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Report Number: 208S-TRC-99-006

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

Isuzu Motors Limited
1999 Isuzu Rodeo MPV
NHTSA Number: CX5703
TRC Test Number: 990528S

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



Test Date: May 28, 1999
Report Date: July 2, 1999

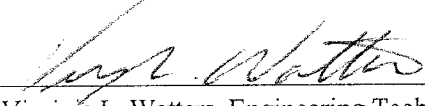
Final Report

Prepared For:
U. S. Department of Transportation
National Highway Traffic Safety Administration
Safety Assurance
Office of Vehicle Safety Compliance (NSA-30)
400 Seventh Street, S.W., Room No. 6115
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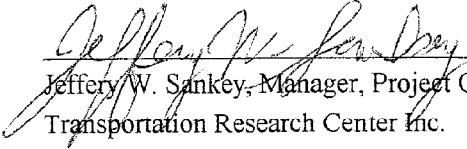
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Date 6/25/99

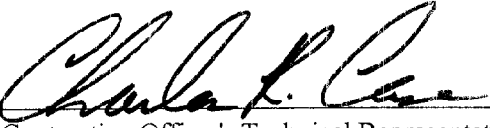
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Date 6/30/99

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Contracting Officer's Technical Representative (COTR),
NHTSA, Office of Vehicle Safety Compliance

Date 8/5/99

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16. Abstract An FMVSS 208 Section 13 compliance sled test was conducted on a 1999 Isuzu Rodeo MPV, NHTSA No. CX5703, 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: The maximum peak axial neck compression of (-) 4000 N was exceeded by the passenger dummy. A different vehicle was used for checking compliance with the other applicable sections of FMVSS 208. The Seat Belt Warning System Data, Air Bag Readiness Indicator Data, Air Bag Label Data, Rear Outboard Seating Position Seat Belt Data, Lap Belt Lockability Data and Seat Belt Comfort and Convenience Data were all taken from the 1999 Isuzu Rodeo (VIN # 4S2CK58D2X4301890) NHTSA # 5701.			
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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 1999 Isuzu Rodeo MPV, NHTSA No. CX5703, meets the performance requirements of FMVSS 208, "Occupant Crash Protection," in the impact simulation sled test mode. Other applicable sections of FMVSS were checked with a different 1999 Isuzu Rodeo MPV, NHTSA No. CX5701.

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 thirty-nine (39) 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 May 28, 1999.

The test vehicle, a 1999 Isuzu Rodeo MPV, NHTSA No. CX5703, does not 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	212.7	307.4
Chest g	60 g	29.5	31.3
Chest Displacement	3 inches	1.2	0.5
Left Femur	2250 lb	936.6	721.8
Right Femur	2250 lb	1066.6	1051.6
Neck Extension	57 Nm	9.5	13.6
Neck Flexion	190 Nm	39.4	57.3
Neck Tension	3300 N	531.7	284.2
Neck Compression	4000 N	3018.5	4181.5
Neck Shear	3100 N	611.4	866.2

The subject vehicle, a 1999 Isuzu Rodeo MPV, NHTSA No. CX5701, 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 17.2 g with an integrated velocity change of 28.3 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 21.2 ms after the 0.5 g acceleration level was indicated.

Sled Test Summary

NHTSA number: CX5703
Test type: FMVSS 208 Compliance Sled Test
Test date: 05/28/99
Test time: 14:12
Ambient temperature at impact area: 71° F
Vehicle year/make/ model/body style: 1999/Isuzu/Rodeo/MPV

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

Number of Cameras:

Real-time:	1
High-speed:	6

Door Opening Data:

Left Front:	Normal
Right Front:	Normal

Front Seat Data:

Seat track failure:	No apparent failure	No apparent failure
Seat back failure:	No apparent failure	No apparent failure

Visible Dummy Contact Points:

Head:	Airbag, windshield, headliner	Airbag, windshield, 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: 1999/Isuzu/Rodeo/MPV
Color: Radiant Red
VIN: 4S2CK58D8X4311582
NHTSA number: CX5703
Engine data:
Placement: Longitudinal
Cylinders: 4
Displacement: 2.2 liters
Transmission data: 5 speed, X manual, ___ automatic, X overdrive
Final drive: ___ fwd, X rwd, ___ 4wd
Date vehicle received: 05/17/99
Odometer reading: 112
Dealer's name Hatfield Isuzu
and address: 1400 Automall Drive
Columbus, OH 43228

Major Options:

Power steering	Yes	Other: Rear and side window defogger,
Power brakes	Yes	4 wheel anti-lock brakes.
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:	Isuzu Motors Limited
Date of manufacture:	08/98
VIN:	4S2CK58D8X4311582
GVWR:	4550 lb
GAWR: Front:	2100 lb
Rear:	2700 lb

Data from Vehicle's Tire Placard:

Tire pressure with maximum capacity vehicle load:

Front:	29 psi
--------	--------

Rear:	29 psi
-------	--------

Recommended tire size:	P235/75R15
------------------------	------------

Load range:	2028 lbs
-------------	----------

Recommended cold tire pressure:

Front:	29 psi
--------	--------

Rear:	29 psi
-------	--------

Size of tires on vehicle:	P235/75R15
---------------------------	------------

Spare tire:	P235/75R15
-------------	------------

Vehicle capacity data:

Type of front seats:	Bucket
----------------------	--------

Number of occupants:

Front	2
-------	---

Rear	3
------	---

Total	5
-------	---

Remarks: No capacity weight on tire load label.

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

Vehicle Capacity Weight

Vehicle Capacity Weight (VCW) = 1073 lbs

Number of occupants x 150 lbs = 750 lbs

Rated cargo/luggage weight (RCLW) = 323 lbs

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

Right front	830	lb	Right rear	857	lb
Left front	945	lb	Left rear	845	lb
Total front weight	1775	lb	(51% of total vehicle weight)		
Total rear weight	1702	lb	(49% of total vehicle weight)		
Total delivered weight	3477	lb			

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

Right front	924	lb	Right rear	1108	lb
Left front	1006	lb	Left rear	1071	lb
Total front weight	1930	lb	(47% of total vehicle weight)		
Total rear weight	2179	lb	(53% of total vehicle weight)		
Total test weight	4109	lb			

Remarks:

Weight of ballast secured in vehicle: None

Components removed to meet target test weight: None

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

Test Vehicle Attitude:

As delivered door sill angle: 1.0° Nose down

As tested door sill angle: 0.3° Nose down

Fully loaded door sill angle: 0.4° Nose down

Vehicle Wheelbase: 106.5 inches

Fuel System Data:

Fuel system capacity from owner's manual: 21.1 gallons

Useable capacity figure furnished by COTR: 21.1 gallons

Remarks: None

Post-Impact Data

Test number: 990528S
NHTSA number: CX5703
Test date: 05/28/99
Test time: 14:12
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: 28.3 mph
Measured velocity from the light trap device attached to the sled (backup): 28.3 mph
Specified integrated velocity range: 28 to 30 mph

Sled carriage acceleration:

Acceleration: 17.2 g
Specified acceleration range: 16.0 g - 18.2 g

Sled carriage acceleration duration:

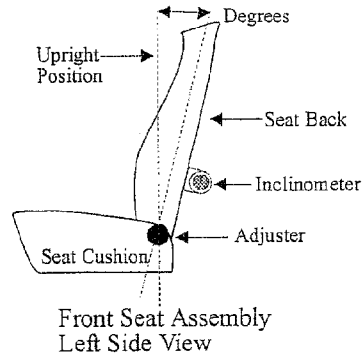
Time from T-0(-0.5 g) to 0.0 g: 123.6 msec
Specified acceleration duration: 120.0 - 130.0 msec

The sled acceleration curve was within the specified corridor.

Seat and Steering Column Positioning Data

Vehicle: 1999 Isuzu/Rodeo/MPV

NHTSA No.: CX5703



Nominal Design Riding Position:

- Driver Seat: Fifth notch rearward from full upright position with full upright position as one.
- Passenger Seat: Fifth notch rearward from full upright position with full upright position as one.

Seat Fore and Aft Positions:

- Driver Seat: The seat track was positioned eleven notches forward from the rearmost position with the rearmost position as one.
- Passenger: The seat track was positioned eleven notches forward from the rearmost position with the rearmost position as one.

Steering Column Adjustments:

The steering column was not adjustable.

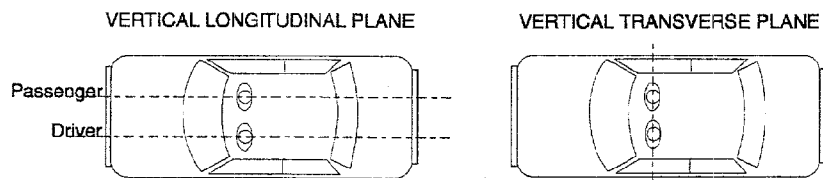
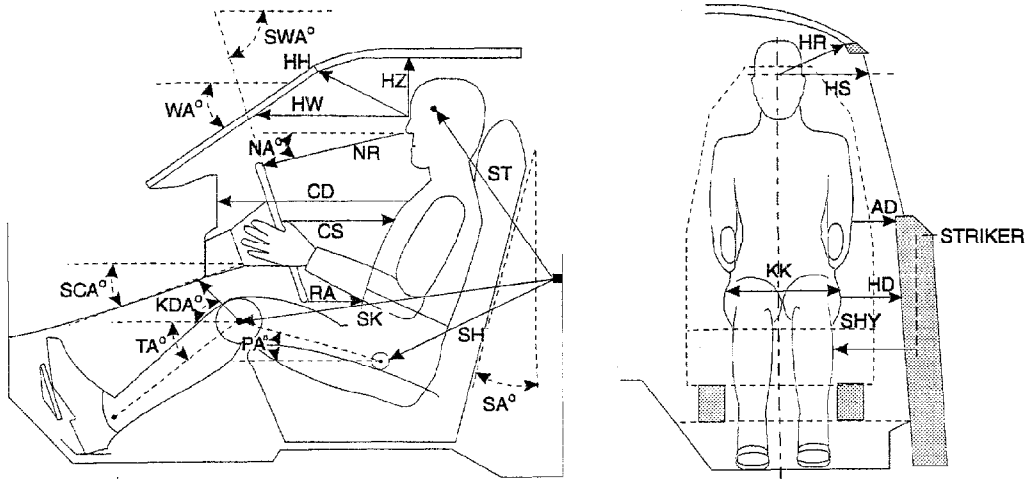
Dummy Measurement Data for Front Seat Occupants

<u>Designation</u>	<u>Type of Measurement</u>	<u>Driver (Serial #229)</u>	<u>Passenger (Serial #230)</u>
WA	Windshield angle	36.8°	N/A
SWA	Steering wheel angle	23.8°	N/A
SCA	Steering column angle	25.0°	N/A
SA	Seat back angle	20.3°	19.9°
HZ	Head to roof	7.2 in	7.0 in
HH	Head to header	14.9 in	15.1 in
HW	Head to windshield	21.0 in	21.0 in
HR	Head to side header	9.7 in	9.5 in
NR	Nose to rim	17.4 in	N/A
NA	Nose to rim angle	18.8°	N/A
CD	Chest to dash	20.9 in	21.4 in
CS	Steering wheel to chest	11.9 in	N/A
RA	Rim to abdomen	7.8 in	N/A
KDL	Left knee to dash	6.7 in	5.9 in
KDR	Right knee to dash	6.0 in	6.3 in
KDA	Outboard knee to dash angle	24°	26.0°
PA	Pelvic angle	22.4°	24.8°
TA	Tibial angle	37.2°	37.7°
KK	Knee to knee	12.5 in	10.6 in
ST ¹	Striker to head	23.5 in	23.7 in
	Striker to head angle	74.7°	78.3°
SK ¹	Striker to knee	25.6 in	26.7 in
	Striker to knee angle	2.1°	3.0°
SH ¹	Striker to H-point	11.6 in	11.7 in
	Striker to H-point angle	-16.6°	-12.6°
SHY	Striker to H-point (Y dir.)	8.0 in	7.6 in
HS	Head to side window	12.6 in	12.5 in
HD	H-point to door	5.3 in	4.9 in
AD	Arm to door	3.5 in	3.9 in

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

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

Dummy Measurement Locations for Front Seat Occupants



Descriptions of Dummy Measurements

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

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

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

* Measurement used in Data Tape Reference Guide

¹ Only outboard measurement is referenced in Data Tape Reference Guide

Descriptions of Dummy Measurements, Cont'd.

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

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

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

Angles

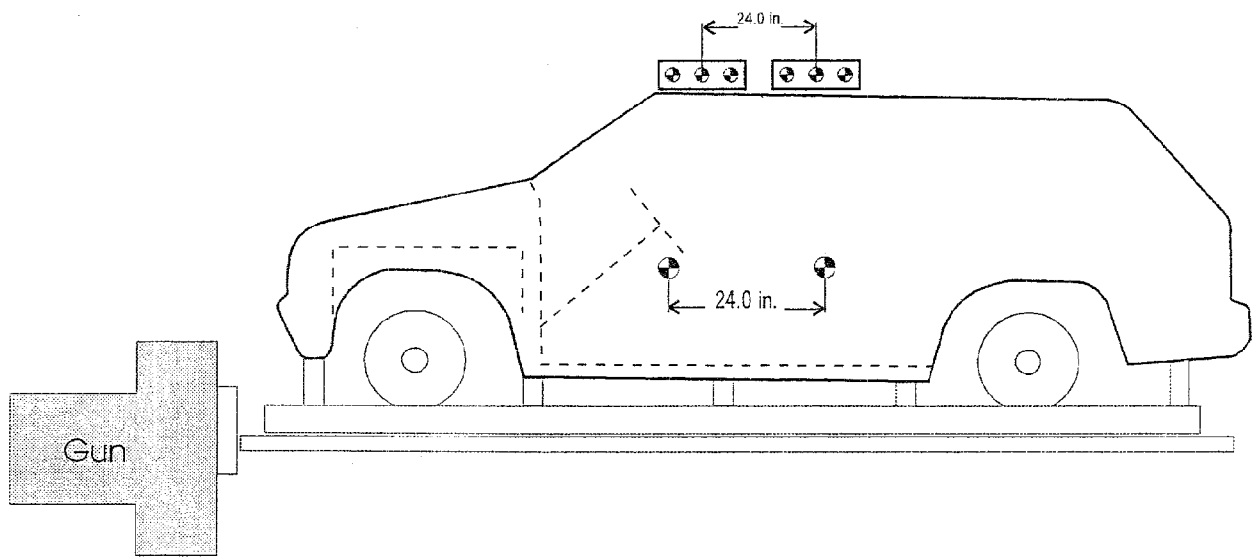
- SA Seat Back Angle, find this angle using the instructions provided by the manufacturer. If the manufacturer doesn't provide clear instructions contact the COTR.
- PA Pelvic or Femur Angle, taken by inserting the pelvic angle gauge into the H-point gauging hole on the SID or the Hybrid III dummies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

* Measurement used in Data Tape Reference Guide

Descriptions of Dummy Measurements, Cont'd.

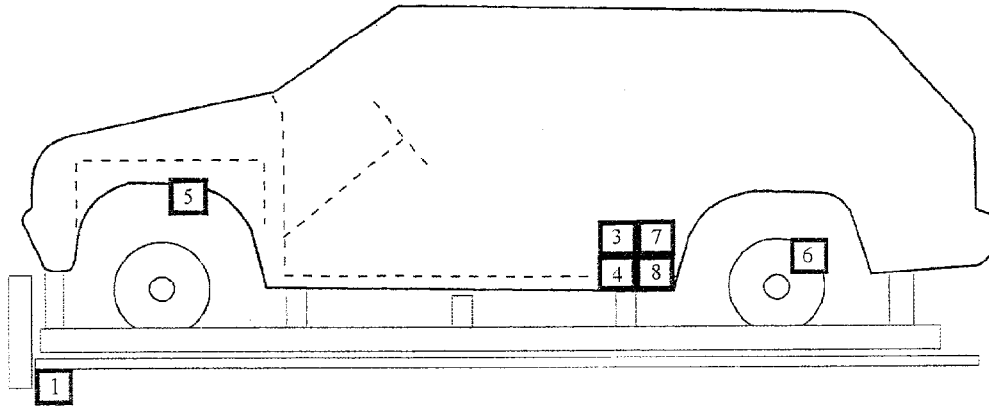
- SWA Steering Wheel Angle, find this by placing a straight edge against the steering wheel rim along the longitudinal plane. Then measure the acute angle of the straight edge with respect to the horizontal.
- SCA Steering Column Angle, measured with respect to the horizontal by placing an inclinometer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

REFERENCE PHOTO TARGETS

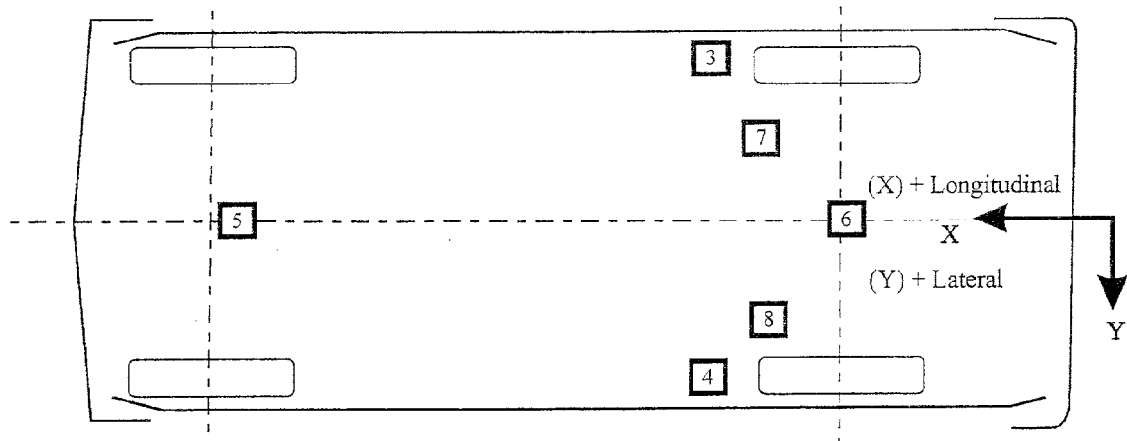


LEFT SIDE VIEW

Vehicle Accelerometer Placement



Side View



Bottom View

Vehicle Data Summary and Accelerometer Locations

TEST NUMBER: 990528S				POSITIVE		NEGATIVE	
No. LOCATION	X	Y	Z	DIRECTION		DIRECTION	
1 SLED ACCELERATION	175.6 in	-1.0 in					
PRIMARY				0.7 g	@ 177.1 ms	17.2 g	@ 60.2 ms
REDUNDANT				0.9 g	@ 151.0 ms	16.8 g	@ 59.9 ms
2 SLED VELOCITY							
MEASURED				0.1 mph	@ 5.8 ms	28.3 mph	@ 124.3 ms
INTEGRATED				-0.1 mph	@ 5.8 ms	28.3 mph	@ 123.5 ms
3 LEFT REAR SEAT	59.0 in	-25.2 in					
CROSSMEMBER				1.9 g	@ 129.1 ms	17.6 g	@ 56.7 ms
LONGITUDINAL							
4 RIGHT REAR SEAT	58.7 in	24.0 in					
CROSSMEMBER				1.8 g	@ 129.0 ms	17.8 g	@ 57.4 ms
LONGITUDINAL							
5 BOTTOM ENGINE	146.9 in	-2.3 in					
LONGITUDINAL				3.8 g	@ 165.0 ms	18.6 g	@ 56.2 ms
6 REAR AXLE	34.6 in	-0.7 in					
LONGITUDINAL				2.3 g	@ 128.6 ms	18.1 g	@ 60.1 ms
7 LEFT VEHICLE FRAME	58.6 in	-21.9 in					
LONGITUDINAL				1.6 g	@ 153.4 ms	17.4 g	@ 54.0 ms

Vehicle Data Summary and Accelerometer Locations, Cont'd.

TEST NUMBER: 990528S
No. LOCATION

NEGATIVE
DIRECTION

POSITIVE
DIRECTION

Z

Y

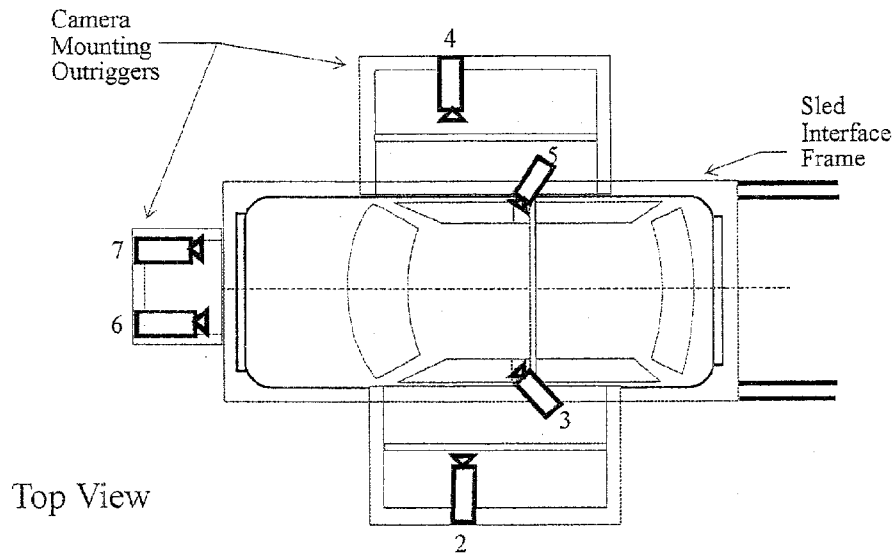
X

8 RIGHT VEHICLE FRAME 58.6 in 21.9 in 1.4 g @ 128.3 ms 17.7 g @ 57.1 ms
LONGITUDINAL

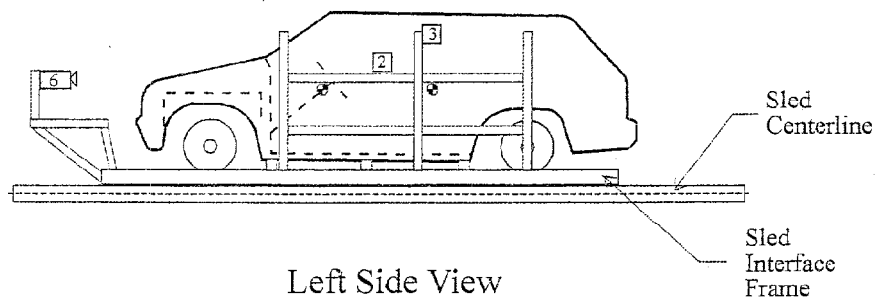
9 AIRBAG
EVENT 7.0 volt @ 21.2 ms --- ---

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 fps



Motion Picture Camera Locations

Vehicle year/make/model/body style: 1999/Isuzu/ Rodeo/MPV NHTSA No. CX5703 Test Number: 990528S

Camera Number	View	Camera Positions ¹			Camera to Head Target	Camera Lens	Film Speed
		X	Y	Z			
1	Left side view offboard	84.9 in	-307.9 in	55.5 in	291.0 in	10 mm	24 frames/s
2	Left side view wide	71.4 in	-70.4 in	48.5 in	54.5 in	8 mm	1000 frames/s
3	Left side view over shoulder	99.2 in	-49.2 in	56.3 in	36.0 in	8 mm	975 frames/s
4	Right side view wide	75.7 in	89.5 in	50.0 in	72.7 in	8 mm	1000 frames/s
5	Right side view over shoulder	97.4 in	48.3 in	55.3 in	35.6 in	8 mm	1007 frames/s
6	Front view - driver	27.8 in	-12.3 in	59.7 in	52.5 in	8 mm	1000 frames/s
7	Front view - passenger	27.8 in	16.4 in	59.7 in	52.5 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: 1999/ Isuzu / Rodeo / MPV

NHTSA NO.: CX5703

Date: 05/28/99

Maximum Acceleration Values: (g's)	Driver Dummy #229	Passenger Dummy #230
Head Channel X	-45.8	-56.9
Head Channel Y	-32.0	-16.2
Head Channel Z	38.5	46.7
HEAD RESULTANT	49.4	69.9
Chest Channel X	-29.7	-24.0
Chest Channel Y	4.2	2.6
Chest Channel Z	17.7	24.9
CHEST RESULTANT	30.1	33.1

Head Injury Criteria (HIC) Values:

HIC	212.7	307.4
t_1 = (msec)	98.2	99.8
t_2 = (msec)	134.2	128.6

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

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

CLIP	29.5	31.3
t^1 = (msec)	98.5	113.8
t^2 = (msec)	101.5	116.9
Chest Deflection (in)	-1.2	-0.5

FMVSS 208 Occupant Injury Data, Cont'd.

Vehicle: 1999 / Isuzu / Rodeo / MPV

NHTSA NO.: CX5703 Date: 05/28/99

Units (lbs)		
Max. Compressive Femur Forces:	Driver Dummy #229	Passenger Dummy #230
Left Side (lbs)	-936.6	-721.8
Right Side (lbs)	-1066.6	-1051.6

Neck Injury Criteria:	Driver Dummy #229	Passenger Dummy #230
Peak Flexion Bending Moment (N-m)	39.4	57.3
Peak Extension Bending Moment (N-m)	-9.5	-13.6
Peak Axial Tension (N)	531.7	284.2
Peak Axial Compression (N)	-3018.5	-4181.5
Peak Fore Shear (N)	611.4	866.2
Peak Aft Shear (N)	-149.7	-190.9

General Test and Vehicle Parameter Data for the Tests that Follow
(this vehicle not used for sled tests)

Test Vehicle Information:

Vehicle year/make/
model/body style: 1999/Isuzu/Rodeo/MPV
Color: Zephyr Green
VIN: 4S2CK58D2X4301890
NHTSA number: CX5701
Engine data:
Placement: Longitudinal
Cylinders: 4
Displacement: 2.2 liters
Transmission data: 5 speed, X manual, automatic, X overdrive
Final drive: fwd, X rwd, 4wd
Date vehicle received: 12/04/98
Odometer reading: 58
Dealer's name
and address: Hatfield Isuzu
1400 Automall Drive
Columbus, OH 43228

Major Options:

Power steering	Yes	Other: Rear and side window defogger,
Power brakes	Yes	4 wheel anti-lock brakes.
Power windows	No	
Air conditioning	Yes	
Power door locks	No	

Remarks: None

Data from Vehicle's Certification Label:

Vehicle manufactured by: Isuzu Motors Limited
Date of manufacture: 08/98
VIN: 4S2CK58D2X4301890
GVWR: 4550 lb
GAWR: Front: 2100 lb
Rear: 2700 lb

FMVSS 208 SEAT BELT WARNING SYSTEM CHECK

Vehicle Model Year/Make/Model/Body Style: 1999/Isuzu/Rodeo/MPV

NHTSA NO.: CX5701

Technician: R. Stoner & V. Watters

Date: 02/11/99

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

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

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

Time duration of audible warning signal = 6 seconds
(4 to 8 seconds)

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

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

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

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

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

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

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

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

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

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

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

- C. Note wording of visual warning:

Fasten Seat Belt _____

Fasten Belt _____

Symbol 101 ☒

FMVSS 208 READINESS INDICATOR

Vehicle Model Year/Make/Model/Body Style: 1999/Isuzu/Rodeo/MPV

NHTSA NO.: CX5701

Technician: R. Stoner & V. Watters

Date: 02/11/99

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

(11/8/94 legal interpretation)

Is the system totally mechanical?

Yes-☐; No-☒

Describe the location of the readiness of the readiness indicator: Bottom of instrument panel just left of center

Is the readiness indicator clearly visible to the driver?

Yes-☒; No-☐

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

Yes-☒; No-☐

FMVSS 208 Air Bag Labels

Vehicle Model Year/Make/Model/Body Style: 1999/Isuzu/Rodeo/MPV

NHTSA NO.: CX5701

Technician: R. Stoner & V. Watters

Date: 02/11/99

1. Air Bag Maintenance Label and Owner's Manual Instructions:
 - 1.1 Does the manufacturer recommend periodic maintenance or replacement of the air bag?
☐ Yes (Go to 1.2)
☒ No (Go to 2)
 - 1.2 Does the Vehicle have a maintenance or replacement label?
☐ Yes-Pass ☐ No-Fail
 - 1.3 Does the label contain one of the following?
☐ Yes-Pass ☐ No-Fail
☐ Schedule on label specifies month and year
☐ Schedule on label specifies vehicle mileage
☐ Schedule on label specifies interval measured from date on certification label
 - 1.4 Is the label permanently affixed within the passenger compartment?
☐ Yes-Pass ☐ No-Fail
 - 1.5 Is the label lettered in English?
☐ Yes-Pass ☐ No-Fail
 - 1.6 Is the label in block capitals and numerals?
☐ Yes-Pass ☐ No-Fail
 - 1.7 Are the letters and numerals at 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?

Driver side ☐ Yes-Pass ☒ N/A ☐ 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.

Driver side ☐ Yes-Pass ☒ N/A ☐ No-Fail

Air Bag Labels, Cont'd.

SUN VISOR LABEL VISIBLE WHEN VISOR IS IN DOWN POSITION

LABEL OUTLINE, VERTICAL AND HORIZONTAL LINE BLACK

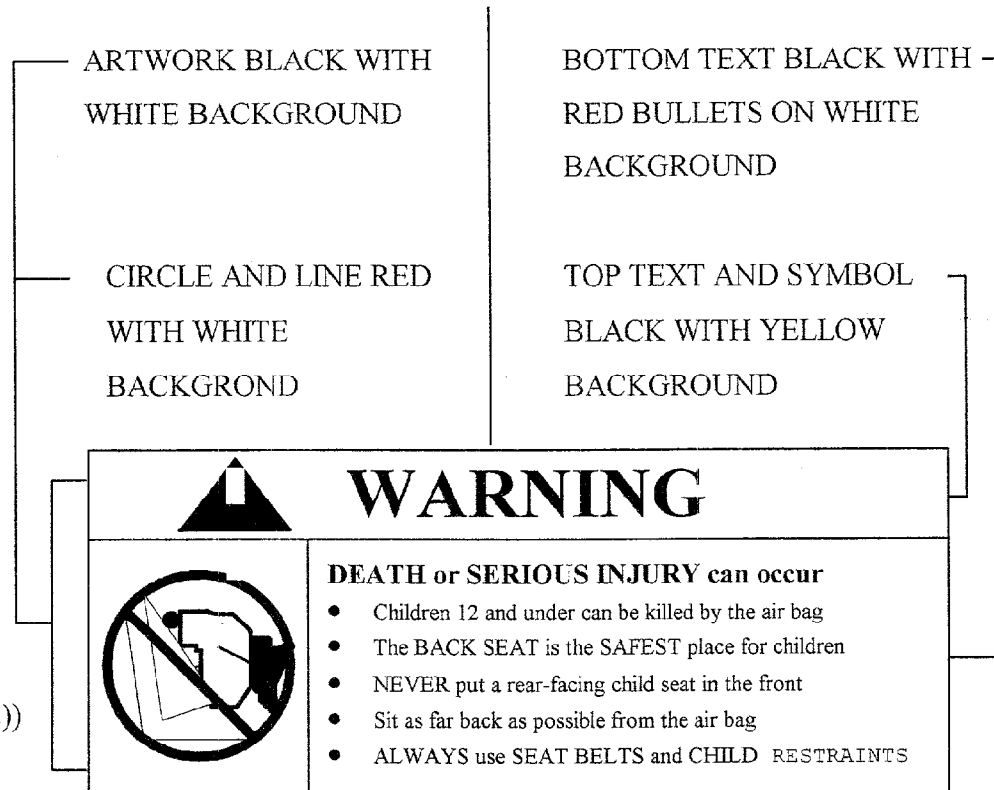
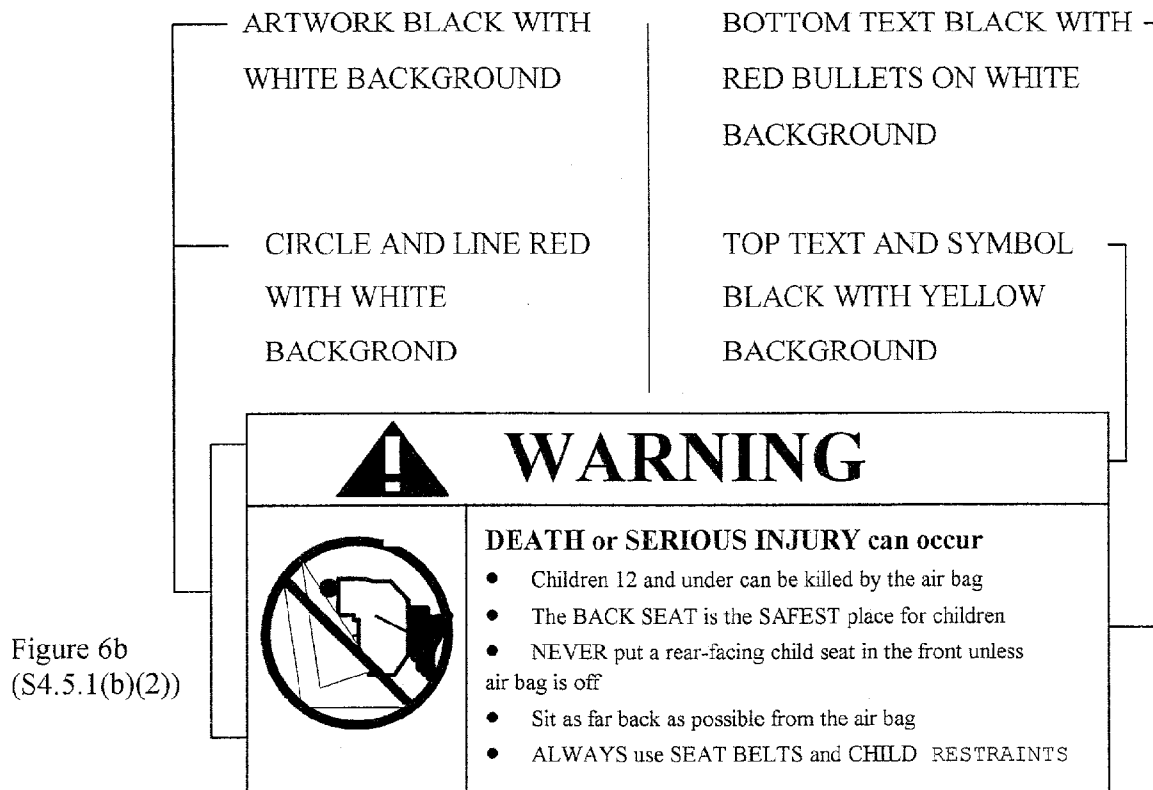


Figure 6a
(S4.5.1(b)(2))

Air Bag Labels, Cont'd.

SUN VISOR LABEL VISIBLE WHEN VISOR IS IN DOWN POSITION

LABEL OUTLINE, VERTICAL AND HORIZONTAL LINE BLACK



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

Driver side ☒ Yes-Pass ☐ No-Fail

Passenger side ☒ Yes-Pass ☐ No-Fail

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

Driver side ☒ Yes-Pass ☐ No-Fail

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

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

Actual message area 32.0 cm²

Driver side ☒ Yes-Pass ☐ No-Fail

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

Air Bag Labels, Cont'd.

- 4.6 Is the pictogram black with a red circle and slash on a white background?

(S4.5.1(b)(2)(iii)) & (S4.5.1(b)(2)(iv))

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

Driver side ☒ Yes-Pass ☐ No-Fail

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

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

Actual diameter **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

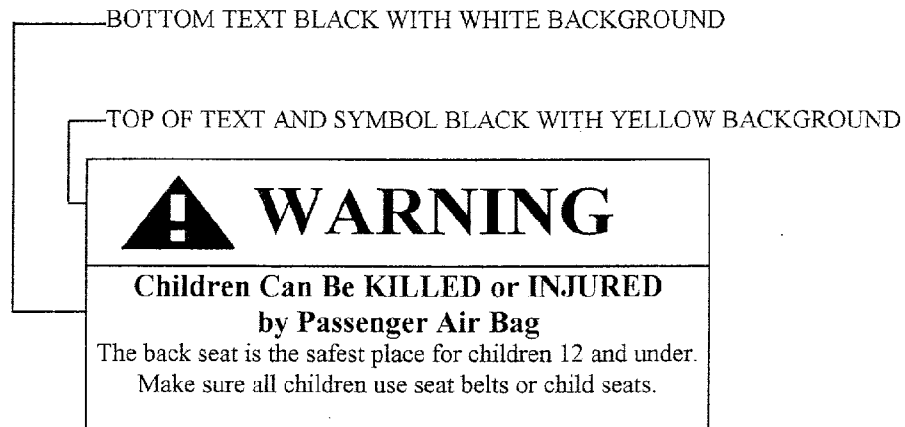


Figure 6c
(S4.5.1(c)(2))

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

Figure 7
(S4.5.1(e))



Air Bag Labels, Cont'd.

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

FMVSS 208 REAR OUTBOARD SEATING POSITION SEAT BELTS

Vehicle Model Year/Make/Model/Body Style: 1999/Isuzu/Rodeo/MPV

NHTSA NO.: CX5701

Technician: R. Stoner & V. Watters

Date: 02/08/99

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

Yes-☒; No-☐;

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

FMVSS 208 Lap Belt Lockability

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

Complete one of these forms for **each** designated seating position with forward-facing seats, 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: 1999/Isuzu/Rodeo/MPV

NHTSA NO.: CX5701

Technician: R. Stoner & V. Watters

Date: 02/08/99

DESIGNATED SEATING POSITION: Right front passenger seat

- ☒ 1. Record test seat position. Mid
(S7.1.1.5(c)(1)) (Any position is acceptable.)
- ☒ 2. Buckle the seat belt. (S7.1.1.5(c)(1))
- ☒ 3. Complete any procedures recommended in the vehicle owner's manual to activate any locking feature. (S7.1.1.5(c)(1))
- ☒ 4. Does the lap belt portion of the seat belt in the forward-facing seat or seat that can be adjusted to forward-facing consist of a locking device that does NOT have to be attached by the vehicle user to the seat belt webbing, retractor, or any other part to the vehicle?
(S7.1.1.5(a)) ☒ Yes-Pass ☐ No-Fail
- ☒ 5. Does the lap belt portion of the seat belt in the forward-facing seat or seat 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: 1999/Isuzu/Rodeo/MPV

NHTSA NO.: CX5701

Technician: R. Stoner & V. Watters

Date: 02/08/99

DESIGNATED SEATING POSITION: Right front passenger seat.

- ☒ 7. Locate a reference point a on the seat belt buckle. (S7.1.1.5(c)(2))
- ☒ 8. Locate a reference point B on the attachment hardware or retractor assembly at the other end of the lap belt or lap belt portion of the seat belt assembly. (S7.1.1.5(c)(2))
- ☒ 9. Adjust the lap belt or lap belt portion of the seat belt assembly according to any procedures recommended in the vehicle owner's manual to activate any locking feature so that the webbing between points A and B is at the maximum length allowed by the belt system. (S7.1.1.5(c)(2))
- ☒ 10. Measure and record the distance between points A and B along the longitudinal centerline of the webbing for the lap belt or lap belt portion of the seat belt assembly. (S7.1.1.5(c)(2)) Measured distance between A and B 50.4 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 23.4 inches.

FMVSS 208 Lap Belt Lockability, Cont'd.

Vehicle Model Year/Make/Model/Body Style: 1999/Isuzu/Rodeo/MPV

NHTSA NO.: CX5701

Technician: R. Stoner & V. Watters

Date: 02/08/99

DESIGNATED SEATING POSITION: Right front passenger seat.

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

The measured distance between A and B is 23.7 inches (S7.1.1.5(c)(6))

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

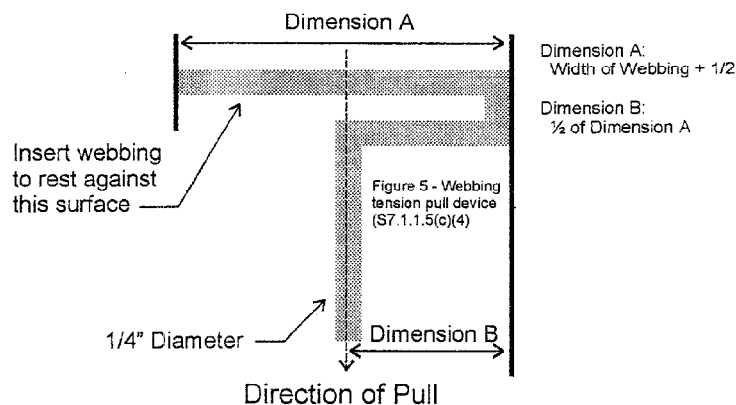
14-13=0.3 inches

☒ Yes-Pass ☐ No-Fail

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

10-14=26.7 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: 1999/Isuzu/Rodeo/MPV

NHTSA NO.: CX5701

Technician: R. Stoner & V. Watters

Date: 02/08/99

DESIGNATED SEATING POSITION: Left rear seat

- ☒1. Record test seat position. Fixed
(S7.1.1.5(c)(1)) (Any position is acceptable.)
- ☒2. Buckle the seat belt. (S7.1.1.5(c)(1))
- ☒3. Complete any procedures recommended in the vehicle owner's manual to activate any locking feature. (S7.1.1.5(c)(1))
- ☒4. Does the lap belt portion of the seat belt in the forward-facing seat or seat that can be adjusted to forward-facing consist of a locking device that does NOT have to be attached by the vehicle user to the seat belt webbing, retractor, or any other part to the vehicle?
(S7.1.1.5(a)) ☒Yes-Pass ☐No-Fail
- ☒5. Does the lap belt portion of the seat belt in the forward-facing seat or seat 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: 1999/Isuzu/Rodeo/MPV

NHTSA NO.: CX5701

Technician: R. Stoner & V. Watters

Date: 02/08/99

DESIGNATED SEATING POSITION: Left rear seat

- ☒ 7. Locate a reference point A on the seat belt buckle. (S7.1.1.5(c)(2))
- ☒ 8. Locate a reference point B on the attachment hardware or retractor assembly at the other end of the lap belt or lap belt portion of the seat belt assembly. (S7.1.1.5(c)(2))
- ☒ 9. Adjust the lap belt or lap belt portion of the seat belt assembly according to any procedures recommended in the vehicle owner's manual to activate any locking feature so that the webbing between points A and B is at the maximum length allowed by the belt system. (S7.1.1.5(c)(2))
- ☒ 10. Measure and record the distance between points A and B along the longitudinal centerline of the webbing for the lap belt or lap belt portion of the seat belt assembly. (S7.1.1.5(c)(2)) Measured distance between A and B **60.8** inches.
- ☒ 11. Readjust the belt system so that the webbing between points A and B is at any length that is 5 inches or more shorter than the maximum length of the webbing. (S7.1.1.5(c)(3))
- ☒ 12. To the lap belt or lap belt portion of the seat belt assembly, apply a preload of 10 pounds using the webbing tension pull device in figure 5. Apply the load in a vertical plane parallel to the longitudinal axis of the vehicle and passing through the seating reference point of the designated seating position. Apply the preload in a horizontal direction toward the front of the vehicle with a force application angle of not less than 5 degrees nor more than 15 degrees above the horizontal. (S7.1.1.5(c)(4)) Measured force application angle **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 **24.8** inches.

FMVSS 208 Lap Belt Lockability, Cont'd.

Vehicle Model Year/Make/Model/Body Style: 1999/Isuzu/Rodeo/MPV

NHTSA NO.: CX5701

Technician: R. Stoner & V. Watters

Date: 02/08/99

DESIGNATED SEATING POSITION: Left rear seat

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

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

The measured distance between A and B is 25.0 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))

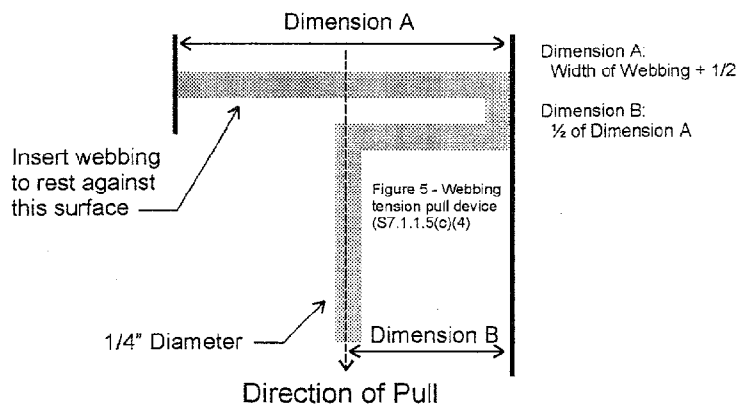
14-13=0.2 inches

☒ Yes-Pass ☐ No-Fail

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

10-14=35.8 inches.

☒ Yes-Pass ☐ No-Fail



FMVSS 208 Lap Belt Lockability

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

Complete one of these forms for **each** designated seating position with forward-facing seats, 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: 1999/Isuzu/Rodeo/MPV

NHTSA NO.: CX5701

Technician: R. Stoner & V. Watters

Date: 02/08/99

DESIGNATED SEATING POSITION: Right rear seat

- ☒ 1. Record test seat position. Fixed
(S7.1.1.5(c)(1)) (Any position is acceptable.)
- ☒ 2. Buckle the seat belt. (S7.1.1.5(c)(1))
- ☒ 3. Complete any procedures recommended in the vehicle owner's manual to activate any locking feature. (S7.1.1.5(c)(1))
- ☒ 4. Does the lap belt portion of the seat belt in the forward-facing seat or seat that can be adjusted to forward-facing consist of a locking device that does NOT have to be attached by the vehicle user to the seat belt webbing, retractor, or any other part to the vehicle?
(S7.1.1.5(a)) ☒ Yes-Pass ☐ No-Fail
- ☒ 5. Does the lap belt portion of the seat belt in the forward-facing seat or seat 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: 1999/Isuzu/Rodeo/MPV

NHTSA NO.: CX5701

Technician: R. Stoner & V. Watters

Date: 02/08/99

DESIGNATED SEATING POSITION: Right rear seat

- ☒ 7. Locate a reference point a on the seat belt buckle. (S7.1.1.5(c)(2))
- ☒ 8. Locate a reference point B on the attachment hardware or retractor assembly at the other end of the lap belt or lap belt portion of the seat belt assembly. (S7.1.1.5(c)(2))
- ☒ 9. Adjust the lap belt or lap belt portion of the seat belt assembly according to any procedures recommended in the vehicle owner's manual to activate any locking feature so that the webbing between points A and B is at the maximum length allowed by the belt system. (S7.1.1.5(c)(2))
- ☒ 10. Measure and record the distance between points A and B along the longitudinal centerline of the webbing for the lap belt or lap belt portion of the seat belt assembly. (S7.1.1.5(c)(2)) Measured distance between A and B 59.0 inches.
- ☒ 11. Readjust the belt system so that the webbing between points A and B is at any length that is 5 inches or more shorter than the maximum length of the webbing. (S7.1.1.5(c)(3))
- ☒ 12. To the lap belt or lap belt portion of the seat belt assembly, apply a preload of 10 pounds using the webbing tension pull device in figure 5. Apply the load in a vertical plane parallel to the longitudinal axis of the vehicle and passing through the seating reference point of the designated seating position. Apply the preload in a horizontal direction toward the front of the vehicle with a force application angle of not less than 5 degrees nor more than 15 degrees above the horizontal. (S7.1.1.5(c)(4)) Measured force application angle 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 26.6 inches.

FMVSS 208 Lap Belt Lockability, Cont'd.

Vehicle Model Year/Make/Model/Body Style: 1999/Isuzu/Rodeao/MPV

NHTSA NO.: CX5701

Technician: R. Stoner & V. Watters

Date: 02/08/99

DESIGNATED SEATING POSITION: Right rear seat

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

The measured distance between A and B is 26.8 inches (S7.1.1.5(c)(6))

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

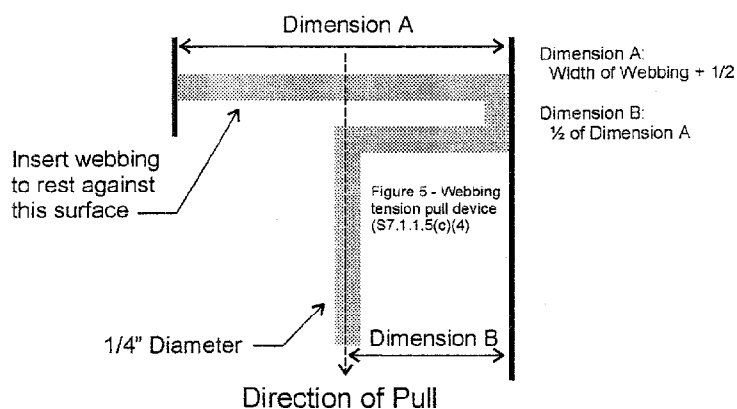
14-13=0.2 inches

☒ Yes-Pass ☐ No-Fail

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

10-14=32.2 inches.

☒ Yes-Pass ☐ No-Fail



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

Test Vehicle NHTSA No.: CX5701

Vehicle Model Year/Make/Model/Body Style: 1999/Isuzu/Rodeo/MPV

Designated Seating Position Tested: Driver

Date of Comfort and Convenience Check: 02/08/99

Technician Performing Check: R. Stoner & V. Watters

GVWR: 4550 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 0.3 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.: CX5701

Vehicle Model Year/Make/Model/Body Style: 1999/Isuzu/Rodeo/MPV

Designated Seating Position Tested: Right Front Passenger

Date of Comfort and Convenience Check: 02/08/99

Technician Performing Check: R. Stoner & V. Watters

GVWR: 4550 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 0.3 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.: CX5701

Vehicle Model Year/Make/Model/Body Style: 1999/Isuzu/Rodeo/MPV

Designated Seating Position Tested: Left Rear Passenger

Date of Comfort and Convenience Check: 02/08/99

Technician Performing Check: R. Stoner & V. Watters

GVWR: 4550 pounds

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

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

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

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

☐ Check
☒ N/A

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

☐ Check
☒ N/A

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

☐ Check
☒ N/A

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

☒ Check
☐ N/A

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

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

☒ Check
☐ N/A

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

☐ Check
☒ N/A

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

☒ Check

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

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

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

Test Vehicle NHTSA No.: CX5701

Vehicle Model Year/Make/Model/Body Style: 1999/Isuzu/Rodeo/MPV

Designated Seating Position Tested: Right Rear Passenger

Date of Comfort and Convenience Check: 02/08/99

Technician Performing Check: R. Stoner & V. Watters

GVWR: 4550 pounds

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

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

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

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

☐ Check
☒ N/A

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

☐ Check
☒ N/A

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

☐ Check
☒ N/A

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

☒ Check
☐ N/A

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

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

☒ Check
☐ N/A

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

☐ Check
☒ N/A

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

☒ Check

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

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

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

Test Vehicle NHTSA No.: CX5701

Vehicle Model Year/Make/Model/Body Style: 1999/Isuzu/Rodeo/MPV

Designated Seating Position Tested: Driver

Date of Comfort and Convenience Check: 02/08/99

Technician Performing Check: R. Stoner & V. Watters

GVWR: 4550 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.: CX5701

Vehicle Model Year/Make/Model/Body Style: 1999/Isuzu/Rodeo/MPV

Designated Seating Position Tested: Right Front Passenger

Date of Comfort and Convenience Check: 02/08/99

Technician Performing Check: R. Stoner & V. Watters

GVWR: 4550 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.: CX5701

Vehicle Model Year/Make/Model/Body Style: 1999/Isuzu/Rodeo/MPV

Designated Seating Position Tested: Driver

Date of Comfort and Convenience Check: 02/08/99

Technician Performing Check: R. Stoner & V. Watters

GVWR: 4550 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.: CX5701

Vehicle Model Year/Make/Model/Body Style: 1999/Isuzu/Rodeo/MPV

Designated Seating Position Tested: Right Front Passenger

Date of Comfort and Convenience Check: 02/08/99

Technician Performing Check: R. Stoner & V. Watters

GVWR: 4550 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.: CX5701
Vehicle Model Year/Make/Model/Body Style: 1999/Isuzu/Rodeo/MPV
Designated Seating Position Tested: Driver
Date of Comfort and Convenience Check: 02/08/99
Technician Performing Check: R. Stoner & V. Watters
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**

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

Test Vehicle NHTSA No.: CX5701

Vehicle Model Year/Make/Model/Body Style: 1999/Isuzu/Rodeo/MPV

Designated Seating Position Tested: Right Front Passenger

Date of Comfort and Convenience Check: 02/08/99

Technician Performing Check: R. Stoner & V. Watters

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

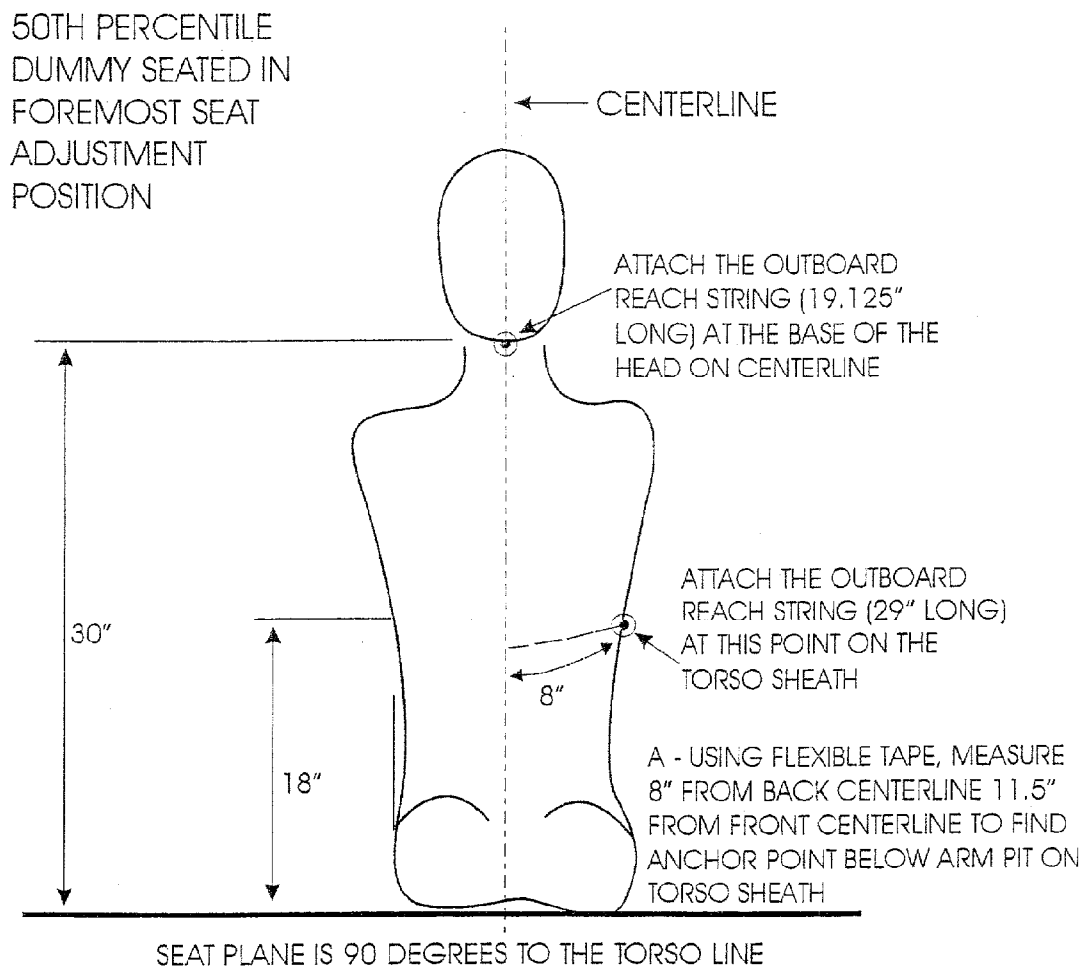
(C) The seat back, if foldable, is folded forward as far as possible and then moved backward into position. ☐ Check

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

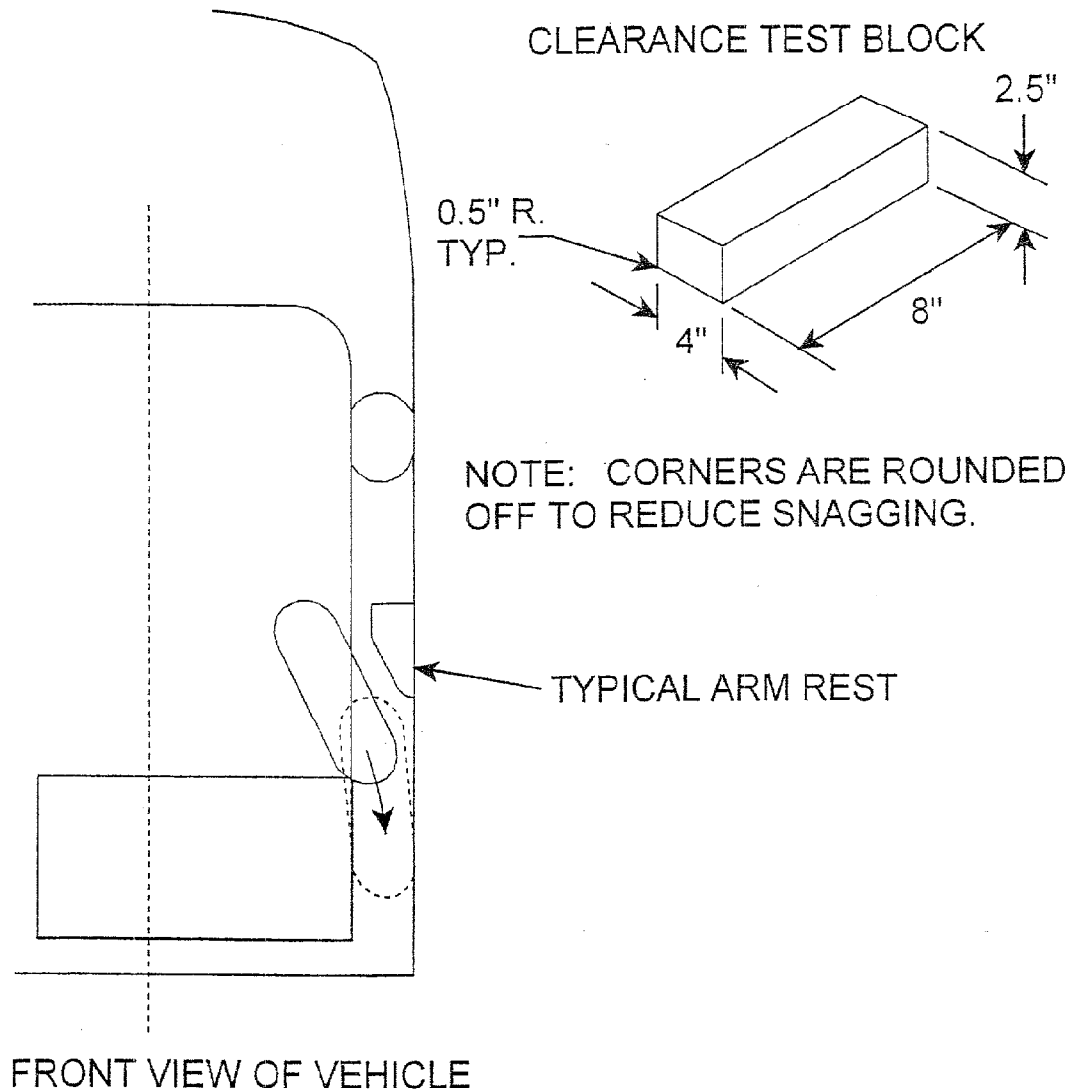


Figure 2C

Appendix A

Photographs



Figure A-1 Pre-Test Front View of Test Vehicle Mounted to Sled
A-2

990528S

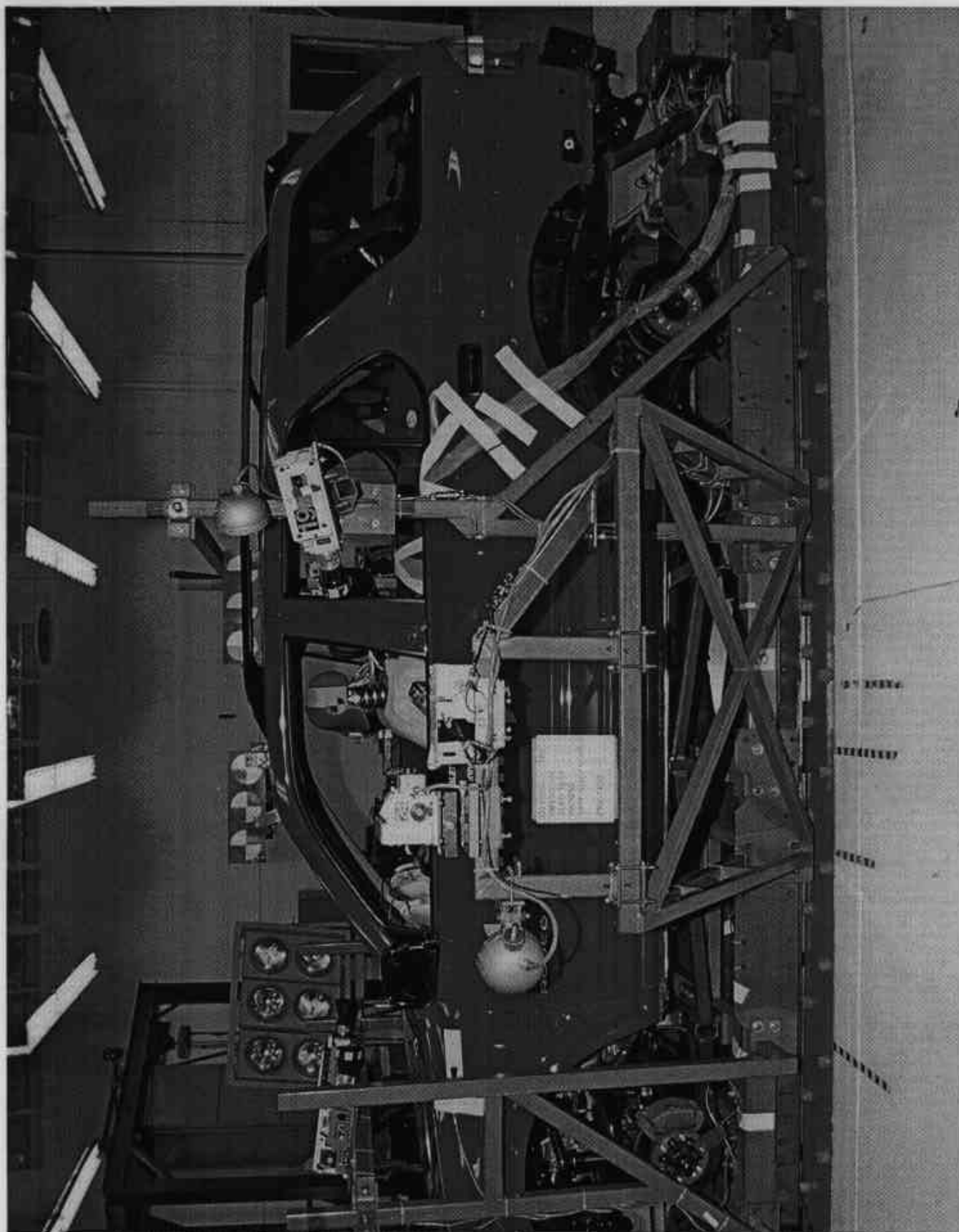


Figure A-2 Pre-Test Left Side View of Test Vehicle Mounted to Sled

A-3

990528S

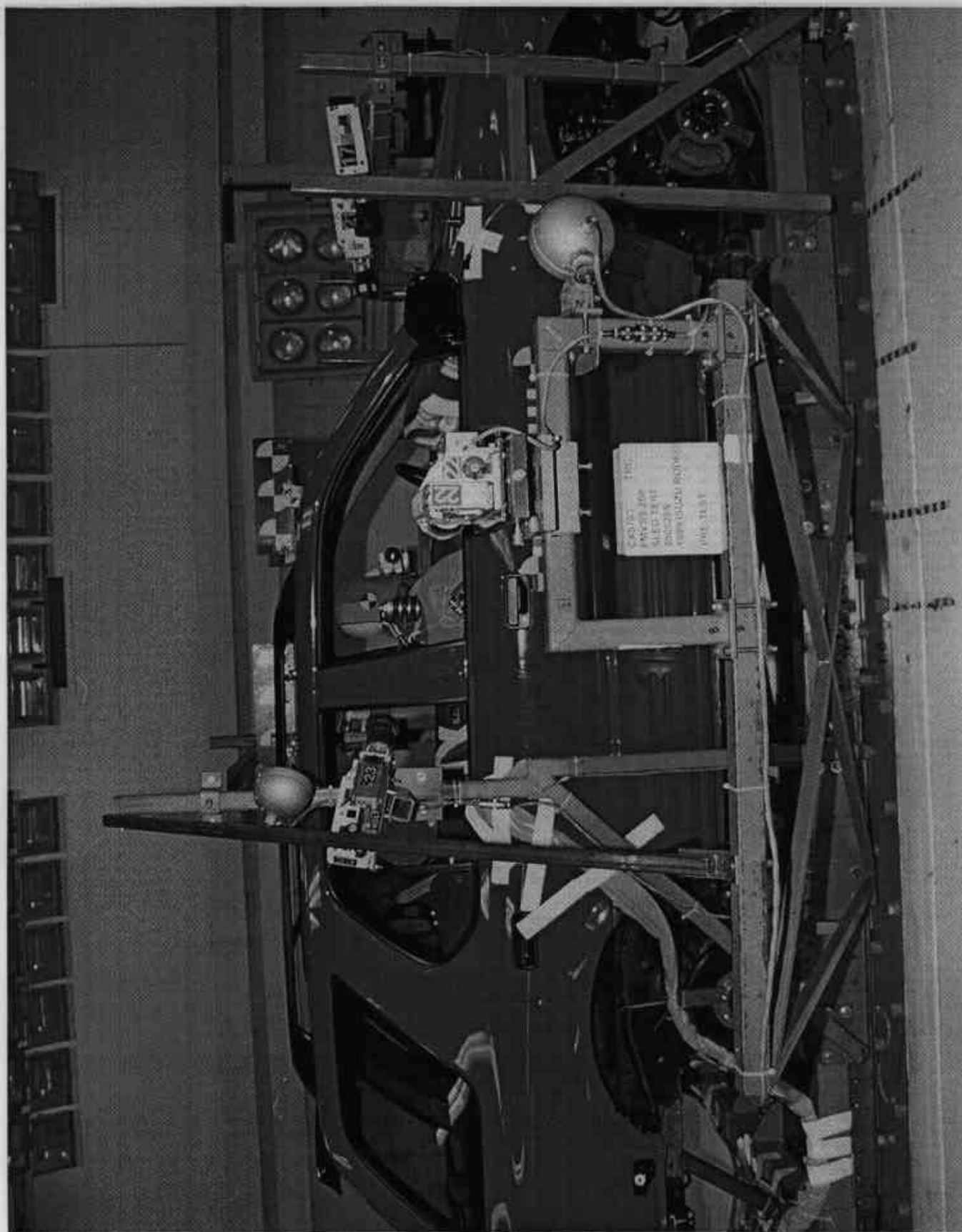


Figure A-3 Pre-Test Right Side View of Test Vehicle Mounted to Sled

A-4

990528S



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

990528S



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

990528S



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

A-7

990528S



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

A-8

990528S

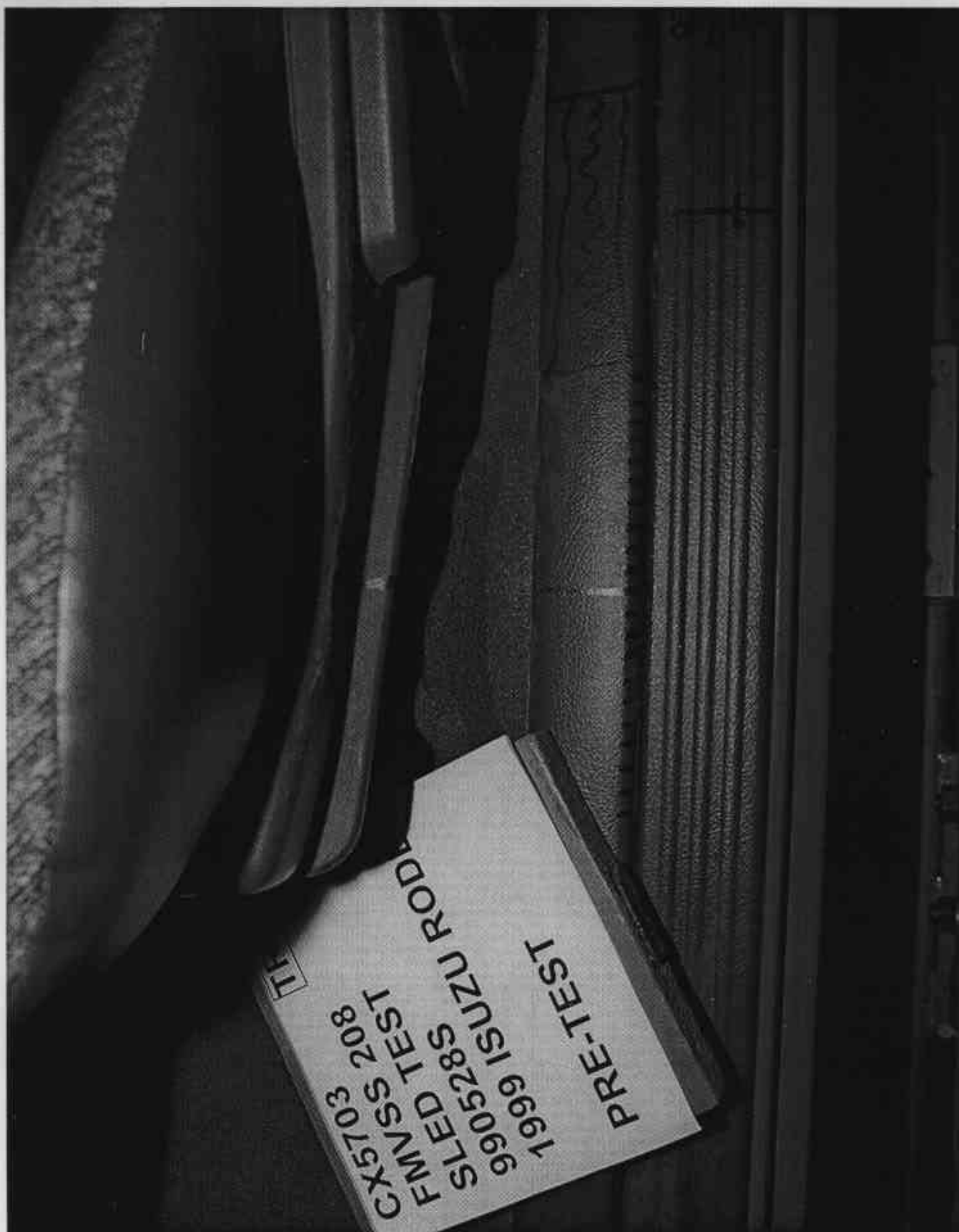


Figure A-8 Pre-Test Driver Seat Track Position View
A-9

990528S



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

990528S

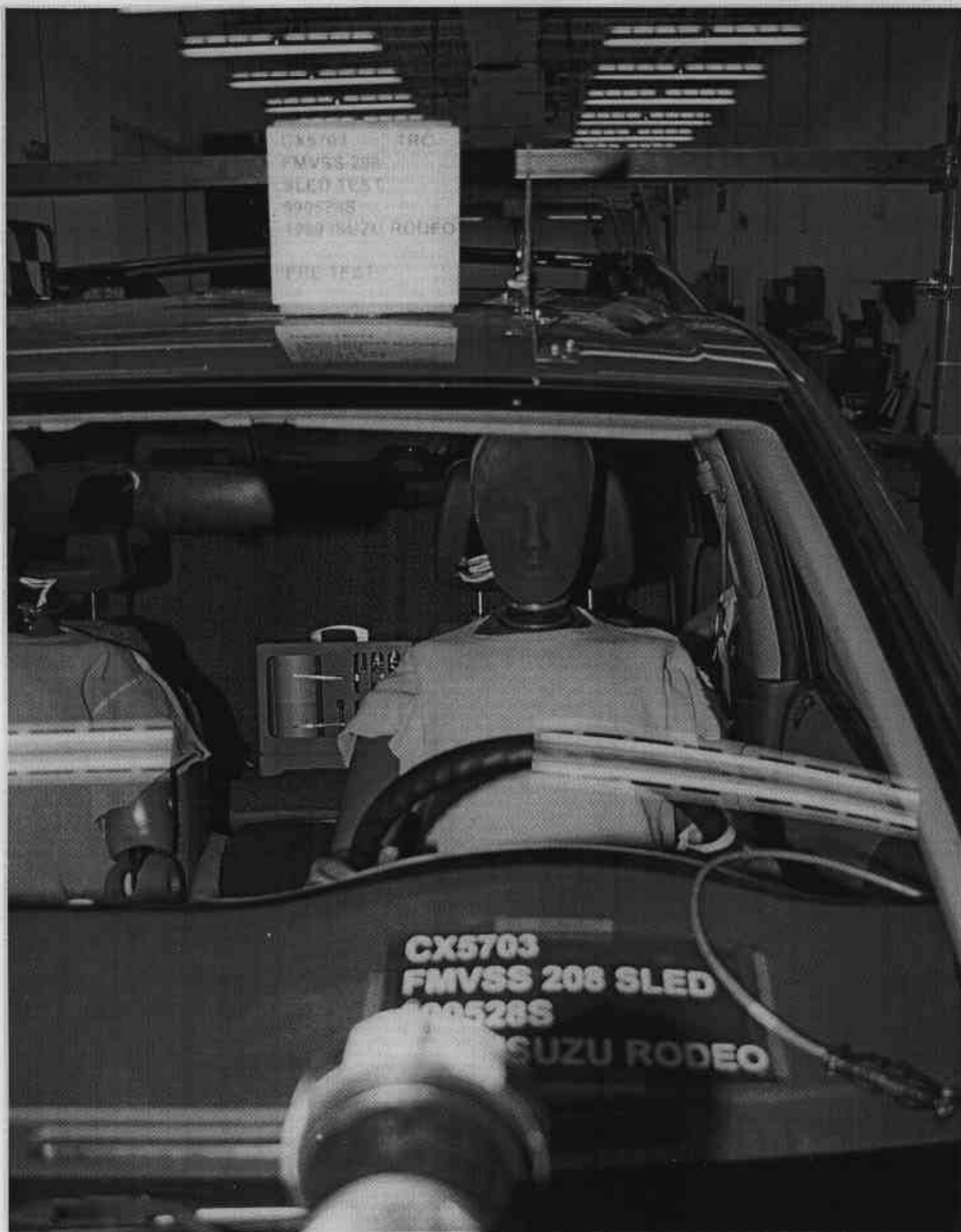


Figure A-10 Pre-Test Driver Dummy Position Front View
A-11

990528S



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

990528S



IRC
CX5703
FMVSS 208
SLED TEST
990528S
1999 ISUZU RODEO
PRE-TEST

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

A-13

990528S

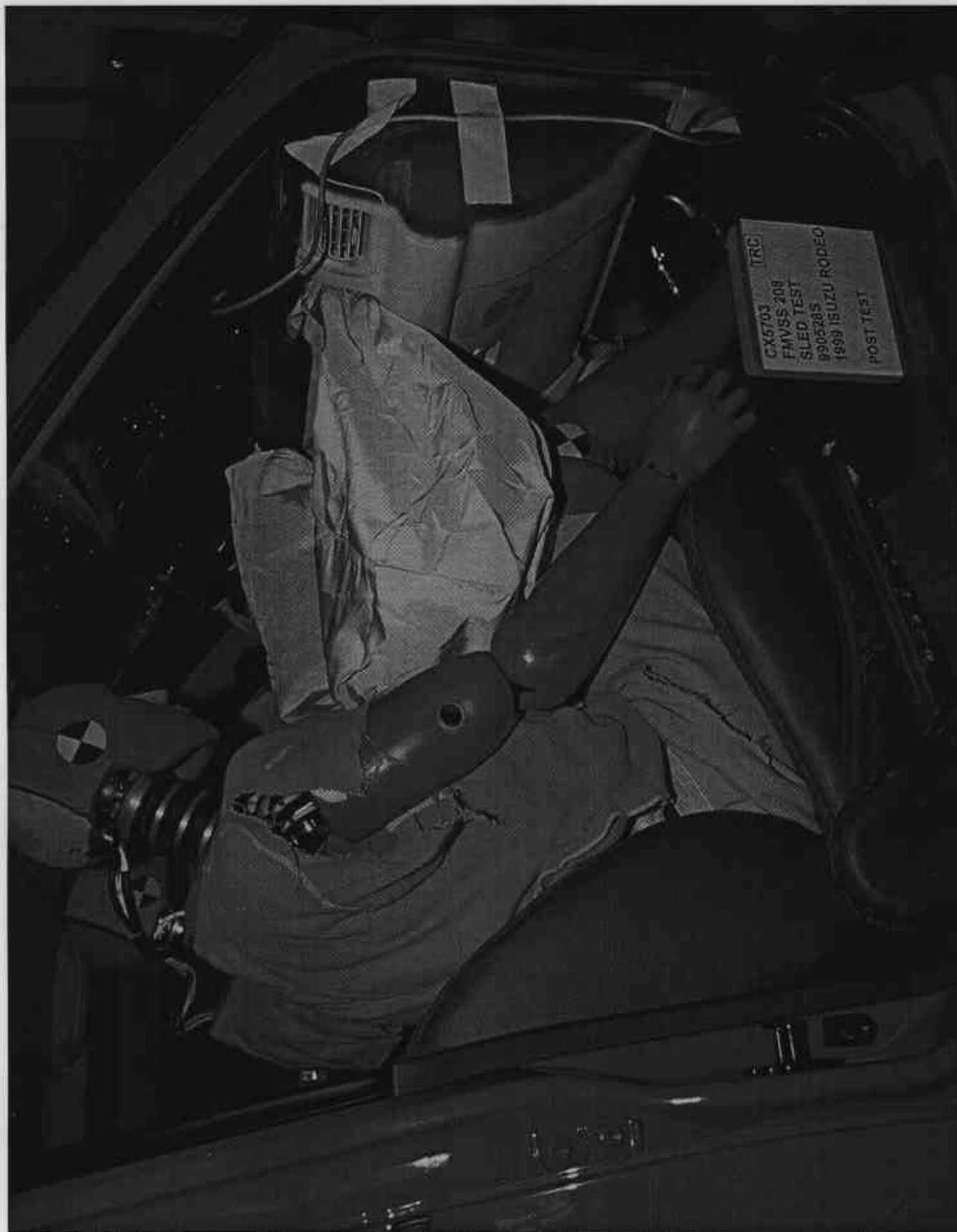


Figure A-13 Post-Test Passenger Dummy Position View with Door Open

A-14

990528S



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

990528S

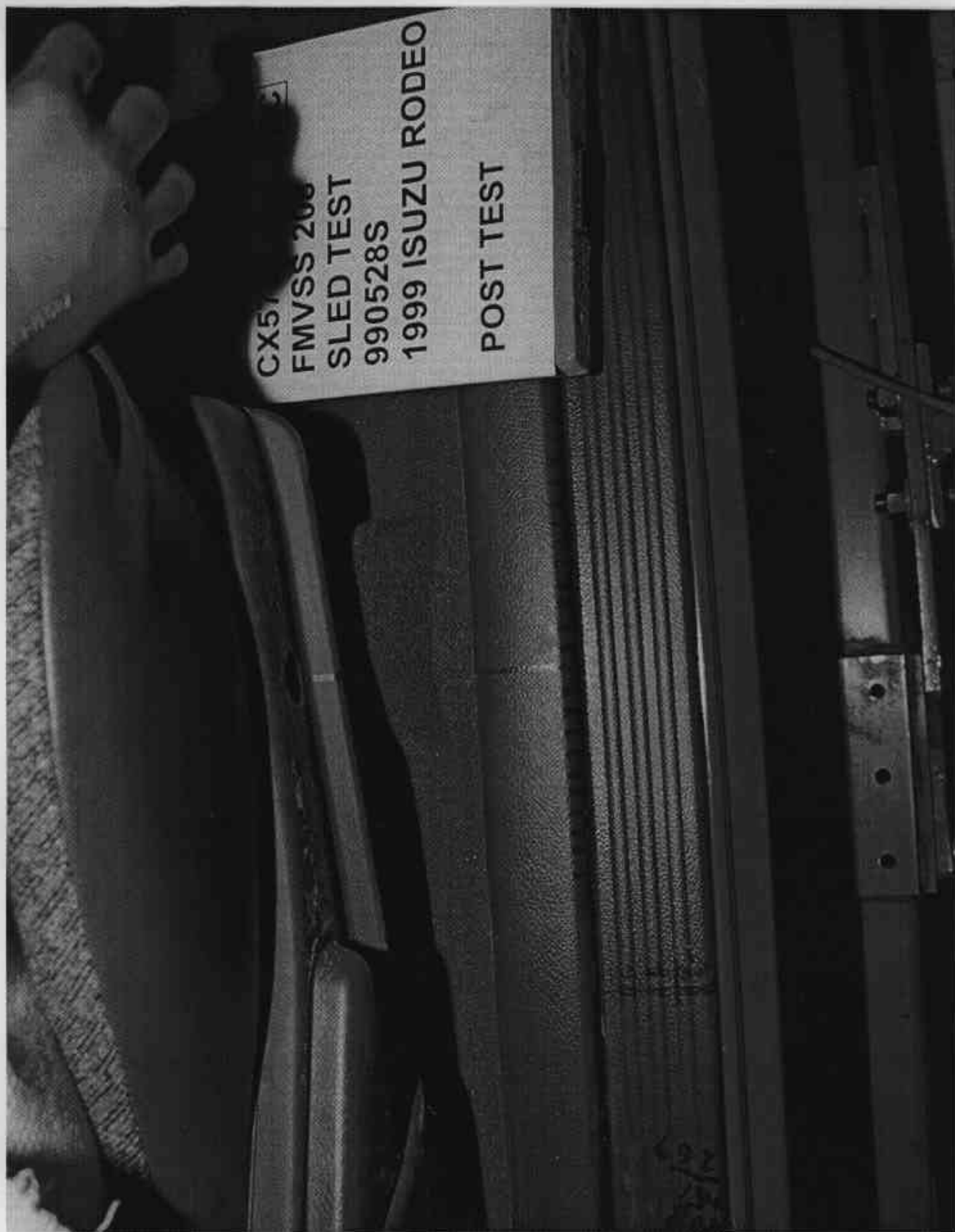


Figure A-15 Post-Test Passenger Seat Track Position View
A-16

990528S

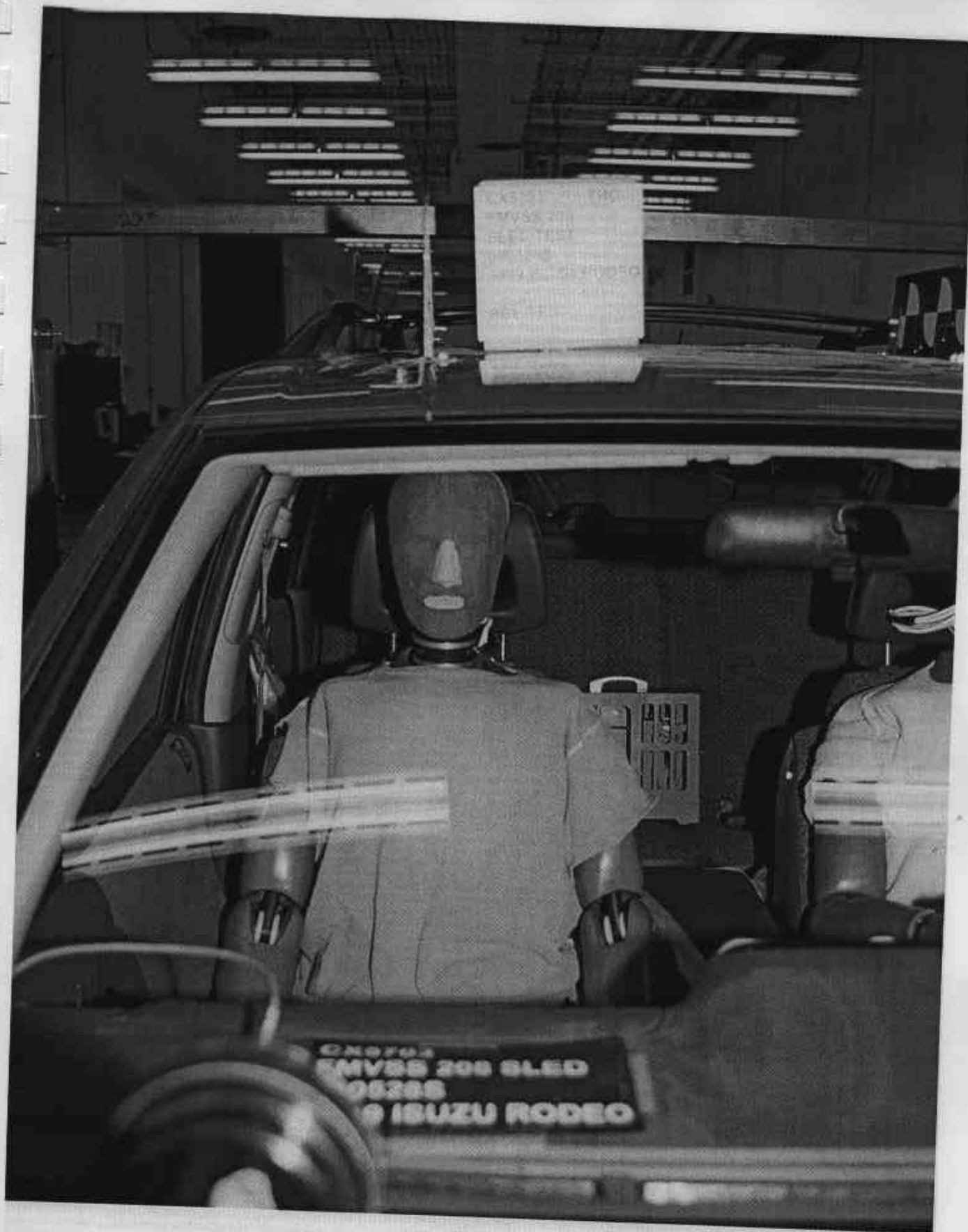


Figure A-16 Pre-Test Passenger Dummy Position Front View
A-17

990528S



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

990528S

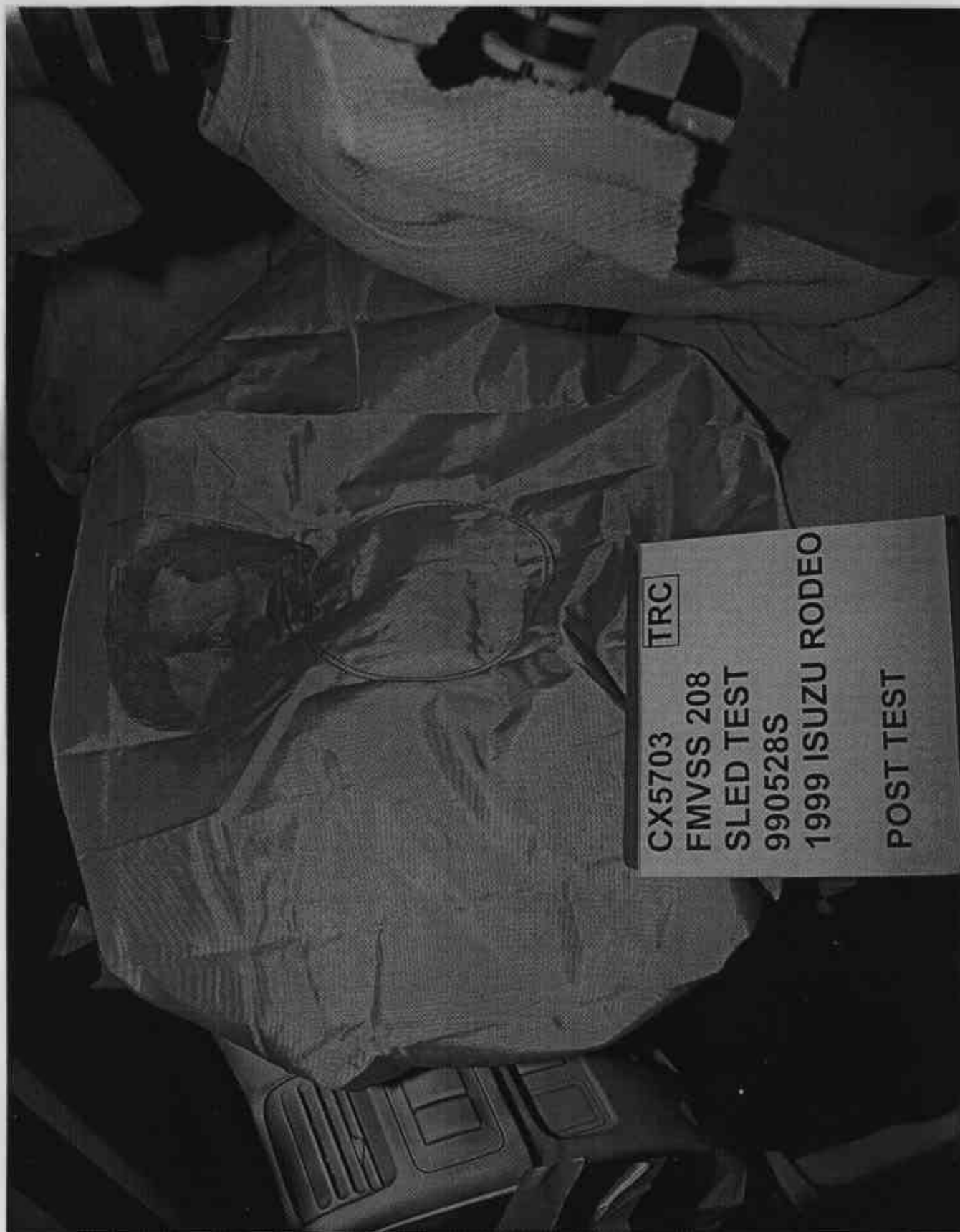


Figure A-18 Post-Test Driver Airbag View
A-19

990528S



Figure A-19 Post-Test Driver Head Contact - View 1
A-20

990528S

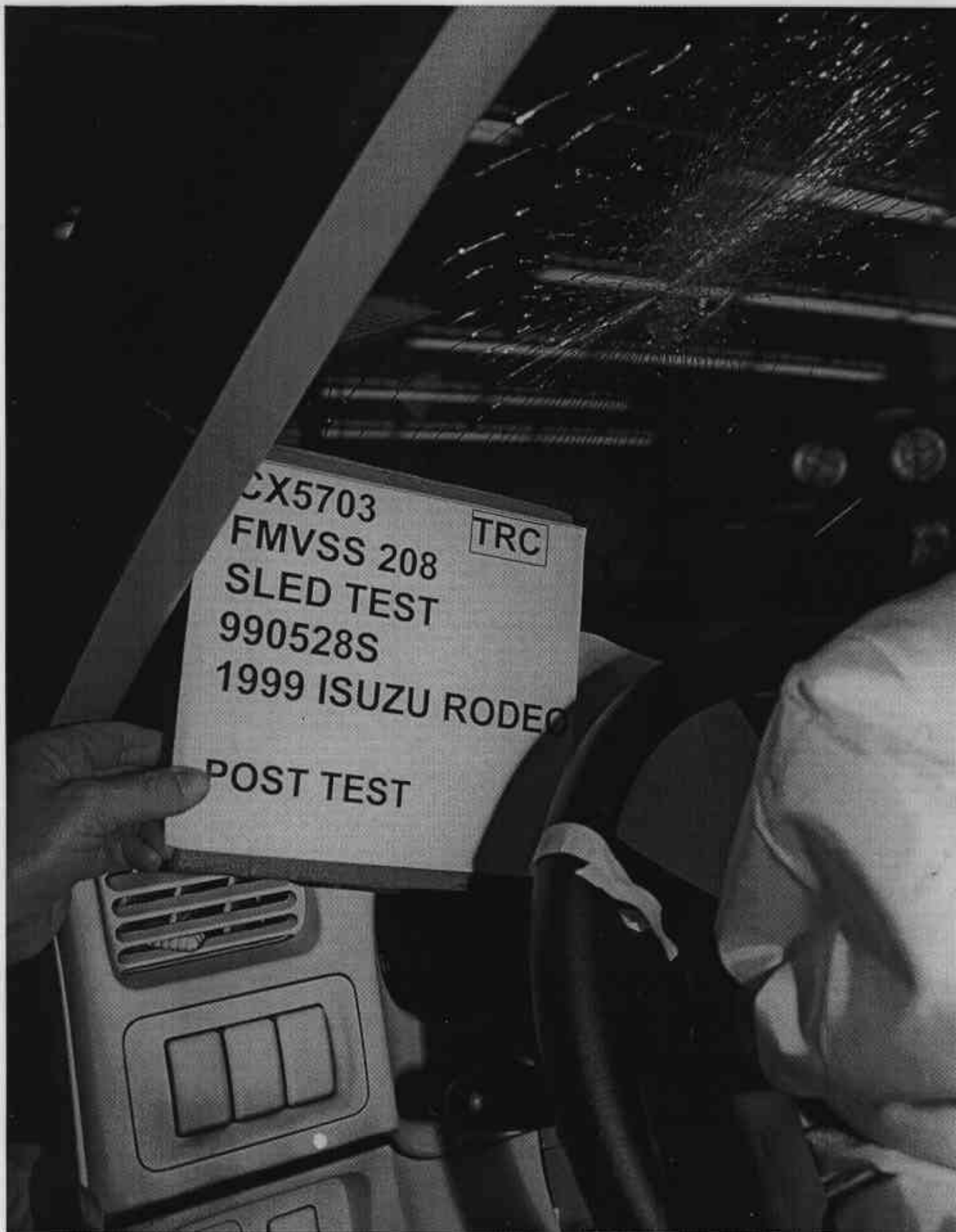


Figure A-20 Post-Test Driver Head Contact - View 2
A-21

990528S

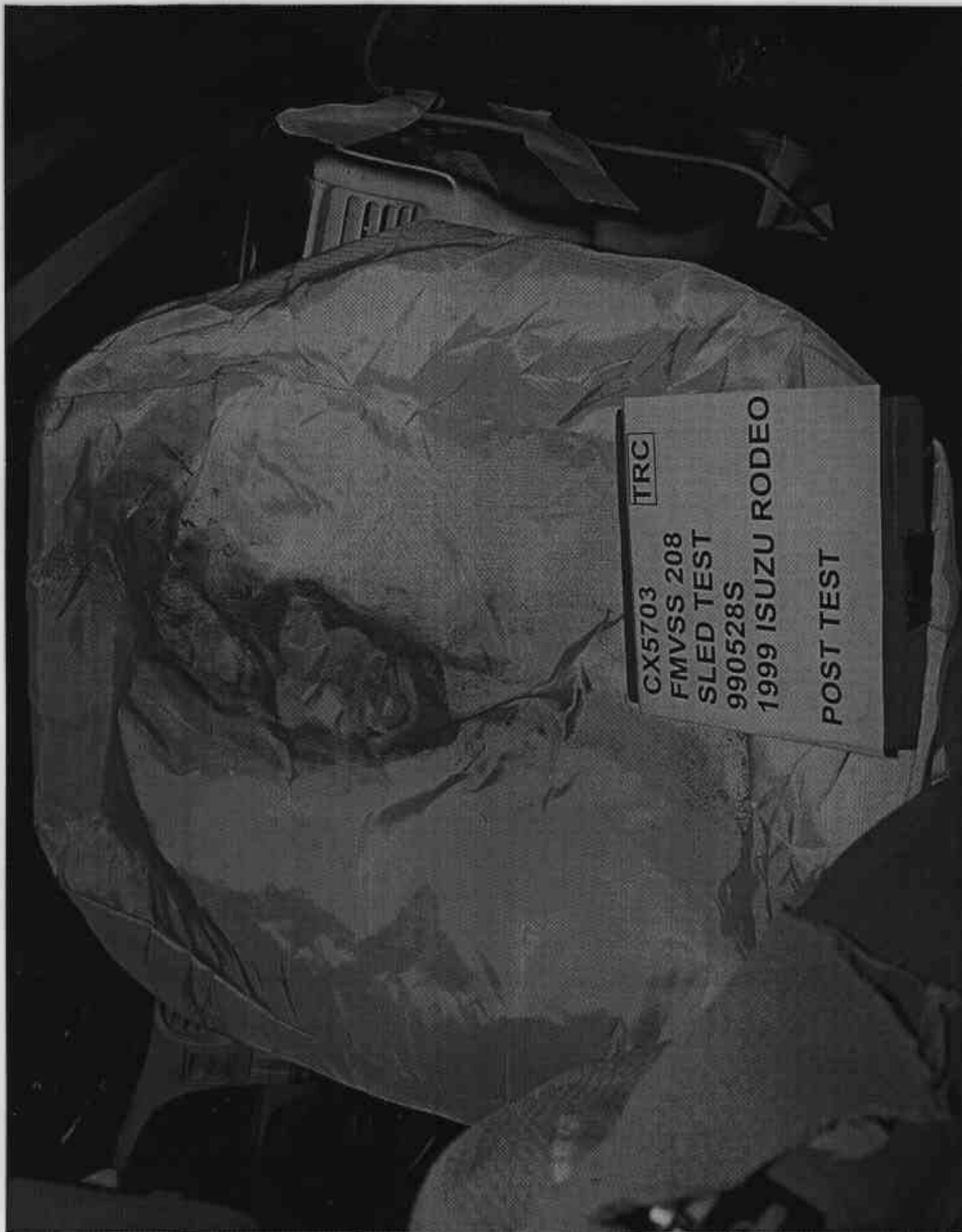


Figure A-21 Post-Test Passenger Airbag View
A-22

990528S

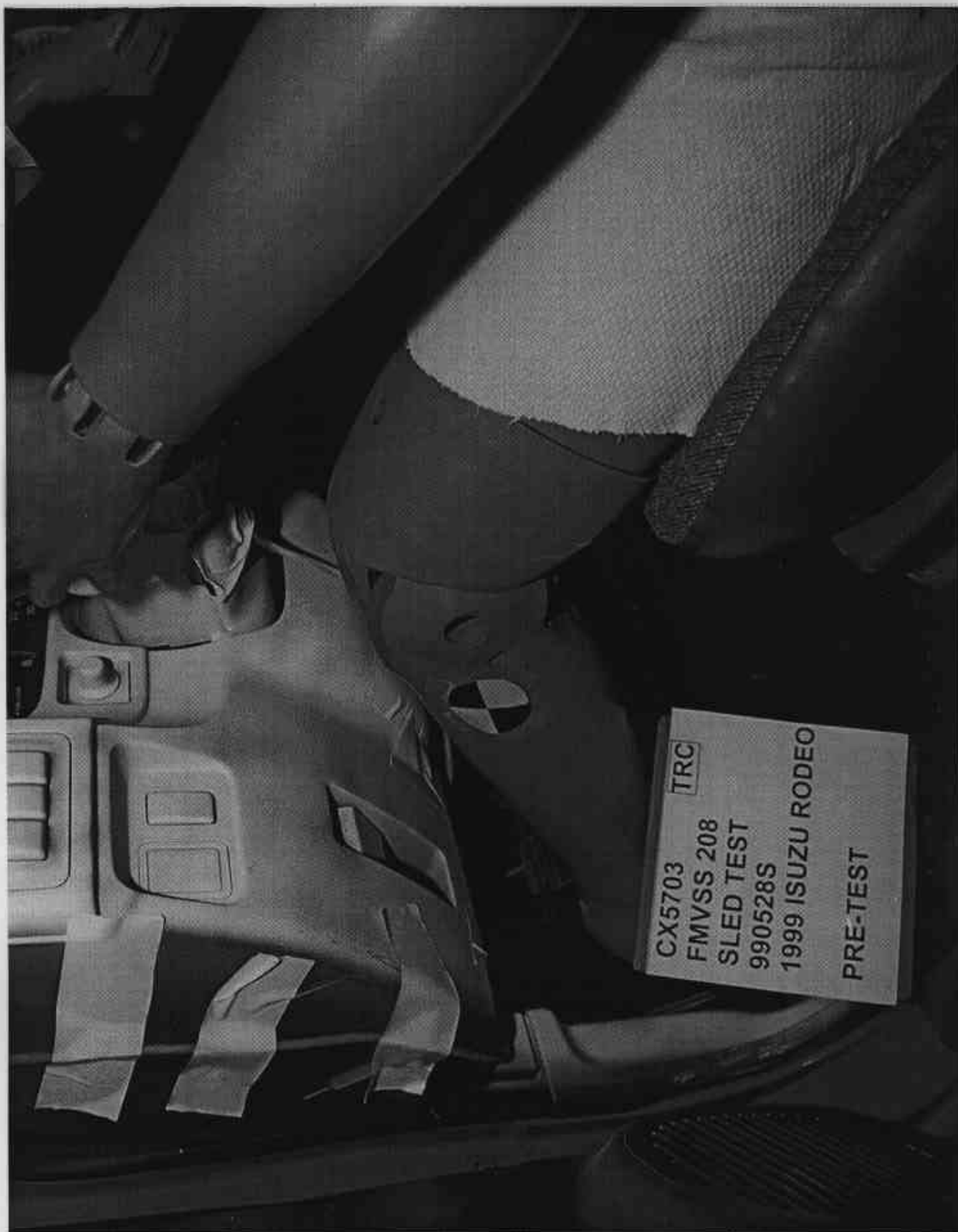


Figure A-22 Pre-Test Driver Knee Bolster View
A-23

990528S

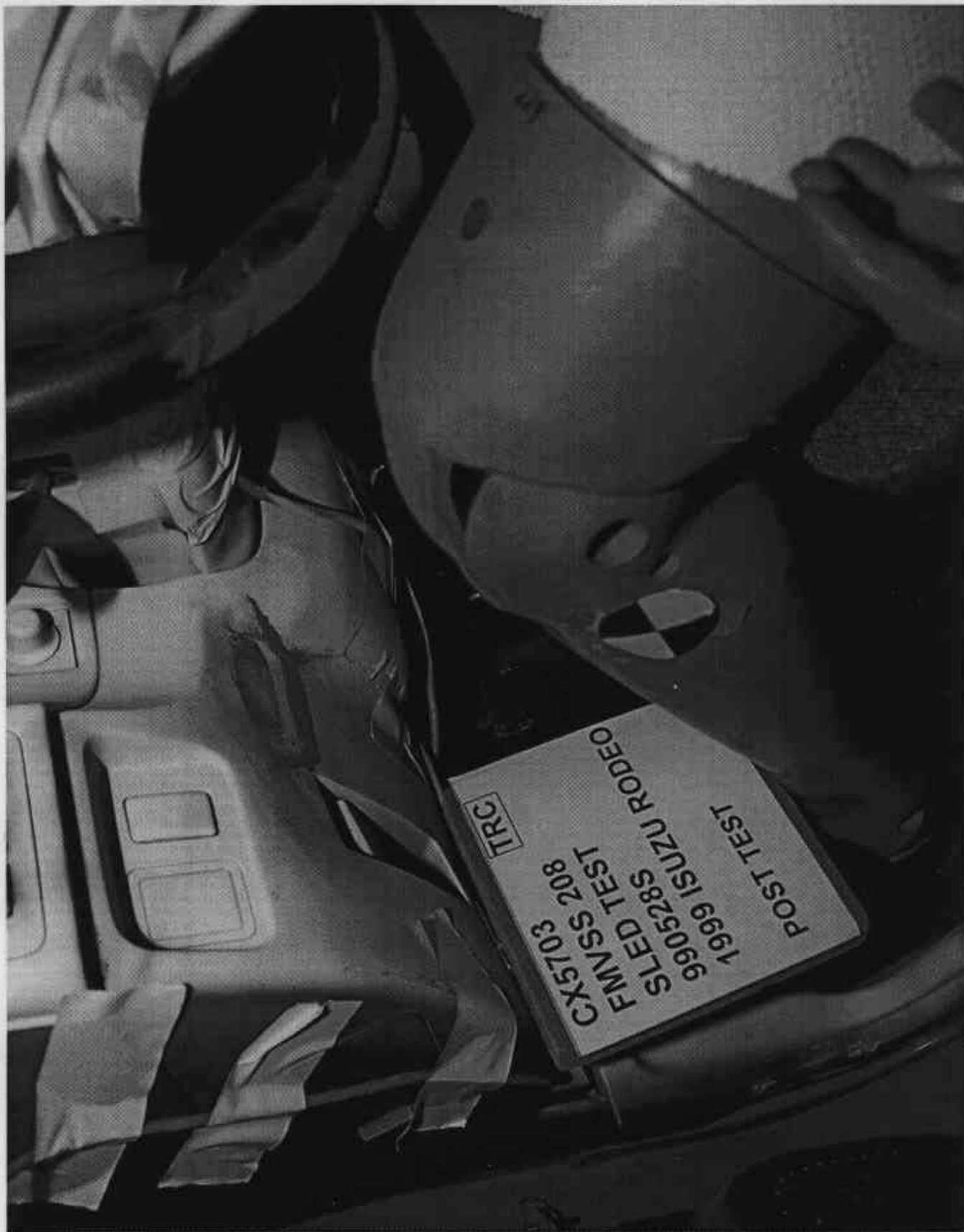


Figure A-23 Post-Test Driver Knee Bolster - View 1
A-24

990528S



Figure A-24 Post-Test Driver Knee Bolster - View 2
A-25

990528S

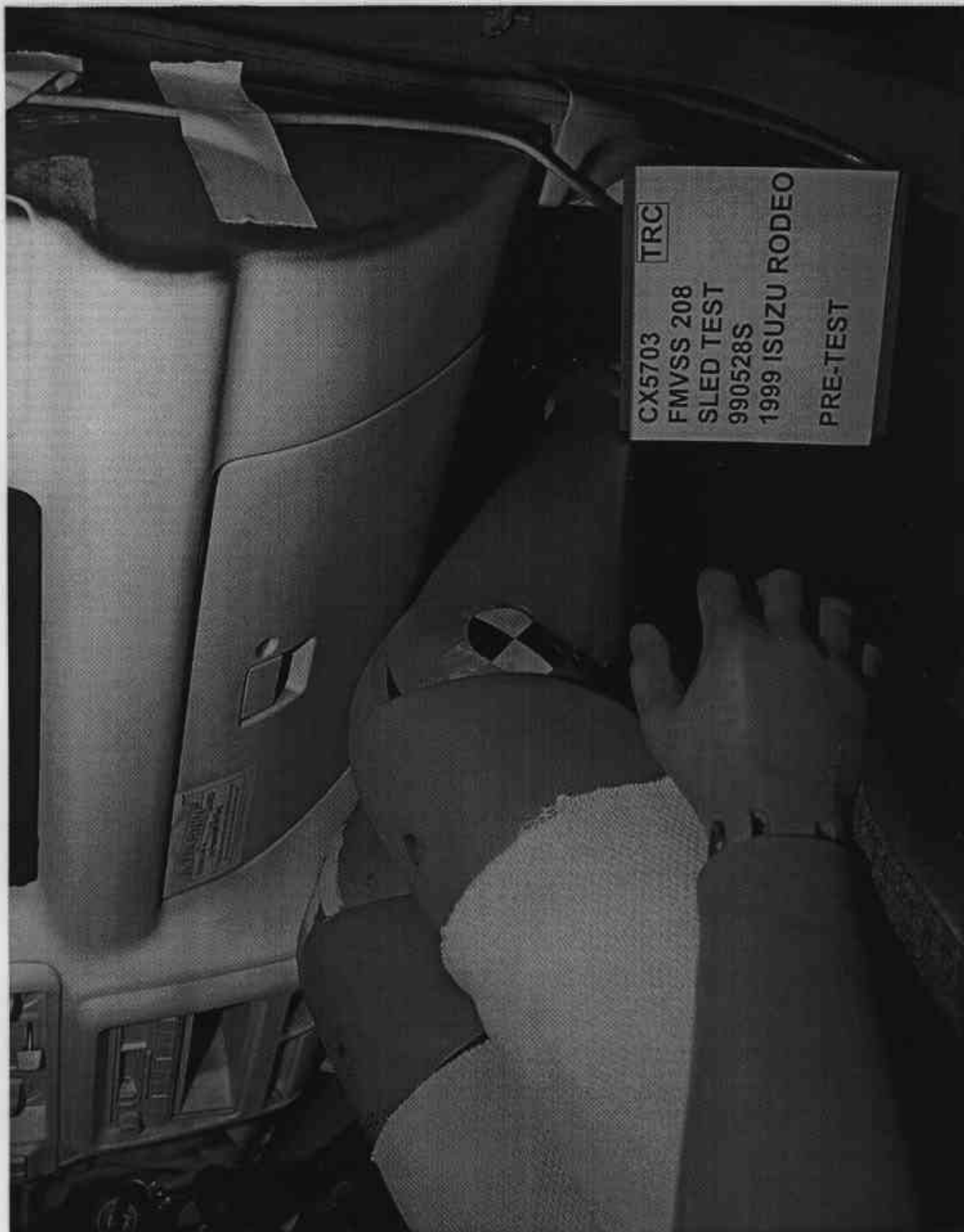


Figure A-25 Pre-Test Passenger Glove Box View
A-26

990528S



Figure A-26 Post-Test Passenger Glove Box - View 1
A-27

990528S

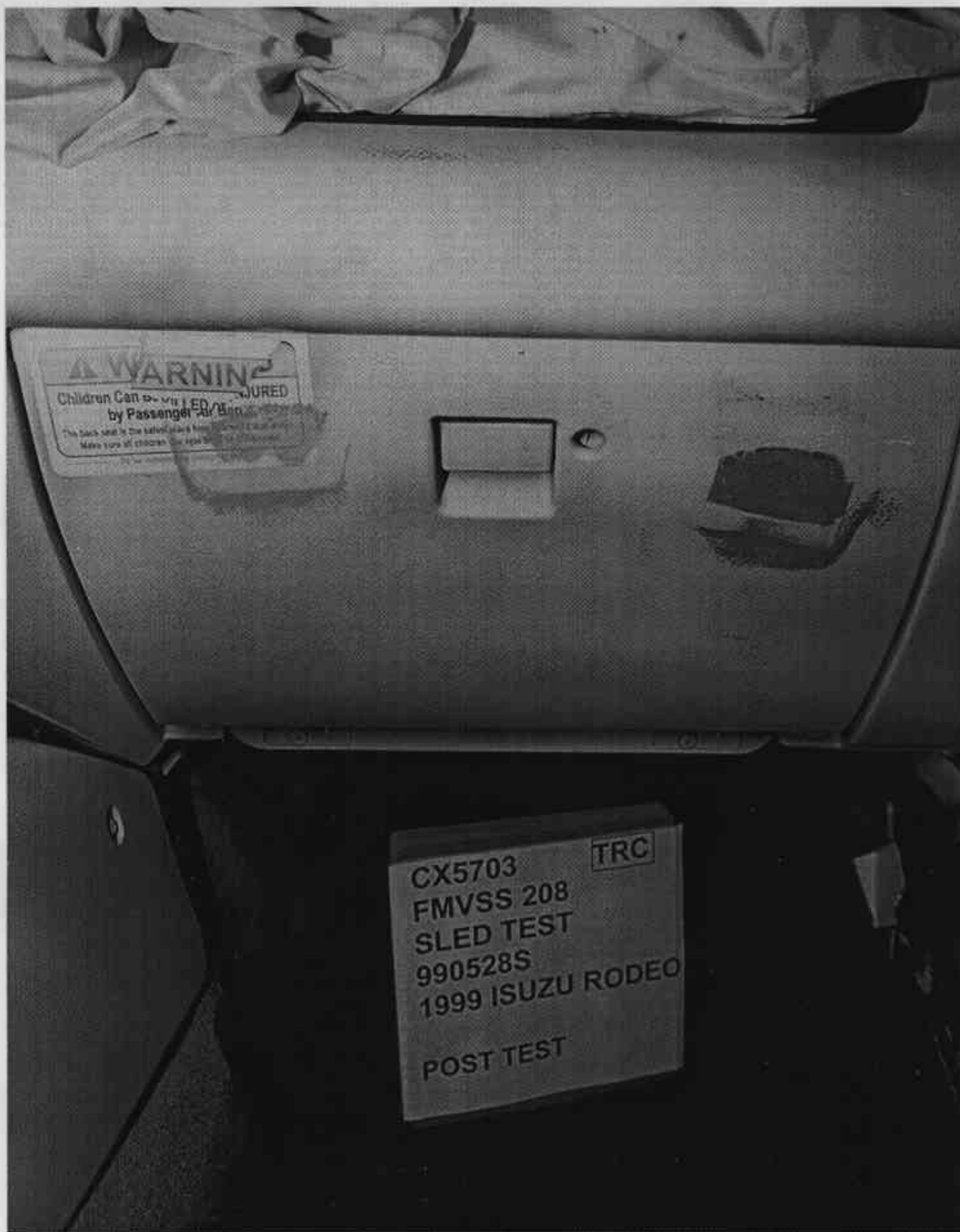


Figure A-27 Post-Test Passenger Glove Box - View 2
A-28

990528S

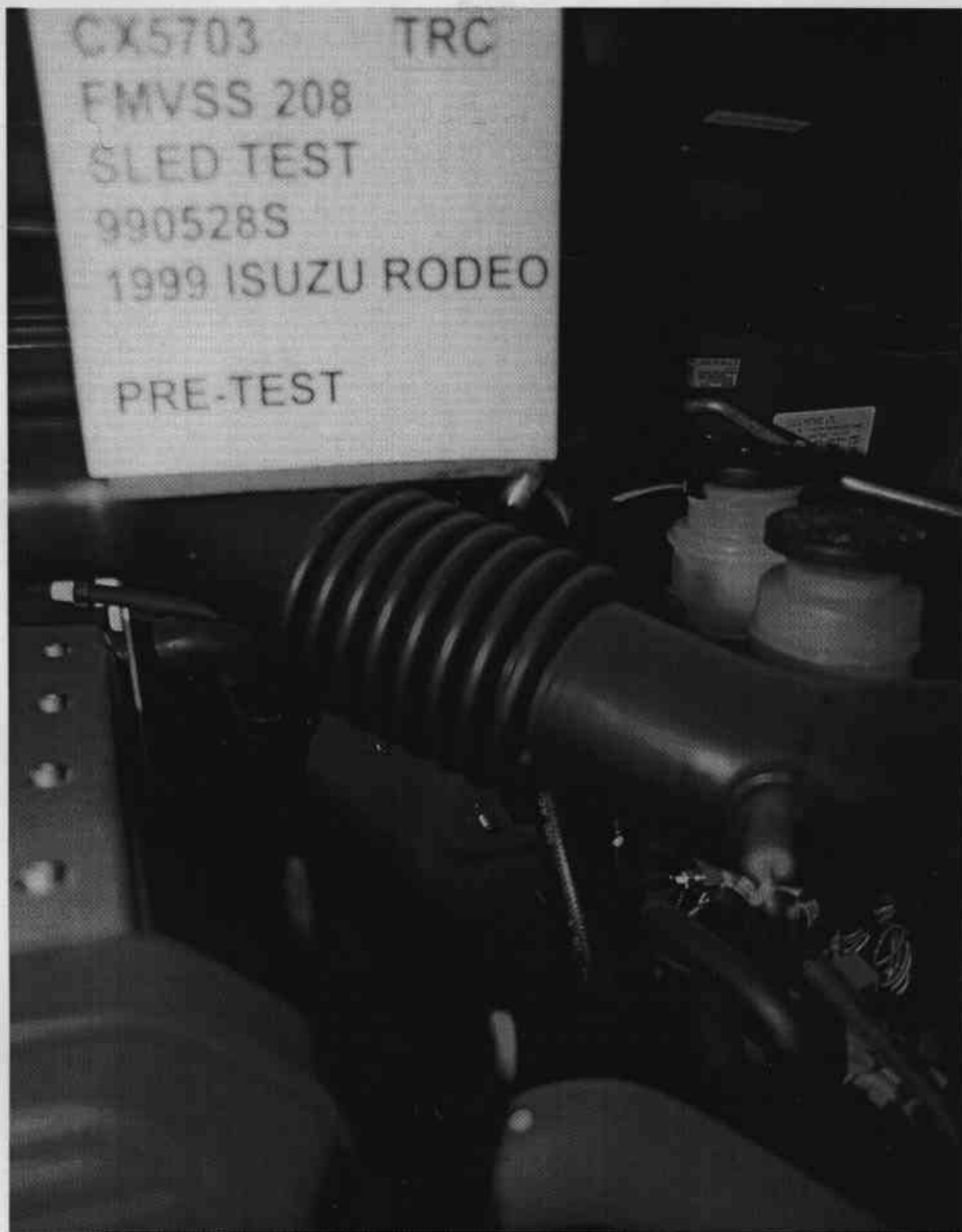


Figure A-28 Pre-Test Steering Column Linkage in Engine Compartment View

A-29

990528S



Figure A-29 Post-Test Steering Column Linkage in Engine Compartment View

A-30

990528S

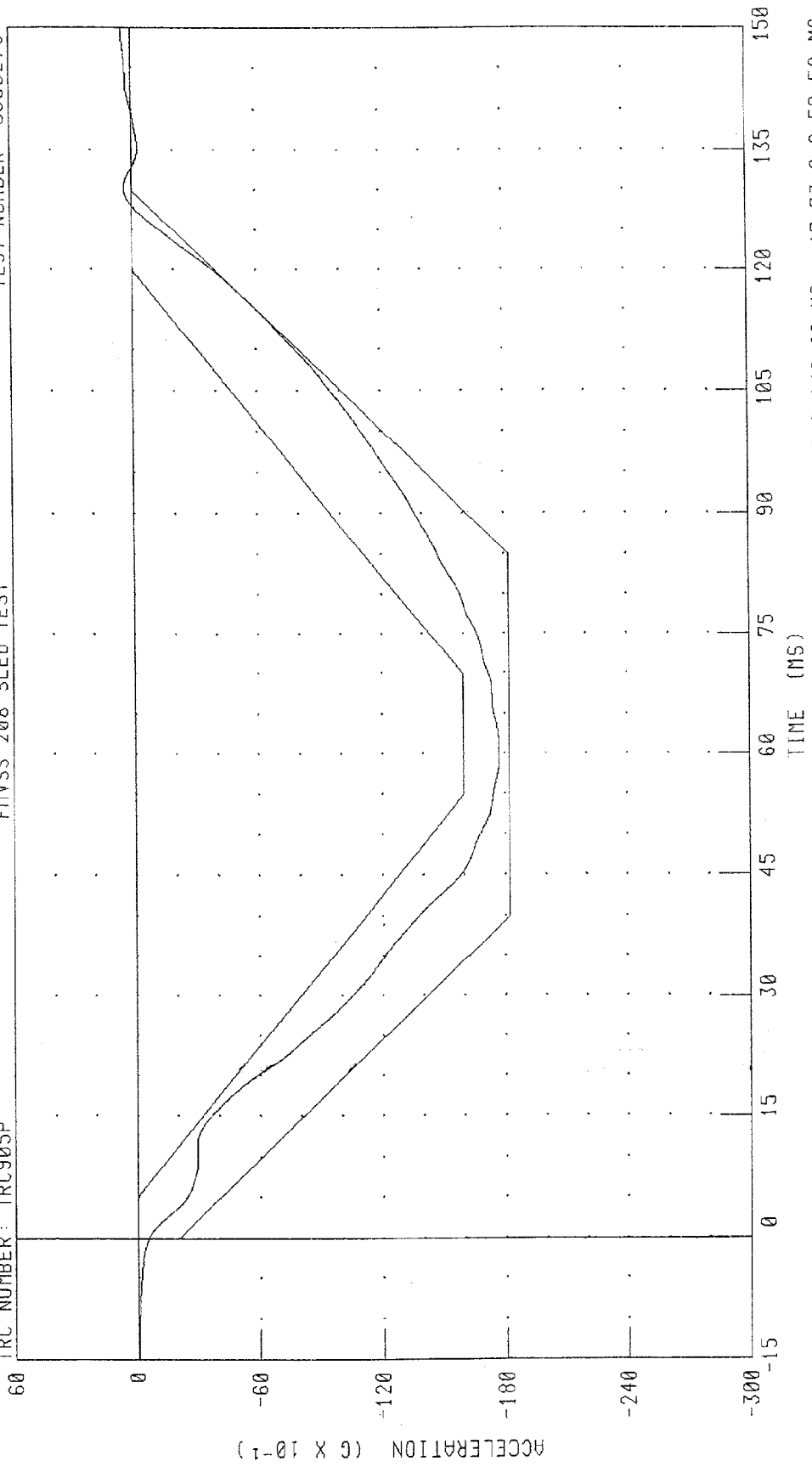
Appendix B

Data Plots

PULSE TRIAL
SLED ACCELERATION
FMVSS 208 SLED TEST

TEST NUMBER: 990527S

TRC NUMBER: TRC905P



PEAK DATA: 0.49 G @ 149.68 MS, -17.73 G @ 59.52 MS

CHANNEL: SLDXG FILTER: CH. CLASS 60

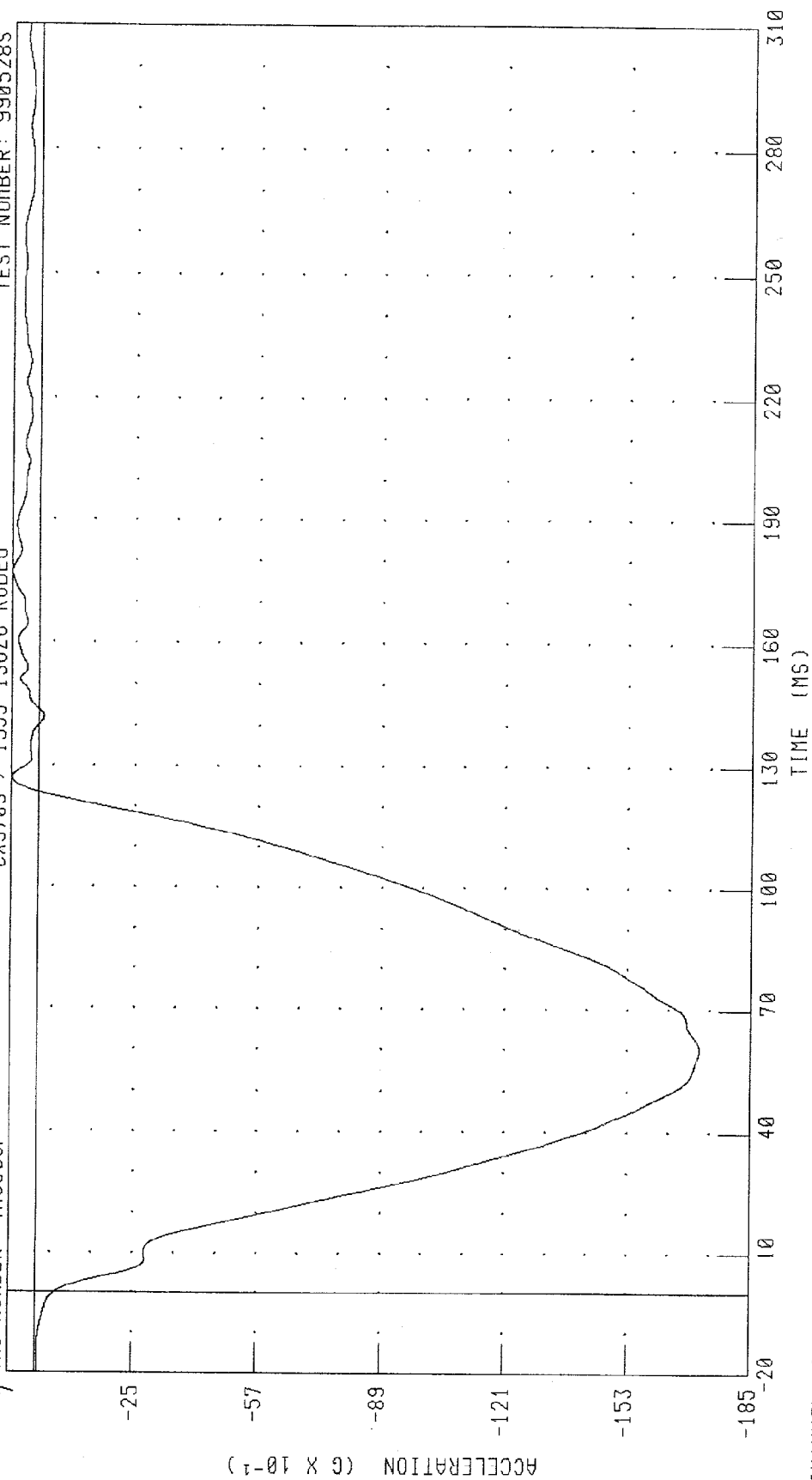
SLED ACCELERATION FMVSS 208 SLED TEST

SLED ACCELERATION

CX5703 / 1999 ISUZU RODEO

TEST NUMBER: 990528S

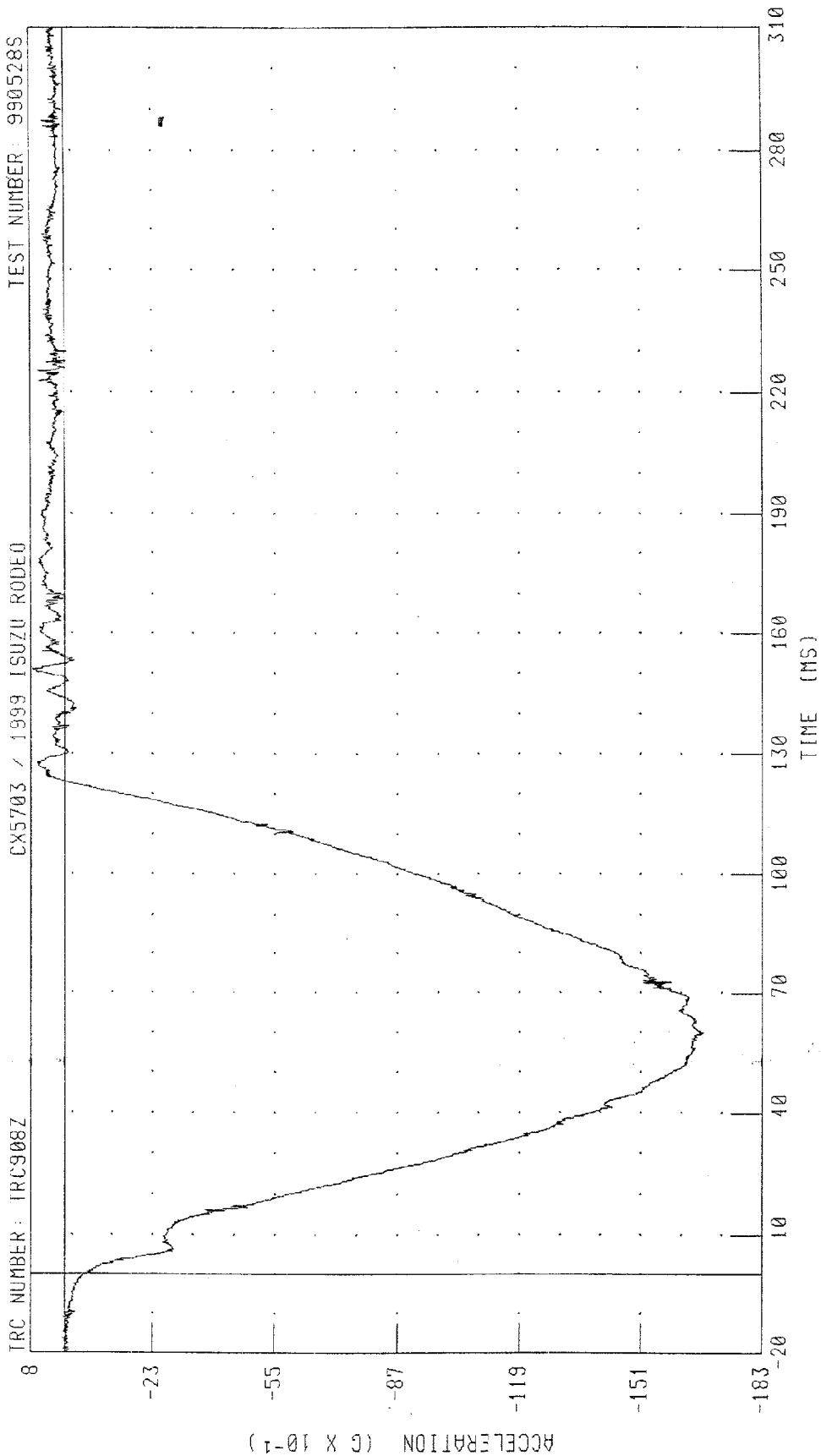
7 TRC NUMBER: TRC908P



CHANNEL: SLDXC FILTER: CH. CLASS 60

PEAK DATA: 0.70 G @ 177.12 MS; -17.17 G @ 60.16 MS

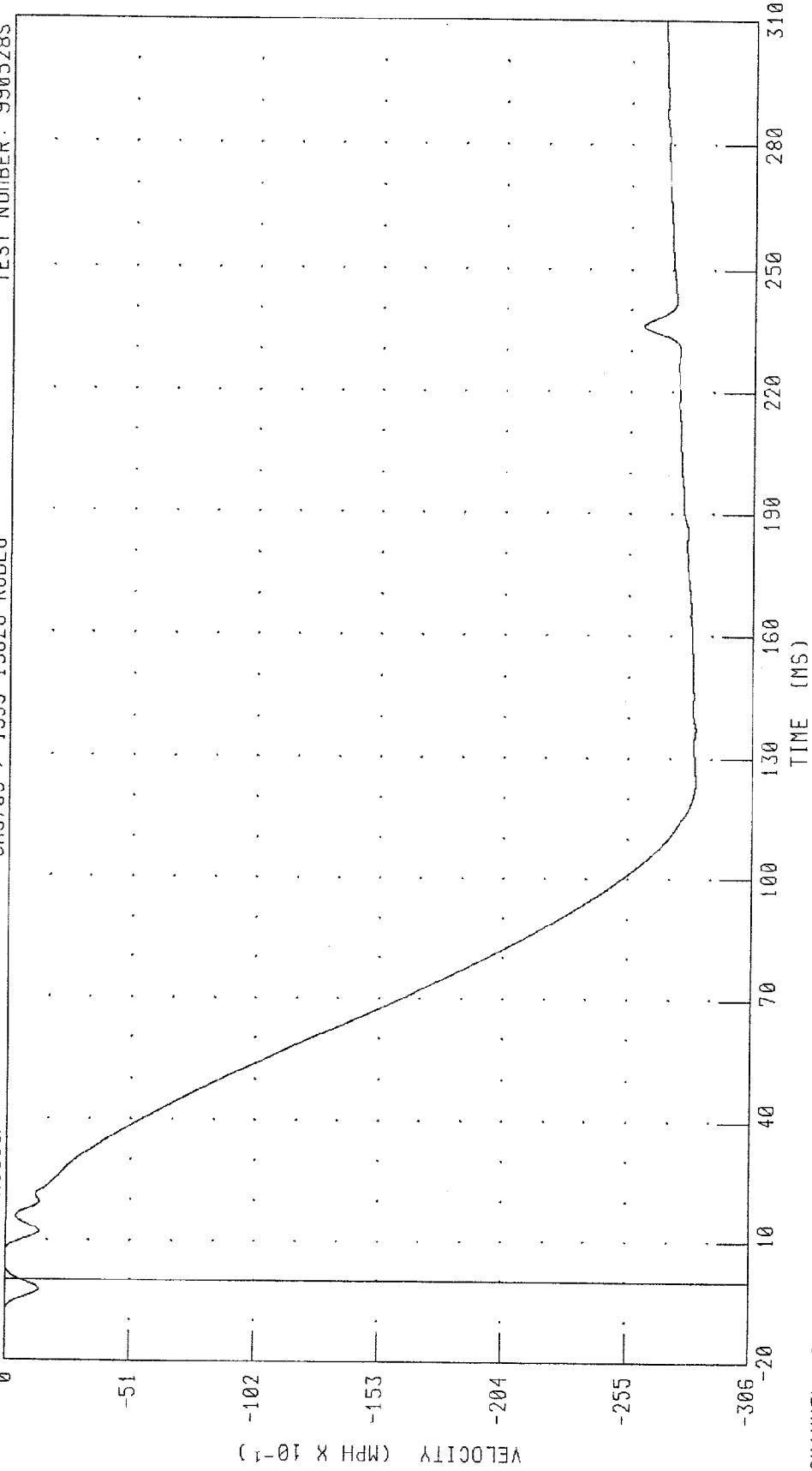
SLED ACCELERATION FMVSS 208 SLED TEST
SLED ACCELERATION PRE-FILTERED AT 200 HZ TO DETERMINE HALF G



SLED ACCELERATION FMVSS 208 SLED TEST
MEASURED VELOCITY TRAP
CX5703 / 1999 ISUZU RODEO

TEST NUMBER: 990528S

TRC NUMBER: TRC908P



PEAK DATA: 0.08 MPH @ 5.84 MS; -28.26 MPH @ 124.32 MS

FILTER: CH. CLASS 60

CHANNEL: SLDXV

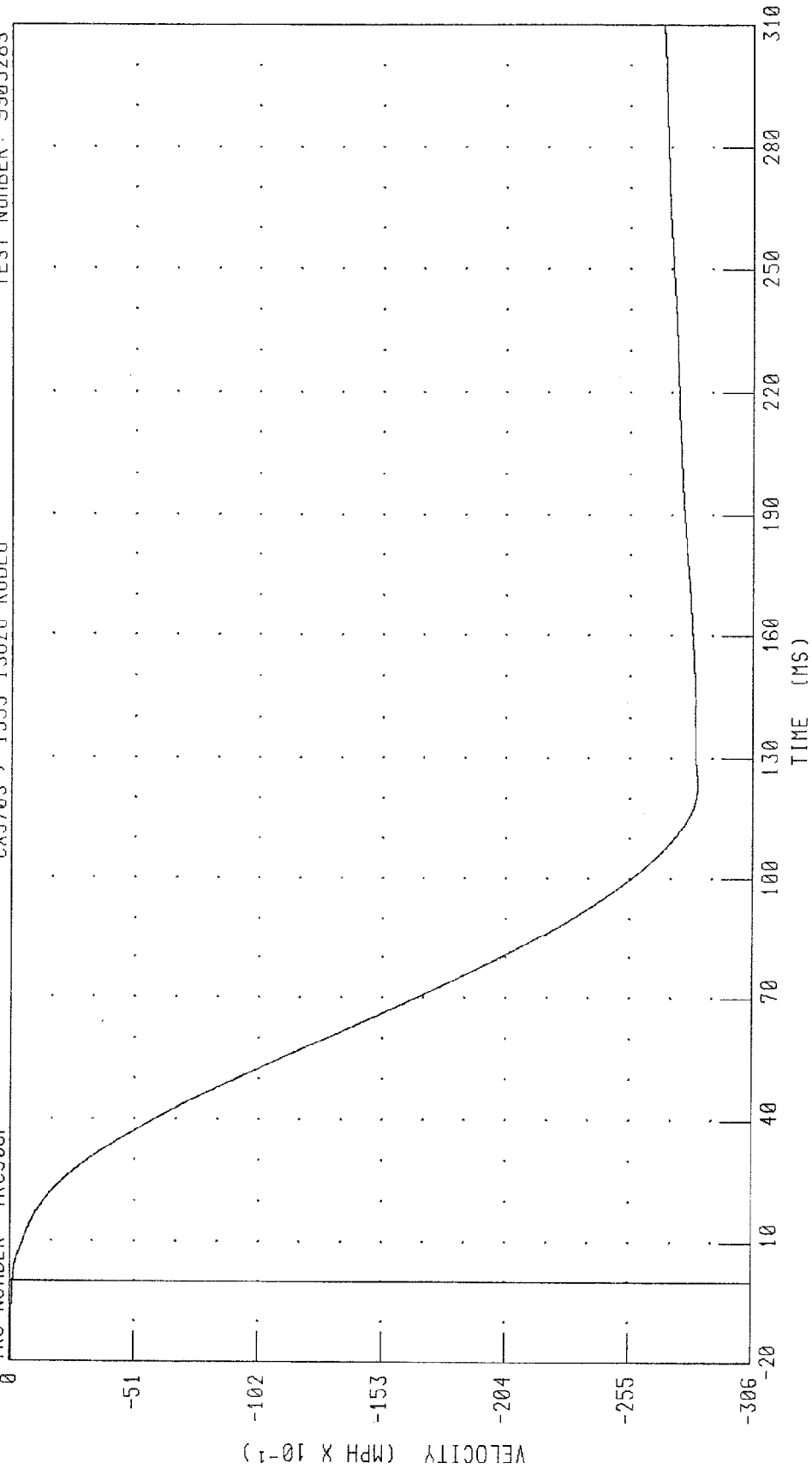
SLED ACCELERATION FMVSS 208 SLED TEST

SLED VELOCITY (INTEGRATED)

TRC NUMBER: TRC908P

CX5703 / 1999 ISUZU RODEO

TEST NUMBER: 990528S



PEAK DATA: -0.03 MPH @ -20.00 MS; -28.32 MPH @ 123.52 MS

FILTER: CH. CLASS 180

CHANNEL: SLDXVI

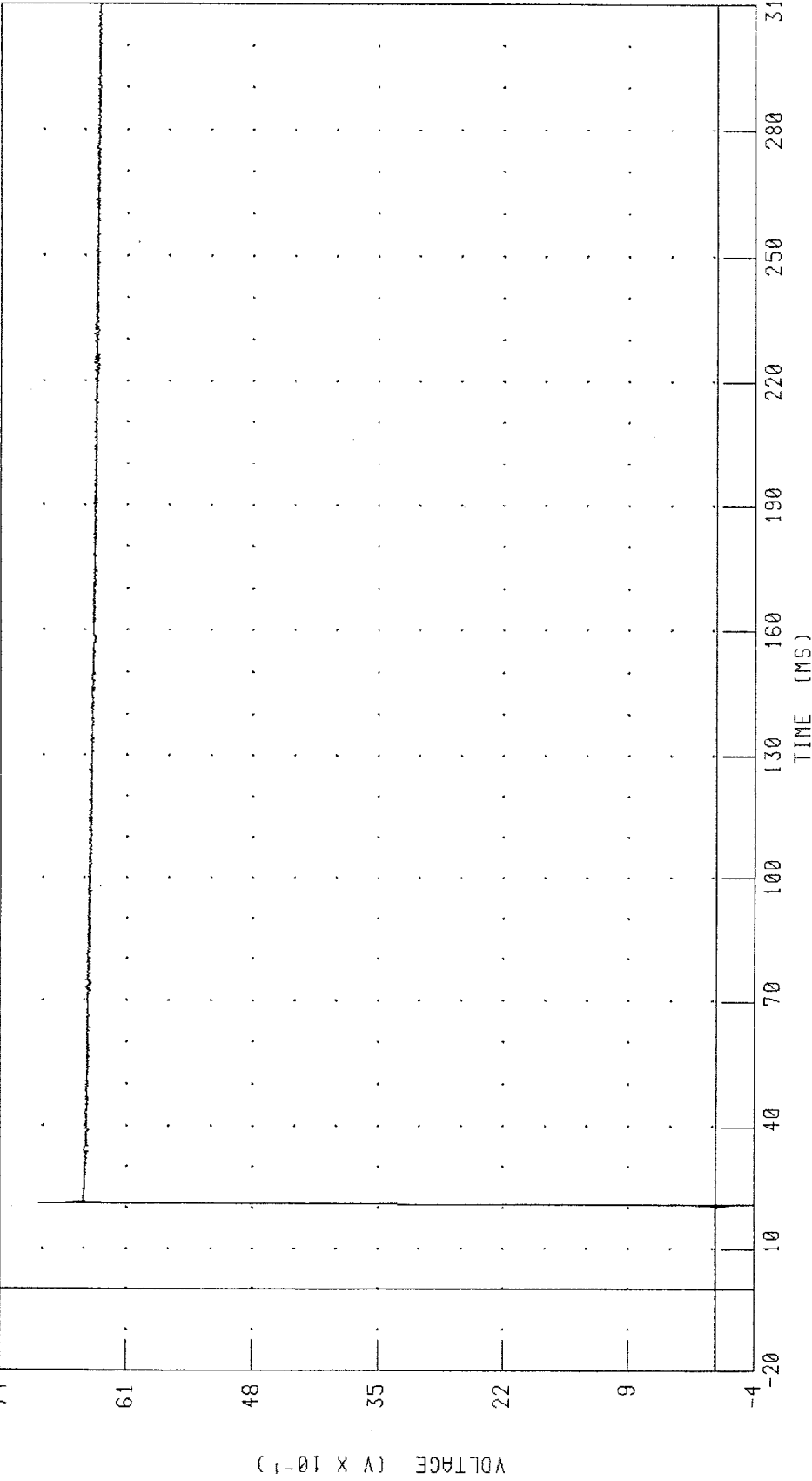
SLED ACCELERATION FMVSS 208 SLED TEST

AIRBAG EVENT

CX5703 / 1999 ISUZU RODEO

TEST NUMBER: 990528S

TRC NUMBER: TRC908P



PEAK DATA: 7.01 V @ 21.20 MS; -0.45 V @ 20.80 MS

CHANNEL: ABEVT FILTER: CH. CLASS 1000

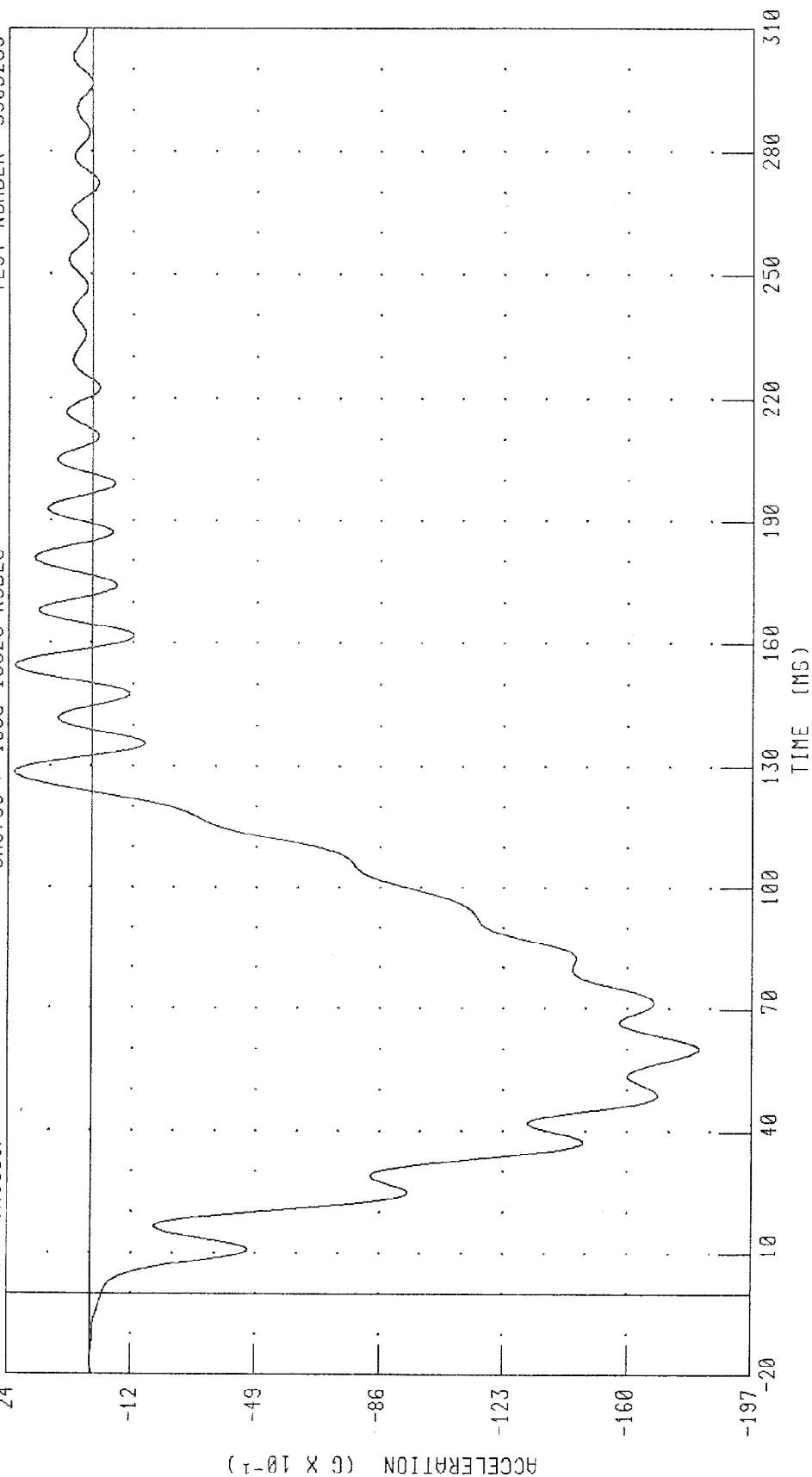
SLED ACCELERATION FMVSS 208 SLED TEST

REAR AXLE X-AXIS ACCELERATION

CX5703 / 1999 ISUZU RODEO

TEST NUMBER: 990528S

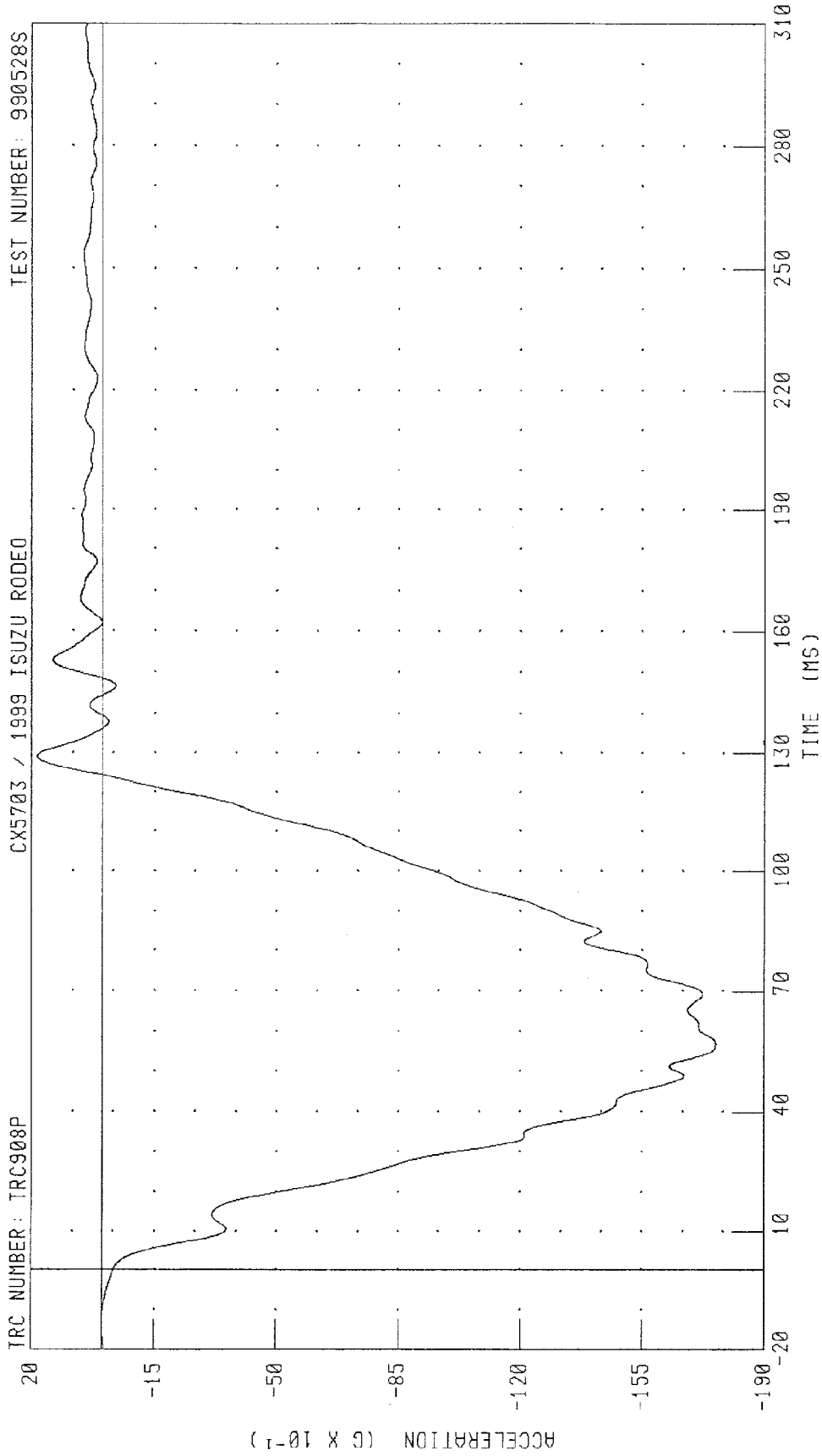
TRC NUMBER: TRC908P



CHANNEL: RAXG FILTER: CH. CLASS 60

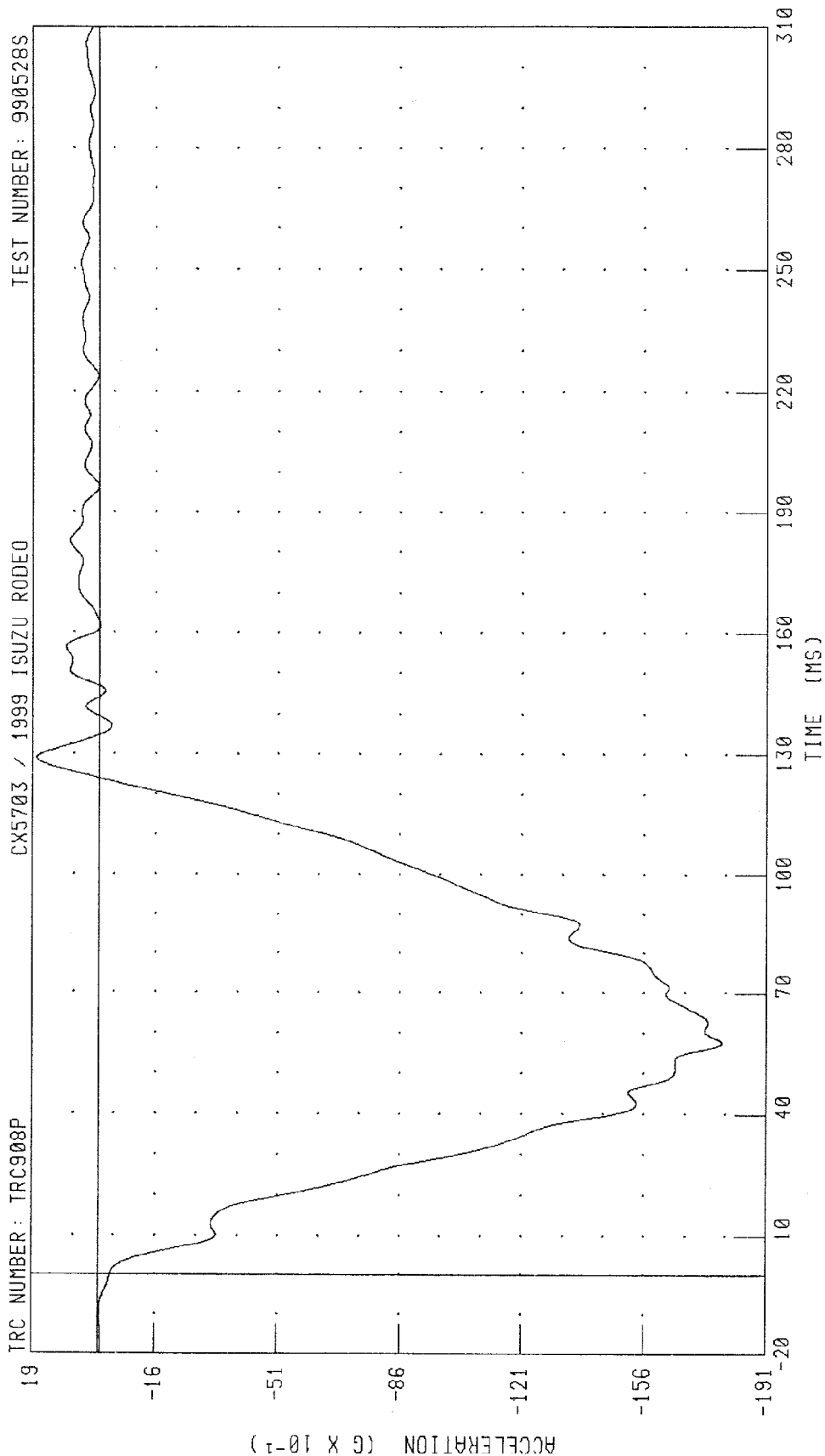
PEAK DATA: 2.32 G @ 128.56 MS, -18.14 G @ 60.08 MS

SLED ACCELERATION FMVSS 208 SLED TEST
 LEFT BODY X-AXIS ACCELERATION
 CX5703 / 1999 ISUZU RODEO



CHANNEL: LBXC FILTER: CH. CLASS 60

SLED ACCELERATION FMVSS 208 SLED TEST
 RIGHT BODY X-AXIS ACCELERATION
 CX5703 / 1999 ISUZU RODEO



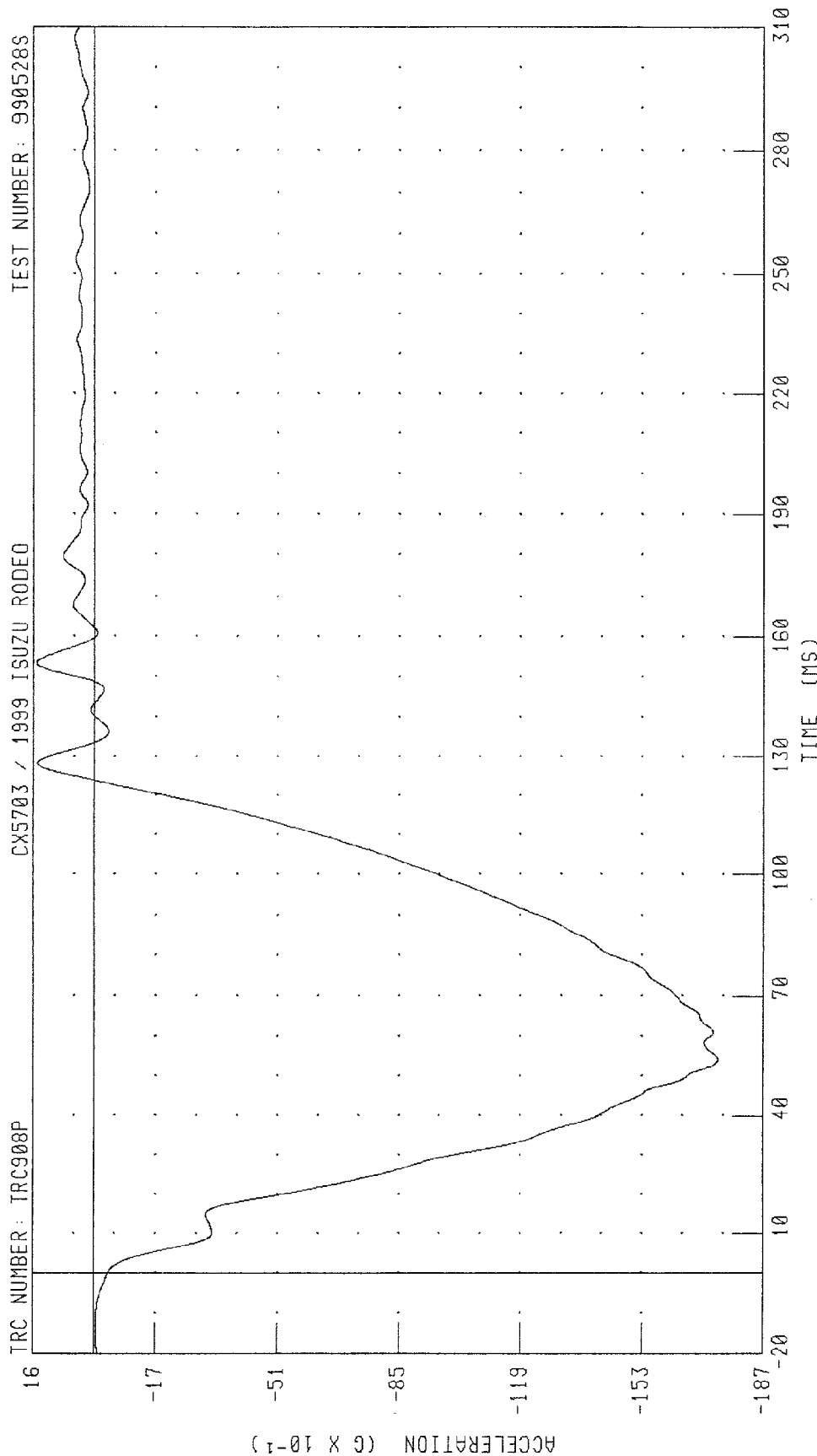
PEAK DATA: 1.78 G @ 128.96 MS; -17.83 G @ 57.44 MS

CHANNEL: RBXG FILTER: CH. CLASS 60

SLED ACCELERATION FMVSS 208 SLED TEST
 LEFT FRAME X-AXIS ACCELERATION
 CX5703 / 1999 ISUZU RODEO

TEST NUMBER: 990528S

TRC NUMBER: TRC908P



PEAK DATA: 1.61 G @ 153.44 MS; -17.44 G @ 54.00 MS

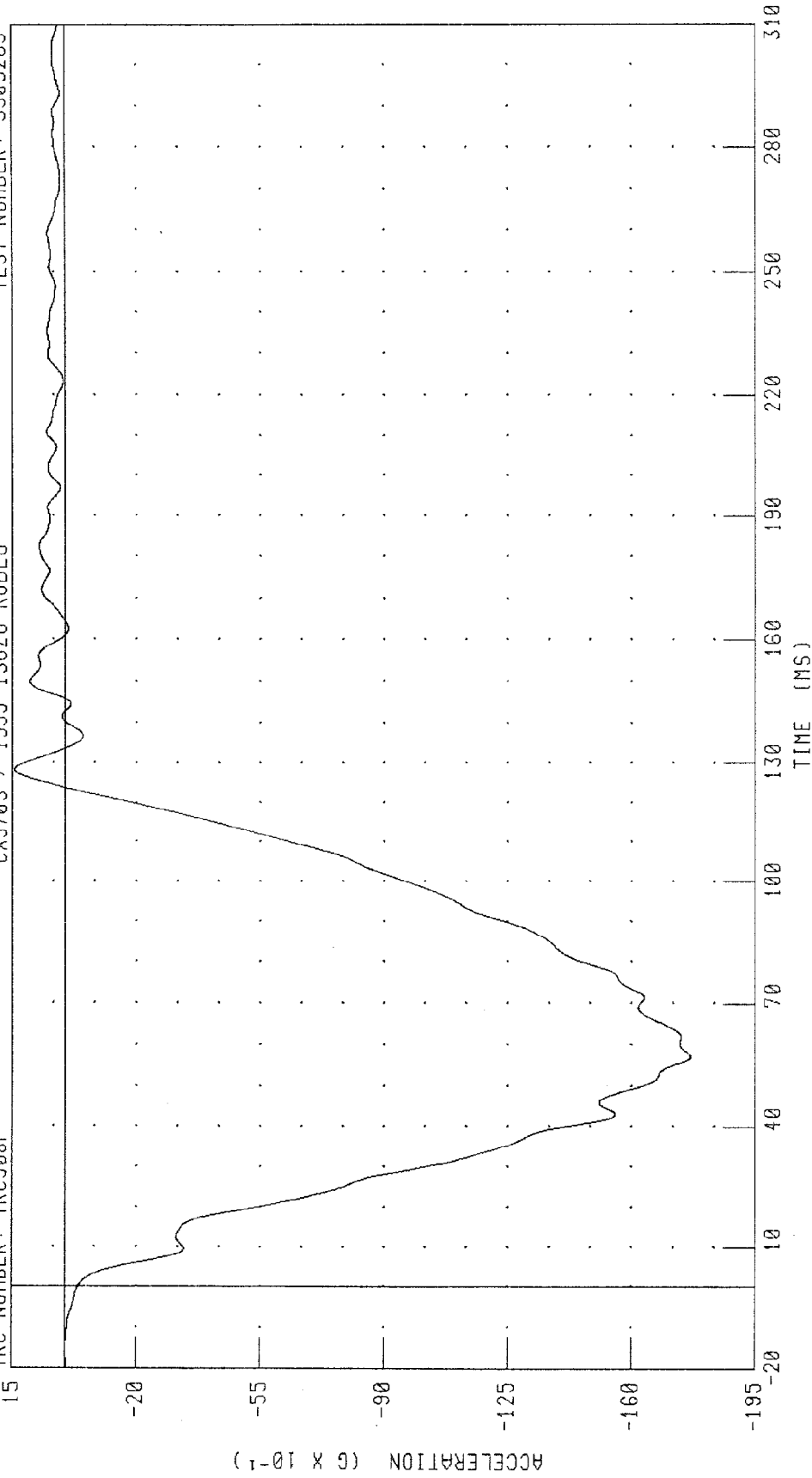
FILTER: CH. CLASS 60

CHANNEL: LFXG

SLED ACCELERATION FMVSS 208 SLED TEST
 RIGHT FRAME X-AXIS ACCELERATION
 CX5703 / 1999 ISUZU RODEO

TEST NUMBER: 990528S

TRC NUMBER: TRC908P

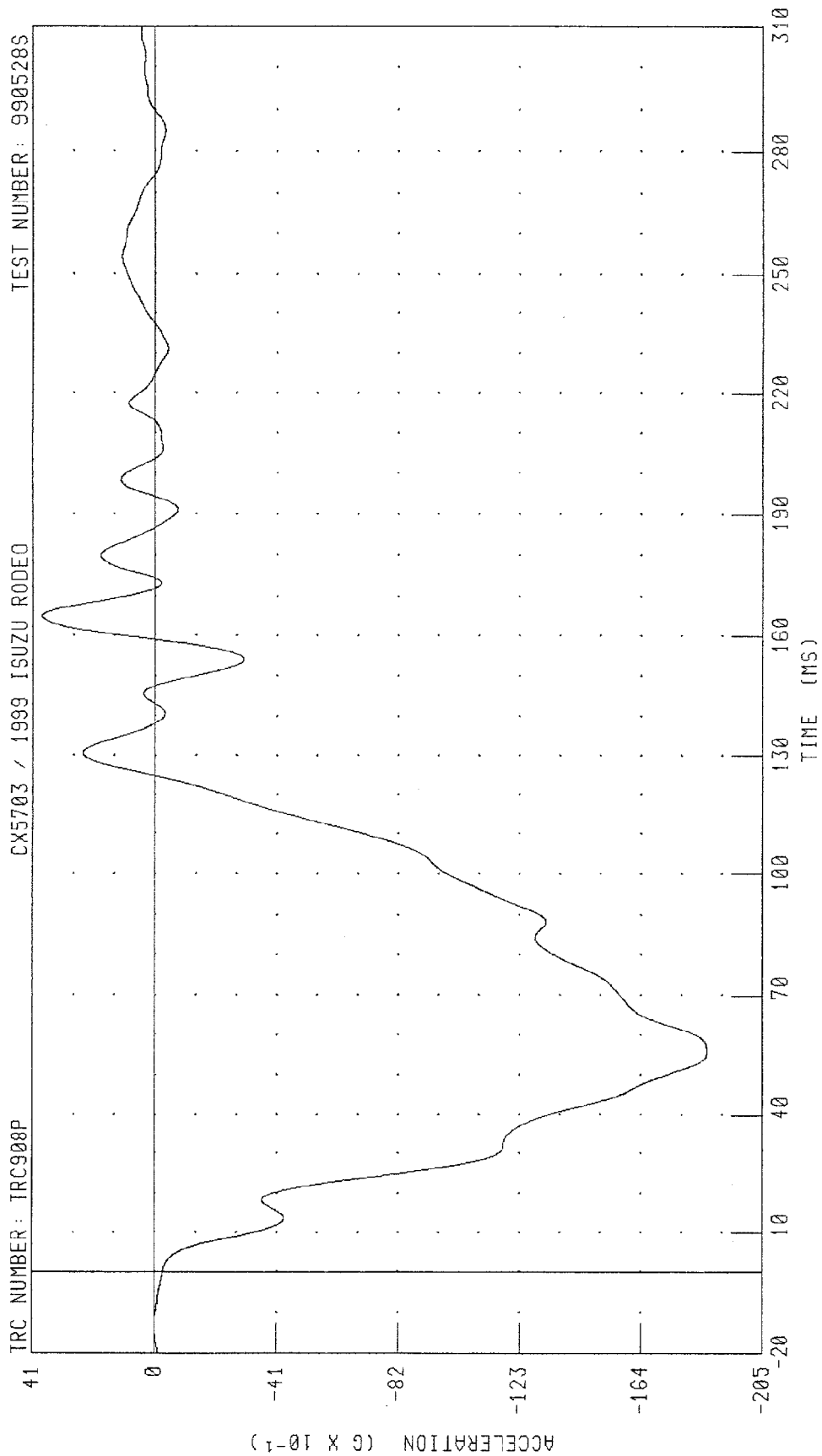


PEAK DATA: 1.44 G @ 128.32 MS, -17.66 G @ 57.12 MS

FILTER: CH. CLASS 60

CHANNEL: RFXG

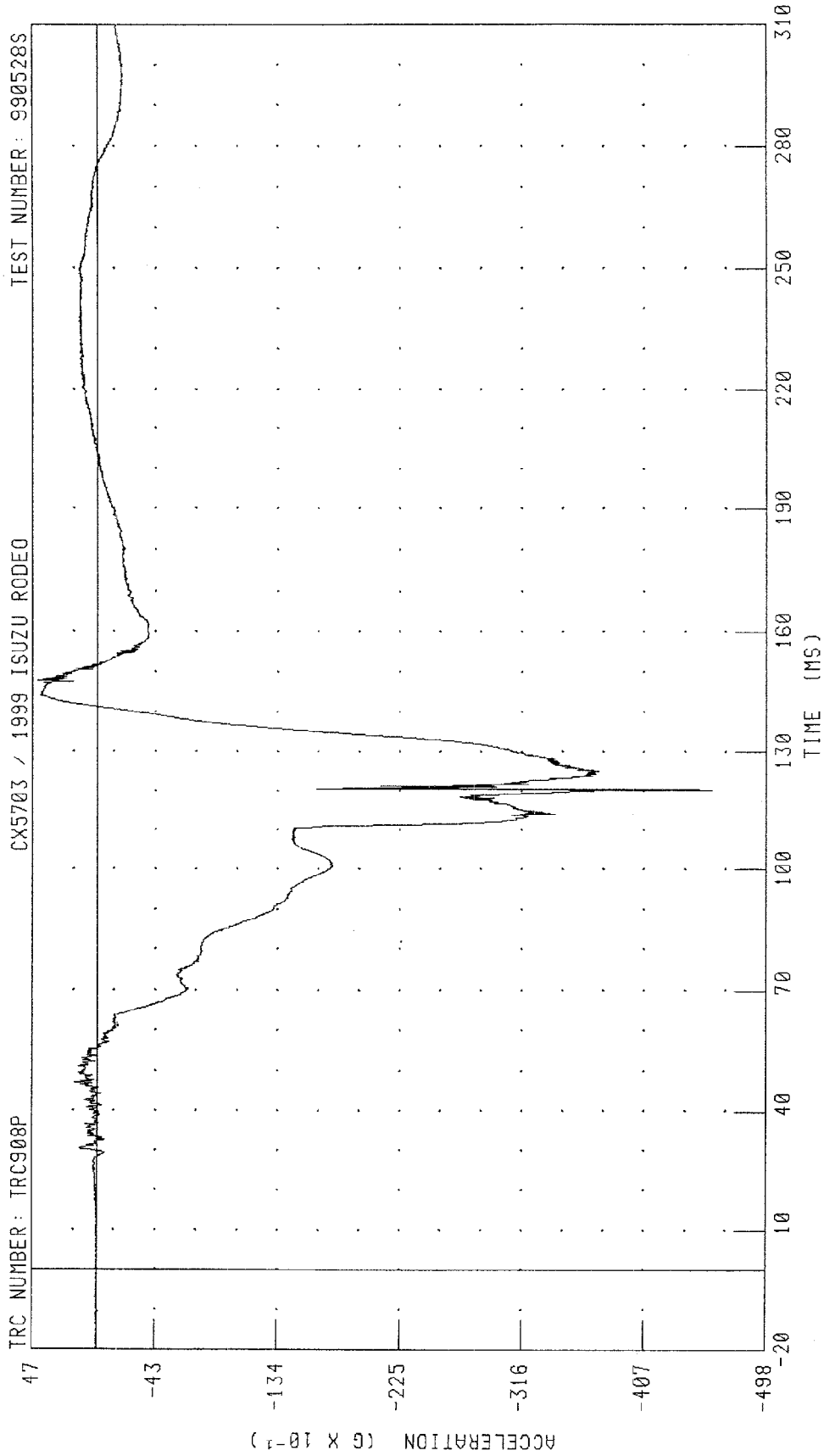
SLED ACCELERATION FMVSS 208 SLED TEST
 BOTTOM ENGINE X-AXIS ACCELERATION
 CX5703 / 1999 ISUZU RODEO



CHANNEL: BEXG FILTER: CH. CLASS 60

PEAK DATA: 3.81 G @ 165.04 MS, -18.62 G @ 56.16 MS

SLED ACCELERATION FMVSS 208 SLED TEST
 DRIVER HEAD X-AXIS ACCELERATION
 CX5703 / 1999 ISUZU RODEO



CHANNEL: HEDXC1 FILTER: CH. CLASS 1000

SLED ACCELERATION FMVSS 208 SLED TEST

DRIVER HEAD Y-AXIS ACCELERATION

CX5703 / 1999 ISUZU RODEO

TEST NUMBER: 990528S

TRC NUMBER: TRC908P

220

123

27

-68

-164

-260

-356

ACCELERATION (G X 10⁻¹)

TIME (MS)

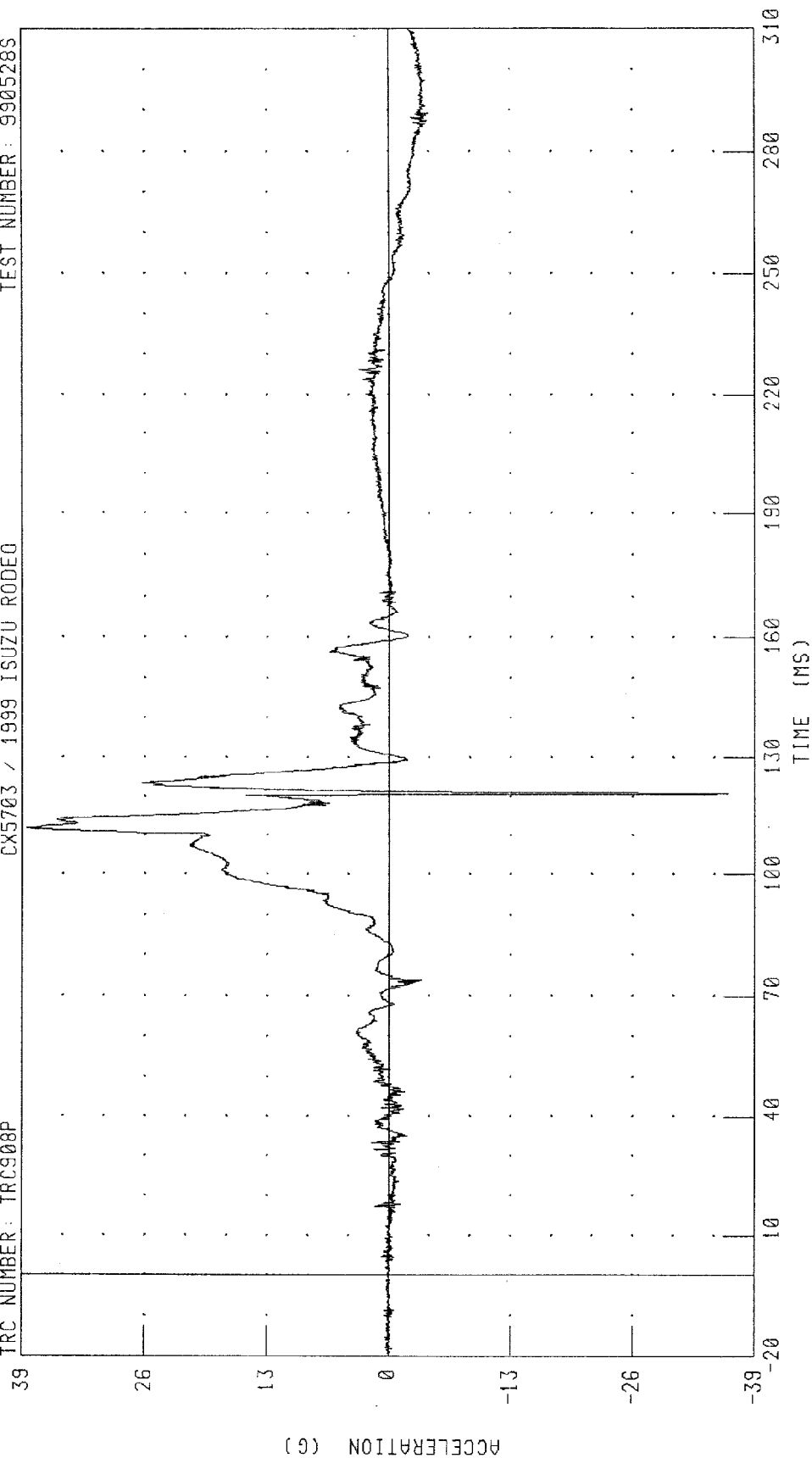
CHANNEL: HEDYC1 FILTER: CH. CLASS 1000

PEAK DATA: 20.81 G @ 120.88 MS, -31.98 G @ 120.72 MS

SLED ACCELERATION FMVSS 208 SLED TEST
 DRIVER HEAD Z-AXIS ACCELERATION
 CX5703 / 1999 ISUZU RODEO

TEST NUMBER: 990528S

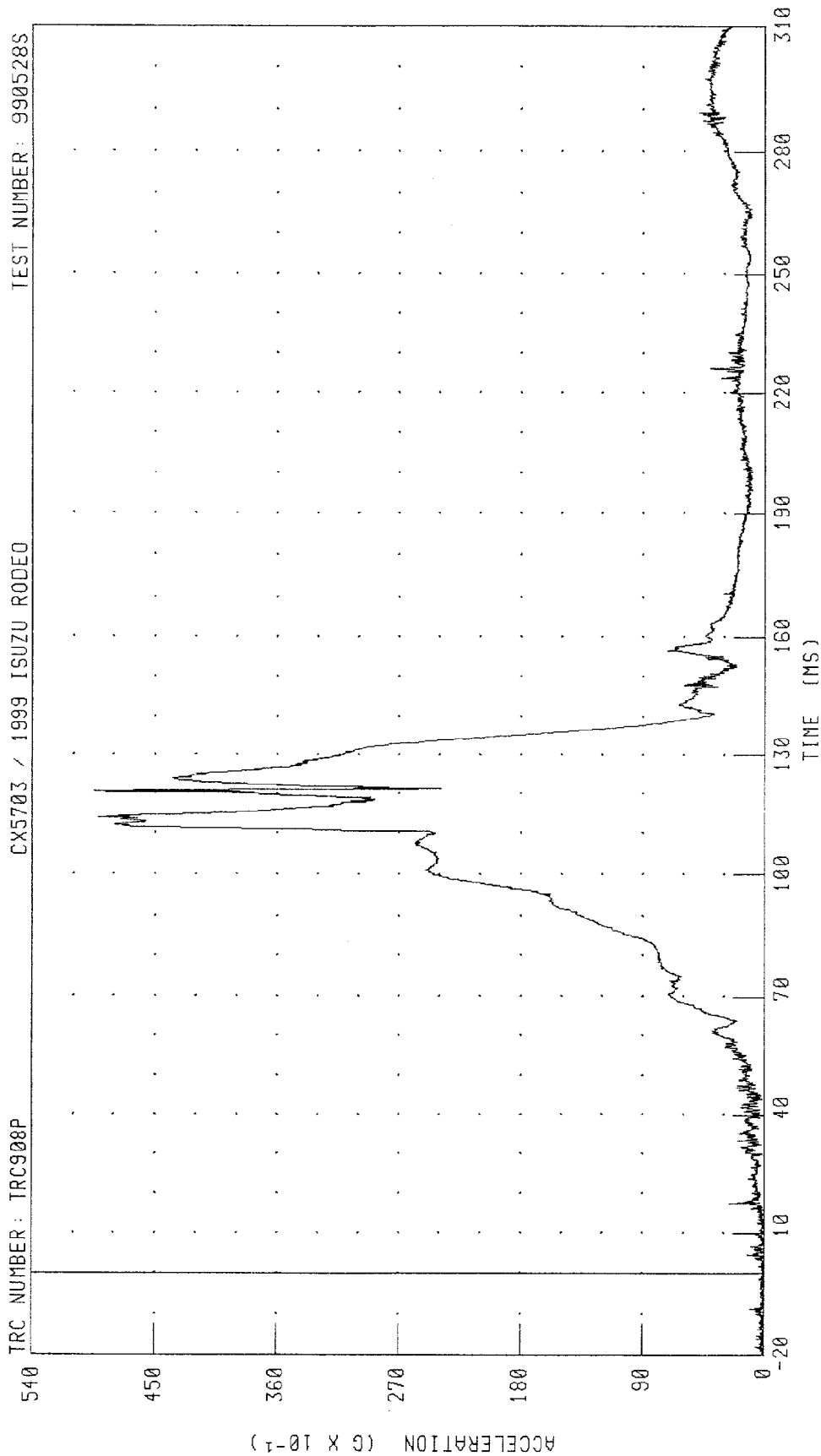
TRC NUMBER: TRC908P



PEAK DATA: 38.46 G @ 111.68 MS, -36.18 G @ 120.96 MS

CHANNEL: HEDZG1 FILTER: CH. CLASS 1000

SLED ACCELERATION FMVSS 208 SLED TEST
 DRIVER HEAD RESULTANT ACCELERATION



PEAK DATA: 49.44 G @ 120.72 MS; 0.01 G @ -20.00 MS

CHANNEL: HEDRG1 FILTER: CH. CLASS 1000

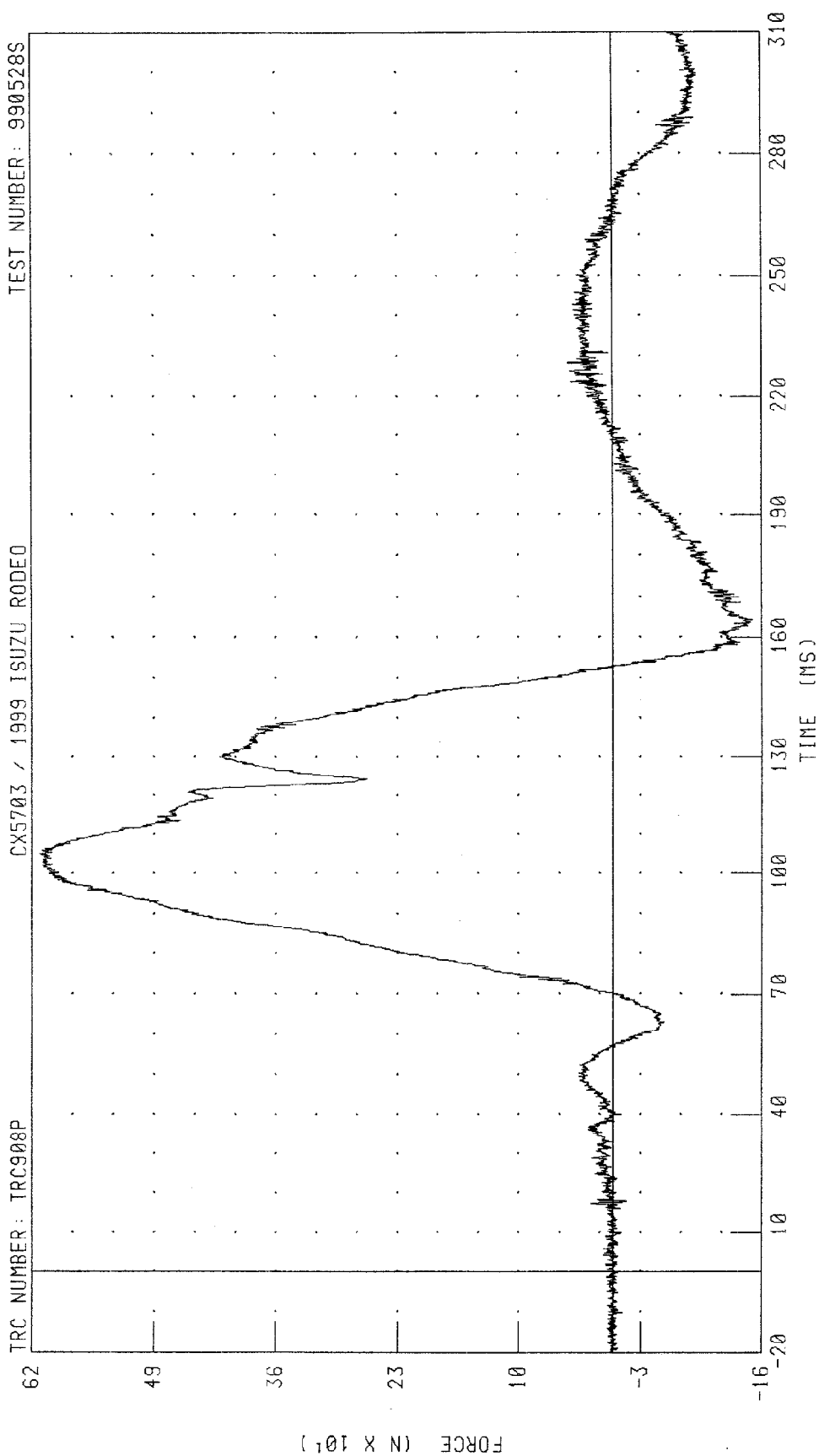
SLED ACCELERATION FMVSS 208 SLED TEST

DRIVER NECK X-AXIS SHEAR FORCE

CX5703 / 1999 ISUZU RODEO

TEST NUMBER: 990528S

TRC NUMBER: TRC908P



PEAK DATA: 611.40 N @ 105.12 MS, -149.69 N @ 164.40 MS

CHANNEL: NEKXF1 FILTER: CH. CLASS 1000

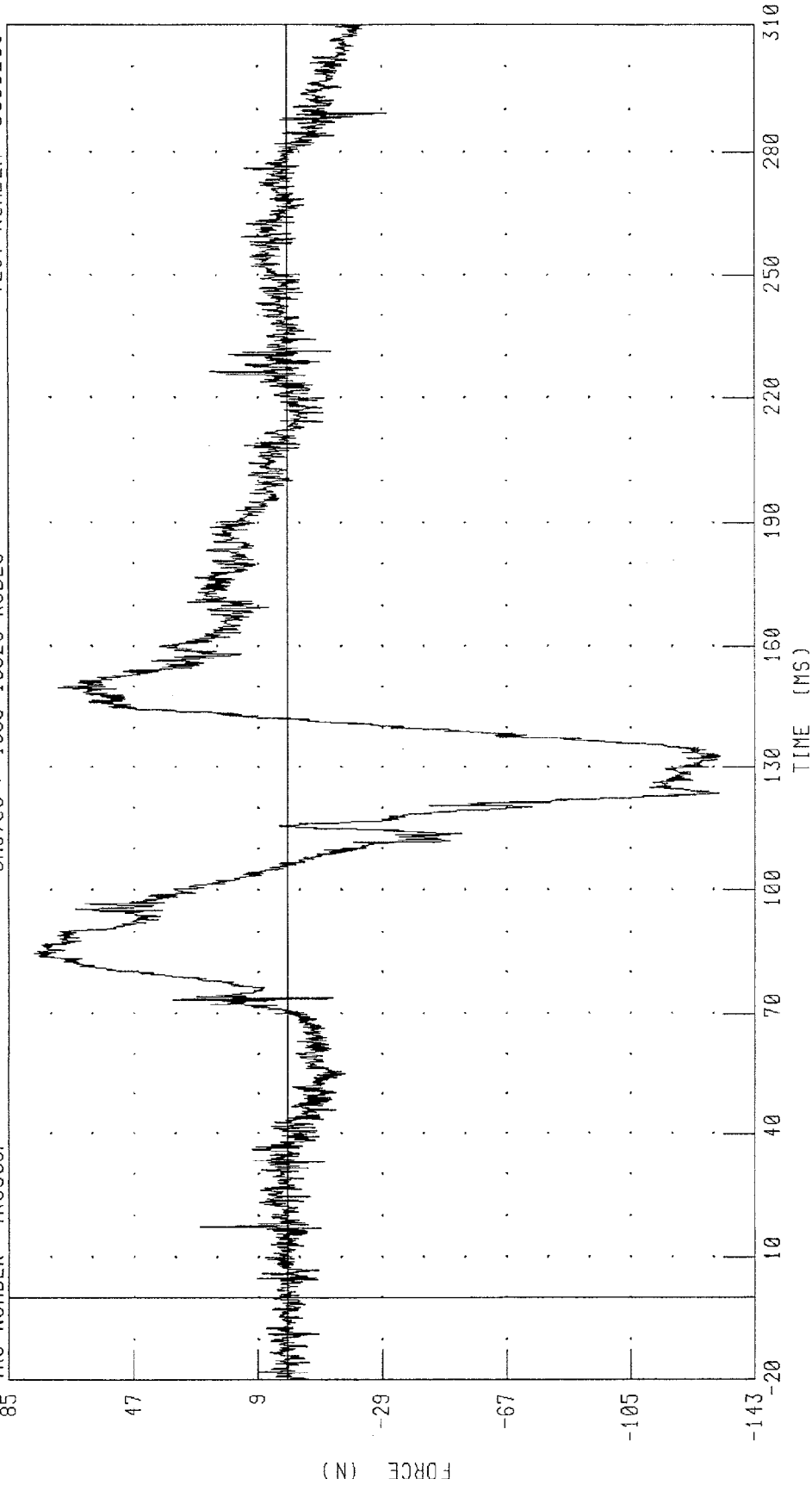
SLED ACCELERATION FMVSS 208 SLED TEST

DRIVER NECK Y-AXIS SHEAR FORCE

CX5703 / 1999 ISUZU RODEO

TRC NUMBER: TRC908P

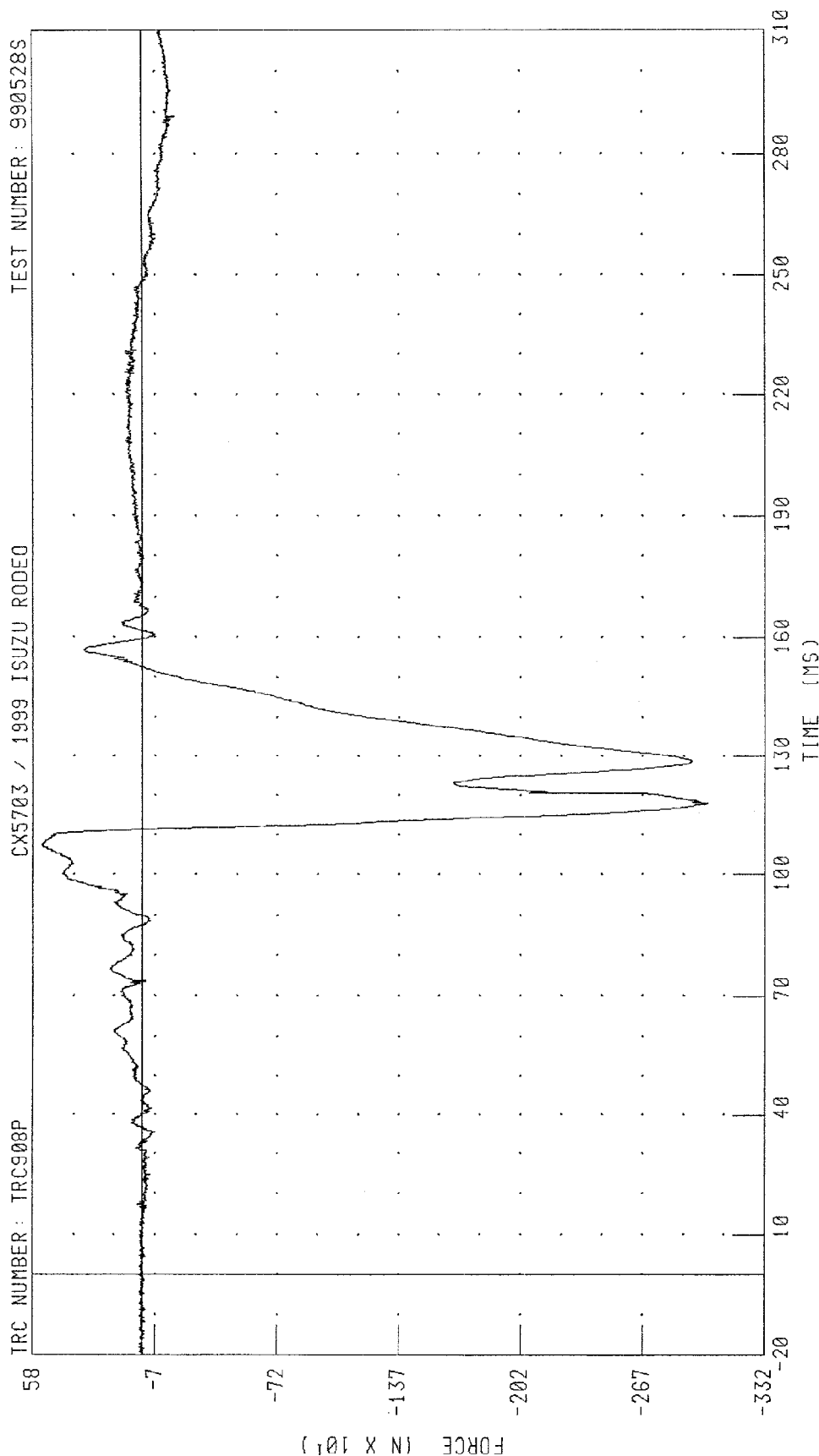
TEST NUMBER: 990528S



CHANNEL: NEKYF1 FILTER: CH. CLASS 1000

PEAK DATA: 77.52 N @ 84.56 MS, -132.32 N @ 132.96 MS

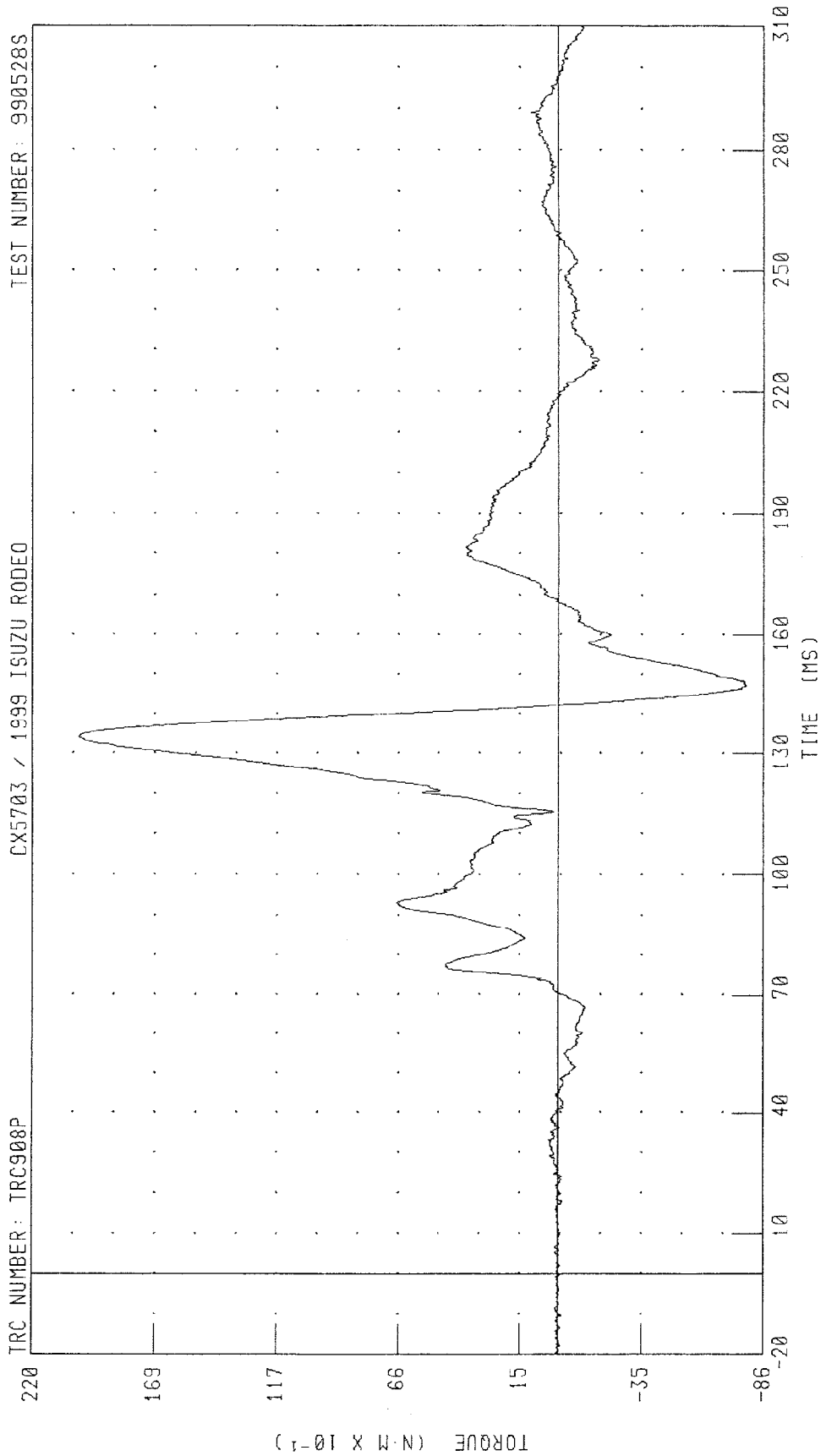
SLED ACCELERATION FMVSS 208 SLED TEST
 DRIVER NECK Z-AXIS AXIAL FORCE
 CX5703 / 1999 ISUZU RODEO



PEAK DATA: 531.71 N @ 107.76 MS, -3018.51 N @ 118.08 MS

CHANNEL: NEKZF1 FILTER: CH. CLASS 1000

SLED ACCELERATION FNVSS 208 SLED TEST
 DRIVER NECK MOMENT ABOUT X AXIS
 CX5703 / 1999 ISUZU RODEO



PEAK DATA: 20.06 N·M @ 134.16 MS; -7.86 N·M @ 147.28 MS

CHANNEL: NEKXM1 FILTER: CH. CLASS 600

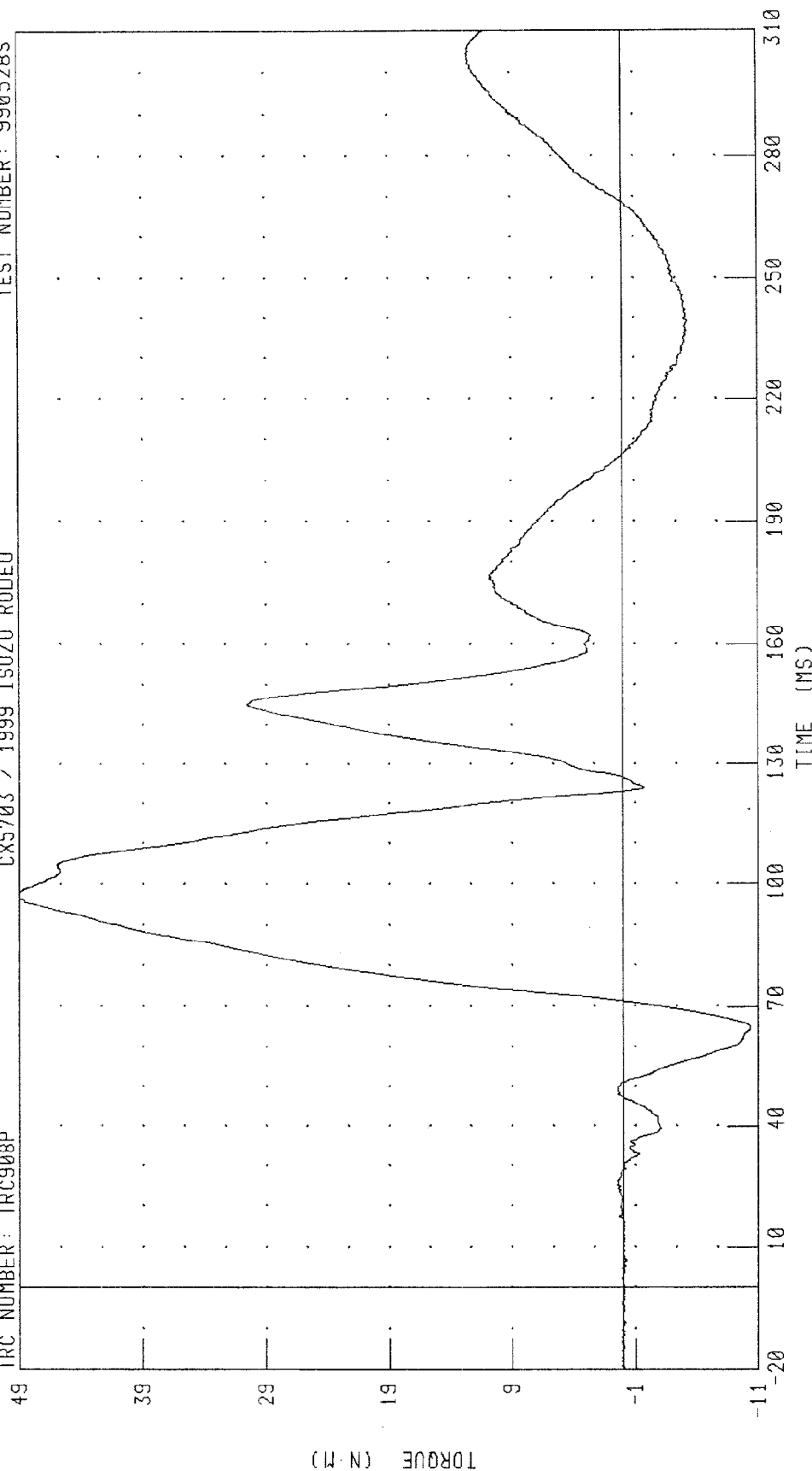
SLED ACCELERATION FMVSS 208 SLED TEST

DRIVER NECK MOMENT ABOUT Y AXIS

CX5703 / 1999 ISUZU RODEO

TEST NUMBER: 990528S

TRC NUMBER: TRC908P



PEAK DATA: 49.35 N-M @ 96.72 MS, -10.35 N-M @ 64.64 MS

CHANNEL: NEKYM1 FILTER: CH. CLASS 600

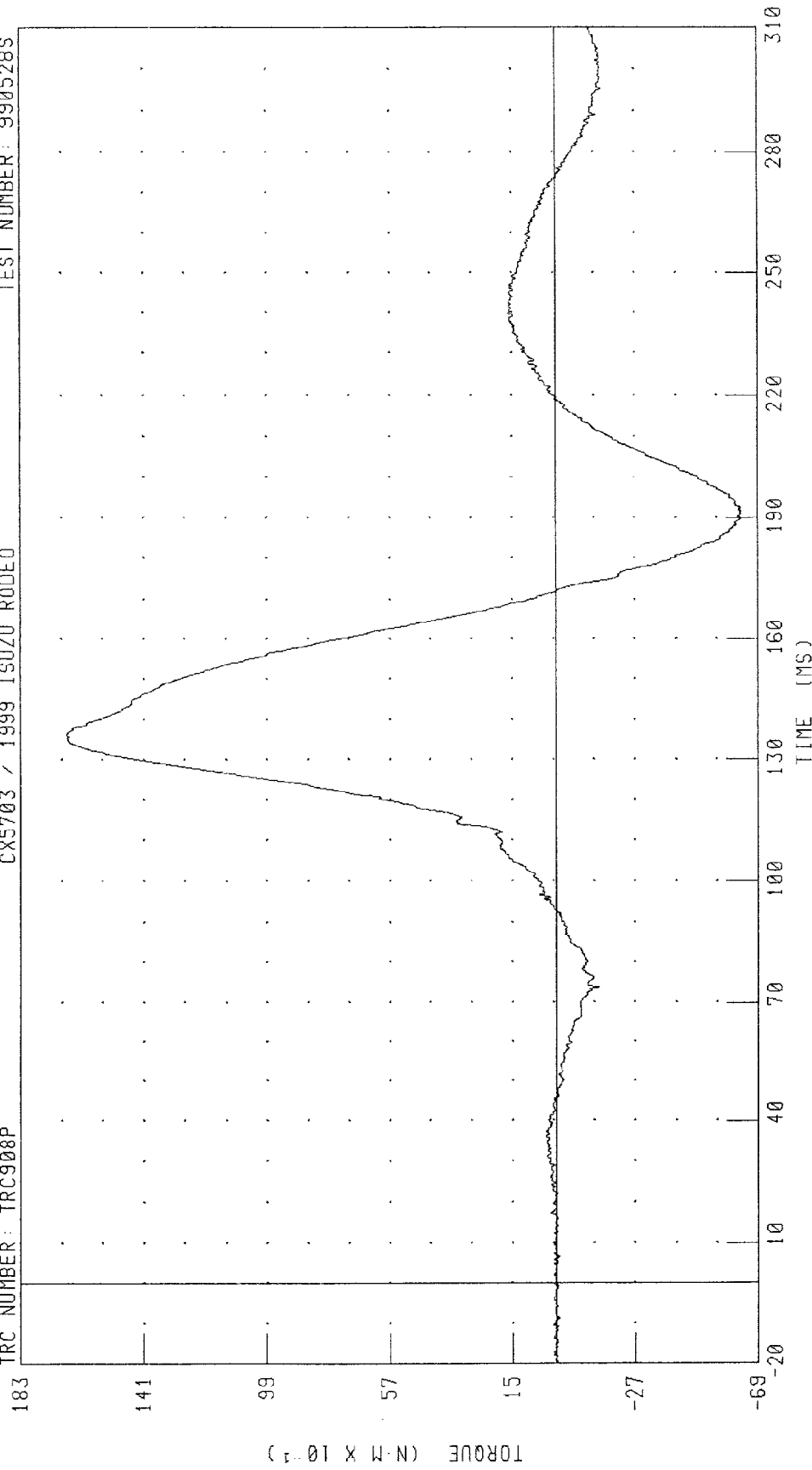
SLED ACCELERATION FMVSS 208 SLED TEST

DRIVER NECK MOMENT ABOUT Z AXIS

CX5703 / 1999 ISUZU RODEO

TEST NUMBER: 990528S

TRC NUMBER: TRC908P



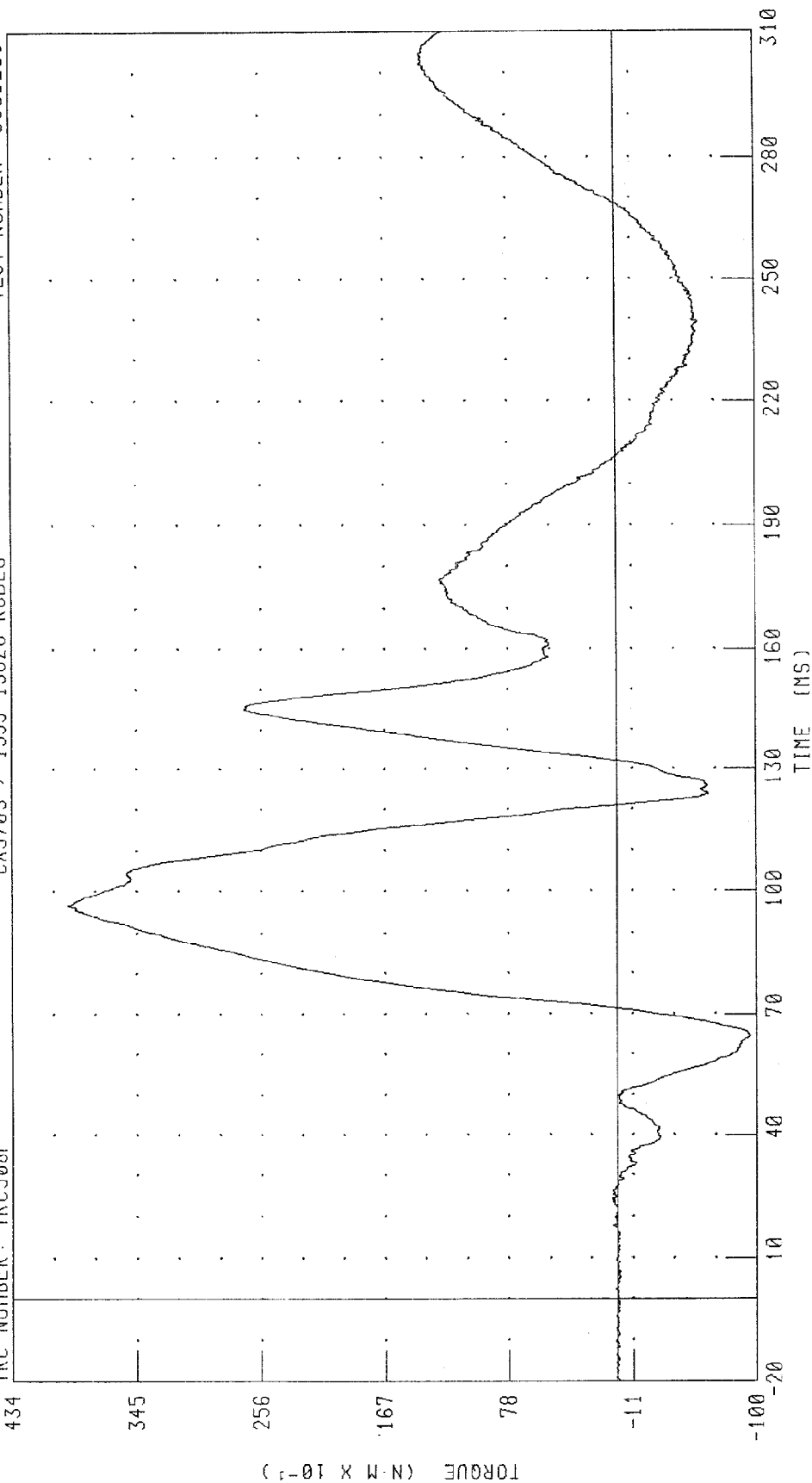
PEAK DATA: 16.73 N-M @ 136.08 MS, -6.33 N-M @ 189.92 MS

CHANNEL: NEKZM1 FILTER: CH. CLASS 600

SLED ACCELERATION FMVSS 208 SLED TEST
 DRIVER NECK OCCIPITAL CONDYLE ABOUT Y AXIS
 CX5703 / 1999 ISUZU RODEO

TEST NUMBER: 990528S

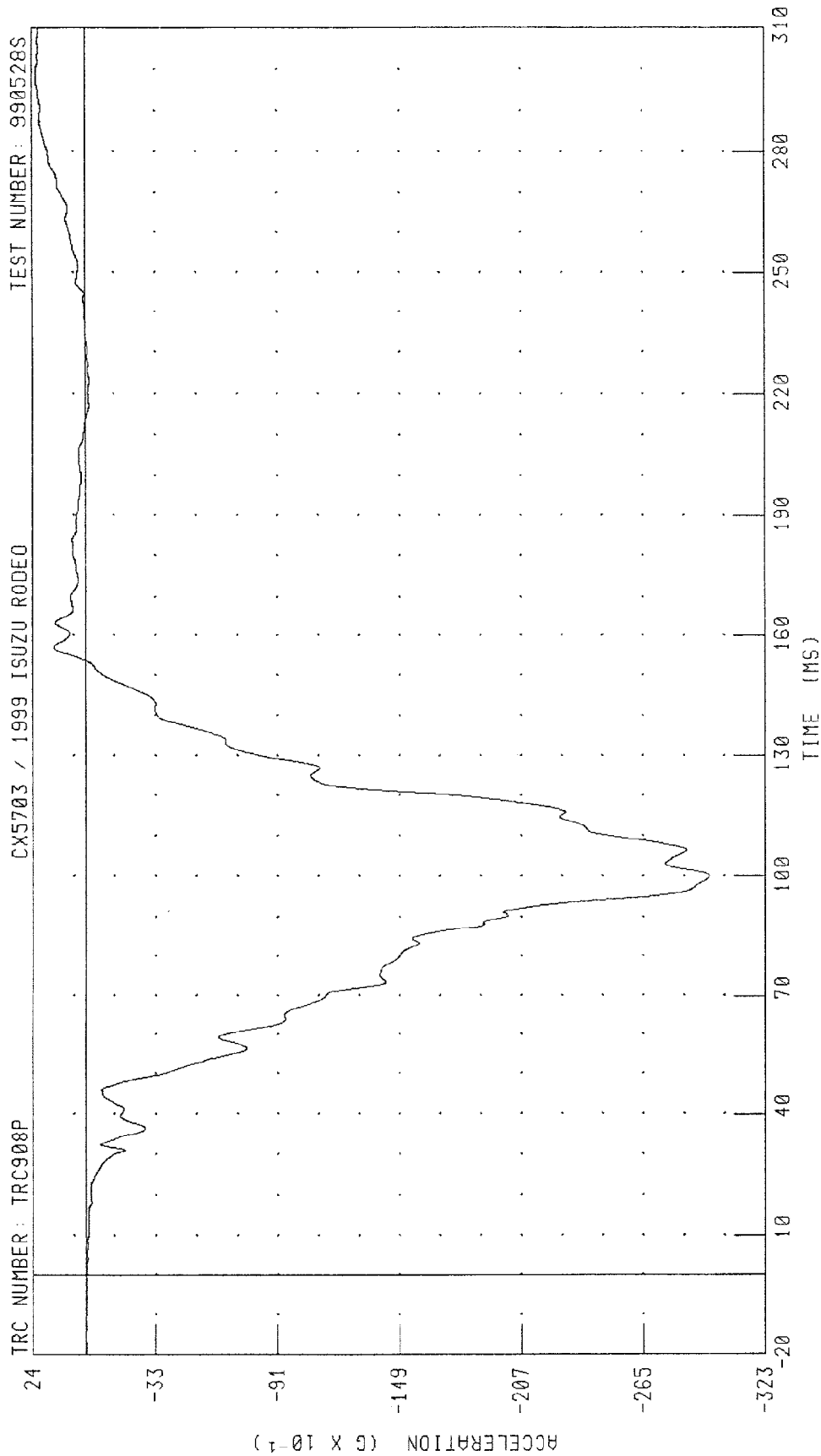
TRC NUMBER: TRC908P



PEAK DATA: 39.42 N·m @ 96.72 MS, -9.52 N·m @ 64.56 MS

CHANNEL: NEKOM1 FILTER: CH. CLASS 600

SLED ACCELERATION FMVSS 208 SLED TEST
 DRIVER CHEST X-AXIS ACCELERATION
 CX5703 / 1999 ISUZU RODEO



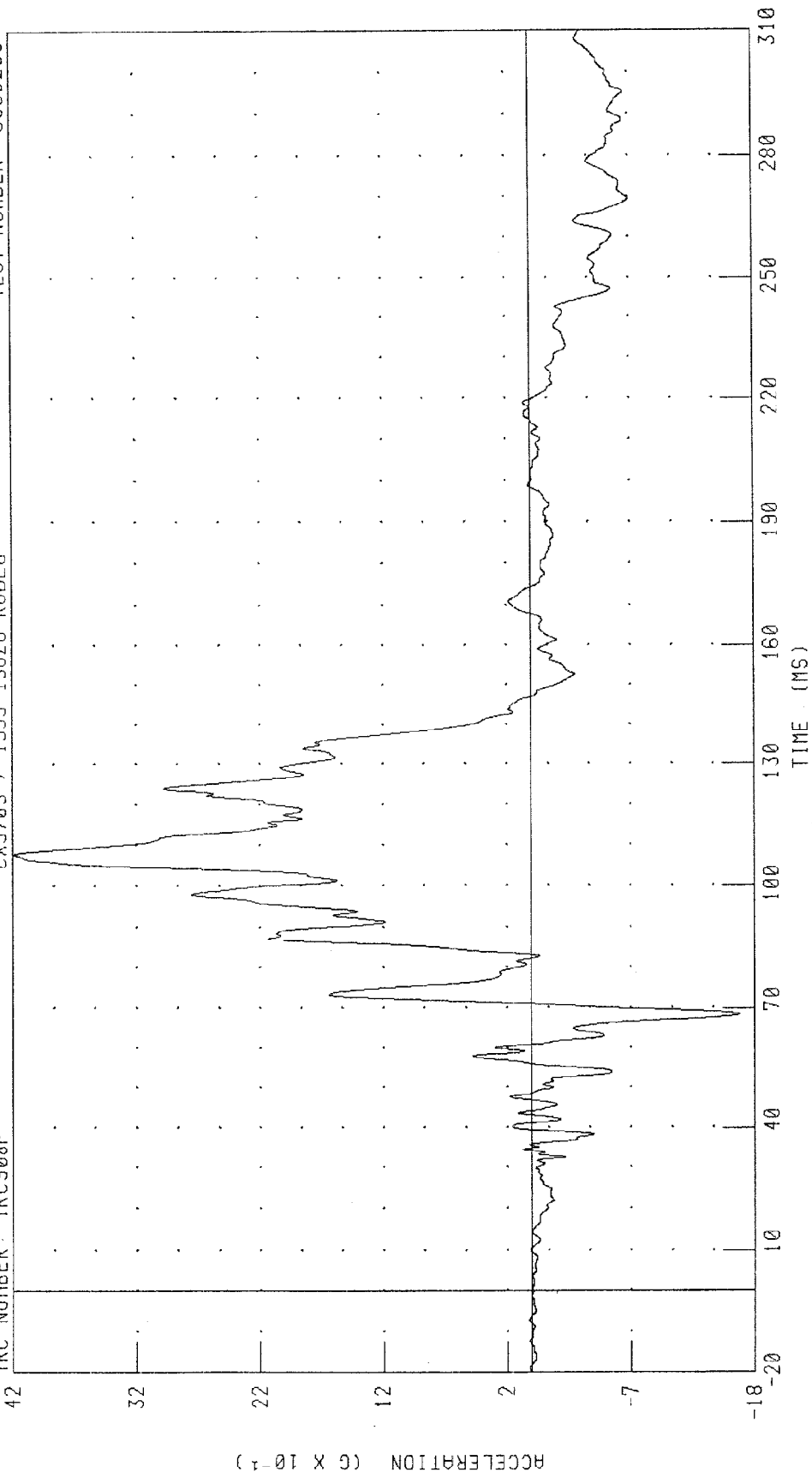
PEAK DATA: 2.33 G @ 299.68 MS; -29.67 G @ 100.16 MS

CHANNEL: CSTXG1 FILTER: CH. CLASS 180

SLED ACCELERATION FMVSS 208 SLED TEST
 DRIVER CHEST Y-AXIS ACCELERATION
 CX5703 / 1999 ISUZU RODEO

TEST NUMBER: 990528S

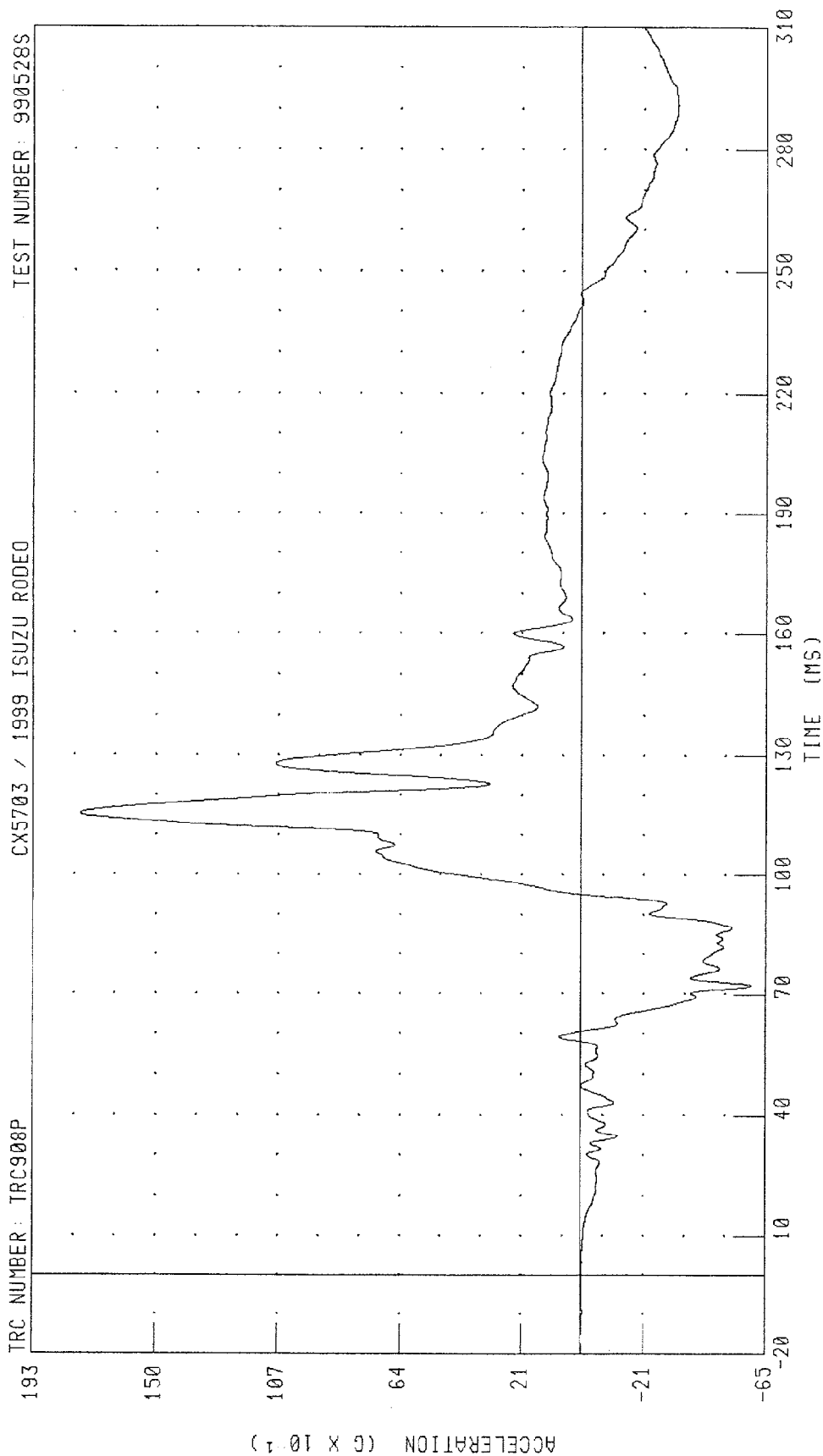
TRC NUMBER: TRC908P



PEAK DATA: 4.19 G @ 107.84 MS; -1.68 G @ 68.40 MS

CHANNEL: CSTYC1 FILTER: CH. CLASS 180

SLED ACCELERATION FMVSS 208 SLED TEST
 DRIVER CHEST Z-AXIS ACCELERATION
 CX5703 / 1999 ISUZU RODEO



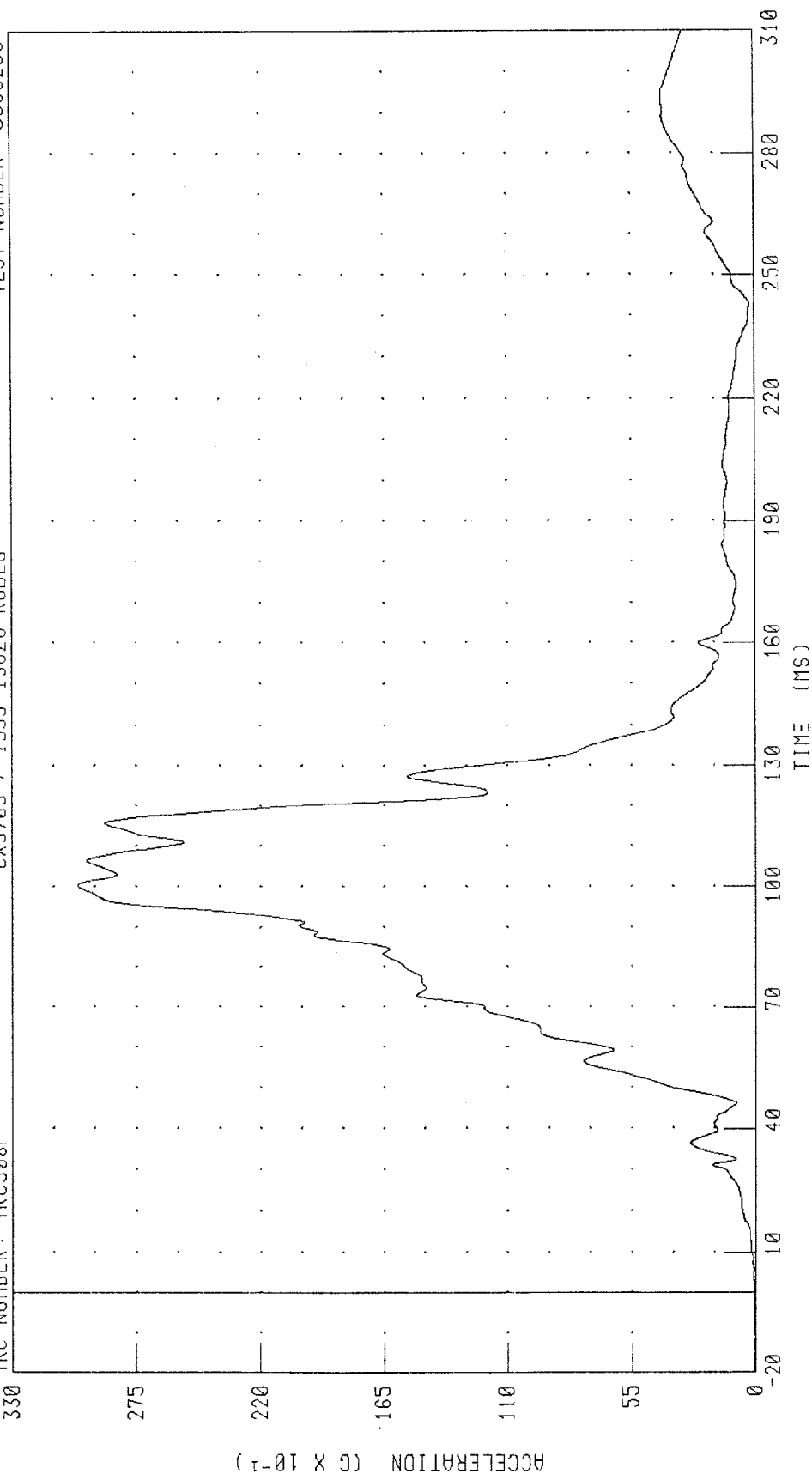
PEAK DATA: 17.65 G @ 115.52 MS, -5.98 G @ 72.16 MS

CHANNEL: CSTZG1 FILTER: CH. CLASS 180

SLED ACCELERATION FMVSS 208 SLED TEST
 DRIVER CHEST RESULTANT ACCELERATION
 CX5703 / 1999 ISUZU RODEO

TEST NUMBER: 990528S

TRC NUMBER: TRC908P



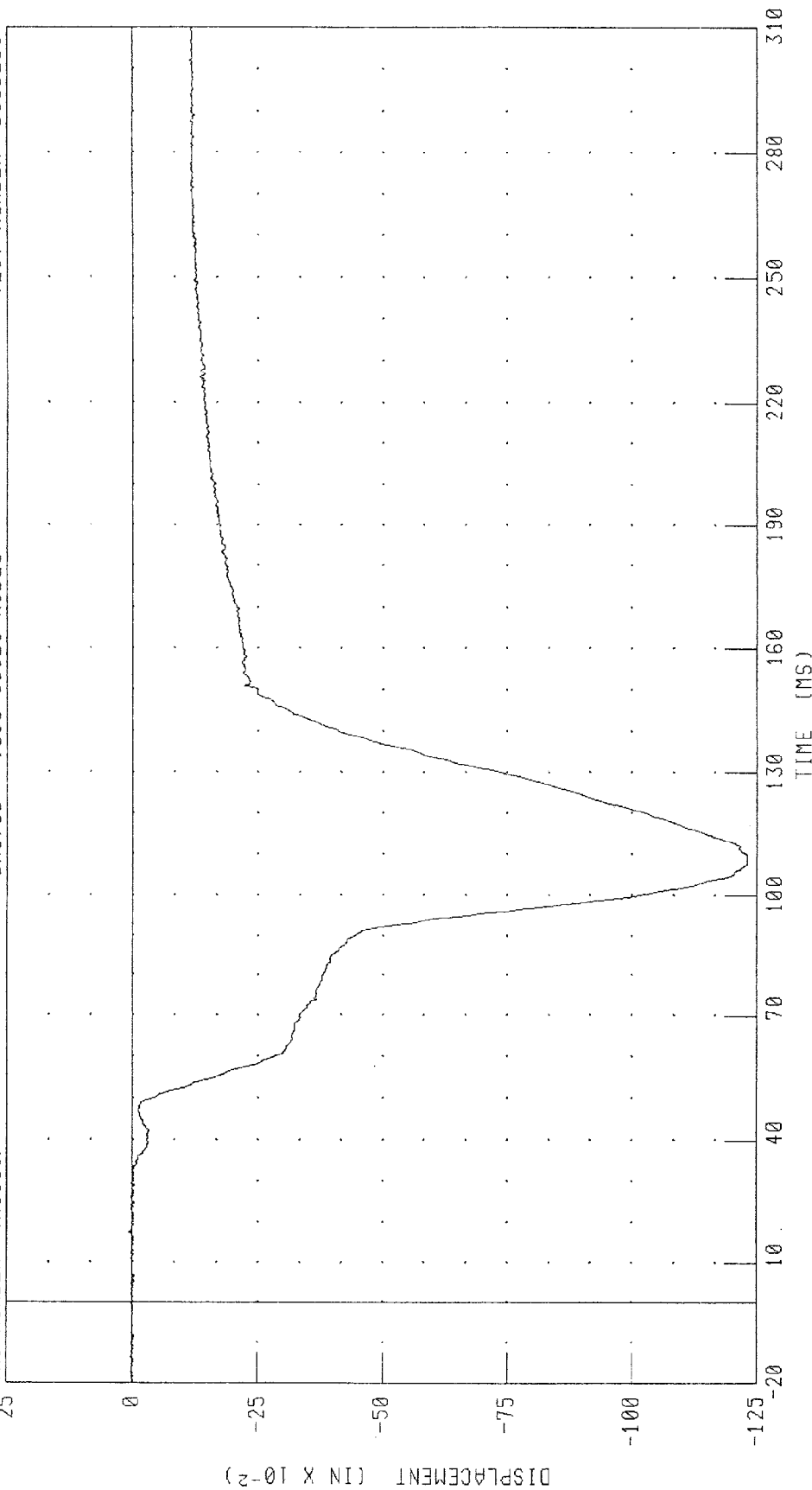
PEAK DATA: 30.09 G @ 100.32 MS; 0.01 G @ -11.12 MS

CHANNEL: CSTRG1 FILTER: CH. CLASS 180

SLED ACCELERATION FMVSS 208 SLED TEST
 DRIVER CHEST DEFLECTION
 CX5703 / 1999 ISUZU RODEO

TEST NUMBER: 990528S

TRC NUMBER: TRC908P



CHANNEL: CSTXD1 FILTER: CH. CLASS 600

PEAK DATA: 0.01 IN @ 17.36 MS; -1.23 IN @ 107.68 MS

SLED ACCELERATION FMVSS 208 SLED TEST

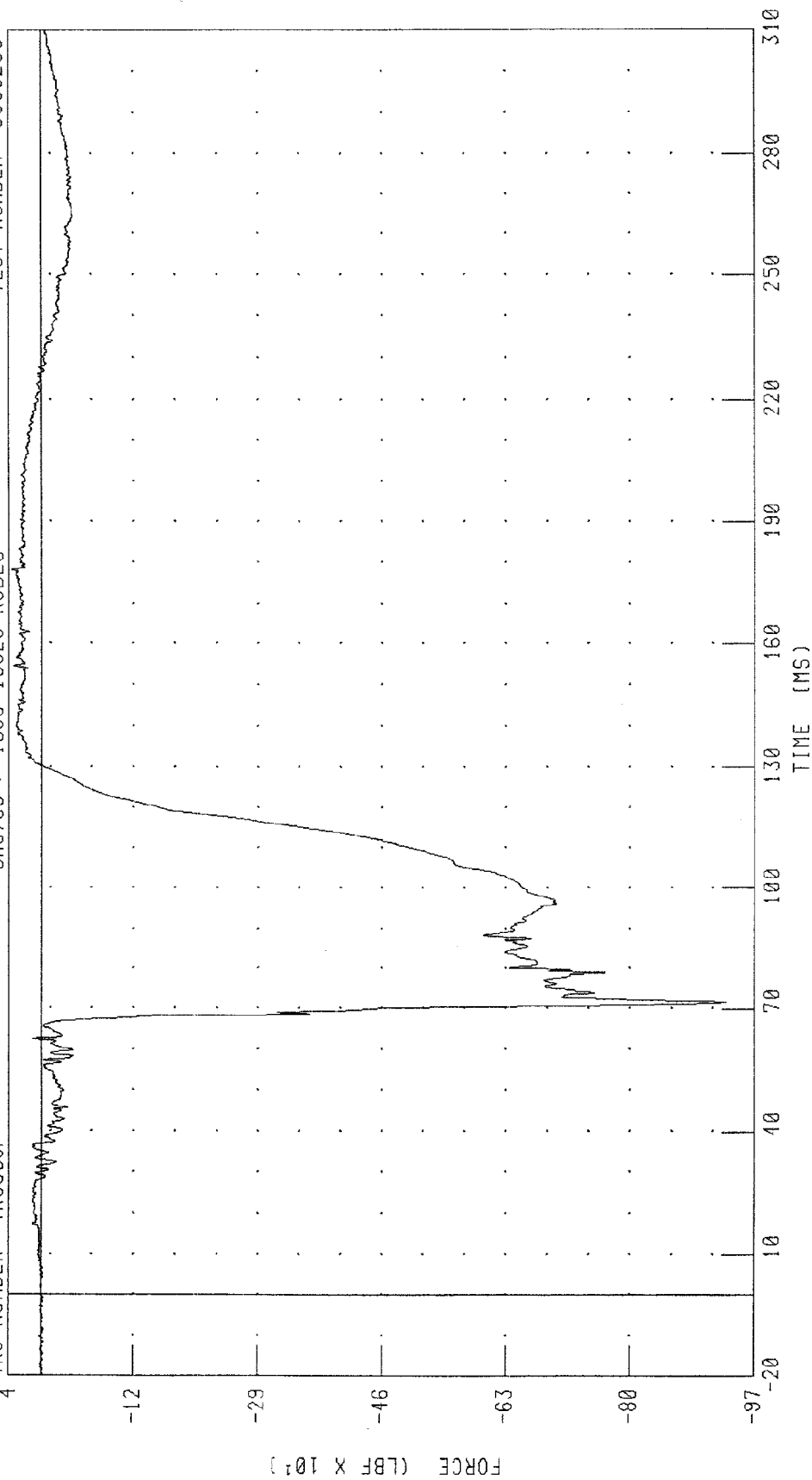
DRIVER LEFT FEMUR FORCE

CX5703 / 1999 ISUZU RODEO

TEST NUMBER: 990528S

TRC NUMBER: TRC908P

4



PEAK DATA: 41.48 LBF @ 178.16 MS; -936.55 LBF @ 71.68 MS

CHANNEL: LFMF1 FILTER: CH. CLASS 600

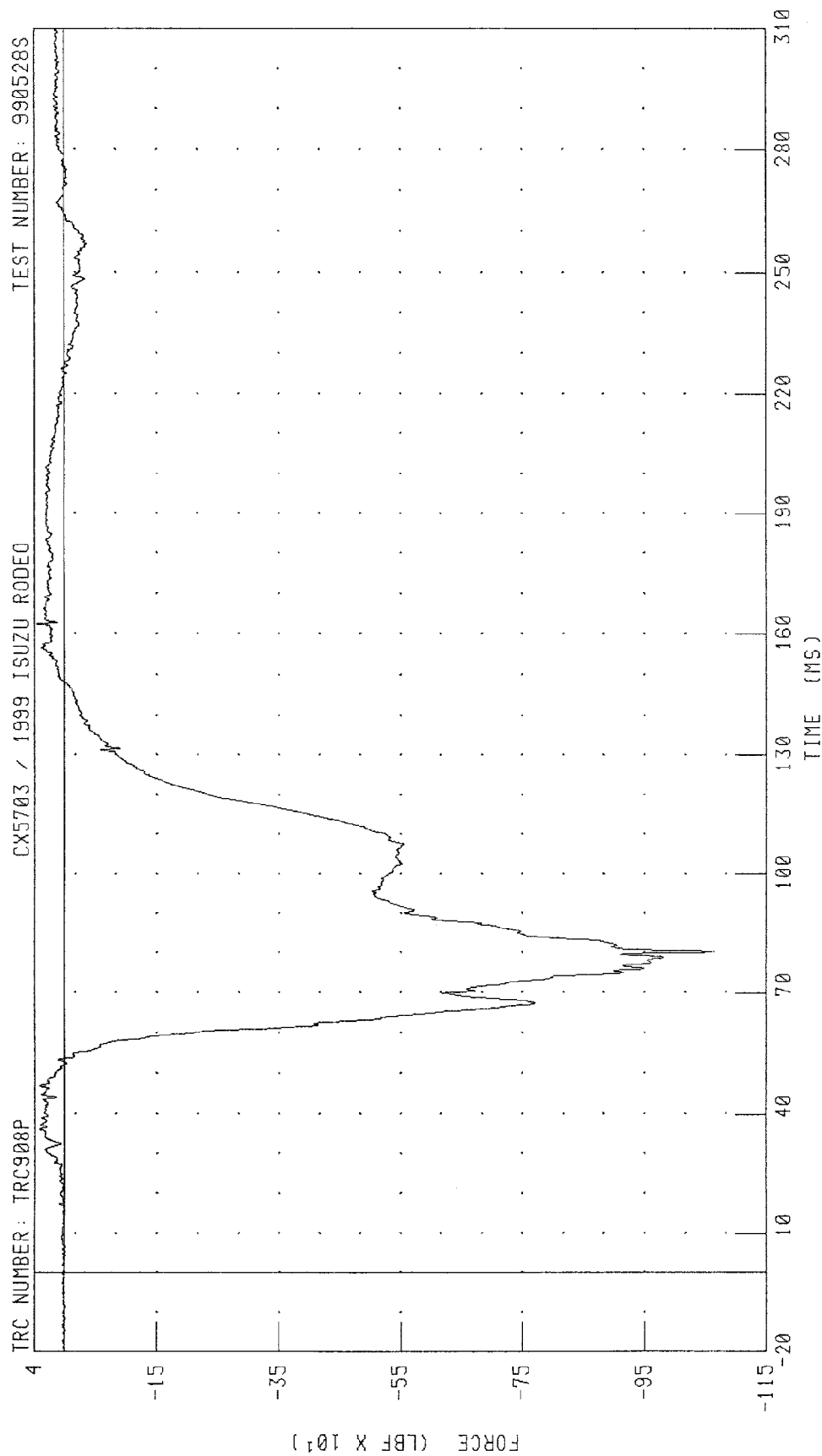
SLED ACCELERATION FMVSS 208 SLED TEST

DRIVER RIGHT FEMUR FORCE

CX5703 / 1999 ISUZU RODEO

TEST NUMBER: 990528S

TRC NUMBER: TRC908P



CHANNEL: RFMF1 FILTER: CH. CLASS 600

TIME (MS)

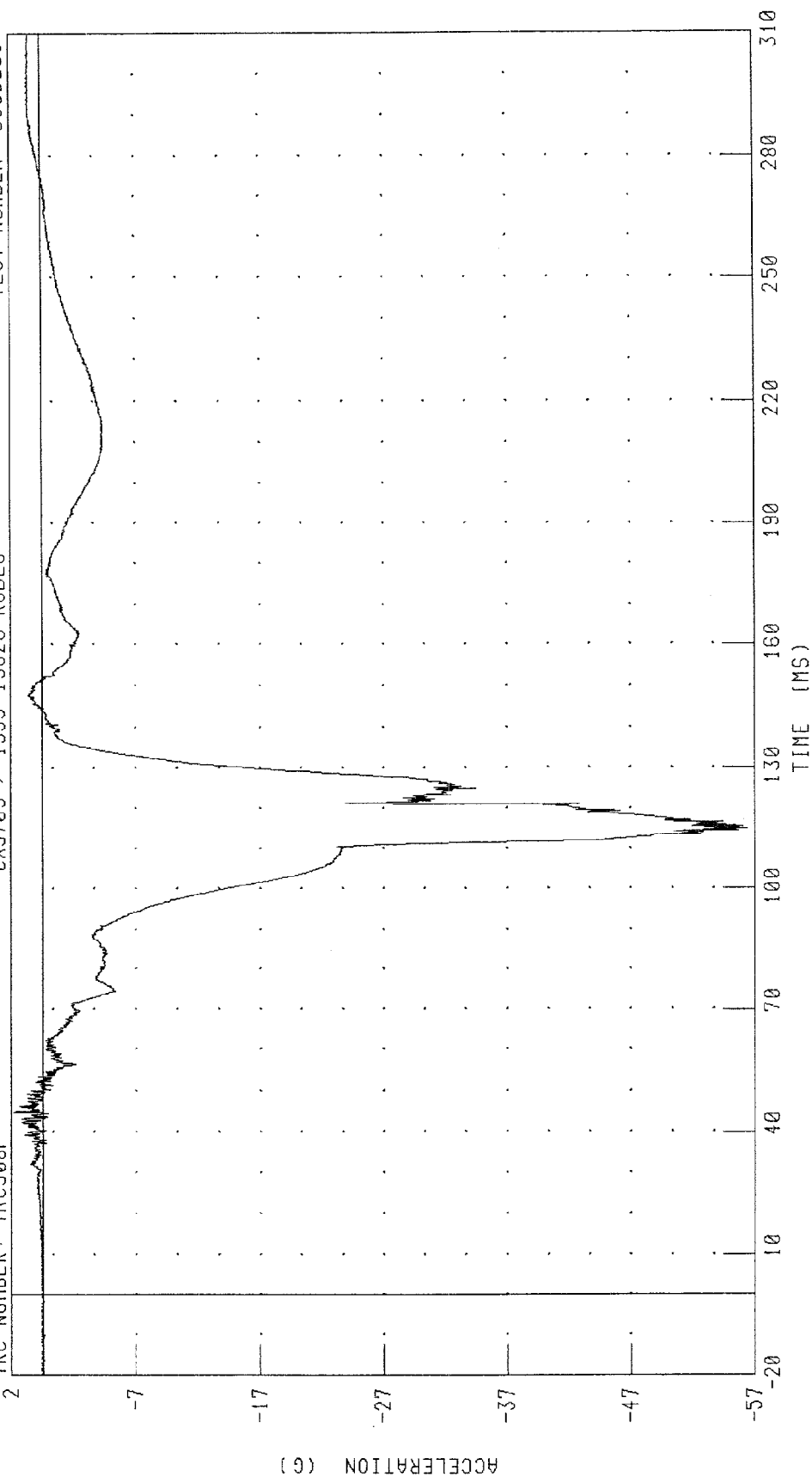
PEAK DATA: 44.21 LBF @ 162.48 MS; -1066.57 LBF @ 80.32 MS

SLED ACCELERATION FMVSS 208 SLED TEST
 RIGHT FRONT PASSENGER HEAD X-AXIS ACCELERATION

TEST NUMBER: 990528S

CX5703 / 1999 ISUZU RODEO

TRC NUMBER: TRC908P



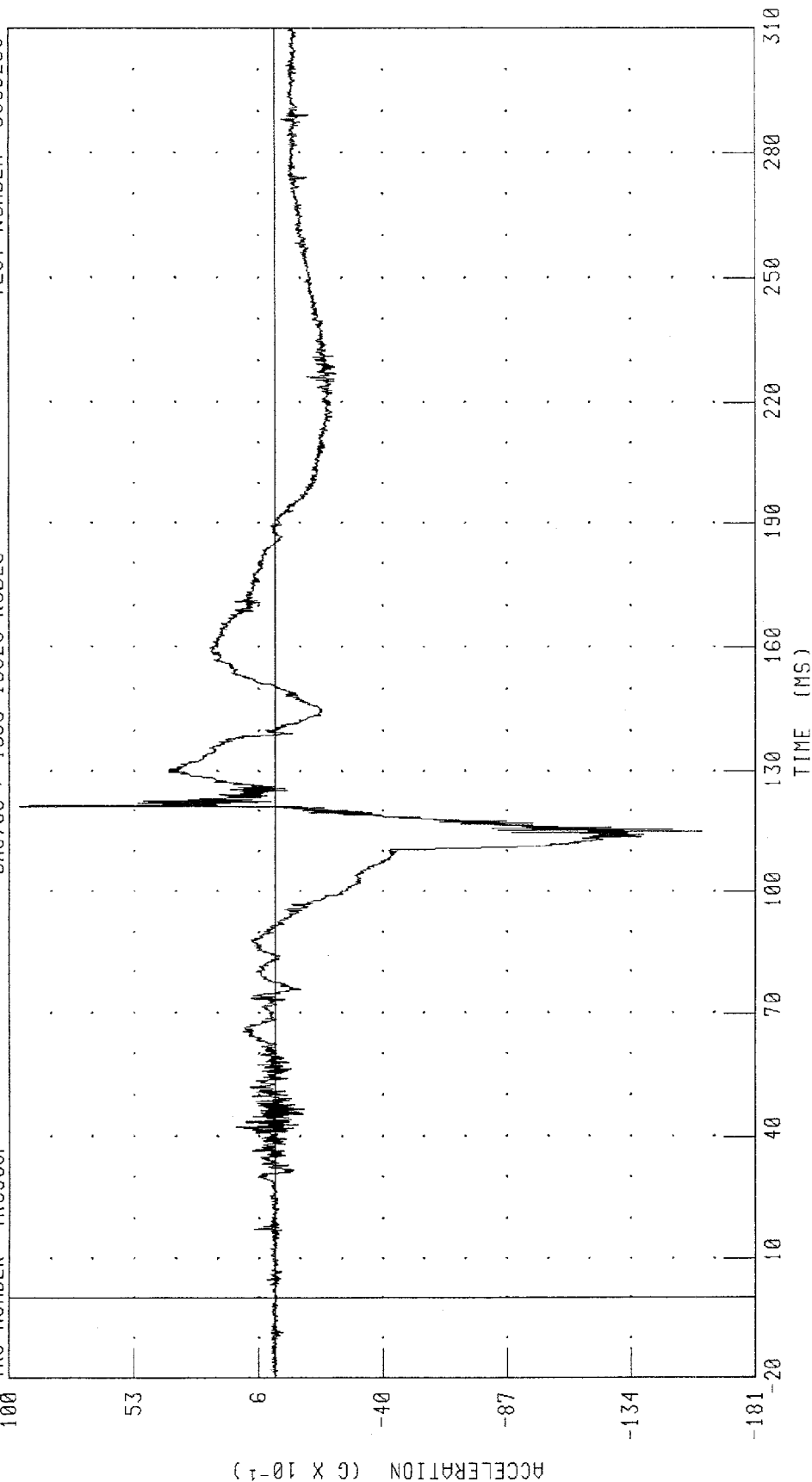
PEAK DATA: 2.35 G @ 44.80 MS, -56.93 G @ 115.04 MS

CHANNEL: HEDXC2 FILTER: CH. CLASS 1000

SLED ACCELERATION FMVSS 208 SLED TEST
 RIGHT FRONT PASSENGER HEAD Y-AXIS ACCELERATION
 CX5703 / 1999 ISUZU RODEO

TEST NUMBER: 990528S

TRC NUMBER: TRC908P



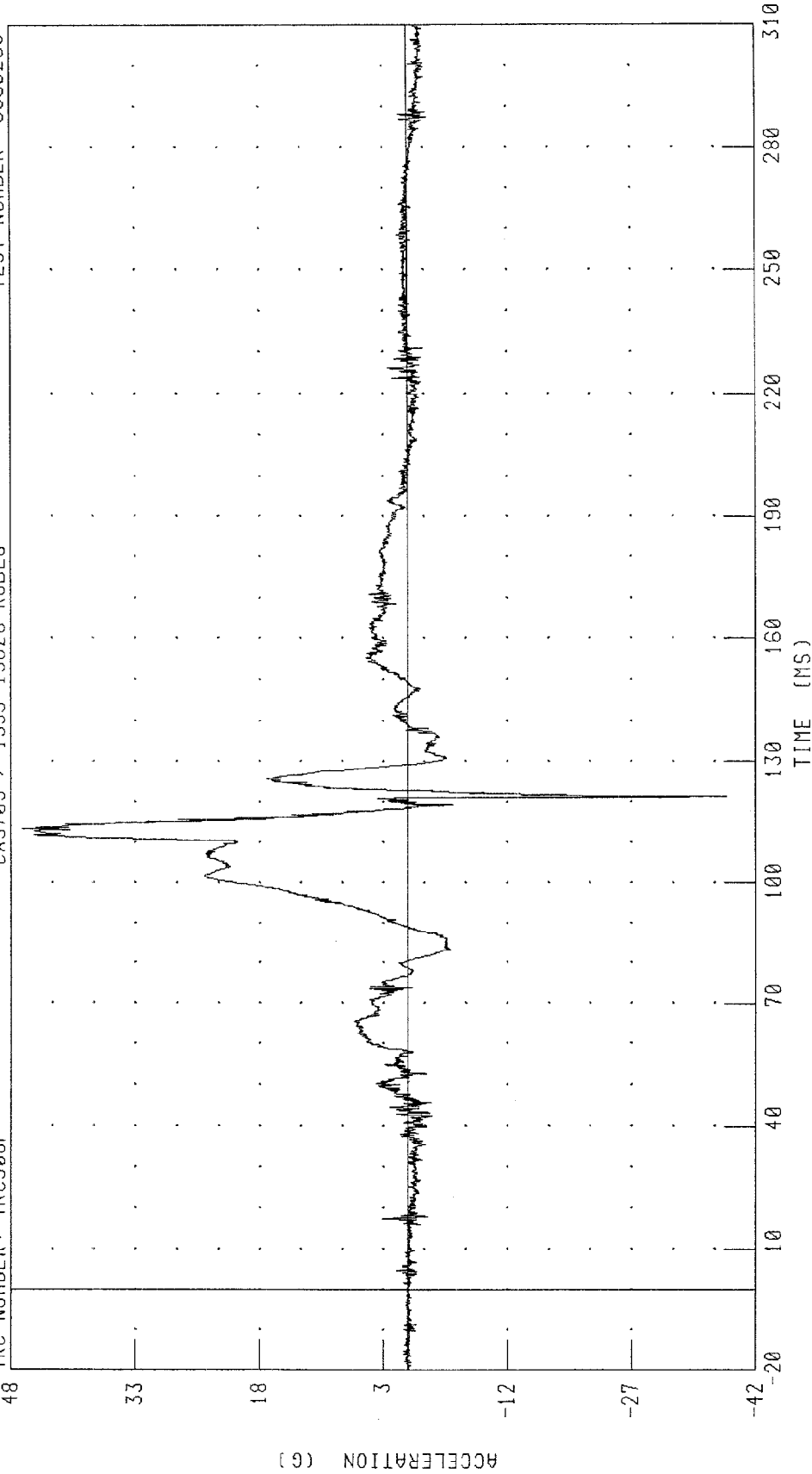
PEAK DATA: 9.63 G @ 121.28 MS; -16.17 G @ 115.12 MS

CHANNEL: HEDYG2 FILTER: CH. CLASS 1000

SLED ACCELERATION FMVSS 208 SLED TEST
 RIGHT FRONT PASSENGER HEAD Z-AXIS ACCELERATION
 CX5703 / 1999 ISUZU RODEO

TEST NUMBER: 990528S

TRC NUMBER: TRC908P

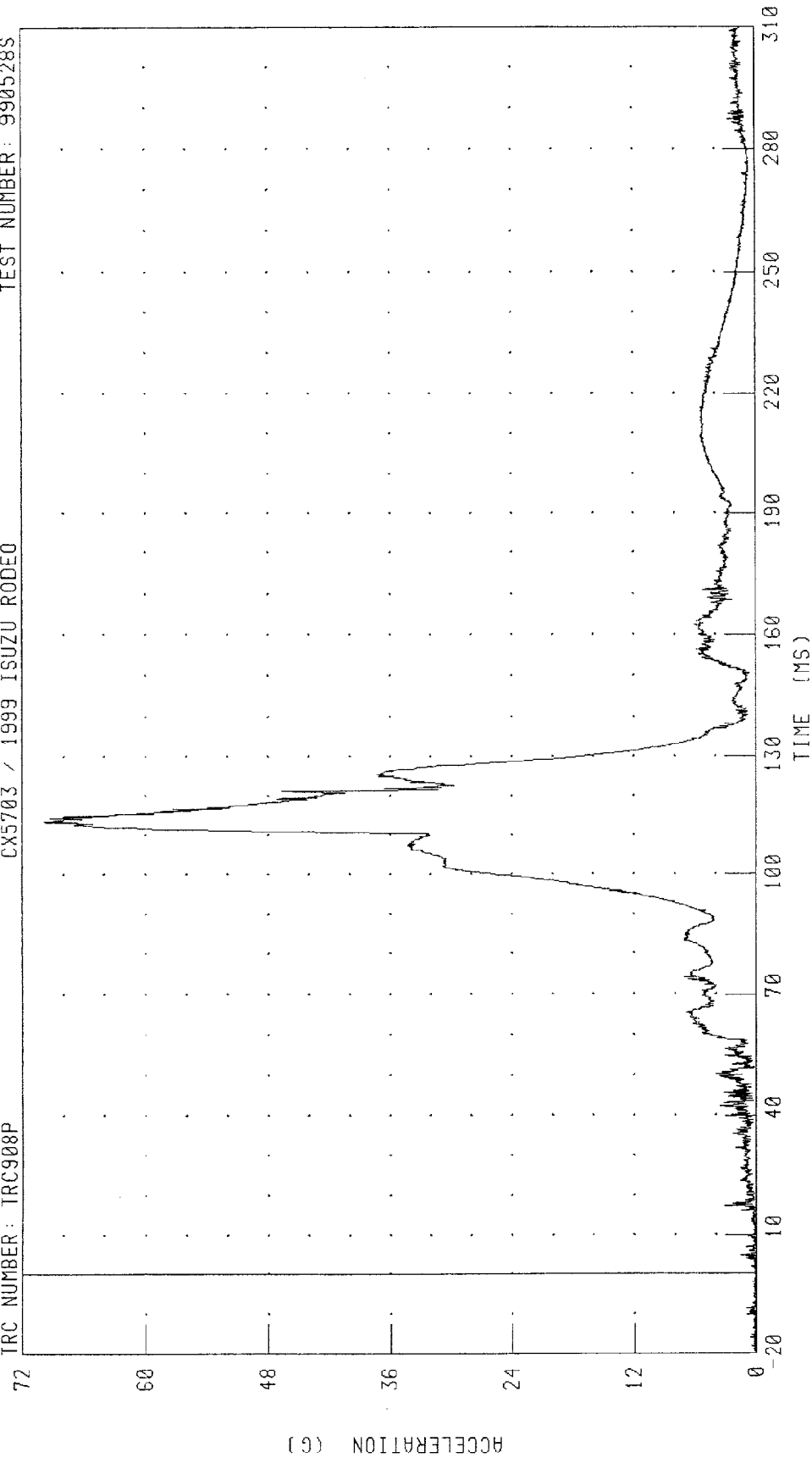


CHANNEL: HEDZG2 FILTER: CH. CLASS 1000

SLED ACCELERATION FMVSS 208 SLED TEST
RIGHT FRONT PASSENGER HEAD RESULTANT ACCELERATION
CX5703 / 1999 ISUZU RODEO

TEST NUMBER: 990528S

TRC NUMBER: TRC908P



PEAK DATA: 69.87 G @ 113.76 MS; 0.02 G @ -19.76 MS

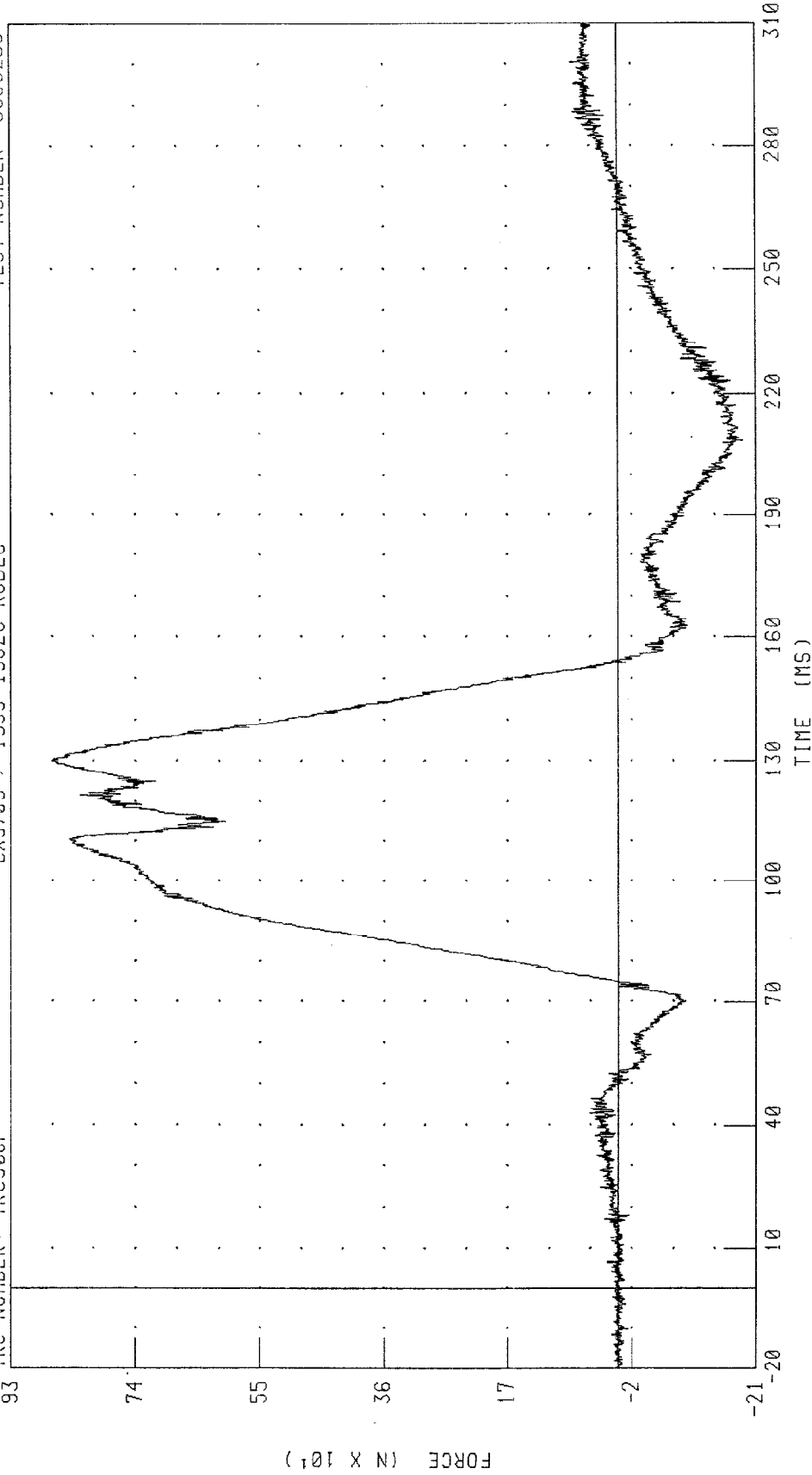
FILTER: CH. CLASS 1000

CHANNEL: HEDRC2

SLED ACCELERATION FMVSS 208 SLED TEST
 RIGHT FRONT PASSENGER NECK X-AXIS SHEAR FORCE
 CX5703 / 1999 ISUZU RODEO

TEST NUMBER: 990528S

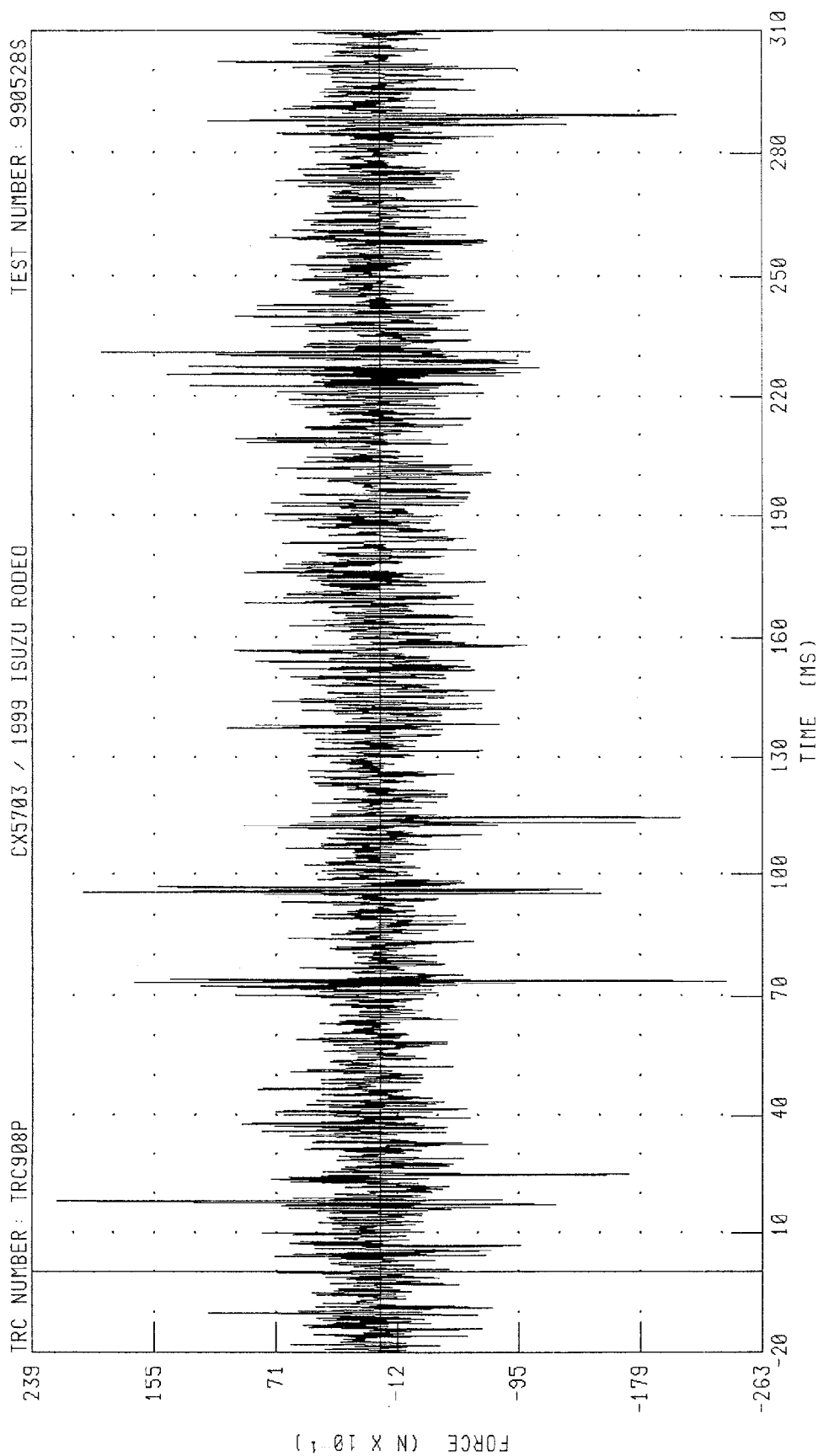
TRC NUMBER: TRC908P



PEAK DATA: 866.22 N @ 130.16 MS, -190.94 N @ 208.56 MS

CHANNEL: NEKXF2 FILTER: CH. CLASS 1000

SLED ACCELERATION FMVSS 208 SLED TEST
 RIGHT FRONT PASSENGER NECK Y-AXIS SHEAR FORCE
 CX5703 / 1999 ISUZU RODEO



PEAK DATA: 22.32 N @ 18.00 MS; -23.89 N @ 73.76 MS

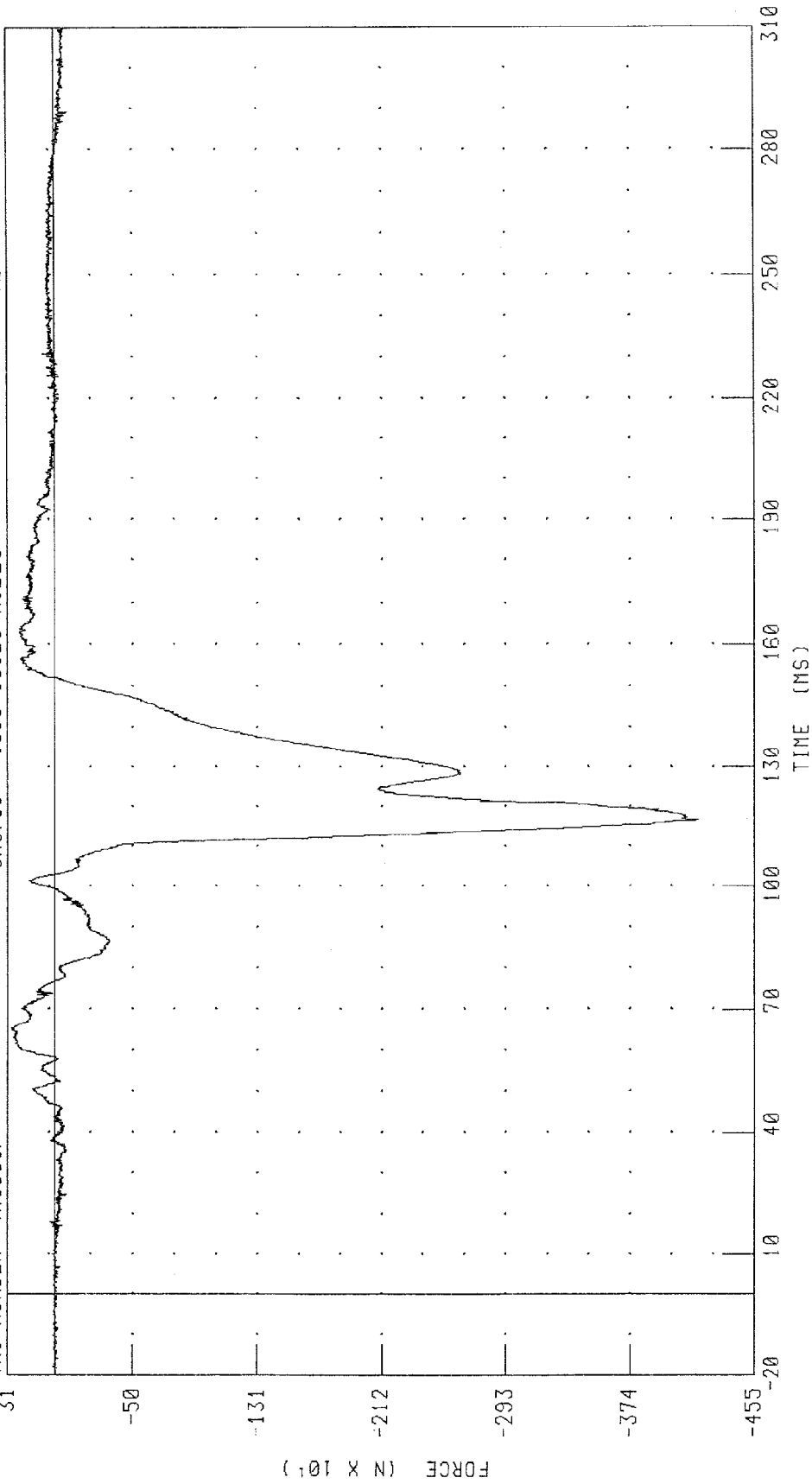
CHANNEL: NEKYF2 FILTER: CH. CLASS 1000

SLED ACCELERATION FMVSS 208 SLED TEST
 RIGHT FRONT PASSENGER NECK Z-AXIS AXIAL FORCE
 CX5703 / 1999 ISUZU RODEO

TEST NUMBER: 990528S

TRC NUMBER: TRC908P

31



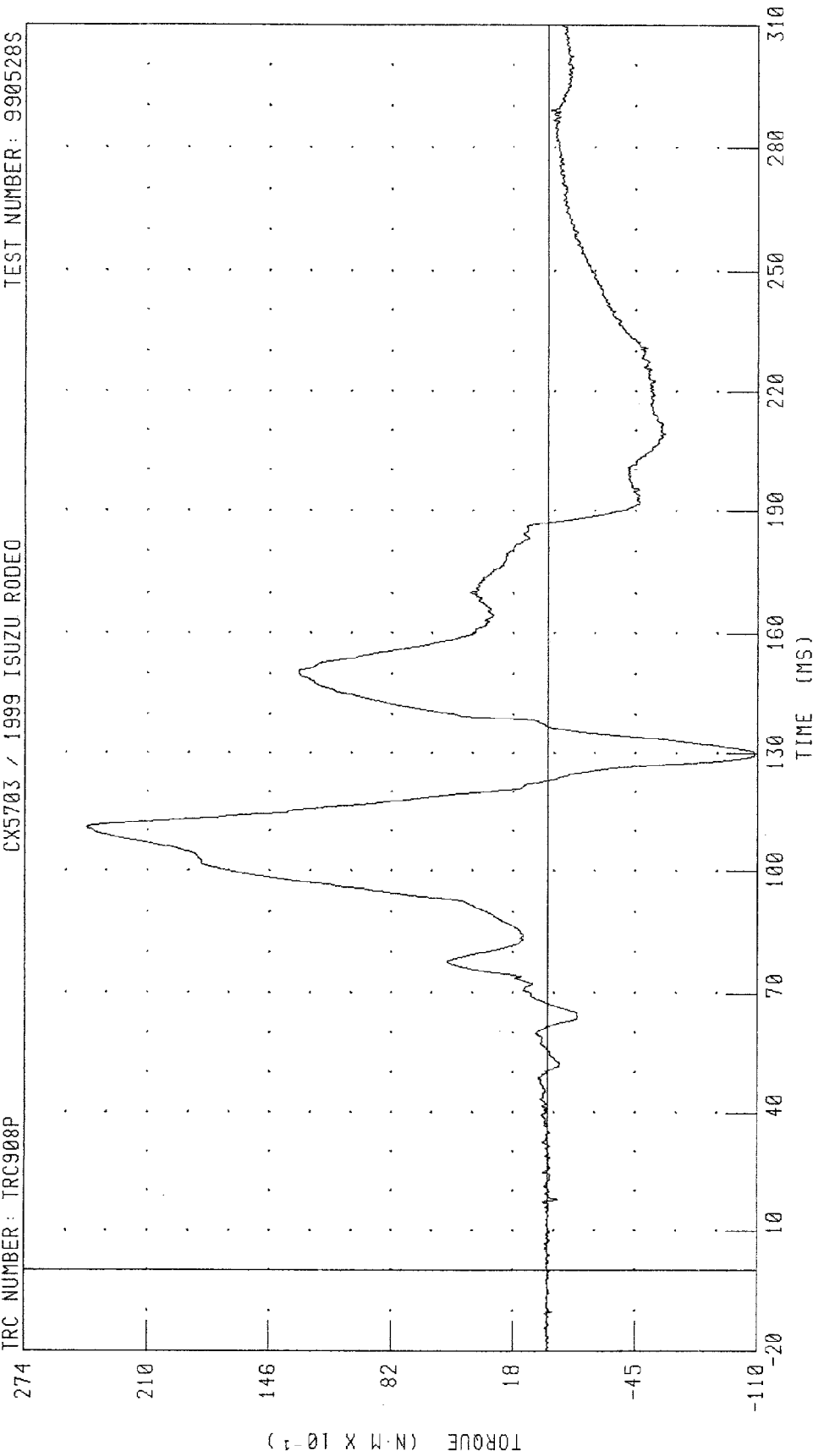
PEAK DATA: 284.20 N @ 65.60 MS, -4181.49 N @ 116.80 MS

CHANNEL: NEKZF2 FILTER: CH. CLASS 1000

SLED ACCELERATION FMVSS 208 SLED TEST
 RIGHT FRONT PASSENGER NECK MOMENT ABOUT X AXIS
 CX5703 / 1999 ISUZU RODEO

TEST NUMBER: 990528S

TRC NUMBER: TRC908P



PEAK DATA: 24.14 N-M @ 110.96 MS; -10.84 N-M @ 129.92 MS

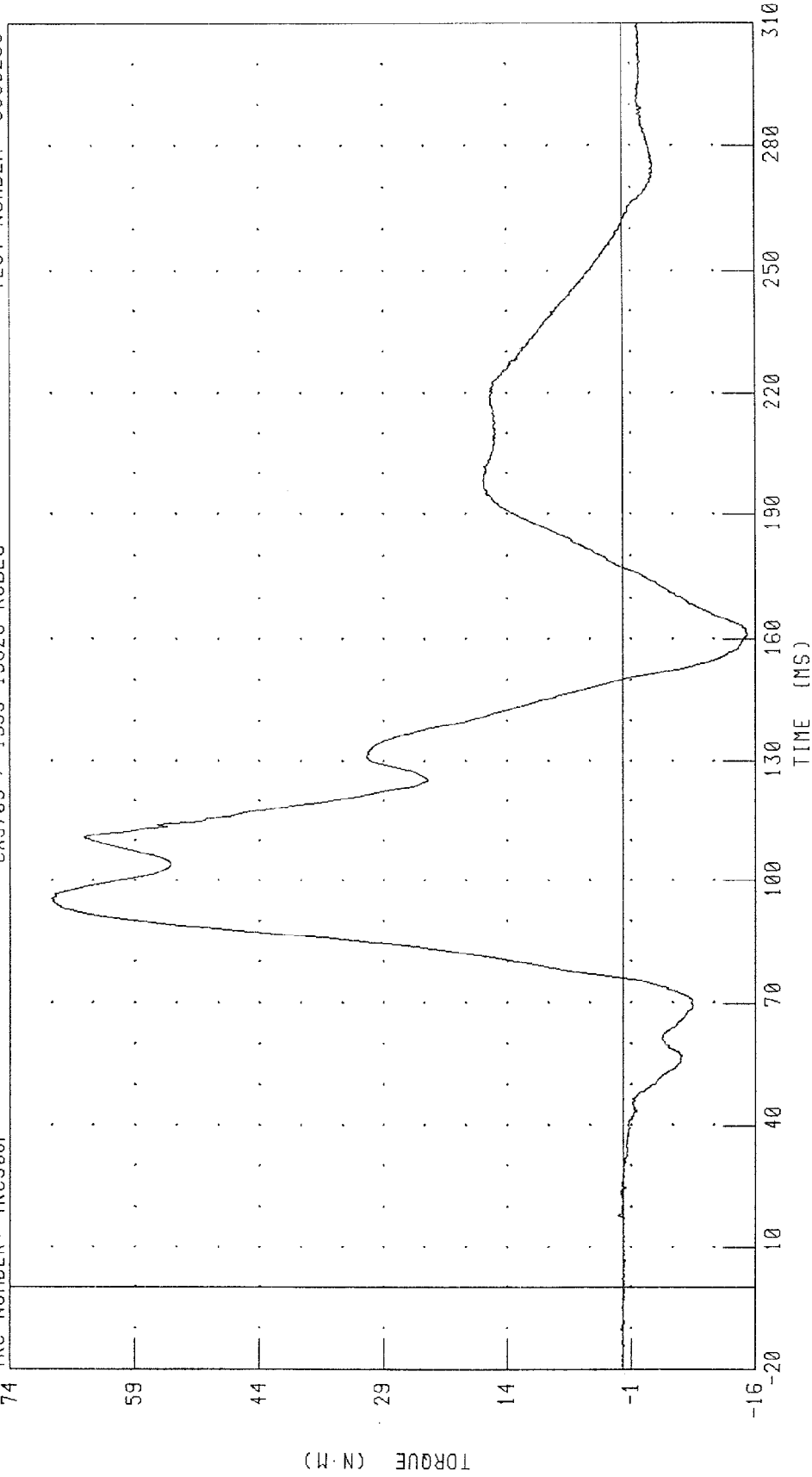
CHANNEL: NEKXN2 FILTER: CH. CLASS 600

SLED ACCELERATION FMVSS 208 SLED TEST
 RIGHT FRONT PASSENGER NECK MOMENT ABOUT Y AXIS

TEST NUMBER: 990528S

CX5703 / 1999 ISUZU RODEO

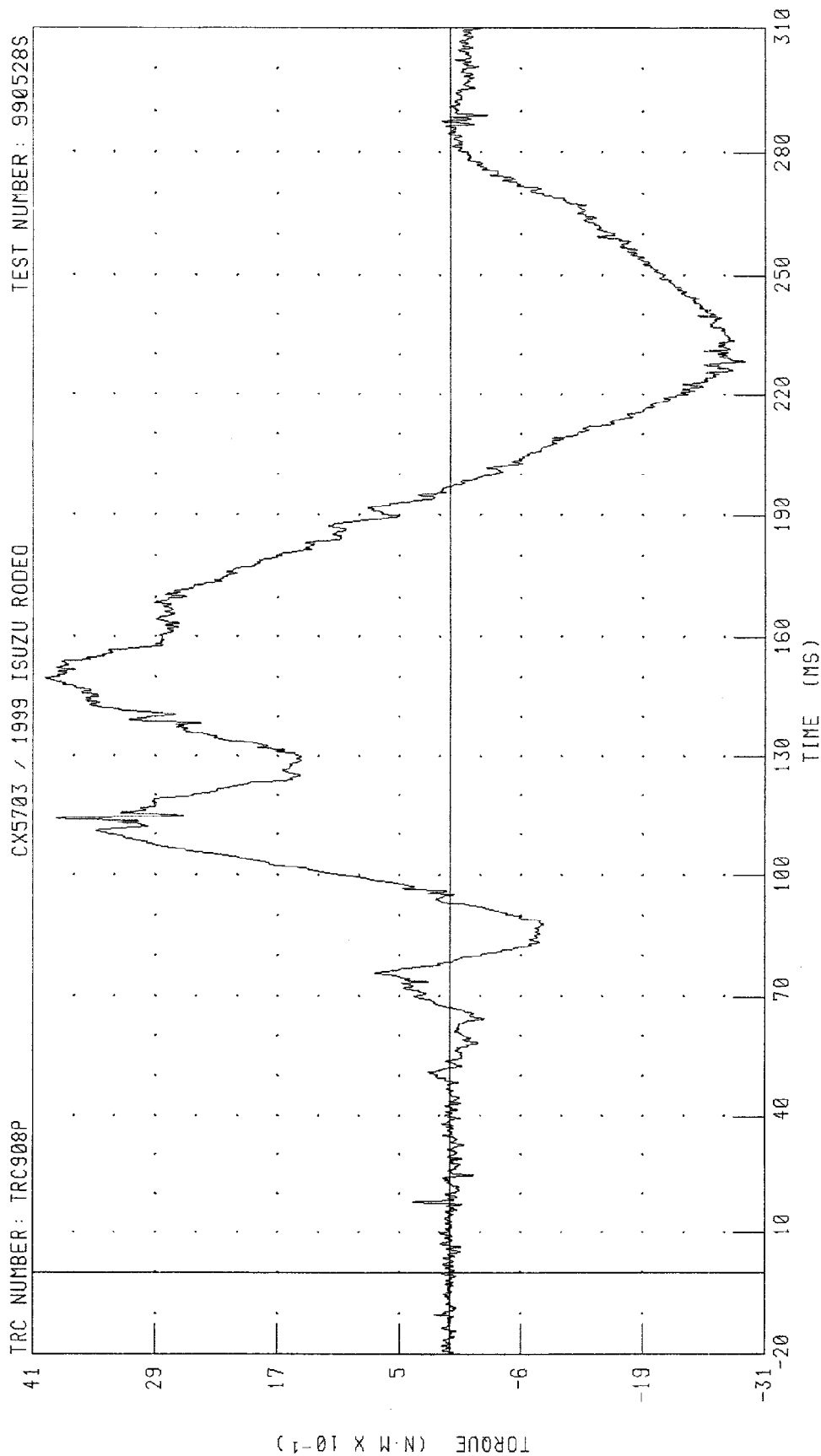
TRC NUMBER: TRC908P



PEAK DATA: 69.08 N-M @ 95.60 MS, -15.05 N-M @ 161.28 MS

CHANNEL: NEKYM2 FILTER: CH. CLASS 600

SLED ACCELERATION FMVSS 208 SLED TEST
RIGHT FRONT PASSENGER NECK MOMENT ABOUT Z AXIS



PEAK DATA: 3.98 N-M @ 149.84 MS, -2.90 N-M @ 228.48 MS

CHANNEL: NEKZM2 FILTER: CH. CLASS 600

SLED ACCELERATION FMVSS 208 SLED TEST
 RIGHT FRONT PASSENGER NECK OCCIPITAL CONDYLE ABOUT Y AXIS

TEST NUMBER: 990528S

CX5703 / 1999 ISUZU RODEO

TRC NUMBER: TRC908P

58

46

34

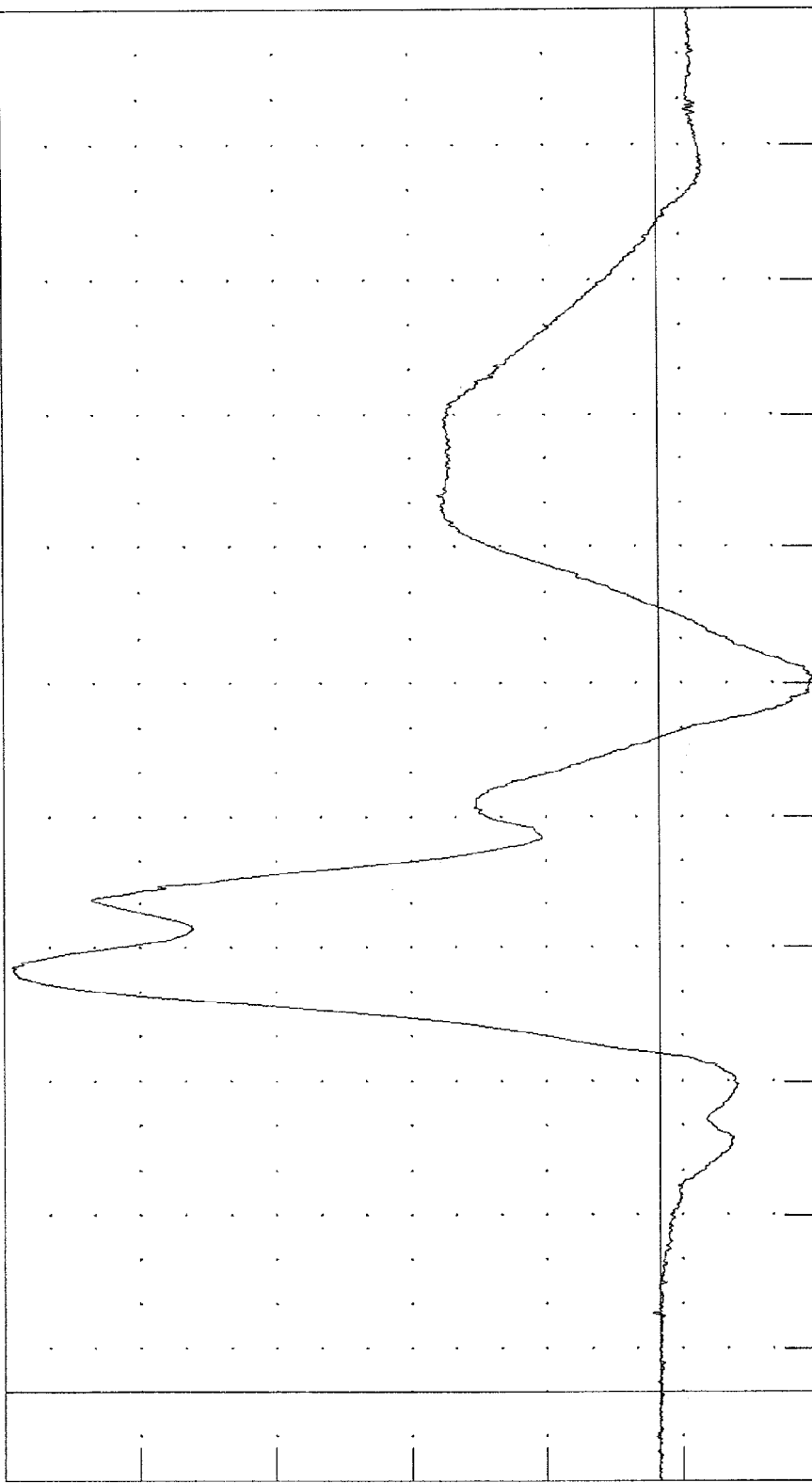
22

10

-2

-14

TORQUE (N·M)



TIME (MS)

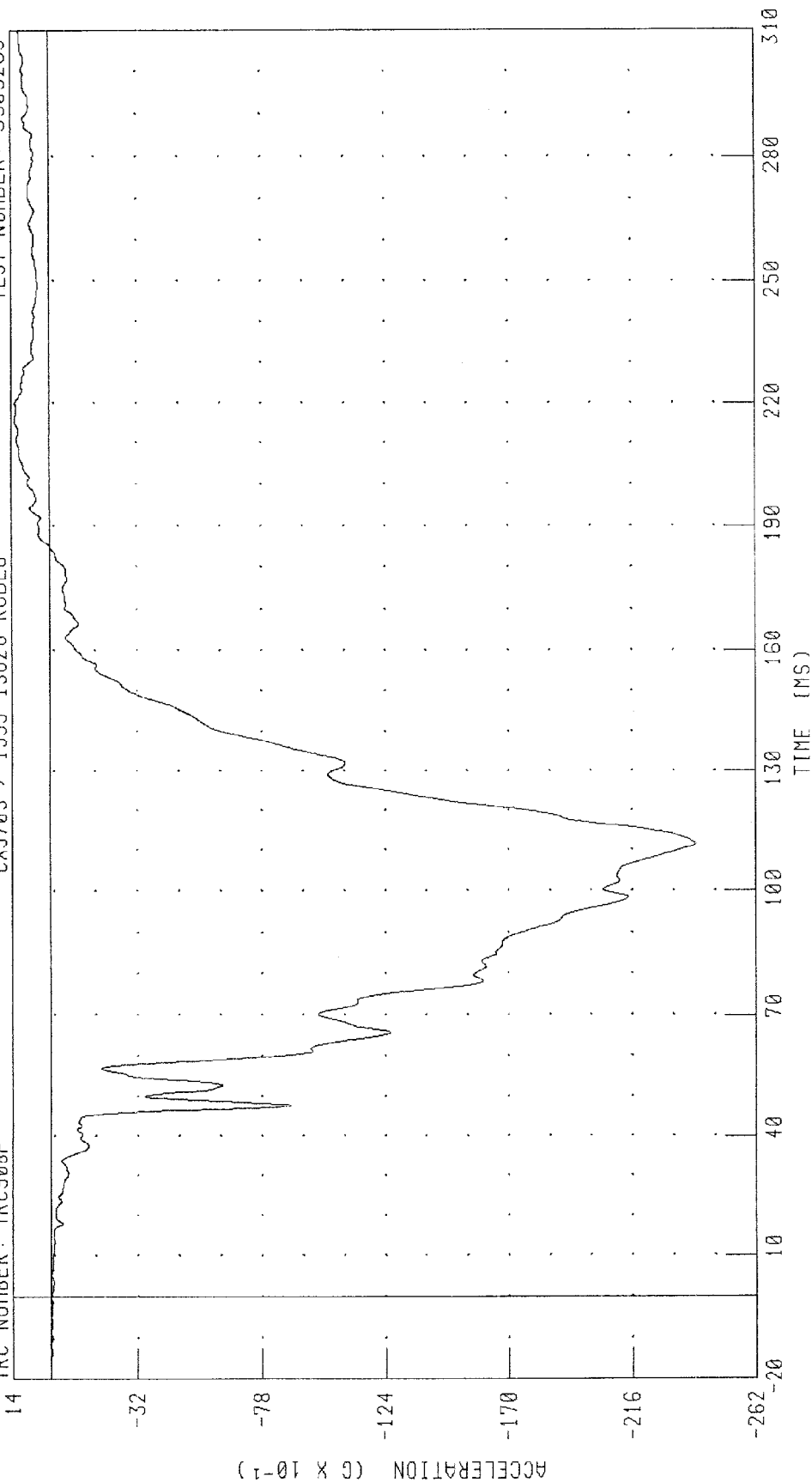
PEAK DATA: 57.34 N·M @ 95.52 MS, -13.56 N·M @ 161.20 MS

CHANNEL: NEKOM2 FILTER: CH. CLASS 600

SLED ACCELERATION FMVSS 208 SLED TEST
 RIGHT FRONT PASSENGER CHEST X-AXIS ACCELERATION
 CX5703 / 1999 ISUZU RODEO

TEST NUMBER: 990528S

TRC NUMBER: TRC908P



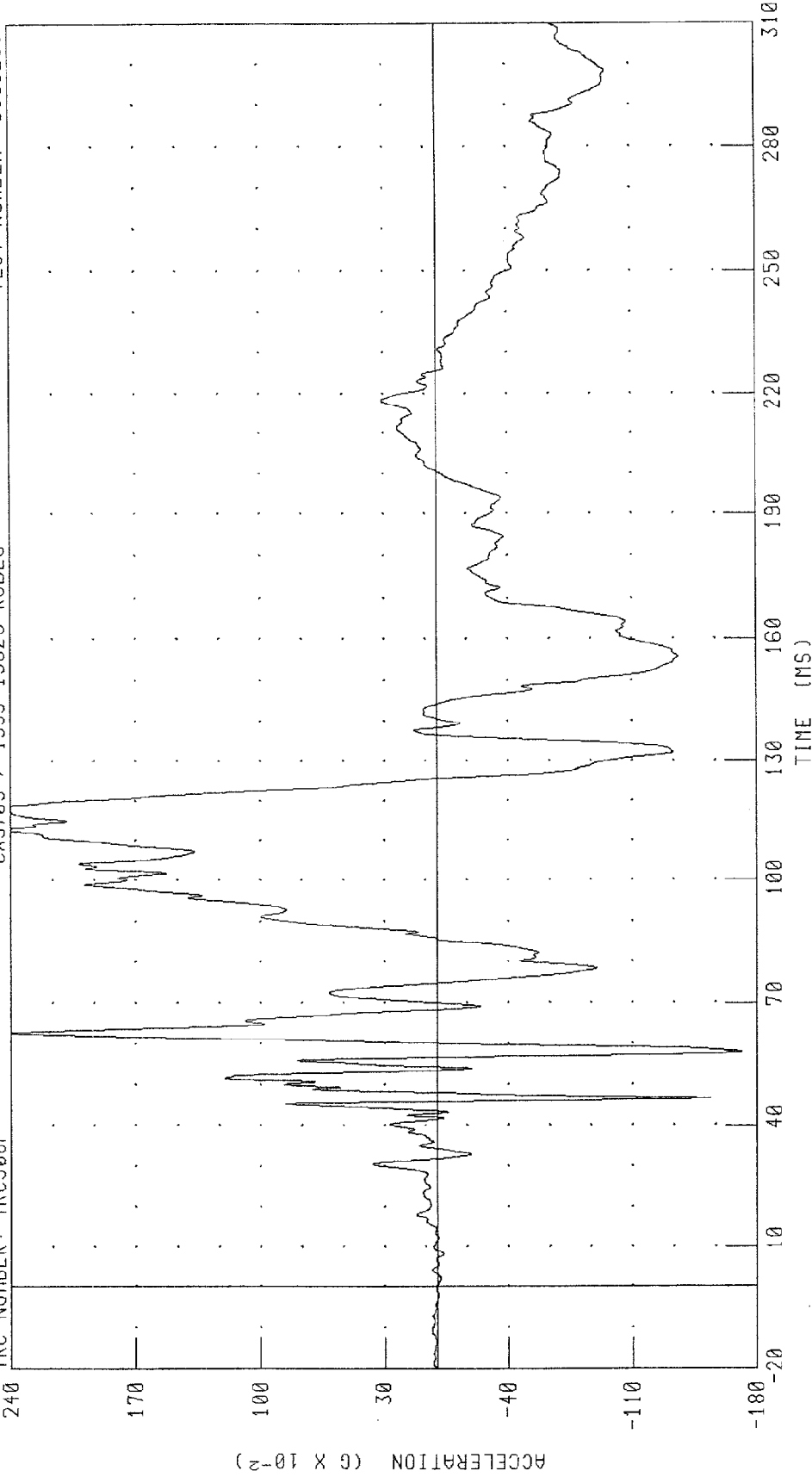
PEAK DATA: 1.29 G @ 216.40 MS; -23.99 G @ 111.60 MS

CHANNEL: CSTXC2 FILTER: CH. CLASS 180

SLED ACCELERATION FMVSS 208 SLED TEST
 RIGHT FRONT PASSENGER CHEST Y-AXIS ACCELERATION
 CX5703 / 1999 ISUZU RODEO

TEST NUMBER: 990528S

TRC NUMBER: TRC908P



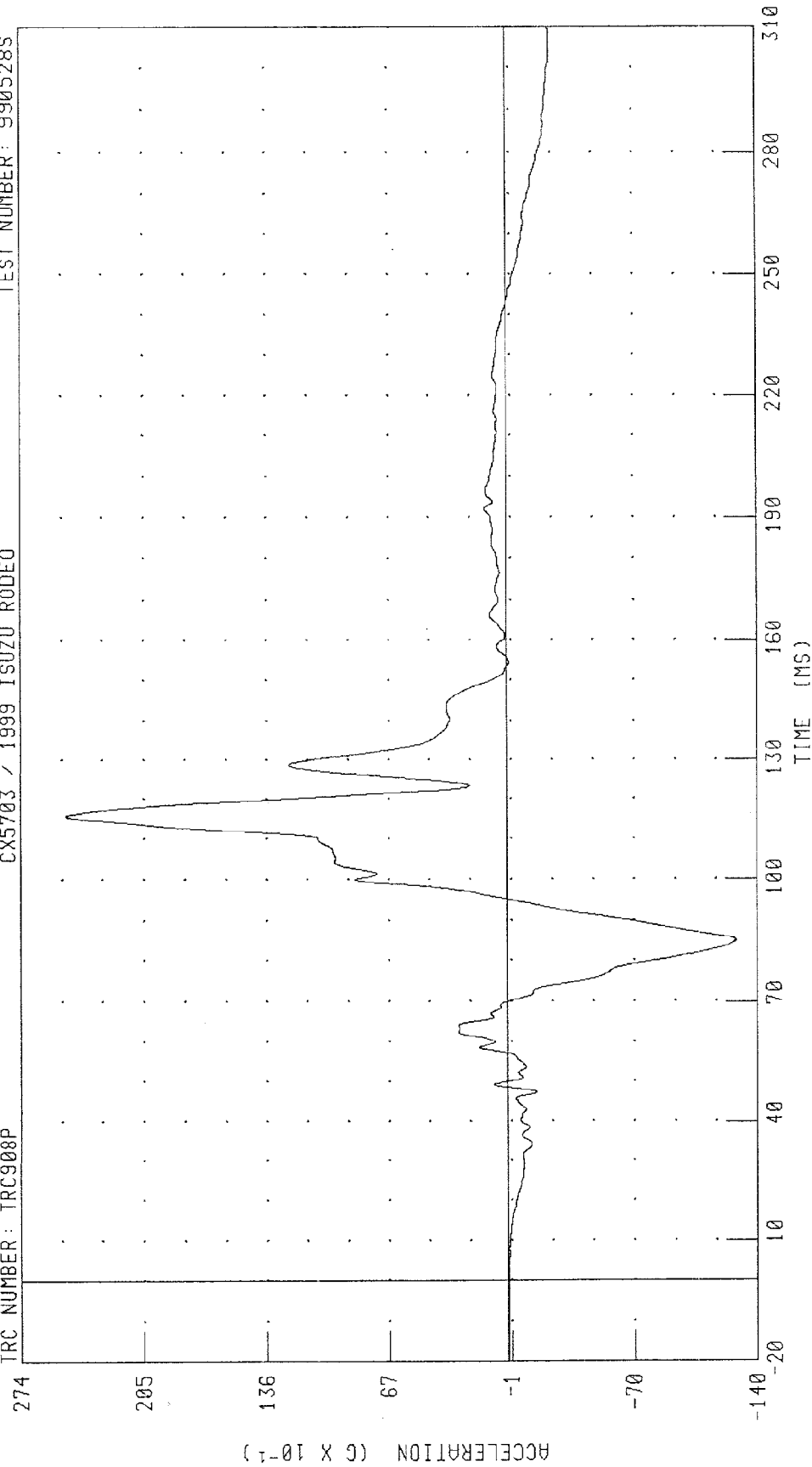
PEAK DATA: 2.56 G @ 118.32 MS, -1.72 G @ 57.84 MS

CHANNEL: CSTYG2 FILTER: CH. CLASS 180

SLED ACCELERATION FMVSS 208 SLED TEST
 RIGHT FRONT PASSENGER CHEST Z-AXIS ACCELERATION
 CX5703 / 1999 ISUZU RODEO

TEST NUMBER: 990528S

TRC NUMBER: TRC908P



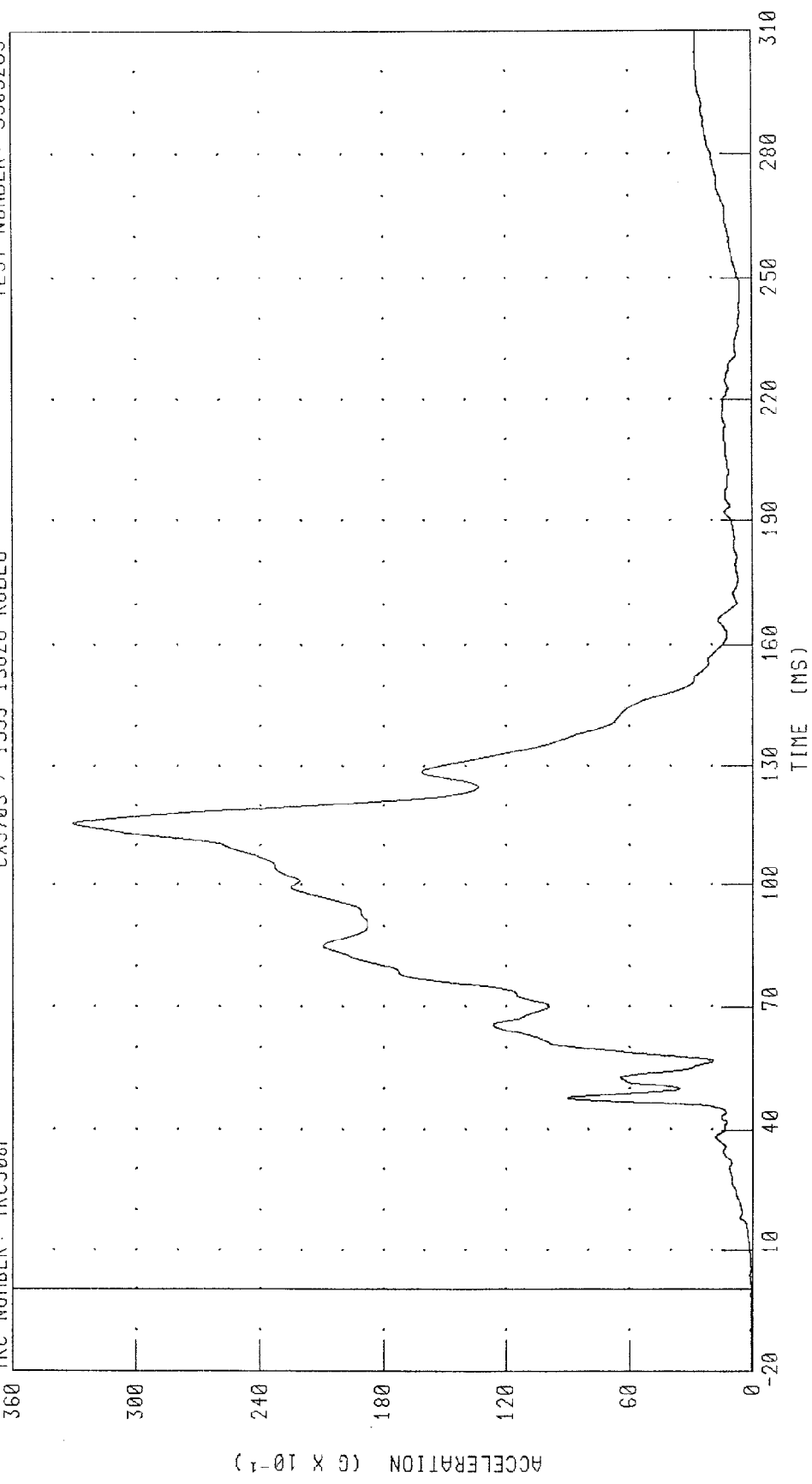
PEAK DATA: 24.84 G @ 115.92 MS; -12.83 G @ 128.83 MS

CHANNEL: CST7C2 FILTER: CH. CLASS 180

SLED ACCELERATION FMVSS 208 SLED TEST
 RIGHT FRONT PASSENGER CHEST RESULTANT ACCELERATION
 CX5703 / 1999 ISUZU RODEO

TEST NUMBER: 990528S

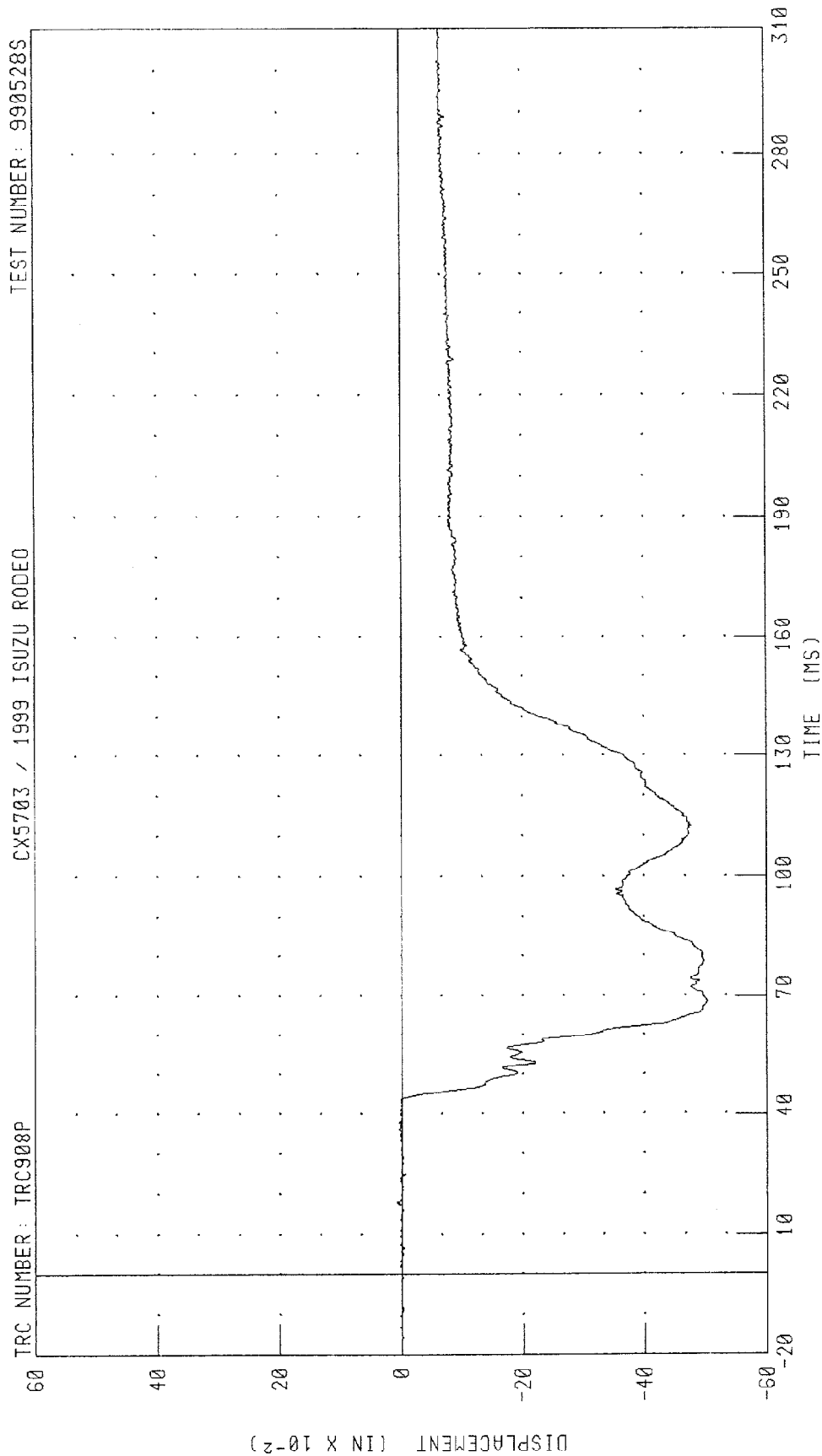
TRC NUMBER: TRC908P



PEAK DATA: 33.09 G @ 115.68 MS, 0.03 G @ -20.00 MS

CHANNEL: CSTRC2 FILTER: CH. CLASS 180

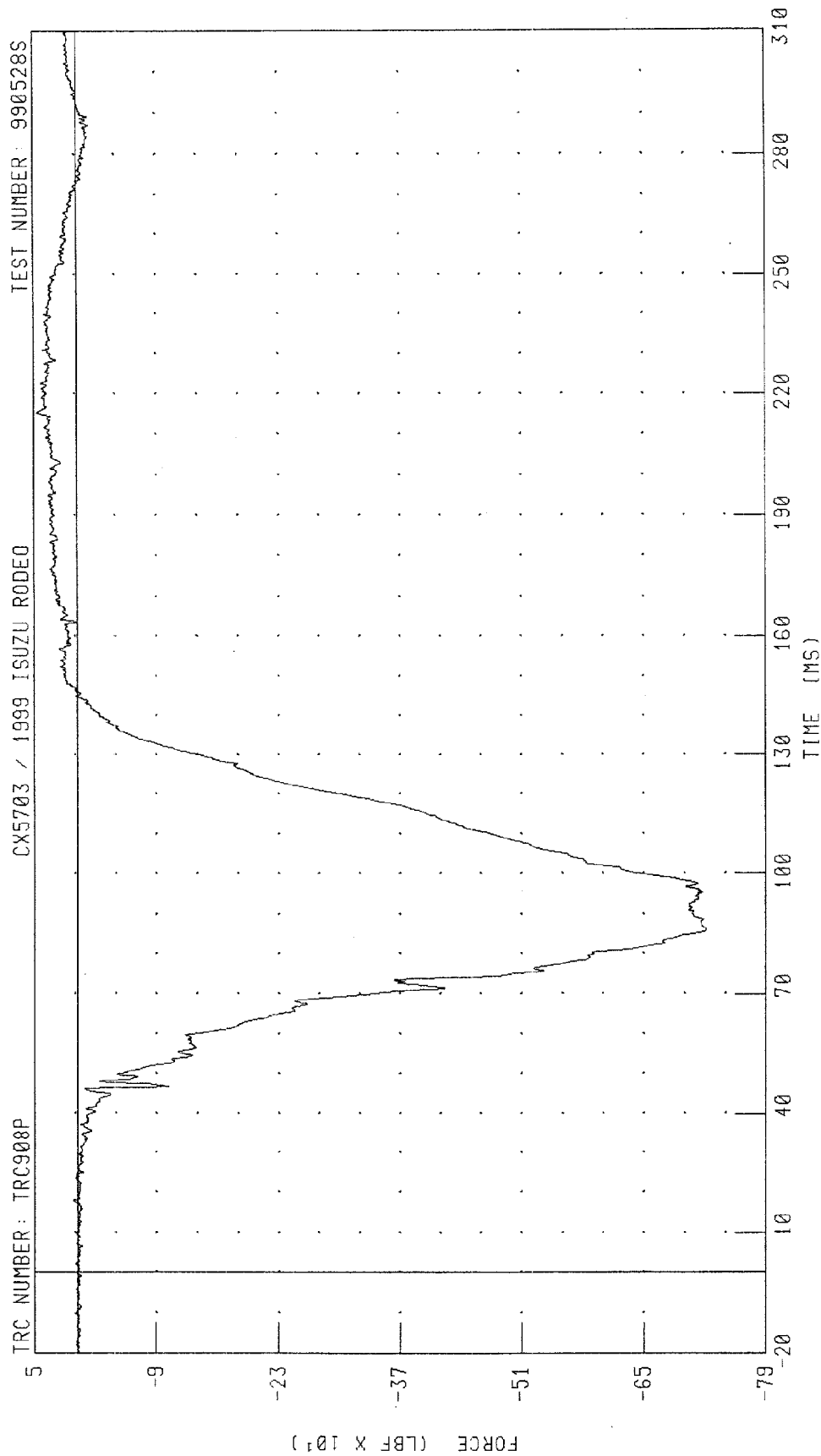
SLED ACCELERATION FMVSS 208 SLED TEST
 RIGHT FRONT PASSENGER CHEST DEFLECTION
 CX5703 / 1999 ISUZU RODEO



PEAK DATA: 0.01 IN @ 17.92 MS; -0.50 IN @ 68.72 MS

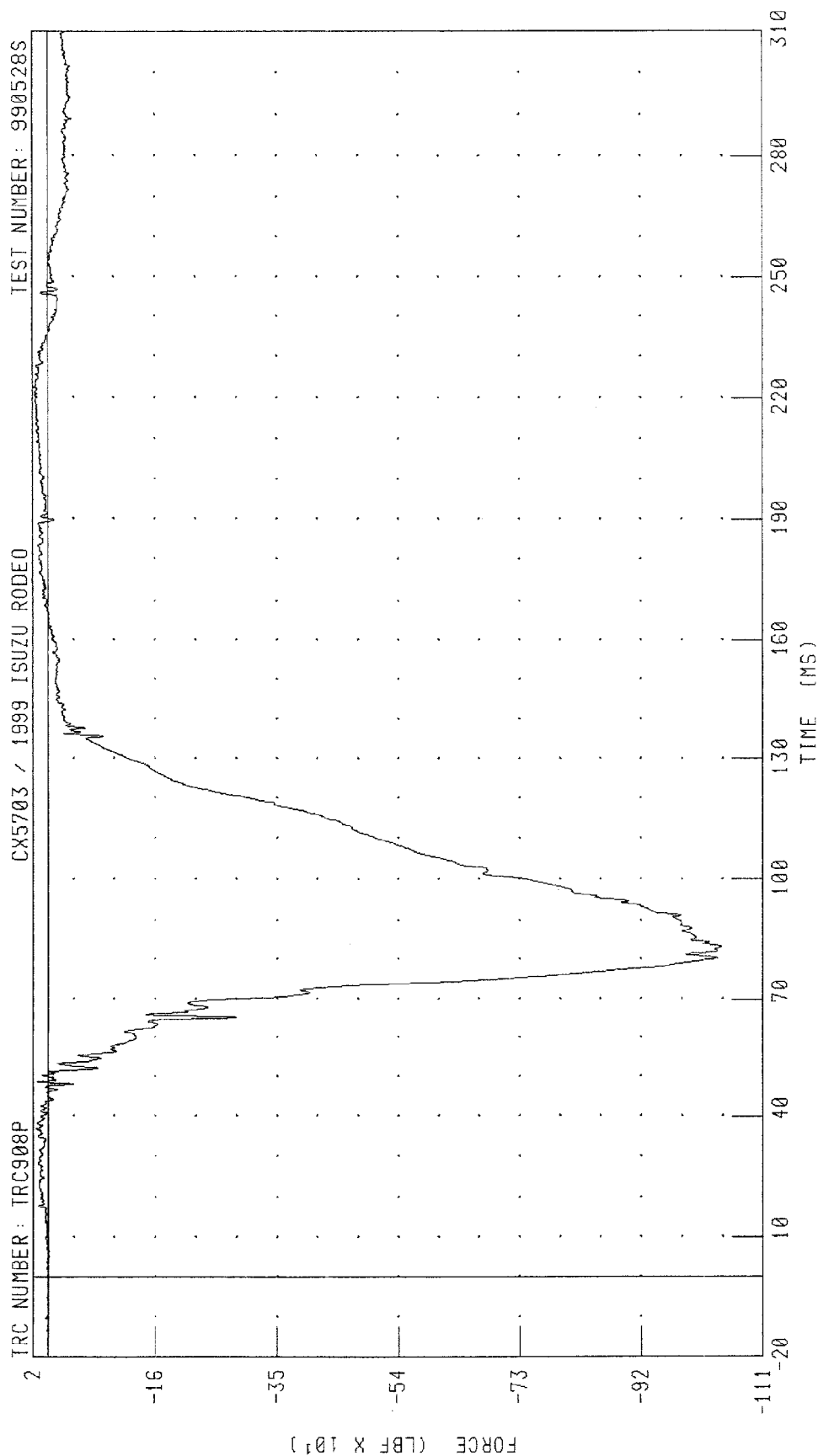
CHANNEL: CSTXD2 FILTER: CH. CLASS 600

SLED ACCELERATION FMVSS 208 SLED TEST
 RIGHT FRONT PASSENGER LEFT FEMUR FORCE
 CX5703 / 1999 ISUZU RODEO



CHANNEL: LFMF2 FILTER: CH. CLASS 600

SLED ACCELERATION FMVSS 208 SLED TEST
 RIGHT FRONT PASSENGER RIGHT FEMUR FORCE
 CX5703 / 1999 ISUZU RODEO



PEAK DATA: 21.15 LBF @ 222.64 MS; -1051.58 LBF @ 83.28 MS

CHANNEL: RFMF2 FILTER: CH. CLASS 600

Appendix C

Manufacturer's Vehicle Information



ISUZU MOTORS LIMITED
8 Tsuchidana, Fujisawa-shi, Kanagawa-ken 252-8501, Japan
TEL. 81-466-45- FAX. 81-466-45-

October 30, 1998

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

10/30/98 P2:5a
10/30/98 P2:5a

Subject : NSA-31CCa / OA-208980928G
1999 Isuzu Rodeo - FMVSS 208 Compliance Tests

Dear Mr. Thompson:

This is reply to your letter Ref. NSA-31CCa / OA-208980928G addressed to our U.S. representative Mr. A. Nogami requiring information regarding the FMVSS 208 compliance testing of 1999 model year Isuzu Rodeo.

The information enclosed here covers all versions of 1999 Isuzu Rodeo.

If you have any questions on this subject, please contact Mr. A. Nogami at 734-455-7557, extension 264.

Sincerely yours,

Sadao Sakai
Manager, Vehicle Compliance Control
Isuzu Motors Limited

Encl.

CC : A. Nogami, Isuzu Motors America, Inc.

1. Please inform OVSC if the air bag restraint system is certified to meet the requirements of S4.1.5.1(a)(1) or S13.
If the air bags were installed to meet the requirements of S4.1.5.1(a)(1) please provide a copy of the certification test reports for the frontal/angular barrier impact tests of the automatic restraint system with the manual safety belts unfastened and fastened.
If the air bags were installed to meet the requirements of S13 please provide a copy of the certification test reports for the frontal/angular barrier impact tests of the automatic restraint system with the manual safety belts fastened and the certification test reports for the sled test using only the automatic restraint system.

Answer

The air bag restraint system meets the requirements of S13. Attachment 1 is the certification test reports of this model.

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

Answer

The Isuzu Rodeo was restyled and redesigned including air bags and safety belts at the time of 1998 model year and then the air bags were depowered.

3. 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.

Answer

Yes, these vehicles have crash event recorders. No procedures are needed for the sled or barrier crash event to be recorded. When the deployment signals are given, the crash event data is recorded. It is possible to retrieve the data only with the Isuzu Motors' special equipment.

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

Answer

These information is shown in Attachment 2.

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

Answer

The safety belt system of this vehicle is not equipped with any tension-relieving device.

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

Answer

Each of the front side windows was open and all other windows were closed during the certification tests of this vehicle.

7. Submit dummy placement measurements, including diagrams or photographs which show exactly where measurements were taken. Enclosed is a diagram of some of OVSC's dummy measurements. Where possible, use the dimension shown in the diagram to provide the individual dummy placement measurements. State whether the vehicle has a foot rest for the driver.

Answer

The dummy measurements for front seat passengers are shown in Attachment 3. Isuzu Rodeo has a foot rest for the driver.

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

Answer

The first required information is given in Attachment 4. Only one front seating, steering column or fuel tank configuration is available on this vehicle.

The seating reference point for each designated seating position is given in Attachment 5.

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

Answer

The adjustable upper anchorages has five(5) adjustment positions. The 3rd position downward from the uppermost position (1st) is the manufacturer's nominal design position.

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

Answer

The required information is given in Attachment 6.

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

Answer

In our certification test for this vehicle, we remove, if necessary, the rear seat, the carpet in the rear seating position, and the rear glass hatchgate in that priority order.

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

Answer

Attachment 7 shows an engineering analysis that demonstrates the compliance of the pressure vessel with S9.1.

13. 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.

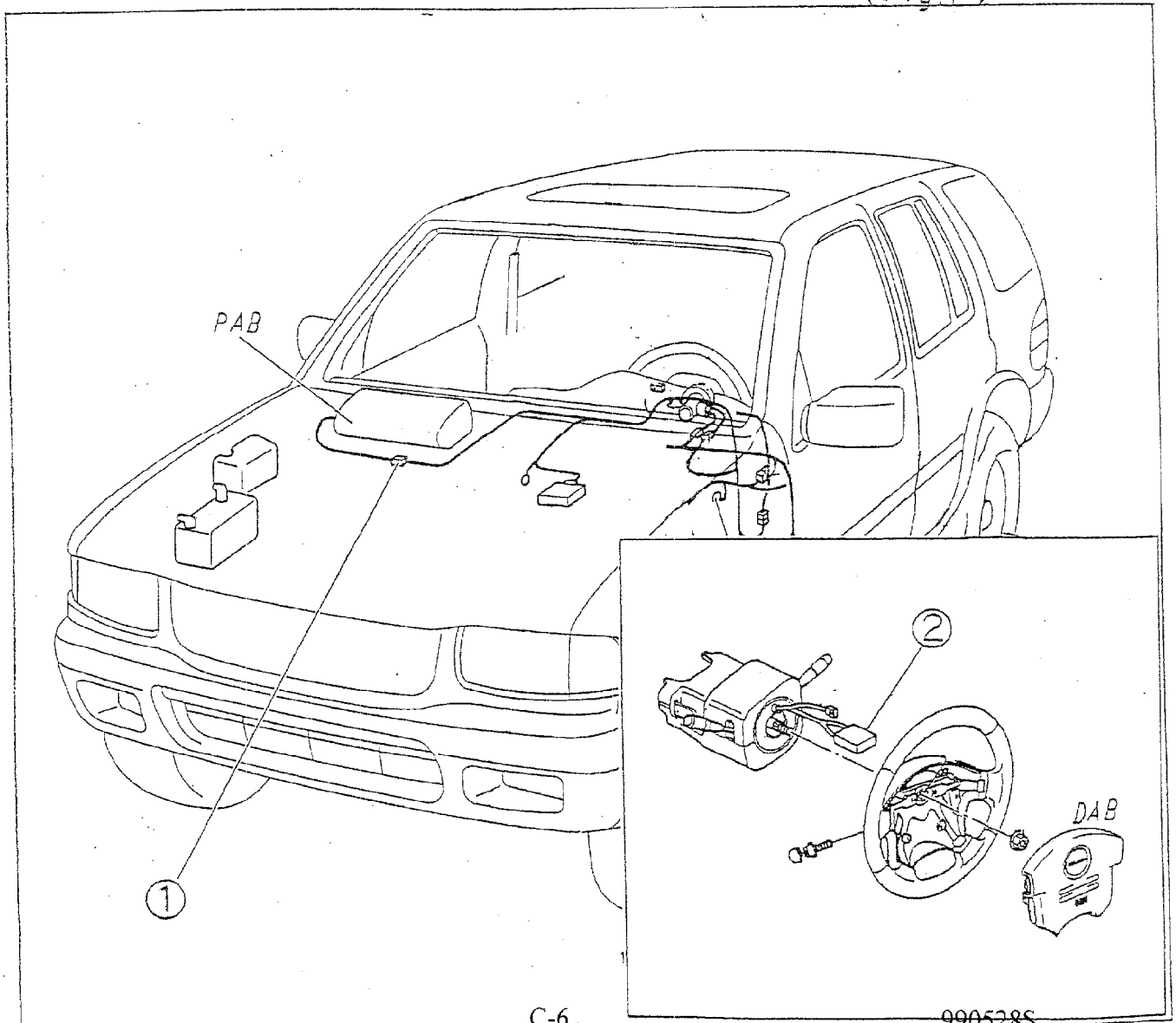
Answer

Attachment 8 shows an engineering analysis that demonstrates the compliance of the explosive device with S9.2.

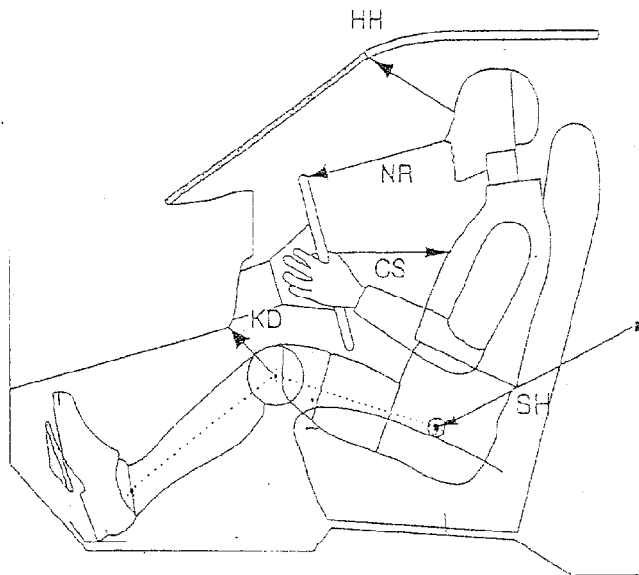
SET UP PROCEDURE FOR SLED TEST

1. Conduct pre-test for create sled pulse.
2. Confirm the sled pulse to be between maximum and minimum corridors.
3. Remove the Dr. Air bag assembly and glove box assembly. (refer to Fig. 1)
4. Disconnect the SIR harness at ① and ② position, and connect SIR harness of air bag module side to Triggering mechanism.
5. Triggering mechanism is set at 20 ms from the time that 0.5g was measured on pre-test.

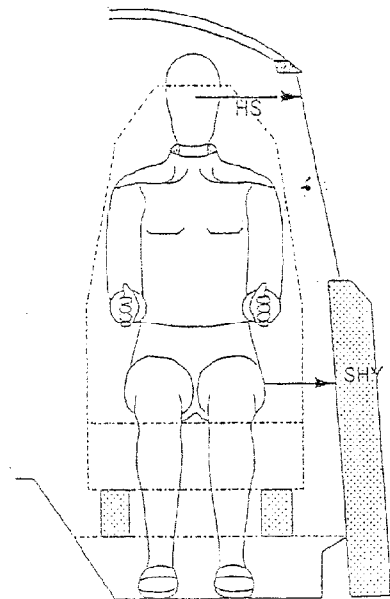
(Fig. 1)



DUMMY MEASUREMENTS FOR FRONT SEAT PASSENGERS



HH - Head to Header
 NR - Nose to Rim
 CS - Steering Wheel to Chest
 KDL/KDR - Knee to Dash
 SH - Striker to H-Point



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

(All dimension are in mm)

	DRIVER	PASSENGER
HH	364	374
CS	334	N/A
NR	390	N/A
KDL	180	162
KDA	29.8°	N/A
KDR	188	172°
KDA	N/A	38.4
SH	272	292
SHY	210	212
HS	301	298

TEST VEHICLE INFORMATION

Vehicle Model Year & Make: 1999 IsuzuVehicle Model & Body Style: Rodeo, 4-Door SUV

1. NOMINAL DESIGN RIDING POSITION --

For adjustable driver and passenger seat backs.

Please describe how to position the inclinometer to measure the seat back angle. Include description of the location of the adjustment latch detent if applicable.

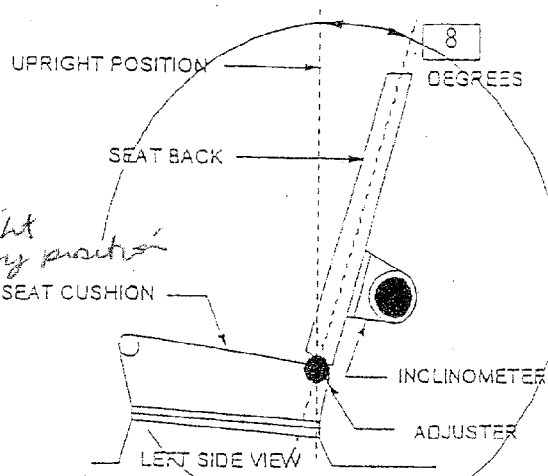
Indicate, if applicable, how the detents are numbered (Is the first detent "0" or "1"?). Indicate if the seat back angle is measured with the dummy in the seat.

Seat back angle for driver's seat = 8 degrees. *From upright seating position*

Measurement Instructions:

Release the seat back adjuster lever, and adjust the seat back into the 5th latch position rearward from the upright position (1st latch position).Seat back angle for passenger's seat = 8 degrees.

Measurement Instructions:

Same as driver's seat.

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:

Release the seat adjuster lever, and adjust the seat into the 11th latch detent position forward from the rearmost position (1st latch detent position).

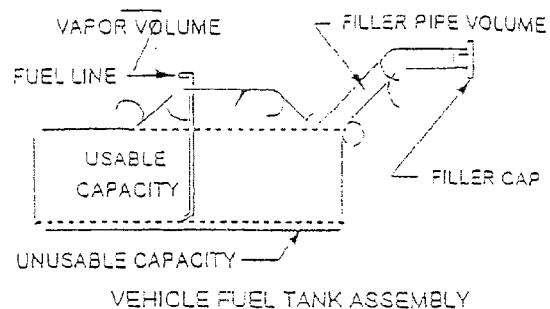
Positioning of the passenger's seat (if applicable):

Same as driver's seat

Rev. 7/11/94

3. FUEL TANK CAPACITY DATA --

- 3.1 A. "Usable Capacity" of standard equipment fuel tank = 21.1 gallons.
- B. "Usable Capacity" of optional equipment fuel tank = _____ gallons. Not Available
- C. "Usable Capacity" of vehicle(s) used for certification testing to requirements of FMVSS 301 = 19.8 gallons.



Operational Instructions:

Operate the engine until it stop. Add the stoddard solvent to the fuel tank. Then operate the engine until the entire fuel system is filled with the stoddard solvent.

- 3.2 Amount of Stoddard solvent added to vehicle(s) used for certification test(s) = 20.8 gallons
- 3.3 Is vehicle equipped with electric fuel pump? ☒ YES ☐ NO
 If YES, explain the vehicle operating conditions under which the fuel pump will pump fuel.
The engine control key is in "ON" position and engine is running.

4. STEERING COLUMN ADJUSTMENTS --

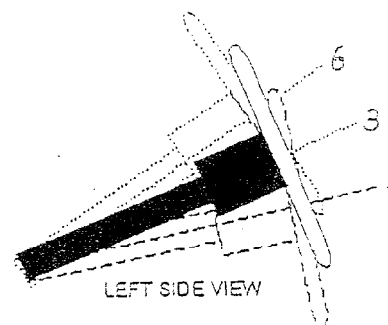
Steering wheel and column adjustments are made so that the steering wheel hub is at the geometric center of the locus it describes when it is moved through its full range of driving positions. If the tested vehicle has any of these adjustments, does your company use any specific procedures to determine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

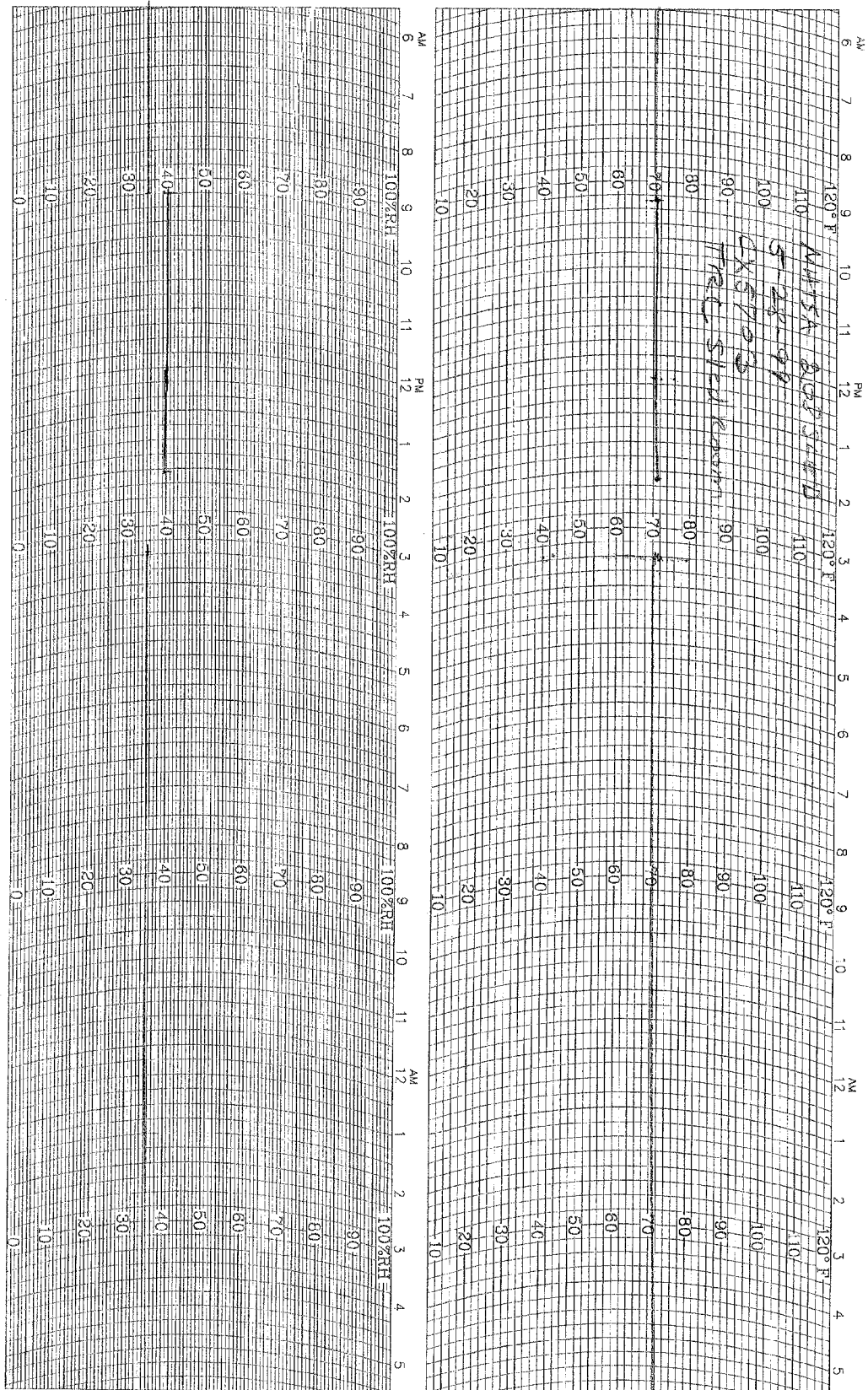
Operational Instructions:

The steering wheel has six(6) adjustment positions.

The 3rd position upward from the lowest position (1st) is the geometric center of the full range of adjustments.

The adjustment release lever is on the left side of the steering column and can be unlocked when the lever is pulled upward.





WeatherMeasure
WEATHERtronics
 Division of QUALIMETRICS, Inc.
 P.O. BOX 41039
 SACRAMENTO, CA 95841
 PHONE: (916) 923-0055

HYGROTHERMOGRAPH
 1 DAY

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

STATION _____ DATE ON _____ DATE OFF _____