

V3747

REPORT NUMBER: 301-CAL-01-07

**SAFETY COMPLIANCE TESTING FOR FMVSS 301
FUEL SYSTEM INTEGRITY**

NISSAN MOTOR CO.
2001 NISSAN
SENTRA
4-DOOR SEDAN

NHTSA NUMBER: C15202

VERIDIAN TEST NUMBER. 8606-7

August 10, 2001

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



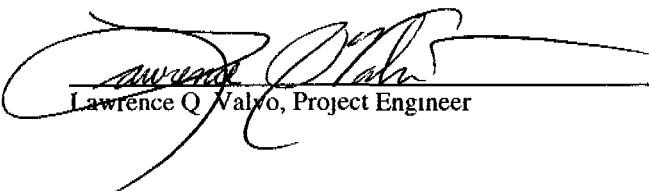
FINAL REPORT

PREPARED FOR:

U. S. Department of Transportation
National Highway Traffic Safety Administration
Safety Assurance
Office of Vehicle Safety Compliance
400 Seventh Street, S. W.
Room No. 6115 (NSA-30)
Washington, DC 20590

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August 18, 2001

FINAL REPORT ACCEPTANCE BY OVSC

Accepted By

Acceptance Date


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TECHNICAL REPORT STANDARD TITLE PAGE

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				14 Sponsoring Agency Code NSA-30	
15 Supplementary Notes					
16 Abstract Compliance tests were conducted on the subject 2001 Nissan Sentra 4-Door Sedan in accordance with the specifications of the Office of Vehicle Safety Compliance Test Procedure No TP-301-01 for the determination of FMVSS 301 compliance Test failures identified were as follows The test vehicle appeared to comply with all requirements of FMVSS 301 "Fuel System Integrity "					
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Section 1

PURPOSE OF COMPLIANCE TEST

This 30 mph rear moving barrier impact test is part of the Federal Motor Vehicle Safety Standard (FMVSS) 301 Compliance Test Program conducted for the National Highway Traffic Safety Administration (NHTSA) by Veridian Engineering under Contract No DTNH22-01-C-01025. The purpose of this test was to determine if the subject vehicle, a 2001 Nissan Sentra 4-Door Sedan, meets the performance requirements of FMVSS No 301, "Fuel System Integrity." This compliance test was conducted using the requirements found in the OVSC Laboratory Test Procedure No TP-301-01, dated March 28, 1994.

Section 2

COMPLIANCE TEST RESULTS SUMMARY FOR C15202

A 3010 pound 2001 Nissan Sentra 4-Door Sedan was impacted from the rear by a 3961 pound moving barrier at a velocity of 29.3 mph. The test was performed by Veridian Engineering on August 10, 2001.

One instrumented Part 572 E and one non-instrumented Part 572 B, 50th percentile male Anthropomorphic Test Device (ATD) were placed in the driver and right-front passenger seating positions respectively. Additional ballast (0 pounds) was secured in the vehicle cargo area.

The crash event was recorded by eight high-speed cameras and one real-time camera. Camera locations and other pertinent camera information are found on pages 3-9 and 3-10 of this report. Pre- and post-test photographs of the vehicle can be found in Appendix A. Vehicle and ATD electronic data plots are presented in Appendix B.

The 13.2 gallon fuel tank was filled to 92.5 percent capacity with orange Stoddard fluid prior to the impact. After the impact, there was no fluid leakage for the first 30 minutes nor during any phase of the rollover test. Average vehicle longitudinal crush was 18.47 inches. The vehicle appeared to comply with all the requirements of FMVSS No. 301 "Fuel System Integrity." Section 3 presents the results of these tests.

Table 1

CRASH TEST SUMMARY

Vehicle NHTSA No. C15202 Test Mode 30 mph Rear Barrier
 Test Date August 10, 2001 Time 10 50 Temperature 71 °F
 Vehicle Make/Model/Body Style 2001 Nissan Sentra 4-Door Sedan
 Vehicle Test Weight 3010 lbs Impact Velocity 29 3 mph
 Static Crush
 Left Side 19 0 inches
 Centerline 19 0 inches
 Right Side 17.4 inches
 Average 18 47 inches

TYPE OF FRONT OCCUPANT RESTRAINT SYSTEM INSTALLED IN TEST VEHICLE

Driver's DSP 3-Point Seat Belt, Airbag, Knee Bolster
 Right Passenger's DSP 3-Point Seat Belt, Airbag, Knee Bolster

VISIBLE DUMMY CONTACT POINTS

Driver Back of head to head restraint and back to center of seat back
 Passenger Back of head to head restraint and back to center of seat back

DOOR OPENING DATA

Closed / Operable - Left Front
Closed / Operable - Right Front

Stoddard Solvent Spillage from Vehicle's Fuel System None

Remarks The rear window shattered during the impact The driver and passenger seat backs reclined
approximately 9 degrees during the impact

Table 2

GENERAL TEST AND VEHICLE PARAMETER DATATEST VEHICLE INFORMATION

Year/Make/Model/Body Style 2001 Nissan Sentra 4-Door Sedan

NHTSA No C15202, VIN 3N1CB51D91L462604, Color Dark Red

Engine Data 4 cylinders, - CID, 1.8 Liters, - cc

Placement - Longitudinal or In-Line, X Transverse or Lateral

Transmission Data 5 speeds, X Manual, - Automatic, - Overdrive

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

Major Options X A/C, X Power Steering, X Power Brakes

X Power Windows, X Power Door Locks, X Tilt Wheel

Date Received 6/14/01, Odometer Reading 47 miles

Selling Dealer Bill Cook Nissan, Inc

& Address PO Box 2010, Farmington H MI 48333

DATA FROM TIRE VEHICLE'S CERTIFICATION LABEL

Vehicle Manufactured by Nissan Motor Co

Date of Manufacture 12/00

GVWR 3549 lbs, GAWR 1922 lbs FRONT, 1689 lbs REAR

DATA FROM TIRE PLACARD

Location of Placard on Vehicle Driver side B-pillar

Tire Pressure with Maximum Capacity Vehicle Load 44 psi FRONT 44 psi REAR

Recommended Tire Size P185/65R14

* Recommended Cold Tire Pressure 33 psi FRONT, 33 psi REAR

Size of Tires on Test Vehicle P185/65R14 Manufacturer Bridgestone

Type of Spare Tire Temporary

Vehicle Capacity Data

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

Number of Occupants 2 Front, 3 Rear, 5 Total

Vehicle Capacity Weight (VCW) = 825 lbs

No. of Occupants x 150 lbs = 750 lbs

Rated Cargo/Luggage Weight (RCLW) = 75 lbs

*Tire pressure used for test

Table 2

GENERAL TEST AND VEHICLE PARAMETER DATA (cont.)

WEIGHT OF TEST VEHICLE AS RECEIVED FROM DEALER (with maximum fluids)= UDW

Right Front	=	<u>791</u>	lbs	Right Rear =	<u>510</u>	lbs
Left Front	=	<u>824</u>	lbs.	Left Rear =	<u>490</u>	lbs
TOTAL FRONT	=	<u>1615</u>	lbs.	TOTAL REAR =	<u>1000</u>	lbs
TOTAL DELIVERED WEIGHT	=	<u>2615</u>	lbs			
% of Total Front of Vehicle Weight	=	<u>61 8%</u>		of Total Rear Weight	=	<u>38 2%</u>

CALCULATION OF VEHICLE'S TARGET TEST WEIGHT:

Total Delivered Weight	=	<u>2615</u>	lbs
Rated Cargo/Luggage Weight (RCLW)	=	<u>75</u>	lbs
Weight of 2 p 572 Dummies, 167 & 164 lbs	=	<u>331</u>	lbs
TARGET TEST WEIGHT	=	<u>3021</u>	lbs.

WEIGHT OF TEST VEHICLE WITH TWO DUMMIES AND 64 POUNDS OF CARGO WEIGHT:

Right Front	=	<u>904</u>	lbs	Right Rear =	<u>575</u>	lbs
Left Front	=	<u>938</u>	lbs	Left Rear =	<u>593</u>	lbs
TOTAL FRONT	=	<u>1842</u>	lbs	TOTAL REAR =	<u>1168</u>	lbs
TOTAL TEST WEIGHT	=	<u>3010</u>	lbs			
% of Total Front of Vehicle Weight	=	<u>61 2%</u>		of Total Rear Weight	=	<u>38 8%</u>

* Weight of Ballast Secured in Vehicle Trunk Area = 0 lbs

Type of Ballast None

Method of Securing Ballast. -

Vehicle Components Removed for Weight Reduction Headlights, mirrors and rear interior door trim

VEHICLE ATTITUDE (all dimension in inches)

AS DELIVERED	RF	<u>26 8</u>	LF	<u>26 8</u>	RR	<u>26 3</u>	LR	<u>26 2</u>
AS TESTED	RF	<u>25 3</u>	LF	<u>25 5</u>	RR	<u>24 9</u>	LR	<u>25 3</u>
Vehicle's Wheel Base		<u>99 9</u>	in					
Location of Vehicle's C G		<u>38 8</u>	inches rearward of front wheel center					

FUEL SYSTEM DATA

Fuel System Capacity From Owner's Manual	=	<u>13 2</u>	gallons
Usable Capacity Figure Furnished by COTR	=	<u>13 2</u>	gallons
Test Volume Range (91 to 94% of Usable Capacity)	=	<u>12 01</u>	to <u>12 41</u> gallons
ACTUAL TEST VOLUME	=	<u>12 2</u>	gallons (with entire fuel system filled)

* Ballast weight includes the RCLW, the weight of drained vehicle fluids and the weight of any removed vehicle components less the weight of onboard instrumentation, cameras, and hardware

Table 2

GENERAL TEST AND VEHICLE PARAMETER DATA (cont)

FUEL SYSTEM DATA (continued)

Test Fluid Type	Stoddard Solution
Test Fluid Specific Gravity	0.764
Test Fluid Kinematic Viscosity	0.96 centistokes
Test Fluid Color	Orange ("red" is preferred)
Type of Vehicle Fuel Pump	Electric
Electric Fuel Pump Operation with Ignition Switch ON and Engine OFF -	
Fuel pump operated	
Details of Fuel System	Fuel filler is located on the left rear quarter panel aft of the rear axle, Fuel tank is located on the vehicle underbody beneath the rear seat and forward of the rear axle line, Fuel lines are routed along the left side of the vehicle underbody

Table 3

MOVING BARRIER PARAMETER DATAWEIGHT OF MOVING BARRIER

Right Front	=	<u>1113</u>	lbs	Right Rear	=	<u>868</u>	lbs
Left Front	=	<u>1102</u>	lbs	Left Rear	=	<u>878</u>	lbs
TOTAL FRONT	=	<u>2215</u>	lbs	TOTAL REAR	=	<u>1746</u>	lbs
TOTAL BARRIER WEIGHT	=	<u>3961</u>	lbs				

MOVING BARRIER DIMENSIONS

Barrier Face Height	<u>60 0</u>	in
Barrier Face Width	<u>78 0</u>	in
Barrier Face		
Ground Clearance	<u>5 0</u>	in
Tread Width	<u>59 5</u>	in
Wheel Base	<u>120 0</u>	in
Location of C G .	X <u>52 9</u>	inches rearward of front wheel center
	Y <u>0 0</u>	inches from longitudinal-vertical plane of symmetry
	Z <u>16 3</u>	inches above ground

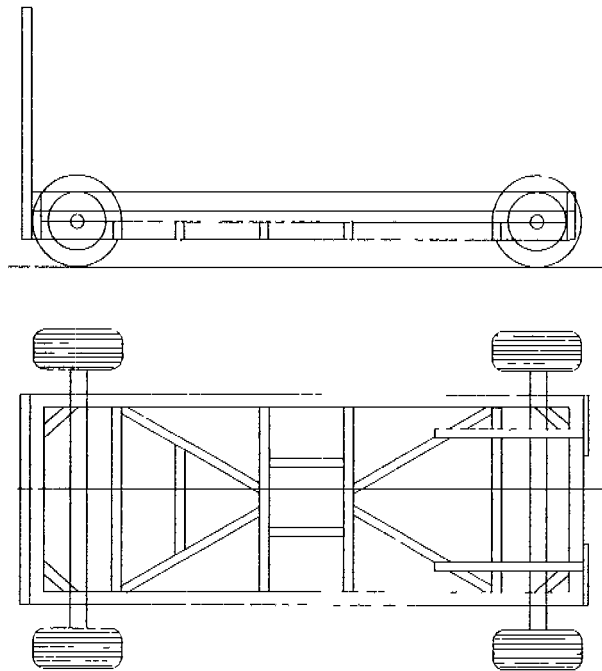


Table 4

POST IMPACT DATATYPE OF TEST

Type of Test Rear Barrier Impact Angle 0°
 Test Date August 10, 2001 Time 10 50 Temperature 71 °F
 Vehicle NHTSA No C15202
 Required Impact Velocity Range 28 9 to 29 9 mph

BARRIER IMPACT VELOCITY (Speed traps within 5 feet of impact plane)

Trap No 1 = 29 3 mph, Trap No 2 = 29 3 mph
 Average Impact Speed = 29 3 mph

VEHICLE STATIC CRUSH

Vehicle Length

Pre-Test Left = 173 3, C/L = 177 3 Right = 173 2
 Post-Test Left = 154 3, C/L = 158 3 Right = 155 8
 Crush Left = 19 0, C/L = 19 0 Right = 17 4
 AVERAGE = 18 47 inches

Section 3

COMPLIANCE TEST DATA

Figure 1

PART 572 DUMMY IN-VEHICLE POSITION
(FOR REAR IMPACTS ONLY)

DUMMY MEASUREMENT FOR FRONT SEAT PASSENGERS

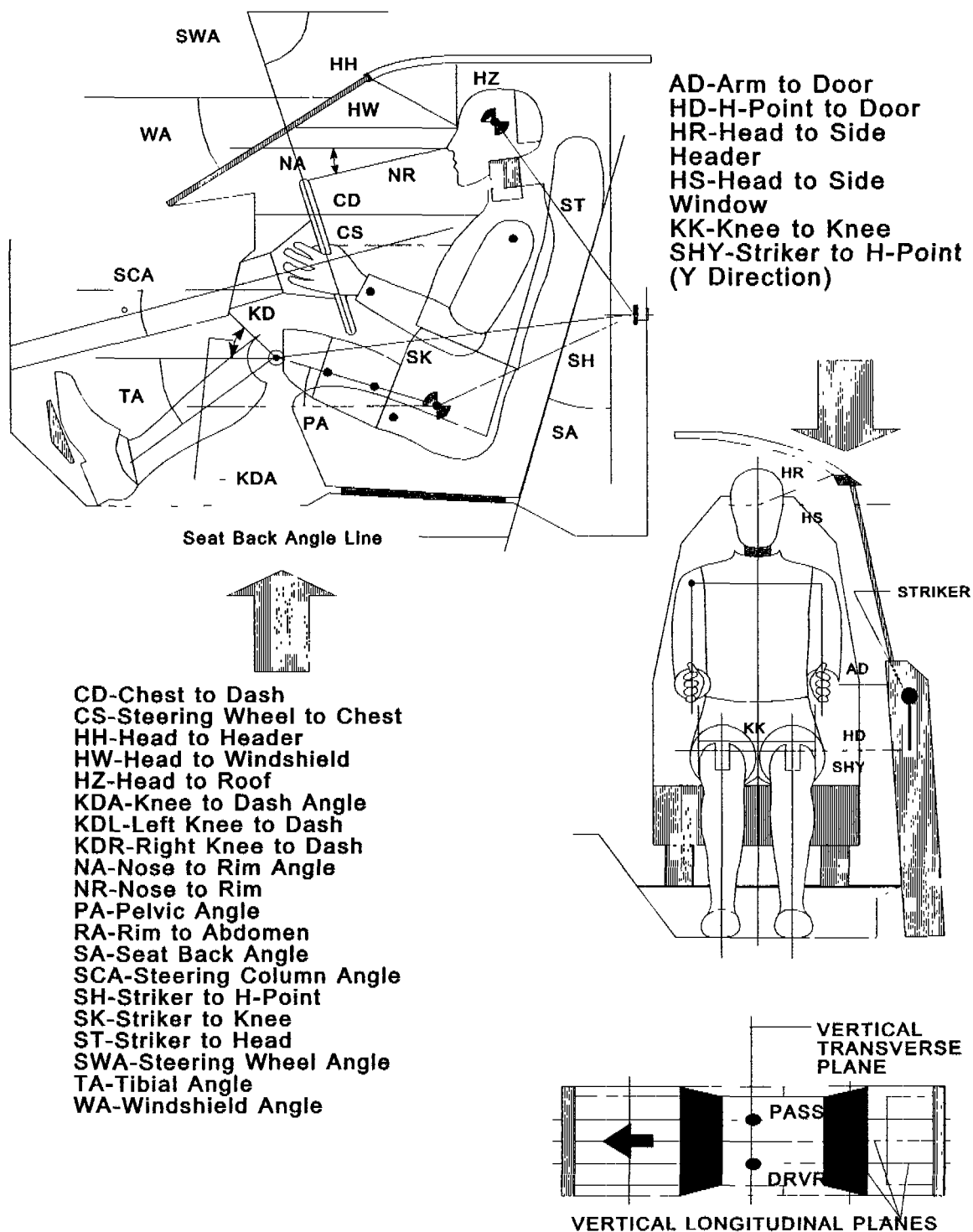


Table 5

FRONT SEAT OCCUPANT MEASUREMENTS
(FOR REAR IMPACT ONLY)

	DRIVER (Serial #116)			
WA°	29		deg	
SWA°	66		deg	
SCA°	24		deg	
SA°	21		deg	
HZ		7 6		
HH		12 2		
HW		24 1		
HR		12 2		
NR	14 8	Angle	12	deg
CD		19 4		
CS		11 2		
RA		7 3		
KDL	5 9	Angle (KDA)	33	deg
KDR		5 8		
PA°		25	deg	
TA°		36	deg	
KK		9 6		
ST	19 2	Angle	10	deg
SK	23 4	Angle	87	deg
SH	10 1	Angle	126	deg
SHY		9 0		
HS		12 8		
HD		5 5		
AD		2 6		

(Measurements in inches)

Table 6
FUELSYSTEM INTEGRITY POST IMPACT TEST DATA

FMVSS NO.301

TEST VEHICLE NHTSA NO. C15202 TEST DATE August 10, 2001

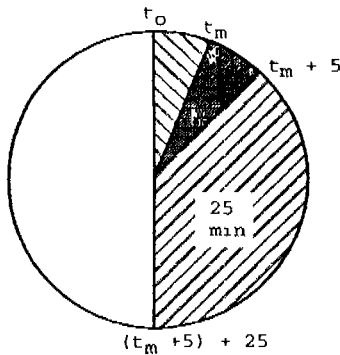
Vehicle Mfg. /Make/Model 2001 Nissan Sentra 4-Door Sedan

Test vehicle fuel tank filled to 91% to 94% of manufacturer's "usable" capacity and with electric fuel pump operating (if it will operate without engine operation) Part 572 test dummies located at each front designated seating position

TEST VEHICLE IMPACT TYPE

- Frontal (30 mph)
- Oblique (30 mph) with - ° barrier face first
 contacting _____
 (driver/passenger) side
X Rear Moving Barrier (30 mph)
- Lateral Moving Barrier (20 mph)

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	1 oz
0	5 oz
0	1 oz / 1 min

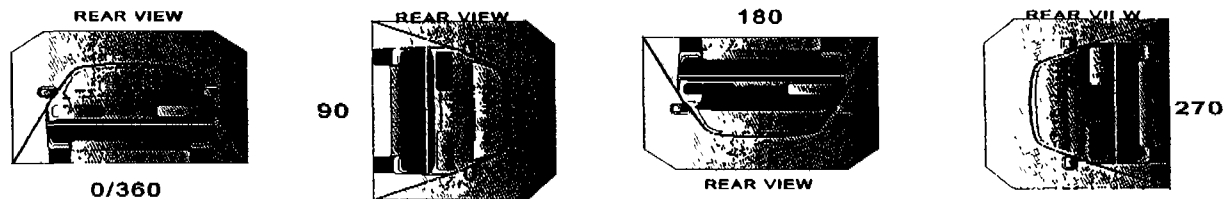
SOLVENT SPILLAGE DETAILS

None

Table 7 FMVSS NO. 301 - STATIC ROLLOVER DATA SHEET

Vehicle. 2001 Nissan Sentra 4-Door Sedan

NHTSA No : C15202



I DETERMINATION OF SOLVENT COLLECTION TIME PERIOD

Rollover Stage	Rotation Time (spec 1 -3 min)				FMVSS 301 Hold Time		Total Time				Next Whole Minute Interval	
0° - 90°	1	minutes	16	seconds	5	minutes	6	minutes	16	seconds	7	minutes
90° - 180°	1	minutes	2	seconds	5	minutes	6	minutes	2	seconds	7	minutes
180°-270°	1	minutes	1	seconds	5	minutes	6	minutes	1	seconds	7	minutes
270°-360°	1	minutes	12	seconds	5	minutes	6	minutes	12	seconds	7	minutes

II FMVSS 301 REQUIREMENTS (Maximum allowable solvent spillage)

First 5 minutes from onset of rotation	6th min	7th min	8th min (if required)
5 ounces	1 ounce	1 ounce	1 ounce

III ACTUAL TEST VEHICLE SOLVENT SPILLAGE

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

Note Record spillage for whole minute intervals only as determined above

IV SOLVENT SPILLAGE LOCATION(S)

Rollover Stage	Spillage Location
0° - 90°	-
90° - 180°	-
180°-270°	-
270°-360°	-

Figure 2

CAMERA POSITIONS FOR REAR IMPACTS

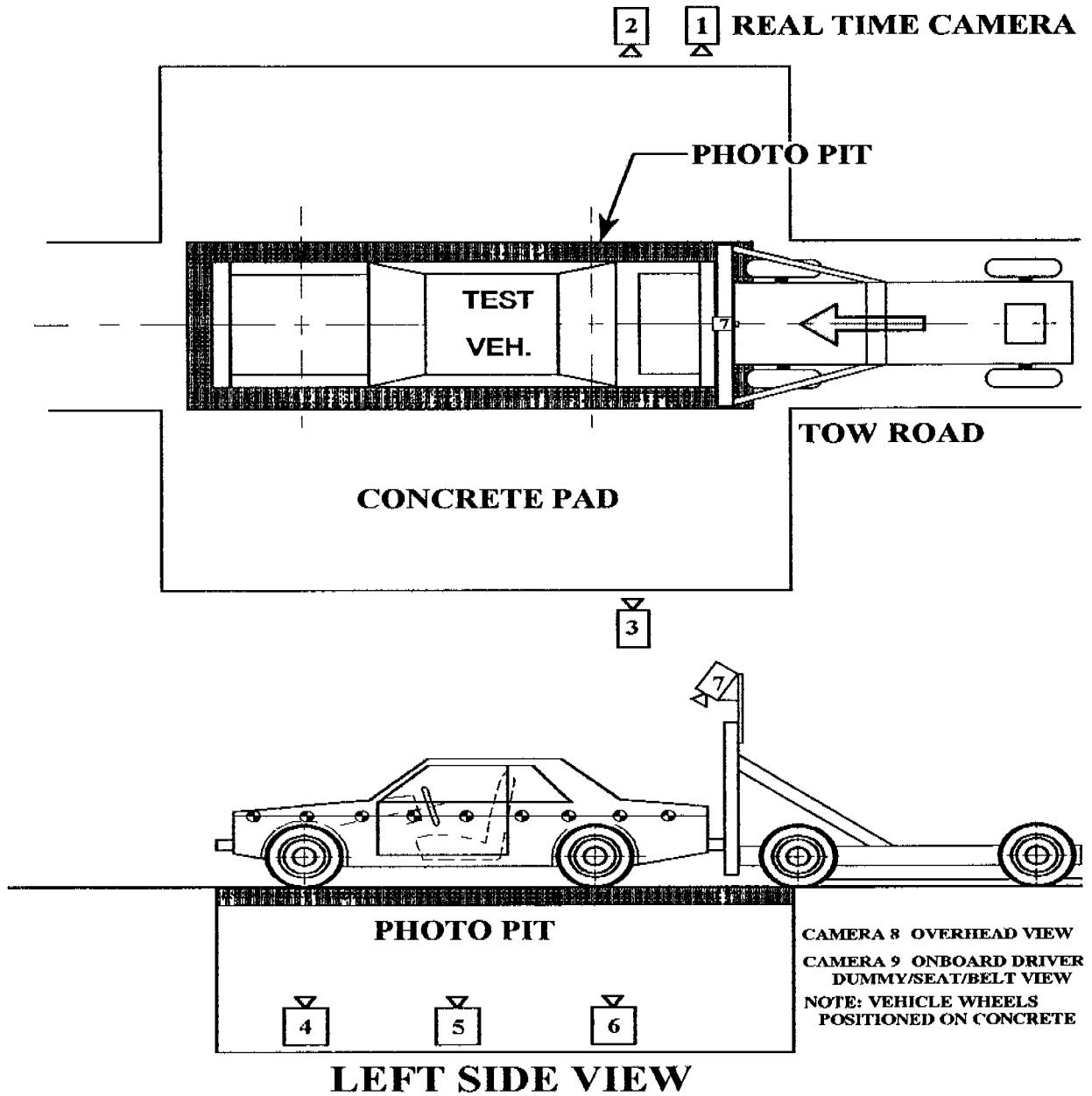


Table 8

HIGH-SPEED CAMERA LOCATIONS

NHTSA No · C15202

Vehicle 2001 Nissan Sentra 4-Door Sedan

CAMERA NO	VIEW	CAMERA POSITIONS (inches)*			ANGLE** (degrees)	LENS (mm)	SPEED (fps)
		X	Y	Z			
1	Real-Time Camera	-	-	-	-	-	24
2	Right Side View	-521 0	69 1	43 8	-2	13	1005
3	Left Side View	531 5	87 5	41 8	1	13	1000
4	Vehicle Front Underbody View	0	132 0	-77 0	90	13	1005
5	Vehicle Mid-Section Underbody View	0	92 0	-77 0	90	13	900
6	Vehicle Rear Underbody View	0	48 5	-77 0	90	13	750
7	Moving Barrier View	0	0	99 0	-105	13	1000
8	Overhead Overall View	-20 0	0	386 0	-90	13	1000
9	Onboard Driver Dummy/Seat/Belt View	-	-	-	-	8	1000

* X = film plant to monorail centerline (+ to left of rail)

Y = film plane to impact location (+ ahead of impact location)

Z = film plane to ground (+ above ground)

** = referenced to horizontal plane

Appendix A
PHOTOGRAPHS

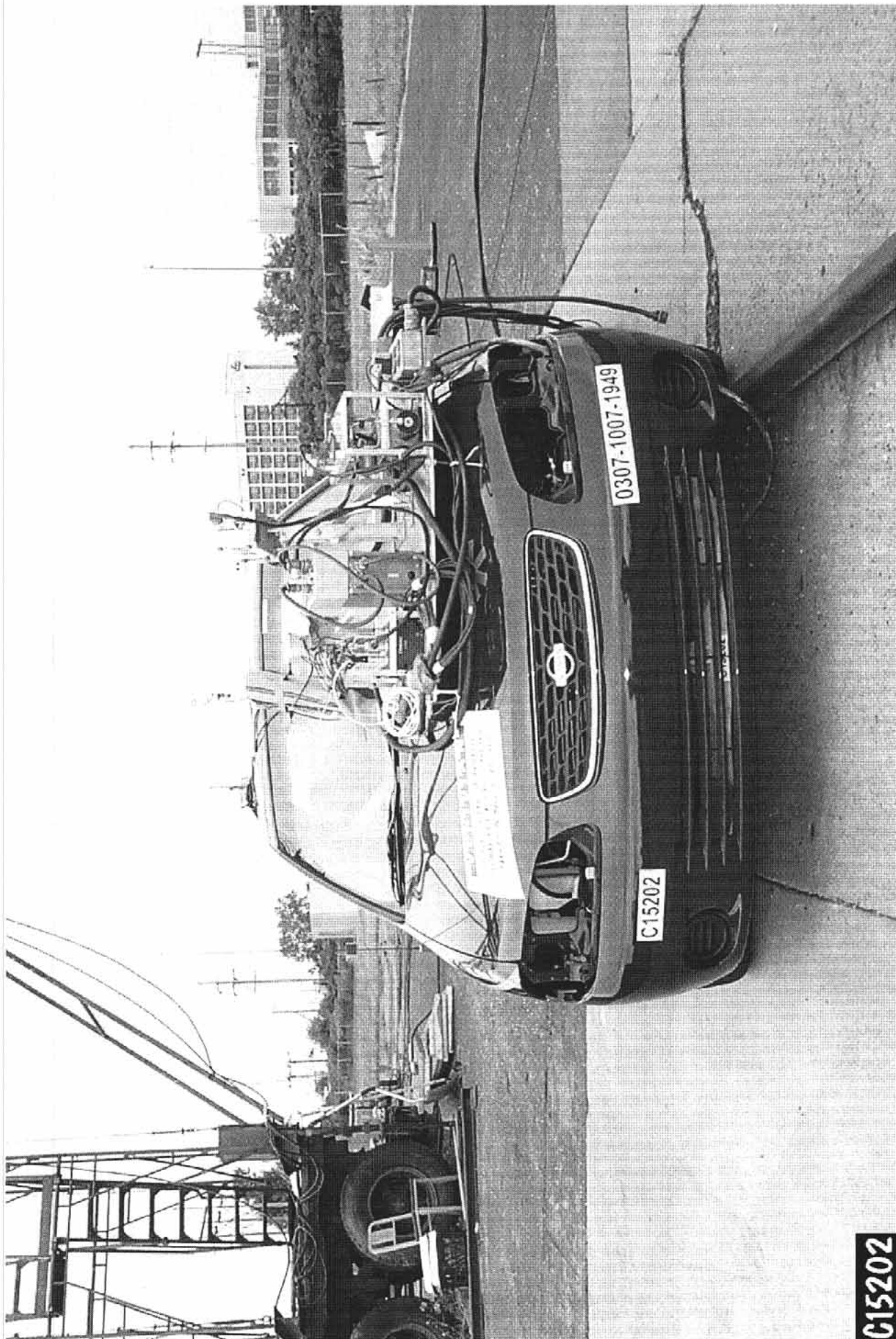
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Figure A-1: PRE-TEST FRONT VIEW

C15202



C15202

Figure A-2: POST-TEST FRONT VIEW



Figure A-3: PRE-TEST LEFT SIDE VIEW



Figure A-4: POST-TEST LEFT SIDE VIEW

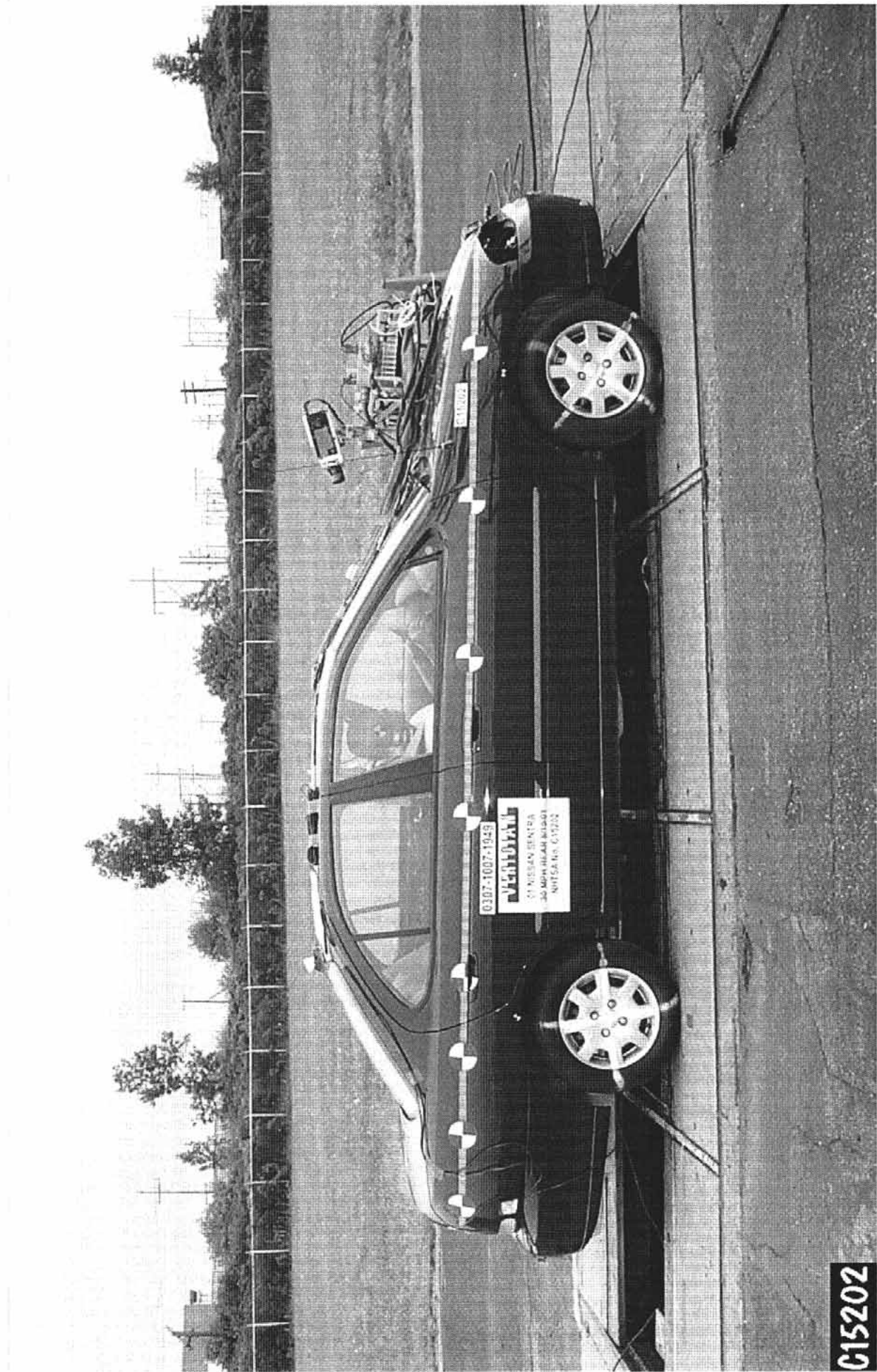


Figure A-5: PRE-TEST RIGHT SIDE VIEW

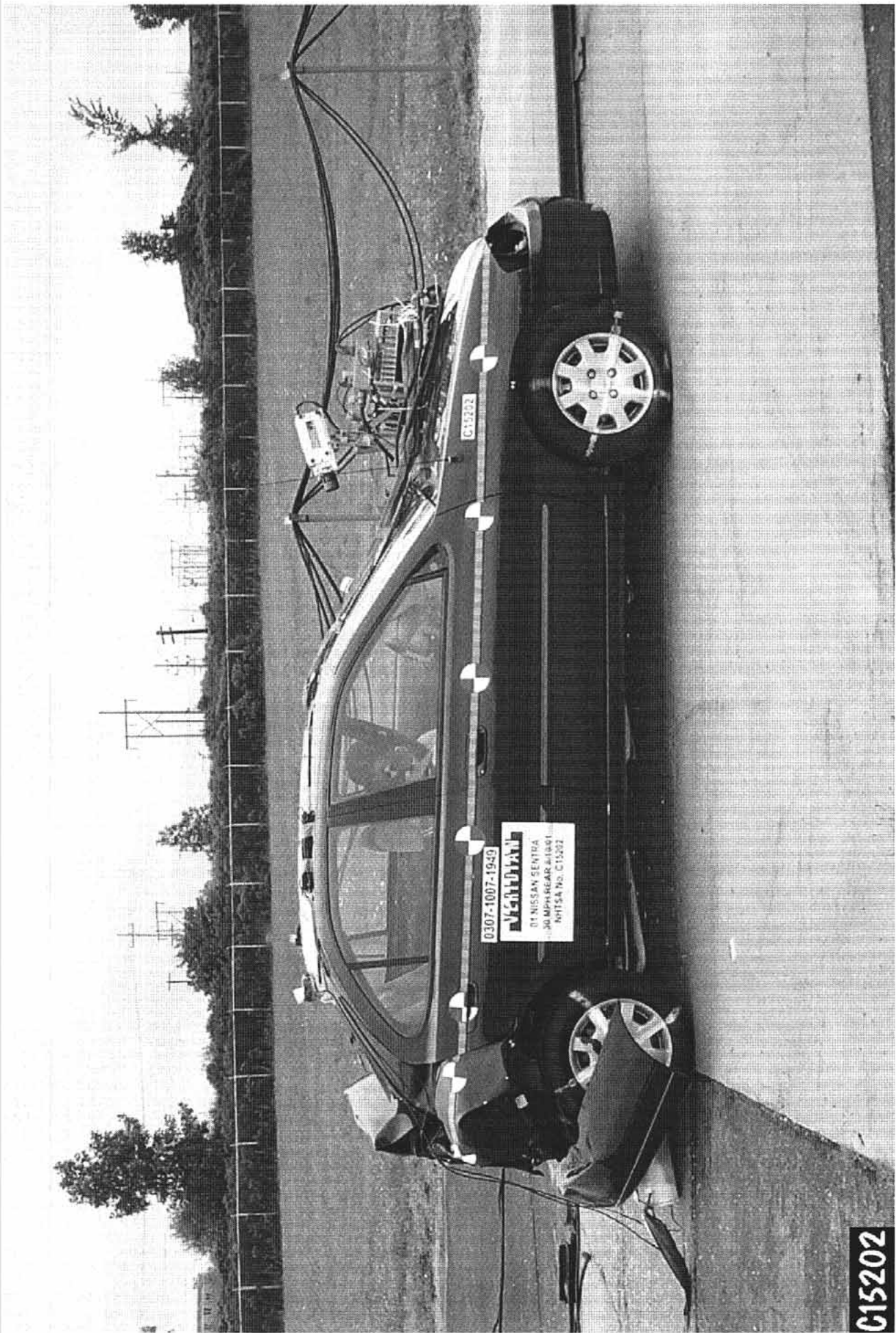


Figure A-6: POST-TEST RIGHT SIDE VIEW



Figure A-7: PRE-TEST REAR VIEW



Figure A-8: POST-TEST REAR VIEW



Figure A-9: PRE-TEST LEFT FRONT THREE-QUARTER VIEW





Figure A-11: PRE-TEST RIGHT REAR THREE-QUARTER VIEW

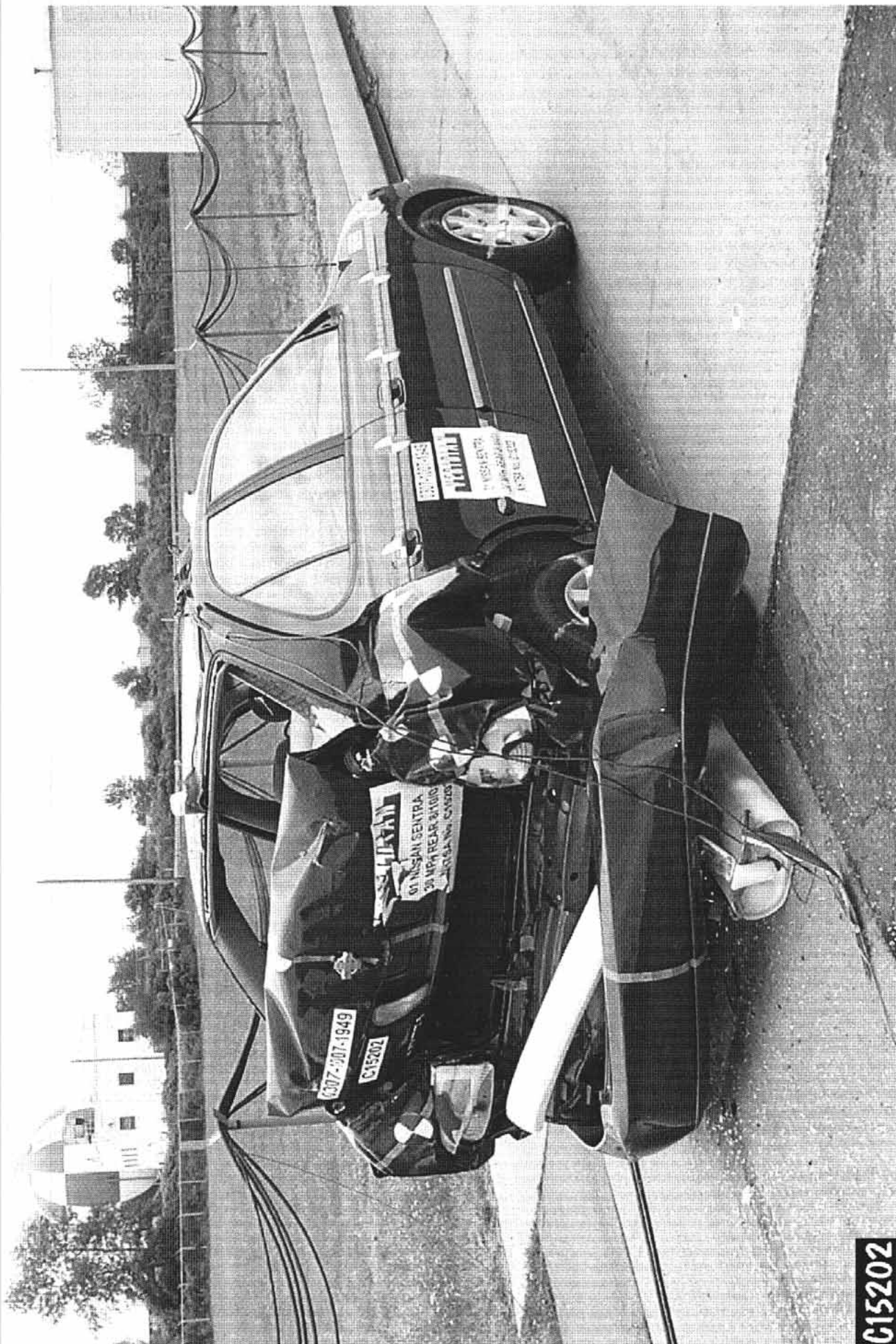


Figure A-12: POST-TEST RIGHT REAR THREE-QUARTER VIEW

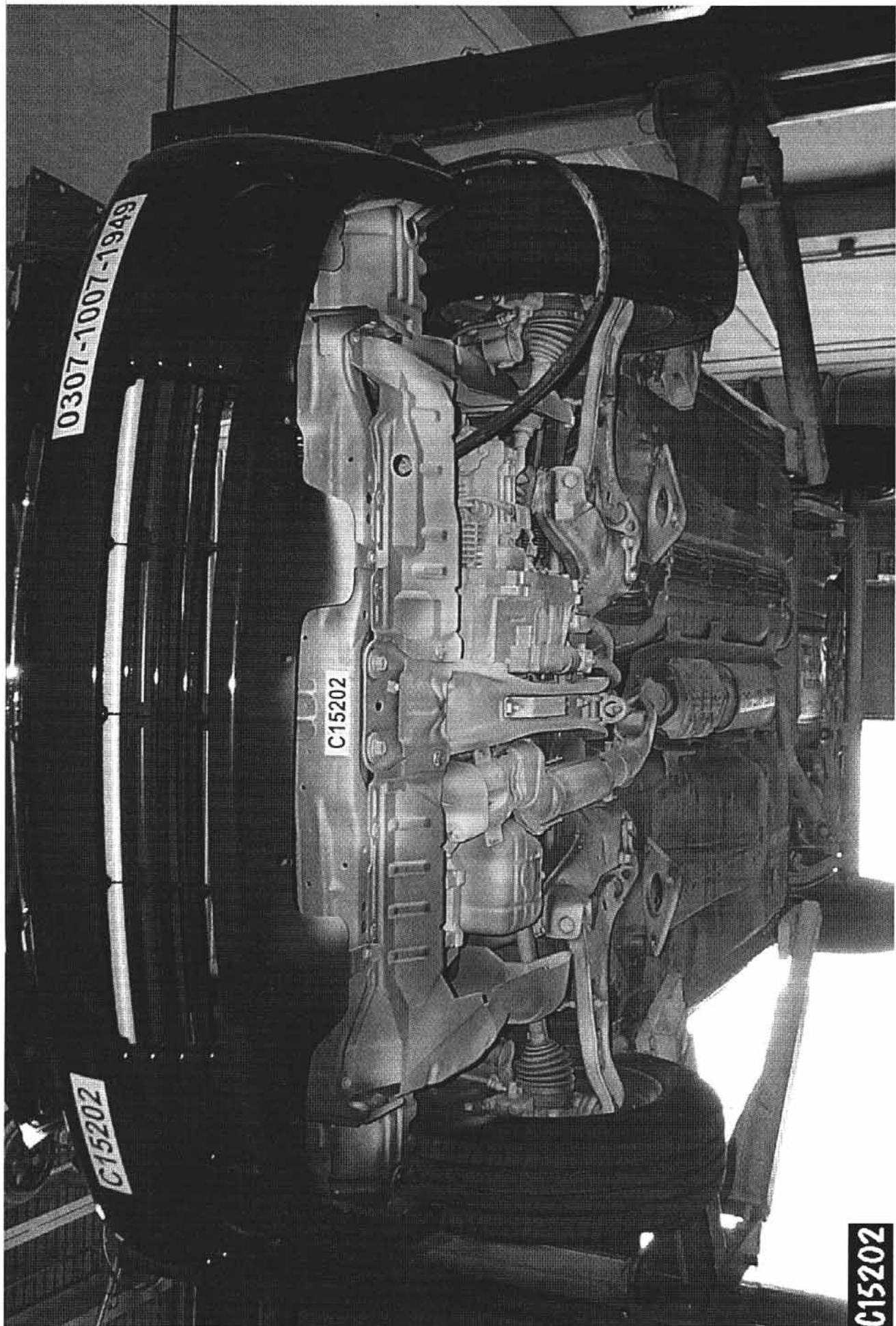


Figure A-13: PRE-TEST FRONT UNDERBODY VIEW

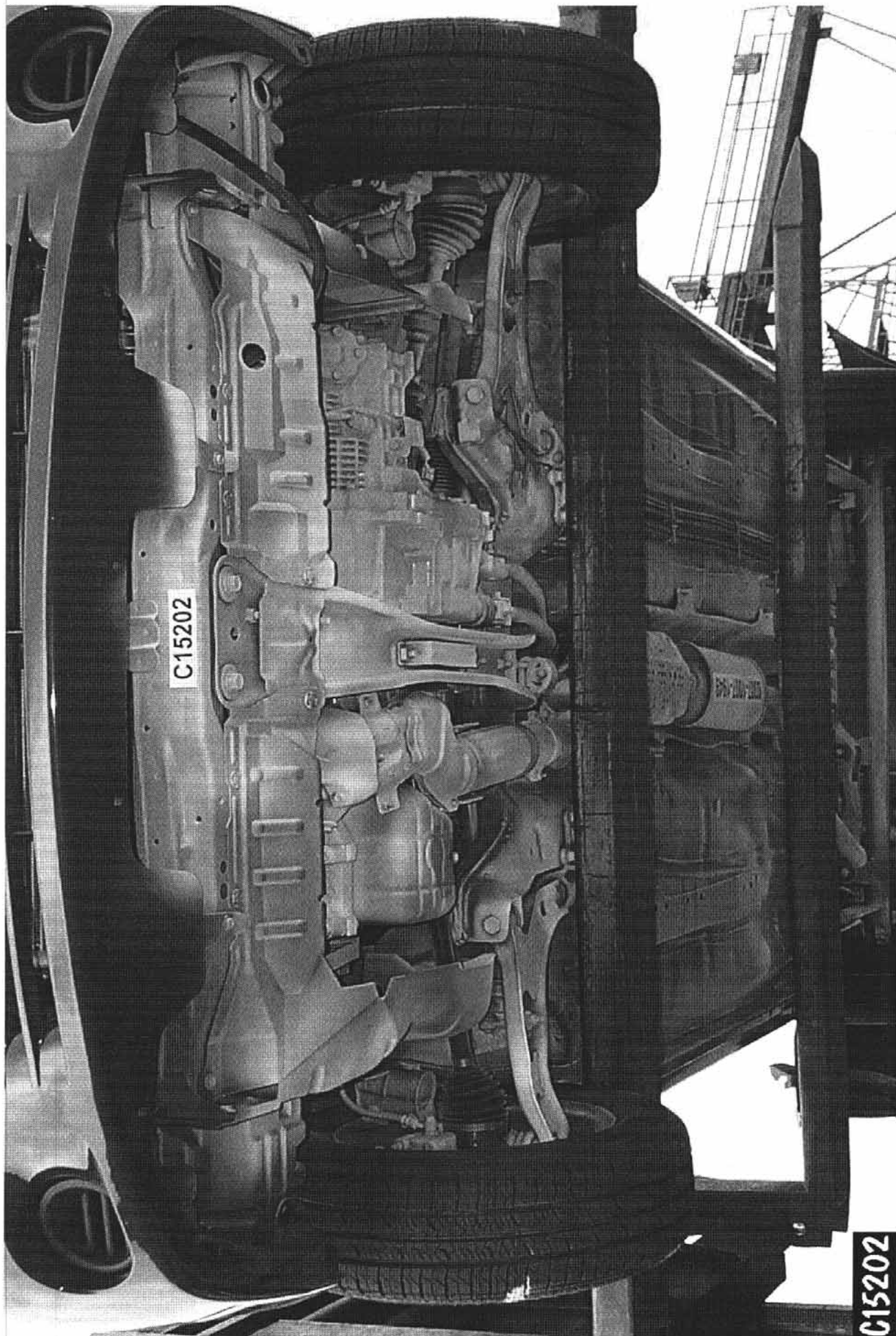


Figure A-14: POST-TEST FRONT UNDERBODY VIEW



Figure A-15: PRE-TEST REAR UNDERBODY VIEW

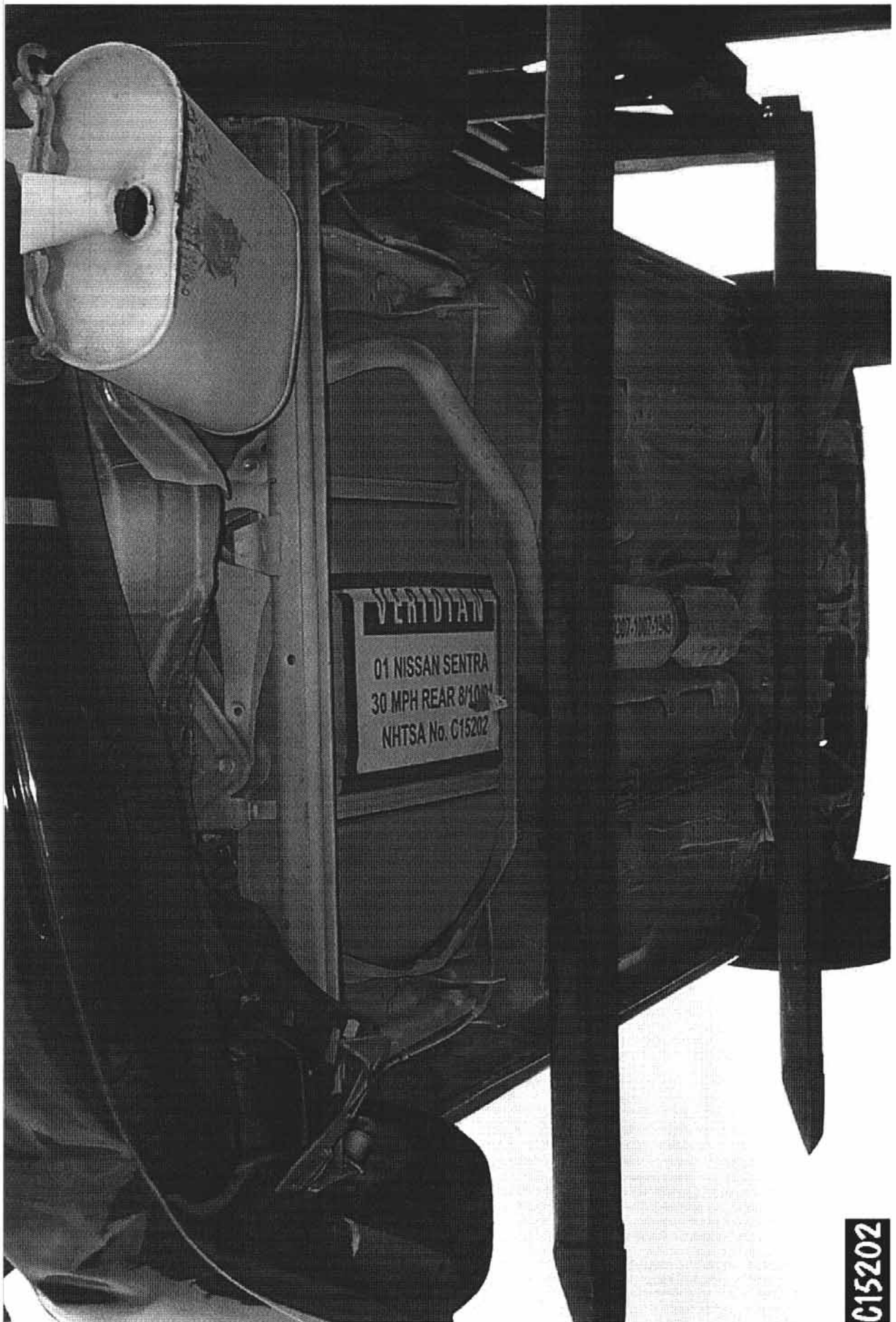


Figure A-16: POST-TEST REAR UNDERBODY VIEW

C15202

MANUFACTURED BY NISSAN MOTOR CO., LTD.
DATE 12/00. GVWR. 3549 LB
GAWR FR. 1922 LB GAWR RR. 1689 LB

THIS VEHICLE CONFORMS TO ALL APPLICABLE FEDERAL MOTOR,
VEHICLE SAFETY, BUMPER AND THEFT PREVENTION STANDARDS
IN EFFECT ON THE DATE OF MANUFACTURE SHOWN ABOVE.
SEE OWNER'S MANUAL FOR ADDITIONAL INFORMATION.

VIN EN1CB51D91L462604 PASSENGER CAR,
COLOR TRIM TRANS AXLE ENGINE

AX2 H 'RSSF70A FR41 QGL8DE 1769 CC
MODEL DATALEF-EUA 02000



EN1CB51D91L462604

C15202

Figure A-17: CERTIFICATION PLACARD

VEHICLE CAPACITY WEIGHT	825 lbs.	SEATING CAPACITY	FRONT 2 AVANT	TOTAL TOTAL	SPARE TIRE ROUE DE SECOURS	kPa (psi)
POIDS UTILE DU VEHICULE	374 kg	NOMBRE DE PLACES	REAR 3 ARRIERE	5	T115/70-14	420 (60)
RECOMMENDED COLD TIRE INFLATION PRESSURE. PRESSION DE GONFLAGE RECOMMANDEE DES PNEUS FROIDS.						
TIRE SIZE DIMENSIONS	FRONT AVANT	kPa (psi)	REAR ARRIERE	kPa (psi)	DO NOT USE IN EXCESS OF 50 MPH, 80 km/h. SEE OWNER'S MANUAL FOR ADDITIONAL INFORMATION. UTILISATION A UNE VITESSE MAX 50 MPH, 80 km/h. POUR LES DETAILS SE REFERER AU MANUEL DU CONDUCTEUR.	
P185/65R14	230	(33)	230	(33)		

4Z012

Figure A-18: TIRE PLACARD

C15202

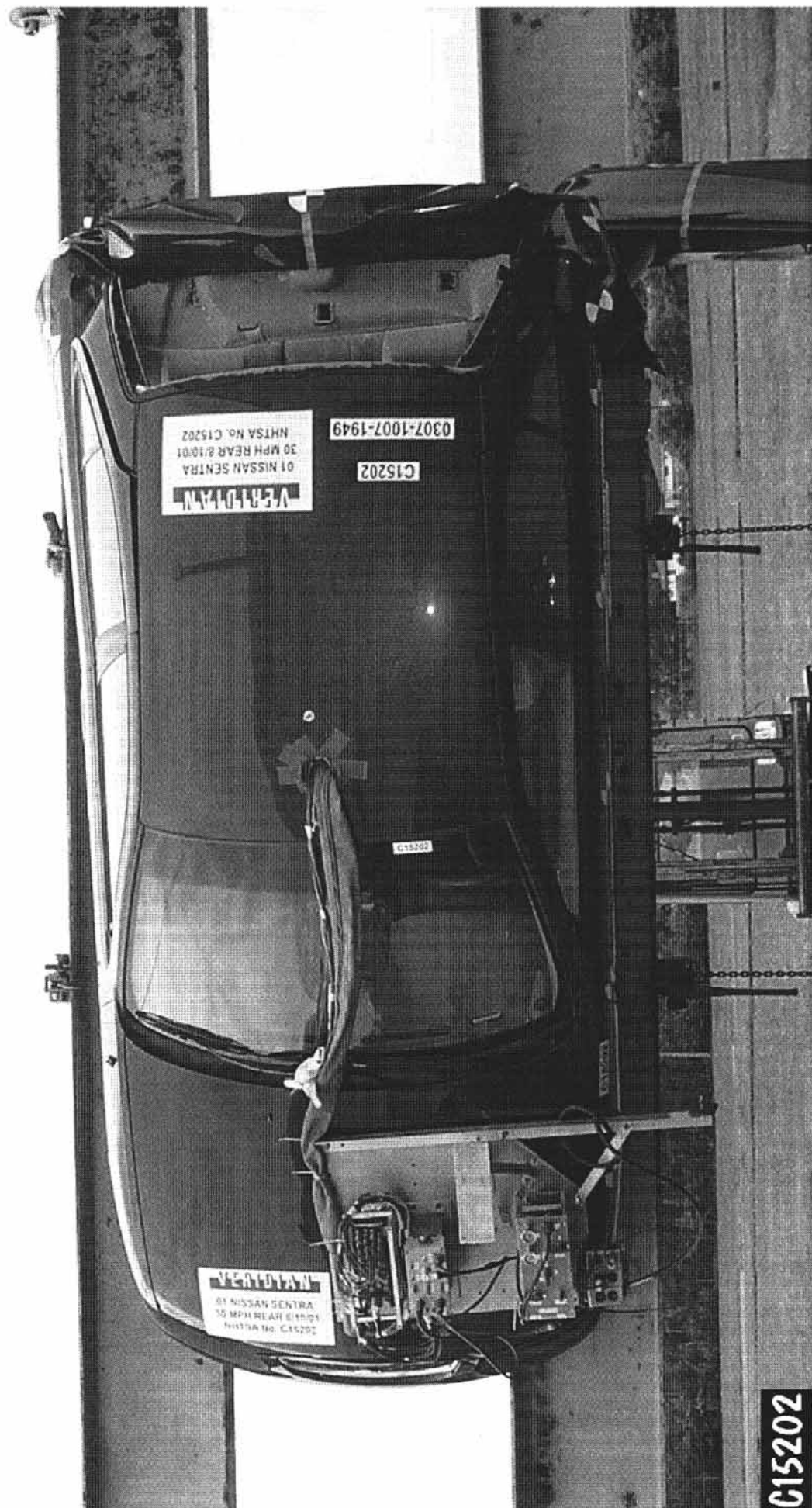


Figure A-19: ROLLOVER 90°



Figure A-20: ROLLOVER 180°

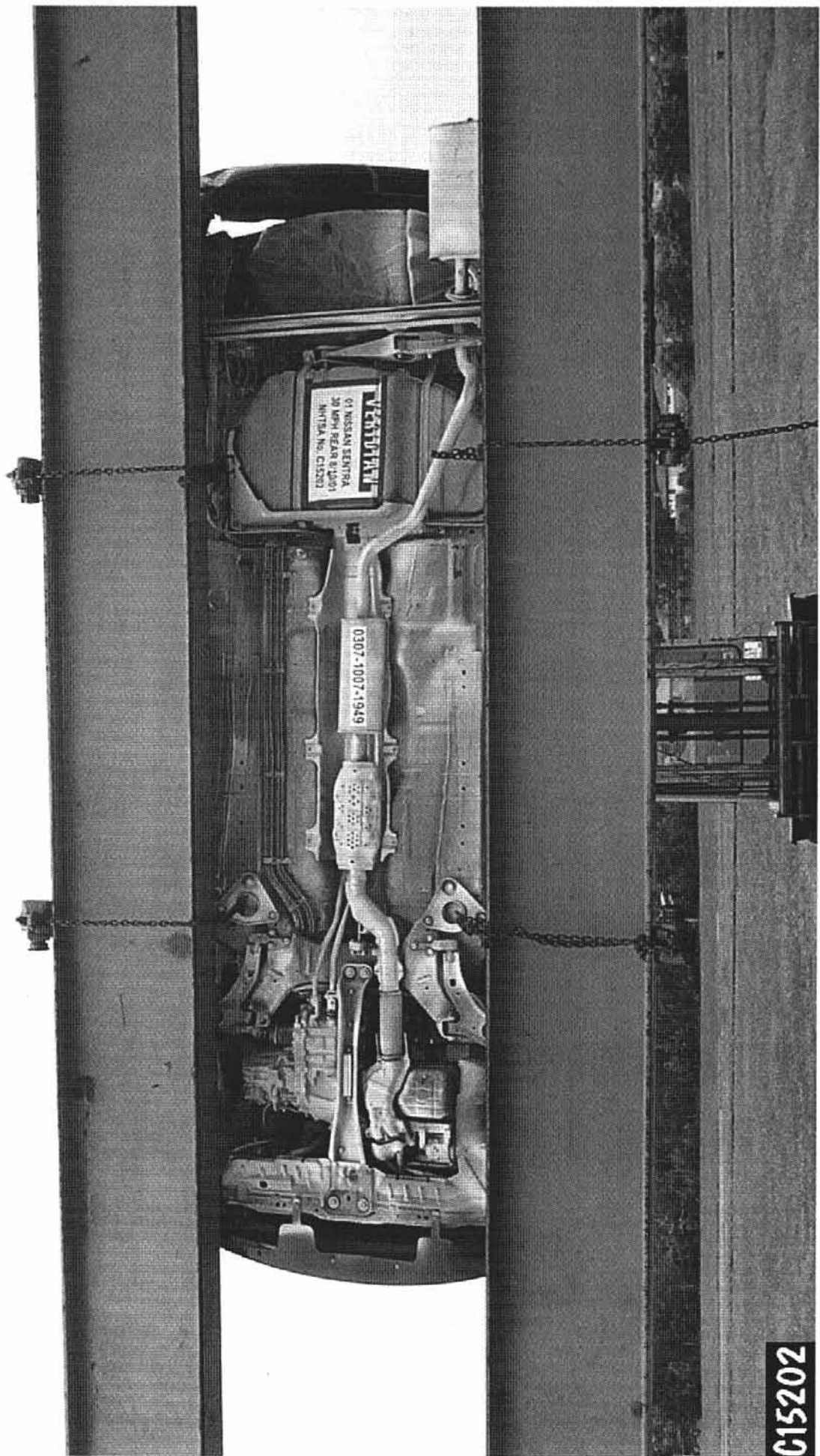


Figure A-21: ROLLOVER 270°

C15202

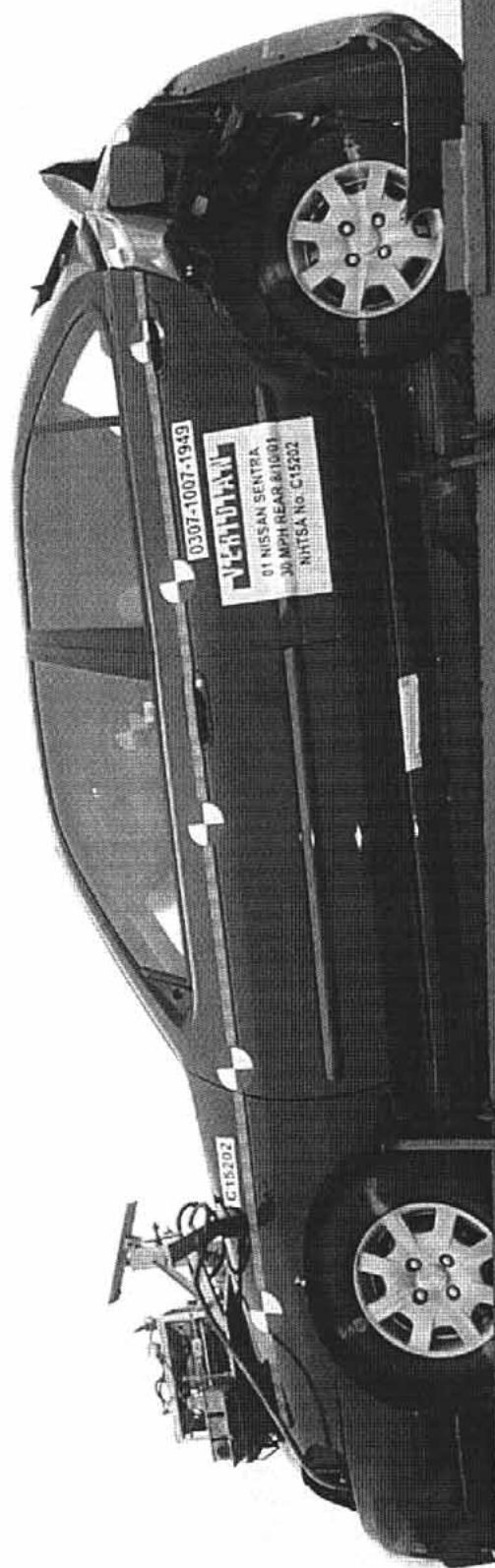


Figure A-22: ROLLOVER 360°

Appendix B
VEHICLE AND DUMMY RESPONSE DATA

FACILITY. VERF
TEST# 307-1007-1949

DATE. August 10, 2001

TITLE NHTSA FMVSS 301 Test #7 - 2001 Nissan Sentra C15202

NAME	Unit	Max	msec	Min	msec	Filt
P1 Head x	g	26.3	117 0	-3 9	307 2	CFC_1000
P1 Head y	g	0 7	177 0	-1 3	226 9	CFC_1000
P1 Head z	g	12.2	97 2	-0 6	394 6	CFC_1000
P1 Head Resultant	g	27 0	112 9	0 0	-44 3	CFC_1000
P1 Upper Neck Fx	lbf	82 1	116 4	-34 7	280 8	CFC_1000
P1 Upper Neck Fy	lbf	7 4	169 7	-14 1	226 7	CFC_1000
P1 Upper Neck Fz	lbf	176 2	99 5	-6 4	395 6	CFC_1000
P1 Upper Neck F Resultant	lbf	182 9	100 0	0 0	-2 5	CFC_1000
P1 Upper Neck Mx	in-lb	29 7	183 2	-34 9	232 4	CFC_600
P1 Upper Neck My	in-lb	192 3	118 6	-110 9	152 9	CFC_600
P1 Upper Neck Mz	in-lb	15 4	318 7	-15 7	189 6	CFC_600
P1 Upper Neck M Resultant	in-lb	192 6	118 6	0 0	7 0	CFC_600
P1 Chest x	g	14 4	85 4	-2 8	261 0	CFC_180
P1 Chest y	g	1 9	70 8	-0 8	137 3	CFC_180
P1 Chest z	g	4 1	64 4	-2 6	122 3	CFC_180
P1 Chest Resultant	g	14 8	85 3	0 0	-25 5	CFC_180
P1 Chest Compression	in	0 0	73 8	-0 2	270 8	CFC_600
P1 Pelvic x	g	13 2	82 8	-1 8	235 3	CFC_1000
P1 Pelvic y	g	2 5	82 6	-1 8	122 4	CFC_1000
P1 Pelvic z	g	7 1	80 1	-1 8	121 3	CFC_1000
P1 Pelvic Resultant	g	14 8	82 3	0 0	-37 6	CFC_1000
P1 Left Femur	lbf	32 5	279 3	-153 6	101 5	CFC_600
P1 Right Femur	lbf	24 3	277 7	-120 0	70 9	CFC_600
P1 Lap Belt	lbf	32 8	255 5	-6 6	89 2	CFC_60
P1 Belt Spoolout	in	0 0	-0 7	-4 4	148 4	CFC_180
Acc #1 Left Rear Xmember Ax	g	20 7	3 8	-10 2	19 0	CFC_60
Acc #2 Right Rear Xmember Ax	g	20 1	3 6	-8 8	20 4	CFC_60
Acc #3 Upper Seatback Ax	g	19 9	31 2	-10 0	24 7	CFC_60
Acc #4 Lower Seatback Ax	g	16 1	63 1	-5 1	69 5	CFC_60
Seatback Angular Position	deg	16 0	126 6	0 0	-50 0	CFC_180

=====

P1 HIC(36 ms) 106 6

t1 94 6 msec

t2 130 5 msec

Duration 36 0 msec

Average Acceleration 24 5 g

P1 CLIP(3 ms) 14 5 g

t1 83 8 msec

t2 86 8 msec

Duration 3 0 msec

P1 CSI 34 8

TEST NO C15202

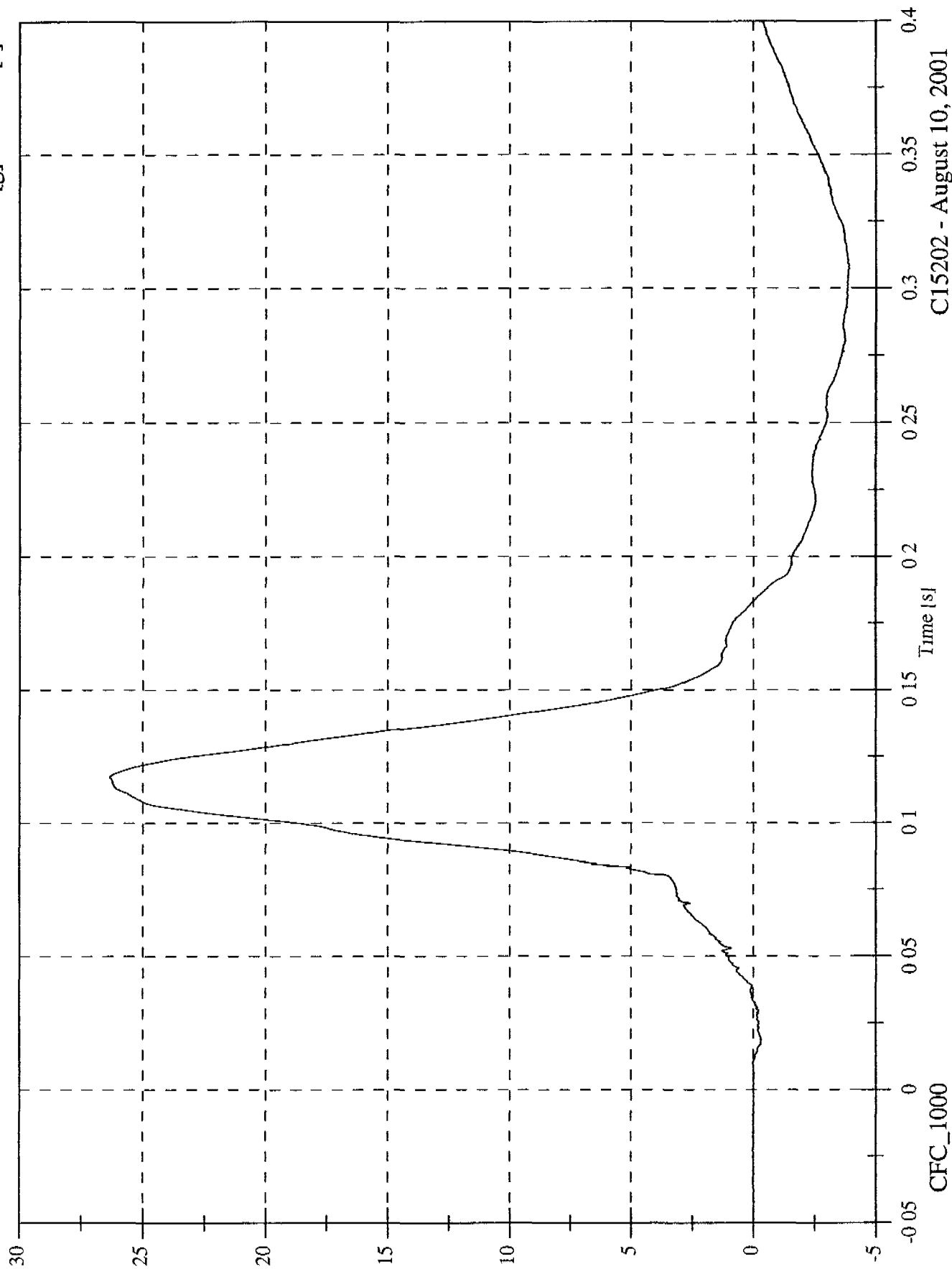
DRIVER DUMMY (Pos 1)	SAE FILTER CHANNEL CLASS
Head Accelerations	1000
Chest Accelerations	180
Pelvic Accelerations	1000
Upper Neck Forces	1000
Upper Neck Moments	600
Belt Forces	60
Belt Spoolout	60
Vehicle	60

Note: Angular seatback position is measured in degrees of rotation from the initial (design) position

NHTSA FMVSS 301 Test #7 - 2001 Nissan Sentra

Max: 26.3 [g] at 0.117 [s]
Min: -3.9 [g] at 0.307 [s]

P1 Head x



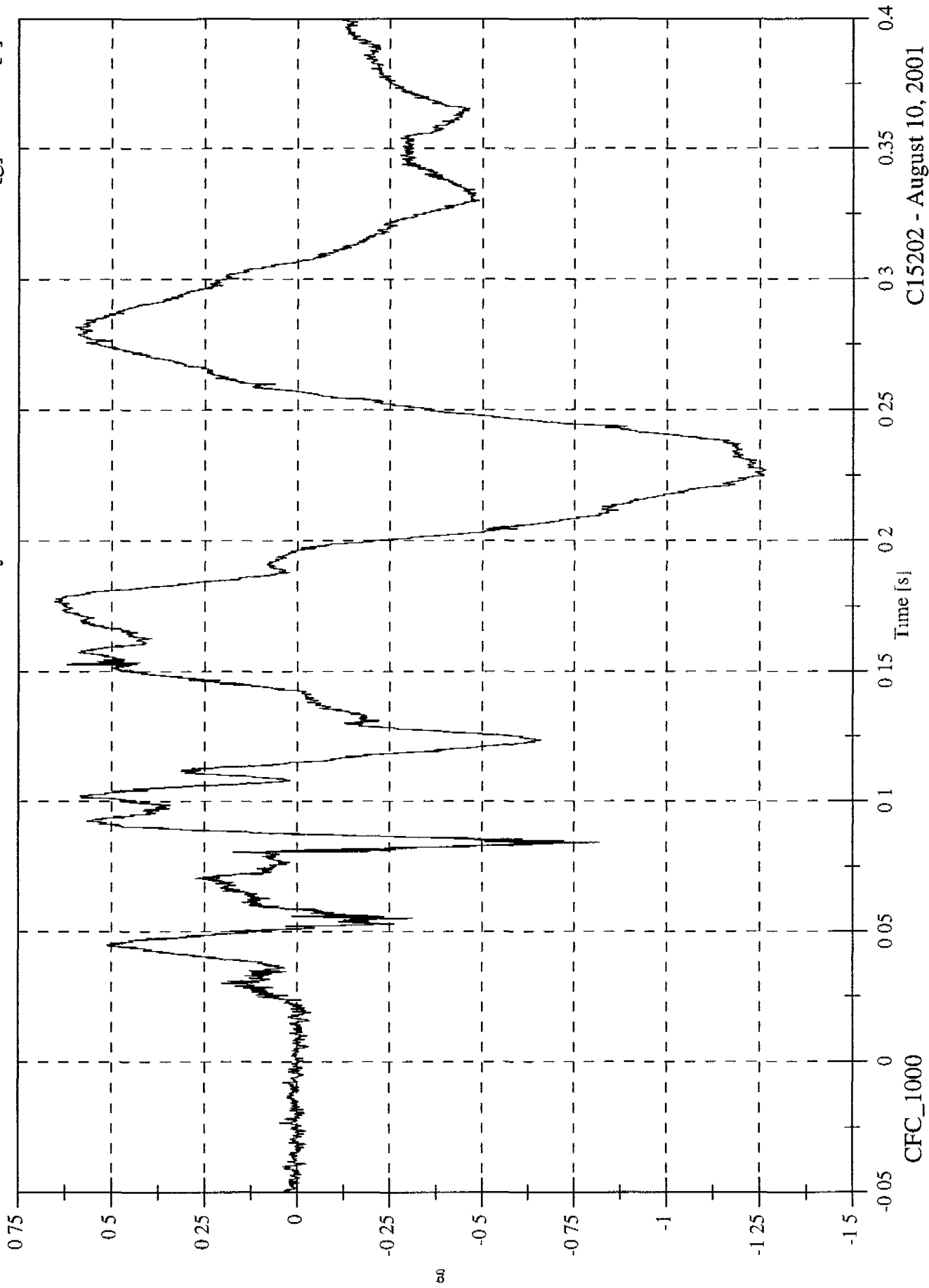
CFC_1000

C15202 - August 10, 2001

NHTSA FMVSS 301 Test #7 - 2001 Nissan Sentra

Max: 0.7 [g] at 0.177 [s]
Min: -1.3 [g] at 0.227 [s]

P1 Head y

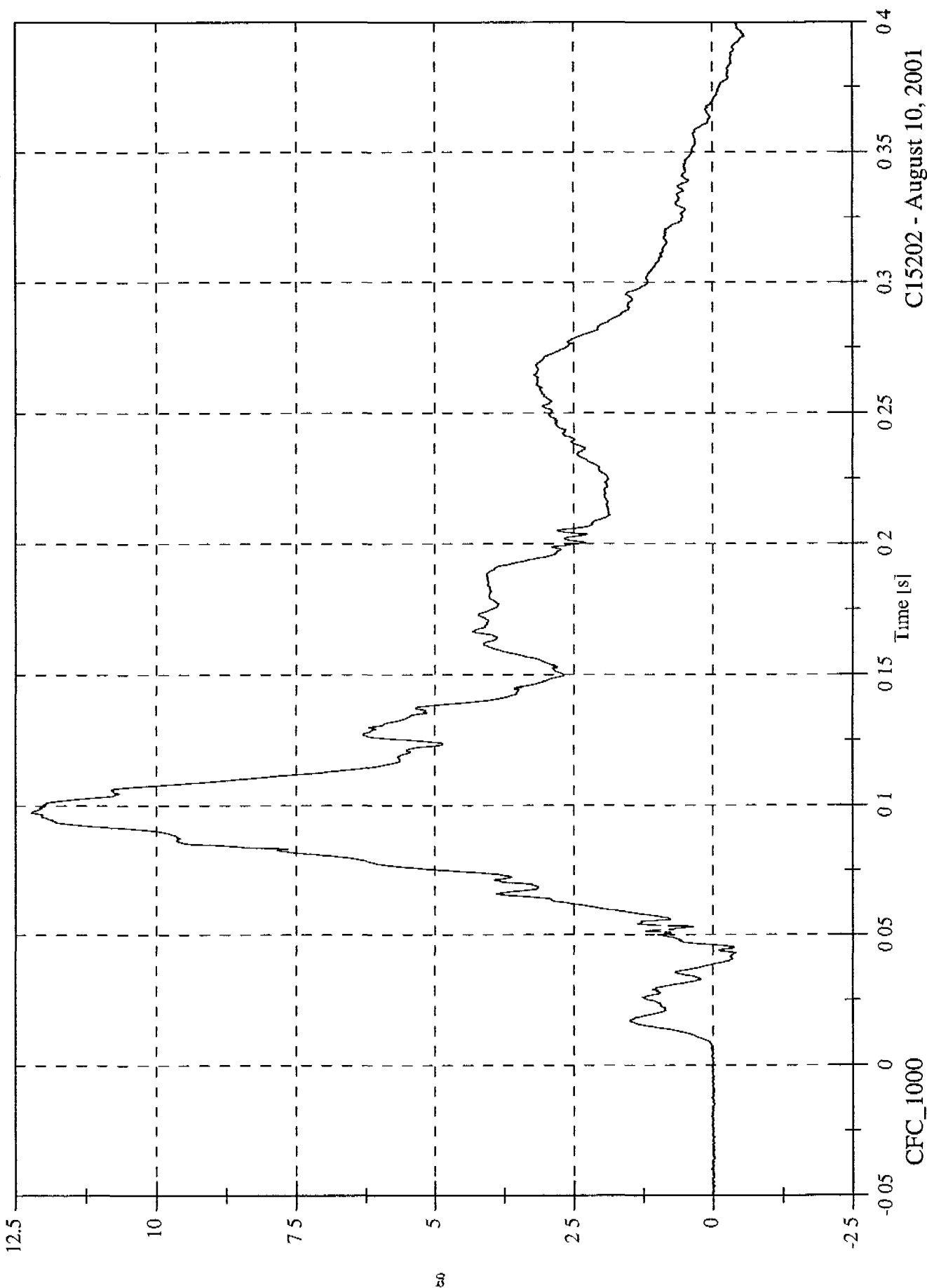


C15202 - August 10, 2001

NHTSA FMVSS 301 Test #7 - 2001 Nissan Sentra

Max: 12.2 [g] at 0.097 [s]
Min: -0.6 [g] at 0.395 [s]

P1 Head z



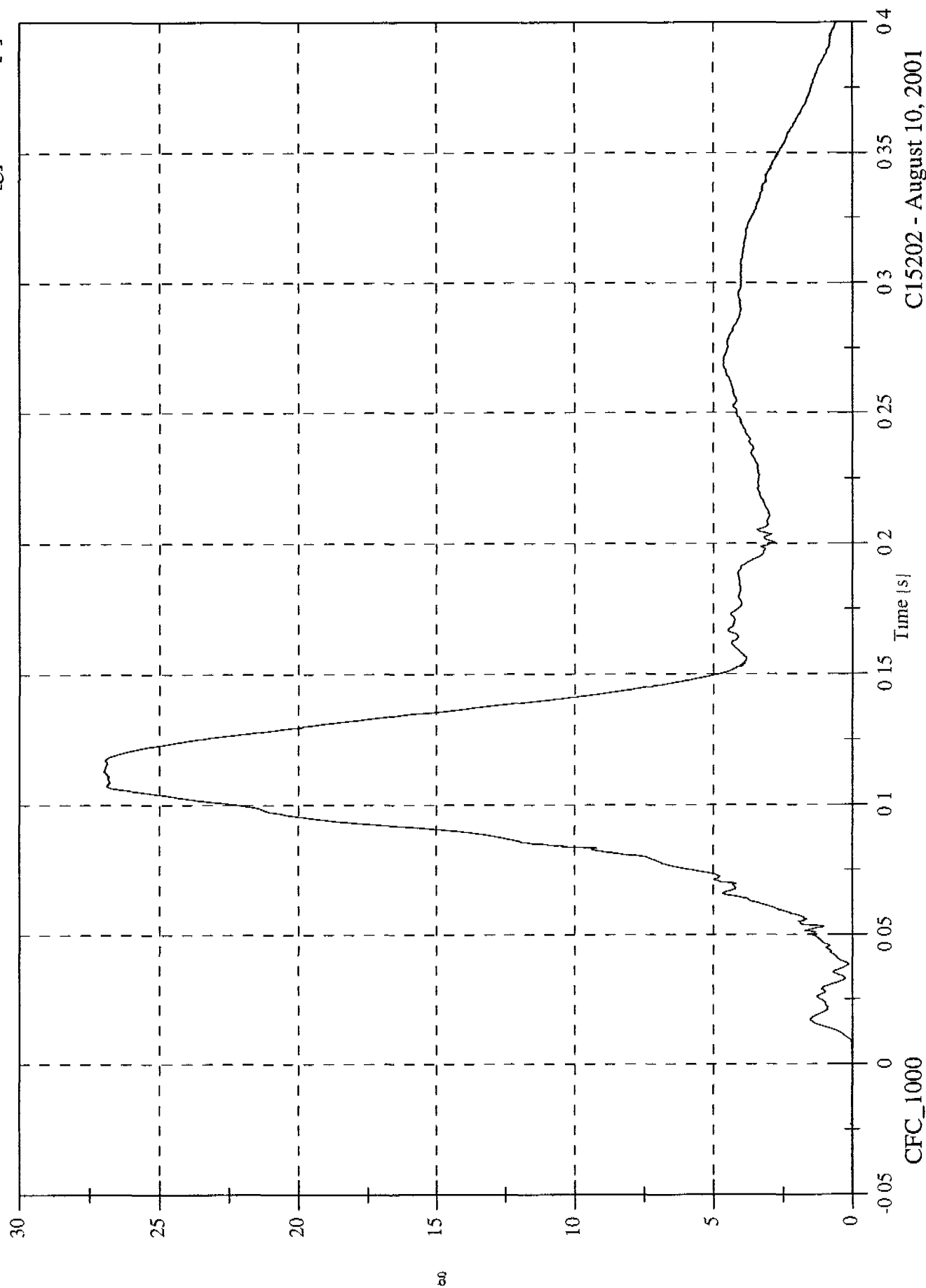
CFC_1000

C15202 - August 10, 2001

NHTSA FMVSS 301 Test #7 - 2001 Nissan Sentra

P1 Head Resultant

Max: 27.0 [g] at 0.113 [s]
Min: 0.0 [g] at -0.044 [s]



CFC_1000

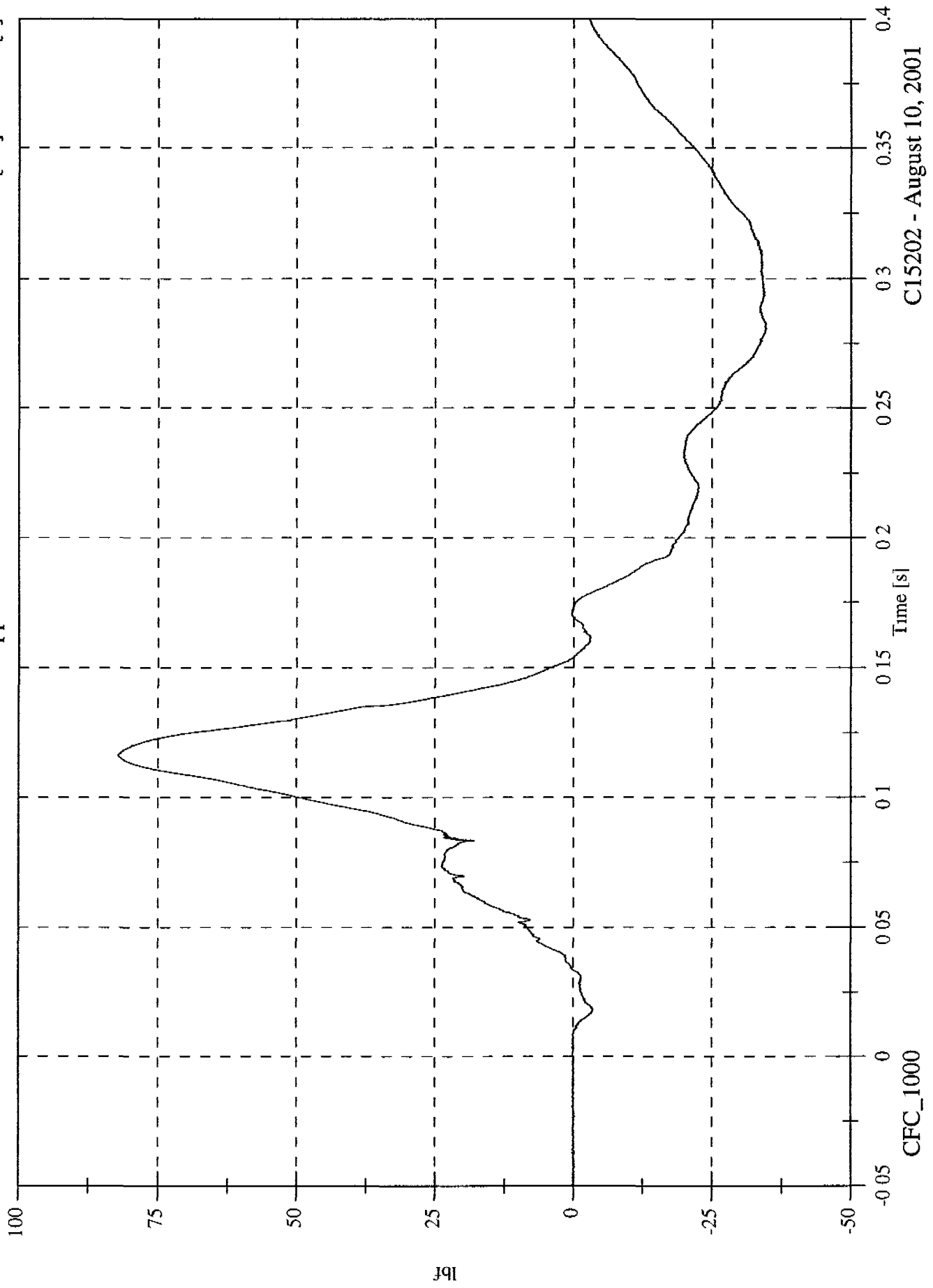
C15202 - August 10, 2001

NHTSA FMVSS 301 Test #7 - 2001 Nissan Sentra

P1 Upper Neck Fx

Max: 82.1 [lbf] at 0.116 [s]

Min: -34.7 [lbf] at 0.281 [s]

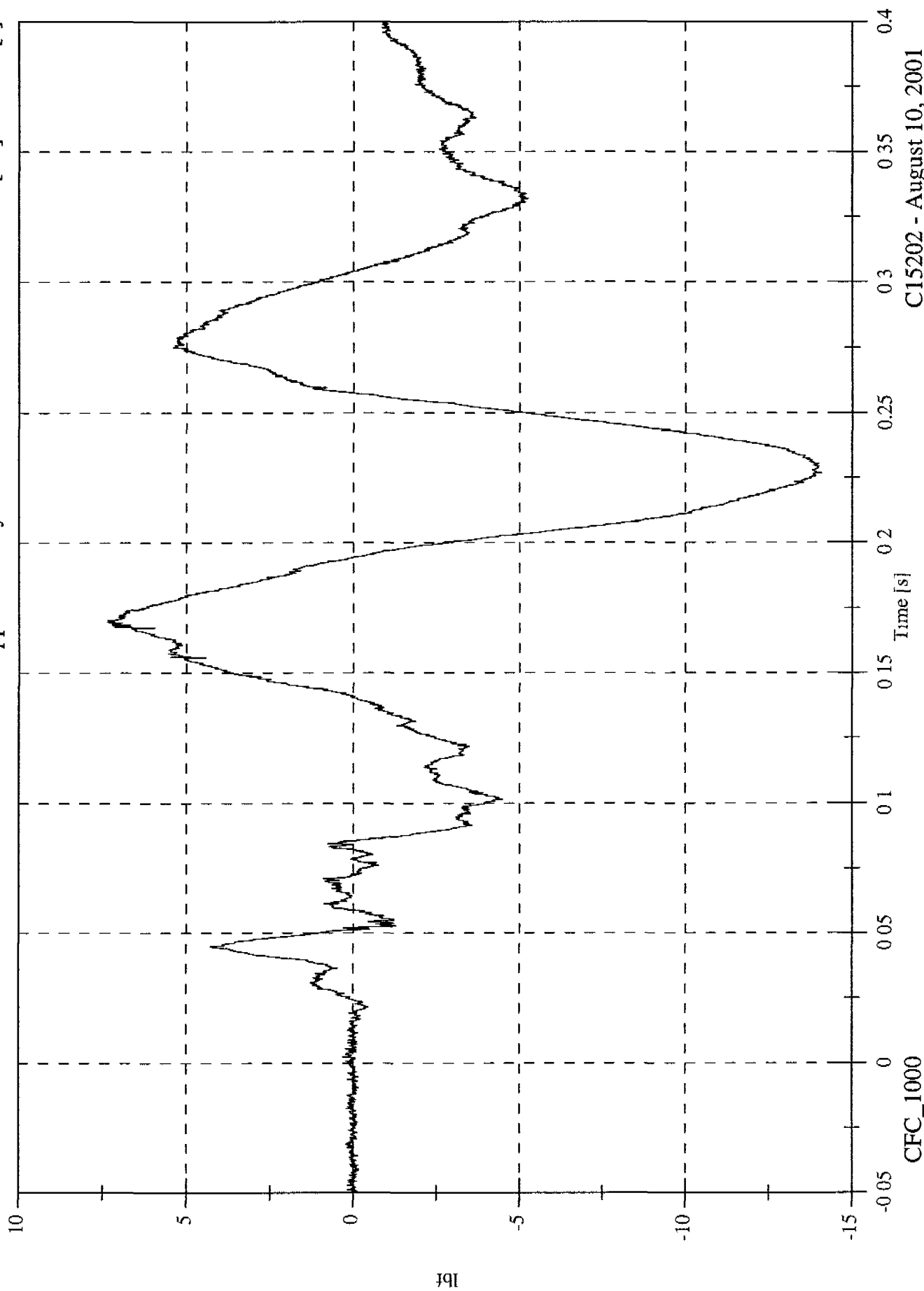


CI5202 - August 10, 2001

Max: 7.4 [lbf] at 0.170 [s]

Min: -14.1 [lbf] at 0.227 [s]

P1 Upper Neck Fy



CFC_1000

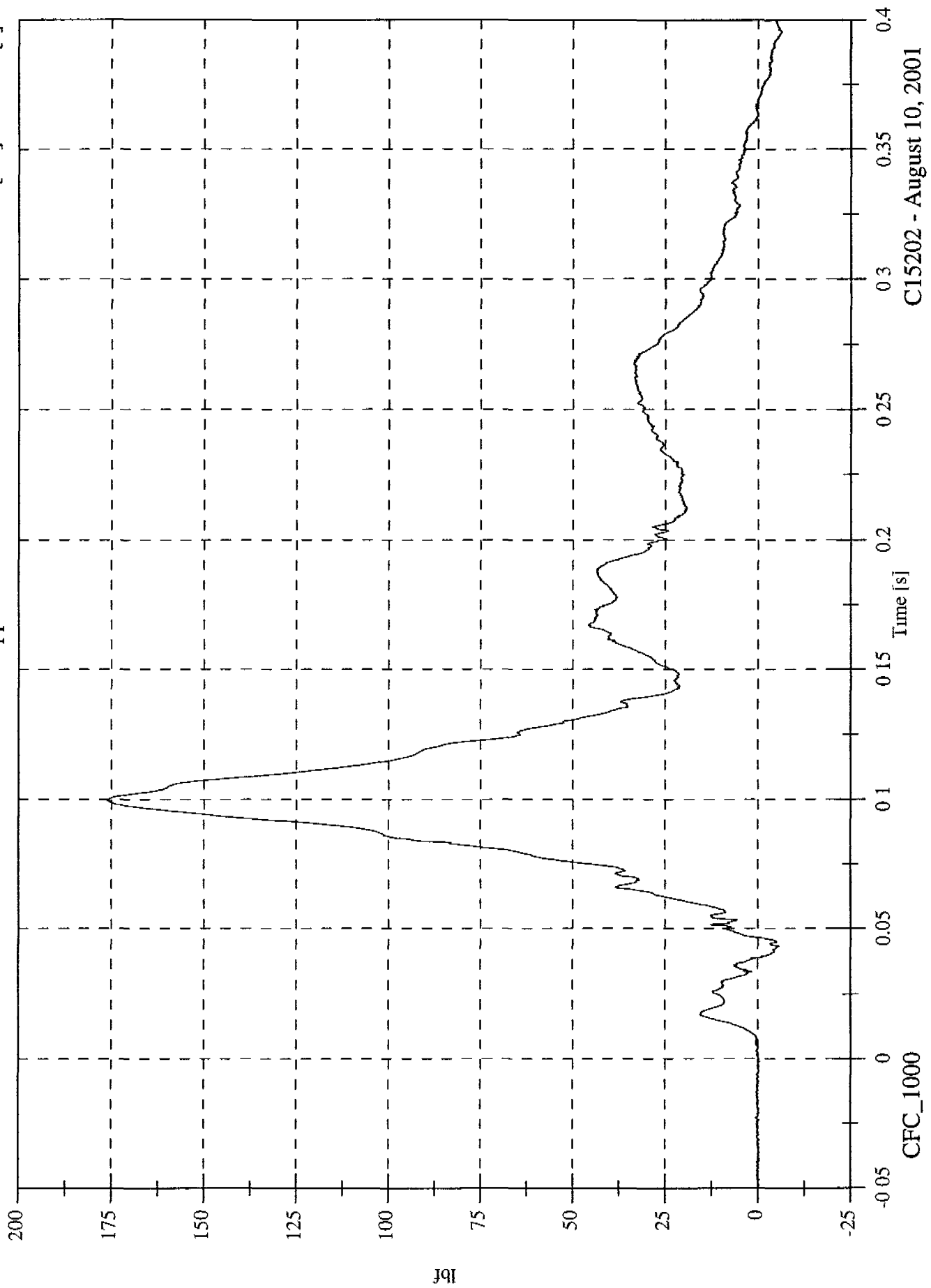
C15202 - August 10, 2001

NHTSA FMVSS 301 Test #7 - 2001 Nissan Sentra

Max: 176.2 [lbf] at 0.099 [s]

Min: -6.4 [lbf] at 0.396 [s]

P1 Upper Neck Fz



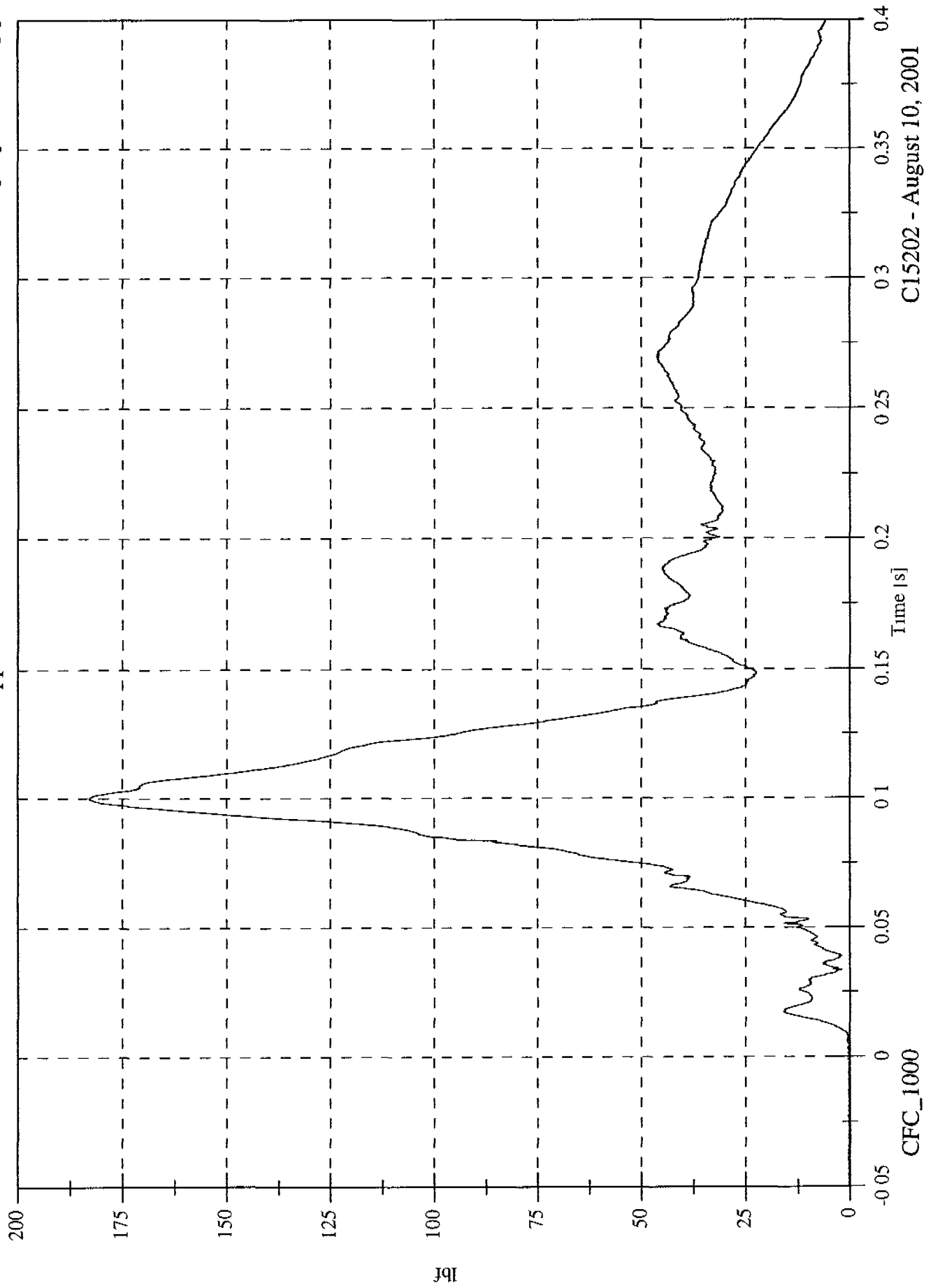
C15202 - August 10, 2001

NHTSA FMVSS 301 Test #7 - 2001 Nissan Sentra

P1 Upper Neck F Resultant

Max: 182.9 [lbf] at 0.100 [s]

Min: 0.0 [lbf] at -0.003 [s]



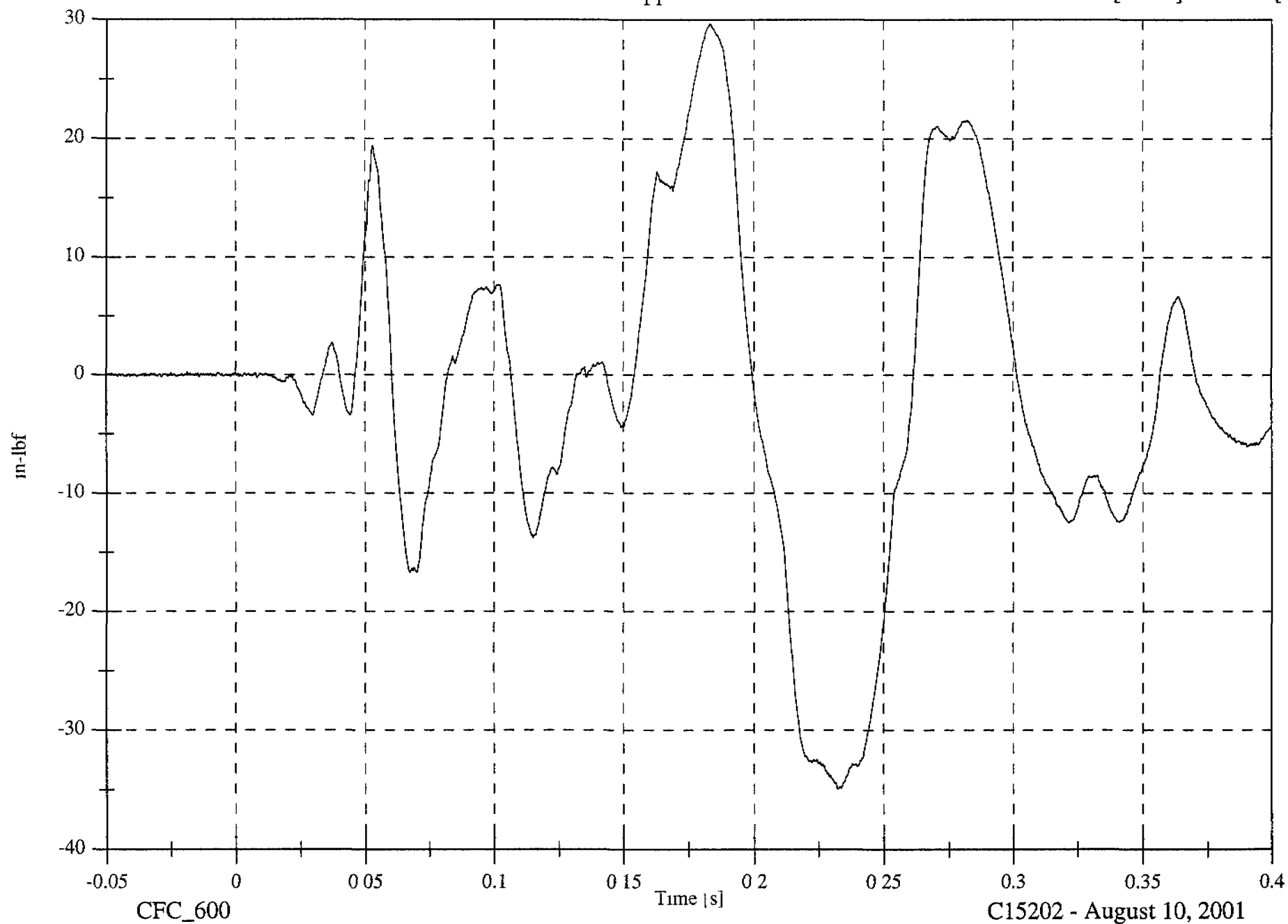
C15202 - August 10, 2001

NHTSA FMVSS 301 Test #7 - 2001 Nissan Sentra

P1 Upper Neck Mx

Max: 29.7 [in-lbf] at 0.183 [s]

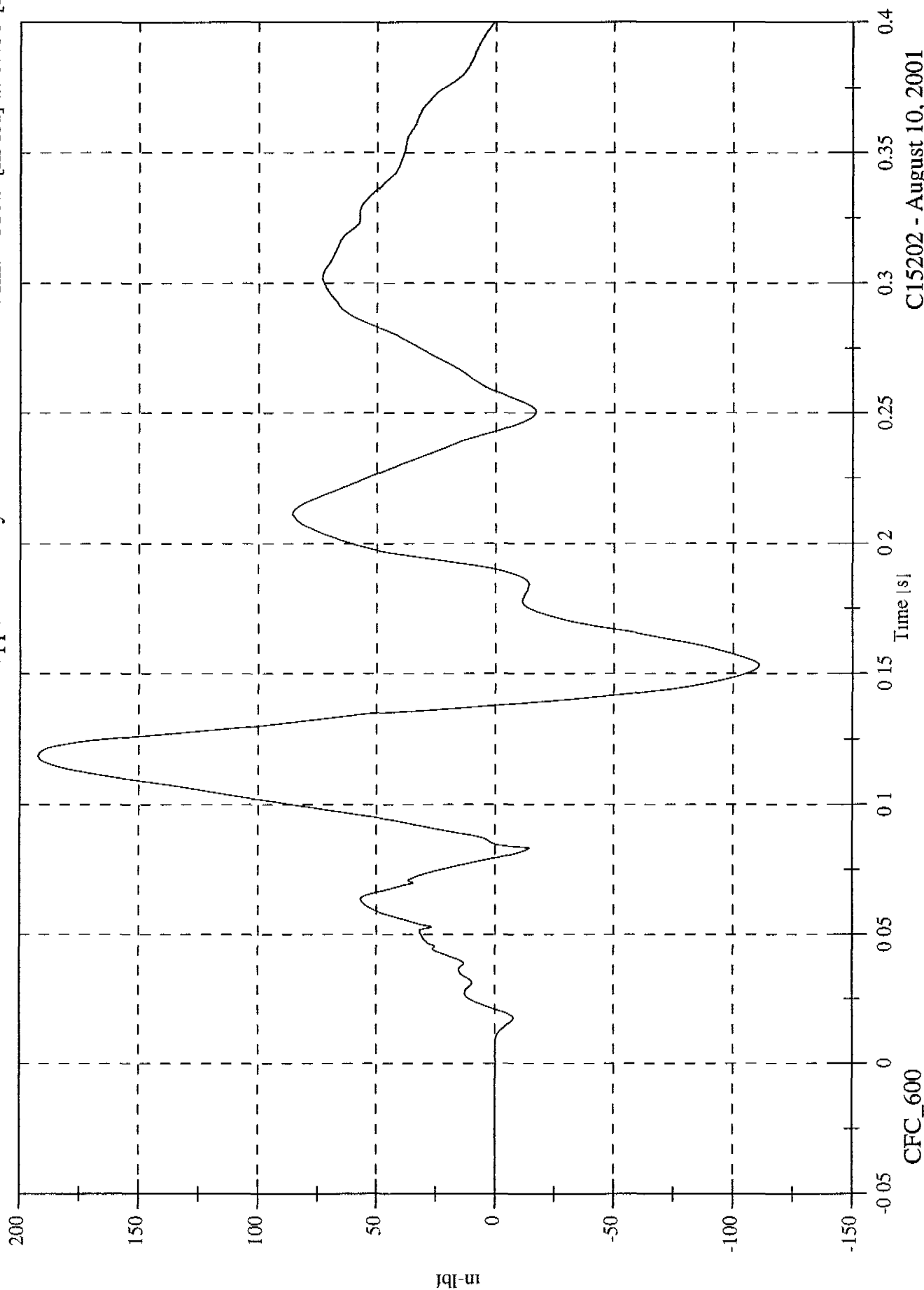
Min: -34.9 [in-lbf] at 0.232 [s]



NHTSA FMVSS 301 Test #7 - 2001 Nissan Sentra

P1 Upper Neck My

Max: 192.3 [in-lbf] at 0.119 [s]
Min: -110.9 [in-lbf] at 0.153 [s]

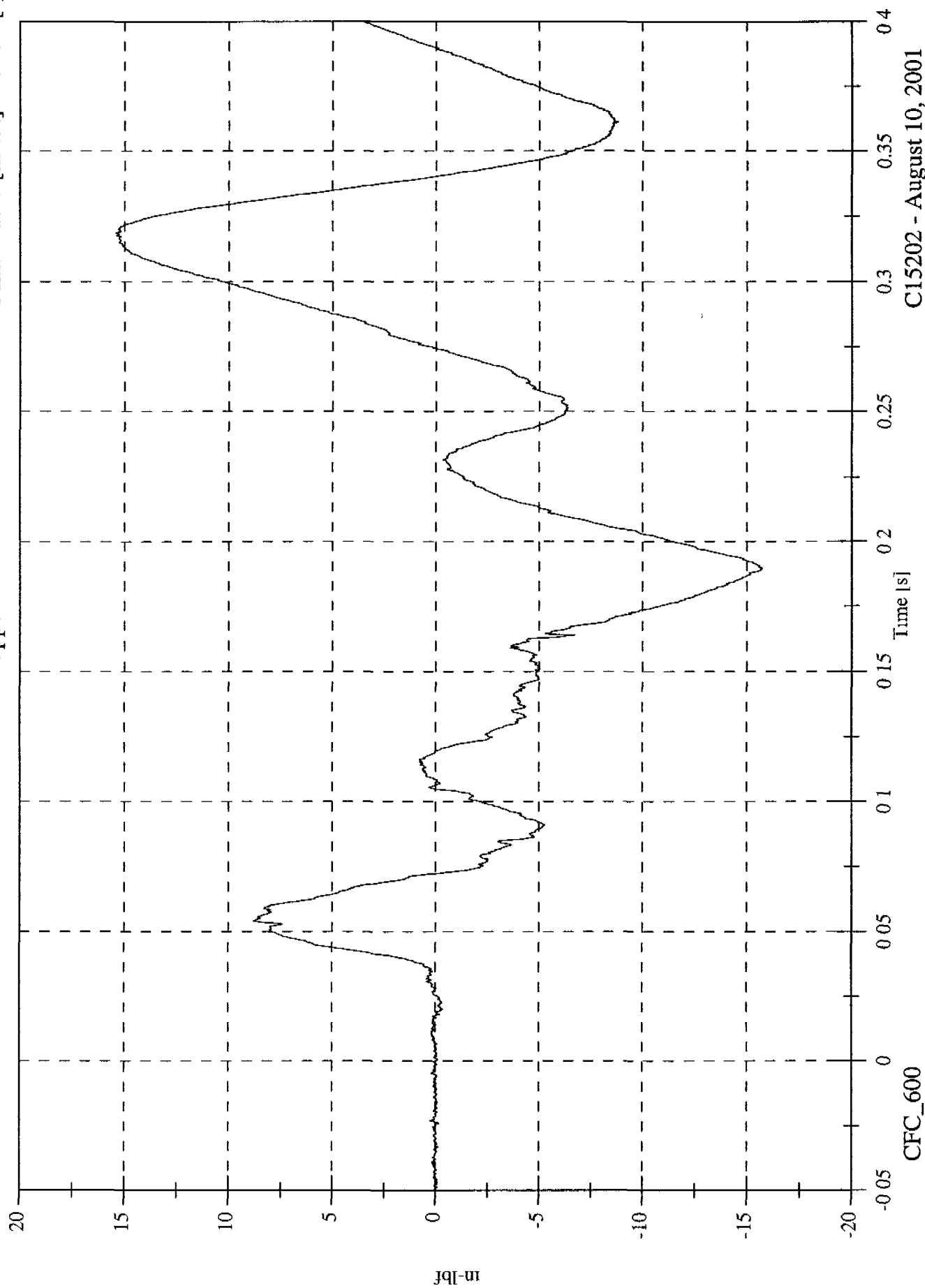


C15202 - August 10, 2001

NHTSA FMVSS 301 Test #7 - 2001 Nissan Sentra

Max: 15.4 [in-lbf] at 0.319 [s]
Min: -15.7 [in-lbf] at 0.190 [s]

P1 Upper Neck Mz

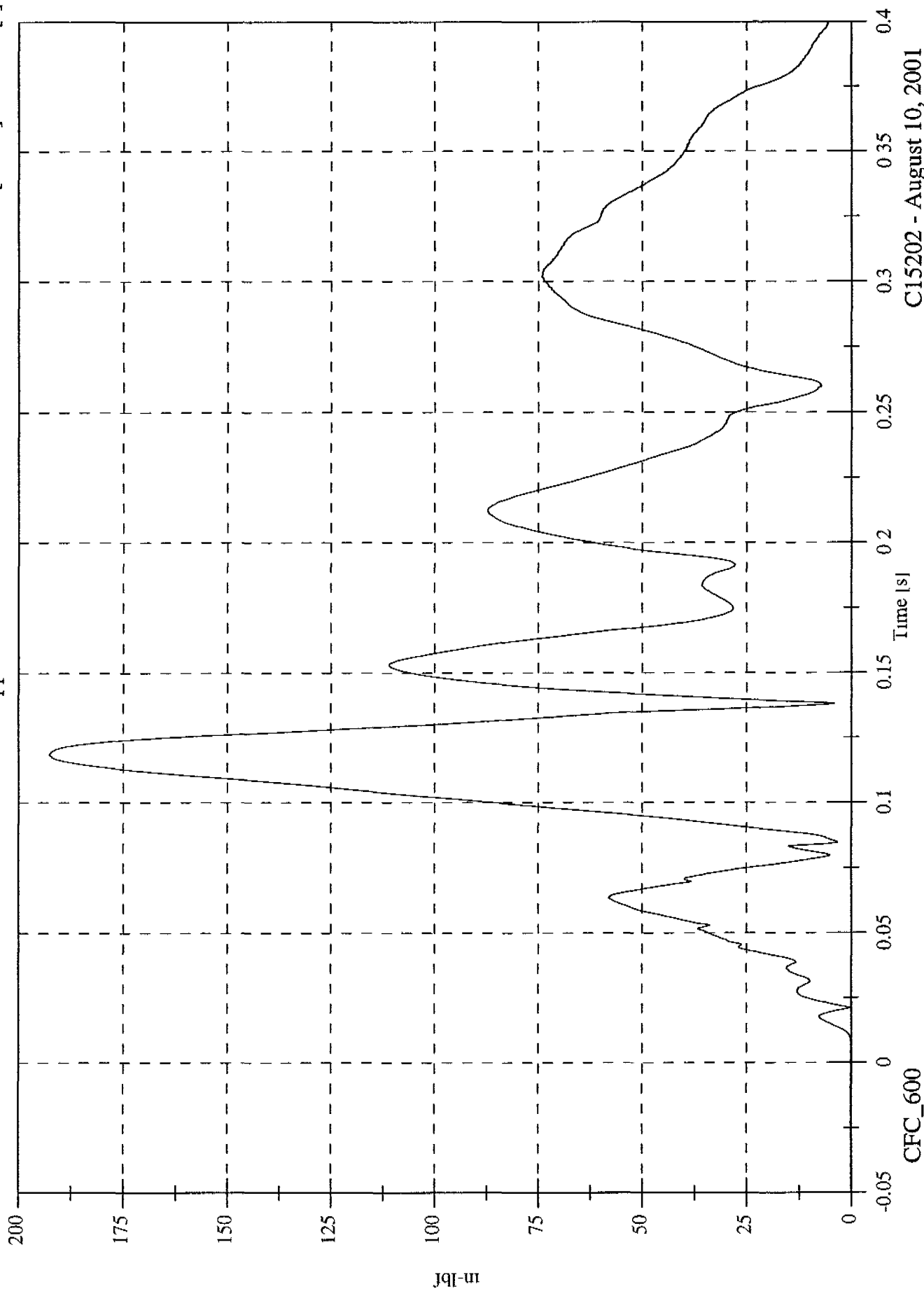


C15202 - August 10, 2001

NHTSA FMVSS 301 Test #7 - 2001 Nissan Sentra

P1 Upper Neck M Resultant

Max: 192.6 [in-lbf] at 0.119 [s]
Min: 0.0 [in-lbf] at 0.007 [s]



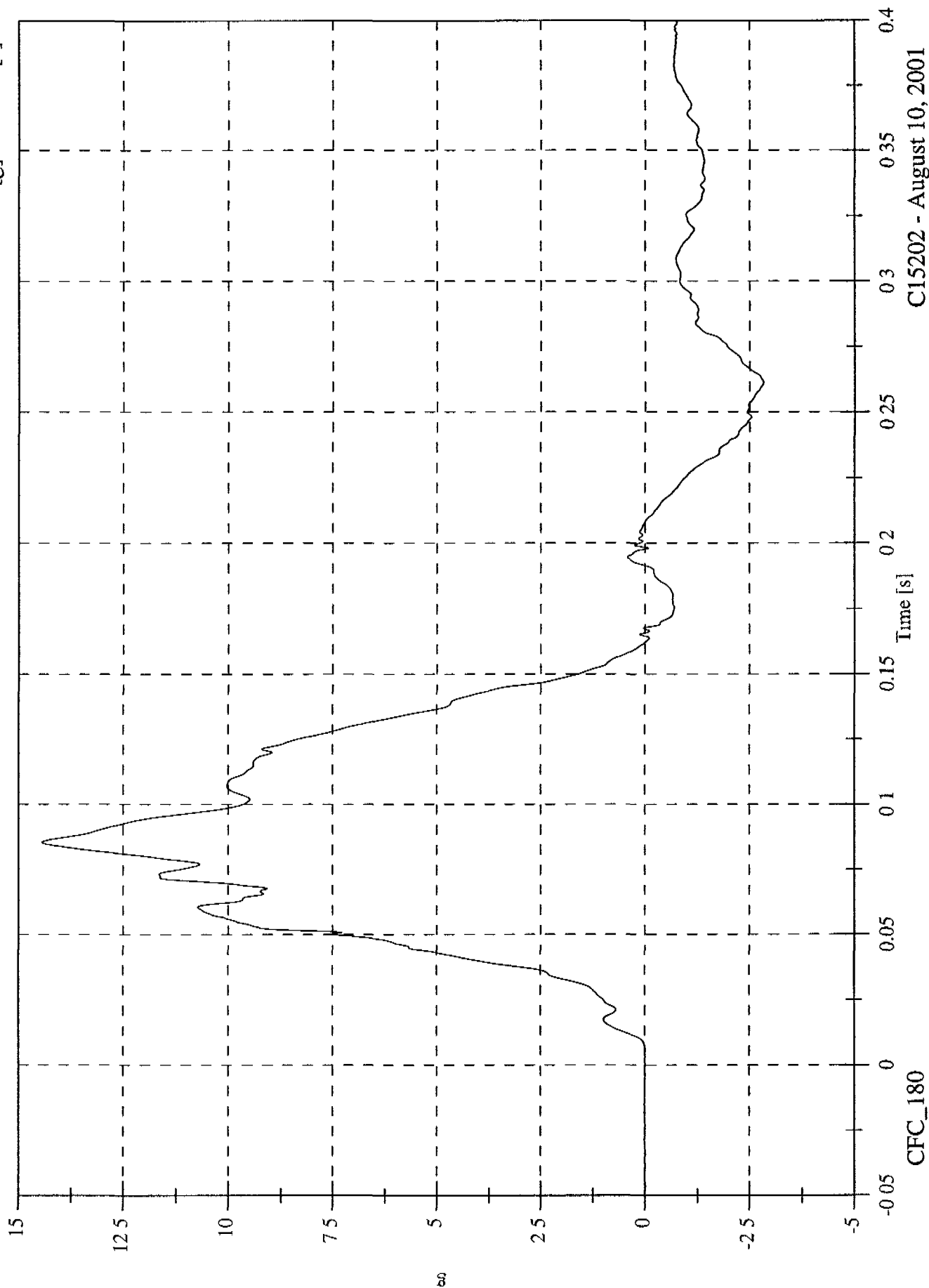
CFC_600

C15202 - August 10, 2001

NHTSA FMVSS 301 Test #7 - 2001 Nissan Sentra

Max: 14.4 [g] at 0.085 [s]
Min: -2.8 [g] at 0.261 [s]

P1 Chest x



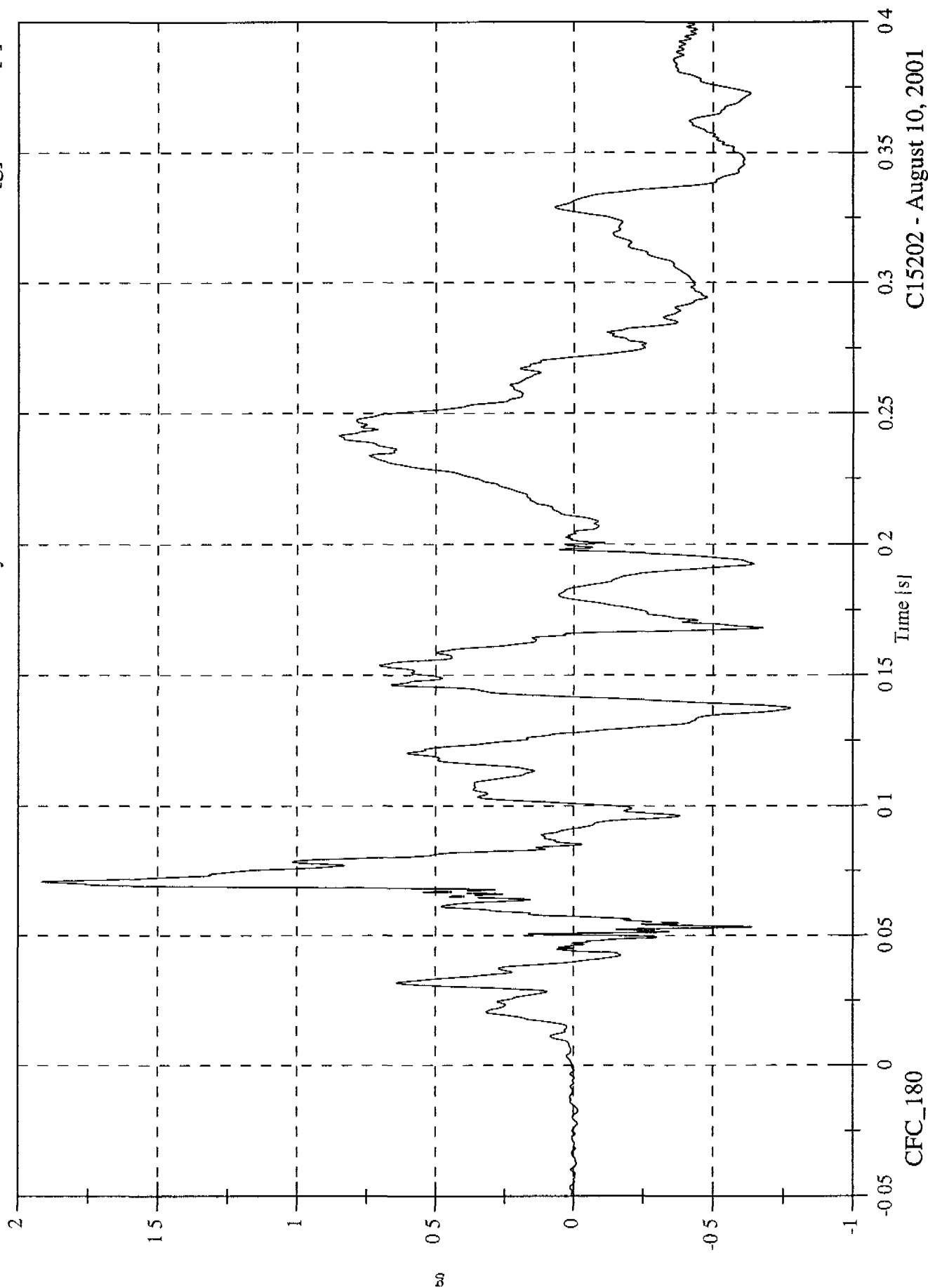
CFC_180

C15202 - August 10, 2001

NHTSA FMVSS 301 Test #7 - 2001 Nissan Sentra

Max: 1.9 [g] at 0.071 [s]
 Min: -0.8 [g] at 0.137 [s]

P1 Chest y

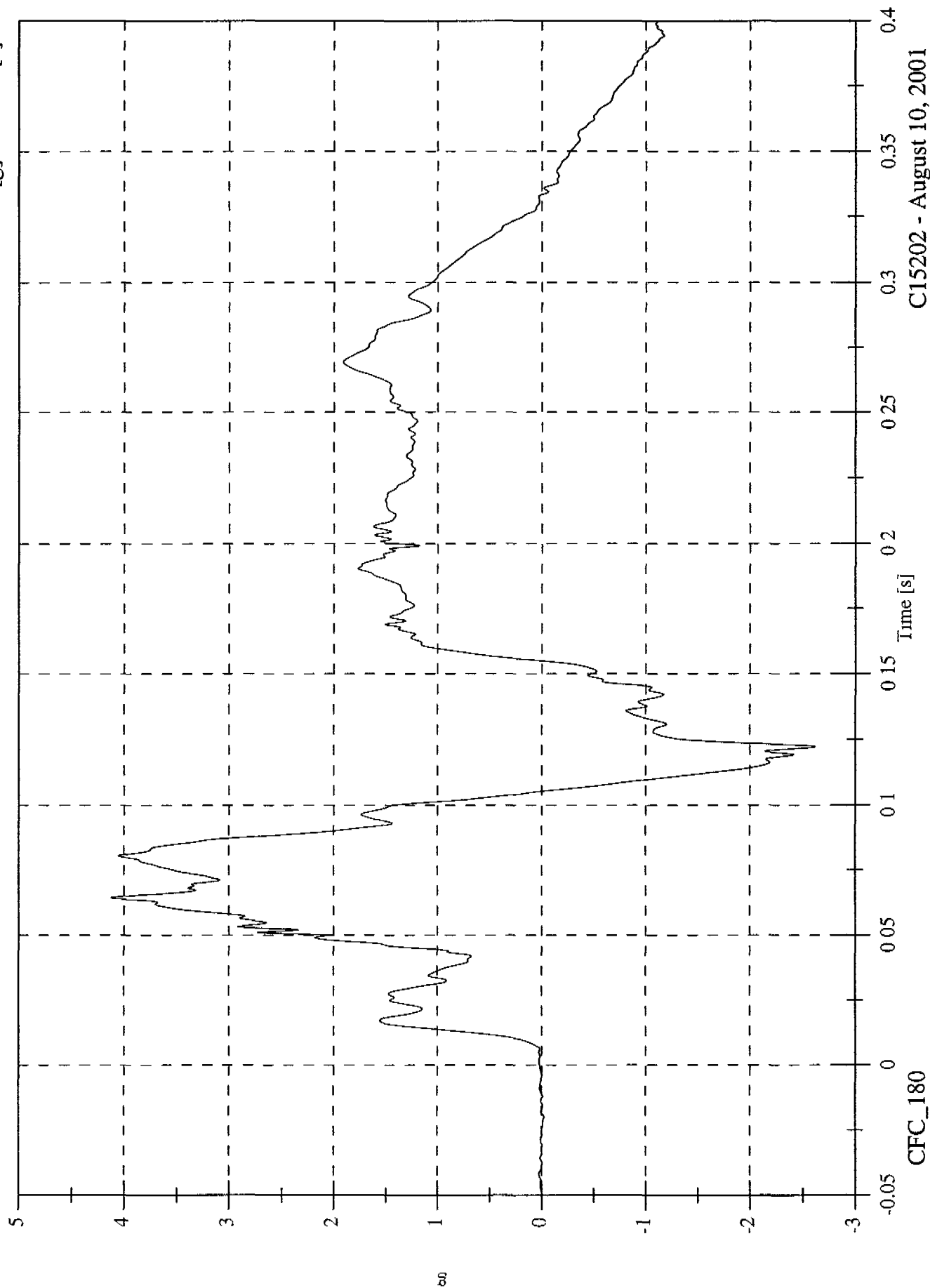


CI5202 - August 10, 2001

NHTSA FMVSS 301 Test #7 - 2001 Nissan Sentra

Max: 4.1 [g] at 0.064 [s]
Min: -2.6 [g] at 0.122 [s]

P1 Chest z



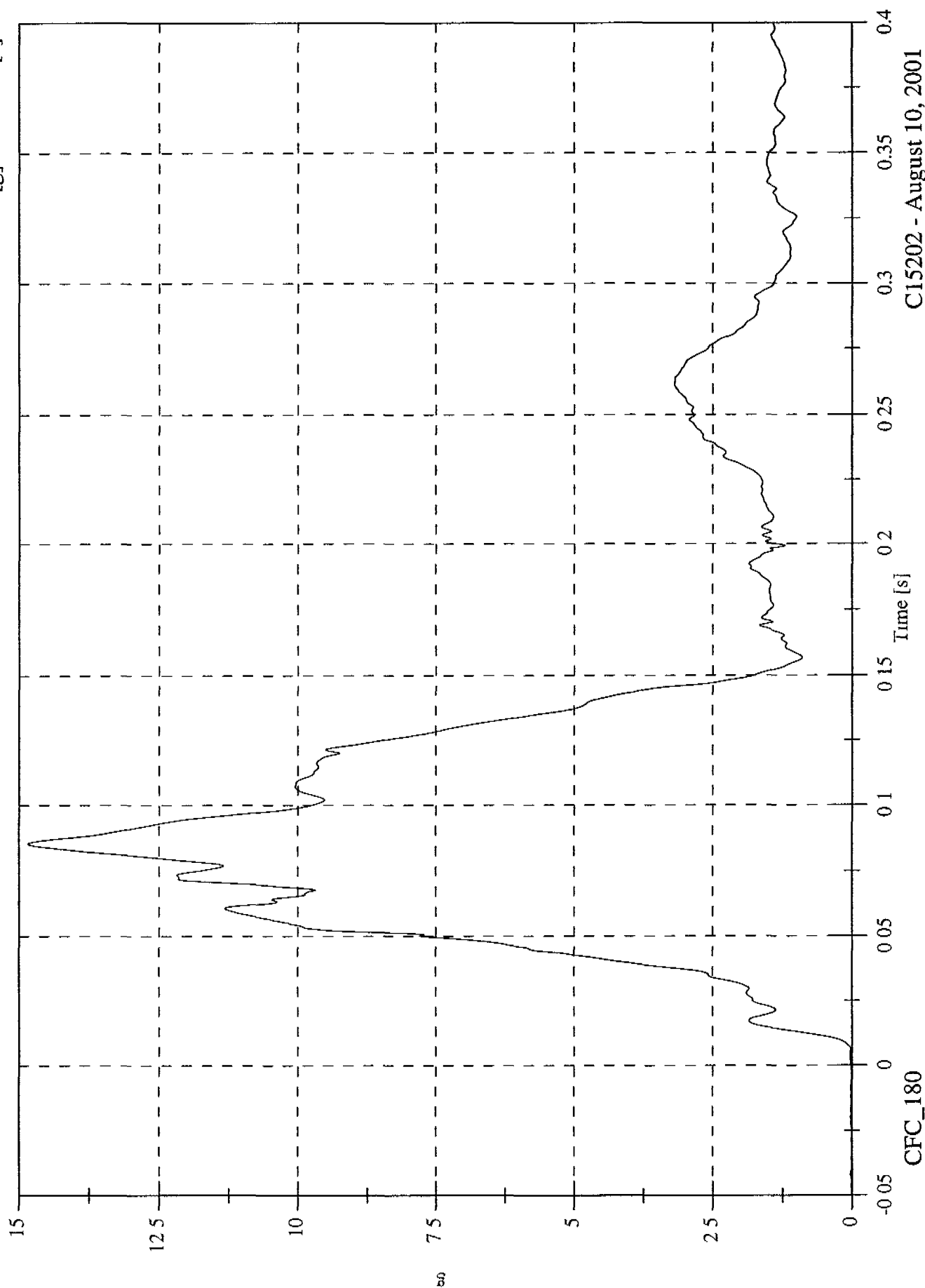
CFC_180

C15202 - August 10, 2001

NHTSA FMVSS 301 Test #7 - 2001 Nissan Sentra

Max: 14.8 [g] at 0.085 [s]
Min: 0.0 [g] at -0.026 [s]

P1 Chest Resultant



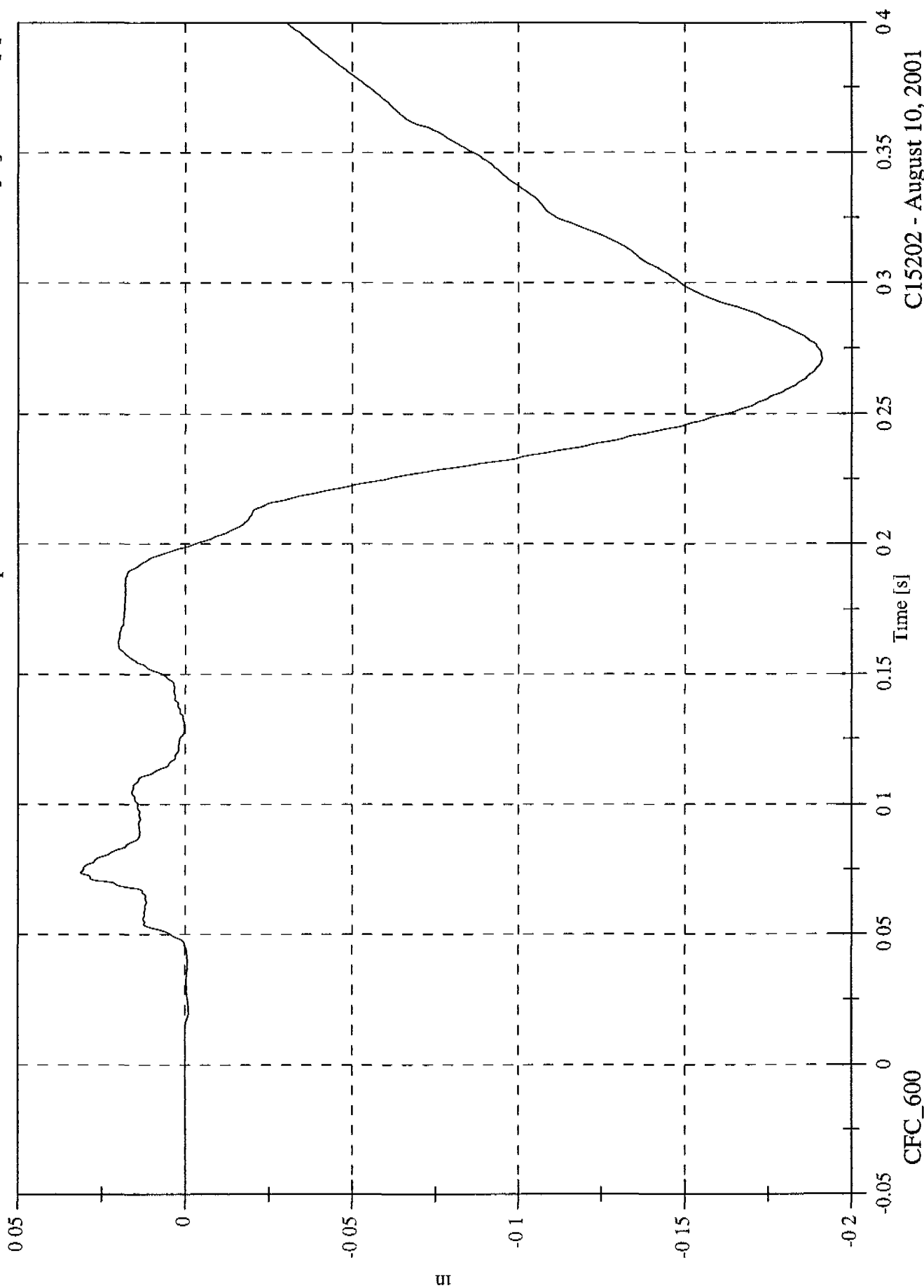
CFC_180

C15202 - August 10, 2001

NHTSA FMVSS 301 Test #7 - 2001 Nissan Sentra

Max: 0.0 [in] at 0.074 [s]
 Min: -0.2 [in] at 0.271 [s]

PI Chest Compression

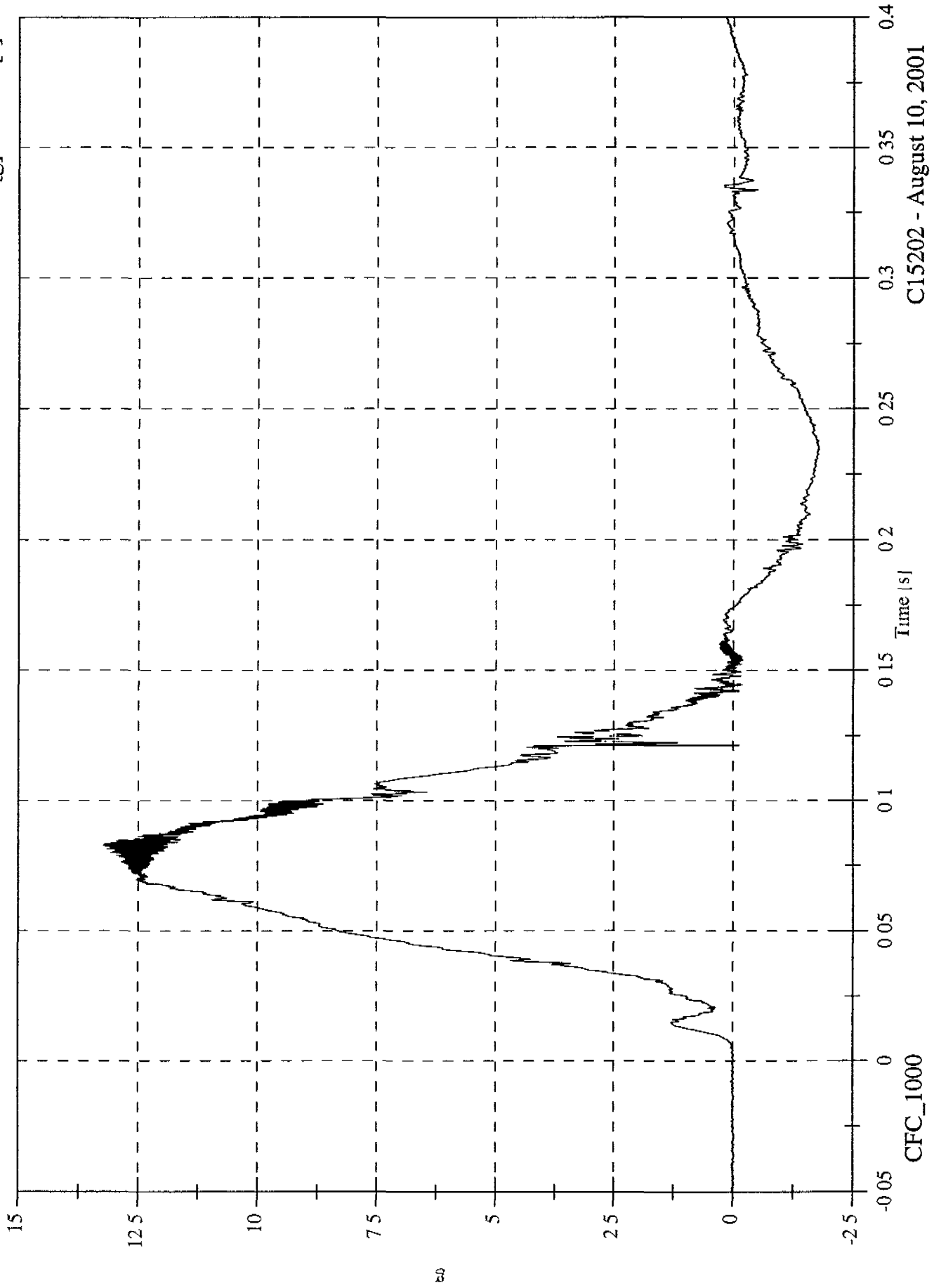


C15202 - August 10, 2001

NHTSA FMVSS 301 Test #7 - 2001 Nissan Sentra

Max: 13.2 [g] at 0.083 [s]
Min: -1.8 [g] at 0.235 [s]

P1 Pelvic x



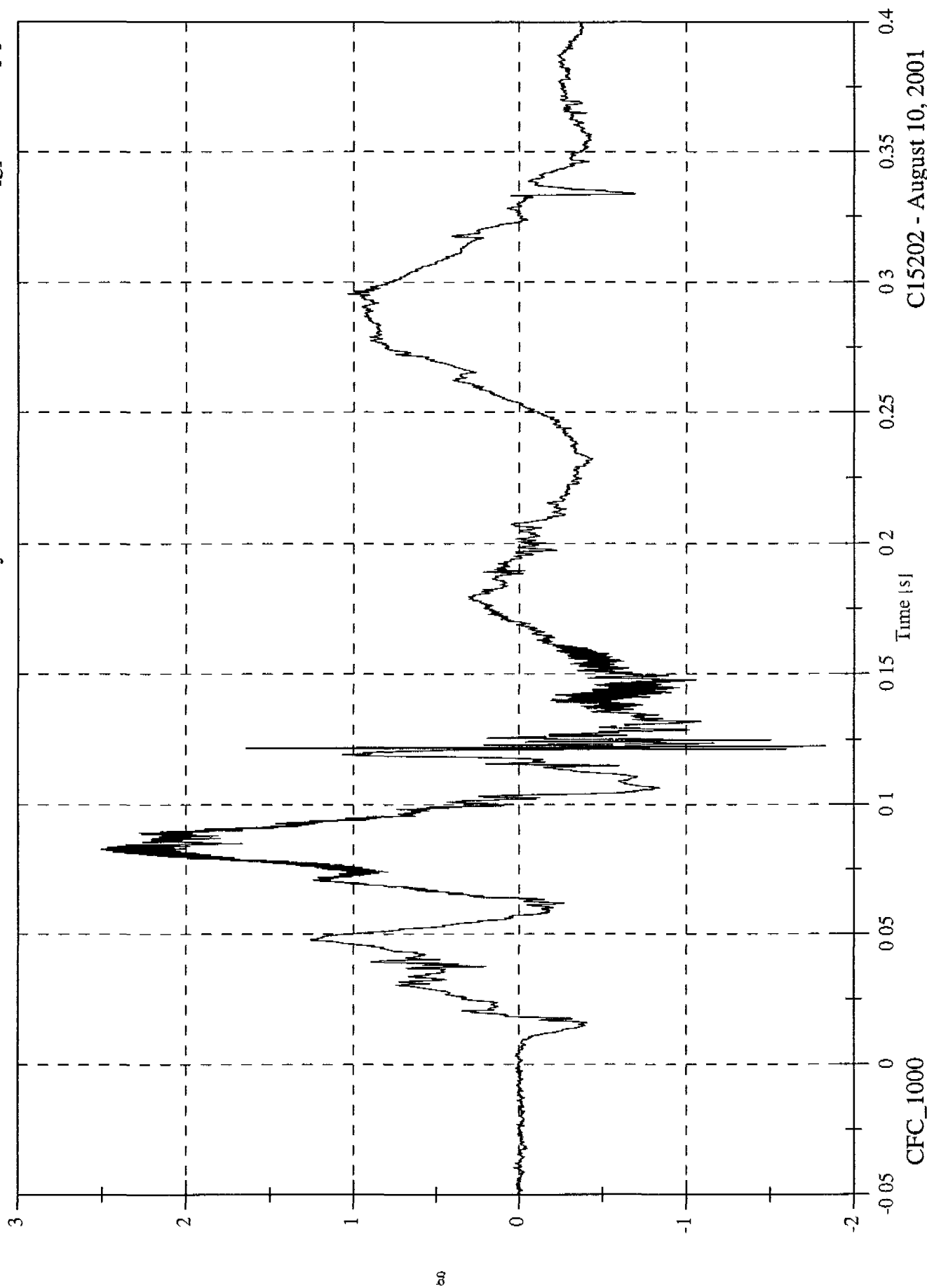
CFC_1000

C15202 - August 10, 2001

NHTSA FMVSS 301 Test #7 - 2001 Nissan Sentra

Max: 2.5 [g] at 0.083 [s]
Min: -1.8 [g] at 0.122 [s]

P1 Pelvic y

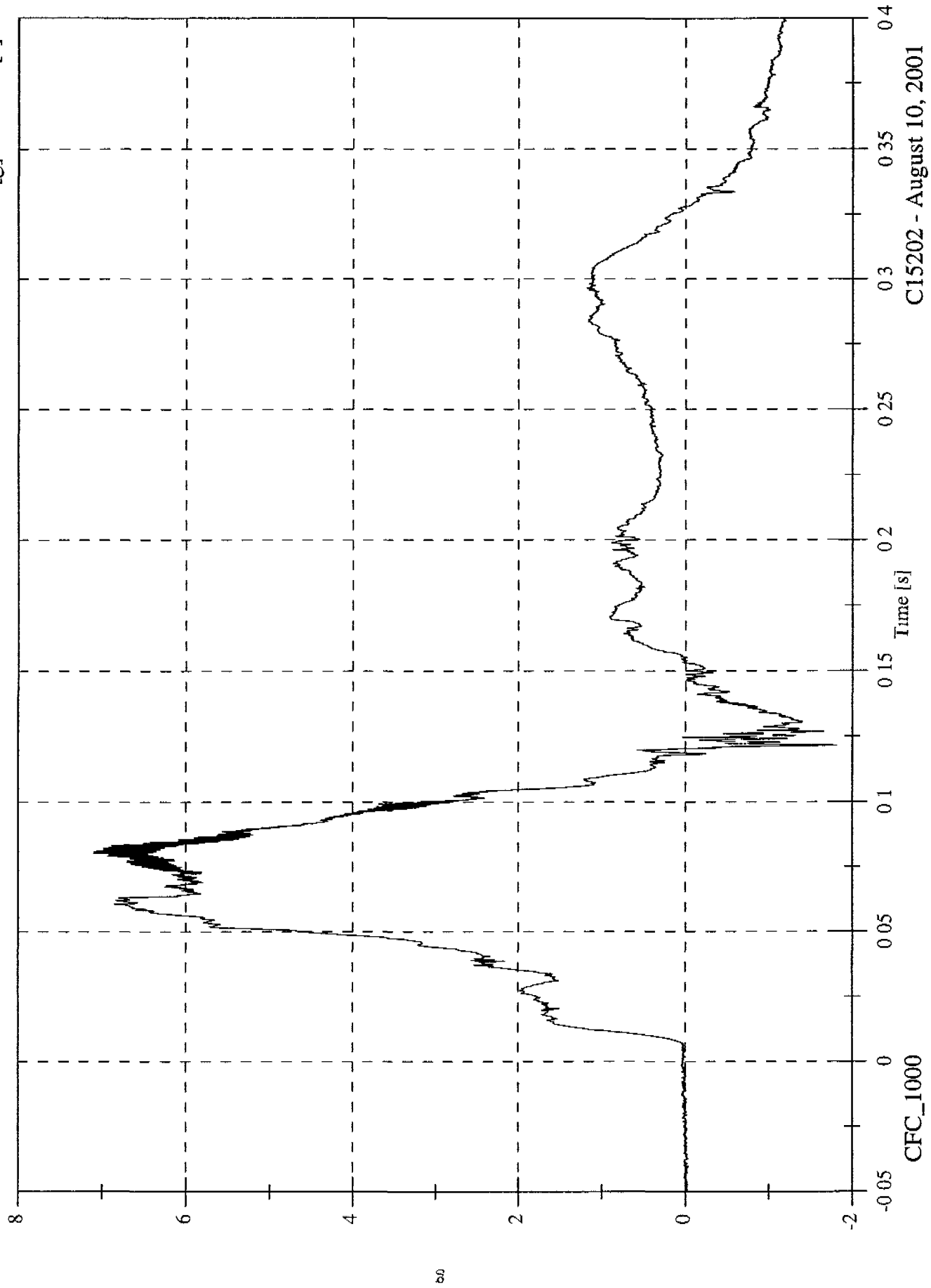


CI5202 - August 10, 2001

NHTSA FMVSS 301 Test #7 - 2001 Nissan Sentra

Max: 7.1 [g] at 0.080 [s]
Min: -1.8 [g] at 0.121 [s]

P1 Pelvic z

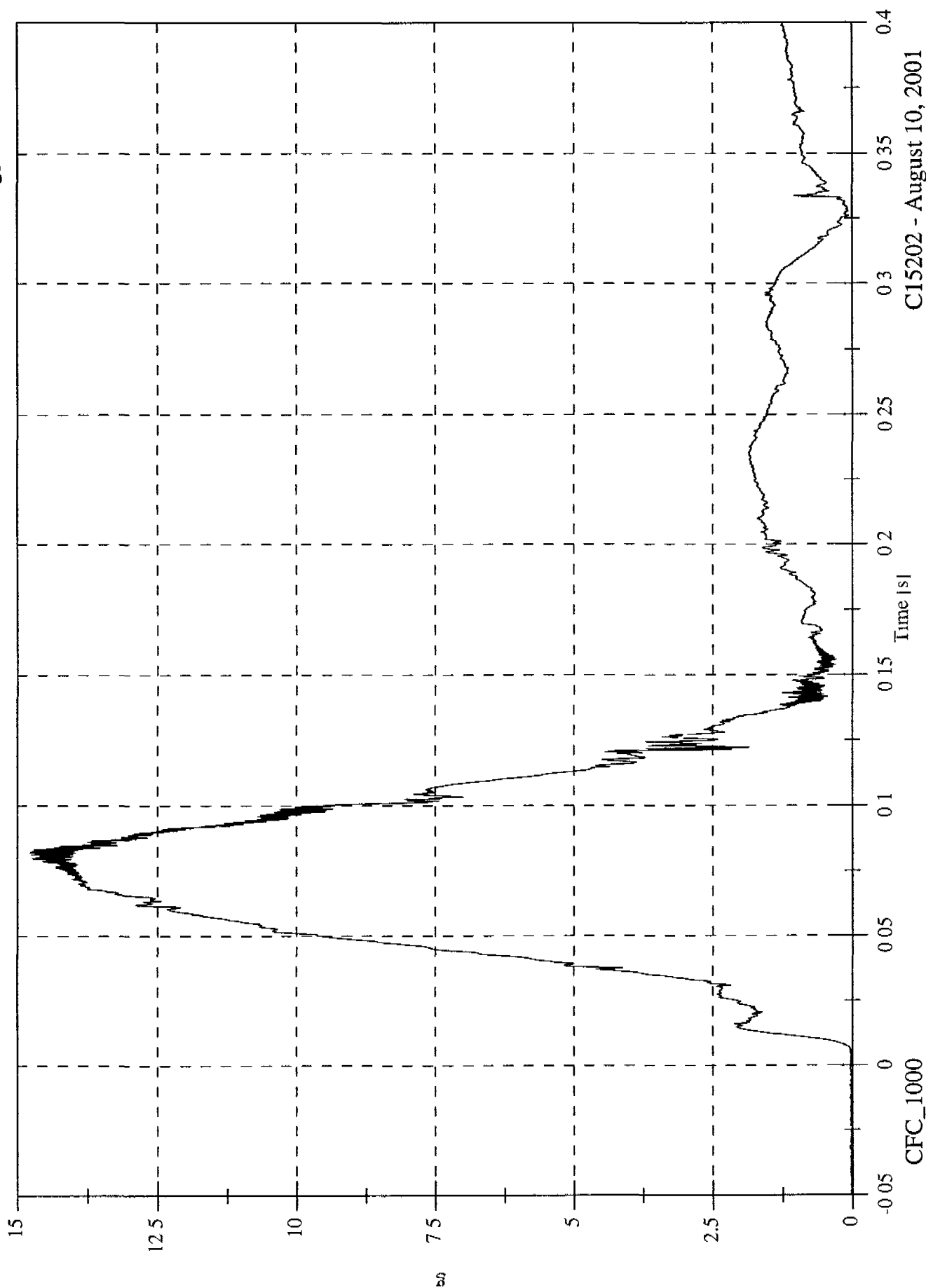


C15202 - August 10, 2001

NHTSA FMVSS 301 Test #7 - 2001 Nissan Sentra

Max: 14.8 [g] at 0.082 [s]
Min: 0.0 [g] at -0.038 [s]

P1 Pelvic Resultant



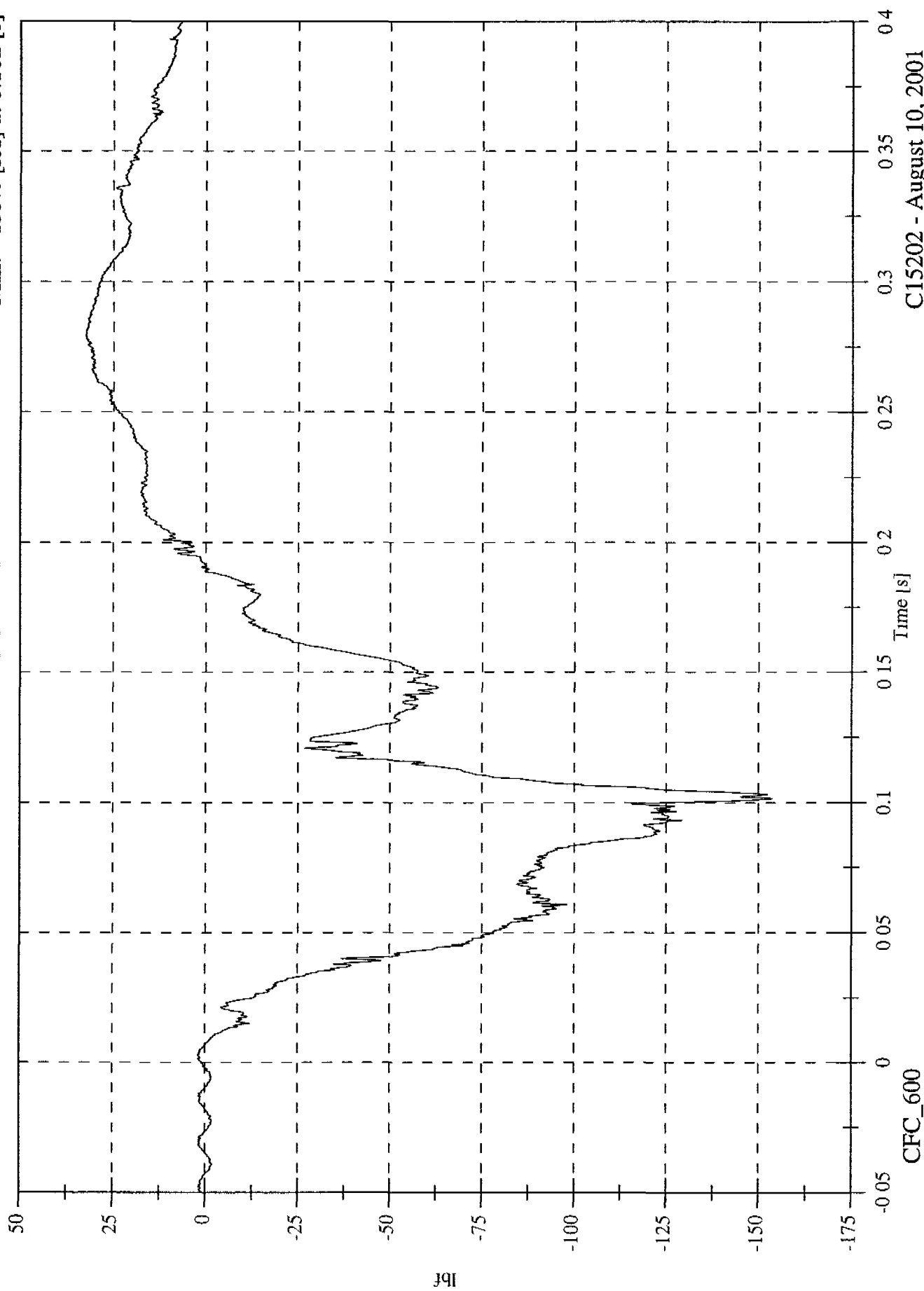
CFC_1000

CL15202 - August 10, 2001

NHTSA FMVSS 301 Test #7 - 2001 Nissan Sentra

Max: 32.5 [lbf] at 0.279 [s]
Min: -153.6 [lbf] at 0.102 [s]

P1 Left Femur

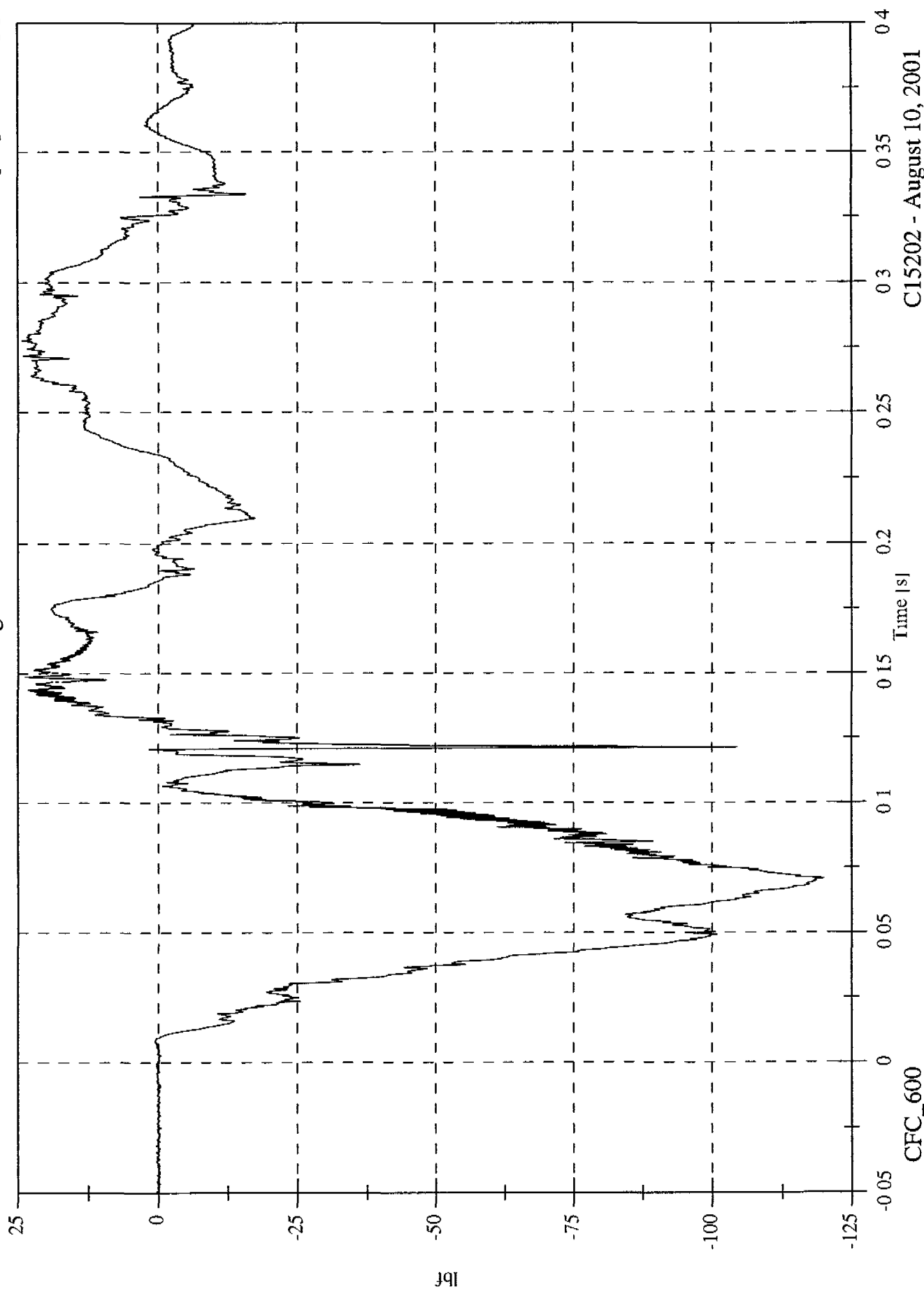


C15202 - August 10, 2001

NHTSA FMVSS 301 Test #7 - 2001 Nissan Sentra

Max: 24.3 [lbf] at 0.278 [s]
Min: -120.0 [lbf] at 0.071 [s]

P1 Right Femur

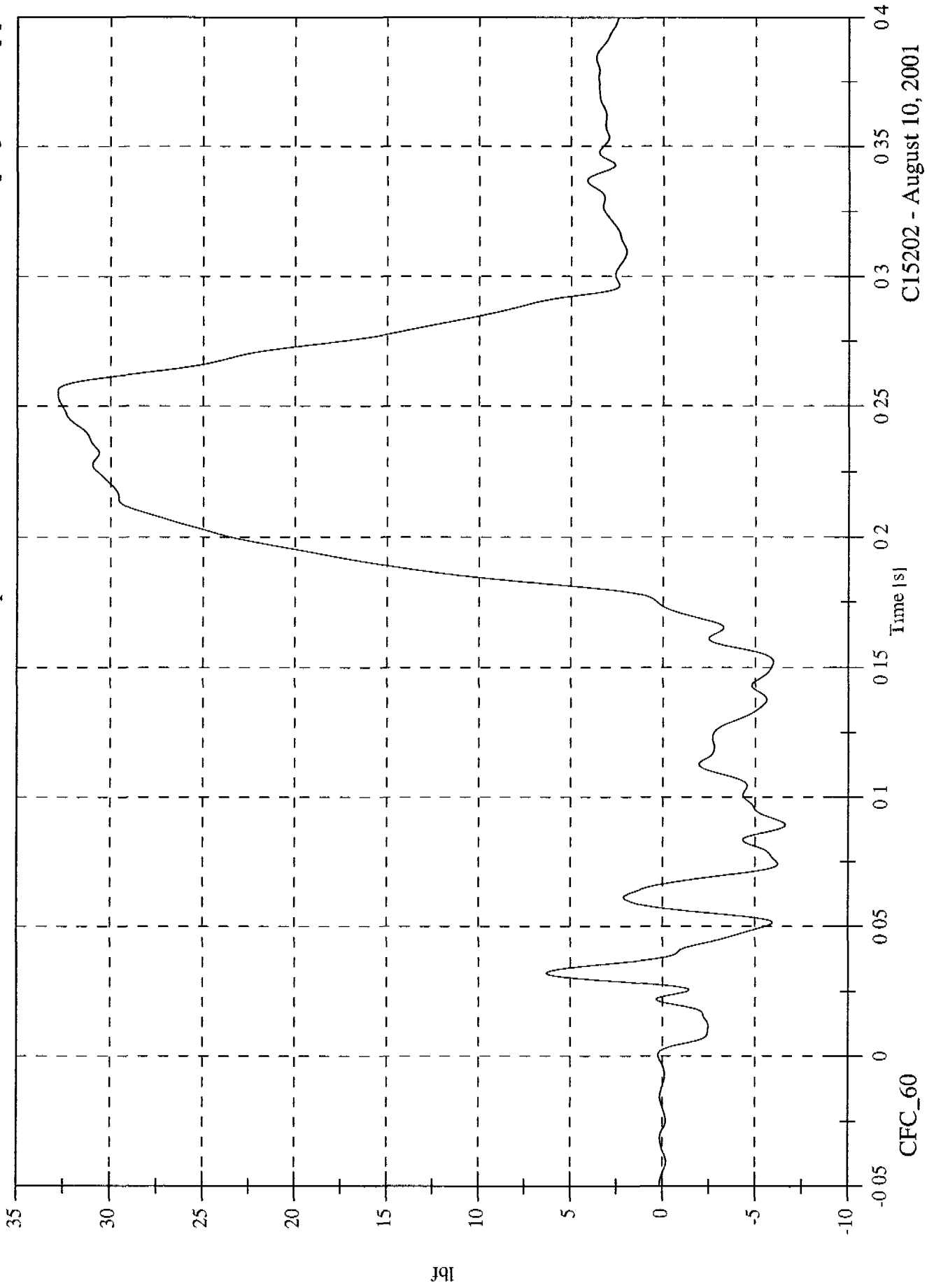


C15202 - August 10, 2001

NHTSA FMVSS 301 Test #7 - 2001 Nissan Sentra

Max: 32.8 [lbf] at 0.255 [s]
Min: -6.6 [lbf] at 0.089 [s]

P1 Lap Belt

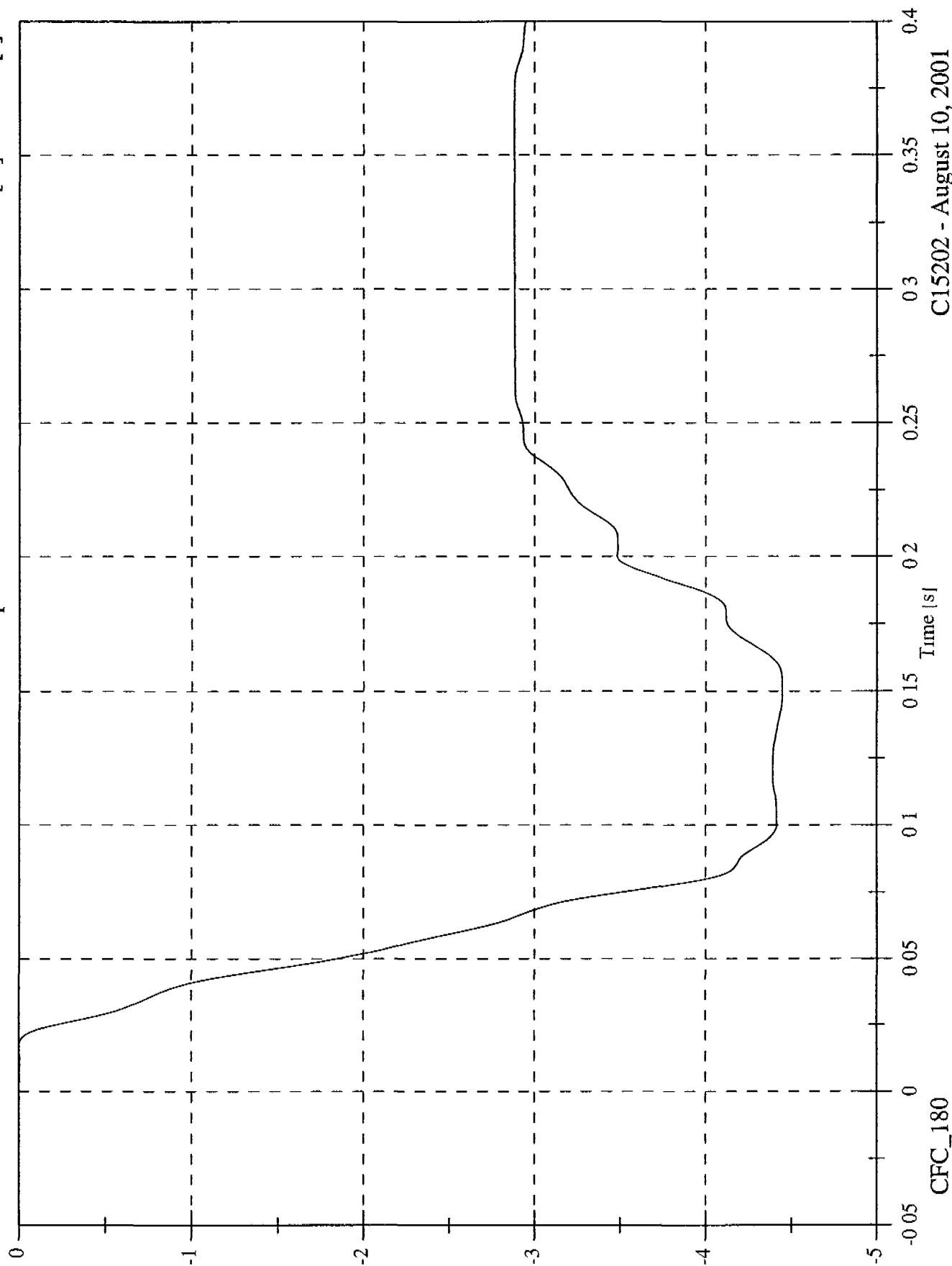


C15202 - August 10, 2001

NHTSA FMVSS 301 Test #7 - 2001 Nissan Sentra

P1 Belt Spoolout

Max: 0.0 [in] at -0.001 [s]
Min: -4.4 [in] at 0.148 [s]



CFC_180

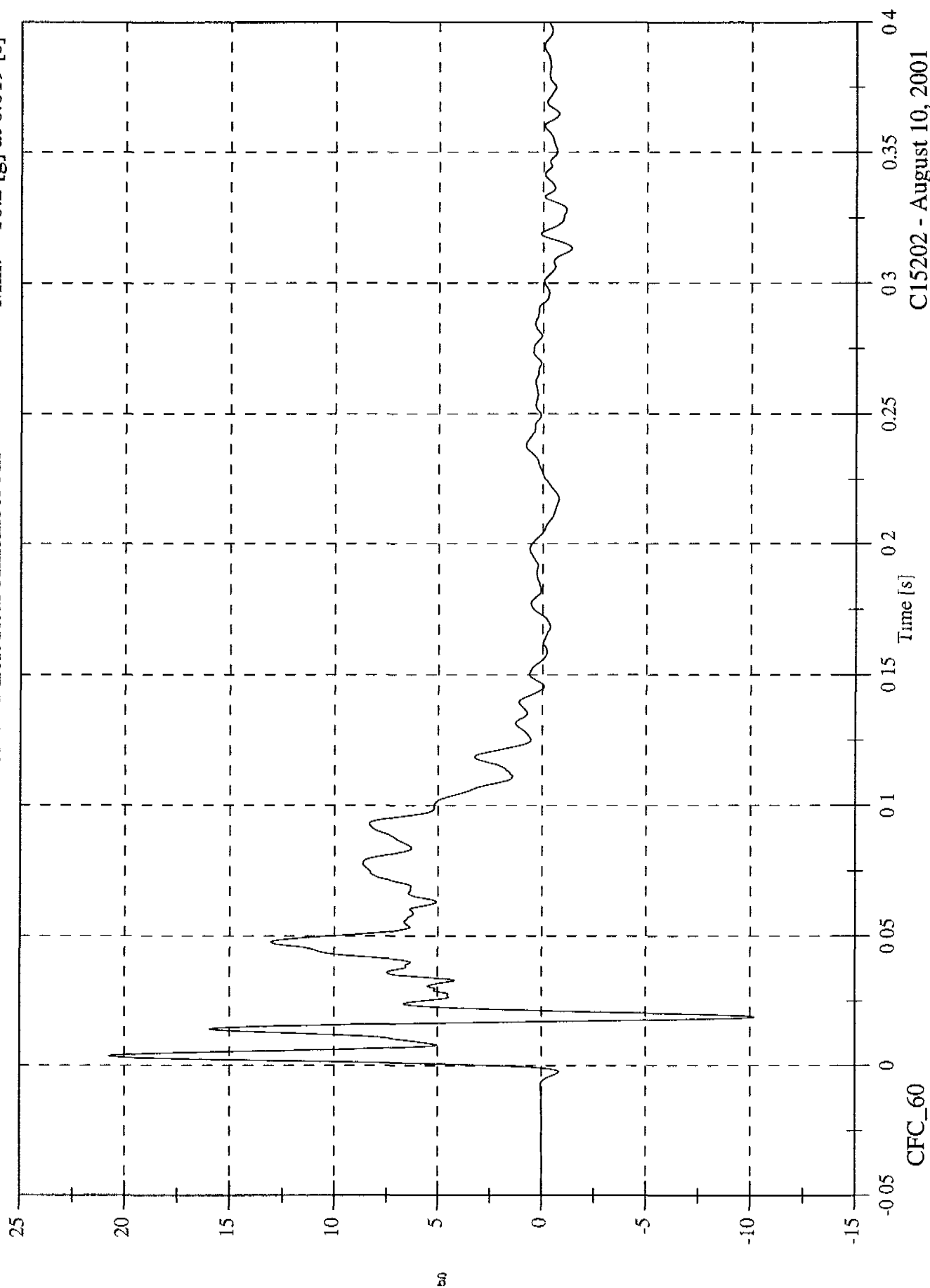
C15202 - August 10, 2001

NHTSA FMVSS 301 Test #7 - 2001 Nissan Sentra

Acc #1 Left Rear Xmember Ax

Max: 20.7 [g] at 0.004 [s]

Min: -10.2 [g] at 0.019 [s]



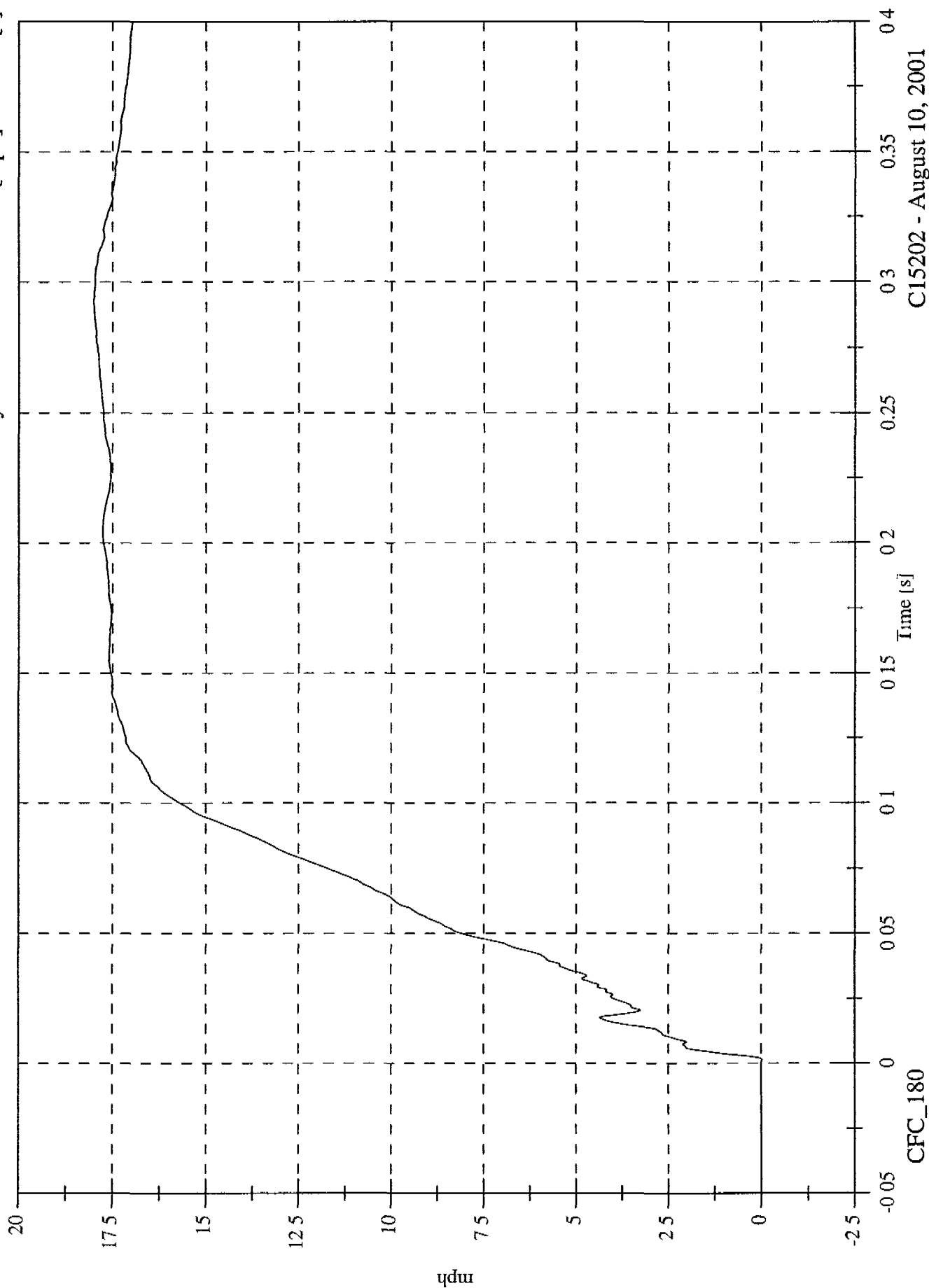
CFC_60

C15202 - August 10, 2001

NHTSA FMVSS 301 Test #7 - 2001 Nissan Sentra

Max: 18.0 [mph] at 0.292 [s]
Min: -0.0 [mph] at 0.001 [s]

Acc #1 Left Rear Xmember Ax Velocity



CFC_180

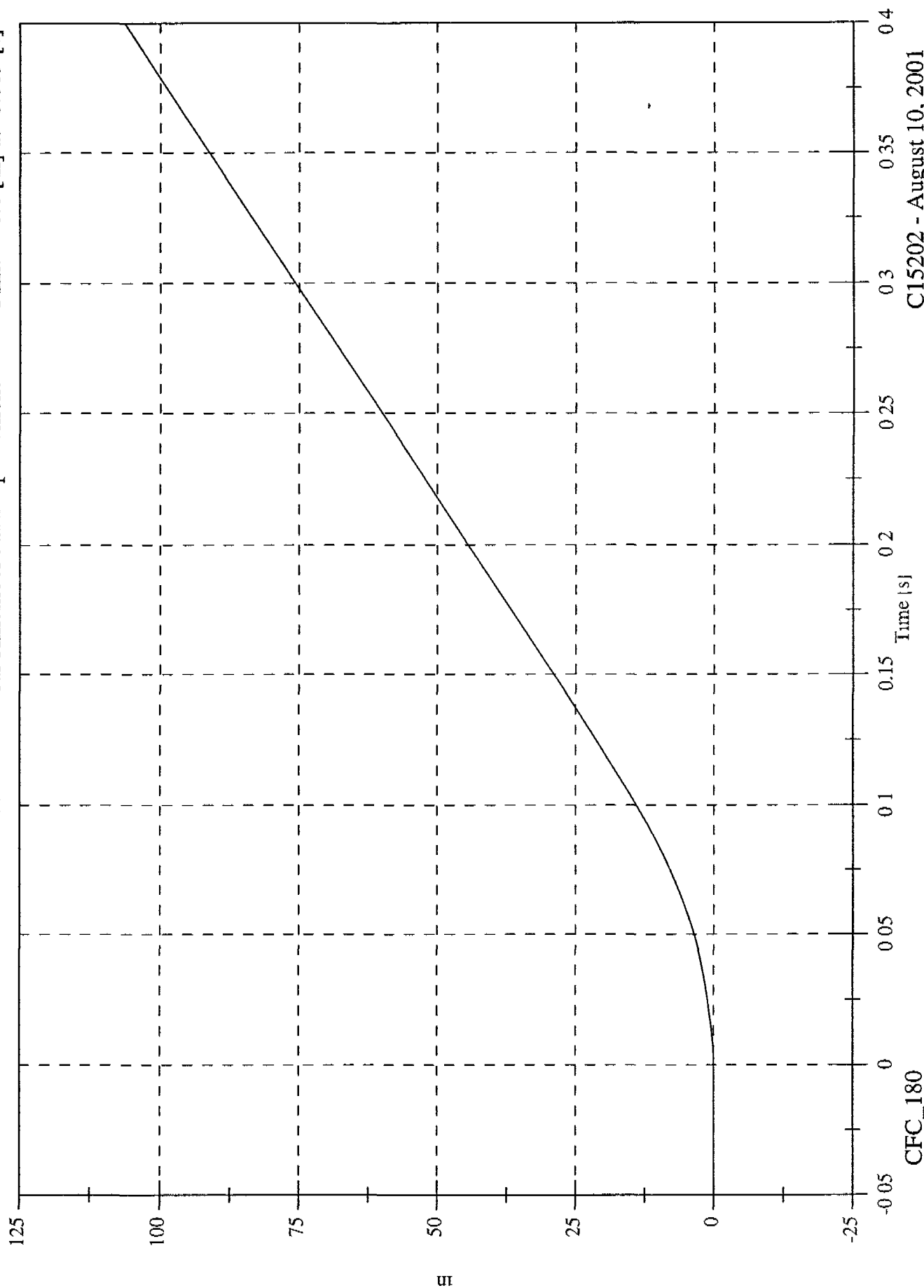
C15202 - August 10, 2001

NHTSA FMVSS 301 Test #7 - 2001 Nissan Sentra

Acc #1 Left Rear Xmember Ax Displacement

Max: 106.3 [in] at 0.400 [s]

Min: -0.0 [in] at -0.009 [s]



CFC_180

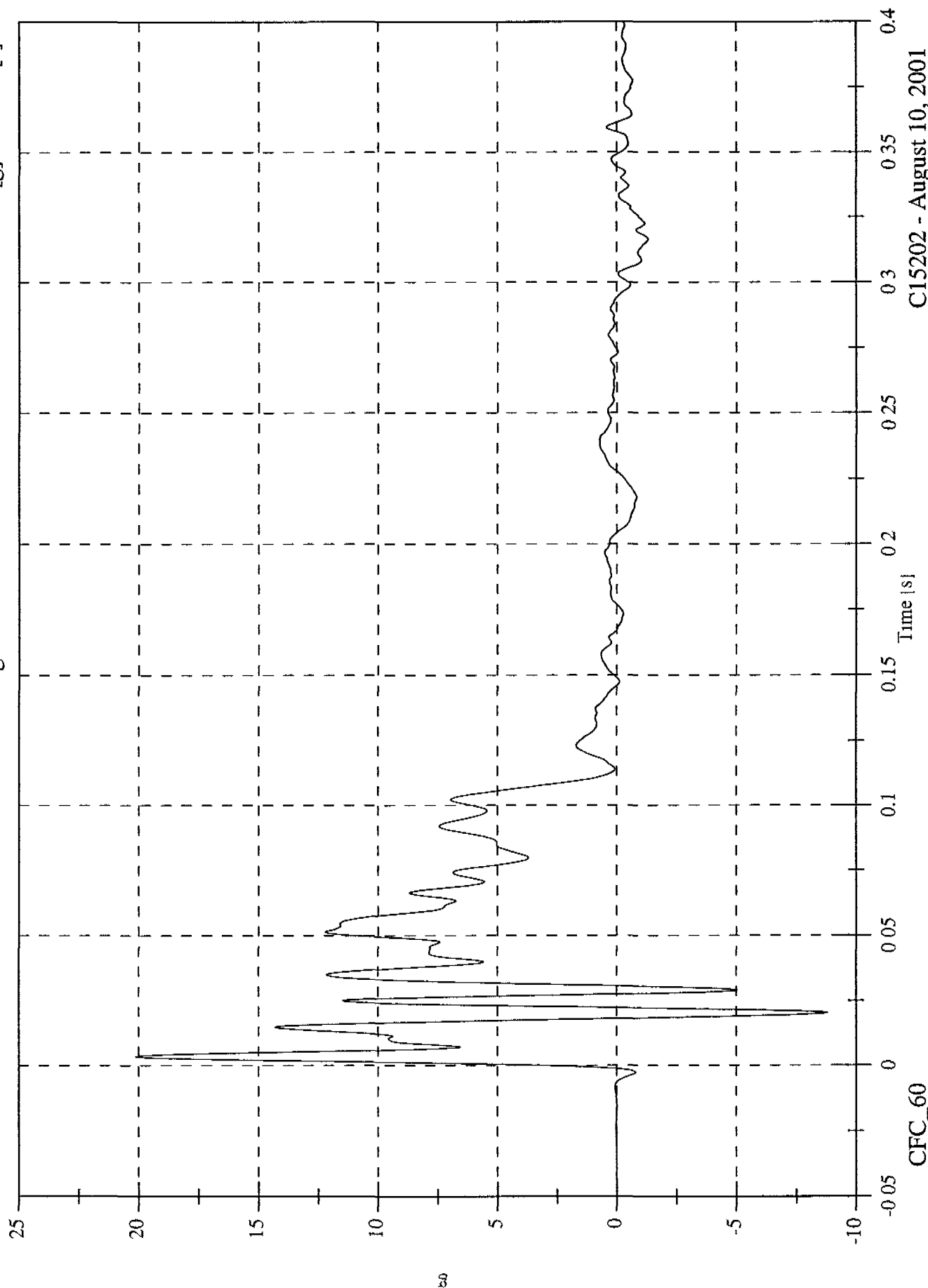
CI5202 - August 10, 2001

NHTSA FMVSS 301 Test #7 - 2001 Nissan Sentra

Acc #2 Right Rear Xmember Ax

Max: 20.1 [g] at 0.004 [s]

Min: -8.8 [g] at 0.020 [s]



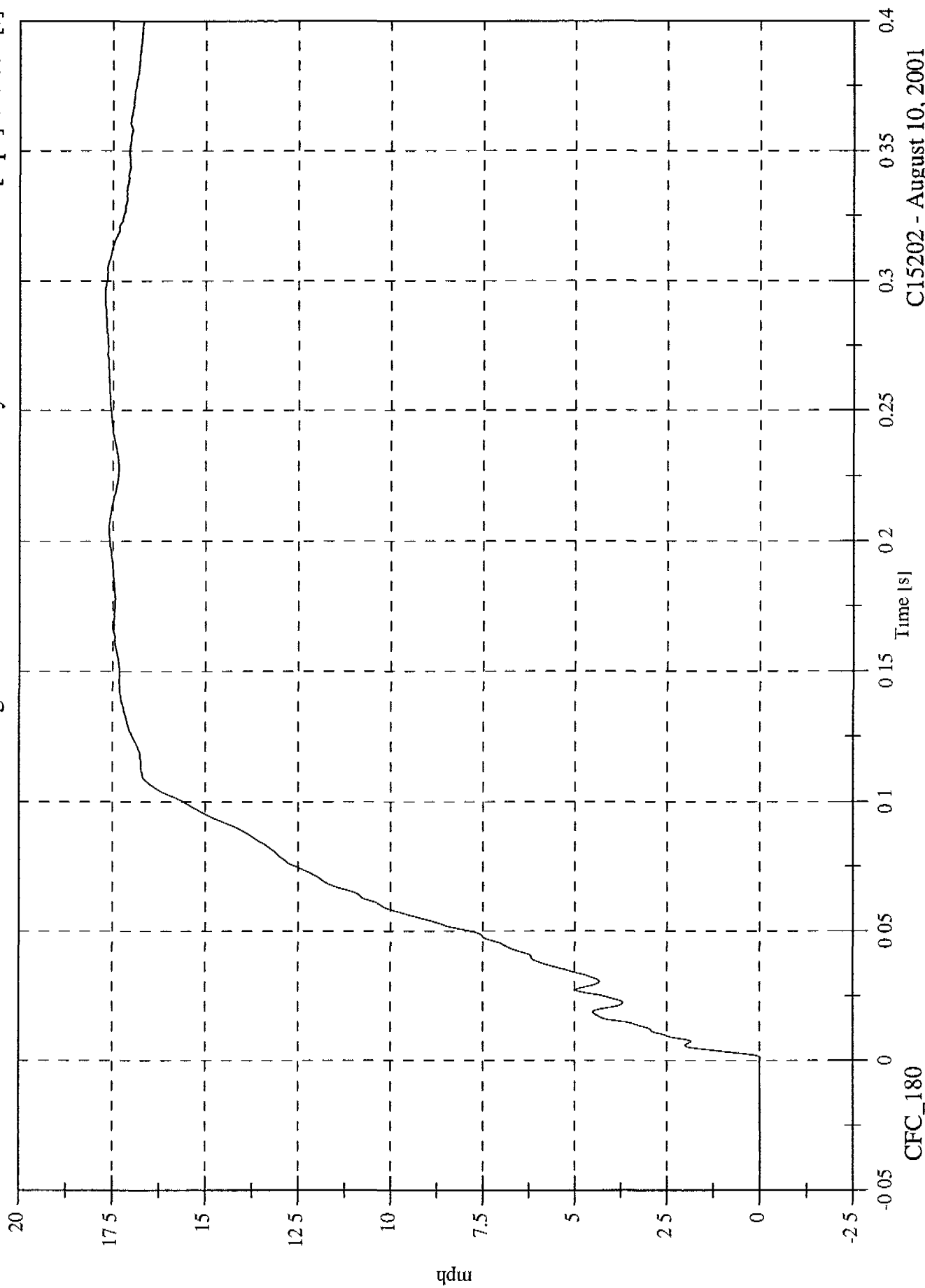
C15202 - August 10, 2001

NHTSA FMVSS 301 Test #7 - 2001 Nissan Sentra

Max: 17.7 [mph] at 0.294 [s]

Min: -0.0 [mph] at 0.001 [s]

Acc #2 Right Rear Xmember Ax Velocity



CFC_180

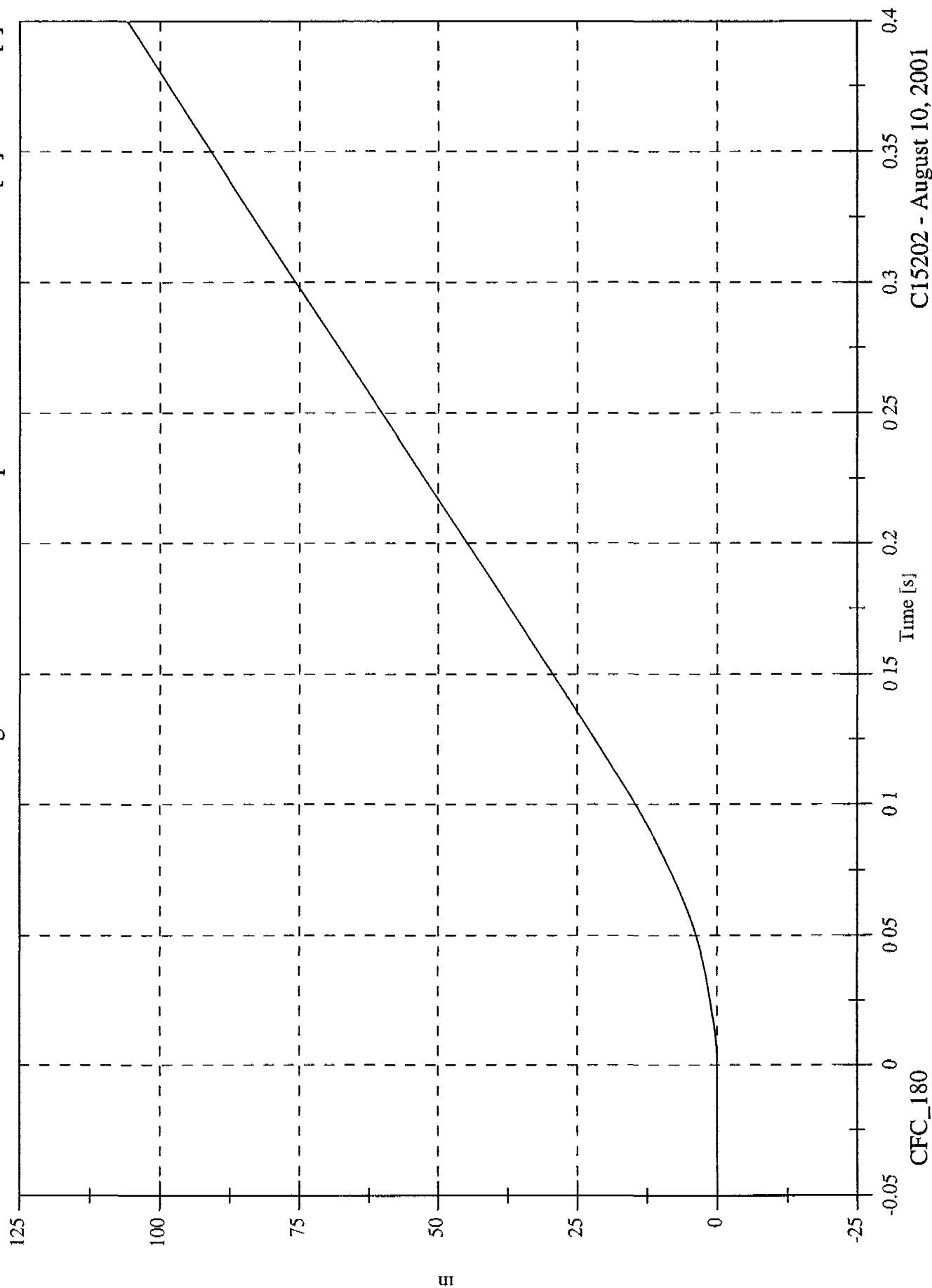
CI5202 - August 10, 2001

NHTSA FMVSS 301 Test #7 - 2001 Nissan Sentra

Acc #2 Right Rear Xmember Ax Displacement

Max: 105.8 [in] at 0.400 [s]

Min: -0.0 [in] at -0.010 [s]



CFC_180

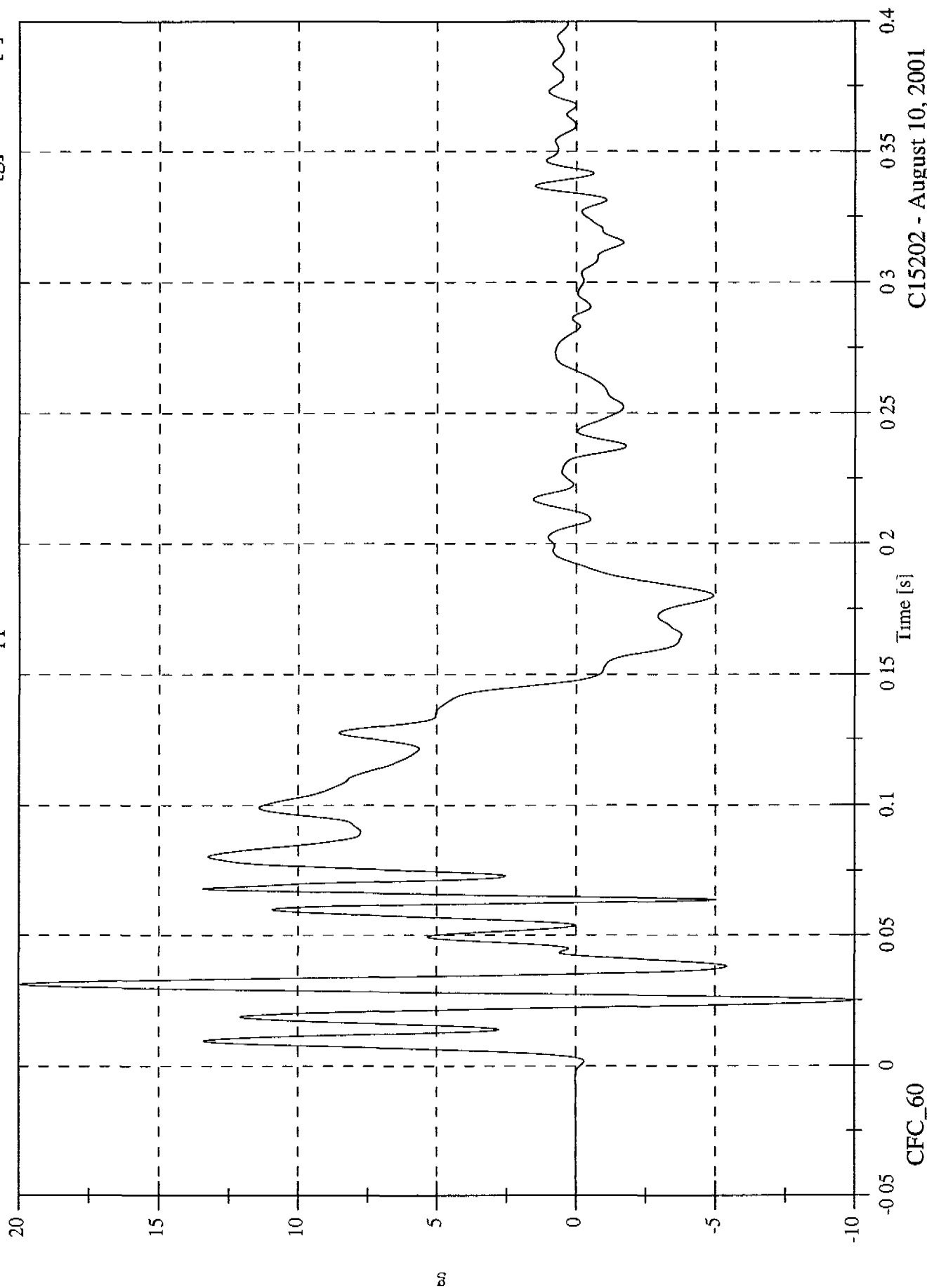
C15202 - August 10, 2001

NHTSA FMVSS 301 Test #7 - 2001 Nissan Sentra

Acc #3 Upper Seatback Ax

Max: 19.9 [g] at 0.031 [s]

Min: -10.0 [g] at 0.025 [s]



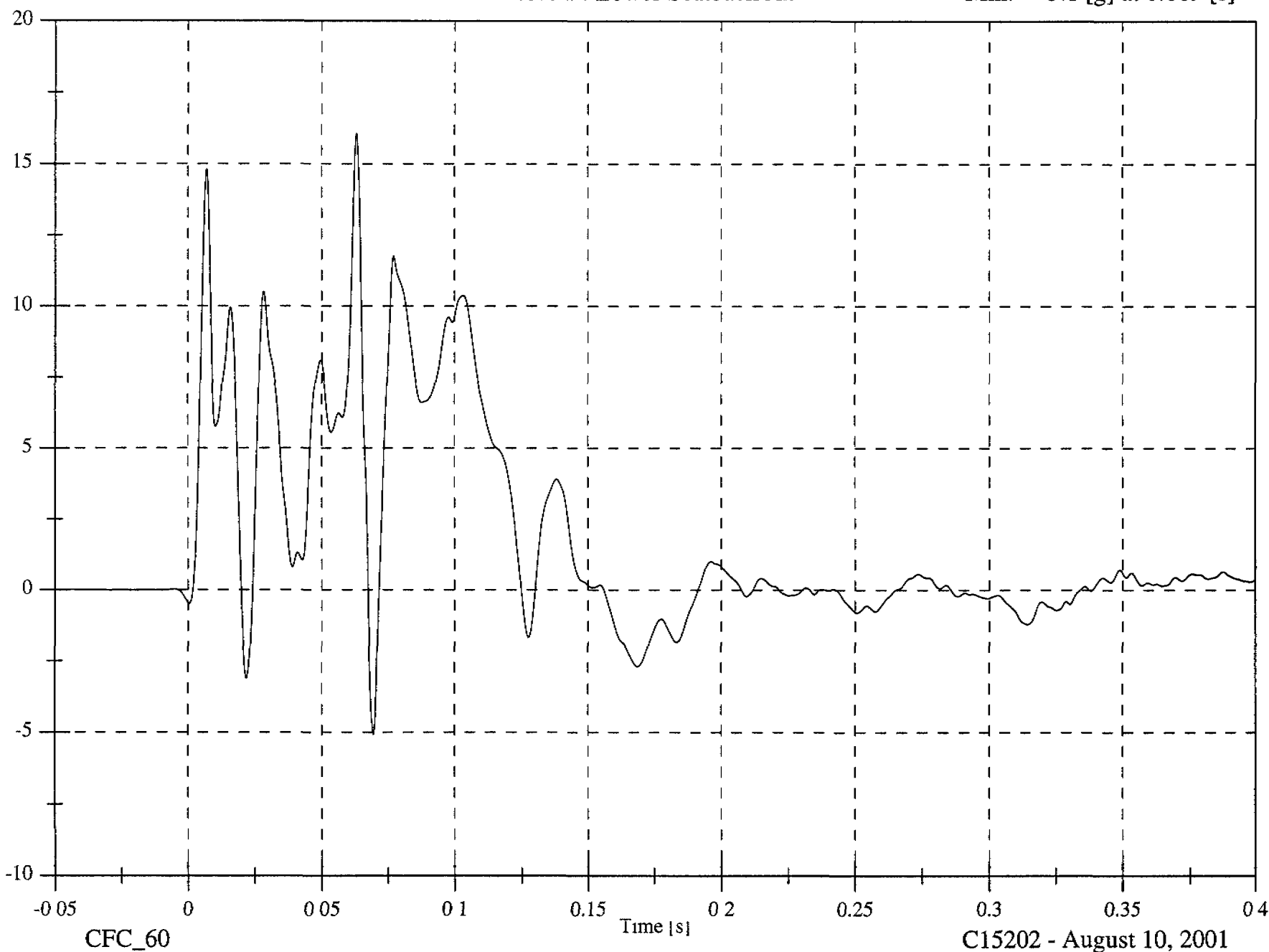
C15202 - August 10, 2001

NHTSA FMVSS 301 Test #7 - 2001 Nissan Sentra

Acc #4 Lower Seatback Ax

Max: 16.1 [g] at 0.063 [s]

Min: -5.1 [g] at 0.069 [s]

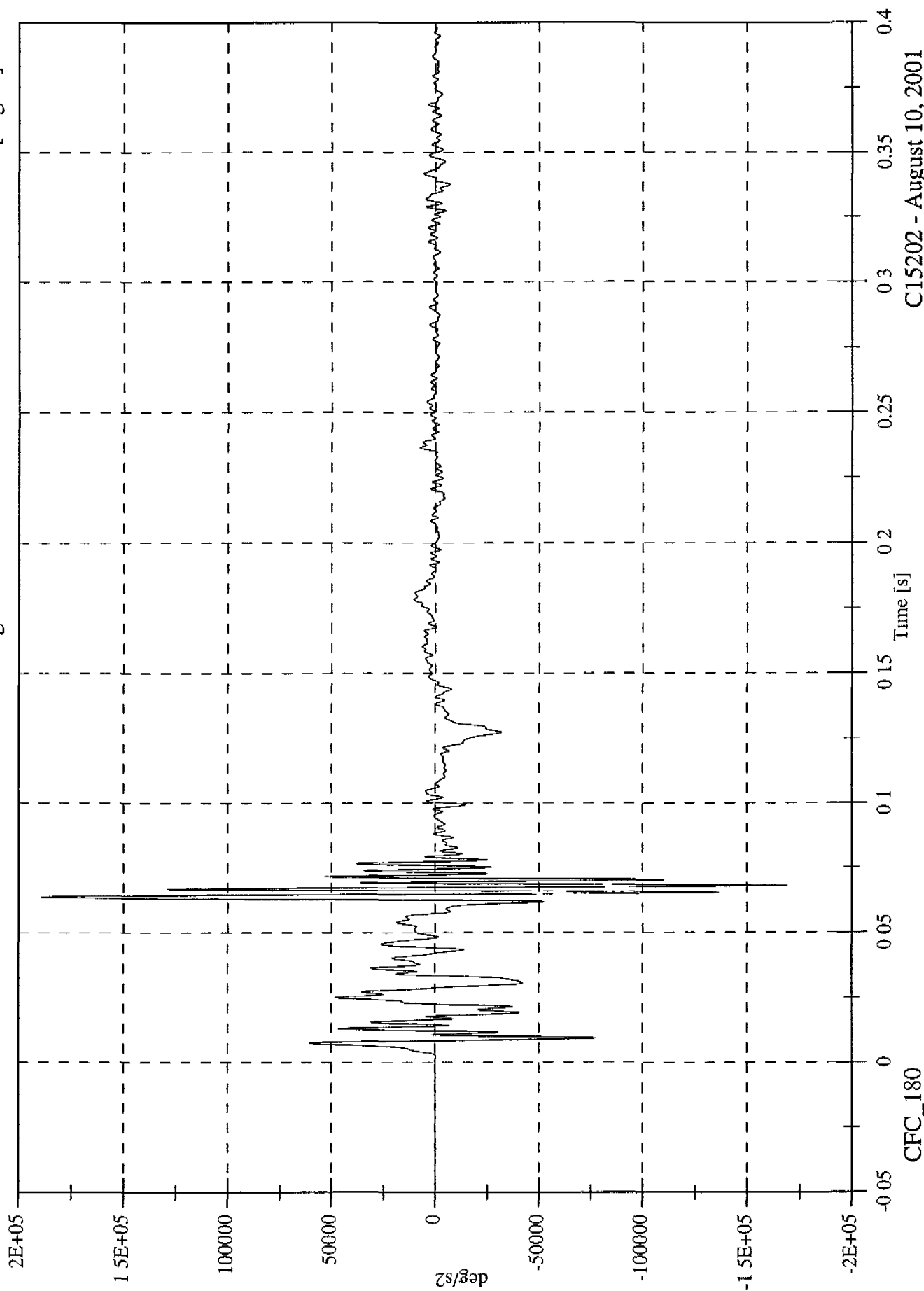


NHTSA FMVSS 301 Test #7 - 2001 Nissan Sentra

Seatback Angular Acceleration

Max: 188946.6 [deg/s²] at 0.064 [s]

Min: -168947.5 [deg/s²] at 0.068 [s]



CFC_180

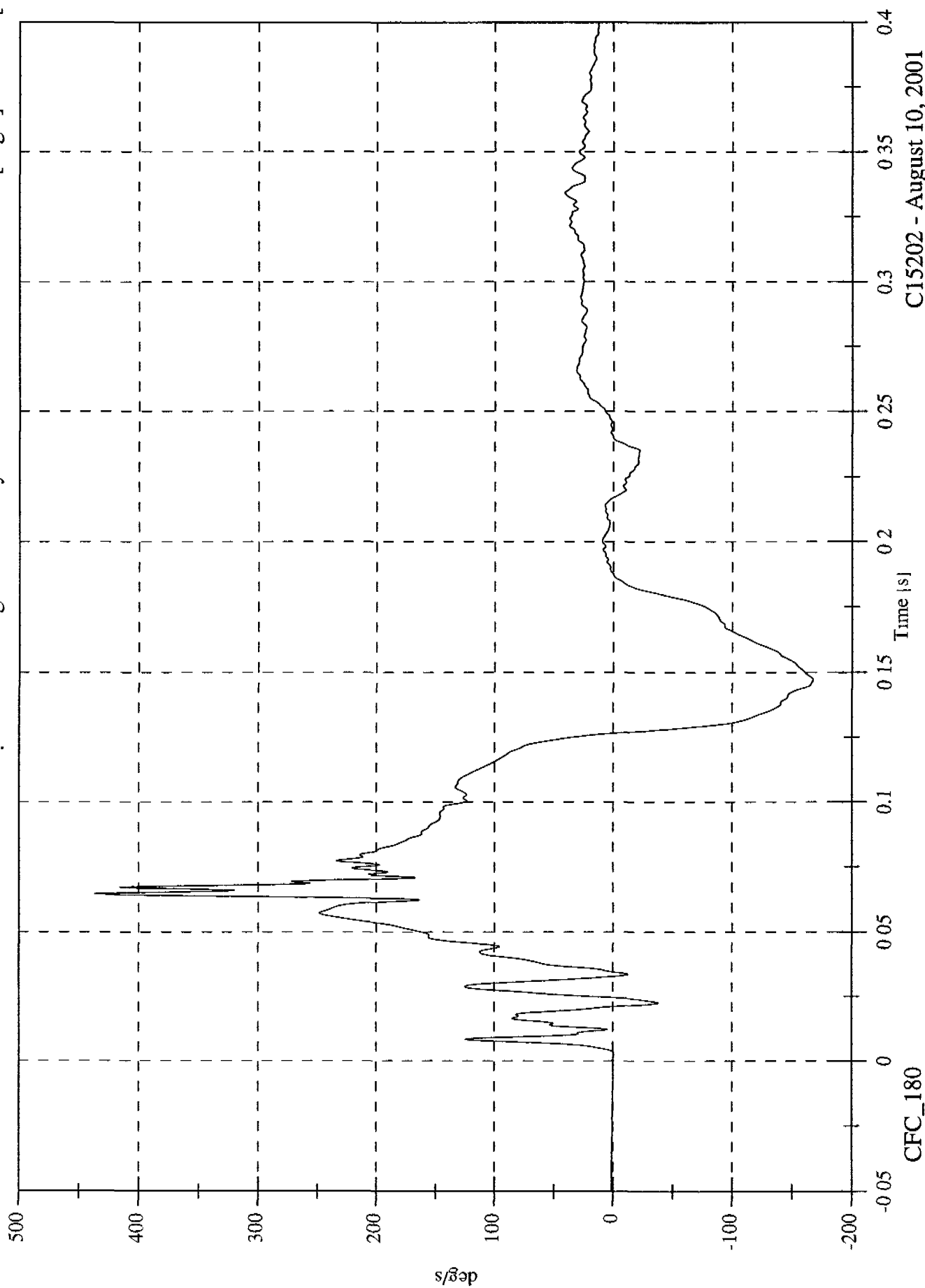
Time [s]

CI15202 - August 10, 2001

NHTSA FMVSS 301 Test #7 - 2001 Nissan Sentra

Max: 436.6 [deg/s] at 0.065 [s]
 Min: -167.4 [deg/s] at 0.147 [s]

Seatback Angular Velocity



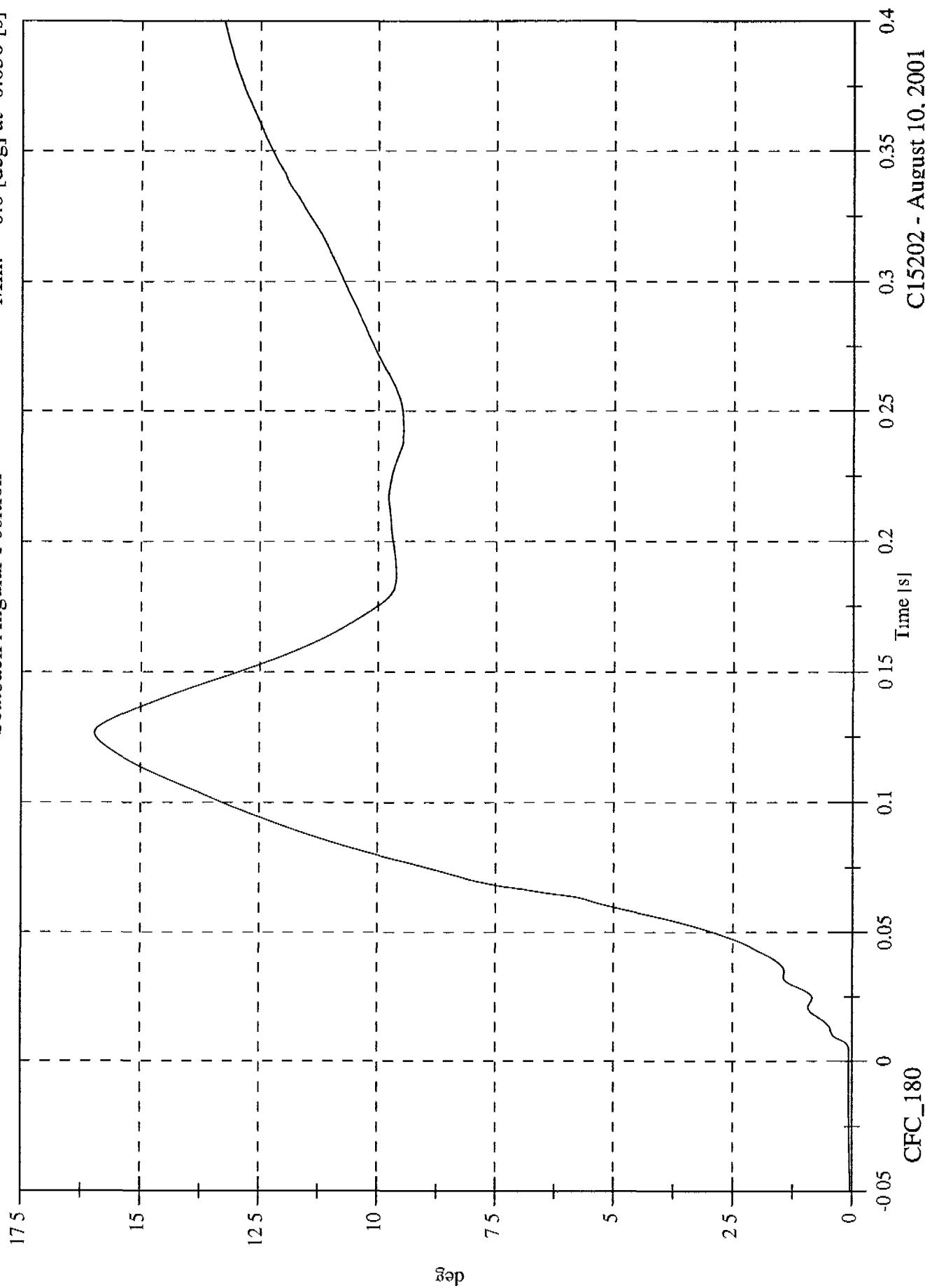
C15202 - August 10, 2001

NHTSA FMVSS 301 Test #7 - 2001 Nissan Sentra

Seaback Angular Position

Max: 16.0 [deg] at 0.127 [s]

Min: 0.0 [deg] at -0.050 [s]



CFC_180

C15202 - August 10, 2001