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655-003

Vehicle Safety Compliance Testing for FMVSS 208
for Occupant Crash Protection
Sled Test

General Motors Corporation
1999 Chevrolet Venture 3-Door MPV
NHTSA Number: CX0108
TRC Test Number: 990113S

Transportation Research Center Inc.
10820 State Route 347
East Liberty, OH 43319



Test Date: January 13, 1999
Report Date: February 17, 1999

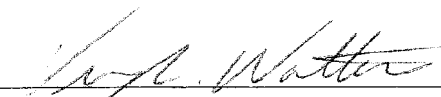
Final Report

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

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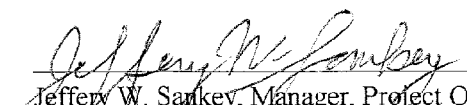
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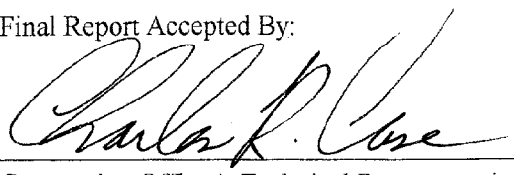
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16. Abstract An FMVSS 208 compliance sled test was conducted on a 1999 Chevrolet Venture 3-Door MPV, NHTSA No. CX0108, in accordance with the specifications of the Office of Vehicle Safety Compliance Test Procedure No. TP208S-01 for the determination of FMVSS 208 compliance. Test failures identified were as follows: NONE			
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Purpose

This Federal Motor Vehicle Safety Standards (FMVSS) 208 compliance sled test is part of the FMVSS compliance test program conducted for the National Highway Traffic Safety Administration (NHTSA) by the Transportation Research Center Inc. (TRC) under Contract No. DTNH22-98-D-01055. The purpose of this test was to determine if the subject vehicle, a 1999 Chevrolet Venture 3-Door MPV, NHTSA No. CX0108, meets the performance requirements of FMVSS 208, "Occupant Crash Protection," in the impact simulation sled test mode.

Test Procedure

This test was conducted in accordance with NHTSA's Office of Vehicle Safety Compliance (OVSC) Laboratory Test Procedure No. TP-208S-01, dated January 15, 1998. Data was obtained relative to FMVSS 208, "Occupant Crash Protection," performance.

The test vehicle was instrumented with six (6) accelerometers to measure longitudinal axis accelerations and two (2) inductive pickup sensors to measure the vehicle's airbag firing system.

The test vehicle contained two (2) Part 572 E 50th percentile adult male anthropomorphic test devices (dummies). The dummies were positioned in the front outboard designated seating positions according to the dummy placement procedure specified in Appendix B of the Laboratory Test Procedure. The dummies were not restrained by seat belts.

Both dummies were instrumented with head and chest accelerometers to measure longitudinal, lateral, and vertical accelerations; chest deflection potentiometers; left and right femur load cells to measure axial forces; and upper neck load cells to measure longitudinal, lateral, and vertical forces and moments.

The forty-three (43) data channels were digitally sampled at 12,500 samples per second and processed per Sections 11.7 through 11.9 of the Laboratory Test Procedure.

The sled test event was recorded by one (1) real-time motion picture camera and six (6) high-speed motion picture cameras. The pre-test and post-test conditions were recorded by one (1) real-time motion picture camera.

Test Results Summary

This FMVSS 208 compliance sled test was conducted at TRC on January 13, 1999.

The test vehicle, a 1999 Chevrolet Venture 3-Door MPV, NHTSA No. CX0108, appeared to comply with the performance requirements of FMVSS 208 in the impact simulation sled test mode as measured by Hybrid III 50th percentile male dummies.

	FMVSS 208 Max. Allowable Injury Assessment Values	Driver	Passenger
HIC	1000	109.9	283.4
Chest g	60 g	36.2	33.0
Chest Displacement	3 inches	1.6	0.4
Left Femur	2250 lb	1366.9	1565.7
Right Femur	2250 lb	1672.3	1157.1
Neck Extension	57 Nm	11.0	19.7
Neck Flexion	190 Nm	29.4	64.1
Neck Tension	3300 N	803.8	414.3
Neck Compression	4000 N	165.9	617.6
Neck Shear	3100 N	514.9	1054.8

The vehicle also appears to meet the other FMVSS 208 requirements for which it was tested. These results are shown in the data sheets that are included in this report.

The test vehicle was equipped with air bags at the driver and passenger seating positions. The dummies were not restrained by seat belts. The sled carriage was accelerated to 17.0 g with an integrated velocity change of 28.7 mph. The air bags were triggered at 20.2 milliseconds after 0.5 g acceleration was measured by the firing circuit. Following subsequent digital data processing and filtering the acceleration signal to Channel Class 60, the air bag event trigger signal was 20.7 ms after the 0.5 g acceleration level was indicated.

Sled Test Summary

NHTSA number: CX0108
Test type: FMVSS 208 Compliance Sled Test
Test date: 01/13/99
Test time: 10:11 p.m.
Ambient temperature at impact area: 70° F
Vehicle year/make/ model/body style: 1999/Chevrolet/Venture 3-Door/MPV

<u>Dummy Info:</u>	<u>Driver #229</u>	<u>Passenger #230</u>
Type:	Part 572 E	Part 572 E
Location:	Left front	Right front
Restraint:	Airbag 2 nd generation	Airbag 2 nd generation
Number of data channels:	15	15

Number of Cameras:

Real-time:	1
High-speed:	6

Door Opening Data:

Left Front:	Normal
Right Front:	Normal

Front Seat Data:

Seat track failure:	0.2 in shift rearward	0.2 in shift rearward
Seat back failure:	No apparent failure	No apparent failure

Visible Dummy Contact Points:

Head:	Airbag, B-pillar	Airbag
Chest:	Airbag	Airbag
Left knee:	Knee bolster	Knee bolster/Glove box
Right knee:	Knee bolster	Knee bolster/Glove box

General Test and Vehicle Parameter Data

Test Vehicle Information:

Vehicle year/make/
model/body style: 1999/Chevrolet/Venture 3-Door/MPV
Color: White
VIN: 1GNDU06EXXD165704
NHTSA number: CX0108
Engine data:
Placement: Lateral
Cylinders: 6
Displacement: 3.4 liters
Transmission data: 4 speed, ___ manual, X automatic, X overdrive
Final drive: X fwd, ___ rwd, ___ 4wd
Date vehicle received: 12/09/98
Odometer reading: 76
Dealer's name
and address: Steve Austin Auto Group
1515 South Main Street
Bellefontaine, OH 43311

Major Options:

Power steering	Yes	Other: Heated power mirror, rear window
Power brakes	Yes	defroster, tilt steering wheel, anti-lock brakes.
Power windows	No	
Air conditioning	Yes	
Power door locks	Yes	

Remarks: None

General Test and Vehicle Parameter Data, Cont'd.

Data from Vehicle's Certification Label:

Vehicle manufactured by:	General Motors Corporation
Date of manufacture:	11/98
VIN:	1GNDU06EXXD165704
GVWR:	5357 lb
GAWR: Front:	2725 lb
Rear:	2678 lb

Data from Vehicle's Tire Placard:

Tire pressure with maximum capacity vehicle load:

Front:	35 psi
Rear:	35 psi

Recommended tire size: P215/70R15

Load range: 1620 lbs

Recommended cold tire pressure:

Front:	35 psi
Rear:	35 psi

Size of tires on vehicle: P215/70R15

Spare tire: Space Saver T125/70R15

Vehicle capacity data:

Type of front seats: Bucket

Number of occupants:

Front	2
Rear	5
Total	7

Remarks: No capacity weight on tire load label.

General Test and Vehicle Parameter Data, Cont'd.

Vehicle Capacity Weight

Vehicle Capacity Weight (VCW) = 1655 lbs

Number of occupants x 150 lbs = 1050 lbs

Rated cargo/luggage weight (RCLW) = 605 lbs

Weight of test vehicle as received (with maximum fluids):

Right front	1106	lb	Right rear	772	lb
Left front	1114	lb	Left rear	710	lb
Total front weight	2220	lb	(60% of total vehicle weight)		
Total rear weight	1482	lb	(40% of total vehicle weight)		
Total delivered weight	3702	lb			

Weight of test vehicle with two dummies and 300 lb of cargo weight:

Right front	1186	lb	Right rear	1013	lb
Left front	1225	lb	Left rear	911	lb
Total front weight	2411	lb	(55.6% of total vehicle weight)		
Total rear weight	1924	lb	(44.4% of total vehicle weight)		
Total test weight	4335	lb			

Remarks:

Weight of ballast secured in vehicle: None

Components removed to meet target test weight: None

General Test and Vehicle Parameter Data, Cont'd.

Test Vehicle Attitude:

As delivered door sill angle: 1.0°

As tested door sill angle: 0.9°

Fully loaded door sill angle: 0.9°

Vehicle Wheelbase: 112.5 inches

Fuel System Data:

Fuel system capacity from owner's manual: 19.8 gallons

Useable capacity figure furnished by COTR: 20.0 gallons

Remarks: None

Post-Impact Data

Test number: 990113S
NHTSA number: CX0108
Test date: 01/13/99
Test time: 10:11 p.m.
Test type: FMVSS 208 Compliance Sled Test
Impact angle: 0°
Ambient temperature
at impact area: 70° F
Temperature in
occupant compartment: 70° F

Sled carriage velocity:

Integrated velocity from the integration of the entire sled acceleration:	28.7 mph
Measured velocity from the light trap device attached to the sled (backup):	29.5 mph
Specified integrated velocity range:	28 to 30 mph

Sled carriage acceleration:

Acceleration:	17.0 g
Specified acceleration range:	16.0 g - 18.2 g

Sled carriage acceleration duration:

Time from T-0(-0.5 g) to 0.0 g:	125.0 msec
Specified acceleration duration:	120.0 - 130.0 msec

The sled acceleration curve was within the specified corridor.

Seat and Steering Column Positioning Data

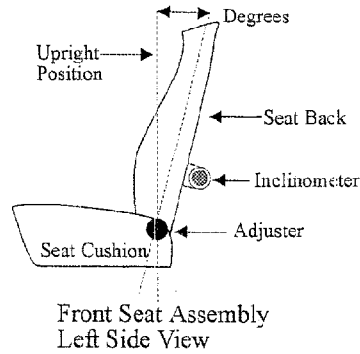
Vehicle: 1999 Chevrolet Venture 3-Door MPV

NHTSA No.: CX0108

Nominal Design Riding Position:

Driver Seat: Seat Back Angle = 23.0°

Passenger Seat: Seat Back Angle = 23.0°



Seat Fore and Aft Positions:

Driver Seat: The seat track had a total position movement of 16 notches and was positioned 8 notches rearward from the foremost position with the forward most locking position as zero.

Passenger: The seat track had a total position movement of 16 notches and was positioned 8 notches rearward from the foremost position with the forward most locking position as zero.

Steering Column Adjustments:

The steering column was adjusted to the second position from the full down position with full down position being zero.

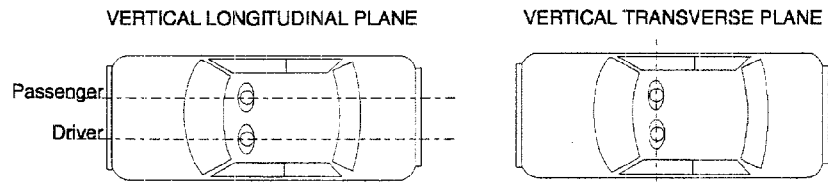
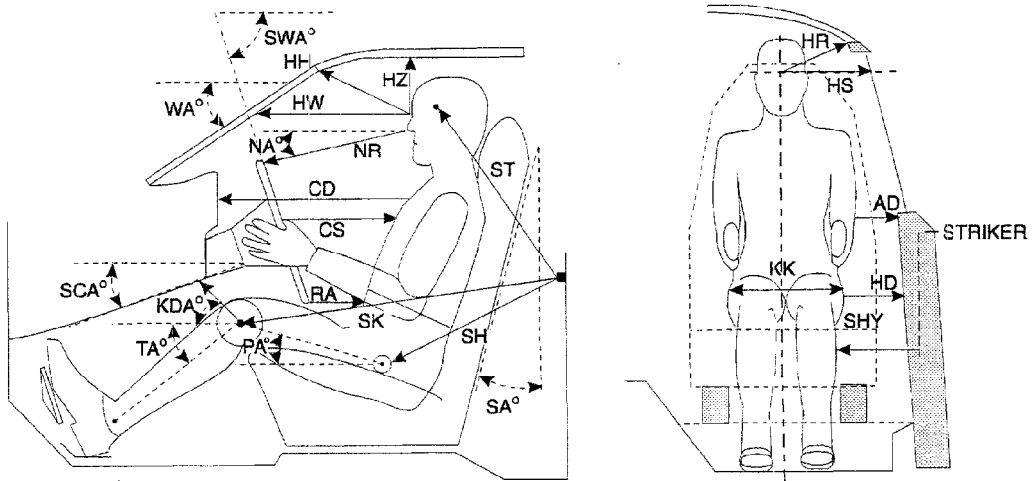
Dummy Measurement Data for Front Seat Occupants

<u>Designation</u>	<u>Type of Measurement</u>	<u>Driver (Serial #229)</u>	<u>Passenger (Serial #230)</u>
WA	Windshield angle	31.5°	N/A
SWA	Steering wheel angle	70.5°	N/A
SCA	Steering column angle	29.2°	N/A
SA	Seat back angle	23.0°	23°
HZ	Head to roof	10.7 in	10.1 in
HH	Head to header	18.2 in	18.6 in
HW	Head to windshield	30.5 in	28.5 in
HR	Head to side header	11.2 in	11.0 in
NR	Nose to rim	16.4 in	N/A
NA	Nose to rim angle	N/A	N/A
CD	Chest to dash	22.1 in	20.1 in
CS	Steering wheel to chest	11.5 in	N/A
RA	Rim to abdomen	6.5 in	N/A
KDL	Left knee to dash	7.2 in	6.3 in
KDR	Right knee to dash	7.2 in	6.5 in
KDA	Outboard knee to dash angle	20°	20°
PA	Pelvic angle	23.0°	24.5°
TA	Tibial angle	49.4°	42.5°
KK	Knee to knee	14.2 in	10.6 in
ST ¹	Striker to head	20.2 in	20.5 in
	Striker to head angle	78.5°	80.0°
SK ¹	Striker to knee	25.1 in	25.7 in
	Striker to knee angle	-2.8°	-4.7°
SH ¹	Striker to H-point	11.7 in	11.4 in
	Striker to H-point angle	-29.8°	-22.4°
SHY	Striker to H-point (Y dir.)	9.8 in	9.7 in
HS	Head to side window	14.5 in	14.5 in
HD	H-point to door	6.1 in	6.5 in
AD	Arm to door	5.0 in	5.1 in

The seat back angle (SA°) is measured relative to vertical, all other angles are measured relative to horizontal.

¹ A negative angle indicates the measurement point was located below the striker.

Dummy Measurement Locations for Front Seat Occupants



Descriptions of Dummy Measurements

When a level is to be used, it is to ensure that the line containing the two points described is either parallel or perpendicular to the ground. If a measurement to be made is less than 10 inches ignore the directions to use a level and approximate a level measurement. Also, when a measurement is to be taken to or from the center of a bolt on the dummy, take the measurement from the center of the bolt hole if the bolt is recessed.

The following measurements are to be made within a vertical longitudinal plane.

- * HH Head to Header, taken from the point where the dummy's nose meets his forehead (between his eyes) to the furthest point forward on the header.
- * HW Head to Windshield, taken from the point where the dummy's nose meets his forehead (between his eyes) to a point on the windshield. Use a level.
- HZ Head to Roof, taken from the point where the dummy's nose meets his forehead (between his eyes) to the point on the roof directly above it. Use a level.
- * CS Chest to Dash, place a tape measure on the tip of the dummy's chin and rotate five inches of it downward toward the dummy to the point of contact on the transverse center of the dummy's chest. Then measure from this point to the closest point on the dashboard either between the upper part of the steering wheel between the hub and the rim, or measure to the dashboard placing the tape measure above the rim, whichever is a shorter measurement. See diagram.
- RA Steering Wheel Rim to Abdomen, taken from the bottommost point of the steering wheel rim horizontally rearward to the dummy. Use a level.
- NR Nose to Rim, taken from the tip of the dummy's nose to the closest point on the top of the steering wheel rim. Also indicate the angle this line makes with respect to the horizontal (NA).
- *¹ KDL, KDR Left and Right Knees to Dashboard, taken from the center of the knee pivot bolt's outer surface to the closest point forward acquired by swinging the tape measure in continually larger arcs until it contacts the dashboard. Also reference the angle of this measurement with respect to the horizontal for the outboard knee (KDA). See diagram.
- SH, SK, ST Striker to Hip, Knee, and Head, these measurements are to be taken in the X-Z plane measured from the forward most center point on the striker to the center of the H-point, outer knee bolt, and head target. When taking this measurement a firm device that can be rigidly connected to the striker should be used. Use a level. The angles of these measurements with respect to the horizontal should

* Measurement used in Data Tape Reference Guide

¹ Only outboard measurement is referenced in Data Tape Reference Guide

Descriptions of Dummy Measurements, Cont'd.

also be recorded. The measurement in the Y (transverse) direction from the striker to the H-point should also be taken (SHY). See diagram.

The following measurements are to be made within a vertical transverse plane.

- HS Head to Side Window, taken from the point where the dummy's nose meets his forehead (between his eyes) to the outside of the side window. In order to make this measurement, roll the window down to the exact height which allows a level measurement. Use a level. See diagram.
- * AD Arm to Door, taken from the outer surface of the elbow pivot bolt on a Hybrid II dummy to the first point it hits on the door. In the case of a Hybrid III dummy, measure from the bolt on the outer biceps. When a SID is used make the measurement from the center of the bottom of the arm segment where it meets the dummy's torso.
- * HD H-point to Door, taken from the H-point on the dummy to the closest point on the door. Use a level.
- * HR Head to Side Header, measure the shortest distance from the point where the dummy's nose meets his forehead (between his eyes) to the side edge of the header just above the window frame, directly adjacent to the dummy.
- SHY Striker to H-point, taken from a rod rigidly connected to the forward most center point on the striker to the H-point. Use a level. See diagram.
- KK Knee to Knee, for Hybrid II dummies measure the distance between knee pivot bolt head outer surfaces. For Hybrid III dummies measure the distance between the outboard knee clevis flange surfaces. (This measurement may not be exactly transverse.)

Angles

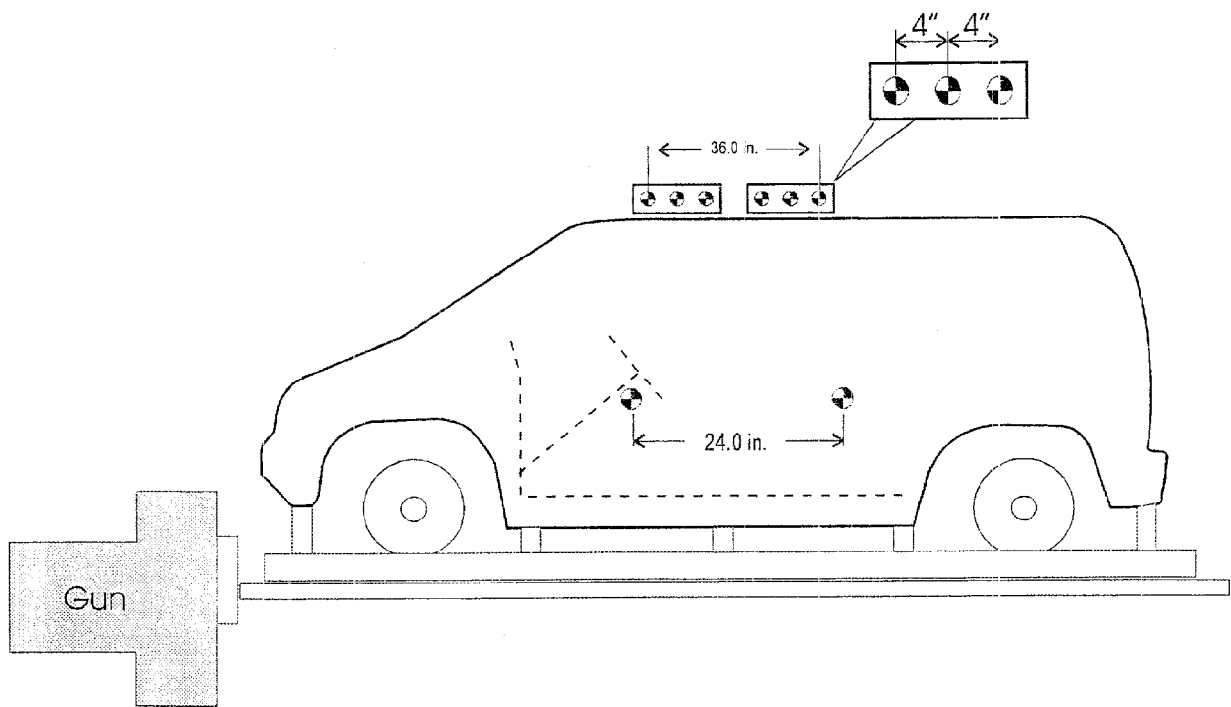
- SA Seat Back Angle, find this angle using the instructions provided by the manufacturer. If the manufacturer doesn't provide clear instructions contact the COTR.
- PA Pelvic or Femur Angle, taken by inserting the pelvic angle gauge into the H-point gauging hole on the SID or the Hybrid III dummies and taking this angle with respect to the horizontal. Measure the angle of the line connecting the H-point hole and the outer knee pivot bolt hole on a Hybrid II dummy with respect to the horizontal, to find the femur angle.

* Measurement used in Data Tape Reference Guide

Descriptions of Dummy Measurements, Cont'd.

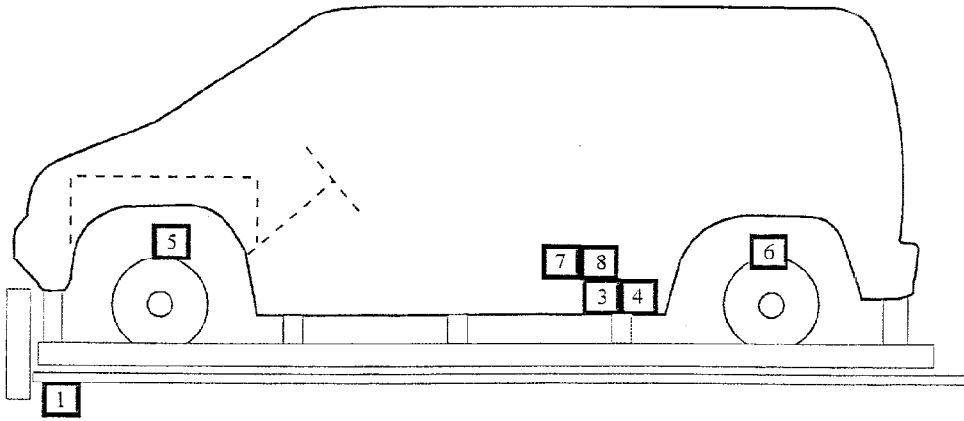
- SWA Steering Wheel Angle, find this by placing a straight edge against the steering wheel rim along the longitudinal plane. Then measure the acute angle of the straight edge with respect to the horizontal.
- SCA Steering Column Angle, measured with respect to the horizontal by placing an inclinometer on the center of the underside of the steering column.
- NA Measure the angle made when taking the measurement NR with respect to the horizontal.
- KDA Knee to Dash Angle, the angle that the measurement KD is taken at with respect to the horizontal. Only get this angle for the outboard knee. See diagram.
- WA Windshield Angle, place an inclinometer along the transverse center of the windshield exterior (measurement is made with respect to horizontal).
- TA Tibial Angle, use a straight edge to connect the dummy's knee and ankle bolts. Then place an inclinometer on the straight edge and measure the angle with respect to the horizontal.

REFERENCE PHOTO TARGETS

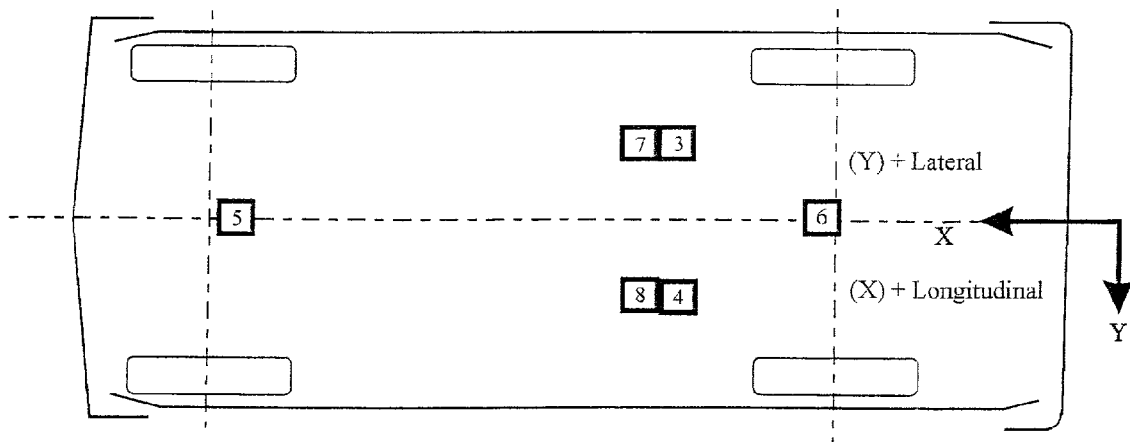


LEFT SIDE VIEW

Vehicle Accelerometer Placement



Side View



Bottom View

Vehicle Data Summary and Accelerometer Locations

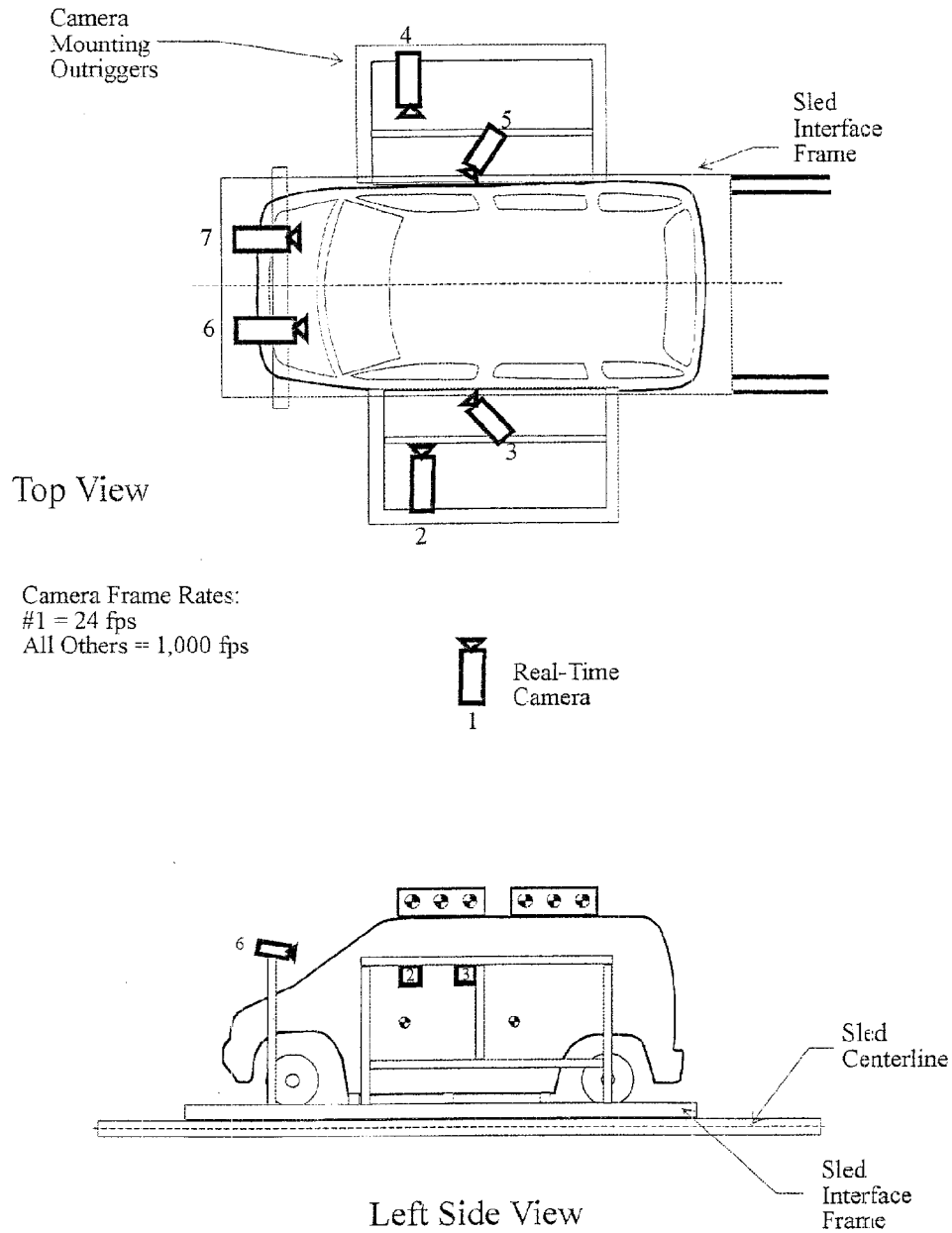
TEST NUMBER: 990113S	X		Y	POSITIVE DIRECTION		NEGATIVE DIRECTION	
No. LOCATION							
1 SLED ACCELERATION	175.6 in	-1.0 in					
PRIMARY			0.7 g	@ 198.6 ms	17.0 g	@ 57.3 ms	
REDUNDANT			1.0 g	@ 150.3 ms	17.3 g	@ 60.5 ms	
2 SLED VELOCITY							
MEASURED			0.1 mph	@ 0.9 ms	29.5 mph	@ 125.9 ms	
INTEGRATED			-0.1 mph	@ 0.9 ms	28.7 mph	@ 125.0 ms	
3 LEFT REAR SEAT CROSSMEMBER LONGITUDINAL	58.4 in	-14.9 in	1.9 g	@ 130.1 ms	18.2 g	@ 55.8 ms	
4 RIGHT REAR SEAT CROSSMEMBER LONGITUDINAL	58.4 in	16.6 in	1.8 g	@ 129.8 ms	21.3 g	@ 77.7 ms	
5 BOTTOM ENGINE LONGITUDINAL	150.1 in	-0.9 in	3.5 g	@ 130.7 ms	18.7 g	@ 55.0 ms	
6 REAR AXLE LONGITUDINAL	37.0 in	0.0 in	3.2 g	@ 230.1 ms	18.7 g	@ 58.0 ms	
7 LEFT VEHICLE FRAME LONGITUDINAL	67.6 in	-15.2 in	1.8 g	@ 130.0 ms	17.8 g	@ 56.0 ms	

Vehicle Data Summary and Accelerometer Locations, Cont'd.

TEST NUMBER: 990113S									
No. LOCATION	X	Y	Z	POSITIVE DIRECTION	NEGATIVE DIRECTION				
8 RIGHT VEHICLE FRAME LONGITUDINAL	67.1 in	15.3 in		1.6 g @ 129.7 ms	20.0 g @ 78.4 ms				
9 AIRBAG EVENT				7.0 volt @ 20.7 ms	---				
10 DRIVER AIRBAG INDUCTIVE PICKUP EVENT				20.7 --- @ 42.1 ms	20.3 volt @ 40.5 ms				
11 PASSENGER AIRBAG INDUCTIVE PICKUP EVENT				19.3 --- @ 40.5 ms	21.2 amp @ 44.6 ms				

REFERENCE: X: + FORWARD FROM VEHICLE REAR SURFACE
Y: + RIGHTWARD FROM SLED CARRIAGE CENTERLINE

Camera Positions



Motion Picture Camera Locations

Vehicle year/make/model/body style: 1999/Chevrolet/Venture 3-Door/MPV NHTSA No. CX0108 Test Number: 990113S

Camera Number	View	Camera Positions ¹			Camera Angle ²	Film Plane to Head Target	Camera Lens	Film Speed
		X	Y	Z				
1	Left side view offboard	89.5 in	306.3 in	44.1 in	0	288.0 in	10 mm	24 frames/s
2	Left side view wide	81.2 in	72.4 in	48.7 in	1.6°	54.8 in	8 mm	1005 frames/s
3	Left side view over shoulder	98.8 in	49.1 in	60.7 in	12.4°	32.6 in	8 mm	940 frames/s
4	Right side view wide	76.0 in	92.0 in	43.8 in	5.7°	75.4 in	8 mm	1000 frames/s
5	Right side view over shoulder	100.8 in	49.9 in	58.8 in	10.4°	33.5 in	8 mm	997 frames/s
6	Front view - driver	27.8 in	12.4 in	53.1 in	7.6°	61.0 in	8 mm	1015 frames/s
7	Front view - passenger	27.5 in	16.5 in	53.9 in	8.0°	62.3 in	8 mm	997 frames/s

- ¹ X: Film plane to front of sled
Y: Film plane to sled centerline
Z: Film plane to top of sled

- ² Angle: Film plane of camera downward from horizontal plane

FMVSS 208 Occupant Injury Data

Vehicle: 1999 Chevrolet Venture 3-Door MPV NHTSA NO.: CX0108 Date: 01/13/99

Maximum Acceleration Values: (g's)	Driver Dummy #229	Passenger Dummy #230
Head Channel X	-27.5	-45.2
Head Channel Y	-7.2	-4.4
Head Channel Z	-2.2	17.4
HEAD RESULTANT	28.1	48.0
Chest Channel X	-36.2	-32.6
Chest Channel Y	4.5	-2.7
Chest Channel Z	-10.1	14.7
CHEST RESULTANT	36.6	33.6

Head Injury Criteria (HIC) Values:

HIC	109.9	283.4
t_1 = (msec)	88.2	98.6
t_2 = (msec)	124.2	128.3

[The maximum time interval from t_1 to t_2 is 36 milliseconds.]

Chest Injury Criteria (Clip) Values: (g's)

CLIP	36.2	33.0
t^1 = (msec)	102.0	102.7
t^2 = (msec)	105.0	105.8
Chest Deflection (in)	1.6	0.4

FMVSS 208 Occupant Injury Data, Cont'd.

Vehicle: 1999 Chevrolet Venture 3-Door MPV NHTSA NO.: CX0108 Date: 01/13/99

Max. Compressive Femur Forces:	Units (lbs)	
	Driver Dummy #229	Passenger Dummy #230
Left Side (lbs)	1366.9	1565.7
Right Side (lbs)	1672.3	1157.1

Neck Injury Criteria:	Driver Dummy #229	Passenger Dummy #230
Peak Flexion Bending Moment (N-m)	29.4	64.1
Peak Extension Bending Moment (N-m)	11.0	19.7
Peak Axial Tension (N-m)	803.8	414.3
Peak Axial Compression (N)	165.9	617.6
Peak Fore Shear (N)	514.9	1054.8
Peak Aft Shear (N)	193.9	103.0

FMVSS 208 SEAT BELT WARNING SYSTEM CHECK

Vehicle Model Year/Make/Model/Body Style: 1999/Chevrolet/Venture 3-Door/MPV

NHTSA NO.: CX0108

Technician: R. Stoner & V. Watters

Date: 01/13/99

Complete the following to determine which seat belt warning system option (S7.3(a)(1)) or (S7.3(a)(2)) is used. (Manufacturers may use either option.)

A. With occupant in driver's position and lap belt in stowed position and ignition switch placed in "Start/On" position:

A.1 S7.3(a)(1)

Time duration of audible warning signal = 5 seconds
(4 to 8 seconds)

Time duration of reminder light operation = 70 seconds
(no less than 60 seconds)

A.2 S7.3(a)(2)

Time duration of audible warning signal = _____ seconds
(4 to 8 seconds) (see 49 USCS @ 30124)

Time duration of reminder light operation = _____ seconds
(4 to 8 seconds)

B. With occupant in driver's position and lap belt in use and the ignition switch placed in "Start/On" position:

B.1 S7.3(a)(1)

Time duration of audible warning signal = 0 seconds
(audible warning should not operate)

Time duration of reminder light operation = 0 seconds
(reminder light does not operate)

B.2 S7.3(a)(2)

Time duration of audible warning signal = _____ seconds
(audible warning should not operate)

Time duration of reminder light operation = _____ seconds
(4 to 8 seconds)

C. Note wording of visual warning:

Fasten Seat Belt _____

Fasten Belt _____

Symbol 101 ☒

FMVSS 208 READINESS INDICATOR

Vehicle Model Year/Make/Model/Body Style: 1999/Chevrolet/Venture 3-Door/MPV

NHTSA NO.: CX0108

Technician: R. Stoner & V. Watters

Date: 01/13/99

An occupant restraint system that deploys in the event of a crash shall have a monitoring system with a readiness indicator. A totally mechanical system is exempt from this requirement.

(11/8/94 legal interpretation)

Is the system totally mechanical?

Yes-☐; No-☒

Describe the location of the readiness of the readiness indicator: Lower left corner of the instrument cluster; seat belt indicator also on left side of instrument cluster.

Is the readiness indicator clearly visible to the driver?

Yes-☒; No-☐

Is a list of the element in the occupant restraint system, being monitored by the readiness indicator, provided?

Yes-☒; No-☐

FMVSS 208 Air Bag Labels

Vehicle Model Year/Make/Model/Body Style: 1999/Chevrolet/Venture 3-Door/MPV

NHTSA NO.: CX0108

Technician: R. Stoner & V. Watters

Date: 01/13/99

1. Air Bag Maintenance Label and Owner's Manual Instructions:

1.1 Does the manufacturer recommend periodic maintenance or replacement of the air bag?

☐ Yes (Go to 1.2)

☒ No (Go to 2)

1.2 Does the Vehicle have a maintenance or replacement label?

☐ Yes-Pass ☒ No-Fail

1.3 Does the label contain one of the following?

☐ Yes-Pass ☒ No-Fail

☐ Schedule on label specifies month and year

☐ Schedule on label specifies vehicle mileage

☐ Schedule on label specifies interval measured from date on certification label

1.4 Is the label permanently affixed within the passenger compartment?

☐ Yes-Pass ☒ No-Fail

1.5 Is the label lettered in English?

☐ Yes-Pass ☒ No-Fail

1.6 Is the label in block capitals and numerals?

☐ Yes-Pass ☒ No-Fail

1.7 Are the letters and numerals at 3/32 inch high?

☐ Yes-Pass ☒ No-Fail

1.8 Does the owner's manual set forth the recommended schedule for maintenance or replacement?

☐ Yes-Pass ☒ No-Fail

2. Does the owner's manual: (S4.5.1 (f))

2.1 Include a description of the vehicle's air bag system in an easily understandable format?

☒ Yes ☐ No

2.2 Include a statement that the vehicle is equipped with an air bag and a lap/shoulder belt at the front outboard seating positions?

☒ Yes ☐ No

Air Bag Labels, Cont'd.

- 2.3 Include a statement that the air bag is a supplemental restraint at the front outboard seating positions? ☒ Yes ☐ No
- 2.4 Emphasize that all occupants, including the driver, should always wear their seat belts whether or not an air bag is also provided at their seating positions to minimize the risk of severe injury or death in the event of a crash? ☒ Yes ☐ No
- 2.5 Provide any necessary precautions regarding the proper positioning of occupants, including children, at seating positions equipped with air bags to insure maximum safety protection for those occupants? ☒ Yes ☐ No
- 2.6 Explain that no objects should be placed over or near the air bag on the steering wheel or on the instrument panel, because any such objects could cause harm if the vehicle is in a crash severe enough to cause the air bag to inflate? ☒ Yes ☐ No

3. Does the Vehicle:

- 3.1 Provide an automatic means to ensure that the air bag does not deploy when a child seat or child with a total mass of 30 kg or less is present on the front outboard seat? ☐ Yes ☒ No
- 3.2 Incorporate sensors, other than or in addition to weight sensors, which automatically prevent the passenger air bag from deploying in situations in which it might have an adverse effect on infants in rear-facing child seat, and unbelted or improperly belted children? ☐ Yes ☒ No
- 3.3 Have a passenger air bag designed to deploy in a manner that does not create a risk of serious injury to infants in rear-facing child seats, and unbelted or improperly belted children? ☐ Yes ☒ No

If yes to 3.1, or 3.2, or 3.3, the vehicle is not required to have a Sun Visor Warning Label (S4.5.1(b)), an air bag alert label (S4.5.1(c)) or a label on the dash (S4.5.1(e)) and this check sheet is complete. (S4.5.1) If no to 3.1, 3.2, and 3.3, go to 4.

Air Bag Labels, Cont'd.

4. Sun Visor Warning Label

- 4.1 Is the label permanently affixed (may be permanent marking or molding) to either side of the sun visor at each front outboard seating position with an air bag?

Driver side ☒ Yes-Pass ☐ No-Fail

Passenger side ☒ Yes-Pass ☐ No-Fail

- 4.2 Does the label conform in content (**vehicles without back seats may omit the statement: "The BACK SEAT is the SAFEST place for children."**) (S4.5.1(b)(2)(v)) to the label shown in either Figure 6a or 6b as appropriate at each front outboard seating position with an air bag? (S4.5.1(b)(2))

4.2.1 Dual air bags

Driver side ☒ Yes-Pass ☐ No-Fail

Passenger side ☒ Yes-Pass ☐ No-Fail

- 4.2.2 Vehicles with driver air bag ONLY - either 4.2.1 or 4.2.2 is applicable, not both. (S4.5.1(b)(2)(iv))

- 4.2.2.1 Does the label conform on content to the label shown in either Figure 6a or 6b as appropriate?

☒ N/A

Driver side ☐ Yes-Pass ☐ No-Fail

- 4.2.2.2 Does the label conform in content to the label shown in Figure 6a where the label can be modified to omit the pictogram and the message may read:

DEATH or SERIOUS INJURY can occur.

- Sit as far back as possible from the air bag.
- ALWAYS use SEAT BELTS and CHILD RESTRAINTS.
- The BACK SEAT is the SAFEST place for children.

☒ N/A

Driver side ☐ Yes-Pass ☐ No-Fail

Air Bag Labels, Cont'd.

SUN VISOR LABEL VISIBLE WHEN VISOR IS IN DOWN POSITION

LABEL OUTLINE, VERTICAL AND HORIZONTAL LINE BLACK

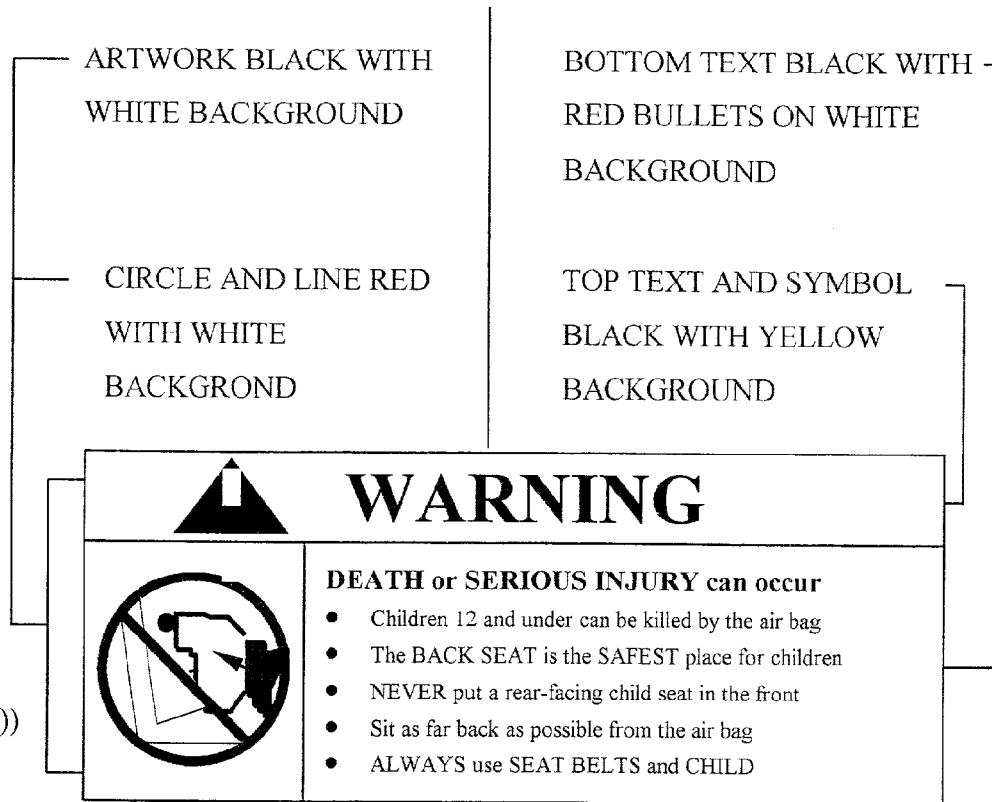


Figure 6a
(S4.5.1(b)(2))

Air Bag Labels, Cont'd.

SUN VISOR LABEL VISIBLE WHEN VISOR IS IN DOWN POSITION

LABEL OUTLINE, VERTICAL AND HORIZONTAL LINE BLACK

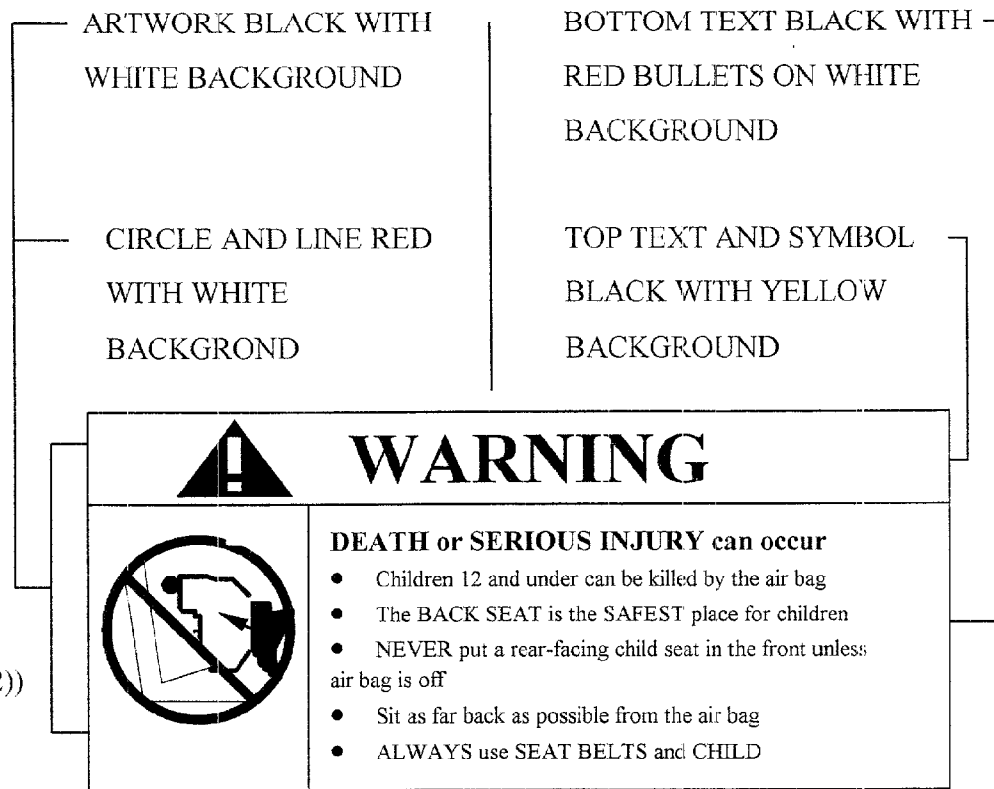


Figure 6b
(S4.5.1(b)(2))

- 4.3 Is the driver side label heading area yellow with the word "warning" and the alert symbol in black? (S4.5.1.(b)(2)(i))

Driver side ☒ Yes-Pass ☐ No-Fail

Passenger side ☒ Yes-Pass ☐ No-Fail

- 4.4 Is the message white with black text? (S4.5.1 (b)(2)(ii))

Driver side ☒ Yes-Pass ☐ No-Fail

Passenger side ☐ No air bag ☒ Yes-Pass ☐ No-Fail

- 4.5 Is the message area at least 30 cm²? (S4.5.1(b)(2)(ii))

Actual message area 31 cm²

Driver side ☒ Yes-Pass ☐ No-Fail

Passenger side ☐ No air bag ☒ Yes-Pass ☐ No-Fail

Air Bag Labels, Cont'd.

- 4.6 Is the pictogram black with a red circle and slash on a white background?
(S4.5.1(b)(2)(iii)) & (S4.5.1(b)(2)(iv))

For vehicles with driver side air bag ONLY ☐ N/A

Driver side ☒ Yes-Pass ☐ No-Fail

Passenger side ☐ No air bag ☒ Yes-Pass ☐ No-Fail

- 4.7 Is the pictogram at least 30 mm in diameter? (S4.5.1(b)(2)(iii))
Actual diameter 31 mm

For vehicles with driver side air bag ONLY ☐ N/A

Driver side ☒ Yes-Pass ☐ No-Fail

Passenger side ☐ No air bag ☒ Yes-Pass ☐ No-Fail

- 4.8 Is the same side of the sun visor to which the sun visor label is affixed free of other information with the exception of an air bag maintenance label?
(S4.5.1(b)(3))

Driver side ☒ Yes-Pass ☐ No-Fail

Passenger side ☐ No air bag ☒ Yes-Pass ☐ No-Fail

- 4.9 Is the sun visor free of other information about air bags or the need to wear seat belts with the exception of the air bag alert label or the utility vehicle label?

Driver side ☒ Yes-Pass ☐ No-Fail

Passenger side ☐ No air bag ☒ Yes-Pass ☐ No-Fail

5. Air Bag Alert Label

- 5.1 Is the Sun Visor Warning Label visible when the sun visor is in the stowed position?

☒ Yes ☐ No **If yes, go to 6**

- 5.2 Does the label conform in content to the label shown in Figure 6c?
(S4.5.1(c)(2))

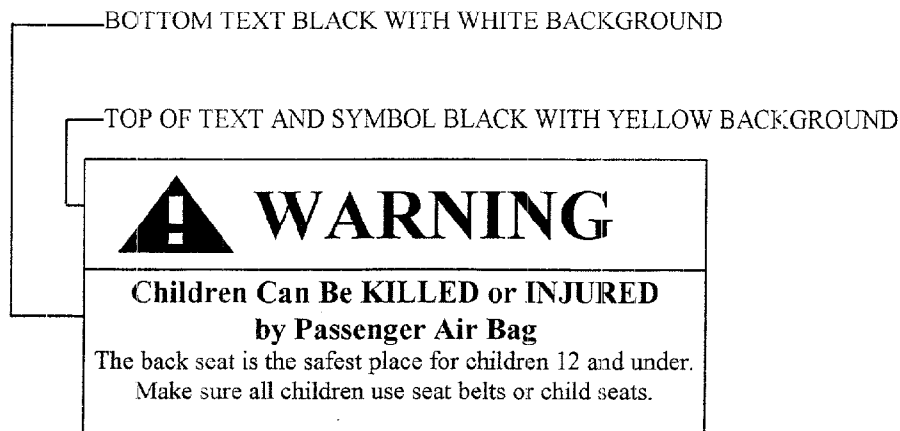
☐ Yes-Pass ☐ No-Fail



Air Bag Labels, Cont'd.

- 5.3 Is the message area black with yellow text? (S4.5.1(c)(2)(i))
☐ Yes-Pass ☐ No-Fail
- 5.4 Is the message area at least 20 cm²? (S4.5.1(c)(2)(i))
Actual message area 20.0 cm² ☐ Yes-Pass ☐ No-Fail
- 5.5 Is the pictogram black with a red circle and slash on a white background?
(S4.5.1(c)(2)(ii))
For vehicles with driver side air bag ONLY ☐ N/A
☐ Yes-Pass ☐ No-Fail
- 5.6 Is the pictogram at least 20 mm in diameter? (S4.5.1(c)(2)(ii))
Actual diameter is 25.0 mm
For vehicles with driver side air bag ONLY ☐ N/A
☐ Yes-Pass ☐ No-Fail
6. Label On the Dash
- 6.1 Does the vehicle have a passenger air bag?
☒ Yes ☐ No
If no, this check list is complete.
- 6.2 Does the vehicle have a label on the dash or steering wheel hub? (S4.5.1(e))
☒ Yes-Pass ☐ No-Fail
- 6.3 Does the label conform in content (vehicles without back seats may omit the statement: "The back seat is the safest place for children 12 and under." (S4.5.1(e)(iii)) to the label shown in Figure 7? (S4.5.1(e))
☒ Yes-Pass ☐ No-Fail

Figure 7
(S4.5.1(e))



Air Bag Labels, Cont'd.

- 6.4 Is the heading area yellow with the word “warning” and the alert symbol in black? (S4.5.1(e)(i)) ☒ Yes-Pass ☐ No-Fail
- 6.5 Is the message white with black text? (S4.5.1(e)(ii)) ☒ Yes-Pass ☐ No-Fail
- 6.6 Is the message area at least 30 cm²? (S4.5.1(e)(ii))
Actual message area 32 cm² ☒ Yes-Pass ☐ No-Fail

FMVSS 208 REAR OUTBOARD SEATING POSITION SEAT BELTS

Vehicle Model Year/Make/Model/Body Style: 1999/Chevrolet/Venture 3-Door/MPV

NHTSA NO.: CX0108

Technician: R. Stoner & V. Watters

Date: 01/13/99

Do all rear outboard seating positions have type 2 seat belts?

Yes-☒; No-☐;

If NO, describe the seat belt installed, the seat location, and any other information about the seat that would explain why a type 2 belt was not installed.

FMVSS 208 Lap Belt Lockability

Passenger cars, trucks, buses, and multipurpose passenger vehicles with a GVWR of 10,000 pounds or less. (S7.1.1.5)

Complete one of these forms for **each** designated seating position with forward-facing seats or seats that can be adjusted to forward-facing **and** that has seat belt retractors that are not automatic retractors. (S7.1.1.5(c))

Vehicle Model Year/Make/Model/Body Style: 1999/Chevrolet/Venture 3-Door/MPV

NHTSA NO.: CX0108

Technician: R. Stoner & V. Watters

Date: 01/13/99

DESIGNATED SEATING POSITION: Right front passenger seat

- ☒ 1. Record test seat position. Mid
(S7.1.1.5(c)(1)) (Any position is acceptable.)
- ☒ 2. Buckle the seat belt. (S7.1.1.5(c)(1))
- ☒ 3. Complete any procedures recommended in the vehicle owner's manual to activate any locking feature. (S7.1.1.5(c)(1))
- ☒ 4. Does the lap belt portion of the seat belt in the forward-facing seat or seat that can be adjusted to forward-facing consist of a locking device that does NOT have to be attached by the vehicle user to the seat belt webbing, retractor, or any other part to the vehicle?
(S7.1.1.5(a)) ☒ Yes-Pass ☐ No-Fail
- ☒ 5. Does the lap belt portion of the seat belt in the forward-facing seat or seat the can be adjusted to forward-facing consist of a locking device that does NOT require inverting, twisting or deforming of the belt webbing? (S7.1.1.5(a)) ☒ Yes-Pass ☐ No-Fail
- ☒ 6. Does the vehicle user need to take some action to activate the locking feature on the lap belt portion of the seat belt in any forward-facing seat or seat that can be adjusted to forward-facing?
If yes, go to 6.1. If no, go to 7. ☒ Yes ☐ No
- 6.1 Does the vehicle owner's manual include a description in words and/or diagrams describing how to activate the locking feature so that the seat belt assembly can tightly secure a child restraint system and how to deactivate the locking feature to remove the child restraint system. (S7.1.1.5(b)) ☒ Yes-Pass ☐ No-Fail

FMVSS 208 Lap Belt Lockability, Cont'd.

Vehicle Model Year/Make/Model/Body Style: 1999/Chevrolet/Venture 3-Door/MPV
NHTSA NO.: CX0108 Technician: R. Stoner & V. Watters Date: 01/13/99

DESIGNATED SEATING POSITION: Right front passenger seat.

- ☒ 7. Locate a reference point a on the seat belt buckle. (S7.1.1.5(c)(2))
- ☒ 8. Locate a reference point B on the attachment hardware or retractor assembly at the other end of the lap belt or lap belt portion of the seat belt assembly. (S7.1.1.5(c)(2))
- ☒ 9. Adjust the lap belt or lap belt portion of the seat belt assembly according to any procedures recommended in the vehicle owner's manual to activate any locking feature so that the webbing between points A and B is at the maximum length allowed by the belt system. (S7.1.1.5(c)(2))
- ☒ 10. Measure and record the distance between points A and B along the longitudinal centerline of the webbing for the lap belt or lap belt portion of the seat belt assembly. (S7.1.1.5(c)(2)) Measured distance between A and B 73 inches.
- ☒ 11. Readjust the belt system so that the webbing between points A and B is at any length that is 5 inches or more shorter than the maximum length of the webbing. (S7.1.1.5(c)(3))
- ☒ 12. To the lap belt or lap belt portion of the seat belt assembly, apply a preload of 10 pounds using the webbing tension pull device in figure 5. Apply the load in a vertical plane parallel to the longitudinal axis of the vehicle and passing through the seating reference point of the designated seating position. Apply the preload in a horizontal direction toward the front of the vehicle with a force application angle of not less than 5 degrees nor more than 15 degrees above the horizontal. (S7.1.1.5(c)(4)) Measured force application angle 15 degrees. (Spec. 5~15 degrees)
- ☒ 13. Measure the length between points A and B along the longitudinal centerline of the webbing while the preload is being applied. (S7.1.1.5(c)(4)) Measured distance between A and B 33 inches.

FMVSS 208 Lap Belt Lockability, Cont'd.

Vehicle Model Year/Make/Model/Body Style: 1999/Chevrolet/Venture 3-Door/MPV

NHTSA NO.: CX0108

Technician: R. Stoner & V. Watters

Date: 01/13/99

DESIGNATED SEATING POSITION: Right front passenger seat.

- ☒ 14. Increase the load to 50 pounds at a rate of no more than 50 pounds per second. Attain the load in not more than 5 seconds. (If webbing sensitive emergency locking retractors are installed as part of the lap belt or lap belt portion of the seat belt assembly, apply the load at a rate less than the threshold value for lock-up specified by the manufacturer.) Maintain the load for at least 5 seconds. Measure and record the distance between points A and B along the longitudinal centerline of the webbing. (S7.1.1.5(c)(5))

Record onset rate 10 lb/sec (spec. 10 ~50 lb/sec)

The measured distance between A and B is 33.2 inches (S7.1.1.5(c)(6))

- ☒ 15. Subtract the measurement in 13 from the measurement in 14. Is the difference 2 inches or less? (S7.1.1.5 (c)(7))

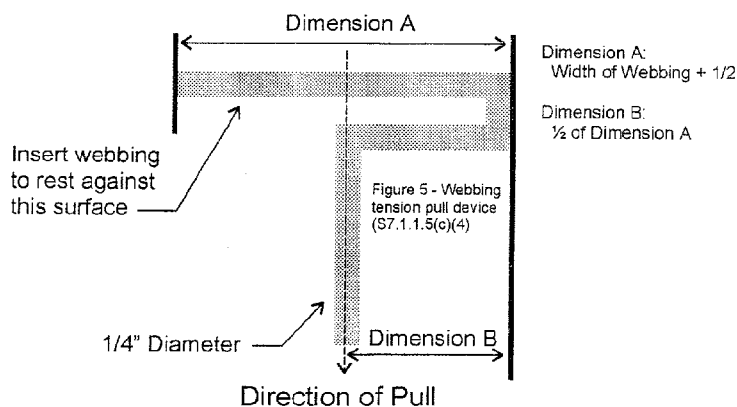
14-13=0.2 inches

☒ Yes-Pass ☐ No-Fail

- ☒ 16. Subtract the measurement in 14 from the measurement in 10. Is the difference 3 inches or more? (S7.1.1.5(c)(8))

10-14=39.8 inches.

☒ Yes-Pass ☐ No-Fail



FMVSS 208 Lap Belt Lockability

Passenger cars, trucks, buses, and multipurpose passenger

vehicles with a GVWR of 10,000 pounds or less. (S7.1.1.5)

Complete one of these forms for **each** designated seating position with forward-facing seats or seats that can be adjusted to forward-facing **and** that has seat belt retractors that are not automatic retractors. (S7.1.1.5(c))

Vehicle Model Year/Make/Model/Body Style: 1999/Chevrolet/Venture 3-Door/MPV

NHTSA NO.: CX0108 Technician: R. Stoner & V. Watters Date: 01/13/99

DESIGNATED SEATING POSITION: Left center seat

- ☒ 1. Record test seat position. Fixed
(S7.1.1.5(c)(1)) (Any position is acceptable.)
- ☒ 2. Buckle the seat belt. (S7.1.1.5(c)(1))
- ☒ 3. Complete any procedures recommended in the vehicle owner's manual to activate any locking feature. (S7.1.1.5(c)(1))
- ☒ 4. Does the lap belt portion of the seat belt in the forward-facing seat or seat that can be adjusted to forward-facing consist of a locking device that does NOT have to be attached by the vehicle user to the seat belt webbing, retractor, or any other part to the vehicle?
(S7.1.1.5(a)) ☒ Yes-Pass ☐ No-Fail
- ☒ 5. Does the lap belt portion of the seat belt in the forward-facing seat or seat the can be adjusted to forward-facing consist of a locking device that does NOT require inverting, twisting or deforming of the belt webbing? (S7.1.1.5(a)) ☒ Yes-Pass ☐ No-Fail
- ☒ 6. Does the vehicle user need to take some action to activate the locking feature on the lap belt portion of the seat belt in any forward-facing seat or seat that can be adjusted to forward-facing?
If yes, go to 6.1. If no, go to 7. ☒ Yes ☐ No
- 6.1 Does the vehicle owner's manual include a description in words and/or diagrams describing how to activate the locking feature so that the seat belt assembly can tightly secure a child restraint system and how to deactivate the locking feature to remove the child restraint system. (S7.1.1.5(b)) ☒ Yes-Pass ☐ No-Fail

FMVSS 208 Lap Belt Lockability, Cont'd.

Vehicle Model Year/Make/Model/Body Style: 1999/Chevrolet/Venture 3-Door/MPV
NHTSA NO.: CX0108 Technician: R. Stoner & V. Watters Date: 01/13/99

DESIGNATED SEATING POSITION: Left center seat

- ☒ 7. Locate a reference point A on the seat belt buckle. (S7.1.1.5(c)(2))
- ☒ 8. Locate a reference point B on the attachment hardware or retractor assembly at the other end of the lap belt or lap belt portion of the seat belt assembly. (S7.1.1.5(c)(2))
- ☒ 9. Adjust the lap belt or lap belt portion of the seat belt assembly according to any procedures recommended in the vehicle owner's manual to activate any locking feature so that the webbing between points A and B is at the maximum length allowed by the belt system. (S7.1.1.5(c)(2))
- ☒ 10. Measure and record the distance between points A and B along the longitudinal centerline of the webbing for the lap belt or lap belt portion of the seat belt assembly. (S7.1.1.5(c)(2)) Measured distance between A and B 68.6 inches.
- ☒ 11. Readjust the belt system so that the webbing between points A and B is at any length that is 5 inches or more shorter than the maximum length of the webbing. (S7.1.1.5(c)(3))
- ☒ 12. To the lap belt or lap belt portion of the seat belt assembly, apply a preload of 10 pounds using the webbing tension pull device in figure 5. Apply the load in a vertical plane parallel to the longitudinal axis of the vehicle and passing through the seating reference point of the designated seating position. Apply the preload in a horizontal direction toward the front of the vehicle with a force application angle of not less than 5 degrees nor more than 15 degrees above the horizontal. (S7.1.1.5(c)(4)) Measured force application angle 15 degrees. (Spec. 5~15 degrees)
- ☒ 13. Measure the length between points A and B along the longitudinal centerline of the webbing while the preload is being applied. (S7.1.1.5(c)(4)) Measured distance between A and B 34.2 inches.

FMVSS 208 Lap Belt Lockability, Cont'd.

Vehicle Model Year/Make/Model/Body Style: 1999/Chevrolet/Venture 3-Door/MPV

NHTSA NO.: CX0108

Technician: R. Stoner & V. Watters

Date: 01/13/99

DESIGNATED SEATING POSITION: Left center seat

- ☒ 14. Increase the load to 50 pounds at a rate of no more than 50 pounds per second. Attain the load in not more than 5 seconds. (If webbing sensitive emergency locking retractors are installed as part of the lap belt or lap belt portion of the seat belt assembly, apply the load at a rate less than the threshold value for lock-up specified by the manufacturer.) Maintain the load for at least 5 seconds. Measure and record the distance between points A and B along the longitudinal centerline of the webbing. (S7.1.1.5(c)(5))
- Record onset rate 20 lb/sec (spec. 10 ~50 lb/sec)

The measured distance between A and B is 34.7 inches (S7.1.1.5(c)(6))

- ☒ 15. Subtract the measurement in 13 from the measurement in 14. Is the difference 2 inches or less? (S7.1.1.5(c)(7))

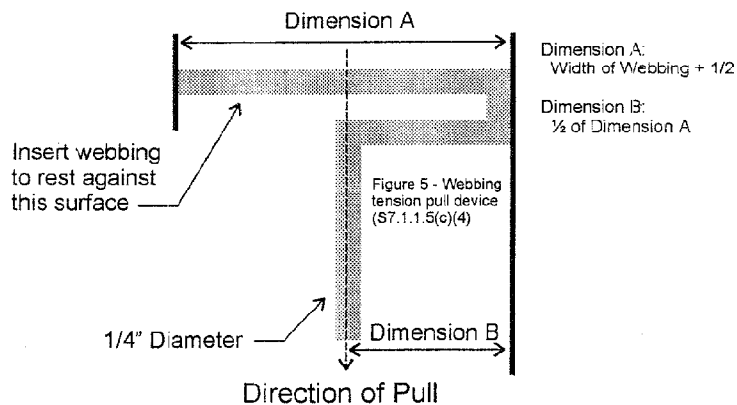
14-13=0.5 inches

☒ Yes-Pass ☐ No-Fail

- ☒ 16. Subtract the measurement in 14 from the measurement in 10. Is the difference 3 inches or more? (S7.1.1.5(c)(8))

10-14=33.9 inches.

☒ Yes-Pass ☐ No-Fail



FMVSS 208 Lap Belt Lockability

Passenger cars, trucks, buses, and multipurpose passenger vehicles with a GVWR of 10,000 pounds or less. (S7.1.1.5)

Complete one of these forms for **each** designated seating position with forward-facing seats or seats that can be adjusted to forward-facing **and** that has seat belt retractors that are not automatic retractors. (S7.1.1.5(c))

Vehicle Model Year/Make/Model/Body Style: 1999/Chevrolet/Venture 3-Door/MPV
NHTSA NO.: CX0108 Technician: R. Stoner & V. Watters Date: 01/13/99

DESIGNATED SEATING POSITION: Right center seat

- ☒ 1. Record test seat position. Fixed
(S7.1.1.5(c)(1)) (Any position is acceptable.)
- ☒ 2. Buckle the seat belt. (S7.1.1.5(c)(1))
- ☒ 3. Complete any procedures recommended in the vehicle owner's manual to activate any locking feature. (S7.1.1.5(c)(1))
- ☒ 4. Does the lap belt portion of the seat belt in the forward-facing seat or seat that can be adjusted to forward-facing consist of a locking device that does NOT have to be attached by the vehicle user to the seat belt webbing, retractor, or any other part to the vehicle?
(S7.1.1.5(a)) ☒ Yes-Pass ☐ No-Fail
- ☒ 5. Does the lap belt portion of the seat belt in the forward-facing seat or seat the can be adjusted to forward-facing consist of a locking device that does NOT require inverting, twisting or deforming of the belt webbing? (S7.1.1.5(a)) ☒ Yes-Pass ☐ No-Fail
- ☒ 6. Does the vehicle user need to take some action to activate the locking feature on the lap belt portion of the seat belt in any forward-facing seat or seat that can be adjusted to forward-facing?
If yes, go to 6.1. If no, go to 7. ☒ Yes ☐ No
- 6.1 Does the vehicle owner's manual include a description in words and/or diagrams describing how to activate the locking feature so that the seat belt assembly can tightly secure a child restraint system and how to deactivate the locking feature to remove the child restraint system. (S7.1.1.5(b)) ☒ Yes-Pass ☐ No-Fail

FMVSS 208 Lap Belt Lockability, Cont'd.

Vehicle Model Year/Make/Model/Body Style: 1999/Chevrolet/Venture 3-Door/MPV

NHTSA NO.: CX0108

Technician: R. Stoner & V. Watters

Date: 01/13/99

DESIGNATED SEATING POSITION: Right center seat.

- ☒ 7. Locate a reference point a on the seat belt buckle. (S7.1.1.5(c)(2))
- ☒ 8. Locate a reference point B on the attachment hardware or retractor assembly at the other end of the lap belt or lap belt portion of the seat belt assembly. (S7.1.1.5(c)(2))
- ☒ 9. Adjust the lap belt or lap belt portion of the seat belt assembly according to any procedures recommended in the vehicle owner's manual to activate any locking feature so that the webbing between points A and B is at the maximum length allowed by the belt system. (S7.1.1.5(c)(2))
- ☒ 10. Measure and record the distance between points A and B along the longitudinal centerline of the webbing for the lap belt or lap belt portion of the seat belt assembly. (S7.1.1.5(c)(2)) Measured distance between A and B 60.2 inches.
- ☒ 11. Readjust the belt system so that the webbing between points A and B is at any length that is 5 inches or more shorter than the maximum length of the webbing. (S7.1.1.5(c)(3))
- ☒ 12. To the lap belt or lap belt portion of the seat belt assembly, apply a preload of 10 pounds using the webbing tension pull device in figure 5. Apply the load in a vertical plane parallel to the longitudinal axis of the vehicle and passing through the seating reference point of the designated seating position. Apply the preload in a horizontal direction toward the front of the vehicle with a force application angle of not less than 5 degrees nor more than 15 degrees above the horizontal. (S7.1.1.5(c)(4)) Measured force application angle 15 degrees. (Spec. 5~15 degrees)
- ☒ 13. Measure the length between points A and B along the longitudinal centerline of the webbing while the preload is being applied. (S7.1.1.5(c)(4)) Measured distance between A and B 26.9 inches.

FMVSS 208 Lap Belt Lockability, Cont'd.

Vehicle Model Year/Make/Model/Body Style: 1999/Chevrolet/Venture 3-Door/MPV

NHTSA NO.: CX0108

Technician: R. Stoner & V. Watters

Date: 01/13/99

DESIGNATED SEATING POSITION: Right center seat.

- ☒ 14. Increase the load to 50 pounds at a rate of no more than 50 pounds per second. Attain the load in not more than 5 seconds. (If webbing sensitive emergency locking retractors are installed as part of the lap belt or lap belt portion of the seat belt assembly, apply the load at a rate less than the threshold value for lock-up specified by the manufacturer.) Maintain the load for at least 5 seconds. Measure and record the distance between points A and B along the longitudinal centerline of the webbing. (S7.1.1.5(c)(5))

Record onset rate 20 lb/sec (spec. 10 ~50 lb/sec)

The measured distance between A and B is 27.9 inches (S7.1.1.5(c)(6))

- ☒ 15. Subtract the measurement in 13 from the measurement in 14. Is the difference 2 inches or less? (S7.1.1.5(c)(7))

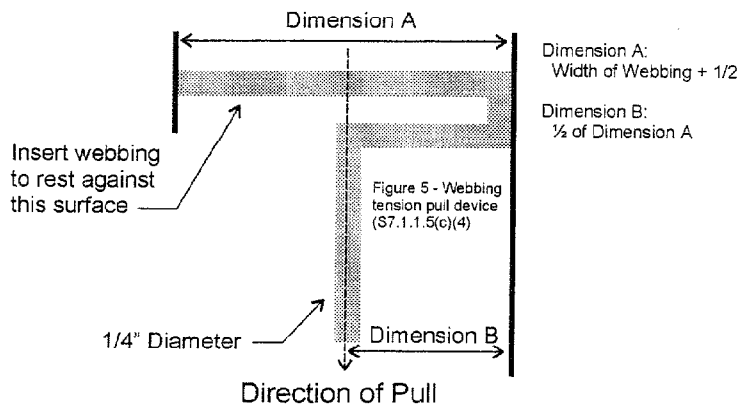
14-13=1.0 inches

☒ Yes-Pass ☐ No-Fail

- ☒ 16. Subtract the measurement in 14 from the measurement in 10. Is the difference 3 inches or more? (S7.1.1.5(c)(8))

10-14=32.3 inches.

☒ Yes-Pass ☐ No-Fail



FMVSS 208 Lap Belt Lockability

Passenger cars, trucks, buses, and multipurpose passenger
vehicles with a GVWR of 10,000 pounds or less. (S7.1.1.5)

Complete one of these forms for **each** designated seating position with forward-facing seats or
seats that can be adjusted to forward-facing **and** that has seat belt retractors that are not
automatic retractors. (S7.1.1.5(c))

Vehicle Model Year/Make/Model/Body Style: 1999/Chevrolet/Venture 3-Door/MPV

NHTSA NO.: CX0108

Technician: R. Stoner & V. Watters

Date: 01/13/99

DESIGNATED SEATING POSITION: Left rear seat

- ☒ 1. Record test seat position. Fixed
(S7.1.1.5(c)(1)) (Any position is acceptable.)
- ☒ 2. Buckle the seat belt. (S7.1.1.5(c)(1))
- ☒ 3. Complete any procedures recommended in the vehicle owner's manual to activate any
locking feature. (S7.1.1.5(c)(1))
- ☒ 4. Does the lap belt portion of the seat belt in the forward-facing seat or seat that can be
adjusted to forward-facing consist of a locking device that does NOT have to be attached
by the vehicle user to the seat belt webbing, retractor, or any other part to the vehicle?
(S7.1.1.5(a)) ☒ Yes-Pass ☐ No-Fail
- ☒ 5. Does the lap belt portion of the seat belt in the forward-facing seat or seat the can be
adjusted to forward-facing consist of a locking device that does NOT require inverting,
twisting or deforming of the belt webbing? (S7.1.1.5(a)) ☒ Yes-Pass ☐ No-Fail
- ☒ 6. Does the vehicle user need to take some action to activate the locking feature on the lap
belt portion of the seat belt in any forward-facing seat or seat that can be adjusted to
forward-facing?
If yes, go to 6.1. If no, go to 7. ☒ Yes ☐ No
- 6.1 Does the vehicle owner's manual include a description in words and/or diagrams
describing how to activate the locking feature so that the seat belt assembly can
tightly secure a child restraint system and how to deactivate the locking feature to
remove the child restraint system. (S7.1.1.5(b)) ☒ Yes-Pass ☐ No-Fail

FMVSS 208 Lap Belt Lockability, Cont'd.

Vehicle Model Year/Make/Model/Body Style: 1999/Chevrolet/Venture 3-Door/MPV

NHTSA NO.: CX0108

Technician: R. Stoner & V. Watters

Date: 01/13/99

DESIGNATED SEATING POSITION: Left rear seat.

- ☒ 7. Locate a reference point a on the seat belt buckle. (S7.1.1.5(c)(2))
- ☒ 8. Locate a reference point B on the attachment hardware or retractor assembly at the other end of the lap belt or lap belt portion of the seat belt assembly. (S7.1.1.5(c)(2))
- ☒ 9. Adjust the lap belt or lap belt portion of the seat belt assembly according to any procedures recommended in the vehicle owner's manual to activate any locking feature so that the webbing between points A and B is at the maximum length allowed by the belt system. (S7.1.1.5(c)(2))
- ☒ 10. Measure and record the distance between points A and B along the longitudinal centerline of the webbing for the lap belt or lap belt portion of the seat belt assembly. (S7.1.1.5(c)(2)) Measured distance between A and B 76.8 inches.
- ☒ 11. Readjust the belt system so that the webbing between points A and B is at any length that is 5 inches or more shorter than the maximum length of the webbing. (S7.1.1.5(c)(3))
- ☒ 12. To the lap belt or lap belt portion of the seat belt assembly, apply a preload of 10 pounds using the webbing tension pull device in figure 5. Apply the load in a vertical plane parallel to the longitudinal axis of the vehicle and passing through the seating reference point of the designated seating position. Apply the preload in a horizontal direction toward the front of the vehicle with a force application angle of not less than 5 degrees nor more than 15 degrees above the horizontal. (S7.1.1.5(c)(4)) Measured force application angle 15 degrees. (Spec. 5~15 degrees)
- ☒ 13. Measure the length between points A and B along the longitudinal centerline of the webbing while the preload is being applied. (S7.1.1.5(c)(4)) Measured distance between A and B 37 inches.

FMVSS 208 Lap Belt Lockability, Cont'd.

Vehicle Model Year/Make/Model/Body Style: 1999/Chevrolet/Venture 3-Door/MPV

NHTSA NO.: CX0108

Technician: R. Stoner & V. Watters

Date: 01/13/99

DESIGNATED SEATING POSITION: Left rear seat.

- ☒ 14. Increase the load to 50 pounds at a rate of no more than 50 pounds per second. Attain the load in not more than 5 seconds. (If webbing sensitive emergency locking retractors are installed as part of the lap belt or lap belt portion of the seat belt assembly, apply the load at a rate less than the threshold value for lock-up specified by the manufacturer.) Maintain the load for at least 5 seconds. Measure and record the distance between points A and B along the longitudinal centerline of the webbing. (S7.1.1.5(c)(5))

Record onset rate 20 lb/sec (spec. 10 ~50 lb/sec)

The measured distance between A and B is 37.3 inches (S7.1.1.5(c)(6))

- ☒ 15. Subtract the measurement in 13 from the measurement in 14. Is the difference 2 inches or less? (S7.1.1.5(c)(7))

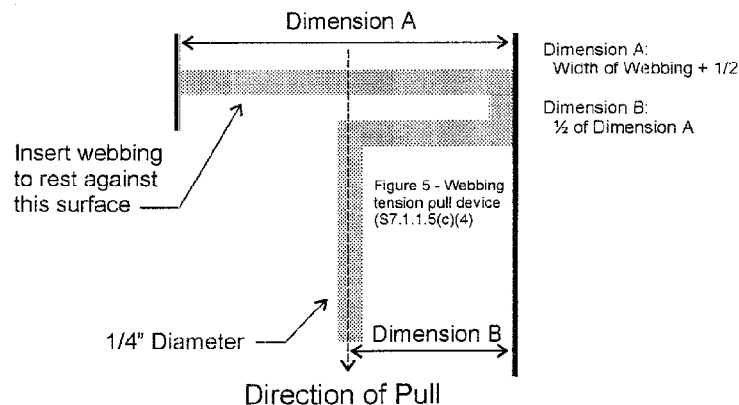
14-13=0.3 inches

☒ Yes-Pass ☐ No-Fail

- ☒ 16. Subtract the measurement in 14 from the measurement in 10. Is the difference 3 inches or more? (S7.1.1.5(c)(8))

10-14=39.5 inches.

☒ Yes-Pass ☐ No-Fail



FMVSS 208 Lap Belt Lockability

Passenger cars, trucks, buses, and multipurpose passenger
vehicles with a GVWR of 10,000 pounds or less. (S7.1.1.5)

Complete one of these forms for **each** designated seating position with forward-facing seats or
seats that can be adjusted to forward-facing **and** that has seat belt retractors that are not
automatic retractors. (S7.1.1.5(c))

Vehicle Model Year/Make/Model/Body Style: 1999/Chevrolet/Venture 3-Door/MPV

NHTSA NO.: CX0108

Technician: R. Stoner & V. Watters

Date: 01/13/99

DESIGNATED SEATING POSITION: Right rear seat

- ☒ 1. Record test seat position. Fixed
(S7.1.1.5(c)(1)) (Any position is acceptable.)
- ☒ 2. Buckle the seat belt. (S7.1.1.5(c)(1))
- ☒ 3. Complete any procedures recommended in the vehicle owner's manual to activate any
locking feature. (S7.1.1.5(c)(1))
- ☒ 4. Does the lap belt portion of the seat belt in the forward-facing seat or seat that can be
adjusted to forward-facing consist of a locking device that does NOT have to be attached
by the vehicle user to the seat belt webbing, retractor, or any other part to the vehicle?
(S7.1.1.5(a)) ☒ Yes-Pass ☐ No-Fail
- ☒ 5. Does the lap belt portion of the seat belt in the forward-facing seat or seat the can be
adjusted to forward-facing consist of a locking device that does NOT require inverting,
twisting or deforming of the belt webbing? (S7.1.1.5(a)) ☒ Yes-Pass ☐ No-Fail
- ☒ 6. Does the vehicle user need to take some action to activate the locking feature on the lap
belt portion of the seat belt in any forward-facing seat or seat that can be adjusted to
forward-facing?
If yes, go to 6.1. If no, go to 7. ☒ Yes ☐ No
- 6.1 Does the vehicle owner's manual include a description in words and/or diagrams
describing how to activate the locking feature so that the seat belt assembly can
tightly secure a child restraint system and how to deactivate the locking feature to
remove the child restraint system. (S7.1.1.5(b)) ☒ Yes-Pass ☐ No-Fail

FMVSS 208 Lap Belt Lockability, Cont'd.

Vehicle Model Year/Make/Model/Body Style: 1999/Chevrolet/Venture 3-Door/MPV
NHTSA NO.: CX0108 Technician: R. Stoner & V. Watters Date: 01/13/99

DESIGNATED SEATING POSITION: Right rear seat.

- ☒ 7. Locate a reference point A on the seat belt buckle. (S7.1.1.5(c)(2))
- ☒ 8. Locate a reference point B on the attachment hardware or retractor assembly at the other end of the lap belt or lap belt portion of the seat belt assembly. (S7.1.1.5(c)(2))
- ☒ 9. Adjust the lap belt or lap belt portion of the seat belt assembly according to any procedures recommended in the vehicle owner's manual to activate any locking feature so that the webbing between points A and B is at the maximum length allowed by the belt system. (S7.1.1.5(c)(2))
- ☒ 10. Measure and record the distance between points A and B along the longitudinal centerline of the webbing for the lap belt or lap belt portion of the seat belt assembly. (S7.1.1.5(c)(2)) Measured distance between A and B 74.0 inches.
- ☒ 11. Readjust the belt system so that the webbing between points A and B is at any length that is 5 inches or more shorter than the maximum length of the webbing. (S7.1.1.5(c)(3))
- ☒ 12. To the lap belt or lap belt portion of the seat belt assembly, apply a preload of 10 pounds using the webbing tension pull device in figure 5. Apply the load in a vertical plane parallel to the longitudinal axis of the vehicle and passing through the seating reference point of the designated seating position. Apply the preload in a horizontal direction toward the front of the vehicle with a force application angle of not less than 5 degrees nor more than 15 degrees above the horizontal. (S7.1.1.5(c)(4)) Measured force application angle 15 degrees. (Spec. 5~15 degrees)
- ☒ 13. Measure the length between points A and B along the longitudinal centerline of the webbing while the preload is being applied. (S7.1.1.5(c)(4)) Measured distance between A and B 35.5 inches.

FMVSS 208 Lap Belt Lockability, Cont'd.

Vehicle Model Year/Make/Model/Body Style: 1999/Chevrolet/Venture 3-Door/MPV

NHTSA NO.: CX0108

Technician: R. Stoner & V. Watters

Date: 01/13/99

DESIGNATED SEATING POSITION: Right rear seat.

- ☒ 14. Increase the load to 50 pounds at a rate of no more than 50 pounds per second. Attain the load in not more than 5 seconds. (If webbing sensitive emergency locking retractors are installed as part of the lap belt or lap belt portion of the seat belt assembly, apply the load at a rate less than the threshold value for lock-up specified by the manufacturer.) Maintain the load for at least 5 seconds. Measure and record the distance between points A and B along the longitudinal centerline of the webbing. (S7.1.1.5(c)(5))

Record onset rate 20 lb/sec (spec. 10 ~50 lb/sec)

The measured distance between A and B is 35.6 inches (S7.1.1.5(c)(6))

- ☒ 15. Subtract the measurement in 13 from the measurement in 14. Is the difference 2 inches or less? (S7.1.1.5(c)(7))

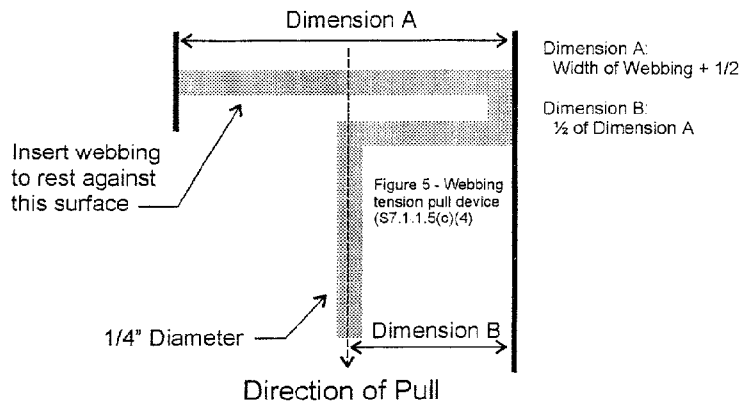
14-13=0.1 inches

☒ Yes-Pass ☐ No-Fail

- ☒ 16. Subtract the measurement in 14 from the measurement in 10. Is the difference 3 inches or more? (S7.1.1.5(c)(8))

10-14=38.4 inches.

☒ Yes-Pass ☐ No-Fail



FMVSS 208 Seat Belt Comfort And Convenience Test
Belt Contact Force (S7.4.3)

Test Vehicle NHTSA No.: CX0108

Vehicle Model Year/Make/Model/Body Style: 1999/Chevrolet/Venture 3-Door/MPV

Designated Seating Position Tested: Left Front Driver

Date of Comfort and Convenience Check: 01/13/99

Technician Performing Check: R. Stoner & V. Watters

GVWR: 5357 pounds

Test all Type 2 seat belts other than those in walk-in van-type vehicles and those at front outboard designated seating positions in passenger cars. Complete a form for each applicable seat belt.

1. Does the vehicle incorporate a webbing tension-relieving device?

☐ Yes-go to latchplate access
☒ No-continue with this check sheet

2. Adjustable seats are in the adjustment position midway between the forward most and rearmost positions. If an adjustment position does not exist midway between the forward most and rearmost positions, the next closest adjustment position to the rear of the midpoint is used. (S8.1.2)

☒ Check
☐ N/A

3. If separately adjustable in a vertical direction, the seats are at the lowest position.

☒ Check
☐ N/A

4. Place adjustable seat backs in the manufacturer's nominal design riding position in the manner specified by the manufacturer.

☒ Check
☐ N/A

5. Place any adjustable anchorages at the manufacturer's nominal design position for a 50th percentile adult male (50M) occupant. This information will be furnished by the COTR.

☒ Check
☐ N/A

FMVSS 208 Seat Belt Comfort And Convenience Test Summary, Cont'd.
Belt Contact Force (S7.4.3)

6. Place each adjustable head restraint in its highest adjustment position.

☐ Check
☒ N/A

7. Adjustable lumbar supports are positioned so that the lumbar support is in its lowest adjustment position. (S8.1.3)

☐ Check
☒ N/A

8. Position the test dummies according to dummy position placement instructions in Appendix B.

☒ Check

9. Fasten the seat belt latch. Pull either 12 inches of belt webbing or the maximum available amount of belt webbing, whichever is less, from the retractor and then release it, allowing the belt webbing to return to the dummy's chest. Locate the point where the centerline of the upper torso belt webbing crosses the midsagittal line on the dummy's chest. At that point pull the belt webbing out 3 inches from the dummy's chest and release until it is within one inch from the dummy's chest. (S10.8) Measure the contact force exerted by the belt webbing on the dummy's chest. Contact the COTR if the contact force exceeds 0.7 pounds. Contact force is **0.6** pounds.

☒ 0.0 to 0.7 pounds - Pass
☐ greater than 0.7 pounds - **FAIL***

FMVSS 208 Seat Belt Comfort And Convenience Test, Cont'd.
Belt Contact Force (S7.4.3)

Test Vehicle NHTSA No.: CX0108

Vehicle Model Year/Make/Model/Body Style: 1999/Chevrolet/Venture 3-Door/MPV

Designated Seating Position Tested: Right Front Passenger

Date of Comfort and Convenience Check: 01/13/99

Technician Performing Check: R. Stoner & V. Watters

GVWR: 5357 pounds

Test all Type 2 seat belts other than those in walk-in van-type vehicles and those at front outboard designated seating positions in passenger cars. Complete a form for each applicable seat belt.

1. Does the vehicle incorporate a webbing tension-relieving device?

☐ Yes-go to latchplate access
☒ No-continue with this check sheet

2. Adjustable seats are in the adjustment position midway between the forward most and rearmost positions. If an adjustment position does not exist midway between the forward most and rearmost positions, the next closest adjustment position to the rear of the midpoint is used. (S8.1.2)

☒ Check
☐ N/A

3. If separately adjustable in a vertical direction, the seats are at the lowest position.

☐ Check
☒ N/A

4. Place adjustable seat backs in the manufacturer's nominal design riding position in the manner specified by the manufacturer.

☒ Check
☐ N/A

5. Place any adjustable anchorages at the manufacturer's nominal design position for a 50th percentile adult male (50M) occupant. This information will be furnished by the COTR.

☒ Check
☐ N/A

FMVSS 208 Seat Belt Comfort And Convenience Test Summary, Cont'd.
Belt Contact Force (S7.4.3)

6. Place each adjustable head restraint in its highest adjustment position.

☐ Check
☒ N/A

7. Adjustable lumbar supports are positioned so that the lumbar support is in its lowest adjustment position. (S8.1.3)

☐ Check
☒ N/A

8. Position the test dummies according to dummy position placement instructions in Appendix B.

☒ Check

9. Fasten the seat belt latch. Pull either 12 inches of belt webbing or the maximum available amount of belt webbing, whichever is less, from the retractor and then release it, allowing the belt webbing to return to the dummy's chest. Locate the point where the centerline of the upper torso belt webbing crosses the midsagittal line on the dummy's chest. At that point pull the belt webbing out 3 inches from the dummy's chest and release until it is within one inch from the dummy's chest. (S10.8) Measure the contact force exerted by the belt webbing on the dummy's chest. Contact the COTR if the contact force exceeds 0.7 pounds. Contact force is 0.5 pounds.

☒ 0.0 to 0.7 pounds - Pass
☐ greater than 0.7 pounds - **FAIL***

FMVSS 208 Seat Belt Comfort And Convenience Test, Cont'd.
Belt Contact Force (S7.4.3)

Test Vehicle NHTSA No.: CX0108

Vehicle Model Year/Make/Model/Body Style: 1999/Chevrolet/Venture 3-Door/MPV

Designated Seating Position Tested: Left Rear Passenger

Date of Comfort and Convenience Check: 01/13/99

Technician Performing Check: R. Stoner & V. Watters

GVWR: 5357 pounds

Test all Type 2 seat belts other than those in walk-in van-type vehicles and those at front outboard designated seating positions in passenger cars. Complete a form for each applicable seat belt.

1. Does the vehicle incorporate a webbing tension-relieving device?

☐ Yes-go to latchplate access
☒ No-continue with this check sheet

2. Adjustable seats are in the adjustment position midway between the forward most and rearmost positions. If an adjustment position does not exist midway between the forward most and rearmost positions, the next closest adjustment position to the rear of the midpoint is used. (S8.1.2)

☐ Check
☒ N/A

3. If separately adjustable in a vertical direction, the seats are at the lowest position.

☐ Check
☒ N/A

4. Place adjustable seat backs in the manufacturer's nominal design riding position in the manner specified by the manufacturer.

☐ Check
☒ N/A

5. Place any adjustable anchorages at the manufacturer's nominal design position for a 50th percentile adult male (50M) occupant. This information will be furnished by the COTR.

☐ Check
☒ N/A

FMVSS 208 Seat Belt Comfort And Convenience Test Summary, Cont'd.
Belt Contact Force (S7.4.3)

6. Place each adjustable head restraint in its highest adjustment position.

☒ Check
☐ N/A

7. Adjustable lumbar supports are positioned so that the lumbar support is in its lowest adjustment position. (S8.1.3)

☐ Check
☒ N/A

8. Position the test dummies according to dummy position placement instructions in Appendix B.

☒ Check

9. Fasten the seat belt latch. Pull either 12 inches of belt webbing or the maximum available amount of belt webbing, whichever is less, from the retractor and then release it, allowing the belt webbing to return to the dummy's chest. Locate the point where the centerline of the upper torso belt webbing crosses the midsagittal line on the dummy's chest. At that point pull the belt webbing out 3 inches from the dummy's chest and release until it is within one inch from the dummy's chest. (S10.8) Measure the contact force exerted by the belt webbing on the dummy's chest. Contact the COTR if the contact force exceeds 0.7 pounds. Contact force is 0.6 pounds.

☒ 0.0 to 0.7 pounds - Pass
☐ greater than 0.7 pounds - FAIL*

FMVSS 208 Seat Belt Comfort And Convenience Test, Cont'd.
Belt Contact Force (S7.4.3)

Test Vehicle NHTSA No.: CX0108

Vehicle Model Year/Make/Model/Body Style: 1999/Chevrolet/Venture 3-Door/MPV

Designated Seating Position Tested: Right Rear Passenger

Date of Comfort and Convenience Check: 01/13/99

Technician Performing Check: R. Stoner & V. Watters

GVWR: 5357 pounds

Test all Type 2 seat belts other than those in walk-in van-type vehicles and those at front outboard designated seating positions in passenger cars. Complete a form for each applicable seat belt.

1. Does the vehicle incorporate a webbing tension-relieving device?

☐ Yes-go to latchplate access
☒ No-continue with this check sheet

2. Adjustable seats are in the adjustment position midway between the forward most and rearmost positions. If an adjustment position does not exist midway between the forward most and rearmost positions, the next closest adjustment position to the rear of the midpoint is used. (S8.1.2)

☐ Check
☒ N/A

3. If separately adjustable in a vertical direction, the seats are at the lowest position.

☐ Check
☒ N/A

4. Place adjustable seat backs in the manufacturer's nominal design riding position in the manner specified by the manufacturer.

☐ Check
☒ N/A

5. Place any adjustable anchorages at the manufacturer's nominal design position for a 50th percentile adult male (50M) occupant. This information will be furnished by the COTR.

☐ Check
☒ N/A

FMVSS 208 Seat Belt Comfort And Convenience Test Summary, Cont'd.
Belt Contact Force (S7.4.3)

6. Place each adjustable head restraint in its highest adjustment position.

☒ Check
☐ N/A

7. Adjustable lumbar supports are positioned so that the lumbar support is in its lowest adjustment position. (S8.1.3)

☐ Check
☒ N/A

8. Position the test dummies according to dummy position placement instructions in Appendix B.

☒ Check

9. Fasten the seat belt latch. Pull either 12 inches of belt webbing or the maximum available amount of belt webbing, whichever is less, from the retractor and then release it, allowing the belt webbing to return to the dummy's chest. Locate the point where the centerline of the upper torso belt webbing crosses the midsagittal line on the dummy's chest. At that point pull the belt webbing out 3 inches from the dummy's chest and release until it is within one inch from the dummy's chest. (S10.8) Measure the contact force exerted by the belt webbing on the dummy's chest. Contact the COTR if the contact force exceeds 0.7 pounds. Contact force is 0.6 pounds.

☒ 0.0 to 0.7 pounds - Pass
☐ greater than 0.7 pounds - FAIL*

FMVSS 208 Seat Belt Comfort And Convenience Test, Cont'd.
Belt Contact Force (S7.4.3)

Test Vehicle NHTSA No.: CX0108

Vehicle Model Year/Make/Model/Body Style: 1999/Chevrolet/Venture 3-Door/MPV

Designated Seating Position Tested: Center Left Passenger

Date of Comfort and Convenience Check: 01/13/99

Technician Performing Check: R. Stoner & V. Watters

GVWR: 5357 pounds

Test all Type 2 seat belts other than those in walk-in van-type vehicles and those at front outboard designated seating positions in passenger cars. Complete a form for each applicable seat belt.

1. Does the vehicle incorporate a webbing tension-relieving device?

☐ Yes-go to latchplate access
☒ No-continue with this check sheet

2. Adjustable seats are in the adjustment position midway between the forward most and rearmost positions. If an adjustment position does not exist midway between the forward most and rearmost positions, the next closest adjustment position to the rear of the midpoint is used. (S8.1.2)

☐ Check
☒ N/A

3. If separately adjustable in a vertical direction, the seats are at the lowest position.

☐ Check
☒ N/A

4. Place adjustable seat backs in the manufacturer's nominal design riding position in the manner specified by the manufacturer.

☐ Check
☒ N/A

5. Place any adjustable anchorages at the manufacturer's nominal design position for a 50th percentile adult male (50M) occupant. This information will be furnished by the COTR.

☐ Check
☒ N/A

FMVSS 208 Seat Belt Comfort And Convenience Test Summary, Cont'd.
Belt Contact Force (S7.4.3)

6. Place each adjustable head restraint in its highest adjustment position.

☒ Check
☐ N/A

7. Adjustable lumbar supports are positioned so that the lumbar support is in its lowest adjustment position. (S8.1.3)

☐ Check
☒ N/A

8. Position the test dummies according to dummy position placement instructions in Appendix B.

☒ Check

9. Fasten the seat belt latch. Pull either 12 inches of belt webbing or the maximum available amount of belt webbing, whichever is less, from the retractor and then release it, allowing the belt webbing to return to the dummy's chest. Locate the point where the centerline of the upper torso belt webbing crosses the midsagittal line on the dummy's chest. At that point pull the belt webbing out 3 inches from the dummy's chest and release until it is within one inch from the dummy's chest. (S10.8) Measure the contact force exerted by the belt webbing on the dummy's chest. Contact the COTR if the contact force exceeds 0.7 pounds. Contact force is 0.4 pounds.

☒ 0.0 to 0.7 pounds - Pass
☐ greater than 0.7 pounds - FAIL*

FMVSS 208 Seat Belt Comfort And Convenience Test, Cont'd.
Belt Contact Force (S7.4.3)

Test Vehicle NHTSA No.: CX0108

Vehicle Model Year/Make/Model/Body Style: 1999/Chevrolet/Venture 3-Door/MPV

Designated Seating Position Tested: Center Right Passenger

Date of Comfort and Convenience Check: 01/13/99

Technician Performing Check: R. Stoner & V. Watters

GVWR: 5357 pounds

Test all Type 2 seat belts other than those in walk-in van-type vehicles and those at front outboard designated seating positions in passenger cars. Complete a form for each applicable seat belt.

1. Does the vehicle incorporate a webbing tension-relieving device?

☐ Yes-go to latchplate access
☒ No-continue with this check sheet

2. Adjustable seats are in the adjustment position midway between the forward most and rearmost positions. If an adjustment position does not exist midway between the forward most and rearmost positions, the next closest adjustment position to the rear of the midpoint is used. (S8.1.2)

☐ Check
☒ N/A

3. If separately adjustable in a vertical direction, the seats are at the lowest position..

☐ Check
☒ N/A

4. Place adjustable seat backs in the manufacturer's nominal design riding position in the manner specified by the manufacturer.

☐ Check
☒ N/A

5. Place any adjustable anchorages at the manufacturer's nominal design position for a 50th percentile adult male (50M) occupant. This information will be furnished by the COTR.

☐ Check
☒ N/A

FMVSS 208 Seat Belt Comfort And Convenience Test Summary, Cont'd.
Belt Contact Force (S7.4.3)

6. Place each adjustable head restraint in its highest adjustment position.

☒ Check
☐ N/A

7. Adjustable lumbar supports are positioned so that the lumbar support is in its lowest adjustment position. (S8.1.3)

☐ Check
☒ N/A

8. Position the test dummies according to dummy position placement instructions in Appendix B.

☒ Check

9. Fasten the seat belt latch. Pull either 12 inches of belt webbing or the maximum available amount of belt webbing, whichever is less, from the retractor and then release it, allowing the belt webbing to return to the dummy's chest. Locate the point where the centerline of the upper torso belt webbing crosses the midsagittal line on the dummy's chest. At that point pull the belt webbing out 3 inches from the dummy's chest and release until it is within one inch from the dummy's chest. (S10.8) Measure the contact force exerted by the belt webbing on the dummy's chest. Contact the COTR if the contact force exceeds 0.7 pounds. Contact force is 0.5 pounds.

☒ 0.0 to 0.7 pounds - Pass
☐ greater than 0.7 pounds - FAIL.*

FMVSS 208 Seat Belt Comfort And Convenience Test Summary, Cont'd.
Latchplate Access (S7.4.4)

Test Vehicle NHTSA No.: CX0108

Vehicle Model Year/Make/Model/Body Style: 1999/Chevrolet/Venture 3-Door/MPV

Designated Seating Position Tested: Left Front Driver

Date of Comfort and Convenience Check: 01/13/99

Technician Performing Check: R. Stoner & V. Watters

GVWR: 5357 pounds

Test all front outboard seat belts other than those in walk-in van-type vehicles and those at front outboard designated seating positions in passenger cars. Complete a form for each applicable seat belt.

1. Position the seat in its forward most adjustment position. ☒ Check
2. Position the test dummy using the procedures in Appendix B. (Some modifications to the positioning procedure may need to be made because the seat is in its forward most position.) ☒ Check
3. Position the adjustable seat belt anchorage in the manufacturer's nominal design position for a 50th percentile adult male occupant. ☒ Check
4. Attach the inboard and outboard reach string following the instructions on Figure 1C. ☒ Check
5. Place the latch plate in the stowed position. ☒ Check
6. Extend each line backward and outboard to generate arcs of the reach envelope of the test dummy's arms. Is the latchplate within the reach envelope?
Yes-☒ Pass; No- ☐ Fail
7. Using the clearance test block, specified in Figure 2C of the test procedure, determine if there is sufficient clearance between the vehicle seat and the side of vehicle to allow the test block to move unhindered to the latchplate or buckle.
Yes-☒ Pass; No- ☐ Fail

FMVSS 208 Seat Belt Comfort And Convenience Test Summary, Cont'd.
Latchplate Access (S7.4.4)

Test Vehicle NHTSA No.: CX0108

Vehicle Model Year/Make/Model/Body Style: 1999/Chevrolet/Venture 3-Door/MPV

Designated Seating Position Tested: Right Front Passenger

Date of Comfort and Convenience Check: 01/13/99

Technician Performing Check: R. Stoner & V. Watters

GVWR: 5357 pounds

Test all front outboard seat belts other than those in walk-in van-type vehicles and those at front outboard designated seating positions in passenger cars. Complete a form for each applicable seat belt.

1. Position the seat in its forward most adjustment position. ☒ Check
2. Position the test dummy using the procedures in Appendix B. (Some modifications to the positioning procedure may need to be made because the seat is in its forward most position.) ☒ Check
3. Position the adjustable seat belt anchorage in the manufacturer's nominal design position for a 50th percentile adult male occupant. ☒ Check
5. Attach the inboard and outboard reach string following the instructions on Figure 1C. ☒ Check
5. Place the latch plate in the stowed position. ☒ Check
6. Extend each line backward and outboard to generate arcs of the reach envelope of the test dummy's arms. Is the latchplate within the reach envelope?
Yes-☒ Pass; No- ☐ Fail
7. Using the clearance test block, specified in Figure 2C of the test procedure, determine if there is sufficient clearance between the vehicle seat and the side of vehicle to allow the test block to move unhindered to the latchplate or buckle.
Yes-☒ Pass; No- ☐ Fail

FMVSS 208 Seat Belt Comfort And Convenience Test Summary, Cont'd.
Retraction (S7.4.5)

Test Vehicle NHTSA No.: CX0108

Vehicle Model Year/Make/Model/Body Style: 1999/Chevrolet/Venture 3-Door/MPV

Designated Seating Position Tested: Left Front Driver

Date of Comfort and Convenience Check: 01/13/99

Technician Performing Check: R. Stoner & V. Watters

GVWR: 5357 pounds

Test all front outboard seat belts other than those in walk-in van-type vehicles and those at front outboard designated seating positions in passenger cars. Complete a form for each applicable seat belt.

1. Is the vehicle a passenger car or walk-in van-type vehicle?

☐ Yes
☒ No

If yes, go to seat belt guides and hardware.

2. Adjustable seats are in the adjustment position midway between the forward most and rearmost positions. If an adjustment position does not exist midway between the forward most and rearmost positions, the next closest adjustment position to the rear of the midpoint is used. (S8.1.2)

☒ Check

3. If separately adjustable in a vertical direction, the seats are at the lowest position.

☒ Check

4. Place any adjustable seat backs in the manufacturer's nominal design riding position in the manner specified by the manufacturer.

☒ Check

5. Place any adjustable anchorages at the manufacturer's nominal design position for a 50th percentile adult male (50M) occupant. This information will be furnished by the COTR.

☒ Check

6. Place each adjustable head restraint in its highest adjustment position.

☒ Check

7. Adjustable lumbar supports are positioned so that the lumbar support is in its lowest adjustment position. (S8.1.3)

☒ Check

8. Use anthropomorphic test dummies whose arms have been removed and position the dummies in the front outboard designated seating positions according to instructions in Appendix B.

☒ Check

FMVSS 208 Seat Belt Comfort And Convenience Test Summary, Cont'd.
Retraction (S7.4.5)

9. Restrain the dummies using the belt systems for the position being tested. ☒ Check
10. Stow outboard armrests that are capable of being stowed. ☒ Check
11. Check the statement that applies to this test vehicle:
- (A) The torso and lap belt webbing of the seat belt system automatically retracts to a stowed position when the adjacent vehicle door is in an open position and the seat belt latchplate is released. ☒ Pass
- (B) The torso and lap belt webbing of the seat belt system automatically retracts when the seat belt latchplate is released. ☒ Pass
- (C) Neither A or B apply. ☐ **FAIL**
12. With the webbing and hardware in the stowed position are the webbing and hardware prevented from being pinched when the door is closed?
Yes- ☒ Pass; No- ☐ **Fail**
13. If this test vehicle has an open body (without doors) and has a belt system with a tension-relieving device, does the belt system fully retract when the tension-relieving device is deactivated? ☒ N/A
Yes- ☐ Pass; No- ☐ **Fail**

FMVSS 208 Seat Belt Comfort And Convenience Test Summary, Cont'd.
Retraction (S7.4.5)

Test Vehicle NHTSA No.: CX0108

Vehicle Model Year/Make/Model/Body Style: 1999/Chevrolet/Venture 3-Door/MPV

Designated Seating Position Tested: Right Front Passenger

Date of Comfort and Convenience Check: 01/13/99

Technician Performing Check: R. Stoner & V. Watters

GVWR: 5357 pounds

Test all front outboard seat belts other than those in walk-in van-type vehicles and those at front outboard designated seating positions in passenger cars. Complete a form for each applicable seat belt.

1. Is the vehicle a passenger car or walk-in van-type vehicle?

☐ Yes
☒ No

If yes, go to seat belt guides and hardware.

2. Adjustable seats are in the adjustment position midway between the forward most and rearmost positions. If an adjustment position does not exist midway between the forward most and rearmost positions, the next closest adjustment position to the rear of the midpoint is used. (S8.1.2)

☒ Check

3. If separately adjustable in a vertical direction, the seats are at the lowest position.

☒ Check

4. Place any adjustable seat backs in the manufacturer's nominal design riding position in the manner specified by the manufacturer.

☒ Check

5. Place any adjustable anchorages at the manufacturer's nominal design position for a 50th percentile adult male (50M) occupant. This information will be furnished by the COTR.

☒ Check

6. Place each adjustable head restraint in its highest adjustment position.

☒ Check

7. Adjustable lumbar supports are positioned so that the lumbar support is in its lowest adjustment position. (S8.1.3)

☒ Check

8. Use anthropomorphic test dummies whose arms have been removed and position the dummies in the front outboard designated seating positions according to instructions in Appendix B.

☒ Check

FMVSS 208 Seat Belt Comfort And Convenience Test Summary, Cont'd.
Retraction (S7.4.5)

9. Restrain the dummies using the belt systems for the position being tested. ☒ Check
10. Stow outboard armrests that are capable of being stowed. ☒ Check
13. Check the statement that applies to this test vehicle:
- (A) The torso and lap belt webbing of the seat belt system automatically retracts to a stowed position when the adjacent vehicle door is in an open position and the seat belt latchplate is released. ☒ Pass
- (B) The torso and lap belt webbing of the seat belt system automatically retracts when the seat belt latchplate is released. ☒ Pass
- (C) Neither A or B apply. ☐ **FAIL**
14. With the webbing and hardware in the stowed position are the webbing and hardware prevented from being pinched when the door is closed?
Yes- ☒ Pass; No- ☐ **Fail**
13. If this test vehicle has an open body (without doors) and has a belt system with a tension-relieving device, does the belt system fully retract when the tension-relieving device is deactivated? ☒ N/A
Yes- ☐ Pass; No- ☐ **Fail**

FMVSS 208 Seat Belt Comfort And Convenience Test Summary, Cont'd.
Seat Belt Guides And Hardware (S7.4.6)

Test Vehicle NHTSA No.: CX0108

Vehicle Model Year/Make/Model/Body Style: 1999/Chevrolet/Venture 3-Door/MPV

Designated Seating Position Tested: Left Front Driver

Date of Comfort and Convenience Check: 01/13/99

Technician Performing Check: R. Stoner & V. Watters

GVWR: 5357 pounds

Test seat belts except those in walk-in van-type vehicles and those at front outboard designated seating positions in passenger cars. Complete a form for each applicable seat belt.

The requirements for accessibility **DO NOT APPLY** to:

- A. Seats whose seat cushions are movable so that the seat back serves a function other than seating (S7.4.6.1(b)).
- B. Seats which are removable.
- C. Seats that are movable so that the space formerly occupied by the seat can be used for a secondary function.

If the seats in this vehicle are different than the criteria above, determine the following:

1. Is the webbing designed to pass through the seat cushion or between the seat cushion and seat back?

☐ Yes: go to 2.
☒ No: this form is complete.
2. Does one of the following three parts, the seat belt latchplate, the buckle, or the seat belt webbing, stay on top of or above the seat cushion under normal conditions (i.e., conditions other than when belt hardware is intentionally pushed behind the seat by a vehicle occupant)?

Yes-☐ Pass; No- ☐ **Fail**
3. Are the remaining two seat belt parts accessible under normal conditions?

Yes-☐ Pass; No- ☐ **Fail**
4. The buckle and latchplate do not pass through the guides or conduits provided and fall behind the seat when the following events occur in order:
 - (A) The belt is completely retracted or, if the belt is nonretractable, the belt is unlatched.

☐ Check

FMVSS 208 Seat Belt Comfort And Convenience Test Summary, Cont'd.
Seat Belt Guides And Hardware (S7.4.6)

(B) The seat is moved to any position to which it is designed to be adjusted. ☐ Check

(C) The seat back, if foldable, is folded forward as far as possible and then moved backward into position. ☐ Check

Yes- ☐ Pass; No- ☐ Fail

5. Is the inboard receptacle end of the seat belt assembly, installed in the outboard designated seating position, accessible with the center arm rest in any position to which it can be adjusted (without moving the armrest)?

Yes- ☐ Pass; No- ☐ Fail

FMVSS 208 Seat Belt Comfort And Convenience Test Summary, Cont'd.
Seat Belt Guides And Hardware (S7.4.6)

Test Vehicle NHTSA No.: CX0108

Vehicle Model Year/Make/Model/Body Style: 1999/Chevrolet/Venture 3-Door/MPV

Designated Seating Position Tested: Right Front Passenger

Date of Comfort and Convenience Check: 01/13/99

Technician Performing Check: R. Stoner & V. Watters

GVWR: 5357 pounds

Test seat belts except those in walk-in van-type vehicles and those at front outboard designated seating positions in passenger cars. Complete a form for each applicable seat belt.

The requirements for accessibility **DO NOT APPLY** to:

- A. Seats whose seat cushions are movable so that the seat back serves a function other than seating (S7.4.6.1(b)).
- B. Seats which are removable.
- C. Seats that are movable so that the space formerly occupied by the seat can be used for a secondary function.

If the seats in this vehicle are different than the criteria above, determine the following:

1. Is the webbing designed to pass through the seat cushion or between the seat cushion and seat back?

☐ Yes: go to 2.
☒ No: this form is complete.
2. Does one of the following three parts, the seat belt latchplate, the buckle, or the seat belt webbing, stay on top of or above the seat cushion under normal conditions (i.e., conditions other than when belt hardware is intentionally pushed behind the seat by a vehicle occupant)?

Yes-☐ Pass; No- ☐ Fail
3. Are the remaining two seat belt parts accessible under normal conditions?

Yes-☐ Pass; No- ☐ Fail
4. The buckle and latchplate do not pass through the guides or conduits provided and fall behind the seat when the following events occur in order:
 - (A) The belt is completely retracted or, if the belt is nonretractable, the belt is unlatched.

☐ Check

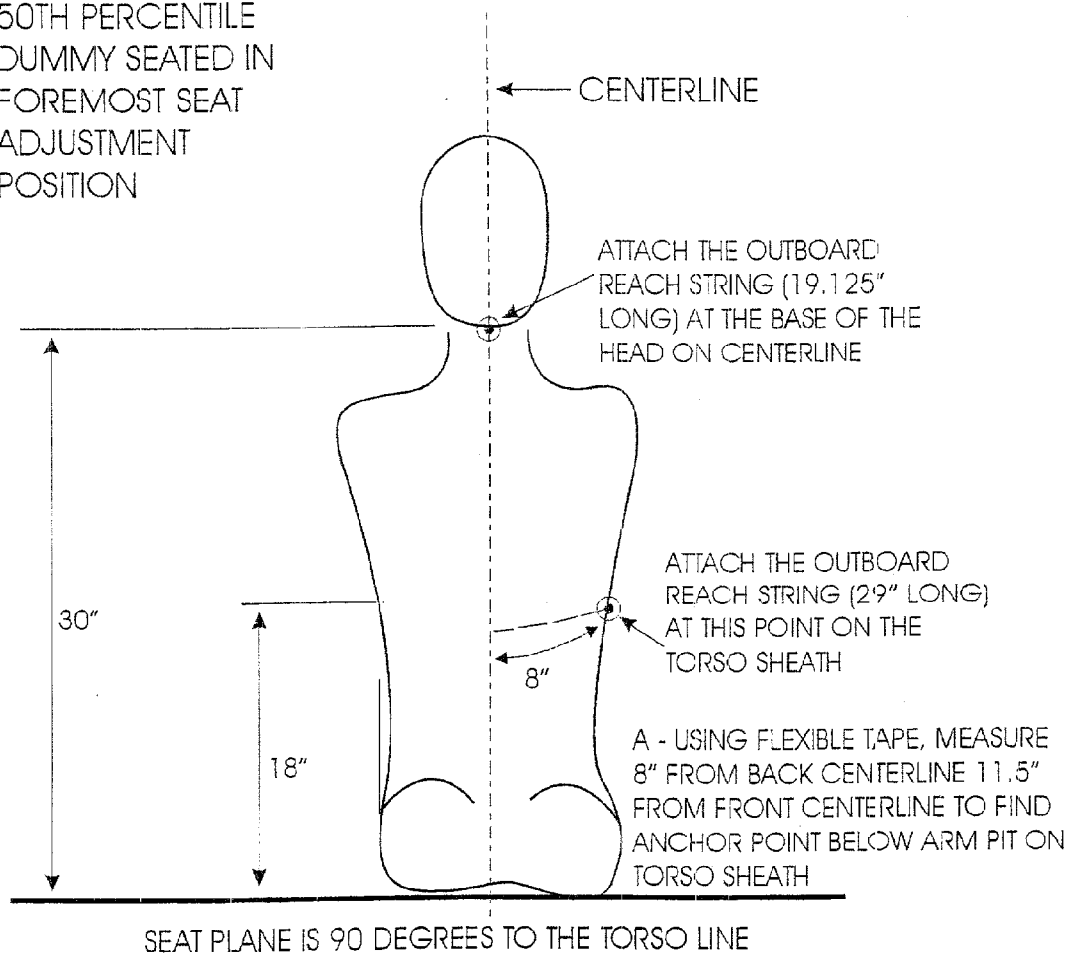
FMVSS 208 Seat Belt Comfort And Convenience Test Summary, Cont'd.
Seat Belt Guides And Hardware (S7.4.6)

- (B) The seat is moved to any position to which it is designed to be adjusted. ☐ Check
- (C) The seat back, if foldable, is folded forward as far as possible and then moved backward into position. ☐ Check
- Yes- ☐ Pass; No- ☐ Fail
5. Is the inboard receptacle end of the seat belt assembly, installed in the outboard designated seating position, accessible with the center arm rest in any position to which it can be adjusted (without moving the armrest)? Yes- ☐ Pass; No- ☐ Fail

LOCATION OF ANCHORING POINTS FOR LATCHPLATE REACH LIMITING CHAINS OR STRINGS TO TEST FOR LATCHPLATE ACCESSIBILITY

PART 572E DUMMY

50TH PERCENTILE
DUMMY SEATED IN
FOREMOST SEAT
ADJUSTMENT
POSITION



REAR VIEW

Figure 1C

USE OF CLEARANCE TEST BLOCK TO DETERMINE HAND/ARM ACCESS

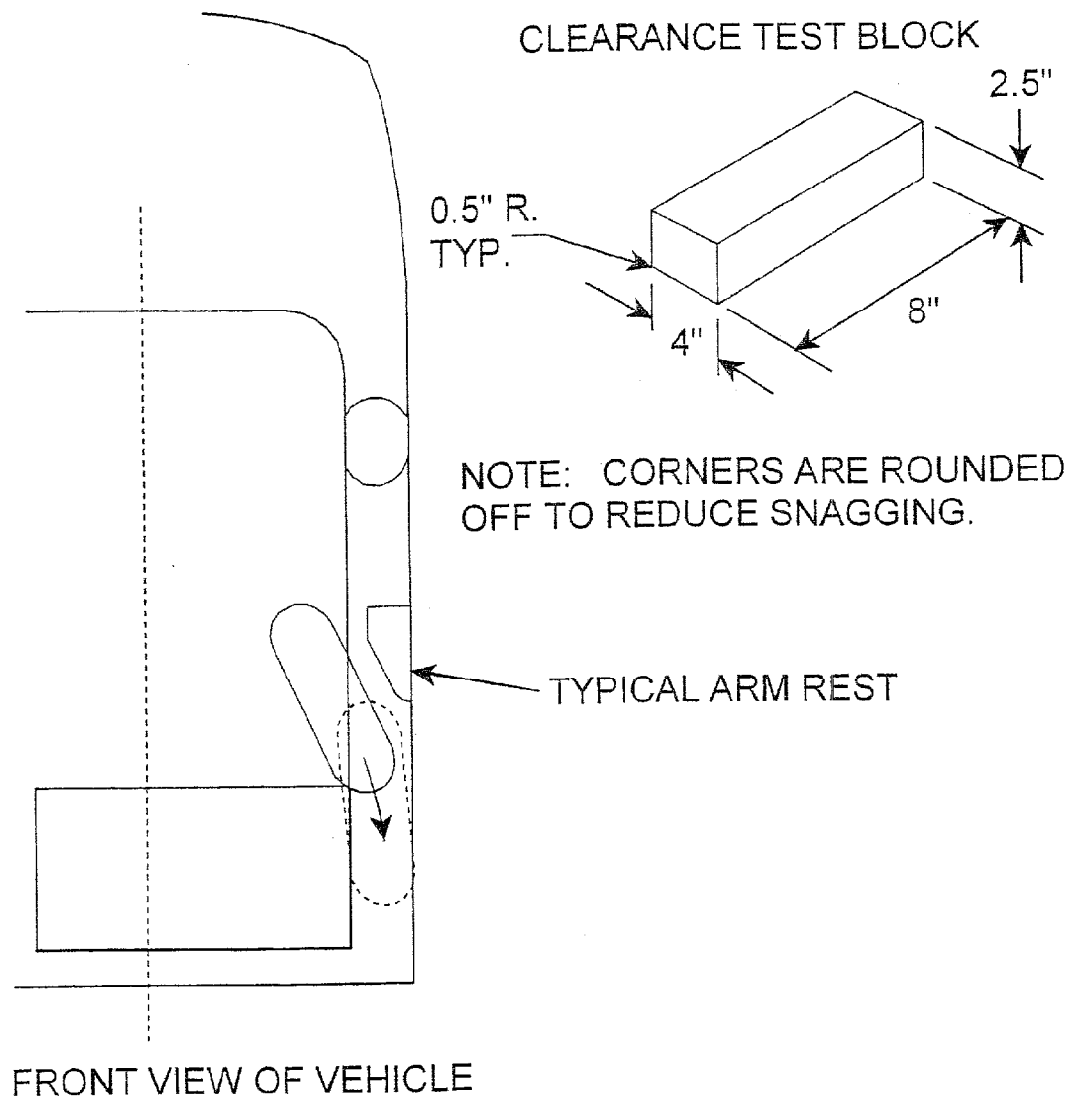


Figure 2C

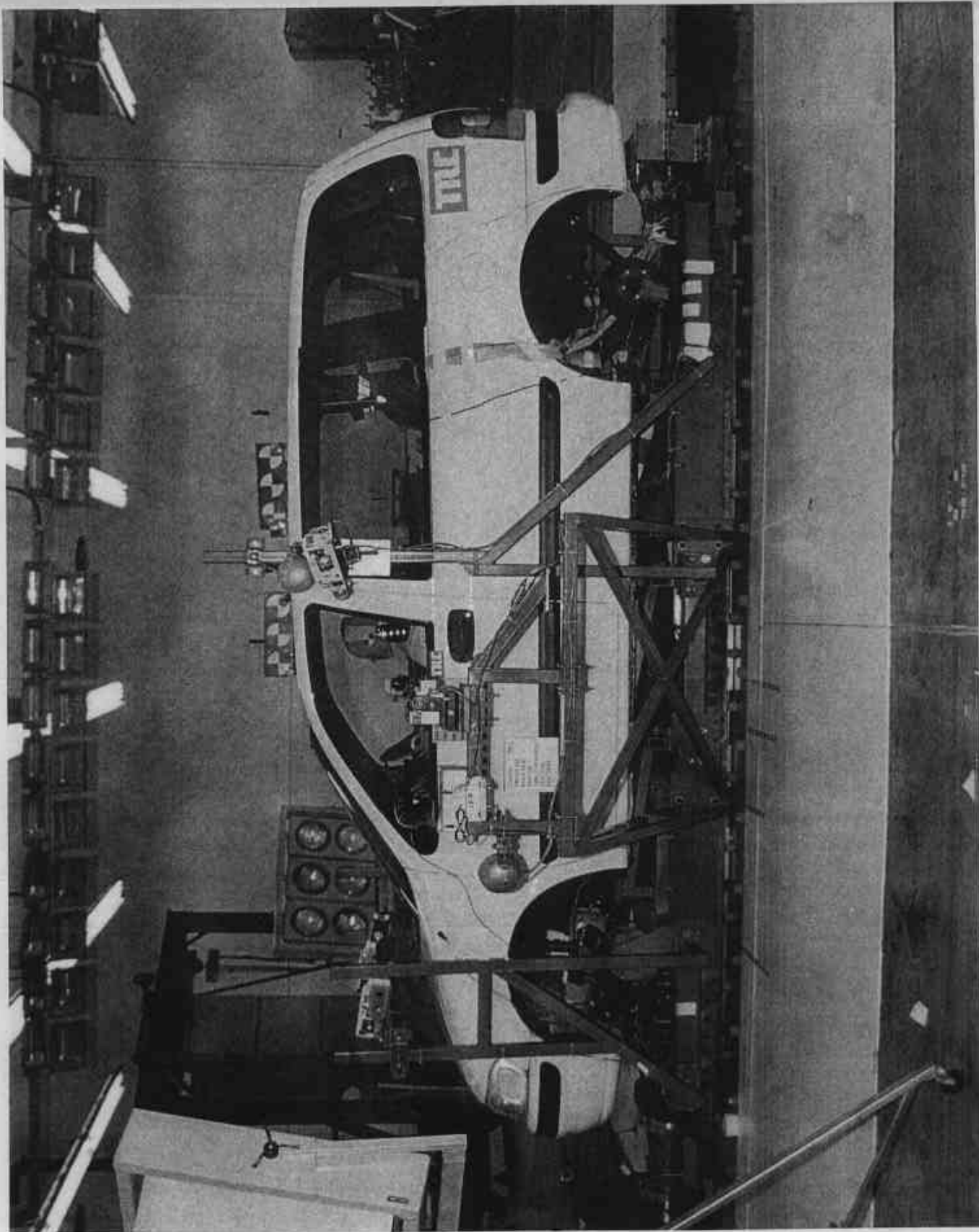


Figure A-2 Pre-Test Left Side View of Test Vehicle Mounted to Sled

A-3

990113S

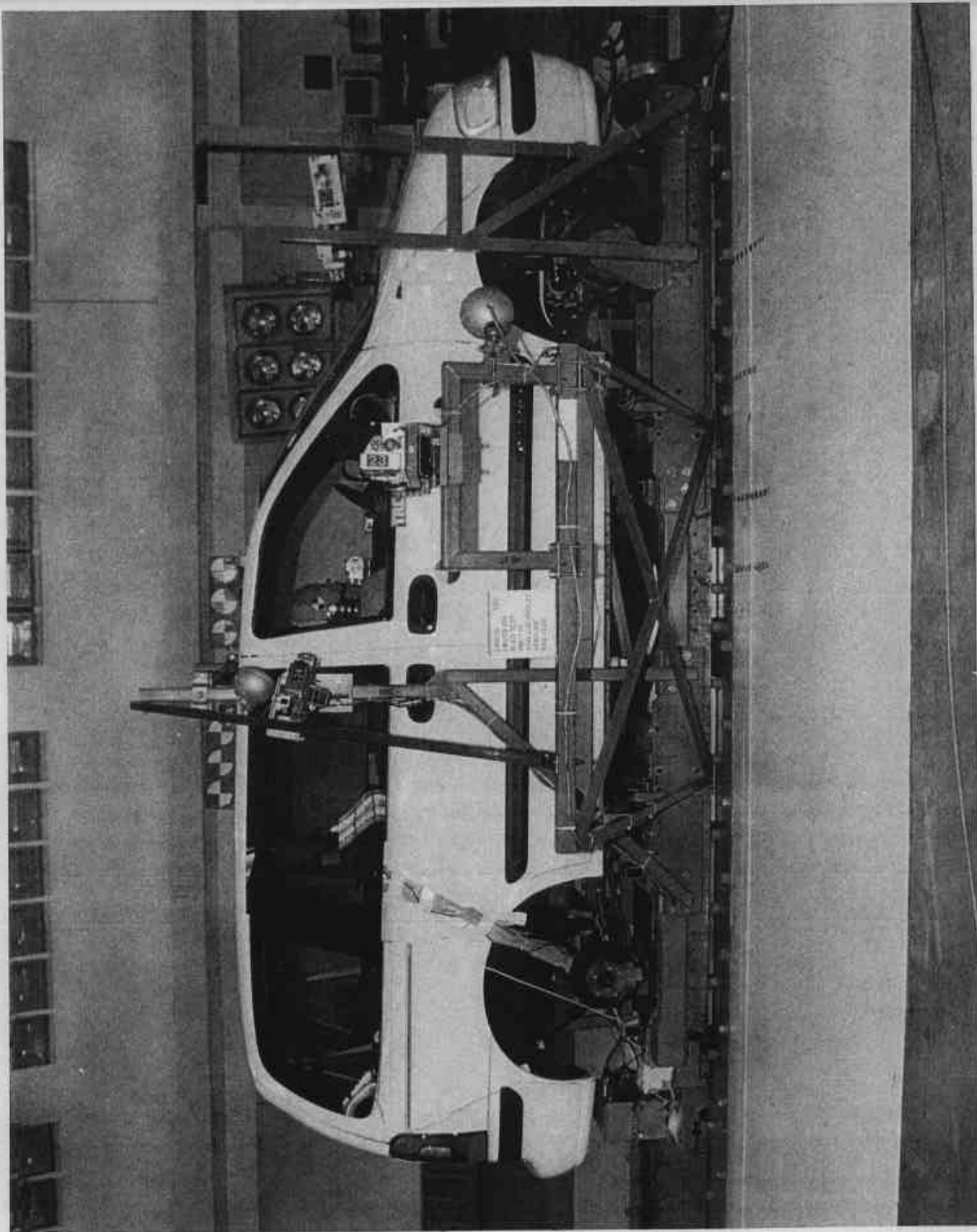


Figure A-3 Pre-Test Right Side View of Test Vehicle Mounted to Sled
A-4 990113S



Figure A-4 Pre-Test Windshield View
A-5

990113S

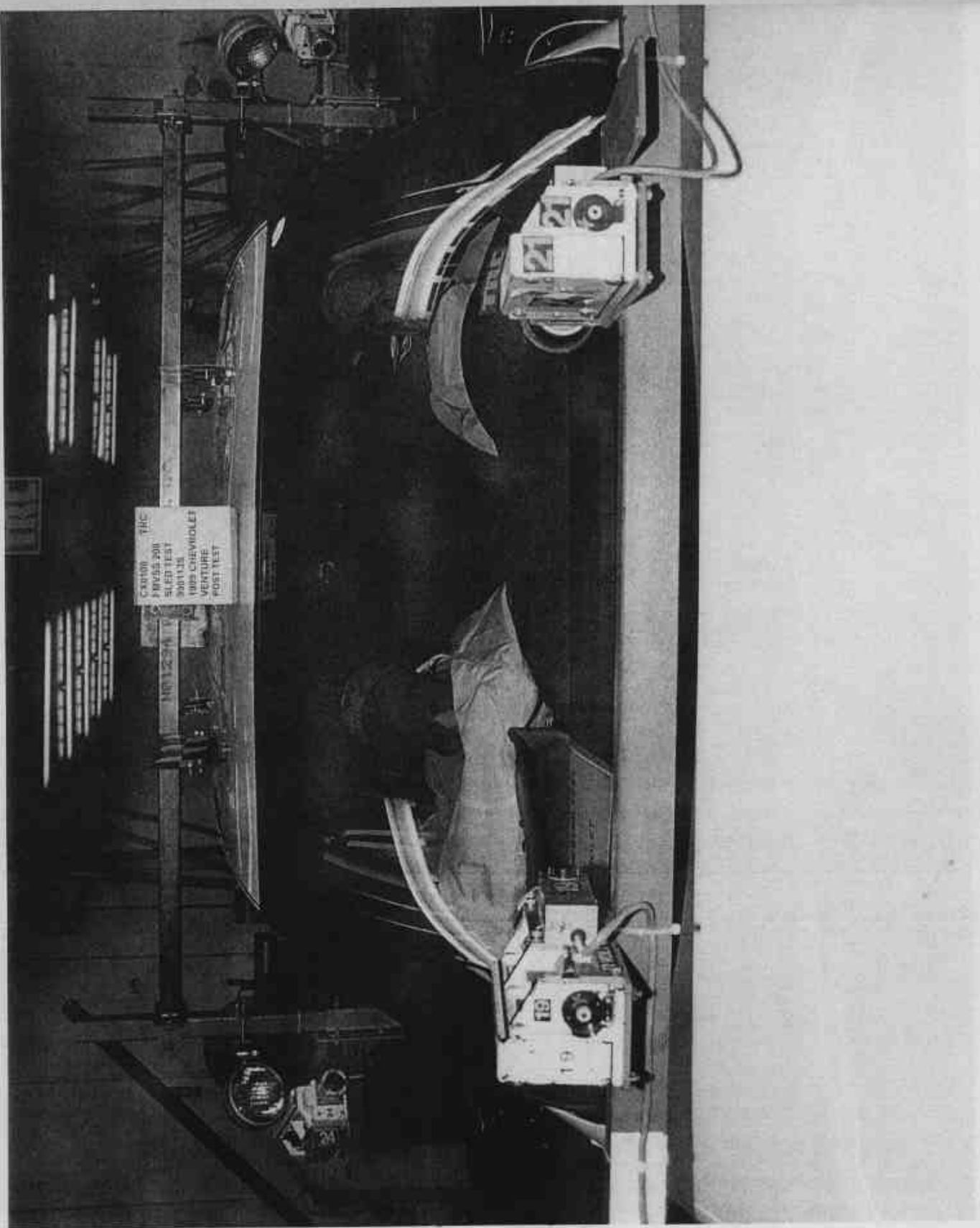


Figure A-5 Post-Test Windshield View
A-6

990113S

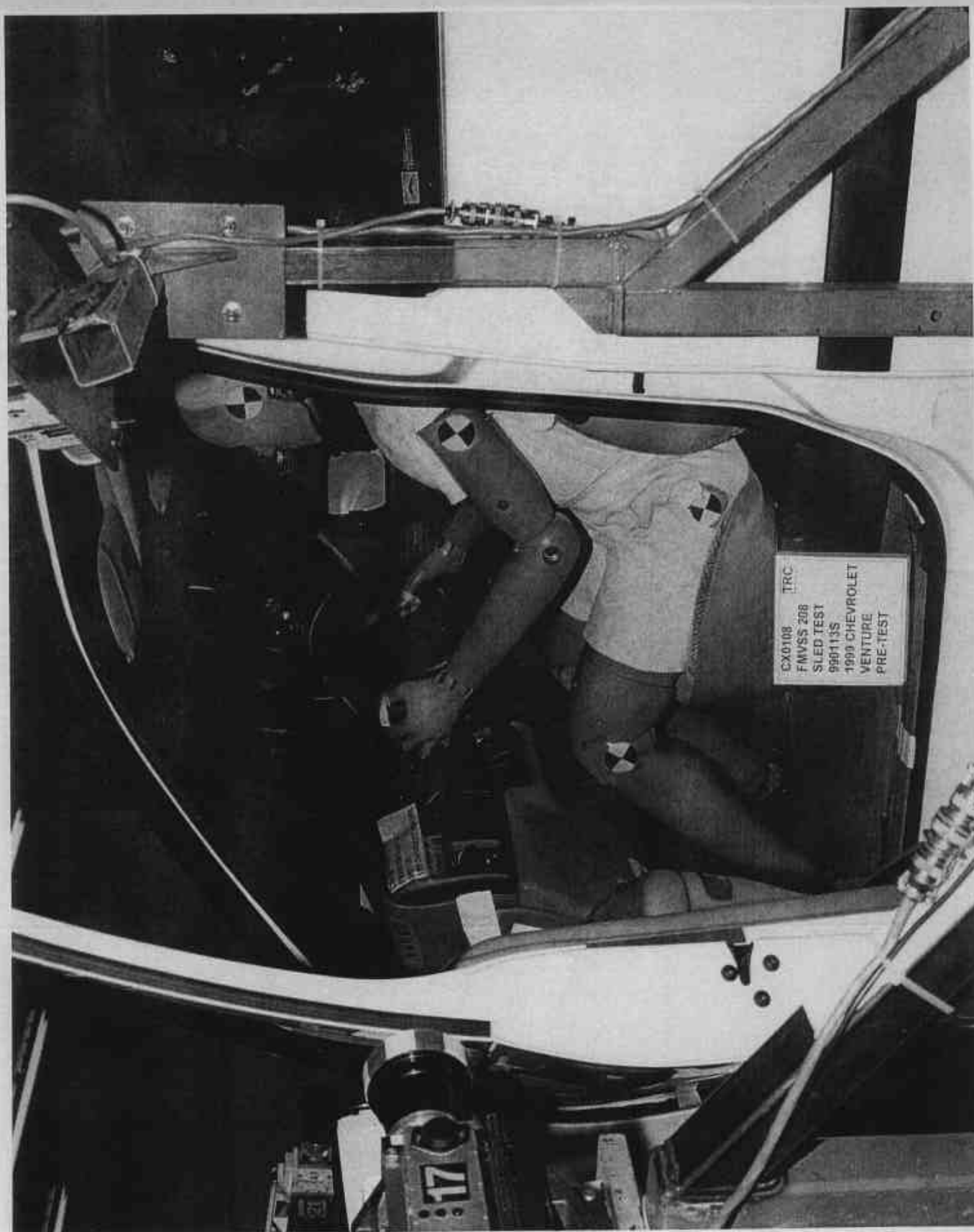


Figure A-6 Pre-Test Driver Dummy Position View With Door Open

A-7

990113S

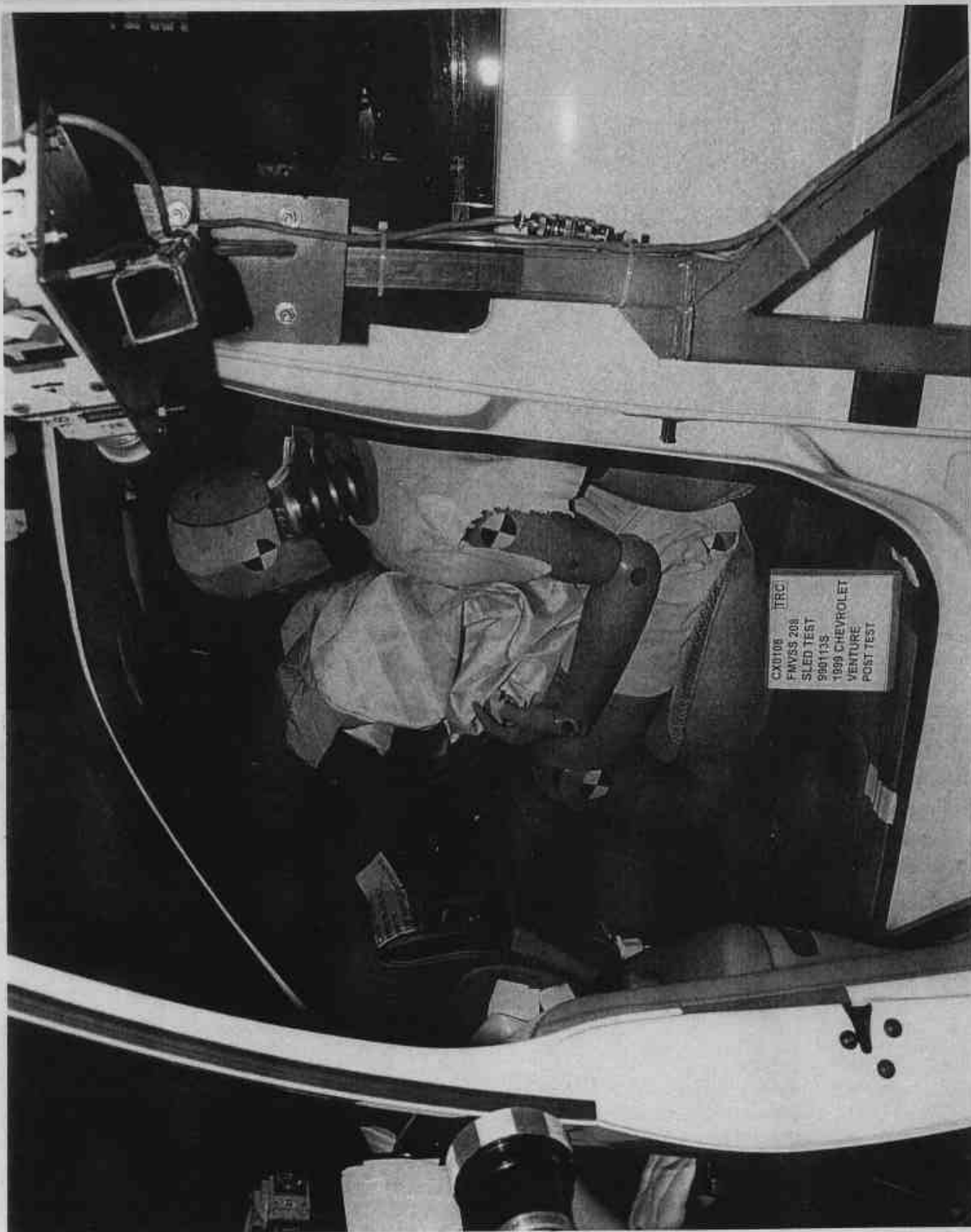


Figure A-7 Post-Test Driver Dummy Position View With Door Open

A-8

990113S

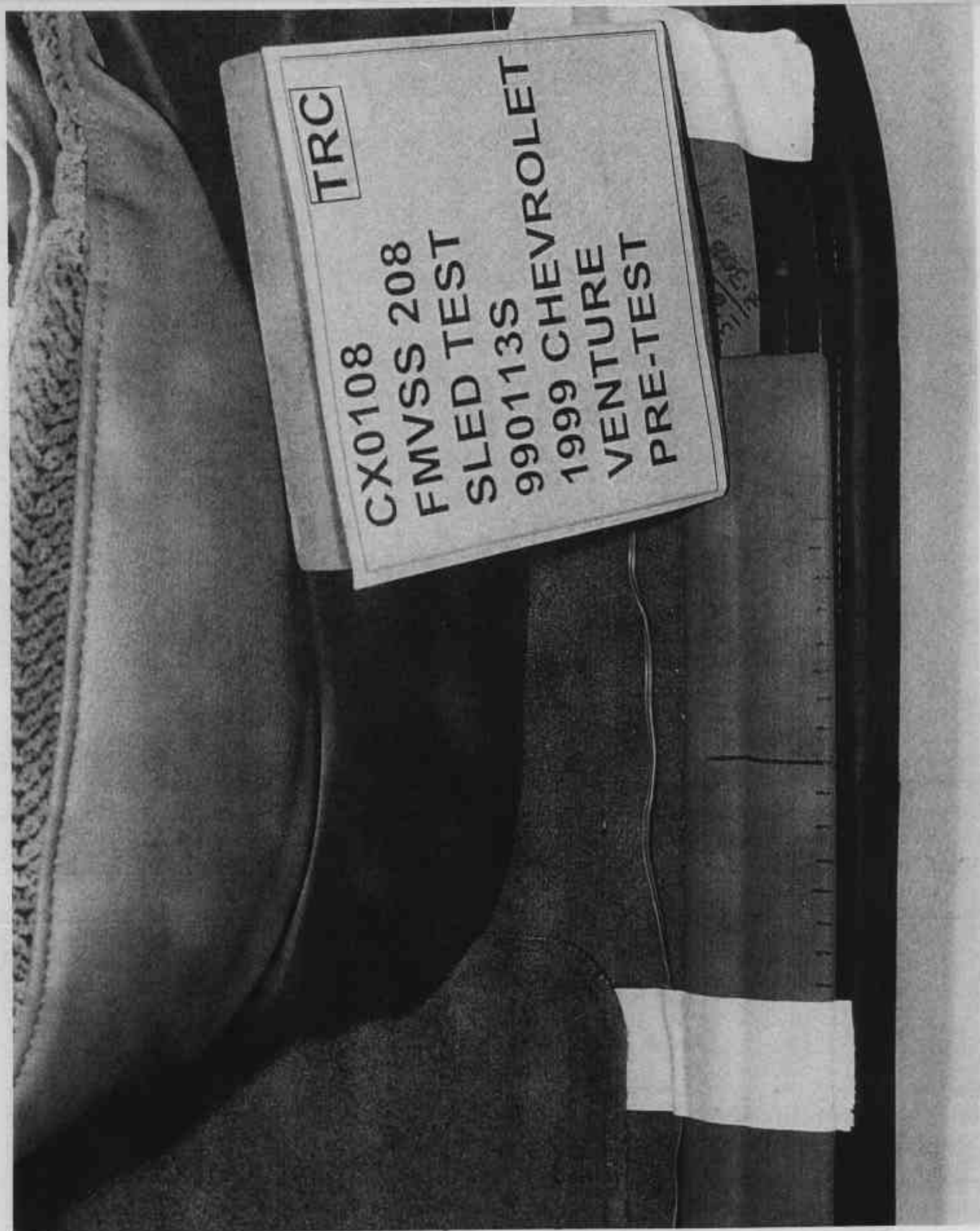


Figure A-8 Pre-Test Driver Seat Track Position View

A-9

990113S



Figure A-9 Post-Test Driver Seat Track Position View
A-10

990113S

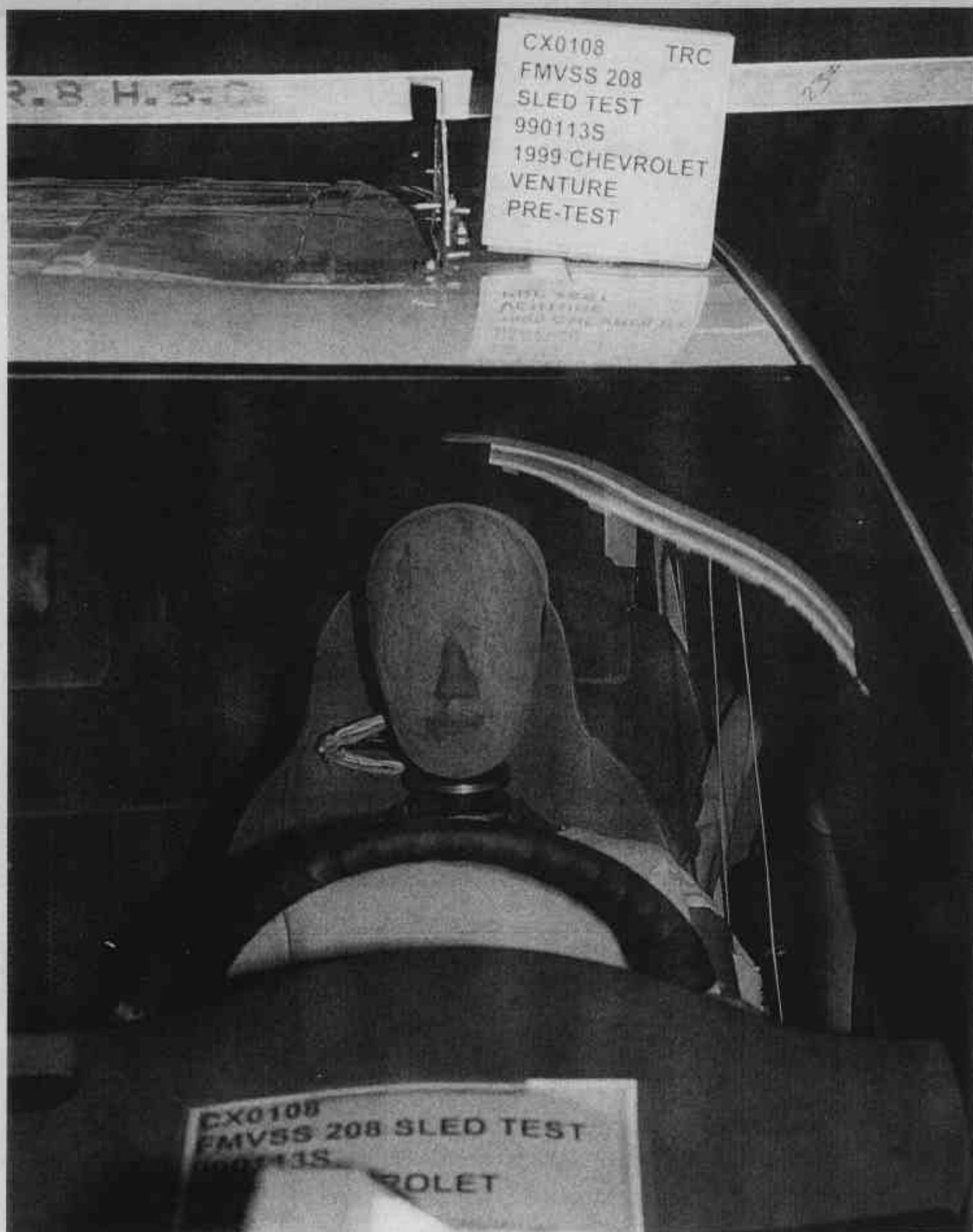


Figure A-10 Pre-Test Driver Dummy Position Front View

A-11

990113S

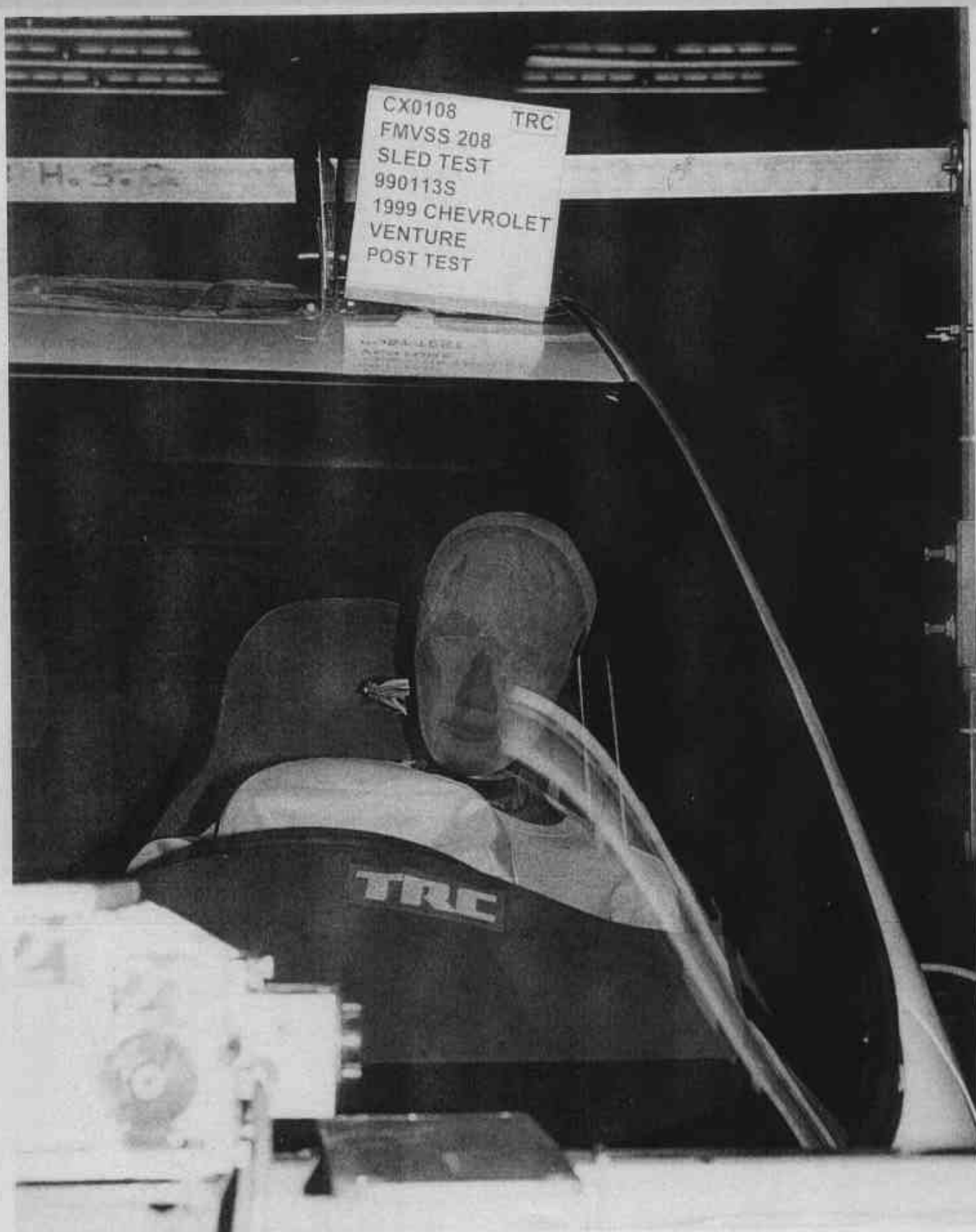


Figure A-11 Post-Test Driver Dummy Position Front View
A-12

990113S



Figure A-12 Pre-Test Passenger Dummy Position View With Door Open
A-13 990113S



Figure A-13 Post-Test Passenger Dummy Position View With Door Open
A-14
990113S

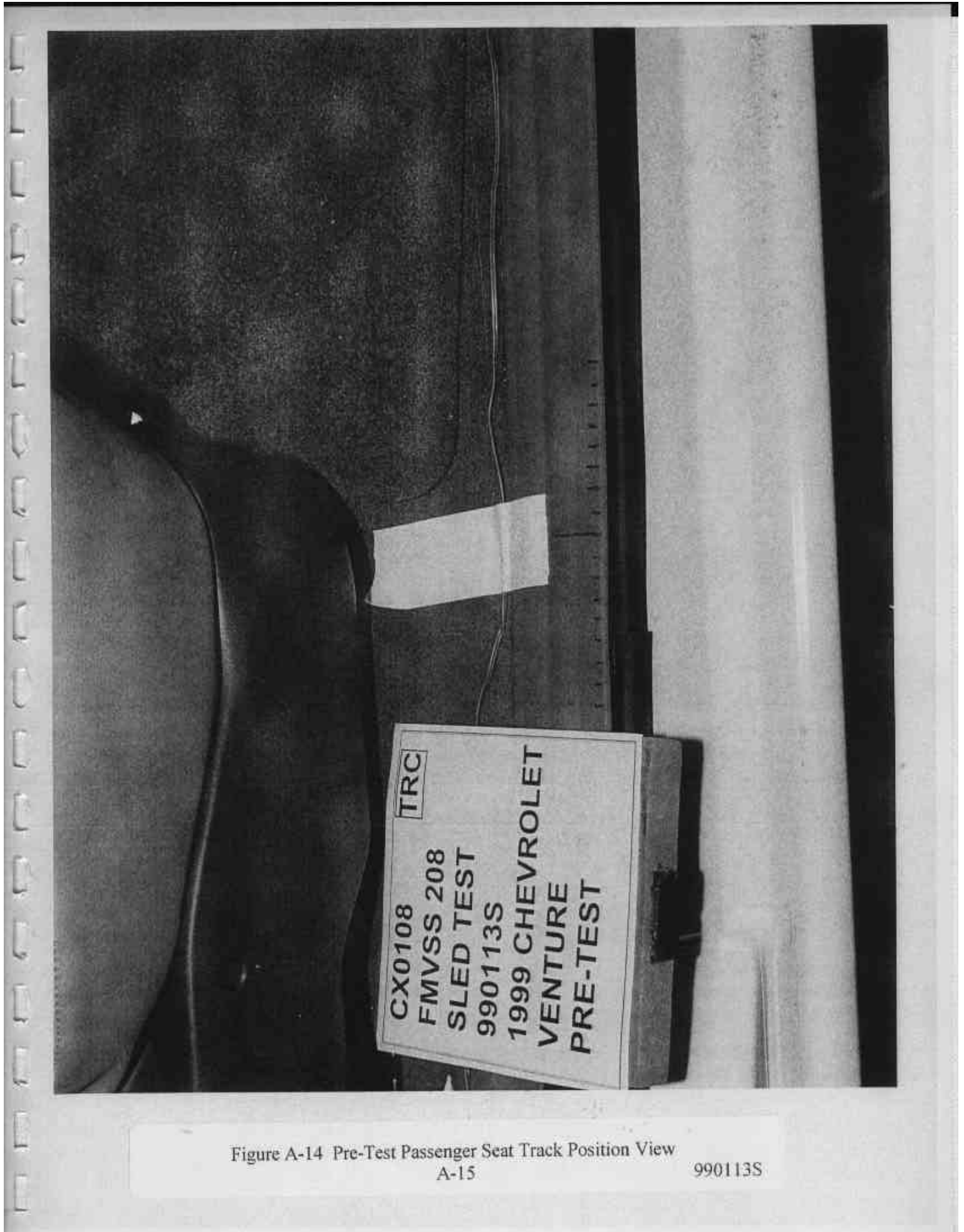


Figure A-14 Pre-Test Passenger Seat Track Position View
A-15

990113S

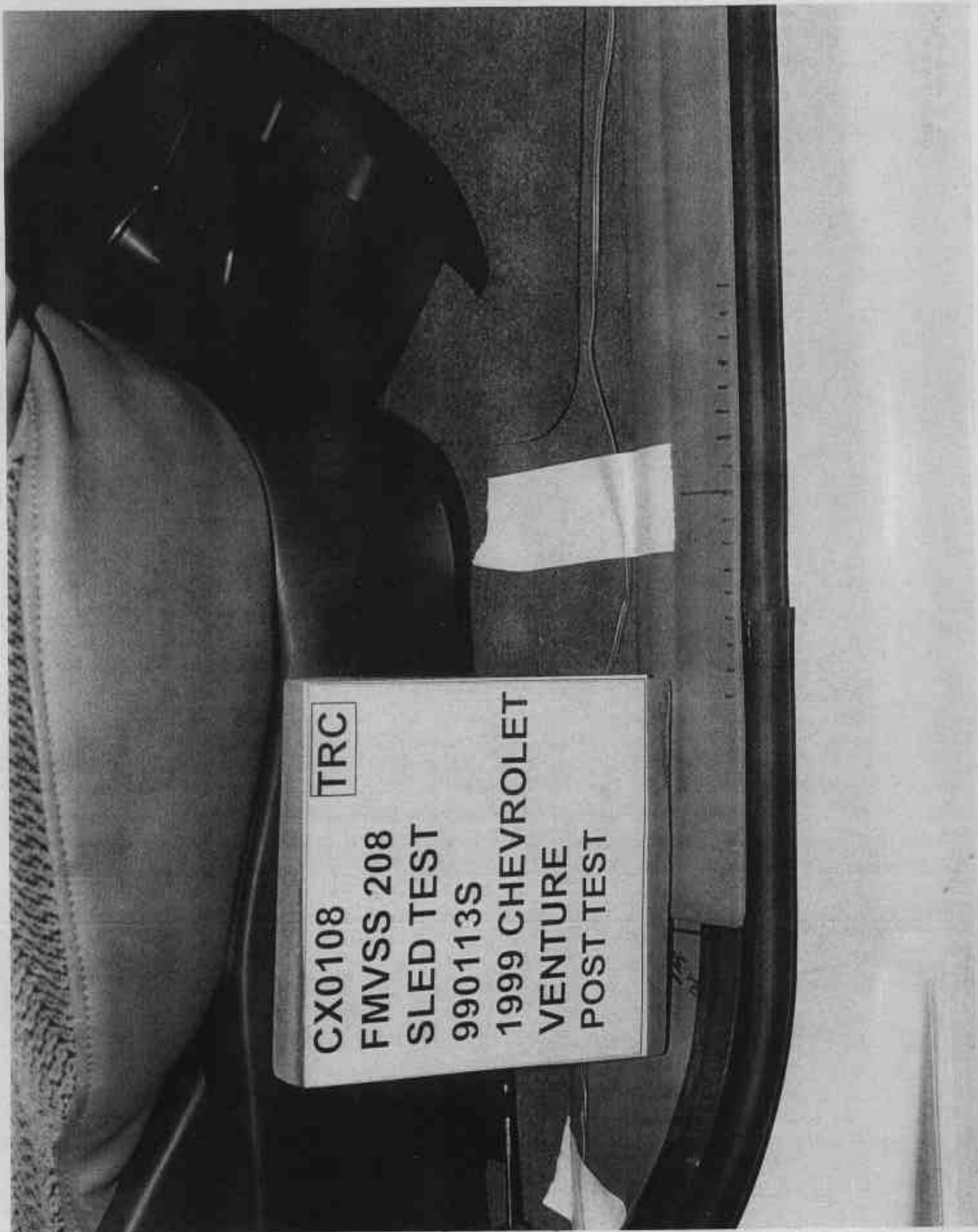


Figure A-15 Post-Test Passenger Seat Track Position View
A-16

990113S

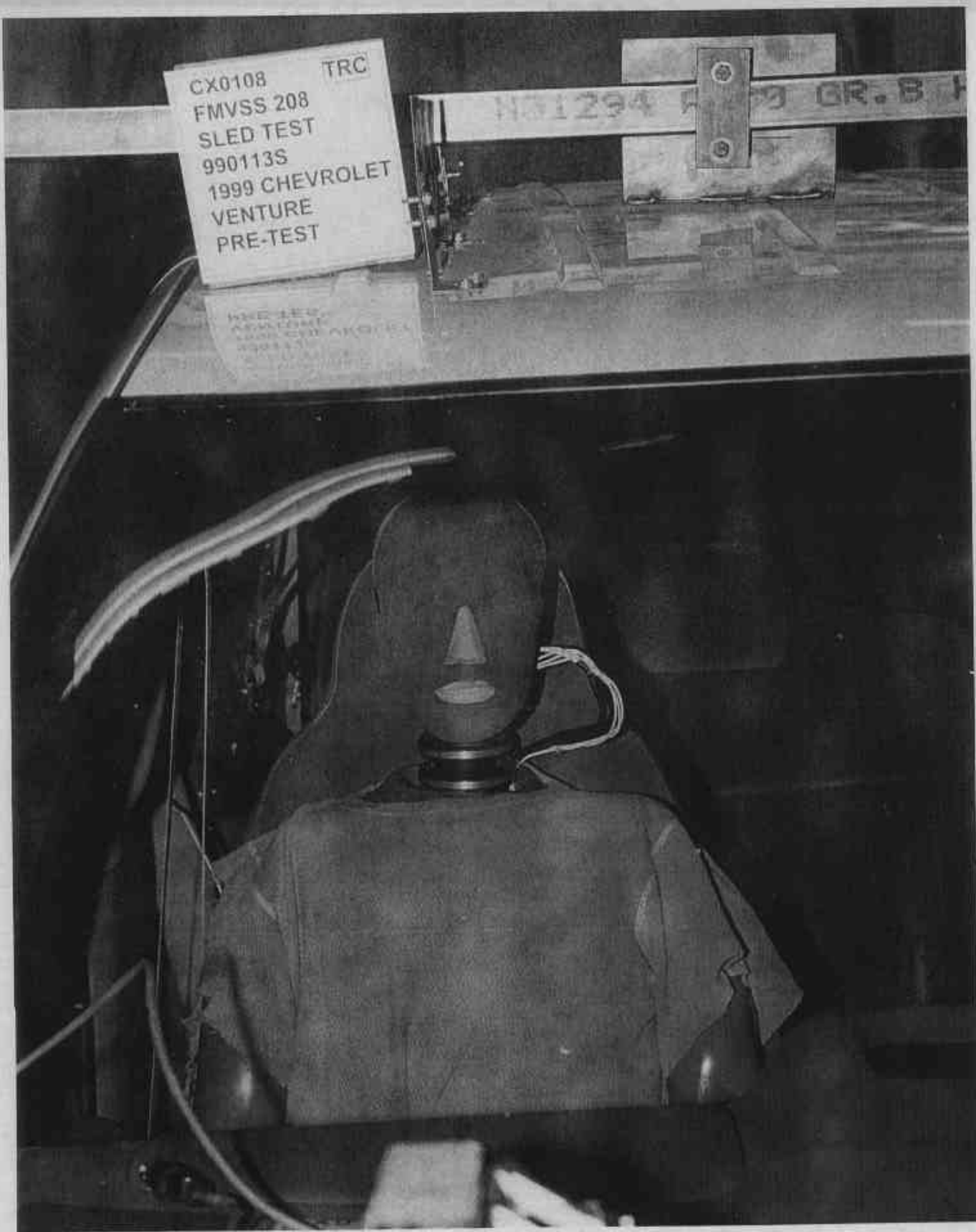


Figure A-16 Pre-Test Passenger Dummy Position Front View
A-17

990113S

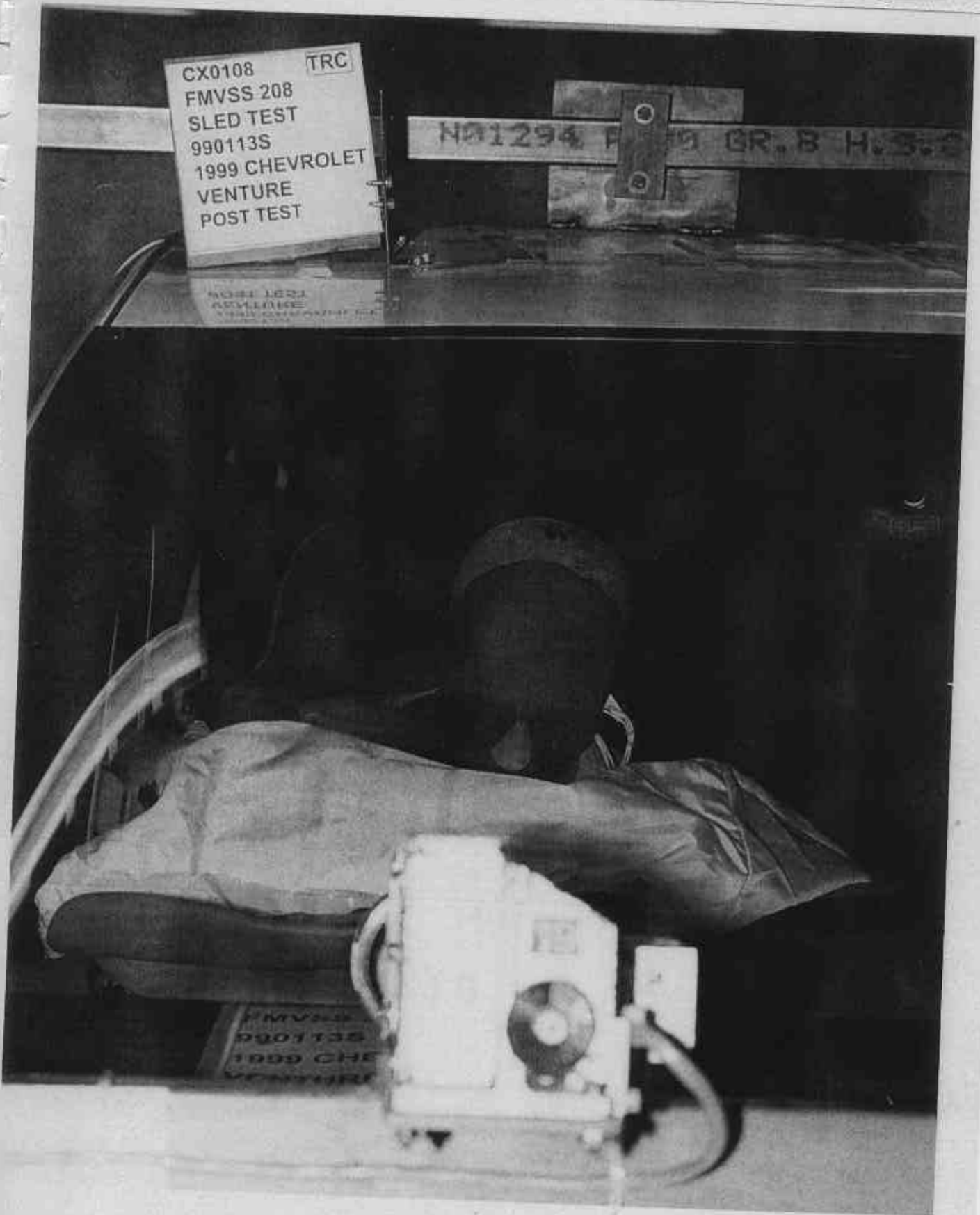


Figure A-17 Post-Test Passenger Dummy Position Front View
A-18

990113S

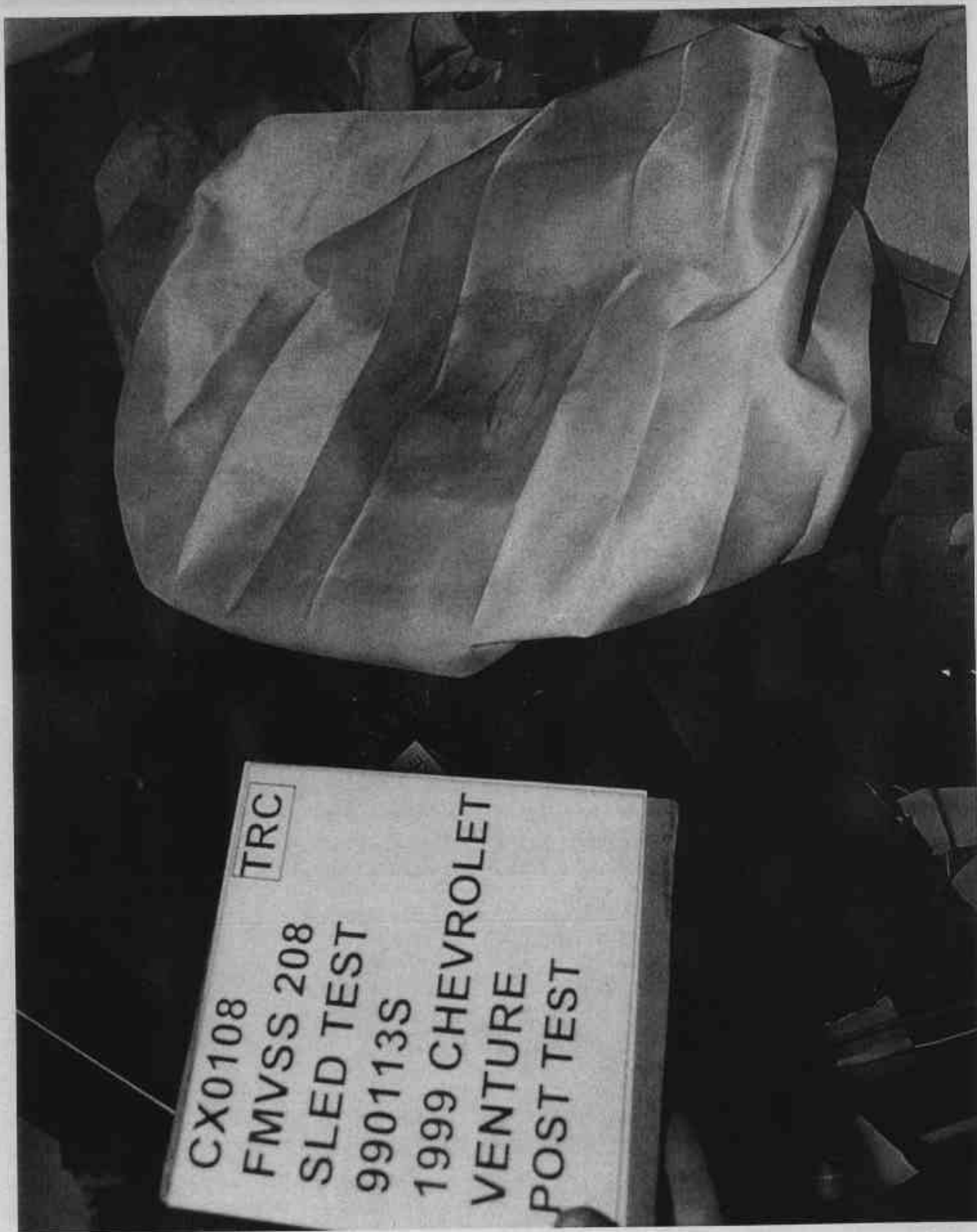


Figure A-18 Post-Test Driver Airbag View
A-19

990113S

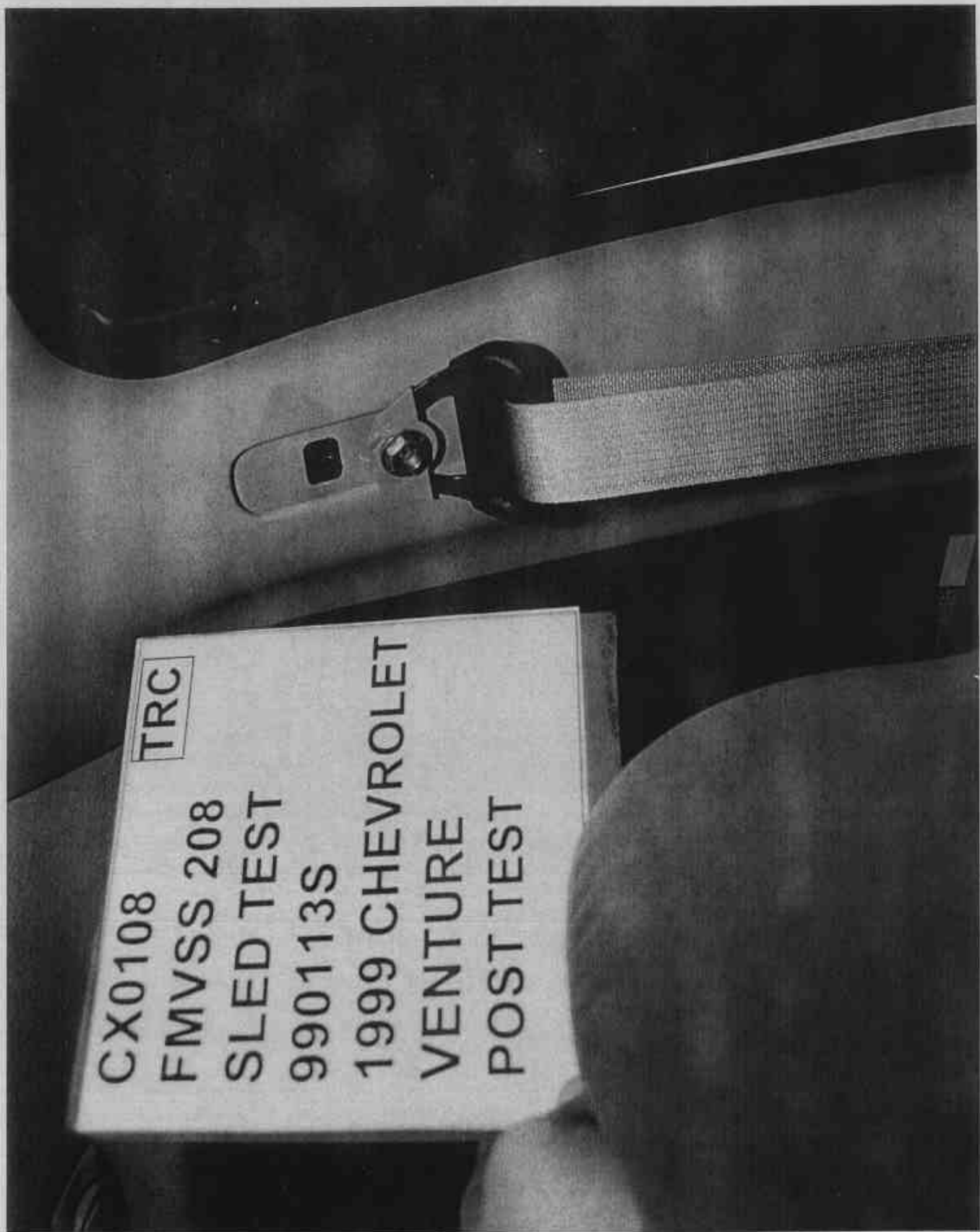


Figure A-19 Post-Test Driver Head Contact View
A-20

990113S

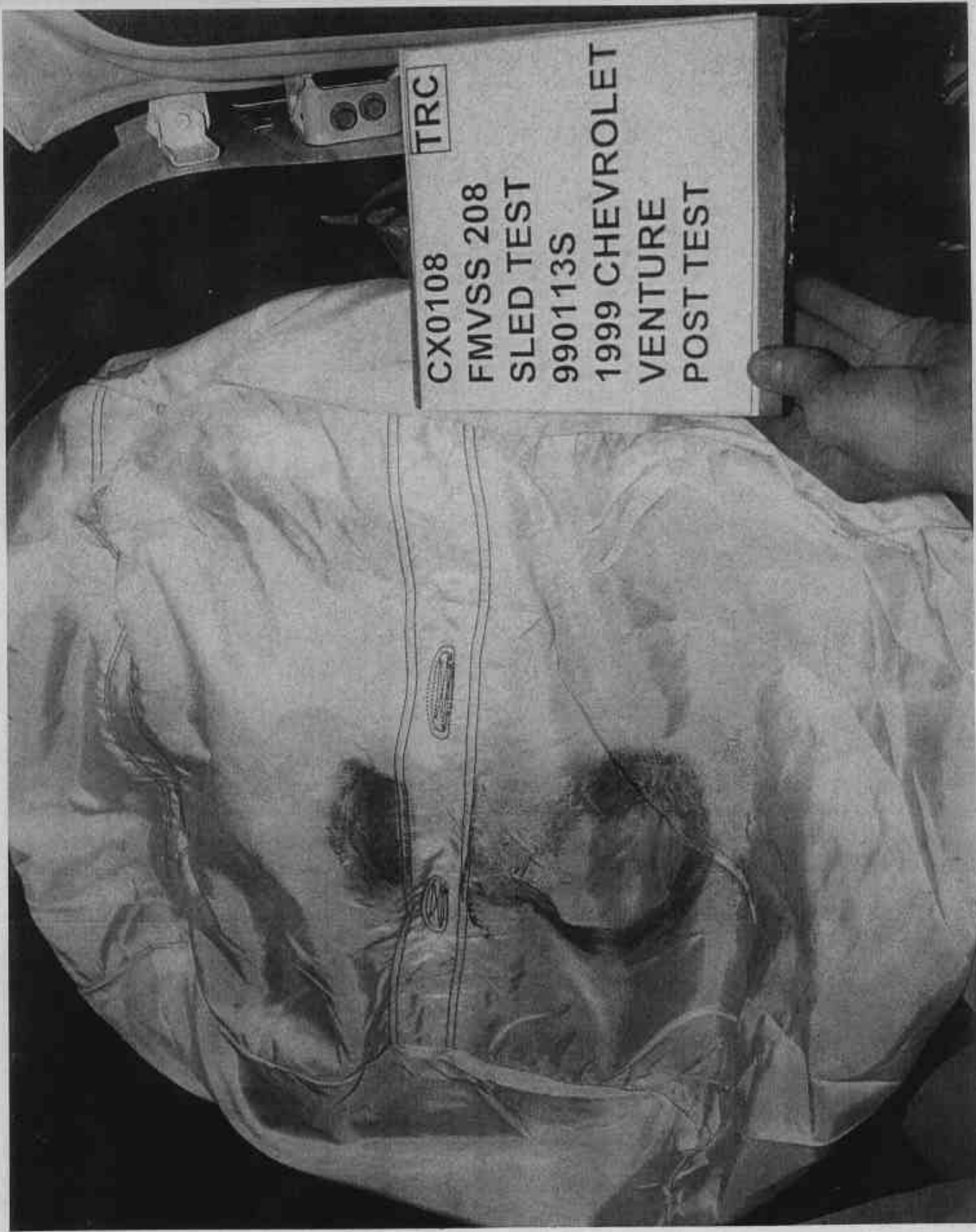


Figure A-20 Post-Test Passenger Airbag View
A-21

990113S

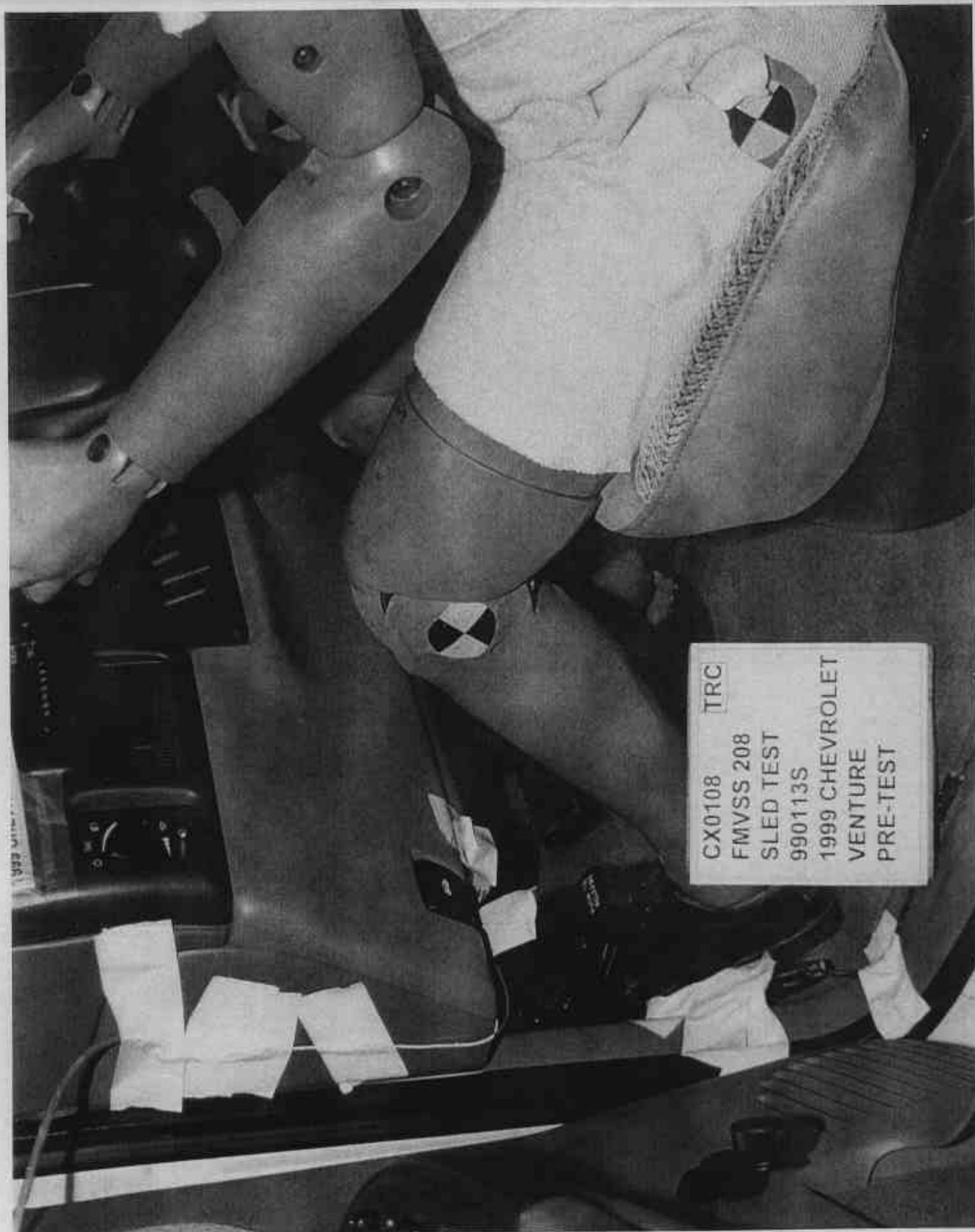


Figure A-21 Pre-Test Driver Knee Bolster View
A-22

990113S



Figure A-22 Post-Test Driver Knee Bolster - View 1

A-23

990113S

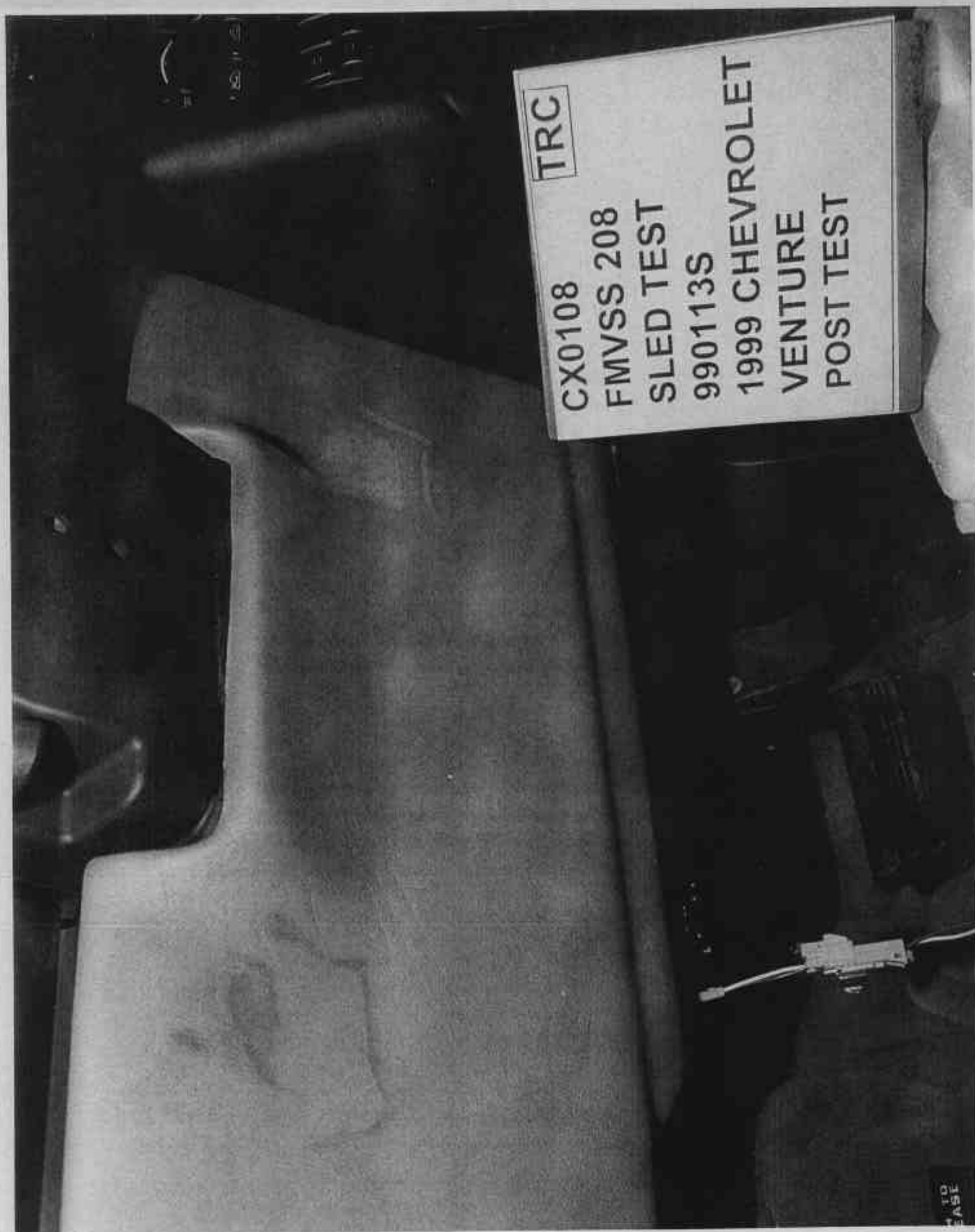


Figure A-23 Post-Test Driver Knee Bolster - View 2

A-24

990113S



Figure A-24 Pre-Test Passenger Glove Box View
A-25

990113S



Figure A-25 Post-Test Passenger Glove Box - View 1
A-26

9901113S

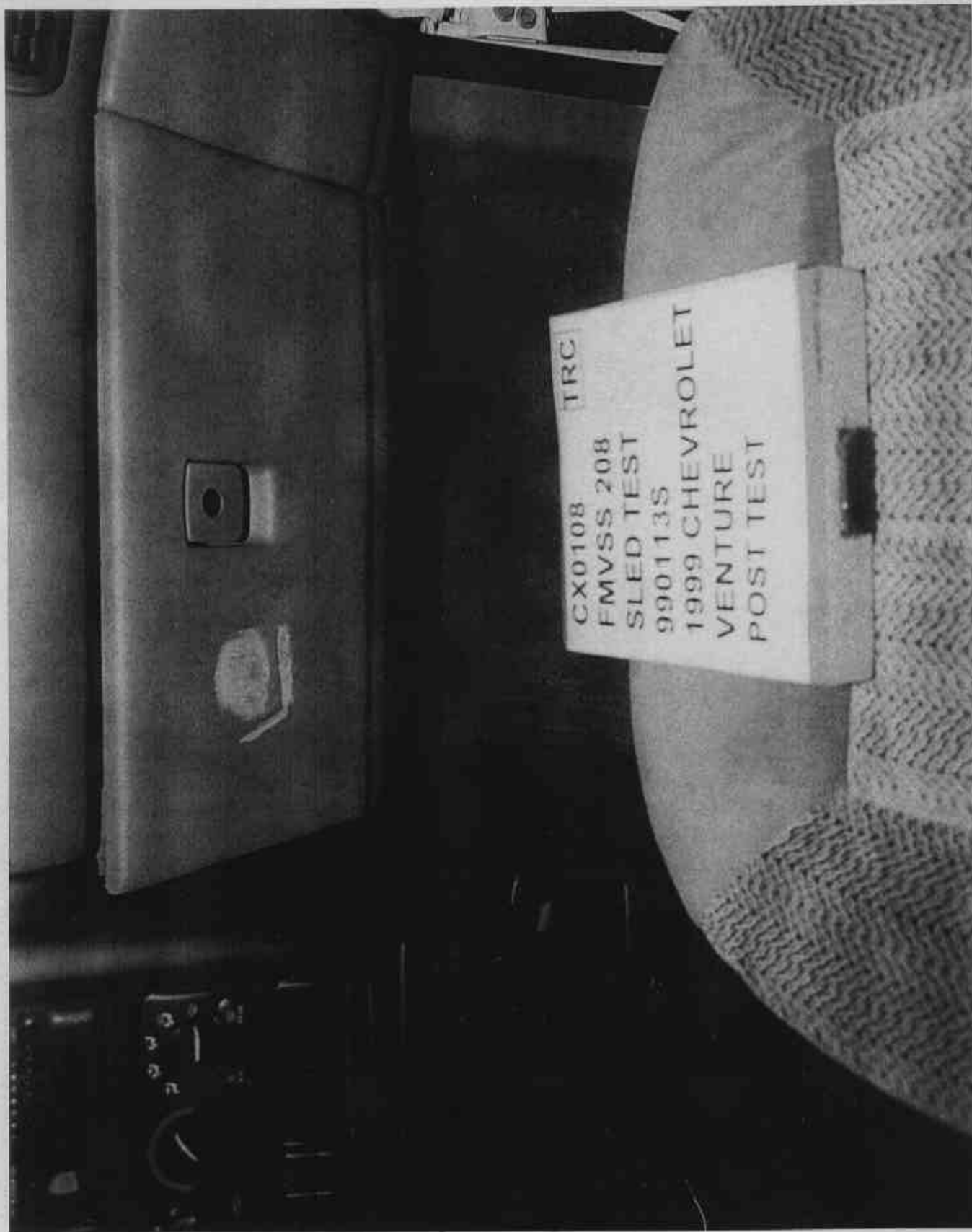


Figure A-26 Post-Test Passenger Glove Box - View 2
A-27

990113S



MFD BY GENERAL MOTORS CORP

11/98

GVWR

GAWR FRT

GAWR RR

2430KG(5357LB)

1236KG(2725LB)

1215KG(2678LB)

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

1GNDU06EXXD165704

TYPE: M.P.V.

MODEL: UN06

UPBK	TIRE SIZE	SPEED RTG	RIM	COLD TIRE PRESSURE
FRT	P215/70R15	S	15X6J	240KPA(35PSI)
RR	P215/70R15	S	15X6J	240KPA(35PSI)
SPA	T125/70R15	M	15X4T	420KPA(60PSI)

SEE OWNER'S MANUAL FOR MORE INFORMATION.

Figure A-27 Pre-Test Vehicle Certification Label View

Appendix B

Data Plots

CX0108 / 1999 GM VENTURE

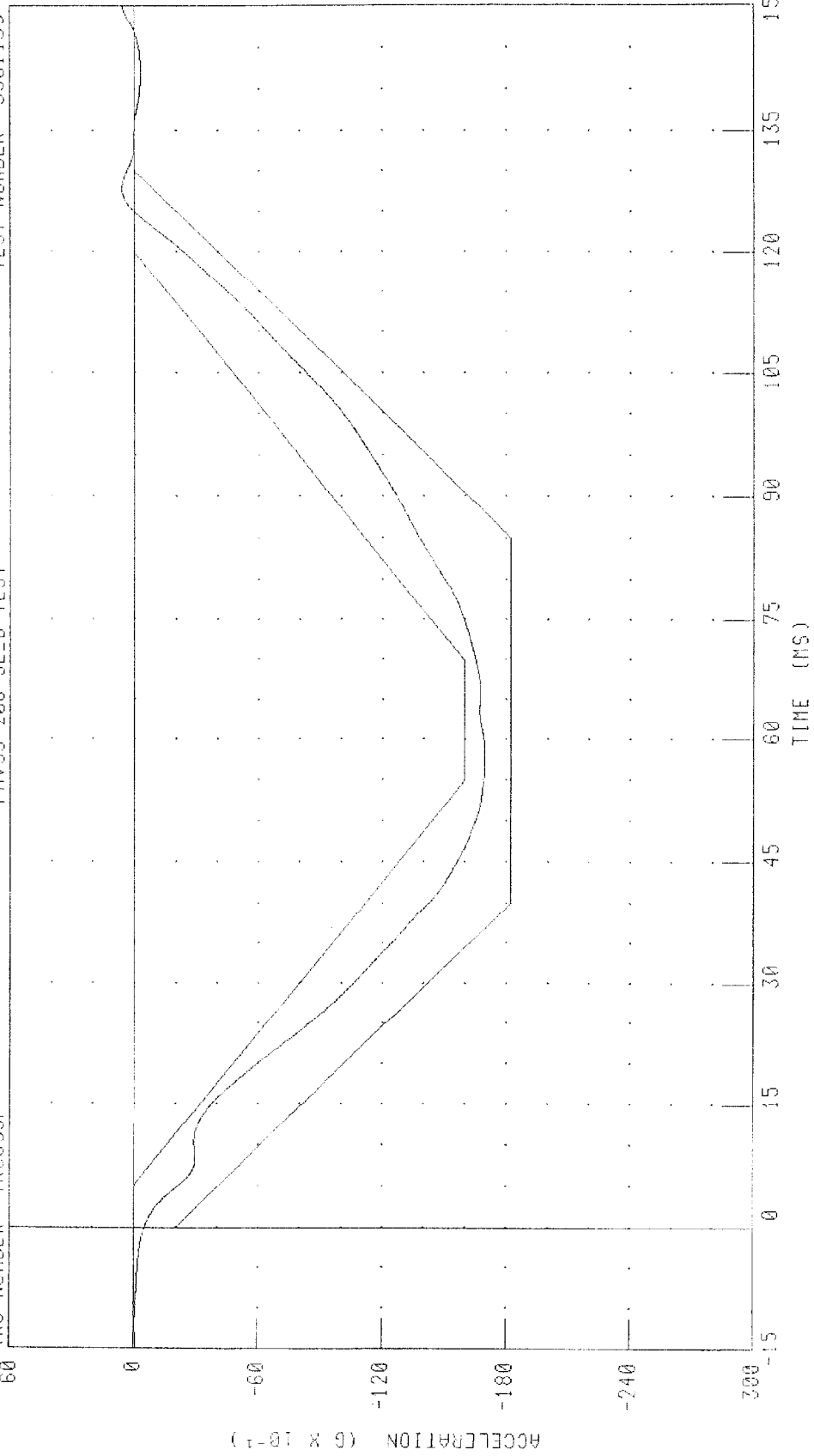
SLED ACCELERATION

FMVSS 208 SLED TEST

TEST NUMBER: 990113S

TRC NUMBER: TRC835P

60



PEAK DATA: 0.62 G @ 127.76 MS; -16.97 G @ 57.28 MS

FILTER: CH. CLASS 60

CHANNEL: SLDXG

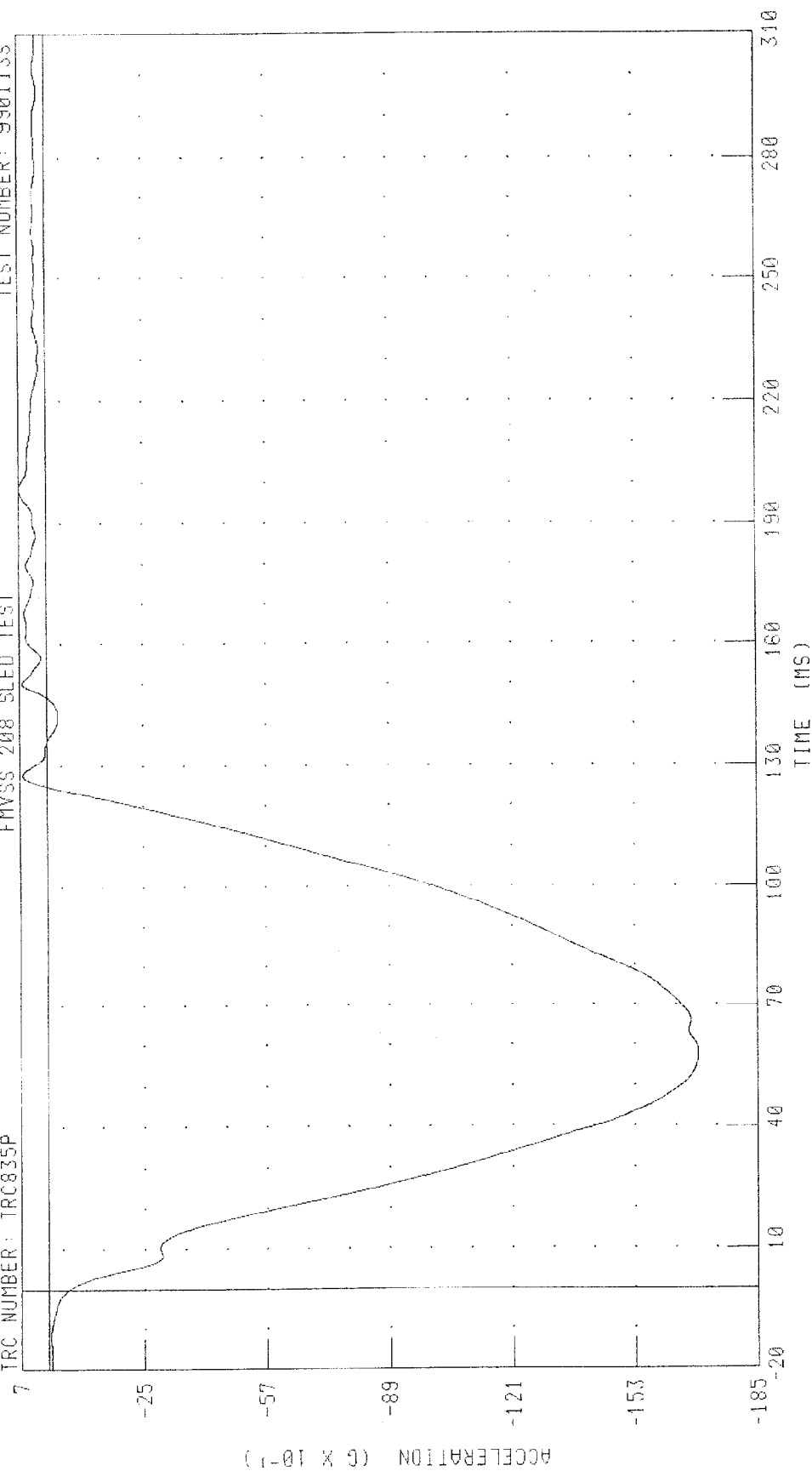
CX0108 / 1999 GM VENTURE

SLED ACCELERATION

FMVSS 208 SLED TEST

TEST NUMBER: 990113S

TRC NUMBER: TRC835P



CHANNEL: SLDXG FILTER: CH. CLASS 60

PEAK DATA: 0 71 G @ 198.56 MS, -16 97 G @ 57.28 MS

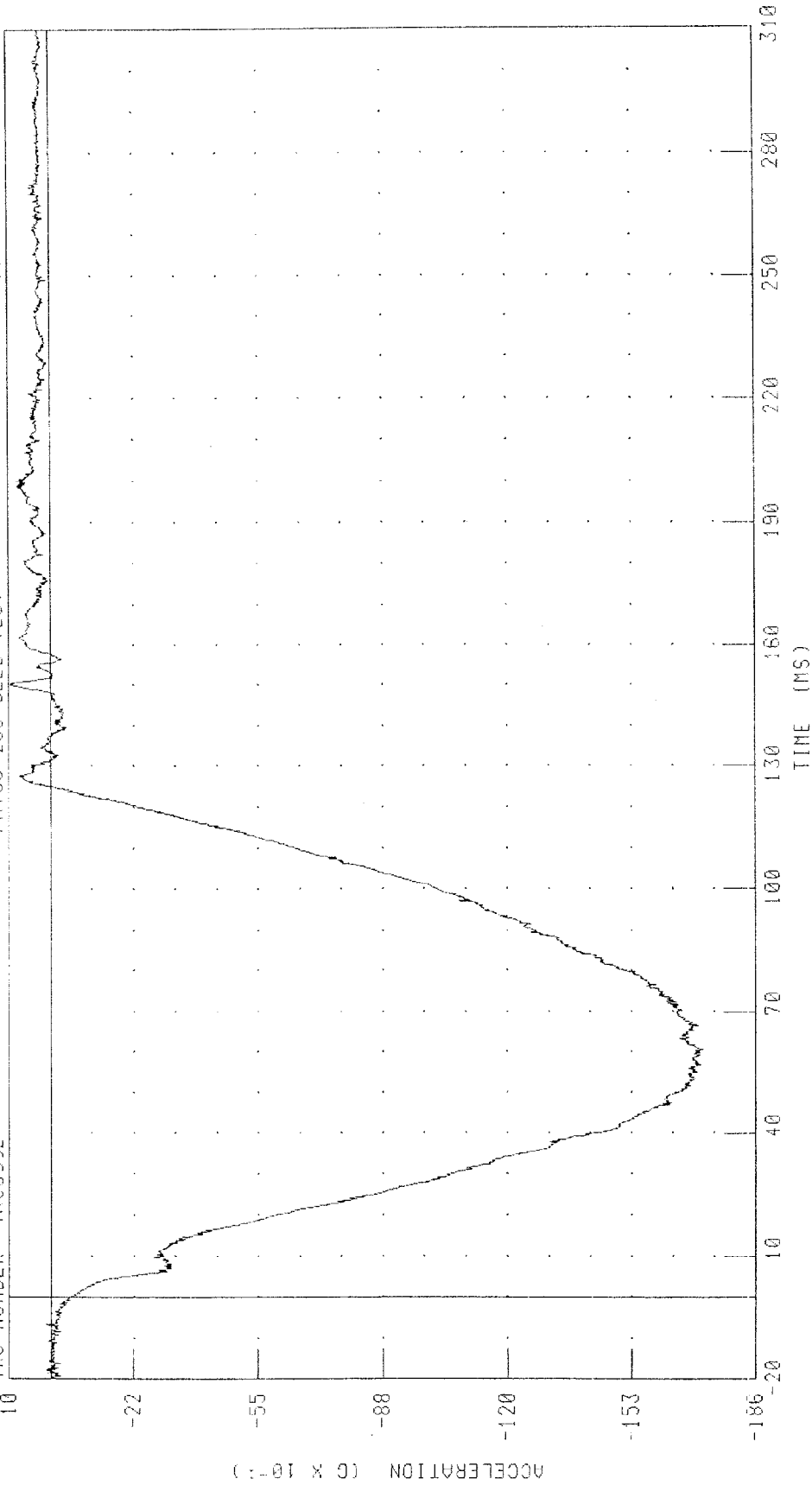
CX0108 / 1999 GM VENTURE
SLED ACCELERATION REDUNDANT

FMVSS 208 SLED TEST

TRC NUMBER TRC835Z

10

TEST NUMBER: 990113S



CHANNEL: SLDXCA FILTER: CH. CLASS 1000

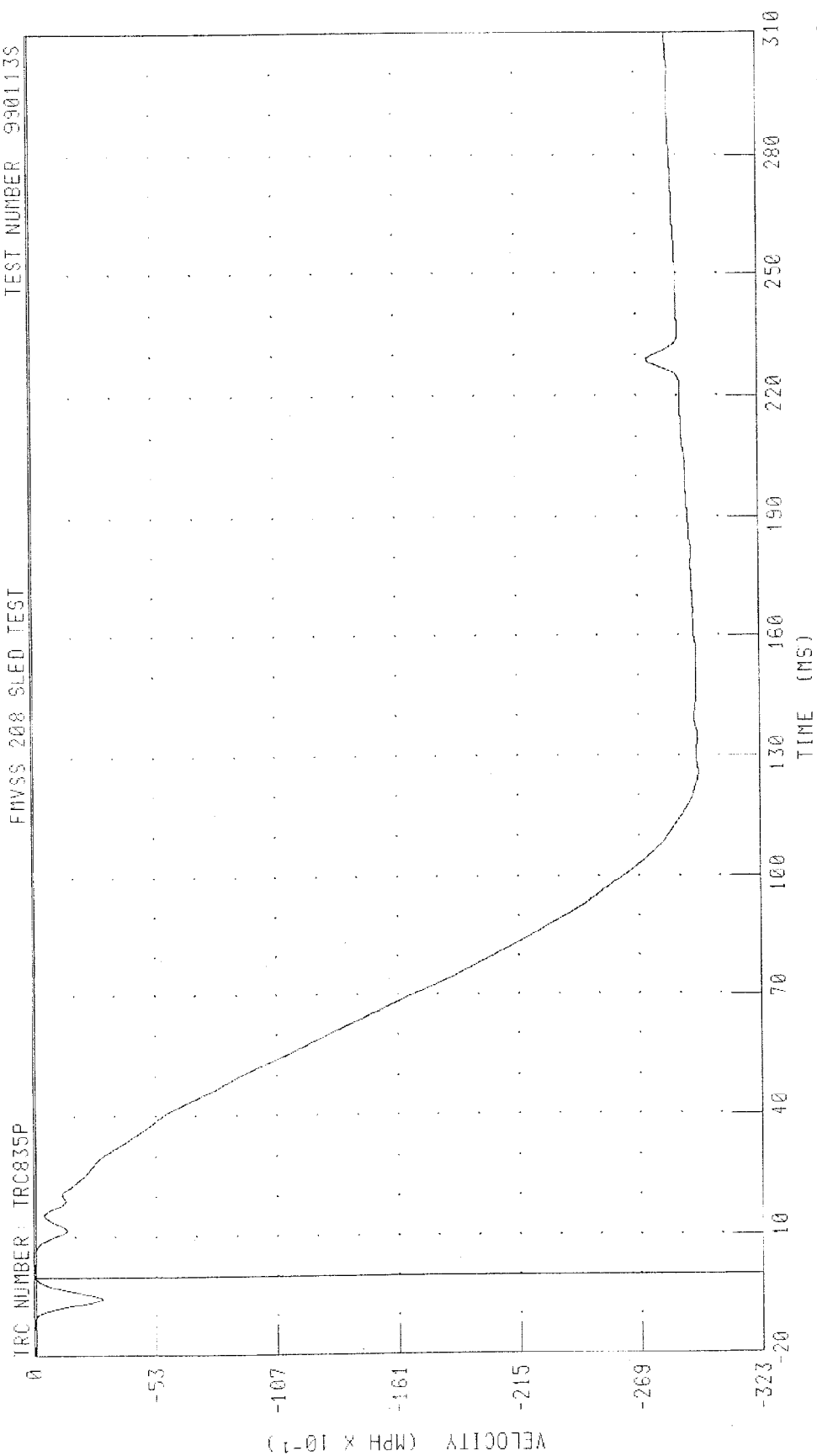
PEAK DATA: 1.04 G @ 150.32 MS, -17.29 G @ 60.48 MS

CX0108 / 1999 GM VENTURE

MEASURED VELOCITY TRAP

FMVSS 208 SLED TEST

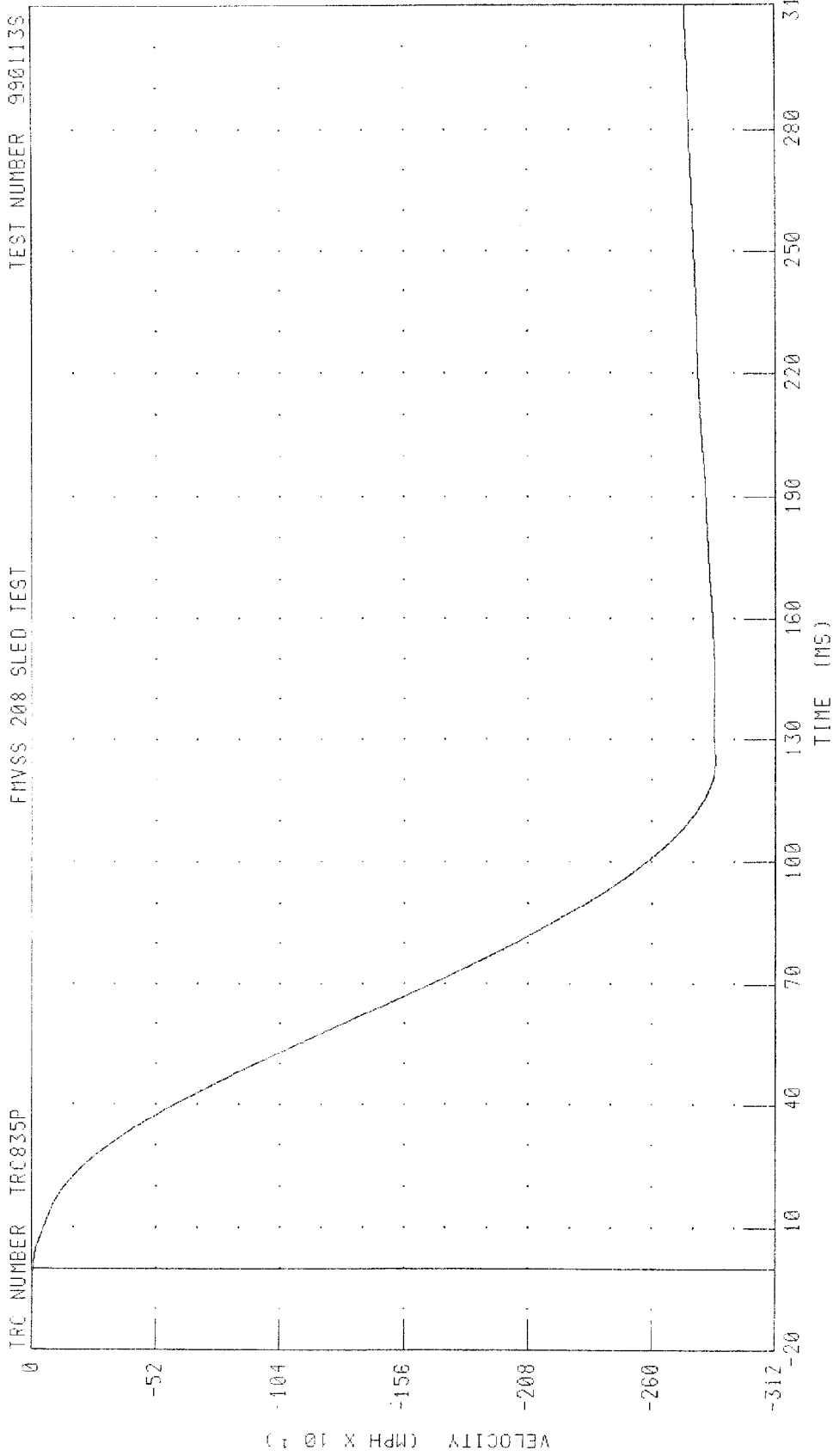
TEST NUMBER 990113S



PEAK DATA: 0.09 MPH @ 0.88 MS; -29.55 MPH @ 125.92 MS

CHANNEL: SLOXV FILTER: CH. CLASS 60

CX0108 / 1999 GM VENTURE
 SLED VELOCITY (INTEGRATED)
 FMVSS 208 SLED TEST



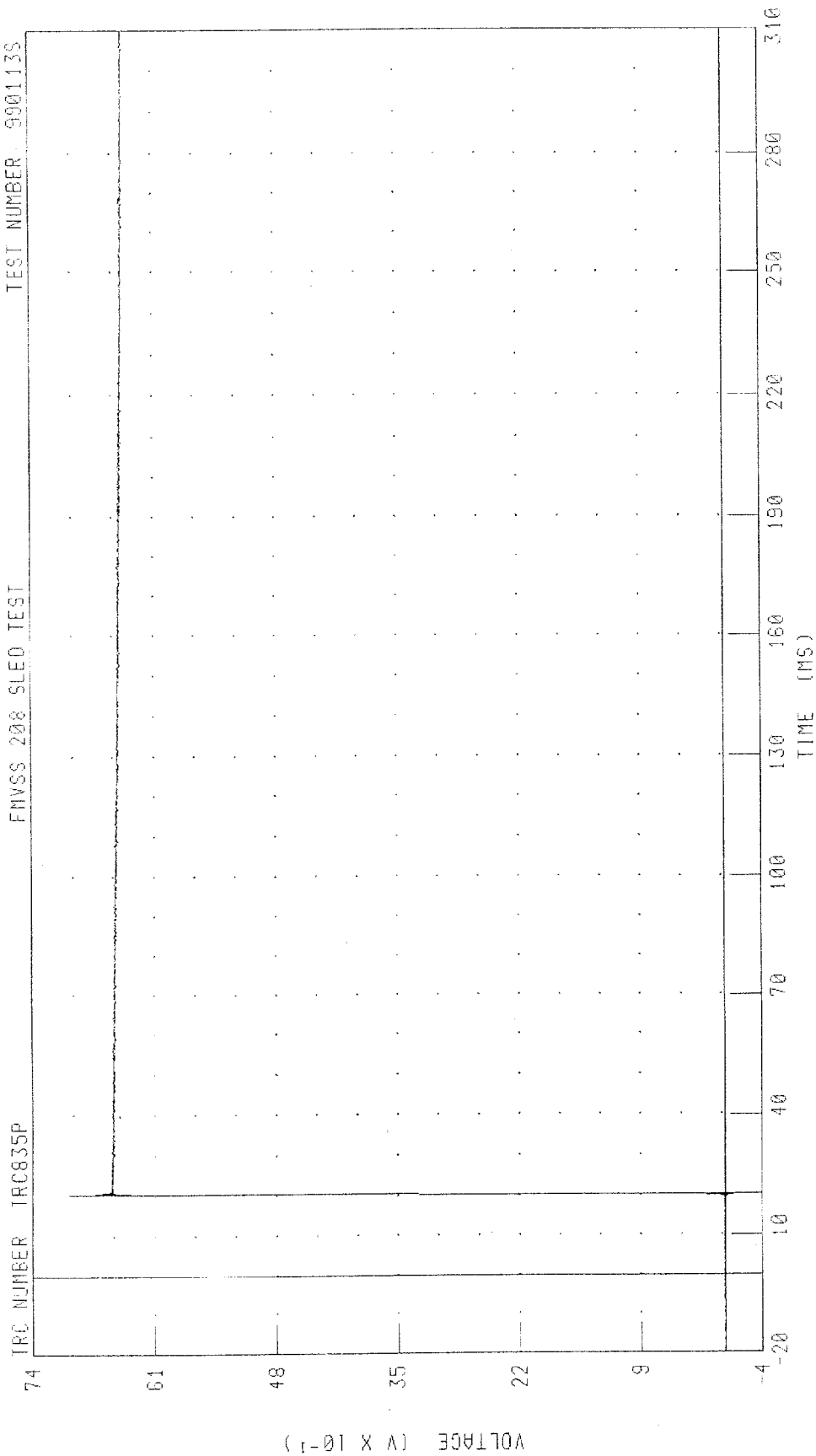
CHANNEL: SLDXVI FILTER: CH. CLASS 180 PEAK DATA: 0.00 MPH @ -20.00 MS; -28.68 MPH @ 125.04 MS

CX0108 / 1999 GM VENTURE

AIRBAG EVENT

FMVSS 208 SLED TEST

TEST NUMBER 990113S



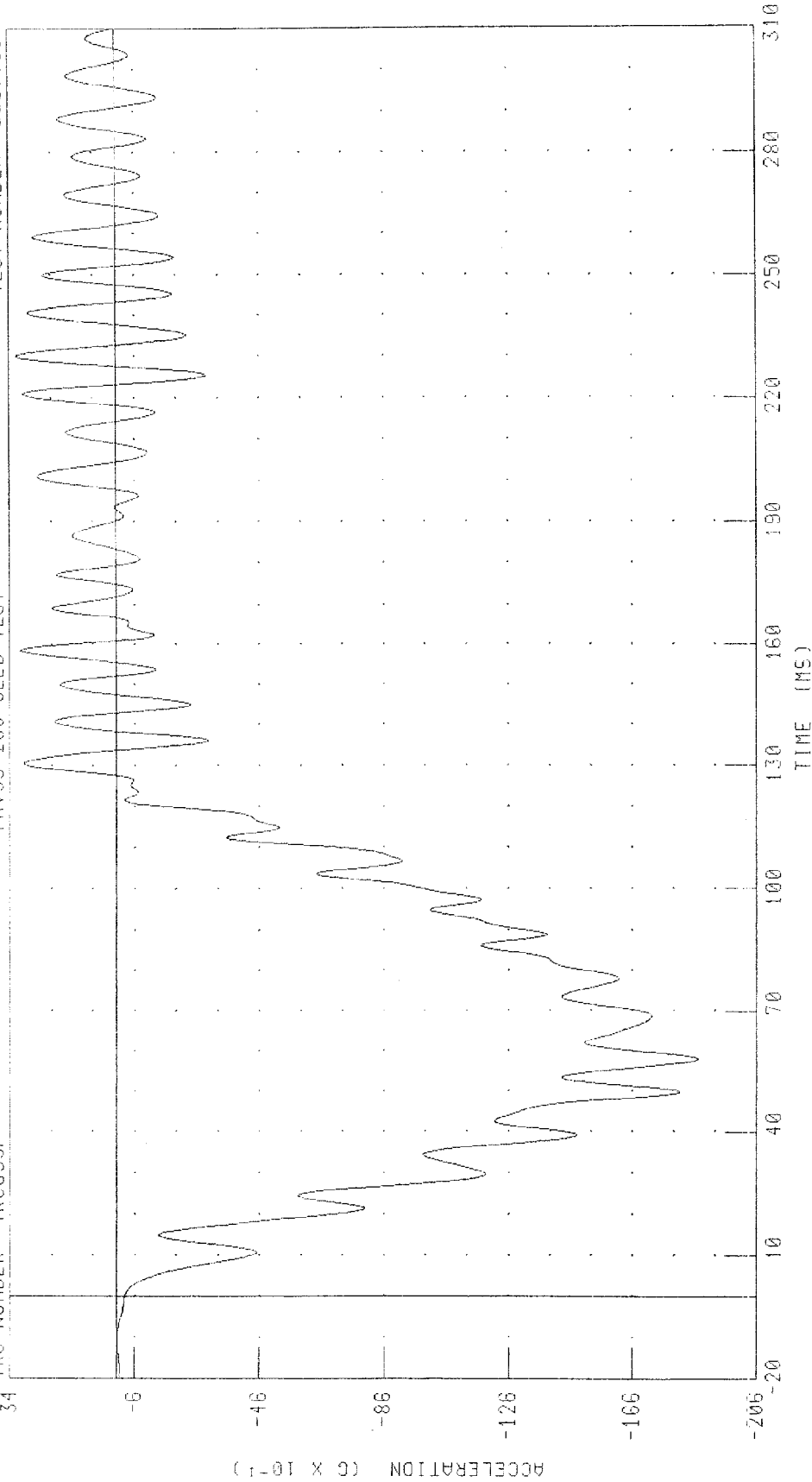
CHANNEL: ABEVT FILTER: CH. CLASS 1000

CX0108 / 1999 GM VENTURE
REAR AXLE X-AXIS ACCELERATION
FMVSS 208 SLED TEST

TEST NUMBER: 990113S

TRC NUMBER: TRC835P

34

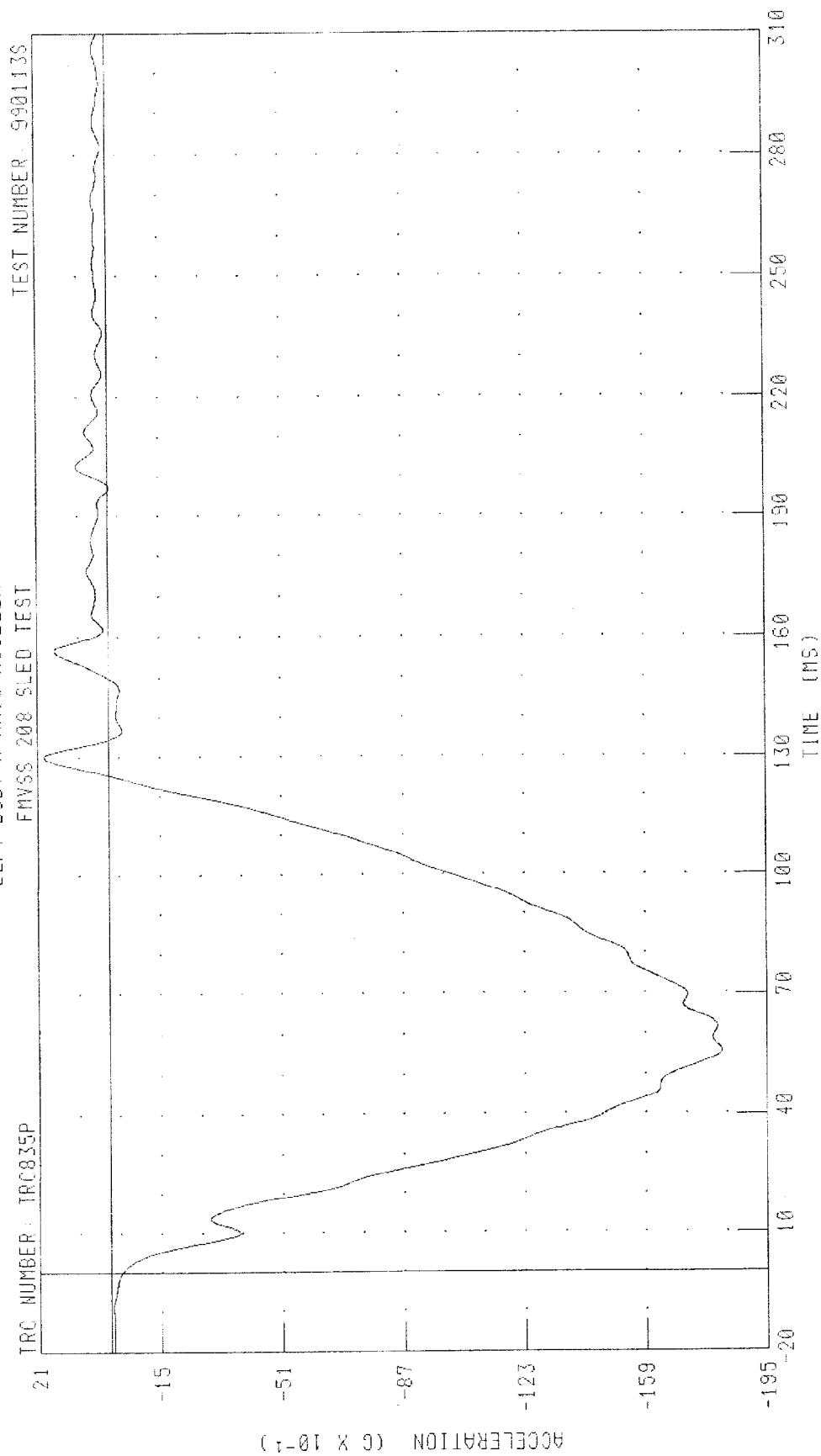


PEAK DATA: 3.16 G @ 230.08 MS, -18.72 G @ 58.00 MS

FILTER: CH. CLASS 60

CHANNEL: RAXG

CX0108 / 1999 GM VENTURE
LEFT BODY X-AXIS ACCELERATION
FMVSS 208 SLED TEST



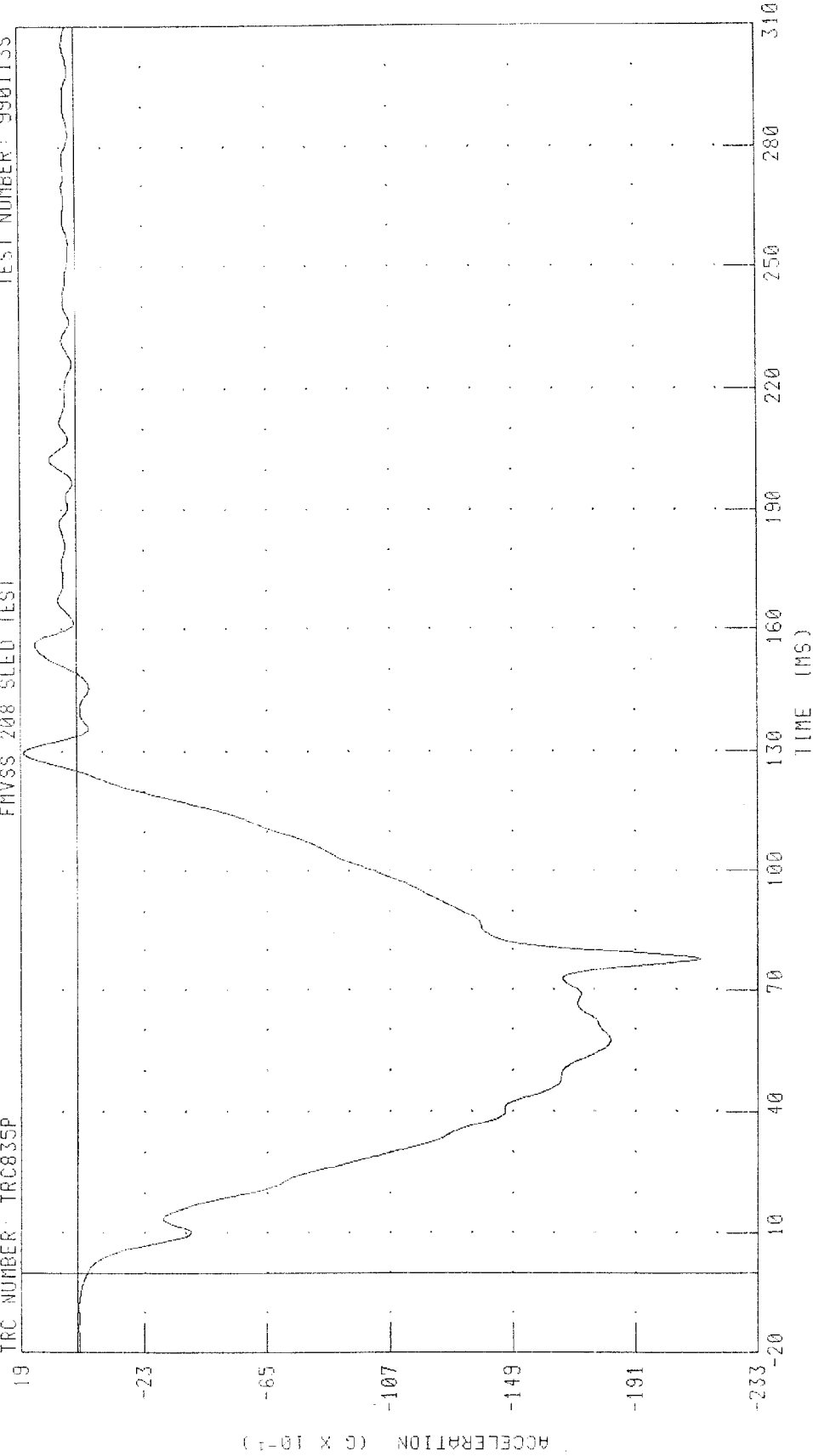
PEAK DATA: 1 93 G @ 130.08 MS; -18.17 G @ 55.76 MS

CHANNEL: LBXC FILTER: CH CLASS 60

CX0108 / 1999 GM VENTURE
RIGHT BODY X-AXIS ACCELERATION
FMVSS 208 SLED TEST

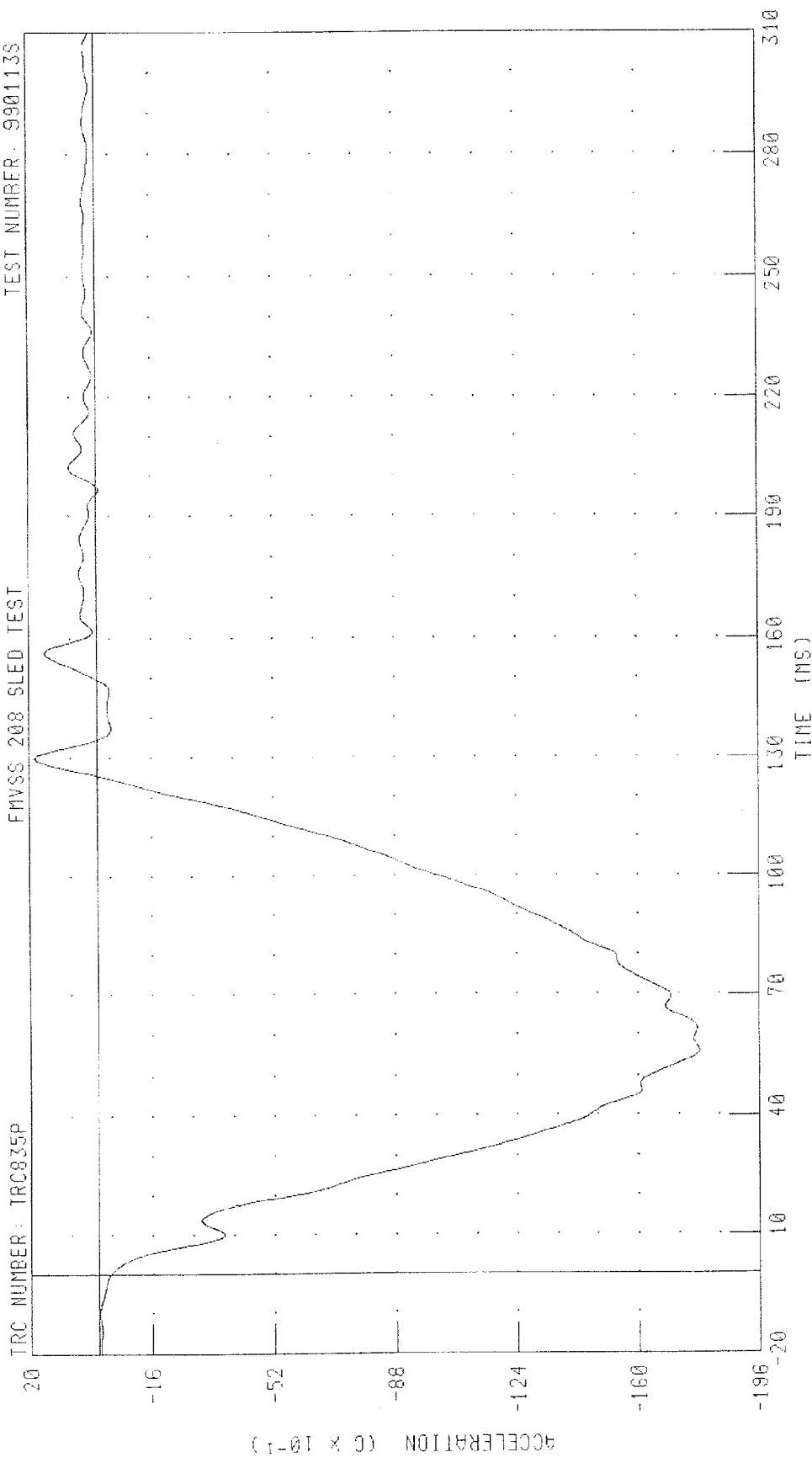
TEST NUMBER: 990113S

TRC NUMBER: TRC835P



CHANNEL: RBXG FILTER: CH CLASS 60 PEAK DATA: 1 80 G @ 129.76 MS, -21.34 G @ 77.68 MS

CX0108 / 1999 GM VENTURE
LEFT FRAME X-AXIS ACCELERATION
FMVSS 203 SLED TEST
TEST NUMBER: 990113S

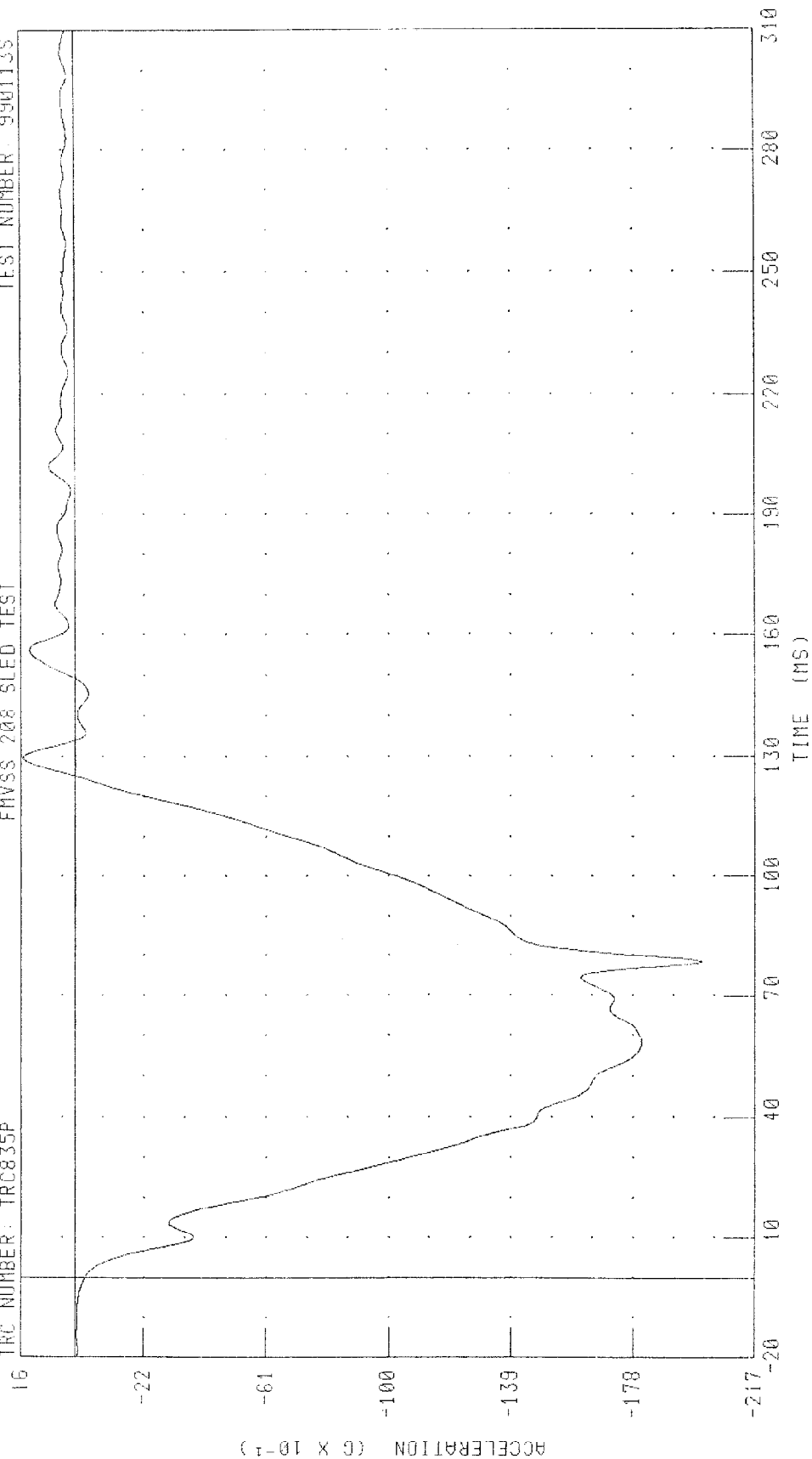


CHANNEL: LFXG FILTER: CH. CLASS 60 PEAK DATA: 1.84 G @ 130.00 MS, -17.84 G @ 56.00 MS

CX0108 / 1999 GM VENTURE
RIGHT FRAME X-AXIS ACCELERATION
FMVSS 208 SLED TEST

TEST NUMBER: 990113S

TRC NUMBER: TRC835P

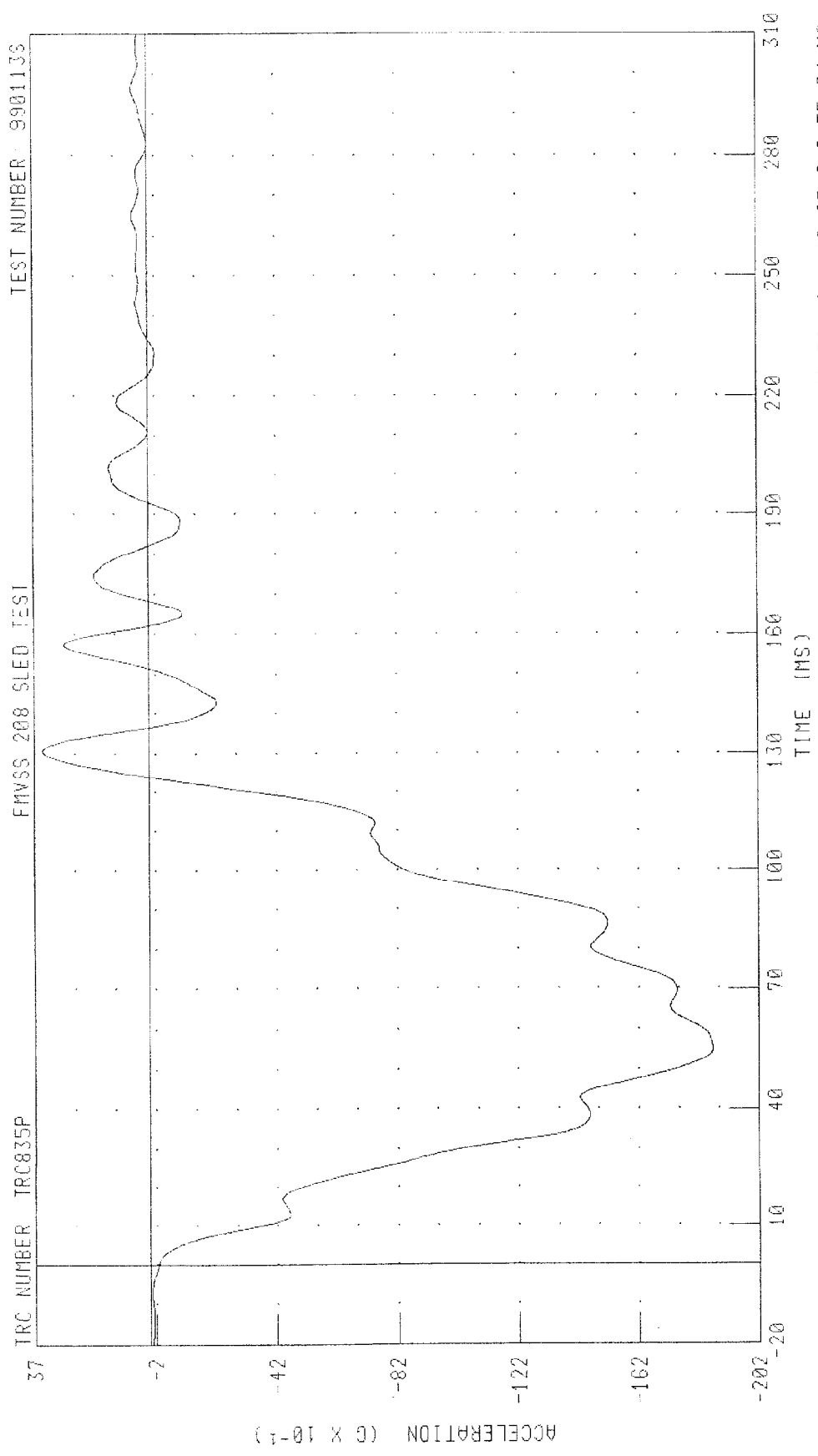


PEAK DATA: 1.63 G @ 129.68 MS; -20.01 G @ 78.40 MS

FILTER: CH CLASS 60

CHANNEL: RFXG

CX0100 / 1999 GM VENTURE
 BOTTOM ENGINE X-AXIS ACCELERATION
 FMVSS 208 SLED TEST TEST NUMBER: 9901133



CHANNEL: BEXS FILTER: CH. CLASS 60 PEAK DATA: 3.54 G @ 130.72 MS, -18.67 G @ 55.04 MS

CX0108 / 1999 GM VENTURE
 DRIVER AIRBAG INDUCTIVE PICKUP
 FMVSS 208 SLED TEST

TEST NUMBER: 990113S

TRC NUMBER: TRC835P

230

155

80

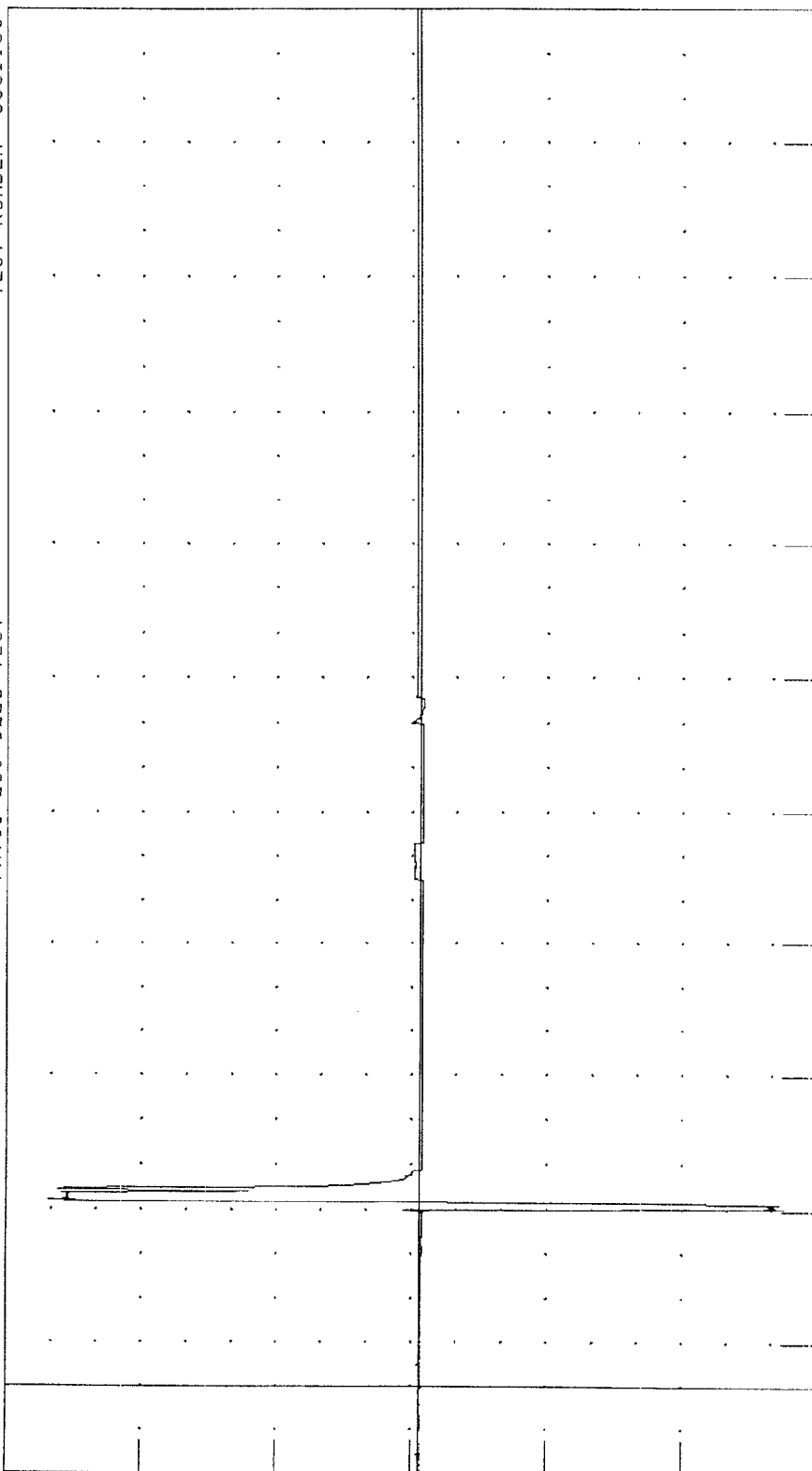
5

-70

-145

-220

(--- X 10⁻¹)



TIME (MS)

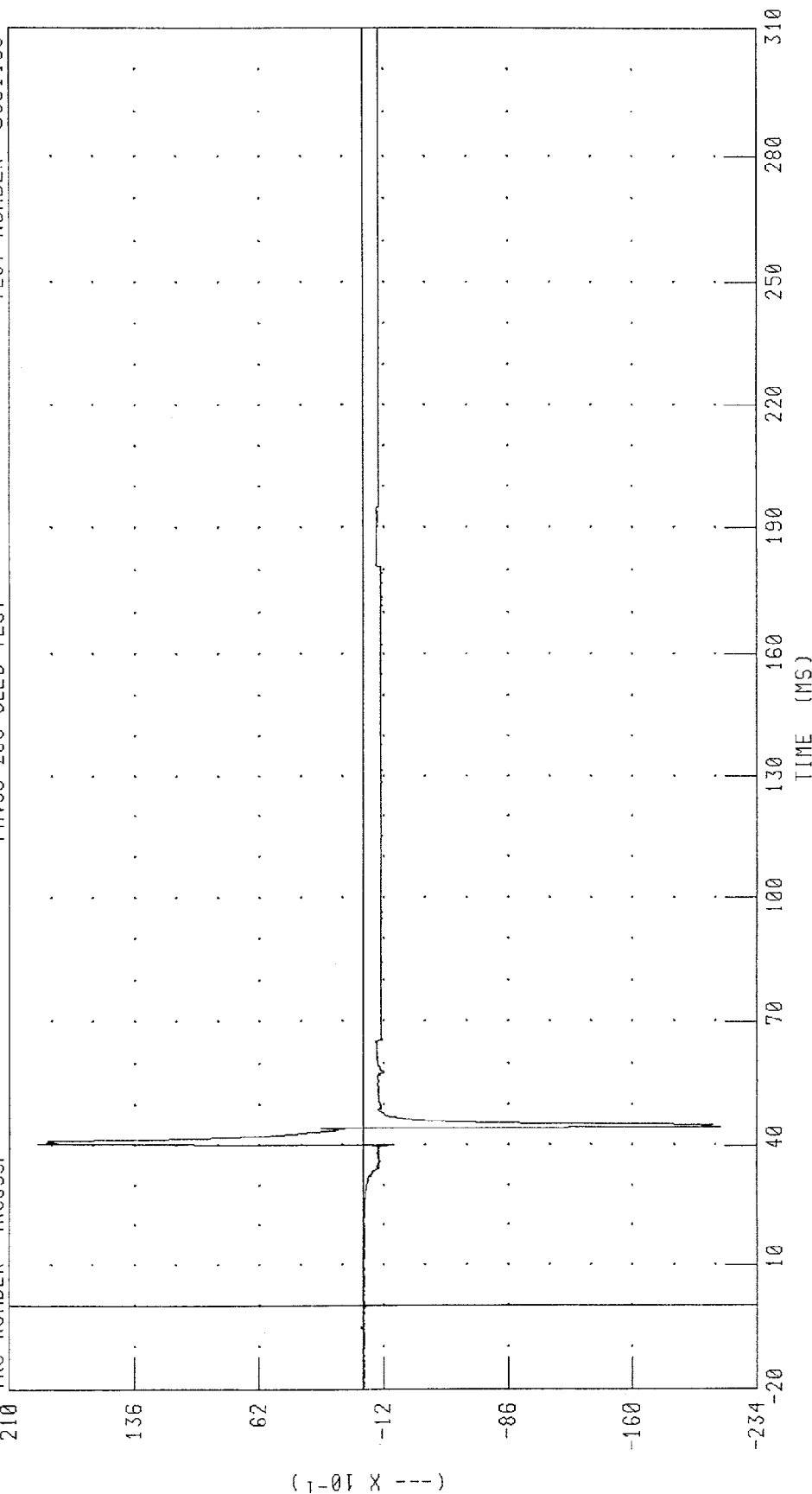
PEAK DATA: 20.66 --- 0 42.08 MS; -20.25 --- 0 40.48 MS

CHANNEL: ABS0B1 FILTER: CH. CLASS 1000

CX0108 / 1999 GM VENTURE
PASSENGER AIRBAG INDUCTIVE PICKUP
FMVSS 208 SLED TEST

TEST NUMBER: 990113S

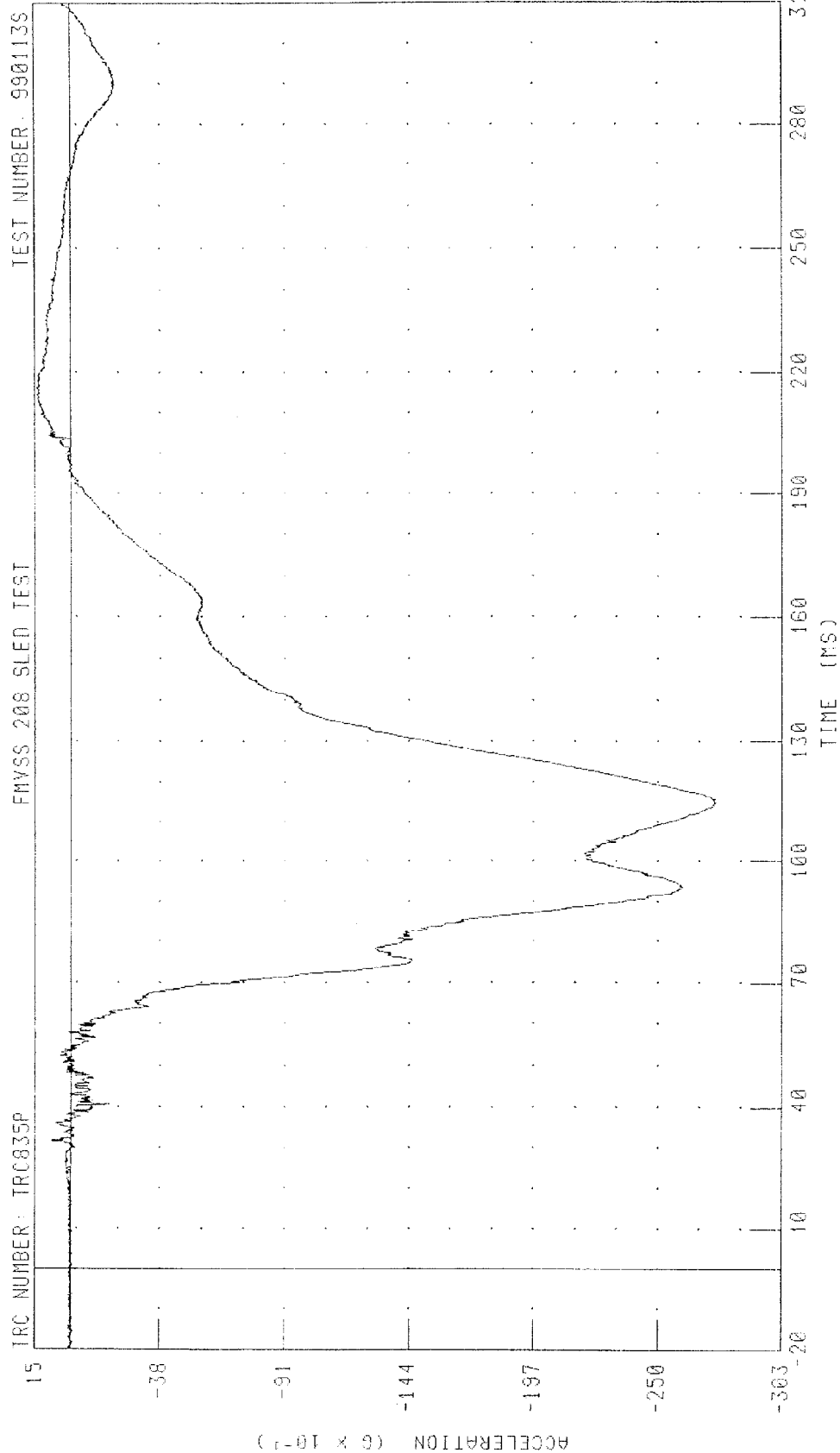
TRC NUMBER: TRC835P



PEAK DATA: 19.30 --- @ 40.48 MS; -21.23 --- @ 44.56 MS

CHANNEL: ABS0B2 FILTER: CH. CLASS 1000

CX0108 / 1999 GM VENTURE
DRIVER HEAD X-AXIS ACCELERATION
FMVSS 208 SLED TEST



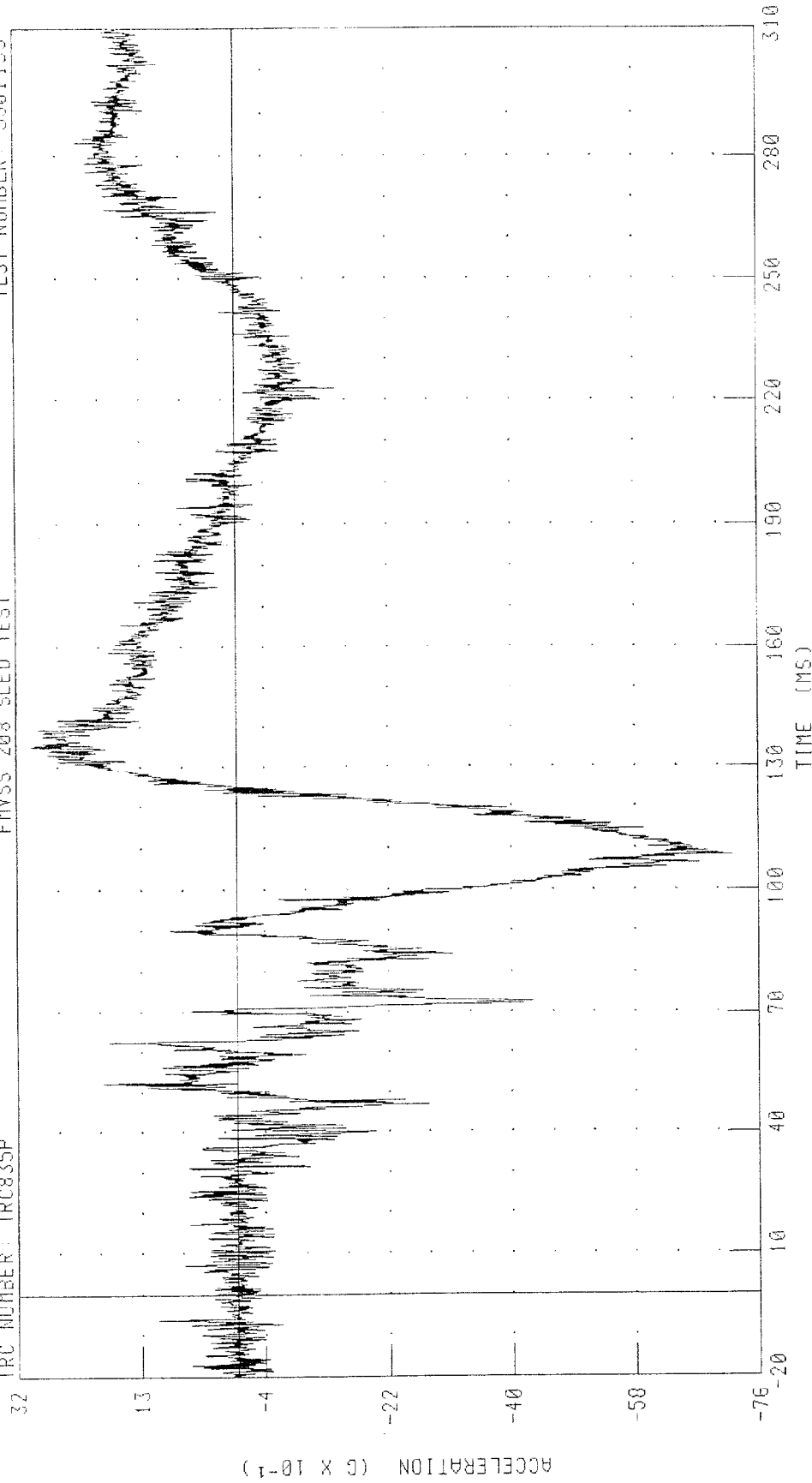
CHANNEL: HEDXG1 FILTER: CH. CLASS 1000

PEAK DATA: 1.43 G @ 216.00 MS, -27.48 G @ 114.64 MS

CX0108 / 1999 GM VENTURE
DRIVER HEAD Y-AXIS ACCELERATION
FMVSS 203 SLED TEST

TEST NUMBER: 9901133

TRC NUMBER: TRC835P



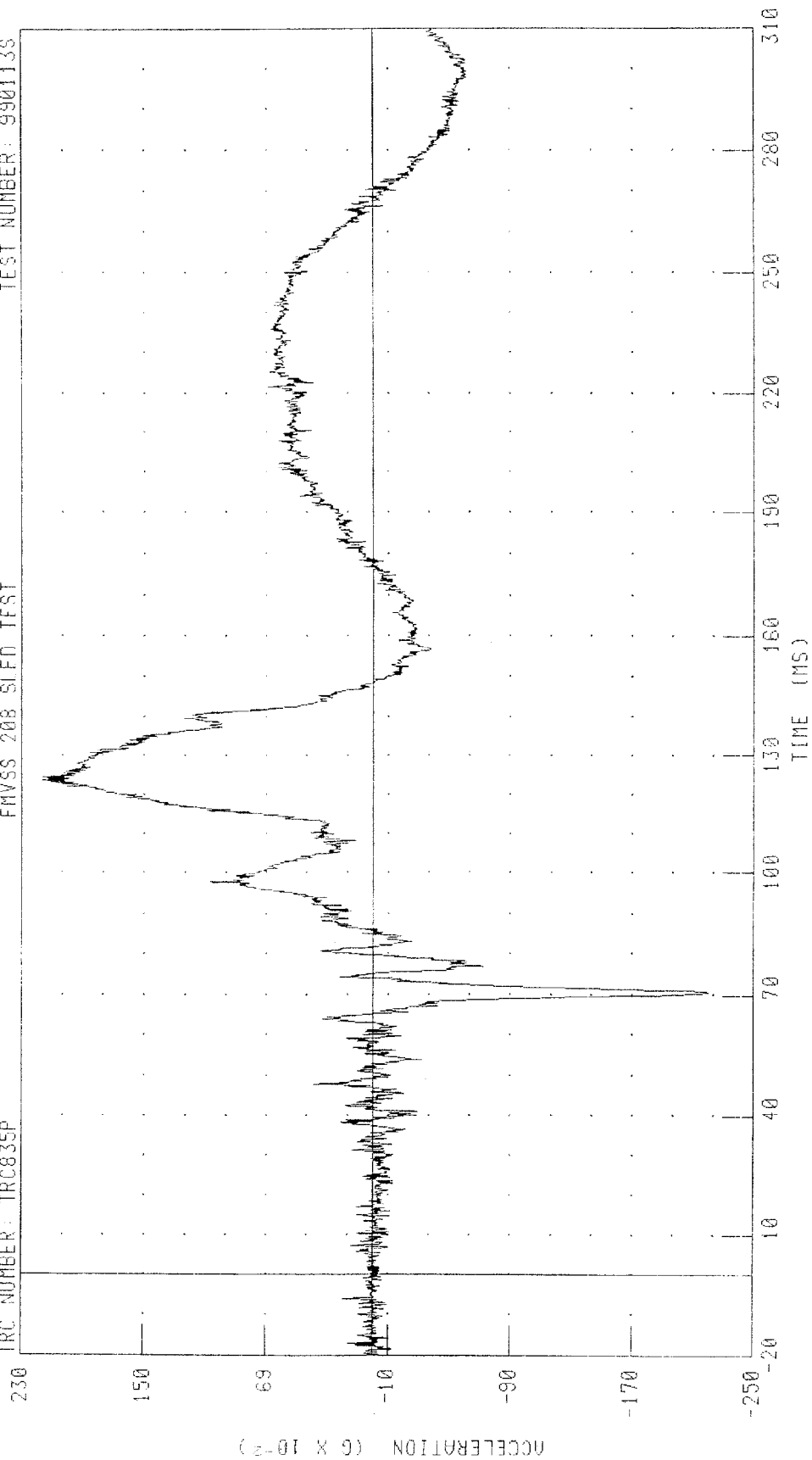
CHANNEL: HEDYG1 FILTER: CH. CLASS 1000

PEAK DATA: 2.98 G @ 135.28 MS; -7.22 G @ 108.32 MS

CX0108 / 1999 GM VENTURE
DRIVER HEAD Z-AXIS ACCELERATION
FMVSS 208 SLED TEST

TRC NUMBER: TRC835P

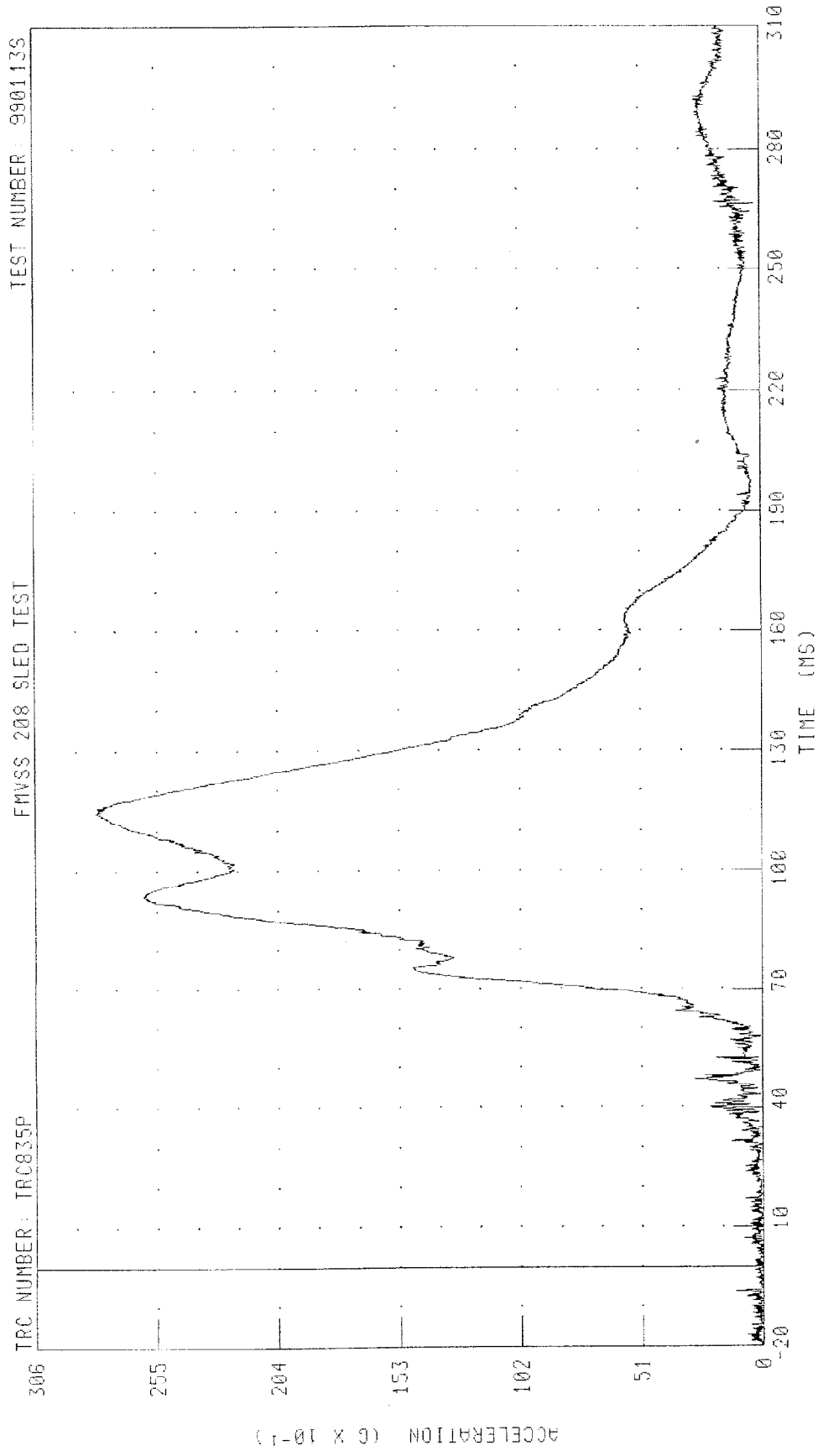
TEST NUMBER: 990113S



PEAK DATA: 2.17 G @ 123.68 MS; -2.20 G @ 70.72 MS

CHANNEL: HEADZG1 FILTER: CH. CLASS 1000

CX0108 / 1999 GM VENTURE
DRIVER HEAD RESULTANT ACCELERATION



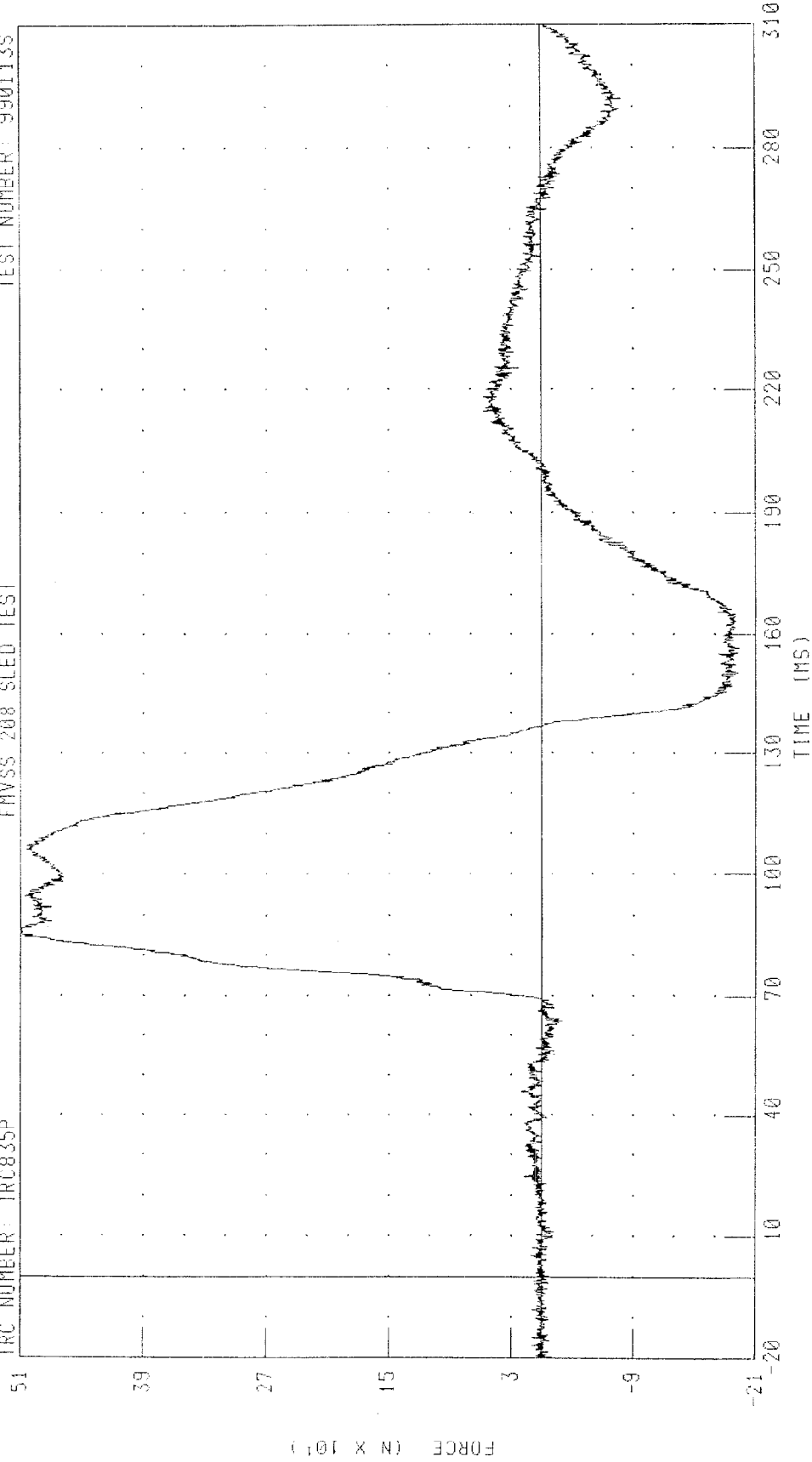
PEAK DATA: 28.10 G @ 114.56 MS, 0.01 G @ -19.20 MS

CHANNEL: HEAD01 FILTER: CH. CLASS 1000

CX0108 / 1999 GM VENTURE
DRIVER NECK X-AXIS SHEAR FORCE
FMVSS 208 SLED TEST

TEST NUMBER: 990113S

TRC NUMBER: TRC835P



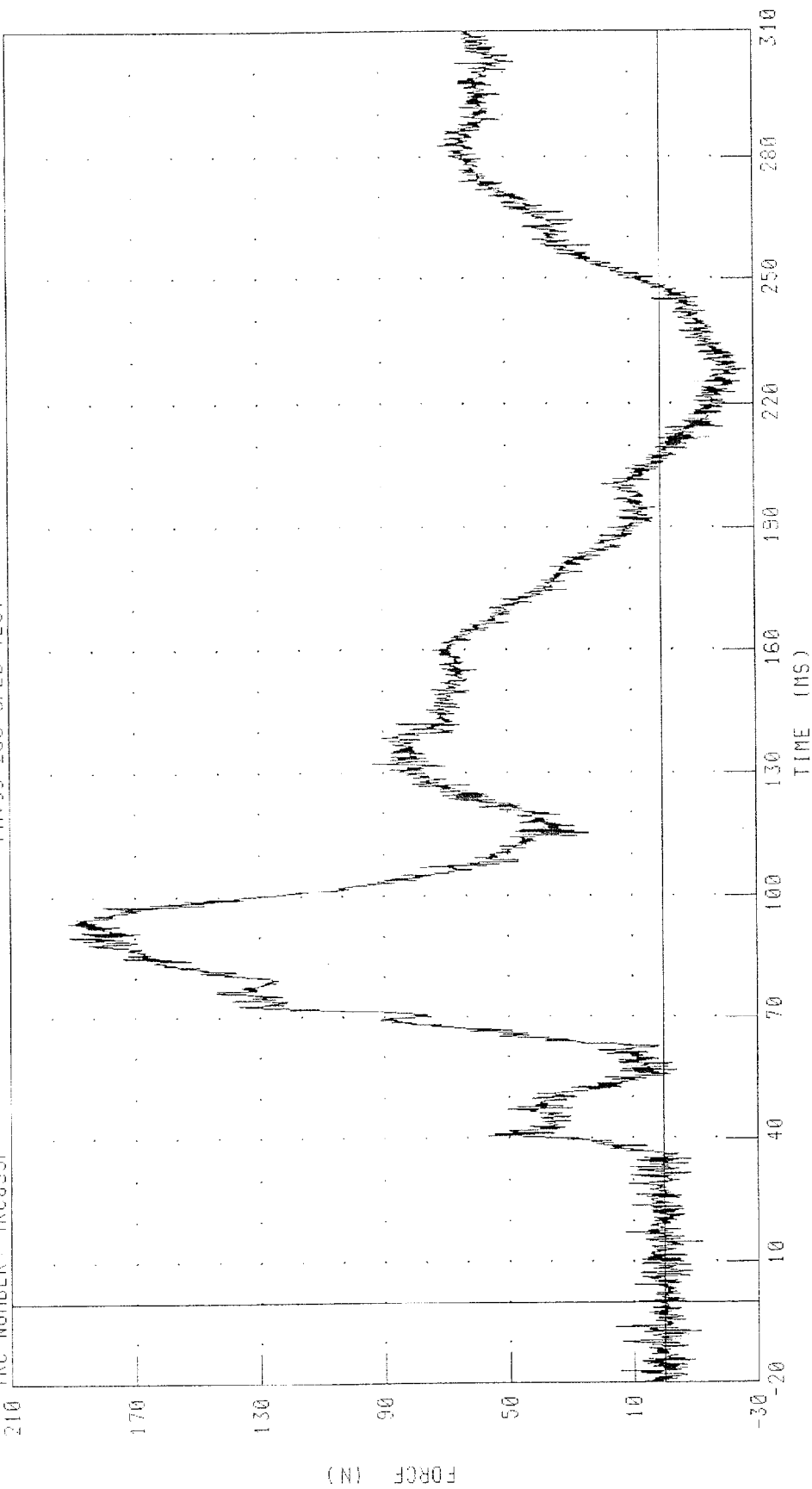
CHANNEL: NEKXF1 FILTER: CH. CLASS 1000

PEAK DATA: 514.94 N @ 86.64 MS, -193.91 N @ 156.64 MS

CX0108 / 1999 GM VENTURE
DRIVER NECK Y-AXIS SHEAR FORCE
FMVSS 203 SLED TEST

TEST NUMBER: 990113S

TRC NUMBER: TRC835P



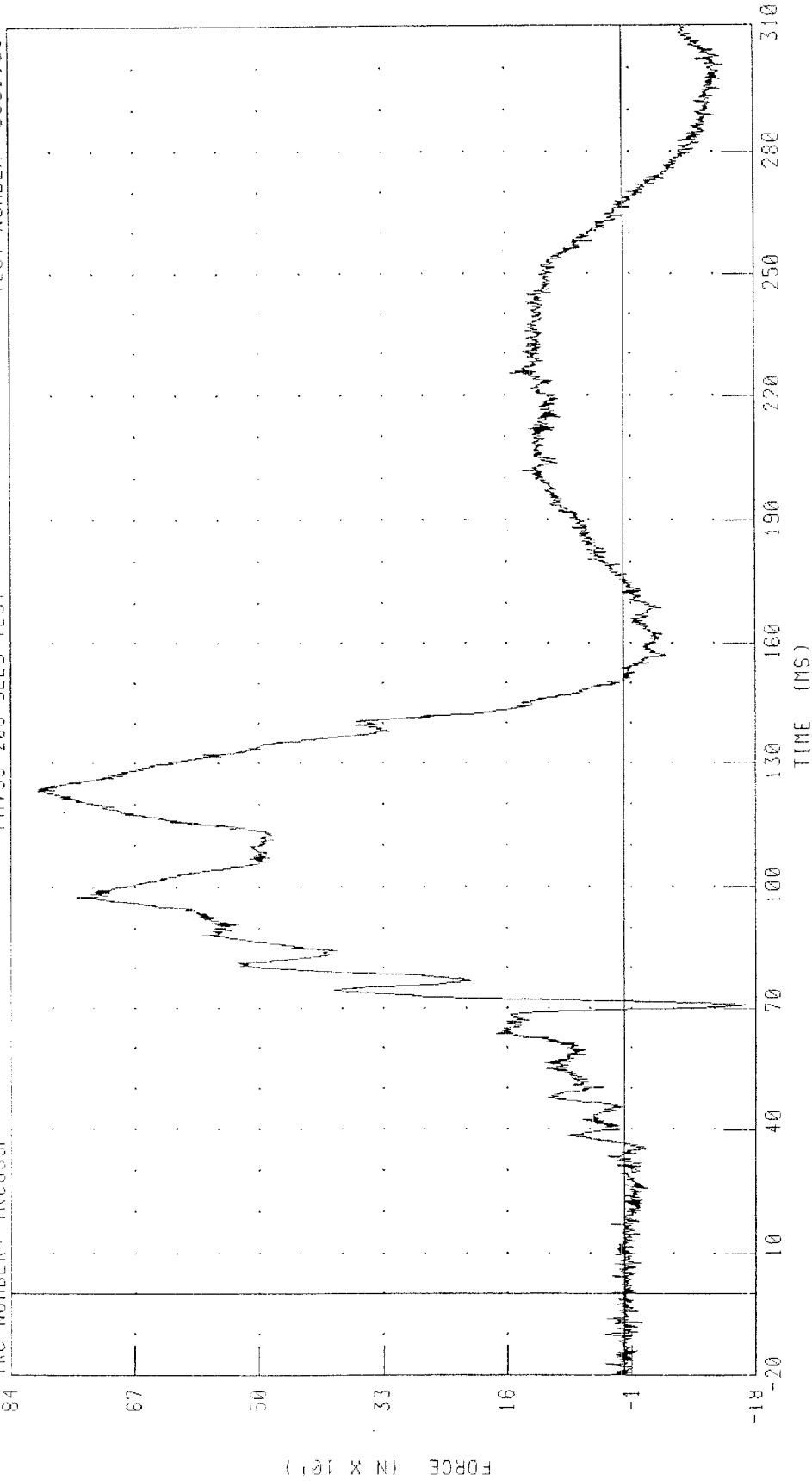
PEAK DATA 191.60 N @ 93.44 MS; -27.55 N @ 228.32 MS

CHANNEL: NEKYF1 FILTER: CH CLASS 1000

CX0108 / 1999 GM VENTURE
DRIVER NECK Z-AXIS AXIAL FORCE
FMVSS 208 SLED TEST

TEST NUMBER: 990113S

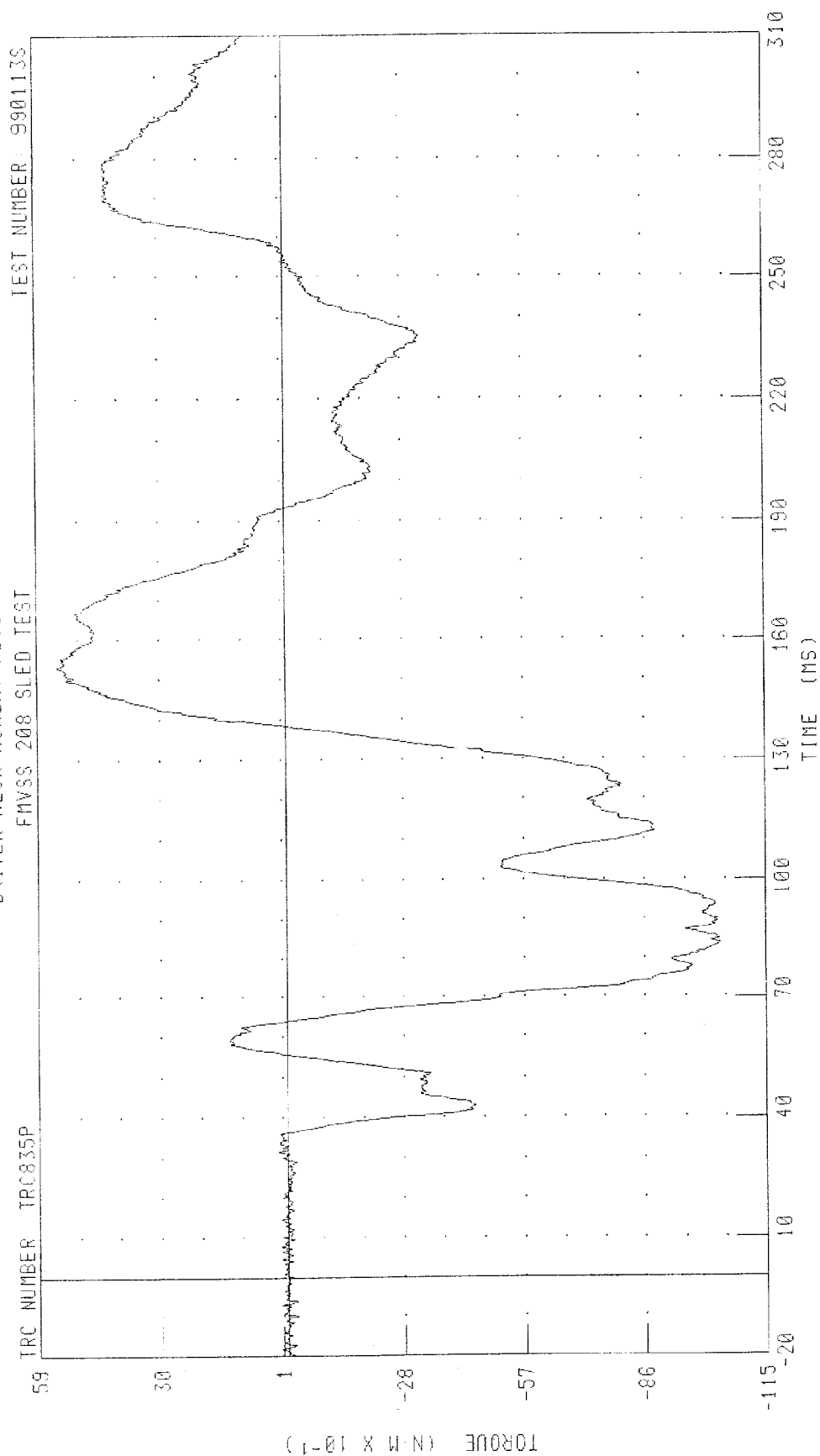
TRC NUMBER: TRC835P



PEAK DATA: 803.80 N @ 123.68 MS; -165.93 N @ 70.88 MS

CHANNEL NEKZF1 FILTER CH. CLASS 1000

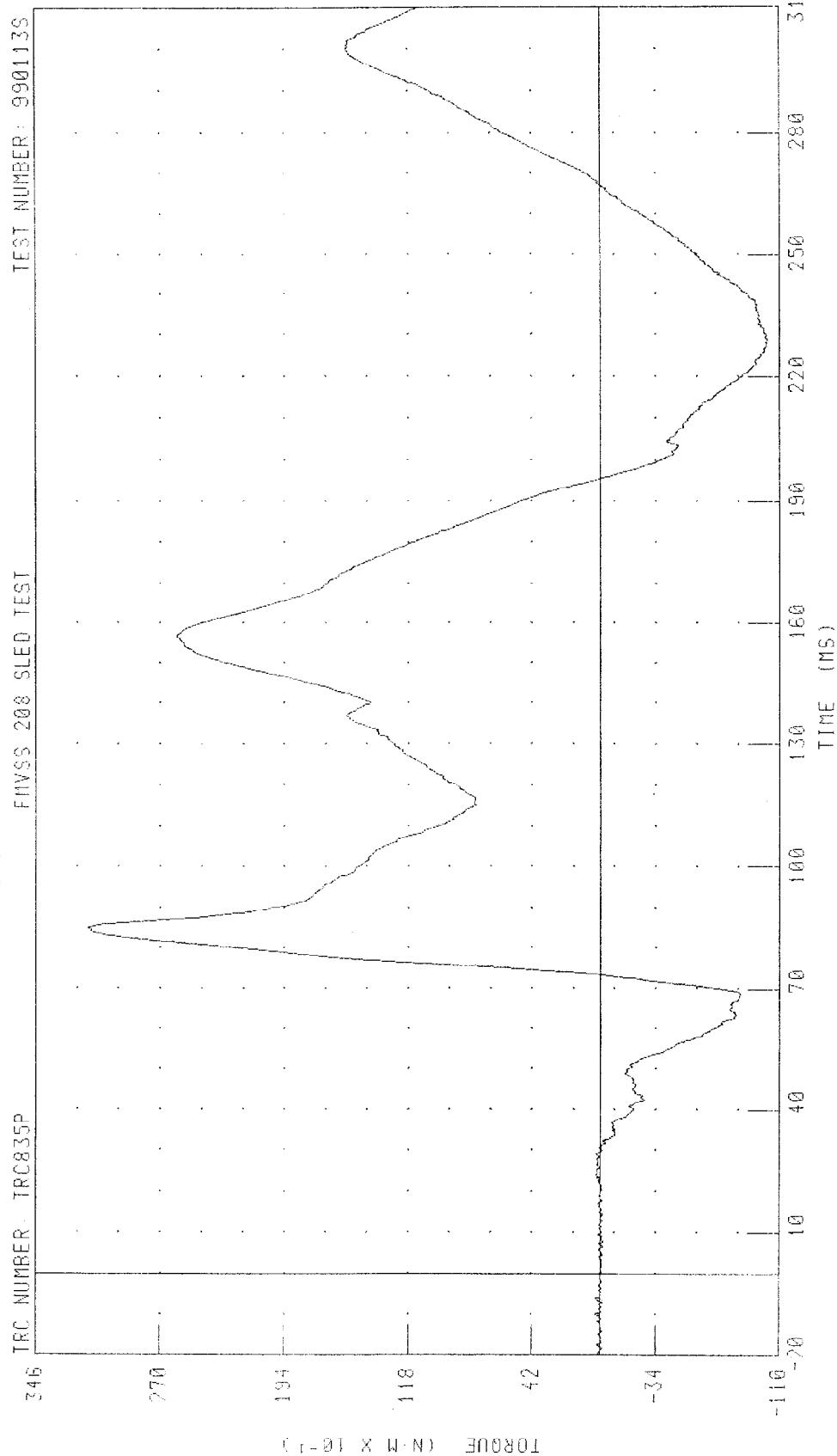
CX0108 / 1999 GM VENTURE
 DRIVER NECK MOMENT ABOUT X AXIS
 FMVSS 208 SLED TEST



PEAK DATA: 5.43 N M @ 152.96 MS; -10.40 N M @ 83.92 MS

CHANNEL: NEKXM1 FILTER: CH. CLASS 600

CX0108 / 1999 GM VENTURE
 DRIVER NECK MOMENT ABOUT Y AXIS
 FMVSS 208 SLED TEST



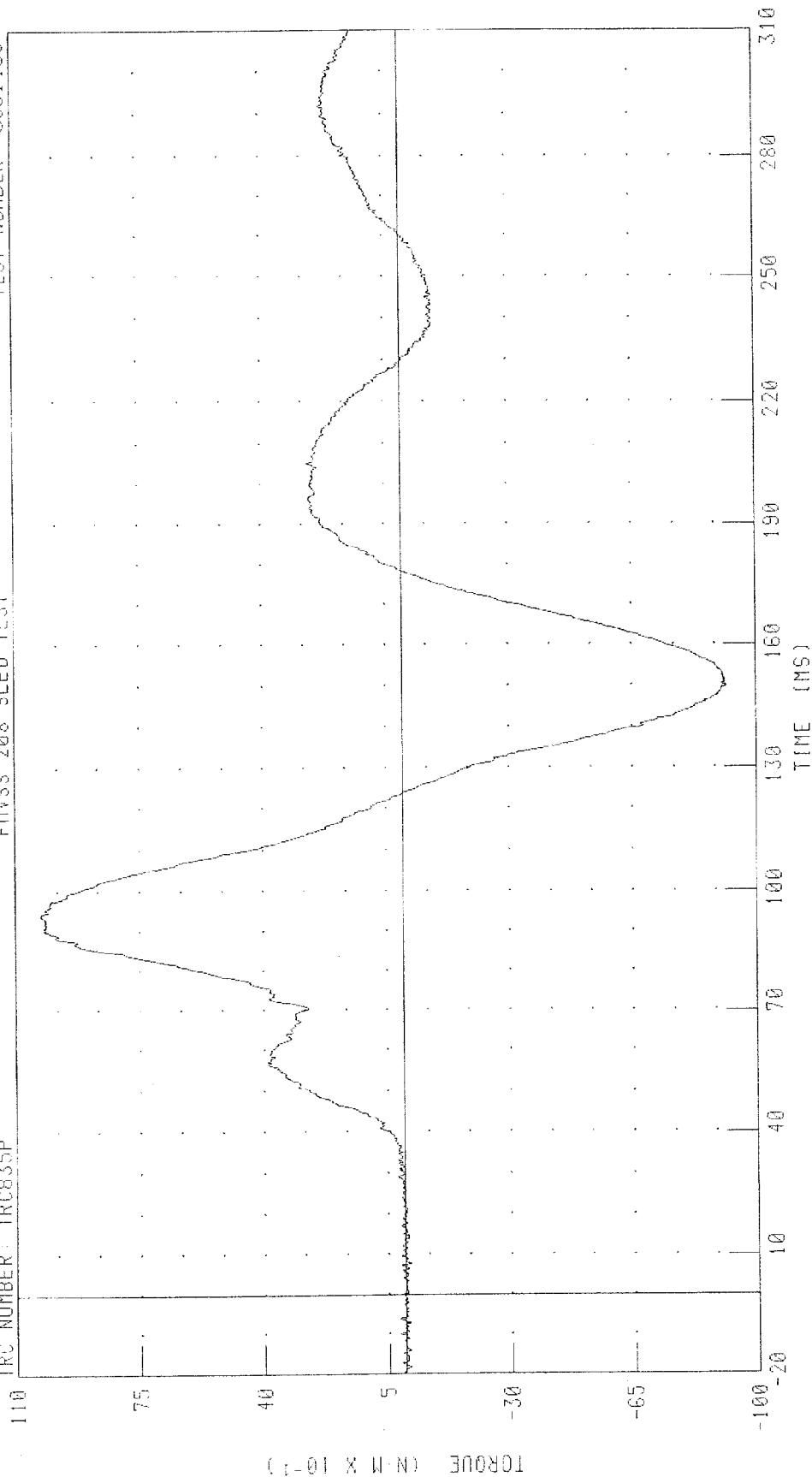
PEAK DATA: 31.39 N·M @ 84.96 MS, -10.33 N·M @ 228.56 MS

CHANNEL: NEKY01 FILTER: CH. CLASS 500

CX0108 / 1999 GM VENTURE
DRIVER NECK MOMENT ABOUT Z AXIS
FMVSS 208 SLED TEST

TEST NUMBER: 990113S

TRC NUMBER: TRC835P



PEAK DATA: 10.29 N-M @ 94.00 MS, -9.18 N-M @ 150.00 MS

CHANNEL: NEKZM1 FILTER: CH. CLASS 600

CX0108 / 1999 GM VENTURE
 DRIVER NECK OCCIPITAL CONDYLE ABOUT Y AXIS
 FMVSS 208 SLFD TEST

TEST NUMBER: 990113S

IRC NUMBER TRC835P

324

250

TORQUE (N·M × 10⁻¹)

176

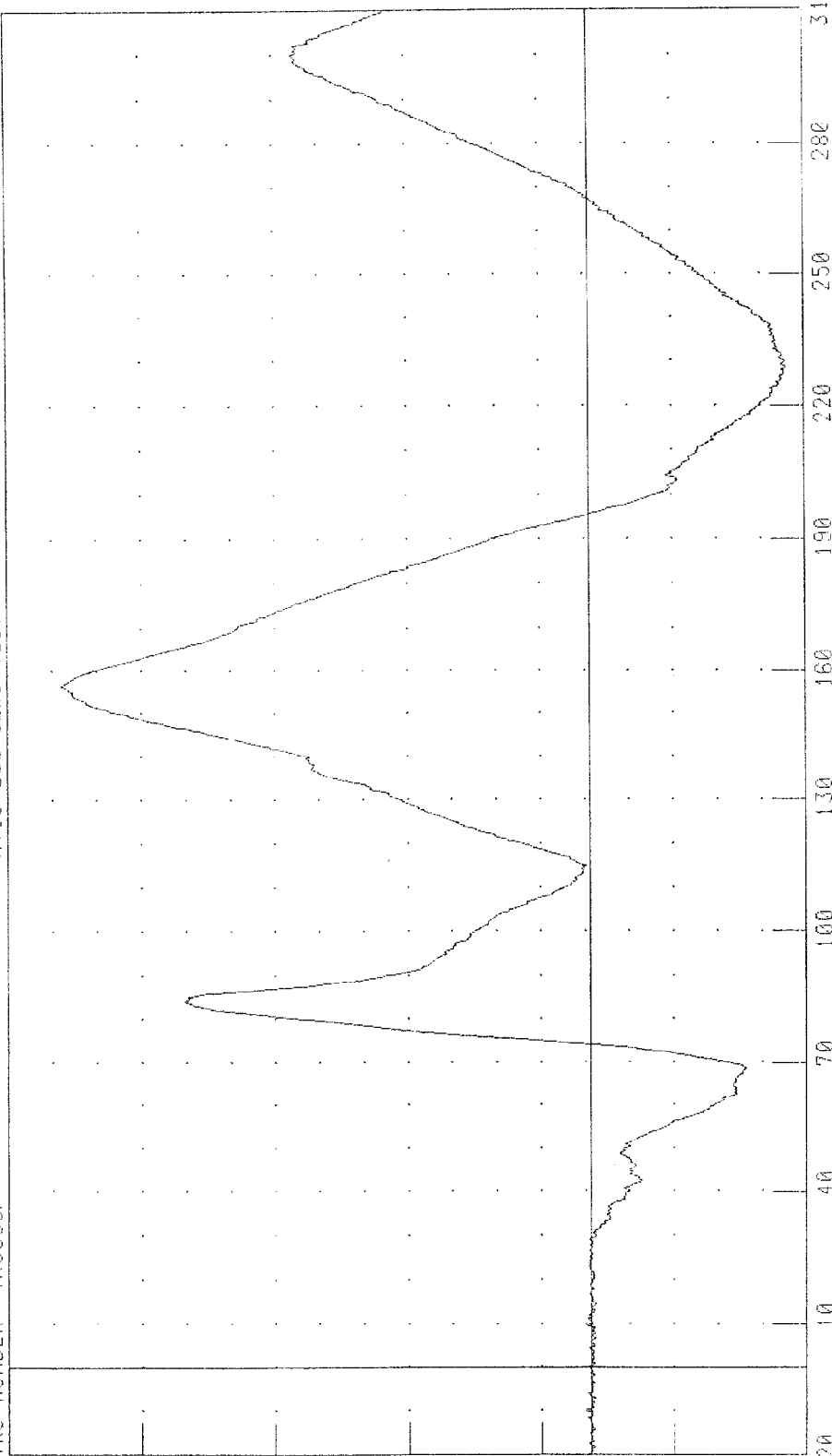
102

28

-45

-120

-20

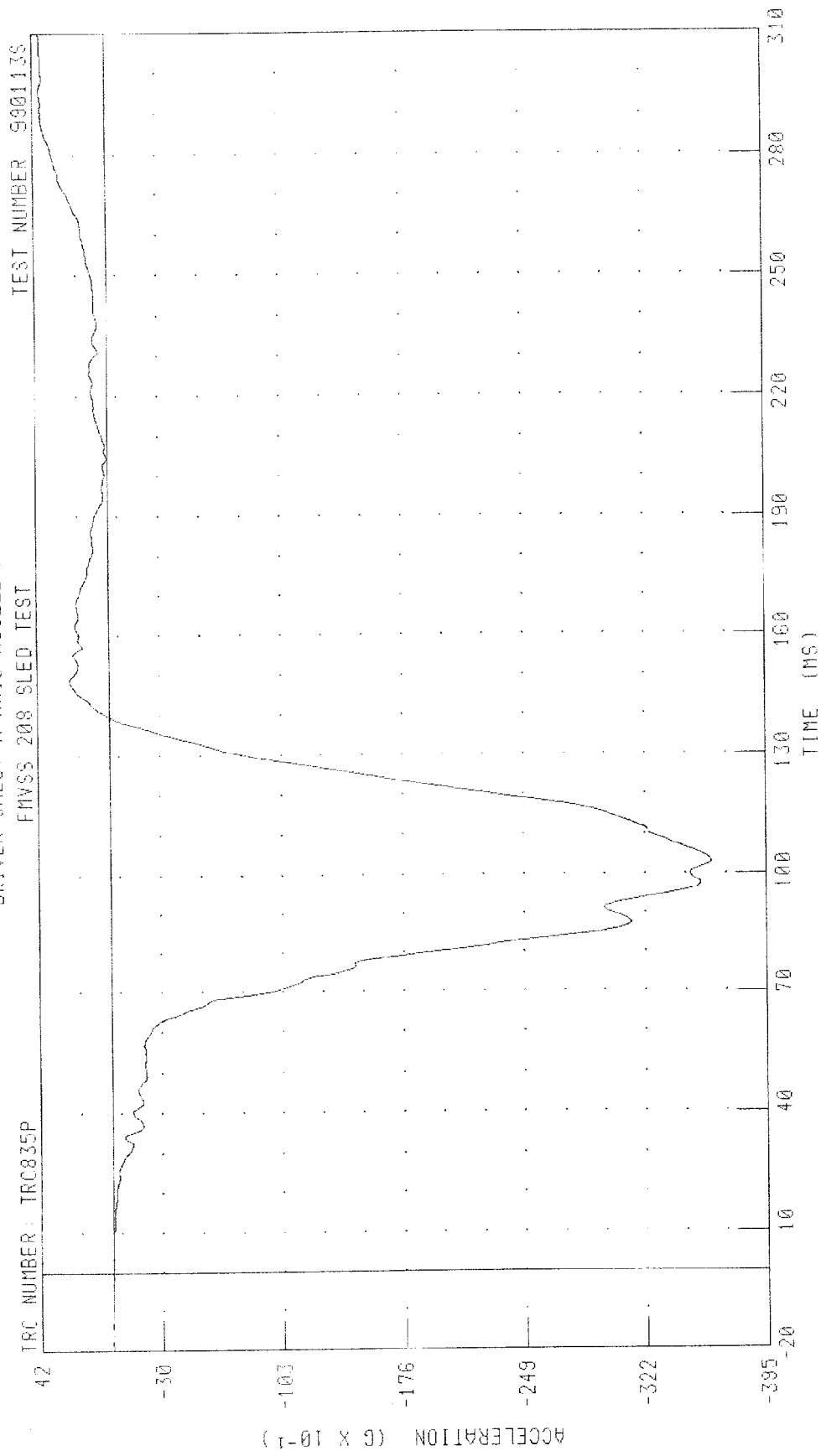


TIME (MS)

PEAK DATA: 29.42 N·M @ 156.64 MS, -11.01 N·M @ 228.56 MS

CHANNEL: NEKOM1 FILTER: CH. CLASS 600

CX0108 / 1999 GM VENTURE
 DRIVER CHEST X-AXIS ACCELERATION
 FMVSS 208 SLED TEST



PEAK DATA: 3.93 G @ 295.28 MS; -36.24 G @ 103.20 MS

CHANNEL: CSTX01 FILTER: CH CLASS 180

CX0108 / 1999 GM VENTURE
DRIVER CHEST Y-AXIS ACCELERATION
FMVSS 208 SLED TEST

TEST NUMBER 990113S

TRC NUMBER: TRC835P

48

36

ACCELERATION (G X 10⁻¹)

24

12

0

-12

-24

TIME (MS)

-20

10

40

70

100

130

160

190

220

250

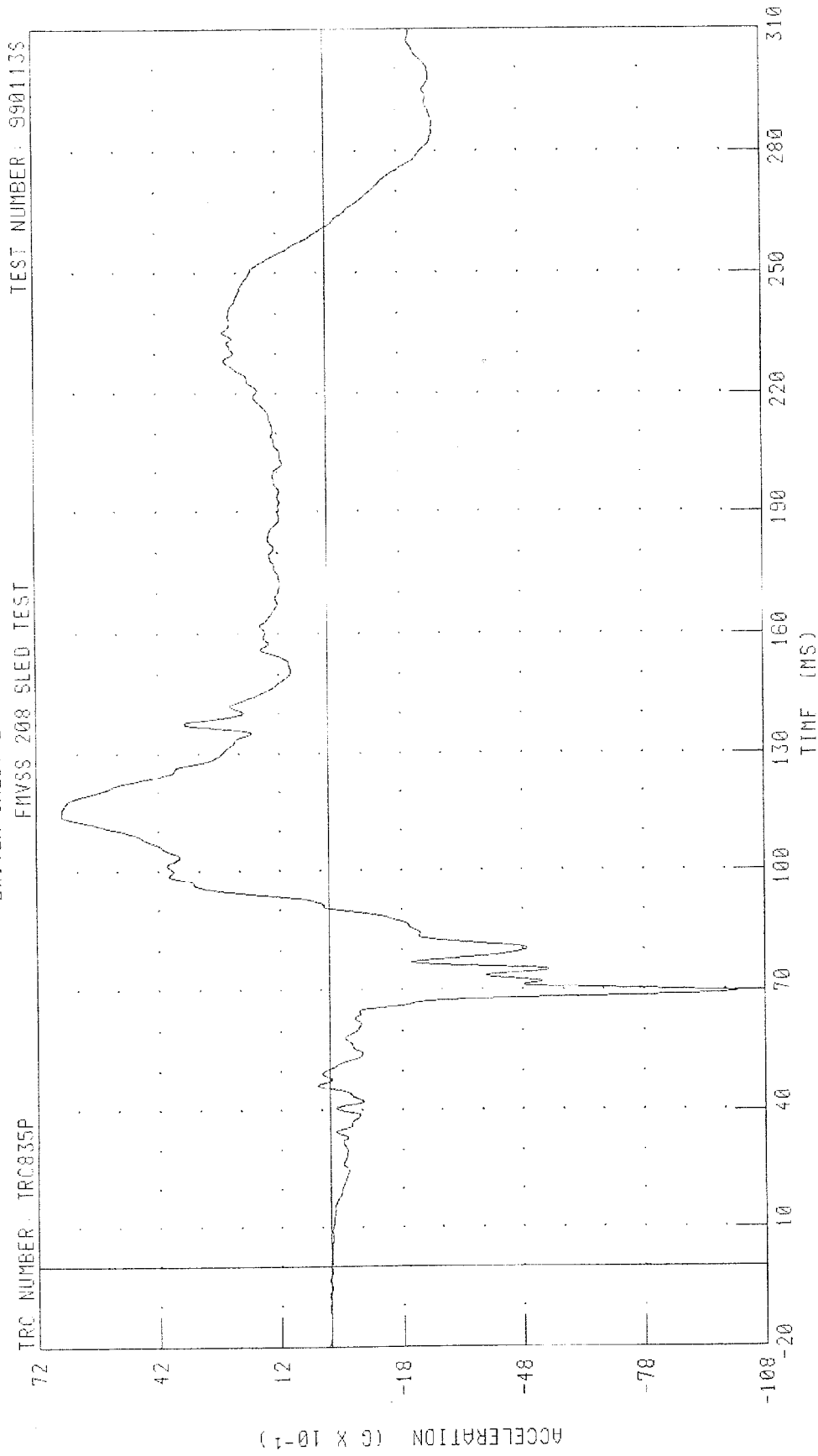
280

310

CHANNEL: CSTYC1 FILTER: CH. CLASS 180

PEAK DATA: 4.53 G @ 106.00 MS, -2.26 G @ 72.16 MS

CX0108 / 1999 GM VENTURE
 DRIVER CHEST Z-AXIS ACCELERATION
 FMVSS 208 SLED TEST

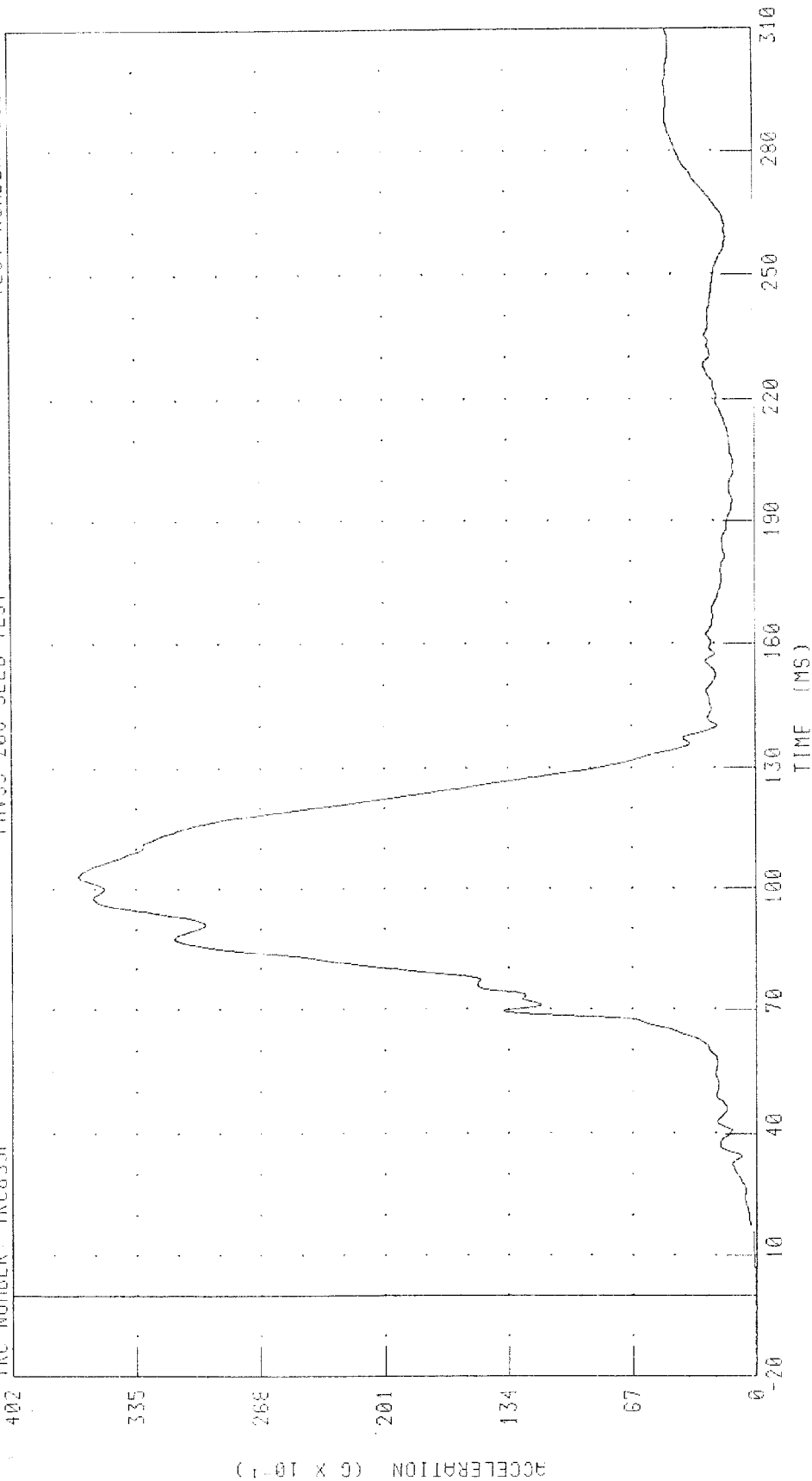


CHANNEL: CSTZC1 FILTER: CH. CLASS 180

CX0108 / 1999 GM VENTURE
 DRIVER CHEST RESULTANT ACCELERATION
 FMVSS 208 SLED TEST

TEST NUMBER 990113S

TRC NUMBER TRC835P



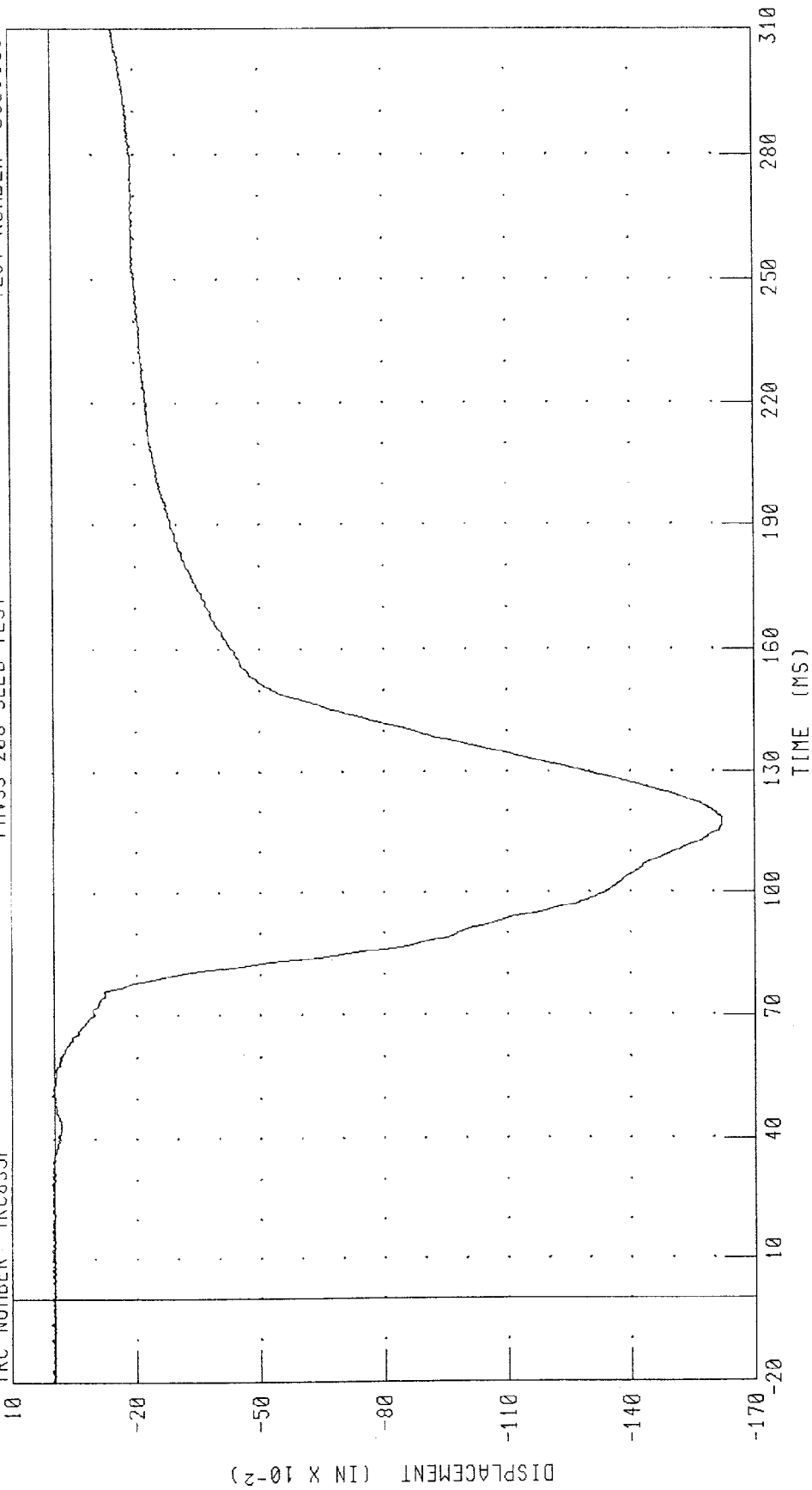
PEAK DATA: 36.62 G @ 103.28 MS, 0.01 G @ -15.00 MS

CHANNEL: CSTRG1 FILTER CH. CLASS 180

CX0108 / 1999 GM VENTURE
DRIVER CHEST DEFLECTION
FMVSS 208 SLED TEST

TEST NUMBER: 9901135

TRC NUMBER: TRC835P



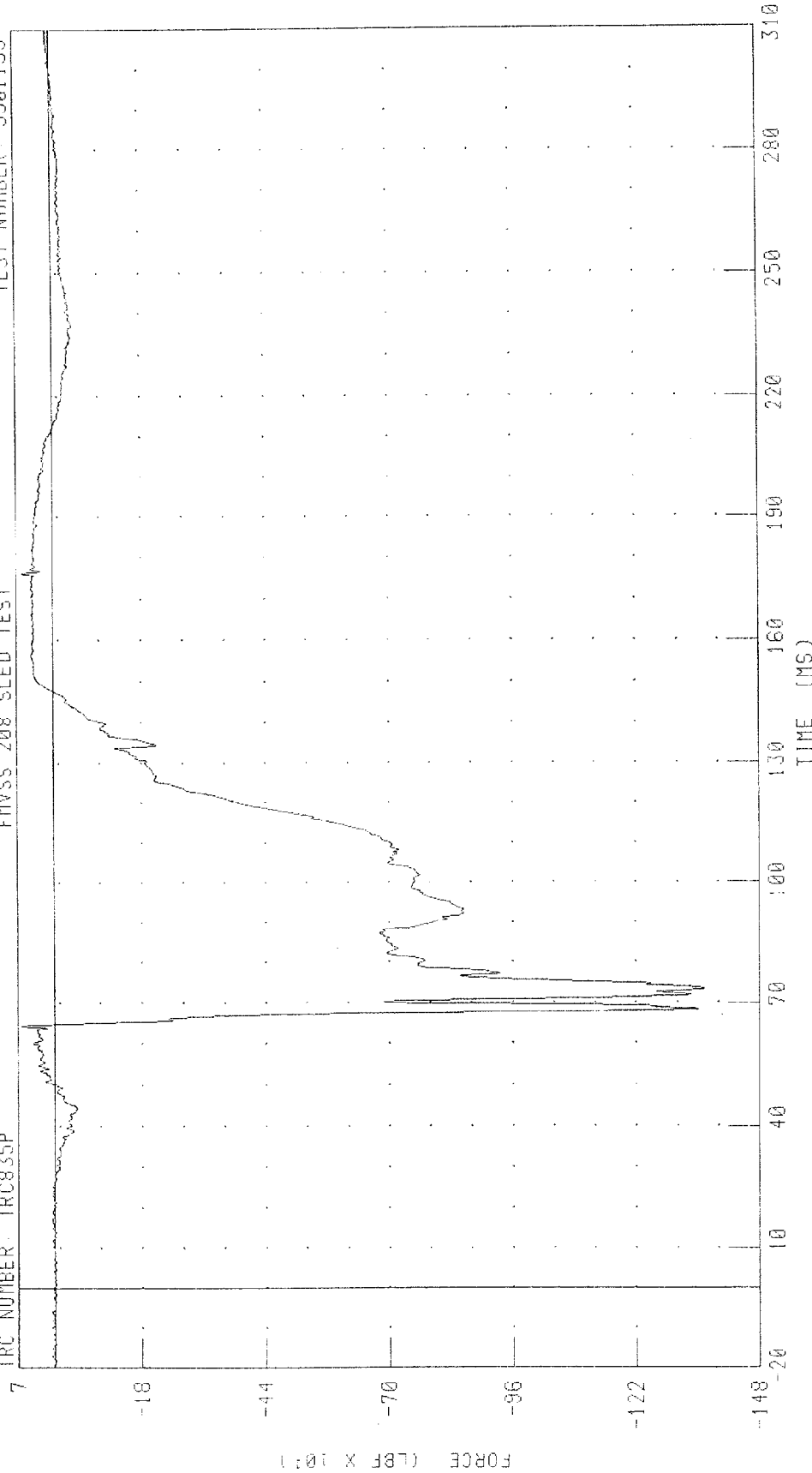
CHANNEL: CSTXD1 FILTER: CH. CLASS 600

PEAK DATA: 0.01 IN @ -6.00 MS; -1.62 IN @ 116.96 MS

CX0108 / 1999 GM VENTURE
DRIVER LEFT FEMUR FORCE
FMVSS 208 SLED TEST

TEST NUMBER: 990113S

TRC NUMBER: TRC835P



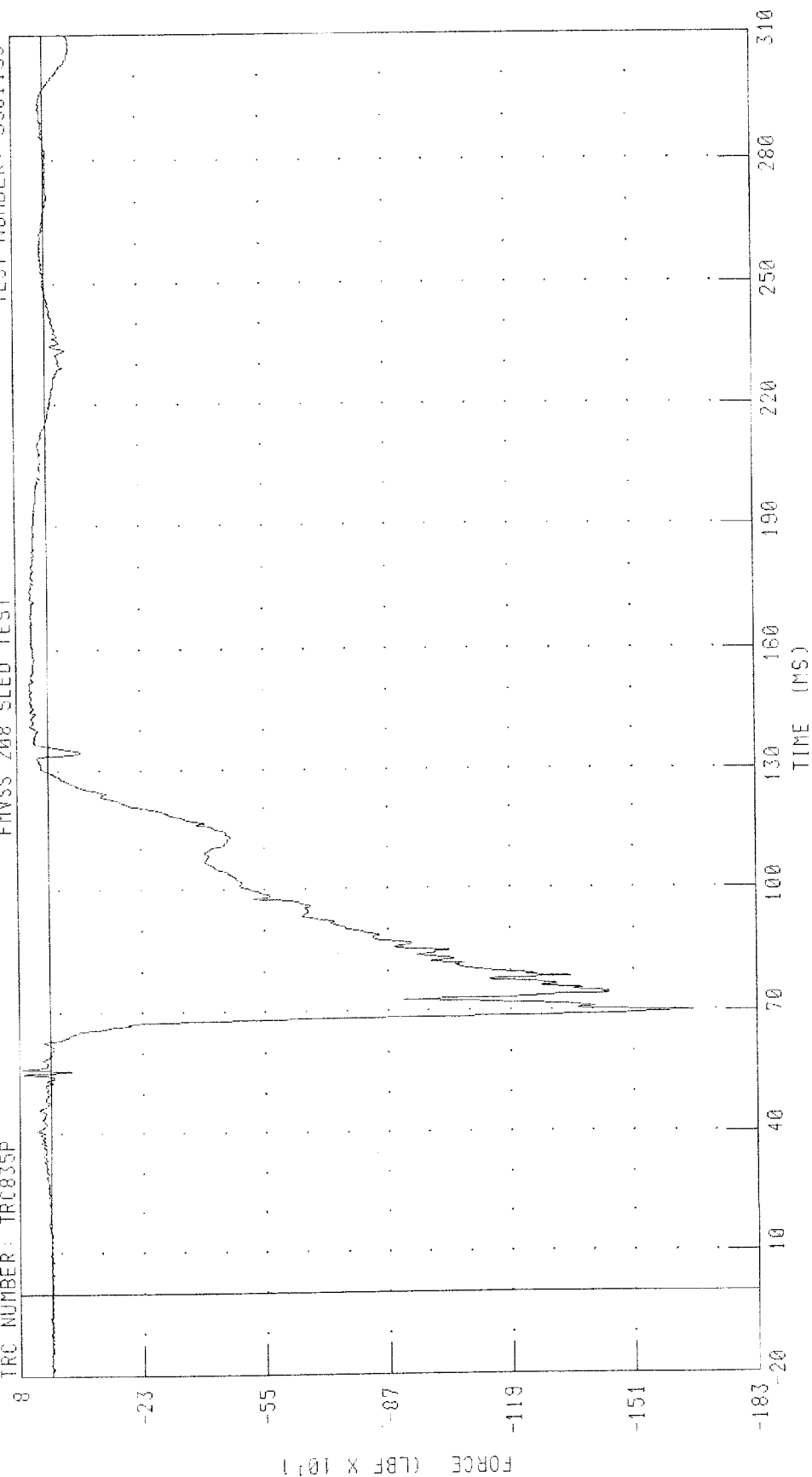
PEAK DATA: 69.50 LBF @ 64.56 MS, -1366.90 LBF @ 73.36 MS

CHANNEL: LFMF1 FILTER: CH CLASS 600

CX0108 / 1999 GM VENTURE
DRIVER RIGHT FEMUR FORCE
FMVSS 208 SLED TEST

TEST NUMBER: 990113S

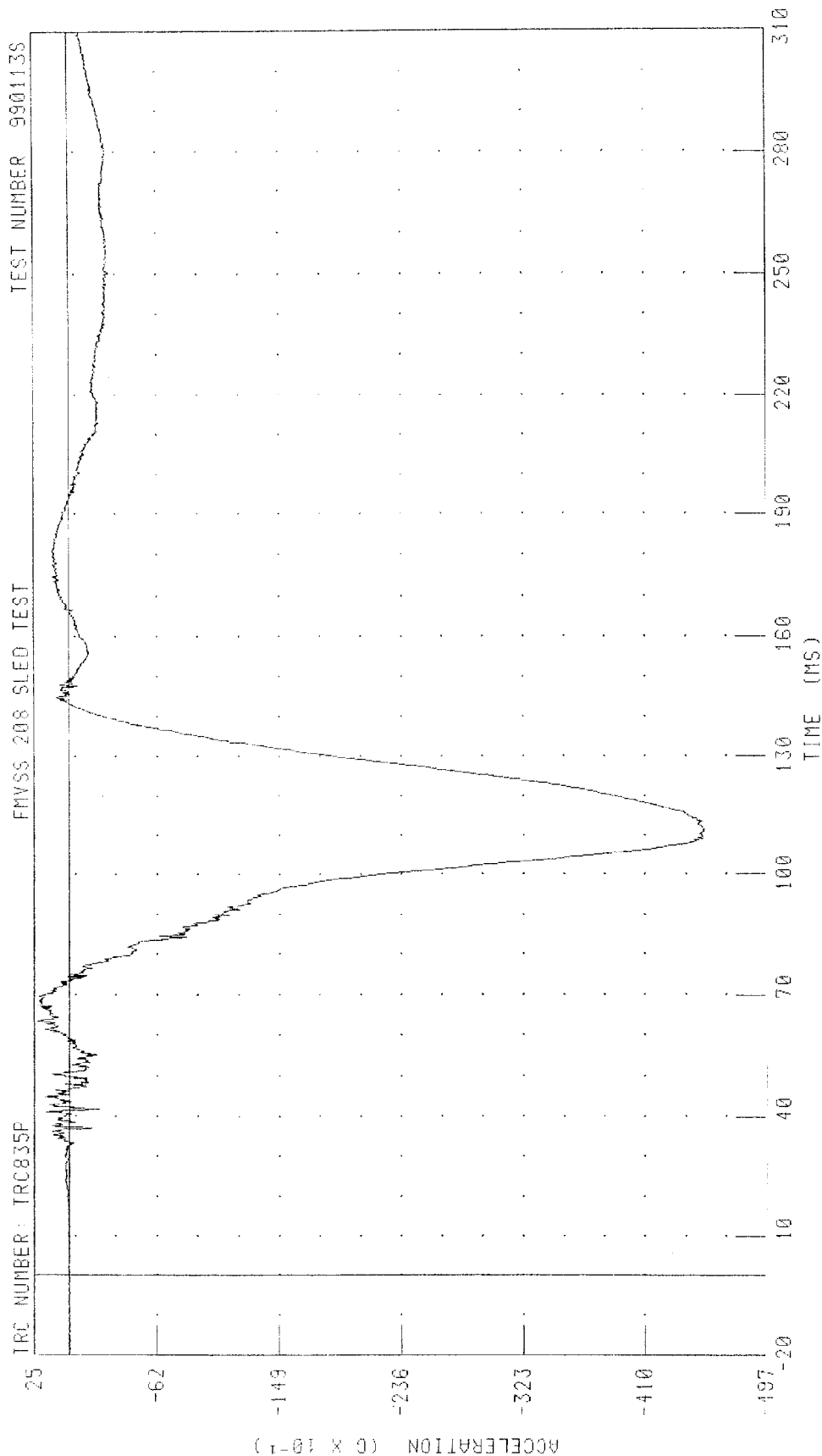
TRC NUMBER: TRC835P



PEAK DATA: 74.85 LBF @ 56.40 MS, 1672.29 LBF @ 69.92 MS

CHANNEL RFMF1 FILTER: CH. CLASS 600

CX0108 / 1999 GM VENTURE
 RIGHT FRONT PASSENGER HEAD X-AXIS ACCELERATION
 FMVSS 208 SLED TEST



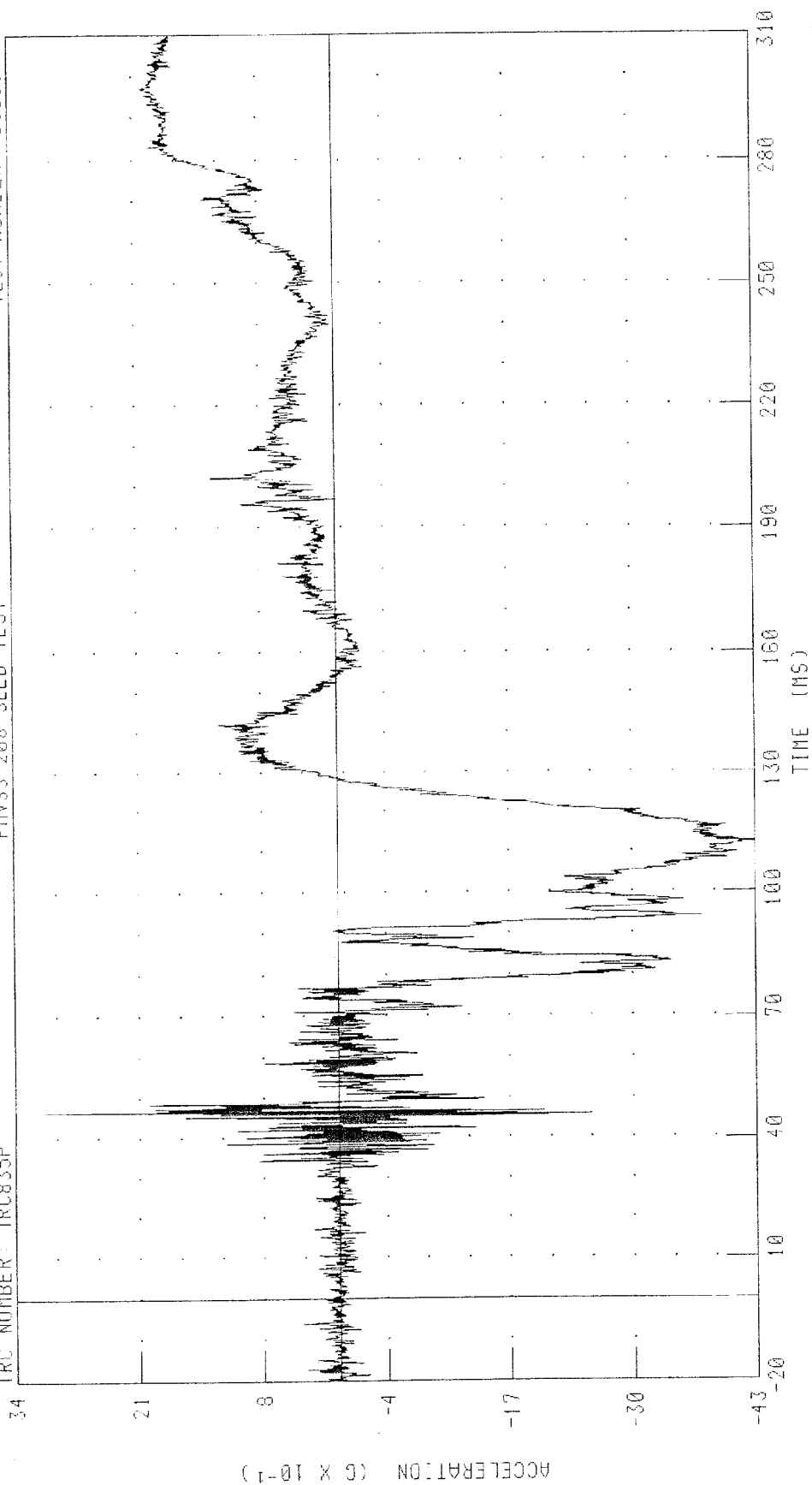
PEAK DATA: 2.32 G @ 67.60 MS, -45.23 G @ 111.76 MS

CHANNEL: HEDXC2 FILTER: CH. CLASS 1000

CX0108 / 1999 GM VENTURE
RIGHT FRONT PASSENGER HEAD Y-AXIS ACCELERATION
FMVSS 208 SLED TEST

TEST NUMBER 990113S

TRC NUMBER: TRC835P



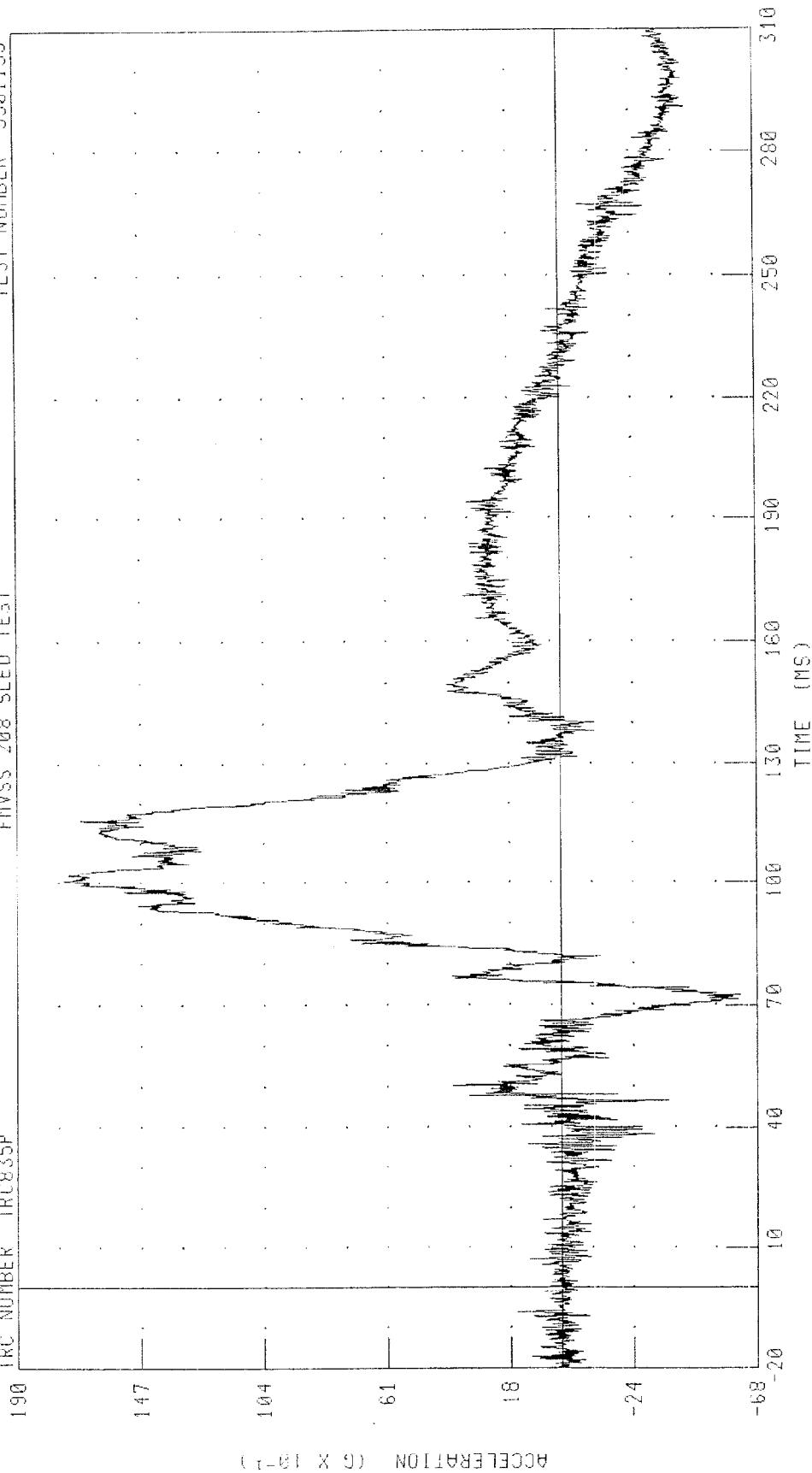
PEAK DATA: 3.10 G @ 46.64 MS, -4.39 G @ 112.40 MS

CHANNEL: HEDYG2 FILTER: CH. CLASS 1000

CX0108 / 1999 GM VENTURE
 RIGHT FRONT PASSENGER HEAD Z-AXIS ACCELERATION
 FMVSS 208 SLED TEST

TEST NUMBER: 990113S

TRC NUMBER TRC835P



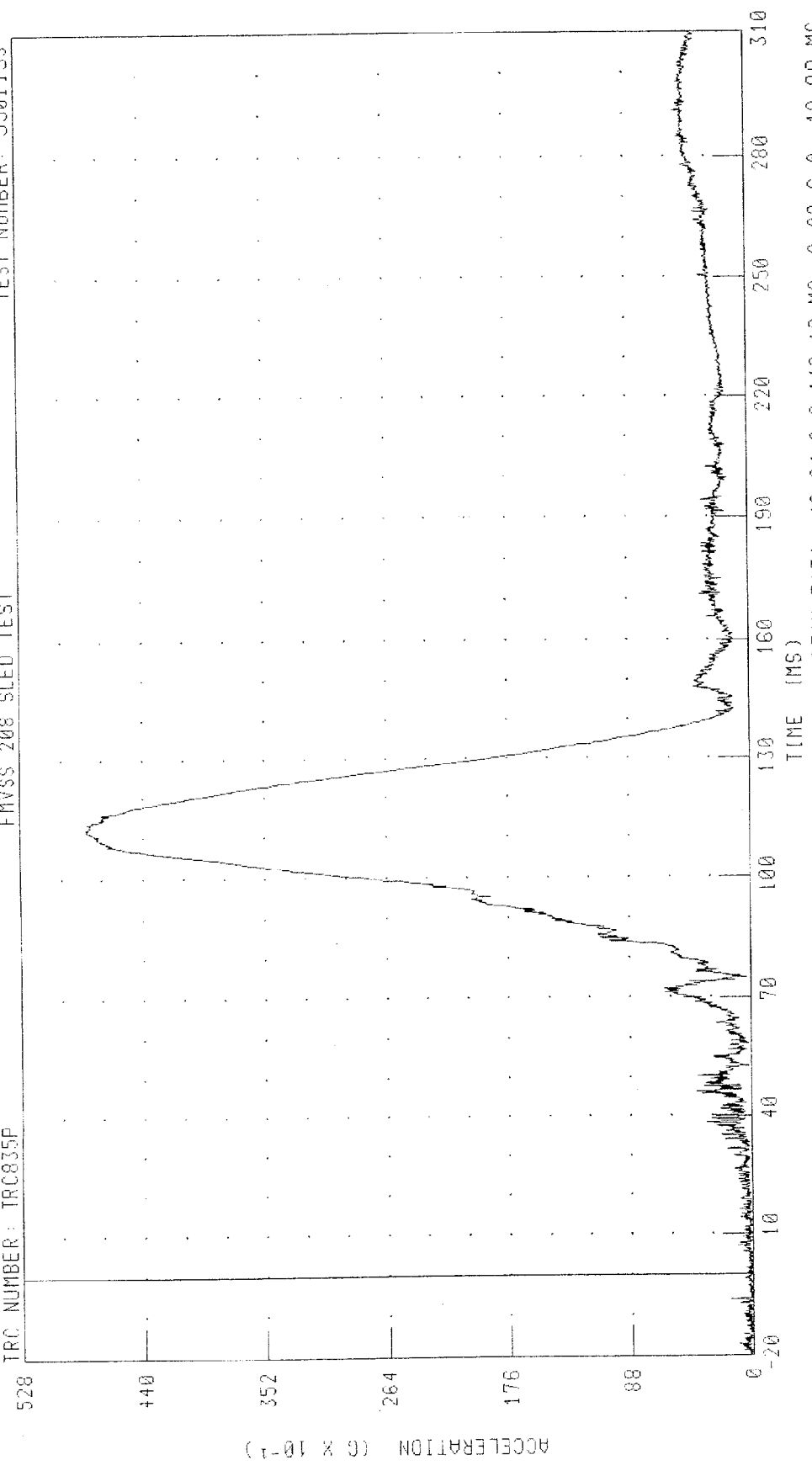
PEAK DATA: 17.36 G @ 100.64 MS; -6.21 G @ 72.32 MS

CHANNEL: HEDZG2 FILTER: CH. CLASS 1000

CX0108 / 1999 GM VENTURE
RIGHT FRONT PASSENGER HEAD RESULTANT ACCELERATION
FMVSS 208 SLED TEST

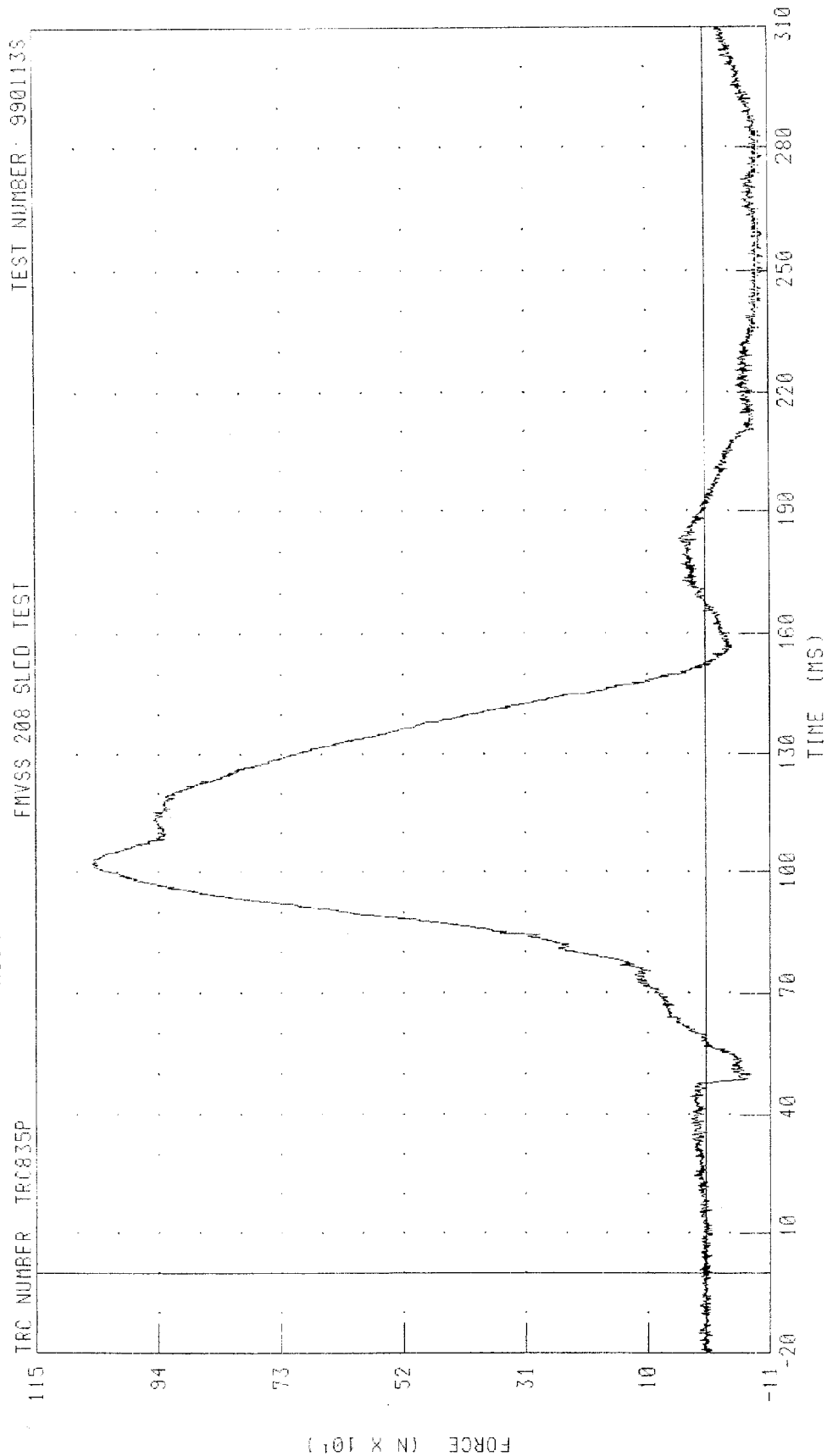
TEST NUMBER: 990113S

TRC NUMBER: TRC835P



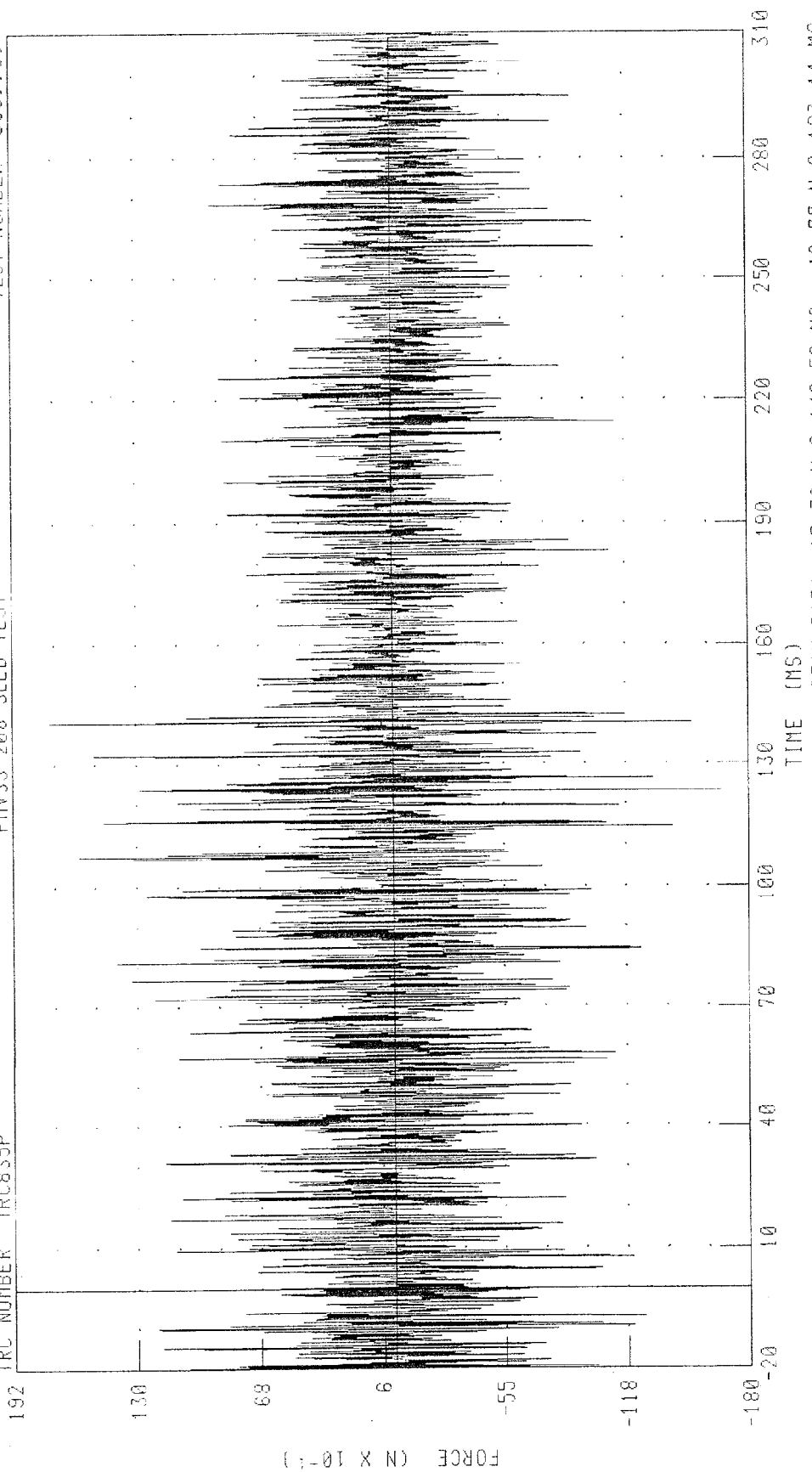
CHANNEL: HEDRC2 FILTER: CH CLASS 1000
PEAK DATA: 48.04 G @ 112.18 MS; 0.02 G @ -18.88 MS

CX0108 / 1999 GM VENTURE
 RIGHT FRONT PASSENGER NECK X-AXIS SHEAR FORCE
 FMVSS 208 SLED TEST



CHANNEL: NEKXF2 FILTER: CH. CLASS 1000 PEAK DATA: 1054.80 N @ 102.64 MS; -103.03 N @ 249.68 MS

CX0108 / 1999 GM VENTURE
 RIGHT FRONT PASSENGER NECK Y-AXIS SHEAR FORCE
 FMVSS 208 SLED TEST
 TRC NUMBER TRC835P
 TEST NUMBER: 9901139

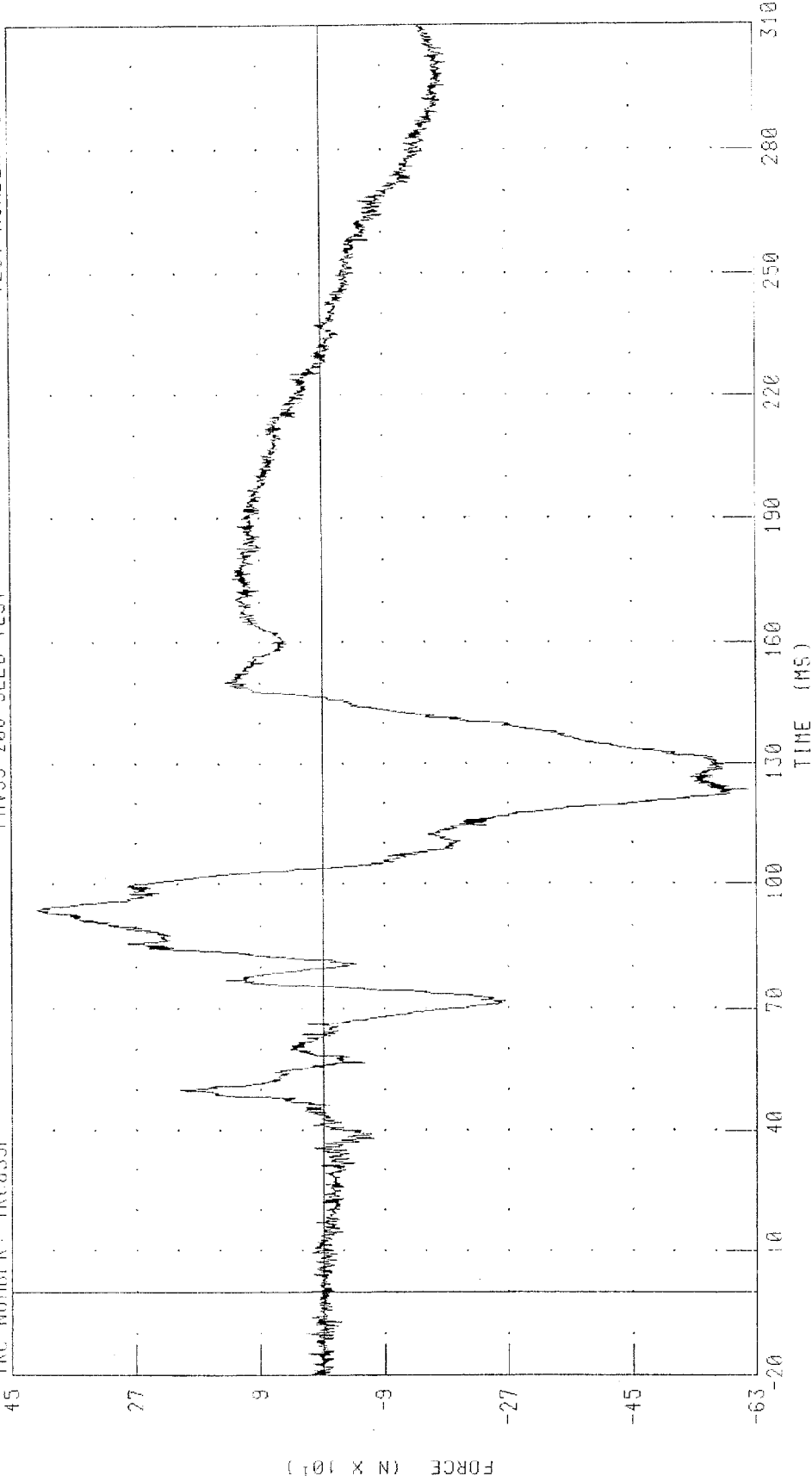


CHANNEL: NEKYF2 FILTER: CH CLASS 1000
 PEAK DATA: 17.32 N @ 140.56 MS, -16.77 N @ 123.44 MS

CX0108 / 1999 GM VENTURE
 RIGHT FRONT PASSENGER NECK Z-AXIS AXIAL FORCE
 FMVSS 208 SLED TEST

TEST NUMBER: 9901139

TRC NUMBER: TRC835P



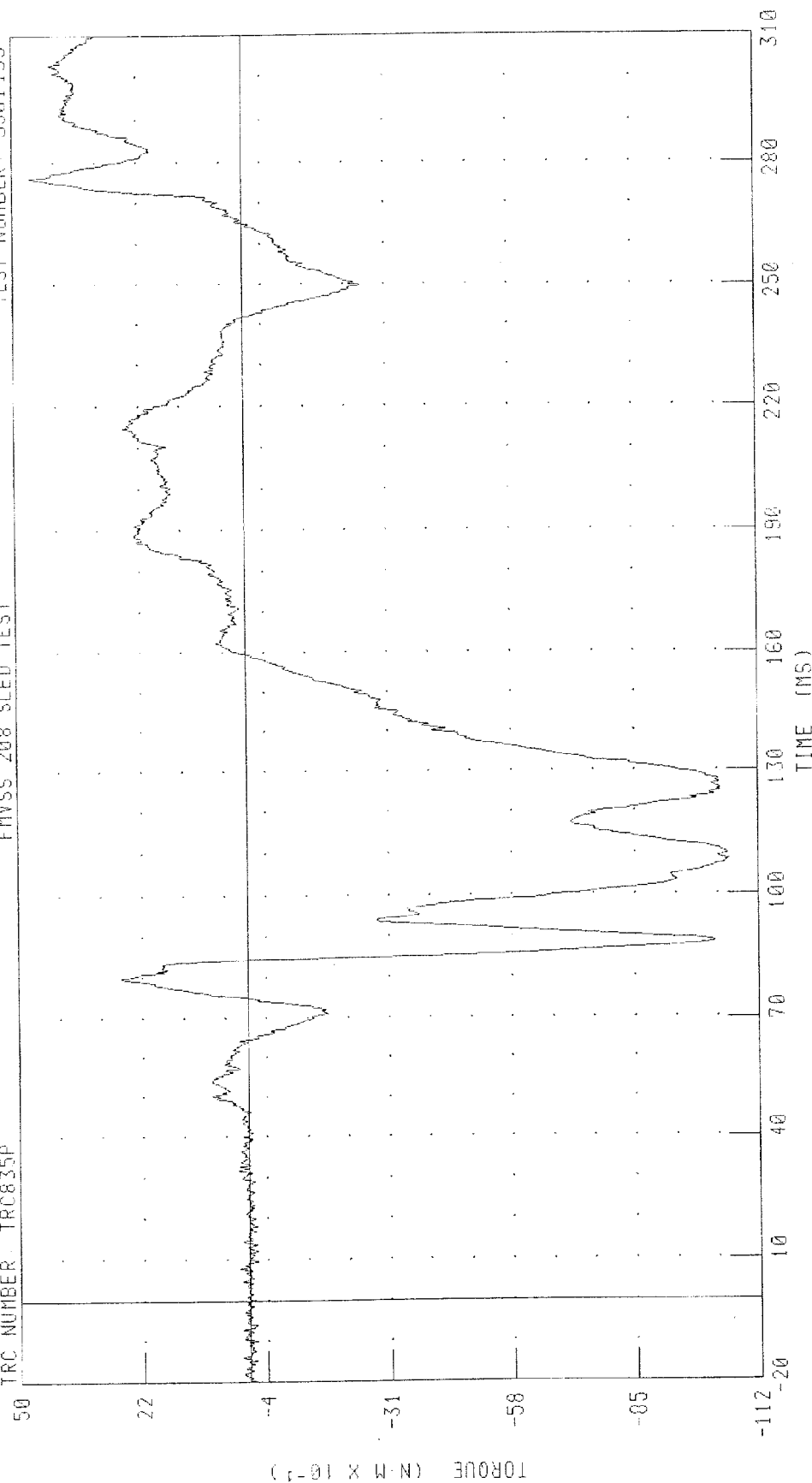
CHANNEL: NEKZF2 FILTER: CH. CLASS 1000

PEAK DATA: 414.27 N @ 94.00 MS, -617.58 N @ 123.44 MS

CX0108 / 1999 GM VENTURE
 RIGHT FRONT PASSENGER NECK MOMENT ABOUT X AXIS
 FMVSS 208 SLED TEST

TEST NUMBER: 990113S

TRC NUMBER TRC835P



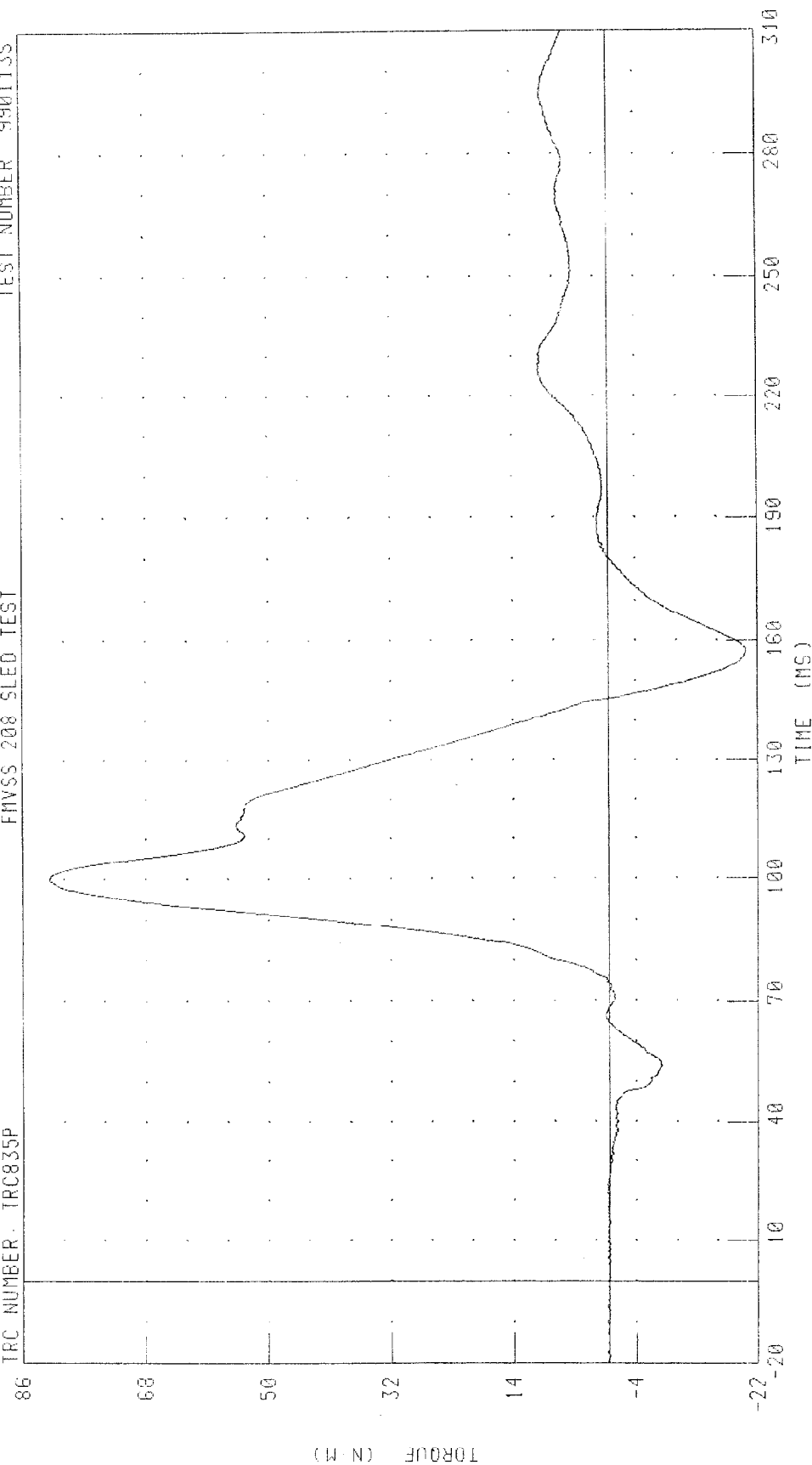
PEAK DATA: 4.61 N M @ 276.00 MS, -10.56 N M @ 103.48 MS

CHANNEL: NEKXM2 FILTER: CH. CLASS 600

CX0108 / 1999 GM VENTURE
 RIGHT FRONT PASSENGER NECK MOMENT ABOUT Y AXIS
 FMVSS 208 SLED TEST

TEST NUMBER 990113S

TRC NUMBER TRC835P



PEAK DATA: 82.07 N-M @ 99.68 MS, -20.36 N-M @ 157.36 MS

CHANNEL: NEKVH2 FILTER: CH CLASS 600

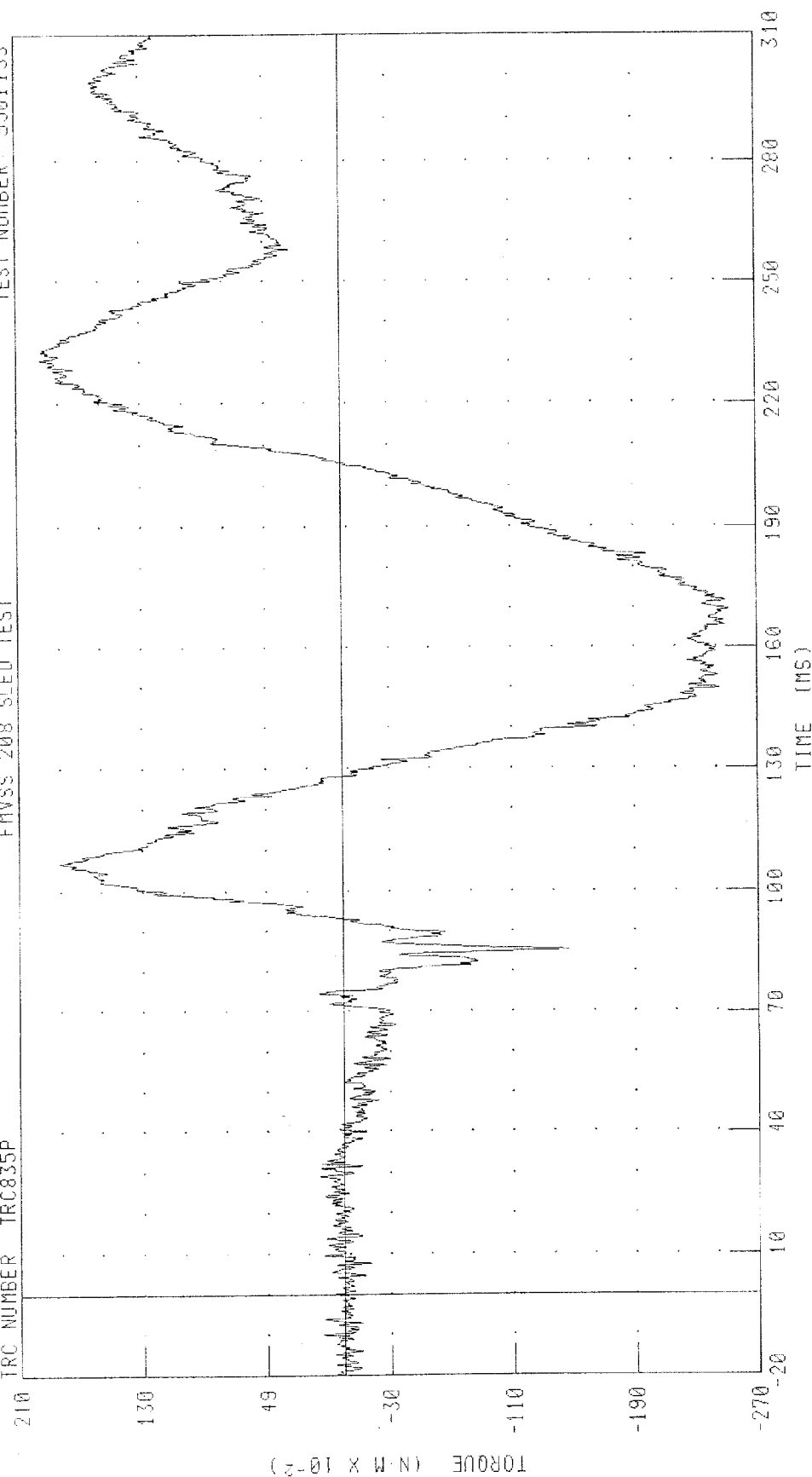
CX0108 / 1999 CM VENTURE

RIGHT FRONT PASSENGER NECK MOMENT ABOUT Z AXIS

TEST NUMBER: 990113S

FMVSS 208 SLED TEST

TRC NUMBER TRC835P



PEAK DATA: 1 95 N-M @ 230.56 MS; -2 51 N-M @ 169.60 MS

CHANNEL: NEKZM2 FILTER: CH. CLASS 600

CX0108 / 1999 GM VENTURE
 RIGHT FRONT PASSENGER NECK OCCIPITAL CONDYLE ABOUT Y AXIS
 FMVSS 208 SLED TEST

TEST NUMBER: 990113S

TRC NUMBER: TRC035P

69

54

39

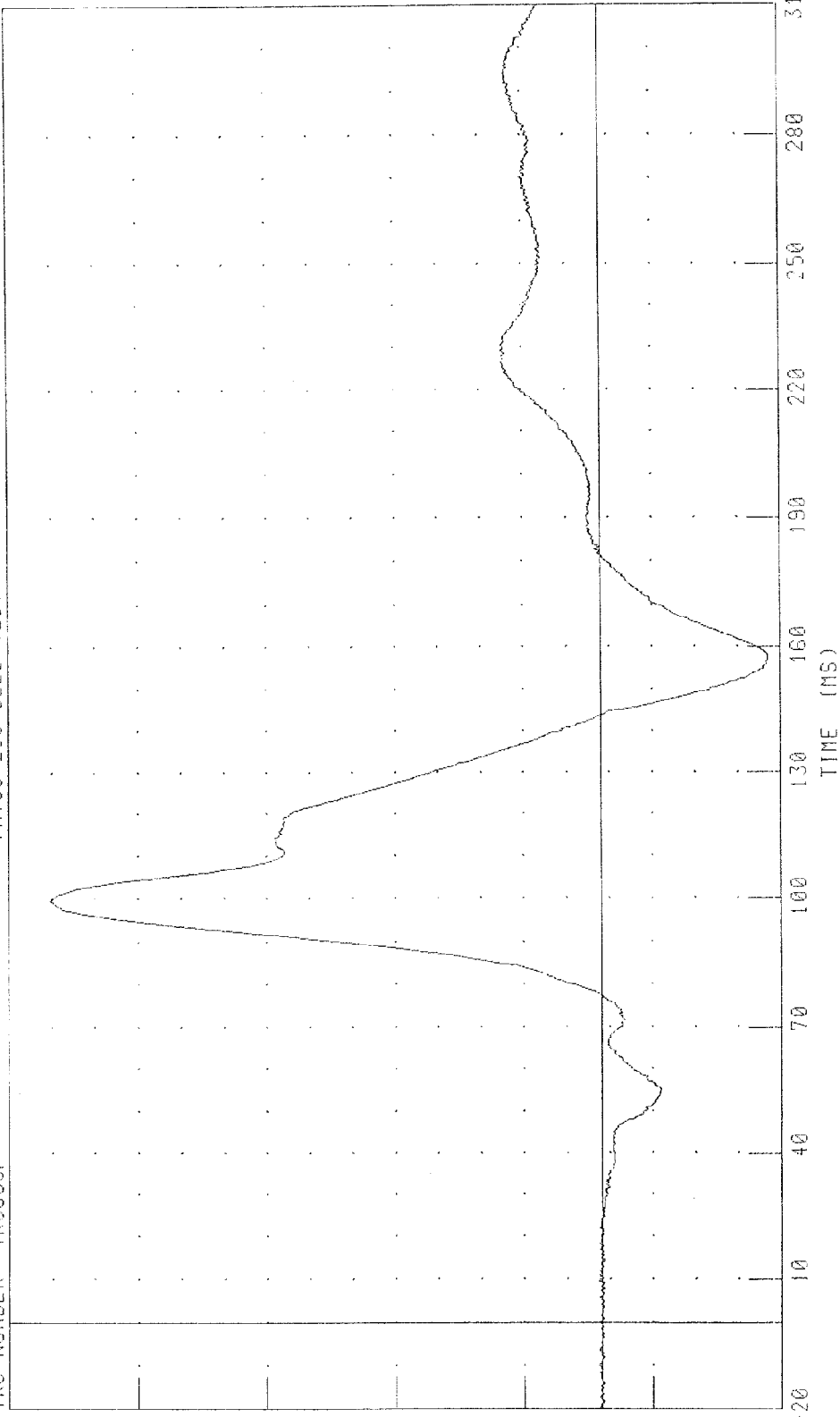
24

9

-6

-21

TORQUE (N·M)

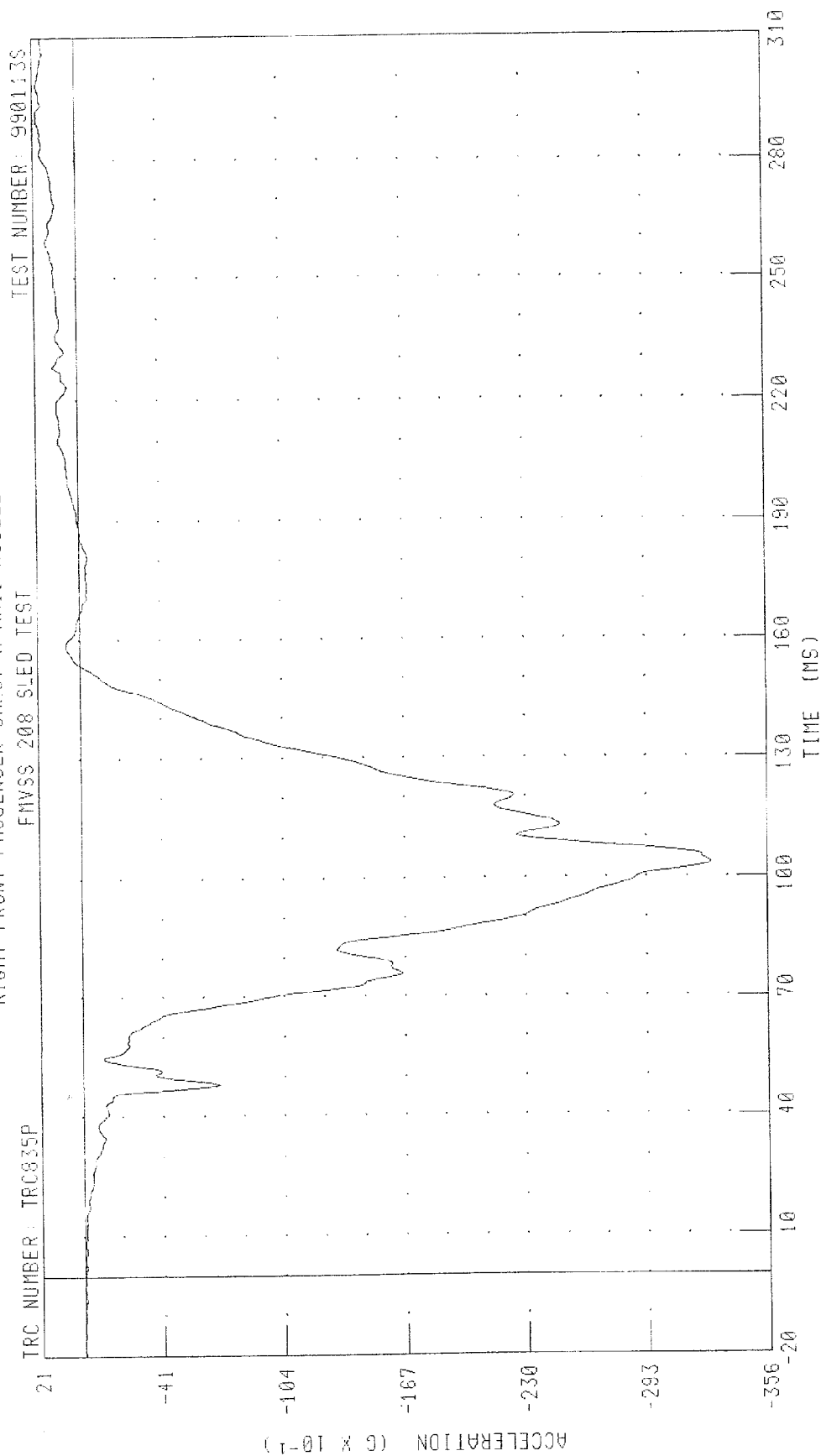


TIME (MS)

PEAK DATA: 64 14 N M @ 99.60 MS; -19.67 N M @ 157.44 MS

CHANNEL: NEKOM2 FILTER: CH CLASS 600

CX0108 / 1999 GM VENTURE
RIGHT FRONT PASSENGER CHEST X-AXIS ACCELERATION
FHVSS 208 SLED TEST

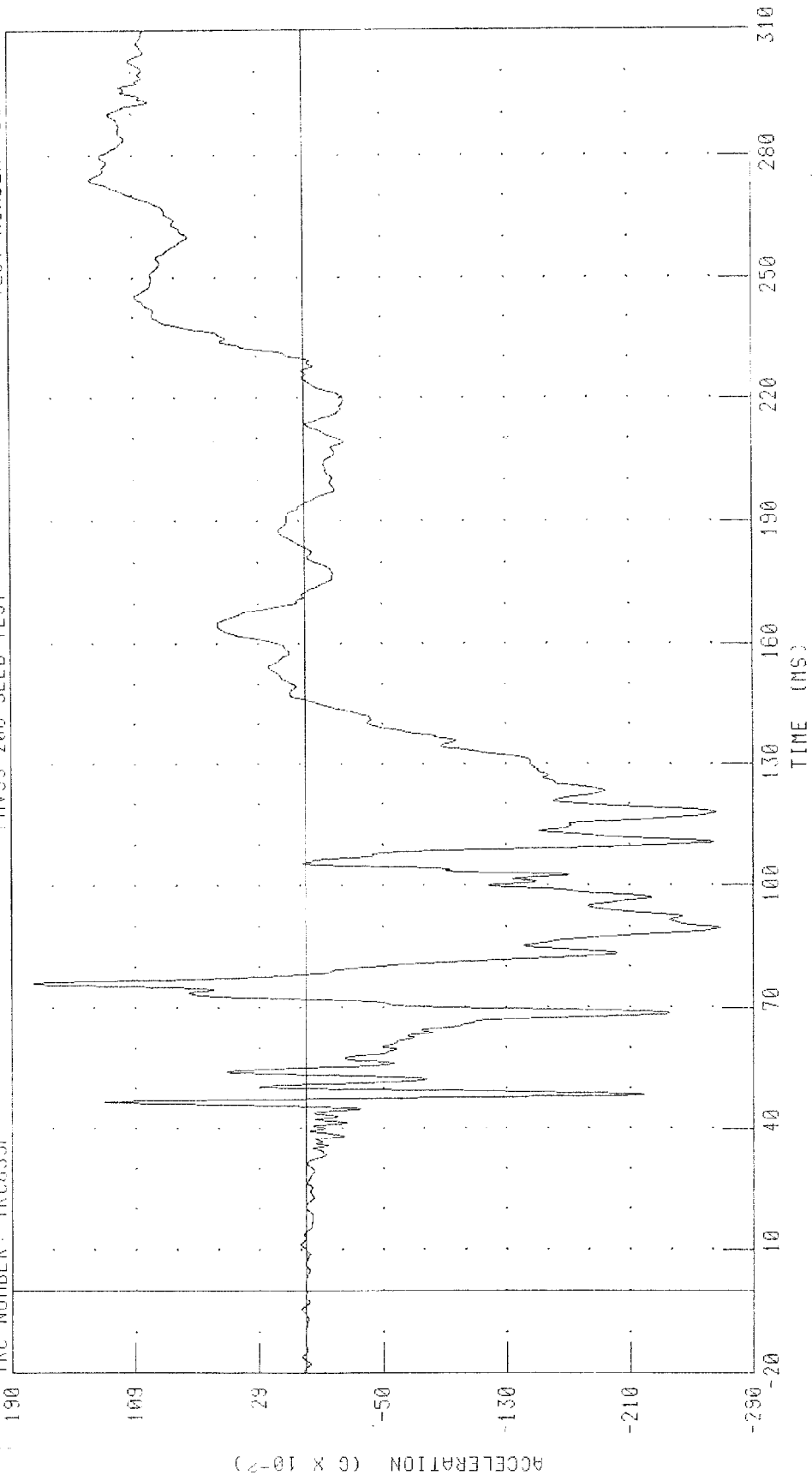


CHANNEL: CSTXC2 FILTER: CH CLASS 180

CX0108 / 1999 GM VENTURE
 RIGHT FRONT PASSENGER CHEST Y-AXIS ACCELERATION
 FMVSS 208 SLED TEST

TEST NUMBER: 990113S

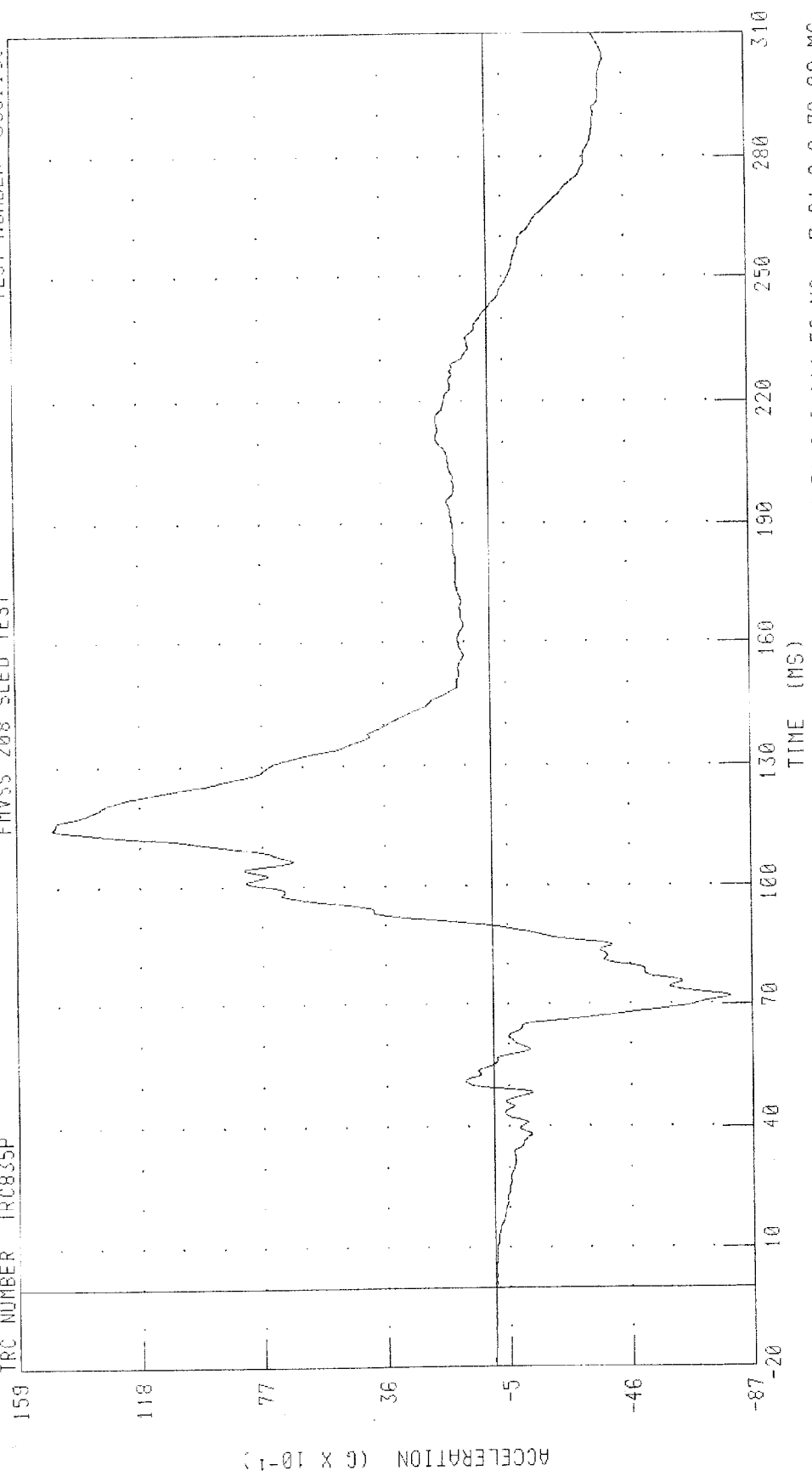
TRC NUMBER: TRC835P



PEAK DATA: 1.76 G @ 76.16 MS, -2.69 G @ 89.68 MS

CHANNEL: CSTYG2 FILTER: CH CLASS 180

CX0108 / 1999 GM VENTURE
RIGHT FRONT PASSENGER CHEST Z-AXIS ACCELERATION
FMVSS 208 SLED TEST
TRC NUMBER TRC835P
TEST NUMBER 9901135

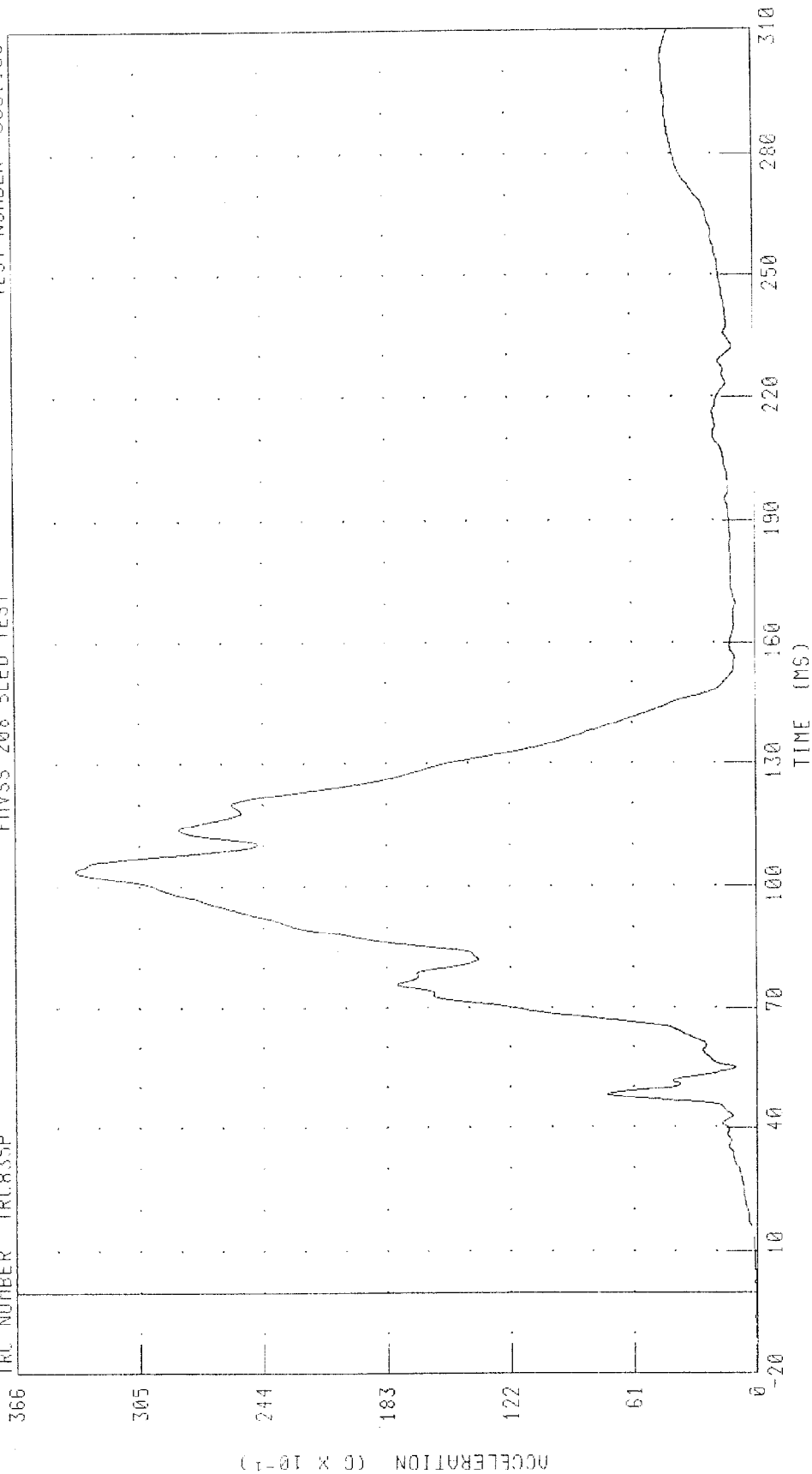


CHANNEL: CSTZC2 FILTER: CH. CLASS 180
PEAK DATA: 14.71 G @ 114.56 MS, -7.94 G @ 72.08 MS

CX0108 / 1999 GM VENTURE
 RIGHT FRONT PASSENGER CHEST RESULTANT ACCELERATION
 FMVSS 208 SLED TEST

TEST NUMBER: 990113S

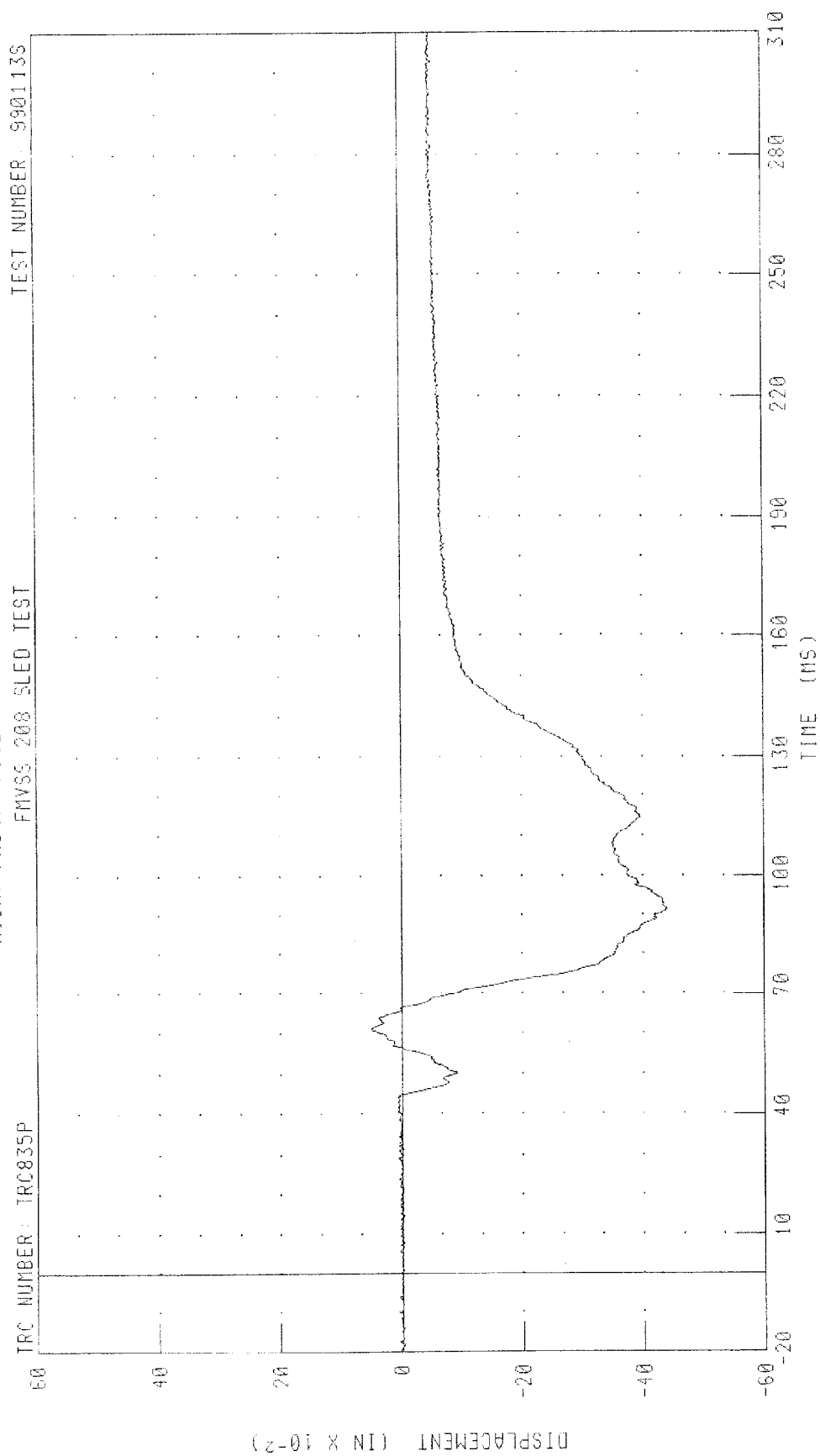
TRC NUMBER TRC835P



PEAK DATA: 33.64 G @ 103.84 MS; 0.01 G @ -11.68 MS

CHANNEL: CSIRC2 FILTER: CH. CLASS 180

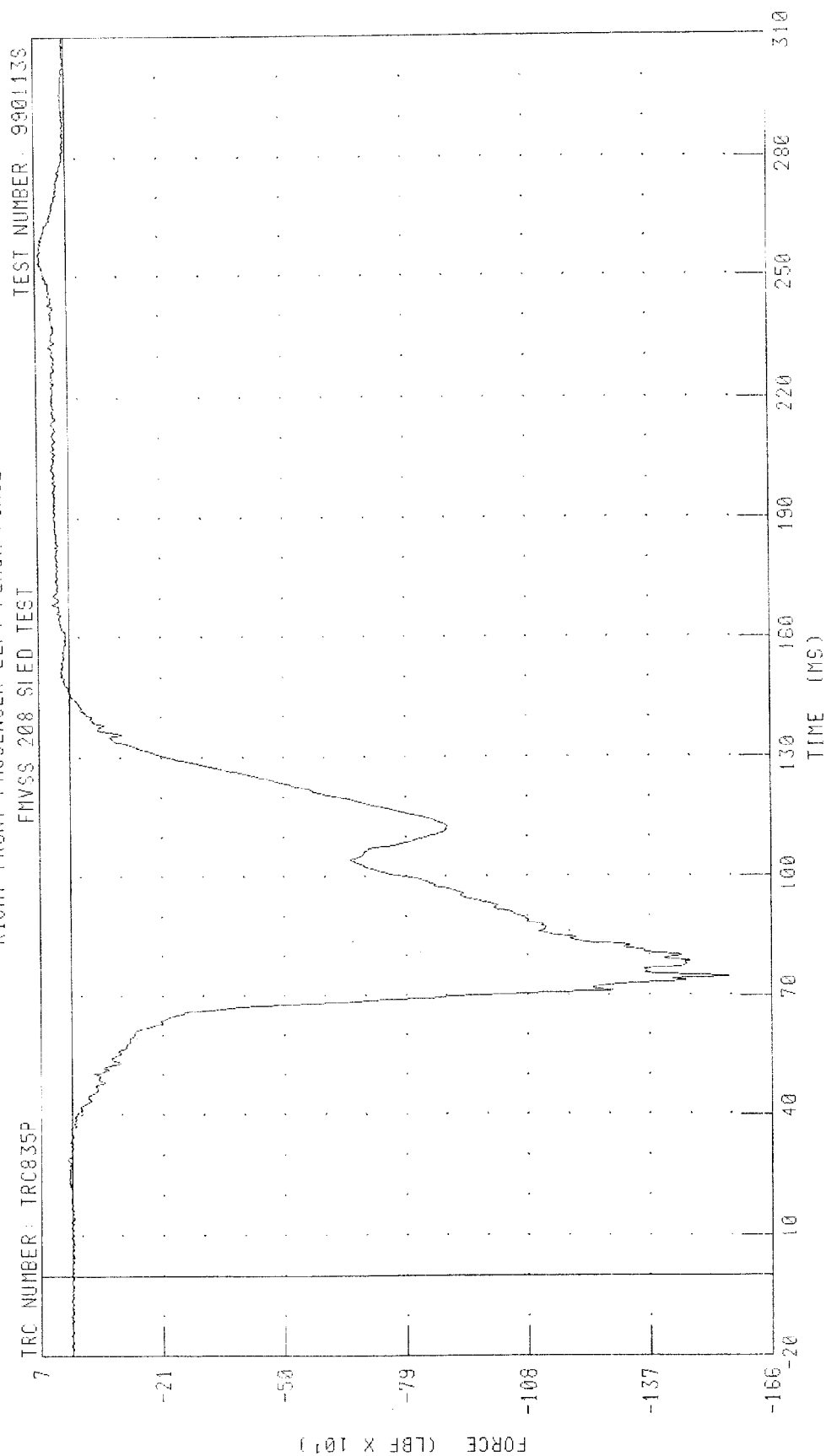
CX0108 / 1999 GM VENTURE
 RIGHT FRONT PASSENGER CHEST DEFLECTION
 FMVSS 208 SLED TEST



PEAK DATA: 0.05 IN @ 60.96 MS, -0.44 IN @ 01 60 MS

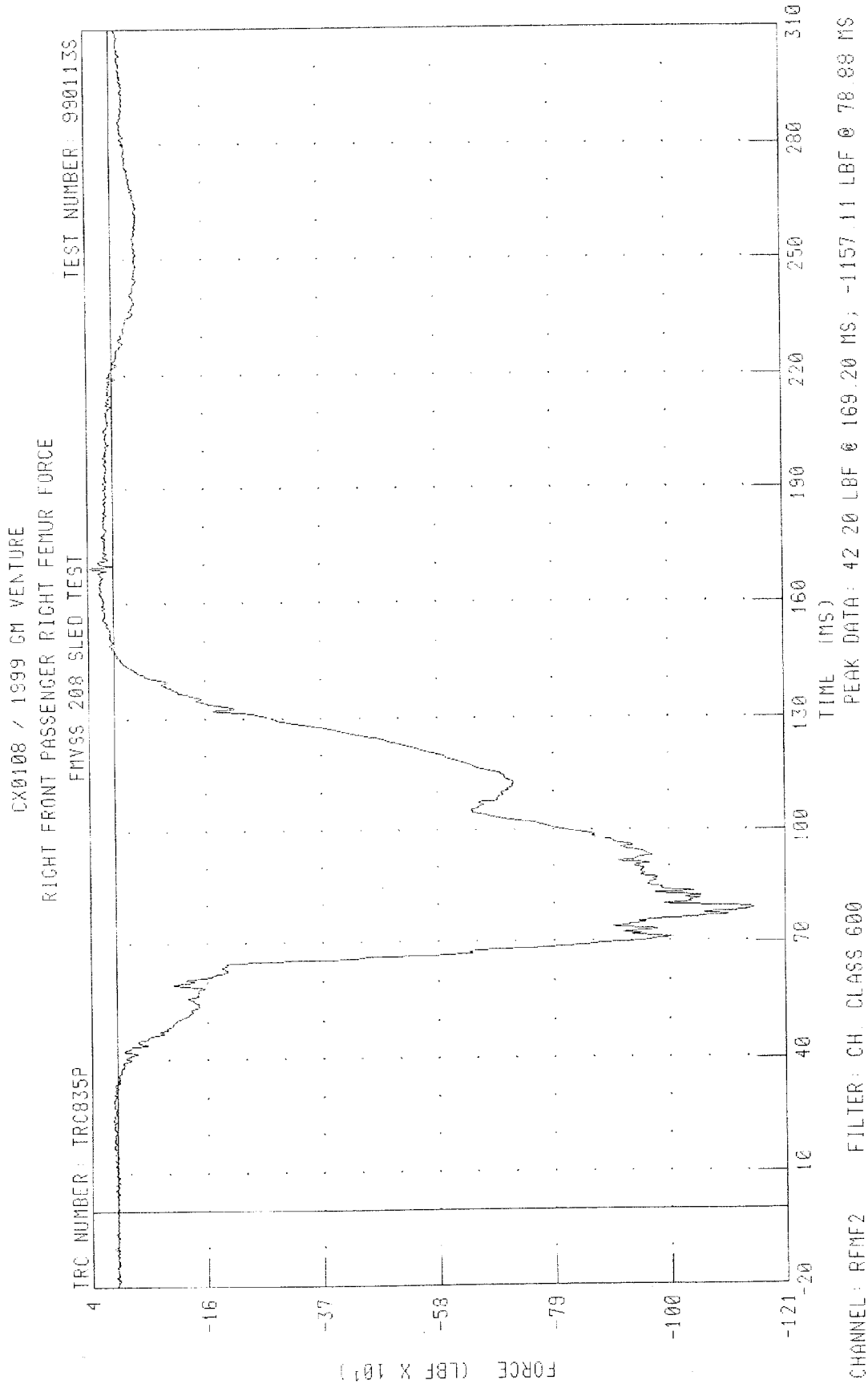
CHANNEL: CSTXDZ FILTER: CH. CLASS 600

CX0108 / 1999 GM VENTURE
 RIGHT FRONT PASSENGER LEFT FEMUR FORCE
 FMVSS 208 SIED TEST



PEAK DATA: 66.65 LBF @ 255.52 MS, -1565.68 LBF @ 74.80 MS

CHANNEL: LFMF2 FILTER: CH. CLASS 600



Appendix C

Manufacturer's Vehicle Information



Safety Center
NORTH AMERICAN OPERATIONS

October 30, 1998
USG 3438

Mr. Harry Thompson, Division Chief
Office of Vehicle Safety Compliance
Safety Assurance
National Highway Traffic Safety
Administration
400 Seventh St., S.W.
Washington, D.C. 20590

Subject: Information Request NSA-31CCa/OA:208980925H

Dear Mr. Thompson:

This is in response to your letter received September 29, 1998, requesting information for proposed FMVSS 208 enforcement testing of the 1999 Chevrolet Venture. Specifically, the letter requested certain information on the alternative requirements that the automatic restraint in this vehicle meets, if tension-relief devices were incorporated into the restraint system and certain test set-up information.

The specific OVSC questions and the General Motors Corporation responses are included in Enclosure 1.

We trust this information is responsive to your request. We welcome the opportunity to discuss any aspects of our response with you or members of your staff. If there are any questions, please do not hesitate to contact Mr. John E. Kromrei (810/947-1735) of my staff, or Mr. Richard F. Humphrey (202/775-5071) of GM's Washington Office.

Sincerely,


C. Thomas Terry, Director
Safety Affairs & Regulations
Safety Center

cc: C. Case, NHTSA

Safety Affairs & Regulations
Mail Code 480-111-S56 • 30200 Mound Road • Warren, Michigan 48090-9010
FAX: (810) 986-8018



OVSC QUESTIONS & GM RESPONSES
REGARDING FMVSS 208 INFORMATION REQUEST
1999 Chevrolet Venture
NSA-31CCa / OA:208980925H

Item 1

Please inform OVSC if the air bag restraint system is certified to meet the requirements of S4.1.5.1(a)(1) or S13.

If the air bags were installed to meet the requirements of S4.1.5.1(a)(1), please provide a copy of the certification test reports for the frontal/angular barrier impact tests of the automatic restraint system with the manual safety belts unfastened and fastened.

If the air bags were installed to meet the requirements of S13, please provide a copy of the certification test reports for the frontal/angular barrier impact tests of the automatic restraint system with the manual safety belts fastened and the certification test reports for the sled test with only the automatic restraint system.

GM Response

The air bag restraint system provided at the driver's and passenger's seating positions in the subject vehicle is installed to meet S13. In addition, the air bag restraint system provided at the driver's and passenger's seating positions, along with the manual 3-point safety belt, were installed to meet the requirements of paragraphs S4.1.5.1(a)(3) of FMVSS 208.

Since the subject vehicle's driver and passenger air bag restraint system are installed to meet the requirements of S13, no response is required.

Attachment A includes those portions of the frontal barrier test reports pertinent to the requirements of FMVSS 208.

Item 2

State when the air bag was depowered. Explain what other restraint changes have been made and what other vehicle changes have been made that might have affected FMVSS 208 performance since the last FMVSS 208 compliance test.

GM Response

The air bags for both the driver and right front passenger in the subject vehicle were reduced in force in the 1998 model. No changes have been made to the 1999 Chevrolet Venture that

would be expected to cause a change in performance per sections S4.1.5.1(a) and S13 of FMVSS 208.

Item 3

State if the vehicles have crash event recorders. If yes, explain any procedures needed for the sled or barrier crash event to be recorded. In addition, explain how to retrieve the crash event data from the recorder.

GM Response

The 1999 Chevrolet Venture is equipped with a crash event recorder. Assuming the vehicle is as-delivered, no special procedures are required for the sled or barrier crash event to be recorded. Data retrieval currently requires utilization of a proprietary diagnostic tool. However, consistent with discussion at a June 15, 1998 meeting involving GM, a representative from NHTSA Research, and potential tool suppliers, GM expects a vendor to begin selling systems which will enable the downloading of EDR data into a laptop computer early in 1999.

Item 4

If the vehicle was certified with unrestrained dummies to meet the requirements of S13, describe how to disconnect the air bags from the vehicle sensors and connect them to the triggering mechanism used in the sled test. Describe the method used in certification to determine when to trigger the air bag and the system used to trigger the air bag.

GM Response

Sled tests used to meet the requirements of S13 were performed on a sled buck in which the air bags were never connected to vehicle sensors. Air bags for full scale tests can be electrically disconnected from the vehicle harness and a separate electrical harness can be attached directly to the air bags, specifically for test deployment. Attachment B includes a section from the subject vehicle's service manual, showing location, attachment, and proper disabling of the SIR system. [NOTE: This is only a section of the service manual and is not meant to include all steps and precautions used in providing full service of the SIR system.]

For GM's sled testing, the air bags are powered and activated by a remote system whether a full vehicle or a sled buck is used. This remote air bag control system is electronically wired to the air bag through a junction box. To deploy the air bags, the air bag control system provides the power through the interconnect of electronic wiring. The air bag control system is programmed to activate the air bag as follows:

The FMVSS 208 requirement states that the air bag "is to be activated at 20 ms $\pm$ 2 ms from the time that 0.5 g is measured on the dynamic test platform." GM's sled facility generates a time reference signal when the sled reaches 1.0 g. After reviewing the reference signal's time difference between 0.5 and 1.0 g in several sled tests, the average difference was determined to be 0.61 ms. Using this information, the remote air bag control system at GM's sled facility is programmed to trigger at 19 ms after the 1.0 g reference level to activate the air bag within the required timing stated above.

Item 5

State, for any safety belt system in this vehicle, whether or not it is equipped with a tension-relieving device. Provide a copy of the information furnished in accordance with S7.4.2, if the tension-relieving device is used.

GM Response

The safety belt systems used in the subject vehicles are not equipped with a tension-relieving device.

Item 6

FMVSS No. 208, S8.1.5 allows the manufacturer the option of having movable vehicle windows and vents placed in the closed position. State whether the vehicle's movable windows and vents were opened or closed for the certification tests.

GM Response

The windows and vents were open during testing.

Item 7

Submit dummy placement measurements, including diagrams or photographs which show exactly where measurements were taken. Enclosed is a diagram of some of OVSC's dummy measurements. Where possible, use the dimension shown in the diagram to provide the individual dummy placement measurements.

State whether the vehicle has a foot rest for the driver.

GM Response

The available dummy placement information is included in Attachment C.

The subject vehicle incorporates a driver foot rest.

Item 8

Provide the seat positioning, steering column positioning, and fuel tank data on the enclosed form. If more than one front seating configuration, steering column, or fuel tank are available on this vehicle, provide separate information for each. In addition, provide the seating reference point for each seat for the lockable seat belt requirement in S7.1.1.5.

GM Response

Attachment D includes the requested information.

Item 9

If the vehicle is equipped with adjustable seat (belt) anchorages, provide the manufacturer's nominal design position for a 50th percentile adult male occupant.

GM Response

The 1999 Chevrolet Venture is equipped with height-adjustable shoulder belt guides for the driver and right front passenger. The nominal design position for a 50th percentile male occupant is one (1) position down from full up.

Item 10

For barrier tests provide the speed at impact, vehicle test weight, and resulting injury criteria (i.e., HIC, chest acceleration, chest compression and femur loads) recorded for all certification tests conducted to meet the requirements of S4.1.5.1(a)(1). For sled tests, provide the resulting injury criteria (i.e., HIC, chest acceleration, chest compression, femur loads and neck moments and forces) recorded for all certification tests conducted to meet the requirements of S13.

GM Response

Attachment E includes a summary of the requested injury criteria information.

Item 11

When vehicle components must be removed to obtain the proper test weight for the barrier test, what components do you recommend for removal and in what priority order do you recommend removal?

GM Response

GM does not typically prioritize which components are to be removed from a test vehicle to accommodate test weight. However, components that have been removed during our testing include rear interior trim, spare tire and jack, rear seats and rear carpeting. Additional components that may have been removed during specific tests include rear door trim, rear bumper facia, rear bumper and the liftgate.

Item 12

If the vehicle uses a pressure vessel to inflate the air bag, provide a copy of the test reports or engineering analysis to demonstrate that it meets all the requirements of S9.1.

GM Response

The air bags installed in the subject vehicles do not incorporate a pressure vessel to inflate the system.

Item 13

If the vehicle uses an explosive device to inflate the air bag, provide a copy of the test reports or engineering analysis to demonstrate that it meets all the requirements of S9.2.

GM Response

The air bags installed in the subject vehicles do not incorporate an explosive device to inflate the system.

ON-VEHICLE SERVICE

SERVICE PRECAUTIONS

CAUTION: When you are performing service on or near the SIR components or the SIR wiring, you must disable the SIR system. Use the following procedure to temporarily disable the SIR system. Failure to follow the correct procedure could cause air bag deployment, personal injury, or unnecessary SIR system repairs.

The inflatable restraint Sensing and Diagnostic Module (SDM) maintains a reserve energy supply. When the vehicle power is insufficient to cause deployment of the air bags, the reserve energy supply provides the deployment power. Deployment power is available for as much as 10 minutes after disconnecting the vehicle power by any of the following methods:

- You turn off the ignition switch.
- You remove the Fuse that provides power to the SDM.
- You disconnect the vehicle battery from the vehicle electrical system.

Performing the following procedure prevents deploying of the air bags from the reserve energy supply power.

Disabling the SIR System

Figures 10 and 11

 Remove or Disconnect

- Turn the steering wheel to the straight ahead position.
- Remove the key from the ignition switch.
- 1. The SIR Fuse from the I/P fuse block.
- 2. The I/P sound insulator (LH). Refer to SECTION 8C.
- 3. The Connector Position Assurance (CPA) and the driver yellow 2-way connector located at the base of the steering column.
- 4. The I/P sound insulator (RH). Refer to SECTION 8C.
- 5. The Connector Position Assurance (CPA) and the passenger yellow 2-way connector located near the base of the steering column.

 Important

With the SIR Fuse removed and the ignition switch in the RUN position, the AIR BAG warning lamp illuminates. This is normal operation and does not indicate a SIR system malfunction.

Enabling the SIR System

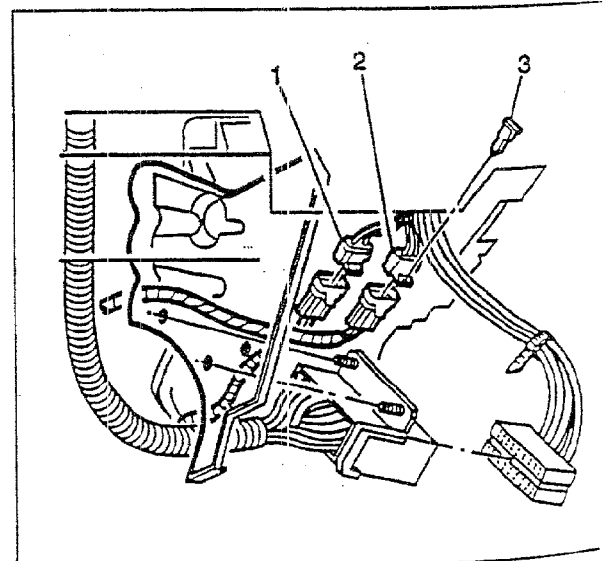
Figures 10 and 11

 Install or Connect

- Remove the key from the ignition switch.
- 1. The passenger yellow 2-way connector and the CPA located near the base of the steering column.
- 2. The I/P sound insulator (RH). Refer to SECTION 8C.
- 3. The driver yellow 2-way connector and the CPA located at the base of the steering column.
- 4. The I/P sound insulator (LH). Refer to SECTION 8C.
- 5. The SIR Fuse to the I/P fuse block.
- Staying well away from both air bags, turn the ignition switch to the RUN position. Verify that the AIR BAG warning lamp flashes seven times and then stays off. If the AIR BAG warning lamp does not operate as described, perform the SIR DIAGNOSTIC SYSTEM CHECK.

General Service Instructions

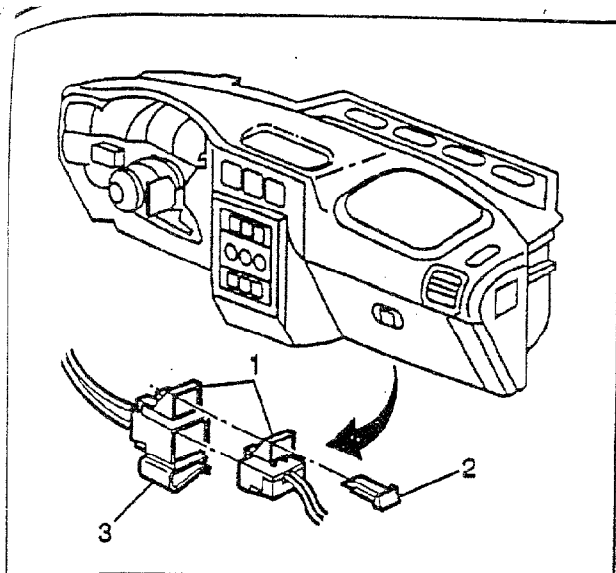
- Do not expose the inflator modules to temperatures above 65°C (150°F).
- Verify the correct replacement part number. Do not substitute a component from a different vehicle.
- Do not repair any of the following components:
 - The SDM.
 - The inflatable restraint I/P (inflator) module.



Legend

- (1) Steering Wheel Redundant Controls Connector
- (2) Driver Yellow 2-Way SIR Connector
- (3) Driver Yellow 2-Way SIR Connector Connector Position Assurance (CPA)

Figure 10—Driver Yellow 2-Way SIR Connector



Legend

- (1) Passenger Yellow 2-Way SIR Connector
- (2) Passenger Yellow 2-Way SIR Connector Connector Position Assurance (CPA)
- (3) Metal Clip

Figure 11—Passenger Yellow 2-Way SIR Connector

- The inflatable restraint steering wheel (inflator) module.
- The inflatable restraint steering wheel module coil.

Service these components by replacement only.

- Use only new or remanufactured parts from an authorized original equipment manufacturer dealer. Do not use salvaged parts for repairs to the SIR system.
- Discard any of the following components if it has been dropped from a height of 91 centimeters (3 feet) or greater.
 - The SDM.
 - The inflatable restraint I/P (inflator) module.
 - The inflatable restraint steering wheel (inflator) module.
 - The inflatable restraint steering wheel module coil.

Do not install the component in a vehicle.

- When you replace the SDM, verify that the following conditions are met:

- The mounting surface is clean.
- The arrow on the module points toward the front of the vehicle.
- The module is flat on the mounting surface, parallel to the vehicle datum line.
- The module fasteners are installed and tightened as specified.

- In order to avoid setting false diagnostic trouble codes and possible air bag deployment, only apply power to the SIR system when one of the following two conditions is met:

- All SIR system components are properly mounted and electrically connected.
- A diagnostic procedure directs you to apply power.

- Begin diagnosis of malfunctions with the SIR DIAGNOSTIC SYSTEM CHECK. Perform the SIR DIAGNOSTIC SYSTEM CHECK in order to verify the following:

- The proper operation of the AIR BAG warning lamp.
- Communication with the SDM through the serial data line.
- The presence or absence of diagnostic trouble codes.
- Whether additional diagnosis is required and where the information resides.

Not beginning with the SIR DIAGNOSTIC SYSTEM CHECK could cause extended diagnostic time, incorrect diagnosis, and unneeded parts replacement.

REPAIRS AND INSPECTIONS REQUIRED AFTER AN ACCIDENT

CAUTION: Proper operation of the Supplemental Inflatable Restraint (SIR) sensing system requires that any repairs to the vehicle structure return the vehicle structure to the original production configuration. Not properly repairing the vehicle structure could cause non-deployment of the air bag in a frontal collision or deployment of the air bag for conditions less severe than intended.

Accident With or Without Air Bag Deployment—Component Inspections

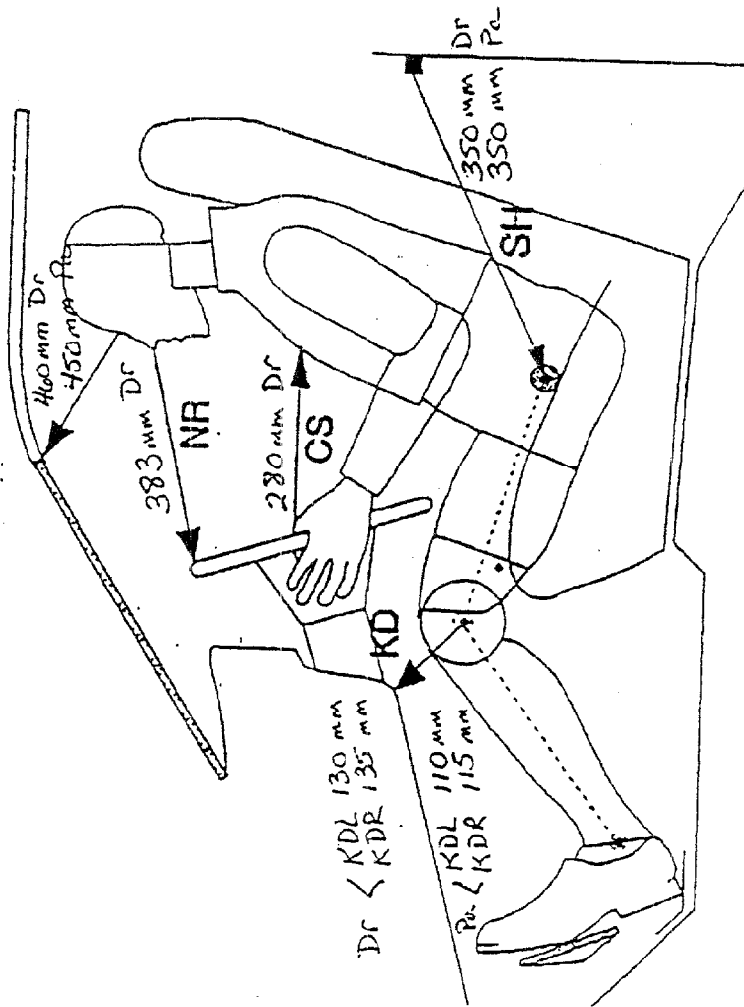
After any collision, inspect the following components as indicated. If you detect any damage, replace the component. If you detect any damage to the mounting points or mounting hardware, repair the component or replace the hardware as needed.

- Steering column—Perform the "Checking Steering Column for Accident Damage" procedures. Refer to **SECTION 3F**.
- I/P Knee Bolsters—Inspect the knee bolsters for bending, twisting, buckling, or any other type of damage.
- I/P brackets, braces, etc.—Inspect for bending, twisting, buckling, or any other type of damage.
- Seat Belts—Perform the "Operational and Functional Checks—Seat Belts". Refer to **SECTION 10-11**.

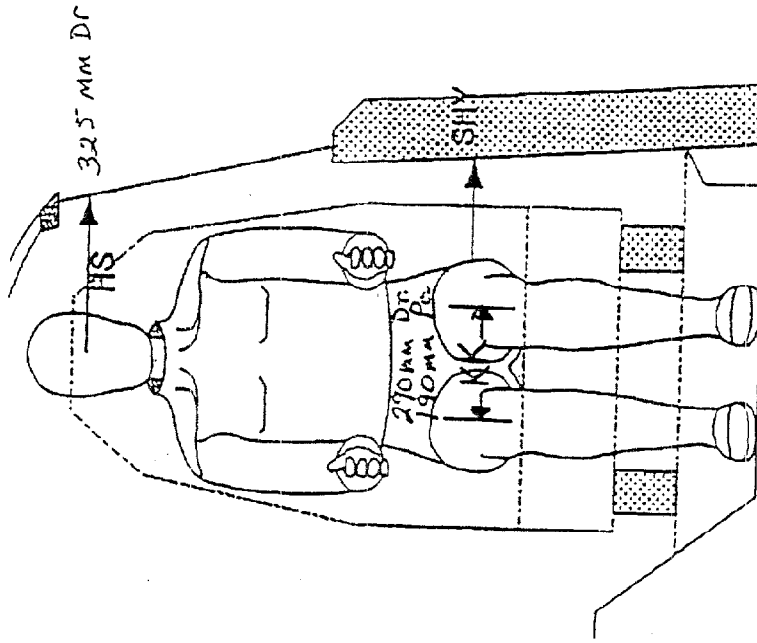
Accident With Air Bag Deployment—Component Replacement and Inspections

After a collision involving air bag deployment, replace the following components. If you detect any damage to the mounting points or mounting hardware, repair or replace the mounting points and mounting hardware as needed.

- The inflatable restraint I/P (inflator) module.
- The inflatable restraint steering wheel (inflator) module.



HH - Head to Header
 NR - Nose to R/m
 CS - Steering Wheel to Chest
 KD - Knee to Dash
 SH - Striker to H-Point



SHY - Striker to H-Point (Y Dir.)
 HS - Head to Slide Window

TEST VEHICLE INFORMATION

Vehicle Model Year & Make: 1999 Chevrolet Venture

Vehicle Model & Body Style: Mini van (all models)

1. 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. Indicate, if applicable, how the detents are numbered (Is the first detent "0" or "1"?). Indicate if the seat back angle is measured with the dummy in the seat.

Seat back angle for driver's seat = 22 degrees.

Measurement Instructions:

Adjust the recliner 14° from the full forward position.

An inclinometer placed on the seat back within 200mm of

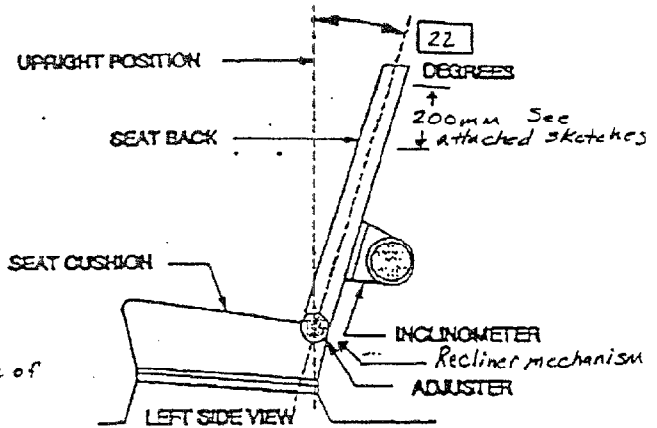
the top of the seat back frame should read 23.1°.

Note: Notches on the inner + outer plates of the recliner mechanism should be aligned (cut or lift trim if necessary).

Seat back angle for passenger's seat = 22 degrees.

Measurement Instructions:

Same as driver



2. SEAT FORE & AFT POSITIONS --

Provide instructions for positioning the driver and front outboard passenger seat(s) in the center of fore and aft travel. For example, indicate how the detents are numbered (Is the first detent "0" or "1"?). Provide information to locate the detent in which the seat track is to be locked.

Positioning of the driver's seat:

For 4-way manual - Position the seat 8 detents rearward of full forward

(first detent is "0") at mid-point of fore/aft seat travel. The up/down

adjuster should be positioned full down.

Positioning of the passenger's seat (if applicable):

For 2-way manual - Position the seat 8 detents rearward of full

forward (first detent is "0") at mid-point of fore/aft seat travel.

Rev. 7/11/94

TEST VEHICLE INFORMATION

Vehicle Model Year & Make: 1999 Chevrolet Venture
 Vehicle Model & Body Style: Minivan (all models)

1. 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. Indicate, if applicable, how the detents are numbered (Is the first detent "0" or "1"?). Indicate if the seat back angle is measured with the dummy in the seat.

Seat back angle for driver's seat = 22 degrees.

Measurement Instructions:

Adjust the recliner 14° from the full forward position.

An inclinometer placed on the seat back within 200mm of

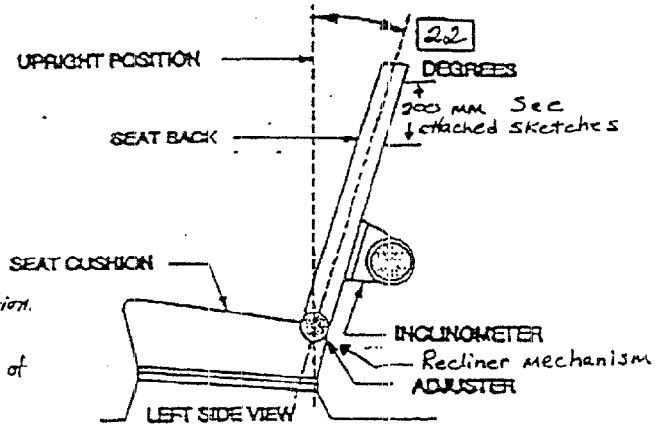
the top of the seat back frame should read 23.1°.

Note: Notches on the inner & outer plates of the recliner mechanism should be aligned (cut or lift trim if necessary).

Seat back angle for passenger's seat = 22 degrees.

Measurement Instructions:

Same as driver



2. SEAT FORE & AFT POSITIONS --

Provide instructions for positioning the driver and front outboard passenger seat(s) in the center of fore and aft travel. For example, indicate how the detents are numbered (Is the first detent "0" or "1"?). Provide information to locate the detent in which the seat track is to be locked.

Positioning of the driver's seat:

For 6-way power seat - Using only the center button, position the seat at the mid-point of fore/aft travel and lower the seat to the full down position.

Positioning of the passenger's seat (if applicable):

For 6-way power seat - Using only the center button, position the seat at the mid-point of fore/aft travel and lower the seat to the full down position.

Rev. 7/11/94

TEST VEHICLE INFORMATION

Vehicle Model Year & Make: 1999 Chevrolet Venture

Vehicle Model & Body Style: Minivan (all models with built-in child seats)

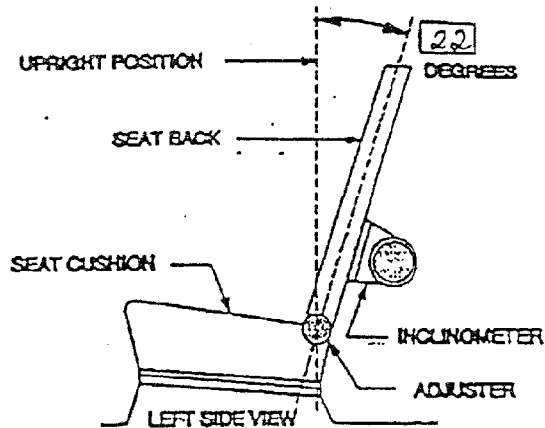
1. NOMINAL DESIGN RIDING POSITION -- BUILT-IN CHILD SEAT

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. Indicate, if applicable, how the detents are numbered (Is the first detent "0" or "1"?). Indicate if the seat back angle is measured with the dummy in the seat.

Seat back angle for driver's seat = degrees.

Measurement Instructions:



Seat back angle for ^(built-in child seat) passenger's seat = 22 degrees.

Measurement Instructions:

Adjust the recliner 6° from full forward (3 notches)

2. SEAT FORE & AFT POSITIONS --

Provide instructions for positioning the driver and front outboard passenger seat(s) in the center of fore and aft travel. For example, indicate how the detents are numbered (Is the first detent "0" or "1"?). Provide information to locate the detent in which the seat track is to be locked.

Positioning of the driver's seat:

Positioning of the passenger's seat (if applicable):

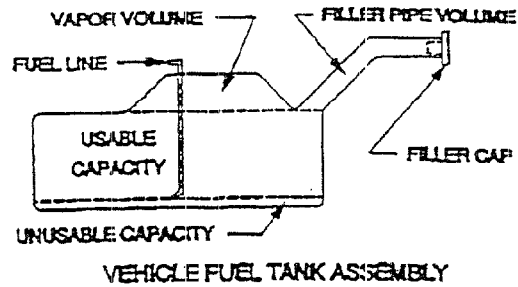
For 2nd row built-in child seats (all) - Position the seat at the mid-point of the fore/aft track travel.

Rev. 7/11/94

3. FUEL TANK CAPACITY DATA --

- 3.1 A. "Usable Capacity" of ^{SHORT WHEEL BASE} ~~standard equipment~~ fuel tank = 20 gallons.
- B. "Usable Capacity" of ^{LONG WHEEL BASE} ~~optional equipment~~ fuel tank = 25 gallons.
- C. "Usable Capacity" of vehicle(s) used for certification testing to requirements of FMVSS 301 = 20 gallons. (for SWB)
25 gal. (for LWB)

Operational Instructions:



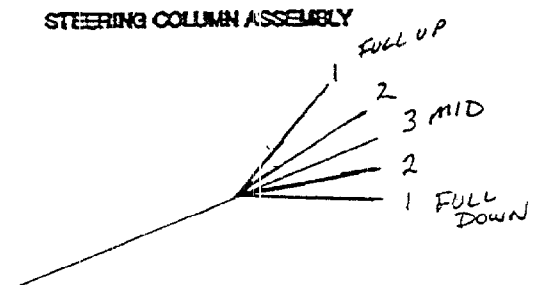
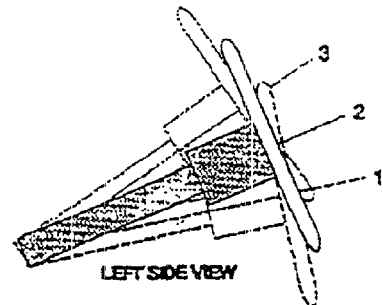
- 3.2 Amount of Stoddard solvent added to vehicle(s) used for certification test(s) = 19 gallons (for SWB)
23.75 gal (for LWB)
- 3.3 Is vehicle equipped with electric fuel pump? ☒ YES ☐ NO
 If YES, explain the vehicle operating conditions under which the fuel pump will pump fuel.
1. IGNITION KEY 'ON' - Fuel pump runs a min. of 2 seconds + stops.
2. ENGINE RUNNING - Fuel pump continuous cycle.

4. STEERING COLUMN ADJUSTMENTS --

Steering wheel and column adjustments are made so that the steering wheel hub is at the geometric center of the locus it describes when it is moved through its full range of driving positions. If the tested vehicle has any of these adjustments, does your company use any specific procedures to determine the geometric center.

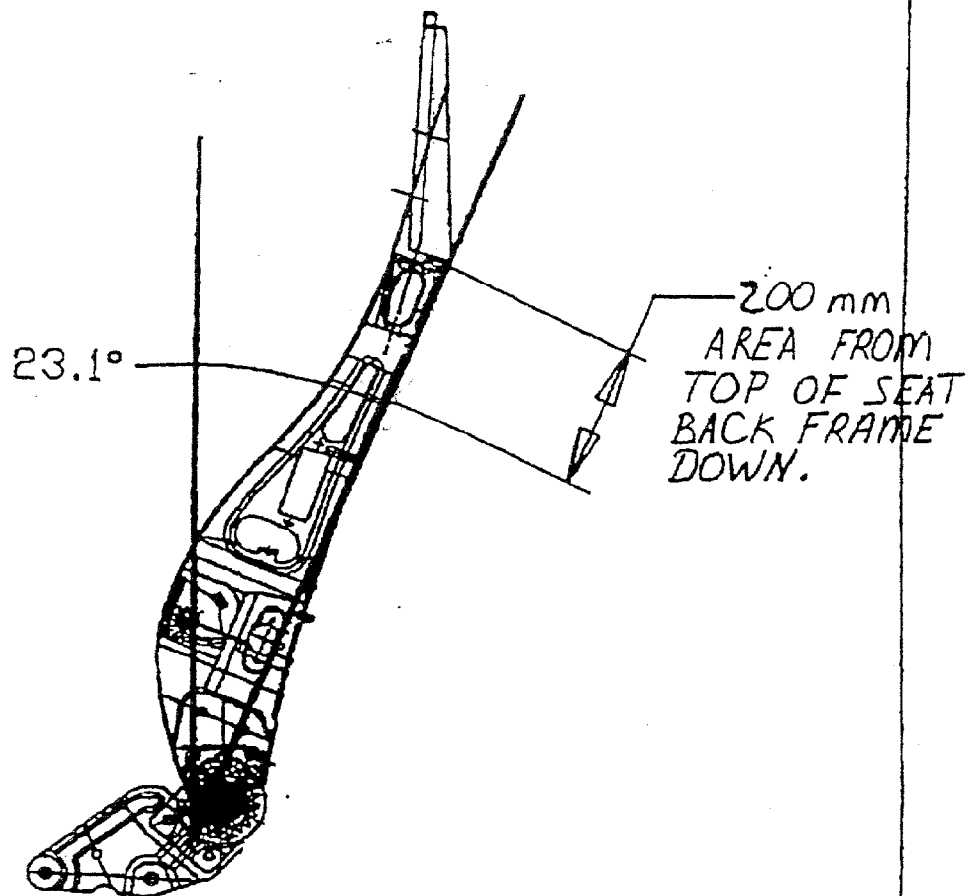
Operational Instructions:

FMVSS 208 testing was conducted
with the steering wheel adjusted
to the 3rd position from full up or
full down. As a check, an
inclinometer placed on a level laid
across the wheel should read
28° ± 1.5°



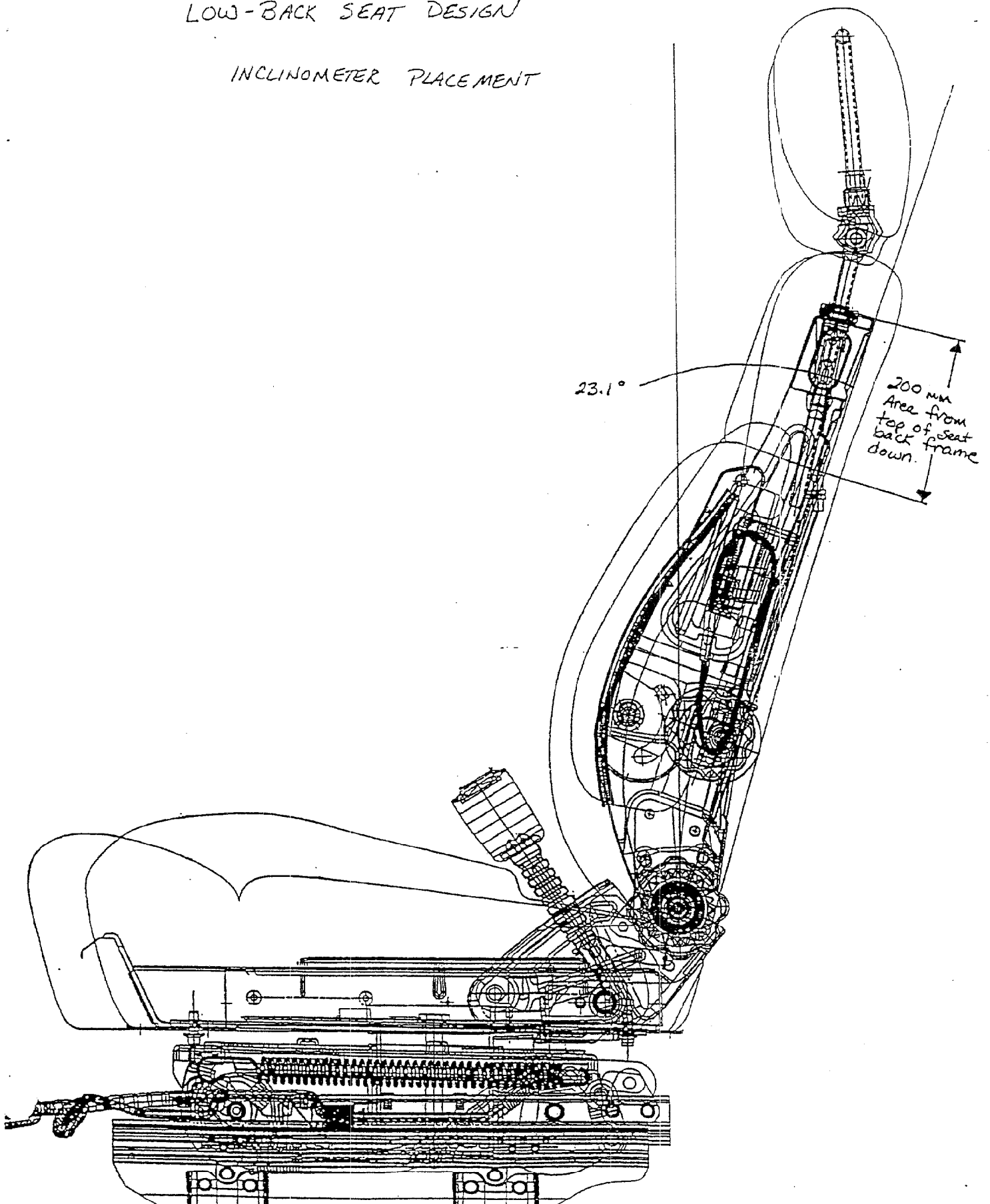
HIGH-BACK SEAT DESIGN

INCLINOMETER PLACEMENT

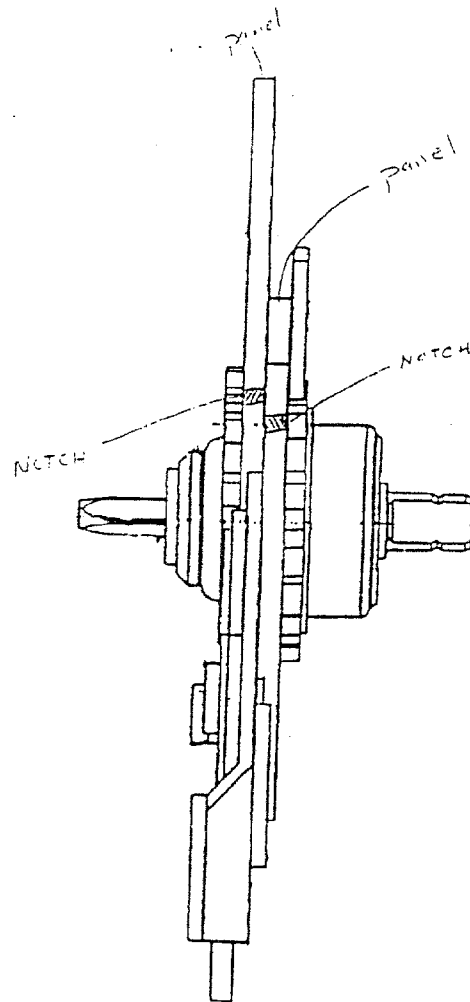


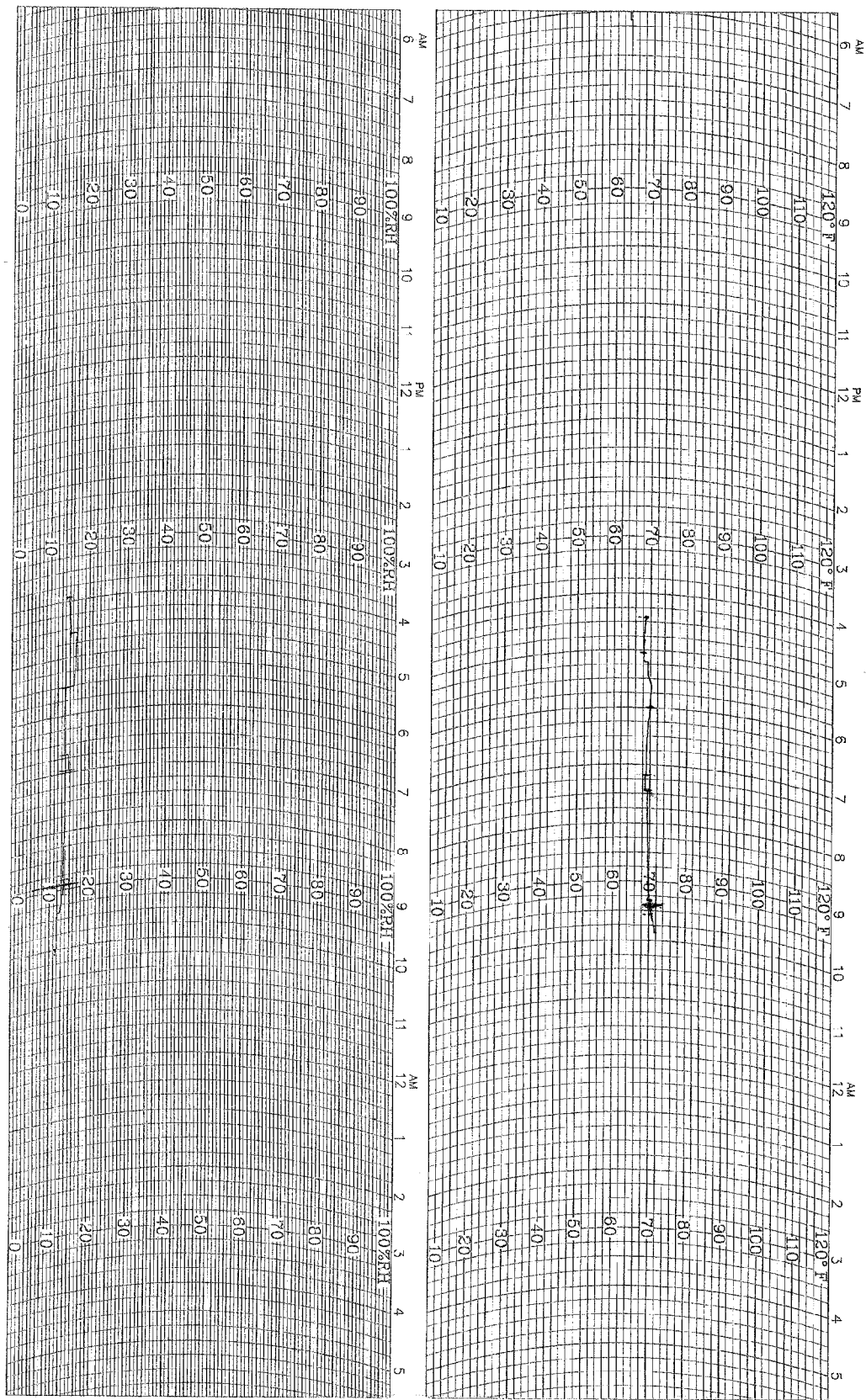
LOW-BACK SEAT DESIGN

INCLINOMETER PLACEMENT



Rear View of Redimer Mechanism





Weather Measure
WEATHERtronics
 Division of QUALMETRICS, Inc.

P.O. BOX 41039
 SACRAMENTO, CA 95841
 PHONE: (916) 923-0055

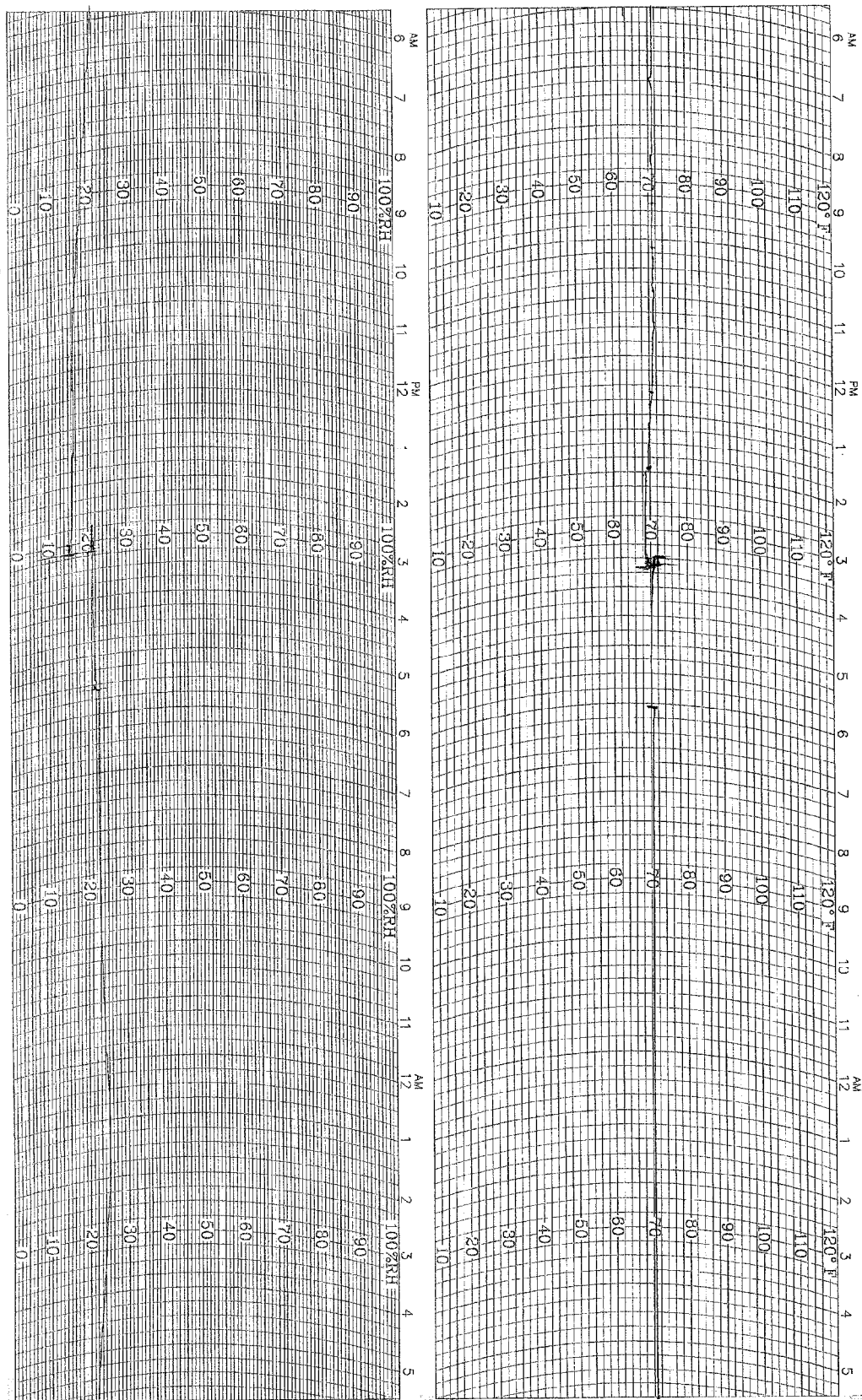
HYGROTHERMOGRAPH
 1 DAY

CHART NO. M699123
 C311-D-HF
 ECN 2717
 6-9-87

STATION _____

DATE ON 1/13/99

DATE OFF _____



WeatherMeasure
WEATHERtronics
 Division of QUALIMETRICS, Inc.

P.O. BOX 41039
 SACRAMENTO, CA 95841
 PHONE: (916) 923-0055

HYGROTHERMOGRAPH
1 DAY

CHART NO. M699123
 C311-D-HF
 EGN 2717
 6-9-87

STATION _____ DATE ON _____ DATE OFF _____

Appendix A

Photographs