Report Number: 208S-TRC-00-001

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

DaimlerChrysler Corporation
2000 Dodge Caravan Minivan
NHTSA Number: CY0303
TRC Test Number: 000222S

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

Test Date: February 22, 2000
Report Date: March 7, 2000

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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Technical Report Documentation Page

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15. Supplemental Notes
None

16. Abstract

An FMVSS 208 Section 13 compliance sled test was conducted on a 2000 Dodge Caravan Minivan, NHTSA No. CY0303, in accordance with the specifications of the Office of Vehicle Safety Compliance Test Procedure No. TP208S-01 for the determination of FMVSS 208 compliance. Possible test failures identified were as follows:

All seating positions for belt contact force.

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Purpose

This Federal Motor Vehicle safety Standard (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 2000 Dodge Caravan Minivan, NHTSA No. CY0303, 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 sled test vehicle was instrumented with six (6) accelerometers to measure longitudinal axis accelerations.

The sled 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 (40) 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 February 22, 2000.

The test vehicle, a 2000 Dodge Caravan Minivan, NHTSA No. CY0303, does appear 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	291	470
Chest g	60 g	38.1	36.4
Chest Displacement	3 inches	2.4	0.9
Left Femur	2250 lb	975	1145
Right Femur	2250 lb	1458	1744
Neck Extension	57 Nm	14.5	9.1
Neck Flexion	190 Nm	51.7	44.5
Neck Tension	3300 N	1459	1838
Neck Compression	4000 N	1433	2157
Neck Shear	3100 N	522	782

The subject vehicle, a 2000 Dodge Caravan Minivan, NHTSA No. CY0303, 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 sled 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 17.5 g with an integrated velocity change of 29.2 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 21.4 ms after the 0.5 g acceleration level was indicated.

Data Acquisition Explanations

The measured velocity, SLDXV, from the light trap vane attached to the sled has recorded an anomaly in the peak acceleration, believed to be caused by a seam in the velocity vane.

Sled Test Summary

NHTSA number:	CY0303
Test type:	FMVSS 208 Compliance Sled Test
Test date:	02/22/00
Test time:	15:20
Ambient temperature at impact area:	71° F
Vehicle year/make/ model/body style:	2000/Dodge/Caravan/Minivan

Dummy Info:	Driver #314	Passenger #230
Type:	Part 572 E	Part 572 E
Location:	Left front	Right front
Restraint:	Airbag	Airbag
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:	No apparent failure	No apparent failure
Seat back failure:	No apparent failure	No apparent failure

Visible Dummy Contact Points:		
Head:	Airbag, windshield, sun visor/headliner, and headrest	Airbag, windshield, sun visor/headliner
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 for the Sled Test Vehicle

Test Vehicle Information:

Vehicle year/make/ model/body style:	2000/Dodge/Caravan/Minivan			
Color:	Bright White			
VIN:	2B4-FP25B2YR-534160			
NHTSA number:	CY0303			
Engine data:				
Placement:	Transverse/Lateral			
Cylinders:	4			
Displacement:	2.4 liters			
Transmission data:	_3_ speed,	___manual,	_X_ automatic,	___overdrive
Final drive:	_X_ fwd,	___rwd,	___4wd	
Date vehicle received:	12/20/99			
Odometer reading:	189			
Dealer's name and address:	Jeff Wyler 100 Alexander Pike Fort Thomas, KY 41075			

Major Options:

Power steering	Yes	Other: Rear window wiper/washer/defogger,
Power brakes	Yes	roof rack, seven passenger seating
Power windows	No	
Air conditioning	Yes	
Power door locks	No	

Remarks: None

General Test and Vehicle Parameter Data for the Sled Test Vehicle, Cont'd.

Data from Vehicle's Certification Label:

Vehicle manufactured by:		DaimlerChrysler Corporation
Date of manufacture:		08/99
VIN:		2B4-FP25B2YR-534160
GVWR:		5000 lbs
GAWR:	Front:	2650 lbs
	Rear:	2600 lbs

Data from Vehicle's Tire Placard:

Tire pressure with maximum capacity vehicle load:

Front:	35 psi
Rear:	35 psi
Recommended tire size:	P205/75R14
Load range:	1532 lbs

Recommended cold tire pressure:

Front:	35 psi
Rear:	35 psi
Size of tires on vehicle:	P205/75R14
Spare tire:	Compact

Vehicle capacity data:

Type of front seats:	Bucket
Number of occupants:	
Front	2
Rear	5
Total	7

Remarks:

General Test and Vehicle Parameter Data for the Sled Test Vehicle, Cont'd.

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

Right front	1090	lbs	Right rear	750	lbs
Left front	980	lbs	Left rear	730	lbs
Total front weight	2070	lbs	(58% of total vehicle weight)		
Total rear weight	1480	lbs	(42% of total vehicle weight)		
Total delivered weight	3550	lbs			

Calculation of test vehicle's target test weight:

RCLW[1] = Rated Cargo and Luggage Weight

UDW = Unloaded Delivered Weight (3550 lbs)

VCW = Vehicle Capacity Weight = 1150 lbs

DSC = Designated Seating Capacity (7)

RCLW[1] = VCW - 150 (DSC) = 1150 - 150 (7) = 100 lbs

Target test weight = UDW + RCLW[1] + (Number of Hybrid III dummies x 167 lbs per dummy)

Target test weight = 3550 + 100 + 334 = 3984 lbs

Weight of test vehicle with two dummies and 300 lbs of cargo weight:[2]

Right front	1100	lbs	Right rear	974	lbs
Left front	1160	lbs	Left rear	950	lbs
Total front weight	2260	lbs	(54% of total vehicle weight)		
Total rear weight	1924	lbs	(46% of total vehicle weight)		
Total test weight	4184	lbs			

Remarks:

Weight of ballast secured in vehicle cargo area: None

Components removed to meet target test weight: None

[1] Cargo weight for multi-purpose passenger vehicles, trucks, and buses is the vehicle's rated cargo and luggage weight from the vehicle's label or 300 pounds, whichever is less.
[2] 300 lbs of cargo weight was used instead of 100 lbs which could have affected the fully loaded sill angle.

General Test and Vehicle Parameter Data for the Sled Test Vehicle, Cont'd.

Test Vehicle Attitude:

As delivered door sill angle: 1.5° Nose down

As tested door sill angle: 1.1° Nose down

Fully loaded door sill angle: 1.0° Nose down

Vehicle Wheelbase: 114 inches

Fuel System Data:

Fuel system capacity from owner's manual: 20 gallons

Useable capacity figure furnished by COTR: 20 gallons

Remarks: Roll angle measurements are within 1 inch. Left and right side measurements are 28.4 inches.

Post-Impact Data

Test number:	000222S
NHTSA number:	CY0303
Test date:	02/22/00
Test time:	15:20
Test type:	FMVSS 208 Compliance Sled Test
Impact angle:	0°
Ambient temperature at impact area:	71° F
Temperature in occupant compartment:	71° F

Sled carriage velocity:

Integrated velocity from the integration of the entire sled acceleration:	29.2 mph
Measured velocity from the light trap device attached to the sled (backup)[1]:	30.6 mph
Specified integrated velocity range:	28 to 30 mph

Sled carriage acceleration:

Acceleration:	17.5 g
Specified acceleration range:	16.0 g - 18.2 g

Sled carriage acceleration duration:

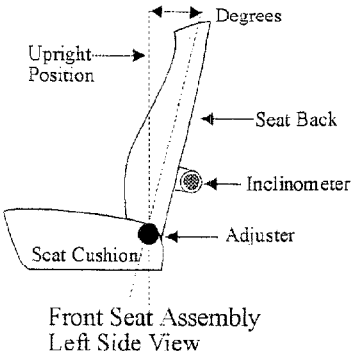
Time from T-0(-0.5 g) to 0.0 g:	124.3 msec
Specified acceleration duration:	120.0 - 130.0 msec

The sled acceleration curve was within the specified corridor.

[1] See Data Acquisition Explanations page 4.

Seat and Steering Column Positioning Data

Vehicle: 2000 Dodge/Caravan/Minivan NHTSA No.: CY0303



Front Seat Assembly
Left Side View

Nominal Design Riding Position:

Driver Seat: Seat Back Angle = 22.3°

Passenger Seat: Seat Back Angle = 23.6°

Seat Fore and Aft Positions:

Driver Seat: The seat track was positioned midway between the forwardmost and the rearmost position.

Passenger: The seat track was positioned midway between the forwardmost and the rearmost position.

Steering Column Adjustments:

The steering column was not adjustable.

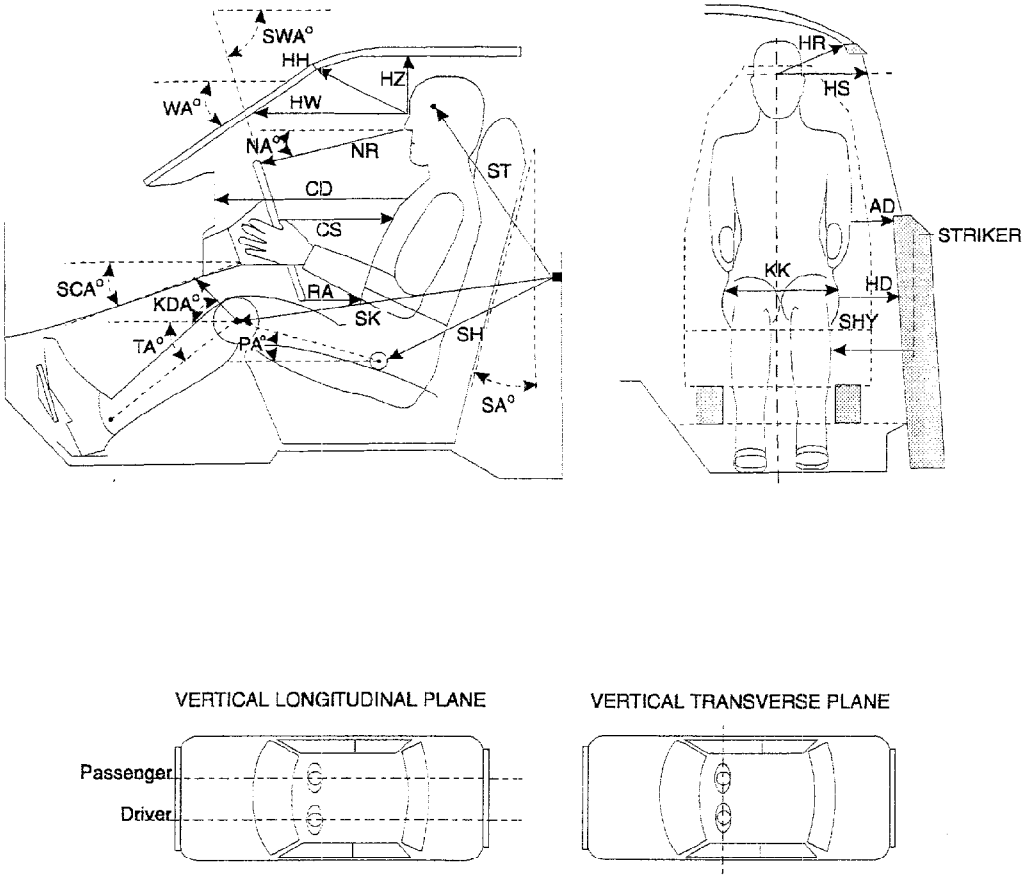
Dummy Measurement Data for Front Seat Occupants

Designation	Type of Measurement	Driver (Serial #314)	Passenger (Serial #230)
WA	Windshield angle	29.3°	N/A
SWA	Steering wheel angle	28.6°	N/A
SCA	Steering column angle	30.0°	N/A
SA	Seat back angle	22.3°	23.6°
HZ	Head to roof	8.0 in	7.5 in
HH	Head to header	13.6 in	13.9 in
HW	Head to windshield	24.8 in	21.5 in
HR	Head to side header	8.7 in	8.2 in
NR	Nose to rim	15.9 in	N/A
NA	Nose to rim angle	14.0°	N/A
CD	Chest to dash	22.2 in	22.3 in
CS	Steering wheel to chest	8.35 in	N/A
RA	Rim to abdomen	6.5 in	N/A
KDL	Left knee to dash	7.5 in	6.4 in
KDR	Right knee to dash	7.4 in	6.3 in
KDA	Outboard knee to dash angle	11.0°	20.0°
PA	Pelvic angle	22.7°	23.8°
TA	Tibial angle	54.4°	51.0°
KK	Knee to knee	10.7 in	10.3 in
ST[1]	Striker to head	26.1 in	26.2 in
	Striker to head angle	79.0°	80.2°
SK[1]	Striker to knee	24.9 in	26.0 in
	Striker to knee angle	7.3°	6.5°
SH[1]	Striker to H-point	9.4 in	10.5 in
	Striker to H-point angle	-4.9°	-0.2°
SHY	Striker to H-point (Y dir.)	10.2 in	8.4 in
HS	Head to side window	13.5 in	13.5 in
HD	H-point to door	6.1 in	5.2 in
AD	Arm to door	6.0 in	5.3 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 Steering Wheel to Chest, taken from the center of the steering wheel hub to the dummy's chest. Use a level.

* CD 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.

* Measurement used in Data Tape Reference Guide

[1] Only outboard measurement is referenced in Data Tape Reference Guide

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 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.

* Measurement used in Data Tape Reference Guide

Descriptions of Dummy Measurements, Cont'd.

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.

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.

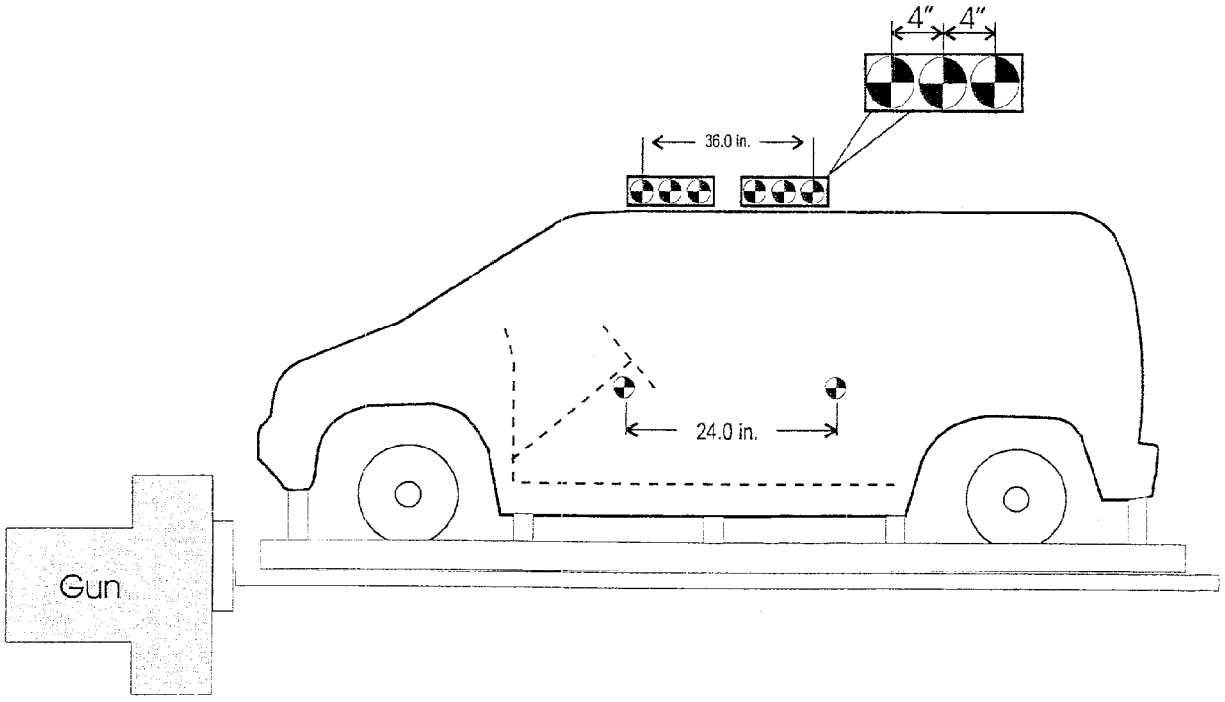
NA Measure the angle made when taking the measurement NR with respect to the horizontal.

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).

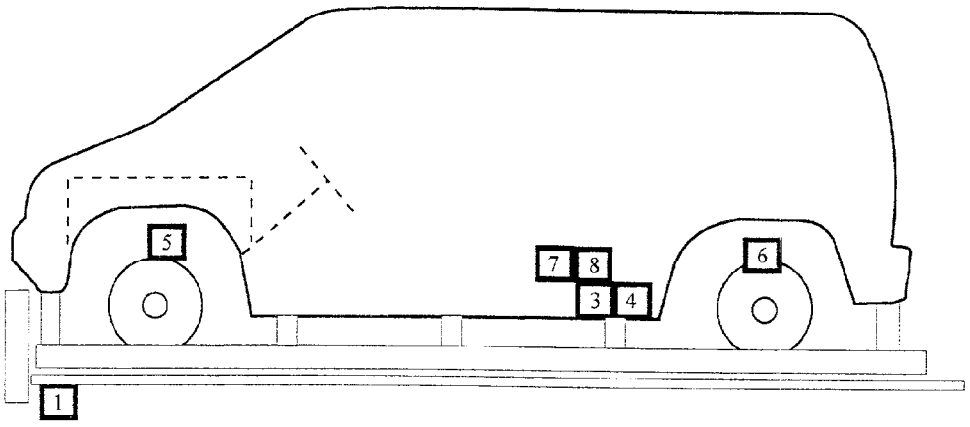
TA Tibial Angle, use a straight edge to connect the dummy's knee and ankle bolts. Then place an inclinometer on the straight edge and measure the angle with respect to the horizontal.

REFERENCE PHOTO TARGETS

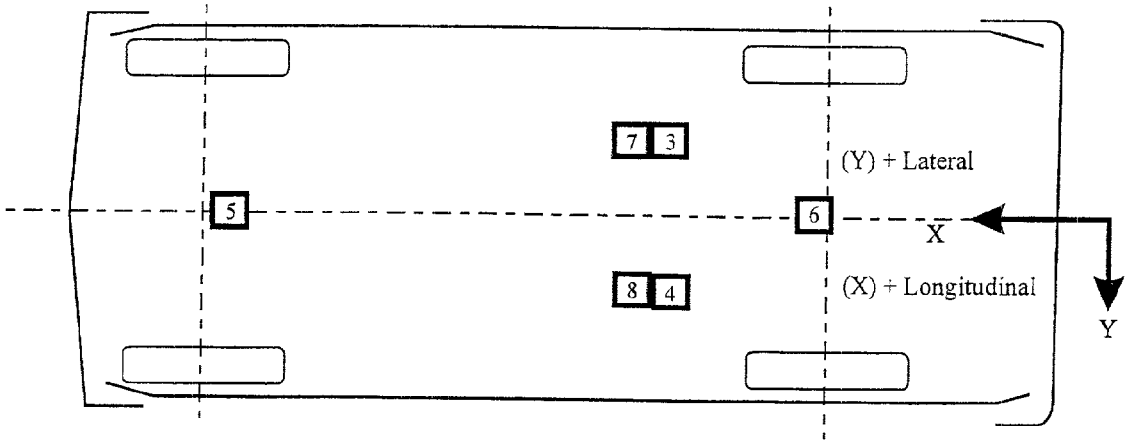


LEFT SIDE VIEW

Vehicle Accelerometer Placement



Side View



Bottom View

Vehicle Data Summary and Accelerometer Locations

TEST NUMBER: 000222S No. LOCATION	X	Y	Z	POSITIVE DIRECTION		NEGATIVE DIRECTION	
1 SLED ACCELERATION	175.6 in	-1.0 in	NA				
PRIMARY				0.7 g	@ 157.7 ms	17.5 g	@ 58.4 ms
REDUNDANT				1.7 g	@ 126.2 ms	19.1 g	@ 64.9 ms
2 SLED VELOCITY	NA	NA	NA				
MEASURED				0.0 mph	@ 7.7 ms	30.6 mph	@ 157.2 ms
INTEGRATED				0.0 mph	@ 7.7 ms	29.2 mph	@ 124.2 ms
3 LEFT REAR SEAT CROSSMEMBER	57.6 in	-12.1 in	NA				
LONGITUDINAL				1.7 g	@ 129.4 ms	18.3 g	@ 55.6 ms
4 RIGHT REAR SEAT CROSSMEMBER	57.4 in	11.8 in	NA				
LONGITUDINAL				1.5 g	@ 128.7 ms	18.2 g	@ 56.7 ms
5 BOTTOM ENGINE	158.6 in	7.2 in	NA				
LONGITUDINAL				5.2 g	@ 136.7 ms	20.4 g	@ 58.8 ms
6 REAR AXLE	36.7 in	0.0 in	NA				
LONGITUDINAL				1.4 g	@ 128.4 ms	17.9 g	@ 56.9 ms
7 LEFT VEHICLE FRAME	57.7 in	-17.2 in	NA				
LONGITUDINAL				1.6 g	@ 129.1 ms	18.3 g	@ 55.8 ms

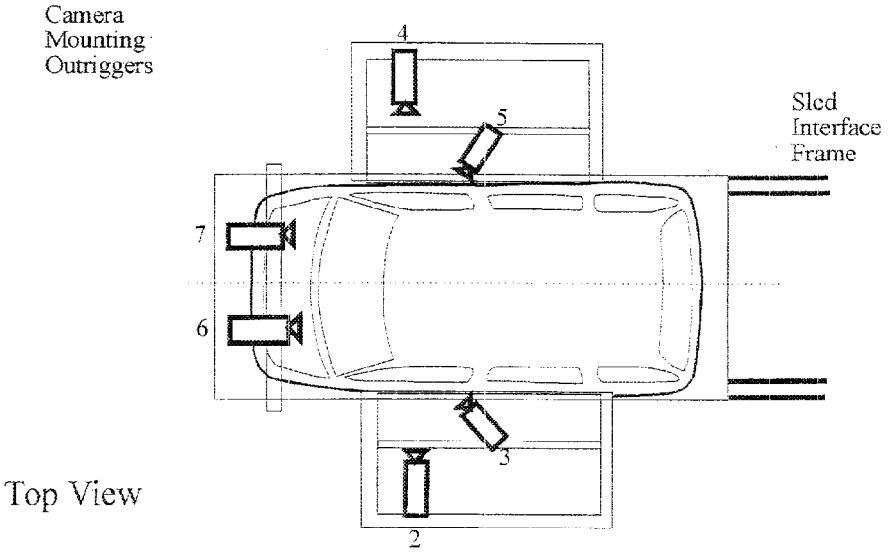
Vehicle Data Summary and Accelerometer Locations, Cont'd.

TEST NUMBER: 000222S

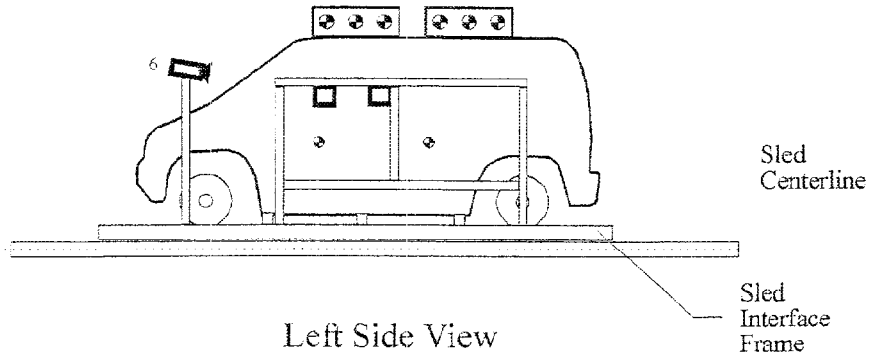
No.	LOCATION	X	Y	Z	POSITIVE DIRECTION	NEGATIVE DIRECTION
8	RIGHT VEHICLE FRAME LONGITUDINAL	57.4 in	17.0 in	NA	1.3 g @ 128.7 ms	18.0 g @ 54.1 ms
9	DRIVER AIRBAG EVENT	NA	NA	NA	1.0 volt @ 21.4 ms	--- ---
10	PASSENGER AIRBAG EVENT	NA	NA	NA	1.0 volt @ 21.4 ms	--- ---

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

Camera Positions



Camera Frame Rates:
#1 = 24 fps
All Others = 1,000 fp



Motion Picture Camera Locations

Vehicle year/make/model/body style: 2000/Dodge/Caravan/Minivan NHTSA No. CY0303 Test Number: 000222S

Camera Number	View	Camera Positions[1] X	Y	Z	Camera Angle[2]	Film Plane to Head Target	Camera Lens	Film Speed
1	Left side view offboard	84.0 in	306.9 in	60.0 in	0	282.0 in	10 mm	24 frames/s
2	Left side view wide	70.8 in	72.4 in	50.3 in	1.9°	55.4 in	8 mm	1000 frames/s
3	Left side view over shoulder	98.1 in	50.0 in	61.8 in	14.1°	34.8 in	8 mm	1000 frames/s
4	Right side view wide	71.1 in	91.5 in	50.5 in	1.2°	73.6 in	8 mm	997 frames/s
5	Right side view over shoulder	99.5 in	49.7 in	60.0 in	11.9°	34.6 in	8 mm	980 frames/s
6	Front view - driver	27.2 in	16.3 in	57.0 in	7.0°	53.9 in	8 mm	1007 frames/s
7	Front view - passenger	27.8 in	16.0 in	57.2 in	8.1°	54.5 in	8 mm	1000 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: 2000/Dodge/Caravan/Minivan NHTSA NO.: CY0303 Date: 02/22/00

Maximum Acceleration Values: (g's)	Driver Dummy #314	Passenger Dummy #230
Head Channel X	-42.3	-61.3
Head Channel Y	9.0	-55.0
Head Channel Z	23.8	-97.4
HEAD RESULTANT	47.3	113.6
Chest Channel X	-38.3	-34.5
Chest Channel Y	3.3	-2.0
Chest Channel Z	12.9	21.2
CHEST RESULTANT	39.3	39.2

Head Injury Criteria (HIC) Values:

HIC	291	470
t_1 = (msec)	86.6	99.6
t_2 = (msec)	122.6	129.2

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

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

CLIP	38.1	36.4
t^1 = (msec)	102.6	101.0
t^2 = (msec)	105.6	104.1
Chest Deflection (in)	2.4	0.9

FMVSS 208 Occupant Injury Data, Cont'd.

Vehicle: 2000/Dodge/Caravan/Minivan NHTSA NO.: CY0303 Date: 02/22/00

Units (lbs)

Max. Compressive Femur Forces:	Driver Dummy #314	Passenger Dummy #230
Left Side (lbs)	975.0	1145.0
Right Side (lbs)	1458.0	1744.0

Neck Injury Criteria:	Driver Dummy #314	Passenger Dummy #230
Peak Flexion Bending Moment (N-m)	51.7	44.5
Peak Extension Bending Moment (N-m)	14.5	9.1
Peak Axial Tension (N)	1459.2	1837.6
Peak Axial Compression (N)	1432.9	2157.2
Peak Fore Shear (N)	521.9	782.1
Peak Aft Shear (N)	255.1	286.1

FMVSS 208 SEAT BELT WARNING SYSTEM CHECK

Vehicle Model Year/Make/Model/Body Style: 2000/Dodge/Caravan/Minivan
NHTSA NO.: CY0303 Technician: R. Stoner Date: 02/22/00

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 = seconds
(4 to 8 seconds)

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

A.2 S7.3(a)(2)
Time duration of audible warning signal = 6 seconds
(4 to 8 seconds) (see 49 USCS @ 30124)

Time duration of reminder light operation = 6 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 = seconds
(audible warning should not operate)

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

B.2 S7.3(a)(2)
Time duration of audible warning signal = 0 seconds
(audible warning should not operate)

Time duration of reminder light operation = 6 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: 2000/Dodge/Caravan/Minivan
NHTSA NO.: CY0303 Technician: R. Stoner Date: 02/22/00

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: Upper right 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: 2000/Dodge/Caravan/Minivan
NHTSA NO.: CY0303 Technician: R. Stoner Date: 02/22/00

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 least 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 place 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

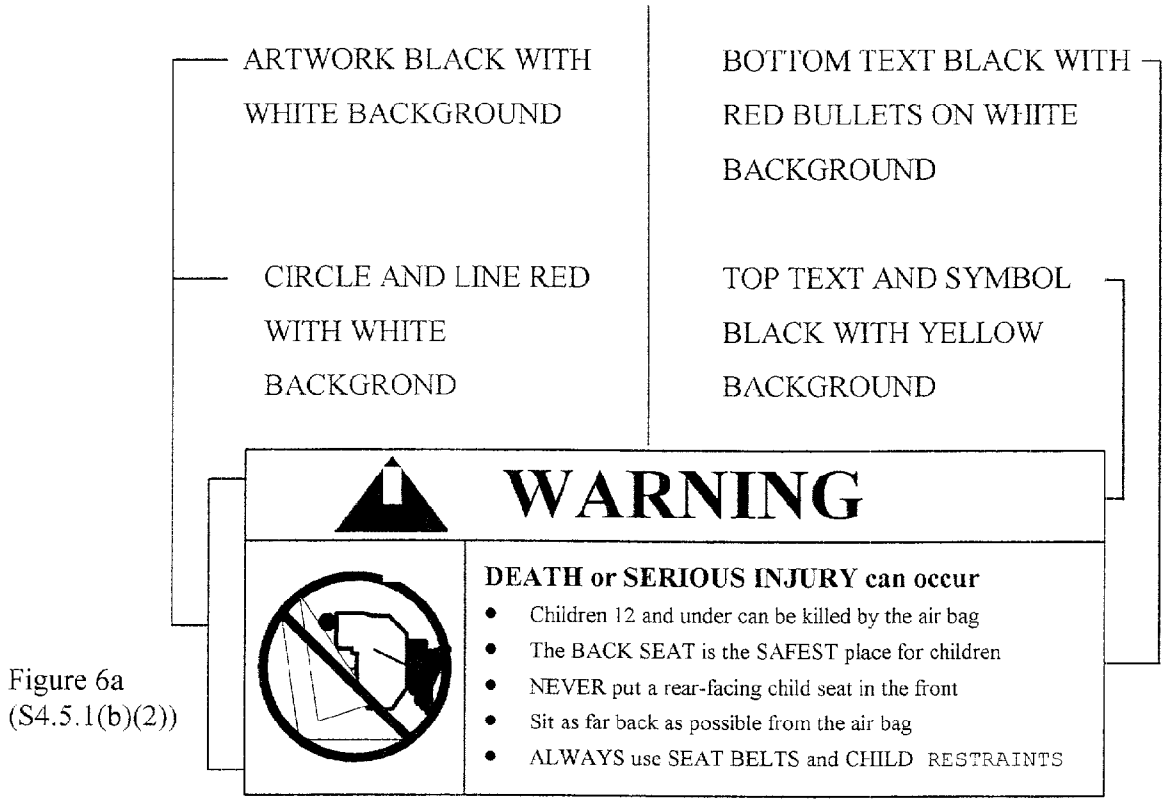


Figure 6a
(S4.5.1(b)(2))

SUN VISOR LABEL VISIBLE WHEN VISOR IS IN DOWN POSITION

LABEL OUTLINE, VERTICAL AND HORIZONTAL LINE BLACK

ARTWORK BLACK WITH WHITE BACKGROUND

BOTTOM TEXT BLACK WITH RED BULLETS ON WHITE BACKGROUND

CIRCLE AND LINE RED WITH WHITE BACKGROND

TOP TEXT AND SYMBOL BLACK WITH YELLOW BACKGROUND

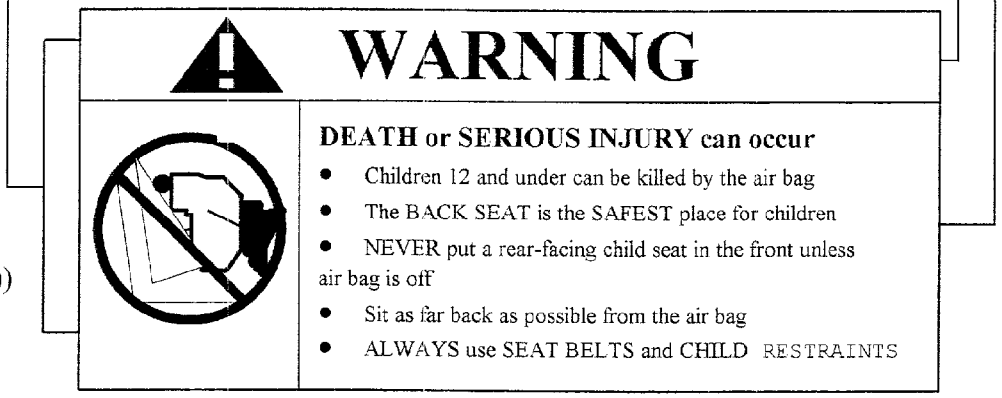


Figure 6b
(S4.5.1(b)(2))

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 cm^2? (S4.5.1(b)(2)(ii))

Actual message area **32.0** cm^2

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 **30.0** 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?

Driver ☒ Yes ☐ No Passenger ☒ 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**

SUN VISOR LABEL VISIBLE WHEN VISOR IS IN UP POSITION

Circle and Line Red with White Background

Artwork Black with White Background

Text Yellow with Black Background

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

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 cm^2? (S4.5.1(c)(2)(i))

Actual message area ___ cm^2 ☐ 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 ___ 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.

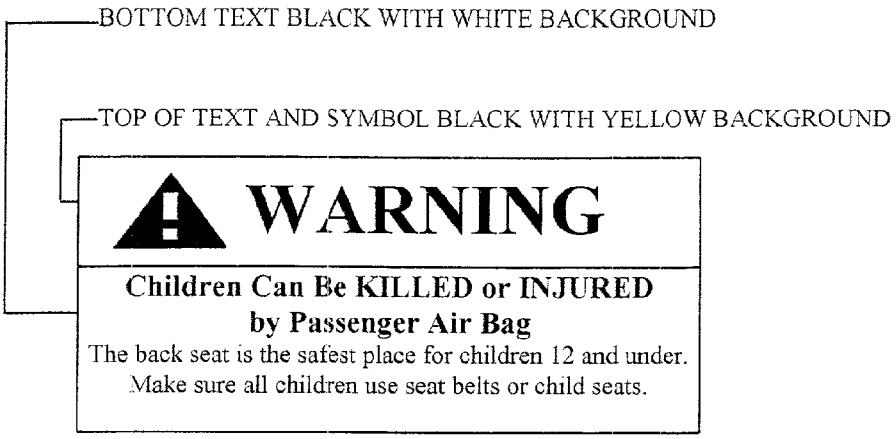
6.2 Does the vehicle have a label on the dash or steering wheel hub? (S4.5.1(e))

☒ 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(c)(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 cm^2? (S4.5.1(e)(ii))
Actual message area **33** cm^2 ☒ Yes-Pass ☐ **No-Fail**

FMVSS 208 REAR OUTBOARD SEATING POSITION SEAT BELTS

Vehicle Model Year/Make/Model/Body Style: 2000/Dodge/Caravan/Minivan
NHTSA NO.: CY0303 Technician: R. Stoner Date: 01/11/00

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, other than the driver's seat, 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: 2000/Dodge/Caravan/Minivan
NHTSA NO.: CY0303 Technician: R. Stoner & S. Phillips Date: 01/13/00

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 that 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: 2000/Dodge/Caravan/Minivan
NHTSA NO.: CY0303 Technician: R. Stoner & S. Phillips Date: 01/13/00

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 **70.75** 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 **10** 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 **46.75** inches.

FMVSS 208 Lap Belt Lockability, Cont'd.

Vehicle Model Year/Make/Model/Body Style: 2000/Dodge/Caravan/Minivan
NHTSA NO.: CY0303 Technician: R. Stoner & S. Phillips Date: 01/13/00

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 **25** lbs/sec (spec. 10 ~50 lb/sec)

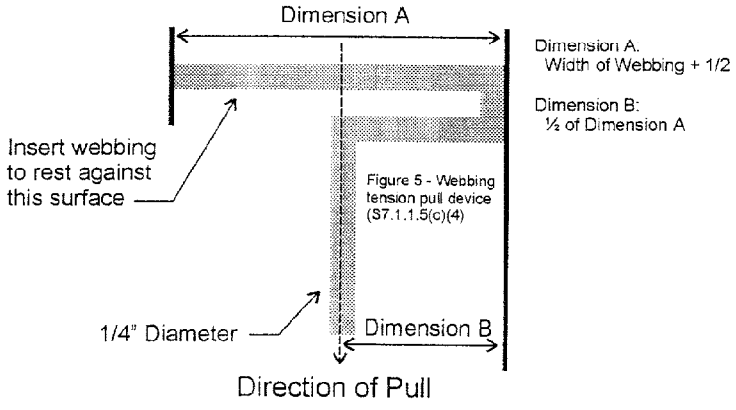
The measured distance between A and B is **47.5** inches (S7.1.1.5(c)(6))

☒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=**0.75** 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=**23.25** 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, other than the driver's seat, 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: 2000/Dodge/Caravan/Minivan
NHTSA NO.: CY0303 Technician: R. Stoner & S. Phillips Date: 01/13/00

DESIGNATED SEATING POSITION: Middle right outboard 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 that 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: 2000/Dodge/Caravan/Minivan
NHTSA NO.: CY0303 Technician: R. Stoner & S. Phillips Date: 01/13/00

DESIGNATED SEATING POSITION: Middle right outboard 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 **75.75** 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 **10** 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 **64.25** inches.

FMVSS 208 Lap Belt Lockability, Cont'd.

Vehicle Model Year/Make/Model/Body Style: 2000/Dodge/Caravan/Minivan
NHTSA NO.: CY0303 Technician: R. Stoner & S. Phillips Date: 01/13/00

DESIGNATED SEATING POSITION: Middle right outboard 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 **25** lbs/sec (spec. 10 ~50 lb/sec)

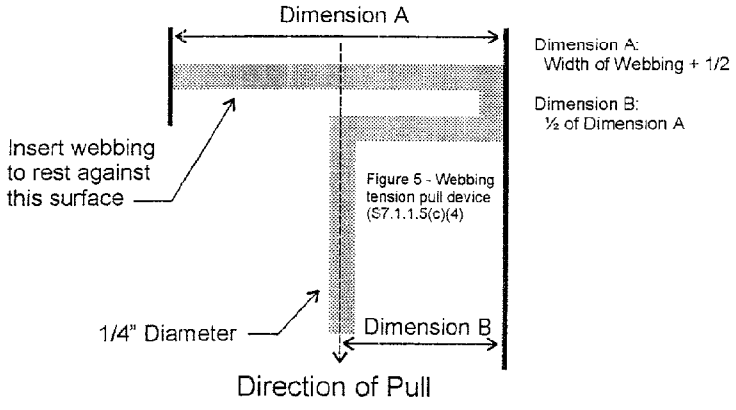
The measured distance between A and B is **64.75** inches (S7.1.1.5(c)(6))

☒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=**11.0** 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, other than the driver's seat, 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: 2000/Dodge/Caravan/Minivan
NHTSA NO.: CY0303 Technician: R. Stoner & S. Phillips Date: 01/13/00

DESIGNATED SEATING POSITION: Middle left outboard 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 that 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: 2000/Dodge/Caravan/Minivan
NHTSA NO.: CY0303 Technician: R. Stoner & S. Phillips Date: 01/13/00

DESIGNATED SEATING POSITION: Middle left outboard 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 **72.25** 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 **10** 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 **58.25** inches.

FMVSS 208 Lap Belt Lockability, Cont'd.

Vehicle Model Year/Make/Model/Body Style: 2000/Dodge/Rodeao/Minivan
NHTSA NO.: CY0303 Technician: R. Stoner & S. Phillips Date: 01/13/00

DESIGNATED SEATING POSITION: Middle left outboard 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 **25** lbs/sec (spec. 10 ~50 lb/sec)

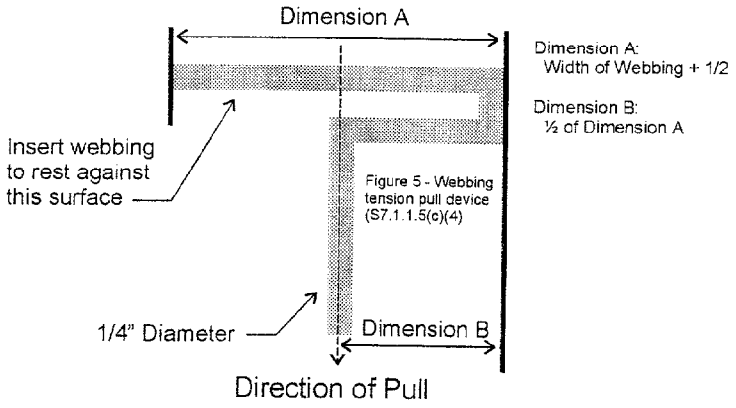
The measured distance between A and B is **58.50** inches (S7.1.1.5(c)(6))

☒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=**13.75** 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, other than the driver's seat, 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: 2000/Dodge/Caravan/Minivan
NHTSA NO.: CY0303 Technician: R. Stoner & S. Phillips Date: 01/13/00

DESIGNATED SEATING POSITION: Rear right 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 that 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: 2000/Dodge/Caravan/Minivan
NHTSA NO.: CY0303 Technician: R. Stoner & S. Phillips Date: 01/13/00

DESIGNATED SEATING POSITION: Rear right 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 **69.75** 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 **10** 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 **51.0** inches.

FMVSS 208 Lap Belt Lockability, Cont'd.

Vehicle Model Year/Make/Model/Body Style: 2000/Dodge/Caravan/Minivan
NHTSA NO.: CY0303 Technician: R. Stoner & S. Phillips Date: 01/13/00

DESIGNATED SEATING POSITION: Rear right 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 **25** lbs/sec (spec. 10 ~50 lbs/sec)

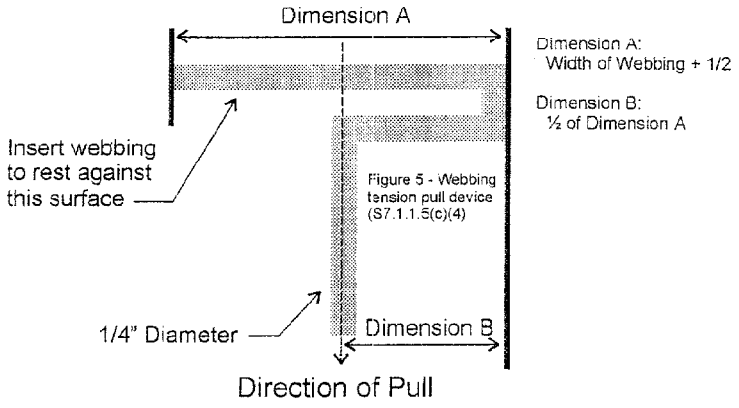
The measured distance between A and B is **51.25** inches (S7.1.1.5(c)(6))

☒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=**0.25** 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=**18.5** 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, other than the driver's seat, 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: 2000/Dodge/Caravan/Minivan
NHTSA NO.: CY0303 Technician: R. Stoner & S. Phillips Date: 01/13/00

DESIGNATED SEATING POSITION: Rear left 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 that 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: 2000/Dodge/Caravan/Minivan
NHTSA NO.: CY0303 Technician: R. Stoner & S. Phillips Date: 01/13/00

DESIGNATED SEATING POSITION: Rear left 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 **68.25** 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 **10** 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 **56.75** inches.

FMVSS 208 Lap Belt Lockability, Cont'd.

Vehicle Model Year/Make/Model/Body Style: 2000/Dodge/Rodeao/Minivan
NHTSA NO.: CY0303 Technician: R. Stoner & S. Phillips Date: 01/13/00

DESIGNATED SEATING POSITION: Rear left 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 **25** lbs/sec (spec. 10 ~50 lbs/sec)

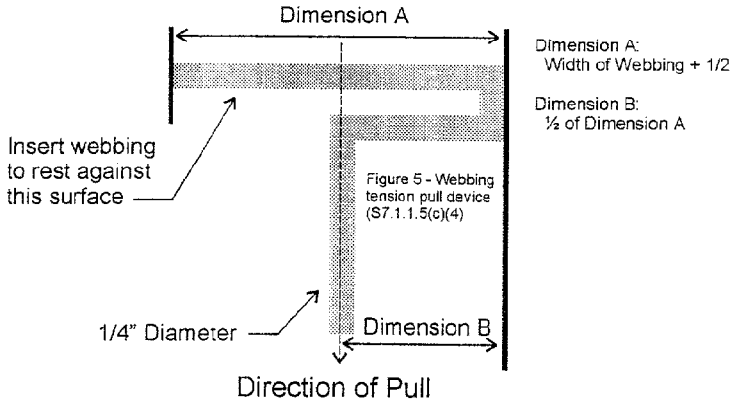
The measured distance between A and B is **57.0** inches (S7.1.1.5(c)(6))

☒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=**0.25** 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=**11.25** inches. ☒Yes-Pass ☐**No-Fail**



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

Test Vehicle NHTSA No.: CY0303
Vehicle Model Year/Make/Model/Body Style: 2000/Dodge/Caravan/Minivan
Designated Seating Position Tested: Driver
Date of Comfort and Convenience Check: 02/18/00
Technician Performing Check: R. Stoner & M. Tonneman
GVWR: 5000 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 **0.75** 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.: CY0303
Vehicle Model Year/Make/Model/Body Style: 2000/Dodge/Caravan/Minivan
Designated Seating Position Tested: Right front passenger
Date of Comfort and Convenience Check: 02/18/00
Technician Performing Check: R. Stoner & M. Tonneman
GVWR: 5000 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 **1.0** 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.: CY0303
Vehicle Model Year/Make/Model/Body Style: 2000/Dodge/Caravan/Minivan
Designated Seating Position Tested: Middle right passenger
Date of Comfort and Convenience Check: 02/18/00
Technician Performing Check: R. Stoner & M. Tonneman
GVWR: 5000 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 **0.84** 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.: CY0303
Vehicle Model Year/Make/Model/Body Style: 2000/Dodge/Caravan/Minivan
Designated Seating Position Tested: Middle left passenger
Date of Comfort and Convenience Check: 02/18/00
Technician Performing Check: R. Stoner & M. Tonneman
GVWR: 5000 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 **0.93** 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.: CY0303
Vehicle Model Year/Make/Model/Body Style: 2000/Dodge/Caravan/Minivan
Designated Seating Position Tested: Rear right passenger
Date of Comfort and Convenience Check: 02/18/00
Technician Performing Check: R. Stoner & M. Tonneman
GVWR: 5000 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 50^{th} 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 **1.0** 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.: CY0303
Vehicle Model Year/Make/Model/Body Style: 2000/Dodge/Caravan/Minivan
Designated Seating Position Tested: Rear left passenger
Date of Comfort and Convenience Check: 02/18/00
Technician Performing Check: R. Stoner & M. Tonneman
GVWR: 5000 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 **1.0** 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.: CY0303
Vehicle Model Year/Make/Model/Body Style: 2000/Dodge/Caravan/Minivan
Designated Seating Position Tested: Driver
Date of Comfort and Convenience Check: 01/12/00
Technician Performing Check: R. Stoner
GVWR: 5000 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.: CY0303
Vehicle Model Year/Make/Model/Body Style: 2000/Dodge/Caravan/Minivan
Designated Seating Position Tested: Right Front Passenger
Date of Comfort and Convenience Check: 01/12/00
Technician Performing Check: R. Stoner
GVWR: 5000 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.: CY0303
Vehicle Model Year/Make/Model/Body Style: 2000/Dodge/Caravan/Minivan
Designated Seating Position Tested: Driver
Date of Comfort and Convenience Check: 01/11/00
Technician Performing Check: R. Stoner
GVWR: 5000 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.: CY0303
Vehicle Model Year/Make/Model/Body Style: 2000/Dodge/Caravan/Minivan
Designated Seating Position Tested: Right Front Passenger
Date of Comfort and Convenience Check: 01/11/00
Technician Performing Check: R. Stoner
GVWR: 5000 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.
Seat Belt Guides And Hardware (S7.4.6)

Test Vehicle NHTSA No.: CY0303
Vehicle Model Year/Make/Model/Body Style: 2000/Dodge/Caravan/Minivan
Designated Seating Position Tested: Driver
Date of Comfort and Convenience Check: 01/11/00
Technician Performing Check: R. Stoner
GVWR: 5000 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.: CY0303
Vehicle Model Year/Make/Model/Body Style: 2000/Dodge/Caravan/Minivan
Designated Seating Position Tested: Right Front Passenger
Date of Comfort and Convenience Check: 01/11/00
Technician Performing Check: R. Stoner
GVWR: 4550 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

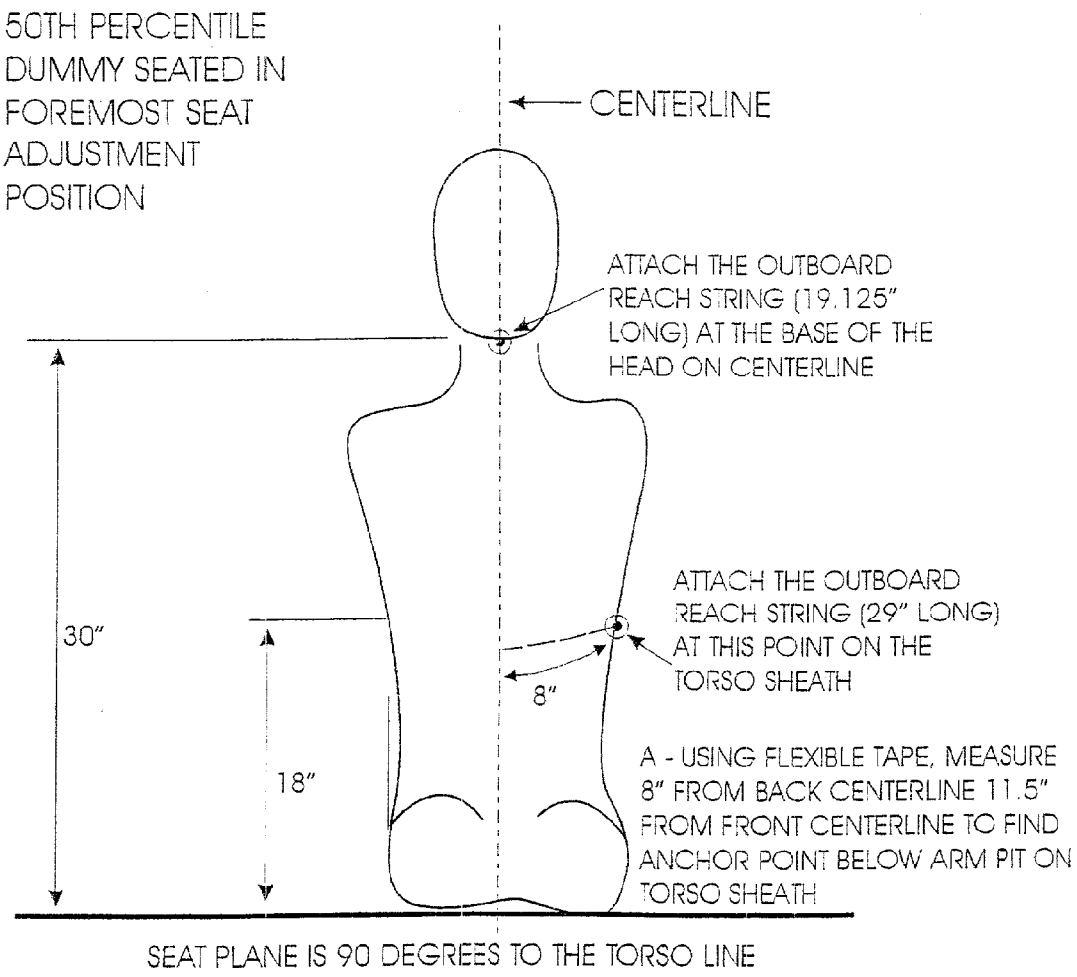
(C) The seat back, if foldable, is folded forward as far as possible and then moved backward into position. ☐ Check

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



REAR VIEW

Figure 1C

USE OF CLEARANCE TEST BLOCK TO DETERMINE HAND/ARM ACCESS

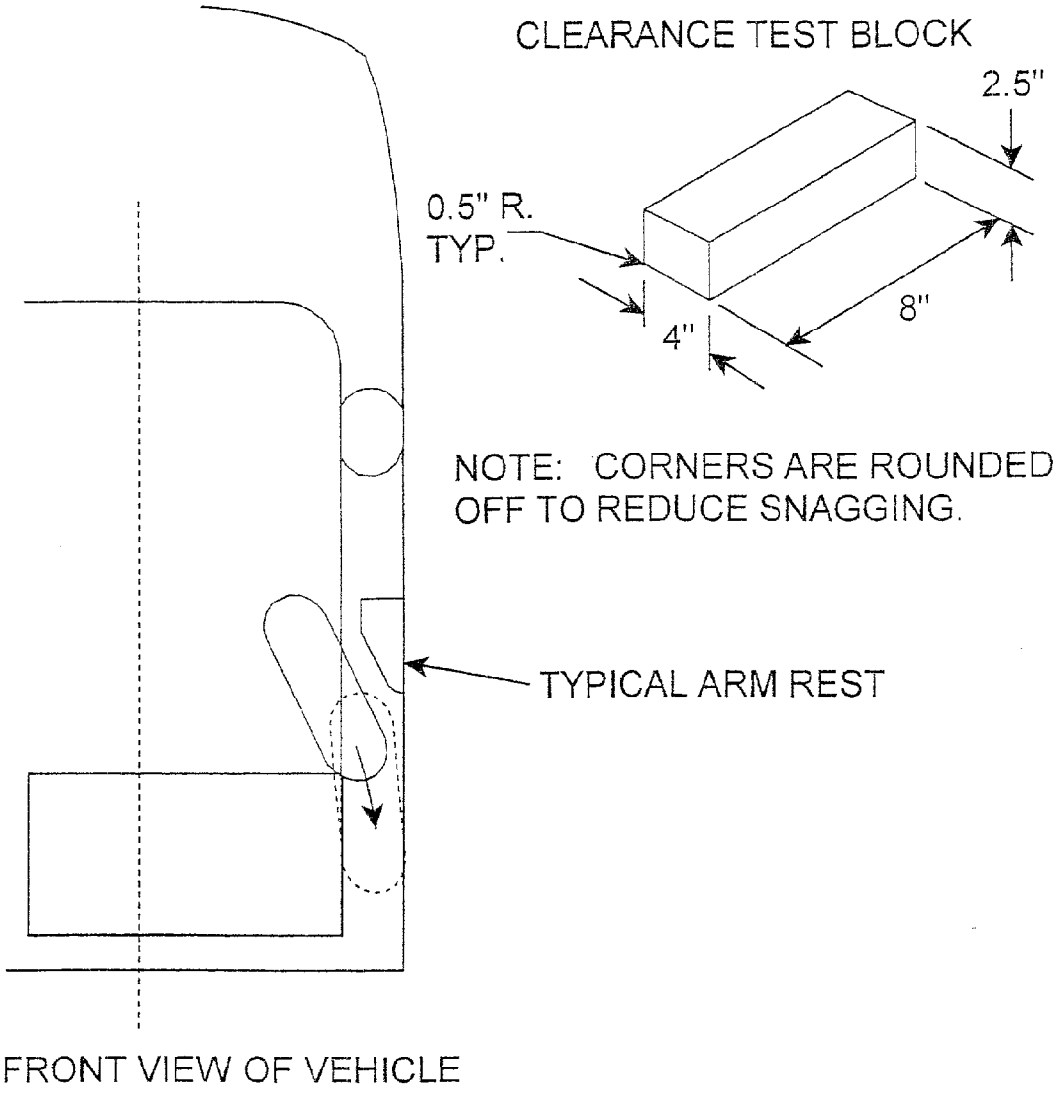


Figure 2C

Appendix A

Photographs

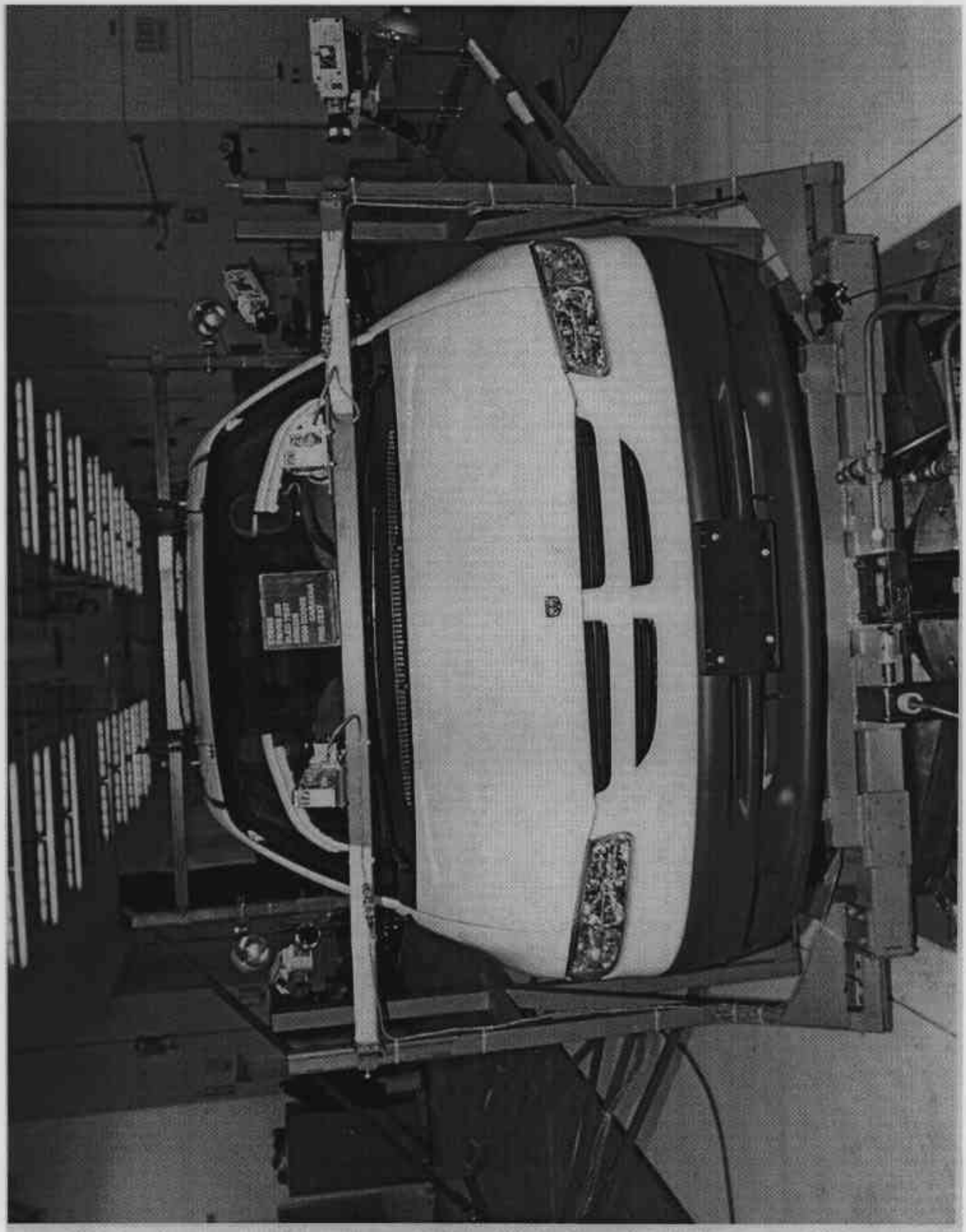


Figure A-1 Pre-Test Front View of Test Vehicle Mounted to Sled

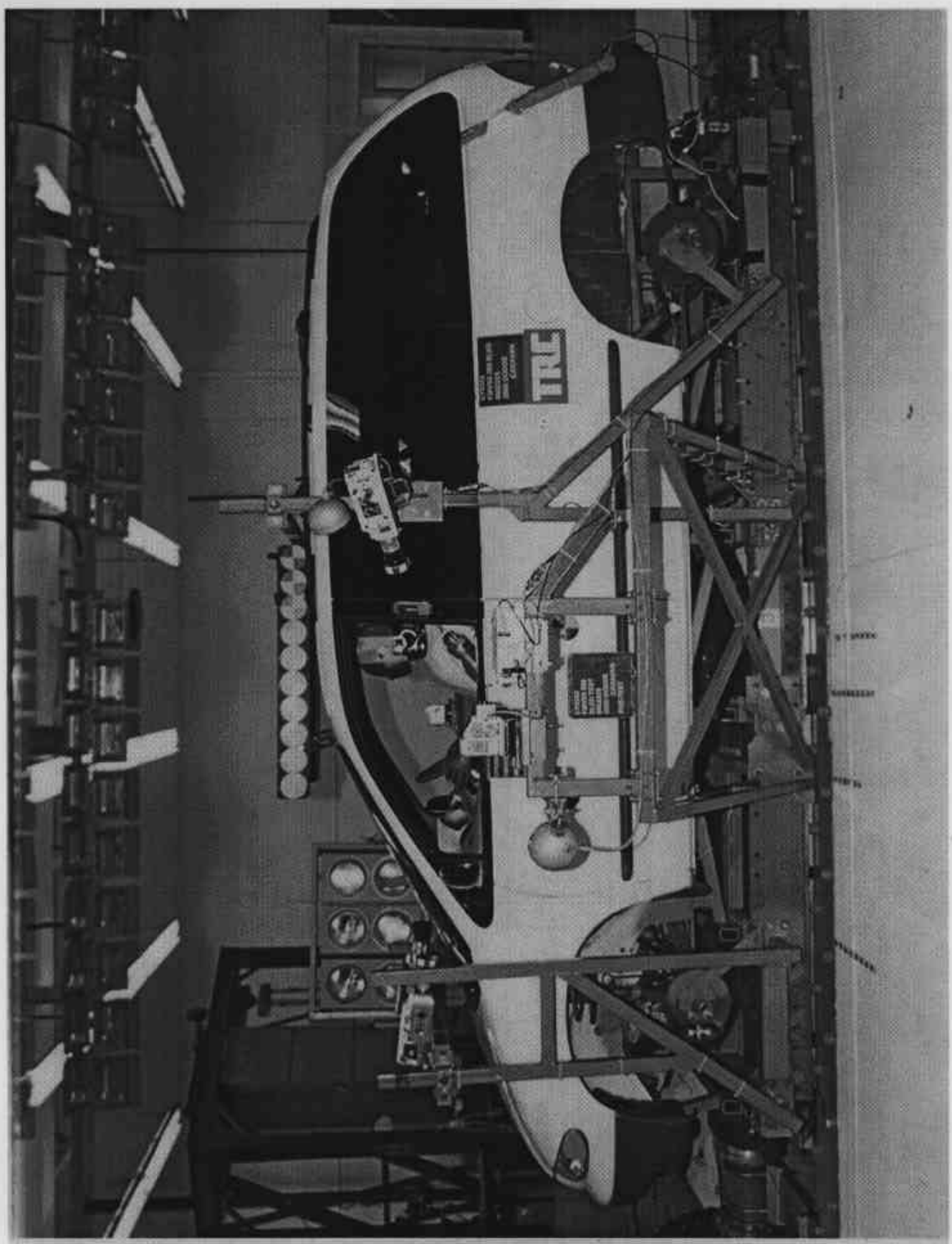


Figure A-2 Pre-Test Left Side View of Test Vehicle Mounted to Sled

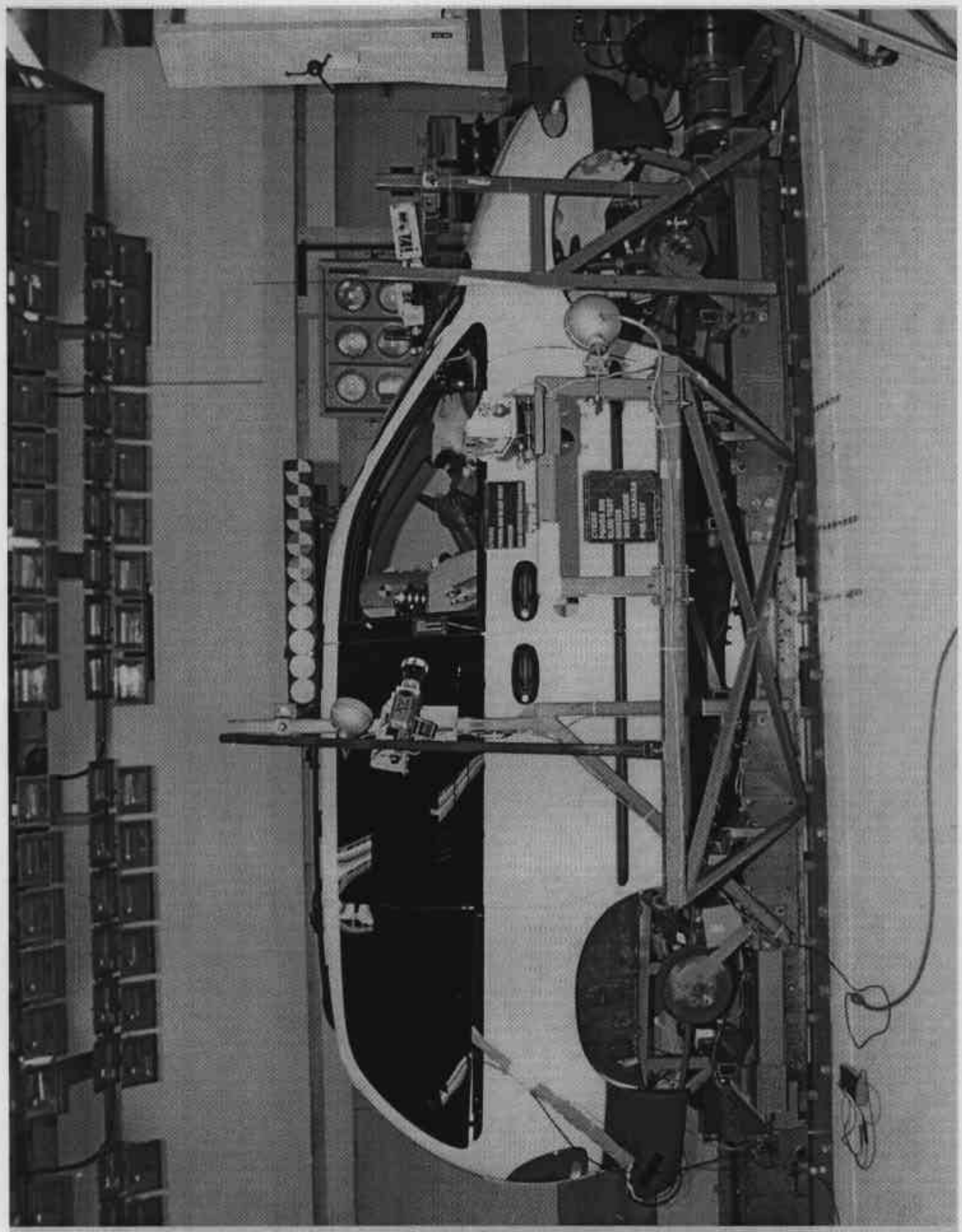


Figure A-3 Pre-Test Right Side View of Test Vehicle Mounted to Sled

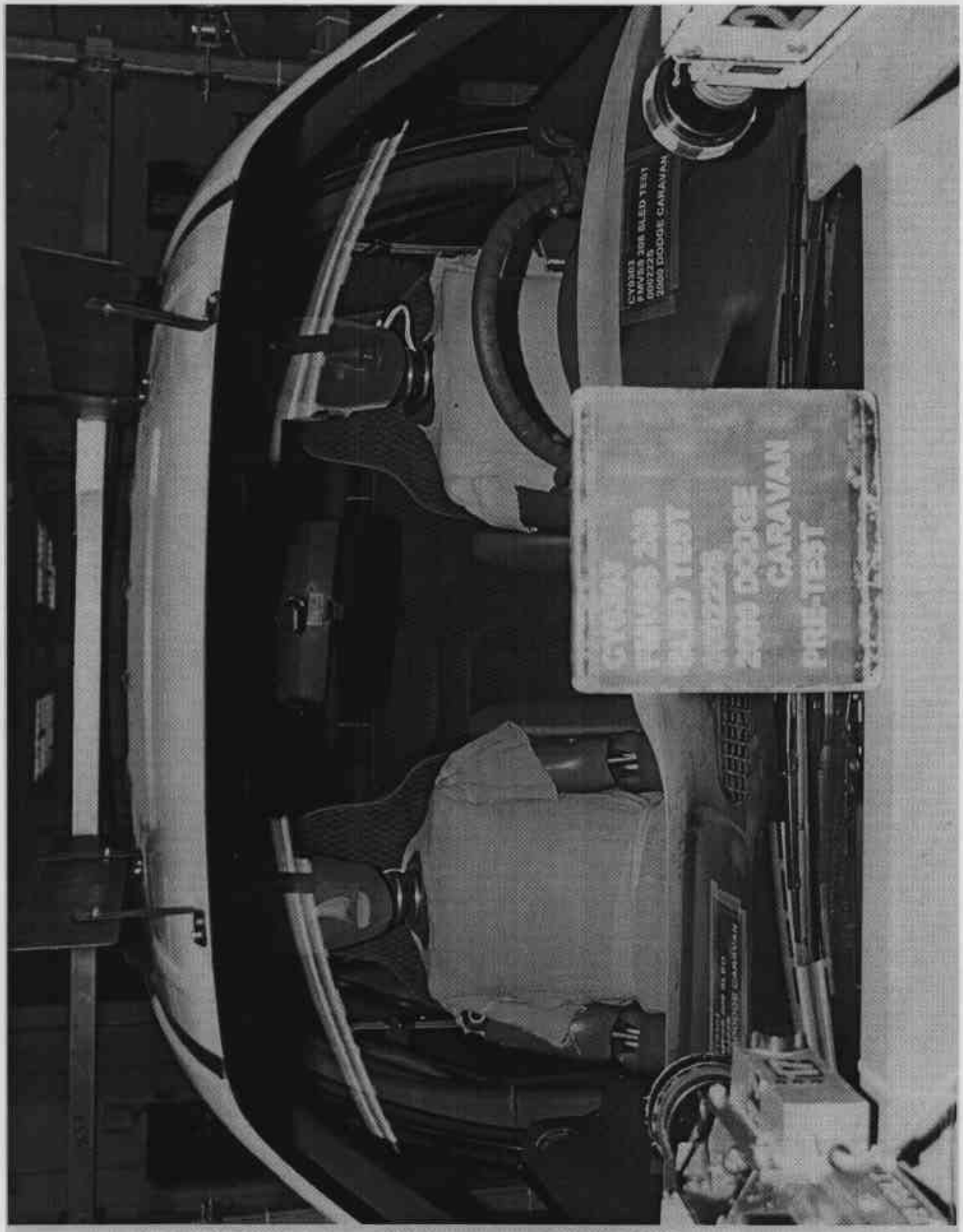


Figure A-4 Pre-Test Windshield View

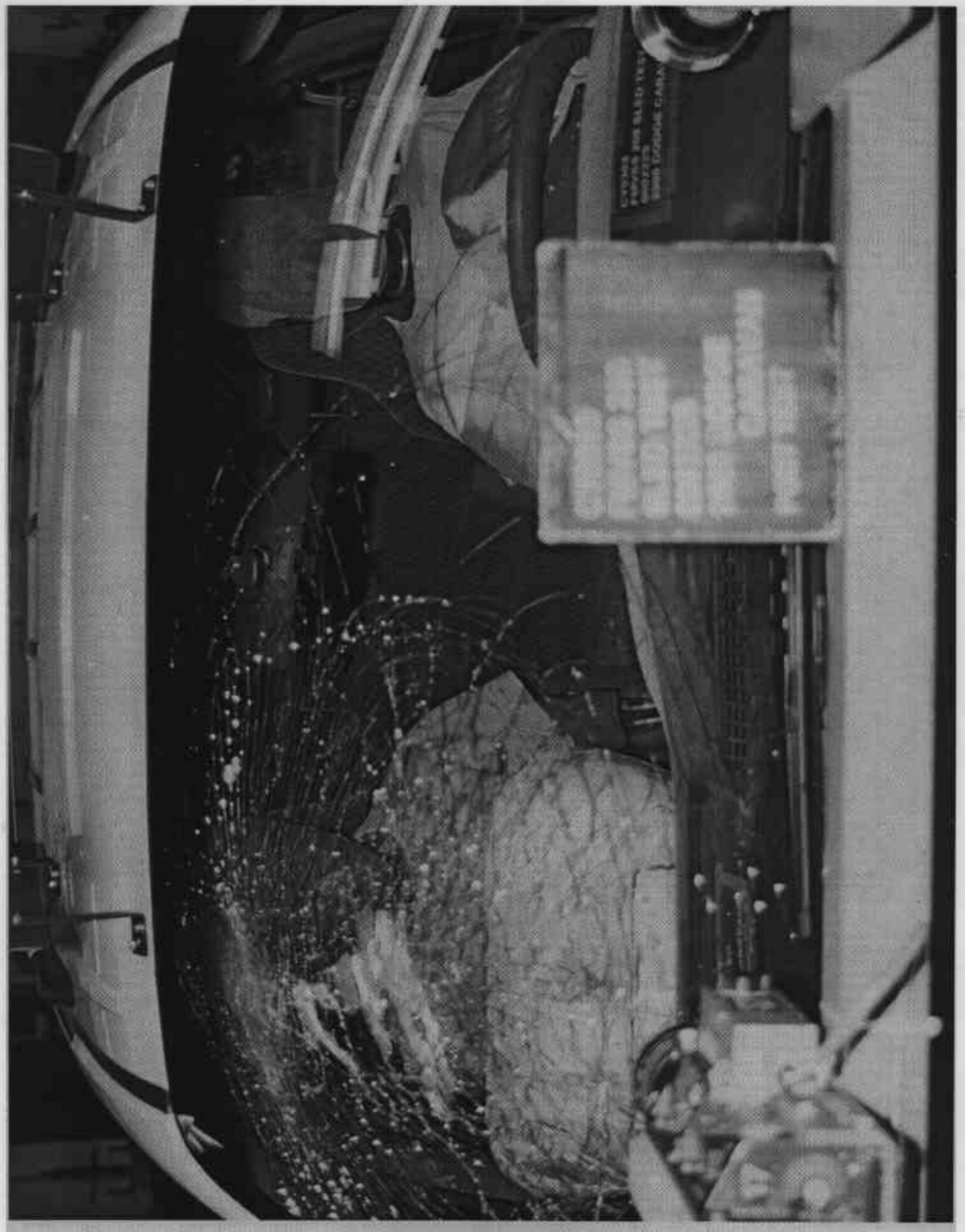


Figure A-5 Post-Test Windshield View

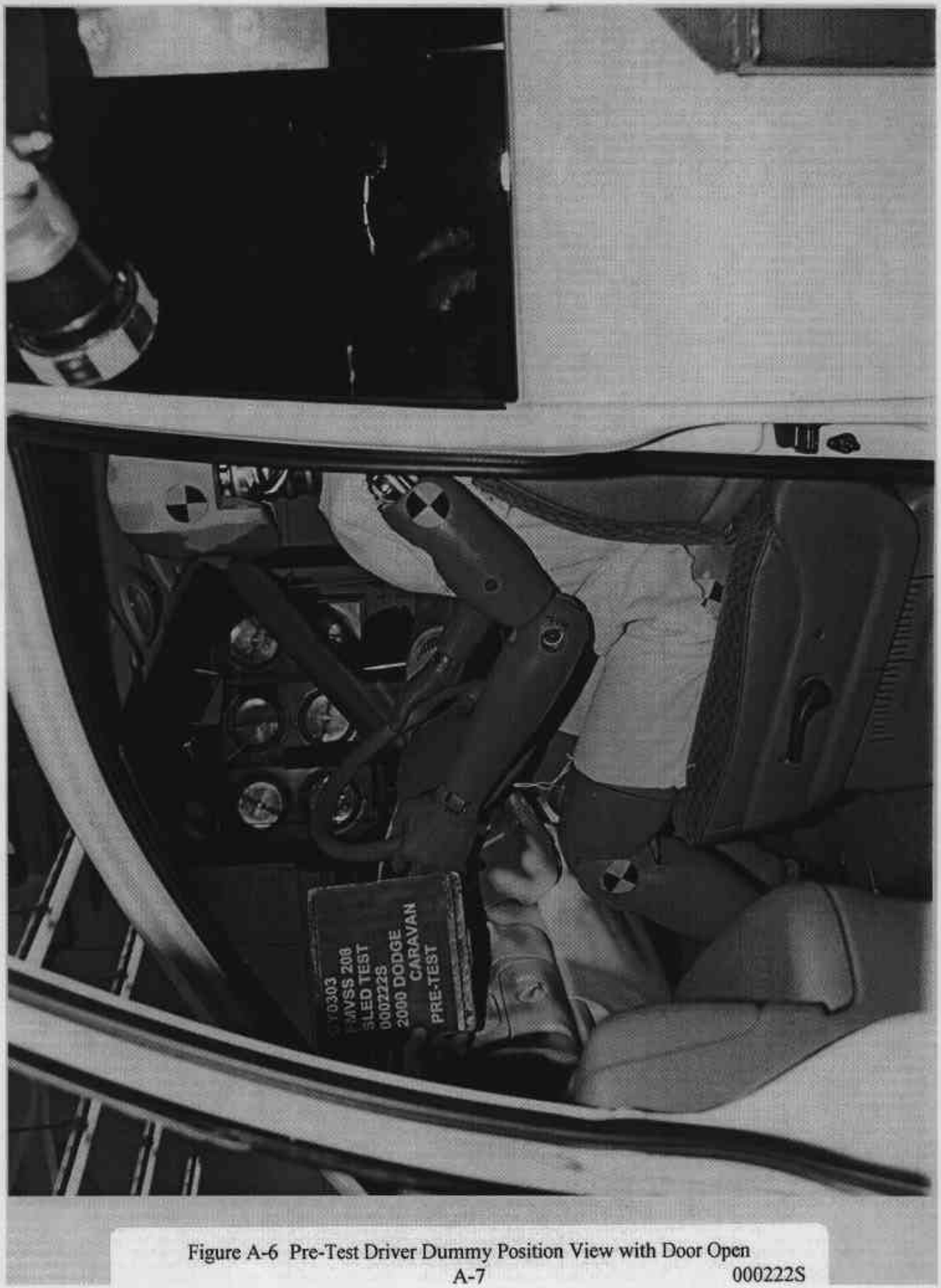


Figure A-6 Pre-Test Driver Dummy Position View with Door Open

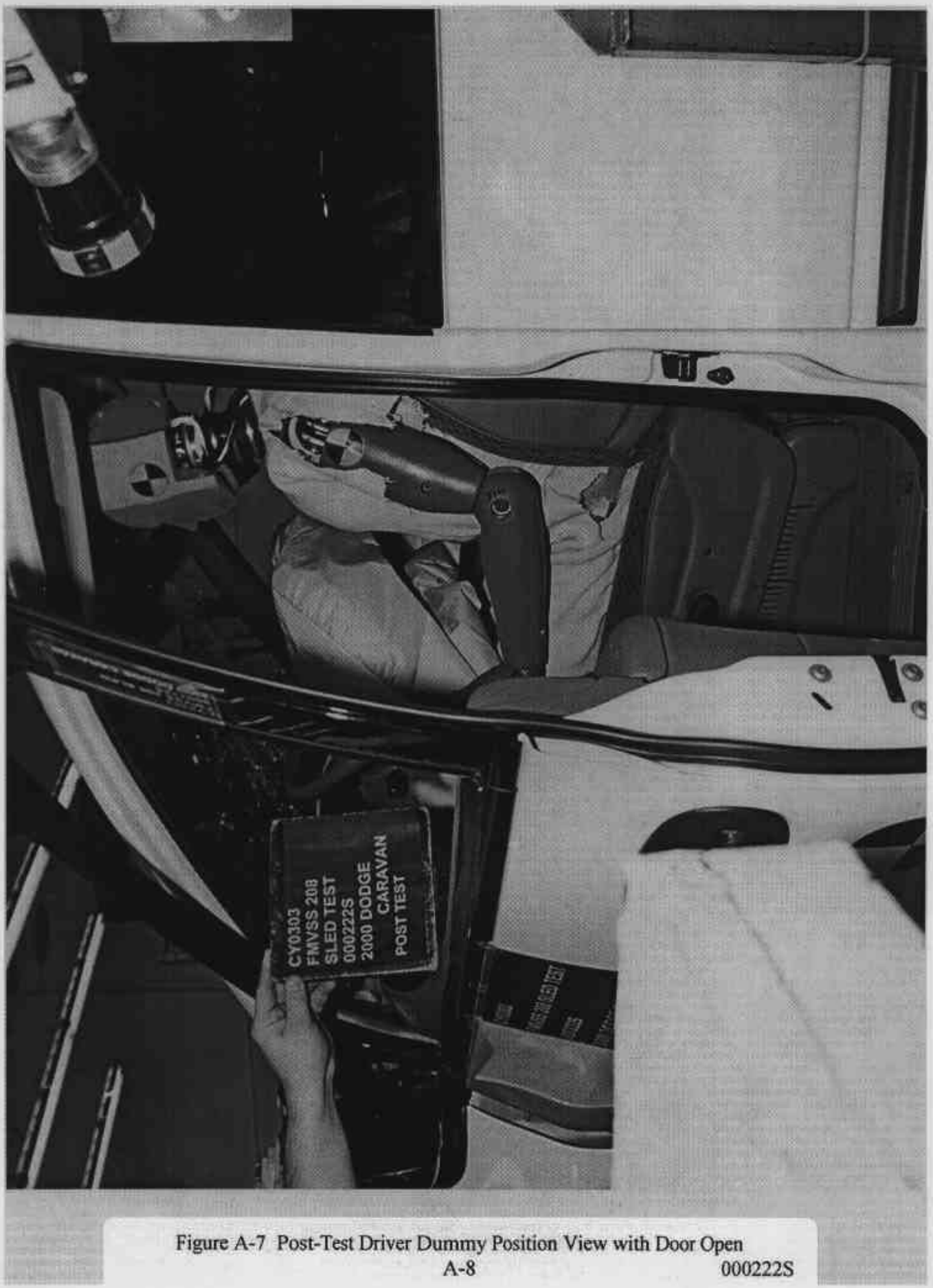


Figure A-7 Post-Test Driver Dummy Position View with Door Open

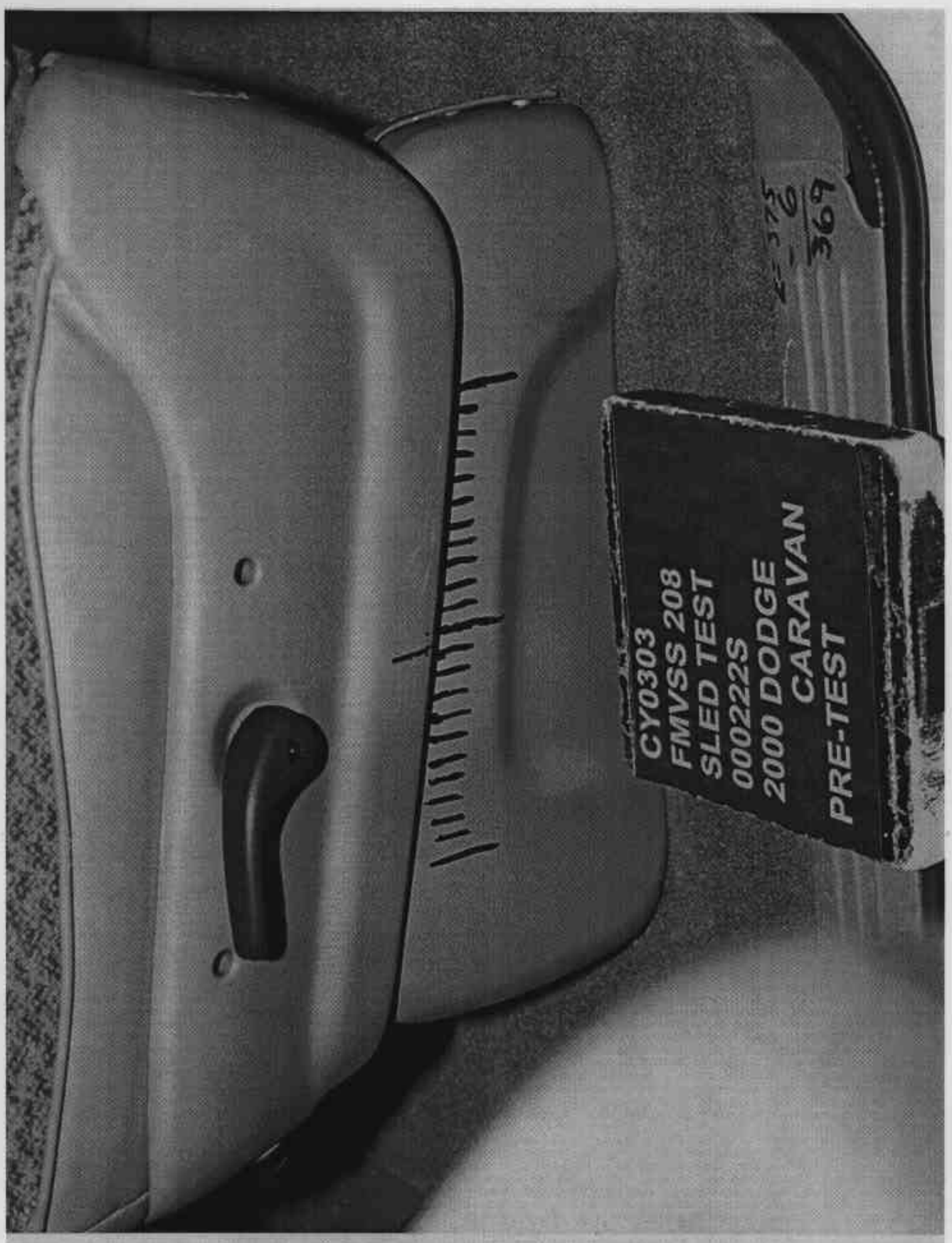


Figure A-8 Pre-Test Driver Seat Track Position View

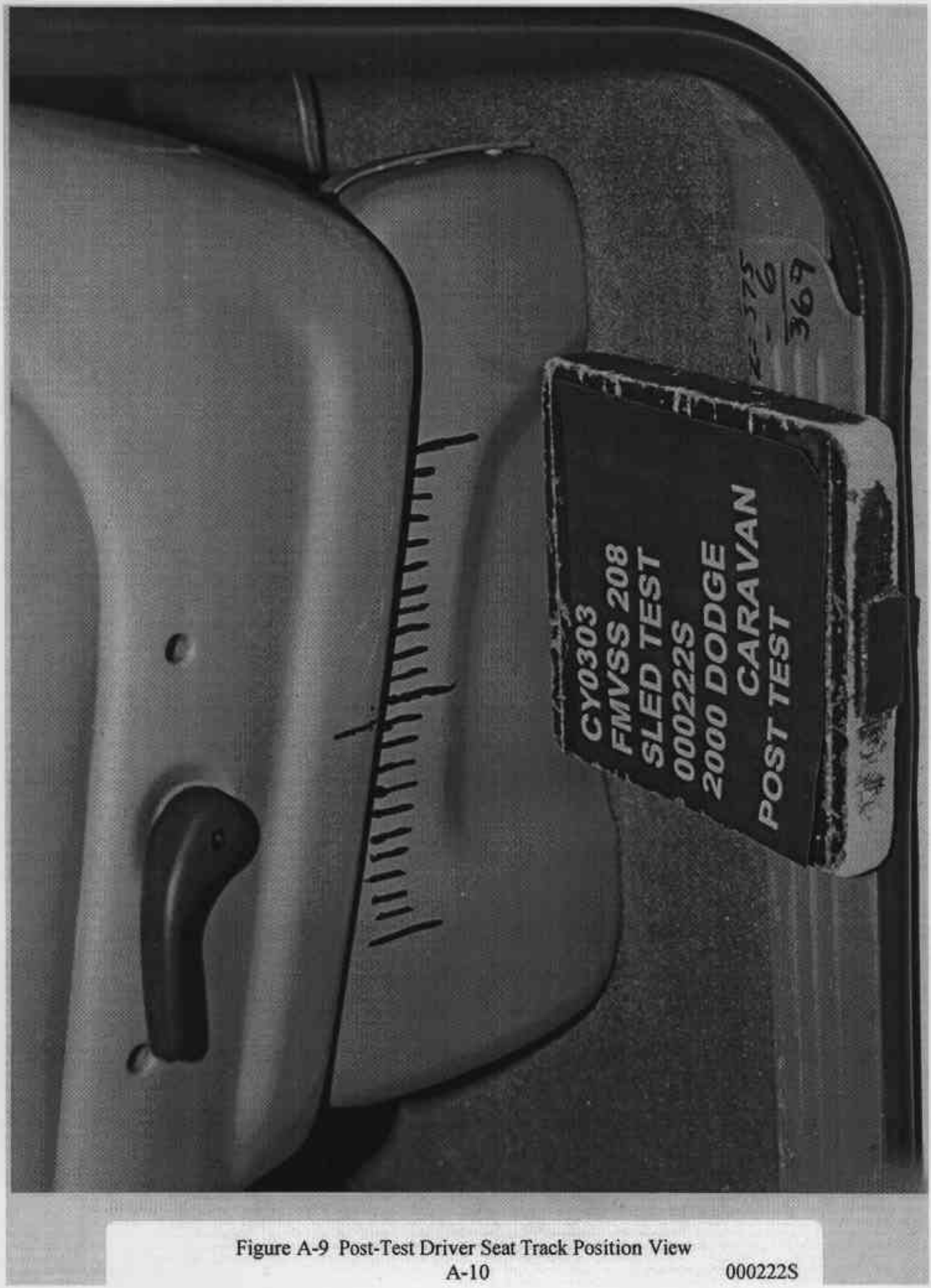


Figure A-9 Post-Test Driver Seat Track Position View

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

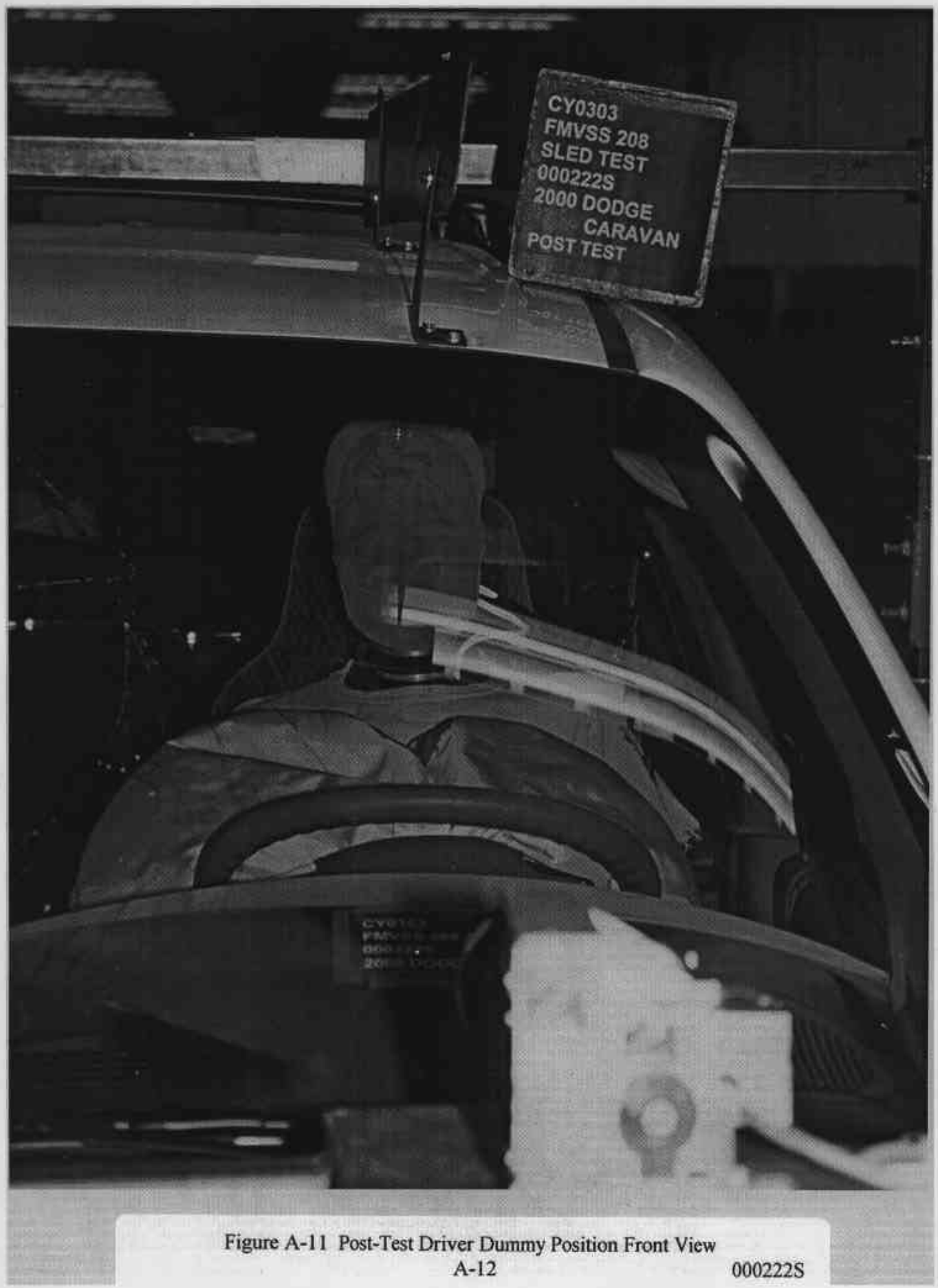


Figure A-11 Post-Test Driver Dummy Position Front View

Figure A-12 Pre-Test Passenger Dummy Position View with Door Open

Figure A-13 Post-Test Passenger Dummy Position View with Door Open

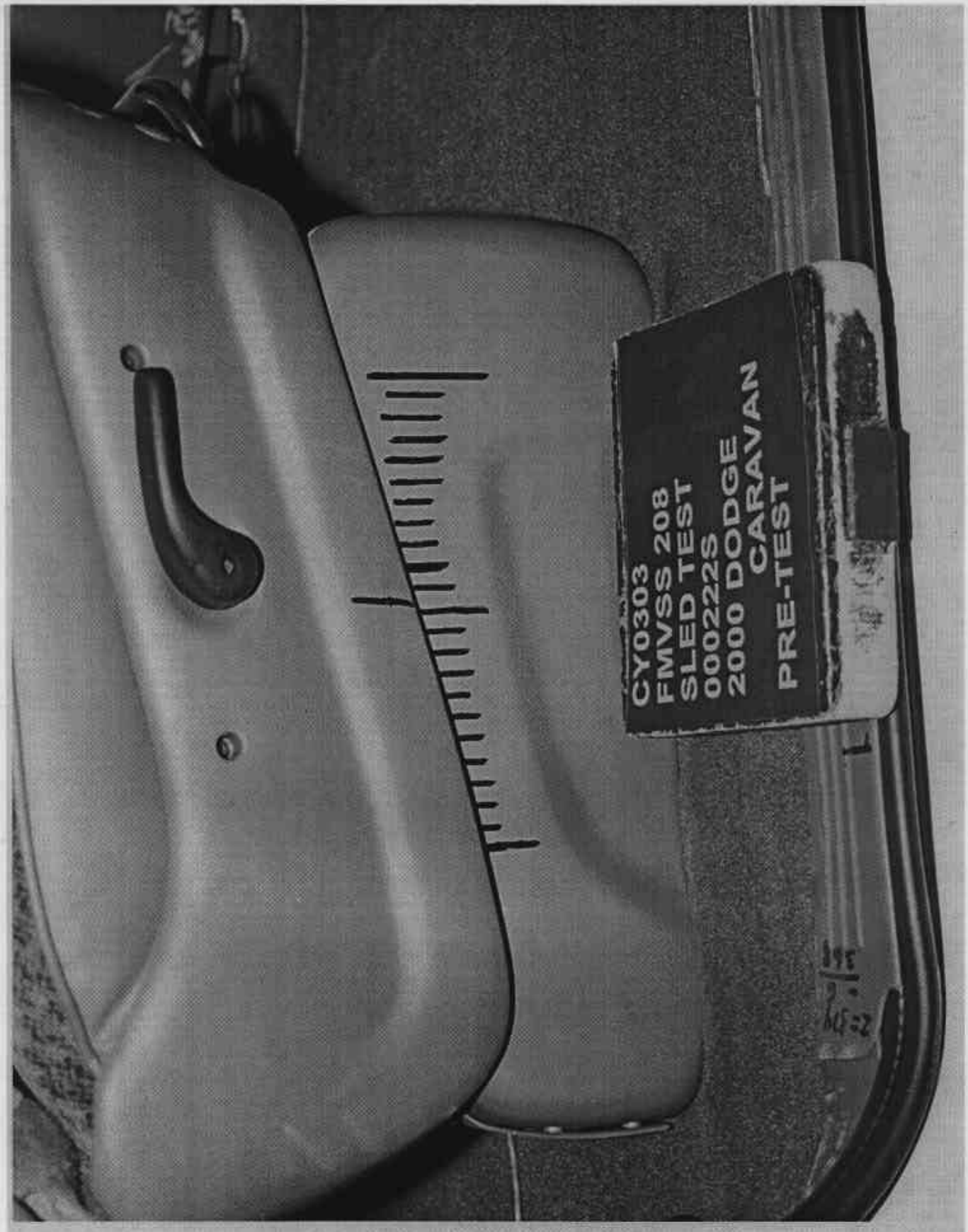


Figure A-14 Pre-Test Passenger Seat Track Position View

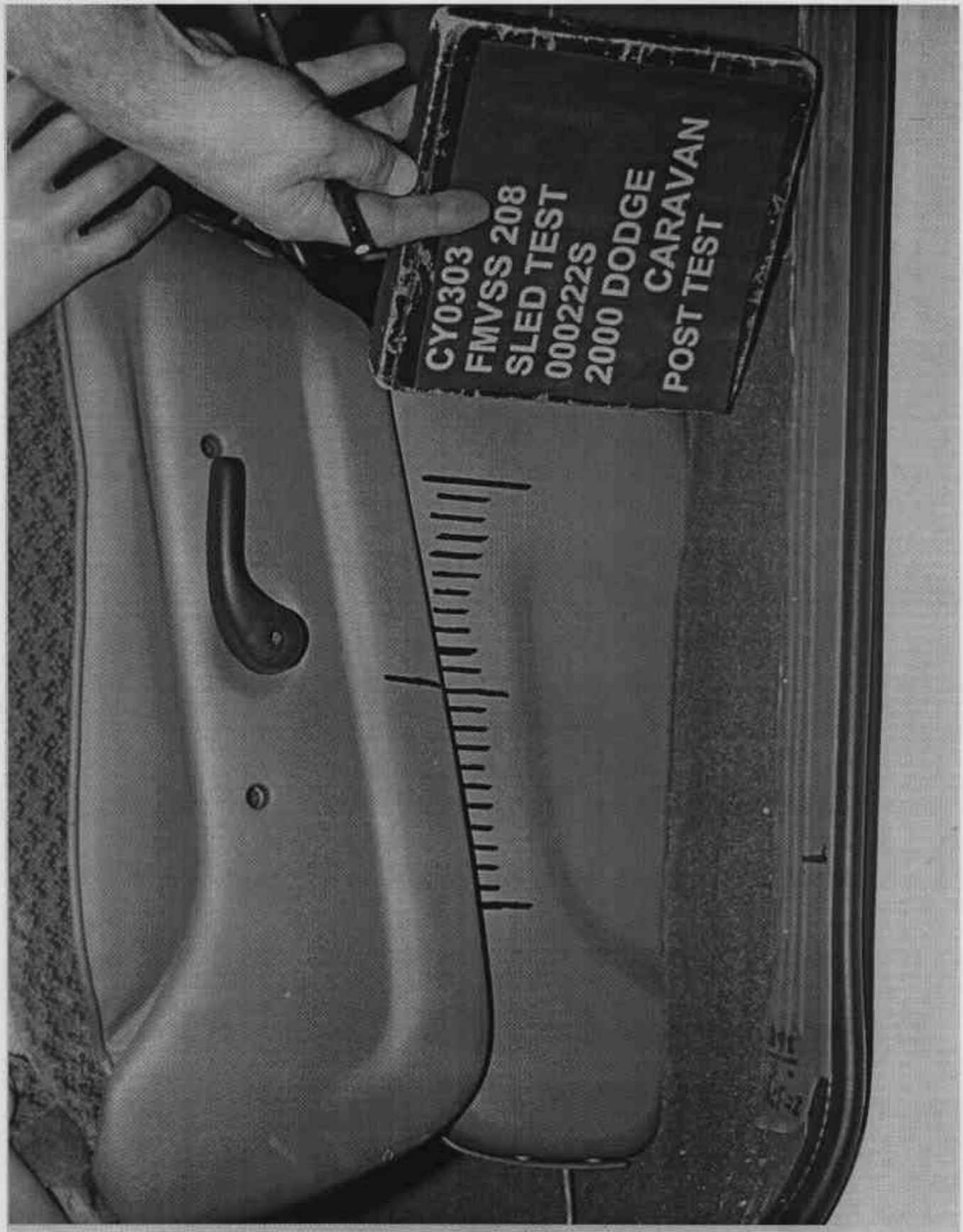


Figure A-15 Post-Test Passenger Seat Track Position View

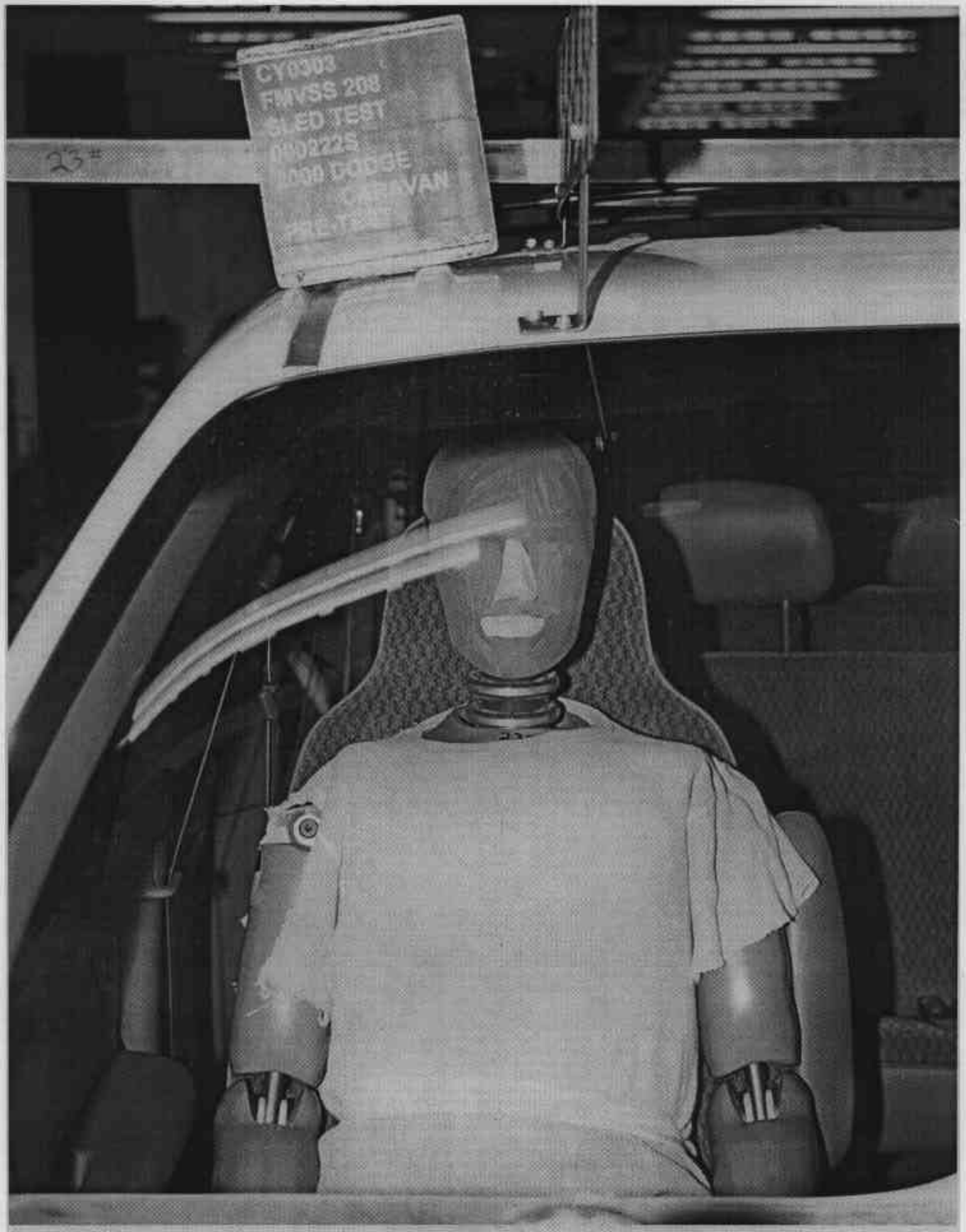


Figure A-16 Pre-Test Passenger Dummy Position Front View

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

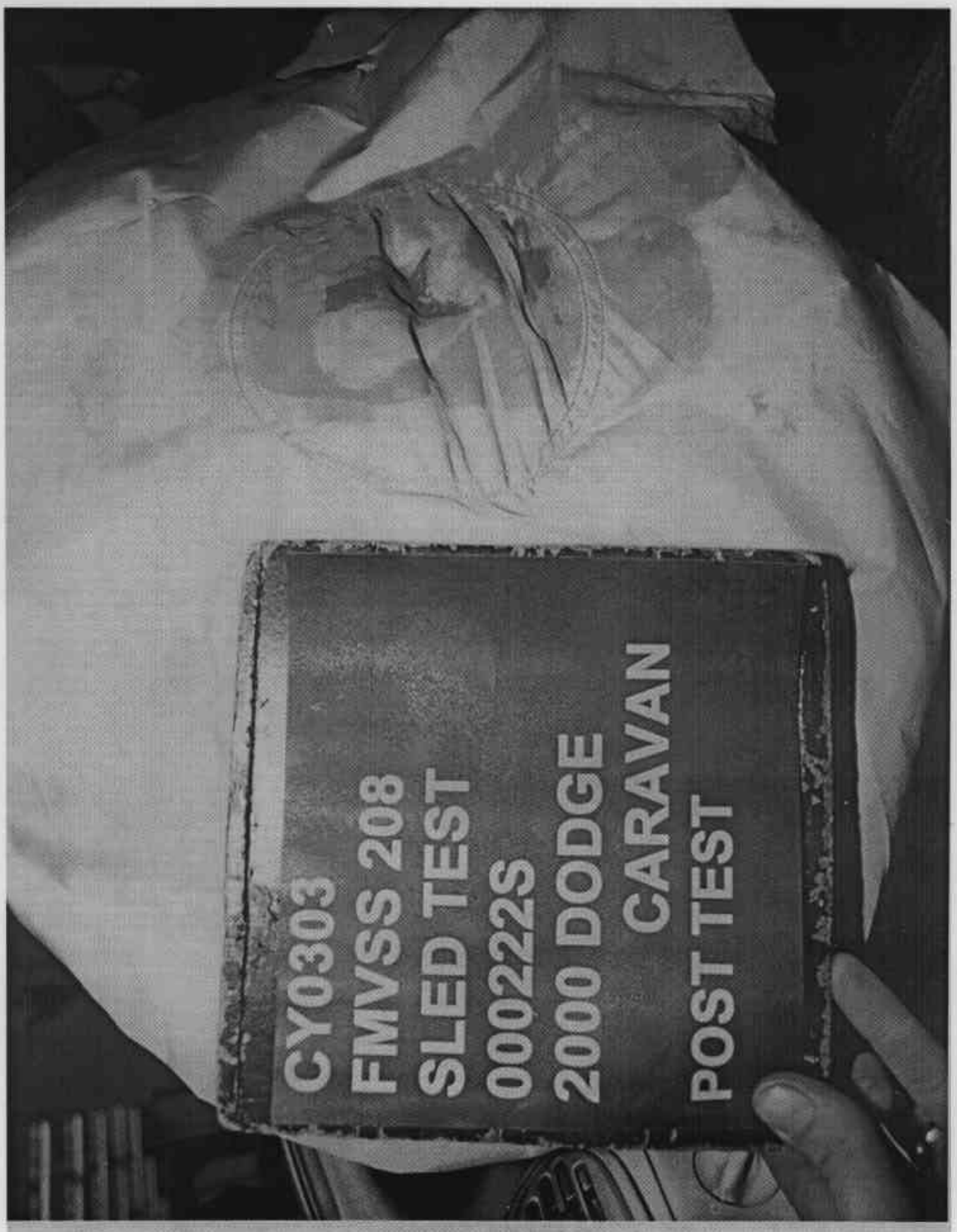


Figure A-18 Post-Test Driver Airbag View

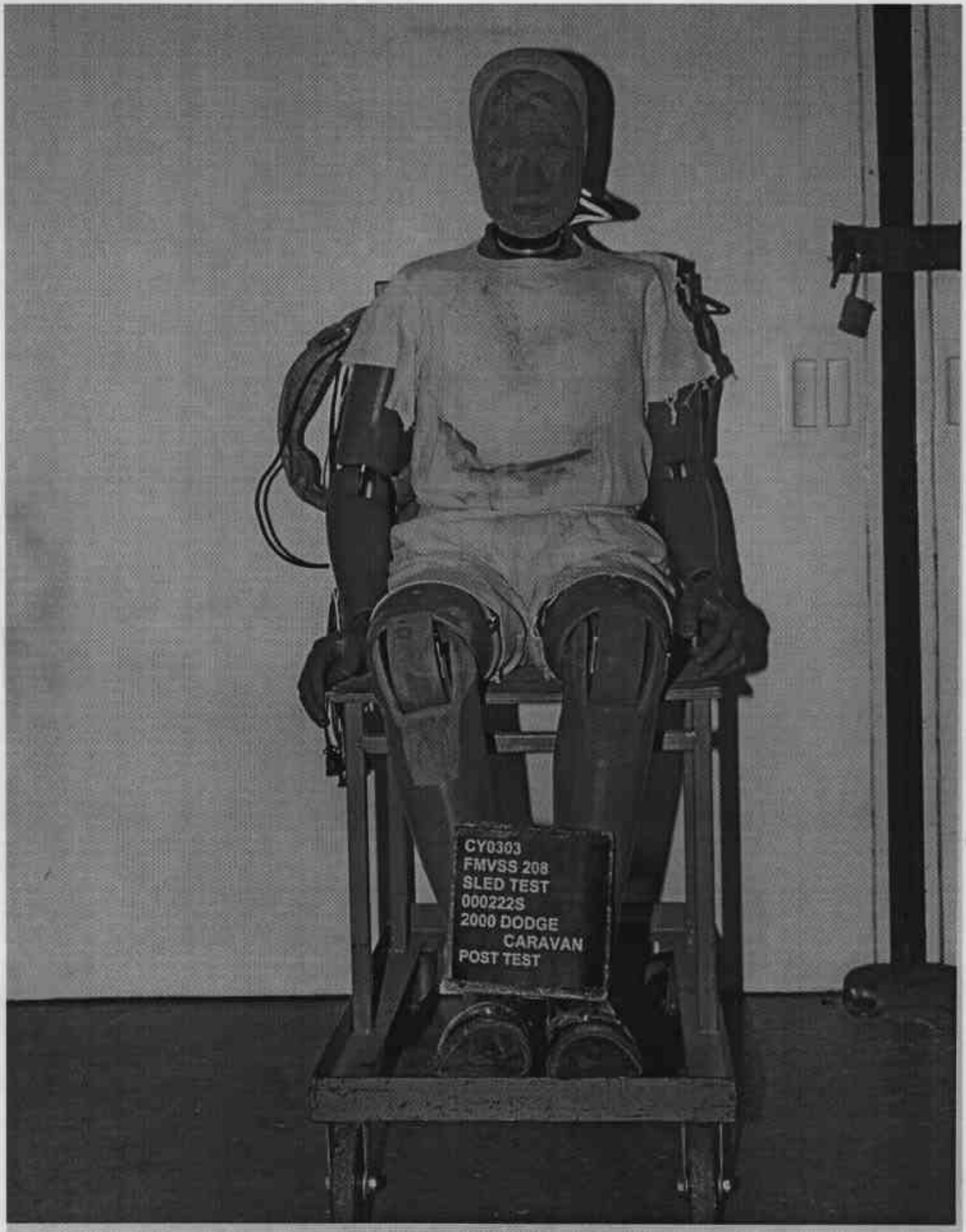


Figure A-19 Post-Test Driver Dummy Removed from Vehicle Overall View

Figure A-20 Post-Test Driver Head Contact - View 1

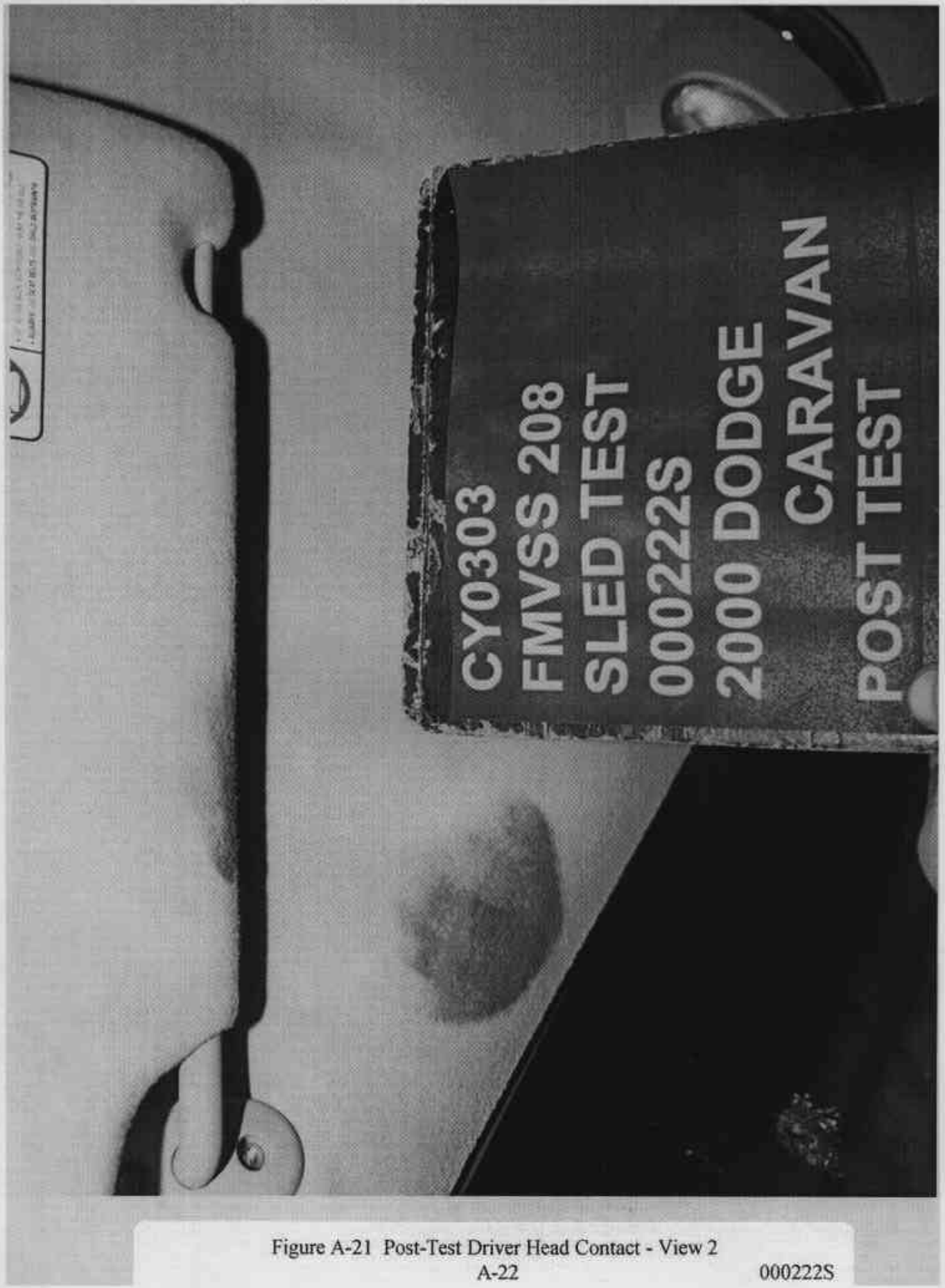


Figure A-21 Post-Test Driver Head Contact - View 2

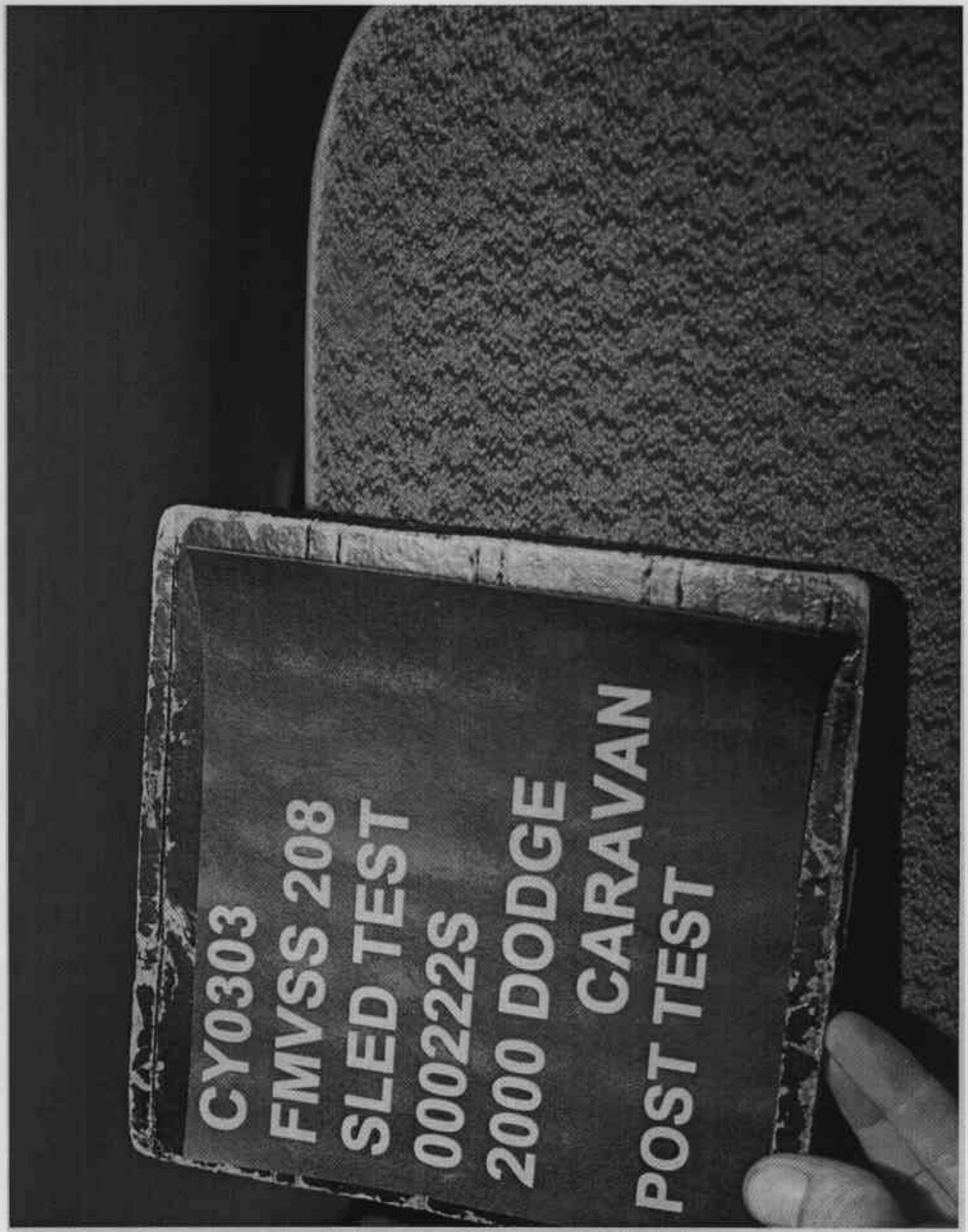


Figure A-22 Post-Test Driver Head Contact - View 3

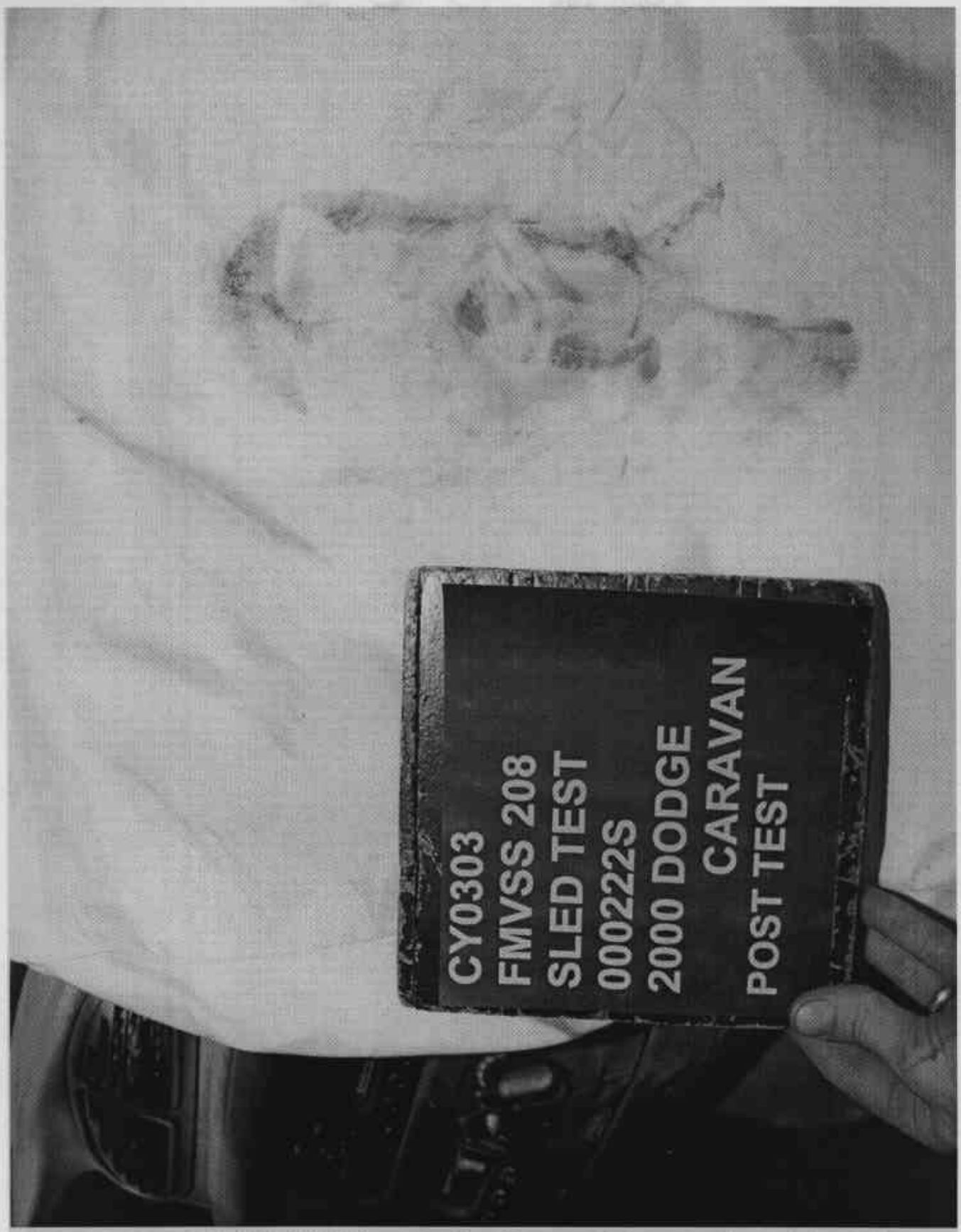


Figure A-23 Post-Test Passenger Airbag View

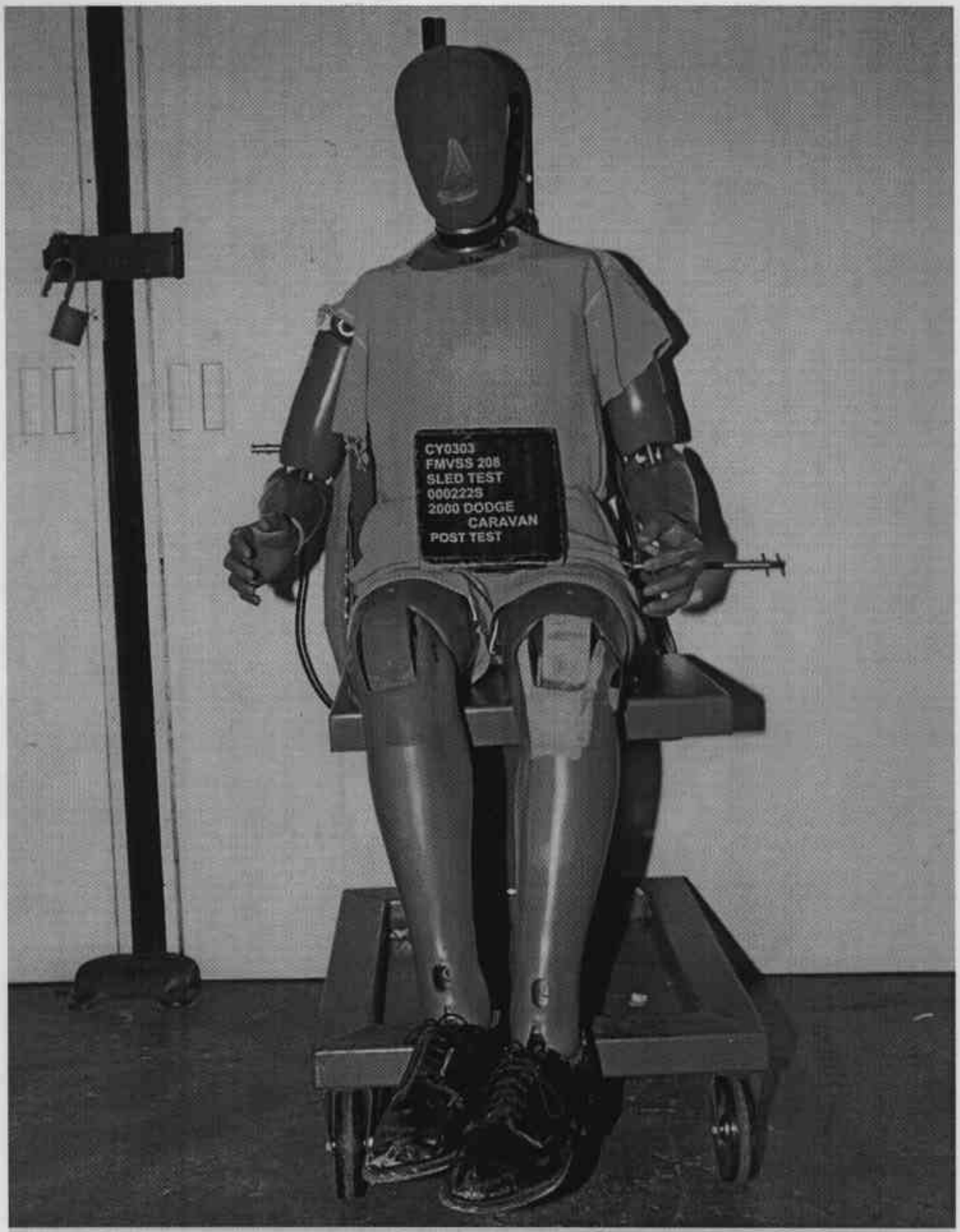


Figure A-24 Post-Test Passenger Dummy Removed from Vehicle Overall View

Figure A-25 Post-Test Passenger Head Contact - View 1

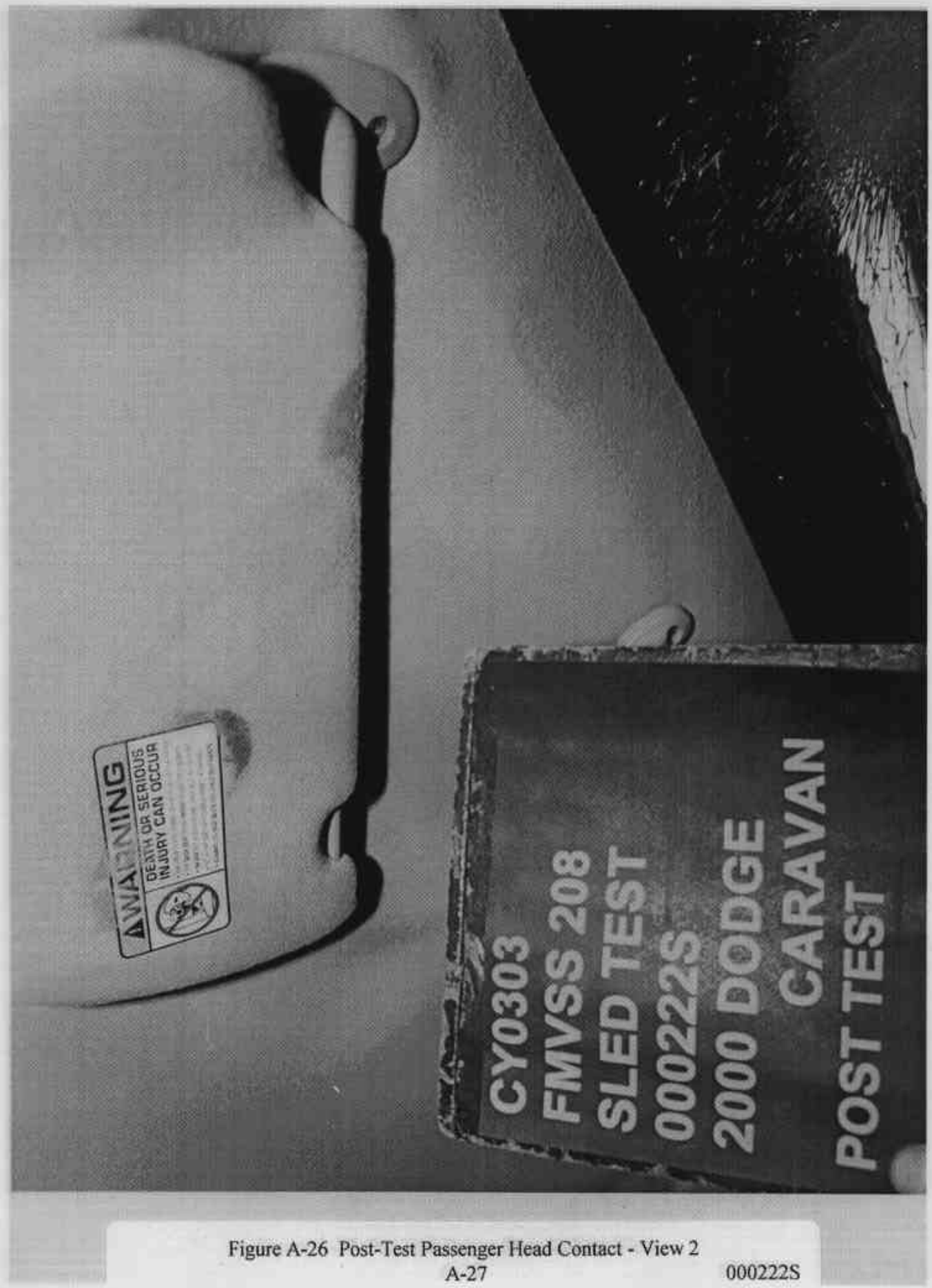


Figure A-26 Post-Test Passenger Head Contact - View 2

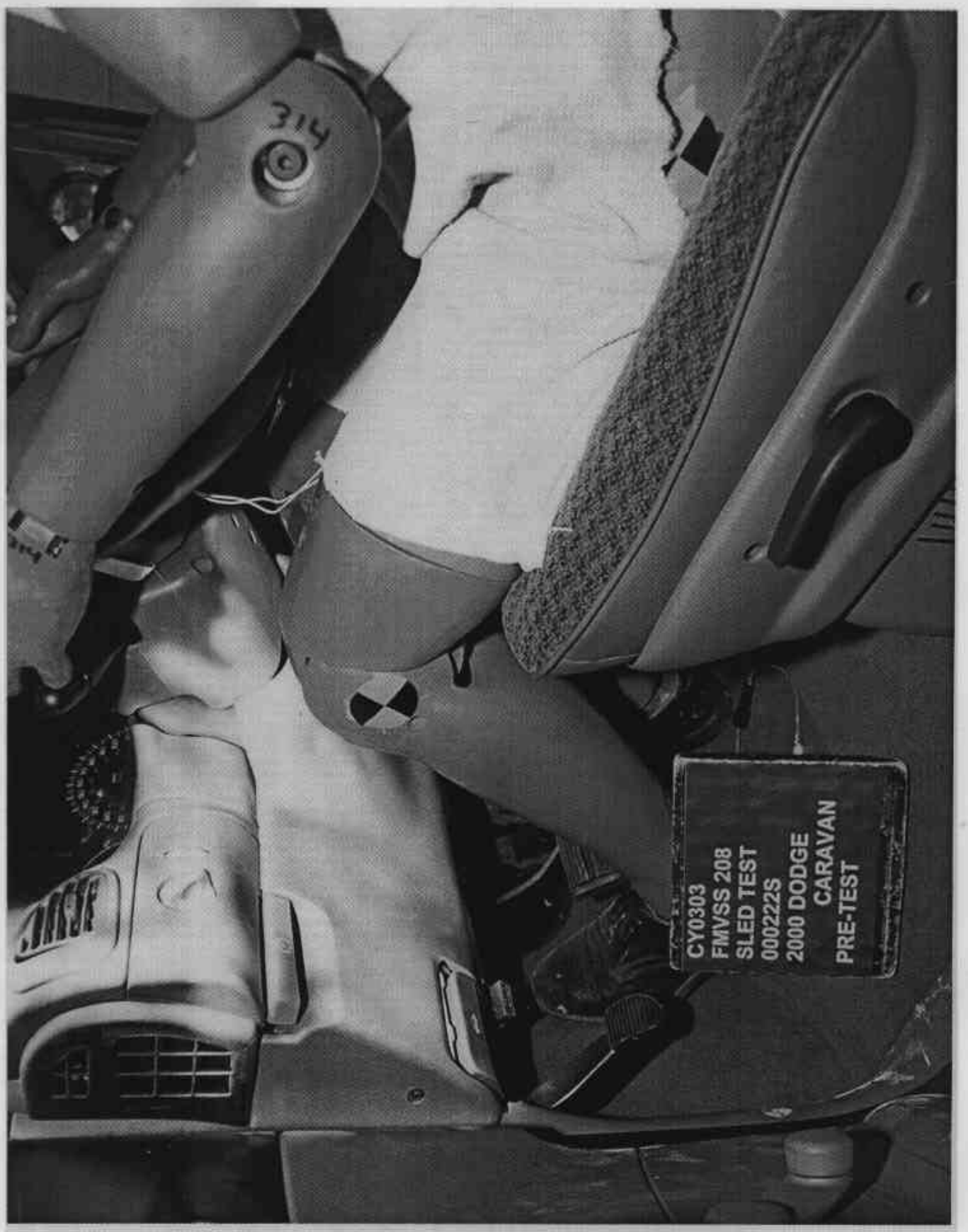


Figure A-27 Pre-Test Driver Knee Bolster View

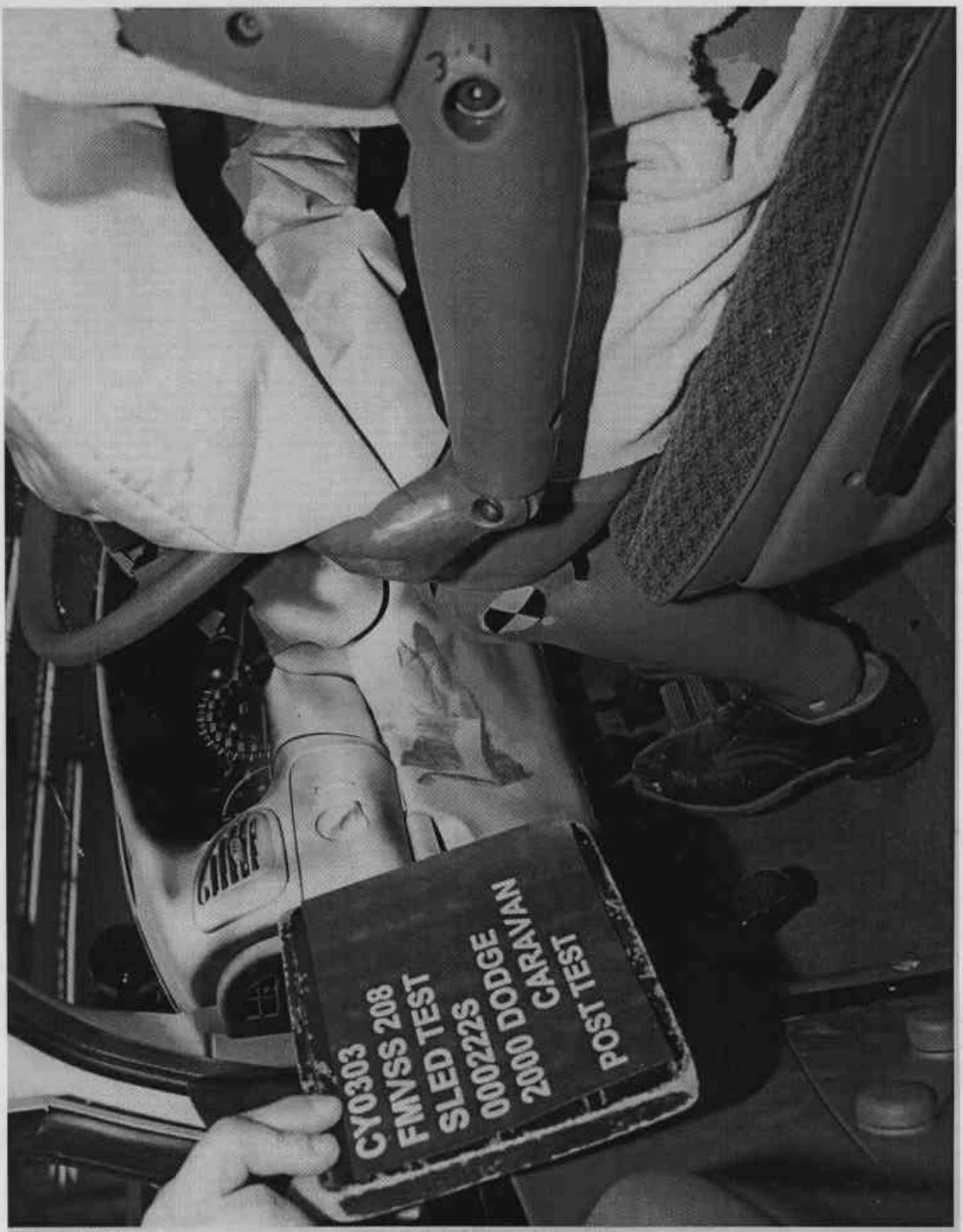


Figure A-28 Post-Test Driver Knee Bolster - View 1

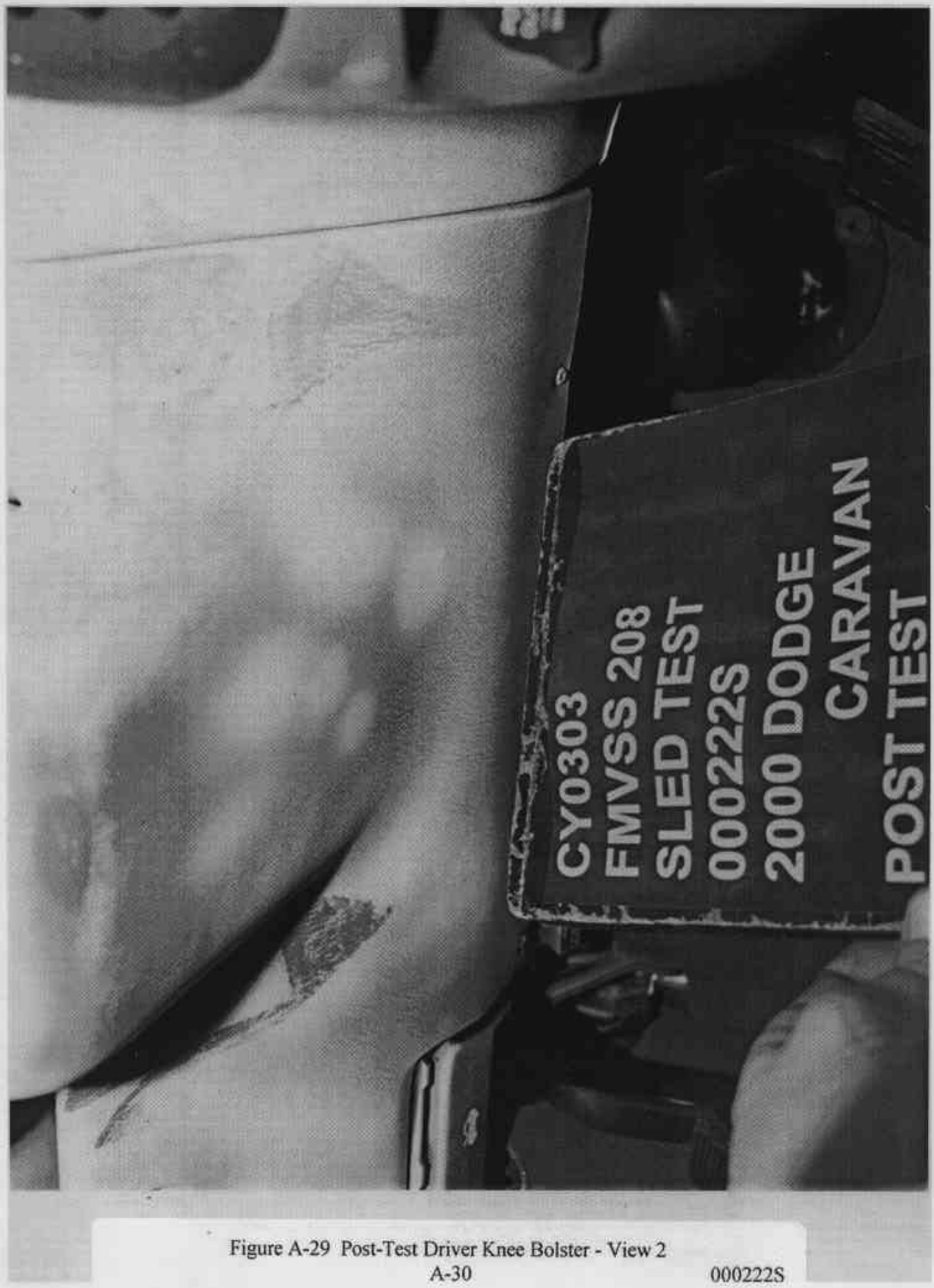


Figure A-29 Post-Test Driver Knee Bolster - View 2

Figure A-30 Pre-Test Passenger Glove Box View

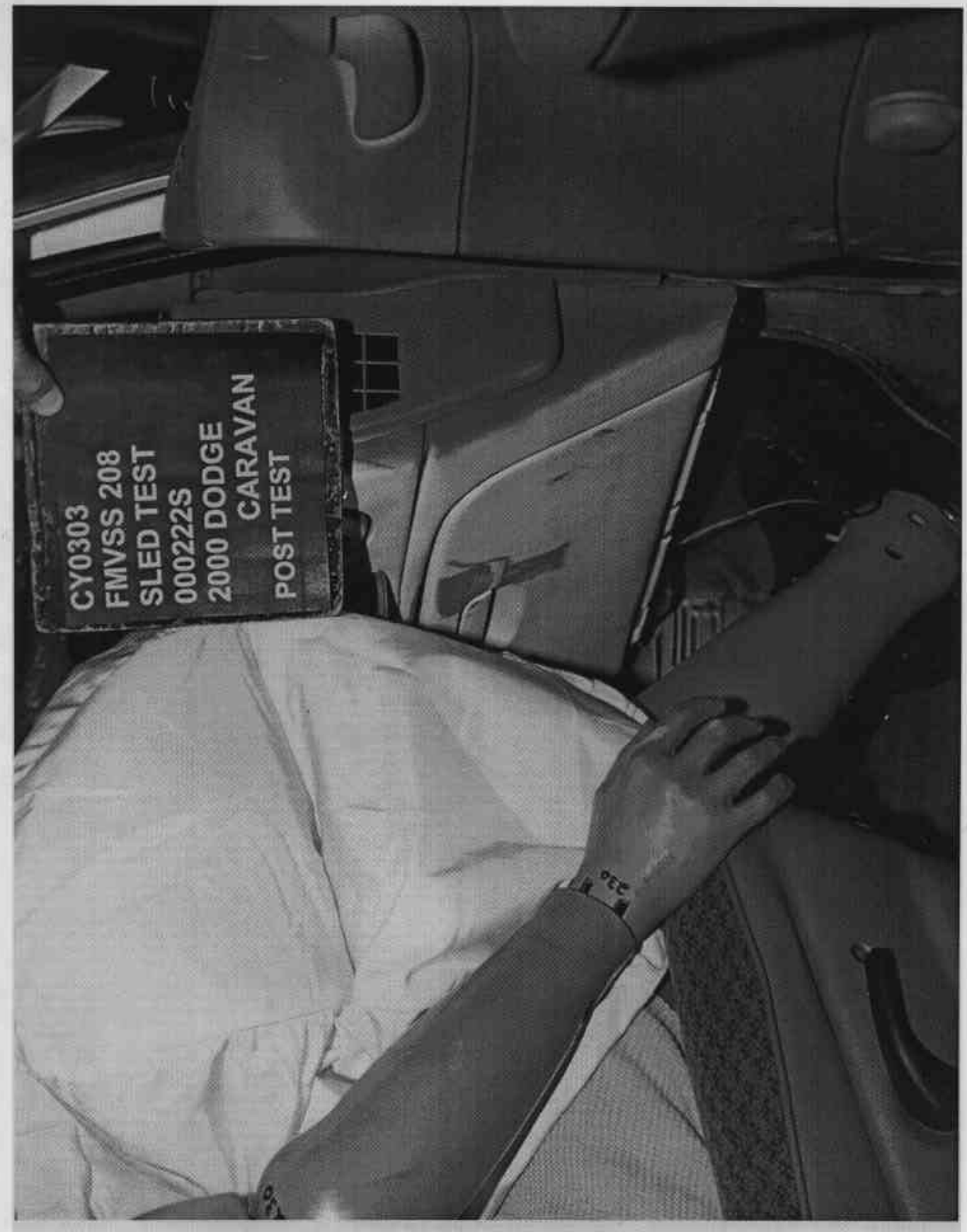


Figure A-31 Post-Test Passenger Glove Box - View 1

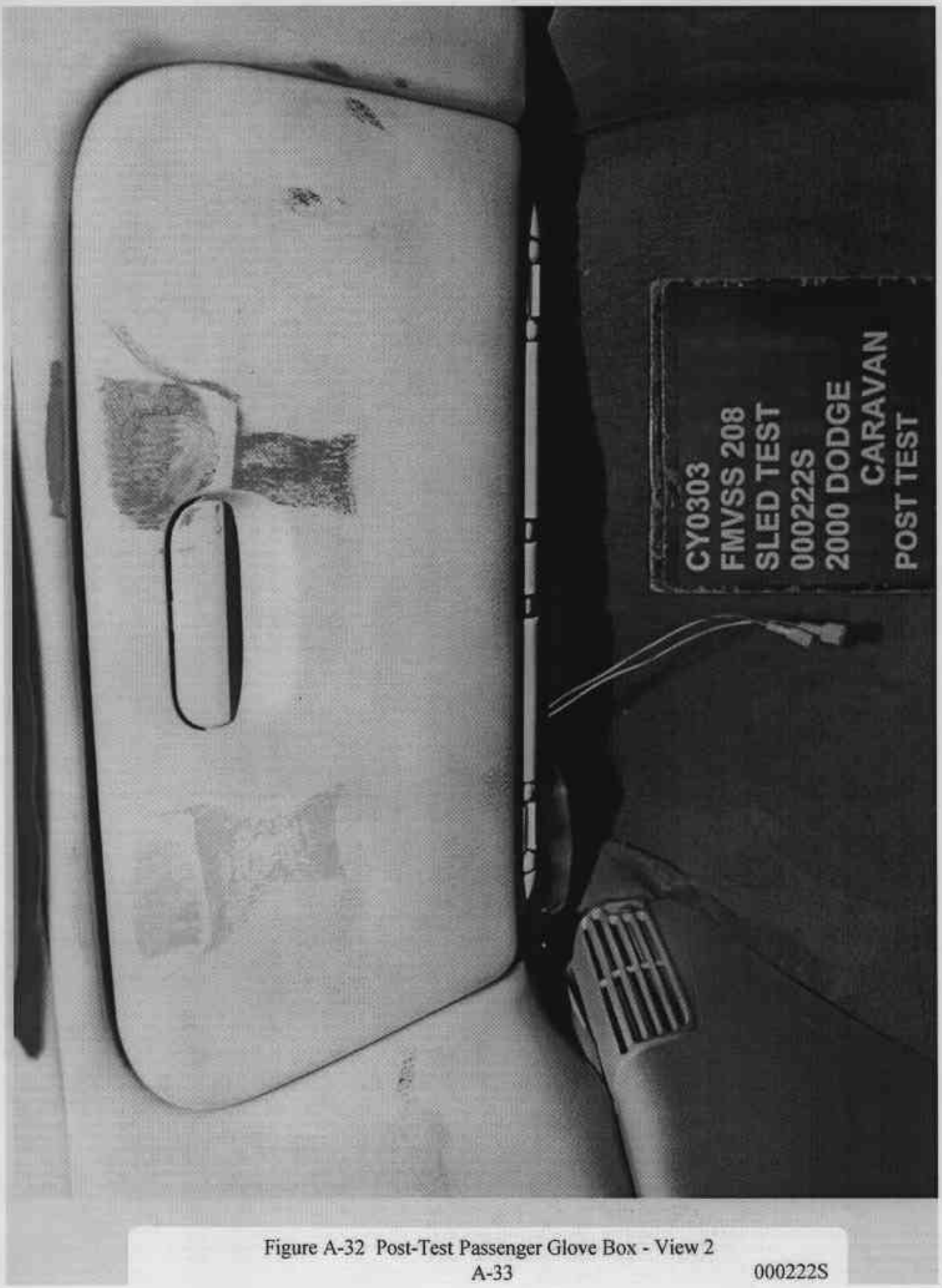


Figure A-32 Post-Test Passenger Glove Box - View 2

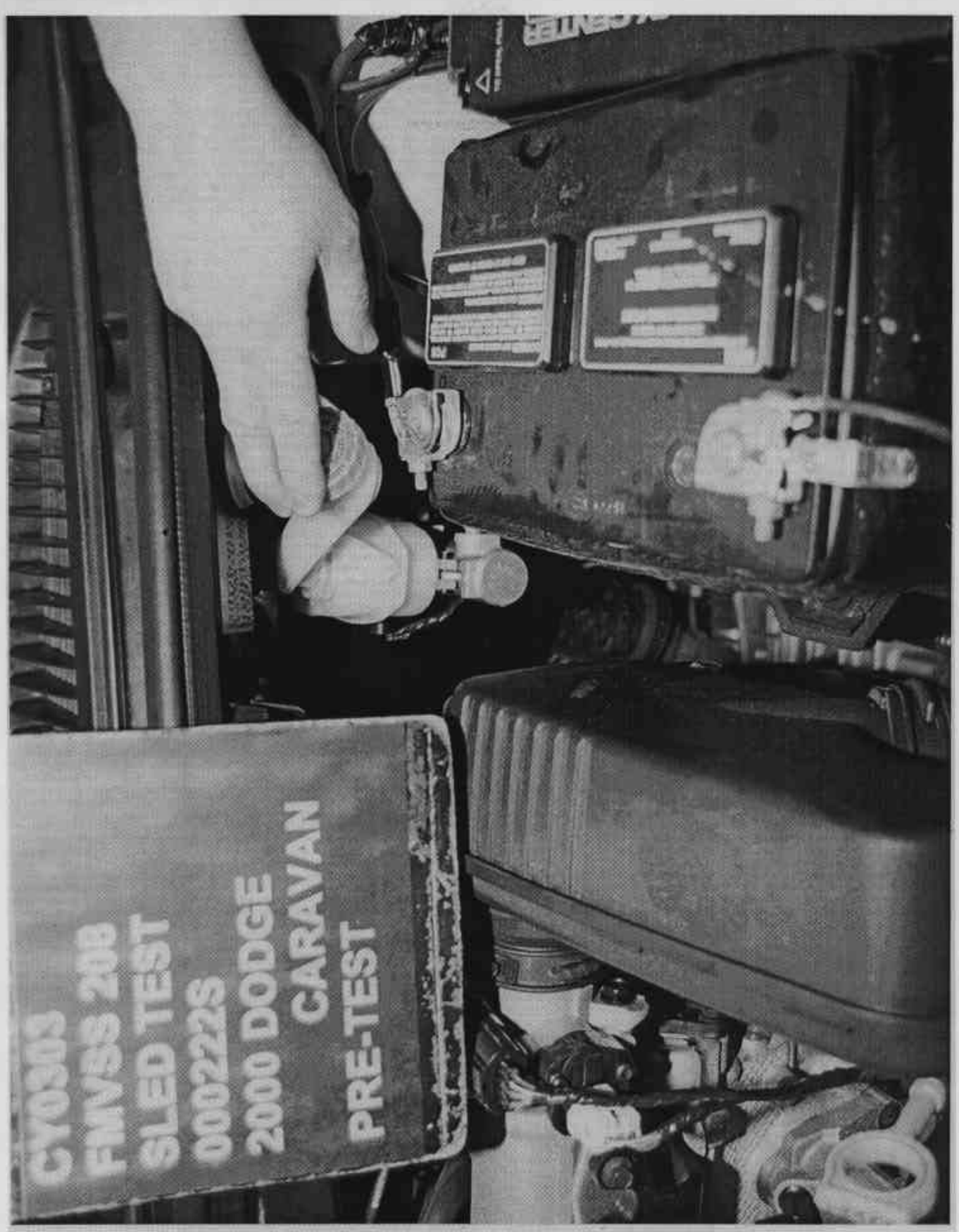


Figure A-33 Pre-Test Steering Column Linkage in Engine Compartment View

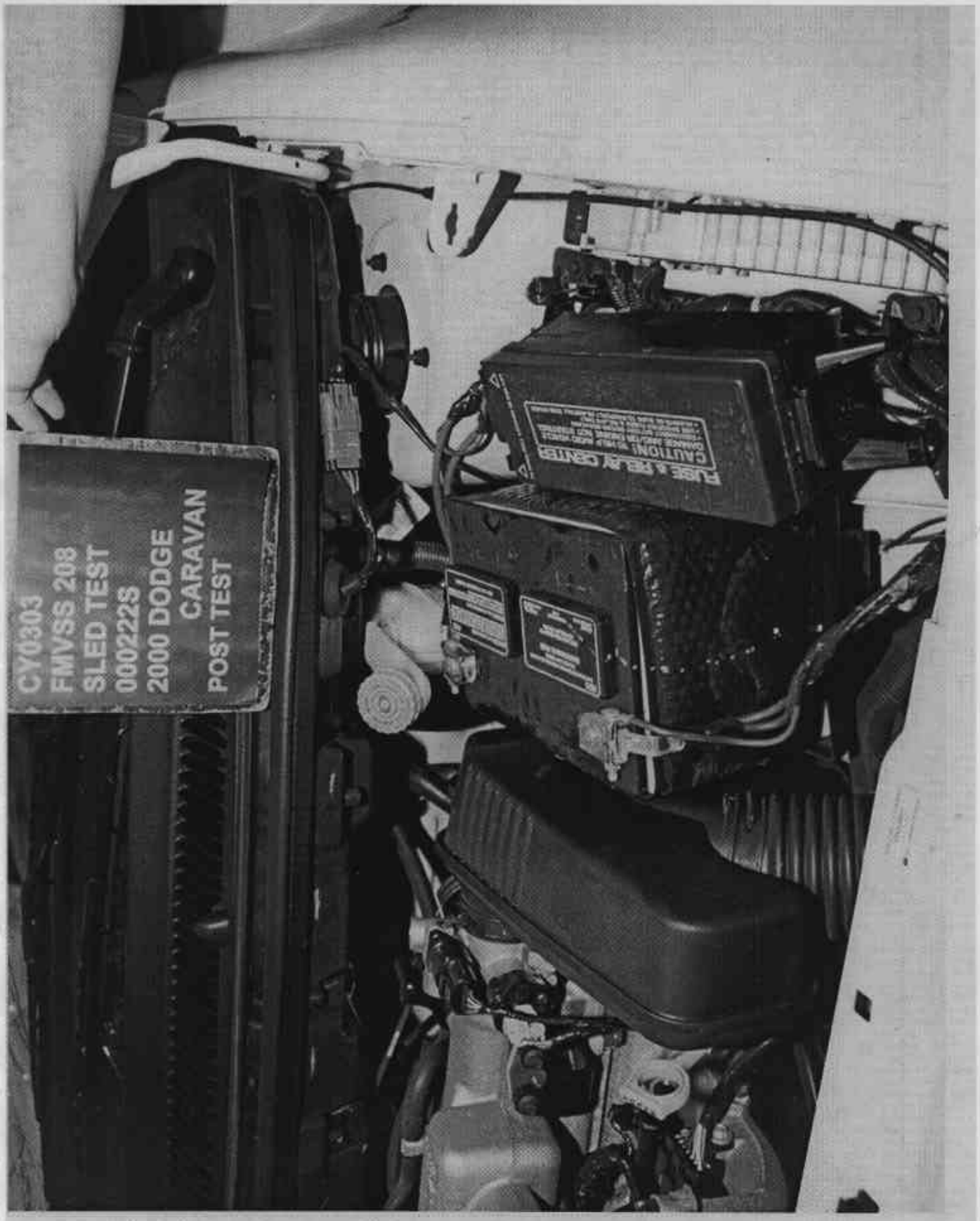


Figure A-34 Post-Test Steering Column Linkage in Engine Compartment View

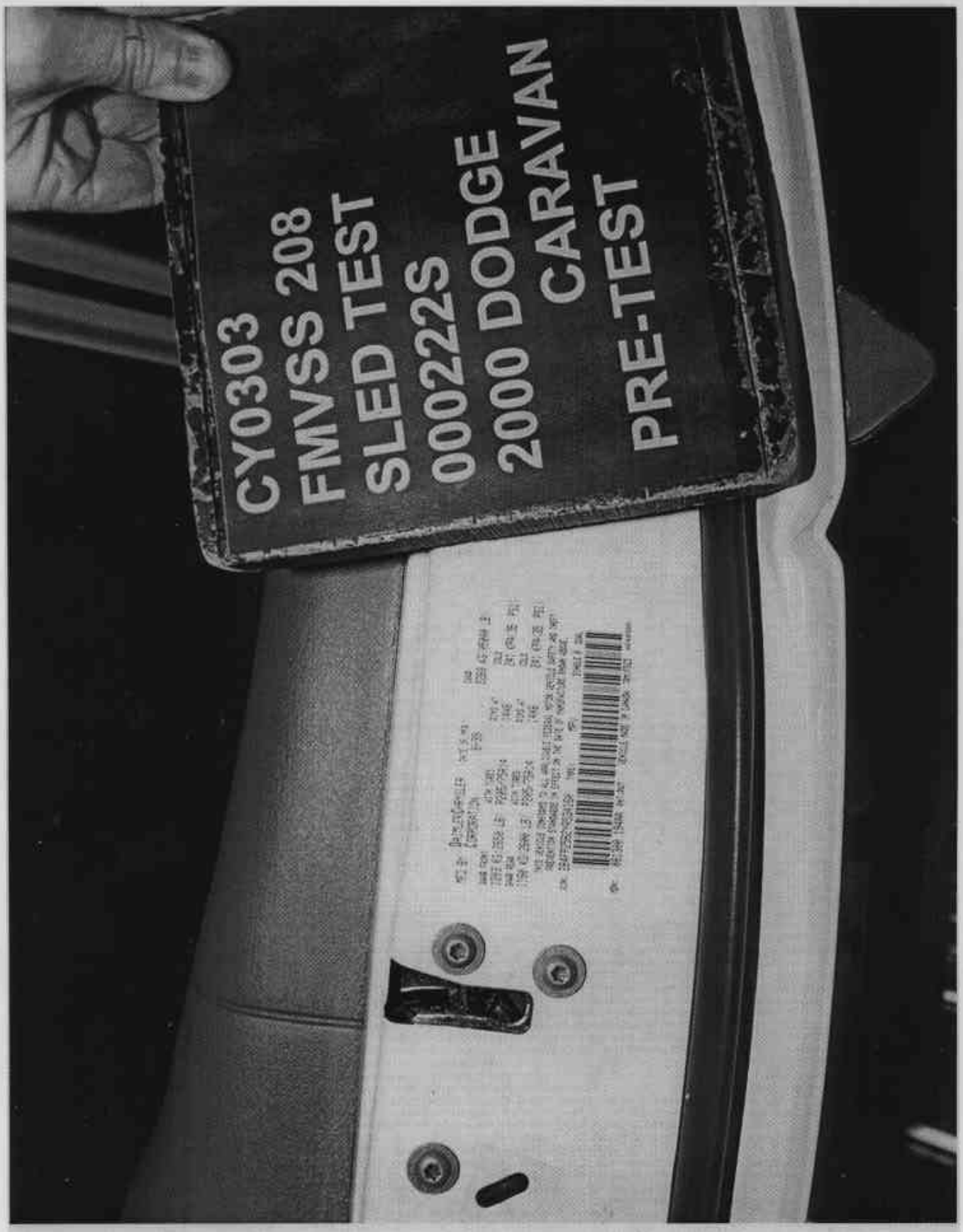
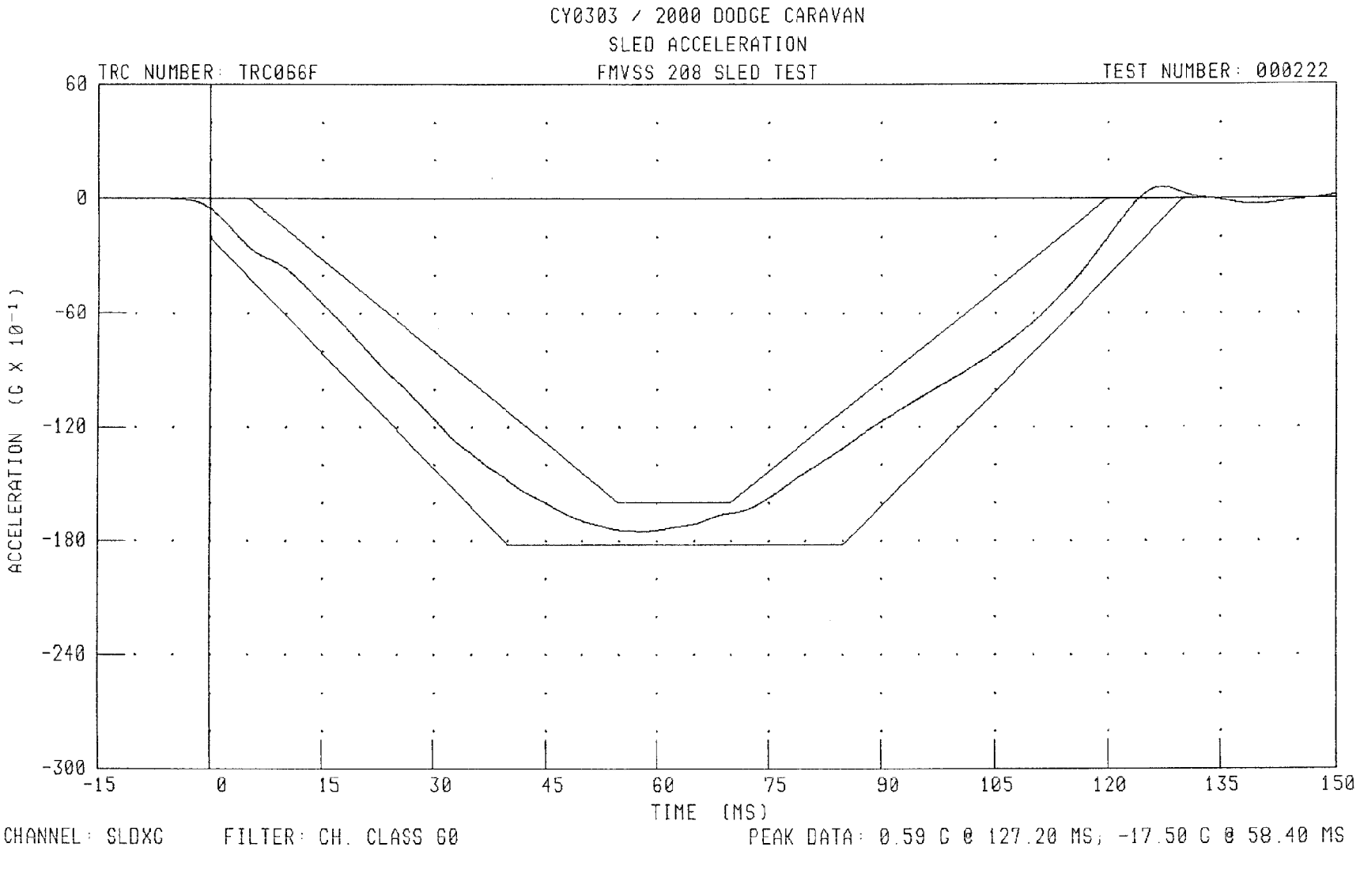


Figure A-35 Pre-Test Vehicle Certification Label View

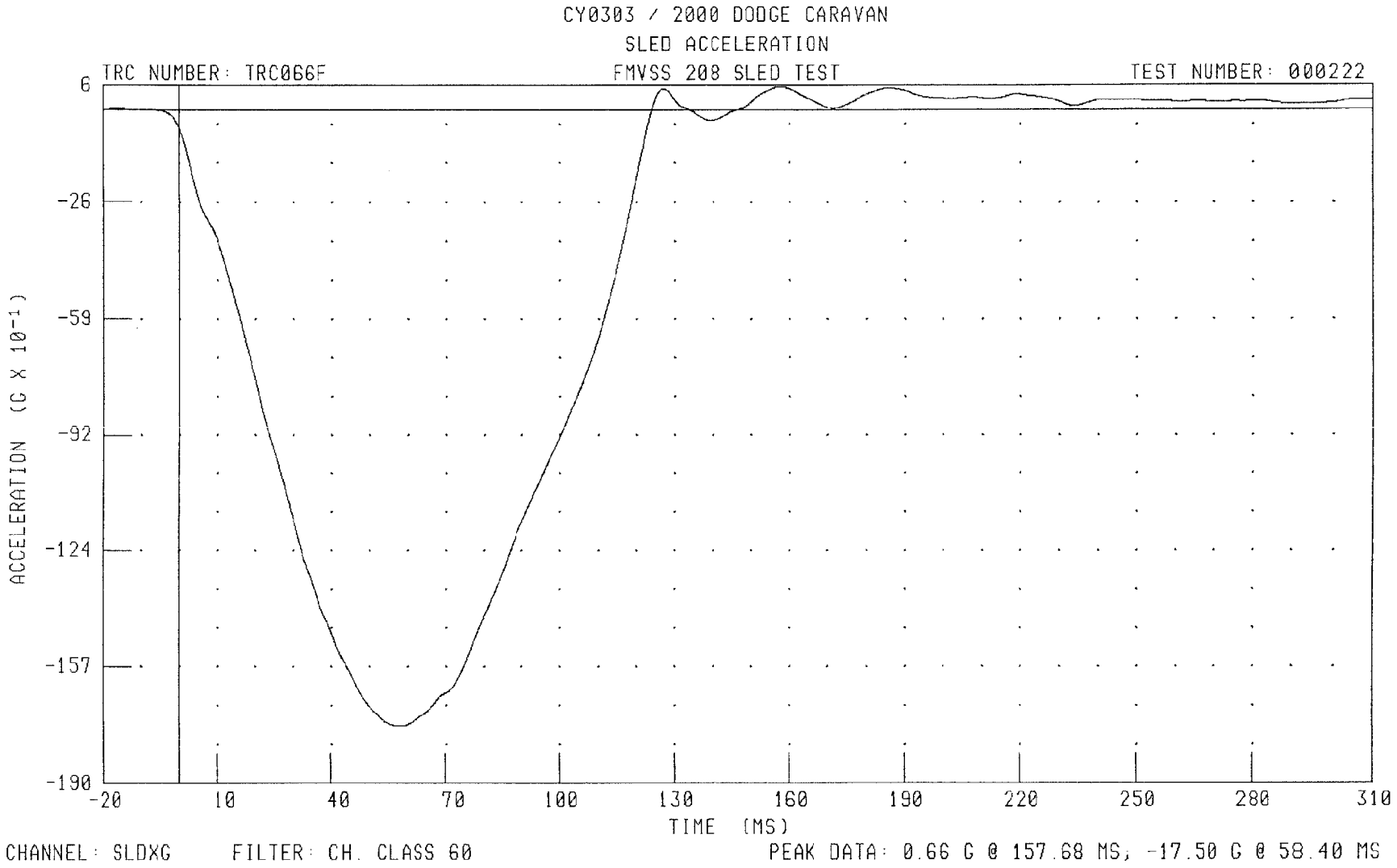
Figure A-36 Pre-Test Tire Load Label View

Appendix B

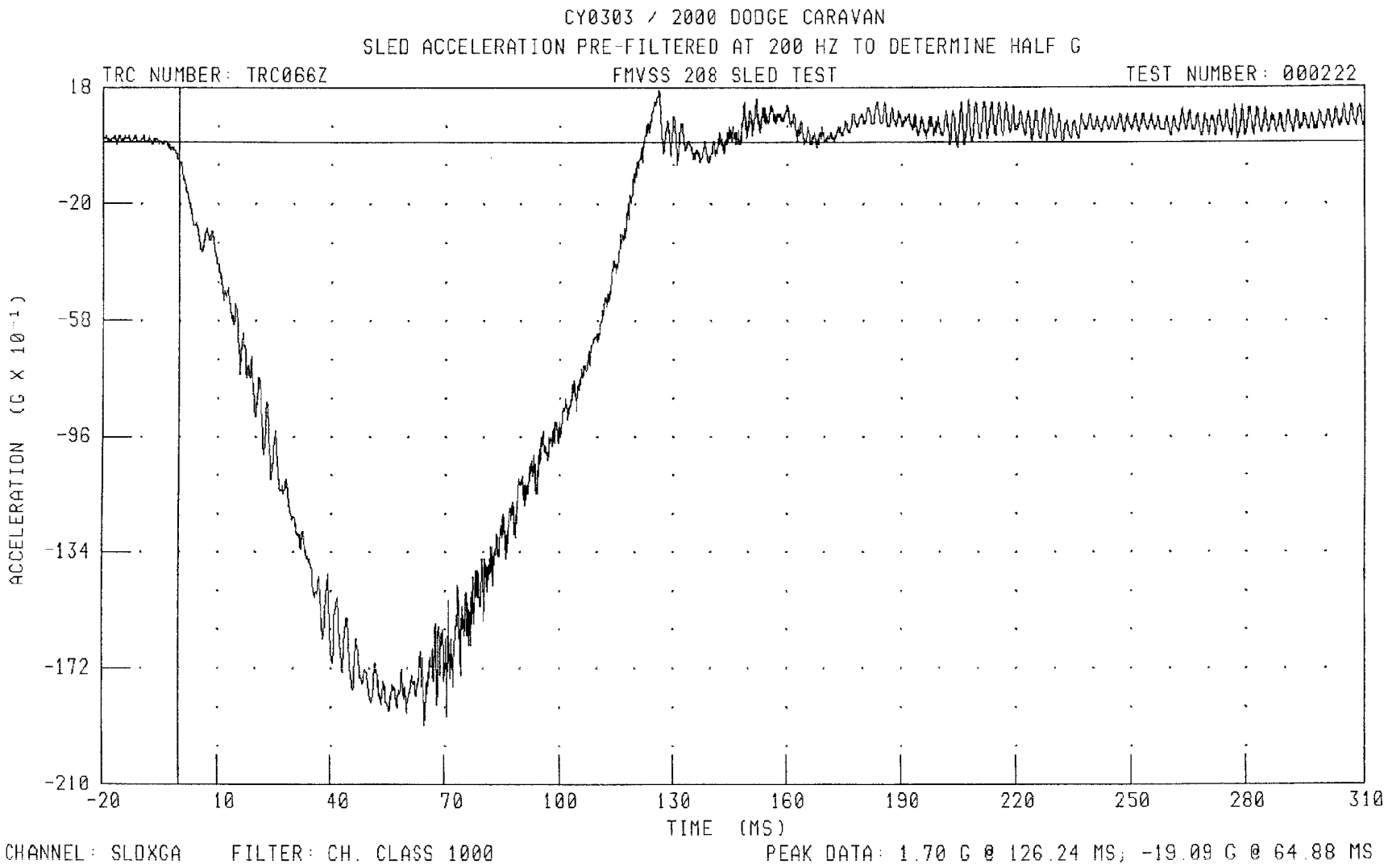
Data Plots


CY0303 / 2000 DODGE CARAVAN
SLED ACCELERATION
TRC NUMBER: TRC066F
FMVSS 208 SLED TEST
TEST NUMBER: 000222
60
0
-60
-120
-180
-240
-300
ACCELERATION (G X 10⁻¹)
-15
0
15
30
45
60
75
90
105
120
135
150
TIME (MS)
CHANNEL: SLDXC
FILTER: CH. CLASS 60
PEAK DATA: 0.59 G @ 127.20 MS, -17.50 G @ 58.40 MS

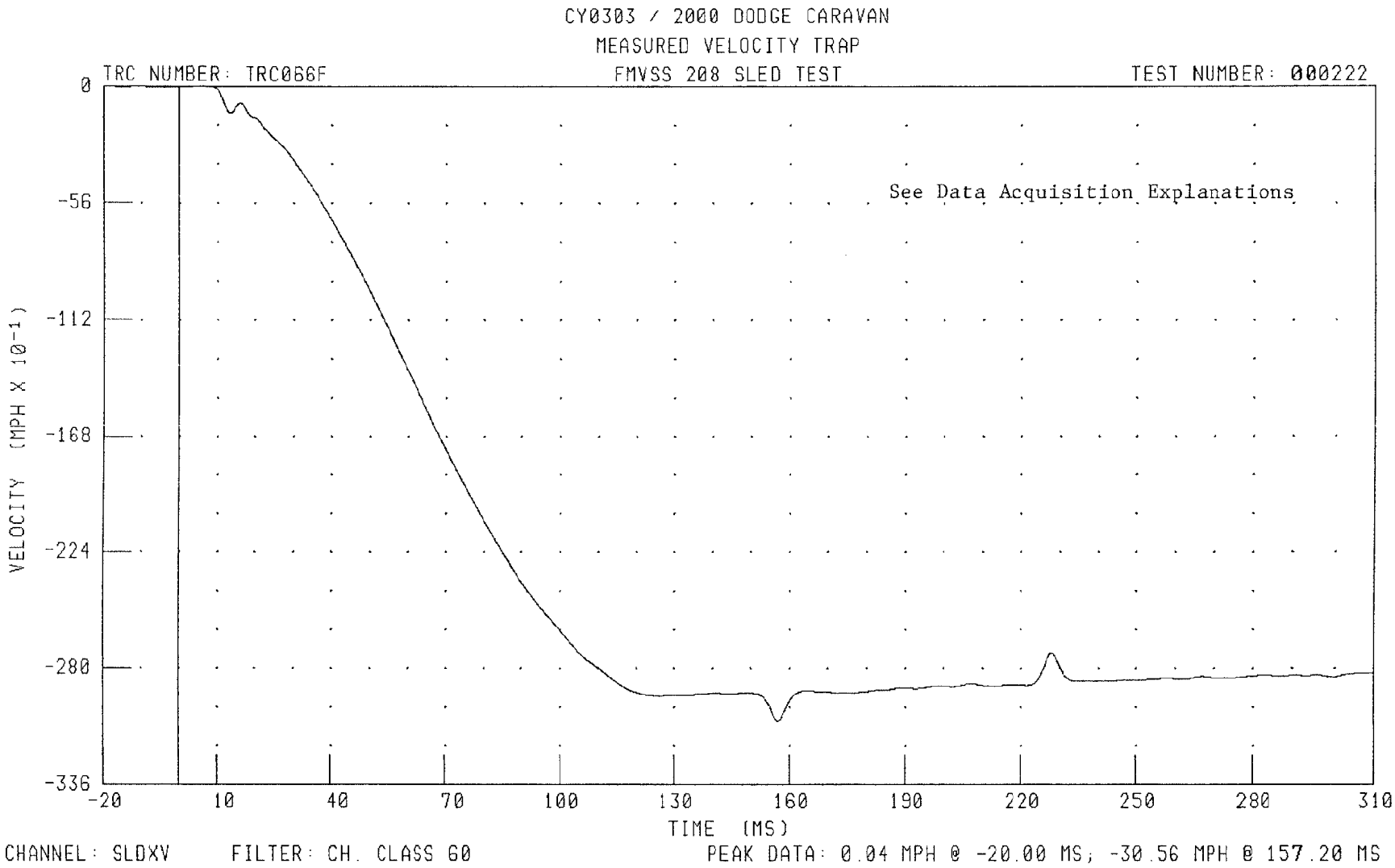
000222


CY0303 / 2000 DODGE CARAVAN
SLED ACCELERATION
TRC NUMBER: TRC066F
FMVSS 208 SLED TEST
TEST NUMBER: 000222
6
-26
-59
-92
-124
-157
-190
ACCELERATION (G X 10-1)
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: SLDXG
FILTER: CH. CLASS 60
PEAK DATA: 0.66 G @ 157.68 MS, -17.50 G @ 58.40 MS

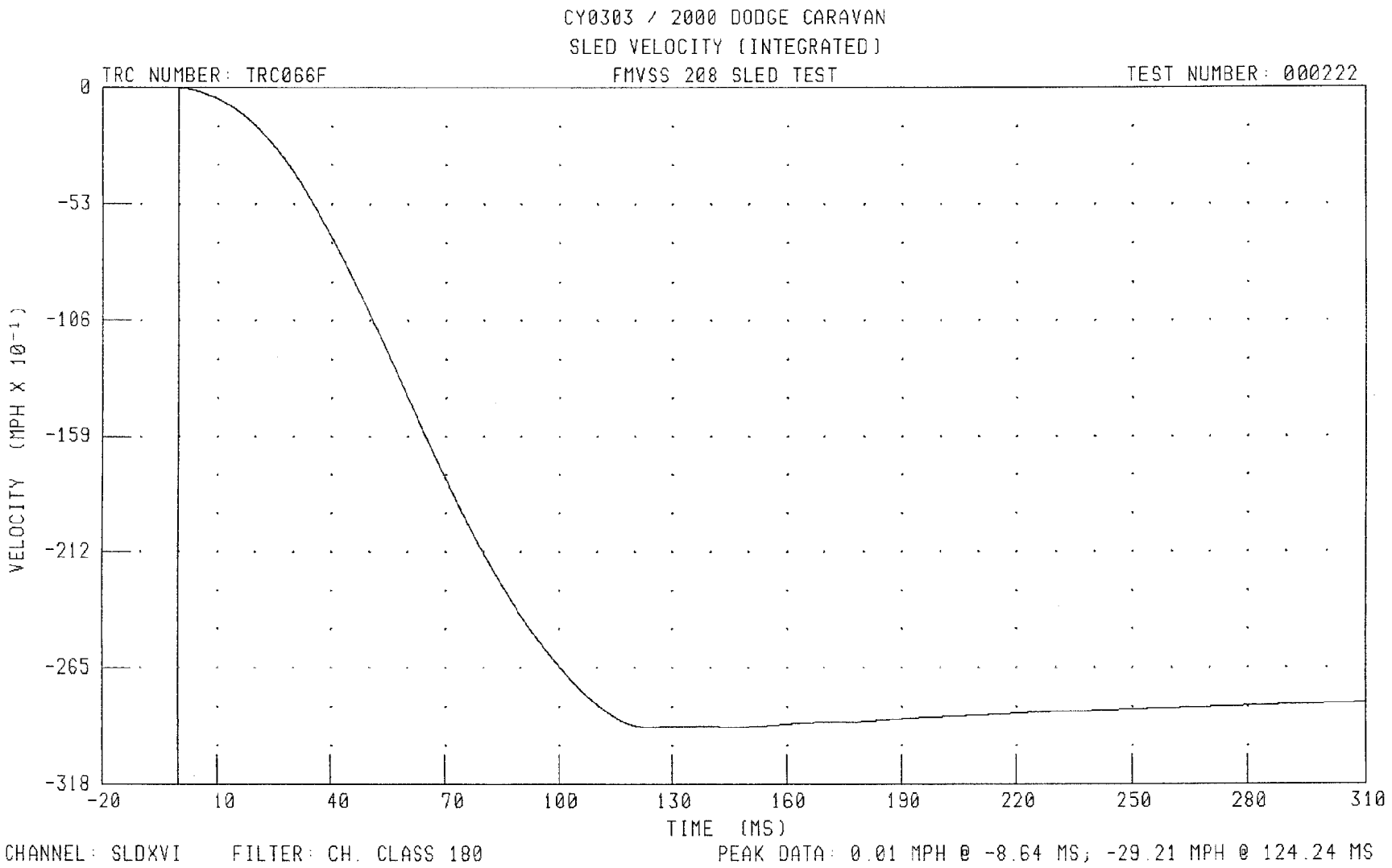
000222


CY0303 / 2000 DODGE CARAVAN
SLED ACCELERATION PRE-FILTERED AT 200 HZ TO DETERMINE HALF G
TRC NUMBER: TRC066Z
FMVSS 208 SLED TEST
TEST NUMBER: 000222
18
-20
-58
-96
-134
-172
-210
ACCELERATION (G X 10⁻¹)
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: SLDXGA
FILTER: CH. CLASS 1000
PEAK DATA: 1.70 G @ 126.24 MS; -19.09 G @ 64.88 MS

000222


CY0303 / 2000 DODGE CARAVAN
MEASURED VELOCITY TRAP
TRC NUMBER: TRC066F
FMVSS 208 SLED TEST
TEST NUMBER: 000222
See Data Acquisition Explanations
VELOCITY (MPH X 10-1)
0
-56
-112
-168
-224
-280
-336
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: SLDXV
FILTER: CH. CLASS 60
PEAK DATA: 0.04 MPH @ -20.00 MS; -30.56 MPH @ 157.20 MS

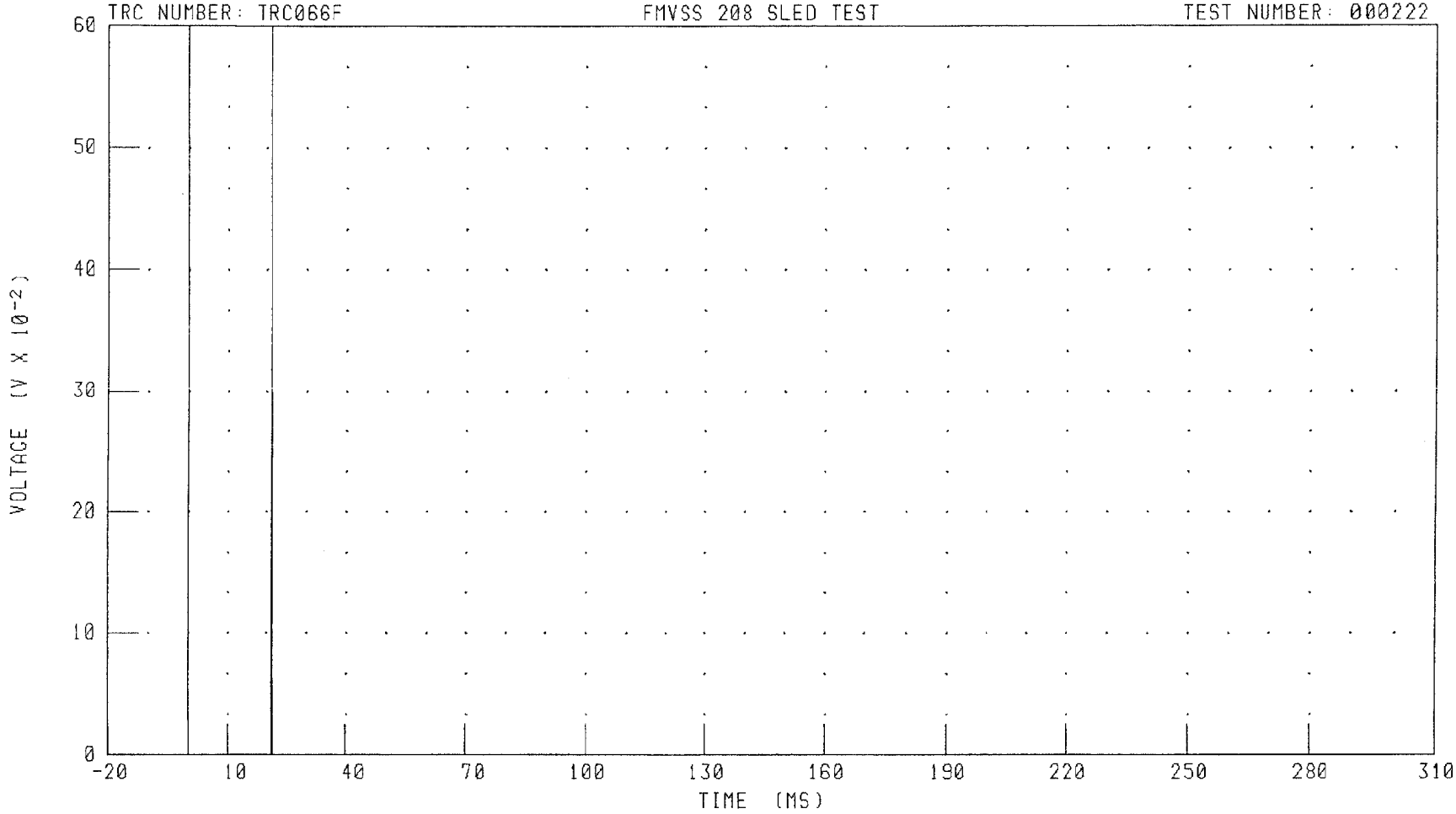
000222


CY0303 / 2000 DODGE CARAVAN
SLED VELOCITY (INTEGRATED)
TRC NUMBER: TRC066F
FMVSS 208 SLED TEST
TEST NUMBER: 000222
0
-53
-106
-159
-212
-265
-318
VELOCITY (MPH X 10-1)
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: SLDXVI
FILTER: CH. CLASS 180
PEAK DATA: 0.01 MPH @ -8.64 MS; -29.21 MPH @ 124.24 MS

000222

CY0303 / 2000 DODGE CARAVAN
DRIVER AIRBAG EVENT
FMVSS 208 SLED TEST

TRC NUMBER: TRC066F TEST NUMBER: 000222



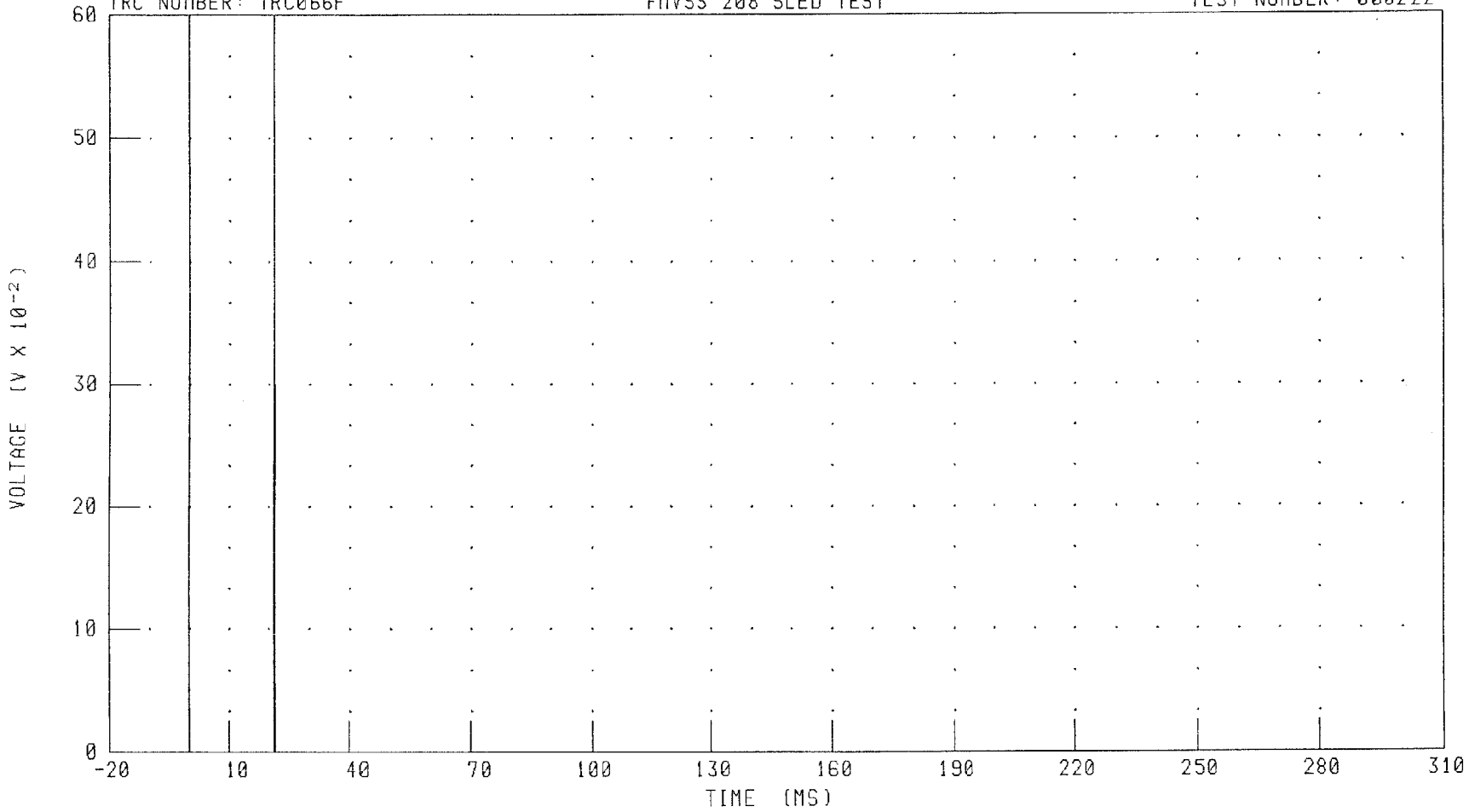
CHANNEL: ABEVT1 FILTER: CH. CLASS 1000 PEAK DATA: 1.00 V @ 21.44 MS, 0.00 V @ -20.00 MS

000222

CY0303 / 2000 DODGE CARAVAN
PASSENGER AIRBAG EVENT
FMVSS 208 SLED TEST

TRC NUMBER: TRC066F

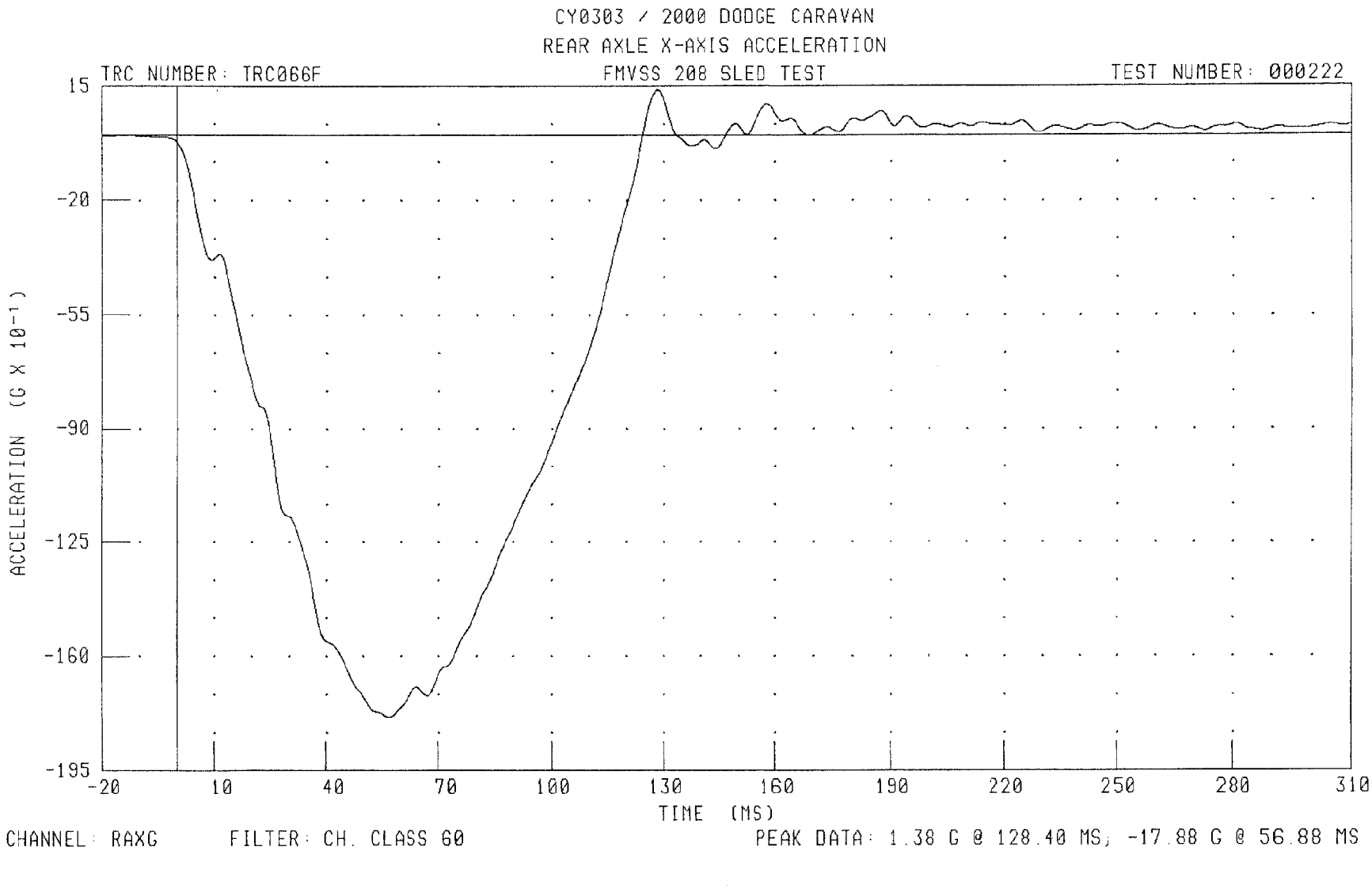
TEST NUMBER: 000222



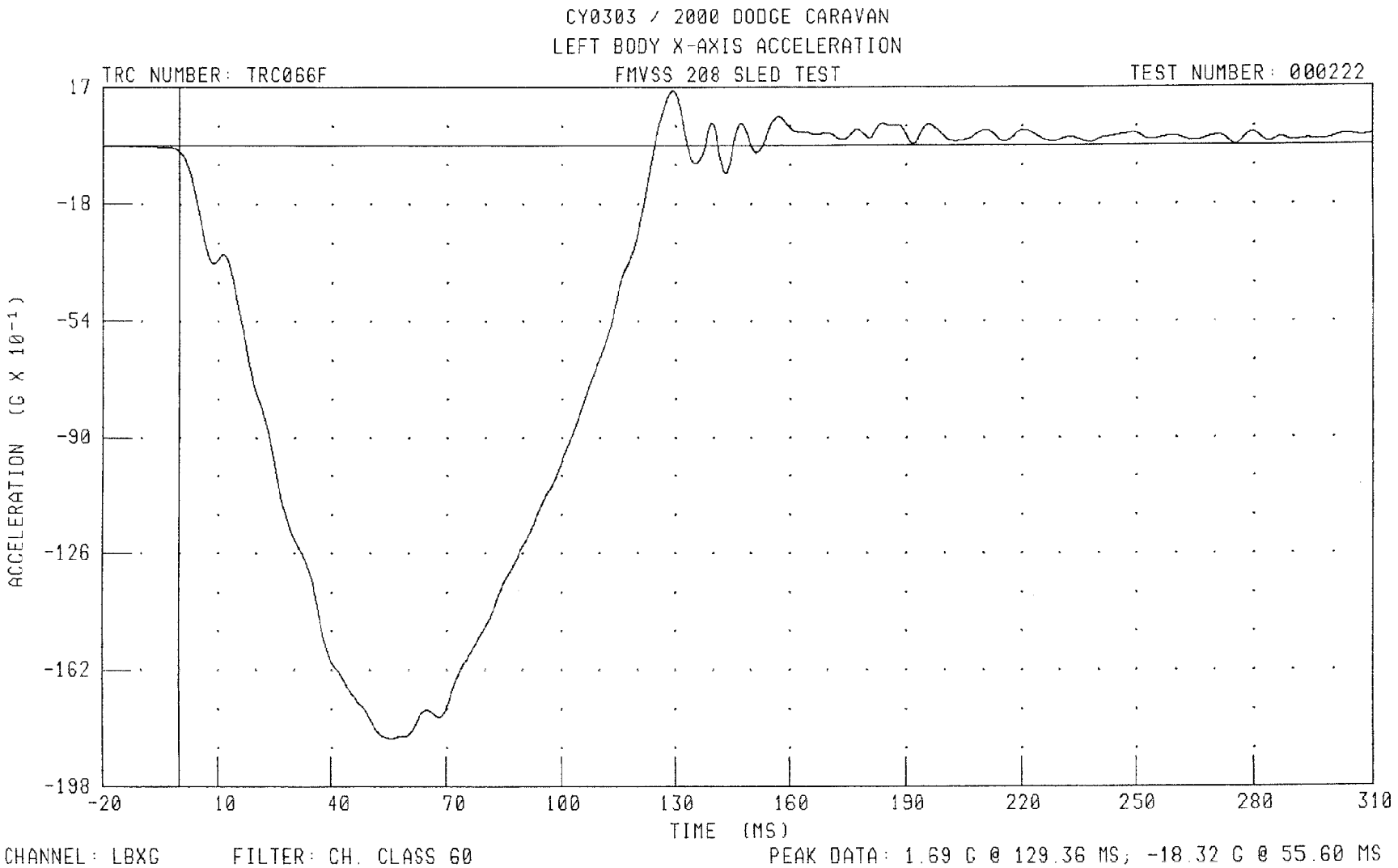
CHANNEL: ABEVT2 FILTER: CH. CLASS 1000

PEAK DATA: 1.00 V @ 21.44 MS; 0.00 V @ -20.00 MS

000222


CY0303 / 2000 DODGE CARAVAN
REAR AXLE X-AXIS ACCELERATION
TRC NUMBER: TRC066F
FMVSS 208 SLED TEST
TEST NUMBER: 000222
15
-20
-55
-90
-125
-160
-195
ACCELERATION (G X 10⁻¹)
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: RAXG
FILTER: CH. CLASS 60
PEAK DATA: 1.38 G @ 128.40 MS, -17.88 G @ 56.88 MS

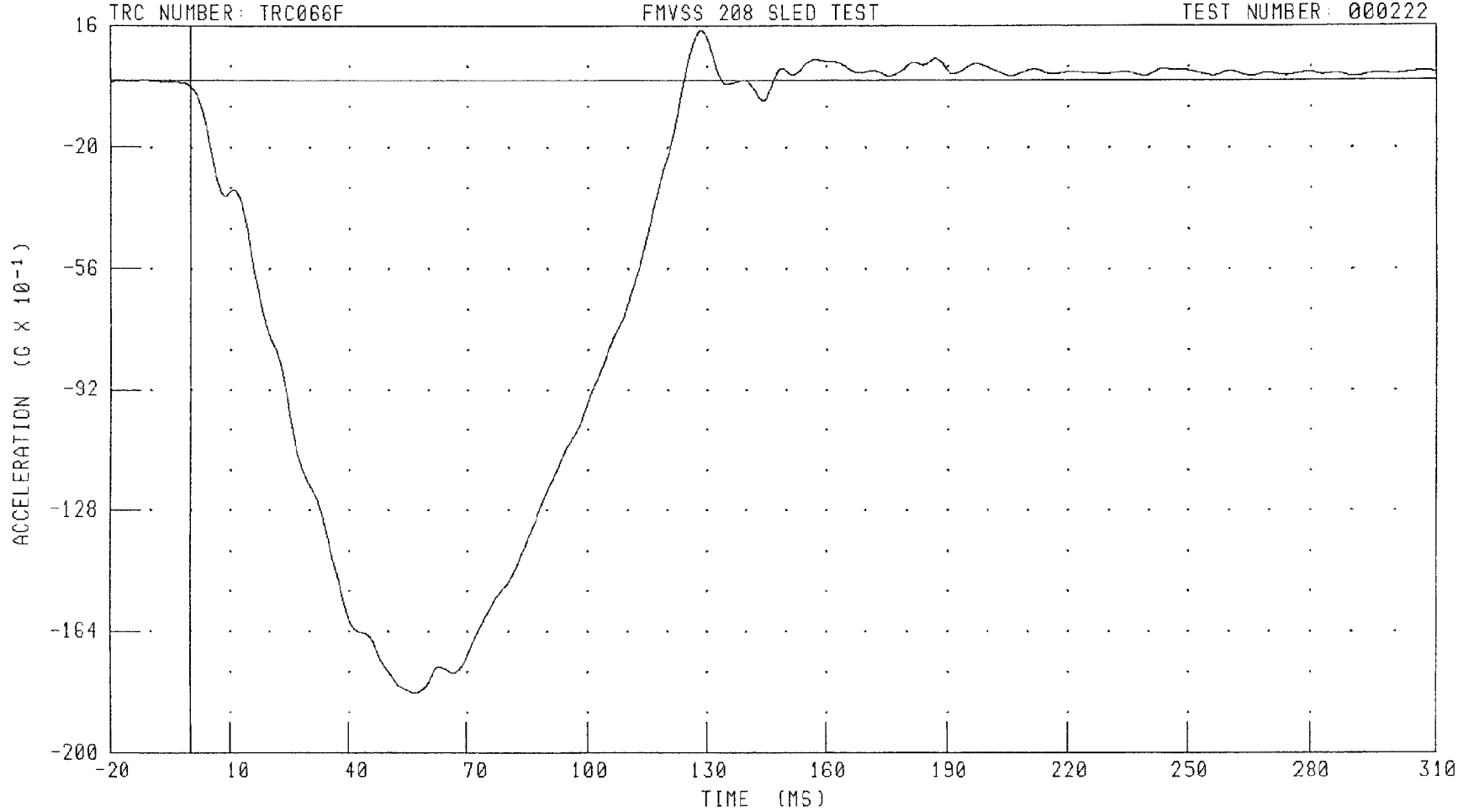
000222


CY0303 / 2000 DODGE CARAVAN
LEFT BODY X-AXIS ACCELERATION
TRC NUMBER: TRC066F
FMVSS 208 SLED TEST
TEST NUMBER: 000222
17
-18
-54
-90
-126
-162
-198
ACCELERATION (G X 10⁻¹)
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: LBXG
FILTER: CH. CLASS 60
PEAK DATA: 1.69 G @ 129.36 MS; -18.32 G @ 55.60 MS

000222

CY0303 / 2000 DODGE CARAVAN
RIGHT BODY X-AXIS ACCELERATION

TRC NUMBER: TRC066F FMVSS 208 SLED TEST TEST NUMBER: 000222



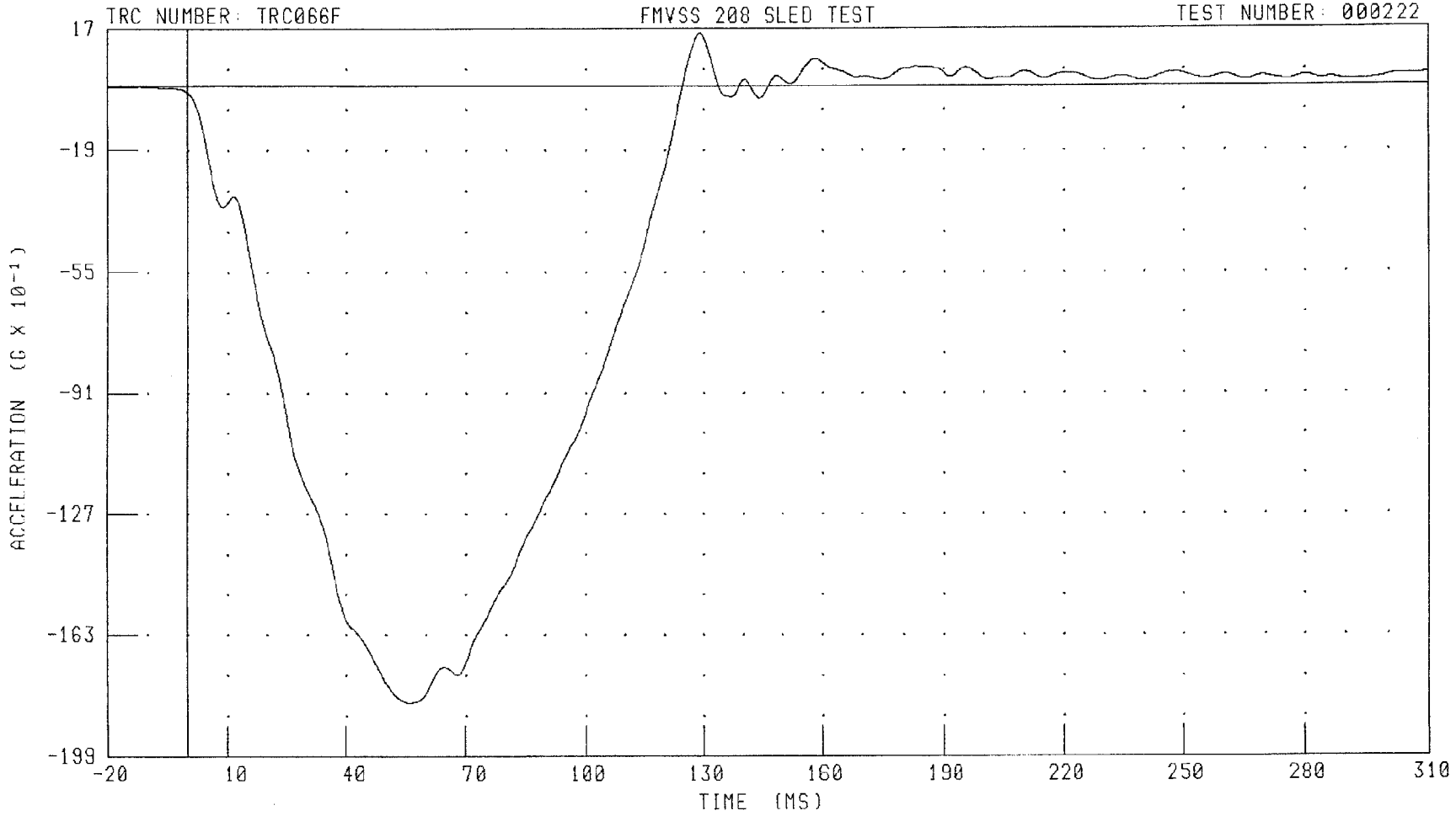
CHANNEL: RBXG FILTER: CH. CLASS 60 PEAK DATA: 1.45 G @ 128.72 MS; -18.21 G @ 56.72 MS

000222

CY0303 / 2000 DODGE CARAVAN
LEFT FRAME X-AXIS ACCELERATION
FMVSS 208 SLED TEST

TRC NUMBER: TRC066F

TEST NUMBER: 000222

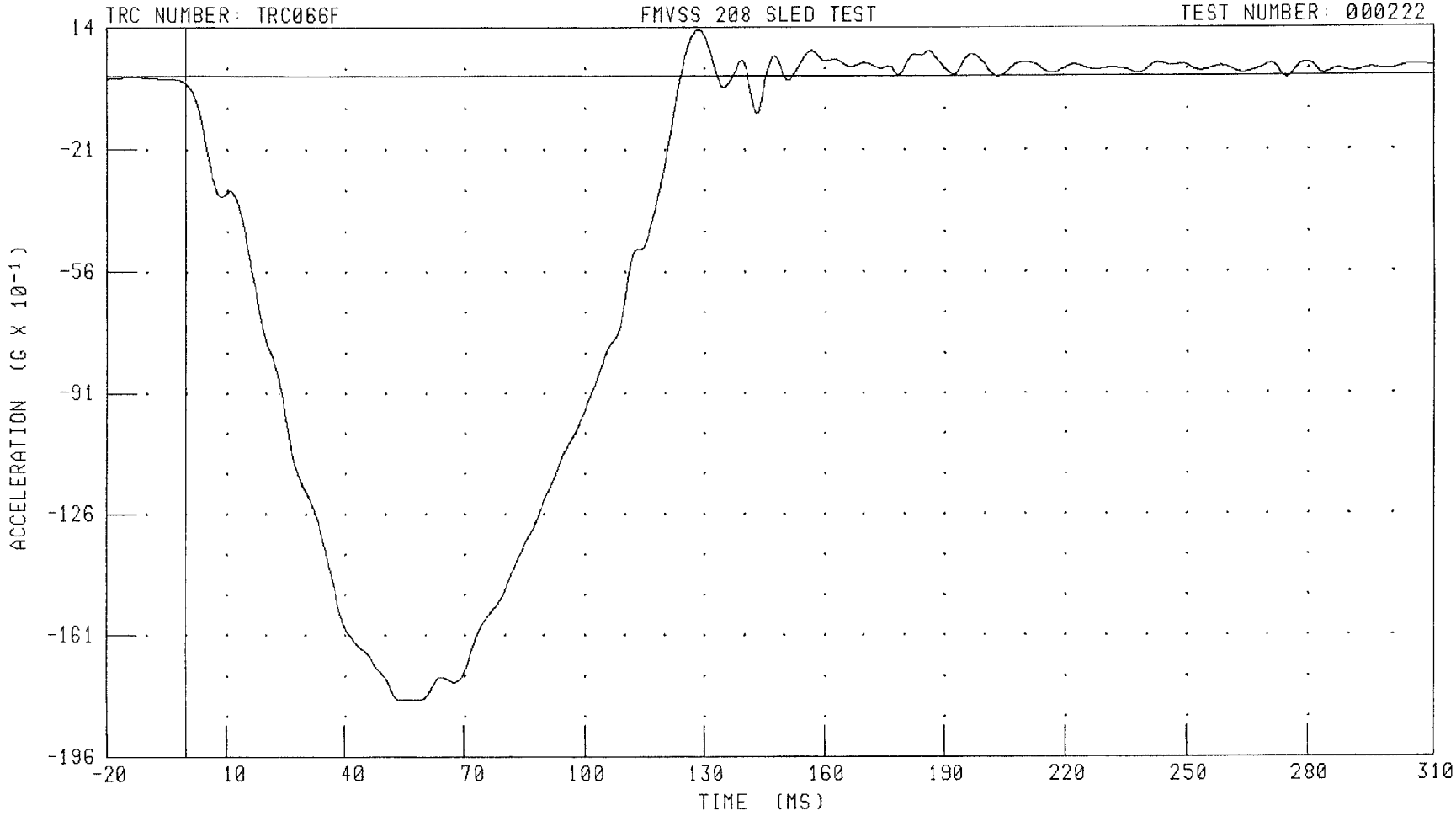


CHANNEL: LFXG FILTER: CH. CLASS 60

PEAK DATA: 1.56 G @ 129.12 MS, -18.32 G @ 55.84 MS

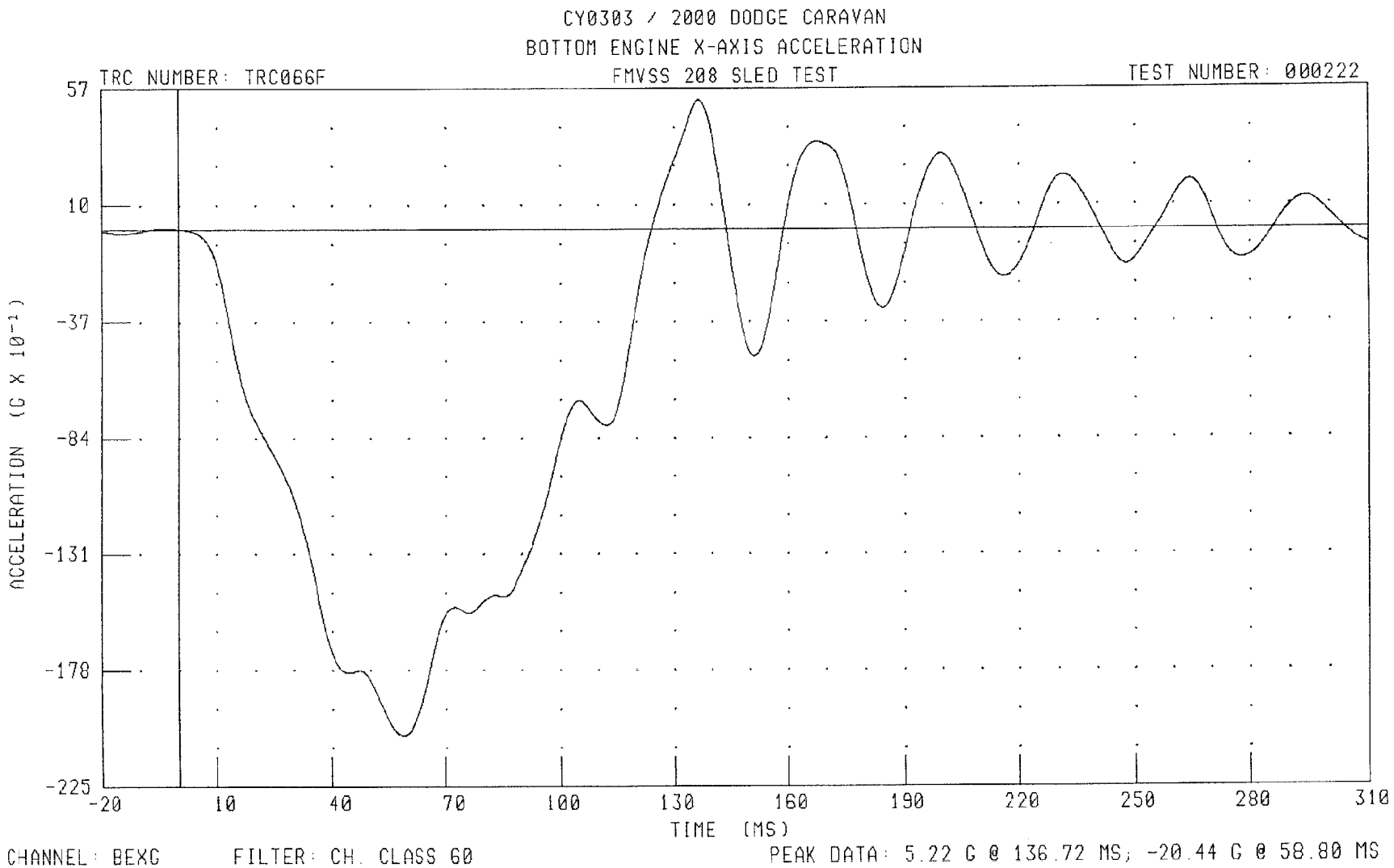
000222

CY0303 / 2000 DODGE CARAVAN
RIGHT FRAME X-AXIS ACCELERATION
TRC NUMBER: TRC066F FMVSS 208 SLED TEST TEST NUMBER: 000222



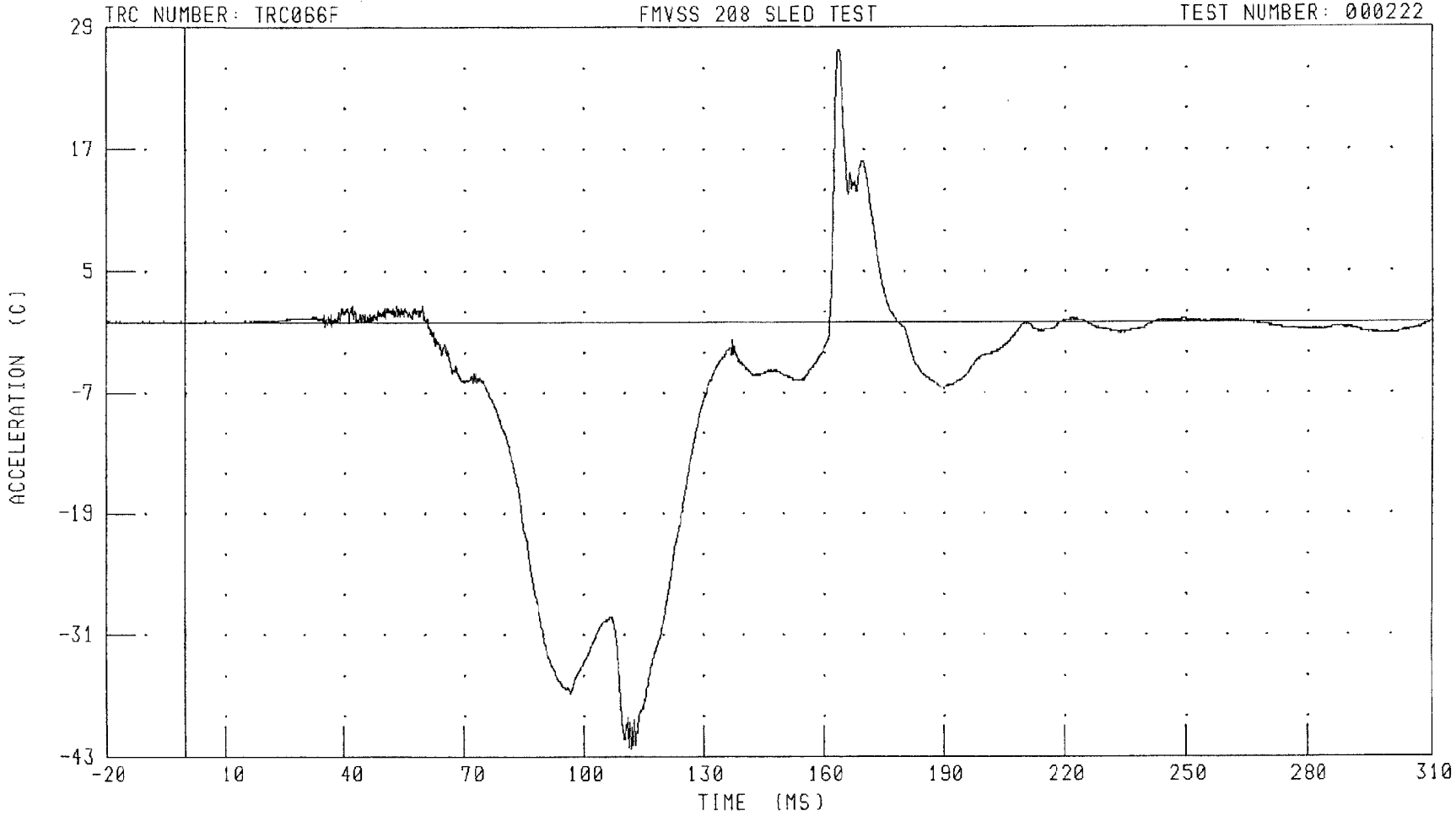
CHANNEL: RFXG FILTER: CH. CLASS 60 PEAK DATA: 1.33 G @ 128.72 MS; -17.98 G @ 54.08 MS

000222


CY0303 / 2000 DODGE CARAVAN
BOTTOM ENGINE X-AXIS ACCELERATION
FMVSS 208 SLED TEST
TRC NUMBER: TRC066F
TEST NUMBER: 000222
57
10
-37
-84
-131
-178
-225
ACCELERATION (G X 10⁻¹)
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: BEXG
FILTER: CH. CLASS 60
PEAK DATA: 5.22 G @ 136.72 MS; -20.44 G @ 58.80 MS

000222

CY0303 / 2000 DODGE CARAVAN
DRIVER HEAD X-AXIS ACCELERATION
TRC NUMBER: TRC066F FMVSS 208 SLED TEST TEST NUMBER: 000222



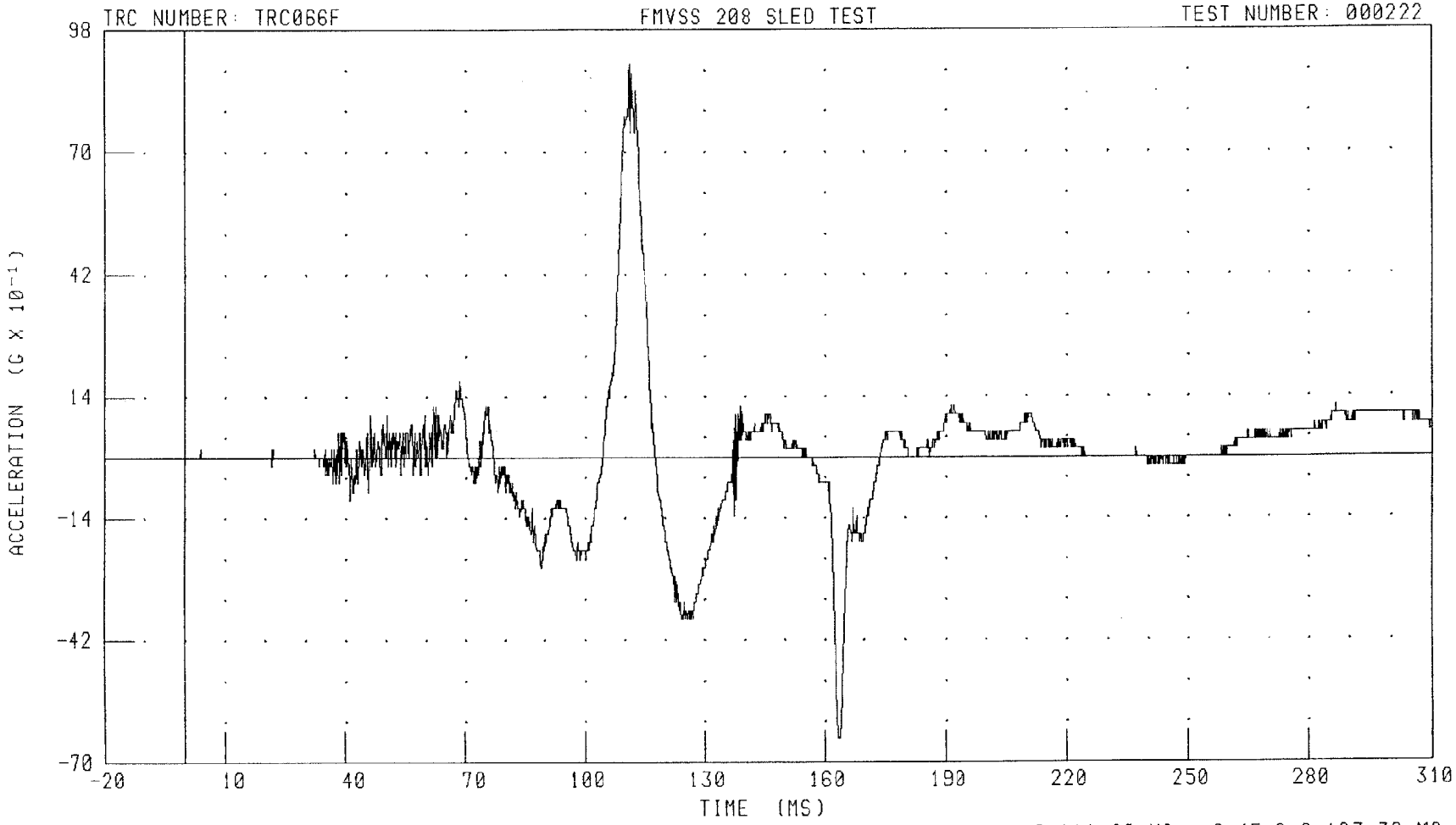
CHANNEL: HEDXG1 FILTER: CH. CLASS 1000 PEAK DATA: 26.79 G @ 163.52 MS; -42.26 G @ 111.76 MS

000222

CY0303 / 2000 DODGE CARAVAN
DRIVER HEAD Y-AXIS ACCELERATION
FMVSS 208 SLED TEST

TRC NUMBER: TRC066F

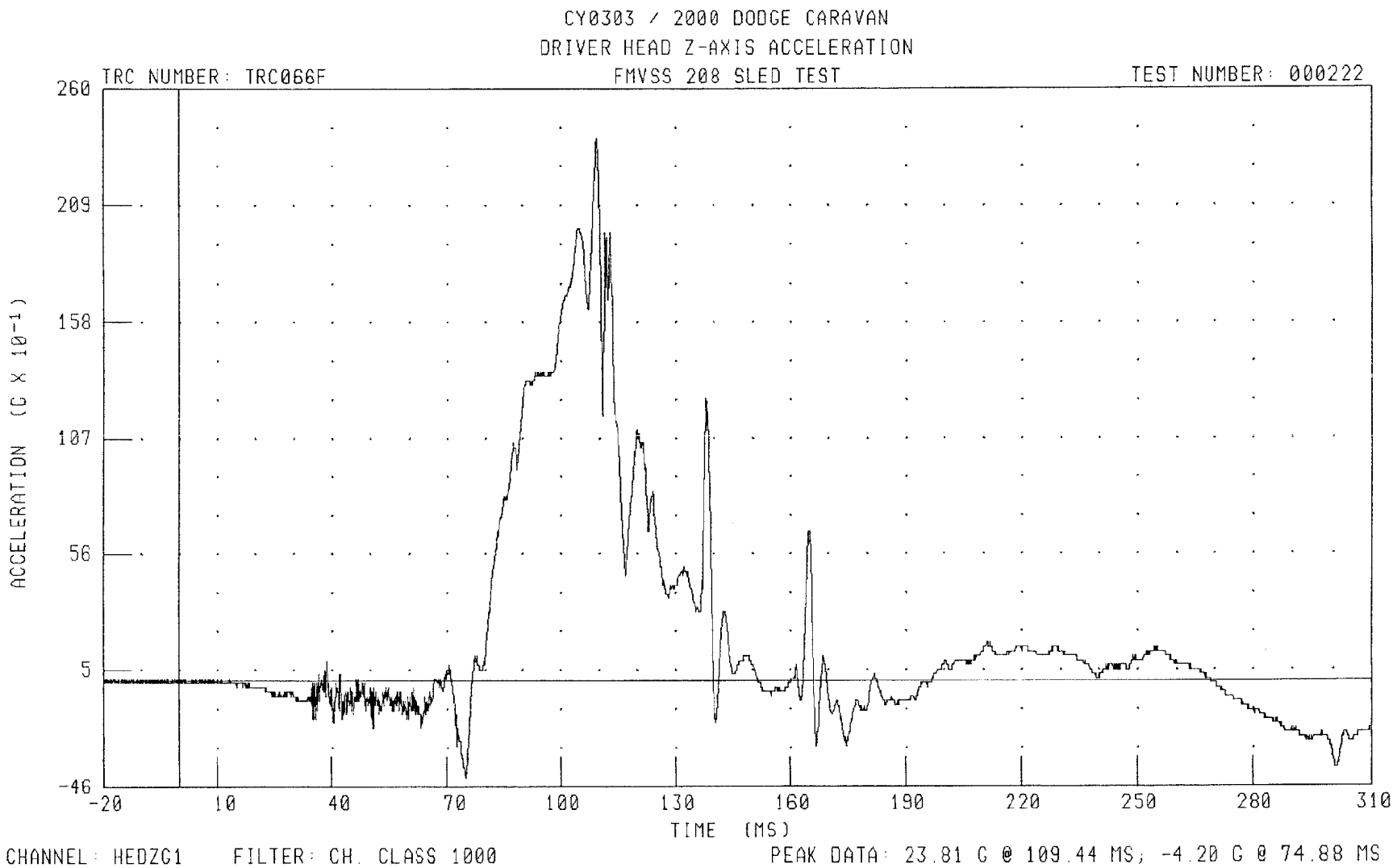
TEST NUMBER: 000222



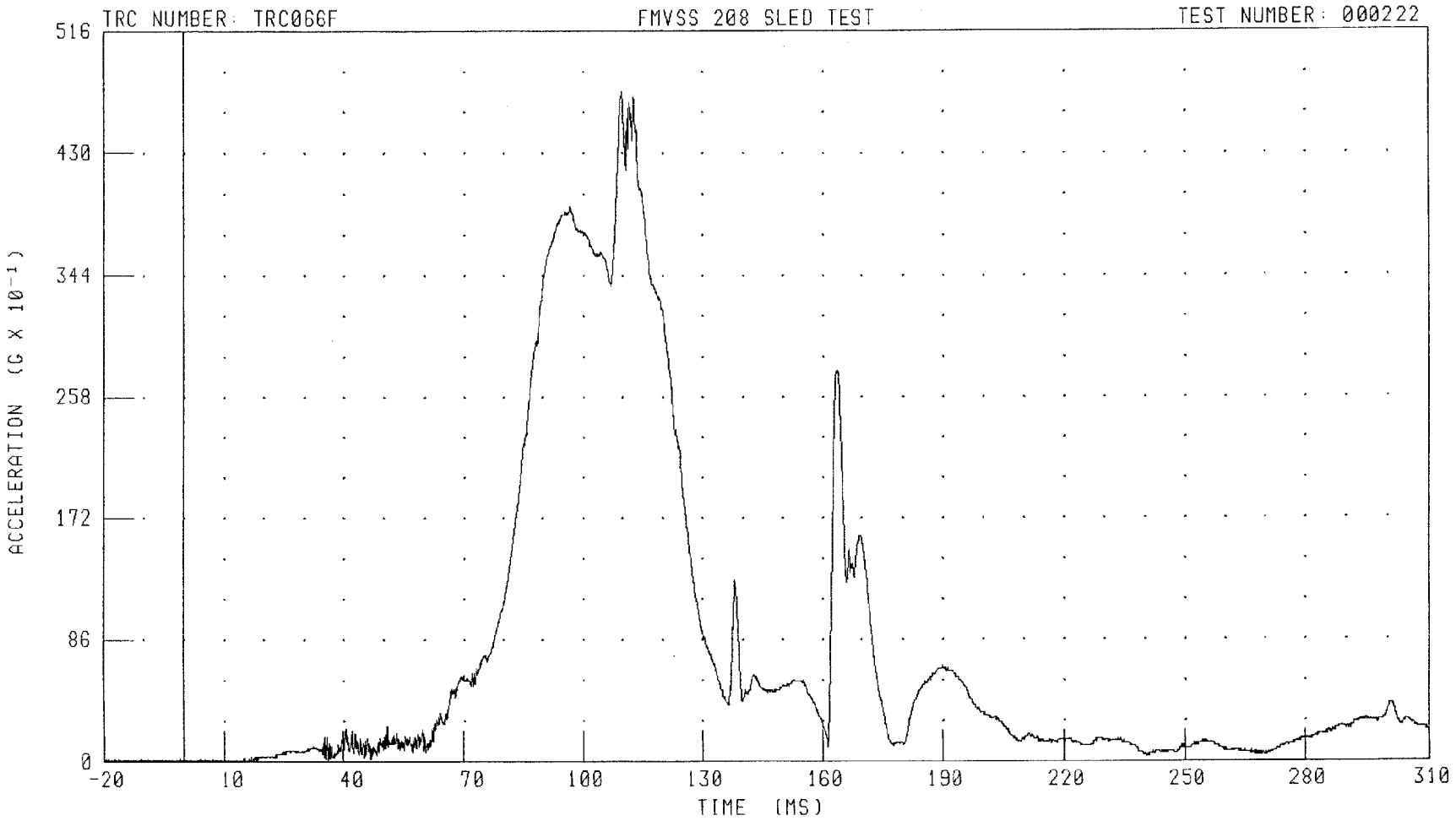
CHANNEL: HEDYG1 FILTER: CH. CLASS 1000

PEAK DATA: 8.99 G @ 111.20 MS; -6.45 G @ 163.36 MS

000222


CY0303 / 2000 DODGE CARAVAN
DRIVER HEAD Z-AXIS ACCELERATION
TRC NUMBER: TRC066F
FMVSS 208 SLED TEST
TEST NUMBER: 000222
260
209
158
107
56
5
-46
ACCELERATION (G X 10-1)
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: HEDZC1
FILTER: CH. CLASS 1000
PEAK DATA: 23.81 G @ 109.44 MS; -4.20 G @ 74.88 MS

CY0303 / 2000 DODGE CARAVAN
DRIVER HEAD RESULTANT ACCELERATION



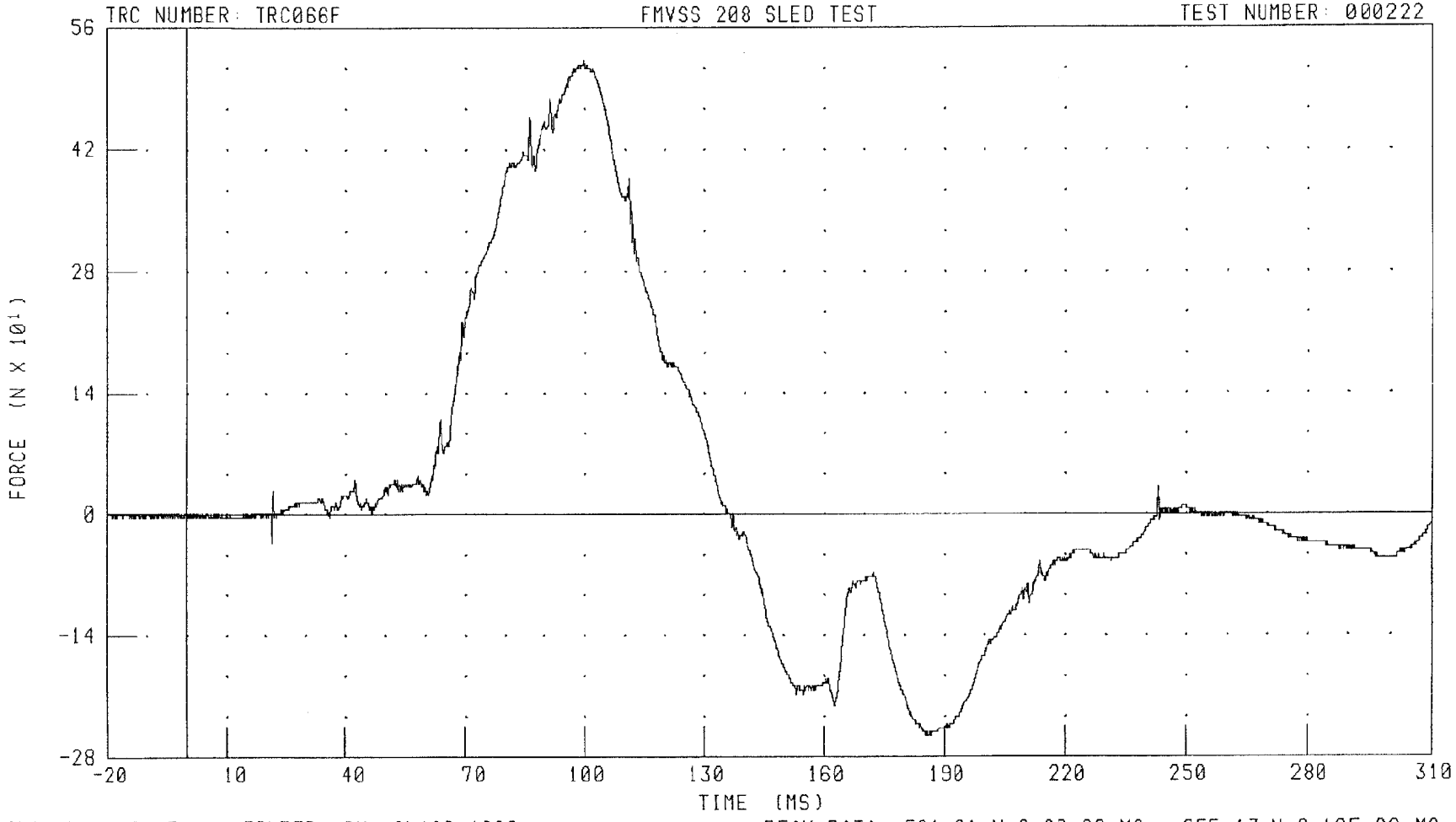
CHANNEL: HEDRG1 FILTER: CH. CLASS 1000 PEAK DATA: 47.33 G @ 110.00 MS, 0.08 G @ -20.00 MS

000222

CY0303 / 2000 DODGE CARAVAN
DRIVER NECK X-AXIS SHEAR FORCE
FMVSS 208 SLED TEST

TRC NUMBER: TRC066F

TEST NUMBER: 000222



CHANNEL: NEKXF1 FILTER: CH. CLASS 1000

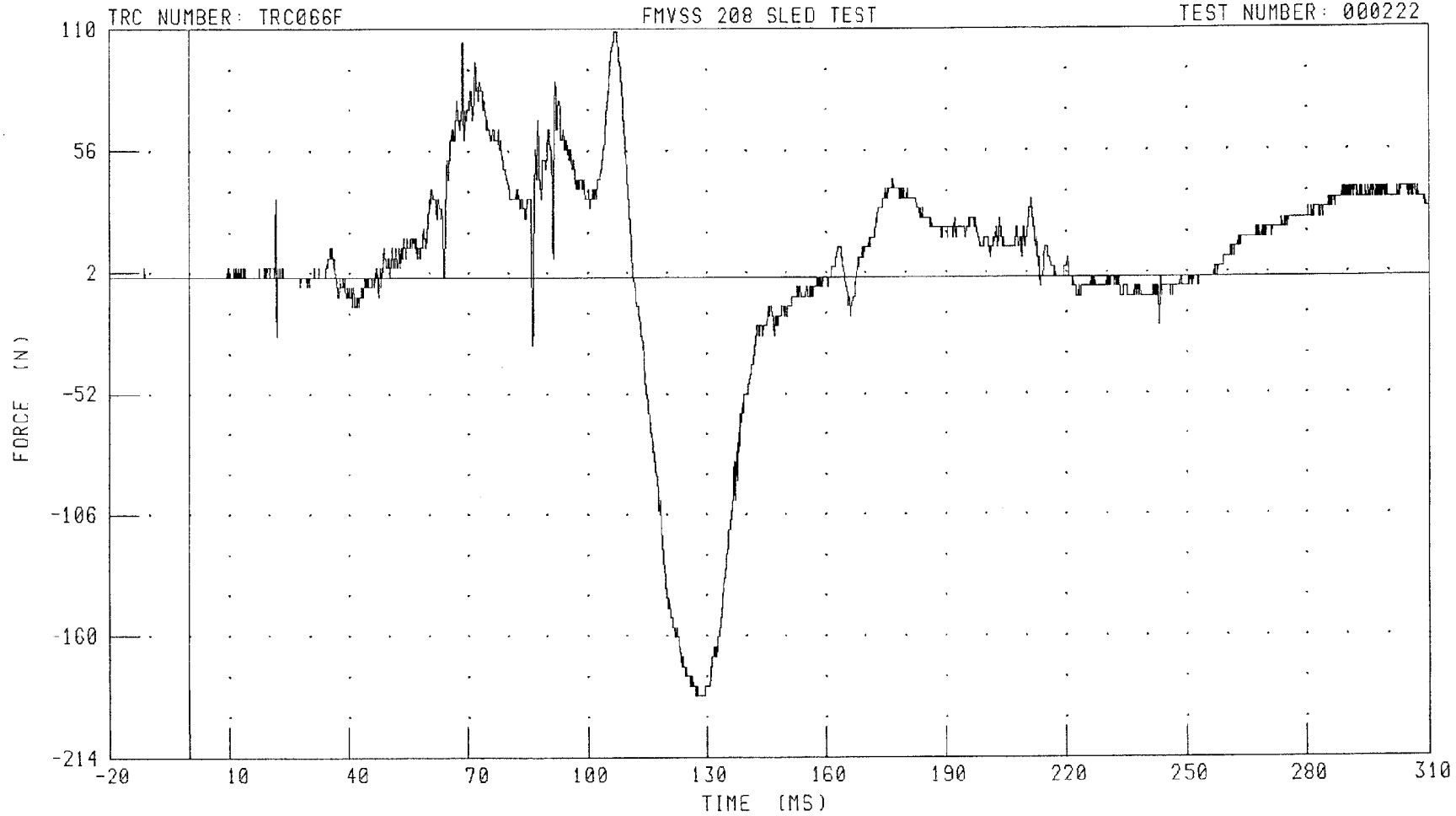
PEAK DATA: 521.91 N @ 99.92 MS; -255.13 N @ 185.28 MS

000222

CY0303 / 2000 DODGE CARAVAN
DRIVER NECK Y-AXIS SHEAR FORCE
FMVSS 208 SLED TEST

TRC NUMBER: TRC066F

TEST NUMBER: 000222



CHANNEL: NEKYF1 FILTER: CH. CLASS 1000

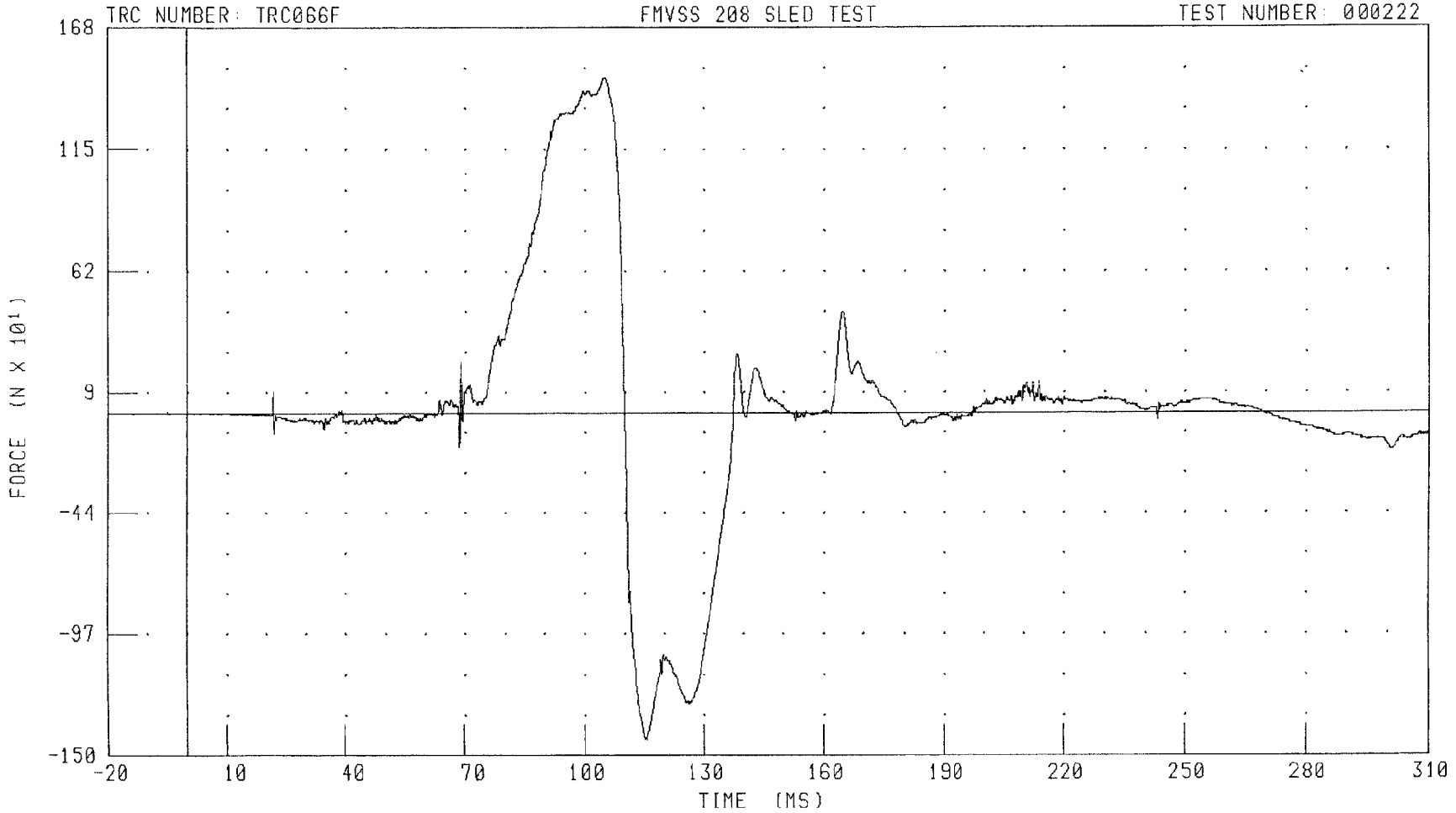
PEAK DATA: 108.52 N @ 107.04 MS; -186.80 N @ 127.28 MS

000222

CY0303 / 2000 DODGE CARAVAN
DRIVER NECK Z-AXIS AXIAL FORCE
FMVSS 208 SLED TEST

TRC NUMBER: TRC066F

TEST NUMBER: 000222



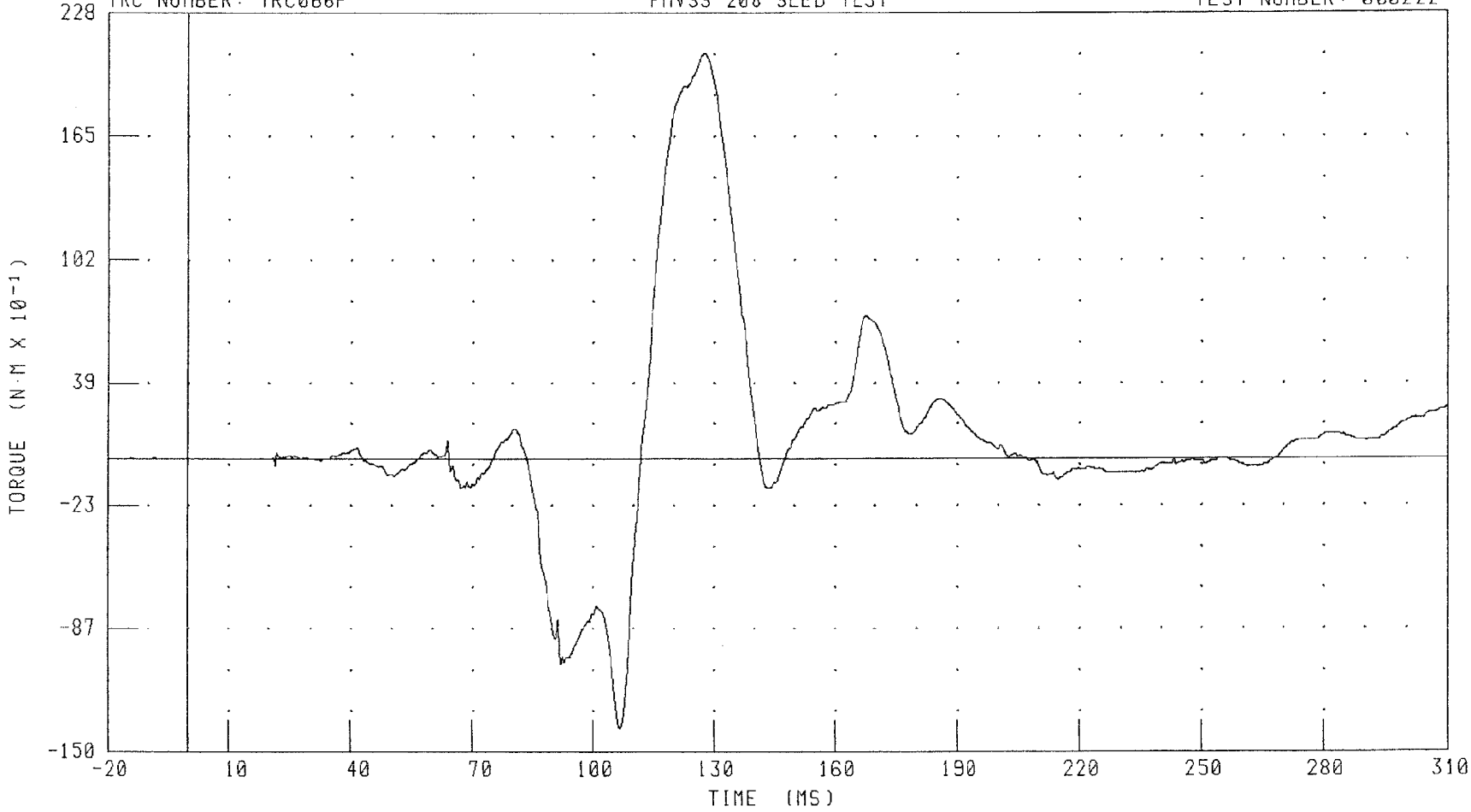
CHANNEL: NEKZF1 FILTER: CH. CLASS 1000

PEAK DATA: 1459.15 N @ 104.80 MS, -1432.89 N @ 115.20 MS

000222

CY0303 / 2000 DODGE CARAVAN
DRIVER NECK MOMENT ABOUT X AXIS

TRC NUMBER: TRC066F FMVSS 208 SLED TEST TEST NUMBER: 000222



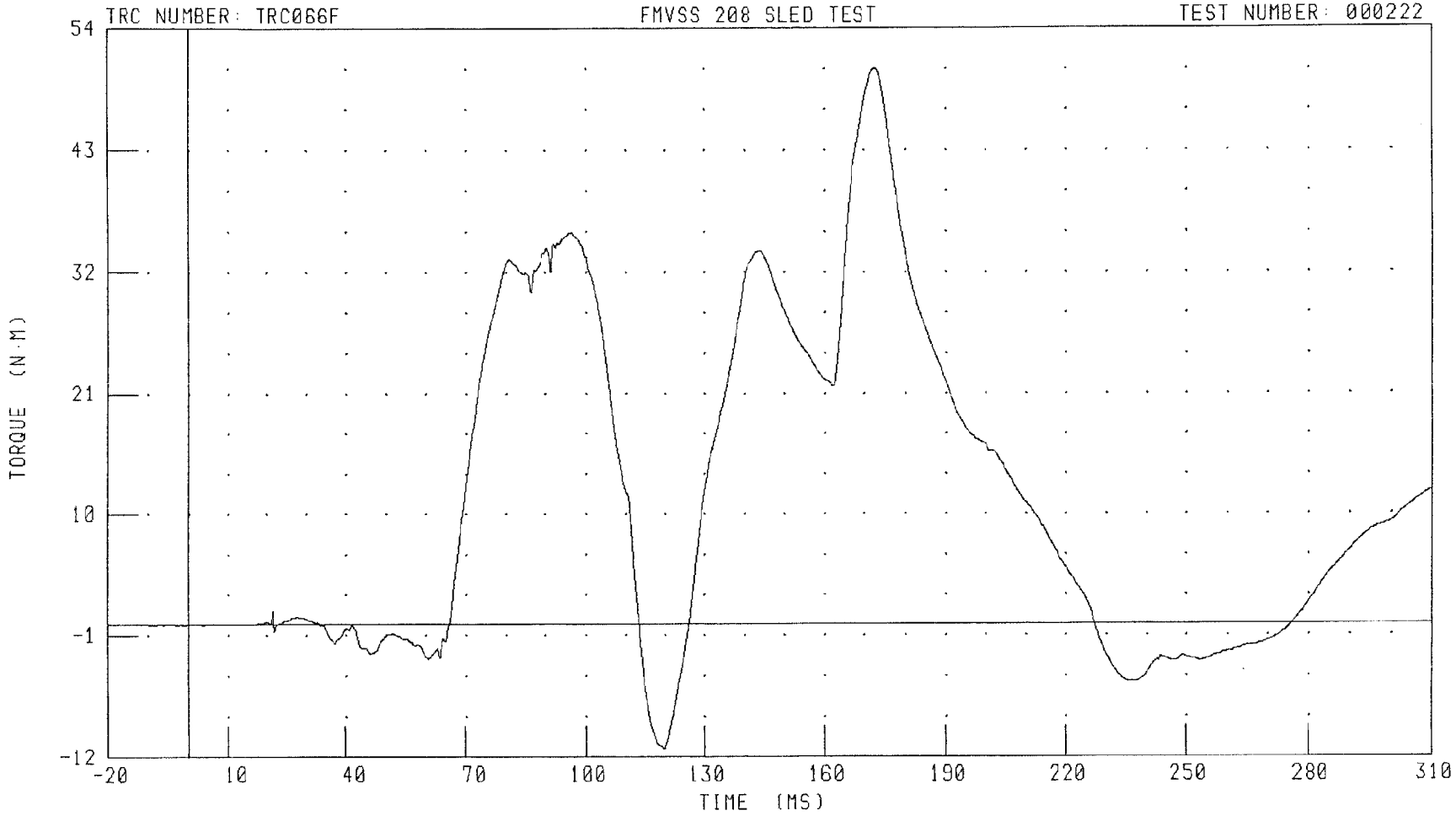
CHANNEL: NEKXM1 FILTER: CH. CLASS 600 PEAK DATA: 20.71 N·M @ 127.84 MS, -13.82 N·M @ 106.88 MS

000222

CY0303 / 2000 DODGE CARAVAN
DRIVER NECK MOMENT ABOUT Y AXIS
FMVSS 208 SLED TEST

TRC NUMBER: TRC066F

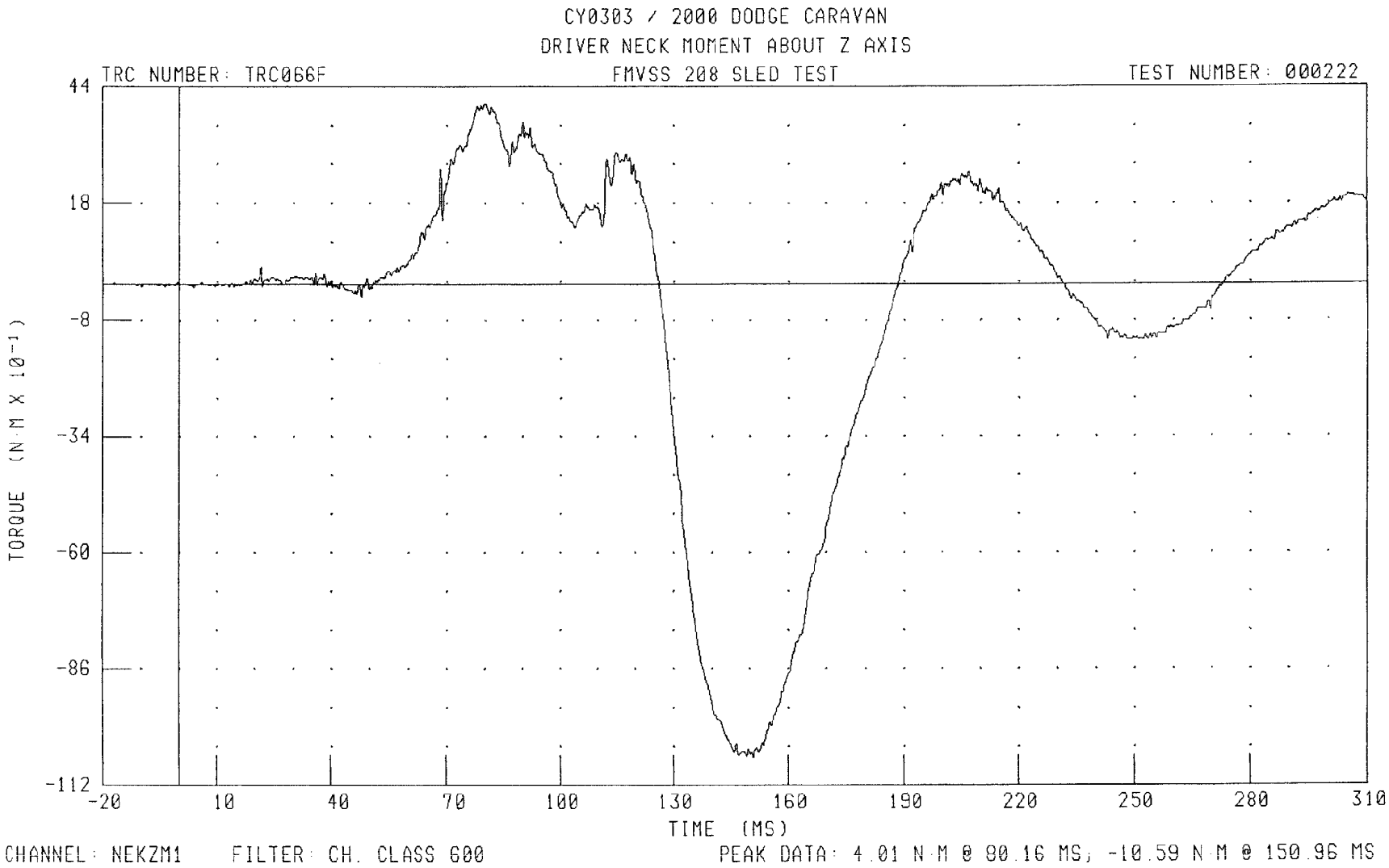
TEST NUMBER: 000222



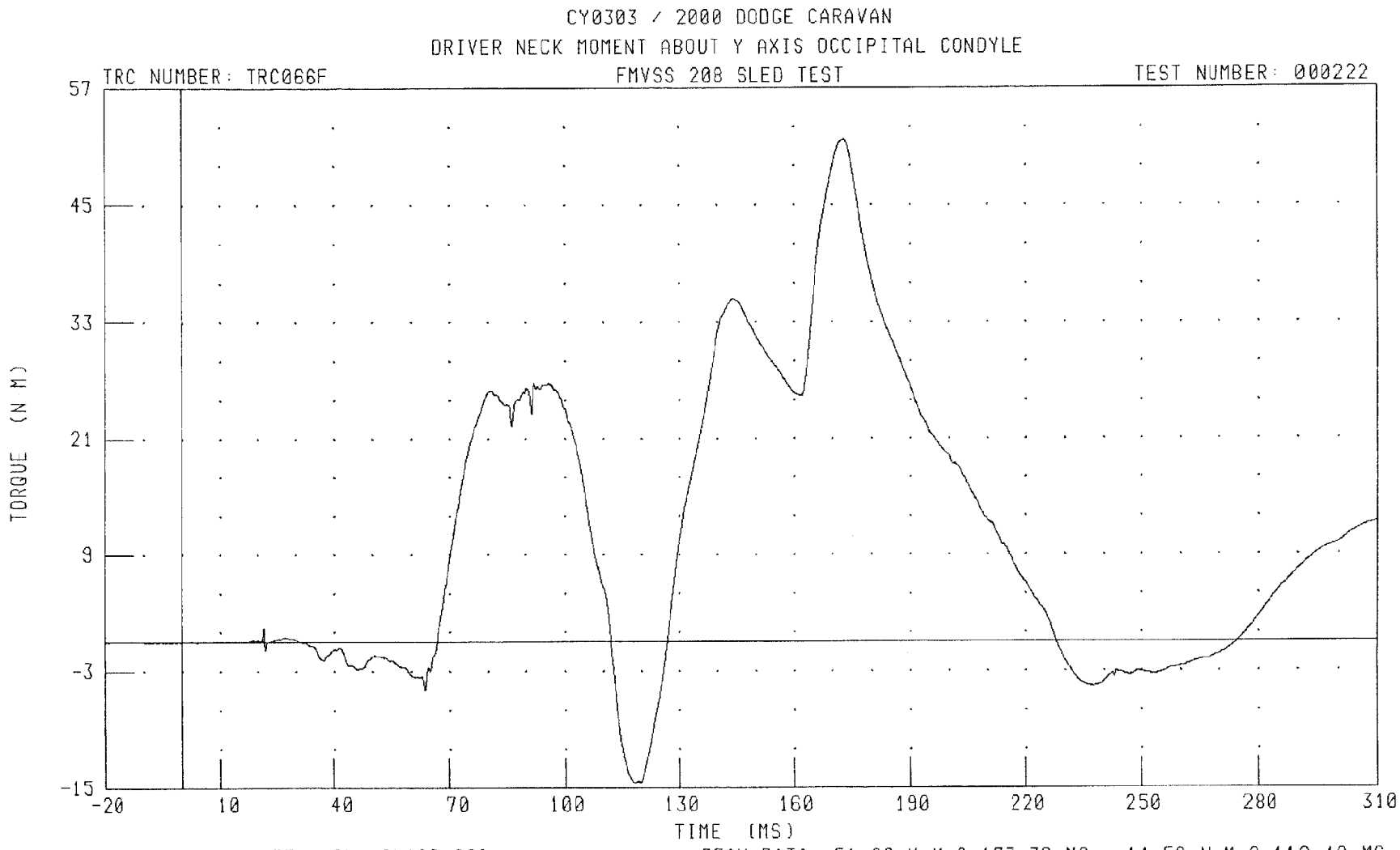
CHANNEL: NEKYM1 FILTER: CH. CLASS 600

PEAK DATA: 50.34 N·M @ 172.88 MS; -11.29 N·M @ 119.92 MS

000222

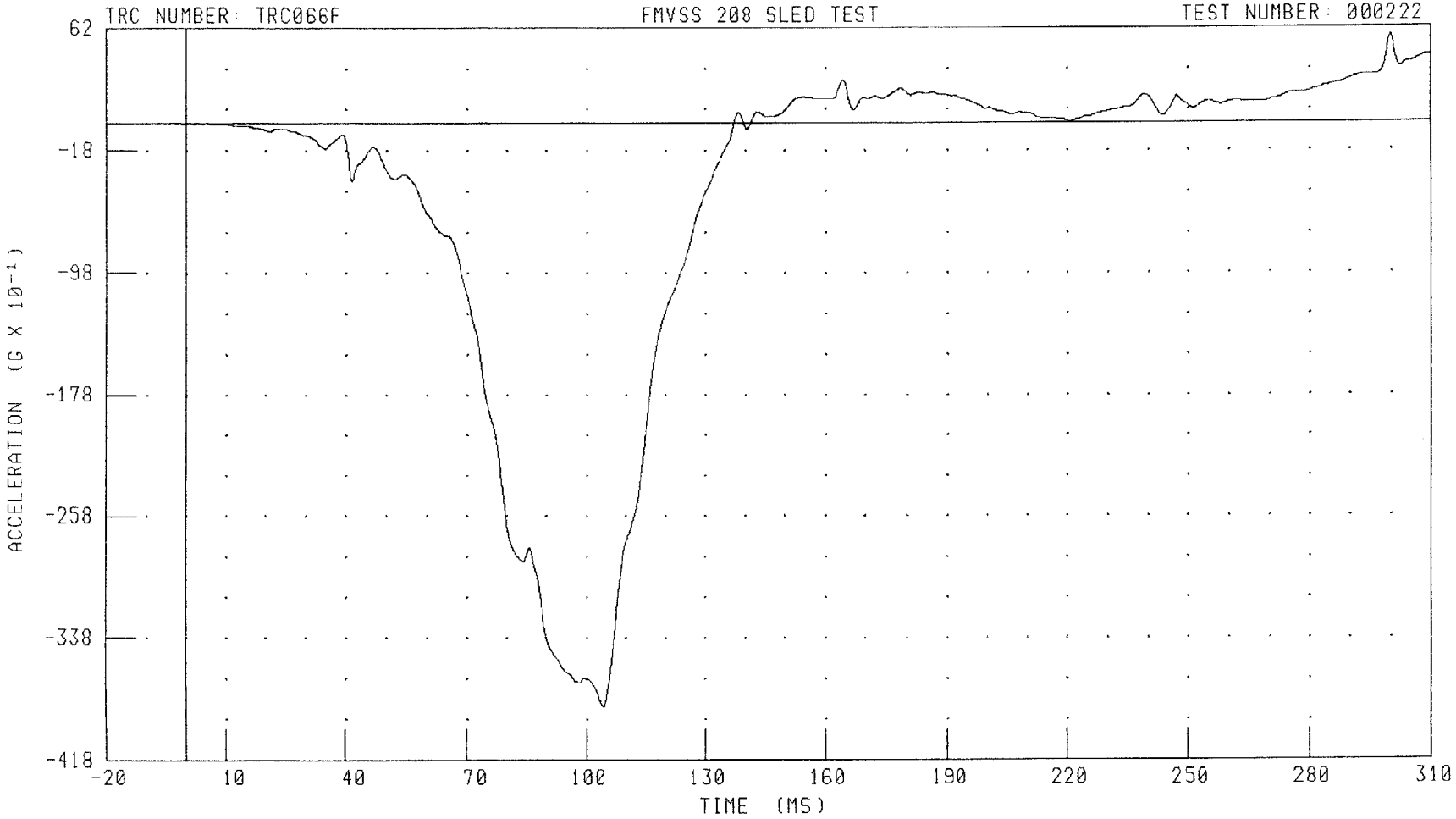

CY0303 / 2000 DODGE CARAVAN
DRIVER NECK MOMENT ABOUT Z AXIS
TRC NUMBER: TRC066F
FMVSS 208 SLED TEST
TEST NUMBER: 000222
44
18
-8
-34
-60
-86
-112
TORQUE (N·M X 10⁻¹)
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: NEKZM1
FILTER: CH. CLASS 600
PEAK DATA: 4.01 N·M @ 80.16 MS, -10.59 N·M @ 150.96 MS

000222


CY0303 / 2000 DODGE CARAVAN
DRIVER NECK MOMENT ABOUT Y AXIS OCCIPITAL CONDYLE
TRC NUMBER: TRC066F
FMVSS 208 SLED TEST
TEST NUMBER: 000222
57
45
33
21
9
-3
-15
TORQUE (N M)
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: NEKOM1
FILTER: CH. CLASS 600
PEAK DATA: 51.69 N-M @ 173.36 MS; -14.50 N-M @ 118.40 MS

000222

CY0303 / 2000 DODGE CARAVAN
DRIVER CHEST X-AXIS ACCELERATION
TRC NUMBER: TRC066F FMVSS 208 SLED TEST TEST NUMBER: 000222



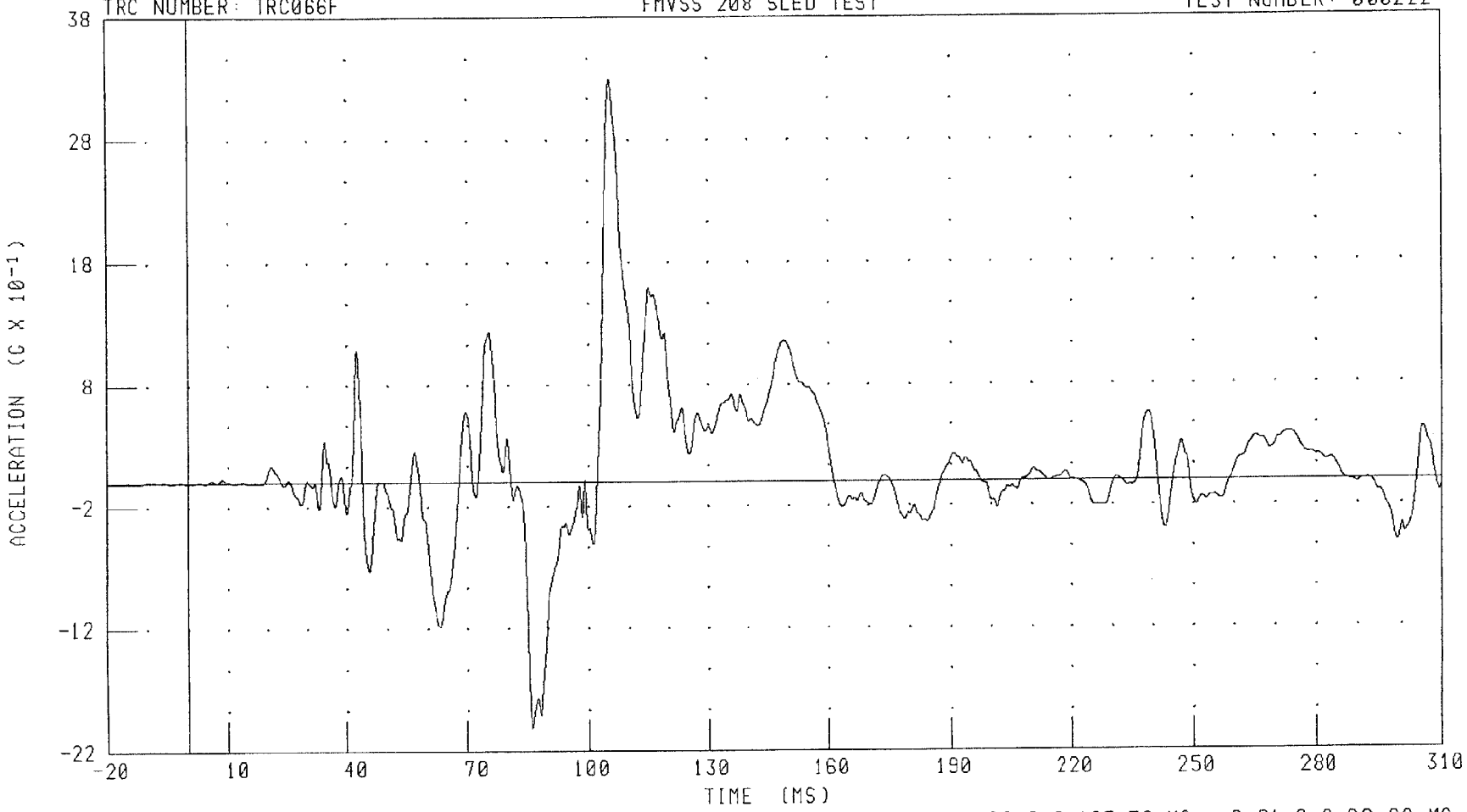
CHANNEL: CSTXC1 FILTER: CH. CLASS 180 PEAK DATA: 5.66 G @ 300.08 MS; -38.30 G @ 104.40 MS

000222

CY0303 / 2000 DODGE CARAVAN
DRIVER CHEST Y-AXIS ACCELERATION
FMVSS 208 SLED TEST

TRC NUMBER: TRC066F

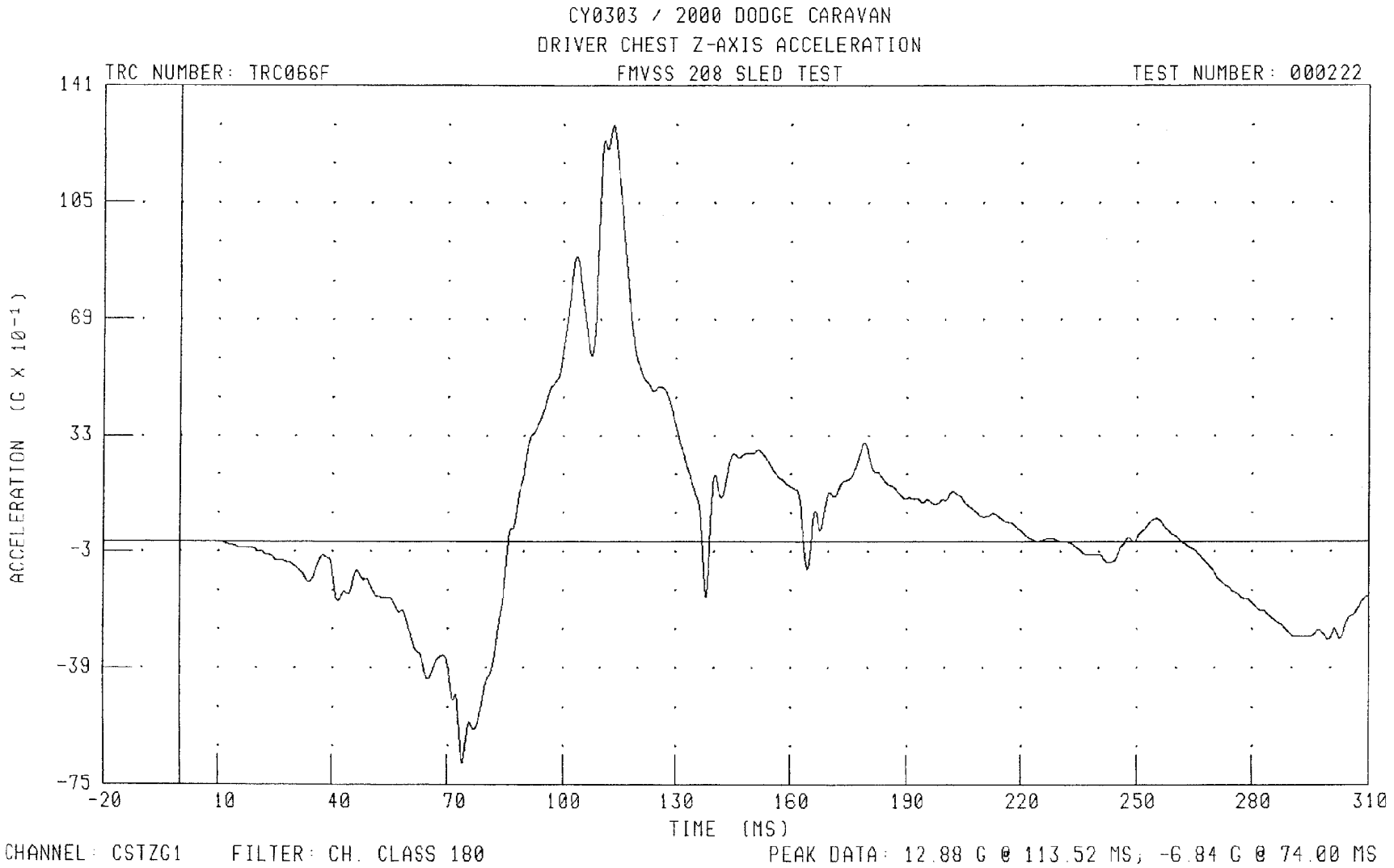
TEST NUMBER: 000222



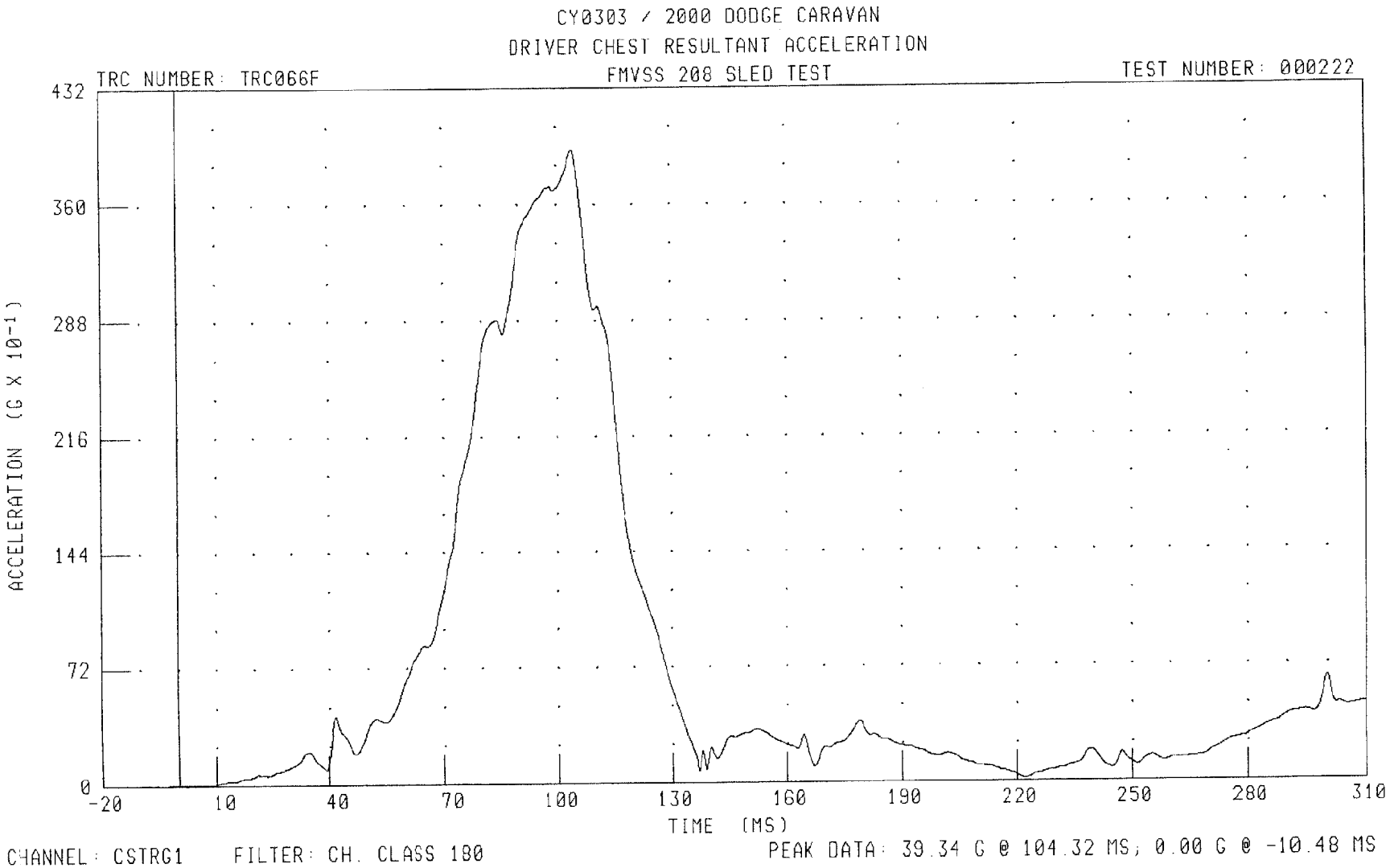
CHANNEL: CSTYG1 FILTER: CH. CLASS 180

PEAK DATA: 3.30 G @ 105.52 MS; -2.01 G @ 86.00 MS

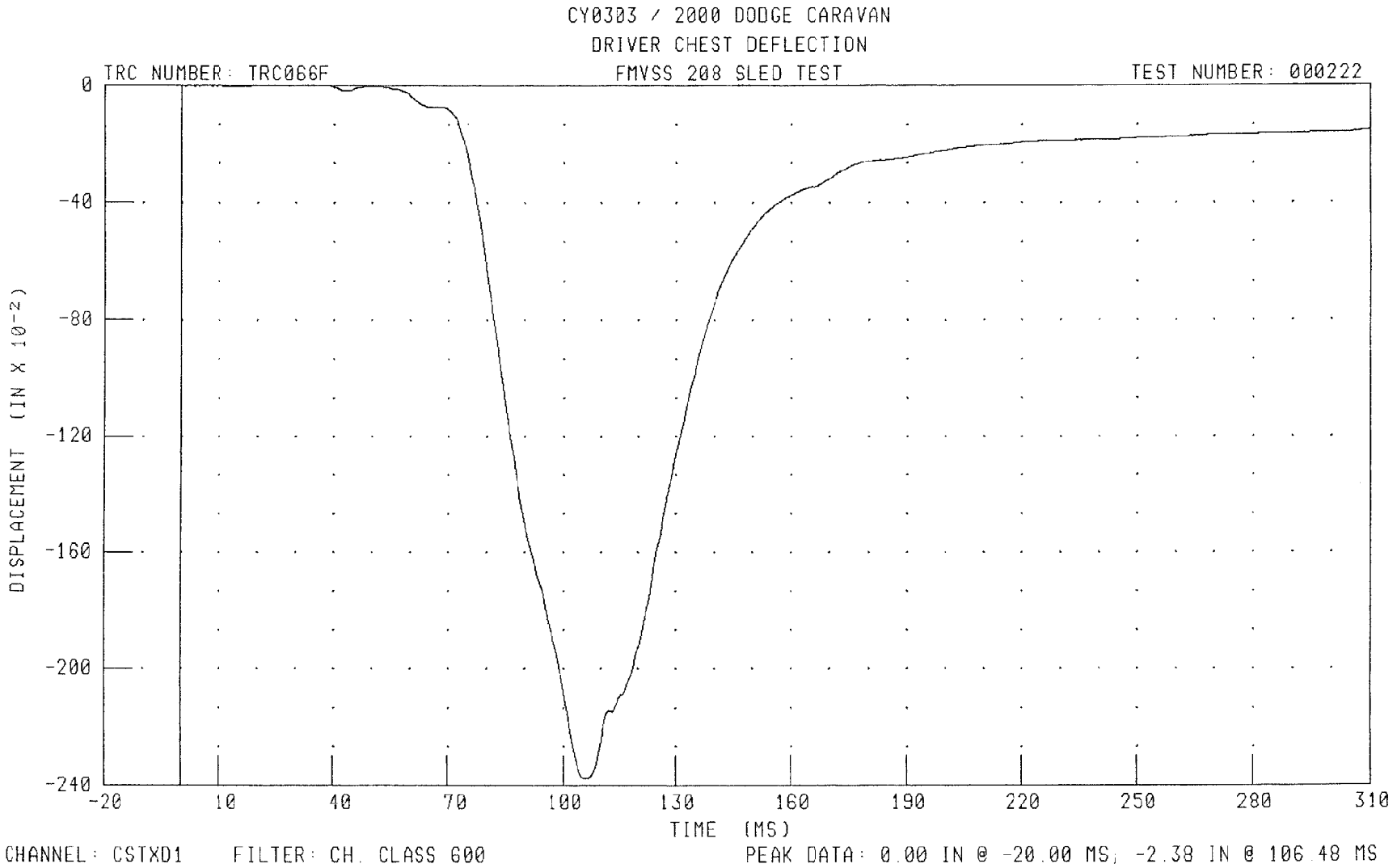
000222


CY0303 / 2000 DODGE CARAVAN
DRIVER CHEST Z-AXIS ACCELERATION
TRC NUMBER: TRC066F
FMVSS 208 SLED TEST
TEST NUMBER: 000222
141
105
69
33
-3
-39
-75
ACCELERATION (G X 10-1)
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: CSTZG1
FILTER: CH. CLASS 180
PEAK DATA: 12.88 G @ 113.52 MS, -6.84 G @ 74.00 MS

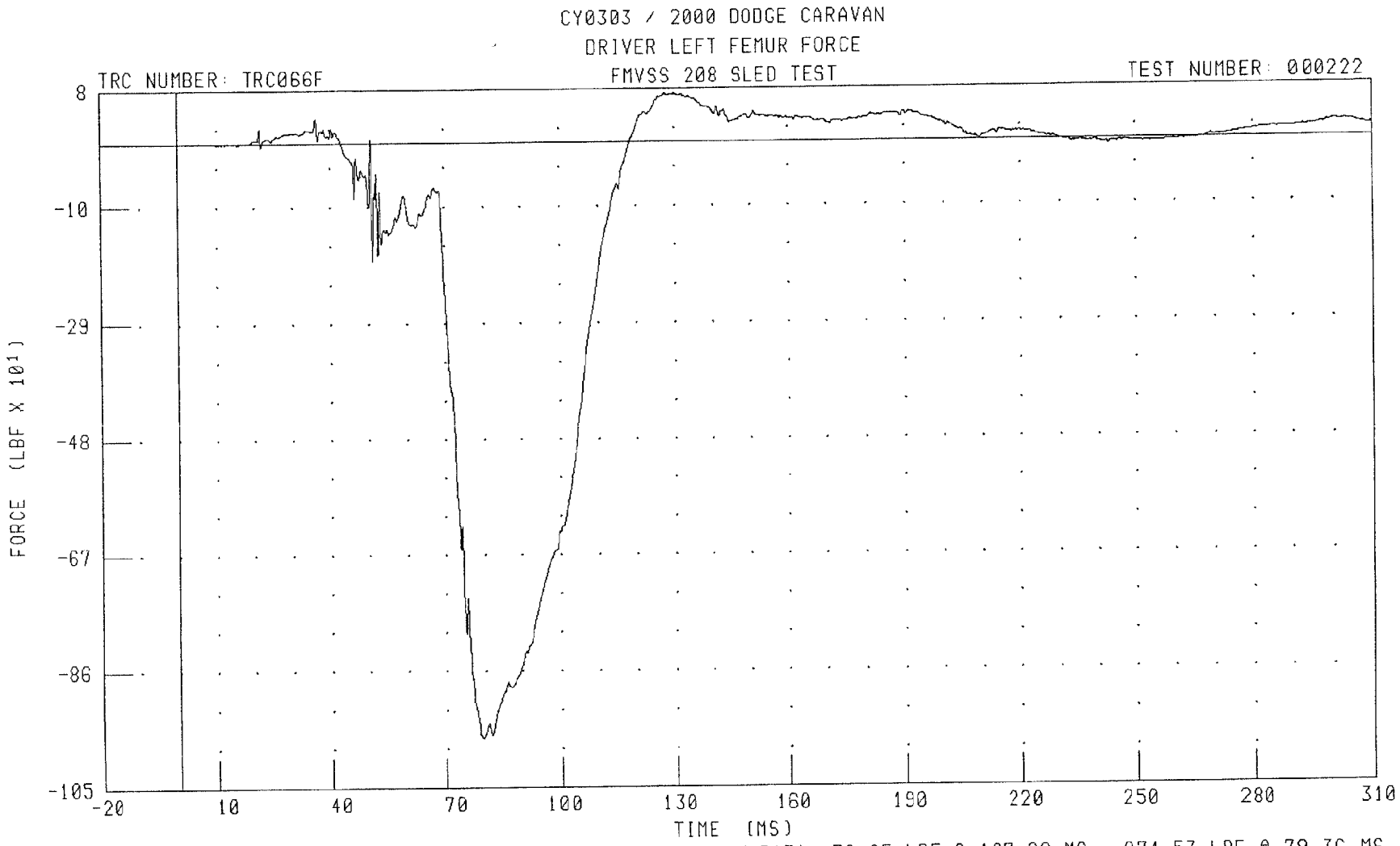
000222


CY0303 / 2000 DODGE CARAVAN
DRIVER CHEST RESULTANT ACCELERATION
FMVSS 208 SLED TEST
TRC NUMBER: TRC066F
TEST NUMBER: 000222
ACCELERATION (G X 10-1)
432
360
288
216
144
72
0
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: CSTRG1
FILTER: CH. CLASS 180
PEAK DATA: 39.34 G @ 104.32 MS; 0.00 G @ -10.48 MS

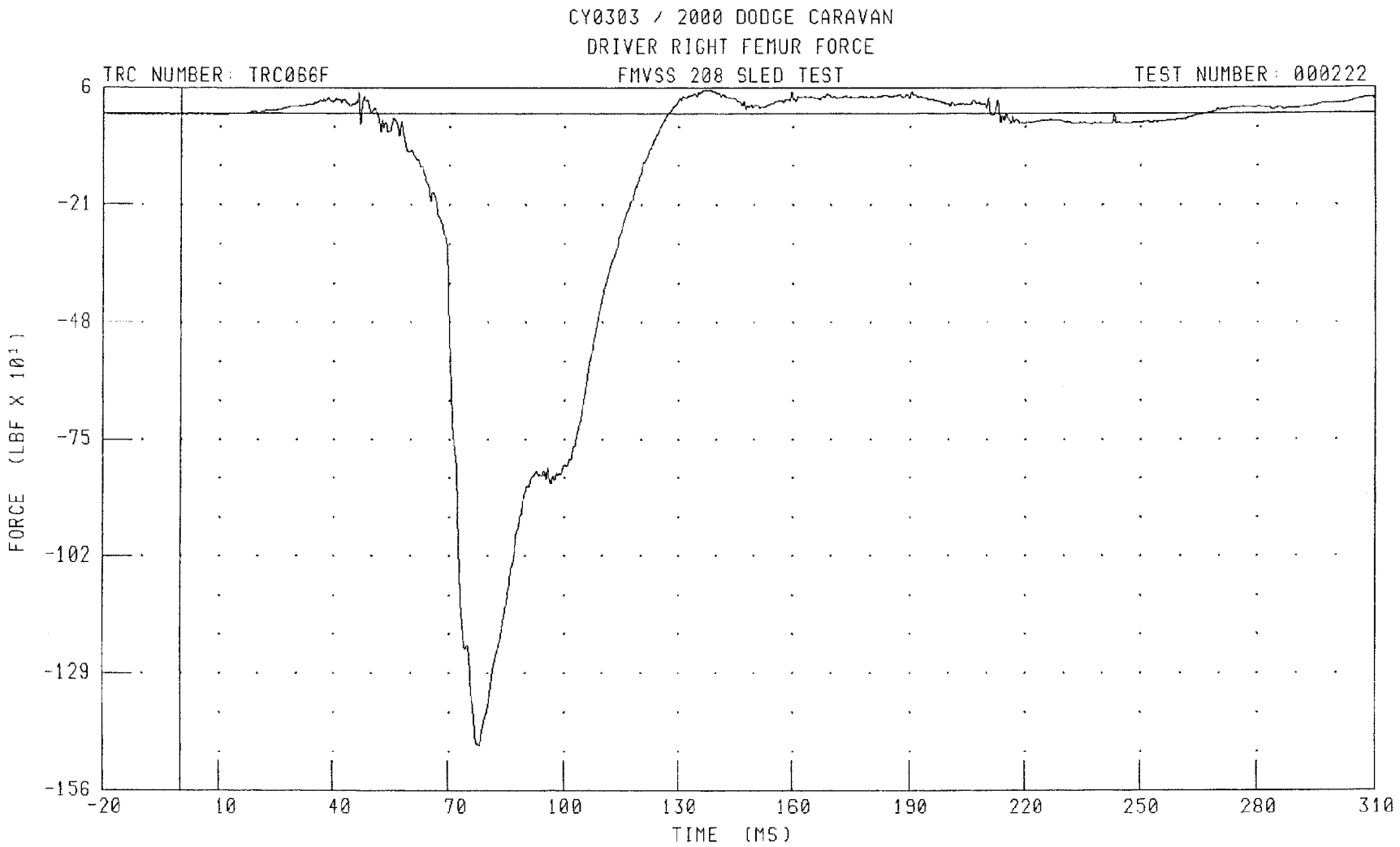
000222


CY0303 / 2000 DODGE CARAVAN
DRIVER CHEST DEFLECTION
TRC NUMBER: TRC066F
FMVSS 208 SLED TEST
TEST NUMBER: 000222
0
-40
-80
-120
-160
-200
-240
DISPLACEMENT (IN X 10-2)
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: CSTXD1
FILTER: CH. CLASS 600
PEAK DATA: 0.00 IN @ -20.00 MS; -2.38 IN @ 106.48 MS

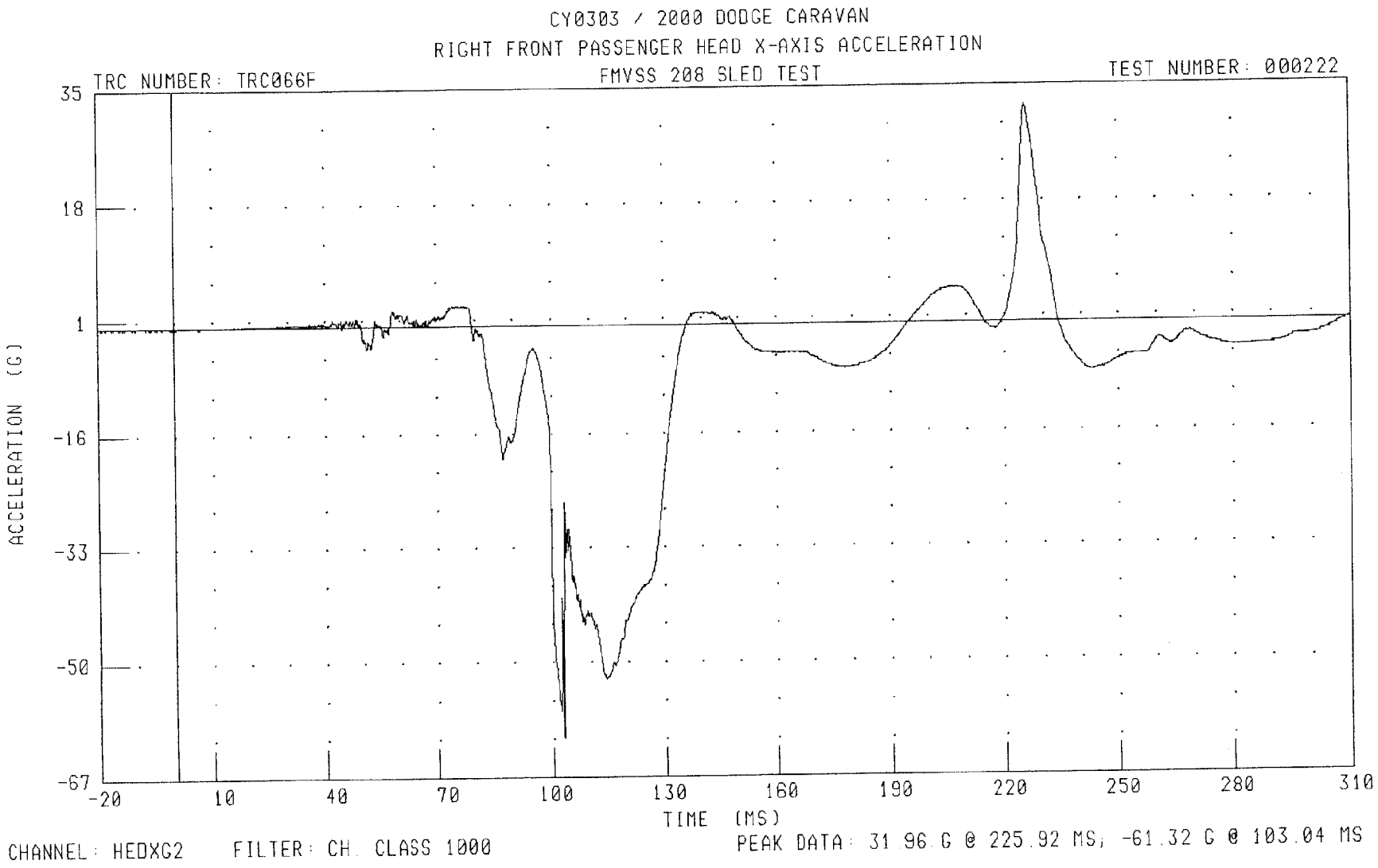
000222


CY0303 / 2000 DODGE CARAVAN
DRIVER LEFT FEMUR FORCE
FMVSS 208 SLED TEST
TRC NUMBER: TRC066F
TEST NUMBER: 000222
8
-10
-29
-48
-67
-86
-105
FORCE (LBF X 10¹)
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: LFMF1
FILTER: CH. CLASS 600
PEAK DATA: 78.25 LBF @ 127.92 MS; -974.53 LBF @ 79.36 MS

000222

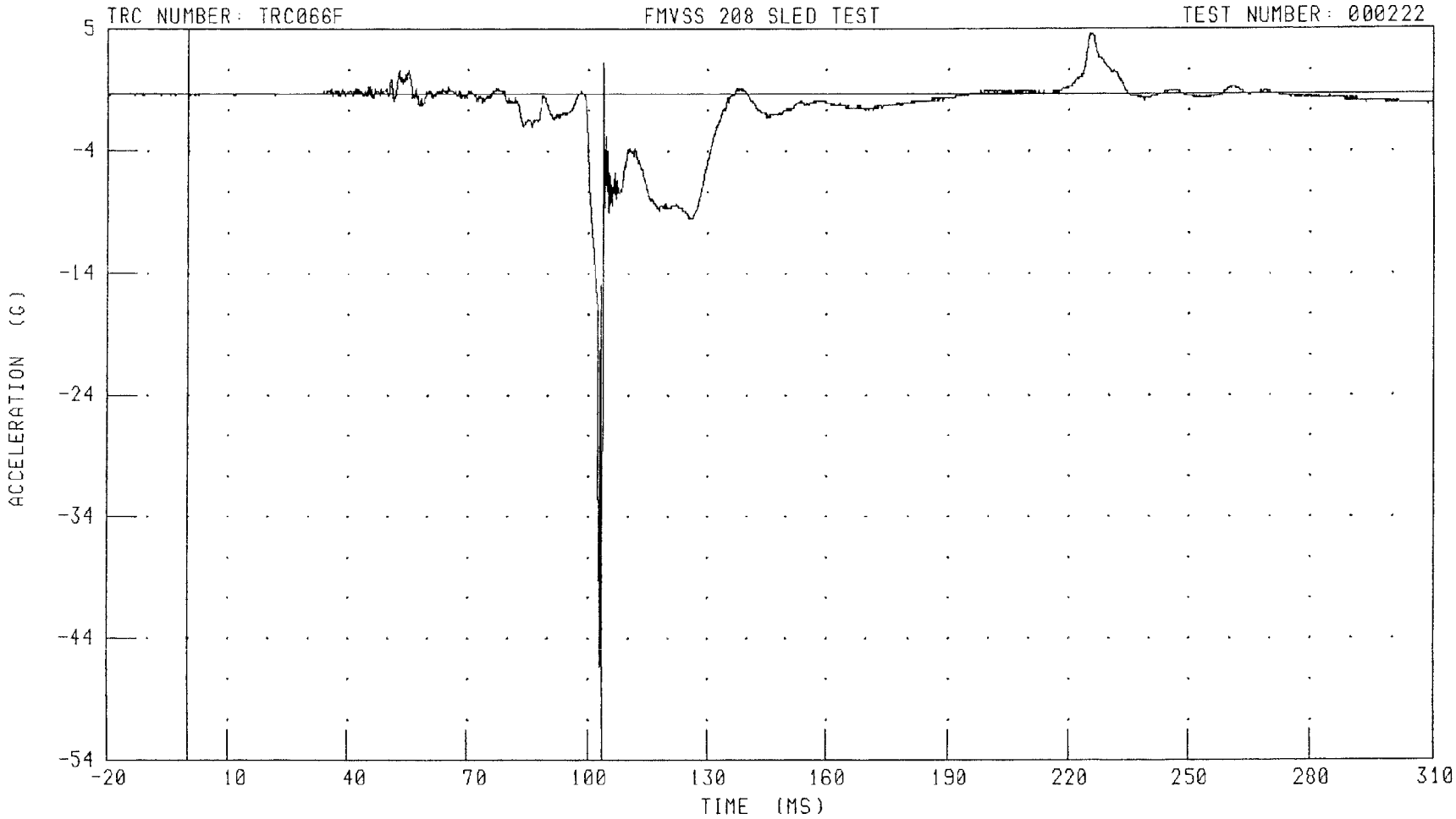

CY0303 / 2000 DODGE CARAVAN
DRIVER RIGHT FEMUR FORCE
TRC NUMBER: TRC066F
FMVSS 208 SLED TEST
TEST NUMBER: 000222
6
-21
-48
-75
-102
-129
-156
FORCE (LBF X 10¹)
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: RFMF1
FILTER: CH. CLASS 600
PEAK DATA: 54.55 LBF @ 137.52 MS, -1458.04 LBF @ 78.00 MS

000222


CY0303 / 2000 DODGE CARAVAN
RIGHT FRONT PASSENGER HEAD X-AXIS ACCELERATION
FMVSS 208 SLED TEST
TRC NUMBER: TRC066F
TEST NUMBER: 000222
35
18
1
-16
-33
-50
-67
ACCELERATION (G)
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: HEDXG2
FILTER: CH. CLASS 1000
PEAK DATA: 31.96 G @ 225.92 MS; -61.32 G @ 103.04 MS

CY0303 / 2000 DODGE CARAVAN

RIGHT FRONT PASSENGER HEAD Y-AXIS ACCELERATION



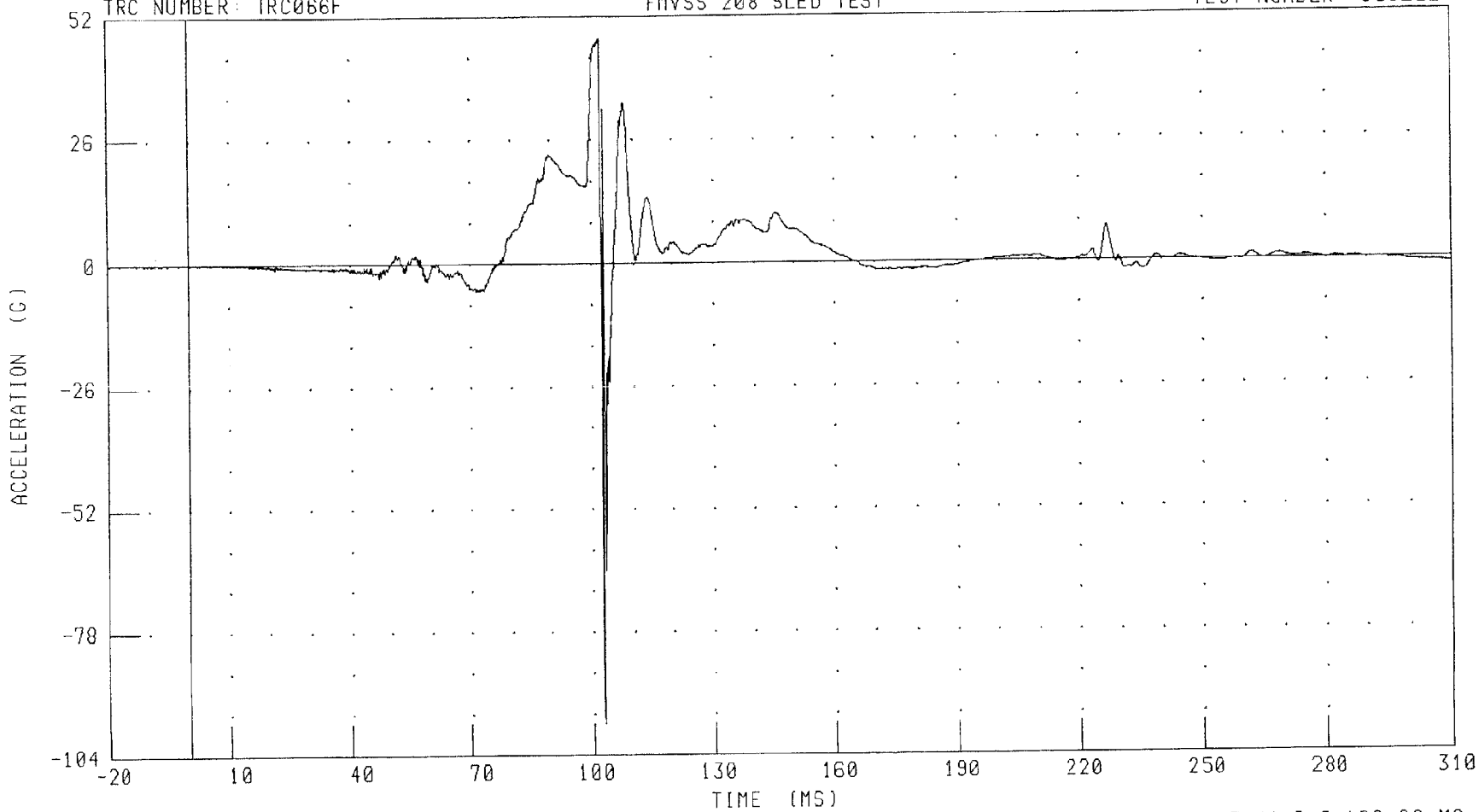
CHANNEL: HEDYG2 FILTER: CH. CLASS 1000 PEAK DATA: 4.89 G @ 225.60 MS; -55.02 G @ 103.60 MS

000222

CY0303 / 2000 DODGE CARAVAN
RIGHT FRONT PASSENGER HEAD Z-AXIS ACCELERATION
FMVSS 208 SLED TEST

TRC NUMBER: TRC066F

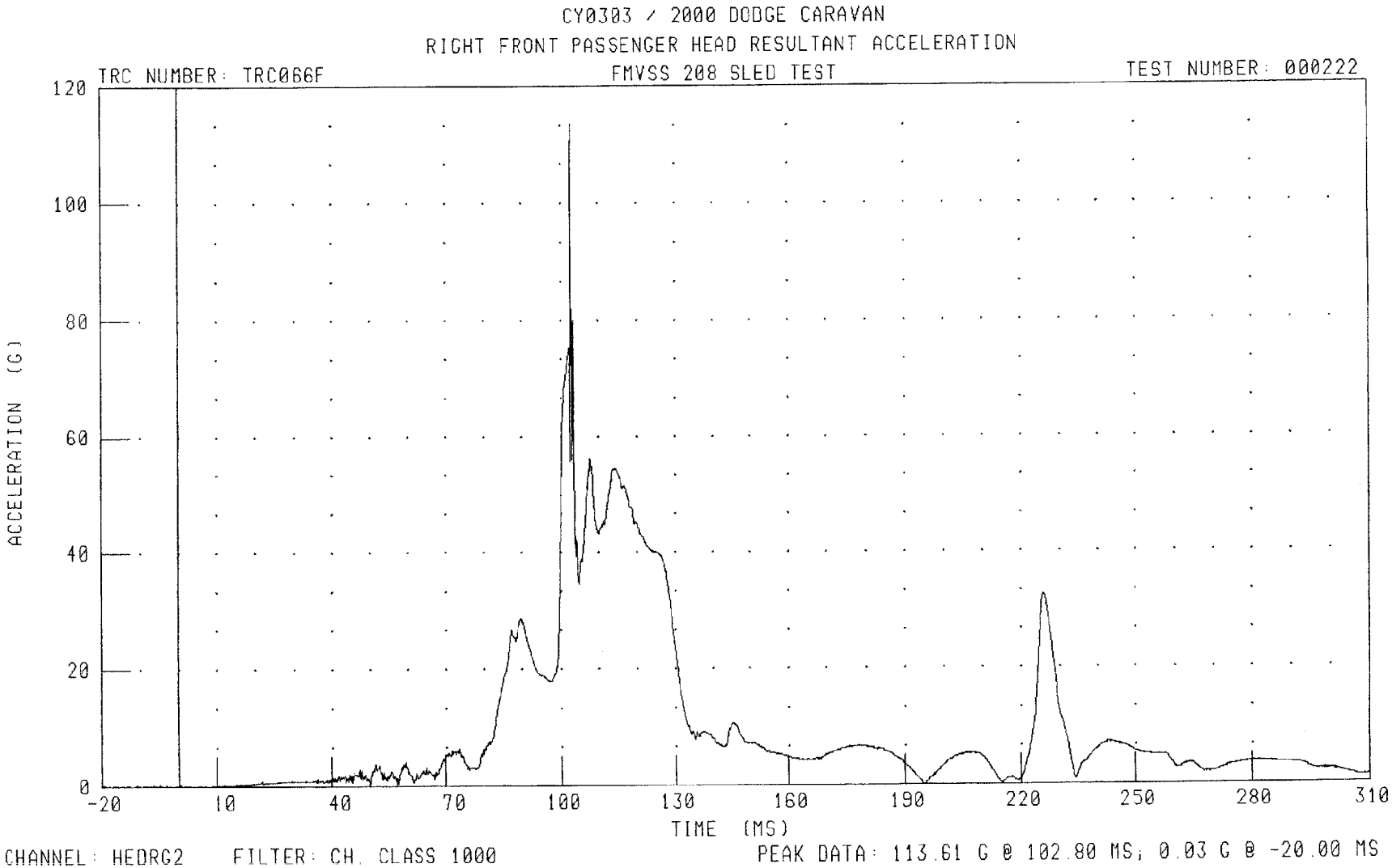
TEST NUMBER: 000222



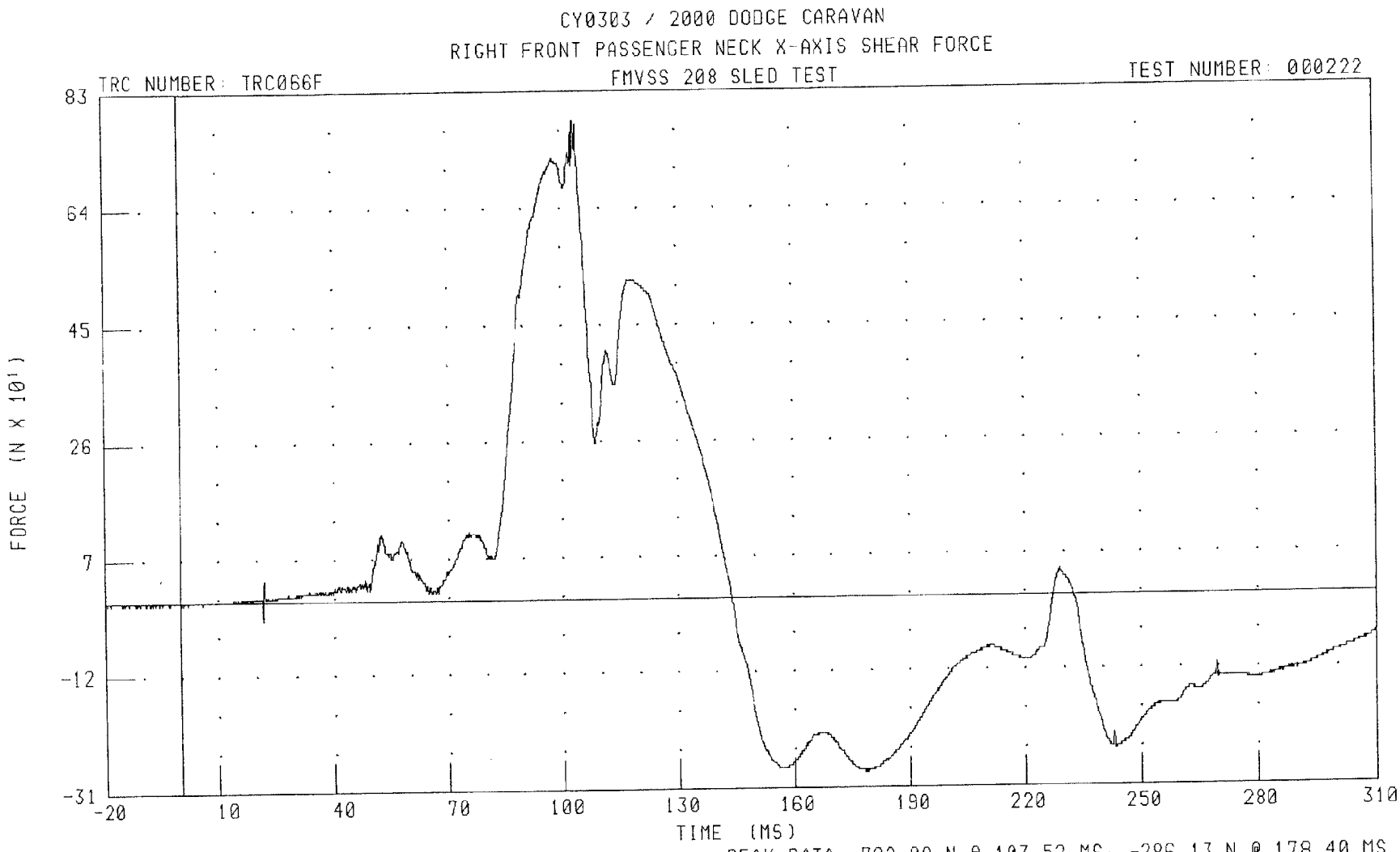
CHANNEL: HEDZC2 FILTER: CH. CLASS 1000

PEAK DATA: 47.44 G @ 102.32 MS; -97.41 G @ 102.80 MS

000222

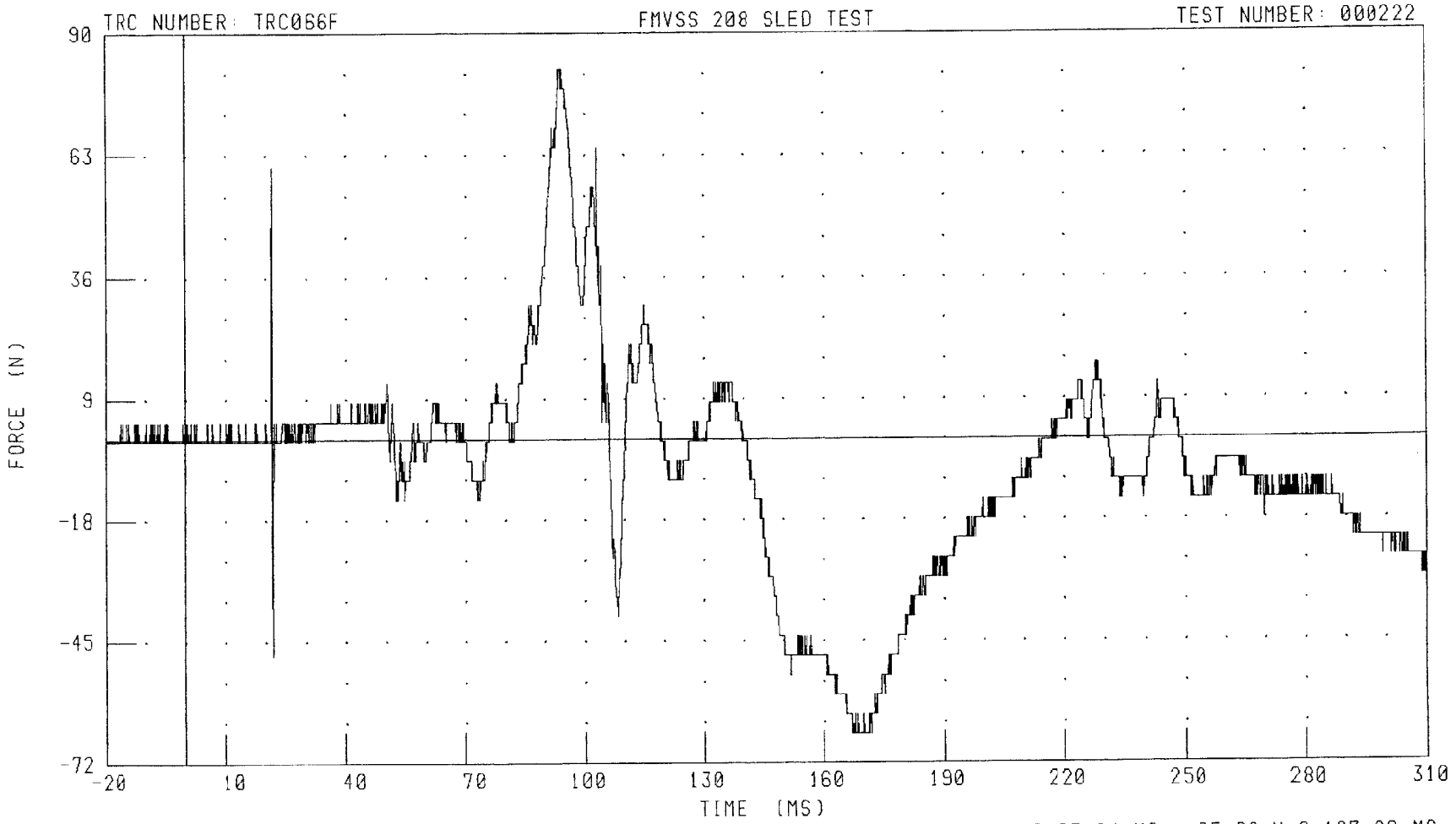

CY0303 / 2000 DODGE CARAVAN
RIGHT FRONT PASSENGER HEAD RESULTANT ACCELERATION
TRC NUMBER: TRC066F
FMVSS 208 SLED TEST
TEST NUMBER: 000222
ACCELERATION (G)
120
100
80
60
40
20
0
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: HEDRG2
FILTER: CH. CLASS 1000
PEAK DATA: 113.61 G @ 102.80 MS; 0.03 G @ -20.00 MS

000222


CY0303 / 2000 DODGE CARAVAN
RIGHT FRONT PASSENGER NECK X-AXIS SHEAR FORCE
FMVSS 208 SLED TEST
TRC NUMBER: TRC066F
TEST NUMBER: 000222
FORCE (N X 10¹)
83
64
45
26
7
-12
-31
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: NEKXF2
FILTER: CH. CLASS 1000
PEAK DATA: 782.09 N @ 103.52 MS, -286.13 N @ 178.40 MS

000222

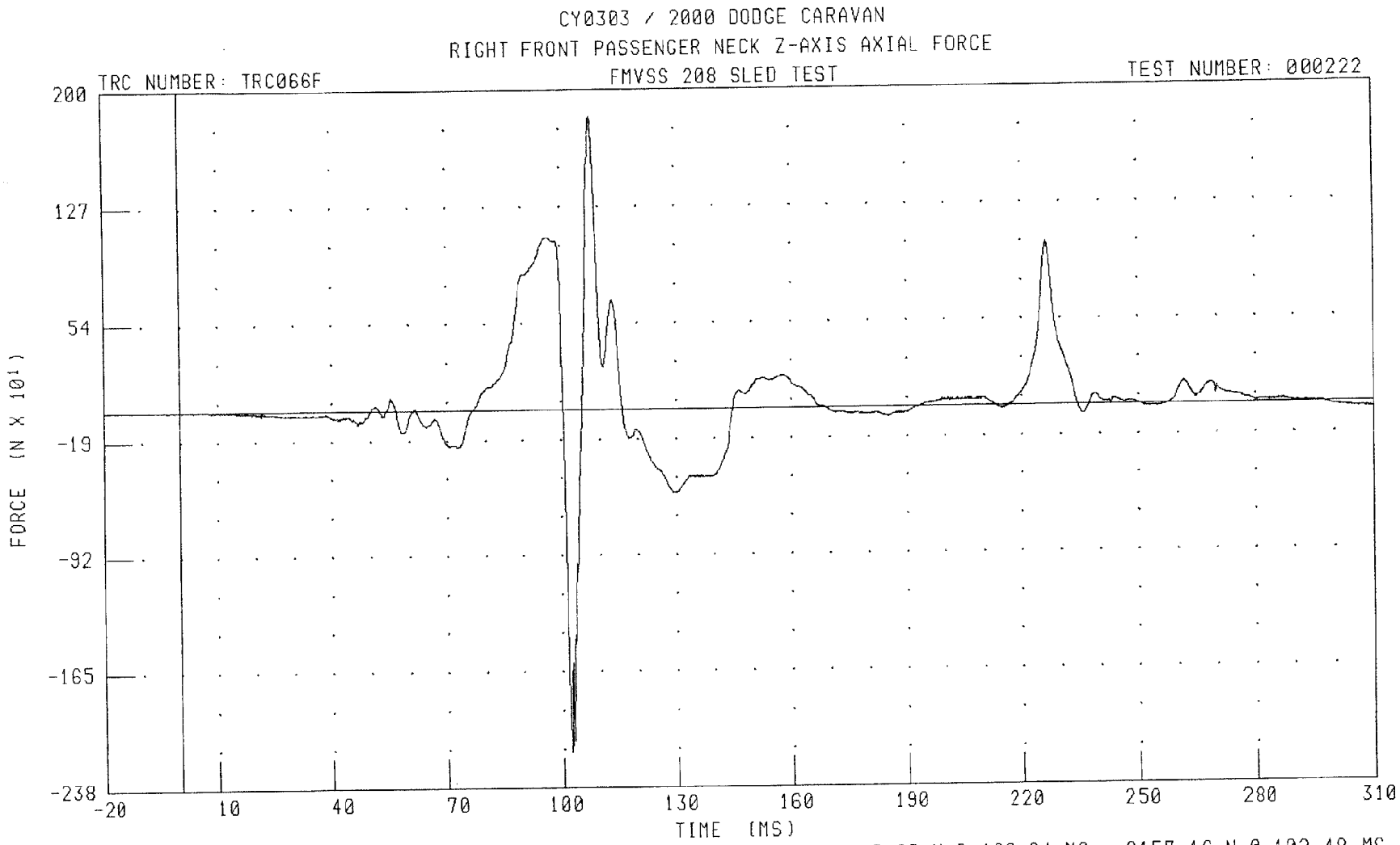
CY0303 / 2000 DODGE CARAVAN
RIGHT FRONT PASSENGER NECK Y-AXIS SHEAR FORCE
FMVSS 208 SLED TEST



CHANNEL: NEKYF2 FILTER: CH. CLASS 1000

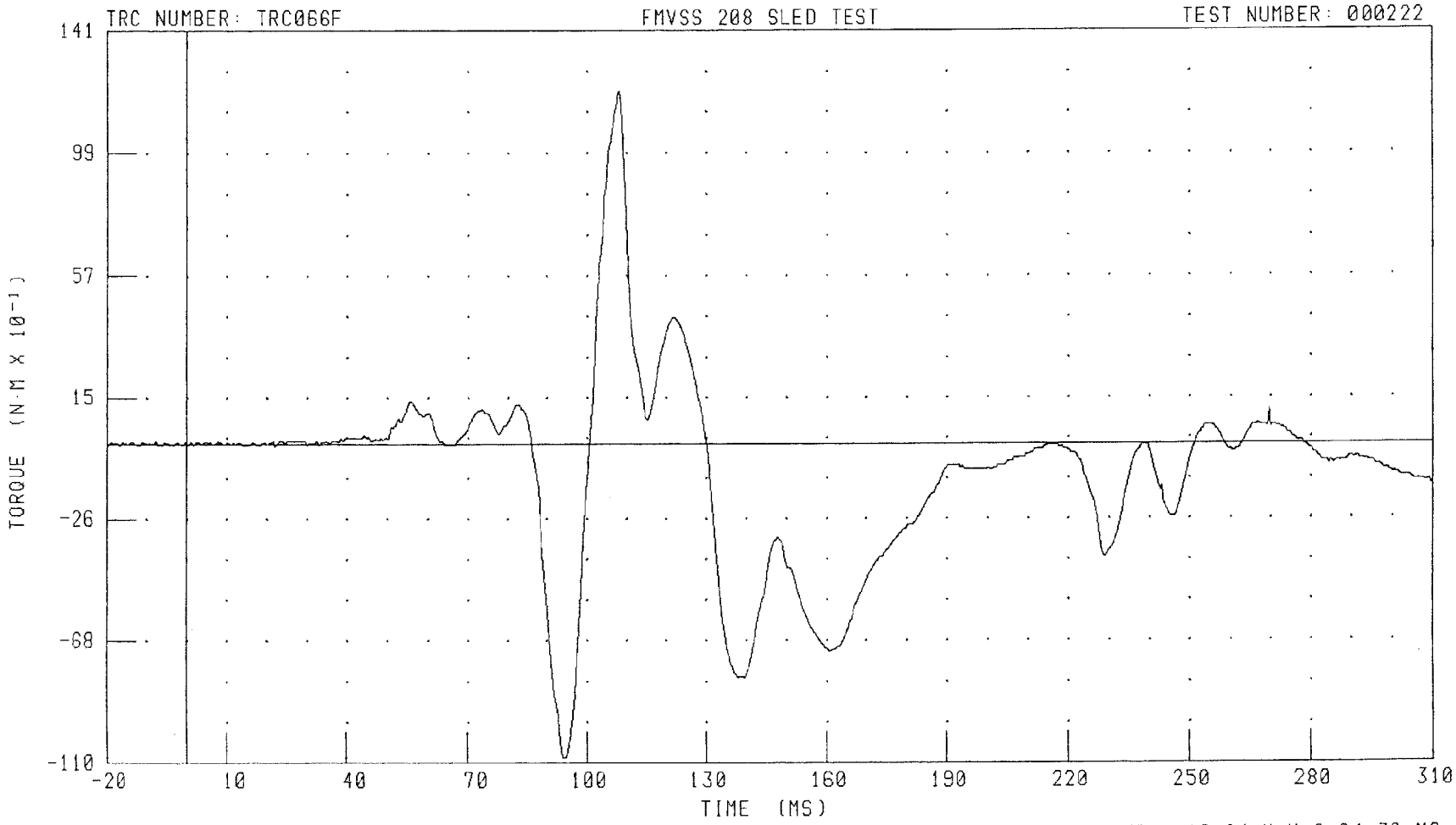
PEAK DATA: 82.11 N @ 93.84 MS; -65.66 N @ 167.20 MS

000222


CY0303 / 2000 DODGE CARAVAN
RIGHT FRONT PASSENGER NECK Z-AXIS AXIAL FORCE
FMVSS 208 SLED TEST
TRC NUMBER: TRC066F
TEST NUMBER: 000222
200
127
54
-19
-92
-165
-238
FORCE (N X 10¹)
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: NEKZF2
FILTER: CH. CLASS 1000
PEAK DATA: 1837.63 N @ 108.24 MS; -2157.16 N @ 102.48 MS

000222

CY0303 / 2000 DODGE CARAVAN
RIGHT FRONT PASSENGER NECK MOMENT ABOUT X AXIS



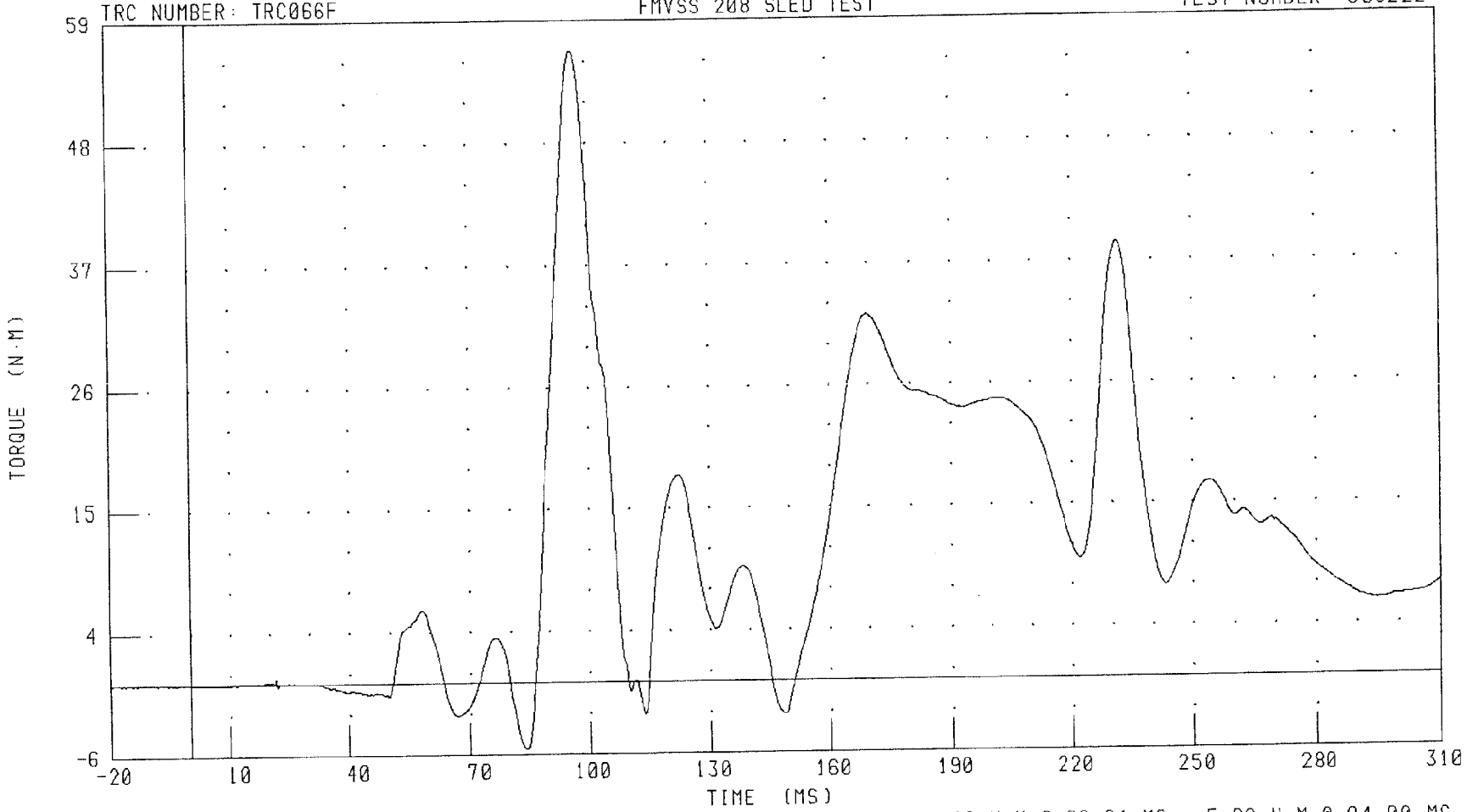
CHANNEL: NEKXM2 FILTER: CH. CLASS 600 PEAK DATA: 12.10 N-M @ 103.16 MS; -10.84 N-M @ 94.32 MS

000222

CY0303 / 2000 DODGE CARAVAN
RIGHT FRONT PASSENGER NECK MOMENT ABOUT Y AXIS
FMVSS 208 SLED TEST

TRC NUMBER: TRC066F

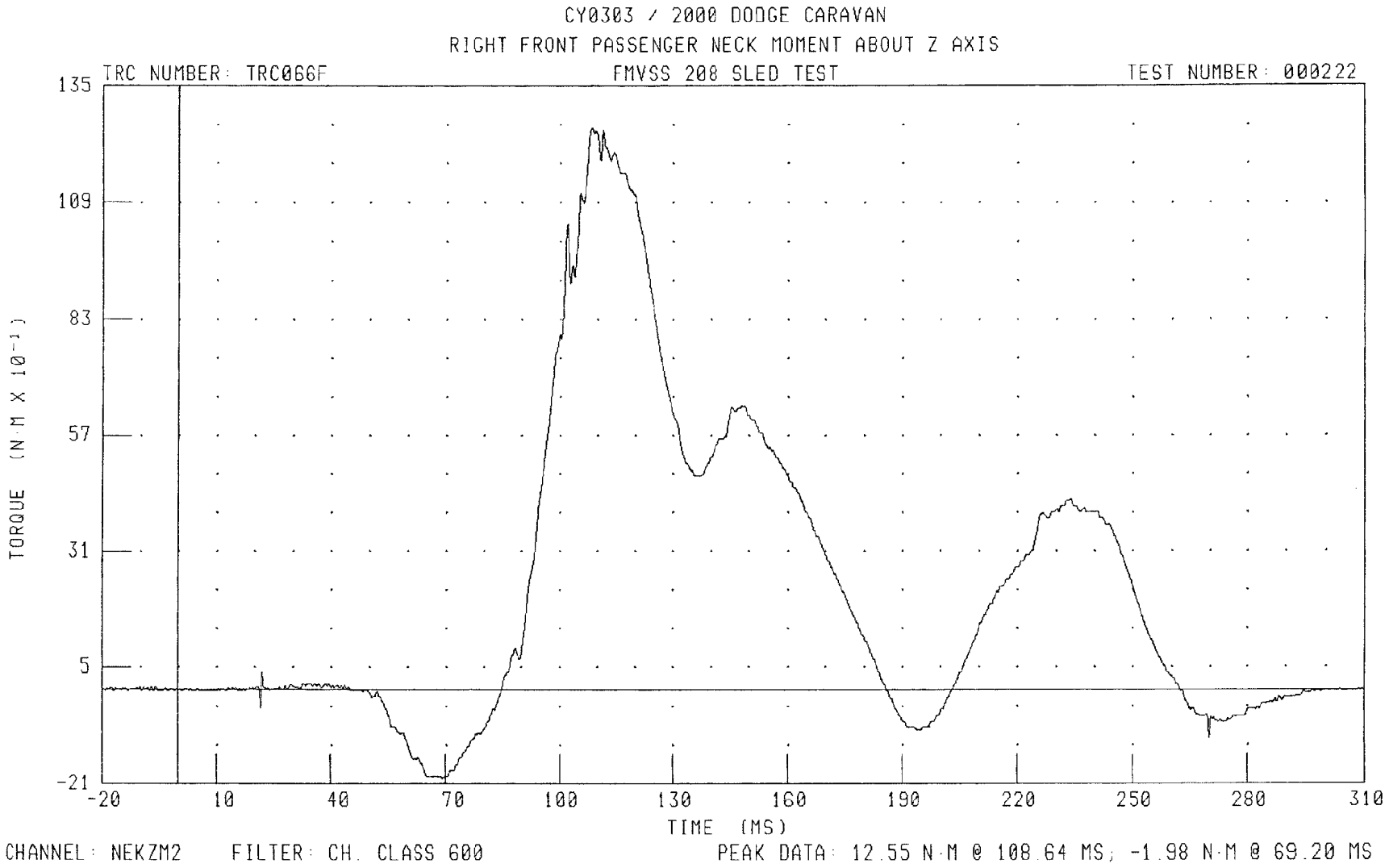
TEST NUMBER: 000222



CHANNEL: NEKYM2 FILTER: CH. CLASS 600

PEAK DATA: 56.86 N·M @ 96.64 MS; -5.90 N·M @ 84.00 MS

000222


CY0303 / 2000 DODGE CARAVAN
RIGHT FRONT PASSENGER NECK MOMENT ABOUT Z AXIS
TRC NUMBER: TRC066F
FMVSS 208 SLED TEST
TEST NUMBER: 000222
135
109
83
57
31
5
-21
TORQUE (N·M X 10⁻¹)
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: NEKZM2
FILTER: CH. CLASS 600
PEAK DATA: 12.55 N·M @ 108.64 MS; -1.98 N·M @ 69.20 MS

000222

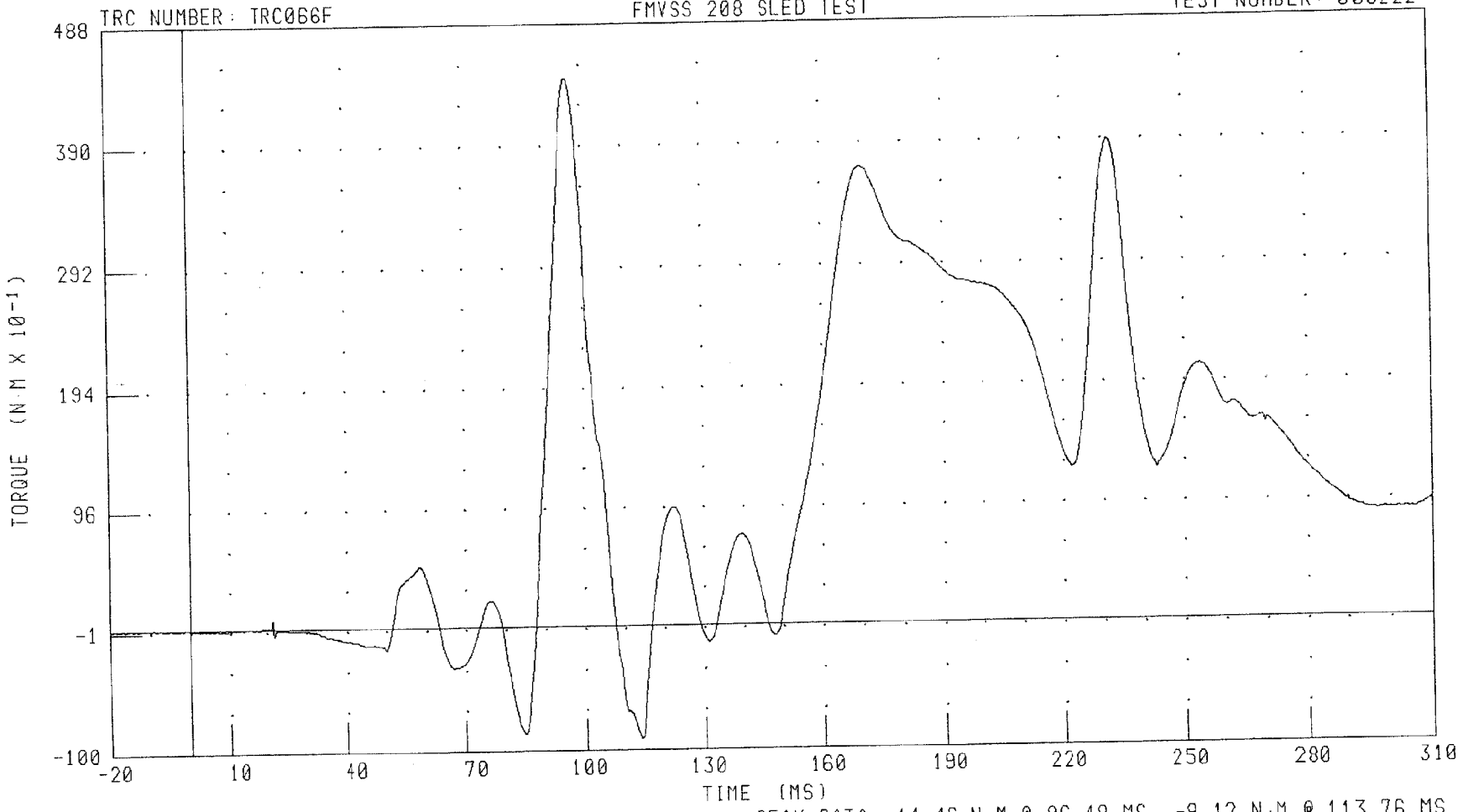
CY0303 / 2000 DODGE CARAVAN

RIGHT FRONT PASSENGER NECK MOMENT ABOUT Y AXIS OCCIPITAL CONDYLE

FMVSS 208 SLED TEST

TRC NUMBER: TRC066F

TEST NUMBER: 000222



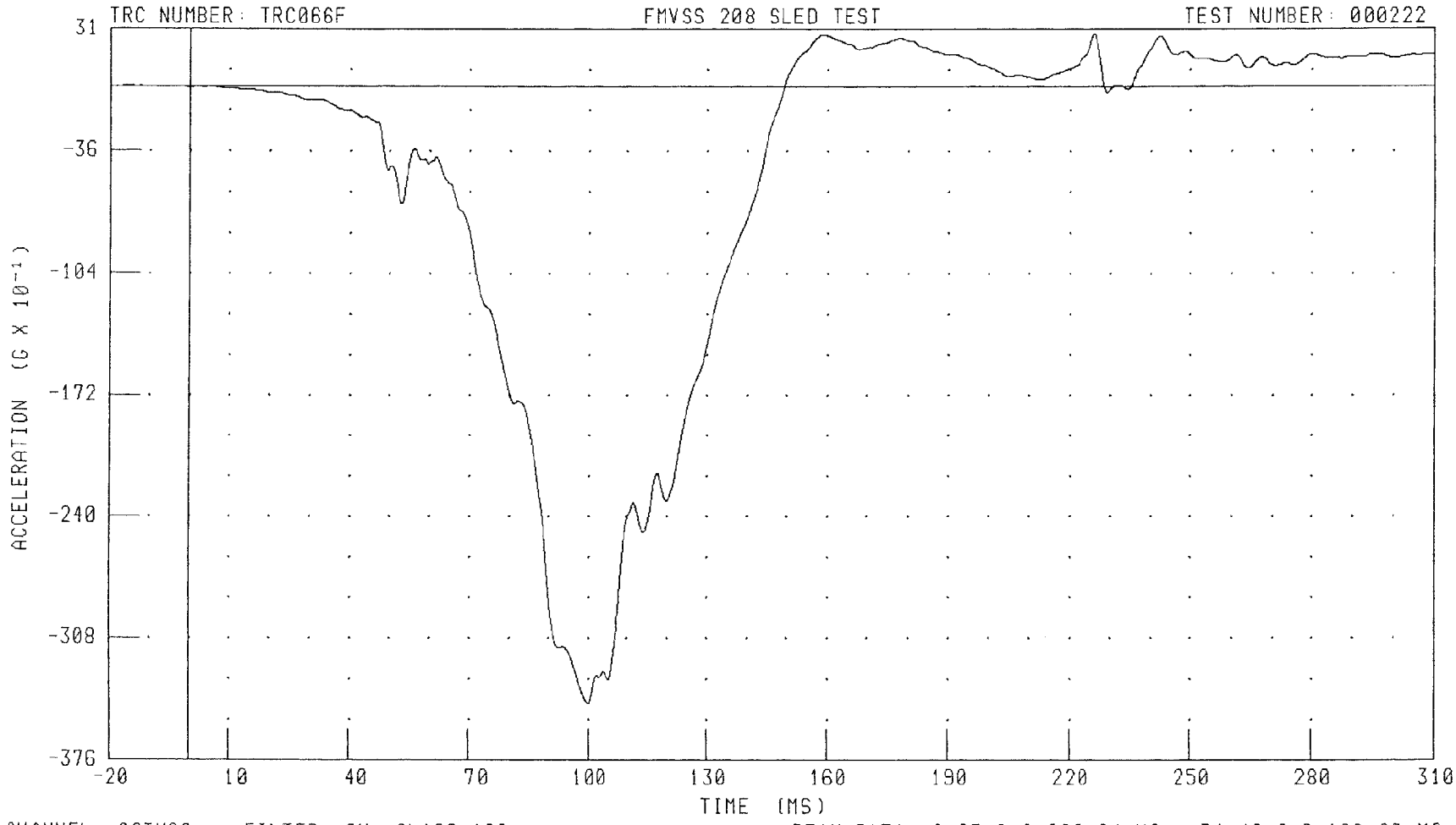
CHANNEL: NEKOM2 FILTER: CH. CLASS 600

PEAK DATA: 44.46 N-M @ 96.48 MS; -9.12 N-M @ 113.76 MS

CY0303 / 2000 DODGE CARAVAN

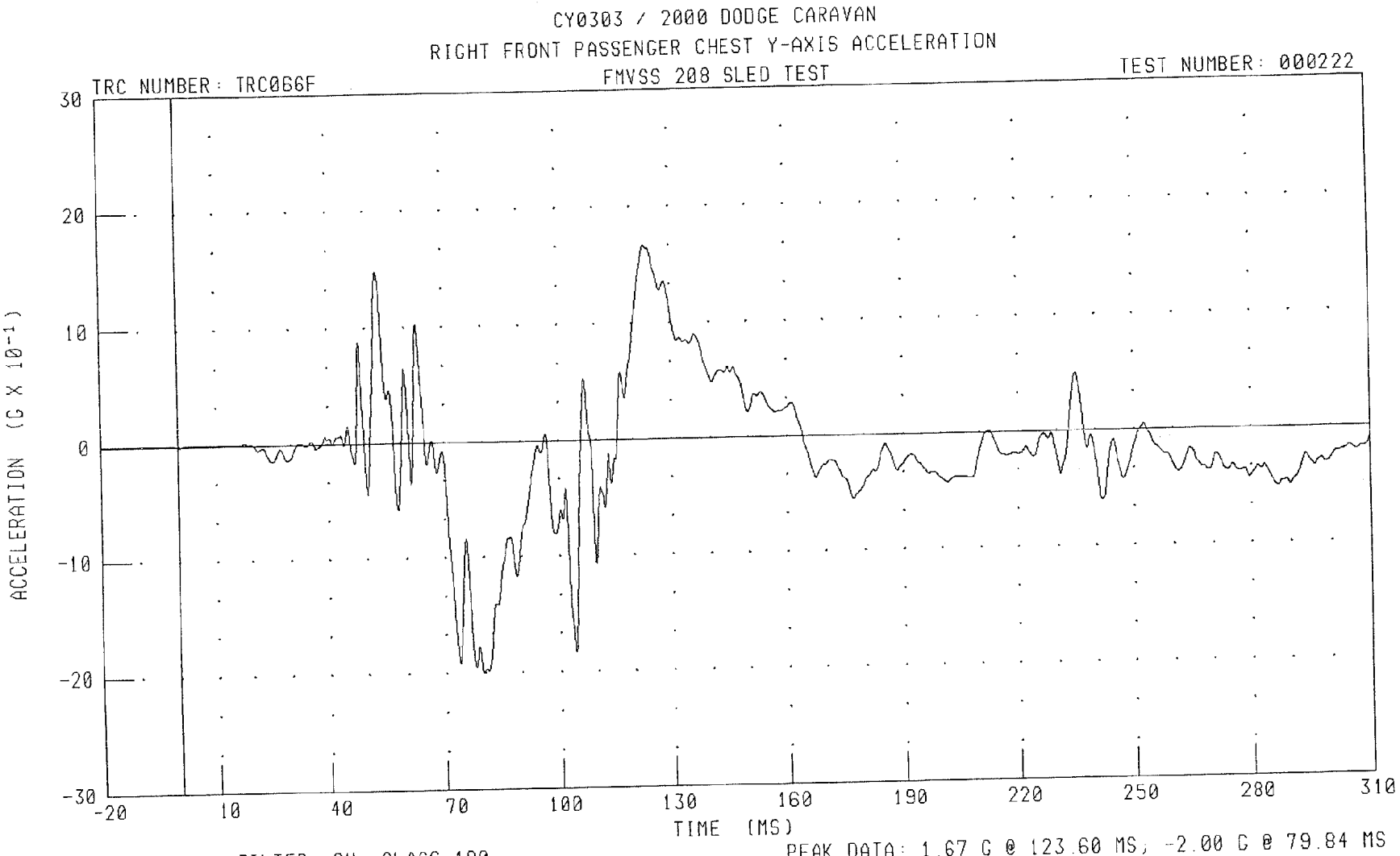
RIGHT FRONT PASSENGER CHEST X-AXIS ACCELERATION

TRC NUMBER: TRC066F FMVSS 208 SLED TEST TEST NUMBER: 000222



CHANNEL: CSTXG2 FILTER: CH. CLASS 180 PEAK DATA: 2.95 G @ 226.24 MS; -34.46 G @ 100.08 MS

000222

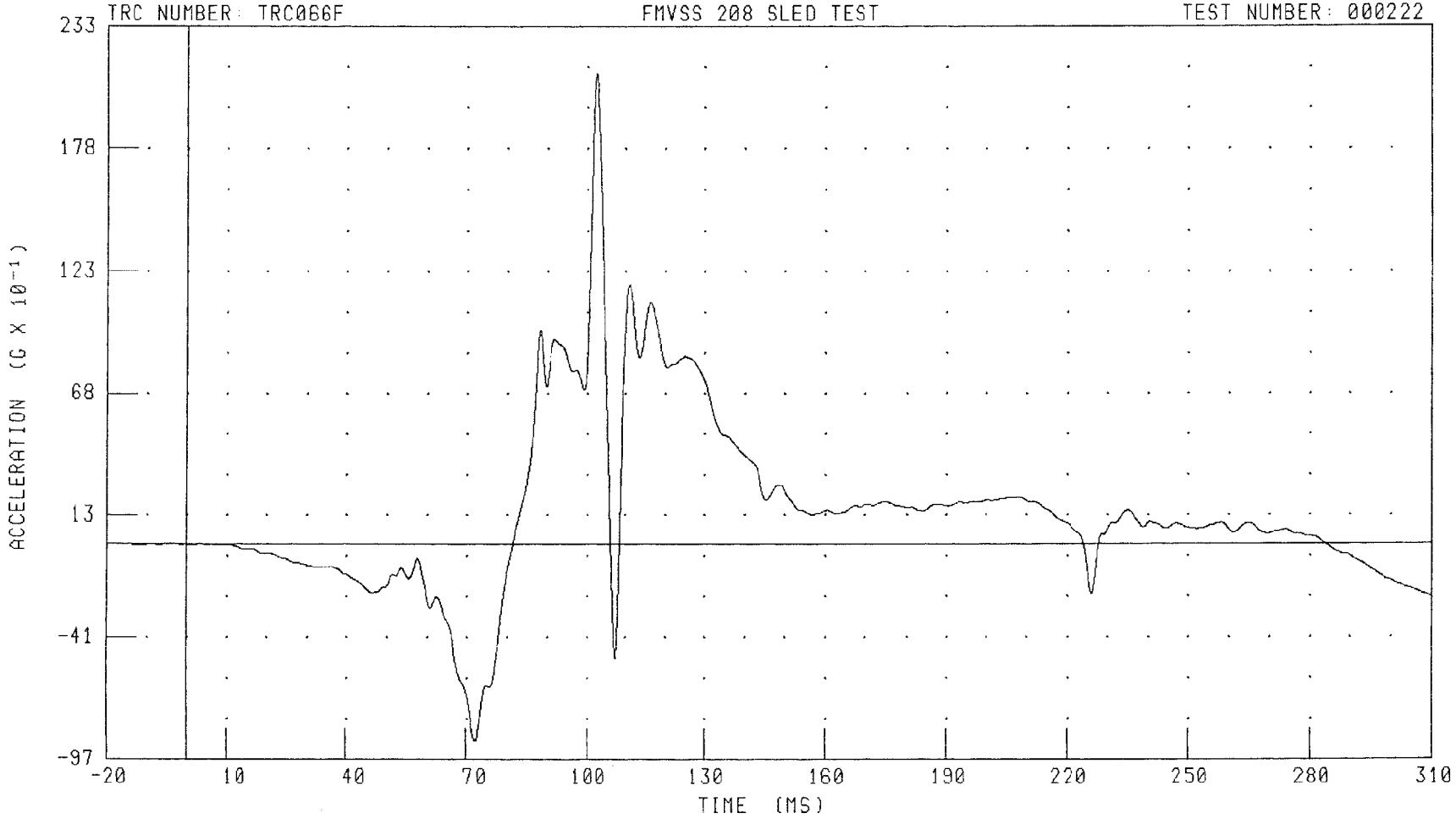

CY0303 / 2000 DODGE CARAVAN
RIGHT FRONT PASSENGER CHEST Y-AXIS ACCELERATION
FMVSS 208 SLED TEST
TRC NUMBER: TRC066F
TEST NUMBER: 000222
ACCELERATION (G X 10-1)
30
20
10
0
-10
-20
-30
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: CSTYG2
FILTER: CH. CLASS 180
PEAK DATA: 1.67 G @ 123.60 MS, -2.00 G @ 79.84 MS

000222

CY0303 / 2000 DODGE CARAVAN

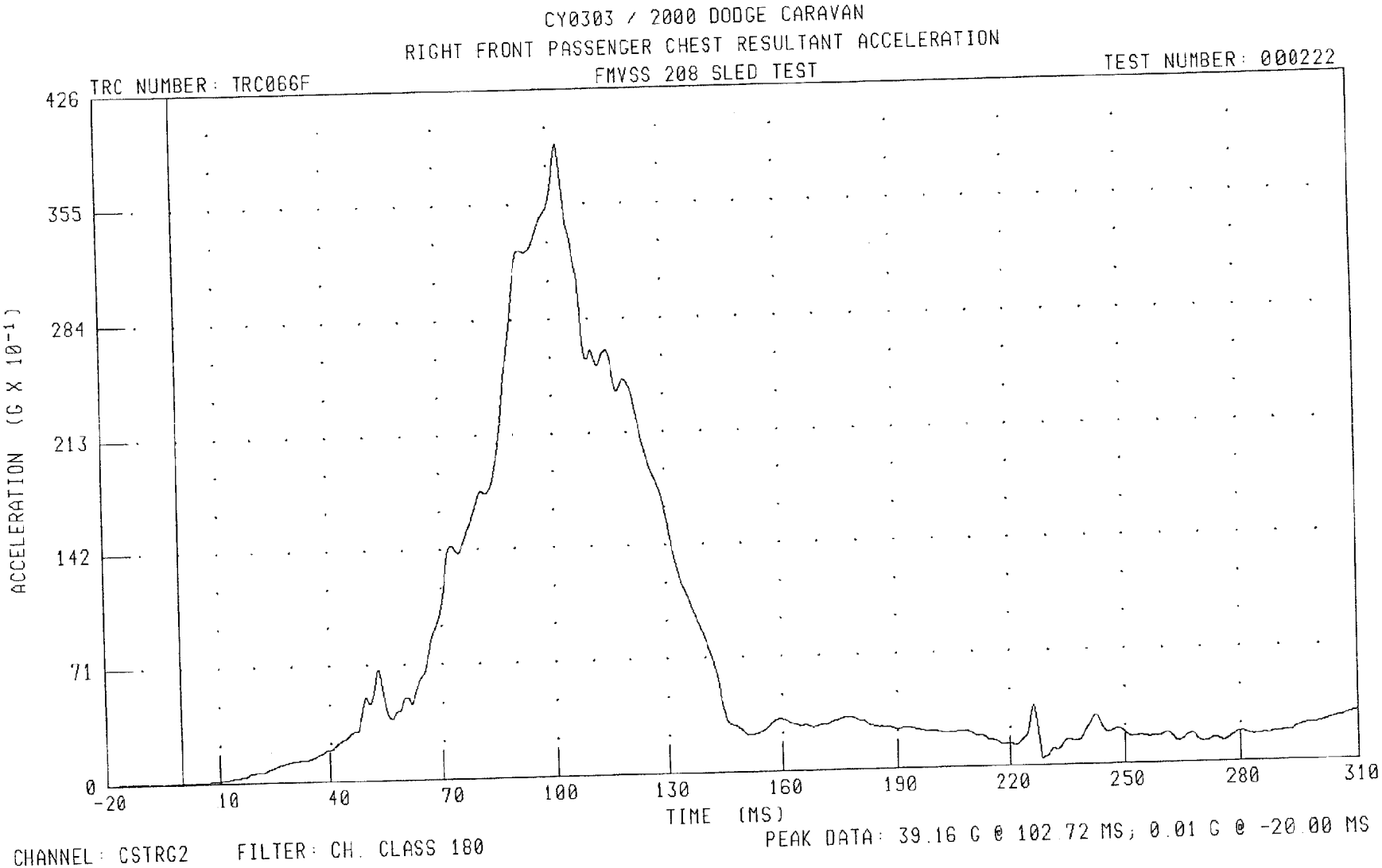
RIGHT FRONT PASSENGER CHEST Z-AXIS ACCELERATION

TRC NUMBER: TRC066F FMVSS 208 SLED TEST TEST NUMBER: 000222



CHANNEL: CSTZG2 FILTER: CH. CLASS 180 PEAK DATA: 21.17 G @ 102.72 MS; -8.88 G @ 72.16 MS

000222

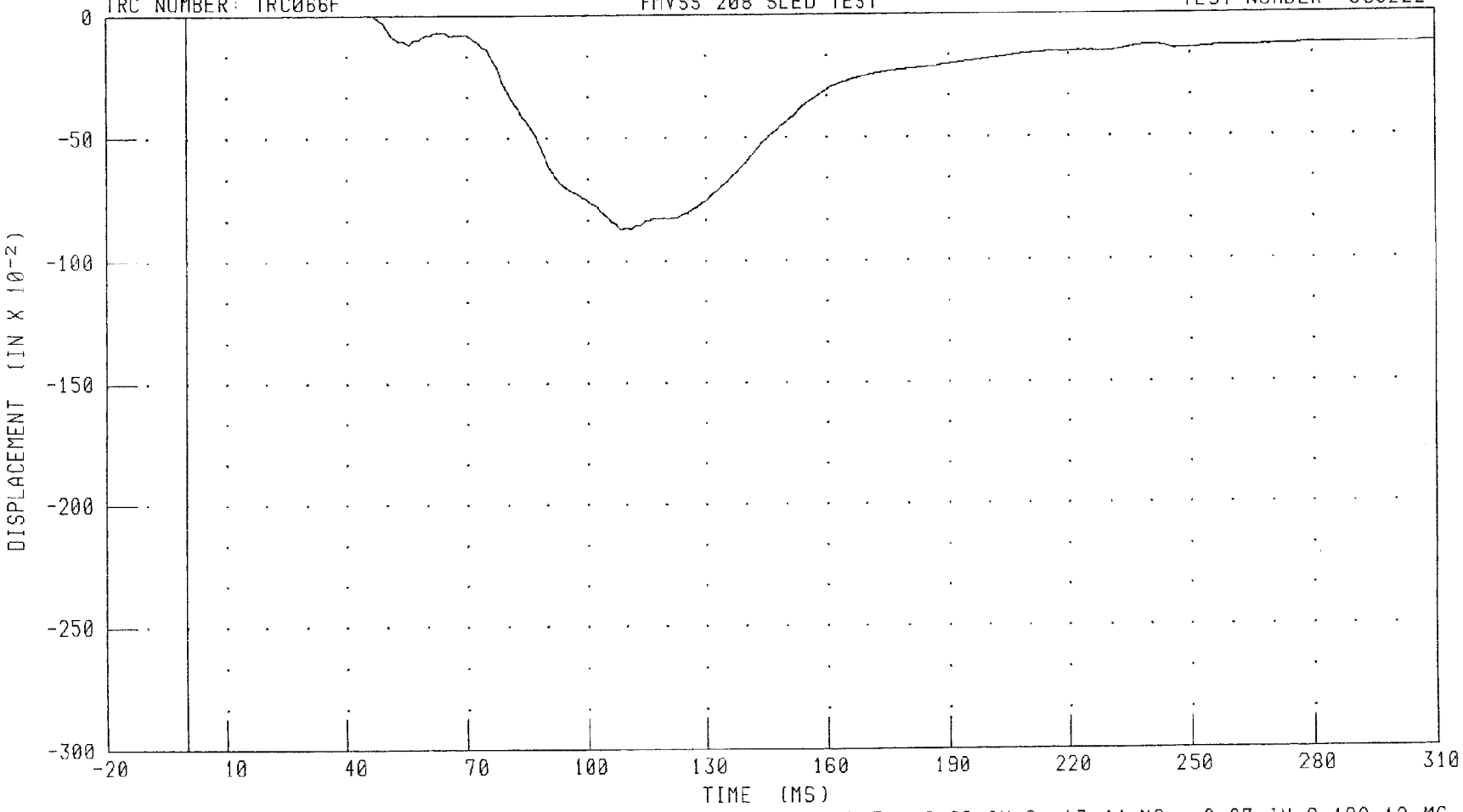

CY0303 / 2000 DODGE CARAVAN
RIGHT FRONT PASSENGER CHEST RESULTANT ACCELERATION
FMVSS 208 SLED TEST
TRC NUMBER: TRC066F
TEST NUMBER: 000222
ACCELERATION (G X 10⁻¹)
426
355
284
213
142
71
0
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: CSTRG2
FILTER: CH. CLASS 180
PEAK DATA: 39.16 G @ 102.72 MS; 0.01 G @ -20.00 MS

000222

CY0303 / 2000 DODGE CARAVAN
RIGHT FRONT PASSENGER CHEST DEFLECTION
FMVSS 208 SLED TEST

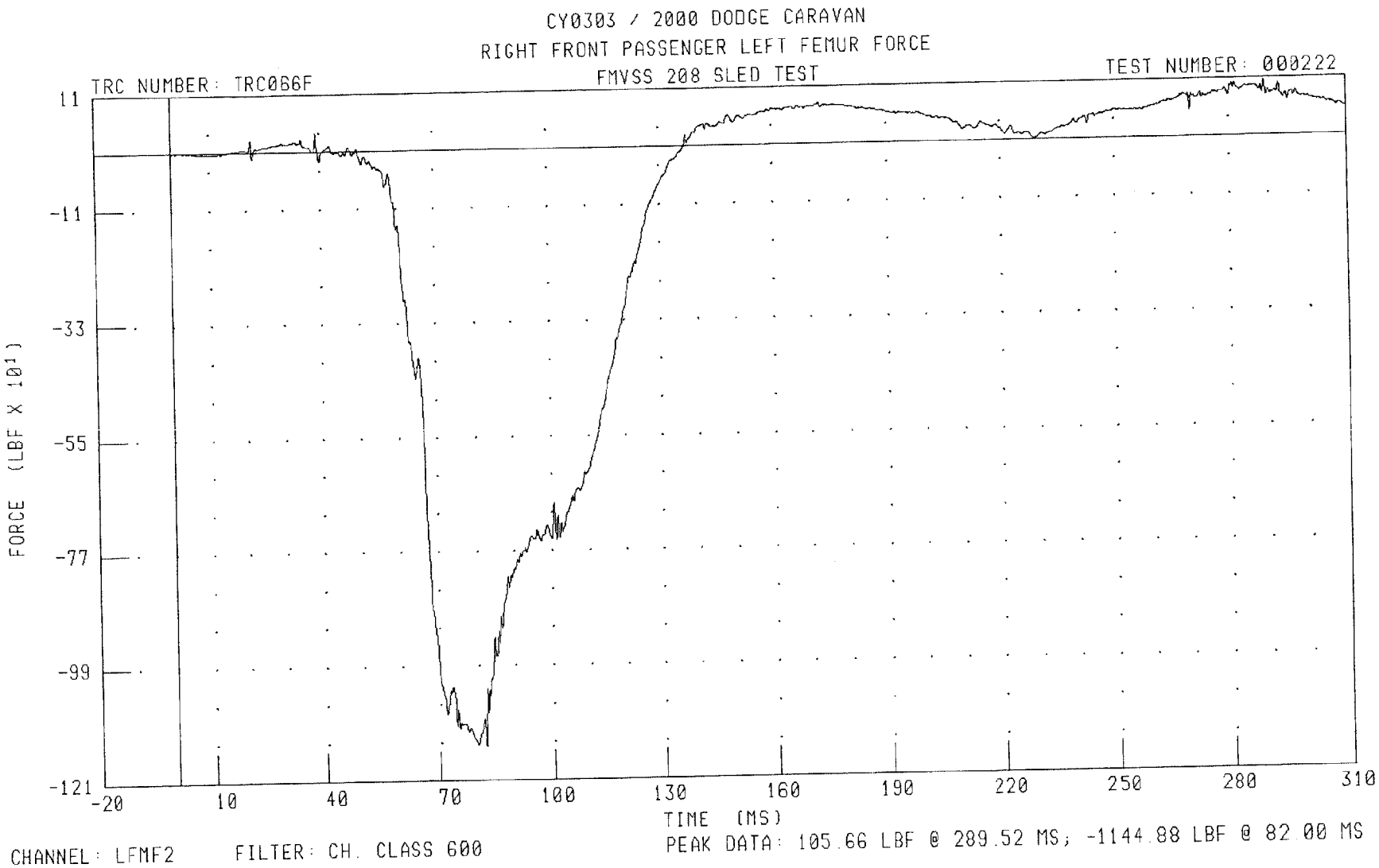
TRC NUMBER: TRC066F

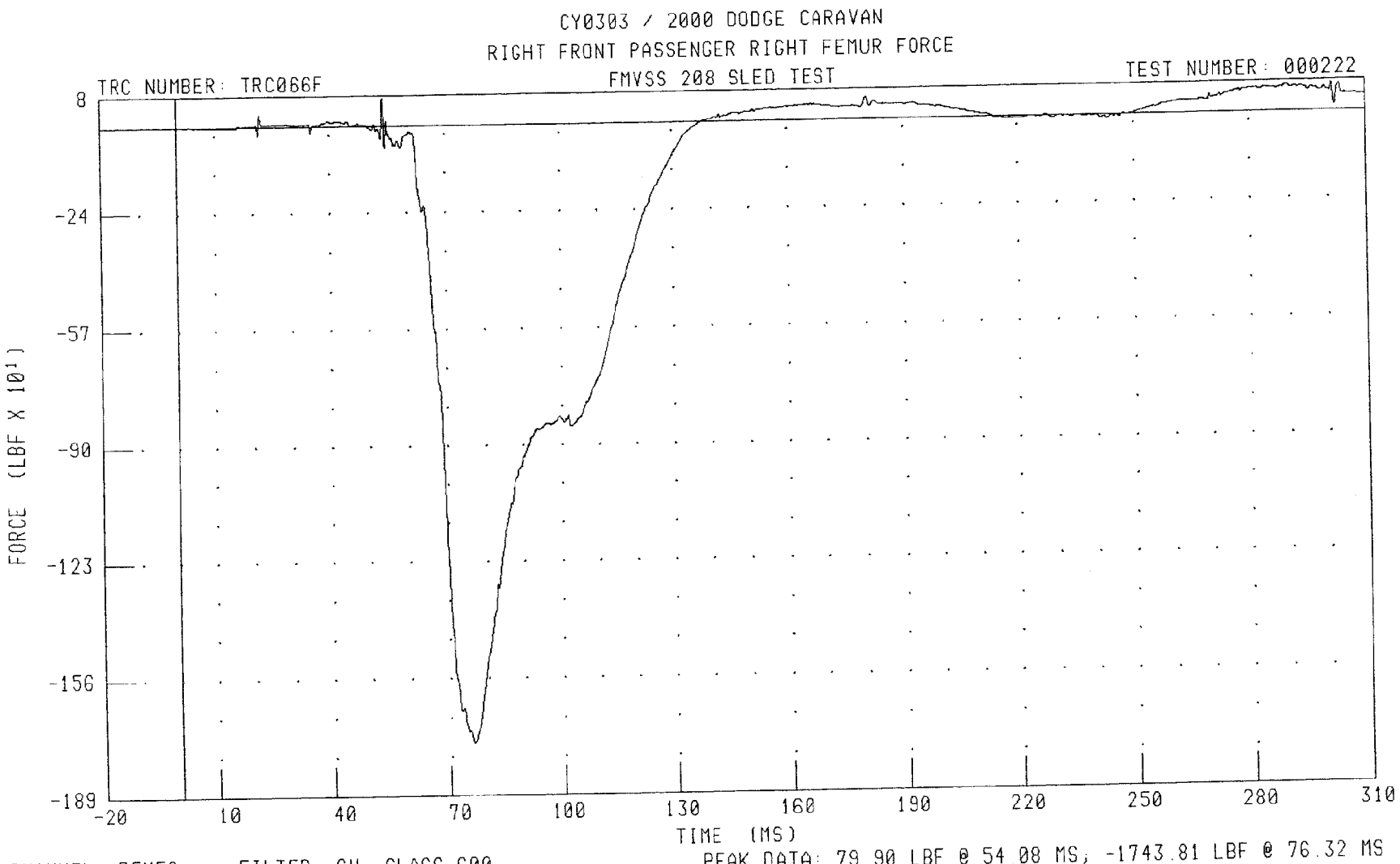
TEST NUMBER: 000222



CHANNEL: CSTXD2 FILTER: CH. CLASS 600

PEAK DATA: 0.00 IN @ -13.44 MS; -0.87 IN @ 109.12 MS


CY0303 / 2000 DODGE CARAVAN
RIGHT FRONT PASSENGER LEFT FEMUR FORCE
FMVSS 208 SLED TEST
TRC NUMBER: TRC066F
TEST NUMBER: 000222
11
-11
-33
-55
-77
-99
-121
FORCE (LBF X 10¹)
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: LFMF2
FILTER: CH. CLASS 600
PEAK DATA: 105.66 LBF @ 289.52 MS; -1144.88 LBF @ 82.00 MS


CY0303 / 2000 DODGE CARAVAN
RIGHT FRONT PASSENGER RIGHT FEMUR FORCE
FMVSS 208 SLED TEST
TRC NUMBER: TRC066F
TEST NUMBER: 000222
8
-24
-57
-90
-123
-156
-189
FORCE (LBF X 10¹)
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: RFMF2
FILTER: CH. CLASS 600
PEAK DATA: 79.90 LBF @ 54.08 MS; -1743.81 LBF @ 76.32 MS

000222

Appendix C

Manufacturer's Vehicle Information

DAIMLERCHRYSLER

DaimlerChrysler Corporation
Susan M. Cischke
Sr. Vice President
Regulatory Affairs &
Passenger Car Operations

December 10, 1999

Ms Marilynne Jacobs, Director
Office of Vehicle Safety Compliance
National Highway Traffic Administration
U.S. Department of Transportation
400 Seventh Street, S.W.
Washington, D.C. 20590

Dear Ms Jacobs:

Reference: NSA-31CCa/OA:208991029A
FMVSS 208 Occupant Crash Protection (Compliance Test)
2000 MY Dodge Caravan/Grand Caravan

The following is provided in response to your November 5, 1999 information request.

Q1. **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.

A1. The 2000 MY Dodge Caravan/Grand Caravan is certified to meet the requirements of FMVSS 208 S13. A copy of the 2000 MY Compliance Report is provided in Attachment 1.

Q2. **If this is a new design vehicle/model, describe any features that might affect performance with respect to children and out of position occupants.**

DaimlerChrysler Corporation
800 Chrysler Drive CIMS 484-12-74
Auburn Hills MI USA 48326-2757
Phone 248.576.7301
Fax 248.576.7321
e-mail: smc16@daimlerchrysler.com

Q2. Continued

If this is not a new design vehicle/model provide the following: (1) state when the air bag was depowered, (2) describe the difference between the MY 2000 air bag system and the MY 1999 air bag system, (3) explain what other restraint changes have been made, and (4) explain what other vehicle changes have been make that might have affected FMVSS 208 performance. Explain which changes might affect performance with respect to children and out of position occupants.

A2. The 2000 MY Dodge Caravan employs "depowered" air bags. The passenger bag was "Depowered" in MY 1998. The driver bag was "Depowered" in MY 1999. In addition, both front seat positions use CFR (Constant Force Retractors) in MY 1999. Although minor changes were made to the airbags for 2000 MY, similar performance in FMVSS 208 tests is anticipated.

The 2000 model year vehicle incorporates no new technology from the 1999 model year developed with the specific intent of affecting performance in a FMVSS 208 crash test or the performance characteristics of the restraint system with regard to children and out of position occupants

Q3. **State if these 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.**

A3. The 2000 Dodge Caravan/Grand Caravan does not have a crash event recorder.

Q4. **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.**

A4. Disconnect the battery and wait at least two minutes. Remove the driver air bag module from the steering wheel and unplug the connector; unplug the passenger air bag pigtail from the vehicle body wiring harness underneath the instrument panel. Once the air bags have been disconnectec, cut the wires on the body wiring harness. Use the cut wires to construct an overlay harness, which will be used to deploy the air bags during the impact simulator test. Using the overlay harness, the air bags are wired in parallel to a 12 volt power supply controlled by an "air bag timer delay box" which is used to trigger the air bags 20 milliseconds following a 1/2 G carriage acceleration event.

Q5. 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 S7A.4.2 if the tension-relieving device is used.

A5. The safety belts are not equipped with tension-relieving devices.

Q6. 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.

A6. Flat frontal tests were performed with the windows in the fully down position. All angular tests the windows were in the full up position.

Q7. 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.

A7. Dummy placement measurements, where available, are provided in Attachment 2. A driver foot rest is not provided on the 2000 MY Dodge Caravan/Grand Caravan.

Q8. 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.

A8. The requested set up information is provided in Attachment 3. In addition Attachment 3 contains photographs of the recommended front outboard seatbelt load cell placements from a DaimlerChrysler Dodge Grand Caravan test setup. Without this type of load cell placement, dummy injury characteristics were affected.

Q9. If the vehicle is equipped with adjustable seatbelt anchorages, provide the manufacturer's nominal design position for a 50th percentile adult male occupant.

A9. The highest latched position is number one. Lower the turning loop two clicks to position number three. Verify turning loop is securely latched.

Q10. 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.

A10. The requested information is in the Compliance Report provided in Attachment 1.

Q11. 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?

A11. If vehicle components must be removed to achieve the proper test weight for the barrier test, this is the recommended order; rear seat(s), rear carpeting, spare tire, rear seat belts, rear speakers, rear side glass, rear bumper and fascia system.

Q12. 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.

A12. A pressure vessel is used to deploy the passenger air bag. See Attachment 4 for the requested information.

Q13. If the vehicle uses an explosive device to inflate the air bag, provide a copy of the test report or engineering analysis to demonstrate that it meets all the requirements of S9.2.

A13. An Explosive device is used to deploy the driver air bag. See Attachment 5 for the requested information.

Q14. Explain any leakage that has occurred from the onboard vapor recovery system pressure relief valve during any frontal impact development or certification testing performed by or for DaimlerChrysler. If any leakage occurred, include the amount. Describe the method used to collect fluid from the onboard vapor recovery system pressure relief valve for the period from impact until motion of the vehicle has ceased.

A14. The 2000 MY Dodge Caravan/Grand Caravan does not have an onboard vapor recovery system. Therefore, it is not equipped with a pressure relief valve. The 2000 MY Dodge Caravan meets FMVSS 301 requirements. No leakage has been observed during our impact testing.

If you have any questions regarding the information provided, please contact Mr. Archie J. Rock of my staff at (248) 576-7324.

Sincerely,

for S. M. Cischke

Attachments

FMVSS 208

2000 DODGE CARAVAN/GRAND CARAVAN

NSA-31CCa ; OA-208991029A

ATTACHMENT 2

RESPONSE TO QUESTION #7

DUMMY PLACEMENT MEASUREMENTS

TYPICAL DIMENSIONS FOR DODGE GRAND CARAVAN
HYBRID III 50th PERCENTILE MALE DUMMY
PASSENGER & DRIVER POSITION DATA: CHELSEA P.G. TESTS

		2000	1999					2000	1999			
		208 TEST's					35 mph	208 TEST's				35 mph
		PASSENGER						DRIVER				
SEAT ADJUSTERS		MANUAL	MANUAL	MANUAL	POWER	MANUAL	MANUAL	**AVG**	POWER	MANUAL	POWER	MANUAL	**AVG**
OSCAR MEASUREMENTS:													
OSCAR FORM RELATIVE TO STRIKER	X	10.9	11.3	11.3	11.2	11.3	11.8	**11.3**	11.2	11.4	11.4	10.8	**11.2**
	Z	0.7	0.9	0.6	-0.1	1.3	1.1	**0.75**	0.8	0.9	0.2	1.4	**0.83**
		(Above Striker)	(Above Striker)	(Above Striker)	(Below Striker)	(Above Striker)	(Above Striker)		(Above Striker)	(Above Striker)	(Above Striker)	(Above Striker)	
OSCAR FORM HIP Angle (Degrees)		104.0	103.0	106.0	102.0	107.0	104.0	**104.3**	103.0	104.0	103.0	105.0	**103.8**
OSCAR FORM Back Angle(Degrees)		23.0	27.0	25.0	25.0	23.0	24.0	**24.5**	25.0	25.0	22.0	25.0	**24.3**
HYBRID III MEASUREMENTS:													
H-POINT RELATIVE TO STRIKER	X	11.3	10.9	11.2	11.3	11.1	11.9	**11.3**	11.0	11.3	11.2	11.1	**11.2**
x Dimension measured forward from striker mounting surface.	Z	0.9	0.4	0.1	-0.7	0.6	0.4	**0.3**	0.3	0.7	0.3	1.2	**0.6**
		(Above Striker)	(Above Striker)	(Above Striker)	(Below Striker)	(Above Striker)	(Above Striker)		(Above Striker)	(Above Striker)	(Above Striker)	(Above Striker)	
PELVIC ANGLE (Must be 20 To 25 Deg)		25.0	21.0	21.0	22.0	25.0	23.0	**22.8**	23.0	25.0	22.0	24.0	**23.5**
KNEE-TO-PANEL DISTANCE	LT	3.8	4.8	4.7	4.8	3.9	3.9	**4.3**	6.1	5.0	5.2	5.5	**5.5**
(From Front Of Knee Impact Surface To Closest Part of Kneeblocker Excluding Bubble)	RT	3.9	4.7	4.5	4.7	4.0	3.8	**4.3**	6.5	5.1	5.2	6.2	**5.8**
BRIDGE OF NOSE HORIZONTAL TO W/SHIELD		23.5	24.2	24.8	26.6	24.9	24.4	**24.7**					
NOSE TO TOP OF WHEEL (Tip Of Nose To Rear Surface Of Rim)									14.1	16.8	15.4	15.6	**15.5**

TYPICAL DIMENSIONS FOR DODGE GRAND CARAVAN
HYBRID III 50th PERCENTILE MALE DUMMY
PASSENGER & DRIVER POSITION DATA: CHELSEA P.G. TESTS

SEAT ADJUSTERS		PASSENGER 208 TEST's 2000			1999 35 mph				DRIVER 208 TEST's 2000			1999 35 mph		
		MANUAL	MANUAL	MANUAL	POWER	MANUAL	MANUAL	AVG	POWER	MANUAL	POWER	MANUAL	AVG
CHEST TO HUB (Chest Point is 9" Down From Chin)									10.4	11.7	10.3	10.2	**10.7**
CHEST FWD TO IP (Chest Point is 9" Down From Chin)		19.7	19.7	19.7	20.1	19.8	19.5	**19.8**					
NOSE TO CENTER OF WHEEL (Tip Of Nose To Pentastar)									14.6	15.8	15.2	16.3	**15.5**
LEFT HEEL (Measured To Back & Center Of Heel)	X	11.3	11.1	10.9	10.9	N/A	9.0	**10.6**	11.0	10.0	N/A	10.0	**10.3**
	Y	13.0	12.5	13.7	12.0	N/A	14.0	**13.0**	5.2	4.8	N/A	6.0	**5.3**
RIGHT HEEL	X	12.2	11.4	10.1	11.5	N/A	10.0	**11.0**	11.2	9.8	N/A	10.9	**10.6**
	Y	4.0	5.2	6.5	6.1	N/A	6.0	**5.6**	15.8	14.7	N/A	16.0	**15.5**
LEFT KNEE (Measured To Center Of Knee)	Y	13.1	13.5	13.5	12.6	N/A	14.0	**13.3**	6.0	5.0	N/A	5.8	**5.6**
RIGHT KNEE	Y	5.0	5.8	6.2	6.2	N/A	6.0	**5.8**	15.2	15.0	N/A	14.8	**15.0**
OUTBOARD HIP TARGET	Y	2.4	1.9	2.4	1.8	N/A	2.1	**2.1**	2.2	2.5	N/A	2.6	**2.4**
OUTBOARD HEAD TARGET	Y	7.1	7.0	5.8	6.5	N/A	5.3	**6.3**	7.2	7.0	N/A	6.4	**6.9**

SHOULDER BELT POSITIONING (Ensure ATL is 2 clicks down from top. Place flat plate in dummy lap. Measure up to center of sholder belt webbing. Typical dimension to center of webbing is 11.8 to 12.0 inches.)

- "X" reference plane is 5" forward of seat riser.
- "Y" reference plane is 5" inboard of & parallel to door sill pinch flange. Remove sill plate.
  & weatherstrip seal to locate.
- Power seat 20 mm lower than manual seat @ design H-point.

TYPICAL NS SETUP PROCEDURE:

HYBRED III head/neck assembly has been indexed two teeth rearward (relative to spine) at the neck bracket to level the dummy head. Per FMVSS 208 S10.1 requirements.

2000 Passenger & Driver positioning data for MY 2000 flat frontal added.

FMVSS 208

2000 DODGE CARAVAN/GRAND CARAVAN

NSA-31CCa ; OA-208991029A

ATTACHMENT 3

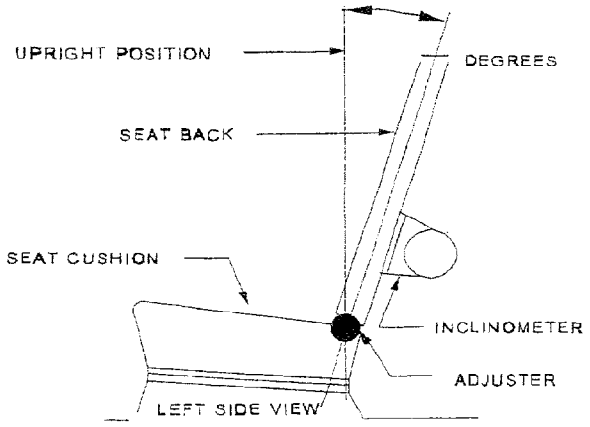
RESPONSE TO QUESTION #8

GENERAL SETUP CONDITIONS

TEST VEHICLE INFORMATION

Vehicle Model Year & Make: 2000 Dodge
Vehicle Model & Body Style: Caravan/Grand Caravan Minivan

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" of "1"?). Indicate if the seat back angle is measured with the dummy in the seat.



Seat back angle for driver's seat = X
Measurement Instructions:
Set seatback adjustment without dummy in seat. Fully incline seatback. Hold inclinometer against frame of seatback approximately 55 mm above pivot point. Recline seat four degrees from fully inclined position.
Seat back angle for passenger's seat = X
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:
Ensure seat is completely lowered. Only driver power seat has vertical adjustment. Locate full-forward and full-rear positions, and mark the sill at those positions. The full travel distance should be 200-mm for power seat adjuster and 220-mm for manual seat adjuster. Place seat mid-way between full forward and full rear.

Positioning of the passenger's seat (if applicable):
Same as driver.

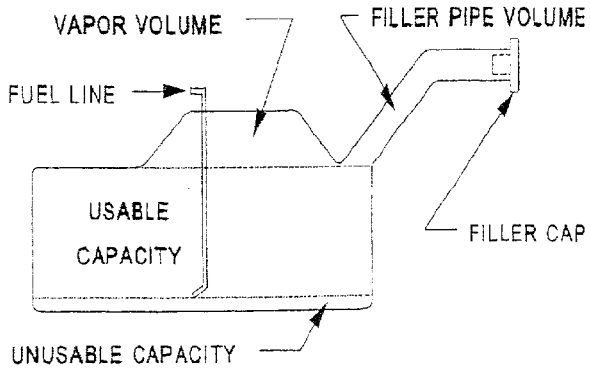
3. FUEL TANK CAPACITY DATA - -

3.1 A. "Usable Capacity" of standard equipment fuel tank = 20.0 gallons.

B. "Usable Capacity" of optional equipment fuel tank = N/A gallons.

C. "Usable Capacity" of vehicle(s) used for certification testing to requirements of FMVSS 301 = 20.0 gallons.

Operational Instructions:
None



VEHICLE FUEL TANK ASSEMBLY

3.2 Amount of Stoddard solvent added to vehicle(s) used for certification test(s) = 19.0 gallons

Rev. 08/97ajr

ORM NO. 1 . . . . Continued

TEST VEHICLE INFORMATION

3.3 Is vehicle equipped with electric fuel pump? X YES ___ NO
If YES, does pump normally operate when vehicle's electrical system is activated? X YES ___ NO
Insert key in ignition. Turn key to "run" position. Fuel pump will operate briefly, pressurizing fuel lines.

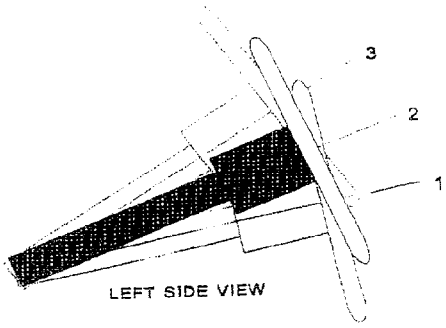
4. ADJUSTABLE UPPER ANCHORAGE POSITION:

Highest latched position is one. Lower turning loop two clicks to position number three. Verify it is latched.

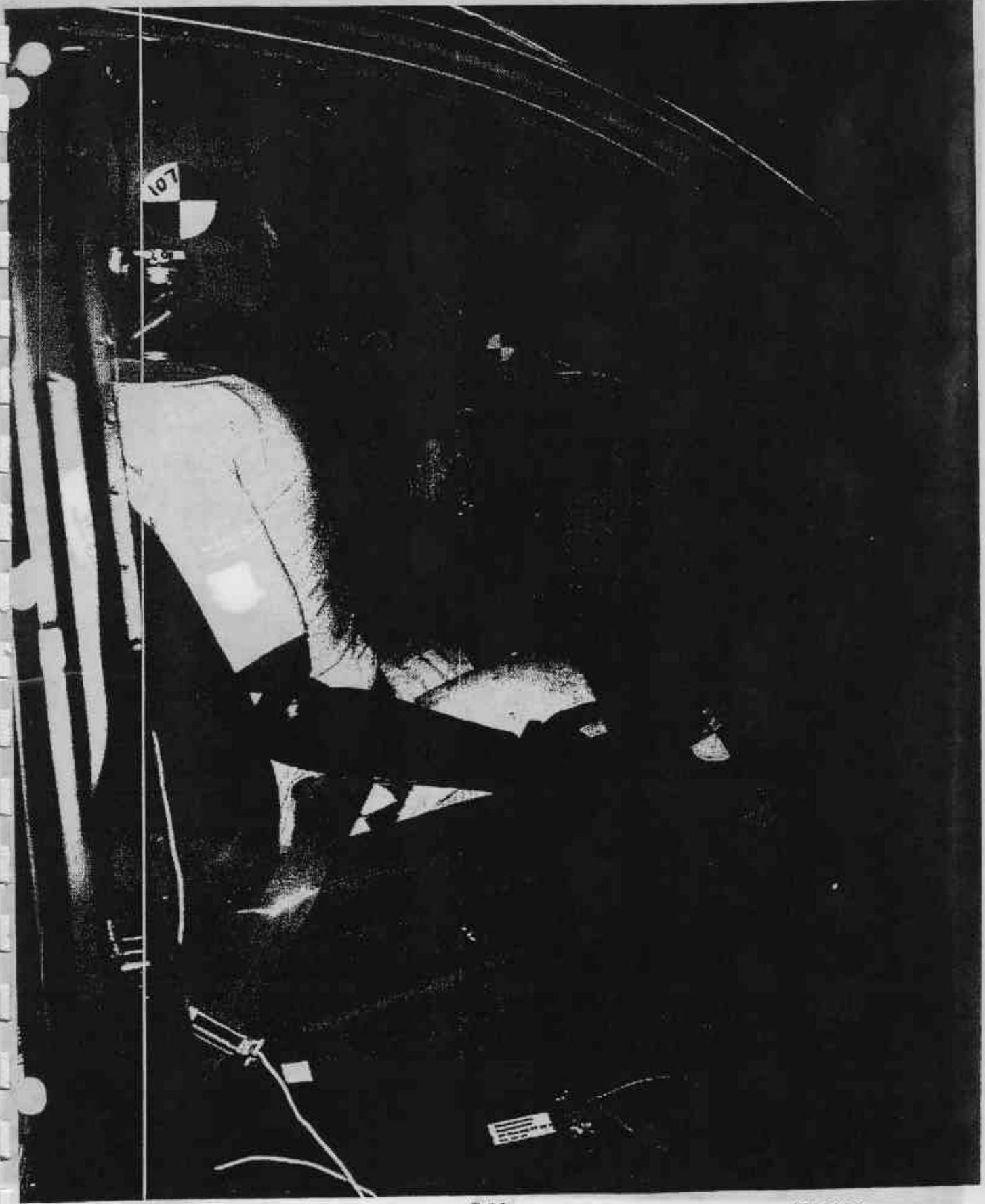
5. STEERING COLUMN ADJUSTMENTS - -

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:
Position tilt column in highest position. This is position one. Ensure mechanism is engaged. Lower tilt head four notches (this represents five discrete clicks from the highest lock position) to position five. Column will be at neutral position. Or -- Test position is the mid point of the upper and lower range of motion. Using an electronic level, place the column in the full down position and record the angle of the steering wheel plane. Repeat this measurement for the full up position. The mid-point of the two angles will be the proper tilt column test angle.



STEERING COLUMN ASSEMBLY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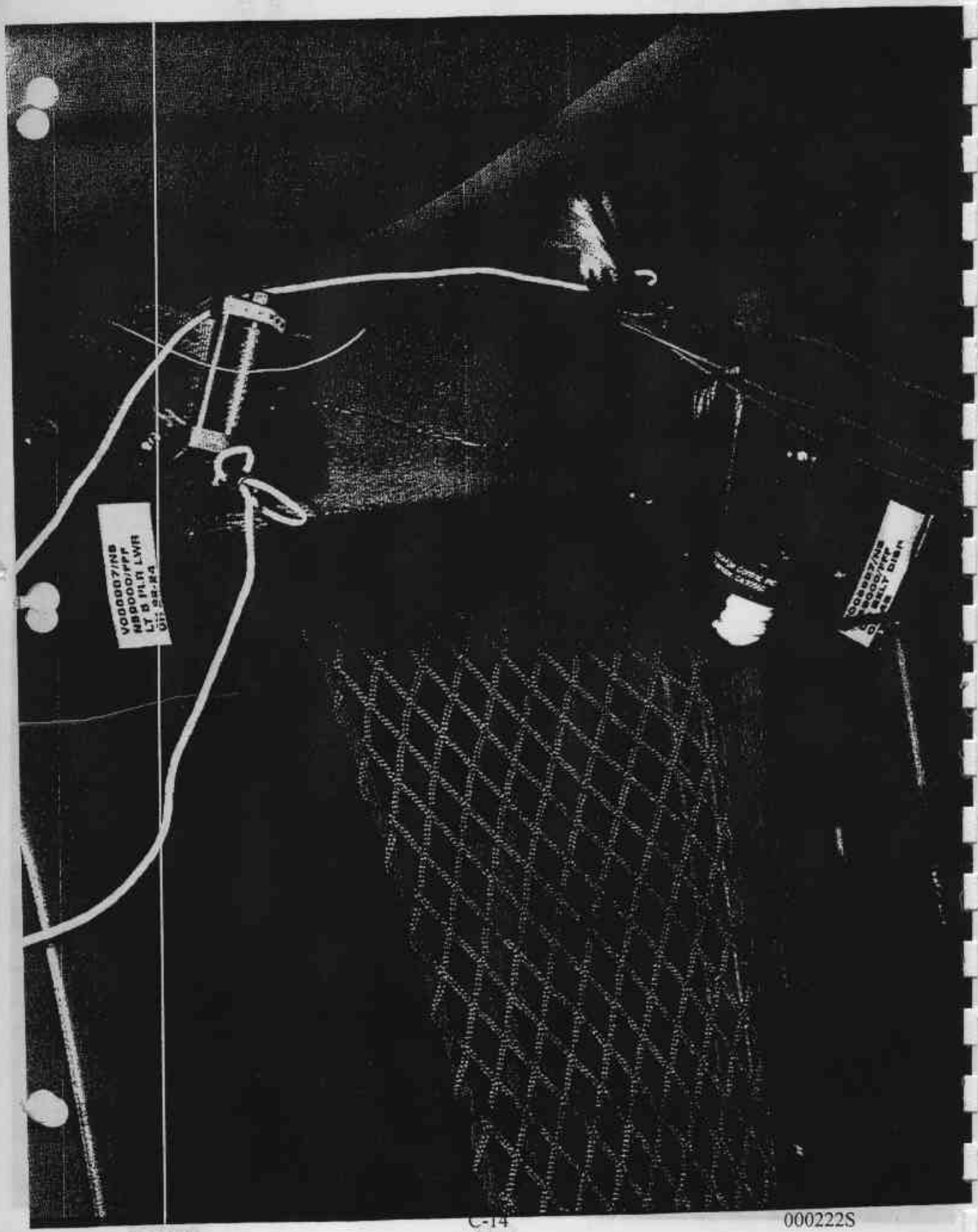
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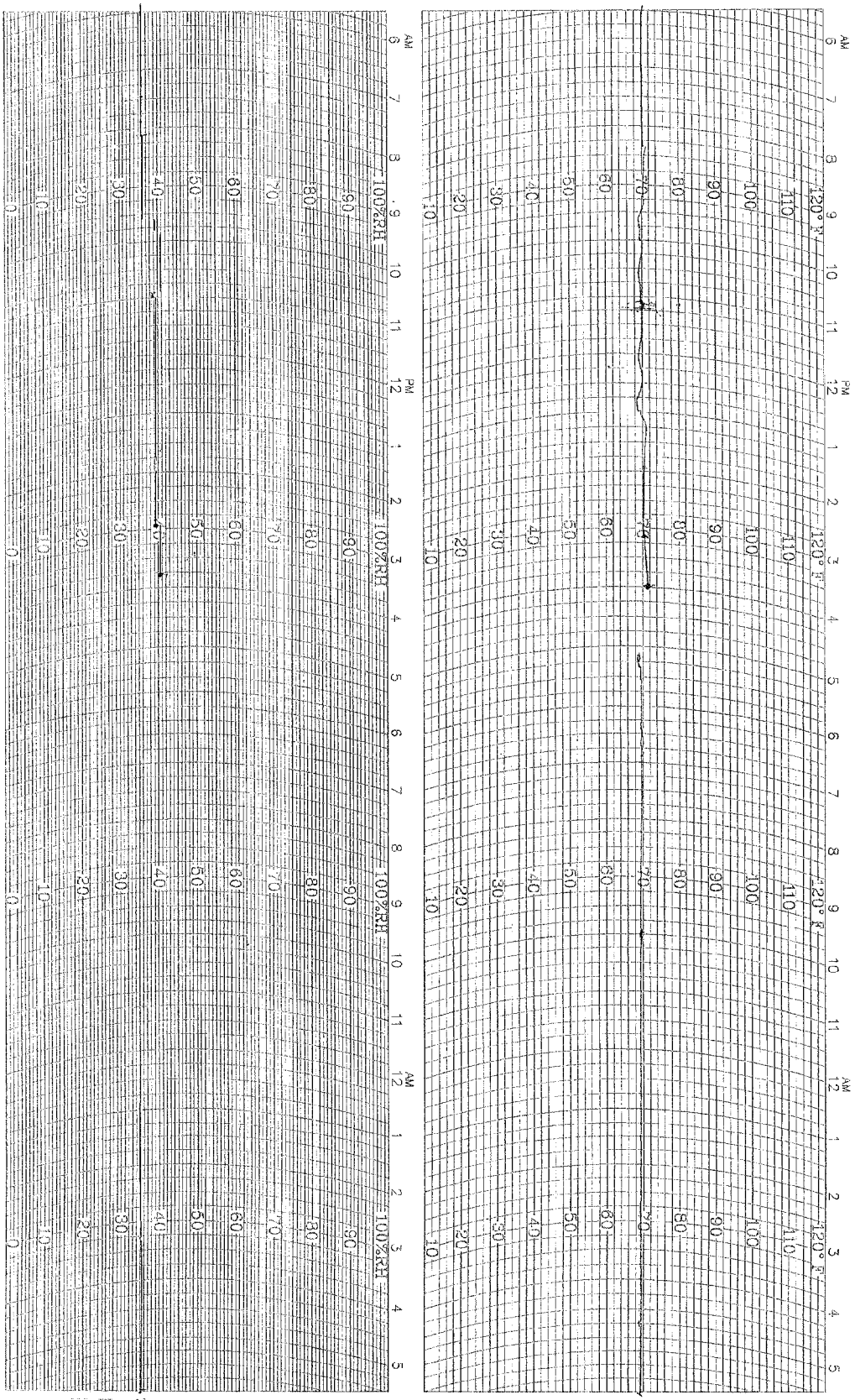
N89000/FFF
LT B IN/R LWR

Appendix D

Miscellaneous Test Information



WeatherMeasure
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HYGROTHERMOGRAPH
1 DAY

CHART NO. M699123
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ECN 2717
6-9-87

STATION_____ DATE ON_____ DATE OFF_____