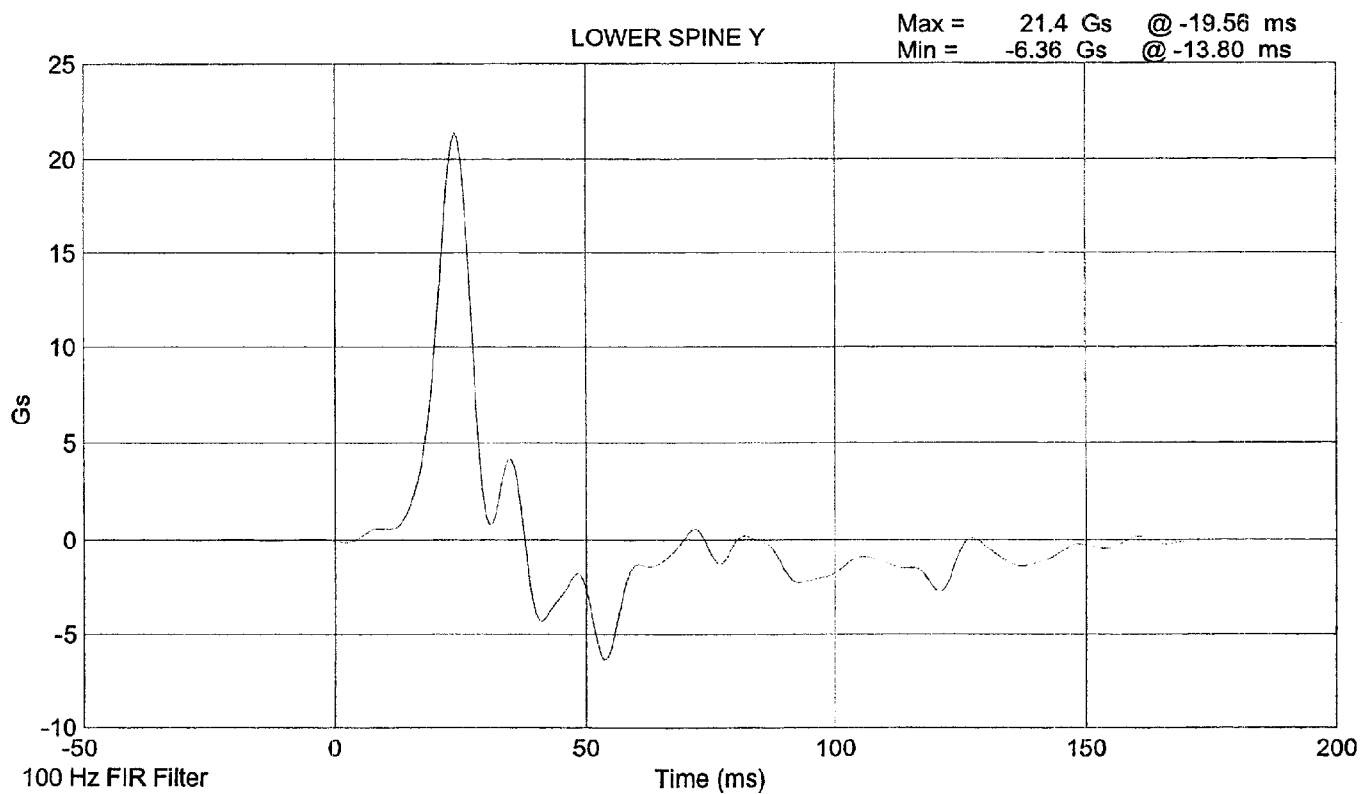
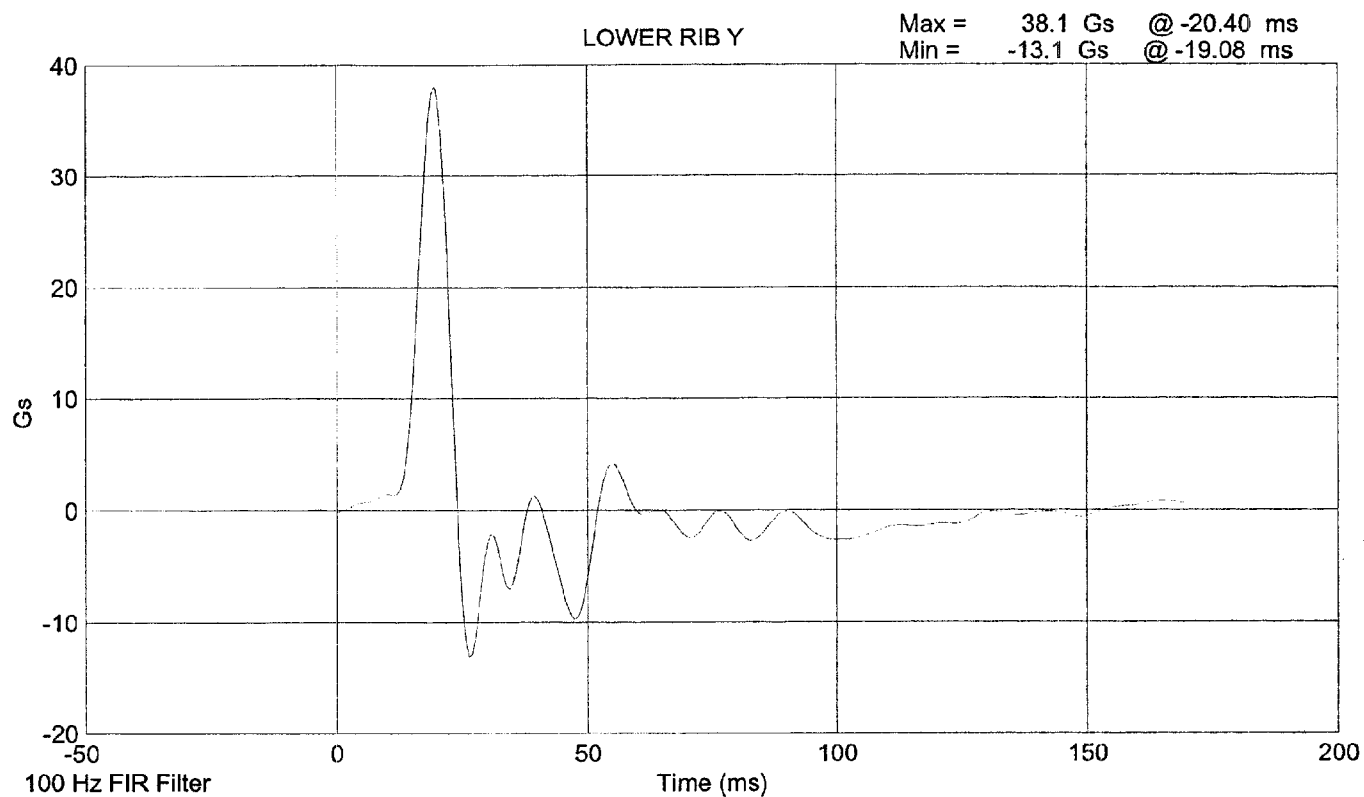
REMARKS: None

SID 027 Thorax Impact Test @ 4.3129 m/s





SID 027 Thorax Impact Test @ 4.3129 m/s



**LATERAL PELVIS IMPACT TEST
POST TEST**

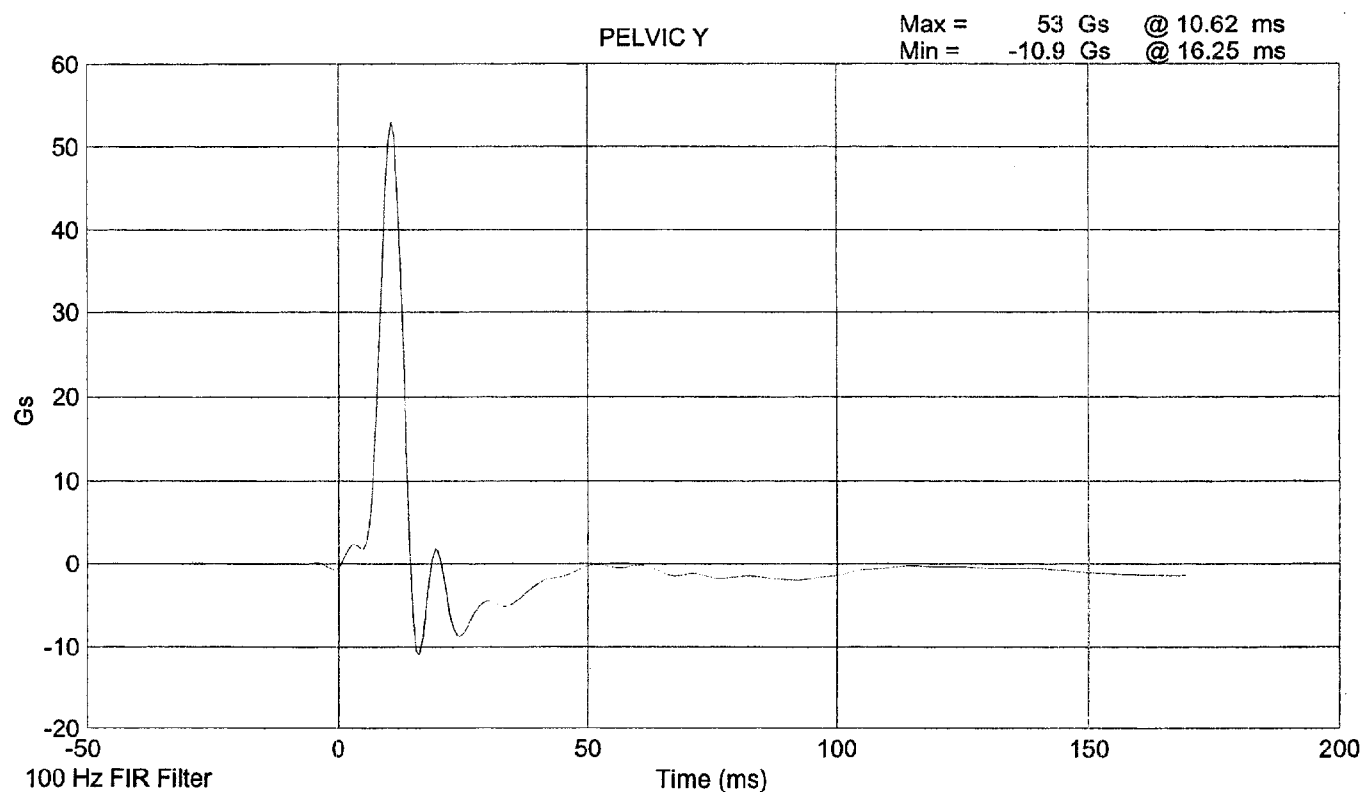
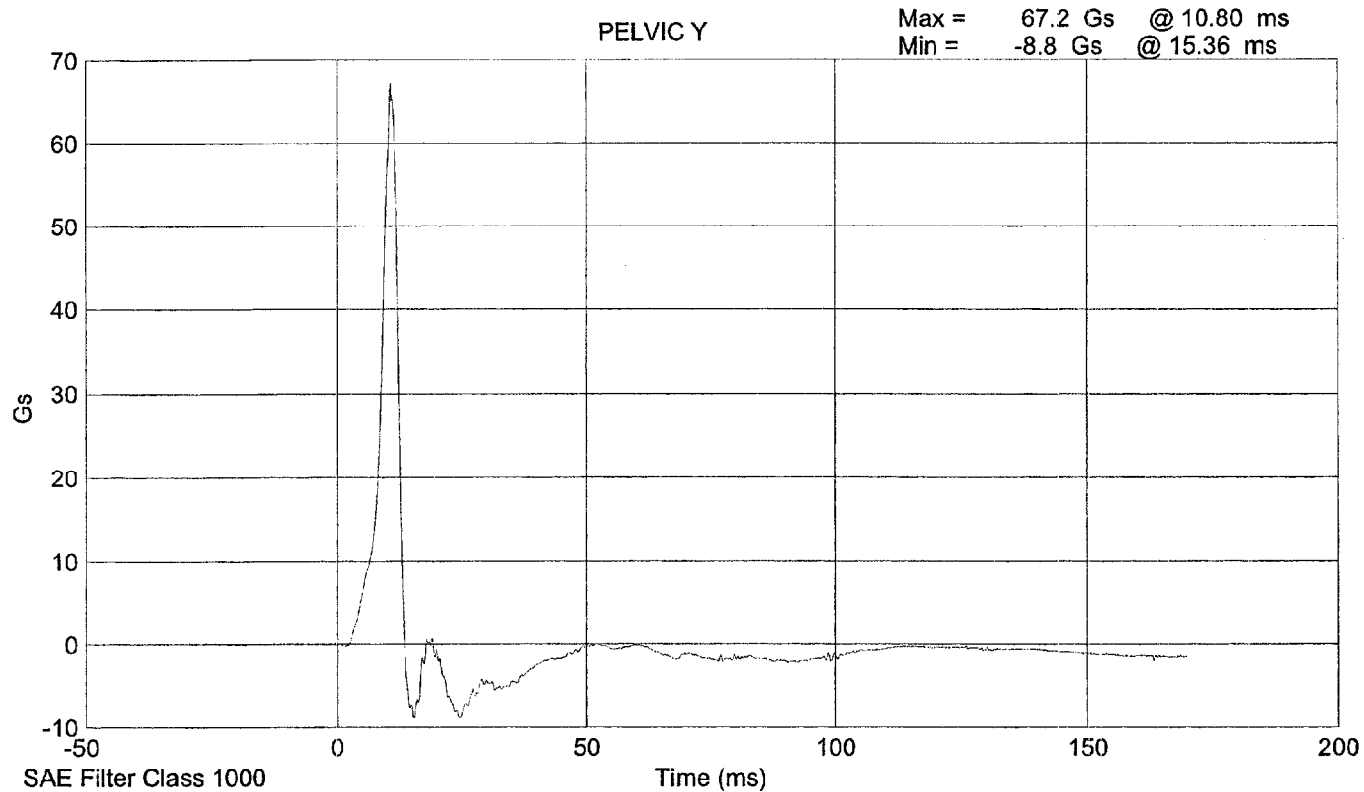
CONFIGURED FOR LEFT SIDE IMPACT

SID Serial No.: 027 Sequential Test Number: 1
Date: April 20, 2000 Laboratory Technician: B. Swiecicki

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE (°C)	18.9 - 25.5	21.1
RELATIVE HUMIDITY (%)	10 - 70	30
PROBE SPEED (m/s)	4.27 - 4.33	4.28
PELVIS ACCELERATION (g's)	40 - 60	53.0

REMARKS: None

SID 027 Pelvic Impact Test @ 4.2824 m/s



ABDOMINAL COMPRESSION TEST**POST TEST**

(Test not required for SID certification)

CONFIGURED FOR LEFT SIDE IMPACT

SID Serial No.: 027 Sequential Test Number: 1
Date: April 21, 2000 Laboratory Technician: B. Swiecicki

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE (°C)	18.9 - 25.5	21.7
RELATIVE HUMIDITY (%)	10 - 70	29
FORCE @ 13 mm (N)	104 - 162	119
FORCE @ 19 mm (N)	163 - 221	184
FORCE @ 25 mm (N)	222 - 280	266
FORCE @ 33 mm (N)	325 - 391	386

REMARKS: None

Dummy S/N 027

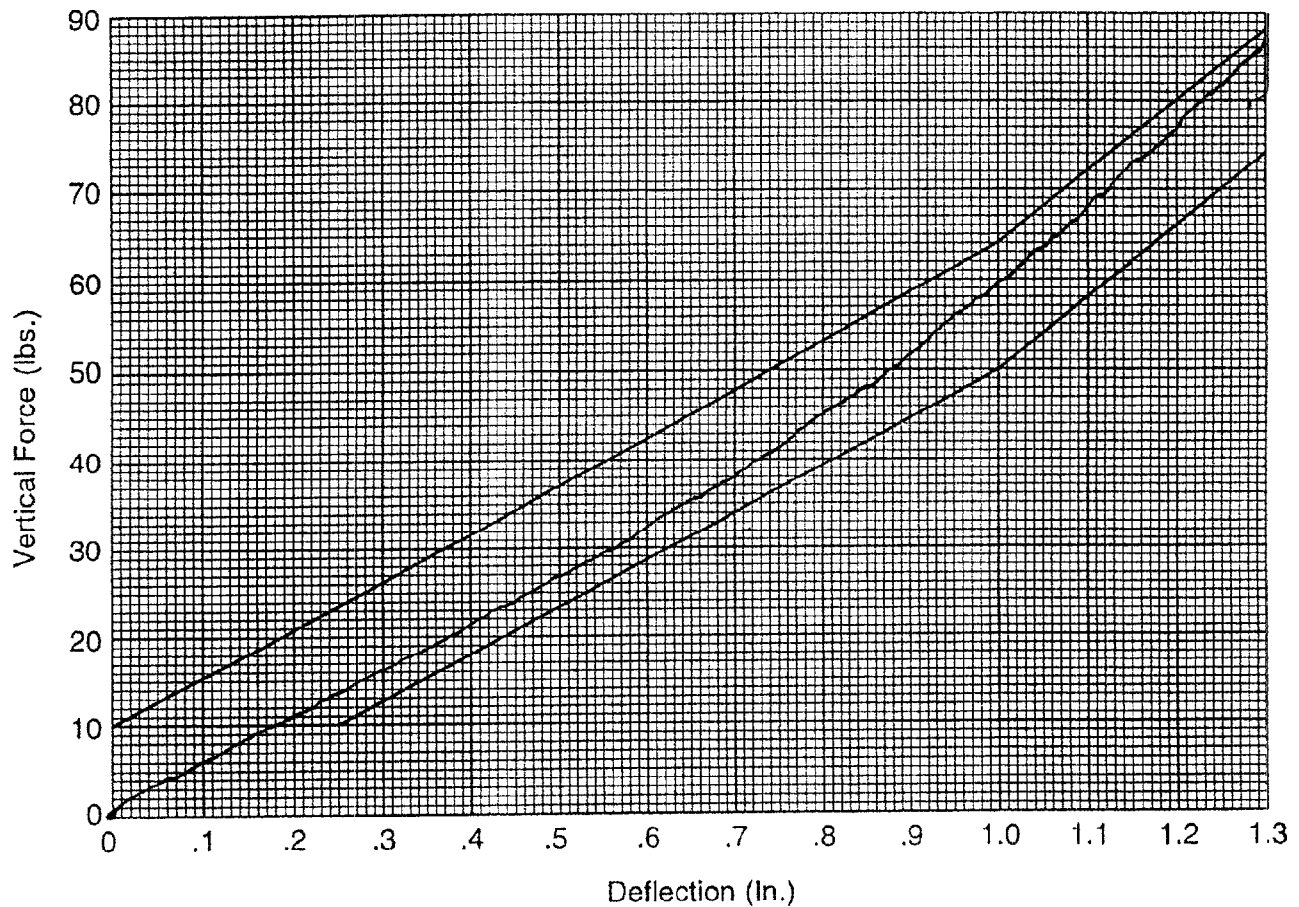
W/A _____

Date 4-21-2000

Performed By [Signature]

Temp. 71°

Humidity 29%



Hybrid II
Abdomen Static Press

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

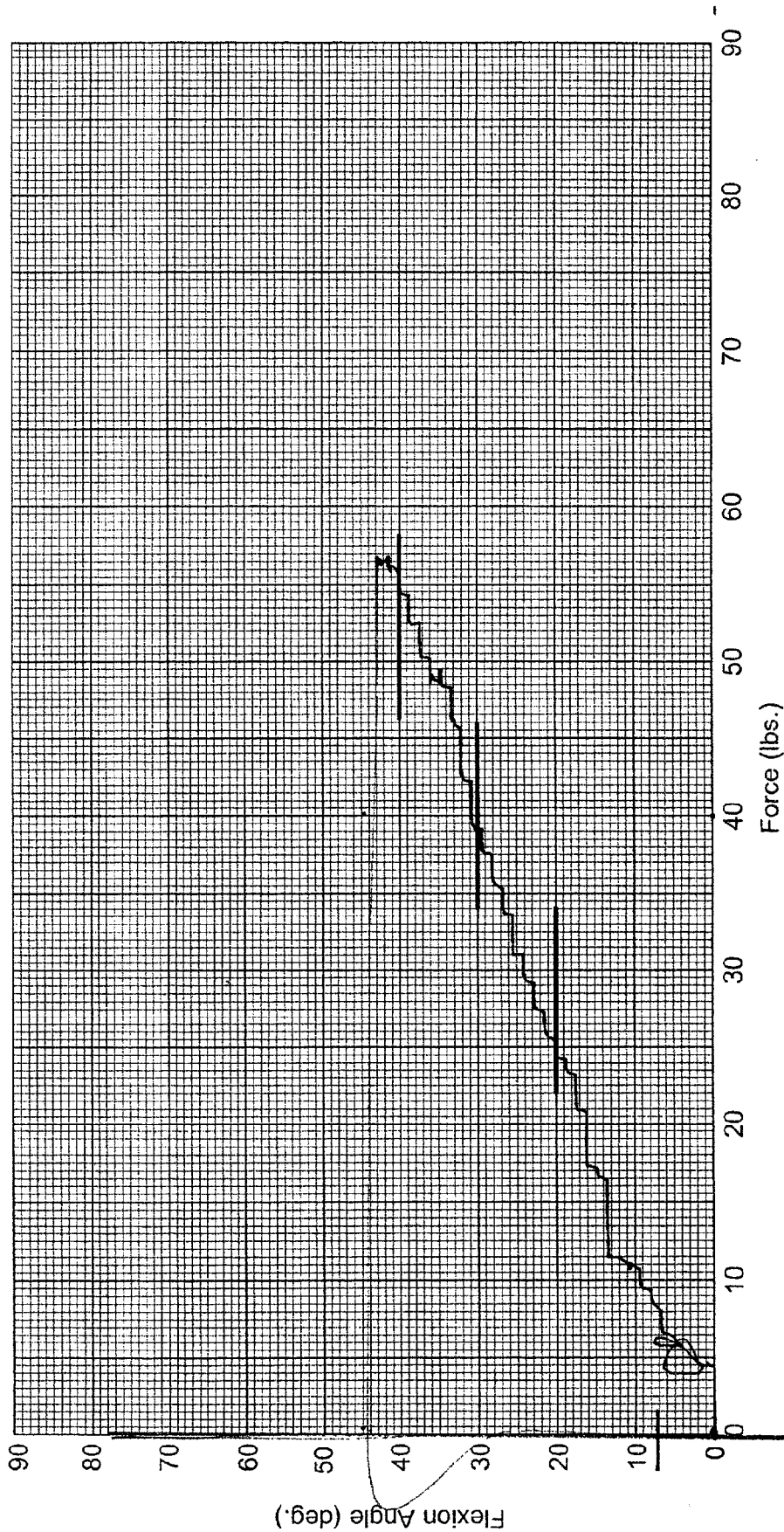
CONFIGURED FOR LEFT SIDE IMPACT

SID Serial No.: 027 Sequential Test Number: 1
Date: April 24, 2000 Laboratory Technician: B. Swiecicki

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE (°C)	18.9 - 25.5	21.7
RELATIVE HUMIDITY (%)	10 - 70	32
FORCE @ 0° (N)	0 - 26.7	0
FORCE @ 20° (N)	97.8 - 151.2	111.0
FORCE @ 30° (N)	151.2 - 204.6	169.9
FORCE @ 40° (N)	204.6 - 258	248.8
RETURN ANGLE	12° max.	7.2°

REMARKS: None

Dummy S/N 027
W/A _____
Date 4-24-2000
Performed By [Signature]
Temp. 71°
Humidity 32%



Hybrid II Lumbar Spine Flexion Test

POST TEST DUMMY INSPECTION LIST
CONFIGURED FOR LEFT SIDE IMPACT

SID Serial No.: 027 Sequential Test Number: 1
Date: April 26, 2000 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

APPENDIX D

TEST EQUIPMENT LIST AND CALIBRATION INFORMATION

TEST EQUIPMENT LIST AND CALIBRATION INFORMATION

SID INSTRUMENTATION

FRONT SID NO.: 015			
	SERIAL NUMBER	MANUFACTURER	CALIBRATION DATE
UPPER RIB	AC-J32791	ENDEVCO	1/18/00
LOWER RIB	AC-J33156	ENDEVCO	1/18/00
LOWER SPINE	AC-J33127	ENDEVCO	1/18/00
PELVIS	AC-J32832	ENDEVCO	1/18/00
UPPER RIB REDUNDANT	AC-J32838	ENDEVCO	1/18/00
LOWER RIB REDUNDANT	AC-J32787	ENDEVCO	1/18/00
LOWER SPINE REDUNDANT	AC-J33351	ENDEVCO	1/19/00
PELVIS REDUNDANT	AC-J33379	ENDEVCO	1/18/00

REAR SID NO.: 027			
	SERIAL NUMBER	MANUFACTURER	CALIBRATION DATE
UPPER RIB	AC-A14342	ENDEVCO	12/9/99
LOWER RIB	AC-A14261	ENDEVCO	12/9/99
LOWER SPINE	AC-APBF4	ENDEVCO	1/3/00
PELVIS	AC-A13565	ENDEVCO	12/9/99
UPPER RIB REDUNDANT	AC-A14246	ENDEVCO	12/9/99
LOWER RIB REDUNDANT	AC-A14358	ENDEVCO	12/9/99
LOWER SPINE REDUNDANT	AC-A13926	ENDEVCO	12/9/99
PELVIS REDUNDANT	AC-A12776	ENDEVCO	12/9/99

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)	AC-B11073	ENDEVCO	2/7/00
RIGHT FRONT SILL (Y)	AC-AP1A2	ENDEVCO	2/7/00
RIGHT FRONT SILL (Z)	AC-B10954	ENDEVCO	2/7/00
RIGHT REAR SILL (X)	AC-ACC06	ENDEVCO	2/7/00
RIGHT REAR SILL (Y)	AC-B11351	ENDEVCO	2/7/00
RIGHT REAR SILL (Z)	AC-B10481	ENDEVCO	2/7/00
REAR FLOORPAN ABOVE AXLE (X)	AC-J18649	ENDEVCO	2/4/00
REAR FLOORPAN ABOVE AXLE (Y)	AC-J18622	ENDEVCO	2/4/00
REAR FLOORPAN ABOVE AXLE (Z)	AC-APBB6	ENDEVCO	2/4/00
LEFT REAR SILL (Y)	AC-AC7W8	ENDEVCO	12/6/99
LEFT FRONT SILL (Y)	AC-J18400	ENDEVCO	2/4/00
RIGHT REAR SEAT OCCUPANT COMP. (Y)	AC-D84	ICS	2/28/00
LOWER LEFT B- PILLAR (Y)	AC-APA30	ENDEVCO	1/26/00
MIDDLE LEFT B-PILLAR (Y)	AC-J18436	ENDEVCO	10/7/99
LOWER LEFT A-PILLAR (Y)	AC-B10951	ENDEVCO	10/7/99
UPPER LEFT A-PILLAR (Y)	AC-J31026	ENDEVCO	2/29/00
FRONT SEAT TRACK (Y)	AC-Z02	ENTRAN	12/6/99
REAR SEAT TRACK (Y)	AC-X93	ICS	12/7/99
VEHICLE CG (X)	AC-AP064	ENDEVCO	2/4/00
VEHICLE CG (Y)	AC-BB14	ENDEVCO	2/4/00
VEHICLE CG (Z)	AC-B10955	ENDEVCO	2/4/00
MDB CG (X)	AC-CL60	ENDEVCO	1/4/00
MDB CG (Y)	AC-CJ54	ENDEVCO	1/4/00
MDB CG (Z)	AC-GK12	ENDEVCO	1/4/00
MDB REAR FRAME MEMBER (X)	AC-CX05	ENDEVCO	1/4/00
MDB REAR FRAME MEMBER (Y)	AC-A27F	ENDEVCO	1/4/00

REMARKS: None