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Report Number: 208S-TRC-03-006

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

Fuji Heavy Ind. LTD Japan

2003 Subaru Forester

NHTSA Number: C35503

TRC Inc. Test Number: S030530

Transportation Research Center Inc.

10820 State Route 347

East Liberty, OH 43319



Test Date: May 30, 2003

Report Date: June 19, 2003

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

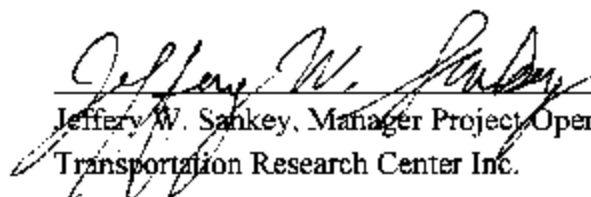
Washington, DC 20590

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Date 6/18/03

Final Report Accepted By:


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Date 8/25/03

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16. Abstract An FMVSS 208 Section 13 compliance sled test was conducted on a 2003 Subaru Forester Station Wagon, NHTSA No.C35503, in accordance with the specifications of the Office of Vehicle Safety Compliance Test Procedure No. TP208S-01 for the determination of FMVSS 208 compliance. Possible test failures identified were as follows: The airbag warning label message area measures 29 cm ² .			
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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. DTNH22-98-D-01055. The purpose of this test was to determine if the subject vehicle, a 2003 Subaru Forester Station Wagon, NHTSA No.C35503, 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 three (3) 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-one (41) 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 May 30, 2003.

The test vehicle, a 2003 Subaru Forester Station Wagon, NHTSA No. C35503, 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	193	164
Chest g	60 g	37.2	35.8
Chest Displacement	3 inches	1.5	0.6
Left Femur	2250 lbs	1010	1274
Right Femur	2250 lbs	1454	1185
Neck Extension	57 Nm	5.1	7.6
Neck Flexion	190 Nm	32.0	37.7
Neck Tension	3300 N	1186	639
Neck Compression	4000 N	104	749
Neck Shear	3100 N	599	948

The subject vehicle, a 2003 Subaru Forester, NHTSA No. C35503, does not appear to meet all other FMVSS 208 requirements for which it was tested. The possible test failure identified was as follows:

- The vehicle's air bag warning message label area measures 29 cm²

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 17.7 g with an integrated velocity change of 29.7 mph. The primary and secondary stages of the air bags were triggered at 20.16 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 and secondary air bag event trigger signals were 20.72 ms after the 0.5 g acceleration level was indicated.

Sled Test Summary

NHTSA number: C35503
Test type: FMVSS 208 Alternate Sled Test
Test date: 05/30/03
Test time: 10:54
Ambient temperature at impact area: 70.5° F
Vehicle year/make/ model/body style: 2003/Subaru/Forester/Station Wagon

<u>Dummy Info:</u>	Driver #229	Front Passenger #230
Type:	Hybrid III	Hybrid III
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	Airbag
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: 2003/Subaru/Forester/Station Wagon
Color: Pacific Blue Pearl
VIN: JF1SG63623G761962
NHTSA number: C35503
Engine data:
Placement: Inline
Cylinders: 4
Displacement: 2.5
Transmission data: 5 speed, X manual, automatic, overdrive
Final drive: fwd, rwd, X 4wd
Date vehicle received: 4/25/2003
Odometer reading: 64
Dealer's name
and address: Byers Imports
401 N. Hamilton Road
Columbus, Ohio 43213

Major Options:

Power steering	Yes	Other: None
Power brakes	Yes	
Power windows	Yes	
Air conditioning	Yes	
Power door locks	Yes	

Remarks:

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

Data from Vehicle's Certification Label:

Vehicle manufactured by: Fuji Heavy Ind. LTD Japan
Date of manufacture: 01/03
VIN: JF1SG63623G761962
GVWR: 4150 lbs
GAWR: Front: 2050 lbs
Rear: 2200 lbs

Data from Vehicle's Tire Placard:

Tire pressure with maximum capacity vehicle load:

Front: 44 psi
Rear: 44 psi

Recommended tire size: P215/60R16

Load range: N/A

Recommended cold tire pressure:

Front: 29 psi
Rear: 36 psi

Size of tires on vehicle: P215/60R16

Spare tire: P215/60R16

Vehicle capacity data:

Type of front seats: Bucket

Number of occupants:

Front 2
Rear 3
Total 5

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	855.4 lbs	Right rear	684.5 lbs
Left front	882.9 lbs	Left rear	719.8 lbs
Total front weight	1738.3 lbs	(55.3% of total vehicle weight)	
Total rear weight	1404.3 lbs	(44.7% of total vehicle weight)	
Total delivered weight	3142.6 lbs		

Calculation of test vehicle's target test weight:

RCLW = Rated Cargo and Luggage Weight

UDW = Unloaded Delivered Weight (3142.6 lbs)

DSC = Designated Seating Capacity (5)

VCW = Vehicle Capacity Weight (900 lbs/410 kg)

RCLW = VCW - (65 kg x DSC) = 154.3 lbs

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

Target test weight = 3142.6 + 154.3 + 334 = 3630.9 lbs

Weight of test vehicle with two dummies and 154.4 lbs of cargo weight:

Right front	936.9 lbs	Right rear	846.6 lbs
Left front	955.7 lbs	Left rear	891.8 lbs
Total front weight	1892.6 lbs	(52.1% of total vehicle weight)	
Total rear weight	1738.4 lbs	(47.9% of total vehicle weight)	
Total test weight	3631.0 lbs		

Remarks:

Weight of ballast secured in vehicle cargo area: 0 lbs

Components removed to meet target test weight: N/A

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

Test Vehicle Attitude:

As delivered door sill angle: 0.2° Nose down

As tested door sill angle: 0.1° Nose up

Fully loaded door sill angle: 0.4° Nose up

Vehicle Wheelbase: 99.4 inches

Fuel System Data:

Fuel system capacity from owner's manual: 15.9 gallons

Useable capacity figure furnished by COTR: 15.9 gallons

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

The left and right side measurements were 34.5 inches and 34.5 inches respectively.

Post-Impact Data

Test number: S030530
NHTSA number: C35503
Test date: 05/30/03
Test time: 10:54
Test type: FMVSS 208 Alternate Sled Test
Impact angle: 0°
Ambient temperature
at impact area: 70.5° F
Temperature in
occupant compartment: 70.5° F

Sled carriage velocity:

Integrated velocity from the integration of the entire sled acceleration: 29.7 mph
Measured velocity from the light trap device attached to the sled (backup): 29.4 mph
Specified integrated velocity range: 28 to 30 mph

Sled carriage acceleration:

Acceleration: 17.7 g
Specified acceleration range: 16.0 g - 18.2 g

Sled carriage acceleration duration:

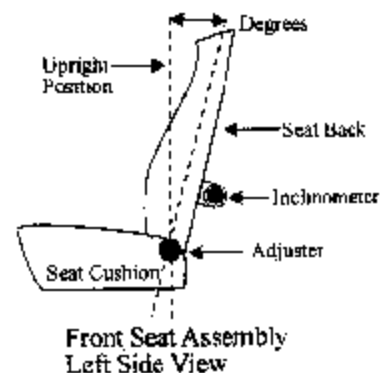
Time from T-0(-0.5 g) to 0.0 g: 125.1 ms
Specified acceleration duration: 120 - 130 ms

The sled acceleration curve was within the specified corridor.

Seat and Steering Column Positioning Data

Vehicle: 2003/Subaru/Forester/Station Wagon

NHTSA No.: C35503



Nominal Design Riding Position:

Driver Seat: 8th locking position from upright

Passenger Seat: 8th locking position from upright

Seat Fore and Aft Positions:

Driver Seat: Mid; 9th of 17 positions

Passenger: Mid; 9th of 17 positions

Steering Column Adjustments:

The steering column was set to the middle of the geometric range of travel.

Dummy Measurement Data for Front Seat Occupants

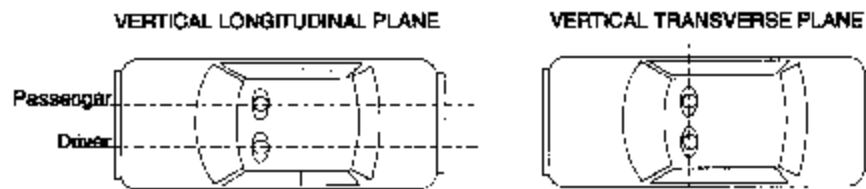
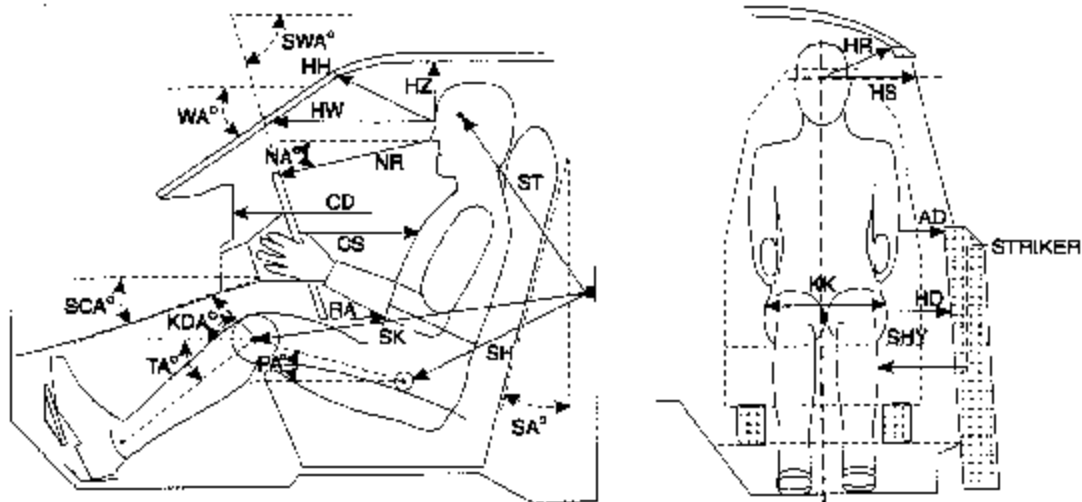
<u>Designation</u>	<u>Type of Measurement</u>	<u>Driver (Serial #229)</u>	<u>Passenger (Serial #230)</u>
WA	Windshield angle	35.5°	N/A
SWA	Steering wheel angle	64.9°	N/A
SCA	Steering column angle	25.1°	N/A
SA	Seat back angle	8th position	8th position
HZ	Head to roof	8.7 in	8.5 in
HH	Head to header	16.9 in	16.7 in
HW	Head to windshield	24.9 in	25.0 in
HR	Head to side header	8.9 in	8.9 in
NR	Nose to rim	17.5 in	N/A
NA	Nose to rim angle	12.8°	N/A
CD	Chest to dash	21.3 in	21.7 in
CS	Steering wheel to chest	14.1 in	N/A
RA	Rim to abdomen	8.5 in	N/A
KDL	Left knee to dash	8.1 in	6.6 in
KDR	Right knee to dash	7.7 in	7.2 in
KDA	Outboard knee to dash angle	28.4°	20.5°
PA	Pelvis angle	21.5°	22.8°
TA	Tibia angle	34.1°	42.3°
KK	Knee to knee	12.0 in	10.6 in
ST ¹	Striker to head	22.6 in	22.2 in
	Striker to head angle	-88.8°	-89.9°
SK ¹	Striker to knee	19.3 in	20.2 in
	Striker to knee angle	2.8°	5.1°
SH ¹	Striker to H-point	6.3 in	6.2 in
	Striker to H-point angle	-36.0°	-37.2°
SHY	Striker to H-point (Y dir.)	9.6 in	9.3 in
HS	Head to side window	12.4 in	11.9 in
HD	H-point to door	5.4 in	5.0 in
AD	Arm to door	3.2 in	4.0 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

Descriptions of Dummy Measurements, Cont'd.

- *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

Descriptions of Dummy Measurements. Cont'd.

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.

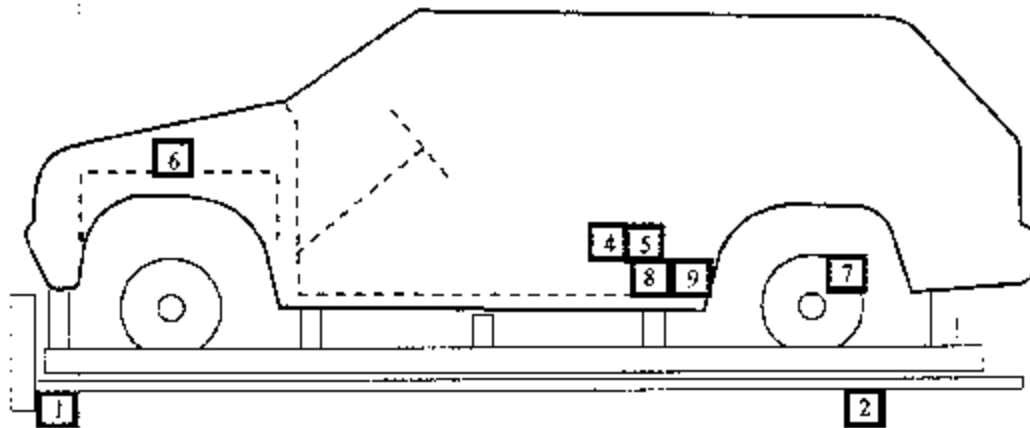
KDA Knee to Dash Angle, the angle that the measurement KD is taken at with respect to the horizontal. Only get this angle for the outboard knee. See diagram.

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

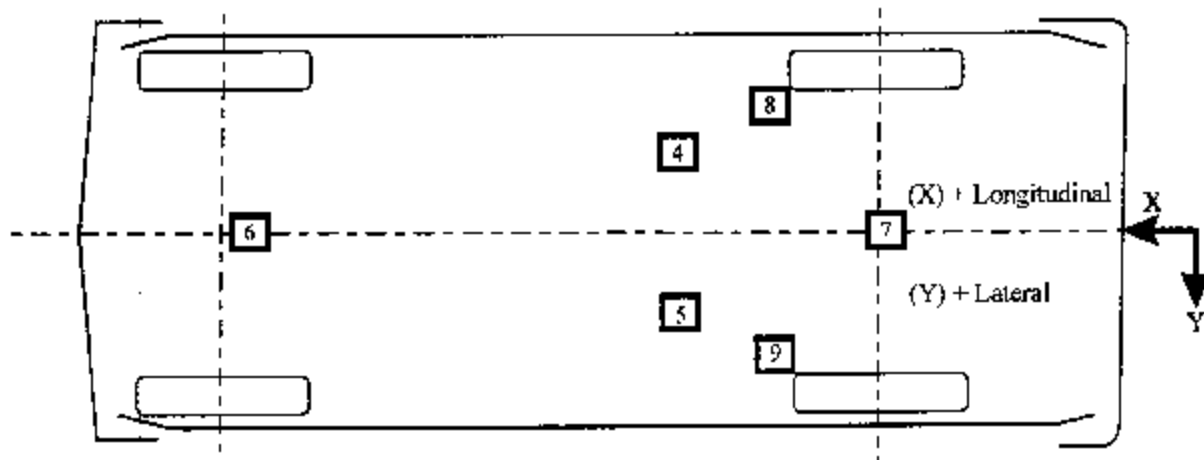
TA Tibia Angle, use a straight edge to connect the dummy's knee and ankle bolts. Then place an inclinometer on the straight edge and measure the angle with respect to the horizontal.

* Measurement used in Data Tape Reference Guide

Vehicle Accelerometer Placement



Side View



Bottom View

Vehicle Data Summary and Accelerometer Locations

TEST NUMBER: S030530			POSITIVE		
NO. LOCATION	X	Y	DIRECTION ¹	NEGATIVE	DIRECTION ¹
1 SLED ACCELERATION PRIMARY	165.6 in	-1.0 in	0.5 g @ 128.2 ms	17.7 g	@ 57.7 ms
2 SLED ACCELERATION BACKUP REDUNDANT	165.6 in	-1.0 in	0.6 g @ 128.2 ms	17.8 g	@ 57.4 ms
3 SLED VELOCITY MEASURED INTEGRATED ²			0.1 mph @ 2.6 ms ---	29.4 mph @ 126.8 ms 29.7 mph @ 124.9 ms	
4 LEFT REAR SEAT CROSSMEMBER LONGITUDINAL	70.4 in	-15.4 in	1.4 g @ 128.8 ms	18.5 g	@ 55.4 ms
5 RIGHT REAR SEAT CROSSMEMBER LONGITUDINAL	70.3 in	15.2 in	1.6 g @ 129.0 ms	18.5 g	@ 55.1 ms
6 TOP ENGINE LONGITUDINAL	142.9 in	5.9 in	2.3 g @ 130.2 ms	17.7 g	@ 51.0 ms
7 REAR AXLE LONGITUDINAL	35.4 in	0.0 in	3.4 g @ 131.9 ms	18.4 g	@ 65.7 ms

Vehicle Data Summary and Accelerometer Locations, Cont'd.

TEST NUMBER: S030530

NO. LOCATION

X Y

POSITIVE
DIRECTION¹

NEGATIVE
DIRECTION¹

8 DRIVER PRIMARY AIRBAG

EVENT

1.0 volt @ 20.7 ms

9 PASSENGER PRIMARY

AIRBAG

EVENT

1.0 volt @ 20.7 ms

10 PASSENGER SECONDARY

AIRBAG

EVENT

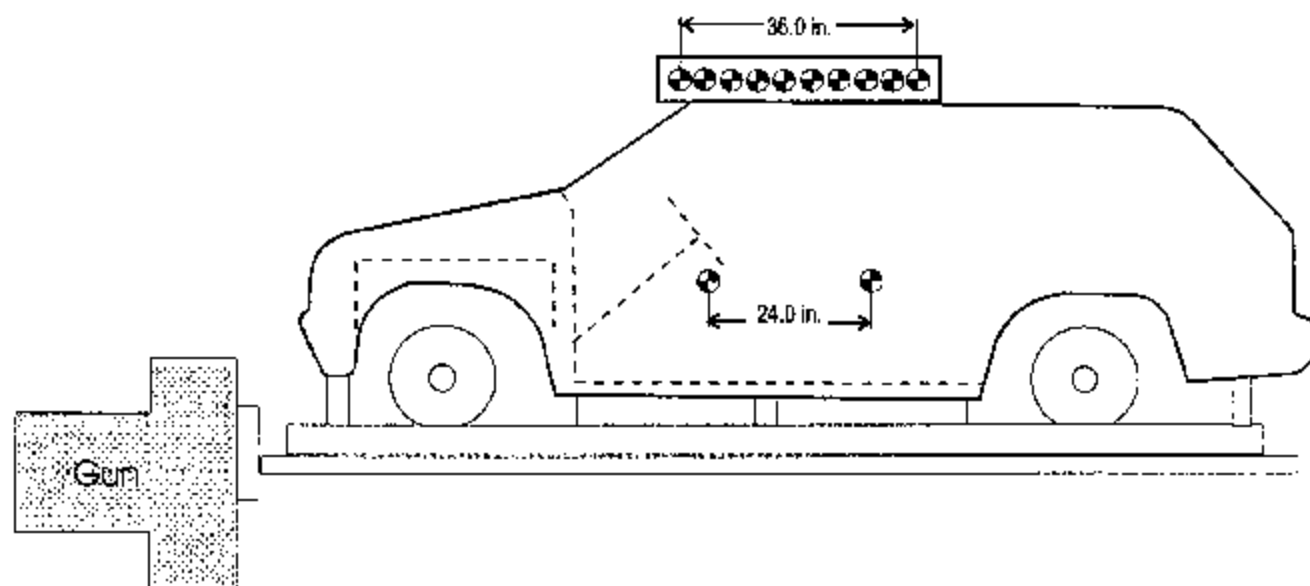
1.0 volt @ 20.7 ms

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

¹ Sign convention per SAEJ211 March 1995.

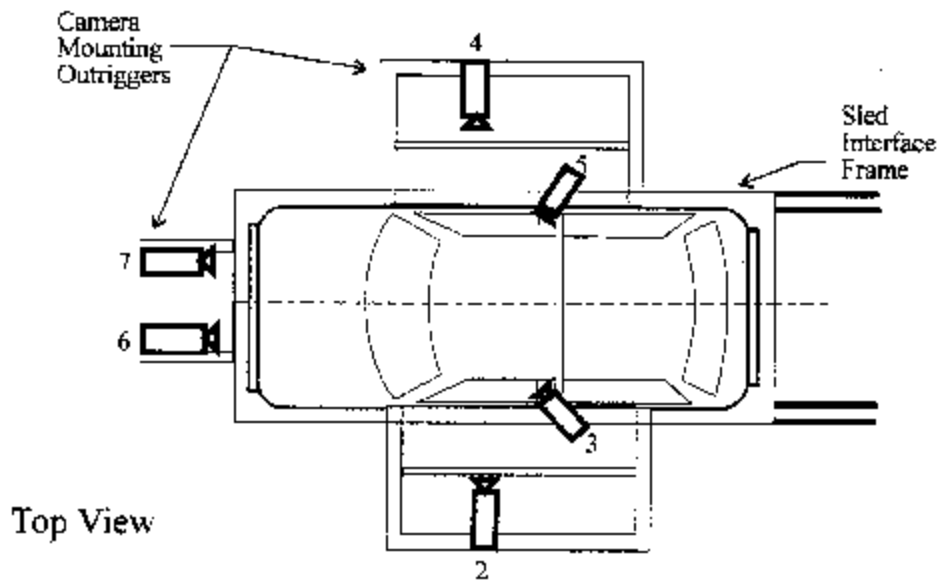
² No positive data in time frame of interest.

REFERENCE PHOTO TARGETS

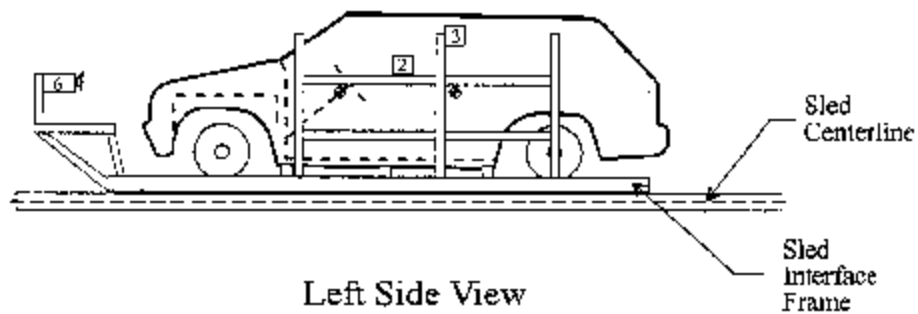


LEFT SIDE VIEW

Camera Positions



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



Motion Picture Camera Locations

Vehicle year/make/model/body style: 2003/Subaru/Forester/Station Wagon NHISA No.: C35503 Test Number: S030530

Camera Number	View	Camera Positions ¹			Camera to Head Target	Camera Lens	Film Speed
		X	Y	Z			
1	Real-time pre-doc./panning	93.0 in	313.7 in	44.7 in	-1.3°	Zoom	24 frames/s
2	Left side view wide	70.1 in	-72.9 in	51.9 in	-0.6°	8 mm	1015 frames/s
3	Left side view over shoulder	97.8 in	-49.7 in	59.0 in	-14.2°	8 mm	1000 frames/s
4	Right side view wide	72.7 in	74.1 in	51.0 in	-2.6°	8 mm	990 frames/s
5	Right side view over shoulder	99.6 in	49.0 in	58.4 in	-12.5°	8 mm	N/A ³ frames/s
6	Front view - driver	26.2 in	-13.8 in	51.3 in	-4°	8 mm	1000 frames/s
7	Front view - passenger	26.3 in	13.3 in	51.3 in	-3.9°	8 mm	997 frames/s
8	Real-time post-doc./panning	93.0 in	313.7 in	44.7 in	-1.3°	Zoom	24 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 Did not run

FMVSS 208 Occupant Injury Data

Vehicle: 2003/Subaru/Forester/Station Wagon NHTSA No.: C35503

Date: 05/30/03

Maximum Acceleration Values: (g)	Driver Dummy #229	Passenger Dummy #230
Head Channel X	-39.9	-32.3
Head Channel Y	-7.4	-15.4
Head Channel Z	19.4	24.5
HEAD RESULTANT	42.2	36.8
Chest Channel X	-36.6	-34.3
Chest Channel Y	6.1	-4.5
Chest Channel Z	11.1	16.3
CHEST RESULTANT	37.6	36.5

Head Injury Criteria (HIC) Values:

HIC	193	164
t_1 = (ms)	95.040	90.000
t_2 = (ms)	131.040	126.000

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

Chest Injury Criteria (Clip) Values:

CLIP (g)	37.2	35.8
t_1 = (ms)	96.938	95.280
t_2 = (ms)	99.898	98.240
Chest Deflection (in)	1.5	0.6

FMVSS 208 Occupant Injury Data. Cont'd.

Vehicle: 2003/Subaru/Forester/Station Wagon NHTSA No.: C35503

Date: 05/30/03

Max. Compressive Femur Forces:	Driver Dummy #229	Passenger Dummy #230
Left Side (lbs)	1010	1274
Right Side (lbs)	1454	1185

Neck Injury Criteria:	Driver Dummy #229	Passenger Dummy #230
Peak Flexion Bending Moment (N-m)	32.0	37.7
Peak Extension Bending Moment (N-m)	5.1	7.6
Peak Axial Tension (N)	1186	639
Peak Axial Compression (N)	104	749
Peak Positive X-axis Shear (N)	599	948
Peak Negative X-axis Shear (N)	265	387

FMVSS 208 Seat Belt Warning System Check

Vehicle Model Year/Make/Model/Body Style: 2003/Subaru/Forester/Station Wagon

NHTSA No.: C35503

Technician: Steve Bell

Date: 05/05/2003

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

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

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

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

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

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

Time duration of audible warning signal = 6 seconds
(4 to 8 seconds) (see 49 USCS @ 30124)

Time duration of reminder light operation = 6 seconds
(4 to 8 seconds)

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

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

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

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

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

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

Time duration of reminder light operation = 6 seconds
(4 to 8 seconds)

- C. Note wording of visual warning:

Fasten Seat Belt

Fasten Belt

Symbol 101



FMVSS 208 Readiness Indicator

Vehicle Model Year/Make/Model/Body Style: 2003/Subaru/Forester/Station Wagon

NHTSA No.: C35503

Technician: Steve Bell

Date: 05/05/2003

An occupant restraint system that deploys in the event of a crash shall have a monitoring system with a readiness indicator. A totally mechanical system is exempt from this requirement (11/8/94 legal interpretation).

Is the system totally mechanical?

☐ Yes;

☒ No

Describe the location of the readiness indicator: Left side of instrument panel

Is the readiness indicator clearly visible to the driver? ☒ Yes;

☐ No

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

☒ Yes;

☐ No

FMVSS 208 Air Bag Labels

Vehicle Model Year/Make/Model/Body Style: 2003/Subaru/Forester/Station Wagon

NIITSA No.: C35503

Technician: Steve Bell

Date: 05/05/2003

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

1.1 Does the manufacturer recommend periodic maintenance or replacement of the air bag? ☐ Yes (Go to 1.2)

☒ No (Go to 2)

1.2 Does the Vehicle have a maintenance or replacement label?

☐ Yes-Pass

☐ No-Fail

1.3 Does the label contain one of the following?

☐ Yes-Pass

☐ No-Fail

☐ Schedule on label specifies month and year

☐ Schedule on label specifies vehicle mileage

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

1.4 Is the label permanently affixed within the passenger compartment?

☐ Yes-Pass

☐ No-Fail

1.5 Is the label lettered in English?

☐ Yes-Pass

☐ No-Fail

1.6 Is the label in block capitals and numerals?

☐ Yes-Pass

☐ No-Fail

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

☐ Yes-Pass

☐ No-Fail

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

☐ Yes-Pass

☐ No-Fail

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

2.1 Include a description of the vehicle's air bag system in an easily understandable format? ☒ Yes ☐ No-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? ☒ Yes ☐ No-Fail

FMVSS 208 Air Bag Labels, Cont'd.

- 2.3 Include a statement that the air bag is a supplemental restraint at the front outboard seating positions? ☒ Yes ☐ No-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? ☒ Yes ☐ No-Fail
- 2.5 Provide any necessary precautions regarding the proper positioning of occupants, including children, at seating positions equipped with air bags to insure maximum safety protection for those occupants? ☒ Yes ☐ No-Fail
- 2.6 Explain that no objects should be place over or near the air bag on the steering wheel or on the instrument panel, because any such objects could cause harm if the vehicle is in a crash severe enough to cause the air bag to inflate? ☒ Yes ☐ No-Fail

3. Does the Vehicle:

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

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

FMVSS 208 Air Bag Labels, Cont'd.

4. Sun Visor Warning Label

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

Driver side ☒ Yes-Pass ☐ No-Fail

Passenger side ☒ Yes-Pass ☐ No-Fail

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

4.2.1 Dual air bags

Driver side ☒ Yes-Pass ☐ No-Fail

Passenger side ☒ Yes-Pass ☐ No-Fail

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

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

☐ N/A

Driver side ☐ Yes-Pass ☐ No-Fail

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

DEATH or SERIOUS INJURY can occur.

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

☐ N/A

Driver side ☐ Yes-Pass ☐ No-Fail

FMVSS 208 Air Bag Labels, Cont'd.

SUN VISOR LABEL VISIBLE WHEN VISOR IS IN DOWN POSITION

LABEL OUTLINE, VERTICAL AND HORIZONTAL LINE BLACK

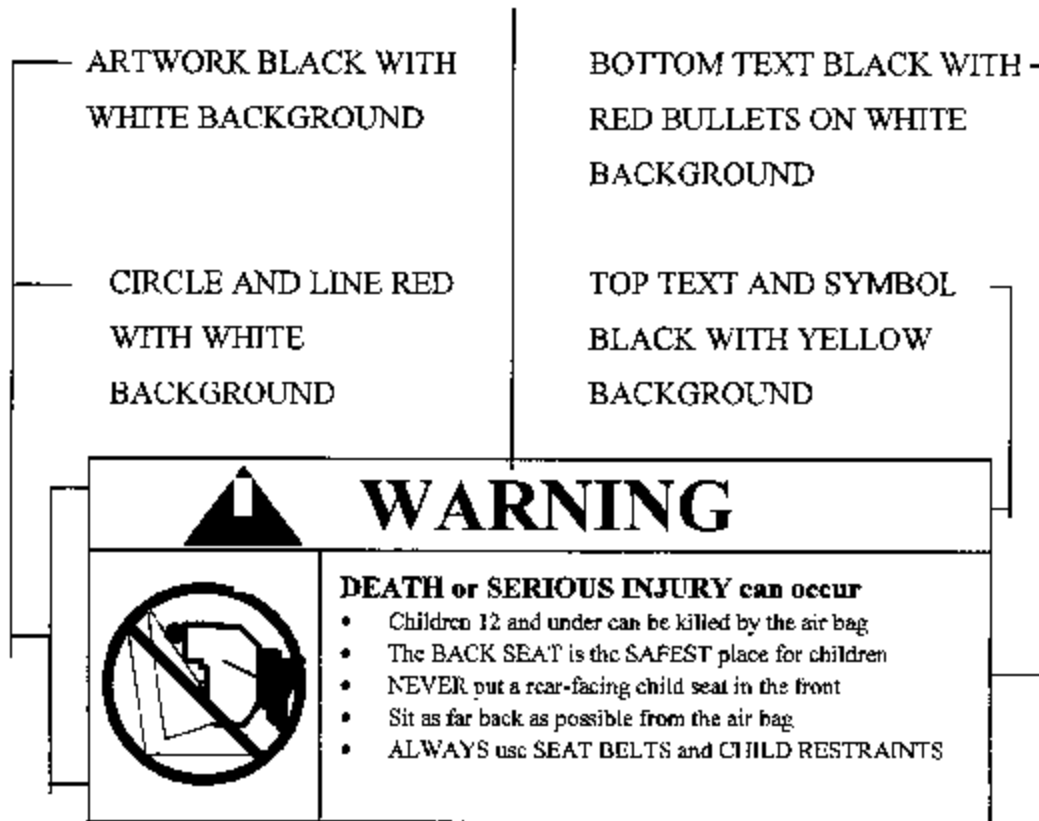


Figure 6a
(S4.5.1(b)(2))

FMVSS 208 Air Bag Labels, Cont'd.

SUN VISOR LABEL VISIBLE WHEN VISOR IS IN DOWN POSITION

LABEL OUTLINE, VERTICAL AND HORIZONTAL LINE BLACK

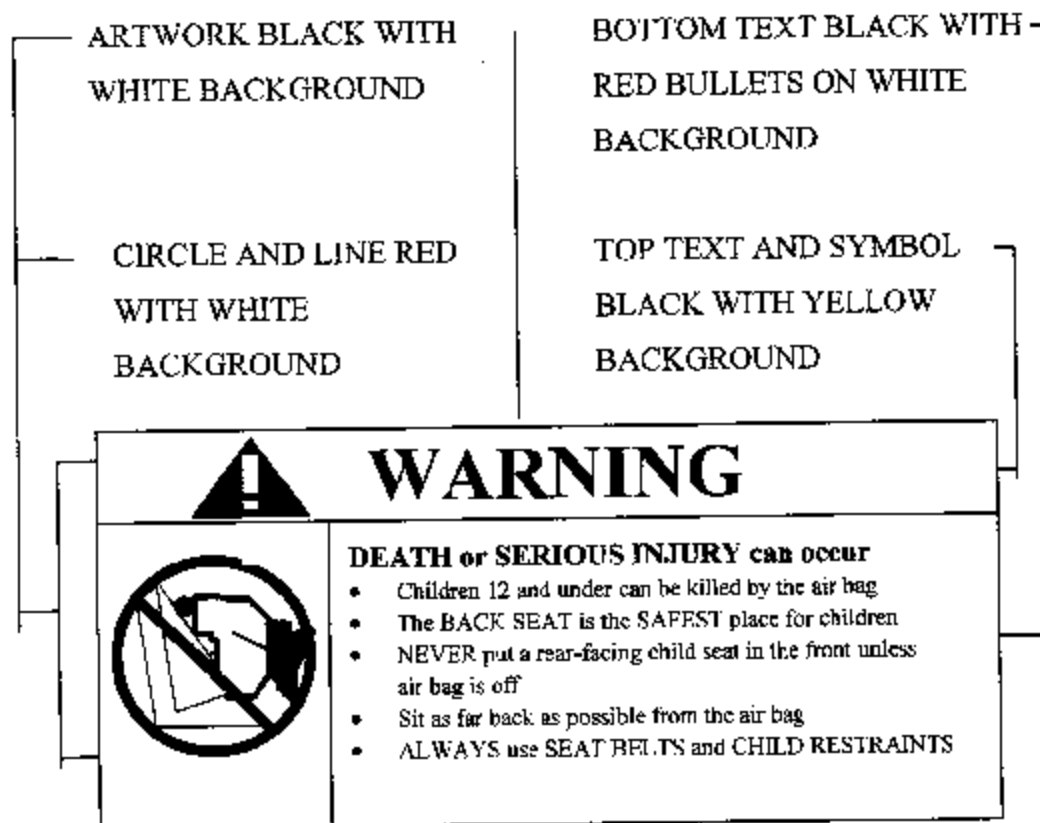


Figure 6b
(S4.5.1(b)(2))

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

Driver side	☒ Yes-Pass	☐ No-Fail
Passenger side	☒ Yes-Pass	☐ No-Fail

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

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

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

Actual message area, driver side 29 cm²

Actual message area, passenger side 29 cm²

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

FMVSS 208 Air Bag Labels, Cont'd.

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

For vehicles with driver side air bag ONLY

☐ N/A

Driver side

☒ Yes-Pass

☐ No-Fail

Passenger side

☐ No air bag

☒ Yes-Pass

☐ No-Fail

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

Actual diameter, driver side 30 mm

Actual diameter, passenger side 30 mm

For vehicles with driver side air bag ONLY

☐ N/A

Driver side

☒ Yes-Pass

☐ No-Fail

Passenger side

☐ No air bag

☒ Yes-Pass

☐ No-Fail

- 4.8 Is the same side of the sun visor to which the sun visor label is affixed free of other information with the exception of an air bag maintenance label? (S4.5.1(b)(3)) and/or a rollover warning label specified in 49CFR Part 575 (S575.105)?

Driver side

☒ Yes-Pass

☐ No-Fail

Passenger side

☐ No air bag

☒ Yes-Pass

☐ No-Fail

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

Driver side

☒ Yes-Pass

☐ No-Fail

Passenger side

☐ No air bag

☒ Yes-Pass

☐ No-Fail

5. Air Bag Alert Label

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

Driver

☒ Yes

☐ No

Passenger

☒ Yes

☐ No

If yes, go to 6

- 5.2 Does the label conform in content to the label shown in Figure 6c?

(S4.5.1(c)(2))

☐ Yes-Pass

☐ No-Fail

SUN VISOR LABEL VISIBLE WHEN VISOR IS IN UP POSITION

Circle and Line Red
with White
Background

Artwork Black with
White Background

Text Yellow with
Black Background

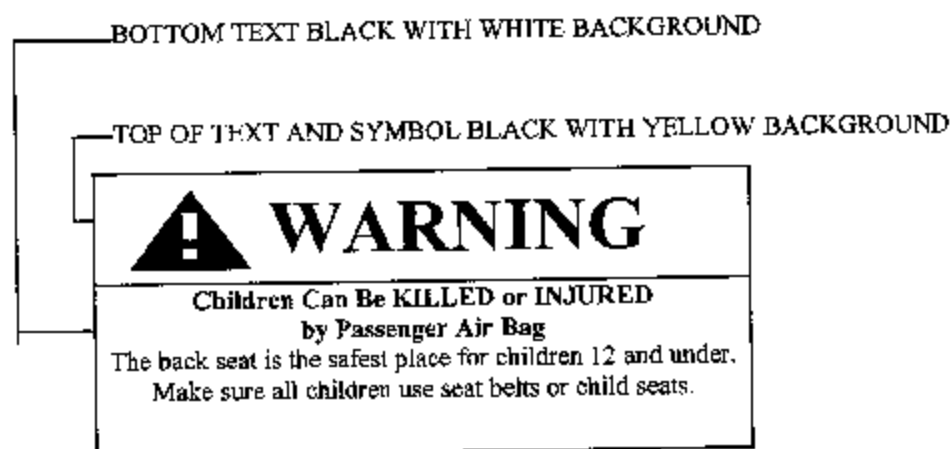
Figure 6c
(S4.5.1(c)(2))



FMVSS 208 Air Bag Labels, Cont'd.

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

Figure 7
(S4.5.1(e))



FMVSS 208 Air Bag Labels, Cont'd.

- 6.4 Is the heading area yellow with the word "warning" and the alert symbol in black?
(S4.5.1(e)(i)) ☒ Yes-Pass ☐ No-Fail
- 6.5 Is the message white with black text? (S4.5.1(e)(ii))
☒ Yes-Pass ☐ No-Fail
- 6.6 Is the message area at least 30 cm²? (S4.5.1(e)(ii))
Actual message area 31.36 cm² ☒ Yes-Pass ☐ No-Fail

FMVSS 208 Rear Outboard Seating Position Seat Belts

Vehicle Model Year/Make/Model/Body Style: 2003/Subaru/Forester/Station Wagon

NHTSA No.: C35503

Technician: Ronald D. Stoner

Date: 05/30/03

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

☒ Yes;

☐ No;

☐ N/A (No Back Seat)

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

FMVSS 208 Lap Belt Lockability

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

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

Vehicle Model Year/Make/Model/Body Style: 2003/Subaru/Forester/Station Wagon

NHTSA No.: C35503

Technician: Steve Bell

Date: 05/05/2003

Designated Seating Position: Right Front

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

If yes, go to 6.1. If no, go to 7.

☒ Yes

☐ No

6.1 Does the vehicle owner's manual include a description in words and/or diagrams describing how to activate the locking feature so that the seat belt assembly can tightly secure a child restraint system and how to deactivate the locking feature to remove the child restraint system. (S7.1.1.5(h)) ☒ Yes-Pass ☐ No-Fail

FMVSS 208 Lap Belt Lockability, Cont'd.

Vehicle Model Year/Make/Model/Body Style: 2003/Subaru/Forester/Station Wagon

NHTSA No.: C35503

Technician: Steve Bell

Date: 05/05/2003

Designated Seating Position: Right Front

- ☒7. Locate a reference point A on the seat belt buckle. (S7.1.1.5(c)(2))
- ☒8. Locate a reference point B on the attachment hardware or retractor assembly at the other end of the lap belt or lap belt portion of the seat belt assembly. (S7.1.1.5(c)(2))
- ☒9. Adjust the lap belt or lap belt portion of the seat belt assembly according to any procedures recommended in the vehicle owner's manual to activate any locking feature so that the webbing between points A and B is at the maximum length allowed by the belt system. (S7.1.1.5(c)(2))
- ☒10. Measure and record the distance between points A and B along the longitudinal centerline of the webbing for the lap belt or lap belt portion of the seat belt assembly. (S7.1.1.5(c)(2)) Measured distance between A and B 48.8 inches.
- ☒11. Readjust the belt system so that the webbing between points A and B is at any length that is 5 inches or more shorter than the maximum length of the webbing. (S7.1.1.5(c)(3))
- ☒12. To the lap belt or lap belt portion of the seat belt assembly, apply a preload of 10 pounds using the webbing tension pull device in figure 5. Apply the load in a vertical plane parallel to the longitudinal axis of the vehicle and passing through the seating reference point of the designated seating position. Apply the preload in a horizontal direction toward the front of the vehicle with a force application angle of not less than 5 degrees nor more than 15 degrees above the horizontal. (S7.1.1.5(c)(4)) Measured force application angle 10 degrees. (Spec. 5~15 degrees)
- ☒13. Measure the length between points A and B along the longitudinal centerline of the webbing while the preload is being applied. (S7.1.1.5(c)(4)) Measured distance between A and B 14.6 inches.

FMVSS 208 Lap Belt Lockability, Cont'd.

Vehicle Model Year/Make/Model/Body Style: 2003/Subaru/Forester/Station Wagon

NHTSA No.: C35503

Technician: Steve Bell

Date: 05/05/2003

Designated Seating Position: Right Front

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

Record onset rate 25 lbs/sec (spec. 10 ~50 lb/sec)

The measured distance between A and B is 14.8 inches (S7.1.1.5(c)(6))

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

14-13= 0.2 inches

☒ Yes-Pass

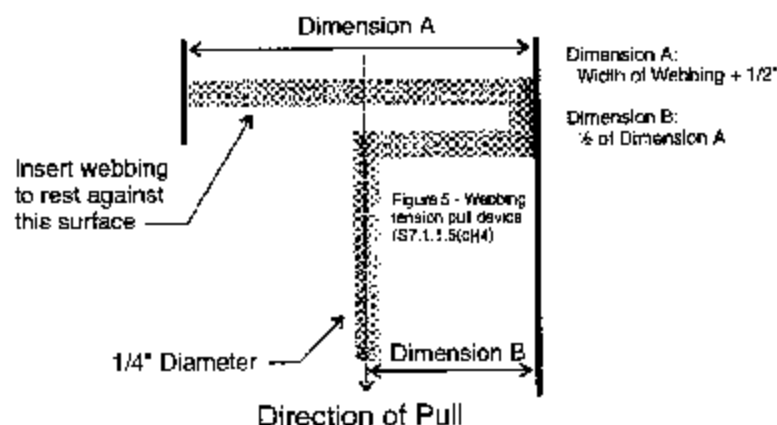
☐ No-Fail

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

10-14= 34.0 inches.

☒ Yes-Pass

☐ No-Fail



FMVSS 208 Lap Belt Lockability

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

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

Vehicle Model Year/Make/Model/Body Style: 2003/Subaru/Forester/Station Wagon

NHTSA No.: C35503

Technician: Steve Bell

Date: 05/05/2003

Designated Seating Position: Left Rear

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

FMVSS 208 Lap Belt Lockability, Cont'd.

Vehicle Model Year/Make/Model/Body Style: 2003/Subaru/Forester/Station Wagon

NHTSA No.: C35503

Technician: Steve Bell

Date: 05/05/2003

Designated Seating Position: Left Rear

- ☒ 7. Locate a reference point A on the seat belt buckle. (S7.1.1.5(c)(2))
- ☒ 8. Locate a reference point B on the attachment hardware or retractor assembly at the other end of the lap belt or lap belt portion of the seat belt assembly. (S7.1.1.5(c)(2))
- ☒ 9. Adjust the lap belt or lap belt portion of the seat belt assembly according to any procedures recommended in the vehicle owner's manual to activate any locking feature so that the webbing between points A and B is at the maximum length allowed by the belt system. (S7.1.1.5(c)(2))
- ☒ 10. Measure and record the distance between points A and B along the longitudinal centerline of the webbing for the lap belt or lap belt portion of the seat belt assembly. (S7.1.1.5(c)(2)) Measured distance between A and B **49.6** inches.
- ☒ 11. Readjust the belt system so that the webbing between points A and B is at any length that is 5 inches or more shorter than the maximum length of the webbing. (S7.1.1.5(c)(3))
- ☒ 12. To the lap belt or lap belt portion of the seat belt assembly, apply a preload of 10 pounds using the webbing tension pull device in figure 5. Apply the load in a vertical plane parallel to the longitudinal axis of the vehicle and passing through the seating reference point of the designated seating position. Apply the preload in a horizontal direction toward the front of the vehicle with a force application angle of not less than 5 degrees nor more than 15 degrees above the horizontal. (S7.1.1.5(c)(4)) Measured force application angle **10** degrees. (Spec. 5~15 degrees)
- ☒ 13. Measure the length between points A and B along the longitudinal centerline of the webbing while the preload is being applied. (S7.1.1.5(c)(4)) Measured distance between A and B **19.3** inches.

FMVSS 208 Lap Belt Lockability, Cont'd.

Vehicle Model Year/Make/Model/Body Style: 2003/Subaru/Forester/Station Wagon

NHTSA No.: C35503

Technician: Steve Bell

Date: 05/05/2003

Designated Seating Position: Left Rear

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

Record onset rate 25 lbs/sec (spec. 10 ~50 lb/sec)

The measured distance between A and B is 19.5 inches (S7.1.1.5(c)(6))

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

14-13= 0.2 inches

☒ Yes-Pass

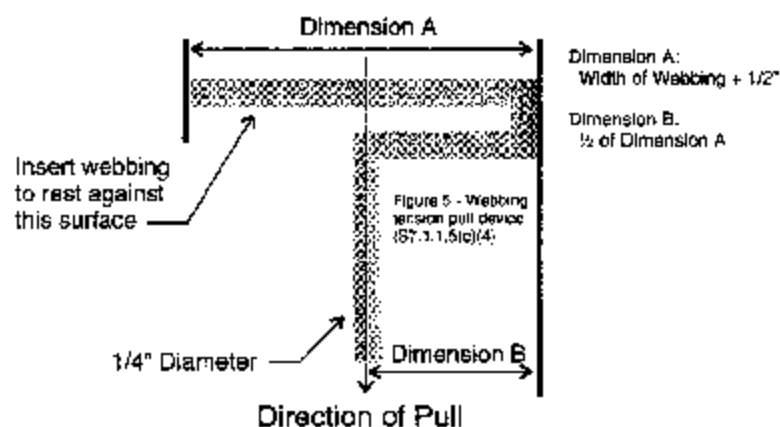
☐ No-Fail

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

10-14= 30.1 inches.

☒ Yes-Pass

☐ No-Fail



FMVSS 208 Lap Belt Lockability

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

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

Vehicle Model Year/Make/Model/Body Style: 2003/Subaru/Forester/Station Wagon

NHTSA No.: C35503

Technician: Steve Bell

Date: 05/05/2003

Designated Seating Position: Center Rear

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

If yes, go to 6.1. If no, go to 7.

☒ Yes

☐ No

6.1 Does the vehicle owner's manual include a description in words and/or diagrams describing how to activate the locking feature so that the seat belt assembly can tightly secure a child restraint system and how to deactivate the locking feature to remove the child restraint system. (S7.1.1.5(b)) ☒ Yes-Pass ☐ No-Fail

FMVSS 208 Lap Belt Lockability, Cont'd.

Vehicle Model Year/Make/Model/Body Style: 2003/Subaru/Forester/Station Wagon

NHTSA No.: C35503

Technician: Steve Bell

Date: 05/05/2003

Designated Seating Position: Center Rear

- ☒7. Locate a reference point A on the seat belt buckle. (S7.1.1.5(c)(2))
- ☒8. Locate a reference point B on the attachment hardware or retractor assembly at the other end of the lap belt or lap belt portion of the seat belt assembly. (S7.1.1.5(c)(2))
- ☒9. Adjust the lap belt or lap belt portion of the seat belt assembly according to any procedures recommended in the vehicle owner's manual to activate any locking feature so that the webbing between points A and B is at the maximum length allowed by the belt system. (S7.1.1.5(c)(2))
- ☒10. Measure and record the distance between points A and B along the longitudinal centerline of the webbing for the lap belt or lap belt portion of the seat belt assembly. (S7.1.1.5(c)(2)) Measured distance between A and B 58.9 inches.
- ☒11. Readjust the belt system so that the webbing between points A and B is at any length that is 5 inches or more shorter than the maximum length of the webbing. (S7.1.1.5(c)(3))
- ☒12. To the lap belt or lap belt portion of the seat belt assembly, apply a preload of 10 pounds using the webbing tension pull device in figure 5. Apply the load in a vertical plane parallel to the longitudinal axis of the vehicle and passing through the seating reference point of the designated seating position. Apply the preload in a horizontal direction toward the front of the vehicle with a force application angle of not less than 5 degrees nor more than 15 degrees above the horizontal. (S7.1.1.5(c)(4)) Measured force application angle 10 degrees. (Spec. 5~15 degrees)
- ☒13. Measure the length between points A and B along the longitudinal centerline of the webbing while the preload is being applied. (S7.1.1.5(c)(4)) Measured distance between A and B 28.7 inches.

FMVSS 208 Lap Belt Lockability, Cont'd.

Vehicle Model Year/Make/Model/Body Style: 2003/Subaru/Forester/Station Wagon

NHTSA No.: C35503

Technician: Steve Bell

Date: 05/05/2003

Designated Seating Position: Center Rear

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

Record onset rate 25 lbs/sec (spec. 10 ~50 lb/sec)

The measured distance between A and B is 29.1 inches (S7.1.1.5(c)(6))

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

14-13= 0.4 inches

☒ Yes-Pass

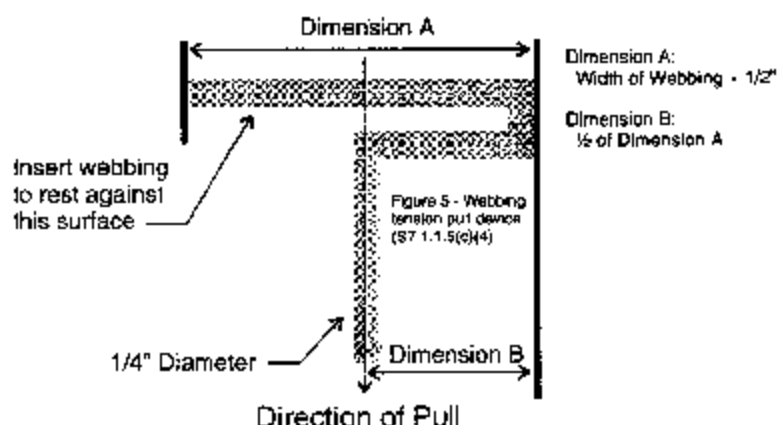
☐ No-Fail

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

10-14= 29.8 inches.

☒ Yes-Pass

☐ No-Fail



FMVSS 208 Lap Belt Lockability

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

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

Vehicle Model Year/Make/Model/Body Style: 2003/Subaru/Forester/Station Wagon

NHTSA No.: C35503

Technician: Steve Bell

Date: 05/05/2003

Designated Seating Position: Right Rear

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

If yes, go to 6.1. If no, go to 7.

☒ Yes

☐ No

- 6.1 Does the vehicle owner's manual include a description in words and/or diagrams describing how to activate the locking feature so that the seat belt assembly can tightly secure a child restraint system and how to deactivate the locking feature to remove the child restraint system. (S7.1.1.5(b)) ☒ Yes-Pass ☐ No-Fail

FMVSS 208 Lap Belt Lockability, Cont'd.

Vehicle Model Year/Make/Model/Body Style: 2003/Subaru/Forester/Station Wagon

NHTSA No.: C35503

Technician: Steve Bell

Date: 05/05/2003

Designated Seating Position: Right Rear

- ☒7. Locate a reference point A on the seat belt buckle. (S7.1.1.5(c)(2))
- ☒8. Locate a reference point B on the attachment hardware or retractor assembly at the other end of the lap belt or lap belt portion of the seat belt assembly. (S7.1.1.5(c)(2))
- ☒9. Adjust the lap belt or lap belt portion of the seat belt assembly according to any procedures recommended in the vehicle owner's manual to activate any locking feature so that the webbing between points A and B is at the maximum length allowed by the belt system. (S7.1.1.5(c)(2))
- ☒10. Measure and record the distance between points A and B along the longitudinal centerline of the webbing for the lap belt or lap belt portion of the seat belt assembly. (S7.1.1.5(c)(2)) Measured distance between A and B 49.7 inches.
- ☒11. Readjust the belt system so that the webbing between points A and B is at any length that is 5 inches or more shorter than the maximum length of the webbing. (S7.1.1.5(c)(3))
- ☒12. To the lap belt or lap belt portion of the seat belt assembly, apply a preload of 10 pounds using the webbing tension pull device in figure 5. Apply the load in a vertical plane parallel to the longitudinal axis of the vehicle and passing through the seating reference point of the designated seating position. Apply the preload in a horizontal direction toward the front of the vehicle with a force application angle of not less than 5 degrees nor more than 15 degrees above the horizontal. (S7.1.1.5(c)(4)) Measured force application angle 10 degrees. (Spec. 5-15 degrees)
- ☒13. Measure the length between points A and B along the longitudinal centerline of the webbing while the preload is being applied. (S7.1.1.5(c)(4)) Measured distance between A and B 19.4 inches.

FMVSS 208 Lap Belt Lockability, Cont'd.

Vehicle Model Year/Make/Model/Body Style: 2003/Subaru/Forester/Station Wagon

NHTSA No.: C35503

Technician: Steve Bell

Date: 05/05/2003

Designated Seating Position: Right Rear

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

Record onset rate 25 lbs/sec (spec. 10 ~50 lb/sec)

The measured distance between A and B is 19.6 inches (S7.1.1.5(c)(6))

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

14-13= 0.2 inches

☒ Yes-Pass

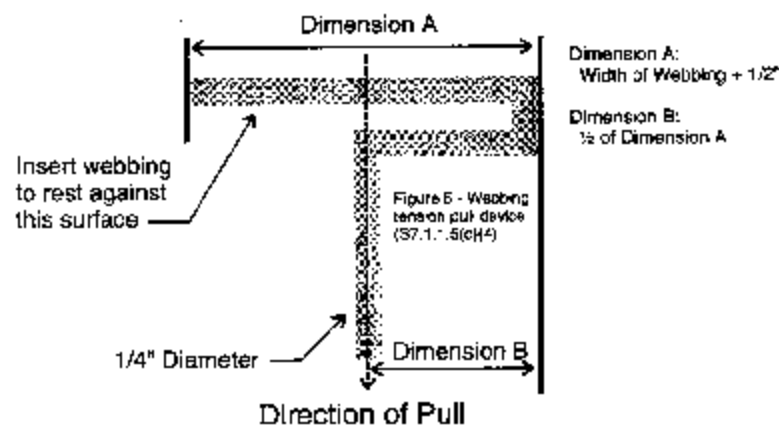
☐ No-Fail

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

10-14= 30.1 inches.

☒ Yes-Pass

☐ No-Fail



FMVSS 208 Seat Belt Comfort And Convenience Test

Belt Contact Force (S7.4.3)

Test Vehicle NHTSA No.: C35503

Vehicle Model Year/Make/Model/Body Style: 2003/Subaru/Forester/Station Wagon

Designated Seating Position Tested: Left Rear

Date of Comfort and Convenience Check: 05/05/2003

Technician Performing Check: Steve Bell

GVWR: 4150 pounds

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

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

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

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

☐ Check
☒ N/A

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

☐ Check
☒ N/A

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

☐ Check
☒ N/A

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

☒ Check
☐ N/A

FMVSS 208 Seat Belt Comfort And Convenience Test Summary, Cont'd.

Belt Contact Force (S7.4.3)

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

☒ Check
☐ N/A

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

☐ Check
☒ N/A

8. Position the test dummy according to the dummy position placement instructions in Appendix B of the Laboratory Test Procedure.

☒ Check

9. Fasten the seat belt latch. Pull either 12 inches of belt webbing or the maximum available amount of belt webbing, whichever is less, from the retractor and then release it, allowing the belt webbing to return to the dummy's chest. Locate the point where the centerline of the upper torso belt webbing crosses the midsagittal line on the dummy's chest. At that point pull the belt webbing out 3 inches from the dummy's chest and release until it is within one inch from the dummy's chest. (S10.8) Measure the contact force exerted by the belt webbing on the dummy's chest. Contact the COTR if the contact force exceeds 0.7 pounds. Contact force is 0.542 pounds.

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

* If the seat belts are voluntarily installed by the manufacturer they do not have to comply.

FMVSS 208 Seat Belt Comfort And Convenience Test

Belt Contact Force (S7.4.3)

Test Vehicle NHTSA No.: C35503

Vehicle Model Year/Make/Model/Body Style: 2003/Subaru/Forester/Station Wagon

Designated Seating Position Tested: Center Rear

Date of Comfort and Convenience Check: 05/05/2003

Technician Performing Check: Steve Bell

GVWR: 4150 pounds

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

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

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

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

☐ Check
☒ N/A

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

☐ Check
☒ N/A

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

☐ Check
☒ N/A

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

☐ Check
☒ N/A

FMVSS 208 Seat Belt Comfort And Convenience Test Summary, Cont'd.

Belt Contact Force (S7.4.3)

6. Place each adjustable head restraint in its highest adjustment position.
- ☒ Check
☐ N/A
7. Adjustable lumbar supports are positioned so that the lumbar support is in its lowest adjustment position. (S8.1.3)
- ☐ Check
☒ N/A
8. Position the test dummy according to the dummy position placement instructions in Appendix B of the Laboratory Test Procedure.
- ☒ Check
9. Fasten the seat belt latch. Pull either 12 inches of belt webbing or the maximum available amount of belt webbing, whichever is less, from the retractor and then release it, allowing the belt webbing to return to the dummy's chest. Locate the point where the centerline of the upper torso belt webbing crosses the midsagittal line on the dummy's chest. At that point pull the belt webbing out 3 inches from the dummy's chest and release until it is within one inch from the dummy's chest. (S10.8) Measure the contact force exerted by the belt webbing on the dummy's chest. Contact the COTR if the contact force exceeds 0.7 pounds. Contact force is 0.539 pounds.
- ☒ 0.0 to 0.7 pounds - Pass
☐ greater than 0.7 pounds - FAIL*

* If the seat belts are voluntarily installed by the manufacturer they do not have to comply.

FMVSS 208 Seat Belt Comfort And Convenience Test

Belt Contact Force (S7.4.3)

Test Vehicle NHTSA No.: C35503

Vehicle Model Year/Make/Model/Body Style: 2003/Subaru/Forester/Station Wagon

Designated Seating Position Tested: Right Rear

Date of Comfort and Convenience Check: 05/05/2003

Technician Performing Check: Steve Bell

GVWR: 4150 pounds

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

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

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

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

☐ Check
☒ N/A

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

☐ Check
☒ N/A

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

☐ Check
☒ N/A

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

☒ Check
☐ N/A

FMVSS 208 Seat Belt Comfort And Convenience Test Summary, Cont'd.

Belt Contact Force (S7.4.3)

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

☒ Check
☐ N/A

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

☐ Check
☒ N/A

8. Position the test dummy according to the dummy position placement instructions in Appendix B of the Laboratory Test Procedure.

☒ Check

9. Fasten the seat belt latch. Pull either 12 inches of belt webbing or the maximum available amount of belt webbing, whichever is less, from the retractor and then release it, allowing the belt webbing to return to the dummy's chest. Locate the point where the centerline of the upper torso belt webbing crosses the midsagittal line on the dummy's chest. At that point pull the belt webbing out 3 inches from the dummy's chest and release until it is within one inch from the dummy's chest. (S10.8) Measure the contact force exerted by the belt webbing on the dummy's chest. Contact the COTR if the contact force exceeds 0.7 pounds. Contact force is 0.543 pounds.

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

* If the seat belts are voluntarily installed by the manufacturer they do not have to comply.

FMVSS 208 Seat Belt Comfort And Convenience Test Summary, Cont'd.

Latchplate Access (S7.4.4)

Test Vehicle NHTSA No.: C35503

Vehicle Model Year/Make/Model/Body Style: 2003/Subaru/Forester/Station Wagon

Designated Seating Position Tested: N/A, vehicle is a passenger car

Date of Comfort and Convenience Check: 05/05/2003

Technician Performing Check: Steve Bell

GVWR: 4150 pounds

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

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

FMVSS 208 Seat Belt Comfort And Convenience Test Summary, Cont'd.

Retraction (S7.4.5)

Test Vehicle NHTSA No.: C35503

Vehicle Model Year/Make/Model/Body Style: 2003/Subaru/Forester/Station Wagon

Designated Seating Position Tested: N/A, vehicle is a passenger car

Date of Comfort and Convenience Check: 05/05/2003

Technician Performing Check: Steve Bell

GVWR: 4150 pounds

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

1. Is the vehicle a passenger car or walk-in van-type vehicle? ☐ Yes
☐ No

If yes, go to seat belt guides and hardware.

2. Adjustable seats are in the adjustment position midway between the forward most and rearmost positions. If an adjustment position does not exist midway between the forward most and rearmost positions, the next closest adjustment position to the rear of the midpoint is used. (S8.1.2) ☐ Check
3. If separately adjustable in a vertical direction, the seats are at the lowest position. ☐ Check
4. Place any adjustable seat backs in the manufacturer's nominal design riding position in the manner specified by the manufacturer. ☐ Check
5. Place any adjustable anchorages at the manufacturer's nominal design position for a 50th percentile adult male (50M) occupant. This information will be furnished by the COTR. ☐ Check
6. Place each adjustable head restraint in its highest adjustment position. ☐ Check

FMVSS 208 Seat Belt Comfort And Convenience Test Summary, Cont'd.

Retraction (S7.4.5)

7. Adjustable lumbar supports are positioned so that the lumbar support is in its lowest adjustment position. (S8.1.3) ☐ Check
8. Use anthropomorphic test dummies whose arms have been removed and position the dummies in the front outboard designated seating positions according to instructions in Appendix B of the Laboratory Test Procedure. ☐ Check
9. Restrain the dummies using the belt systems for the position being tested. ☐ Check
10. Stow outboard armrests that are capable of being stowed. ☐ Check
11. Check the statement that applies to this test vehicle:
- (A) The torso and lap belt webbing of the seat belt system automatically retracts to a stowed position when the adjacent vehicle door is in an open position and the seat belt latchplate is released. ☐ Pass
- (B) The torso and lap belt webbing of the seat belt system automatically retracts when the seat belt latchplate is released. ☐ Pass
- (C) Neither A or B apply. ☐ Fail
12. With the webbing and hardware in the stowed position are the webbing and hardware prevented from being pinched when the door is closed?
- ☐ Yes-Pass; ☐ No-Fail
13. If this test vehicle has an open body (without doors) and has a belt system with a tension-relieving device, does the belt system fully retract when the tension-relieving device is deactivated?
- ☐ N/A
- ☐ Yes-Pass; ☐ No-Fail

FMVSS 208 Seat Belt Comfort And Convenience Test Summary, Cont'd.

Seat Belt Guides And Hardware (S7.4.6)

Test Vehicle NHTSA No.: C35503

Vehicle Model Year/Make/Model/Body Style: 2003/Subaru/Forester/Station Wagon

Designated Seating Position Tested: Left Rear

Date of Comfort and Convenience Check: 05/05/2003

Technician Performing Check: Steve Bell

GVWR: 4150 pounds

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

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

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

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

- 1. Is the webbing designed to pass through the seat cushion or between the seat cushion and seat back?
☒ Yes: go to 2.
☐ No: this form is complete.
- 2. Does one of the following three parts, the seat belt latchplate, the buckle, or the seat belt webbing, stay on top of or above the seat cushion under normal conditions (i.e., conditions other than when belt hardware is intentionally pushed behind the seat by a vehicle occupant)?
☒ Yes-Pass; ☐ No-Fail
- 3. Are the remaining two seat belt parts accessible under normal conditions?
☒ Yes-Pass; ☐ No-Fail

FMVSS 208 Seat Belt Comfort And Convenience Test Summary, Cont'd.

Seat Belt Guides And Hardware (S7.4.6)

4. The buckle and latchplate do not pass through the guides or conduits provided and fall behind the seat when the following events occur in order:

(A) The belt is completely retracted or, if the belt is nonretractable, the belt is unlatched.

☒ Check

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

☒ Check

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

☒ Check

☐ Yes-Pass;

☐ No-Fail

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

☐ Yes-Pass;

☐ No-Fail

N/A-No armrest

FMVSS 208 Seat Belt Comfort And Convenience Test Summary, Cont'd.

Seat Belt Guides And Hardware (S7.4.6)

Test Vehicle NHTSA No.: C35503

Vehicle Model Year/Make/Model/Body Style: 2003/Subaru/Forester/Station Wagon

Designated Seating Position Tested: Center Rear

Date of Comfort and Convenience Check: 05/05/2003

Technician Performing Check: Steve Bell

GVWR: 4150 pounds

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

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

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

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

- 1. Is the webbing designed to pass through the seat cushion or between the seat cushion and seat back?
☒ Yes: go to 2.
☐ No: this form is complete.
- 2. Does one of the following three parts, the seat belt latchplate, the buckle, or the seat belt webbing, stay on top of or above the seat cushion under normal conditions (i.e., conditions other than when belt hardware is intentionally pushed behind the seat by a vehicle occupant)?
☒ Yes-Pass; ☐ No-Fail
- 3. Are the remaining two seat belt parts accessible under normal conditions?
☒ Yes-Pass; ☐ No-Fail

FMVSS 208 Seat Belt Comfort And Convenience Test Summary, Cont'd.

Seat Belt Guides And Hardware (S7.4.6)

4. The buckle and latchplate do not pass through the guides or conduits provided and fall behind the seat when the following events occur in order:
- (A) The belt is completely retracted or, if the belt is nonretractable, the belt is unlatched. ☒ Check
- (B) The seat is moved to any position to which it is designed to be adjusted. ☒ Check
- (C) The seat back, if foldable, is folded forward as far as possible and then moved backward into position. ☐ Check
☒ Yes-Pass; ☐ No-Fail
5. Is the inboard receptacle end of the seat belt assembly, installed in the outboard designated seating position, accessible with the center arm rest in any position to which it can be adjusted (without moving the armrest)? ☐ Yes-Pass; ☐ No-Fail
N/A-No armrest

FMVSS 208 Seat Belt Comfort And Convenience Test Summary, Cont'd.

Seat Belt Guides And Hardware (S7.4.6)

Test Vehicle NHTSA No.: C35503

Vehicle Model Year/Make/Model/Body Style: 2003/Subaru/Forester/Station Wagon

Designated Seating Position Tested: Right Rear

Date of Comfort and Convenience Check: 05/05/2003

Technician Performing Check: Steve Bell

GVWR: 4150 pounds

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

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

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

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

- 1. Is the webbing designed to pass through the seat cushion or between the seat cushion and seat back?
☒ Yes: go to 2.
☐ No: this form is complete.
- 2. Does one of the following three parts, the seat belt latchplate, the buckle, or the seat belt webbing, stay on top of or above the seat cushion under normal conditions (i.e., conditions other than when belt hardware is intentionally pushed behind the seat by a vehicle occupant)?
☒ Yes-Pass; ☐ No-Fail
- 3. Are the remaining two seat belt parts accessible under normal conditions?
☒ Yes-Pass; ☐ No-Fail

FMVSS 208 Seat Belt Comfort And Convenience Test Summary, Cont'd.

Seat Belt Guides And Hardware (S7.4.6)

4. The buckle and latchplate do not pass through the guides or conduits provided and fall behind the seat when the following events occur in order:

(A) The belt is completely retracted or, if the belt is nonretractable, the belt is unlatched.

☒ Check

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

☒ Check

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

☐ Check

☒ Yes-Pass; ☐ No-Fail

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

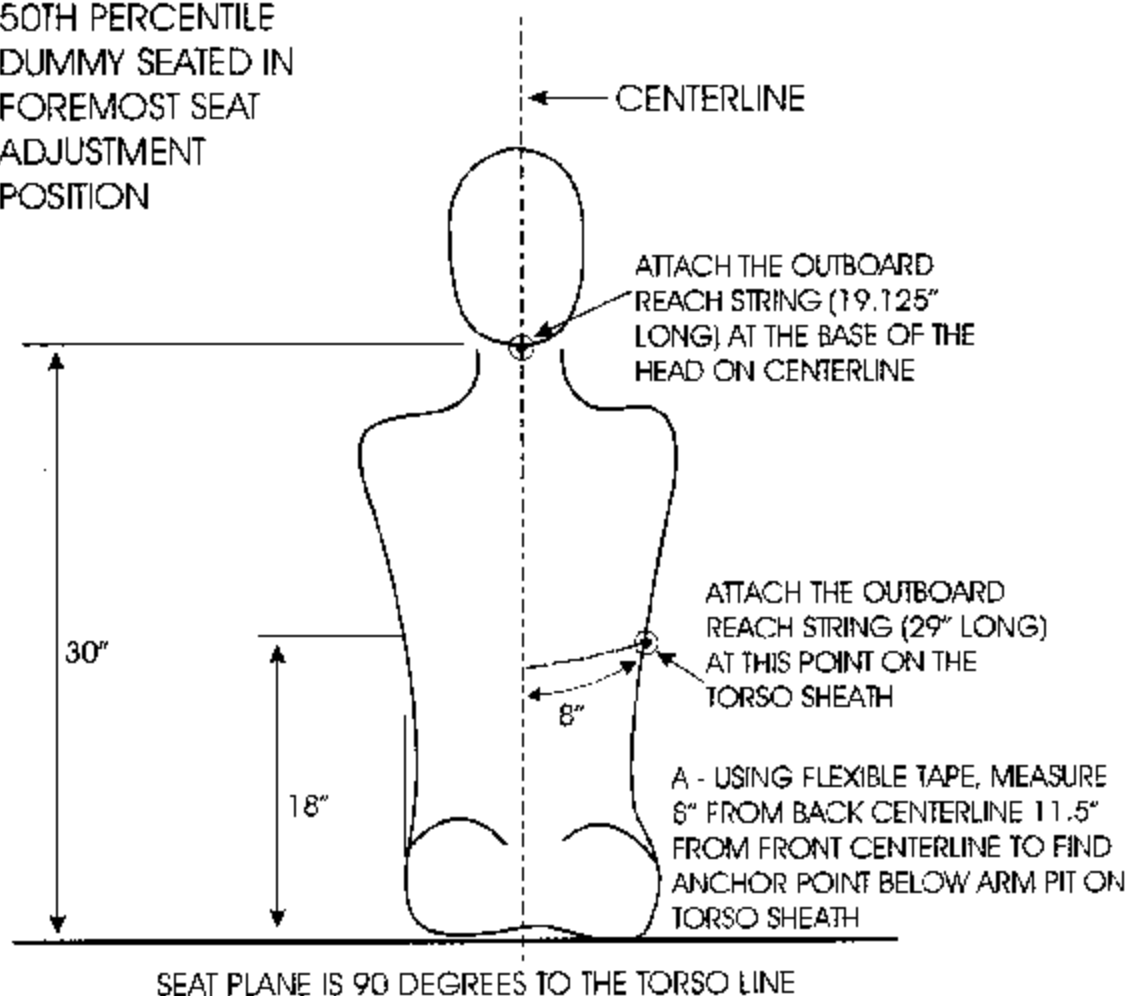
☐ Yes-Pass; ☐ No-Fail

N/A-No armrest

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

PART 572E DUMMY

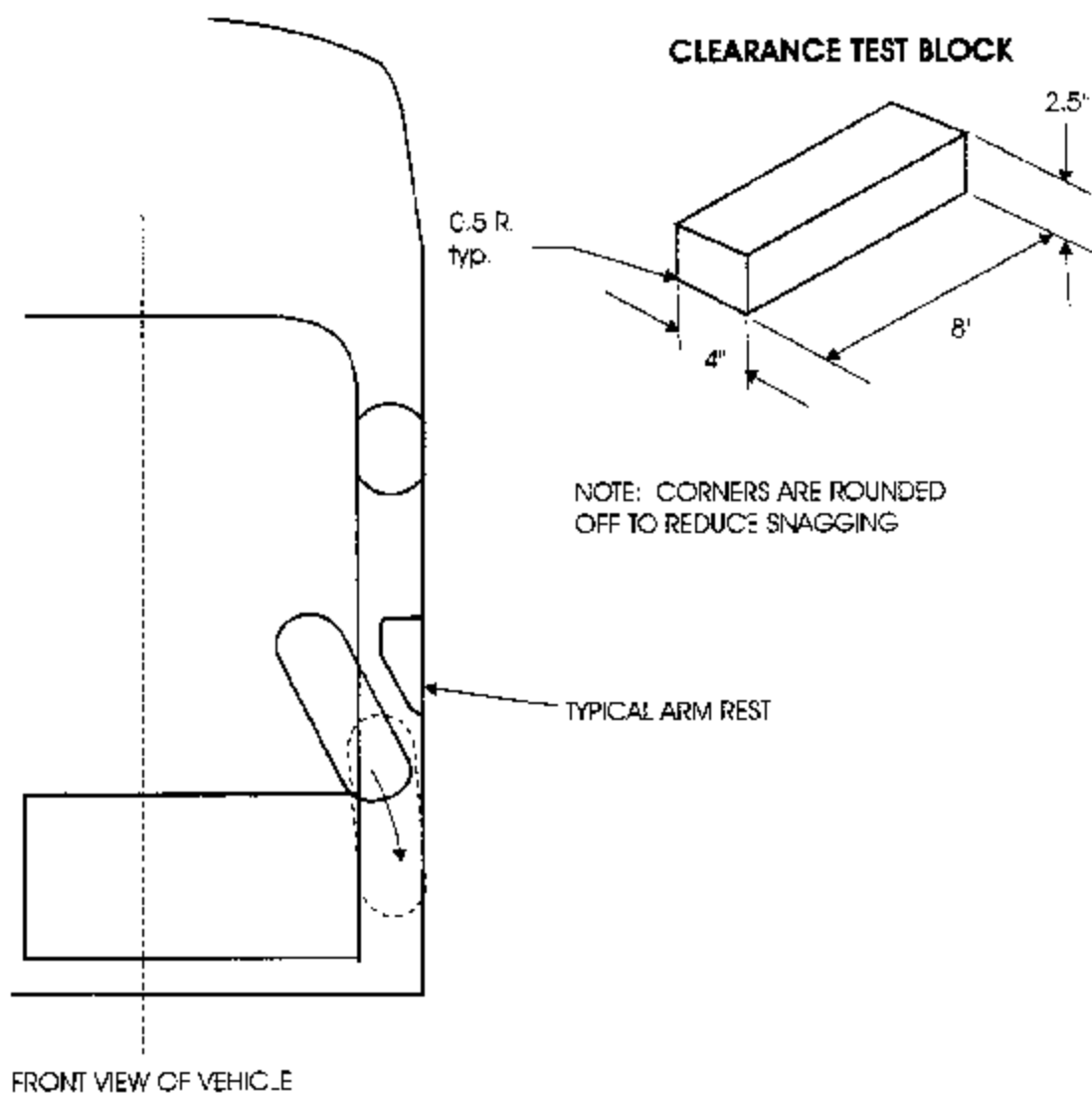
50TH PERCENTILE
DUMMY SEATED IN
FOREMOST SEAT
ADJUSTMENT
POSITION



REAR VIEW

Laboratory Test Procedure Figure 1C

USE OF CLEARANCE TEST BLOCK TO DETERMINE HAND/ARM ACCESS



Laboratory Test Procedure Figure 2C

Appendix A

Photographs

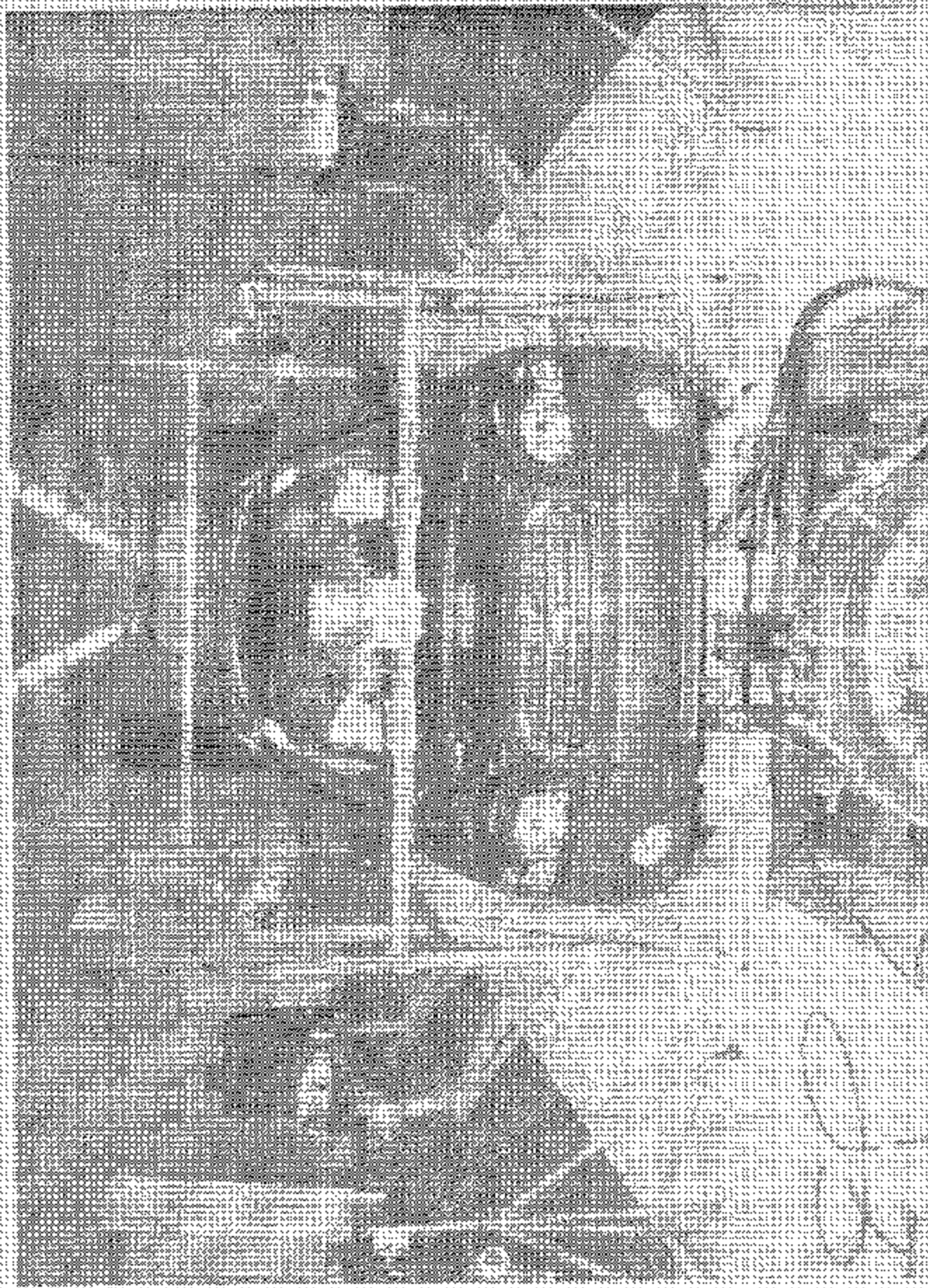


Figure A-1. Pre-Test Front View of Test Vehicle Mounted to Sled

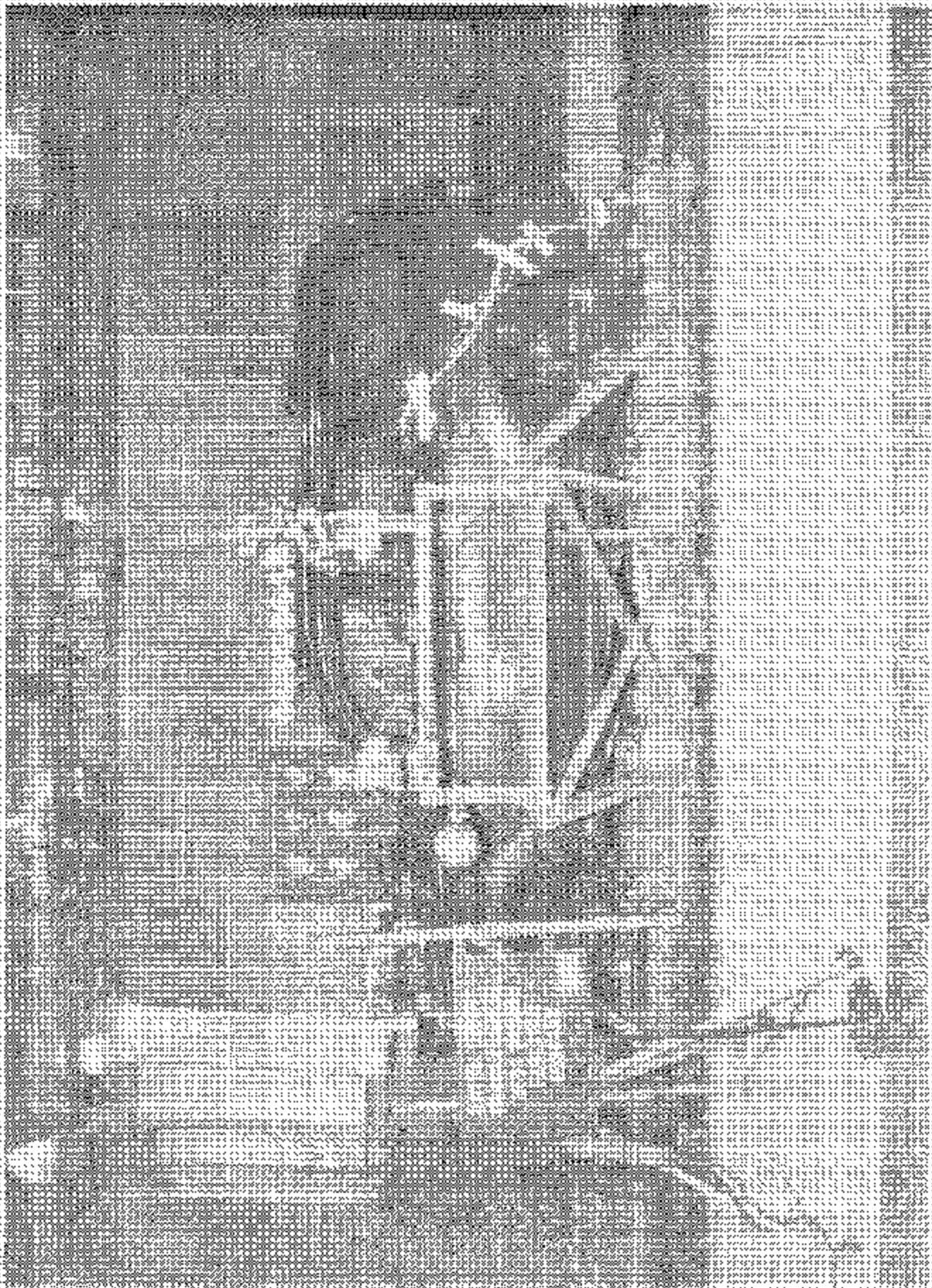


Figure A-2. Pre-Test Left Side View of Test Vehicle Mounted to Sled.

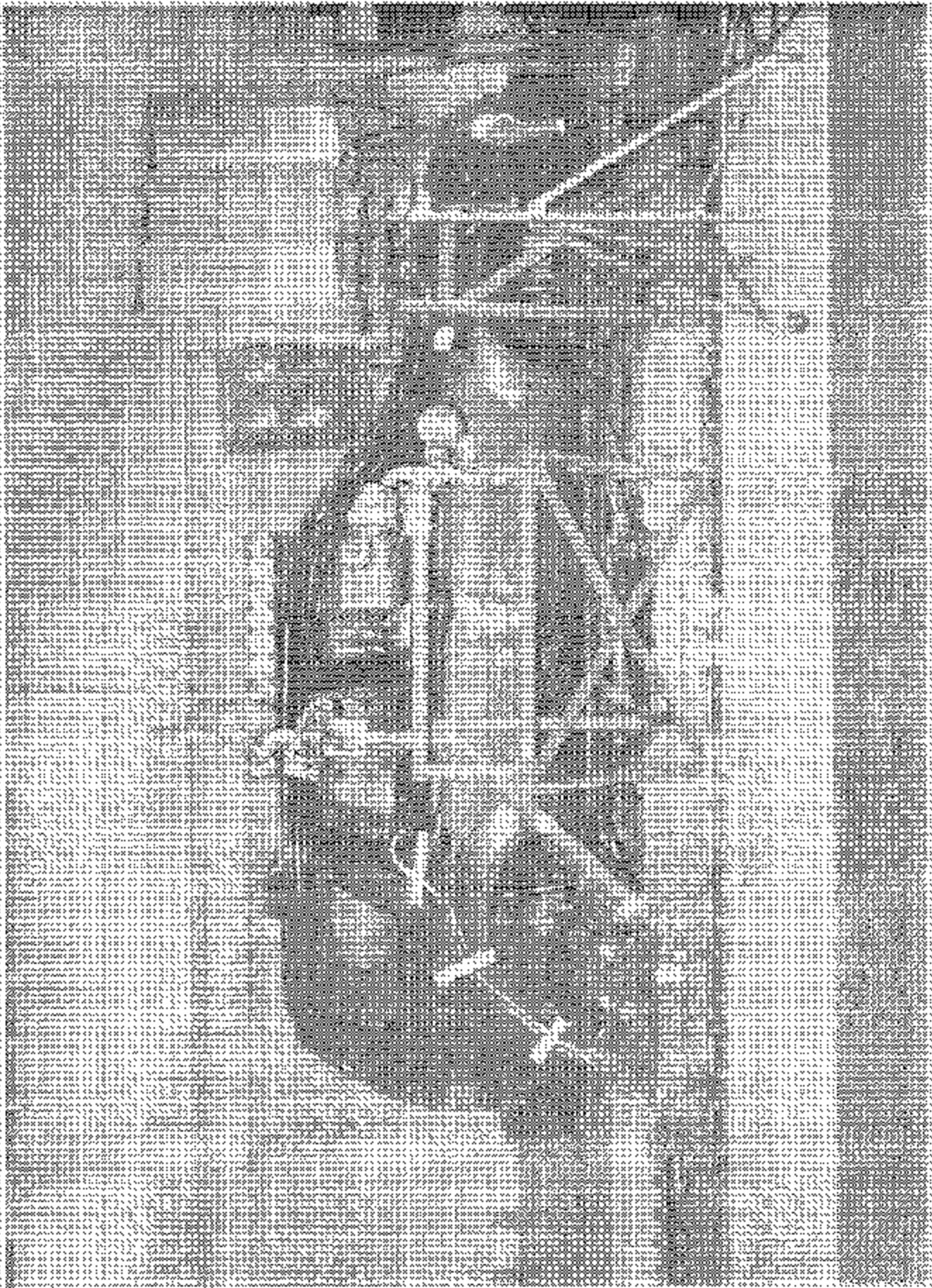


Figure A-3. Pre-Test Right Side View of Test Vehicle Mounted to Sled

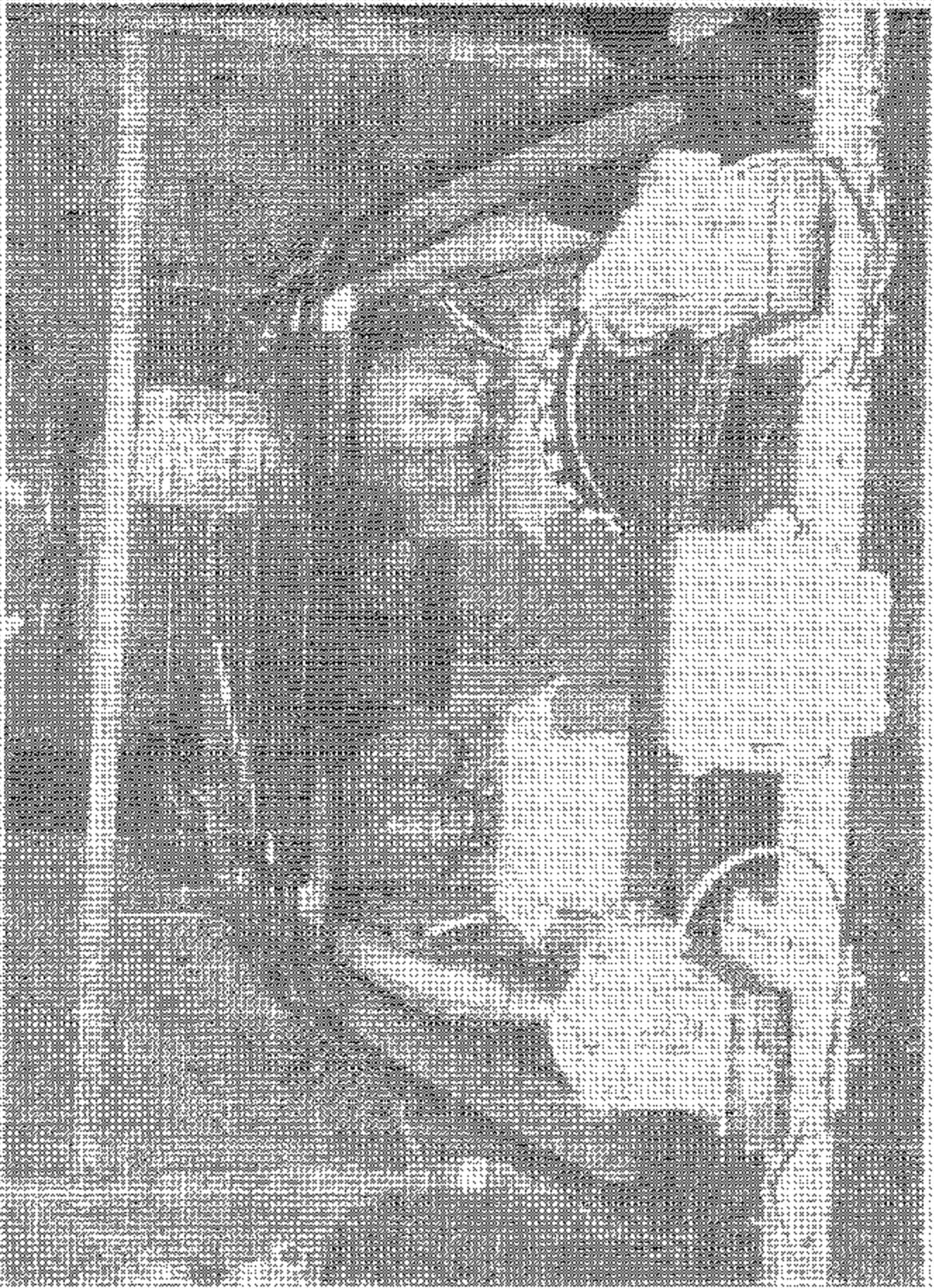


Figure A-4. Pre-Test Windshield View

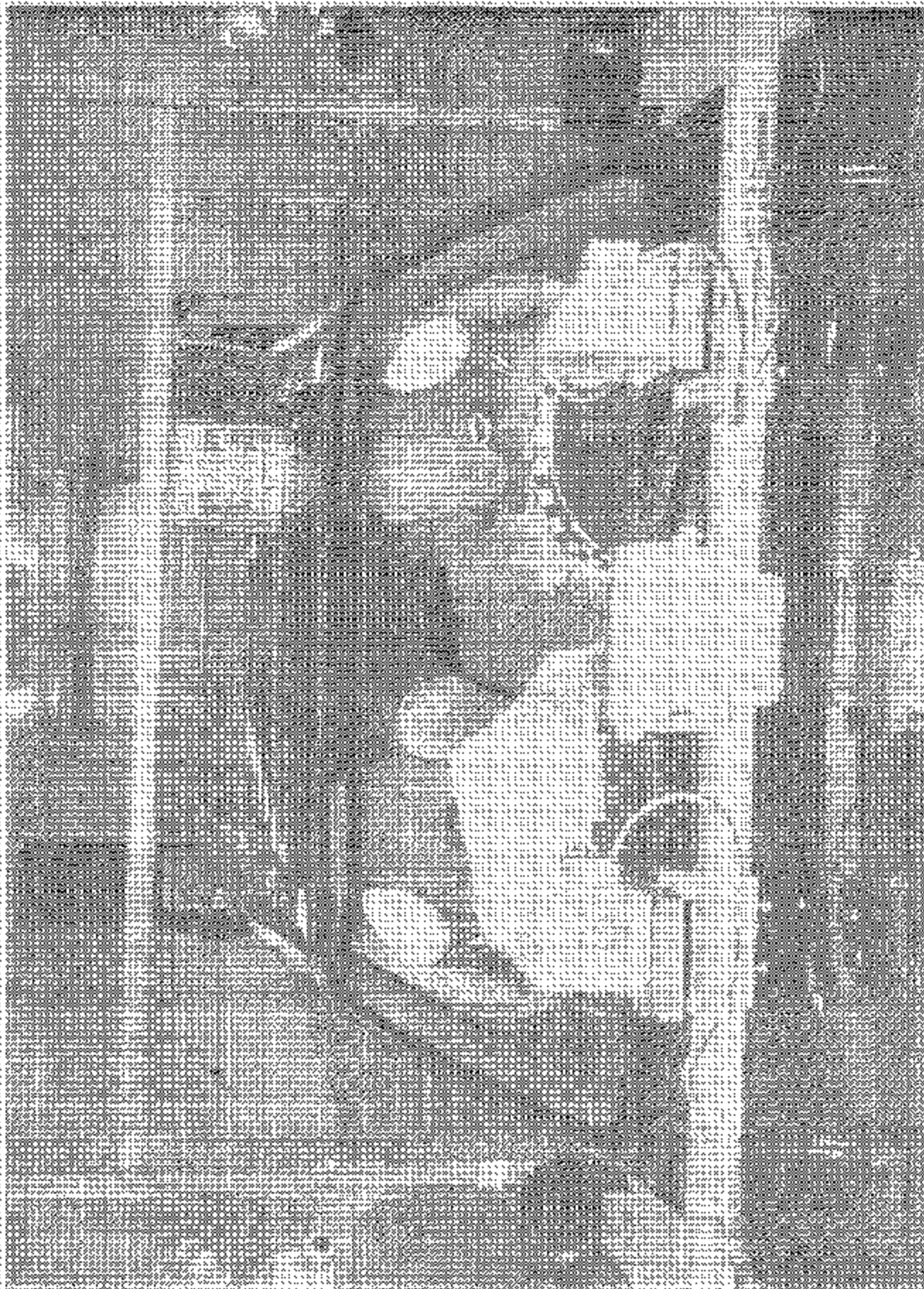


Figure A-3. Post-Test Windshield View

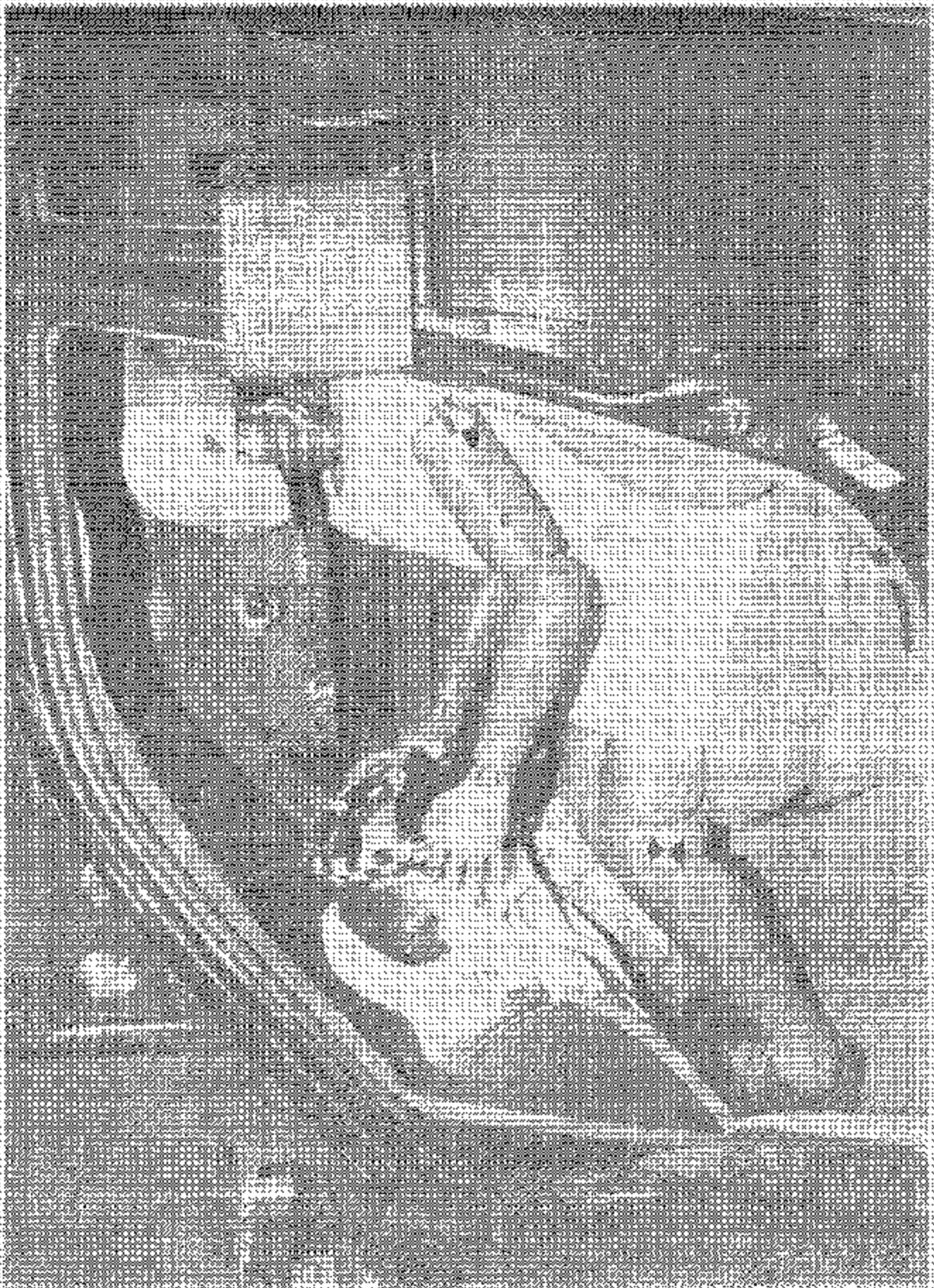


Figure A-6. Pre-Test Driver Dummy Position View with Door Open

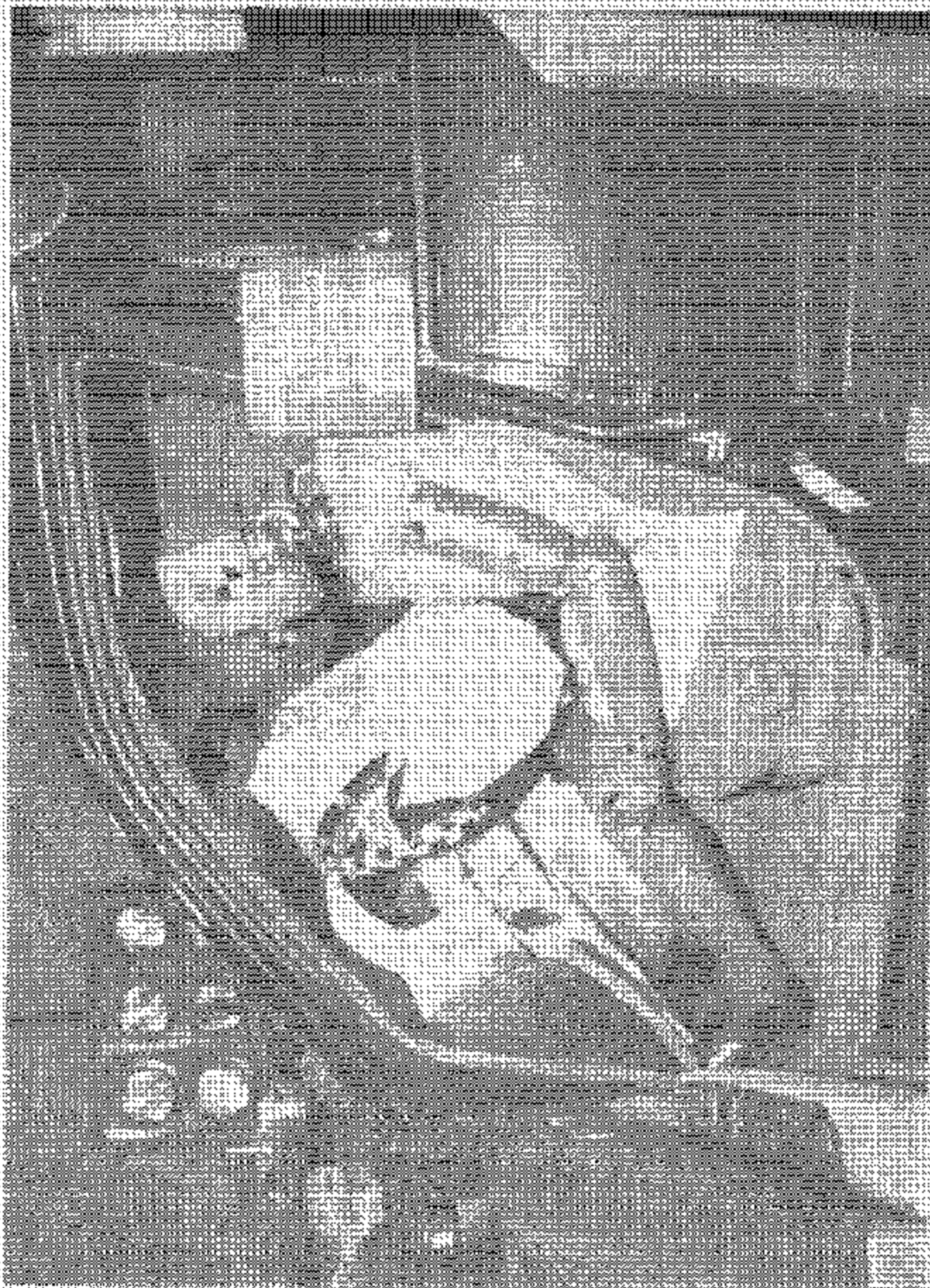


Figure A-7. Post-Test Driver Dummy Position View with Door Open



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

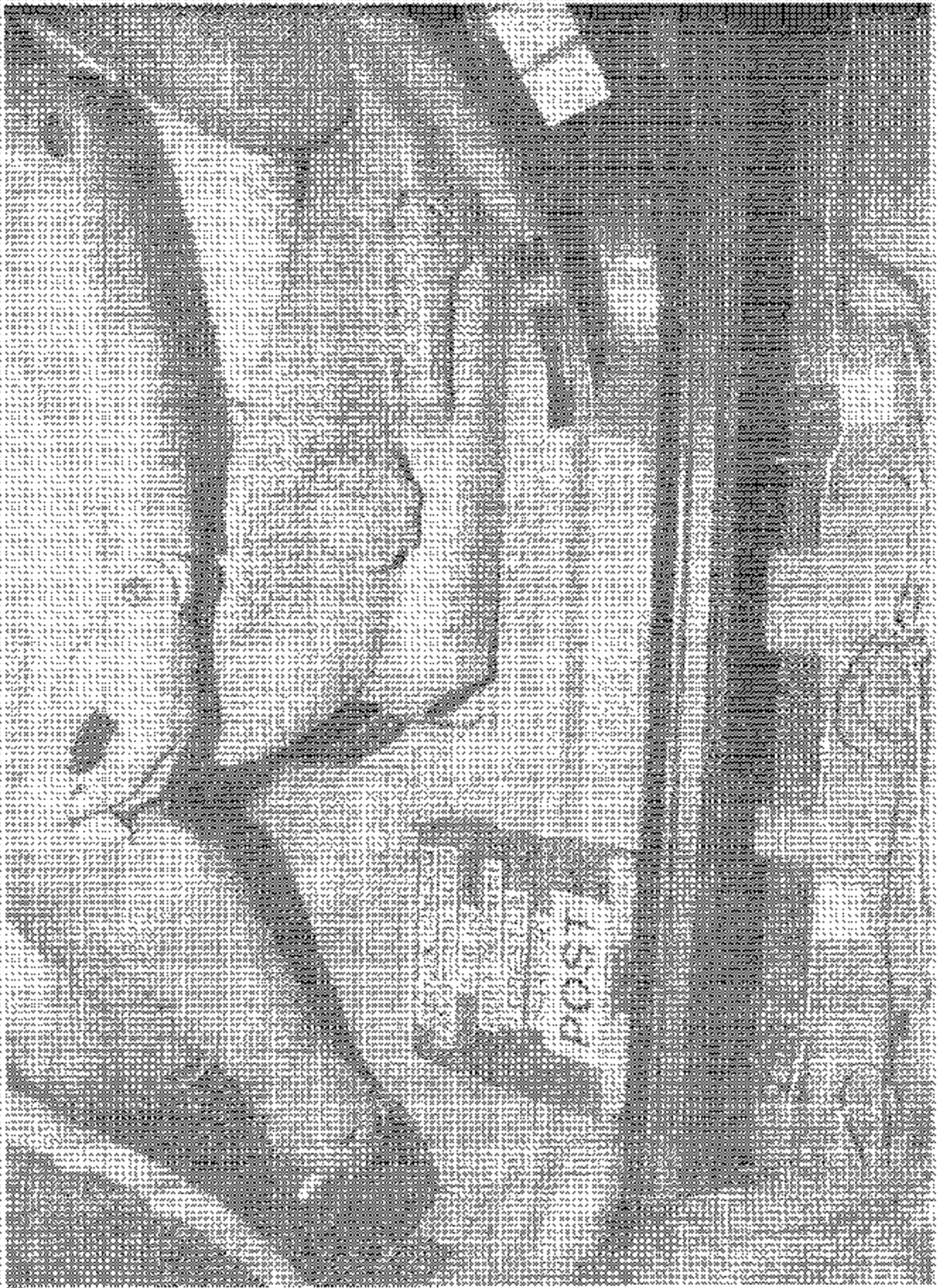


Figure A-9. Post-Test Driver Seat Track Position View



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

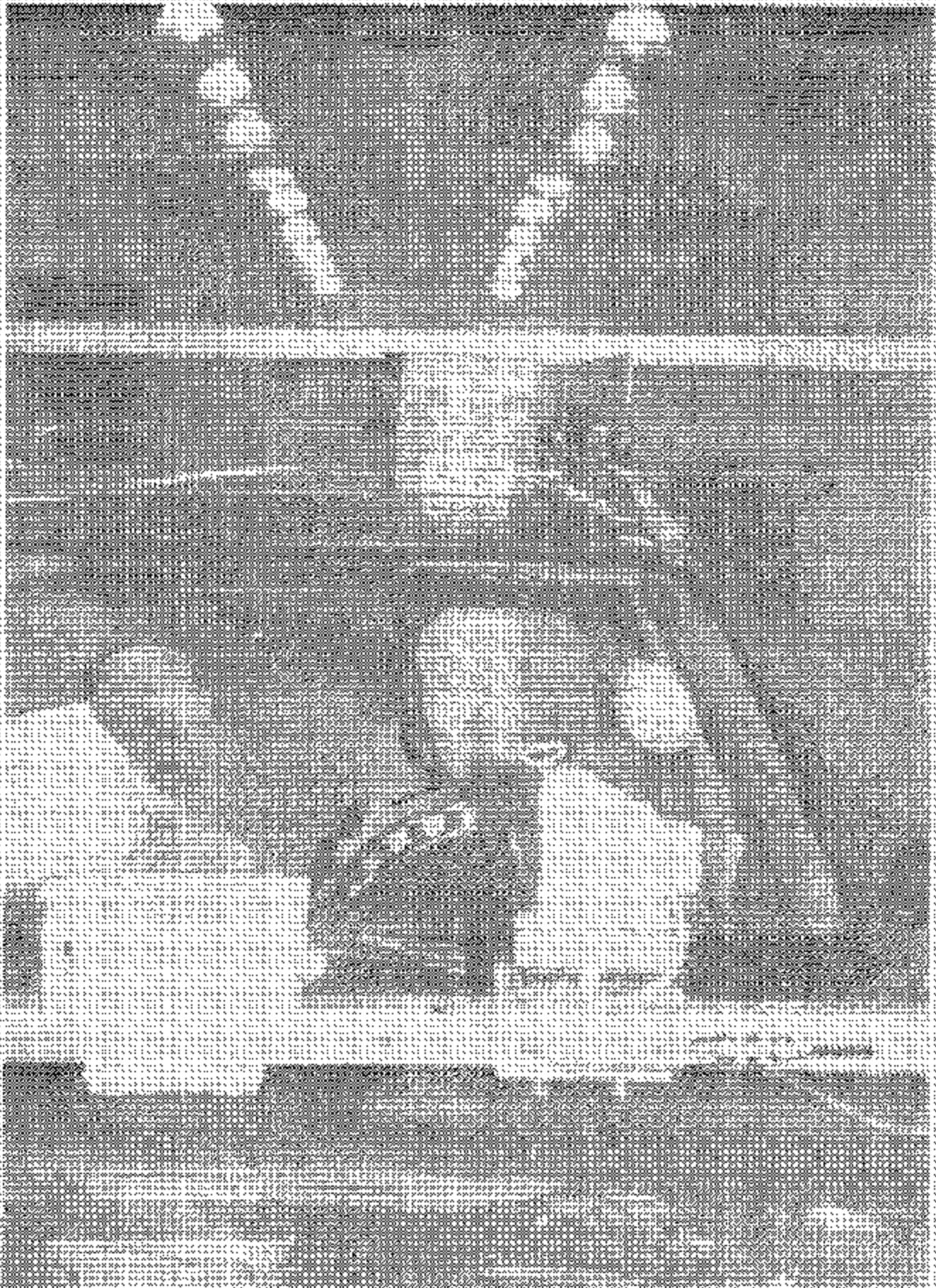


Figure A-11. Post-Test Driver Dummy Position Front View

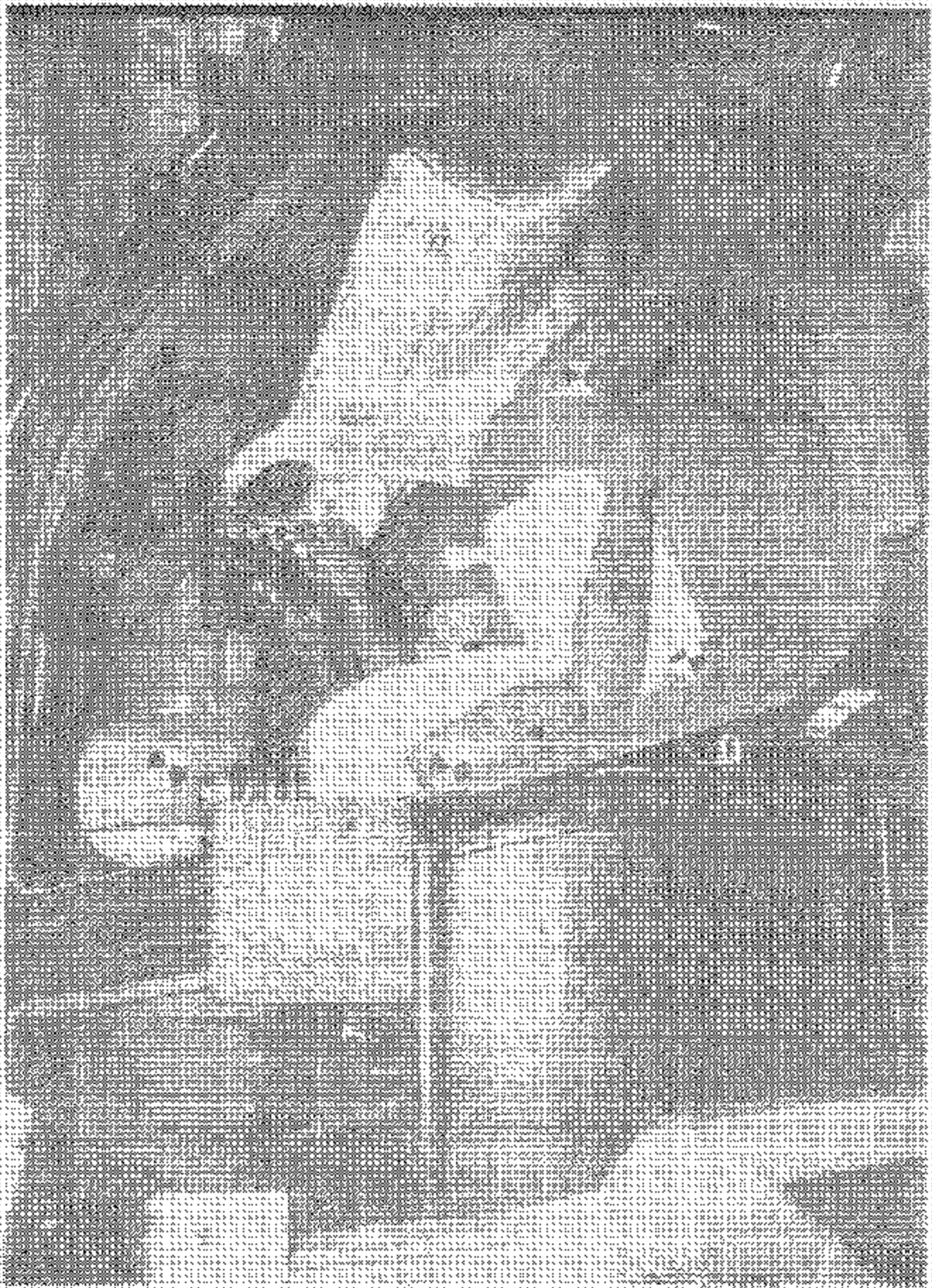


Figure A-12. Pre-Test Passenger Dormitory Position View with Door Open

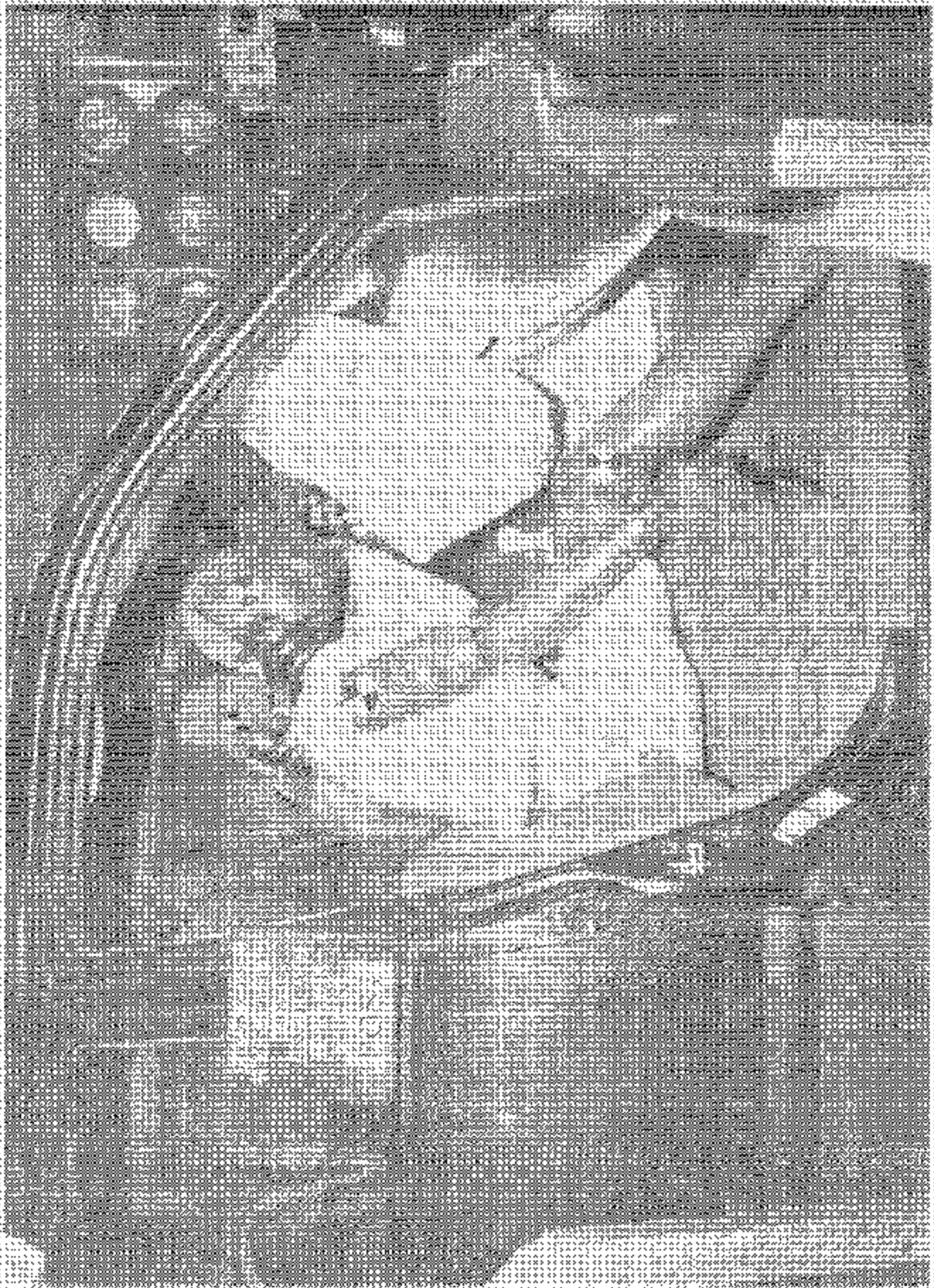


Figure A-13. Post-Test Passenger Dummy Position View with Door Open

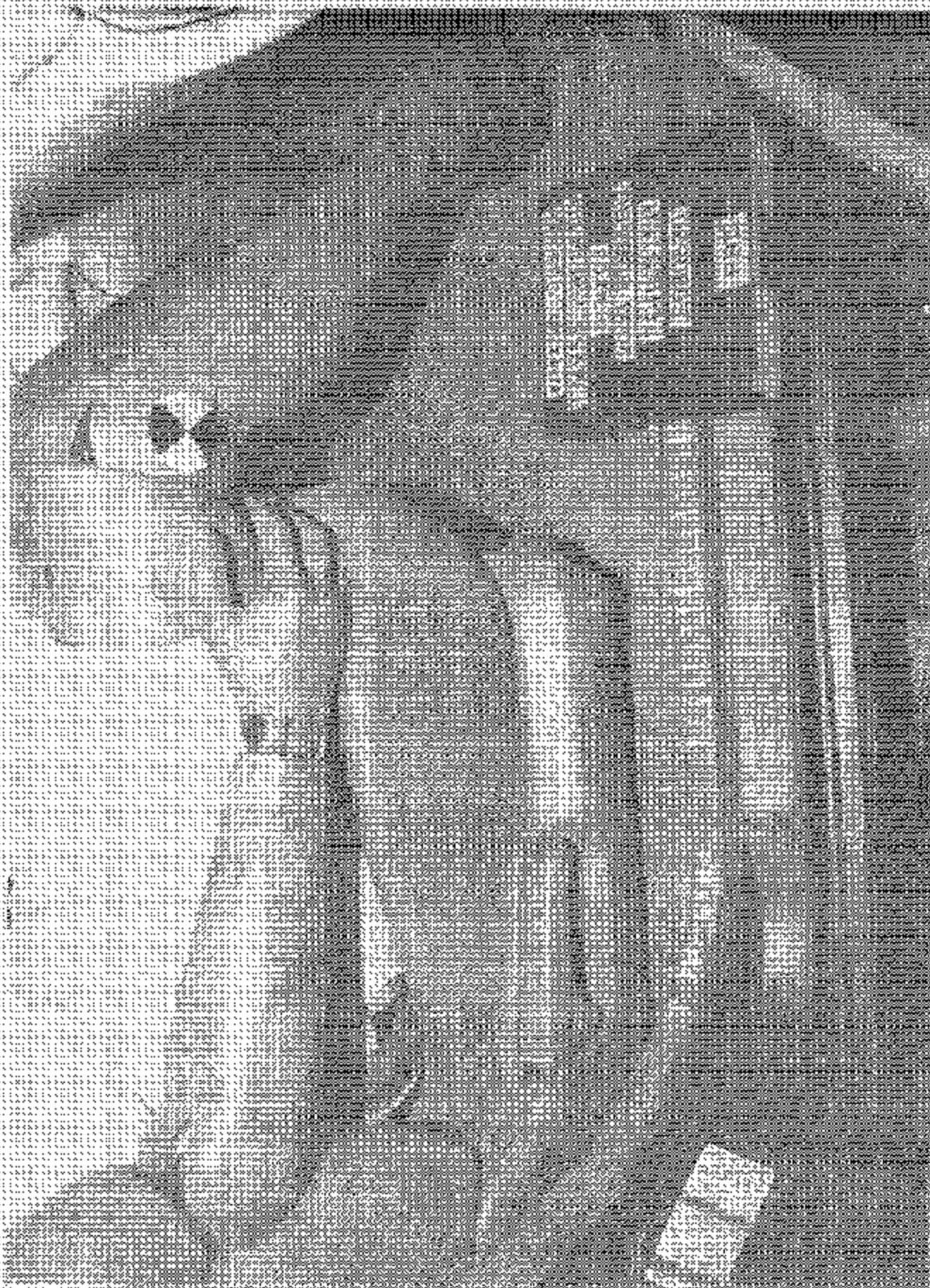


Figure A-14. Pre-Test Passenger Seat Track Position View

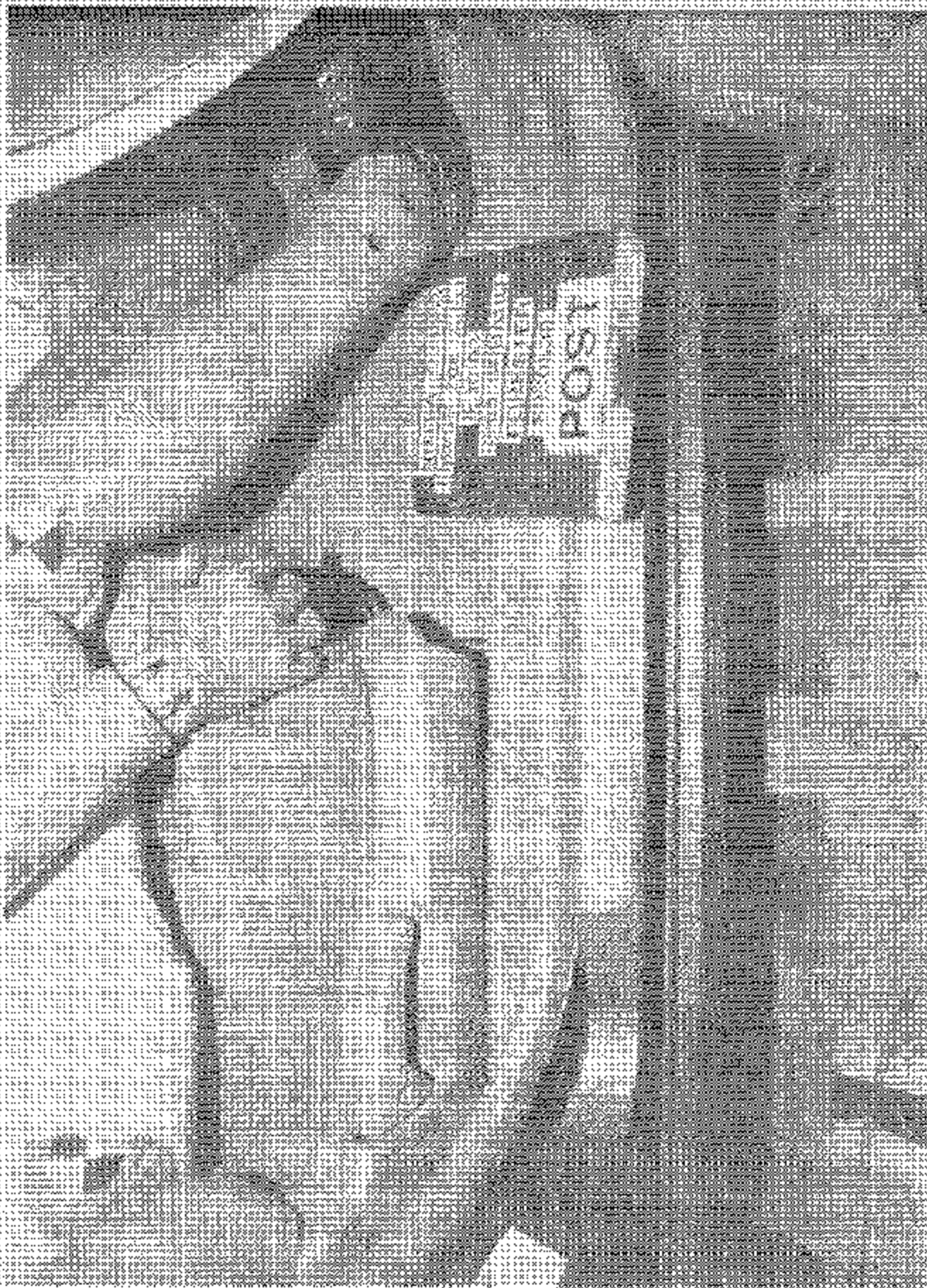


Figure A-15. Post-Test Passenger Seat Track Position View

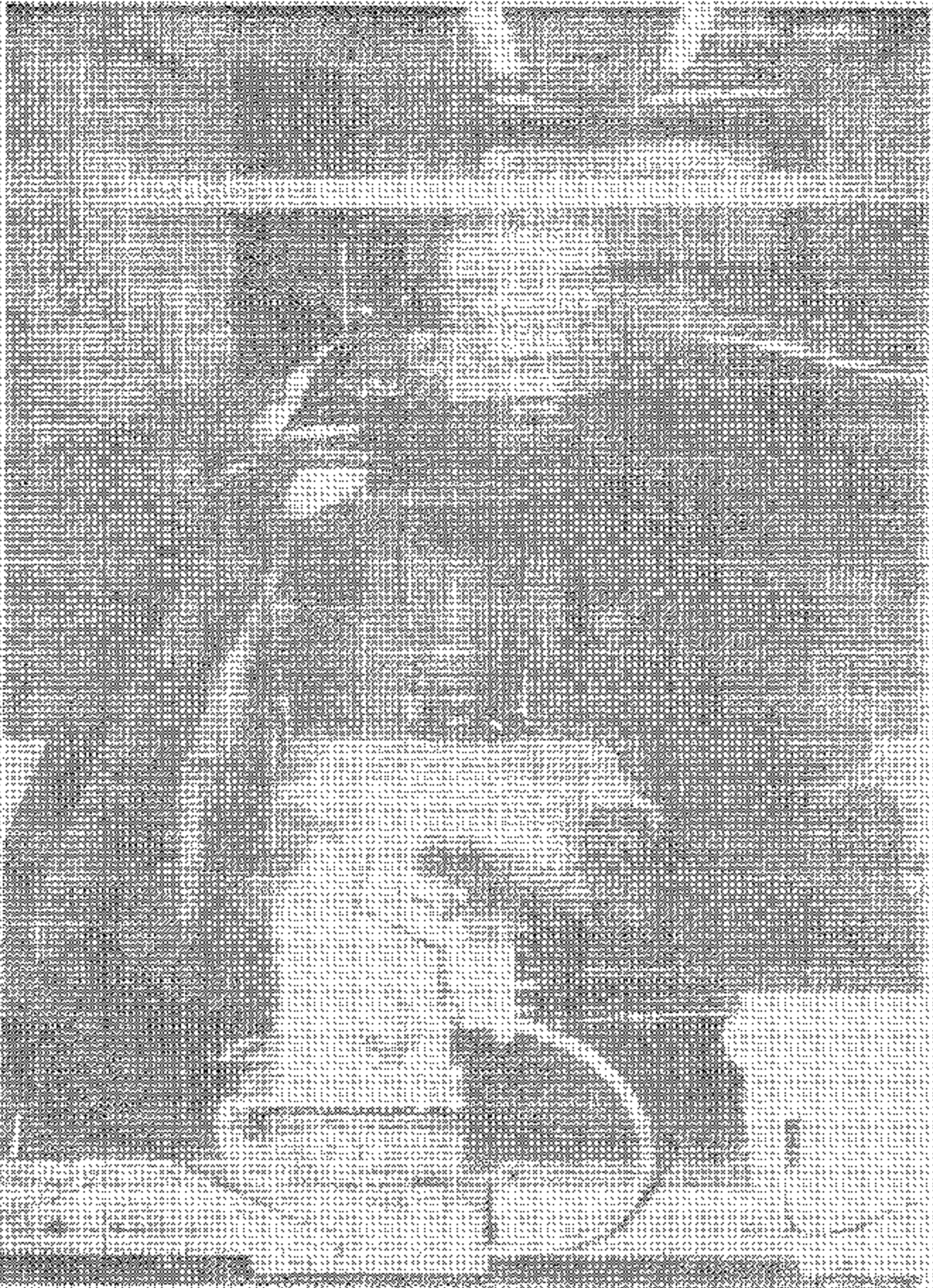


Figure A-16. Pre-Test Passenger Dummy Position Front View

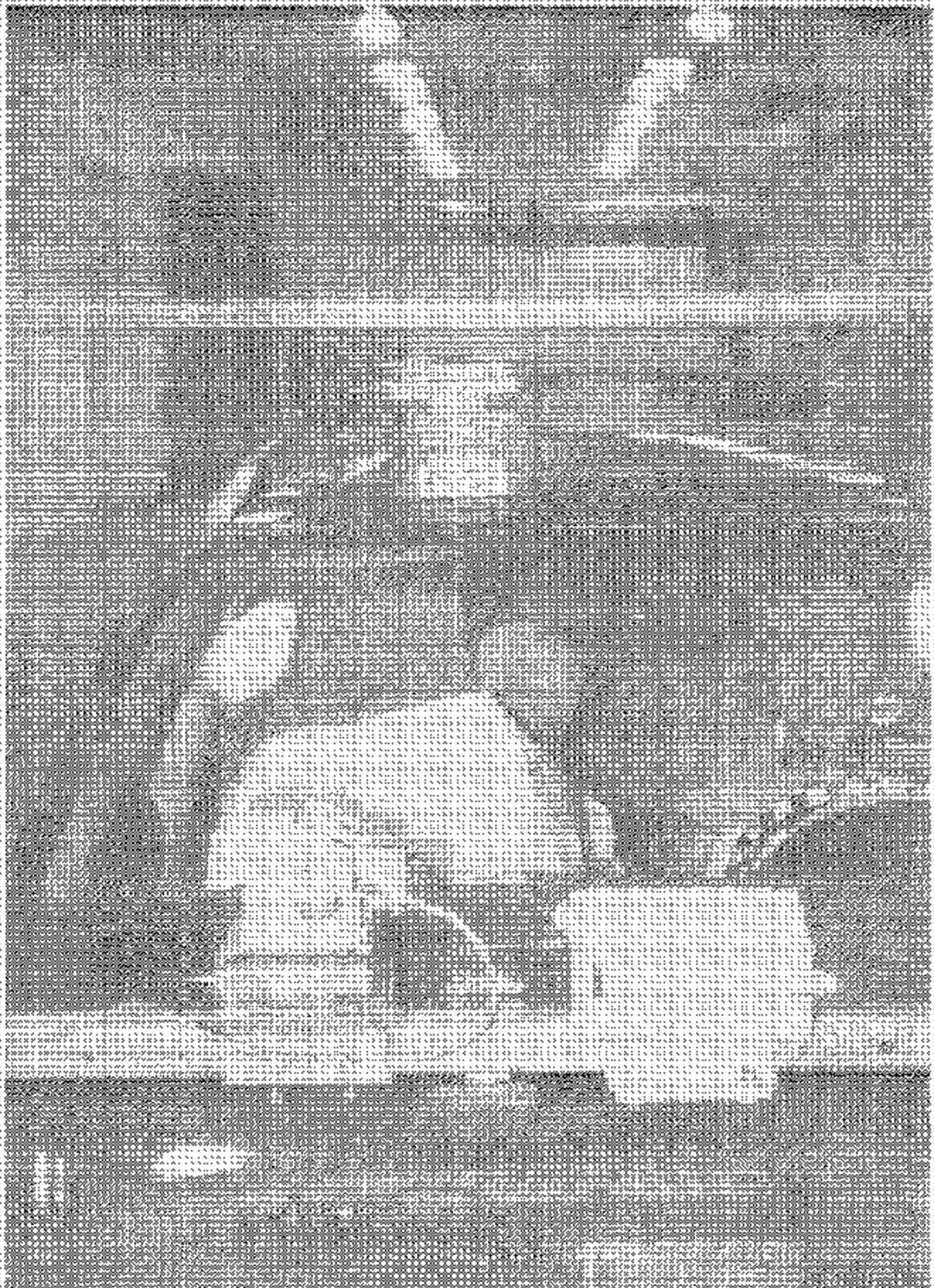


Figure A-17. Post-Test Passenger Dummy Position Front View

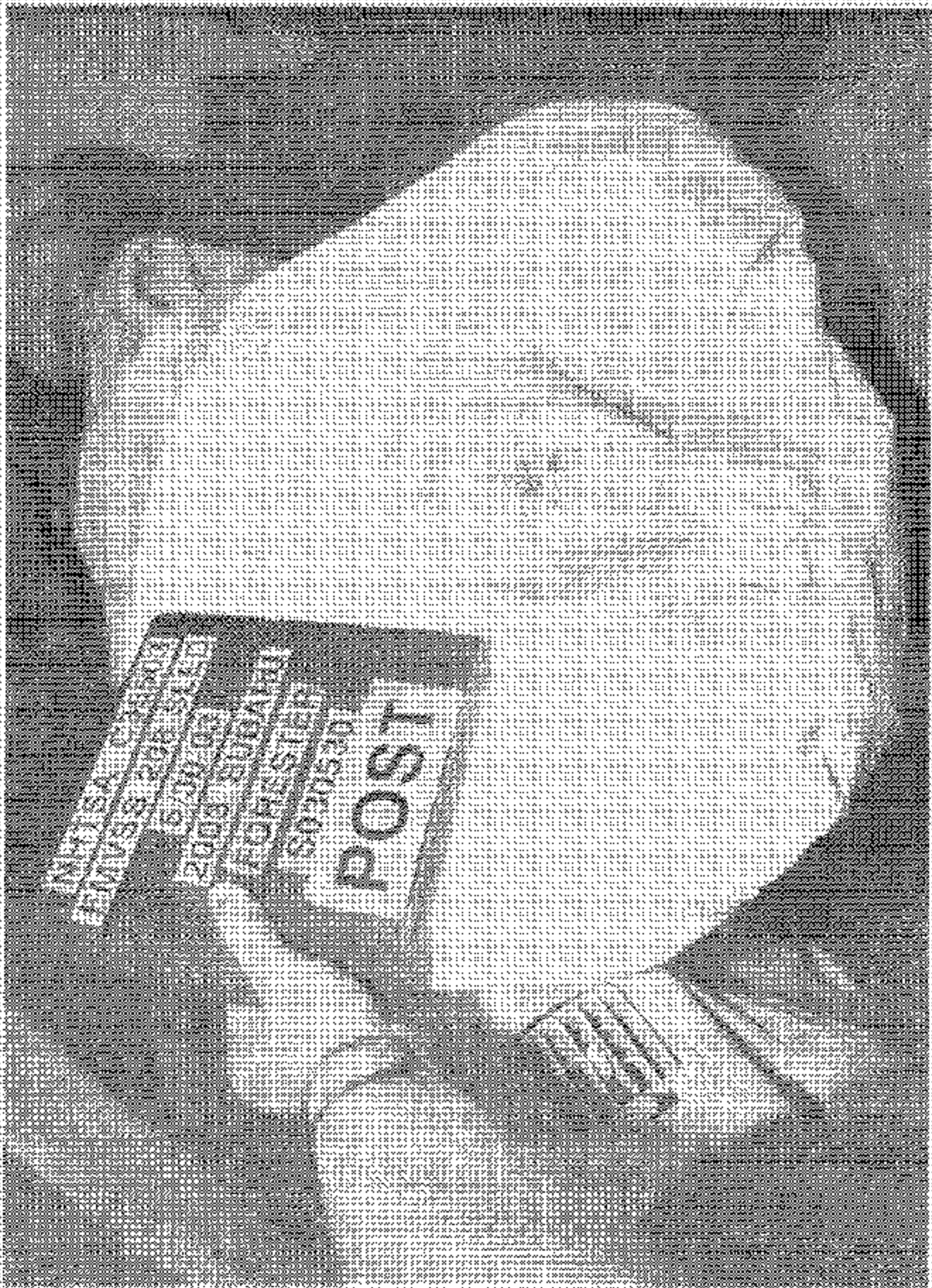


Figure A-18. Post-Test Driver Airbag View

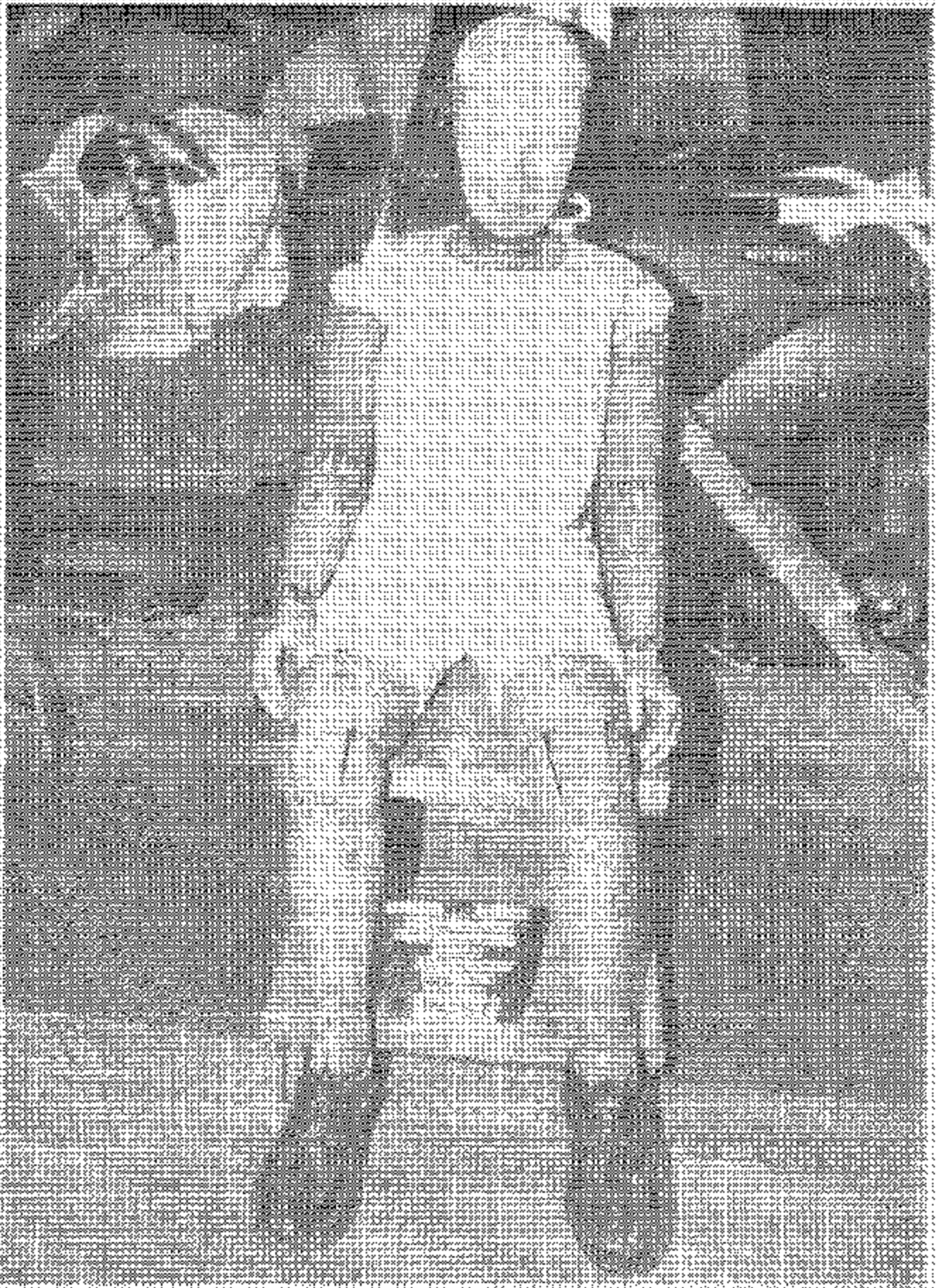


Figure A-19. Post-Test Driver Dummy Removed from Vehicle-Overall View



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

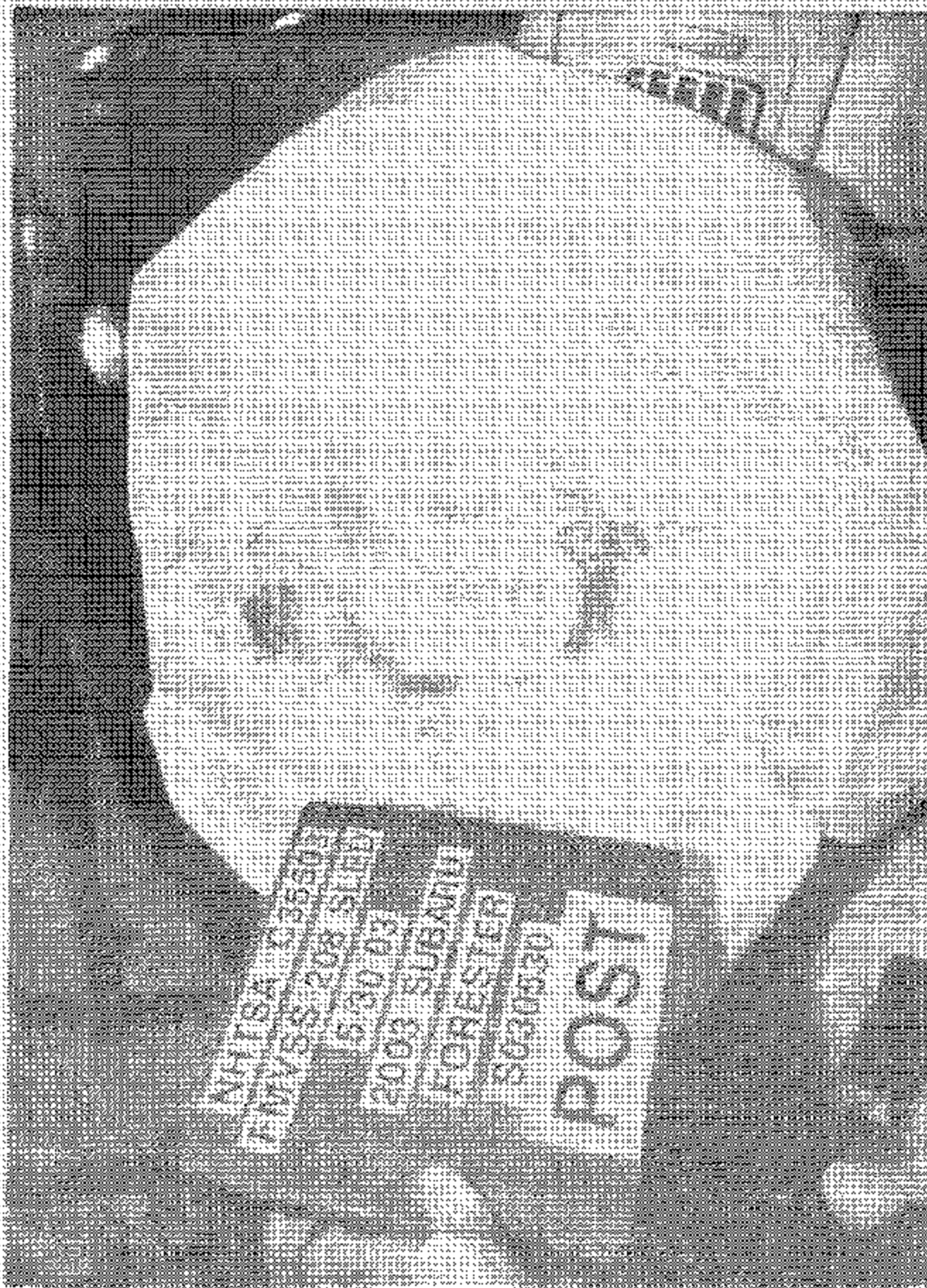


Figure A-21. Post-Test Passenger Airbag View

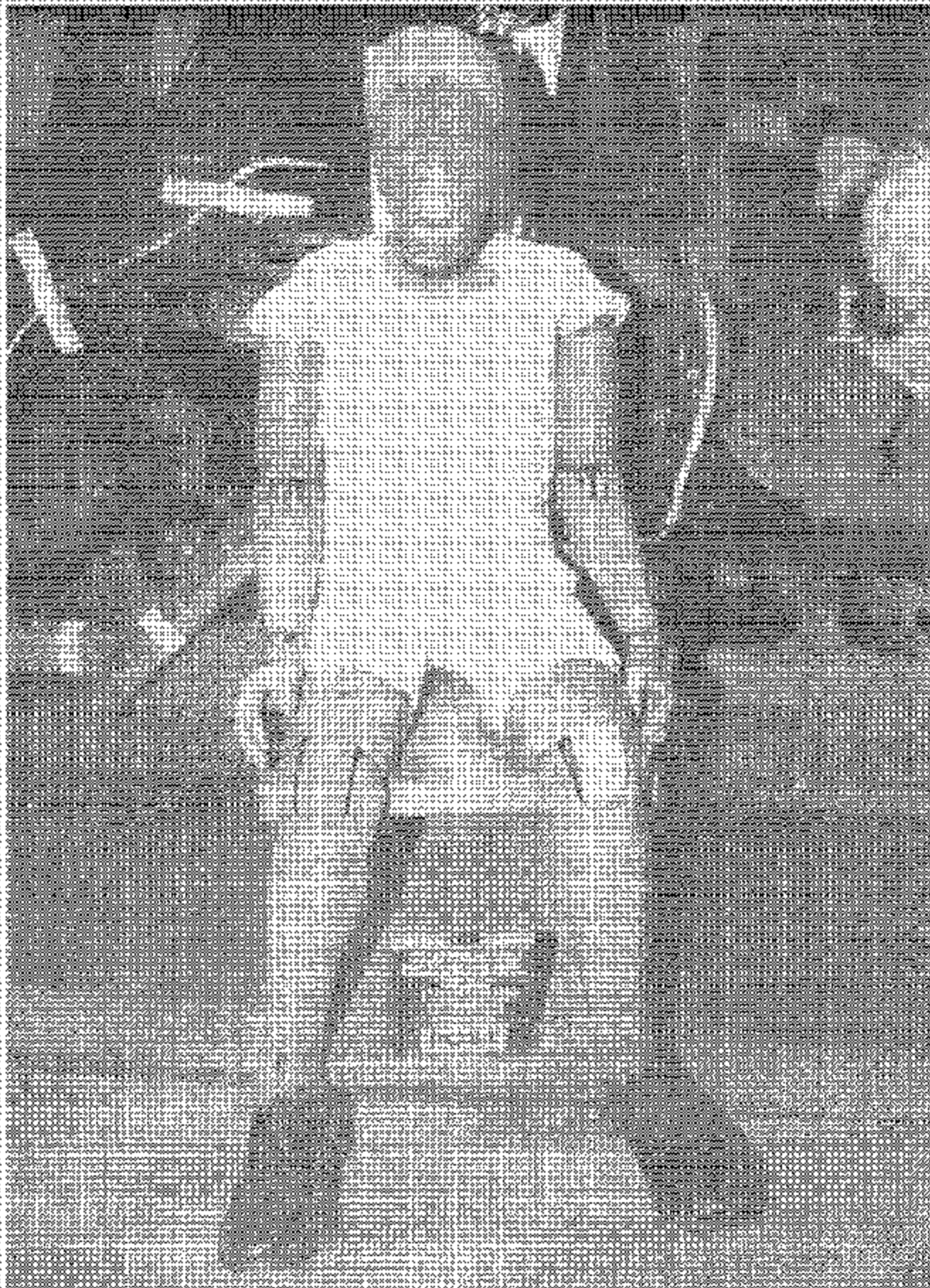


Figure A-22. Post-Test Passenger Dummy Removed from Vehicle Overall View

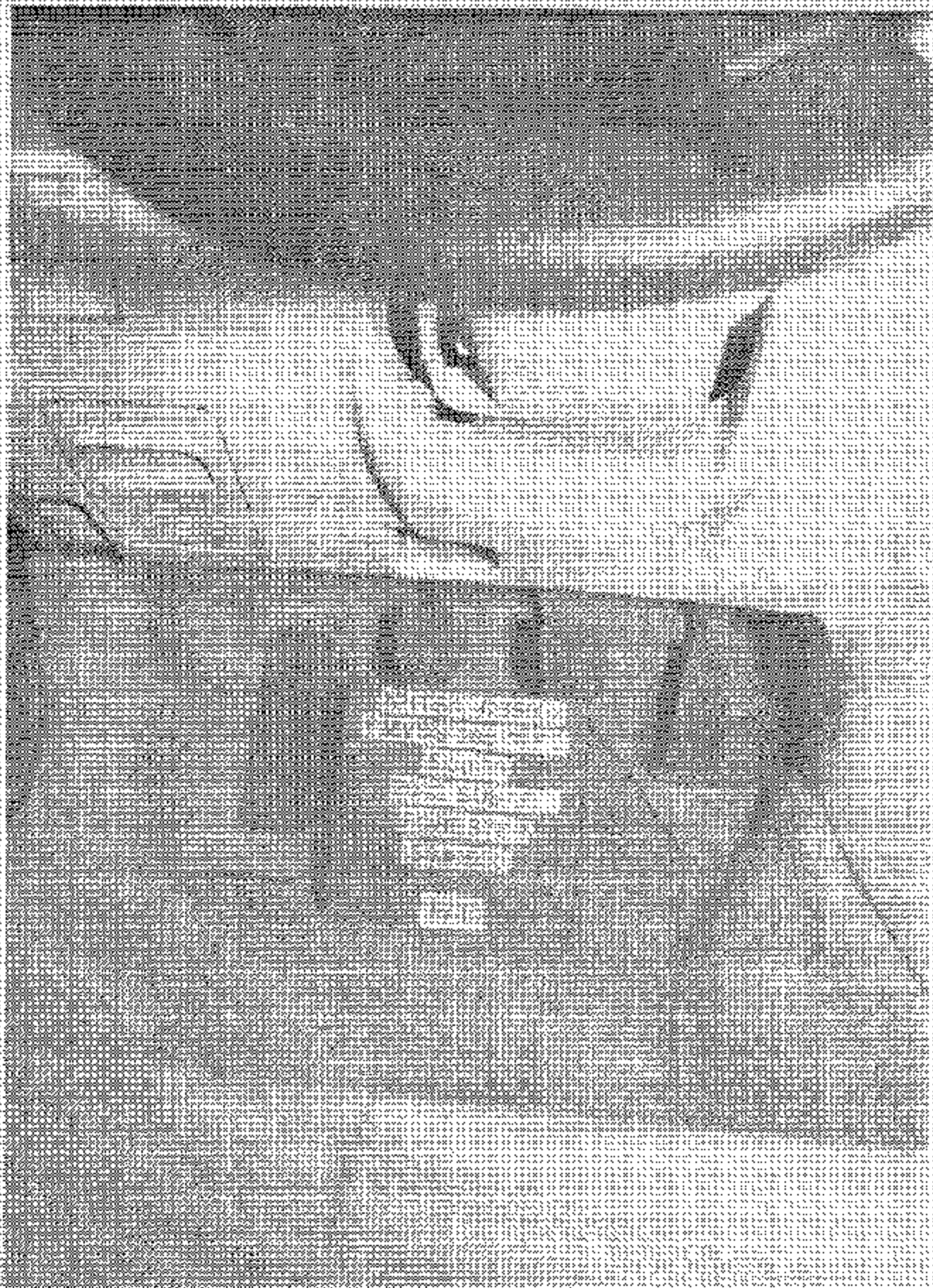


Figure A-23. Pre-Test Driver Knee Bolster View

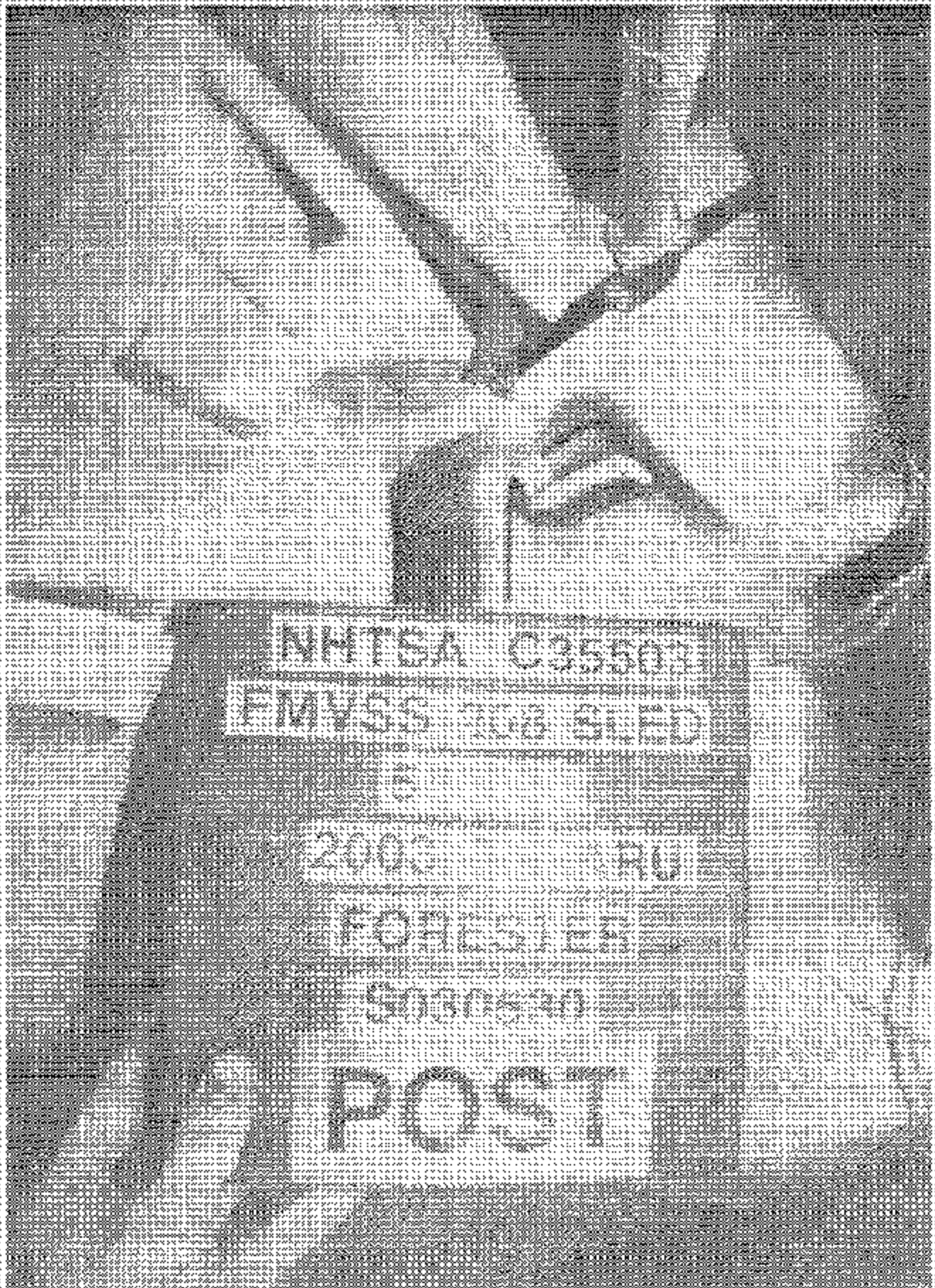


Figure A-24. Post-Test Driver Knee Bolster View

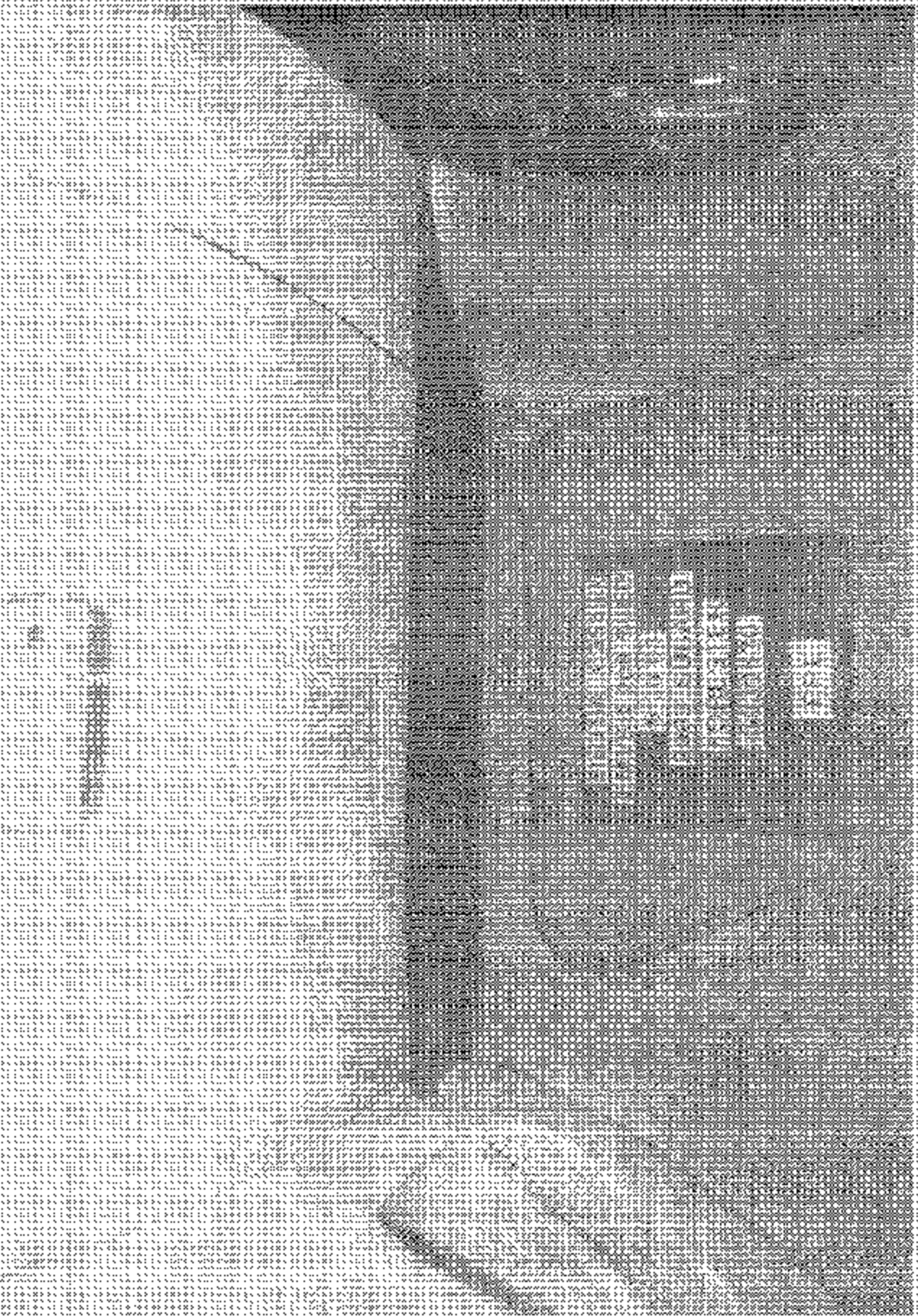


Figure A-25. Pre-Test Passenger Glove Box View

Figure A-2h. Post-Test Passenger Glove Box View

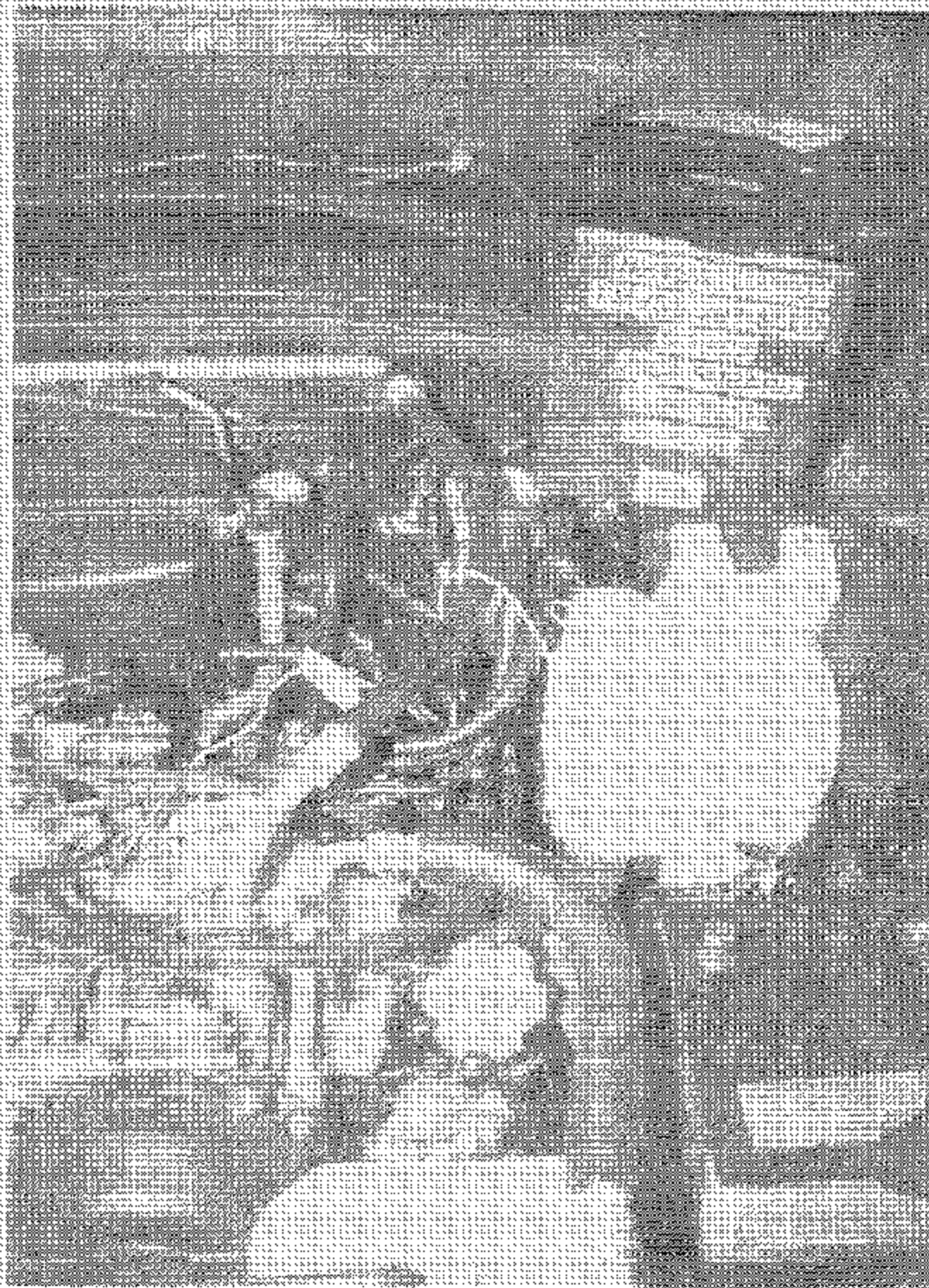


Figure A-27. Pre-Test Steering Column Linkage in Engine Compartment View

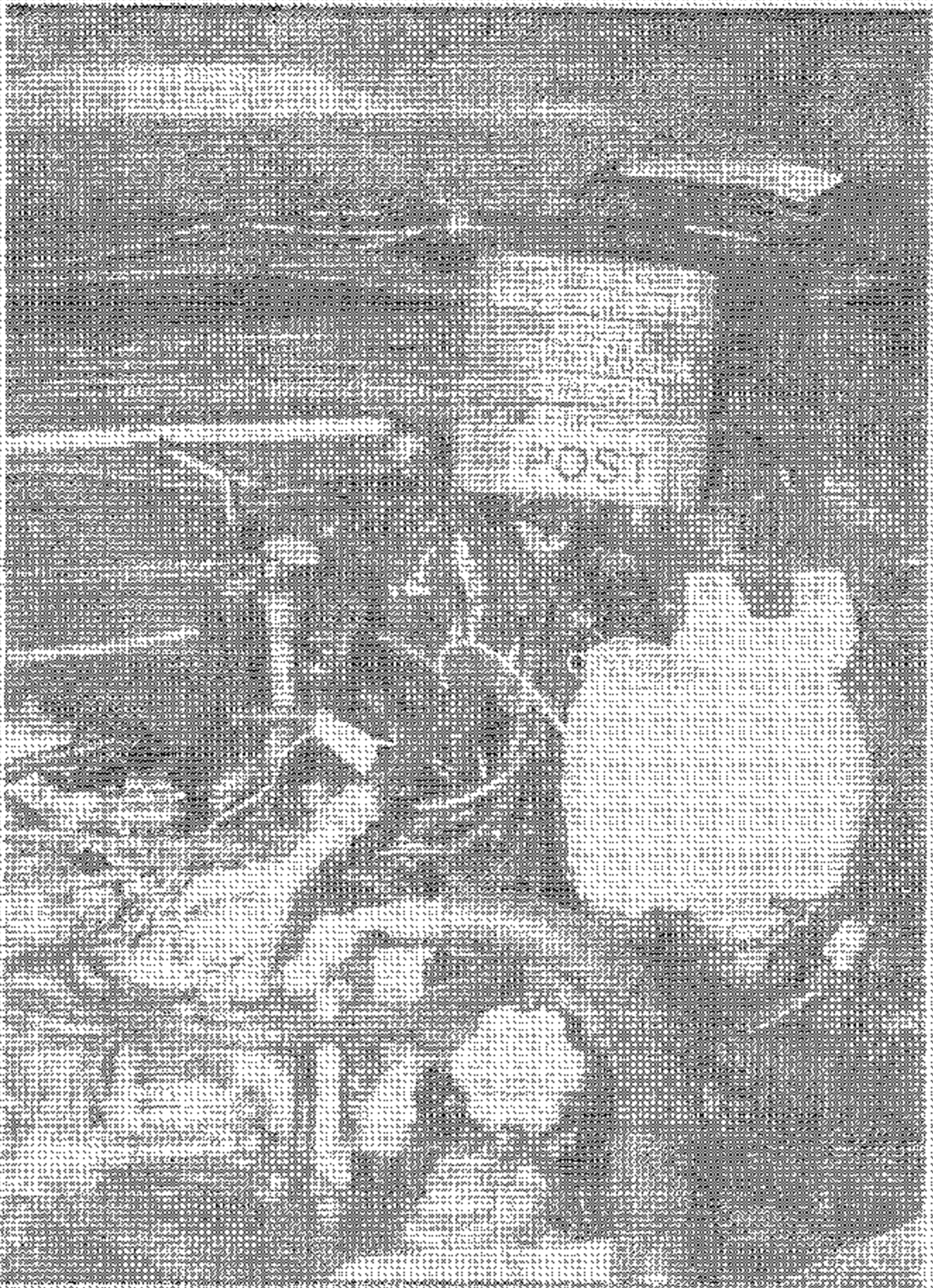


Figure A-28 Post-Test Steering Column Linkage in Engine Compartment View

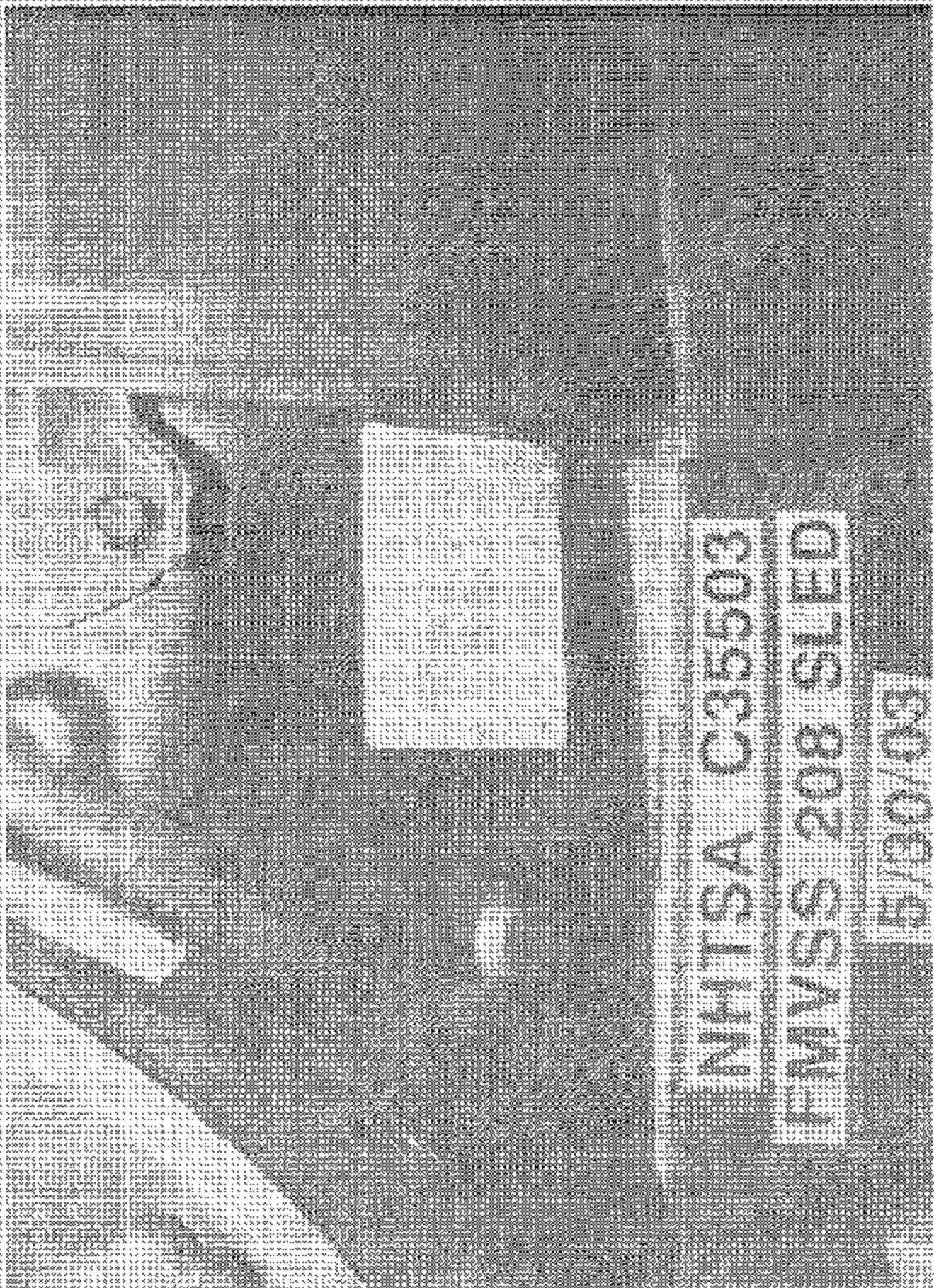


Figure A-29. Pre-Tier Vehicle Certification Label View

VEHICLE CAPACITY WEIGHT

900LB/410KG

NUMBER OF OCCUPANTS

TOTAL 9 (FRONT 2/REAR 3)

RECOMMENDED TIRE INFLATION
PRESSURE

PSI (KPA)

TIRE SIZE	FRONT	REAR
215/60R16-93	200/25	190/28
	LOAD	LOAD
	200/29	250/36
	LOAD	LOAD

At Lower Toward Rear Inflation

PSI (KPA) (200/25/190/28)

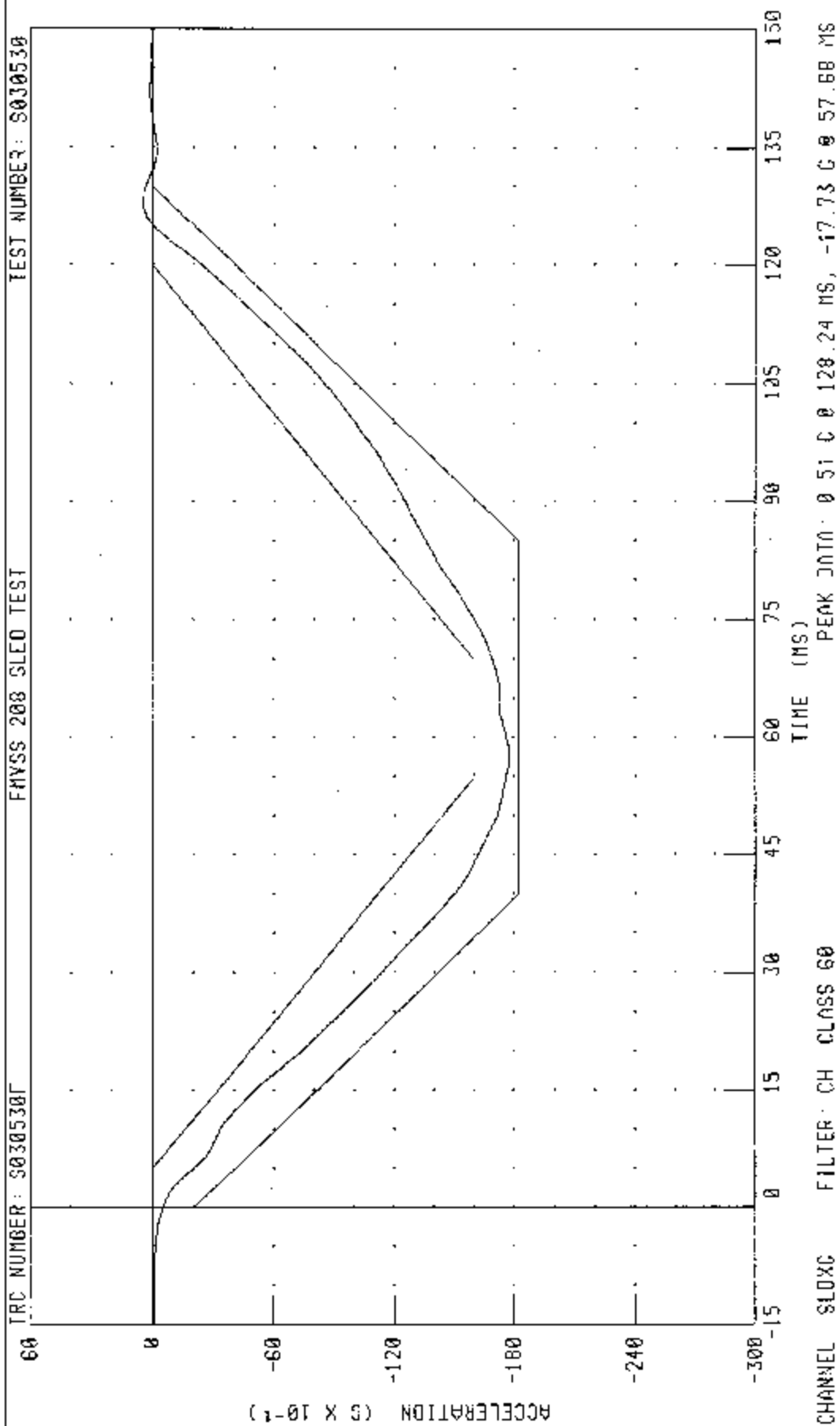
VEHICLE DW

Figure 2-30. Vehicle Tire Load Label View

Appendix B

Data Plots

C35503 / 2003 SUBARU FORESTER
SLED ACCELERATION



C35503 / 2003 SUBARU FORESTER

DRIVER AIRBAG EVENT

TEST NUMBER: S030530

TRC NUMBER: S030530Z

FMVSS 200 SLED TEST

102

85

68

51

34

17

0

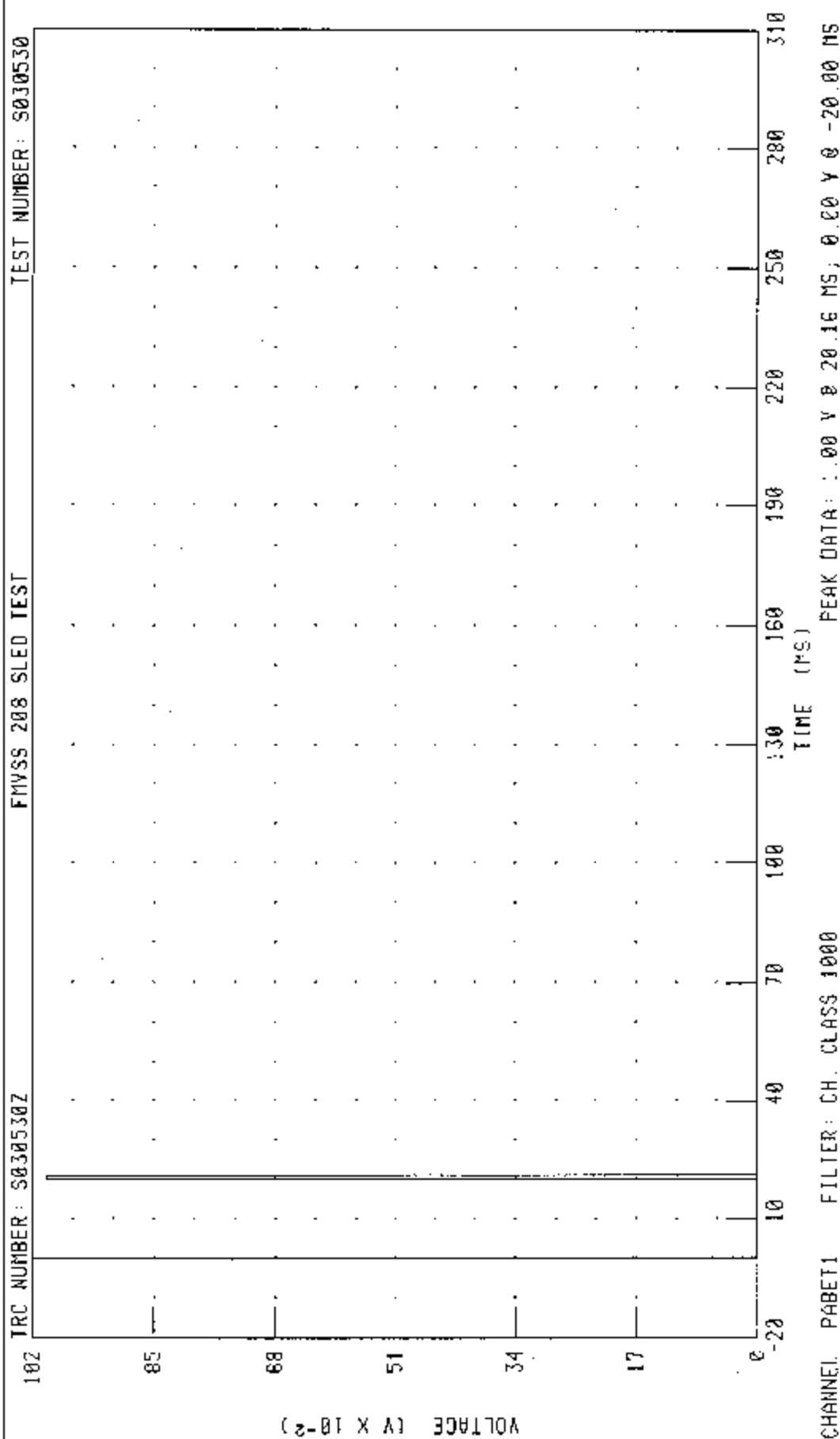
VOLTAGE (V X 10⁻²)

TIME (MS)

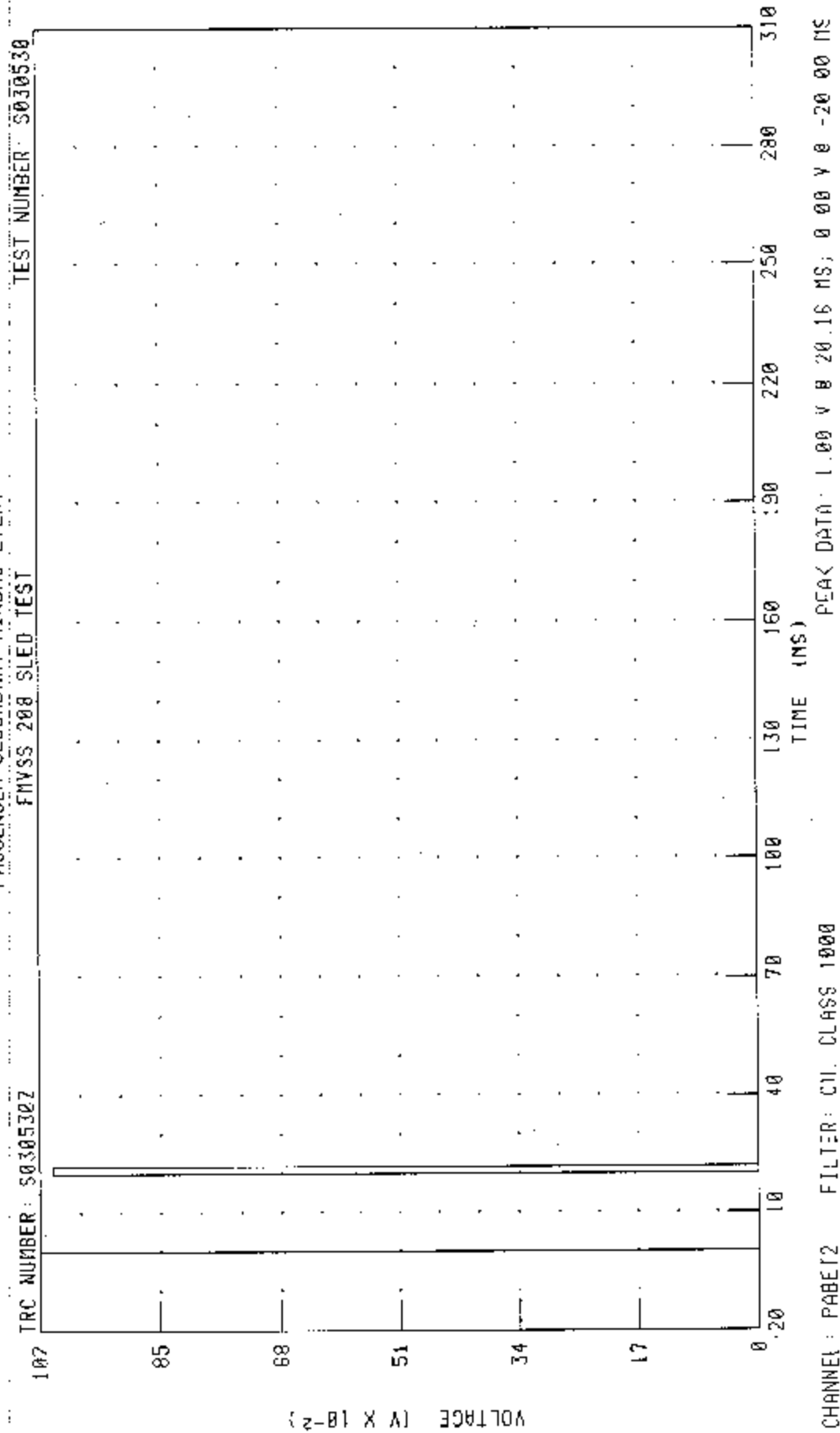
PEAK DATA: 1.00 V @ 20.16 MS; 0.00 V @ -20.00 MS

CHANNEL: DABET1 FILTER: CH. CLASS 1000

C35503 / 2003 SUBARU FORESTER
PASSENGER AIRBAG EVENT

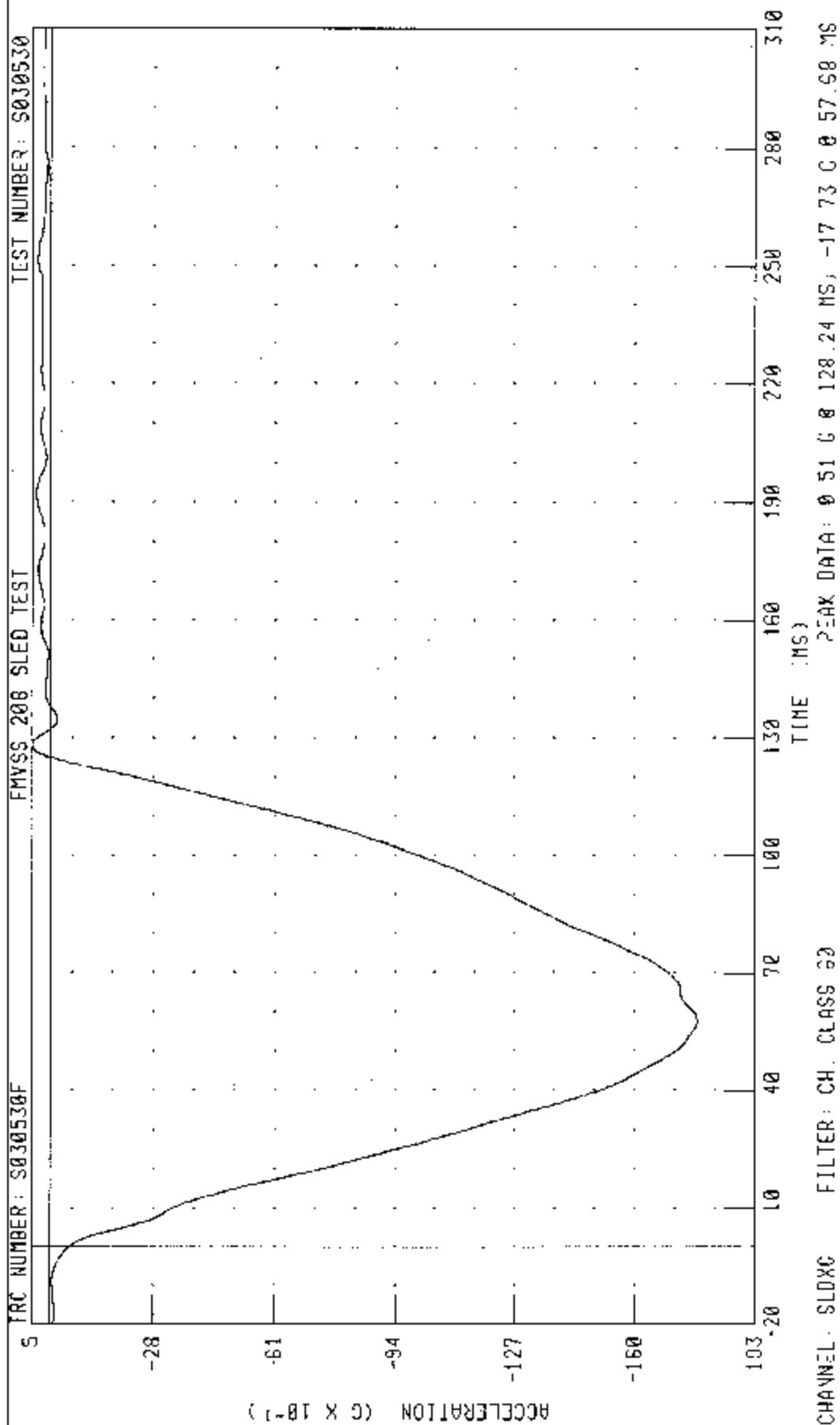


C35503 / 2003 SUBARU FORESTER
PASSENGER SECONDARY AIRBAG EVENT
FHVS 200 SLED TEST



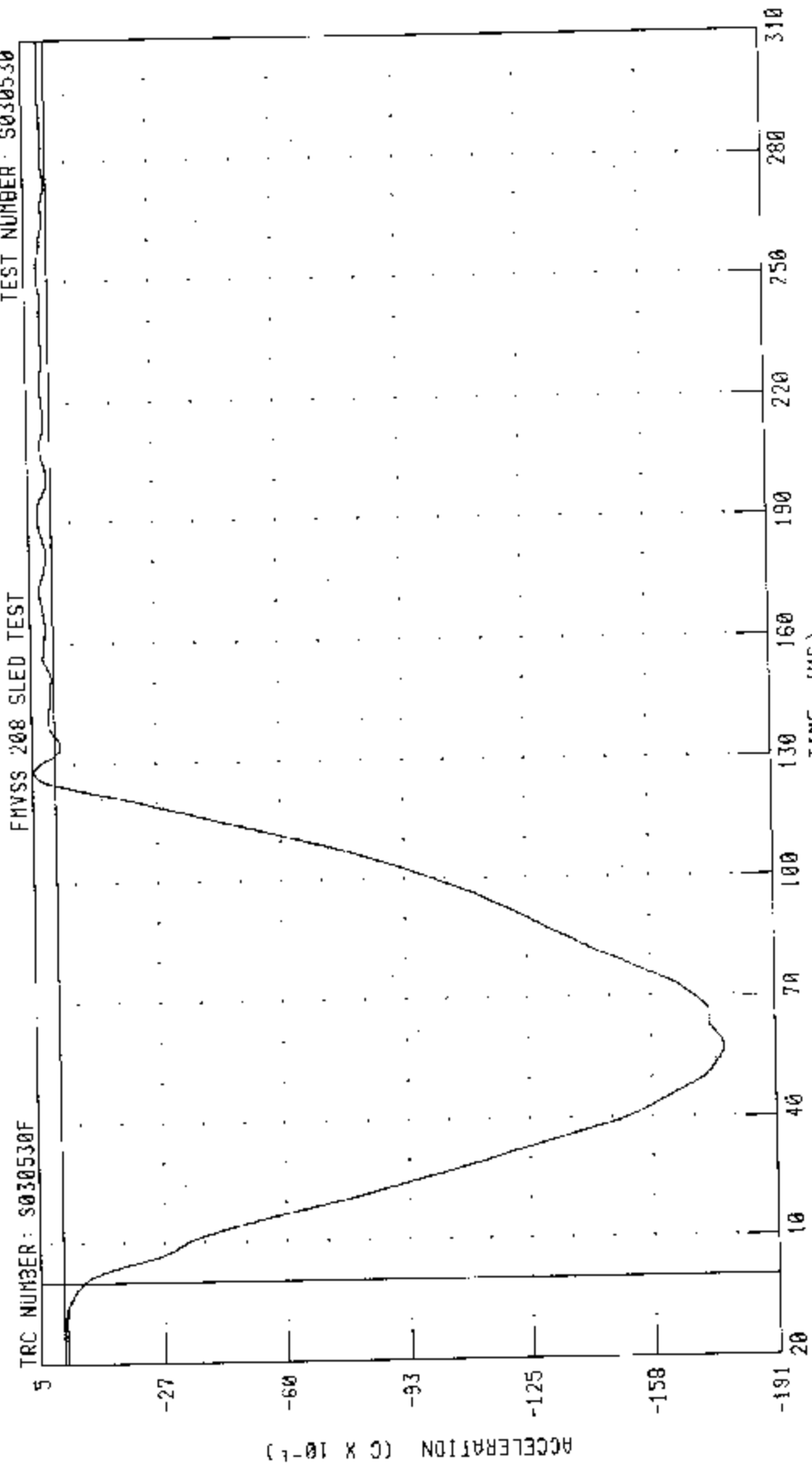
C35503 / 2003 SUBARU FORESTER

SLED ACCELERATION



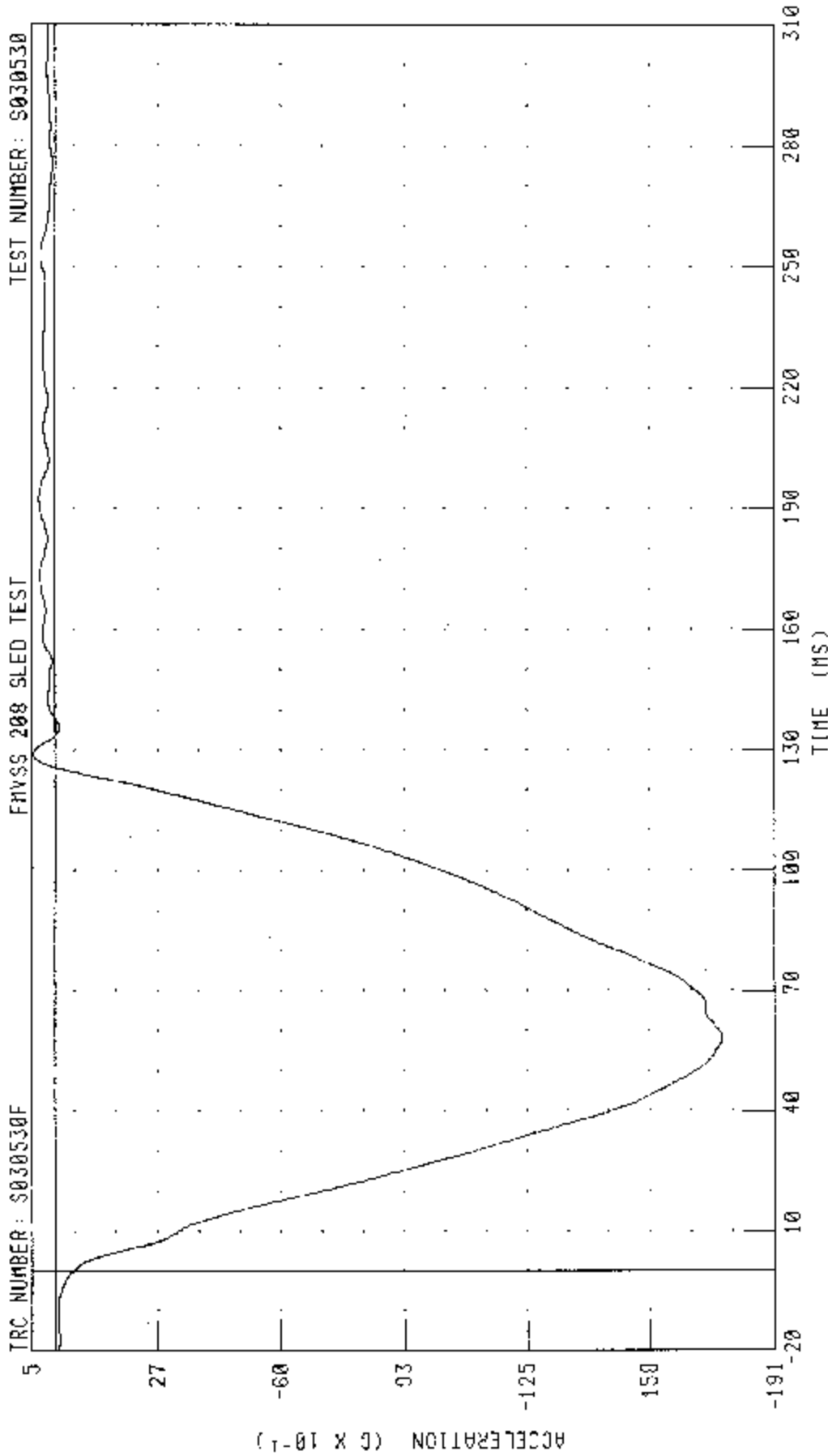
C35503 / 2003 SUBARU FORESTER
SLED ACCELERATION - BACKUP

TEST NUMBER: S030530



CHANNEL: SLOXCR FILTER: CH CLASS 60

C35503 / 2003 SURARU FORSTER
SLED ACCELERATION FOR TIMING CIRCUIT



CHANNEL: SLDXCT FILTER: CH. CLASS 60

PEAK DATA 0.53 G @ 129.12 MS; -17.83 G @ 58.16 MS

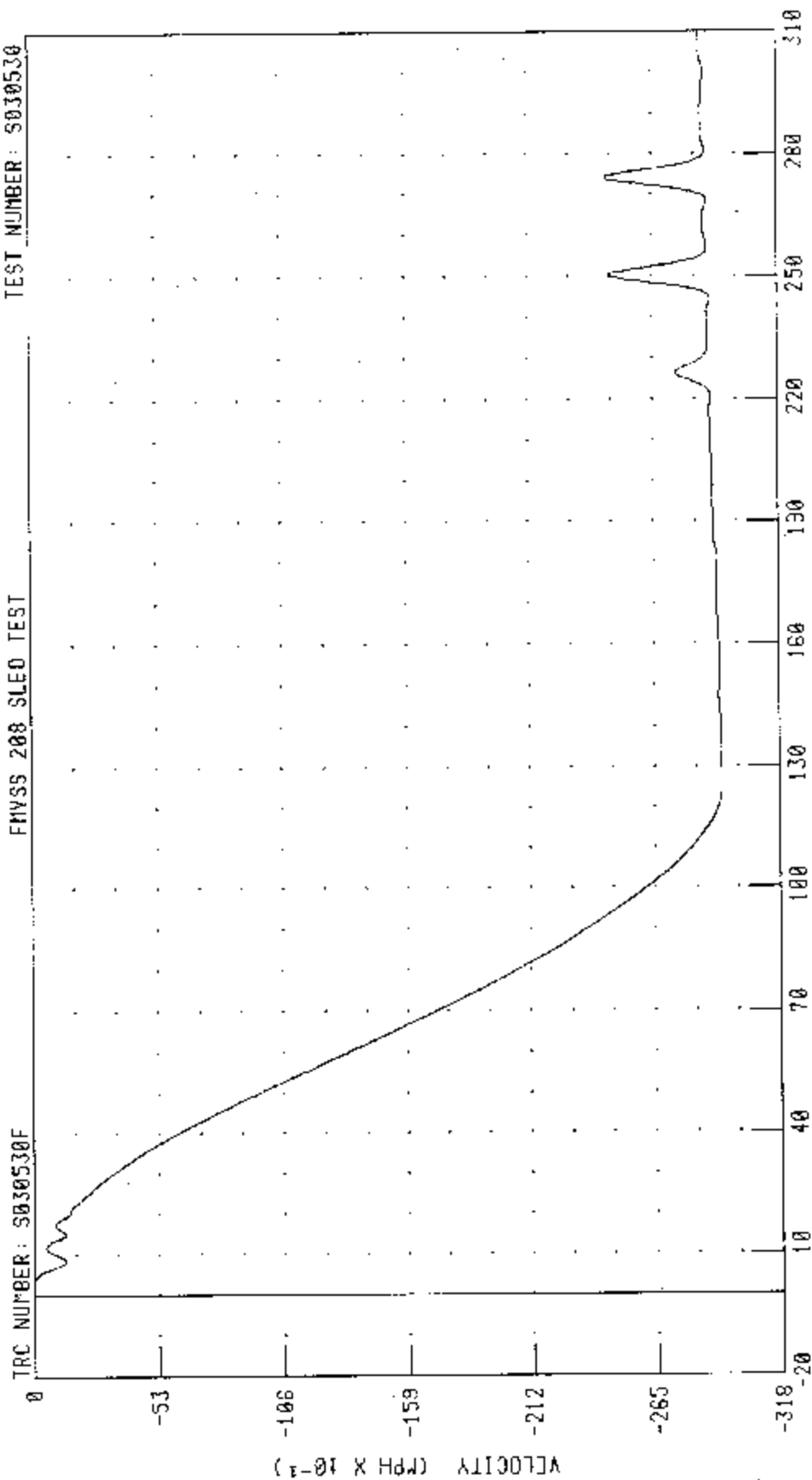
C35503 / 2003 SUBARU FORESTER

MEASURED VELOCITY TRIP

FHVSS 208 SLED TEST

TEST NUMBER: S030530

TRC NUMBER: S030530F

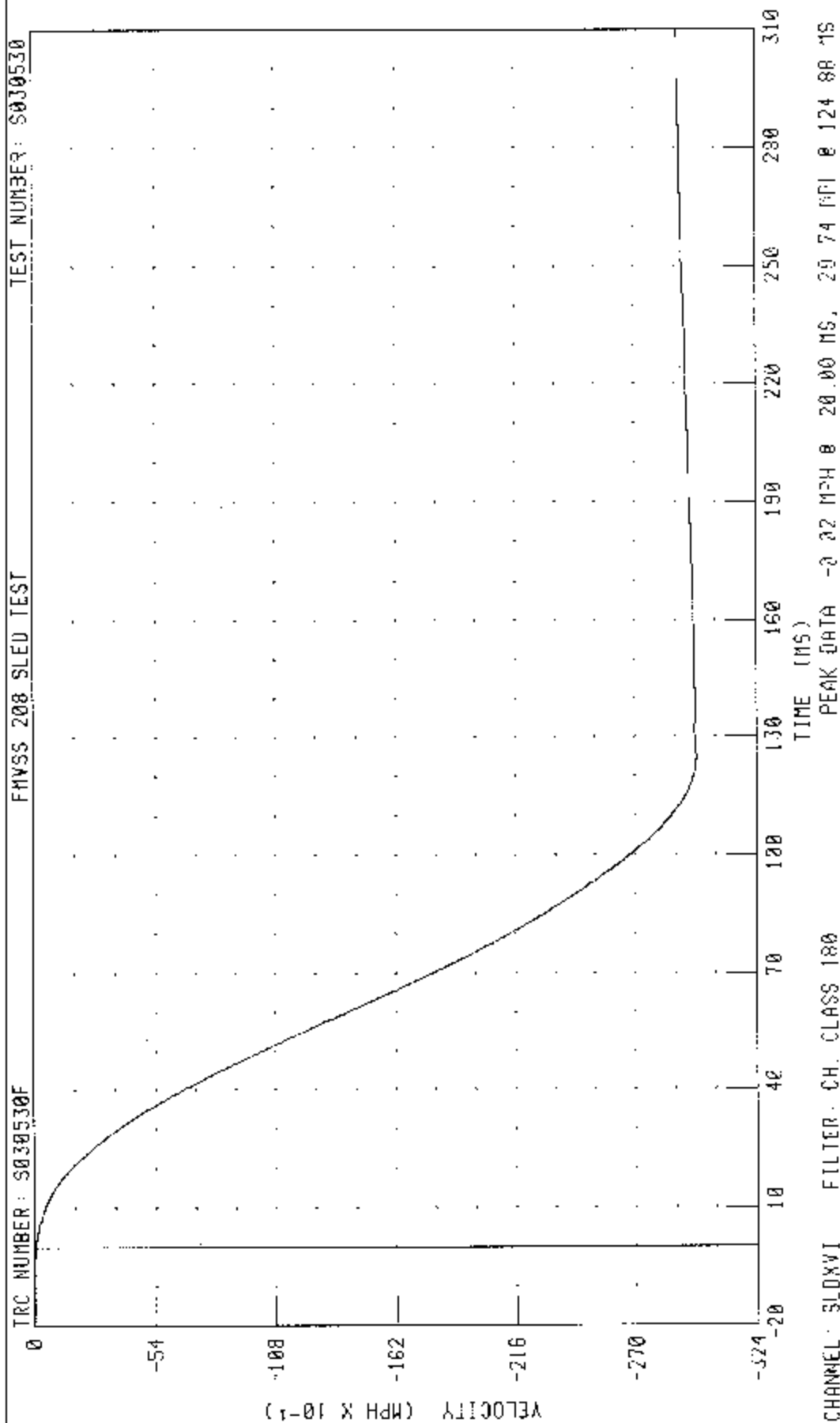


CHANNEL: SLOXY FILTER: CH. CLASS 6B

PEAK DATA: 0 06 MPH @ 2 64 MS; -29.36 MPH @ 126 PC MS

CS5503 / 2003 SUBARU FORESTER

SLED VELOCITY (INTEGRATED)



CHANNEL: SLOXVI FILTER: CH. CLASS 180

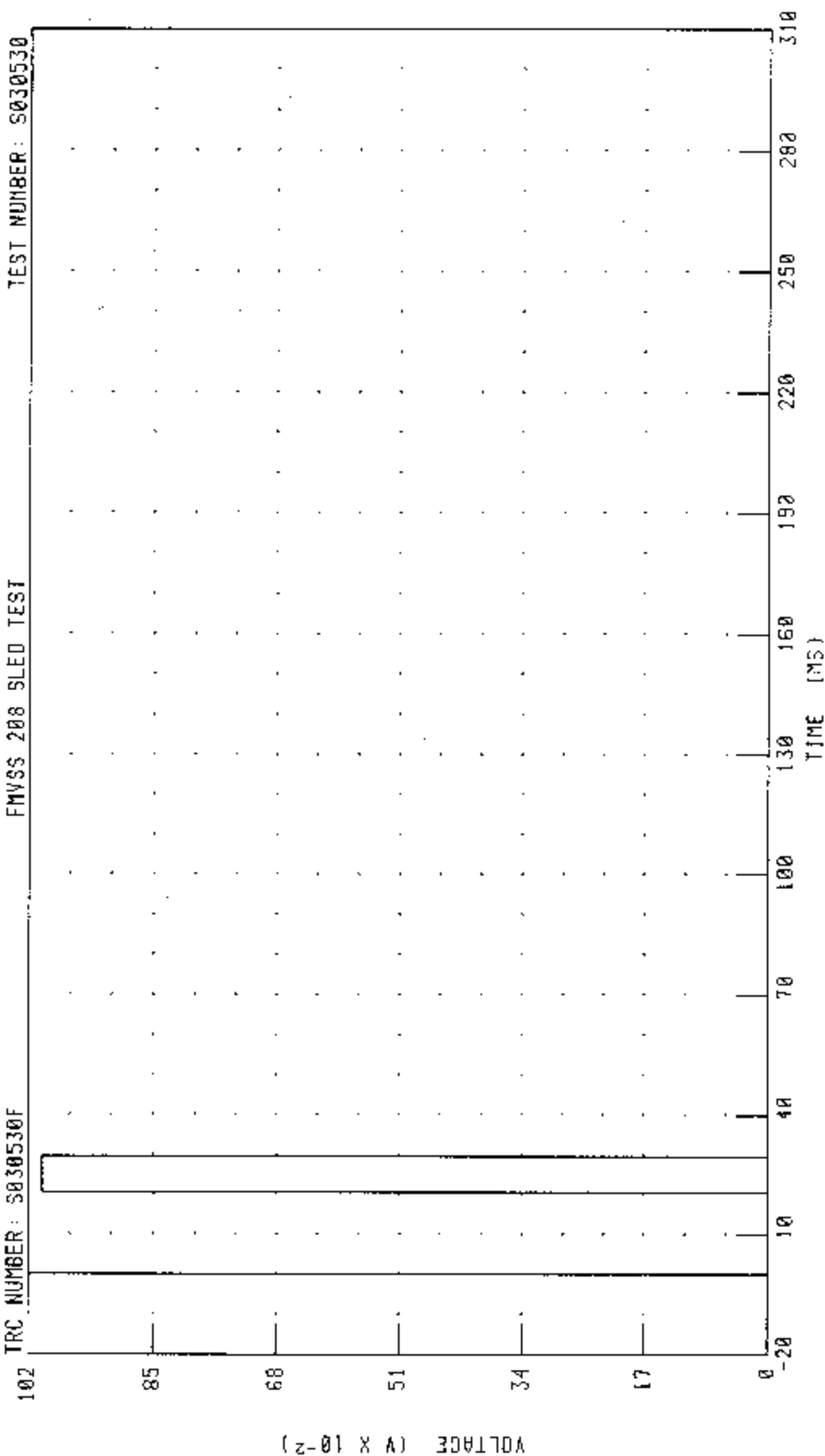
C35503 / 2003 SUBARU FORESTER

DRIVER PRIMARY AIRBAG EVENT

FMVSS 208 SLED TEST

TRC NUMBER: S030530F

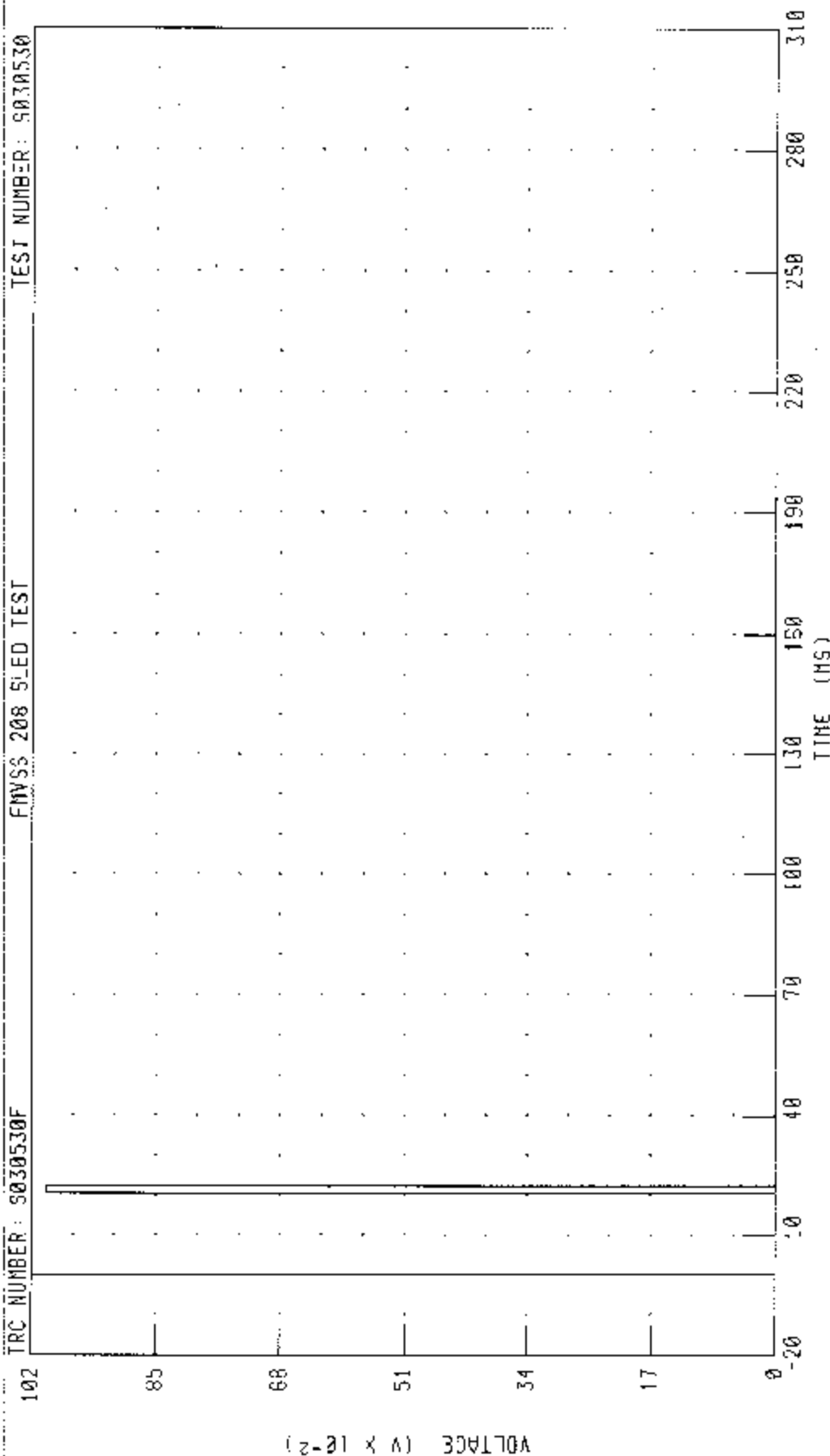
TEST NUMBER: S030530



CHANNEL: DABET1 FILTER CH: CLASS 1000

PEAK DATA: 1 00 V @ 20 72 MS; 0.00 V @ -20 00 MS

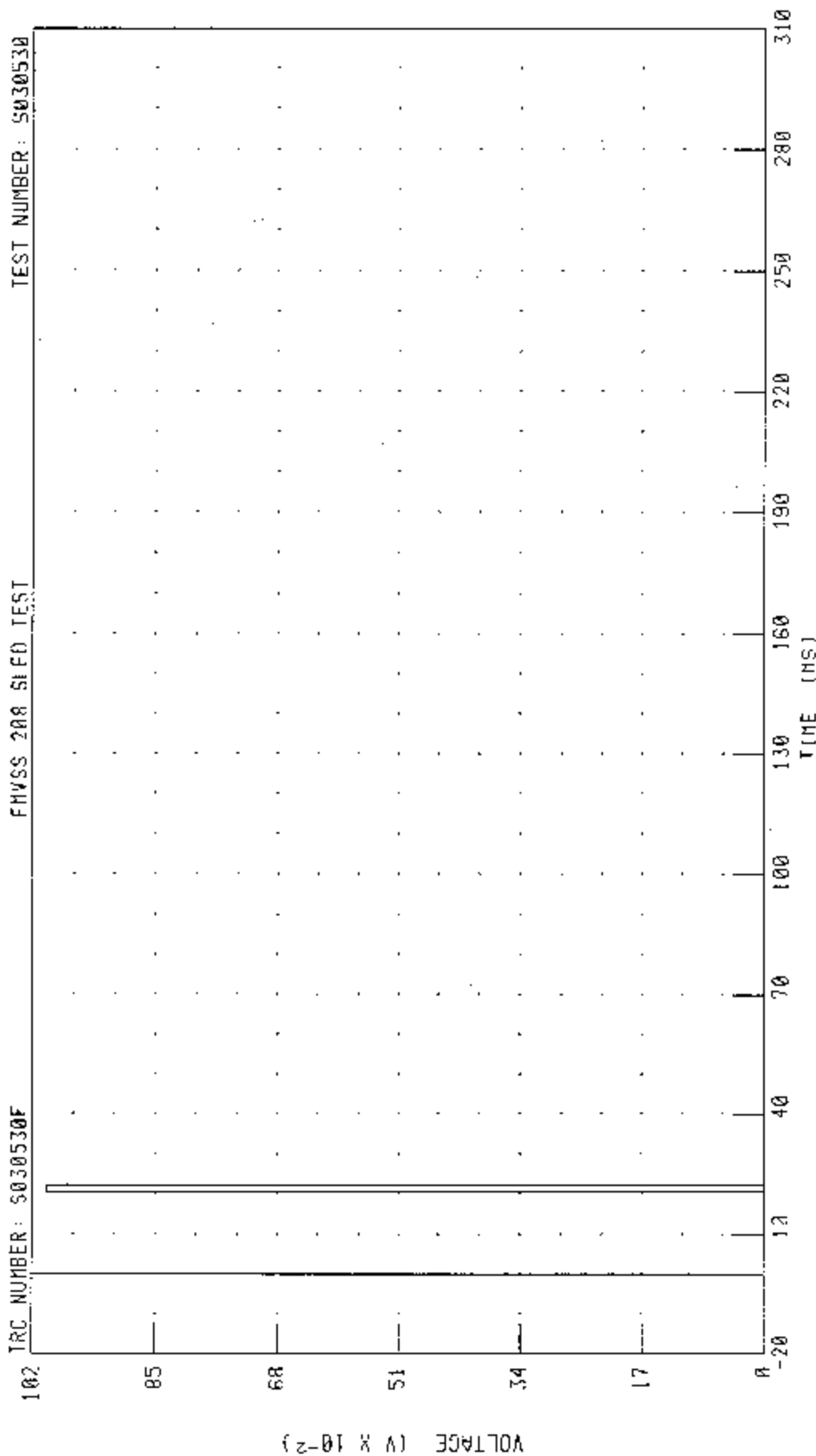
C35503 / 2003 SUBARU FORESTER
PASSENGER PRIMARY AIRBAG EVENT



PEAK DATA 1 00 V @ 20 72 MS; 0.00 V @ -20 00 MS

CHANNEL: PABET1 FILTER: CH CLASS 1000

C35503 / 2003 SUBARU FORESTER
PASSENGER SECONDARY AIRBAG EVENT
FMVSS 208 SLED TEST



PEAK DATA: 1 00 V @ 20.72 MS; 0.00 V @ -20.00 MS

CHANNEL: PABET2 FILTER CH CLASS 1000

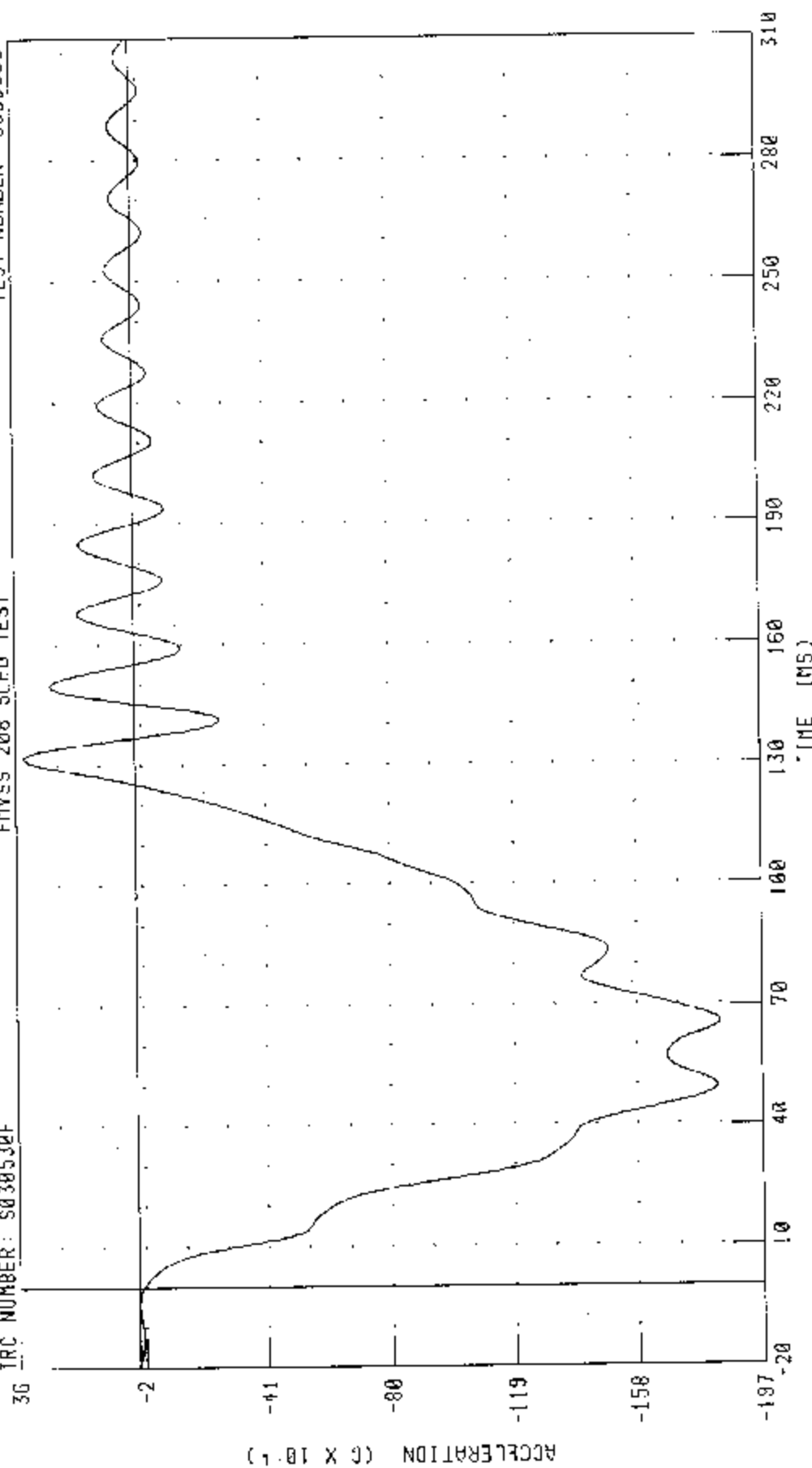
C35503 / 2003 SUBARU FORESTER

REAR AXLE X-AXIS ACCELERATION

FMVSS 208 SLED TEST

TEST NUMBER: S030530

TRC NUMBER: S030530F



PEAK DATA: 3.42 G @ 131.92 MS, -18.39 G @ 65.50 MS

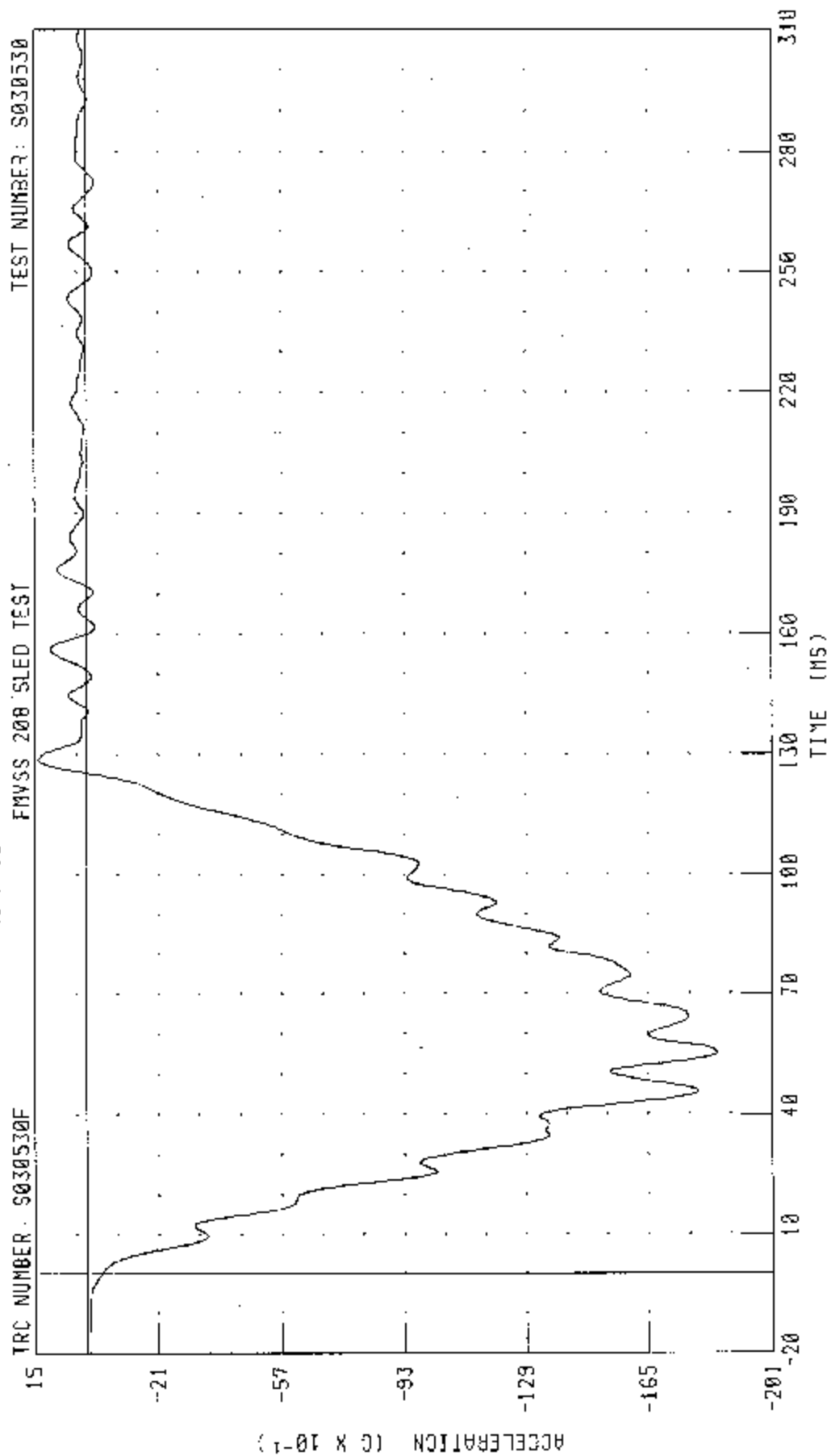
CHANNEL: RAXG FILTER: CH. CLASS 60

ACCELERATION (G X 10⁻¹)

S030530

B-14

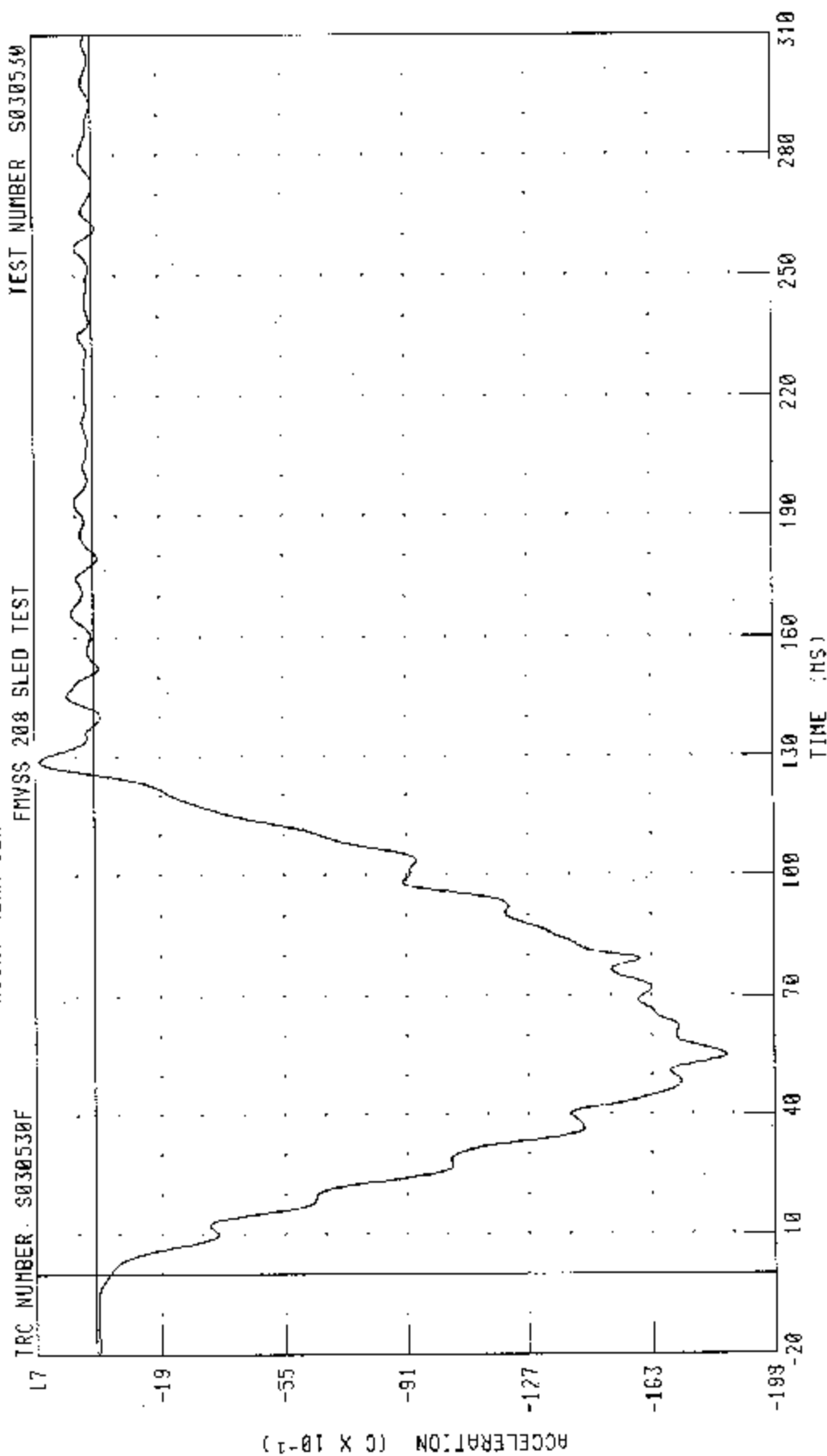
C35503 / 2003 SUBARU FORESTER
LEFT REAR SEAT CROSSLIMBER X-AXIS ACCELERATION
FMVSS 208 SLED TEST



PEAK DATA 1 40 G @ 120 80 MS, -18 40 G @ 200 36 MS

CHANNEL1: I SXXG FILTER: CF, CLASS 60

C35503 / 2003 SUBARU FORESTER
 RIGHT REAR SEAT CROSSMEMBER X-AXIS ACCELERATION
 FMVSS 208 SLED TEST



CHANNEL RSXXG FILTER CII CLASS 60

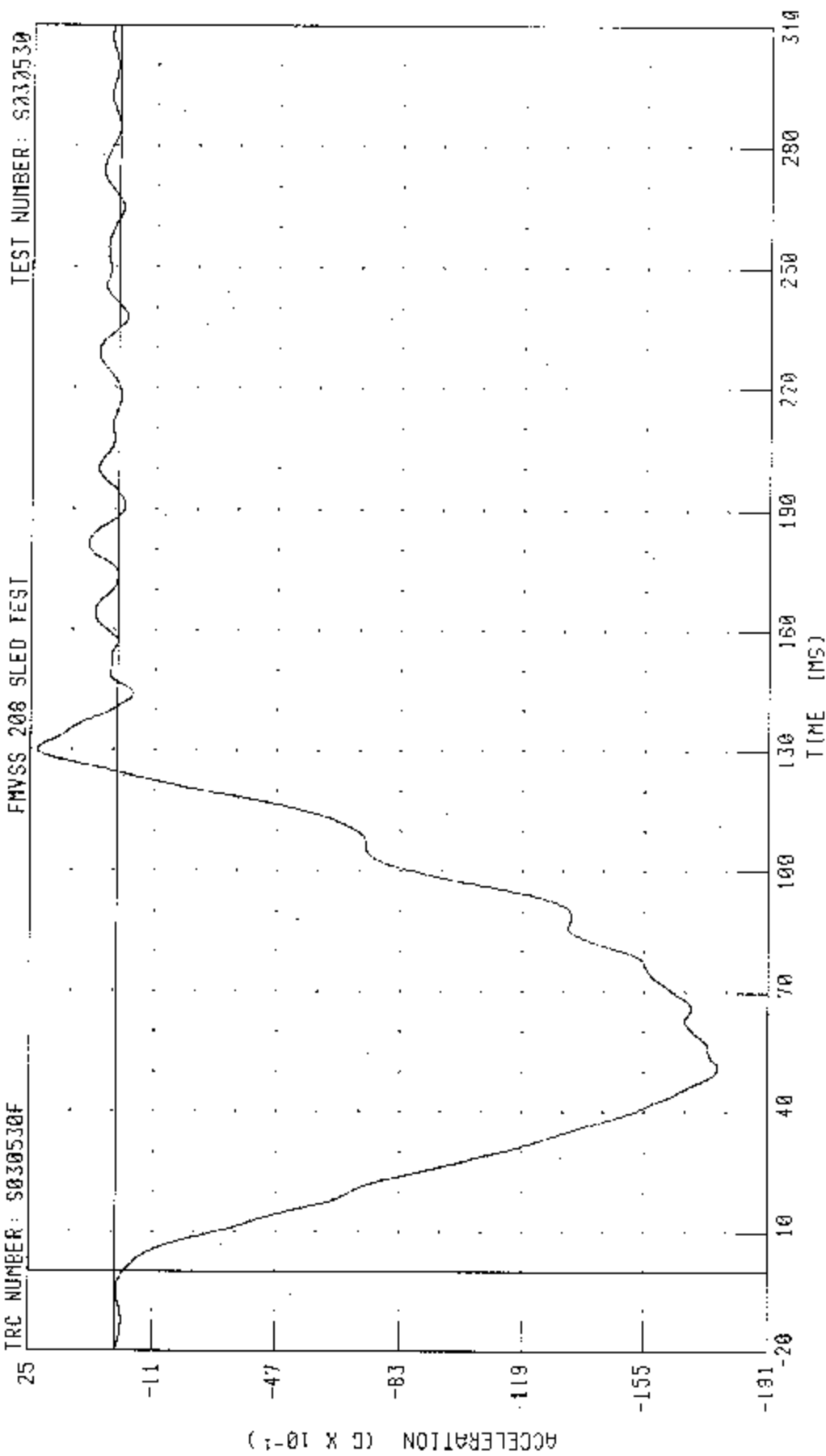
PEAK DATA: 1 57 G @ 128 96 MS, -18.52 G @ 55.12 MS

C35503 / 2003 SUBARU FORESTER
 TOP ENGINE X-AXIS ACCELERATION

TRC NUMBER: S030530F

FMVSS 208 SLED TEST

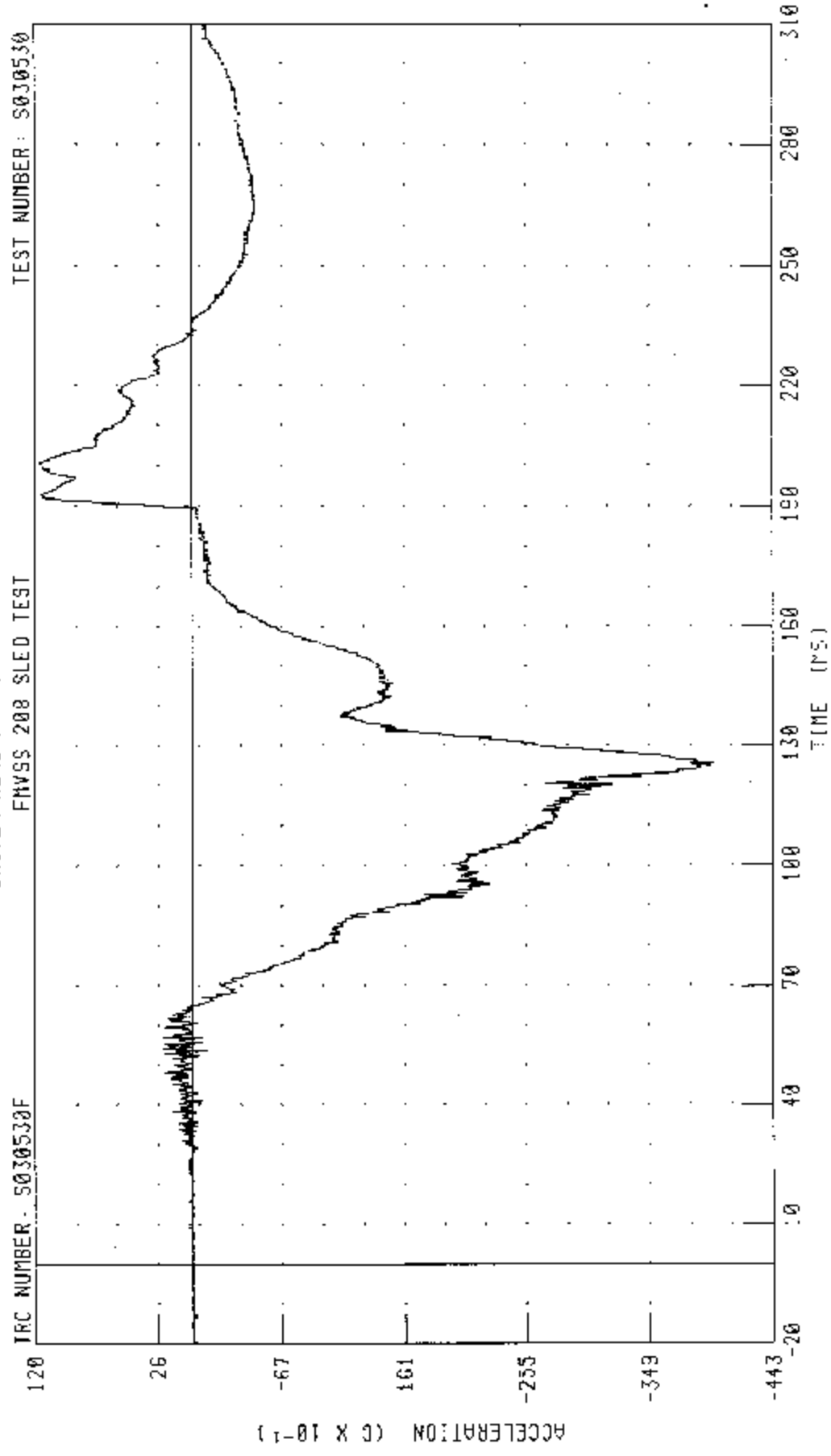
TEST NUMBER: S030530



CHANNEL: TEXC FILTER: CH CLASS: 60

PEAK DATA: 2.30 G @ 130.24 MS, -17.63 G @ 51.04 MS

C35503 / 2003 SURRU FORFSTR
 DRIVER HEAD X-AXIS ACCELERATION
 FMVSS 208 SLED TEST



CHANNEL: HE0X01 FILTER: CH CLASS 1000

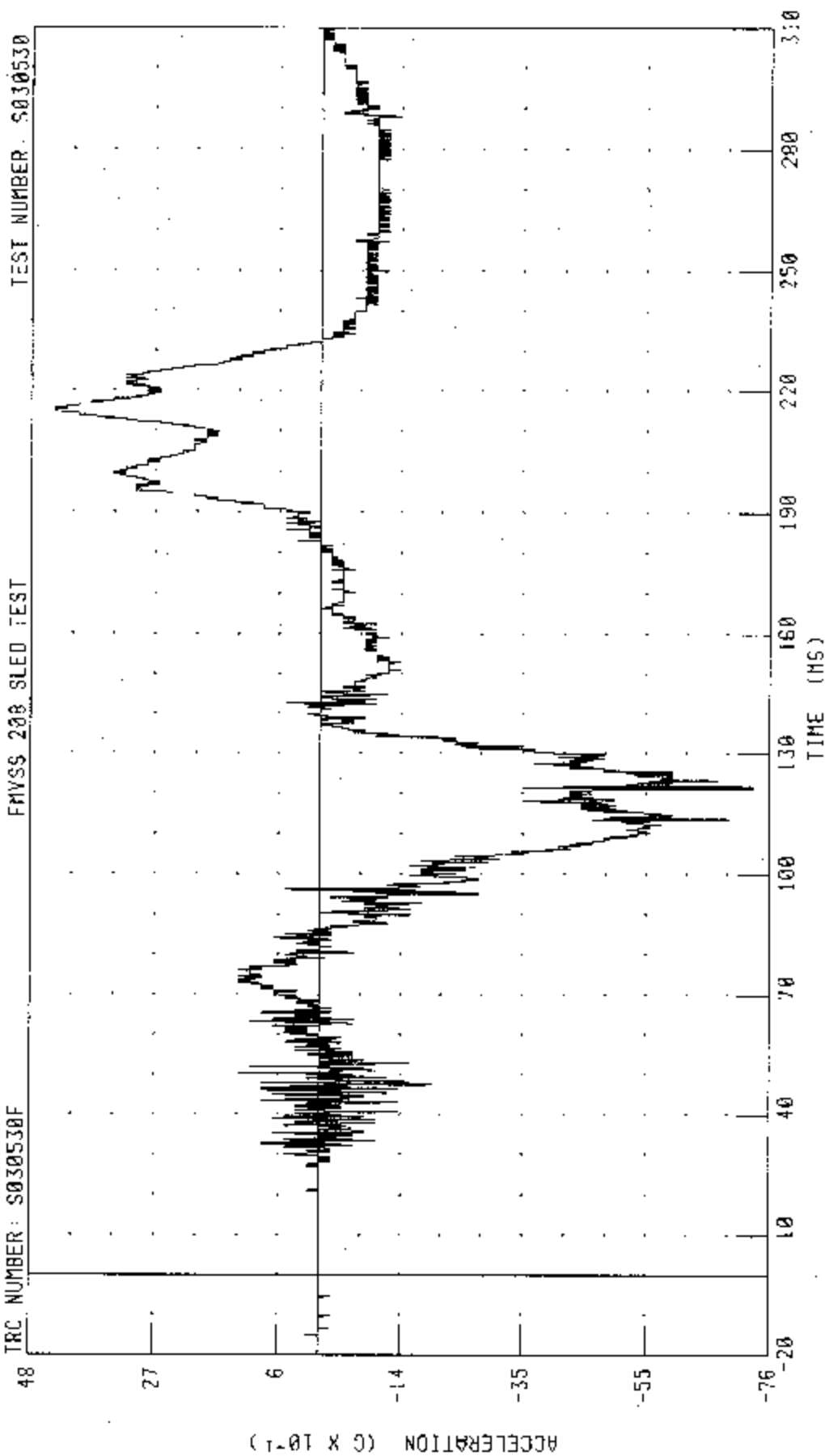
TRC NUMBER: S030530F

PFAY DATA: 11.52 0 0 200.48 MS; -39.35 3 0 125.60 MS

C35503 / 2003 SUBARU FORESTER
 DRIVER HEAD Y-AXIS ACCELERATION
 FMVSS 208 SLED TEST

TRC NUMBER: S030530F

TEST NUMBER: S030530



CHANNEL: HEDYC1 FILTER: CH CLASS: 1000

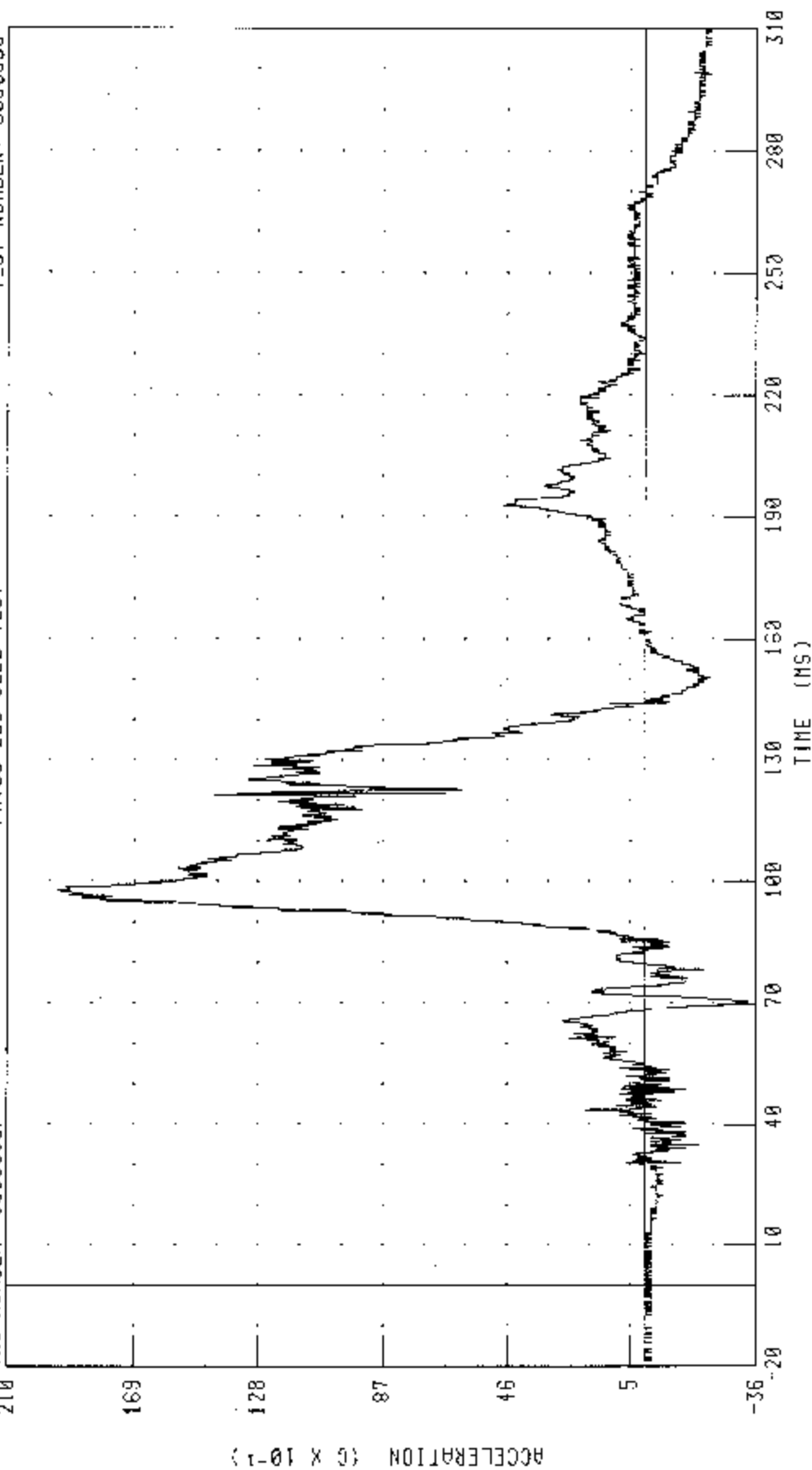
PEAK DATA: 49 G @ 214.56 MS; -7.42 G @ 121.44 MS

C35503 / 2003 SUBARU FORESTER
DRIVER HEAD Z-AXIS ACCELERATION

TAC NUMBER: S030530F

FHVSS 208 SLED TEST

TEST NUMBER: S030530



CHANNEL: HEC261 FILTER: CH. CLASS 1000

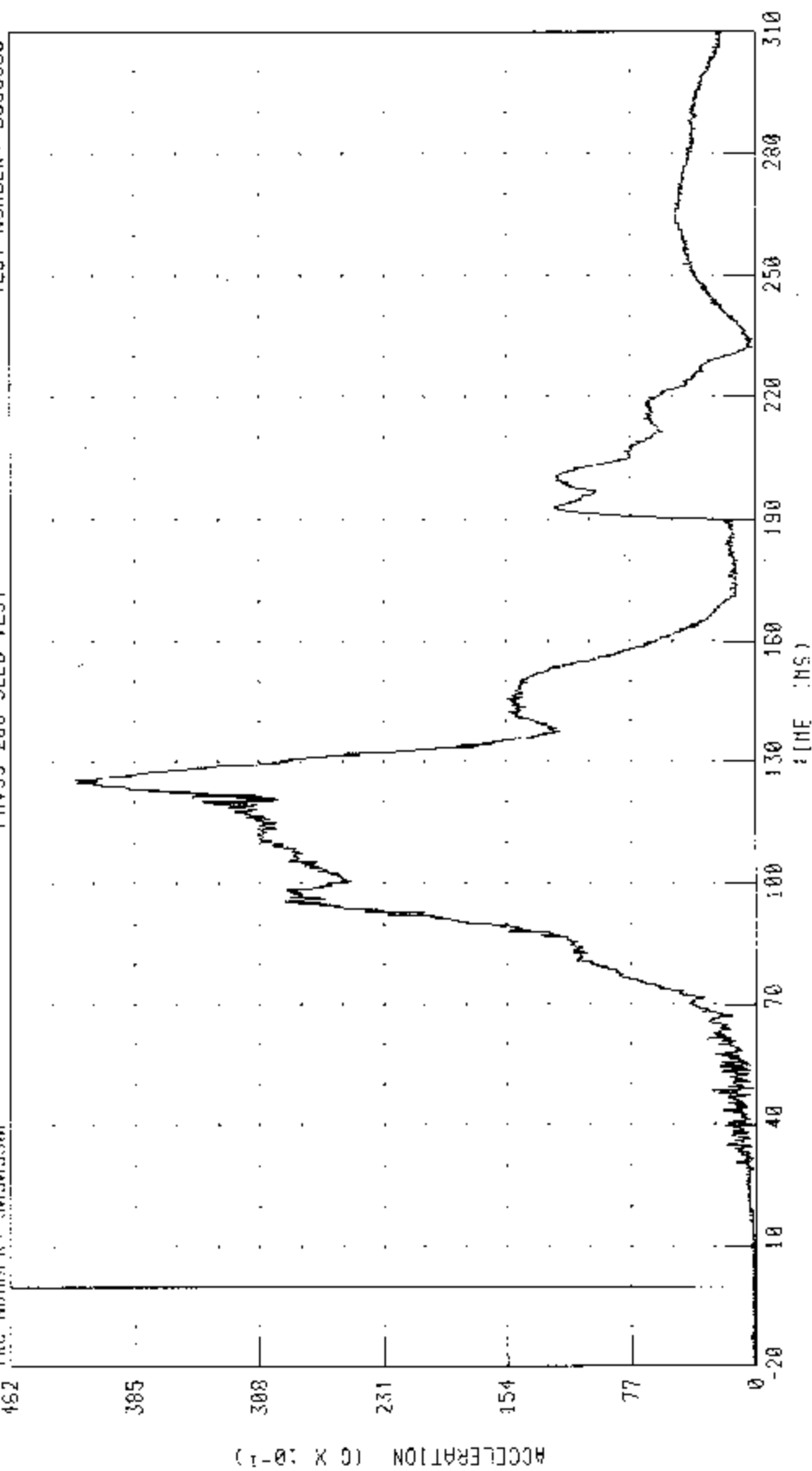
PEAK DATA: 19 37 6 @ 97 76 MS, -3 32 3 @ 70 40 MS

C35503 / 2003 SUBARU FORESTER
 DRIVER HEAD RESULTANT ACCELERATION

TRC NUMBER: S030530F

FMVSS 200 SLED TEST

TEST NUMBER: S030530



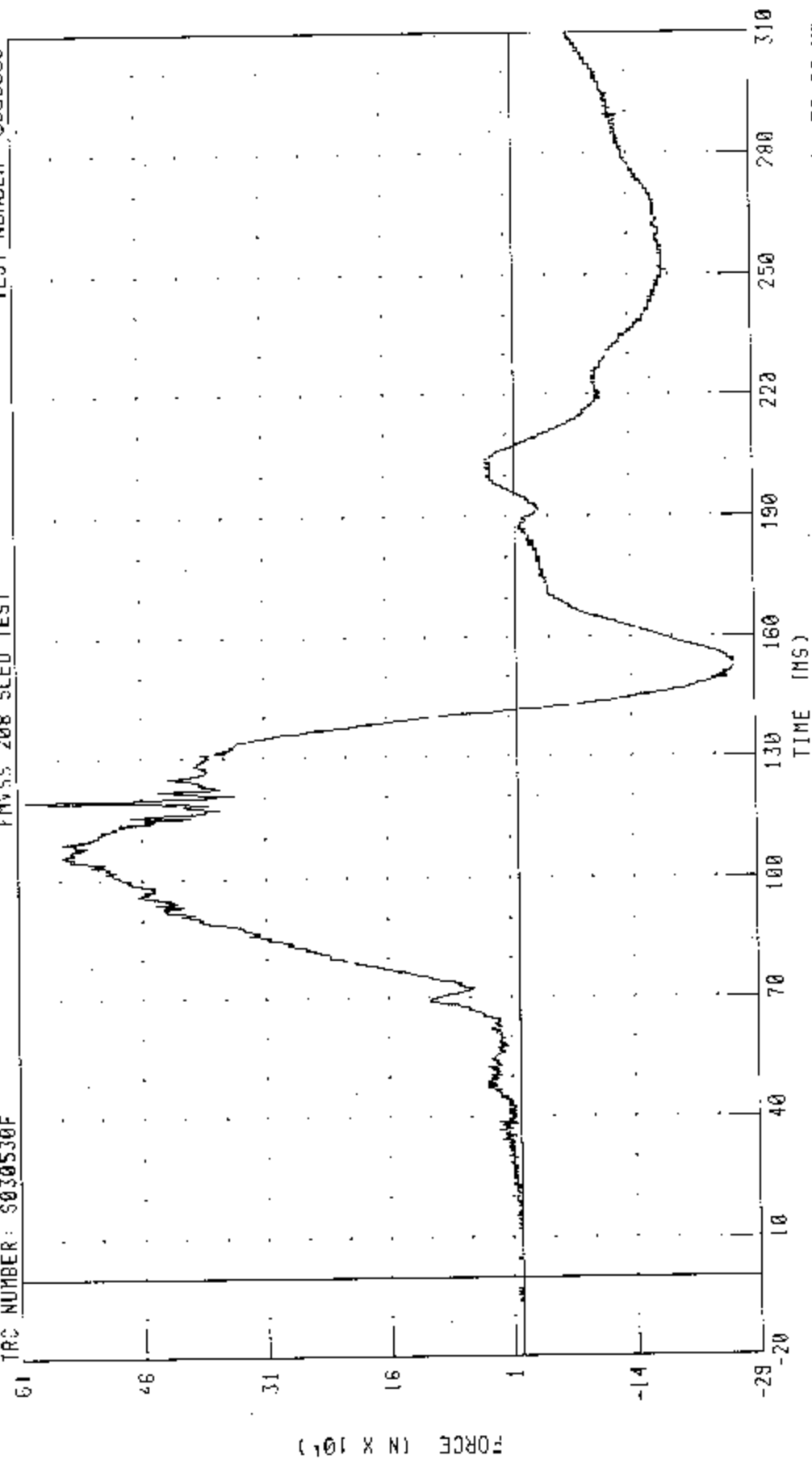
CHANNEL: HEAD01 FILTER: CH CLASS 1000

PEAK DATA 42.17 0 0 125.68 MS, 0 10 G @ -15.78 MS

C35503 / 2003 SUBARU FORESTER
 DRIVER NECK X-AXIS SHEAR FORCE
 FMVSS 208 SLED TEST

TEST NUMBER: S030530

TRC NUMBER: S030530F



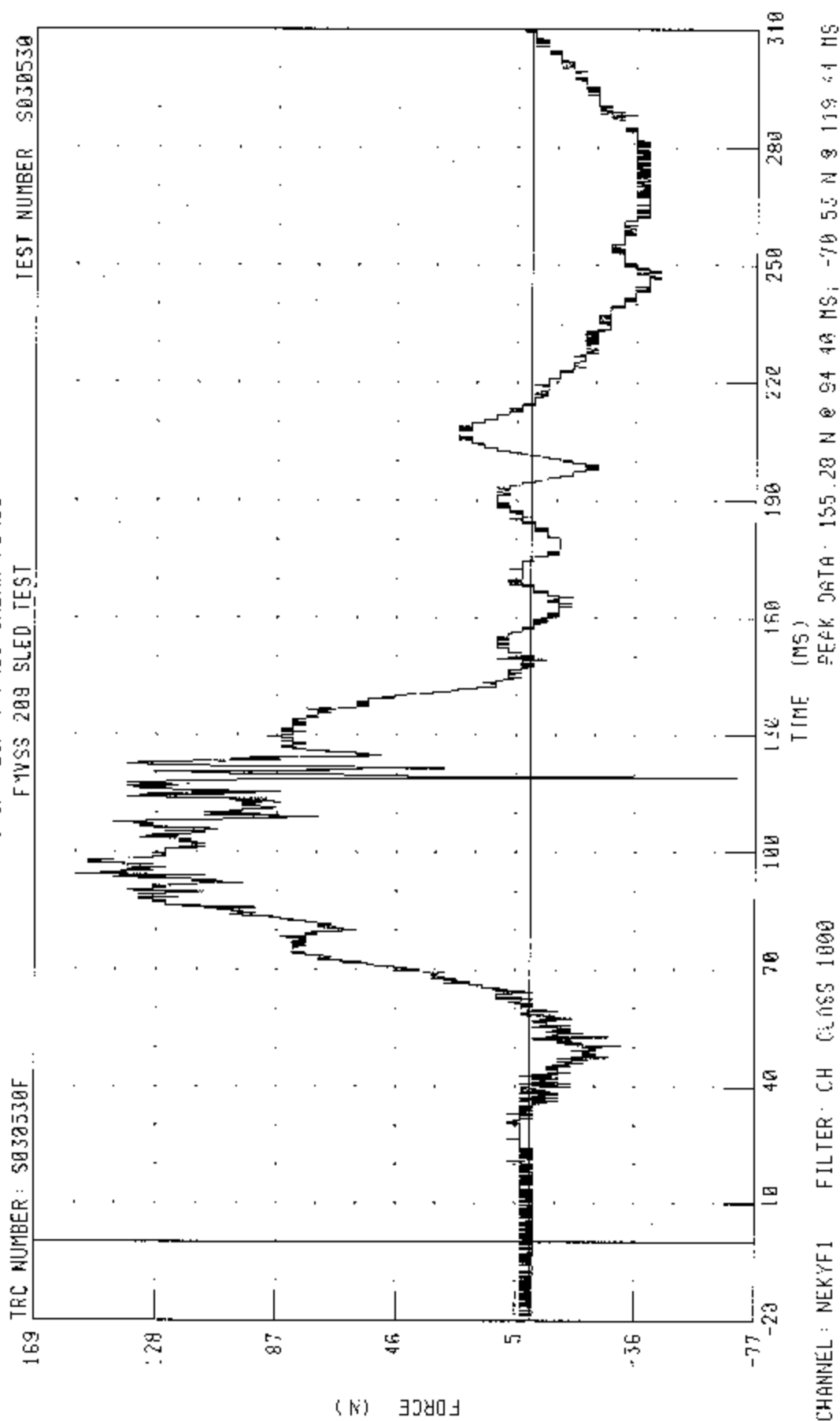
TIME (MS)

PEAK DATA: 599.47 N @ 119.47 MS, -264.99 N @ 152.08 MS

CHANNEL: NEKXF1 FILTER: CH CLASS 1200

FORCE (N X 10⁴)

C35503 / 2003 SUBARU FORESTER
DRIVER NECK Y-AXIS SHEAR FORCE

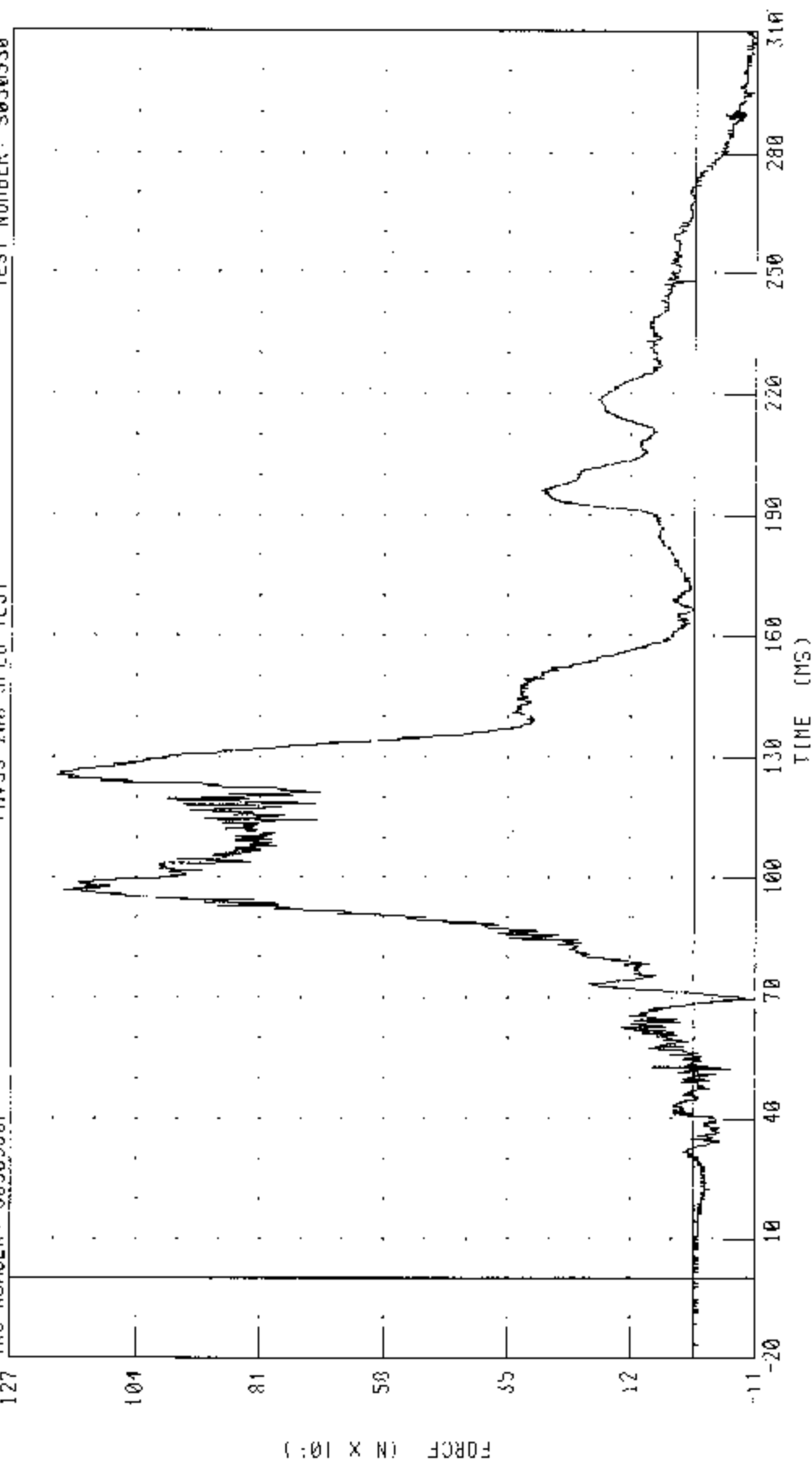


C35503 / 2003 SUBARU FORESTER
DRIVER NECK Z-AXIS AXIAL FORCE

TRC NUMBER: S030530F

FMVSS 208 SLED TEST

TEST NUMBER: S030530



CHANNEL NEKZF1 FILTER: CH CLASS 1000

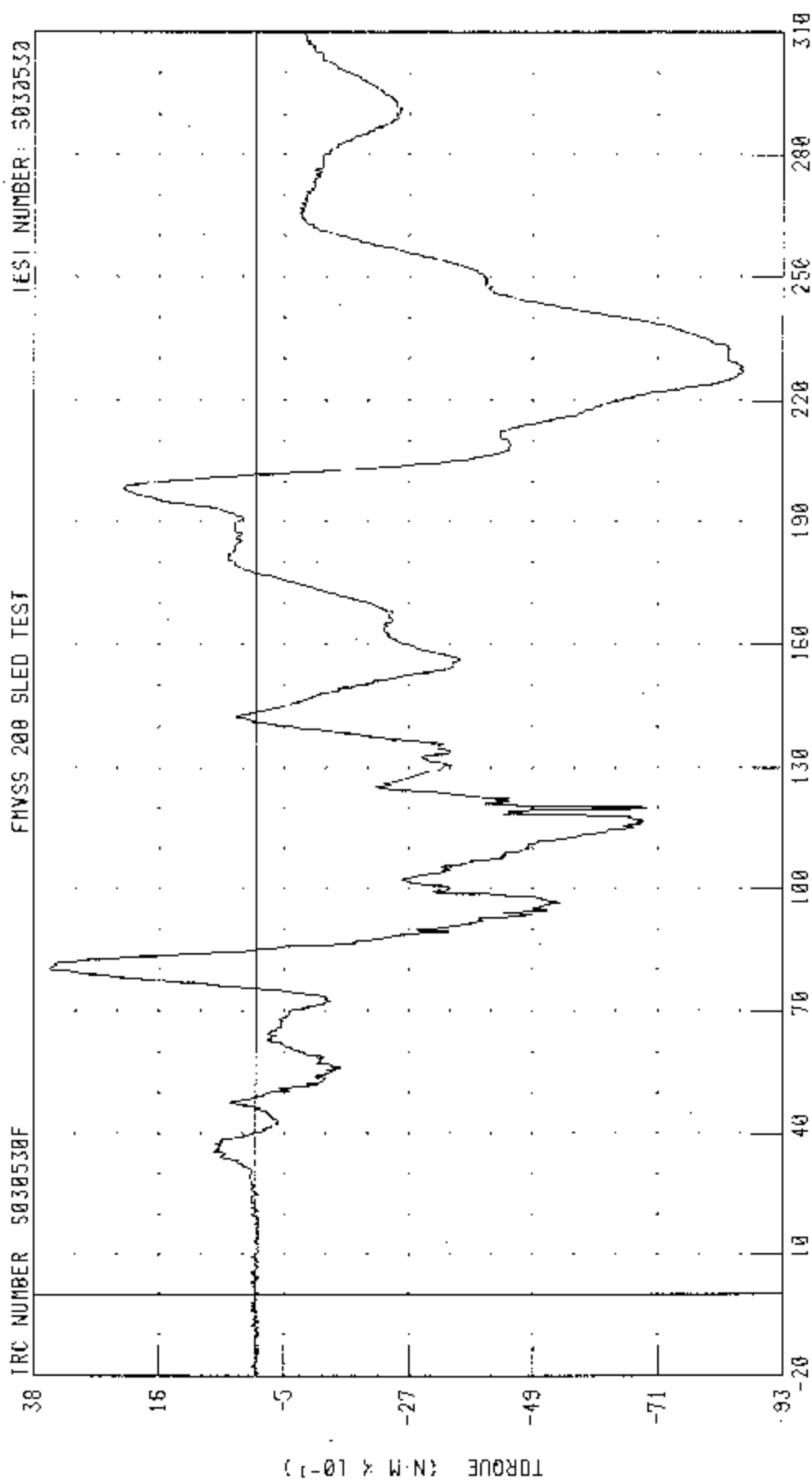
PEAK DATA 1185.97 N @ 125.76 MS; -104.00 N @ 294.54 MS

C35503 / 2003 SURARU FORESTER
DRIVER NECK MOMENT ABOUT X AXIS

TRC NUMBER S030530F

FMVSS 200 SLED TEST

IESI NUMBER: S030530



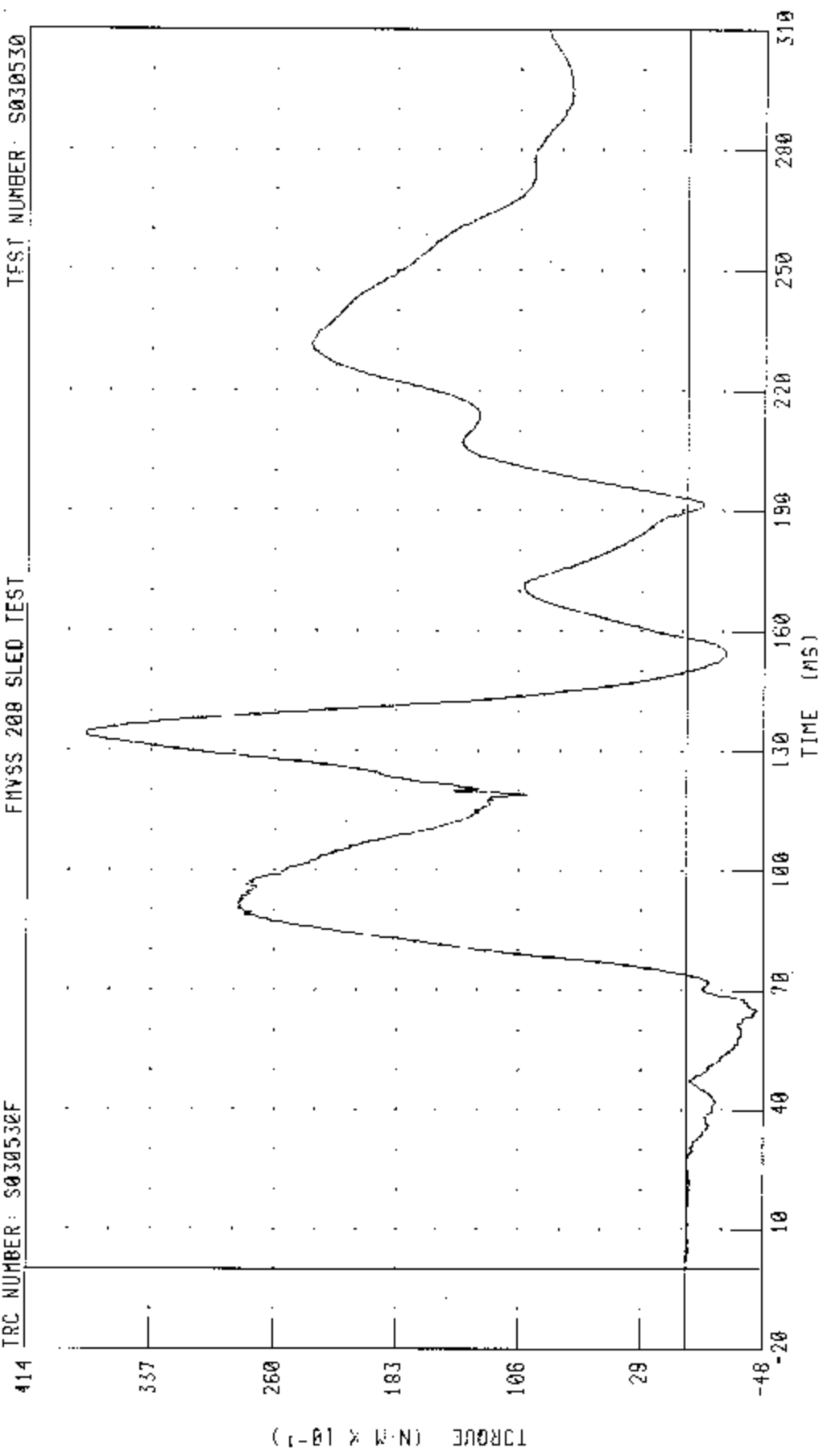
PEAK DATA: 3 02 N-M @ 00.32 MS, 0 62 N-M @ 227 17 MS

CHANNEL HEK341: FILTER: CH CLASS 600

C35503 / 2003 SUBARU FORESTER
 DRIVER NECK MOMENT ABOUT Y AXIS
 FMVSS 208 SLED TEST

TRC NUMBER: S030530F

TEST NUMBER: S030530



CHANNEL: NEKYH1 FILTER: CIL CLASS: 600

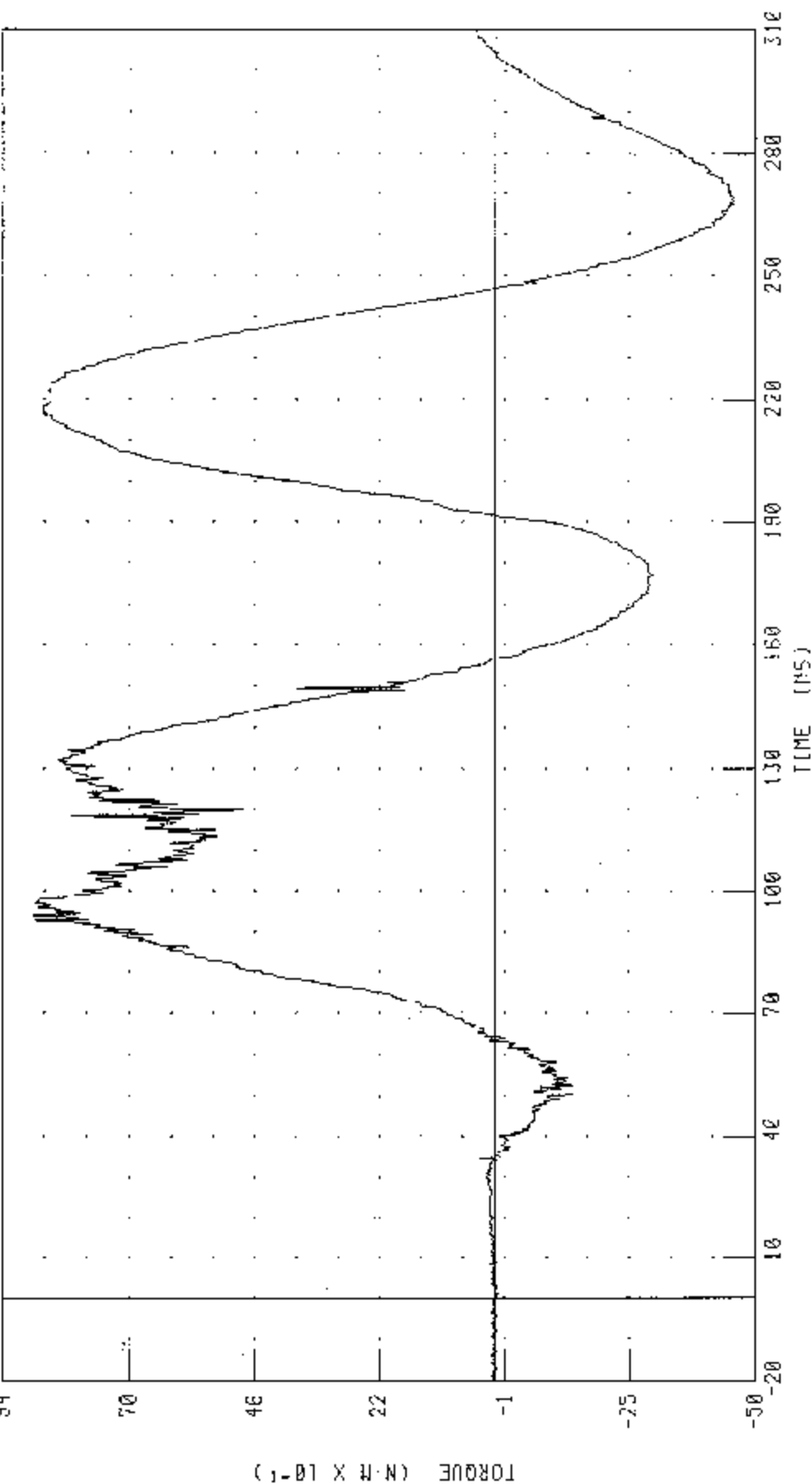
PEAK DATA: 37 78 N M @ 134 32 MS, -4 38 N M @ 65 12 MS

C35501 / 200.1 SURARL FORFSTR
DRIVER NECK MOMENT ABOUT Z AXIS

TRC NUMBER: S030530F

FNVS 208 SLED TEST

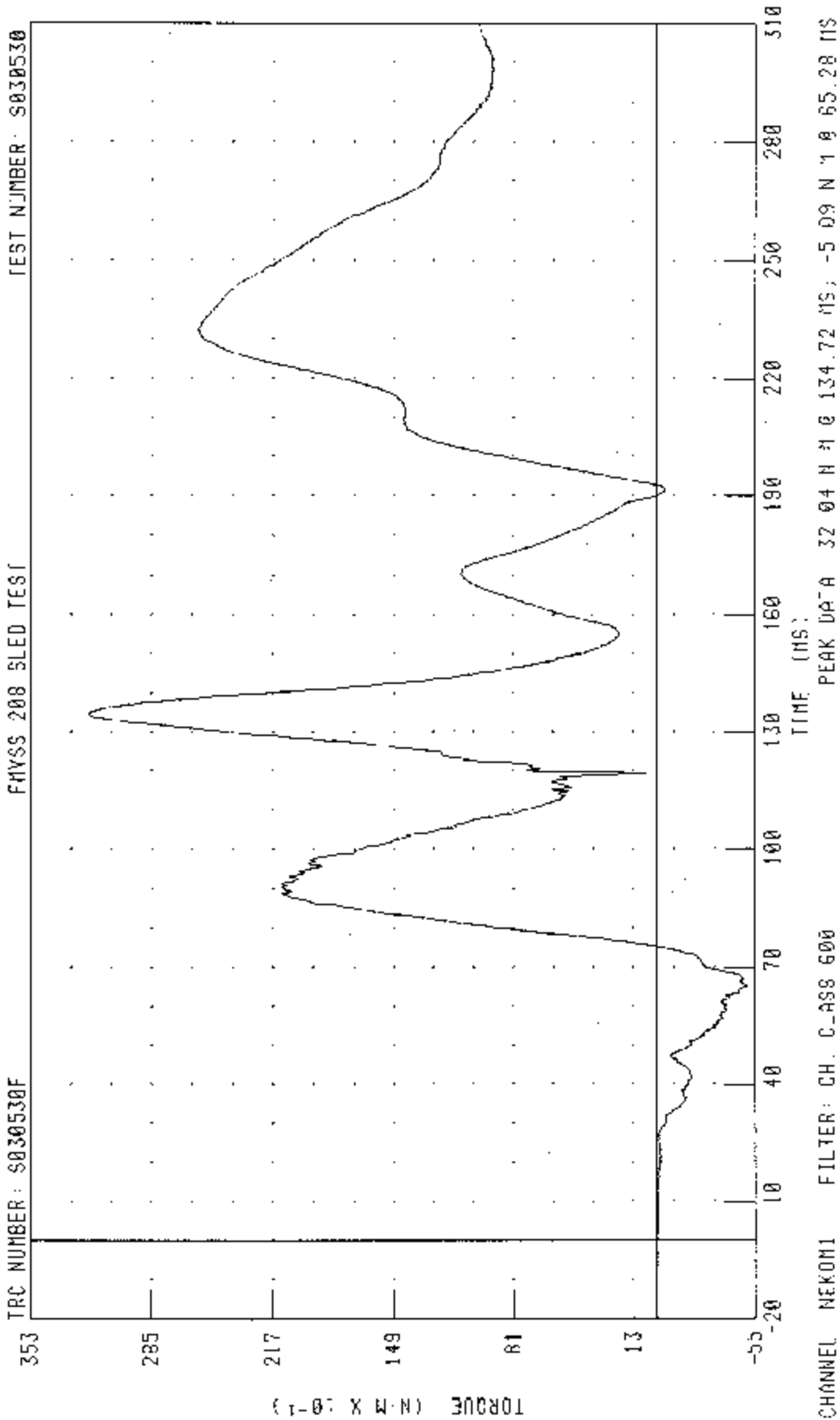
TEST NUMBER: S030530



CHANNEL: NEK2M1 FILTER CH CLASS 600

PEAK DATA 8.81 NM @ 94.15 MS; -4.60 NM @ 269.12 MS

C35503 / 2003 SUBARU FORESTER
 DRIVER NECK MOMENT ABOUT Y AXIS OCCIPITAL CONDYLE

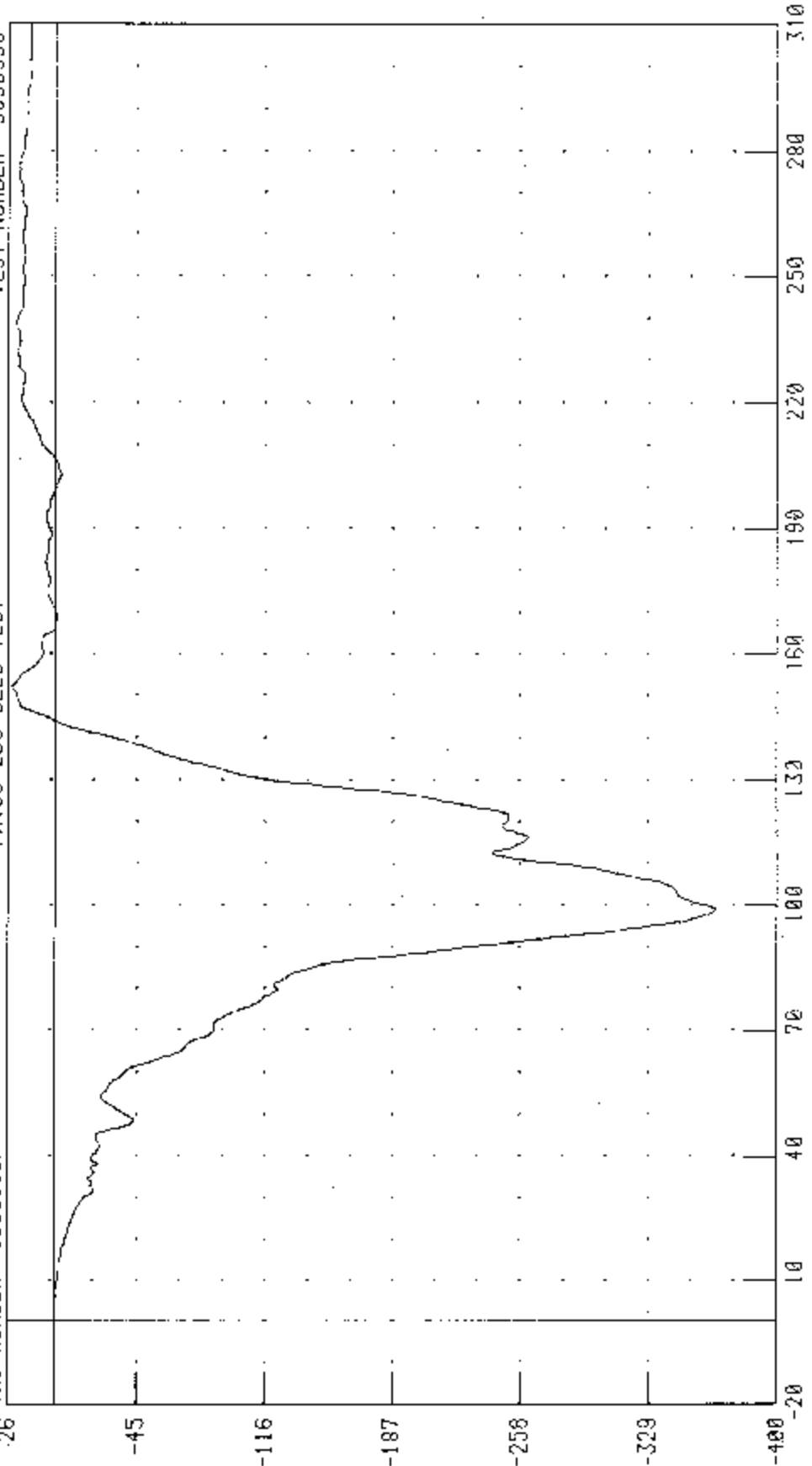


C35503 / 2003 SUBARU FORESTER
 DRIVER CHEST X-AXIS ACCELERATION
 FMVSS 208 SLED TEST

TEST NUMBER: S030530

TRC NUMBER S030530F

26



TIME (MS)

FLAK DATE 2.35 G 8 151 92 MS; -3E 60 G 8 99.04 MS

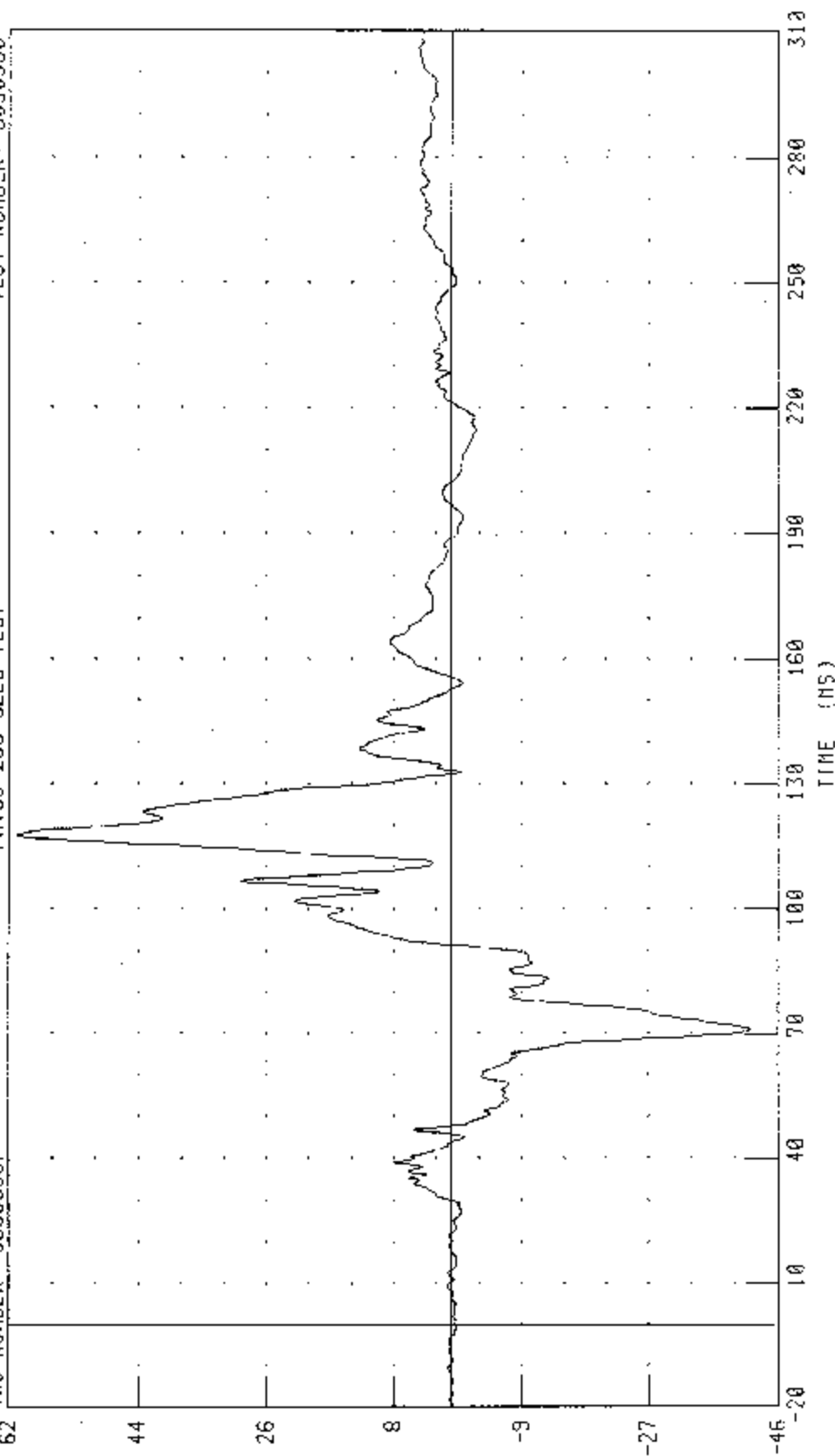
CHANNEL C5XG1 FILTER CH. CLASS 130

C35503 / 2003 SIERRA FORESTER
DRIVER CHEST Y-AXIS ACCELERATION

IRC NUMBER: S030530F

FMVSS 208 SLED TEST

TEST NUMBER: S030530



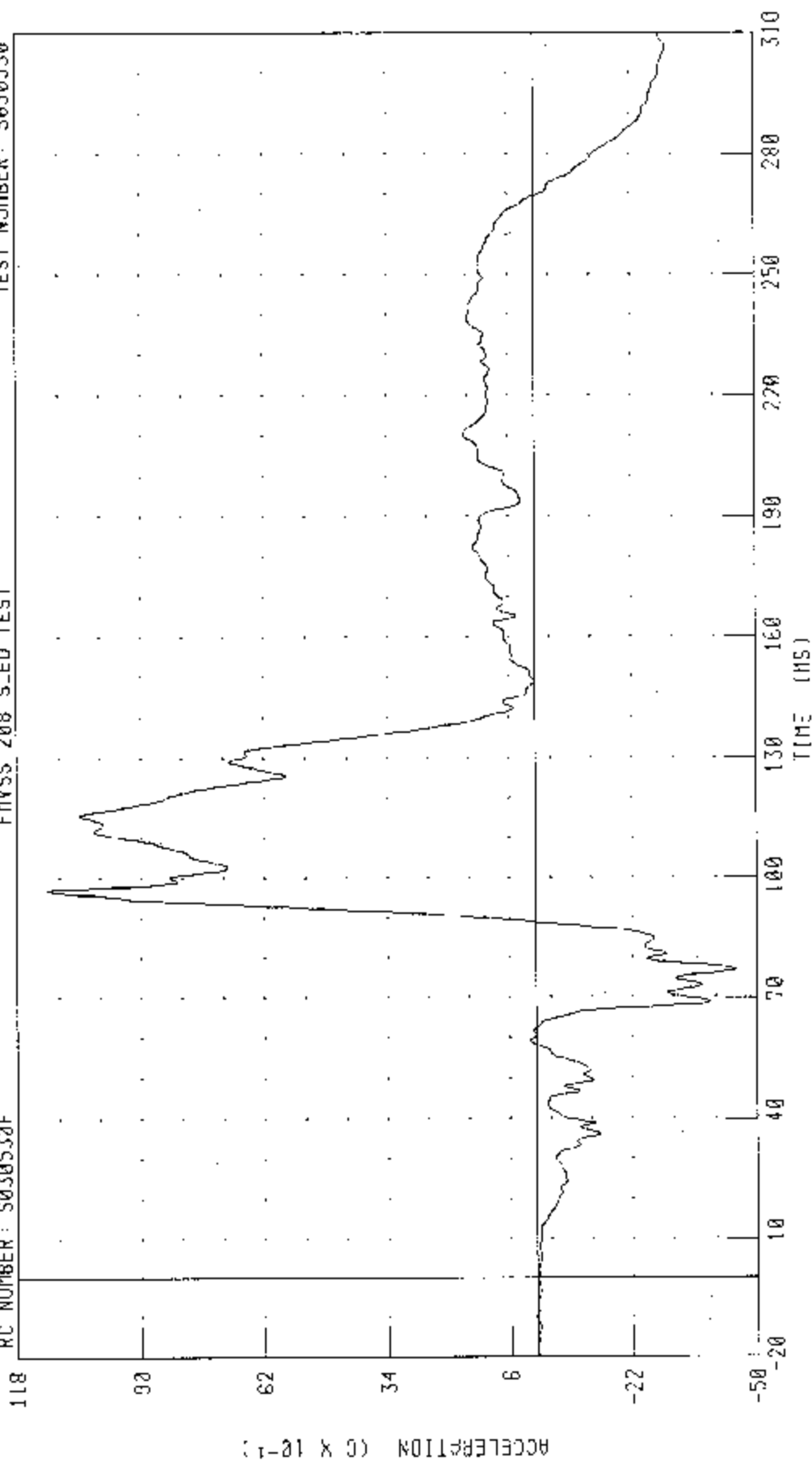
CHANNEL C5Y01 FILTER CH. CLASS 130

PEAK DATA 6.09 0 0 117.60 MS; -4.21 0 0 71.12 MS

C3550J / 2003 SUBARU FORESTER
 DRIVER CHEST Z-AXIS ACCELERATION
 FMVSS 208 SLED TEST

TEST NUMBER: S030530

RC NUMBER: S030530F



PEAK DATA : 1 14 0 0 96.96 MS. -4 55 0 8 77 04 MS

CHANNEL: CST2G1 FILTER: CH CLASS 180

C35503 / 2003 SUBARU FORESTER
 DRIVER CHEST RESULTANT ACCELERATION
 FMVSS 208 SLFD TEST

TEST NUMBER: S030530

TRC NUMBER: S030530F

408

340

272

204

136

68

0

ACCELERATION (G X 10⁻¹)

TIME (MS)

CHANNEL CSTR01 FILTER: CH CLASS 100

PEAK DATA 37.56 0.0 90.88 MS; 0.01 G @ -9.60 MS

C35503 / 2003 SUBARU FORESTER

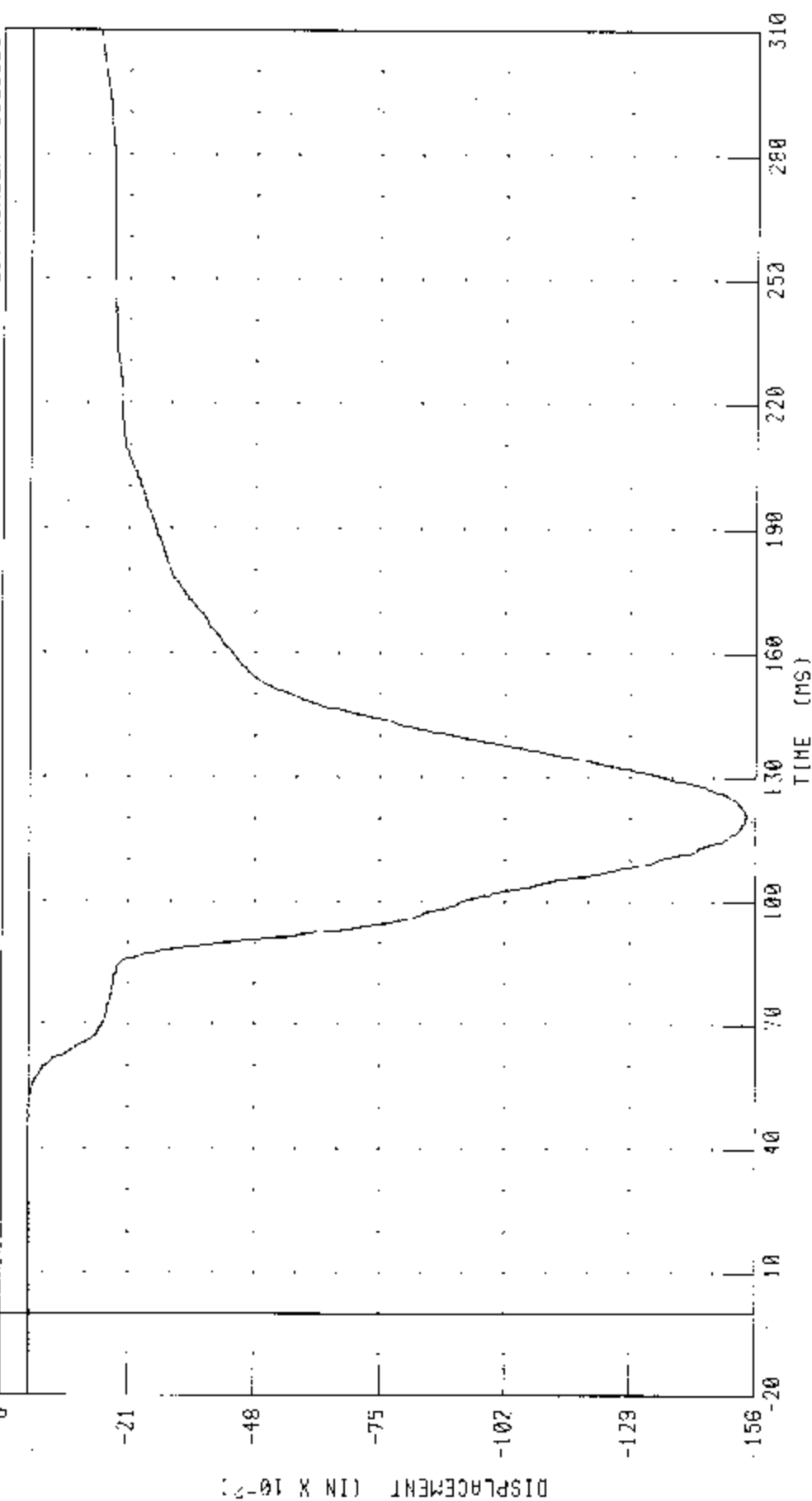
DRIVER CHEST DEFLECTION

FHVSS 208 SLED 'EST

TEST NUMBER: S030530

TRC NUMBER: S030530F

G



CHANNEL: CSTXD4 FILTER: CH CLOS: 600

PEAK DATA: 0.00 IN @ 33.92 MS, 1.54 IN @ 120.00 MS

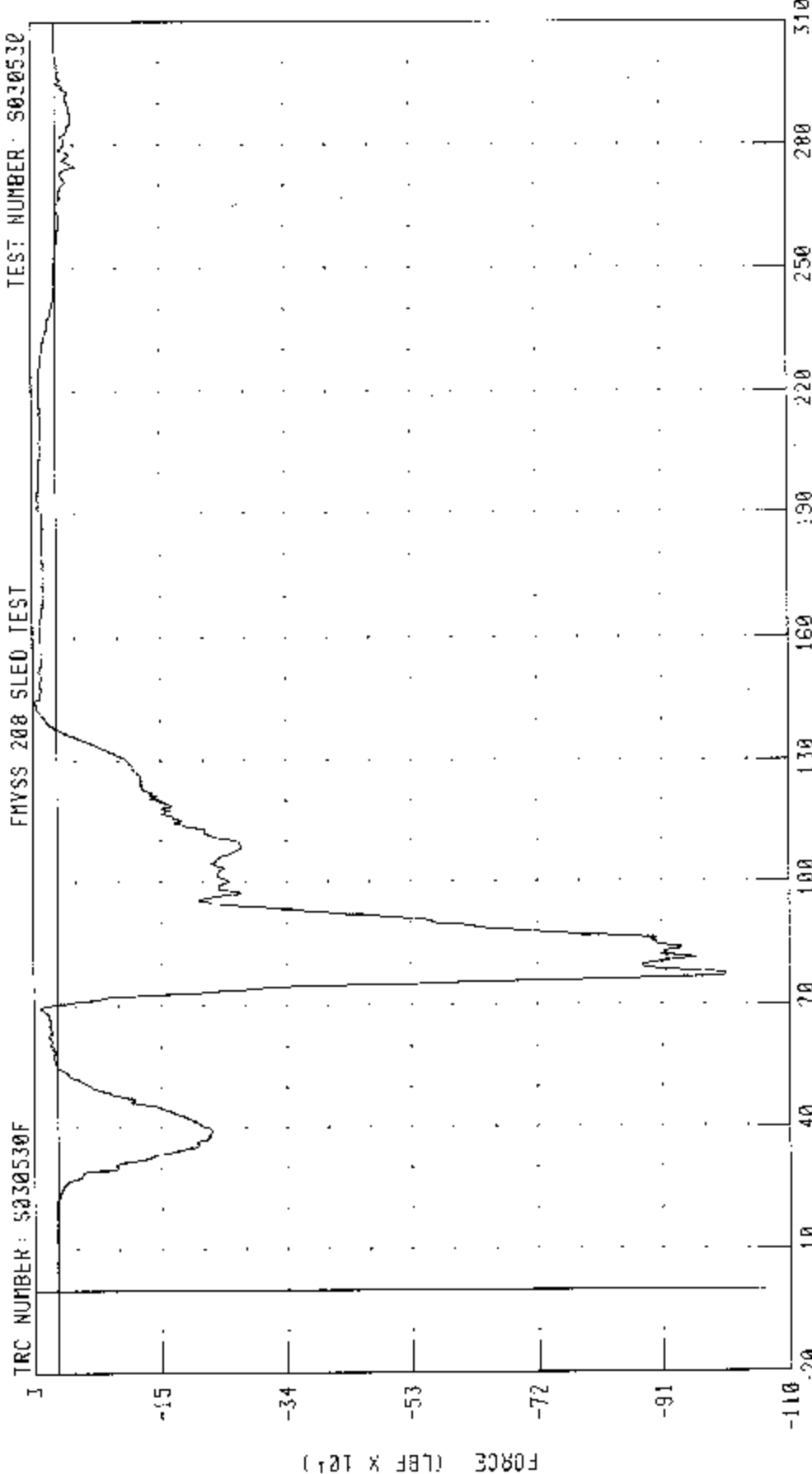
C35503 / 2003 SUBARU FORESTER

DRIVER LEFT FEMUR FORCE

FMVSS 208 SLED TEST

TEST NUMBER: S030530

TRC NUMBER: S030530F



TIME (MS)

PEAK DATA: 33.03 LBF @ 144.64 MS, -1010.00 LBF @ 77.36 MS

CHANNEL LFMZFI FILTER CH CLASS 600

FORCE (LBF X 10^3)

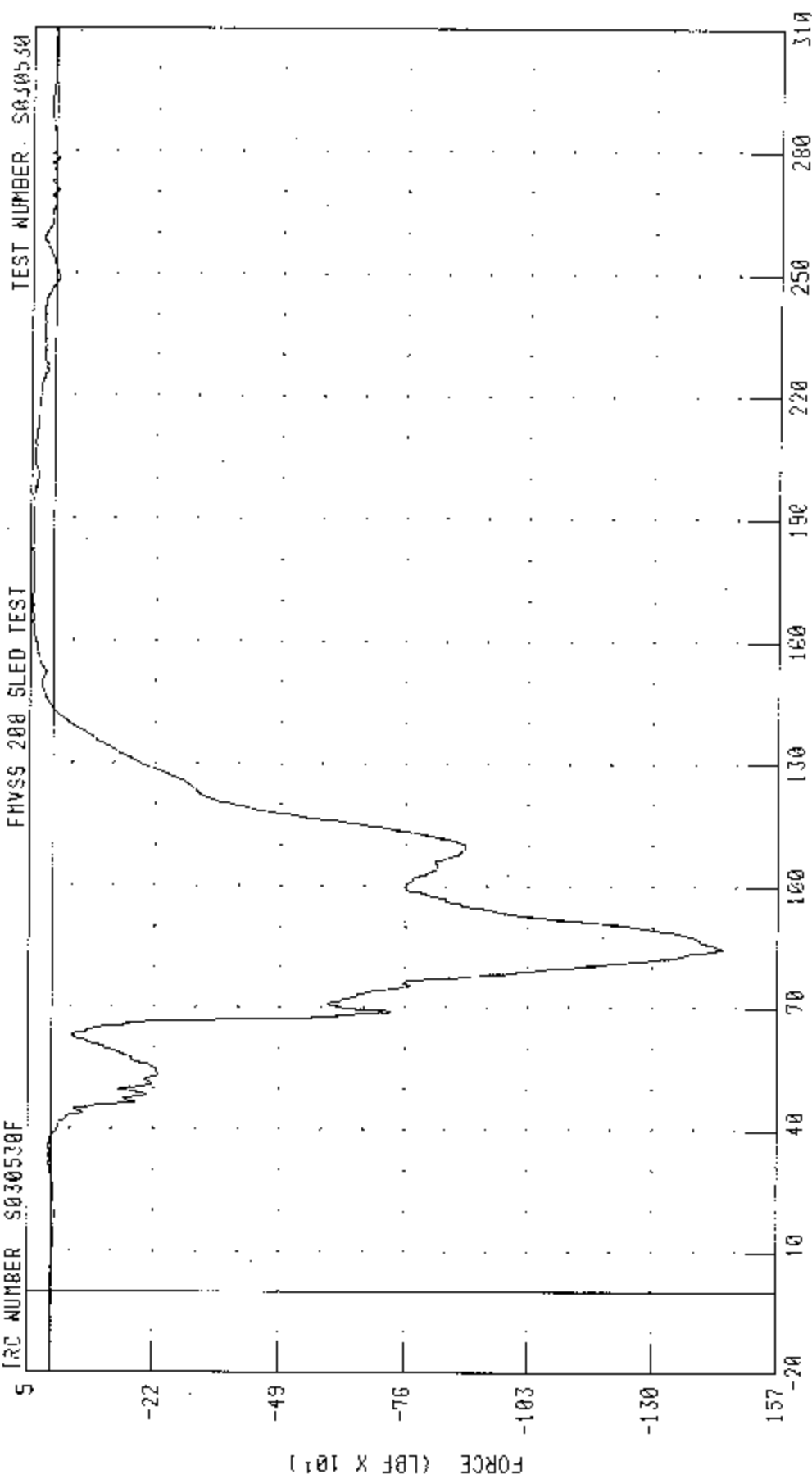
C35503 / 2003 SUBARU FORESTER

DRIVER RIGHT FEMUR FORCE

FHVSS 200 SLED TEST

TRC NUMBER S030530F

TEST NUMBER S030530

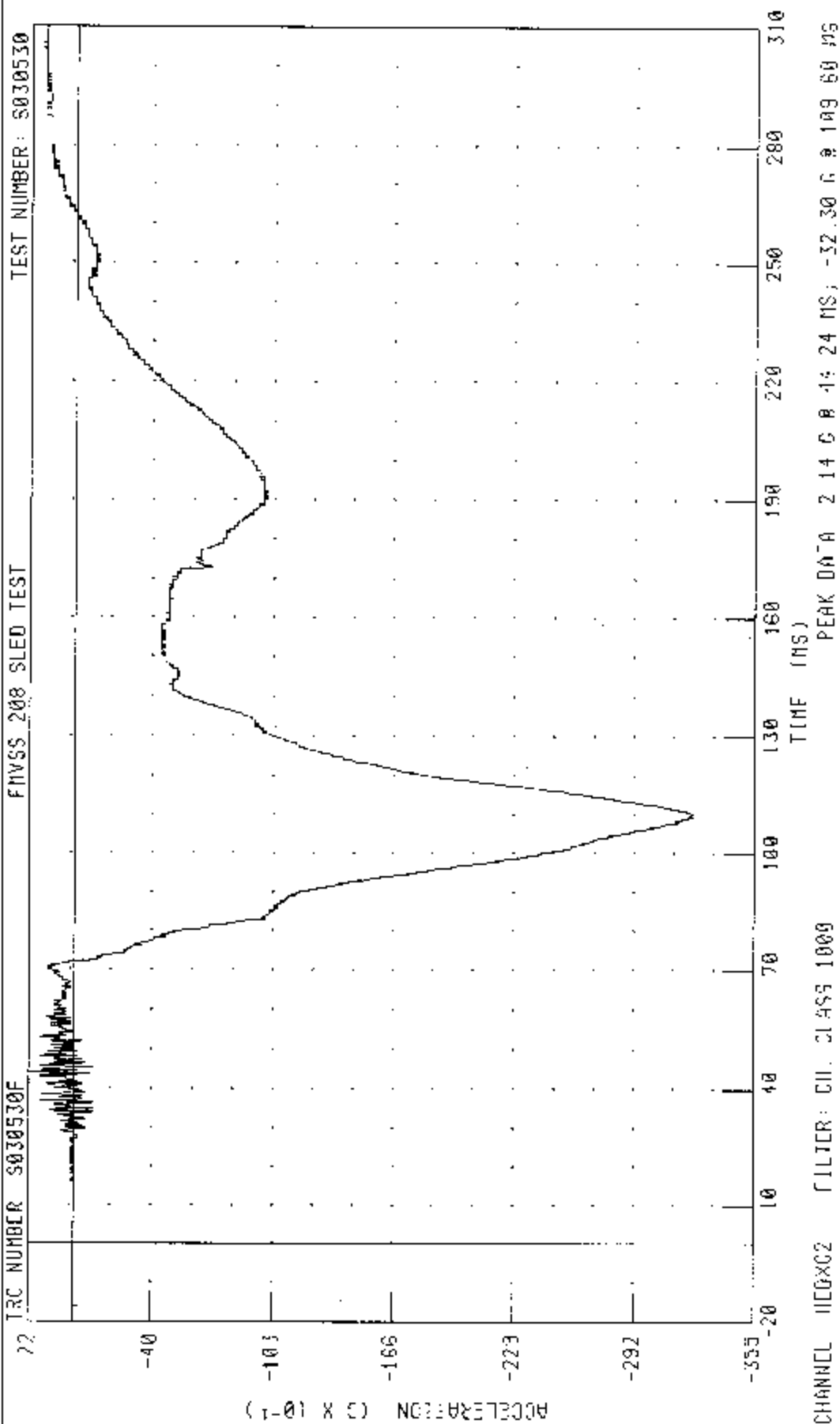


CHANNEL: RFN2F1 FILTER: CH CLASS: F00

TIME (MS)

PEAK DATA 45.96 LBF @ 183.04 MS; -1453.33 LBF @ 84.90 MS

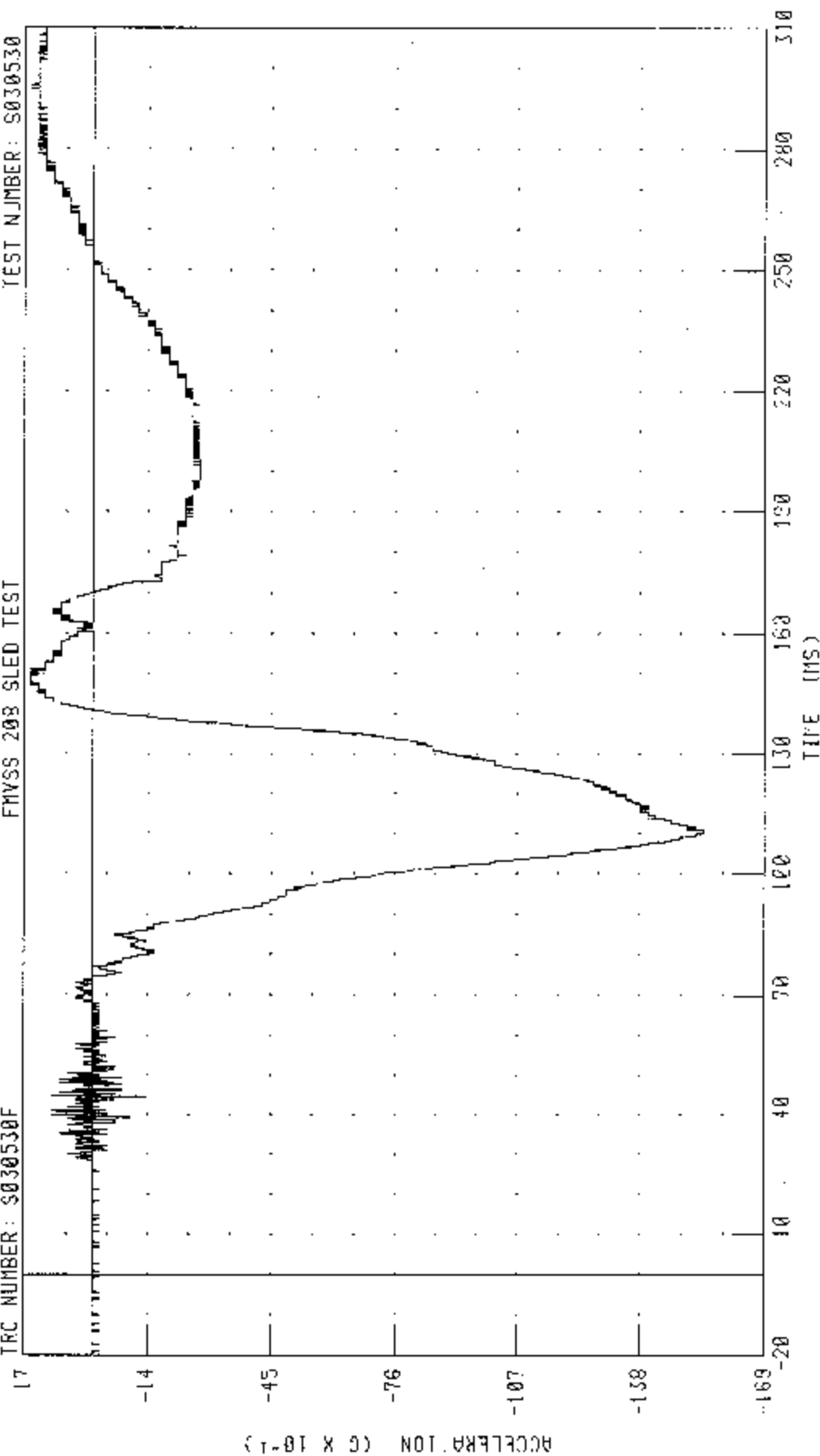
C35503 / 2003 SUBARU FORESTER
RIGHT FRONT PASSENGER HEAD X-AXIS ACCELERATION



C35503 / 2003 SUBARU FORESTER
 RIGHT FRONT PASSENGER HEAD Y-AXIS ACCELERATION
 FMVSS 208 SLED TEST

TRC NUMBER: S030530F

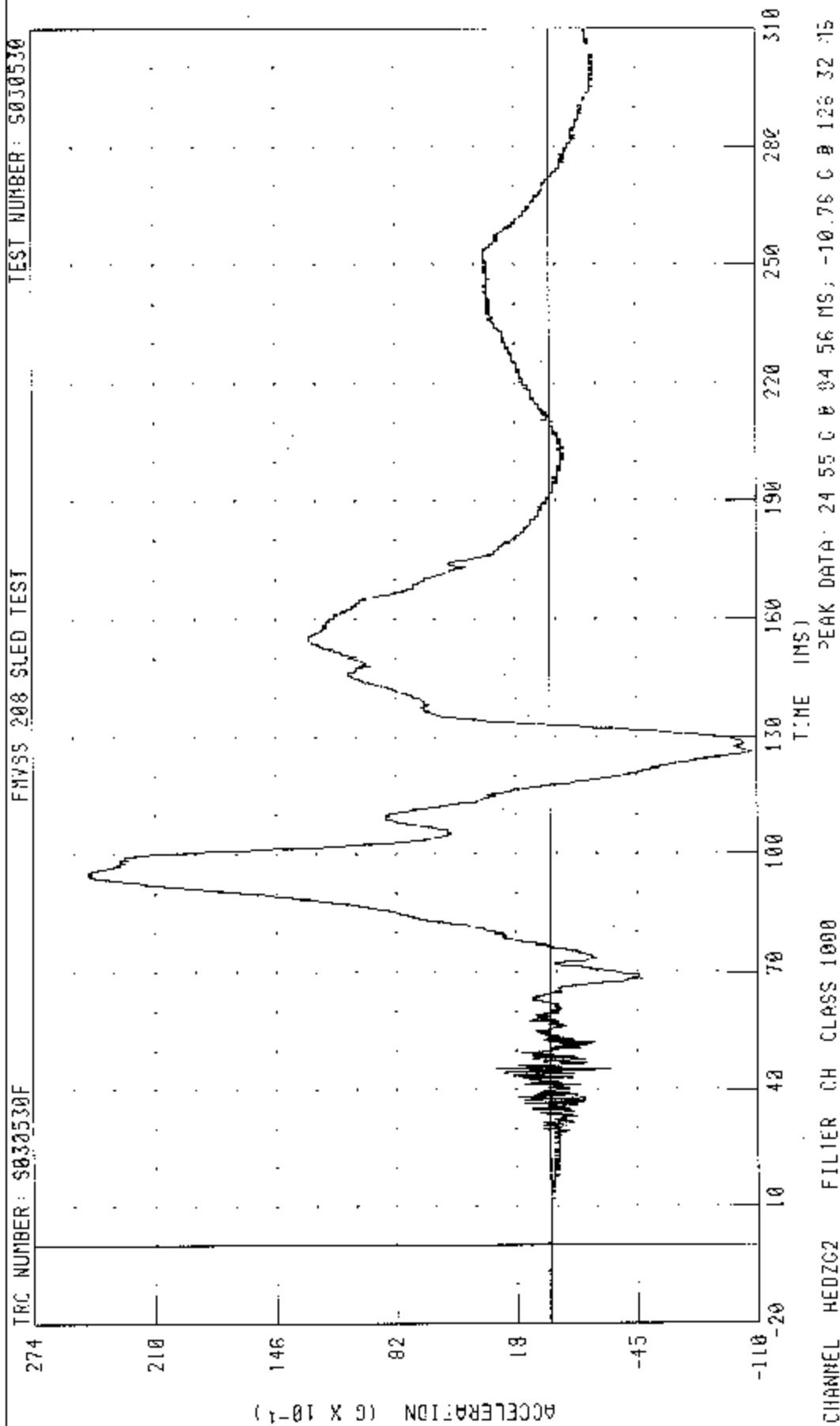
TEST NUMBER: S030530



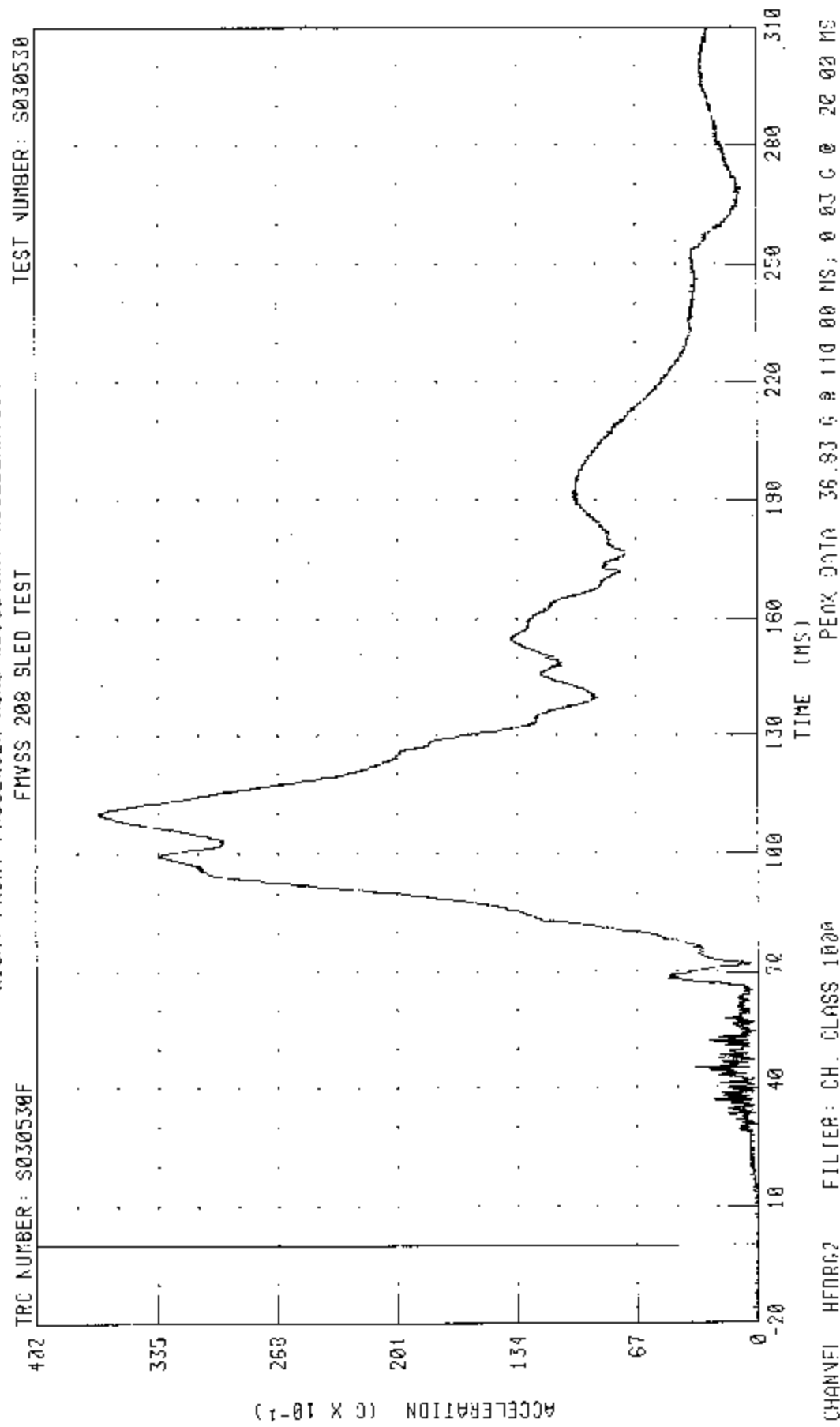
CHANNEL: HEDYG2 FILTER: CH. CLASS 1000

PEAK ONTO 1.53 G @ 147.35 MS, -15.38 G @ 110.00 MS

C35503 / 2003 SUBARU FORESTER
RIGHT FRONT PASSENGER HEAD Z-AXIS ACCELERATION



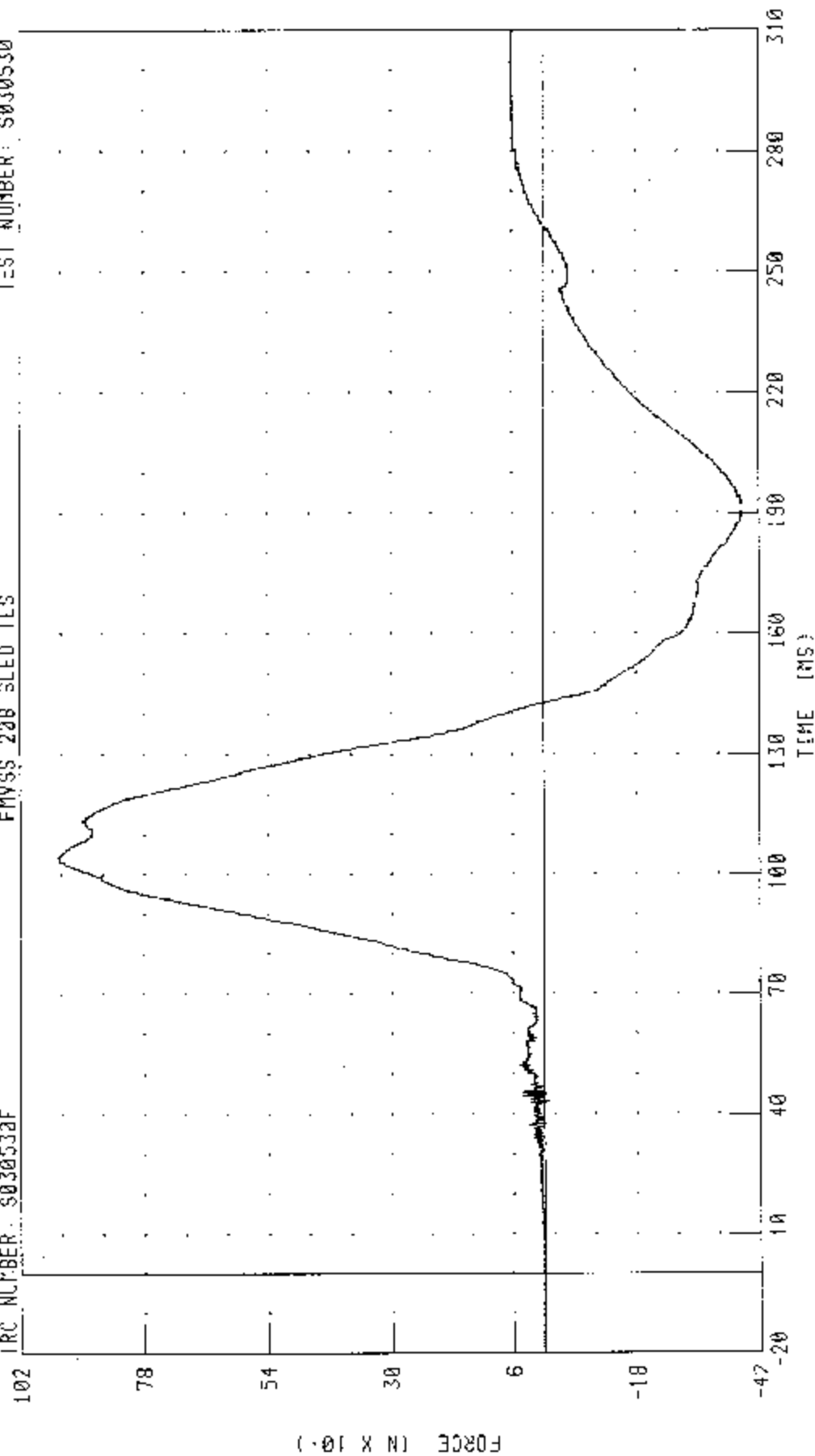
C35503 / 2003 SUBARU FORESTER
 RIGHT FRONT PASSENGER HEAD RESULTANT ACCELERATION



C35503 / 2003 SUBARU FORESTER
 RIGHT FRONT PASSENGER NECK X-AXIS SHEAR FORCE
 FMVSS 208 SLED TEST

TEST NUMBER: S030530

IRC NUMBER: S030532F



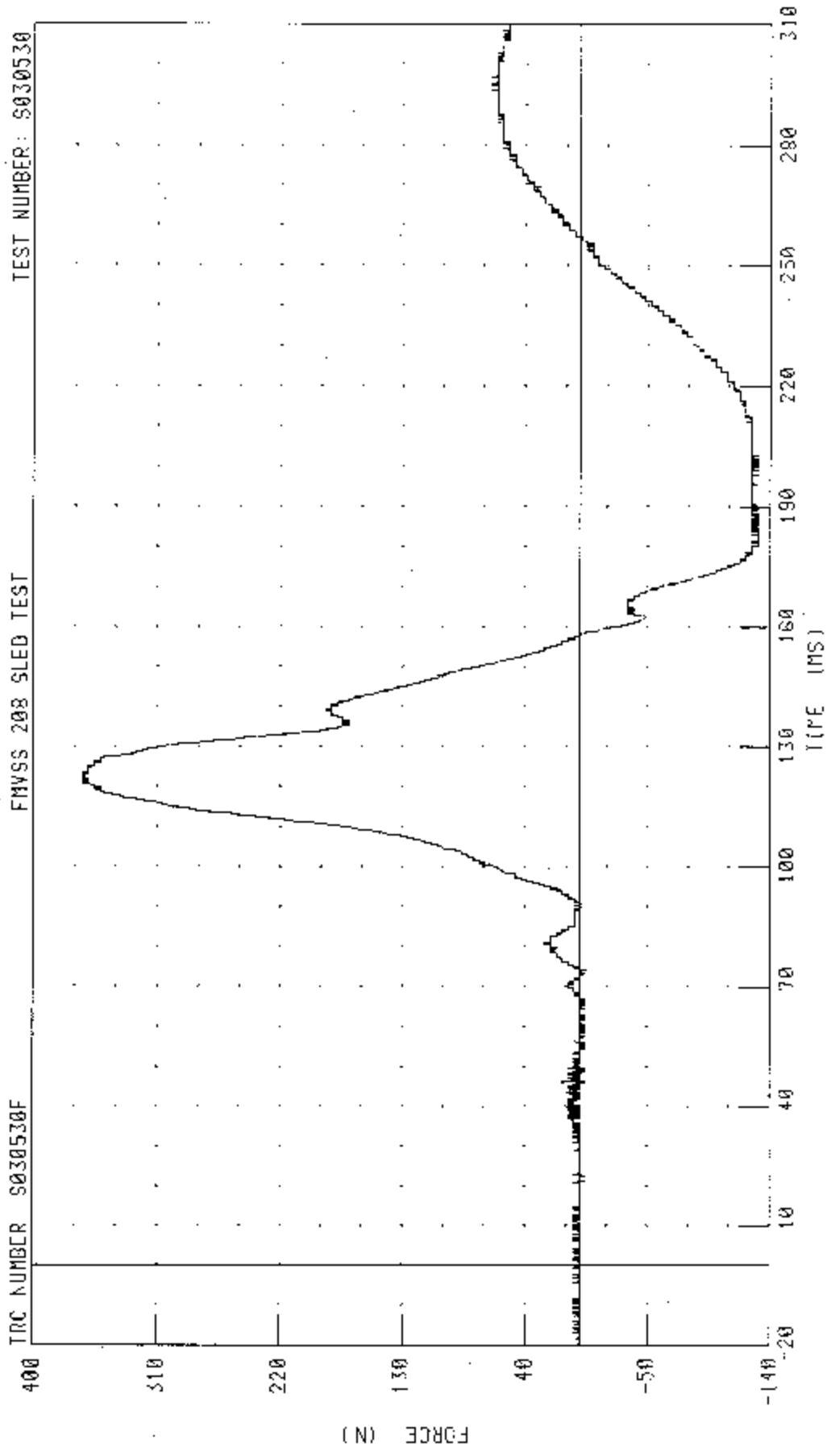
PEAK DATA 917.54 N @ 104.32 MS, -387.15 N @ 189.36 MS

CHANNEL WEXF2 FILTER CH CLASS 1000

C35503 / 2003 SURARU FORFEITER
RIGHT FRONT PASSENGER NECK Y-AXIS SHEAR FORCE
FMVSS 208 SLED TEST

TEST NUMBER: S030530

TRC NUMBER S030530F



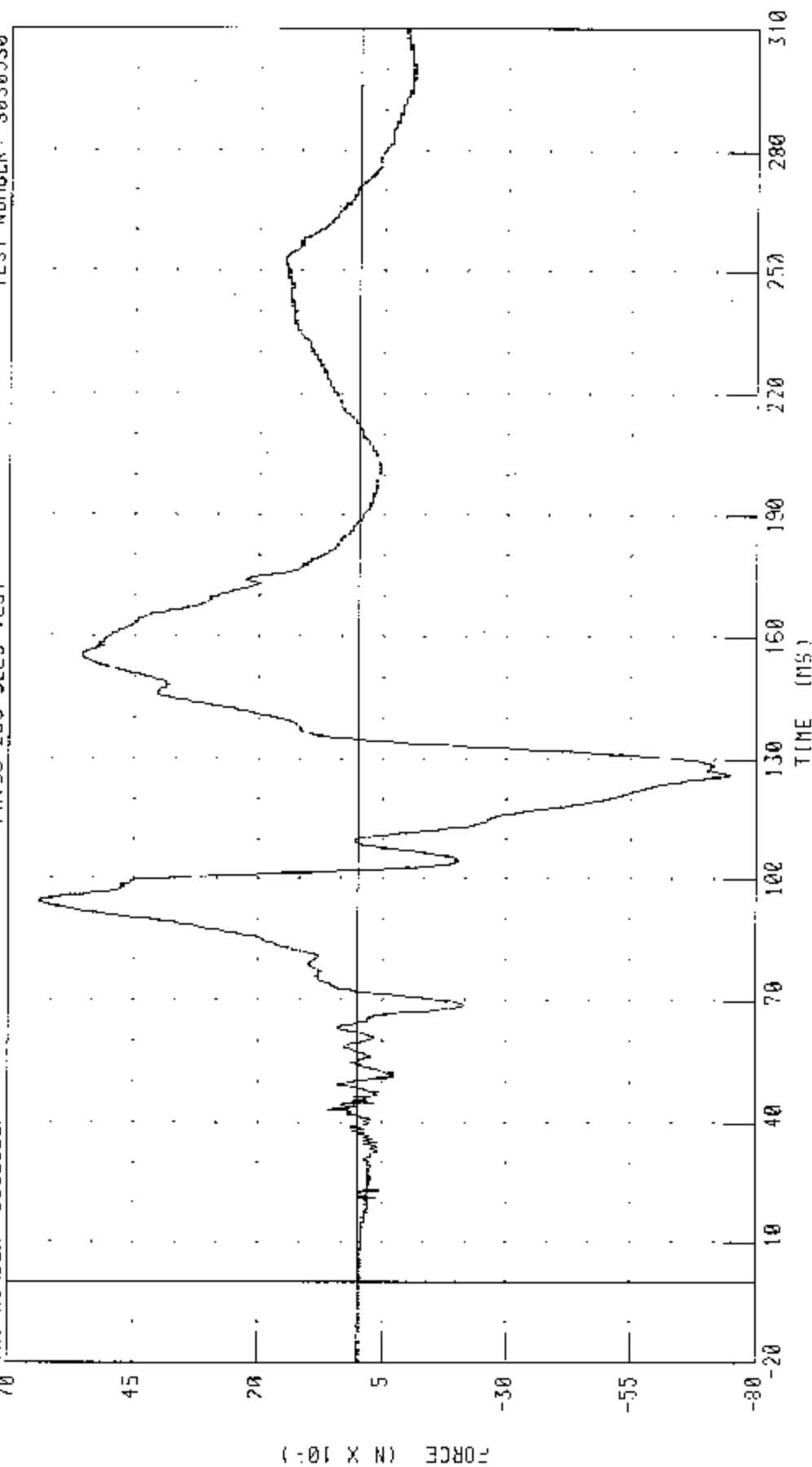
PEAK DATA 304.50 H @ 121.84 MS, -130.67 N @ 180.32 MS

CHANNEL: NEKYF2 FILTER CH. CLASS 1000

C35503 / 2003 SUBARU FORESTER
 RIGHT FRONT PASSENGER NECK Z-AXIS AXIAL FORCE
 FMVSS 208 SLED TEST

TRC NUMBER: S030530F

TEST NUMBER: S030530



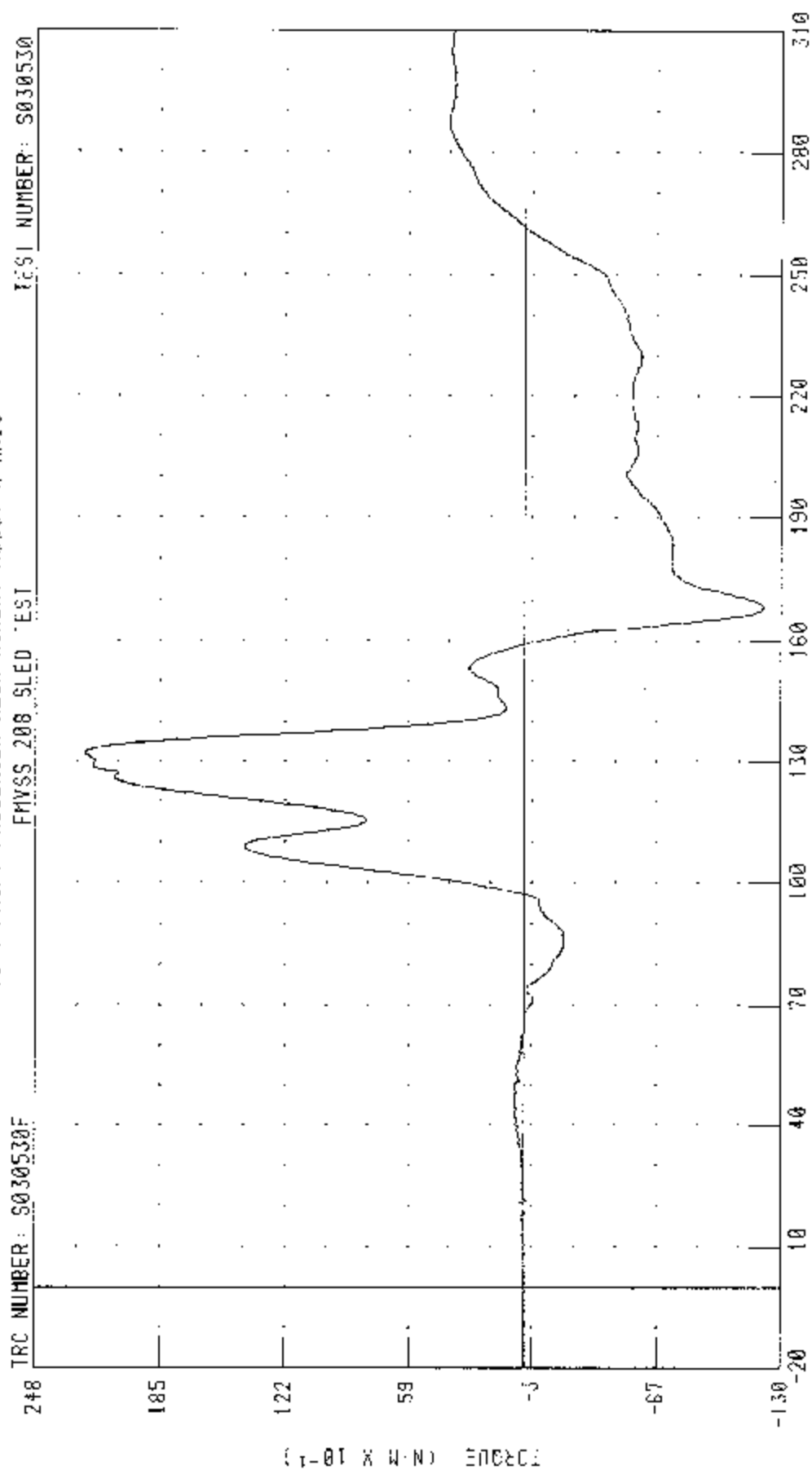
CHANNEL: NFK212 FILTER: CH. CLASS 1000

PEAK DATA E38 96 N @ 94.32 MS. -749 00 N @ 126 16 MS

C35503 / 2003 SUBARU FORESTER
 RIGHT FRONT PASSENGER NECK MOMENT ABOUT X AXIS
 FMVSS 208 SLED TEST

TRC NUMBER: S030530F

TEST NUMBER: S030530



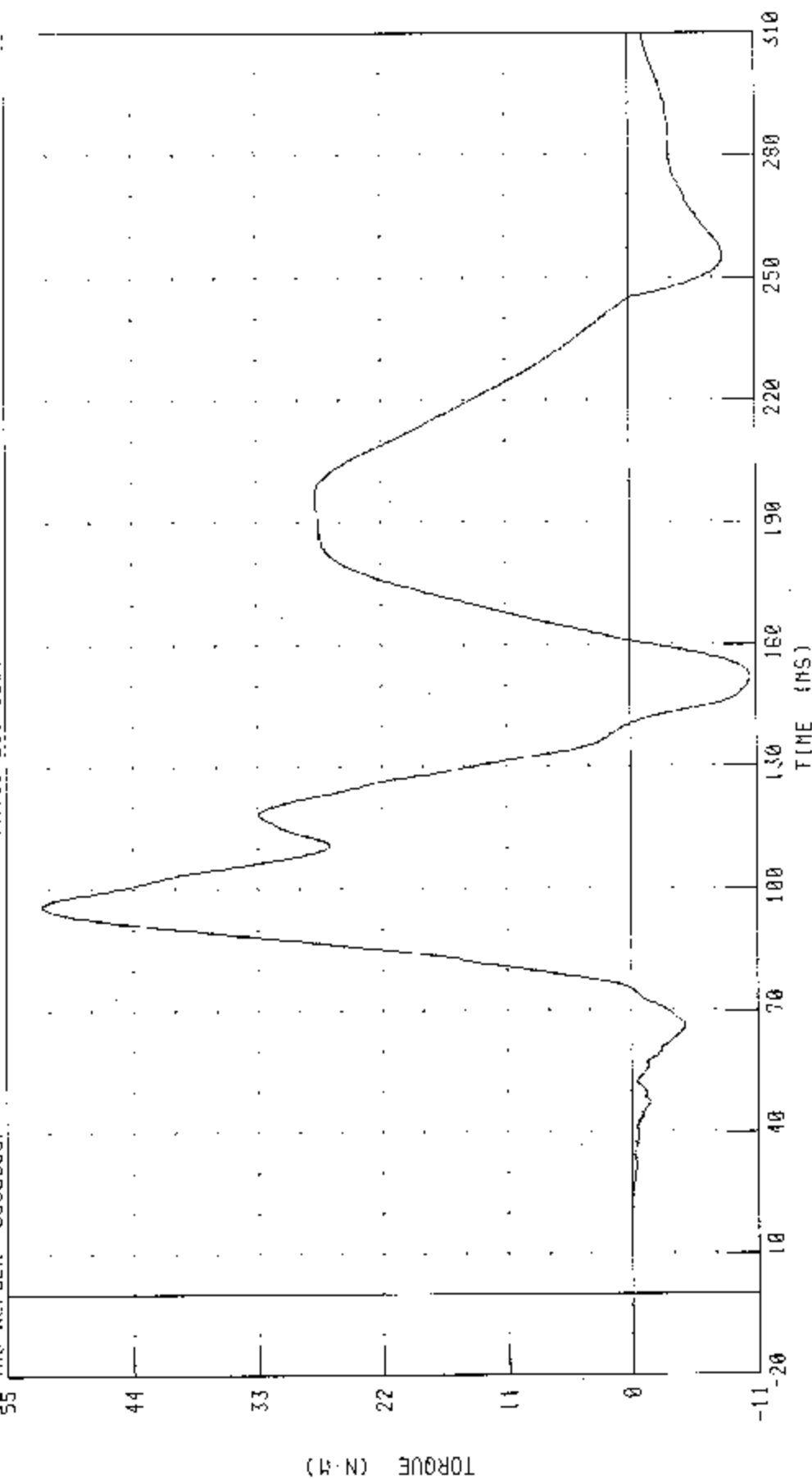
TIME (MS)

PEAK DATA: 22.31 N-M @ 132.08 MS; -12.09 N-M @ 168.40 MS

CHANNEL: NEKXM2 FILTER: CIL CLASS 600

C35503 / 2003 SUBARU FORESTER
RIGHT FRONT PASSENGER NECK MOMENT ABOUT Y AXIS

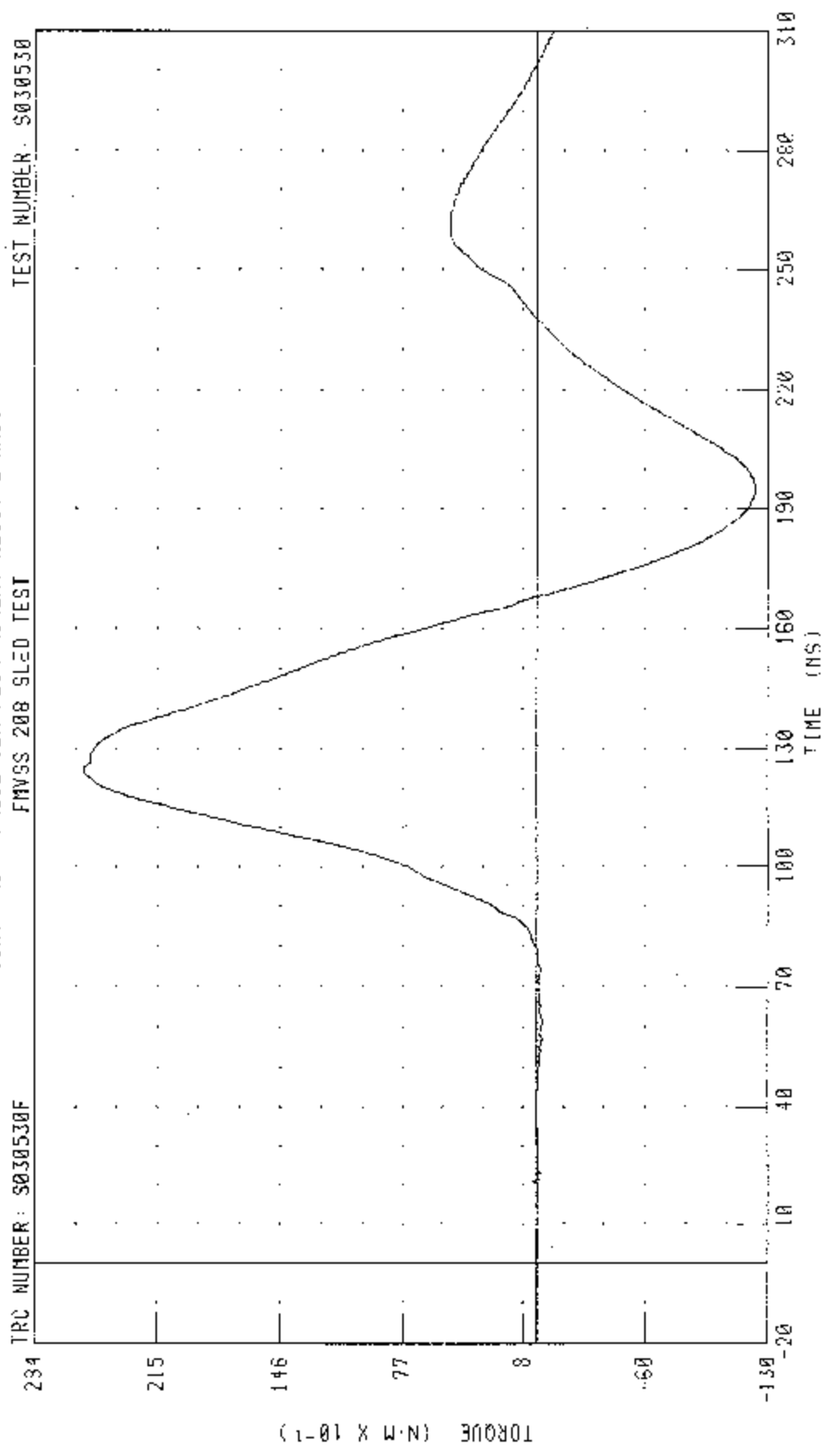
TRC NUMBER: S030530F FMVSS 208 SLED TEST TEST NUMBER: S030530



PEAK DATA 51.34 N M @ 96.00 MS, 10.48 N M @ 151.44 MS

CHANNEL: NEKY02 FILTER: CH. CLASS 600

C35503 / 2003 SUBARU FORESTER
 RIGHT FRONT PASSENGER NECK MOMENT ABOUT Z AXIS
 FMVSS 208 SLED TEST



TEST NUMBER: S030530

TRC NUMBER: S030530F

PEAK DATA: 25.68 N-M @ 124.96 MS, -12.31 N-M @ 194.00 MS

CHANNEL NEKZM2 FILTER: CH. CLASS 500

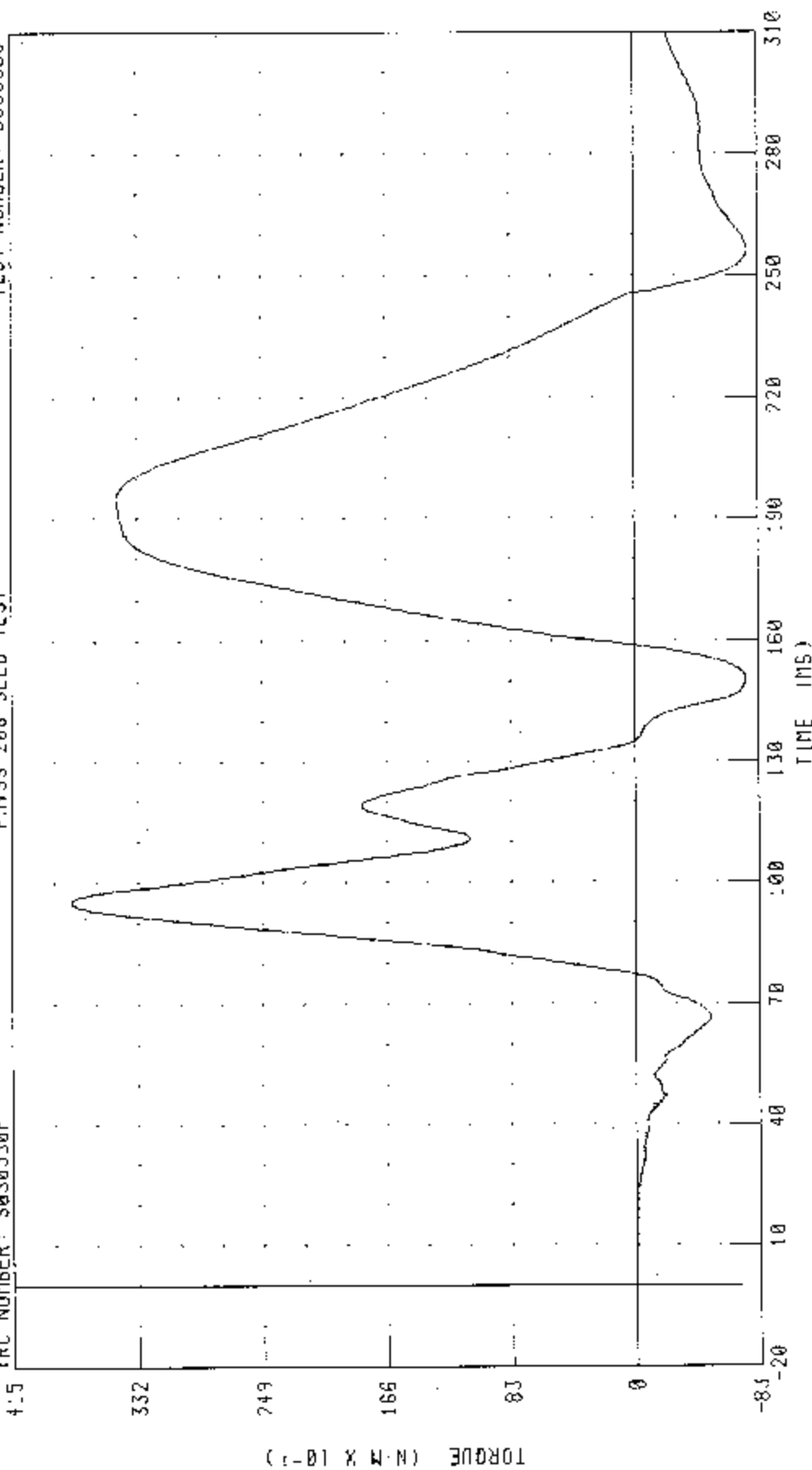
C35503 / 2003 SUBARU FORESTER

RIGHT FRONT PASSENGER NECK MOMENT ABOUT Y AXIS OCCIPITAL CONDYLE

TRC NUMBER: S030530F

FMVSS 200 SLED TEST

TEST NUMBER: S030530



TIME (MS)

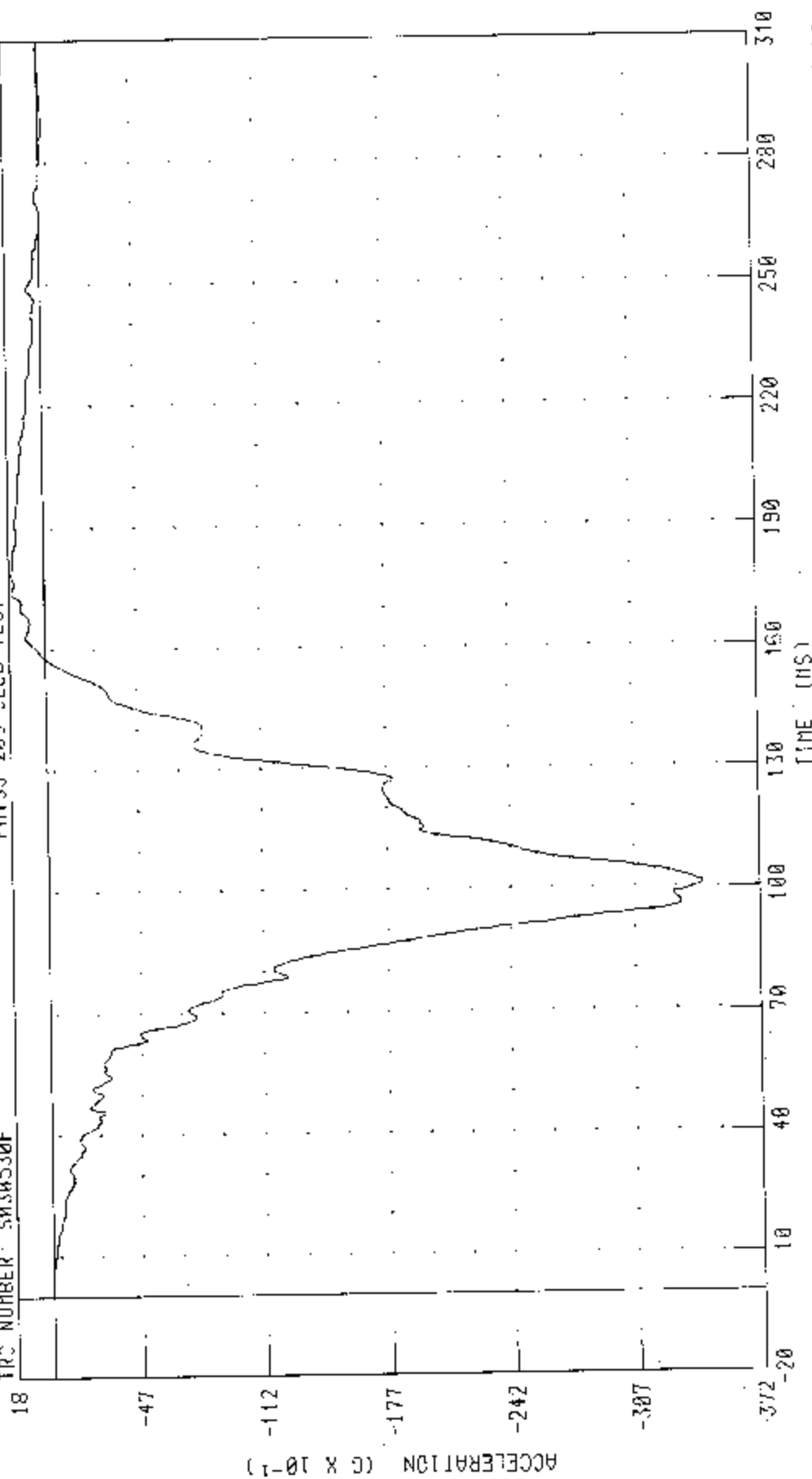
PEAK DATA: 37.67 N·m @ 94.86 ms, -7.60 N·m @ 256.48 ms

CHANNEL: NEK012 FILTER: CH. CLASS 600

C35503 / 2003 SUBARU FORESTER
 RIGHT FRONT PASSENGER CHEST X-AXIS ACCELERATION
 FHV35 200 SLED TEST

TEST NUMBER S030530

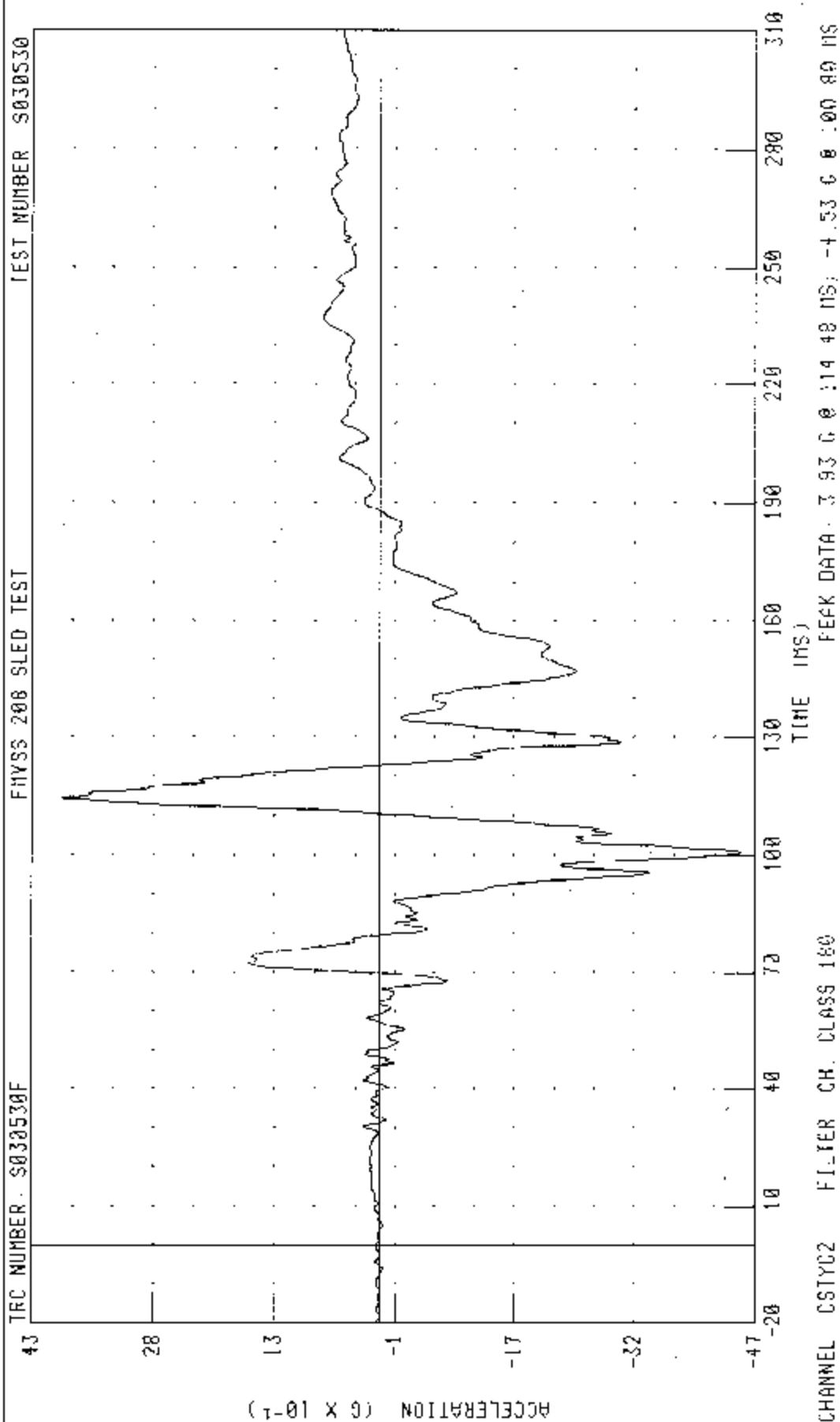
TRC NUMBER: S030530F



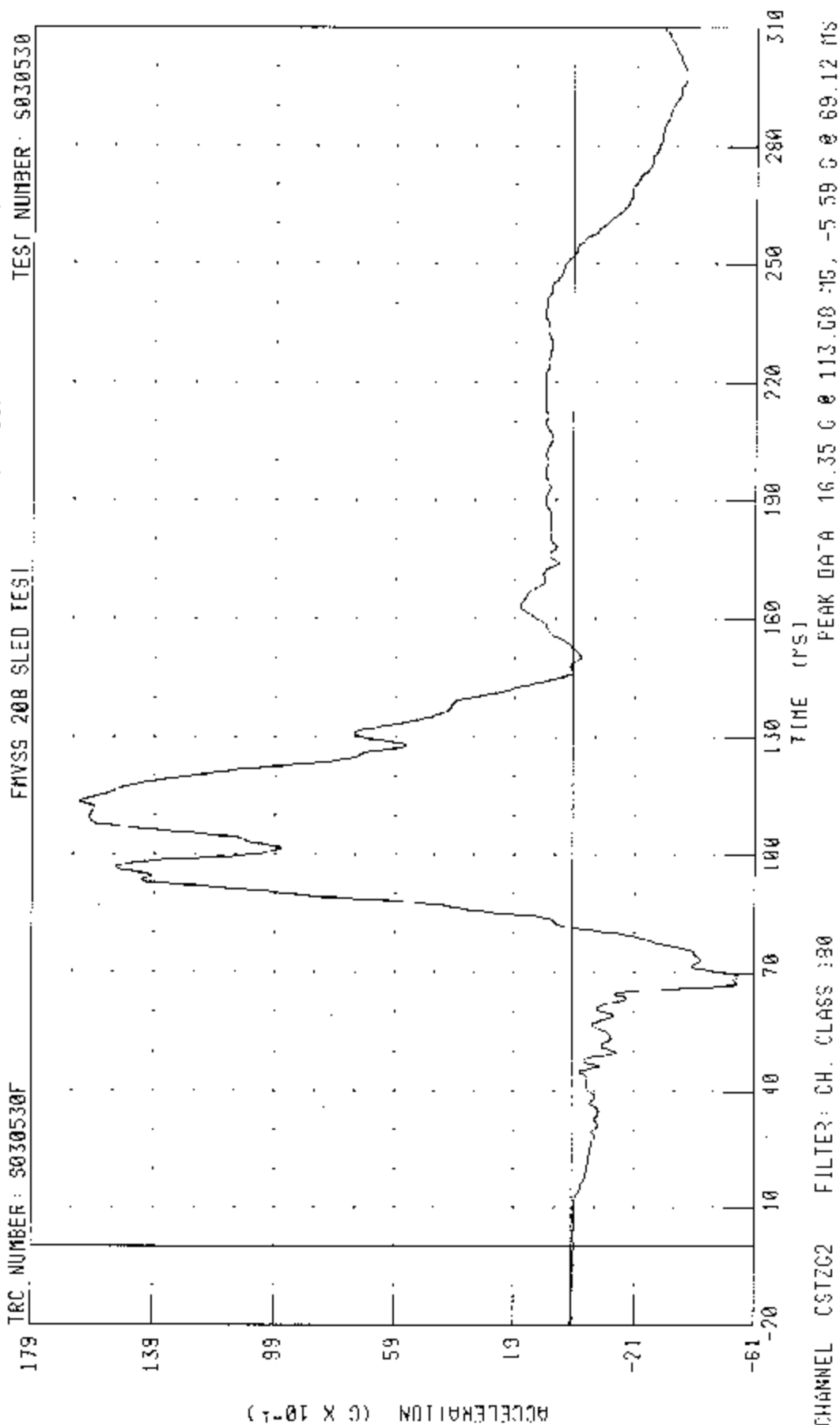
PEAK DATA: 1.68 G @ 179.80 MS, -34.25 G @ 101.20 MS

CHANNEL: CSIX62 FILTER: CH. CLASS 180

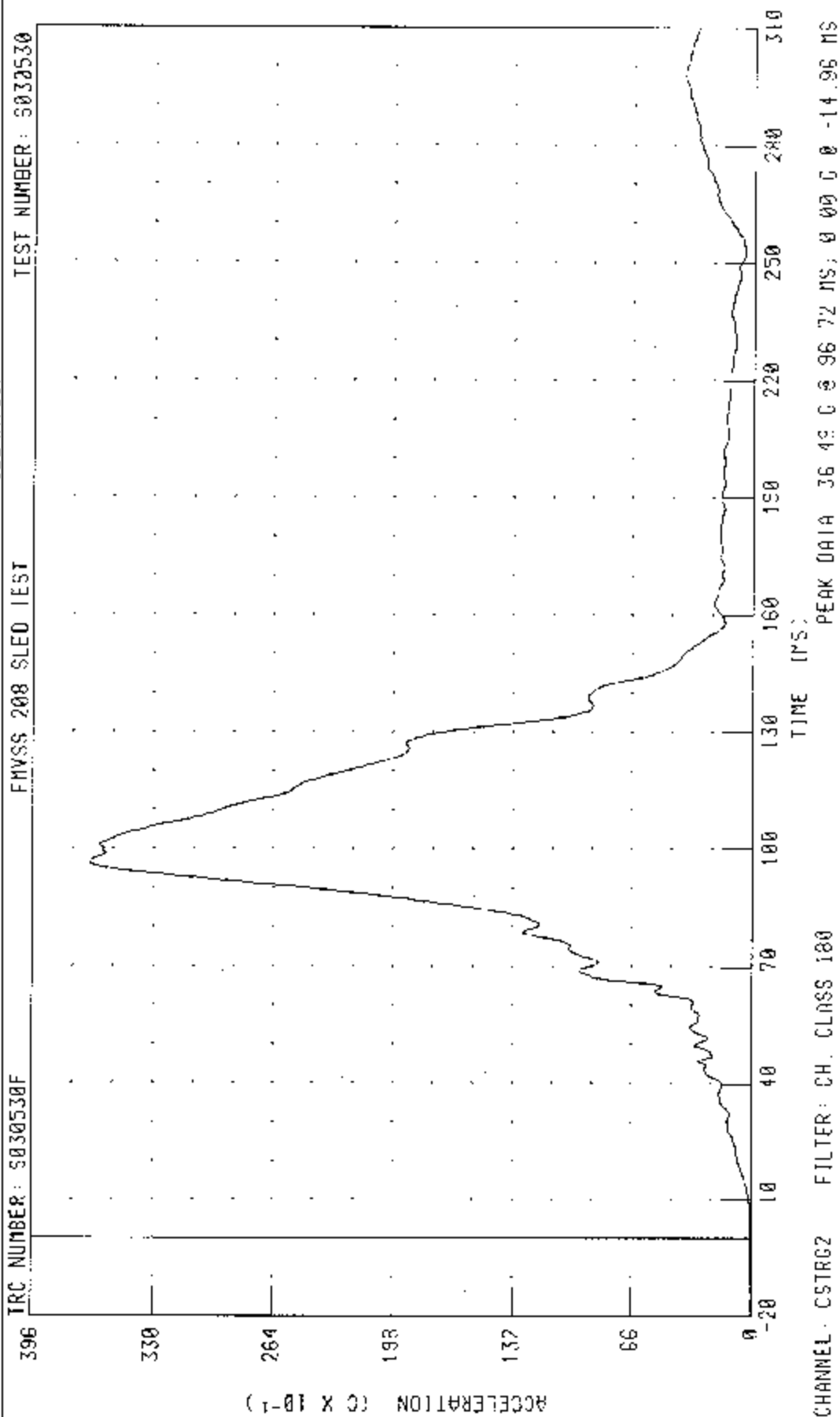
C35501 / 2003 SUBARU FORESTER
RIGHT FRONT PASSENGER CHEST Y-AXIS ACCELERATION



C.35503 / 2003 SUBARU FORESTER
 RIGHT FRONT PASSENGER CHEST Z-AXIS ACCELERATION
 FMVSS 208 SLED TEST



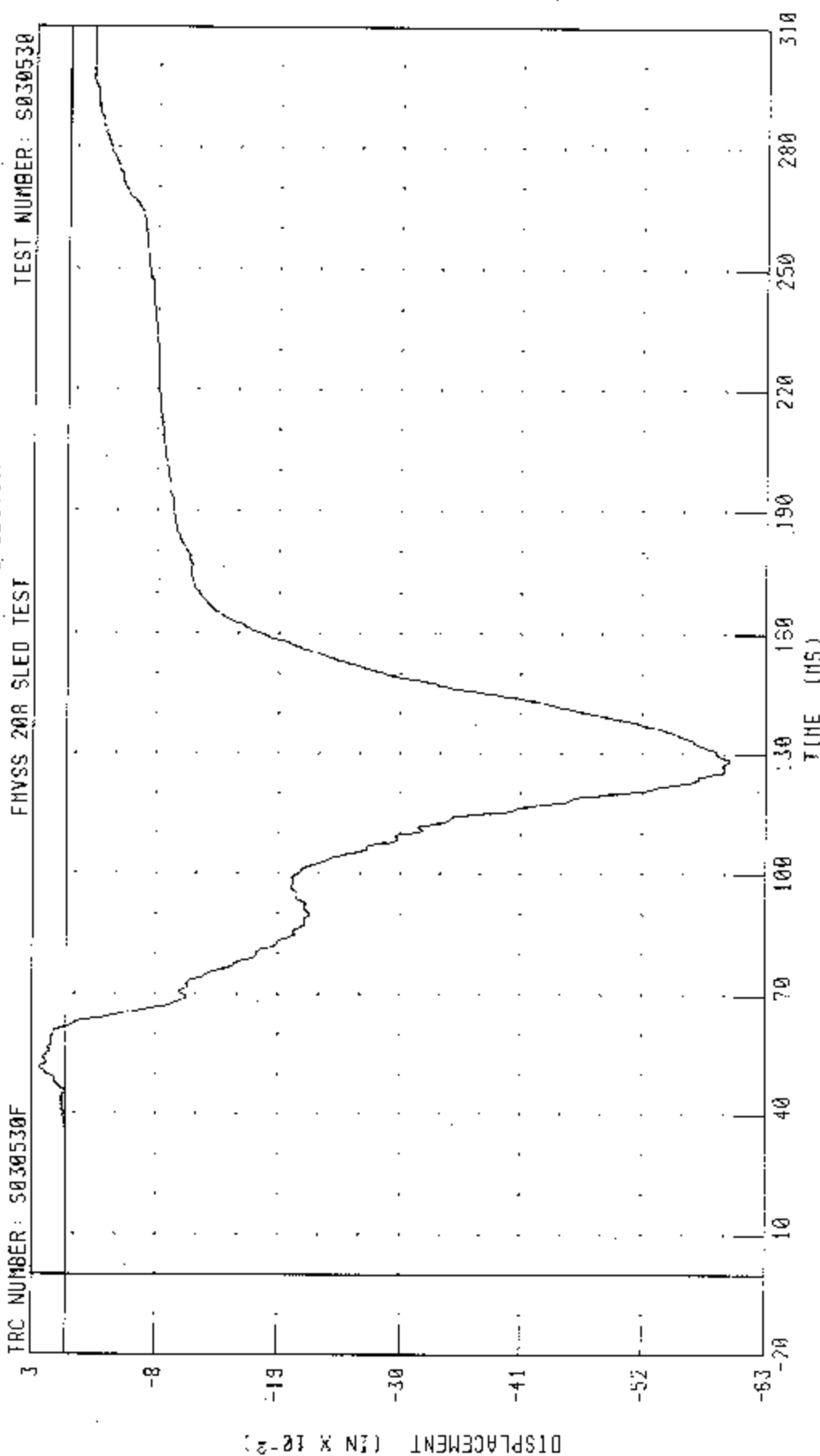
C35503 / 2003 SUBARU FORESTER
RIGHT FRONT PASSENGER CHEST RESULTANT ACCELERATION



C35503 / 2003 SUBARU FORESTER
 RIGHT FRONT PASSENGER CHEST DEFLECTION
 FMVSS 208 SLED TEST

TRC NUMBER: S030530F

TEST NUMBER: S030530

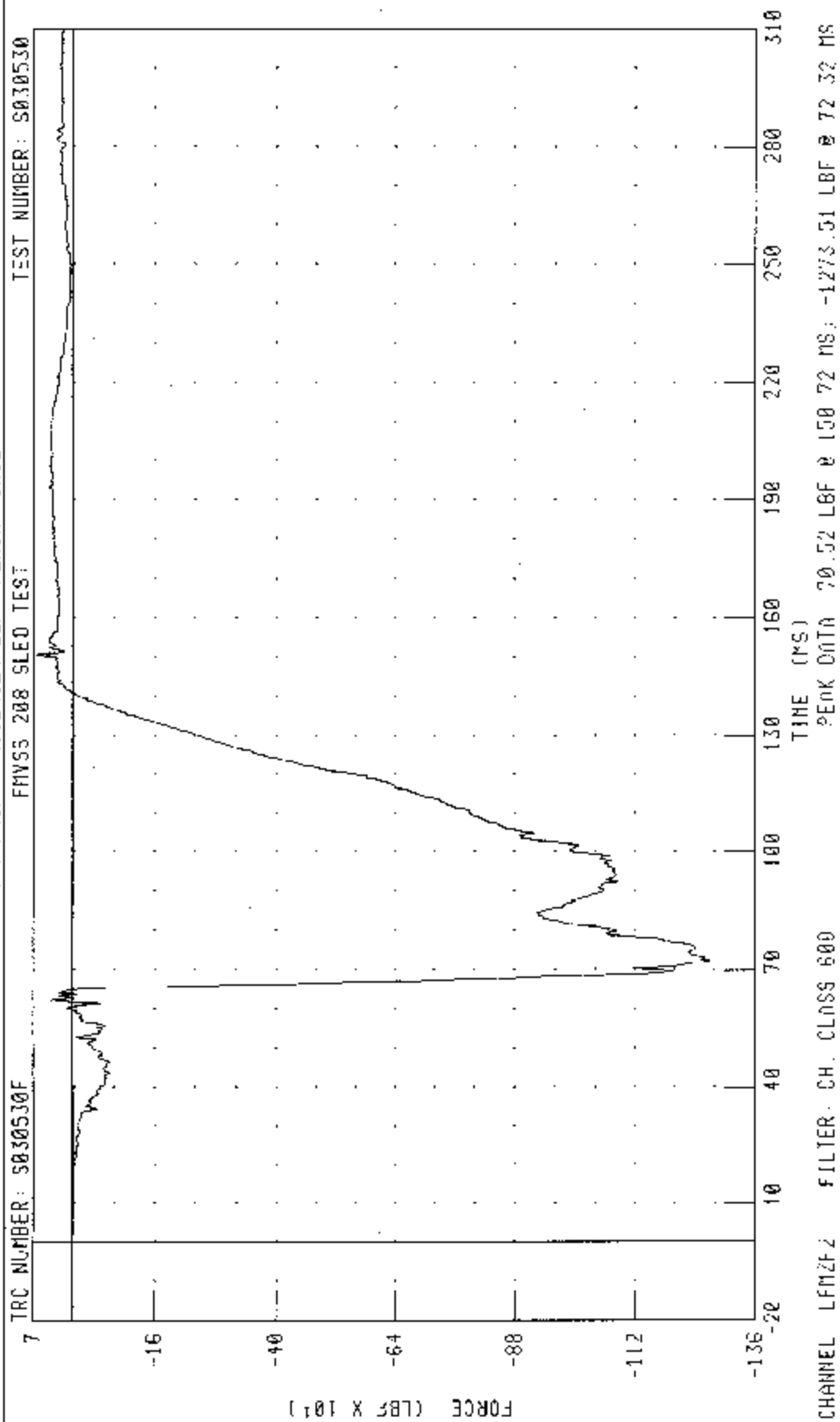


TIME (MS)

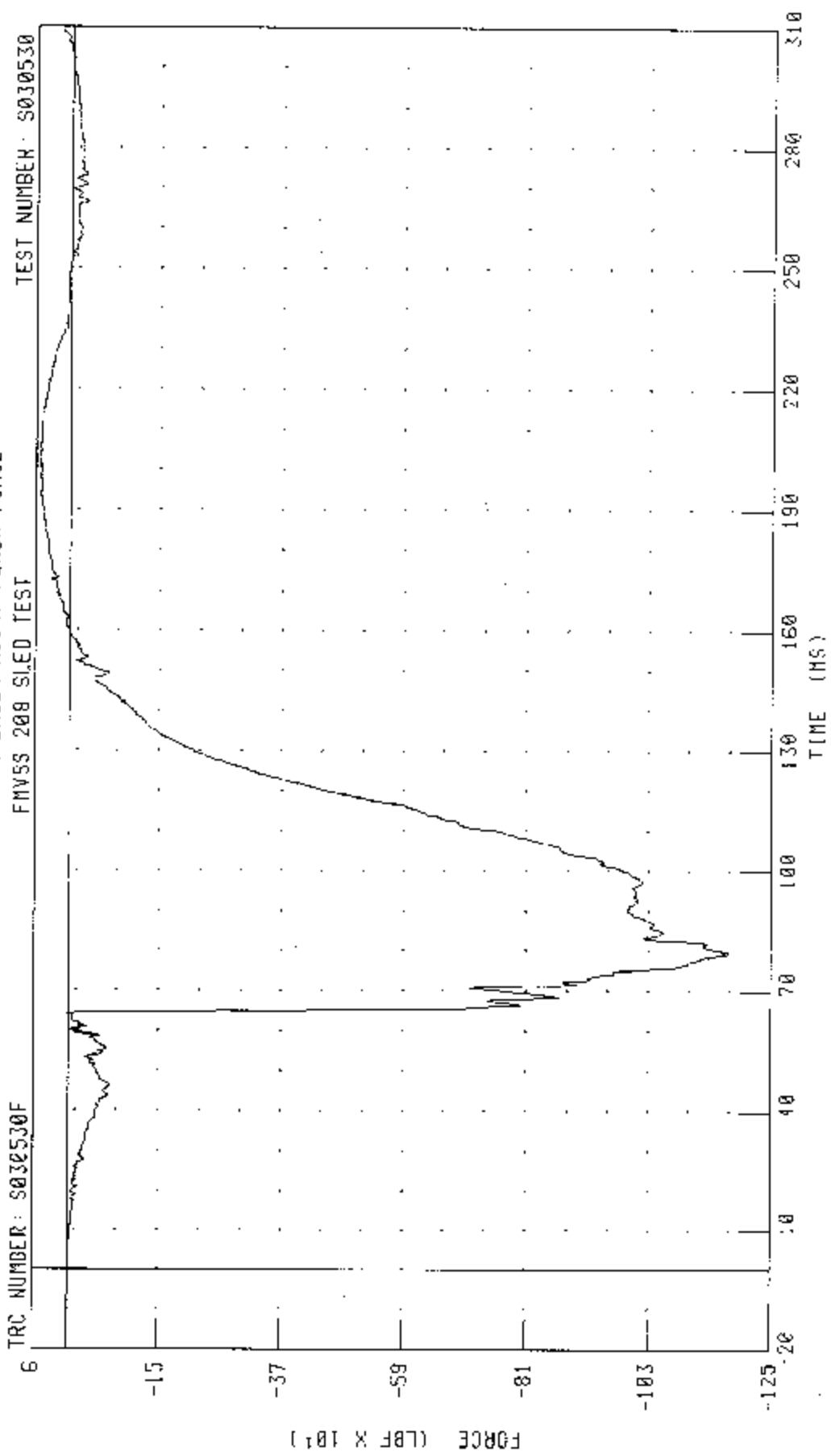
PEAK DATA: 0.02 IN @ 51.68 MS; -0.60 IN @ 128.32 MS

CHANNEL: CSTX02 FILTER: CH CLASS: 640

C35503 / 2003 SUBARU FORESTER
RIGHT FRONT PASSENGER LEFT FEMUR FORCE



C35503 / 2003 SUBARU FORESTER
 RIGHT FRONT PASSENGER RIGHT FEMUR FORCE
 FMVSS 208 SLED TEST



TRC NUMBER: S030530F

TEST NUMBER: S030530

CHANNEL: RFMZP2 FILTER: CIL CLASS 600
 PLAK DATA 56 16 LBF @ 203 20 MS, -1184 93 13F @ 79 60 MS

Appendix C

Manufacturer's Vehicle Information

Front seats

- Never adjust the seat while driving to avoid the possibility of loss of vehicle control and of personal injury.
- Before adjusting the seat, make sure the hands and feet of rear seat passengers are clear of the adjusting mechanism.
- Seatbelts provide maximum restraint when the occupant sits well back and upright in the seat. To reduce the risk of sliding under the seatbelt in a collision, the front seatbacks should be always used in the upright position while the vehicle is running. If the front seatbacks are not used in the upright position in a collision, the risk of sliding under the lap belt and of the lap belt sliding up over the abdomen will increase, and both can result in serious internal injury or death.



Put children aged 12 and under in the rear seat properly restrained at all times. The SRS airbag deploys with considerable speed and force and can injure or even kill children, especially if they are 12 years of age and under and are not restrained or improperly restrained. Because children are lighter and weaker than adults, their risk of being injured from deployment is greater. For that reason, we strongly recommend that ALL children (including those in child seats and those that have outgrown child restraint devices) sit in the REAR seat properly

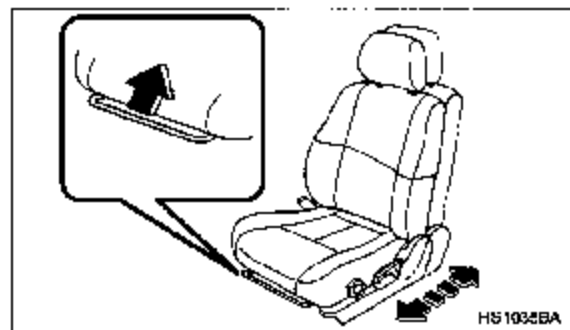
1-2

restrained at all times in a child restraint device or in a seatbelt, whichever is appropriate for the child's age, height and weight. Secure ALL types of child restraint devices (including forward facing child seat) in the REAR seats at all times.

NEVER INSTALL A REARWARD FACING CHILD SEAT IN THE FRONT SEAT. DOING SO RISKS SERIOUS INJURY OR DEATH TO THE CHILD BY PLACING THE CHILD'S HEAD TOO CLOSE TO THE SRS AIRBAG.

According to accident statistics, children are safer when properly restrained in the rear seating positions than in the front seating positions. For instructions and precautions concerning child restraint systems, see the "Child restraint systems" section in this chapter.

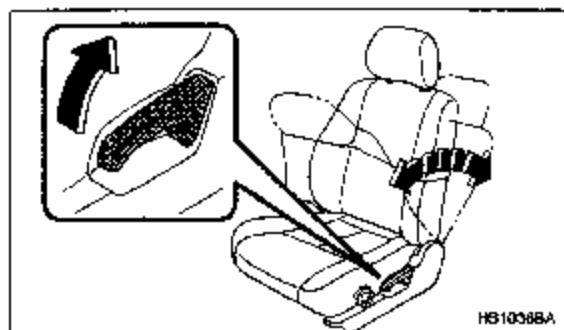
Fore and aft adjustment



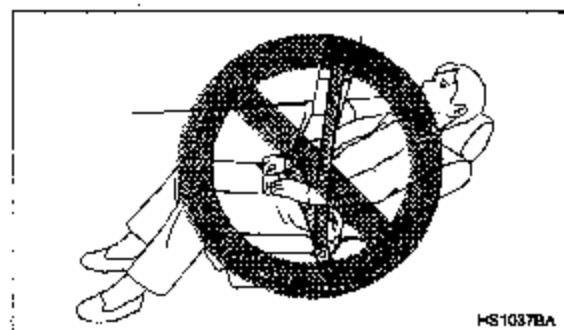
Pull the lever upward and slide the seat to the desired position. Then release the lever and move the seat back and forth to make sure that it is securely locked into place.

- CONTINUED -

■ Reclining the seatback



Pull the reclining lever up and adjust the seatback to the desired position. Then release the lever and make sure the seatback is securely locked into place. The seatback placed in a reclined position can spring back upward with force when released. When operating the reclining lever to return the seatback, hold it lightly so that it may be raised back gradually.



■ WARNINGS

To prevent the passenger from sliding under the seatbelt in the event of a collision, always put the seatback in the upright position while the vehicle is in motion. Also, do not place objects such as cushions between the passenger and the seatback. If you do so, the risk of sliding under the lap belt and of the lap belt sliding up over the abdomen will increase, and both can result in serious internal injury or death.

1-4

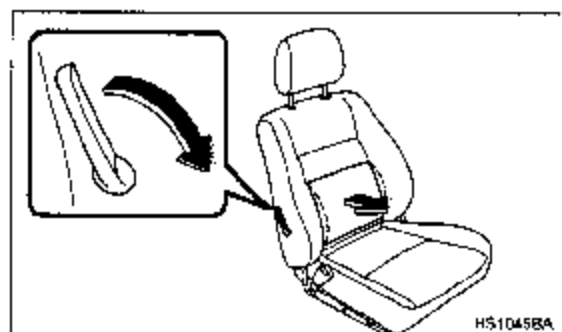
■ Seat height adjustment (driver's seat)



- 1) Turn the dial backward to lower the seat.
- 2) Turn the dial forward to raise the seat.

Use the adjusting dial to adjust the height of the seat.

■ Lumbar support

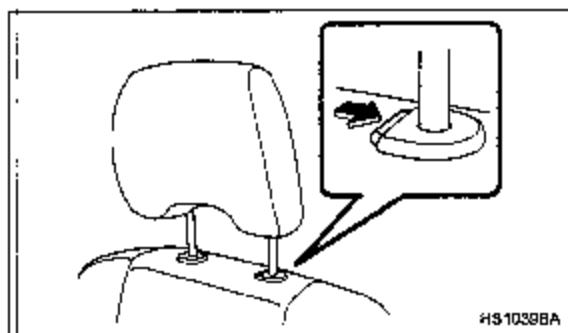


Pull the lever forward or backward. Pulling the lever forward will increase the amount of support for your lower back.

- CONTINUED -

1-5

Head restraint adjustment



To raise the head restraint, pull it up.
To lower it, push the head restraint down while pressing the release button on the top of the seatback.
The head restraint should be adjusted so that the center of the head restraint is closest to the top of the occupant's ears.

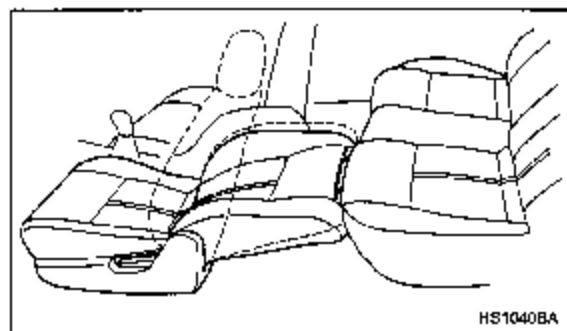
WARNING

Never drive the vehicle with the head restraints removed because they are designed to reduce the risk of serious neck injury in the event that

the vehicle is struck from the rear.

NOTE

If the seatback is reclined rearward to the same level as the rear seat cushion with the head restraint removed, a wide flat bed is made available.



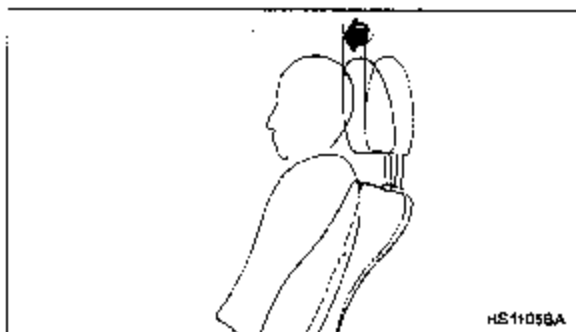
1. Slide the front seat forward as far as possible.
2. Pull off the head restraint while pressing the release button.
3. Recline the seatback rearward up to the lowest position. Remember to reinstall the head restraint whenever the seatback is raised back.

1-6

WARNING

- Never drive your car with the seats converted in a flat bed position. If you do so, occupants will have a greater chance of being injured even during simple deceleration, acceleration and cornering since no firm restraint will be available for them.
- Before you lie on the flat bed to take a rest, read the description "Parking your vehicle" in Chapter 7 carefully and follow the instructions.

Active head restraint



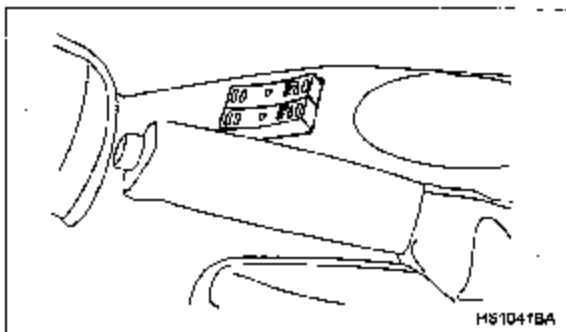
The front seats of your vehicle are equipped with active head restraints. They automatically tilt forward slightly in the event the vehicle is struck from the rear, decreasing the amount of rearward head movement and thus reducing the risk of whiplash. For maximum effectiveness the head restraint should be adjusted so that the center of the head restraint is closest to the top of the occupant's ears.

CAUTION

- Each active head restraint is effective only when its height is properly adjusted and the user sits in the correct position on the seat.
- Each active head restraint is designed to work only once. If your vehicle is involved in a rear-end collision, have an authorized SUBARU dealer inspect the active head restraints.
- The active head restraints may not operate in the event the vehicle experiences only a slight impact in the rear.
- The active head restraints may be damaged if they are pushed hard from behind or subjected to shock. As a result, they may not function if the vehicle suffers a rear impact.

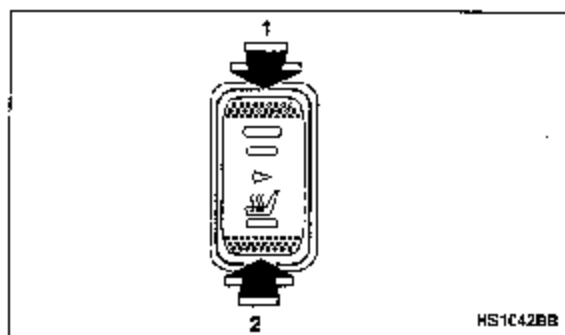
1-7

Seat heater (If equipped)



The seat heater operates when the ignition switch is either in the "ACC" or "ON" position.

To turn on the seat heater, push the "LO" or "HI" position on the switch, as desired, depending on the temperature. Selecting the "HI" position will cause the seat to heat up quicker.



- 1) HI — Rapid heating
- 2) LO — Normal heating

The indicator located on the switch comes on when the seat heater is in operation. When the vehicle's interior is warmed enough or before you leave the vehicle, be sure to turn the switch off.

CAUTION

- There is a possibility that people with delicate skin may suffer slight burns even at low temperatures if he/she uses the seat heater for a long period of time. When using the heater, always be sure to warn the persons concerned.

1-8

- Do not put anything on the seat which insulates against heat, such as a blanket, cushion, or similar items. This may cause the seat heater to overheat.

NOTE

- Use of the seat heater for a long period of time while the engine is not running can cause battery discharge.
- When cleaning the seat, do not use benzine, paint thinner, or any similar materials.

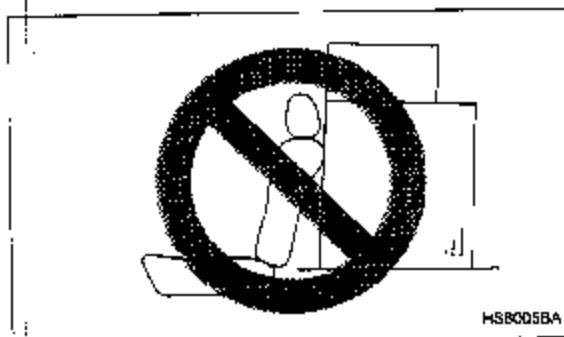
Rear seats



WARNING

Seatbelts provide maximum restraint when the occupant sits well back and upright in the seat. Do not put cushions or any other materials between occupants and seatbacks or seat cushions. If you do so, the risk of sliding under the lap belt and of the lap belt sliding up over the abdomen will increase, and both can result in serious internal injury or death.

- CONTINUED -

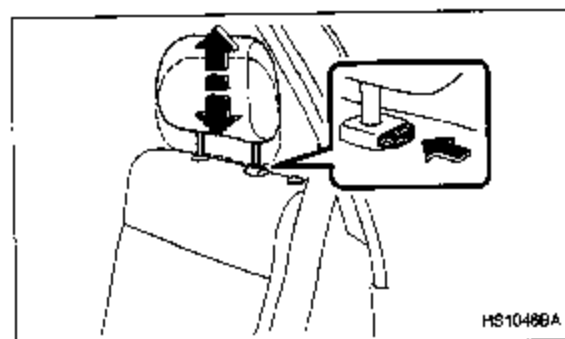


HSB005BA

Never stack luggage or other cargo higher than the top of the seatback because it could tumble forward and injure passengers in the event of a sudden stop or accident.

■ Headrest adjustment

▼ Rear windows side seating position



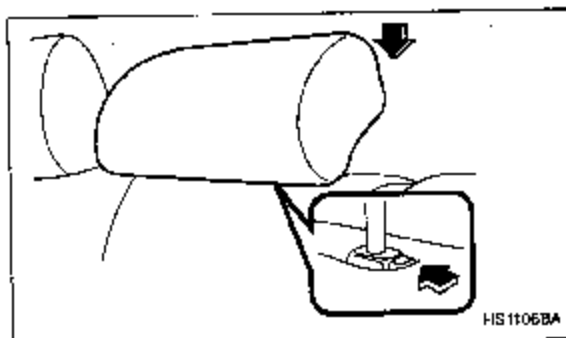
HS1046BA

To raise the headrest, pull it up.
To lower it, push the headrest down while depressing the release button on the top of the seatback.

When the seats are not occupied, lower the headrest to improve rearward visibility.

1-10

▼ Rear center seating position

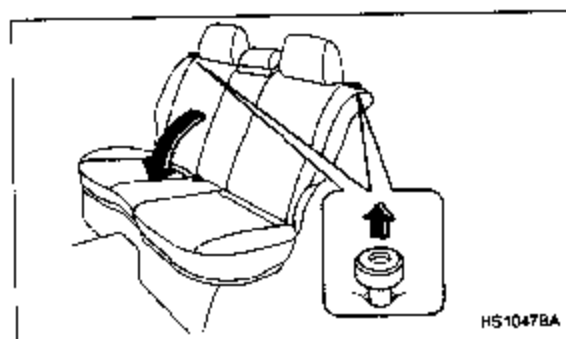


HS1106BA

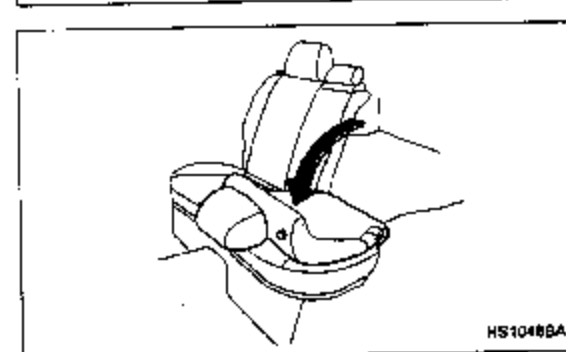
To raise the headrest, pull it up.
To lower it, push the headrest down while pressing the release button on the top of the seatback.

When the rear-center seating position is occupied, place the headrest in its highest position. When the rear center seating position is not occupied, lower the headrest to improve rearward visibility.

■ Folding down the rear seatback



HS1047BA



HS1048BA

- CONTINUED -

1-11

1. Lower the headrests.
2. Unlock the seatback by pulling the release knob and then fold the seatback down.

To return the seatback to its original position, raise the seatback until it locks into place and make sure that it is securely locked.

WARNING

- After returning the rear seatback to its original position, make certain that the shoulder belts are fully visible.
- Never allow passengers to ride on the folded rear seatback or in the cargo area. Doing so may result in serious injury or death.
- Secure lengthy items properly to prevent them from shooting forward and causing serious injury during a sudden stop.

Seatbelts

■ Seatbelt safety tips

WARNING

- All persons in the vehicle should fasten their seatbelts **BEFORE** the vehicle starts to move. Otherwise, the possibility of serious injury becomes greater in the event of a sudden stop or accident.
- All belts should fit snugly in order to provide full restraint. Loose fitting belts are not as effective in preventing or reducing injury.
- Each seatbelt is designed to support only one person. Never use a single belt for two or more persons — even children. Otherwise, in an accident, serious injury or death could result.
- Replace all seatbelt assemblies including retractors and attaching hardware worn by occupants of a vehicle that has been in a serious accident. The entire assembly should be replaced even if damage is not obvious.
- Put children aged 12 and under in the rear seat properly restrained at all times. The SRS airbag deploys with considerable speed and

1-12

force and can injure or even kill children, especially if they are 12 years of age and under and are not restrained or improperly restrained. Because children are lighter and weaker than adults, their risk of being injured from deployment is greater. For that reason, we strongly recommend that ALL children (including those in child seats and those that have outgrown child restraint devices) sit in the REAR seat properly restrained at all times in a child restraint device or in a seatbelt, whichever is appropriate for the child's height and weight. Secure ALL types of child restraint devices (including forward facing child seats) in the REAR seats at all times.

NEVER INSTALL A REARWARD FACING CHILD SEAT IN THE FRONT SEAT. DOING SO RISKS SERIOUS INJURY OR DEATH TO THE CHILD BY PLACING THE CHILD'S HEAD TOO CLOSE TO THE SRS AIRBAG.

According to accident statistics, children are safer when properly restrained in the rear seating positions than in the front seating positions. For instructions and precautions concerning the child restraint system, see the "Child restraint systems" section in this chapter.

ter.

▼ Infants or small children

Use a child restraint system that is suitable for your vehicle. See information on "Child restraint systems" in this chapter.

▼ Children

If a child is too big for a child restraint system, the child should sit in the rear seat and be restrained using the seatbelts. According to accident statistics, children are safer when properly restrained in the rear seating positions than in the front seating positions. Never allow a child to stand up or kneel on the seat.

If the shoulder portion of the belt crosses the face or neck, adjust the shoulder belt anchor height (window-side seating positions only) and then if necessary move the child closer to the belt buckle to help provide a good shoulder belt fit. Care must be taken to securely place the lap belt as low as possible on the hips and not on the child's waist. If the shoulder portion of the belt cannot be properly positioned, a child restraint system should be used. Never place the shoulder belt under the child's arm or behind the child's back.

— CONTINUED —

▼ Expectant mothers



Expectant mothers also need to use the seatbelts. They should consult their doctor for specific recommendations. The lap belt should be worn securely and as low as possible over the hips, not over the waist.

■ Emergency Locking Retractor (ELR)

The driver's seatbelt has an Emergency Locking Retractor (ELR).

The emergency locking retractor allows normal body movement but the retractor locks automatically during a sudden stop, impact or if you pull the belt very quickly out of the retractor.

■ Automatic/Emergency Locking Retractor (A/ELR)

Each passenger's seatbelt has an Automatic/Emergency Locking Retractor (A/ELR). The Automatic/Emergency Locking Retractor normally functions as an Emergency Locking Retractor (ELR). The A/ELR has an additional locking mode "Automatic Locking Retractor (ALR) mode" intended to secure a child restraint system. When the seatbelt is once drawn out completely and is then retracted even slightly, the retractor locks the seatbelt in that position and the seatbelt cannot be extended. As the belt is rewinding, clicks will be heard which indicate the retractor functions as an ALR. When the seatbelt is retracted fully, the ALR mode is released.

When securing a child restraint system on the rear seats by the use of the seatbelt, the seatbelt must be changed over to the Automatic Locking Retractor (ALR) mode.

When the child restraint system is removed, make sure that the seatbelt retracts fully and the retractor returned to the Emergency Locking Retractor (ELR) mode.

For instructions on how to convert the retractor to the ALR mode and restore it to the ELR mode, see the "Child restraint systems" section in this chapter.

1-14

■ Seatbelt warning light and chime

Your vehicle is equipped with a seatbelt warning device at the driver's seat, as required by current safety standards.

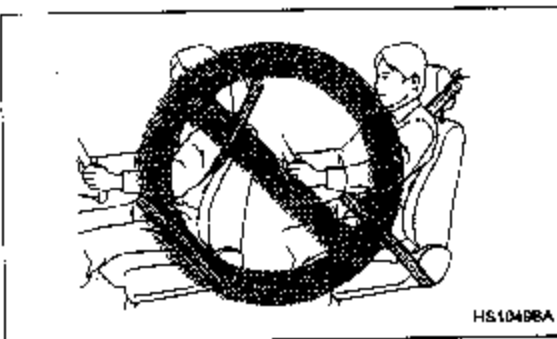
This device causes the seatbelt warning light on the instrument panel to light up for about six seconds when the ignition switch is turned to "ON" to remind the driver to wear the seatbelt. If the driver's seatbelt is not fastened, a warning chime sounds at the same time.

■ Fastening the seatbelt

- Never use a belt that is twisted or reversed. In an accident, this can increase the risk or severity of injury.
- Keep the lap belt as low as possible on your hips. In a collision, this spreads the force of the lap belt over stronger hip bones instead of across the weaker abdomen.
- Seatbelts provide maximum restraint when the occupant sits well back and upright in the seat. To reduce the risk of sliding under the seatbelt in a collision, the front seatbacks should be always used in the upright position while the vehicle is running. If the front seat-

backs are not used in the upright position in a collision, the risk of sliding under the lap belt and of the lap belt sliding up over the abdomen will increase, and both can result in serious internal injury or death.

- Do not put cushions or any other materials between occupants and seatbacks or seat cushions. If you do so, the risk of sliding under the lap belt and of the lap belt sliding up over the abdomen will increase, and both can result in serious internal injury or death.



- CONTINUED -

1-15

WARNING

Never place the shoulder belt under the arm or behind the back. If an accident occurs, this can increase the risk or severity of injury.

CAUTION

Metallic parts of the seatbelt can become very hot in a vehicle that has been closed up in sunny weather; they could burn an occupant. Do not touch such hot parts until they cool.

Front seatbelts

1. Adjust the seat position:

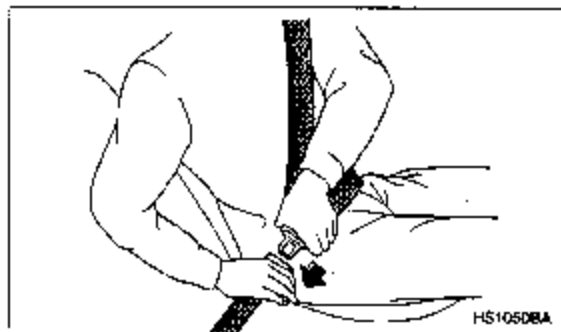
Driver's seat: Adjust the seatback to the upright position. Move the seatback as far from the steering wheel as practical while still maintaining full vehicle control.

Front passenger's seat: Adjust the seatback to the upright position. Move the seat as far back as possible.

2. Sit well back in the seat.

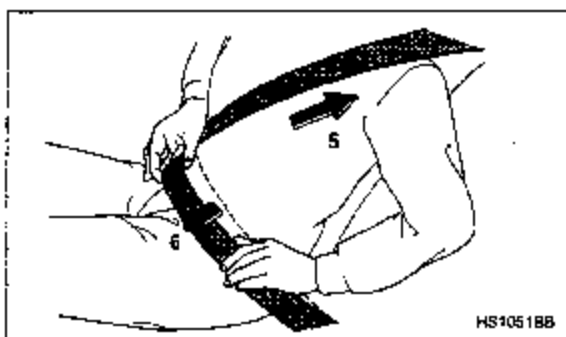
3. Pick up the tongue plate and pull the belt out slowly. Do not let it get twisted. If the belt stops before reaching the buckle, return the belt slightly and pull it out

more slowly. If the belt still cannot be unlocked, let the belt retract slightly after giving it a strong pull, then pull it out slowly again.



4. Insert the tongue plate into the buckle until you hear a click.

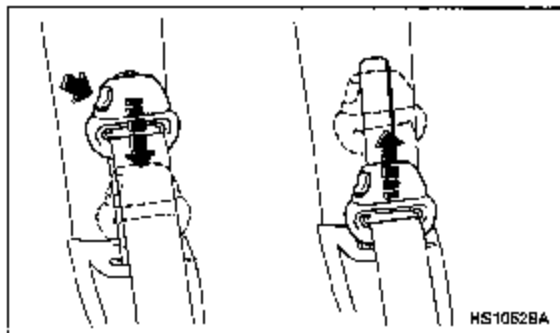
1-16



5. To make the lap part tight, pull up on the shoulder belt.

6. Place the lap belt as low as possible on your hips, not on your waist.

Adjusting the front seat shoulder belt anchor height



The shoulder belt anchor height should be adjusted to the position best suited for you.

To lower the anchor height, push the release button and slide the anchor down.

To raise the anchor height, slide the anchor up. Pull down on the anchor to make sure that it is locked in place.

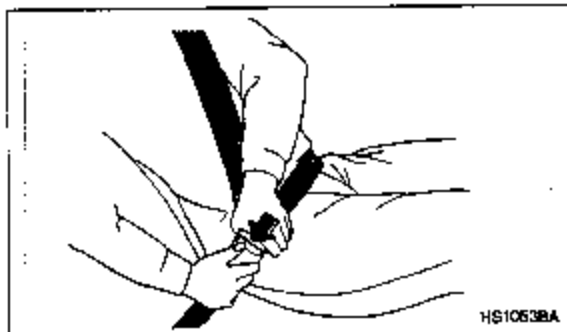
Always adjust the anchor height so that the shoulder belt passes over the middle of the shoulder without touching the neck.

- CONTINUED -

1-17

When wearing the seatbelts, make sure the shoulder portion of the webbing does not pass over your neck. If it does, adjust the seatbelt anchor to a lower position. Placing the shoulder belt over the neck may result in neck injury during sudden braking or in a collision.

▽ Unfastening the seatbelt



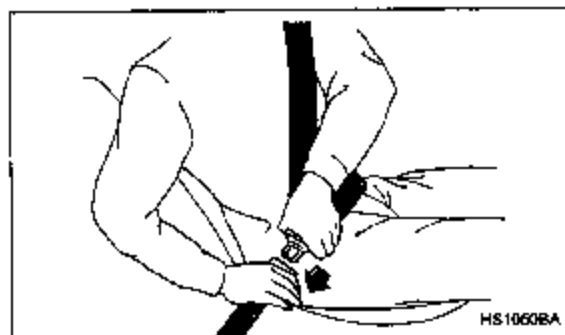
Push the button on the buckle.
Before closing the door, make sure that the belts are retracted properly to avoid catching the belt webbing

1-18

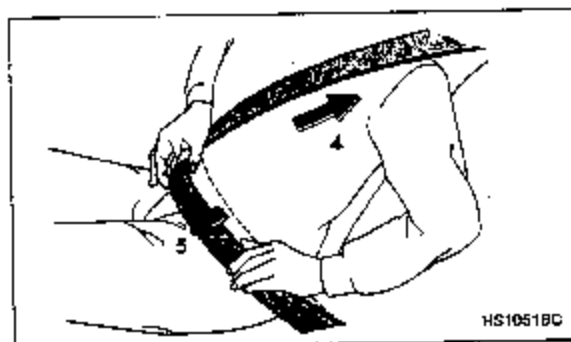
in the door.

▽ Rear seatbelts (except rear center seatbelt)

1. Sit well back in the seat.
2. Pick up the tongue plate and pull the belt out slowly. Do not let it get twisted. If the belt stops before reaching the buckle, return the belt slightly and pull it out more slowly. If the belt still cannot be unlocked, let the belt retract slightly after giving a strong pull on it, then pull it out slowly again.

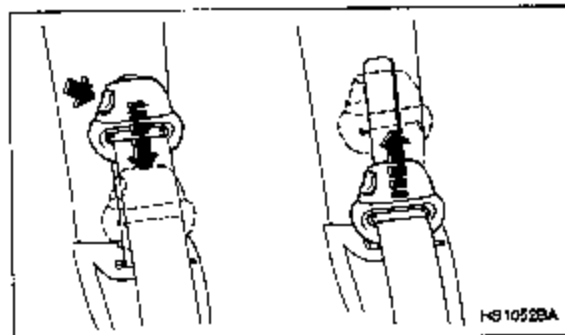


3. Insert the tongue plate into the buckle until you hear a click.



4. To make the lap part tight, pull up on the shoulder belt.
5. Place the lap belt as low as possible on your hips, not on your waist.

▽ Adjusting the rear seat shoulder belt anchor height (window-side seating positions only)



The shoulder belt anchor height should be adjusted to the position best suited for you.
To lower the anchor height, push the release button and slide the anchor down.
To raise the anchor height, slide the anchor up. Pull down on the anchor to make sure that it is locked in place.
Always adjust the anchor height so that the shoulder belt passes over the middle of the shoulder without touching the neck.

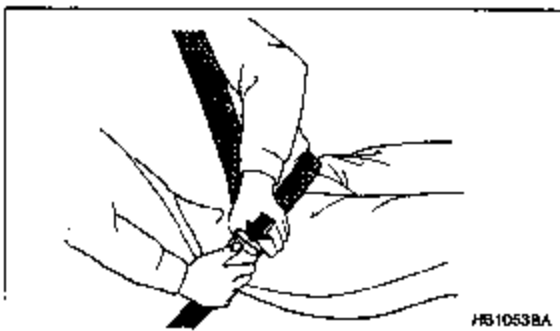
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1-19

WARNING

When wearing the seatbelts, make sure the shoulder portion of the webbing does not pass over your neck. If it does, adjust the seatbelt anchor to a lower position. Placing the shoulder belt over the neck may result in neck injury during sudden braking or in a collision.

▽ Unfastening the seatbelt

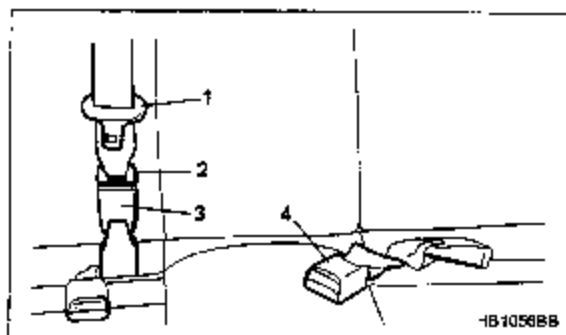


Push the button on the buckle.
Before closing the door, make sure that the belts are retracted properly to avoid catching the belt webbing

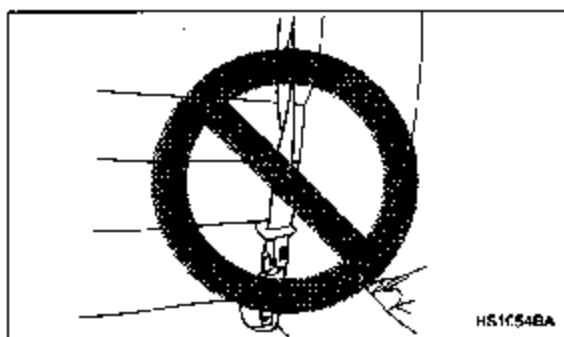
1-20

in the door.

▽ Rear center seatbelt



- 1) Center seatbelt tongue plate
- 2) Connector (tongue)
- 3) Connector (buckle)
- 4) Center seatbelt buckle



WARNING

Fastening the seatbelt with the webbing twisted can increase the risk or severity of injury in an accident. When fastening the belt after it is pulled out from the retractor, especially when inserting the connector's tongue plate into the mating buckle (on right-hand side), always check that the webbing is not twisted.



WARNING

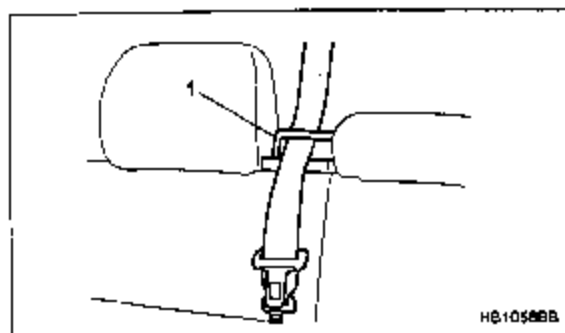
Be sure to fasten both tongue plates to the respective buckles. If the seatbelt is used only as a shoulder belt (with the connector's tongue plate not fastened to the connector's buckle on the right-hand side), it cannot properly restrain the wearer in position in an accident, possibly resulting in serious injury or death.

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HS1057BA

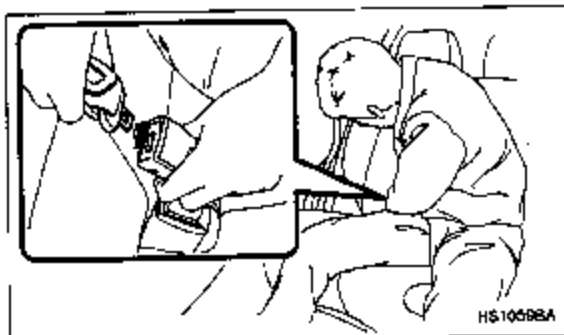
1. Pull out the seatbelt slowly from the overhead retractor.



HS1058BA

- 1) Seatbelt comfort guide
2. Pass the seatbelt through the seatbelt comfort guide located beside the headrest.

1-22



HS1068BA

3. After confirming that the webbing is not twisted, insert the connector (tongue) attached at the webbing end into the buckle on the right-hand side until a click is heard.

If the belt stops before reaching the buckle, return the belt slightly and pull it out more slowly. If the belt still cannot be unlocked, let the belt retract slightly after giving it a strong pull, then pull it out slowly again.

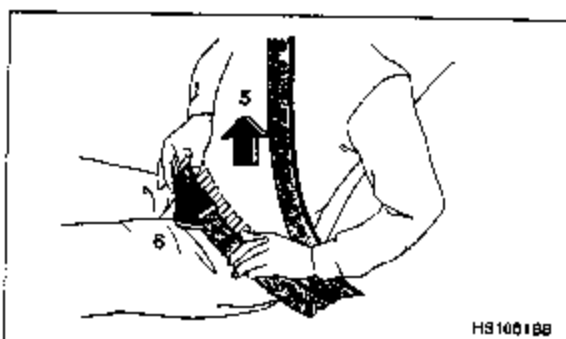


HS1069BA

4. Insert the center seatbelt tongue plate in the center seatbelt buckle marked "CENTER" on the left-hand side until it clicks.

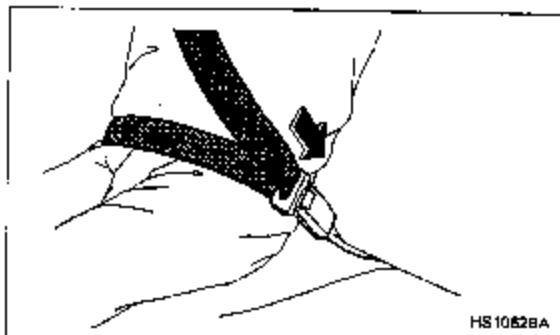
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1-23



5. To make the lap part tight, pull up on the shoulder belt.
6. Place the lap belt as low as possible on your hips, not on your waist.

▽ Unfastening the seatbelt

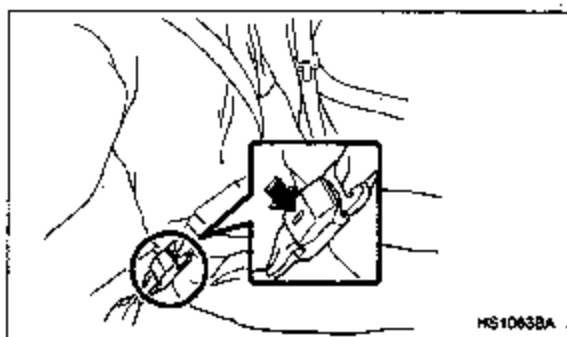


Push the release button of the center seatbelt buckle (on the left-hand side) to unfasten the seatbelt.

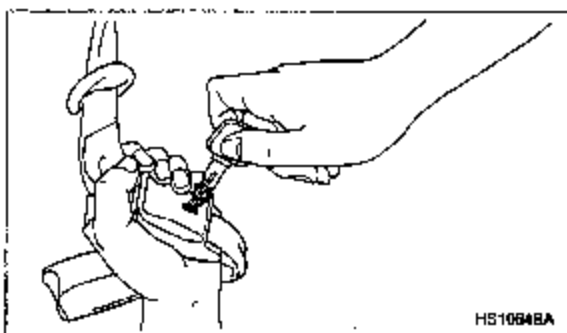
NOTE

When the seatback is folded down for greater luggage space, it is necessary to disconnect the connector.

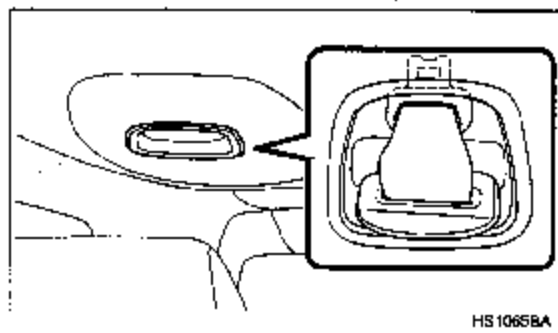
1-24



slot in the connector (buckle) on the right-hand side and push it in, and the connector (tongue) plate will disconnect from the buckle.

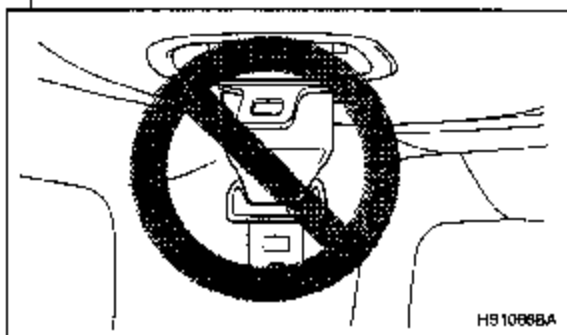


1. Insert a key or other hard pointed object into the



2. Allow the retractor to roll up the belt. You should hold the webbing end and guide it back into the retractor while it is rolling up. Neatly store the tongue plates in the recess in the retractor and then insert the connector (tongue) plate into the slot located at the front of the recess.

- CONTINUED -



CAUTION

- Do not allow the retractor to roll up the seatbelt too quickly. Otherwise, the metal tongue plates may hit against the trim, resulting in damaged trim.
- Have the seatbelt fully rolled up so that the tongue plates are neatly stored. A hanging tongue plate can swing and hit against the trim during driving, causing damage to the trim.

■ Seatbelt maintenance

To clean the seatbelts, use a mild soap and lukewarm water. Never bleach or dye the belts because this could seriously affect their strength.

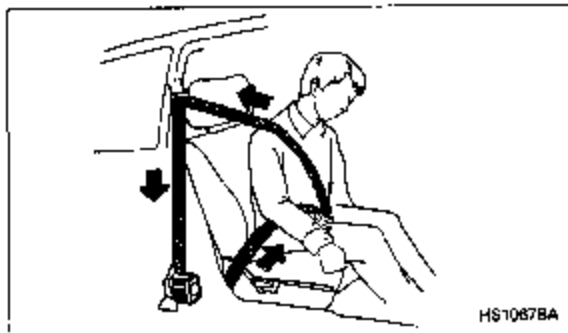
Inspect the seatbelts and attachments including the webbing and all hardware periodically for cracks, cuts, gashes, tears, damage, loose bolts or worn areas. Replace the seatbelts even if only minor damage is found.

CAUTION

- Keep the belts free of polishes, oils, chemicals and particularly battery acid.
- Never attempt to make modifications or changes that will prevent the seatbelt from operating properly.

1-26

Front seatbelt pretensioners



The driver's and front passenger's seatbelts have a seatbelt pretensioner. The seatbelt pretensioners are designed to be activated in the event of an accident involving a moderate to severe frontal collision.

The pretensioner sensor also serves as the frontal SRS airbag sensor. If the sensor detects a certain predetermined amount of force during a frontal collision, the front seatbelt is quickly drawn back in by the retractor to take up the slack so that the belt more effectively restrains the front seat occupant.

When a seatbelt pretensioner is activated, an operat-

ing noise will be heard and a small amount of smoke will be released. These occurrences are normal and not harmful. This smoke does not indicate a fire in the vehicle.

Once the seatbelt pretensioner has been activated, the seatbelt retractor remains locked. Consequently, the seatbelt can not be pulled out and retracted and therefore must be replaced.

NOTE

- Seatbelt pretensioners are not designed to activate in minor frontal impacts, in side or rear impacts or in roll-over accidents.
- The driver's seat and passenger's seat pretensioners and frontal SRS airbag operate simultaneously.
- Pretensioners are designed to function on a one-time-only basis. In the event that a pretensioner is activated, both the driver's and front passenger's seatbelt retractor assemblies must be replaced only by an authorized SUBARU dealer. When replacing seatbelt retractor assemblies, use only genuine SUBARU parts.
- If either front seatbelt does not retract or cannot be pulled out due to a malfunction or activation of the pretensioner, contact your SUBARU dealer as soon as possible.

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1-27

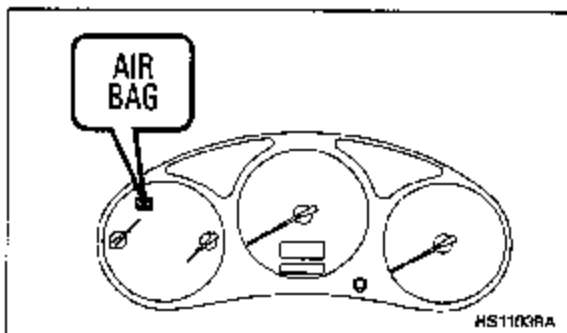
- If the front seatbelt retractor assembly or surrounding area has been damaged, contact your SUBARU dealer as soon as possible.
- When you sell your vehicle, we urge you to explain to the buyer that it has seatbelt pretensioners by alerting him to the contents of this section.

WARNING

- To obtain maximum protection, the occupants should sit in an upright position with their seatbelts properly fastened. Refer to the "Seatbelts" section in this chapter.
- Do not modify, remove or strike the front seatbelt retractor assemblies or surrounding area. This could result in accidental activation of the seatbelt pretensioners or could make the system inoperative, possibly resulting in serious injury. Seatbelt pretensioners have no user-serviceable parts. For required servicing of front seatbelt retractors equipped with seatbelt pretensioners, see your nearest SUBARU dealer.
- When discarding front seatbelt retractor assemblies or scrapping the entire car due to collision damage or for other reasons, consult

your SUBARU dealer.

System monitors



A diagnostic system continually monitors the readiness of the seatbelt pretensioner while the vehicle is being driven. The seatbelt pretensioners share the control module with the SRS airbag system. Therefore, if any malfunction occurs in a seatbelt pretensioner, the SRS airbag system warning light will illuminate. The SRS airbag system warning light will show normal system operation by lighting for about 6 seconds when the ignition key is turned to the "ON"

1-28

position.

The following components are monitored by the indicator:

- Front sub sensor (Right hand side)
- Front sub sensor (Left hand side)
- Airbag control module (including impact sensors)
- Seatbelt pretensioner (driver's side)
- Seatbelt pretensioner (Passenger's side)
- All related wiring
- And all other airbag components

In the event of a malfunction indicated by any of following, the vehicle should be taken promptly to your nearest SUBARU dealer to have the system checked. Unless checked and repaired, the seatbelt pretensioners and SRS airbag will not function reliably:

- Flashing or flickering of the indicator light.
- No illumination of the warning light when the ignition switch is first turned to the "ON" position.
- Continuous illumination of the warning light.
- Illumination of the warning light while driving.

System servicing

WARNING

- When discarding a seatbelt retractor assembly

or scrapping the entire car damaged by a collision, consult your SUBARU dealer.

- Tampering with or disconnecting the system's wiring could result in accidental activation of the seatbelt pretensioner and/or SRS airbag or could make the system inoperative, which may result in serious injury. The wiring harnesses of the seatbelt pretensioner and SRS airbag systems are covered with yellow insulation and the connectors of the system are yellow for easy identification. Do not use electrical test equipment on any circuit related to the seatbelt pretensioner and SRS airbag systems. For required servicing of the seatbelt pretensioner, see your nearest SUBARU dealer.

CAUTION

The front sub sensors are located near the bottom of the radiator and the SRS airbag control module including the impact sensors is located under the center console. If you need service or repair in those areas or near the front seatbelt retractors, we recommend that you have an authorized SUBARU dealer perform the work.

- CONTINUED -

NOTE

If the front part of the vehicle is damaged in an accident to the extent that the seatbelt pretensioner does not operate, contact your SUBARU dealer as soon as possible.

■ Precautions against vehicle modification

⚠ CAUTION

Do not perform any of the following modifications. Such modifications can interfere with proper operation of the seatbelt pretensioners.

- Attachment of any equipment (bush bar, winches, snow plow, skid plate, etc.) other than SUBARU genuine accessory parts to the front end.
- Modification of the suspension system or front end structure.
- Installation of a tire of different size and construction from the tires specified on the tire placard attached to the driver's door jamb.

Always consult your SUBARU dealer if you want to install any accessory parts to your vehicle.

Child restraint systems

Infants and small children should always be placed in an infant or child restraint system in the rear seat while riding in the vehicle. You should use an infant or child restraint system that meets Federal Motor Vehicle Safety Standards or Canada Motor Vehicle Safety Standards. Is compatible with your vehicle and is appropriate for the child's age and size. All child restraint systems are designed to be secured in vehicle seats by lap belts or the lap belt portion of a lap/shoulder belt (except those covered under the section in this manual, entitled "Installation of child restraint systems by use of lower and tether anchorages").

Children could be endangered in an accident if their child restraints are not properly secured in the vehicle. When installing the child restraint system, carefully follow the manufacturer's instructions.

According to accident statistics, children are safer when properly restrained in the rear seating positions than in the front seating positions.

All U.S. states and Canadian provinces require that infants and small children be restrained in an approved child restraint system at all times while the vehicle is moving.

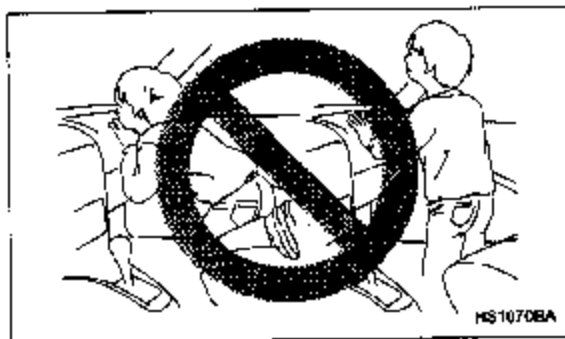
1-30



⚠ WARNING

Never let a passenger hold a child on his or her lap or in his or her arms while the vehicle is moving. The passenger cannot protect the child from injury in a collision, because the child will be caught between the passenger and objects inside the vehicle.

Additionally, holding a child in your lap or arms in the front seat exposes that child to another serious danger. Since the SRS airbag deploys with considerable speed and force, the child could be injured or even killed.



⚠ WARNING

Children should be properly restrained at all times. Never allow a child to stand up, or to kneel on any seat. Unrestrained children will be thrown forward during sudden stop or in an accident and can be injured seriously.

Additionally, children standing up or kneeling on or in front of the front seat are exposed another serious danger. Since the SRS airbag deploys with considerable speed and force, the child could be injured or even killed.

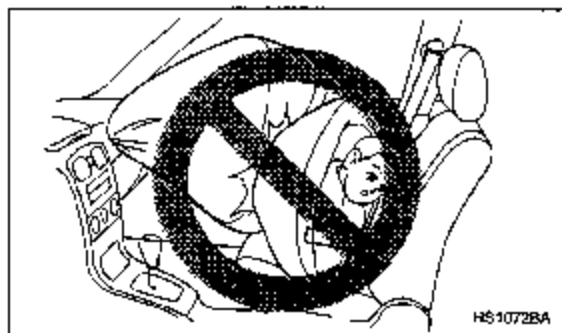
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1-31

WARNING

Put children aged 12 and under in the rear seat properly restrained at all times. The SRS airbag deploys with considerable speed and force and can injure or even kill children, especially if they are 12 years of age and under and are not restrained or improperly restrained. Because children are lighter and weaker than adults, their risk of being injured from deployment is greater.

For that reason, be sure to secure ALL types of child restraint devices (including forward facing child seats) in the REAR seats at all times. You should choose a restraint device which is appropriate for the child's age, height and weight. According to accident statistics, children are safer when properly restrained in the rear seating positions than in the front seating positions.



HS1072BA

WARNING

SINCE YOUR VEHICLE IS EQUIPPED WITH A PASSENGER'S SRS AIRBAG, NEVER INSTALL A REARWARD FACING CHILD SAFETY SEAT IN THE FRONT PASSENGER'S SEAT. DOING SO RISKS SERIOUS INJURY OR DEATH TO THE CHILD BY PLACING THE CHILD'S HEAD TOO CLOSE TO THE SRS AIRBAG.

• Child restraint systems and seatbelts can be-

1-32

come hot in a vehicle that has been closed up in sunny weather; they could burn a small child. Check the child restraint system before you place a child in it.

• Do not leave an unsecured child restraint system in your vehicle. Unsecured child restraint systems can be thrown around inside of the vehicle in a sudden stop, turn or accident; it can strike and injure vehicle occupants as well as result in serious injuries or death to the child.

Installing child restraint systems with seatbelt

HS1073BA

1. Set the child restraint system in the seating position.
2. Run the lap and shoulder belt through or around the child restraint system, following the instructions provided by its manufacturer. If the shoulder belt goes in front of the child's face or neck, put it behind the child restraint system.
3. Insert the tongue plate into the buckle.
4. Take up the slack in the lap belt.
5. Pull out the seatbelt fully from the retractor to change the retractor over from the Emergency Lock-

- CONTINUED -

1-33

ing Retractor (ELR) to the Automatic Locking Retractor (ALR) function. Then, allow the belt to rewind into the retractor. As the belt is rewinding, clicks will be heard which indicate the retractor functions as ALR.

6. Before having a child sit in the child restraint system, move it back and forth to check if it is firmly secured. Sometimes a child restraint can be more firmly secured by pushing it down into the seat cushion and then tightening the seatbelt.

7. Pull at the shoulder portion of the belt to confirm that it cannot be pulled out (ALR properly functioning).



HS1074BA

If the child restraint system requires a top tether, latch the hook onto the top tether anchor and tighten the top tether. See the "Top tether anchorages" for additional

instructions.

8. To remove the child restraint system, press the release button on the seatbelt buckle and allow the belt to retract completely. The belt will return to the ELR mode.

If you have any question concerning this type of child restraint system, ask your SUBARU dealer.

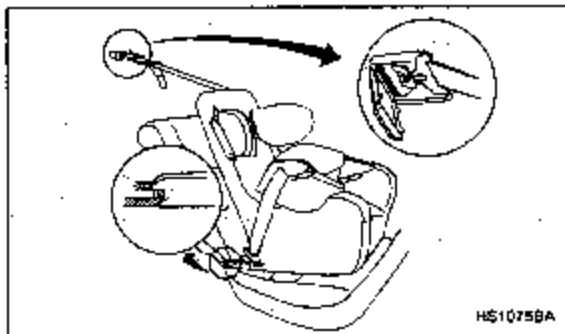
NOTE

When the child restraint system is no longer in use, remove it and restore the ELR function of the retractor. That function is restored by allowing the seatbelt to retract fully.

When you install a child restraint system, follow the manufacturer's instructions supplied with it. After installing the child restraint system, check to ensure that it is held securely in position. If it is not held tight and secure, the danger of your child suffering personal injury in the event of an accident may be increased.

1-34

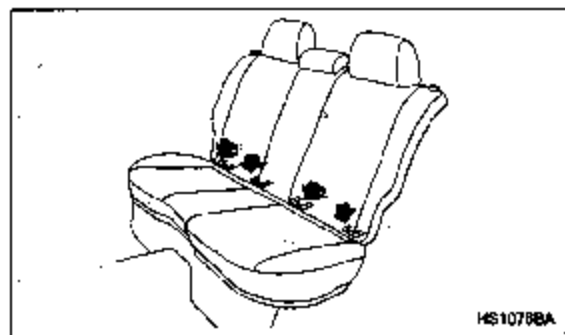
■ Installation of child restraint systems by use of lower and tether anchorages



HS1075BA

Some types of child restraint systems can be installed on the rear seat of your vehicle without use of the seatbelts. Such child restraint systems are secured to the designated anchorages provided on the vehicle body.

Your vehicle is equipped with four lower anchorages (bars) and three upper anchorages (tether anchorages) for accommodating such child restraint systems.



HS1076BA

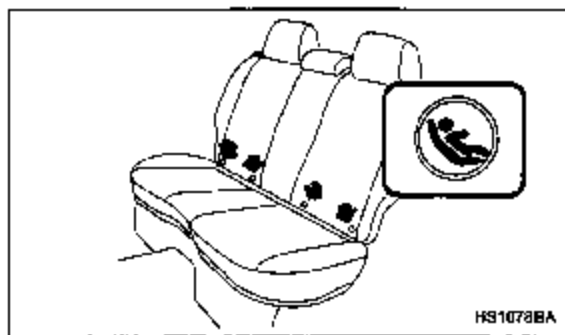
The lower anchorages (bars) are used for installing a child restraint system only on the rear seat window-side seating positions. For each window-side seating position, two lower anchorages are provided.

- CONTINUED -



HS1077BA

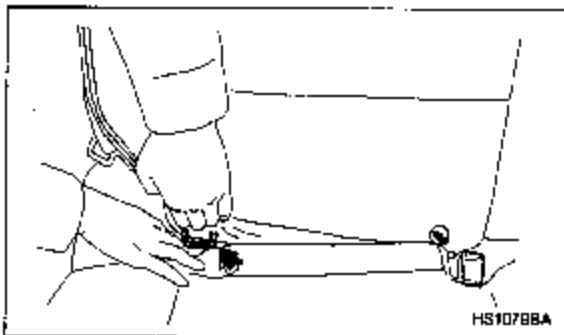
The tether anchorages (upper anchorages) are provided for all the seating positions (middle and both window-side ones) of the rear seat.



HS1078BA

You will find marks "G" at the bottom of the rear seat seatbacks. These marks indicate the positions of the lower anchorages (bars).

1-36



HS1079BA

Each lower anchorage is located where the seat cushion meets the seatback.

1. Use the "G" marks to locate the two lower anchorages (bars) for the position where you want to install the child restraint system.
2. While following the instructions supplied by the child restraint system manufacturer, connect the connectors of the child restraint system to the lower anchorages.

When the connectors are fastened, make sure that the adjacent seatbelts are not caught.

If your child restraint system is of a flexible attachment type (which uses tether straps to connect the child re-

straint system proper to the lower anchorages), firmly tighten the straps after connecting the connectors.

3. Connect the top tether hook to the tether anchorage and firmly tighten the tether.

For information on how to set the top tether, read the following "Top tether anchorages".

4. Before seating a child in the child restraint system, try to move seat back and forth to verify that it is held securely in position.

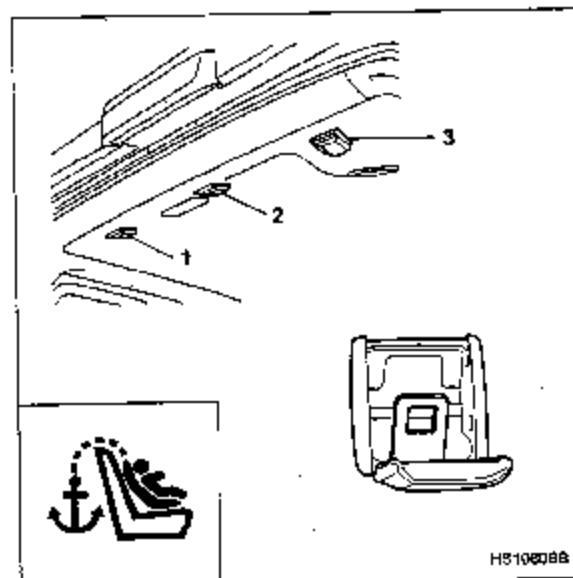
If you have any question concerning this type of child restraint system, ask your SUBARU dealer.

When you install a child restraint system, follow the manufacturer's instructions supplied with it. After installing the child restraint system, check to ensure that it is held securely in position. If it is not held tight and secure, the danger of your child suffering personal injury in the event of an accident may be increased.

- CONTINUED -

■ Top tether anchorages

▼ Anchorage location

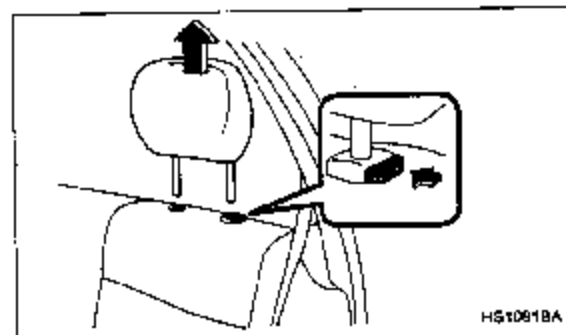


- 1) For left seat
- 2) For center seat

3) For right seat

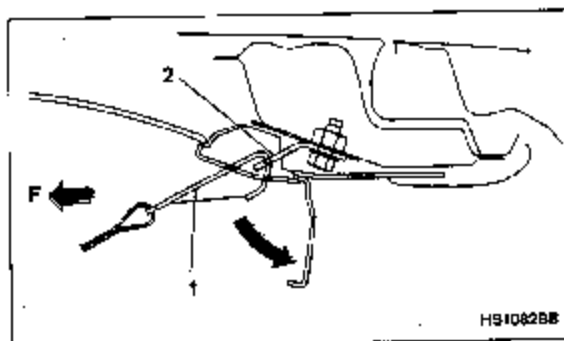
Three anchorages, i.e., ones for the right, center and left positions, are already installed on the rear edge of the roof. Open the cover flaps to use the anchorages.

▼ To hook the top tether



1. Remove the rear seat headrest at the seating position where the child restraint system has been installed with the seatbelt or lower anchorages; lift up the headrest while pressing the release button. Store the headrest in the cargo area. Avoid placing the headrest in the passenger compartment to prevent it from being thrown around in the passenger compartment in a sudden stop or a sharp turn.

1-38



- R: Front of vehicle
- 1) Top tether hook
 - 2) Upper anchorage

2. Fasten the top tether hook of the child restraint system to the appropriate upper anchorage.
3. Tighten the top tether securely.

▲ CAUTION

Always remove the headrest when mounting a child restraint system with a top tether. Otherwise, it may not be possible to fasten the top tether tightly.

*SRS airbag (Supplemental Restraint System airbag)

*SRS: This stands for supplemental restraint system. This name is used because the airbag system supplements the vehicle's seatbelts.

■ Vehicle with driver's and front passenger's SRS airbags and lap/shoulder restraints

Your vehicle is equipped with a supplemental restraint system in addition to a lap/shoulder belt at each front seating position.

The supplemental restraint system (SRS) consists of two airbag (driver's and front passenger's frontal airbags) or four airbags (driver's and front passenger's frontal airbags and driver's and front passenger's side airbags).

These SRS airbags are designed only as a supplement to the primary protection provided by the seatbelt.

- To obtain maximum protection in the event of an accident, the driver and all passengers in the

- CONTINUED -

vehicle should always wear seatbelts when the vehicle is moving. The SRS airbag is designed only as a supplement to the primary protection provided by the seatbelt. It does not do away with the need to fasten seatbelts. In combination with the seatbelts, it offers the best combined protection in case of a serious accident. Not wearing a seatbelt increases the chance of severe injury or death in a crash even when the car has the SRS airbag.

For instructions and precautions concerning the seatbelt system, see the "Seatbelts" sections in this chapter.

- Do not sit or lean unnecessarily close to the SRS airbag. Because the SRS airbag deploys with considerable speed – faster than the blink of an eye – and force to protect in high speed collisions, the force of an airbag can injure an occupant whose body is too close to SRS airbag.

It is also important to wear your seatbelt to help avoid injuries that can result when the SRS airbag contacts an occupant not in proper position such as one thrown forward during pre-accident braking.

Even when properly positioned, there remains a possibility that an occupant may suffer minor

injury such as abrasions and bruises to the face or arms because of the SRS airbag deployment force.

- The SRS airbags deploy with considerable speed and force. Occupants who are out of proper position when the SRS airbag deploys could suffer very serious injuries. Because the SRS airbag needs enough space for deployment, the driver should always sit upright and well back in the seat as far from the steering wheel as practical while still maintaining full vehicle control and the front passenger should move the seat as far back as possible and sit upright and well back in the seat.

- Do not place any objects over or near the SRS airbag cover or between you and the SRS airbag. If the SRS airbag deploys, those objects could interfere with its proper operation and could be propelled inside the car and cause injury.

1-40



- Put children aged 12 and under in the rear seat properly restrained at all times. The SRS airbag deploys with considerable speed and force and can injure or even kill children, especially if they are 12 years of age and under and are not restrained or improperly restrained. Because children are lighter and weaker than adults, their risk of being injured from deployment is greater.

For that reason, we strongly recommend that ALL children (including those in child seats and those that have outgrown child restraint device

es) sit in the REAR seat properly restrained at all times in a child restraint device or in a seatbelt, whichever is appropriate for the child's age, height and weight.

Secure ALL types of child restraint devices (including forward facing child seats) in the REAR seats at all times.

According to accident statistics, children are safer when properly restrained in the rear seating positions than in the front seating positions.

For instructions and precautions concerning the child restraint system, see the "Child restraint systems" section in this chapter.

- NEVER INSTALL A REARWARD FACING CHILD SEAT IN THE FRONT SEAT. DOING SO RISKS SERIOUS INJURY OR DEATH TO THE CHILD BY PLACING THE CHILD'S HEAD TOO CLOSE TO THE SRS AIRBAG.

- Never allow a child to stand up, or to kneel on the front passenger's seat, or never hold a child on your lap or in your arms. The SRS airbag deploys with considerable force and can injure or even kill the child.

- CONTINUED -

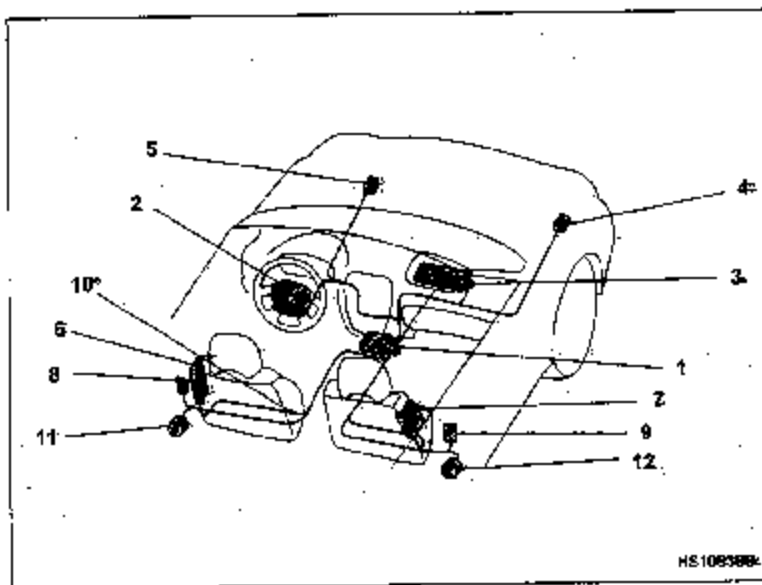
CAUTION

- When the SRS airbag deploys, some smoke will be released. This smoke could cause breathing problems for people with a history of asthma or other breathing trouble. If you or your passengers have breathing problems after SRS airbag deploys, get fresh air promptly.
- A deploying SRS airbag releases hot gas. Occupants could get burnt if they come into direct contact with the hot gas.

NOTE

When you sell your vehicle, we urge you to explain to the buyer that it is equipped with SRS airbags by alerting him to the applicable section in this owner's manual.

1-42



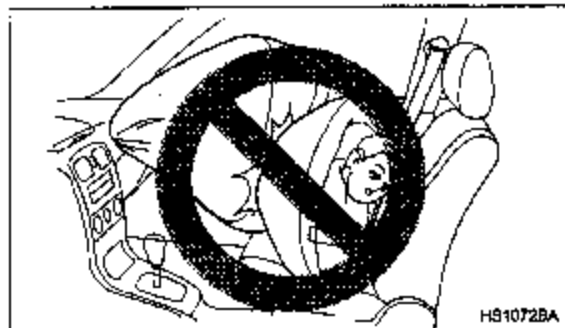
- 1) Airbag control module (including Impact sensors)
- 2) Airbag module (driver's side)
- 3) Airbag module (passenger's side)
- 4) Front sub sensor (left hand side)
- 5) Front sub sensor (right hand side)
- 6) Side airbag module (driver's side if equipped)
- 7) Side airbag module (passenger's side if equipped)
- 8) Side airbag sensor (driver's side)
- 9) Side airbag sensor (passenger's side)
- 10) Airbag wiring
- 11) Seatbelt pretensioner (driver's side)
- 12) Seatbelt pretensioner (passenger's side)

- CONTINUED -

■ SRS frontal airbag

The driver's SRS frontal airbag is stowed in the center portion of the steering wheel. The passenger's SRS frontal airbag is stowed near the top of the dashboard under an "SRS AIRBAG" mark.

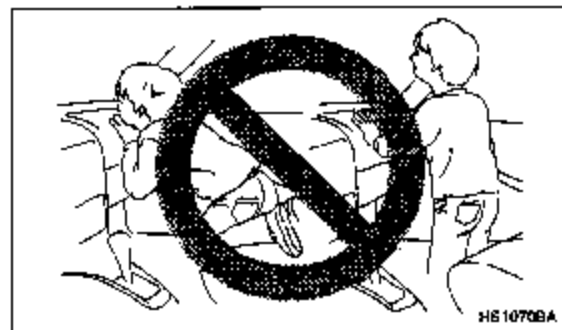
In a moderate to severe frontal collision, the driver's and front passenger's SRS frontal airbags deploy and supplement the seatbelts by reducing the impact on the driver's and front passenger's head and chest.



HS1072BA

NEVER INSTALL A REARWARD FACING CHILD SEAT IN THE FRONT SEAT. DOING SO RISKS

SERIOUS INJURY OR DEATH TO THE CHILD BY PLACING THE CHILD'S HEAD TOO CLOSE TO THE SRS AIRBAG.



HS1070BA

Never allow a child to stand up, or to kneel on the front passenger's seat. The SRS airbag deploys with considerable force and can injure or even kill the child.

1-44



HS1069BA

Never hold a child on your lap or in your arms. The SRS airbag deploys with considerable force and can injure or even kill the child.



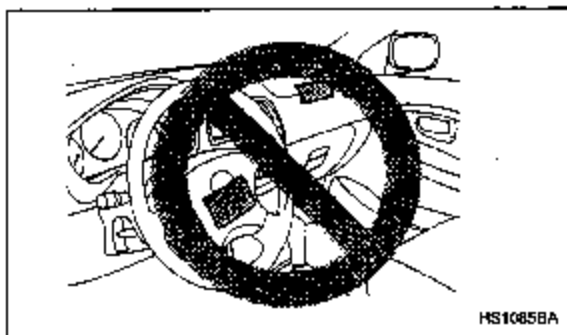
HS1064BA

The SRS airbag deploys with considerable speed and force. Occupants who are out of proper position when the SRS airbag deploys could suffer very serious injuries. Because the SRS airbag needs enough space for deployment, the driver should always sit upright and well back in the seat as far from the steering wheel as practical while still maintaining full vehicle control and the front passenger should move the seat as far back as possible and sit upright and well back in the seat. It is also important to wear your seatbelt to help

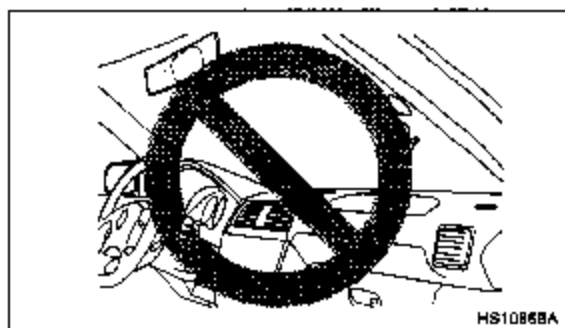
- CONTINUED -

1-45

avoid injuries that can result when the SRS airbag contacts an occupant not in proper position such as one thrown toward the front of the car during pre-accident braking.



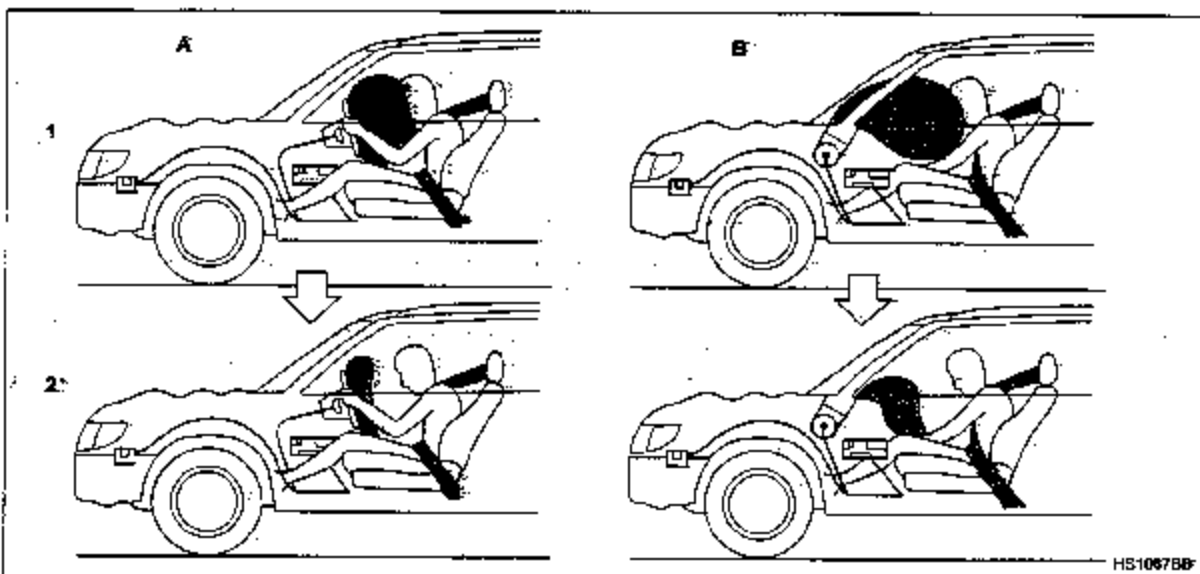
Do not put any objects over the steering wheel pad and dashboard. If the SRS frontal airbag deploys, those objects could interfere with its proper operation and could be propelled inside the vehicle and cause injury.



Do not attach accessories to the windshield, or fit an extra-wide mirror over the rear view mirror. If the SRS airbag deploys, those objects could become projectiles that could seriously injure vehicle occupants.

1-46

Operation



A) Driver's side

B) Passenger's side

1) SRS AIRBAGs deploy as soon as a collision occurs.

2) After deployment, SRS AIRBAGs start to deflate immediately so that the driver's vision is not obstructed.

- CONTINUED -

The SRS airbag can function only when the ignition switch is in the "ON" position.

If the sensors detect a certain predetermined amount of force during a frontal collision, the control module sends signals to the frontal airbag modules instructing them to inflate the SRS frontal airbags. Then both airbag modules produce gas, which instantly inflates driver's and passenger's SRS frontal airbags. After the deployment, the SRS airbags immediately start to deflate so that the driver's vision is not obstructed. The time required from detecting impact to the deflation of the SRS airbag after deployment is shorter than the blink of an eye.

The front passenger's SRS frontal airbag deploys together with driver's SRS frontal airbag even when no one occupies the front passenger's seat.

Although it is highly unlikely that the SRS airbag would activate in a non-accident situation, should it occur, the SRS airbag will deflate quickly, not obscuring vision and will not interfere with the driver's ability to maintain control of the vehicle.

When the SRS airbag deploys, a sudden, fairly loud inflation noise will be heard and some smoke will be released. These occurrences are normal result of the deployment. This smoke does not indicate a fire in the

vehicle.

CAUTION

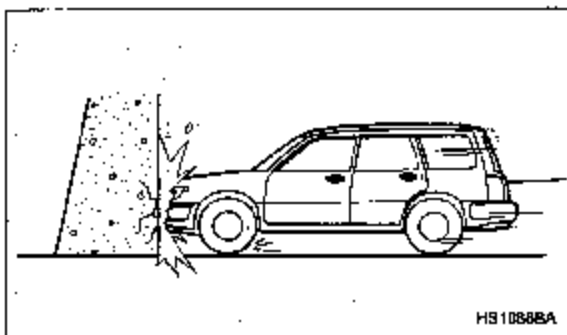
Do not touch the SRS airbag system components around the steering wheel and dashboard with bare hands right after deployment. Doing so can cause burns because the components can be very hot as a result of deployment.

The SRS frontal airbag is designed to deploy in the event of an accident involving a moderate to severe frontal collision. It is basically not designed to deploy in lesser frontal impacts because the necessary protection can be achieved by the seatbelt alone. Also, it is basically not designed to deploy in side or rear impacts or in roll-over accidents because deployment of the SRS frontal airbag would not help the occupant in those situations. The SRS airbag is designed to function on a one-time-only basis.

SRS airbag deployment depends on the level of force experienced in the passenger compartment during a collision. That level differs from one type of collision to another, and it may have no bearing on the visible damage done to the vehicle itself.

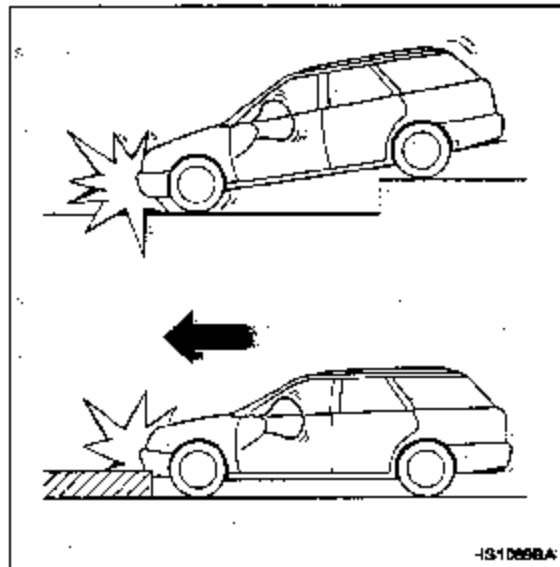
1-48

▽ When will the SRS frontal airbag most likely deploy?



A head-on collision against a thick concrete wall at a vehicle speed of 12 to 19 mph (20 to 30 km/h) or higher activates the SRS frontal airbag. The SRS frontal airbag will also be activated when the vehicle is exposed to a frontal impact similar in fashion and magnitude to the above-mentioned collision.

▽ At what other times might the SRS frontal airbag deploy?

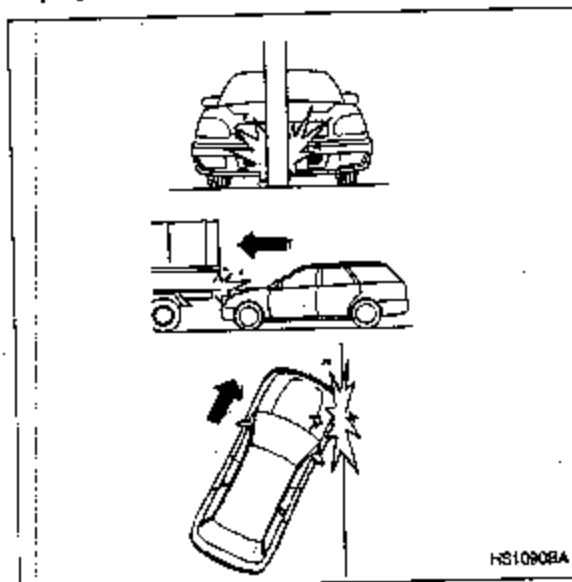


The SRS frontal airbag may be activated when the vehicle sustains a hard impact in the undercarriage area from the road surface (such as when the vehicle

- CONTINUED -

plunges into a deep ditch, is severely bumped or knocked hard against an obstacle on the road such as a curb).

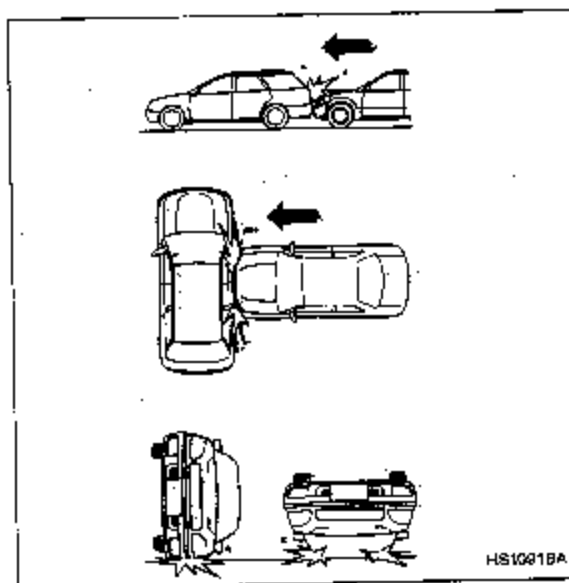
▽ When is the SRS frontal airbag unlikely to deploy?



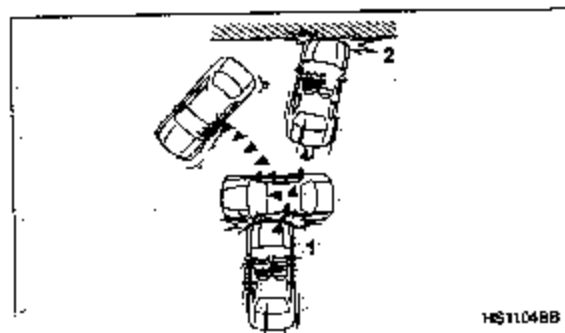
1-50

There are many types of collisions which might not necessarily require SRS frontal airbag deployment. If the vehicle strikes an object, such as a telephone pole or sign pole, or if it slides under a truck's load bed, or if it sustains an oblique offset frontal impact, the SRS frontal airbag may not deploy depending on the level of accident forces involved.

▽ When will the SRS frontal airbag not deploy?



The SRS frontal airbag is basically not designed to deploy if the vehicle is struck from side or from behind, or if it rolls onto its side or roof, or if it is involved in a low-speed frontal collision.



- 1) First impact
- 2) Second impact

In an accident where the vehicle is impacted more than once, the SRS frontal airbag deploys only once.

Example: In the case of a double collision, first with another vehicle, then against a concrete wall in immediate succession, once the SRS frontal airbag is activated on the first impact, it will not be activated on the second.

■ SRS side airbag (if equipped)

The SRS side airbag is stored in the door side of each

- CONTINUED -

1-51

front seatback, which bears an "SRS AIRBAG" label. In a moderate to severe side impact collision, the SRS side airbag on the impacted side of the vehicle deploys between the occupant and the door panel and supplements the seatbelt by reducing the impact on the occupant's chest and head.

WARNING

The SRS side airbag is designed as only a supplement to the primary protection provided by the seatbelt. It does not do away with the need to fasten seatbelts. It is also important to wear your seatbelt to help avoid injuries that can result when an occupant is not seated in a proper upright position.



HS1092BA

WARNING

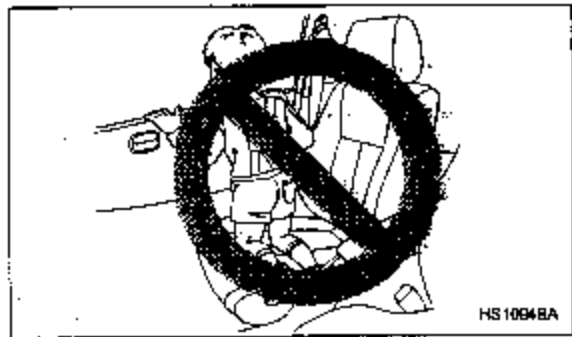
Do not sit or lean unnecessarily close to either front door. The SRS side airbag is stored in both front seat seatbacks next to the door, and it provides protection by deploying rapidly (faster than the blink of an eye) in the event of a side impact collision. However, the force of SRS side airbag deployment may cause injuries if your head or other body parts are too close to the SRS side airbag.

1-52



HS1093BA

Do not rest your arm on either front door or its interior trim. It could be injured in the event of SRS side airbag deployment.



HS1094BA



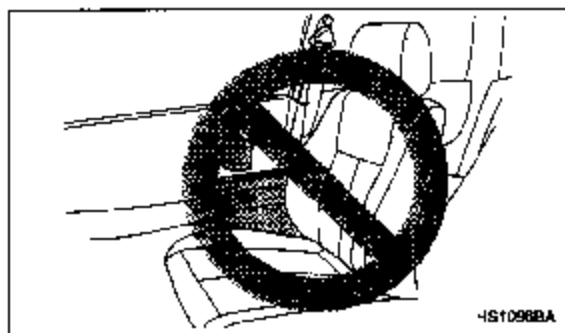
HS1095BA

-CONTINUED-

1-53

1.2.2.2. Child restraint

Never allow a child to kneel on the front passenger's seat facing the side window or to wrap his/her arms around the front seatback. In the event of an accident, the force of the SRS side airbag deployment could injure the child seriously because his/her head or arms or other body parts are too close to the SRS side airbag. Since your vehicle is also equipped with a passenger's SRS frontal airbag, children aged 12 and under should be placed in the rear seat anyway and should be properly restrained at all times.



HS1096BA

1.2.2.3. Accessories

Do not attach accessories to the door trim or near either SRS side airbags and do not place objects near the SRS side airbags. In the event of the SRS side airbag deployment, they could be propelled dangerously toward the vehicle's occupants and cause injuries.

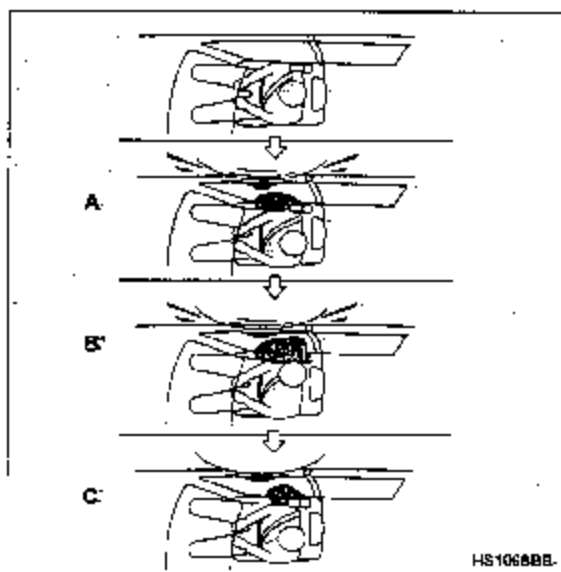
1-54



HS1097BA

Do not put any kind of cover or clothes or other objects over either front seatback and do not attach labels or stickers to the front seat surface or near the SRS side airbag. They could prevent proper deployment of the SRS side airbag, reducing protection available to the front seat's occupant.

Operation:



HS1068BB

- A) SRS side airbag deploys as soon as a collision occurs.
- B) SRS side airbag protects the front passenger's head

- CONTINUED -

1-55

and chest.

- C) After deployment, SRS side airbag starts to deflate immediately.

The SRS side airbag can function only when the ignition switch is in the "ON" position.

The driver's and front passenger's SRS side airbags deploy independently of each other since each has its own impact sensor. Also, the SRS side airbag deploys independently of the frontal airbags in the steering wheel and instrument panel.

An impact sensor is incorporated into each of the vehicle's center pillars. If either sensor detects a certain predetermined amount of force during a side impact collision, the control module sends a signal to the side airbag module on the impacted side of the vehicle, instructing it to inflate the SRS side airbag. Then the side airbag module produces gas, which instantly inflates the SRS side airbag. After the deployment, the SRS side airbag immediately starts to deflate. The time required from detecting impact to the deflation of the SRS side airbag after deployment is shorter than the blink of an eye.

The SRS side airbag deploys even when no one occupies the seat on the side on which an impact is applied.

When the SRS side airbag deploys, a sudden, fairly loud inflation noise will be heard and some smoke will be released. These occurrences are normal result of the deployment. This smoke does not indicate a fire in the vehicle.

CAUTION

Do not touch the SRS side airbag system components around the front seatback with bare hands right after deployment. Doing so can cause burns because the components can be very hot as a result of deployment.

The SRS side airbag is designed to deploy in the event of an accident involving a moderate to severe side impact collision. It is basically not designed to deploy in lesser side impact. Also, it is basically not designed to deploy in frontal or rear impacts because SRS side airbag deployment would not help the occupant in those situations.

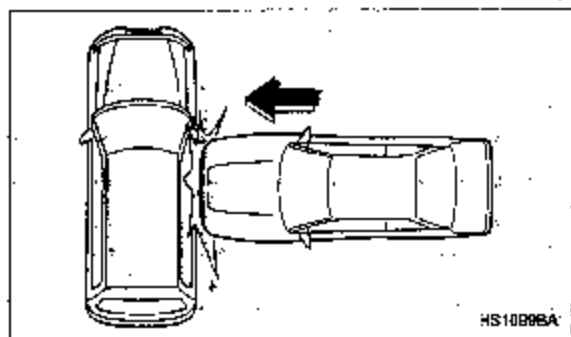
Each SRS side airbag is designed to function on a one-time-only basis.

SRS side airbag deployment depends on the level of force experienced in the passenger compartment during a side impact collision. That level differs from one

1-56

type of collision to another, and it may have no bearing on the visible damage done to the vehicle itself.

- ▽ When will the SRS side airbag most likely deploy?

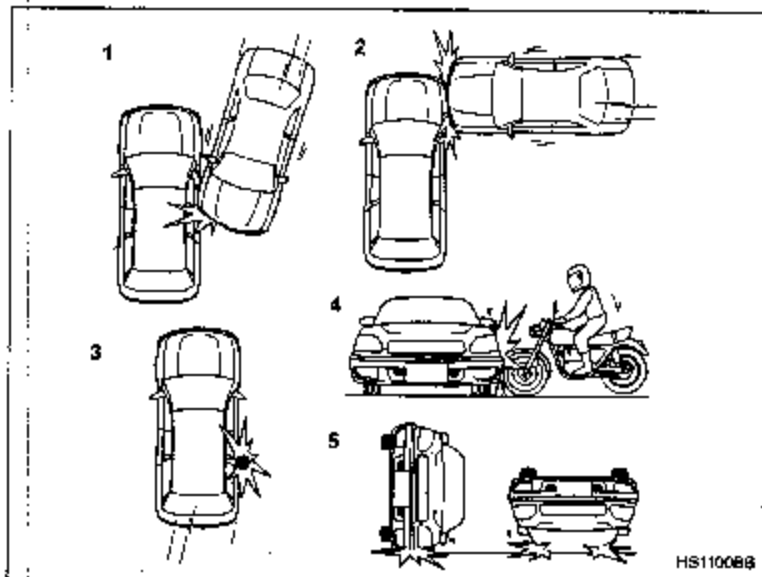


A severe side impact near the front seat activates the SRS side airbag.

- CONTINUED -

1-57

▽ When is the SRS side airbag unlikely to deploy?

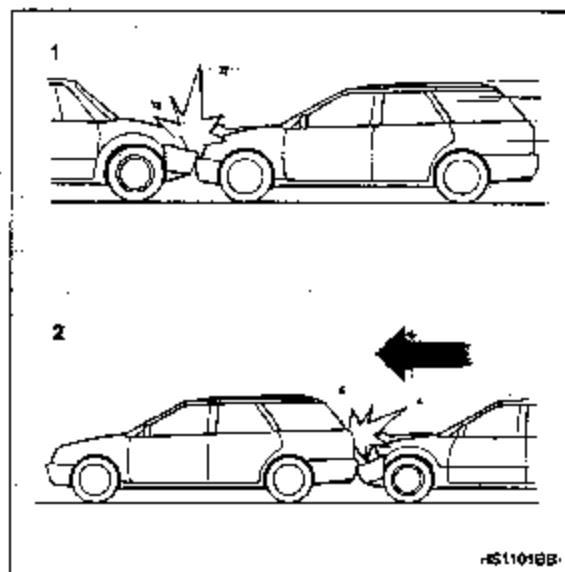


- 1) The vehicle is involved in an oblique side-on impact.
- 2) The vehicle is involved in a side-on impact in an area outside the vicinity of the passenger compartment.
- 3) The vehicle strikes a telephone pole or similar object.
- 4) The vehicle is involved in a side-on impact from a motorcycle.
- 5) The vehicle rolls onto its side or roof.

1-58

There are many types of collisions which might not necessarily require SRS side airbag deployment. In the event of accidents like those illustrated, the SRS side airbag may not deploy depending on the level of accident forces involved.

▽ When will the SRS side airbag not deploy?

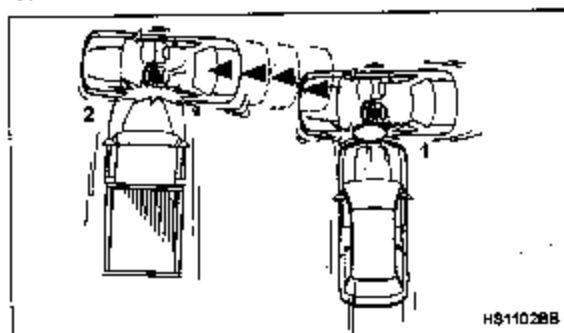


- 1) The vehicle is involved in frontal collision with another vehicle (moving or stationary).
- 2) The vehicle is struck from behind.

- CONTINUED -

1-59

The SRS side airbag is basically not designed to deploy if the vehicle is involved in a frontal collision or is struck from behind. Examples of such accidents are illustrated.



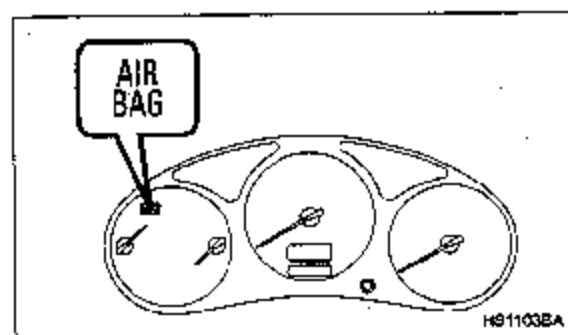
- 1) First impact
- 2) Second impact

In an accident where the vehicle is struck from the side more than once, the SRS side airbag deploys only once.

Example: In the case of a double side impact collision, first with one vehicle and immediately followed by another from the same direction, once the SRS side airbag is activated on the first impact, it will not be

activated on the second.

■ SRS airbag system monitors



A diagnostic system continually monitors the readiness of the SRS airbag system while the vehicle is being driven. The SRS airbag system warning light "AIRBAG" will show normal system operation by lighting for about 6 seconds when the ignition key is turned to the "ON" position.

The following components are monitored by the indicator:

- Front sub sensor (Right hand side)
- Front sub sensor (Left hand side)

1-80

- Airbag control module (including impact sensors)
- Frontal airbag module (Driver's side)
- Frontal airbag module (Passenger's side)
- Side airbag sensor (Driver's side - if equipped)
- Side airbag sensor (Passenger's side - if equipped)
- Side airbag module (Driver's side - if equipped)
- Side airbag module (Passenger's side - if equipped)
- Seatbelt pretensioner (Driver's side)
- Seatbelt pretensioner (Passenger's side)
- All related wiring

In the event of a malfunction indicated by any of following, the vehicle should be taken promptly to your nearest SUBARU dealer to have the system checked. Unless checked and repaired, the SRS airbags will not function reliably.

- Flashing or flickering of the indicator light.
- No illumination of the warning light when the ignition switch is first turned to the "ON" position.
- Continuous illumination of the warning light.
- Illumination of the warning light while driving.

■ SRS airbag system servicing

- When discarding an airbag module or scrap-

ping the entire car damaged by a collision, consult your SUBARU dealer.

• The SRS airbag has no user-serviceable parts. Do not use electrical test equipment on any circuit related to the SRS airbag system. For required servicing of the SRS airbag, see your nearest SUBARU dealer. Tampering with or disconnecting the system's wiring could result in accidental inflation of the SRS airbag or could make the system inoperative, which may result in serious injury. The wiring harnesses of the SRS airbag system are covered with yellow insulation and system connectors are yellow for easy identification.

▲ CAUTION

If you need service or repair in areas listed below, we recommend that you have an authorized SUBARU dealer perform the work. The SRS airbag control module, impact sensors and airbag modules are stored in these areas.

- Under the center console
- Near the bottom of the radiator
- Steering wheel and column and nearby areas
- Top of the dashboard on front passenger's

- CONTINUED -

side and nearby areas

- Each front seat and nearby area (for vehicles with SRS side airbags only)
- Inside each center pillar

In the event that the SRS airbag is deployed, replacement of the system should be performed only by an authorized SUBARU dealer. When the components of the SRS airbag system are replaced, use only genuine SUBARU parts.

To ensure their long-term reliability, the SRS airbags must be inspected by a SUBARU dealer ten years after the date of manufacture, which is shown on the certification plate attached to the driver's door jamb.

NOTE

In the following cases, contact your SUBARU dealer as soon as possible.

- The front part of the vehicle was involved in an accident in which the SRS frontal airbags did not deploy.
- The pad section of the steering wheel or front passenger's frontal airbag cover is scratched, cracked, or otherwise damaged.

In addition, if your vehicle is equipped with SRS side airbags, contact your SUBARU dealer as

soon as possible in the following cases.

- Either center pillar or a nearby area of the vehicle was involved in an accident in which the SRS side airbag did not deploy.
- The fabric or leather of either front seatback is cut, frayed, or otherwise damaged.

■ Precautions against vehicle modification

- To avoid accidental activation of the system or rendering the system inoperative, which may result in serious injury, no modifications should be made to any components or wiring of the SRS airbag system.

This includes following modifications:

- Installation of custom steering wheels
- Attachment of additional trim materials to the dashboard
- Installation of custom seats (for vehicles with SRS side airbags only)
- Replacement of seat fabric or leather (for vehicles with SRS side airbags only)
- Installation of additional fabric or leather on the front seat (for vehicles with SRS side

1-62

airbags only):

- Installation of additional electrical/electronic equipment such as a mobile two-way radio on or near the SRS airbag system components and/or wiring is not advisable. This could interfere with proper operation of the SRS airbag system.

⚠ CAUTION

Do not perform any of the following modifications. Such modifications can interfere with proper operation of the SRS airbag system.

- Attachment of any equipment (brush bar, winches, snowplow, skid plate, etc.) other than SUBARU genuine accessory parts to the front end.
- Modification of the suspension system or front end structure.
- Installation of a tire of different size and construction from the tires specified on the tire placard attached to the driver's door jamb.
- Attachment of any equipment (side steps or side sill protectors, etc.) other than SUBARU genuine accessory parts to the side body. (for

vehicles with side airbags only):

Always consult your SUBARU dealer if you want to install any accessory parts to your vehicle.

Appendix D

Miscellaneous Test Information

Dummy 229n Type HYBRID III 50TH Description NHFSA - 229n HYBRID III 50TH, CAL DUE 5-14-03 (DKS 11-18-02)211

Clusnam	Location	Model	Name	Manufacturer	Sens./mV/V/	Fullscal	Caldat	Pos Output	Flip
UEDXG	Head Accel X	7231C	QB86	Endevco	0.01969 g	750	11/14/2002	Rwd	1
UEDYG	Head Accel Y	7231C	QB77	Endevco	0.01926 g	750	11/14/2002	Lft	1
HEDZG	Head Accel Z	7231C	A54F	Endevco	0.01981 g	750	11/14/2002	Up	1
NEKXF	Neck Force X	1716A	1716A-1222-FX	Denton	0.000197428 N	8896.4	5/12/2003	Hd Fd,Cst Rr	1
NEKYF	Neck Force Y	1716A	1716A-1222-FY	Denton	0.00018938 N	8896.4	5/12/2003	Hd Lf,Cst Rr	0
NEKZF	Neck Force Z	1716A	1716A-1222-FZ	Denton	0.000099793 N	13344.6	5/12/2003	Hd Up,Cst Dn	0
NEKXM	Neck Moment X	1716A	1716A-1222-MX	Denton	0.006067611 N	282.5	5/12/2003	Rt Ear to Rt Shld	1
NEKYM	Neck Moment Y	1716A	1716A-1222-MY	Denton	0.006086018 N	282.5	5/12/2003	Chn to Strum	0
NEKZM	Neck Moment Z	1716A	1716A-1222-MZ	Denton	0.008580177 N	282.5	5/12/2003	Chn to Lt Shld	0
CSTXG	Chest Accel X	7231C	C14135	Endevco	0.02741 g	750	11/14/2002	Fwd	0
CSTYG	Chest Accel Y	7231C	A35D	Endevco	0.01937 g	750	1/24/2003	Lft	1
CSTZG	Chest Accel Z	7231C	AH5G8	Endevco	0.01949 g	750	1/24/2003	Down	0
CSTXD	Chest Deflection X	14CB1-2847	14CB1-2847-229	Servo	1.1347 m	100	5/12/2003	Strum Away Frm Spn	0
LFMZ	Left Femur Force Z 603	2430	2430-901	GSE	0.000071744 N	13344.7	5/12/2003	Knee Fd,Pcl Rr	0
RFMZ	Right Femur Force Z 744	2430	2430-902	GSE	0.000070485 N	13344.7	5/12/2003	Knee Fd,Pcl Rr	0

Dummy	230n	Type	HYBRID III 50TH	Description	NHTSA - 230n HYBRID III 50TH CAL DUE 5-14-03 (DKS 1-23-03)J211				
Chsname	Location	Model	Name	Manufacturer	Sens./mV/V/	Fullscal	Caldat	Pos Output	Flip
HEDXG	Head Accel X	7231C	AD4H9	Endevco	g	750	11/14/2002	Rear	1
HEDYG	Head Accel Y	7231C	AD4J7	Endevco	g	750	11/14/2002	Left	1
HEDZG	Head Accel Z	7231C	AD4J8	Endevco	g	750	11/14/2002	Up	1
NEKXF	Neck Force X	1716	1716-0235-FX	Denton	0.00019427	N	8896.4	Hd Fd,Cst Rt	1
NEKYP	Neck Force Y	1716	1716-0235-FY	Denton	0.000186199	N	8896.4	Hd Lt,Cst Rt	0
NEKZF	Neck Force Z	1716	1716-0235-FZ	Denton	0.000093918	N	13344.6	Hd Up,Cst Dn	0
NEKXM	Neck Moment X	1716	1716-0235-MX	Denton	0.00591823	N	282.5	Rt Far to Rt Shld	1
NEKYM	Neck Moment Y	1716	1716-0235-MY	Denton	0.005985841	N	282.5	Cln to Strmm	0
NEKZM	Neck Moment Z	1716	1716-0235-MZ	Denton	0.008452743	N	282.5	Cln to Lt Shld	0
CSTXG	Chest Accel X	7231C	ACTR4	Endevco	g	750	11/14/2002	Fwd	0
CSTYG	Chest Accel Y	7231C	ACTT4	Endevco	g	750	11/14/2002	Left	1
CSTZG	Chest Accel Z	7231C	ACTW0	Endevco	g	750	11/14/2002	Down	0
CSTXD	Chest Deflection X	14CB1-2847	85427-1	Servo	1.1347	m	100	Strmm Away Frm Spn	0
LPMZF	Left Femur Force Z 60	2430	2430-984	GSE	0.00007086	N	13344.7	Knee Fd,Pel Rr	0
RFMZP	Right Femur Force Z S1511	2430	2430-985	GSE	0.000069908	N	13344.7	Knee Fd,Pel Rr	0

Channel Report

05/30/2003 9:10:58 AM

Name of Test 030530-1

System K3600

Name of DAU DAU3

Chan.#	Sensor #	Mnemonic	Description	Dir.	Range	Pol. Cal.	Group	Mfg.	Model
3000	EVENT	EVENT	EVENT		10.24	+	OK	TRC	Event
3001	C15351	SLDXG	SLED G LONG.	Rear	199.88288	-	OK	Endevco	7231C
3002	C15519	SLDXGR	SLED G LONG	Rear	200.27772	-	OK	Endevco	7231C
3003	SLDXV	SLDXV	SLED V FLOCITY		164.59317	-	OK	TRC	SLDXV
3004	SLDXGT	SLDXGT	SLED TRIGGER	Rear	195.51312	-	OK	Endevco	7231C
3005	GB86	HEDXG1	Head X - axis acceleration	Rwd	400.04688	-	OK	Endevco	7231C
3006	GB77	HEDYG1	Head Y - axis acceleration	Lft	399.75327	-	OK	Endevco	7231C
3007	A54F	HEDZG1	Head Z - axis acceleration	Up	400.70593	-	OK	Endevco	7231C
3008	1716A-1222-FX	NEKXF1	Neck X - axis Shear Force	Hd	8896.5711	-	OK	Denton	1716A
3009	1716A-1222-FY	NEKYF1	Neck Y - axis Shear Force	Hd	8893.2861	+	OK	Denton	1716A
3010	1716A-1222-FZ	NEKZF1	Neck Z - axis Shear Force	Hd	13343.616	+	OK	Denton	1716A
3011	1716A-1222-MX	NEKXM1	Neck Moment about X - axis	Rt Ear	282.68833	-	OK	Denton	1716A
3012	1716A-1222-MY	NEKYM1	Neck Moment about Y - axis	Clin	282.30623	+	OK	Denton	1716A
3013	1716A-1222-MZ	NEKZM1	Neck Moment about Z - axis	Clin	282.80771	+	OK	Denton	1716A
3014	C14135	CSTXG1	Chest X - axis acceleration	Fwd	401.70567	+	OK	Endevco	7231C
3015	A35D	CSTYG1	Chest Y - axis acceleration	Lft	400.49436	-	OK	Endevco	7231C
3016	AH5G8	CSTZG1	Chest Z - axis acceleration	Down	401.06690	+	OK	Endevco	7231C
3017	14CB1-2847-229	CSTXD1	Chest Deflection	Summ	100.27124	+	OK	Servo	14CB1-2847
3018	2430-901	LFMZFI	Left Femur Force 603	Knee	13339.224	+	OK	GSE	2430
3019	2430-902	RFMZFI	Right Femur Force 744	Knee	13352.861	+	OK	GSE	2430
3020	AD4H9	IIEDXG2	Head X - axis acceleration	Rear	398.49319	-	OK	Endevco	7231C
3021	AD4J7	IIEDYG2	Head Y - axis acceleration	Left	399.03359	-	OK	Endevco	7231C
3022	AD4J8	IIEDZG2	Head Z - axis acceleration	Up	399.46322	-	OK	Endevco	7231C
3023	1716-0235-FX	NEKXF2	Neck X - axis Shear Force	Hd	8903.7408	-	OK	Denton	1716
3024	1716-0235-FY	NEKYF2	Neck Y - axis Shear Force	Hd	8898.8551	+	OK	Denton	1716
3025	1716-0235-FZ	NEKZF2	Neck Z - axis Shear Force	Hd	13345.322	+	OK	Denton	1716
3026	1716-0235-MX	NEKXM2	Neck Moment about X - axis	Rt Ear	282.72010	-	OK	Denton	1716
3027	1716-0235-MY	NEKYM2	Neck Moment about Y - axis	Clin	282.29433	+	OK	Denton	1716
3028	1716-0235-MZ	NEKZM2	Neck Moment about Z - axis	Clin	282.38719	+	OK	Denton	1716
3029	ACT14	CSTXG2	Chest X - axis acceleration	Fwd	398.62971	+	OK	Endevco	7231C
3030	ACT14	CSTYG2	Chest Y - axis acceleration	Left	400.58522	-	OK	Endevco	7231C
3031	ACTW0	CSTZG2	Chest Z - axis acceleration	Down	399.43828	+	OK	Endevco	7231C

Channel Report

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3032	85427-1	CSTXD2	Chest Deflection	Strain	100.27124	mm	+	05/12/2003	OK	230n	Servo	14CB1-2847
3033	2430-984	LFMZP2	Left Femur Force 60	Knee	13355.850	N	-	05/12/2003	OK	230n	GSE	2430
3034	2430-985	RFMZP2	Right Femur Force S1511	Knee	13340.457	N	+	05/12/2003	OK	230n	GSE	2430
3035	P27474	LSSXG	Rear Seat X - Member @ Left	Fwd	199.61791	g	+	05/06/2003	OK	-1	Endevco	7264C-2K-2-180
3036	P27492	RSSXG	Rear Seat X - Member @ Right	Fwd	199.64749	g	+	05/06/2003	OK	-1	Endevco	7264C-2K-2-180
3037	P27483	TEXG	Top of Engine Block	Fwd	200.08401	g	+	05/06/2003	OK	-1	Endevco	7264C-2K-2-180
3038	P27470	RAXG	Rear Axle	Rr	199.97773	g	-	05/06/2003	OK	-1	Endevco	7264C-2K-2-180

Digital and System Channel Report

2003-05-29 11:10:29

Name of Test 030530-1

System K3600

Name of DAU DAU3

description

enable Channel

Short Name

Type

Data File

Module Type

Yes 3500

dig0

DAI33500

KM3630 Sequencer

bit position bit

short

long

description

MSB = bit 15

bit 14

bit 13

bit 12

bit 11

bit 10

bit 09

bit 08

bit 07

bit 06

bit 05

bit 04

bit 03

bit 02

bit 01

bit 00

Switch

ABEVT1

ABEVT3

ABEVT4

Backup Switch

AIRBAG EVENT DP

AIRBAG EVENT PP

AIRBAG EVENT PS

20 mS

20 mS

20 mS

1

2

3

C35503 / TEMPERATURE AND HUMIDITY CHART

— TEMPERATURE (F) -x- RELATIVE HUMIDITY (%)

