

Tim ARNEY

4 mph

Dynamic Science Report No. 212-DYS-80-016
Dynamic Science Report No. 219-DYS-80-016
Dynamic Science Report No. 301-DYS-80-016

DOT #186

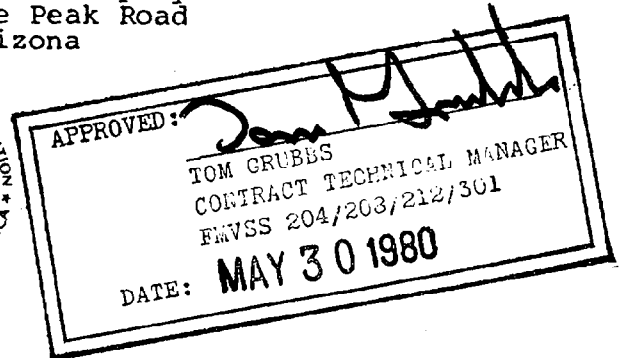
NEW VEHICLE ASSESSMENT AND
STANDARDS ENFORCEMENT INDICANT
TESTING

FMVSS-212, 219, AND 301-75

NISSAN MOTOR COMPANY, LTD
1980 DATSUN 200SX
NHTSA NO. 800548

Prepared by:

DYNAMIC SCIENCE, INC.
A Talley Industries Company
1850 West Pinnacle Peak Road
Phoenix, Arizona



MAY 1980

FINAL REPORT

Prepared for:

U.S. DEPARTMENT OF TRANSPORTATION
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
-----ENFORCEMENT-----
OFFICE OF VEHICLE SAFETY COMPLIANCE
400 SEVENTH STREET, S.W.
WASHINGTON, D.C. 20590

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a TALLEY INDUSTRIES Company

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Prepared by Mark Pozzi

Approved by E. Grubbs

Date May 23, 1980

Report Accepted by:

TOM GRUBBS

Contract Technical Manager
Office of Vehicle Safety Compliance

MAY 30 1980

Date

TECHNICAL REPORT STANDARD TITLE PAGE

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				6. Performing Orgn Code	
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15. Supplementary Notes					
16. Abstract The vehicle was tested using test parameter values which are in excess of the current upper limits of the subject FMVSS in order to obtain research and vehicle rating data. This test, therefore, can only be viewed as an "indicant" test by the Office of Vehicle Safety Compliance. The front of the test vehicle impacted the fixed collision barrier at a speed of 34.11 mph. The test was conducted at the Dynamic Science, Inc. Deer Valley facility on May 7, 1980, with the following results: a) FMVSS 212 - Retention loss was within the acceptable range. b) FMVSS 219 - No intrusion into windshield protected zone. c) FMVSS 301 - No fuel leakage.					
17. Key Words FMVSS 212 - Windshield Mounting FMVSS 219 - Windshield Zone Intrusion FMVSS 301-75 - Fuel System Integrity Vehicle Assessment				18. Distribution Statement Copies of this report are available from Technical Reference Division, National Highway Traffic Safety Administration, Room 5108, Nassif Building, 400 7th Street, S.W., Washington, D.C. 20590	
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METRIC CONVERSION FACTORS

Approximate Conversions to Metric Measures

Symbol	When You Know	Multiply by	To Find	Symbol
LENGTH				
in	inches	2.5	centimeters	cm
ft	feet	30	centimeters	cm
yd	yards	0.9	meters	m
mi	miles	1.6	kilometers	km
AREA				
in ²	square inches	6.5	square centimeters	cm ²
ft ²	square feet	0.09	square meters	m ²
yd ²	square yards	0.8	square meters	m ²
mi ²	square miles	2.6	square kilometers	km ²
	acres	0.4	hectares	ha
MASS (weight)				
oz	ounces	28	grams	g
lb	pounds	0.45	kilograms	kg
	short tons	0.9	metric ton	t
	(2000 lb)			
VOLUME				
tsp	teaspoons	5	milliliters	ml
Tbsp	tablespoons	15	milliliters	ml
in ³	cubic inches	16	milliliters	ml
fl oz	fluid ounces	30	milliliters	ml
c	cups	0.24	liters	L
pt	pints	0.47	liters	L
qt	quarts	0.95	liters	L
gal	gallons	3.8	liters	L
ft ³	cubic feet	0.03	cubic meters	m ³
yd ³	cubic yards	0.76	cubic meters	m ³
TEMPERATURE (exact)				
°F	degrees Fahrenheit	5/9 (after subtracting 32)	degrees Celsius	°C

Approximate Conversions from Metric Measures

Symbol	When You Know	Multiply by	To Find	Symbol
LENGTH				
mm	millimeters	0.04	inches	in
cm	centimeters	0.4	inches	in
m	meters	3.3	feet	ft
m	meters	1.1	yards	yd
km	kilometers	0.6	miles	mi
AREA				
cm ²	square centimeters	0.16	square inches	in ²
m ²	square meters	1.2	square yards	yd ²
km ²	square kilometers	0.4	square miles	mi ²
ha	hectares	2.5	acres	
	(10 000 m ²)			
MASS (weight)				
g	grams	0.035	ounces	oz
kg	kilograms	2.2	pounds	lb
t	metric ton	1.1	short tons	
	(1000 kg)			
VOLUME				
ml	milliliters	0.03	fluid ounces	fl oz
ml	milliliters	0.06	cubic inches	in ³
L	liters	2.1	pints	pt
L	liters	1.06	quarts	qt
L	liters	0.26	gallons	gal
m ³	cubic meters	35	cubic feet	ft ³
m ³	cubic meters	1.3	cubic yards	yd ³
TEMPERATURE (exact)				
°C	degrees Celsius	9/5 (then add 32)	degrees Fahrenheit	°F

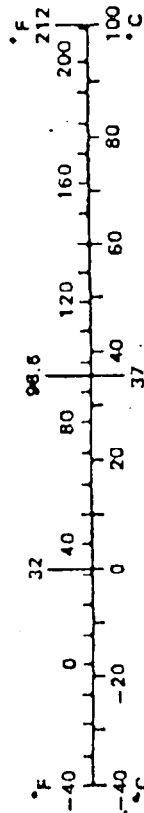


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SECTION 1
PURPOSE AND INTRODUCTION

PURPOSE:

The purpose of the test was to subject a 1980 Datsun 200SX to the indicant test requirements of DOT Test Plan TP-212-02, April 1, 1980, Standard Enforcement Indicant Testing for FMVSS No. 212, "Windshield Mounting," FMVSS No. 219, "Windshield Zone Intrusion," and FMVSS 301-75, "Fuel System Integrity." The vehicle was tested using test parameters which are in excess of the current upper limits of the subject FMVSS, in order to obtain research and vehicle rating data. This test, therefore, can only be viewed as an "indicant" test by the Office of Vehicle Safety Compliance (OVSC).

INTRODUCTION:

Section 2 contains General Test and Vehicle Parameter Data. Section 3 contains Compliance Related Data for FMVSS 212, 219, 301-75 Indicant Testing, together with photographs related to these tests. Appendix A contains Pre-test and Post-test vehicle and dummy photographs. Appendix B contains Calcomp plots. Appendix C contains dummy certification data.

SECTION 2
GENERAL TEST AND VEHICLE PARAMETER DATA

The following data sheets and photographs describe the General Test and Vehicle Parameter Data.

GENERAL TEST AND VEHICLE PARAMETER DATA

TEST VEHICLE INFORMATION:

Vehicle Manufacturer: Nissan Motor Company, Ltd.
 Make/Model: Datsun 200SX
 Body Style: 2-Door Hatchback Model Year: 1980
 VIN: KPS110-010085 Build Date: 12/79
 NHTSA No.: 800548 Color: Black
 Engine Data: 4 cylinders; 119.1/1952 in.³/cc displacement
 Transmission Data: 5 speed (☒) Manual (☐) Automatic
 Date Vehicle Received by Laboratory: March 18, 1980
 Dealer Name & Address: Smith Mesa Datsun
1701 W. Broadway, Mesa, Arizona

DATA FROM CERTIFICATION LABEL ON LEFT DOOR REAR FACE OR B-POST:

Vehicle Manufactured By: Nissan Motor Company, Ltd.
 Date of Manufacture: 12/79 ; VIN: KPS110-010085
 GVWR: 3280 lb; GAWR: Front = 1653 lb; Rear = 1940 lb

DATA FROM "RECOMMENDED TIRE PRESSURE" LABEL ON DOOR, POST, GLOVE BOX, ETC.:

Vehicle Load:	FRONT	REAR	RECOMMENDED	LOAD RANGE:
Up to Capacity	<u>26</u> psi	<u>26</u> psi	TIRE SIZE:	
Vehicle Capacity:			<u>185/70SR14</u>	<u>B</u>
Type of Seats -	<u>Bench</u>	Number of Occupants =	<u>2</u>	Front
	☒ <u>Bucket</u>	(Designated Seating	<u>2</u>	Rear
	<u>Split Bench</u>	Capacity)	<u>4</u>	Total
CARGO LOAD =	<u>60</u> lb			
TOTAL =	<u>660</u> lb			

WEIGHT OF TEST VEHICLE AS RECEIVED FROM DEALER (with max. fluids) (UDW)

Right Front =	<u>718</u> lb	Right Rear =	<u>600</u> lb
Left Front =	<u>721</u> lb	Left Rear =	<u>610</u> lb
TOTAL FRONT WEIGHT =	<u>1439</u> lb (<u>54.3%</u> of Total Vehicle Weight)		
TOTAL REAR WEIGHT =	<u>1210</u> lb (<u>45.7%</u> of Total Vehicle Weight)		
TOTAL DELV. WEIGHT =	<u>2649</u> lb		

WEIGHT OF TEST VEHICLE WITH REQUIRED DUMMIES AND 60 lb CARGO:

Right Front =	<u>747</u> lb	Right Rear =	<u>768</u> lb
Left Front =	<u>758</u> lb	Left Rear =	<u>765</u> lb
TOTAL FRONT WEIGHT =	<u>1505</u> lb (<u>49.5%</u> of Total Vehicle Weight)		
TOTAL REAR WEIGHT =	<u>1533</u> lb (<u>50.5%</u> of Total Vehicle Weight)		
TOTAL TEST WEIGHT =	<u>3038</u> lb		

Weight of ballast secured in vehicle trunk area = 39 lb

TARGET WEIGHT = CARGO LOAD + UDW + 164 (NO. OF DUMMIES) = 3037 lb

GENERAL TEST AND VEHICLE PARAMETER DATA (CONTD)

TEST CONDITIONS:

Date of Test: May 7, 1980 Time of Test: 1205
Ambient Temperature: 87 °F at impact area.
Temperature in Windshield Molding
Occupant Compartment: 69 °F Temperature: 91 °F

VEHICLE ATTITUDE: (all dimensions in inches)

Delivered Attitude:	RF <u>29.0</u>	LF <u>29.0</u>	RR <u>29.0</u>	LR <u>29.0</u>
Test Attitude:	RF <u>28.50</u>	LF <u>28.63</u>	RR <u>27.25</u>	LR <u>27.0</u>

VEHICLE TIRE DATA:

Recommended Cold Tire Pressure: Front = 26 psi
Rear = 26 psi

Recommended Tire Size: 185/70SR14

Load Range: B

Tires on Vehicle: 185/70SR14

Is Spare Tire a "Space Saver": Yes (yes/no)

Is Spare Tire standard equipment: Yes (yes/no)

TEST FLUID DATA:

Test Fluid Type: Red Stoddard Solvent ; Spec. Grav.: 0.764

Kinematic Viscosity: 0.99 Centistokes

*Spill Point Volume: - Gallons

Test Volume: 13.2 Gallons

Fuel System Capacity (data from Owner's Manual): 15.9 gallons

Details of Fuel System: Rectangular metal fuel tank is mounted
aft of rear axle by flange bolts. Sender tubes exit right front
area of tank, and are filled by an electric fuel pump. Filler
tube exits top side of tank and terminates behind right rear
wheel. The filler tube is sealed by a metal twist cap and is
concealed by a locking access door.

Electric Fuel Pump: Yes (yes/no); Fuel Injection: Yes (yes/no)

Does electric fuel pump operate with ignition switch "on" and
the engine not operating: Yes (yes/no)

VEHICLE REBOUND AND CRUSH:

Overall Length of	Pre-test = R <u>171.8</u>	L <u>171.8</u> inches
Test Vehicle	Post-test = R <u>148.0</u>	L <u>147.9</u> inches

CRUSH = R 23.8 L 23.9

FOR FRONTAL IMPACTS, distance from front of test vehicle to the
barrier after impact = 13.8 inches

*Spill point was not determined. Test volume is 93% of "usable capacity" as defined in the vehicle manufacturer's Part 1 submission to the EPA plus "unusable capacity." Specified capacities are supplied by the OVSC CTM.

GENERAL TEST AND VEHICLE PARAMETER DATA (CONTD)

VISIBLE DUMMY CONTACT POINTS

	<u>Driver</u>	<u>Passenger</u>
Head	<u>Steering wheel and upper dash</u>	<u>Dash</u>
Chest	<u>Steering wheel</u>	<u>None</u>
Abdomen	<u>None</u>	<u>None</u>
Left Knee	<u>Steering column and steering</u> <u>column mount</u>	<u>Glovebox and dash to</u> <u>left of glovebox</u>
Right Knee	<u>Steering column</u>	<u>Glovebox</u>

	<u>Front</u>		<u>Rear</u>	
<u>DOOR OPENING</u>	<u>Left</u>	<u>Right</u>	<u>Left</u>	<u>Right</u>
Easy	<u>X</u>	<u>X</u>	<u></u>	<u></u>
Difficult	<u></u>	<u></u>	<u></u>	<u></u>
Tools Required	<u></u>	<u></u>	<u></u>	<u></u>

SEAT BACK

Failure	<u>None</u>	<u></u>
---------	-------------	---------

GLAZING DAMAGE

Windshield	<u>Extreme folding and fracturing of lowest 4 inches</u>
Backlight	<u></u>
Others	<u></u>

OTHER NOTABLE IMPACT EFFECTS: Direct crush to "A" pillar. Both
front tires were pinned. Secondary sheet metal crush to aft of
rear axle.

SECTION 3
COMPLIANCE-RELATED DATA
FMVSS 212, 219, 301-75 INDICANT TESTING

The following data sheets and photographs document compliance data related to FMVSS 212, 219, and 301-75.

SUMMARY OF RESULTS
FMVSS 212 INDICANT DATA

VEHICLE DATA:

Manufacturer: Nissan Motor Company, Ltd. Model Year: 1980
Make/Model: Datsun 200SX
Body Style: 2-Door Hatchback Manufacture Date: December 1979
VIN: KPS110-010085 NHTSA No.: 800548
Delivery Weight: 2999 lb; Test Weight: 3038 lb; GVWR: 3280 lb
Engine: No. of Cylinders 4 Displacement 119.1/1952 in.³/cc
Vehicle Mileage: 45.1 miles
Remarks: _____

GENERAL TEST CONDITIONS:

Vehicle Impact Speed:

Primary 34.11 mph; Secondary 34.13 mph
Speed Range Specified by CTM: 34.5 to 35.5 mph
Ambient Temperature at Time of Test: 87 °F
Date of Test: May 7, 1980 Time: 1205
Windshield Molding Temperature: 91 °F
(Static Crush: 23.8 in. (right) 23.9 in. (left))

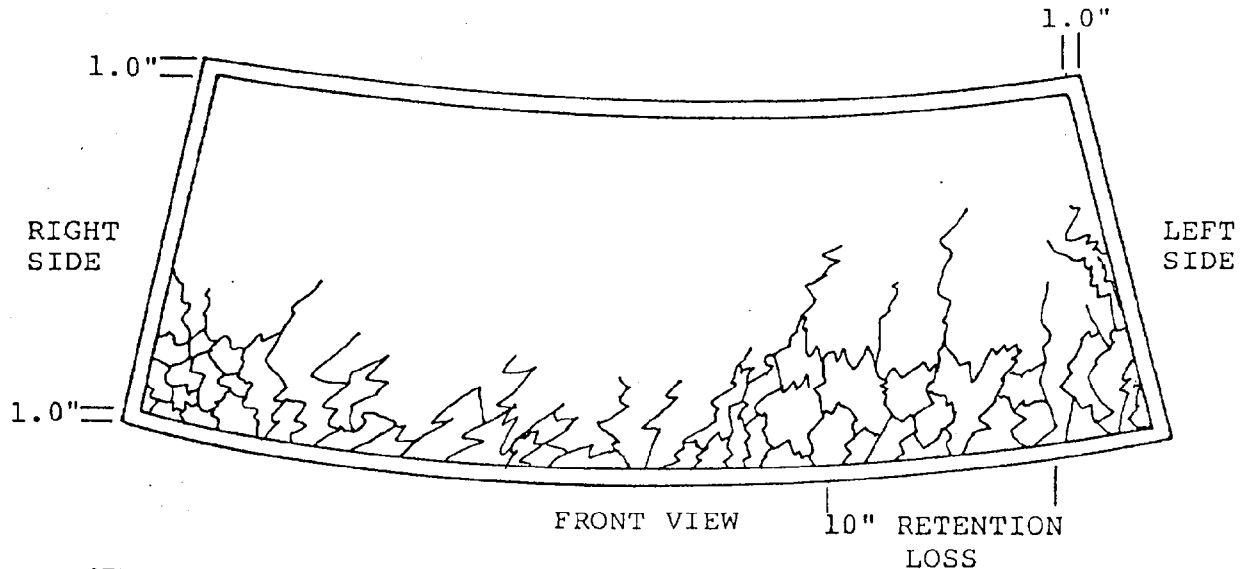
SUMMARY OF FMVSS 212 DATA

Details of windshield mounting (method of retention, type of trim, etc.): The windshield is held in place on all sides by a one-inch wide strip of black mastic. The top and sides of the windshield are overlaid by chrome strips held in place on the top by clips six inches apart. The bottom of the windshield is overlaid by a one-inch rubber gasket covered by plastic molding, which is held in place by six sheet metal screws approximately one inch apart.

	WINDSHIELD PERIPHERY	
	Pre-test	Post-test
RIGHT SIDE	78.1	78.1
LEFT SIDE	78.1	68.1
TOTAL	156.2	146.2

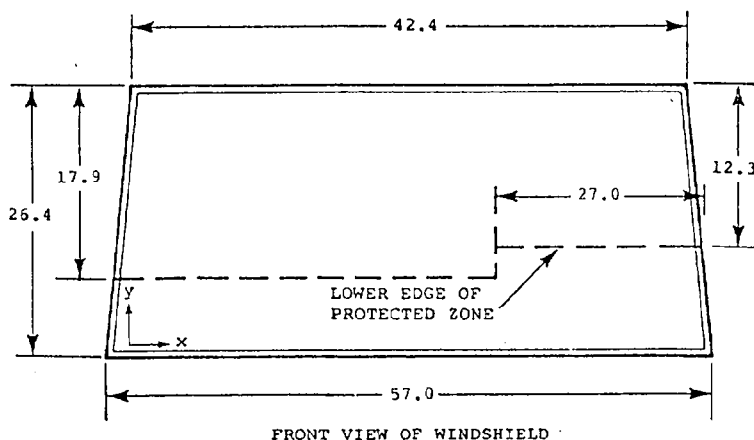
The standard requires that POST-TEST be a minimum of 75 percent of the PRE-TEST total periphery measurement for vehicles not equipped with occupant passive restraints, and 50 percent for each side of the windshield for vehicles which are equipped with occupant passive restraints.

AREA OF RETENTION FAILURE (as noted): Retention loss of 10 inches, beginning 5 inches from lower left corner of windshield and ending 15 inches inward along bottom periphery.



Severe folding of lowest 4 inches of windshield.

WINDSHIELD ZONE INTRUSION, FMVSS 219



With the zero coordinate for the X-Y grid located at the lower right corner (passenger side) of the windshield, record the following positions:

- A. The area that the "Protected Zone" template was penetrated more than 0.25 inch by a vehicle component other than one which is normally in contact with the windshield.

Coordinates

X	Y
N/A	N/A
_____	_____
_____	_____

- B. The area beneath the "Protected Zone" that the inner surface of the windshield was penetrated by a vehicle component.

Coordinates

X	Y
N/A	N/A
_____	_____
_____	_____

- C. Record any windshield retention clips or brackets used to ensure that the windshield would not disengage from the body.
No retention clips are evident.

POST IMPACT DATA

TYPE OF TEST:

	<u>X</u>	Frontal (90°)	Impact
<u> </u>	Oblique (<u> </u> °)	Impact on	<u> </u> Left (Driver's) Side
			<u> </u> Right Side
<u> </u>	Lateral or Side Impact on	<u> </u>	Left (Driver's) Side
		<u> </u>	Right Side
	Rear Impact		

DATE OF TEST: May 7, 1980 ; TIME: 1205 ; TEMP: 87 ° F

NHTSA NO.: 800548 ; VIN: KPS110-010085

REQUIRED VEHICLE VELOCITY RANGE: 34.5 to 35.5 mph

IMPACT VELOCITY: (traps within 5 feet of impact event)

Primary = 34.11 mph; Secondary = 34.13 mph

Distance from the vehicle's front bumper to the barrier face
entering the vehicle velocity measurement device = 5.0 ft

exiting the vehicle velocity measurement device = 1.0 ft

VEHICLE STATIC CRUSH:

(For Frontal and Rear Impacts Only)

Driver's Side = 23.8 in.; Passenger's Side = 23.9 in.

Average = $\frac{23.9}{1}$ in.

Crush Details: Direct crush to "A" pillar. Both front tires pinned. Secondary sheet metal crush to aft of rear axle.

(For Side Impacts Only)

Amount of Crush = in. on side

Crush Details:

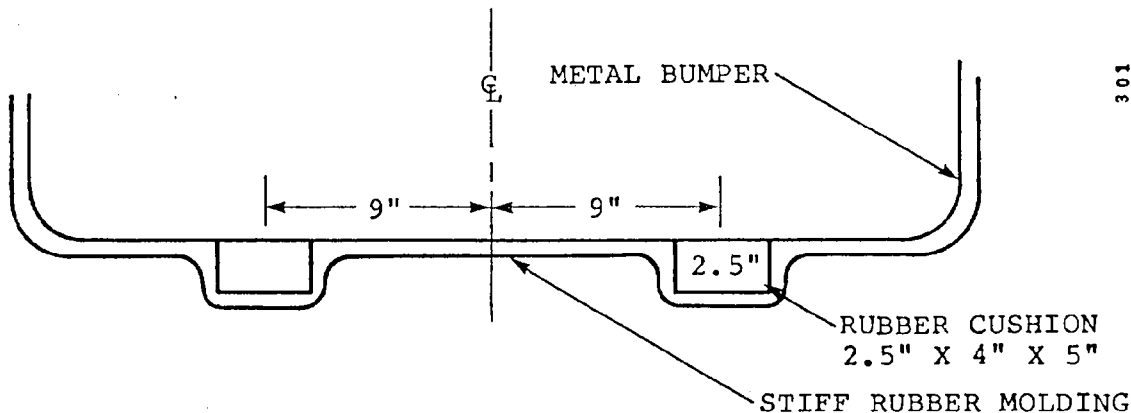
VEHICLE REBOUND:

(From rigid barrier only)

Driver's Side = 13.9 in.; Passenger's Side = 13.8 in.

Average = $\frac{166.225}{12}$ in.

REMARKS: Metal bumper with two rubber cushions 2.5" x 4" x 5",
each 9 inches from centerline of vehicle. Entire bumper is cov-
ered by stiff rubber molding 0.10 inch thick.



FUEL SYSTEM INTEGRITY POST-IMPACT

TEST DATA, FMVSS NO. 301-75

TEST VEHICLE NHTSA NO.: 800548 ; TEST DATE: May 7, 1980

VEHICLE MANUFACTURER/

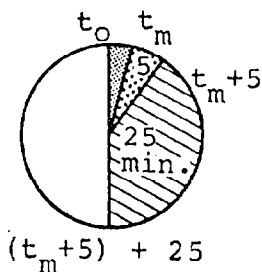
MAKE/MODEL: Nissan Motor Company, Ltd.- Datsun 200SX

Test vehicle fuel tank filled to 93% of "usable" plus "unusable" capacity with Stoddard Solvent and with electric fuel pump operating (if it will operate without engine operation). Part 572 test dummies located at each front designated seating position.

A. TEST VEHICLE IMPACT TYPE:

- ☒ Frontal (35 mph)
☐ Oblique (35 mph) with ° barrier face first contacting
 driver / passenger side.
☐ Rear Moving Barrier (30 mph)
☐ Lateral Moving Barrier (20 mph)

FUEL SPILLAGE MEASUREMENT



	ACTUAL	MAXIMUM ALLOWABLE
1. From impact until vehicle motion ceases. . . .	0	1 oz
2. For 5-minute period after vehicle motion ceases	0	5 oz
3. For next 25 minutes. . .	0	1 oz/1 min

B. SOLVENT SPILLAGE DETAILS: None

C. FUEL SYSTEM DATA:

Test Fluid: Stoddard Solvent No. 2 Specific Gravity: 0.764

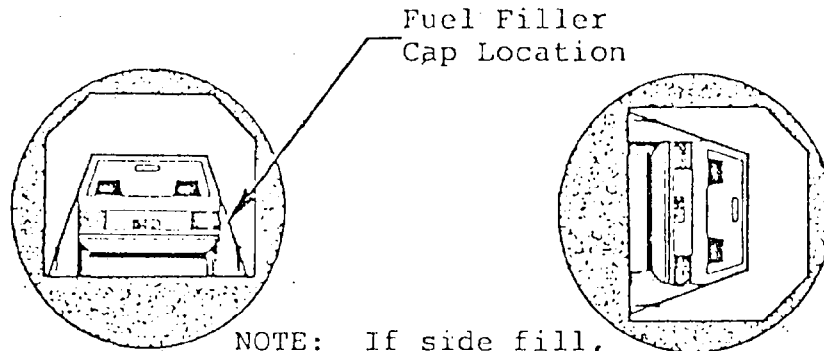
Kinematic Viscosity: 0.99 centistokes

Test Volume: 13.2 U.S. gal/lb Liquid Temp: °F

Details of Fuel Tank, Filler Pipes, and Connections: Rectangular metal fuel tank is mounted aft of rear axle by flange bolts. Sender tubes exit right front area of tank, and are filled by an electric fuel pump. Filler tube exits top side of tank and terminates behind right rear wheel. The filler tube is sealed by a metal twist cap and is concealed by a locking access door.

FMVSS 301-75 INDICANT STATIC ROLLOVER DATA SHEET

TEST PHASE: 0 to 90° VEHICLE NHTSA NO. 800548



NOTE: If side fill, rotate so that filler cap is down.

DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:

Rollover Fixture 90° Rotation Time.... = 1 min, 38 sec +
(Spec. Range = 1 to 3 min)

FMVSS 301 Position Hold Time..... = 5 min, 00 sec =

Total..... = 6 min, 38 sec

Next Whole Minute Interval..... = 7 min

FMVSS 301 REQUIREMENTS AND ACTUAL TEST RESULTS:

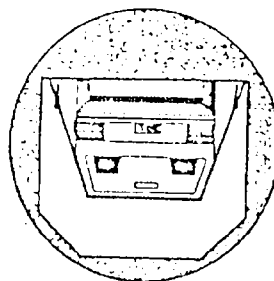
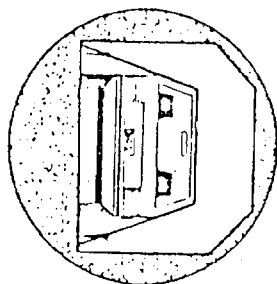
Time Period	First 5 min (from onset)	6th min	7th min	8th min (if req'd)
Maximum Spillage Allowed (oz)	5	1	1	1
Actual Spillage Recorded	0	0	0	-

NOTE: Spillage is recorded in whole minute intervals only - as determined above.

SOLVENT SPILLAGE LOCATION(S): None

FMVSS 301-75 INDICANT STATIC ROLLOVER DATA SHEET

TEST PHASE: 90° to 180° VEHICLE NHTSA NO. 800548



DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:

Rollover Fixture 90° Rotation Time.... = 1 min, 37 sec +
(Spec. Range = 1 to 3 min)

FMVSS 301 Position Hold Time..... = 5 min, 00 sec =

Total..... = 6 min, 37 sec

Next Whole Minute Interval..... = 7 min

FMVSS 301 REQUIREMENTS AND ACTUAL TEST RESULTS:

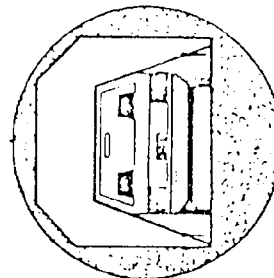
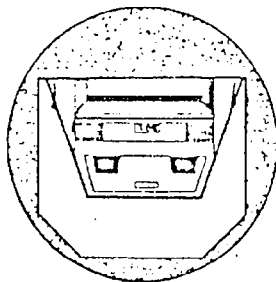
Time Period	First 5 min (from onset)	6th min	7th min	8th min (if req'd)
Maximum Spillage Allowed (oz)	5	1	1	1
Actual Spillage Recorded	0	0	0	-

NOTE: Spillage is recorded in whole minute intervals only - as determined above.

SOLVENT SPILLAGE LOCATION(S): None

FMVSS 301-75 INDICANT STATIC ROLLOVER DATA SHEET

TEST PHASE: 180° to 270° VEHICLE NHTSA NO. 800548



DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:

Rollover Fixture 90° Rotation Time.... = 1 min, 35 sec +
 (Spec. Range = 1 to 3 min)
 FMVSS 301 Position Hold Time..... = 5 min, 00 sec =
 Total..... = 6 min, 35 sec
 Next Whole Minute Interval..... = 7 min

FMVSS 301 REQUIREMENTS AND ACTUAL TEST RESULTS:

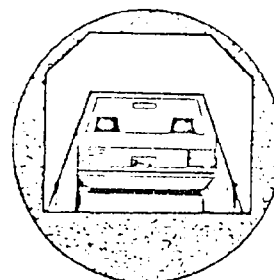
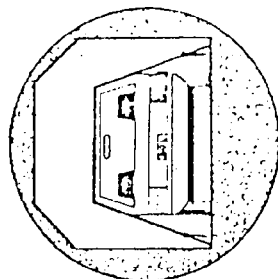
Time Period	First 5 min (from onset)	6th min	7th min	8th min (if req'd)
Maximum Spillage Allowed (oz)	5	1	1	1
Actual Spillage Recorded	0	0	0	-

NOTE: Spillage is recorded in whole minute intervals only - as determined above.

SOLVENT SPILLAGE LOCATION(S): None

FMVSS 301-75 INDICANT STATIC ROLLOVER DATA SHEET

TEST PHASE: 270° to 360° VEHICLE NHTSA NO. 800548



DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:

Rollover Fixture 90° Rotation Time.... = 1 min, 39 sec +
(Spec. Range = 1 to 3 min)

FMVSS 301 Position Hold Time..... = 5 min, 00 sec =

Total..... = 6 min, 39 sec

Next Whole Minute Interval..... = 7 min

FMVSS 301 REQUIREMENTS AND ACTUAL TEST RESULTS:

Time Period	First 5 min (from onset)	6th min	7th min	8th min (if req'd)
Maximum Spillage Allowed (oz)	5	1	1	1
Actual Spillage Recorded	0	0	0	-

NOTE: Spillage is recorded in whole minute intervals only - as determined above.

SOLVENT SPILLAGE LOCATION(S): None

01680

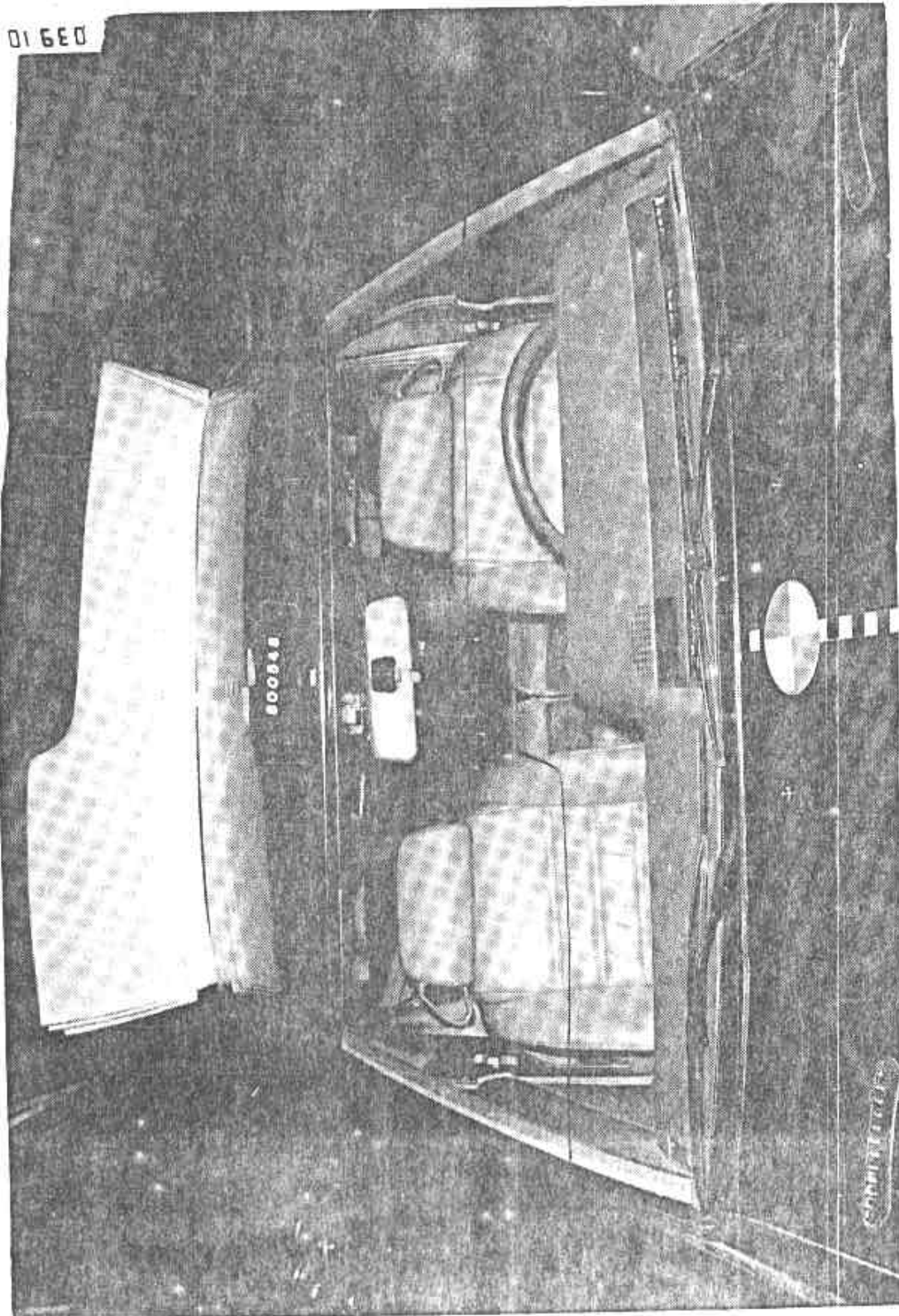


Figure 3-1. Pre-test Windshield - Overall View - 1960 Datsun 200SX - NUTSA 800549.

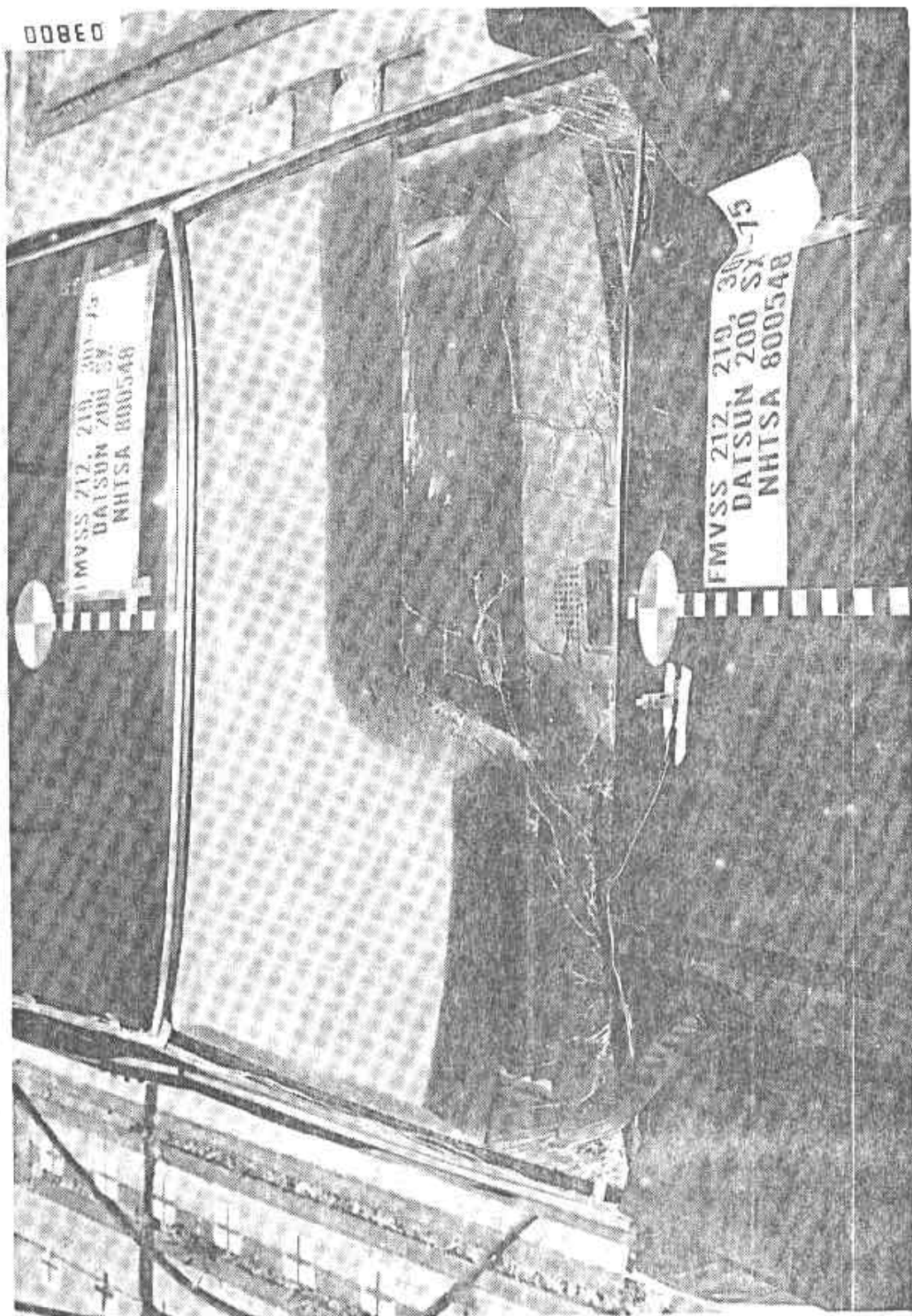


Figure 3-3. Post-test Windshield - Overall View - 1930 Datsun 200SX - NHTSA 800548.

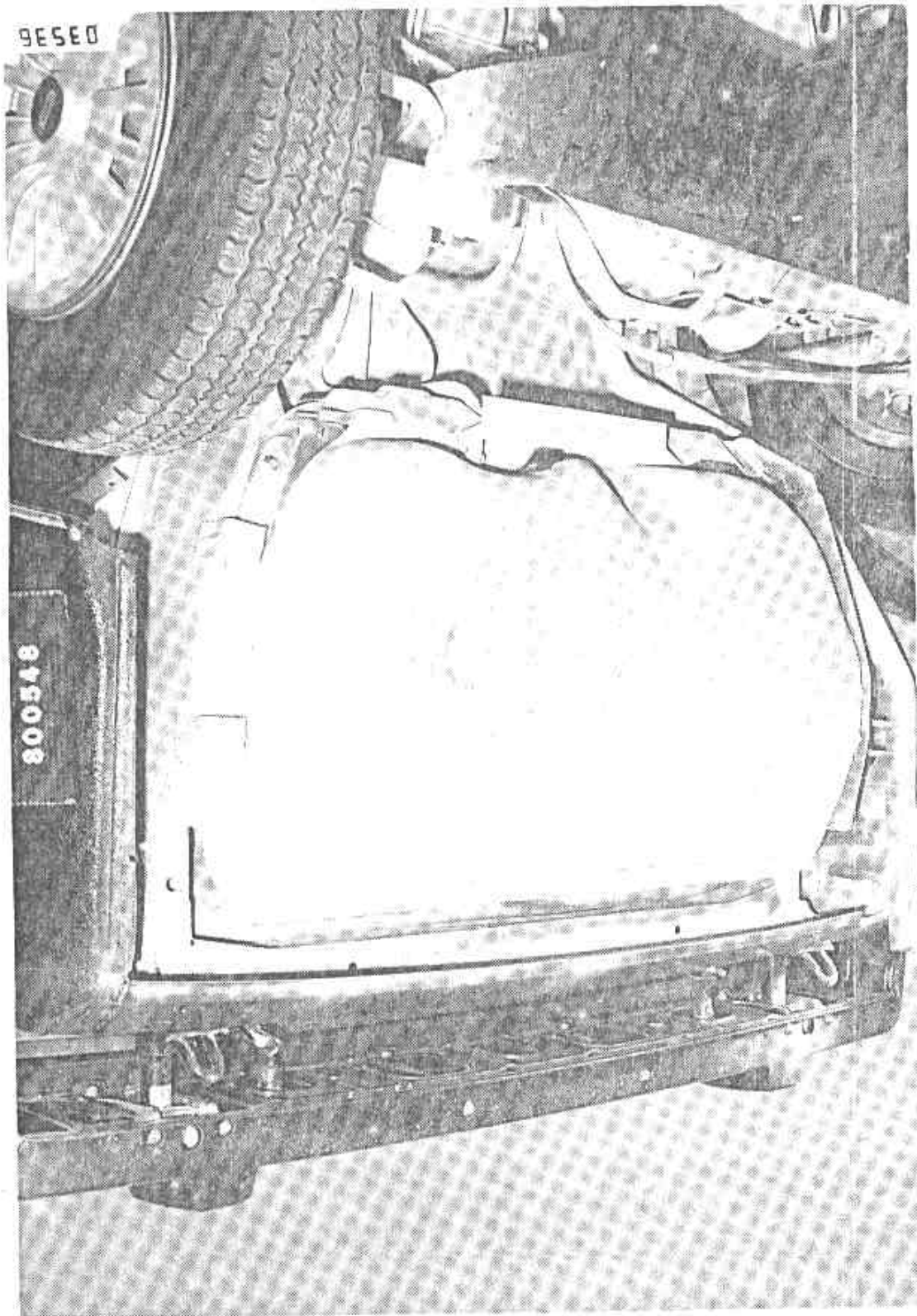


Figure 3-4. Pre-test View of Fuel Tank - 1980 Datsun 200SX - NHTSA 800548.

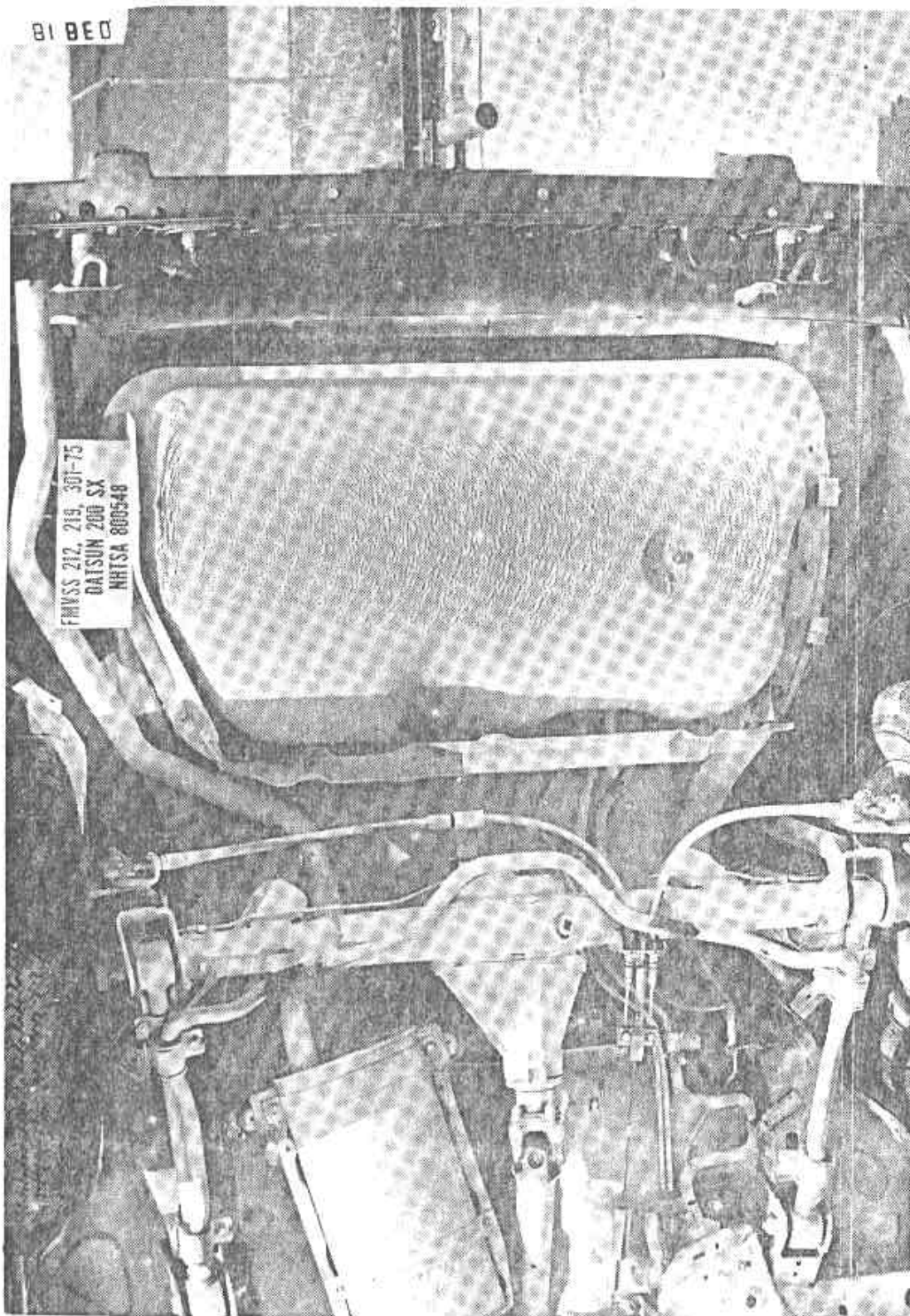


Figure 3-5. Post-test View of Fuel Tank - 1980 Datsun 200SX - NHTSA 800548.

SECTION 4
DATA REQUIRED BY R&D AND OAR

The following pages are included in this section:

1. Dummy positional data
2. Dummy injury summaries
3. Vehicle crush data
4. Accelerometer location and data summary
5. High-speed movie camera location and specification summary.

Pertinent photographs are presented in Appendix A. Calccomp plots of dummy and vehicle accelerometer data are presented in Appendix B.

DUMMY POSITIONING

Pre-test Dummy Positions

<u>Measurement</u>	<u>Driver (in.)</u>	<u>Passenger (in.)</u>
Dummy Centerline to Vehicle Centerline	<u>14.7</u>	<u>14.5</u>
Nose to Upper Rim Steering Wheel	<u>22.0</u>	<u>N/A</u>
Nose to Windshield (Horizontal Distance)	<u>22.0</u>	<u>18.4</u>
Left Knee to Closest Point on Lower Panel	<u>7.9</u>	<u>8.2</u>
Right Knee to Closest Point on Lower Panel	<u>9.2</u>	<u>8.4</u>
Ankle Distance	<u>10.0</u>	<u>10.0</u>
Knee Distance	<u>9.0</u>	<u>9.0</u>
Head to Windshield Header	<u>-</u>	<u>-</u>
Chest to Dash	<u>23.7</u>	<u>22.1</u>
Chest to Steering Wheel	<u>16.5</u>	<u>N/A</u>

Additional dummy positioning information is presented in the
PART 572 DUMMY IN-VEHICLE POSITION RECORDING SHEET which follows.

PART 572 DUMMY DATA SUMMARY

	Driver Dummy				Passenger Dummy			
	Positive Direction*		Negative Direction**		Positive Direction*		Negative Direction**	
	Peak (G)	Time (msec)	Peak (G)	Time (msec)	Peak (G)	Time (msec)	Peak (G)	Time (msec)
Head Acceleration								
Longitudinal	6.2	22	166.0	79	2.9	200	106.0	97
Lateral	7.1	85	36.0	79	44.0	95	4.0	62
Vertical	69.0	93	7.1	108	80.0	95	3.1	126
Resultant	169.8	79			136.0	96		
HIC	1091 (78-114 msec)				1032 (92-102 msec)			
Chest Acceleration								
Longitudinal	7.0	197	66.0	83	3.5	173	41.0	103
Lateral	14.0	84	4.6	162	22.0	104	1.4	53
Vertical	14.0	61	11.0	86	19.0	75	8.3	128
Resultant (Max)	66.9	83			46.9	104		
Resultant (clip)	61.9				44.2			
TIME > 60 G	6.0 msec				0.0 msec			
SEVERITY INDEX	520				364			
	Peak (lb)	Time (msec)	Peak (lb)	Time (msec)	Peak (lb)	Time (msec)	Peak (lb)	Time (msec)
Femur Loads								
Left	169	51	1150	80	135	63	663	50
Right	186	46	893	58	190	66	242	86
Belt Loads								
Lap	795	57			1305	75		
Torso	1428	93			1369	95		
Vehicle Impact Speed (mph): 34.11								
*Longitudinal:	Forward							
Lateral:	Rightward							
Vertical:	Downward							
**Longitudinal:	Rearward							
Lateral:	Leftward							
Vertical:	Upward							

DUMMY KINEMATIC SUMMARY

DRIVER - Head hit the upper rim of steering wheel and upper dash. Severe crush of dash on driver's side. Both knees hit the steering column. Left knee hit the steering column mount. Dummy rebounded into seatback and came to rest upright with no lateral lean.

PASSENGER - Torso rotated clockwise. Head hit the dash. Knees hit the glovebox and the dash to the left of the glovebox. The glovebox lid was broken by the impact of the passenger knees. Dummy rebounded into seatback and came to rest upright with no lateral lean.

OTHER COMMENTS: Direct crush to "A" pillar. Both front tires were pinned by crushed sheet metal. Secondary sheet metal crush to aft of the rear axle. Both left and right front doors opened easily. There was no movement of either seat on the seat track. There was no movement of either seat back. The steering column was rigid and did not indicate any movement. There was extreme folding and fracturing of lowest 4 inches of the windshield. Windshield molding was 91° F ten minutes after impact.

PRE-/POST-TEST STATIC MEASUREMENT DATA
(See Following Page for Dimension Definition)

Vehicle: 1980 Datsun 200SX

NHTSA No.: 800548

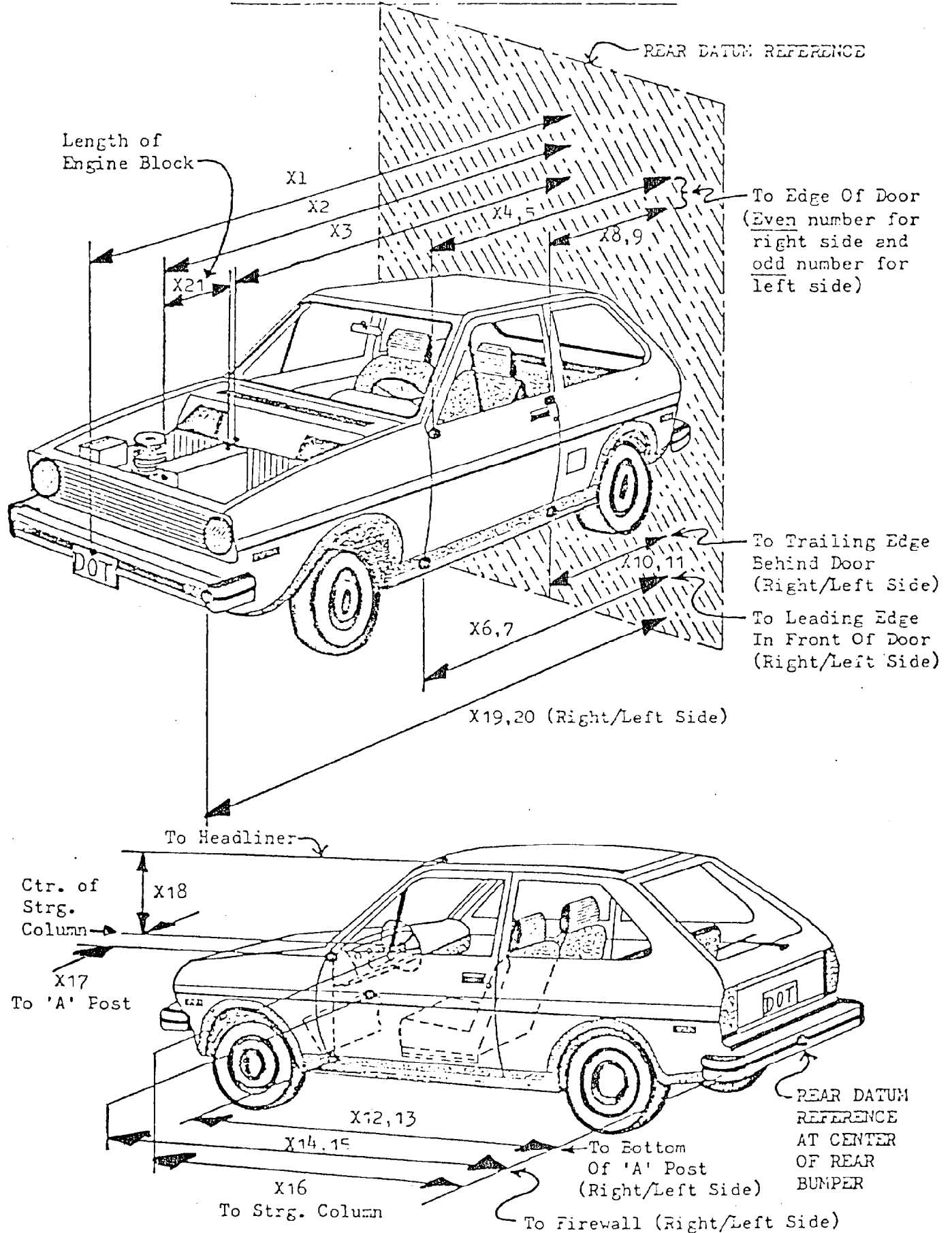
Test Date: May 7, 1980

D.S. No.: 1059

<u>Reference Dimension</u>	<u>Pre-test Measurement</u>	<u>Post-test Measurement</u>	<u>Change</u>
X ₁ *	174.0	149.1	24.9
X ₂	147.5	137.8	9.7
X ₃	130.7	119.5	11.2
X ₄	111.5	110.5	1.0
X ₅	111.5	110.7	0.8
X ₆	115.0	113.4	1.6
X ₇	115.0	114.4	0.6
X ₈ *	67.5	66.8	0.7
X ₉ *	67.5	67.2	0.3
X ₁₀	69.7	69.1	0.6
X ₁₁	69.7	69.4	0.3
X ₁₂	115.5	114.3	1.2
X ₁₃	115.5	114.8	0.7
X ₁₄	124.3	122.0	2.3
X ₁₅	124.3	121.8	2.5
X ₁₆	96.7	92.1	4.6
Y ₁₇	15.0	13.2	1.8
Z ₁₈	16.4	17.8	1.4
X ₁₉ *	171.8	148.0	23.8
X ₂₀ *	171.8	147.9	23.9
X ₂₁	19.3	19.0	0.3

*Rear impact data requirements.

PRE-TEST AND POST-TEST MEASUREMENT POINTS



VEHICLE PROFILE DATA SHEET

Vehicle: 1980 Datsaun 200SX D.S. No.: 1059 Test Date: May 7, 1980

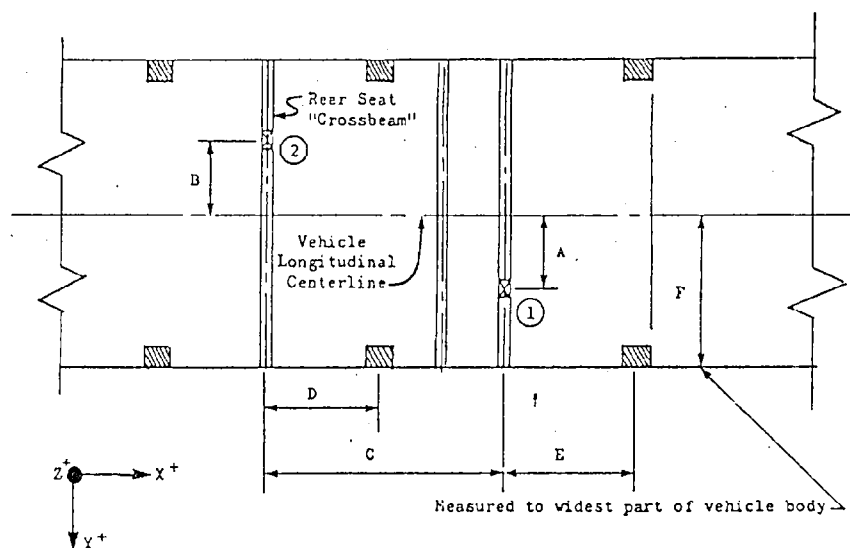
Measurement Date: Pre-test: May 5, 1980 Post-test May 8, 1980

Exterior Measurements Referenced to Plane: 15' Forward of: Rear Bumper

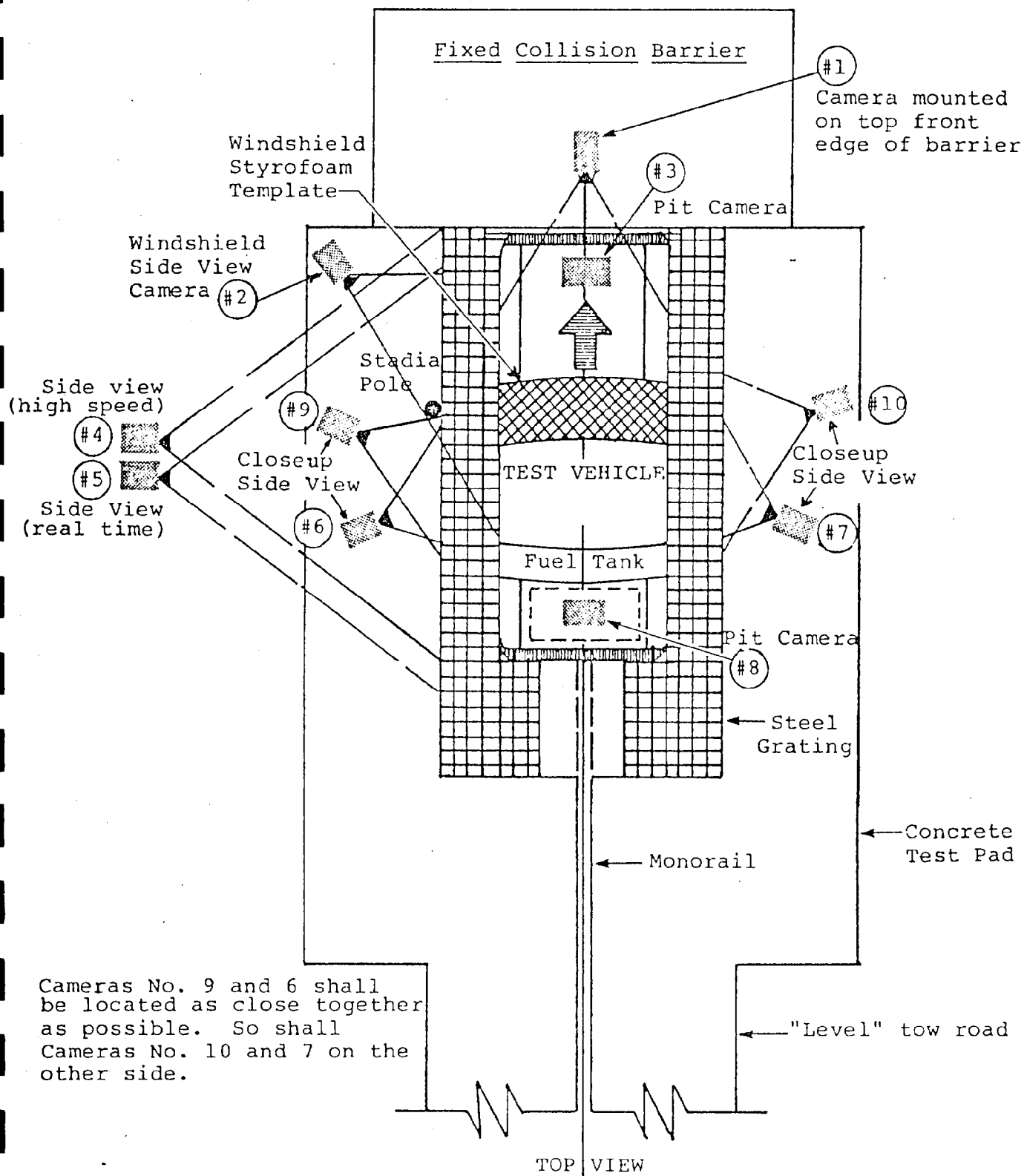
Location	Height	Vehicle Left (in.)						Vehicle Right (in.)				
		30	24	18	12	6	0	6	12	18	24	30
Pre-test Profile (in.)												
Top of Front Bumper	21.3	-	7.7	7.1	6.2	6.3	6.3	6.3	6.4	7.0	7.7	-
Front of Hood	29.8	-	12.3	11.6	10.7	10.2	9.6	10.2	10.7	11.7	12.4	-
Post-test Profile (in.)												
Top of Front Bumper	27.3	-	32.0	31.7	31.6	31.6	31.5	31.4	31.4	31.2	31.2	-
Front of Hood	-	-	32.0	32.8	32.6	32.7	32.5	32.3	32.2	32.3	32.3	-
Post-test Static Crush (in.)												
Top of Front Bumper	6.0	-	24.3	24.6	25.4	25.3	25.2	25.1	25.0	24.2	23.5	-
Front of Hood	-	-	19.7	21.2	21.9	22.5	22.9	22.1	21.5	20.6	19.9	-

TEST VEHICLE ACCELEROMETER LOCATION DEFINITION AND DATA SUMMARY

Dim.	Length (in.)
A	12.7
B	19.3
C	28.3
D	2.2
E	19.2
F	33.0



No.	Location Description	Component Direction	Data Summary Peak G @ msec							
			X		Y		Z			
			X	Y	Z	"+"	"-"	"+"	"-"	"+"
1	Below front seat area	x	22.0 @ 15	45.3 @ 24	@	@	@	@	@	@
2	Below rear seat area	x	11.0 @ 17	40.7 @ 23	@	@	@	@	@	@



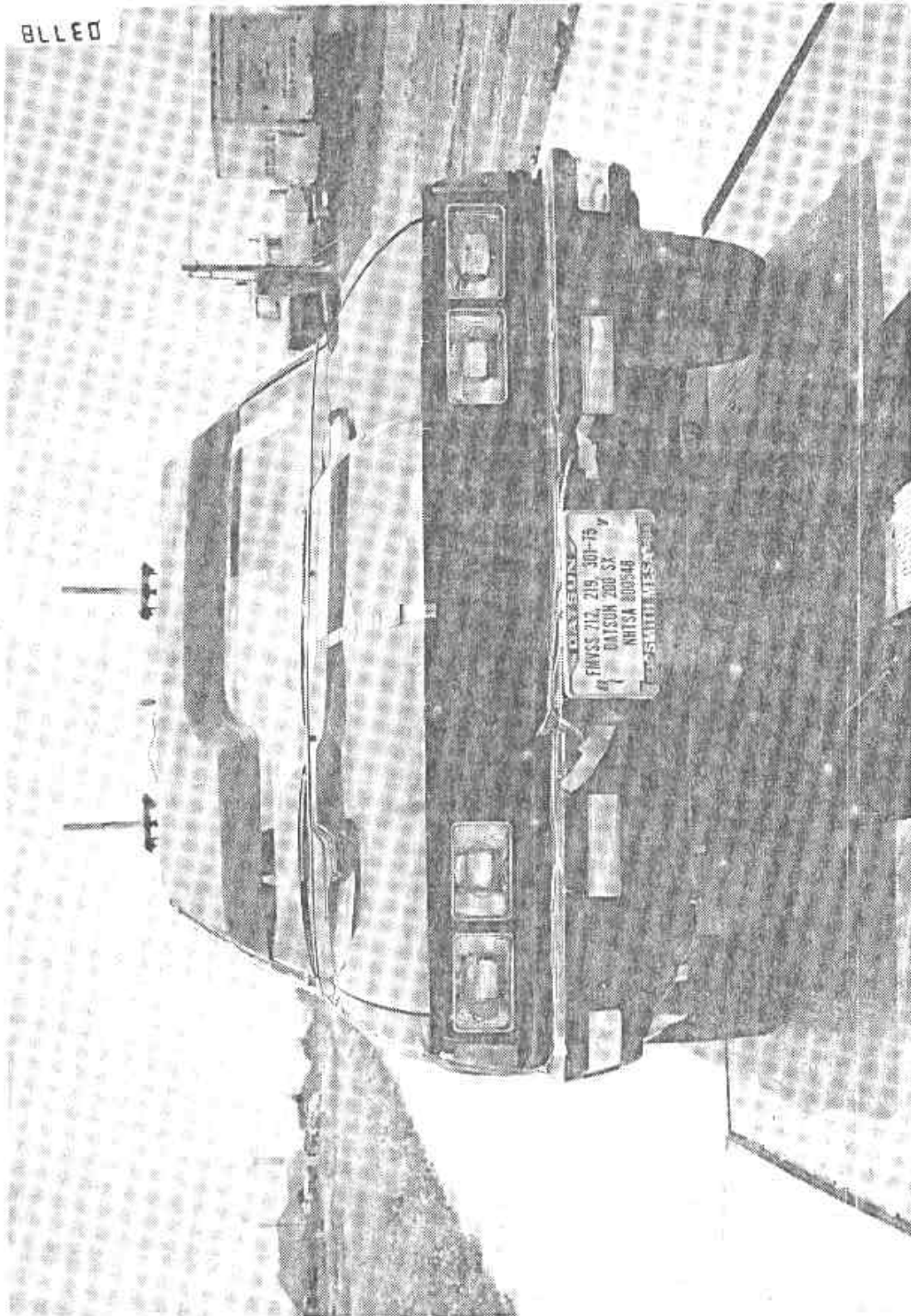
Cameras No. 9 and 6 shall be located as close together as possible. So shall Cameras No. 10 and 7 on the other side.

SUMMARY OF CAMERA LOCATIONS AND DESCRIPTIONS

Loc. No.	Location	Field of View	Lens Size	Frame Rate	Timing Speed	Ser No.	Impact Dist-X	Center-line Dist-Y	Camera Height
1	Overhead (Barrier)	Windshield styrofoam up to barrier-vehicle contact if possible	13 mm	1000		#11	0.0	0.0	11.2
2	Ground Based (Left)	Windshield	16 mm	1000		#M8	-0.3	10.2	5.5
3	Pit	Engine underside and fuel pump	8 mm	1000		#6	2.8	0.0	-7.3
4	Ground Based (Left)	Views entire left side of vehicle	16 mm	1000		#9	6.7	33.2	3.2
5	Ground Based (Real Time)	Documentary	Zoom	24		None	11.0	46.0	5.3
6	Ground Based (Left)	Driver dummy closeup	15 mm	1000		#8	5.5	10.7	3.7
7	Ground Based (Right)	Passenger dummy closeup	25 mm	1000		#5	6.5	15.0	4.0
8	Pit	Fuel tank	8 mm	1000		#7	11.5	-0.3	-7.3
9	Ground Based (Left)	Same view as Camera No. 6	15 mm	1000		#10	6.5	10.7	3.7
10	Ground Based (Right)	Same view as Camera No. 7	25 mm	1000		#4	7.5	15.0	4.0

Note: All Distances are feet.

APPENDIX A
PHOTOGRAPHS



03778

Figure A-1. Pre-test Front View - 1980 Datsun 200SX - NHTSA 800548.

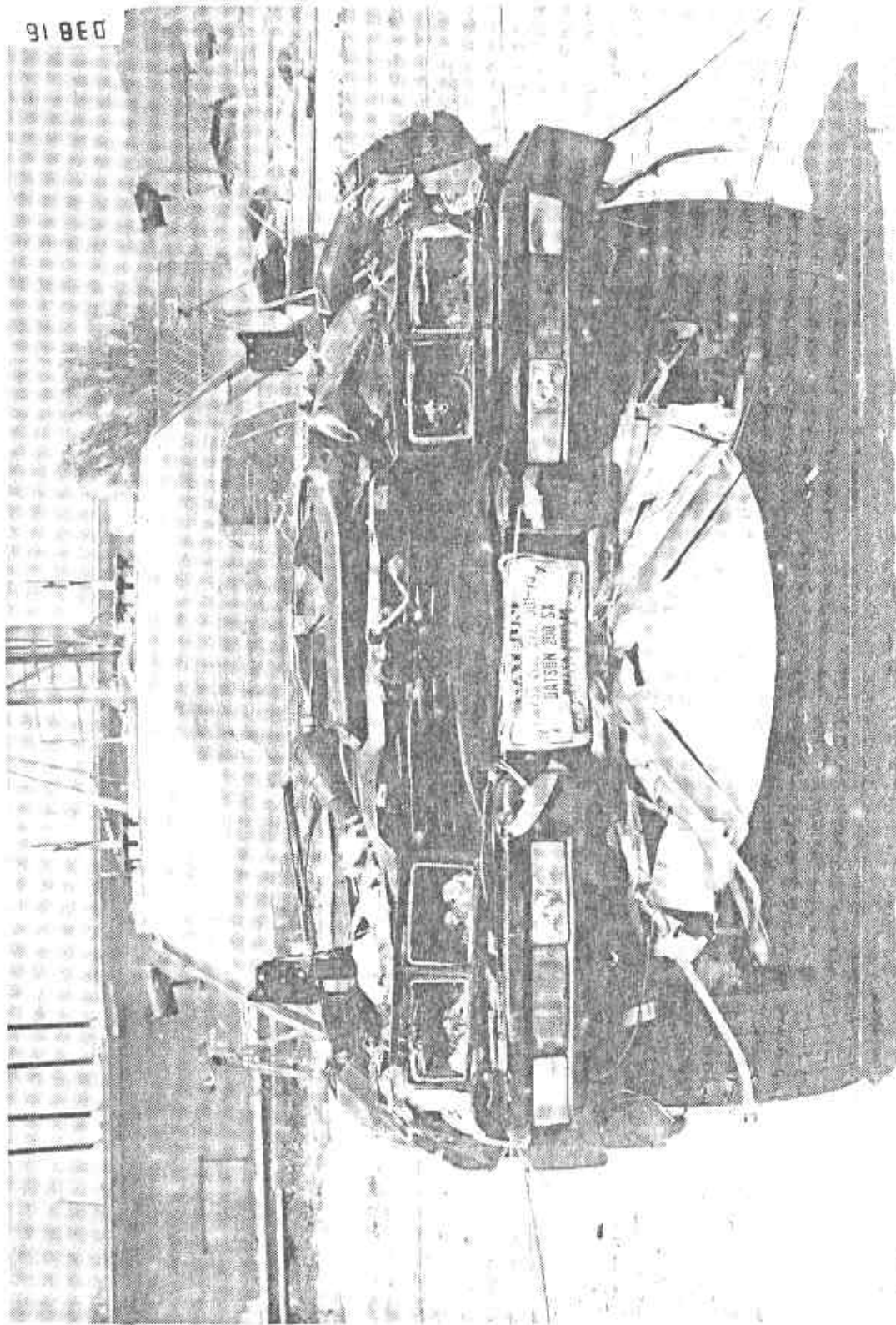


Figure A-2. Post-test Front View - 1980 Datsun 200SX - NHTSA 800549.

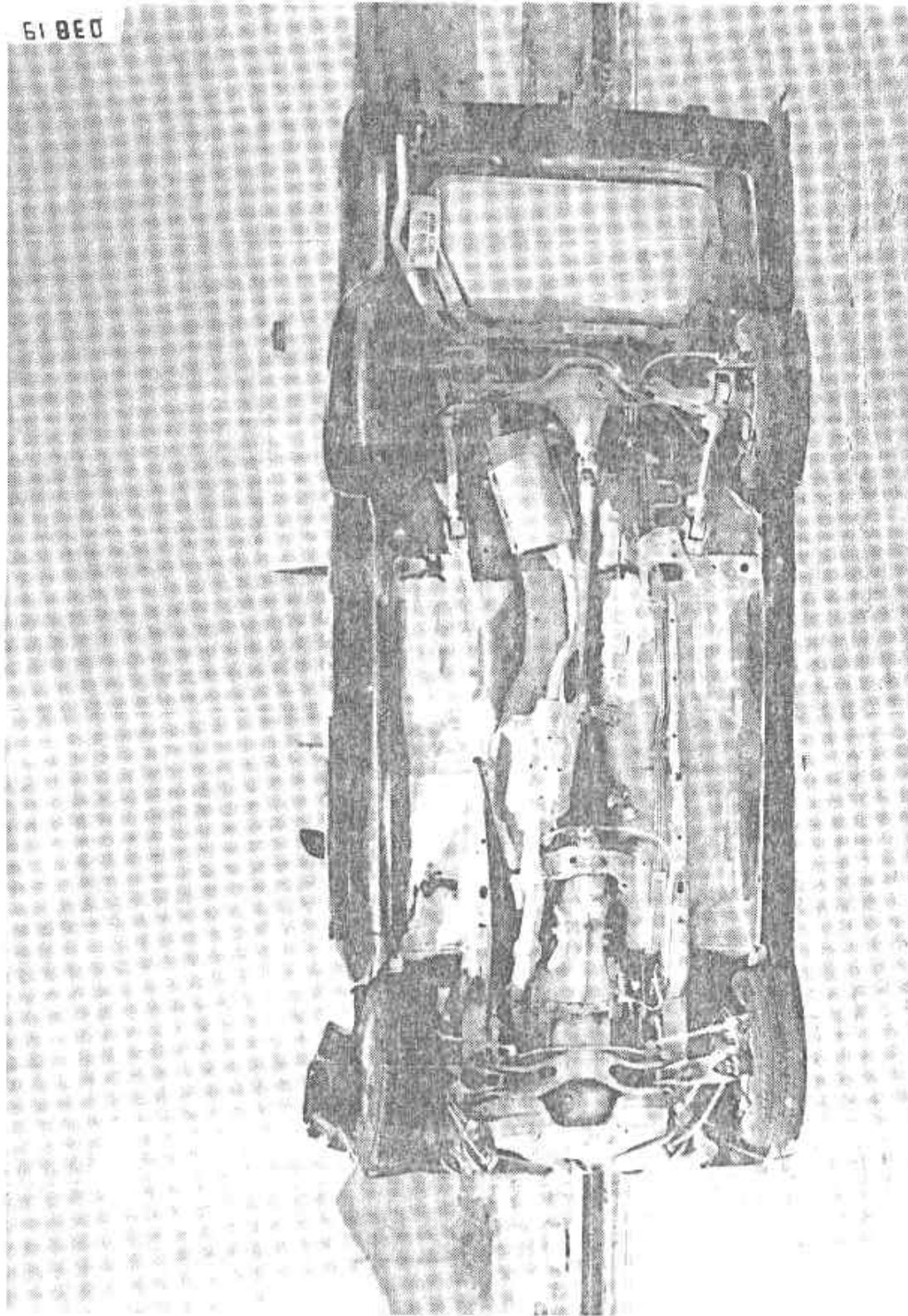


Figure A-3. Post-test Overall Underside View - 1980 Datsun 200SX - NHTSA 800543.

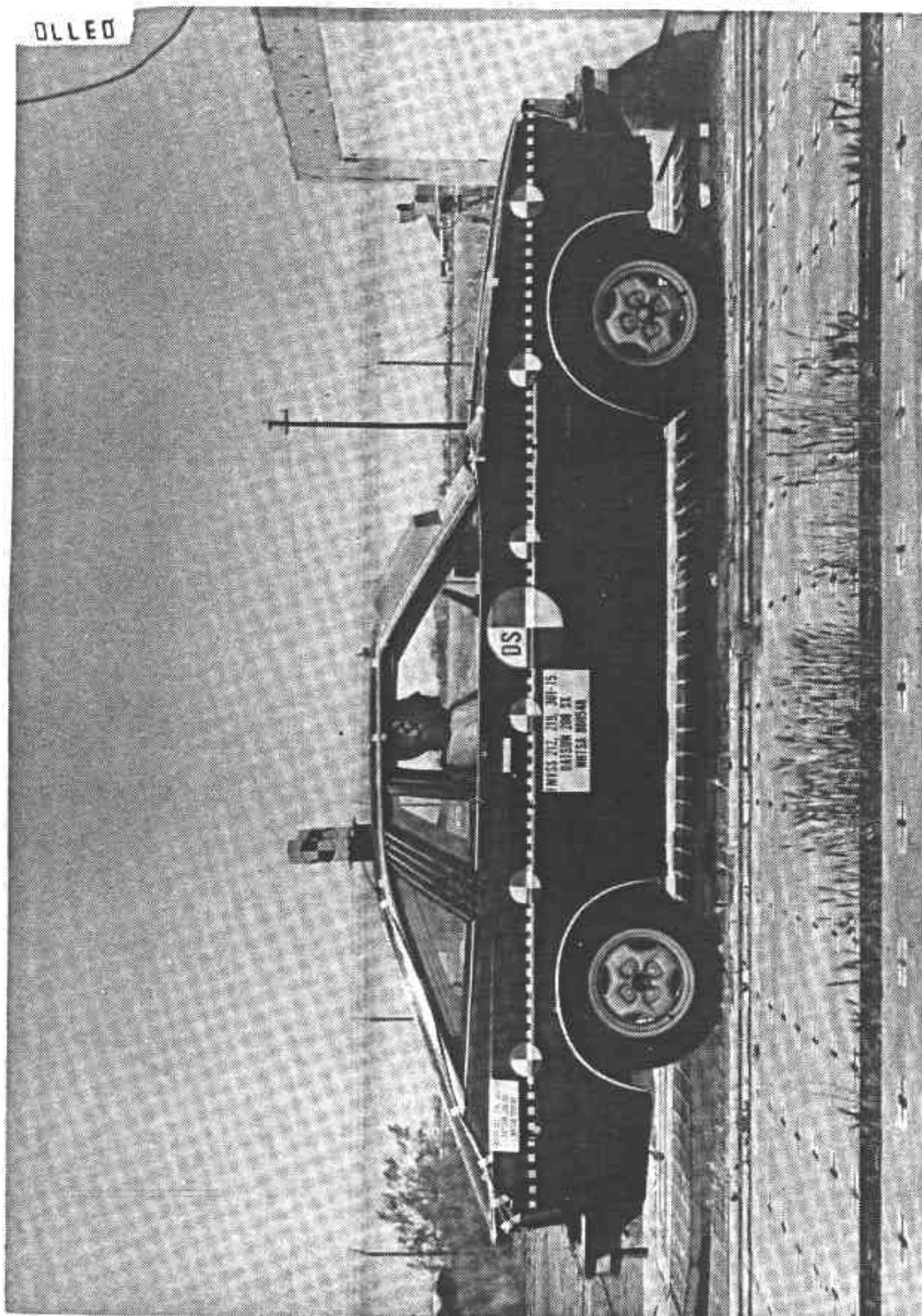


Figure A-4. Pre-test Side View - 1980 Datsun 200SX - NHTSA 800548.

03802

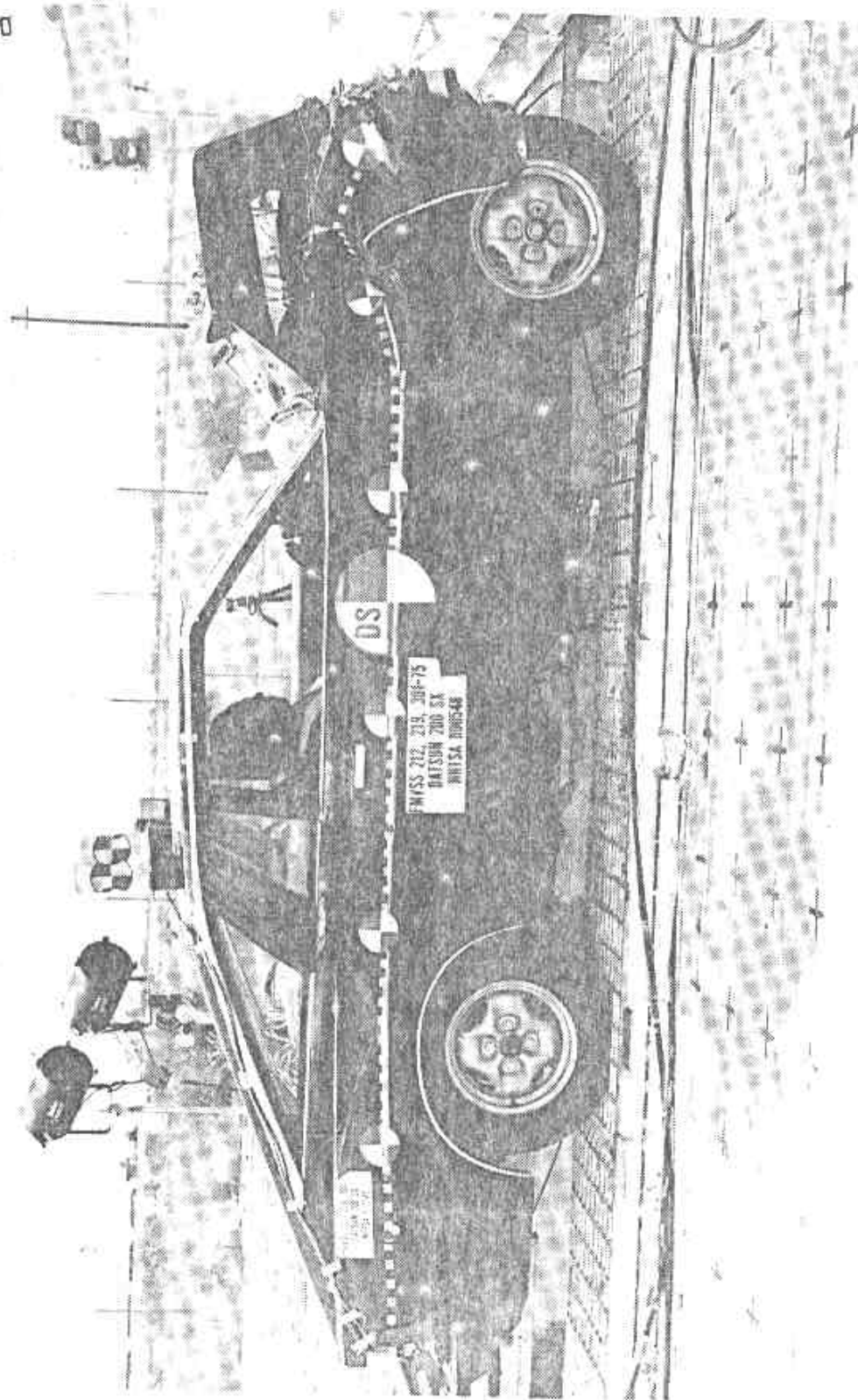


Figure A-5. Post-test Side View - 1980 Datsun 200SX - NHISA 800548.



Figure A-6. Pro-test Driver Dummy Position - 1990 Datsun 200SX - NHISA 800548.

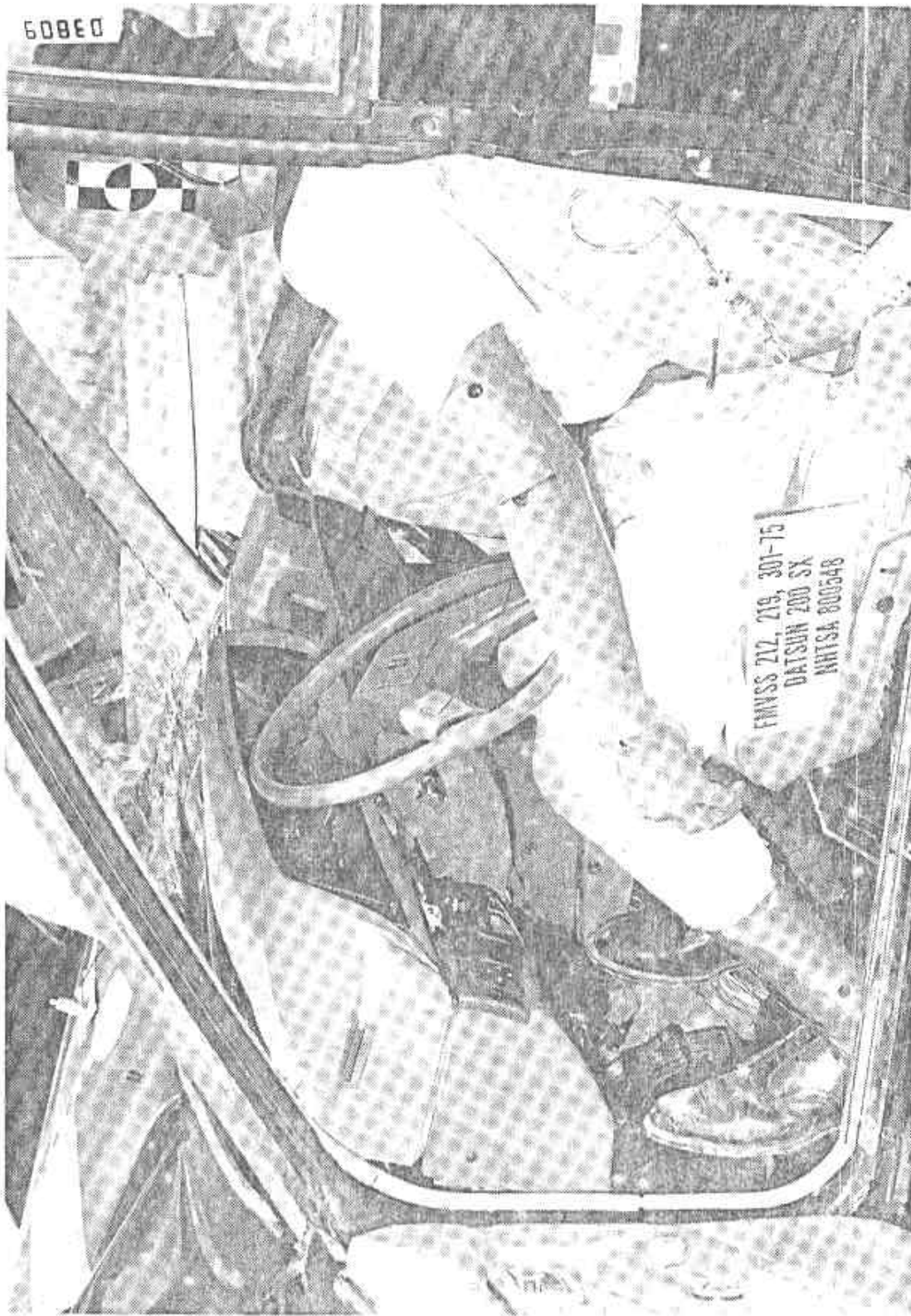


Figure A-7. Post-test Driver Dummy Position - 1980 Datsun 200SX - NHTSA 800548.



Figure A-8. Pre-test Passenger Position - 1980 Datsun 200SX -
NHISA 800548.



Figure A-9. Post-test Passenger Position - 1980 Datsun 200SX - NHISA 803548.



Figure A-10. Post-test Passenger Contact Point - 1980 Datsun 200SX -
NHTSA 800548.



Figure A-11. Post-test Compartment Deformation - 1961 Datsun 2700 -
NHTSA 800548.

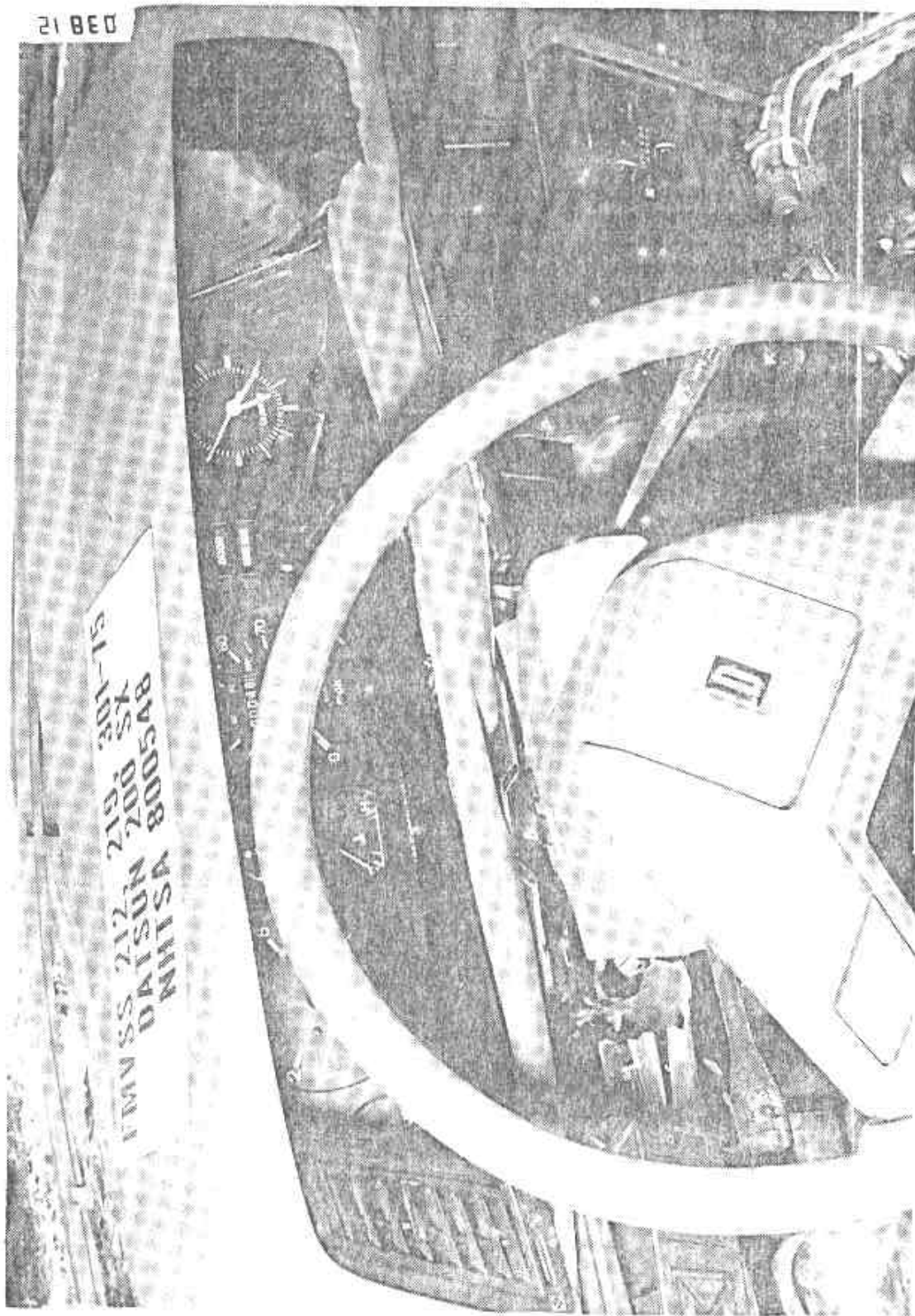


Figure A-12. Post-test Compartment Deformation - 1970 Datsun 200SX -
NHTSA 800548.

APPENDIX B
CALCOMP PLOT PRESENTATION

APPENDIX B
CALCOMP PLOT PRESENTATION

Calcomp plots generated from the crash test data are presented on the following pages. All data will be recorded on magnetic tape for inclusion in the NHTSA crash test data base system. All data was filtered according to SAE J211. Plot legends and test anomalies are listed below:

PLOT LEGEND

Dummy Data*

<u>Driver</u>	<u>RF Outboard Passenger</u>	<u>Data Description</u>
LF Head	RF Head	Head Acceleration (G)
LF Chest	RF Chest	Chest Acceleration (G)
LF Femurs	RF Femurs	Femur Loads (lb)
LF Belt Loads	RF Belt Loads	Lap and Torso Belt Loads (lb)

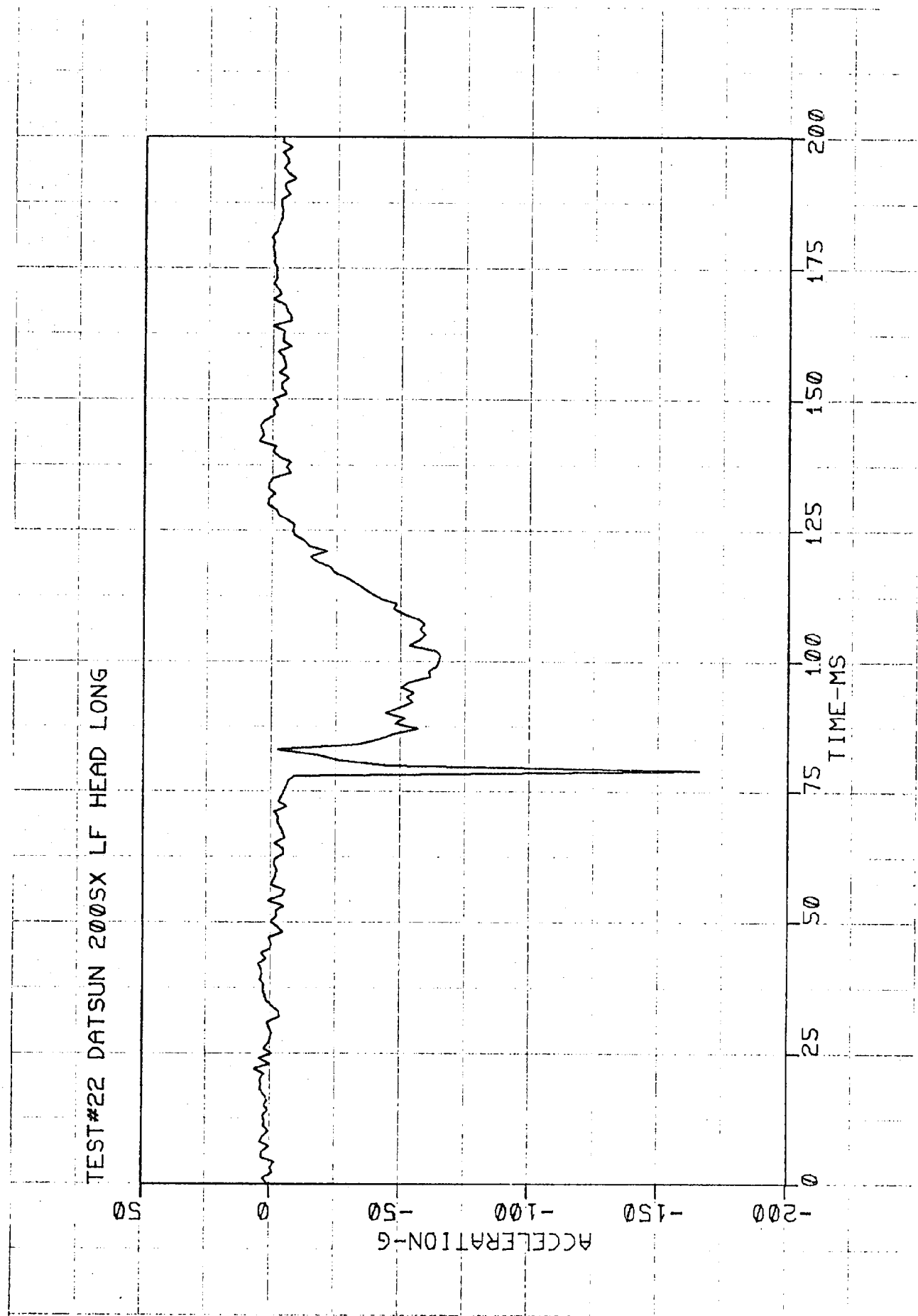
Vehicle Data**

	<u>Location</u>
Loc 1	Front Seat Area Acceleration (G)
Loc 2	Rear Seat Area Acceleration (G)

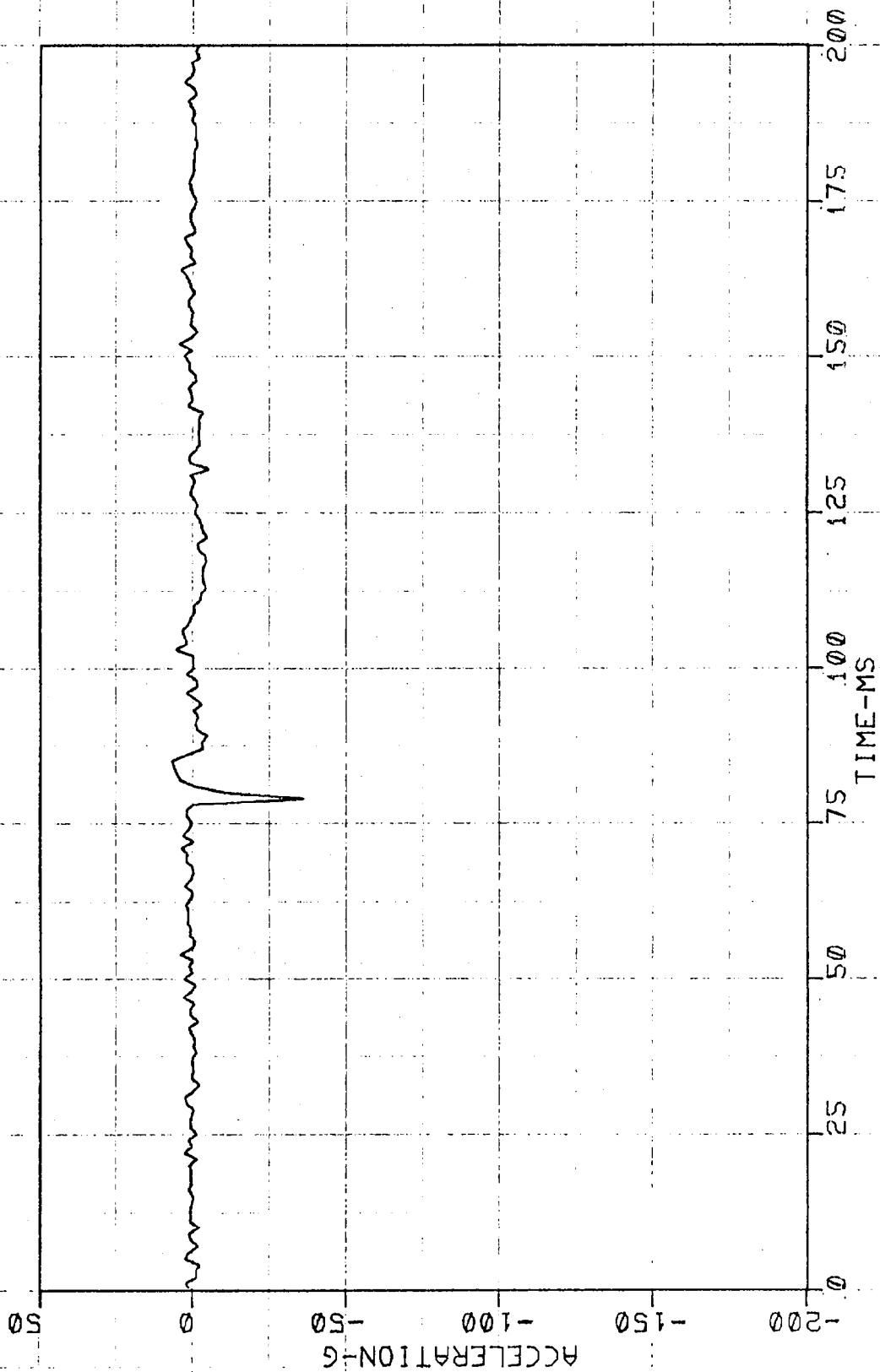
- *Dummy Injury Summary presented on pages 4-4 and 4-5.
**Vehicle accelerometer location and data summarized on page 4-9.

APPENDIX B (CONTD)

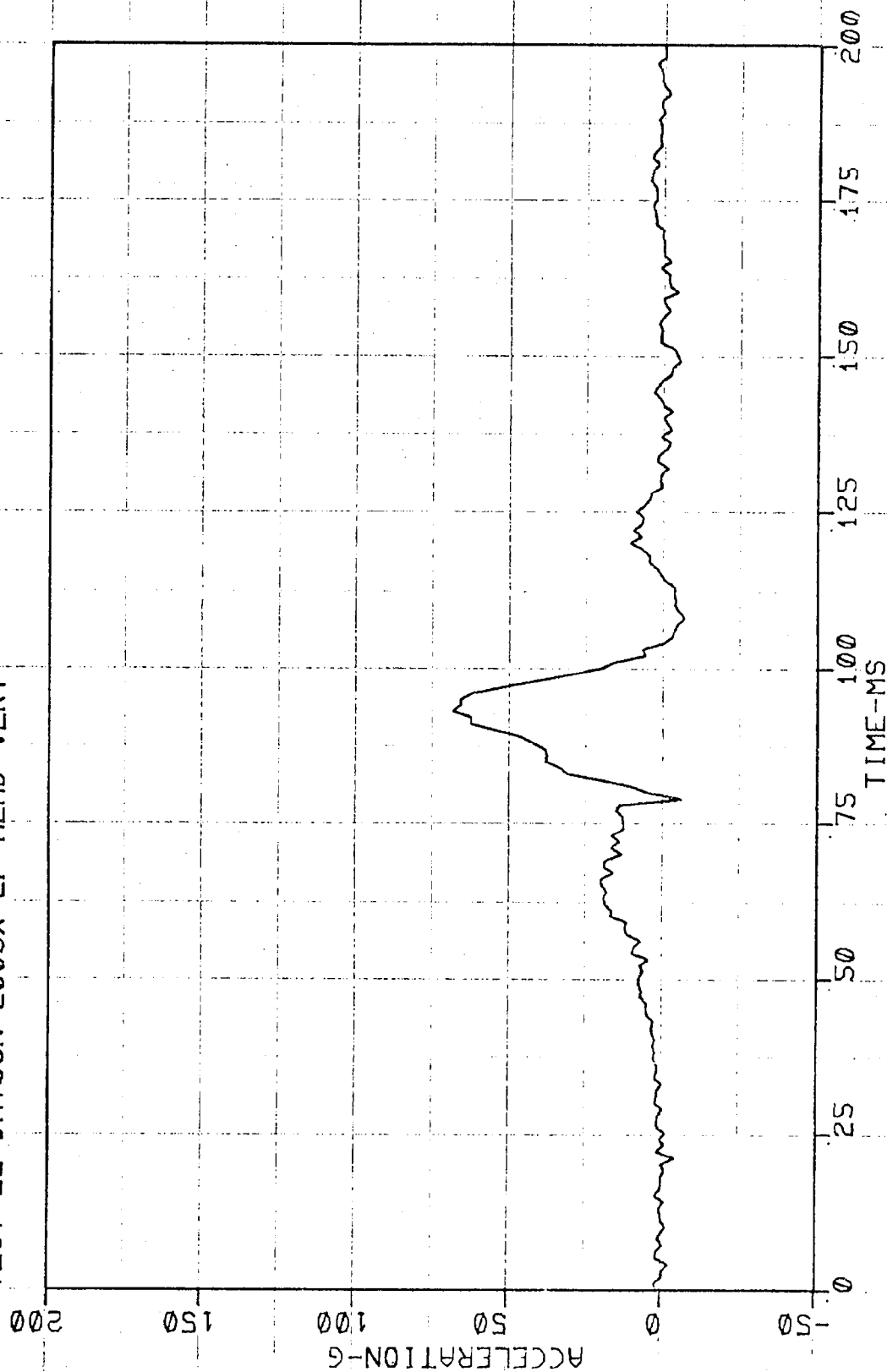
Test Anomalies: None

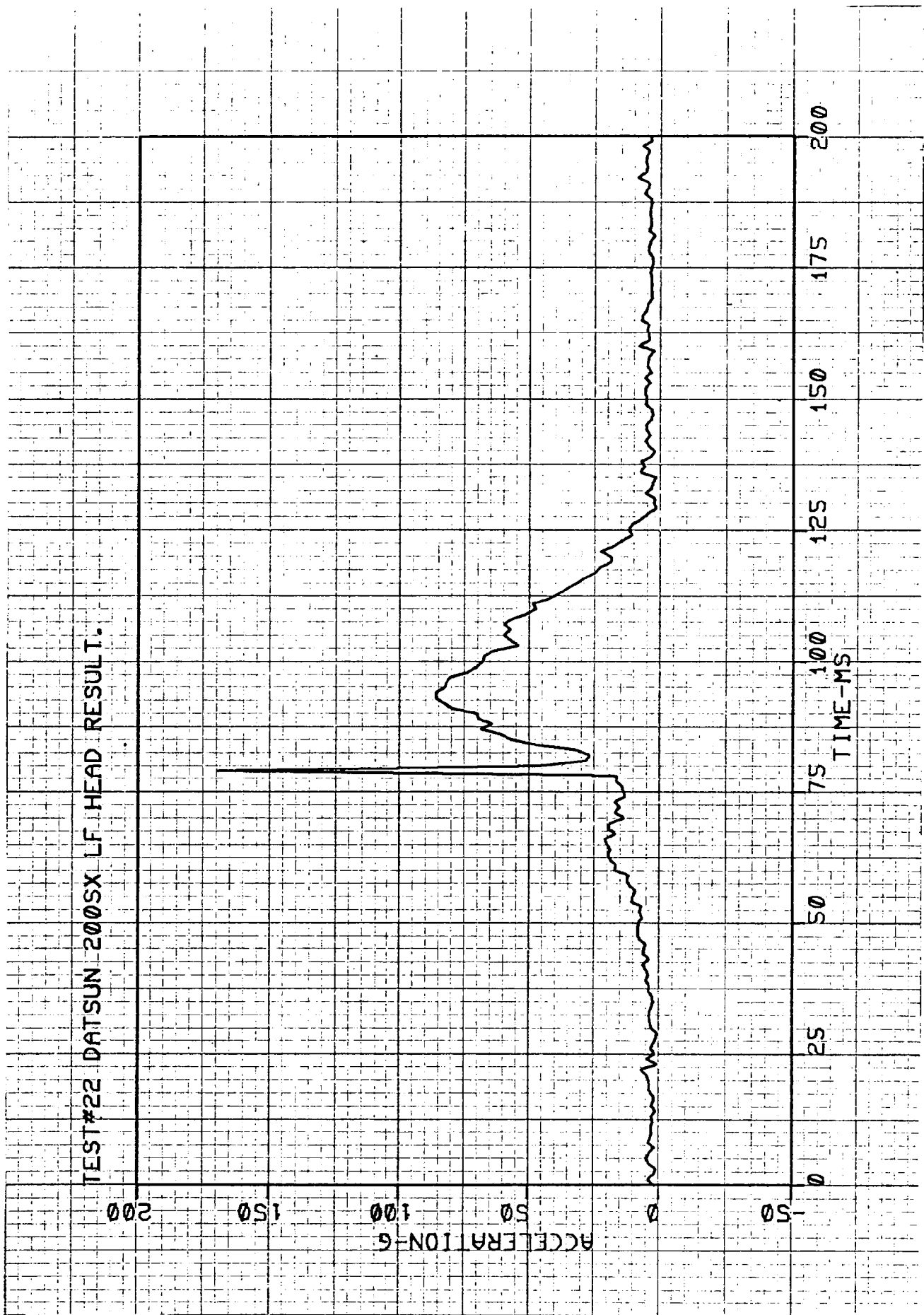


TEST#22 DATSUN 200SX LF HEAD LAT

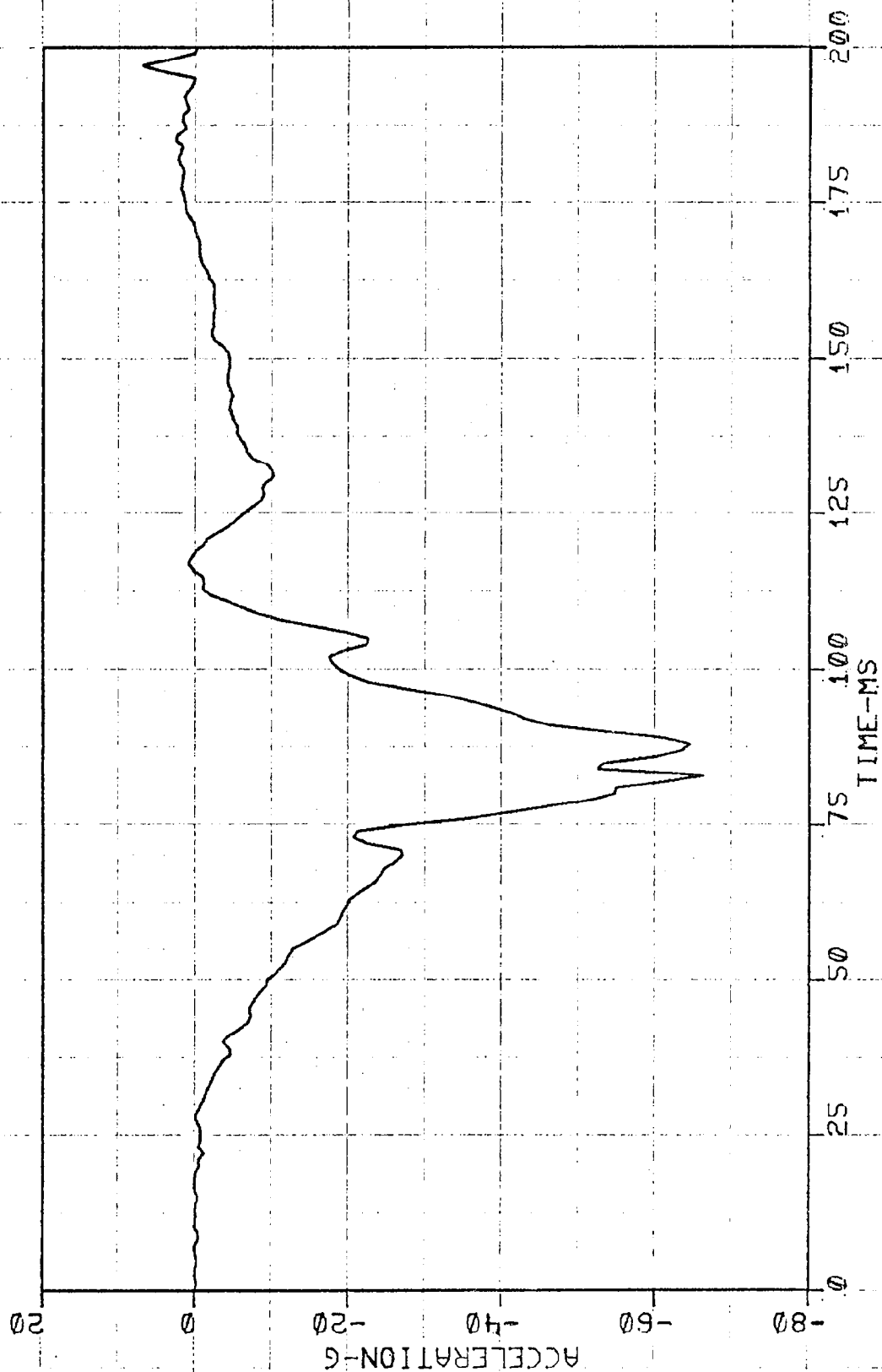


TEST#22 DATSUN 200SX LF HEAD VERT

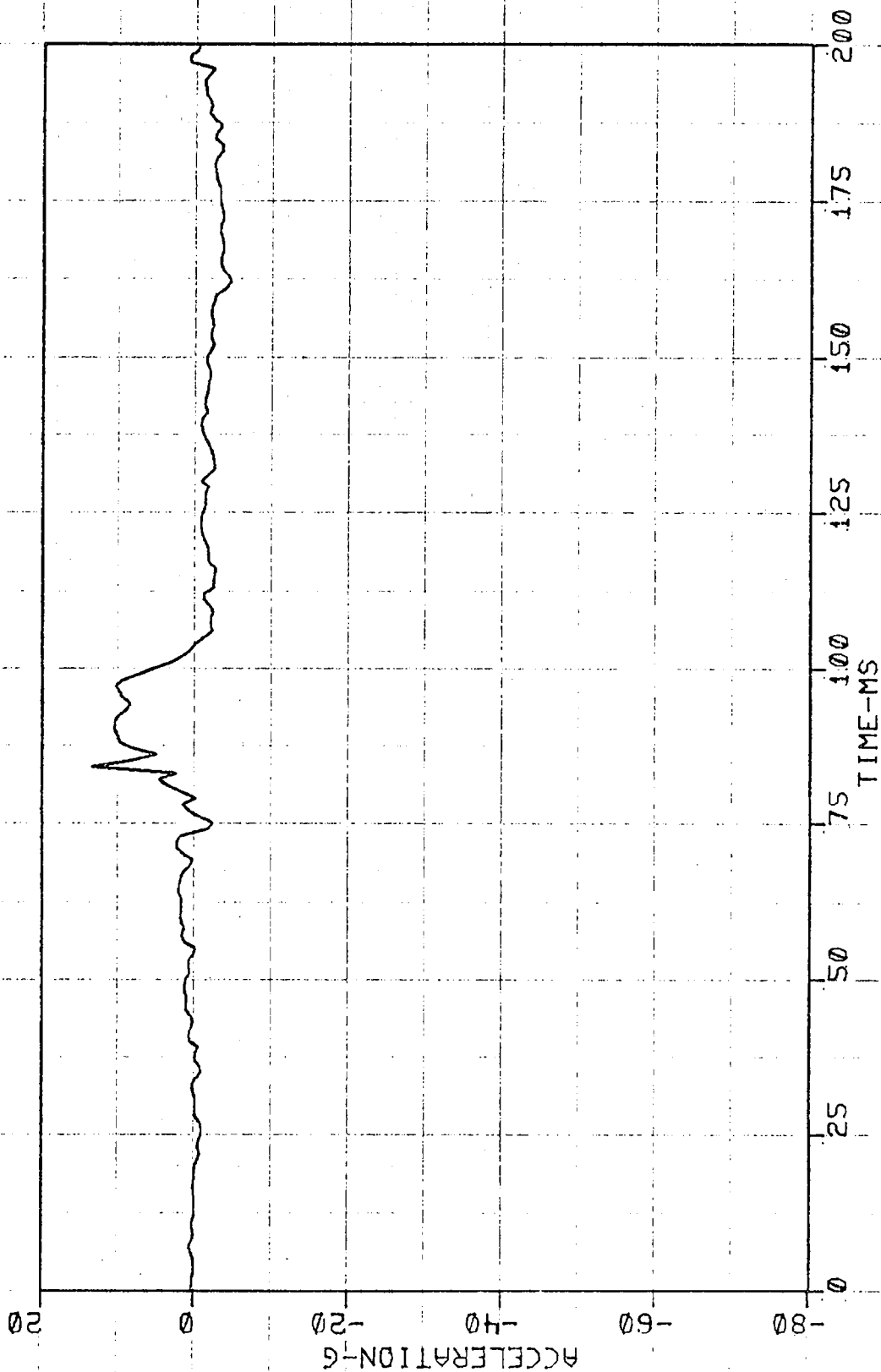


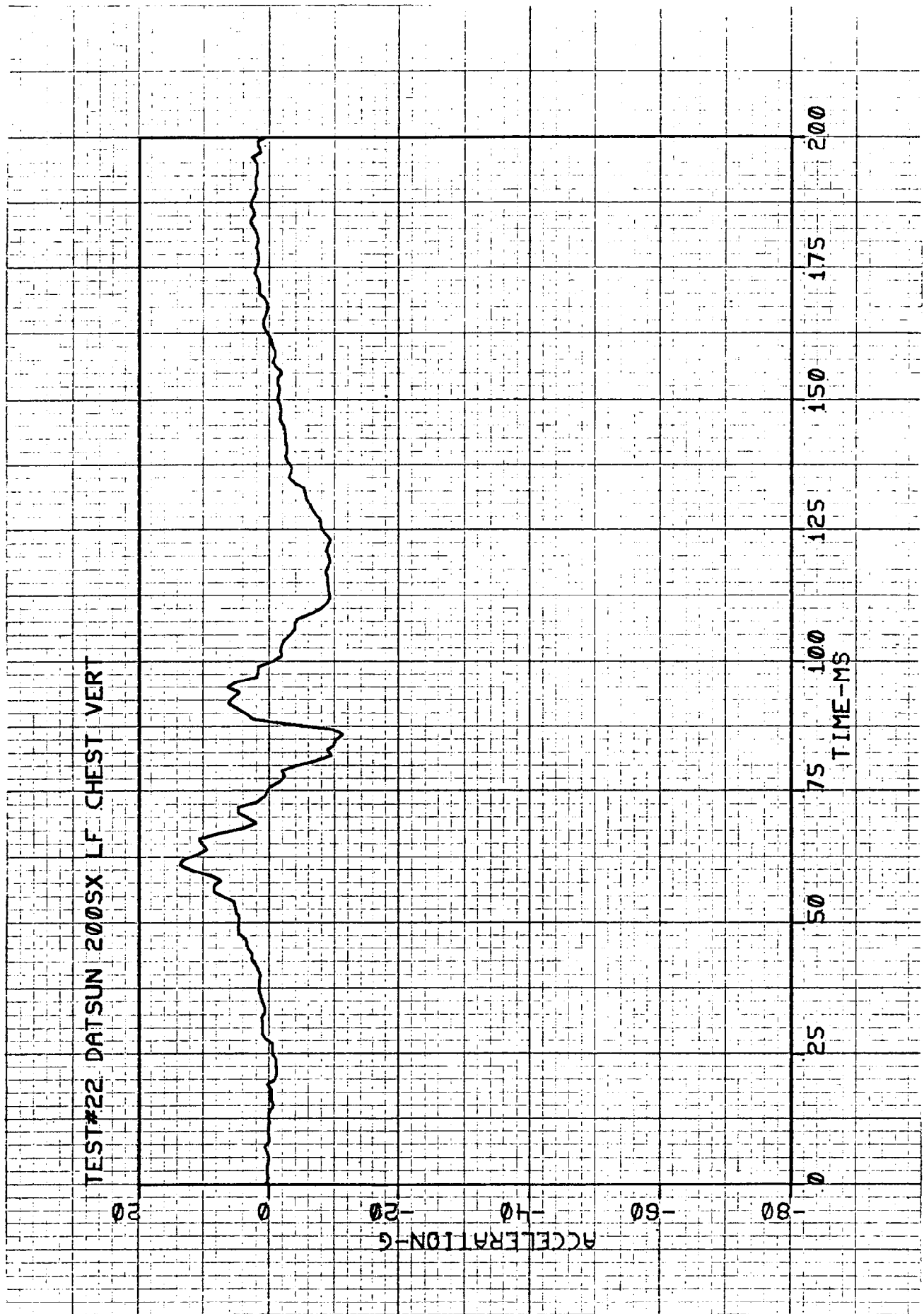


TEST#22 DATSUN 200SX LF CHEST LONG

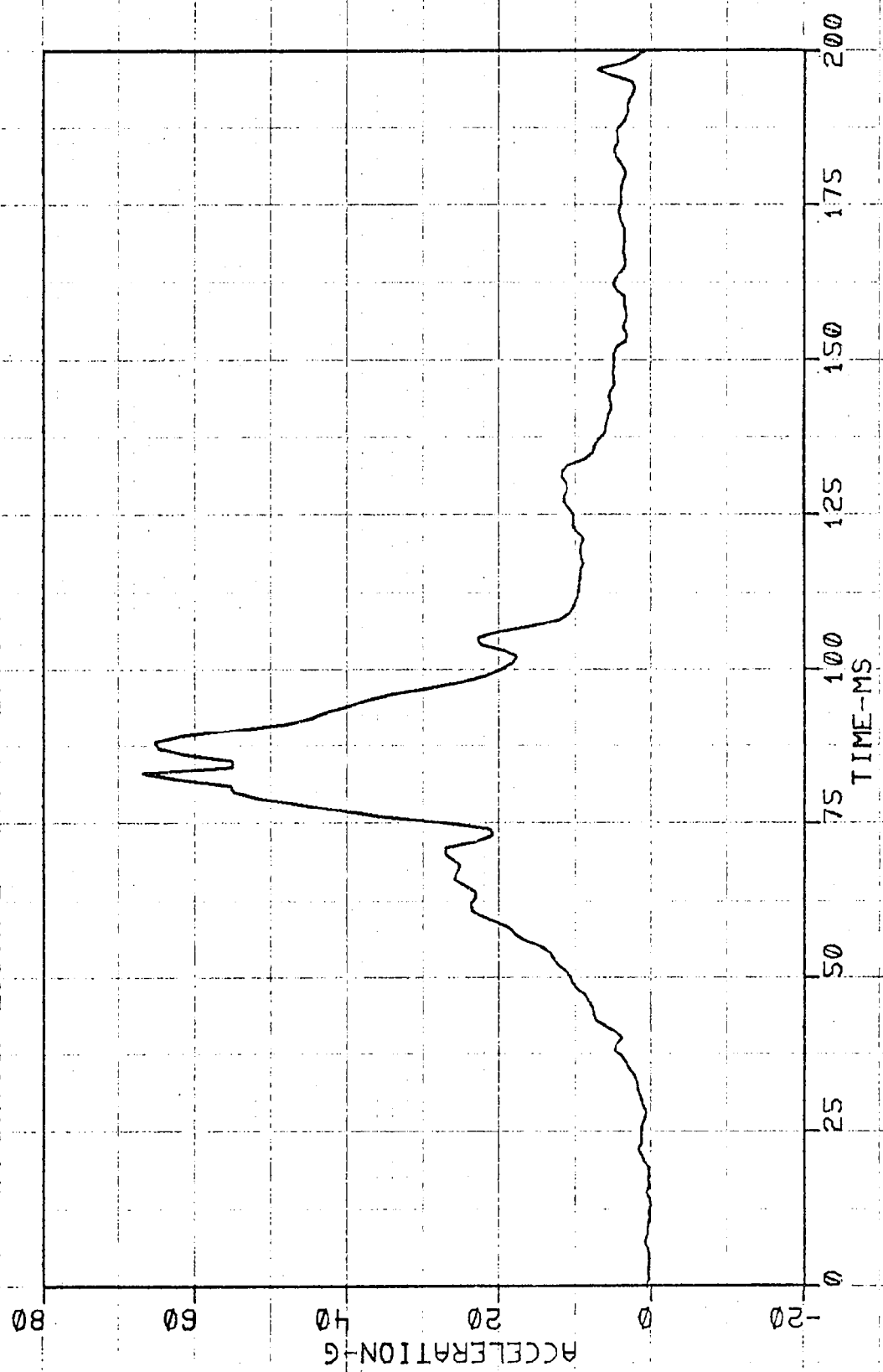


TEST#22 DATSUN 200SX LF CHEST LAT



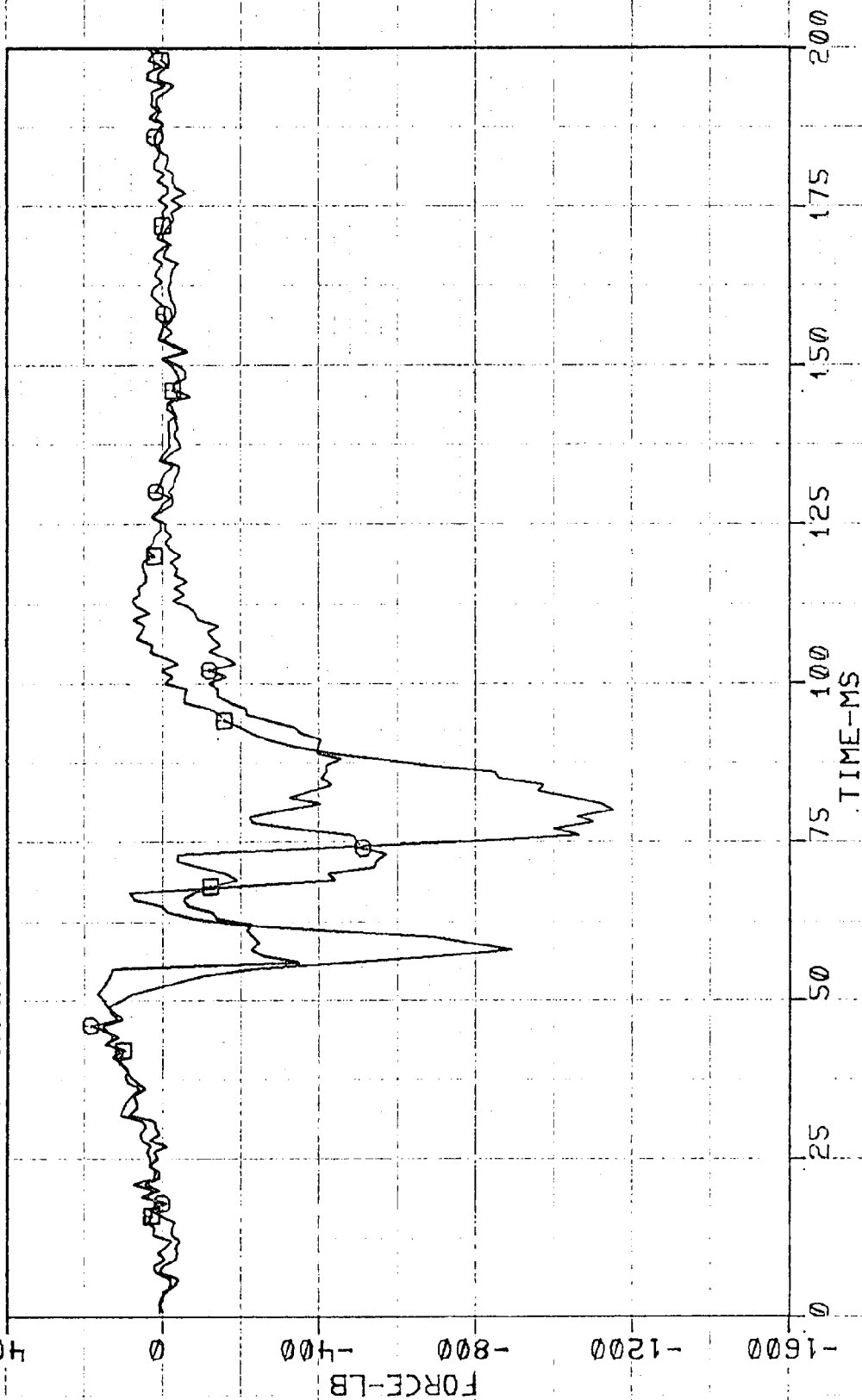


TEST#22 DATSUN 200SX LF CHEST RESULT.



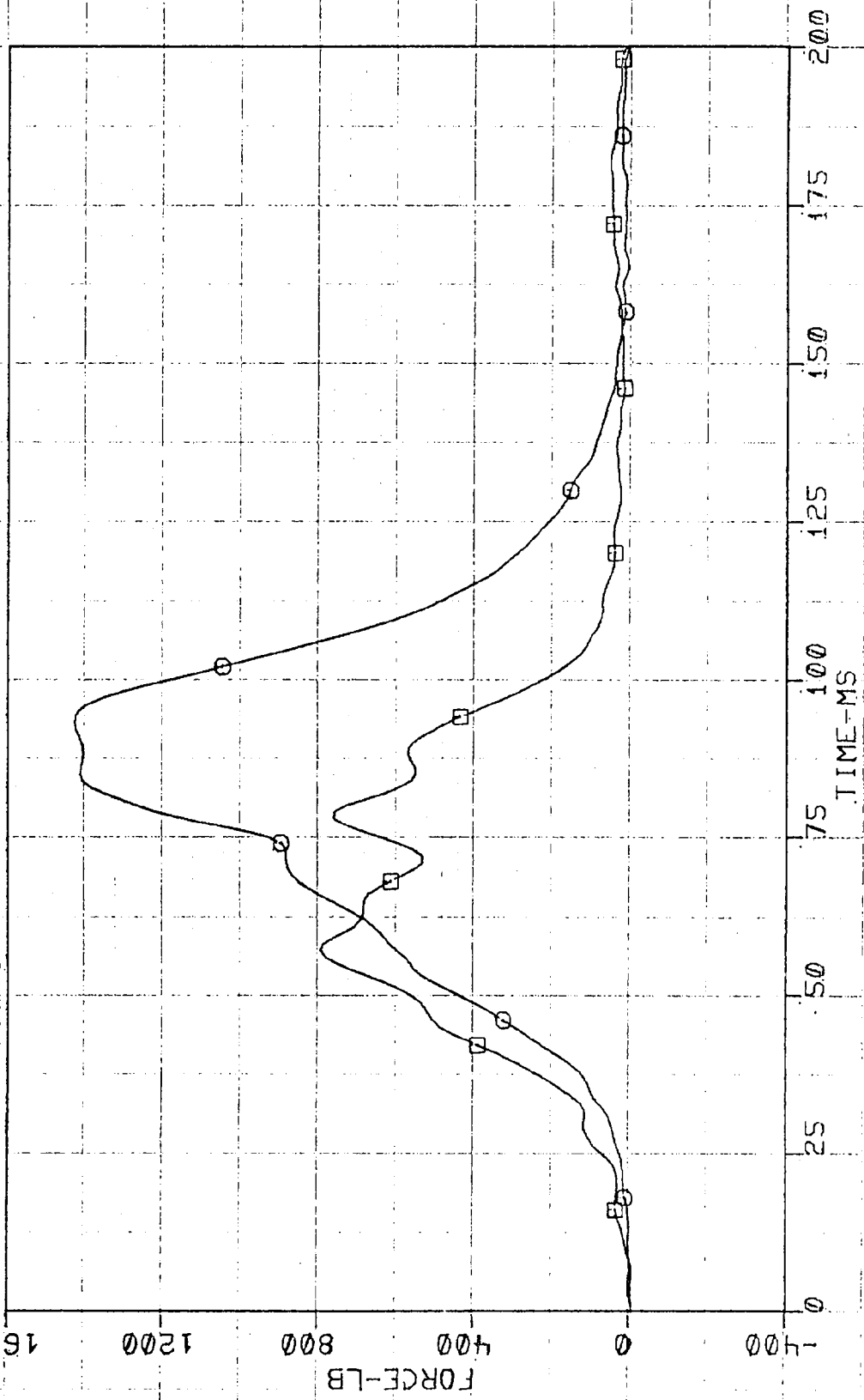
TEST#22 DATSUN 200SX LF FEMURS

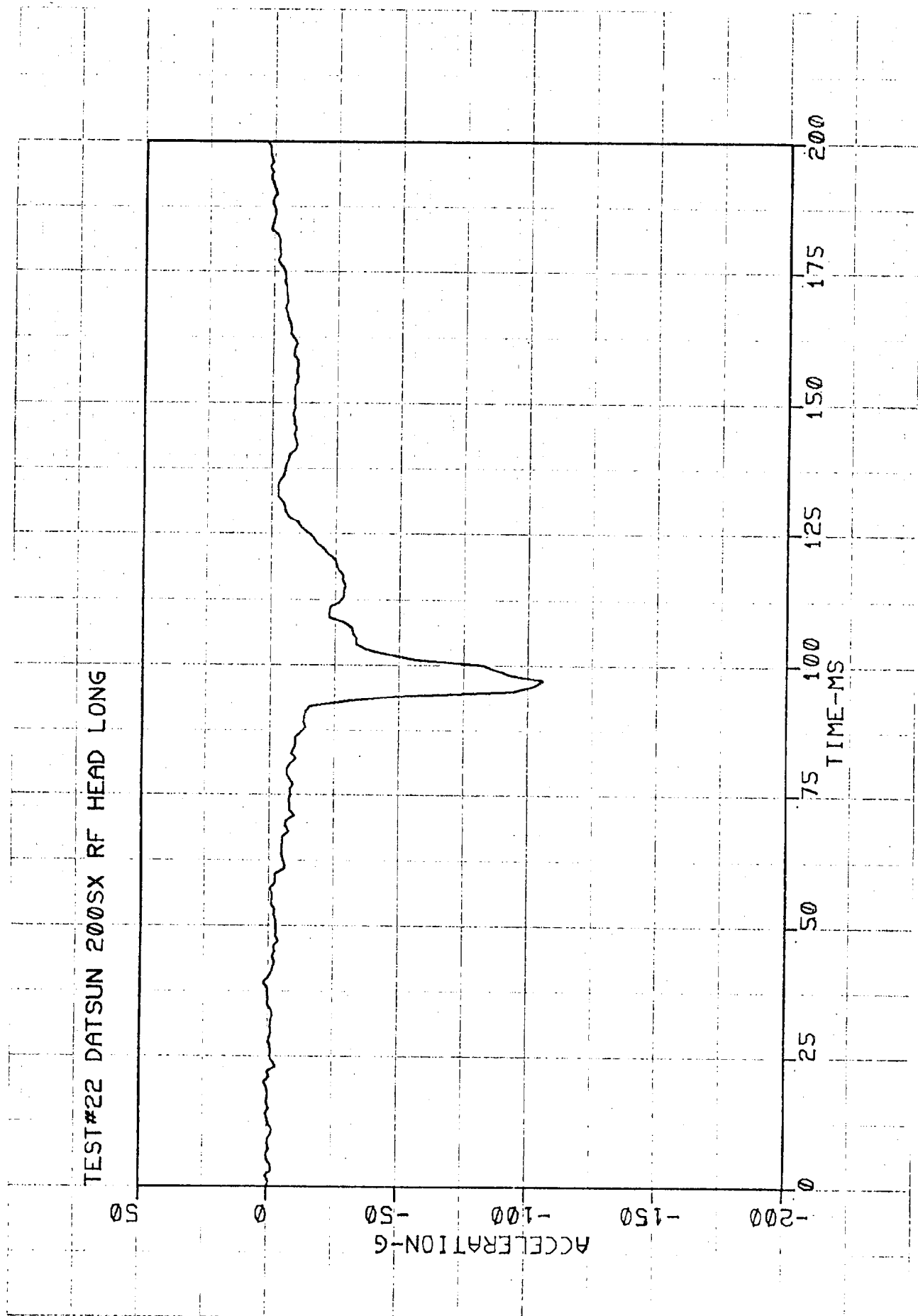
□ = LEFT ○ = RIGHT



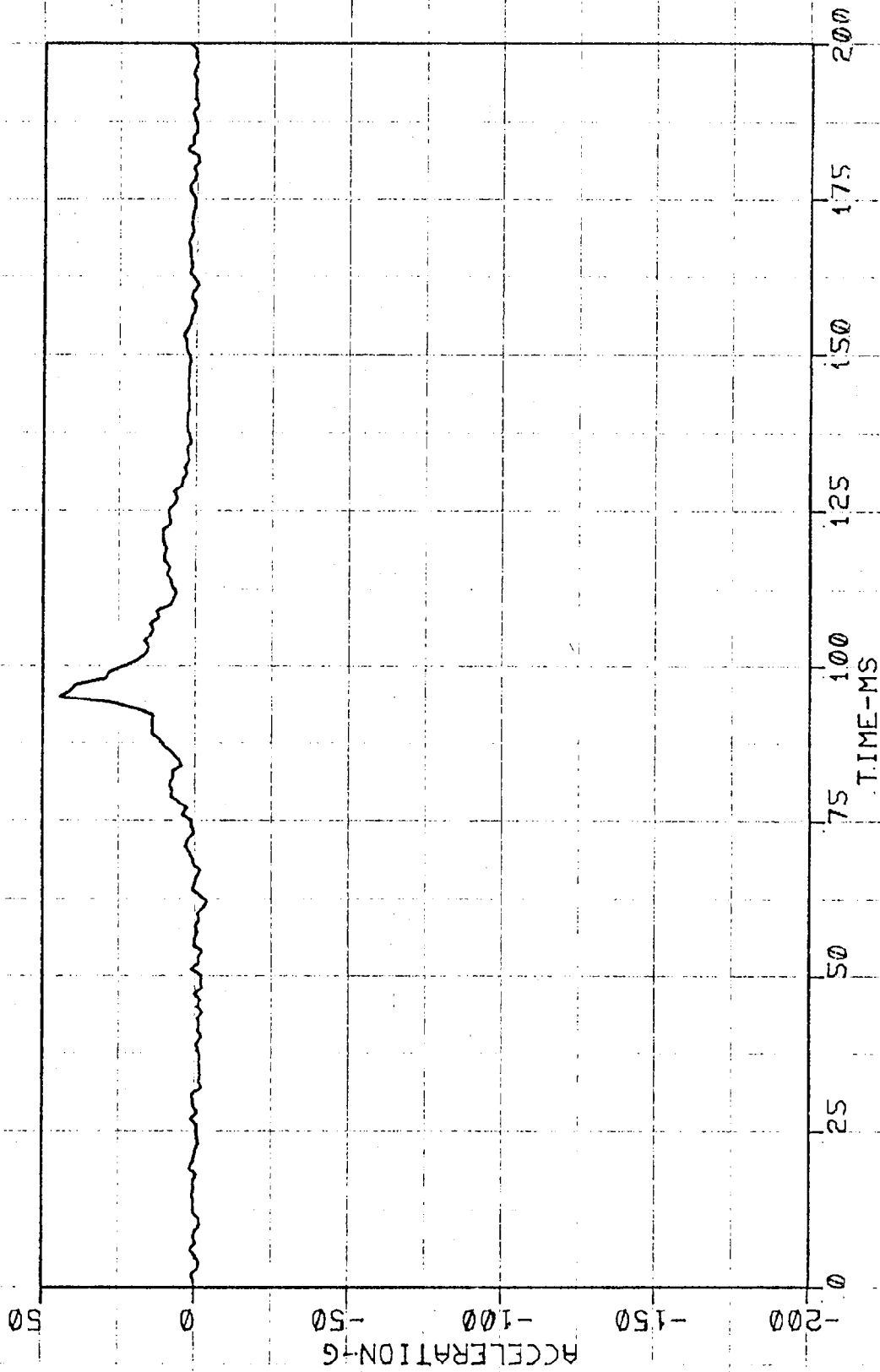
TEST#22 DAISUN 200SX LF. BELT LOADS

□=LAP BELT ○= TORSO

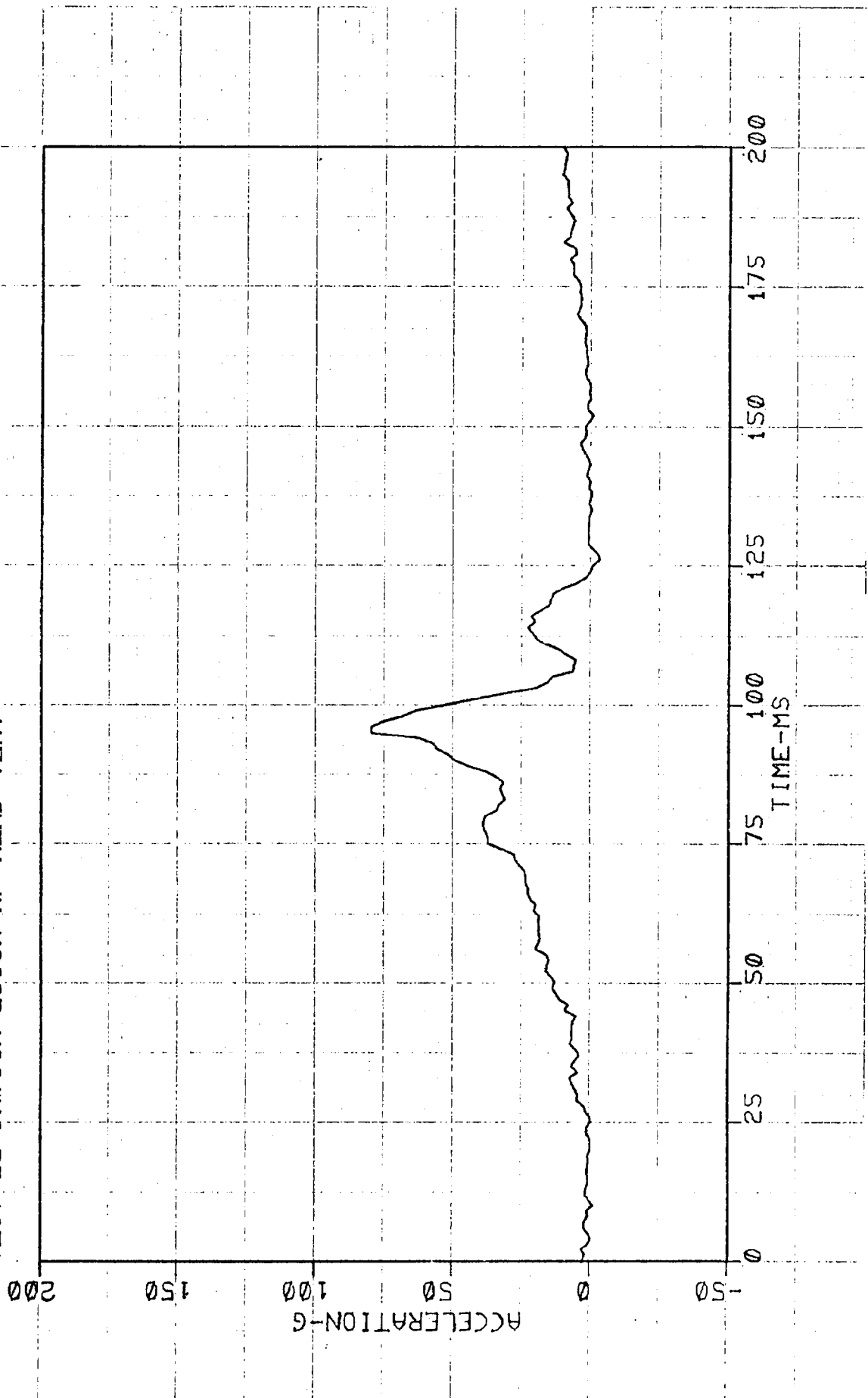




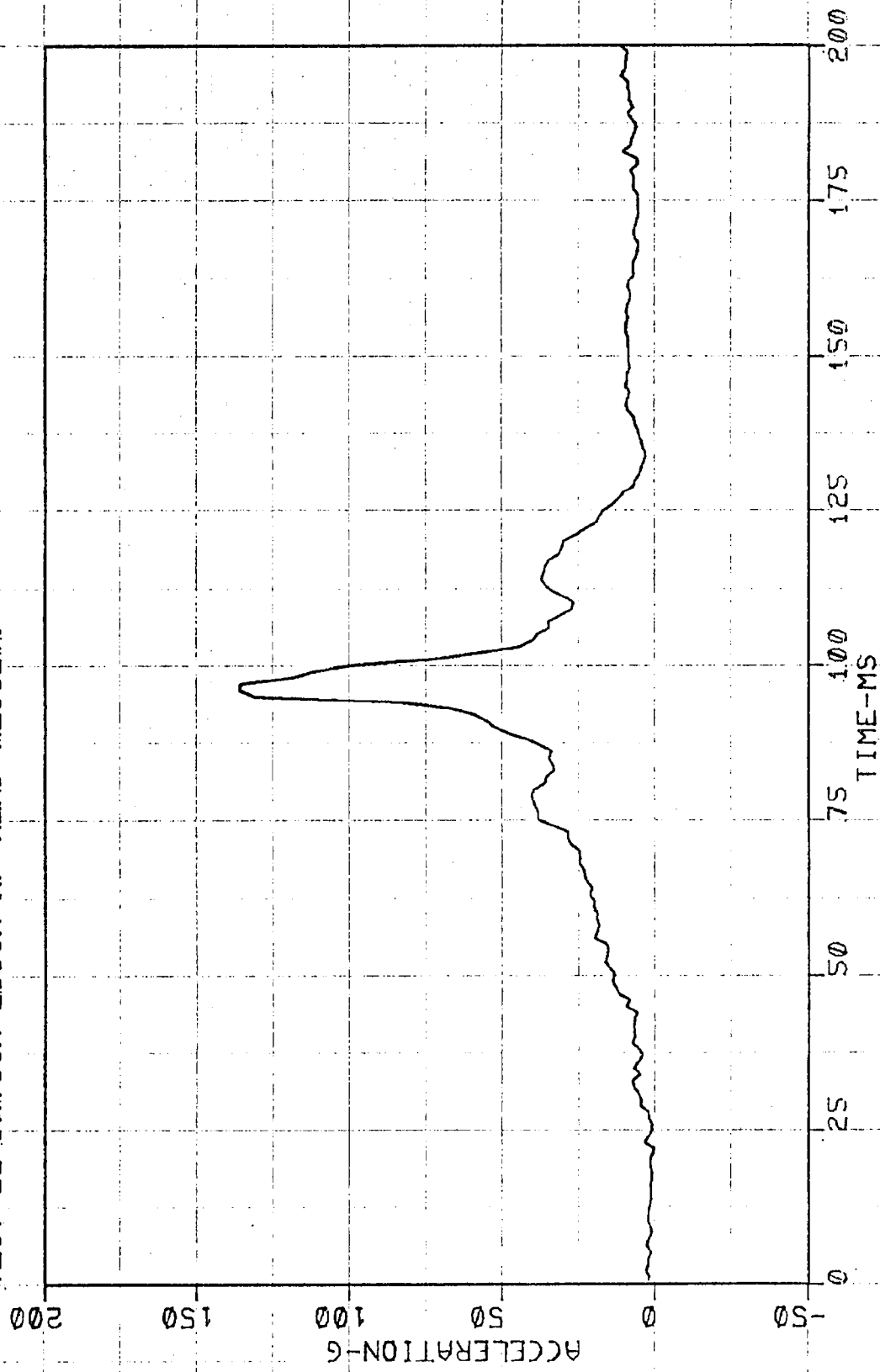
TEST#22 DATSUN 200SX RF HEAD LAT



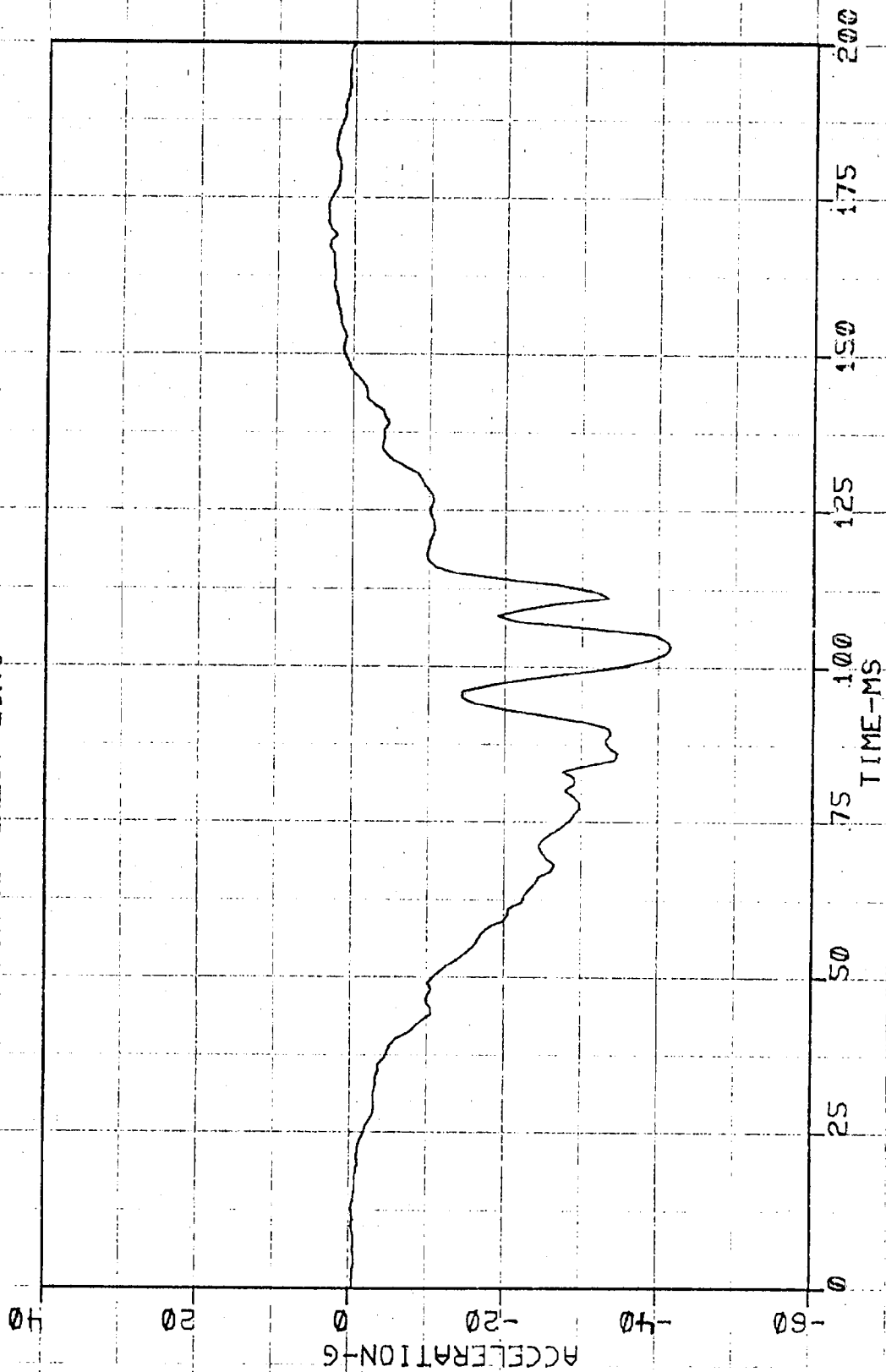
TEST#22 DATSUN 200SX RF HEAD VERT



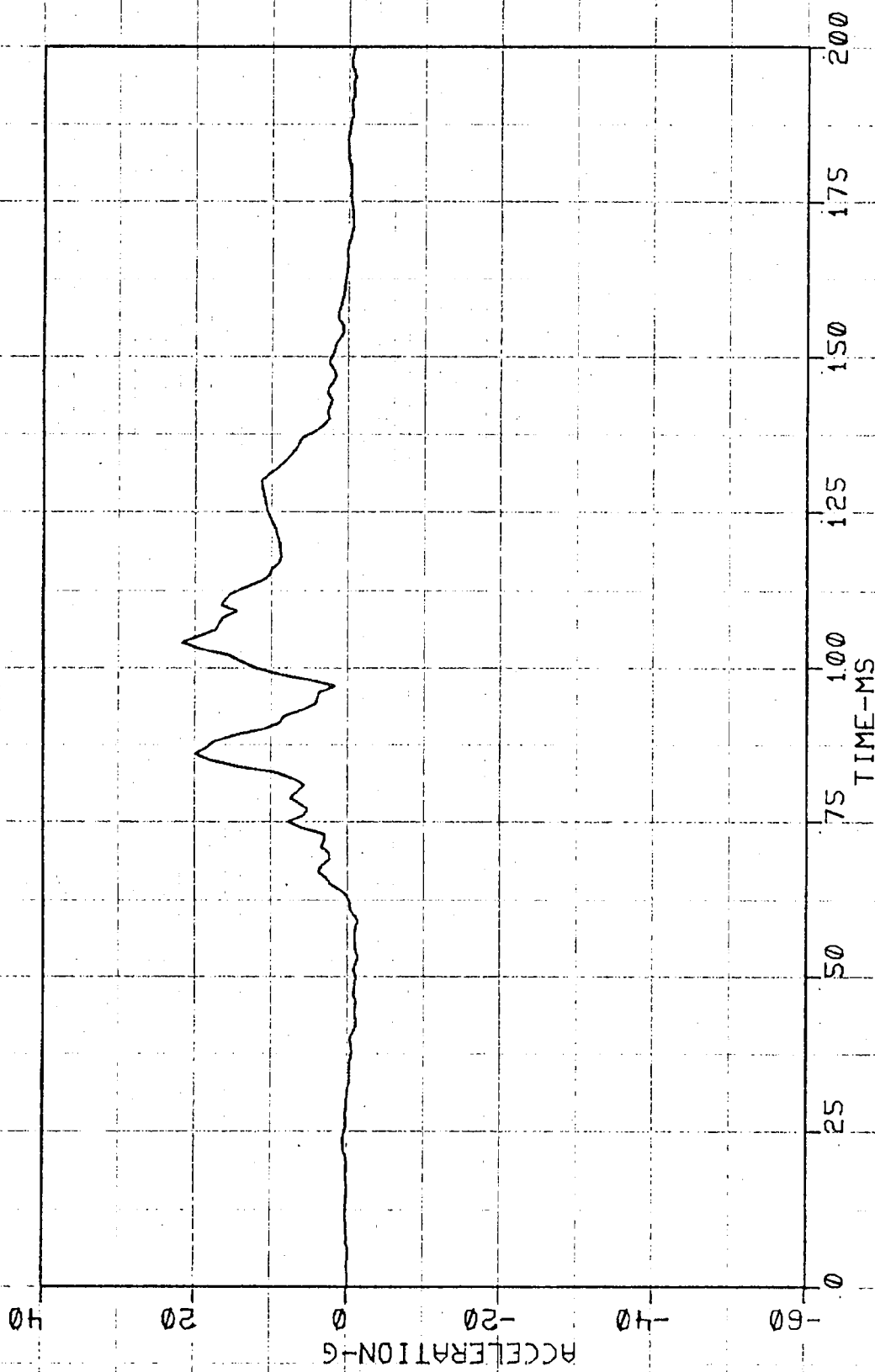
TEST#22 DATSUN 200SX RF HEAD RESULT.



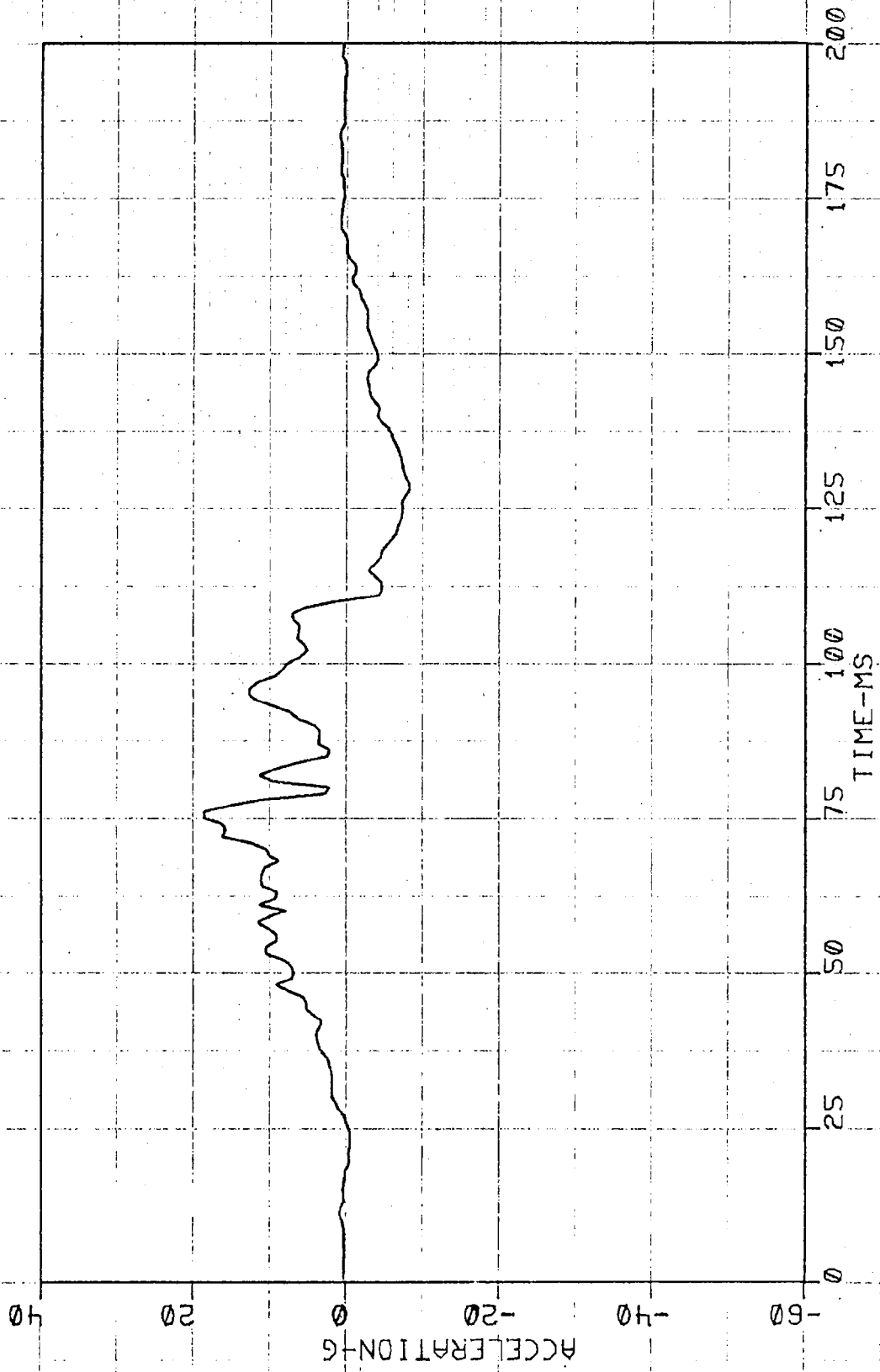
TEST#22 DATSUN 200SX RF CHEST LONG



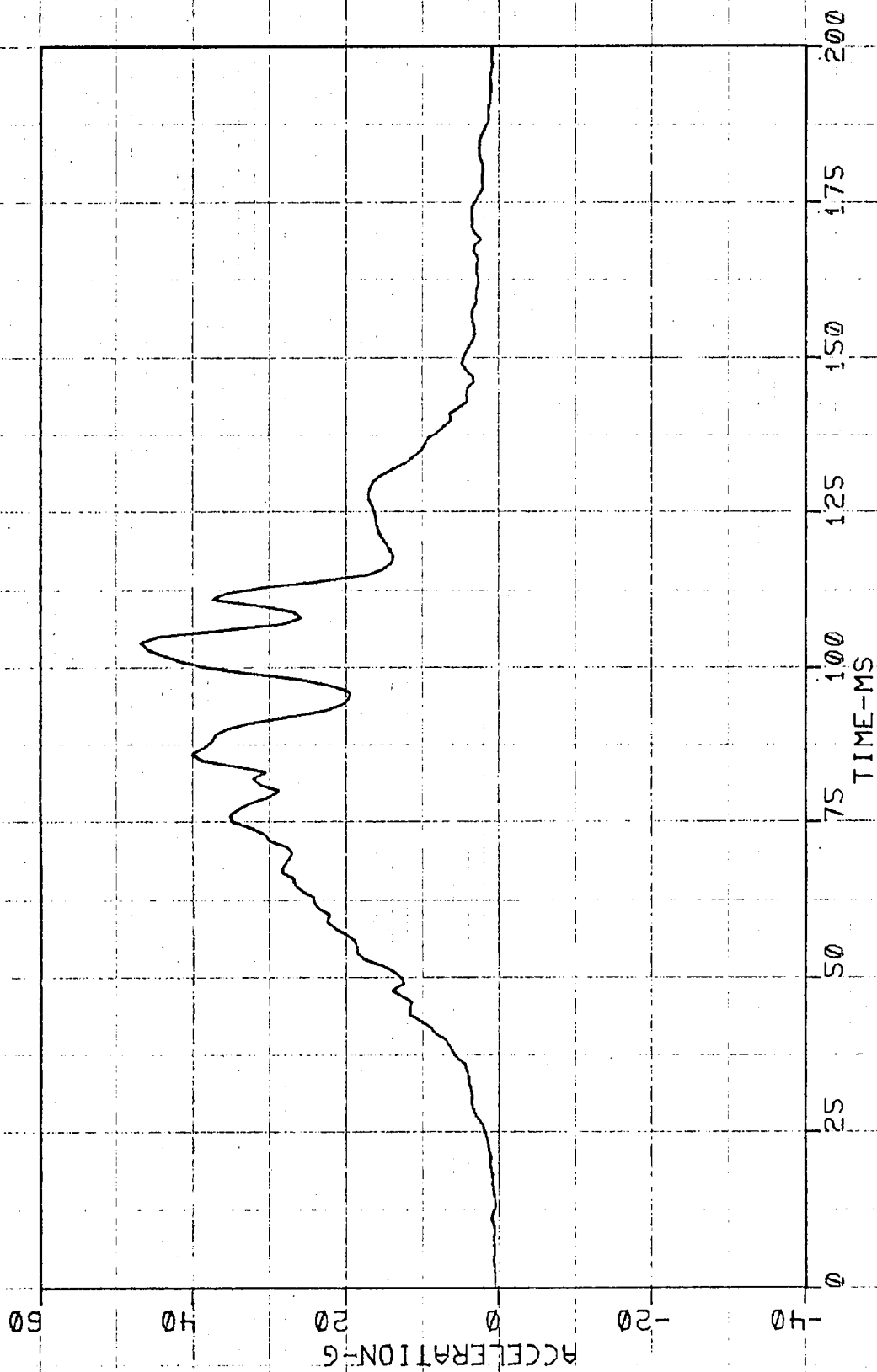
TEST#22 DATSUN 200SX RF CHEST LAT



TEST#22 DATSUN 200SX RF CHEST VERT

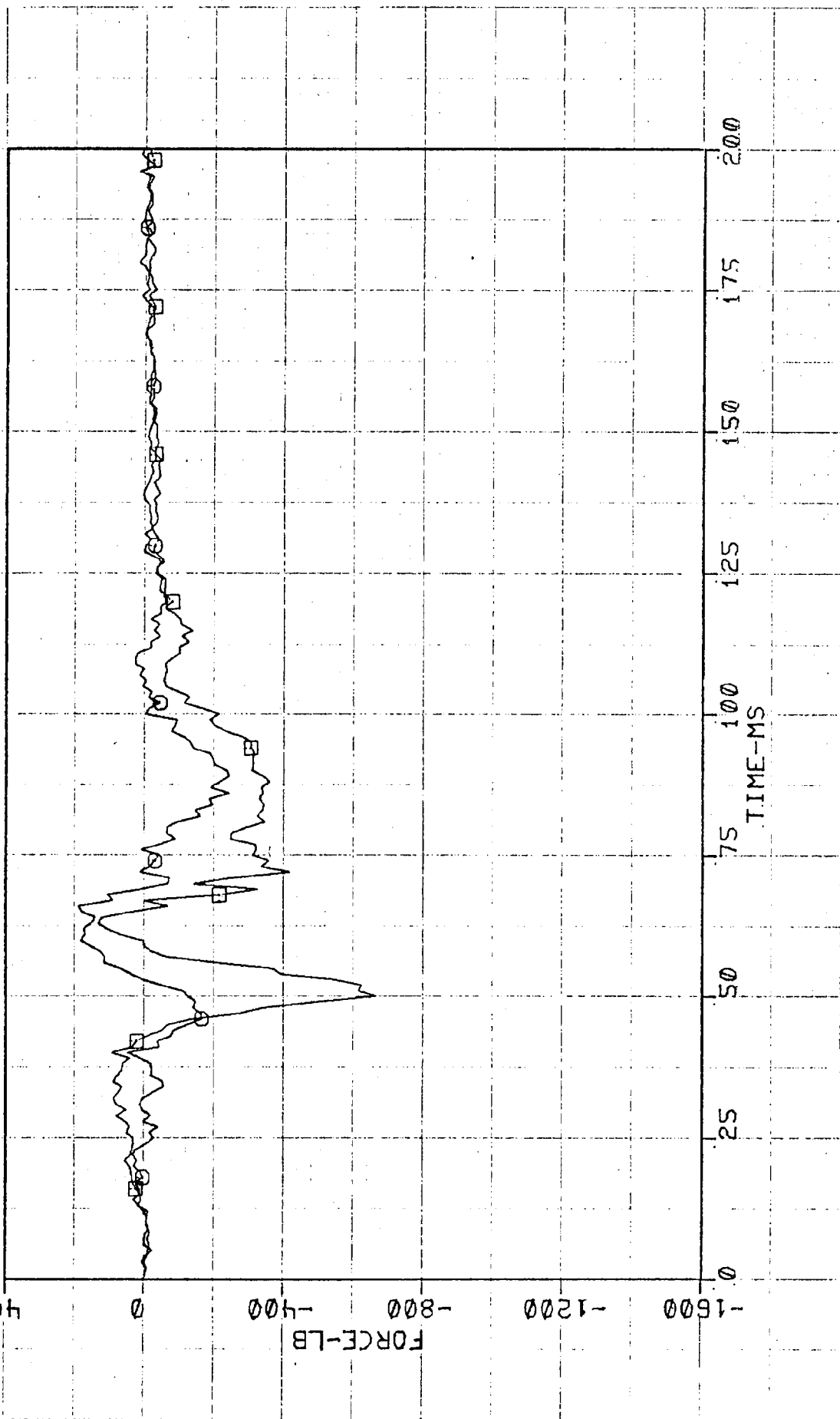


TEST#22 DATSUN 200SX RF CHEST RESULT.



TEST#22 DATSUN 200SX RF FEMURS

□ = LEFT ○ = RIGHT



TEST#22 DATSUN 200SX RF BELT LOADS

□ = LAP BELT ○ = TORSO

1600

1200

800

FORCE-LB

400

0

-400

25

50

75

100

125

150

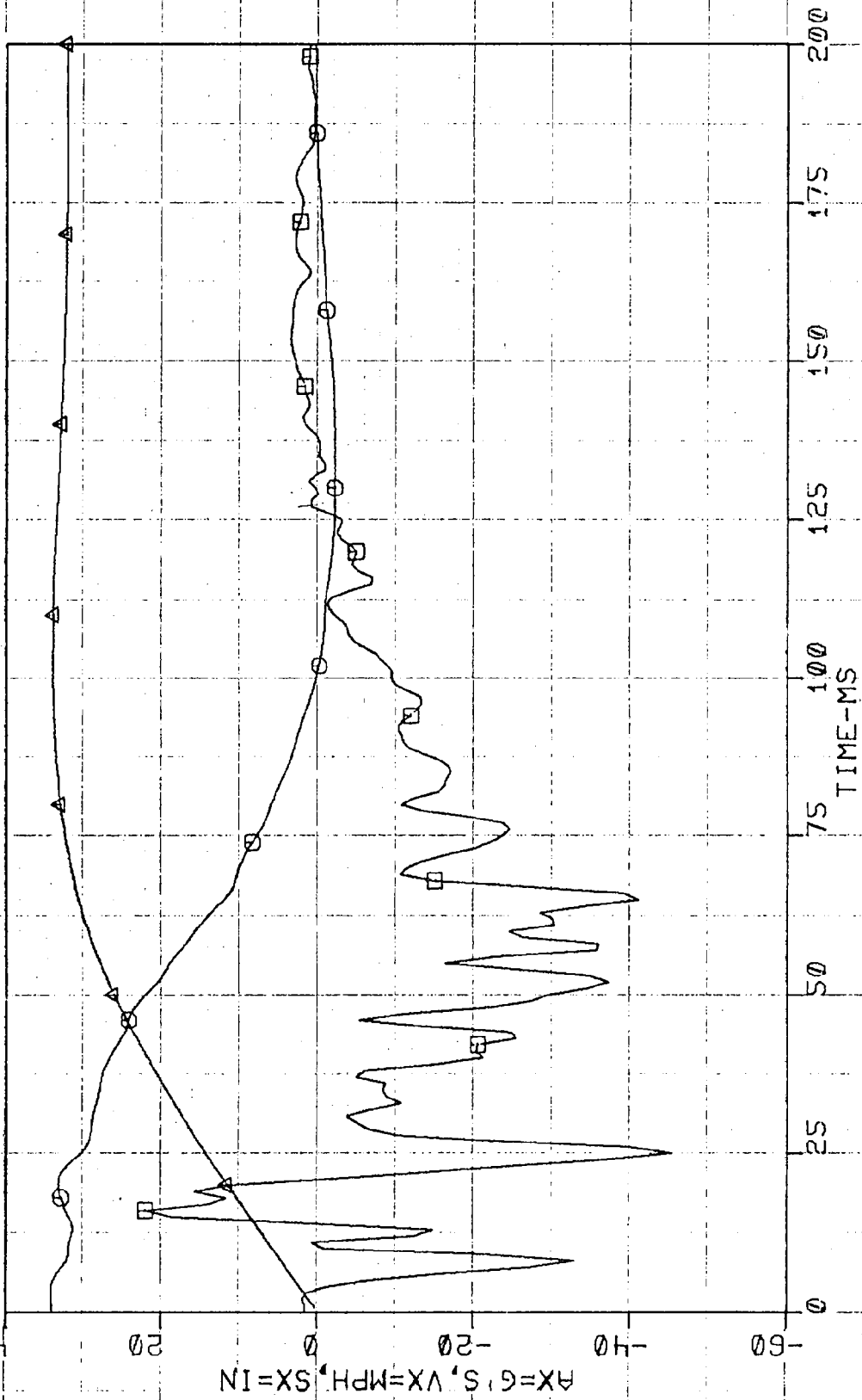
175

200

TIME-MS

TEST#22 DATSUN 200SX LOC 1

□ = AX ○ = VX △ = SX

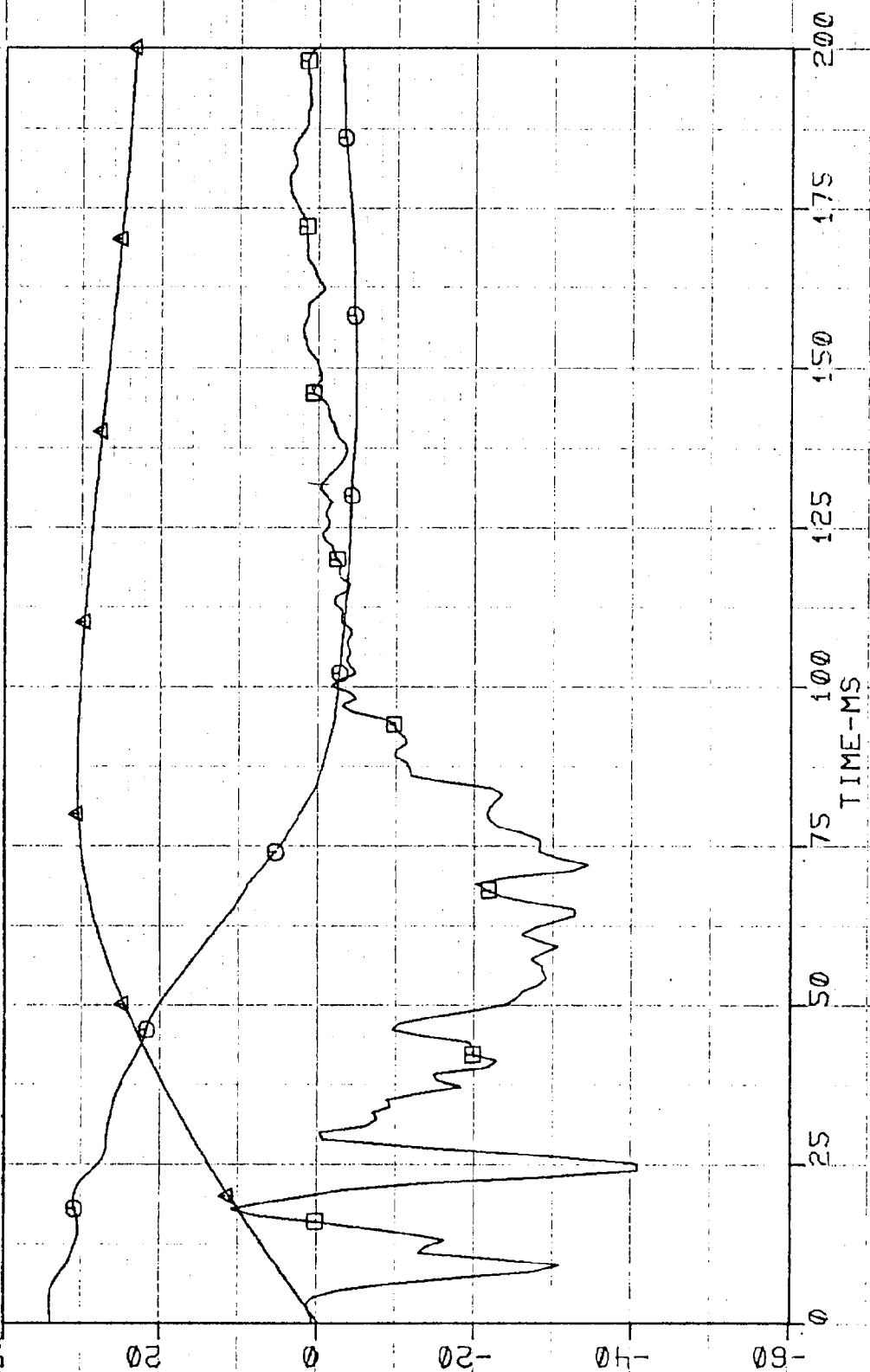


TEST#22 DATSUN 200SX LOC 2

□ = AX ○ = VX △ = SX

AX=G'S, VX=MPH, SX=IN

TIME-MS



APPENDIX C
DUMMY CERTIFICATION DATA

PART 572 DUMMY CALIBRATION TEST DATA

NHTSA Dummy I.D. No.: A 0 3

Laboratory Technician: M. Finnegan/V. Agnihotri/R. Bishop

	Pre-test Calibration	Post-test Calibration
Date of Dummy Calibration	11/28/79	5/08/80
Calibration Sequential Number for Dummy	8	9
Temperature in Lab. (Spec. = 66 to 78 °F)	74°	72°
Relative Humidity in Lab. (Spec. = 10 to 70%)		

Test Parameter	Specification			
1. Head Drop Test:				
a. Peak Resultant Accel	210 - 260G	253	225	
b. Peak Lateral Accel	≤ 10G	6.31	4.5	
c. Time above 100G	0.9 - 1.5 ms	1.0	1.0	
2. Neck Bending Test:				
a. Pendulum Speed	21.5 - 25.5 fps	21.8	21.9	
b. Pendulum Avg Decel (over t ₃ - t ₂)	20 - 24G	23.5	20.6	
c. Peak Resultant Head Acceleration	26G Maximum	22.2	21.3	
d. Pendulum Decel (t ₂ - t ₁)	≤ 3 ms	2.0	2.2	
e. Pendulum Decel (t ₃ -t ₂)	25 - 30 ms	26.0	29.7	
f. Pendulum Decel (t ₄ -t ₃)	≤ 10 ms	3.5	2.8	
g. Pendulum Direction Reversal Time	≥ 123 ms			
h. Maximum Head Rota- tion	63 to 73°	72.6	67.6	
i. Chordal Displacement:				
Head Rotation Angle				
0°	Time	-2 - 2 ms	0	0
	Displ	-0.5 - 0.5 in.	0	0
30°	Time	25.6 - 34.4 ms	26.0	31.0
	Displ	2.1 - 3.1 in.	2.5	2.4
60°	Time	40.3 - 51.7 ms	40.0	48.0
	Displ	4.3 - 5.3 in.	4.9	4.6
Maximum	Time	53.2 - 66.8 ms	60.0	59.0
	Displ	5.0 - 6.0 in.	5.6	5.2

PART 572 DUMMY CALIBRATION TEST DATA (CONTINUED)

NHTSA Dummy I.D. No.: A 0 3

Test Parameter		Specification	Pre-test Calibration	Post-test Calibration
2. Neck Bending Test: (Continued)				
Head Rotation Angle				
60°	Time	67.0 - 83.0 ms	76.0	75.0
	Displ	4.3 - 5.3 in.	4.9	4.6
30°	Time	85.4 - 104.6 ms	91.0	91.0
	Displ	2.1 - 3.1 in.	2.5	2.4
0°	Time	101.0 - 123.0 ms	106.0	109.0
	Displ	-0.5 - 0.5 in.	0.0	0.0
3. Abdominal Compression Test: (Preload = 10 pounds)				
a. Force at 0.5 in.		14 - 26 lb	20.5	20.8
b. Force at 0.75 in.		27 - 40 lb	32.2	32.4
c. Force at 1.0 in.		40 - 53 lb	47.7	48.0
d. Force at 1.3 in.		63 - 78 lb	66.0	70.6
4. Lumbar Flexion Test:				
a. Force at 20°		22 - 34 lb	29.0	28.4
b. Force at 30°		34 - 46 lb	43.0	45.1
c. Force at 40°		46 - 58 lb	45.5	47.5
d. Return Angle		12° Maximum	12°	1.8°
5. Chest Impact Tests:				
a. High Speed				
1) Probe Speed		21.78-22.22 fps	22.0	22.0
2) Peak Deflection		1.7 in. Maximum	1.5	1.5
3) Peak Resistive Force		2250 lb Maximum	2050.0	1900.0
4) Internal Hysteresis		50 - 70%	66.2	69.5
a. Low Speed				
1) Probe Speed		13.86-14.14 fps	13.9	14.0
2) Peak Deflection		1.1 in. Maximum	0.96	0.96
3) Peak Resistive Force		1450 lb Maximum	1300.0	1446.0
4) Internal Hysteresis		50 - 70%	66.4	68.4

PART 572 DUMMY CALIBRATION TEST DATA (CONTINUED)

NHTSA Dummy I.D. No.: A 0 3

Test Parameter	Specification	Pre-test	Post-test
		Calibration	Calibration
6. Knee Impact Tests:			
a. Right Side			
1) Probe Speed	6.76 - 7.04 fps	6.82	6.81
2) Maximum Force	1850 - 2500 lb	2238.0	2037.0
3) Time >1000 lb	1.7 ms Minimum	1.75	1.75
a. Left Side			
1) Probe Speed	6.76 - 7.04 fps	6.82	6.81
2) Maximum Force	1850 - 2500 lb	2450.0	2483.0
3) Time >1000 lb	1.7 ms Minimum	2.5	1.8

PART 572 DUMMY CALIBRATION TEST DATA (CONTINUED)

NHTSA Dummy I.D. No.: A 0 4

Test Parameter	Specification	Pre-test Calibration	Post-test Calibration
2. Neck Bending Test: (Continued)			
Head Rotation Angle			
60°	Time	67.0 - 83.0 ms	72.0
	Displ	4.3 - 5.3 in.	4.5
30°	Time	85.4 - 104.6 ms	90.0
	Displ	2.1 - 3.1 in.	2.3
0°	Time	101.0 - 123.0 ms	101.0
	Displ	-0.5 - 0.5 in.	0.0
3. Abdominal Compression Test: (Preload = 10 pounds)			
a. Force at 0.5 in.	14 - 26 lb	22.4	23.7
b. Force at 0.75 in.	27 - 40 lb	34.8	37.6
c. Force at 1.0 in.	40 - 53 lb	50.7	52.1
d. Force at 1.3 in.	63 - 78 lb	69.5	71.8
4. Lumbar Flexion Test:			
a. Force at 20°	22 - 34 lb	29.5	33.0
b. Force at 30°	34 - 46 lb	44.2	45.1
c. Force at 40°	46 - 58 lb	53.0	47.5
d. Return Angle	12° Maximum	7.2	9.5
5. Chest Impact Tests:			
a. High Speed			
1) Probe Speed	21.78-22.22 fps	22.0	22.0
2) Peak Deflection	1.7 in. Maximum	1.65	1.47
3) Peak Resistive Force	2250 lb Maximum	1933.0	2141.0
4) Internal Hysteresis	50 - 70%	65.1	65.2
a. Low Speed			
1) Probe Speed	13.86-14.14 fps	13.9	13.9
2) Peak Deflection	1.1 in. Maximum	1.0	0.9
3) Peak Resistive Force	1450 lb Maximum	1239.0	1331.0
4) Internal Hysteresis	50 - 70%	61.7	65.0

PART 572 DUMMY CALIBRATION TEST DATA

NHTSA Dummy I.D. No.: A 0 4

Laboratory Technician: C. Brugaletta

		Pre-test Calibration	Post-test Calibration
Date of Dummy Calibration		12/04/79	5/08/80
Calibration Sequential Number for Dummy		8	9
Temperature in Lab. (Spec. = 66 to 78 °F)		75°	72°
Relative Humidity in Lab. (Spec. = 10 to 70%)			
Test Parameter	Specification		
1. Head Drop Test:			
a. Peak Resultant Accel	210 - 260G	223	241
b. Peak Lateral Accel	≤ 10G	8.8	6.3
c. Time above 100G	0.9 - 1.5 ms	1.0	1.3
2. Neck Bending Test:			
a. Pendulum Speed	21.5 - 25.5 fps	21.7	21.9
b. Pendulum Avg Decel (over t ₃ - t ₂)	20 - 24G	23.0	22.9
c. Peak Resultant Head Acceleration	26G Maximum	18.4	19.0
d. Pendulum Decel (t ₂ - t ₁)	≤ 3 ms	2.0	2.0
e. Pendulum Decel (t ₃ -t ₂)	25 - 30 ms	27.0	25.0
f. Pendulum Decel (t ₄ -t ₃)	≤ 10 ms	4.5	9.5
g. Pendulum Direction Reversal Time	≥ 123 ms		
h. Maximum Head Rota- tion	63 to 73°	66.3	72.3
i. Chordal Displacement:			
Head Rotation Angle			
0°	Time -2 - 2 ms	0	0
	Displ -0.5 - 0.5 in.	0	0
30°	Time 25.6 - 34.4 ms	31.0	28.0
	Displ 2.1 - 3.1 in.	2.3	2.3
60°	Time 40.3 - 51.7 ms	49.0	45.0
	Displ 4.3 - 5.3 in.	4.5	4.4
Maximum	Time 53.2 - 66.8 ms	60.0	59.0
	Displ 5.0 - 6.0 in.	5.0	5.2

PART 572 DUMMY CALIBRATION TEST DATA (CONTINUED)

NHTSA Dummy I.D. No.: A 0 4

Test Parameter	Specification	Pre-test	Post-test
		Calibration	Calibration
6. Knee Impact Tests:			
a. Right Side			
1) Probe Speed	6.76 - 7.04 fps	6.8	6.8
2) Maximum Force	1850 - 2500 lb	2231.0	2170.0
3) Time >1000 lb	1.7 ms Minimum	1.8	2.0
a. Left Side			
1) Probe Speed	6.76 - 7.04 fps	6.8	6.83
2) Maximum Force	1850 - 2500 lb	1986.0	2043.0
3) Time >1000 lb	1.7 ms Minimum	1.8	2.0