

DOT 1384

REPORT NOS. 208-TRC-90-006
212-TRC-90-006
301-TRC-90-006

VEHICLE SAFETY COMPLIANCE TESTING
FOR OCCUPANT CRASH PROTECTION,
WINDSHIELD MOUNTING, WINDSHIELD ZONE
INTRUSION, AND FUEL SYSTEM INTEGRITY

NISSAN MOTOR COMPANY, LTD.

1990 NISSAN STANZA

4-DOOR SEDAN

NHTSA NO. CL5201

TRC TEST NO. 900111

THE TRANSPORTATION RESEARCH CENTER OF OHIO
U.S. RT. 33, LOGAN COUNTY
EAST LIBERTY, OHIO 43319



JANUARY 30, 1990

FINAL REPORT

PREPARED FOR:

U.S. DEPARTMENT OF TRANSPORTATION
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
OFFICE OF VEHICLE SAFETY COMPLIANCE
400 SEVENTH STREET, S.W.
ROOM NO. 6115 (NEF-31)
WASHINGTON, DC 20590

This Final Test Report was prepared for the U.S. Department of Transportation, National Highway Traffic Safety Administration, under Contract No. DTNH22-88-C-11038. This document is disseminated under the sponsorship of the U.S. Department of Transportation in the interest of information exchange. The United States Government assumes no liability for its contents or use thereof.

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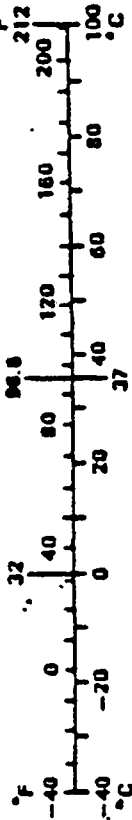
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1. Report No 208-TRC-90-006 212-TRC-90-006 301-TRC-90-006		2. Government Accession No.		3. Recipient's Catalog No.	
4. Title and Subtitle FINAL REPORT OF FMVSS NOS. 208, 212, 219 (PARTIAL), AND 301 COMPLIANCE TESTING OF A 1990 NISSAN STANZA 4-DOOR SEDAN, NHTSA NO. CL5201				5. Report Date JANUARY 1990	
				6. Performing Organization Code	
				8. Performing Organization Report No. 208-TRC-90-006, 212-TRC-90-006 301-TRC-90-006	
7. Author(s) J.W. Sankey, Supervisor, Laboratory Engineering, TRC				9. Performing Organization Name and Address Transportation Research Center of Ohio U.S. Rt. 33, Logan County East Liberty, Ohio 43319	
12. Sponsoring Agency Name and Address U.S. Department of Transportation National Highway Traffic Safety Administration Office of Vehicle Safety Compliance (NEF-31) 400 Seventh St., S.W., Washington, DC 20590				10. Work Unit No. (TRAIS)	
				11. Contract or Grant No. DTNH22-88-C-11038	
				13. Type of Report and Period Covered FINAL REPORT JANUARY 1990	
15. Supplementary Notes				14. Sponsoring Agency Code DOT/NHTSA/NEF/OVSC	
16. Abstract A 30 mph flat frontal barrier impact compliance test was conducted on a 1990 Nissan Stanza 4-door sedan, VIN JN1FU21P7LT200319, NHTSA No. CL5201 at the Transportation Research Center of Ohio on January 11, 1990. This test was conducted to determine compliance with Federal Motor Vehicle Safety Standards: FMVSS No. 208, "Occupant Crash Protection" FMVSS No. 212, "Windshield Mounting" FMVSS No. 219, (Partial), "Windshield Zone Intrusion" FMVSS No. 301, "Fuel System Integrity" The barrier impact velocity was 29.6 mph. The ambient temperature was 72° F The vehicle appears to comply with the applicable requirements of FMVSS Nos. 208, 212, 219 (partial), and 301.					
17. Key Words Frontal Impact 30 mph Vehicle Safety Compliance Testing: FMVSS 208, "Occupant Crash Protection" FMVSS 212, "Windshield Mounting" FMVSS 219, "Windshield Zone Intrusion" FMVSS 301, "Fuel System Integrity"			18. Distribution Statement Available from: Technical Reference Division National Highway Traffic Safety Admin Nassif Building, Room 5108 400 Seventh Street, SW Washington, DC 20590		
19. Security Classif. (of this report) Unclassified		20. Security Classif. (of this page) Unclassified		21. No. of Pages 88	
				22. Price	

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 (10 000 m ²)	2.5	acres	
MASS (weight)				
g	grams	0.035	ounces	oz
kg	kilograms	2.2	pounds	lb
t	metric ton (1000 kg)	1.1	short tons	
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 1.0

PURPOSE AND TEST SUMMARY

PURPOSE

This 30 mph frontal barrier impact test is part of the Federal Motor Vehicle Safety Standard (FMVSS) 208, 212, 219 (Partial), and 301 compliance test program conducted for the National Highway Traffic Safety Administration (NHTSA) by the Transportation Research Center of Ohio (TRC) under Contract No. DTNH22-88-C-11038. The purpose of this test was to determine if the subject vehicle, a 1990 Nissan Stanza 4-door sedan, NHTSA No. CL5201, meets the performance requirements of FMVSS 208, "Occupant Crash Protection"; FMVSS 212, "Windshield Mounting"; FMVSS 219 (partial), "Windshield Zone Intrusion"; and FMVSS 301, "Fuel System Integrity." The test was conducted in accordance with the Office of Vehicle Safety Compliance (OVSC) Laboratory Test Procedure No. TP-208-07.

TEST SUMMARY

The 1990 Nissan Stanza 4-door sedan, NHTSA No. CL5201, was equipped with a 2.4 liter, transverse engine, manual transmission, and power brakes. The test weight of the vehicle was 3267 pounds. The test vehicle appeared to comply with the performance requirements of FMVSS test Nos. 208, 212, 219 (partial), and 301. The Head Injury Criteria (HIC) calculations were less than 1000, the resultant accelerations of the thorax did not exceed 60 g's and the compressive forces transmitted through the upper legs did not exceed 2,250 pounds as measured by Part 572 B dummies seated in the driver's and right front passenger's seats. There was 100 percent windshield retention. There was no intrusion into the windshield. There was no fluid spillage from the fuel system following the impact. No data are available from the static rollover test.

Two (2) Part 572 B, adult male anthropomorphic test devices (ATDs) were seated in the front outboard designated seating positions. The dummies were positioned according to the dummy placement procedures specified in Appendices B and C of Laboratory Procedure TP-208-07.

Both ATDs were instrumented with head and chest accelerometers oriented to measure accelerations in the longitudinal, lateral, and vertical directions, and with right and left femur load cells.

The vehicle was instrumented with seven (7) accelerometers oriented to measure longitudinal axis acceleration.

The crash event was recorded by one (1) real-time panning camera and fourteen (14) high-speed motion picture cameras operating at approximately 500 frames per second. The pre-test and post-test events were recorded with one (1) real-time camera.

The twenty-three (23) channels of data were multiplexed and recorded on a 14-track tape drive. The data was digitally sampled at 8000 samples per second and digitally processed per sections 12.8 and 12.9 of the Laboratory Procedure.

The vehicle was impacted into the rigid, flat frontal barrier at the Transportation Research Center of Ohio on January 11, 1990. The test vehicle's impact speed was 29.6 mph. The vehicle sustained 17.6 inches of static crush.

The FMVSS 208, 212, 219 (partial), and 301 compliance data are presented in Section 2.0. The camera information is presented in Section 3.0. Appendix A contains the still photographic prints. Appendix B contains the vehicle and dummy data plots.

TABLE 1 CRASH TEST SUMMARY

NHTSA NO.:	CL5201	PROJECT:	208 Compliance
DATE:	01/11/90	TIME:	1341 TEMP: 72° F
VEHICLE:	1990 Nissan Stanza 4-door sedan		
TEST WEIGHT (LBS):	3267		
IMPACT ANGLE (DEG)*:	0		
IMPACT VELOCITY (MPH)**:	PRIMARY = 29.6	SECONDARY =	29.6
MAXIMUM STATIC CRUSH (IN):	17.6		
VEHICLE REBOUND (IN):	33.1		
DUMMIES:	Driver #354	Passenger	#690
TYPE:	Part 572 B	Part 572 B	
LOCATION:	Left front	Right front	
RESTRAINT:	2-point passive belt	2-point passive belt	
NUMBER OF DATA CHANNELS:	23		
NUMBER OF HIGH SPEED CAMERAS:	HIGH-SPEED: 14	REAL-TIME:	2

*With respect to tow track centerline.

**Speed trap measurement ($\pm$.05 mph accuracy)

TABLE 2 TEST VEHICLE INFORMATION

VEHICLE MANUFACTURER: Nissan Motor Company, Ltd.

MAKE/MODEL: Nissan/Stanza XE

VIN: JN1FU21P7LT200319

BODY STYLE: 4-door sedan

MODEL YEAR: 1990

NHTSA NO.: CL5201

COLOR: Black

ENGINE DATA: TYPE: Transverse CYLINDERS: 4 DISPLACEMENT: 2.4 liter

TRANSMISSION DATA: 5 SPEED, X MANUAL, AUTOMATIC, X FWD, RWD, 4WD

DATE VEHICLE RECEIVED: 09/29/89

ODOMETER READING: 203.0

DEALER'S NAME AND ADDRESS: Nissan North
8645 North High St.
Worthington, OH 43085

ACCESSORIES:

POWER STEERING Yes
POWER BRAKES Yes
POWER SEATS No
POWER WINDOWS No
TINTED GLASS Yes
RADIO No
CLOCK No
OTHER None

AUTOMATIC TRANSMISSION No
AUTOMATIC SPEED CONTROL No
TILTING STEERING WHEEL Yes
TELESCOPING STEERING WHEEL No
AIR CONDITIONING Yes
ANTI-SKID BRAKE No
REAR WINDOW DEFROSTER Yes

REMARKS:

1. IS THE VEHICLE STOCK THROUGHOUT? Yes
2. DOES VEHICLE SHOW EVIDENCE OF PRIOR ACCIDENT HISTORY? No
3. DOES VEHICLE SHOW ANY SIGNIFICANT CORROSION? No
4. CONDITION OF THE FRONT/REAR BUMPER AND FRAME: Good

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

VEHICLE MANUFACTURED BY: Nissan Motor Company, Ltd.

DATE OF MANUFACTURE: 7/89

GVWR: 3902 LBS

GAWR: FRONT 2140 LBS., REAR 1819 LBS.

TABLE 2 TEST VEHICLE INFORMATION CONT'D

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

VEHICLE LOAD (UP TO CAPACITY): FRONT 29 psi; REAR 26 psi

RECOMMENDED TIRE SIZE: 195/65R14 LOAD RANGE X B, C, D

TIRES ON VEHICLE (MFR., LINE, SIZE): Dunlop/SP Sport D31J 195/65R14

IS SPARE TIRE A "SPACE SAVER": Yes

IS SPARE TIRE STANDARD EQUIPMENT: Yes

VEHICLE CAPACITY: TYPES OF SEATS: FRONT: Bucket
REAR: Bench

TYPE OF FRONT SEAT BACKS: Manual adjustable

NUMBER OF OCCUPANTS 2 FRONT 3 REAR 5 TOTAL

CARGO LOAD 150 LBS. TOTAL 900 LBS.

WEIGHT OF TEST VEHICLE AS RECEIVED FROM DEALER (WITH MAXIMUM FLUIDS):

RIGHT FRONT 902 lbs. RIGHT REAR 517 lbs.

LEFT FRONT 889 lbs. LEFT REAR 499 lbs.

TOTAL FRONT WEIGHT 1791 lbs. (63.8% OF TOTAL VEHICLE WEIGHT)

TOTAL REAR WEIGHT 1016 lbs. (36.2% OF TOTAL VEHICLE WEIGHT)

TOTAL DELIVERED WEIGHT 2807 lbs.

CALCULATION FOR TARGET TEST WEIGHT:

RCLW = RATED CARGO AND LUGGAGE WEIGHT

UDW = UNLOADED DELIVERED WEIGHT (2807 LBS)

VCW = VEHICLE CAPACITY WEIGHT (900 LBS)

DSC = DESIGNATED SEATING CAPACITY (5)

$RCLW = VCW - 150 (DSC) = 900 - 150(5) = 150 \text{ LBS}$

TARGET TEST WEIGHT = UDW + RCLW + (2 DUMMIES X 164 LBS/DUMMY)

$= 2807 + 150 + 328 \text{ LBS}$

TARGET TEST WEIGHT = 3285 LBS

TABLE 2 TEST VEHICLE INFORMATION CONT'D

WEIGHT OF TEST VEHICLE WITH REQUIRED DUMMIES AND 132 LBS. CARGO:

RIGHT FRONT	954 lbs.	RIGHT REAR	709 lbs.
LEFT FRONT	927 lbs.	LEFT REAR	677 lbs.
TOTAL FRONT WEIGHT	1881 lbs.	(57.6% OF TOTAL VEHICLE WEIGHT)	
TOTAL REAR WEIGHT	1386 lbs.	(42.4% OF TOTAL VEHICLE WEIGHT)	
TOTAL TEST WEIGHT	3267 lbs.	(0.5% UNDER TARGET WEIGHT)	
WEIGHT OF BALLAST SECURED IN VEHICLE TRUNK AREA: 45 LBS.			
COMPONENTS REMOVED TO MEET TARGET WEIGHT: None			

VEHICLE ATTITUDE (ALL DIMENSIONS IN INCHES):

DELIVERED ATTITUDE:	LF 26.8;	RF 26.6;	LR 26.8;	RR 26.6
PRE-TEST ATTITUDE:	LF 26.4;	RF 26.1;	LR 24.6;	RR 24.3
POST-TEST ATTITUDE:	LF 28.3;	RF 27.4;	LR 23.9;	RR 22.8
MAXIMUM WIDTH: 66.9 INCHES				
WHEELBASE: 101.5 INCHES				
CG = 43.1 INCHES REARWARD OF FRONT WHEEL CENTERLINE				

TABLE 3 TEST CONDITIONS

TEST NUMBER: 900111

DATE OF TEST: 01/11/90

TIME OF TEST: 1341

TYPE OF TEST: Frontal barrier impact

IMPACT ANGLE: 0°

AMBIENT TEMPERATURE AT IMPACT AREA:

72° F

TEMPERATURE IN OCCUPANT COMPARTMENT:

72° F

IMPACT VELOCITY: PRIMARY = 29.6 MPH

SECONDARY = 29.6 MPH

(SPECIFIED RANGE = 28.9 TO 29.9 MPH)

DISTANCE FROM VEHICLE TO BARRIER: ENTERING TRAP = 26.0 IN.

EXITING TRAP = 2.0 IN.

VEHICLE REBOUND AND CRUSH (ALL DIMENSIONS IN INCHES):

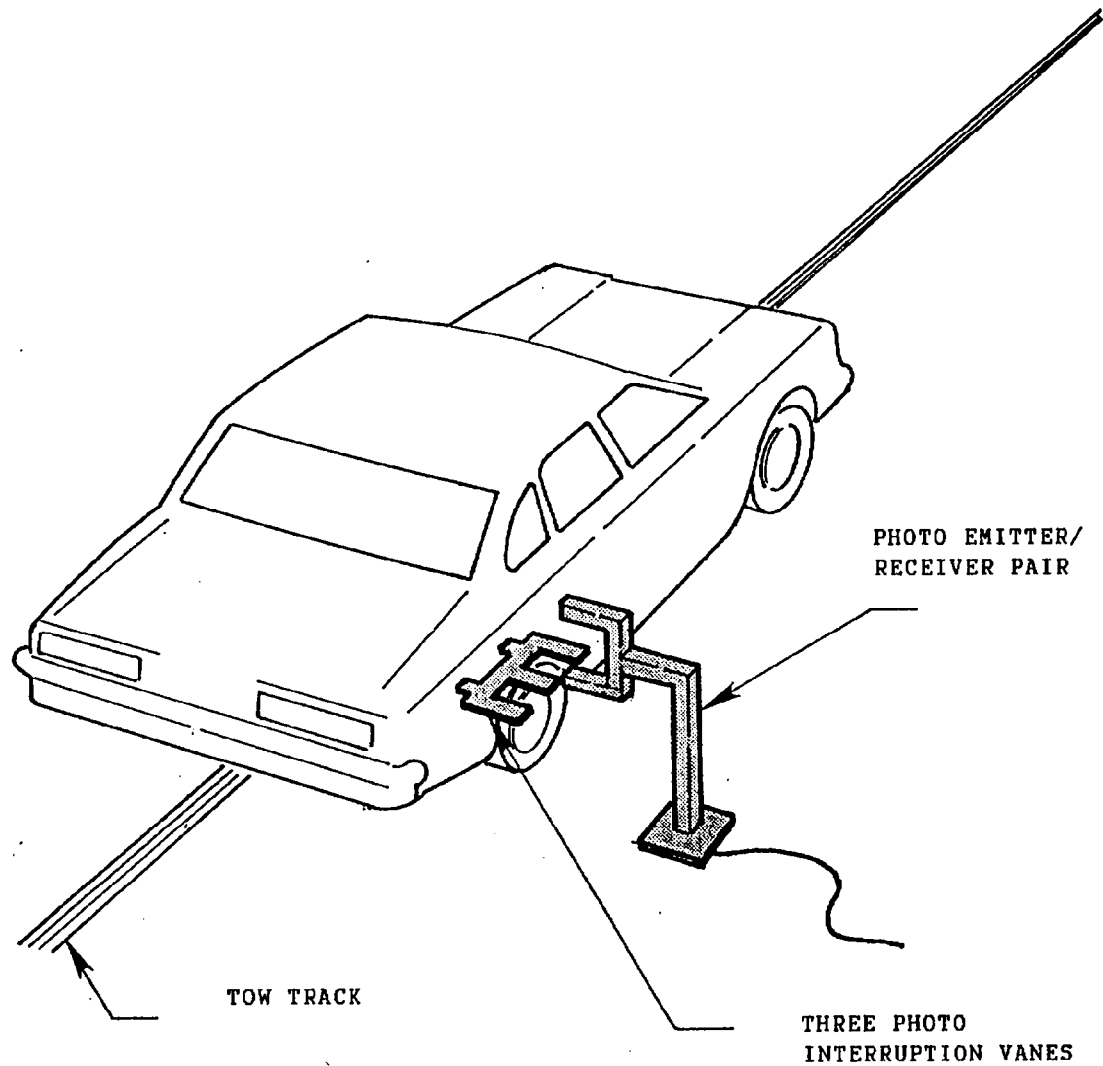
OVERALL LENGTH OF TEST VEHICLE: PRE-TEST: L 176.2; C 180.6; R 176.2

POST-TEST: L 161.5; C 163.0; R 161.0

TOTAL CRUSH: L 14.7; C 17.6; R 15.2

FOR FRONTAL IMPACTS, DISTANCE FROM FRONT OF TEST VEHICLE TO BARRIER AFTER
IMPACT: L: 32.9; C: 32.4; R: 34.1; AVG: 33.1

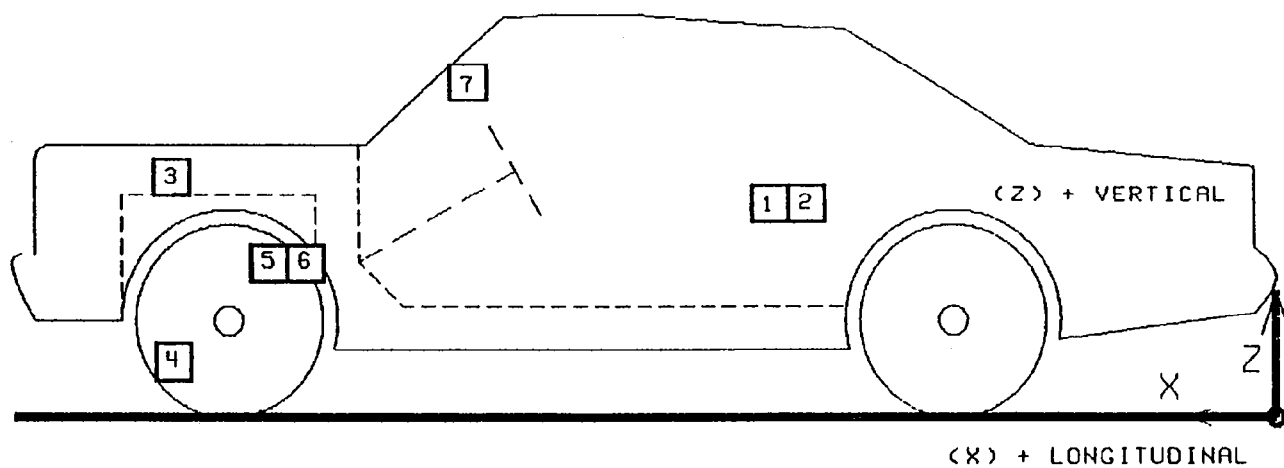
FIGURE 1 IMPACT VELOCITY MEASUREMENT SYSTEM



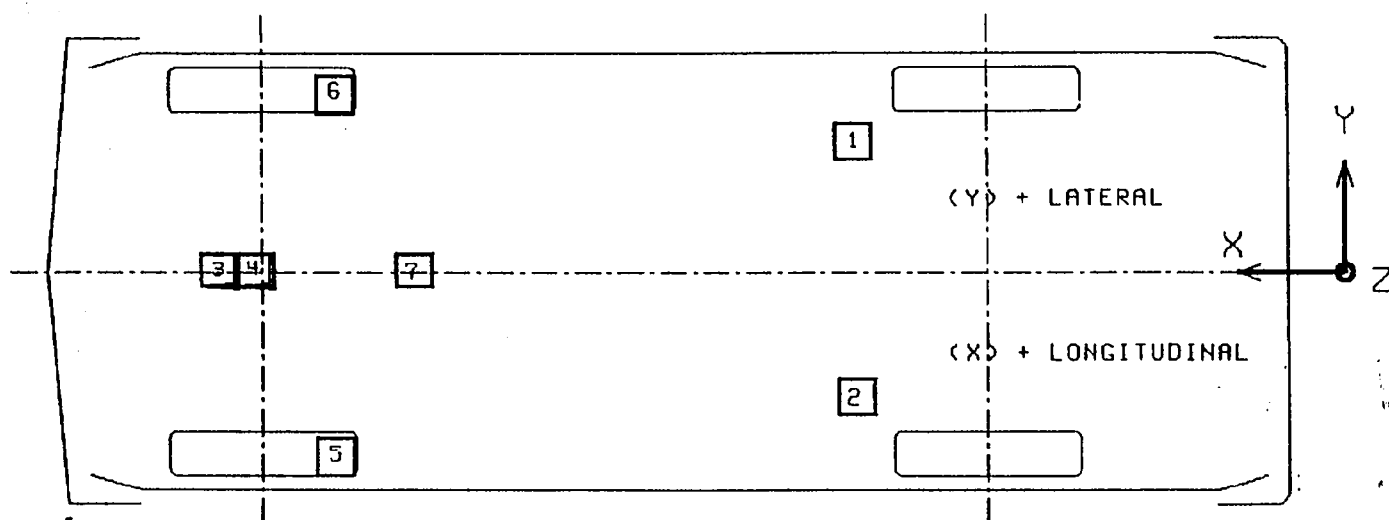
The final vane clears emitter/receiver two inches before impact.

The vanes have one foot spacing.

FIGURE 2
VEHICLE ACCELEROMETER PLACEMENT



SIDE VIEW



BOTTOM VIEW

TABLE 4

VEHICLE ACCELEROMETER LOCATIONS AND DATA SUMMARY

TEST NUMBER 900111

No.	LOCATION		X*	Y*	Z*	POSITIVE DIRECTION		NEGATIVE DIRECTION	
						MAX	G MSEC	MAX	G MSEC
1	REAR SEAT CROSSMEMBER AT LEFT SIDE LONGITUDINAL	PRE	69.0	10.2	15.2				
		POST	68.9	10.2	15.8				
						1.1	135.8	36.5	51.9
2	REAR SEAT CROSSMEMBER AT RIGHT SIDE LONGITUDINAL	PRE	69.0	-10.1	14.9				
		POST	68.9	-10.1	15.5				
						0.8	137.3	35.3	52.6
3	TOP OF ENGINE BLOCK LONGITUDINAL	PRE	153.2	-2.0	31.3				
		POST	148.0	-4.1	30.9				
						79.8	49.5	103.1	35.5
4	BOTTOM OF ENGINE BLOCK LONGITUDINAL	PRE	153.5	-11.0	6.1				
		POST	146.9	-13.1	5.9				
						42.5	46.3	113.5	34.0
5	BRAKE CALIPER AT RIGHT SIDE LONGITUDINAL	PRE	148.5	-25.0	11.0				
		POST	146.0	-24.0	11.3				
						6.3	130.5	55.2	52.9
6	BRAKE CALIPER AT LEFT SIDE LONGITUDINAL	PRE	148.0	25.0	10.9				
		POST	146.0	26.5	10.9				
						16.3	69.6	81.1	47.3
7	DASH PANEL LONGITUDINAL	PRE	120.5	0.1	36.2				
		POST	120.4	0.1	37.6				
						4.9	109.4	37.0	55.5

* ALL MEASUREMENTS OF ACCELEROMETER LOCATIONS ARE IN INCHES.

REFERENCE: X: + FORWARD FROM REAR BUMPER
 Y: + LEFTWARD FROM VEHICLE CENTERLINE
 Z: + UPWARD FROM GROUND LEVEL

**FIGURE 3 ACCIDENT INVESTIGATION DIVISION DATA
FOR 30 MPH FRONTAL BARRIER IMPACT**

VEHICLE MAKE/MODEL/BODY STYLE: Nissan/Stanza/4-door sedan
 VEH. NHTSA NO.: CL5201; VIN: JN1FU21P7LT200319
 MODEL YEAR: 1990; BUILD DATE: 7/89; TEST DATE: 01/11/90
 VEH. SIZE CATEGORY: Compact; TEST WEIGHT: 3267
 VEH. WHEELBASE: 101.5
 MAX. WIDTH: 66.9
 FRONT OVERHANG: 37.4

COLLISION DEFORMATION
 CLASSIFICATION (CDC) CODE: 12FDEW2

F (Frontal)
 CRUSH DEPTH
 DIMENSIONS:

C1 = 14.7 inches
 C2 = 16.2 inches
 C3 = 17.1 inches
 C4 = 17.2 inches
 C5 = 16.1 inches
 C6 = 15.2 inches

MIDPOINT OF DAMAGE: D = Vehicle Centerline
(Longitudinal)

LENGTH OF DAMAGED
 REGION: L = 56.2 inches

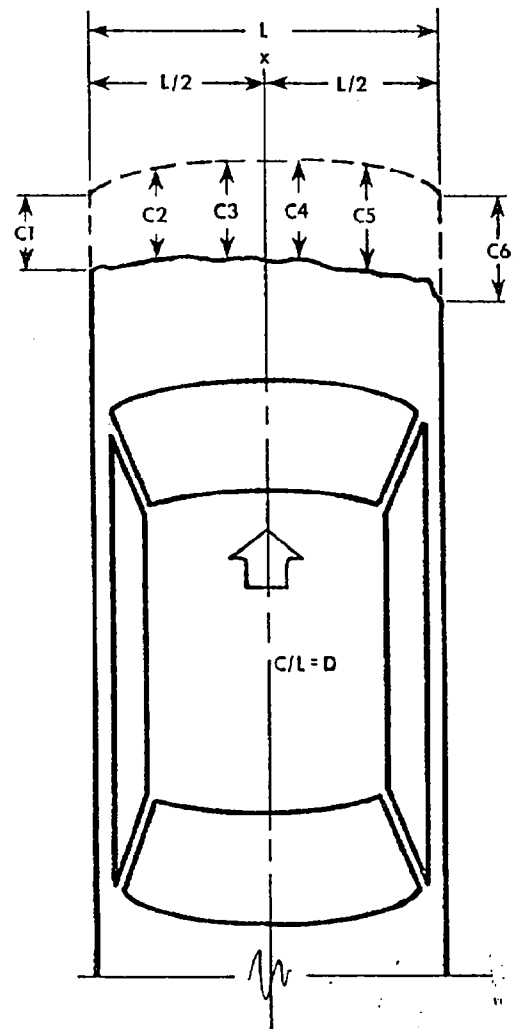


FIGURE 4

PRE-TEST AND POST-TEST MEASUREMENT POINTS

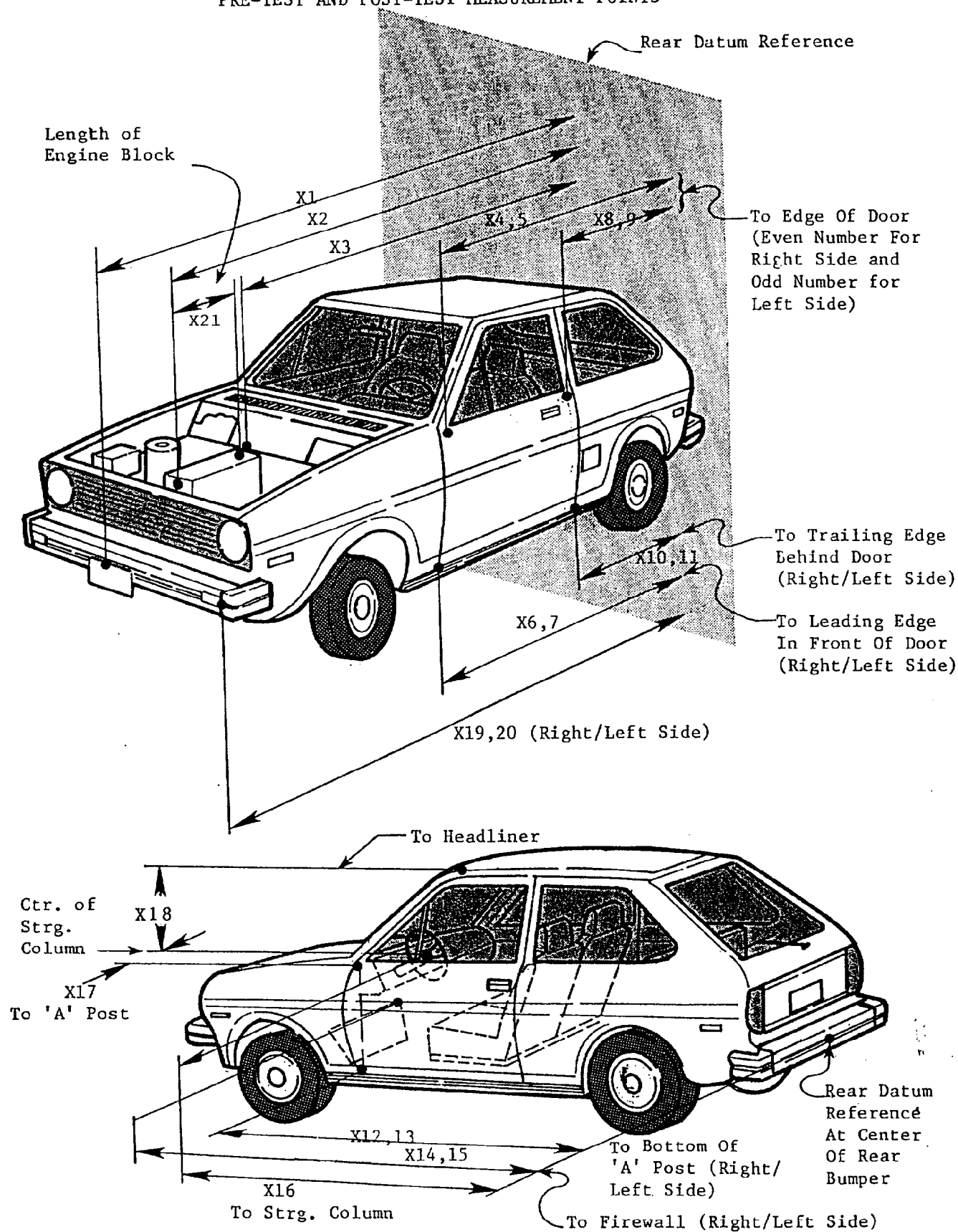
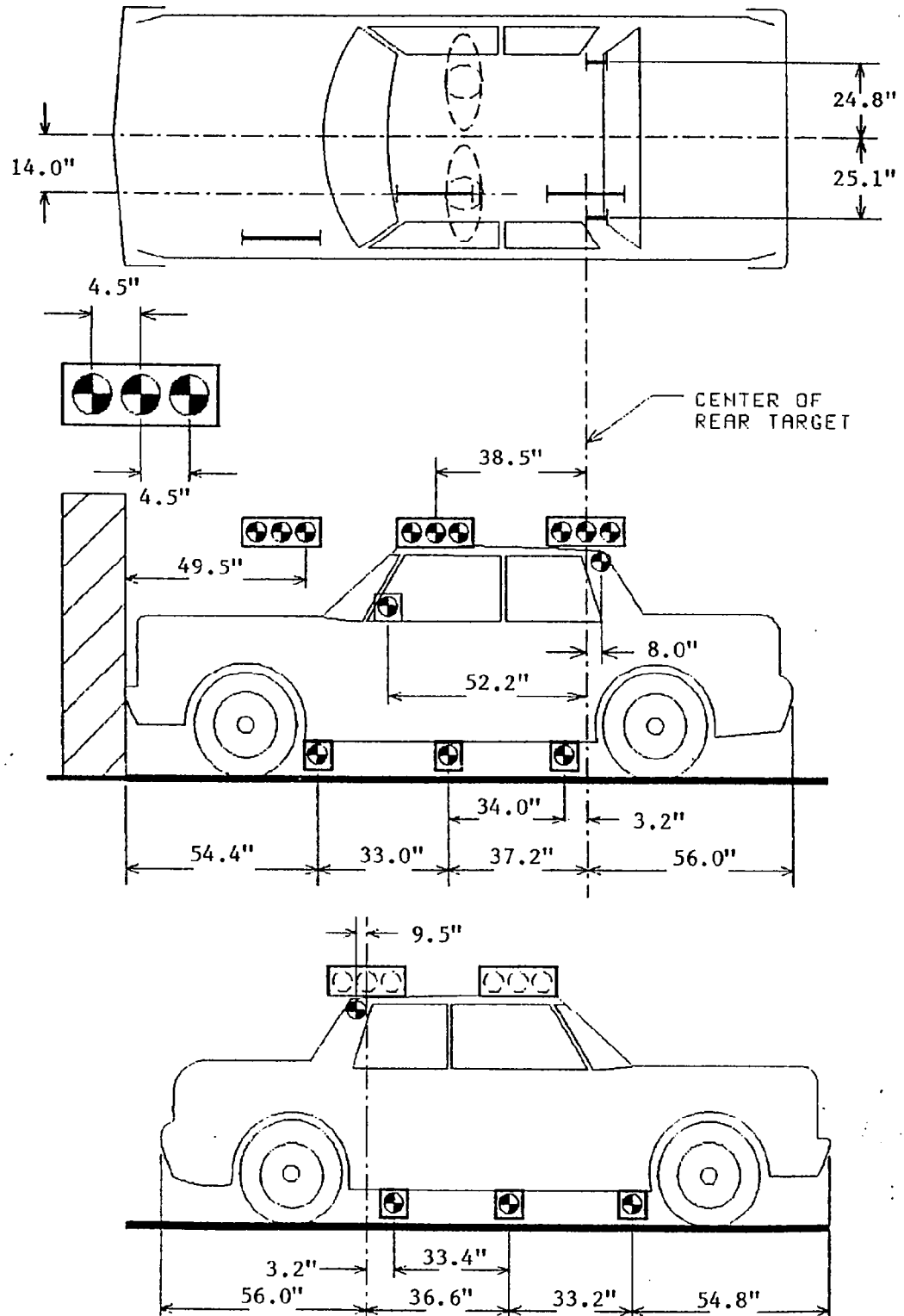


TABLE 5 IMPACTED VEHICLE MEASUREMENTS

VEHICLE MAKE/MODEL: Nissan Stanza		TEST NUMBER: 900111	DIMENSIONS IN INCHES			
NO.	TYPE OF MEASUREMENT		PRE-TEST	POST-TEST	DIFF.	
X1	TOTAL LENGTH OF VEHICLE AT CENTERLINE		180.6	163.0	17.6	
X2	REAR SURFACE OF VEHICLE TO FRONT OF ENGINE BLOCK		154.0	148.9	5.1	
X3	REAR SURFACE OF VEHICLE TO FIREWALL		142.9	132.2	10.7	
X4	REAR SURFACE OF VEHICLE TO UPPER LEADING EDGE OF RIGHT DOOR		122.9	123.0	-0.1	
X5	REAR SURFACE OF VEHICLE TO UPPER LEADING EDGE OF LEFT DOOR		122.9	123.0	-0.1	
X6	REAR SURFACE OF VEHICLE TO LOWER LEADING EDGE OF RIGHT DOOR		122.4	122.4	0.0	
X7	REAR SURFACE OF VEHICLE TO LOWER LEADING EDGE OF LEFT DOOR		122.4	122.3	0.1	
X8	REAR SURFACE OF VEHICLE TO UPPER TRAILING EDGE OF RIGHT DOOR		81.8	82.0	-0.2	
X9	REAR SURFACE OF VEHICLE TO UPPER TRAILING EDGE OF LEFT DOOR		81.8	81.8	0.0	
X10	REAR SURFACE OF VEHICLE TO LOWER TRAILING EDGE OF RIGHT DOOR		81.8	81.6	0.2	
X11	REAR SURFACE OF VEHICLE TO LOWER TRAILING EDGE OF LEFT DOOR		81.6	81.5	0.1	
X12	REAR SURFACE OF VEHICLE TO BOTTOM OF "A" POST ON RIGHT SIDE		121.7	122.1	-0.4	
X13	REAR SURFACE OF VEHICLE TO BOTTOM OF "A" POST ON LEFT SIDE		121.5	121.9	-0.4	
X14	REAR SURFACE OF VEHICLE TO FIREWALL - RIGHT SIDE		132.1	133.2	-1.1	
X15	REAR SURFACE OF VEHICLE TO FIREWALL - LEFT SIDE		132.2	131.5	0.7	
X16	REAR SURFACE OF VEHICLE TO STEERING WHEEL CENTER		106.2	105.0	1.2	
X17	CENTER OF STEERING COLUMN TO "A" POST		14.5	13.1	1.4	
X18	CENTER OF STEERING COLUMN TO HEADLINER		18.1	17.9	0.2	
X19	REAR SURFACE OF VEHICLE TO RIGHT SIDE OF FRONT BUMPER		176.2	161.0	15.2	
X20	REAR SURFACE OF VEHICLE TO LEFT SIDE OF FRONT BUMPER		176.2	161.5	14.7	
X21	LENGTH OF ENGINE BLOCK		15.0	15.0	0.0	

FIGURE 5

VEHICLE TARGET LOCATIONS



REPORT OF VEHICLE CONDITION AT THE
COMPLETION OF TESTING

Contract No.: DTNH22-88-C-11038
From: The Transportation Research Center of Ohio
U.S. Route 33
East Liberty, OH 43319

To: Karen Knuschler
COTR
Office of Vehicle Safety Compliance

The following vehicle has been subjected to testing for FMVSS 208. The vehicle was inspected upon arrival at the laboratory for the test and found to contain all of the equipment listed below. All variances have been reported within 2 working days of vehicle arrival, by letter, to the NHTSA Industrial Property Manager/NAD-30, with a carbon copy to the responsible testing office. The vehicle is again inspected, after the above test has been conducted, and all changes are noted below. The final condition of the vehicle is also noted in detail.

NHTSA NO.: CL5201
MAKE/MODEL/BODY STYLE: Nissan/Stanza/4-door sedan
MODEL YEAR: 1990 BODY COLOR: Black
VIN: JN1FU21P7LT200319
ODOMETER (ARRIVAL): 203.0 DATE: 9/29/89
ODOMETER (COMPLETION): 207.0 DATE: 01/11/90
COST: \$11,571

☒ Air Conditioner	☐ Console	Brakes: ☒ Power
☒ Tinted Glass	☐ Tachometer	Front: Disc
☒ Power Steering	☐ Speed Control	Rear: Drum
☐ Power Windows	☒ Rear Window Def.	
☐ Power Door Locks	☐ Sun/Moon Roof	Front Seats: ☐ Power
☐ Radio	☐ T-Top	Seat Type: Bucket
☐ Clock	☒ Tilt Steering Wheel	No. of Seats: 5
☐ Roof Rack	☐ Other Options: <u>None</u>	

Engine: 4 Cylinders; 2.4 LITRES
Transmission: Manual; Drive Type: Front
Tire Size: 195/65R14
Gasoline Type: Unleaded

Equipment that is no longer on the vehicle as noted above: None

Explanation: NA

Vehicle Condition: Vehicle has been subjected to a 30 mph frontal
barrier crash test.

SECTION 2.0

SUMMARY OF RESULTS FOR:

FMVSS 208, "Occupant Crash Protection"

FMVSS 212, "Windshield Mounting"

FMVSS 219, (Partial), "Windshield Zone Intrusion"

FMVSS 301, "Fuel System Integrity"

COMPLIANCE DATA SUMMARY

The test vehicle, a 1990 Nissan Stanza 4-door sedan, NHTSA No. CL5201, appeared to comply with the requirements of FMVSS Nos. 208, 212, 219 (partial), and 301.

The driver's Head Injury Criteria (HIC) was 595. The driver's maximum chest deceleration over three milliseconds was 50.0 g. The driver's right and left compressive femur loads were 1499 pounds and 1481 pounds, respectively.

The right front passenger's Head Injury Criteria (HIC) was 383. The right front passenger's maximum chest deceleration over three milliseconds was 43.0 g. The right front passenger's right and left compressive femur loads were 913 pounds and 823 pounds, respectively.

The vehicle's restraint system met the comfort and convenience requirements of FMVSS 208.

The windshield retention was 100 percent.

There was no intrusion into the inner surface of the windshield below the protected zone.

There was no Stoddard fluid spillage following the crash test event. No data are available for the post-test static rollover.

TABLE 6 DUMMY INJURY CRITERIA

MAXIMUM ACCELERATION ('G')

	HEAD				CHEST			
	X	Y	Z	R	X	Y	Z	R*
DRIVER	-40.4	12.2	-66.6	69.9	-50.6	-5.3	9.3	50.0
PASSENGER	-23.6	-23.6	-46.5	48.7	-43.6	-15.2	9.1	43.0

MAXIMUM FORCE-FEMUR LOAD (LBS)

	LEFT FEMUR	RIGHT FEMUR
DRIVER	1481	1499
PASSENGER	823	913

HEAD INJURY CRITERIA**

	HIC	TIME t_1 (MSEC) ¹	TIME t_2 (MSEC) ²
DRIVER	595	58.8	94.8
PASSENGER	383	65.2	101.2

*Defined as exceeding 0.003 sec. duration

**As defined in FMVSS No. 208

DUMMY KINEMATIC SUMMARY

DRIVER DUMMY

Upon impact, the driver dummy translated forward on the seat impacting both knees into the instrument panel. The dummy's head rotated forward impacting the dummy's chest as the dummy was restrained by the two-point passive belt. The dummy's head rotated rearward and the dummy's torso rotated clockwise as the dummy rebounded into the seat back. Then the dummy's right shoulder contacted the passenger's left shoulder. The driver dummy came to rest seated in the driver's seat, leaning to the right, restrained by the two-point passive belt.

RIGHT FRONT PASSENGER DUMMY

Upon impact, the right front passenger dummy translated forward on the seat, impacting both knees into the instrument panel. The dummy's head rotated forward, impacting the dummy's chest as the dummy was restrained by the two-point passive belt. The dummy's head rotated rearward and the dummy's torso rotated counterclockwise as the dummy rebounded into the seat back. Then, the dummy's left shoulder contacted the driver's right shoulder. The right front passenger dummy came to rest seated in the right front passenger's seat, leaning to the left, restrained by the two-point passive belt.

VISIBLE DUMMY CONTACT POINTS:

	DRIVER #354	PASSENGER #690
Head	<u>Chest</u>	<u>Chest</u>
Chest	<u>None</u>	<u>None</u>
Abdomen	<u>None</u>	<u>None</u>
Left knee	<u>Instrument panel</u>	<u>Instrument panel</u>
Right knee	<u>Instrument panel</u>	<u>Instrument panel</u>

DOOR OPENING:

	LEFT	RIGHT
Front	<u>Easy</u>	<u>Easy</u>
Rear	<u>Easy</u>	<u>Easy</u>

SEAT MOVEMENT:

	SEAT BACK FAILURE	SEAT SHIFT
Front	<u>None</u>	<u>None</u>
Rear	<u>NA</u>	<u>NA</u>

GLAZING DAMAGE:

None

OTHER NOTABLE IMPACT EFFECTS:

None

FIGURE 6 DUMMY POSITIONING DATA FOR 30 MPH FRONTAL BARRIER IMPACT TEST

PRE-IMPACT DATA:

Make/Model: Nissan/Stanza
 Body Style: 4-door sedan Model Year: 1990
 NHTSA No.: CL5201 Color: Black

DATA FROM CERTIFICATION LABEL:

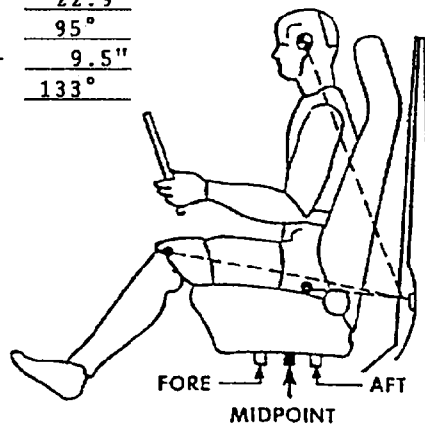
Vehicle Manufacturer: Nissan Motor Company, Ltd.
 Date of Manufacture: 7/89 VIN: JN1FU21P7LT200319
 GVWR: 3902 lb; GAWR: Front = 2140 lb; Rear = 1819 lb

POST-IMPACT DATA:

Date of Test: 01/11/90 Time: 1341 Temperature: 72° F
 Required Impact Velocity Range: 28.9 to 29.9 mph
 Impact Velocity: Primary = 29.6 mph Secondary = 29.6 mph
 Seat Type: Bucket Adjuster Type: Manual
 Bucket Seat Back Type: Manual-adjustable
 Technicians: N. Kinney, R. Cribley, & B. Crabtree

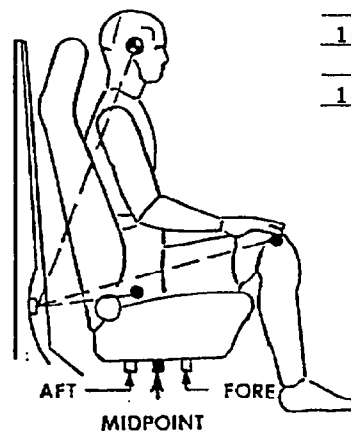
DRIVER DUMMY # 354 TYPE: HII

Head 20.5"
 Target 3°
 Knee 22.9"
 Joint 95°
 Approximate 9.5"
 "H" Point 133°



PASSENGER DUMMY # 690 TYPE: HII

Head 20.4"
 Target 2°
 Knee 23.1"
 Joint 102°
 Approximate 8.8"
 "H" Point 143°



A = 51.2"
 B = 39.0"
 C = 25.6"
 D = 11.4"
 E = 12.2"

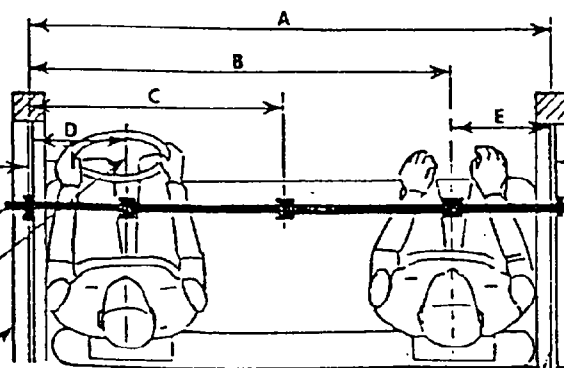
DOOR GLASS
 HEIGHT = 11.2"

LATERAL BAR

ADJUSTABLE
 POINTER

LEFT
 FRONT
 DOOR

DRIVER
 DUMMY
 354



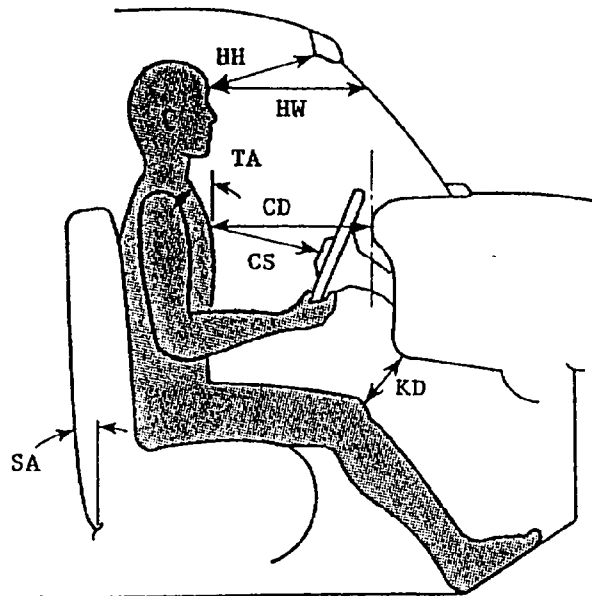
PASSENGER
 DUMMY
 690

DOOR GLASS
 HEIGHT = 11.2"

RIGHT
 FRONT
 DOOR

FIGURE 7 DUMMY IN-VEHICLE POSITION RECORDING SHEET

	DRIVER	PASSENGER
HH	11.9	12.9
HW	17.0	16.9
CD	21.4	22.6
CS	13.5	NA
KDL	6.2	5.0
KDR	6.2	5.7
TA	16°	18°
SA	25°	25°
HA	10.2	12.4

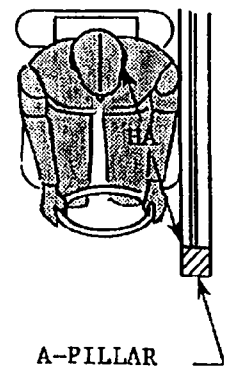
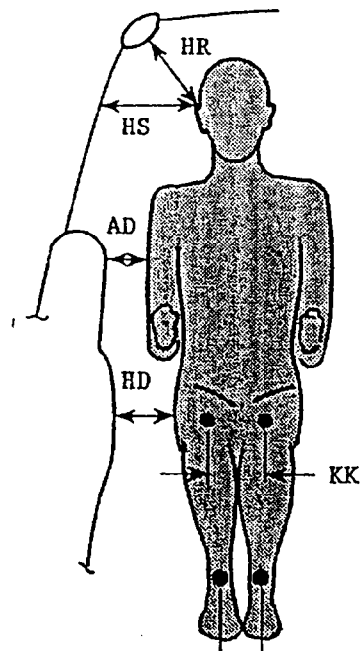


	DRIVER	PASSENGER
HR	4.8	5.4
HS	8.2	9.2
AD	3.8	4.8
HD	6.0	6.4
KK	10.8	7.8
AA	13.2	7.2

Knee outer bolt head to outer bolt head spacing:

Driver = 14.5

Passenger = 11.8

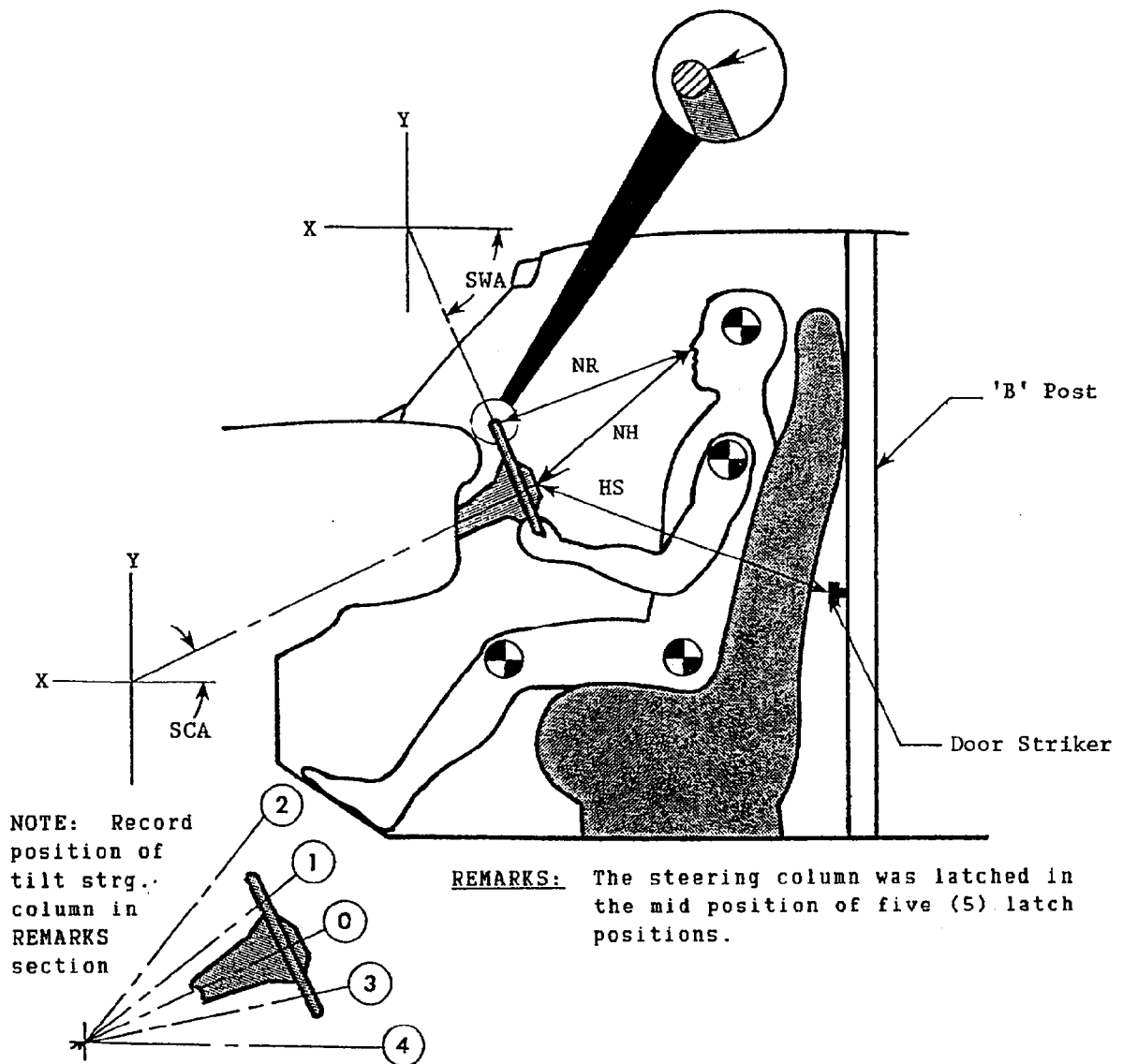


HH = Head to Windshield Header	HR = Head to Side Roof
HW = Head to Windshield	HS = Head to Side Window
CD = Chest to Dash	AD = Arm to Door
CS = Chest to Steering Wheel	HD = Hip to Door
KD = Knee to Dash	KK = Knee to Knee
TA = Torso Angle	AA = Ankle to Ankle
SA = Seat Back Angle	HA = Head to A-Pillar

Torso and seat back angles are relative to vertical.

ALL DISTANCE MEASUREMENTS ARE IN INCHES.

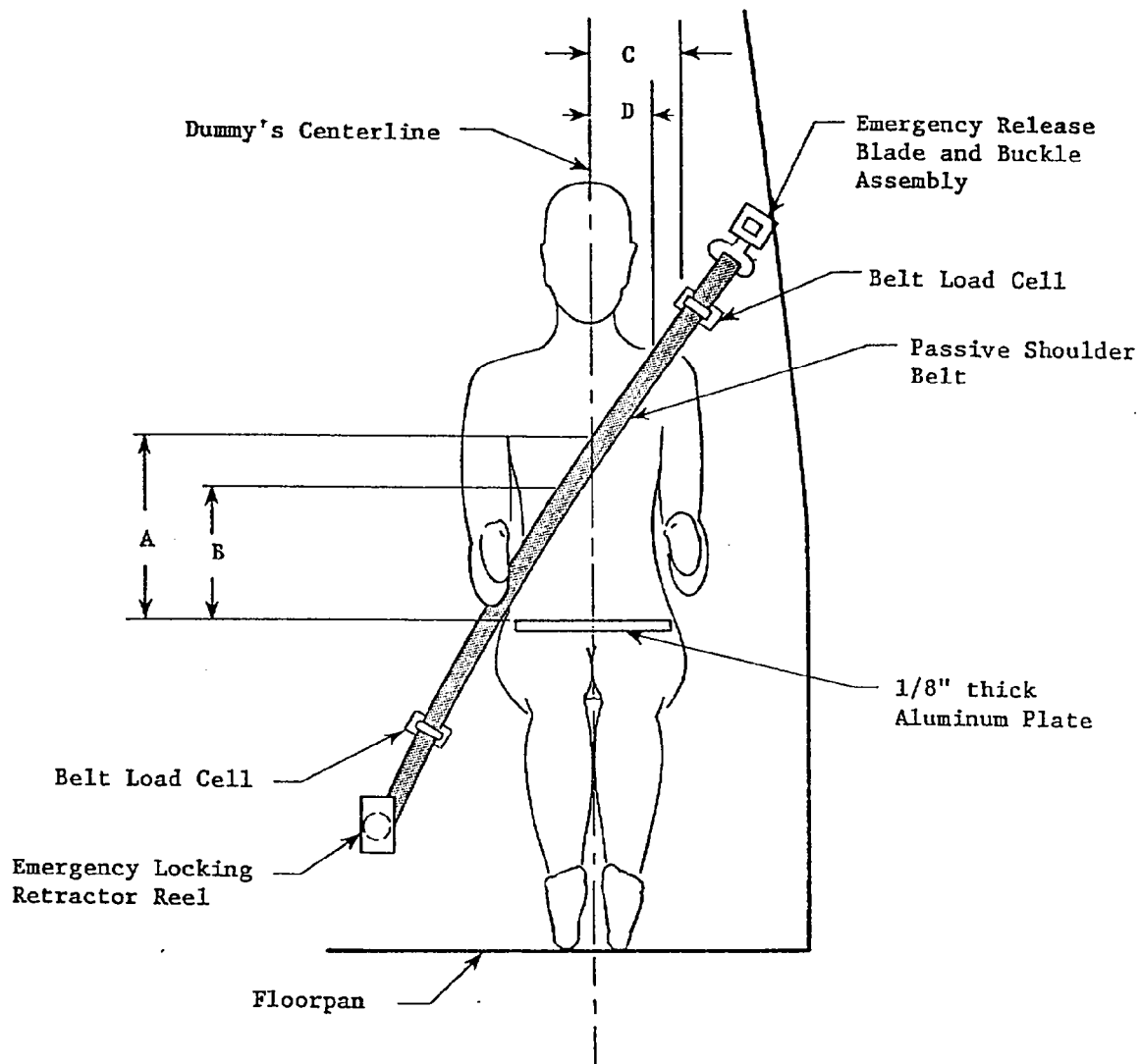
FIGURE 8 DRIVER DUMMY TO STEERING COLUMN/WHEEL ASSY. REFERENCE DIMENSIONS



MEASUREMENTS

NR	- Distance from tip of dummy's nose to top rear surface of steering wheel rim. (in.)	17.2
NH	- Distance from tip of dummy's nose to center of steering column hub. (in.)	17.8
HS	- Distance from center of steering column hub to the forward surface of the door lock striker pin. (in.)	24.6
SCA	- Angle of steering column relative to the horizontal X axis	30°
SWA	- Angle of steering wheel relative to the horizontal X axis	61°

FIGURE 9 SEAT BELT POSITIONING DATA



	DRIVER DUMMY	PASSENGER DUMMY
A - Top surface of alum. plate to belt upper edge (in)	12.2	12.7
B - Top surface of alum. plate to belt lower edge (in)	9.5	9.8
C - Dummy centerline to outer edge of belt at chest flesh top (in)	7.4	7.2
D - Dummy centerline to inner edge of belt at chest flesh top (in)	4.8	4.8

TABLE 7 FMVSS 208 COMFORT AND CONVENIENCE DATA

VEHICLE VIN: JN1FU21P7LT200319 NHTSA NO: CL5201
MAKE: Nissan MODEL: Stanza
VEHICLE BUILD DATE: 7/89 VEHICLE TYPE: 4-door sedan
FRONT OUTBOARD SEATING POSITIONS SEAT BELT TYPE:
(check one): X Automatic belts
 Type 2 lap/shoulder belts
 Other

CONVENIENCE HOOKS:

DEVICE AUTOMATICALLY RELEASES WHEN IGNITION IS TURNED TO "ON" OR "START"
AND (check one):

 Vehicle's drivetrain is engaged
 Vehicle's parking brake is in the released mode
 X Not applicable, vehicle's restraint system does not
include convenience hooks

WEBBING TENSION - RELIEVING DEVICE:

DO OUTBOARD SEATING POSITION BELTS HAVE TENSION - RELIEVING DEVICES?
 No

BELT CONTACT FORCE:

FOR BELTS WITHOUT TENSION-RELIEVING DEVICES: BELT CONTACT FORCE:
 0.1 POUNDS

LATCHPLATE ACCESS: NA

RETRACTION: NA

ACCESSIBILITY: NA

LATCH MECHANISM: NA

TABLE 8 FMVSS NO. 208 - SEAT BELT WARNING SYSTEM DATA

WITH OCCUPANT IN DRIVER'S POSITION AND LAP BELT IN STOWED POSITION AND
IGNITION SWITCH PLACED IN "START/ON" POSITION:

Duration of audible warning signal = 6 sec.

Duration of reminder light operation = 6 sec.

WITH OCCUPANT IN DRIVER'S POSITION AND LAP BELT IN USE AND THE IGNITION
SWITCH PLACED IN "START/ON" POSITION:

Duration of audible warning signal = 1 sec. *

(NOTE: audible warning should not operate)

Duration of reminder light operation = 6 sec.

Wording of visual warning:

Fasten Seat Belt

Fasten Belt

Symbol 101-80 X

*Audible alarm rings once while motorized passive belt is running rearward
on its track.

TABLE 9 FMVSS NO. 208 - LABELING AND DRIVER'S MANUAL DATA

DESCRIBE LOCATION OF LABEL WHICH DESCRIBES MANUFACTURER'S MAINTENANCE OR
REPLACEMENT SCHEDULE FOR CRASH-DEPLOYED OCCUPANT PROTECTION SYSTEM: NA,
vehicle did not contain a crash-deployed occupant protection system.

TABLE 10 FMVSS NO. 208 - READINESS INDICATOR DATA

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. NA, vehicle did not contain a crash-deployed occupant protection system.

TABLE 11 SUMMARY OF FMVSS 301 DATA

PRE-IMPACT DATA

MAKE/MODEL: Nissan/Stanza

BODY STYLE: 4-door sedan

MODEL YEAR: 1990

NHTSA NO.: CL5201

COLOR: Black

DATA FROM CERTIFICATION LABEL

VEHICLE MANUFACTURER: Nissan Motor Company, Ltd.

DATE OF MANUFACTURE: 7/89

VIN: JN1FU21P7LT200319

GVWR: 3902 LBS., GAWR: FRONT 2140 LBS., REAR 1819 LBS.

POST-IMPACT DATA

TYPE OF TEST: Frontal Barrier Impact

DATE OF TEST: 01/11/90

TIME: 1341

TEMP: 72° F

REQUIRED IMPACT VELOCITY RANGE: 28.9 MPH TO 29.9 MPH

IMPACT VELOCITY: PRIMARY = 29.6 MPH, SECONDARY = 29.6 MPH

TEST WEIGHT = 3267 LBS., STATIC CRUSH MAX. = 17.6 IN., REBOUND = 33.1 IN.

FUEL SYSTEM DATA

TEST FLUID TYPE: PURPLE SOLVENT #2; SPEC. GRAVITY: 0.764

KINEMATIC VISCOSITY: 0.99 CENTISTOKES

"USEABLE" CAPACITY*: 15.1 GALLONS (FURNISHED BY COTR)

TEST VOLUME: 14.1 GALLONS (92-94% OF USEABLE)

FUEL SYSTEM CAPACITY (DATA FROM OWNERS MANUAL): 17.1 GALLONS

DETAILS OF FUEL SYSTEM: The fuel tank is located in front of the rear

axle. The fuel filler neck is located on the left side. The fuel lines

run along the left frame rail to the front.

ELECTRIC FUEL PUMP: Yes

FUEL INJECTOR: Yes

DOES ELECTRIC FUEL PUMP OPERATE WITH IGNITION SWITCH "ON" AND THE ENGINE NOT OPERATING? No

*WITH ENTIRE FUEL SYSTEM FILLED.

FIGURE 10 FMVSS NO. 212, "WINDSHIELD MOUNTING", DATA SHEET

Details of windshield mounting such as retention method, trim type, etc.:

Adhesive around perimeter, plastic trim around outer perimeter.

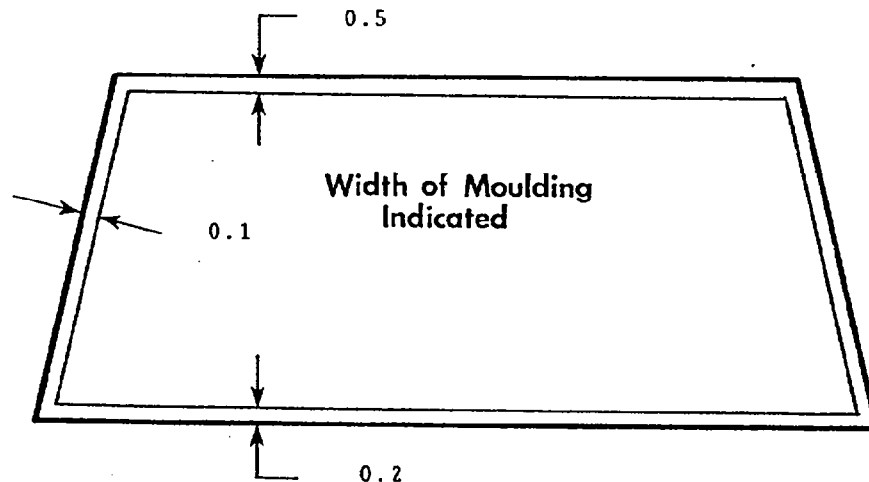
FMVSS 212 REQUIREMENTS: The post-test periphery retention amount must be at least 75% of the pre-test periphery measurement for vehicles NOT equipped with automatic restraints, and 50% for each side of windshield for vehicles equipped with automatic restraint systems for front occupants.

FMVSS 212 TEST DATA:

WINDSHIELD PERIPHERY

	PRE-TEST (in)	POST-TEST (in)	PERCENT RETENTION
RIGHT SIDE	78.6	78.6	100%
LEFT SIDE	78.6	78.6	100%
TOTAL	157.2	157.2	100%

AREA OF RETENTION FAILURE:



WINDSHIELD TEMPERATURE: 72° F

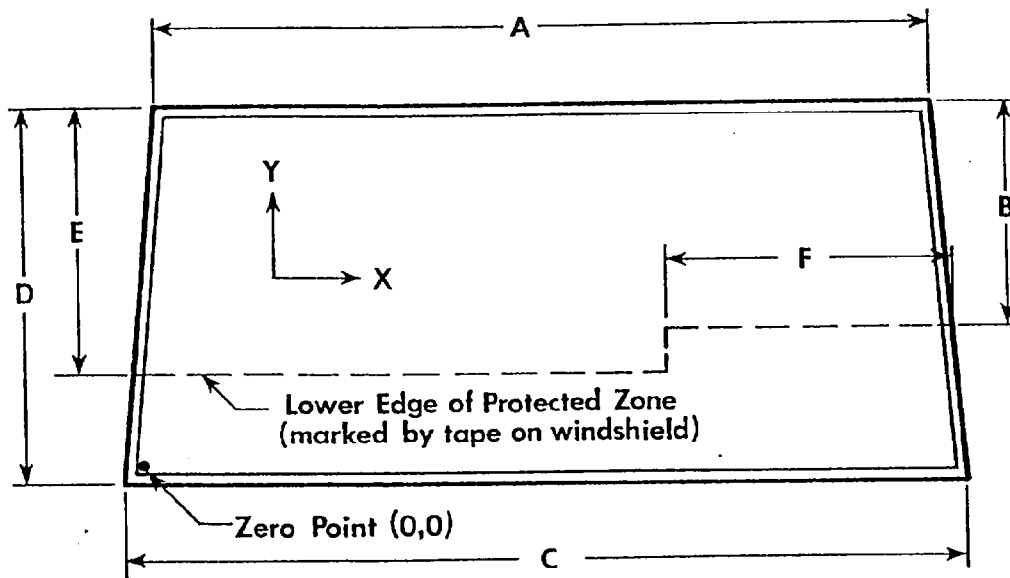
FAILURE DETAILS: None

FIGURE 11 FMVSS NO. 219, "WINDSHIELD ZONE INTRUSION", DATA SHEET

PROTECTED ZONE LOWER EDGE REQUIREMENT:

The lower edge of the protected zone is determined by placing a 6.5" dia. rigid sphere weighing 15 pounds in a position such that it simultaneously contacts the inner surface of the windshield and the top surface of the instrument panel including padding. Draw the locus of points on the inner surface of the windshield contactable by the sphere across the width of the instrument panel. From the outermost contactable points, extend the locus line horizontally to the edges of the windshield, and then draw a line on the inner surface of the windshield below and 1/2" from the locus line. The LOWER EDGE OF THE PROTECTED ZONE is the longitudinal projection onto the outer surface of the windshield of this line.

FMVSS 219 TEST DATA:



FRONT VIEW

A = 45.5	C = 60.0	E = 21.2
B = 18.2	D = 31.0	F = 24.0

DETAILS OF WINDSHIELD GLASS PENETRATION GREATER THAN 1/4":
(Show location of penetration on above sketch)

COORDINATES
X Y

None

1.

2.

3.

4.

ALL MEASUREMENTS ARE IN INCHES.

TABLE 12 "FUEL SYSTEM INTEGRITY" POST-IMPACT

TEST DATA, FMVSS NO. 301

TEST VEHICLE NHTSA NO.: CL5201; TEST DATE: 01/11/90

VEH. MFR./MAKE/MODEL: Nissan Motor Company, Ltd./Nissan/Stanza

Test vehicle fuel tank filled to 92 to 94% of manufacturer's "useable" capacity and with electric fuel pump operating (if it will operate without engine operation). Part 572 test dummies located at each front designated seating position.

.....

TEST VEHICLE IMPACT TYPE:

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

FUEL SPILLAGE MEASUREMENT:

	<u>ACTUAL</u>	<u>MAX. ALLOW.</u>
1. From impact until vehicle motion ceases - - -	0	1 oz.
2. For 5 min. period after veh. motion ceases- -	0	5 oz.
3. For next 25 minutes - - - - -	0	1 oz./1 min.

SOLVENT SPILLAGE DETAILS:

None

SECTION 3.0

CAMERA INFORMATION

FIGURE 12
CAMERA POSITIONS
4, 7, 8

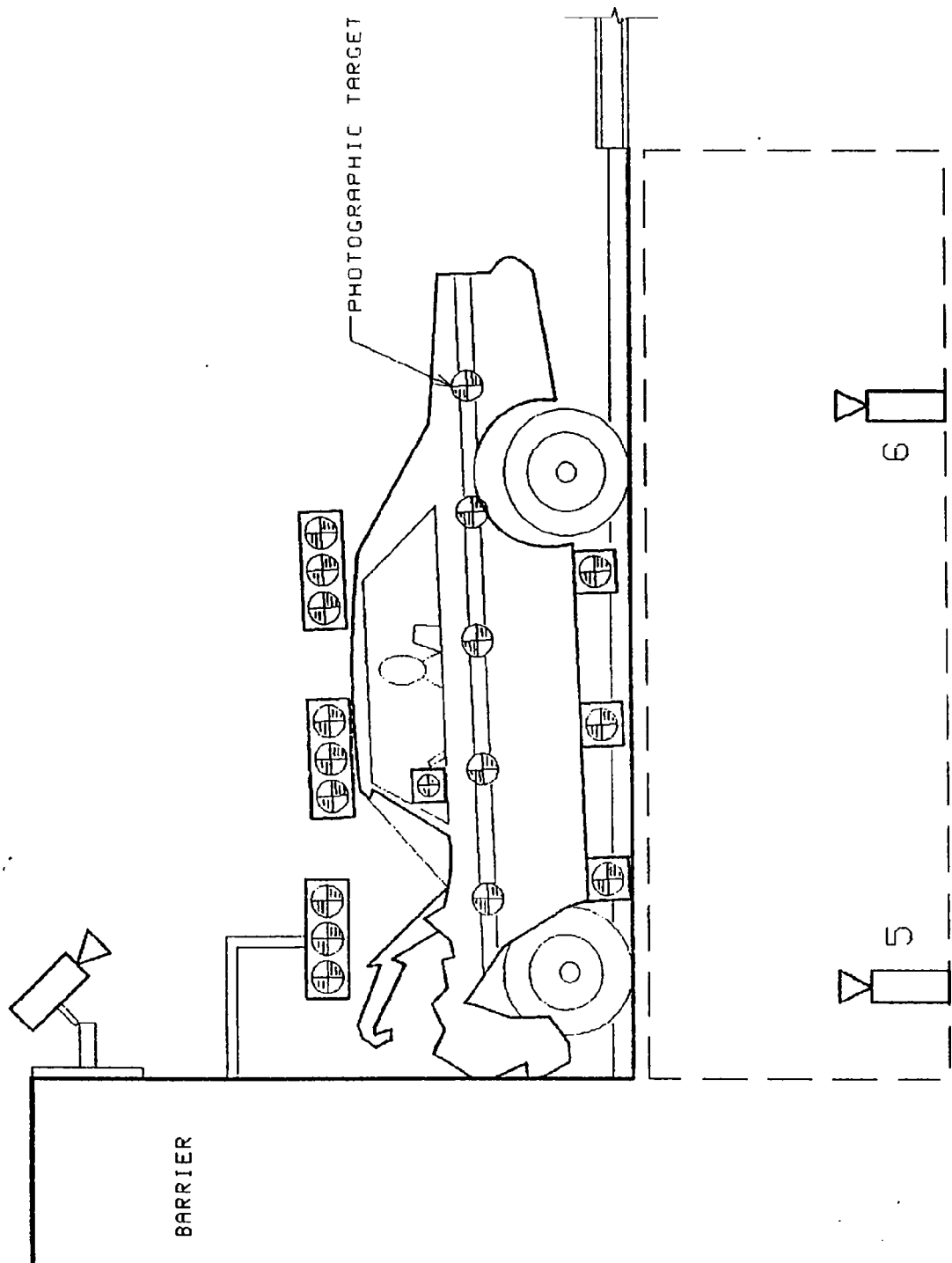


FIGURE 12

CAMERA POSITIONS, CONTINUED

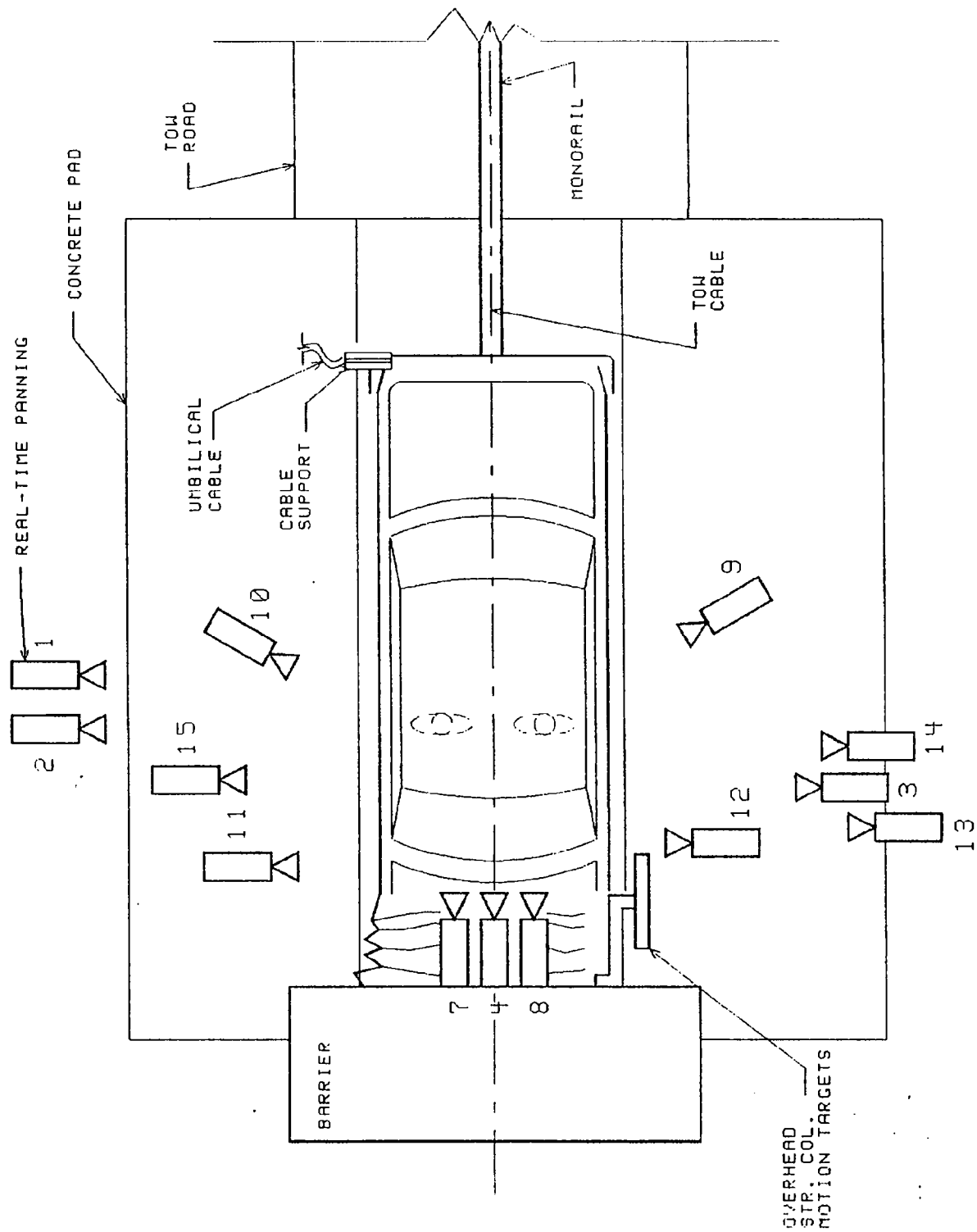


TABLE 13 HIGH SPEED CAMERA LOCATIONS

TEST NO.: 900111		VEHICLE: 1990 Nissan Stanza 4-door sedan					FILM PLANE		
CAMERA NO.	VIEW	CAMERA POSITIONS (IN)*			ANGLE** (DEG)	TO HEAD TARGET	LENS (MM)	SPEED (FPS)	
		X	Y	Z					
1	Real time panning	-142.0	-504.0	61.0	NA	NA	16	24	
2	Vehicle crush	-81.3	-266.4	37.1	-2	NA	13	485	
3	Dummy kinematics	-41.5	295.0	44.0	-4	214.0	25	498	
4	Windshield damage	-6.0	0.0	95.0	-40	NA	8.5	505	
5	Crush & fluid spillage	-50.5	0.0	-92.4	90	NA	13	998	
6	Fluid spillage	-99.3	0.0	-99.0	90	NA	13	1000	
7	Passenger kinematics	-4.5	-13.8	93.0	-50	NA	17	495	
8	Driver kinematics	-6.8	14.5	93.0	-50	NA	17	505	
9	Driver kinematics	-157.3	116.0	87.0	-27	99.0	25	500	
10	Passenger kinematics	-152.1	-116.0	87.0	-26	92.0	25	507	
11	Windshield intrusion	-38.1	-306.1	44.0	0	NA	50	500	
12	Windshield intrusion	-53.0	309.4	42.3	0	NA	50	500	
13	Column movement	-119.0	256.0	103.0	-14	NA	25	500	
14	Column movement	-119.0	256.0	75.1	-9	NA	25	498	
15	Passenger kinematics	-38.8	-293.0	45.3	-4	243.0	25	495	

* +X = Film plane forward of barrier face

+Y = Film plane to left of monorail centerline

+Z = Film plane above ground level

** +Angle = Film plane angled upward from horizontal plane

APPENDIX A

PHOTOGRAPHS



Figure A-1. PRE-TEST FRONT VIEW

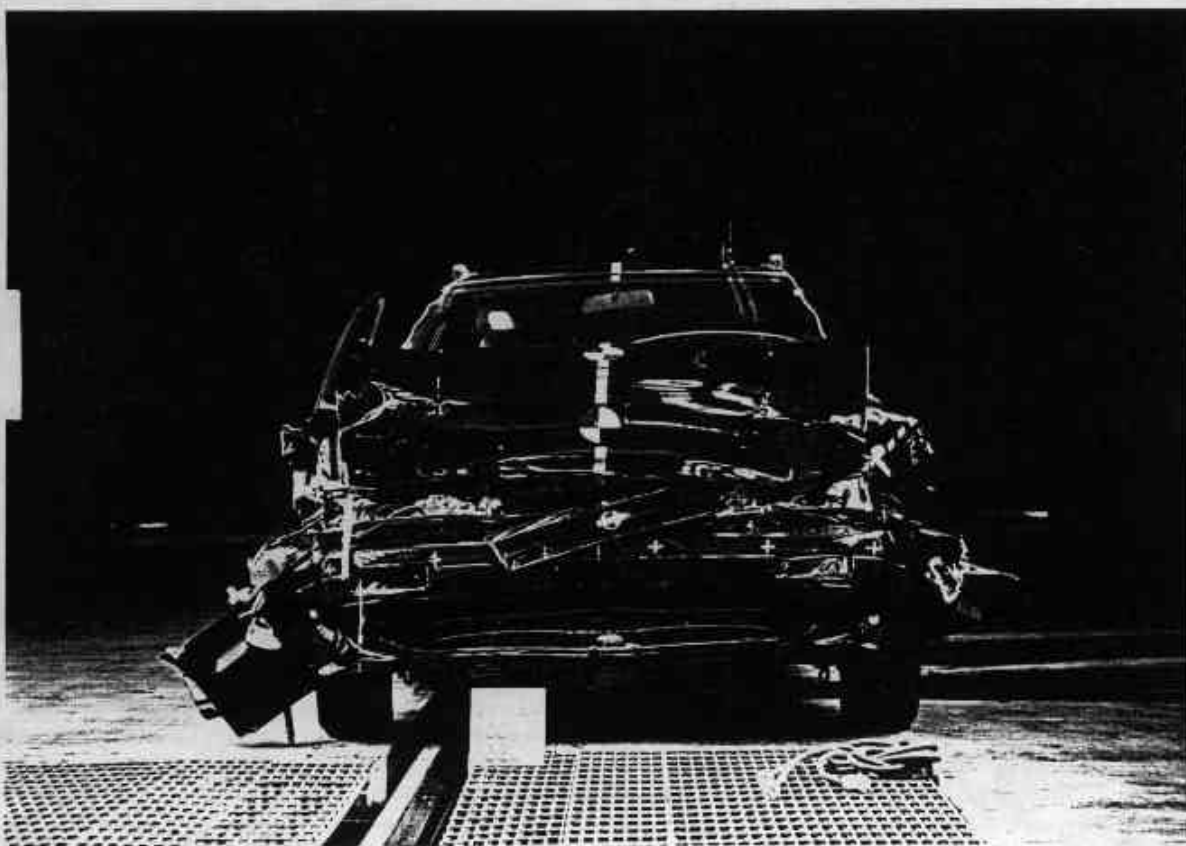


Figure A-2. POST-TEST FRONT VIEW

A-2

900111

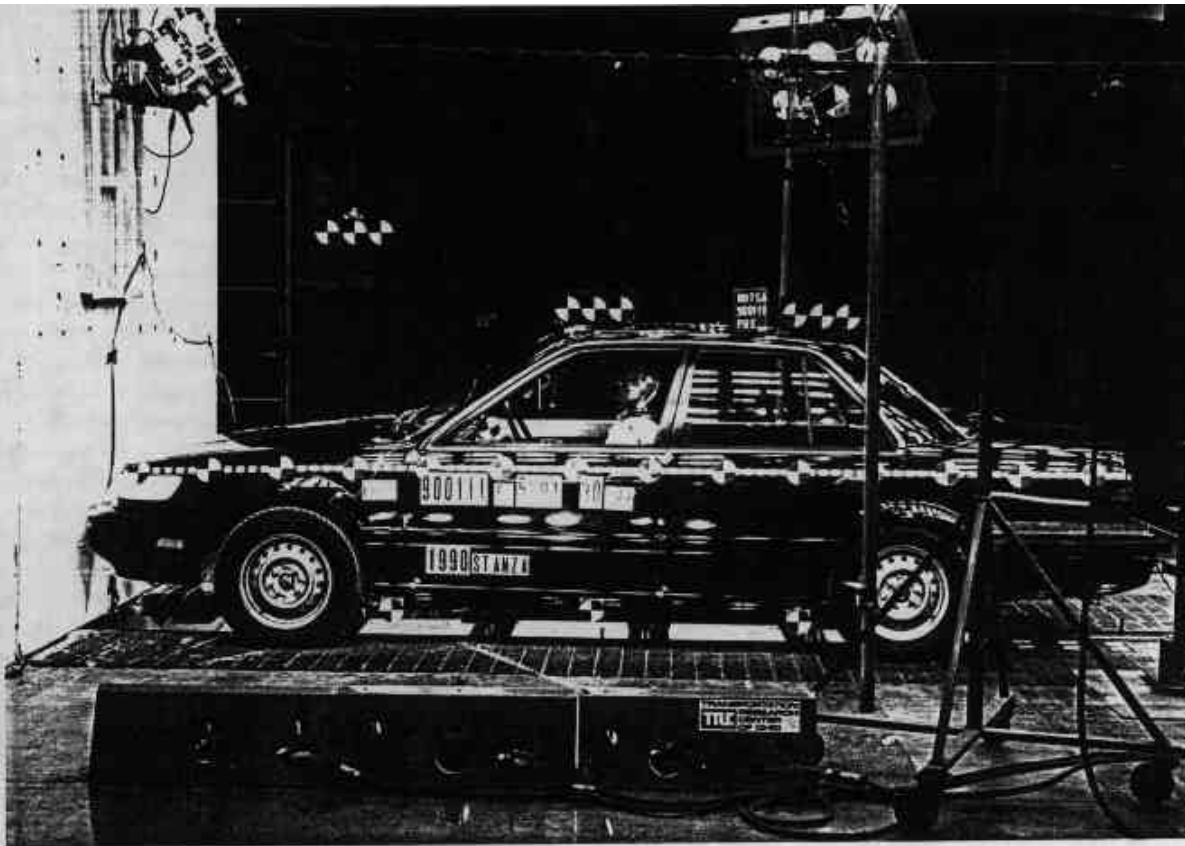


Figure A-3. PRE-TEST LEFT SIDE VIEW



Figure A-4. POST-TEST LEFT SIDE VIEW
A-3

900111



Figure A-5. PRE-TEST RIGHT SIDE VIEW



Figure A-6. POST-TEST RIGHT SIDE VIEW



Figure A-7. PRE-TEST RIGHT FRONT THREE-QUARTER VIEW



Figure A-8. POST-TEST RIGHT FRONT THREE-QUARTER VIEW

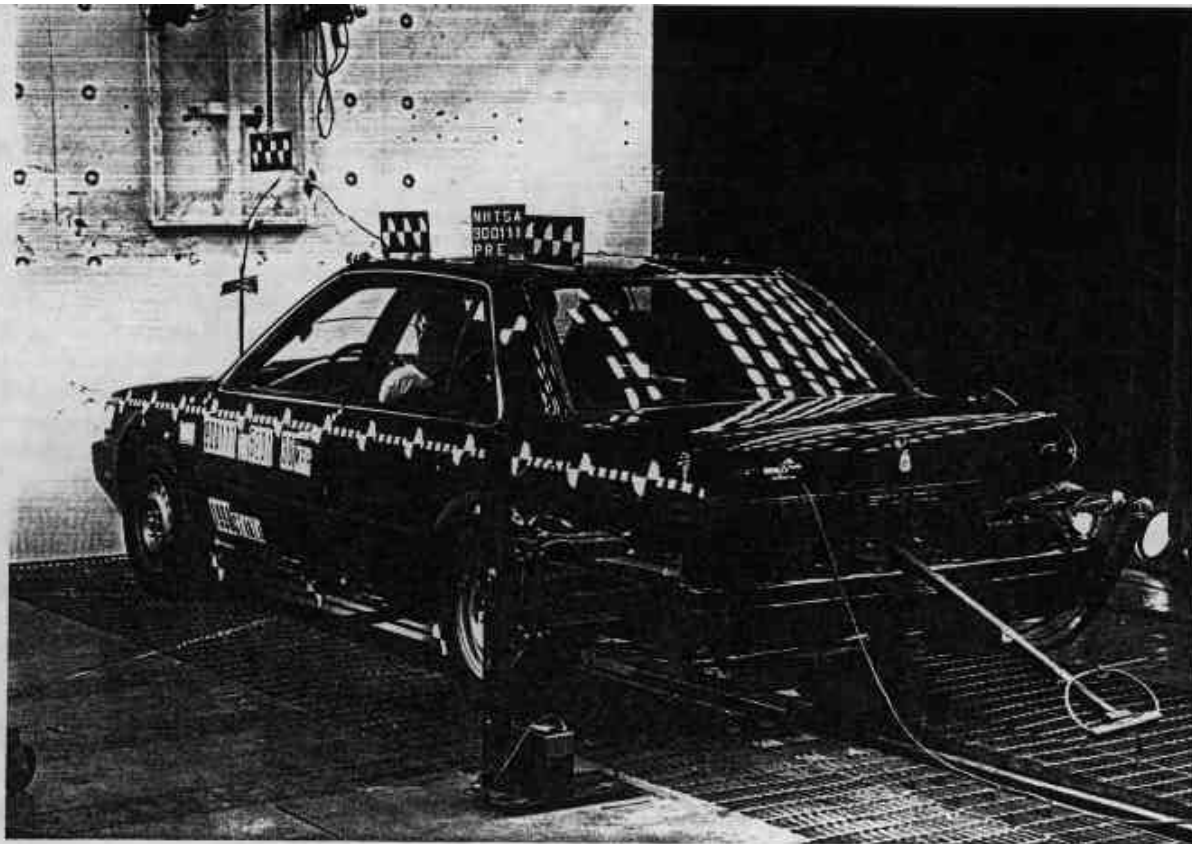


Figure A-9. PRE-TEST LEFT REAR THREE-QUARTER VIEW

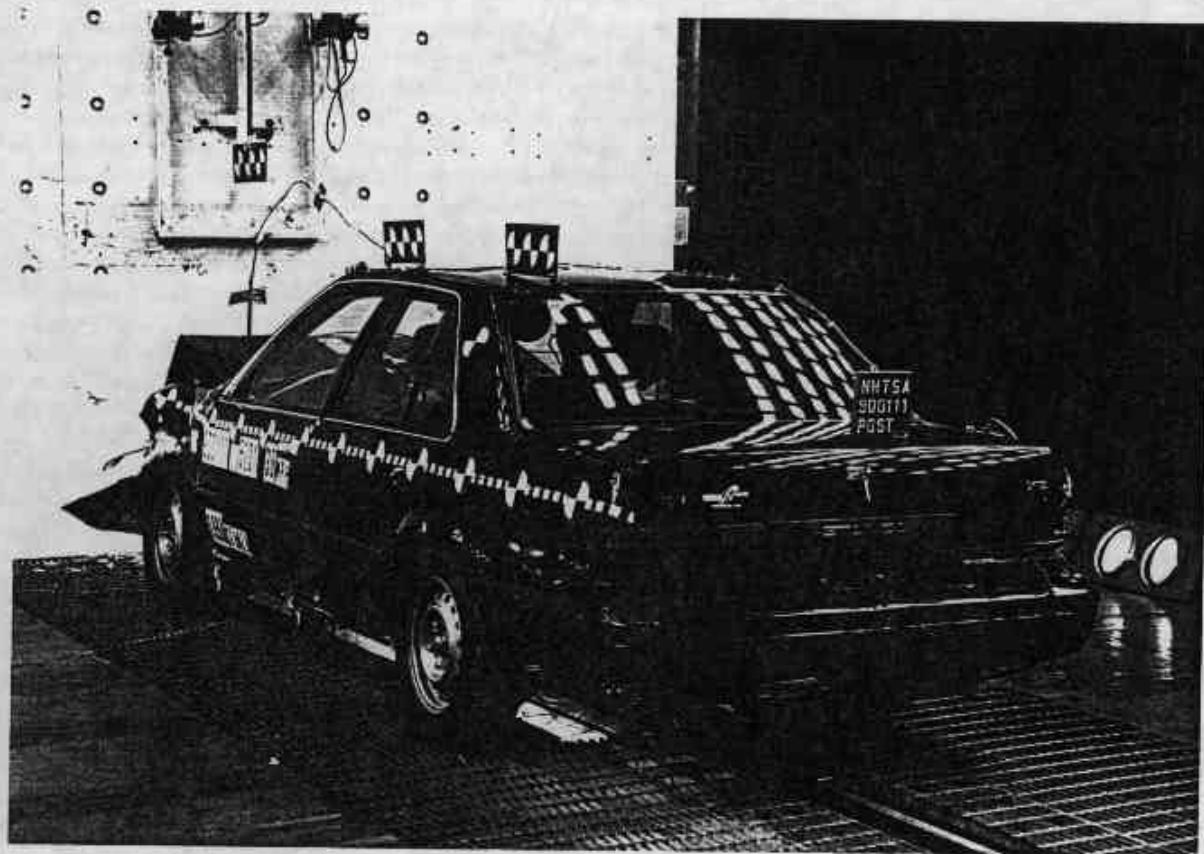


Figure A-10. POST-TEST LEFT REAR THREE-QUARTER VIEW

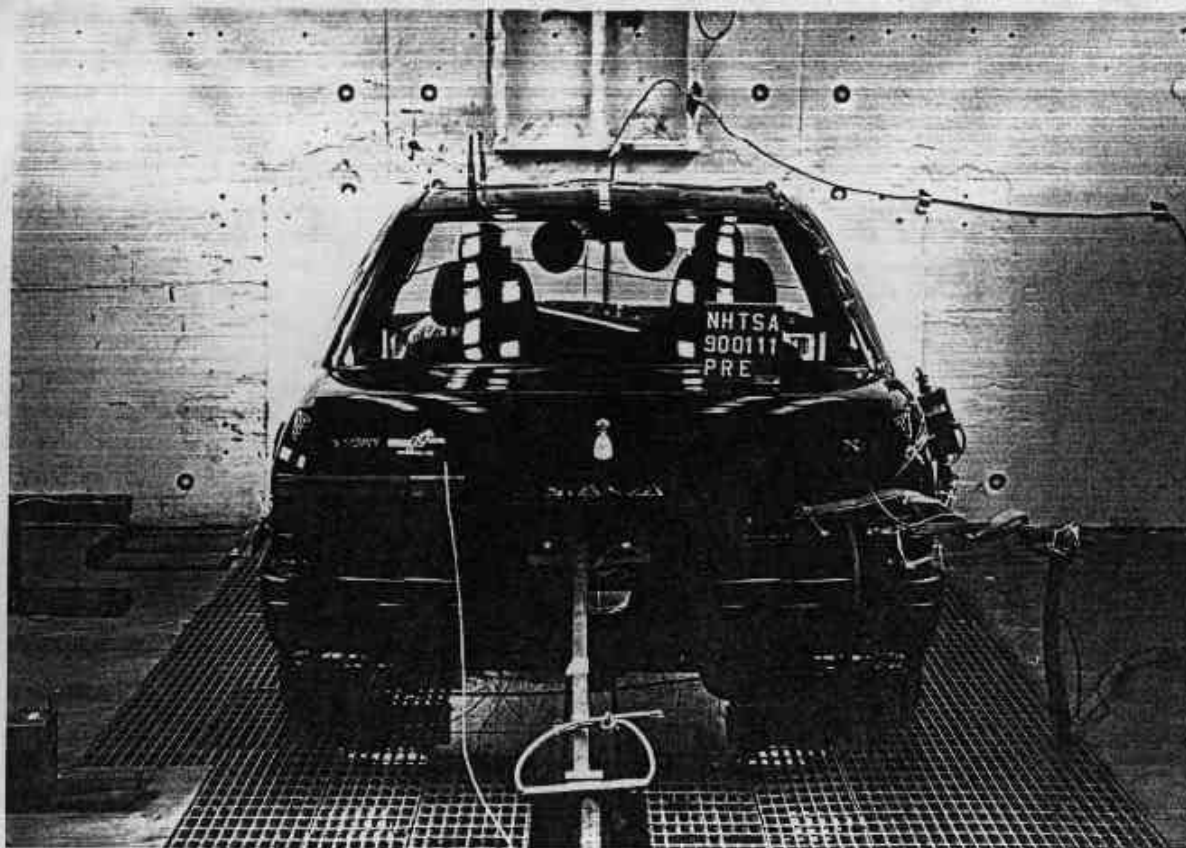


Figure A-11. PRE-TEST REAR VIEW

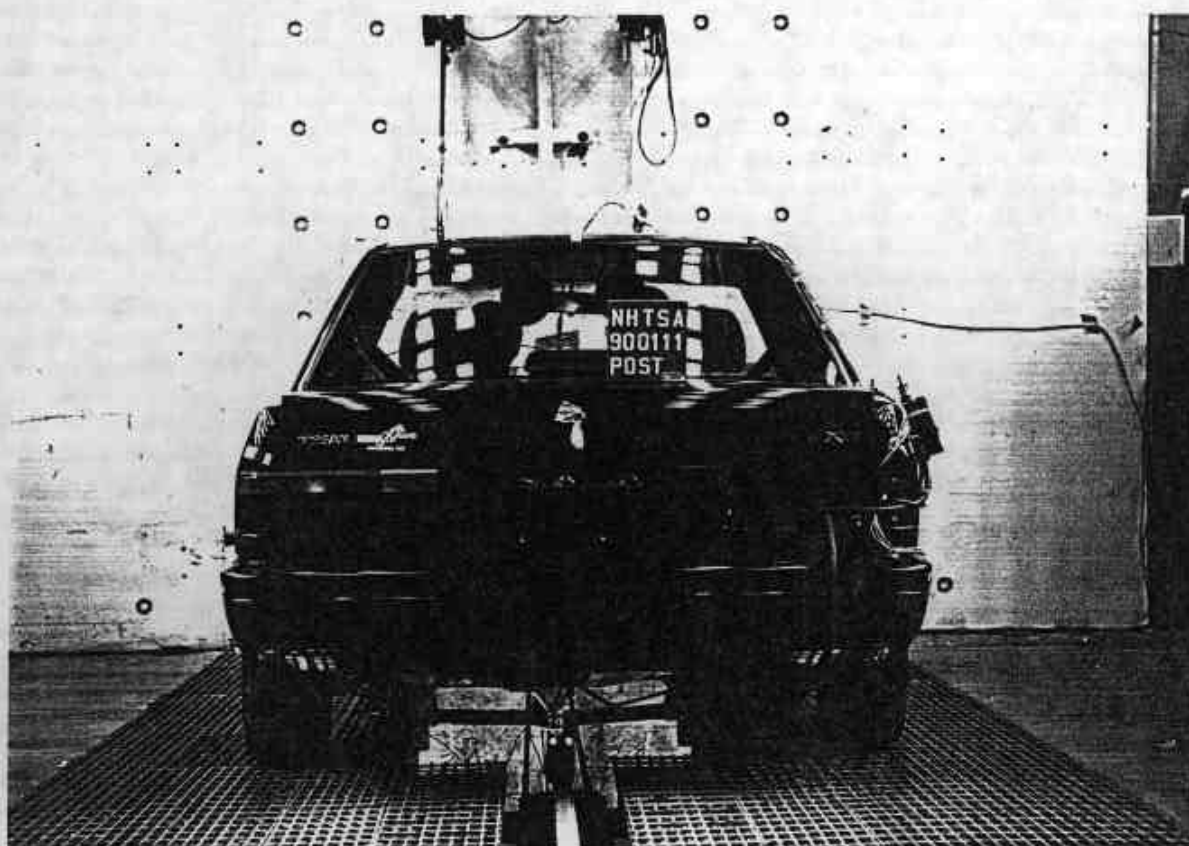


Figure A-12. POST-TEST REAR VIEW
A-7

900111

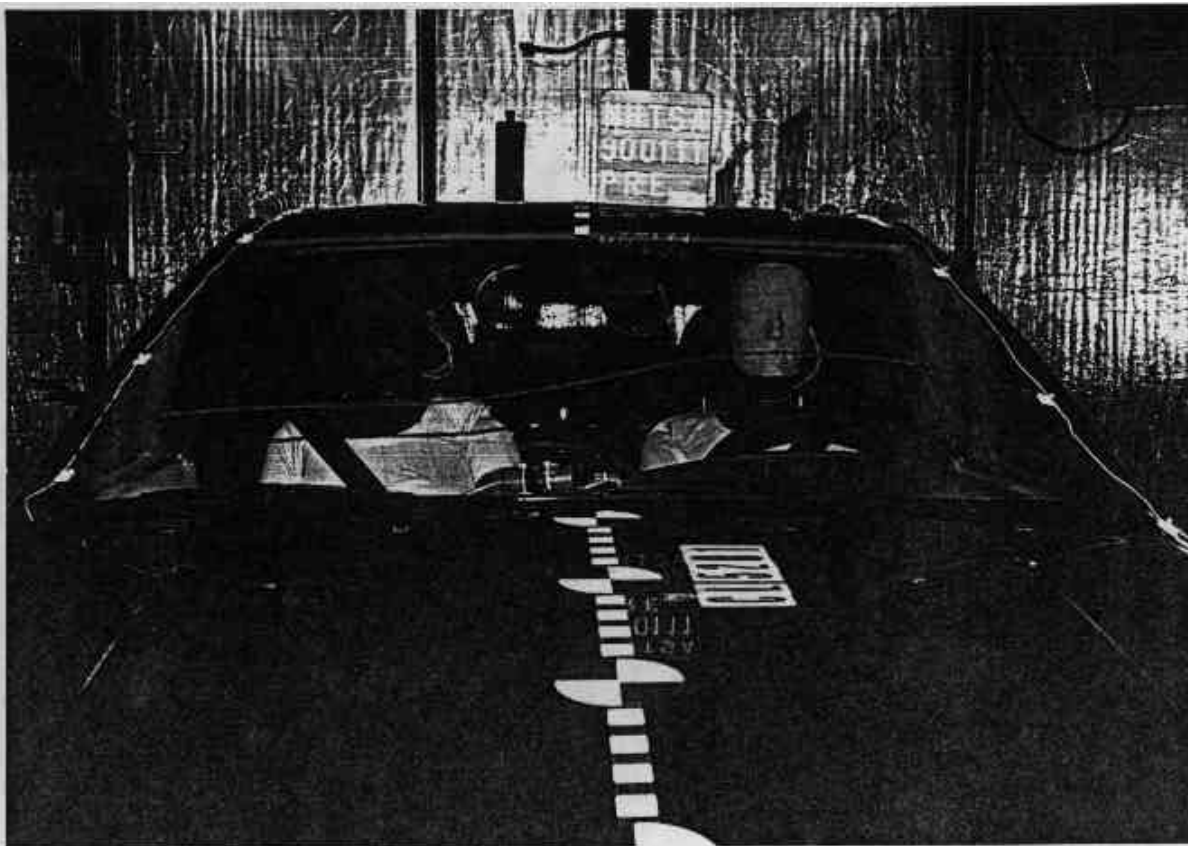


Figure A-13. PRE-TEST WINDSHIELD VIEW



Figure A-14. POST-TEST WINDSHIELD VIEW

A-8

900111

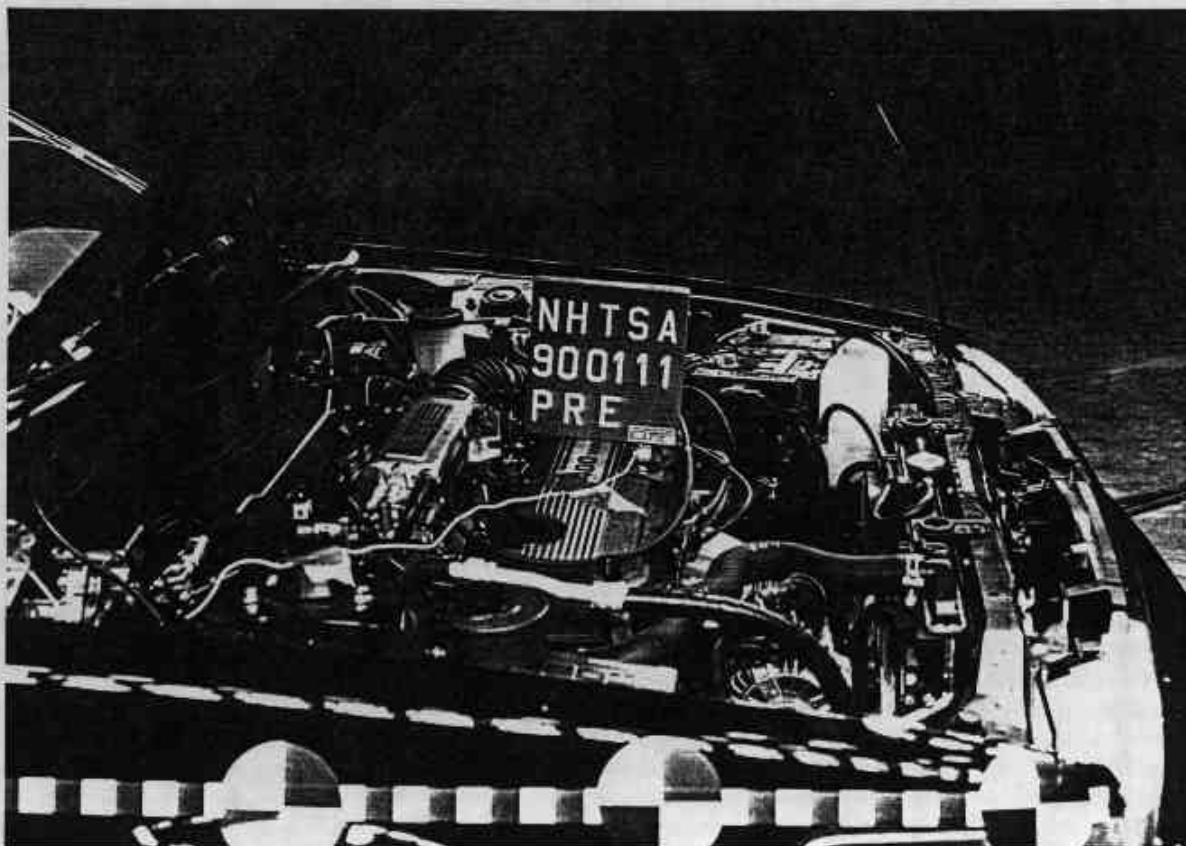


Figure A-15. PRE-TEST ENGINE COMPARTMENT VIEW



Figure A-16. POST-TEST ENGINE COMPARTMENT VIEW



Figure A-17. PRE-TEST FUEL FILLER CAP VIEW

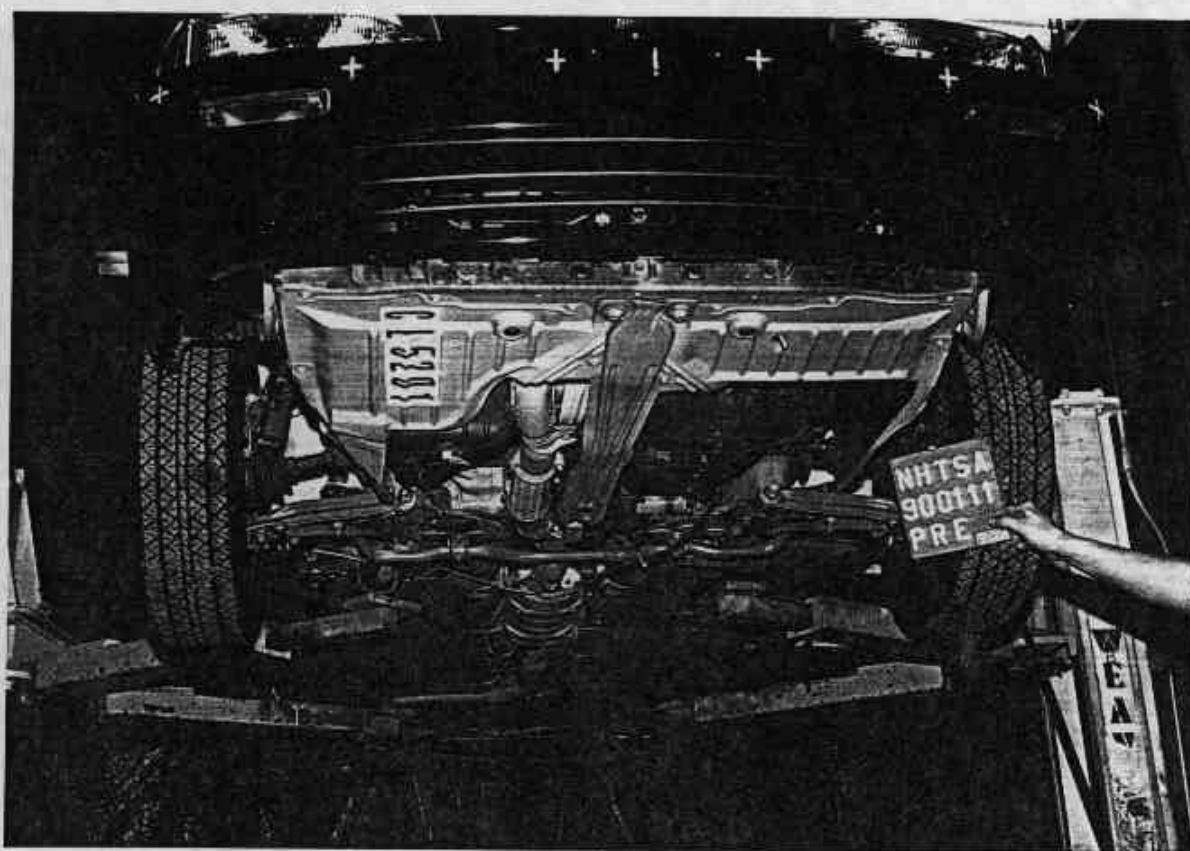


Figure A-18. PRE-TEST FRONT UNDERBODY VIEW

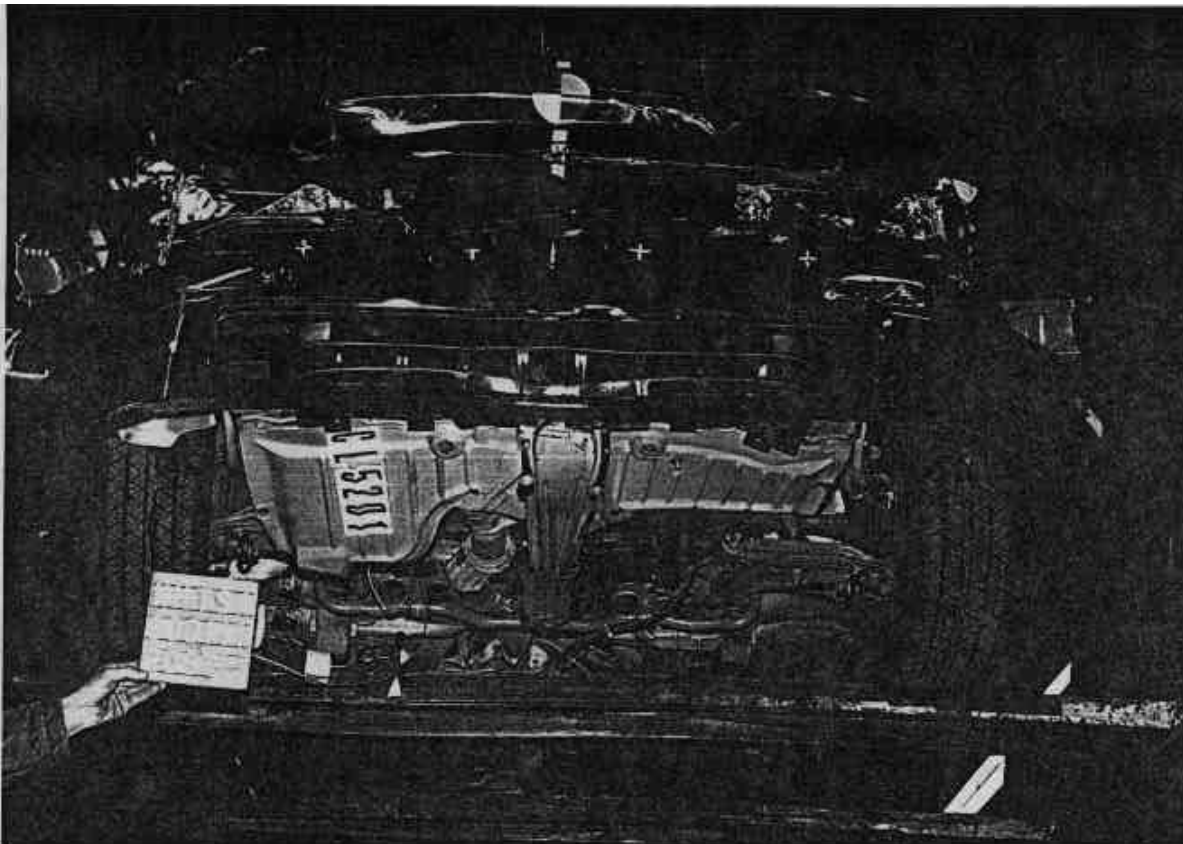


Figure A-19. POST-TEST FRONT UNDERBODY VIEW

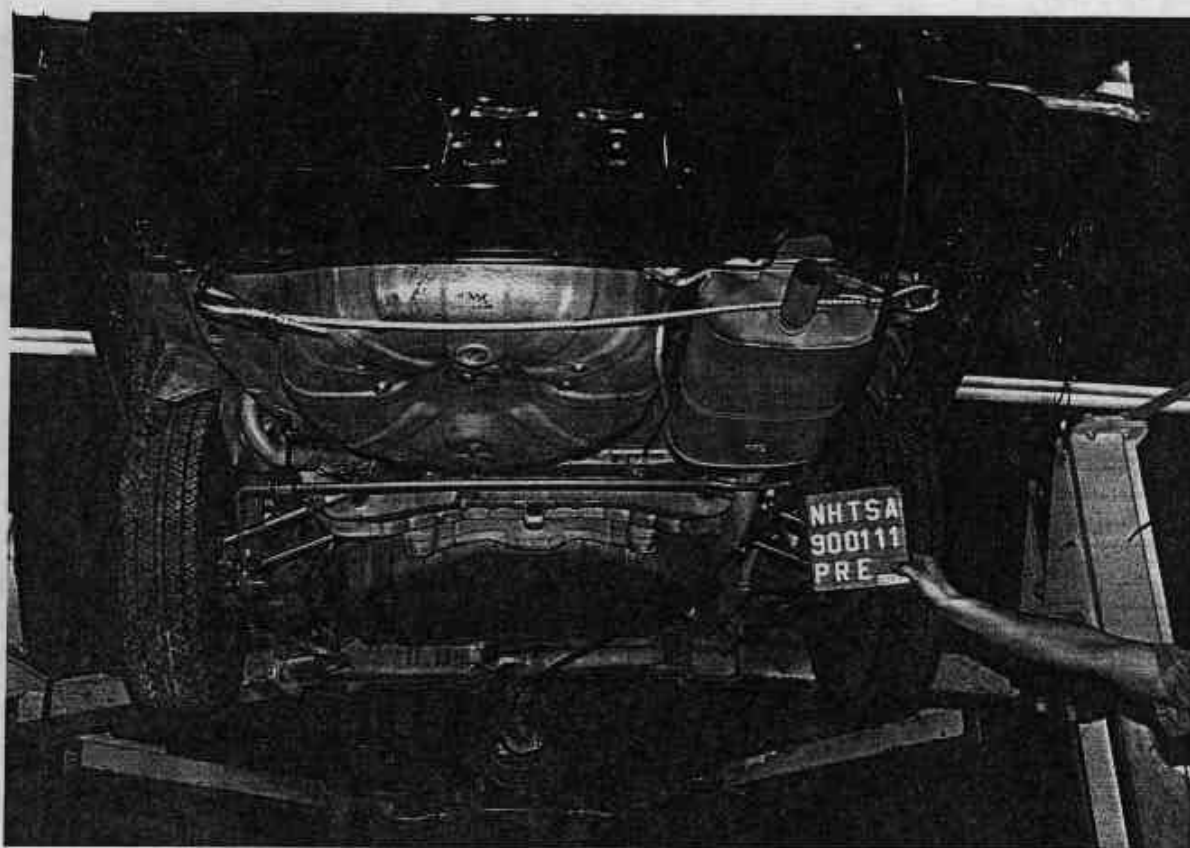


Figure A-20. PRE-TEST REAR UNDERBODY VIEW
A-11

900111

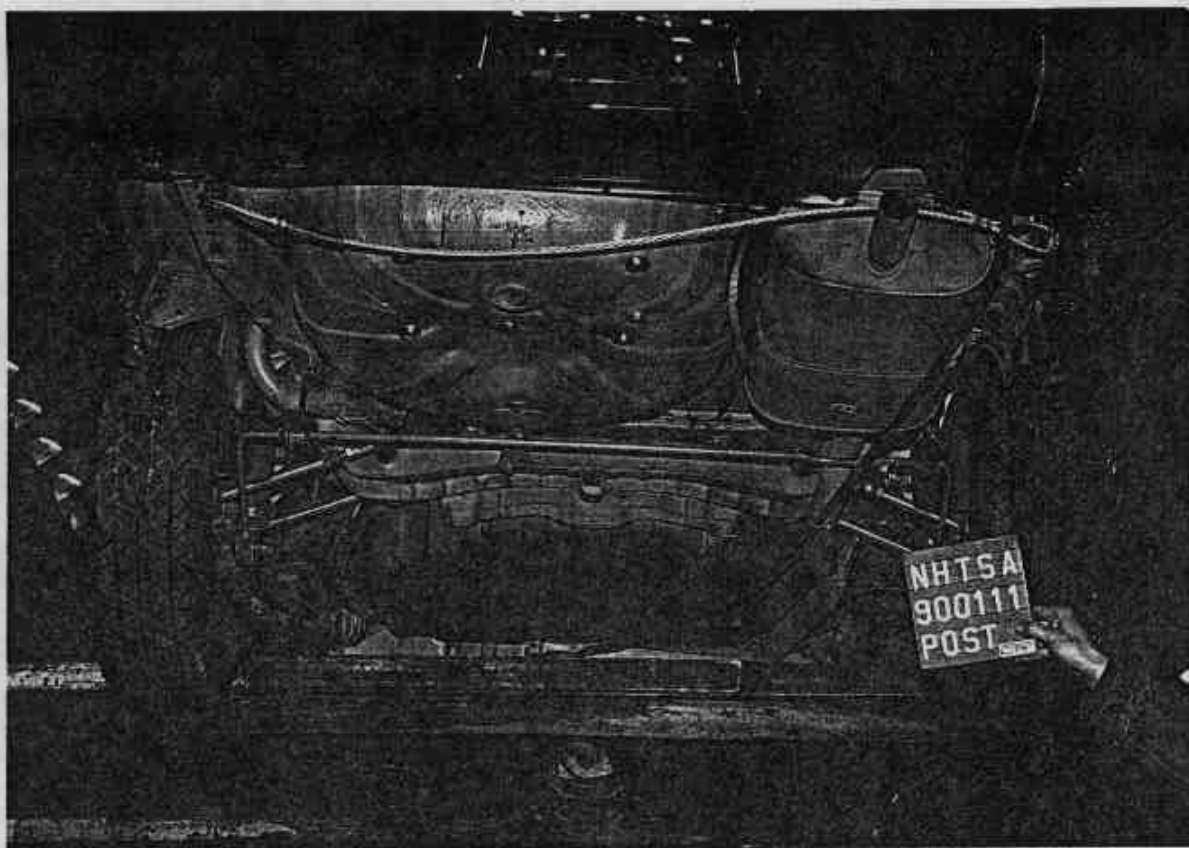


Figure A-21. POST-TEST REAR UNDERBODY VIEW

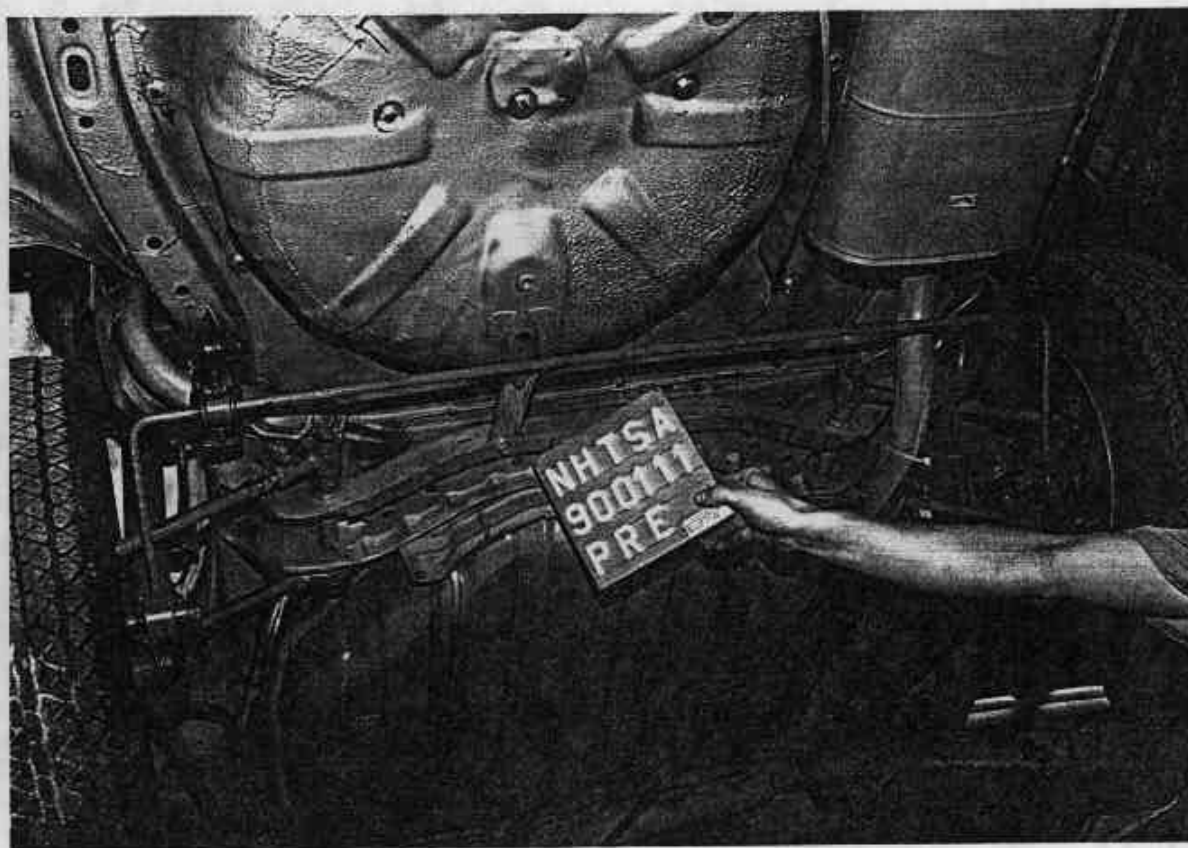


Figure A-22. PRE-TEST FUEL FILLER NECK VIEW
A-12

900111

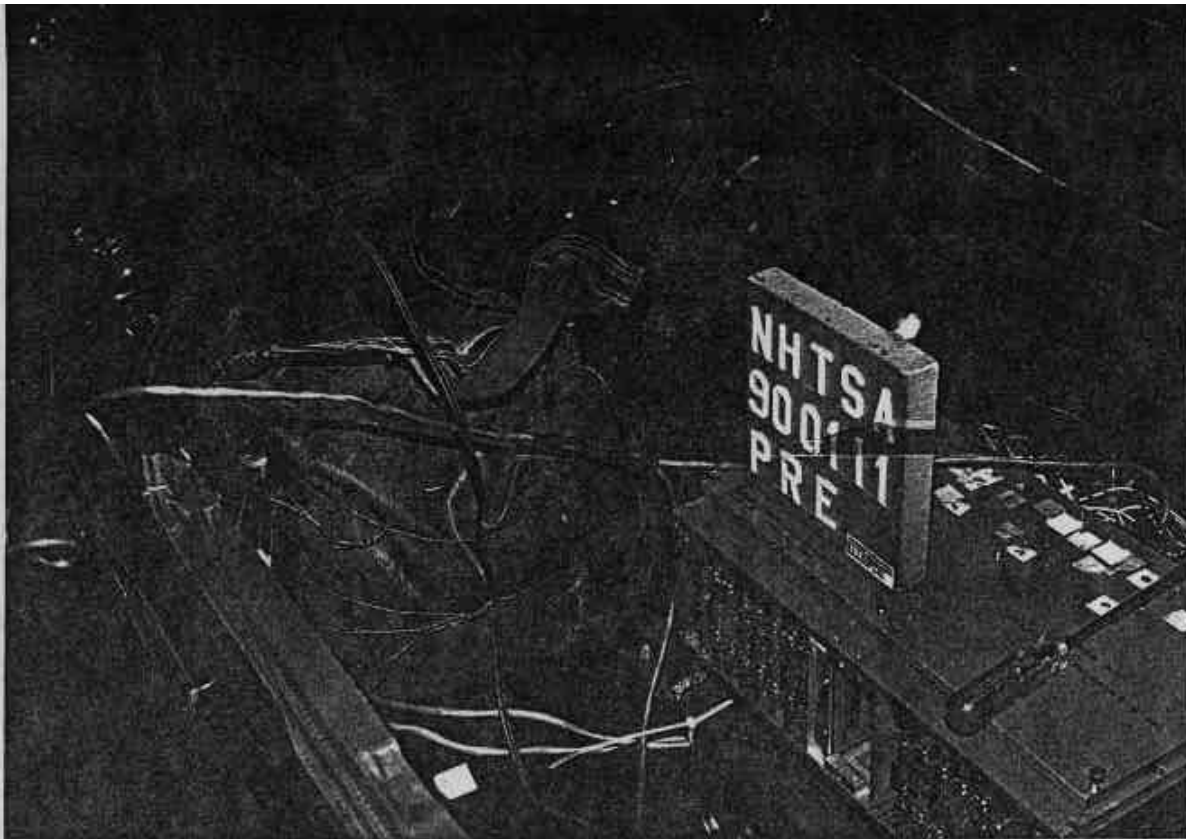


Figure A-23. PRE-TEST BALLAST LOCATION VIEW



Figure A-24. PRE-TEST DRIVER DUMMY POSITION VIEW
A-13

900111

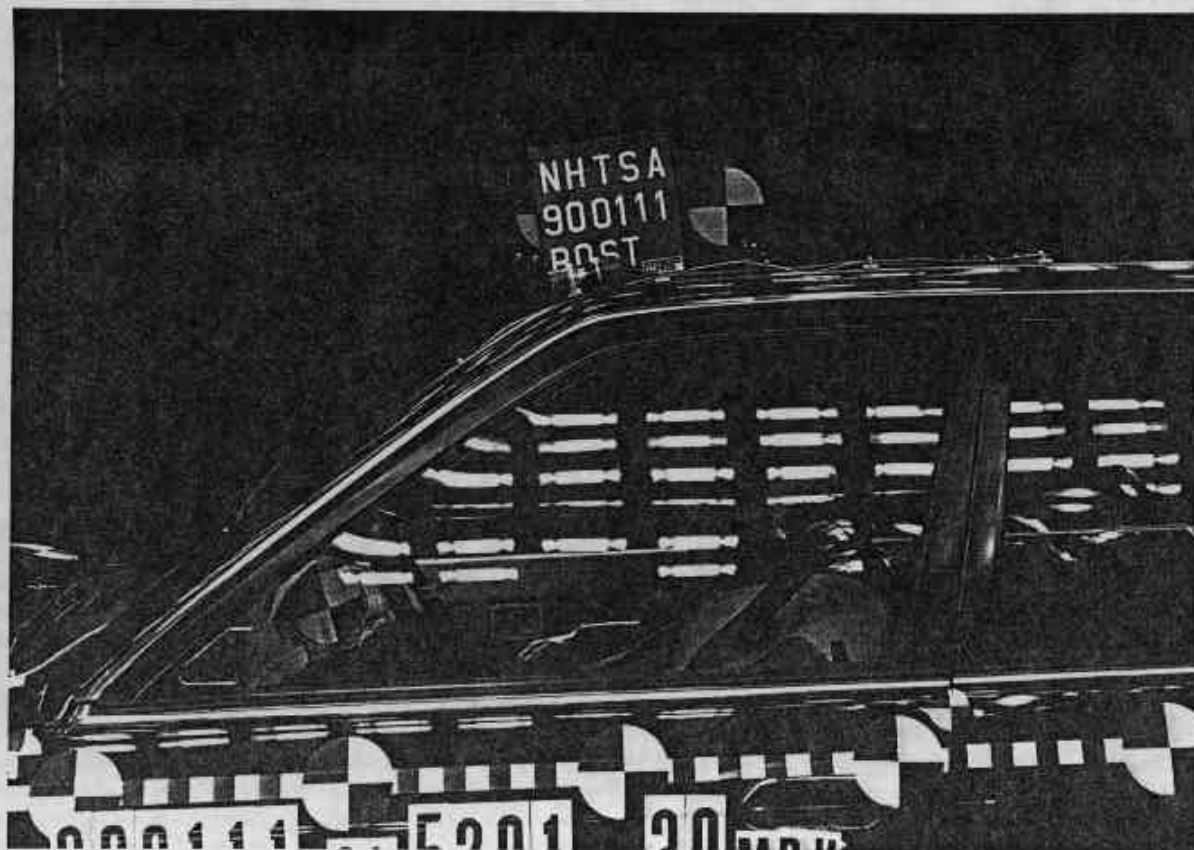


Figure A-25. POST-TEST DRIVER DUMMY POSITION VIEW

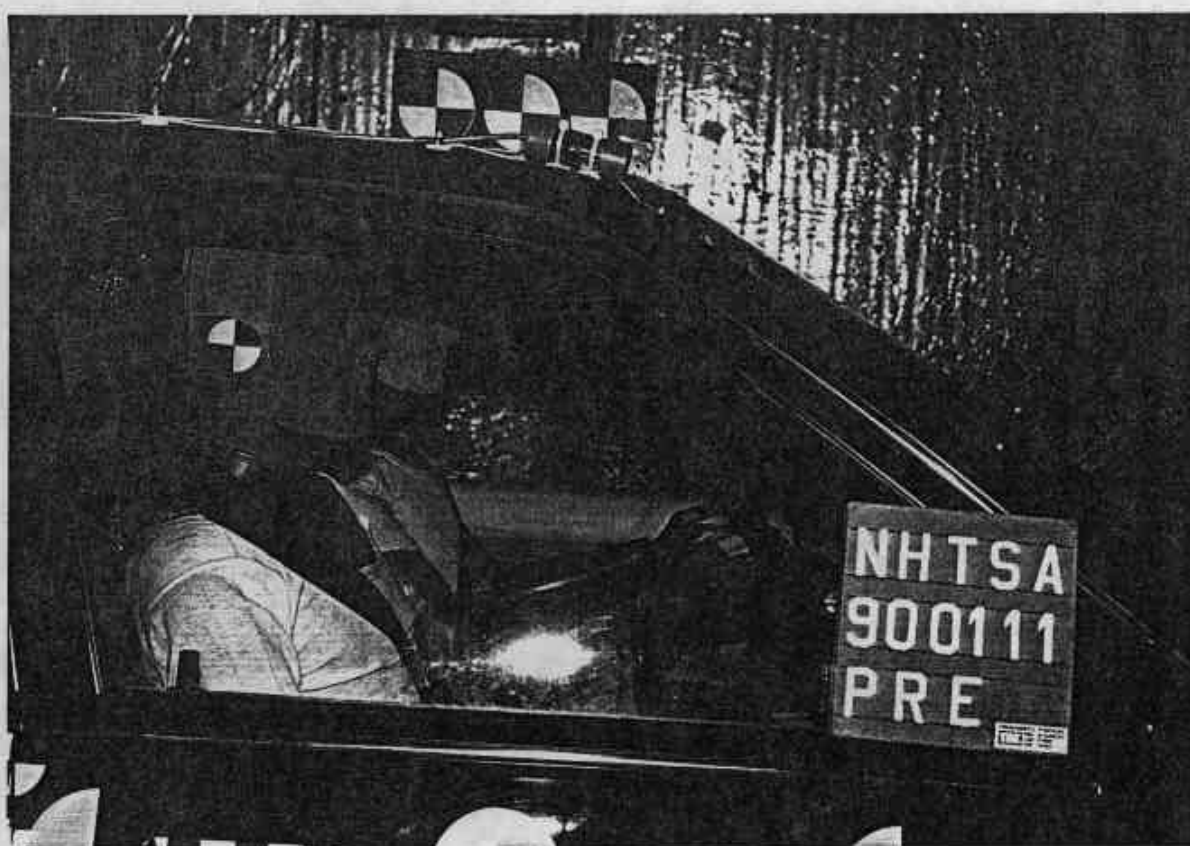


Figure A-26. PRE-TEST PASSENGER DUMMY POSITION VIEW

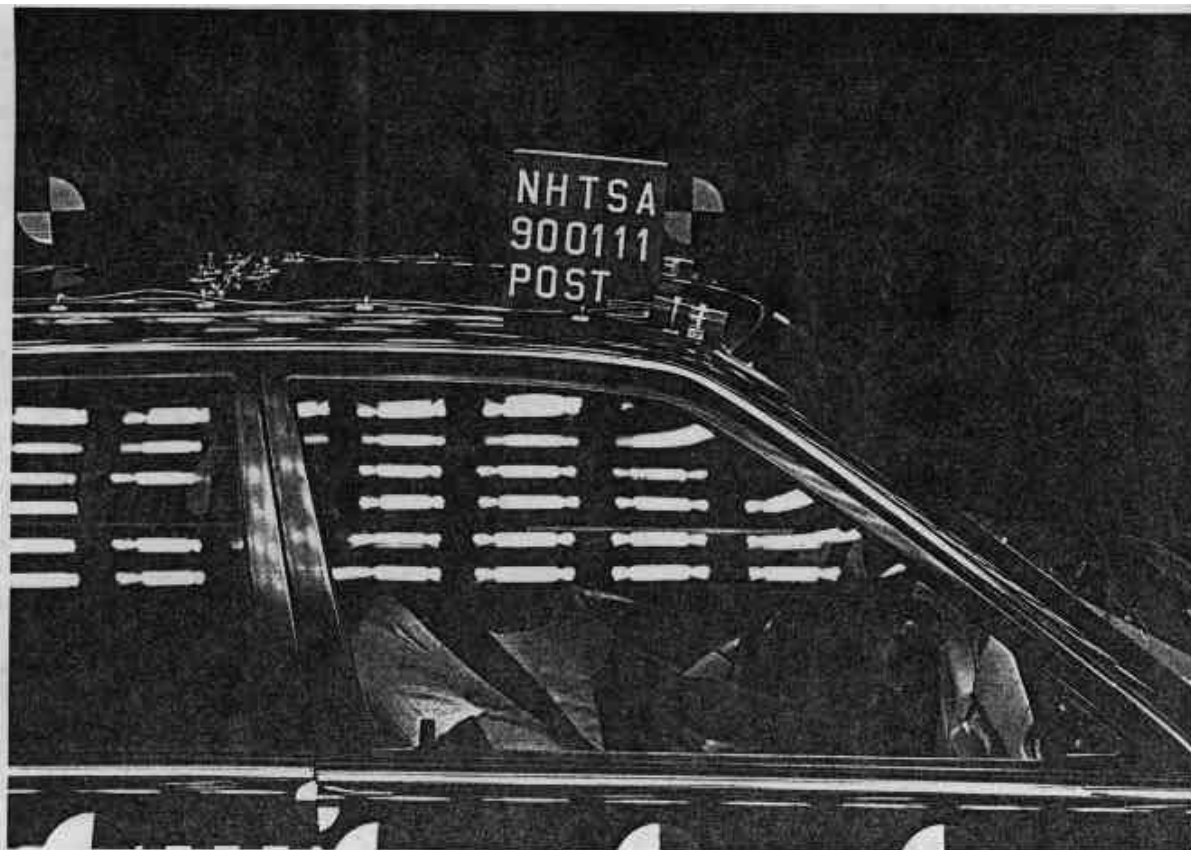


Figure A-27. POST-TEST PASSENGER DUMMY POSITION VIEW



Figure A-28. PRE-TEST DRIVER DUMMY & VEHICLE INTERIOR

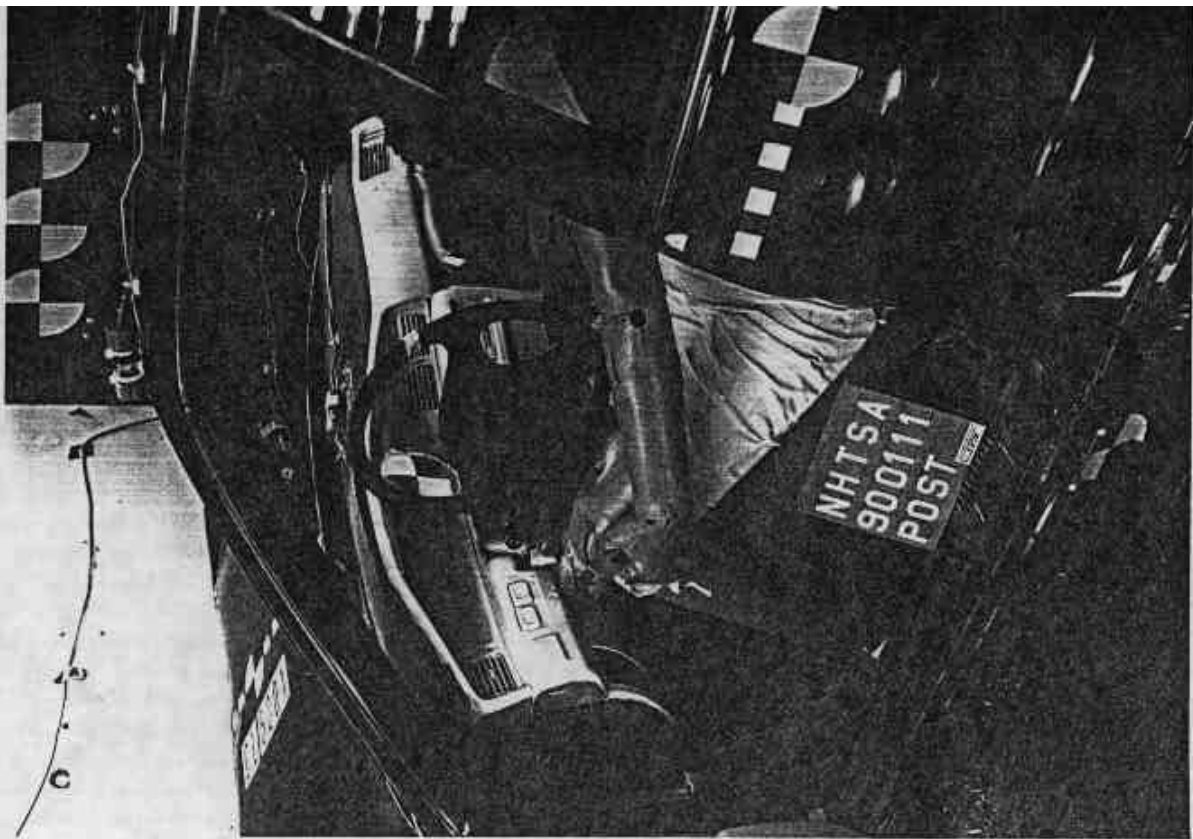


Figure A-29. POST-TEST DRIVER DUMMY & VEHICLE INTERIOR - VIEW 1

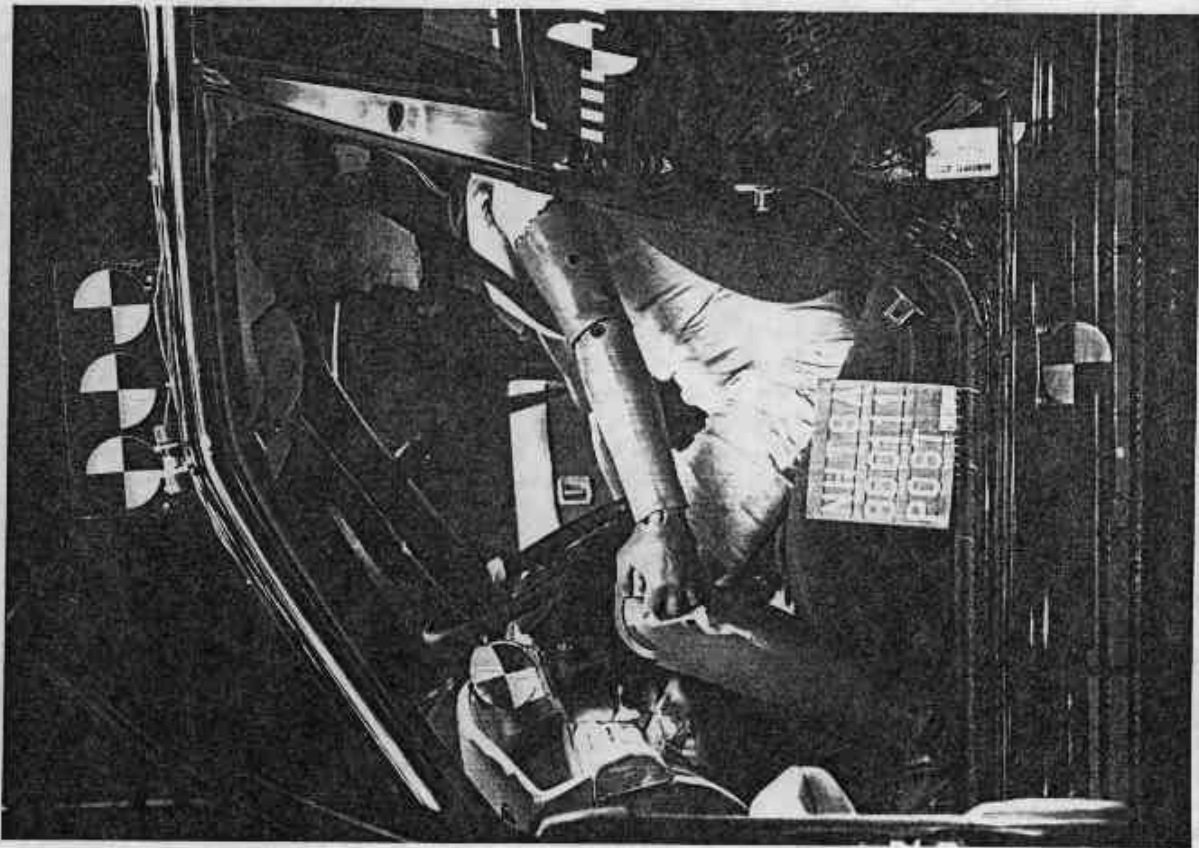


Figure A-30. POST-TEST DRIVER DUMMY & VEHICLE INTERIOR - VIEW 2

A-16

900111



Figure A-31. POST-TEST PASSENGER DUMMY & VEHICLE INTERIOR - VIEW 1



Figure A-32. POST-TEST PASSENGER DUMMY & VEHICLE INTERIOR - VIEW 2

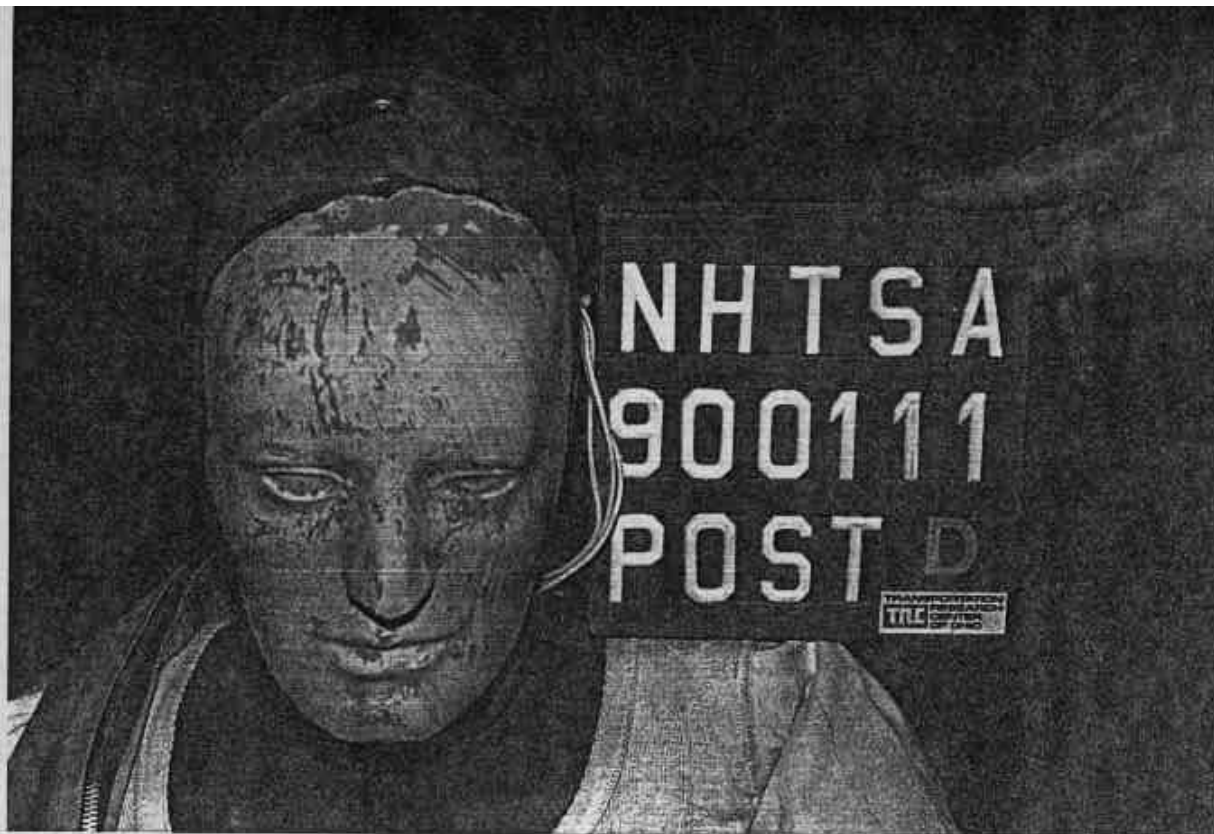


Figure A-33. POST-TEST DRIVER DUMMY HEAD CONTACT VIEW

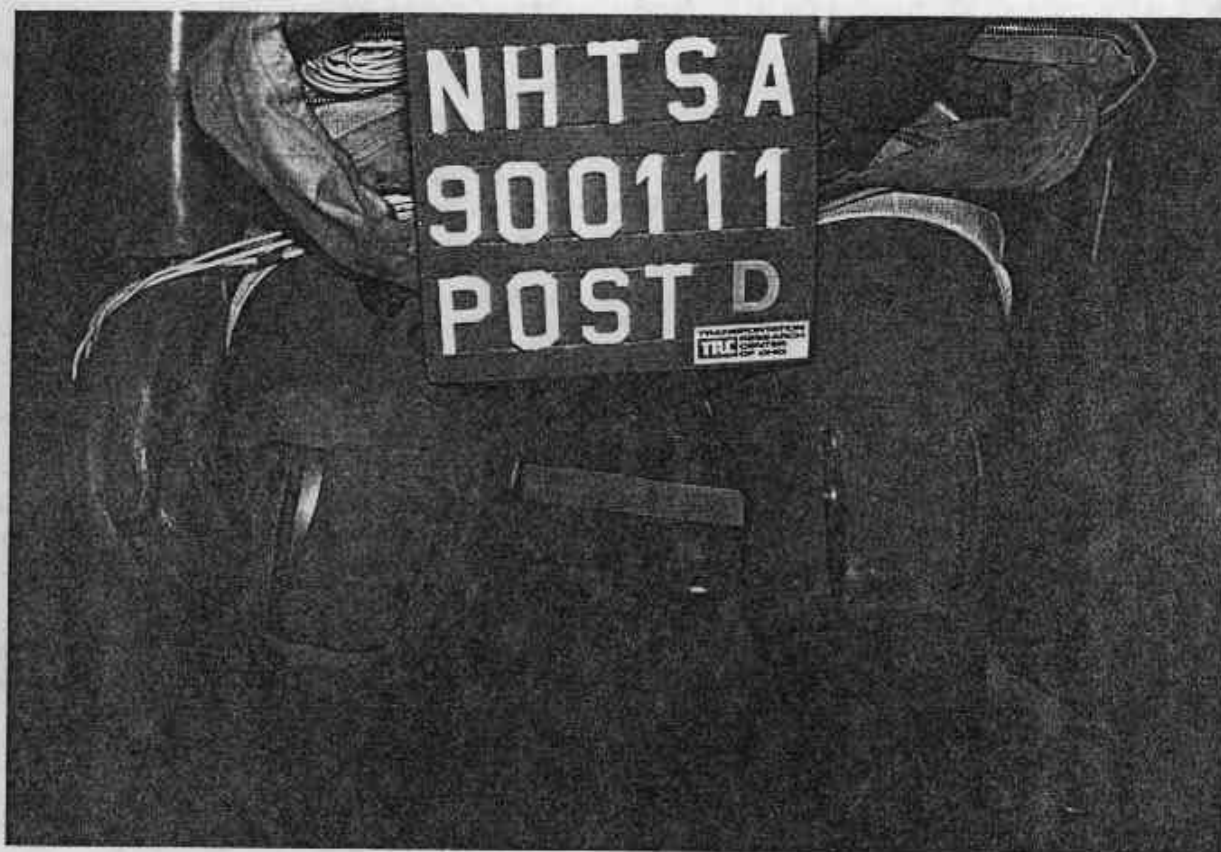


Figure A-34. POST-TEST DRIVER DUMMY KNEE CONTACT - VIEW 1



Figure A-35. POST-TEST DRIVER DUMMY KNEE CONTACT - VIEW 2



Figure A-36. POST-TEST PASSENGER DUMMY HEAD CONTACT VIEW



Figure A-37. POST-TEST PASSENGER DUMMY KNEE CONTACT - VIEW 1

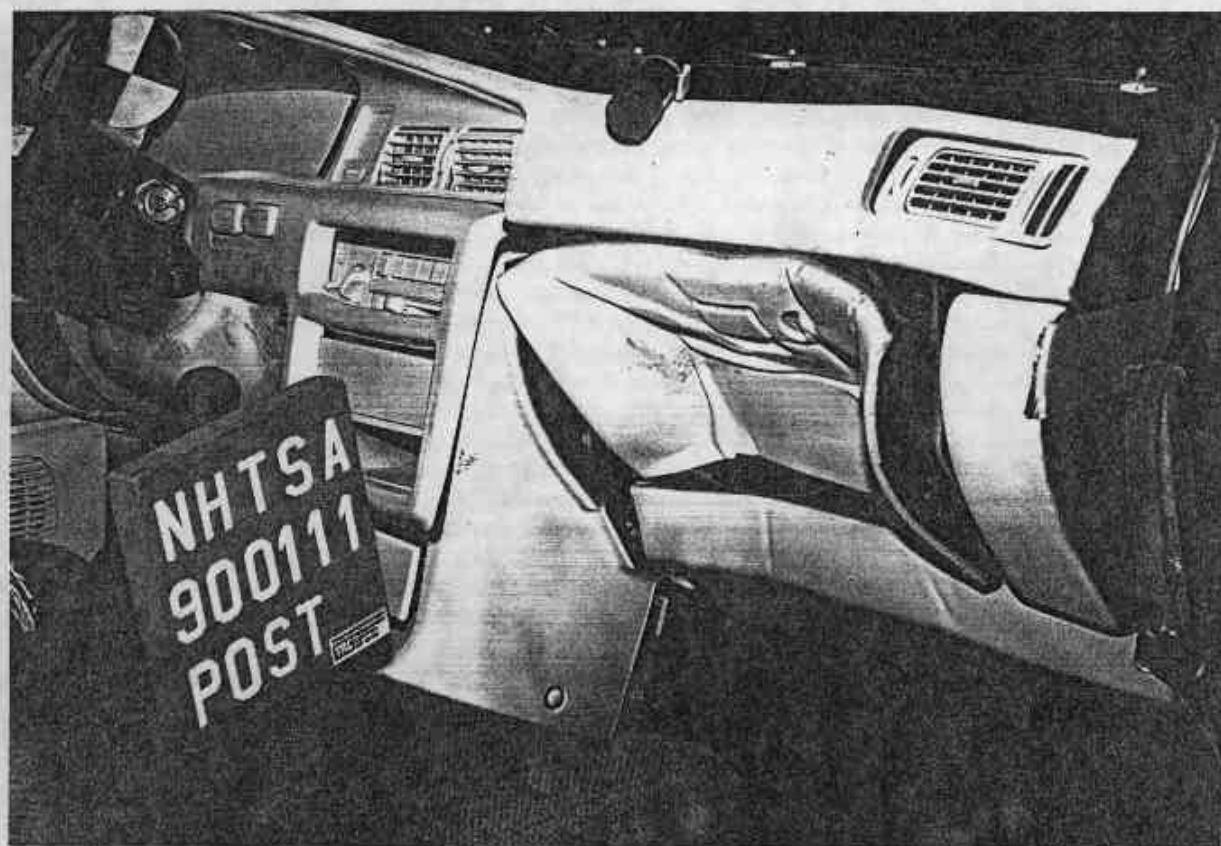


Figure A-38. POST-TEST PASSENGER DUMMY KNEE CONTACT - VIEW 2

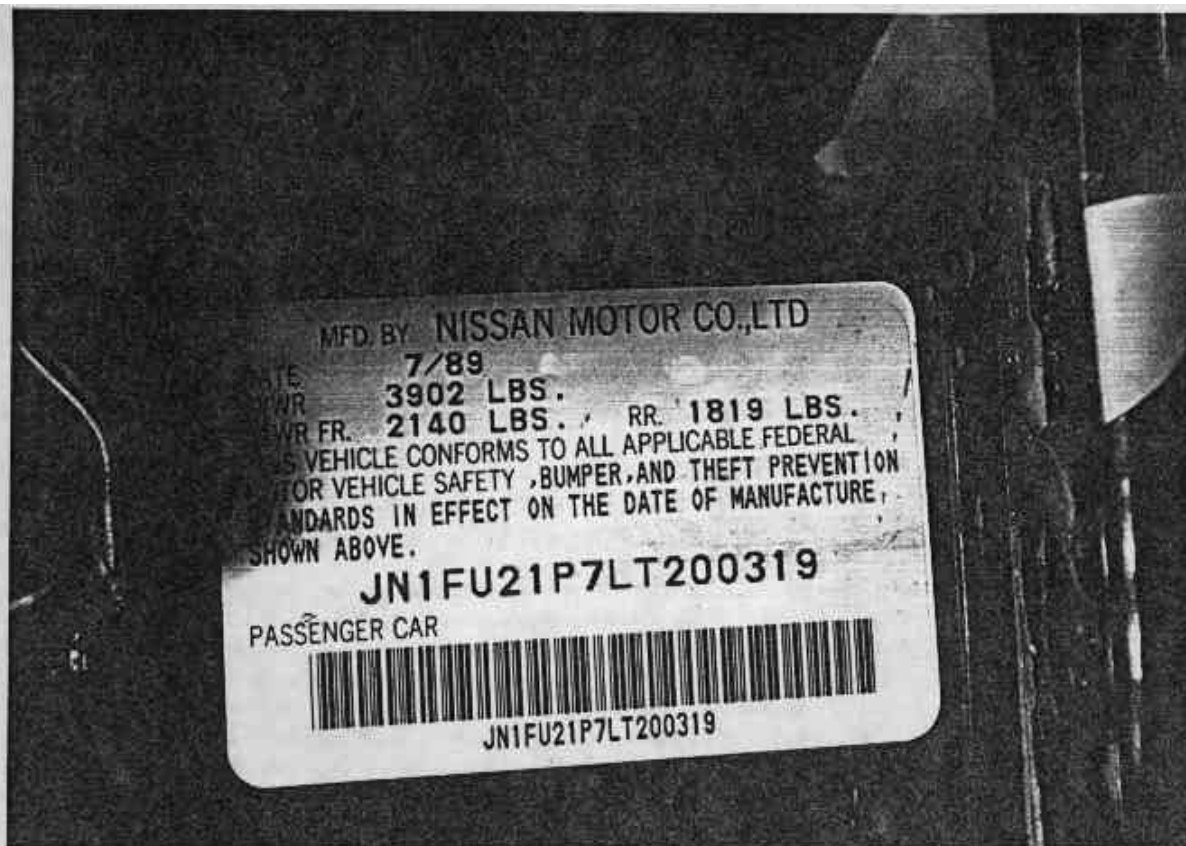


Figure A-39. PRE-TEST CERTIFICATION LABEL VIEW

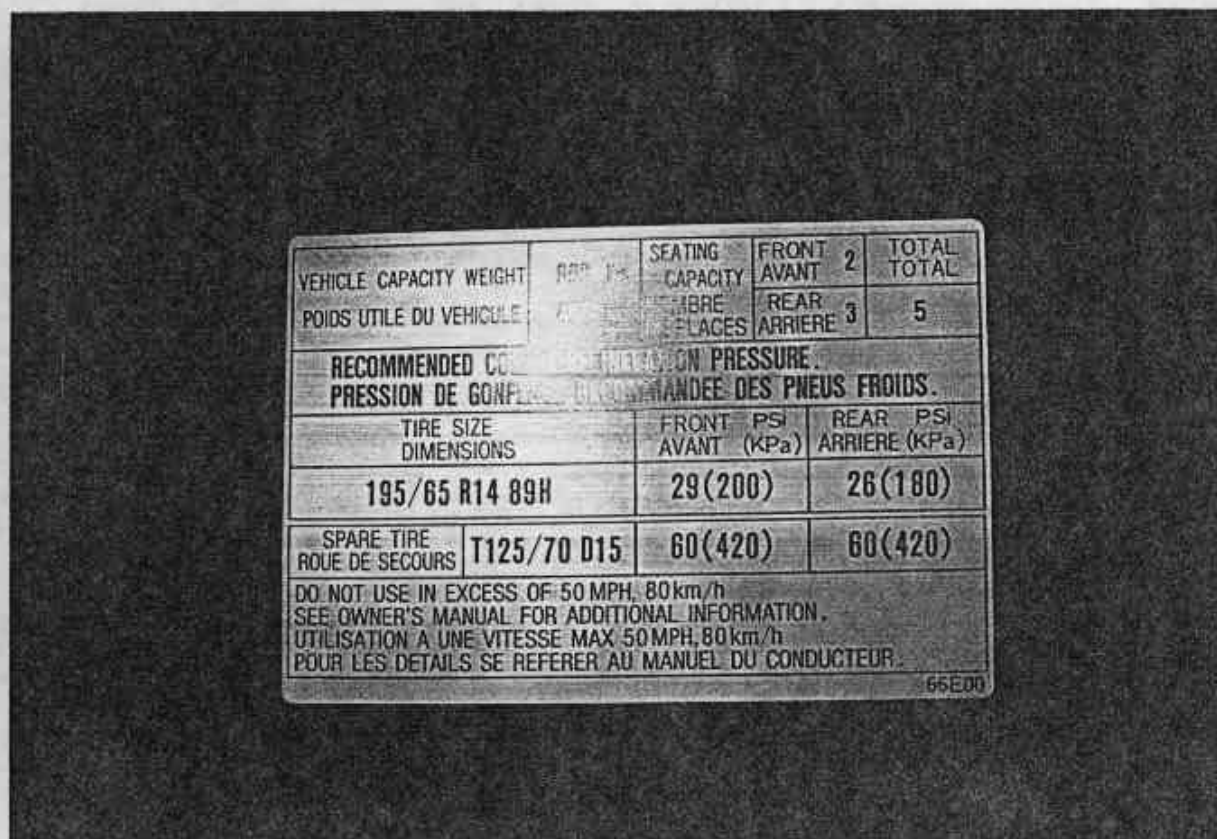


Figure A-40. PRE-TEST VEHICLE TIRE LOAD LABEL VIEW

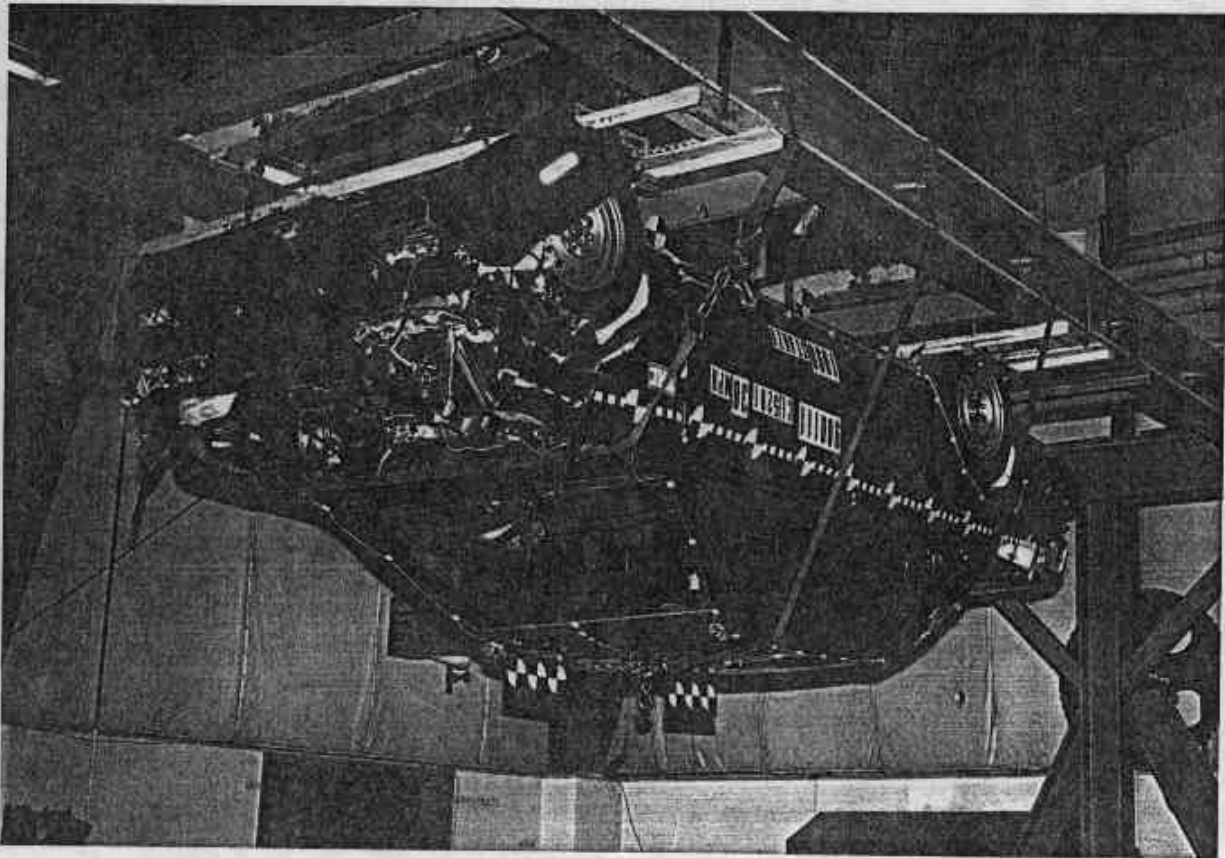


Figure A-41. POST-TEST VEHICLE ON ROLLOVER MACHINE VIEW

APPENDIX B

DATA PLOTS

DUMMY AND VEHICLE AXES: X: FRONT/REAR
Y: LEFT/RIGHT
Z: UP/DOWN

THC 900111

208 COMPLIANCE

90011

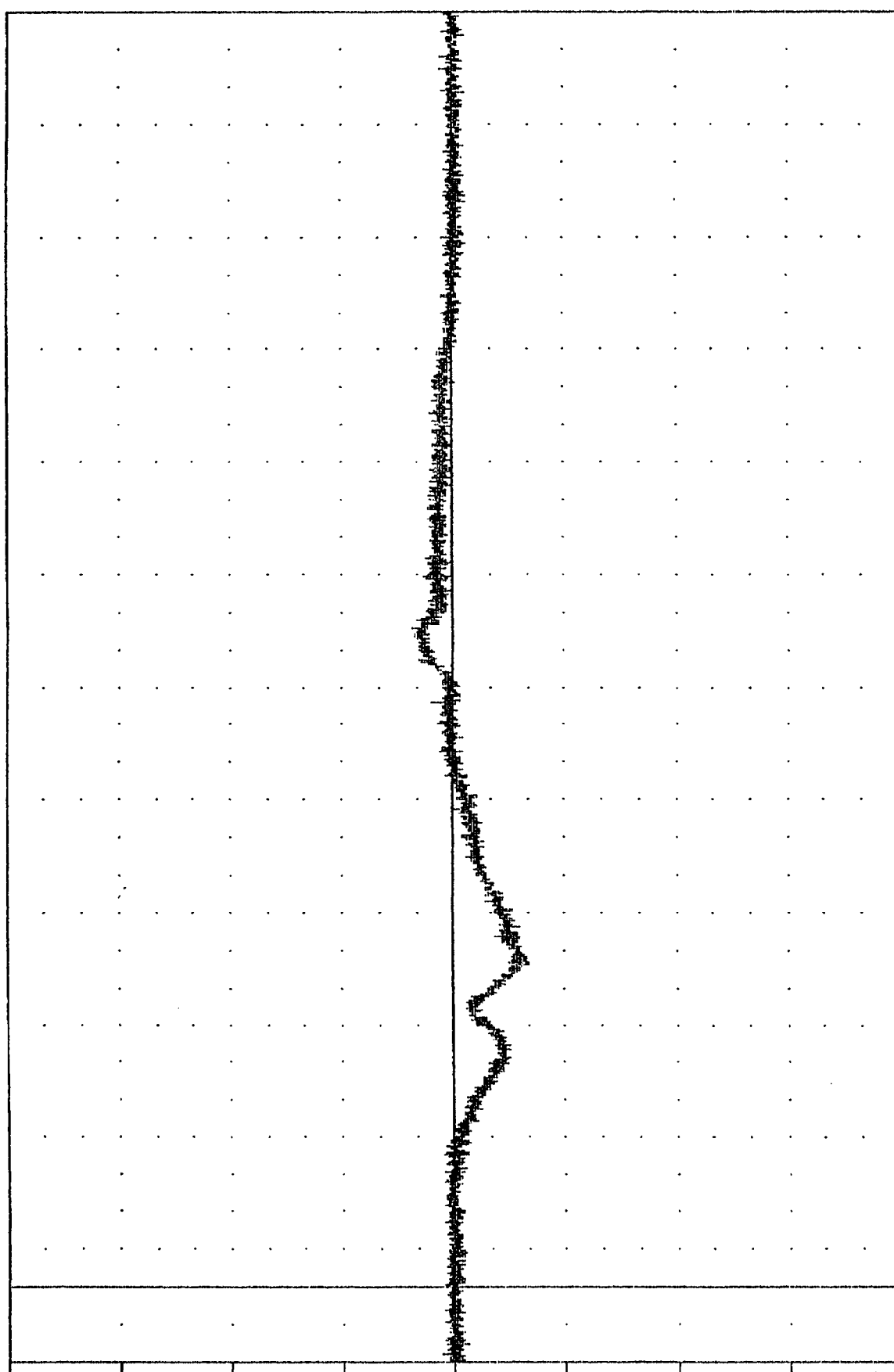
HEDX61

FILTER = ALPF 1650/ 5214/ -40

MIN, MAX VALUES = -40.388

86.13, 21.87 2 175.38

ACCELERATION (G)

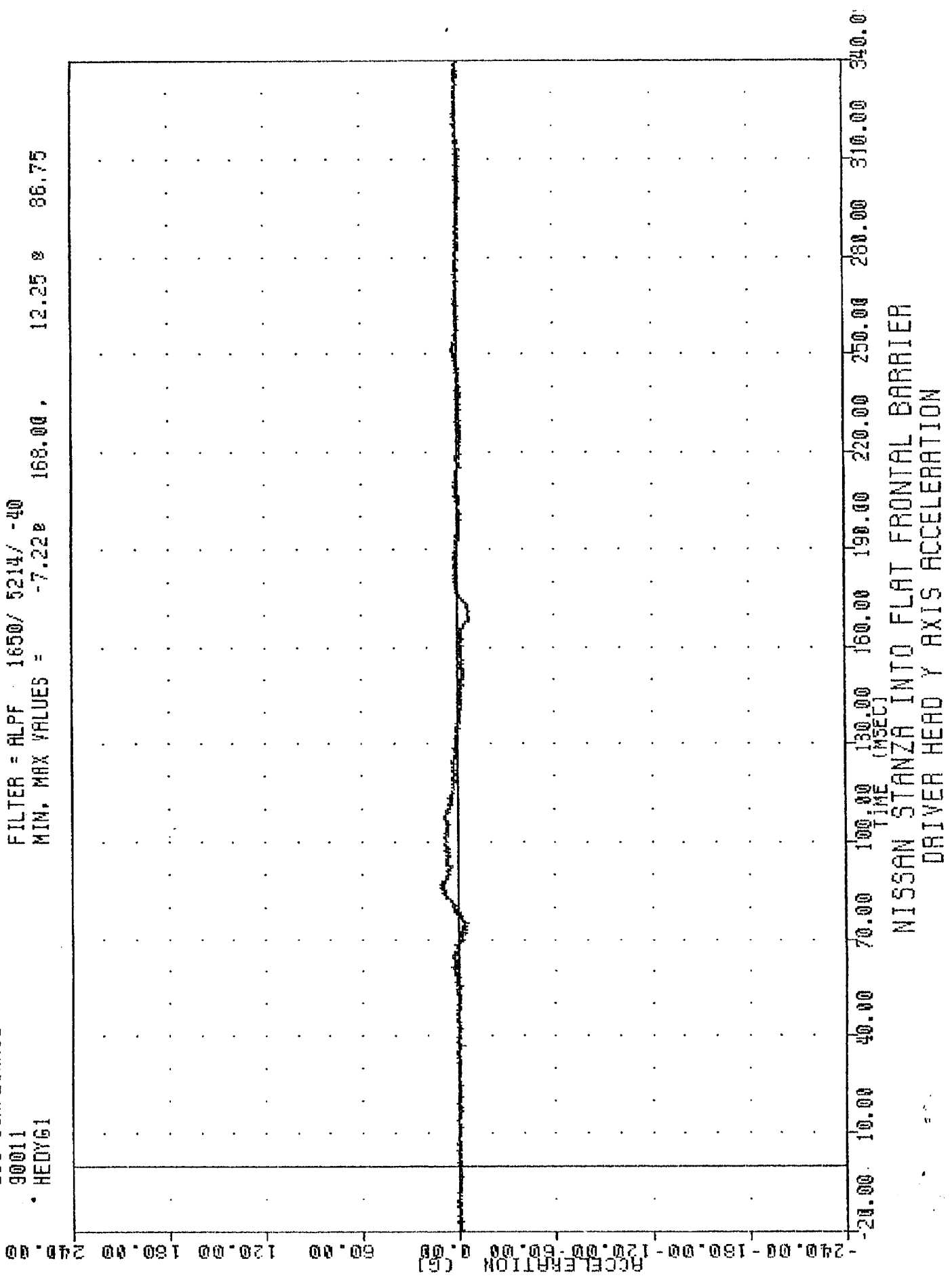


TIME (MSEC)

NISSAN STANZA INTO FLAT FRONTAL BARRIER
DRIVER HEAD X AXIS ACCELERATION

TRC
200 COMPLIANCE
90011
HEDY61

FILTER = ALPF 1650/ 5214/ -40
MIN. MAX VALUES = -7.22g 168.00, 12.25 g 86.75



TRC 900111

200 COMPLIANCE

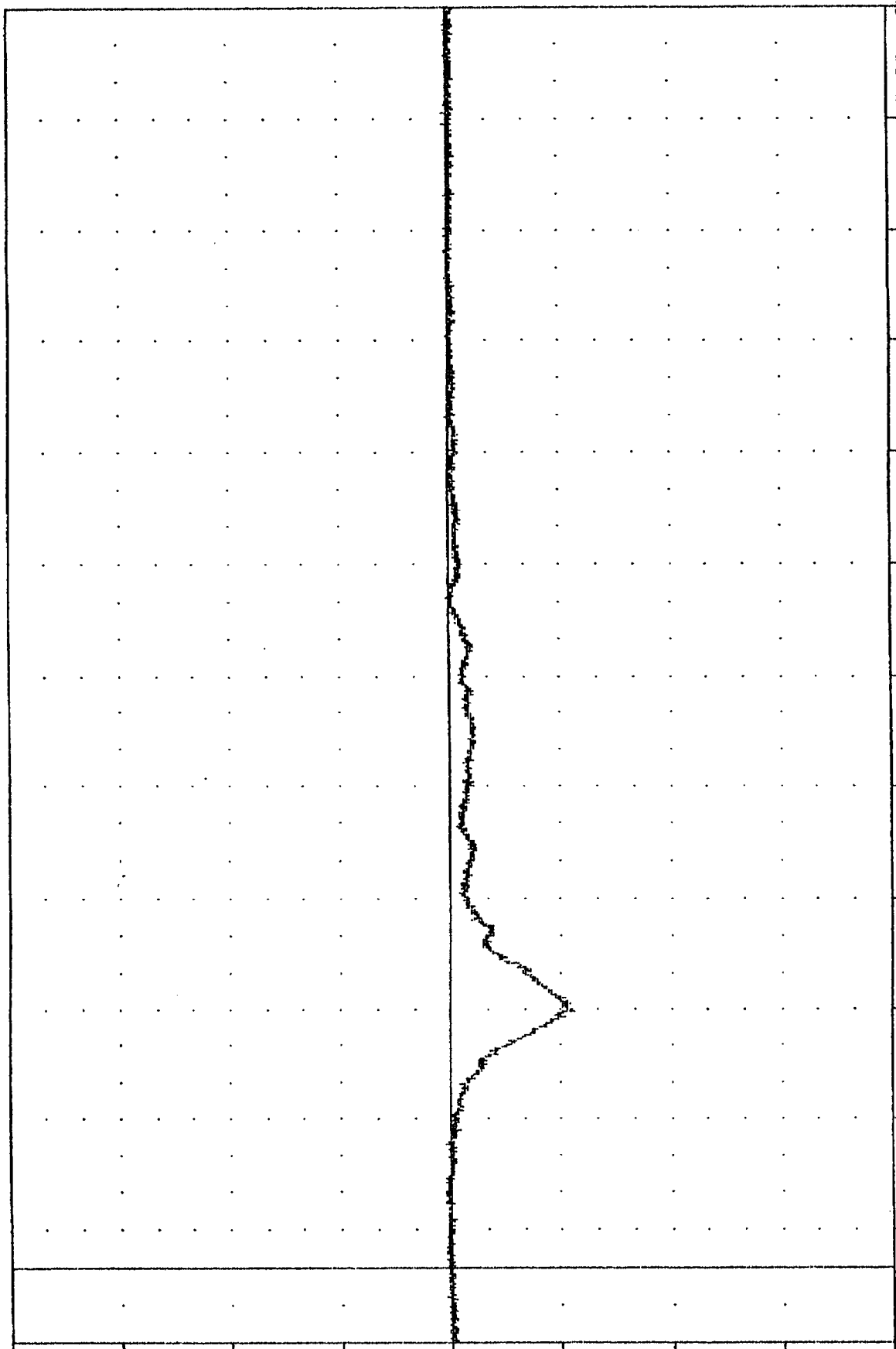
90011

HE0261

FILTER = ALPF 1650/ 5214/ -40

MIN. MAX VALUES = -66.62 69.50 3.18 5.13

ACCELERATION (G)



240.00 180.00 120.00 60.00 0.00 -60.00 -120.00 -180.00 -240.00

0.00 10.00 20.00 30.00 40.00 50.00 60.00 70.00 80.00 90.00 100.00 110.00 120.00 130.00 140.00 150.00 160.00 170.00 180.00 190.00 200.00 210.00 220.00 230.00 240.00 250.00 260.00 270.00 280.00 290.00 300.00 310.00 320.00 330.00 340.00

NISSAN STANZA INTO FLAT FRONTAL BARRIER
DRIVER HEAD Z AXIS ACCELERATION

TRC, 900111

208 COMPLIANCE

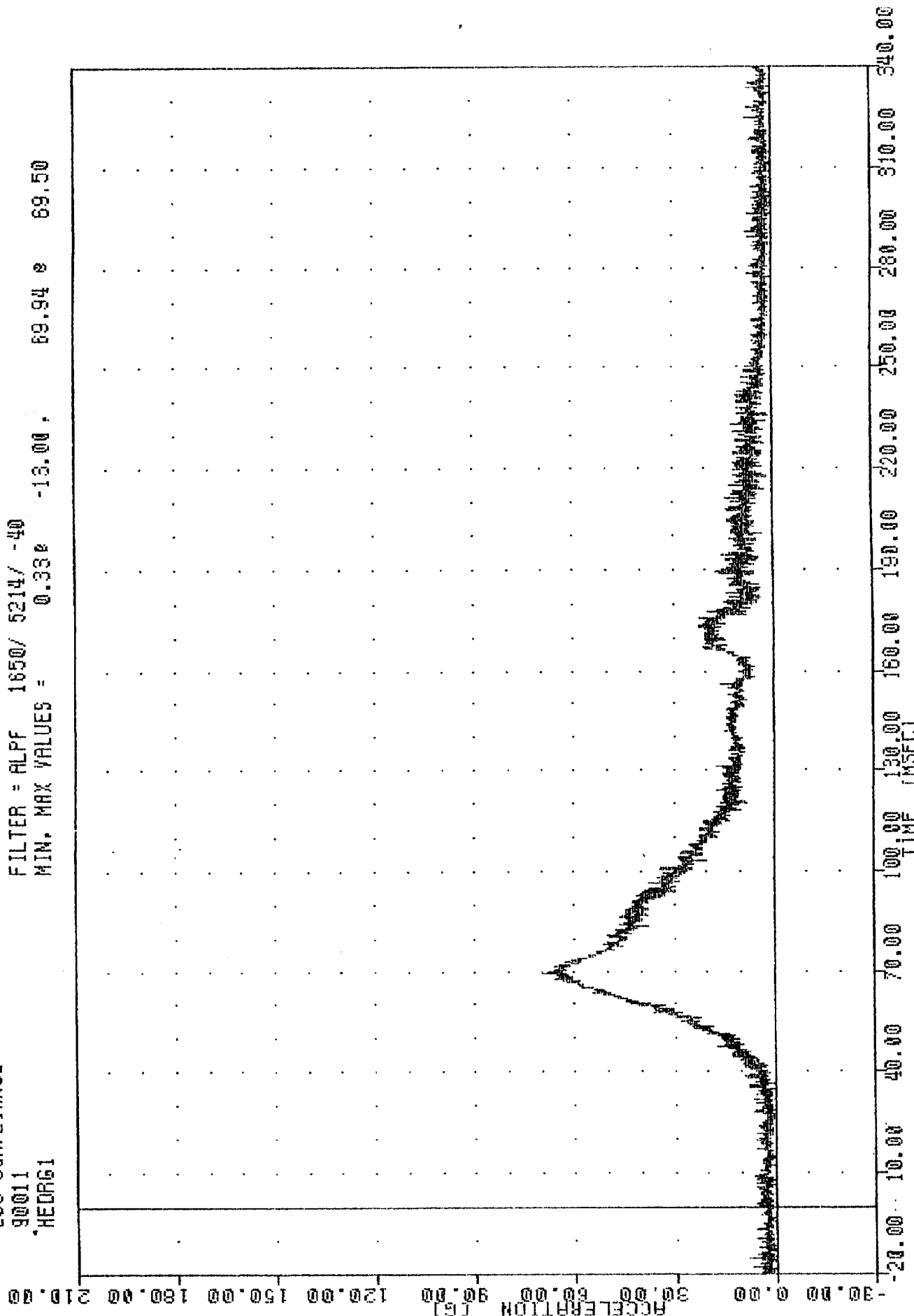
900111

*HEADG1

FILTER = ALPF 1650/ 5214/ -40

MIN. MAX VALUES = 0.33e -13.00

69.94 e 69.50



TRC 900111

208 COMPLIANCE

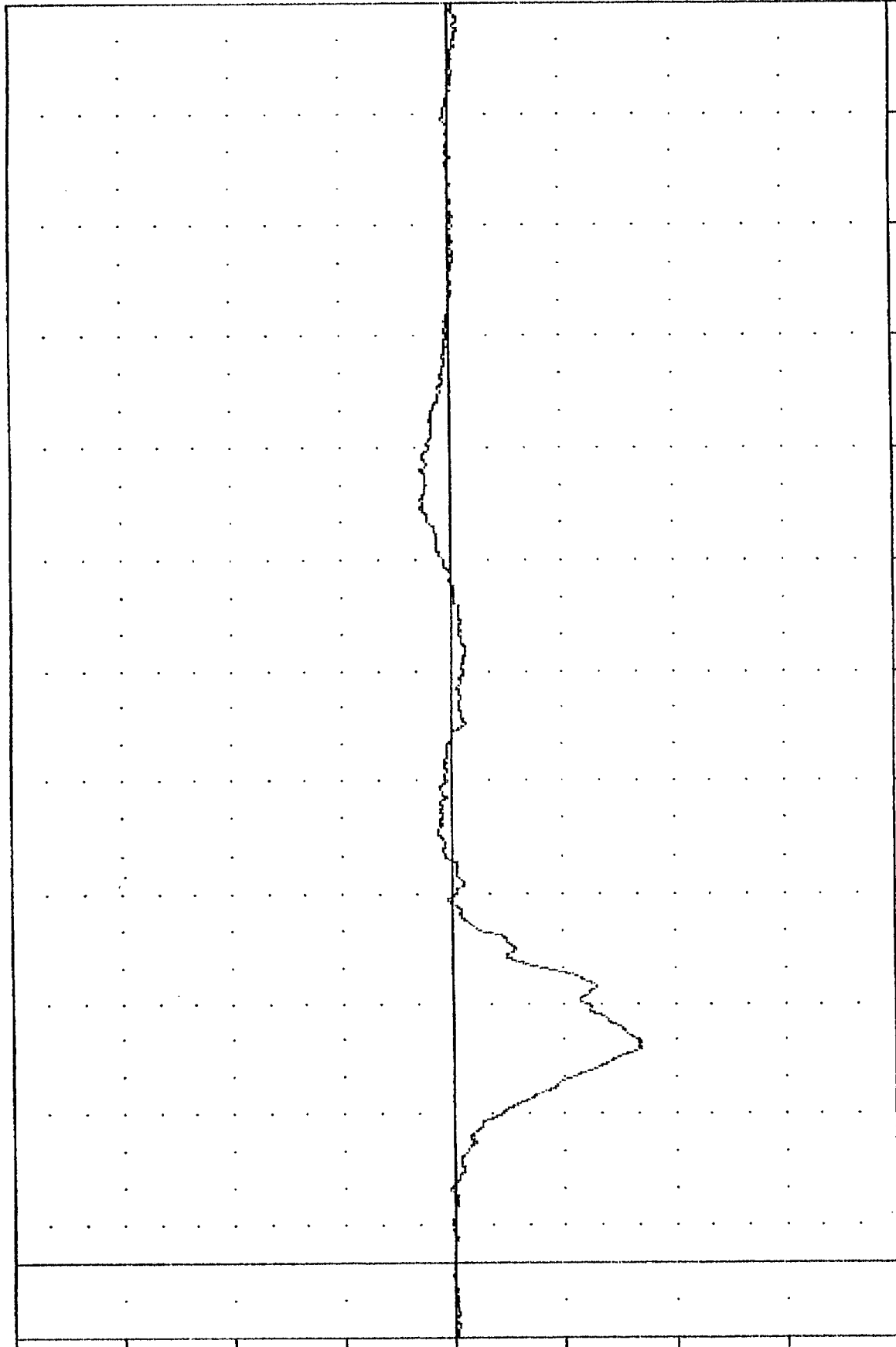
90011

CSTXG1

FILTER = BLPP 300/ 750/ -16

MIN, MAX VALUES = -50.61e 57.88, 8.19 e 206.00

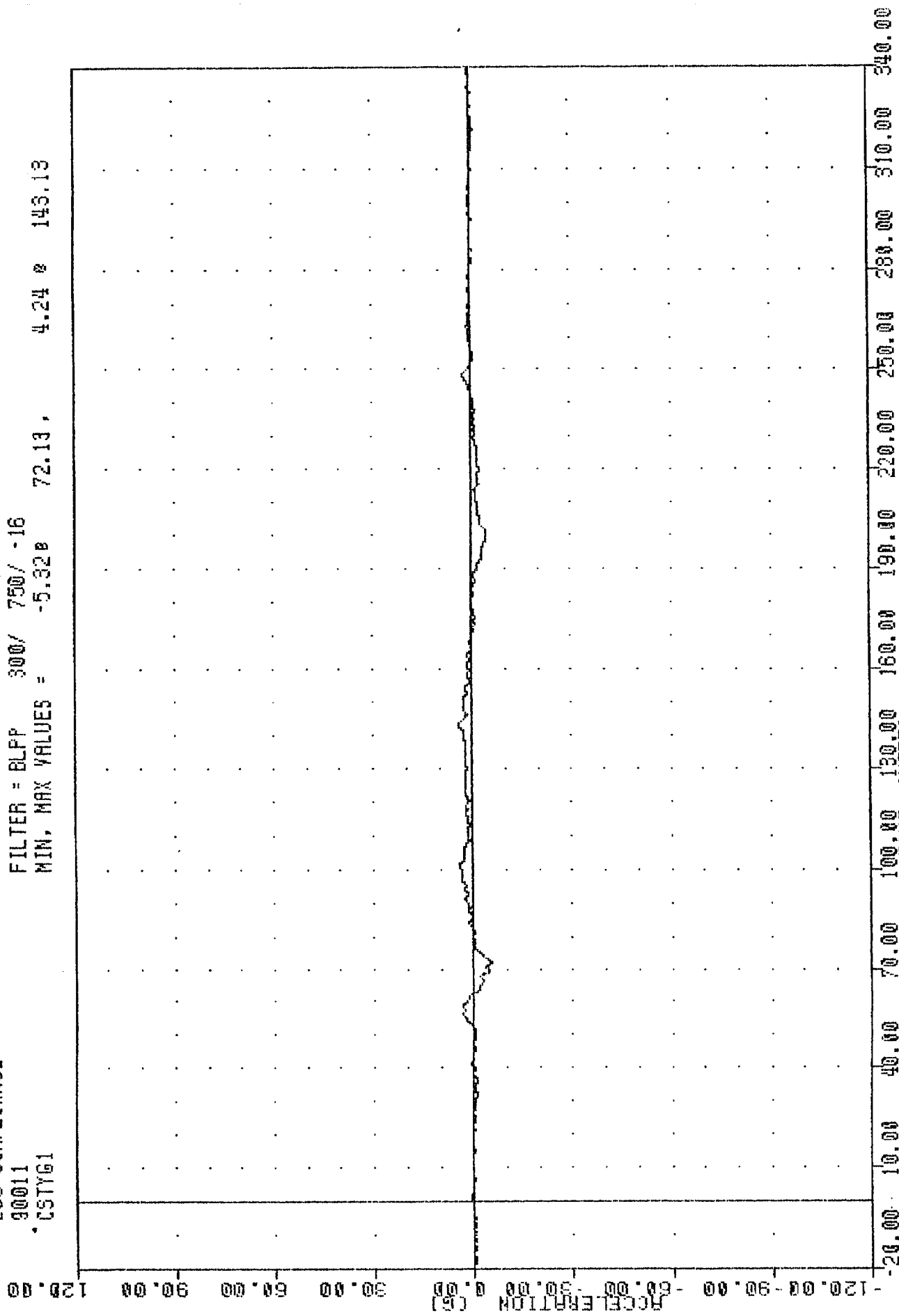
ACCELERATION (G)



NISSAN STANZA INTO FLAT FRONTAL BARRIER
DRIVER CHEST X AXIS ACCELERATION

TRC 900111
 208 COMPLIANCE
 90011
 CSTY61

FILTER = BLPP 300/ 750/ -16
 MIN. MAX VALUES = -5.328 72.13 4.24 143.13



NISSAN STANZA INTO FLAT FRONTAL BARRIER
 DRIVER CHEST Y AXIS ACCELERATION

TRC 900111

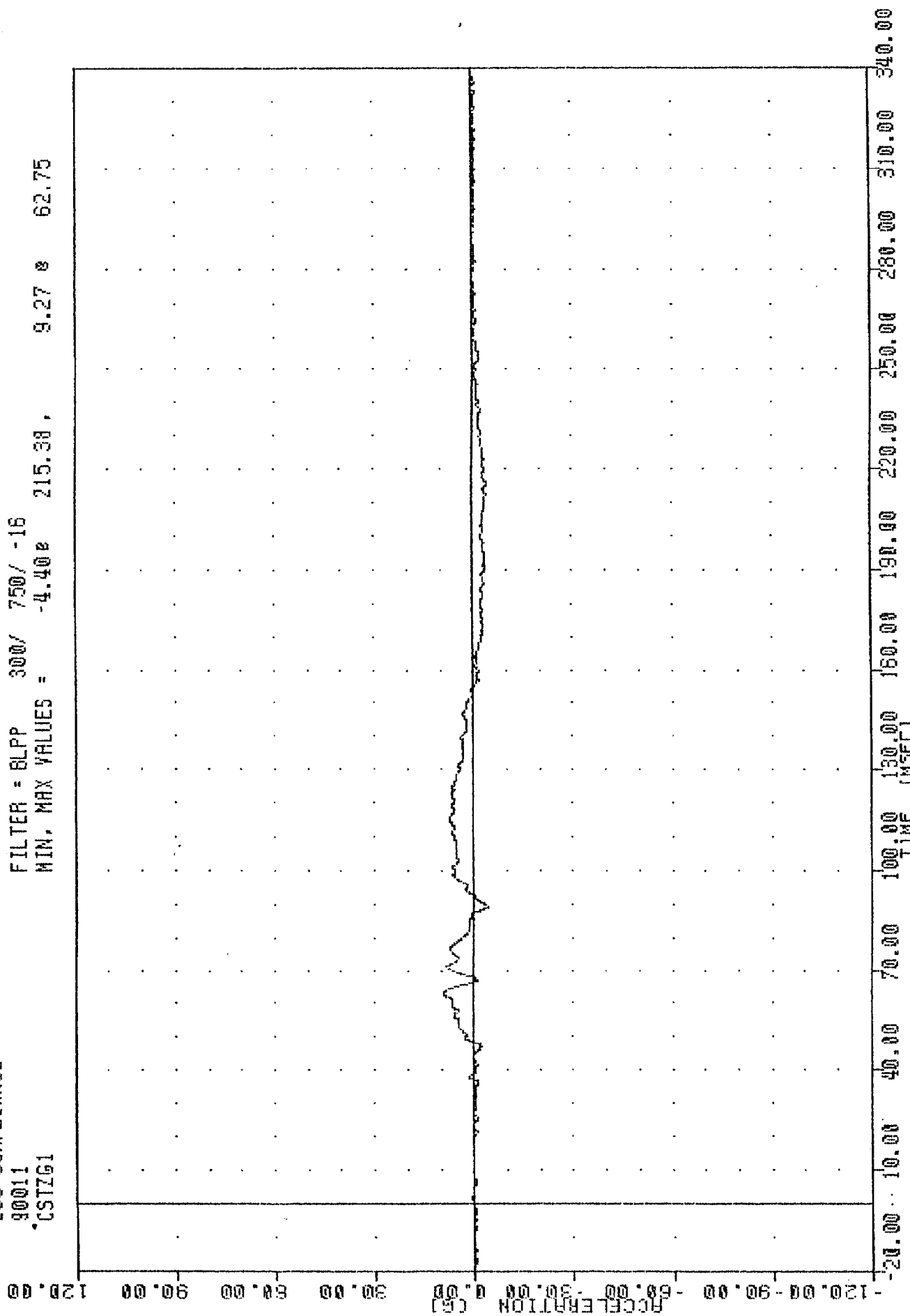
200 COMPLIANCE

90011

CSTZG1

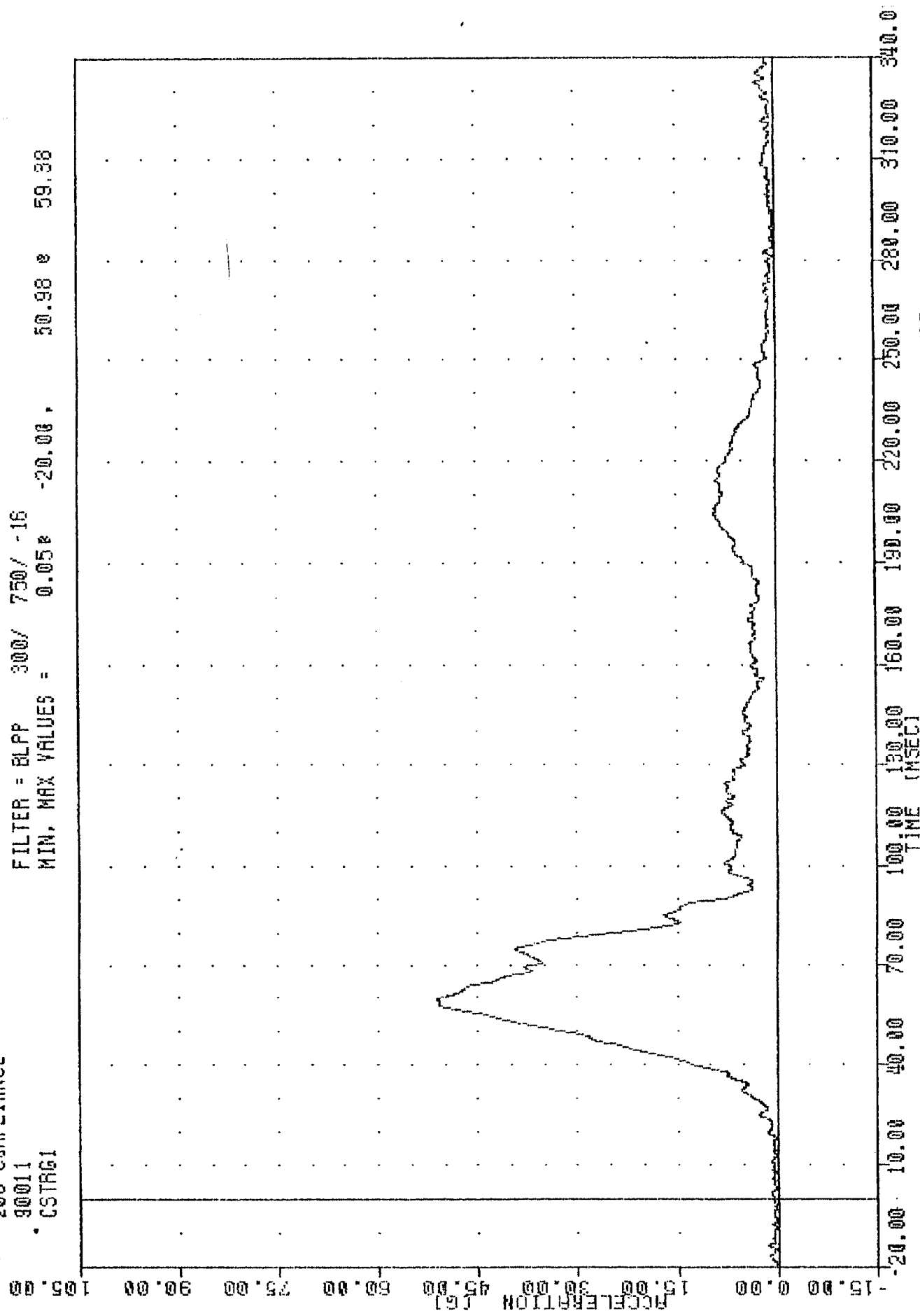
FILTER = BLPP 300/ 750/ -16

MIN. MAX VALUES = -4.40E 215.38 9.27 62.75



IRC
 208 COMPLIANCE
 90011
 CSTRG1

FILTER = BLPP 300/ 750/ -16
 MIN. MAX VALUES = 0.05e -20.00 , 50.98 e 59.38



NISSAN STANZA INTO FLAT FRONTAL BARRIER
 DRIVER CHEST RESULTANT ACCELERATION

TRC 900111

200 COMPLIANCE

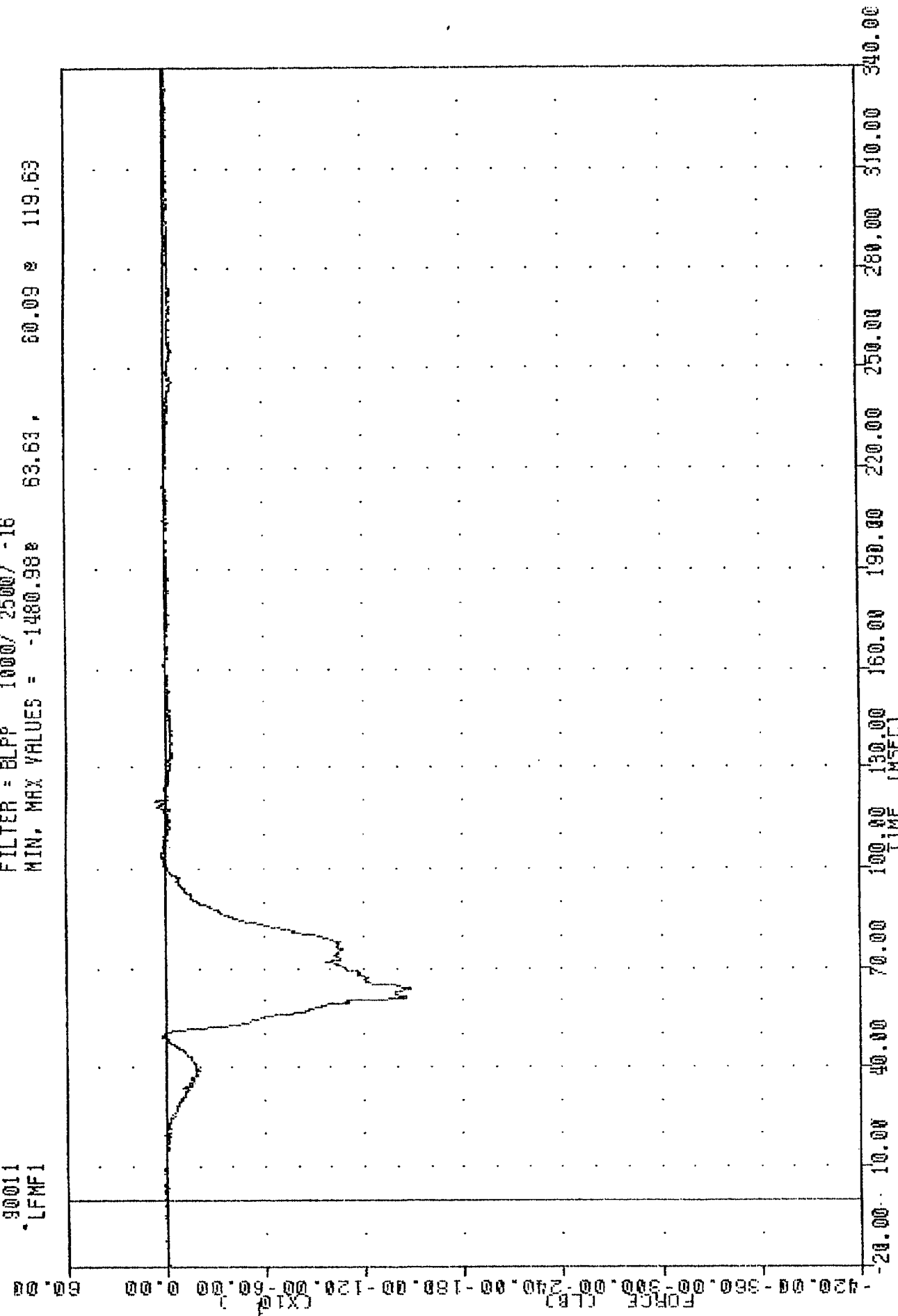
90011

LFMF1

FILTER = BLPP 1000/ 2500/ -16

MIN. MAX VALUES = -1480.98 63.63

60.09 119.63



NISSAN STANZA INTO FLAT FRONTAL BARRIER
DRIVER LEFT FEMUR FORCE

TRC 900111

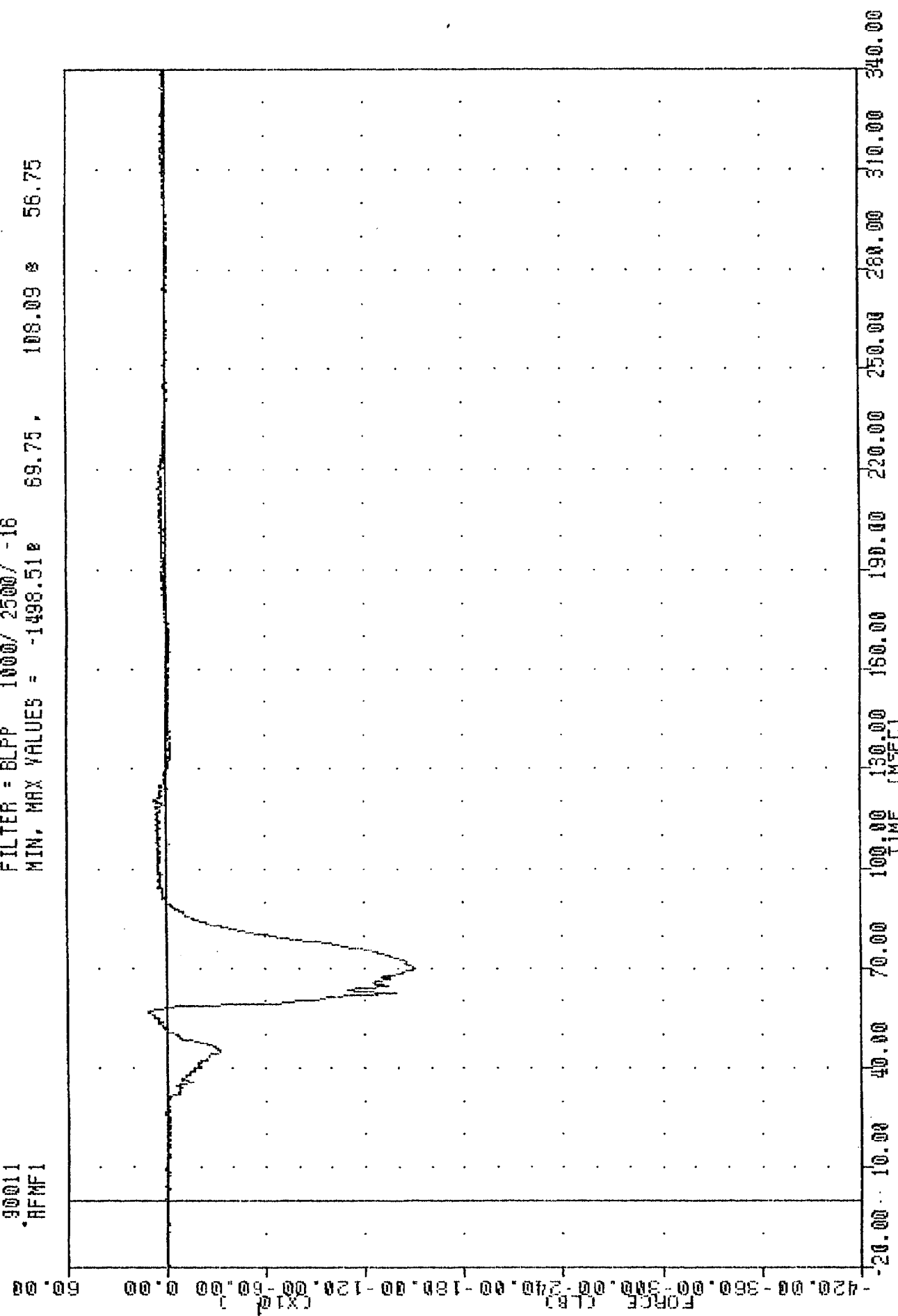
200 COMPLIANCE

90011

RFMF1

FILTER = BLPP 1000/ 2500/ -16

MIN. MAX VALUES = -1498.51 69.75 108.09 56.75



NISSAN STANZA INTO FLAT FRONTAL BARRIER
DRIVER RIGHT FEMUR FORCE

TAC 900111

208 COMPLIANCE

90011

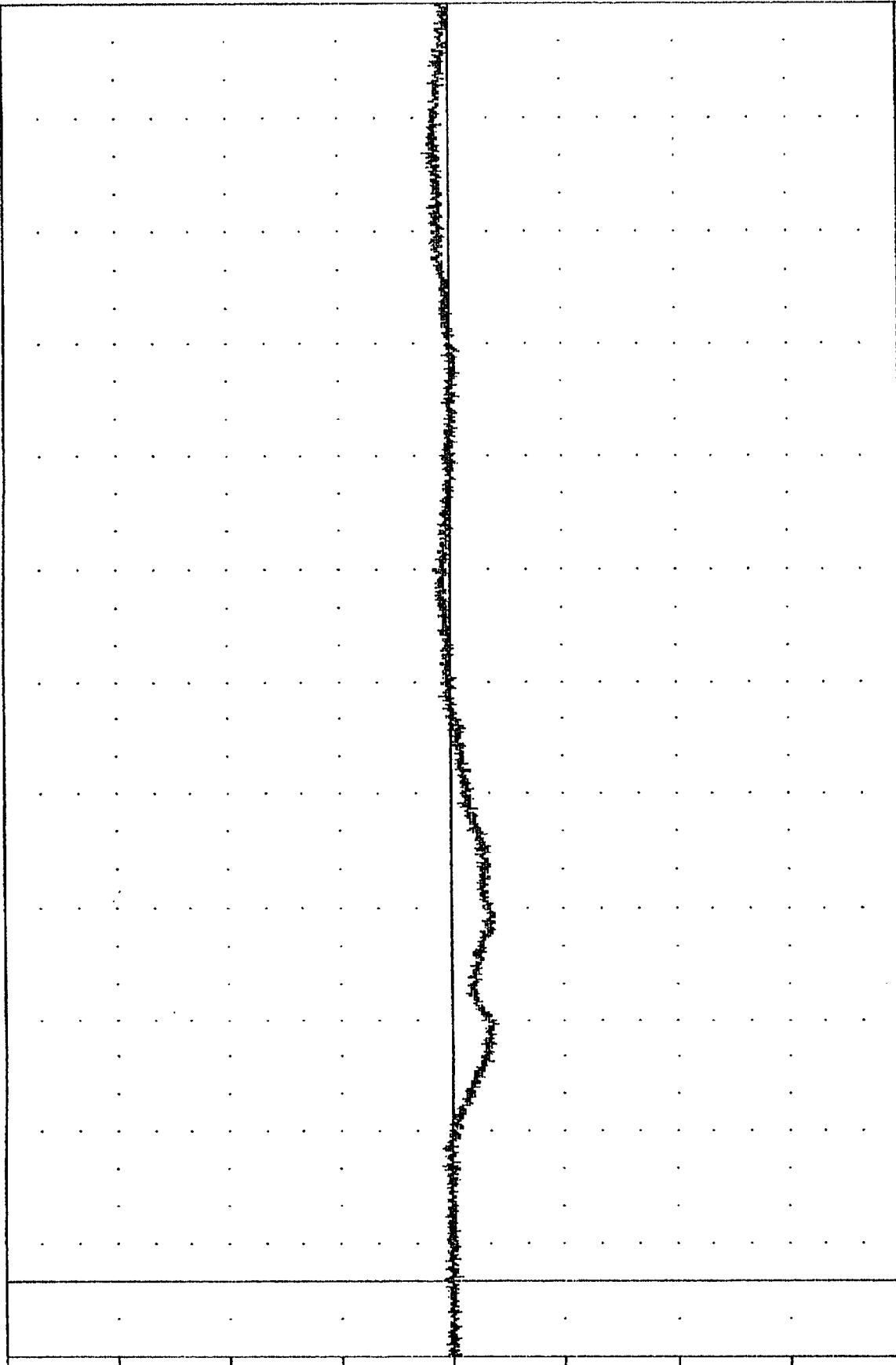
HEDXG2

FILTER = ALPF 1650/ 5214/ -40

MIN, MAX VALUES = -23.632

68.50, 13.87 300.63

ACCELERATION (G)



-20.00 10.00 20.00 30.00 40.00 50.00 60.00 70.00 80.00 90.00 100.00 110.00 120.00 130.00 140.00 150.00 160.00 170.00 180.00 190.00 200.00 210.00 220.00 230.00 240.00 250.00 260.00 270.00 280.00 290.00 300.00 310.00 320.00 330.00 340.00

NISSAN STANZA INTO FLAT FRONTAL BARRIER
RIGHT FRONT PASSENGER HEAD X AXIS ACCELERATION

TRC 900111

200 COMPLIANCE

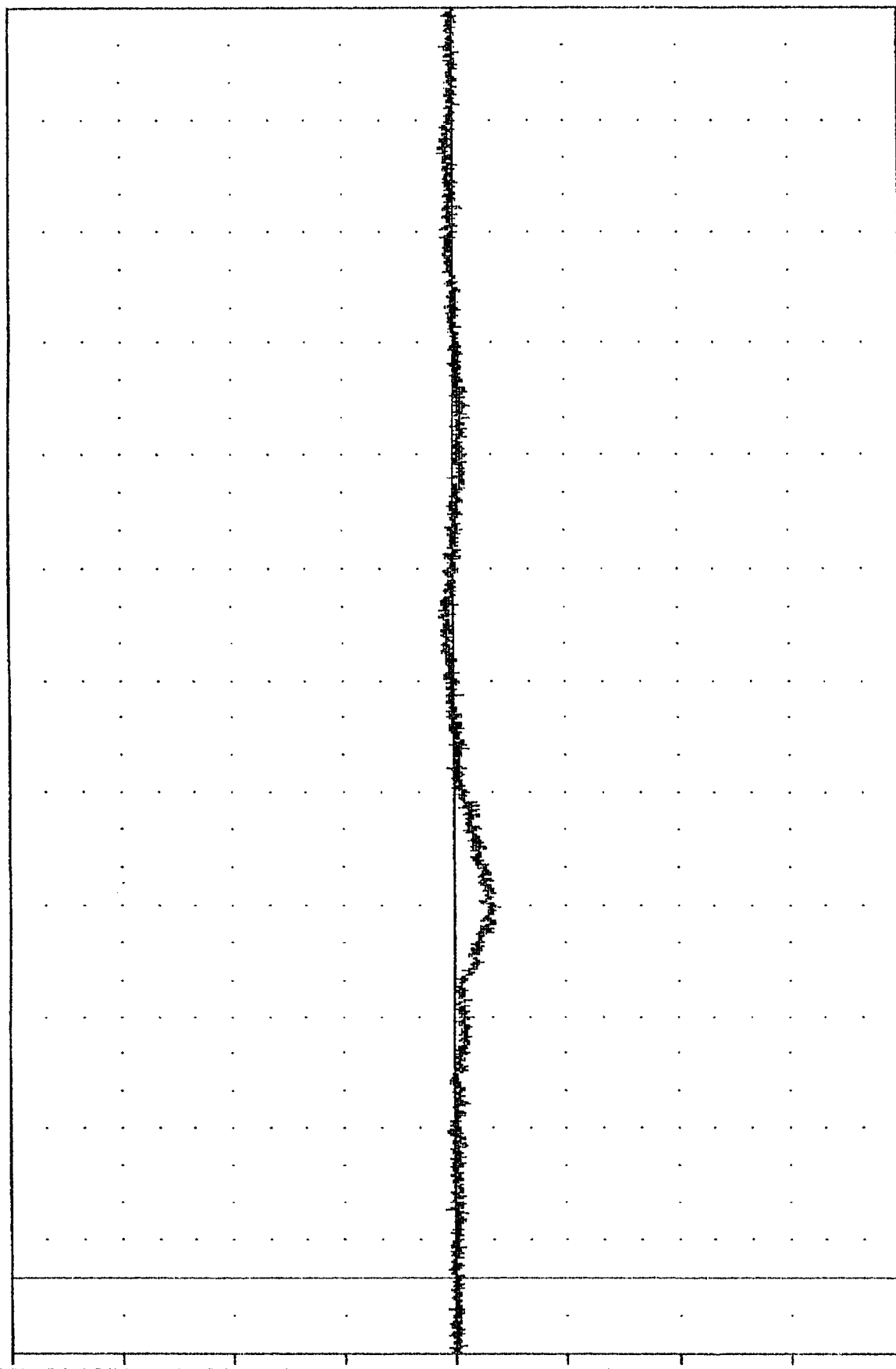
90011

HEDYG2

FILTER = ALPF 1650/ 5214/ -40

MIN, MAX VALUES = -23.56 99.38 , 8.32 178.75

ACCELERATION (G)



TIME (MSEC)

NISSAN STANZA INTO FLAT FRONTAL BARRIER
RIGHT FRONT PASSENGER HEAD Y AXIS ACCELERATION

TRC 900111

208 COMPLIANCE

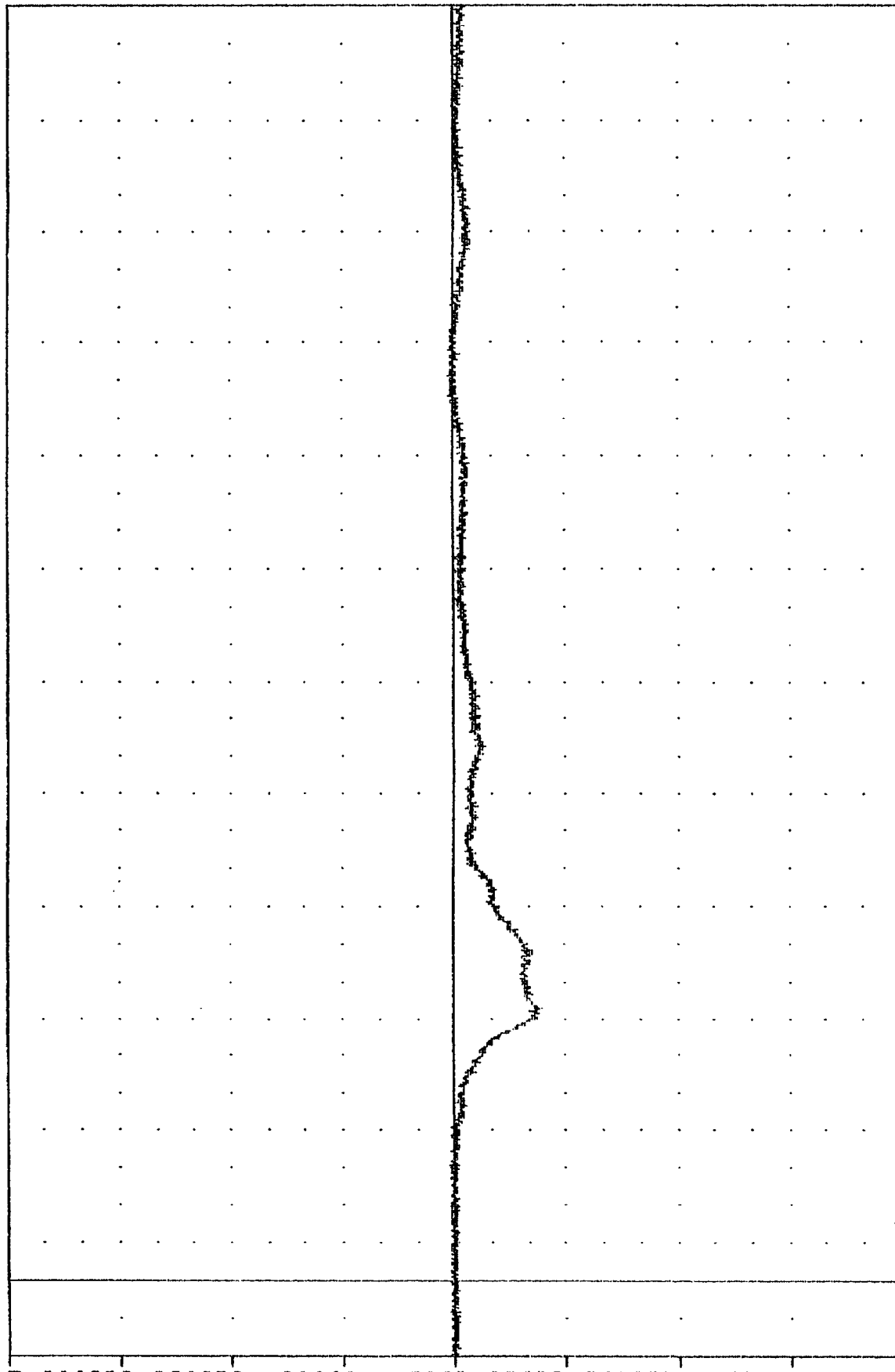
90011

HEDZ62

FILTER = ALPF 1650/ 5214/ -40

MIN. MAX VALUES = -46.462 72.75 2.84 e -8.38

ACCELERATION (G)

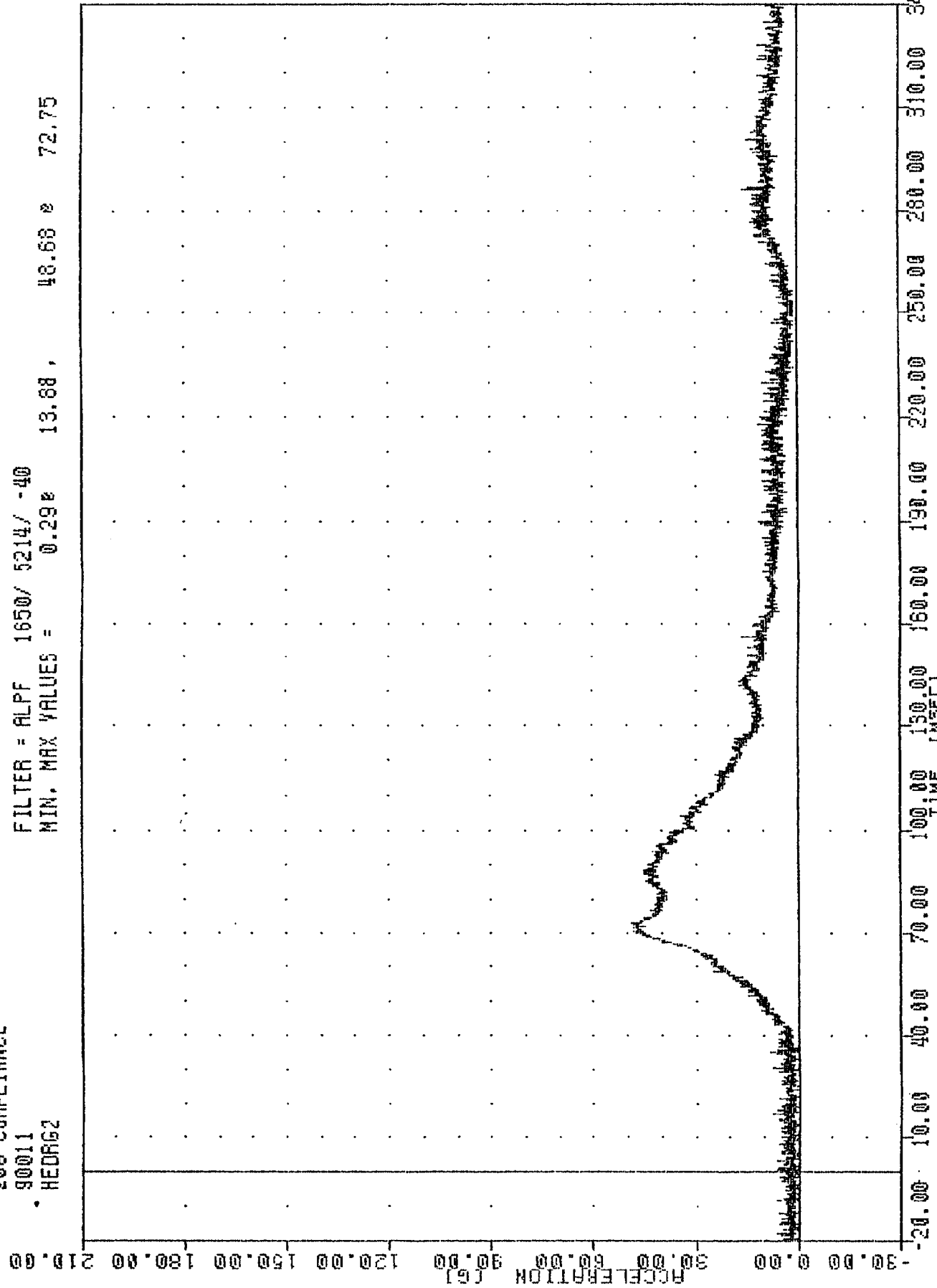


-20.00 10.00 40.00 70.00 100.00 130.00 160.00 190.00 220.00 250.00 280.00 310.00 340.00

NISSAN STANZA INTO FLAT FRONTAL BARRIER
RIGHT FRONT PASSENGER HEAD Z AXIS ACCELERATION

TRC
208 COMPLIANCE
90011
HEDR62

FILTER = ALPF 1650/ 5214/ -40
MIN. MAX VALUES = 0.298 13.88 , 48.68 e 72.75



NISSAN STANZA INTO FLAT FRONTAL BARRIER
RIGHT FRONT PASSENGER HEAD RESULTANT ACCELERATION

TRC 900111

200 COMPLIANCE

90011

CSTXG2

FILTER = BLPP 300/ 750/ -16

MIN, MAX VALUES = -43.602 65.63, 10.20 248.13

120.00

90.00

60.00

30.00

0.00

-30.00

-60.00

-90.00

-120.00

ACCELERATION (G)

-20.00

10.00

40.00

70.00

100.00

130.00

160.00

190.00

220.00

250.00

280.00

310.00

340.00

TIME (MSEC)

NISSAN STANZA INTO FLAT FRONTAL BARRIER
RIGHT FRONT PASSENGER CHEST X AXIS ACCELERATION

TRC 900111

208 COMPLIANCE

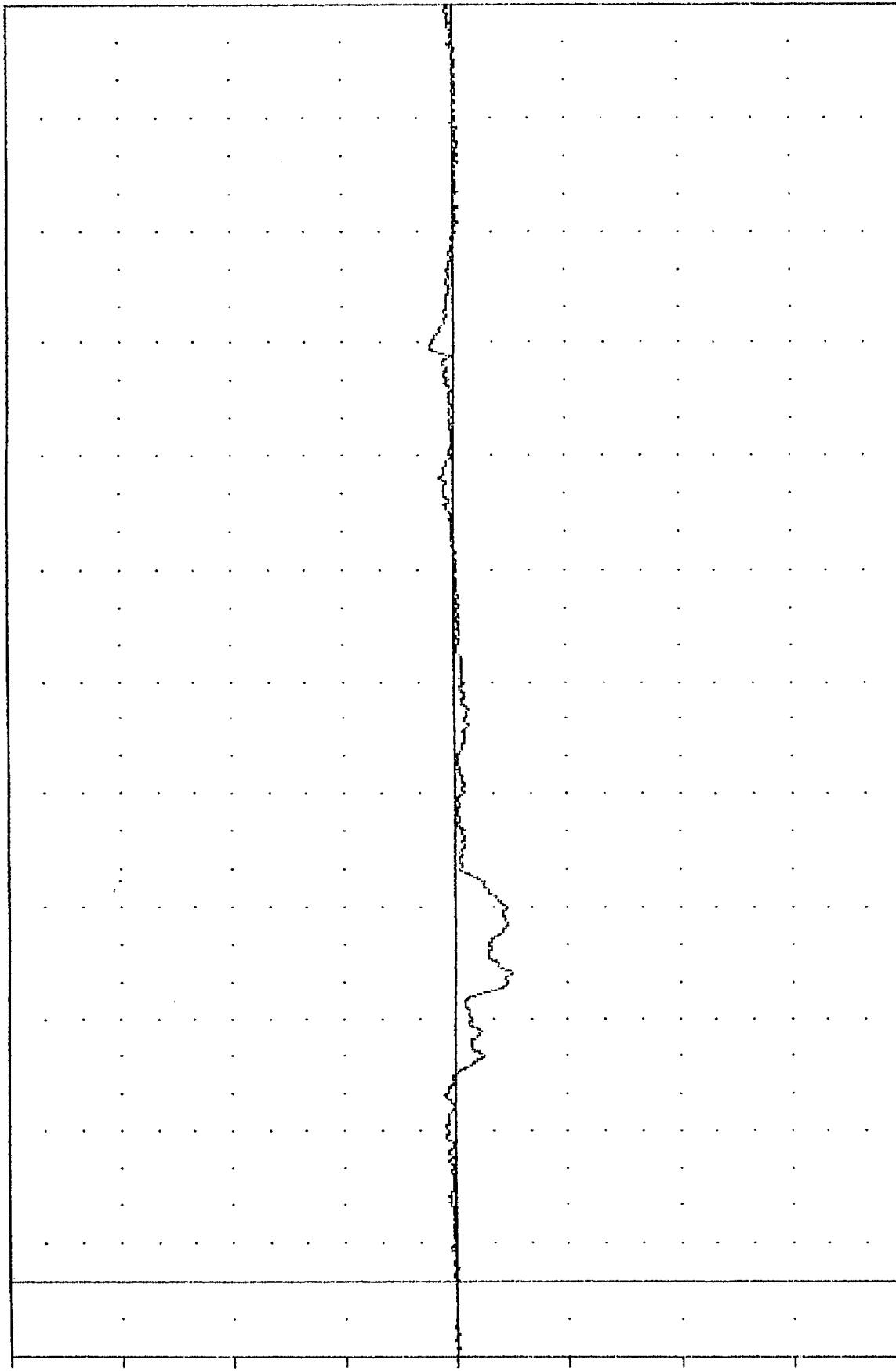
90011

CSTTG2

FILTER = BLPP 300/ 750/ -16

MIN. MAX VALUES = -15.21 82.38, 6.45 248.50

ACCELERATION (G)



-20.00 10.00 40.00 70.00 100.00 130.00 160.00 190.00 220.00 250.00 280.00 310.00 340.00

NISSAN STANZA INTO FLAT FRONTAL BARRIER
RIGHT FRONT PASSENGER CHEST Y AXIS ACCELERATION

TRC 900111

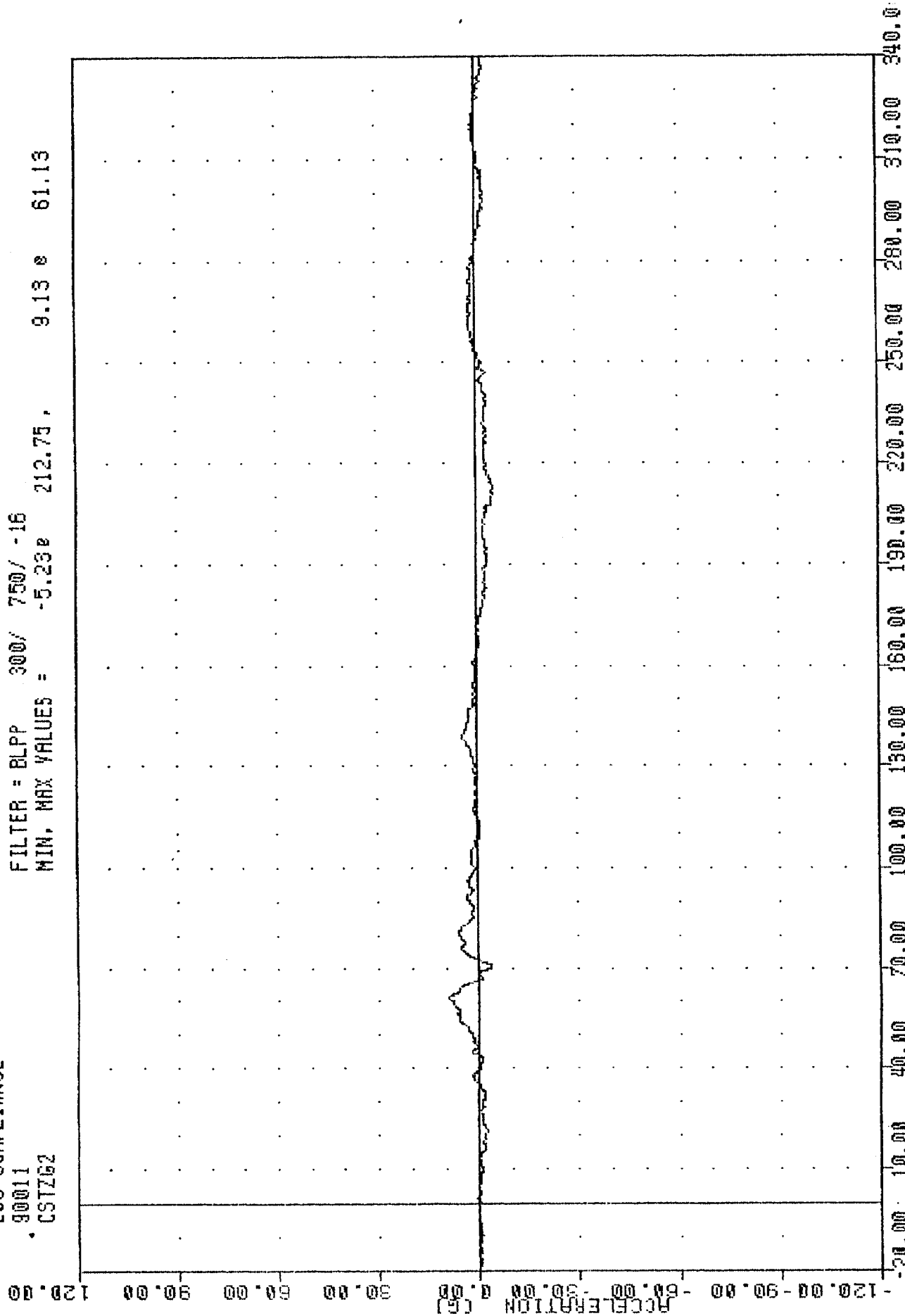
200 COMPLIANCE

90011

CSTZG2

FILTER = BLPP 300/ 750/ -16

MIN. MAX VALUES = -5.23e 212.75, 9.13 e 61.13



TRC 900111

200 COMPLIANCE

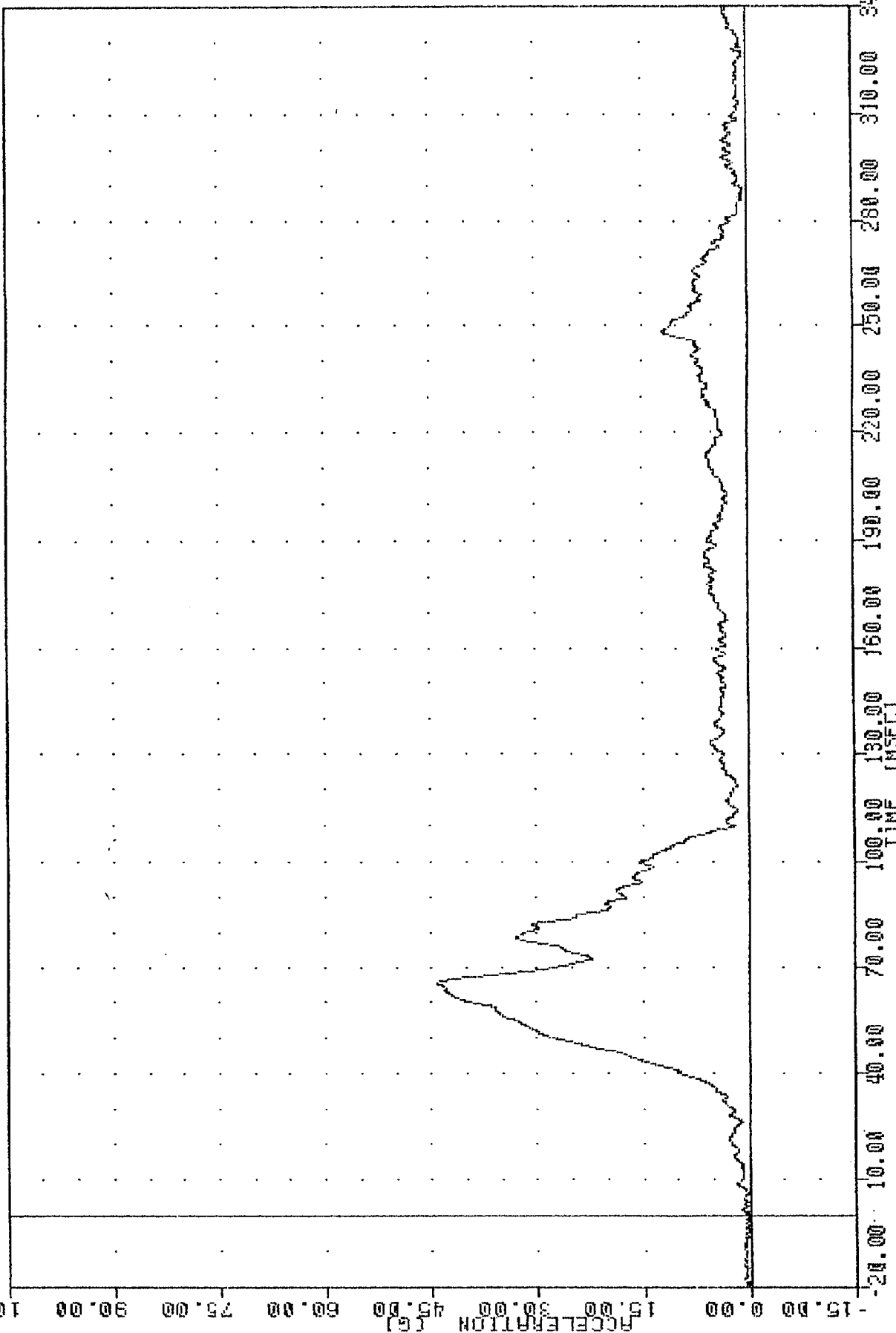
90011

CSTRG2

FILTER = BLPF 300/ 750/ -16

MIN, MAX VALUES = 0.10e -20.00, 44.09 e 65.50

105.00



NISSAN STANZA INTO FLAT FRONTAL BARRIER
RIGHT FRONT PASSENGER CHEST RESULTANT ACCELERATION

TRC 900111

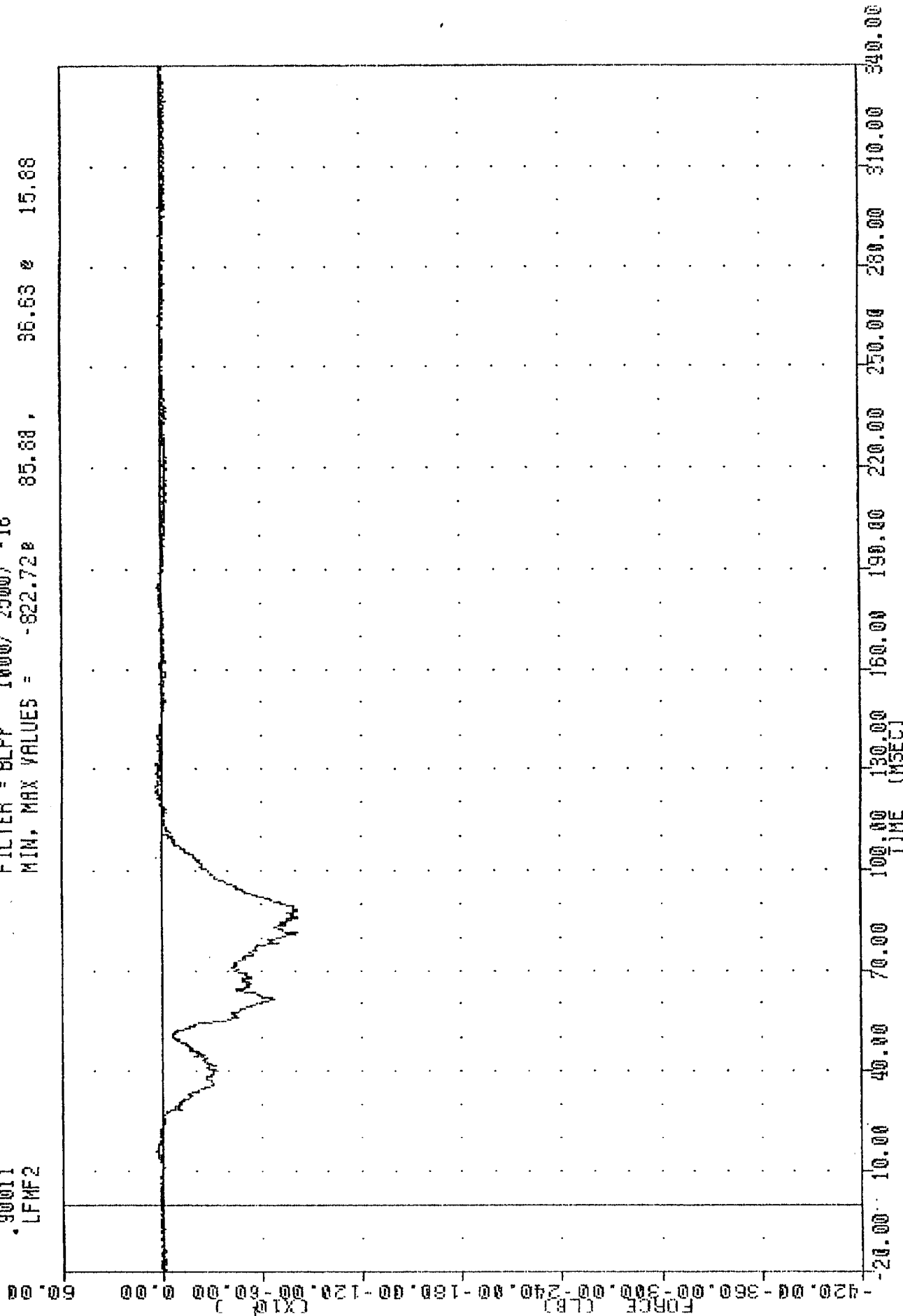
200 COMPLIANCE

90011

LFMF2

FILTER = BLPP 1000/ 2500/ -16

MIN, MAX VALUES = -822.728 85.88 36.63 15.88



NISSAN STANZA INTO FLAT FRONTAL BARRIER
RIGHT FRONT PASSENGER LEFT FEMUR FORCE

TRC 900111

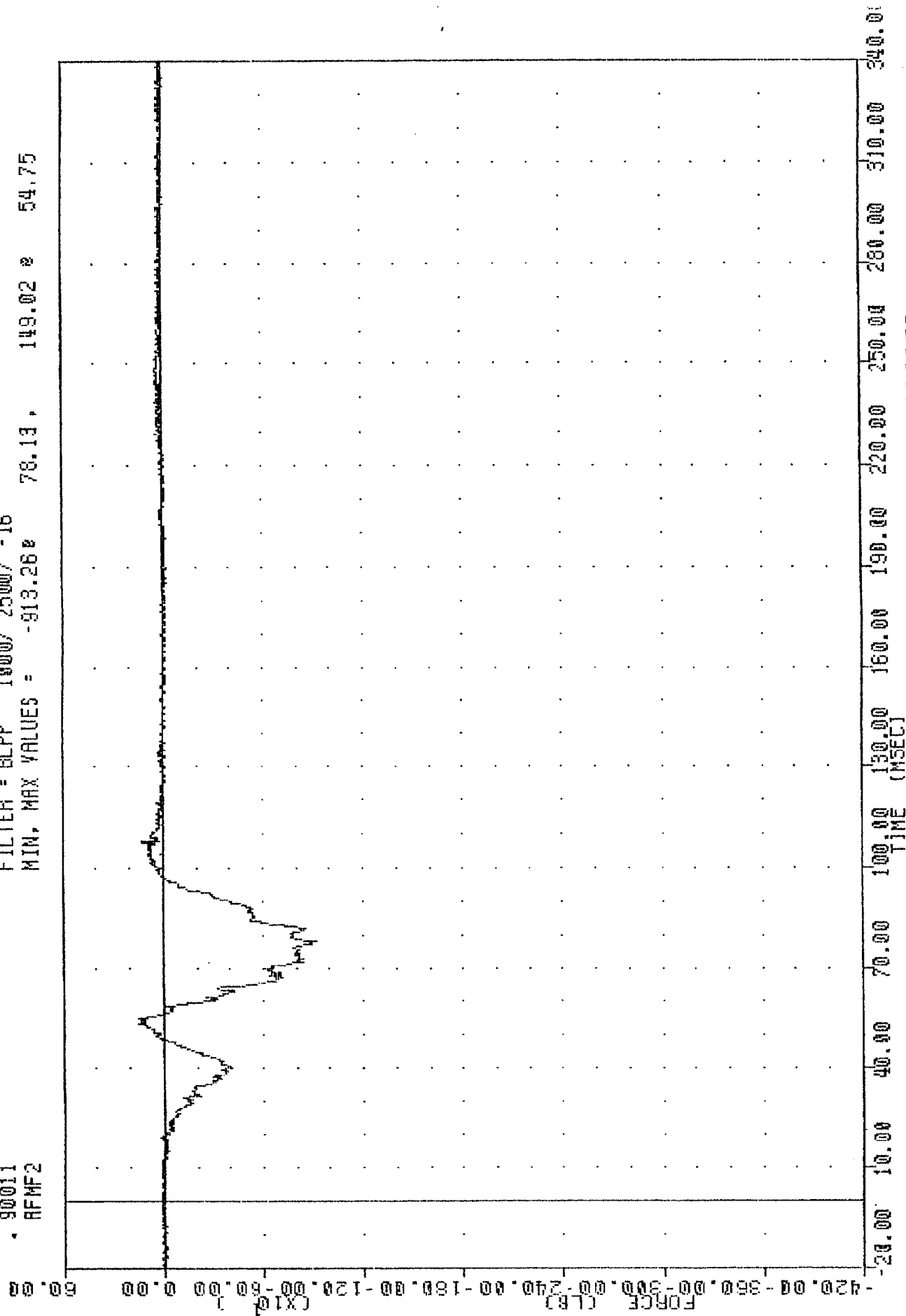
208 COMPLIANCE

90011

RFMF2

FILTER = BLPP 1000/ 2500/ -16

MIN, MAX VALUES = -913.26e 78.13, 149.02 e 54.75



NISSAN STANZA INTO FLAT FRONTAL BARRIER
RIGHT FRONT PASSENGER RIGHT FEMUR FORCE

THC, 900111

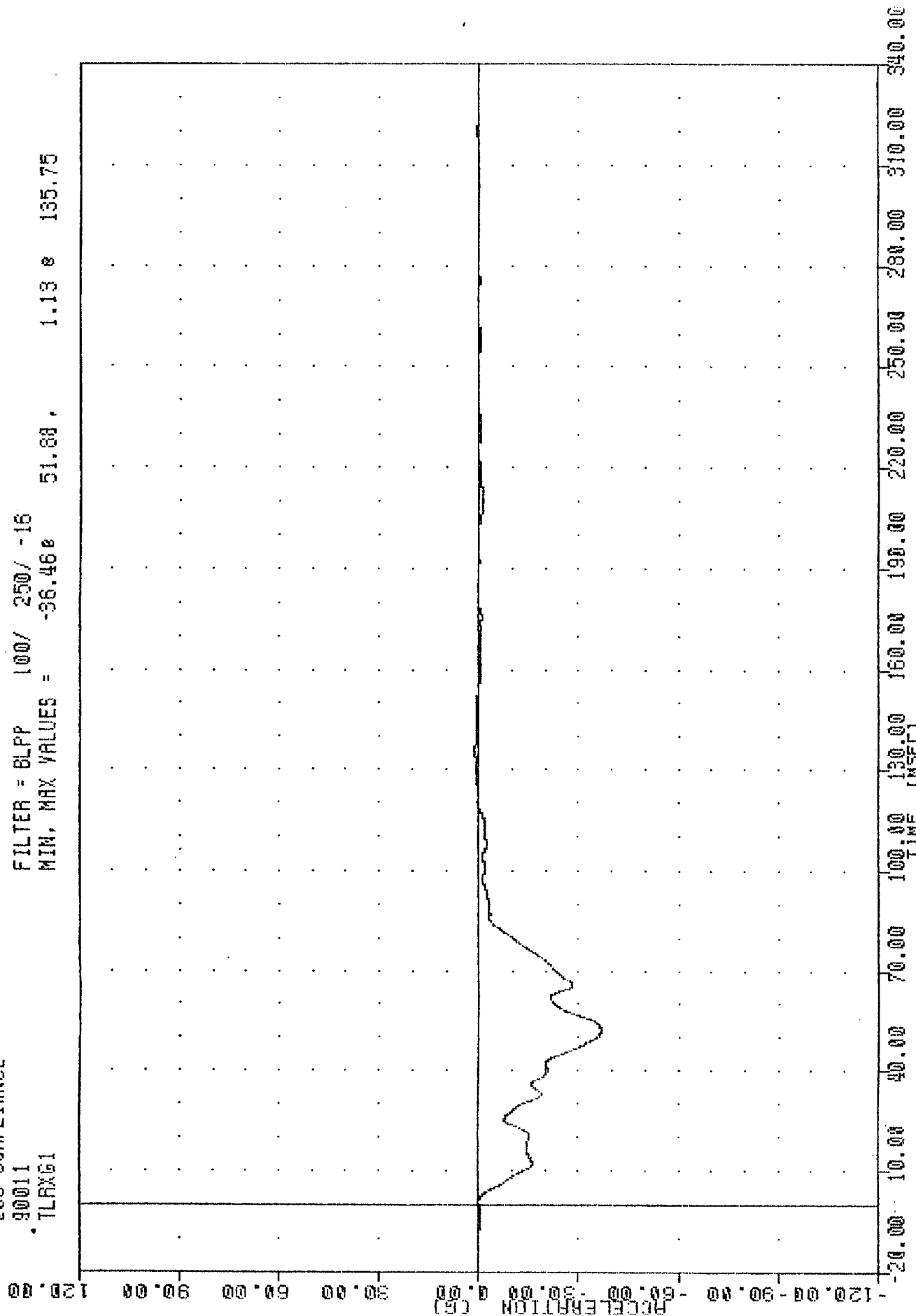
200 COMPLIANCE

90011

TLRXG1

FILTER = BLPP 100/ 250/ -16

MIN, MAX VALUES = -36.460 51.88, 1.13 8 135.75



TTC 900111

208 COMPLIANCE

90011

TRXG1

FILTER = BLPP 100/ 250/ -16

MIN, MAX VALUES = -35.34 52.63, 0.83 137.25

120.00

90.00

60.00

30.00

0.00

-30.00

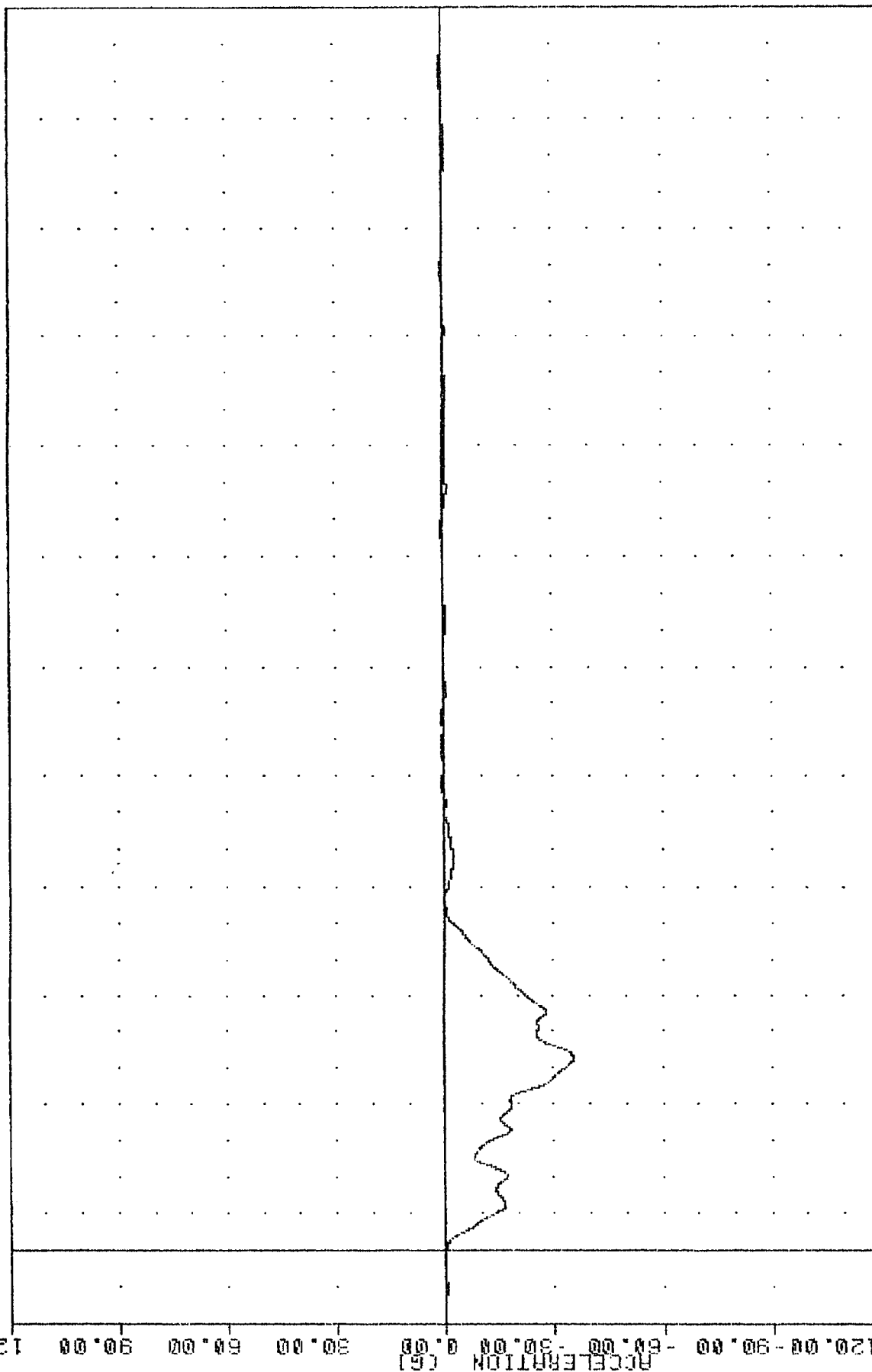
-60.00

-90.00

-120.00

B-23

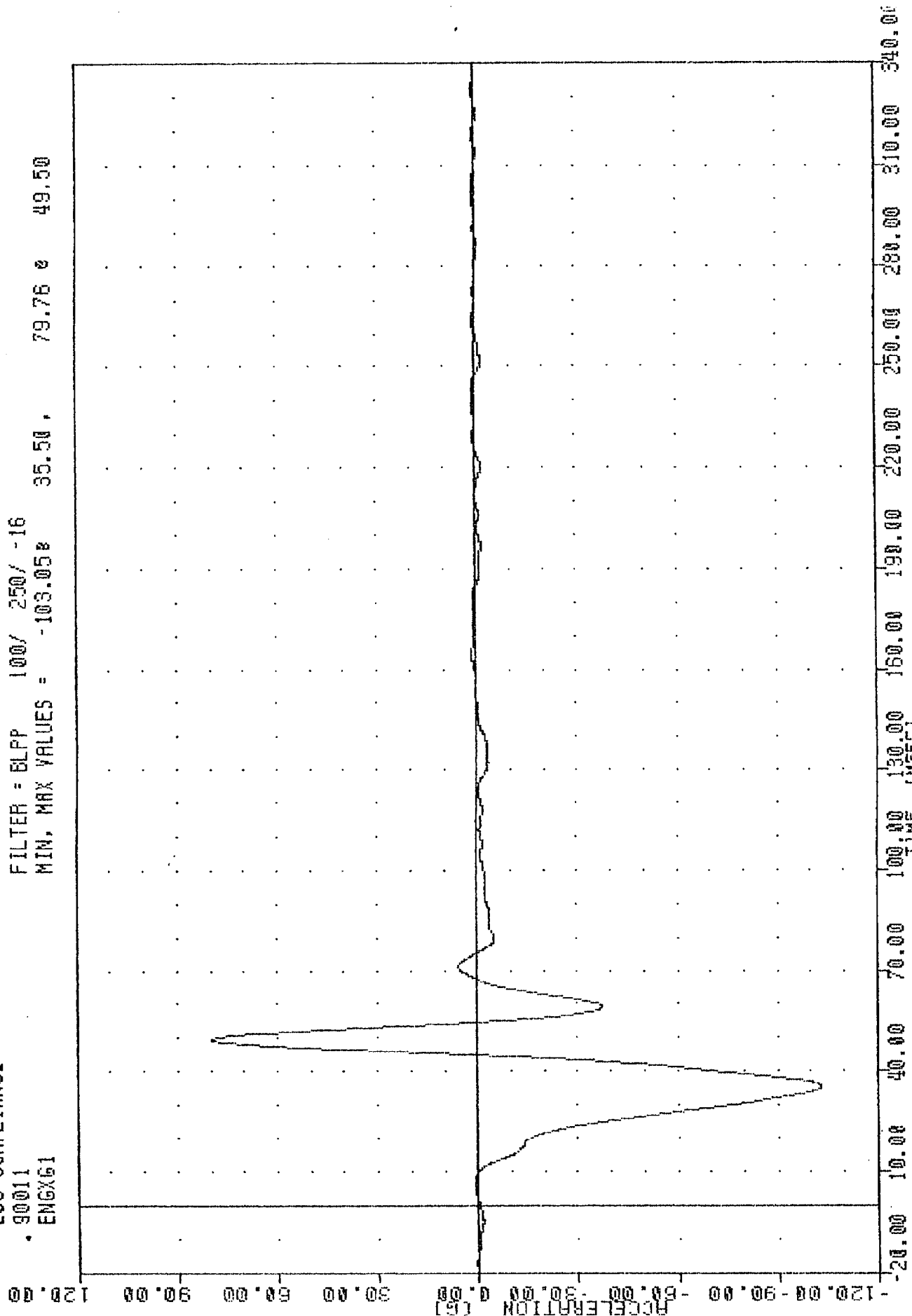
900111



NISSAN STANZA INTO FLAT FRONTAL BARRIER
RIGHT REAR SEAT X AXIS ACCELERATION

TRC 900111
 208 COMPLIANCE
 90011
 ENG61

FILTER = BLPP 100/ 250/ -16
 MIN. MAX VALUES = -103.058 35.50 79.76 e 49.50



NISSAN STANZA INTO FLAT FRONTAL BARRIER
 ENGINE UPPER BLOCK X AXIS ACCELERATION

TRC 800111

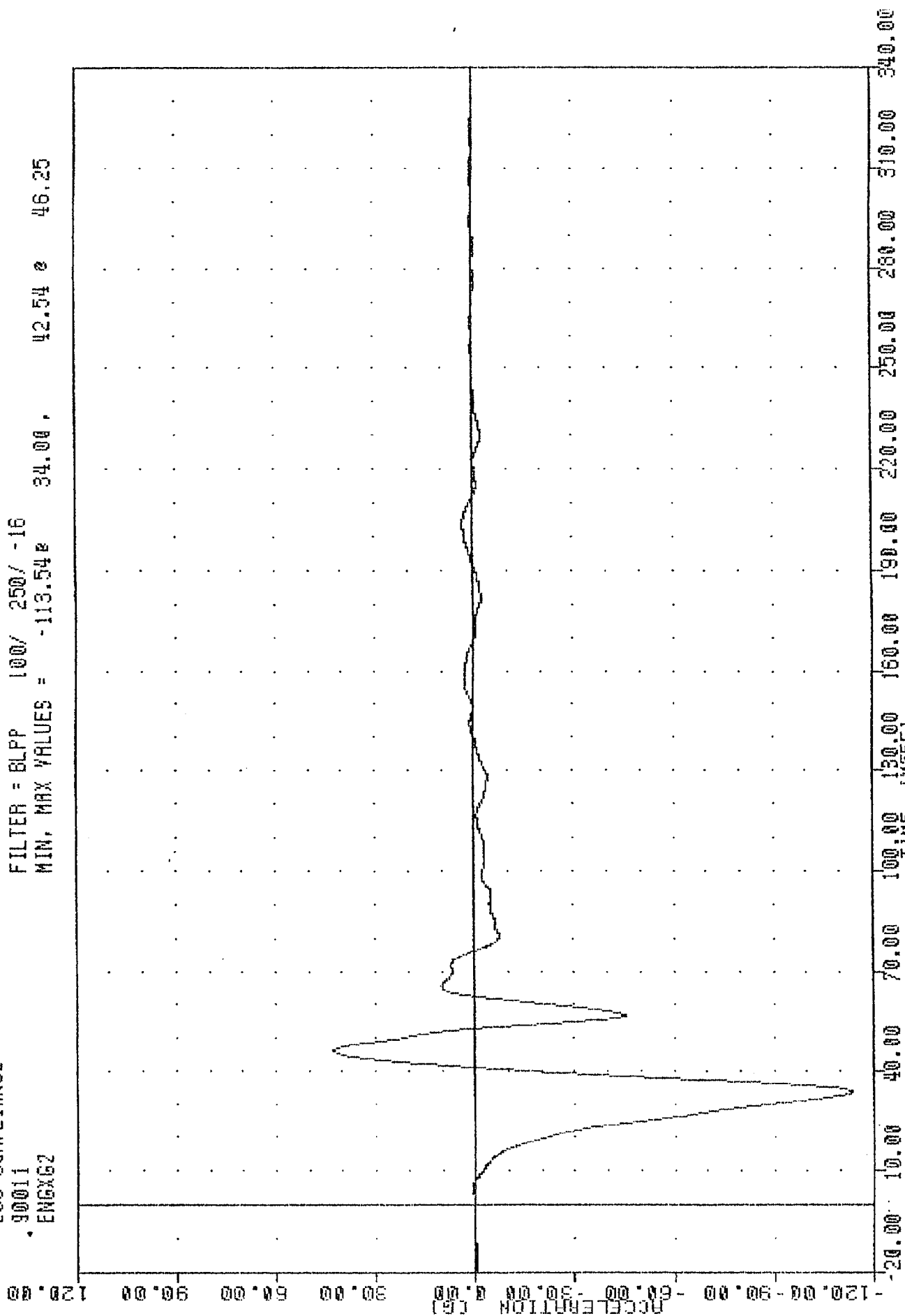
208 COMPLIANCE

80011

ENGX62

FILTER = BLPP 100/ 250/ -16

MIN, MAX VALUES = -113.548 34.00 42.54 46.25



NISSAN STANZA INTO FLAT FRONTAL BARRIER
ENGINE BOTTOM BLOCK X AXIS ACCELERATION

TRC 900111

208 COMPLIANCE

90011

BCRXG1

FILTER = BLPP 100/ 250/ -16

MIN. MAX VALUES = -55.158 52.88 8.26 e 130.50

120.00

90.00

60.00

30.00

0.00

-30.00

-60.00

-90.00

-120.00

-150.00

-180.00

-210.00

-240.00

-270.00

-300.00

-330.00

-360.00

-390.00

-420.00

-450.00

-480.00

-510.00

-540.00

-570.00

-600.00

-630.00

-660.00

-690.00

-720.00

-750.00

-780.00

-810.00

-840.00

-870.00

-900.00

-930.00

-960.00

-990.00

-1020.00

-1050.00

-1080.00

-1110.00

-1140.00

-1170.00

-1200.00

-1230.00

-1260.00

-1290.00

-1320.00

-1350.00

-1380.00

-1410.00

-1440.00

-1470.00

-1500.00

-1530.00

-1560.00

-1590.00

-1620.00

-1650.00

-1680.00

-1710.00

-1740.00

-1770.00

-1800.00

-1830.00

-1860.00

-1890.00

-1920.00

-1950.00

-1980.00

-2010.00

-2040.00

-2070.00

-2100.00

-2130.00

-2160.00

-2190.00

-2220.00

-2250.00

-2280.00

-2310.00

-2340.00

-2370.00

-2400.00

-2430.00

-2460.00

-2490.00

-2520.00

-2550.00

-2580.00

-2610.00

-2640.00

-2670.00

-2700.00

-2730.00

-2760.00

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TRC 900111

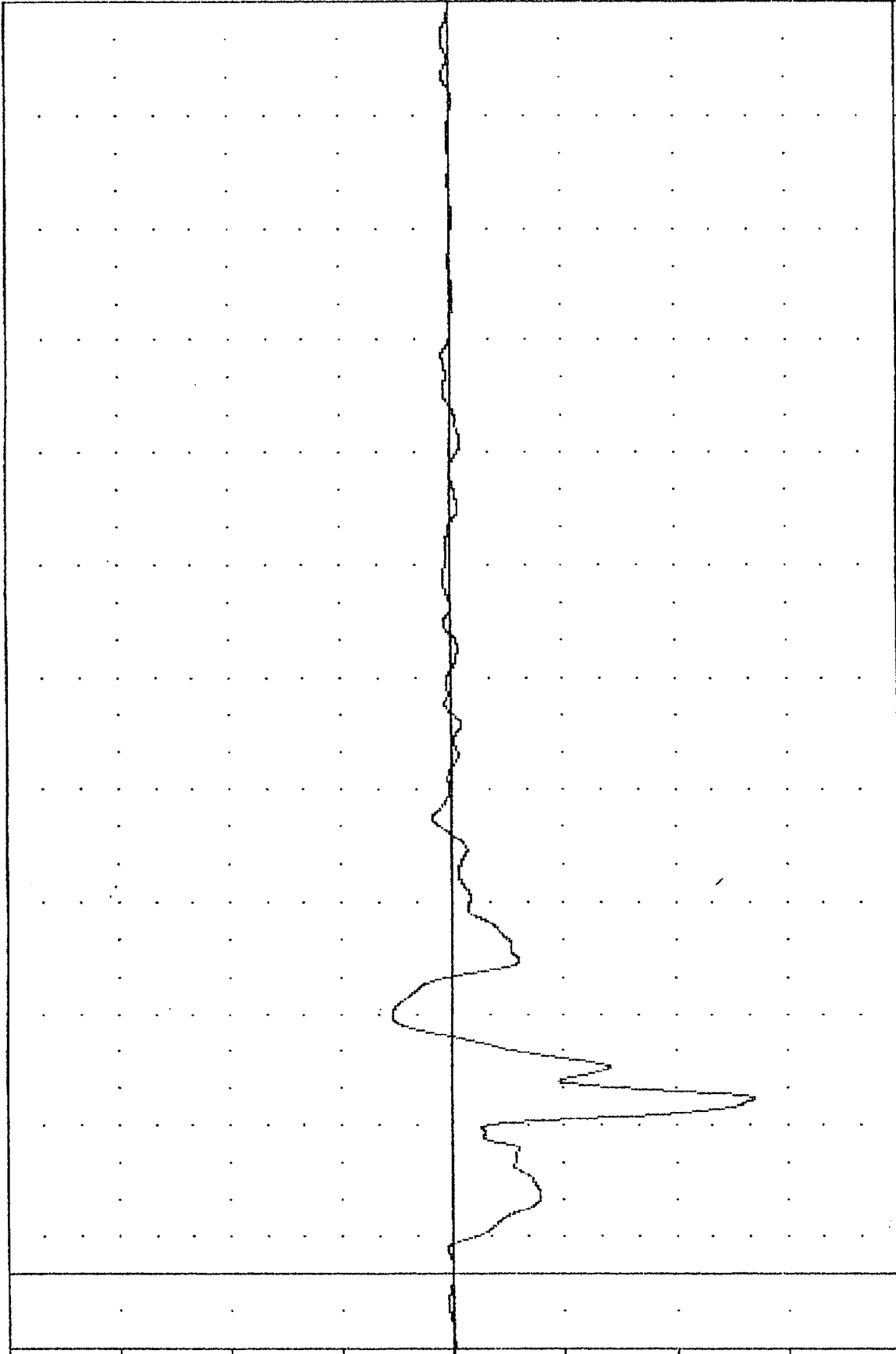
200 COMPLIANCE

90011

BCLXG1

FILTER = BLPP 100/ 250/ -16
MIN, MAX VALUES = -81.14e 47.25, 16.32 e 69.63

ACCELERATION [G]



TIME (MSEC)

NISSAN STANZA INTO FLAT FRONTAL BARRIER
LEFT BRAKE CALIPER X AXIS ACCELERATION

TRC 900111

208 COMPLIANCE

90011

DPCXG1

FILTER = BLPP 100/ 250/ -16

MIN, MAX VALUES = -36.97 55.50, 4.91 109.38

120.00

90.00

60.00

30.00

0.00

-30.00

-60.00

-90.00

-120.00

-20.00

TIME (MSEC)

10.00

40.00

70.00

100.00

130.00

160.00

190.00

220.00

250.00

280.00

310.00

340.00

NISSAN STANZA INTO FLAT FRONTAL BARRIER
DASH PANEL CENTER X AXIS ACCELERATION