

#S#633428

V3235

REPORT NUMBER: 301-CAL-99-04

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

Mitsubishi Motor Manufacturing of America, Inc.
1999 Dodge Avenger
2-Door Coupe

NHTSA NUMBER: CX0300

CALSPAN TEST NUMBER: 8480-4

CALSPAN CORPORATION
P.O. BOX 400
BUFFALO, NEW YORK 14225



October 20, 1998

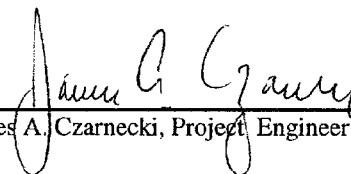
FINAL REPORT

PREPARED FOR:

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

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Prepared By:


James A. Czarnecki, Project Engineer

Approved By:

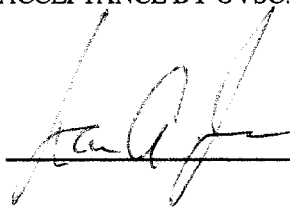

David J. Travala, Program Manager
Transportation Sciences Center

Approval Date:

October 29, 1998

FINAL REPORT ACCEPTANCE BY OVSC:

Accepted By:



Acceptance Date:

12-16-98

NOV 10 1998

OFFICE OF VEHICLE SAFETY

TECHNICAL REPORT STANDARD TITLE PAGE

1. Report No. 301-CAL-99-04		2. Government Accession No.		3. Recipient's Catalog No.	
4. Title and Subtitle Final Report of FMVSS 301 Compliance Testing of a 1999 Dodge Avenger 2-Door Coupe NHTSA No. CX0300				5. Report Date October 20, 1998	
				6. Performing Organization Code CAL	
7. Author(s) James A. Czarnecki, Project Engineer David J. Travale, Program Manager				8. Performing Organization Report No. 8480-4	
9. Performing Organization Name and Address Calspan Corporation 4455 Genesee Street Buffalo, New York 14225				10. Work Unit No.	
				11. Contract or Grant No. DTNH22-95-D-11000	
12. Sponsoring Agency Name and Address U.S. Department of Transportation National Highway Traffic Safety Administration Office of Vehicle Safety Compliance (NEF-30) 400 Seventh St , S.W., Rm. 6115, Washington, D.C. 20590				13. Type of Report and Period Covered Final Test Report October 1998	
				14. Sponsoring Agency Code NEF-30	
15. Supplementary Notes					
16. Abstract Compliance tests were conducted on the subject 1999 Dodge Avenger 2-Door Coupe 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. The test vehicle appeared to comply with all requirements of FMVSS 301 "Fuel System Integrity."					
17. Key Words Compliance Testing Safety Engineering FMVSS 301			18. Distribution Statement <u>Copies of this report are available from:</u> NHTSA Technical Reference Division Room 5108 (NAD-52), 400 Seventh , S.W., Washington, D.C. 20590 Telephone No. (202) 366-4946		
19. Security Classif. (of this report) UNCLASSIFIED		20. Security Classif. (of this page) UNCLASSIFIED		21. No. of Pages 86	
				22. Price	

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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 Calspan Corporation under Contract No. DTNH22-95-D-11000. The purpose of this test was to determine if the subject vehicle, a 1999 Dodge Avenger 2-Door Coupe, 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

A 3465 pound 1999 Dodge Avenger 2-Door Coupe was impacted from the rear by a 3961 pound moving barrier at a velocity of 29.6 mph. The test was performed by the Calspan Corporation on October 20, 1998.

One instrumented Part 572 E and 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 (50 pounds) was secured in the vehicle cargo area.

Average longitudinal crush was 15.9 inches. Pre- and post-test photographs of the vehicle can be found in appendix A.

The 15.9 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. The vehicle appeared to comply with all the requirements of FMVSS No. 301 "Fuel System Integrity." Section 3 presents the results of these tests.

The crash event was recorded by one real-time and eight high-speed cameras. Camera locations and other pertinent camera information are found on pages 3-9 and 3-10 of this report.

Table 1

CRASH TEST SUMMARY

Vehicle NHTSA No.: CX0300 Test Mode: 30 mph Rear Barrier
 Test Date: October 20, 1998 Time: 11:30 Temperature : 70 °F
 Vehicle Make/Model/Body Style: 1999 Dodge Avenger 2-Door Coupe
 Vehicle Test Weight: 3465 lbs Impact Velocity: 29.6 mph
 Static Crush: Left Side = 16.3 inches
 Right Side = 15.0 inches
 Centerline = 16.5 inches
 Average Crush: 15.9 inches

TYPE OF FRONT OCCUPANT RESTRAINT SYSTEM INSTALLED IN TEST VEHICLE:

Driver's DSP: Airbag with 3 point belt system
 Right Passenger's DSP: Airbag with 3 point belt system

VISIBLE DUMMY CONTACT POINTS:

Driver: Back of head to headrest
 Passenger: Back of head to headrest

DOOR OPENING DATA:

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

Stoddard Solvent Spillage from Vehicle's Fuel System: None

Remarks: None

Table 2

GENERAL TEST AND VEHICLE PARAMETER DATATEST VEHICLE INFORMATION:

Year/Make/Model/Body Style: 1999 Dodge Avenger 2-Door Coupe

NHTSA No.: CX0300 ; VIN: 4B3AU42Y3XE009467 ; Color: Green

Engine Data: 4 cylinders; - CID; 2.0 Liters; - cc

Placement: - Longitudinal or In-Line; x Transverse or Lateral

Transmission Data: 4 speeds; - Manual; x Automatic; x Overdrive

Final Drive: - Rear Wheel Drive; x Front Wheel Drive; - Four Wheel Drive

Major Options: x A/C; x Pwr.Strg.; x Pwr. Brakes
x Pwr. Windows; x Pwr. Door Locks; x Tilt Wheel

Date Received: 9/11/98 ; Odometer Reading 87 miles

Selling Dealer: McClurg Chrysler Plymouth Inc.

& Address: 125 N. Center Street Perry, N.Y. 14530

DATA FROM TIRE VEHICLE'S CERTIFICATION LABEL:

Vehicle Manufactured by: Mitsubishi Motor Manufacturing of America , Inc.

Date of Manufacture: 7/98

GVWR: 4045 lbs.; GAWR: 2216 lbs. FRONT; 1896 lbs. REAR

DATA FROM TIRE PLACARD:

Location of Placard on Vehicle: Driver's Door

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

Recommended Tire Size: P205/55R16

* Recommended Cold Tire Pressure: 32 psi FRONT; 29 psi REAR

Size of Tires on Test Vehicle: P205/55R16

Type of Spare Tire: Temp.

Vehicle Capacity Data:

Type of Front Seats:	<u>-</u> Bench;	<u>x</u> Bucket;	<u>-</u> Split Bench
Number of Occupants:	<u>2</u> Front;	<u>3</u> Rear;	<u>5</u> Total
Vehicle Capacity Weight (VCW) =	<u>827</u> lbs.		
No. of Occupants x 150 lbs. =	<u>750</u> lbs.		
Rated Cargo/Luggage Weight (RCLW) =	<u>77</u>		

*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>938</u>	lbs.	Right Rear	=	<u>585</u>	lbs.
Left Front	=	<u>962</u>	lbs.	Left Rear	=	<u>587</u>	lbs.
TOTAL FRONT	=	<u>1,900</u>	lbs.	TOTAL REAR	=	<u>1,172</u>	lbs.
TOTAL DELIVERED WEIGHT	=	<u>3,072</u>	lbs.				
% of Total Front of Vehicle Weight	=	<u>62</u>	%	% of Total Rear Weight	=	<u>38</u>	%

CALCULATION OF VEHICLE'S TARGET TEST WEIGHT:

Total Delivered Weight	=	<u>3,072</u>	lbs.
Rated Cargo/Luggage Weight (RCLW)	=	<u>77</u>	lbs.
Weight of 2 p.572 Dummies, 167 & 164 lbs	=	<u>331</u>	lbs.
TARGET TEST WEIGHT	=	<u>3,480</u>	lbs.

WEIGHT OF TEST VEHICLE WITH TWO DUMMIES AND 62 POUNDS OF CARGO WEIGHT:

Right Front	=	<u>1077</u>	lbs.	Right Rear	=	<u>680</u>	lbs.
Left Front	=	<u>1068</u>	lbs.	Left Rear	=	<u>640</u>	lbs.
TOTAL FRONT	=	<u>2,145</u>	lbs.	TOTAL REAR	=	<u>1,320</u>	lbs.
TOTAL TEST WEIGHT	=	<u>3,465.0</u>	lbs.				
% of Total Front Weight	=	<u>61.9</u>	%	% of Total Rear Weight	=	<u>38.1</u>	%

* Weight of Ballast Secured in Vehicle Trunk Area = 50 lbs.

Type of Ballast: Lead Shot

Method of Securing Ballast: Secured to vehicle floor

Vehicle Components Removed for Weight Reduction: -

VEHICLE ATTITUDE (all dimension in inches):

AS DELIVERED:	RF	<u>28</u>	LF	<u>27.75</u>	RR	<u>27.8</u>	LR	<u>27.75</u>
AS TESTED:	RF	<u>27</u>	LF	<u>28.9</u>	RR	<u>27.4</u>	LR	<u>27.4</u>
Vehicle's Wheel Base:		<u>103.7</u>	in.					
Location of Vehicle's C.G.:		<u>39.5</u>	inches rearward of front wheel center.					

FUEL SYSTEM DATA:

Fuel System Capacity From Owner's Manual	=	<u>15.9</u>	gallons
Usable Capacity Figure Furnished by COTR	=	<u>16.9</u>	gallons
Test Volume Range (91 to 94% of Usable Capacity)	=	<u>14.5</u>	to <u>14.9</u> gallons
ACTUAL TEST VOLUME	=	<u>14.7</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 on right rear quarter panel aft of axle, fuel lines run along right frame rail and fuel tank is centered fore of rear axle.

Table 3

MOVING BARRIER PARAMETER DATA

WEIGHT 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>2,215</u>	lbs.	TOTAL REAR	=	<u>1,746</u>	lbs.
TOTAL BARRIER WEIGHT	=	<u>3,961</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.	

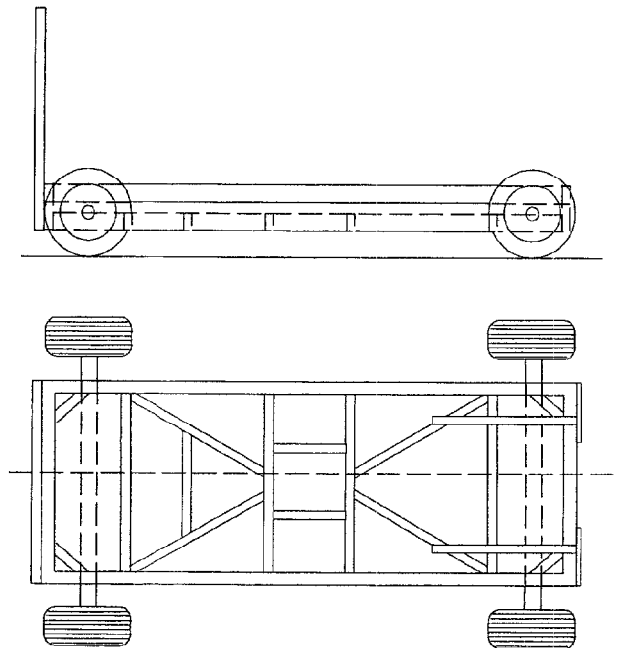


Table 4

POST IMPACT DATATYPE OF TEST:

Type of Test: Rear Barrier Impact Angle: 0°
 Test Date: October 20, 1998 Time: 11:30 Temperature: 70 °F
 Vehicle NHTSA No.: CX0300
 Required Impact Velocity Range: 28.9 to 29.9 mph

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

Trap No. 1 = 29.6 mph; Trap No. 2 = 29.6 mph
 Average Impact Speed = 29.6 mph

VEHICLE STATIC CRUSH: (For frontal and rear impacts only.)

Vehicle Length:

Pre-Test	Right =	<u>184.9</u>	; C/L =	<u>190.75</u>	; Left =	<u>185.0</u>
Post-Test	Right =	<u>169.9</u>	; C/L =	<u>174.25</u>	; Left =	<u>168.7</u>
Crush	Right =	<u>15.0</u>	; C/L =	<u>16.5</u>	; Left =	<u>16.3</u>
AVERAGE	=	<u>15.9</u>	inches			

Section 3

COMPLIANCE TEST DATA

Figure 1

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

DUMMY MEASUREMENT FOR FRONT SEAT PASSENGERS

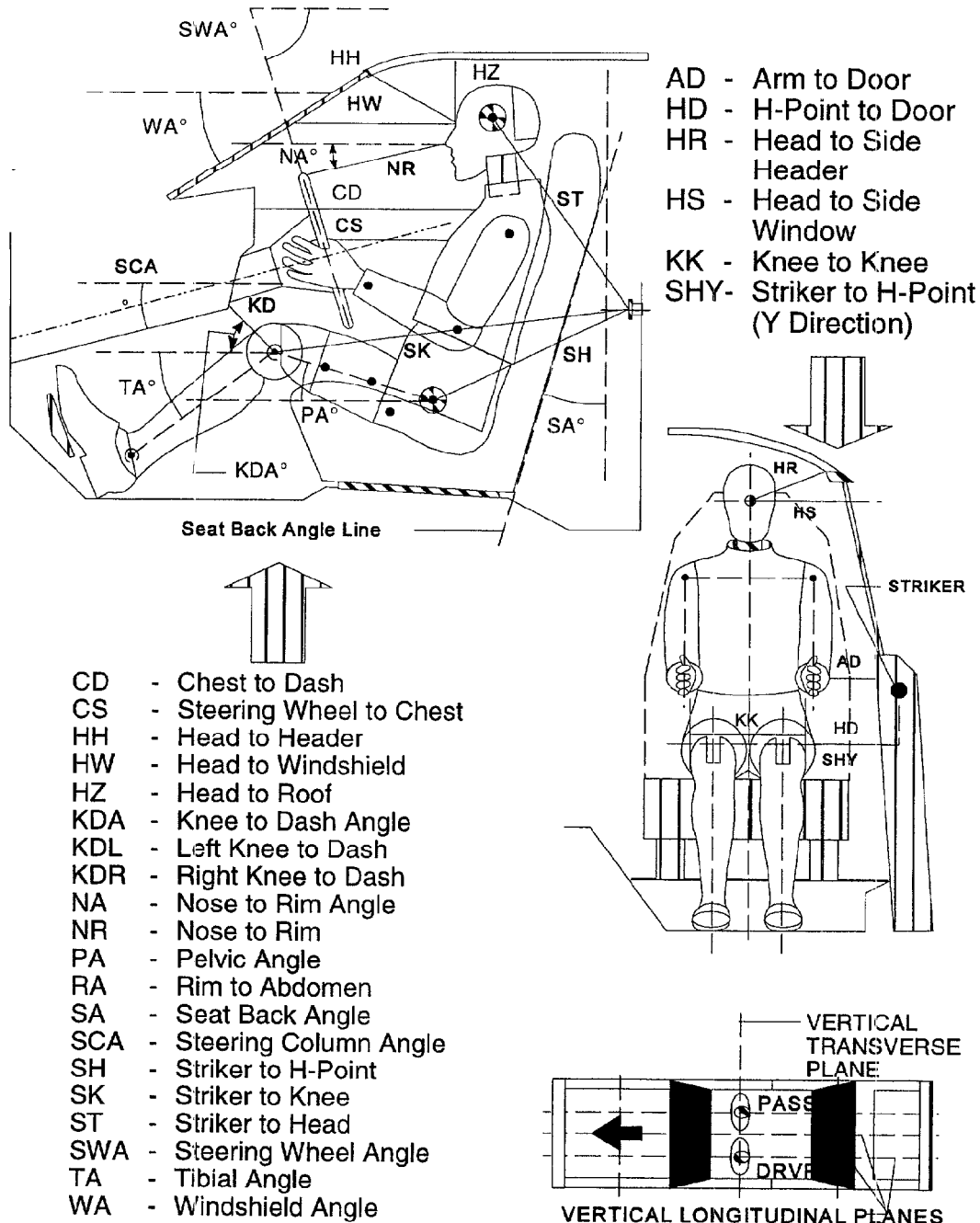


Table 5

FRONT SEAT OCCUPANT MEASUREMENTS
(FOR REAR IMPACT ONLY)

	DRIVER (Serial #150)		
WA°	24 deg.		
SWA°	16.8 deg.		
SCA°	73.2 deg.		
SA°	27 deg.		
HZ	5.75		
HH	12.6		
HW	22.9		
HR	8.9		
NR	14.9	Angle	13 deg.
CD	21.1		
CS	12.2		
RA	8.0		
KDL	6.7	Angle (KDA)	32 deg.
KDR	6.4		
PA°	24 deg.		
TA°	32 deg.		
KK	11.0		
ST	20.2	Angle	49 deg.
SK	32.6	Angle	100 deg.
SH	19.9	Angle	127 deg.
SHY	9.25		
HS	8.9		
HD	6.1		
AD	2.7		

Table 6
FUEL SYSTEM INTEGRITY POST IMPACT TEST DATA

FMVSS NO. 301

TEST VEHICLE NHTSA NO.: CX0300 TEST DATE: October 20, 1998

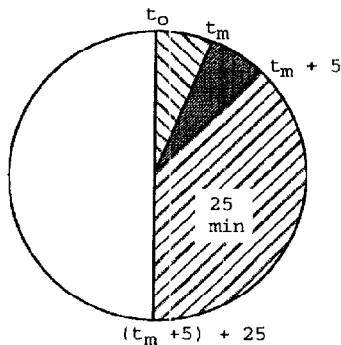
Vehicle Mfgr./Make/Model: 1999 Dodge Avenger 2-Door Coupe

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:



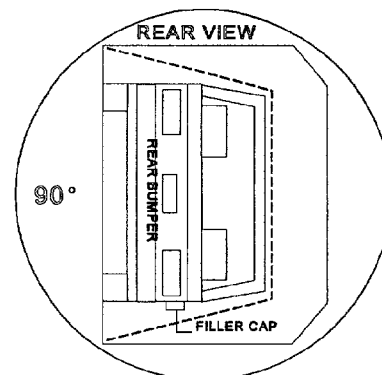
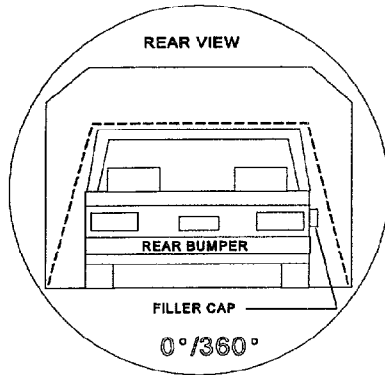
1. From impact until vehicle motion ceases
2. For five minute period after vehicle motion ceases
3. For next 25 minutes

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 SHEETTEST PHASE :0-90 Deg.Vehicle NHTSA ID No. :CX0300I. DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:Rollover Fixture 90° Rotation Time
(Spec. Range = 1 to 3 minutes)1 minutes 9 seconds

FMVSS 301 Position Hold Time +

5 minutes 00 seconds

TOTAL

6 minutes 9 seconds

Next whole minute interval

7 minutesII. FMVSS 301 REQUIREMENTS:

(1) Time Period

First 5 minutes FROM onset of rotation	6th min.	7th min.	8th min. if reqd.
--	----------	----------	----------------------

(2) Maximum Allowable Solvent Spillage

5 ounces	1 ounce	1 ounce	1 ounce
----------	---------	---------	---------

III. ACTUAL TEST VEHICLE SOLVENT SPILLAGE:

0	0	0	n/a
---	---	---	-----

Note: Record spillage for whole minute
intervals only as determined above.IV. SOLVENT SPILLAGE LOCATION(S):

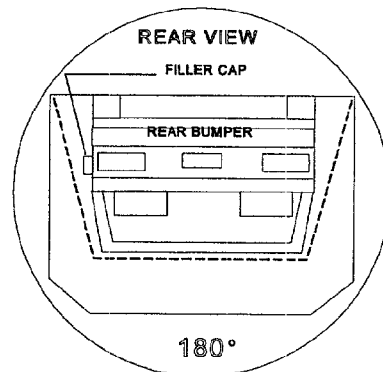
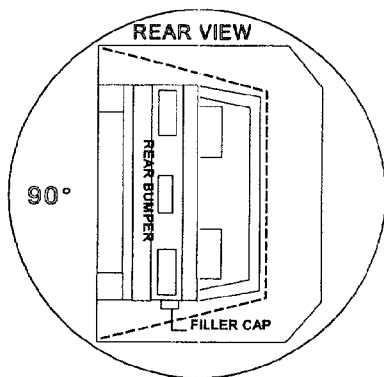
None

Table 7

FMVSS NO. 301 STATIC ROLLOVER DATA SHEET (cont.)

TEST PHASE :
90-180 Deg.

Vehicle NHTSA ID No. :
CX0300

I. DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:

Rollover Fixture 90° Rotation Time
 (Spec. Range = 1 to 3 minutes)

1 minutes 1 seconds

FMVSS 301 Position Hold Time +

5 minutes 00 seconds

TOTAL

6 minutes 1 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 reqd.
--	----------	----------	----------------------

(2) Maximum Allowable Solvent Spillage

5 ounces	1 ounce	1 ounce	1 ounce
----------	---------	---------	---------

III. ACTUAL TEST VEHICLE SOLVENT SPILLAGE:

0	0	0	n/a
---	---	---	-----

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

IV. SOLVENT SPILLAGE LOCATION(S):

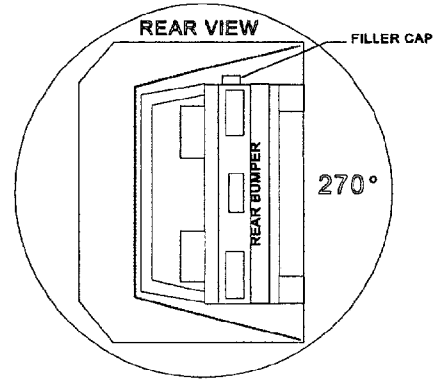
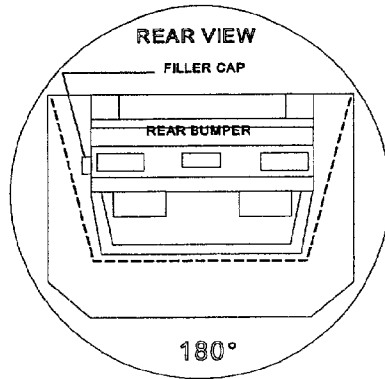
None

Table 7

FMVSS NO. 301 STATIC ROLLOVER DATA SHEET (cont.)

TEST PHASE :
180-270 Deg.

Vehicle NHTSA ID No. :
CX0300

I. DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:

Rollover Fixture 90° Rotation Time 1 minutes 7 seconds
 (Spec. Range = 1 to 3 minutes)

FMVSS 301 Position Hold Time + 5 minutes 00 seconds

TOTAL 6 minutes 7 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 reqd.
--	----------	----------	----------------------

(2) Maximum Allowable Solvent Spillage

5 ounces	1 ounce	1 ounce	1 ounce
----------	---------	---------	---------

III. ACTUAL TEST VEHICLE SOLVENT SPILLAGE:

0	0	0	n/a
---	---	---	-----

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

IV. SOLVENT SPILLAGE LOCATION(S):

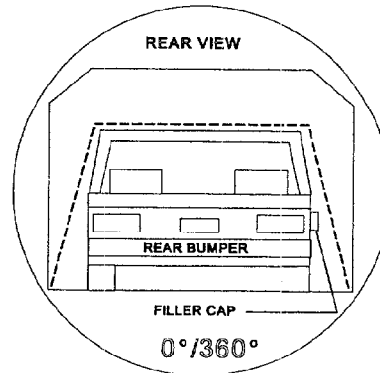
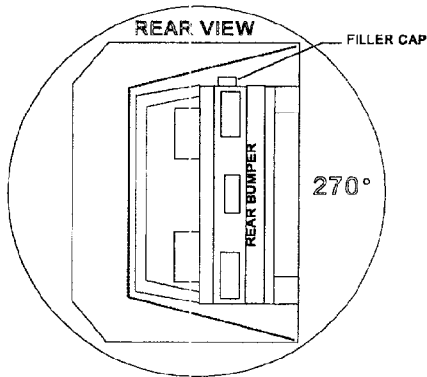
None

Table 7

FMVSS NO. 301 STATIC ROLLOVER DATA SHEET (cont.)

TEST PHASE :
270-360 Deg.

Vehicle NHTSA ID No. :
CX0300

I. DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:

Rollover Fixture 90° Rotation Time 1 minutes 11 seconds
(Spec. Range = 1 to 3 minutes)

FMVSS 301 Position Hold Time + 5 minutes 00 seconds

TOTAL 6 minutes 11 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 reqd.
--	----------	----------	----------------------

(2) Maximum Allowable Solvent Spillage

5 ounces	1 ounce	1 ounce	1 ounce
----------	---------	---------	---------

III. ACTUAL TEST VEHICLE SOLVENT SPILLAGE:

0	0	0	n/a
---	---	---	-----

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

IV. SOLVENT SPILLAGE LOCATION(S):

None

Figure 2

CAMERA POSITIONS FOR REAR IMPACTS

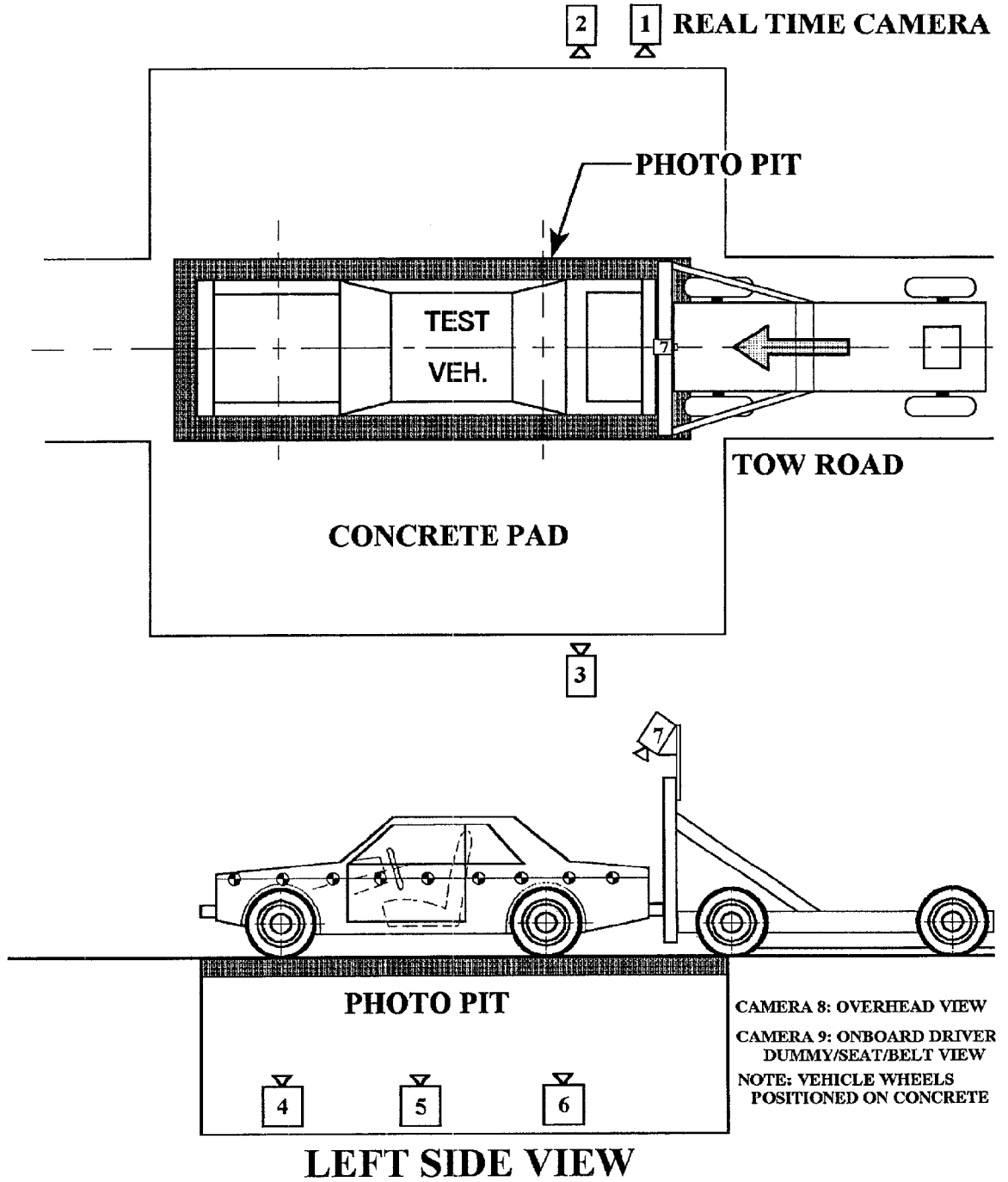


Table 8

HIGH-SPEED CAMERA LOCATIONSNHTSA No. : CX0300 Vehicle : 1999 Dodge Avenger 2-Door Coupe

CAMERA NO.	VIEW	CAMERA POSITIONS (inches)*			ANGLE** (degrees)	LENS (mm)	SPEED (fps)
		X	Y	Z			
1	Real-Time Camera	-	-	-	-	-	24
2	Right Side View	513.5	65.9	42.4	-1	25	490
3	Left Side View	519.5	61.0	48.0	2	25	520
4	Vehicle Front Underbody View	0	136.1	-77	90	13	580
5	Vehicle Mid-Section Underbody View	0	75.0	-77	90	13	580
6	Vehicle Rear Underbody View	0	43.0	-77	90	13	620
7	Moving Barrier View	0	0	99	-105	7.5	500
8	Overhead Overall View	-20	0	386	-90	25	500
9	Onboard Driver Dummy/Seat/Belt View	-	-	-	-	12.5	510

* 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

LIST OF PHOTOGRAPHS

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A-7	PRE-TEST REAR VIEW	A-9
A-8	POST-TEST REAR VIEW	A-10
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A-17	CERTIFICATION PLACARD	A-19
A-18	TIRE PLACARD	A-20
A-19	ROLLOVER 90°	A-21
A-20	ROLLOVER 180°	A-22
A-21	ROLLOVER 270°	A-23
A-22	ROLLOVER 360°	A-24

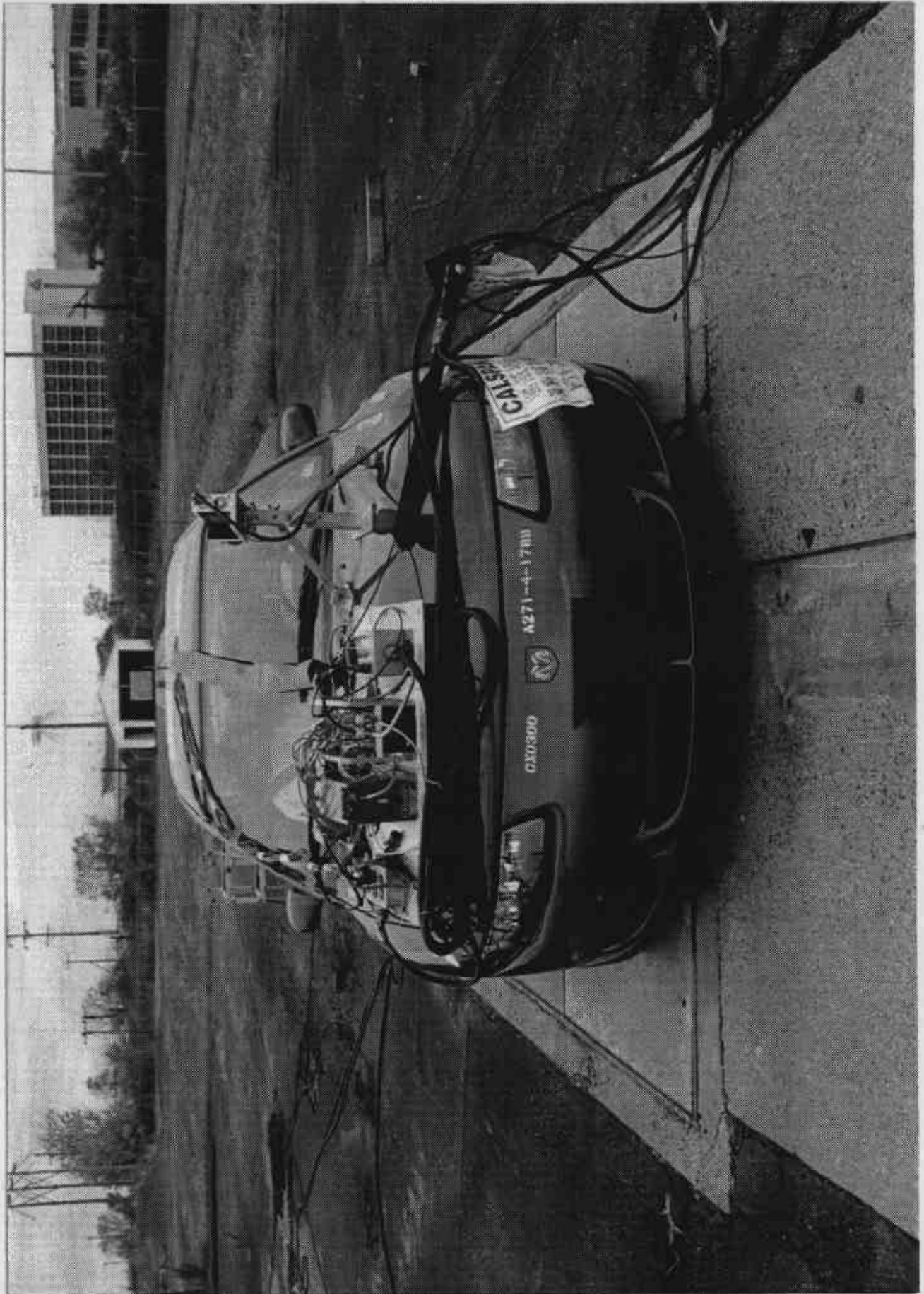


Figure A-1 PRE-TEST FRONT VIEW

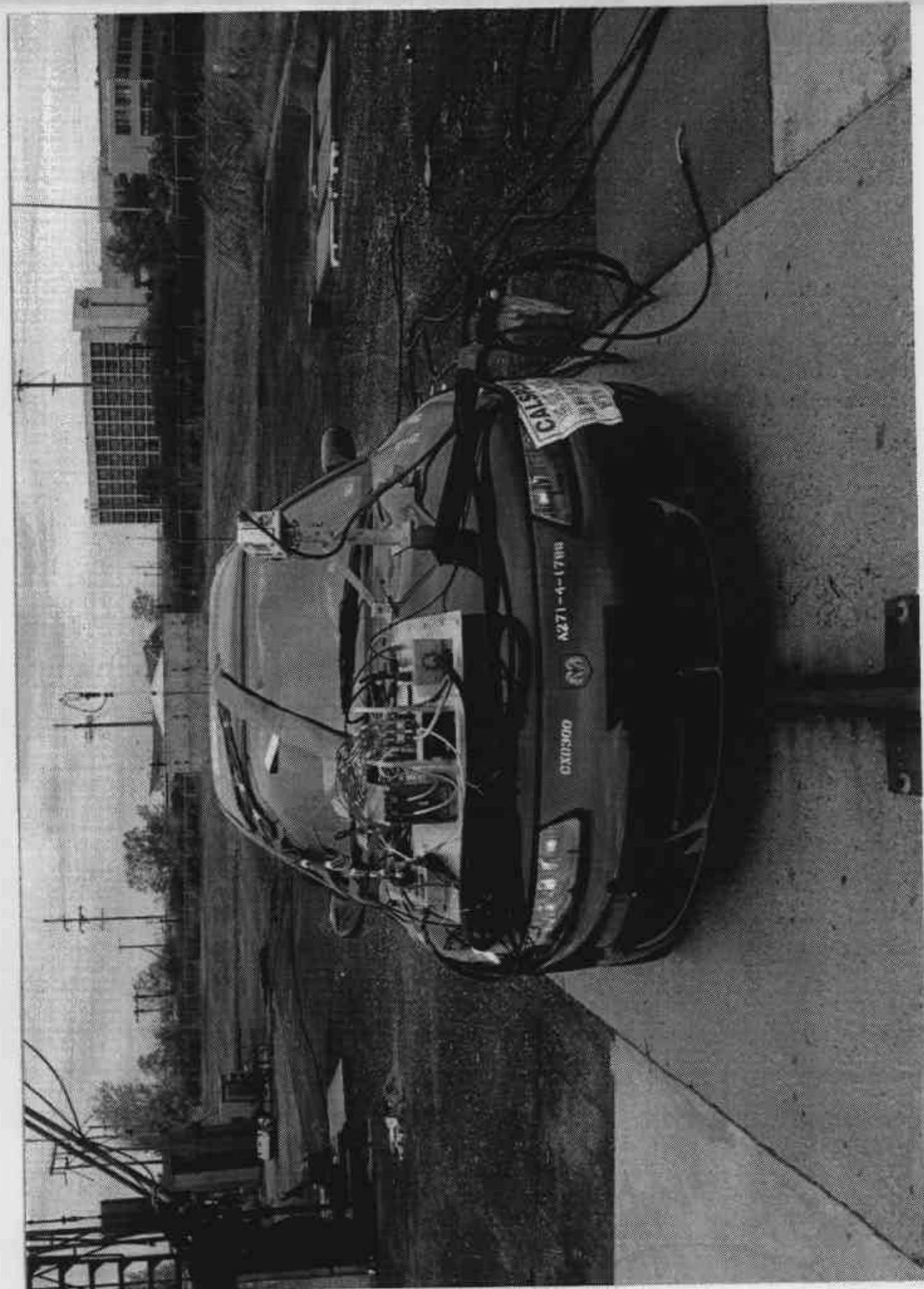


Figure A-2 POST-TEST FRONT VIEW



Figure A-3 PRE-TEST LEFT SIDE VIEW

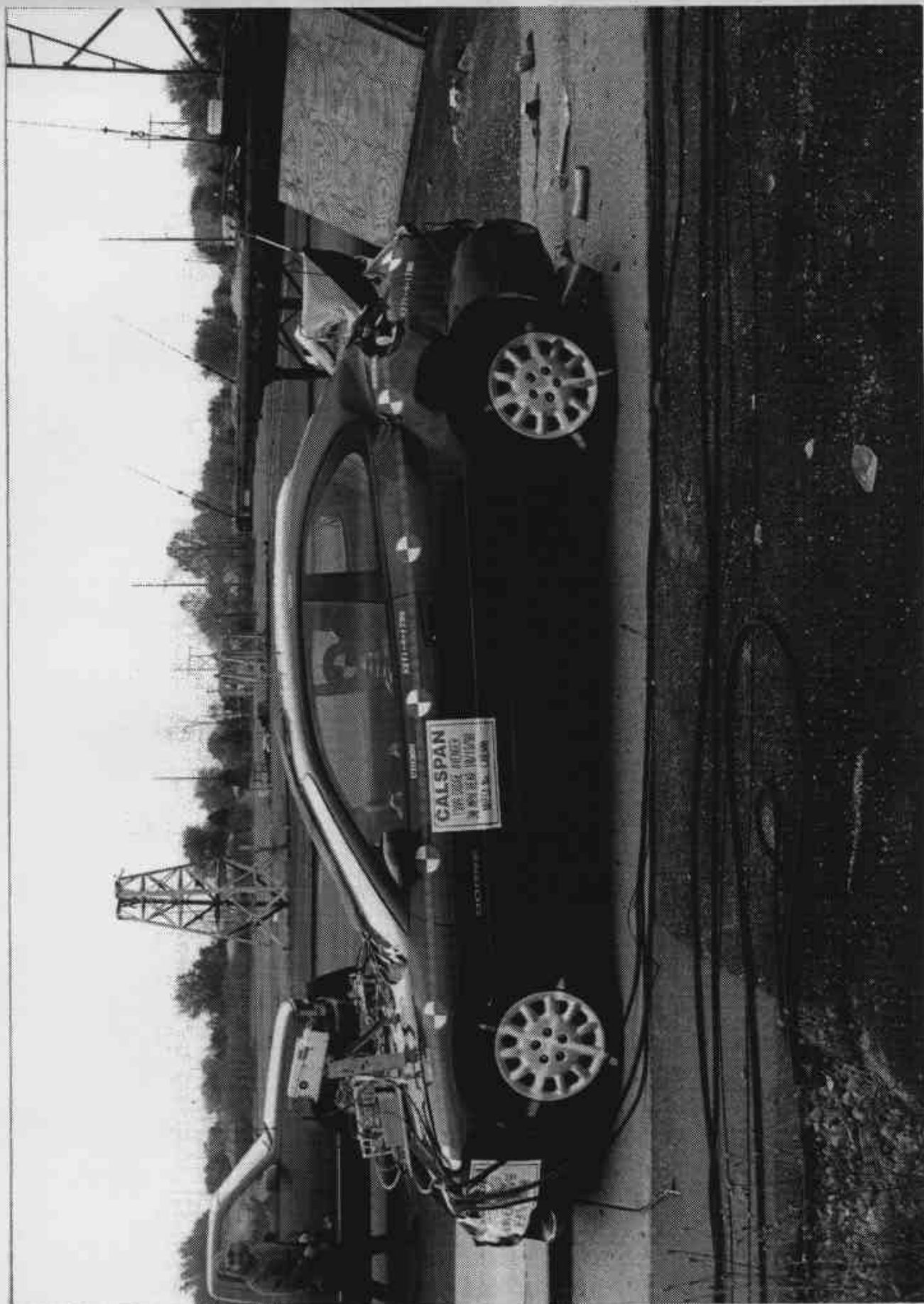


Figure A-4 POST-TEST LEFT SIDE VIEW

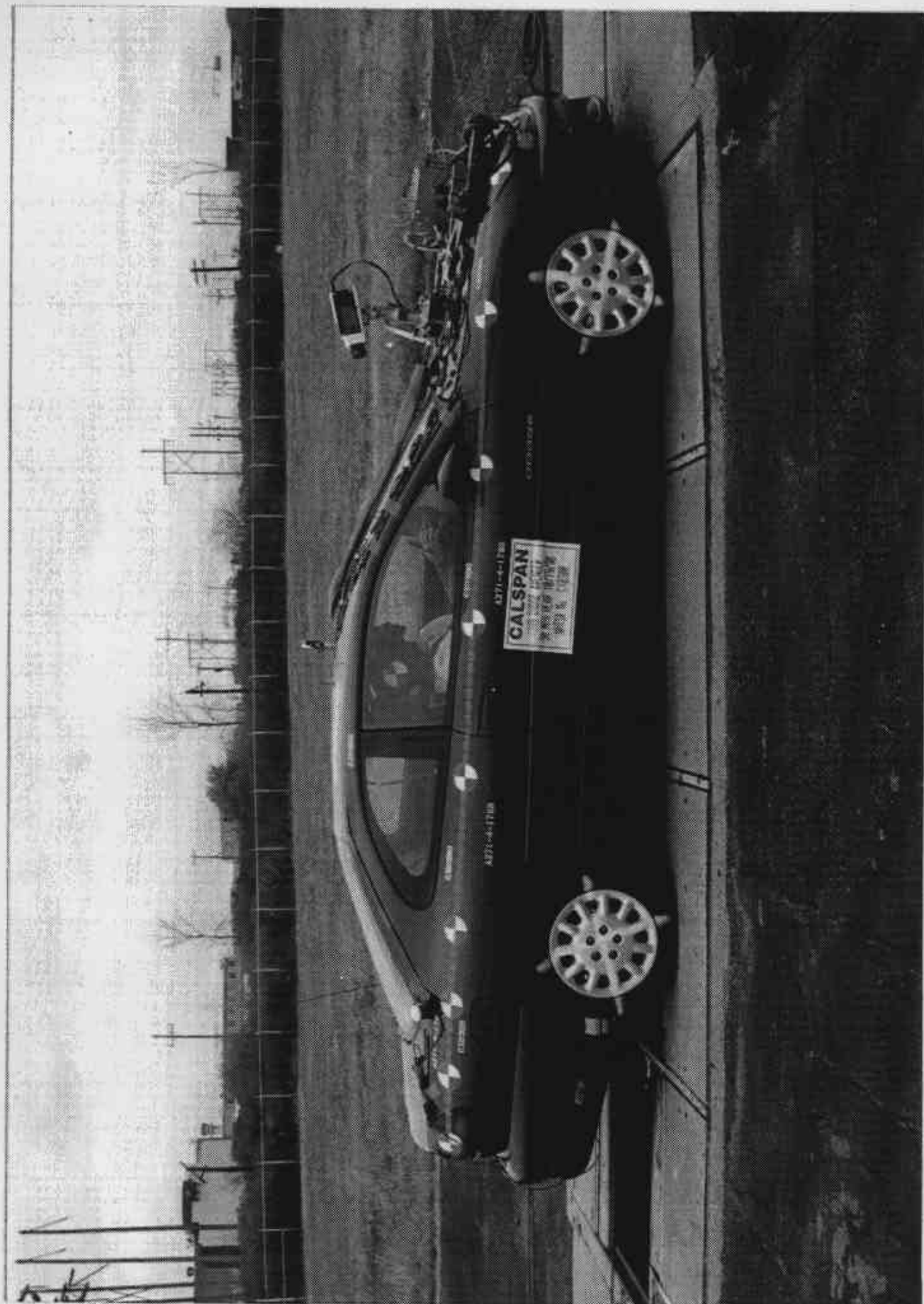


Figure A-5 PRE-TEST RIGHT SIDE VIEW

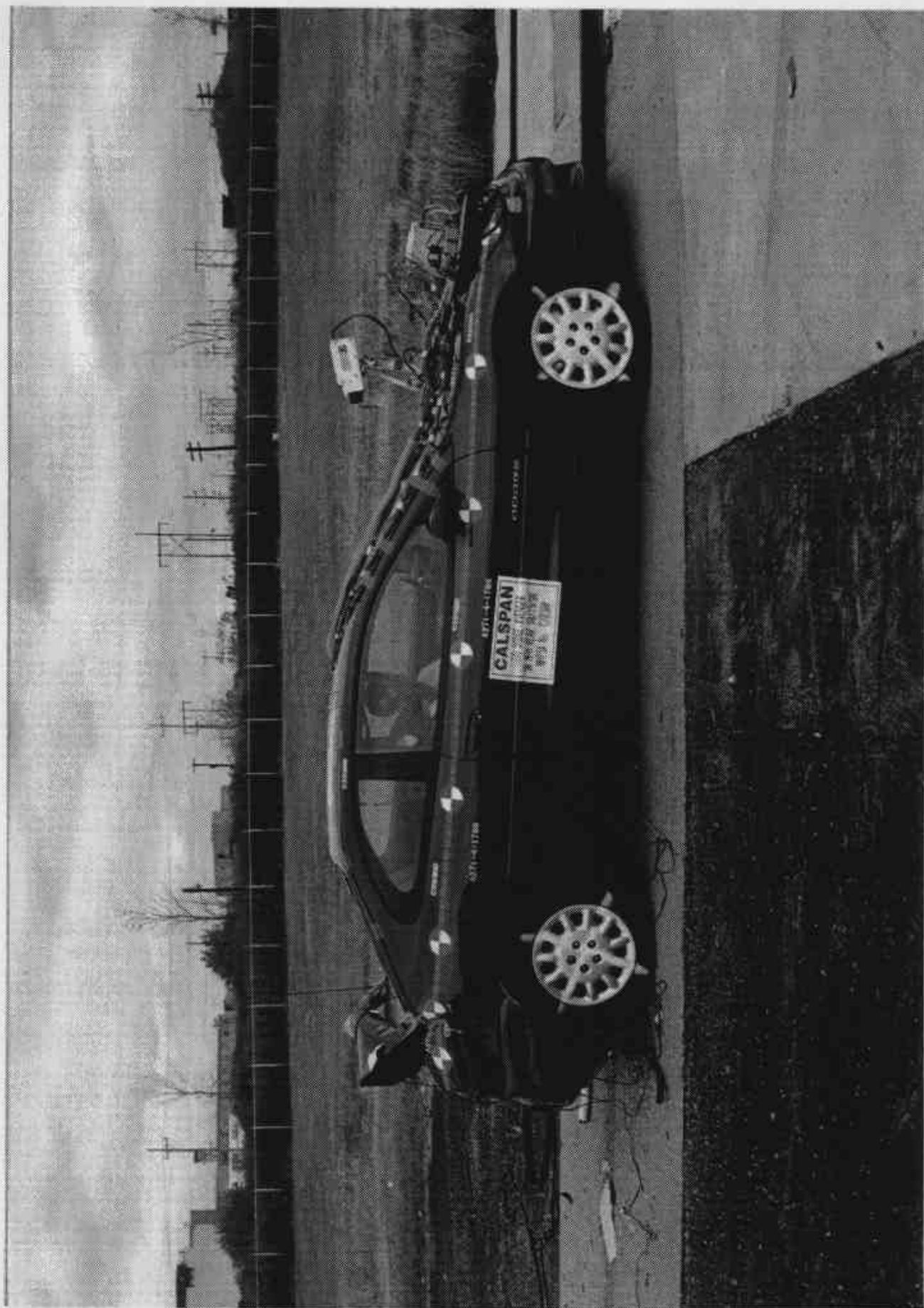


Figure A-6 POST-TEST RIGHT SIDE VIEW

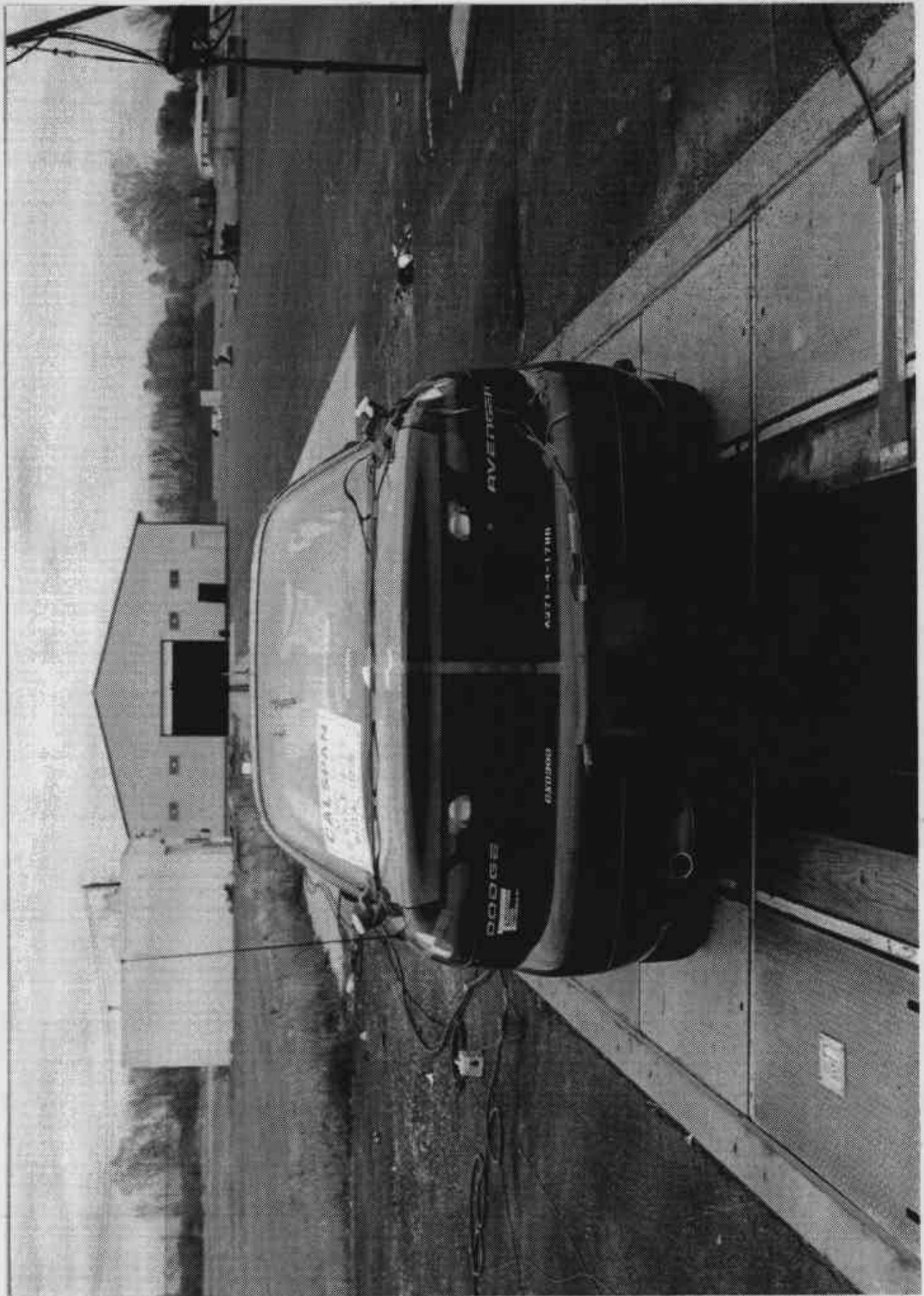


Figure A-7 PRE-TEST REAR VIEW



Figure A-8 POST-TEST REAR VIEW



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



Figure A-10 POST-TEST LEFT FRONT THREE-QUARTER VIEW

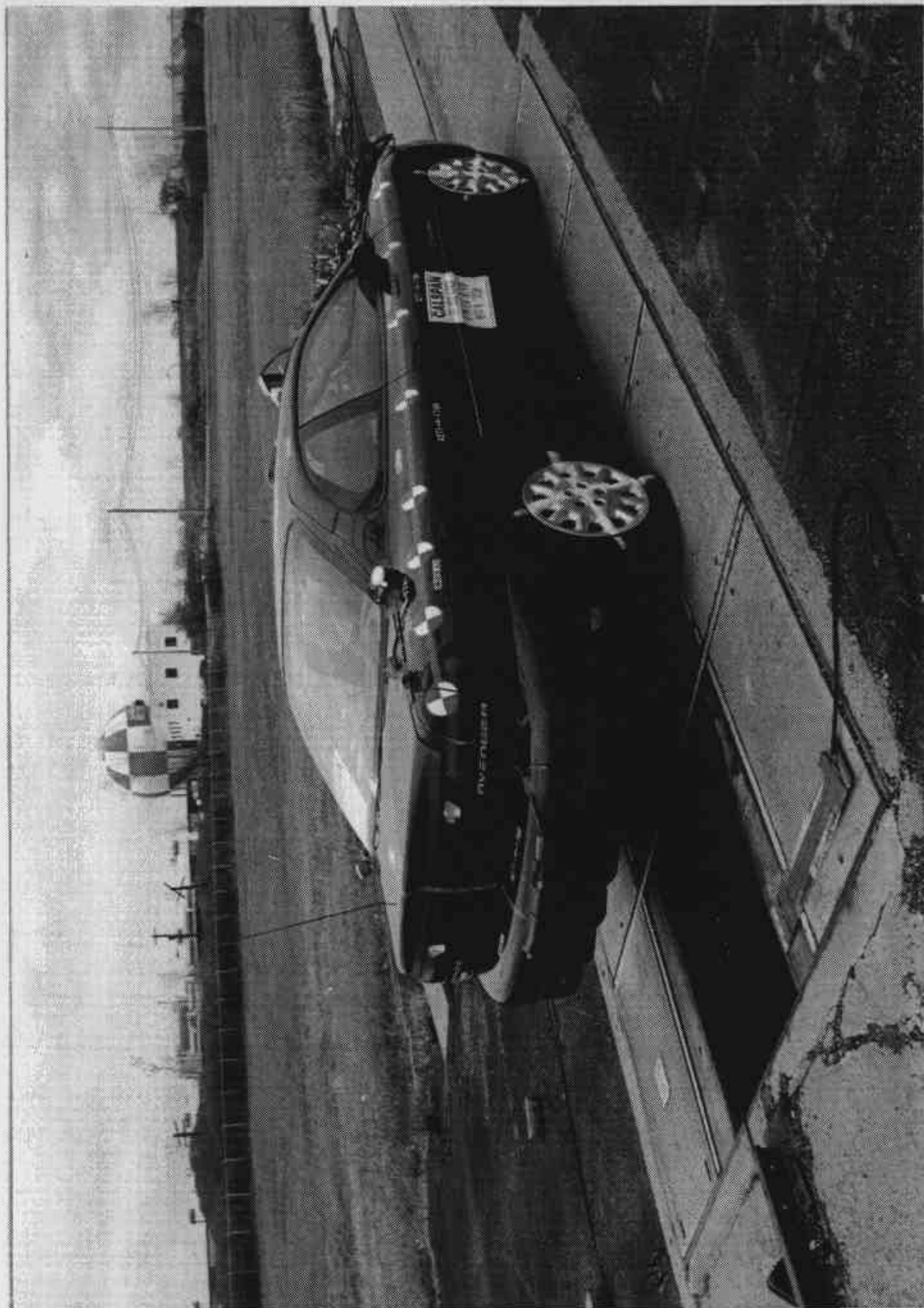


Figure A-11 PRE-TEST RIGHT REAR THREE-QUARTER VIEW

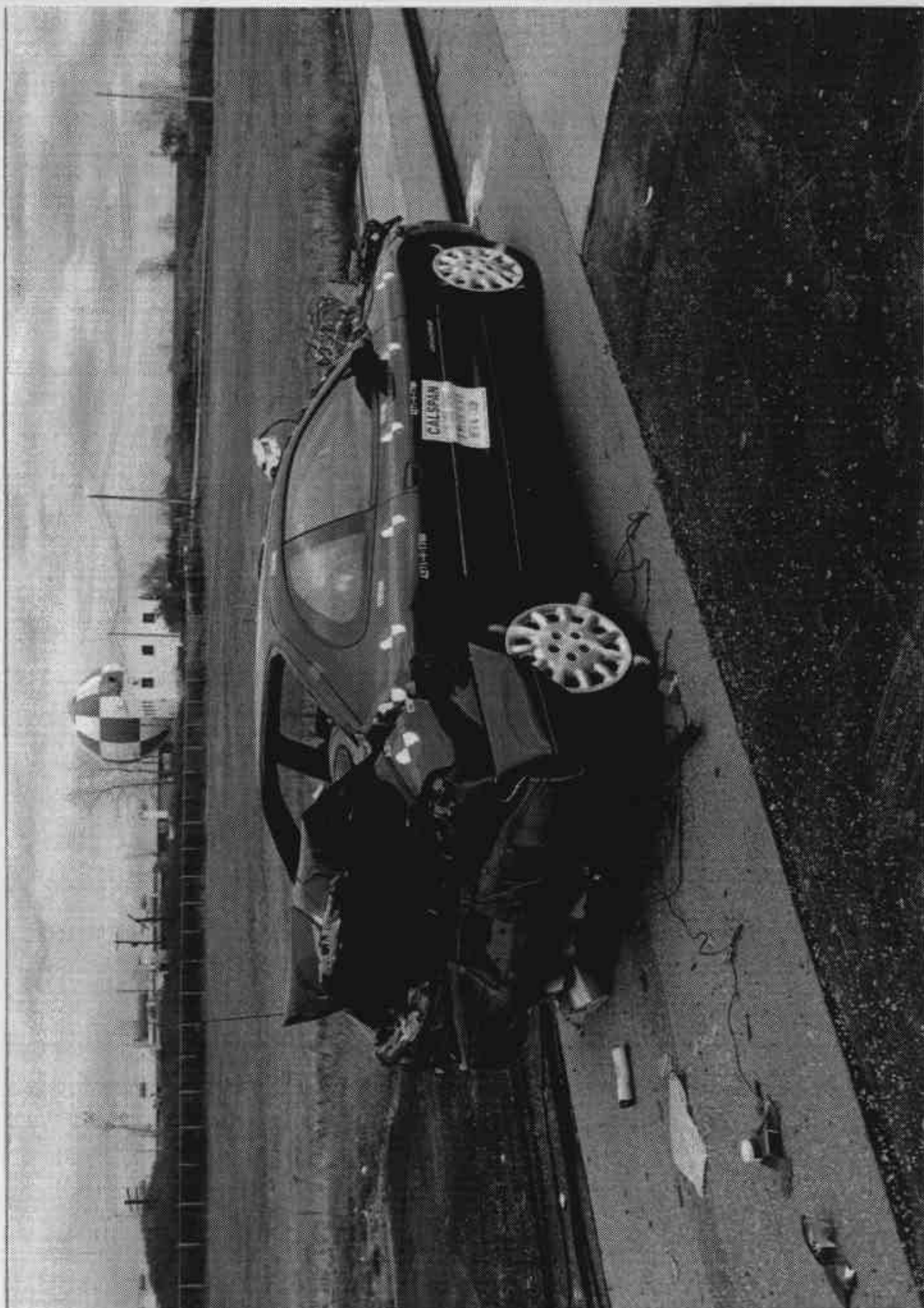


Figure A-12 POST-TEST RIGHT REAR THREE-QUARTER VIEW



Figure A-13 PRE-TEST FRONT UNDERBODY VIEW

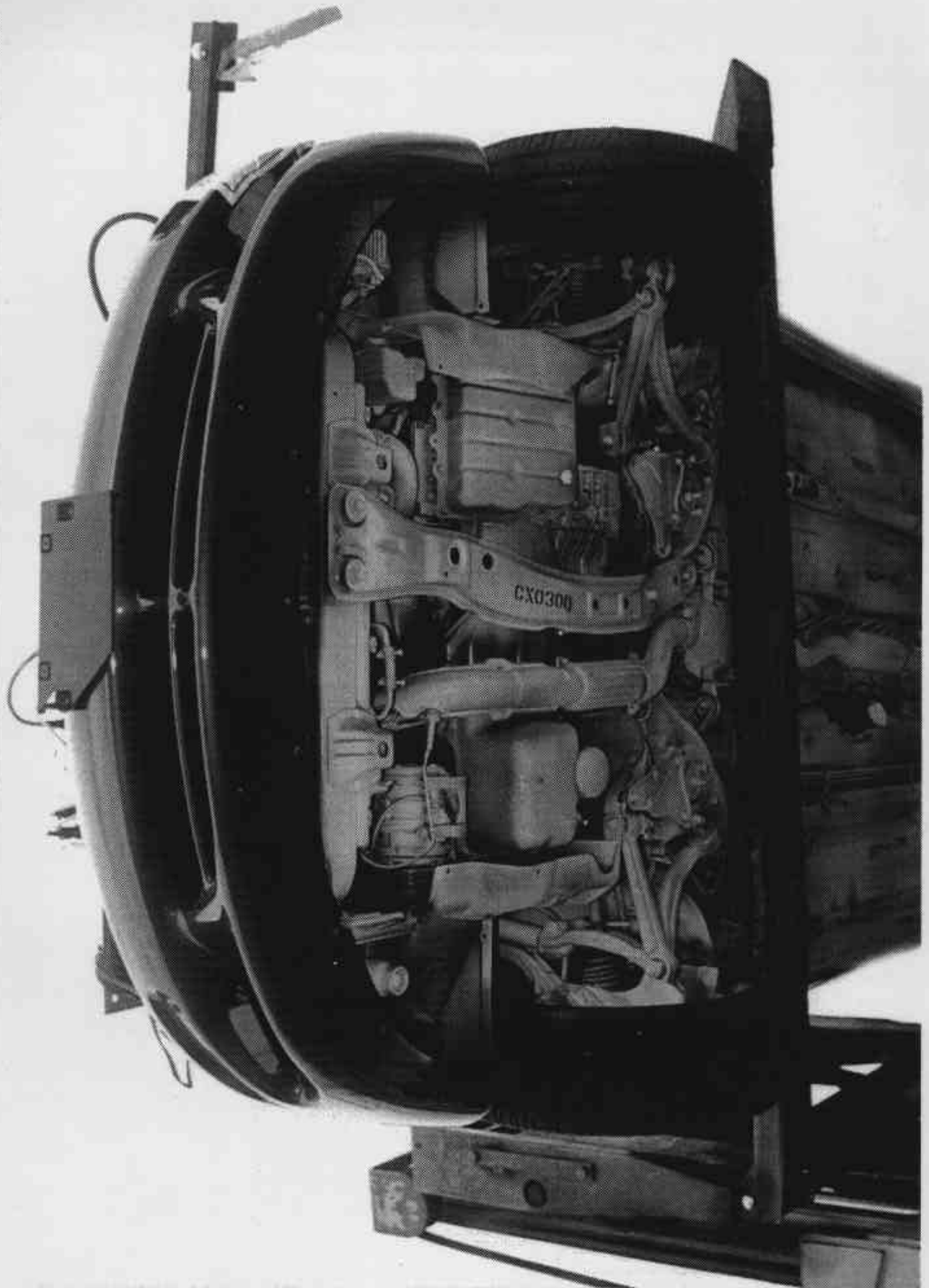


Figure A-14 POST-TEST FRONT UNDERBODY VIEW

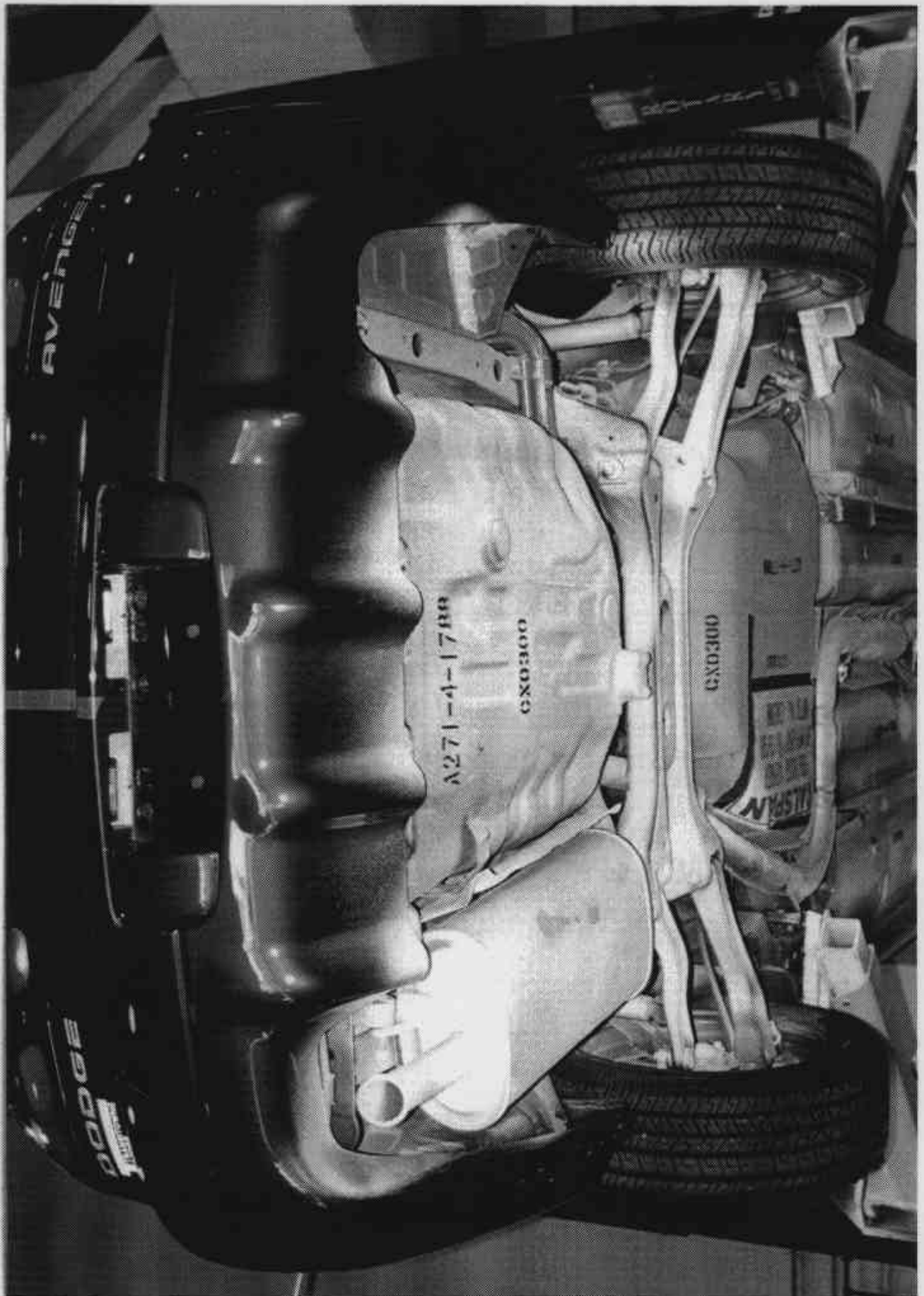
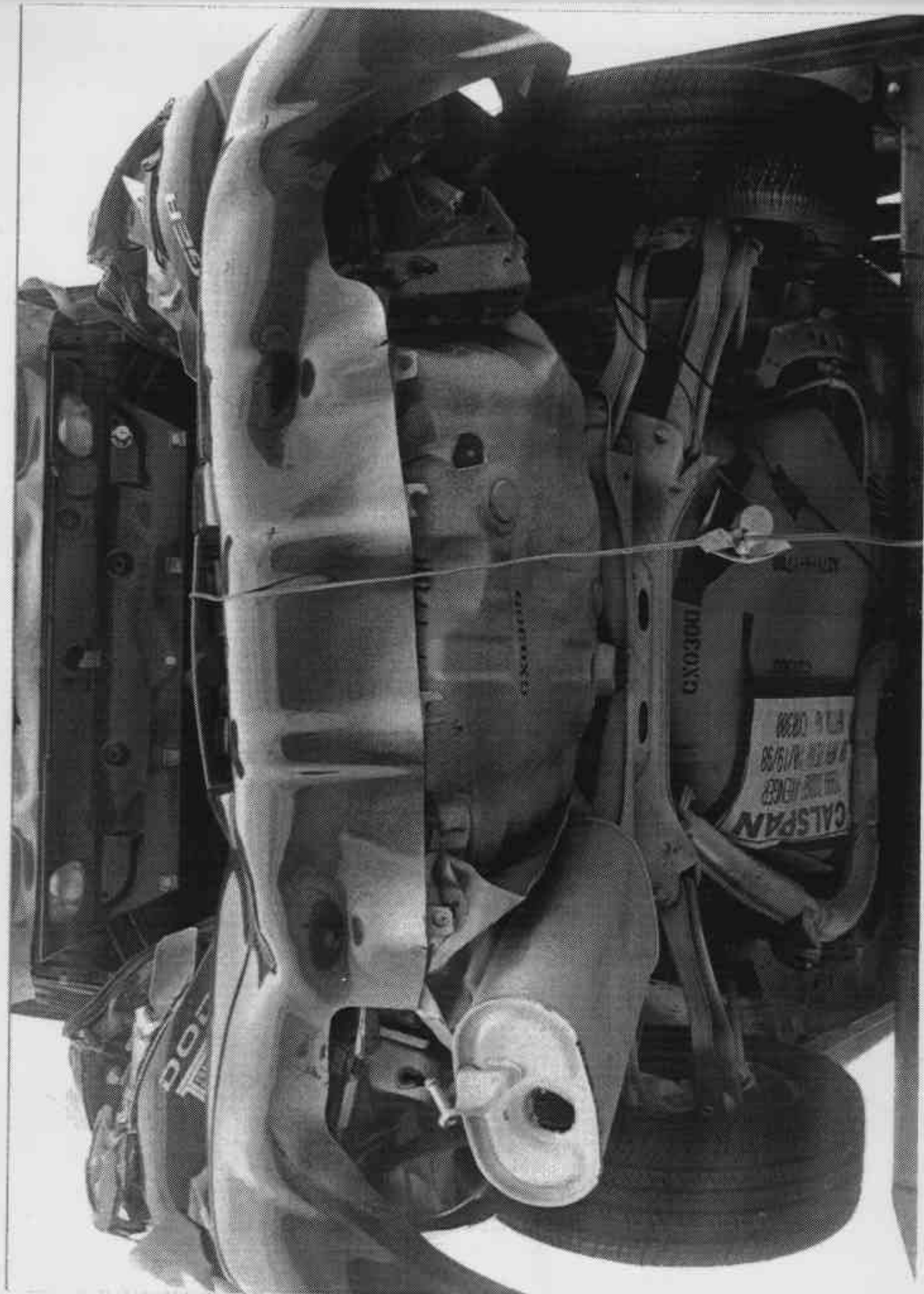


Figure A-15 PRE-TEST REAR UNDERBODY VIEW

Figure A-16 POST-TEST REAR UNDERBODY VIEW



TIRE INFLATION PRESSURE (COLD)

STANDARD INFLATION PRESSURE FOR ALL LOAD

1ST SEAT 2 PASS.

2ND SEAT 3 PASS.

TOTAL 5 PASS.

LUGGAGE 35kg (77 lbs)

TOTAL WEIGHT 375kg (827 lbs)

TIRE SIZE P205/55R16 89H

FRONT

REAR

220kPa

200kPa

(32psi)

(29psi)

TIRE SIZE T125/70D13

TEMPORARY USE ONLY

420kPa

(60psi)

PLATE NO. 4801 00112

Figure A-18 TIRE PLACARD

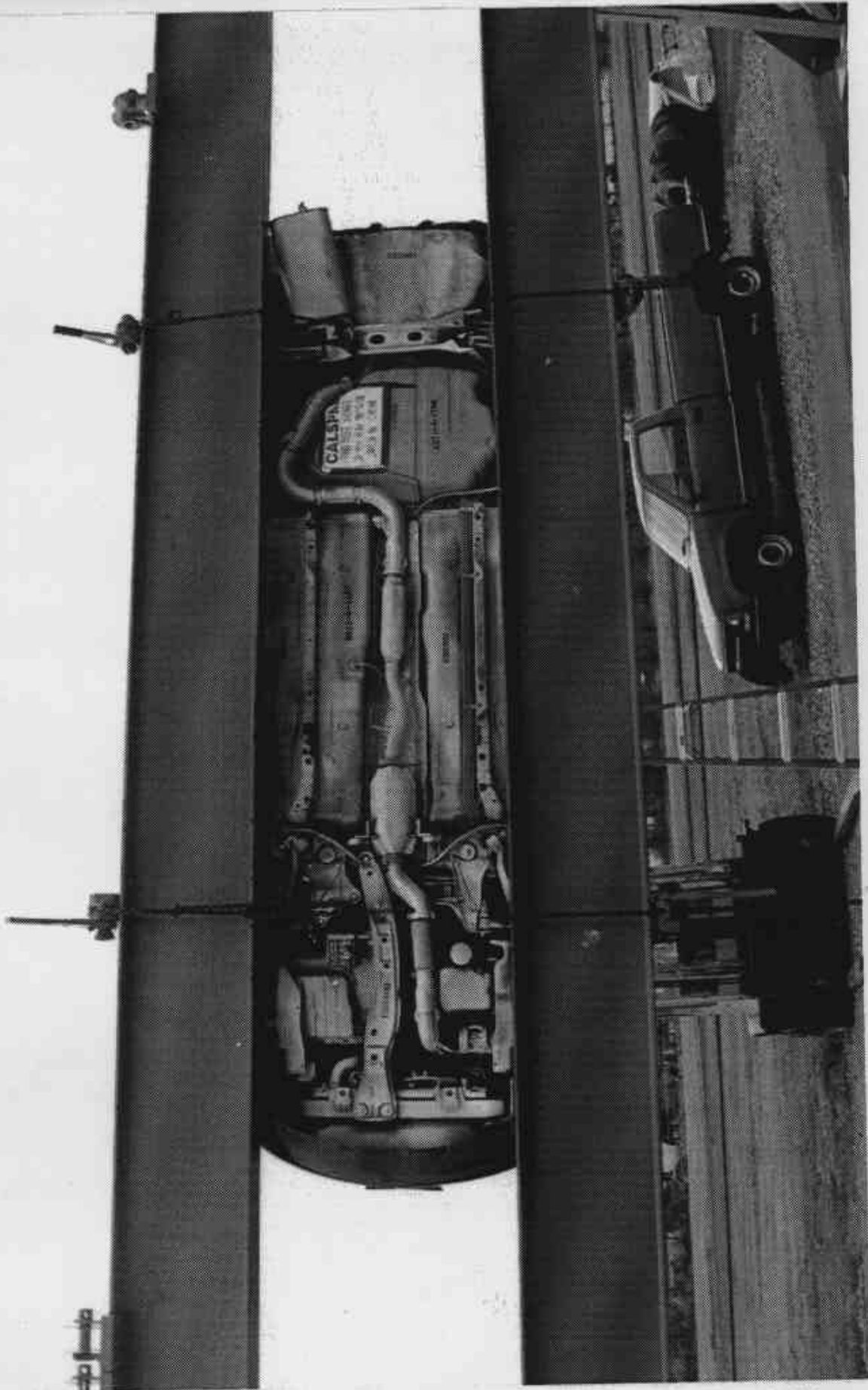


Figure A-19 ROLLOVER 90°



Figure A-20 ROLLOVER 180°



Figure A-21 ROLLOVER 270°



Figure A-22 ROLLOVER 360°

Appendix B

VEHICLE AND DUMMY RESPONSE DATA

(REAR IMPACT ONLY)

301 Rear 30 mph Impact - 1999 Dodge Avenger CX0300

CHN NAME	Max	msec	Min	msec
24 Driver Head X [g, CFC_1000]	27.77	120.60	-24.41	219.70
25 Driver Head Y [g, CFC_1000]	7.64	221.30	-6.11	119.40
26 Driver Head Z [g, CFC_1000]	16.87	104.50	-2.93	222.30
27 Driver Head X [g, CFC_1000] Resultant	30.48	120.60	0.00	-21.80
28 Pl Upper Neck Fx [Lbs, CFC_1000]	68.52	224.30	-129.42	119.20
29 Pl Upper Neck Fy [Lbs, CFC_1000]	41.41	281.30	-45.96	123.90
30 Pl Upper Neck Fz [Lbs, CFC_1000]	207.82	105.30	-27.75	148.80
31 Pl Upper Neck Fx [Lbs, CFC_1000] Resultant	229.90	105.30	0.01	0.20
32 Pl Upper Neck Mx [Lbs, CFC_600]	191.44	226.90	-113.24	274.20
33 Pl Upper Neck My [Lbs, CFC_600]	113.22	58.60	-522.44	146.70
34 Pl Upper Neck Mz [Lbs, CFC_600]	60.79	222.50	-154.71	137.30
35 Pl Upper Neck Mx [Lbs, CFC_600] Resultant	538.94	146.60	0.01	-95.50
36 Driver Chest X [g, CFC_180]	16.01	88.10	-2.27	238.30
37 Driver Chest Y [g, CFC_180]	2.26	254.50	-1.89	117.40
38 Driver Chest Z [g, CFC_180]	5.68	77.90	-5.23	99.50
39 Driver Chest X [g, CFC_180] Resultant	16.27	93.70	0.00	-44.10
40 Pl Chest Displacement [Inches, CFC_600]	0.04	128.60	-0.06	230.30
41 Driver Pelvic X [g, CFC_1000]	18.63	75.40	-2.68	123.50
42 Driver Pelvic Y [g, CFC_1000]	2.83	122.70	-1.91	146.50
43 Driver Pelvic Z [g, CFC_1000]	8.69	77.10	-1.86	99.00
44 Driver Pelvic X [g, CFC_1000] Resultant	20.43	75.50	0.00	-17.40
45 Pl Lap Belt [Lbs, CFC_60]	66.76	153.00	-4.33	38.50
46 Pl Belt Spoolout [Inches, CFC_60]	0.01	8.00	-4.50	111.20
47 Acc #3(X) Upper Seat Back X [g, CFC_60]	30.94	35.60	-7.93	43.30
48 Acc #4(X) Lower Seat Back X [g, CFC_60]	22.88	15.90	-5.04	27.10
49 Seatback Angular Acceleration[degrees/sec^2, 51499.04	32.90	-75432.15	30.30	
50 Seatback Angular Velocity[degrees/sec, CFC_18	175.01	153.30	-337.20	64.30
51 Seatback Angular Position[degrees, CFC_180]	0.00	-86.90	-16.29	103.20
52 Acc #1(X) Left Rear Xmember [g, CFC_60]	21.67	13.90	-2.03	25.40
53 Acc #1(X) Left Rear Xmember [ft/sec, CFC_180	25.47	156.00	-0.01	-52.50
54 Acc #1(X) Left Rear Xmember [inches, CFC_180	161.73	599.90	-0.00	0.10
55 Acc #2(X) Right Rear Xmember [g, CFC_60]	17.04	20.40	-0.66	235.50
56 Acc #2(X) Right Rear Xmember [ft/sec, CFC_180	25.10	158.00	-0.01	-77.40
57 Acc #2(X) Right Rear Xmember [inches, CFC_180	160.17	599.90	-0.00	2.20

301 Rear 30 mph Impact - 1999 Dodge Avenger CX0300

Driver

Hic: 119.4 t1: 98.9 ms t2: 134.9 ms

Clip: 16.0g t1: 91.6 ms t2: 94.6 ms

TEST NO. CX0300

VEHICLE

SAE FILTER CHANNEL CLASS

60

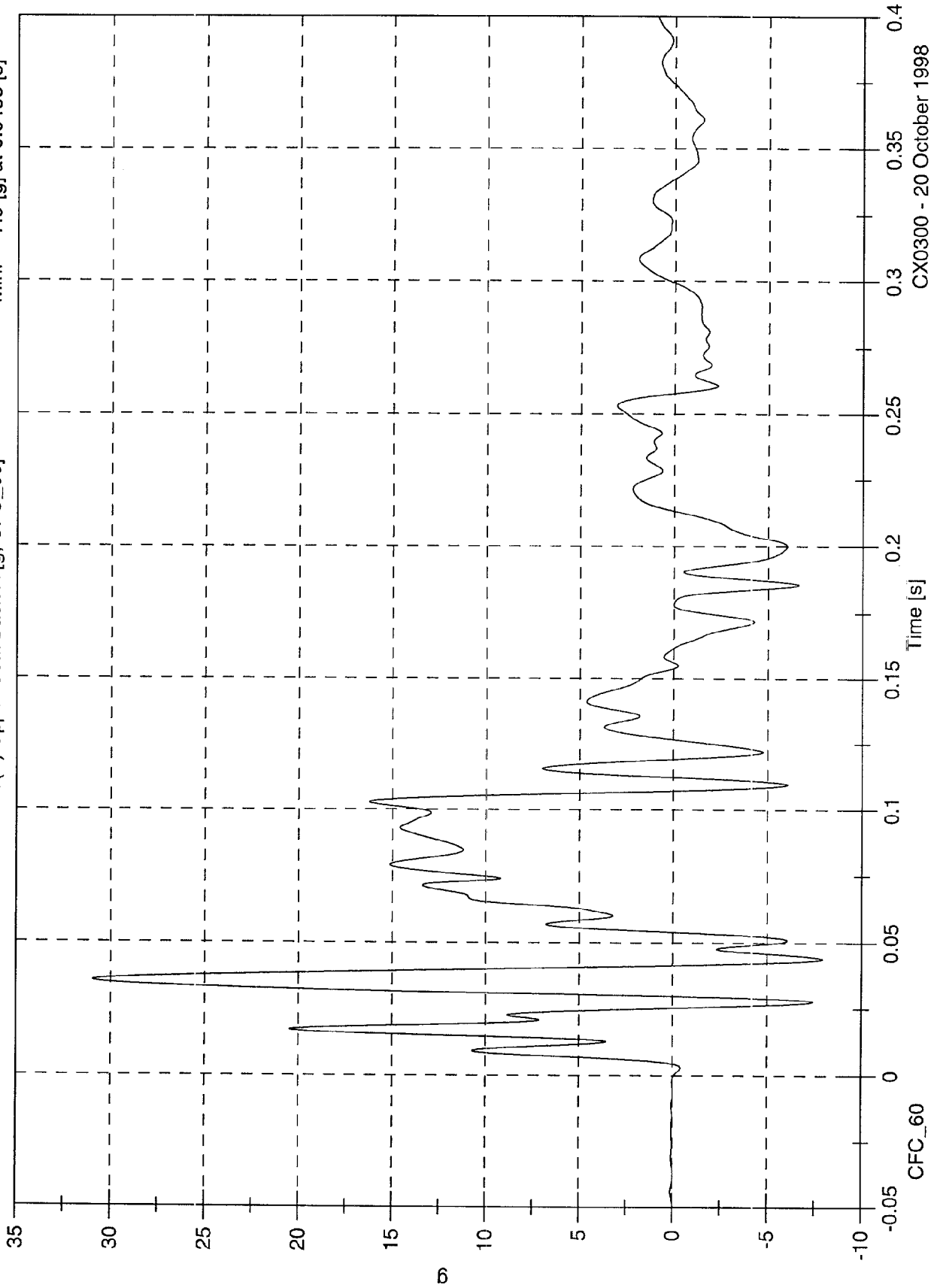
Note: Angular seatback position is measured in degrees of rotation from the initial (design) position.

301 Rear 30 mph Impact - 1999 Dodge Avenger

Acc #3(X) Upper Seat Back X [g, CFC_60]

Max: 30.9 [g] at 0.0356 [s]

Min: -7.9 [g] at 0.0438 [s]

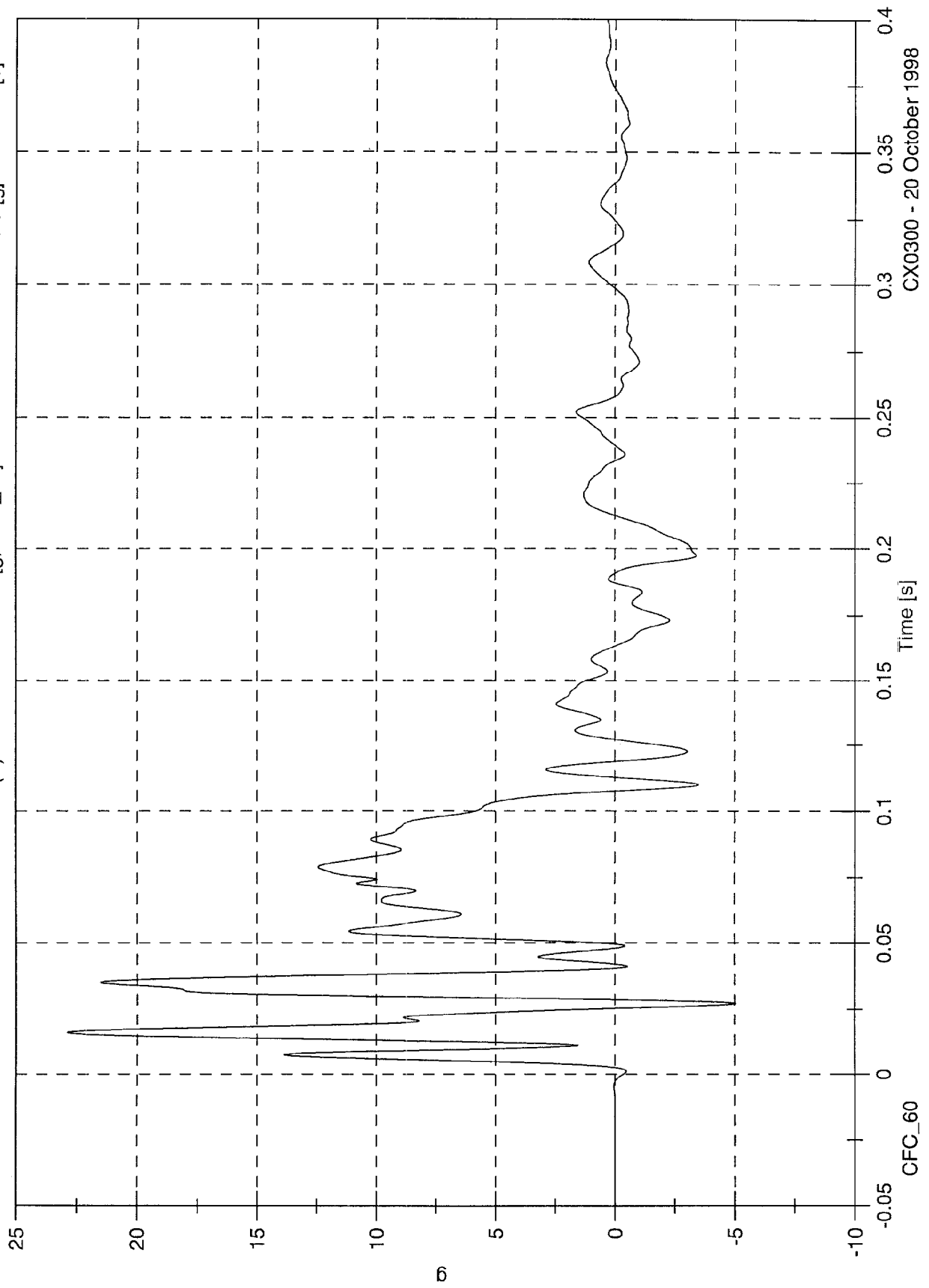


CX0300 - 20 October 1998

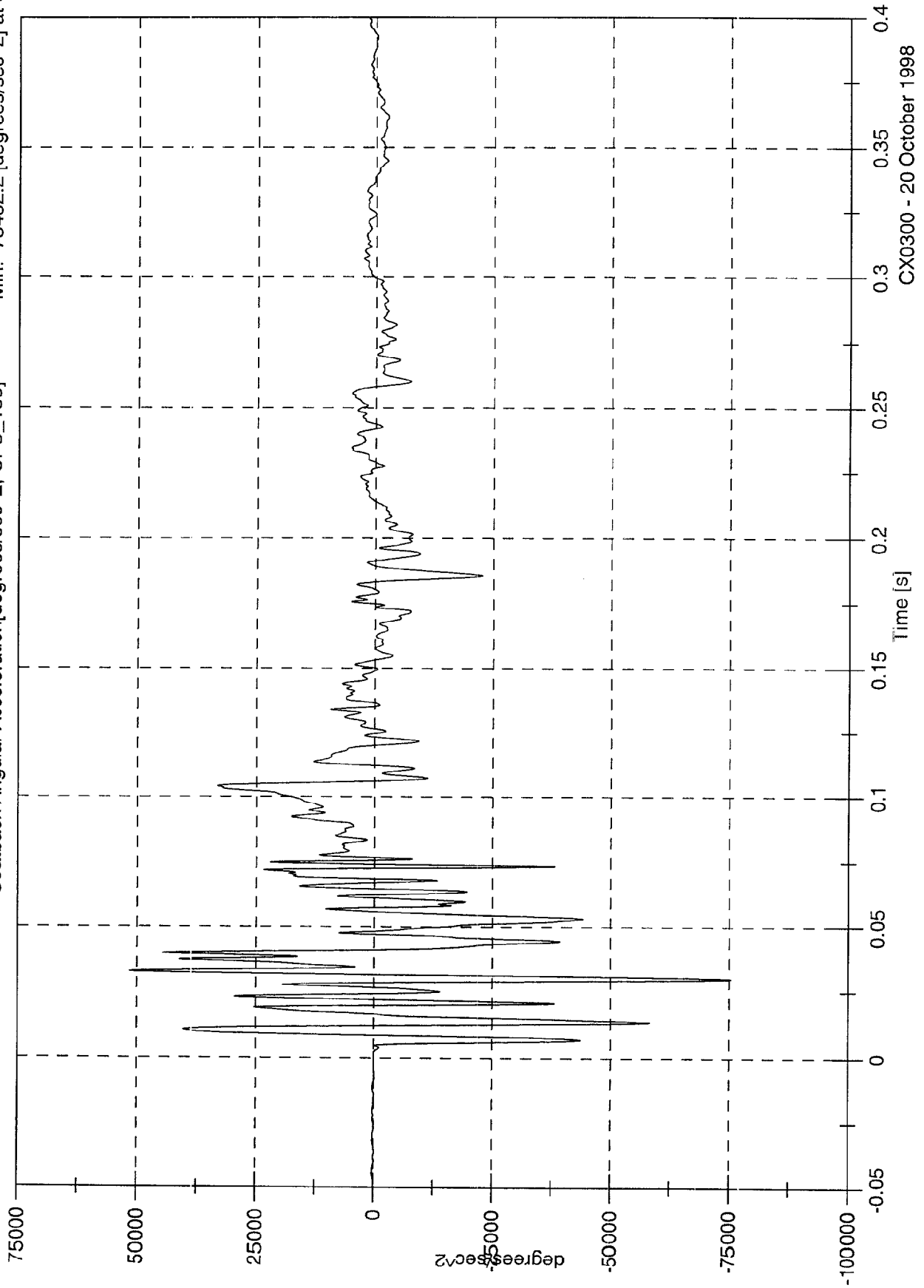
301 Rear 30 mph Impact - 1999 Dodge Avenger

Acc #4(X) Lower Seat Back X [g, CFC_60]

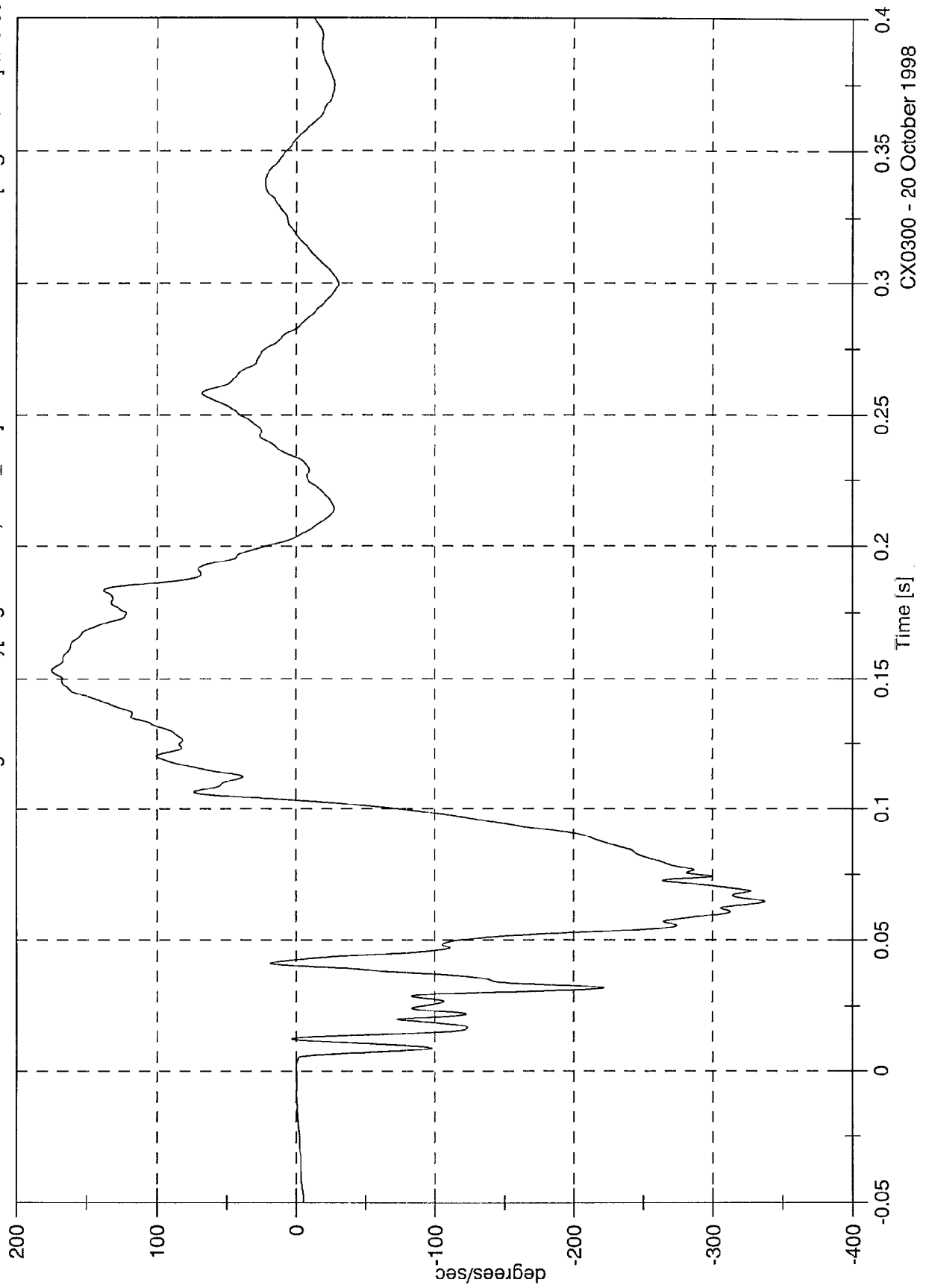
Max: 22.9 [g] at 0.0159 [s]
Min: -5.0 [g] at 0.0271 [s]



301 Rear 30 mph Impact - 1999 Dodge Avenger
Seatback Angular Acceleration[degrees/sec^2, CFC_180] Max: 51499.0 [degrees/sec^2] at 0.0329 [s]
Min: -75432.2 [degrees/sec^2] at 0.0303 [s]



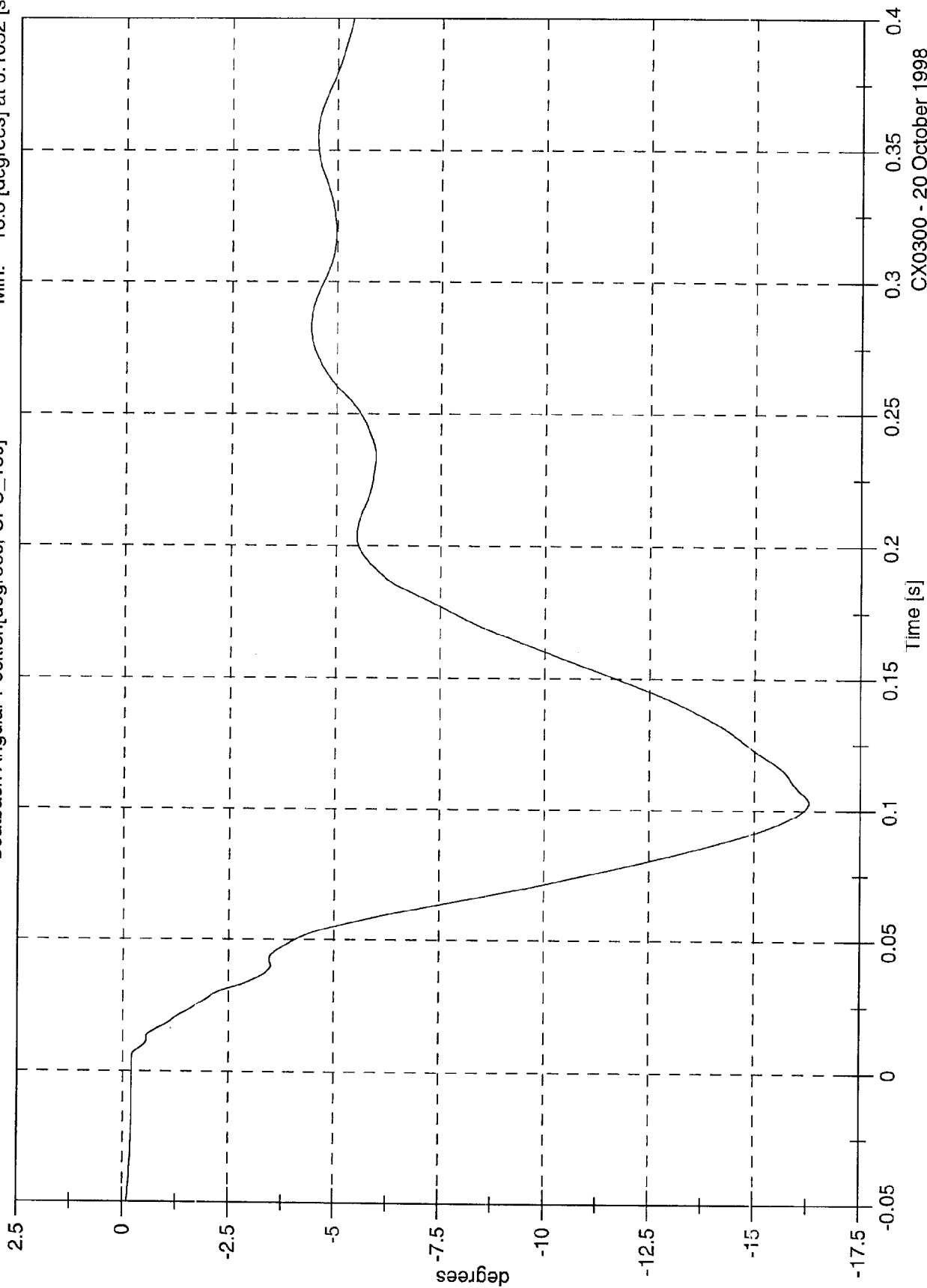
301 Rear 30 mph Impact - 1999 Dodge Avenger
Seatback Angular Velocity[degrees/sec, CFC_180]
Max: 175.0 [degrees/sec] at 0.1533 [s]
Min: -337.2 [degrees/sec] at 0.0648 [s]



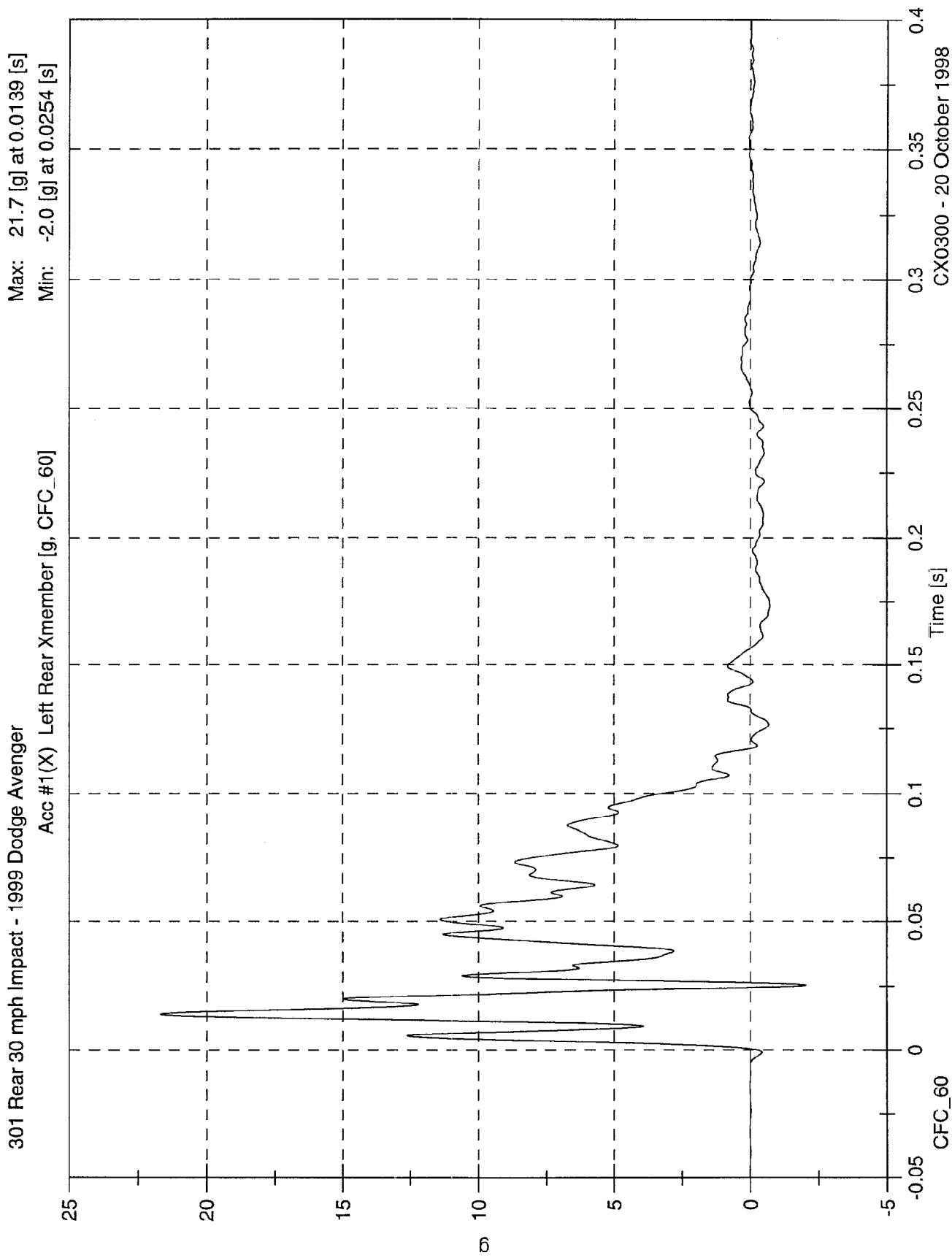
301 Rear 30 mph Impact - 1999 Dodge Avenger

Max: 0.0 [degrees] at -0.0869 [s]
Min: -16.3 [degrees] at 0.1032 [s]

Seatback Angular Position[degrees, CFC_180]



CX0300 - 20 October 1998

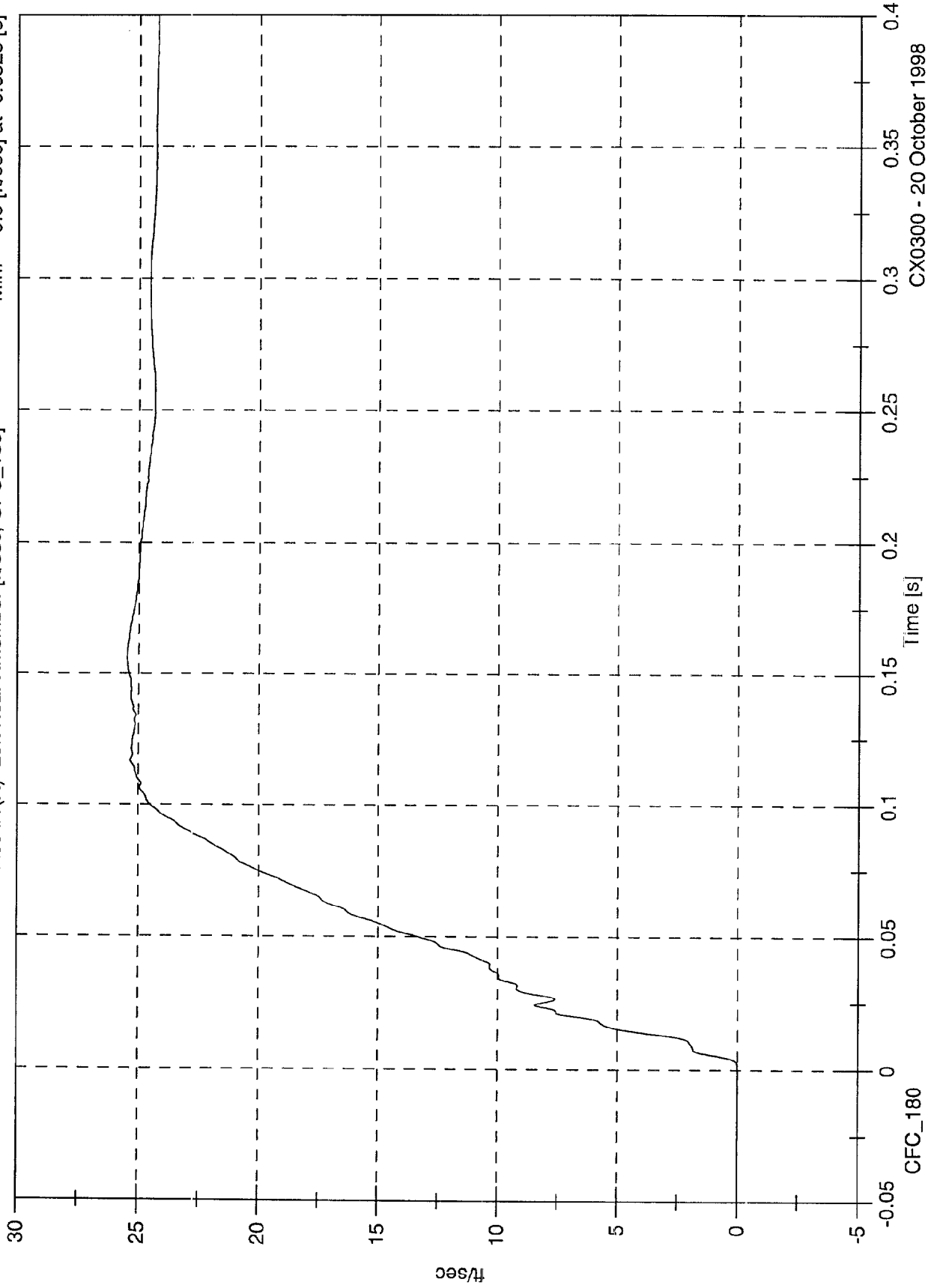


301 Rear 30 mph Impact - 1999 Dodge Avenger

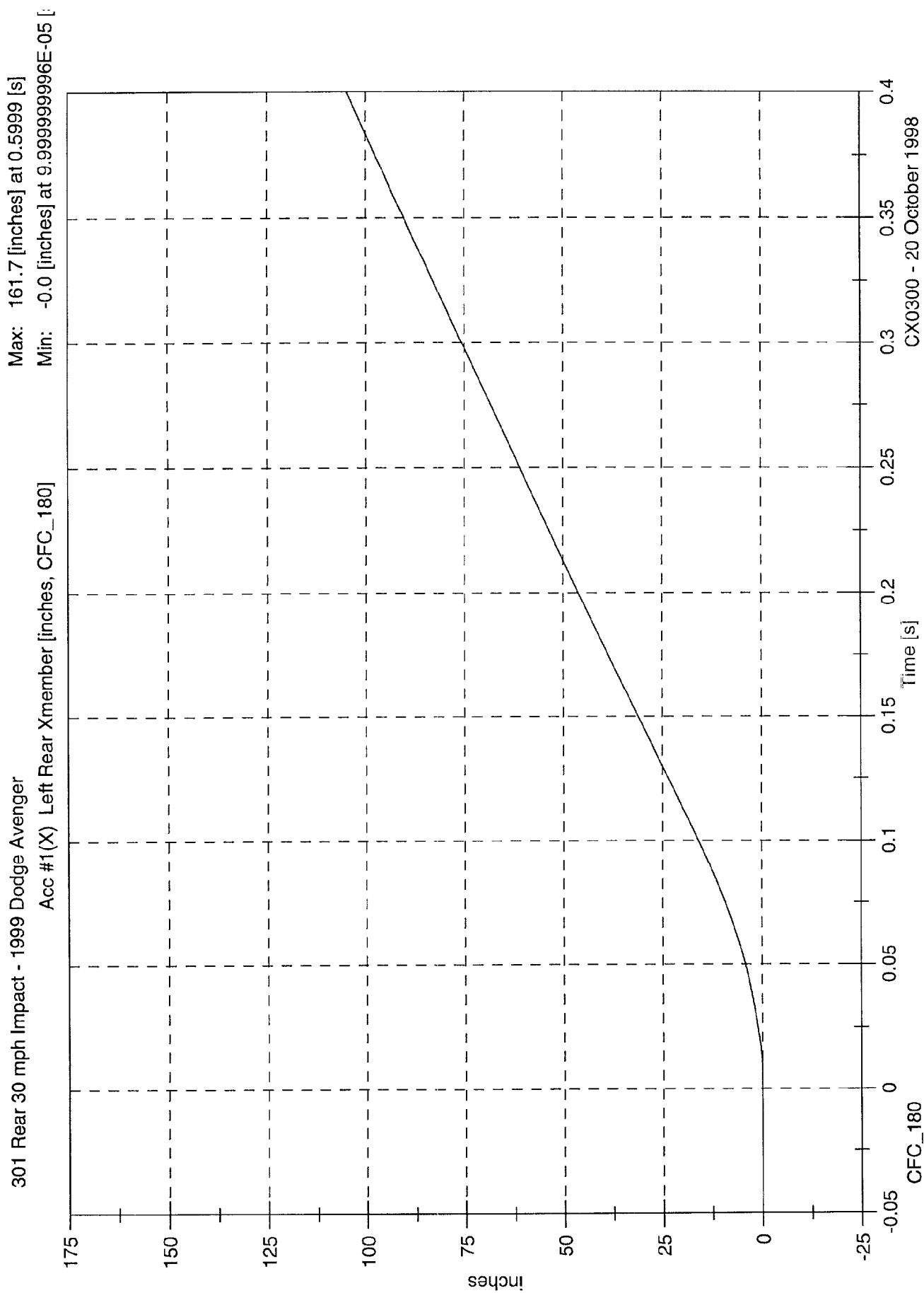
Max: 25.5 [ft/sec] at 0.156 [s]

Min: -0.0 [ft/sec] at -0.0525 [s]

Acc #1(X) Left Rear Xmember [ft/sec, CFC_180]



CX0300 - 20 October 1998

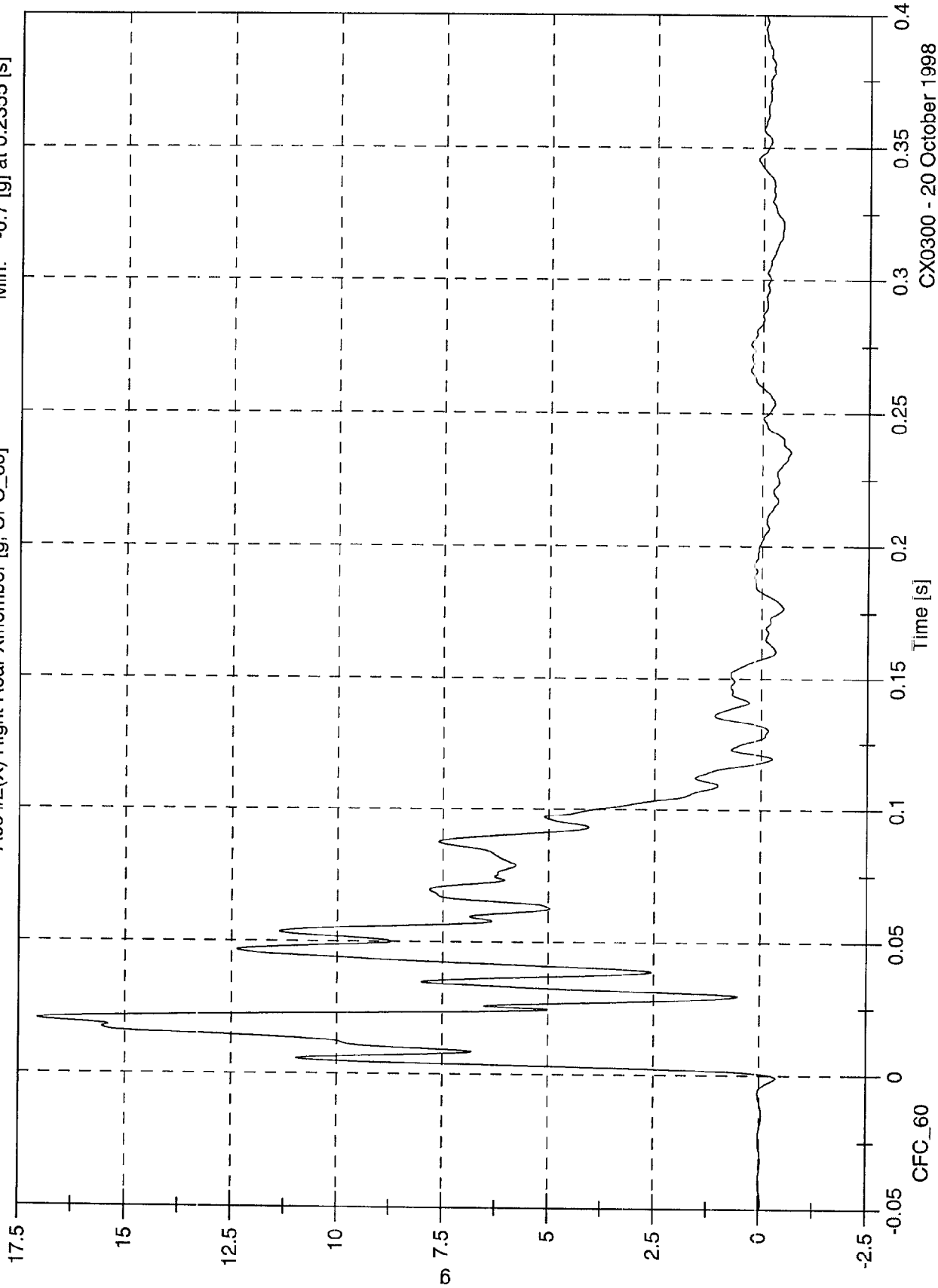


301 Rear 30 mph Impact - 1999 Dodge Avenger

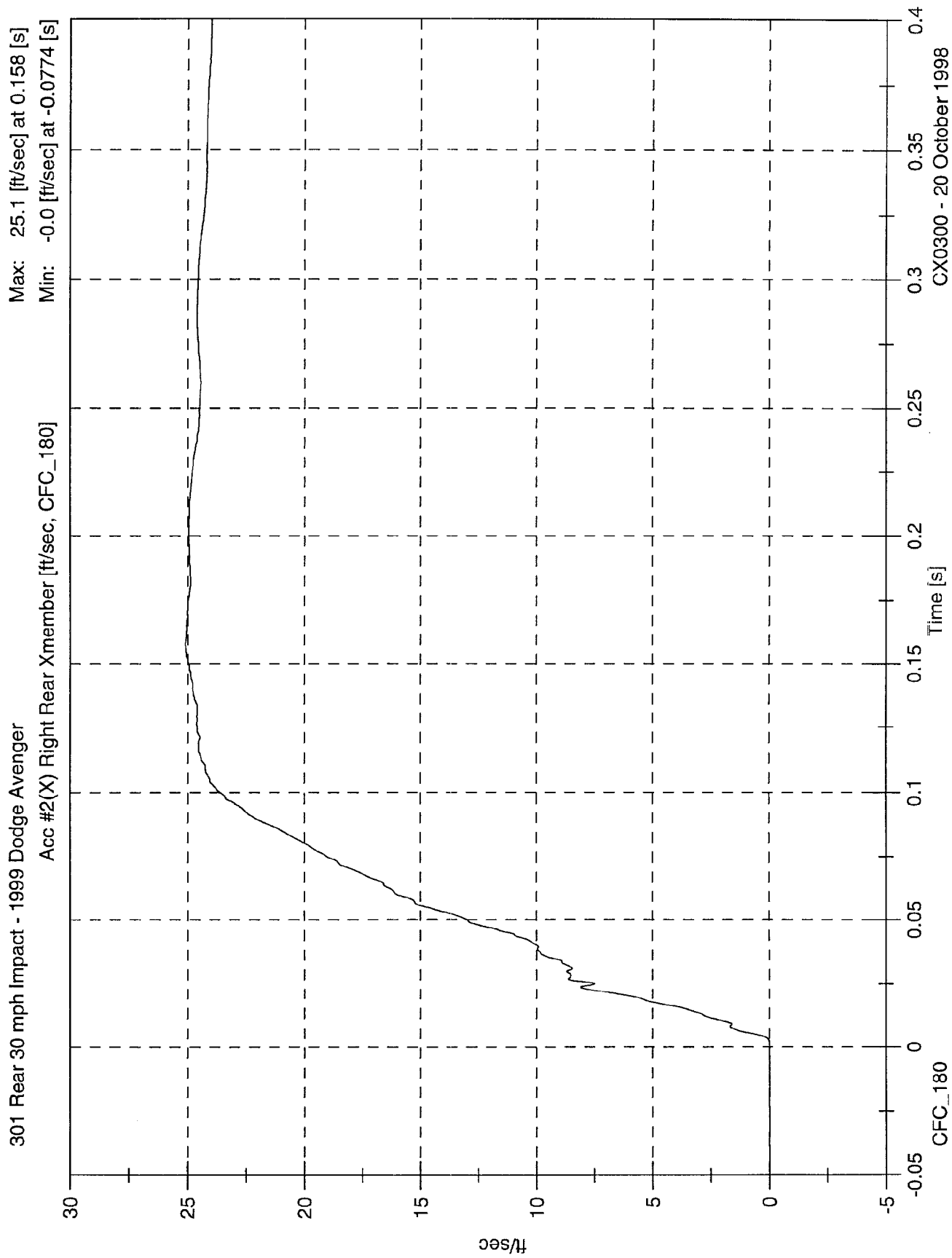
Acc #2(X) Right Rear Xmember [g, CFC_60]

Max: 17.0 [g] at 0.0204 [s]

Min: -0.7 [g] at 0.2355 [s]



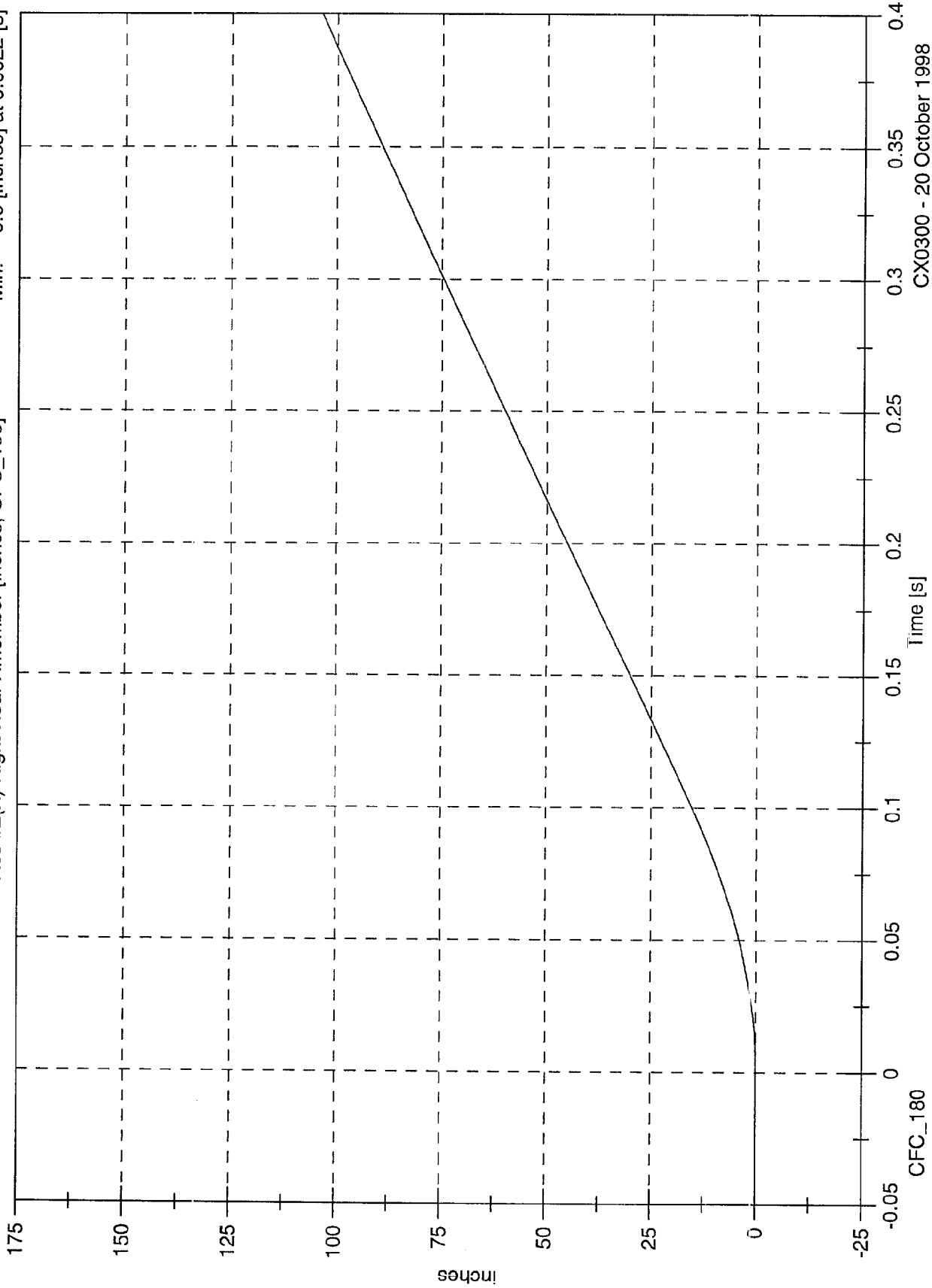
CX0300 - 20 October 1998



301 Rear 30 mph Impact - 1999 Dodge Avenger

Max: 160.2 [inches] at 0.5999 [s]
 Min: -0.0 [inches] at 0.0022 [s]

Acc #2(X) Right Rear Xmember [inches, CFC_180]



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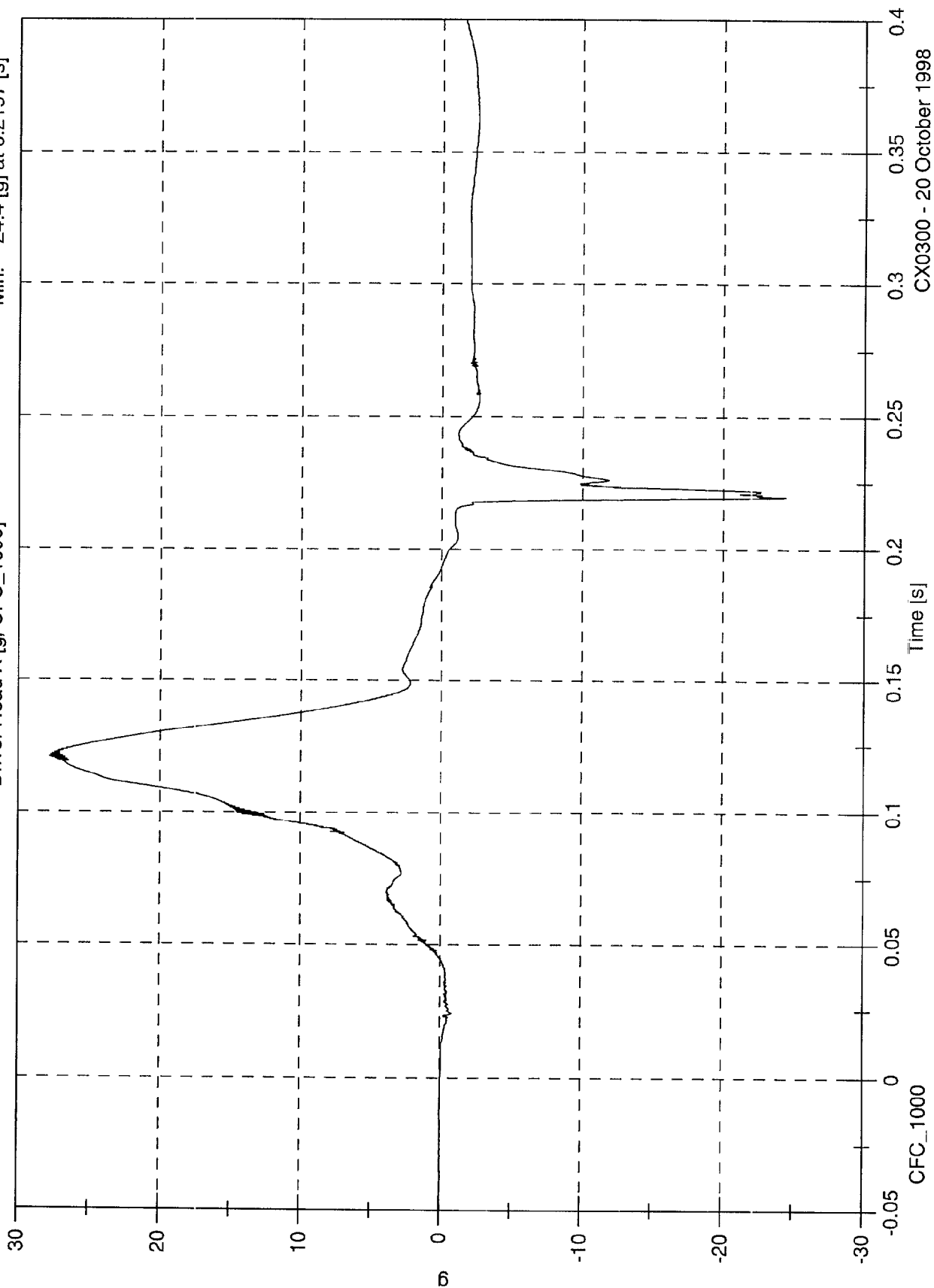
TEST NO. CX0300

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

301 Rear 30 mph Impact - 1999 Dodge Avenger

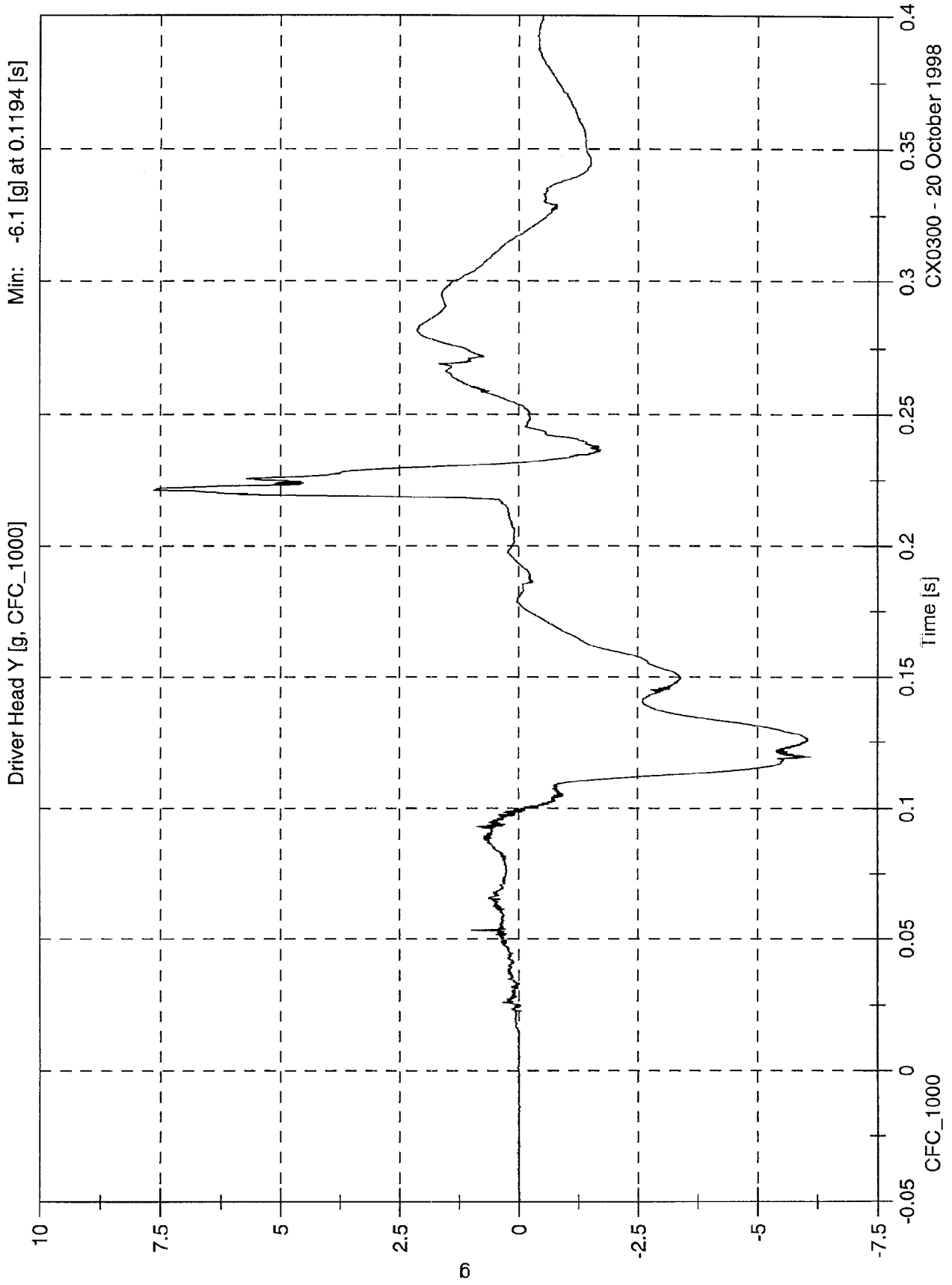
Max: 27.8 [g] at 0.1206 [s]
Min: -24.4 [g] at 0.2197 [s]

Driver Head X [g, CFC_1000]



301 Rear 30 mph Impact - 1999 Dodge Avenger

Max: 7.6 [g] at 0.2213 [s]
Min: -6.1 [g] at 0.1194 [s]

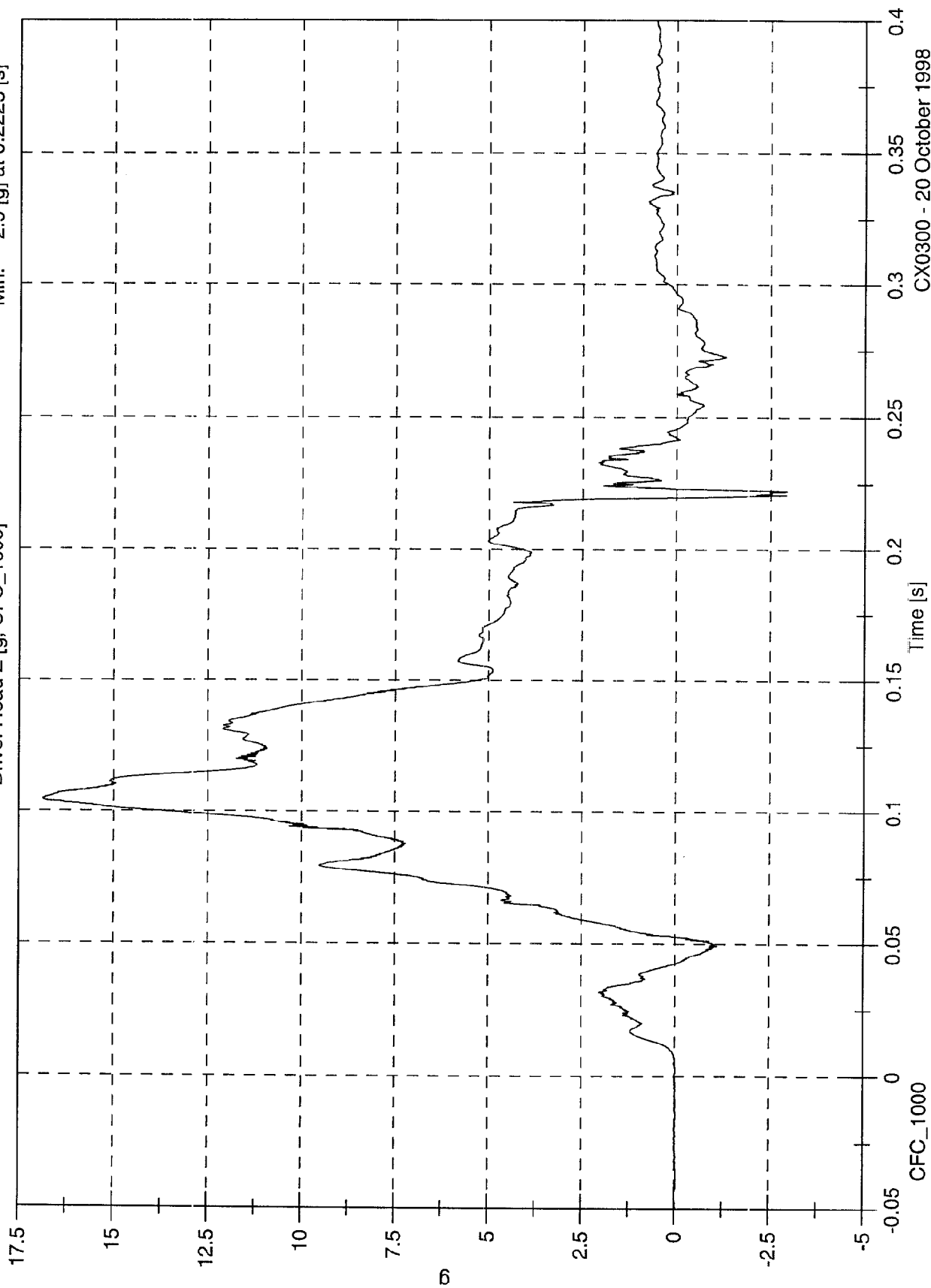


301 Rear 30 mph Impact - 1999 Dodge Avenger

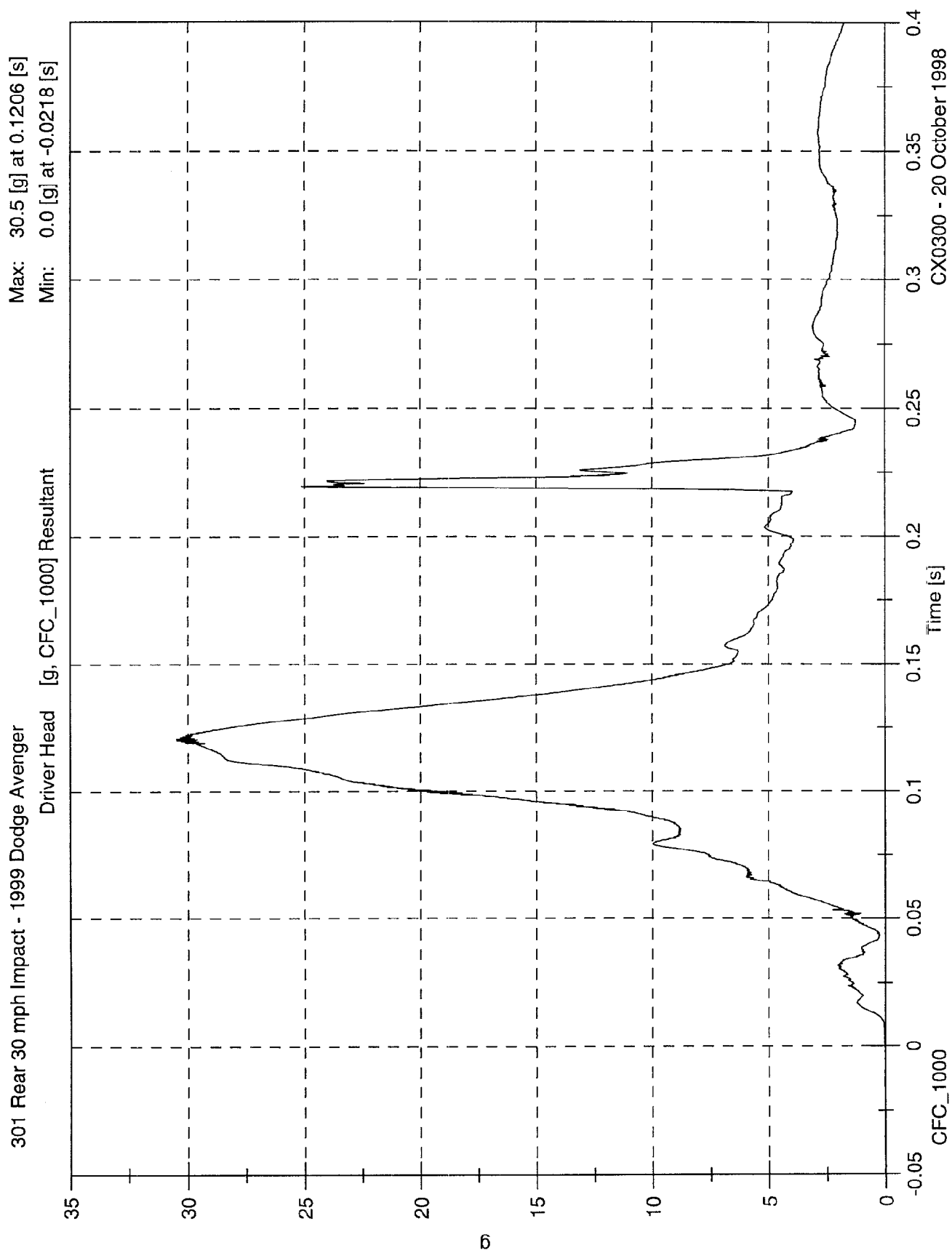
Max: 16.9 [g] at 0.1045 [s]

Min: -2.9 [g] at 0.2223 [s]

Driver Head Z [g, CFC_1000]



CX0300 - 20 October 1998

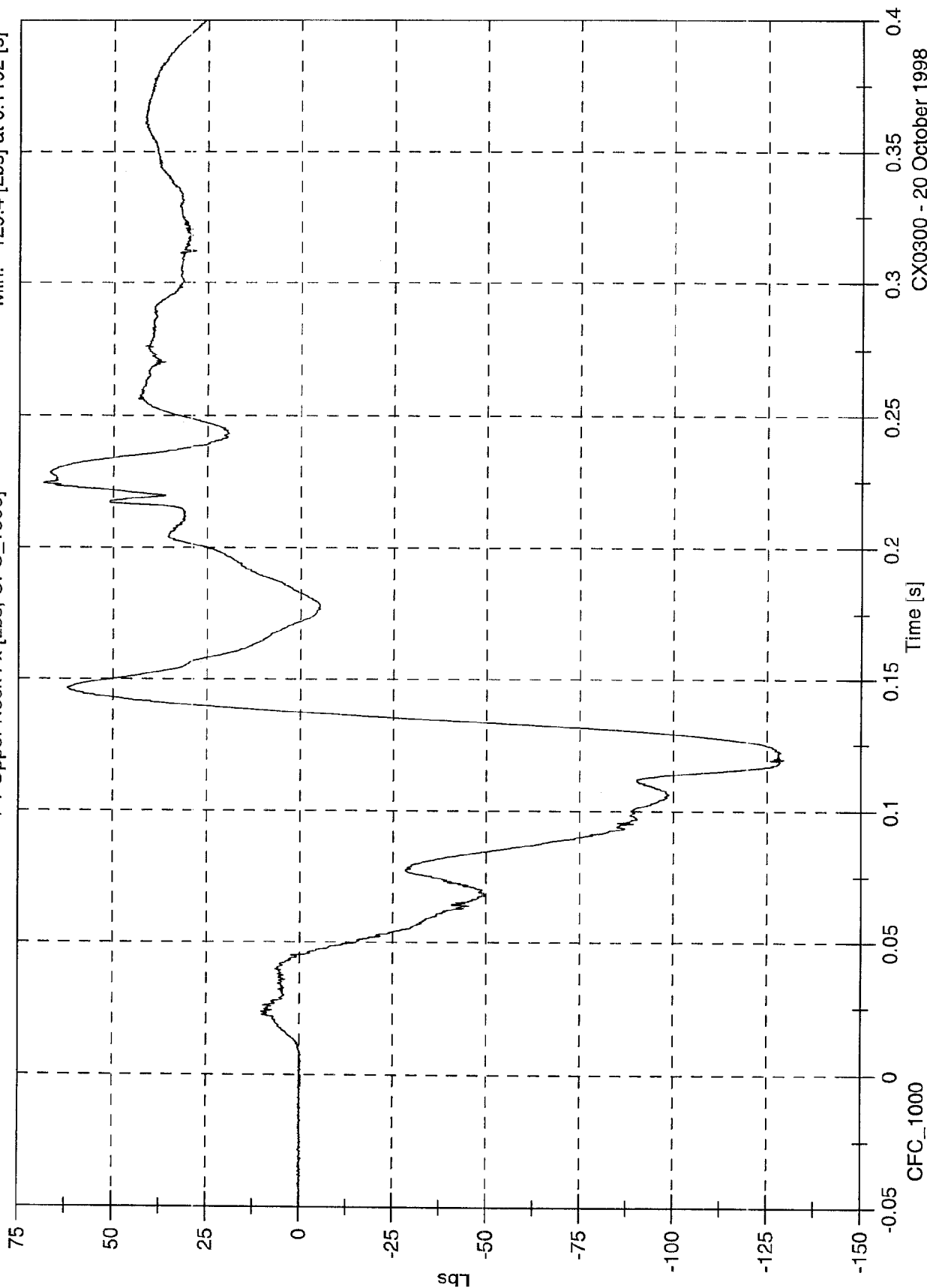


301 Rear 30 mph Impact - 1999 Dodge Avenger

Max: 68.5 [Lbs] at 0.2243 [s]

Min: -129.4 [Lbs] at 0.1192 [s]

P1 Upper Neck Fx [Lbs, CFC_1000]

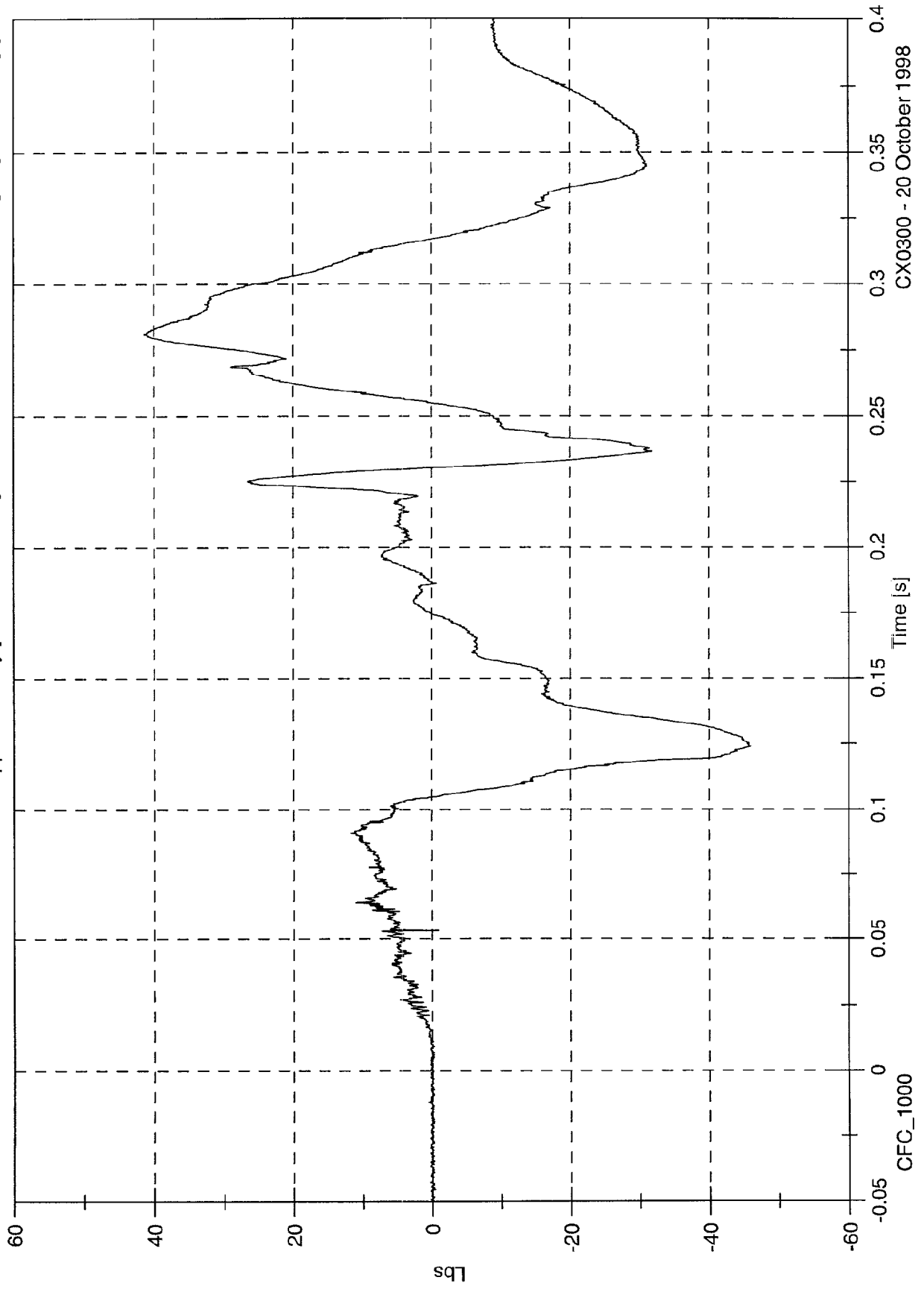


CX0300 - 20 October 1998

301 Rear 30 mph Impact - 1999 Dodge Avenger

Max: 41.4 [Lbs] at 0.2813 [s]
Min: -46.0 [Lbs] at 0.1239 [s]

P1 Upper Neck Fy [Lbs, CFC_1000]



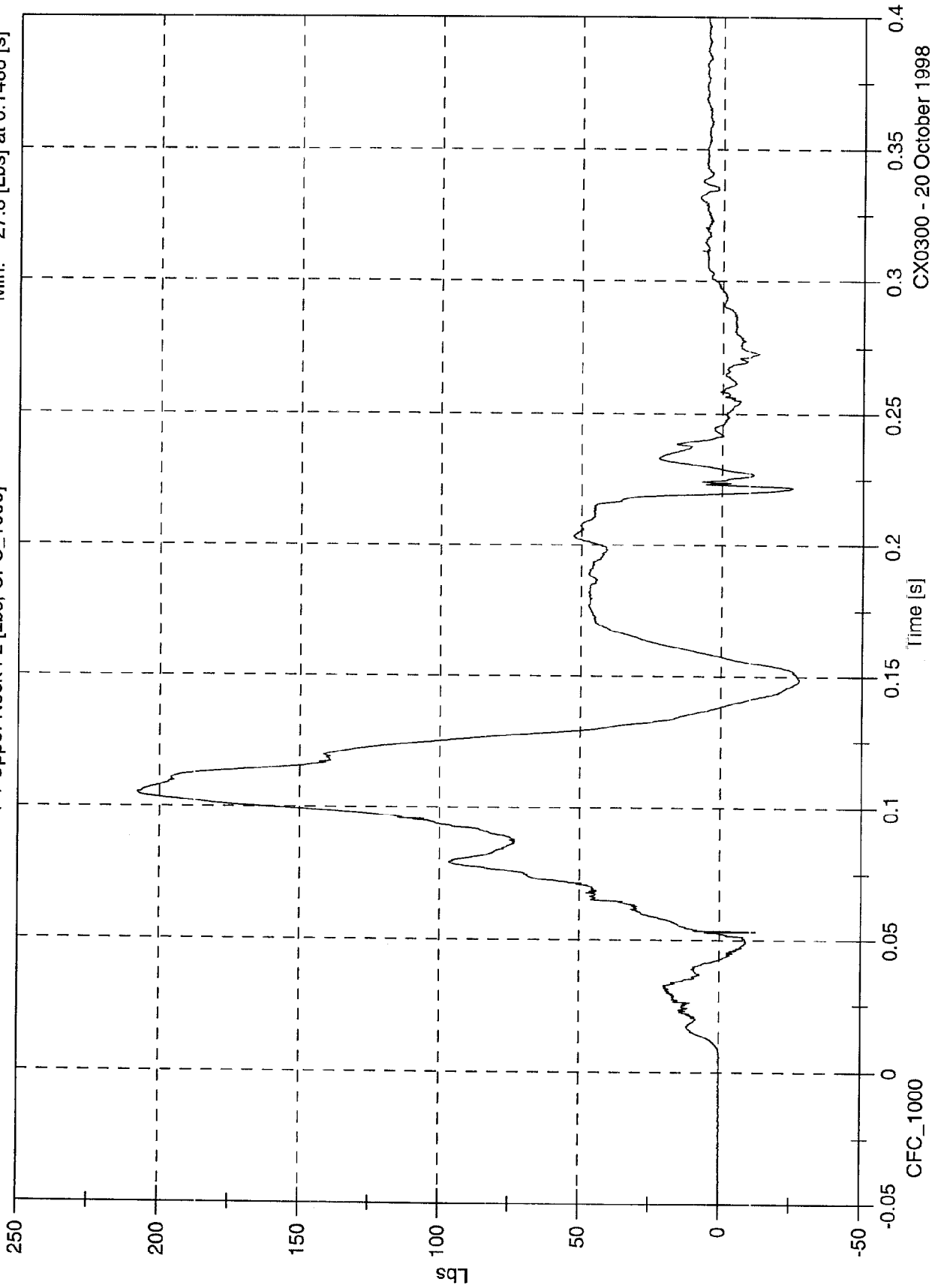
CX0300 - 20 October 1998

301 Rear 30 mph Impact - 1999 Dodge Avenger

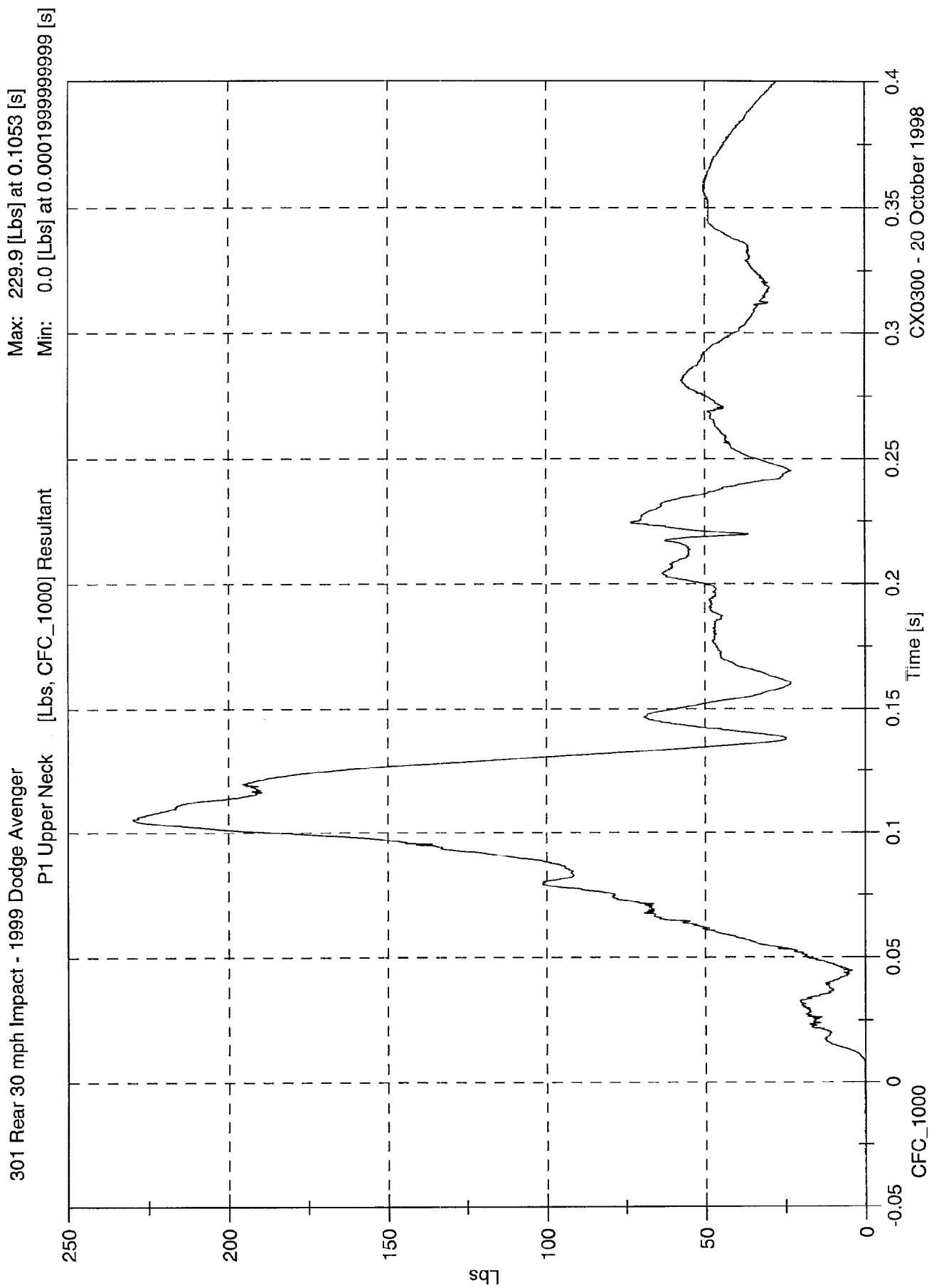
P1 Upper Neck Fz [Lbs, CFC_1000]

Max: 207.8 [Lbs] at 0.1053 [s]

Min: -27.8 [Lbs] at 0.1488 [s]



CX0300 - 20 October 1998

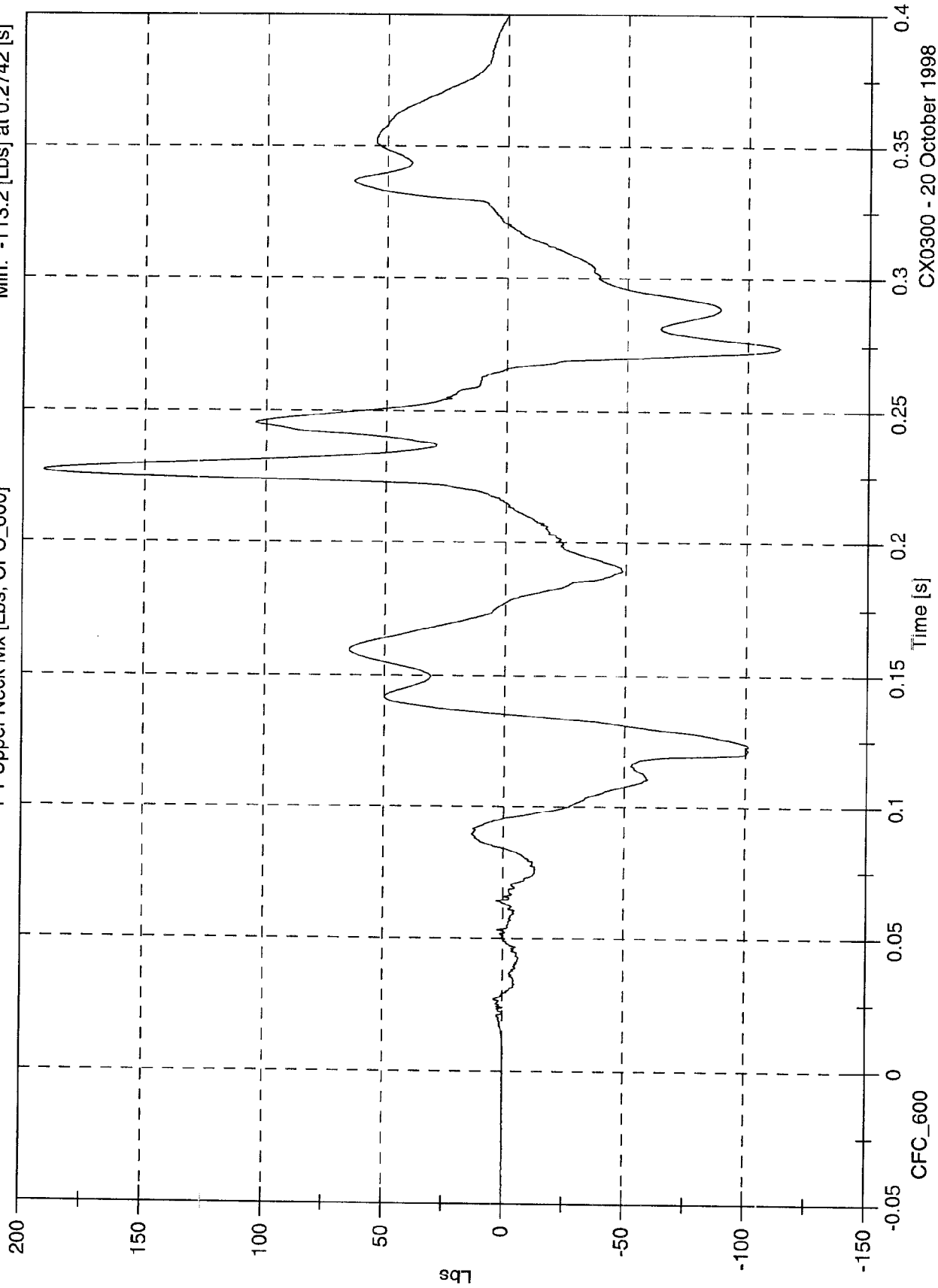


301 Rear 30 mph Impact - 1999 Dodge Avenger

P1 Upper Neck Mx [Lbs, CFC_600]

Max: 191.4 [Lbs] at 0.2269 [s]

Min: -113.2 [Lbs] at 0.2742 [s]

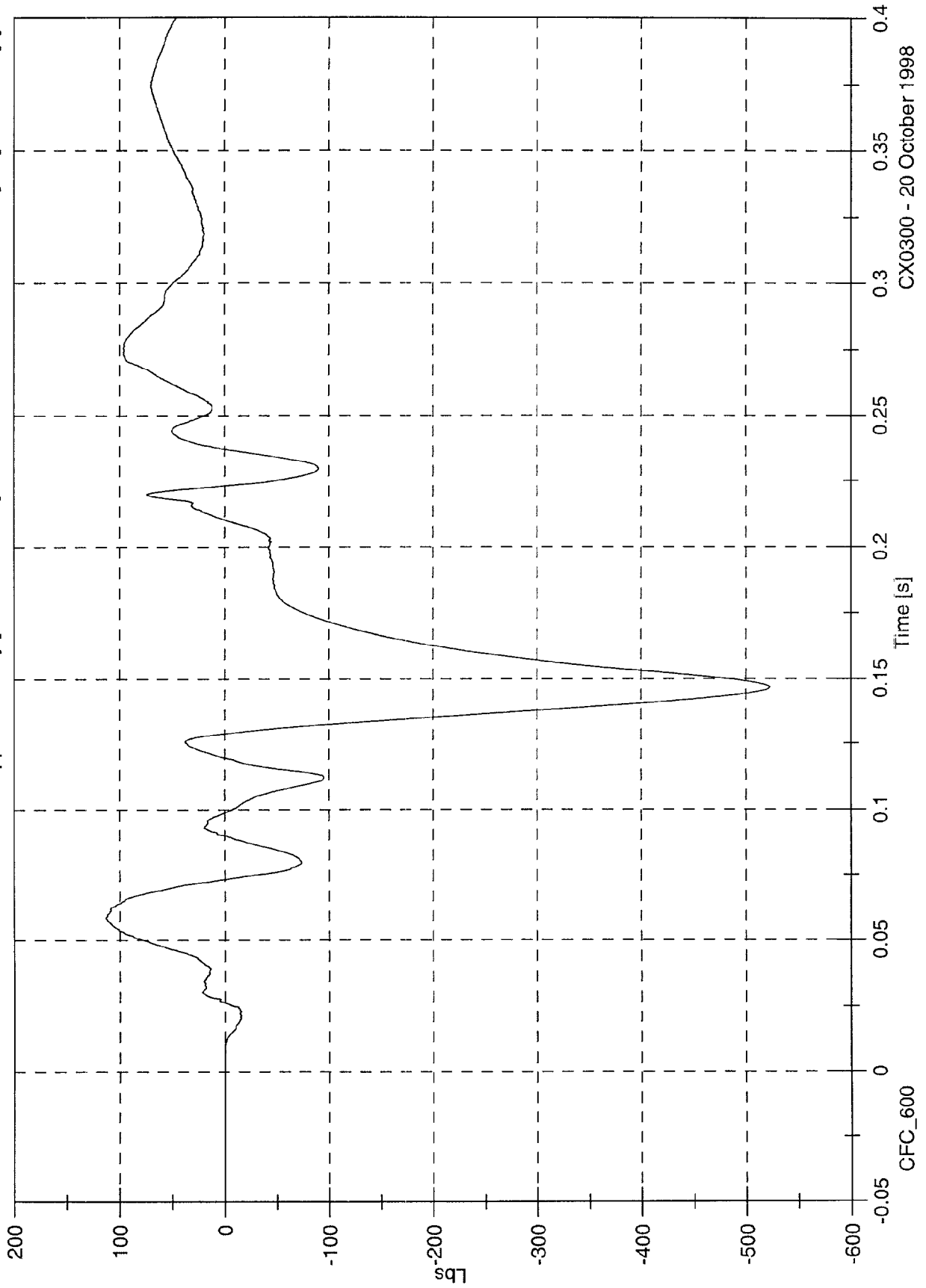


CX0300 - 20 October 1998

301 Rear 30 mph Impact - 1999 Dodge Avenger

P1 Upper Neck My [Lbs, CFC_600]

Max: 113.2 [Lbs] at 0.0586 [s]
Min: -522.4 [Lbs] at 0.1467 [s]

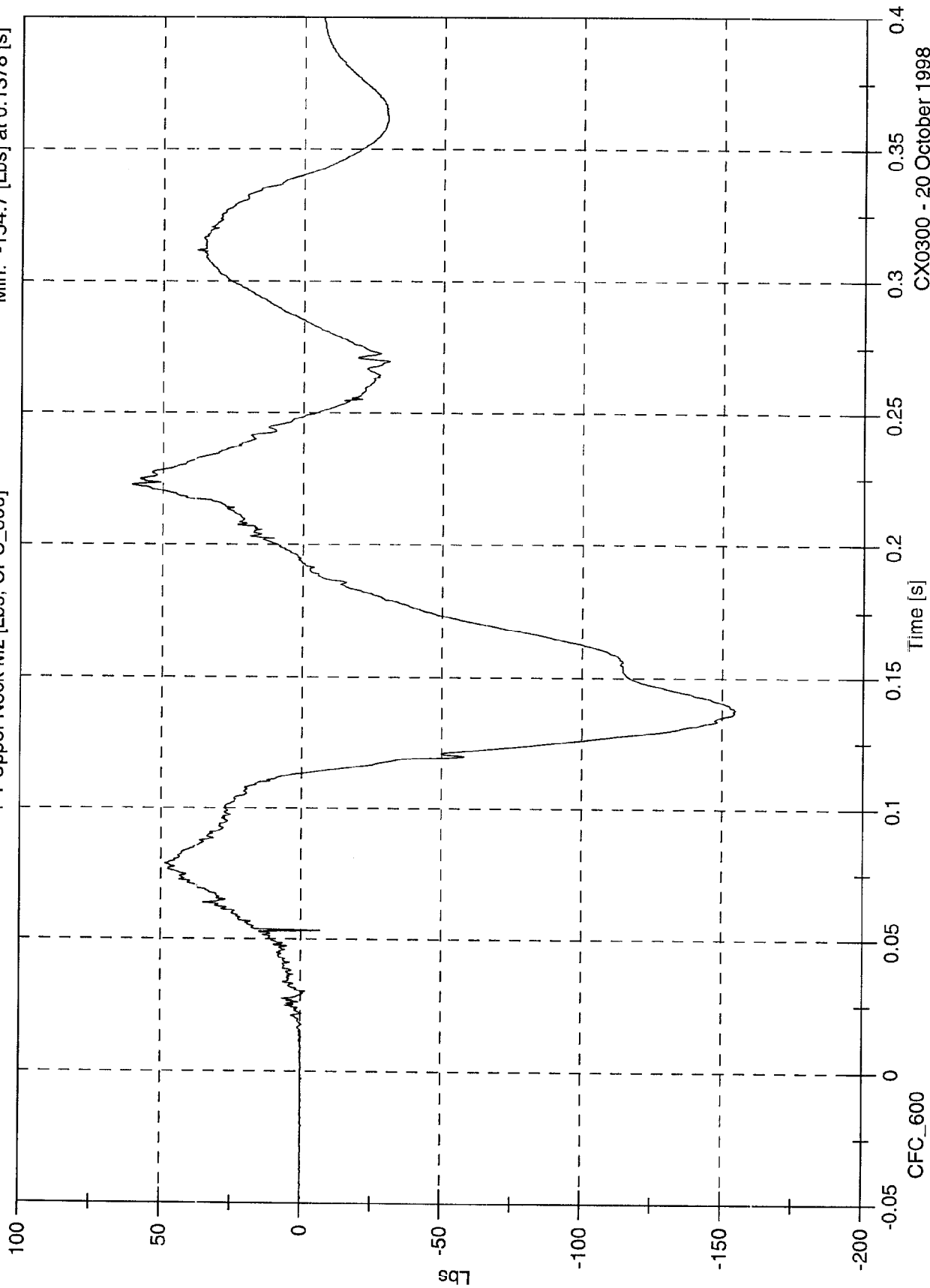


301 Rear 30 mph Impact - 1999 Dodge Avenger

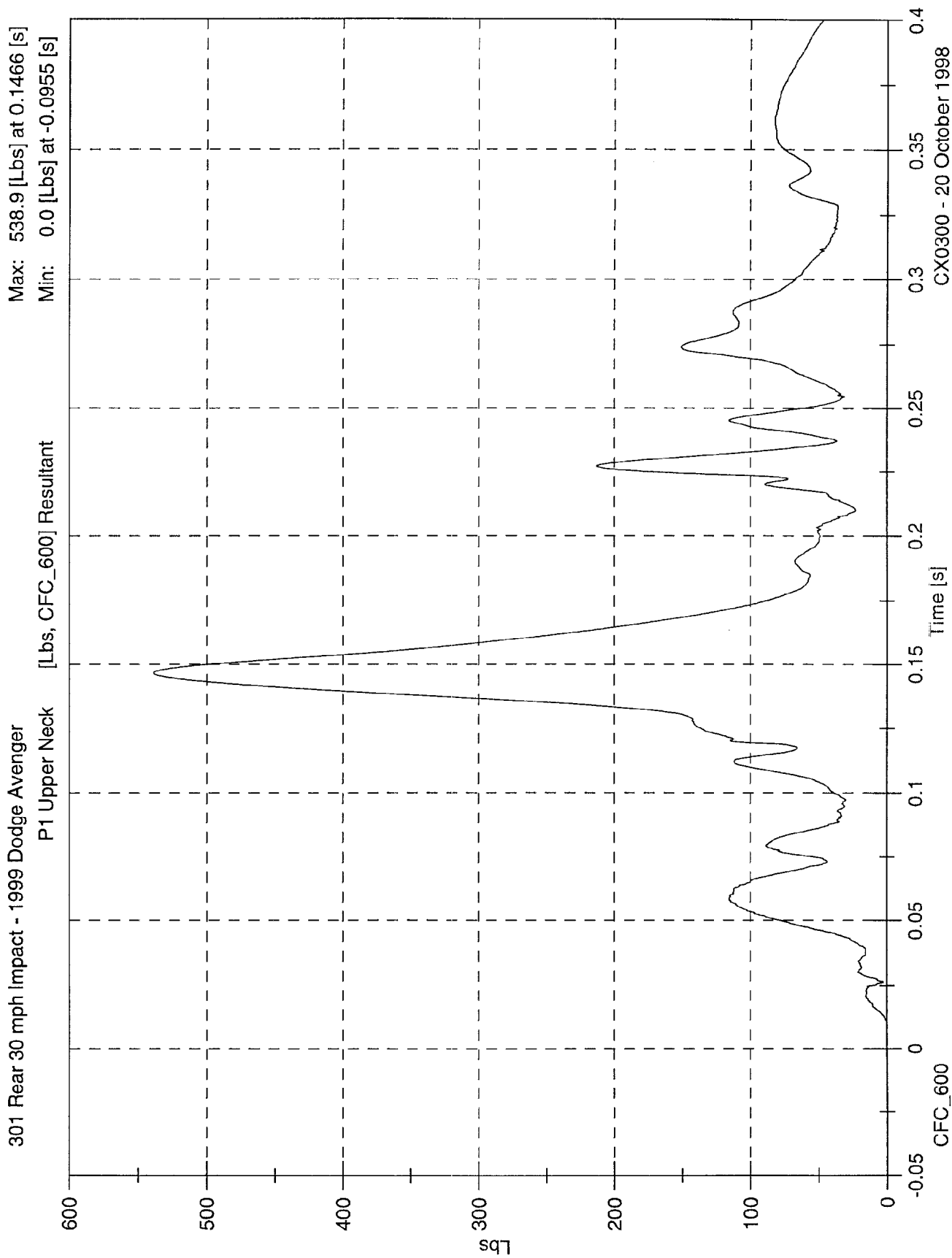
P1 Upper Neck Mz [Lbs, CFC_600]

Max: 60.8 [Lbs] at 0.2225 [s]

Min: -154.7 [Lbs] at 0.1378 [s]



CX0300 - 20 October 1998

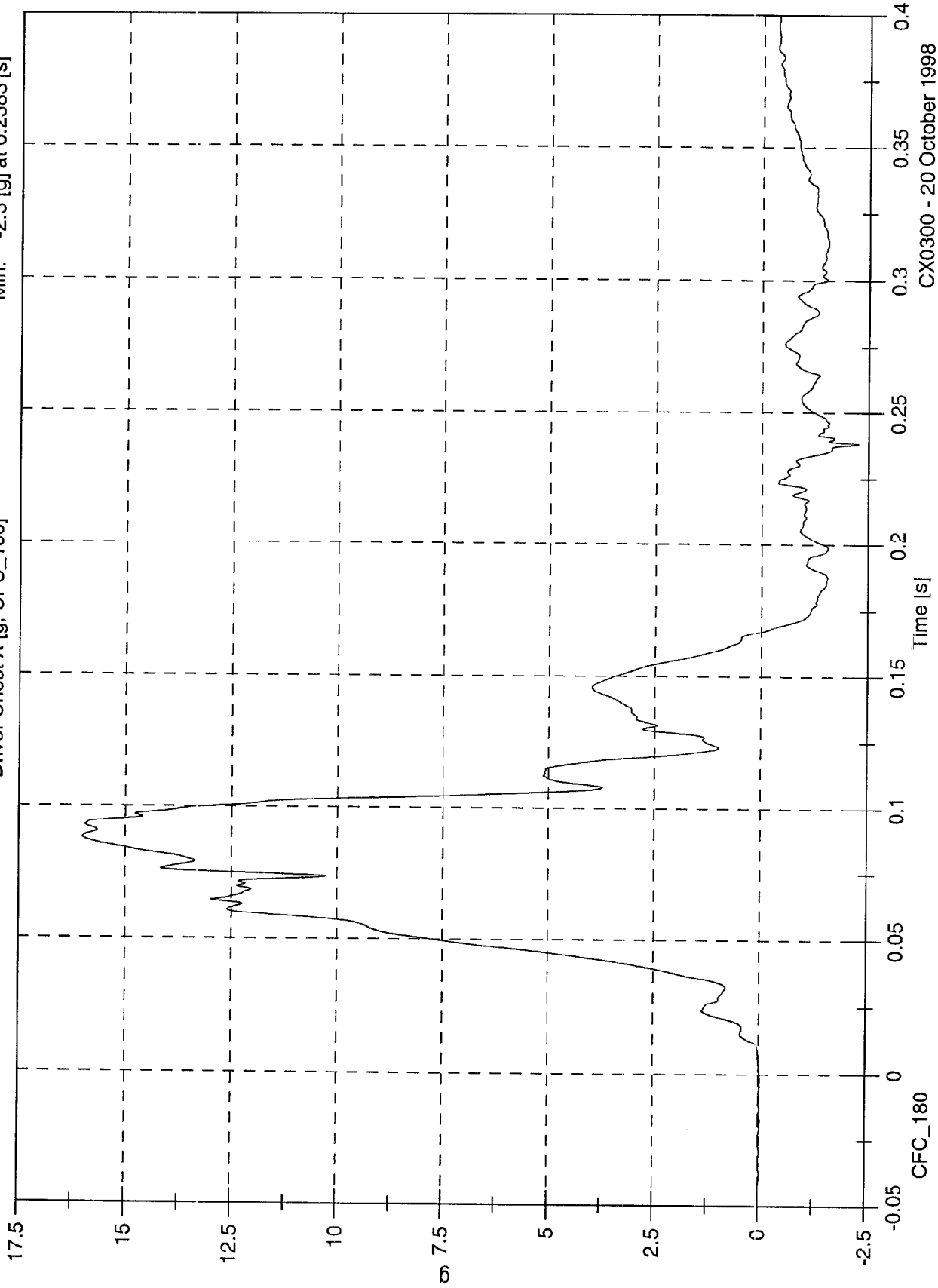


301 Rear 30 mph Impact - 1999 Dodge Avenger

Max: 16.0 [g] at 0.0881 [s]

Min: -2.3 [g] at 0.2383 [s]

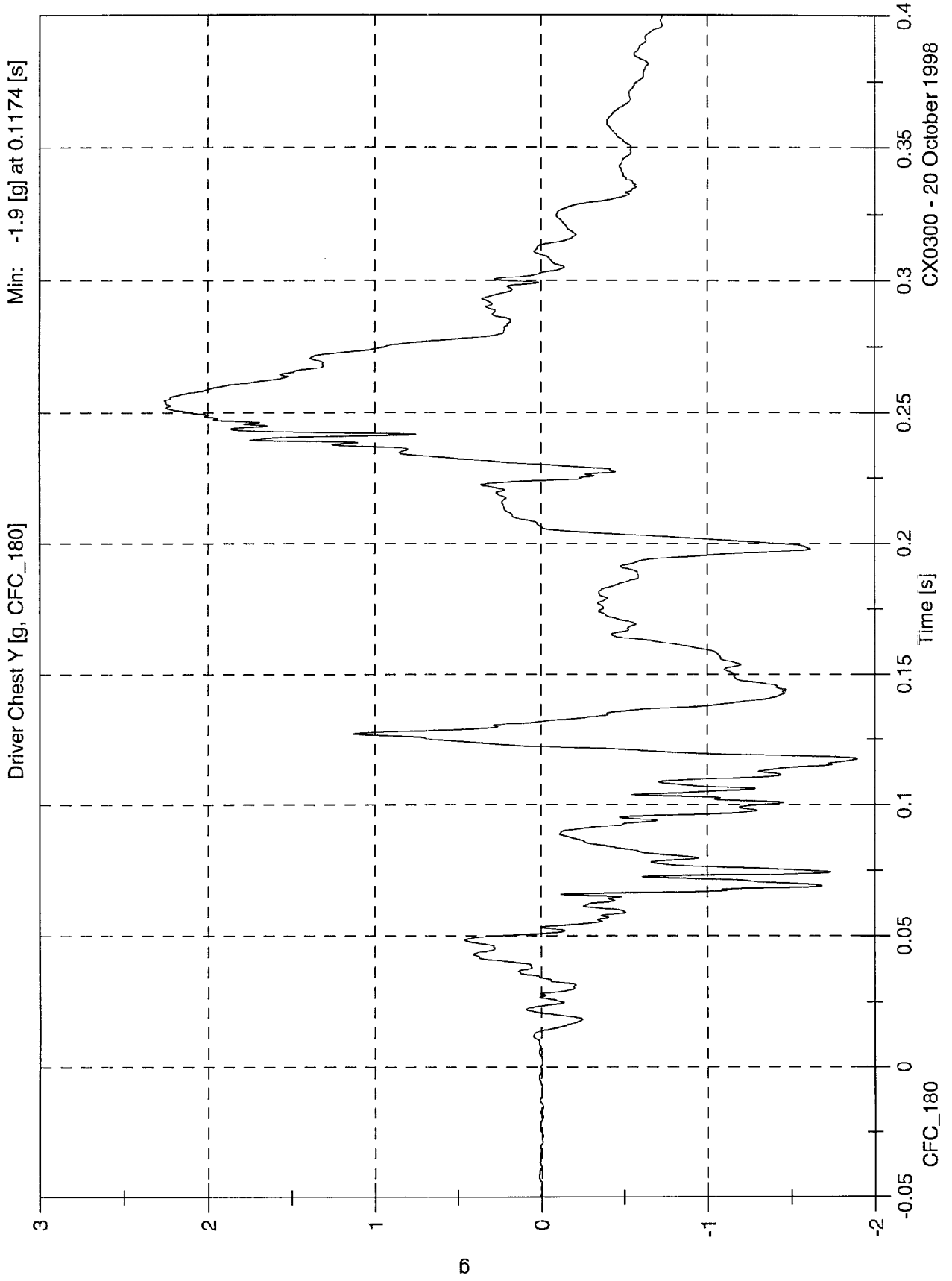
Driver Chest X [g, CFC_180]



CX0300 - 20 October 1998

301 Rear 30 mph Impact - 1999 Dodge Avenger

Max: 2.3 [g] at 0.2545 [s]
Min: -1.9 [g] at 0.1174 [s]

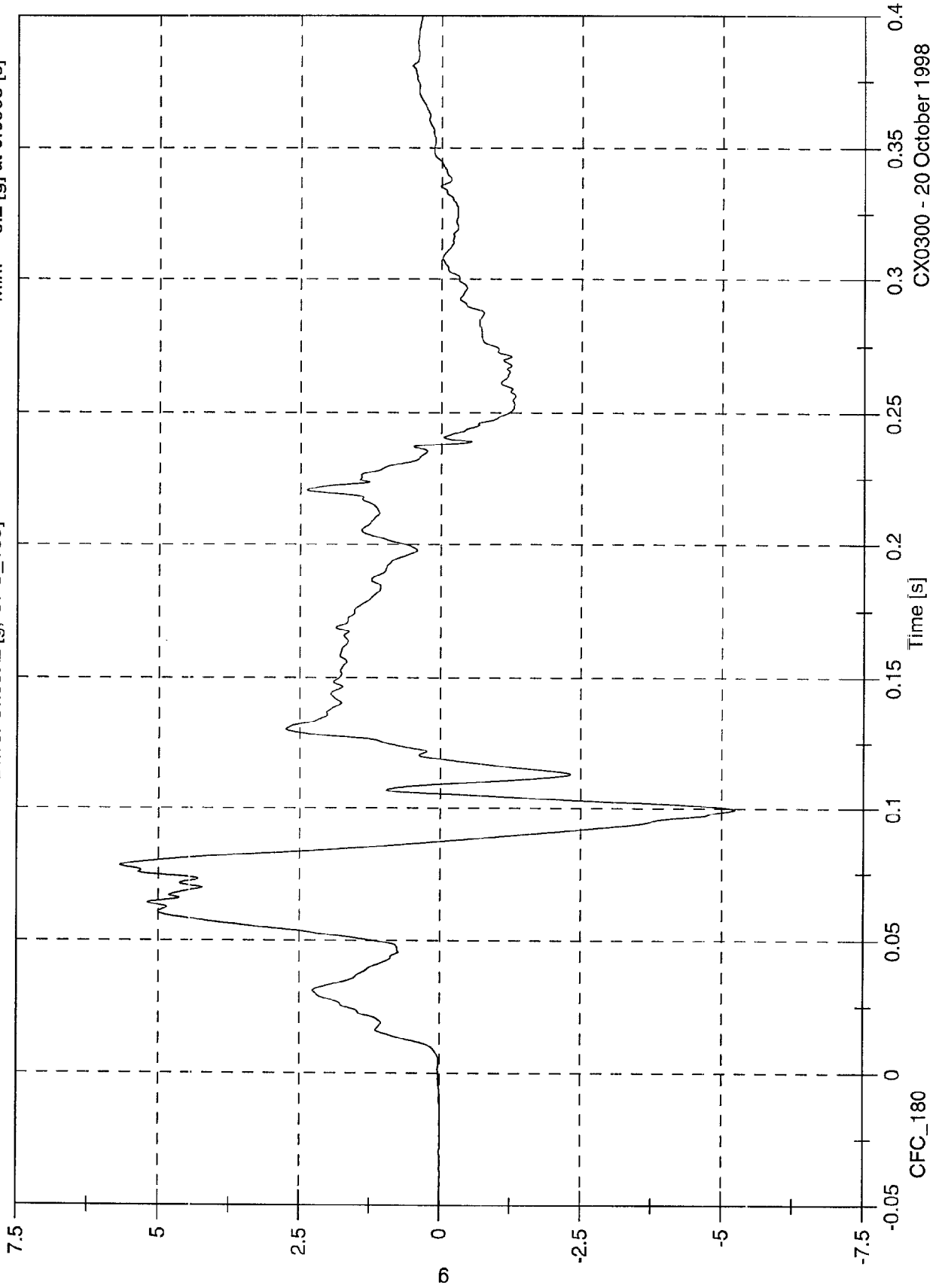


301 Rear 30 mph Impact - 1999 Dodge Avenger

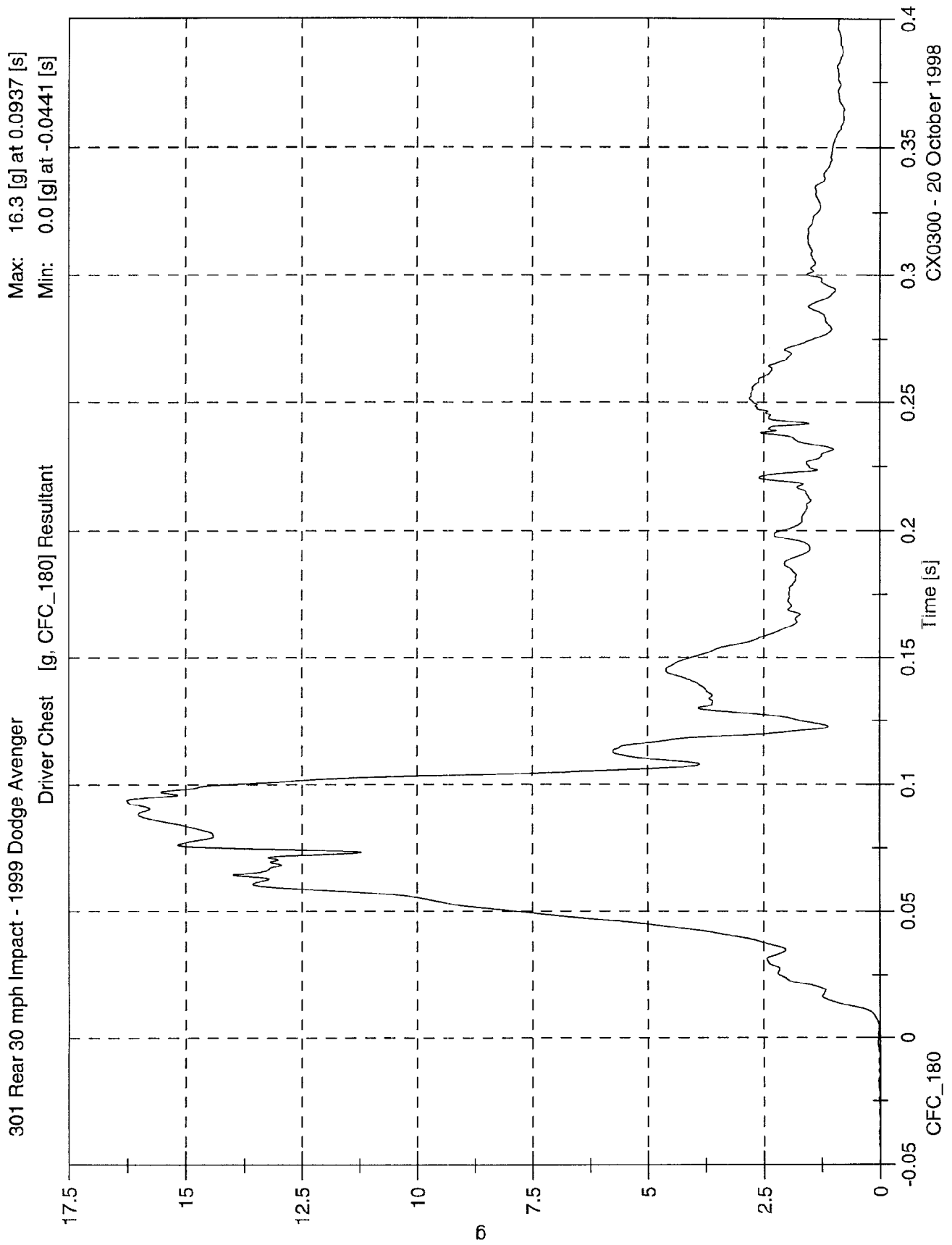
Max: 5.7 [g] at 0.0779 [s]

Min: -5.2 [g] at 0.0995 [s]

Driver Chest Z [g, CFC_180]



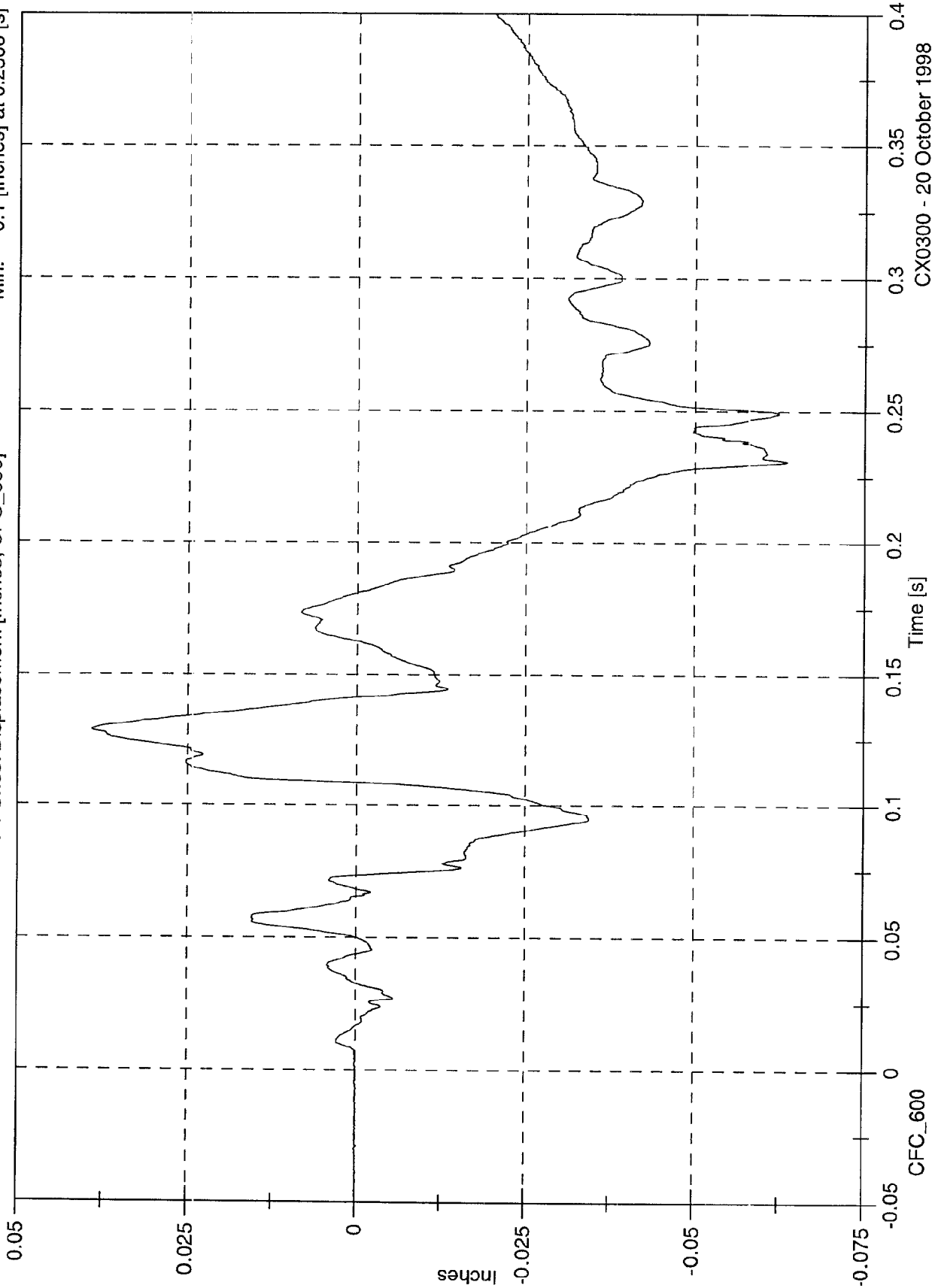
CX0300 - 20 October 1998



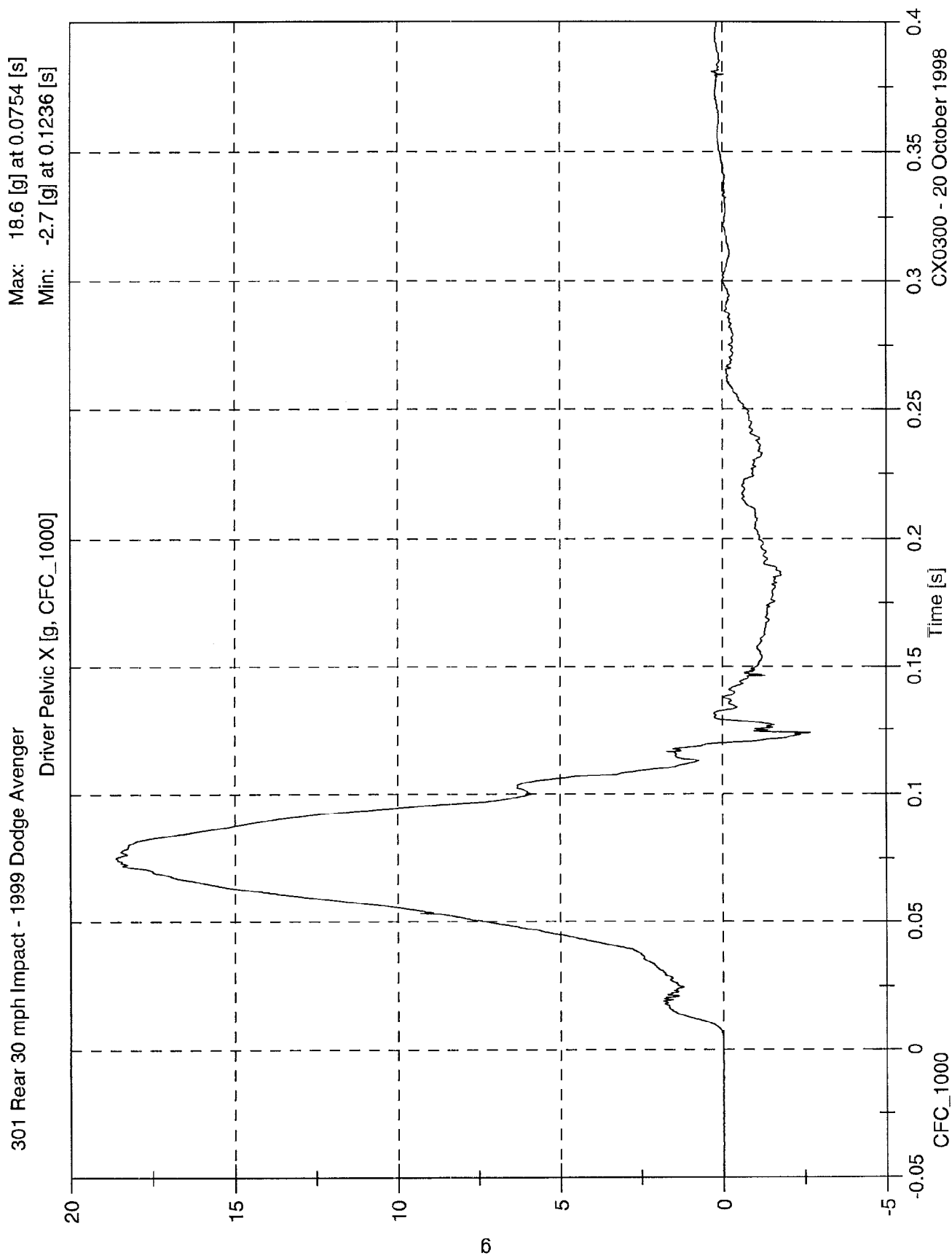
301 Rear 30 mph Impact - 1999 Dodge Avenger

Max: 0.0 [Inches] at 0.1286 [s]
Min: -0.1 [Inches] at 0.2308 [s]

P1 Chest Displacement [Inches, CFC_600]



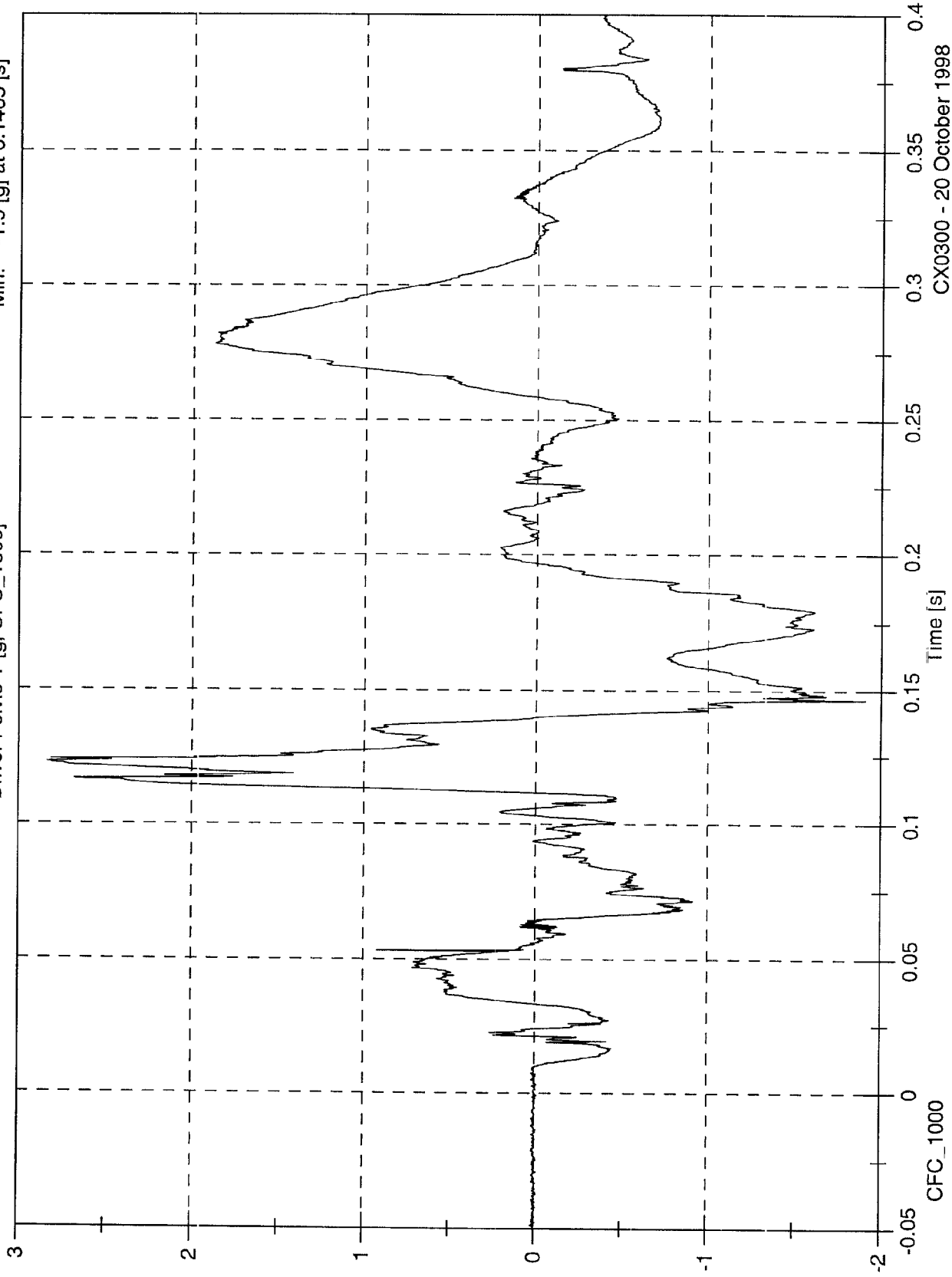
CX0300 - 20 October 1998



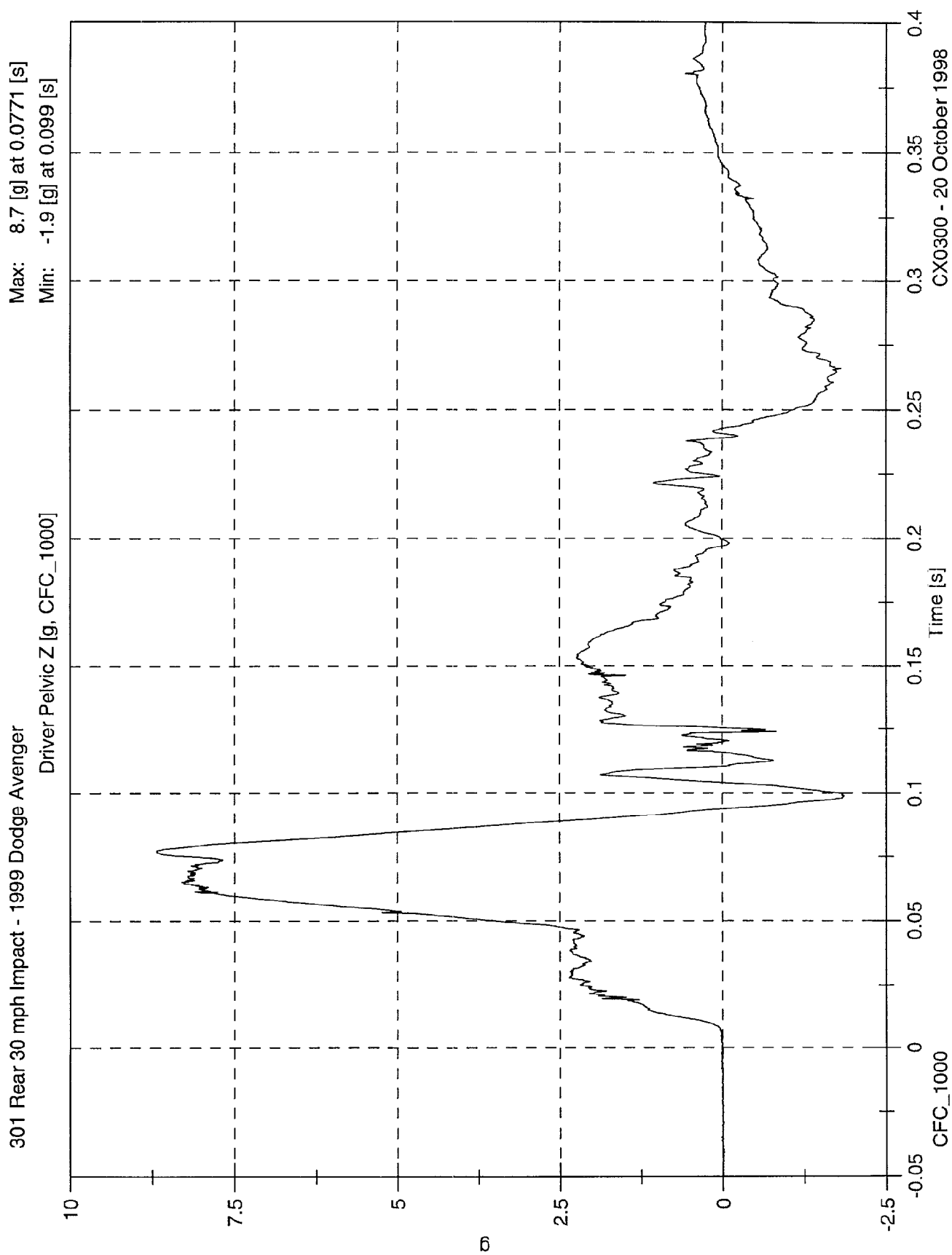
301 Rear 30 mph Impact - 1999 Dodge Avenger

Max: 2.8 [g] at 0.1227 [s]
Min: -1.9 [g] at 0.1465 [s]

Driver Pelvic Y [g, CFC_1000]



CX0300 - 20 October 1998

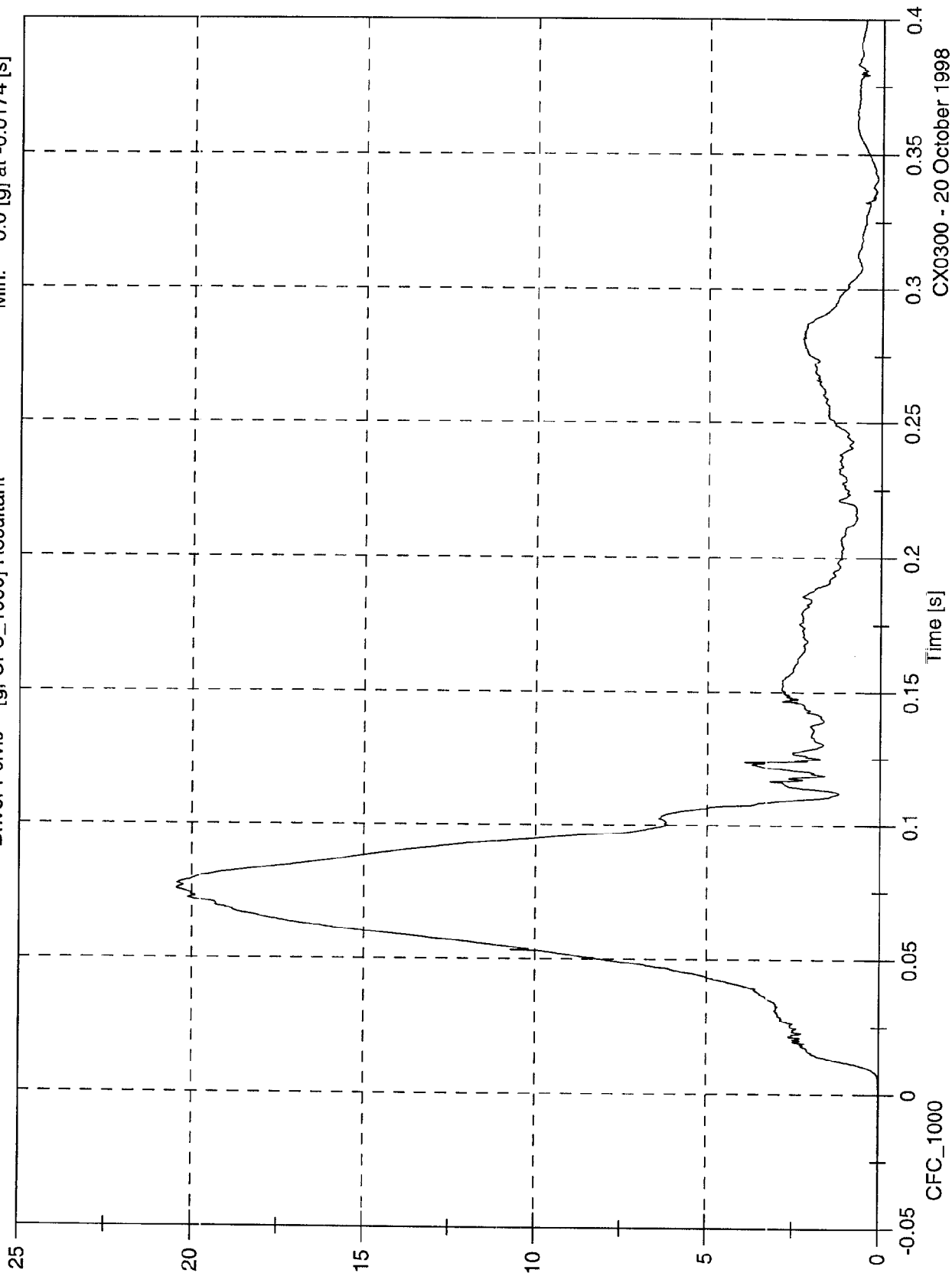


301 Rear 30 mph Impact - 1999 Dodge Avenger

Max: 20.4 [g] at 0.0755 [s]

Min: 0.0 [g] at -0.0174 [s]

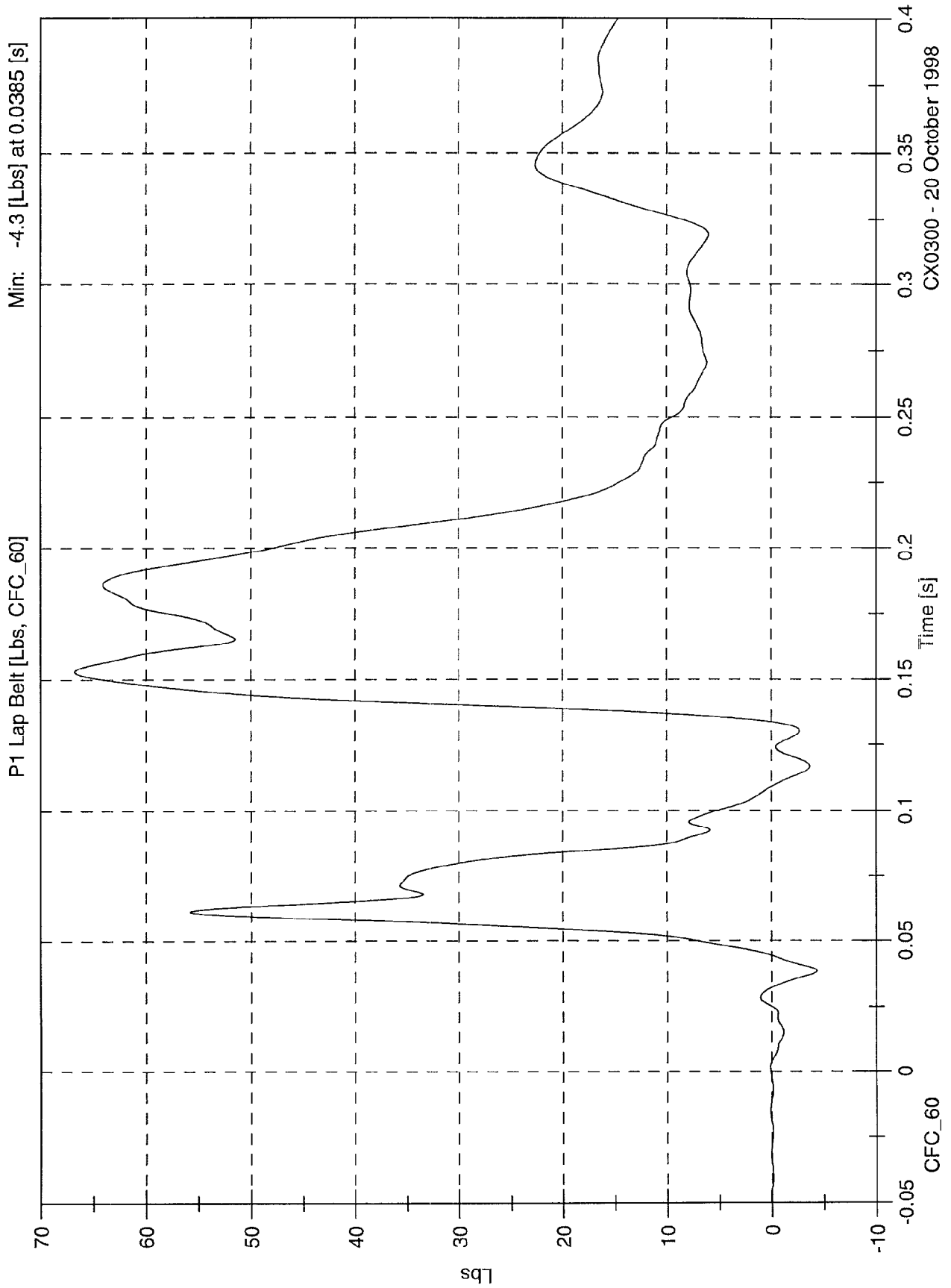
Driver Pelvic [g, CFC_1000] Resultant



CX0300 - 20 October 1998

301 Rear 30 mph Impact - 1999 Dodge Avenger

Max: 66.8 [Lbs] at 0.153 [s]
Min: -4.3 [Lbs] at 0.0385 [s]

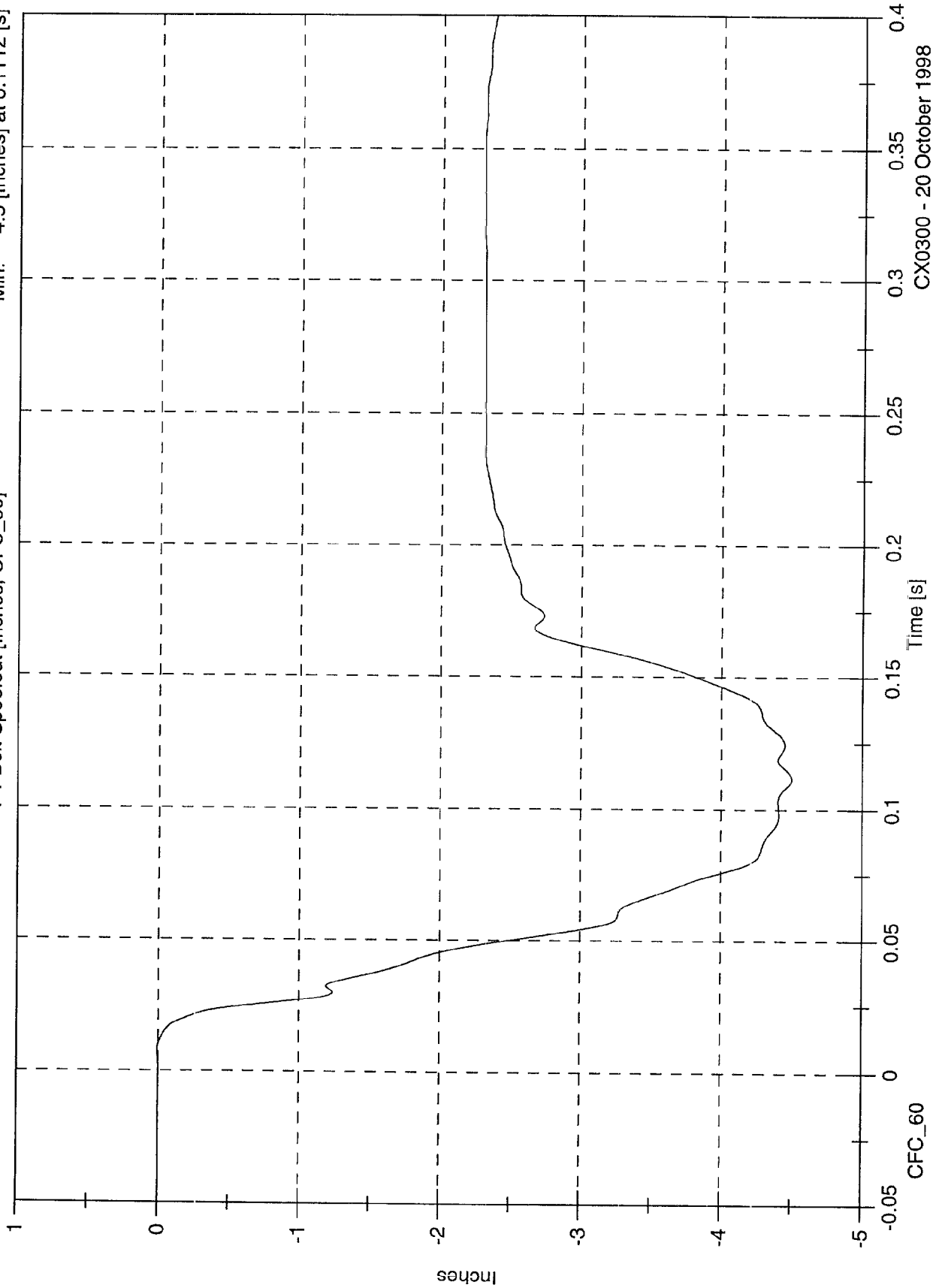


301 Rear 30 mph Impact - 1999 Dodge Avenger

P1 Belt Spoolout [Inches, CFC_60]

Max: 0.0 [Inches] at 0.008 [s]

Min: -4.5 [Inches] at 0.1112 [s]



CX0300 - 20 October 1998

