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Report Number: 208S-TRC-04-001

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

General Motors Corporation

2004 Buick LeSabre

NHTSA Number: C40115

TRC Inc. Test Number: S040405

Transportation Research Center Inc.

10820 State Route 347

East Liberty, OH 43319

Test Date: April 5, 2004

Report Date: April 19, 2004

Final Report

Prepared For:

U. S. Department of Transportation

National Highway Traffic Safety Administration

Office of Enforcement

Office of Vehicle Safety Compliance (NVS-220)

400 Seventh Street, S.W., Room No. 6115

Washington, DC 20590

This Final Test Report was prepared for the U.S. Department of Transportation, National Highway Traffic Safety Administration, under Contract No. DTNH22-03-D-01002.

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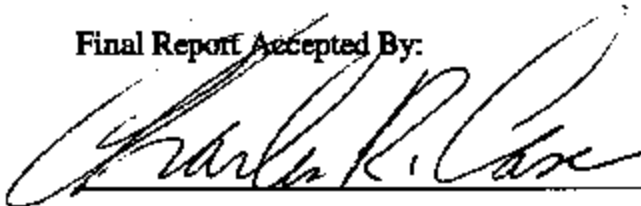
Test Performed By: Ronald D. Stoner, Engineering Technician

Report Approved By:

Date 4/16/04

Walter Dudek, Project Manager
Transportation Research Center Inc.

Final Report Accepted By:



Date 7/22/04

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

Technical Report Documentation Page

1. Report No. 208S-TRC-04-001	2. Government Accession No.	3. Recipient's Catalog No.
4. Title and Subtitle Final Report of FMVSS No. 208 Compliance Sled Testing of a 2004 Buick LeSabre NHTSA No. C40115		5. Report Date April 5, 2004 6. Performing Organization Code TRC
7. Author(s) Walter Dudek, Project Manager Transportation Research Center Inc.		8. Performing Organization Report No. 208S-TRC-04-001
9. Performing Organization Name and Address Transportation Research Center Inc. 10820 State Route 347 East Liberty, OH 43319		10. Work Unit No. 11. Contract or Grant No. DTNH22-03-D-01002
12. Sponsoring Agency Name and Address U.S. Department of Transportation National Highway Traffic Safety Administration Office of Enforcement Office of Vehicle Safety Compliance (NVS-220) 400 Seventh Street, S.W., Room 6115 Washington, DC 20590		13. Type of Report and Period Covered Final Report 14. Sponsoring Agency Code NVS-220
15. Supplemental Notes None		

16. Abstract

An FMVSS 208 Section 13 compliance sled test was conducted on a 2004 Buick LeSabre 4-door sedan, NHTSA No.C40115, 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:

None.

17. Key Words Safety Engineering Compliance Sled Testing: FMVSS 208, "Occupant Crash Protection"	18. Distribution Statement Copies of this report are available from: NHTSA Technical Reference Division Room 5108 400 Seventh Street, S.W., NPO-230 Washington, DC 20590

19. Security Classif. (of this report) Unclassified	20. Security Classif. (of this page) Unclassified	21. Number of Pages 213	22. Price

Form DOT F 1700.7 (8-72) Reproduction of completed page authorized

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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 Inc.) under Contract No. DTNH22-03-D-01002. The purpose of this test was to determine if the subject vehicle, a 2004 Buick LeSabre 4-door sedan, NHTSA No.C40115, meets the performance requirements of FMVSS 208, "Occupant Crash Protection," in the impact simulation sled test mode.

Test Procedure

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

The sled test vehicle was instrumented with four (4) accelerometers to measure longitudinal accelerations. The sled was instrumented with one (1) longitudinal accelerometer, which is prefiltered with an analog filter to 200 Hz as an integral part of the sled firing circuit, and two (2) additional accelerometers: the primary accelerometer for pulse and integrated velocity determination and a backup accelerometer. In addition, the sled was instrumented with one (1) light trap to measure velocity and four (4) airbag firing timing circuits.

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

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

The forty-two (42) 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 by TRC Inc. on April 5, 2004.

The test vehicle, a 2004 Buick LeSabre 4-door sedan, NHTSA No. C40115, does appear to comply with the performance requirements of FMVSS 208 in the impact simulation sled test mode as measured by Hybrid III 50th percentile male dummies.

	FMVSS 208 Max. Allowable Injury Assessment Values	Driver	Passenger
HIC	1000	95	203
Chest g	60 g	41.3	35.3
Chest Displacement	3 inches	1.4	0.5
Left Femur	2250 lbs	1245	1093
Right Femur	2250 lbs	1171	1100
Neck Extension	57 Nm	6.7	37.0
Neck Flexion	190 Nm	55.1	43.6
Neck Tension	3300 N	886	1342
Neck Compression	4000 N	183	814
Neck Shear	3100 N	1066	1026

The subject vehicle, a 2004 Buick LeSabre, NHTSA No. C40115, 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 17.3 g with an integrated velocity change of 29.6 mph. The primary stages of the airbags were triggered at 20.2 milliseconds after 0.5 g acceleration was measured by the firing circuit. The secondary stages of the airbags were triggered at 21.1 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 primary stages airbag event trigger signal was 20.6 ms after the 0.5 g acceleration level was indicated and the secondary stages airbag event trigger signal was 21.6 ms after the 0.5 g acceleration level was indicated.

Data Acquisition Explanations

The complete 16-hour dummy ambient temperature trace was not recorded for this test. A partial trace was recorded and is included in Appendix D. During the final hour prior to test the dummies were within the specified temperature range.

Sled Test Summary

NHTSA number:	C40115
Test type:	Alternate 208
Test date:	04/05/04
Test time:	16:39
Ambient temperature at impact area:	71.5° F
Vehicle year/make/ model/body style:	2004/Buick/LeSabre/4-door sedan

Dummy Info:	Driver #314	Front passenger #229
Type:	Hybrid III 50th	Hybrid III 50th
Location:	Left front	Right front
Restraint:	Airbag	Airbag
Number of data channels:	15	15

Number of Cameras:	
Real-time:	1
High-speed:	6

Door Opening Data:	
Left Front:	Easy
Right Front:	Easy

Front Seat Data:		
Seat track failure:	None	None
Seat back failure	None	None

Visible Dummy Contact Points:		
Head:	Airbag, sun visor, side header	Airbag, sun visor
Chest:	Airbag	Airbag
Left knee:	Knee bolster	Glove box
Right knee:	Knee bolster	Glove box

General Test and Vehicle Parameter Data for the Sled Test Vehicle

Test Vehicle Information:

Vehicle year/make/ model/body style:	2004/Buick/LeSabre/4-door sedan			
Color:	White			
VIN:	1G4HP52K044121812			
NHTSA number:	C40115			
Engine data:				
Placement:	Transverse			
Cylinders:	6			
Displacement:	3.8			
Transmission data:	_4_ speed,	__ manual,	_X_ automatic,	_X_ overdrive
Final drive:	__X__ fwd,	___ rwd,	___ 4wd	
Date vehicle received:	2/9/2004			
Odometer reading:	30			
Dealer's name and address:	Buckles Motors Inc. 871 South Main Street Urbana, OH 43078			

Major Options:

Power steering	Yes	Other: No
Power brakes	Yes	
Power windows	Yes	
Air conditioning	Yes	
Power door locks	Yes	

Remarks: Power seat on driver's side only.

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

Data from Vehicle's Certification Label:

Vehicle manufactured by:		General Motors Corporation
Date of manufacture:		09/03
VIN:		1G4HP52K044121812
GVWR:		4694 lbs
GAWR:	Front:	2522 lbs
	Rear:	2172 lbs

Data from Vehicle's Tire Placard:

Tire pressure with maximum capacity vehicle load:	
Front:	44 psi
Rear:	44 psi
Recommended tire size:	P215/70R15
Load range:	N/A
Recommended cold tire pressure:	
Front:	33 psi
Rear:	33 psi
Size of tires on vehicle:	P215/70R15
Spare tire:	T125/70R16
Vehicle capacity data:	
Type of front seats:	Split bench
Number of occupants:	
Front	3
Rear	3
Total	6

Remarks:

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

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

Right front	1118.8	lbs	Right rear	682.3	lbs
Left front	1092.4	lbs	Left rear	684.5	lbs
Total front weight	2211.2	lbs	(61.8% of total vehicle weight)		
Total rear weight	1366.8	lbs	(38.2% of total vehicle weight)		
Total delivered weight	3578.0	lbs			

Calculation of test vehicle's target test weight:

RCLW = Rated Cargo and Luggage Weight

UDW = Unloaded Delivered Weight (3578.0 lbs)

VCW = Vehicle Capacity Weight (1076 lbs)

DSC = Designated Seating Capacity (6)

RCLW = VCW - (DSC X 150 lbs) = 1076 - (6 X 150) = 176.0 lbs

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

Target test weight = 3578.0 + 176.0 + 334.0 = 4088 lbs

Weight of test vehicle with two dummies and 179.8 lbs of cargo weight:

Right front	1202.6	lbs	Right rear	854.3	lbs
Left front	1180.6	lbs	Left rear	854.3	lbs
Total front weight	2383.2	lbs	(58.2% of total vehicle weight)		
Total rear weight	1708.6	lbs	(41.8% of total vehicle weight)		
Total test weight	4091.8	lbs			

Remarks:

Weight of ballast secured in vehicle cargo area: 0.0 lbs

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:	0.6° Nose Down
As tested door sill angle:	0.3° Nose Down
Fully loaded door sill angle:	0.1° Nose Down
Vehicle Wheelbase:	112.2 inches

Fuel System Data:

Fuel system capacity from owner's manual:	18.0 gallons
Useable capacity figure furnished by COTR:	17.5 gallons

Remarks: The roll angle measurements were within 1 inch of each other.

The left and right side measurements were 26.7 inches and 26.7 inches respectively.

Post-Impact Data

Test number:	S040405
NHTSA number:	C40115
Test date:	04/05/04
Test time:	16:39
Test type:	Alternate 208
Impact angle:	0°
Ambient temperature at impact area:	71.5° F
Temperature in occupant compartment:	71.5° F

Sled carriage velocity:

Integrated velocity from the integration of the entire sled acceleration:	29.6 mph
Measured velocity from the light trap device attached to the sled (backup):	29.2 mph
Specified integrated velocity range:	28 to 30 mph

Sled carriage acceleration:

Acceleration:	17.3 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:	126.2 ms
Specified acceleration duration:	120 - 130 ms

The sled acceleration curve was within the specified corridor.

Seat and Steering Column Positioning Data

Vehicle: 2004/Buick/LeSabre/4-door sedan NHTSA No.: C40115

Nominal Design Riding Position:

Driver Seat: Seat Back Angle = 17.7° Manual Seat back angle was measured on the seat back frame near the side airbag

Passenger Seat: Seat Back Angle = 18.4° Manual Seat back angle was measured on the seat back frame near the side airbag

Seat Fore and Aft Positions:

Driver Seat: Set to the middle of the available fore/aft travel

Passenger: Set to the middle of the distance between full forward and full rearward positions (21st of 40 detents)

Steering Column Adjustments:

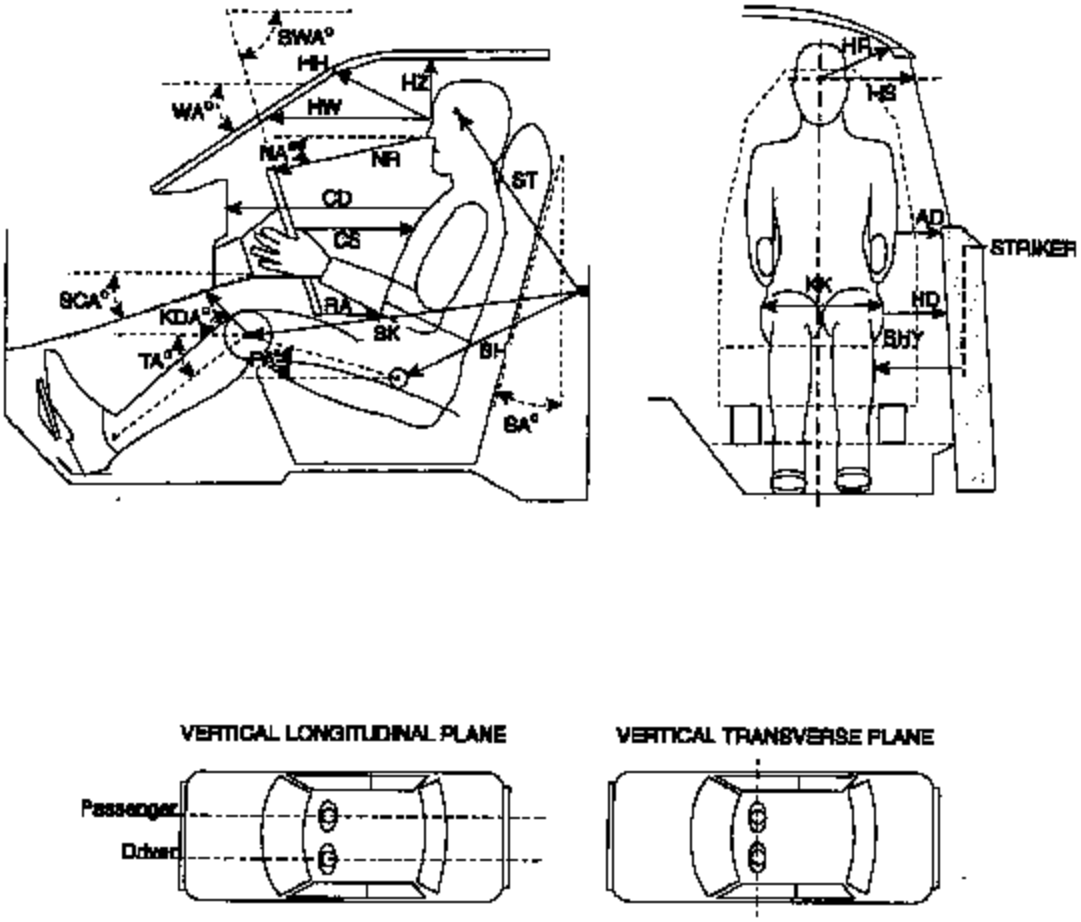
Set to 3rd notch down from top notch. Steering wheel angle was measured at 18.8° across steering wheel rim

Dummy Measurement Data for Front Seat Occupants

Designation	Type of Measurement	Driver (Serial #314)	Passenger (Serial #229)
WA	Windshield angle	27.0°	N/A
SWA	Steering wheel angle	18.8°	N/A
SCA	Steering column angle	71.2°	N/A
SA	Seat back angle	17.7°	18.4°
HZ	Head to roof	8.5 in	7.7 in
HH	Head to header	15.9 in	15.9 in
HW	Head to windshield	26.6 in	26.0 in
HR	Head to side header	8.5 in	9.3 in
NR	Nose to rim	15.7 in	N/A
NA	Nose to rim angle	9.0°	N/A
CD	Chest to dash	20.5 in	21.3 in
CS	Steering wheel to chest	13.2 in	N/A
RA	Rim to abdomen	8.7 in	N/A
KDL	Left knee to dash	6.4 in	5.7 in
KDR	Right knee to dash	6.5 in	6.1 in
KDA	Outboard knee to dash angle	33.8°	38.0°
PA	Pelvis angle	24.0°	23.5°
TA	Tibia angle	43.0°	39.6°
KK	Knee to knee	12.6 in	10.6 in
ST[1]	Striker to head	19.9 in	20.9 in
	Striker to head angle	-82.3°	-86.1°
SK[1]	Striker to knee	22.2 in	22.4 in
	Striker to knee angle	10.3°	1.4°
SH[1]	Striker to H-point	9.3 in	8.9 in
	Striker to H-point angle	29.0°	28.2°
SHY	Striker to H-point (Y dir.)	10.7 in	9.8 in
HS	Head to side window	13.8 in	13.0 in
HD	H-point to door	8.0 in	6.8 in
AD	Arm to door	5.6 in	5.0 in

The seat back angle (SA°) is measured relative to vertical.
All other angles are measured relative to horizontal.
[1] A negative angle indicates the measurement point was located below the striker.

Dummy Measurement Locations for Front Seat Occupants



Descriptions of Dummy Measurements

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

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

* HH Head to Header, taken from the point where the dummy's nose meets his forehead (between his eyes) to the furthest point forward on the header.

* HW Head to Windshield, taken from the point where the dummy's nose meets his forehead (between his eyes) to a point on the windshield. Use a level.

HZ Head to Roof, taken from the point where the dummy's nose meets his forehead (between his eyes) to the point on the roof directly above it. Use a level.

* CS Steering Wheel to Chest, taken from the center of the steering wheel hub to the dummy's chest. Use a level.

* CD Chest to Dash, place a tape measure on the tip of the dummy's chin and rotate five inches of it downward toward the dummy to the point of contact on the transverse center of the dummy's chest. Then measure from this point to the closest point on the dashboard either between the upper part of the steering wheel between the hub and the rim, or measure to the dashboard placing the tape measure above the rim, whichever is a shorter measurement. See diagram.

RA Steering Wheel Rim to Abdomen, taken from the bottommost point of the steering wheel rim horizontally rearward to the dummy. Use a level.

NR Nose to Rim, taken from the tip of the dummy's nose to the closest point on the top of the steering wheel rim. Also indicate the angle this line makes with respect to the horizontal (NA).

* Measurement used in Data Tape Reference Guide

*[1] KDL, KDR Left and Right Knees to Dashboard, taken from the center of the knee pivot bolt's outer surface to the closest point forward acquired by swinging the tape measure in continually larger arcs until it contacts the dashboard. Also reference the angle of this measurement with respect to the horizontal for the outboard knee (KDA). See diagram.

SH, SK, ST Striker to Hip, Knee, and Head, these measurements are to be taken in the X-Z plane measured from the forward most center point on the striker to the center of the H-point, outer knee bolt, and head target. When taking this measurement a firm device that can be rigidly connected to the striker should be used. Use a level. The angles of these measurements with respect to the horizontal should 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.

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

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 Pelvis or Femur Angle, taken by inserting the pelvic angle gauge into the H-point gauging hole on the SID or the Hybrid III dummies and taking this angle with respect to the horizontal. Measure the angle of the line connecting the H-point hole and the outer knee pivot bolt hole on a Hybrid II dummy with respect to the horizontal, to find the femur angle.

SWA Steering Wheel Angle, find this by placing a straight edge against the steering wheel rim along the longitudinal plane. Then measure the acute angle of the straight edge with respect to the horizontal.

SCA Steering Column Angle, measured with respect to the horizontal by placing an inclinometer on the center of the underside of the steering column.

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

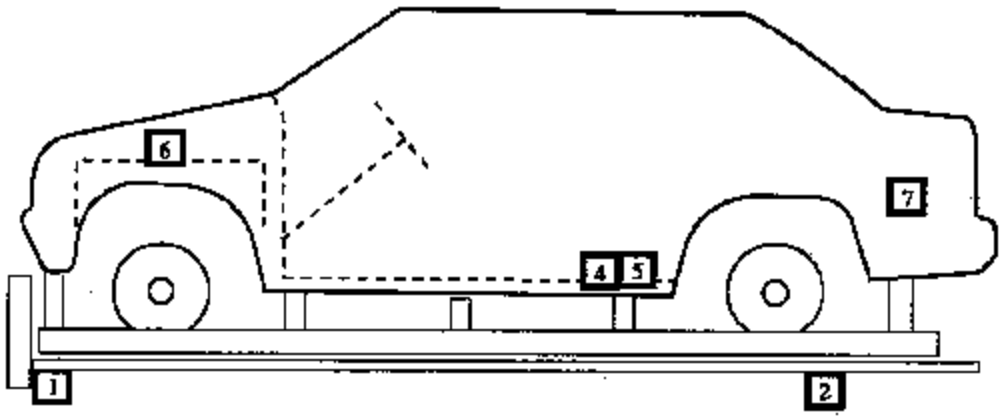
KDA Knee to Dash Angle, the angle that the measurement KD is taken at with respect to the horizontal. Only get this angle for the outboard knee. See diagram.

WA Windshield Angle, place an inclinometer along the transverse center of the windshield exterior (measurement is made with respect to horizontal).

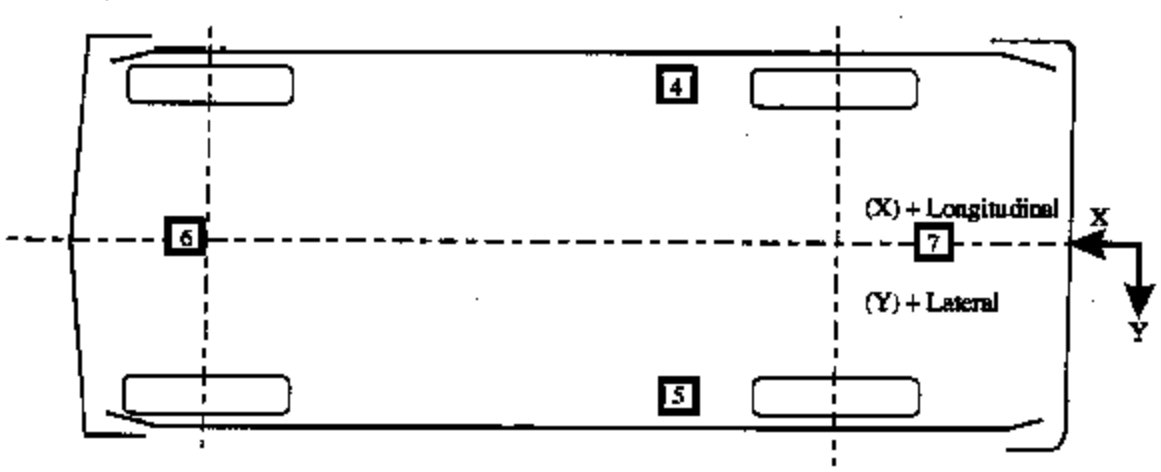
TA Tibia Angle, use a straight edge to connect the dummy's knee and ankle bolts. Then place an inclinometer on the straight edge and measure the angle with respect to the horizontal.

* Measurement used in Data Tape Reference Guide

Vehicle Accelerometer Placement



Side View



Bottom View

Vehicle Data Summary and Accelerometer Locations

TEST NUMBER: S040405 No. LOCATION	X	Y	Z	POSITIVE DIRECTION[1]		NEGATIVE DIRECTION[1]	
1 SLED ACCELERATION PRIMARY	165.6 in	-1.0 in	NA	0.5 g	@ 185.4 ms	17.3 g	@ 56.2 ms
2 SLED ACCELERATION BACKUP REDUNDANT	165.6 in	-1.0 in	NA	0.6 g	@ 185.4 ms	17.5 g	@ 56.6 ms
3 SLED VELOCITY MEASURED INTEGRATED[2]	NA	NA	NA	0.1 mph ---	@ 9.7 ms ---	29.2 mph 29.6 mph	@ 126.3 ms @ 141.0 ms
4 LEFT REAR SEAT CROSSMEMBER LONGITUDINAL	65.2 in	-16.7 in	NA	1.4 g	@ 130.1 ms	18.1 g	@ 58.5 ms
5 RIGHT REAR SEAT CROSSMEMBER LONGITUDINAL	65.0 in	13.8 in	NA	1.3 g	@ 130.1 ms	18.0 g	@ 59.0 ms
6 TOP ENGINE LONGITUDINAL	167.3 in	0.4 in	NA	6.6 g	@ 139.0 ms	22.2 g	@ 57.4 ms
7 REAR AXLE LONGITUDINAL	35.4 in	0.0 in	NA	1.5 g	@ 130.4 ms	18.9 g	@ 60.6 ms

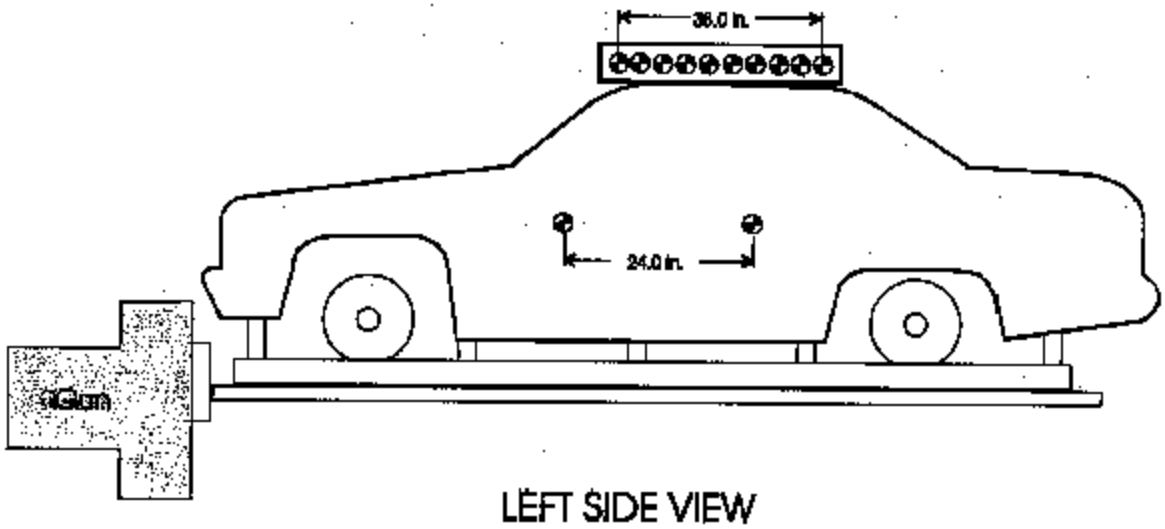
Vehicle Data Summary and Accelerometer Locations, Cont'd.

TEST NUMBER: S040405 No. LOCATION	X	Y	Z	POSITIVE DIRECTION	NEGATIVE DIRECTION
8 DRIVER PRIMARY AIRBAG EVENT	NA	NA	NA	1.0 volt @ 20.6 ms	--- ---
9 DRIVER SECONDARY AIRBAG EVENT	NA	NA	NA	1.0 volt @ 21.6 ms	--- ---
10 PASSENGER PRIMARY AIRBAG EVENT	NA	NA	NA	1.0 volt @ 20.6 ms	--- ---
11 PASSENGER SECONDARY AIRBAG EVENT	NA	NA	NA	1.0 volt @ 21.6 ms	--- ---

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

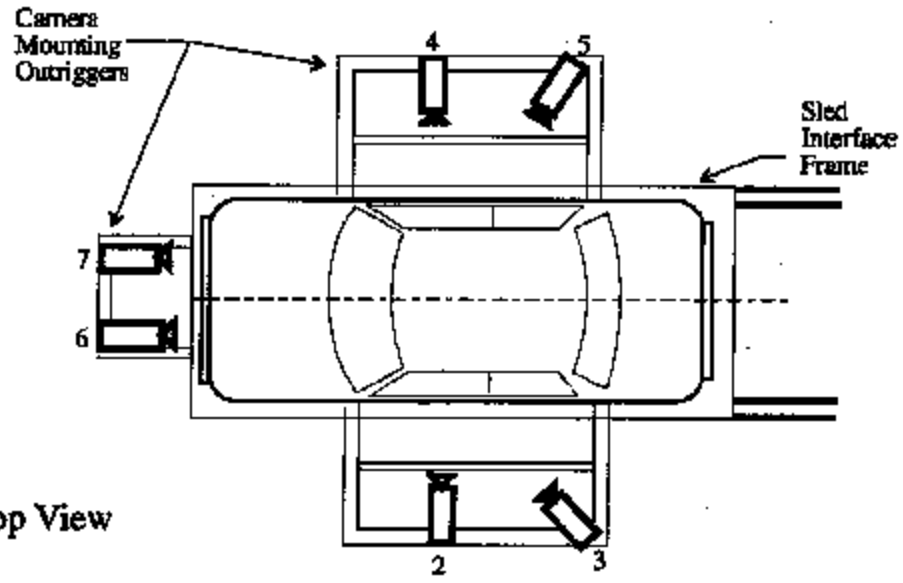
[1] Sign convention per SAEJ211 March 1995.
[2] No positive data in time frame of interest.

REFERENCE PHOTO TARGETS



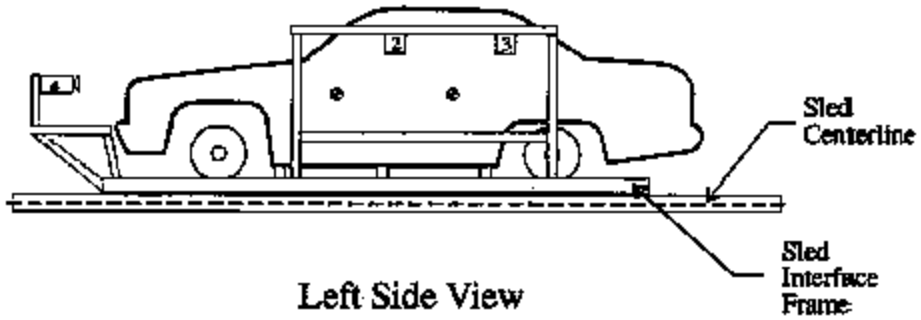
LEFT SIDE VIEW

Camera Positions



Top View

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



Left Side View

Motion Picture Camera Locations

Vehicle year/make/model/body style: 2004/Buick/LeSabre/4-door sedan NHTSA No.: C40115 Test Number: S040405

Camera Number	View	Camera Positions[1] X	Y	Z	Camera Angle[2]	Film Plane to Head Target	Camera Lens	Film Speed
1	Pre- and Post-Test panning and documentary	94.7 in	304.3 in	41.6 in	0°	286.8 in	6.7 mm	30 frames/s
2	Left side view wide	69.2 in	71.3 in	51.7 in	-9.9°	56.5 in	13 mm	1000 frames/s
3	Left side view over shoulder	97.4 in	50.2 in	57.8 in	-15.4°	36.8 in	8 mm	1170 frames/s
4	Right side view wide	69.0 in	73.5in	51.0 in	-9.4°	57.5 in	13 mm	1000 frames/s
5	Right side view over shoulder	99.0 in	49.5 in	57.7 in	-12.5°	36.4 in	8 mm	1067 frames/s
6	Front view - driver	28.0 in	15.1 in	50.8 in	-5.6°	56.1 in	8 mm	760[3] frames/s
7	Front view - passenger	37.3in	16.7 in	50.9 in	-2.3°	55.9 in	8 mm	947 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

[3] Camera speed was below 1000 frames/s target speed.

FMVSS 208 Occupant Injury Data

Vehicle: 2004/Buick/LeSabre/4-door sedan NHTSA No.: C40115 Date:04/05/04

Maximum Acceleration Values: (g)	Driver Dummy #314	Passenger Dummy #229
Head Channel X	-27.8	-35.9
Head Channel Y	5.3	-19.3
Head Channel Z	19.1	29.2
HEAD RESULTANT	33.7	40.7
Chest Channel X	-40.7	-33.0
Chest Channel Y	-2.1	-1.6
Chest Channel Z	11.2	19.0
CHEST RESULTANT	42.1	36.4

Head Injury Criteria (HIC) Values:

HIC	95	203
t_1 = (ms)	76.40	101.84
t_2 = (ms)	112.40	137.84

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

Chest Injury Criteria (Clip) Values:

CLIP (g)	41.3	35.3
t_1 = (ms)	97.96	95.68
t_2 = (ms)	100.96	98.68
Chest Deflection (in)	1.4	0.5

FMVSS 208 Occupant Injury Data, Cont'd.

Vehicle: 2004/Buick/LeSabre/4-door sedan NHTSA No.: C40115 Date:04/05/04

Max. Compressive Femur Forces:	Driver Dummy #314	Passenger Dummy #229
Left Side (lbs)	1245	1093
Right Side (lbs)	1171	1100

Neck Injury Criteria:	Driver Dummy #314	Passenger Dummy #229
Peak Flexion Bending Moment (N-m)	55.1	43.6
Peak Extension Bending Moment (N-m)	6.7	37.0
Peak Axial Tension (N)	886	1342
Peak Axial Compression (N)	183	814
Peak Positive X-axis Shear (N)	1066	1026
Peak Negative X-axis Shear (N)	110	230

DATA SHEET 3

Certification Label and Tire Placard Information

NHTSA No. C40115 Test Date: 03/06/04

Laboratory: TRC Inc. Test Technician(s): Michael S. Postle, Steve Bell

1. Certification Label
   Manufacturer General Motors Corporation
   Date of Manufacture 09/03
   VIN 1G4HP52K044121812
   Vehicle certified as: X Passenger car __MPV __Truck __Bus
   Front axle GVWR 4694 lbs
   Rear axle GVWR 2522 lbs
   Total GVWR 2172 lbs

2. Tire Placard
   __N/A – Vehicle is not a passenger car and does not have a tire placard.
   __This is not a passenger car (see the item 1 above), but all or part of this information is still contained on a vehicle label and is reported here.

   Vehicle Capacity Weight 1076 lbs
   Designated seating capacity front 3
   Designated seating capacity rear 3
   Total Designated seating capacity 6
   Recommended cold tire inflation pressure front 33 psi
   Recommended cold tire inflation pressure rear 33 psi
   Recommended tire size P215/70R15

DATA SHEET 4

REAR OUTBOARD SEATING POSITION SEAT BELTS

NHTSA No. C40115 Test Date: 03/05/04

Laboratory: TRC Inc. Test Technician(s): Ronald Stoner

Do all rear outboard seating positions have type 2 seat belts? Yes X ; 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 seat belt was not installed.

REMARKS:

DATA SHEET 5

AIR BAG LABELS (S4.5.1)

NHTSA No. C40115 Test Date: 03/08/04

Laboratory: TRC Inc. Test Technician(s): Michael S. Postle, Steve Bell

1. Air Bag Maintenance Label and Owner's Manual Instructions: (S4.5.1(a))

1.1 Does the manufacturer recommend periodic maintenance or replacement of the air bag?
__ Yes (Go to 1.2); X No (Go to 2)

1.2 Does the vehicle have a label specifying air bag maintenance or replacement?
__Yes-Pass; __**No-FAIL**

1.3 Does the label contain one of the following?
__Yes-Pass; __**No-FAIL**
Check applicable schedule
__ Schedule on label specifies month and year (Record date _____)
__ Schedule on label specifies vehicle mileage (Record mileage _____)
__ Schedule on label specifies interval measured from date on certification label
(Record interval_____)

1.4 Is the label permanently affixed within the passenger compartment such that it cannot be removed without destroying or defacing the label or the sunvisor?
__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 inches high?
____ height of letters and numerals
__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?
X Yes-Pass; __**No-FAIL**

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?
X Yes-Pass; __**No-FAIL**

2.3 Include a statement that the air bag is a supplemental restraint at the front outboard seating positions?
X Yes-Pass; __**No-FAIL**

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?
X Yes-Pass; __**No-FAIL**

2.5 Provide any necessary precautions regarding the proper positioning of occupants, including children, at seating positions equipped with air bags to ensure maximum safety protection for those occupants?
X Yes-Pass; __**No-FAIL**

2.6 Explain that no objects should be placed over or near the air bag on the steering wheel or on the instrument panel, because any such objects could cause harm if the vehicle is in a crash severe enough to cause the air bag to inflate?
X Yes-Pass; __**No-FAIL**

2.7 Is the vehicle certified to meet the requirements of S14.5, S15, S17, S19, S21, S23, and S25? **(Obtain the answer to this question from the COTR.)** (S4.5.1(f)(2))
X Yes (go to 2.7.1); __No (go to 3)

2.7.1 Explain the proper functioning of the advanced air bag system? (S4.5.1(f)(2))
X Yes-Pass; __**No-FAIL**

2.7.2 Provide a summary of the actions that may affect the proper functioning of the system? (S4.5.1(f)(2))
X Yes-Pass; __No-FAIL

2.7.3 Present and explain the main components of the advanced passenger air bag system? (S4.5.1(f)(2)(i))
X Yes-Pass; __No-FAIL

2.7.4 Explain how the components function together as part of the advanced passenger air bag system? (S4.5.1 (f)(2)(ii))
X Yes-Pass; __No-FAIL

2.7.5 Contain the basic requirements for proper operation, including an explanation of the actions that may affect the proper functioning of the system? (S4.5.1(f)(2)(iii))
X Yes-Pass; __No-FAIL

2.7.6 Is the vehicle certified to the requirements of S19.2, S21.2 or S23.2 (automatic suppression)?
__Yes, continue with 2.7.6
X No, go to 2.7.7

2.7.6.1 Contain a complete description of the passenger air bag suppression system installed in the vehicle, including a discussion of any suppression zone? (S4.5.1(f)(2)(iv))
__Yes-Pass; __No-FAIL

2.7.6.2 Discuss the telltale light, specifying its location in the vehicle and explaining when the light is illuminated?
__Yes-Pass; __No-FAIL

2.7.7 Explain the interaction of the advanced passenger air bag system with other vehicle components, such as seat belts, seats or other components? (S4.5.1(f)(2)(v))
X Yes-Pass; __No-FAIL

2.7.8 Summarize the expected outcomes when child restraint systems, children and small teenagers or adults are both properly and improperly positioned in the passenger seat, including cautionary advice against improper placement of child restraint systems? (S4.5.1(f)(2)(vi))
X Yes-Pass; __No-FAIL

2.7.9 Provide information on how to contact the vehicle manufacturer concerning modifications for persons with disabilities that may affect the advanced air bag system? (S4.5.1(f)(2)(vii))
X Yes-Pass; __No-FAIL

3. Sun Visor Air Bag Warning Label (S4.5.1 (b)) Check only one of the following:
X The vehicle is not certified to meet the requirements of S19, S21, and S23. **(Obtain the answer to this question from the COTR.)** (S4.5.1(b)(1)) Go to 3.1 and skip 3.2 and 3.3
__The vehicle is certified to meet the requirements of S19, S21, and S23 before 9/1/03. **(Obtain the answer to this question from the COTR.)** (S4.5.1(b)(2)) Go to 3.2 and skip 3.1 and 3.3
__The vehicle is certified to meet the requirements of S19, S21, and S23 on 9/1/03 or later. **(Obtain the answer to this question from the COTR.)** (S4.5.1(b)(3)) Go to 3.3 and skip 3.1 and 3.2

3.1 Vehicles not certified to meet the requirements of S19, S21, and S23.

3.1.1 Is the label permanently affixed (including permanent marking on the visor material or molding into the visor material) to either side of the sun visor at each front outboard seating position such that it cannot be removed without destroying or defacing it? (S4.5.1(b)(1))
Driver side X Yes-Pass __No-FAIL
Passenger side X Yes-Pass __No-FAIL

3.1.2 Does the label conform in content to the label shown in either Figure 6a or 6b (Figure 6b is for vehicles with passenger air bag on-off switches), as appropriate, at each front outboard seating position? (S4.5.1 (b)(1)) **(Vehicles without back seats may omit the statement: "The BACK SEAT is the SAFEST place for children." (S4.5.1(b)(1)(iv)))**
Driver side X Yes-Pass __No-FAIL
Passenger side X Yes-Pass __No-FAIL

3.1.3 Is the label heading area yellow with the word "WARNING" and the alert symbol in black? (S4.5.1 (b)(1)(i))
Driver side X Yes-Pass __No-FAIL
Passenger side X Yes-Pass __No-FAIL

3.1.4 Is the message area white with black text? (S4.5.1 (b)(1)(ii))
Driver side X Yes-Pass __No-FAIL
Passenger side X Yes-Pass __No-FAIL

3.1.5 Is the message area at least 30 cm^2? (S4.5.1 (b)(1)(ii))
Driver side: Length 13.6, Width 3.0
Passenger side: Length 13.6, Width 3.0
Actual message area 41 cm^2
Driver side X Yes-Pass __No-FAIL
Passenger side X Yes-Pass __No-FAIL

3.1.6 Is the pictogram black with a red circle and slash on a white background? (S4.5.1(b)(2)(ii))
Driver side X Yes-Pass __No-FAIL
Passenger side X Yes-Pass __No-FAIL

3.1.7 Is the pictogram at least 30 mm in diameter? (S4.5.1 (b)(2)(iii))
Actual diameter 30 mm
Driver side X Yes-Pass __No-FAIL
Passenger side X Yes-Pass __No-FAIL

3.2 Vehicles certified to meet the requirements of S19, S21, and S23 before 9/1/03. (S4.5.1(b)(2))

3.2.1 Is the label permanently affixed (including permanent marking on the visor material or molding into the visor material) to either side of the sun visor at each front outboard seating position such that it cannot be removed without destroying or defacing the label or the sun visor? (S4.5.1 (b)(2))
Driver side __ Yes-Pass __No-FAIL
Passenger side __ Yes-Pass __No-FAIL

3.2.2 Does the label conform in content to the label shown in Figure 8 or Figure 11 at each front outboard seating position? (S4.5.1(b)(2)) **(Vehicles without back seats may omit the statement: "The BACK SEAT is the SAFEST place for children." (S4.5.1(b)(2)(iv)) Vehicles without back seats or the back seat is too small to accommodate a rear-facing child restraint may omit the statement "Never put a fear-facing child seat in the front." (S4.5.1(b)(2)(v)))**
Driver side __ Yes-Pass __No-FAIL
Passenger side __ Yes-Pass __No-FAIL

3.2.3 Is the 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

3.2.4 Is the message area white with black text? (S4.5.1(b)(2)(ii))
Driver side __ Yes-Pass __No-FAIL
Passenger side __ Yes-Pass __No-FAIL

3.2.5 Is the message area at least 30 cm^2? (S4.5.1(b)(2)(ii))
Driver side: Length _____, Width _____
Passenger side:Length _____, Width _____
Driver actual message area _____ cm^2
Passenger actual message area _____ cm^2
Driver side __ Yes-Pass __No-FAIL
Passenger side __ Yes-Pass __No-FAIL

3.2.6 Is the pictogram black on a white background? (S4.5.1(b)(2)(iii))
Driver side __ Yes-Pass __No-FAIL
Passenger side __ Yes-Pass __No-FAIL

3.2.7 Is the pictogram at least 30 mm (1.2 in) in length? (S4.5.1(b)(2)(iii))
Driver side: Length _____
Passenger side:Length _____
Driver side __ Yes-Pass __No-FAIL
Passenger side __ Yes-Pass __No-FAIL

3.3 Vehicles certified to meet the requirements of S19, S21, and S23 on 9/1/03 and later. (S4.5.1(b)(3))

3.3.1 Is the label permanently affixed (including permanent marking on the visor material or molding into the visor material) to either side of the sun visor at each front outboard seating position such that it cannot be removed without destroying or defacing the label or the sun visor? (S4.5.1 (b)(3))
Driver side __ Yes-Pass **__No-FAIL**
Passenger side __ Yes-Pass **__No-FAIL**

3.3.2 Does the label conform in content to the label shown in Figure 11 at each front outboard seating position? (S4.5.1(b)(2)) **(Vehicles without back seats may omit the statement: "The BACK SEAT is the SAFEST place for children." (S4.5.1(b)(3)(iv)) Vehicles without back seats or the back seat is too small to accommodate a rear-facing child restraint may omit the statement "Never put a rear-facing child seat in the front." (S4.5.1(b)(3)(v)))**
Driver side __ Yes-Pass **__No-FAIL**
Passenger side __ Yes-Pass **__No-FAIL**

3.3.3 Is the label heading area yellow with the word "WARNING" and the alert symbol in black? (S4.5.1 (b)(3)(i))
Driver side __ Yes-Pass **__No-FAIL**
Passenger side __ Yes-Pass **__No-FAIL**

3.3.4 Is the message area white with black text? (S4.5.1(b)(3)(ii))
Driver side __ Yes-Pass **__No-FAIL**
Passenger side __ Yes-Pass **__No-FAIL**

3.3.5 Is the message area at least 30 cm^2? (S4.5.1(b)(3)(ii))
Driver side: Length _____, Width _____
Passenger side:Length _____, Width _____
Driver actual message area _____cm^2
Passenger actual message area_____cm^2
Driver side __ Yes-Pass **__No-FAIL**
Passenger side __ Yes-Pass **__No-FAIL**

3.3.6 Is the pictogram black on a white background? (S4.5.1(b)(3)(iii))
Driver side __ Yes-Pass **__No-FAIL**
Passenger side __ Yes-Pass **__No-FAIL**

3.3.7 Is the pictogram at least 30 mm in length? (S4.5.1(b)(3)(iii))
Driver side: Length _____
Passenger side:Length _____
Driver side __ Yes-Pass **__No-FAIL**
Passenger side __ Yes-Pass **__No-FAIL**

3.4 Is the same side of the sun visor that contains the air bag warning label free of other information with the exception of the air bag maintenance label and/or the rollover-warning label? (S4.5.1 (b)(5)(i))
Driver side _X_ Yes-Pass **__No-FAIL**
Passenger side _X_ Yes-Pass **__No-FAIL**

3.5 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 and/or the rollover-warning label? (S4.5.1(b)(5)(ii))
Driver side _X_ Yes-Pass **__No-FAIL**
Passenger side _X_ Yes-Pass **__No-FAIL**

3.6 Does the driver side visor contain a rollover-warning label on the same side of the visor as the air bag warning label?
__Yes (go to 3.6.1); _X_ No (go to 4., skipping 3.6.1 through 3.6.3)

3.6.1 Are both the rollover-warning label and the air bag warning label surrounded by a continuous solid-lined border?
__Yes (go to 3.6.2 and skip 3.6.3); __No (go to 3.6.3 and skip 3.6.2.)

3.6.2 Is the shortest distance from the border of the rollover label to the border of the air bag warning label at least 1 cm? (575.105 (d)(1)(iv)(B))
_____actual distance
__Yes-Pass **__No-FAIL**

3.6.3 Is the shortest distance from any of the lettering or graphics on the rollover-warning label to any of the lettering or graphics of the air bag warning label at least 3 cm? (575.105(d)(1)(iv)(A))
_____actual distance
__Yes-Pass **__No-FAIL**

4. Air Bag Alert Label (S4.5.1(c)) (A "Rollover Warning Label" or "Rollover Alert Label" may be on the same side of the driver's sun visor as the "Air Bag Alert Label." 575.105(d))

4.1 Is the Sun Visor Warning Label visible when the sun visor is in the stowed position?
Driver side X Yes __No
Passenger side X Yes __No
If yes, for driver and passenger go to 5.

4.2 Is the air bag alert label permanently affixed (including permanent marking on the visor material or molding into the visor material) to the sun visor at each front outboard seating position such that it cannot be removed without destroying or defacing the label or the sun visor? (S4.5.1(c))
Driver side __ Yes-Pass **__No-FAIL**
Passenger side __ Yes-Pass **__No-FAIL**

4.3 Is the air bag alert label visible when the visor is in the stowed position? (S4.5.1(c))
Driver side __ Yes-Pass **__No-FAIL**
Passenger side __ Yes-Pass **__No-FAIL**

4.4 Does the label conform in content to the label shown in Figure 6c? (S4.5.1(c))
Driver side __ Yes-Pass **__No-FAIL**
Passenger side __ Yes-Pass **__No-FAIL**

4.5 Is the message area black with yellow text? (S4.5.1(c)(1))
Driver side __ Yes-Pass **__No-FAIL**
Passenger side __ Yes-Pass **__No-FAIL**

4.6 Is the message area at least 20 cm^2? (S4.5.1(c)(1))
Driver side: Length _____, Width _____
Passenger side: Length _____, Width _____
Actual message area _____ cm^2
Driver side __ Yes-Pass **__No-FAIL**
Passenger side __ Yes-Pass **__No-FAIL**

4.7 Is the pictogram black with a red circle and slash on a white background? (S4.5.1(c)(2))
Driver side __ Yes-Pass **__No-FAIL**
Passenger side __ Yes-Pass **__No-FAIL**

4.8 Is the pictogram at least 20 mm in diameter? (S4.5.1(c)(2))
Driver side: diameter _____
Passenger side: diameter _____
Driver side __ Yes-Pass **__No-FAIL**
Passenger side __ Yes-Pass **__No-FAIL**

5. Label On the Dashboard

5.1 Is the vehicle certified to meet the requirements of S19, S21, and S23? **(Obtain the answer to this question from the COTR.)** (S4.5.1(e)(2))
__Yes (go to 5.1.1 and skip 5.2)
X No (go to 5.2, skipping 5.1.1 through 5.1.6)

5.1.1 Does the vehicle have a label on the dash or steering wheel hub? (S4.5.1(e)(2))
__ Yes-Pass **__No-FAIL**

5.1.2 Is the label clearly visible from all front seating positions? (S4.5.1(e)(2))
__ Yes-Pass **__No-FAIL**

5.1.3 Does the label conform in content to the label shown in Figure 9? (S4.5.1(e)(2)) **(Vehicles without back seats may omit the statement: "The back seat is the safest place for children." (S4.5.1(e)(2)(iii)))**
__ Yes-Pass; **__No-Fail**

5.1.4 Is the heading area yellow with black text? (S4.5.1(e)(2)(i)
__ Yes-Pass; **__No-FAIL**

5.1.5 Is the message white with black text? (S4.5.1(e)(2)(ii))
__ Yes-Pass; **__No-FAIL**

5.1.6 Is the message area at least 30 cm^2? (S4.5.1(e)(2)(ii))
Length _____, Width _____
Actual message area _____ cm^2
__ Yes-Pass; **__No-FAIL**

5.2 Does the vehicle have a label on the dash or steering wheel hub? (S4.6.1(e)(1))
X Yes-Pass **__No-FAIL**

5.2.1 Is the label clearly visible from all front seating positions? (S4.5.1(e)(1))
X Yes-Pass __No-FAIL

5.2.2 Does the label conform in content to the label shown in Figure 7? (S4.5.1 (e)(1)(iii)) **(Vehicles without back seats may omit the statement: "The back seat is the safest place for children 12 and under." (S4.5.1(e)(2)(iii)))**
X Yes-Pass; __No-Fail

5.2.3 Is the heading area yellow with the word "WARNING" and the alert symbol in black? (S4.5.1 (e)(1)(i)
X Yes-Pass; __No-FAIL

5.2.4 Is the message white with black text? (S4.5.1(e)(1)(ii))
X Yes-Pass; __No-FAIL

5.2.5 Is the message area at least 30 cm^2? (S4.5.1(e)(1)(ii))
Length 10.3 , Width 5.1
Actual message area 52 cm^2
X Yes-Pass; __No-FAIL

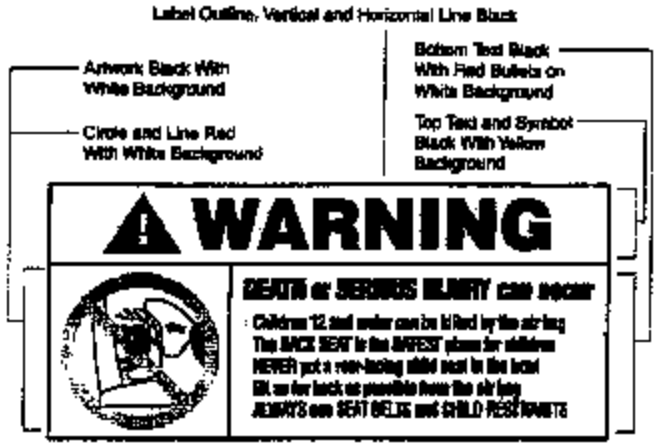


Figure 6a. Sun Visor Label Visible When Visor is in Down Position.

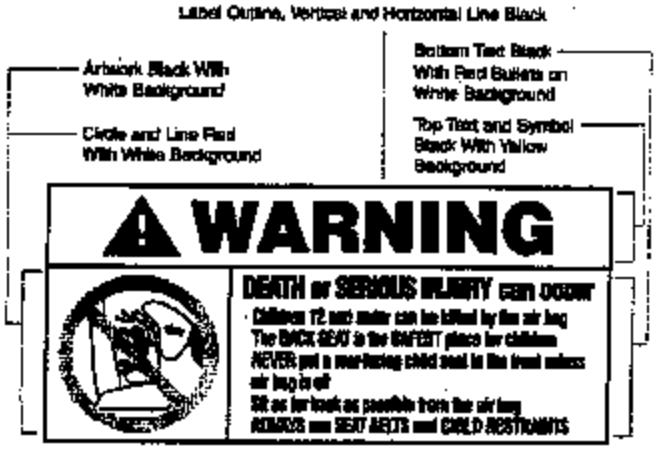


Figure 6b. Sun Visor Label Visible When Visor is in Down Position.

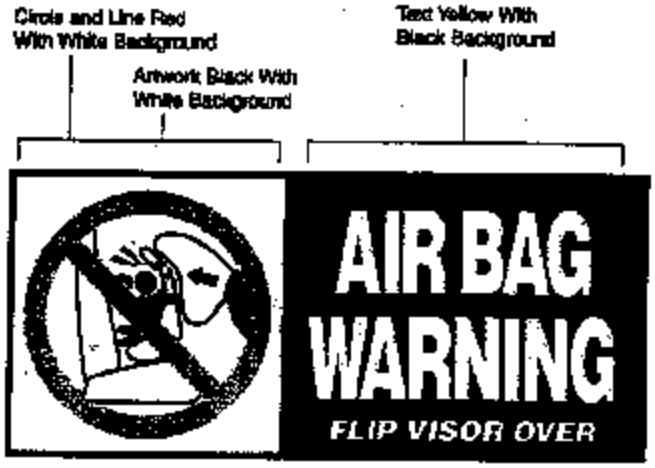


Figure 6c. Sun Visor Label Visible When Visor is in Up Position.

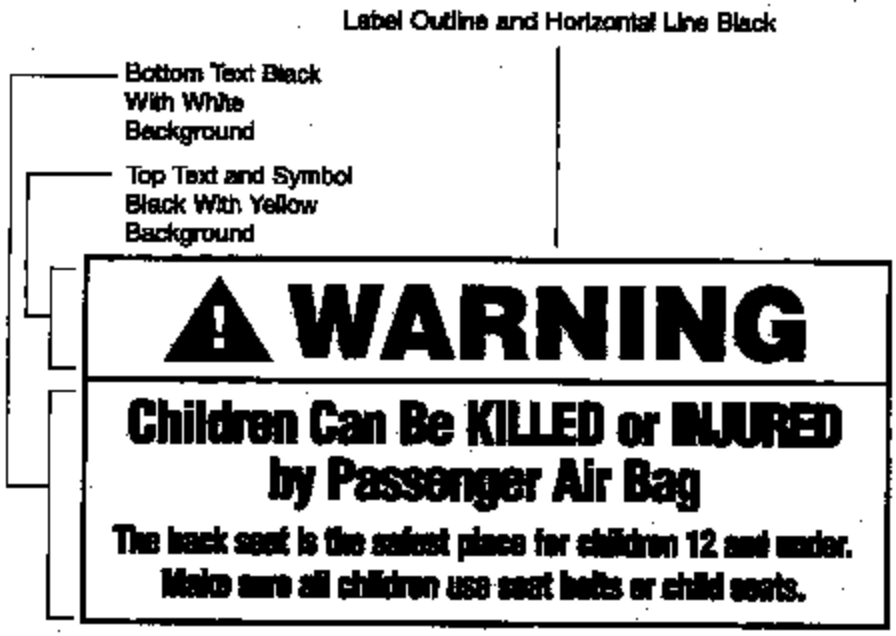


Figure 7. Removable Label on Dash.

Figure 8. Sun Visor Label Visible when Visor is in Down Position.

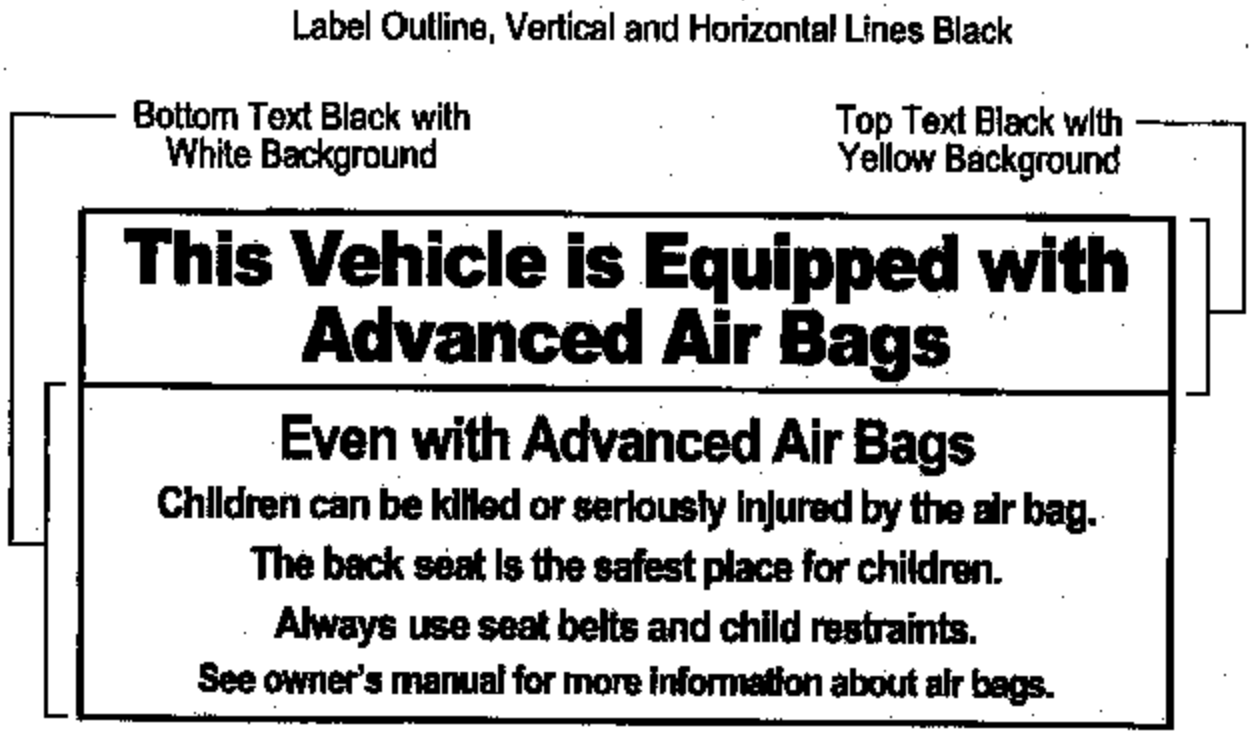


Figure 9. Removable Label on Dash.

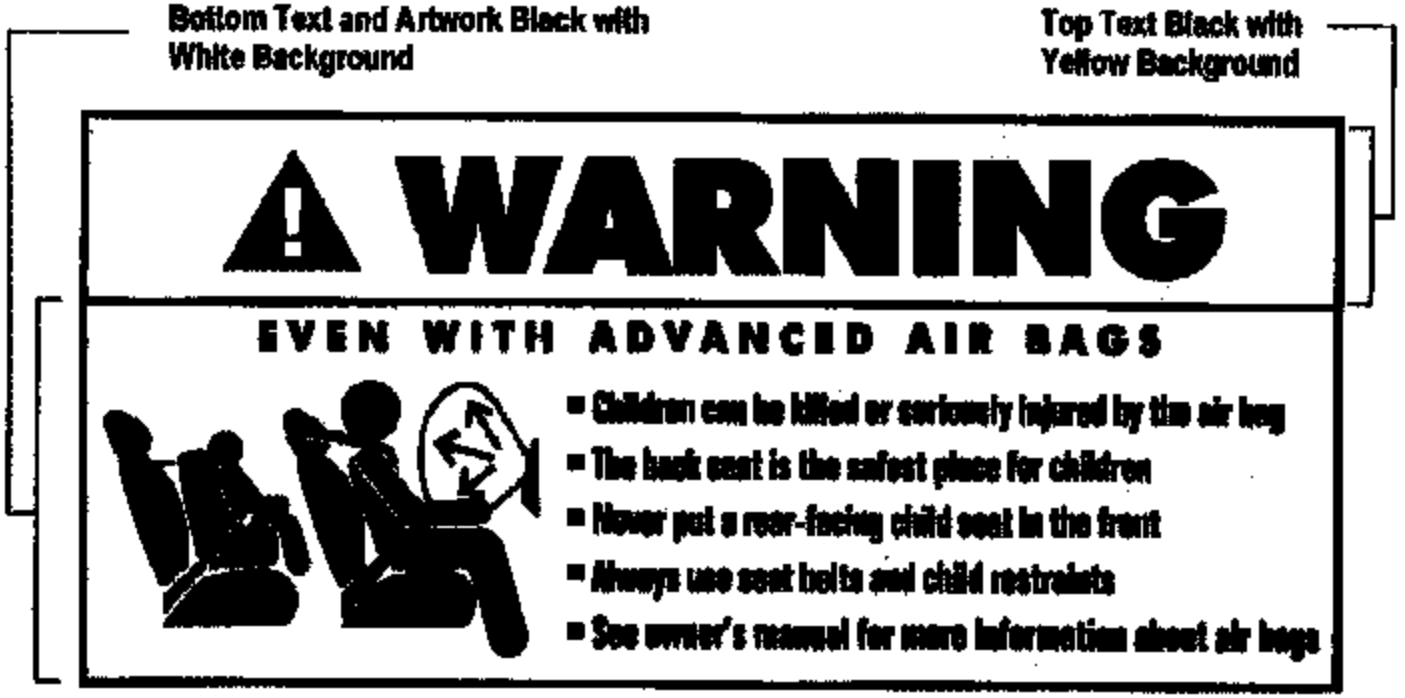


Figure 11. Sun Visor Label Visible when Visor is in Down Position.

DATA SHEET 6

FMVSS 208 READINESS INDICATOR (S4.5.2)

NHTSA No. C40115 Test Date: 03/08/04

Laboratory: TRC Inc. Test Technician(s): Michael S. Postle, Steve Bell

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 to Lawrence F. Henneberger on behalf of Breed)

__1. Is the system totally mechanical? Yes ___; No X
(If YES this Data Sheet is complete.)

__2. Describe the location of the readiness indicator: Upper right center of instrument panel

__3. Is the readiness indicator clearly visible to the driver?
X Yes-Pass; ___**No-FAIL**

__4. Is a list of the elements in the occupant restraint system, being monitored by the readiness indicator, provided on a label or in the owner's manual?
X Yes-Pass; ___**No-FAIL**

__5. Does the vehicle have an on-off switch for the passenger air bag?
__Yes (go to 6) X No (this form is complete)

__6. Is the air bag readiness indicator off when the passenger air bag switch is in the off position?
___Yes-Pass; ___**No-FAIL**

REMARKS:

DATA SHEET 7

Passenger Air Bag Manual Cut-Off Device (S4.5.4)

NHTSA No. C40115 Test Date: 03/08/04

Laboratory: TRC Inc. Test Technician(s): Michael S. Postle, Steve Bell

__1. Is the vehicle equipped with an on-off switch that deactivates the air bag installed at the right front outboard seating position?
__Yes, go to 2
X No, this sheet is complete

__2. Does the vehicle have any forward-facing rear designated seating positions? (S4.5.4(a))
__Yes, go to 3
__No, go to 4

__3. Verification of the lack of room for a child restraint in the rear seat behind the driver's seat. (S4.5.4(b))

__3.1 Position the seat's adjustable lumbar supports so that the lumbar support is in its lowest, retracted or deflated adjustment position. (S8.1.3)
__ N/A – No lumbar adjustment

__3.2. Position any adjustable parts of the seat that provide additional support so that they are in the lowest or most open adjustment position. (S16.2.10.2)
__ N/A – No additional support adjustment

__3.3 If the seat cushion adjusts fore and aft, independent of the seat back, set this adjustment to the full rearward position. (S16.2.10.3.1)
__ N/A – No independent fore-aft seat cushion adjustment

__3.4. If the seat cushion height adjusts independent of the seat back, set this adjustment to the full down position. (S16.2.10.3.1)
__ N/A – No independent seat cushion height adjustment.

__3.5. Put the seat in its full rearward position. (S16.2.10.3.1)
__ N/A - the seat does not have a fore-aft adjustment

__3.6. If the seat height is adjustable, put it in the full down position. (S16.2.10.3.1)
__N/A – No seat height adjustment

__3.7 Draw a horizontal reference line on the side of the seat cushion.

__3.8. Using only the controls that change the seat in the fore-aft direction, mark the fore-aft seat positions. Mark the side of the seat and a reference position directly below on a part of the vehicle that does not adjust. For manual seats, move the seat forward one detent at a time and mark each detent as was done for the full rearward position. For power seats, mark only the full rearward, middle, and full forward positions. Label three of the positions with the following: F for full forward, M for mid-position (if there is no mid position, label the closest adjustment position to the rear of the mid-point), and R for full rearward.
__ N/A - The seat does not have a fore-aft adjustment.

__3.9. Using only the controls that change the seat in the fore-aft direction, place the seat in the full rearward position and then place the seat in the middle fore-aft position. (S8.1.2)
__N/A – The seat does not have fore-aft adjustment.
__Mid position
If there is no mid position, put the seat in the closest adjustment position to the rear of the midpoint. Describe the location of the seat: _____

__3.10. If seat adjustments, other than fore-aft, are present and the horizontal reference line is no longer horizontal, use those adjustments to maintain the reference line as closely as possible to the horizontal.
__ N/A – No adjustments
Angle of reference line as tested _____

__3.11. The seat back angle, if adjustable, is set at the manufacturer's nominal design riding position for a 50th percentile adult male in the manner specified by the manufacturer. (S4.5.4.1 (b) and S8.1.3)
__ N/A – No seat back angle adjustment
Manufacturer's design seat back angle _____
Tested seat back angle _____

__3.12 Is the driver seat a bucket seat?
__ Yes, go to 3.12.1 and skip 3.12.2.
__ No, go to 3.12.2 and skip 3.12.1.

__3.12.1 Bucket seats:

__3.12.1.1 Locate and mark a vertical Plane B through the longitudinal centerline of the seat driver's seat cushion. (S22.2.1.3) The longitudinal centerline of a bucket seat cushion is determined at the widest part of the seat cushion. Measure perpendicular to the longitudinal centerline of the vehicle.
Record the width of the seat. _____
Record the distance from the edge of the seat to Plane B. _____

__3.12.1.2 Locate the longitudinal horizontal line in plane B that is tangent to the highest point of the rear seat cushion behind the driver's seat. Measure along this line from the front of the seat back of the rear seat to the rear of the seat back of the driver's seat.
____ mm distance
__less than 720 mm – Pass
__more than 720 mm – **FAIL**
Go to 4

__3.12.2 Bench seats (including split bench seats):

__3.12.2.1 Locate and mark a vertical Plane B through the center of the steering wheel parallel to the vehicle longitudinal centerline.

__3.12.2.2 Locate the longitudinal horizontal line in plane B that is tangent to the highest point of the rear seat cushion. Measure along this line from the front of the seat back of the rear seat to the rear of the seat back of the front seat.
____ mm distance
__less than 720 mm – Pass
__more than 720 mm - **FAIL**
Go to 4

__4. Does the device turn the air bag on and off using the vehicle's ignition key? (S4.5.4.2)
__Yes – Pass
__No – **FAIL**

__5. Is the on-off device separate from the ignition switch? (S4.5.4.2)
__Yes – Pass
__No – **FAIL**

__6. Is there a telltale light that comes on when the passenger air bag is turned off? (S4.5.4.2)
__Yes – Pass
__No – **FAIL**

__7. Telltale light (S4.5.4.3)

__7.1 Is the light yellow? S4.5.4.3(a))
__Yes – Pass
__No – **FAIL**

__7.2 Are the words "PASSENGER AIR BAG OFF" (S4.5.4.3(b))

__7.2.1 on the telltale?
__Yes – Pass, go to 7.3
__No – go to 7.2.2

__7.2.2 within 25 mm of the telltale? _____mm from the edge of the telltale light
__Yes – Pass
__No – **FAIL**

__7.3 Does the telltale remain illuminated while the air bag is turned off? (S4.5.4.3c)) (Leave the air bag off for 5 minutes.)
__Yes – Pass
__No – **FAIL**

__7.4 Is the telltale illuminated while the air bag is turned on? (S4.5.4.3(d))
__Yes – **FAIL**
__No – Pass

__7.5 Is the telltale combined with the air bag readiness indicator? (S4.5.3(e))
__Yes – **FAIL**
__No – Pass

__8. Owner's manual

__8.1 Does the owner's manual contain complete instructions on the operation of the on-off switch? (S4.5.4.4(a))
__Yes – Pass
__No – **FAIL**

__8.2 Does the owner's manual contain a statement that the on-off switch should only be used when a member of one of the following risk groups is occupying the right front passenger seating position? (S4.5.4.4(b))

Infants:	there is no back seat
	the rear seat is too small to accommodate a child restraint
	there is a medical condition that must be monitored constantly
Children aged 1 to 12:	there is no back seat
	space is not always available in the rear seat
	there is a medical condition that must be monitored constantly
Medical condition:	medical risk causes special risk for passenger
	greater risk for harm than with the air bag on

__Yes – Pass
__No – **FAIL**

__8.3 Does the owner's manual contain a warning about the safety consequences of using the on-off switch at other times?
__Yes – Pass
__No – **FAIL**

DATA SHEET 8

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 that can be adjusted to forward-facing or that is a forward-facing seat, other than the driver's seat (S7.1.1.5(a), **and** that has seat belt retractors that are not solely automatic locking retractors. (S7.1.1.5(c))

NHTSA No. C40115 Test Date: 03/08/04

Laboratory: TRC Inc. Test Technician(s): Michael S. Postle, Steve Bell

DESIGNATED SEATING POSITION: Front passenger

__N/A – No retractor is at this position
__N/A – The retractor is an automatic locking retractor ONLY

__1. Record test fore-aft seat position. Middle of geometric range of travel (S7.1.1.5 (c)(1))
(Any position is acceptable.)

X 2. 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 of the vehicle. (S7.1.1.5 (a))
X Yes-Pass; __**No-FAIL**

X 3. 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))
X Yes-Pass; __**No-FAIL**

X 4. Buckle the seat belt. (S7.1.1.5(c)(1))

X 5. Locate a reference point A on the seat belt buckle. (S7.1.1.5(c)(2))

X 6. 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))

X 7. 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?
X Yes; __No (If yes, go to 7.1. If no, go to 8.)

X 7.1 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))
X Yes-Pass; __**No-FAIL**

X 8. 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) & S7.1.1.5(c)(1))

X 9. 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 32.7 inches

X 10. 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))

X 11. 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)

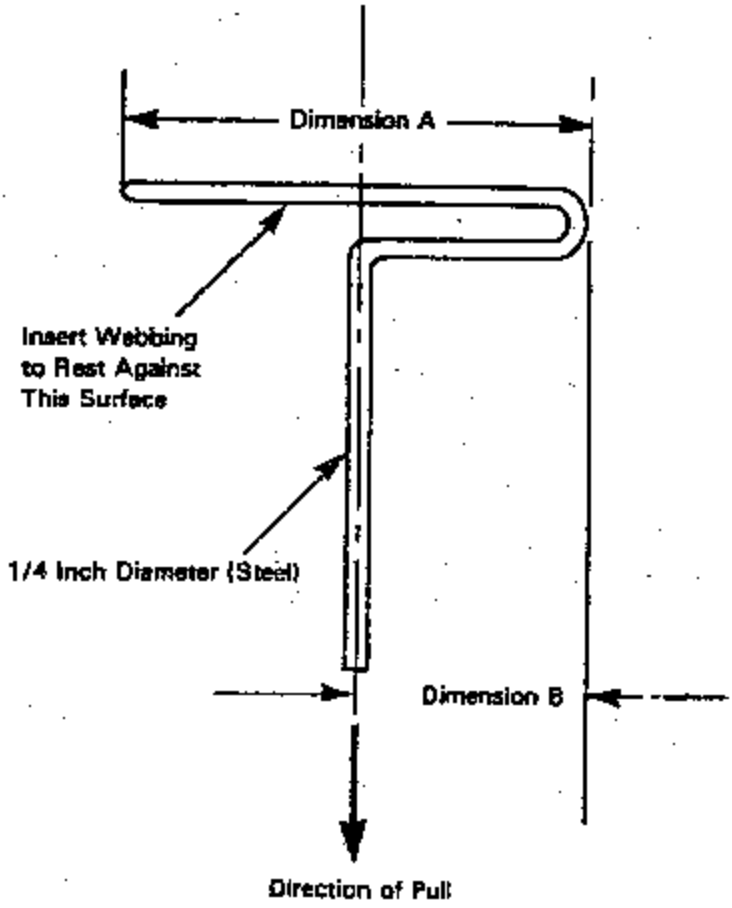
X 12. Measure the length between points A and B along the longitudinal centerline of the webbing while the preload is being applied. (S7.1.1.5(c)(4))
Measured distance between A and B 22.8 Inches

X 13. Increase the load to 50 pounds at a rate of no more than 50 pounds per second. Attain the load in not more than 5 seconds. (If webbing sensitive emergency locking retractors are installed as part of the lap belt or lap belt portion of the seat belt assembly, apply the load at a rate less than the threshold value for lock-up specified by the manufacturer.) Maintain the load for at least 5 seconds. Measure and record the distance between points A and B along the longitudinal centerline of the webbing. (S7.1.1.5(c)(5))
Record onset rate 25 lb/sec (spec. 10 to 50 lb/sec) (S7.1.1.5(c)(5))
Measured distance between A and B 22.8 inches (S7.1.1.5(c)(6))

X 14. Subtract the measurement in 13 from the measurement in 12. Is the difference 2 inches or less? (S7.1.1.5(c)(7)) 13-12= 0 inches;
X Yes-Pass; __No-FAIL

X 15. Subtract the measurement in 9 from the measurement in 13. Is the difference 3 inches or more? (S7.1.1.5(c)(8)) 9-13= 9.8 Inches;
X Yes-Pass; __No-FAIL

REMARKS:



Dimension A - Width of Webbing Plus 1/2 Inch

Dimension B - 1/2 of Dimension A

Figure 5. - Webbing Tension Pull Device

DATA SHEET 6

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 that can be adjusted to forward-facing or that is a forward-facing seat, other than the driver's seat (S7.1.1.5(a), **and** that has seat belt retractors that are not solely automatic locking retractors. (S7.1.1.5(c))

NHTSA No. C40115 Test Date: 03/06/04

Laboratory: TRC Inc. Test Technician(s): Michael S. Postle, Steve Bell

DESIGNATED SEATING POSITION: Left rear passenger

__N/A – No retractor is at this position
__N/A – The retractor is an automatic locking retractor ONLY

__1. Record test fore-aft seat position. Fixed position (S7.1.1.5 (c)(1))
(Any position is acceptable.)

X 2. 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 of the vehicle. (S7.1.1.5 (a))
X Yes-Pass; __**No-FAIL**

X 3. 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))
X Yes-Pass; __**No-FAIL**

X 4. Buckle the seat belt. (S7.1.1.5(c)(1))

X 5. Locate a reference point A on the seat belt buckle. (S7.1.1.5(c)(2))

X 6. 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))

X 7. 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?
__Yes; X No (If yes, go to 7.1. If no, go to 8.)

__7.1 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**

X 8. 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) & S7.1.1.5(c)(1))

X 9. 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 56.9 inches

X 10. 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))

X 11. 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)

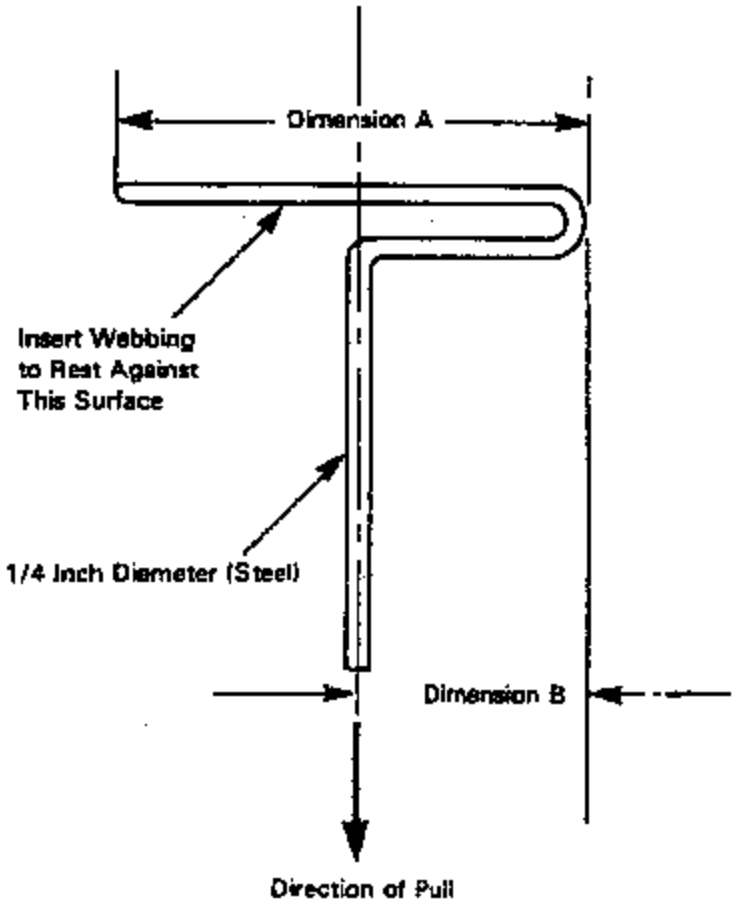
X 12. Measure the length between points A and B along the longitudinal centerline of the webbing while the preload is being applied. (S7.1.1.5(c)(4))
Measured distance between A and B 32.7 inches

X 13. Increase the load to 50 pounds at a rate of no more than 50 pounds per second. Attain the load in not more than 5 seconds. (If webbing sensitive emergency locking retractors are installed as part of the lap belt or lap belt portion of the seat belt assembly, apply the load at a rate less than the threshold value for lock-up specified by the manufacturer.) Maintain the load for at least 5 seconds. Measure and record the distance between points A and B along the longitudinal centerline of the webbing. (S7.1.1.5(c)(5))
Record onset rate 25 lb/sec (spec. 10 to 50 lb/sec) (S7.1.1.5(c)(5))
Measured distance between A and B 33.1 inches (S7.1.1.5(c)(6))

X 14. Subtract the measurement in 13 from the measurement in 12. Is the difference 2 inches or less? (S7.1.1.5(c)(7)) 13-12= 0.4 inches;
X Yes-Pass; __No-FAIL

X 15. Subtract the measurement in 9 from the measurement in 13. Is the difference 3 inches or more? (S7.1.1.5(c)(8)) 9-13= 23.8 inches;
X Yes-Pass; __No-FAIL

REMARKS:



Dimension A - Width of Webbing Plus 1/2 Inch

Dimension B - 1/2 of Dimension A

Figure 5. - Webbing Tension Pull Device

DATA SHEET 8

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 that can be adjusted to forward-facing or that is a forward-facing seat, other than the driver's seat (S7.1.1.5(a), and that has seat belt retractors that are not solely automatic locking retractors. (S7.1.1.5(c))

NHTSA No. C40115 Test Date: 03/08/04

Laboratory: TRC Inc. Test Technician(s): Michael S. Postle, Steve Bell

DESIGNATED SEATING POSITION: Center rear passenger

__N/A – No retractor is at this position
__N/A – The retractor is an automatic locking retractor ONLY

__1. Record test fore-aft seat position. Fixed position (S7.1.1.5 (c)(1))
(Any position is acceptable.)

X 2. 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 of the vehicle. (S7.1.1.5 (a))
X Yes-Pass; __**No-FAIL**

X 3. 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))
X Yes-Pass; __**No-FAIL**

X 4. Buckle the seat belt. (S7.1.1.5(c)(1))

X 5. Locate a reference point A on the seat belt buckle. (S7.1.1.5(c)(2))

X 6. 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))

X 7. 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?
__Yes; X No (If yes, go to 7.1. If no, go to 8.)

__7.1 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**

X 8. 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) & S7.1.1.5(c)(1))

X 9. 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 57.3 inches

X 10. 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))

X 11. 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)

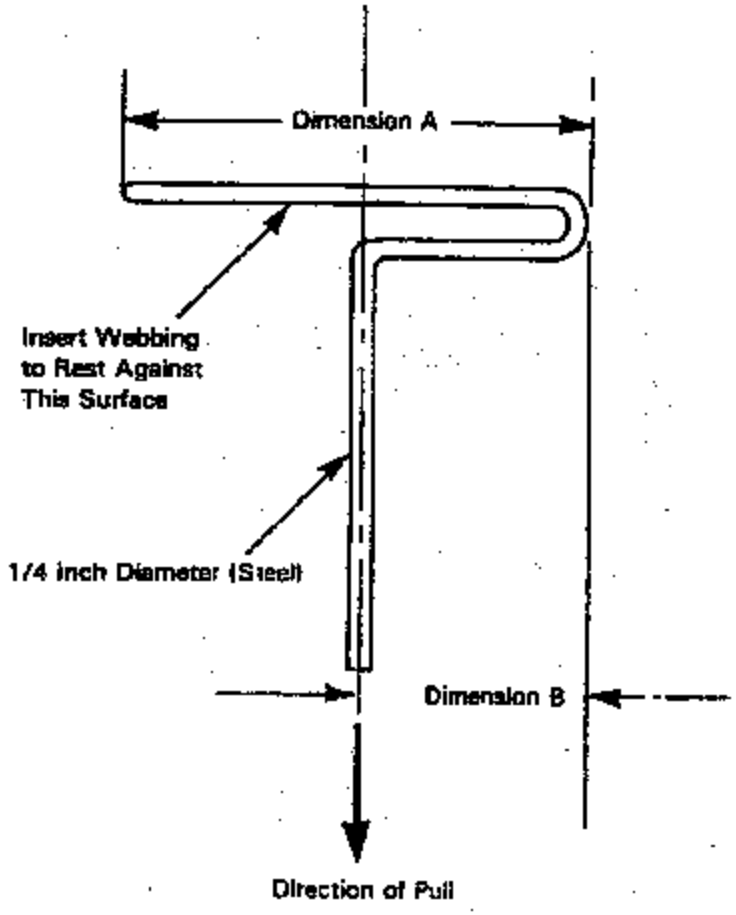
X 12. Measure the length between points A and B along the longitudinal centerline of the webbing while the preload is being applied. (S7.1.1.5(c)(4))
Measured distance between A and B 26.6 inches

X 13. Increase the load to 50 pounds at a rate of no more than 50 pounds per second. Attain the load in not more than 5 seconds. (If webbing sensitive emergency locking retractors are installed as part of the lap belt or lap belt portion of the seat belt assembly, apply the load at a rate less than the threshold value for lock-up specified by the manufacturer.) Maintain the load for at least 5 seconds. Measure and record the distance between points A and B along the longitudinal centerline of the webbing. (S7.1.1.5(c)(5))
Record onset rate 25 lb/sec (spec. 10 to 50 lb/sec) (S7.1.1.5(c)(5))
Measured distance between A and B 27.2 inches (S7.1.1.5(c)(6))

X 14. Subtract the measurement in 13 from the measurement in 12. Is the difference 2 inches or less? (S7.1.1.5(c)(7)) 13-12= 0.6 inches;
X Yes-Pass; __ **No-FAIL**

X 15. Subtract the measurement in 9 from the measurement in 13. Is the difference 3 inches or more? (S7.1.1.5(c)(8)) 9-13= 30.1 inches;
X Yes-Pass; __ **No-FAIL**

REMARKS:



Dimension A - Width of Webbing Plus 1/2 Inch

Dimension B - 1/2 of Dimension A

Figure 5. - Webbing Tension Pull Device

DATA SHEET 8

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 that can be adjusted to forward-facing or that is a forward-facing seat, other than the driver's seat (S7.1.1.5(a), **and** that has seat belt retractors that are not solely automatic locking retractors. (S7.1.1.5(c))

NHTSA No. C40115 Test Date: 03/08/04

Laboratory: TRC Inc. Test Technician(s): Michael S. Postle, Steve Bell

DESIGNATED SEATING POSITION: Right rear passenger

__N/A – No retractor is at this position
__N/A – The retractor is an automatic locking retractor ONLY

__1. Record test fore-aft seat position. Fixed position (S7.1.1.5 (c)(1))
(Any position is acceptable.)

X 2. 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 of the vehicle. (S7.1.1.5 (a))
X Yes-Pass; __**No-FAIL**

X 3. 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))
X Yes-Pass; __**No-FAIL**

X 4. Buckle the seat belt. (S7.1.1.5(c)(1))

X 5. Locate a reference point A on the seat belt buckle. (S7.1.1.5(c)(2))

X 6. 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))

X 7. 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?
__Yes; X No (if yes, go to 7.1. If no, go to 8.)

__7.1 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**

X 8. 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) & S7.1.1.5(c)(1))

X 9. 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 57.7 inches

X 10. 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))

X 11. 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)

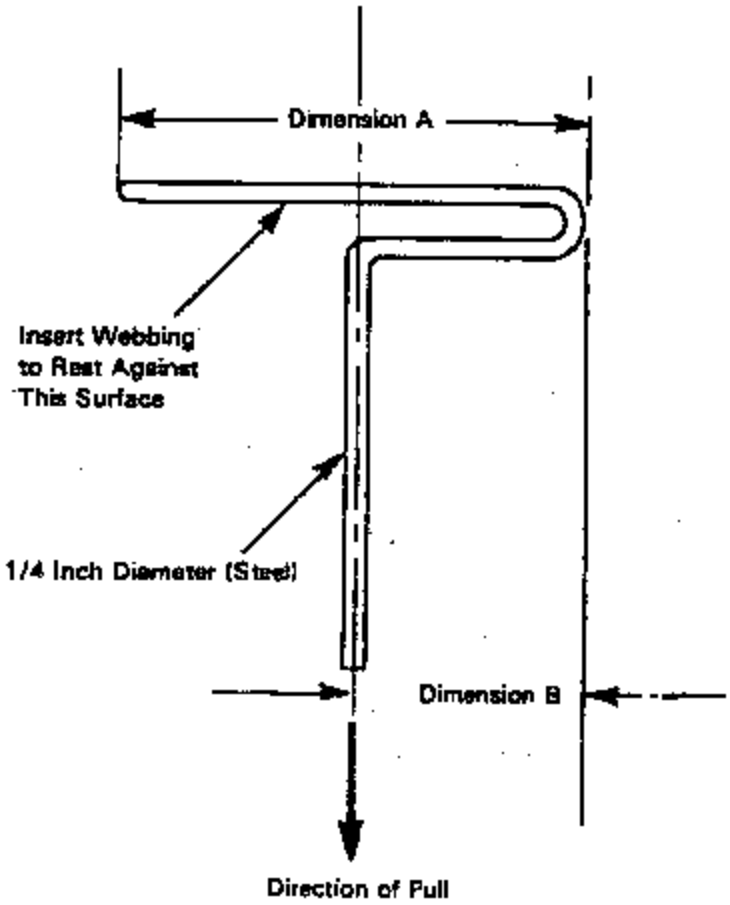
X 12. Measure the length between points A and B along the longitudinal centerline of the webbing while the preload is being applied. (S7.1.1.5(c)(4))
Measured distance between A and B 30.1 inches

X 13. Increase the load to 50 pounds at a rate of no more than 50 pounds per second. Attain the load in not more than 5 seconds. (If webbing sensitive emergency locking retractors are installed as part of the lap belt or lap belt portion of the seat belt assembly, apply the load at a rate less than the threshold value for lock-up specified by the manufacturer.) Maintain the load for at least 5 seconds. Measure and record the distance between points A and B along the longitudinal centerline of the webbing. (S7.1.1.5(c)(5))
Record onset rate 25 lb/sec (spec. 10 to 50 lb/sec) (S7.1.1.5(c)(5))
Measured distance between A and B 30.5 inches (S7.1.1.5(c)(6))

X 14. Subtract the measurement in 13 from the measurement in 12. Is the difference 2 inches or less? (S7.1.1.5(c)(7)) 13-12= 0.4 inches;
X Yes-Pass; __No-FAIL

X 15. Subtract the measurement in 9 from the measurement in 13. Is the difference 3 inches or more? (S7.1.1.5(c)(8)) 9-13= 27.2 inches;
X Yes-Pass; __No-FAIL

REMARKS:



Dimension A - Width of Webbing Plus 1/2 Inch
Dimension B - 1/2 of Dimension A

Figure 5. - Webbing Tension Pull Device

DATA SHEET 9

FMVSS 208 SEAT BELT WARNING SYSTEM CHECK (S7.3)

NHTSA No. C40115 Test Date: 09/05/04

Laboratory: TRC Inc. Test Technician(s): Michael S. Postle, Steve Bell

X 1. The occupant is in the driver's seat.
X 2. The seat belt is in the stowed position.
X 3. The key is in the "on" or "start" position.
X 4. The time duration of the audible signal beginning with key "on" or "start" is 5 seconds.
X 5. The occupant is in the driver's seat.
X 6. The seat belt is in the stowed position.
X 7. The key is in the "on" or "start"" position.
X 8. The time duration of the warning light beginning with key "on" or "start" is 75 seconds.
X 9. The occupant is in the driver's seat.
X 10. The seat belt is in the latched position and with at least 4 inches of belt webbing extended.
X 11. The key is in the "on" or "start" position.
X 12. The time duration of the audible signal beginning with key "on" or "start" is 0 seconds.
X 13. The occupant is in the driver's seat.
X 14. The seat belt is in the latched position and with at least 4 inches of belt webbing extended.
X 15. The key is in the "on" or "start" position.
X 16. The time duration of the warning light beginning with key "on" or "start" is 5 seconds.
X 17. Complete the following table with the data from 4, 8, 12 and 16 to determine which option is used

		Warning light	Warning light specification	Audible signal	Audible signal specification*
S7.3 (a)(1)	Belt latched & Key on or start	Item 16 5	0 seconds*	Item 12 0	0 seconds**
	Belt stowed & Key on or start	Item 8 75	60 seconds minimum	Item 4 5	4 to 8 seconds
S7.3 (a)(2)	Belt latched & Key on or start	Item 16	4 to 8 seconds	Item 12	0 seconds**
	Belt stowed & Key on or start	Item 8	4 to 8 seconds	Item 4	4 to 8 seconds

* 49 USCS @ 30124 does NOT allow an audible signal to operate for more than 8 seconds.
** 0 seconds means the light or audible signal are NOT permitted to operate under these conditions. See 7/12/00 Interpretation to Patrick Raher of Hogan and Hartson

__18. The seat belt warning system meets the requirements of (manufacturers may comply with either section)
X S7.3 (a)(1)
__ S7.3 (a)(2)
__ FAIL - Does NOT meet the requirements of either option

__19. Note wording of visual warning: (S7.3(a)(1) and S7.3(a)(2))
__ Fasten Seat Belts
__ Fasten Belts
X Symbol 101
__ FAIL – Does not use any of the above wording or symbol

DATA SHEET 10

BELT CONTACT FORCE (S7.4.3)

NHTSA No. C40115 Test Date: 03/06/04

Laboratory: TRC inc. Test Technician(s): Michael S. Postle, Steve Bell

DESIGNATED SEATING POSITION: Left rear passenger

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.

X 1. Does the vehicle incorporate a webbing tension-relieving device?
___Yes (this form is complete)
X No (continue with this check sheet)

X 3. Position the seat's adjustable lumbar supports so that the lumbar support is in its lowest, retracted or deflated adjustment position. (S6.1.3)
X N/A – No lumbar adjustment

X 4. Position any adjustable parts of the seat that provide additional support so that they are in the lowest or most open adjustment position. (S16.2.10.2)
X N/A – No additional support adjustment

X 5. If the seat cushion adjusts fore and aft, independent of the seat back, set this adjustment to the full rearward position. (S16.2.10.3.1)
X N/A – No independent fore-aft seat cushion adjustment

X 6. If the seat cushion height adjusts independent of the seat back, set this adjustment to the full down position. (S16.2.10.3.1)
X N/A – No independent seat cushion height adjustment.

X 7. Put the seat in its full rearward position. (S16.2.10.3.1)
X N/A - the seat does not have a fore-aft adjustment

X 8. If the seat height is adjustable, put it in the full down position. (S16.2.10.3.1)
X N/A – No seat height adjustment

X 9 Draw a horizontal reference line on the side of the seat cushion.

X 10. Using only the controls that change the seat in the fore-aft direction, mark the fore-aft seat positions. Mark the side of the seat and a reference position directly below on a part of the vehicle that does not adjust. For manual seats, move the seat forward one detent at a time and mark each detent as was done for the full rearward position. For power seats, mark only the full rearward, middle, and full forward positions. Label three of the positions with the following: F for full forward, M for mid-position (if there is no mid position, label the closest adjustment position to the rear of the mid-point), and R for full rearward.
X N/A - The seat does not have a fore-aft adjustment.

__11. Using only the controls that change the seat in the fore-aft direction, place the seat in the full rearward position and then place the seat in the middle fore-aft position for this test. (S8.1.2)
__Mid position. If there is no mid position, put the seat in the closest adjustment position to the rear of the midpoint. Describe the location of the seat: _____
_____

X 12. If seat adjustments other than fore-aft are present and the horizontal reference line is no longer horizontal,, use those adjustments to maintain the reference line as closely as possible to the horizontal. (S16.2.10.3.2.1)
X N/A – No adjustments
Reference line angle as tested _____

X 13. The seat back angle, if adjustable, is set at the manufacturer's nominal design riding position for a 50th percentile adult male in the manner specified by the manufacturer. (S4.5.4.1 (b) and S8.1.3)
X N/A – No seat back angle adjustment
Manufacturer's design seat back angle _____
Tested seat back angle _____

X 14. Position the test dummies according to dummy position placement instructions in Appendix B and include the positioning check sheets.

X 15. Fasten the seat belt latch.
X 16. 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.
X 17. 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) Using a force measuring gage with a full scale range of no more than 1.5 pounds, measure the contact force perpendicular to the dummy's chest exerted by the belt webbing.
Contact force 0.559 lb.
X 0.0 to 0.7 pounds - Pass
___**greater than 0.7 pounds - FAIL**

DATA SHEET 10

BELT CONTACT FORCE (S7.4.3)

NHTSA No. C40115 Test Date: 03/08/04

Laboratory: TRC Inc. Test Technician(s): Michael S. Postle, Steve Bell

DESIGNATED SEATING POSITION: Center rear passenger

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.

X 1. Does the vehicle incorporate a webbing tension-relieving device?
___Yes (this form is complete)
X No (continue with this check sheet)

X 3. Position the seat's adjustable lumbar supports so that the lumbar support is in its lowest, retracted or deflated adjustment position. (S8.1.3)
X N/A – No lumbar adjustment

X 4. Position any adjustable parts of the seat that provide additional support so that they are in the lowest or most open adjustment position. (S16.2.10.2)
X N/A – No additional support adjustment

X 5. If the seat cushion adjusts fore and aft, independent of the seat back, set this adjustment to the full rearward position. (S16.2.10.3.1)
X N/A – No independent fore-aft seat cushion adjustment

X 6. If the seat cushion height adjusts independent of the seat back, set this adjustment to the full down position. (S16.2.10.3.1)
X N/A – No independent seat cushion height adjustment.

X 7. Put the seat in its full rearward position. (S16.2.10.3.1)
X N/A - the seat does not have a fore-aft adjustment

X 8. If the seat height is adjustable, put it in the full down position. (S16.2.10.3.1)
X N/A – No seat height adjustment

X 9 Draw a horizontal reference line on the side of the seat cushion.

X 10. Using only the controls that change the seat in the fore-aft direction, mark the fore-aft seat positions. Mark the side of the seat and a reference position directly below on a part of the vehicle that does not adjust. For manual seats, move the seat forward one detent at a time and mark each detent as was done for the full rearward position. For power seats, mark only the full rearward, middle, and full forward positions. Label three of the positions with the following: F for full forward, M for mid-position (if there is no mid position, label the closest adjustment position to the rear of the mid-point), and R for full rearward.
X N/A - The seat does not have a fore-aft adjustment.

__11. Using only the controls that change the seat in the fore-aft direction, place the seat in the full rearward position and then place the seat in the middle fore-aft position for this test. (S8.1.2)
__Mid position. If there is no mid position, put the seat in the closest adjustment position to the rear of the midpoint. Describe the location of the seat: _____

X 12. If seat adjustments other than fore-aft are present and the horizontal reference line is no longer horizontal,, use those adjustments to maintain the reference line as closely as possible to the horizontal. (S16.2.10.3.2.1)
X N/A – No adjustments
Reference line angle as tested _____

X 13. The seat back angle, if adjustable, is set at the manufacturer's nominal design riding position for a 50th percentile adult male in the manner specified by the manufacturer. (S4.5.4.1 (b) and S8.1.3)
X N/A – No seat back angle adjustment
Manufacturer's design seat back angle _____.
Tested seat back angle _____

X 14. Position the test dummies according to dummy position placement instructions in Appendix B and include the positioning check sheets.

X 15. Fasten the seat belt latch.
X 16. 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.
X 17. 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. (S10.6) Using a force measuring gage with a full scale range of no more than 1.5 pounds, measure the contact force perpendicular to the dummy's chest exerted by the belt webbing.
Contact force 0.581 lb.
X 0.0 to 0.7 pounds - Pass
___greater than 0.7 pounds - FAIL

DATA SHEET 10

BELT CONTACT FORCE (S7.4.3)

NHTSA No. C40115 Test Date: 03/09/04

Laboratory: TRC Inc. Test Technician(s): Michael S. Postle, Steve Bell

DESIGNATED SEATING POSITION: Right rear passenger

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.

X 1. Does the vehicle incorporate a webbing tension-relieving device?
___Yes (this form is complete)
X No (continue with this check sheet)

X 3. Position the seat's adjustable lumbar supports so that the lumbar support is in its lowest, retracted or deflated adjustment position. (S8.1.3)
X N/A – No lumbar adjustment

X 4. Position any adjustable parts of the seat that provide additional support so that they are in the lowest or most open adjustment position. (S16.2.10.2)
X N/A – No additional support adjustment

X 5. If the seat cushion adjusts fore and aft, independent of the seat back, set this adjustment to the full rearward position. (S16.2.10.3.1)
X N/A – No independent fore-aft seat cushion adjustment

X 6. If the seat cushion height adjusts independent of the seat back, set this adjustment to the full down position. (S16.2.10.3.1)
X N/A – No independent seat cushion height adjustment.

X 7. Put the seat in its full rearward position. (S16.2.10.3.1)
X N/A - the seat does not have a fore-aft adjustment

X 8. If the seat height is adjustable, put it in the full down position. (S16.2.10.3.1)
X N/A – No seat height adjustment

X 9 Draw a horizontal reference line on the side of the seat cushion.

X 10. Using only the controls that change the seat in the fore-aft direction, mark the fore-aft seat positions. Mark the side of the seat and a reference position directly below on a part of the vehicle that does not adjust. For manual seats, move the seat forward one detent at a time and mark each detent as was done for the full rearward position. For power seats, mark only the full rearward, middle, and full forward positions. Label three of the positions with the following: F for full forward, M for mid-position (if there is no mid position, label the closest adjustment position to the rear of the mid-point), and R for full rearward.
X N/A - The seat does not have a fore-aft adjustment.

___11. Using only the controls that change the seat in the fore-aft direction, place the seat in the full rearward position and then place the seat in the middle fore-aft position for this test. (S8.1.2)
__Mid position. If there is no mid position, put the seat in the closest adjustment position to the rear of the midpoint. Describe the location of the seat: _____
_____

X 12. If seat adjustments other than fore-aft are present and the horizontal reference line is no longer horizontal,, use those adjustments to maintain the reference line as closely as possible to the horizontal. (S16.2.10.3.2.1)
X N/A – No adjustments
Reference line angle as tested _____

X 13. The seat back angle, if adjustable, is set at the manufacturer's nominal design riding position for a 50th percentile adult male in the manner specified by the manufacturer. (S4.5.4.1 (b) and S8.1.3)
X N/A – No seat back angle adjustment
Manufacturer's design seat back angle _____
Tested seat back angle _____

X 14. Position the test dummies according to dummy position placement instructions in Appendix B and include the positioning check sheets.

X 15. Fasten the seat belt latch.

X 16. 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.

X 17. 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) Using a force measuring gage with a full scale range of no more than 1.5 pounds, measure the contact force perpendicular to the dummy's chest exerted by the belt webbing.

Contact force 0.565 lb.

X 0.0 to 0.7 pounds - Pass

___ **greater than 0.7 pounds - FAIL**

DATA SHEET 11

LATCHPLATE ACCESS (S7.4.4)

NHTSA No. C40115 Test Date: 03/09/04

Laboratory: TRC Inc. Test Technician(s): Michael S. Postle, Steve Bell

DESIGNATED SEATING POSITION: N/A - Passenger car

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's adjustable lumbar supports so that the lumbar support is in its lowest, retracted or deflated adjustment position. (S8.1.3)
__ N/A – No lumbar adjustment

__2. Position any adjustable parts of the seat that provide additional support so that they are in the lowest or most open adjustment position. (S16.2.10.2)
__ N/A – No additional support adjustment

__3. If the seat cushion adjusts fore and aft, independent of the seat back, set this adjustment to the full rearward position. (S16.2.10.3.1)
__ N/A – No independent fore-aft seat cushion adjustment

__4. If the seat cushion height adjusts independent of the seat back, set this adjustment to the full down position. (S16.2.10.3.1)
__ N/A – No independent seat cushion height adjustment.

__5. Put the seat in its full rearward position. (S16.2.10.3.1)
__ N/A - the seat does not have a fore-aft adjustment

__6. If the seat height is adjustable, put it in the full down position. (S16.2.10.3.1)
__N/A – No seat height adjustment

__7 Draw a horizontal reference line on the side of the seat cushion

__8. Using only the controls that change the seat in the fore-aft direction, mark the fore-aft seat positions. Mark the side of the seat and a reference position directly below on a part of the vehicle that does not adjust. For manual seats, move the seat forward one detent at a time and mark each detent as was done for the full rearward position. For power seats, mark only the full rearward, middle, and full forward positions. Label three of the positions with the following: F for full forward, M for mid-position (if there is no mid position, label the closest adjustment position to the rear of the mid-point), and R for full rearward.
__ N/A - The seat does not have a fore-aft adjustment.

__9. Using only the controls that change the seat in the fore-aft direction, place the seat in the full rearward position and then place the seat in the forwardmost fore-aft position for this test. (S10.7)

__10. If seat adjustments, other than fore-aft, are present and the horizontal reference line is no longer horizontal, use those adjustments to maintain the reference line as closely as possible to the horizontal.
__ N/A – No adjustments
Reference line angle as tested _____

__11. The seat back angle, if adjustable, is set at the manufacturer's nominal design riding position for a 50th percentile adult male in the manner specified by the manufacturer. (S4.5.4.1 (b) and S8.1.3)
__ N/A – No seat back angle adjustment
Manufacturer's design seat back angle _____
Tested seat back angle _____

__12. Position the test dummy using the procedures in Appendix A. (Some modifications to the positioning procedure may need to be made because the seat is in its forward most position. Note on the Appendix A positioning check sheet any deviations necessary to position the Part 572, Subpart E dummy.) Include the positioning check sheet with this form.

__13. Position the adjustable seat belt anchorage in the manufacturer's nominal design position for a 50th percentile adult male occupant.

__14. Attach the inboard reach string to the base of the head following the instructions on Figure 3.

__15. Attach the outboard reach string to the torso sheath following the instructions on Figure 3.

__16. Place the latch plate in the stowed position.
__17. Extend inboard reach string in front of the dummy and then backward and outboard to the latch plate to generate an arc of the reach envelope of the test dummy's arms. Is the latch plate within the reach envelope?
___Yes - Pass ___NO
__18. Extend outboard reach string in front of the dummy and then backward and outboard to the latch plate to generate an arc of the reach envelope of the test dummy's arms. Is the latch plate within the reach envelope?
___Yes - Pass ___NO
__19. Is the latch plate within the inboard (item 17) or outboard (item 18) reach envelope?
___Yes - Pass ___**NO - FAIL**
__20. Using the clearance test block, specified in Figure 4, is there sufficient clearance between the vehicle seat and the side of vehicle interior to allow the test block to move unhindered to the latch plate or buckle?
___Yes - Pass ___**NO - FAIL**

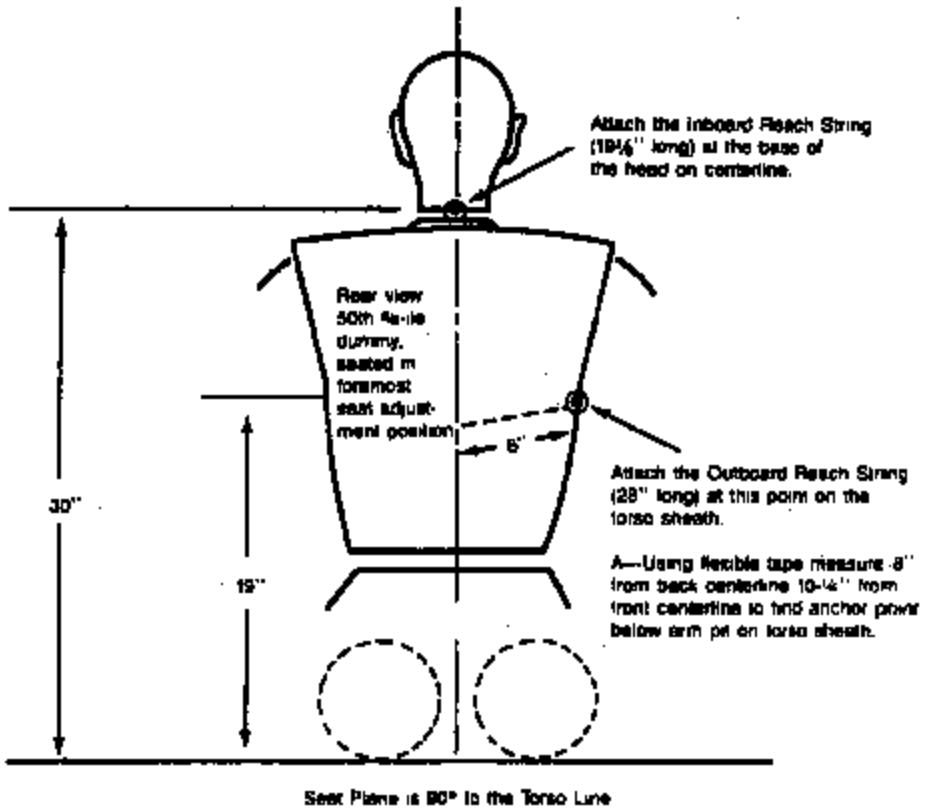


Figure 3. Location of Anchoring Points for Latchplate Reach Limiting Chains or Strings to Test for Latchplate Accessibility Using Subpart B Test Device

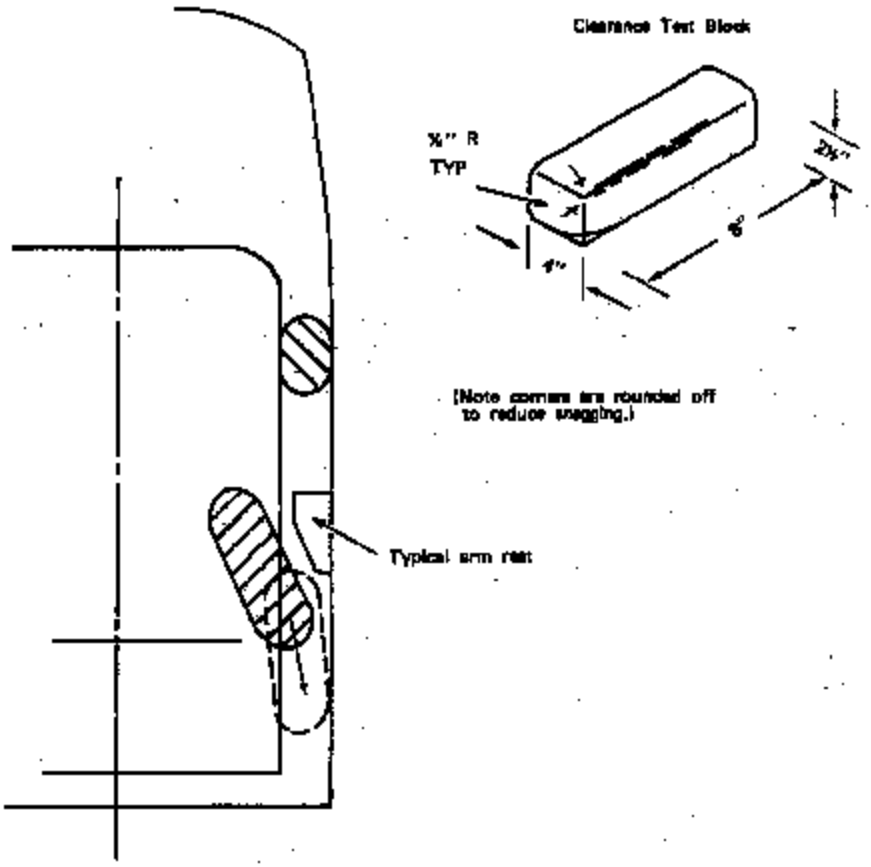


Figure 4—USE OF CLEARANCE TEST BLOCK TO DETERMINE HAND/ARM ACCESS

DATA SHEET 12
SEAT BELT RETRACTION (S7.4.5)

NHTSA No. C40115 Test Date: 03/08/04

Laboratory: TRC Inc. Test Technician(s): Michael S. Postle, Steve Bell

DESIGNATED SEATING POSITION: Left front passenger

GVWR: _____

Test all front outboard 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.

X 1. Is the vehicle a passenger car or walk-in van-type vehicle?
X Yes, this form is complete
___ No

__2. Position the seat's adjustable lumbar supports so that the lumbar support is in its lowest, retracted or deflated adjustment position. (S9.1.3)
__ N/A – No lumbar adjustment

__3. Position any adjustable parts of the seat that provide additional support so that they are in the lowest or most open adjustment position. (S16.2.10.2)
__ N/A – No additional support adjustment

__4. If the seat cushion adjusts fore and aft, independent of the seat back, set this adjustment to the full rearward position.) (S16.2.10.3.1)
__ N/A – No independent fore-aft seat cushion adjustment

__5. If the seat cushion height adjusts independent of the seat back, set this adjustment to the full down position. (S16.2.10.3.1)
__ N/A – No independent seat cushion height adjustment.

__6. Put the seat in its full rearward position.
__ N/A - the seat does not have a fore-aft adjustment

__7. If the seat height is adjustable, put it in the full down position. (S8.1.2)
__N/A – No seat height adjustment

__7 Draw a horizontal line on the side of the seat cushion.

__8. Using only the controls that change the seat in the fore-aft direction, mark the fore-aft seat positions. Mark the side of the seat and a reference position directly below on a part of the vehicle that does not adjust. For manual seats, move the seat forward one detent at a time and mark each detent as was done for the full rearward position. For power seats, mark only the full rearward, middle, and full forward positions. Label three of the positions with the following: F for full forward, M for mid-position (if there is no mid position, label the closest adjustment position to the rear of the mid-point), and R for full rearward.
__ N/A - The seat does not have a fore-aft adjustment.

__9. Using only the controls that change the seat in the fore-aft direction, place the seat in the middle fore-aft position. (S8.1.2)
If there is no mid position, put the seat in the closest adjustment position to the rear of the midpoint. Describe the location of the seat: _____
_____

__10. If seat adjustments, other than fore-aft, are present and the reference line is no longer horizontal, use those adjustments to maintain the reference line as closely as possible to the horizontal. (S16.2.10.3.2)
__ N/A – No seat adjustments
Reference angle as tested _____

__11. The seat back angle, if adjustable, is set at the manufacturer's nominal design riding position for a 50th percentile adult male in the manner specified by the manufacturer. (S8.1.3)
__ N/A – No seat back angle adjustment
Manufacturer's design seat back angle _____
Tested seat back angle _____

__12. If adjustable, set the head restraint at the full up and full forward position. (S8.1.3) Any adjustment of the head restraint shall be used to position it full forward. For example, if it rotates, rotate it such that the head restraint extends as far forward as possible.
__ N/A – No head restraint adjustment
__13. Place any adjustable seat belt anchorages at the vehicle manufacturer's nominal design position for a 50th percentile adult male occupant (S8.1.3)
__ N/A – No adjustable upper seat belt anchorage
Manufacturer's specified anchorage position. _____
Tested anchorage position _____
__14. Is the driver seat a bucket seat?
__ Yes, go to 14.1 and skip 14.2.
__ No, go to 14.2 and skip 14.1.
__14.1 Bucket seats:
Locate and mark a vertical Plane B through the longitudinal centerline of the seat. The longitudinal centerline of a bucket seat cushion is determined at the widest part of the seat cushion. Measure perpendicular to the longitudinal centerline of the vehicle.
Record the width of the seat. _____
Record the distance from the edge of the seat to Plane B._____
__14.2 Bench seats (including split bench seats):
__Driver seat: Locate and mark a vertical Plane B through the center of the steering wheel parallel to the vehicle longitudinal centerline.
__Passenger seat: Locate and mark a vertical longitudinal Plane B on the seat that is the same distance from the longitudinal centerline of the vehicle as the center of the steering wheel.
Distance from the vehicle centerline to the center of the steering wheel_____
Distance from the vehicle centerline to Plane B _____
__15. Stow outboard armrests that are capable of being stowed. (S7.4.5)
__16. Remove the arms of a Subpart E dummy and place it in the seat such that the midsagittal plane is coincident with Plane B and the upper torso rests against the seat back. (S10.4.1.1 & S10.4.1.2)
__17. Rest the thighs on the seat cushion.
__18. Position the H-point of the dummy within 0.5 inch of the vertical dimension and 0.5 inch of the horizontal dimension of a point 0.25 inch below the H-point determined by using the equipment and procedures specified in SAE J826 (APR 1980). (S10.4.2.1) Then measure the pelvic angle with respect to the horizontal using the pelvic angle gage. Adjust the dummy position until these three measurements are within the specifications. (S10.4.2.1 and S10.4.2.2)
____ horizontal inches from the point 0.25 below the determined H-point (0.5 inch max.) (S10.4.2.1)
____ vertical inches from the point 0.25 below the determined H-point (0.5 inch max.) (S10.4.2.1)
____ pelvic angle (20° to 25°)
____ vertical inches from the point 0.25 below the determined H-point (0.5 inch max.) (S10.4.2.1)
____ pelvic angle (20° to 25°) (S10.4.2.2)
__19. Set the distance between the outboard knee clevis flange surfaces at 10.6 inches.
__ measured distance (10.6 inches) (S10.5)
__20. To the extent practicable keep the thighs and the legs in a vertical plane (S10.5) and rest the thighs on the seat cushion while resting the feet on the floorpan or toe board.
__21. Fasten the seat belt around the dummy.
__22. Remove all slack from the lap belt portion. (S10.9)
__23. Pull the upper torso webbing out of the retractor and allow it to retract; repeat this four times. (S10.9)
__24. Apply a 2 to 4 pound tension load to the lap belt. (S10.9)
____pound load applied
__25. Is the belt system equipped with a tension relieving device?
__Yes, continue
__No, go to 26
__25.1 Introduce the maximum amount of slack into the upper torso belt that is recommended by the vehicle manufacturer in the vehicle owner's manual. (S10.9). Go to 25.
__26. Check the statement that applies to this test vehicle:

__26.1 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 latch plate is released. __Pass

__26.2 The torso and lap belt webbing of the seat belt system automatically retracts when the seat belt latch plate is released. __Pass

__26.3 Neither A or B apply. ___**FAIL**

__27. 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**

__28. 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**

DATA SHEET 13

SEAT BELT GUIDES AND HARDWARE (S7.4.6)

NHTSA No. C40115 Test Date: 03/09/04

Laboratory: TRC Inc. Test Technician(s): Michael S. Postle, Steve Bell

DESIGNATED SEATING POSITION: Center front passenger

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.

X 1. Is the seat cushion movable so that the seat back serves a function other than seating? (S7.4.6.1 (b))
__Yes; this form is complete
X No; got to 2

X 2. Is the seat removable? (S7.4.6.1(b))
__Yes; this form is complete
X No; got to 3

X 3. Is the seat movable so that the space formerly occupied by the seat can be used for a secondary function? (S7.4.6.1(b))
__Yes; this form is complete
X No; got to 4

X 4. Is the webbing designed to pass through the seat cushion or between the seat cushion and seat back? (S7.4.6.1(a))
X Yes: go to 5.
___No: this form is complete.

X 5. Does one of the following three parts, the seat belt latch plate, 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)? (S7.4.6.1(a))
X Yes – Pass
___**NO – FAIL**
Identify the part(s) on top or above the seat.
X seat belt latch plate; X buckle; X seat belt webbing

X 6. Are the remaining two seat belt parts accessible under normal conditions?
X Yes – Pass
___**NO - FAIL**

X 7. The buckle and latch plate do not pass through the guides or conduits provided and fall behind the seat when the belt is completely retracted or, if the belt is nonretractable, the belt is unlatched. (S7.4.6.2)
X Yes - Pass ___**NO - FAIL**

X 8. The buckle and latch plate do not pass through the guides or conduits provided and fall behind the seat when the seat is moved to any position to which it is designed to be adjusted. (S7.4.6.2)
X Yes - Pass ___**NO - FAIL**

X 9. The buckle and latch plate do not pass through the guides or conduits provided and fall behind the seat when the seat back, if foldable, is folded forward as far as possible and then moved backward into position. (S7.4.6.2)
X Yes - Pass ___**NO - FAIL**

__10. Is the inboard receptacle end of the seat belt assembly, installed in the front outboard designated seating position, accessible with the center armrest in any position to which it can be adjusted (without moving the armrest)? (S7.4.6.2)
___Yes - Pass ___**NO – FAIL**

DATA SHEET 13

SEAT BELT GUIDES AND HARDWARE (S7.4.6)

NHTSA No. C40115 Test Date: 03/09/04

Laboratory: TRC Inc. Test Technician(s): Michael S. Postle, Steve Bell

DESIGNATED SEATING POSITION: Left rear passenger

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.

X 1. Is the seat cushion movable so that the seat back serves a function other than seating? (S7.4.6.1 (b))
__Yes; this form is complete
X No; go to 2

X 2. Is the seat removable? (S7.4.6.1(b))
__Yes; this form is complete
X No; go to 3

X 3. Is the seat movable so that the space formerly occupied by the seat can be used for a secondary function? (S7.4.6.1(b))
__Yes; this form is complete
X No; go to 4

X 4. Is the webbing designed to pass through the seat cushion or between the seat cushion and seat back? (S7.4.6.1(a))
X Yes: go to 5.
___No: this form is complete.

X 5. Does one of the following three parts, the seat belt latch plate, 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)? (S7.4.6.1(a))
X Yes – Pass
___**NO – FAIL**
Identify the part(s) on top or above the seat.
X seat belt latch plate; X buckle; X seat belt webbing

X 6. Are the remaining two seat belt parts accessible under normal conditions?
X Yes – Pass
___**NO - FAIL**

X 7. The buckle and latch plate do not pass through the guides or conduits provided and fall behind the seat when the belt is completely retracted or, if the belt is nonretractable, the belt is unlatched. (S7.4.6.2)
X Yes - Pass ___**NO - FAIL**

X 8. The buckle and latch plate do not pass through the guides or conduits provided and fall behind the seat when the seat is moved to any position to which it is designed to be adjusted. (S7.4.6.2)
X Yes - Pass ___**NO - FAIL**

X 9. The buckle and latch plate do not pass through the guides or conduits provided and fall behind the seat when the seat back, if foldable, is folded forward as far as possible and then moved backward into position. (S7.4.6.2)
X Yes - Pass ___**NO - FAIL**

__10. Is the inboard receptacle end of the seat belt assembly, installed in the front outboard designated seating position, accessible with the center armrest in any position to which it can be adjusted (without moving the armrest)? (S7.4.6.2)
___Yes - Pass ___**NO – FAIL**

DATA SHEET 13

SEAT BELT GUIDES AND HARDWARE (S7.4.6)

NHTSA No. C40115 Test Date: 03/08/04

Laboratory: TRC Inc. Test Technician(s): Michael S. Postle, Steve Bell

DESIGNATED SEATING POSITION: Center rear passenger

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.

X 1. Is the seat cushion movable so that the seat back serves a function other than seating? (S7.4.6.1 (b))
__Yes; this form is complete
X No; got to 2

X 2. Is the seat removable? (S7.4.6.1(b))
__Yes; this form is complete
X No; got to 3

X 3. Is the seat movable so that the space formerly occupied by the seat can be used for a secondary function? (S7.4.6.1(b))
__Yes; this form is complete
X No; got to 4

X 4. Is the webbing designed to pass through the seat cushion or between the seat cushion and seat back? (S7.4.6.1(a))
X Yes: go to 5.
___No: this form is complete.

X 5. Does one of the following three parts, the seat belt latch plate, 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)? (S7.4.6.1(a))
X Yes – Pass
___NO – FAIL
Identify the part(s) on top or above the seat.
X seat belt latch plate; X buckle; X seat belt webbing

X 6. Are the remaining two seat belt parts accessible under normal conditions?
X Yes – Pass
___NO - FAIL

X 7. The buckle and latch plate do not pass through the guides or conduits provided and fall behind the seat when the belt is completely retracted or, if the belt is nonretractable, the belt is unlatched. (S7.4.6.2)
X Yes - Pass **___NO - FAIL**

X 8. The buckle and latch plate do not pass through the guides or conduits provided and fall behind the seat when the seat is moved to any position to which it is designed to be adjusted. (S7.4.6.2)
X Yes - Pass **___NO - FAIL**

X 9. The buckle and latch plate do not pass through the guides or conduits provided and fall behind the seat when the seat back, if foldable, is folded forward as far as possible and then moved backward into position. (S7.4.6.2)
X Yes - Pass **___NO - FAIL**

__10. Is the inboard receptacle end of the seat belt assembly, installed in the front outboard designated seating position, accessible with the center armrest in any position to which it can be adjusted (without moving the armrest)? (S7.4.6.2)
___Yes - Pass **___NO – FAIL**

DATA SHEET 13

SEAT BELT GUIDES AND HARDWARE (S7.4.6)

NHTSA No. C40115 Test Date: 03/08/04

Laboratory: TRC Inc. Test Technician(s): Michael S. Postle, Steve Bell

DESIGNATED SEATING POSITION: Right rear passenger

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.

X 1. Is the seat cushion movable so that the seat back serves a function other than seating? (S7.4.6.1 (b))
__Yes; this form is complete
X No; go to 2

X 2. Is the seat removable? (S7.4.6.1(b))
__Yes; this form is complete
X No; go to 3

X 3. Is the seat movable so that the space formerly occupied by the seat can be used for a secondary function? (S7.4.6.1(b))
__Yes; this form is complete
X No; go to 4

X 4. Is the webbing designed to pass through the seat cushion or between the seat cushion and seat back? (S7.4.6.1(a))
X Yes: go to 5.
___No: this form is complete.

X 5. Does one of the following three parts, the seat belt latch plate, 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)? (S7.4.6.1(a))
X Yes – Pass
___**NO – FAIL**
Identify the part(s) on top or above the seat.
X seat belt latch plate; X buckle; X seat belt webbing

X 6. Are the remaining two seat belt parts accessible under normal conditions?
X Yes – Pass
___**NO - FAIL**

X 7. The buckle and latch plate do not pass through the guides or conduits provided and fall behind the seat when the belt is completely retracted or, if the belt is nonretractable, the belt is unlatched. (S7.4.6.2)
X Yes - Pass ___**NO - FAIL**

X 8. The buckle and latch plate do not pass through the guides or conduits provided and fall behind the seat when the seat is moved to any position to which it is designed to be adjusted. (S7.4.6.2)
X Yes - Pass ___**NO - FAIL**

X 9. The buckle and latch plate do not pass through the guides or conduits provided and fall behind the seat when the seat back, if foldable, is folded forward as far as possible and then moved backward into position. (S7.4.6.2)
X Yes - Pass ___**NO - FAIL**

__10. Is the inboard receptacle end of the seat belt assembly, installed in the front outboard designated seating position, accessible with the center armrest in any position to which it can be adjusted (without moving the armrest)? (S7.4.6.2)
___Yes - Pass ___**NO – FAIL**

Appendix A

Photographs

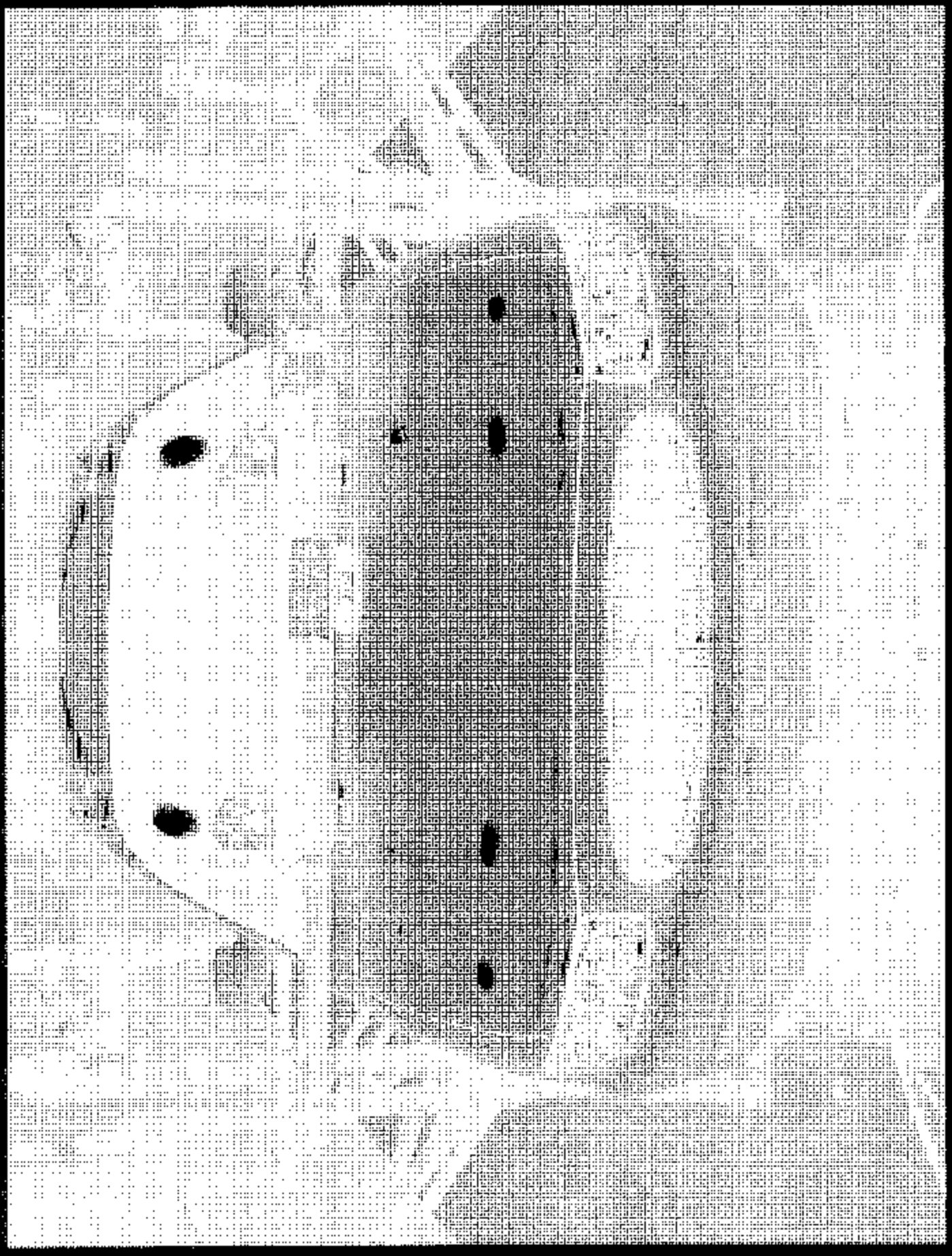


Figure A-1. Pre-Test Front View of Test Vehicle Mounted to Sled

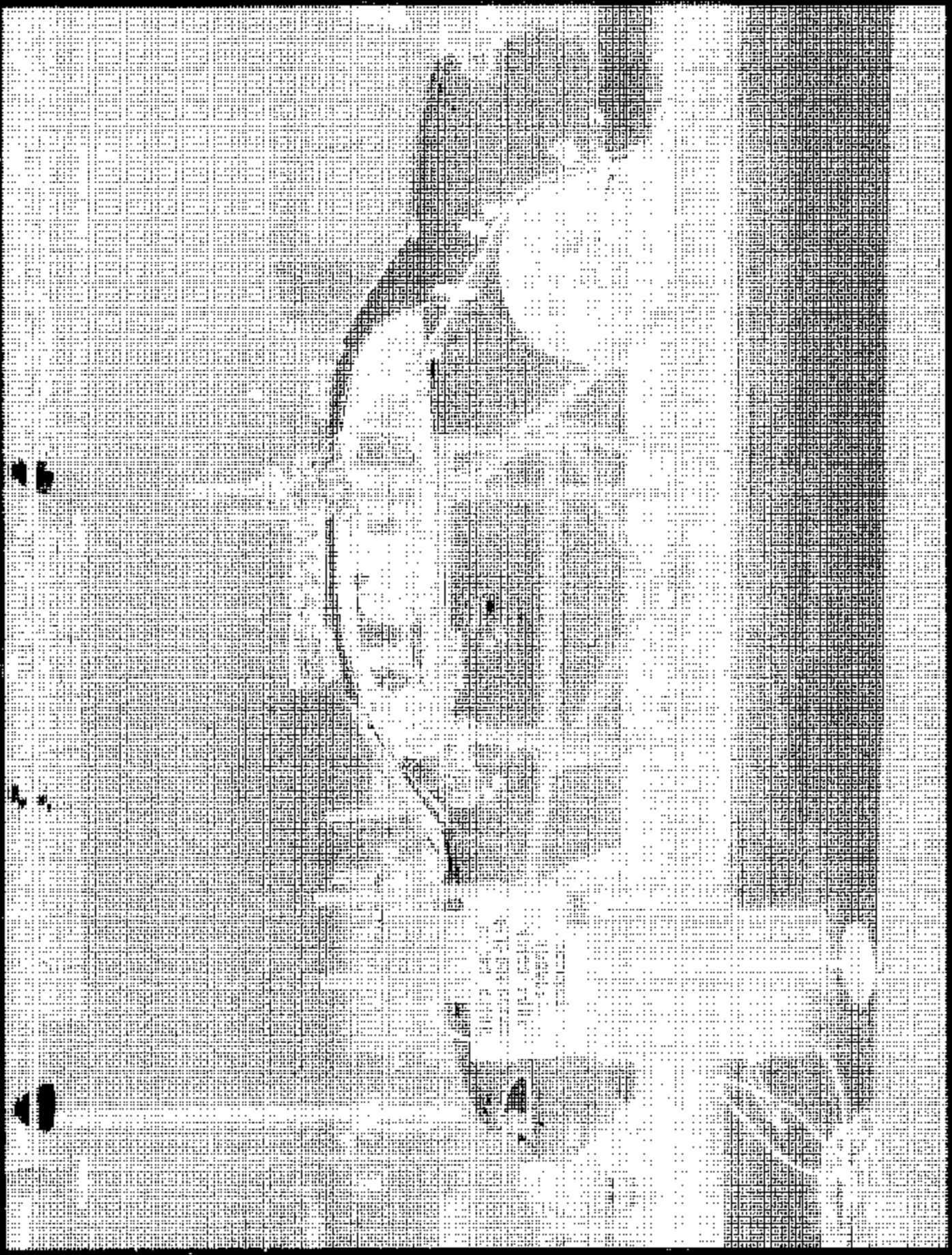


Figure A-2. Pre-Test Left Side View of Test Vehicle Mounted to Sled

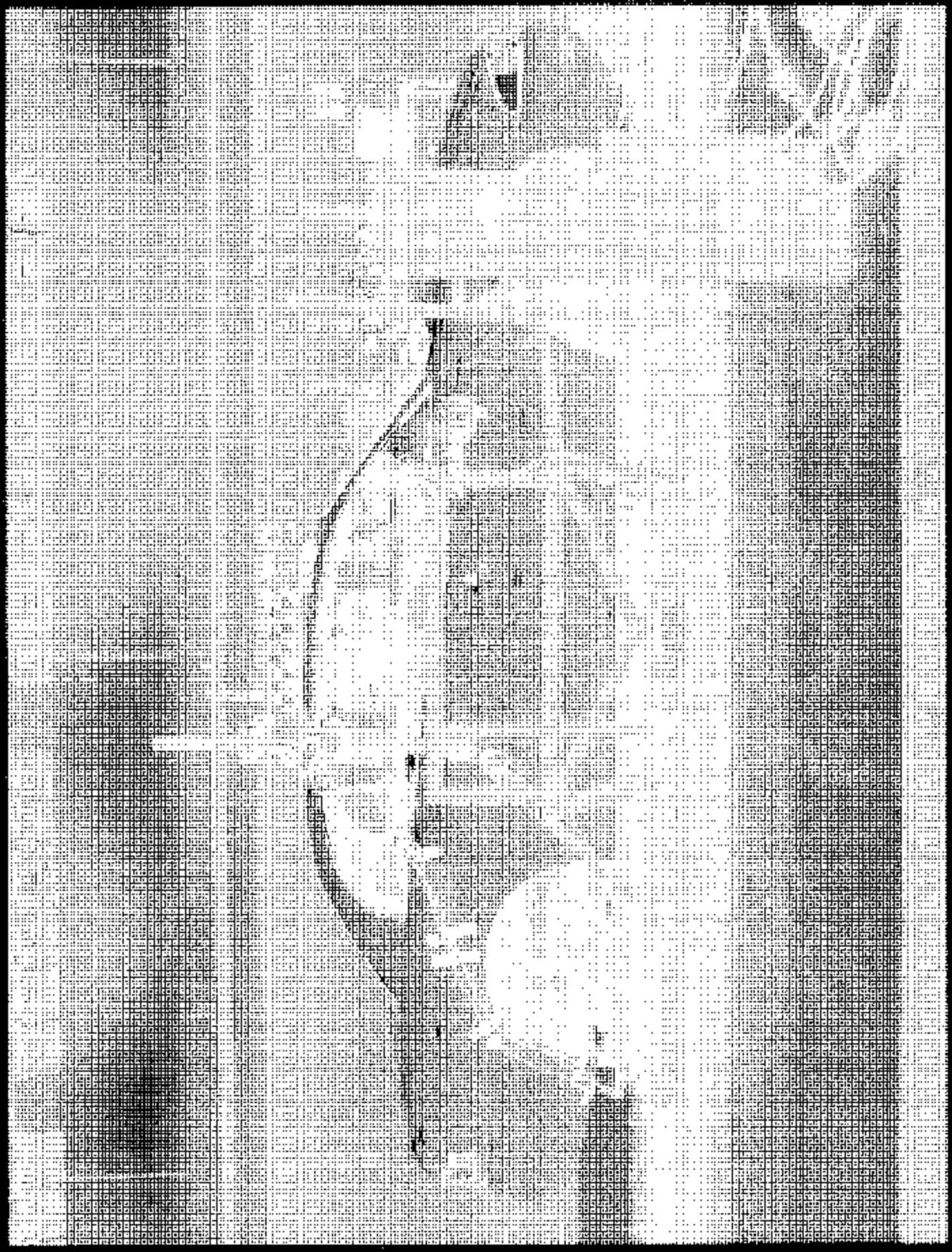


Figure A-3. Pre-Test Right Side View of Test Vehicle Mounted to Sled

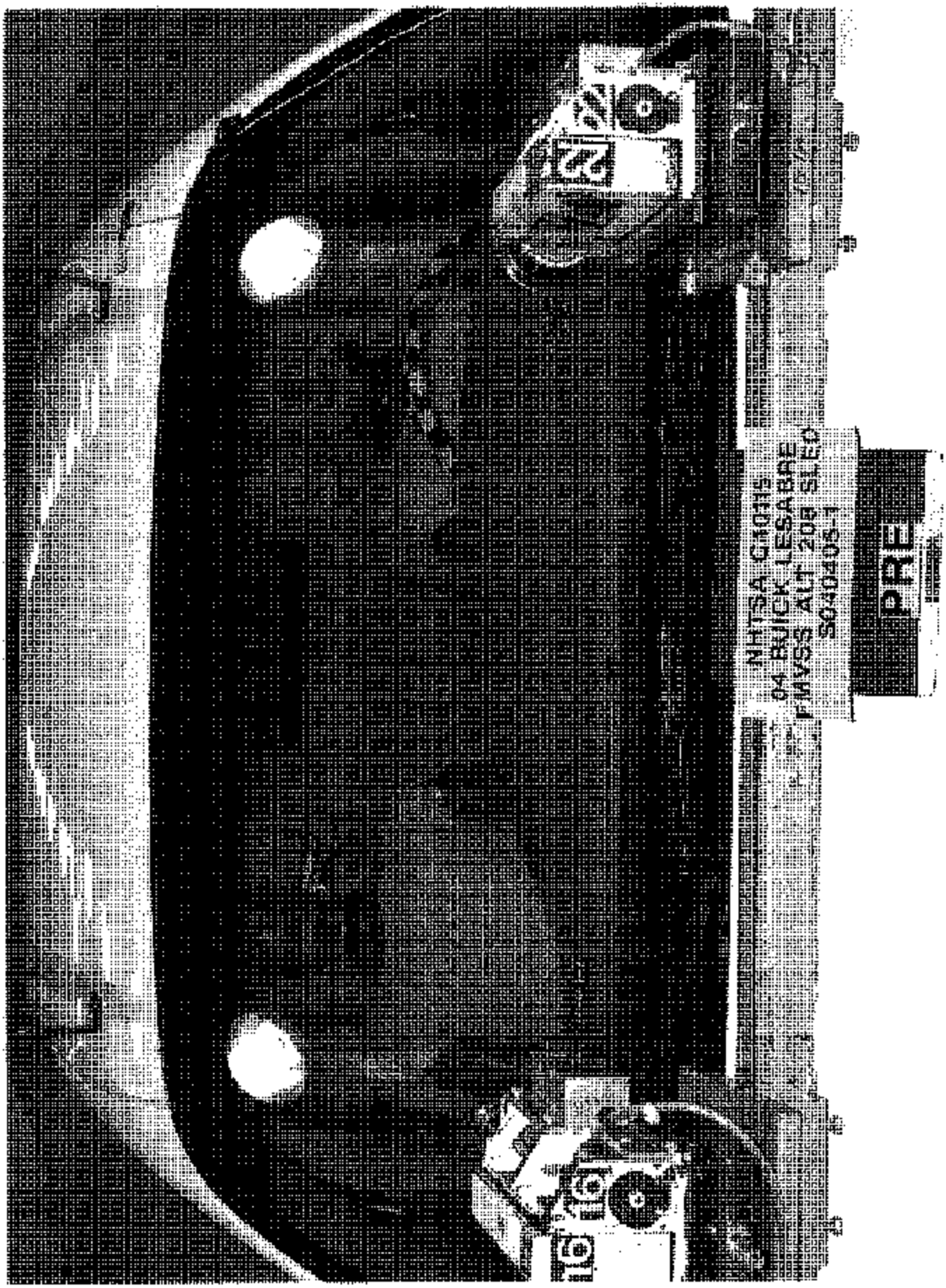


Figure A-4. Pre-Test Windshield View

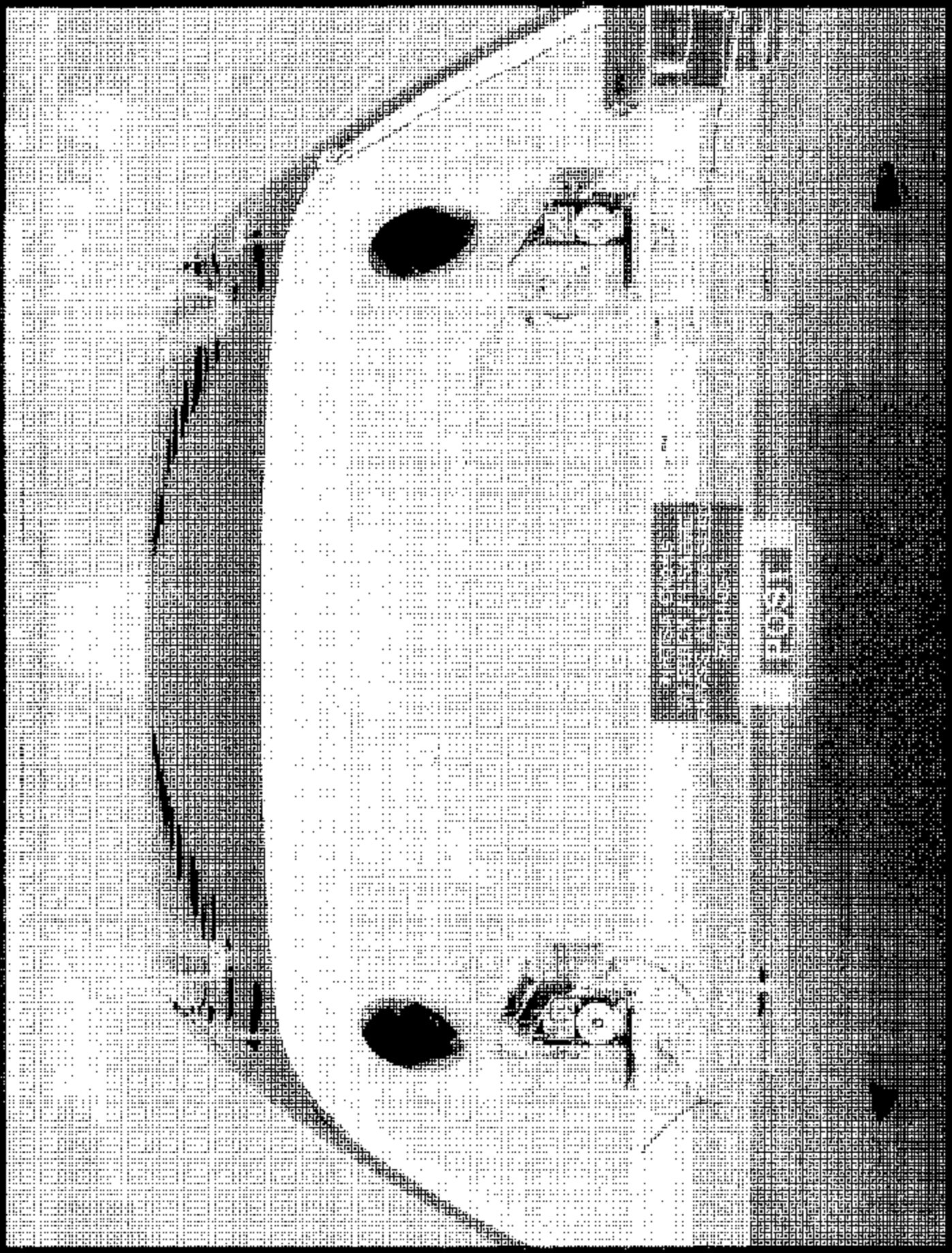


Figure A-5. Post-Test Windshield View

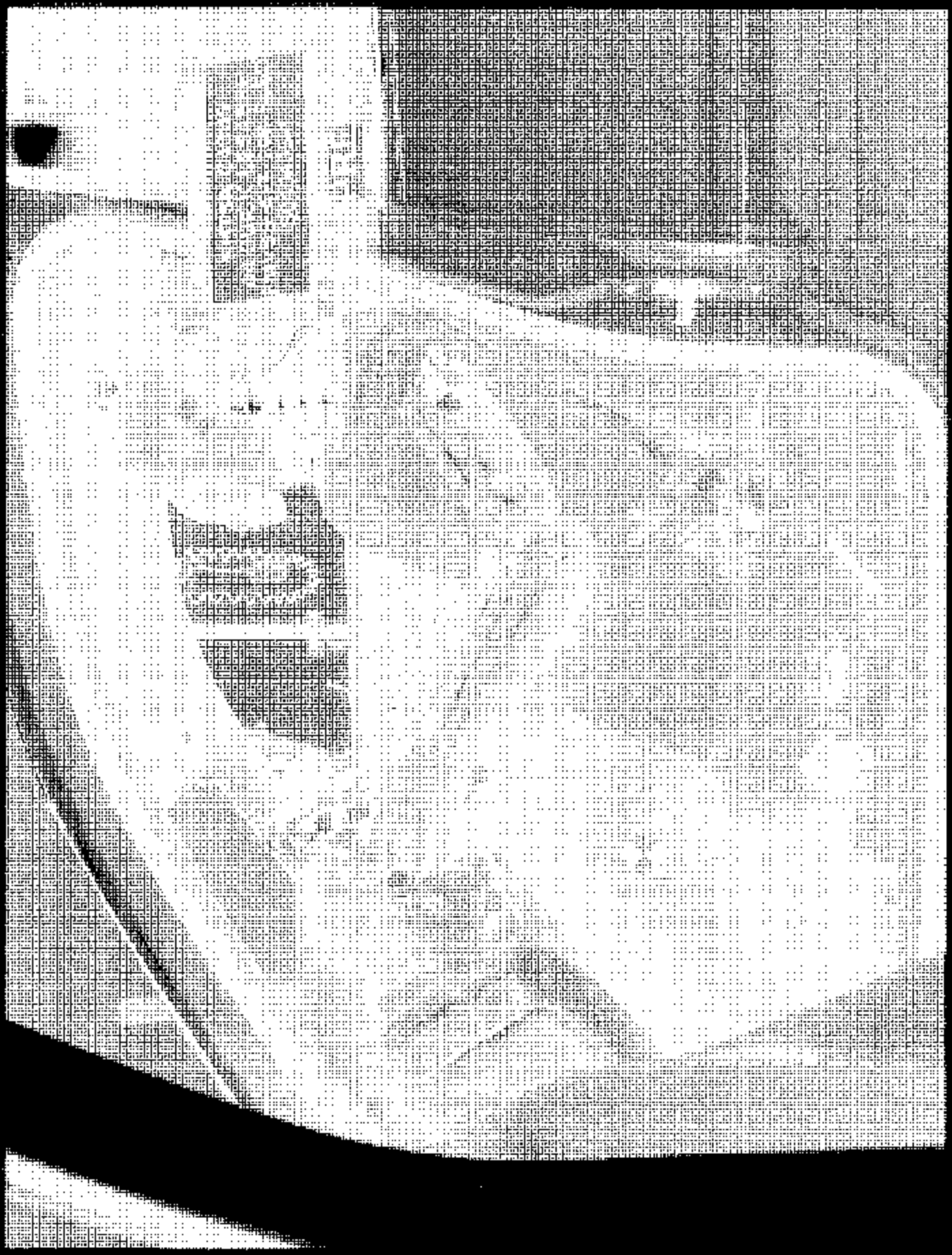


Figure A-6. Pre-Test Driver Dummy Position View with Door Open

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

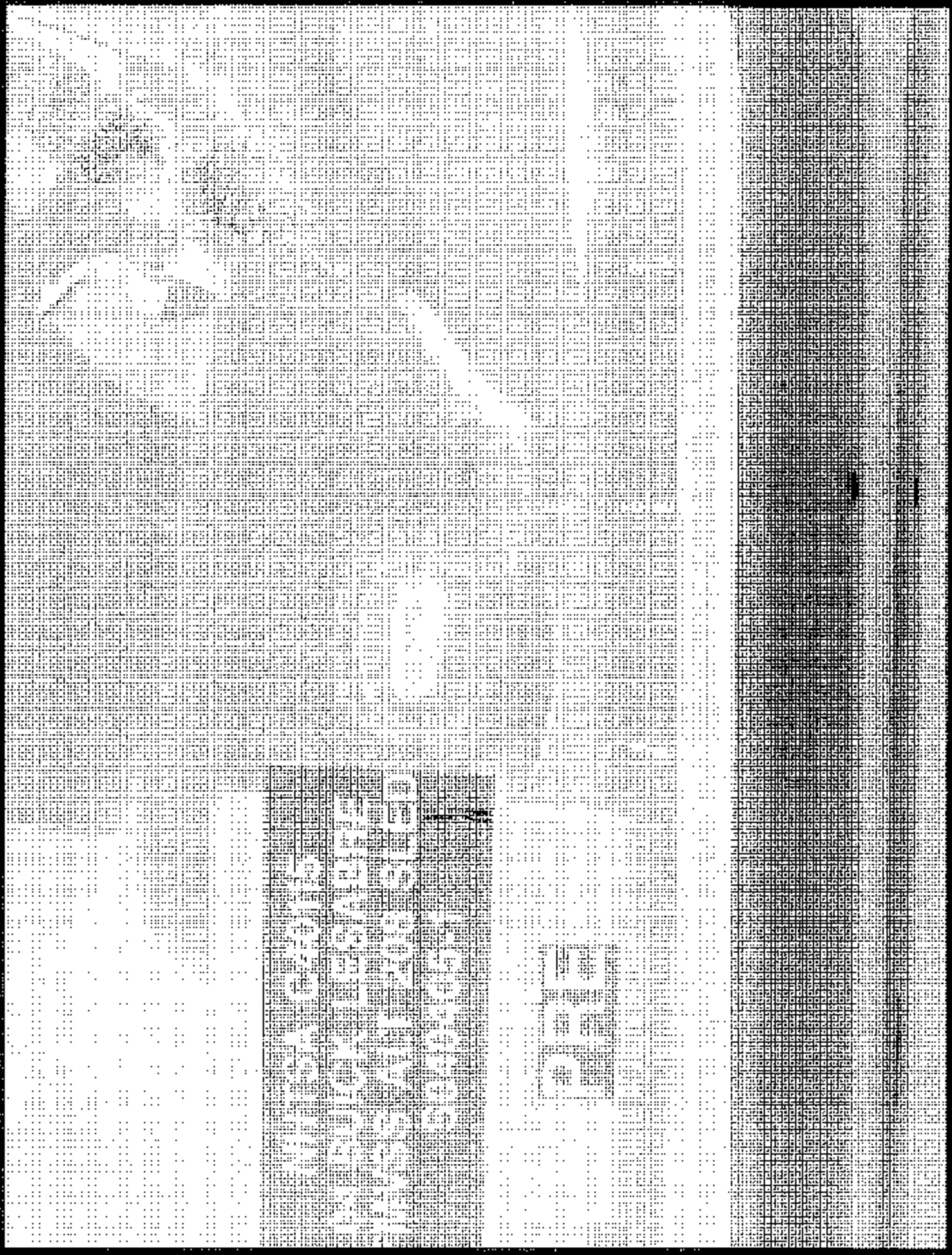


Figure A-8. Pre-Test Driver Seat Track Position View

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

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

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

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

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

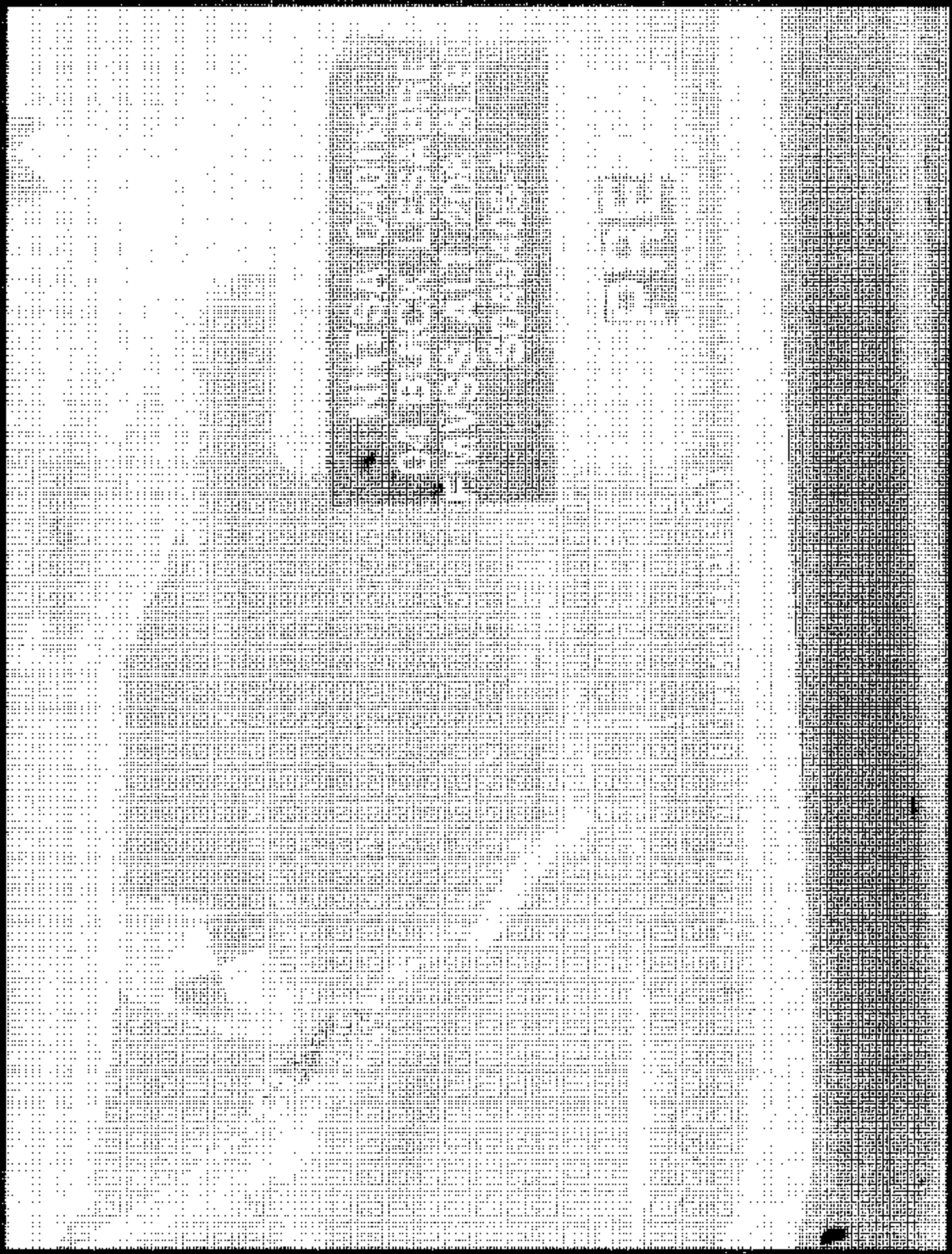


Figure A-14. Pre-Test Passenger Seat Track Position View

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

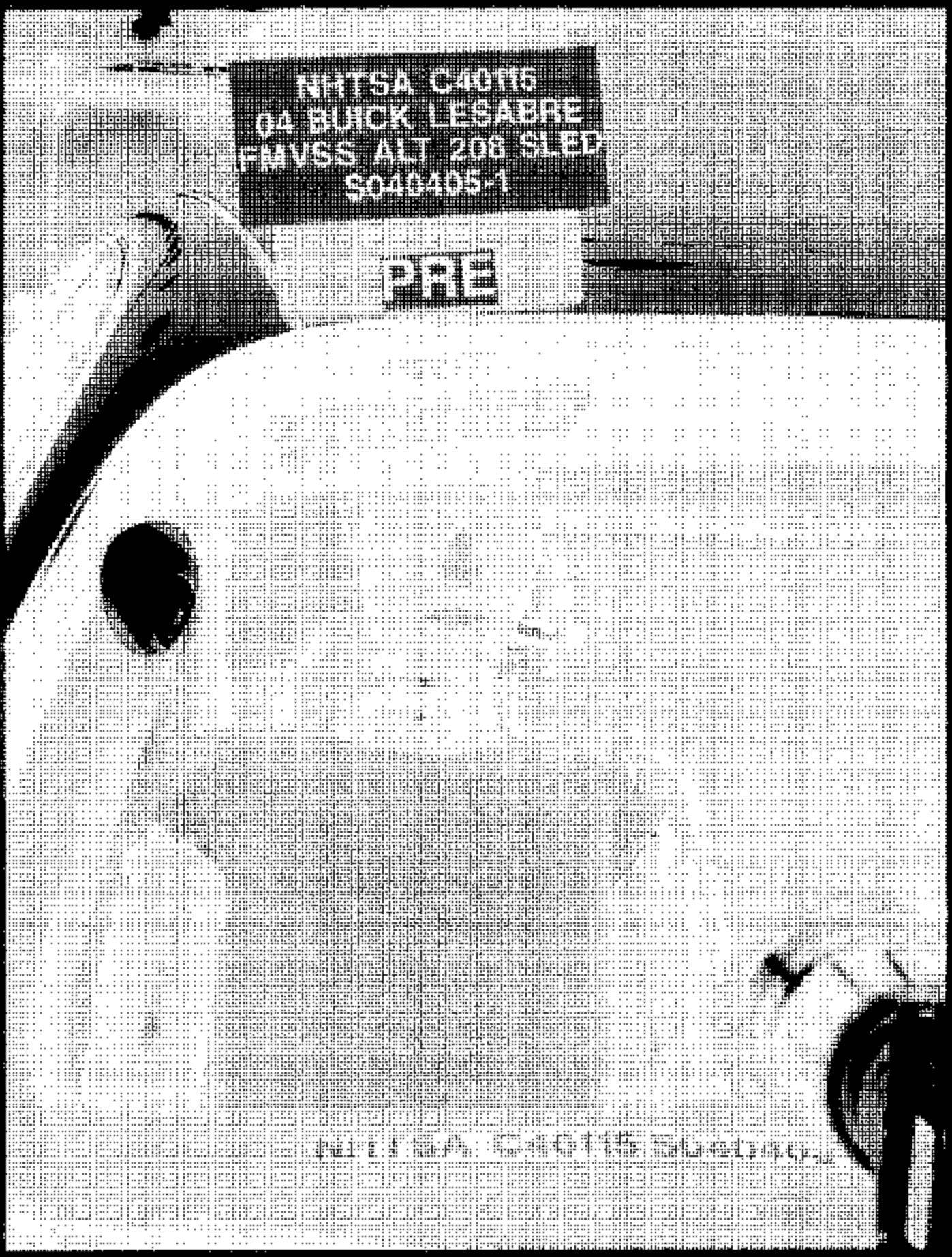


Figure A-16. Pre-Test Passenger Dummy Position Front View

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

Figure A-18. Post-Test Driver Airbag View

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

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

Figure A-21. Post-Test Passenger Airbag View

Figure A-22. Post-Test Passenger Dummy Removed from Vehicle Overall View

Figure A-23. Post-Test Passenger Head Contact View

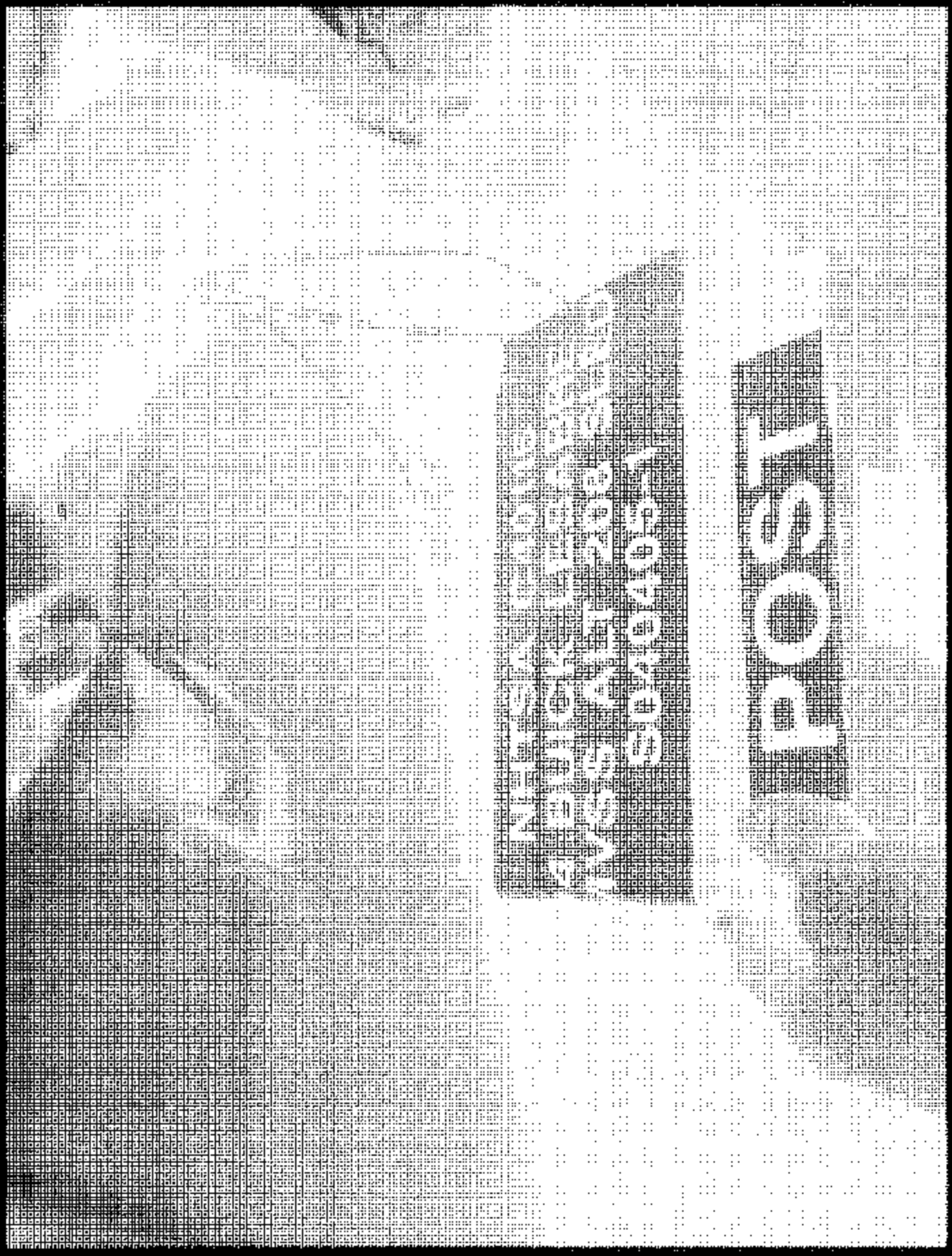


Figure A-24. Post-Test Driver Knee Bolster View

Figure A-25. Post-Test Passenger Glove Box View

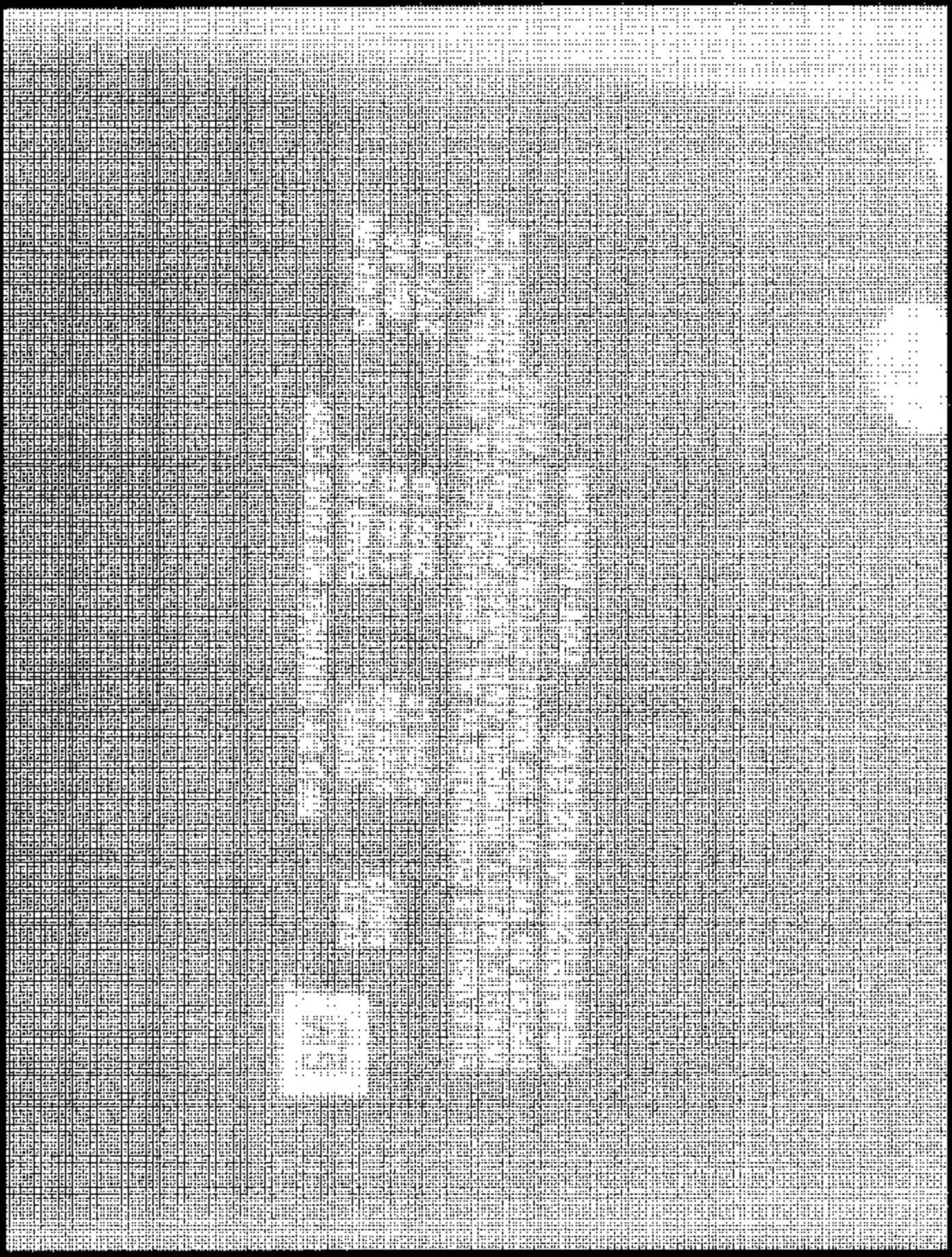


Figure A-26. Vehicle Certification Label View

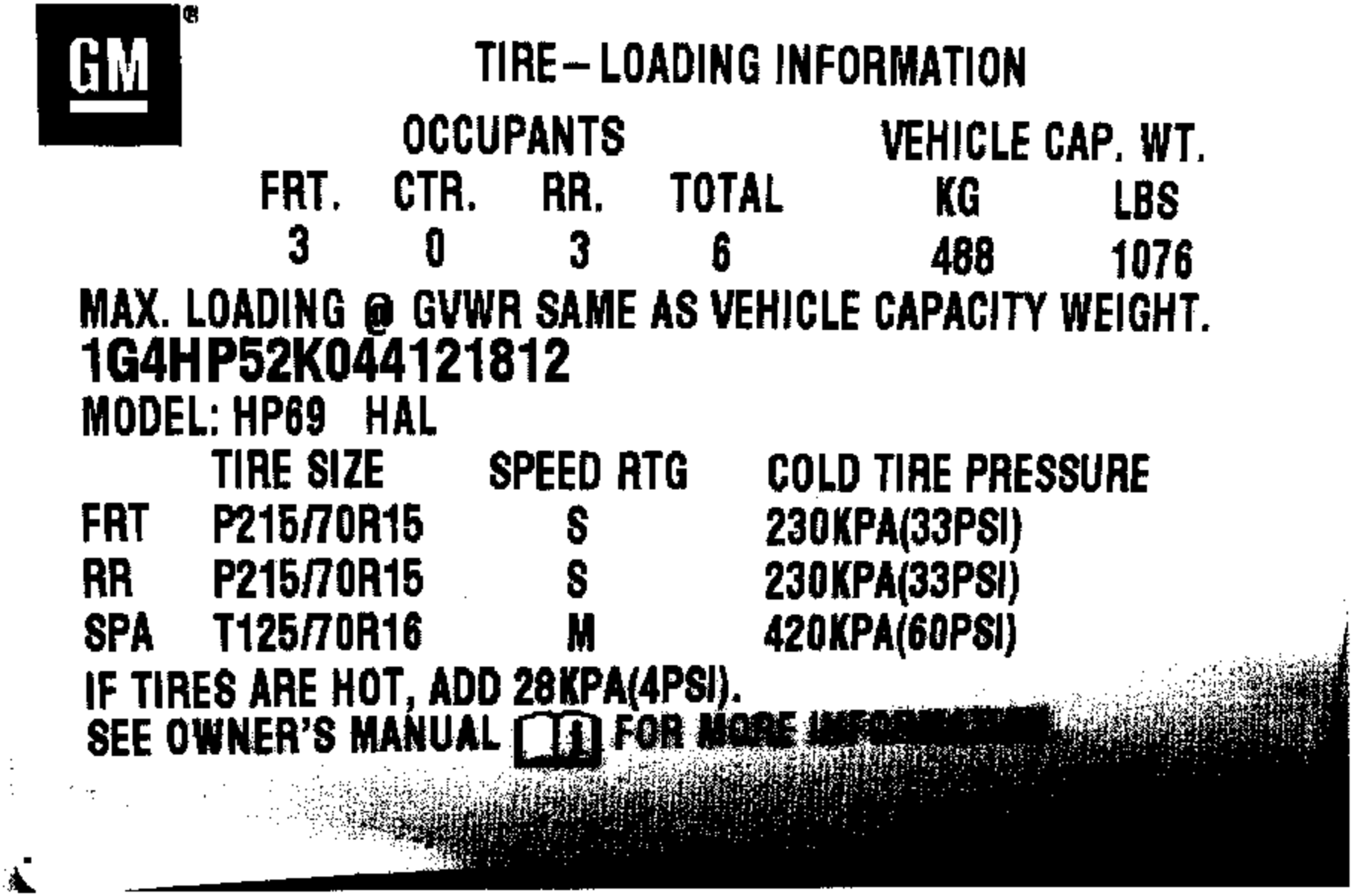


Figure A-27. Vehicle Tire Load Label View

S040405

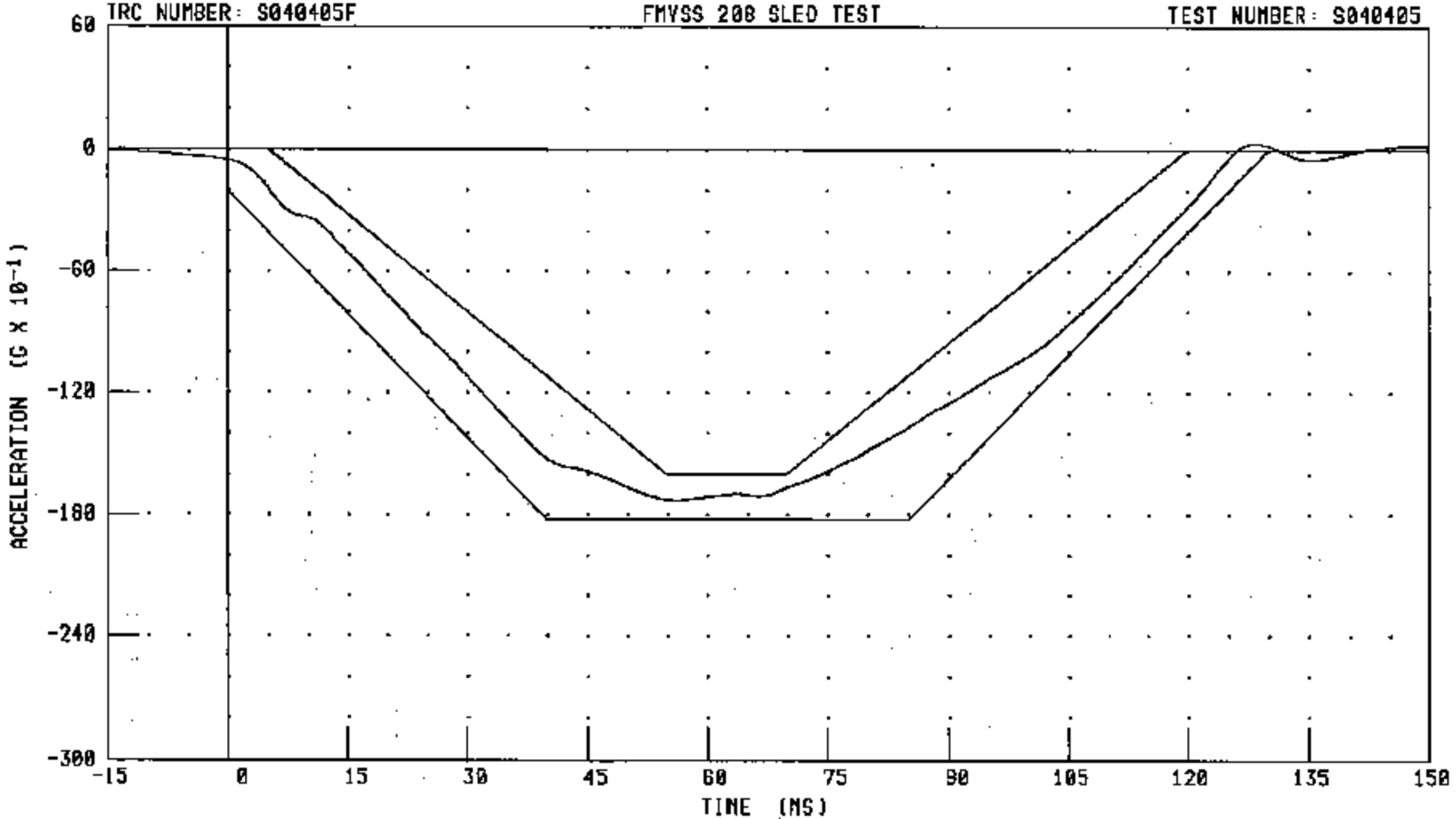
Appendix B

Data Plots

C40115 / 2004 BUICK LESABRE
SLED ACCELERATION
FMVSS 208 SLED TEST

TRC NUMBER: S040405F

TEST NUMBER: S040405



CHANNEL: SLDXC FILTER: CH. CLASS 60

PEAK DATA: 0.33 G @ 128.32 MS; -17.29 G @ 56.24 MS

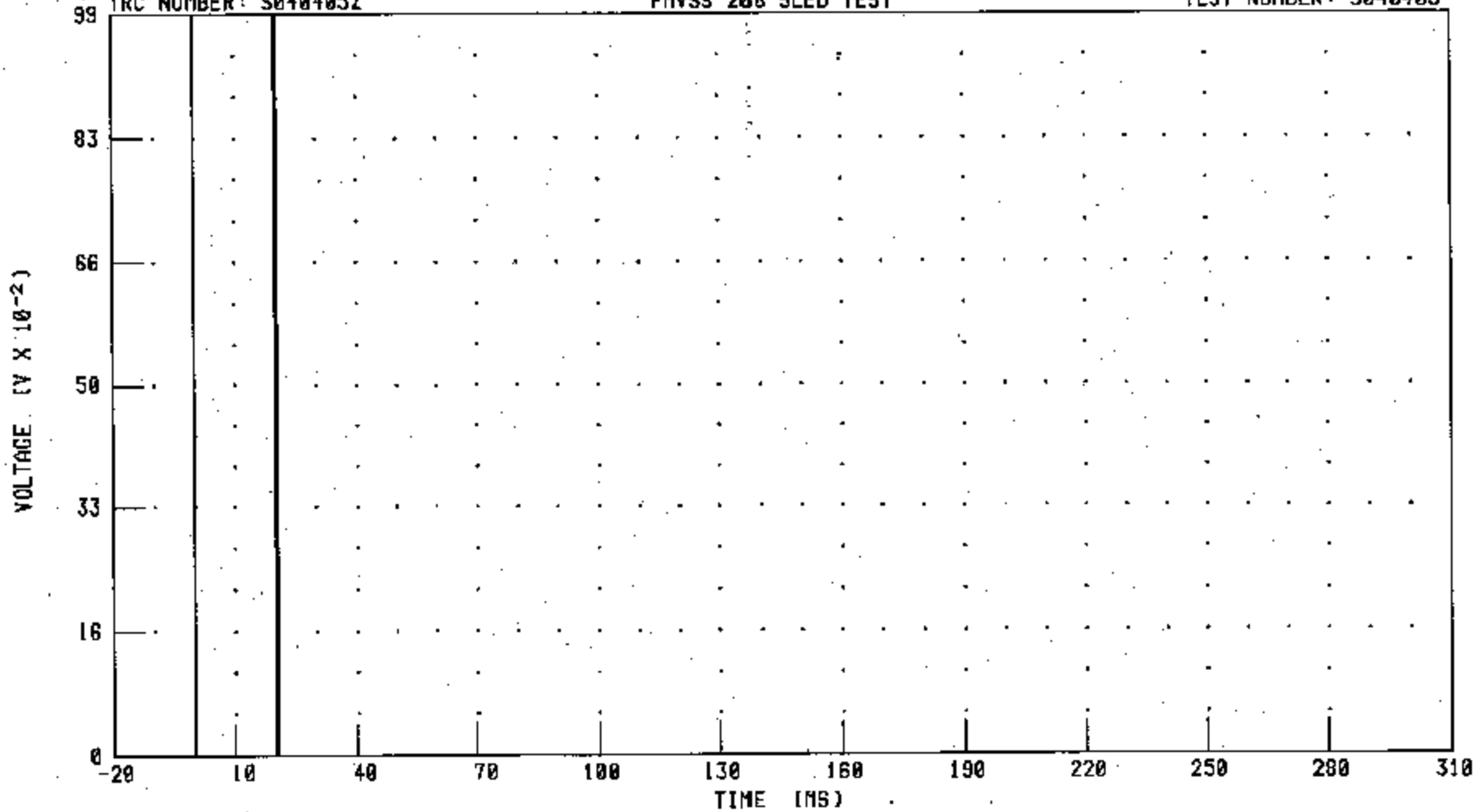
B-2

S040405

C40115 / 2004 BUICK LESABRE
DRIVER PRIMARY AIRBAG EVENT
FMVSS 208 SLED TEST

TRC NUMBER: S040405Z

TEST NUMBER: S040405



CHANNEL: DABET1 FILTER: CH. CLASS 1000

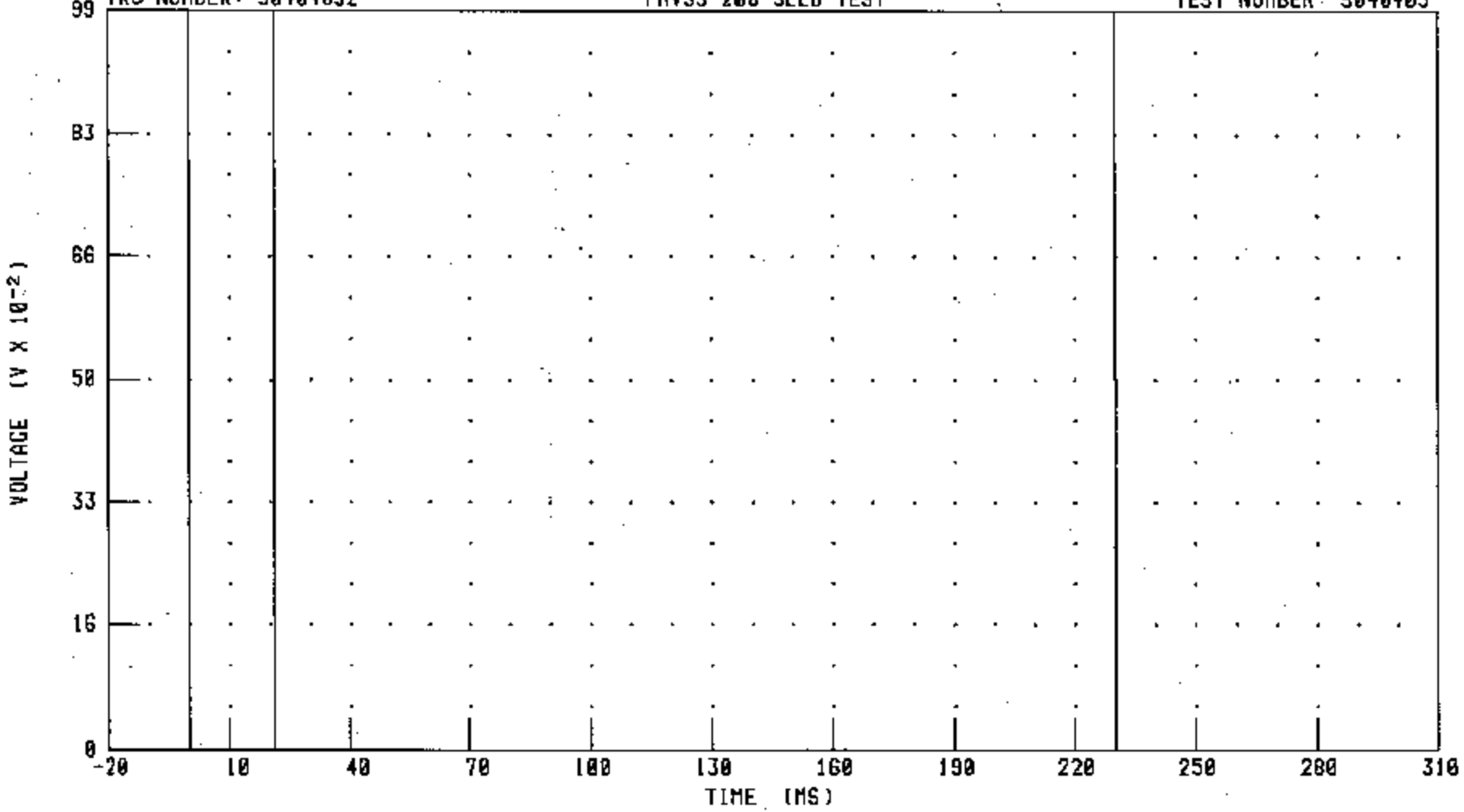
PEAK DATA: 1.00 V @ 20.16 MS; 0.00 V @ -20.00 MS

S040405

C40115 / 2004 BUICK LESABRE
DRIVER SECONDARY AIRBAG EVENT
FMVSS 208 SLED TEST

TRC NUMBER: S040405Z

TEST NUMBER: S040405



CHANNEL: DABET2 FILTER: CH. CLASS 1000

PEAK DATA: 1.00 V @ 21.12 MS; 0.00 V @ -20.00 MS

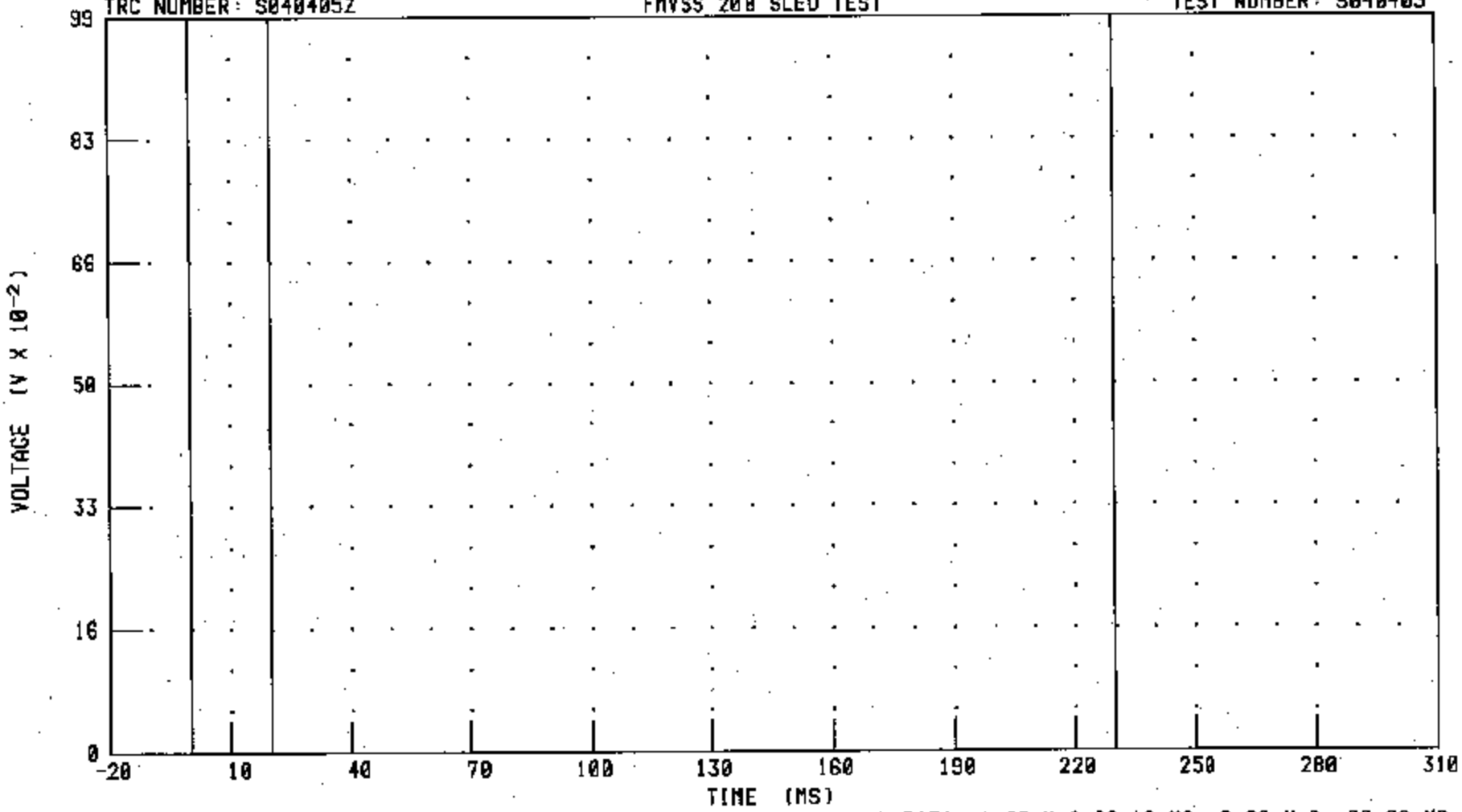
B-4

S040405

C40115 / 2004 BUICK LESABRE
PASSENGER PRIMARY AIRBAG EVENT
FMVSS 208 SLED TEST

TRC NUMBER: S040405Z

TEST NUMBER: S040405



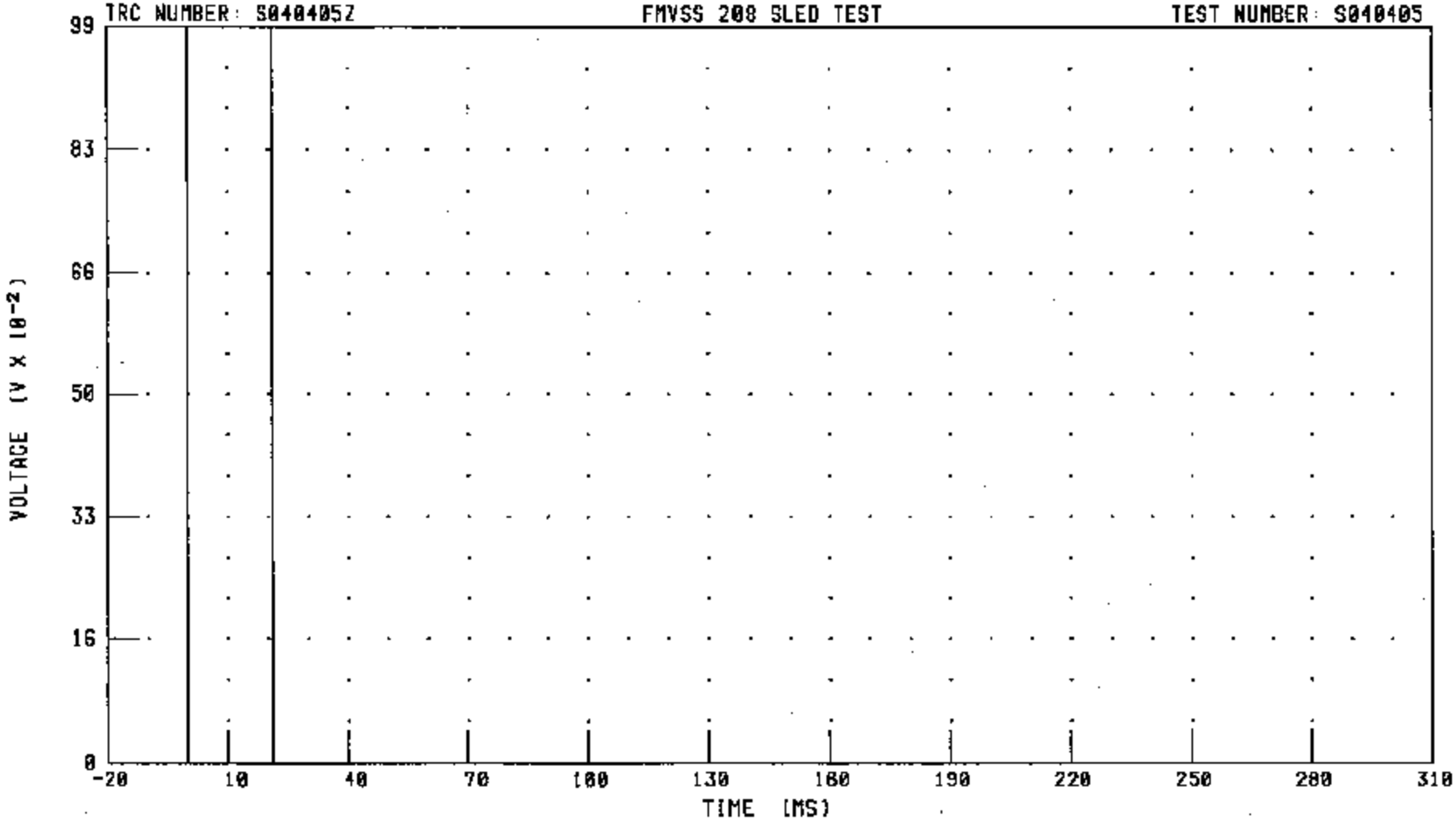
CHANNEL: PABET1 FILTER: CH. CLASS 1000

PEAK DATA: 1.00 V @ 20.16 MS; 0.00 V @ -20.00 MS

SOAMOS

C40115 / 2004 BUICK LESABRE
PASSENGER SECONDARY AIRBAG EVENT
FMVSS 208 SLED TEST

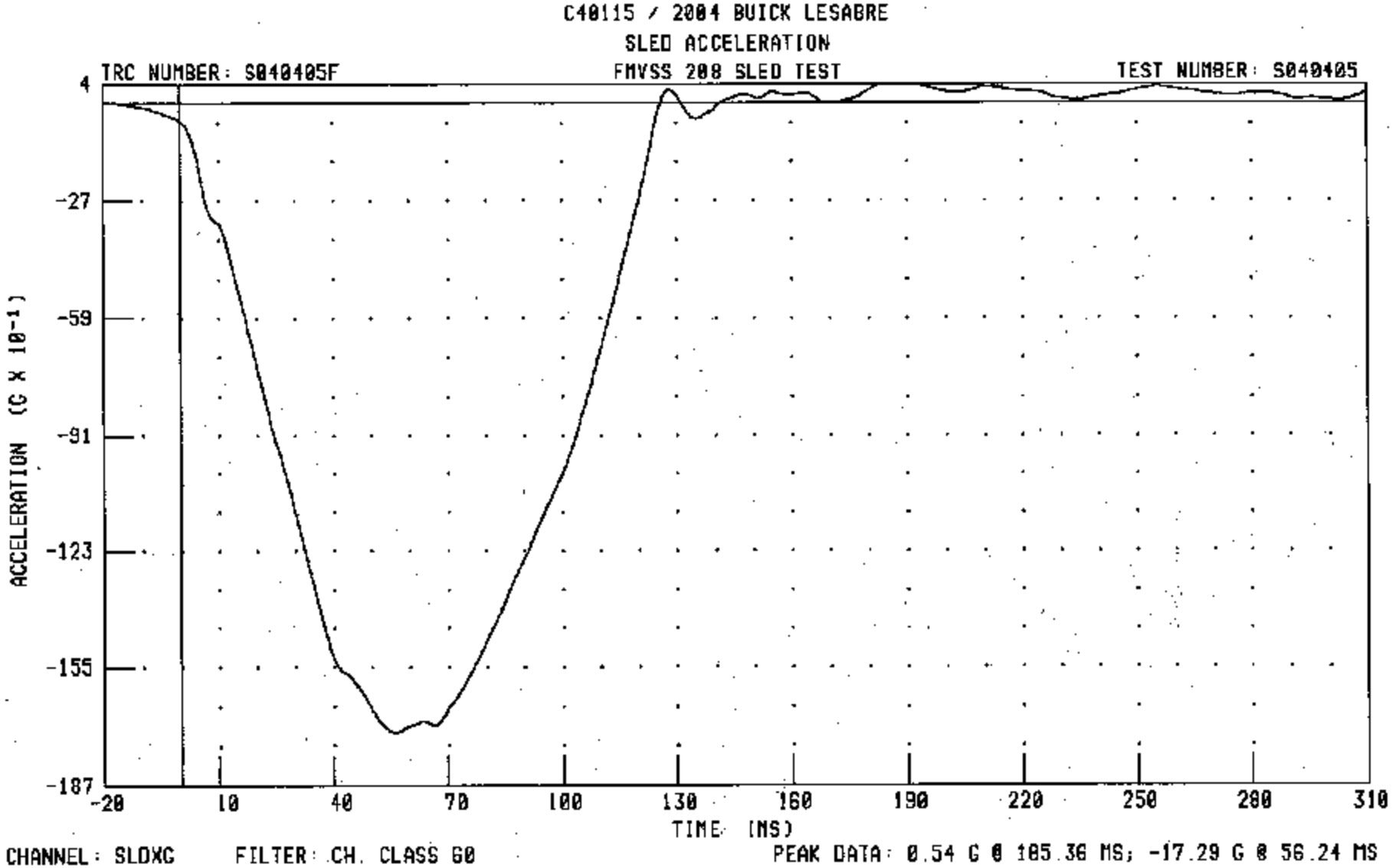
TRC NUMBER: S0404052 TEST NUMBER: S040405



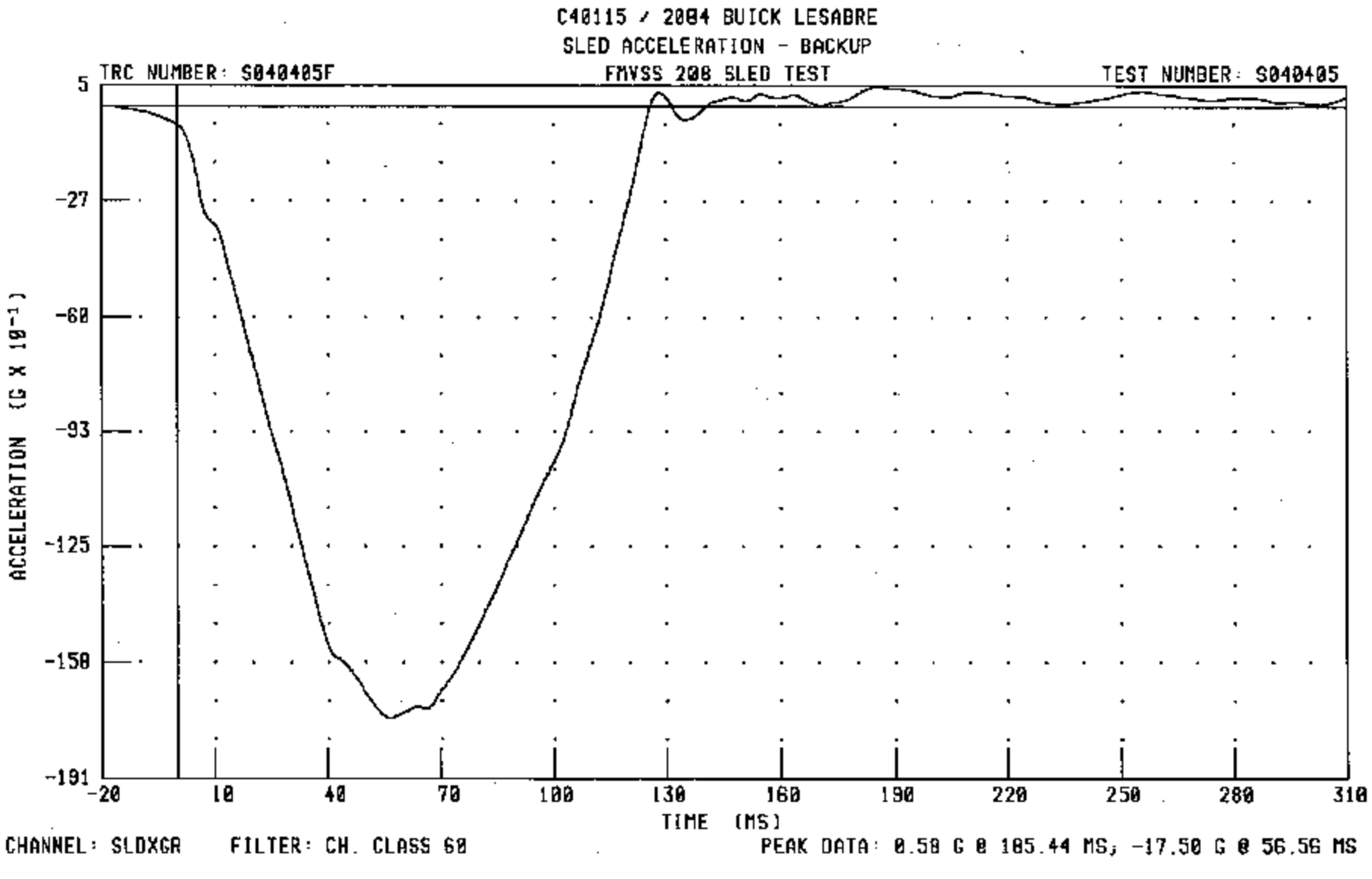
CHANNEL: PABET2 FILTER: CH. CLASS 1000 PEAK DATA: 1.00 V @ 21.12 MS; 0.00 V @ -20.00 MS

B-6

SOMO405


C40115 / 2004 BUICK LESABRE
SLED ACCELERATION
FMVSS 208 SLED TEST
TRC NUMBER: S040405F
TEST NUMBER: S040405
4
-27
-59
-91
-123
-155
-187
ACCELERATION (G X 10⁻¹)
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: SLDXC
FILTER: CH. CLASS 60
PEAK DATA: 0.54 G @ 185.36 MS; -17.29 G @ 56.24 MS

S040405

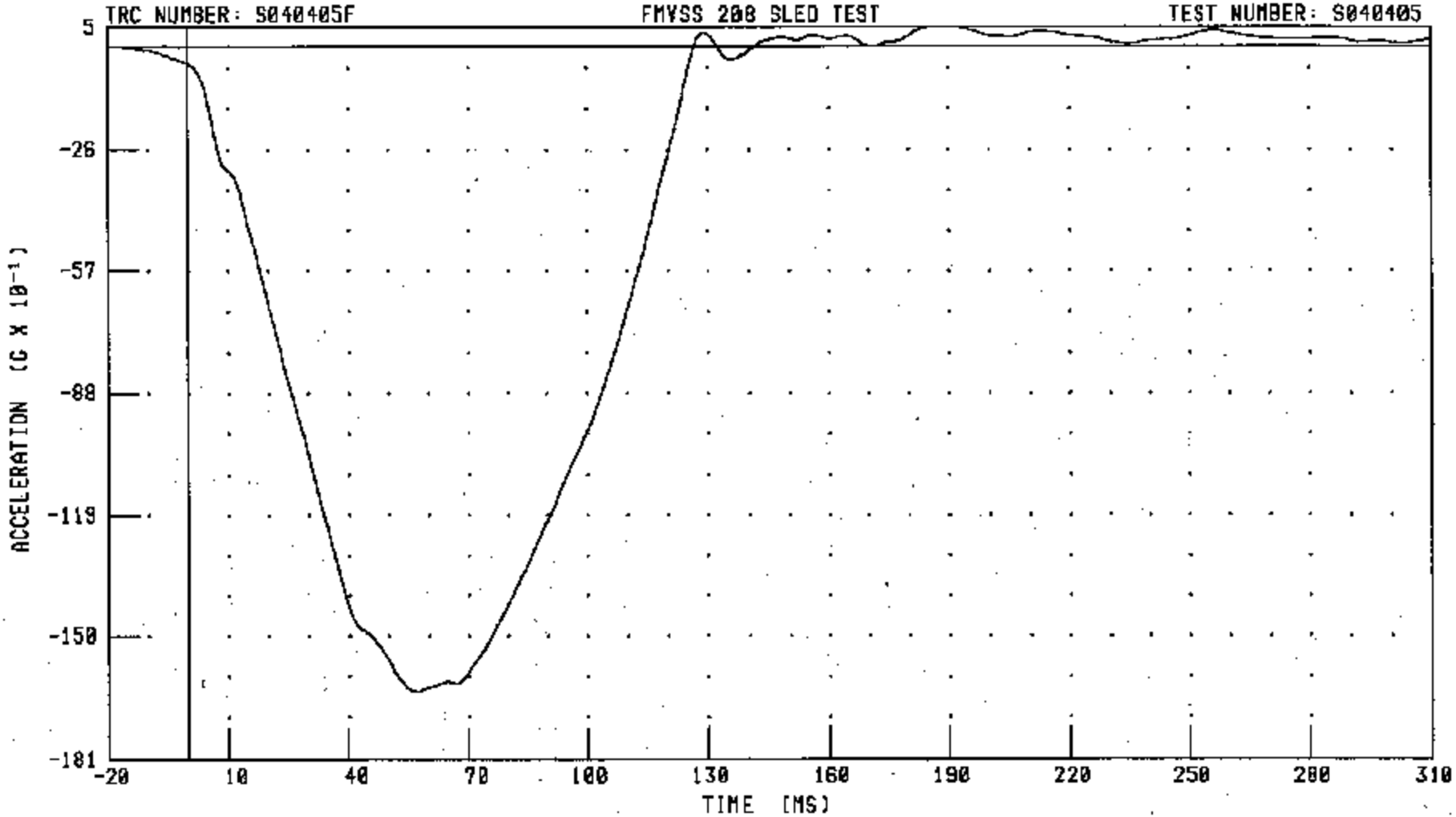

C40115 / 2004 BUICK LESABRE
SLED ACCELERATION - BACKUP
FMVSS 208 SLED TEST
TRC NUMBER: S040405F
TEST NUMBER: S040405
5
-27
-60
-93
-125
-158
-191
ACCELERATION (G X 10⁻¹)
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: SLDXGR
FILTER: CH. CLASS 60
PEAK DATA: 0.58 G @ 185.44 MS; -17.50 G @ 56.56 MS

S040405

C40115 / 2004 BUICK LESABRE
SLED ACCELERATION FOR TIMING CIRCUIT
FMVSS 208 SLED TEST

TRC NUMBER: S040405F

TEST NUMBER: S040405



CHANNEL: SLDXGT FILTER: CH. CLASS 60

PEAK DATA: 0.53 G @ 191.20 MS; -16.42 G @ 57.12 MS

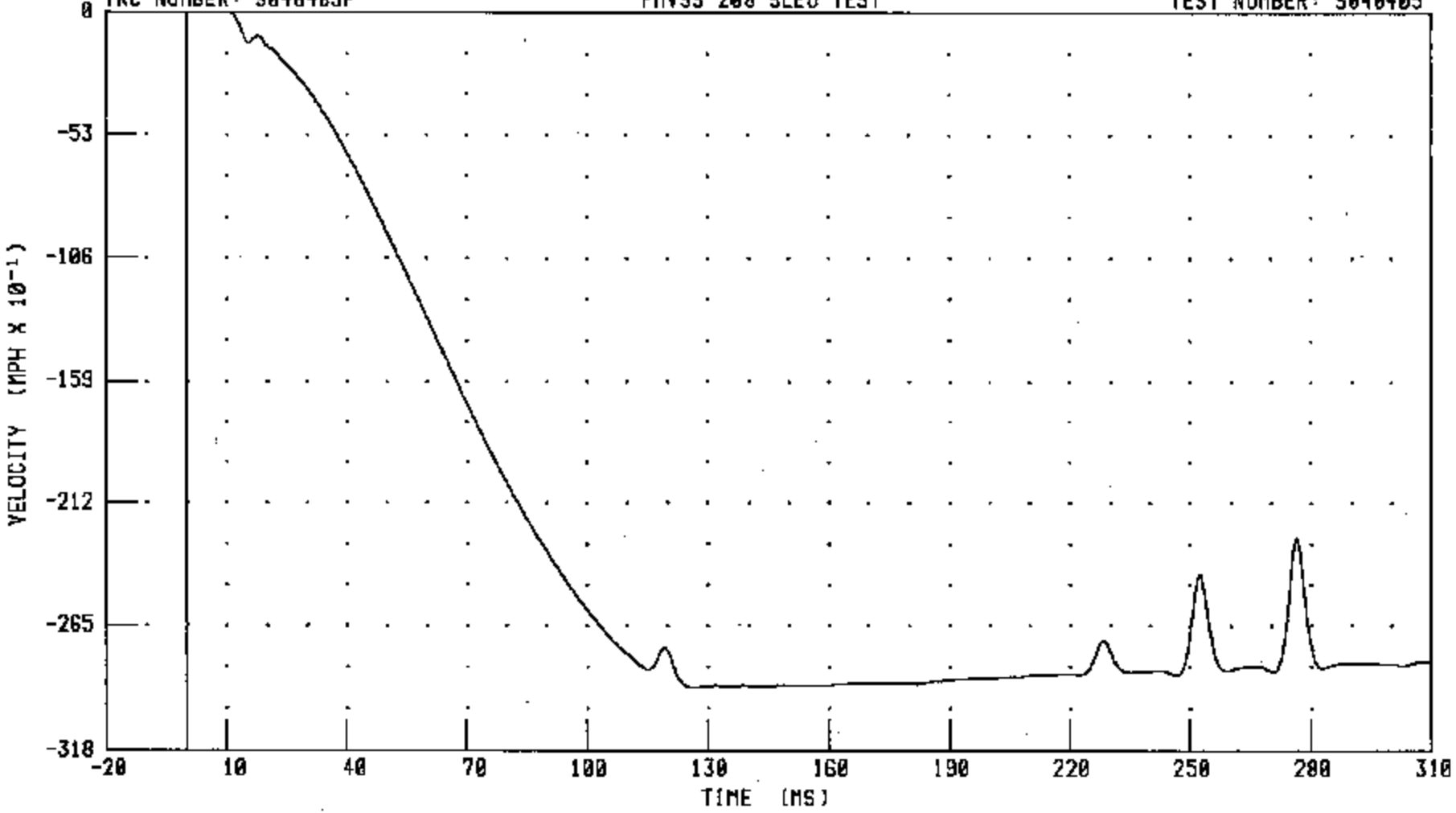
B-9

SDA005

C40115 / 2004 BUICK LESABRE
MEASURED VELOCITY TRAP
FMVSS 208 SLED TEST

TRC NUMBER: S040405F

TEST NUMBER: S040405



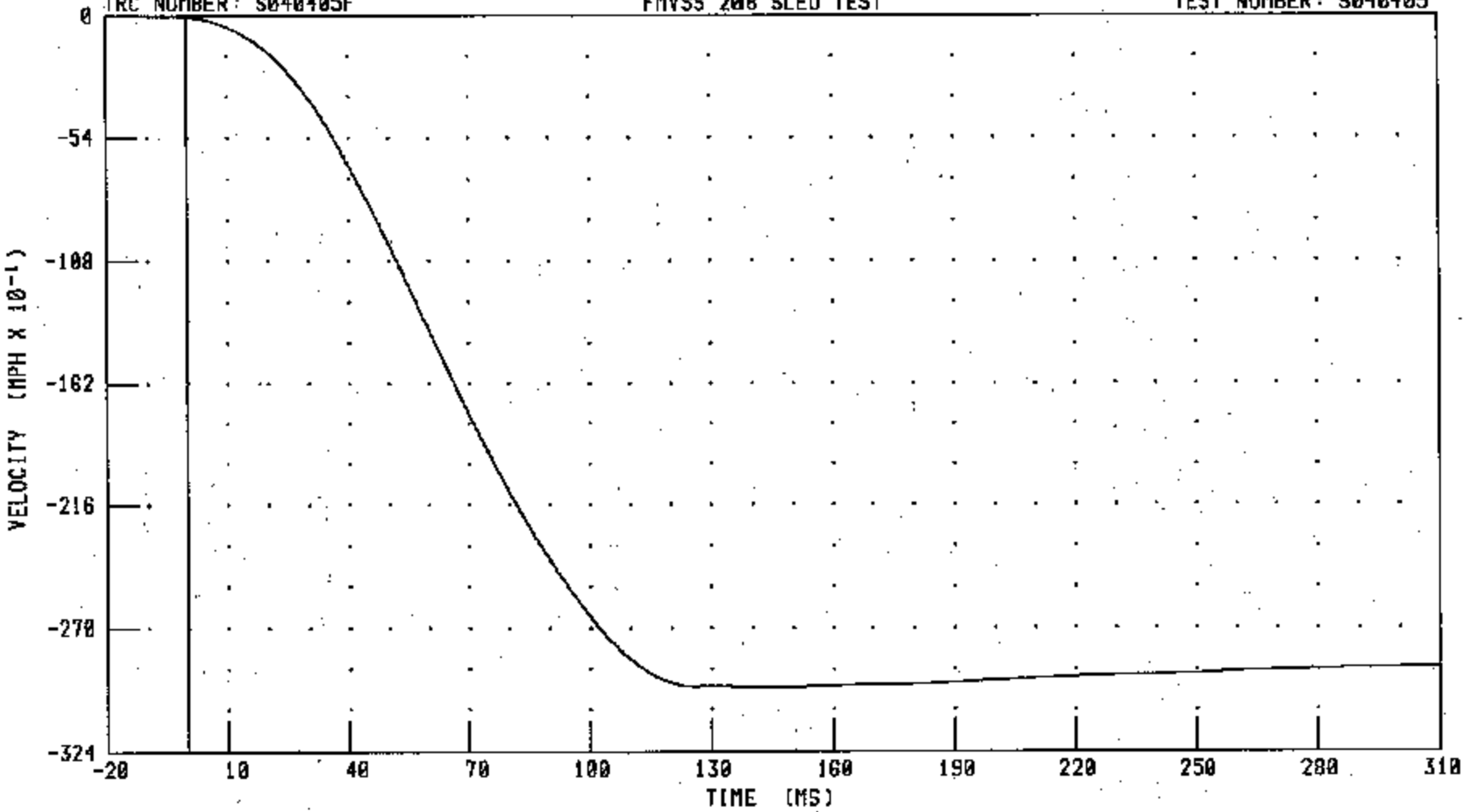
CHANNEL: SLDXV FILTER: CH. CLASS 60

PEAK DATA: 0.06 MPH @ 9.68 MS; -29.15 MPH @ 126.32 MS

C40115 / 2004 BUICK LESABRE
SLED VELOCITY (INTEGRATED)
FMVSS 208 SLED TEST

TRC NUMBER: S040405F

TEST NUMBER: S040405



CHANNEL: SLDXVI FILTER: CH. CLASS 180

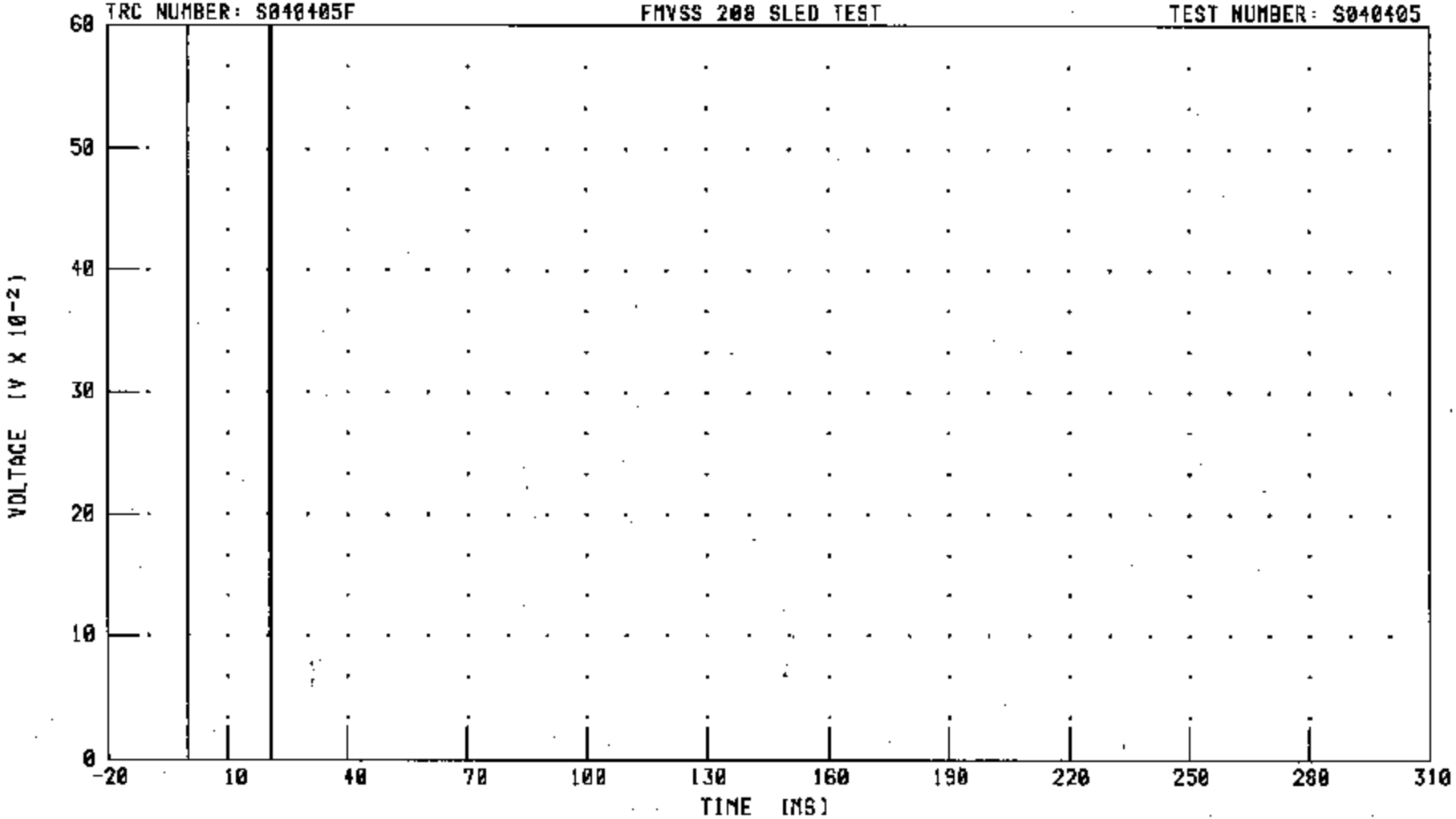
PEAK DATA: 0.00 MPH @ -17.20 MS; -29.63 MPH @ 140.96 MS

S040405

C40115 / 2004 BUICK LESABRE
DRIVER PRIMARY AIRBAG EVENT
FMVSS 208 SLED TEST

TRC NUMBER: S040405F

TEST NUMBER: S040405



CHANNEL: DABET1 FILTER: CH. CLASS 1000

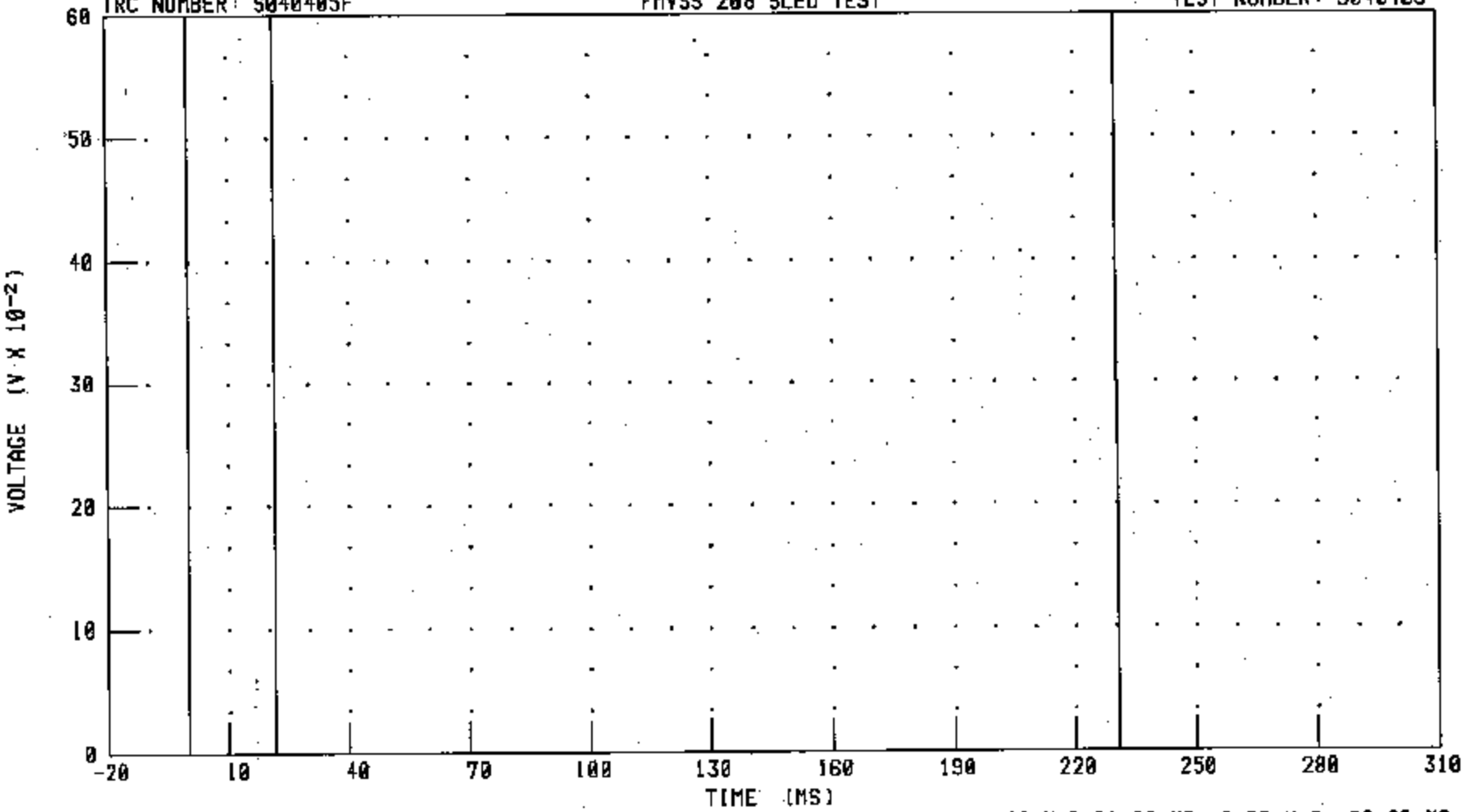
PEAK DATA: 1.00 V @ 20.64 MS; 0.00 V @ -20.00 MS

S040405

C40115 / 2004 BUICK LESABRE
DRIVER SECONDARY AIRBAG EVENT
FMVSS 208 5LED TEST

TRC NUMBER: S040405F

TEST NUMBER: S040405



CHANNEL: DABET2 FILTER: CH. CLASS 1000

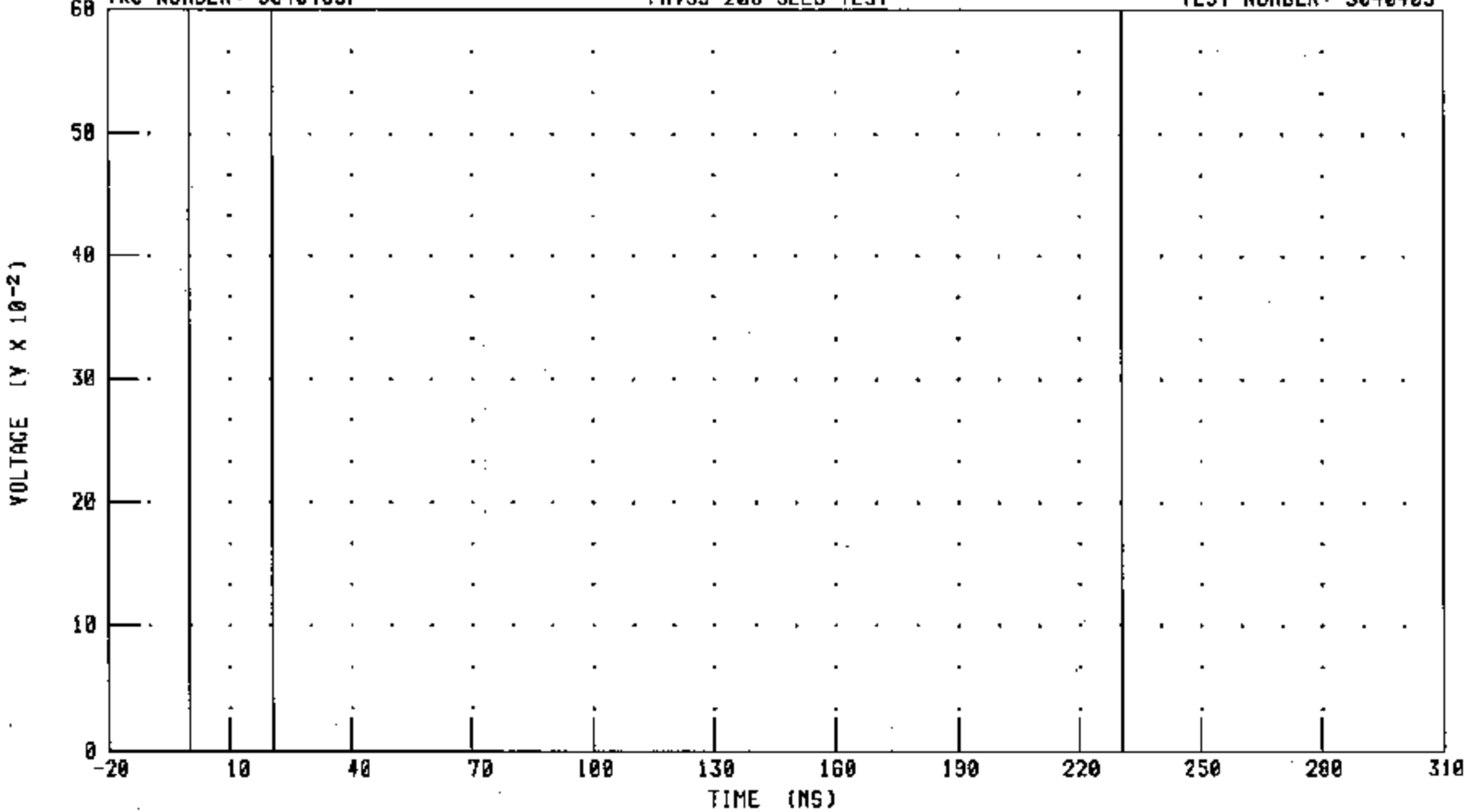
PEAK DATA: 1.00 V @ 21.60 MS; 0.00 V @ -20.00 MS

S040405

C40115 / 2004 BUICK LESABRE
PASSENGER PRIMARY AIRBAG EVENT
FMVSS 208 SLED TEST

TRC NUMBER: S040405F

TEST NUMBER: S040405



CHANNEL: PABET1 FILTER: CH. CLASS 1000

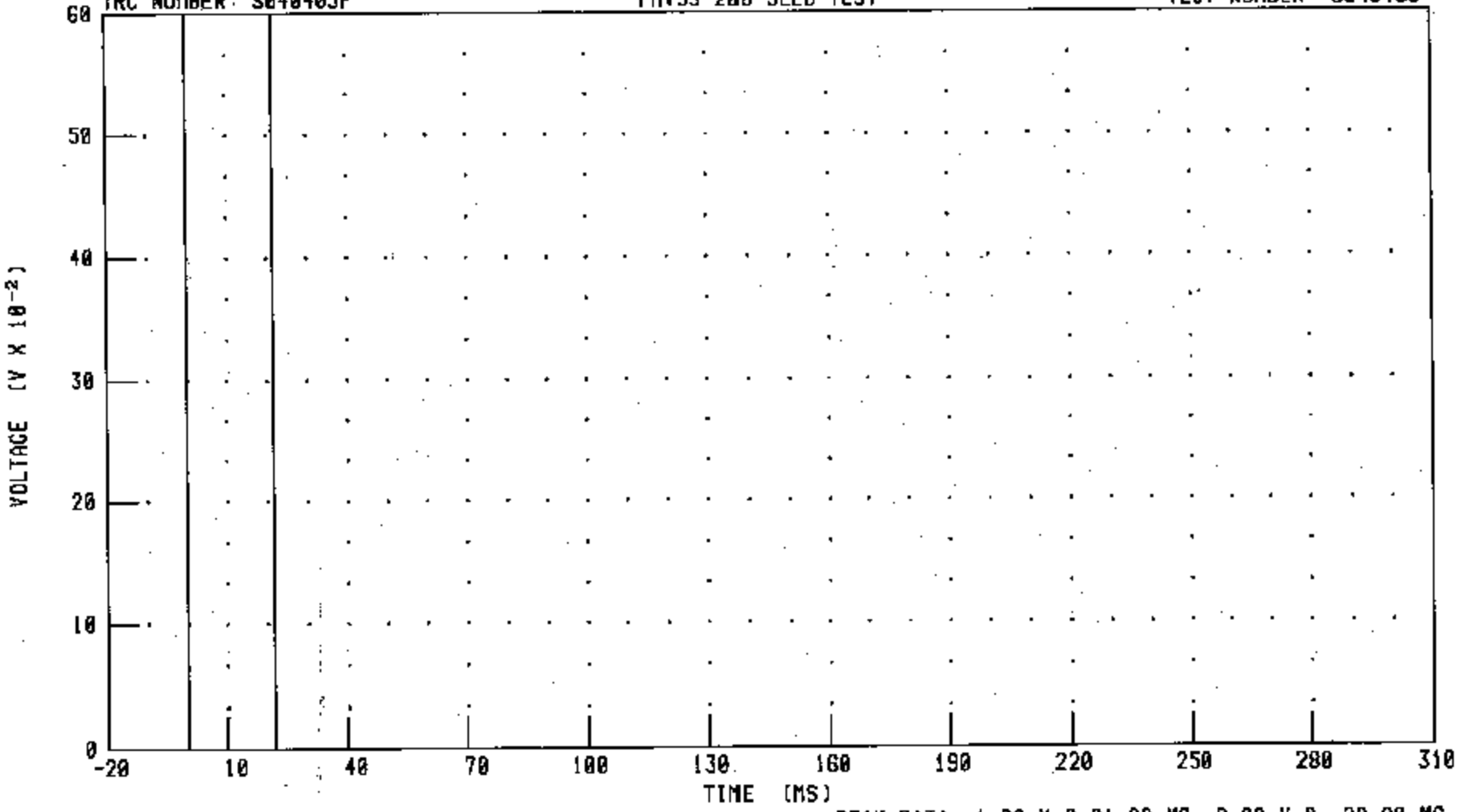
PEAK DATA: 1.00 V @ 20.64 MS; 0.00 V @ -20.00 MS

S040405

C40115 / 2004 BUICK LESABRE
PASSENGER SECONDARY AIRBAG EVENT
FMVSS 208 SLED TEST

TRC NUMBER: S040405F

TEST NUMBER: S040405



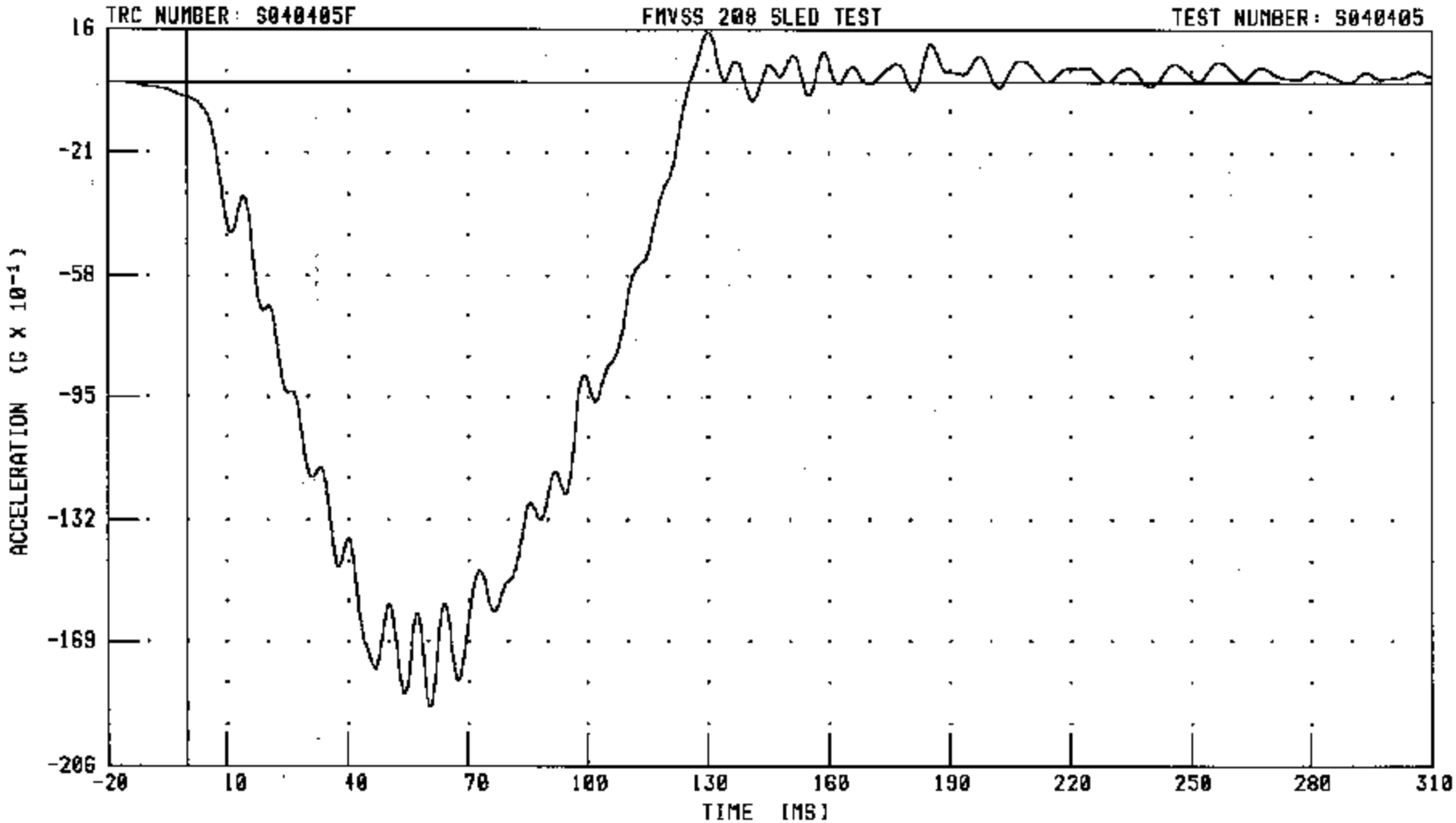
CHANNEL: PABET2 FILTER: CH. CLASS 1000

PEAK DATA: 1.00 V @ 21.60 MS; 0.00 V @ -20.00 MS

B-15

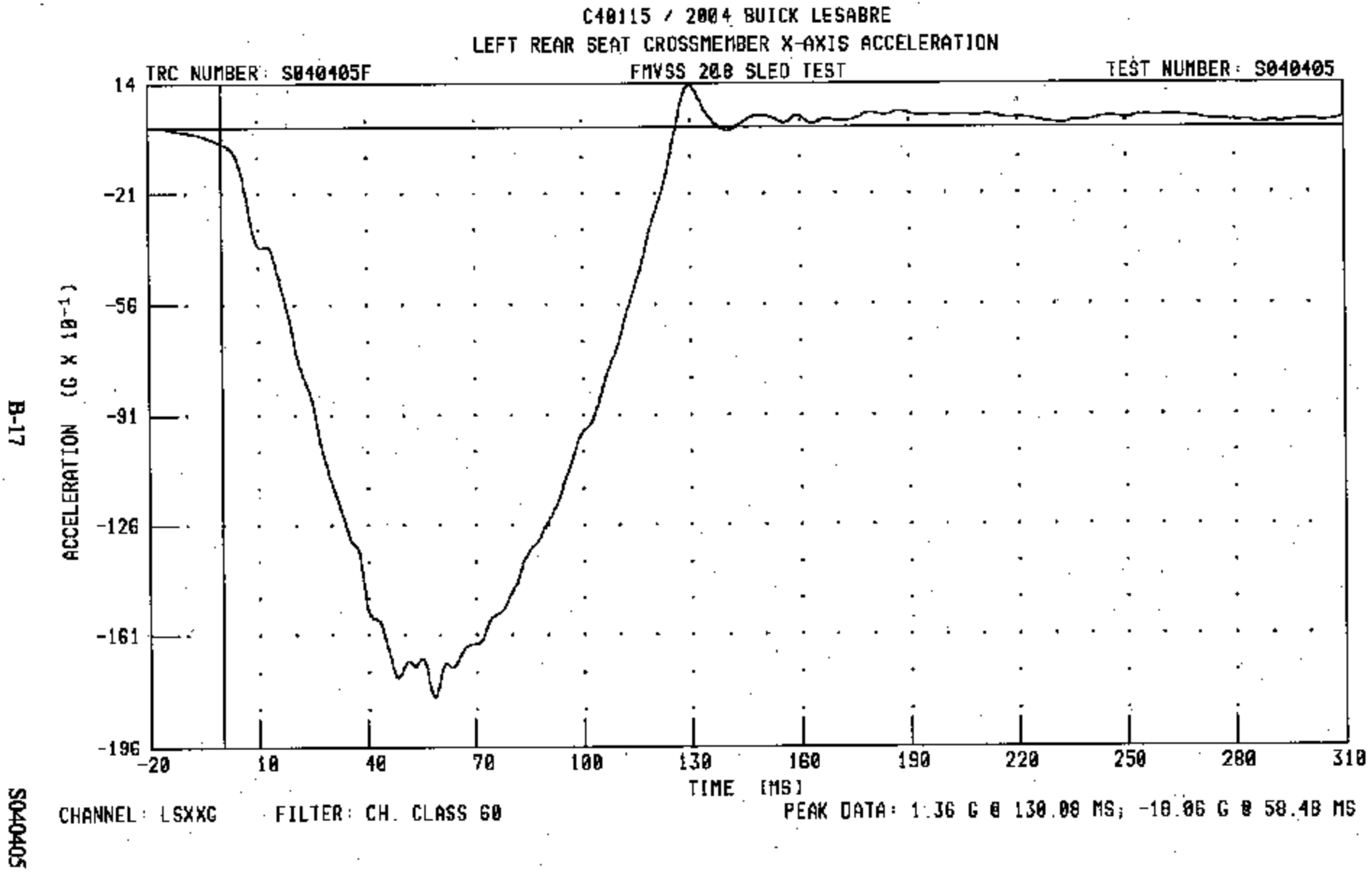
S040405

C40115 / 2004 BUICK LESABRE
REAR AXLE X-AXIS ACCELERATION
FMVSS 208 SLED TEST

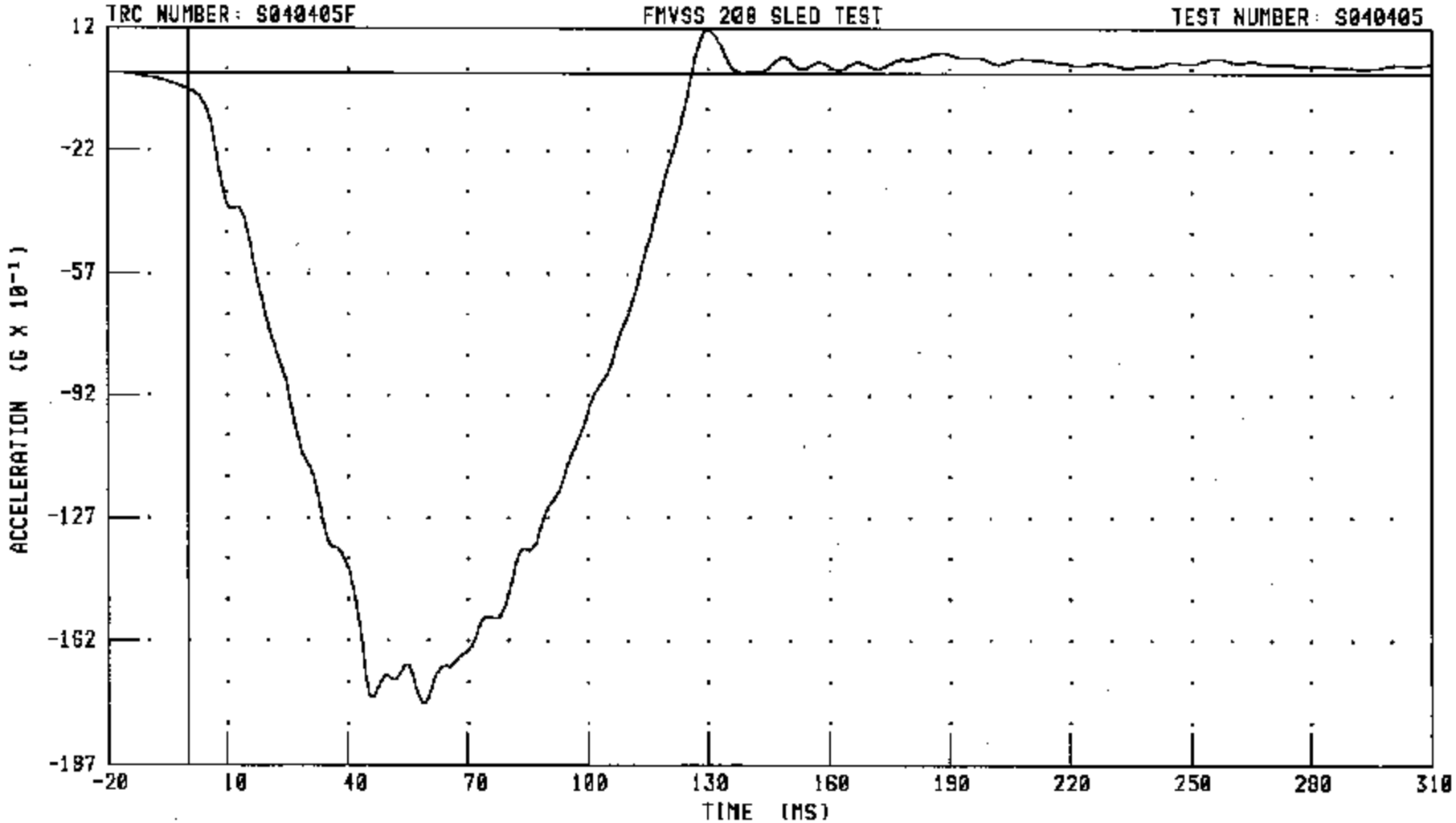


CHANNEL: RAXG FILTER: CH. CLASS 60 PEAK DATA: 1.53 G @ 130.40 MS; -18.89 G @ 60.56 MS

S040405


C40115 / 2004 BUICK LESABRE
LEFT REAR SEAT CROSSMEMBER X-AXIS ACCELERATION
TRC NUMBER: S040405F
FMVSS 208 SLED TEST
TEST NUMBER: S040405
14
-21
-56
-91
-126
-161
-196
ACCELERATION (G X 10⁻¹)
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: LSXXG
FILTER: CH. CLASS 60
PEAK DATA: 1.36 G @ 130.00 MS; -10.06 G @ 58.48 MS

C40115 / 2004 BUICK LESABRE
RIGHT REAR SEAT CROSSMEMBER X-AXIS ACCELERATION
FMVSS 208 SLED TEST



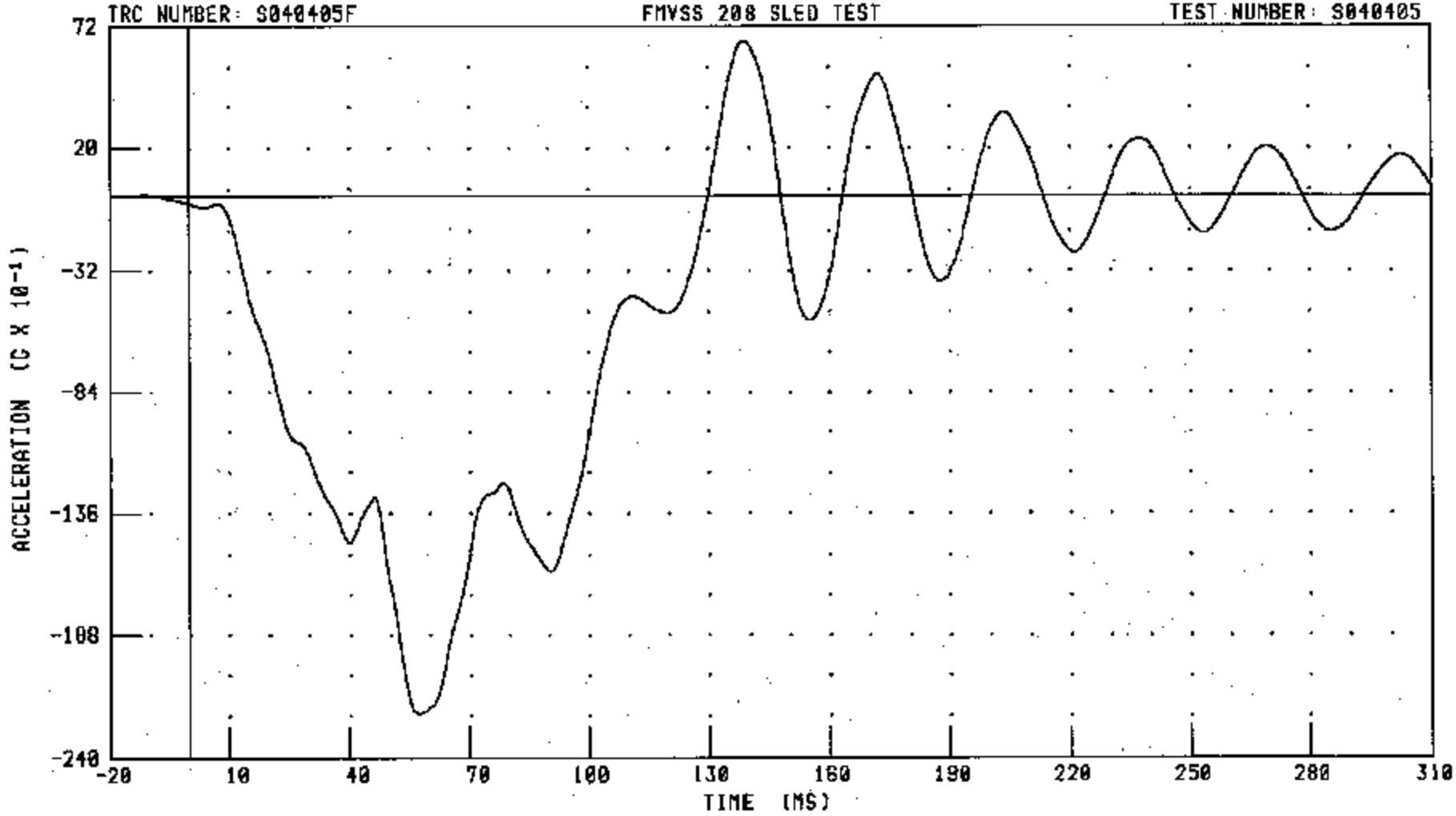
CHANNEL: RSXXC FILTER: CH. CLASS 60 PEAK DATA: 1.27 G @ 130.00 MS; -17.98 G @ 59.04 MS

S040405

C40115 / 2004 BUICK LESABRE
TOP ENGINE X-AXIS ACCELERATION
FMVSS 208 SLED TEST

TRC NUMBER: S040405F

TEST NUMBER: S040405

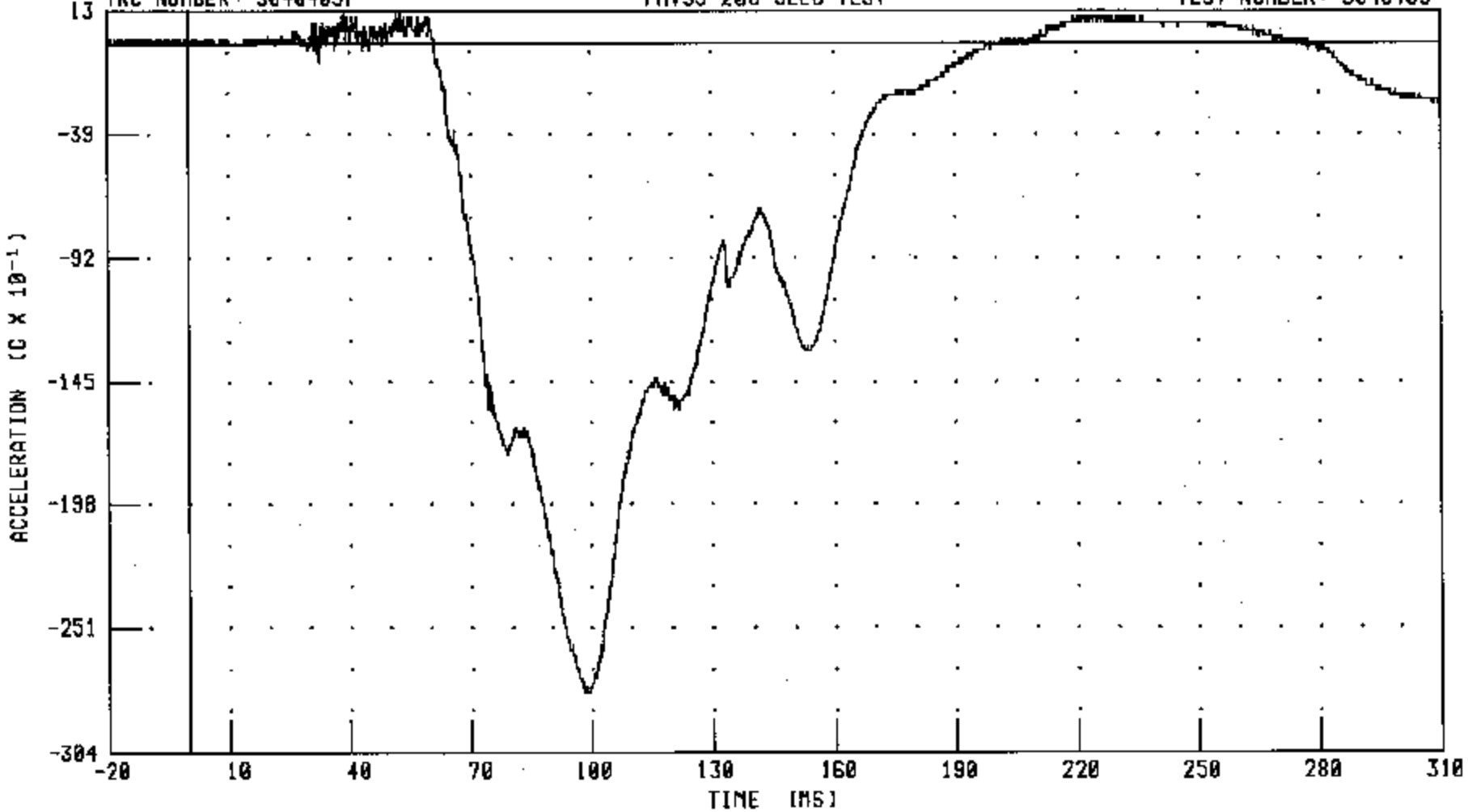


CHANNEL: TEXG FILTER: CH. CLASS 60

PEAK DATA: 6.57 G @ 138.86 MS; -22.22 G @ 57.36 MS

S040405

C40115 / 2004 BUICK LESABRE
DRIVER HEAD X-AXIS ACCELERATION
TRC NUMBER: S040405F FMVSS 208 SLED TEST TEST NUMBER: S040405



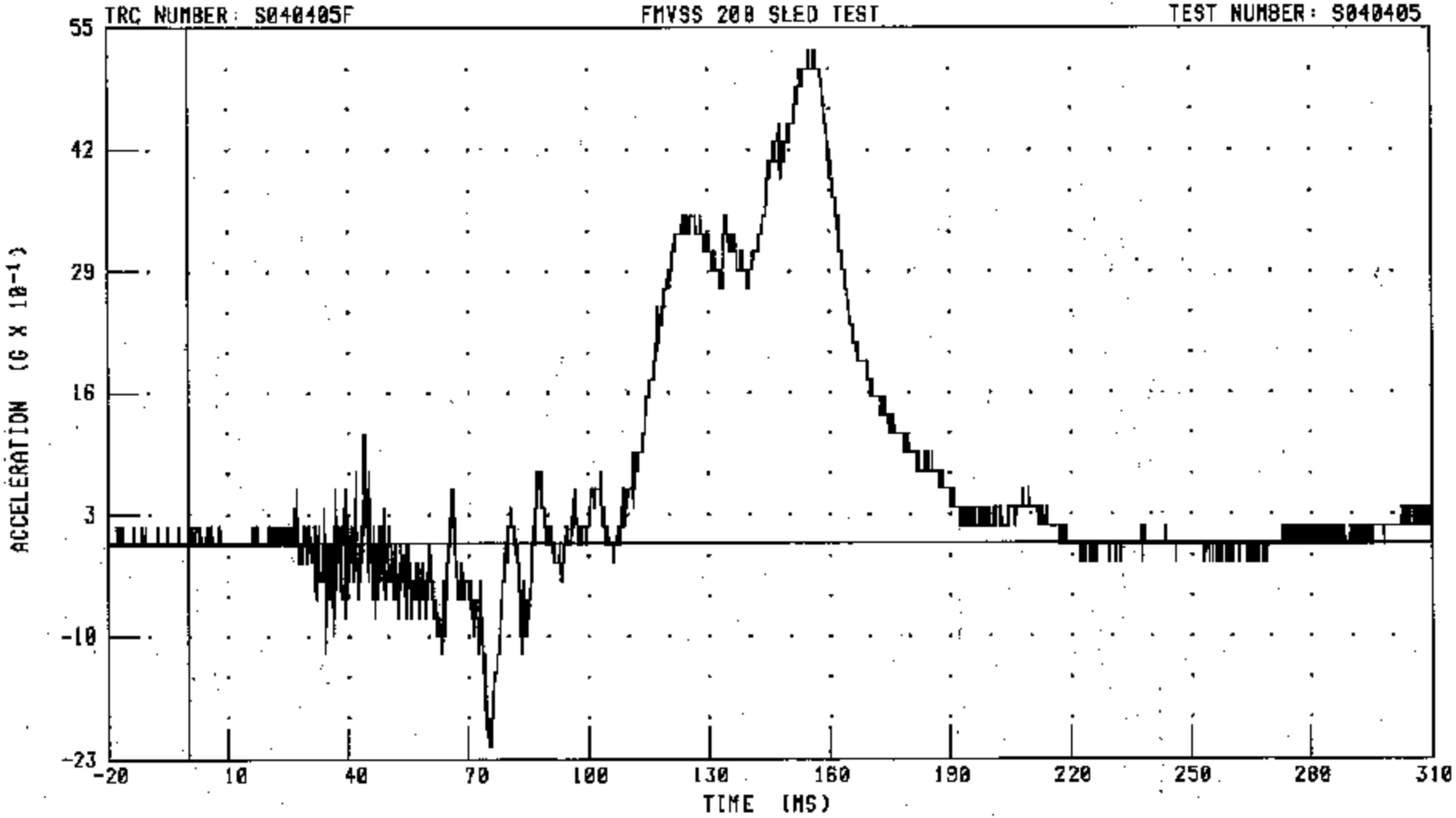
CHANNEL: HEDXG1 FILTER: CH. CLASS 1000 PEAK DATA: 1.32 G @ 39.04 MS; -27.84 G @ 98.32 MS

S040405

C40115 / 2004 BUICK LESABRE
DRIVER HEAD Y-AXIS ACCELERATION
FMVSS 208 SLED TEST

TRC NUMBER: S040405F

TEST NUMBER: S040405



CHANNEL: HEDYC1 FILTER: CH. CLASS 1000

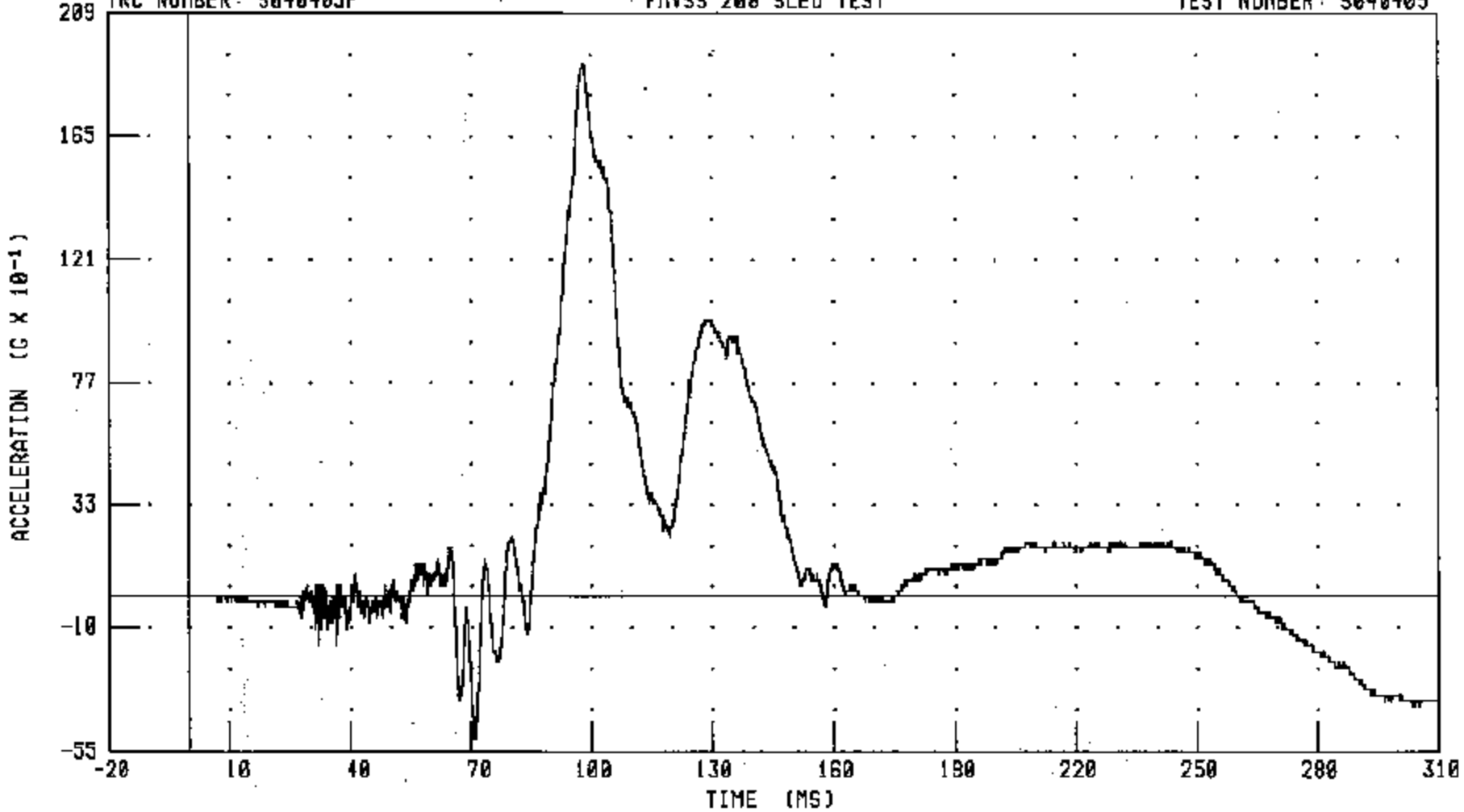
PEAK DATA: 5.26 G @ 155.12 MS; -2.17 G @ 75.12 MS

S040405

C40115 / 2004 BUICK LESABRE
DRIVER HEAD Z-AXIS ACCELERATION
FMVSS 208 SLED TEST

TRC NUMBER: S040405F

TEST NUMBER: S040405



CHANNEL: HEDZG1 FILTER: CH. CLASS 1000

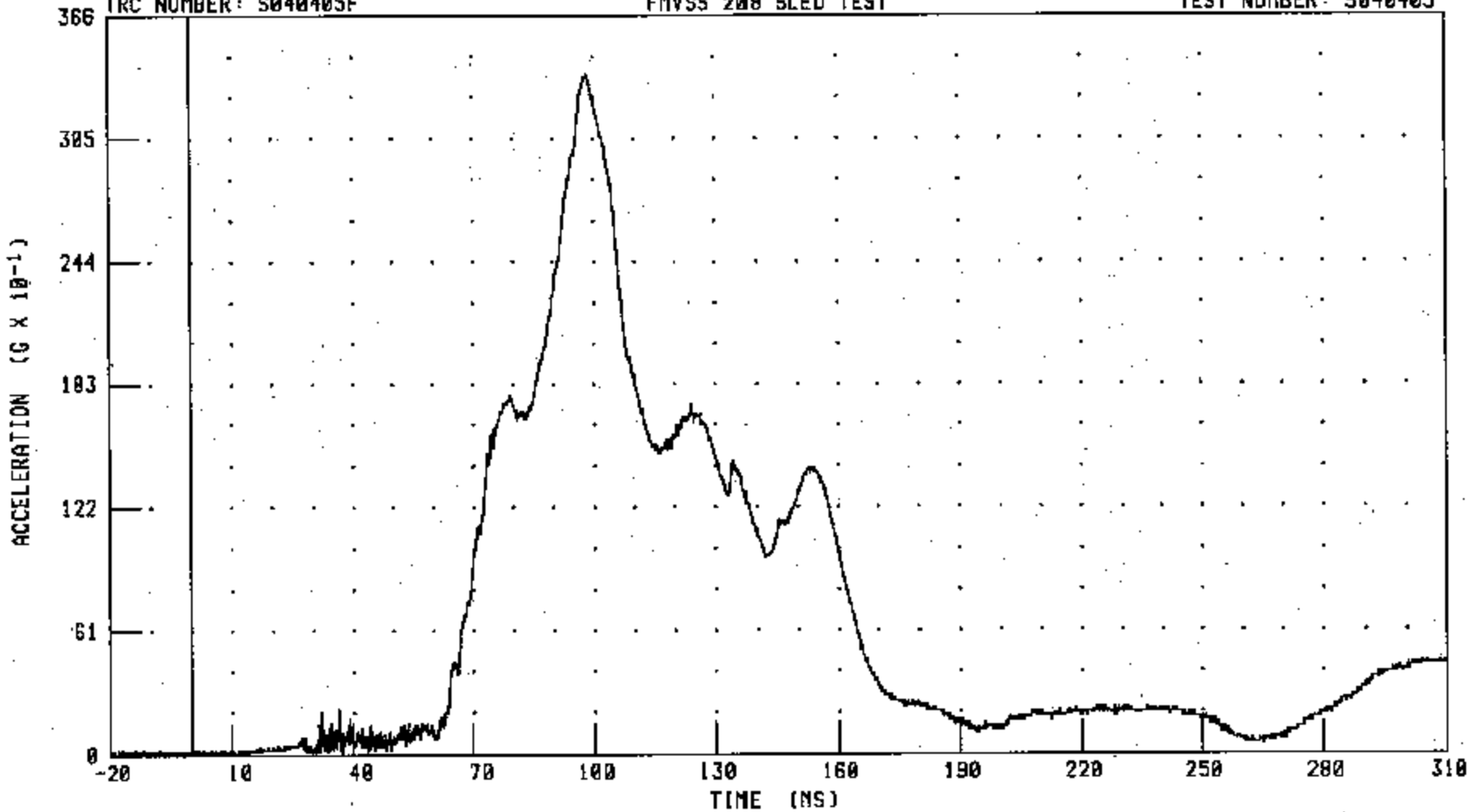
PEAK DATA: 19.12 G @ 98.40 MS; -5.07 G @ 70.72 MS

S040405

C40115 / 2004 BUICK LESABRE
DRIVER HEAD RESULTANT ACCELERATION
FMVSS 208 SLED TEST

TRC NUMBER: S040405F

TEST NUMBER: S040405



CHANNEL: HEORG1 FILTER: CH. CLASS 1000

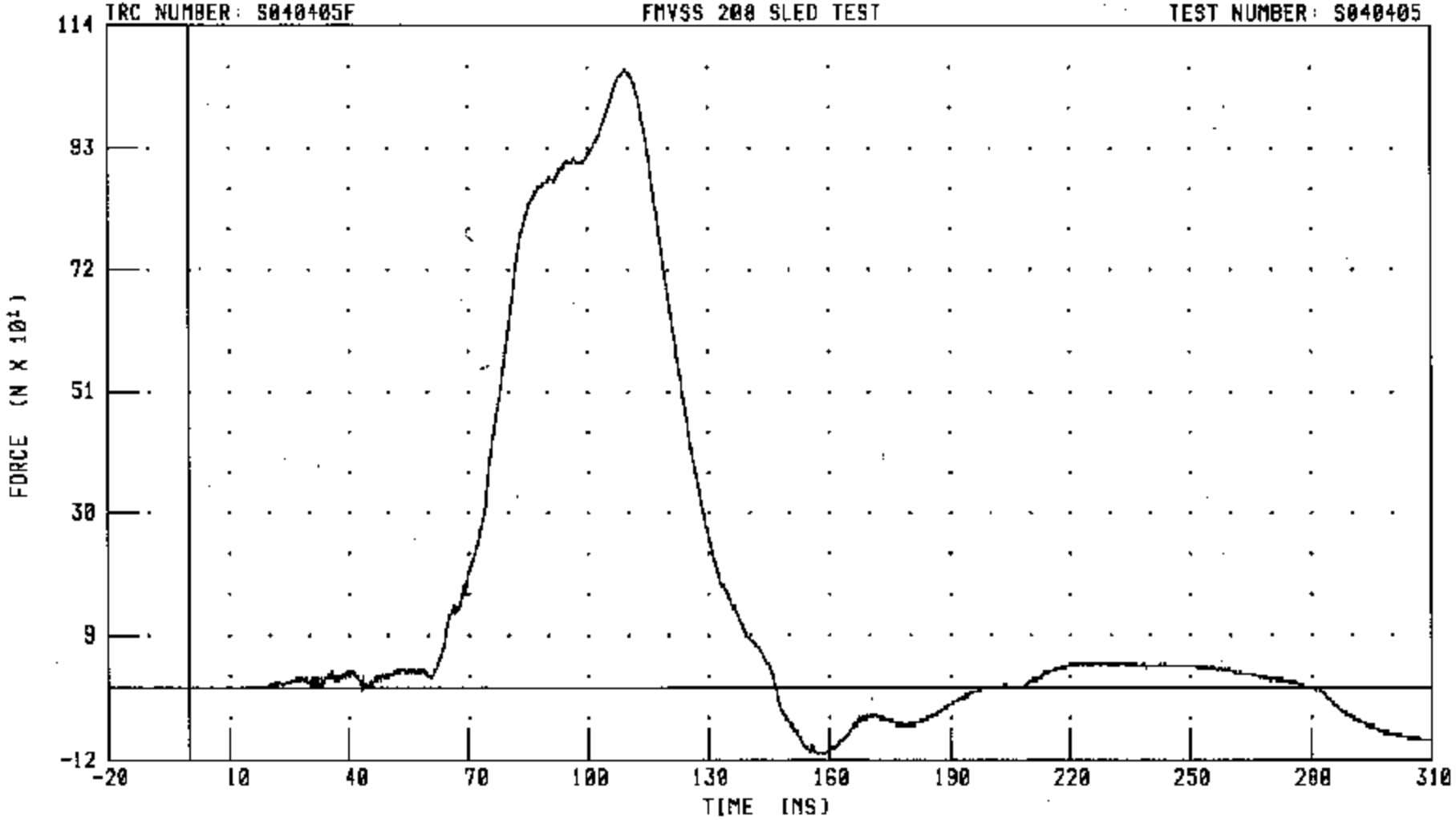
PEAK DATA: 33.66 G @ 98.32 MS, 0.05 G @ -20.00 MS

S040405

C40115 / 2004 BUICK LESABRE
DRIVER NECK X-AXIS SHEAR FORCE
FMVSS 208 SLED TEST

TRC NUMBER: S040405F

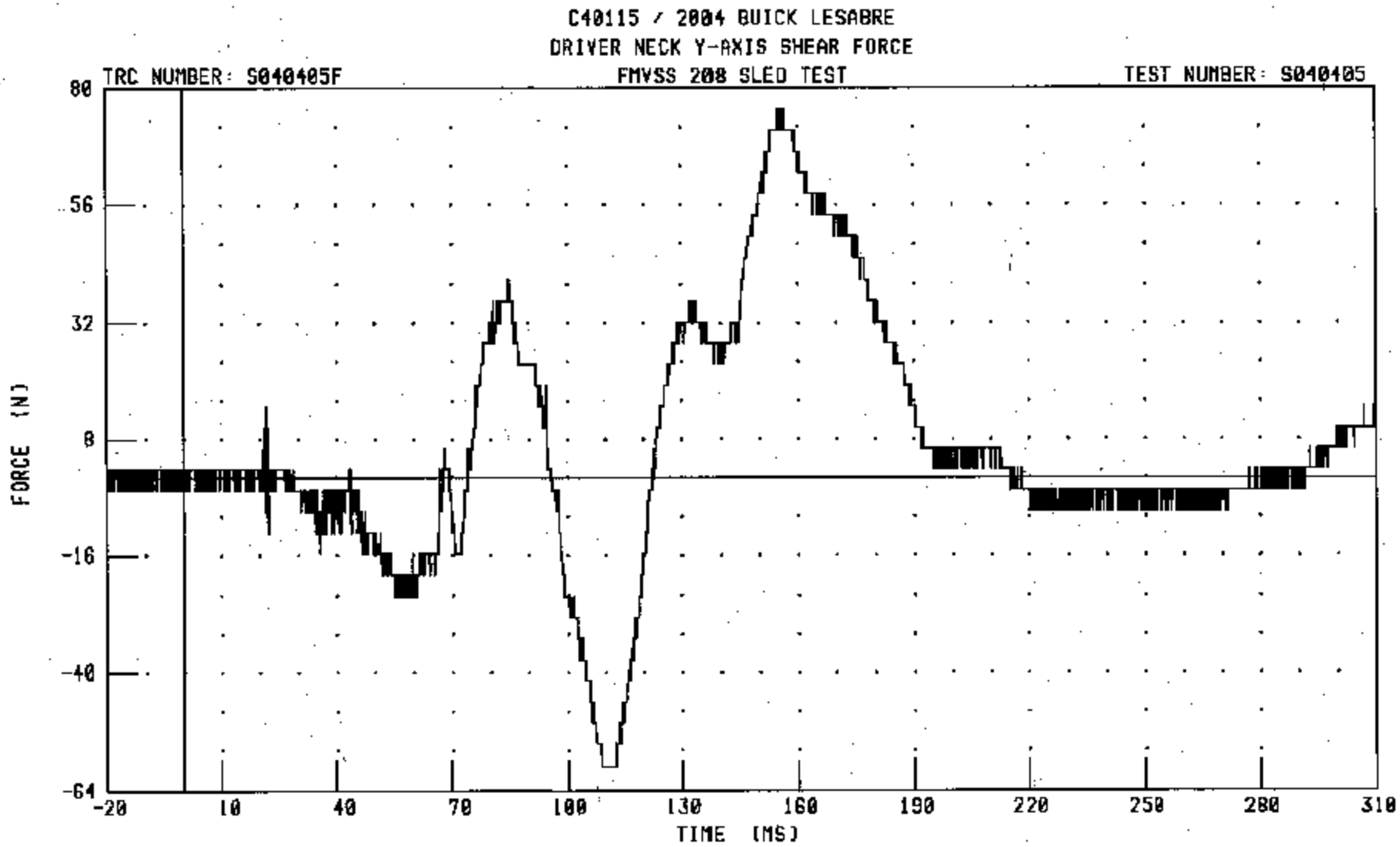
TEST NUMBER: S040405



CHANNEL: NEKXF1 FILTER: CH. CLASS 1000

PEAK DATA: 1066.34 N @ 109.36 MS; -110.02 N @ 157.28 MS

S040405

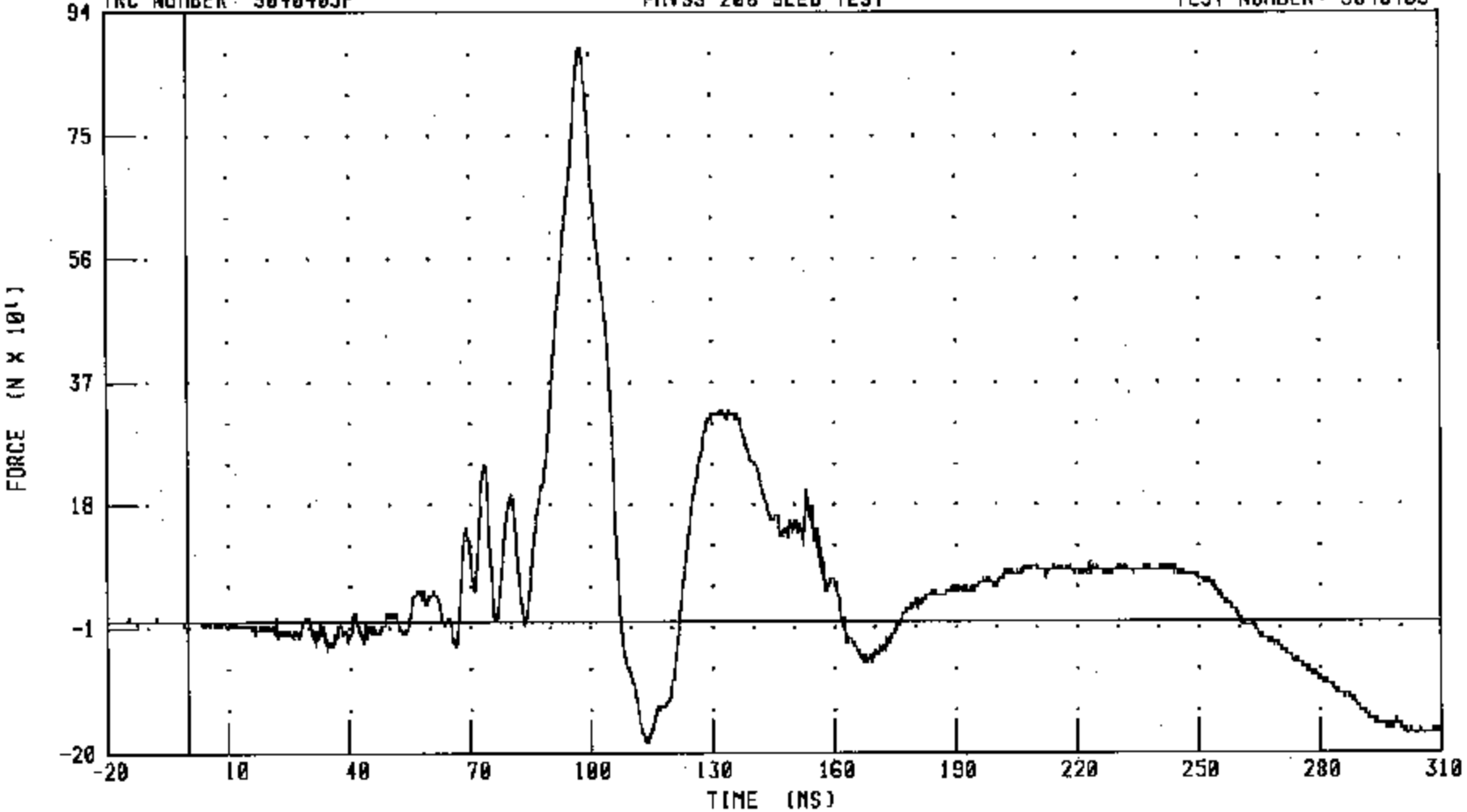

C40115 / 2004 BUICK LESABRE
DRIVER NECK Y-AXIS SHEAR FORCE
FMVSS 208 SLED TEST
TRC NUMBER: S040405F
TEST NUMBER: S040405
80
56
32
8
-16
-40
-64
FORCE (N)
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: NEKYF1
FILTER: CH. CLASS 1000
PEAK DATA: 75.60 N @ 154.96 MS; -59.09 N @ 108.80 MS

S040405

C40115 / 2004 BUICK LESABRE
DRIVER NECK Z-AXIS AXIAL FORCE
FMVSS 208 SLED TEST

TRC NUMBER: S040405F

TEST NUMBER: S040405



CHANNEL: NEKZF1 FILTER: CH. CLASS 1000

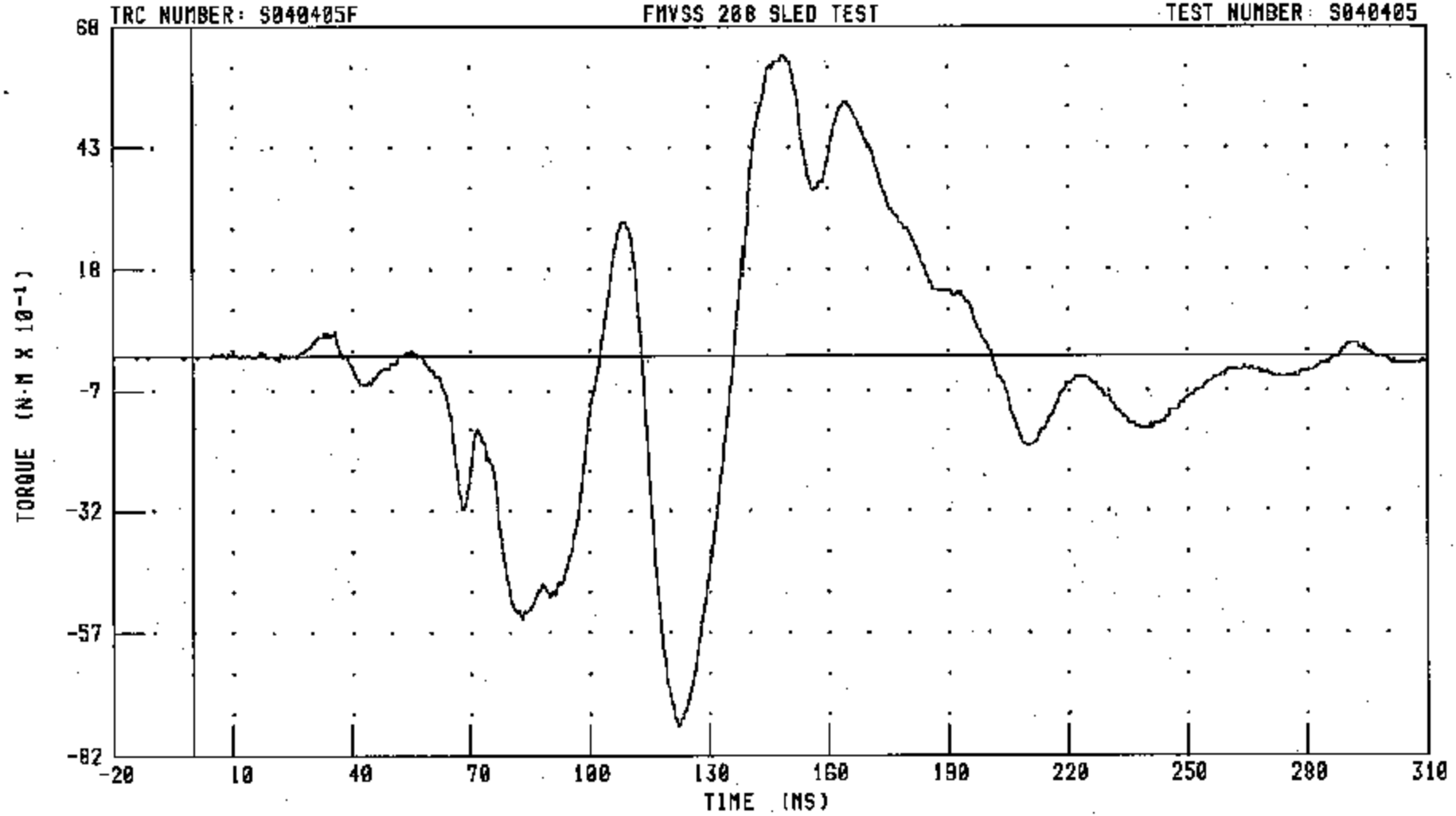
PEAK DATA: 885.84 N @ 97.60 MS; -182.62 N @ 113.60 MS

S040405

C40115 / 2004 BUICK LESABRE
DRIVER NECK MOMENT ABOUT X AXIS
FMVSS 208 SLED TEST

TRC NUMBER: S040405F

TEST NUMBER: S040405



CHANNEL: NEKXM1 FILTER: CH. CLASS 600

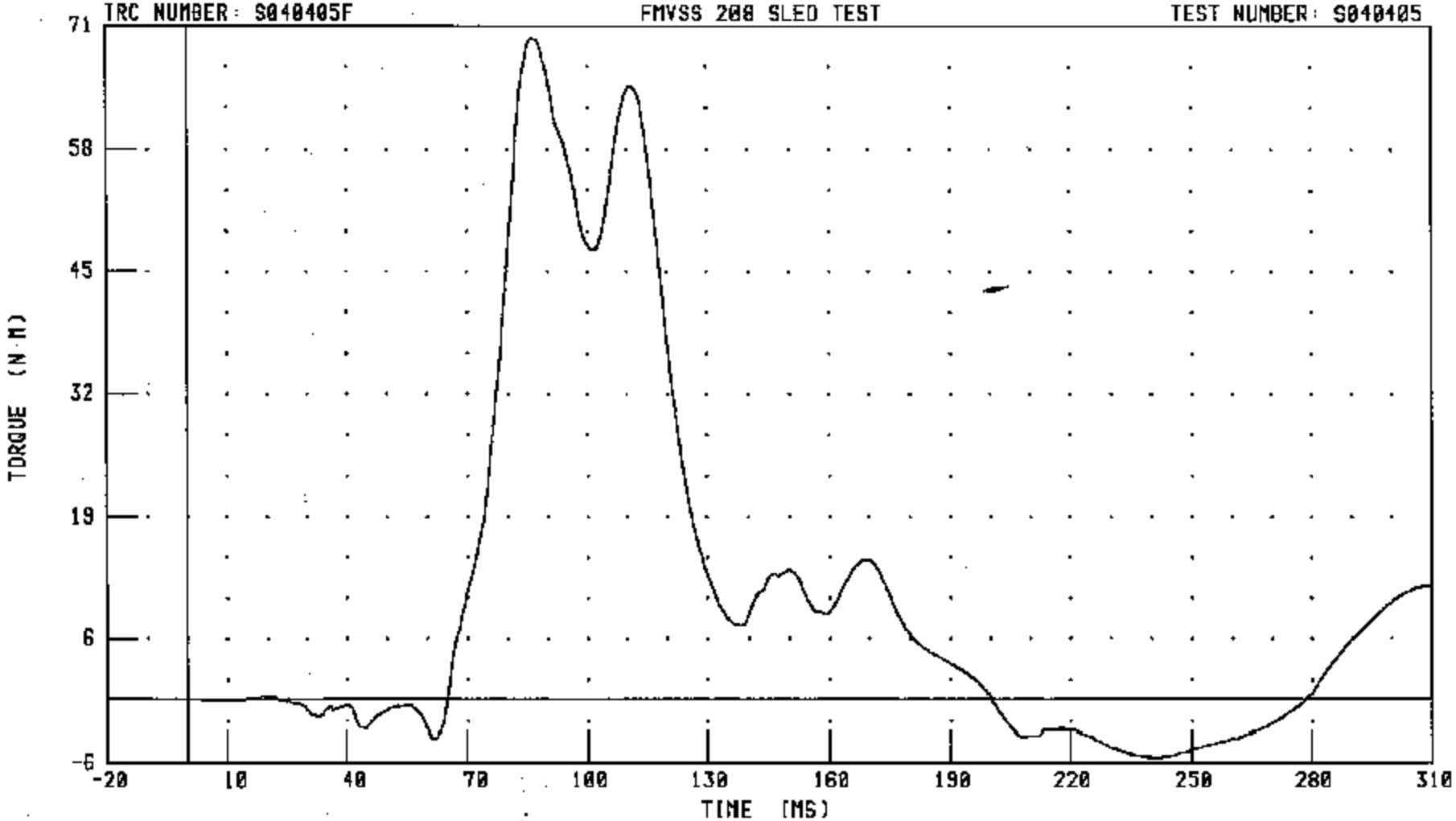
PEAK DATA: 6.21 N·M @ 148.56 MS; -7.61 N·M @ 122.32 MS

S040405

C40115 / 2004 BUICK LESABRE
DRIVER NECK MOMENT ABOUT Y AXIS
FMVSS 208 SLED TEST

TRC NUMBER: S040405F

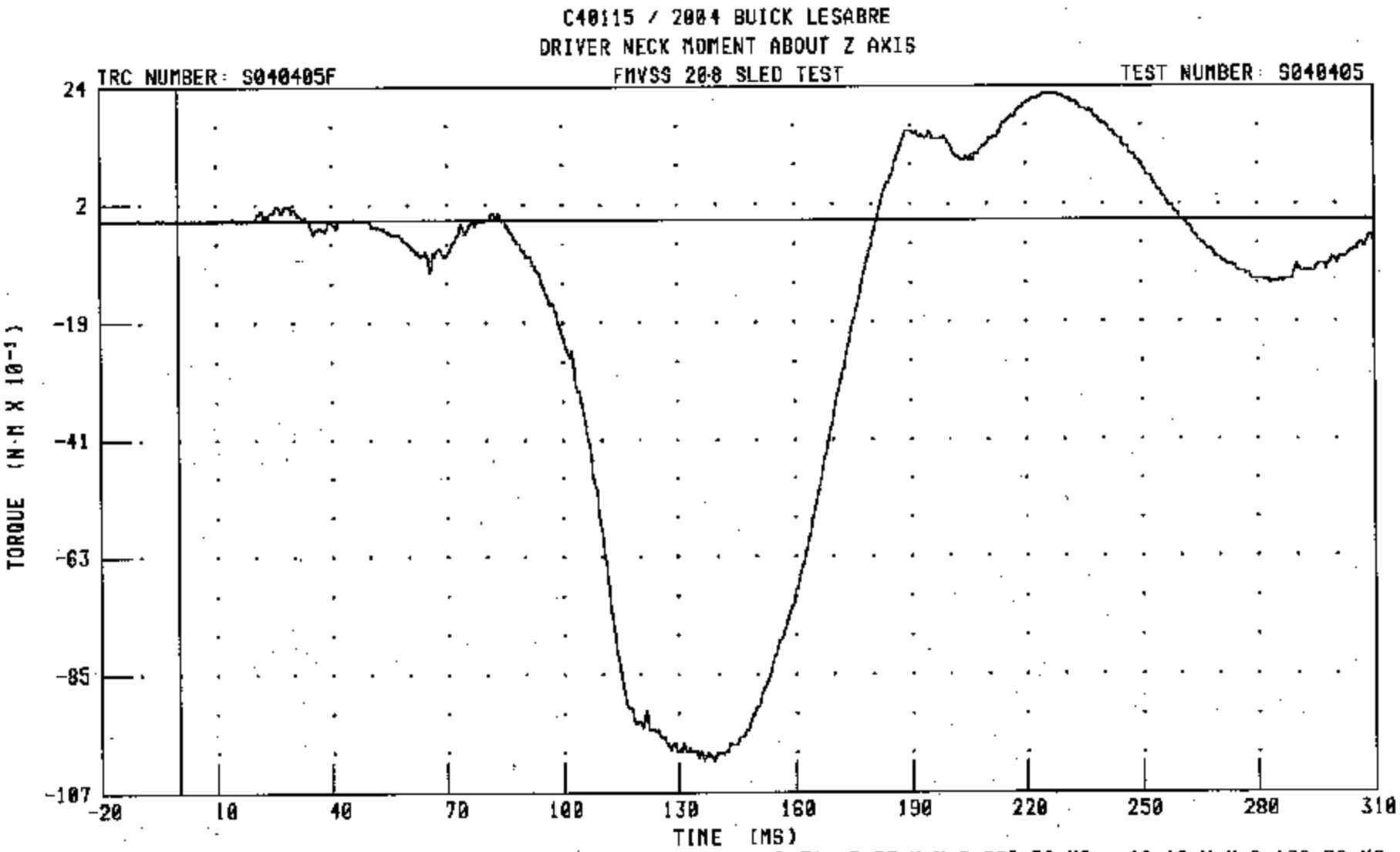
TEST NUMBER: S040405



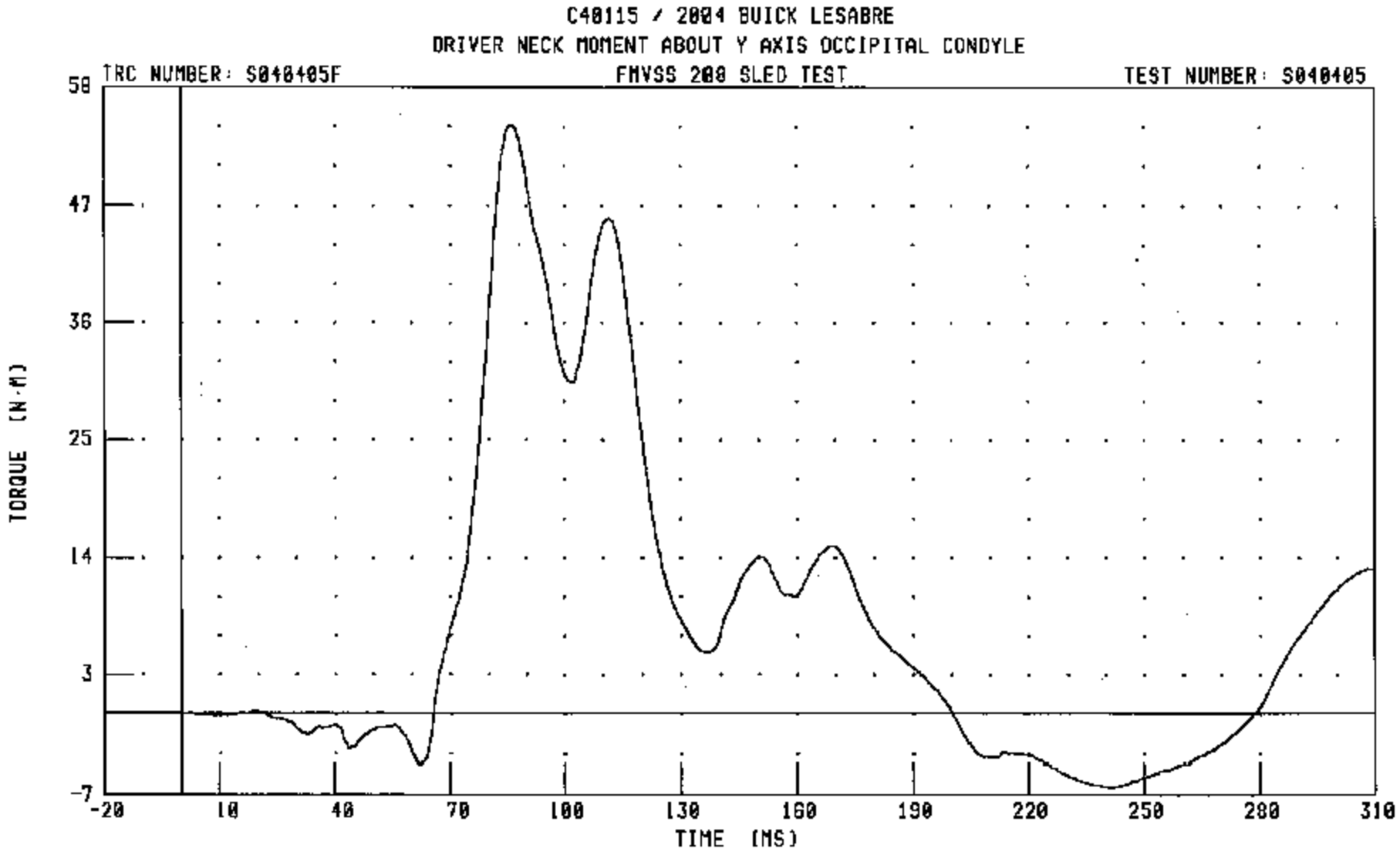
CHANNEL: NEKYM1 FILTER: CH. CLASS 600

PEAK DATA: 70.07 N-M @ 86.32 MS; -6.07 N-M @ 240.80 MS

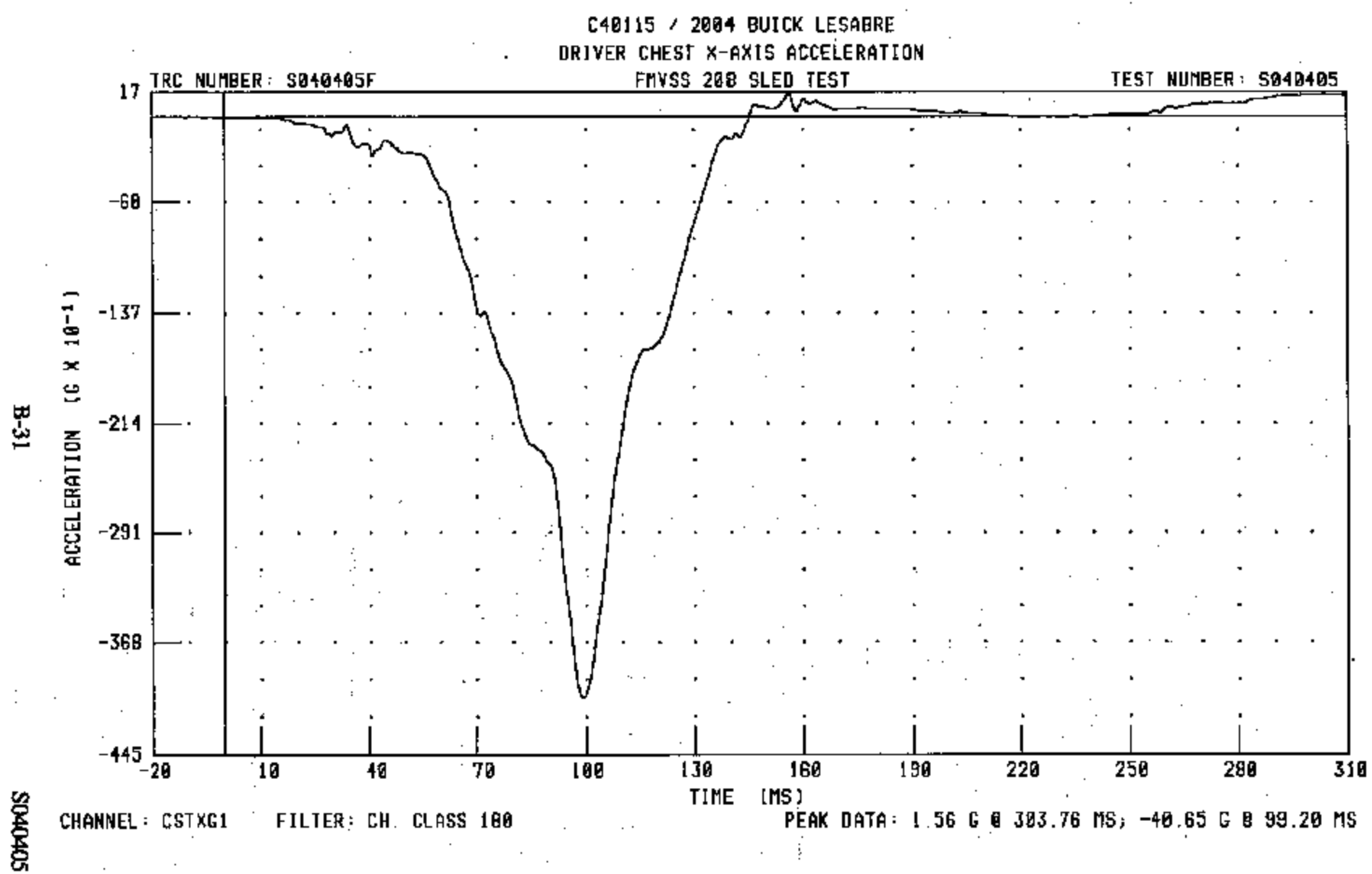
S040405


C40115 / 2004 BUICK LESABRE
DRIVER NECK MOMENT ABOUT Z AXIS
FMVSS 208 SLED TEST
TRC NUMBER: S040405F
TEST NUMBER: S040405
24
2
-19
-41
-63
-85
-107
TORQUE (N-M X 10-1)
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: NEKZM1
FILTER: CH. CLASS 600
PEAK DATA: 2.35 N-M @ 220.56 MS; -10.10 N-M @ 136.72 MS

S040405


C40115 / 2004 BUICK LESABRE
DRIVER NECK MOMENT ABOUT Y AXIS OCCIPITAL CONDYLE
TRC NUMBER: S040405F
FMVSS 208 SLED TEST
TEST NUMBER: S040405
58
47
36
25
14
3
-7
TORQUE (N-M)
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: NEKOM1
FILTER: CH. CLASS 600
PEAK DATA: 55.09 N-M @ 86.24 MS; -6.74 N-M @ 240.80 MS

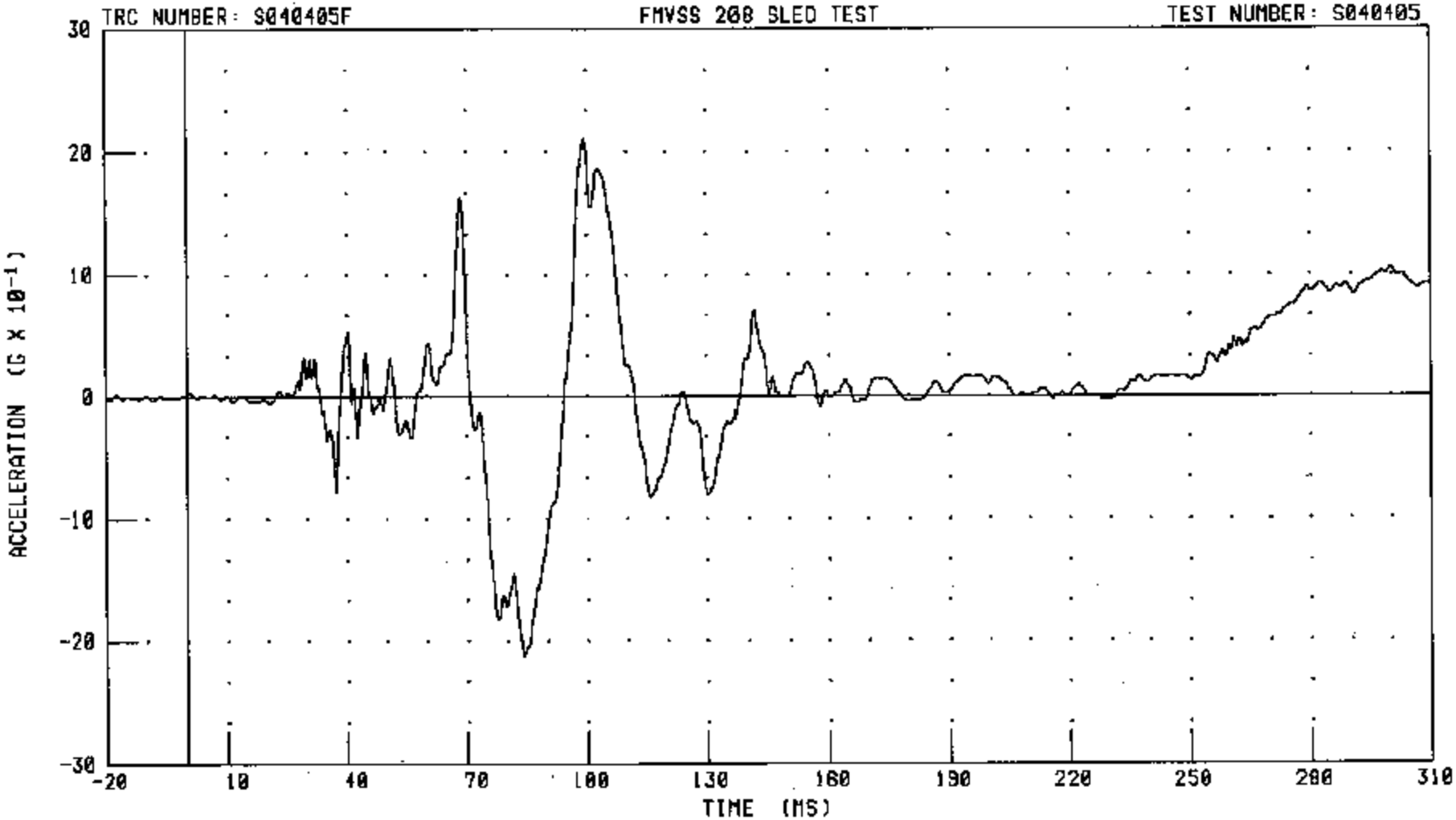
S040405


C40115 / 2004 BUICK LESABRE
DRIVER CHEST X-AXIS ACCELERATION
TRC NUMBER: S040405F
FMVSS 208 SLED TEST
TEST NUMBER: S040405
17
-68
-137
-214
-291
-368
-445
ACCELERATION (G X 10-1)
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: CSTXG1
FILTER: CH. CLASS 180
PEAK DATA: 1.56 G @ 303.76 MS; -40.65 G @ 99.20 MS
SOMOS

C40115 / 2004 BUICK LESABRE
DRIVER CHEST Y-AXIS ACCELERATION
FMVSS 208 SLED TEST

TRC NUMBER: S040405F

TEST NUMBER: S040405



CHANNEL: CSTYG1 FILTER: CH. CLASS 180

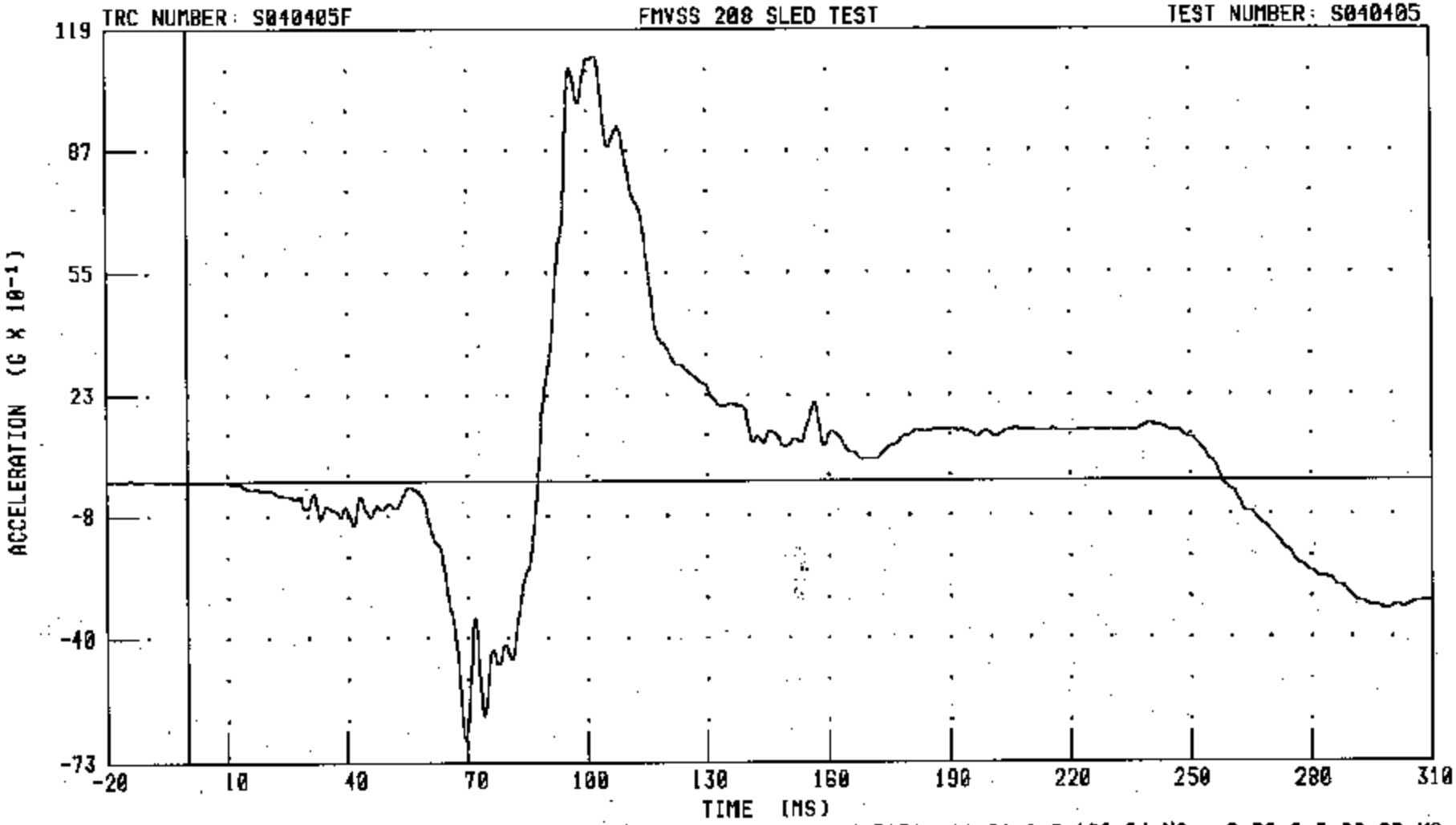
PEAK DATA: 2.10 G @ 99.60 MS; -2.13 G @ 84.08 MS

S040405

C40115 / 2004 BUICK LESABRE
DRIVER CHEST Z-AXIS ACCELERATION
FMVSS 208 SLED TEST

TRC NUMBER: S040405F

TEST NUMBER: S040405



CHANNEL: CSTZG1 FILTER: CH. CLASS 180

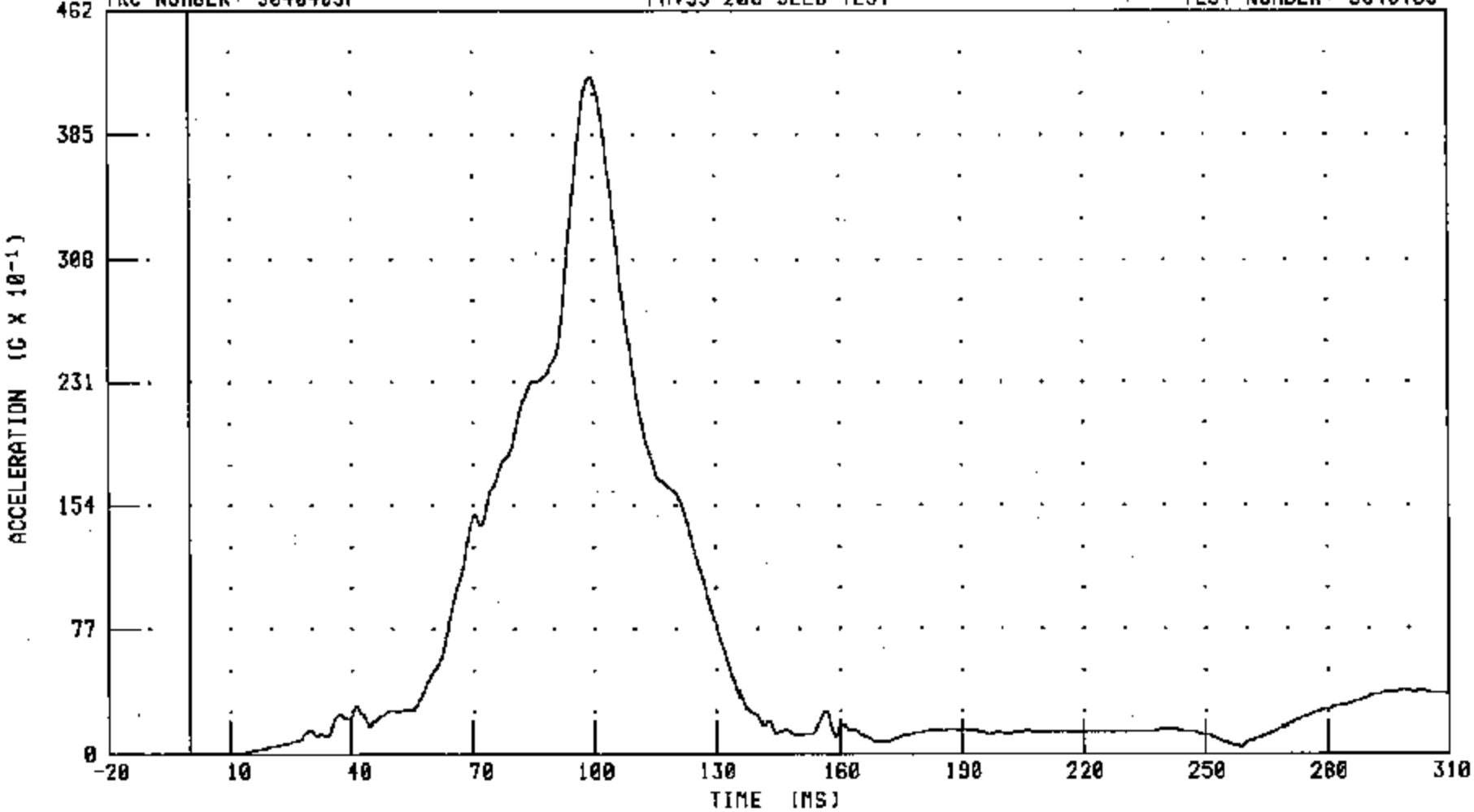
PEAK DATA: 11.21 G @ 102.24 MS; -6.70 G @ 69.60 MS

S040405

C40115 / 2004 BUICK LESABRE
DRIVER CHEST RESULTANT ACCELERATION
FMVSS 208 SLED TEST

TRC NUMBER: S040405F

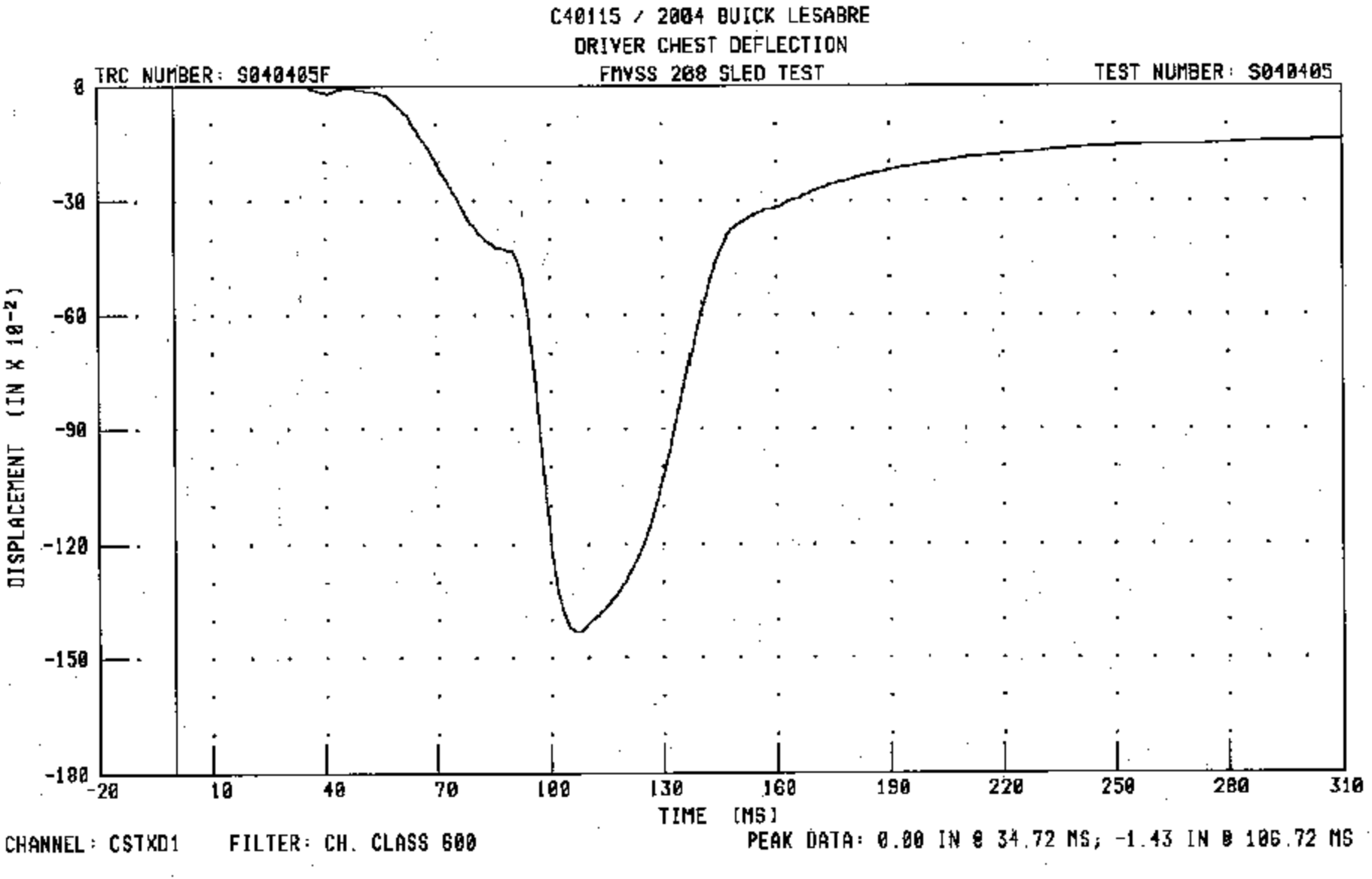
TEST NUMBER: S040405



CHANNEL: CSTRG1 FILTER: CH. CLASS 180

PEAK DATA: 42.07 G @ 99.52 MS; 0.02 G @ -4.64 MS

S040405

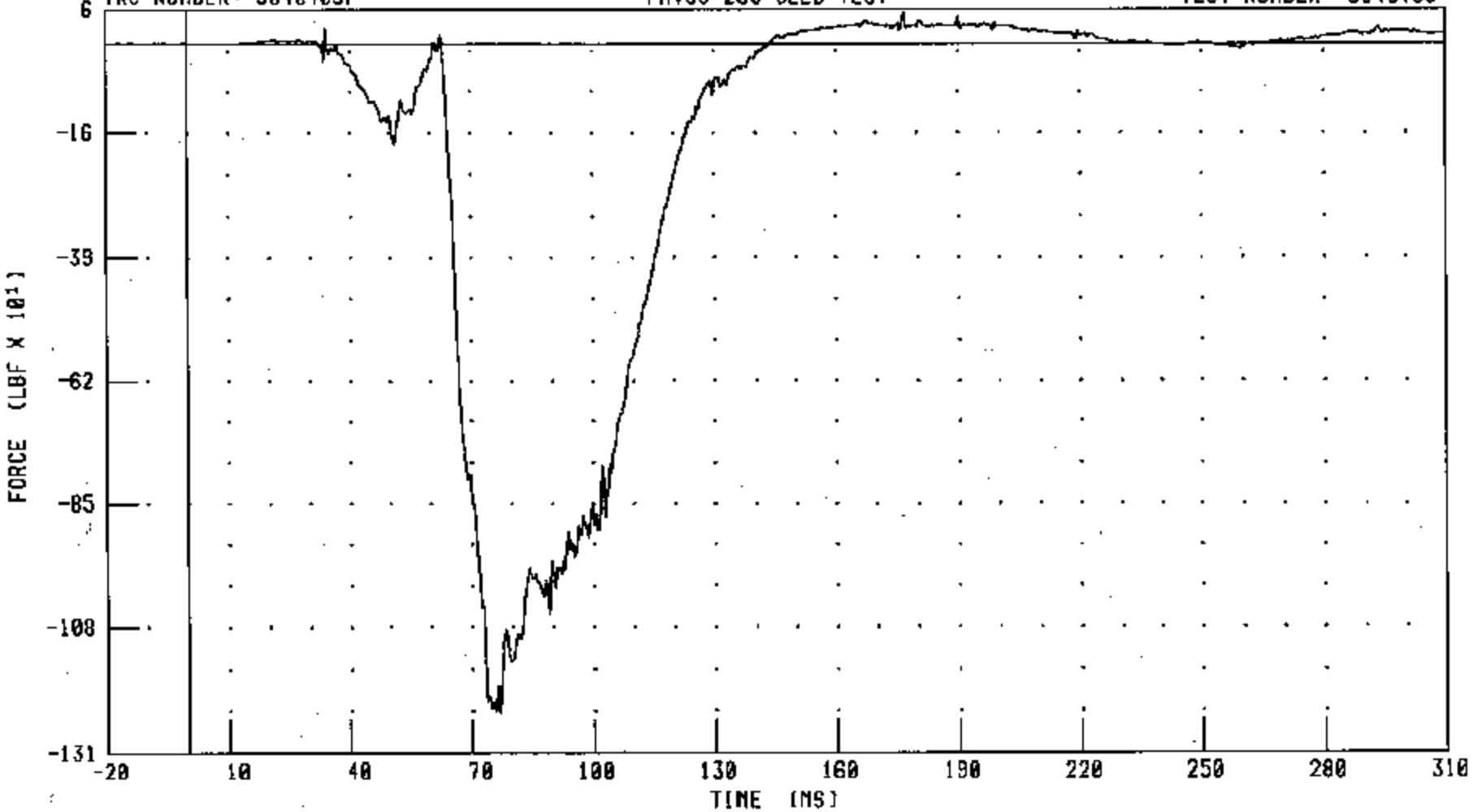

C40115 / 2004 BUICK LESABRE
DRIVER CHEST DEFLECTION
FMVSS 208 SLED TEST
TRC NUMBER: S040405F
TEST NUMBER: S040405
DISPLACEMENT (IN X 10-2)
0
-30
-60
-90
-120
-150
-180
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: CSTXD1
FILTER: CH. CLASS 600
PEAK DATA: 0.00 IN @ 34.72 MS; -1.43 IN @ 106.72 MS

S040405

C40115 / 2004 BUICK LESABRE
DRIVER LEFT FEMUR FORCE
FMVSS 208 SLED TEST

TRC NUMBER: S040405F

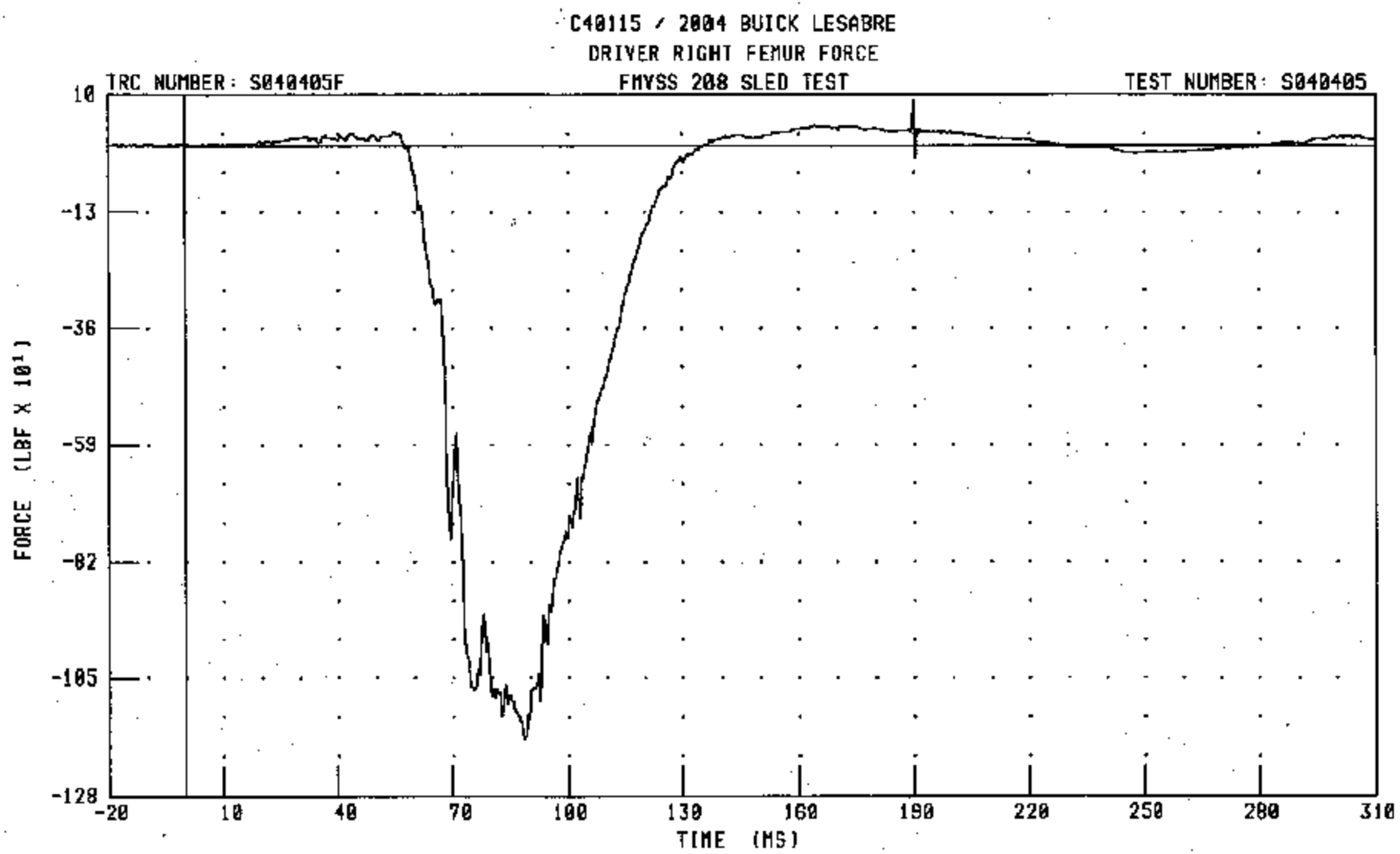
TEST NUMBER: S040405



CHANNEL: LFMZF1 FILTER: CH. CLASS 600

PEAK DATA: 57.85 LBF @ 177.12 MS; -1244.64 LBF @ 76.96 MS

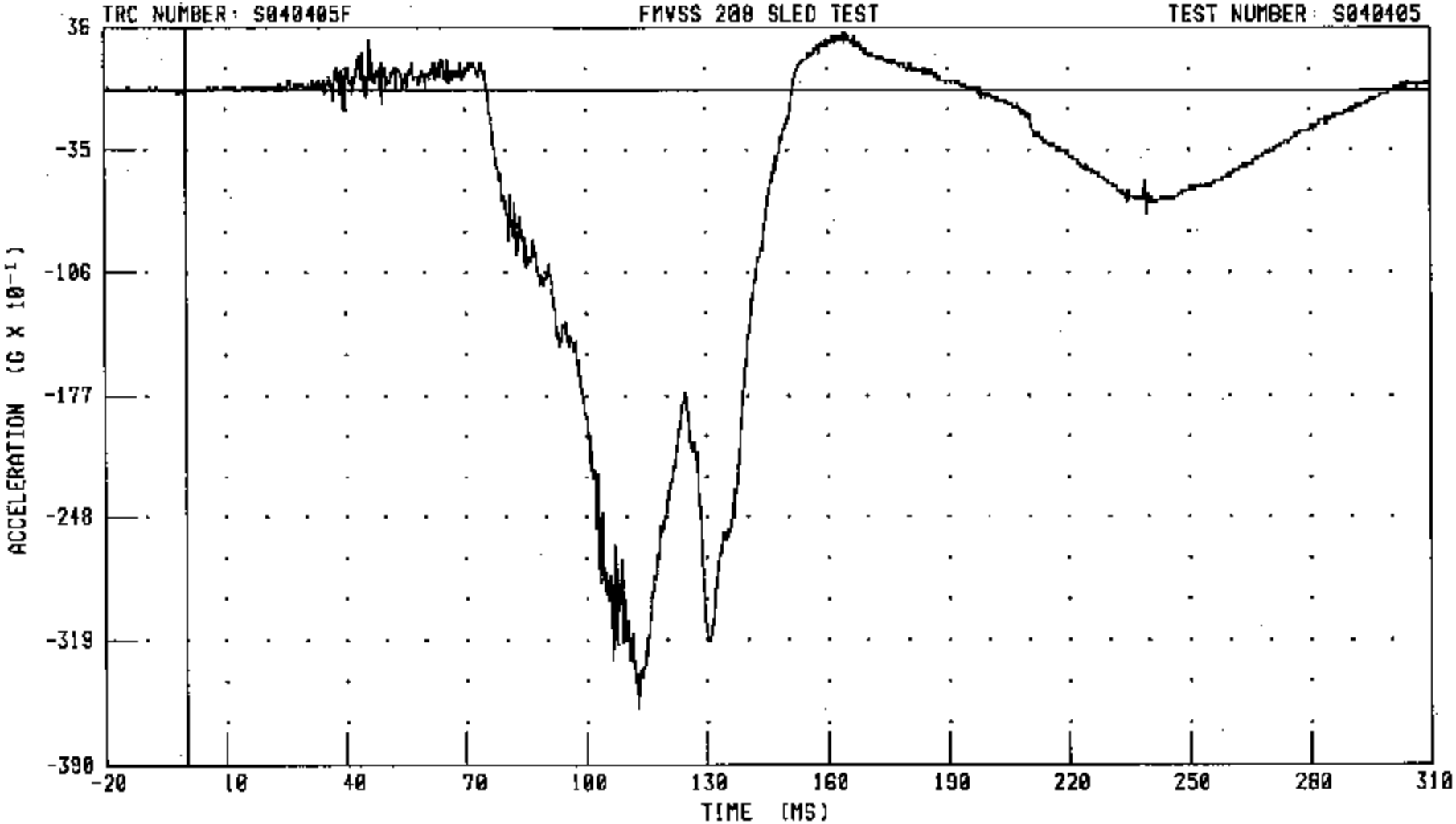
S040405


C40115 / 2004 BUICK LESABRE
DRIVER RIGHT FEMUR FORCE
FMVSS 208 SLED TEST
TRC NUMBER: S040405F
TEST NUMBER: S040405
10
-13
-36
-59
-82
-105
-128
FORCE (LBF X 10¹)
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: RFMZF1
FILTER: CH. CLASS 600
PEAK DATA: 91.66 LBF @ 190.08 MS; -1171.18 LBF @ 88.56 MS

C40115 / 2004 BUICK LESABRE

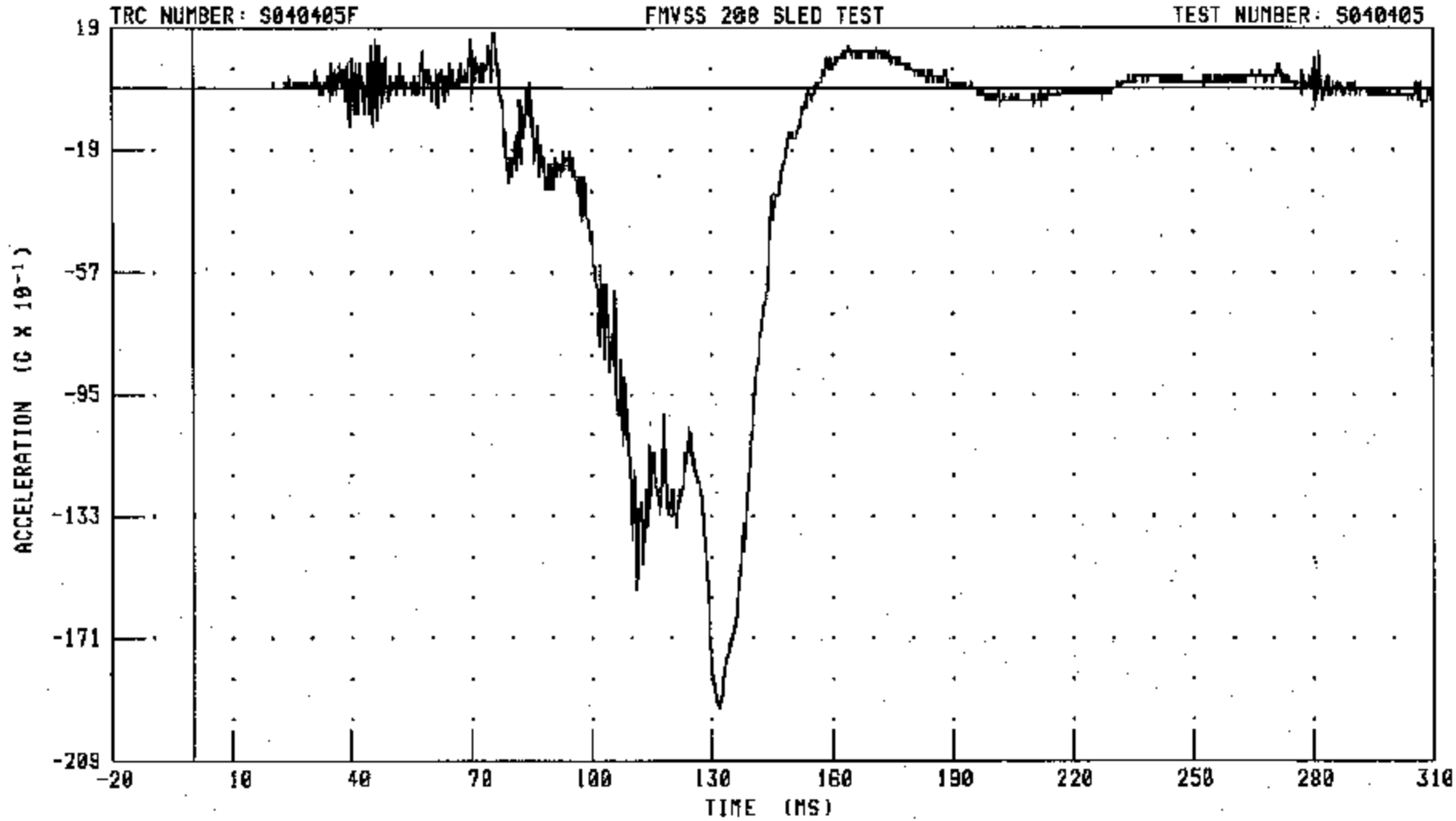
RIGHT FRONT PASSENGER HEAD X-AXIS ACCELERATION

TRC NUMBER: S040405F FMVSS 208 SLED TEST TEST NUMBER: S040405



CHANNEL: HEDXG2 FILTER: CH. CLASS 1000 PEAK DATA: 3.30 G @ 164.08 MS; -35.86 G @ 113.04 MS

C40115 / 2004 BUICK LESABRE
RIGHT FRONT PASSENGER HEAD Y-AXIS ACCELERATION



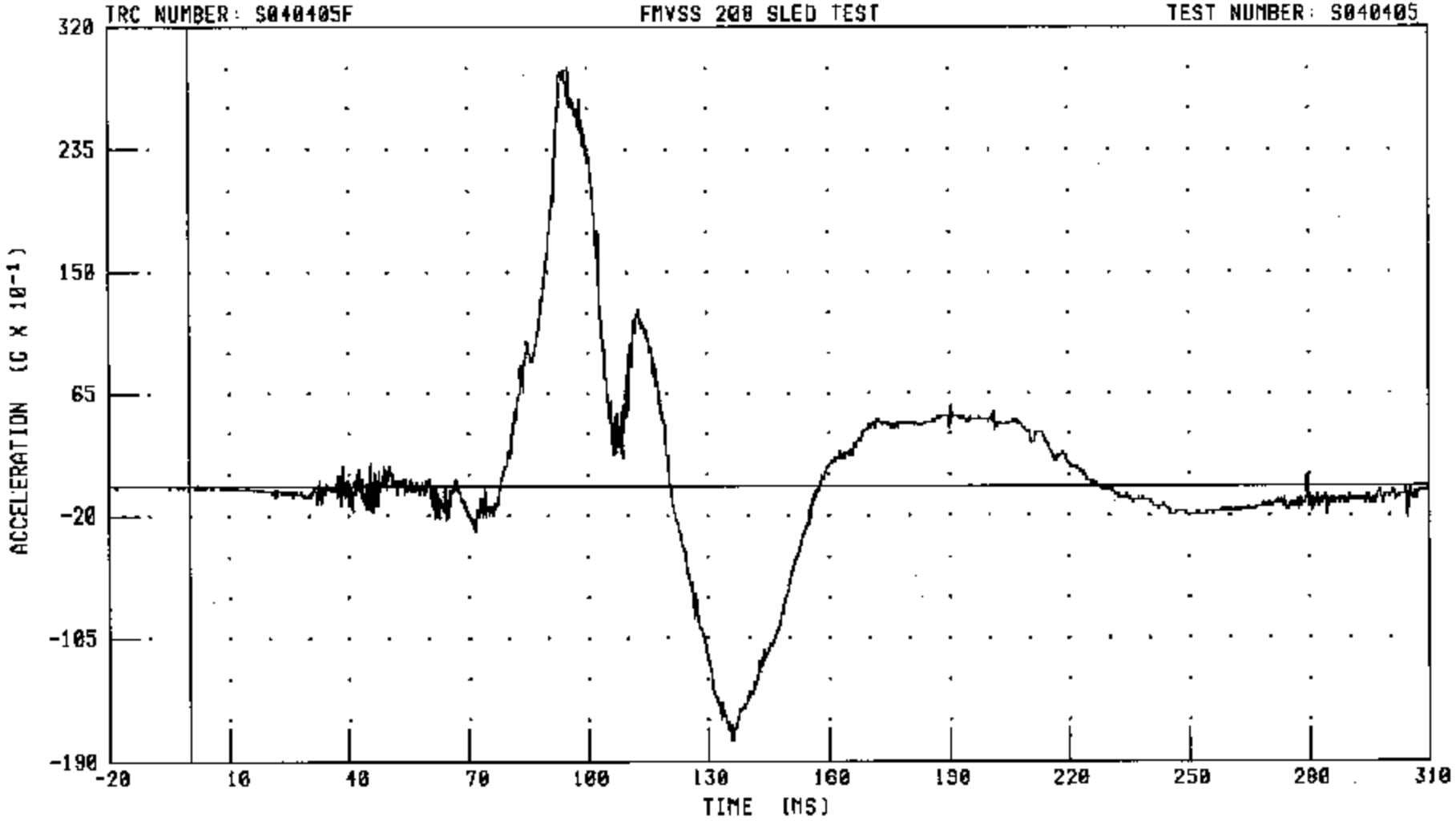
CHANNEL: HEOYG2 FILTER: CH. CLASS 1000 PEAK DATA: 1.75 G @ 75.52 MS; -19.29 G @ 132.00 MS

S040405

C40115 / 2004 BUICK LESABRE

RIGHT FRONT PASSENGER HEAD Z-AXIS ACCELERATION

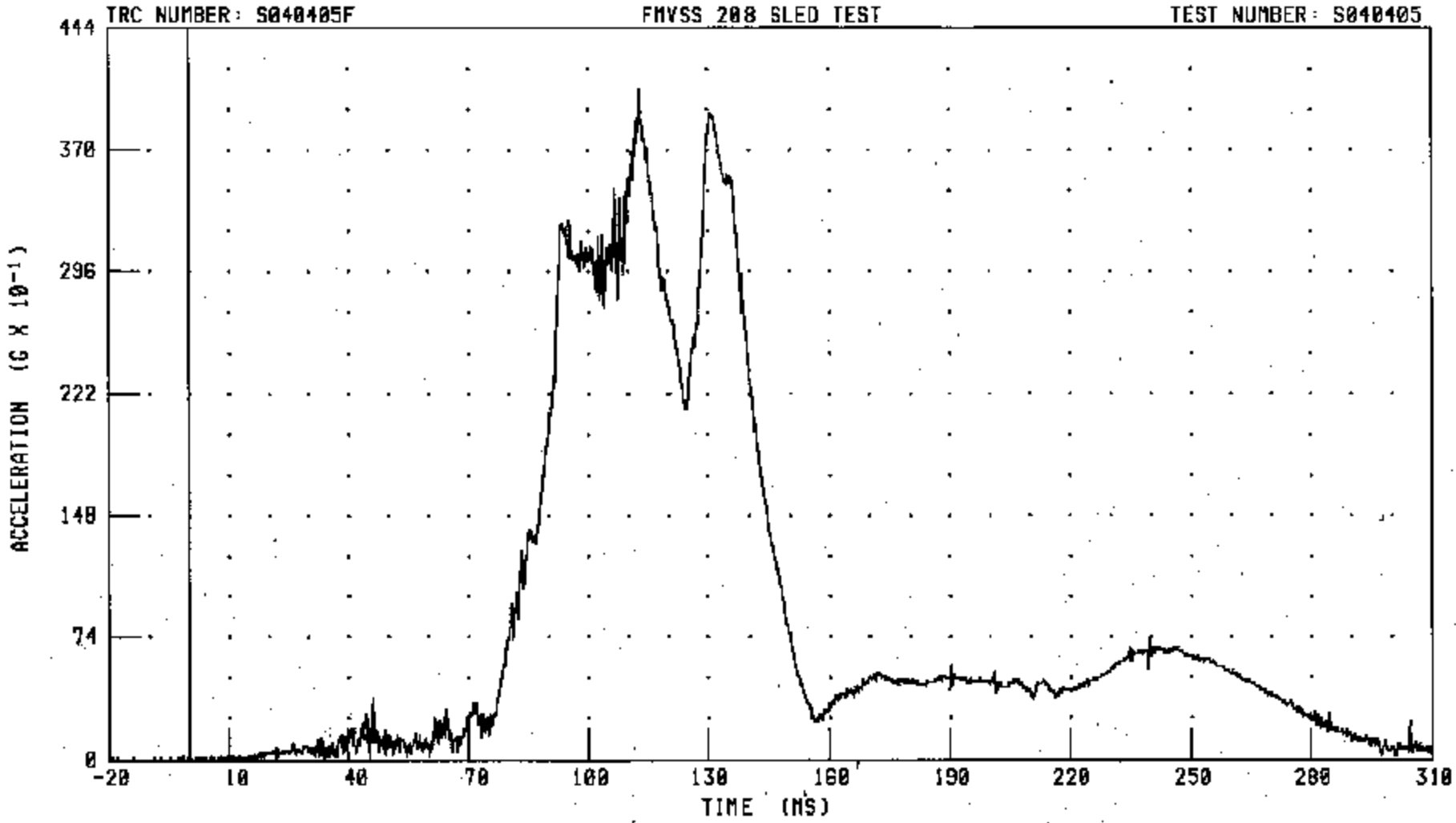
TRC NUMBER: S040405F FMVSS 208 SLED TEST TEST NUMBER: S040405



CHANNEL: HEDZG2 FILTER: CH. CLASS 1000 PEAK DATA: 29.23 G @ 95.36 MS; -17.53 G @ 135.84 MS

S040405

C40115 / 2004 BUICK LESABRE
RIGHT FRONT PASSENGER HEAD RESULTANT ACCELERATION



CHANNEL: HEDRC2 FILTER: CH. CLASS 1000 PEAK DATA: 40.69 G @ 113.04 MS; 0.01 G @ -20.00 MS

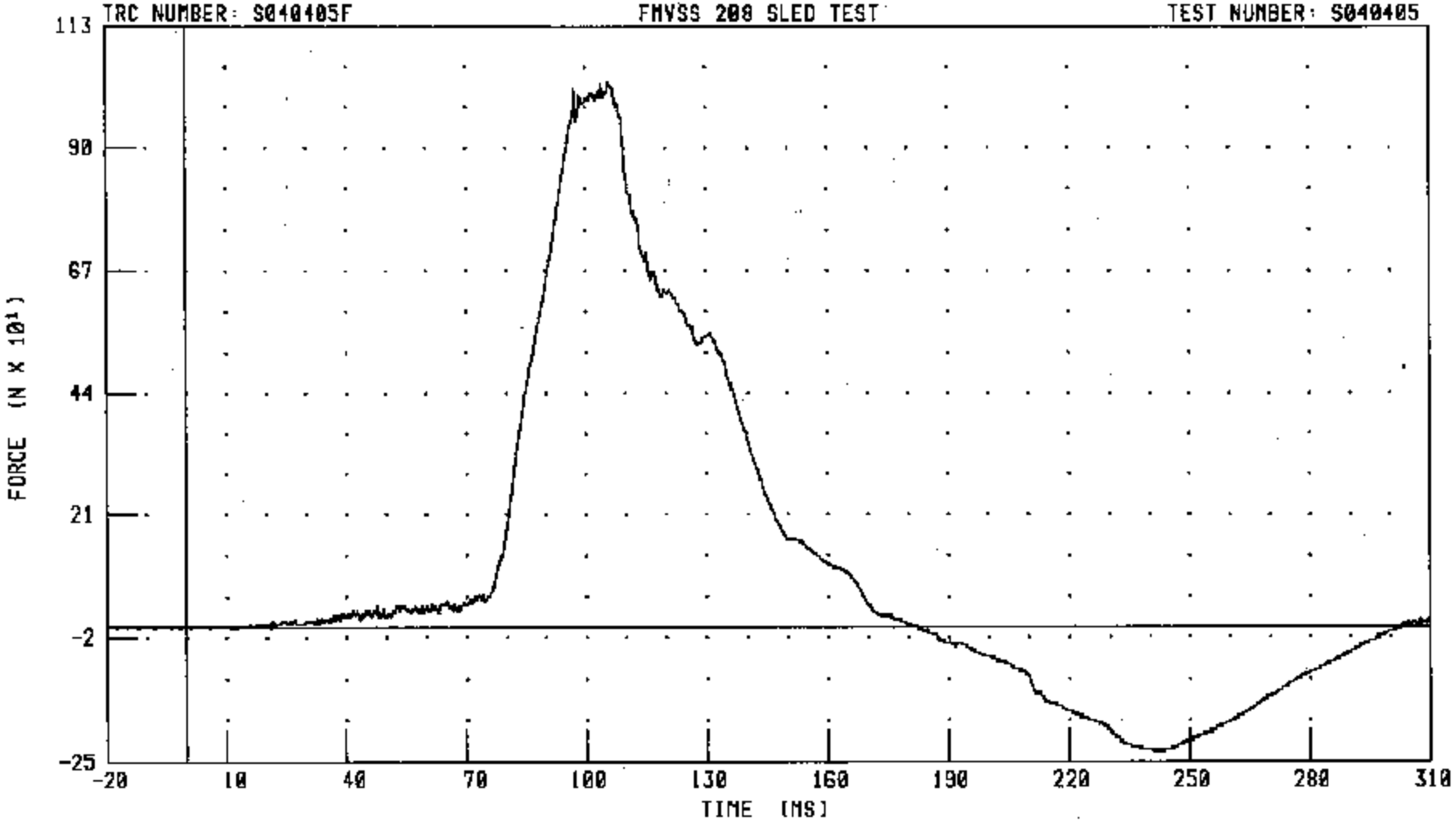
B-41

S040405

C40115 / 2004 BUICK LESABRE

RIGHT FRONT PASSENGER NECK X-AXIS SHEAR FORCE

TRC NUMBER: S040405F FMVSS 208 SLED TEST TEST NUMBER: S040405

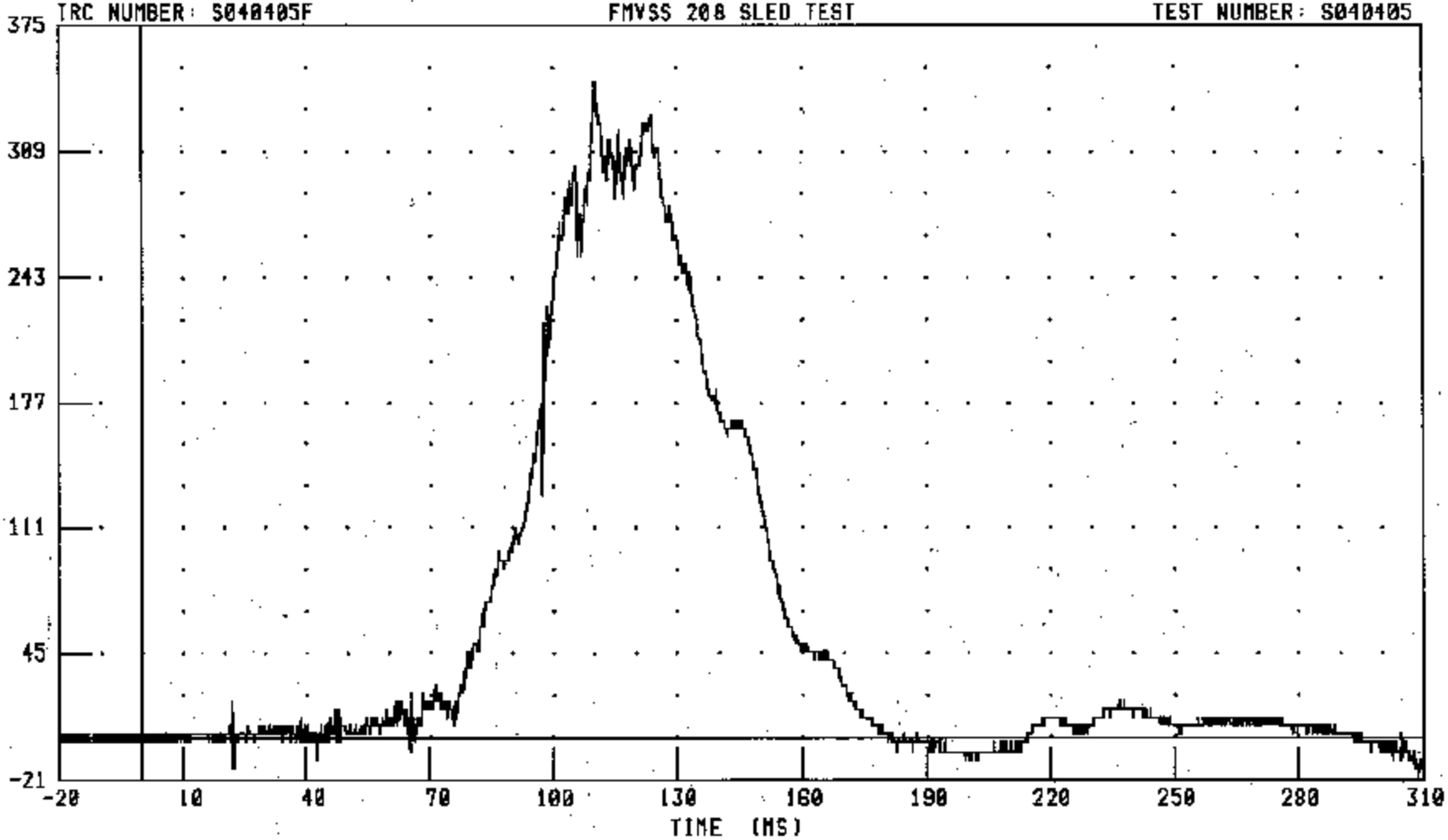


CHANNEL: NEKXF2 FILTER: CH. CLASS 1000 PEAK DATA: 1025.94 N @ 105.84 MS, -230.23 N @ 240.72 MS

B-42

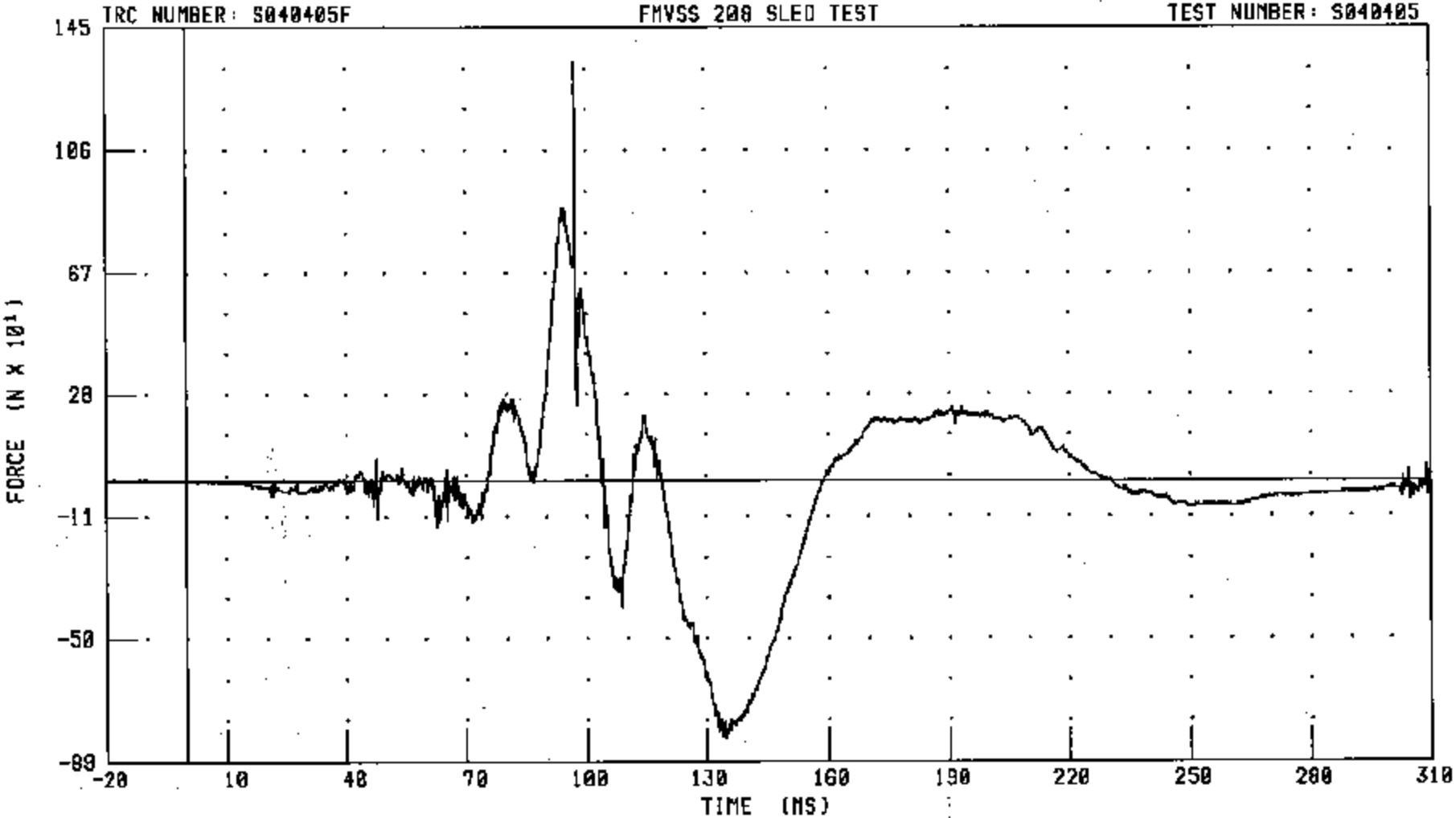
S040405

C40115 / 2004 BUICK LESABRE
RIGHT FRONT PASSENGER NECK Y-AXIS SHEAR FORCE
TRC NUMBER: S040405F FMVSS 208 SLED TEST TEST NUMBER: S040405



CHANNEL: NEKYF2 FILTER: CH. CLASS 1000 PEAK DATA: 345.65 N @ 110.32 MS; -19.40 N @ 308.72 MS

C40115 / 2004 BUICK LESABRE
RIGHT FRONT PASSENGER NECK Z-AXIS AXIAL FORCE
TRC NUMBER: S040405F FMVSS 208 SLED TEST TEST NUMBER: S040405

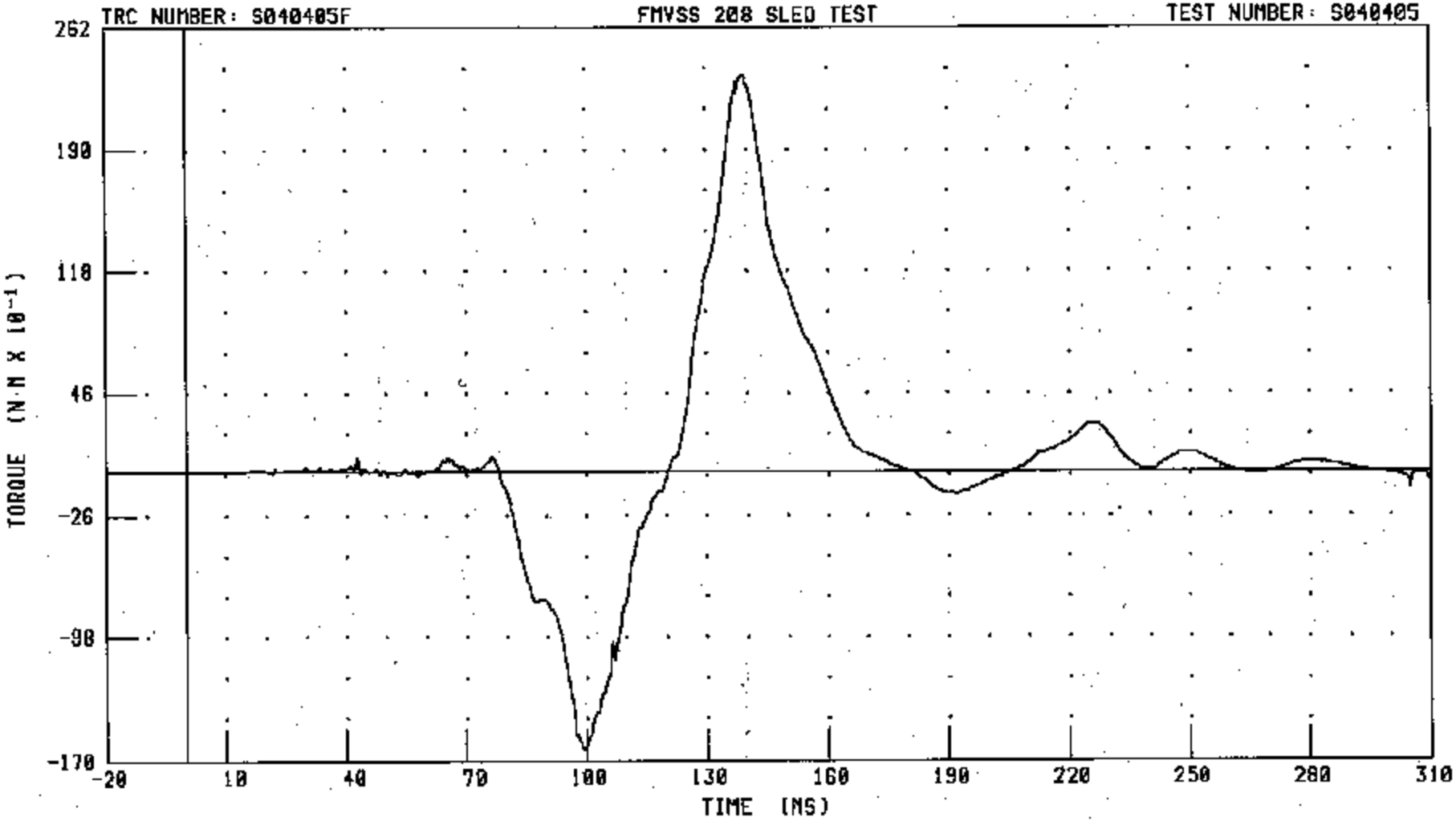


CHANNEL: NEKZF2 FILTER: CH. CLASS 1000
PEAK DATA: 1341.98 N @ 97.36 MS; -814.48 N @ 134.88 MS

B-44

S040405

C40115 / 2004 BUICK LESABRE
RIGHT FRONT PASSENGER NECK MOMENT ABOUT X AXIS
TRC NUMBER: S040405F FMVSS 208 SLED TEST TEST NUMBER: S040405

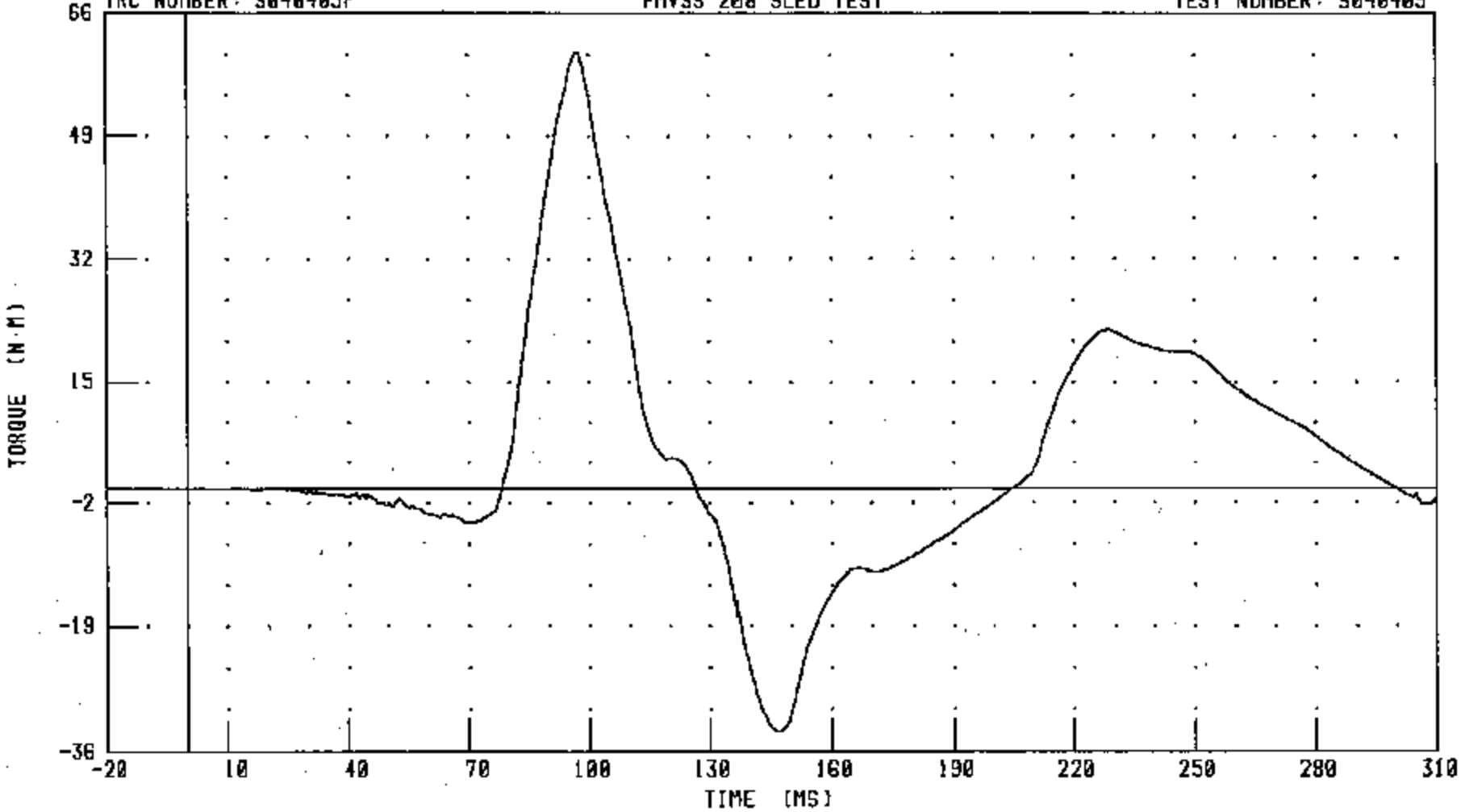


CHANNEL: NEKXM2 FILTER: CH. CLASS 600
PEAK DATA: 23.37 N·M @ 139.20 MS; -16.32 N·M @ 99.36 MS

C40115 / 2004 BUICK LESABRE

RIGHT FRONT PASSENGER NECK MOMENT ABOUT Y AXIS

TRC NUMBER: S040405F FMVSS 208 SLED TEST TEST NUMBER: S040405



CHANNEL: NEKYM2 FILTER: CH. CLASS 600

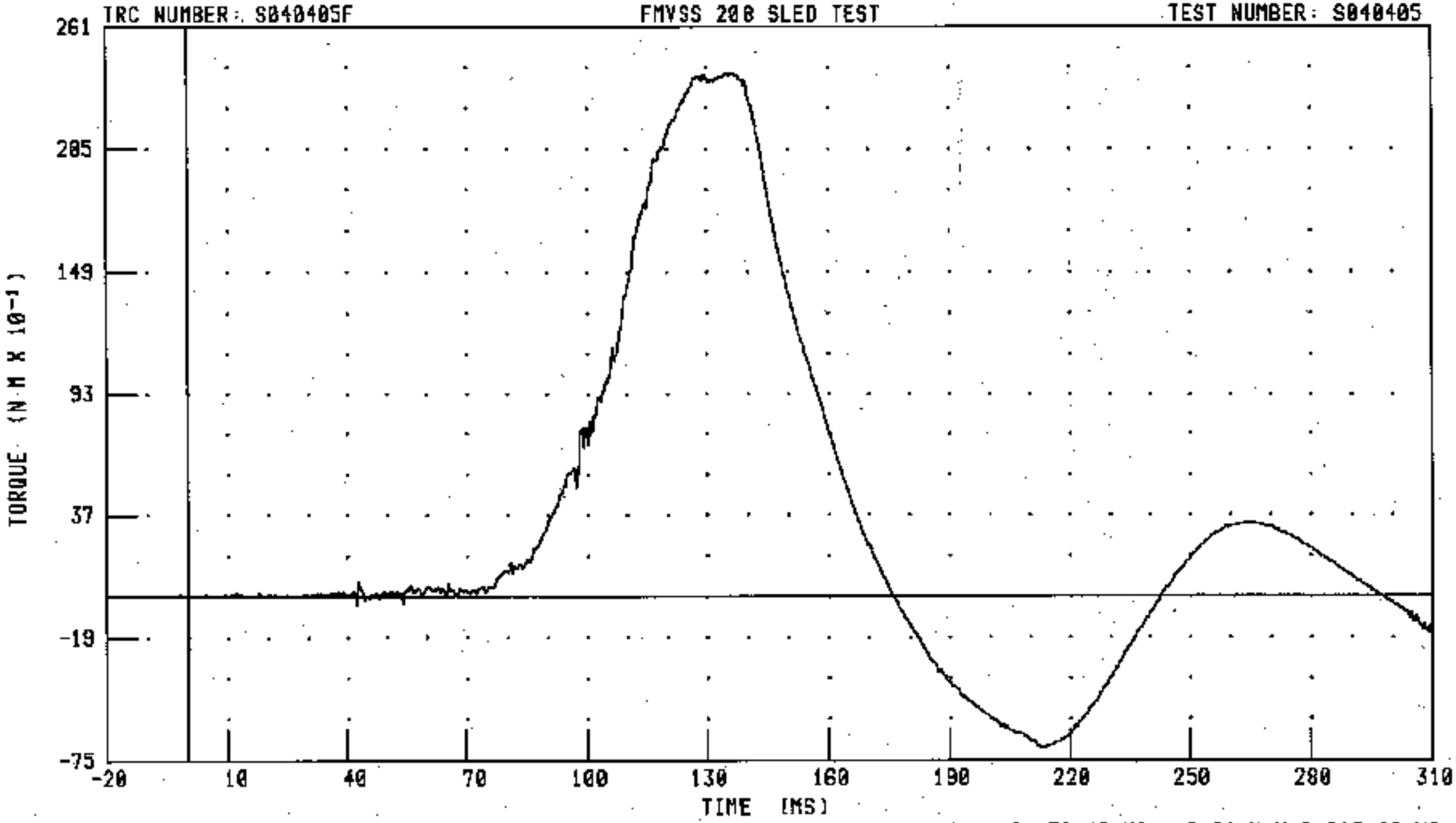
PEAK DATA: 60.70 N-M @ 97.76 MS; -33.16 N-M @ 146.40 MS

S040405

C40115 / 2004 BUICK LESABRE
RIGHT FRONT PASSENGER NECK MOMENT ABOUT Z AXIS
FMVSS 208 SLED TEST

TRC NUMBER: S040405F

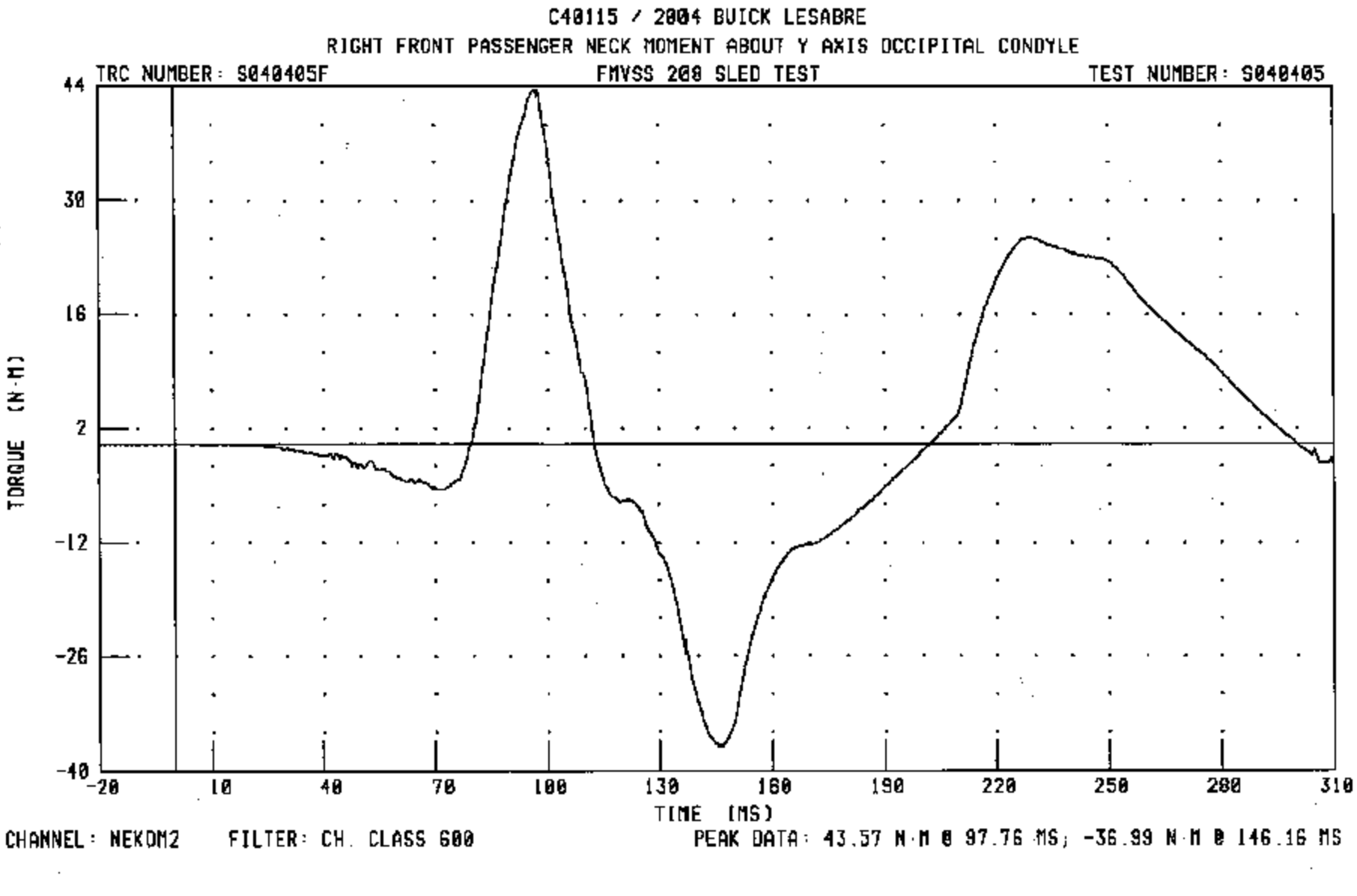
TEST NUMBER: S040405



CHANNEL: NEKZM2 FILTER: CH. CLASS 600

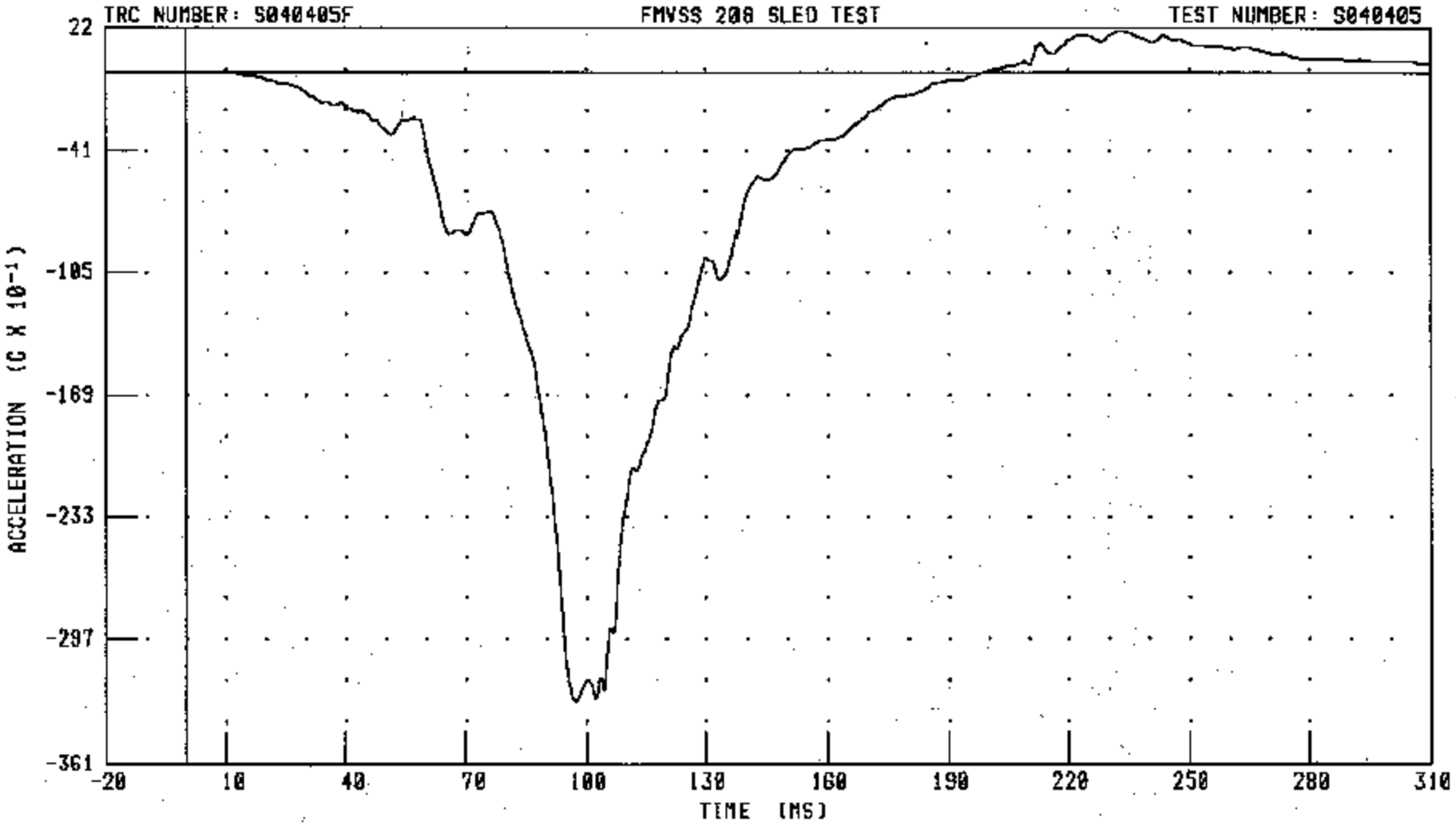
PEAK DATA: 24.00 N-M @ 136.40 MS; -6.91 N-M @ 213.60 MS

S040405


C40115 / 2004 BUICK LESABRE
RIGHT FRONT PASSENGER NECK MOMENT ABOUT Y AXIS OCCIPITAL CONDYLE
TRC NUMBER: S040405F
FMVSS 208 SLED TEST
TEST NUMBER: S040405
44
30
16
2
-12
-26
-40
TORQUE (N-M)
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: NEKDM2
FILTER: CH. CLASS 600
PEAK DATA: 43.57 N-M @ 97.76 MS; -36.99 N-M @ 146.16 MS

S040405

C40115 / 2004 BUICK LESABRE
RIGHT FRONT PASSENGER CHEST X-AXIS ACCELERATION



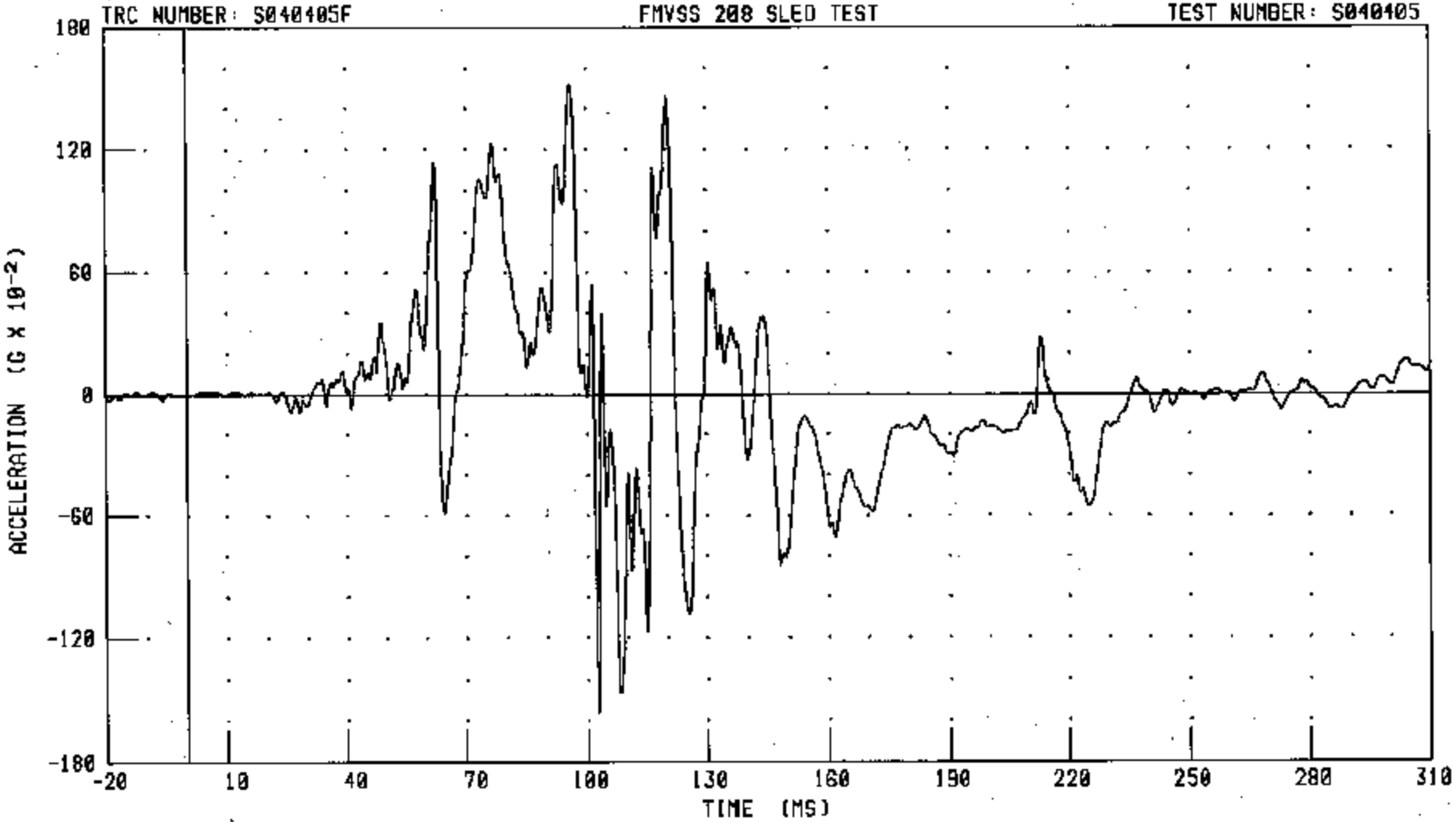
CHANNEL: CSTXG2 FILTER: CH. CLASS 180 PEAK DATA: 2.17 G @ 233.44 MS, -32.95 G @ 97.20 MS

S040405

C40115 / 2004 BUICK LESABRE

RIGHT FRONT PASSENGER CHEST Y-AXIS ACCELERATION

TRC NUMBER: S040405F FMVSS 208 SLED TEST TEST NUMBER: S040405



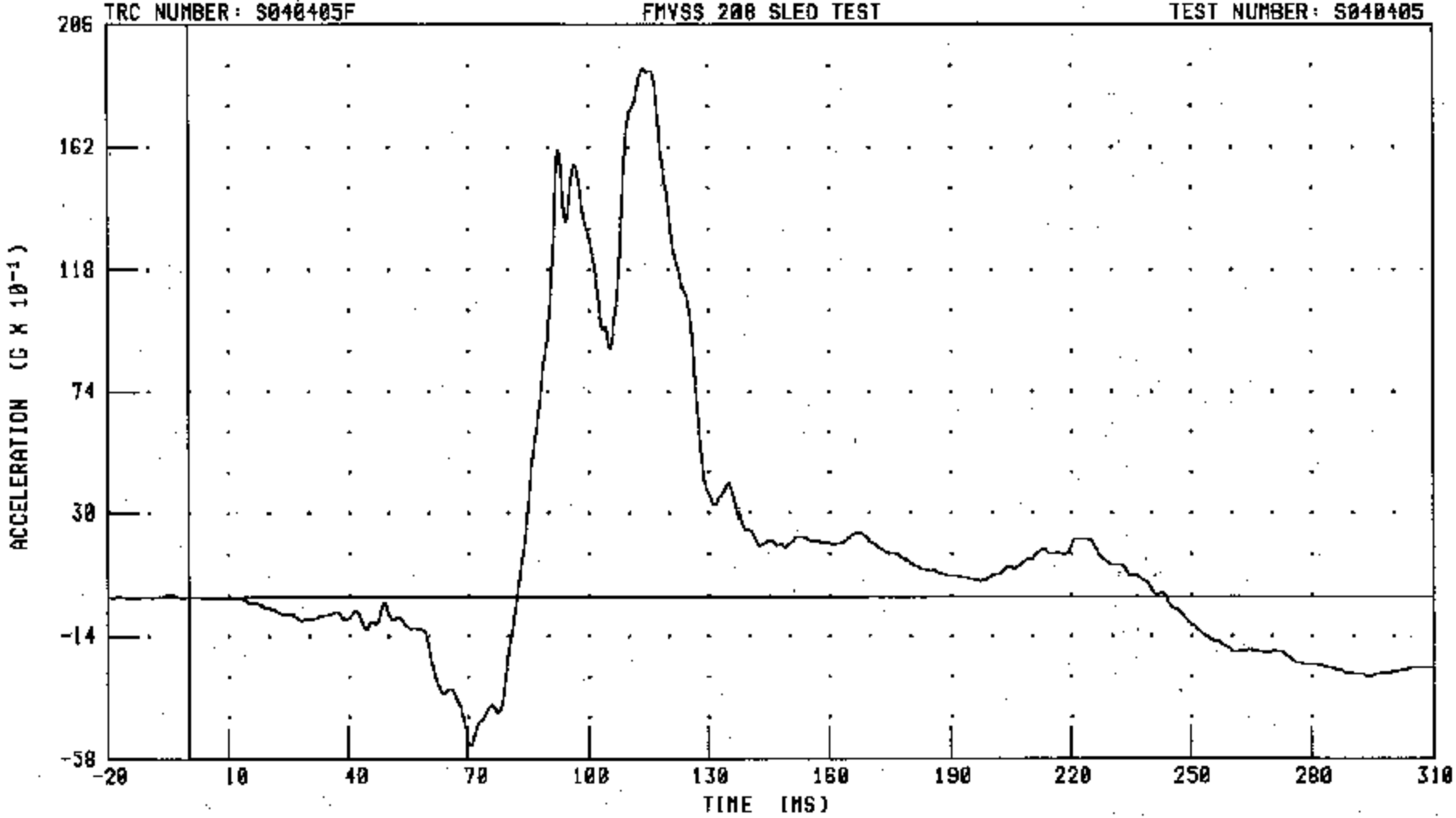
CHANNEL: CSTYC2 FILTER: CH. CLASS 180 PEAK DATA: 1.52 G @ 96.24 MS; -1.56 G @ 102.72 MS

B-50

S040405

C40115 / 2004 BUICK LESABRE
RIGHT FRONT PASSENGER CHEST Z-AXIS ACCELERATION

TRC NUMBER: S040405F FMVSS 208 SLED TEST TEST NUMBER: S040405



CHANNEL: CSTZG2 FILTER: CH. CLASS 180 PEAK DATA: 19.01 G @ 113.84 MS, -5.29 G @ 70.64 MS

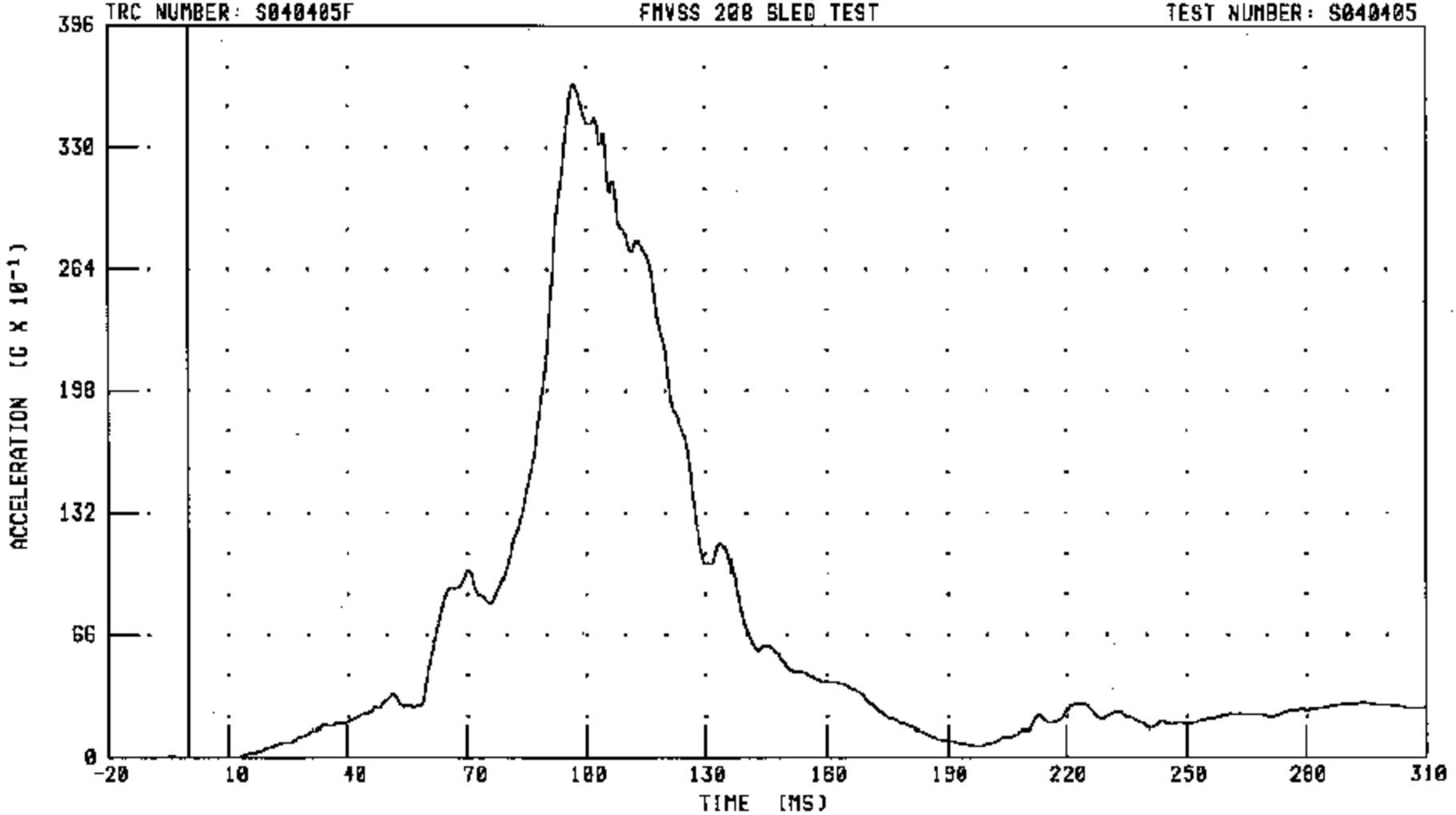
B-51

S040405

C40115 / 2004 BUICK LESABRE

RIGHT FRONT PASSENGER CHEST RESULTANT ACCELERATION

TRC NUMBER: S040405F FMVSS 208 SLED TEST TEST NUMBER: S040405



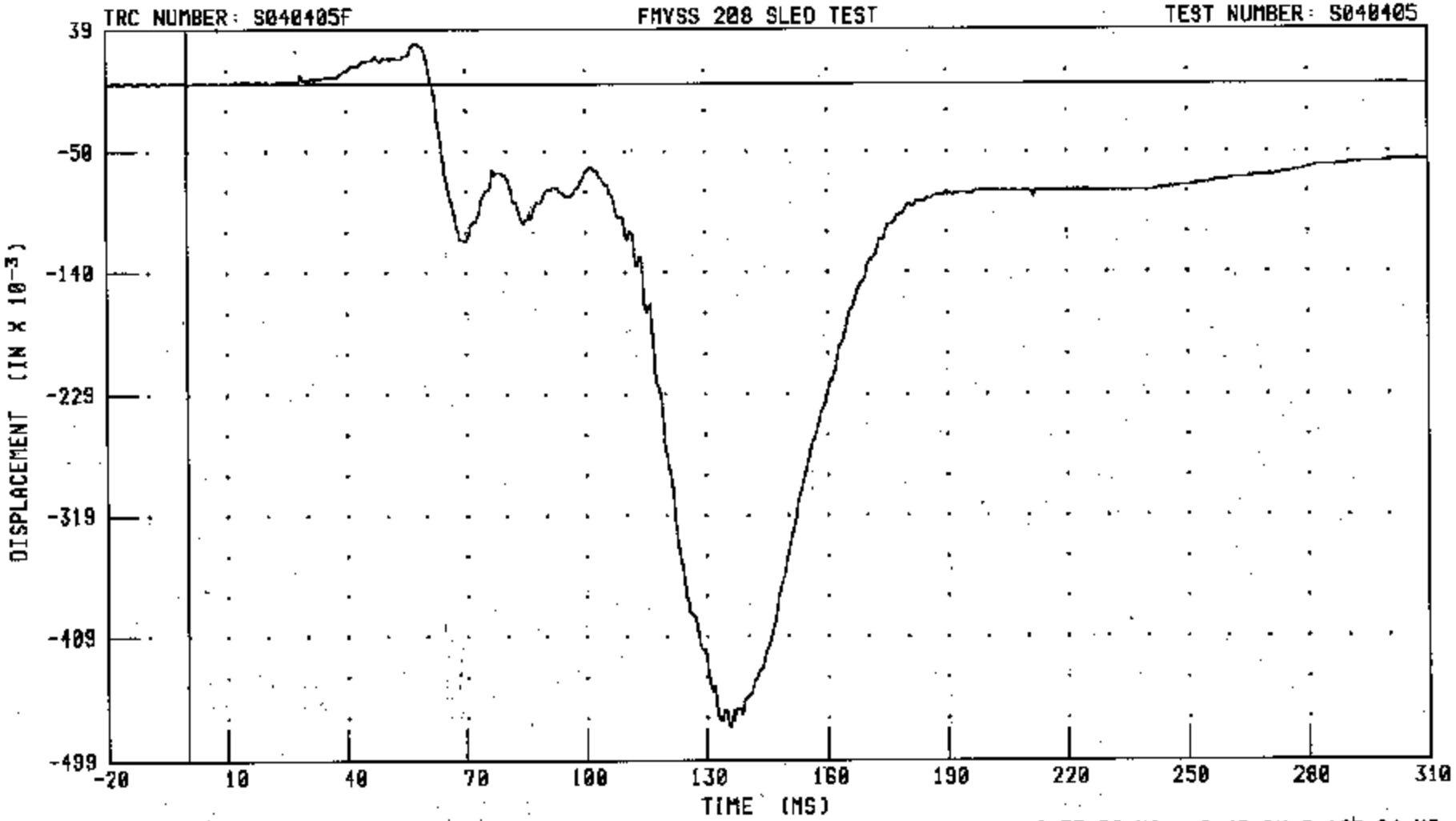
CHANNEL: CSTRG2 FILTER: CH. CLASS 180 PEAK DATA: 36.40 G @ 96.88 MS; 0.00 G @ -9.76 MS

S040405

C40115 / 2004 BUICK LESABRE
RIGHT FRONT PASSENGER CHEST DEFLECTION
FMVSS 208 SLED TEST

TRC NUMBER: S040405F

TEST NUMBER: S040405



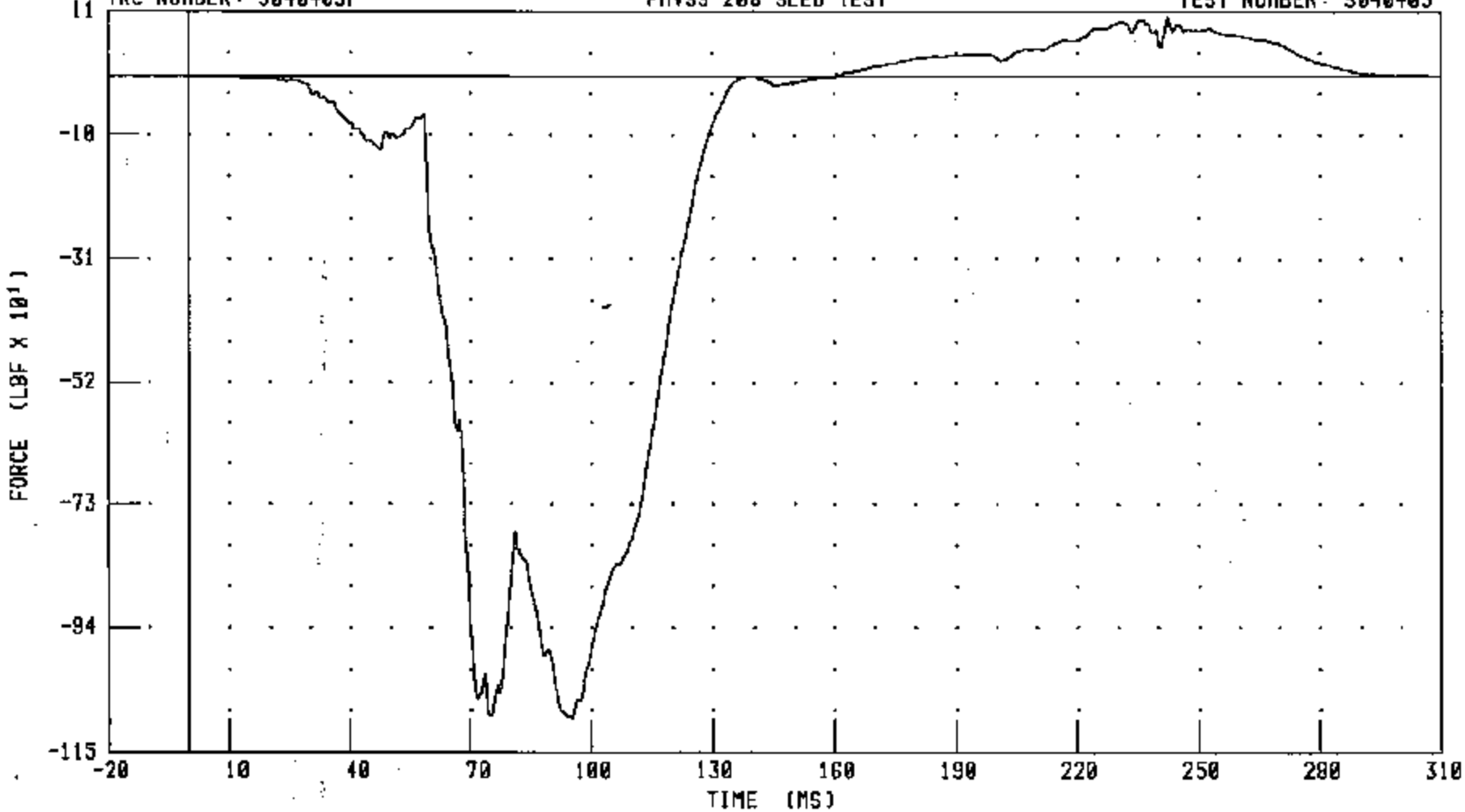
CHANNEL: CSTXD2 FILTER: CH. CLASS 600

PEAK DATA: 0.03 IN @ 57.36 MS; -0.48 IN @ 135.84 MS

C40115 / 2004 BUICK LESABRE
RIGHT FRONT PASSENGER LEFT FEMUR FORCE
FMVSS 208 SLED TEST

TRC NUMBER: S040405F

TEST NUMBER: S040405



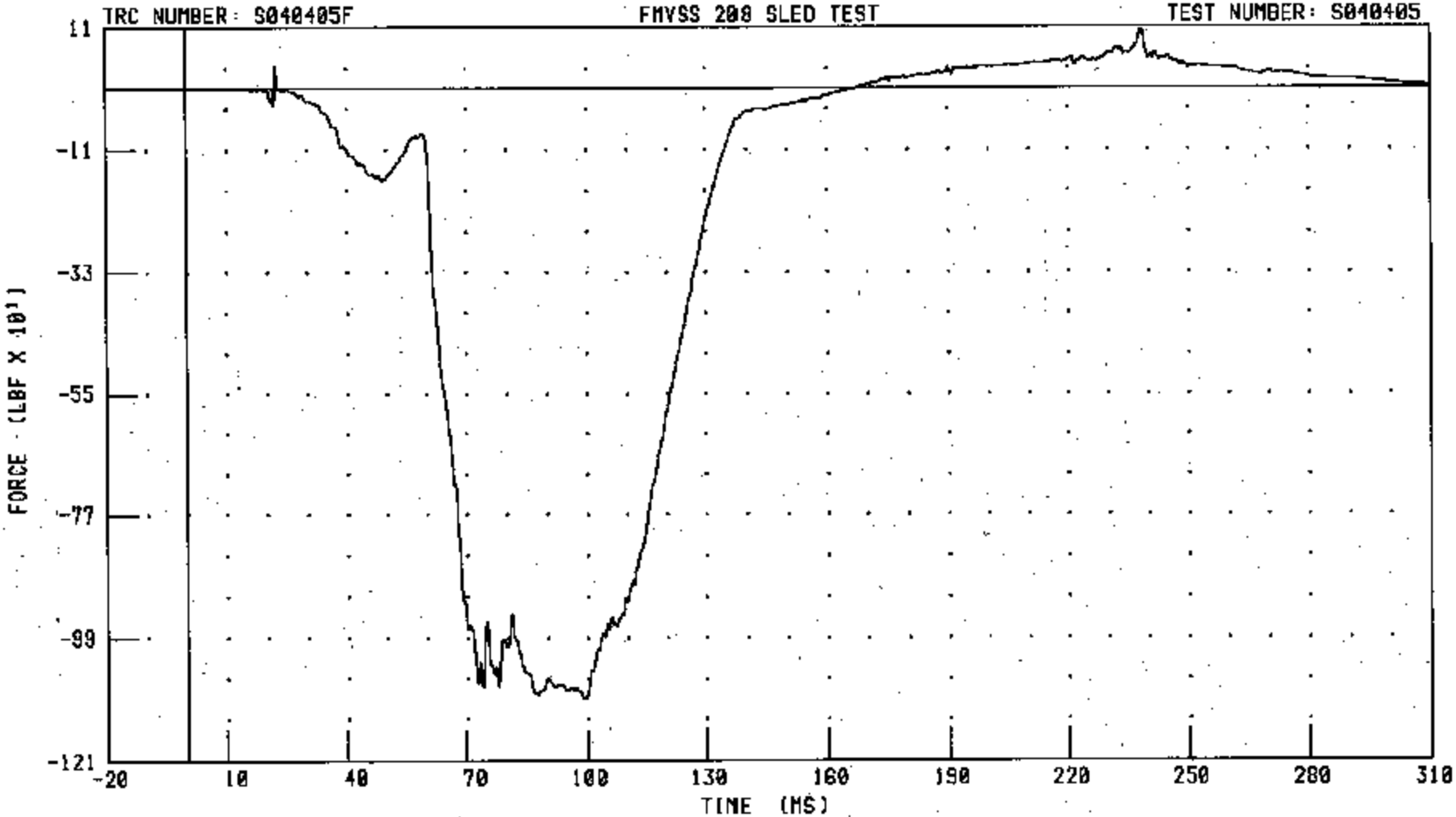
CHANNEL: LFMZF2 FILTER: CH. CLASS 600

PEAK DATA: 100.66 LBF @ 242.64 MS; -1093.10 LBF @ 95.20 MS

B-54

S040405

C40115 / 2004 BUICK LESABRE
RIGHT FRONT PASSENGER RIGHT FEMUR FORCE
FMVSS 208 SLED TEST



CHANNEL: RFMZF2 FILTER: CH. CLASS 600
PEAK DATA: 103.62 LBF @ 230.64 MS; -1100.01 LBF @ 99.52 MS

B-55

S040405

Appendix C

Manufacturer's Vehicle Information

Enclosure 1
USG 3809

NHTSA IR: NVS-221CCa
OA-208-031016-K
2004 Buick LeSabre

1. **Please provide the following restraint system information**
   - 1.1 **Describe the difference between the MY 2004 air bag restraint system and the 2003 system.**
   - 1.2 **Describe what other restraint system changes have been made.**
   - 1.3 **Describe other vehicle changes that may affect FMVSS 208 performance.**
   - 1.4 **Describe any features that may affect occupant protection performance with respect to children and out of position occupants.**
   - 1.5 **State whether the vehicle is equipped with a FMVSS 208 air bag on-off switch for the passenger frontal air bag.**

GM RESPONSE

1.1 The right front outboard passenger air bag restraint system for the 2004 Buick LeSabre is carryover from the 2003 model year Buick LeSabre

The driver air bag inflator was changed for the 2004 model year Buick LeSabre. The 2003 Buick LeSabre driver air bag module was manufactured by Delphi and had a dual level hybrid OEA inflator that was supplied by Autoliv. The driver air bag module for the 2004 Buick LeSabre is manufactured by Delphi and has a dual level hybrid inflator that is supplied by Autoliv ADPS. The Autoliv ADPS inflator has similar performance characteristic to the OEA Autoliv inflator. The second stage peak high level output for the 2004 Autoliv ADPS infator is 179 kPa, the 2nd stage peak high level output for the 2003 OEA Autoliv inflator is 155 kPa. All other characteristics of the 2004 Delphi driver air bag module are the same or very similar in design to the 2003 Delphi driver air bag module. Therefore, the air bag module cover, cushion size, shape and vents are the same.

1.2 No other changes were made to the 2004 Buick LeSabre's restraint system that would affect FMVSS 208 occupant performance. The safety belts, seats, instrument panel, knee bolster, steering wheel and column are carryover from the 2003 Buick LeSabre.

1.3 No changes were made to the 2004 Buick LeSabre vehicle structure that would affect FMVSS 208 dynamic crash performance. The vehicle sheet metal, chassis, and air bag sensing system are carryover from the 2003 Buick LaSabre.

Enclosure 1
USG 3809

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2004 Buick LeSabre

1.4 There are no significant differences in the restraint system features between the 2003 model year and 2004 model year Buick LeSabre which will affect occupant protection performance with respect to children and out of position occupants.

1.5 The 2004 Buick LeSabre is not equipped with an air bag off switch for the passenger frontal air bag system.

2. Advanced air bag vehicles – State whether the vehicle model is certified to the advanced air bag requirements of section S14 of FMVSS 208.

GM RESPONSE

2. The 2004 Buick LeSabre is not certified to the advanced air bag requirements of section S14 of FMVSS 208.

3. Non-advanced air bag vehicles certified unbelted in a 40 km/h or 48 km/h barrier crash test – State the sections (S5.1.2(a)(1), S5.1.2(a)(2)) of FMVSS 208 to which the vehicle model is certified.
A copy of the certification test reports for belted and unbelted crash tests (frontal and angular).

GM RESPONSE

The 2004 Buick LeSabre is not certified by the unbelted 40 km/h or 48 km/h barrier crash test of sections S5.1.2(a)(1) or S5.1.2(a)(2) of FMVSS 208.

4. Non-advanced air bag vehicles certified unbelted in a sled test – State whether the vehicle model is certified to section S13 of FMVSS 208.

4.1 A copy of the certification sled test.

4.2 A copy of the certification test reports for belted crash tests (frontal and angular).

4.3 Describe how to disconnect the air bags from the vehicle sensors and connect them to the triggering mechanism used in the sled test.

4.4 For air bags with dual stage or multi-stage inflators, describe the inflator stage or combination of inflator stages or time delay between successive inflator stages used in the sled test.

4.5 For air bags with dual stage or multi-stage inflators, provide a copy of the tests and analyses that were used to determine the inflator stage or combination of inflator stages or time delay between successive inflator stages that would occur in a crash of similar severity.

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2004 Buick LeSabre

GM RESPONSE
The 2004 MY Buick LeSabre is certified to section S13 of FMVSS 208.

4.1 The following test was conducted for the 2004 Buick LeSabre and was used as the basies for certifying the driver to the unbelted occupant requirements of section S13 of FMVSS 208. The relevant test information is contained in Attachment A.

N18070, unbelted Driver, 49 km/h, 125ms Frontal Impact Simulation

Compliance Information for the right front outboard passenger was provided to the OVSC in the GM response, USG3731, for the 2003 Buick LeSabre.

4.2 The following tests were conducted and used as the bases of certifying the left front outboard driver occupant to the belted 30 mph, frontal and angular barrier requirements of FMVSS 208.

- C14110 – 35 mph Moving Vehicle to Fixed Barrier @ 0 Degrees
- C12137 – 30 mph Moving Vehicle to Fixed Barrier @ 30-deg Lt. angle
- C14344 - 30 mph Moving Vehicle to Fixed Barrier @ 30-Deg. Rt. angle

Compliance information for the right front outboard passenger was provided to the OVSC in the GM response, USG 3731, for the 2003 Buick LeSabre.

Note: The data sheet contained in Attachment A for test number N18070 has "Unverified" written across the page. This indicates that the automatic data base system used by General Motors Safety Lab for full scale barrier tests and sled tests did not generate a final report. The data base system is currently only capable of generating final reports for full scale barrier tests. However, all sled test data is reviewed and verified by the test engineer.

4.3 The sled test used to meet the requirements of S13 were performed on a sled buck, in which the air bags were never connected to vehicle sensors. Air bags for full-scale tests can be electronically disconnected from the vehicle harness and a separate electrical harness can be attached directly to the air bags, specifically for test deployment.

The air bag system should be disabled prior to performing the following actions. Disablement can be accomplished by disconnecting the battery negative cable from the battery. Wait approximately one hour following disconnection to ensure stored energy is dissipated.

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On the driver's side, remove the air bag module from the steering wheel by inserting a flat head screwdriver into each of the slots located behind the steering wheel shroud. Press the screwdriver point towards the center of the steering wheel to disengage each spring latch on the air bag module. Slowly lift the air bag module from the steering column and disconnect the two yellow air bag connectors from the back of the air bag module. Spare connectors are used to connect the module to the sled triggering system. However, the leads could be cut-off from the top of the steering column and then wired into the triggering mechanism. Reinstall the air bag module, ensuring that it is properly aligned with the snap features, allowing the leads, or connector, to hang on the outside of the shroud.

On the passenger side, remove the hush panel to access the yellow air bag wire located below the glove box at the outboard lower corner of the instrument panel cross-car beam. Disconnect the yellow air bag connector and attach to the sled triggering mechanism.

For GM's sled testing, the air bags are powered and activated remotely. This remote air bag control system is electronically wired to the air bag through a junction box. To deploy the air bags, the air bag control system provides the power through the interconnection of electronic wiring.

4.4 For GM's sled testing, the air bag control system is programmed to activate as follows:

The FMVSS 208 requirement states that the air bag "is to be activated at 20 +/- 2 ms from the time the 0.5 g is measured on the dynamic test platform." GM's sled facility generates a time reference signal when the sled reaches 3.0 g. GM conducts parameter sled tests to determine the reference signal's time difference between 0.5 and 3.0 g, and the average difference is then determined. Using this information, the remote air bag control system at GM's sled facility is programmed to trigger the first stage deployment 20 ms minus the average time delay after the 3.0 g reference level is reached. The second stage inflator is triggered at 1 ms after the first stage, resulting in a high-level deployment output.

4.5 The occupant compartment deceleration specified in S13 of FMVSS 208 does not contain enough information to evaluate when the vehicle sensing system for the 2004 Buick LeSabre would deploy the air bags. GM used sensing system behavior in barrier tests of similar velocity change to estimate the second stage deploy time delay after the first stage deployment. The following 0-degree frontal rigid barrier tests were conducted:

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2004 Buick LeSabre

C12409 30mph first stage deploy time 14 ms
second stage deploy time 15 ms

The 30 mph 0-degree test is severe enough to produce an immediate detection of the need for high level output. The second stage deploy time delay after the first stage deployment for this test is 1 ms. This time delay was used for the unbelted sled test.

The sensing system for the 2004 Buick LeSabre is calibrated such that the all deploy threshold speed is 24 mph.

C11888 24 mph (all deploy high threshold) first stage deploy time 18 ms
second stage deploy time 19 ms

5. Other Information

5.1 Describe the seat adjustment controls (manual and power) available for this model, including any adjustment controls on seats rearward of the front outboard designated seating positions, and the seat movements associated with each individual control.

5.2 Describe the headrest adjustments available for this model.

5.3 State for each safety belt system in the subject vehicles 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.

5.4 State for each crash test (frontal, angular, and offset) whether the moveable windows and vents were opened or closed.

5.5 Submit dummy placement measurements, including diagrams or photographs that show exactly where each measurement was taken. For the subject vehicles certified to the advanced air bag requirements, provide measurements for both the 50th percentile male and the 5th percentile female. Enclosed is a diagram of some of OVSC's dummy measurements. Where possible, use each dimension shown in the diagram to provide the individual dummy placement measurements.

5.6 State whether the subject vehicles have a footrest for the driver.

5.7 Provide the seat positioning, steering column positioning, and fuel tank data on the enclosed form. If more than one front seating configuration, steering column or fuel tank configuration are available on this vehicle, provide separate information for each. For certification tests using the 5th percentile female, provide the seat fore-aft position, seat height, and seat back angle used in the certification test.

Enclosure 1
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5.8 Provide the seating reference point (SgRP) for the driver designated seating position and every other designated seating position required to comply with the lockable seat belt requirement in S7.1.1.5.

5.9 If there are adjustable seat belt anchorages at front and/or rear designated seating positions, provide the manufacturer's nominal design position for a 50th percentile adult male occupant and, if certified to the advanced air bag requirements, the position for the 5th percentile female.

5.10 For all tests that are performed to certify the subject vehicles to injury assessment performance requirements of FMVSS 208, provide a summary of the injury results. In addition, for crash tests provide the measured test speed.

5.11 When vehicle components must be removed to obtain the proper test weight for crash tests, list the components you recommend for removal, and in the priority order you recommend for removal.

5.12 If the subject vehicles use 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.

5.13 If the subject vehicles use 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.

GM RESPONSE

5.1 Driver Seat **standard** adjustment equipment is a power adjuster that moves fore/aft, up/down, and tilts within a designated travel box, a manual recliner and a manual fore/aft lumbar mechanism.

Driver Seat **optional** adjustment equipment is a power adjuster that moves fore/aft, up/down, and tilts within a designated travel box, a power recliner and a power fore/aft and up/down lumbar mechanism.

Passenger Seat **standard** adjustment equipment is a manual fore/aft adjuster and a manual recliner mechanism.

Passenger Seat **optional** adjustment equipment is a power adjuster that moves fore/aft, up/down, and tilts within a designated travel box, and a manual recliner mechanism.

Passenger Seat **optional** adjustment equipment is a power adjuster that moves fore/aft, up/down, and tilts within a designated travel box, a power recliner and a manual fore/aft lumbar mechanism.

Rear Seat has no adjustment features.

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5.2 The front outboard seats have adjustable head restraints that can be manually adjusted up or down. The rear seat head restraints are not adjustable.

5.3 The 2004 Buick LeSabre safety belt system does not utilize a tension reducing device at any seating position.

5.4 The front outboard windows were open during the 0-degree frontal and 30-degree angular barrier tests.

5.5 Attachment C contains the dummy positioning measurements.

5.6 The 2004 Buick LeSabre has a foot rest for the driver seating position.

5.7 The requested vehicle test information is contained in Attachment D.

5.8 The following table contains the SgRP for the driver seat in addition to the SgRPs for all seats required to meet the lockable seatbelt requirement specified in section S7.1.1.5 of FMVSS 208. The following dimensions are in millimeters:

Front Row	Driver L= 3174.0 W= -374.0 H= 680.0	Center L= 3060.0 W= 0 H= 753.0	Passenger L= 3174.0 W= 374.0 H= 680.0
Rear Row	Left L= 4017.0 W= -374.0 H= 690.0	Center L= 3965.0 W= 0 H= 725.0	Right L= 4017.0 W= 374.0 H= 690.0

Fiducial point is the center of the outboard forward seat anchorage hole for the driver (or passenger seat, -Y dr. +Y pass. direction.) X = 2766 mm, Y = +/-628 mm, Z = 437 mm

5.9 The front outboard seating positions of the 2004 Buick LeSabre have All Belts To Seats (ABTS), the upper anchorage is attached to the seat back and is not adjustable. There are no adjustable anchorages for the rear seats.

5.10 Attachment E contains the requested barrier and sled information

5.11 GM does not typically prioritize which components are to be removed from a test vehicle to accommodate test weight. However, components that have been removed during our testing include the rear deck lid, rear bumper and fascia, trunk trim, spare tire, and tail lamps. In addition, interior trim components behind the 'B' pillar, including rear seats, carpeting and trim panels could be removed if necessary.

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OA-206-031016-K
2004 Buick LeSabre

5.12 Both the driver and passenger air bag modules in the 2004 Buick LeSabre contain "hybrid" inflators. These inflators use a small amount of contained pyrotechnic material that is ignited in order to heat stored gas within the inflator. General Motors does not typically keep inflator classification and certification information on file. Attachment F contains the supplier letters that reference the requested compliance information. If necessary, the specific information requested in question 5.12 can be obtained from the inflator manufacturer.

5.13 The airbag restraints installed in this vehicle do not use an explosive device to inflate the air bag. See Attachment F.

Enclosure 1
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Attachment C

2004 Buick LeSabre

Dummy Position Measurements

4 Pages (including this cover)

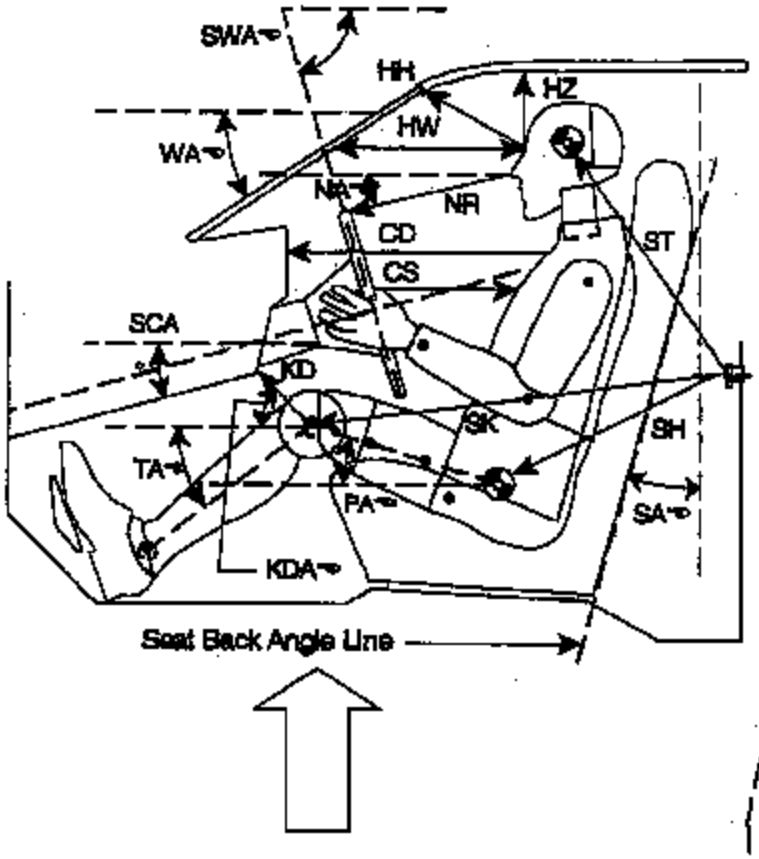
2004 Buick LeSabre
PRE-TEST DUMMY POSITIONING IN VEHICLE
(All dimensions in mm or degrees)

	Driver	Passenger
WA °	1 mm	NA
SWA °	19 mm	NA
SCA °	NA	NA
SA °	16.5 mm	NA
HZ	208 mm	NA
HH	350 mm	361 mm
HW	640 mm	660 mm
HR	255 mm, inside edge of lace	NA
NR	380 mm	NA
CD	520 mm	455 mm
CS	320 mm	NA
RA	206 mm	NA
KDL	177 mm	148 mm
KDR	NA	NA
PA °	NA	NA
TA °	NA	NA
KK	260 mm, center to center	275 mm, center to center
ST	NA	NA
SK	635	642
SH	640	630
SHY	NA	NA
HS	310	300
HD	NA	NA
AD	147	160

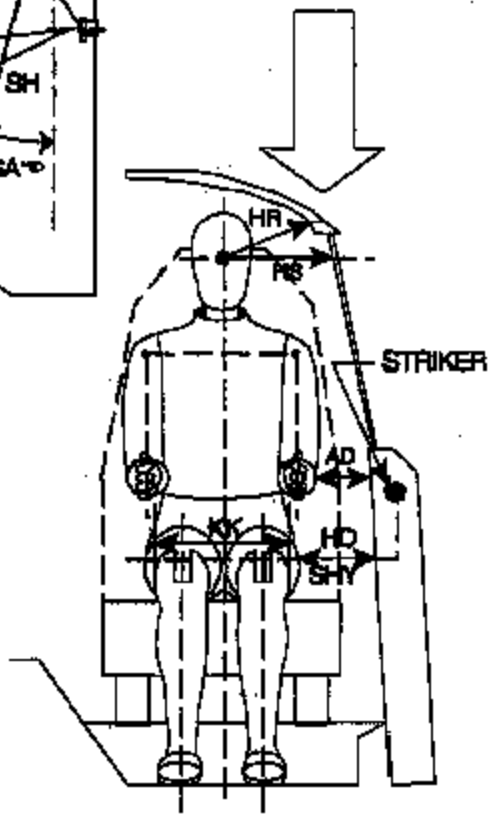
N/A = Not available

Appendix A (continued)

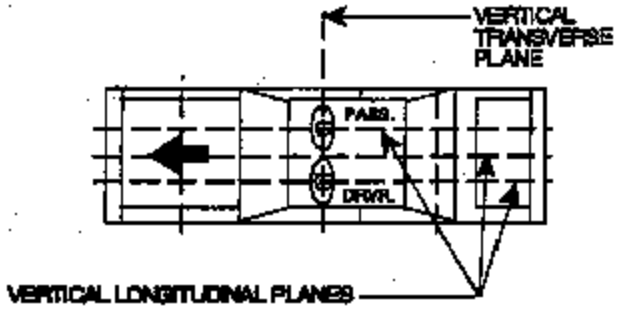
DUMMY MEASUREMENT FOR FRONT SEAT PASSENGERS



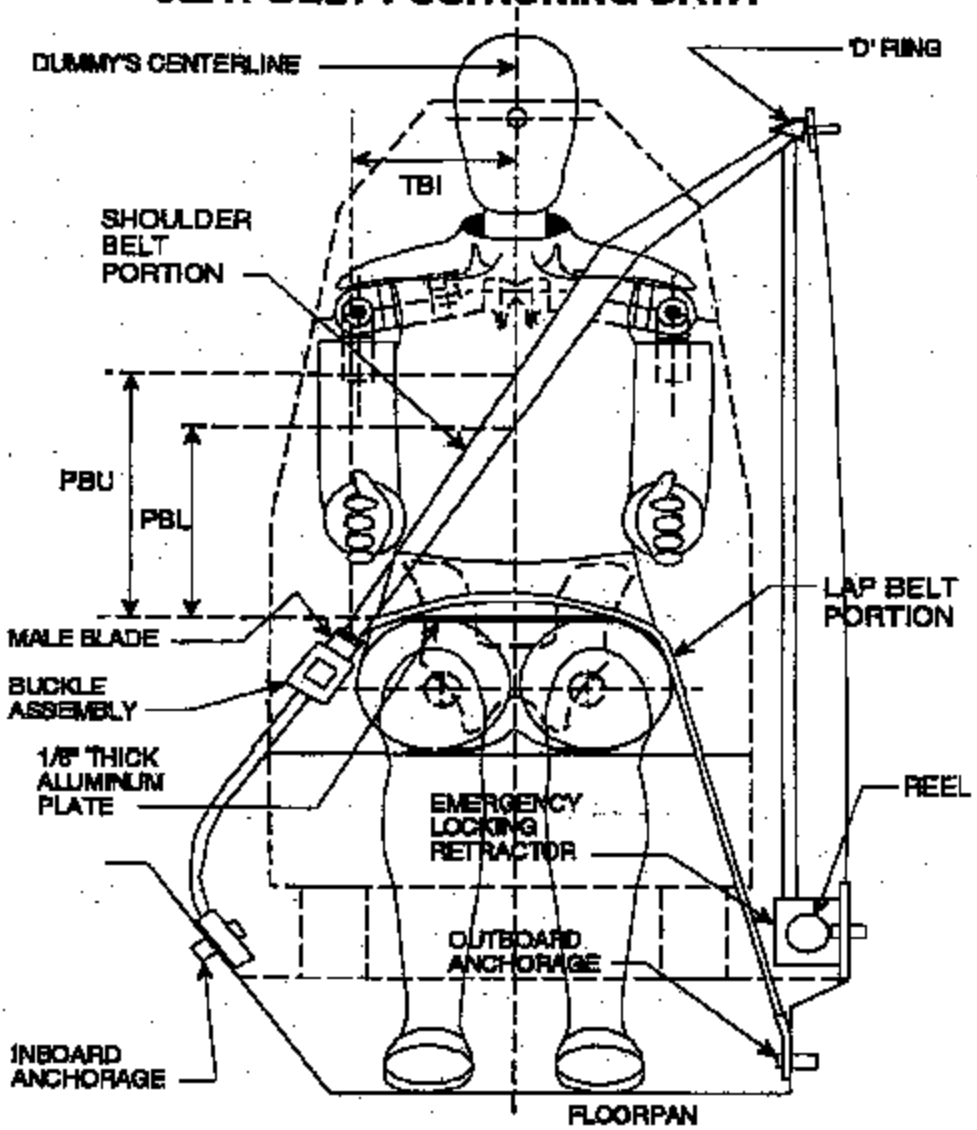
AD - Arm to Door
HD - H-Point to Door
HR - Head to Side Header
HS - Head to Side Window
KK - Knee to Knee
SHY- Striker to H-Point (Y Direction)



CD - Chest to Dash
CS - Steering Wheel to Chest
HH - Head to Header
HW - Head to Windshield
HZ - Head to Roof
KDA- Knee to Dash Angle
KDL- Left Knee to Dash
KDR- Right Knee to Dash
NA - Nose to Rim Angle
NR - Nose to Rim
PA - Pelvic Angle
RA - Rim to Abdomen
SA - Seat Back Angle
SCA- Steering Column Angle
SH - Striker to H-Point
SK - Striker to Knee
ST - Striker to Head
SWA- Steering Wheel Angle
TA - Tibial Angle
WA - Windshield Angle



Appendix A (continue)
SEAT BELT POSITIONING DATA



FRONT VIEW OF DUMMY

Enclosure 1
USG 3809

NHTSA IR: NVS-221CCa
OA-208-031016-K
2004 Buick LeSabre

Attachment D

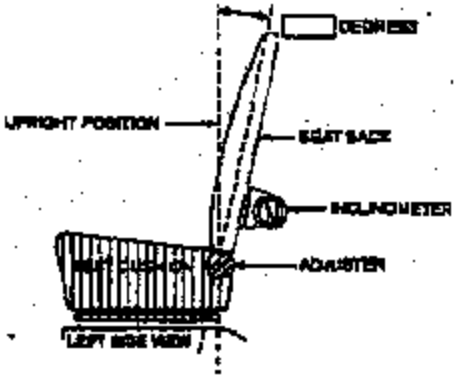
2004 Buick LeSabre

Vehicle Test Information

4 Pages (Including this cover)

2004 Buick LeSabre
TEST VEHICLE INFORMATION

Vehicle Model Year and Make: 2004 Buick
Vehicle Model and Body Style: LeSabre Sedan



FRONT SEAT ASSEMBLY

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"?).

Seat back angle for Driver's seat = 18 (°)

Measurement Instructions:

See passenger seat instructions.

Seat back angle for Passenger's seat = 18 (°)

Measurement Instructions:

Un-zip outboard edge of seat back, place inclinometer on seatback frame through hole in cardboard near side airbag. Measurement instructions identical for driver side

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, provide information to locate the detent in which the seat track is locked.

Positioning of the driver's seat:
See passenger seat instructions below.

2003 Buick LeSabre
TEST VEHICLE INFORMATION

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

This information applies for both driver and passenger seats for all seat trim options. Manual and power seat adjusters are available for driver and passenger seats.

Manual adjuster - Place the seat in full forward position and mark with a paint pen on the seat adjuster. Mark the same location when the seat is positioned in the full rearward location. Measure the distance between the two paint marks and place the seat in the mid point.

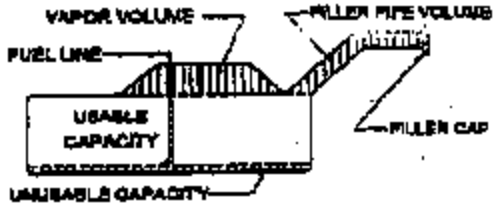
Power adjuster – Lower seat to full down (the lowest vertical adjustment position). Adjust lumber comfort features (if fitted) to the minimum level. The seat bottom cushion tilt should be adjusted with the front of the seat at the full-down position. Measure total available seat fore/aft travel as detailed above and mark mid position.

Seating Reference Points:
Fiducial Point: x = 2766, y = 628, z = 437
Front Power Seats: x = 3070, y = +/-374 (+= passenger), z = 671
Front Manual Seats: x = 3067, y = +/-374 (+= passenger), z = 687
Rear Seats: x = 4017, y = +/-374, z = 690

Sign convention: x: Rearward (+), Forward (-),
y: Passenger side (+), Driver side (-)
z: Upward (+), Downward (-)

3. FUEL TANK CAPACITY DATA

A "Useable Capacity" of standard equipment fuel tank = 66.3 L/ 17.5 gal
B "Useable Capacity" of optional equipment fuel tank = N/A (gallons)
C "Useable Capacity" of vehicle(s) used for certification to requirements of FMVSS 301 = 66.3 L/17.5 gal



VEHICLE FUEL TANK ASSEMBLY

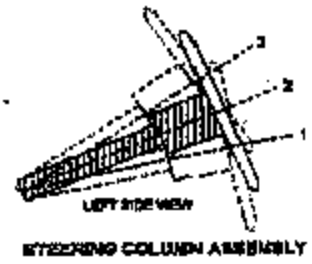
Operating Instructions:
Establish the unusable capacity (0.2 gallon/.7 liters) first and add 95% of the usable capacity.

Amount of Stoddard solvent added to vehicle(s) used for certification test(s) = 66.3 L/ 17.5 gallons

Is vehicle equipped with electric fuel pump? Yes ☒ No ☐

If yes, explain the vehicle operating conditions under which the fuel pump will pump fuel.
Fuel pump will prime when ignition key is turned to "run" position and vehicle not started. Pump will run when engine is running.

2004 Buick LeSabre
TEST VEHICLE INFORMATION



4. Steering Column Adjustments

Steering wheel and column adjustments are made so 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?

Operating Instructions:

3rd notch down from top notch. Do not include over-travel at top. Will result in 19° steering wheel angle when measured on straight edge lying across steering wheel rim

Enclosure 1
USG 3809

NHTSA IR: NVS-221CCa
OA-208-031016-K
2004 Buick LeSabre

Attachment E

2004 Buick LeSabre

Summary of Sled & Barrier Tests

2 Pages (including this cover)

2004 Buick LeSabre
FMVSS 208 Dummy Injury Summary

Unbelted Driver, Sled Test:

		Head	Neck					Chest		Leg	
Evaluation Condition	Test No.	Head Injury Criterion (HIC) 36ms	Moment - Flex.	Moment - Exten.	Force - Tension	Force - Comp.	Force - Shear	Accel.	Comp.	Femur Load - left	Femur Load - right
MVSS 208 Limit		1000	190 N-m	57 N-m	3300 N	4000 N	3100 N	60 g	75 mm	10,000 N	10,000 N
49 kph/125ms, 0° Frontal Sled, unbelted - driver	N18070	270	65	4.9	504	1449	1466	43	38	5782	6266

Belted Driver Barrier Tests:

			Head	Chest		Leg	
Evaluation Condition	Test No.	Test Speed	Head Injury Criterion (HIC) 36ms	Accel -	Comp.	Femur Load - left	Femur Load - right
MVSS 208 Limit		km/hr	1000	60 g	75 mm	10,000 N	10,000 N
49 kph , 0° Frontal barrier, belted-driver	C14110	56.2 kph	590	50	29.4	4274	2595
49 kph, 30° Rt. Frt. Barrier Belted - driver	C12344	49.3 kph	190	41	30.4	4762	1285
49 kph,30° Rt. Frt. Barrier unbelted - driver	C12137	49.6	220	35	38	5782	6266

Head Restraints

Adjust your head restraint so that the top of the restraint is closest to the top of your head. This position reduces the chance of a neck injury in a crash.

Safety Belts

Safety Belts: They Are for Everyone

This part of the manual tells you how to use safety belts properly. It also tells you some things you should not do with safety belts.

⚠ CAUTION:

Don't let anyone ride where he or she can't wear a safety belt properly. If you are in a crash and you're not wearing a safety belt, your injuries can be much worse. You can hit things inside the vehicle or be ejected from it. You can be seriously injured or killed. In the same crash, you might not be, if you are buckled up. Always fasten your safety belt, and check that your passengers' belts are fastened properly too.

⚠ CAUTION:

It is extremely dangerous to ride in a cargo area, inside or outside of a vehicle. In a collision, people riding in these areas are more likely to be seriously injured or killed. Do not allow people to ride in any area of your vehicle that is not equipped with seats and safety belts. Be sure everyone in your vehicle is in a seat and using a safety belt properly.

Your vehicle has a light that comes on as a reminder to buckle up. See *Safety Belt Reminder Light on page 3-36.*

In most states and in all Canadian provinces, the law says to wear safety belts. Here's why: *They work.*

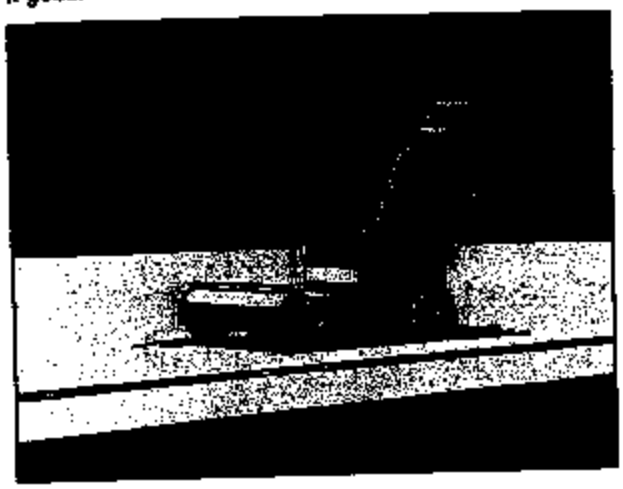
You never know if you'll be in a crash. If you do have a crash, you don't know if it will be a bad one.

A few crashes are mild, and some crashes can be so serious that even buckled up, a person wouldn't survive. But most crashes are in between. In many of them, people who buckle up can survive and sometimes walk away. Without belts they could have been badly hurt or killed.

After more than 30 years of safety belts in vehicles, the facts are clear. In most crashes buckling up does matter... a lot!

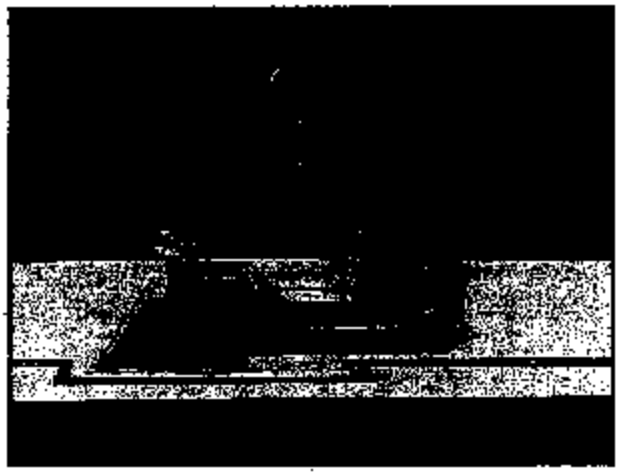
Why Safety Belts Work

When you ride in or on anything, you go as fast as it goes.

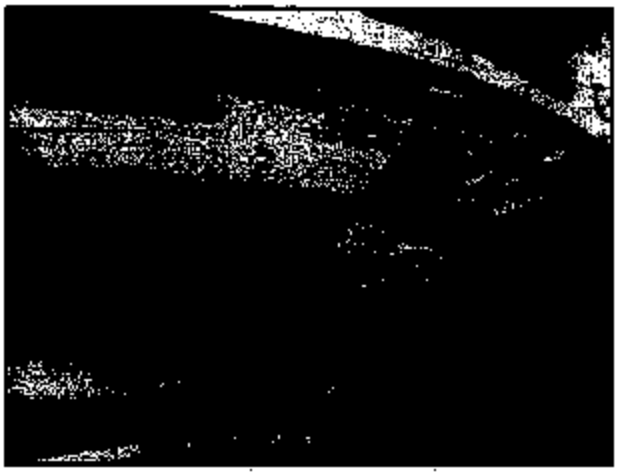


Take the simplest vehicle. Suppose it's just a seat on wheels.

Put someone on it.



Get it up to speed. Then stop the vehicle. The rider doesn't stop.



The person keeps going until stopped by something. In a real vehicle, it could be the windshield...

or the instrument panel...

or the safety belt!

With safety belts, you slow down as the vehicle does. You get more time to stop. You stop over more distance, and your strongest bones take the forces. That's why safety belts make such good sense.

Questions and Answers About Safety Belts

Q: Won't I be trapped in the vehicle after an accident if I'm wearing a safety belt?

A: You *could* be – whether you're wearing a safety belt or not. But you can unbuckle a safety belt, even if you're upside down. And your chance of being conscious during and after an accident, so you *can* unbuckle and get out, is *much* greater if you are belted.

Q: If my vehicle has air bags, why should I have to wear safety belts?

A: Air bags are in many vehicles today and will be in most of them in the future. But they are supplemental systems only; so they work *with* safety belts – not instead of them. Every air bag system ever offered for sale has required the use of safety belts. Even if you're in a vehicle that has air bags, you still have to buckle up to get the most protection. That's true not only in frontal collisions, but especially in side and other collisions.

Q: If I'm a good driver, and I never drive far from home, why should I wear safety belts?

A: You may be an excellent driver, but if you're in an accident – even one that isn't your fault – you and your passengers can be hurt. Being a good driver doesn't protect you from things beyond your control, such as bad drivers.

Most accidents occur within 25 miles (40 km) of home. And the greatest number of serious injuries and deaths occur at speeds of less than 40 mph (65 km/h).

Safety belts are for everyone.

How to Wear Safety Belts Properly

This part is only for people of adult size.

Be aware that there are special things to know about safety belts and children. And there are different rules for smaller children and babies. If a child will be riding in your vehicle, see *Older Children on page 1-2* or *Infants and Young Children on page 1-29*. Follow those rules for everyone's protection.

First, you'll want to know which restraint systems your vehicle has.

We'll start with the driver position.

Driver Position

This part describes the driver's restraint system.

Lap-Shoulder Belt

The driver has a lap-shoulder belt. Here's how to wear it properly.

1. Close and lock the door.
2. Adjust the seat so you can sit up straight. To see how, see "Seats" in the Index.

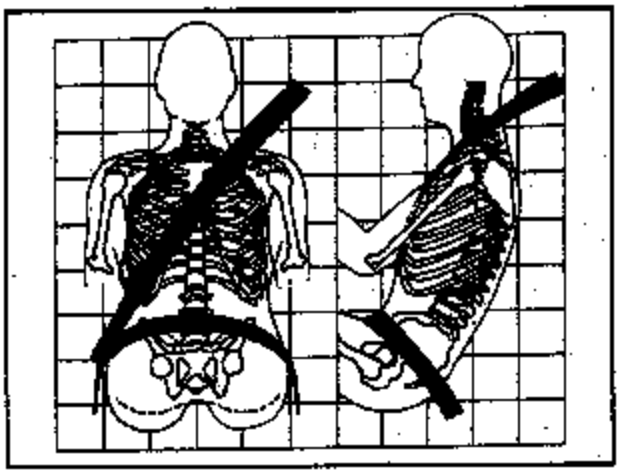
3. Pick up the latch plate and pull the belt across you. Don't let it get twisted.

   The lap-shoulder belt may lock if you pull the belt across you very quickly. If this happens, let the belt go back slightly to unlock it. Then pull the belt across you more slowly.

4. Push the latch plate into the buckle until it clicks.

   Pull up on the latch plate to make sure it is secure. If the belt isn't long enough, see *Safety Belt Extender on page 1-26.*

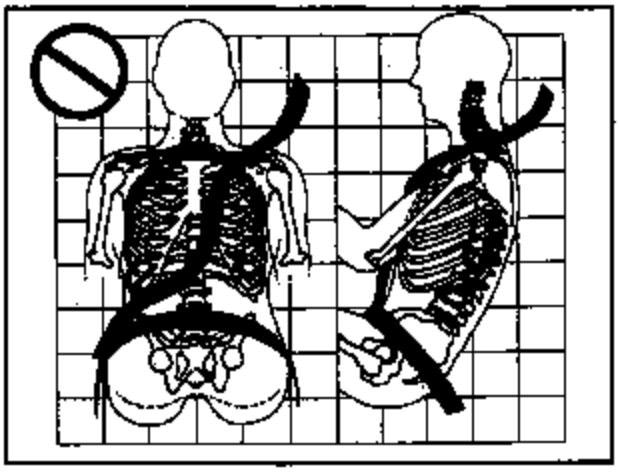
   Make sure the release button on the buckle is positioned so you would be able to unbuckle the safety belt quickly if you ever had to.



The lap part of the belt should be worn low and snug on the hips, just touching the thighs. In a crash, this applies force to the strong pelvic bones. And you'd be less likely to slide under the lap belt. If you slid under it, the belt would apply force at your abdomen. This could cause serious or even fatal injuries. The shoulder belt should go over the shoulder and across the chest. These parts of the body are best able to take belt restraining forces.

The safety belt locks if there's a sudden stop or crash, or if you pull the belt very quickly out of the retractor.

Q: What's wrong with this?



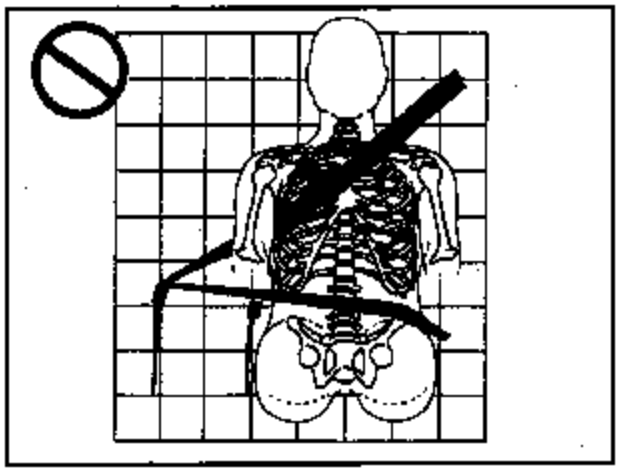
A: The shoulder belt is too loose. It won't give nearly as much protection this way.

⚠ CAUTION:

You can be seriously hurt if your shoulder belt is too loose. In a crash, you would move forward too much, which could increase injury. The shoulder belt should fit against your body.

1-14

Q: What's wrong with this?

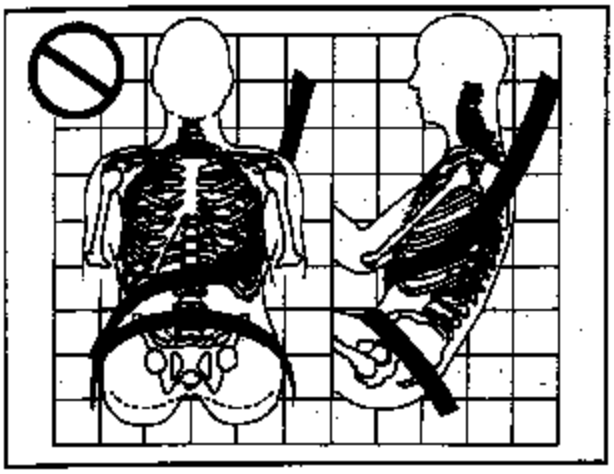


A: The belt is buckled in the wrong place.

⚠ CAUTION:

You can be seriously injured if your belt is buckled in the wrong place like this. In a crash, the belt would go up over your abdomen. The belt forces would be there, not at the pelvic bones. This could cause serious internal injuries. Always buckle your belt into the buckle nearest you.

Q: What's wrong with this?

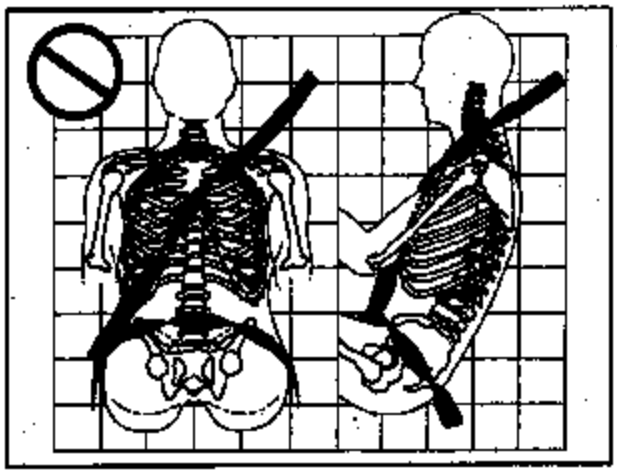


A: The shoulder belt is worn under the arm. It should be worn over the shoulder at all times.

⚠ CAUTION:

You can be seriously injured if you wear the shoulder belt under your arm. In a crash, your body would move too far forward, which would increase the chance of head and neck injury. Also, the belt would apply too much force to the ribs, which aren't as strong as shoulder bones. You could also severely injure internal organs like your liver or spleen.

Q: What's wrong with this?



A: The belt is twisted across the body.

⚠ CAUTION:

You can be seriously injured by a twisted belt. In a crash, you wouldn't have the full width of the belt to spread impact forces. If a belt is twisted, make it straight so it can work properly, or ask your dealer to fix it.

To unlatch the belt, just push the button on the buckle. The belt should go back out of the way.

Before you close the door, be sure the belt is out of the way. If you slam the door on it, you can damage both the belt and your vehicle.

Safety Belt Use During Pregnancy

Safety belts work for everyone, including pregnant women. Like all occupants, they are more likely to be seriously injured if they don't wear safety belts.

A pregnant woman should wear a lap-shoulder belt, and the lap portion should be worn as low as possible, below the rounding, throughout the pregnancy.

The best way to protect the fetus is to protect the mother. When a safety belt is worn properly, it's more likely that the fetus won't be hurt in a crash. For pregnant women, as for anyone, the key to making safety belts effective is wearing them properly.

Right Front Passenger Position

To learn how to wear the right front passenger's safety belt properly, see *Driver Position on page 1-12.*

The right front passenger's safety belt works the same way as the driver's safety belt – except for one thing. If you ever pull the lap portion of the belt out all the way, you will engage the child restraint locking feature. If this happens, just let the belt go back all the way and start again.

If your vehicle has a center passenger position, be sure to use the correct buckle when buckling your lap-shoulder belt. If you find that the latch plate will not go fully into the buckle, see if you are using the buckle for the center passenger position.

Center Front Passenger Position

Lap Belt

If your vehicle has a front bench seat, someone can sit in the center position.

When you sit in the center front seating position, you have a lap safety belt, which has no retractor. To make the belt longer, tilt the latch plate and pull it along the belt.

To make the belt shorter, pull its free end as shown until the belt is snug.

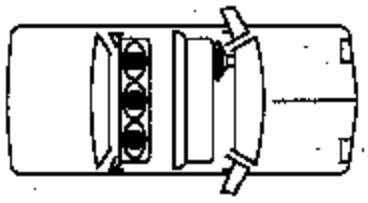
Buckle, position and release it the same way as the lap part of a lap-shoulder belt. If the belt isn't long enough, see *Safety Belt Extender on page 1-26.*

Make sure the release button on the buckle is positioned so you would be able to unbuckle the safety belt quickly if you ever had to.

Rear Seat Passengers

It's very important for rear seat passengers to buckle up! Accident statistics show that unbelted people in the rear seat are hurt more often in crashes than those who are wearing safety belts.

Rear passengers who aren't safety belted can be thrown out of the vehicle in a crash. And they can strike others in the vehicle who are wearing safety belts.



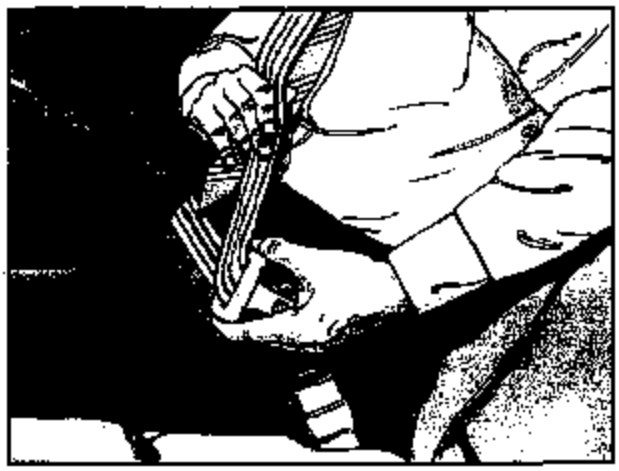
Lap-Shoulder Belt

All rear seating positions have lap-shoulder belts. Here's how to wear one properly.

1. Pick up the latch plate and pull the belt across you. Don't let it get twisted.

   The shoulder belt may lock if you pull the belt across you very quickly. If this happens, let the belt go back slightly to unlock it. Then pull the belt across you more slowly.

2. Push the latch plate into the buckle until it clicks.

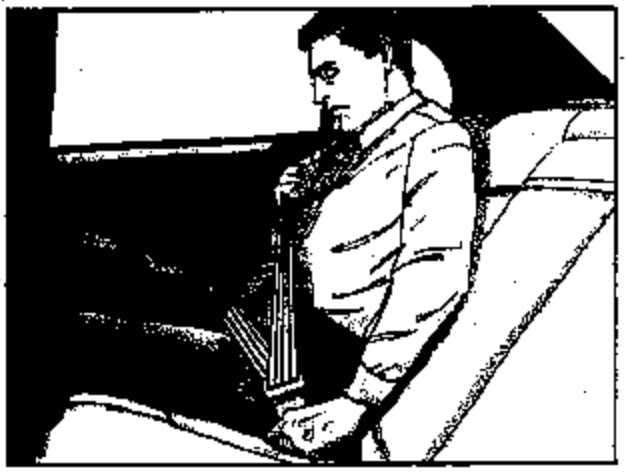


If the belt stops before it reaches the buckle, tilt the latch plate and keep pulling until you can buckle it.

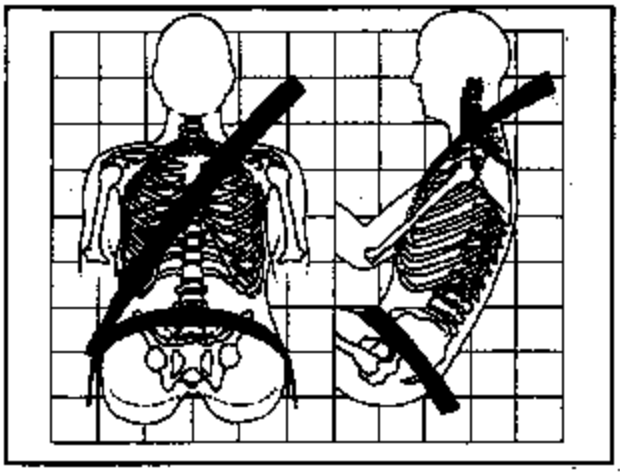
Pull up on the latch plate to make sure it is secure.

If the belt is not long enough, see *Safety Belt Extender on page 1-26.*

Make sure the release button on the buckle is positioned so you would be able to unbuckle the safety belt quickly if you ever had to.



3. To make the lap part tight, pull down on the buckle end of the belt as you pull up on the shoulder part.



The lap part of the belt should be worn low and snug on the hips, just touching the thighs. In a crash this applies force to the strong pelvic bones. And you'd be less likely to slide under the lap belt. If you slid under it, the belt would apply force at your abdomen. This could cause serious or even fatal injuries. The shoulder belt should go over the shoulder and across the chest. These parts of the body are best able to take belt restraining forces.

The safety belt locks if there's a sudden stop or a crash, or if you pull the belt very quickly out of the retractor.

⚠ CAUTION:

You can be seriously hurt if your shoulder belt is too loose. In a crash, you would move forward too much, which could increase injury. The shoulder belt should fit against your body.

To unlatch the belt, just push the button on the buckle.

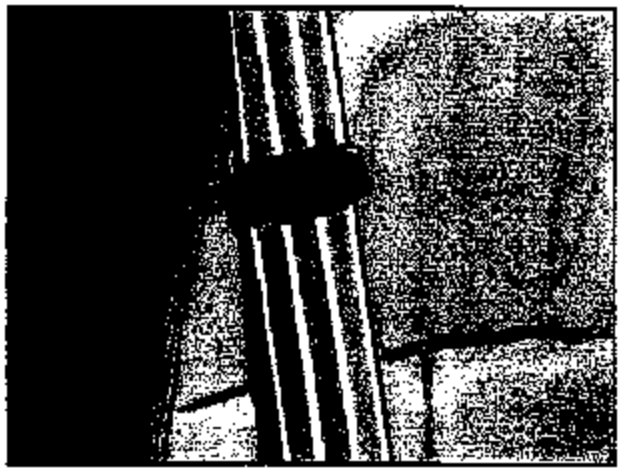
Rear Safety Belt Comfort Guides for Children and Small Adults

Rear shoulder belt comfort guides provide added safety belt comfort for older children who have outgrown booster seats and for small adults. When installed on a shoulder belt, the comfort guide better positions the belt away from the neck and head.

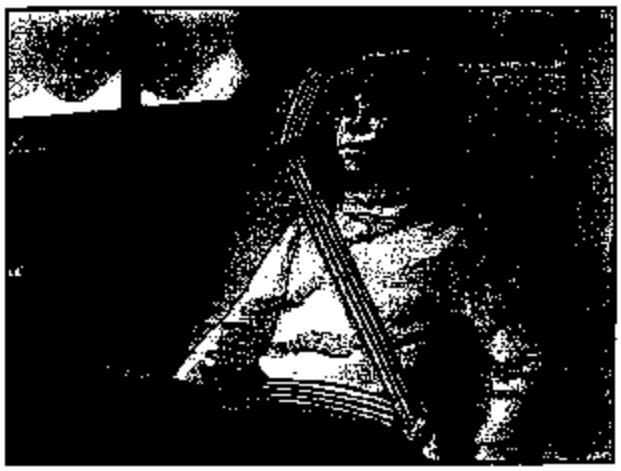
There is one guide for each outside passenger position in the rear seat. To provide added safety belt comfort for children who have outgrown child restraints and booster seats and for smaller adults, the comfort guides may be installed on the shoulder belts. Here's how to install a comfort guide and use the safety belt:

1. Remove the guide from its storage pocket on the side of the seatback.

2. Slide the guide under and past the belt. The elastic cord must be under the belt. Then, place the guide over the belt, and insert the two edges of the belt into the slots of the guide.



3. Be sure that the belt is not twisted and it lies flat. The elastic cord must be under the belt and the guide on top.



4. Buckle, position and release the safety belt as described in *Rear Seat Passengers on page 1-21*. Make sure that the shoulder belt crosses the shoulder.

To remove and store the comfort guides, squeeze the belt edges together so that you can take them out of the guides. Slide the guide into its storage pocket on the side of the seatback.

Safety Belt Extender

If the vehicle's safety belt will fasten around you, you should use it.

But if a safety belt isn't long enough to fasten, your dealer will order you an extender. It's free. When you go in to order it, take the heaviest coat you will wear, so the extender will be long enough for you. The extender will be just for you, and just for the seat in your vehicle that you choose. Don't let someone else use it, and use it only for the seat it is made to fit. To wear it, just attach it to the regular safety belt.

Child Restraints

Older Children

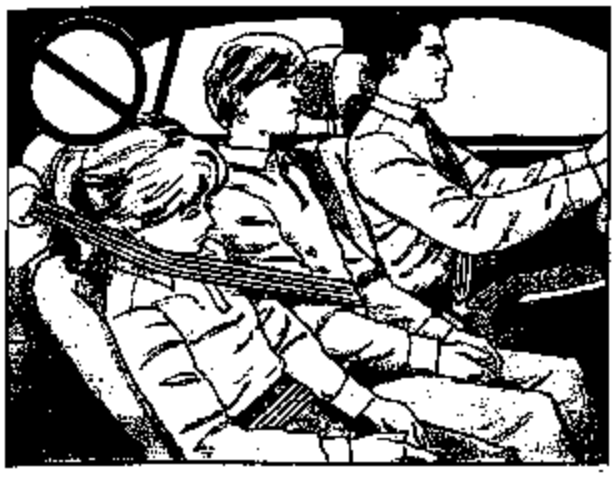
Older children who have outgrown booster seats should wear the vehicle's safety belts.

Q: What is the proper way to wear safety belts?

A: If possible, an older child should wear a lap-shoulder belt and get the additional restraint a shoulder belt can provide. The shoulder belt should not cross the face or neck. The lap belt should fit snugly below the hips, just touching the top of the thighs. It should never be worn over the abdomen, which could cause severe or even fatal internal injuries in a crash.

Accident statistics show that children are safer if they are restrained in the rear seat.

In a crash, children who are not buckled up can strike other people who are buckled up, or can be thrown out of the vehicle. Older children need to use safety belts properly.



Q: What if a child is wearing a lap-shoulder belt, but the child is so small that the shoulder belt is very close to the child's face or neck?

A: If the child is sitting in a seat next to a window, move the child toward the center of the vehicle. If the child is sitting in the center rear seat passenger position, move the child toward the safety belt buckle. In either case, be sure that the shoulder belt still is on the child's shoulder, so that in a crash the child's upper body would have the restraint that belts provide.

If the child is so small that the shoulder belt is still very close to the child's face or neck, you might want to place the child in a seat that has a lap belt, if your vehicle has one.

⚠ CAUTION:

Never do this.

Here two children are wearing the same belt. The belt can't properly spread the impact forces. In a crash, the two children can be crushed together and seriously injured. A belt must be used by only one person at a time.

⚠ CAUTION:

Never do this.

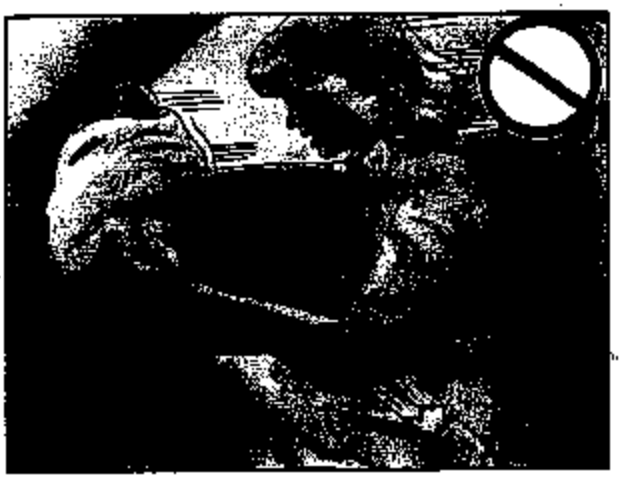
Here a child is sitting in a seat that has a lap-shoulder belt, but the shoulder part is behind the child. If the child wears the belt in this way, in a crash the child might slide under the belt. The belt's force would then be applied right on the child's abdomen. That could cause serious or fatal injuries.

Wherever the child sits, the lap portion of the belt should be worn low and snug on the hips, just touching the child's thighs. This applies belt force to the child's pelvic bones in a crash.

Infants and Young Children

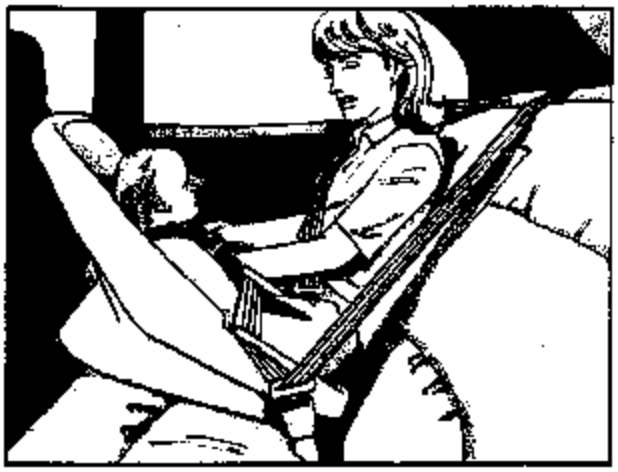
Everyone in a vehicle needs protection! This includes infants and all other children. Neither the distance traveled nor the age and size of the traveler changes the need, for everyone, to use safety restraints. In fact, the law in every state in the United States and in every Canadian province says children up to some age must be restrained while in a vehicle.

Every time infants and young children ride in vehicles, they should have the protection provided by appropriate restraints. Young children should not use the vehicle's adult safety belts alone, unless there is no other choice. Instead, they need to use a child restraint.



⚠ CAUTION:

People should never hold a baby in their arms while riding in a vehicle. A baby doesn't weigh much – until a crash. During a crash a baby will become so heavy it is not possible to hold it. For example, in a crash at only 25 mph (40 km/h), a 12-lb. (5.5 kg) baby will suddenly become a 240-lb. (110 kg) force on a person's arms. A baby should be secured in an appropriate restraint.



⚠ CAUTION:

Children who are up against, or very close to, any air bag when it inflates can be seriously injured or killed. Air bags plus lap-shoulder belts offer outstanding protection for adults and

CAUTION: (Continued)

CAUTION: (Continued)

older children, but not for young children and infants. Neither the vehicle's safety belt system nor its air bag system is designed for them. Young children and infants need the protection that a child restraint system can provide.

Q: What are the different types of add-on child restraints?

A: Add-on child restraints, which are purchased by the vehicle's owner, are available in four basic types. Selection of a particular restraint should take into consideration not only the child's weight, height and age but also whether or not the restraint will be compatible with the motor vehicle in which it will be used.

For most basic types of child restraints, there are many different models available. When purchasing a child restraint, be sure it is designed to be used in a motor vehicle. If it is, the restraint will have a label saying that it meets federal motor vehicle safety standards.

The restraint manufacturer's instructions that come with the restraint state the weight and height limitations for a particular child restraint. In addition, there are many kinds of restraints available for children with special needs.

⚠ CAUTION:

Newborn infants need complete support, including support for the head and neck. This is necessary because a newborn infant's neck is weak and its head weighs so much compared with the rest of its body. In a crash, an infant in a rear-facing seat settles into the restraint, so the crash forces can be distributed across the strongest part of an infant's body, the back and shoulders. Infants always should be secured in appropriate infant restraints.

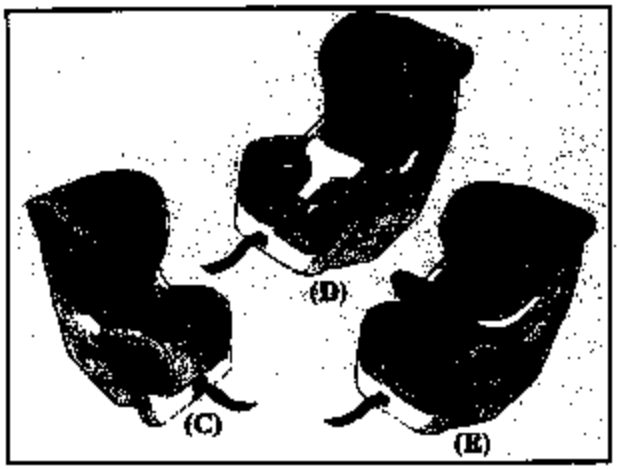
⚠ CAUTION:

The body structure of a young child is quite unlike that of an adult or older child, for whom the safety belts are designed. A young child's hip bones are still so small that the vehicle's regular safety belt may not remain low on the hip bones, as it should. Instead, it may settle up around the child's abdomen. In a crash, the belt would apply force on a body area that's unprotected by any bony structure. This alone could cause serious or fatal injuries. Young children always should be secured in appropriate child restraints.

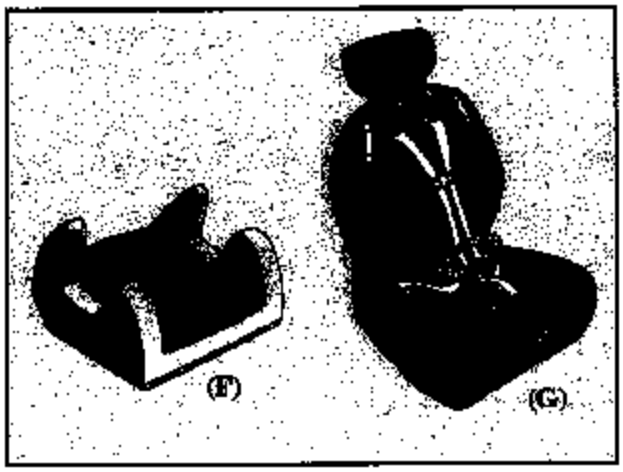
Child Restraint Systems

An infant car bed (A), a special bed made for use in a motor vehicle, is an infant restraint system designed to restrain or position a child on a continuous flat surface. Make sure that the infant's head rests toward the center of the vehicle.

A rear-facing infant seat (B) provides restraint with the seating surface against the back of the infant. The harness system holds the infant in place and, in a crash, acts to keep the infant positioned in the restraint.



A forward-facing child seat (C-E) provides restraint for the child's body with the harness and also sometimes with surfaces such as T-shaped or shelf-like shields.



A booster seat (F-G) is a child restraint designed to improve the fit of the vehicle's safety belt system. Some booster seats have a shoulder-belt positioner, and some high-back booster seats have a five-point harness. A booster seat can also help a child to see out the window.

Q: How do child restraints work?

A: A child restraint system is any device designed for use in a motor vehicle to restrain, seat, or position children. A built-in child restraint system is a permanent part of the motor vehicle. An add-on child restraint system is a portable one, which is purchased by the vehicle's owner.

For many years, add-on child restraints have used the adult belt system in the vehicle. To help reduce the chance of injury, the child also has to be secured within the restraint. The vehicle's belt system secures the add-on child restraint in the vehicle, and the add-on child restraint's harness system holds the child in place within the restraint.

One system, the three-point harness, has straps that come down over each of the infant's shoulders and buckle together at the crotch. The five-point harness system has two shoulder straps, two hip straps and a crotch strap. A shield may take the place of hip straps. A T-shaped shield has shoulder straps that are attached to a flat pad which rests low against the child's body. A shelf- or armrest-type shield has straps that are attached to a wide, shelf-like shield that swings up or to the side.

When choosing a child restraint, be sure the child restraint is designed to be used in a vehicle. If it is, it will have a label saying that it meets federal motor vehicle safety standards.

Then follow the instructions for the restraint. You may find these instructions on the restraint itself or in a booklet, or both. These restraints use the belt system in your vehicle, but the child also has to be secured within the restraint to help reduce the chance of personal injury. When securing an add-on child restraint, refer to the instructions that come with the restraint which may be on the restraint itself or in a booklet, or both, and to this manual. The child restraint instructions are important, so if they are not available, obtain a replacement copy from the manufacturer.

Where to Put the Restraint

Accident statistics show that children are safer if they are restrained in the rear rather than the front seat. We, therefore, recommend that child restraints be secured in a rear seat, including an infant riding in a rear-facing infant seat, a child riding in a forward-facing child seat and an older child riding in a booster seat. *Never* put a rear-facing child restraint in the front passenger seat. Here is why:

⚠ CAUTION:

A child in a rear-facing child restraint can be seriously injured or killed if the right front passenger's air bag inflates. This is because the back of the rear-facing child restraint would be very close to the inflating air bag. Always secure a rear-facing child restraint in a rear seat.

If you secure a forward-facing child restraint in the right front seat, always move the front passenger seat as far back as it will go. It is better to secure the child restraint in a rear seat.

⚠ CAUTION:

A child in a child restraint in the center front seat can be badly injured or killed by the right front passenger's air bag if it inflates. Never secure a child restraint in the center front seat. It is always better to secure a child restraint in the rear seat.

If you secure a forward-facing child restraint in the right front passenger seat, always move the front passenger seat as far back as it will go. It is better to secure the child restraint in a rear seat.

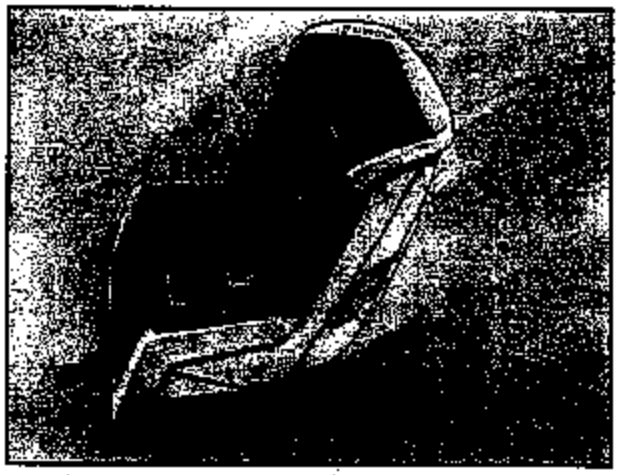
Wherever you install it, be sure to secure the child restraint properly.

Keep in mind that an unsecured child restraint can move around in a collision or sudden stop and injure people in the vehicle. Be sure to properly secure any child restraint in your vehicle – even when no child is in it.

Top Strap

Some child restraints have a top strap, or "top tether." It can help restrain the child restraint during a collision. For it to work, a top strap must be properly anchored to the vehicle. Some top strap-equipped child restraints are designed for use with or without the top strap being anchored. Others require the top strap always to be anchored. Be sure to read and follow the instructions for your child restraint. If yours requires that the top strap be anchored, don't use the restraint unless it is anchored properly.

If the child restraint does not have a top strap, one can be obtained, in kit form, for many child restraints. Ask the child restraint manufacturer whether or not a kit is available.



In Canada, the law requires that forward-facing child restraints have a top strap, and that the strap be anchored. In the United States, some child restraints also have a top strap. If your child restraint has a top strap, it should be anchored.

Anchor the top strap to an anchor point specified in *Top Strap Anchor Location on page 1-38*. Be sure to use an anchor point located on the same side of the vehicle as the seating position where the child restraint will be placed.

⚠ CAUTION:

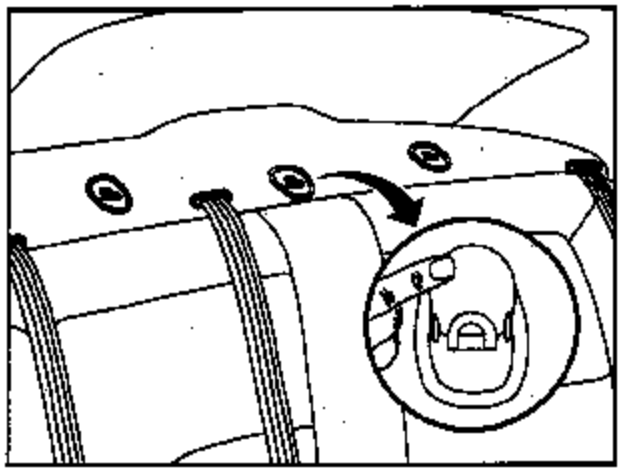
Each top tether bracket is designed to anchor only one child restraint. Attaching more than one child restraint to a single bracket could cause the anchor to come loose or even break during a crash. A child or others could be injured if this happens. To help prevent injury to people and damage to your vehicle, attach only one child restraint per bracket.

Once you have the top strap anchored, you'll be ready to secure the child restraint itself. Tighten the top strap when and as the child restraint manufacturer's instructions say.

Top Strap Anchor Location

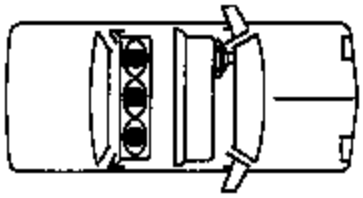
Your vehicle has top strap anchors already installed for the rear seating positions. You'll find them behind the rear seat on the filler panel.

Do not use a child restraint with a top strap in the right front passenger's position because there is no place to anchor the top strap.



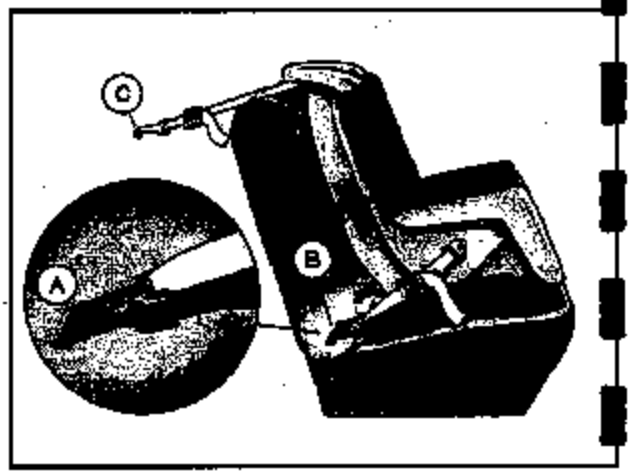
In order to get to a bracket, you'll have to open the trim cover.

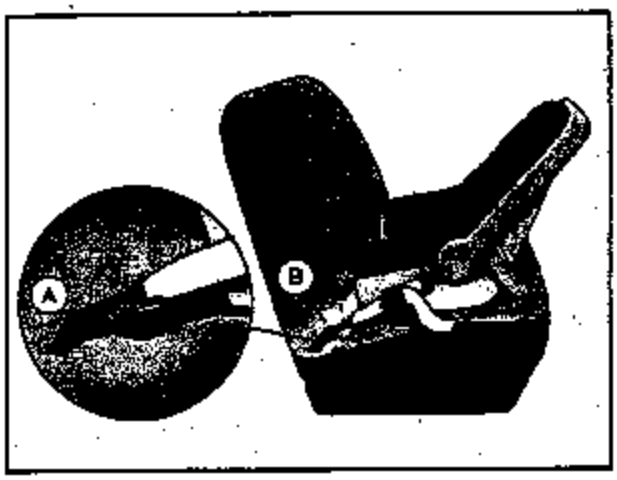
Lower Anchorages and Top Tethers for Children (LATCH System)



Your vehicle has the LATCH system. You will find anchors (A) for all three rear seating positions.

This system, designed to make installation of child restraints easier, does not use the vehicle's safety belts. Instead, it uses vehicle anchors (A, B) and child restraint attachments to secure the restraints. Some restraints also use another vehicle anchor to secure a top tether strap (C).





In order to use the LATCH system in your vehicle, you need a child restraint designed for that system.

To assist you in locating the lower anchors for this child restraint system, each seating position with the LATCH system has a label on the seatback at each lower anchor position.

The labels are located near the base of all three rear seating positions.

⚠ CAUTION:

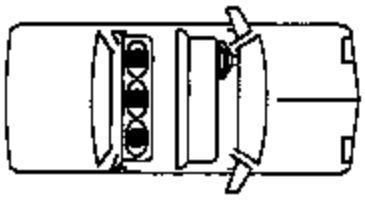
If a LATCH-type child restraint isn't attached to its anchorage points, the restraint won't be able to protect the child correctly. In a crash, the child could be seriously injured or killed. Make sure that a LATCH-type child restraint is properly installed using the anchorage points, or use the vehicle's safety belts to secure the restraint. See "Securing a Child Restraint Designed for the LATCH System" or "Securing a Child Restraint in a Rear Seat Position" in the index for information on how to secure a child restraint in your vehicle.

Securing a Child Restraint Designed for the LATCH System

1. Find the anchors for the seating position you want to use, where the bottom of the seatback meets the back of the seat cushion.
2. Put the child restraint on the seat.
3. Attach the anchor points on the child restraint to the anchors in the vehicle. The child restraint instructions will show you how.
4. If the child restraint is forward-facing, attach the top strap to the top strap anchor. See *Top Strap on page 1-37*. Tighten the top strap according to the child restraint instructions.
5. Push and pull the child restraint in different directions to be sure it is secure.

To remove the child restraint, simply unhook the top strap from the top tether anchor and then disconnect the anchor points.

Securing a Child Restraint in a Rear Seat Position



If your child restraint is equipped with the LATCH system, see *Lower Anchorages and Top Tethers for Children (LATCH System) on page 1-39*. See *Top Strap on page 1-37* if the child restraint has one.

⚠ CAUTION:

A child in a child restraint in the center front seat can be badly injured or killed by the right front passenger's air bag if it inflates. Never secure a child restraint in the center front seat. It is always better to secure a child restraint in the rear seat.

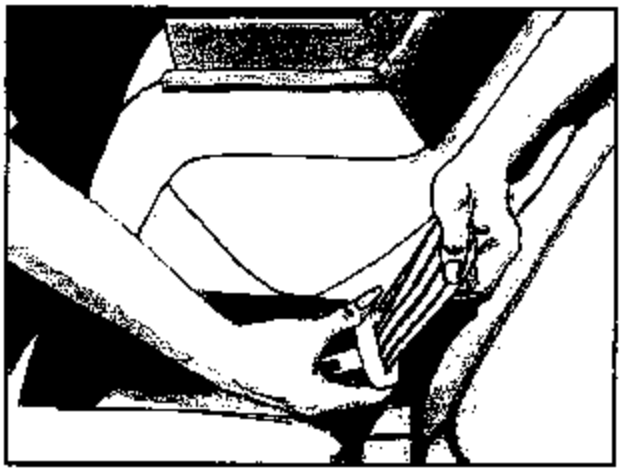
CAUTION: (Continued)

CAUTION: (Continued)

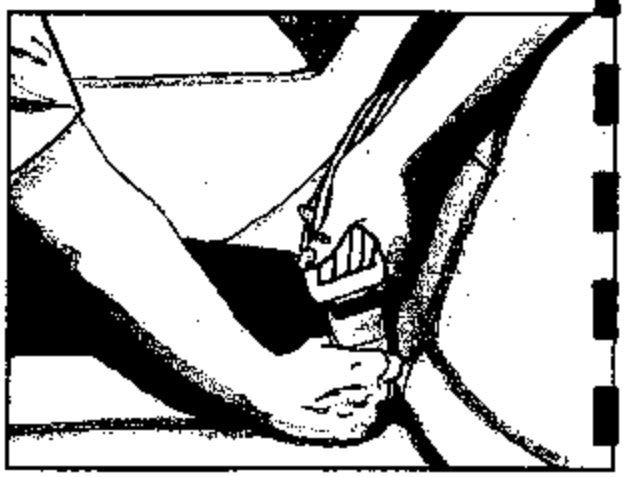
If you secure a forward-facing child restraint in the right front passenger seat, always move the front passenger seat as far back as it will go. It is better to secure the child restraint in a rear seat.

If your child restraint does not have the LATCH system, you'll be using the lap-shoulder belt to secure the restraint in this position. Be sure to follow the instructions that came with the child restraint. Secure the child in the child restraint when and as the instructions say.

1. Put the restraint on the seat.
2. Pick up the latch plate, and run the lap and shoulder portions of the vehicle's safety belt through or around the restraint. The child restraint instructions will show you how.



Tilt the latch plate to adjust the belt if needed.



3. Buckle the belt. Make sure the release button is positioned so you would be able to unbuckle the safety belt quickly if you ever had to.

4. To tighten the belt, pull up on the shoulder belt while you push down on the child restraint. If you're using a forward-facing child restraint, you may find it helpful to use your knee to push down on the child restraint as you tighten the belt.
5. Push and pull the child restraint in different directions to be sure it is secure.

To remove the child restraint, just unbuckle the vehicle's safety belt and let it go back all the way. The safety belt will move freely again and be ready to work for an adult or larger child passenger.

Securing a Child Restraint in the Right Front Seat Position

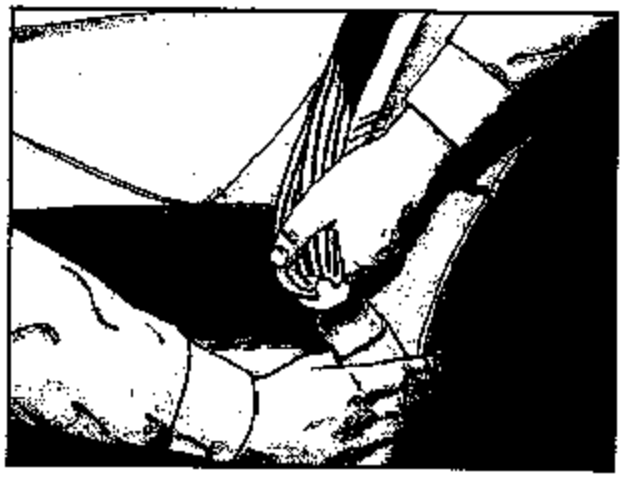
If your vehicle is equipped with the LATCH system, see *Lower Anchorages and Top Tethers for Children (LATCH System) on page 1-39*. See *Top Strap on page 1-37* if the child restraint has one.

Your vehicle has a right front passenger air bag. *Never* put a rear facing child restraint in this seat. Here is why:

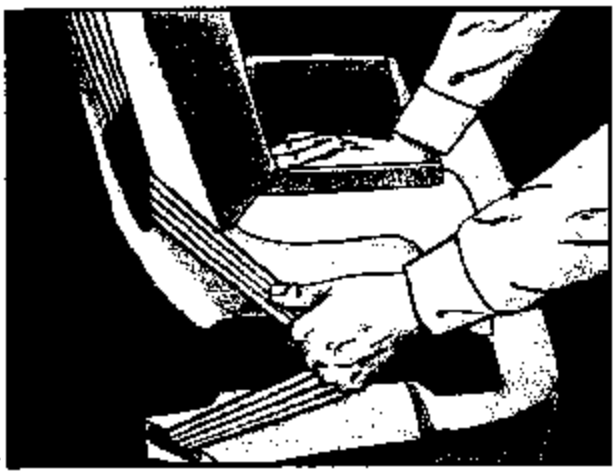
> **⚠ CAUTION:**
>
> **A child in a rear-facing child restraint can be seriously injured or killed if the right front passenger's air bag inflates. This is because the back of the rear-facing child restraint would be very close to the inflating air bag. Always secure a rear-facing child restraint in a rear seat.**

A rear seat is a safer place to secure a forward-facing child restraint. If you need to secure a forward-facing child restraint in the right front seat, you will be using the lap-shoulder belt to secure the child restraint in this position. Be sure to follow the instructions that came with the child restraint. Secure the child in the child restraint when and as the instructions say.

1. Because your vehicle has a right front passenger air bag, always move the seat as far back as it will go before securing a forward-facing child restraint. See *Power Seats on page 1-2* or *Manual Seats on page 1-2*.
2. Put the restraint on the seat.
3. Pick up the latch plate, and run the lap and shoulder portions of the vehicle's safety belt through or around the restraint. The child restraint instructions will show you how.



4. Buckle the belt. Make sure the release button is positioned so you would be able to unbuckle the safety belt quickly if you ever had to.



5. Pull the rest of the lap belt all the way out of the retractor to set the lock.

6. To tighten the belt, feed the lap belt back into the retractor while you push down on the child restraint. You may find it helpful to use your knee to push down on the child restraint as you tighten the belt.
7. Push and pull the child restraint in different directions to be sure it is secure.

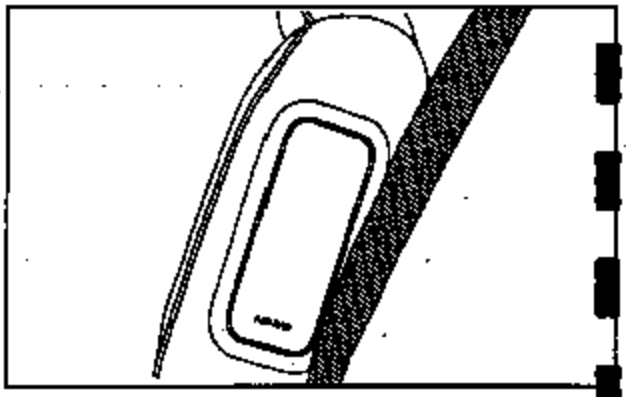
To remove the child restraint, just unbuckle the vehicle's safety belt and let it go back all the way. The safety belt will move freely again and be ready to work for an adult or larger child passenger.

Air Bag Systems

This part explains the frontal and side impact air bag systems.

Your vehicle has a frontal air bag for the driver and a frontal air bag for the right front passenger. Your vehicle may also have a side impact air bag for the driver, and another side impact air bag for the right front passenger.

If your vehicle has a side impact air bag for the driver and/or right front passenger, the words AIR BAG will appear on the air bag covering on the side of the seatback closest to the door.



Frontal air bags are designed to help reduce the risk of injury from the force of an inflating frontal air bag. But these air bags must inflate very quickly to do their job and comply with federal regulations.

Here are the most important things to know about the air bag systems:

⚠ CAUTION:

You can be severely injured or killed in a crash if you aren't wearing your safety belt – even if you have air bags. Wearing your safety belt during a crash helps reduce your chance of hitting things inside the vehicle or being ejected from it. Air bags are designed to work with safety belts but don't replace them.

Frontal air bags for the driver and right front passenger are designed to deploy only in moderate to severe frontal and near frontal crashes. They aren't designed to inflate at all in rollover, rear or low-speed frontal crashes, or in many side crashes. And, for some unrestrained occupants, frontal air bags may provide less protection in frontal crashes than more forceful air bags have provided in the past.

The side impact air bags for the driver and right front passenger are designed to inflate

CAUTION: (Continued)

CAUTION: (Continued)

only in moderate to severe crashes where something hits the side of your vehicle. They aren't designed to inflate in frontal, in rollover or in rear crashes.

Everyone in your vehicle should wear a safety belt properly – whether or not there's an air bag for that person.

⚠ CAUTION:

Both frontal and side impact air bags inflate with great force, faster than the blink of an eye. If you're too close to an inflating air bag, as you would be if you were leaning forward, it could seriously injure you. Safety belts help keep you in position for air bag inflation before and during a crash. Always wear your safety belt, even with frontal air bags. The driver should sit as far back as possible while still maintaining control of the vehicle. Front occupants should not lean on or sleep against the door.

⚠ CAUTION:

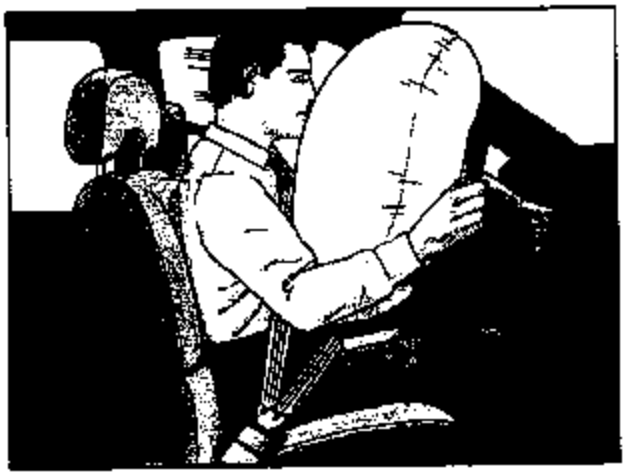
Anyone who is up against, or very close to, any air bag when it inflates can be seriously injured or killed. Air bags plus lap-shoulder belts offer the best protection for adults, but not for young children and infants. Neither the vehicle's safety belt system nor its air bag system is designed for them. Young children and infants need the protection that a child restraint system can provide. Always secure children properly in your vehicle. To read how, see the part of this manual called "Older Children" or "Infants and Young Children."

AIR
BAG

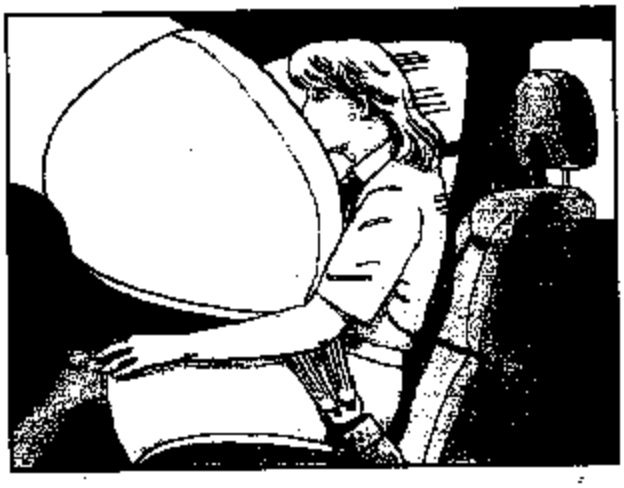
There is an air bag readiness light on the instrument panel, which shows AIR BAG.

The system checks the air bag electrical system for malfunctions. The light tells you if there is an electrical problem. See *Air Bag Readiness Light on page 3-36.*

Where Are the Air Bags?



The driver's frontal air bag is in the middle of the steering wheel.



The right front passenger's frontal air bag is in the instrument panel on the passenger's side.

If your vehicle has one, the driver's side impact air bag is in the side of the driver's seatback closest to the door.

If your vehicle has one, the right front passenger's side impact air bag is in the side of the passenger's seatback closest to the door.

⚠ CAUTION:

If something is between an occupant and an air bag, the bag might not inflate properly or it might force the object into that person causing severe injury or even death. The path of an inflating air bag must be kept clear. Don't put anything between an occupant and an air bag, and don't attach or put anything on the steering wheel hub or on or near any other air bag covering. Don't let seat covers block the inflation path of a side impact air bag.

When Should an Air Bag Inflate?

The driver's and right front passenger's frontal air bags are designed to inflate in moderate to severe frontal or near-frontal crashes. But they are designed to inflate only if the impact speed is above the system's designed "threshold level."

In addition, your vehicle has "dual stage" frontal air bags, which adjust the amount of restraint according to crash severity. For moderate frontal impacts, these air bags inflate at a level less than full deployment. For more severe frontal impacts, full deployment occurs. If the front of your vehicle goes straight into a wall that does not move or deform, the threshold level for the reduced deployment is about 10 to 16 mph (16 to 26 km/h), and the threshold level for a full deployment is about 18 to 24 mph (29 to 38.5 km/h). The threshold level can vary, however, with specific vehicle design, so that it can be somewhat above or below this range.

If your vehicle strikes something that will move or deform, such as a parked car, the threshold level will be higher. The driver's and right front passenger's frontal air bags are not designed to inflate in rollovers, rear impacts, or in many side impacts because inflation would not help the occupant.

Your vehicle may or may not have a side impact air bag. See *Air Bag Systems on page 1-47.* Side impact air bags are designed to inflate in moderate to severe side crashes. A side impact air bag will inflate if the crash severity is above the system's designed "threshold level." The threshold level can vary with specific vehicle design. Side impact air bags are not designed to inflate in frontal or near-frontal impacts, rollovers or rear impacts, because inflation would not help the occupant. A side impact air bag will only deploy on the side of the vehicle that is struck.

In any particular crash, no one can say whether an air bag should have inflated simply because of the damage to a vehicle or because of what the repair costs were. For frontal air bags, inflation is determined by the angle of the impact and how quickly the vehicle slows down in frontal and near-frontal impacts. For side impact air bags, inflation is determined by the location and severity of the impact.

What Makes an Air Bag Inflate?

In an impact of sufficient severity, the air bag sensing system detects that the vehicle is in a crash. For both frontal and side impact air bags, the sensing system triggers a release of gas from the inflator, which inflates the air bag. The inflator, the air bag and related hardware are all part of the air bag modules. Frontal air bag modules are located inside the steering wheel and instrument panel. For vehicles with side impact air bags, the air bag modules are located in the seatback closest to the driver's and/or right front passenger's door.

How Does an Air Bag Restrain?

In moderate to severe frontal or near frontal collisions, even belted occupants can contact the steering wheel or the instrument panel. In moderate to severe side collisions, even belted occupants can contact the inside of the vehicle. The air bag supplements the protection provided by safety belts. Air bags distribute the force of the impact more evenly over the occupant's upper body, stopping the occupant more gradually. But the frontal air bags would not help you in many types of collisions, including rollovers, rear impacts, and many side impacts, primarily because an occupant's motion is not toward the air bag. Side impact air bags would not help you in many types of collisions, including frontal or near frontal collisions, rollovers, and rear impacts, primarily because an occupant's motion is not toward those air bags. Air bags should never be regarded as anything more than a supplement to safety belts, and then only in moderate to severe frontal or near-frontal collisions for the driver's and right front passenger's frontal air bags, and only in moderate to severe side collisions for vehicles with a driver's and right front passenger's side impact air bag.

What Will You See After an Air Bag Inflates?

After the air bag inflates, it quickly deflates, so quickly that some people may not even realize the air bag inflated. Some components of the air bag module will be hot for a short time. These components include the steering wheel hub for the driver's frontal air bag and the instrument panel for the right front passenger's frontal air bag. For vehicles with side impact air bags, the side of the seatback closest to the driver's and/or right front passenger's door will be hot. The parts of the bag that come into contact with you may be warm, but not too hot to touch. There will be some smoke and dust coming from the vents in the deflated air bags. Air bag inflation doesn't prevent the driver from seeing or being able to steer the vehicle, nor does it stop people from leaving the vehicle.

⚠ CAUTION:

When an air bag inflates, there is dust in the air. This dust could cause breathing problems for people with a history of asthma or other breathing trouble. To avoid this, everyone in the vehicle should get out as soon as it is safe to do so. If you have breathing problems but can't get out of the vehicle after an air bag inflates, then get fresh air by opening a window or a door. If you experience breathing problems following an air bag deployment, you should seek medical attention.

Your vehicle has a feature that will automatically unlock the doors and turn the interior lamps on when the air bags inflate (if battery power is available). You can lock the doors again and turn the interior lamps off by using the door lock and interior lamp controls.

In many crashes severe enough to inflate an air bag, windshields are broken by vehicle deformation. Additional windshield breakage may also occur from the right front passenger air bag.

- Air bags are designed to inflate only once. After an air bag inflates, you'll need some new parts for your air bag system. If you don't get them, the air bag system won't be there to help protect you in another crash. A new system will include air bag modules and possibly other parts. The service manual for your vehicle covers the need to replace other parts.
- Your vehicle is equipped with an electronic frontal sensor, which helps the sensing system distinguish between a moderate frontal impact and a more severe frontal impact. Your vehicle is also equipped with a crash sensing and diagnostic module, which records information about the frontal air bag system. The module records information about the readiness of the system, when the system commands air bag inflation and driver's safety belt usage at deployment. The module also records speed, engine rpm, brake and throttle data.
- Let only qualified technicians work on your air bag systems. Improper service can mean that an air bag system won't work properly. See your dealer for service.

Notice: **If you damage the covering for the driver's or the right front passenger's air bag, or the air bag covering on the driver's and right front passenger's seatback, the bag may not work properly. You may have to replace the air bag module in the steering wheel, both the air bag module and the instrument panel for the right front passenger's air bag, or both the air bag module and seatback for the driver's and right front passenger's side impact air bag. Do not open or break the air bag coverings.**

Servicing Your Air Bag-Equipped Vehicle

Air bags affect how your vehicle should be serviced. There are parts of the air bag systems in several places around your vehicle. Your dealer and the service manual have information about servicing your vehicle and the air bag systems. To purchase a service manual, see *Service Publications Ordering Information on page 7-11.*

> **⚠ CAUTION:**
>
> **For up to 10 seconds after the ignition key is turned off and the battery is disconnected, an air bag can still inflate during improper service. You can be injured if you are close to an air bag when it inflates. Avoid yellow connectors. They are probably part of the air bag system. Be sure to follow proper service procedures, and make sure the person performing work for you is qualified to do so.**

The air bag systems do not need regular maintenance.

Restraint System Check

Checking Your Restraint Systems

Now and then, make sure the safety belt reminder light and all your belts, buckles, latch plates, retractors and anchorages are working properly. Look for any other loose or damaged safety belt system parts. If you see anything that might keep a safety belt system from doing its job, have it repaired.

Torn or frayed safety belts may not protect you in a crash. They can rip apart under impact forces. If a belt is torn or frayed, get a new one right away.

Also look for any opened or broken air bag covers, and have them repaired or replaced. (The air bag system does not need regular maintenance.)

Replacing Restraint System Parts After a Crash

> **⚠ CAUTION:**
>
> **A crash can damage the restraint systems in your vehicle. A damaged restraint system may not properly protect the person using it, resulting in serious injury or even death in a crash. To help make sure your restraint systems are working properly after a crash, have them inspected and any necessary replacements made as soon as possible.**

If you've had a crash, do you need new belts or LATCH system parts?

After a very minor collision, nothing may be necessary. But if the belts were stretched, as they would be if worn during a more severe crash, then you need new parts.

If the LATCH system was being used during a more severe crash, you may need new LATCH system parts.

If belts are cut or damaged, replace them. Collision damage also may mean you will need to have LATCH system, safety belt or seat parts repaired or replaced. New parts and repairs may be necessary even if the belt or LATCH system wasn't being used at the time of the collision.

If your seat adjuster won't work after a crash, the special part of the safety belt that goes through the seat to the adjuster may need to be replaced.

If an air bag inflates, you'll need to replace air bag system parts. See the part about the air bag system earlier in this manual.

2004 LESABRE CUSTOM

ENGINE- 3800 SERIES II V6 — EXTERIOR: WHITE

TRANSMISSION-4 SPEED ELECTRONIC — INTERIOR: LIGHT CASHMERE

BUICK

STANDARD EQUIPMENT

Items Featured Below are included at NO EXTRA CHARGE in the Standard Vehicle Price Shown at Right

*** SAFETY & SECURITY ***

- AIR BAGS - DRIVER/RIGHT FRONT PASSENGER, DUAL STAGE
- REAR CHILD SEAT LATCH SYSTEM
- RR DOOR CHILD SECURITY LOCK
- THEFT DETERRENT-PASSKEY III
- DOOR LOCKS-POWER/DELAY/AUTO
- TRUNK - POWER, VALET LOCKOUT
- LAMPS - DAYTIME RUNNING
- EMERG TRUNK RELEASE HANDLE
- BATTERY RUN DOWN PROTECTION

*** INTERIOR ***

- AIR CONDITIONING
- SEAT - POWER DRIVER WITH MANUAL LUMBAR
- RADIO - AM/FM, CD, RDS, WITH STEERING WHEEL CONTROLS
- SPEAKERS-DUAL EXTENDED RANGE
- POWER OUTLET
- ARMREST - FRONT SEAT STORAGE
- WINDOWS - POWER WITH LOCKOUT AND FRONT EXPRESS DOWN
- DEFOGGER-ELECTRIC RR WINDOW
- CONSOLE-O/H W/READING LIGHTS

*** EXTERIOR ***

- MIRRORS-PWR ADJ, MANUAL FOLD
- REMOTE KEYLESS ENTRY
- WIPERS - 2-SPEED WITH DELAY
- LIGHTS-DELAYED ENTRY & EXIT
- LIGHTS - TWILIGHT SENTINEL
- TIRES-P215/70R15 ALL SEAS BW
- TRUNK SPACE - 18 CUBIC FEET

*** MECHANICAL ***

- SUSPENSION-AUTO LEVEL CONTRL
- BRAKES-4 WHEEL DISC ANTILOCK
- FUEL TANK - APPROX 18 GALLON

MANUFACTURER'S SUGGESTED RETAIL PRICE

STANDARD VEHICLE PRICE	$25,745.00
Options Installed by Manufacturer	
VALUE LEADER	.00
TOTAL VEHICLE & OPTIONS	$25,745.00
DESTINATION CHARGE	725.00
TOTAL VEHICLE PRICE*	$26,470.00

CITY MPG

20

Fuel Economy Information

HIGHWAY MPG

29

Actual mileage will vary with options, driving conditions, driving habits and vehicle condition. Results reported to EPA indicate that the majority of vehicles with these estimates will achieve between 17 and 23 mpg in the city and between 24 and 34 mpg on the highway.

2004 LESABRE
3.8 LITER V6 ENGINE
FUEL INJECTION, AUTOMATIC
4 SPD ELECTRONIC TRANS
CATALYST, FEEDBACK FUEL SYSTEM

ESTIMATED ANNUAL FUEL COST: $914

For comparison shopping, all vehicles classified as LARGE have been issued mileage ratings ranging from to mpg city and to mpg highway.

HKA

DEALER TO WHOM DELIVERED [redacted] BUICK-GM MOTORS, INC. PO BOX [redacted] [redacted]

FINAL ASSEMBLY ORION, MI USA

ORDER NO [redacted] MODEL NO 4HP69 [redacted]

VIN [redacted]

This label has been applied pursuant to Federal law—Do not remove prior to delivery to the ultimate purchaser. [redacted]

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S040405

Appendix D

Miscellaneous Test Information

Channel Report

04/05/2004 11:11:33 AM

Name of Test 040405-1 **System** K3600 **Name of DAU** DAU3

Chan.#	Sensor #	Mnemonic	Description	Dir.	Range		Pol.	Cal.		Group	Mfg.	Model
3000	EVENT	EVENT	EVENT		10.24	V	+	11/08/2003	OK	SLED	TRC	Event
3001	C15351	SLDXG	SLED G LONG.	Rear	199.58523	g	-	03/15/2004	OK	SLED	Endevco	7231C
3002	C15519	SLDXGR	SLED G LONG	Rear	200.05001	g	-	03/15/2004	OK	SLED	Endevco	7231C
3003	SLDXV	SLDXV	SLED VELOCITY		164.73351	km/h	-	07/31/2003	OK	SLED	TRC	SLDXV
3004	SLDXGT	SLDXGT	SLED TRIGGER/SLDXGT	Rear	189.76668	g	-	07/15/2003	OK	-1	Endevco	7231C
3005	APDI3	HEDXG1	Head Accel X	Rwd	400.74513	g	-	03/15/2004	OK	314n	Endevco	7231C
3006	AGHP8	HEDYG1	Head Accel Y	Left	400.51315	g	-	03/15/2004	OK	314n	Endevco	7231C
3007	APD60	HEDZG1	Head Accel Y	Up	399.51932	g	-	03/15/2004	OK	314n	Endevco	7231C
3008	1716A-1221-FX	NEKXF1	Neck Force X	Hd	8889.9769	N	-	03/15/2004	OK	314n	Denton	1716A
3009	1716A-1221-FY	NEKYF1	Neck Force Y	Hd	8898.2041	N	+	03/15/2004	OK	314n	Denton	1716A
3012	1716A-1221-FZ	NEKZF1	Neck Force Z	Hd	13342.680	N	+	03/15/2004	OK	314n	Denton	1716A
3013	1716A-1221-MX	NEKXM1	Neck Moment X	Rt Ear	283.08084	N-m	-	03/15/2004	OK	314n	Denton	1716A
3014	1716A-1221-MY	NEKYM1	Neck Moment Y	Chn	282.99444	N-m	+	03/15/2004	OK	314n	Denton	1716A
3015	1716A-1221-MZ	NEKZM1	Neck Moment Z	Chn	283.12378	N-m	+	03/15/2004	OK	314n	Denton	1716A
3016	C13010	CSTXG1	Chest Accel X	Fwd	400.88947	g	+	03/15/2004	OK	314n	Endevco	7231C
3017	C14563	CSTYG1	Chest Accel Y	Left	402.12687	g	-	03/15/2004	OK	314n	Endevco	7231C
3018	AD343	CSTZG1	Chest Accel Z	Down	400.49436	g	+	03/15/2004	OK	314n	Endevco	7231C
3019	14CB1-2847-041	CSTXD1	Chest Deflection X	Strnm	101.14479	mm	+	03/16/2004	OK	314n	Servo	14CB1-2847
3020	2430-962	LFMZF1	Left Femur Force Z 91	Knee	13340.907	N	+	03/15/2004	OK	314n	GSE	2430
3021	2430-982	RFMZF1	Right Femur Force Z 98	Knee	13342.089	N	+	03/15/2004	OK	314n	GSE	2430
3022	GB86	HEDXG2	Head Accel X	Rwd	399.01959	g	-	03/15/2004	OK	229n	Endevco	7231C
3023	GB77	HEDYG2	Head Accel Y	Lft	399.04914	g	-	03/15/2004	OK	229n	Endevco	7231C
3024	A54F	HEDZG2	Head Accel Z	Up	399.03359	g	-	03/15/2004	OK	229n	Endevco	7231C
3025	1716A-1222-FX	NEKXF2	Neck Force X	Hd	8901.8939	N	-	03/15/2004	OK	229n	Denton	1716A
3026	1716A-1222-FY	NEKYF2	Neck Force Y	Hd	8900.2923	N	+	03/15/2004	OK	229n	Denton	1716A
3027	1716A-1222-FZ	NEKZF2	Neck Force Z	Hd	13342.680	N	+	03/15/2004	OK	229n	Denton	1716A
3028	1716A-1222-MX	NEKXM2	Neck Moment X	Rt Ear	282.86519	N-m	-	03/15/2004	OK	229n	Denton	1716A
3029	1716A-1222-MY	NEKYM2	Neck Moment Y	Chn	283.04588	N-m	+	03/15/2004	OK	229n	Denton	1716A
3030	1716A-1222-MZ	NEKZM2	Neck Moment Z	Chn	282.70168	N-m	+	03/15/2004	OK	229n	Denton	1716A
3031	C14135	CSTXG2	Chest Accel X	Fwd	401.55917	g	+	03/15/2004	OK	229n	Endevco	7231C
3032	A35D	CSTYG2	Chest Accel Y	Lft	399.67526	g	-	03/15/2004	OK	229n	Endevco	7231C
3033	AH5G8	CSTZG2	Chest Accel Z	Down	399.66902	g	+	03/15/2004	OK	229n	Endevco	7231C

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Channel Report

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3034	14CB1-2847-229	CSTXD2	Chest Deflection X	Strutu	99.901464	mm	+	03/16/2004	OK	229n	Servo	14CB1-2847
3035	2430-901	LFMZF2	Left Femur Force Z_603	Knee	13342.506	N	+	03/15/2004	OK	229n	GSE	2430
3036	2430-902	RFMZF2	Right Femur Force Z_744	Knee	13355.941	N	+	03/15/2004	OK	229n	GSE	2430
3037	P34003	LSXXG	REAR SEAT X-MEMBER AT	FWD	200.25187	g	+	03/31/2004	OK	-1	Endevco	7264C-2K-2-180
3038	P33759	RSXXG	REAR SEAT X-MEMBER AT	FWD	199.72109	g	+	03/31/2004	OK	-1	Endevco	7264C-2K-2-180
3039	P33526	TEXG	TOP OF ENGINE BLOCK	FWD	199.56462	g	+	03/31/2004	OK	-1	Endevco	7264C-2K-2-180
3040	P33562	RAXG	REAR AXLE	RR	200.12977	g	-	03/31/2004	OK	-1	Endevco	7264C-2K-2-180

Digital and System Channel Report

2004-04-05 11:03:06

Name of Test 040405-1 **System** K3600 **Name of DAU** DAU3 **descriptio**

enabled	Channel	Short Name	Type	Data File	Module Type
Yes	3500		dig0	DAT33500	KM3650 Sequencer

bit position	bit	short	long	descriptio
MSB = bit 15	0			
bit 14	0			
bit 13	1	Switch	Backup Switch	
bit 12	1	DABET1	Driver Airbag Event - Primary	
bit 11	1	DABET2	Driver Airbag Even - Secondary	
bit 10	1	PABET1	Pass. Airbag Event - Primary	
bit 09	1	PABET2	Pass. Airbag Event - Secondary	
bit 08	0			
bit 07	0			
bit 06	0			
bit 05	0			
bit 04	0			
bit 03	0			
bit 02	0			
bit 01	0			
LSB = bit 00	0			

Dummy 314n **Type** HYBRID III 50TH **Descriptio** NHTSA - 314n HYBRID III 50TH. CAL DUE 9-15-04 (DKS 3-15-04)J211

Chanam	Location	Model	Name	Manufacturer	Sens./mV/V/		Fullscal	Caldat	Pos Output	Flip
HEDXG	Head Accel X	7231C	APDJ3	Endevco	0.02012	g	750	3/15/2004	Rwd	1
HEDYG	Head Accel Y	7231C	AGHP8	Endevco	0.01908	g	750	3/15/2004	Left	1
HEDZG	Head Accel Y	7231C	APD60	Endevco	0.02067	g	750	3/15/2004	Up	1
NEKXF	Neck Force X	1716A	1716A-1221-FX	Denton	0.0001949	N	8896.4	3/15/2004	Hd Fd,Cst Rr	1
NEKYF	Neck Force Y	1716A	1716A-1221-FY	Denton	0.0001899	N	8896.4	3/15/2004	Hd Lt,Cst Rt	0
NEKZF	Neck Force Z	1716A	1716A-1221-FZ	Denton	0.0000998	N	13344.6	3/15/2004	Hd Up,Cst Dn	0
NEKXM	Neck Moment X	1716A	1716A-1221-MX	Denton	0.0060898	N-	282.5	3/15/2004	Rt Ear to Rt Shld	1
NEKYM	Neck Moment Y	1716A	1716A-1221-MY	Denton	0.0058741	N-	282.5	3/15/2004	Chn to Strnm	0
NEKZM	Neck Moment Z	1716A	1716A-1221-MZ	Denton	0.0085101	N-	282.5	3/15/2004	Chn to Lt Shld	0
CSTXG	Chest Accel X	7231C	C13010	Endevco	0.02936	g	750	3/15/2004	Fwd	0
CSTYG	Chest Accel Y	7231C	C14563	Endevco	0.02961	g	750	3/15/2004	Left	1
CSTZG	Chest Accel Z	7231C	AD343	Endevco	0.01937	g	750	3/15/2004	Down	0
CSTXD	Chest Deflection X	14CB1-2847	14CB1-2847-041	Servo	1.1249	m	100	3/16/2004	Strnm Away Frm Spn	0
LFMZF	Left Femur Force Z 91	2430	2430-962	GSE	0.0000694	N	13344.7	3/16/2004	Knee Fd,Pel Rr	0
RFMZF	Right Femur Force Z 98	2430	2430-982	GSE	0.0000678	N	13344.7	3/16/2004	Knee Fd,Pel Rr	0

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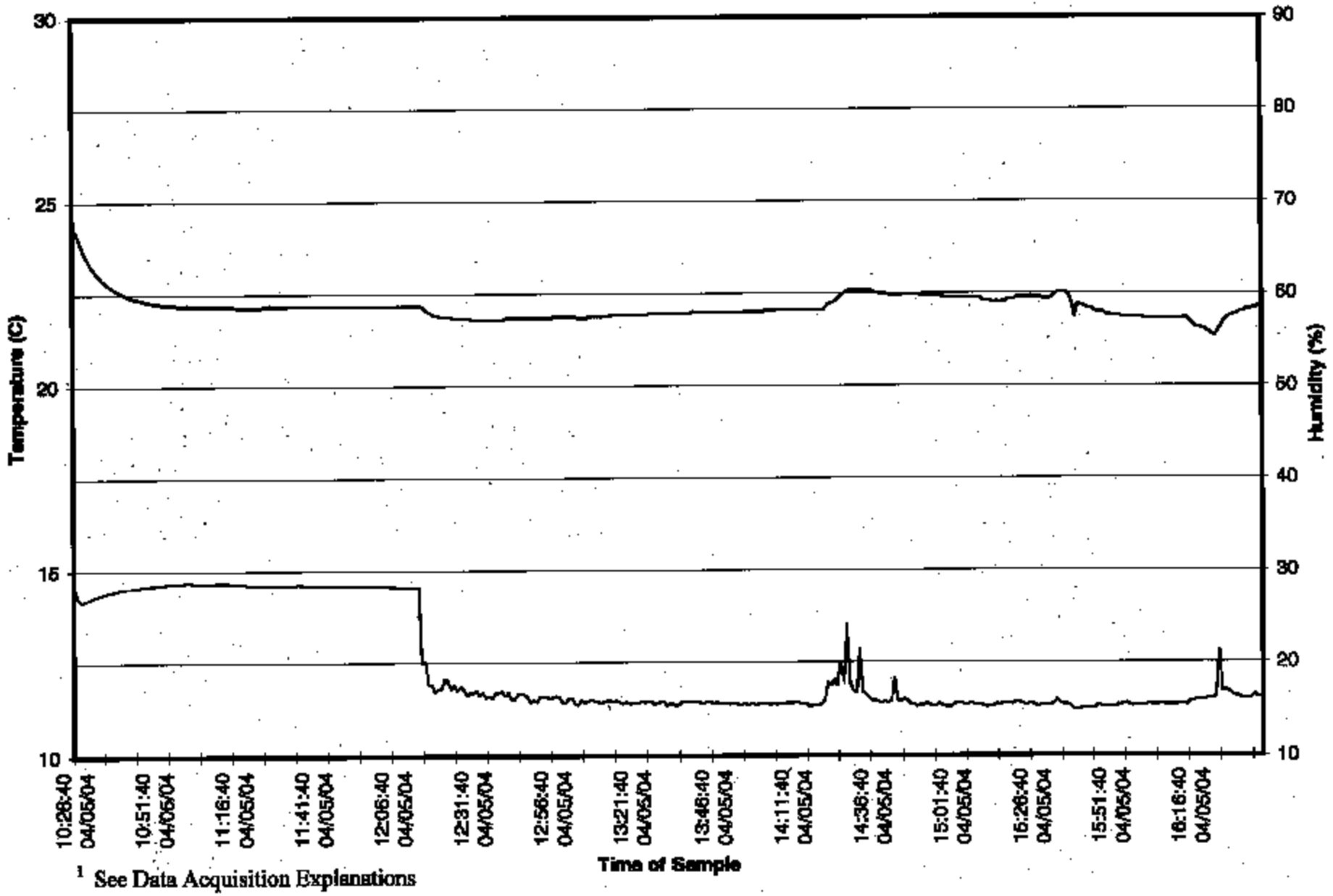
Dummy 229n **Type** HYBRID III 50TH **Descriptio** NHTSA - 229n HYBRID III 50TH. CAL DUE 9-15-04 (DKS 3-15-04)J211

Chanam	Location	Model	Name	Manufacturer	Sens./mV/V/		Fullscal	Caldat	Pos Output	Flip
HEDXG	Head Accel X	7231C	GB86	Endevco	0.01959	g	750	3/15/2004	Rwd	1
HEDYG	Head Accel Y	7231C	GB77	Endevco	0.01915	g	750	3/15/2004	Lft	1
HEDZG	Head Accel Z	7231C	A54F	Endevco	0.01974	g	750	3/15/2004	Up	1
NEKXF	Neck Force X	1716A	1716A-1222-FX	Denton	0.0001953	N	8896.4	3/15/2004	Hd Fd,Cst Rr	1
NEKYF	Neck Force Y	1716A	1716A-1222-FY	Denton	0.0001908	N	8896.4	3/15/2004	Hd Lt,Cst Rt	0
NEKZF	Neck Force Z	1716A	1716A-1222-FZ	Denton	0.0000998	N	13344.6	3/15/2004	Hd Up,Cst Dn	0
NEKXM	Neck Moment X	1716A	1716A-1222-MX	Denton	0.0060842	N-	282.5	3/15/2004	Rt Ear to Rt Shld	1
NEKYM	Neck Moment Y	1716A	1716A-1222-MY	Denton	0.0059308	N-	282.5	3/15/2004	Chn to Strnm	0
NEKZM	Neck Moment Z	1716A	1716A-1222-MZ	Denton	0.0085028	N-	282.5	3/15/2004	Chn to Lt Shld	0
CSTXG	Chest Accel X	7231C	C14135	Endevco	0.02742	g	750	3/16/2004	Fwd	0
CSTYG	Chest Accel Y	7231C	A35D	Endevco	0.01912	g	750	3/15/2004	Lft	1
CSTZG	Chest Accel Z	7231C	AH5G8	Endevco	0.01941	g	750	3/15/2004	Down	0
CSTXD	Chest Deflection X	14CB1-2847	14CB1-2847-229	Servo	1.1389	m	100	3/16/2004	Strnm Away Frm Spn	0
LFMZF	Left Femur Force Z 603	2430	2430-901	GSE	0.0000708	N	13344.7	3/15/2004	Knee Fd,Pel Rr	0
RFMZF	Right Femur Force Z 744	2430	2430-902	GSE	0.0000697	N	13344.7	3/15/2004	Knee Fd,Pel Rr	0

C40115 2004 Buick LeSabre S040405[1]



[1] See Data Acquisition Explanations

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