

Report Number TRC-95-N04

New Car Assessment Program (NCAP)

Frontal Barrier Impact Test

General Motors Corporation
1995 Chevrolet S-10 Blazer
Multipurpose Passenger Vehicle
NHTSA Number: MS0104
TRC Test Number: 941130

Prepared By:
Transportation Research Center Inc.
10820 State Route 347
East Liberty, Ohio 43319



December 27, 1994

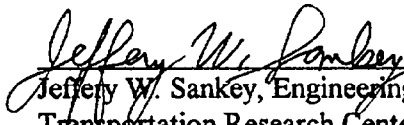
Final Report

Prepared For:
U. S. Department Of Transportation
National Highway Traffic Safety Administration
Office Of Market Incentives
Room No. 5313 (NRM-22)
400 Seventh Street, S.W.
Washington, D.C. 20590

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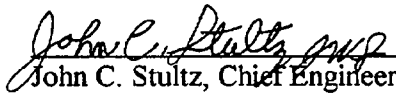
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Report prepared by:


Jeffrey W. Sankey, Engineering Supervisor
Transportation Research Center Inc.

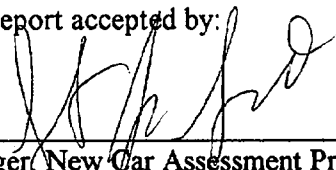
Date 1/4/95

Report approved by:


John C. Stultz, Chief Engineer
Transportation Research Center Inc.

Date 1/4/95

Final report accepted by:


Manager, New Car Assessment Program
NHTSA, Office of Market Incentives

Date JAN 30 1995


Contracting Officer's Technical Representative (COTR),
NHTSA, Office of Market Incentives

Date JAN 30 1995

1. Report No. TRC-95-N04	2. Government Accession No.	3. Recipient's Catalog No.	
4. Title and Subtitle New Car Assessment Program (NCAP), Frontal Barrier Impact Test of a 1995 Chevrolet S-10 Blazer NHTSA No. MS0104		5. Report Date December 27, 1994	
		6. Performing Organization Code TRC	
7. Author(s) J. W. Sankey, Engineering Supervisor, TRC		8. Performing Organization Report No. TRC-95-N04	
9. Performing Organization Name and Address Transportation Research Center Inc. 10820 State Route 347 East Liberty, OH 43319		10. Work Unit No. (TRAIS)	
		11. Contract or Grant No. DTNH22-90-D-22121	
12. Sponsoring Agency Name and Address U.S. Department of Transportation National Highway Traffic Safety Administration Office of Market Incentives 400 Seventh St., Washington, DC 20590		13. Type of Report and Period Covered Final Report November - December 1994	
		14. Sponsoring Agency Code NRM-22	
15. Supplemental Notes			
16. Abstract A 56 kph (35 mph) frontal load cell barrier impact test was conducted on a 1995 Chevrolet S-10 Blazer multipurpose passenger vehicle, NHTSA No. MS0104, at Transportation Research Center Inc. on November 30, 1994. This test was conducted to obtain new car assessment and research data indicant of FMVSS 208, 212, 219 (partial), and 301 performance. The barrier impact velocity was 56.2 kph. The vehicle's maximum static crush was 602 millimeters. The ambient temperature was 21° C. The driver's Head Injury Criteria (HIC) was 932. The driver's chest maximum resultant acceleration with three (3) milliseconds minimum duration was 48.3 g. The driver's chest maximum deflection was 40 millimeters. The driver's left and right femur maximum axial forces were 4867 N and 8846 N, respectively. The passenger's HIC was 1874. The passenger's chest maximum resultant acceleration with three (3) milliseconds minimum duration was 45.5 g. The passenger's chest maximum deflection was 45 millimeters. The passenger's left and right femur maximum axial forces were 2910 N and 1576 N, respectively. Following the impact, fuel system fluid spilled continuously from a hole in the bottom of the fuel tank.			
17. Key Words 56 kph (35 mph) Frontal Barrier Impact Test: New Car Assessment Program (NCAP) FMVSS 208, "Occupant Crash Protection" FMVSS 212, "Windshield Retention" FMVSS 219, "Windshield Zone Intrusion" FMVSS 301, "Fuel System Integrity"		18. Distribution Statement Copies of this report are available from: National Highway Traffic Safety Admin. Technical Reference Division Nassif Building, Room 5108 400 Seventh Street, S.W. Washington, DC 20590	
19. Security Classif. (of this report) Unclassified	20. Security Classif. (of this page) Unclassified	21. Number of Pages 328	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 (2000 lb)	0.9	tonnes	t
VOLUME				
tsp	teaspoons	5	milliliters	ml
Tbsp	tablespoons	15	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	Fahrenheit temperature	5/9 (after subtracting 32)	Celsius temperature	°C

*1 in = 2.54 (exact). For other exact conversions, and more detailed tables, see NBS Monograph 286, Tables of Weights and Measures, Price \$2.25, SD Catalog No. C1340-286.

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	ac
MASS (weight)				
g	grams	0.035	ounces	oz
kg	kilograms	2.2	pounds	lb
t	tonnes (1000 kg)	1.1	short tons	st
VOLUME				
ml	milliliters	0.03	fluid ounces	fl oz
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	Celsius temperature	9/5 (then add 32)	Fahrenheit temperature	°F

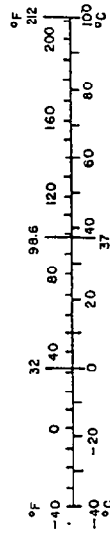


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Section 1.0

Purpose and Test Procedure

Purpose

This 56 kph (35 mph) frontal barrier impact test is part of the New Car Assessment Program (NCAP) conducted for the National Highway Traffic Safety Administration's (NHTSA) Office of Market Incentives by Transportation Research Center Inc. (TRC) under Contract Number DTNH22-90-D-22121.

The purpose of this test was to obtain new car assessment and research data for vehicle crashworthiness and occupant restraint system performance for the subject vehicle, a 1995 Chevrolet S-10 Blazer multipurpose passenger vehicle, NHTSA Number MS0104, at an impact speed in excess of the current 48 kph (30 mph) FMVSS 208 requirements.

Test Procedure

This test was conducted in accordance with NHTSA's Laboratory Indicant Test Procedure, New Car Assessment Program, dated January 1, 1990. Data was obtained indicant of FMVSS 208, "Occupant Crash Protection"; FMVSS 212, "Windshield Retention"; FMVSS 219, "Windshield Zone Intrusion"; and FMVSS 301, "Fuel System Integrity," performance.

The test vehicle was instrumented with nine (9) accelerometers to measure longitudinal axis accelerations. The driver's and passenger's restraint systems were instrumented with four (4) seat belt load cells to measure lap belt tension and shoulder belt tension; two (2) string potentiometers to measure shoulder belt displacement; and two (2) linear potentiometers to measure shoulder belt stretch. The vehicle impacted a frontal load cell barrier instrumented with thirty-six (36) barrier face load cells. The vehicle's specified impact velocity range was 55.5 to 57.1 kph.

The test vehicle contained two (2) Part 572E 50th percentile adult male anthropomorphic test devices (dummies). The dummies were positioned in the front outboard designated seating positions according to the dummy placement procedures specified in Appendices VII and VIII of the Laboratory Indicant Test Procedure. This test was the first use of the driver dummy and the passenger dummy.

Both dummies were instrumented with head and chest accelerometers to measure longitudinal, lateral, and vertical accelerations, and with left and right femur load cells to measure axial forces. Each Part 572E dummy's instrumentation also included a chest potentiometer to measure longitudinal deflection and a six-axis neck load cell to measure longitudinal, lateral, and vertical forces and moments.

The eighty-three (83) data channels were multiplexed and recorded on two (2) 14-track tape drives. The data was digitally sampled at 12,500 samples per second and processed per section IP11 of the Laboratory Indicant Test Procedure.

The crash event was recorded by one (1) real-time panning motion picture camera and fourteen (14) high-speed motion picture cameras. The pre- and post-test conditions were recorded by one (1) real-time motion picture camera.

The vehicle, occupant, and load cell barrier data are presented in Section 2.0. The occupant, camera, and vehicle measurements are presented in Section 3.0. Appendix A contains the still photographic prints. Appendix B contains the dummy, vehicle, and load cell barrier data plots. Appendix C contains the dummy certification data. Appendix D contains miscellaneous test information. Appendix E contains the restraint system instructions from the owner's manual.

Section 2.0

Frontal Barrier Impact Test Summary

Test Results Summary

This frontal load cell barrier test was conducted at TRC on November 30, 1994.

The test vehicle, a 1995 Chevrolet S-10 Blazer multipurpose passenger vehicle, NHTSA Number MS0104, was equipped with a 4.3-liter inline engine, automatic transmission, power steering, and power brakes. The vehicle's test weight was 2165 kg. The vehicle's impact speed was 56.2 kph. The vehicle sustained 602 mm of static crush during the impact.

The driver's Head Injury Criteria (HIC) was 932. The driver's chest maximum resultant acceleration with three (3) milliseconds minimum duration was 48.3 g. The driver's chest maximum deflection was 40 mm. The driver's left and right femur maximum axial forces were 4867 N and 8846 N, respectively.

The passenger's HIC was 1874. The passenger's chest maximum resultant acceleration with three (3) milliseconds minimum duration was 45.5 g. The passenger's chest maximum deflection was 45 mm. The passenger's left and right femur maximum axial forces were 2910 N and 1576 N, respectively.

There was loss of windshield periphery retention along the lower edge of the windshield between the lower right corner and 65 millimeters measured from the lower left corner. Windshield periphery retention was also lost along the right side of the windshield along the A-pillar between the lower right corner and 35 millimeters measured from the lower right corner.

There was no penetration through the windshield.

Following the impact, fuel system fluid spilled continuously from a hole in the bottom of the vehicle's fuel tank. The static rollover test was not conducted.

Data Acquisition Explanations

The right front passenger's chest X-axis, Y-axis, and Z-axis accelerometers, CSTXG2, CSTYG2, and CSTZG2, recorded a spike at 83 milliseconds. This affected the right front passenger's chest resultant acceleration, CSTRG2, calculation. No cause for this spike was found.

The driver's lap belt force load cell, LBOF1, recorded questionable data from 21 to 37 and 233 to 288 milliseconds. No cause was found.

The left rear seat X-axis primary and redundant accelerometers, TLRXG1 and TLRXGA, recorded a spike at 23 milliseconds. No cause for this spike was found.

Table 1 Crash Test Summary

NHTSA number:	MS0104	
Test type:	Frontal Load Cell Barrier	
Test date:	11/30/94	
Test time:	1448	
Ambient temperature:	21° C	
Vehicle year/make/ model/body style:	1995/Chevrolet/S-10 Blazer/multipurpose passenger vehicle	
Vehicle test weight:	2165 kg	
Impact angle ¹ :	0°	
Impact velocity ² :	Primary = 56.2 kph Secondary = 56.3 kph	
Maximum static crush:	602 mm	
Average rebound:	740 mm	
Dummies:	Driver #192	Passenger #142
Type:	Part 572 E	Part 572 E
Location:	Left front	Right front
Restraint:	Airbag and 3-point unbelt	3-point unbelt
Number of data channels:	83	
Number of cameras:	High-speed 16	
	Real-time 2	

¹ With respect to tow track centerline.

² Speed trap measurement (± .08 kph accuracy)

Table 2 Test Vehicle Information

Vehicle year/make/
model/body style: 1995/Chevrolet/S-10 Blazer/multipurpose passenger vehicle

Color: Teal green metallic

VIN: 1GNDT13W3S2138192

NHTSA number: MS0104

Engine data:

Placement: Inline

Cylinders: 6

Displacement 4.3 liters

Transmission data: 4 speed, manual, X automatic, overdrive

 FWD, RWD, X 4WD

Date vehicle received: 11/28/94

Odometer reading: 59.7

Dealer's name Bobby Layman Chevrolet, Inc.
and address: 3900 West Broad St.
Columbus, OH 43228

Accessories:

Power steering	Yes	Automatic transmission	Yes
Power brakes	Yes	Automatic speed control	Yes
Power seats	Yes	Tilting steering wheel	Yes
Power windows	Yes	Telescoping steering wheel	No
Tinted glass	Yes	Air conditioning	Yes
Radio	Yes	Anti-skid brake	Yes
Clock	Yes	Rear window defroster	Yes
Other	None		

Certification data from vehicle's label:

Vehicle manufactured by: General Motors Corp.

Date of manufacture: 11/94

VIN: 1GNDT13W3S2138192

GVWR: 2404 kg

GAWR: Front: 1225 kg

Rear: 1315 kg

Table 2 Test Vehicle Information, Cont'd.

Size of tires: P235/75R15

Tire pressure with maximum
capacity vehicle load:

Front: 300 kPa

Rear: 300 kPa

Spare tire: Full-size

Type of front seats: Bucket

Tire & capacity data from vehicle's label:

Recommended tire size: P235/75R15

Recommended cold tire pressure:

Front: 220 kPa

Rear: 220 kPa

Designated seating capacity:

Front

Rear

Total

Vehicle capacity weight:

Test vehicle attitude:

Delivered attitude: LF 822 mm; RF 834 mm; LR 855 mm; RR 869 mm

Pre-test attitude: LF 815 mm; RF 822 mm; LR 820 mm; RR 825 mm

Post-test attitude: LF 869 mm; RF 890 mm; LR 803 mm; RR 835 mm

Table 2 Test Vehicle Information Cont'd

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

Right front	507 kg	Right rear	401 kg
Left front	541 kg	Left rear	436 kg
Total front weight	1048 kg	(55.6% of total vehicle weight)	
Total rear weight	837 kg	(44.4% of total vehicle weight)	
Total delivered weight	1885 kg		

Calculation of test vehicle's target test weight:

RCLW = Rated cargo and luggage weight

UDW = Unloaded delivered weight (1885 kg)

VCW¹ = Vehicle capacity weight (NA)

DSC = Designated seating capacity (NA)

RCLW = VCW - 68 (DSC) = 136 kg

Target test weight = UDW + RCLW¹ + (Number of Hybrid III dummies x 76 kg/dummy)

Target test weight = 1885 + 136 + 152

Target test weight = 2173 kg

Weight of test vehicle with required dummies and 128 kg of cargo weight:

Right front	539 kg	Right rear	519 kg
Left front	563 kg	Left rear	544 kg
Total front weight	1102 kg	(50.9% of total vehicle weight)	
Total rear weight	1063 kg	(49.1% of total vehicle weight)	
Total test weight	2165 kg	(0.4% under target test weight)	

Weight of ballast secured in vehicle: 0 kg

Components removed to meet target test weight: None

CG rearward of front wheel centerline: 1339 mm

Vehicle wheelbase: 2728 mm

¹ From the vehicle's recommended tire pressure label.

Table 3 Post-Impact Data

Test number: 941130
NHTSA number: MS0104
Test date: 11/30/94
Test time: 1448
Test type: Frontal load cell barrier
Impact angle: 0°
Ambient temperature
at impact area: 21° C
Temperature in
occupant compartment: 21° C
Impact velocity:
Primary 56.2 kph
Secondary 56.2 kph
Specified range 55.5 to 57.1 kph

Distance from vehicle to barrier:

Entering velocity trap 356 mm
Exiting velocity trap 51 mm

Test vehicle static crush:

Overall length of test vehicle:

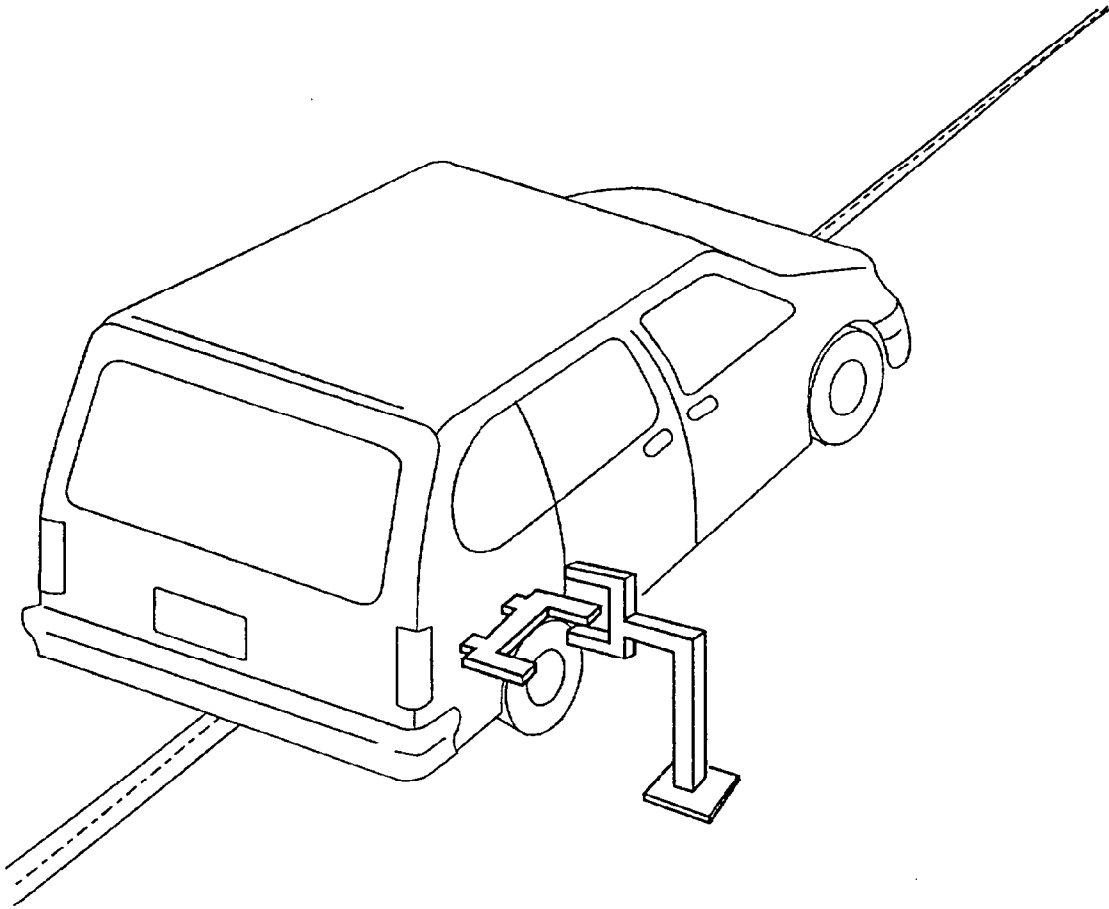
Pre-test: L 4437 mm; C 4602 mm; R 4428 mm
Post-test: L 3967 mm; C 4000 mm; R 3937 mm
Total crush: L 470 mm; C 602 mm; R 491 mm
Average crush: 521 mm

Test vehicle rebound from flat barrier:

Distance from test vehicle to barrier:

Post-test: L 800 mm; C 731 mm; R 689 mm
Average rebound 740 mm

Figure 1 Impact Velocity Measurement System



The final vane clears emitter/receiver pair 51 millimeters before impact.

The vanes have 305-millimeter spacing.

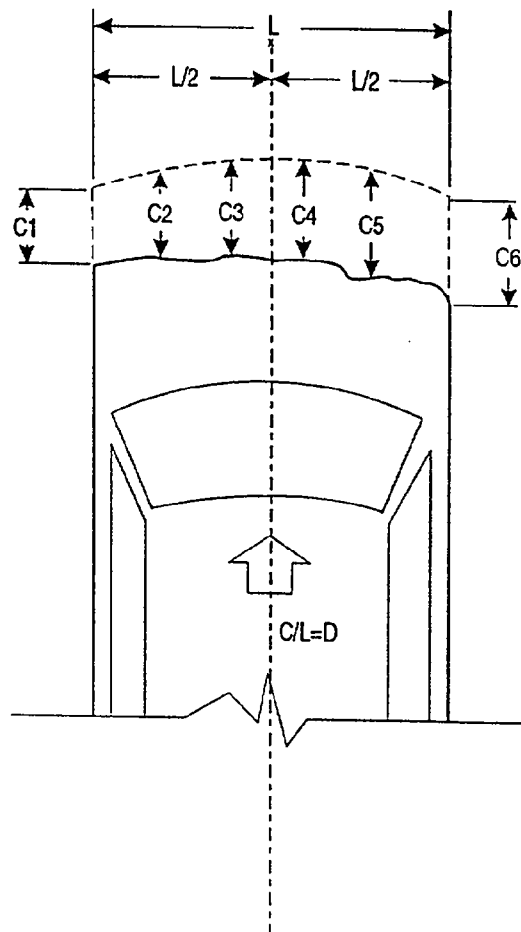
**Figure 2 Accident Investigation Division Data
for 56 kph (35 mph) Frontal Barrier Impact**

NHTSA number: MS0104
 Test date: 11/30/94
 Vehicle year/make/
 model/body style: 1995/Chevrolet/S-10 Blazer/multipurpose passenger vehicle
 Vehicle size category: Special Purpose Vehicle/4WD
 VIN: 1GNDT13W3S2138192
 Build date: 11/94
 Test weight: 2165 kg
 Vehicle wheelbase: 2728 mm
 Maximum width: 1742 mm
 Front overhang: 908 mm

Collision Deformation
 Classification (CDC) code: 12FDEW3

Crush depth
 measurements:

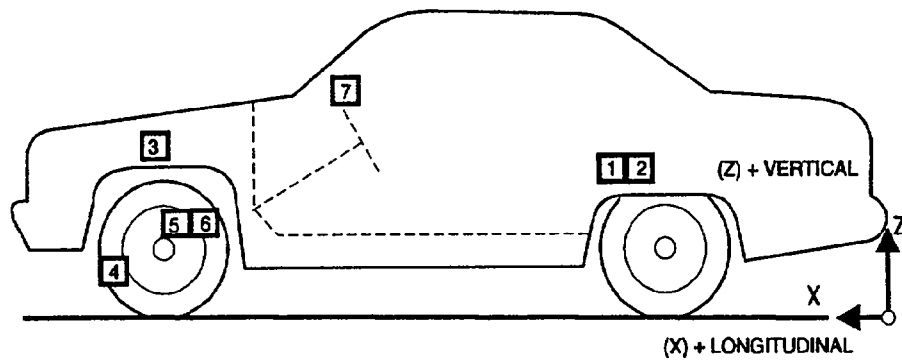
C1	=	470 mm
C2	=	557 mm
C3	=	590 mm
C4	=	589 mm
C5	=	542 mm
C6	=	491 mm



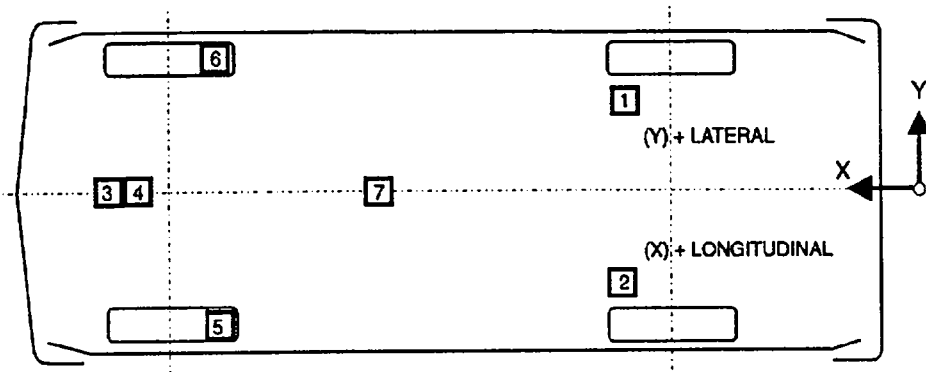
Midpoint of damage: D: Vehicle Longitudinal Centerline

Length of damaged region: L: 1524 mm

Figure 3 Vehicle Accelerometer Placement



SIDE VIEW



BOTTOM VIEW

Table 4 Vehicle Accelerometer Locations and Data Summary

TEST NUMBER: 941130 No. LOCATION	X	Y	Z	POSITIVE DIRECTION	NEGATIVE DIRECTION
1 LEFT REAR SEAT CROSSMEMBER LONGITUDINAL ¹ REDUNDANT ¹	3158 mm	510 mm	562 mm	2.1 g @ 180.8 ms 7.7 g @ 127.8 ms	59.5 g @ 23.5 ms 200.0 g @ 23.6 ms
2 RIGHT REAR SEAT CROSSMEMBER LONGITUDINAL REDUNDANT	3141 mm	-510 mm	562 mm	2.5 g @ 167.7 ms 2.5 g @ 167.9 ms	35.5 g @ 65.2 ms 33.3 g @ 65.1 ms
3 ENGINE TOP LONGITUDINAL	911 mm	-75 mm	1052 mm	30.2 g @ 60.4 ms	115.1 g @ 41.3 ms
4 ENGINE BOTTOM LONGITUDINAL	1018 mm	-18 mm	267 mm	28.1 g @ 55.0 ms	81.4 g @ 42.6 ms
5 RIGHT BRAKE CALIPER LONGITUDINAL	976 mm	-661 mm	375 mm	32.4 g @ 57.8 ms	104.0 g @ 48.2 ms
6 LEFT BRAKE CALIPER LONGITUDINAL	976 mm	661 mm	382 mm	58.0 g @ 54.7 ms	108.2 g @ 40.9 ms
7 INSTRUMENT PANEL CENTER LONGITUDINAL	1403 mm	0 mm	1159 mm	18.1 g @ 63.1 ms	81.2 g @ 69.6 ms

* X-AXIS LOCATIONS ARE MEASURED REARWARD FROM THE FRONT BUMPER.

REFERENCE: X: + FORWARD ACCELERATION

Y: + LEFT FROM VEHICLE CENTERLINE

Z: + UP FROM GROUND LEVEL

¹ See DATA ACQUISITION EXPLANATIONS

Table 5 Post-Impact Dummy/Vehicle Data

Visible Dummy Contact Points:

	<u>Driver #192</u>	<u>Passenger #142</u>
Head	Airbag	Instrument panel & left knee
Chest	Airbag	None
Abdomen	None	None
Left knee	Instrument panel	Instrument panel
Right knee	Instrument panel	Instrument panel

Door Opening:

	<u>Left</u>	<u>Right</u>
Front	Tools required	Tools required
Rear	Tools required	Tools required

Seat Movement:

	<u>Seat Back Failure</u>	<u>Seat Shift</u>
Front	None	None
Rear	NA	NA

Glazing Damage: The entire windshield was cracked upon impact.

Other Notable Impact Effects: None

Table 6 FMVSS 208 Data Summary

Vehicle year/make/
model/body style: 1995/Chevrolet/S-10 Blazer/multipurpose passenger vehicle

Vehicle NHTSA number: MS0104

Test date: 11/30/94

	Driver Dummy #192		Passenger Dummy #142	
<u>Maximum Accelerations:</u>				
Head X-axis	-74.5	g	-153.0	g
Head Y-axis	56.3	g	-64.8	g
Head Z-axis	-25.2	g	-83.7	g
Head resultant	82.5	g	167.4	g
Chest X-axis ³	-47.8	g	-49.9	g
Chest Y-axis ³	8.1	g	16.9	g
Chest Z-axis ³	-13.4	g	-16.5	g
Chest resultant ^{1,3}	48.3	g	45.5	g
Chest resultant time interval ¹	.003	sec	.003	sec
<u>Head Injury Criteria (HIC) Values:</u>				
HIC ²	932		1874	
HIC starting time	.061	sec	.074	sec
HIC ending time	.093	sec	.107	sec
Avg. head resultant accel. during HIC time interval	60.4	g	79.4	g
<u>Maximum Chest Deflections:</u>				
Chest X-axis	41	mm	45	mm
Maximum chest deflection time	.071	sec	.092	sec
<u>Maximum Compressive Femur Forces:</u>				
Left femur	4867	N	2910	N
Right femur	8846	N	1576	N
<u>Maximum Seat Belt Forces:</u>				
Lap belt ³	4217	N	7469	N
Shoulder belt	5038	N	7902	N

Note: All values listed must be occurring during primary impact event.
(Head accelerations listed must be during hic time interval.)

¹ 0.003 Sec. Minimum duration.

² The maximum hic time interval is 36 milliseconds.

³ See Data Acquisition Explanations

Table 7 Hybrid III Neck Data Summary

Vehicle year/make/
model/body style: 1995/Chevrolet/S-10 Blazer/multipurpose passenger vehicle
Vehicle NHTSA number: MS0104
Test date: 11/30/94

	Driver Dummy #192	Passenger Dummy #142
<u>Maximum Values:</u>		
Neck X-axis force	-876 N	1716 N
Neck Y-axis force	666 N	430 N
Neck Z-axis force	2335 N	3167 N
Neck moment about X-axis	-19 N-m	-32 N-m
Neck moment about Y-axis	56 N-m	-53 N-m
Neck moment about Z-axis	64 N-m	-11 N-m

Note: All values listed must be occurring during primary impact event.

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 rearward and to the left as the dummy's head and chest were restrained by the driver's airbag and the dummy's torso was restrained by the three-point unbelt. The dummy's head rotated back toward the right as the dummy rebounded into the seat back. The dummy's head then rotated forward as the dummy's torso rotated forward and rearward again into the seat back. The dummy came to rest seated in the driver's seat, restrained by the three-point unbelt.

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, contacting the instrument panel and impacting the dummy's left knee as the dummy's torso was restrained by the three-point unbelt. The dummy's head rotated rearward into the right B-pillar as the dummy rebounded into the seat back and right B-pillar. The dummy came to rest seated in the right front passenger's seat, leaning to the right, restrained by the three-point unbelt.

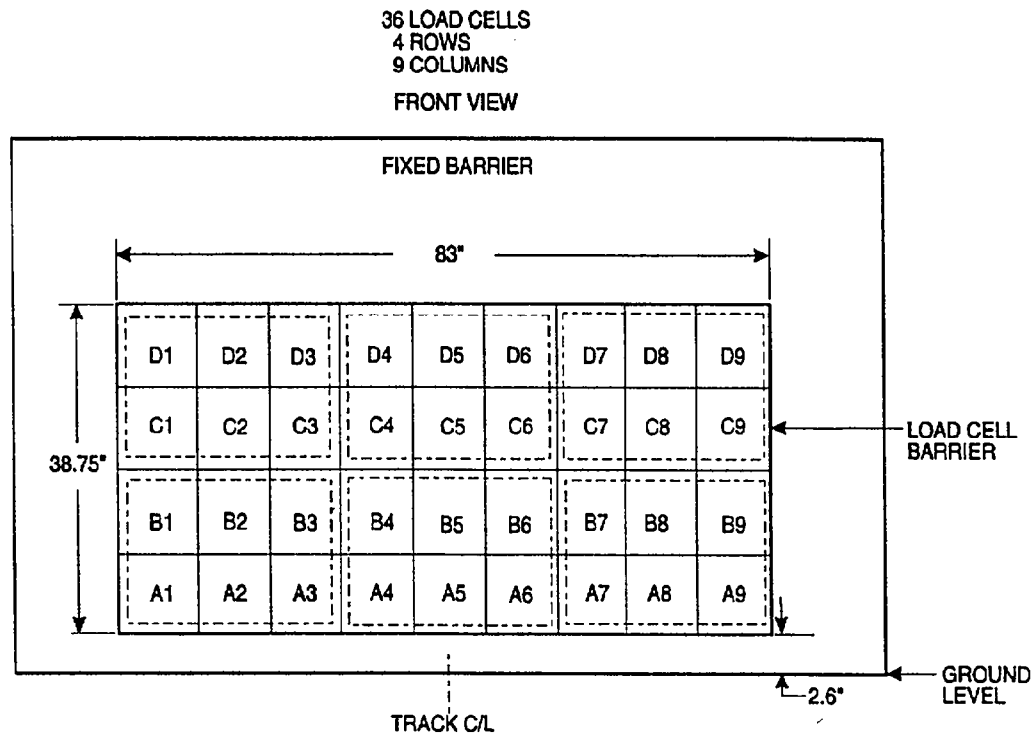
Table 8 Seat Belt Performance Assessment Test Data

	Driver		Passenger	
<u>Belt length data:</u>				
Belt length from trim panel exit to bolt hole anchor point for continuous webbing systems.	2698	mm	2627	mm
Shoulder belt length as measured on Part 572 dummy.	1136	mm	1134	mm
Lap belt length as measured on Part 572 dummy.	805	mm	817	mm
<u>Shoulder belt spool-off length:</u>				
As determined by film analysis ¹	90	mm	110	mm
As determined mechanically ²	90	mm	110	mm
As determined electronically ²	133	mm	130	mm
<u>Belt stretch length:</u>				
As measured mechanically	0.0	mm/m	0.0	mm/m
As measured electronically ²	0.0	mm/m	0.2	mm/m
<u>Retractor lock-up time:</u>				
As determined by shoulder belt spool-off ¹	76	ms	78	ms

¹ Cameras removed to reduce test weight

² See Data Acquisition Explanations

Figure 4 Load Cell Barrier Configuration



- Group 1: A1 through B3
- Group 2: A4 through B6
- Group 3: A7 through B9
- Group 4: C1 through D3
- Group 5: C4 through D6
- Group 6: C7 through D9

Table 9 Load Cell Barrier Data Summary

Location	Positive Direction	Negative Direction
Total group 1	1.6 kN @ 152.0 ms	134.3 kN @ 38.2 ms
Total group 2	1.3 kN @ 211.4 ms	242.6 kN @ 38.2 ms
Total group 3	1.1 kN @ 3.2 ms	65.6 kN @ 44.2 ms
Total group 4	1.3 kN @ 211.7 ms	67.2 kN @ 15.8 ms
Total group 5	-0.4 kN @ 251.1 ms	342.7 kN @ 43.2 ms
Total group 6	1.2 kN @ 210.7 ms	53.0 kN @ 22.6 ms
Total load cell force	4.9 kN @ 211.4 ms	830.7 kN @ 42.9 ms

Tension is positive
Compression is negative

Section 3.0

FMVSS 212, 219 (partial), and 301 Data

Figure 5 FMVSS 212 Test Data

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

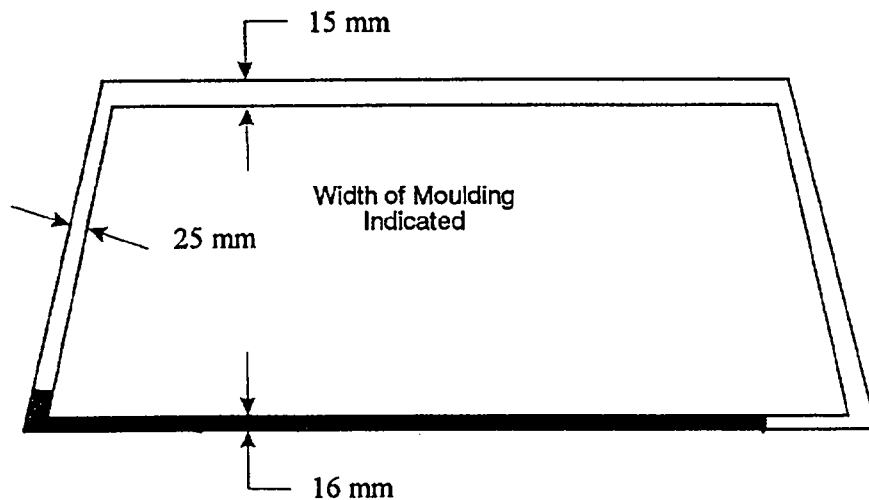
Plastic trim around outer perimeter, adhesive around inner perimeter.

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.

Windshield periphery measurements:

	<u>Pre-test</u>	<u>Post-test</u>	<u>Percent retention</u>
Right side	2126 mm	1251 mm	58.8
Left side	2126 mm	1351 mm	63.5
Total	4252 mm	2602 mm	61.2

Pre-test windshield mounting material temperature: 21° C



Front view of windshield¹

Loss of windshield retention lengths: Windshield retention was lost along the lower perimeter between the lower right corner and 65 millimeters from the lower left corner and along the right side between the lower right corner and 35 millimeters above the corner.

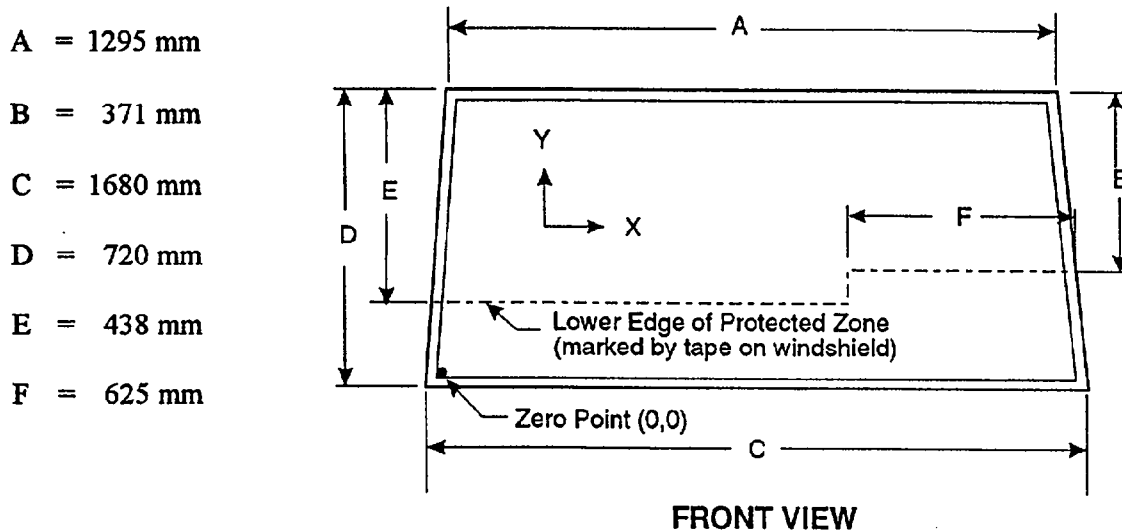
¹ Indicate areas of loss of retention, if any, on windshield diagram.

Figure 6 FMVSS 219 Test Data

Protected zone lower edge requirement:

The lower edge of the protected zone is determined by placing a 165-millimeter diameter rigid sphere weighing 6.8 kg 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 13 millimeters 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.

Windshield measurements:



Method of adhering protected zone template to windshield: NA

Areas of windshield template penetration greater than 6 mm: NA

Coordinates	
X	Y
1.	
2.	
3.	

Areas of windshield penetration, below the protected zone, through the inner surface of the windshield: None

- 1.
- 2.
- 3.

Table 10 Fuel System Data

Vehicle year/make/ model/body style:	1995/Chevrolet/S-10 Blazer/multipurpose passenger vehicle
NHTSA number:	MS0104
Fuel system capacity:	72.0 liters (from owner's manual)
Usable capacity:	70.4 liters (furnished by COTR)
Test volume range:	64.8 liters to 66.2 liters (92-94% of usable)
Actual test volume:	65.5 liters (with entire fuel system filled)
Test fluid type:	Stoddard solvent
Specific gravity:	0.764
Kinematic viscosity:	0.99 centistoke
Test fluid color:	Purple

The electric fuel pump does not operate with ignition switch "on" and the engine not operating?

Details of fuel system: The fuel tank is located on the left side in front of the rear axle.
 The fuel filler neck is located on the left side.
 The fuel lines run along the left side to the front.

Table 11 FMVSS 301 Post-Impact Test Data

NHTSA number: MS0104
Test date: 11/30/94
Vehicle year/make/
model/body style: 1995/Chevrolet/S-10 Blazer/multipurpose passenger vehicle

Test requirements:

Test vehicle fuel tank filled to 92 to 94% of manufacturer's usable 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 (56 kph)
☐ Oblique (48 kph) with ___° barrier face first contacting ___ (driver/pass.) side
☐ Rear moving barrier (48 kph)
☐ Lateral moving barrier (32 kph)

Fuel system fluid spillage measurements:

		<u>Test Results</u>	<u>Maximum Allowable</u>
1.	From impact until vehicle motion ceases	0 g	28 g
2.	5-minute period after vehicle motion ceases	1282 g	142 g
3.	Next 25 minutes after 5-minute period ¹	6th minute: 240 g 7th minute: 194 g 8th minute: 230 g 9th minute: 209 g 10th minute: 221 g 11th minute: 229 g 12th minute: 210 g 13th minute: 223 g 14th minute: 204 g 15th minute: 215 g	28 g/min

Fuel system fluid spillage location(s): Bottom of fuel tank.

¹ Fluid spillage collection was concluded at the end of the 15th minute and the rollover test was not performed since the amount of fluid spillage greatly exceeded the FMVSS 301 allowable spillage.

Section 4.0

Occupant, Camera, and Vehicle Information

Figure 7 Dummy Measurement Locations for Front Seat Occupants

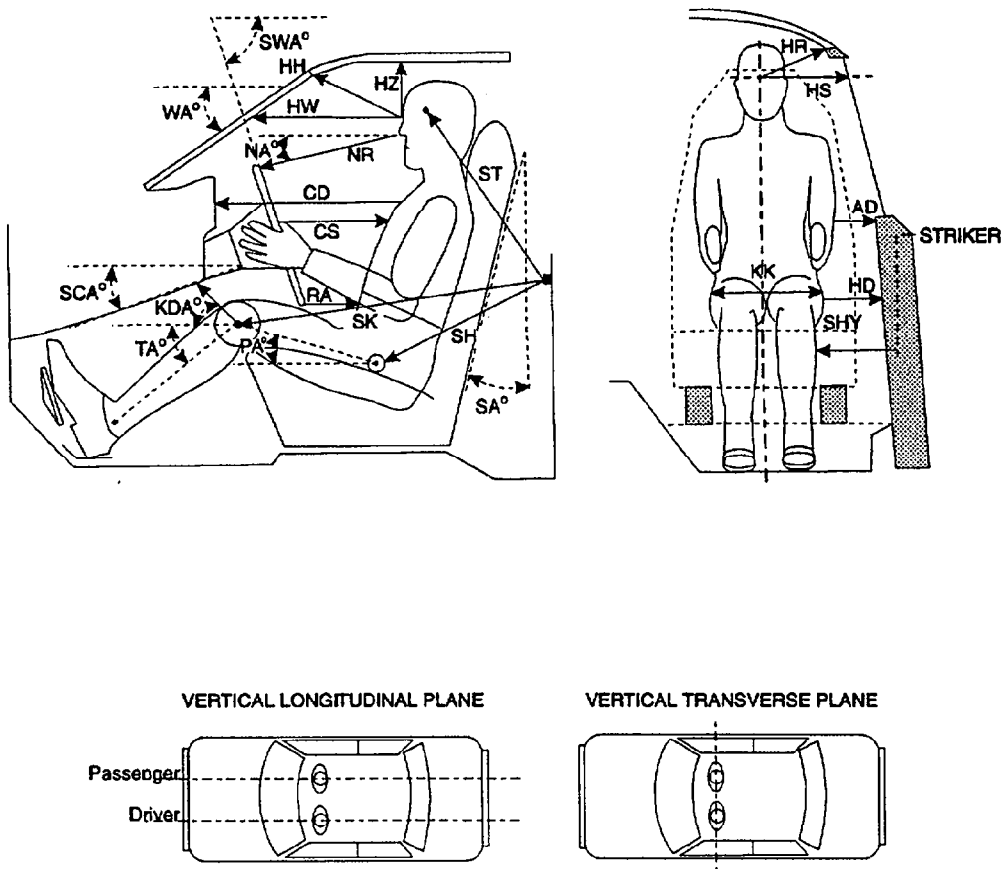


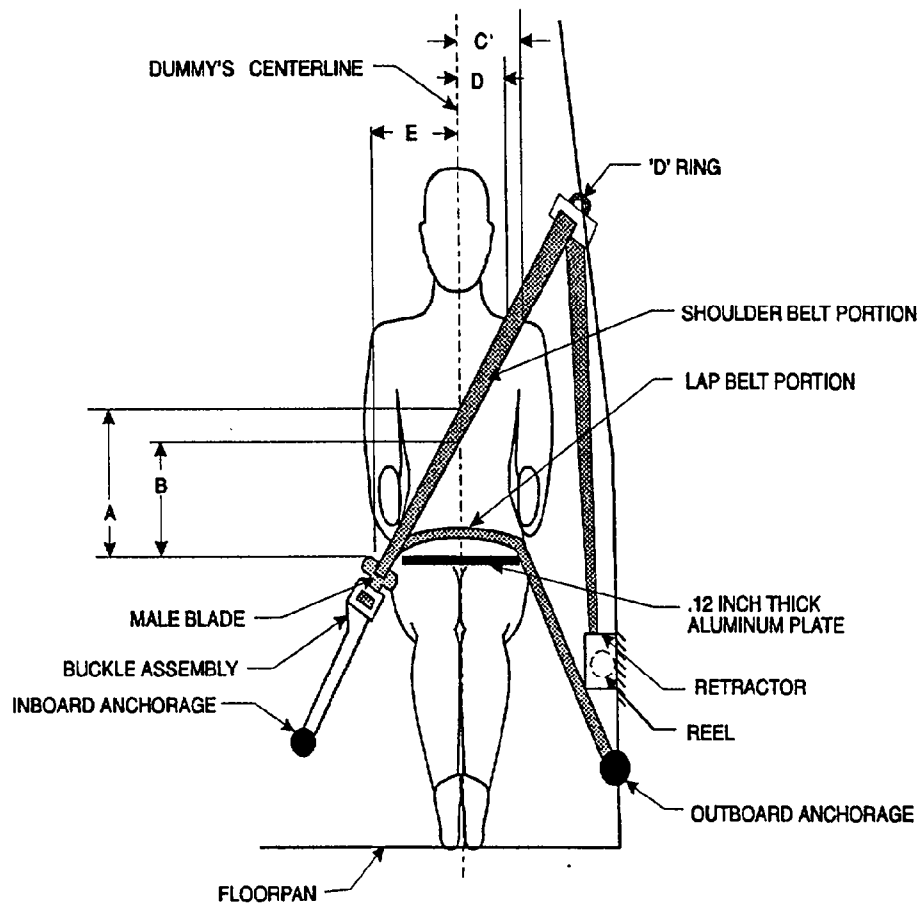
Table 12 Dummy Measurement Data For Front Seat Occupants

Designation	Type of Measurement	Driver (Serial #192)	Passenger (Serial #142)
WA	Windshield angle	35°	NA
SWA	Steering wheel angle	63°	NA
SCA	Steering column angle	28°	NA
SA	Seat back angle	23°	23°
HZ	Head to roof	205 mm	214 mm
HH	Head to header	435 mm	445 mm
HW	Head to windshield	630 mm	659 mm
HR	Head to side header	247 mm	269 mm
NR	Nose to rim	358 mm	NA
NA	Nose to rim angle	13°	NA
CD	Chest to dash	516 mm	559 mm
CS	Steering wheel to chest	274 mm	NA
RA	Rim to abdomen	162 mm	NA
KDL	Left knee to dash	185 mm	206 mm
KDR	Right knee to dash	157 mm	204 mm
KDA	Outboard knee to dash angle	26°	21°
PA	Pelvic angle	24°	24°
TA	Tibial angle	32°	39°
KK	Knee to knee	344 mm	275 mm
ST ¹	Striker to head	598 mm	572 mm
	Striker to head angle	-83°	-74°
SK ¹	Striker to knee	710 mm	709 mm
	Striker to knee angle	1°	1°
SH ¹	Striker to H-point	326 mm	340 mm
	Striker to H-point angle	17°	15°
SHY	Striker to H-point (Y dir.)	206 mm	200 mm
HS	Head to side window	369 mm	353 mm
HD	H-point to door	127 mm	173 mm
AD	Arm to door	119 mm	152 mm

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

¹ Angle measured from head restraint support.

Figure 8 Seat Belt Positioning Data



	Driver	Passenger
A - Top surface of aluminum plate to belt upper edge	355 mm	307 mm
B - Top surface of aluminum plate to belt lower edge	279 mm	226 mm
C - Dummy centerline to outer edge of belt at chest flesh top	133 mm	150 mm
D - Dummy centerline to inner edge of belt at chest flesh top	65 mm	103 mm
Lap belt tension	16 N	16 N
Shoulder belt tension	16 N	16 N
Adjustable seat belt anchorage position	NA	NA

Figure 9 Camera Positions

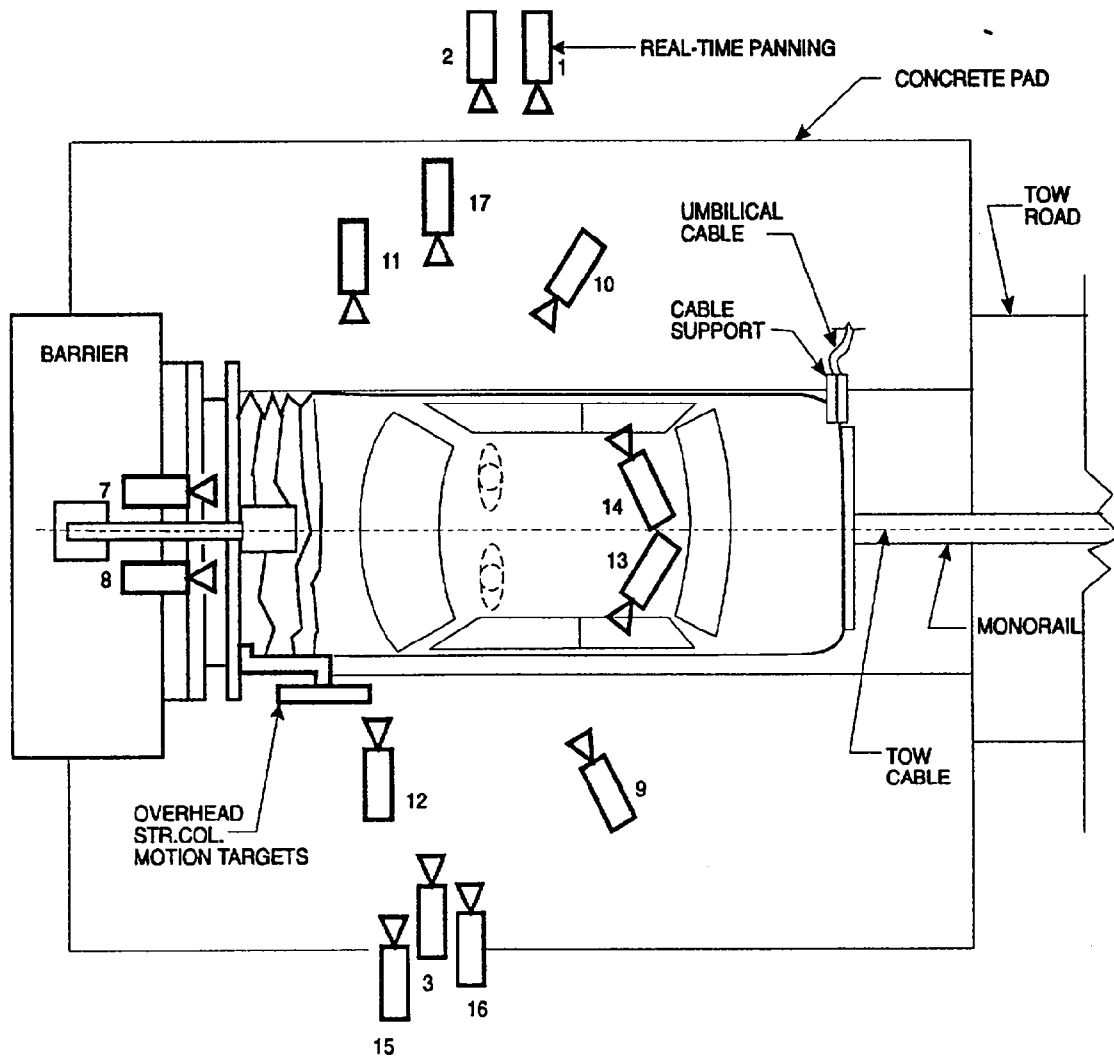
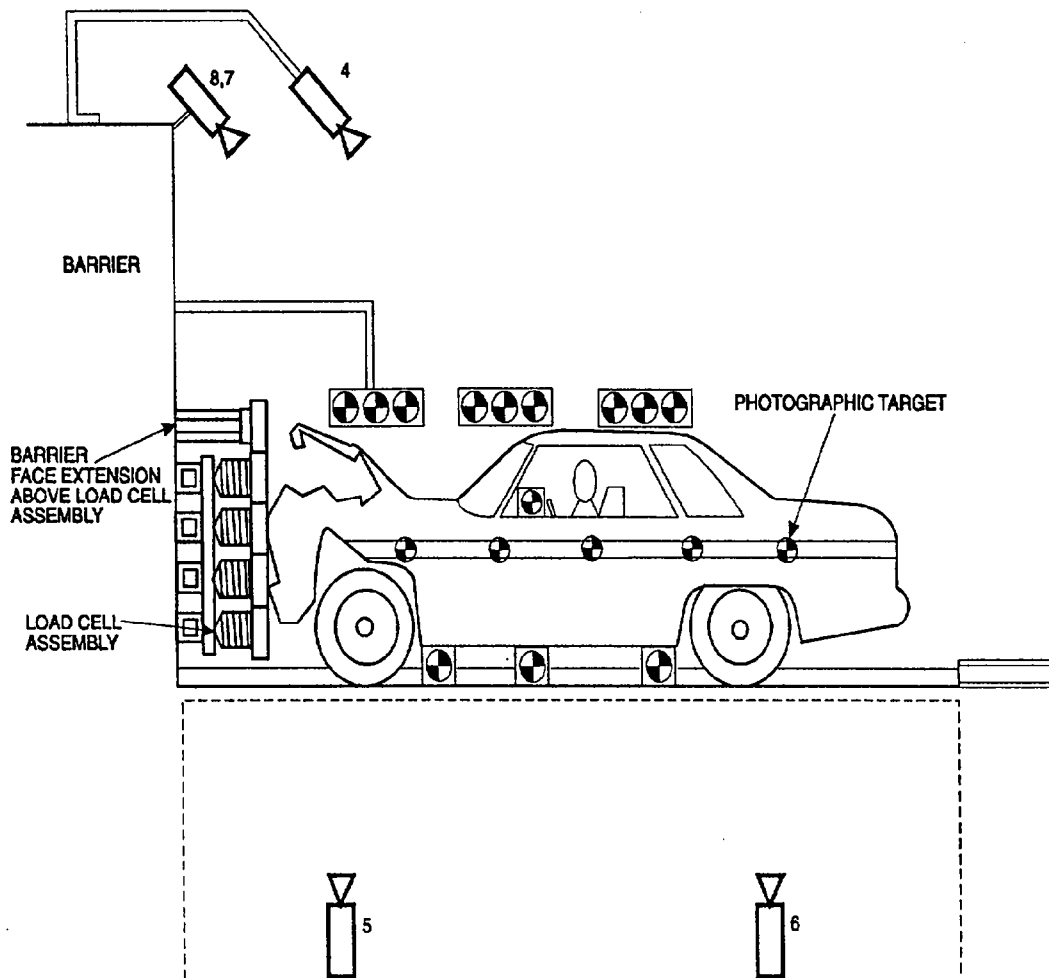


Figure 9 Camera Positions, Cont'd.



Test Number: 941130

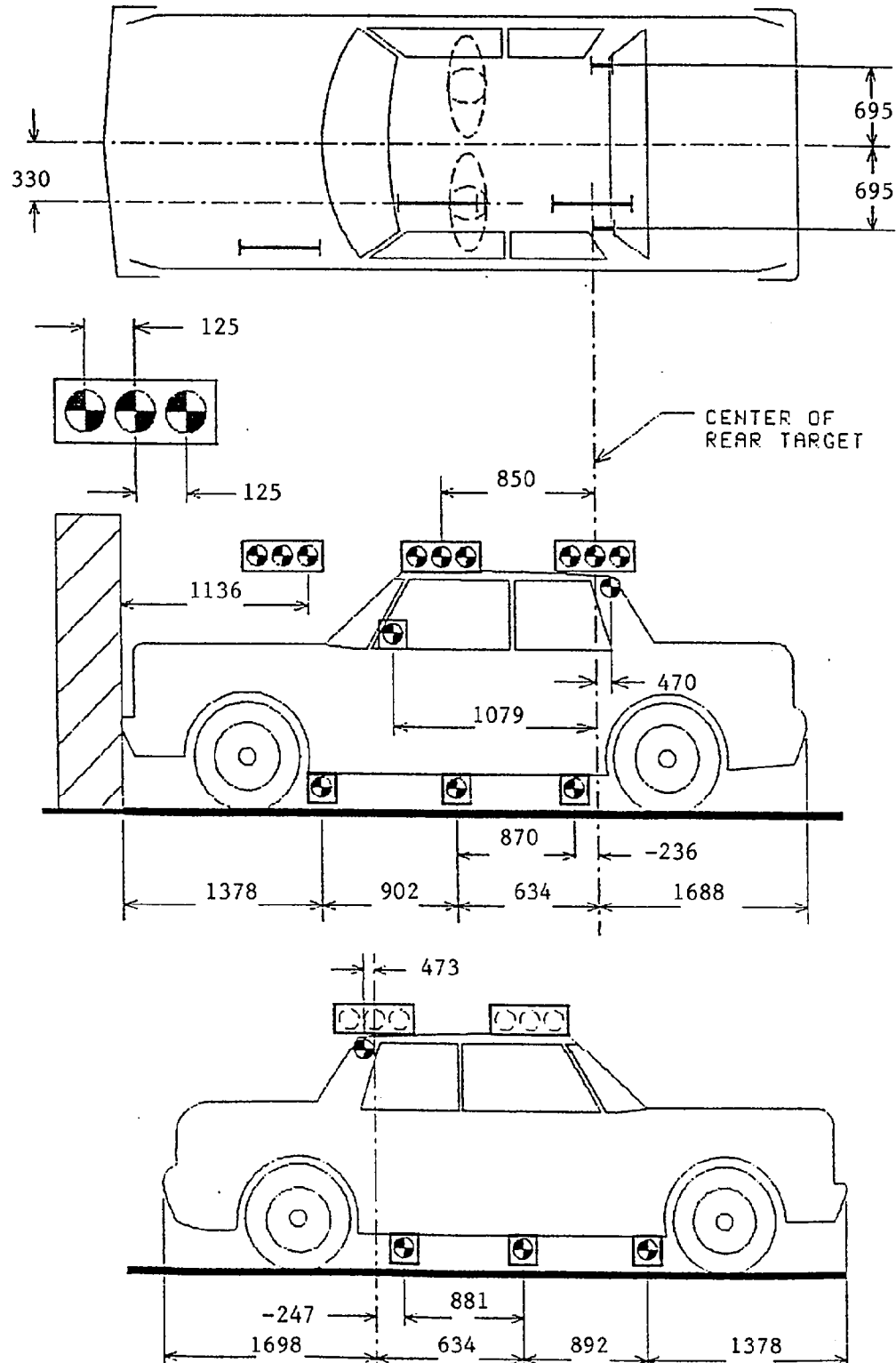
Vehicle year/make/model/body style: 1995/Chevrolet/S-10 Blazer/multipurpose passenger vehicle

Table 13 Motion Picture Camera Locations

Camera Number	View	Camera Positions ¹			Angle ²	Film Plane to Head Target	Lens	Film Speed
		X	Y	Z				
1	Real-time panning	-3607 mm	-2802 mm	1549 mm	NA	NA mm	16 mm	24 frames/s
2	Vehicle crush	-2065 mm	-6767 mm	942 mm	-2°	NA mm	13 mm	498 frames/s
3	Dummy kinematics	-1054 mm	7493 mm	1118 mm	-12°	5994 mm	25 mm	1002 frames/s
4	Windshield damage	-925 mm	0 mm	2489 mm	-40°	NA mm	13 mm	500 frames/s
5	Crush & fluid spillage	-1283 mm	0 mm	-2347 mm	90°	NA mm	13 mm	1002 frames/s
6	Fluid spillage	-2522 mm	0 mm	-2515 mm	90°	NA mm	13 mm	998 frames/s
7	Passenger kinematics	-114 mm	-351 mm	2159 mm	-40°	NA mm	17 mm	500 frames/s
8	Driver kinematics	-173 mm	368 mm	2159 mm	-41°	NA mm	17 mm	508 frames/s
9	Driver kinematics	-4572 mm	1854 mm	2591 mm	-27°	2413 mm	25 mm	498 frames/s
10	Passenger kinematics	-4674 mm	-1880 mm	2540 mm	-26°	2565 mm	25 mm	495 frames/s
11	Windshield intrusion	-968 mm	-7775 mm	1118 mm	0°	NA mm	50 mm	510 frames/s
12	Windshield intrusion	-1346 mm	7859 mm	1074 mm	0°	NA mm	50 mm	502 frames/s
13	Driver seat belt movement	NA	NA	NA	NA	NA mm	13 mm	500 frames/s
14	Passenger seat belt movement	NA	NA	NA	NA	NA mm	13 mm	500 frames/s
15	Column movement	-2286 mm	7264 mm	2616 mm	-14°	NA mm	25 mm	498 frames/s
16	Column movement	-2286 mm	7264 mm	1908 mm	-9°	NA mm	25 mm	508 frames/s
17	Passenger kinematics	-986 mm	-5354 mm	1151 mm	7°	6096 mm	25 mm	1002 frames/s

- ¹ +X = Film plane forward of barrier face
+Y = Film plane to left of monorail centerline
+Z = Film plane above ground level
- ² +Angle = Film plane angled upward from horizontal plane

Figure 10 Vehicle Target Locations



All measurements are in millimeters.

Figure 11 Pre-Test And Post-Test Measurement Points

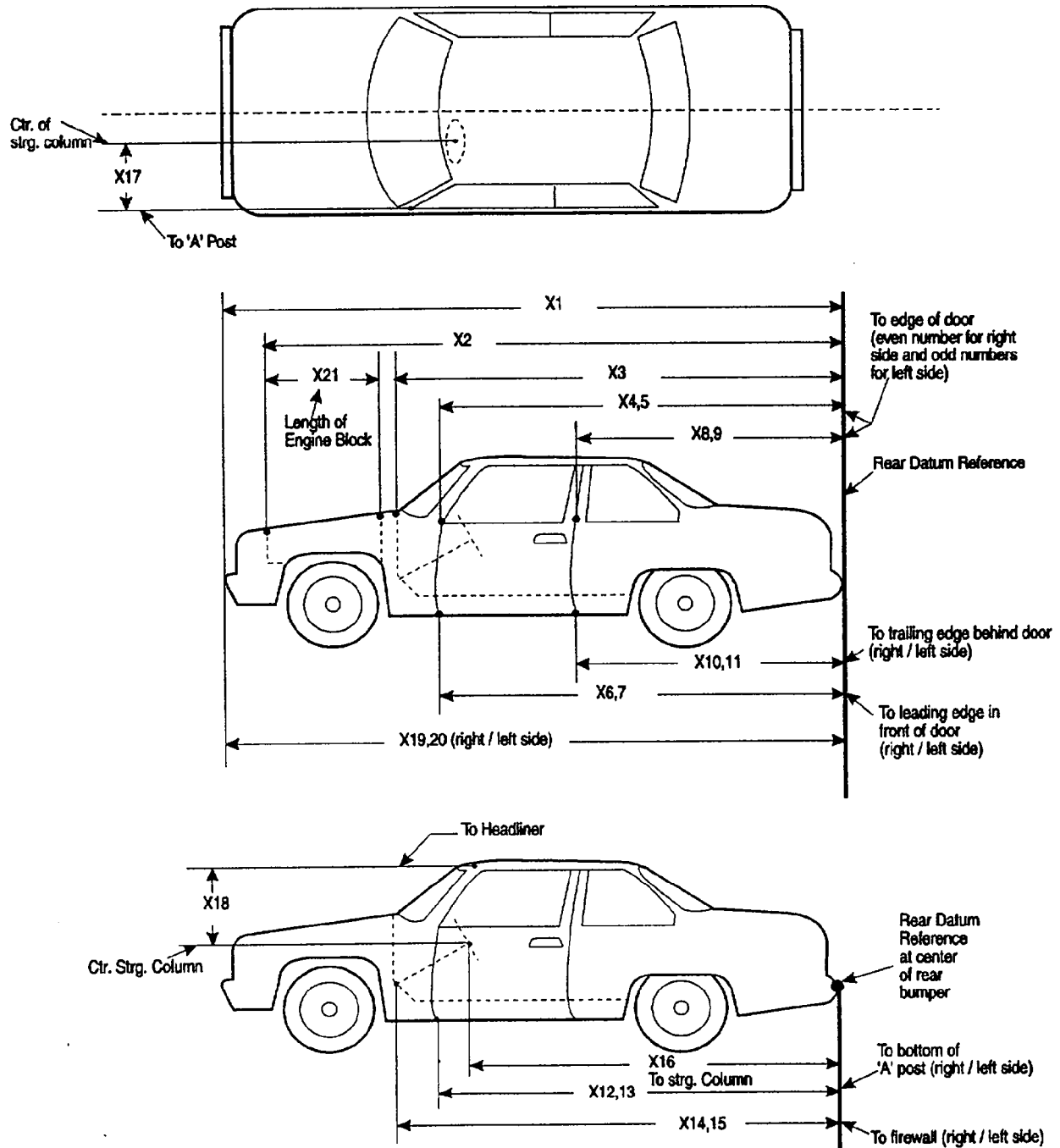


Table 14 Impacted Vehicle Measurements

Vehicle Make/Model: Chevrolet/S-10 Blazer

Test Number: 941130

No.	Type of measurement	Pre-test	Post-test	Diff.
X1	Total length of vehicle at centerline	4602 mm	4000 mm	602 mm
X2	Rear surface of vehicle to front of engine block	3998 mm	3812 mm	186 mm
X3	Rear surface of vehicle to firewall	3484 mm	3320 mm	164 mm
X4	Rear surface of vehicle to upper leading edge of right door	3233 mm	3212 mm	21 mm
X5	Rear surface of vehicle to upper leading edge of left door	3234 mm	3195 mm	39 mm
X6	Rear surface of vehicle to lower leading edge of right door	3192 mm	3180 mm	12 mm
X7	Rear surface of vehicle to lower leading edge of left door	3200 mm	3153 mm	47 mm
X8	Rear surface of vehicle to upper trailing edge of right door	2083 mm	2073 mm	10 mm
X9	Rear surface of vehicle to upper trailing edge of left door	2091 mm	2068 mm	23 mm
X10	Rear surface of vehicle to lower trailing edge of right door	2074 mm	2062 mm	12 mm
X11	Rear surface of vehicle to lower trailing edge of left door	2083 mm	2055 mm	28 mm
X12	Rear surface of vehicle to bottom of "A" post on right side	3159 mm	3124 mm	35 mm
X13	Rear surface of vehicle to bottom of "A" post on left side	3159 mm	3118 mm	41 mm
X14	Rear surface of vehicle to firewall - right side	3397 mm	3345 mm	52 mm
X15	Rear surface of vehicle to firewall - left side	3456 mm	3376 mm	180 mm
X16	Rear surface of vehicle to steering wheel center	2753 mm	2737 mm	16 mm
X17	Center of steering column to "A" post	315 mm	213 mm	102 mm
X18	Center of steering column to headliner	466 mm	531 mm	-65 mm
X19	Rear surface of vehicle to right side of front bumper	4428 mm	3937 mm	491 mm
X20	Rear surface of vehicle to left side of front bumper	4437 mm	3967 mm	470 mm
X21	Length of engine block	550 mm	550 mm	0 mm

Appendix A

Photographs

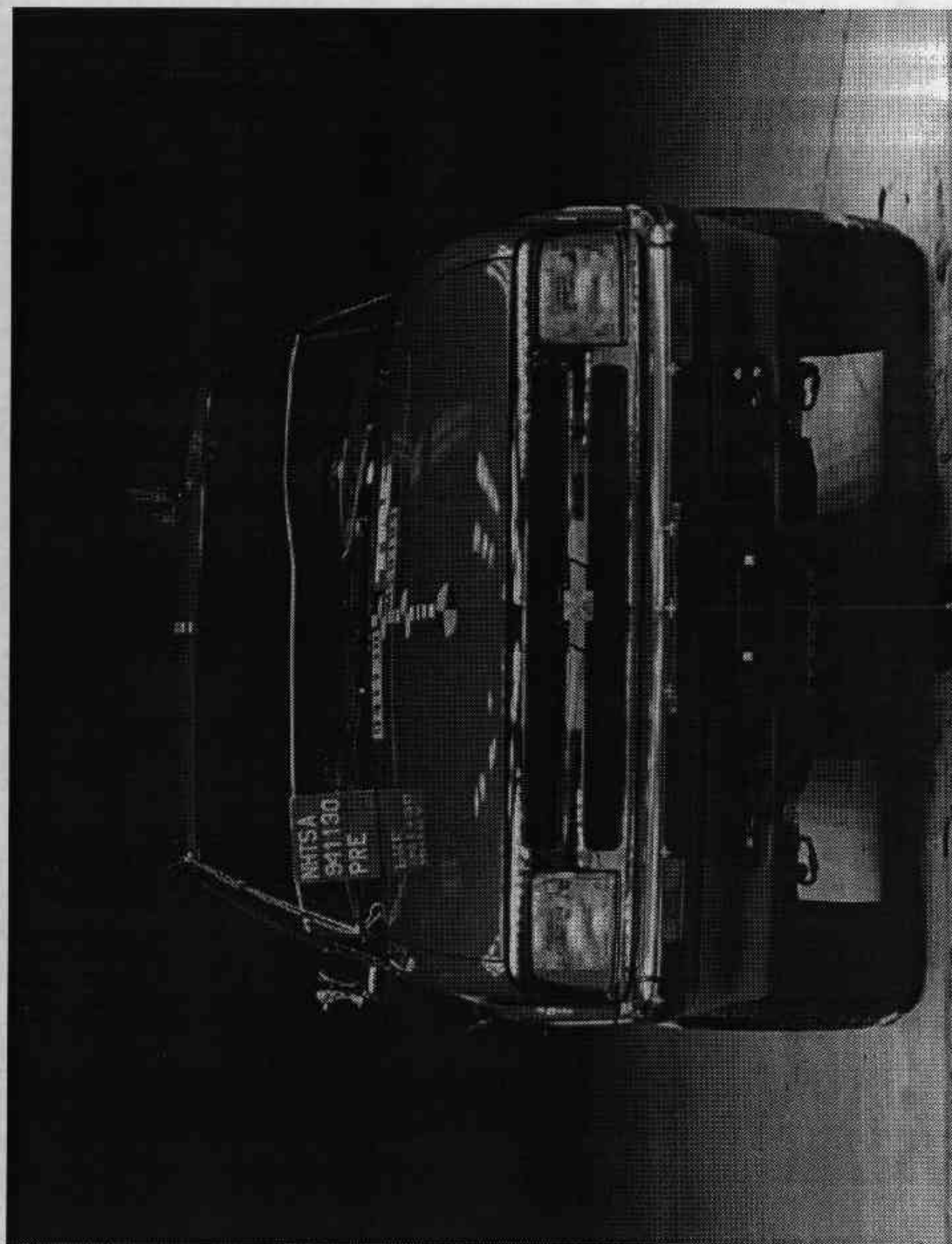


Figure A-1. Pre-Test Front View

A-2

941130



Figure A-2. Post-Test Front View
A-3

941130

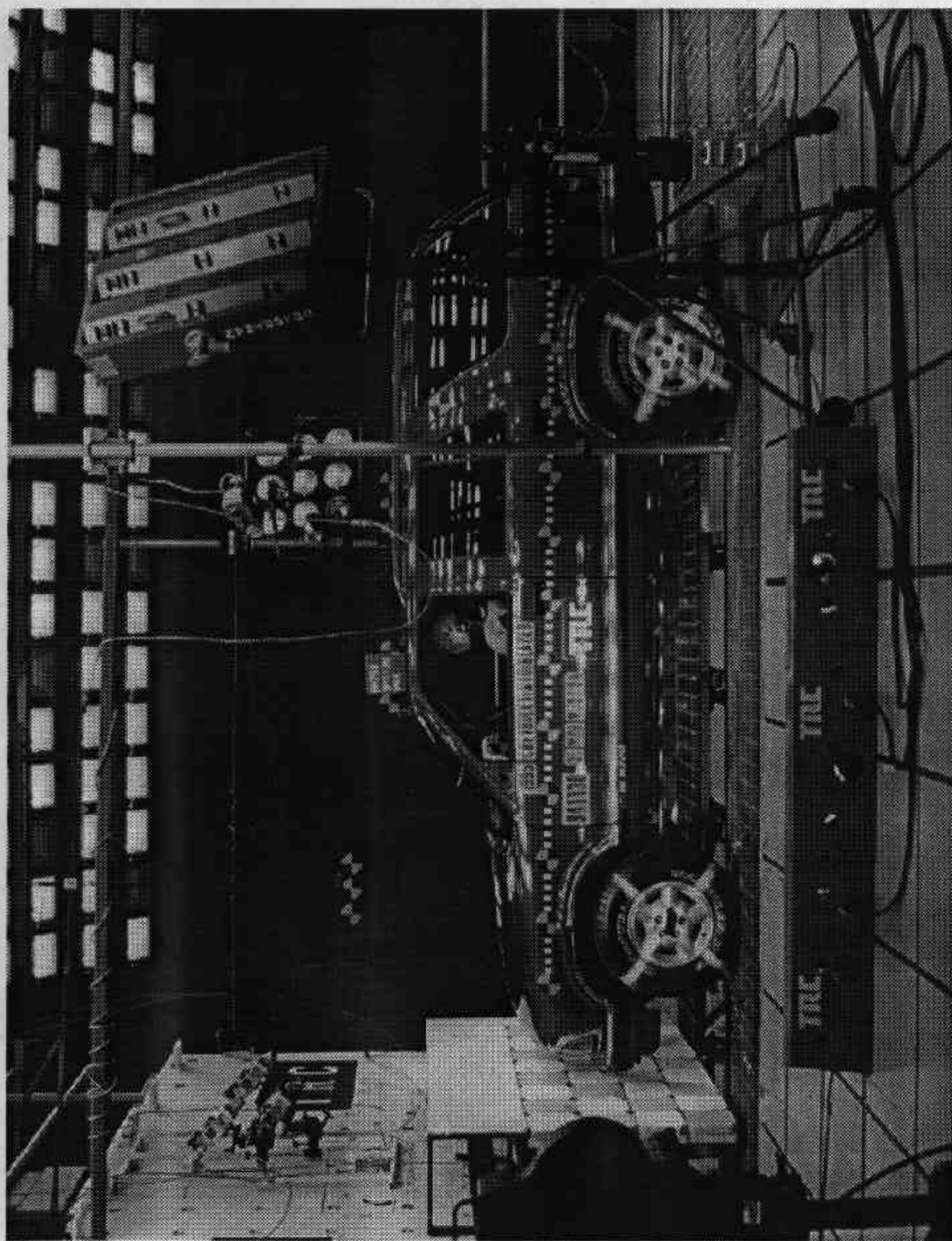


Figure A-3. Pre-Test Left Side View

A-4

941130

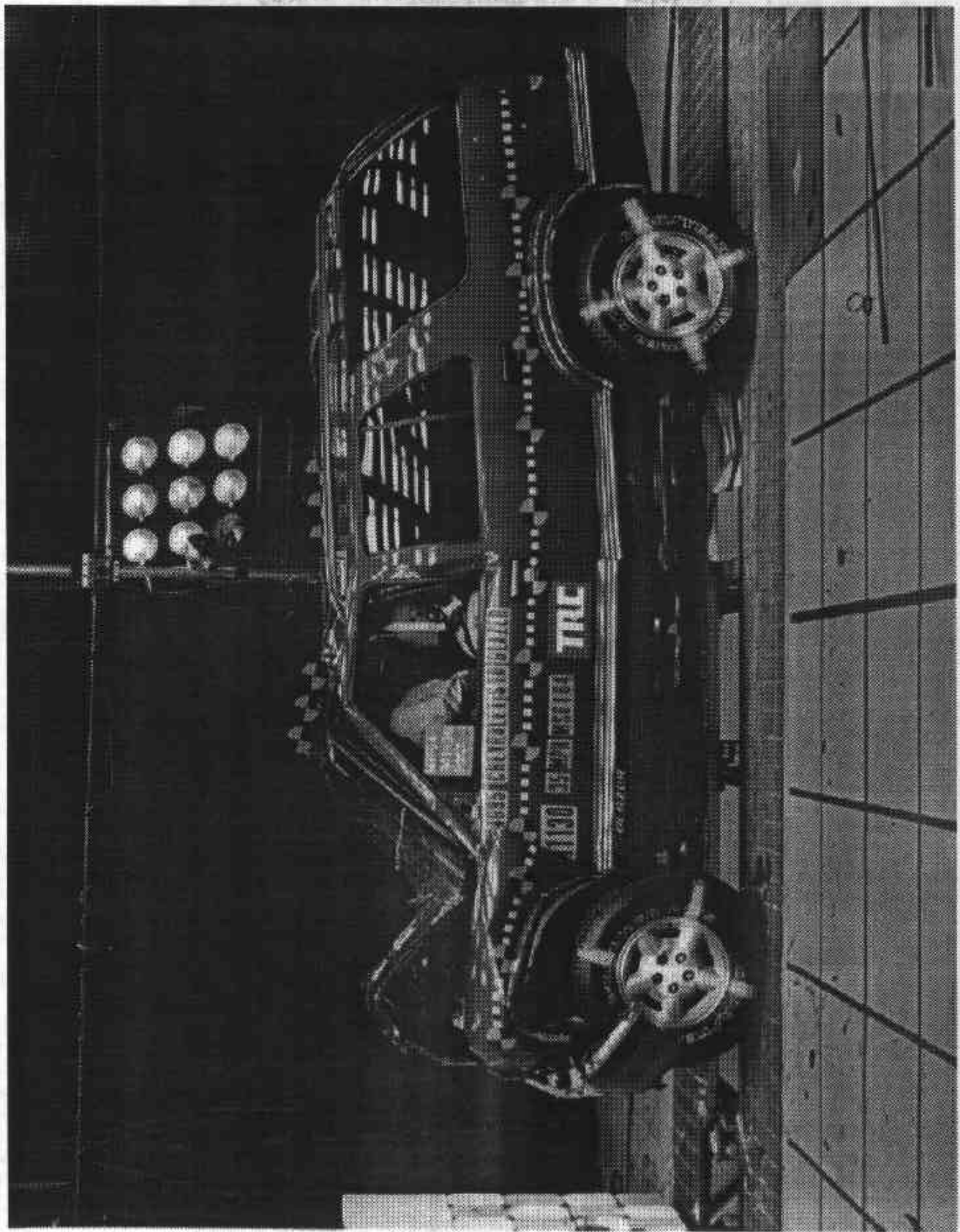


Figure A-4. Post-Test Left Side View
A-5

941130

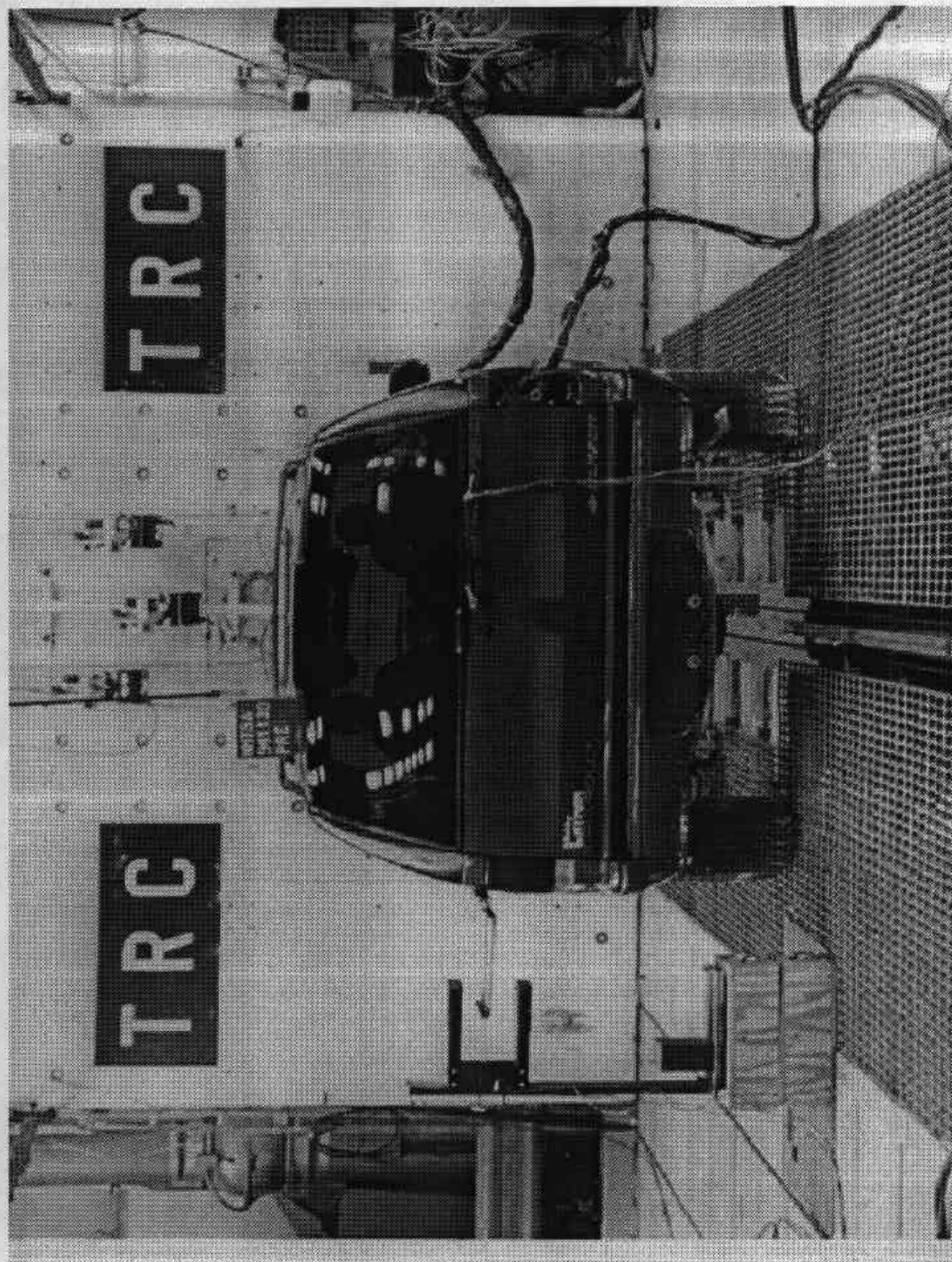


Figure A-5. Pre-Test Rear View
A-6

941130

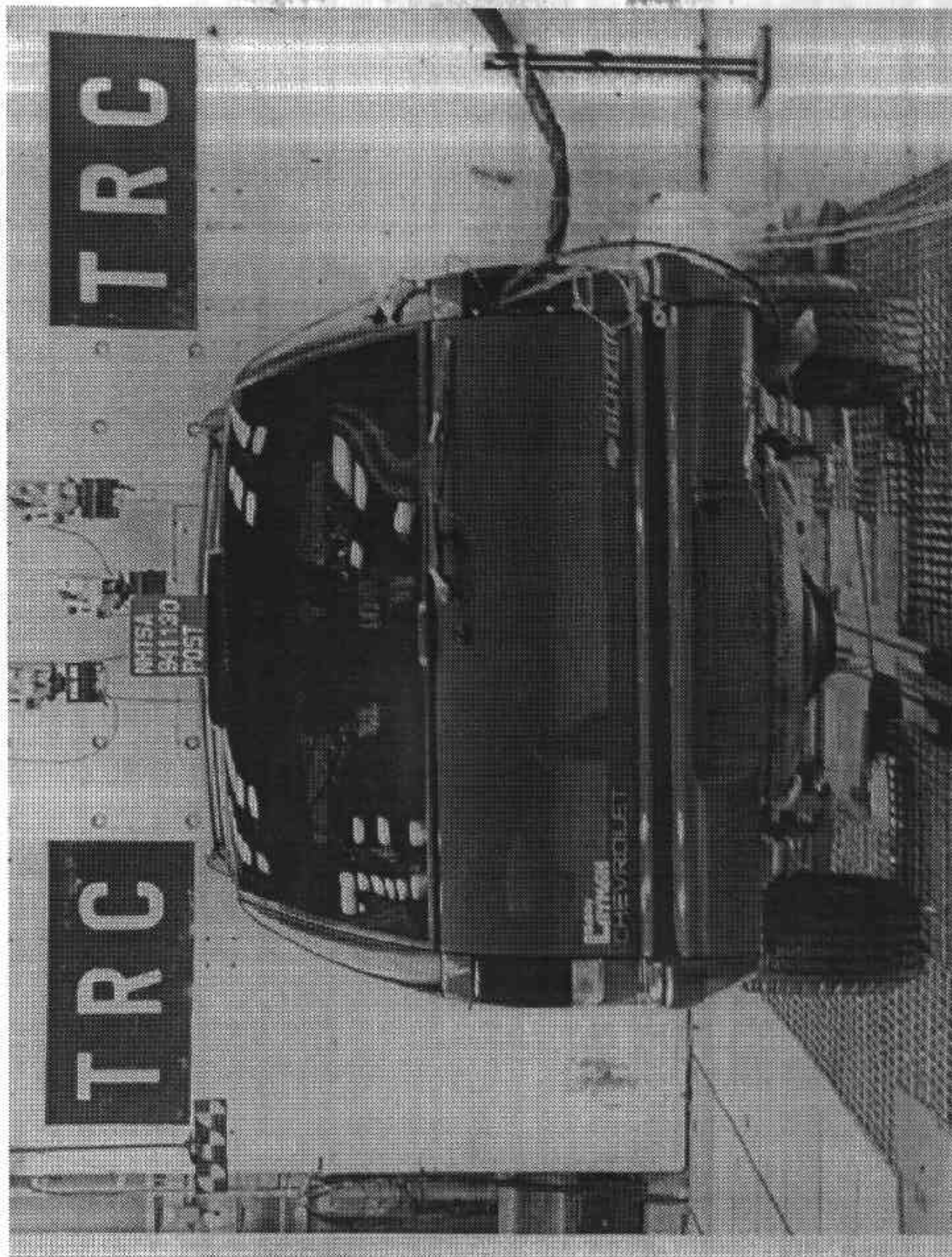


Figure A-6. Post-Test Rear View

A-7

941130

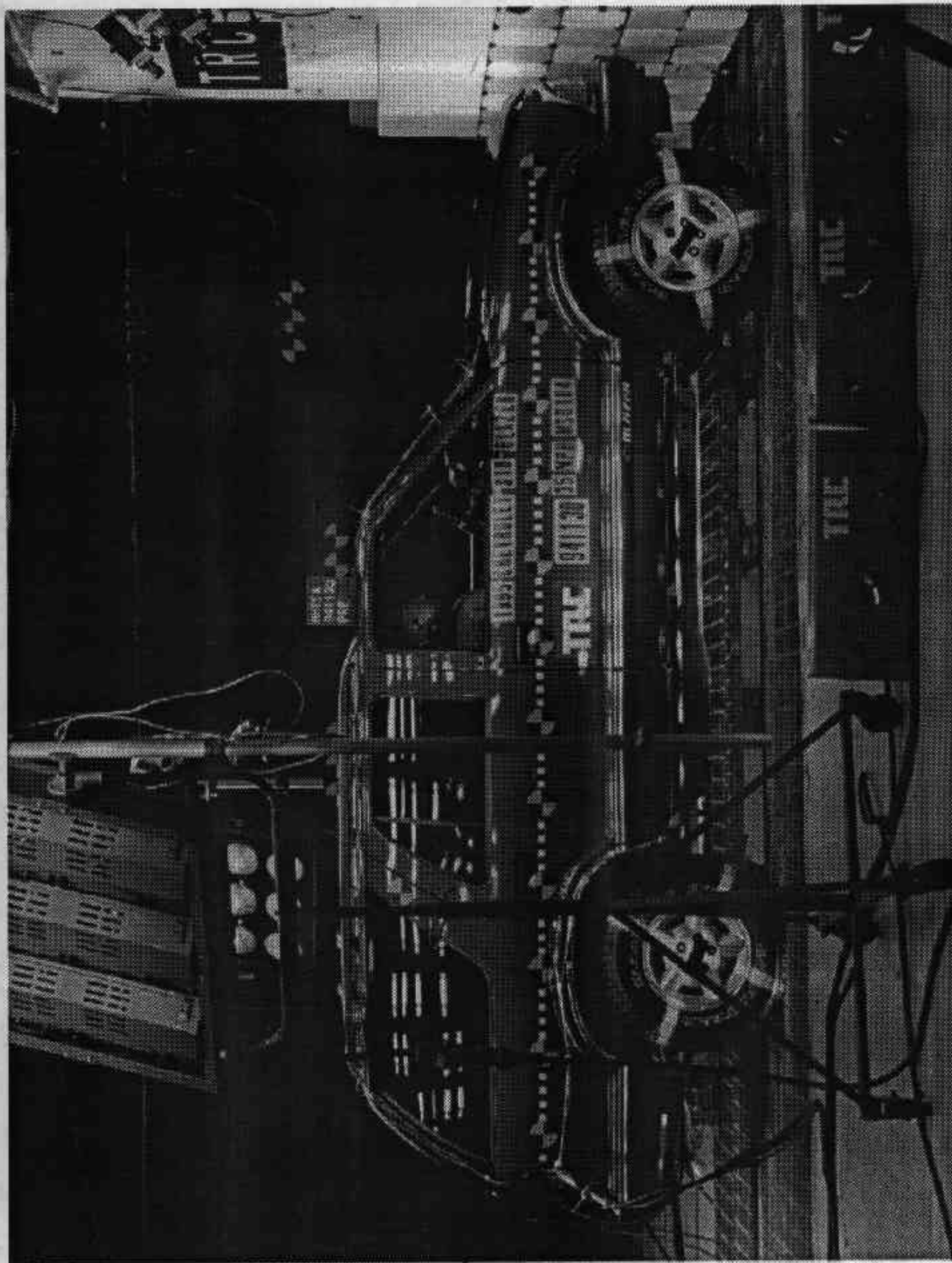


Figure A-7. Pre-Test Right Side View
A-8

941130

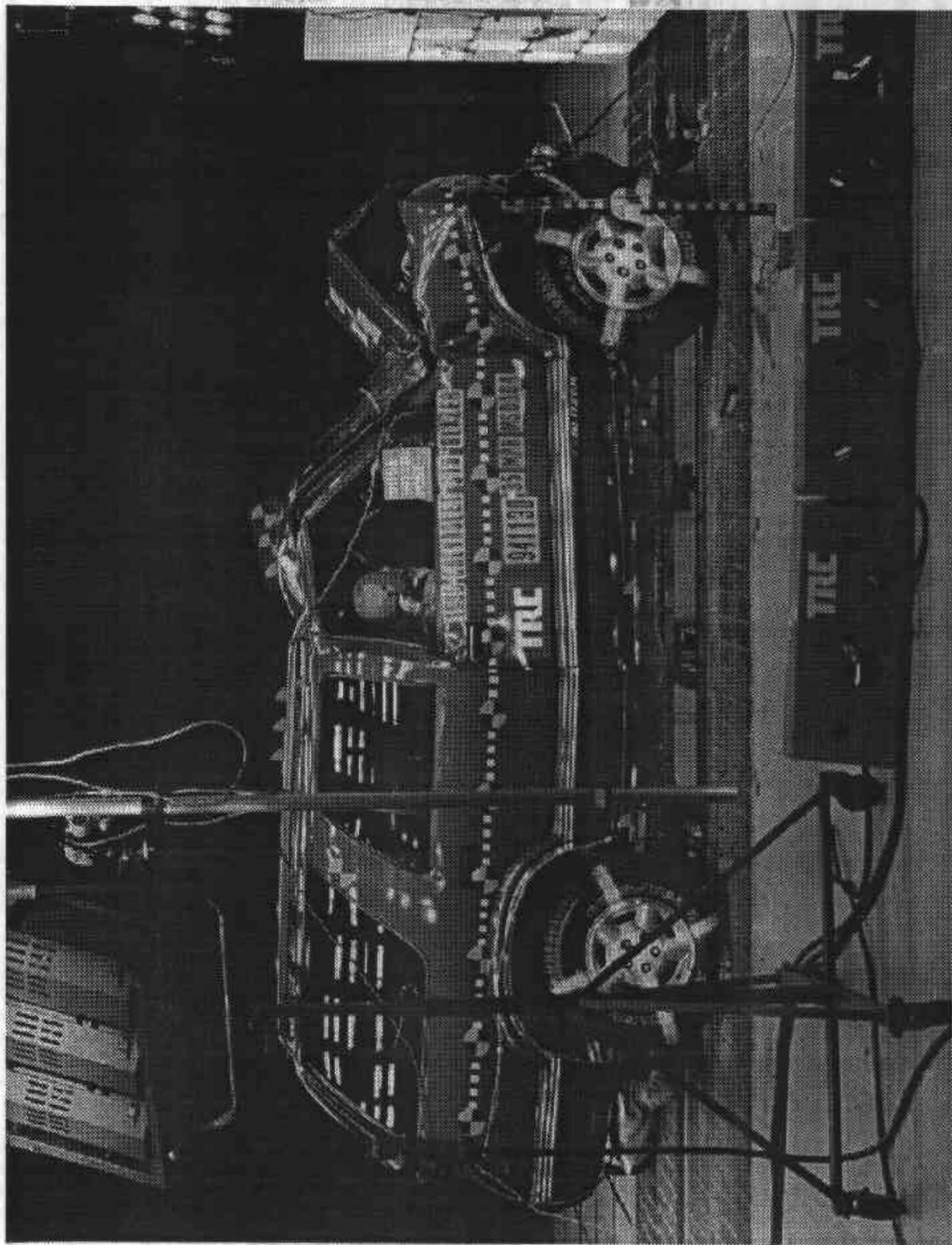


Figure A-8. Post-Test Right Side View
A-9

941130

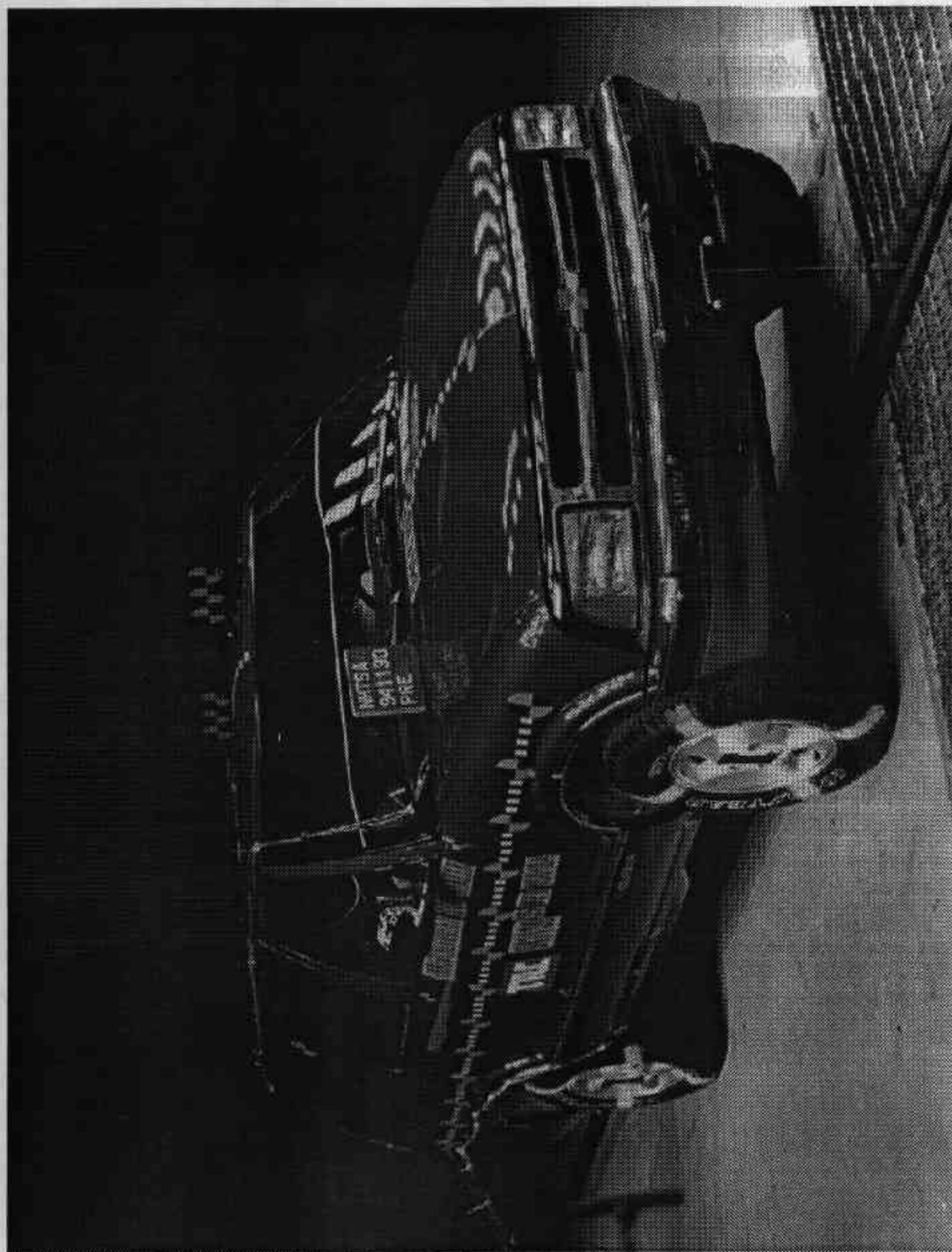


Figure A-9. Pre-Test Right Front Three-Quarter View

A-10

941130

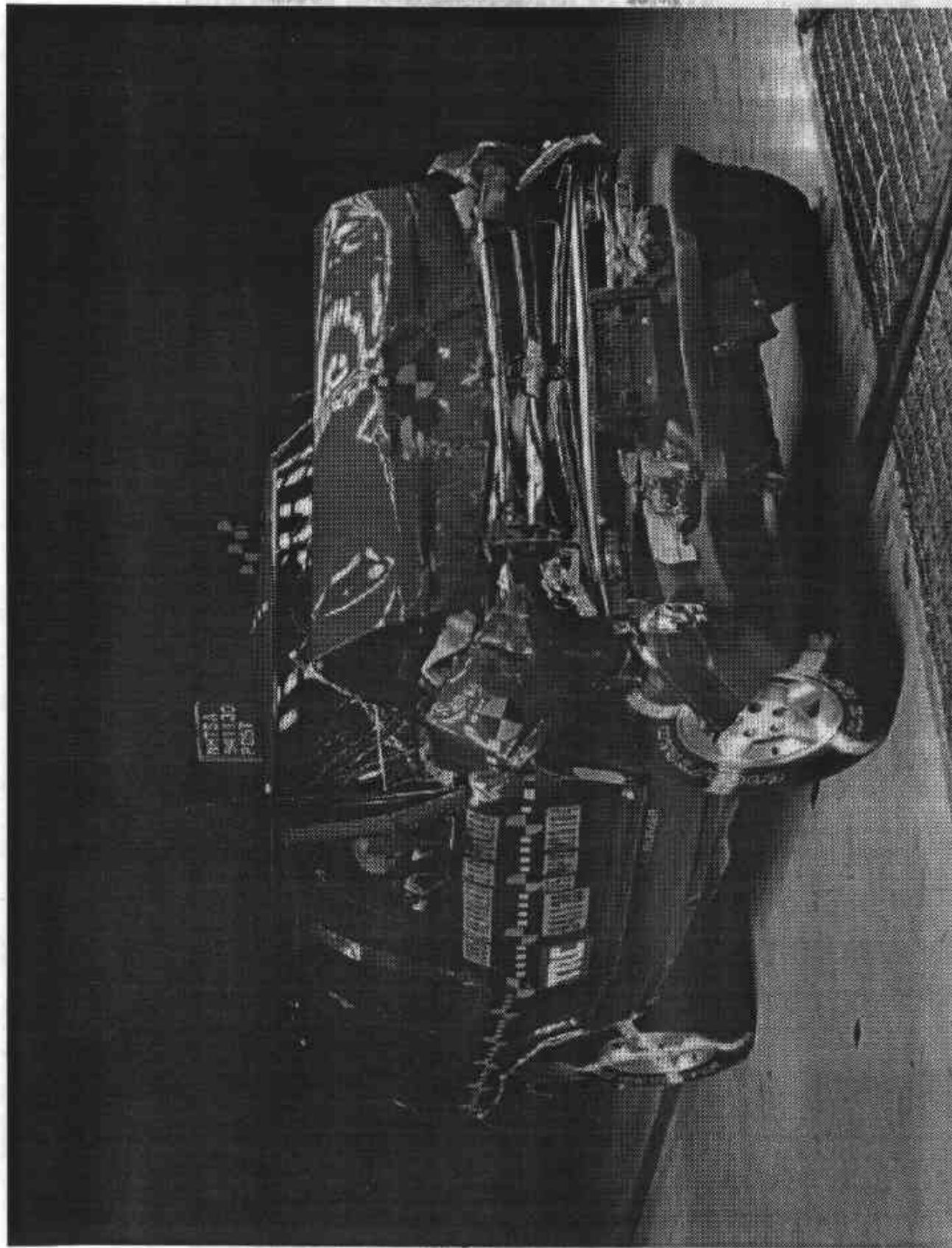


Figure A-10. Post-Test Right Front Three-Quarter View
A-11

941130

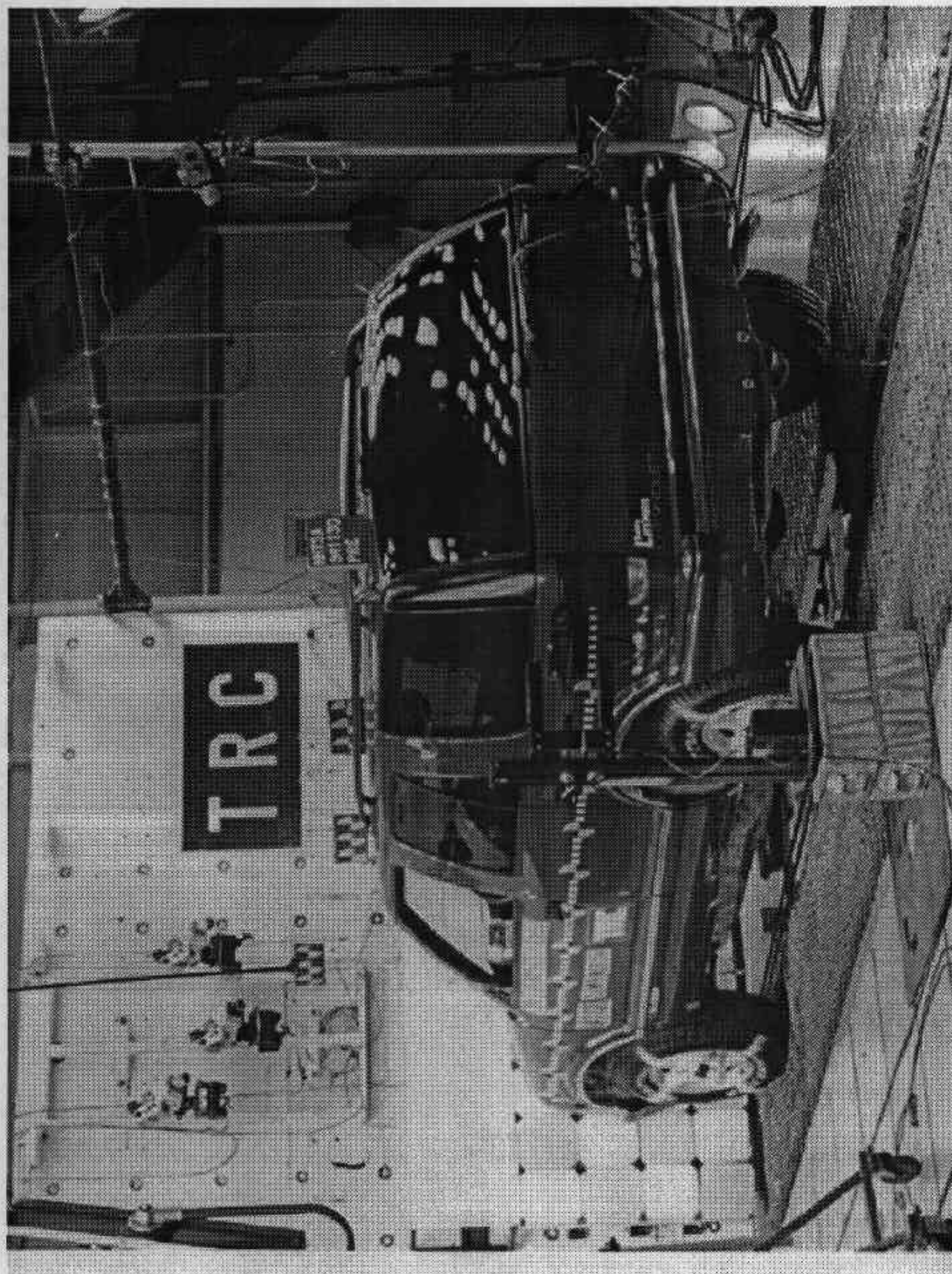


Figure A-11. Pre-Test Left Rear Three-Quarter View
A-12

941130

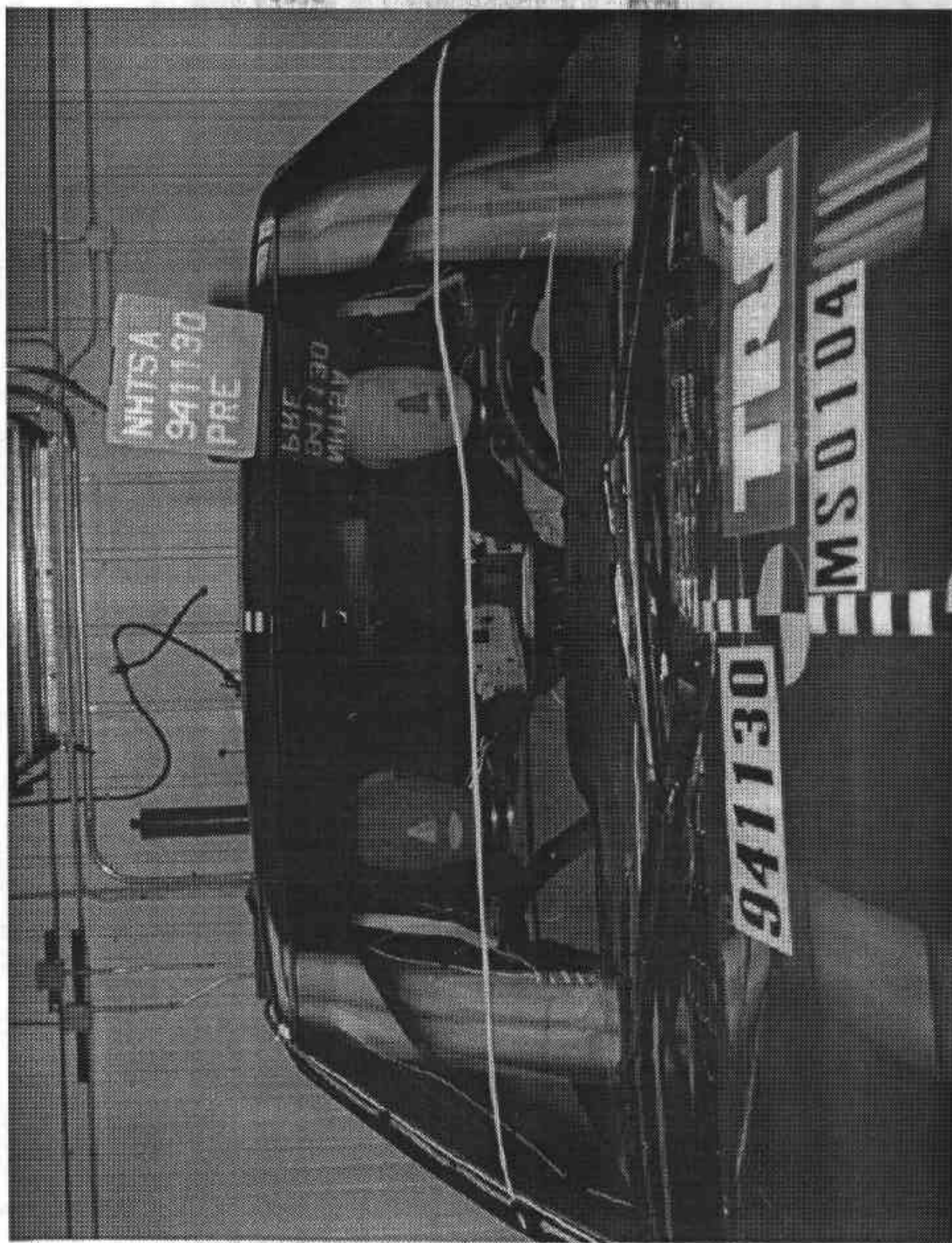


Figure A-12. Pre-Test Windshield View

A-13

941130



Figure A-13. Pre-Test Engine Compartment View
A-14

941130

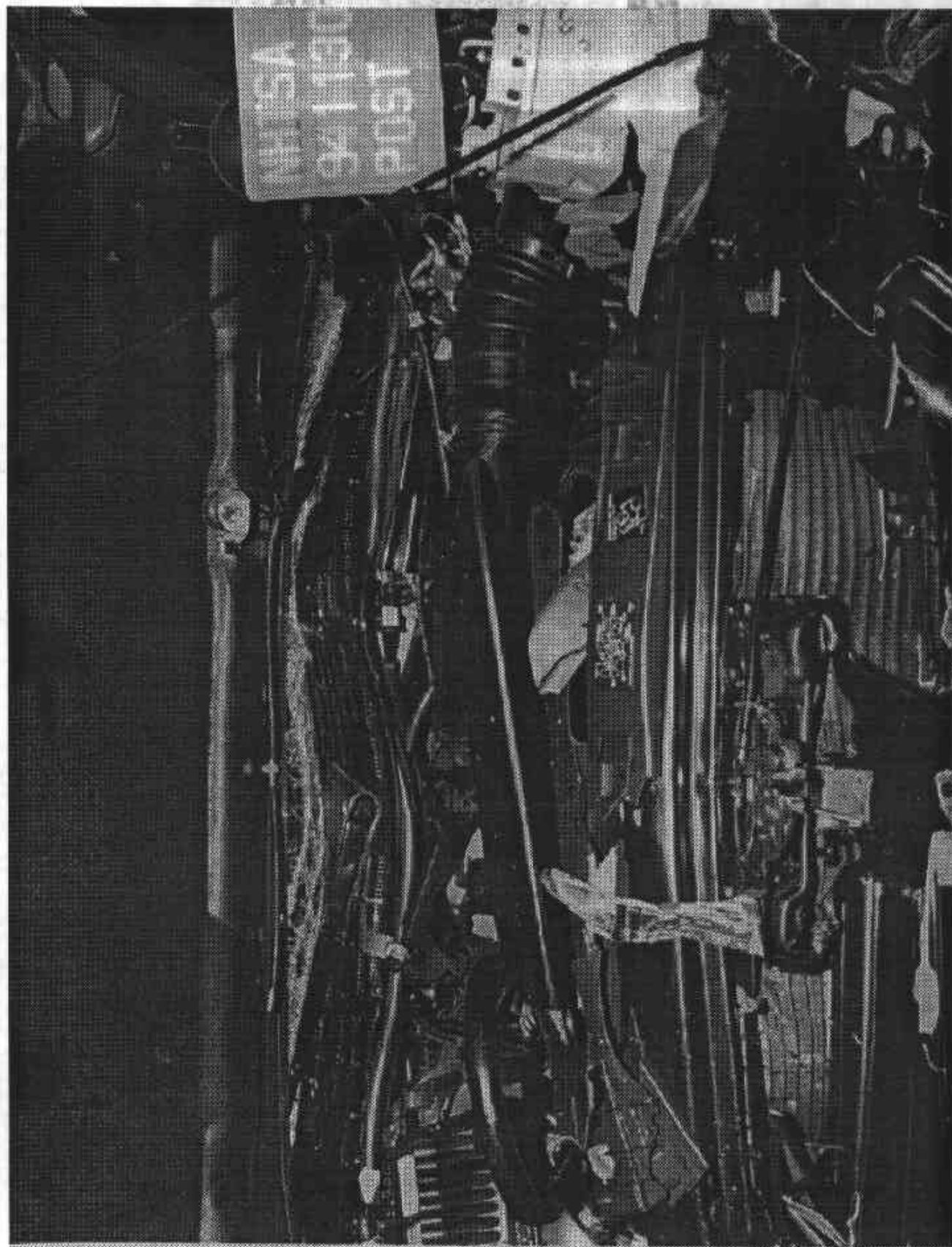


Figure A-14. Post-Test Engine Compartment View
A-15

941130



Figure A-15. Pre-Test Fuel Filler Cap View

A-16

941130

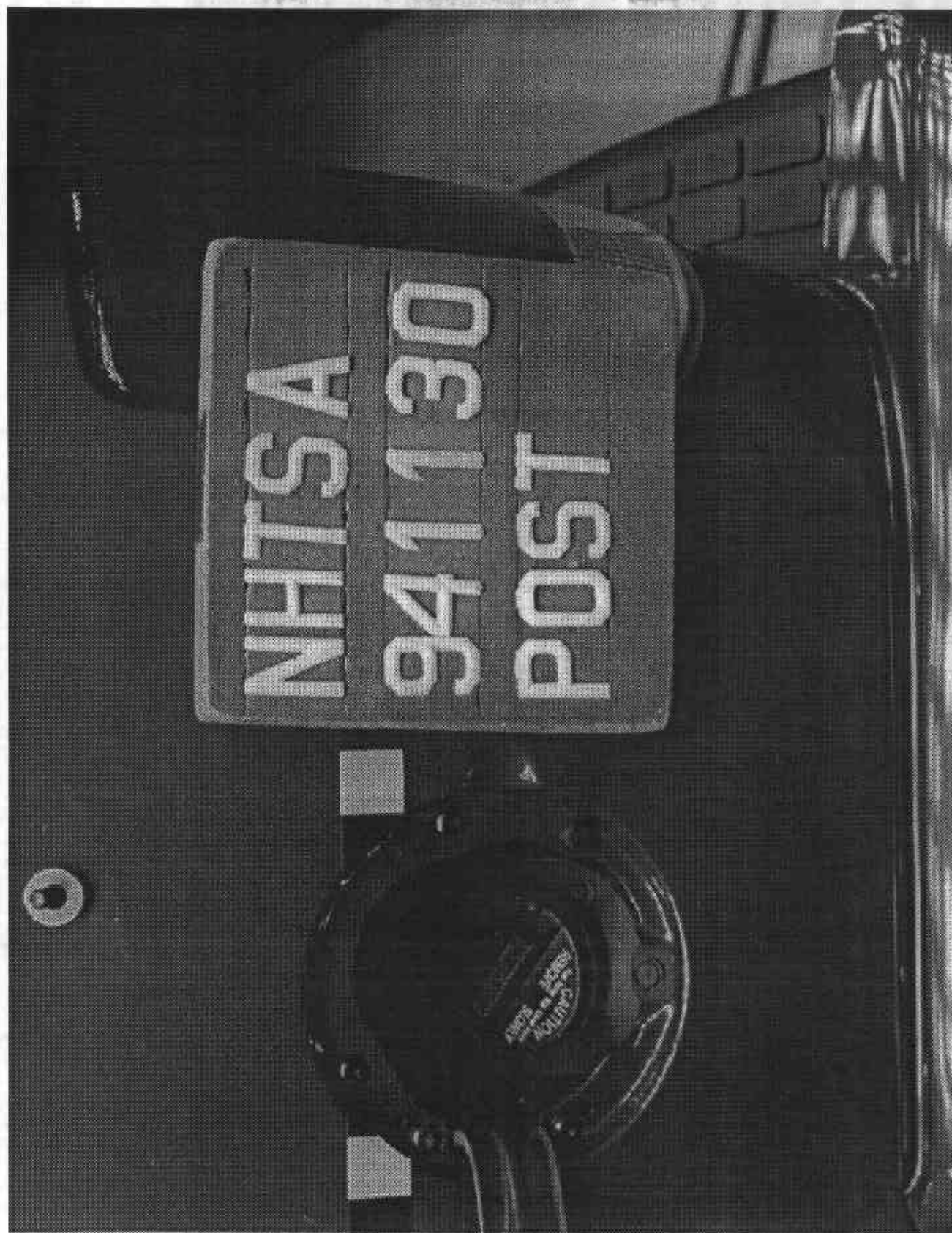


Figure A-16. Post-Test Fuel Filler Cap View

A-17

941130



Figure A-17. Pre-Test Fuel Filler Neck View
A-18

941130

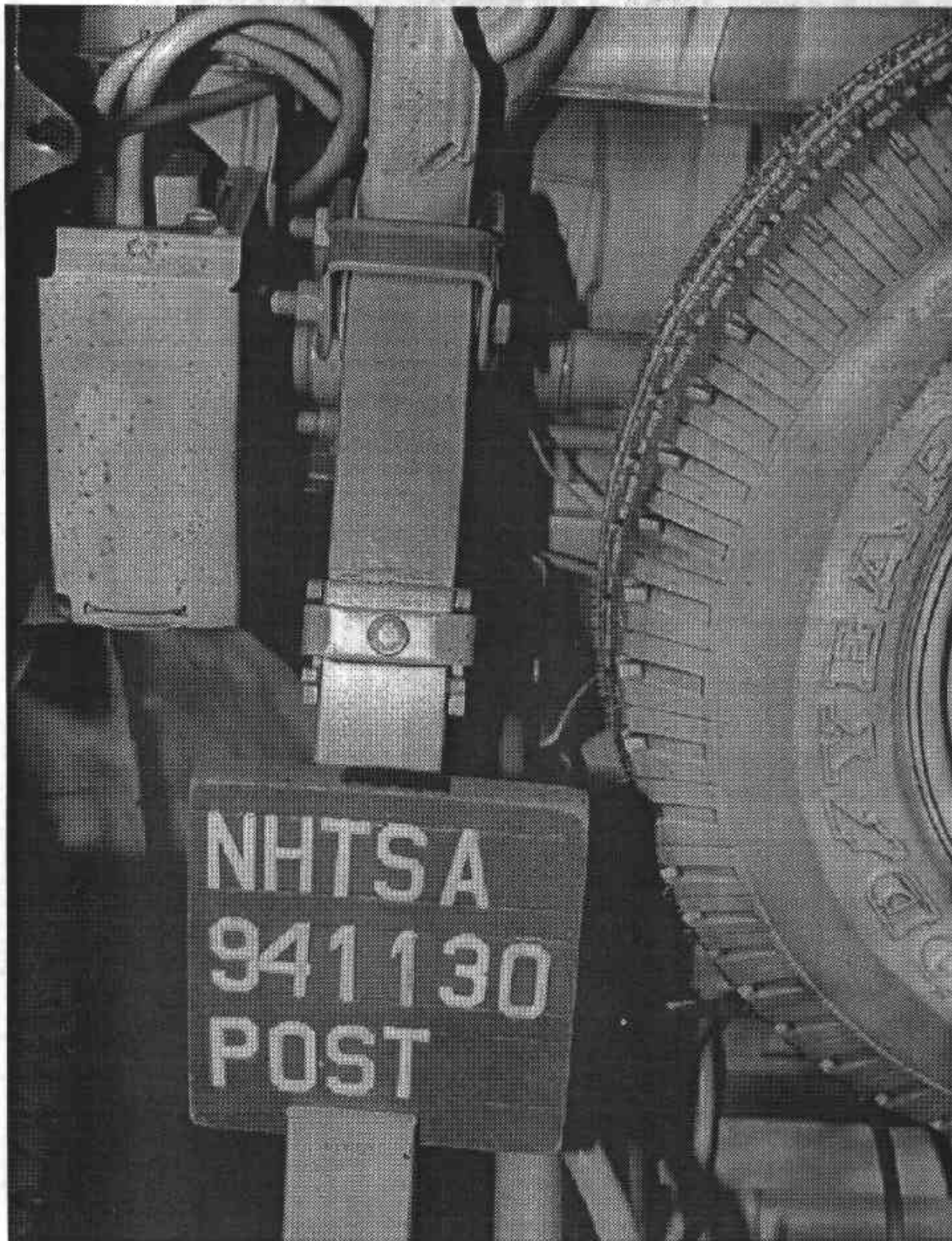


Figure A-18. Post-Test Fuel Filler Neck - View 1
A-19

941130

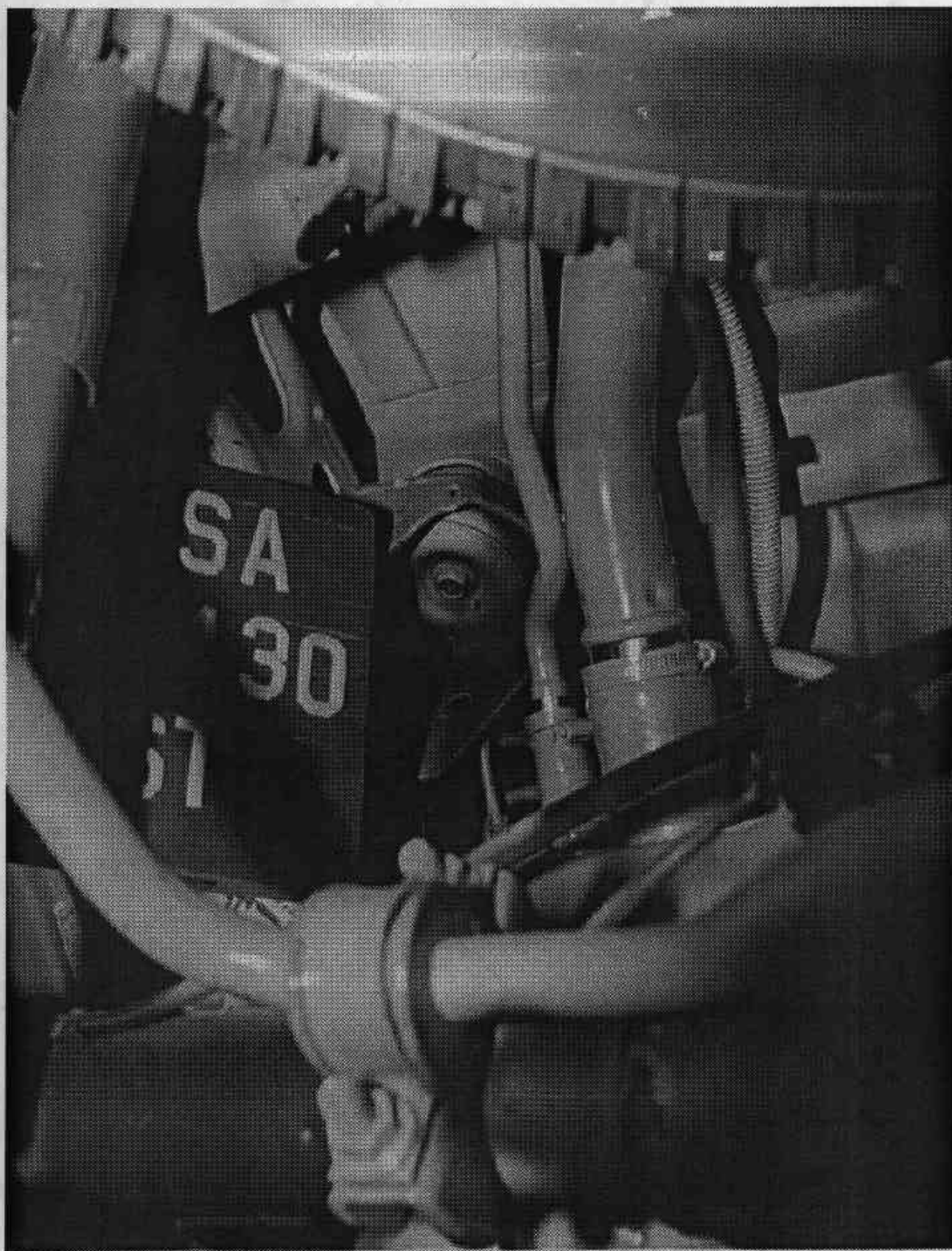


Figure A-19. Post-Test Fuel Filler Neck - View 2
A-20

941130

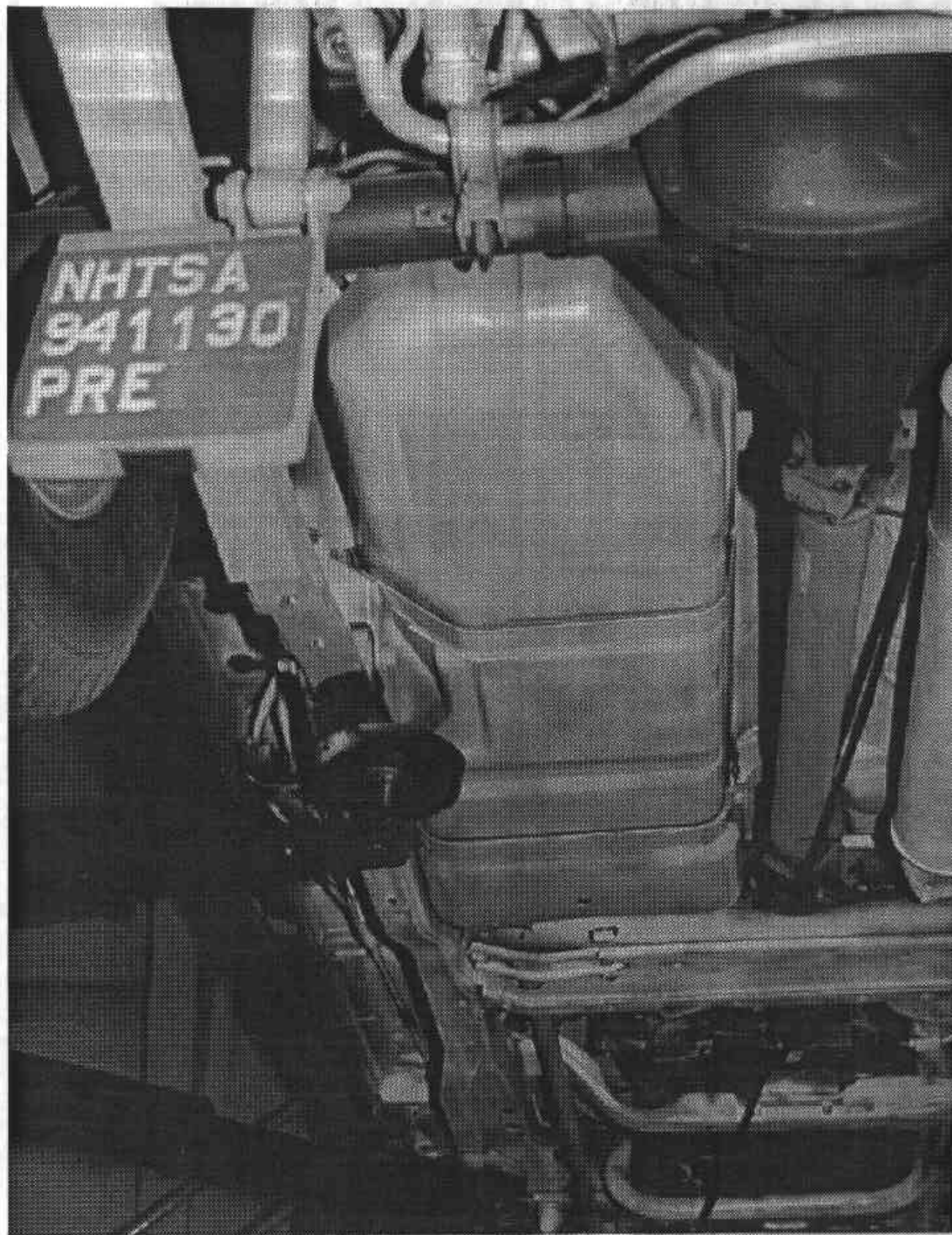


Figure A-20. Pre-Test Fuel Tank View
A-21

941130

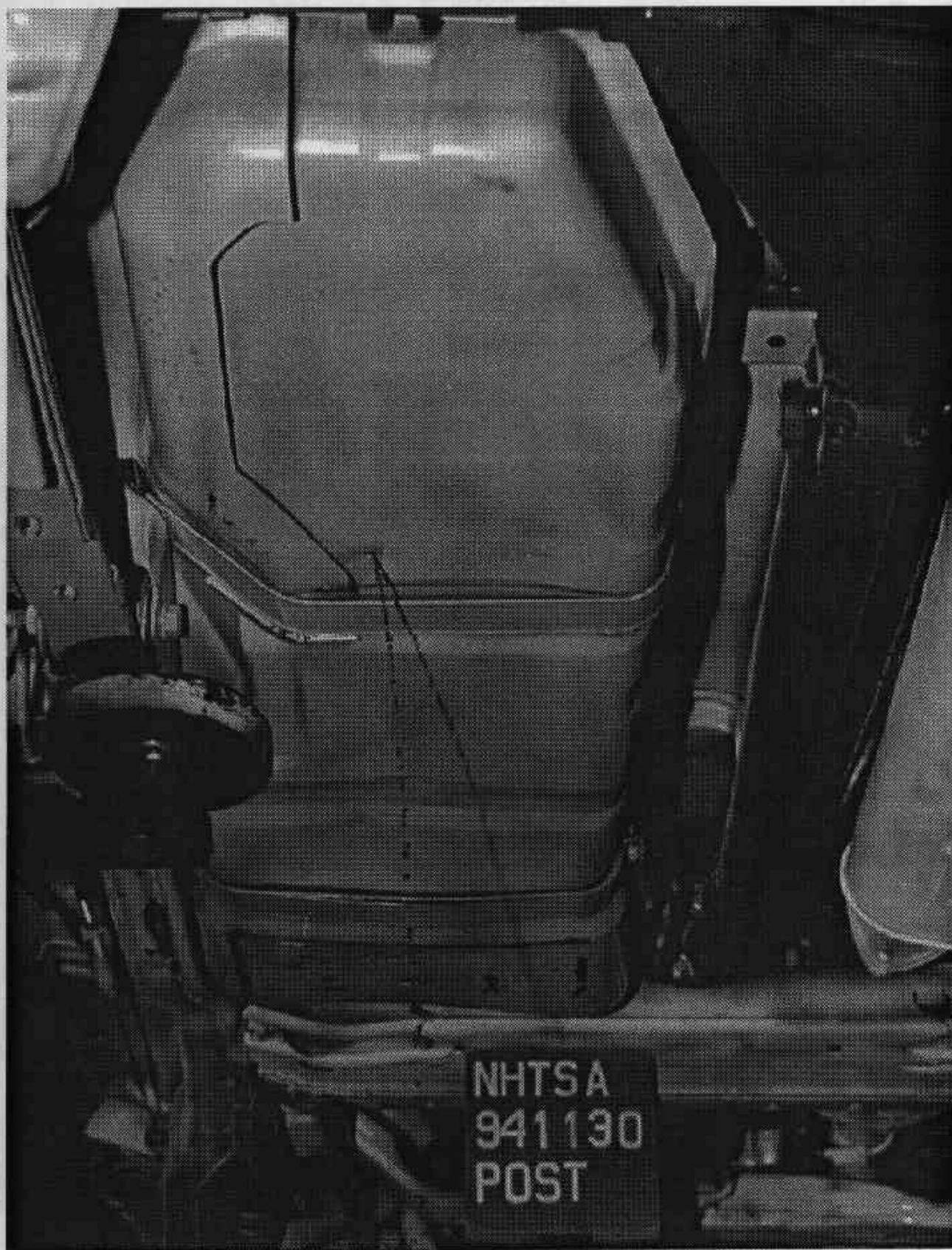


Figure A-21. Post-Test Fuel Tank View
A-22

941130

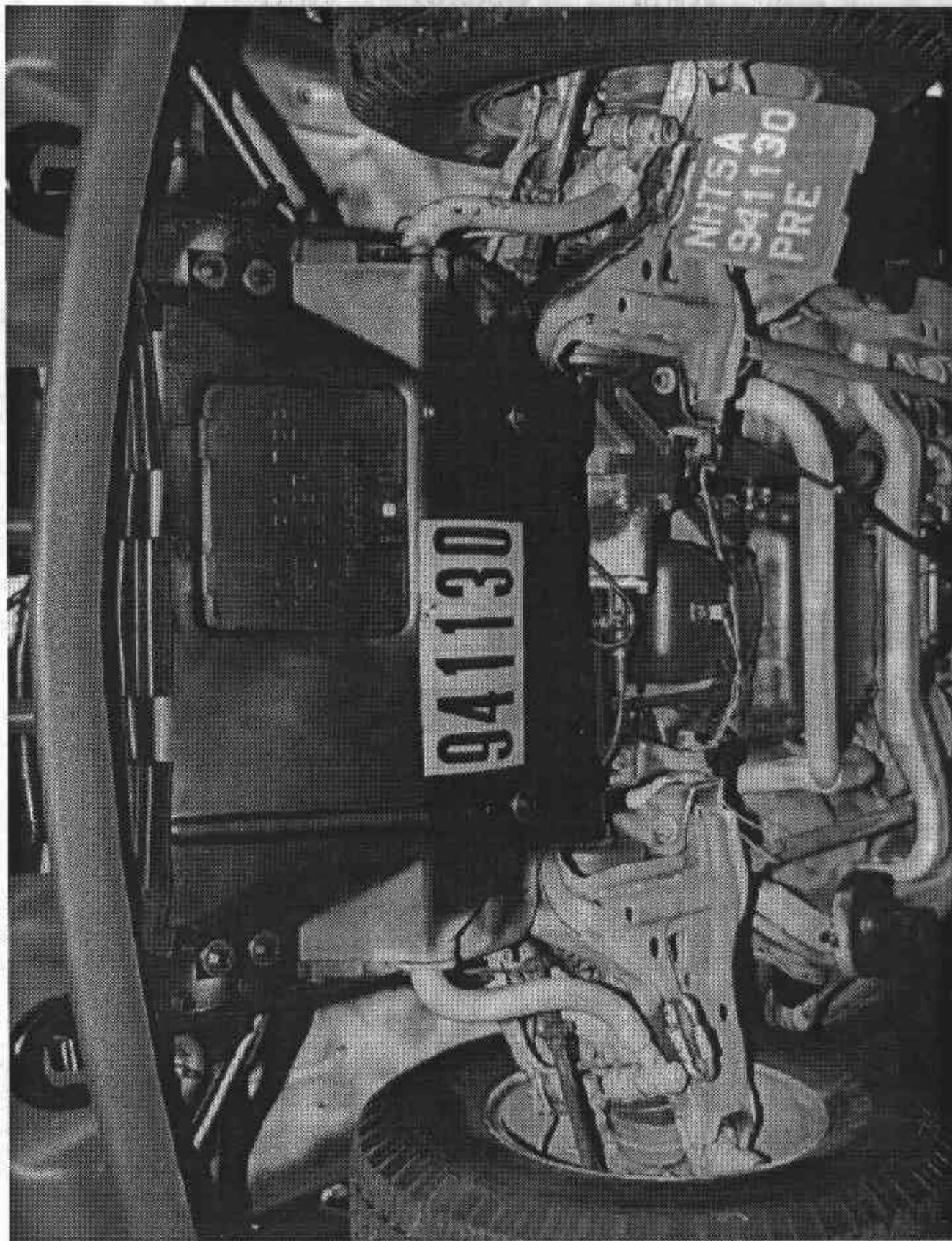


Figure A-22. Pre-Test Front Underbody View
A-23

941130

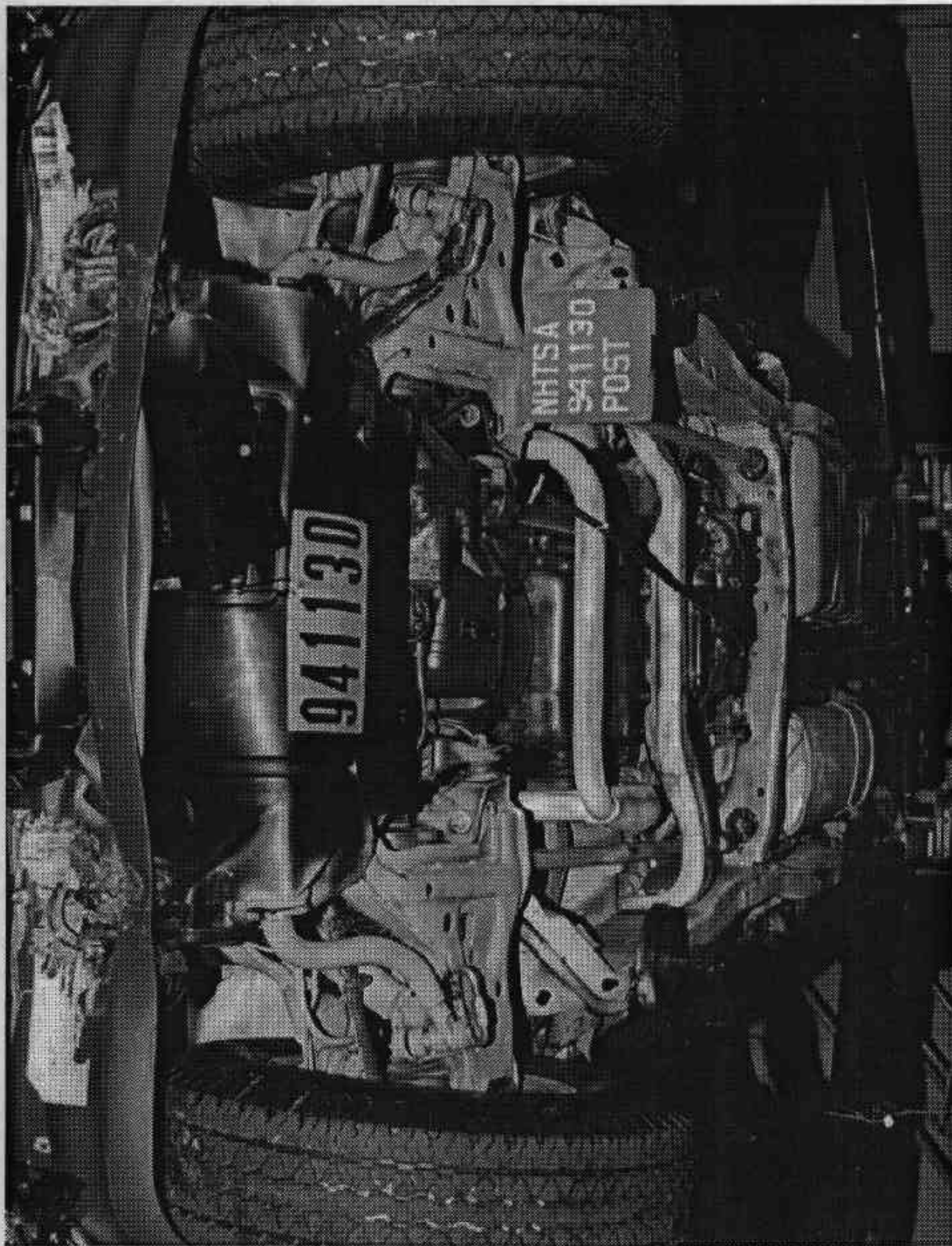


Figure A-23. Post-Test Front Underbody View
A-24

941130

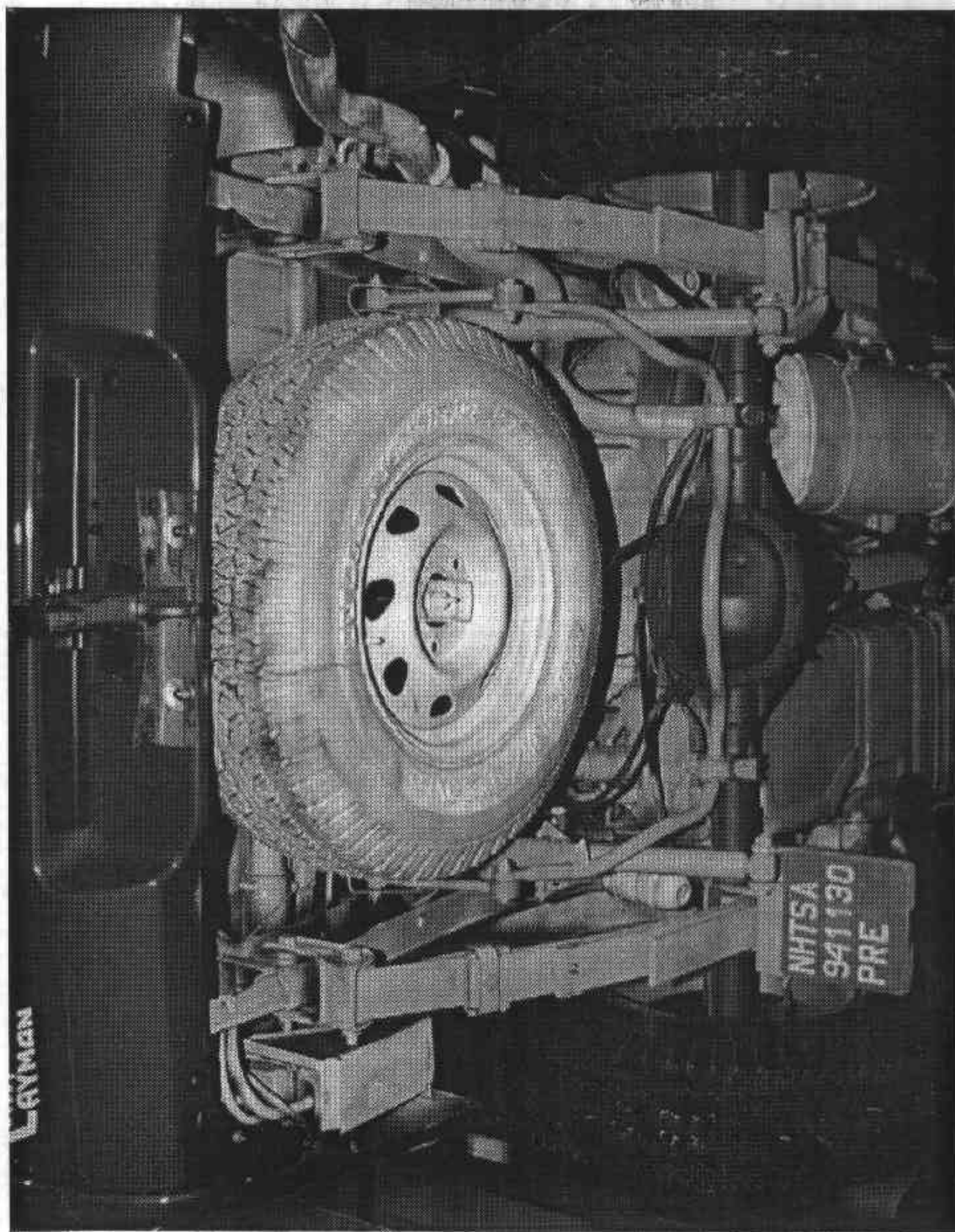


Figure A-24. Pre-Test Rear Underbody View
A-25

941130

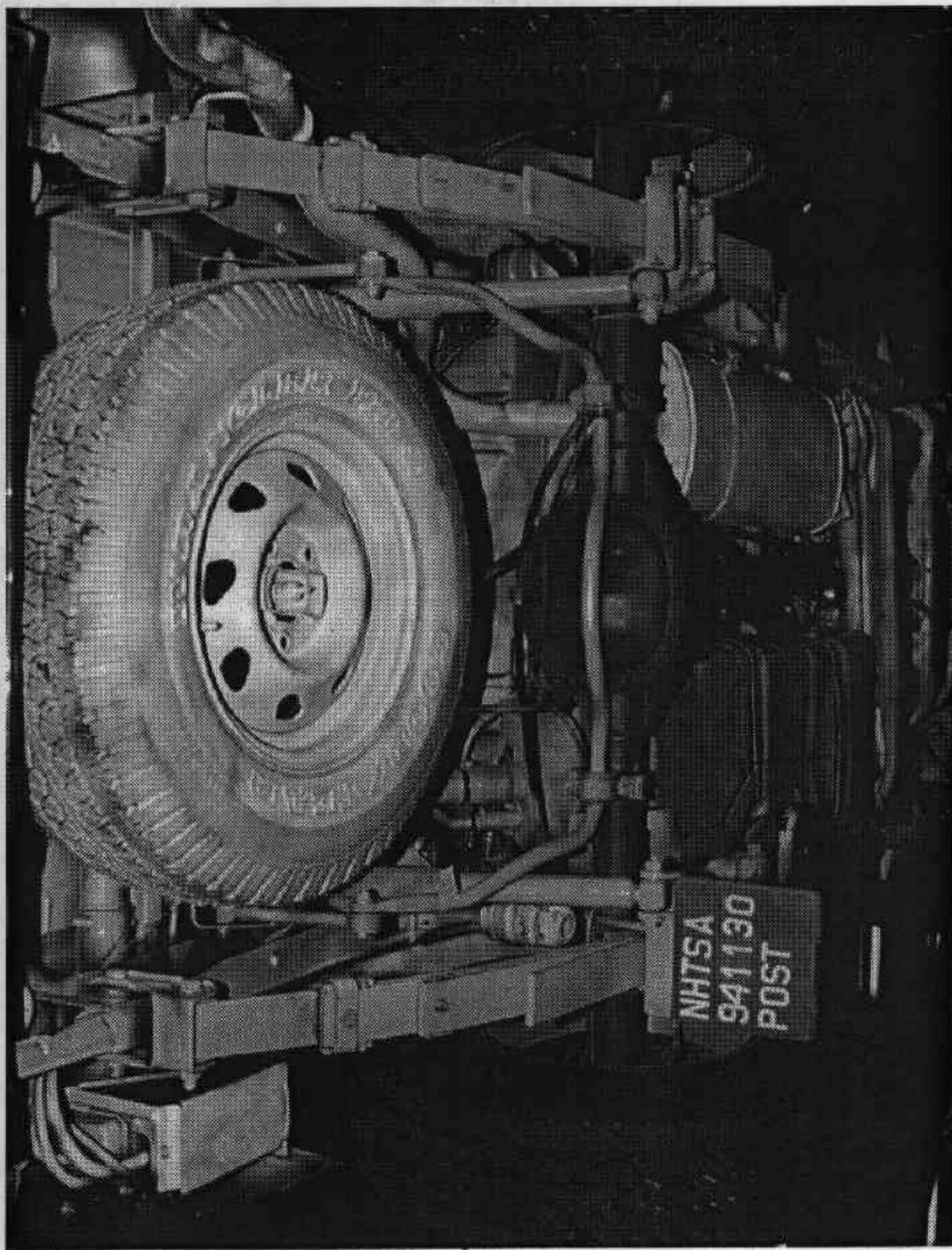


Figure A-25. Post-Test Rear Underbody View
A-26

941130

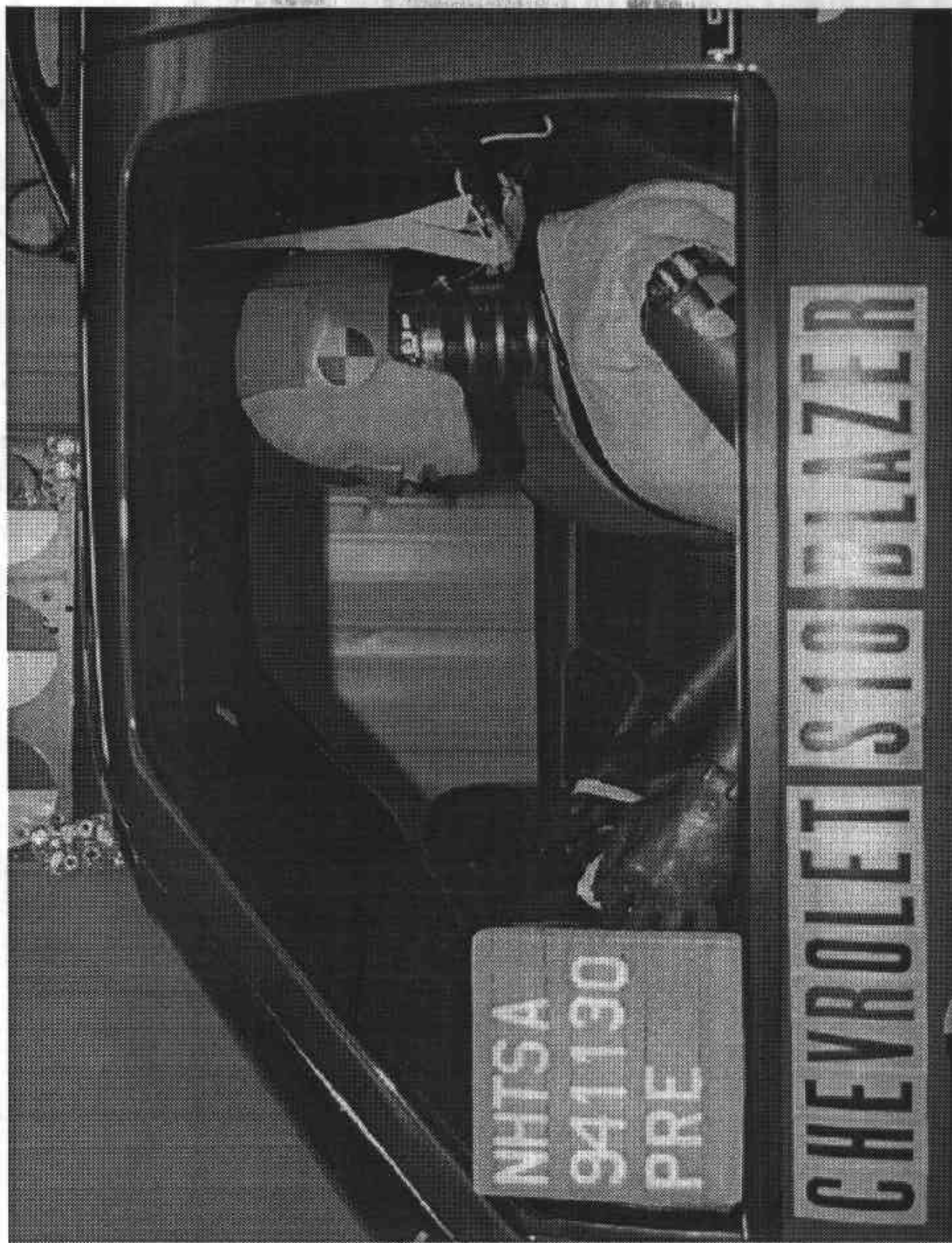


Figure A-26. Pre-Test Driver Dummy Position View
A-27

941130

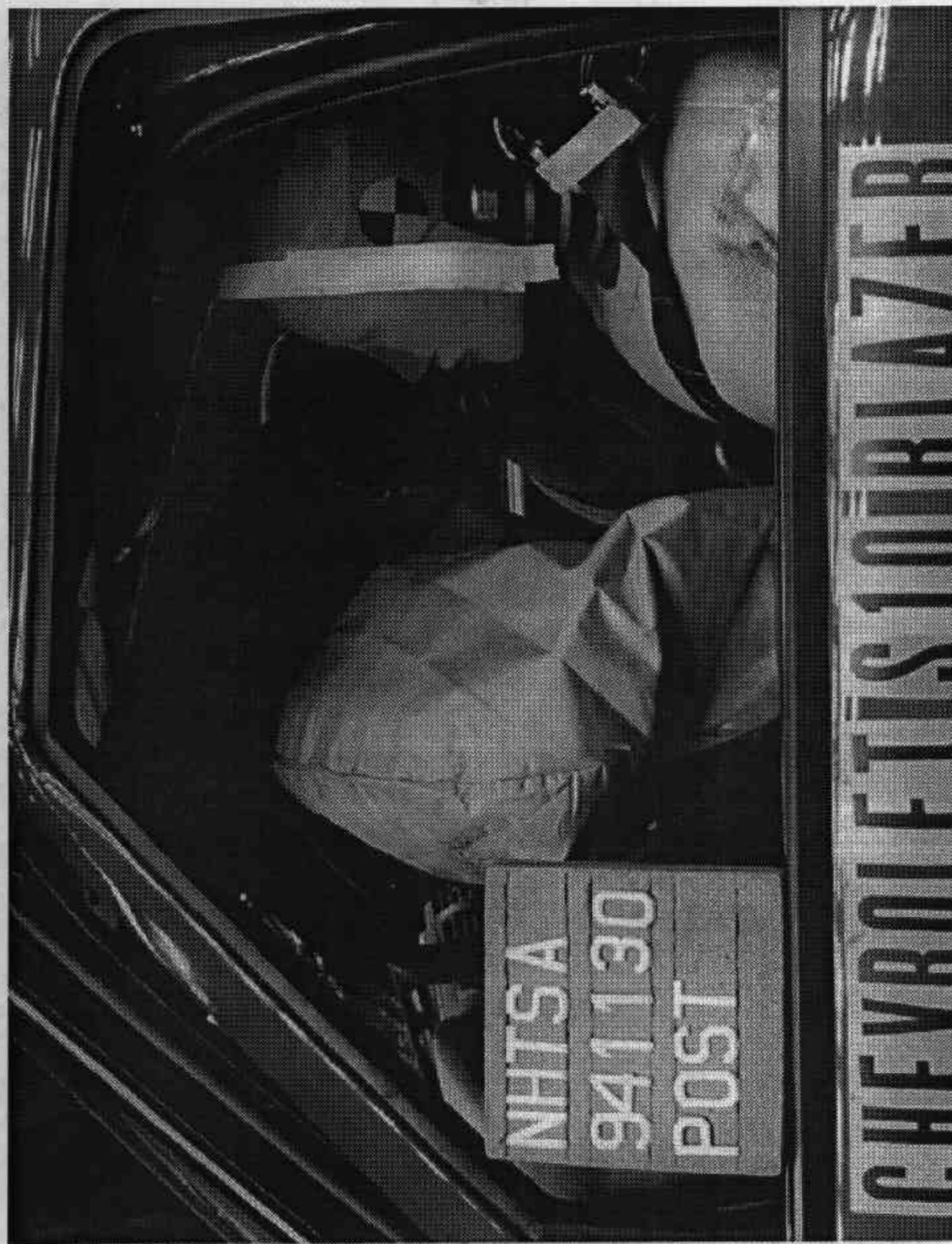


Figure A-27. Post-Test Driver Dummy Position View
A-28

941130

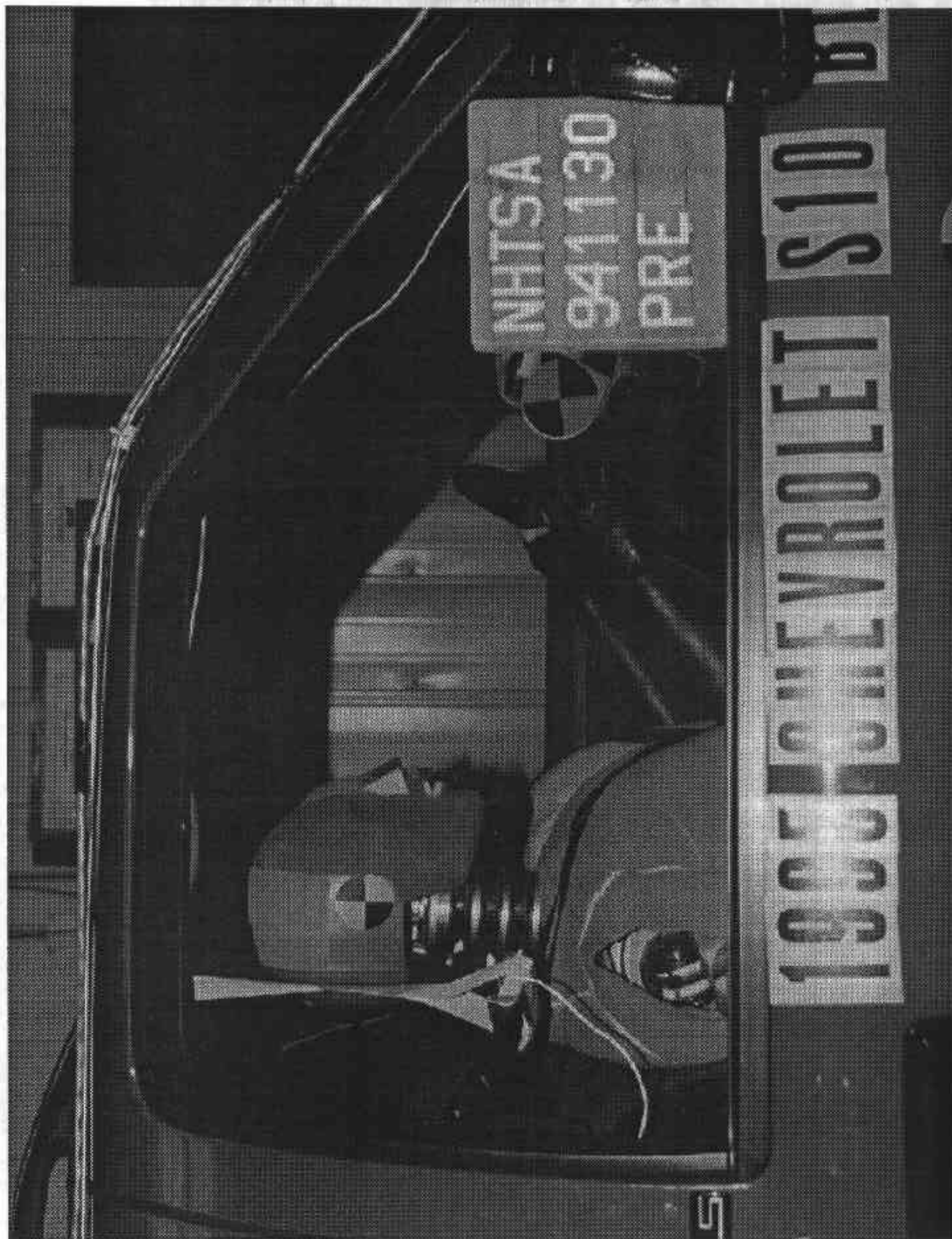


Figure A-28. Pre-Test Passenger Dummy Position View

A-29

941130

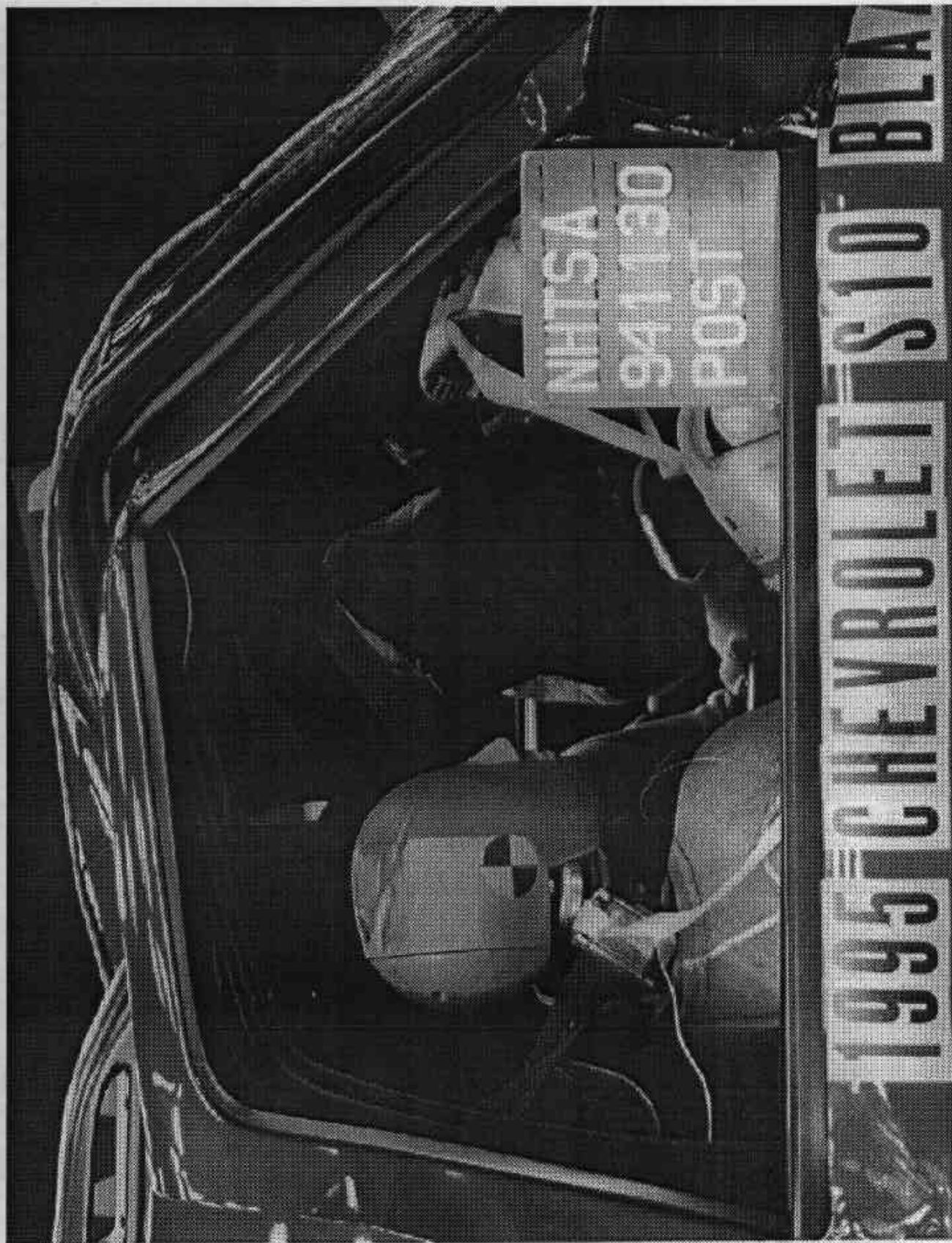


Figure A-29. Post-Test Passenger Dummy Position View
A-30

941130

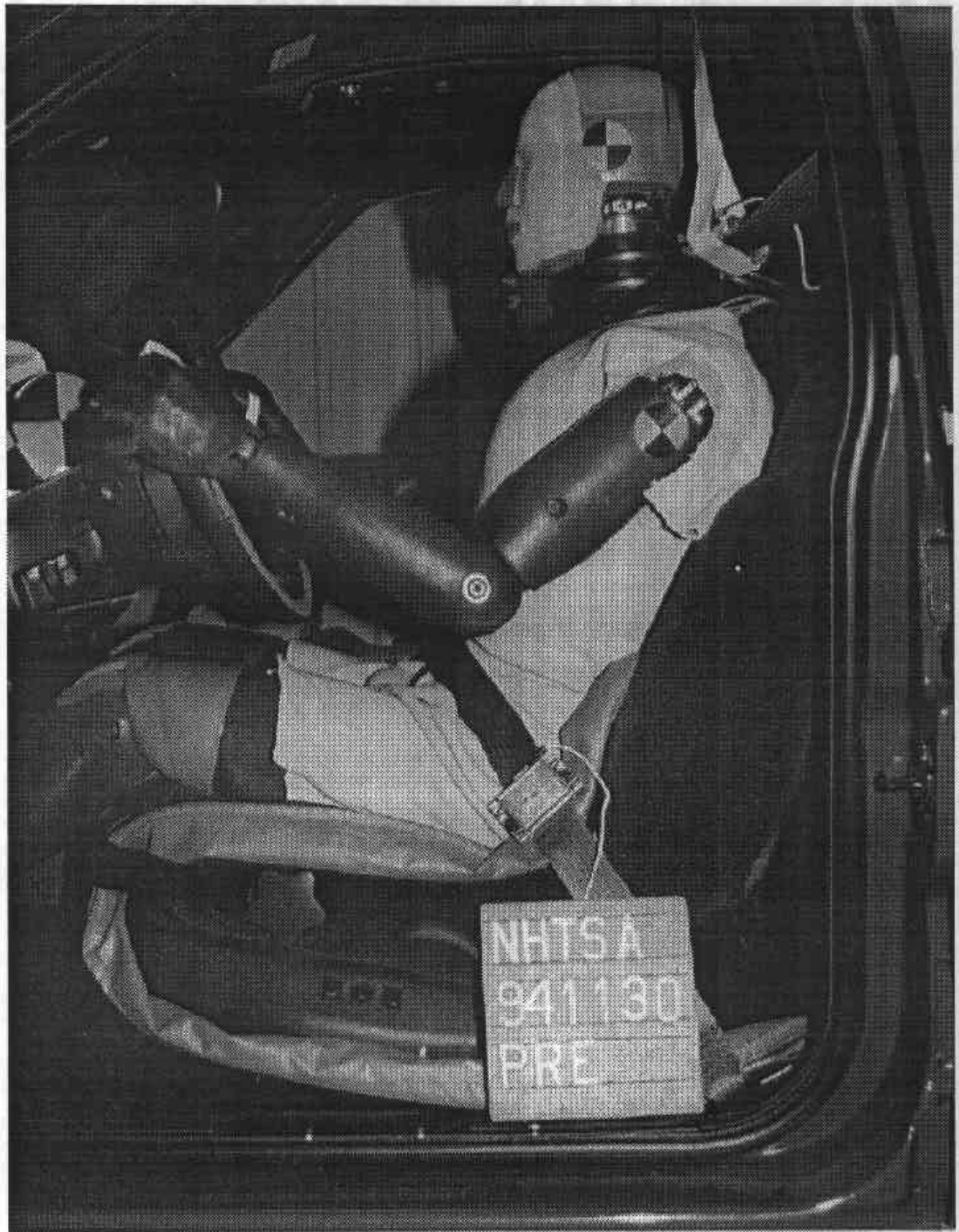


Figure A-30. Pre-Test Driver Dummy & Vehicle Interior - View 1
A-31

941130



Figure A-31. Post-Test Driver Dummy & Vehicle Interior - View 1

A-32

941130



Figure A-32. Pre-Test Driver Dummy & Vehicle Interior - View 2

A-33

941130



Figure A-33. Post-Test Driver Dummy & Vehicle interior - View 2

A-34

941130



Figure A-34. Pre-Test Passenger Dummy & Vehicle interior - View 1

A-35

941130



Figure A-35. Post-Test Passenger Dummy & Vehicle Interior - View 1

A-36

941130

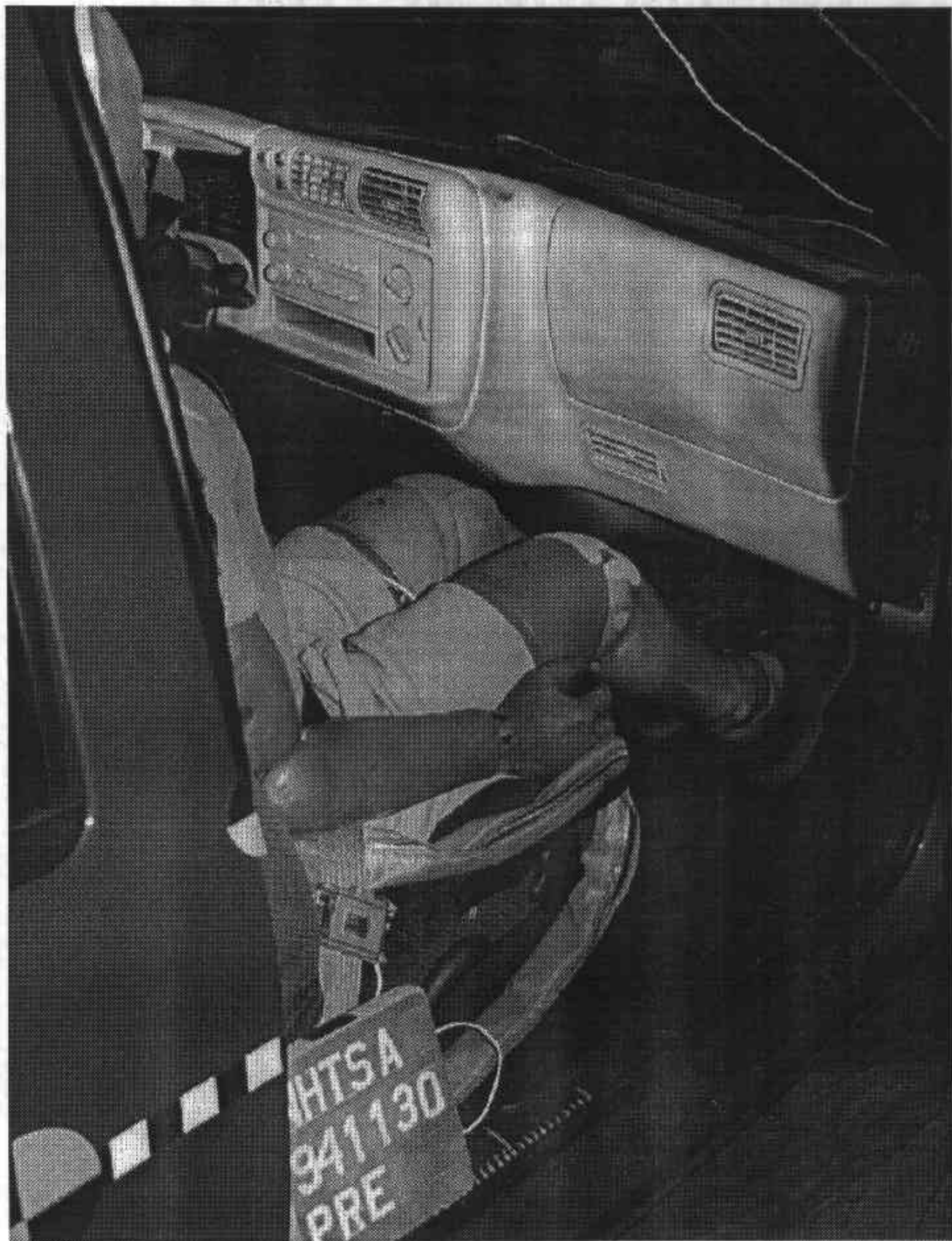


Figure A-36. Pre-Test Passenger Dummy & Vehicle Interior - View 2

A-37

941130



Figure A-37. Post-Test Passenger Dummy & Vehicle Interior - View 2

A-38

941130



Figure A-38. Post-Test Driver Dummy Head Contact - View 1
A-39

941130



Figure A-39. Post-Test Driver Dummy Head Contact - View 2

A-40

941130



Figure A-40. Post-Test Driver Dummy Knee Contact - View I

A-41

941130



Figure A-41. Post-Test Driver Dummy Knee Contact - View 2

A-42

941130

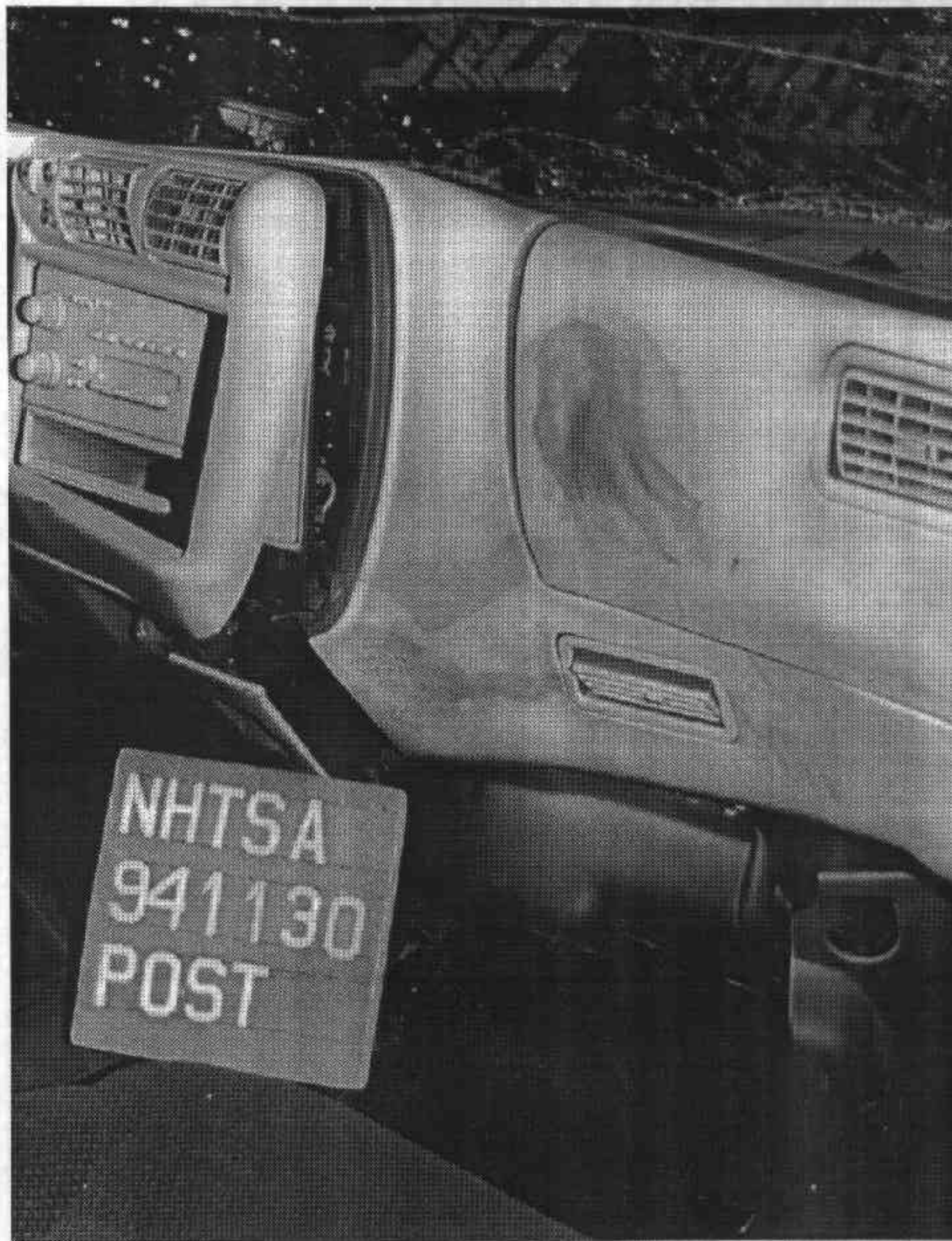


Figure A-42. Post-Test Passenger Dummy Head and Knee Contact View

A-43

941130

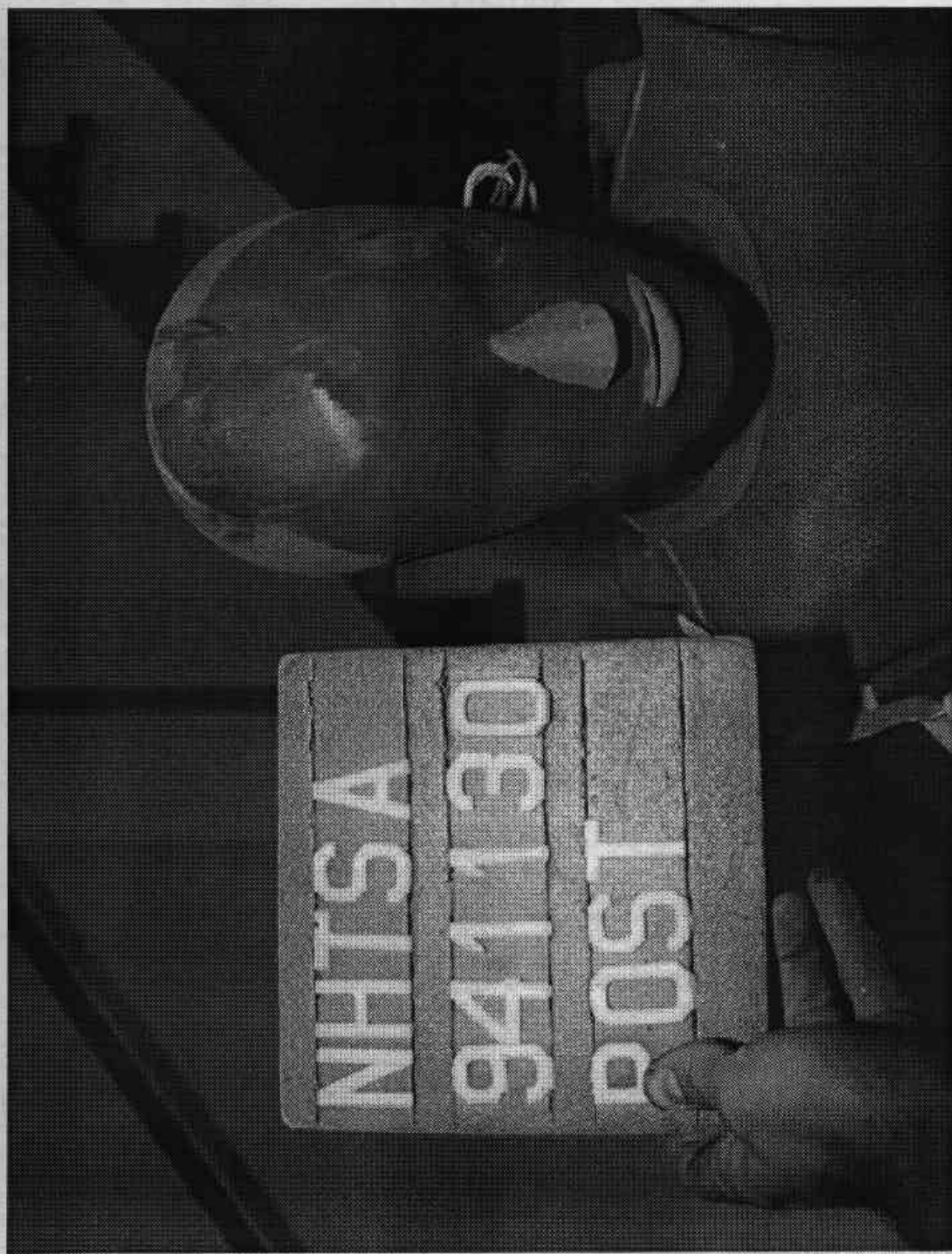


Figure A-43. Post-Test Passenger Dummy Head Contact View

A-44

941130



Figure A-44. Post-Test Passenger Dummy Knee Contact View
A-45

941130

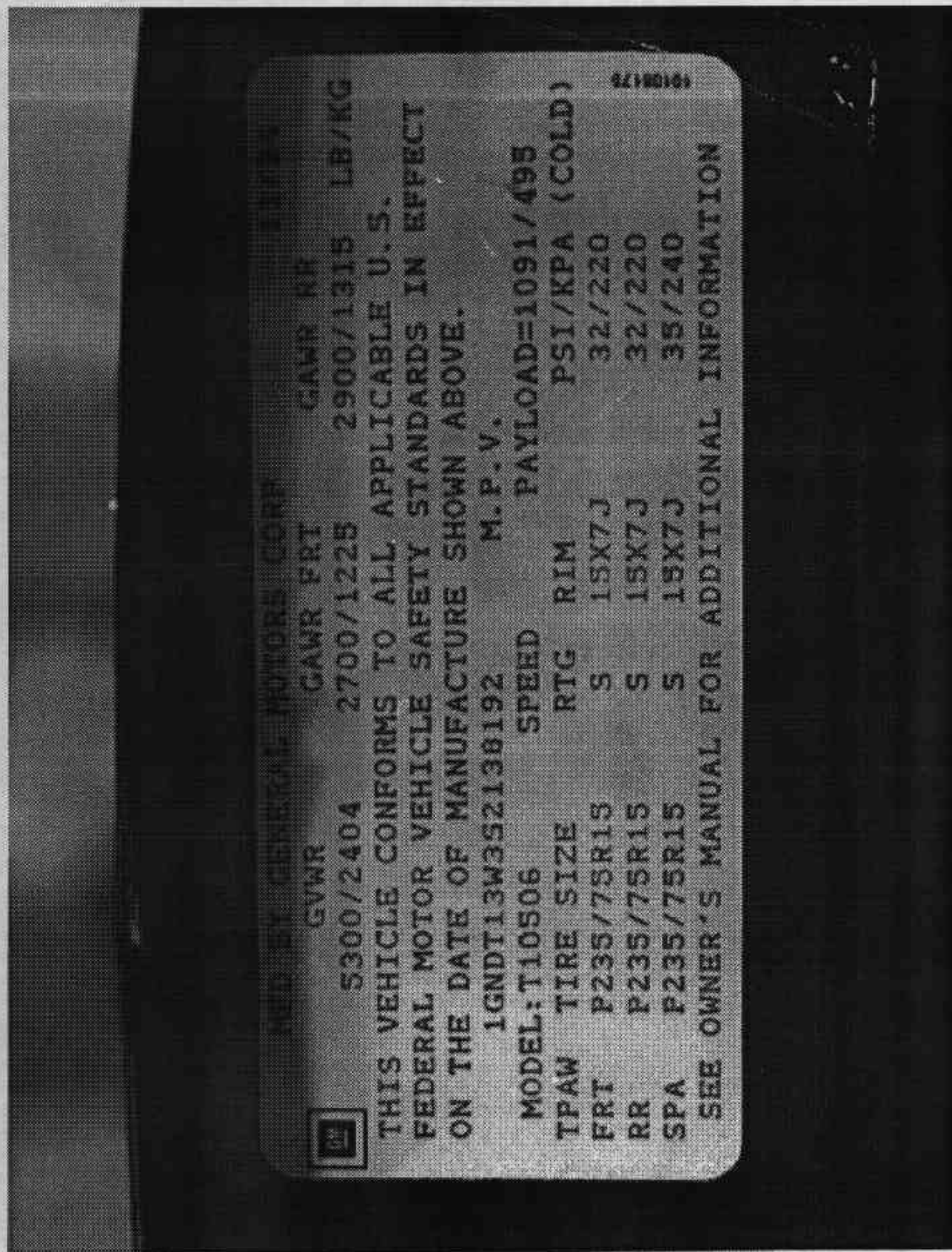


Figure A-45. Pre-Test Vehicle Certification Label View

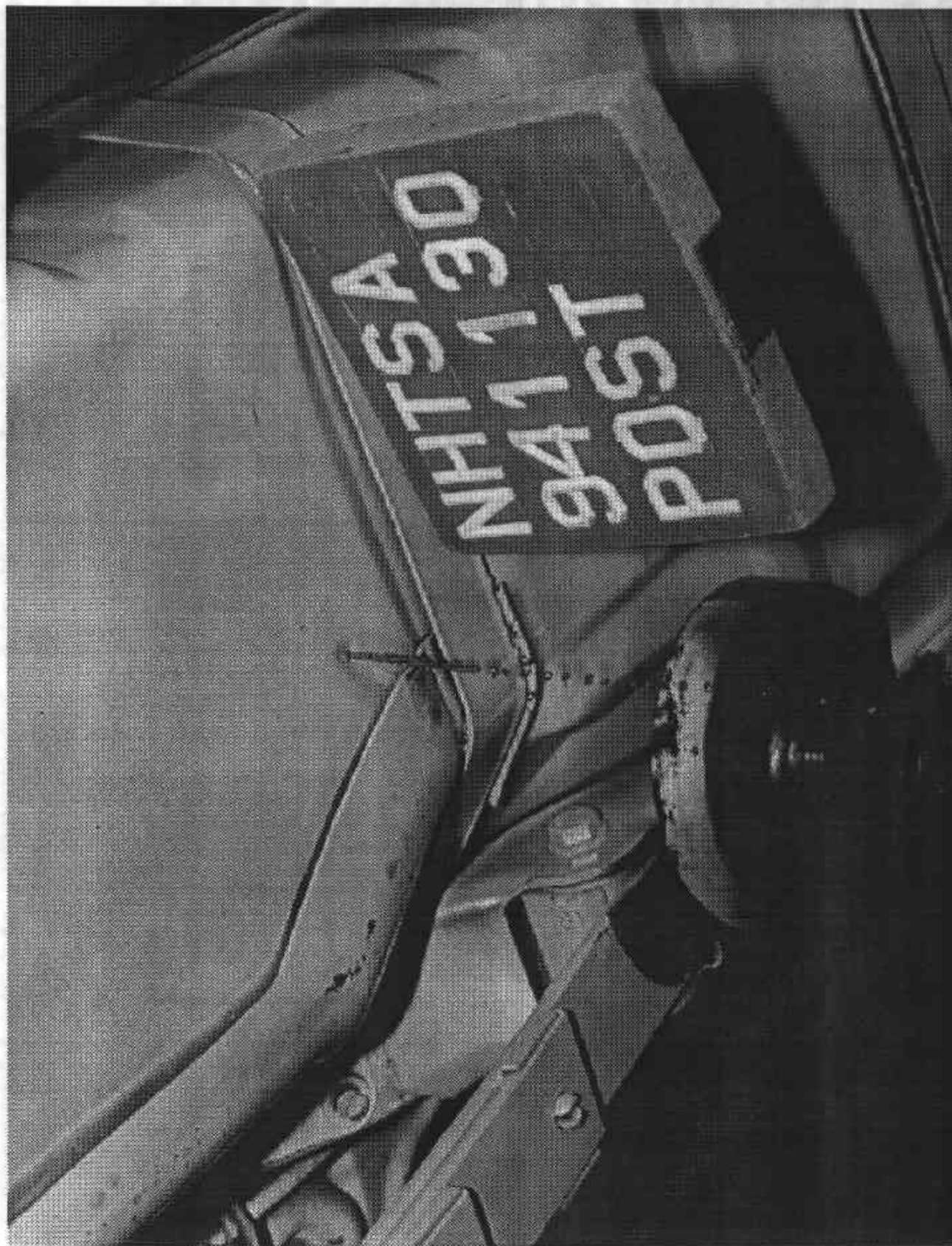


Figure A-46. Post-Test Fuel System Fluid Spillage Location View

A-47

941130



Figure A-47. Post-Test Fuel System Fluid Spillage - First Five Minutes

A-48

941130

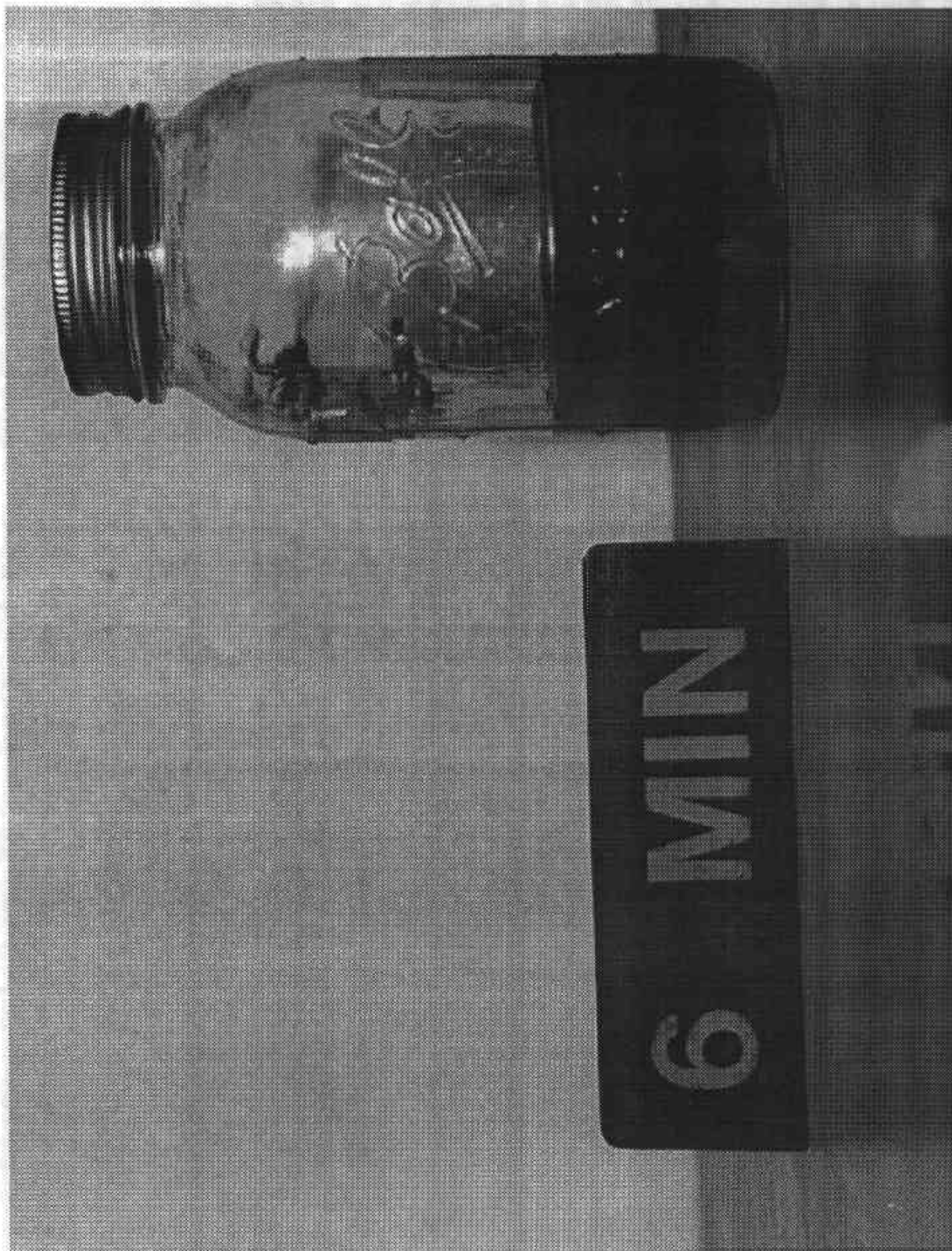


Figure A-48. Post-Test Fuel System Fluid Spillage - Sixth Minute

A-49

941130

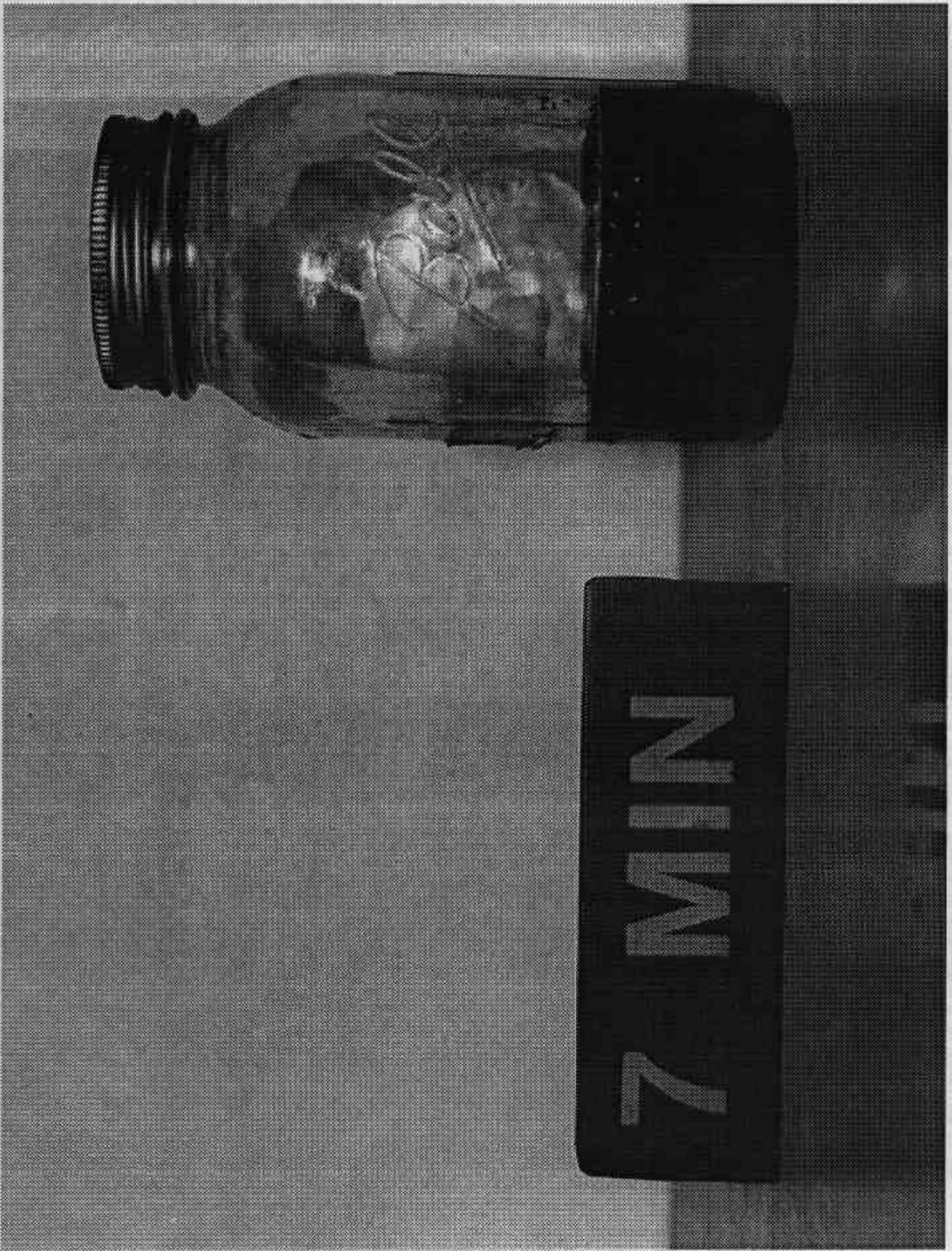


Figure A-49. Post-Test Fuel System Fluid Spillage - Seventh Minute

A-50

941130

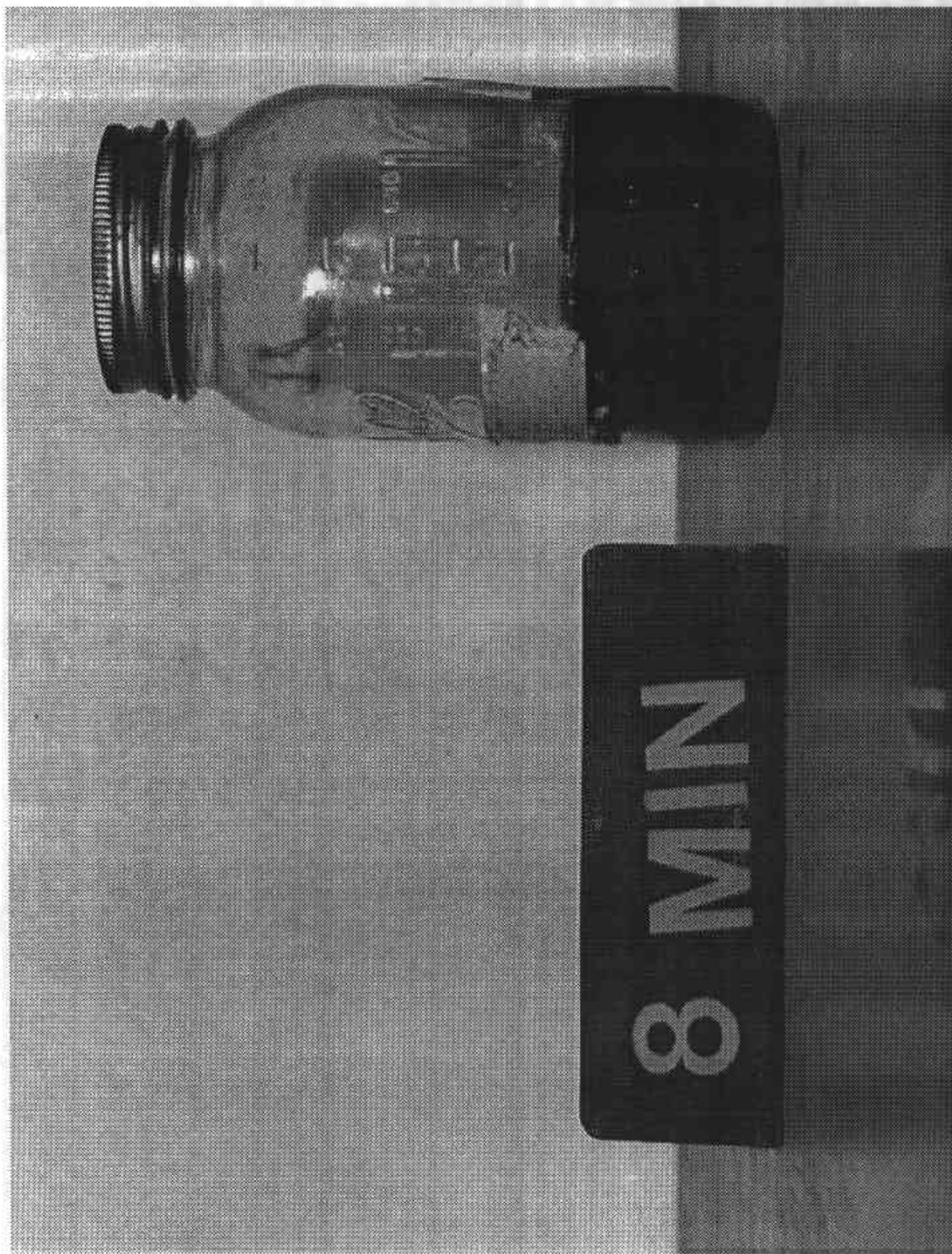


Figure A-50. Post-Test Fuel System Fluid Spillage - Eighth Minute

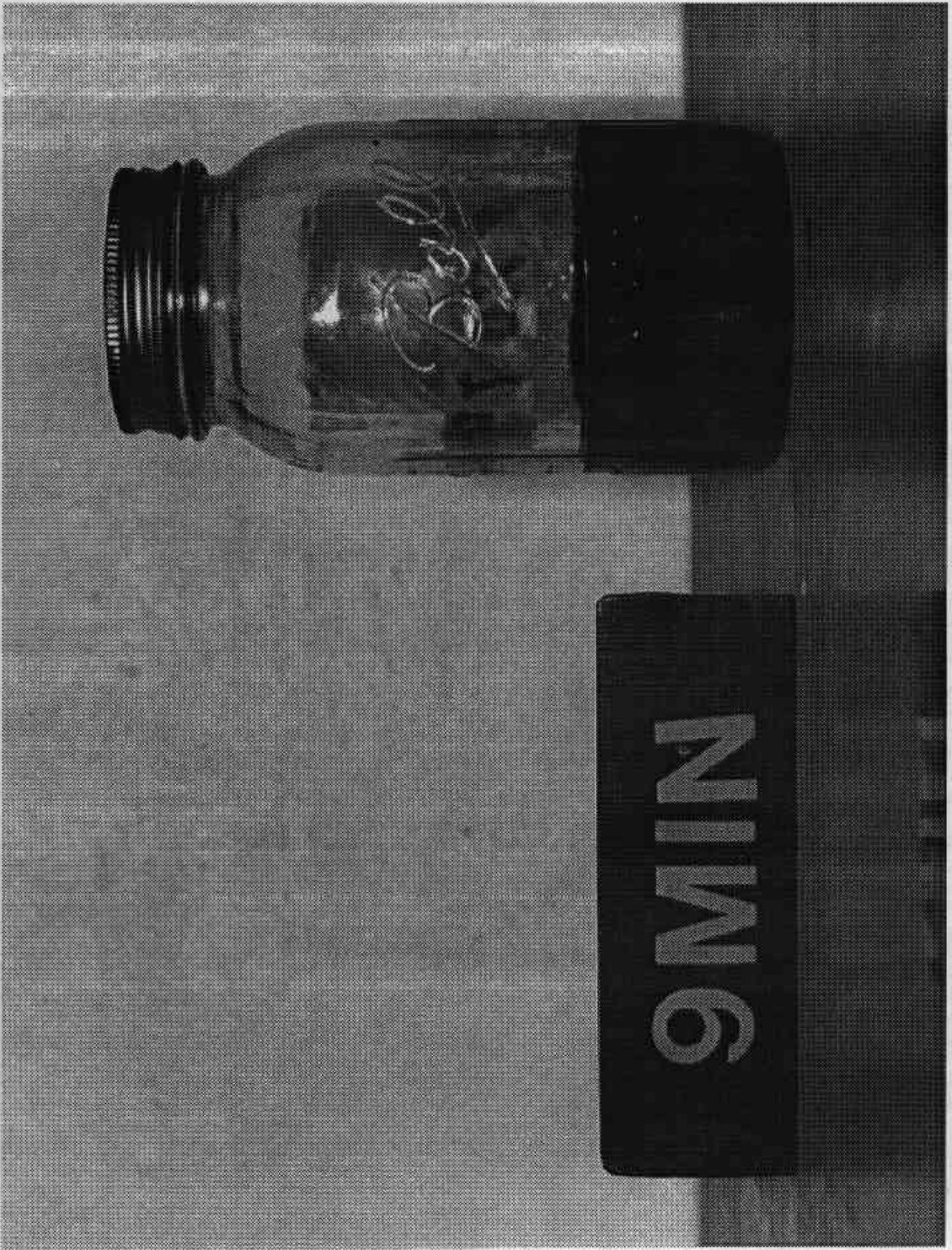


Figure A-51. Post-Test Fuel System Fluid Spillage - Ninth Minute

A-52

941130

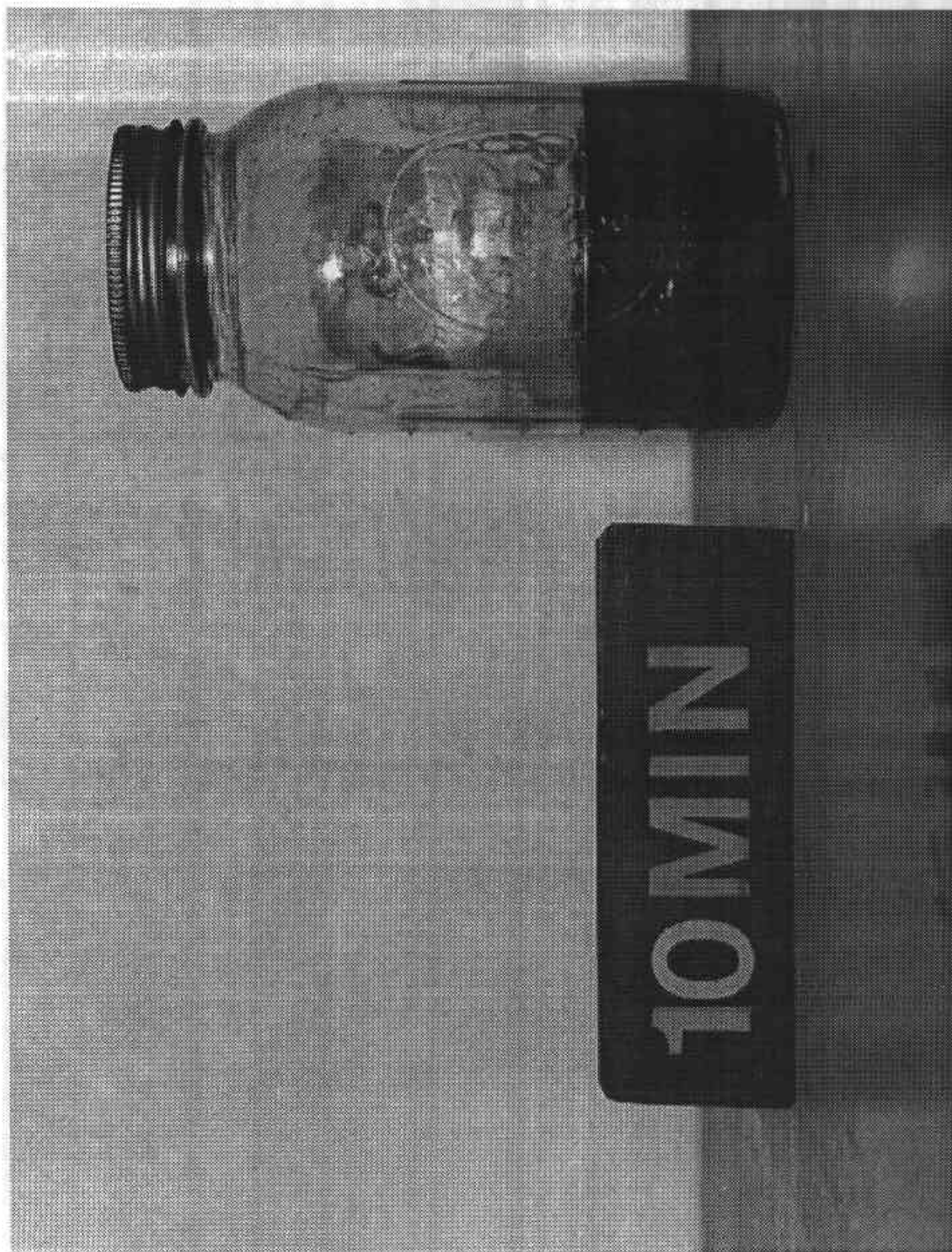


Figure A-52. Post-Test Fuel System Fluid Spillage - Tenth Minute
A-53

941130

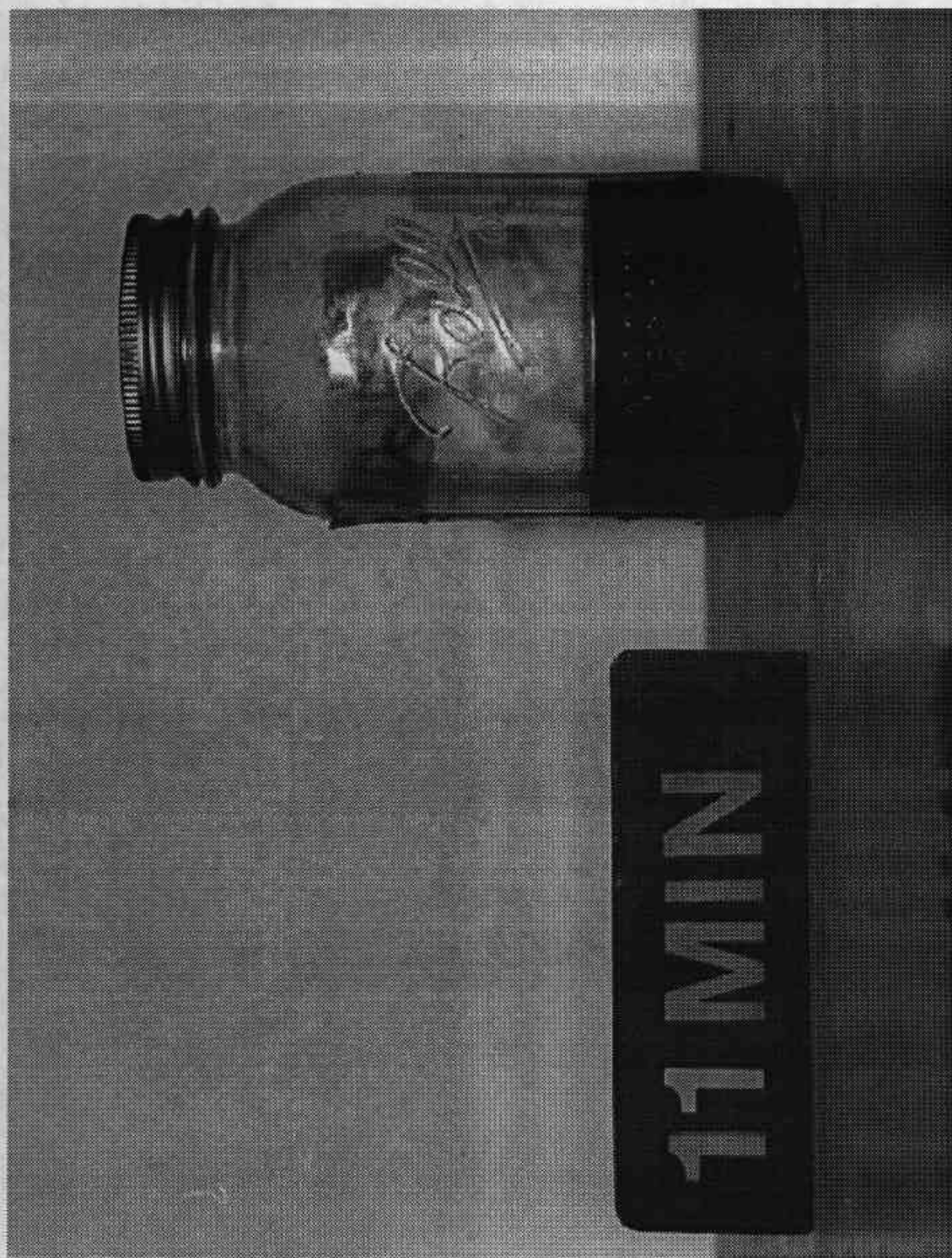


Figure A-53. Post-Test Fuel System Fluid Spillage - Eleventh Minute

A-54

941130

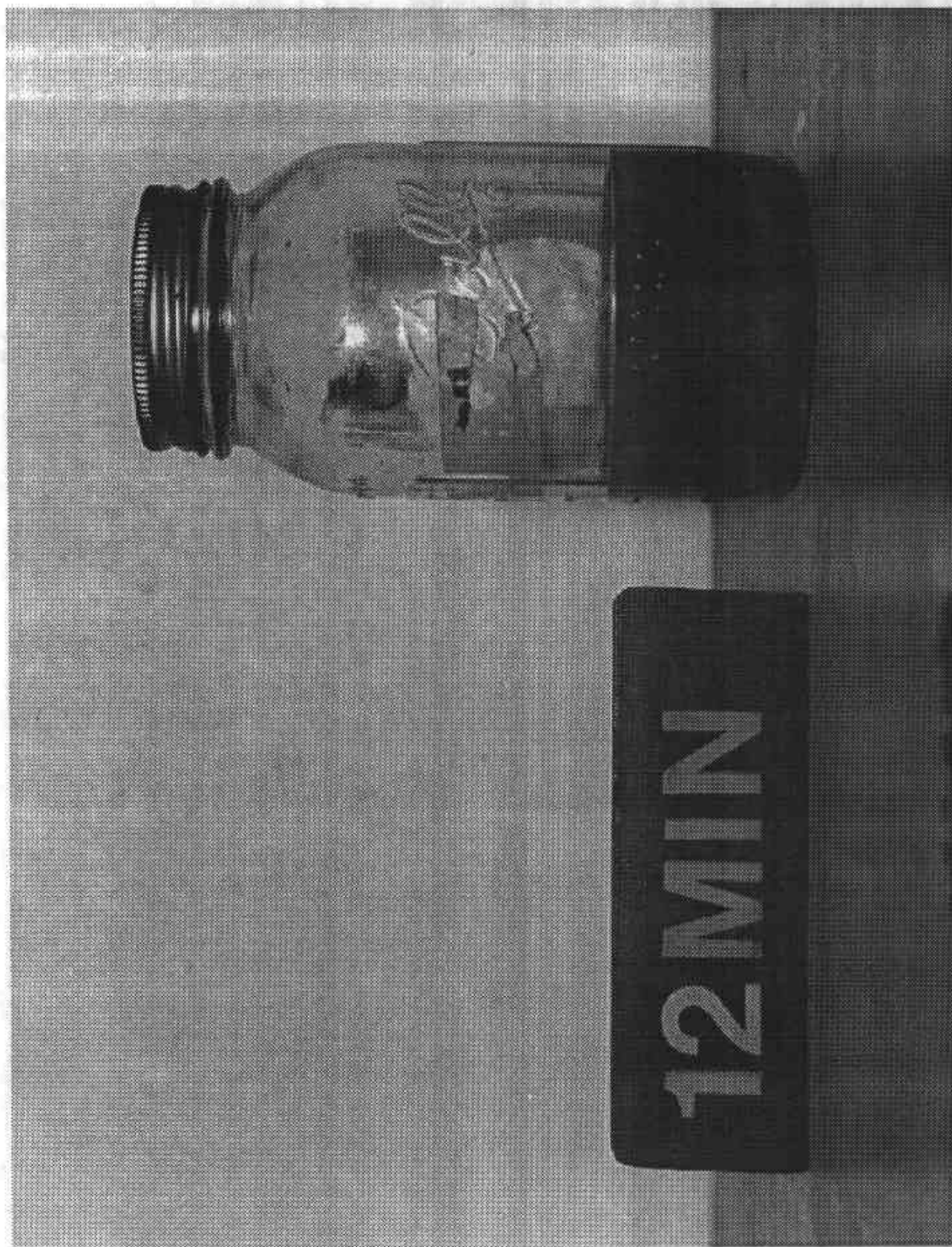


Figure A-54. Post-Test Fuel System Fluid Spillage - Twelfth Minute

A-55

941130

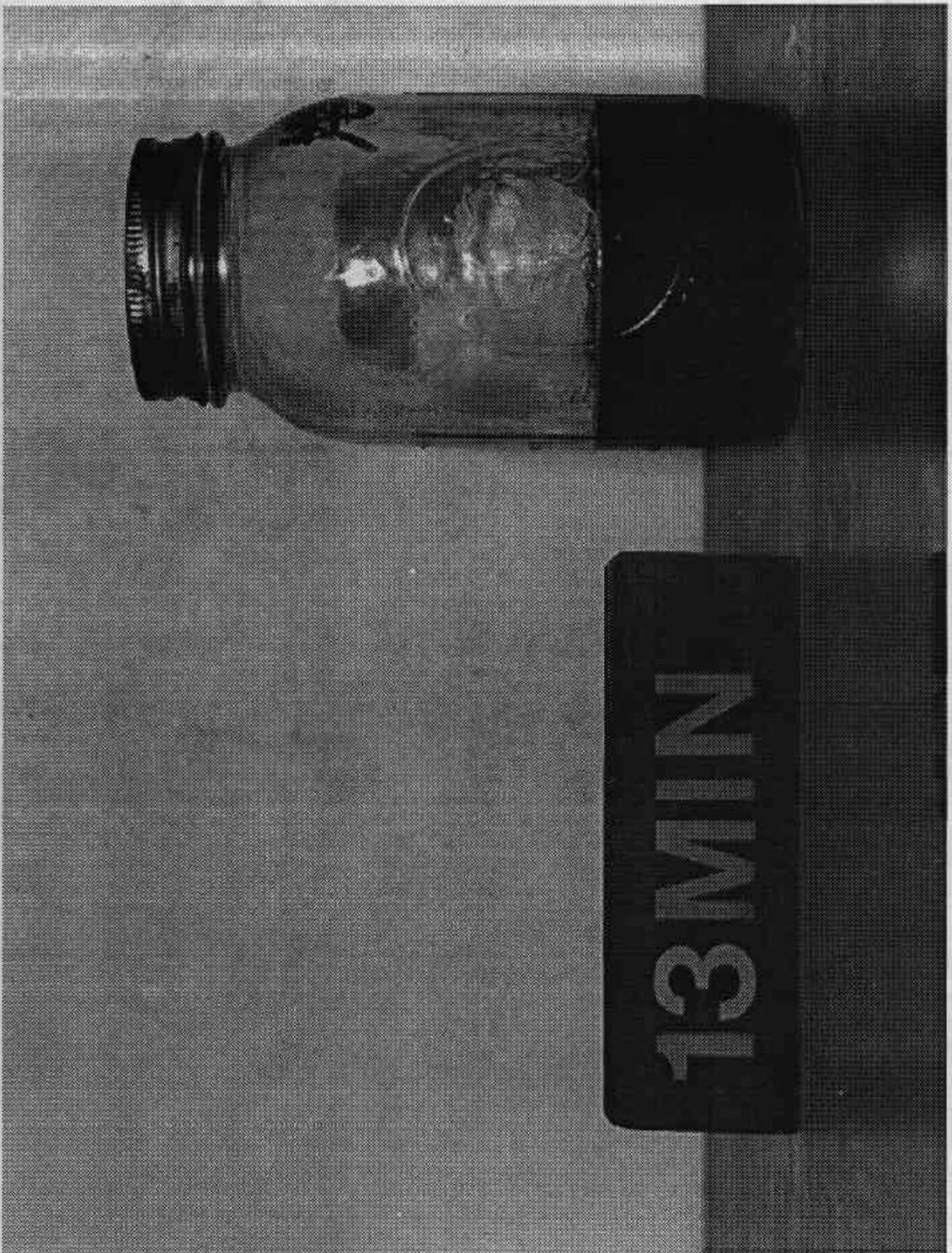


Figure A-55. Post-Test Fuel System Fluid Spillage - Thirteenth Minute

A-56

941130

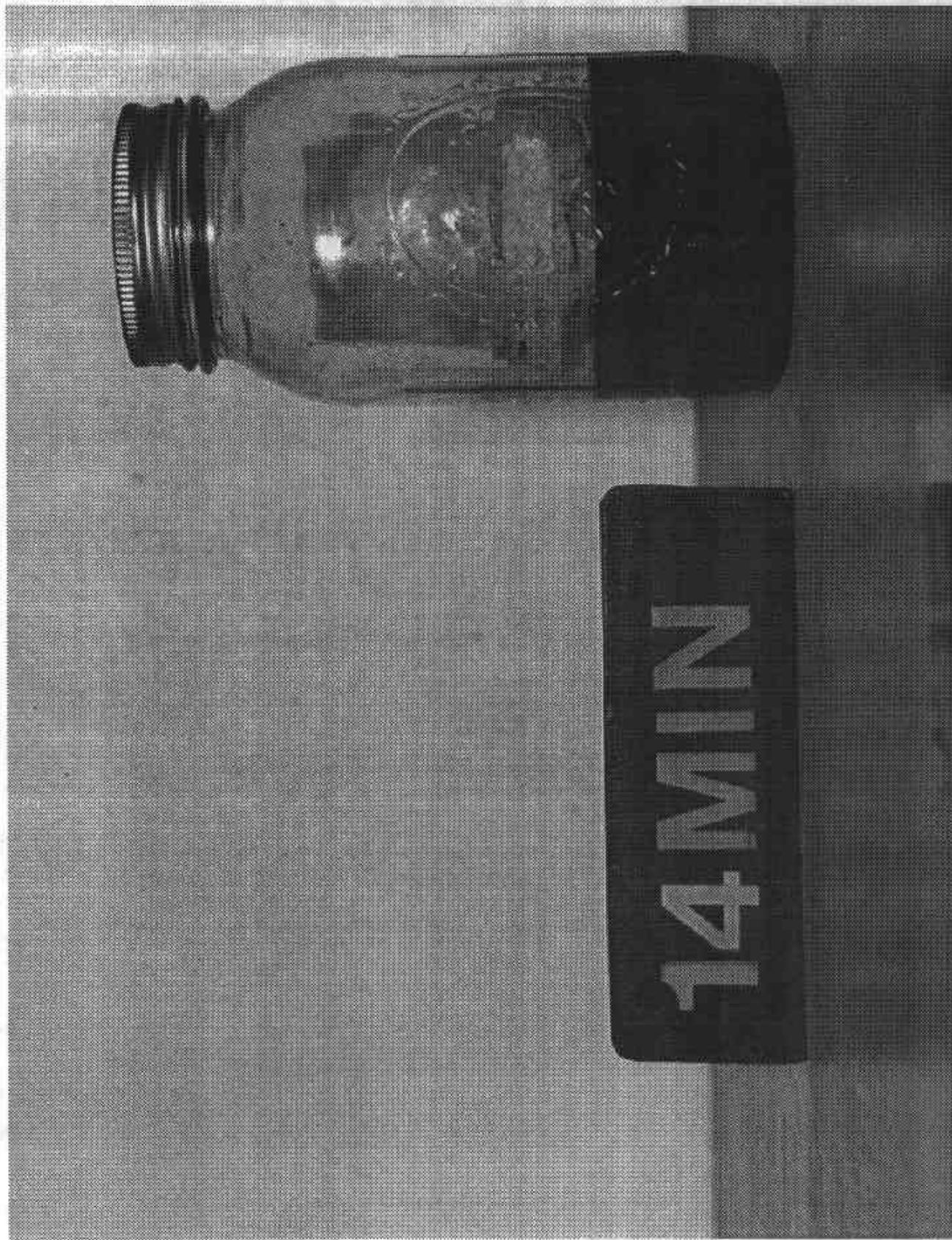


Figure A-56. Post-Test Fuel System Fluid Spillage - Fourteenth Minute

A-57

941130

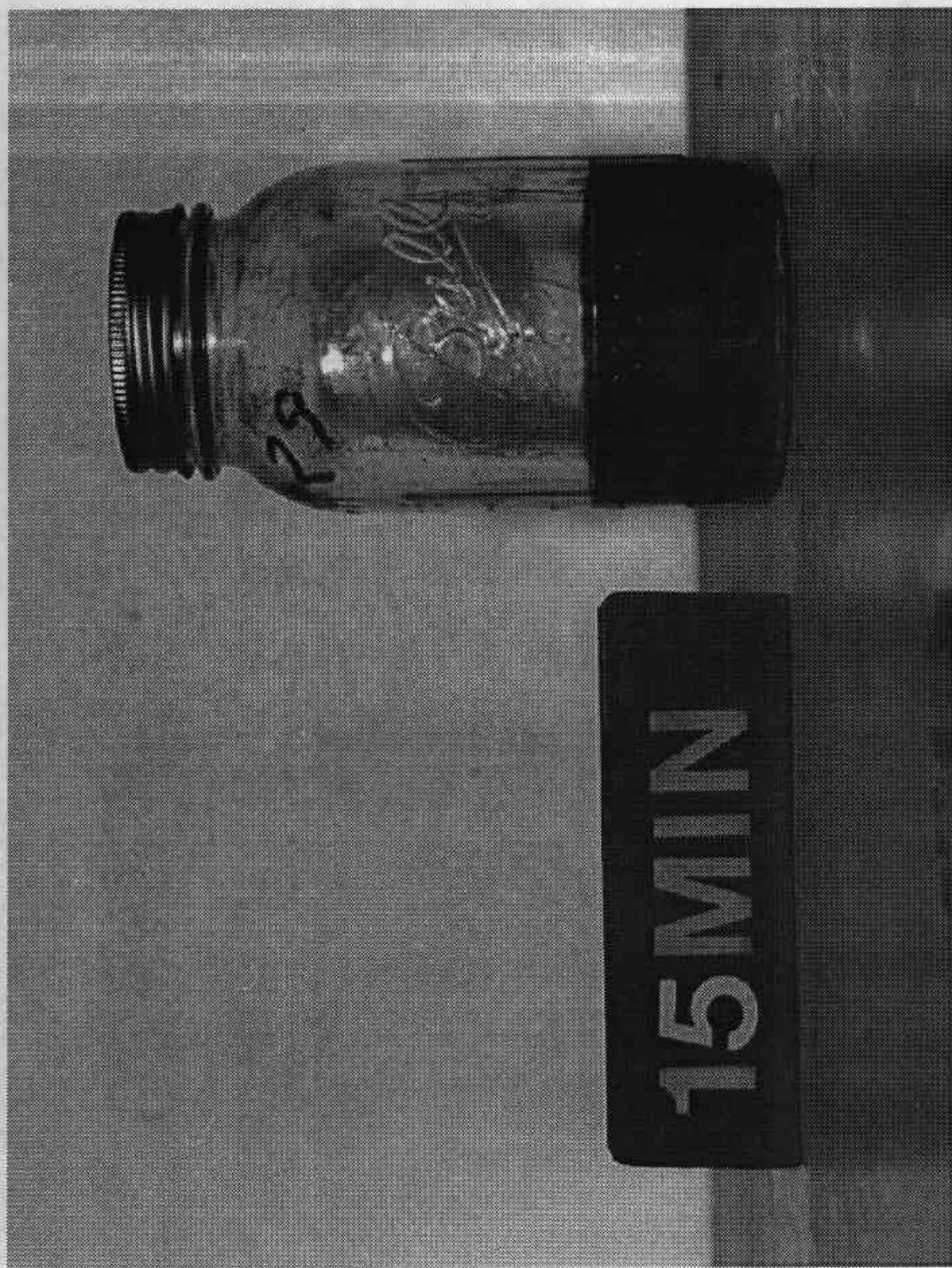


Figure A-57. Post-Test Fuel System Fluid Spillage - Fifteenth Minute

A-58

941130

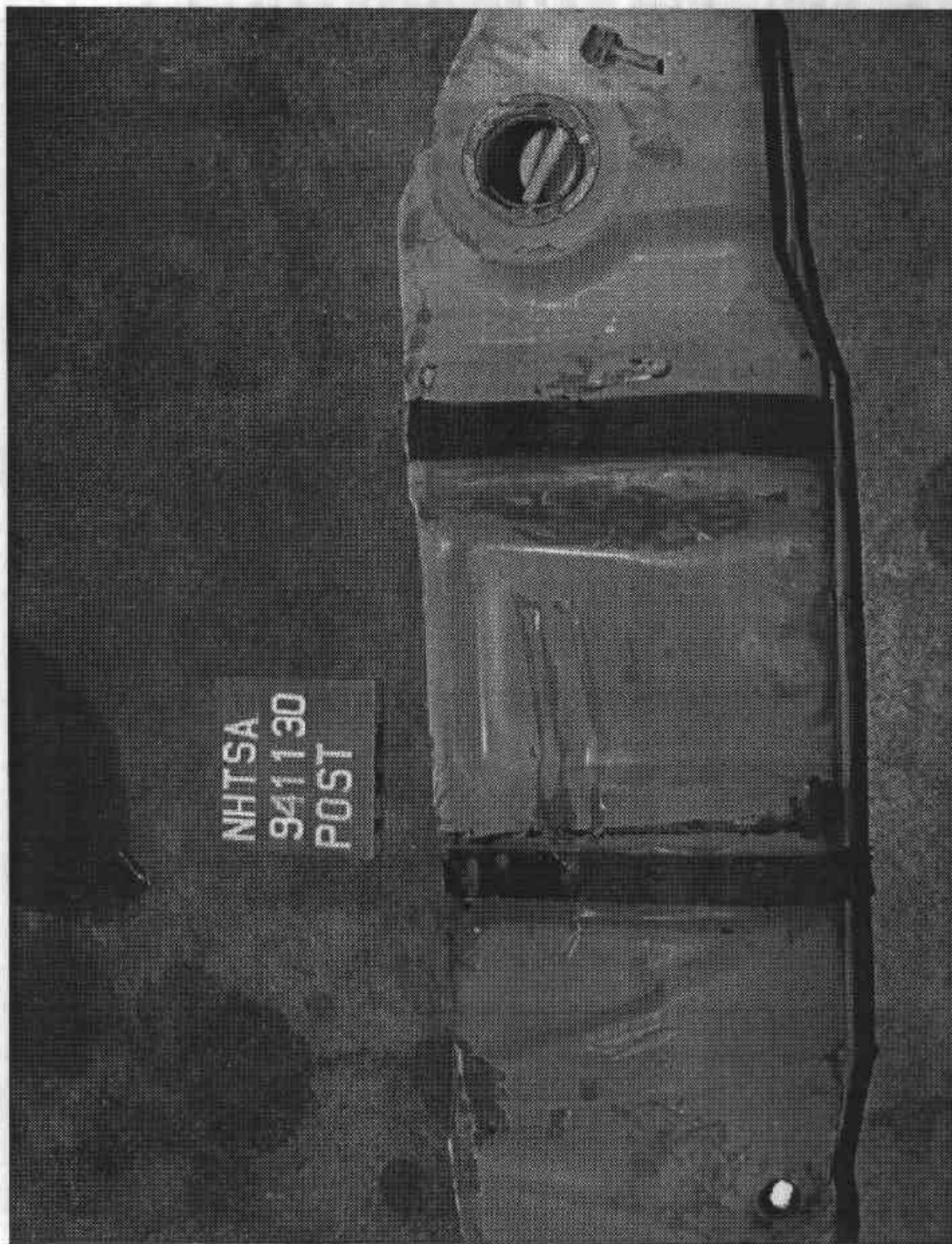


Figure A-58. Post-Test Fuel Tank Close-up - View 1
A-59

941130

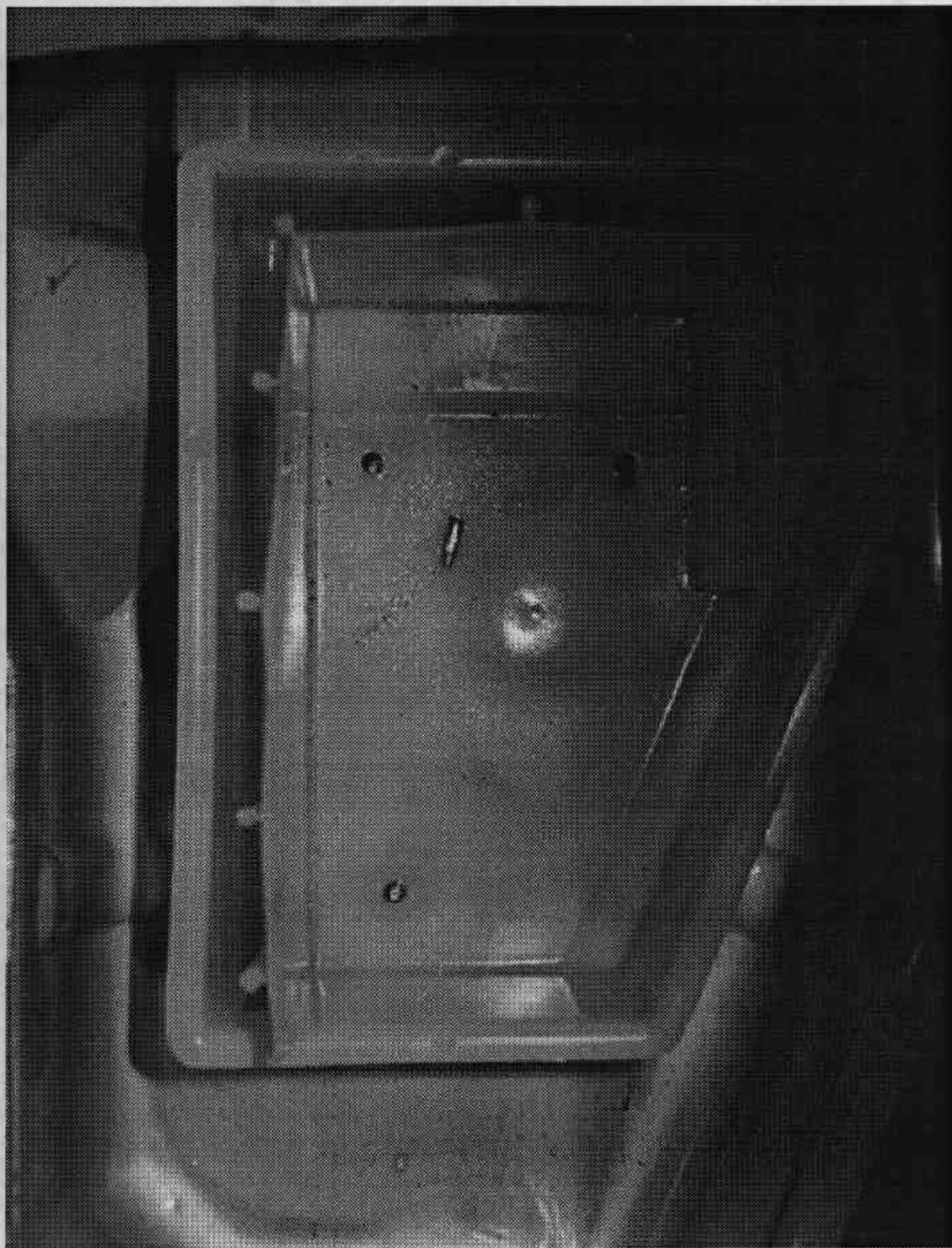


Figure A-59. Post-Test Fuel Tank Close-up - View 2
A-60

941130

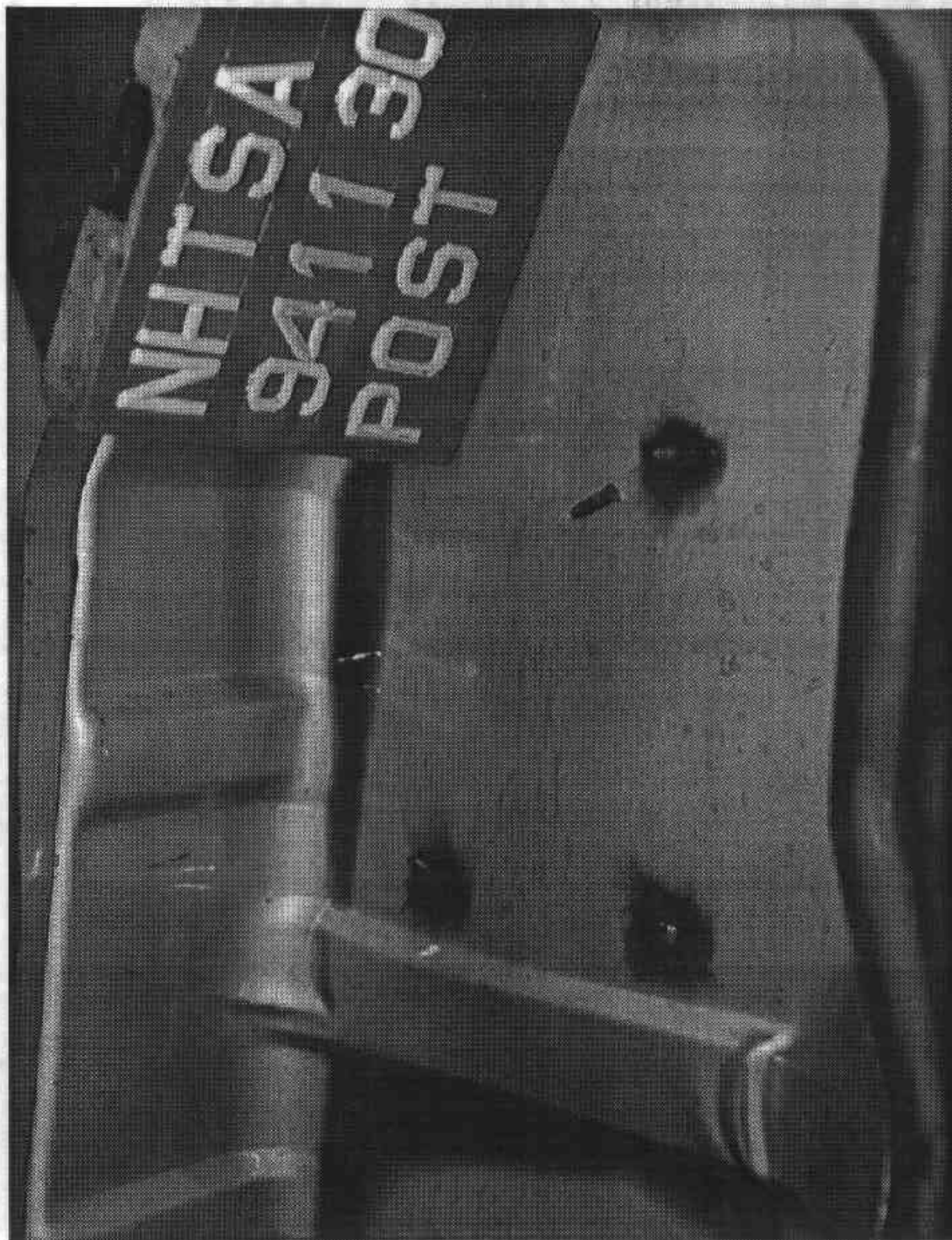


Figure A-60. Post-Test Fuel Tank Close-up - View 3
A-61

941130

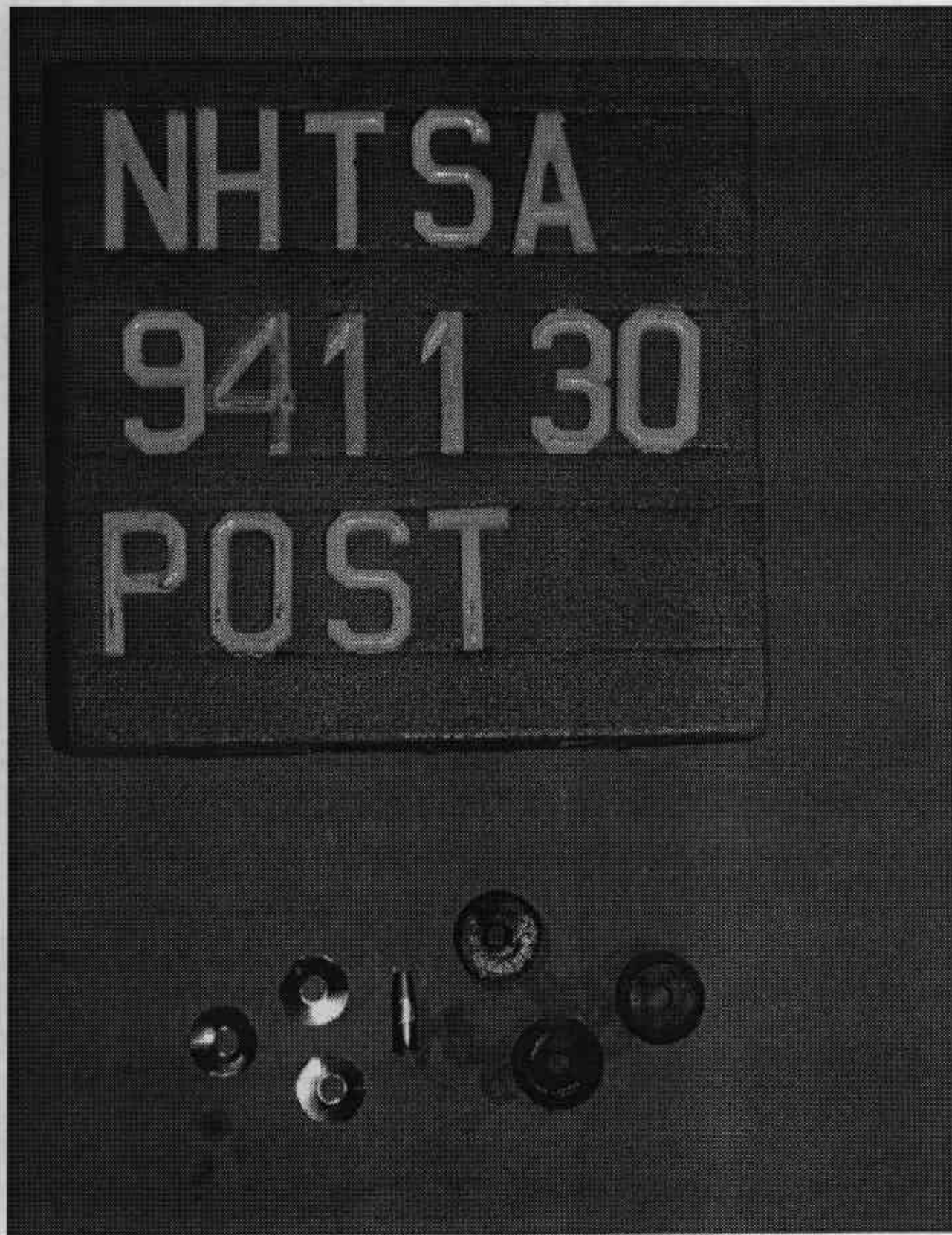


Figure A-61. Post-Test Fuel Tank Close-up - View 4
A-62

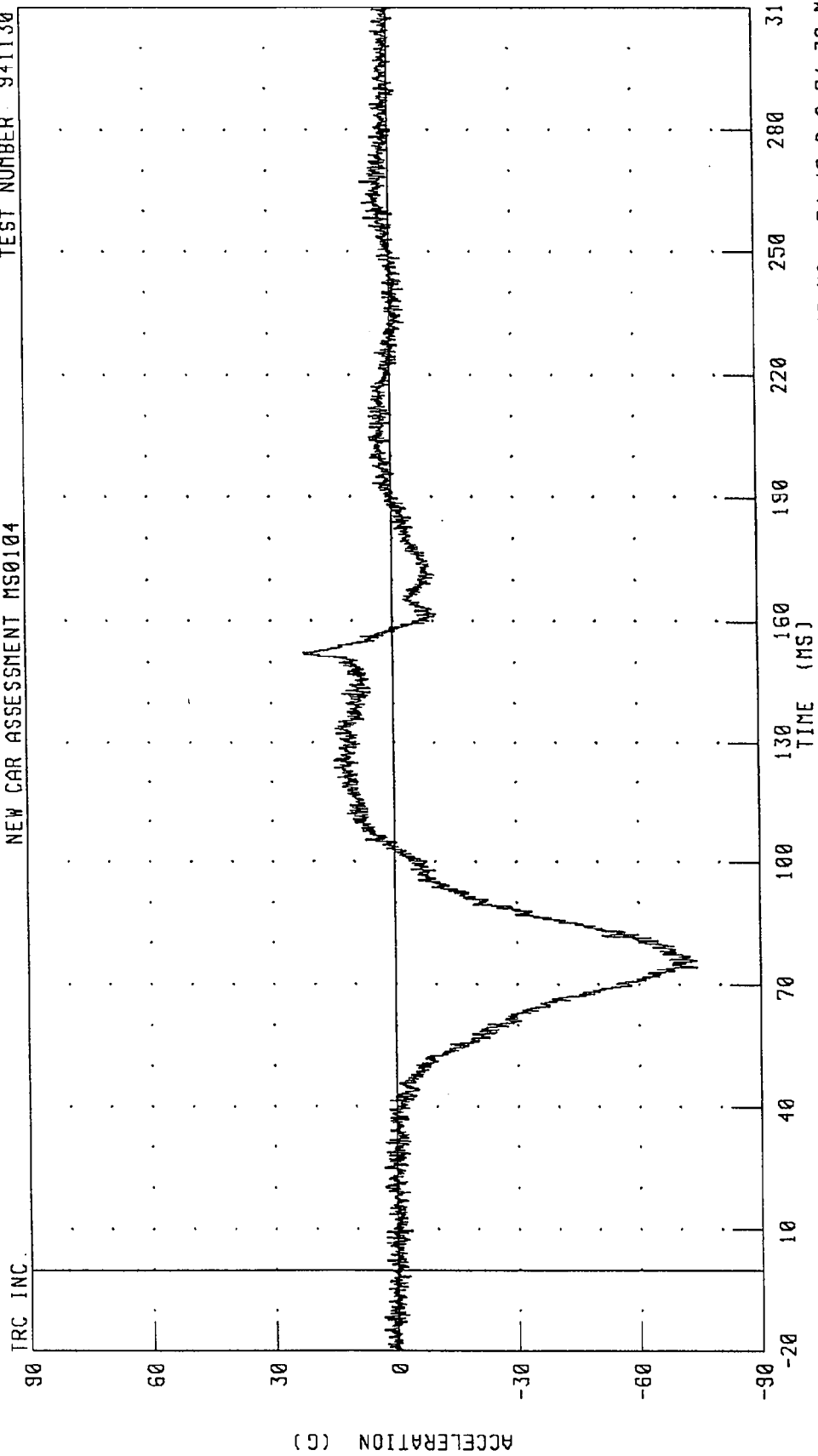
941130

Appendix B

Data Plots

1995 CHEVROLET S10 BLAZER INTO FRONTAL LOAD CELL BARRIER
 DRIVER HEAD X-AXIS ACCELERATION
 NEW CAR ASSESSMENT MS0104

TEST NUMBER 941130



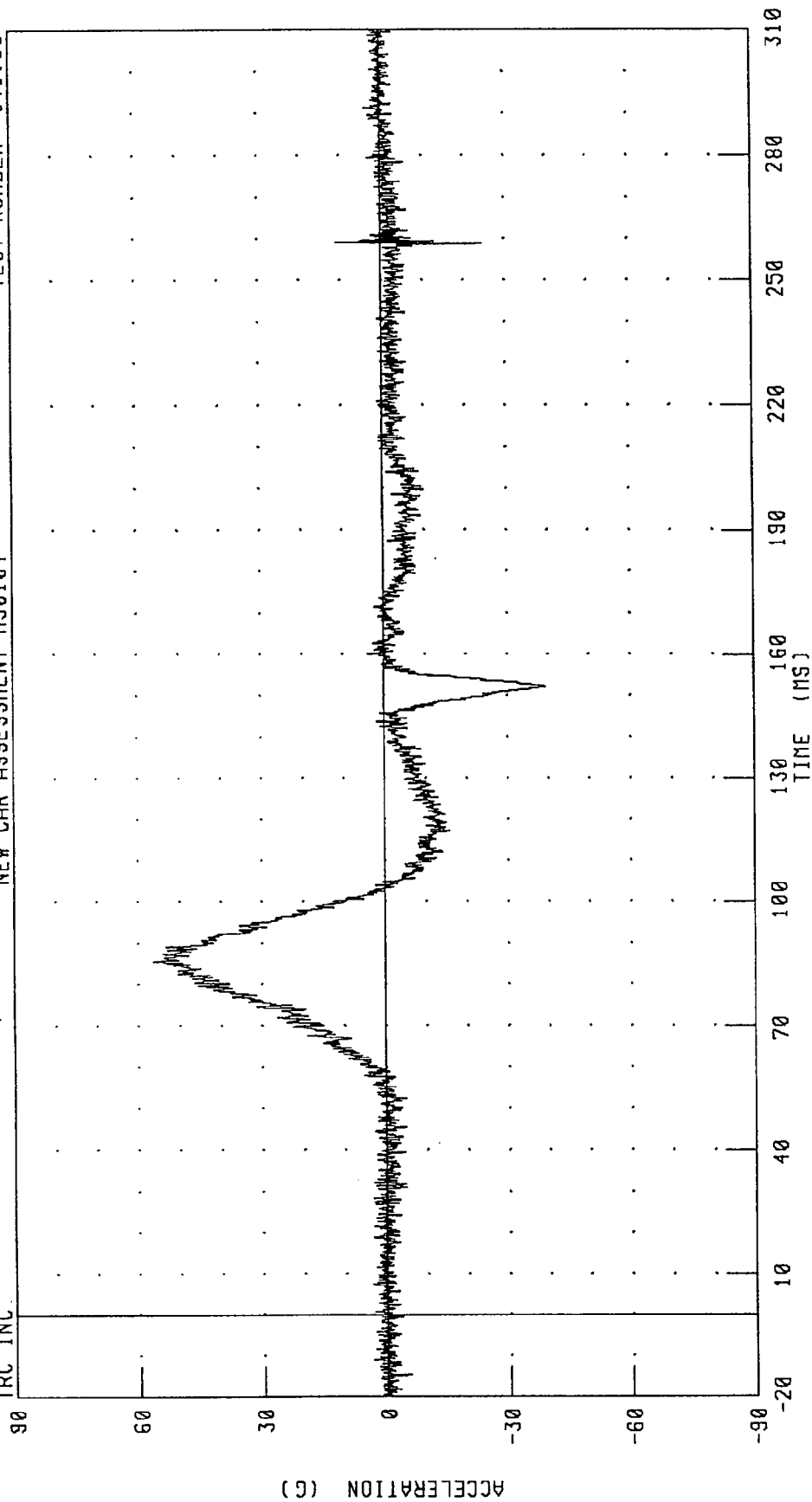
CHANNEL: HEDXG1 FILTER: CH. CLASS 1000

PEAK DATA: 22.07 G @ 152.48 MS; -74.48 G @ 74.32 MS

1995 CHEVROLET S10 BLAZER INTO FRONTAL LOAD CELL BARRIER
 DRIVER HEAD Y-AXIS ACCELERATION
 NEW CAR ASSESSMENT MS0104

TEST NUMBER: 941130

TRC INC.

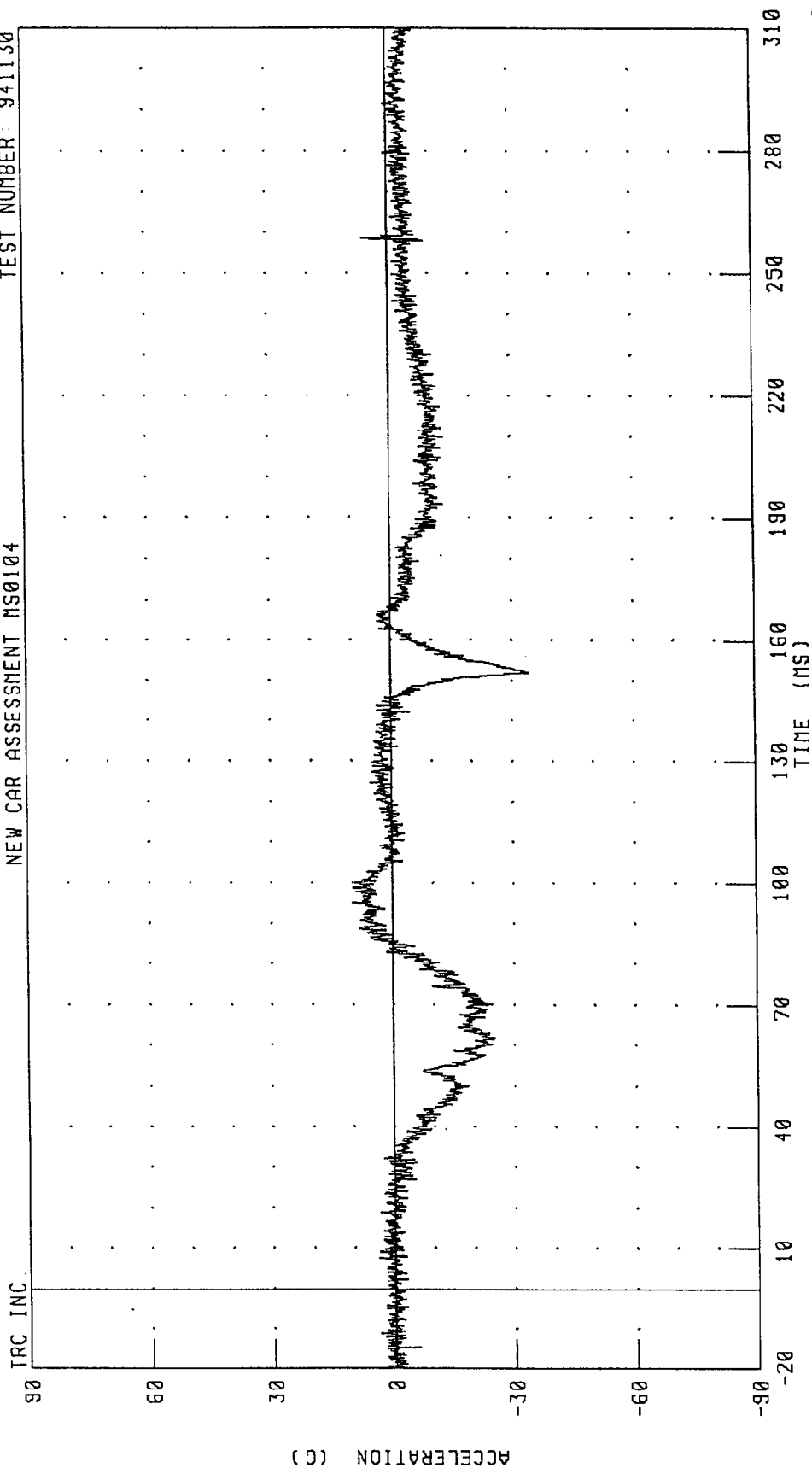


CHANNEL: HEDYG1 FILTER: CH. CLASS 1000

941130

1995 CHEVROLET S10 BLAZER INTO FRONTAL LOAD CELL BARRIER
 DRIVER HEAD Z-AXIS ACCELERATION
 NEW CAR ASSESSMENT MS0104

TEST NUMBER: 941130



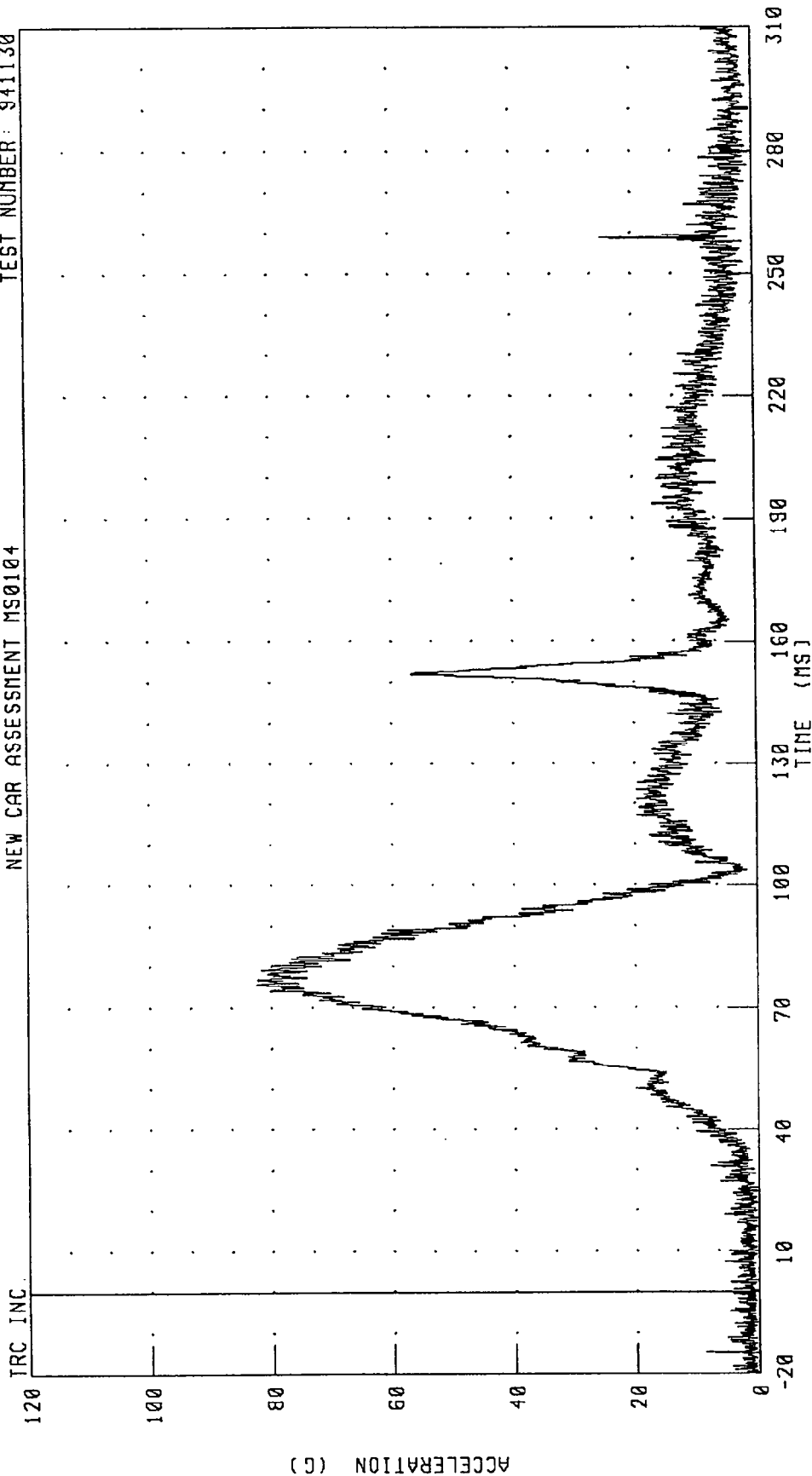
CHANNEL: HEDZG1 FILTER: CH. CLASS 1000

941130

1995 CHEVROLET S10 BLAZER INTO FRONTAL LOAD CELL BARRIER
DRIVER HEAD RESULTANT ACCELERATION

TEST NUMBER: 941130

NEW CAR ASSESSMENT MS0104

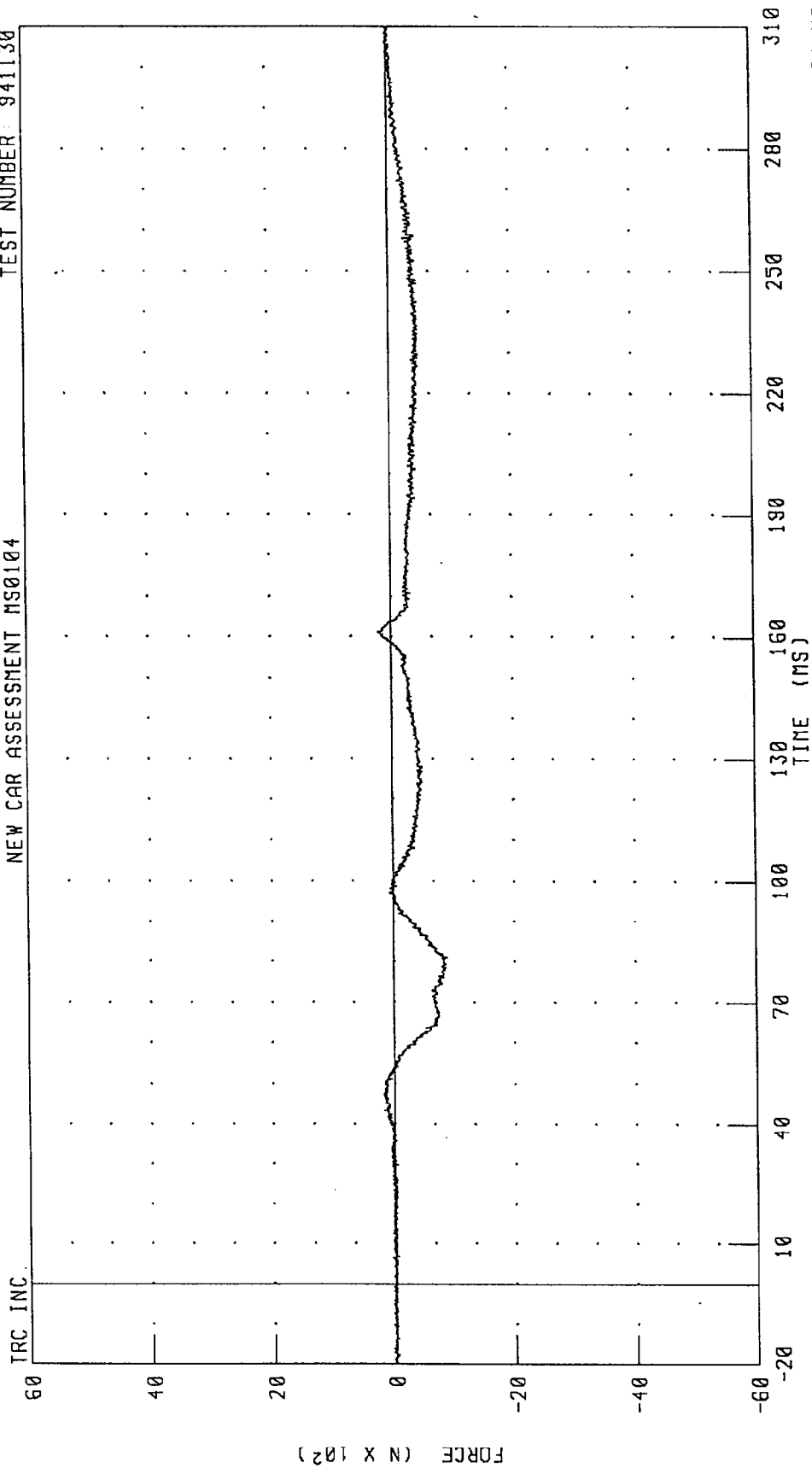


CHANNEL: HEDRG1 FILTER: CH. CLASS 1000

PEAK DATA: 82.46 G @ 75.84 MS; 0.22 G @ -19.92 MS

1995 CHEVROLET S10 BLAZER INTO FRONTAL LOAD CELL BARRIER
 DRIVER NECK X-AXIS SHEAR FORCE
 NEW CAR ASSESSMENT MS0104

TEST NUMBER: 941130

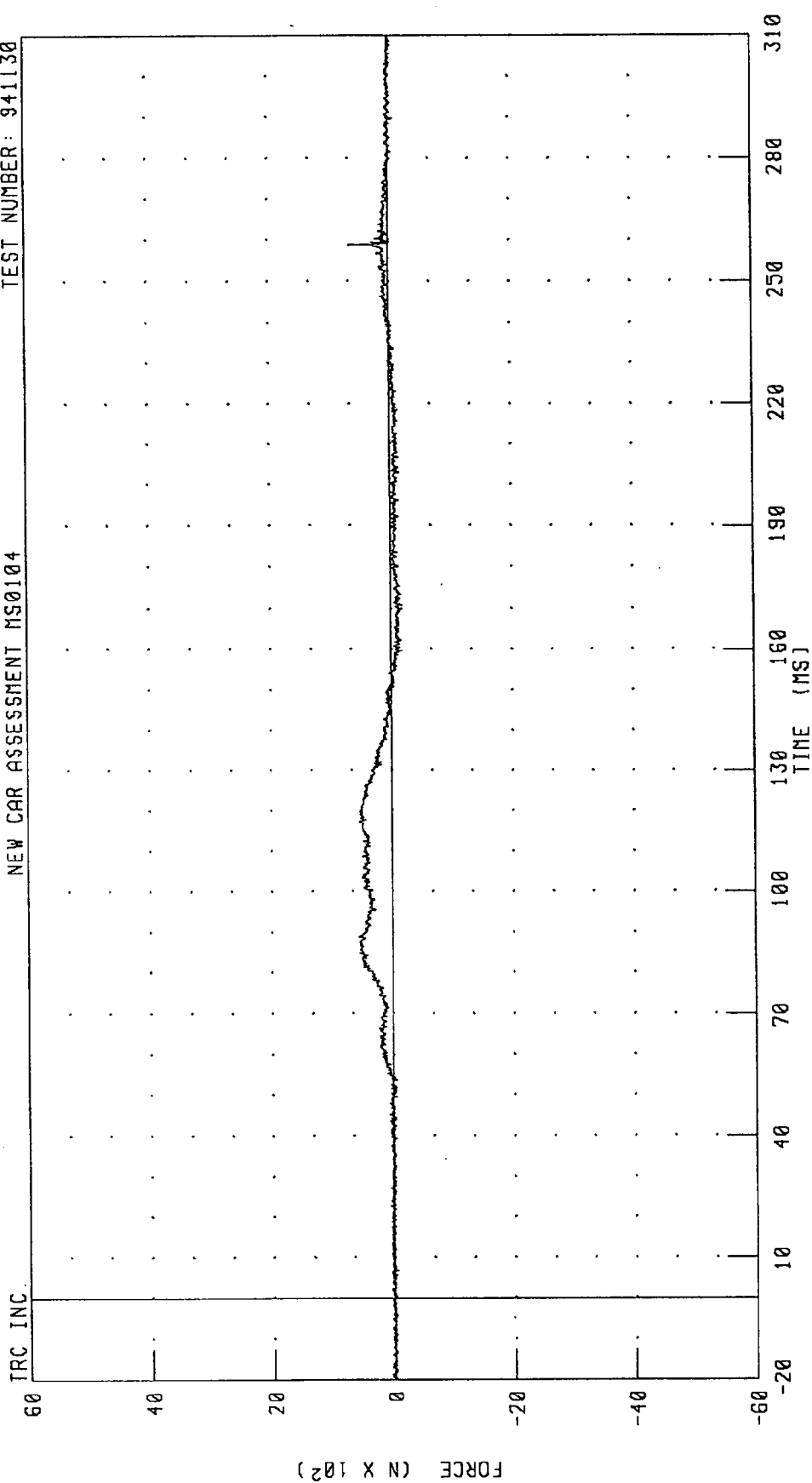


PEAK DATA: 217.68 N @ 161.20 MS; -875.97 N @ 81.04 MS

CHANNEL: NEKXF1 FILTER: CH. CLASS 1000

1995 CHEVROLET S10 BLAZER INTO FRONTAL LOAD CELL BARRIER
 DRIVER NECK Y-AXIS SHEAR FORCE
 NEW CAR ASSESSMENT NS0104

TEST NUMBER: 941130



PEAK DATA: 666.34 N @ 258.80 MS; -192.27 N @ 170.08 MS

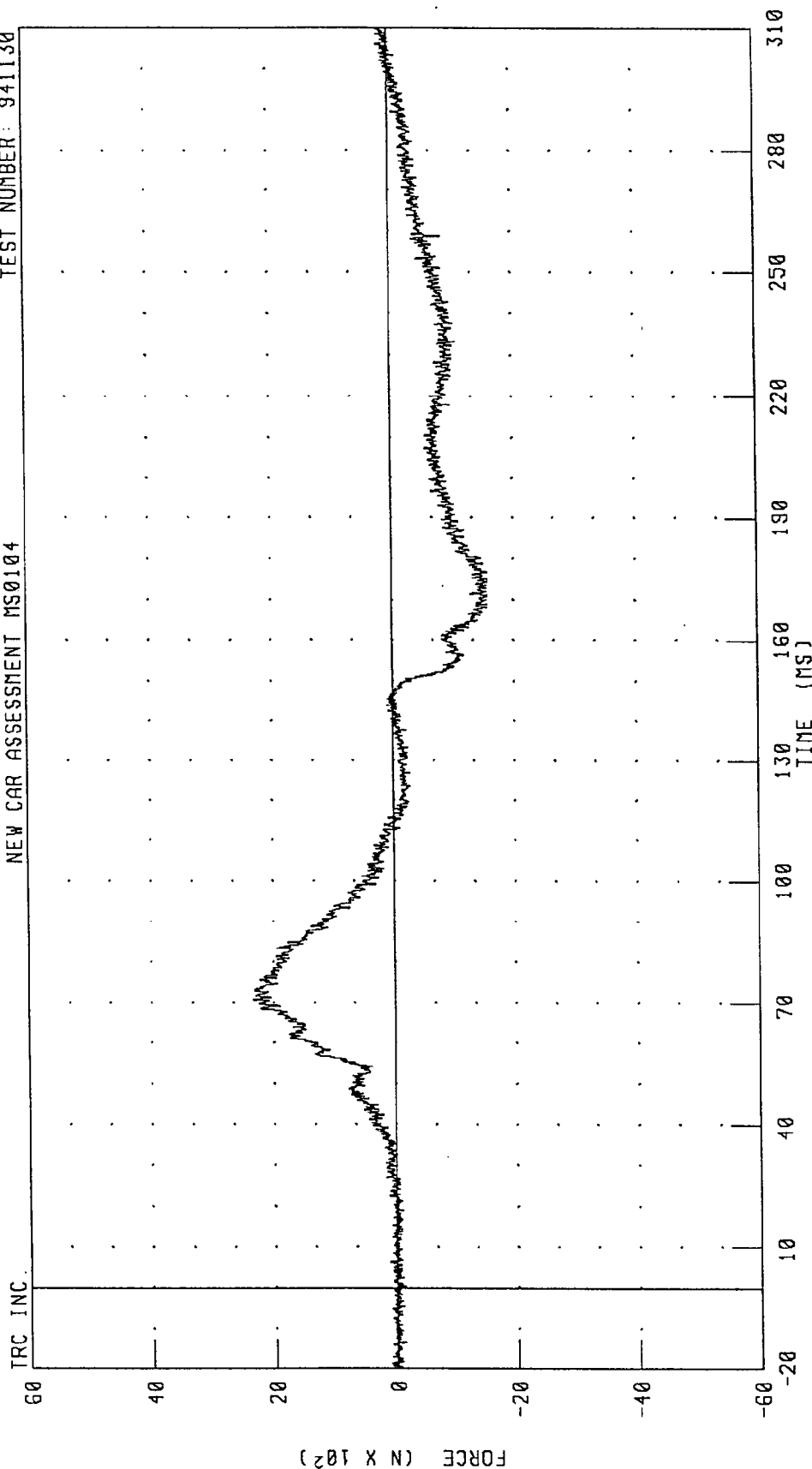
CHANNEL: NEKYF1 FILTER: CH. CLASS 1000

1995 CHEVROLET S10 BLAZER INTO FRONTAL LOAD CELL BARRIER

DRIVER NECK Z-AXIS AXIAL FORCE

NEW CAR ASSESSMENT MS0104

TEST NUMBER: 941130

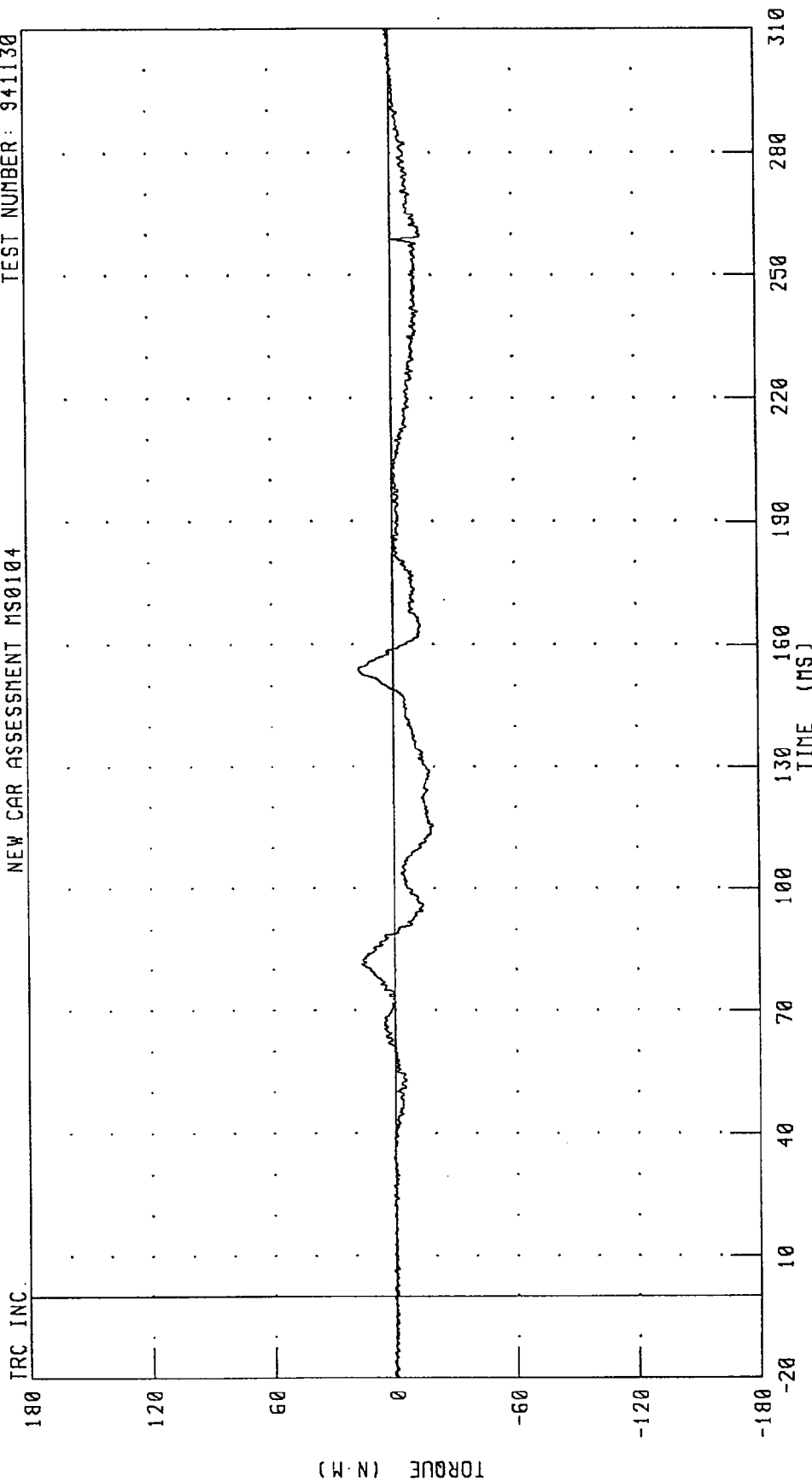


PEAK DATA: 2335.47 N @ 70.88 MS; -1580.77 N @ 168.80 MS

CHANNEL: NEKZF1 FILTER: CH. CLASS 1000

1995 CHEVROLET S10 BLAZER INTO FRONTAL LOAD CELL BARRIER
 DRIVER NECK MOMENT ABOUT X AXIS
 NEW CAR ASSESSMENT MS0104

TEST NUMBER: 941130



CHANNEL: NEKXMI FILTER: CH. CLASS 600

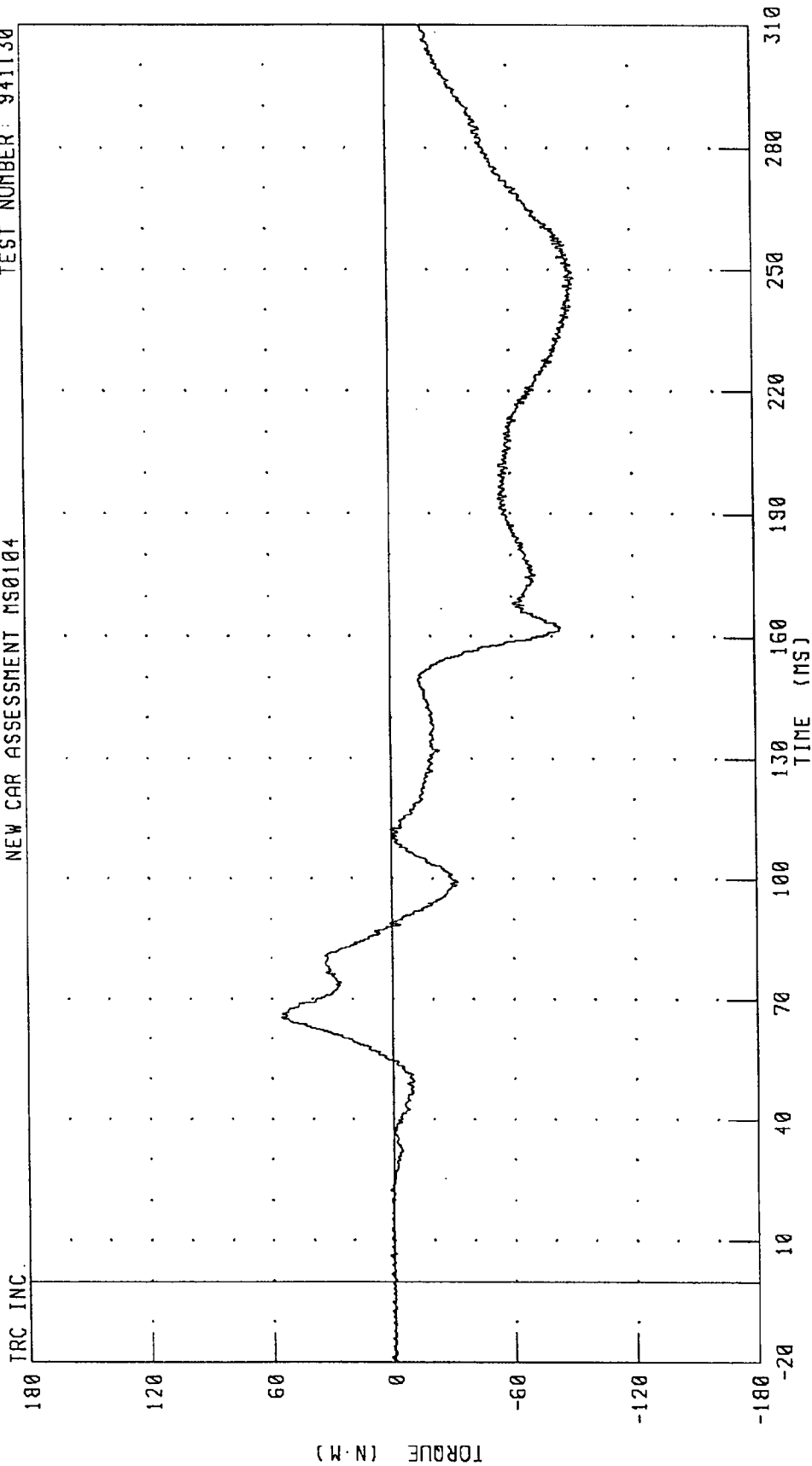
941130

1995 CHEVROLET S10 BLAZER INTO FRONTAL LOAD CELL BARRIER

DRIVER NECK MOMENT ABOUT Y AXIS

NEW CAR ASSESSMENT NS0104

TEST NUMBER: 941130



CHANNEL: NEKYM1 FILTER: CH. CLASS 600

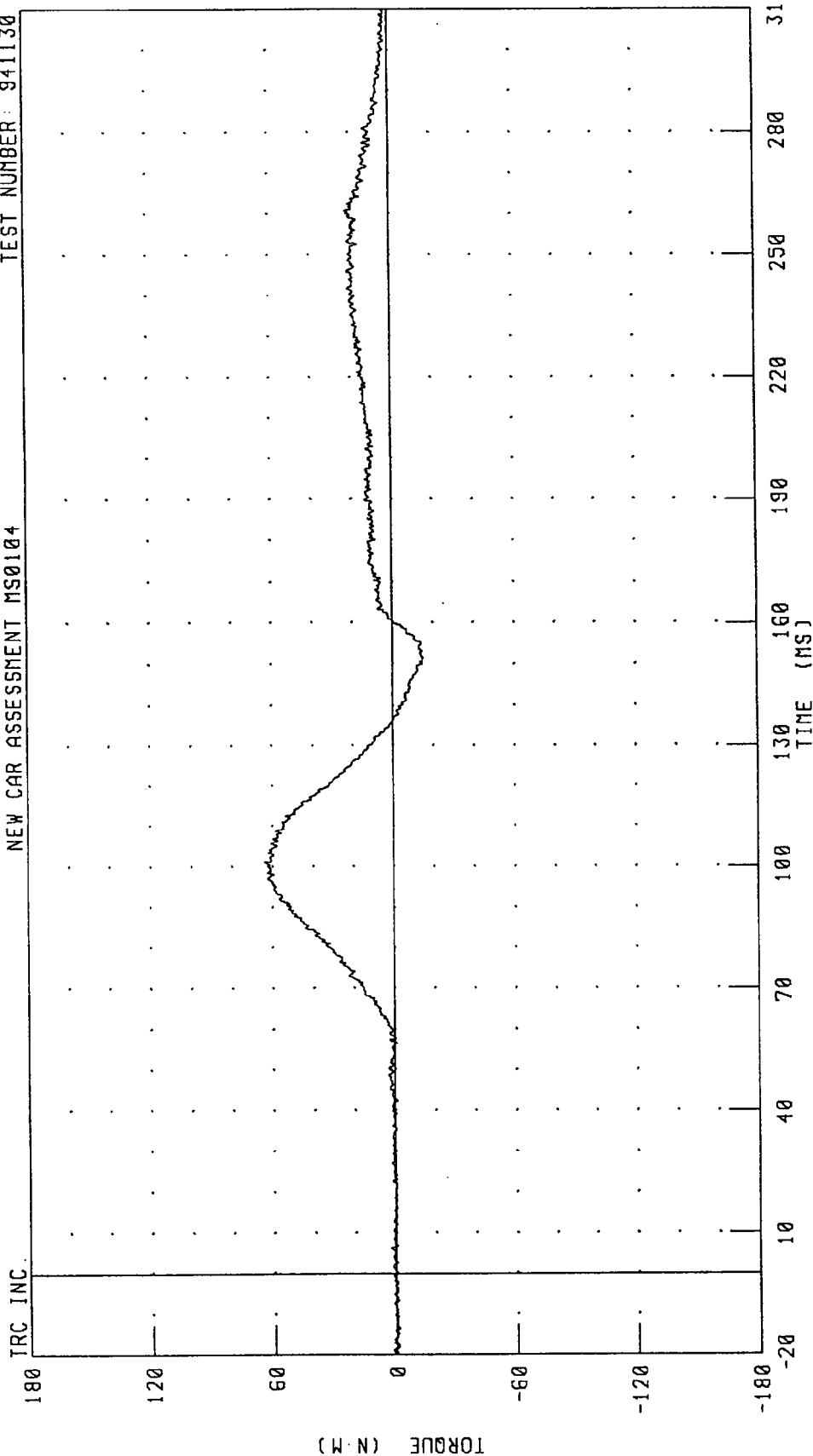
PEAK DATA: 55.54 N-M @ 65.44 MS; -92.43 N-M @ 248.08 MS

1995 CHEVROLET S10 BLAZER INTO FRONTAL LOAD CELL BARRIER

DRIVER NECK MOMENT ABOUT Z AXIS

NEW CAR ASSESSMENT MS0104

TEST NUMBER: 941130

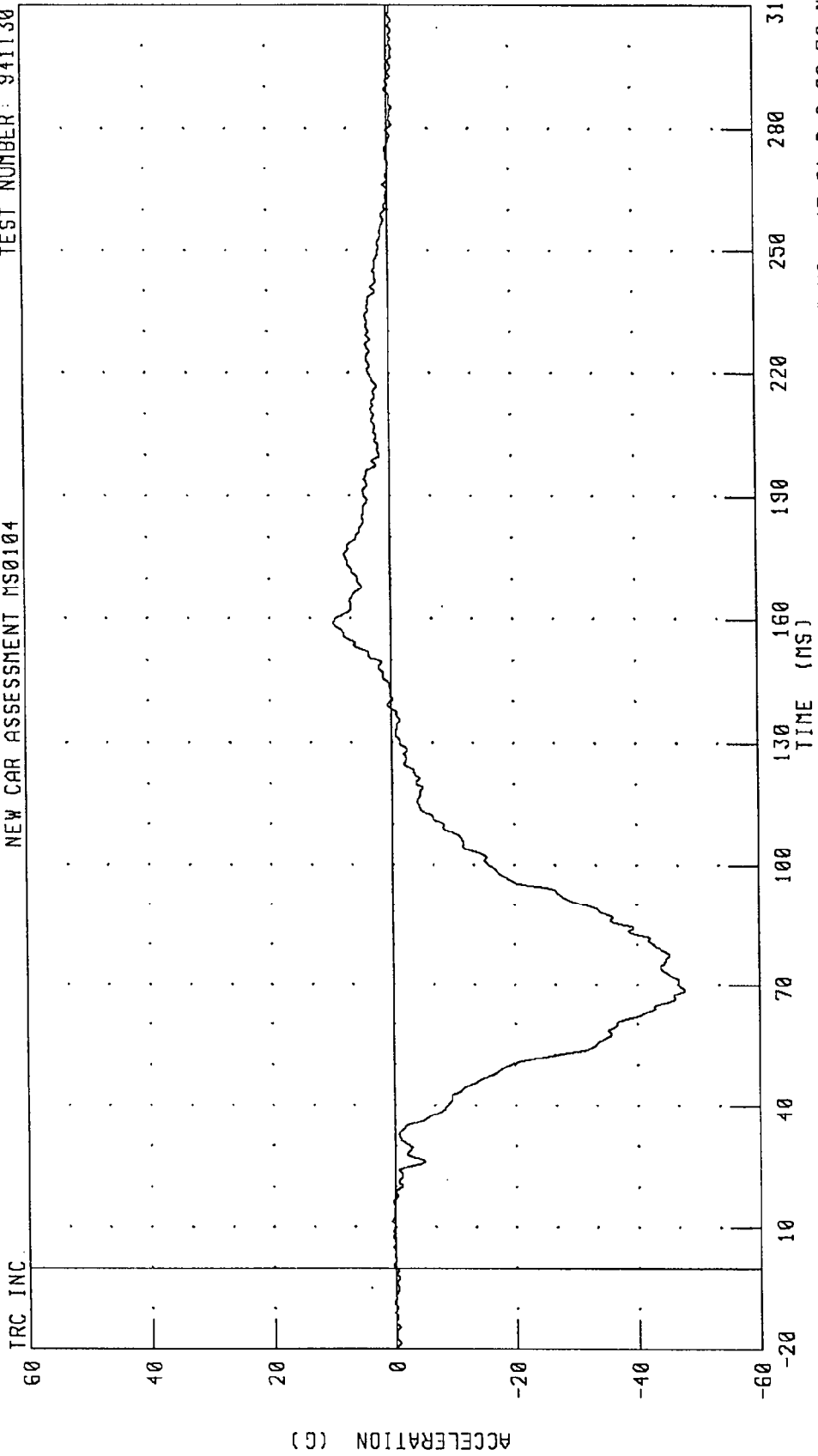


PEAK DATA: 63.95 N.M @ 100.96 MS; -15.08 N.M @ 151.60 MS

CHANNEL: NEKZM1 FILTER: CH. CLASS 600

1995 CHEVROLET S10 BLAZER INTO FRONTAL LOAD CELL BARRIER
DRIVER CHEST X-AXIS ACCELERATION
NEW CAR ASSESSMENT MS0104

TEST NUMBER: 941130

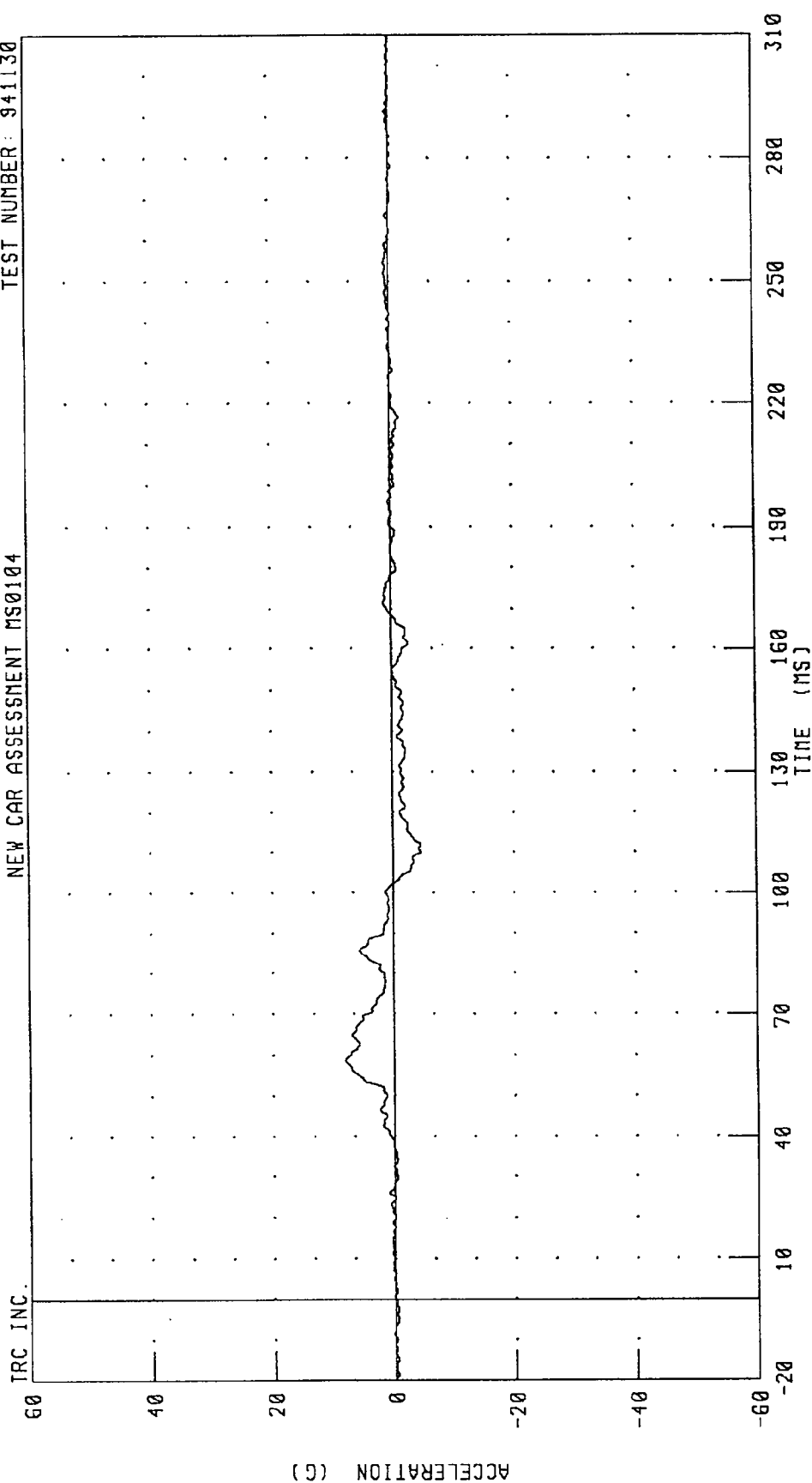


CHANNEL: CSTXG1 FILTER: CH. CLASS 180

PEAK DATA: 9.51 G @ 158.88 MS; -47.81 G @ 68.72 MS

1995 CHEVROLET S10 BLAZER INTO FRONTAL LOAD CELL BARRIER
 DRIVER CHEST Y-AXIS ACCELERATION
 NEW CAR ASSESSMENT MS0104

TEST NUMBER: 941130

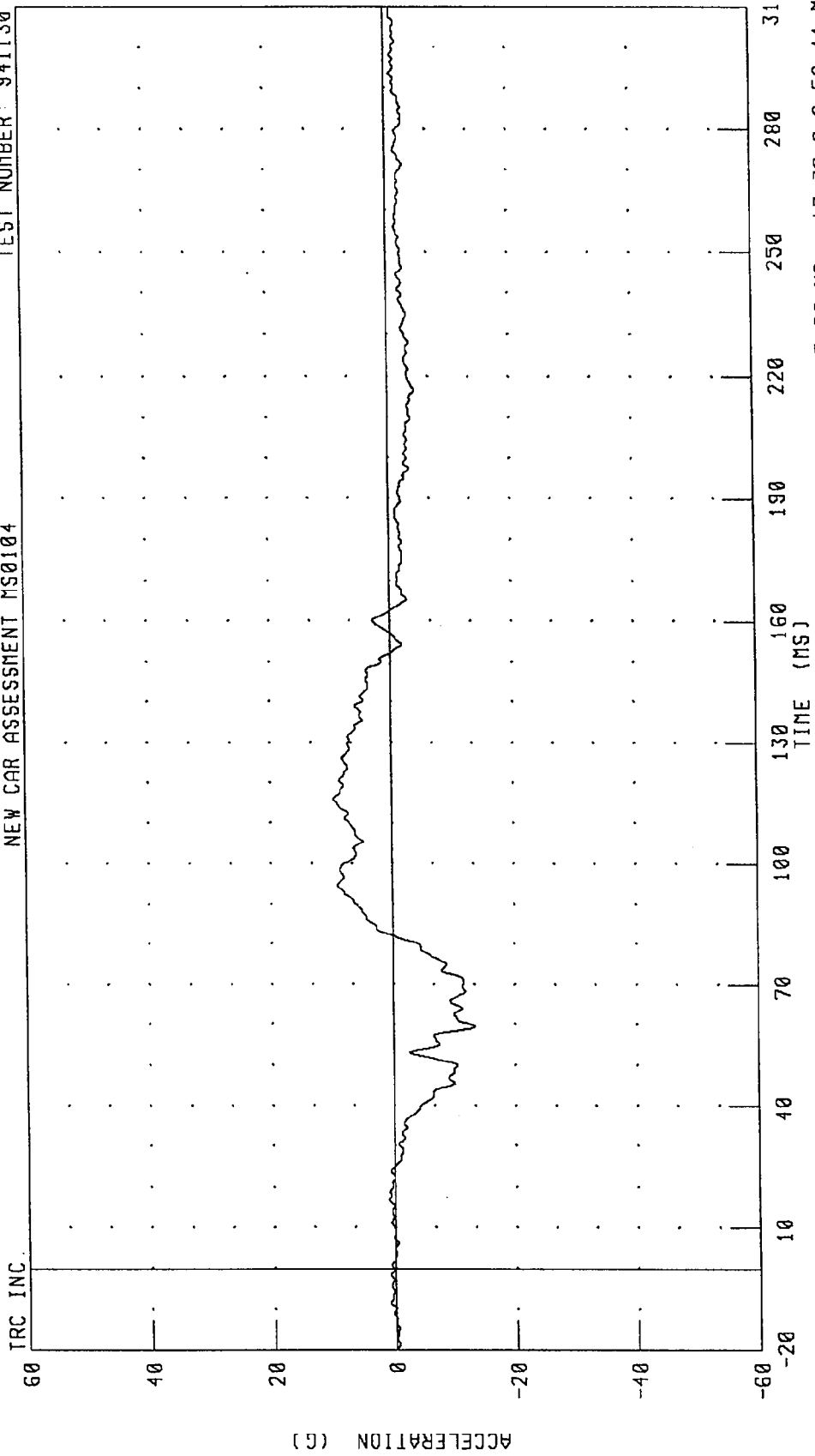


CHANNEL: CSTYG1 FILTER: CH. CLASS 180

PEAK DATA: 8.14 G @ 58.80 MS; -4.60 G @ 110.24 MS

1995 CHEVROLET S10 BLAZER INTO FRONTAL LOAD CELL BARRIER
 DRIVER CHEST Z-AXIS ACCELERATION
 NEW CAR ASSESSMENT MS0104

TEST NUMBER: 941130



CHANNEL: CSTZG1 FILTER: CH. CLASS 180

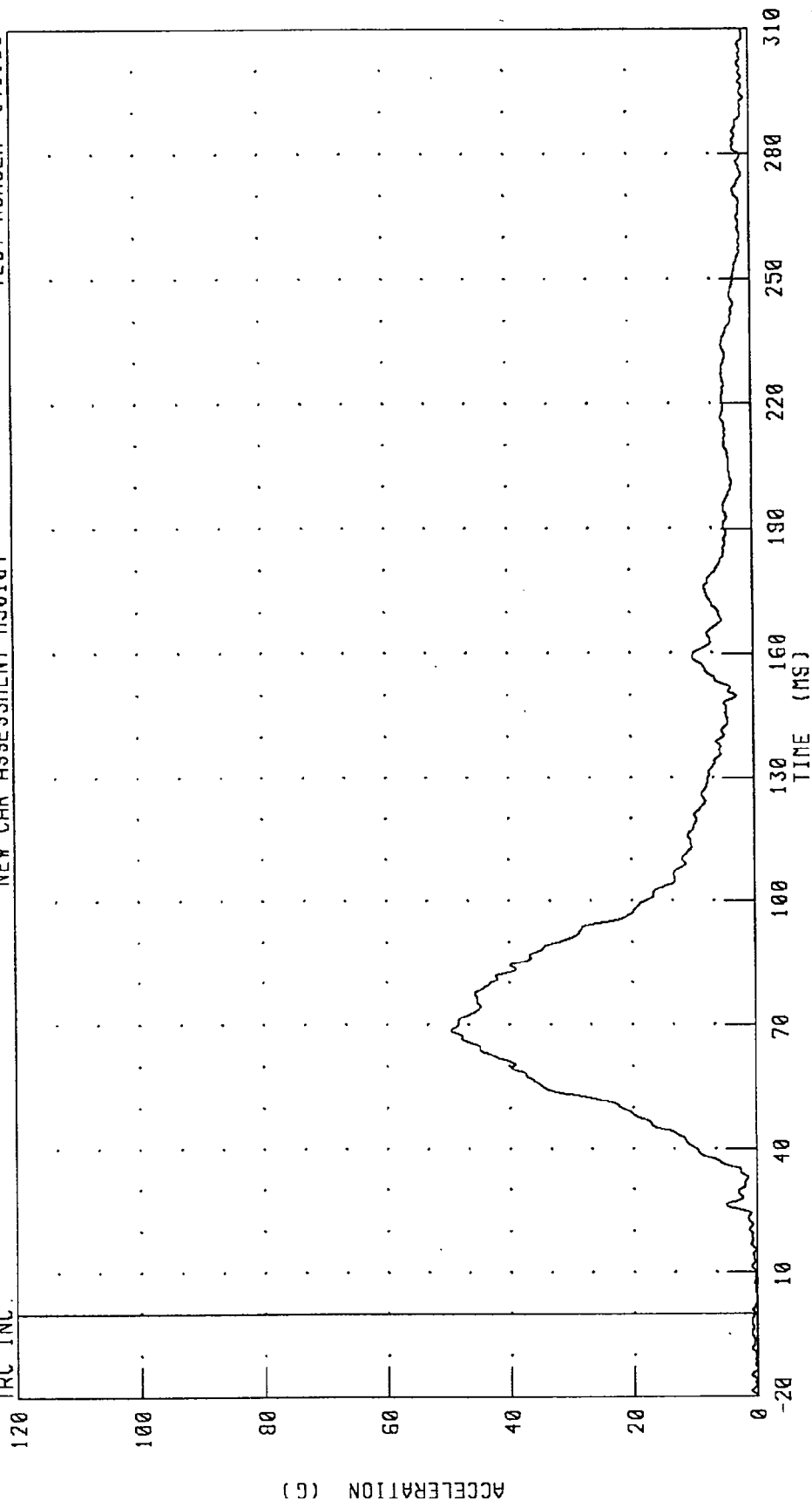
PEAK DATA: 9.67 G @ 115.92 MS, -13.38 G @ 133.38 MS

1995 CHEVROLET S10 BLAZER INTO FRONTAL LOAD CELL BARRIER
DRIVER CHEST RESULTANT ACCELERATION

TEST NUMBER: 941130

NEW CAR ASSESSMENT MS0104

TRC INC.

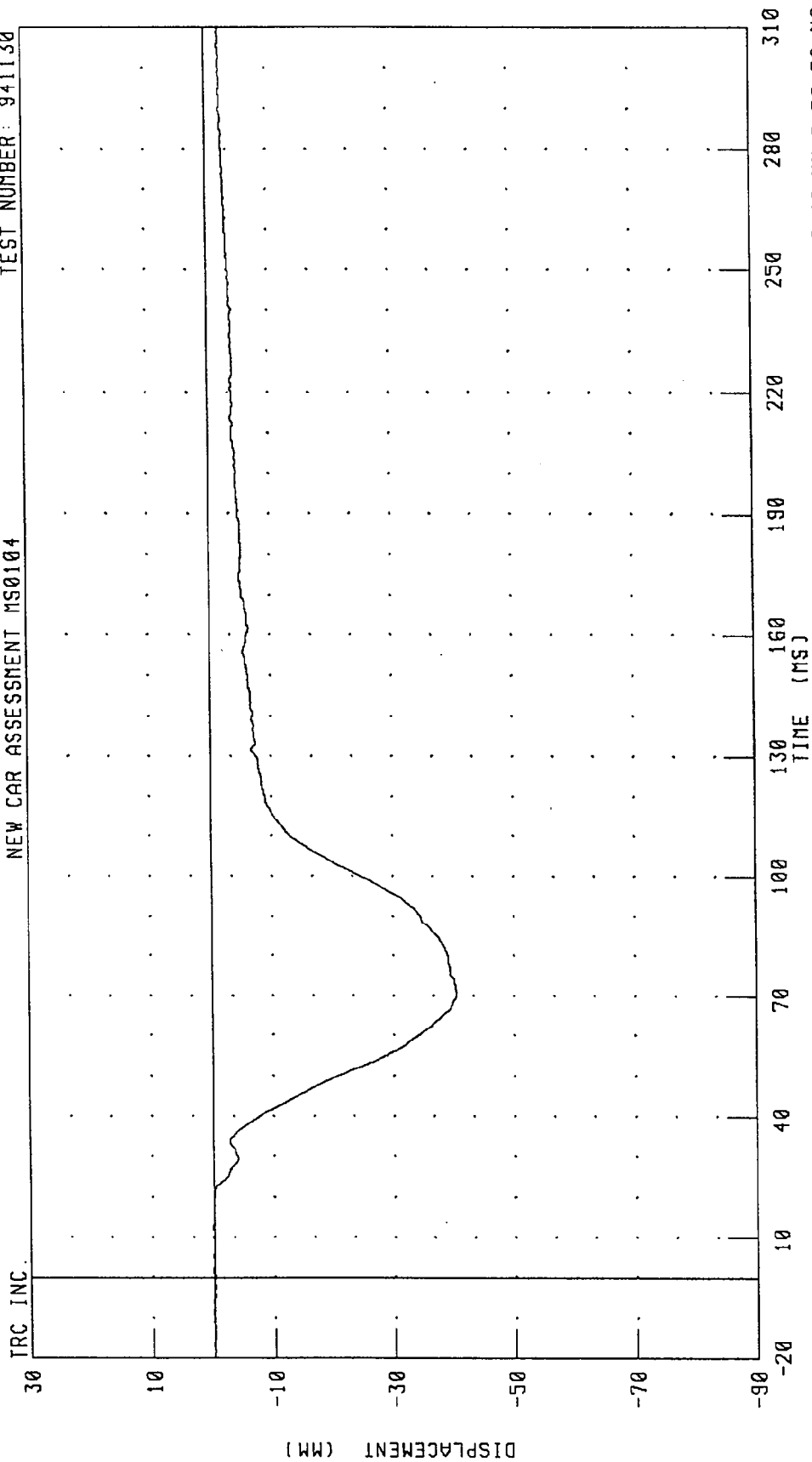


PEAK DATA: 49.47 G @ 68.64 MS; 0.09 G @ 4.32 MS

CHANNEL: CSTRG1 FILTER: CH. CLASS 180

1995 CHEVROLET S10 BLAZER INTO FRONTAL LOAD CELL BARRIER
 DRIVER CHEST DEFLECTION
 NEW CAR ASSESSMENT MS0104

TEST NUMBER: 941130



CHANNEL: CSTX01 FILTER: CH. CLASS 180

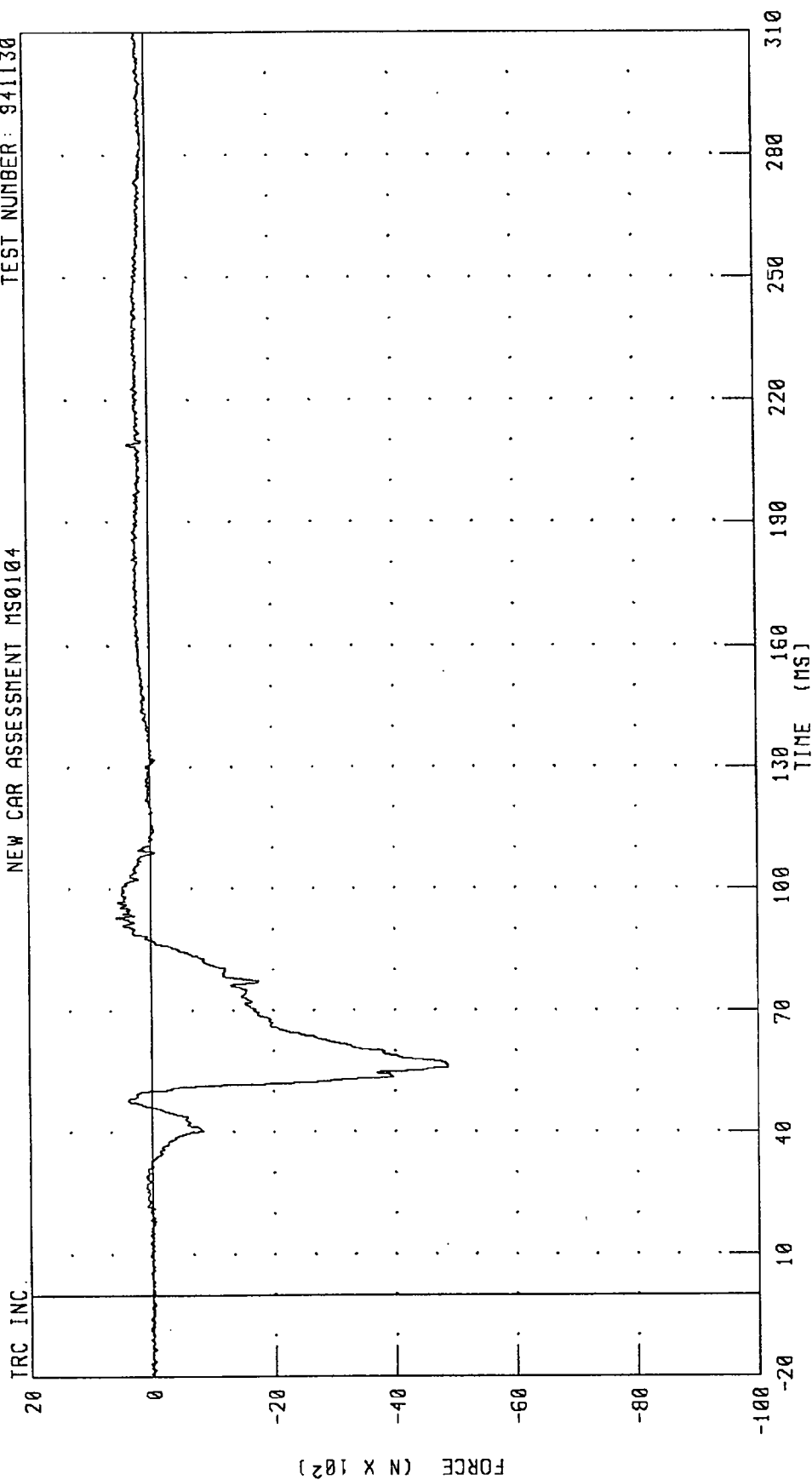
PEAK DATA: 0.17 MM @ -8.40 MS; -40.49 MM @ 70.56 MS

1995 CHEVROLET S10 BLAZER INTO FRONTAL LOAD CELL BARRIER

DRIVER LEFT FEMUR FORCE

NEW CAR ASSESSMENT MS0104

TEST NUMBER: 941130



PEAK DATA: 580.83 N @ 92.96 MS; -4867.12 N @ 56.64 MS

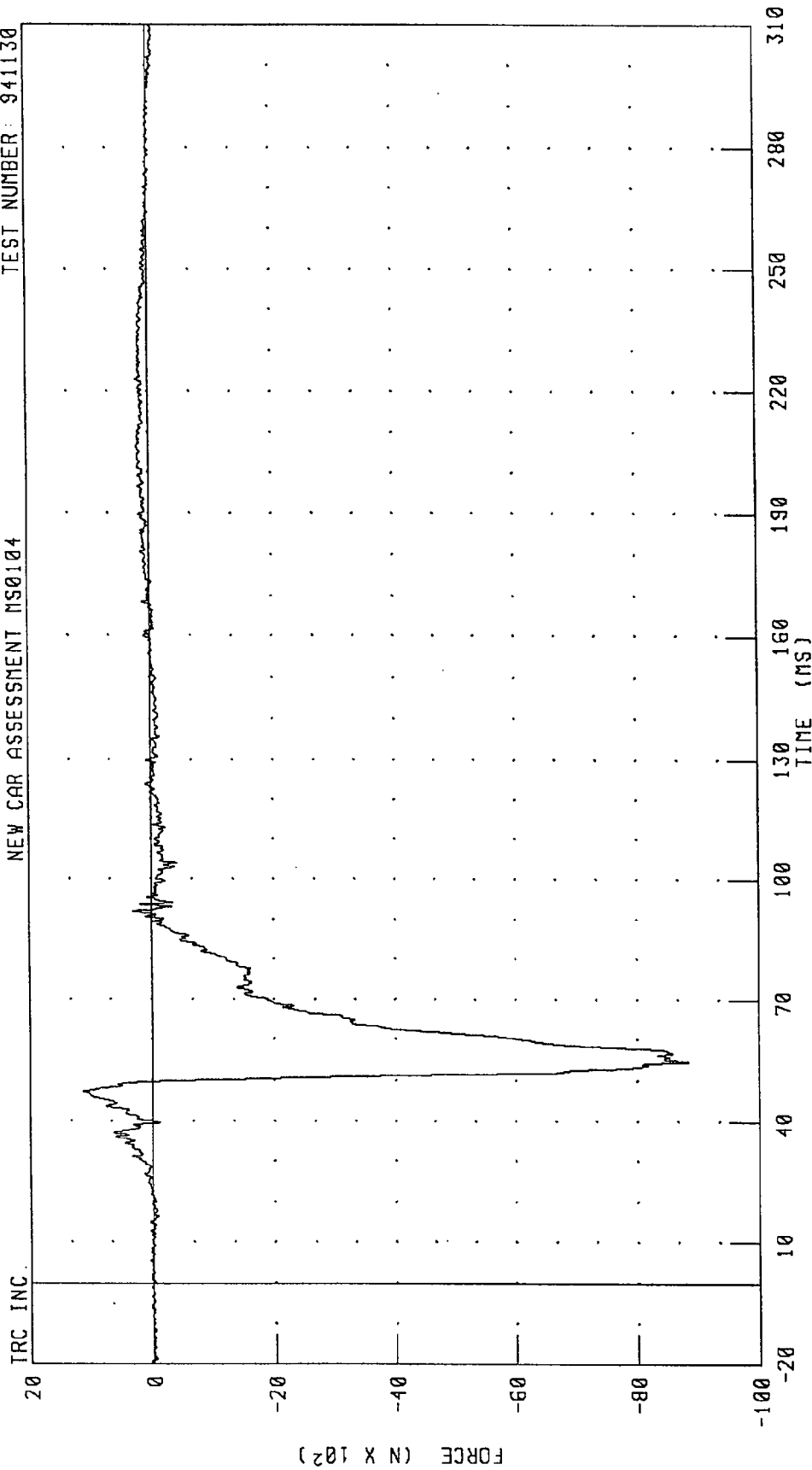
CHANNEL: LFMF1 FILTER: CH. CLASS 600

1995 CHEVROLET S10 BLAZER INTO FRONTAL LOAD CELL BARRIER

DRIVER RIGHT FEMUR FORCE

NEW CAR ASSESSMENT MS0104

TEST NUMBER: 941130

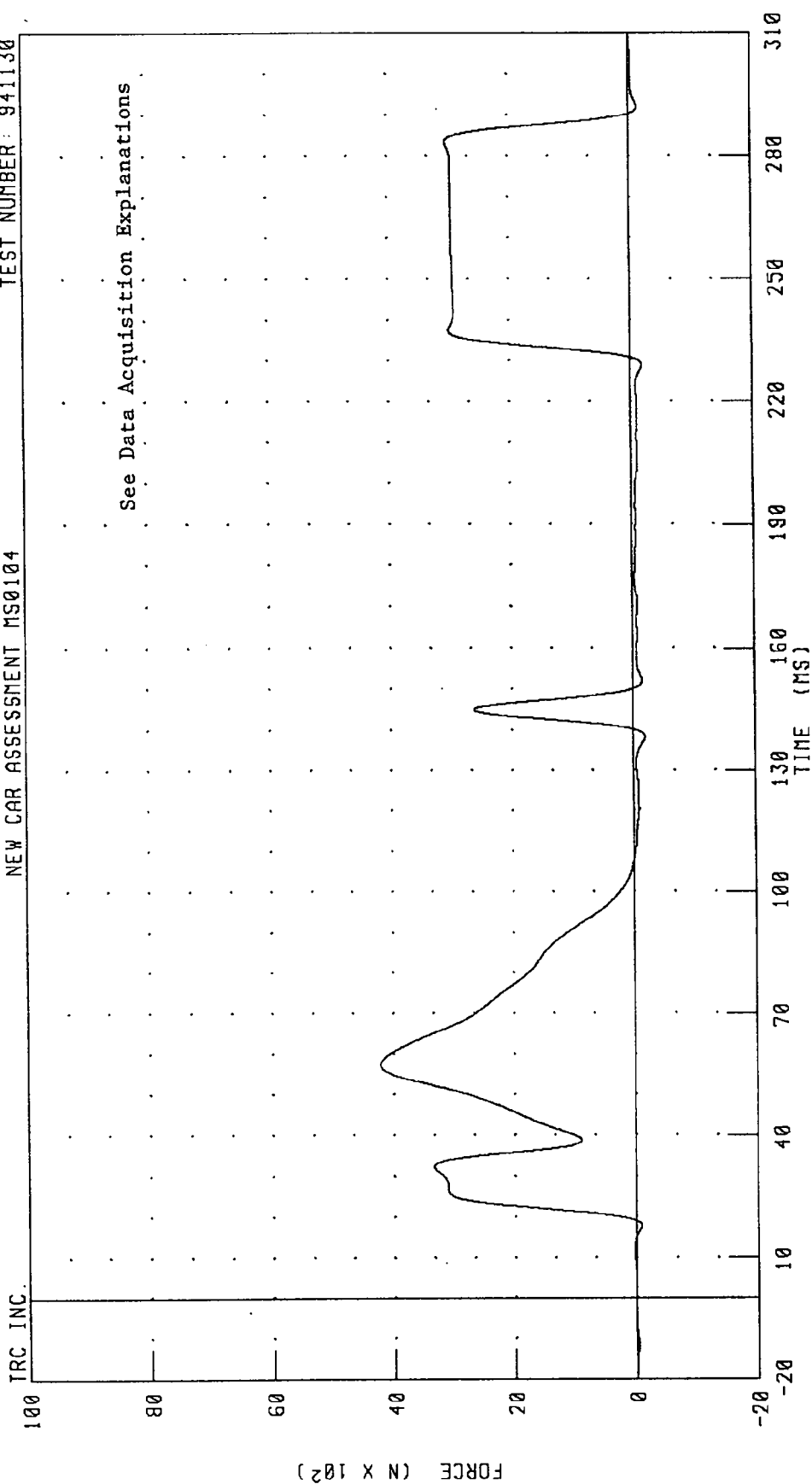


CHANNEL: RFMF1 FILTER: CH. CLASS 600

PEAK DATA: 1127.73 N @ 47.20 MS; -8846.28 N @ 54.64 MS

1995 CHEVROLET S10 BLAZER INTO FRONTAL LOAD CELL BARRIER
 DRIVER LAP BELT OUTBOARD FORCE
 NEW CAR ASSESSMENT MS0104

TEST NUMBER: 941130



CHANNEL: L80F1 FILTER: CH. CLASS 60

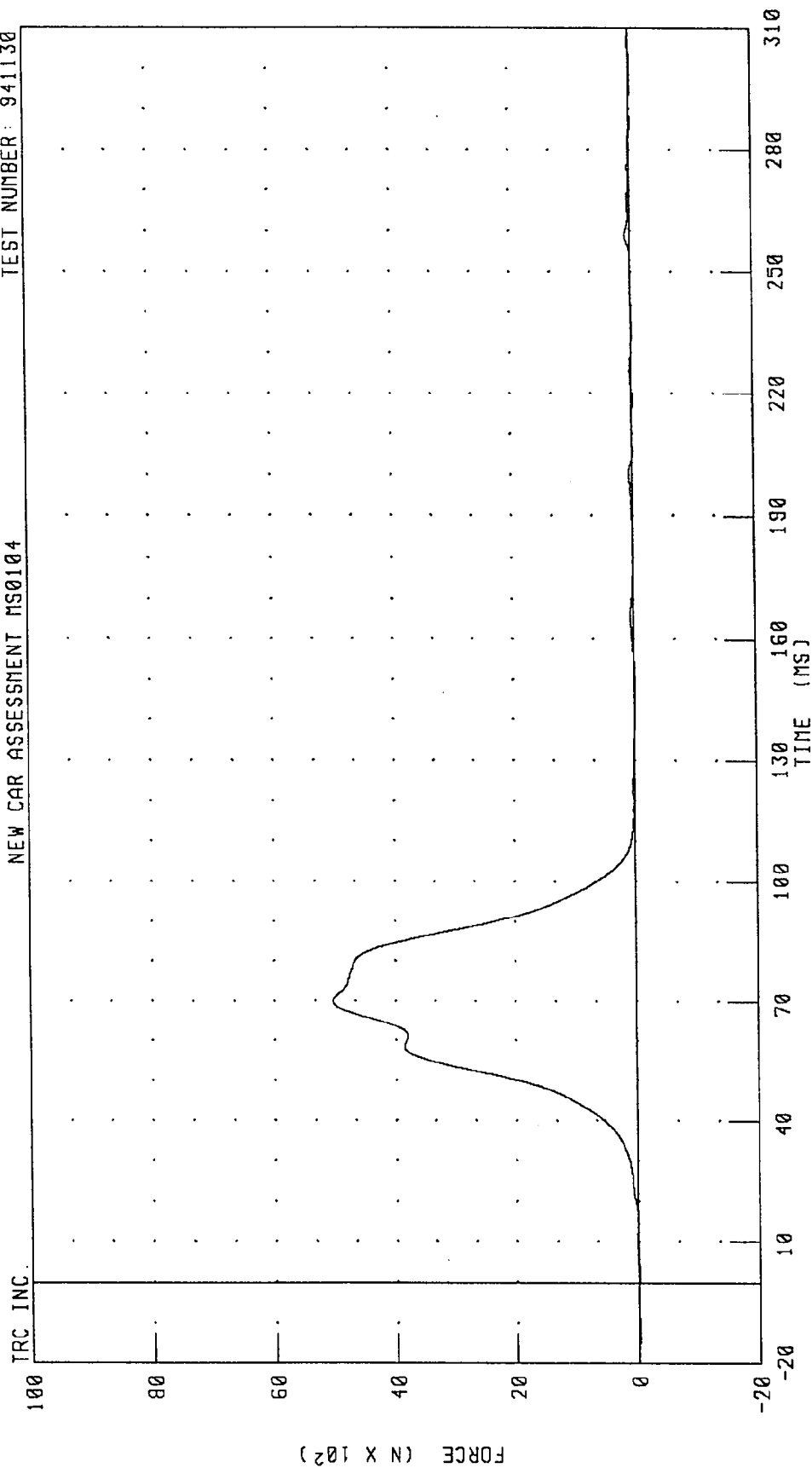
941130

1995 CHEVROLET S10 BLAZER INTO FRONTAL LOAD CELL BARRIER

DRIVER SHOULDER BELT FORCE

NEW CAR ASSESSMENT MS0104

TEST NUMBER: 941130

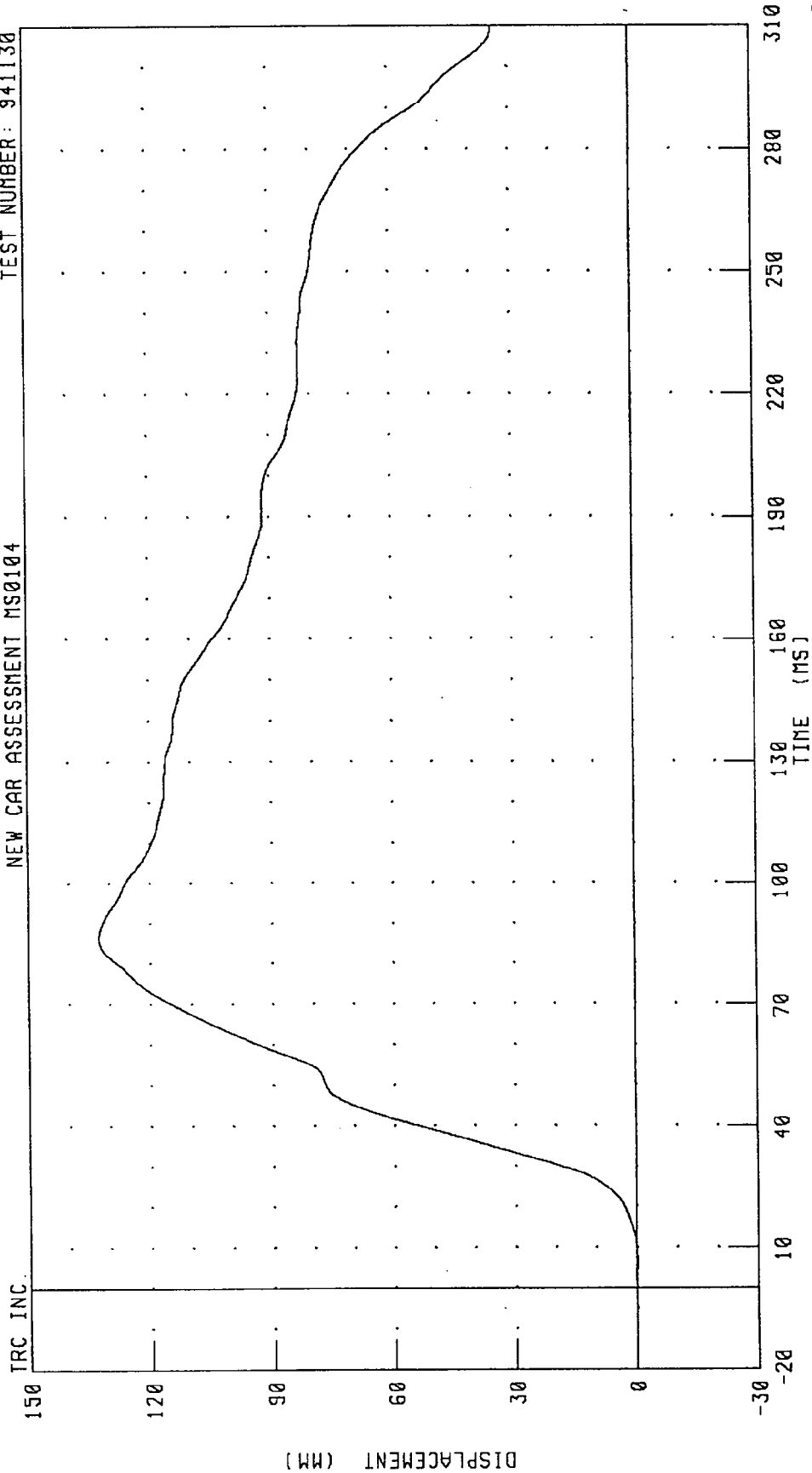


CHANNEL: SHBF1 FILTER: CH. CLASS 60

1995 CHEVROLET S10 BLAZER INTO FRONTAL LOAD CELL BARRIER
 DRIVER SHOULDER BELT DISPLACEMENT
 NEW CAR ASSESSMENT NS0104

TEST NUMBER: 941130

TRC INC.



CHANNEL: SHBD1 FILTER: CH. CLASS 60

PEAK DATA: 132.57 MM @ 86.32 MS; -0.08 MM @ 6.08 MS

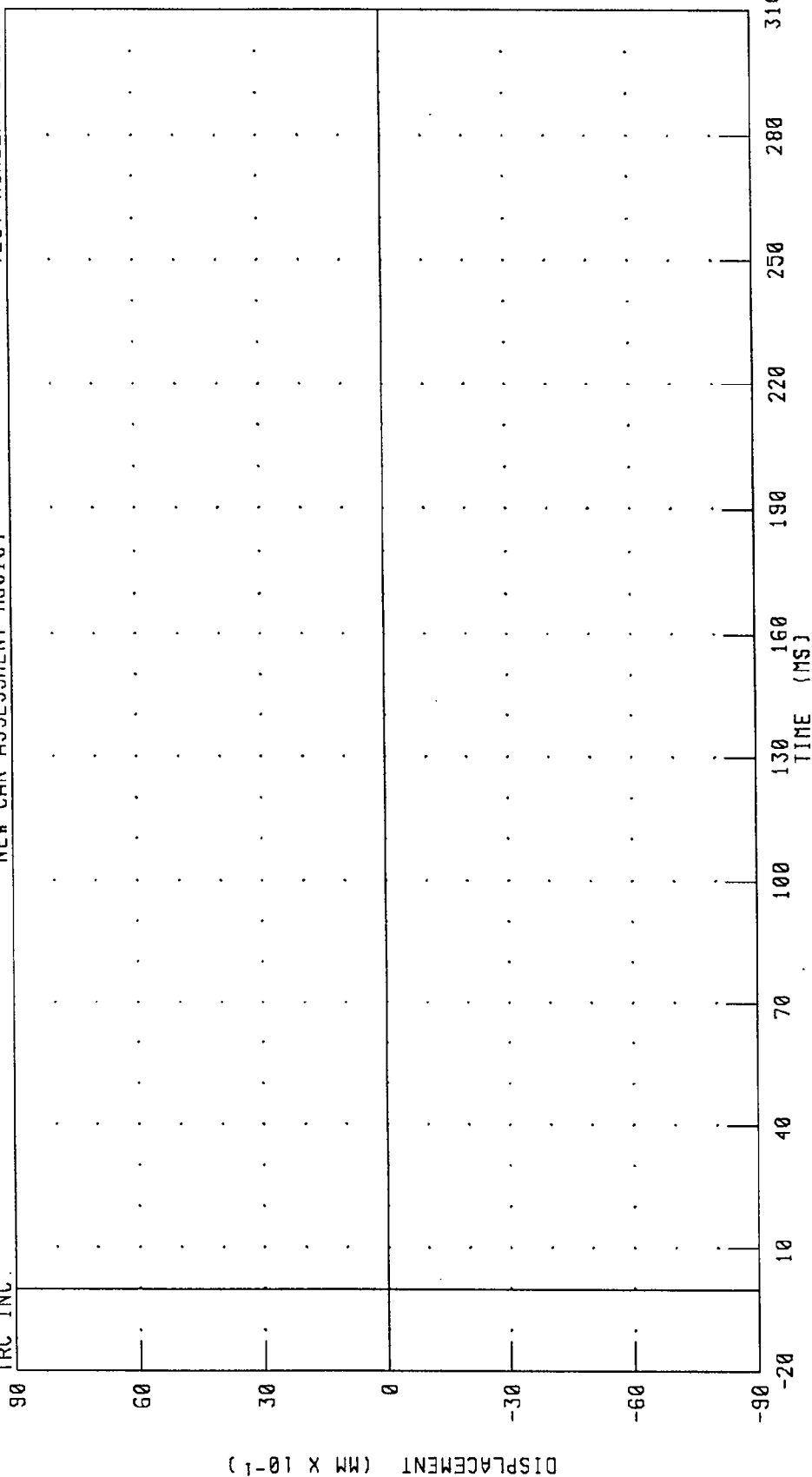
1995 CHEVROLET S10 BLAZER INTO FRONTAL LOAD CELL BARRIER

DRIVER SEAT BELT EXTENSION

NEW CAR ASSESSMENT MS0104

TEST NUMBER: 941130

TRC INC.

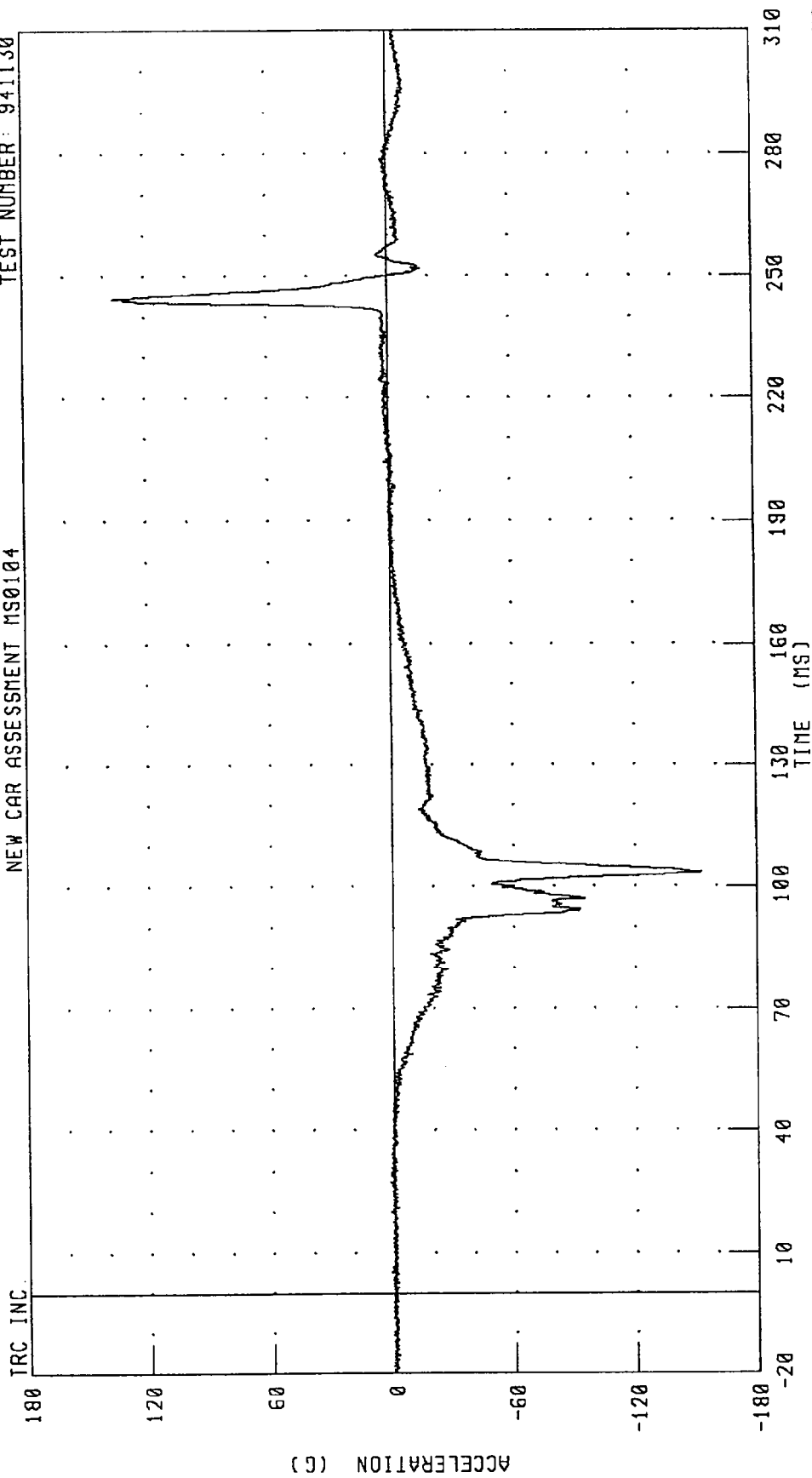


CHANNEL: SBEDI FILTER: CH. CLASS 60

PEAK DATA: 0.01 MM @ 281.20 MS; -0.01 MM @ 69.68 MS

1995 CHEVROLET S10 BLAZER INTO FRONTAL LOAD CELL BARRIER
PASSENGER HEAD X-AXIS ACCELERATION
NEW CAR ASSESSMENT MS0104

TEST NUMBER: 941130

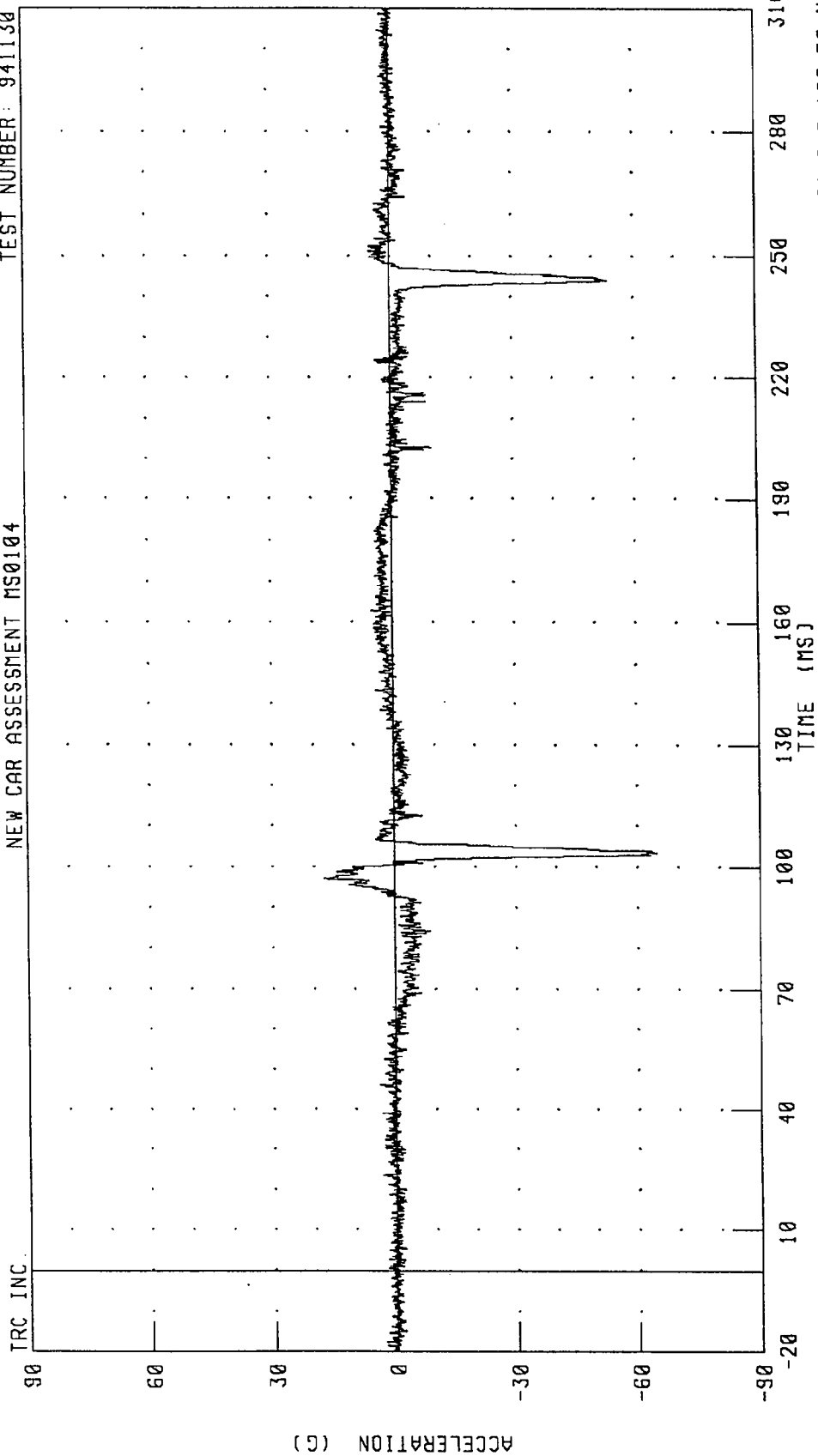


PEAK DATA: 135.71 G @ 244.48 MS; -153.01 G @ 103.44 MS

CHANNEL: HEDXC2 FILTER: CH. CLASS 1000

1995 CHEVROLET S10 BLAZER INTO FRONTAL LOAD CELL BARRIER
PASSENGER HEAD Y-AXIS ACCELERATION
NEW CAR ASSESSMENT MS0104

TEST NUMBER: 941130

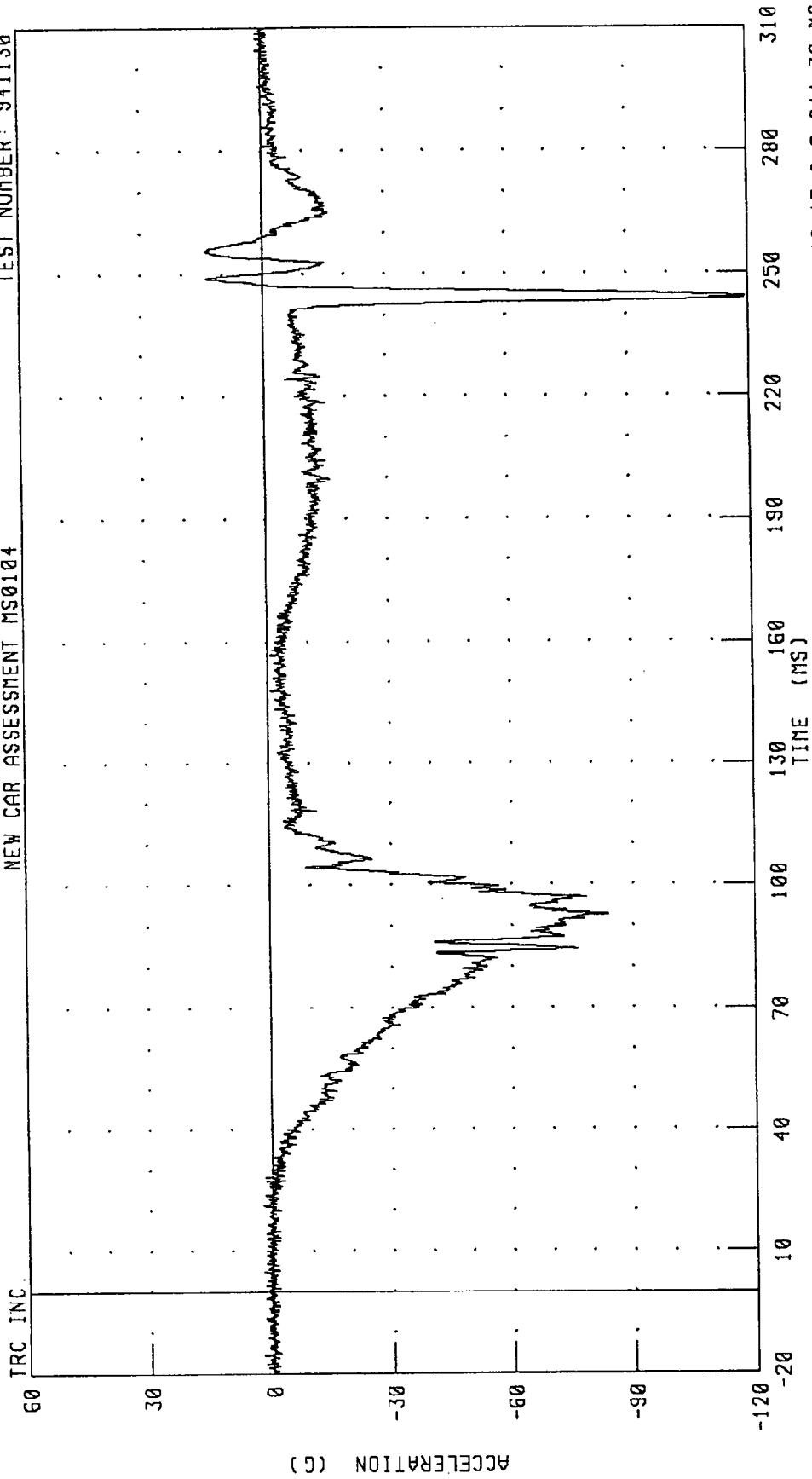


PEAK DATA: 17.61 G @ 97.12 MS; -64.81 G @ 103.52 MS

CHANNEL: HEDYG2 FILTER: CH. CLASS 1000

1995 CHEVROLET S10 BLAZER INTO FRONTAL LOAD CELL BARRIER
PASSENGER HEAD Z-AXIS ACCELERATION
NEW CAR ASSESSMENT MS0104

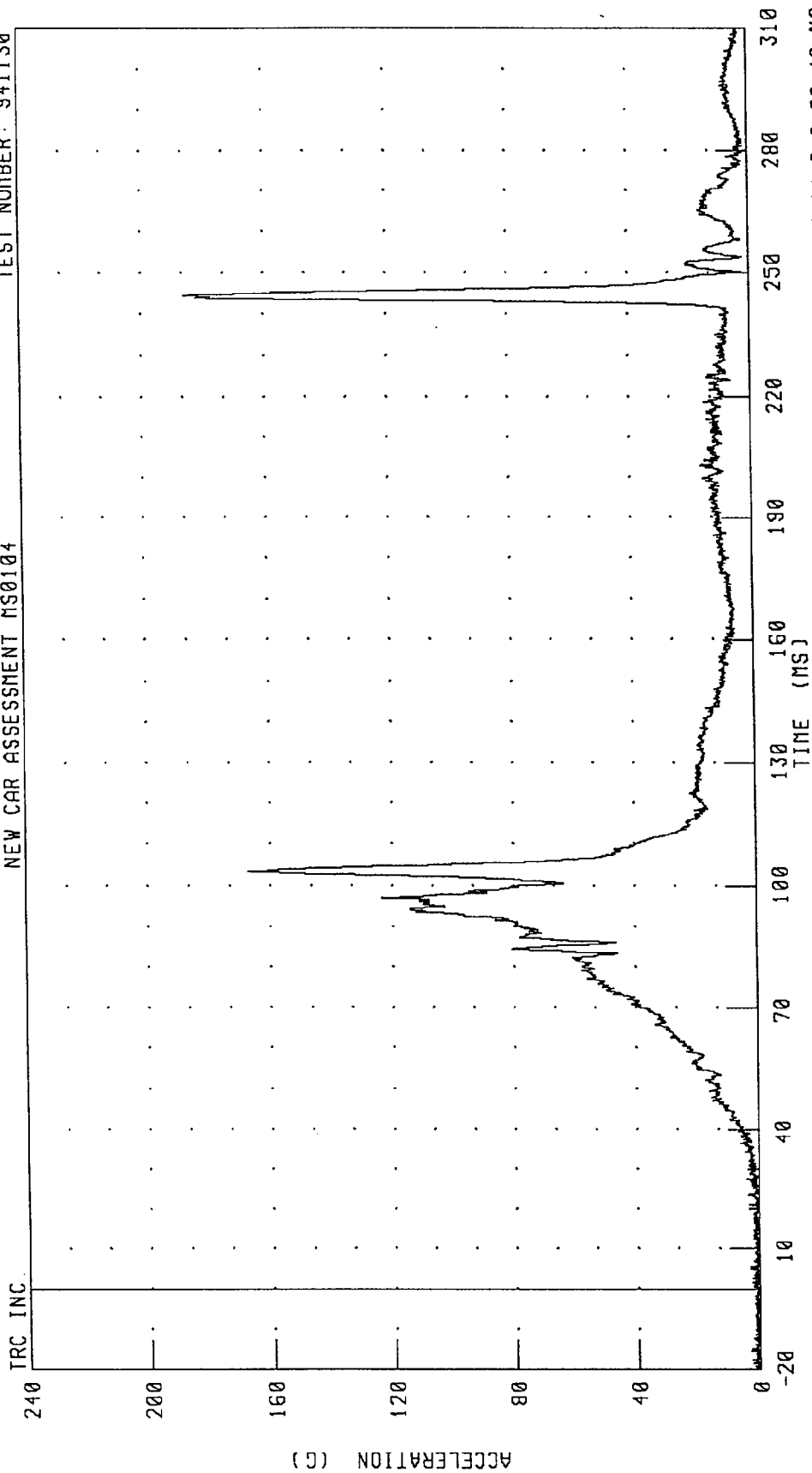
TEST NUMBER: 941130



CHANNEL: HEDZG2 FILTER: CH. CLASS 1000

1995 CHEVROLET S10 BLAZER INTO FRONTAL LOAD CELL BARRIER
PASSENGER HEAD RESULTANT ACCELERATION
NEW CAR ASSESSMENT NS0104

TEST NUMBER: 941130

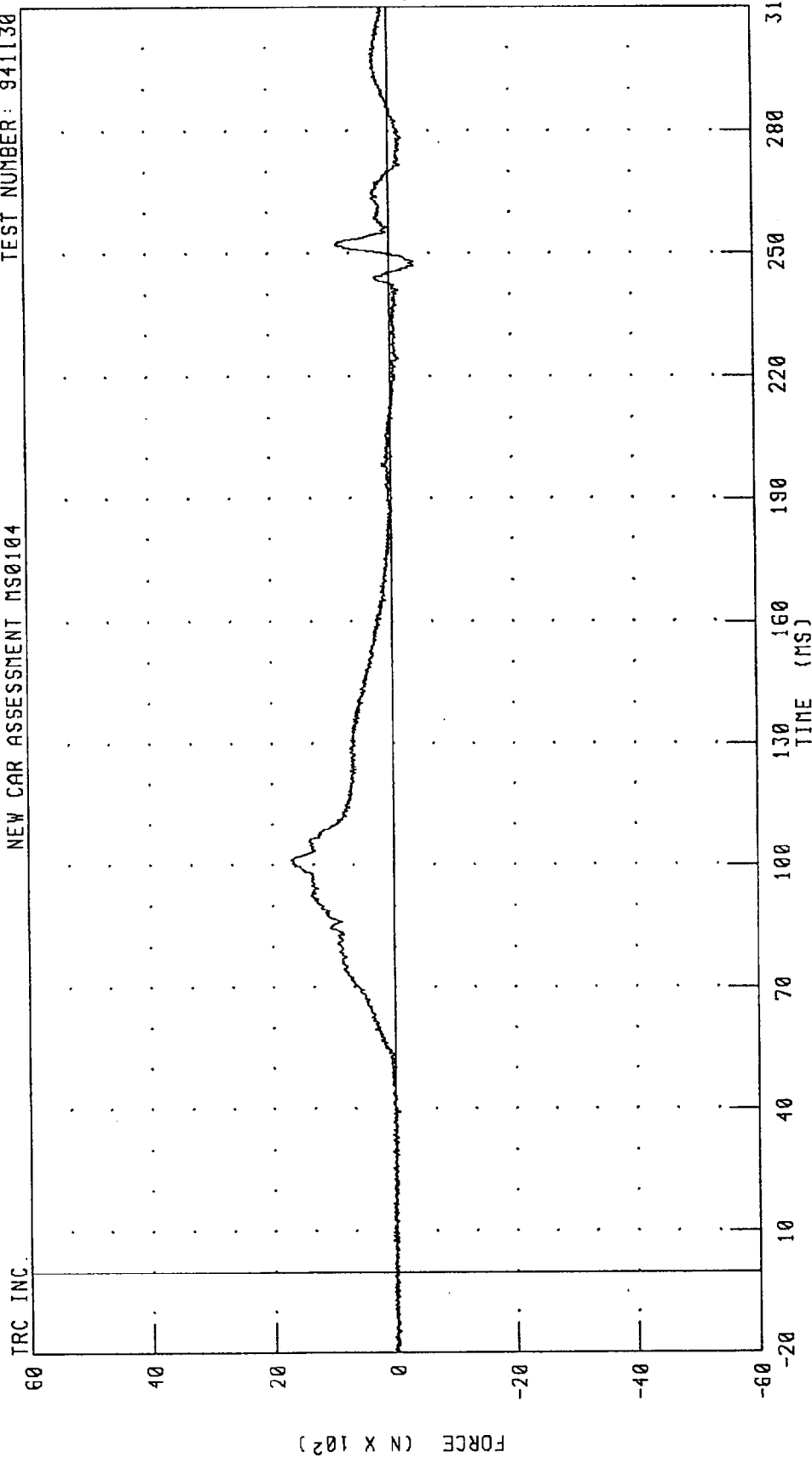


PEAK DATA: 186.01 G @ 244.48 MS; 0.14 G @ 20.40 MS

CHANNEL: HEDRG2 FILTER: CH. CLASS 1000

1995 CHEVROLET S10 BLAZER INTO FRONTAL LOAD CELL BARRIER
PASSENGER NECK X-AXIS SHEAR FORCE
NEW CAR ASSESSMENT MS0104

TEST NUMBER: 941130



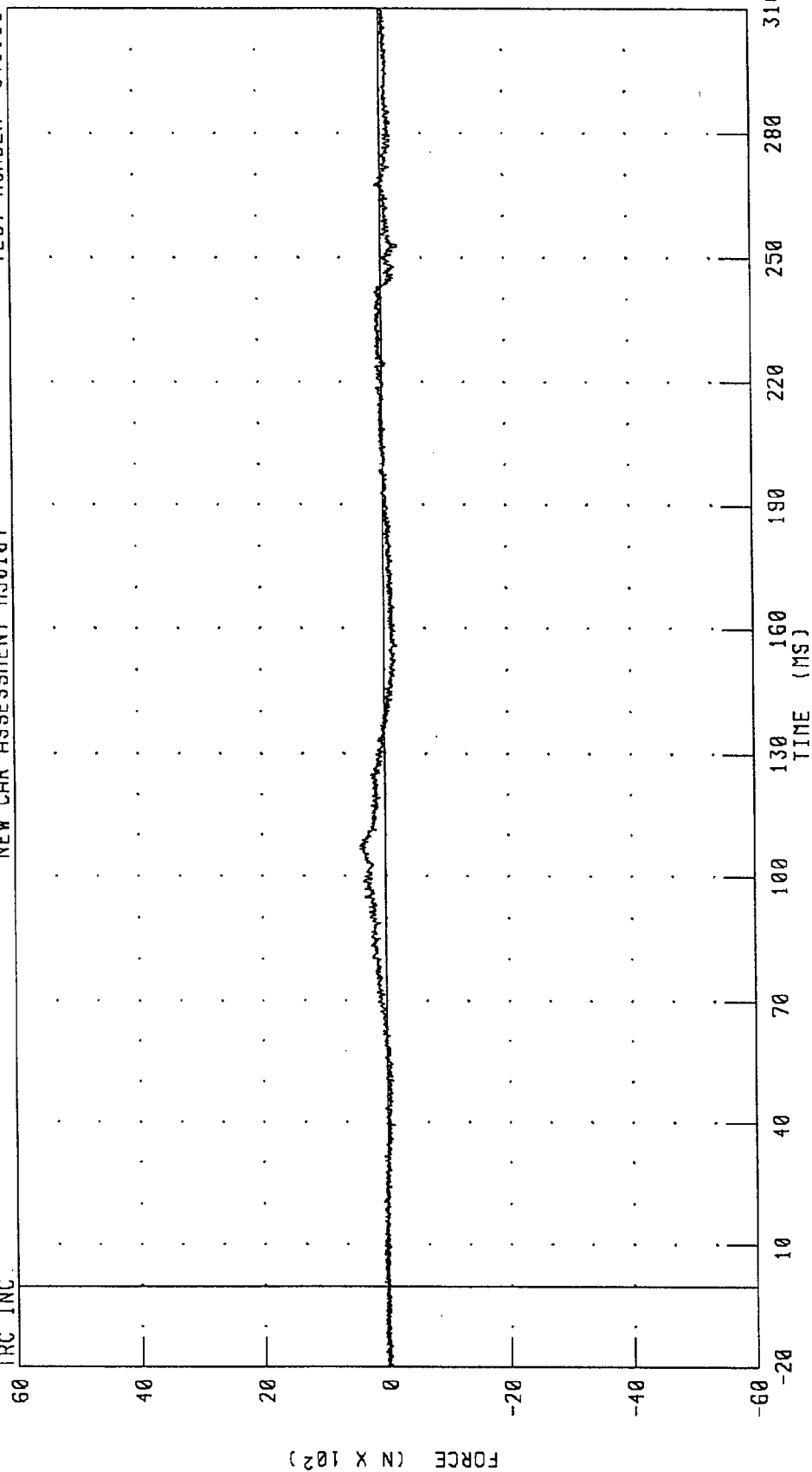
PEAK DATA: 1715.63 N @ 100.96 MS; -413.79 N @ 248.08 MS

CHANNEL: NEKXF2 FILTER: CH. CLASS 1000

1995 CHEVROLET S10 BLAZER INTO FRONTAL LOAD CELL BARRIER
PASSENGER NECK Y-AXIS SHEAR FORCE
NEW CAR ASSESSMENT MS0104

TEST NUMBER: 941130

TRC INC.

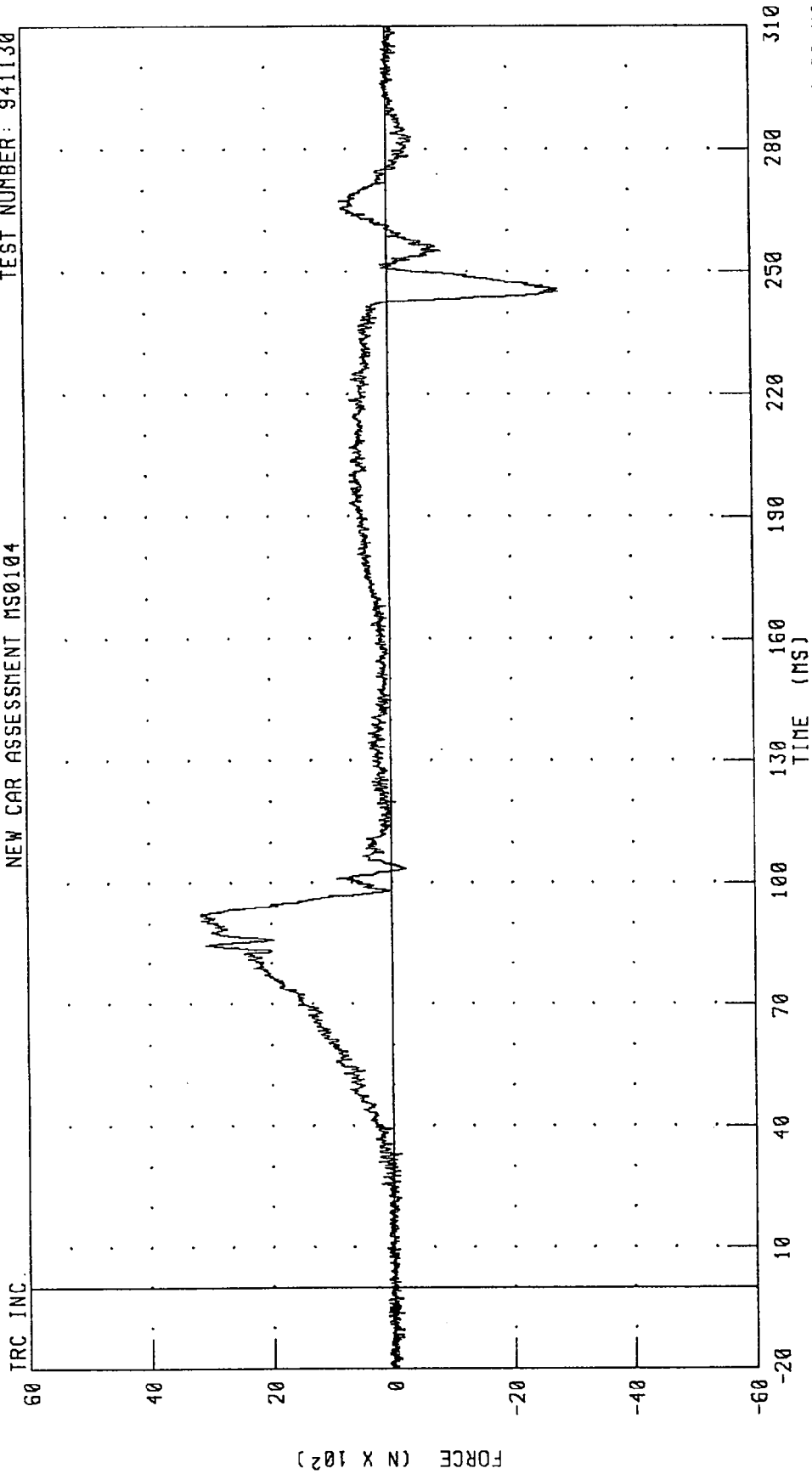


CHANNEL: NEKYF2 FILTER: CH. CLASS 1000

PEAK DATA: 430.28 N @ 107.36 MS; -267.98 N @ 253.12 MS

1995 CHEVROLET S10 BLAZER INTO FRONTAL LOAD CELL BARRIER
PASSENGER NECK Z-AXIS AXIAL FORCE
NEW CAR ASSESSMENT MS0104

TEST NUMBER: 941130

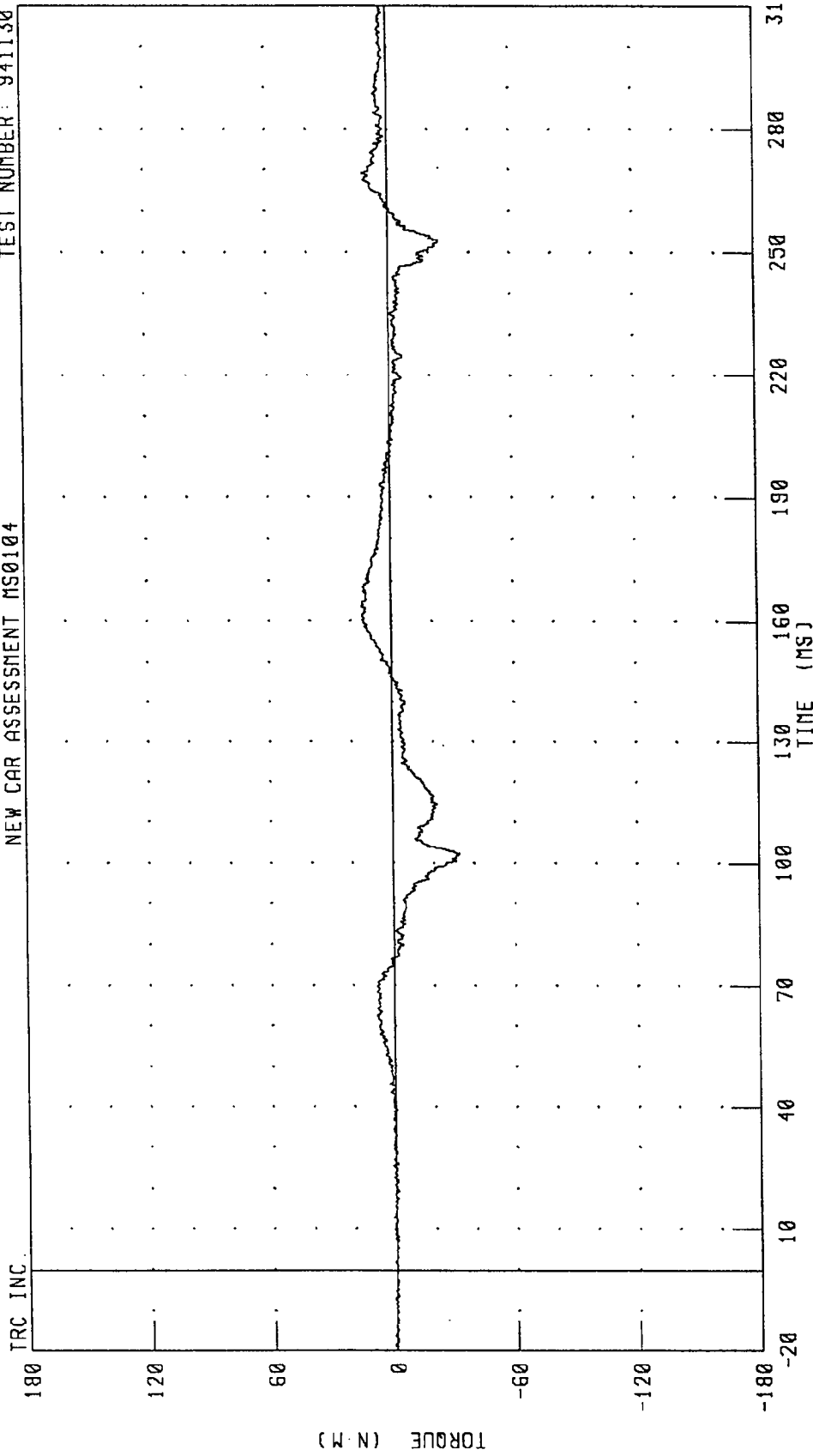


CHANNEL: NEKZF2 FILTER: CH. CLASS 1000

PEAK DATA: 3167.35 N @ 92.24 MS; -2836.03 N @ 245.28 MS

1995 CHEVROLET S10 BLAZER INTO FRONTAL LOAD CELL BARRIER
PASSENGER NECK MOMENT ABOUT X AXIS
NEW CAR ASSESSMENT MS0104

TEST NUMBER: 941130

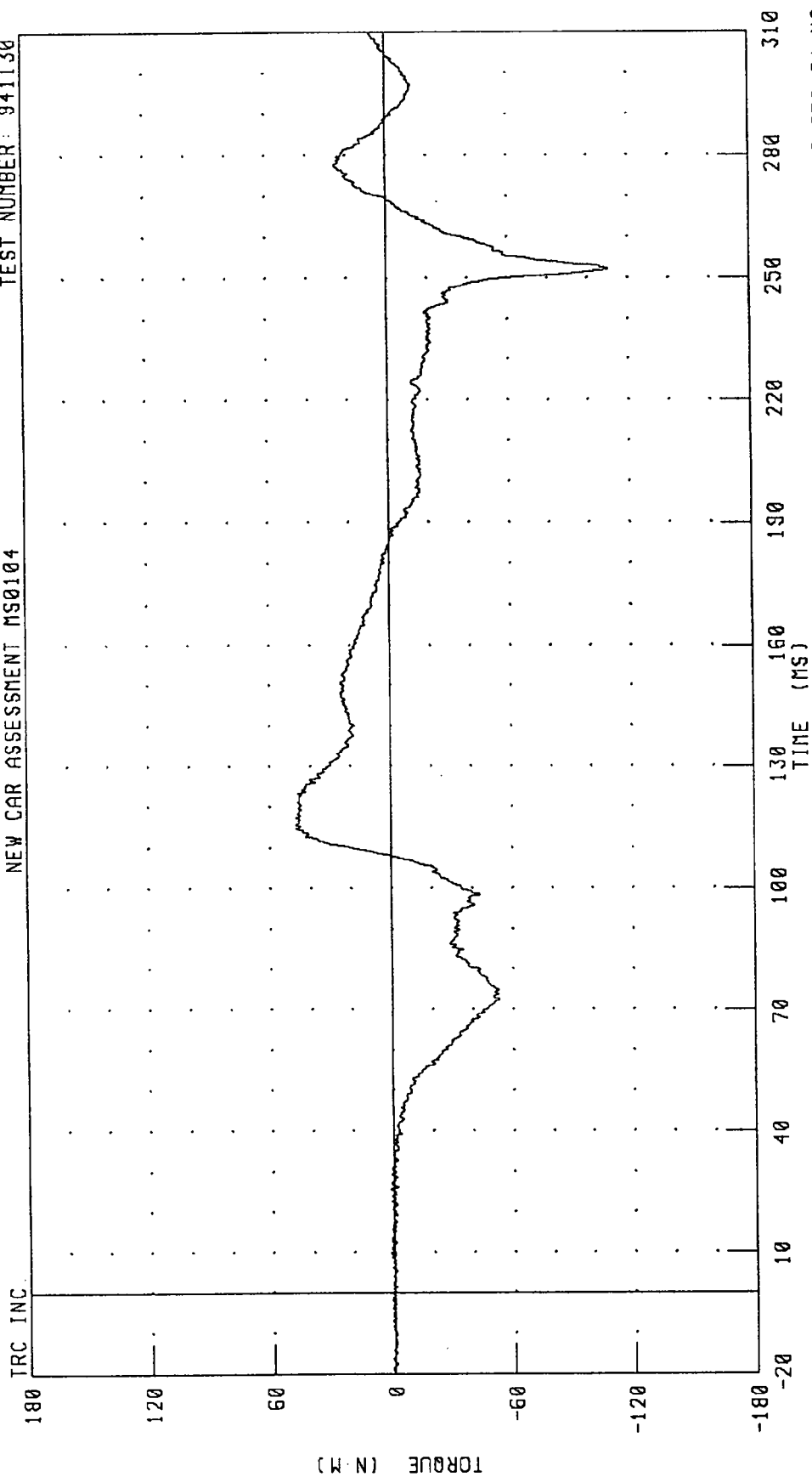


CHANNEL: NEKXM2 FILTER: CH. CLASS 600

1995 CHEVROLET S10 BLAZER INTO FRONTAL LOAD CELL BARRIER
PASSENGER NECK MOMENT ABOUT Y AXIS

TEST NUMBER: 941130

NEW CAR ASSESSMENT MS0104



CHANNEL: NEKYM2 FILTER: CH CLASS 600

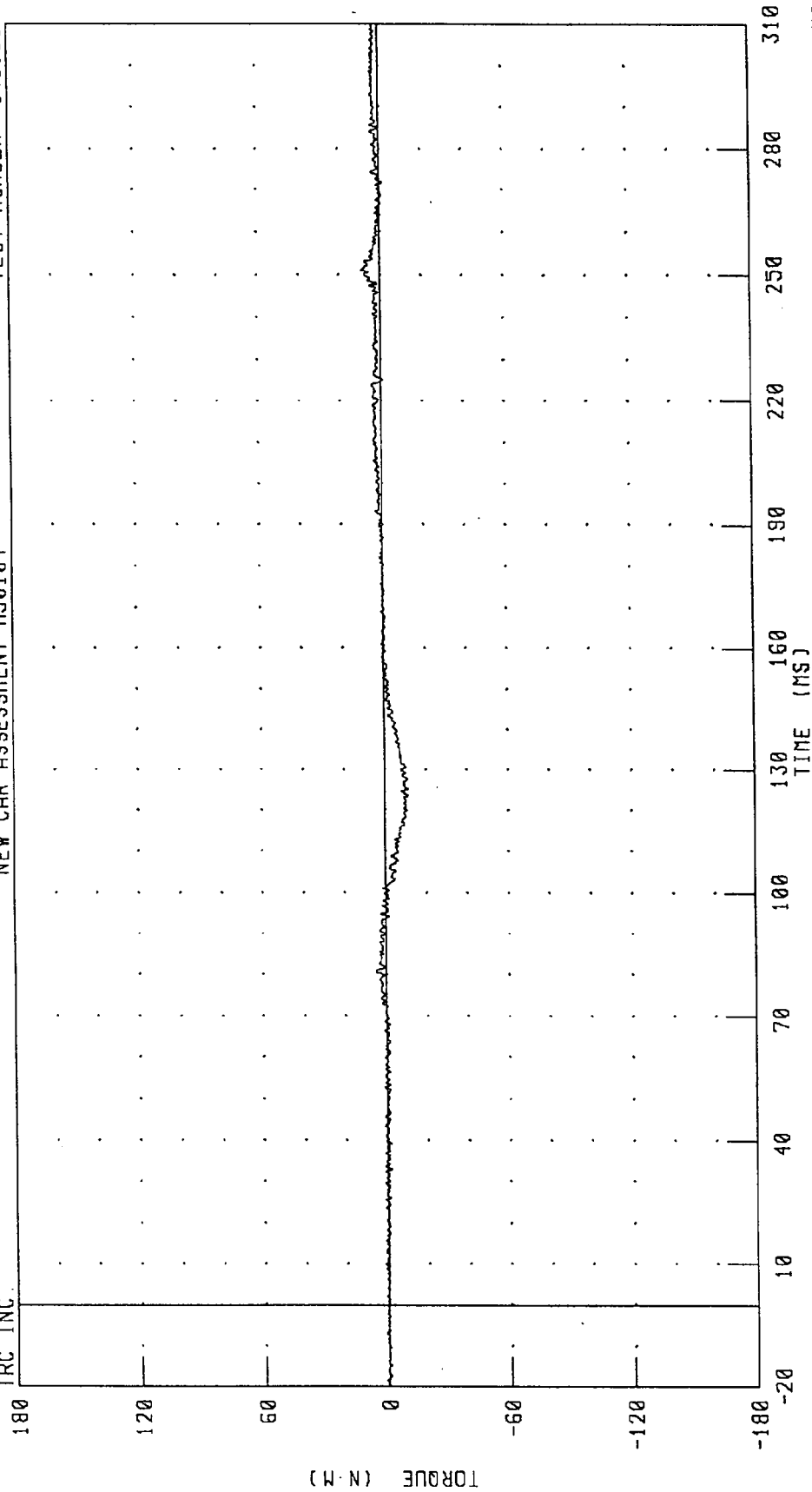
PEAK DATA: 47.41 N-M @ 115.68 MS; -110.16 N-M @ 252.24 MS

1995 CHEVROLET S10 BLAZER INTO FRONTAL LOAD CELL BARRIER
PASSENGER NECK MOMENT ABOUT Z AXIS

TEST NUMBER: 941130

NEW CAR ASSESSMENT MS0104

TRC INC.



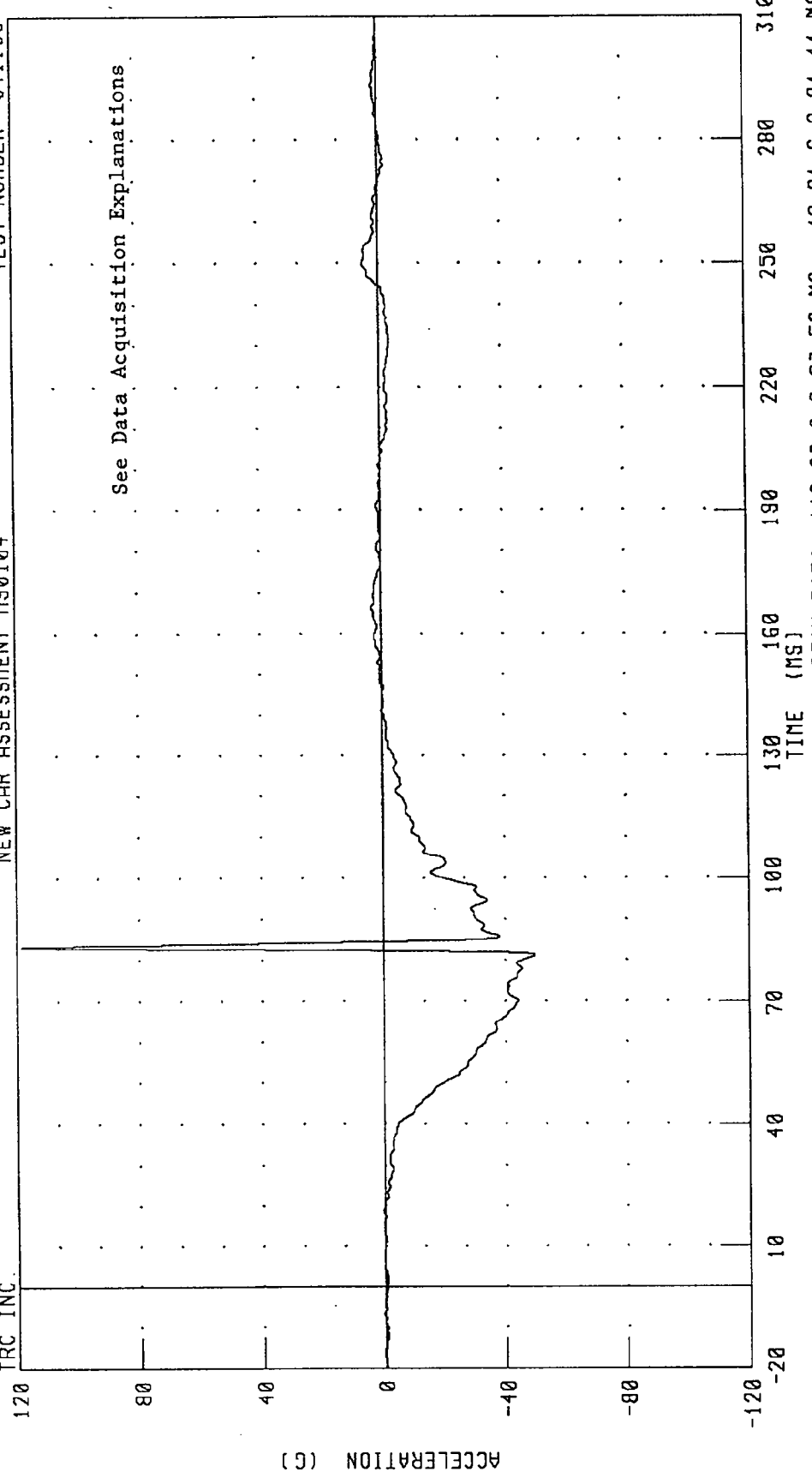
CHANNEL: NEKZM2 FILTER: CH. CLASS 600

PEAK DATA: 9.05 N-M @ 251.28 MS; -11.21 N-M @ 123.60 MS

1995 CHEVROLET S10 BLAZER INTO FRONTAL LOAD CELL BARRIER
 PASSENGER CHEST X-AXIS ACCELERATION
 NEW CAR ASSESSMENT MS0104

TEST NUMBER: 941130

TRC INC.



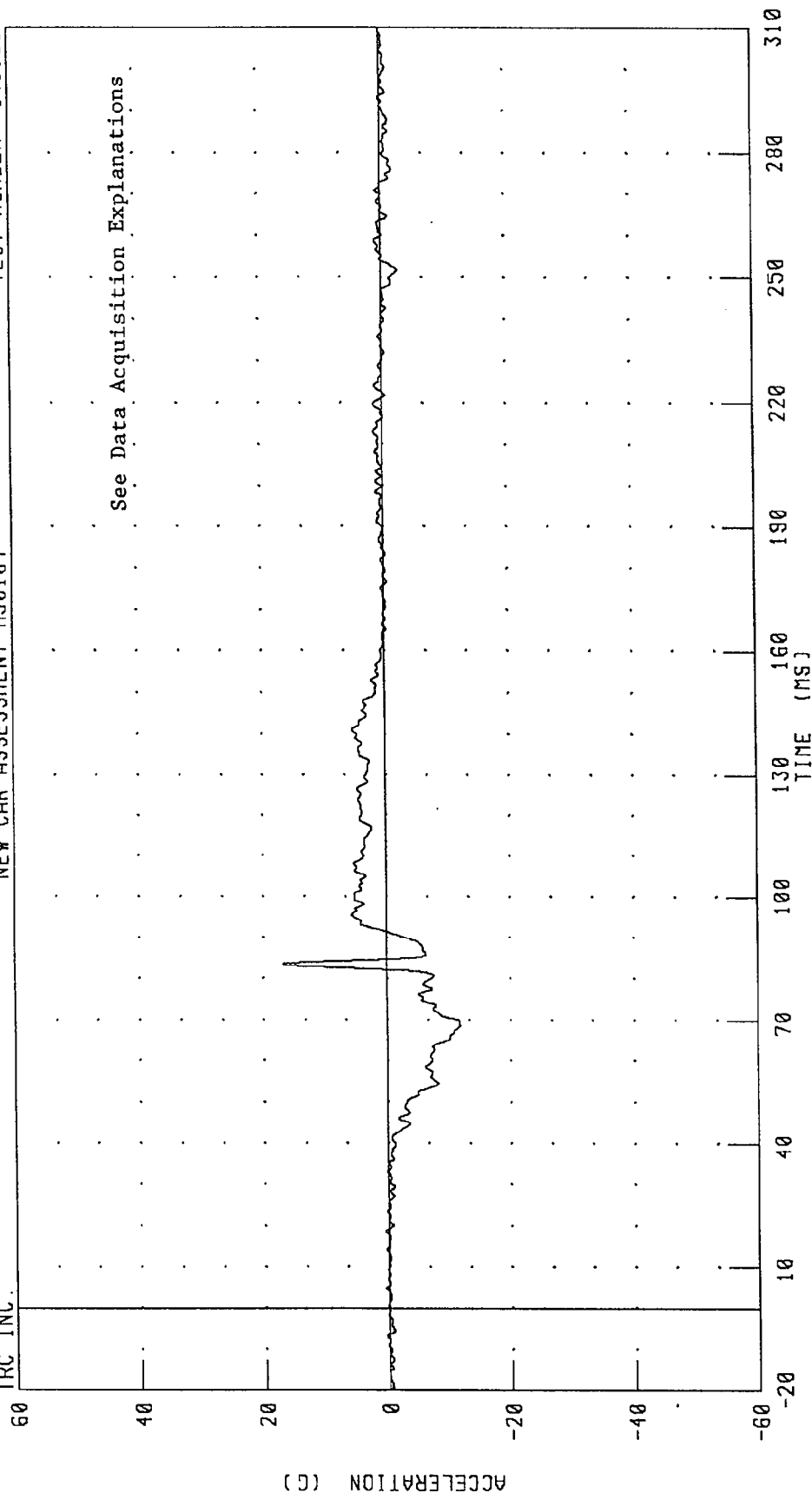
PEAK DATA: 118.09 G @ 83.52 MS; -49.91 G @ 81.44 MS

CHANNEL: CSTXG2 FILTER: CH. CLASS 180

1995 CHEVROLET S10 BLAZER INTO FRONTAL LOAD CELL BARRIER
PASSENGER CHEST Y-AXIS ACCELERATION
NEW CAR ASSESSMENT MS0104

TEST NUMBER: 941130

TRC INC.



CHANNEL: CSTYG2 FILTER: CH. CLASS 180

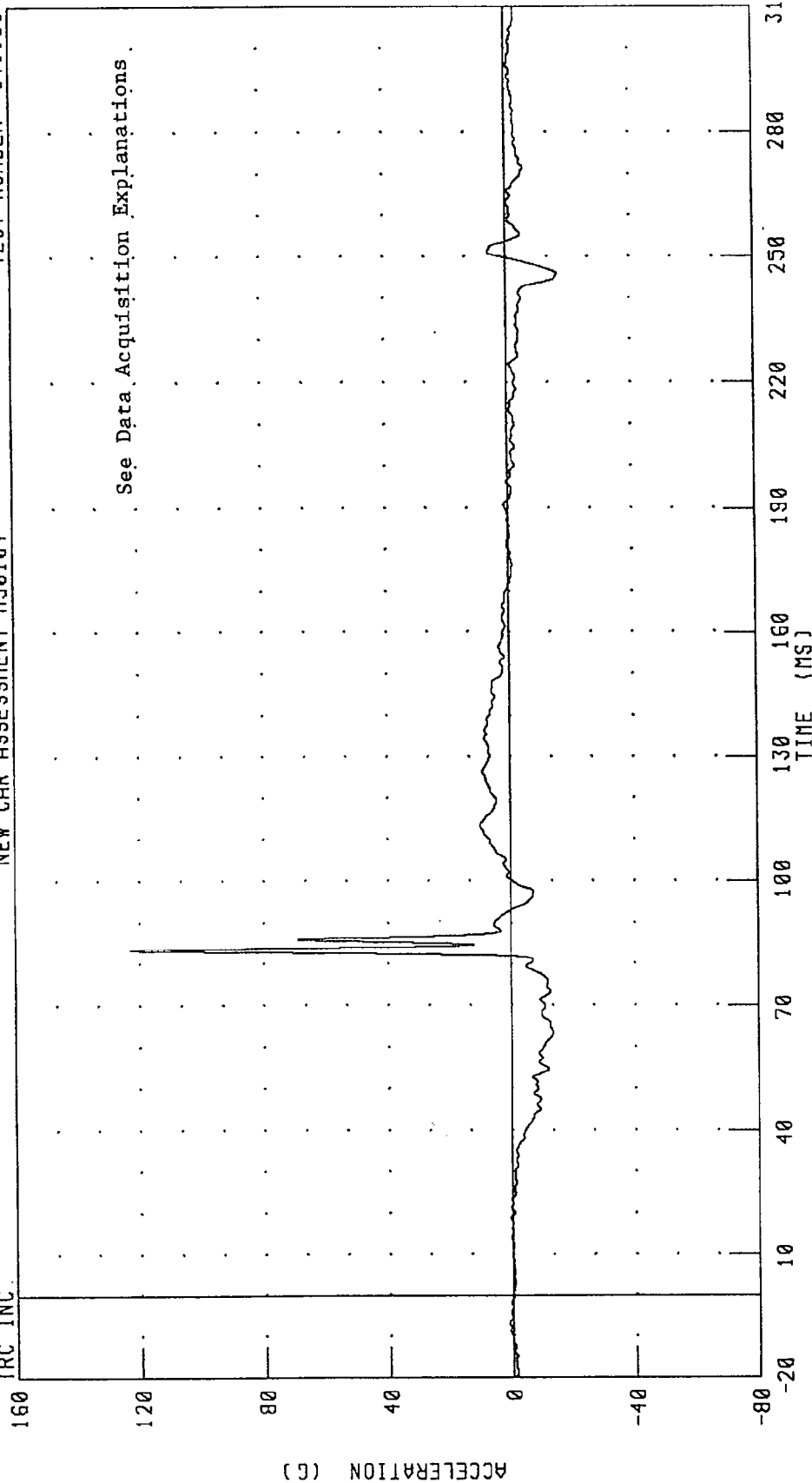
PEAK DATA: 16.94 G @ 83.44 MS; -11.76 G @ 68.80 MS

1995 CHEVROLET S10 BLAZER INTO FRONTAL LOAD CELL BARRIER
PASSENGER CHEST Z-AXIS ACCELERATION

TEST NUMBER: 941130

NEW CAR ASSESSMENT MS0104

TRC INC.

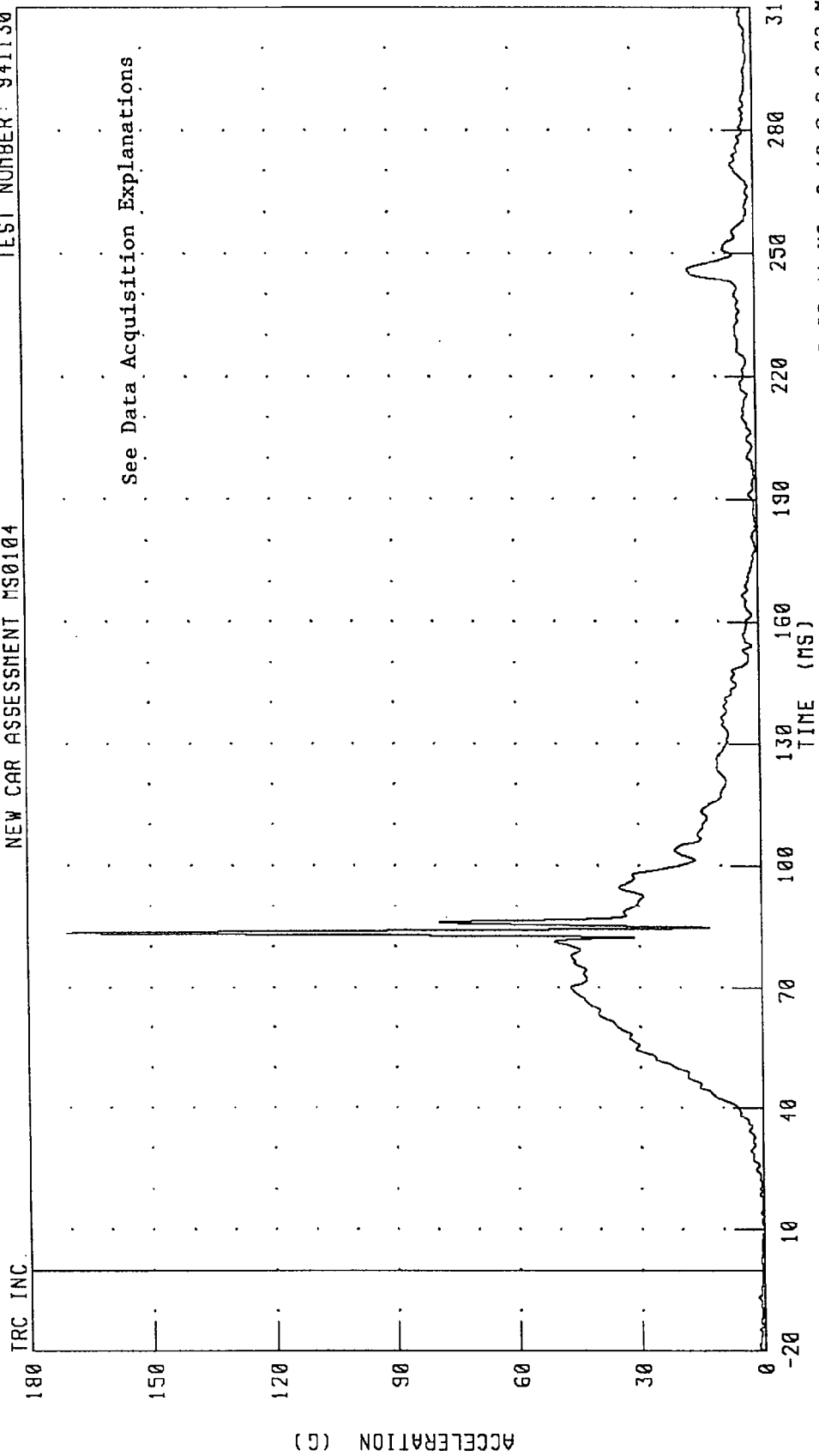


PEAK DATA: 123.09 G @ 83.36 MS, -16.52 G @ 246.00 MS

CHANNEL: CSTZG2 FILTER: CH. CLASS 180

1995 CHEVROLET S10 BLAZER INTO FRONTAL LOAD CELL BARRIER
PASSENGER CHEST RESULTANT ACCELERATION
NEW CAR ASSESSMENT MS0104

TEST NUMBER: 941130

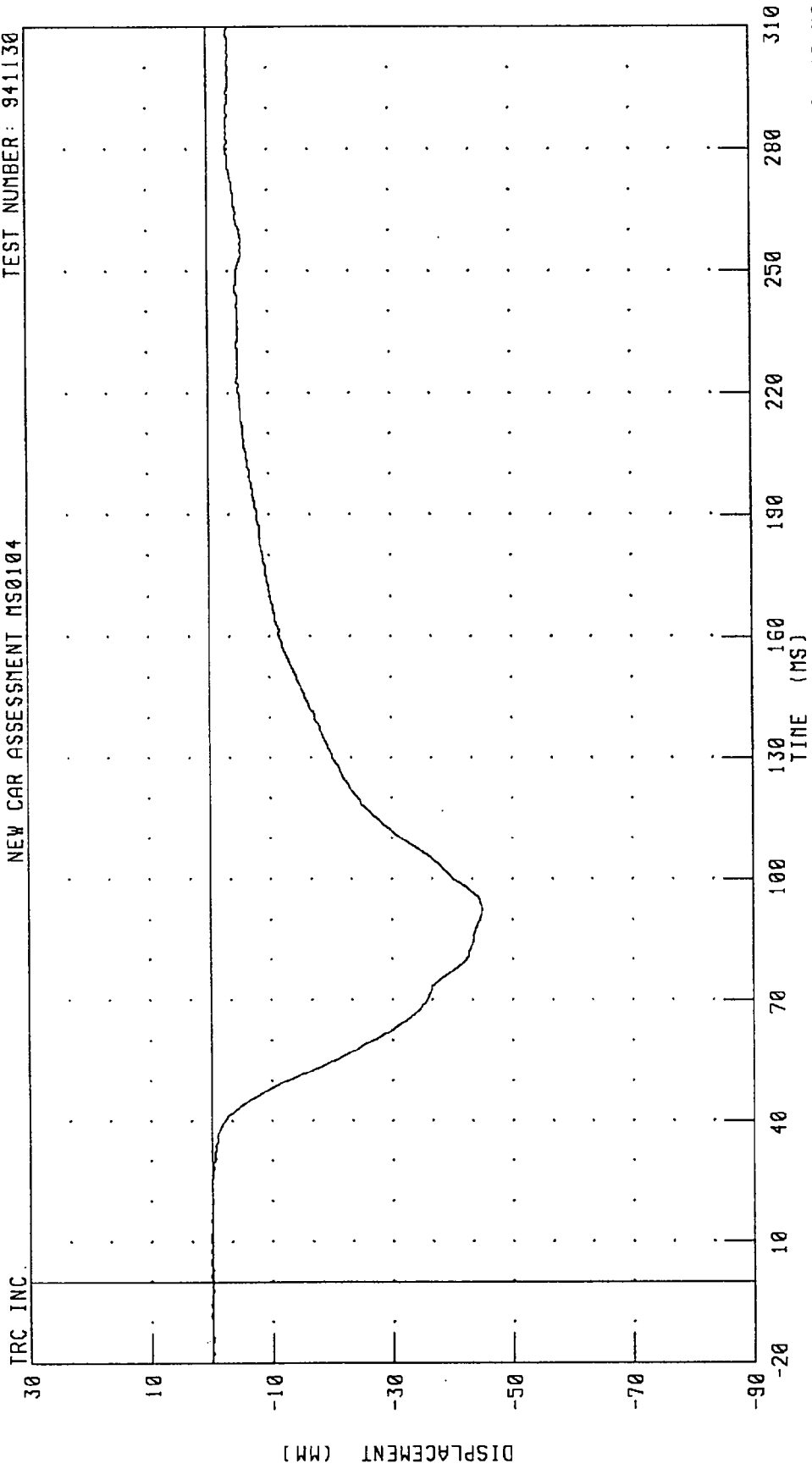


CHANNEL: CSTRG2 FILTER: CH. CLASS 180

PEAK DATA: 170.46 G @ 83.44 MS; 10.10 G @ 9.92 MS

1995 CHEVROLET S10 BLAZER INTO FRONTAL LOAD CELL BARRIER
PASSENGER CHEST DEFLECTION
NEW CAR ASSESSMENT MS0104

TEST NUMBER: 941130



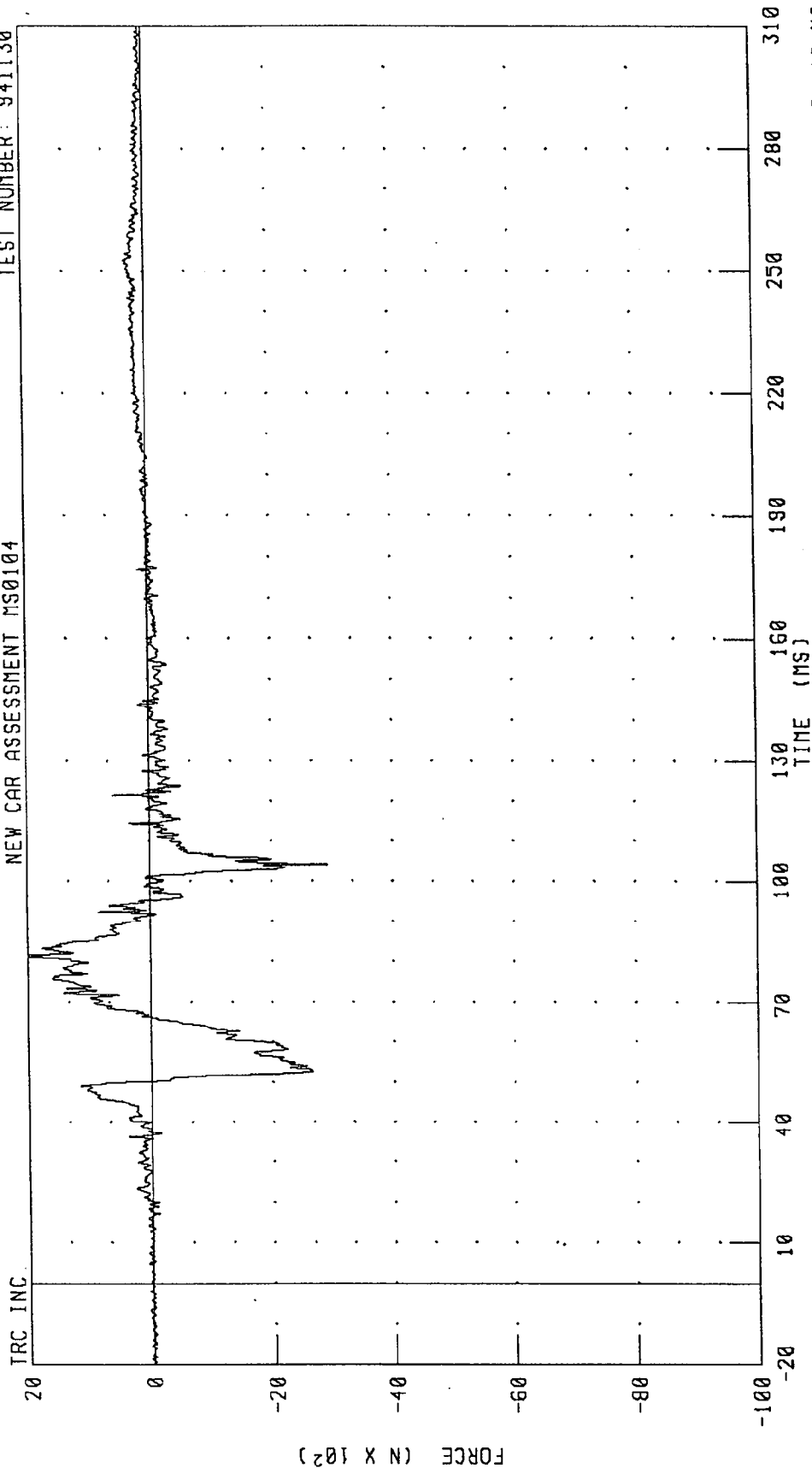
CHANNEL: CSTXD2 FILTER: CH. CLASS 180

1995 CHEVROLET S10 BLAZER INTO FRONTAL LOAD CELL BARRIER

PASSENGER LEFT FEMUR FORCE

NEW CAR ASSESSMENT MS0104

TEST NUMBER: 941130

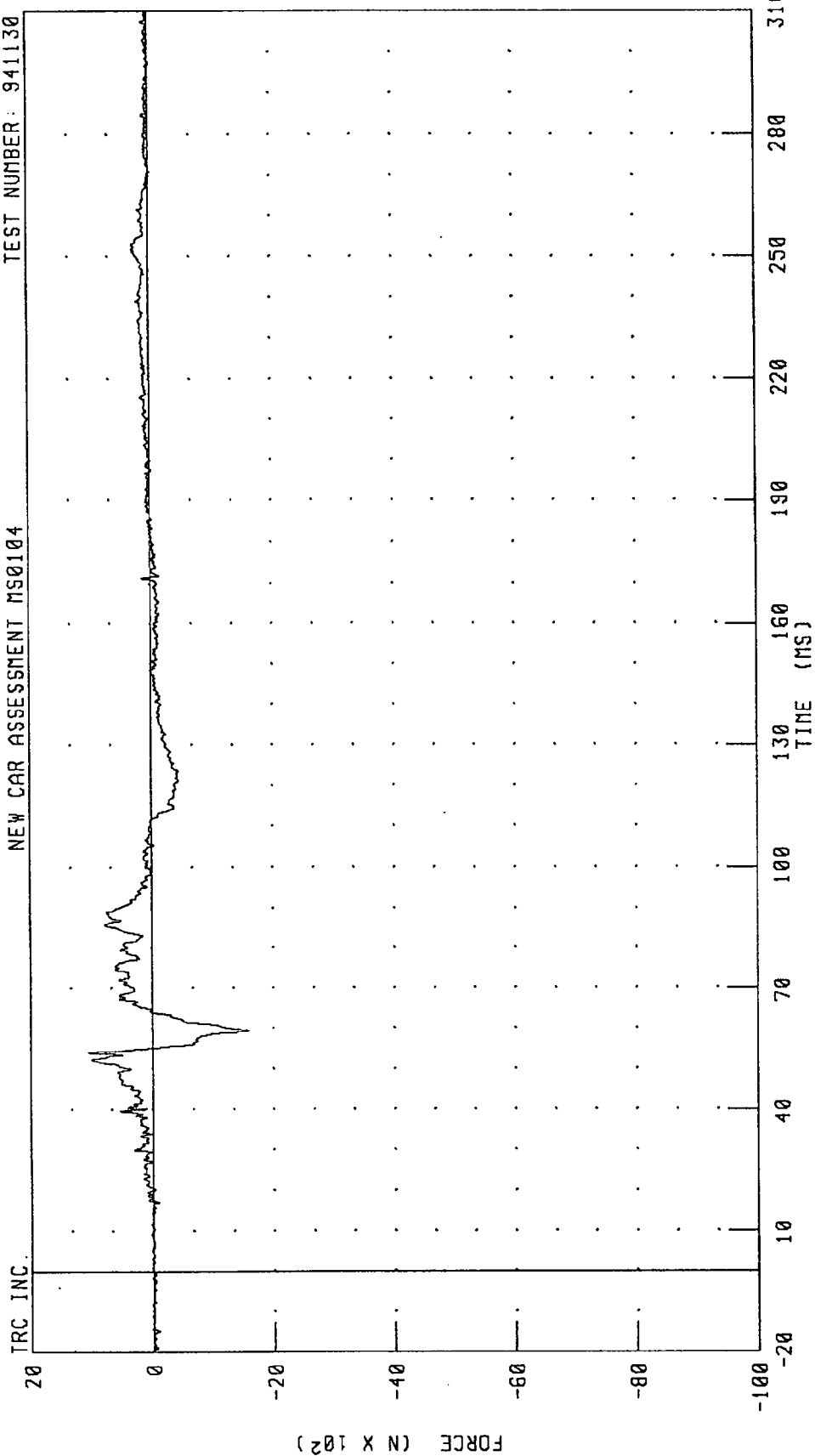


CHANNEL: LFMF2 FILTER: CH. CLASS 600

PEAK DATA: 2173.02 N @ 81.36 MS, -2909.89 N @ 104.16 MS

1995 CHEVROLET S10 BLAZER INTO FRONTAL LOAD CELL BARRIER
 PASSENGER RIGHT FEMUR FORCE
 NEW CAR ASSESSMENT MS0104

TEST NUMBER: 941130

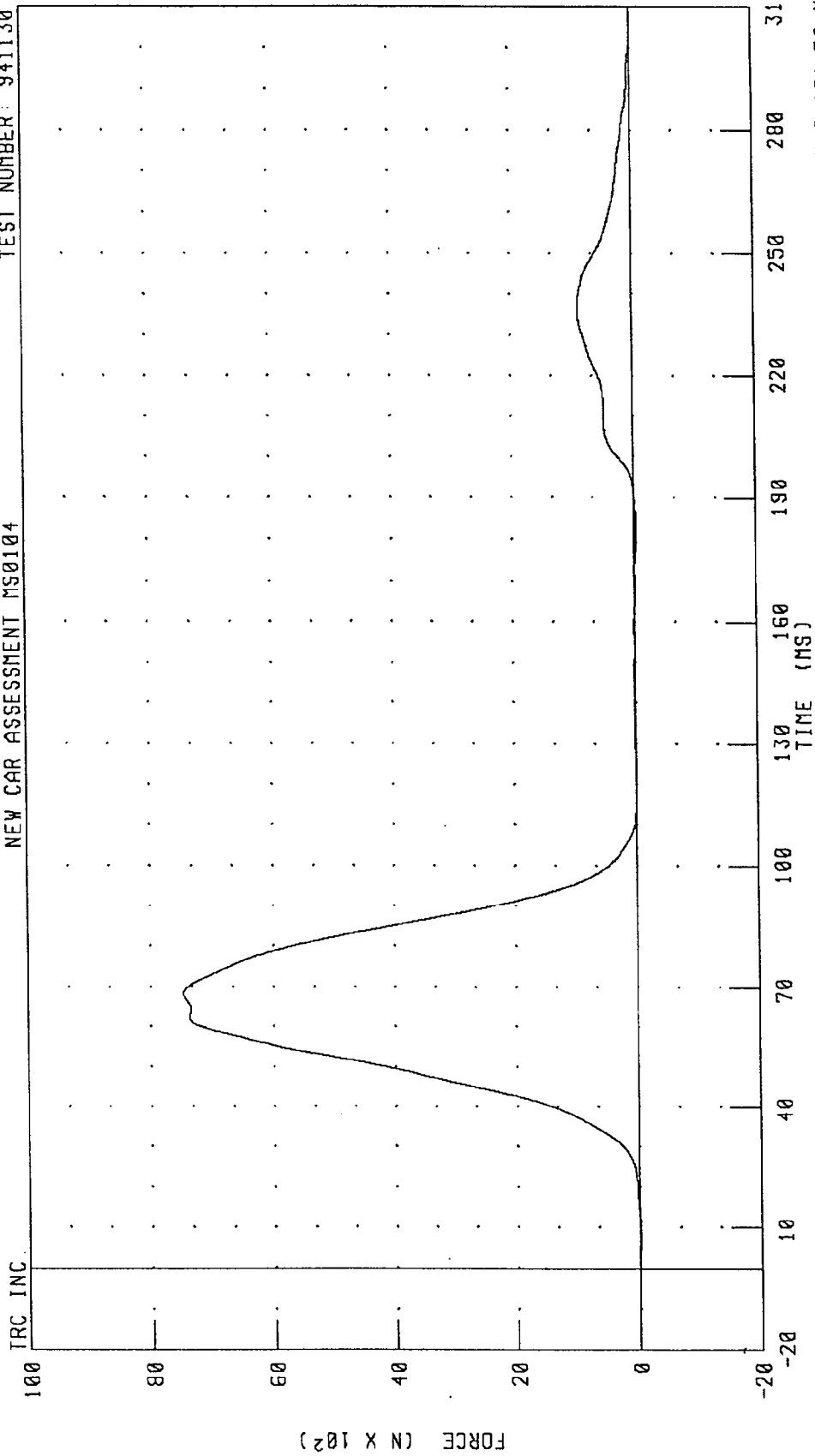


CHANNEL: RFMF2 FILTER: CH. CLASS 600

941130

1995 CHEVROLET S10 BLAZER INTO FRONTAL LOAD CELL BARRIER
PASSENGER LAP BELT OUTBOARD FORCE
NEW CAR ASSESSMENT MS0104

TEST NUMBER: 941130

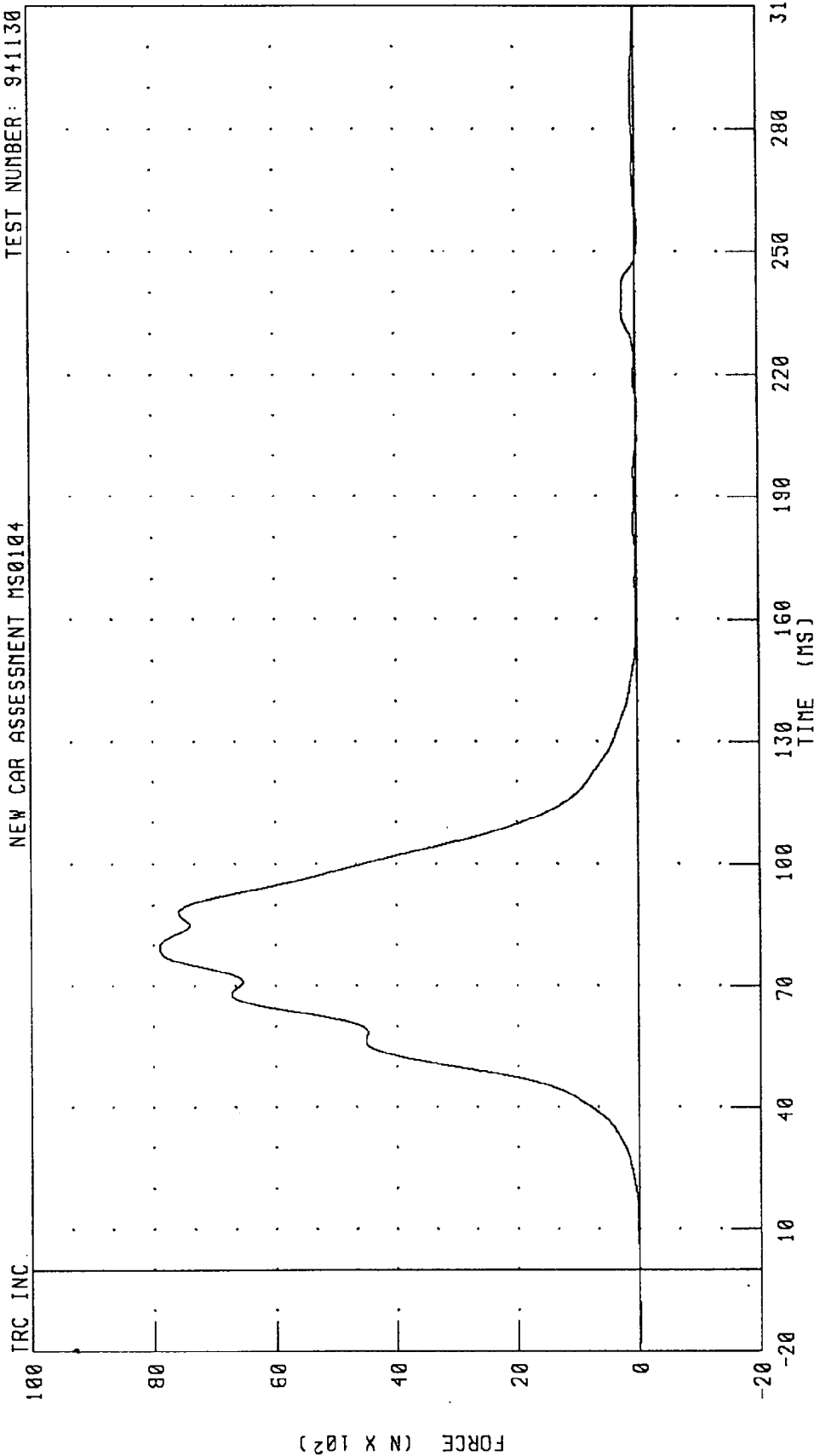


CHANNEL: LBOF2 FILTER: CH. CLASS 60

PEAK DATA: 7468.86 N @ 68.40 MS; -31.00 N @ 181.52 MS

1995 CHEVROLET S10 BLAZER INTO FRONTAL LOAD CELL BARRIER
 PASSENGER SHOULDER BELT FORCE
 NEW CAR ASSESSMENT MS0104

TEST NUMBER: 941130



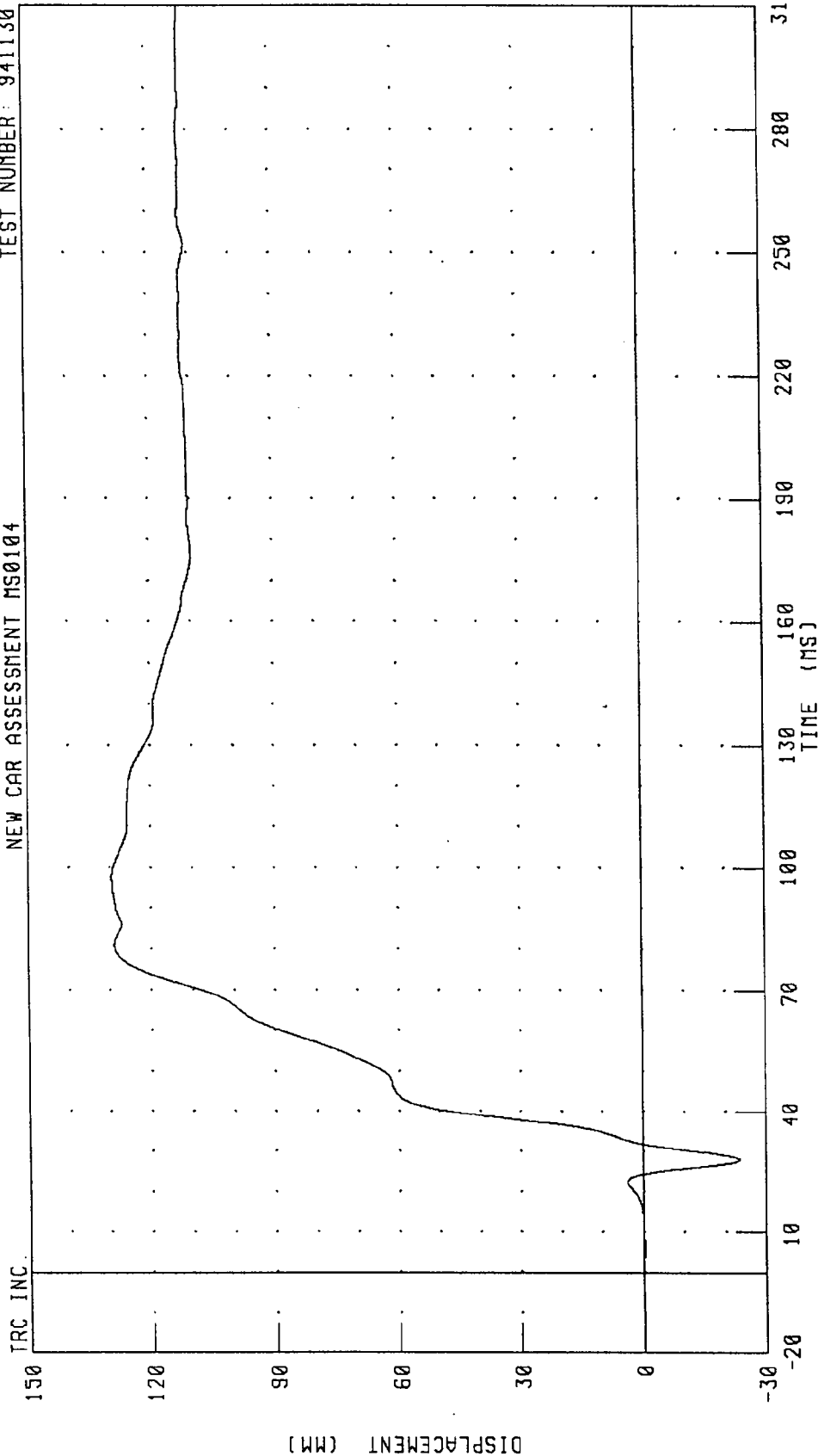
PEAK DATA: 7902.43 N @ 79.60 MS; -33.88 N @ 255.28 MS

CHANNEL: SHBF2 FILTER: CH. CLASS 60

1995 CHEVROLET S10 BLAZER INTO FRONTAL LOAD CELL BARRIER
PASSENGER SHOULDER BELT DISPLACEMENT

TEST NUMBER: 941130

NEW CAR ASSESSMENT MS0104

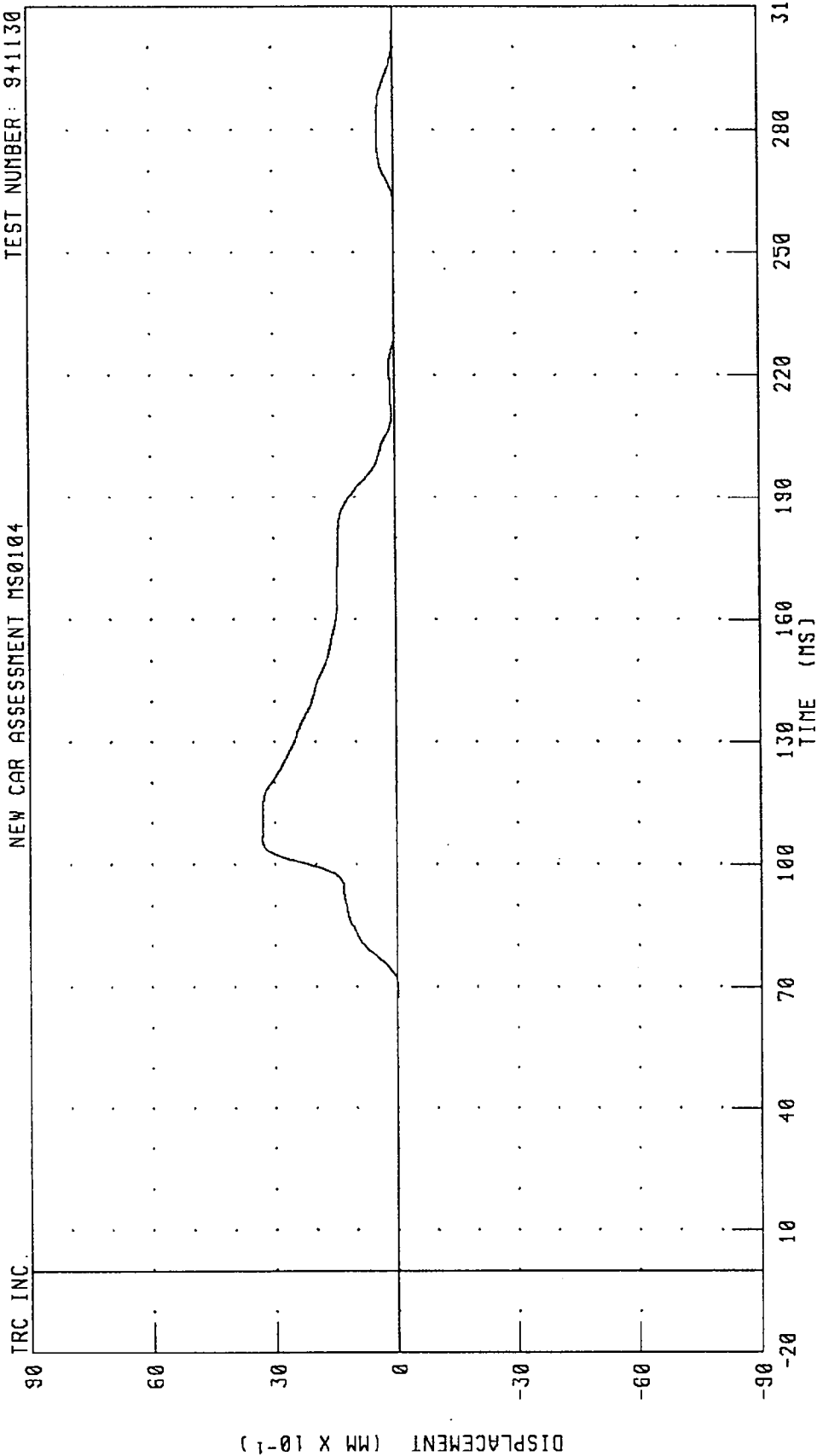


PEAK DATA: 129.54 MM @ 97.68 MS; -23.49 NM @ 28.00 MS

CHANNEL: SHB02 FILTER: CH. CLASS 60

1995 CHEVROLET S10 BLAZER INTO FRONTAL LOAD CELL BARRIER
 PASSENGER SEAT BELT EXTENSION
 NEW CAR ASSESSMENT MS0104

TEST NUMBER: 941130

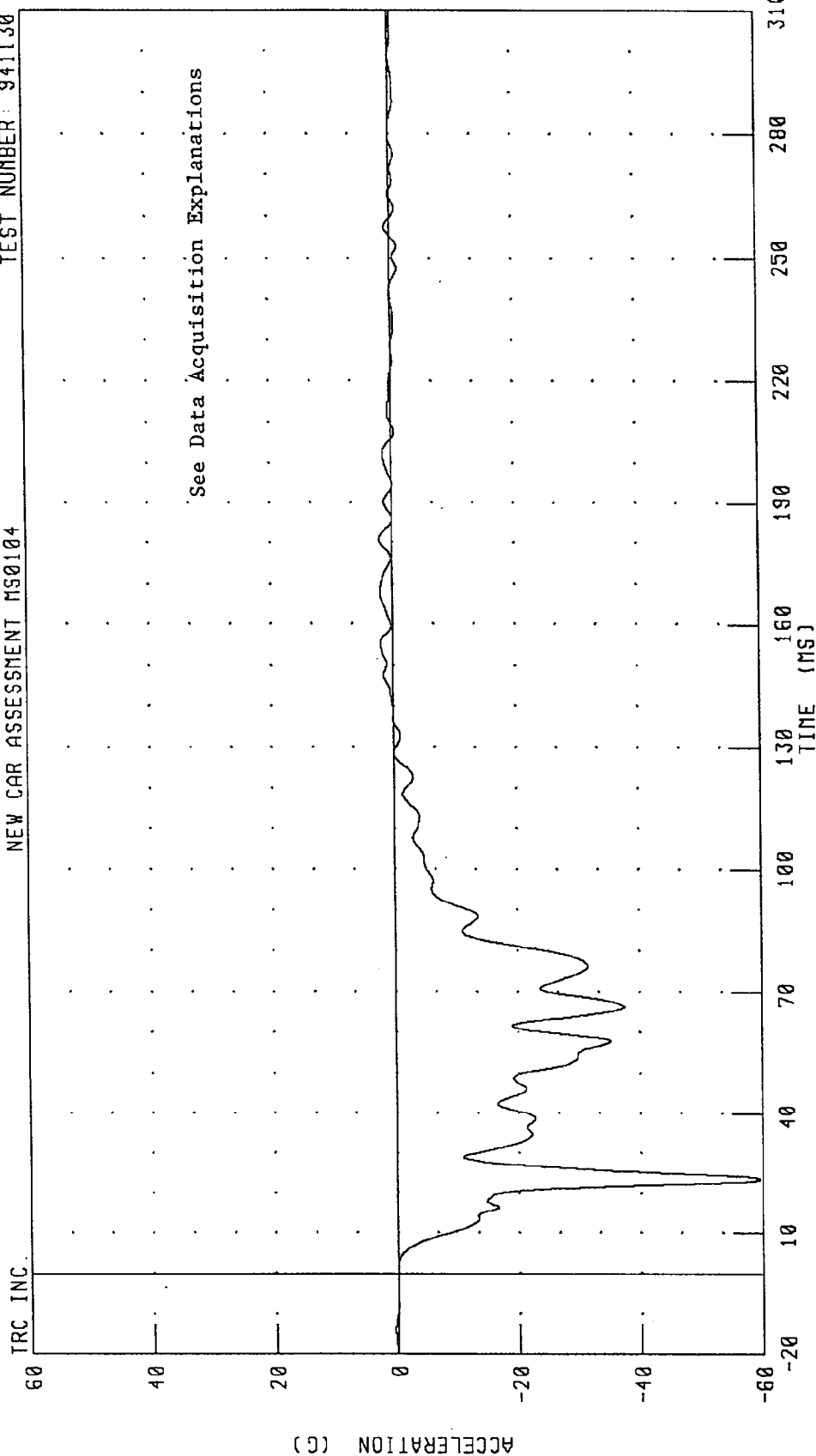


CHANNEL: SBED2 FILTER: CH. CLASS 60

1995 CHEVROLET S10 BLAZER INTO FRONTAL LOAD CELL BARRIER
LEFT REAR SEAT X-AXIS ACCELERATION

TEST NUMBER: 941130

NEW CAR ASSESSMENT MS0104



PEAK DATA: 2.15 G @ 180.80 MS, -59.46 G @ 23.52 MS

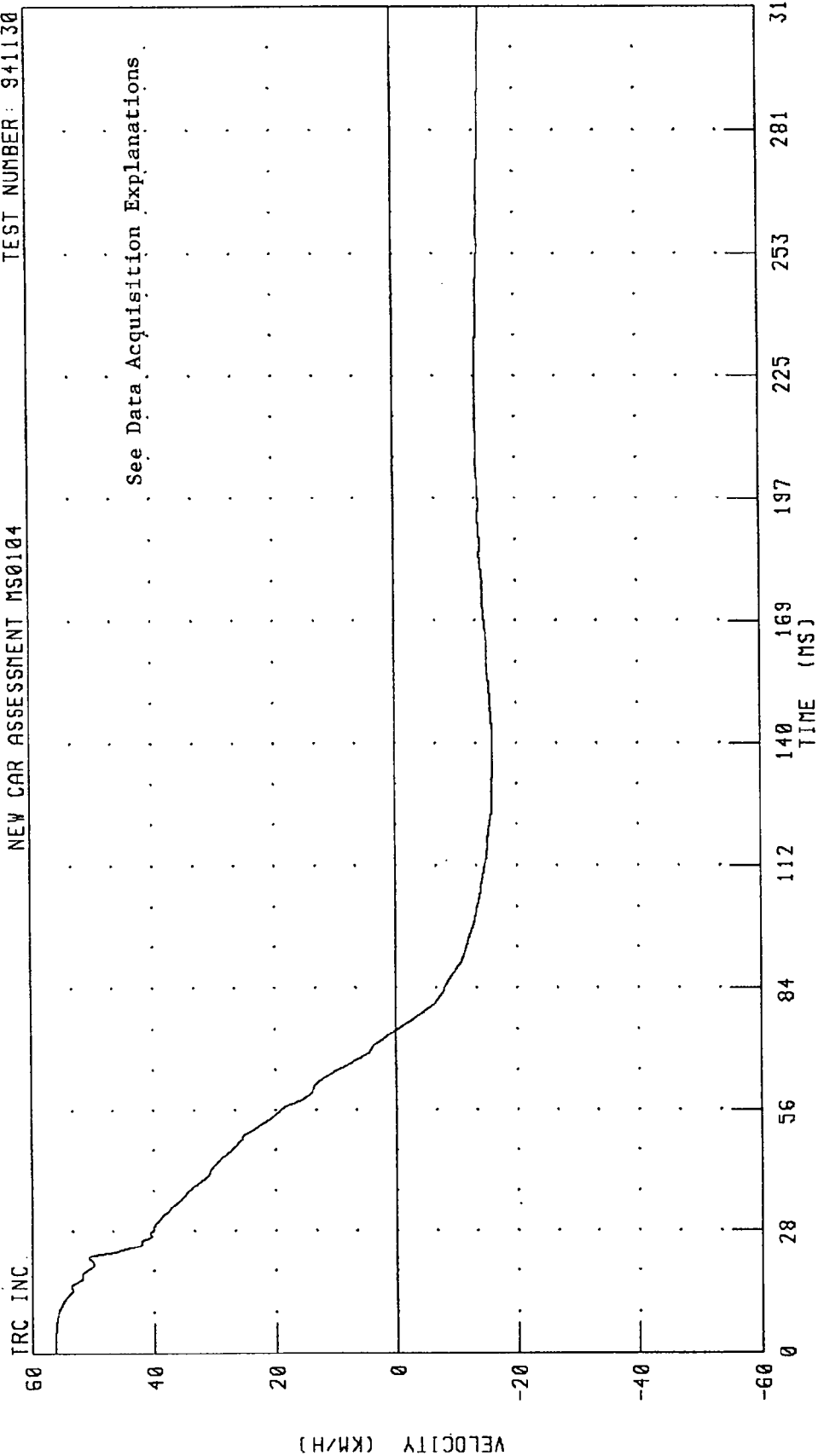
CHANNEL: TLRXG1 FILTER: CH. CLASS 60

1995 CHEVROLET S10 BLAZER INTO FRONTAL LOAD CELL BARRIER

LEFT REAR SEAT X-AXIS VELOCITY

NEW CAR ASSESSMENT MS0104

TEST NUMBER: 941130



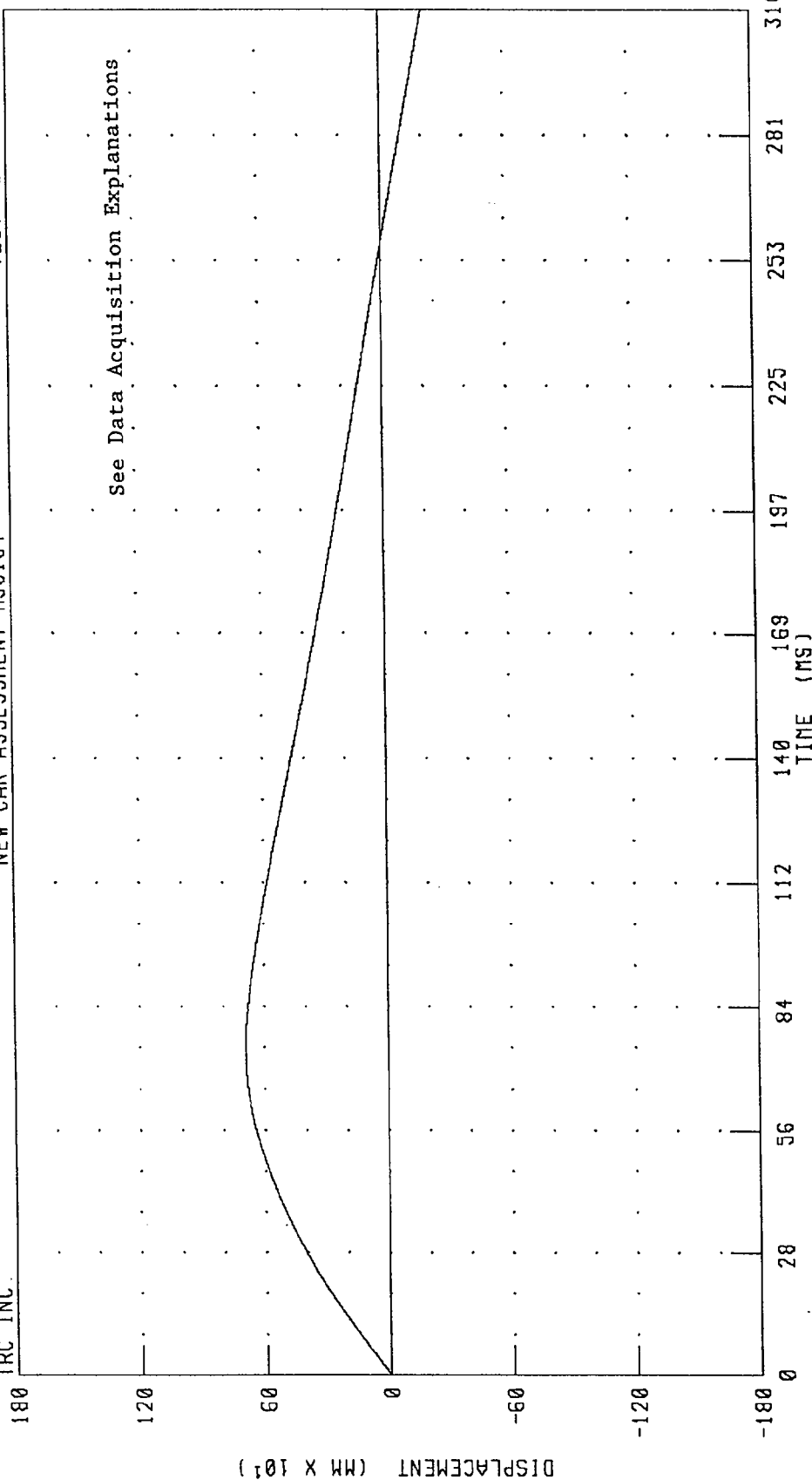
CHANNEL: TLRXV1 FILTER: CH. CLASS 180

PEAK DATA: 56.20 KM/H @ 0.00 MS; -16.10 KM/H @ 135.28 MS

1995 CHEVROLET S10 BLAZER INTO FRONTAL LOAD CELL BARRIER
 LEFT REAR SEAT X-AXIS DISPLACEMENT
 NEW CAR ASSESSMENT MS0104

TEST NUMBER: 941130

TRC INC.



PEAK DATA: 693.58 MM @ 74.96 MS; -207.32 MM @ 310.00 MS

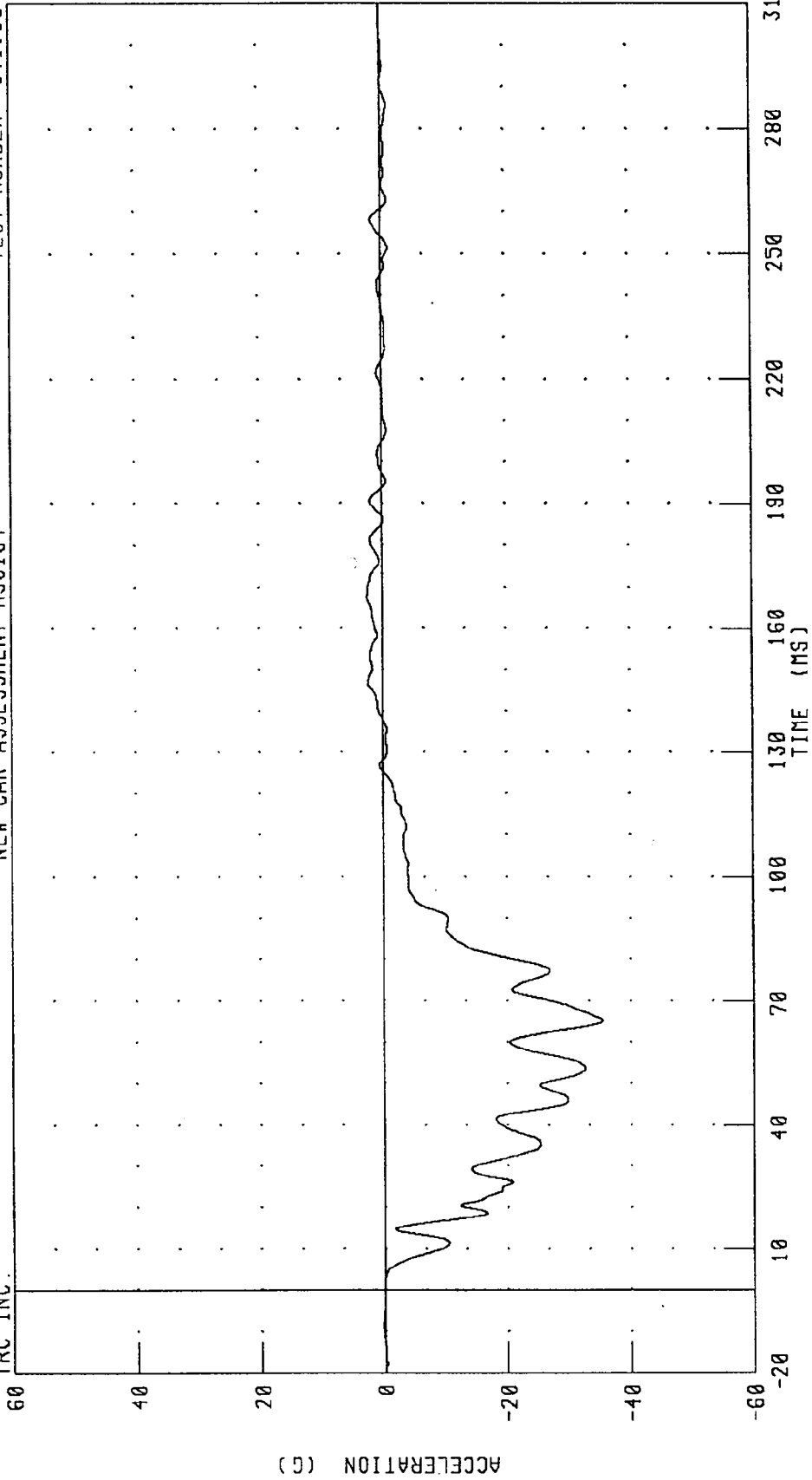
CHANNEL: TLRXD1 FILTER: CH. CLASS 180

1995 CHEVROLET S10 BLAZER INTO FRONTAL LOAD CELL BARRIER
RIGHT REAR SEAT X-AXIS ACCELERATION

TEST NUMBER: 941130

NEW CAR ASSESSMENT MS0104

TRC INC.



CHANNEL: TRRXG1 FILTER: CH. CLASS 60

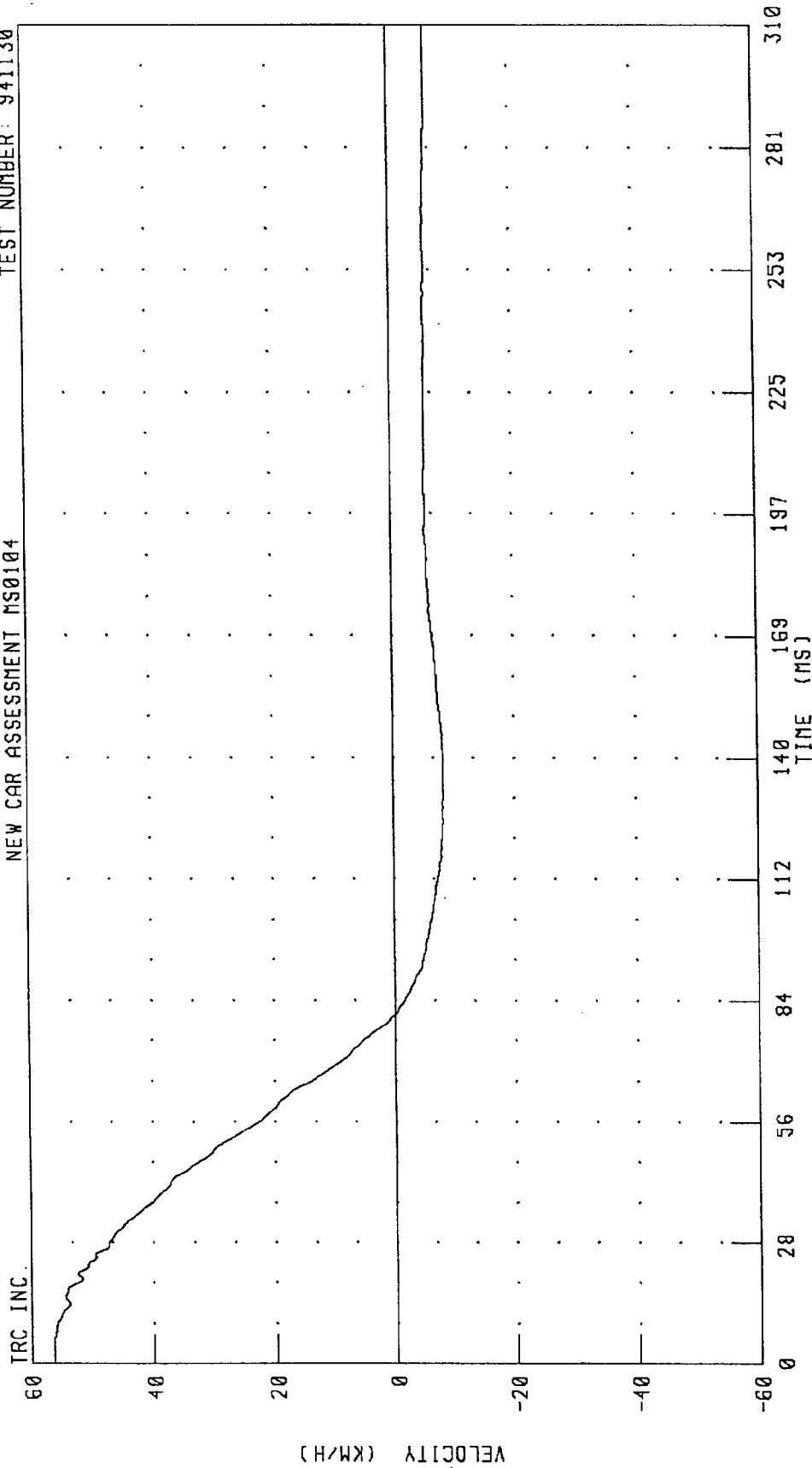
PEAK DATA: 2.48 G @ 167.68 MS; -35.51 G @ 65.20 MS

1995 CHEVROLET S10 BLAZER INTO FRONTAL LOAD CELL BARRIER

RIGHT REAR SEAT X-AXIS VELOCITY

NEW CAR ASSESSMENT NS0104

TEST NUMBER: 941130

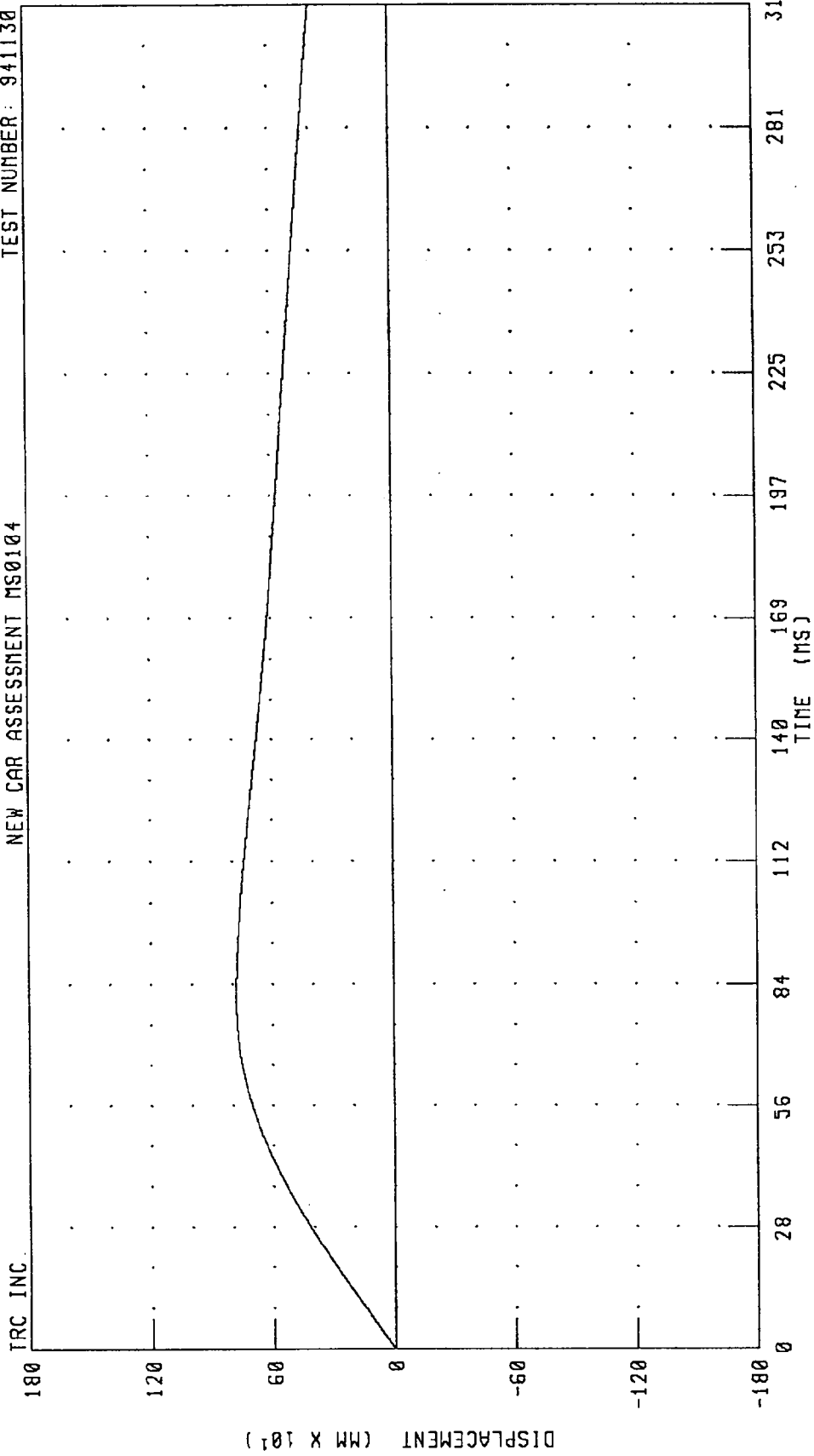


PEAK DATA: 56.21 KM/H @ 1.68 MS; -8.36 KM/H @ 136.48 MS

CHANNEL: TRRXV1 FILTER: CH. CLASS 180

1995 CHEVROLET S10 BLAZER INTO FRONTAL LOAD CELL BARRIER
 RIGHT REAR SEAT X-AXIS DISPLACEMENT
 NEW CAR ASSESSMENT MS0104

TEST NUMBER: 941130



PEAK DATA: 781.63 MM @ 81.28 MS; 0.00 MM @ 0.00 MS

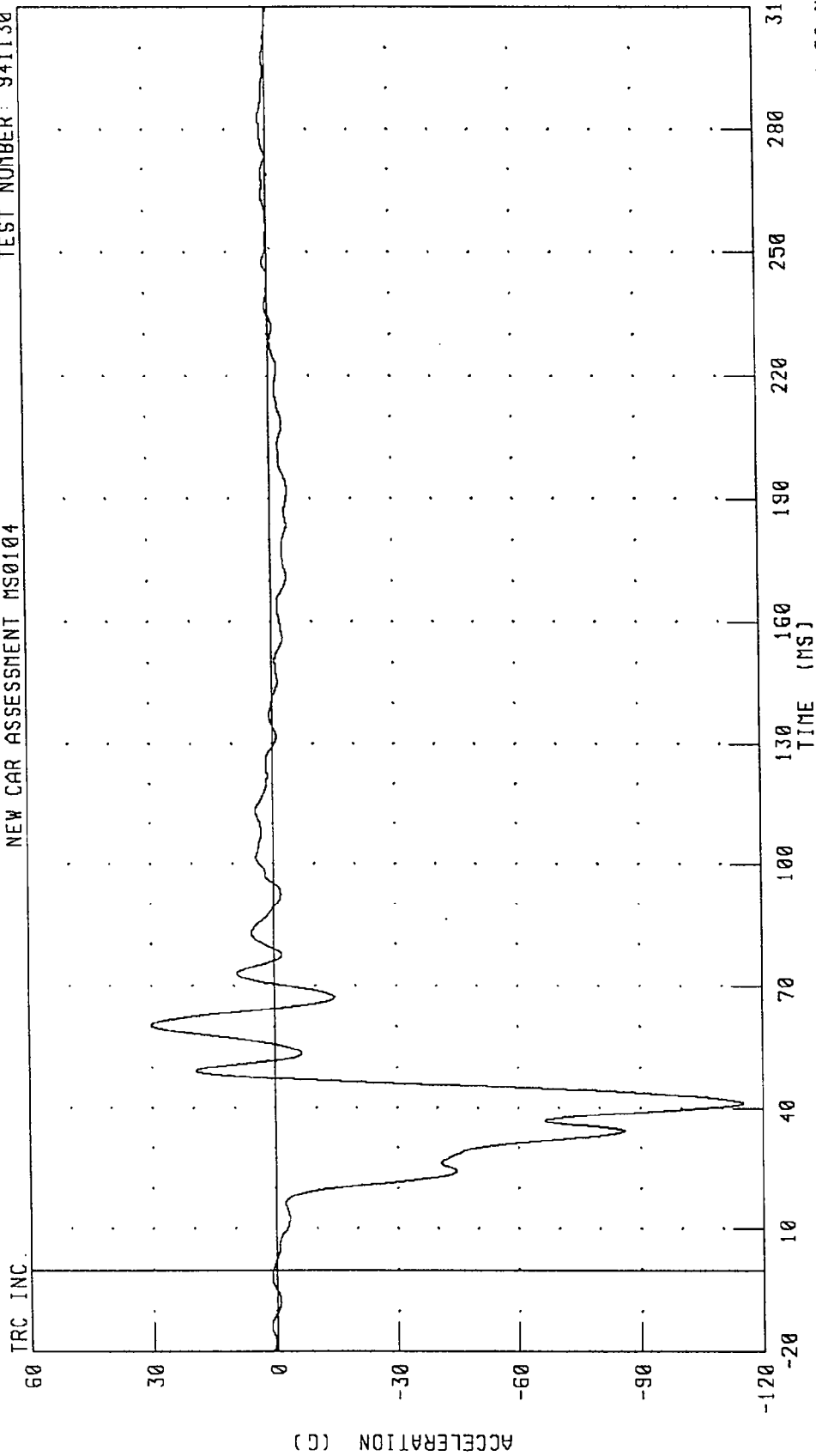
CHANNEL: TRRXD1 FILTER: CH. CLASS 180

1995 CHEVROLET S10 BLAZER INTO FRONTAL LOAD CELL BARRIER

ENGINE TOP X-AXIS ACCELERATION

NEW CAR ASSESSMENT MS0104

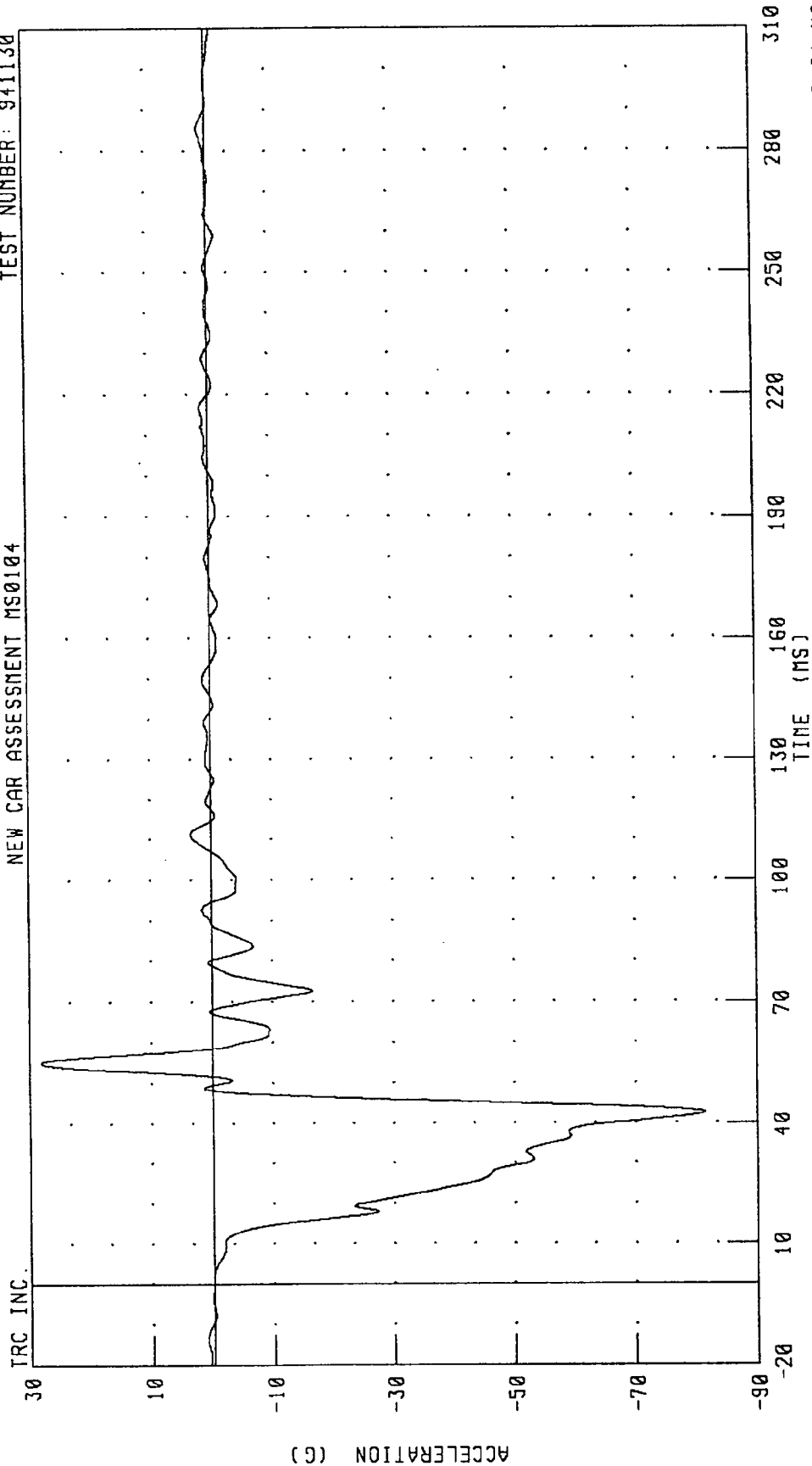
TEST NUMBER: 941130



CHANNEL: ENGXG1 FILTER: CH. CLASS 60

1995 CHEVROLET S10 BLAZER INTO FRONTAL LOAD CELL BARRIER
ENGINE BOTTOM X-AXIS ACCELERATION
NEW CAR ASSESSMENT MS0104

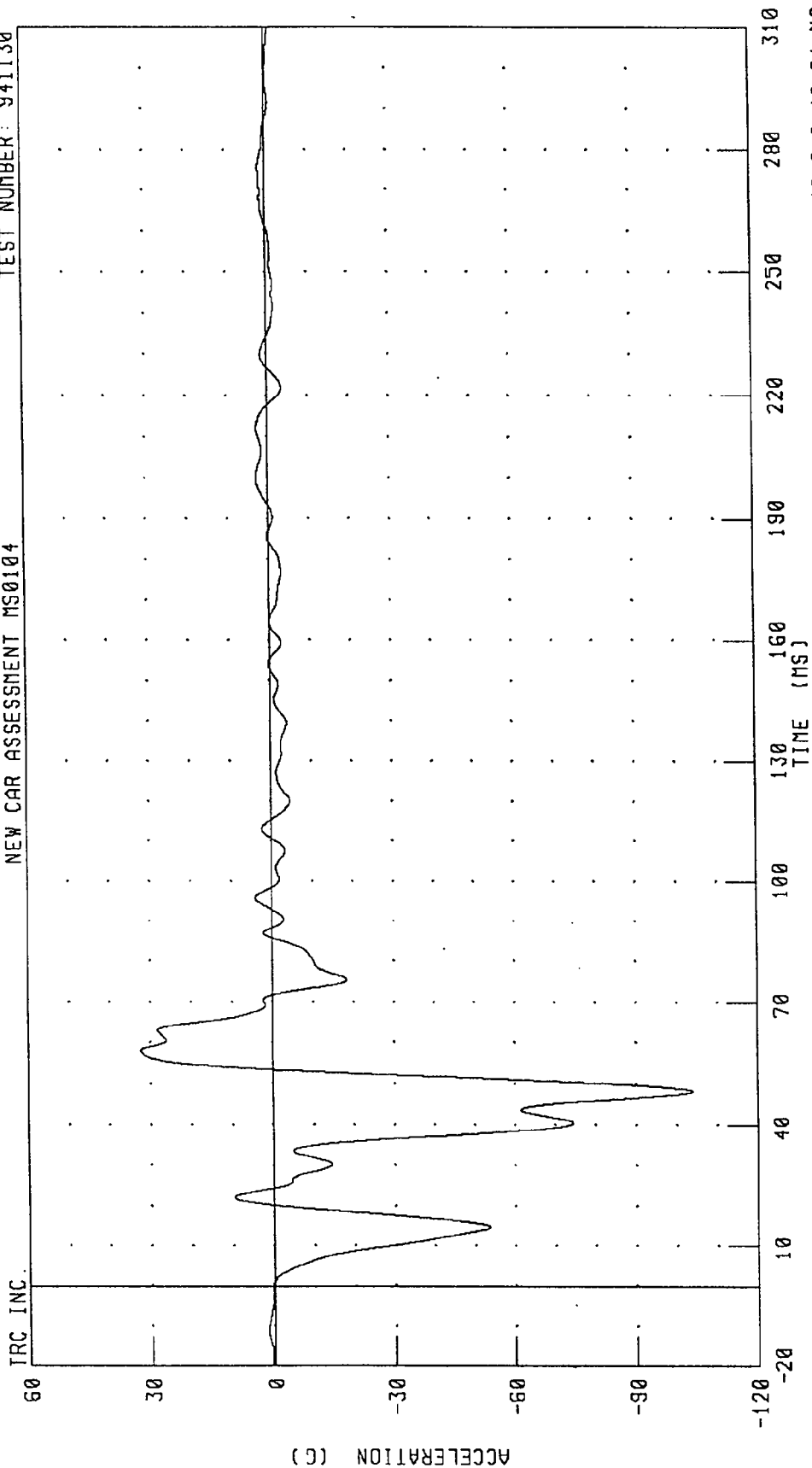
TEST NUMBER: 941130



CHANNEL: ENGCG2 FILTER: CH. CLASS 60

1995 CHEVROLET S10 BLAZER INTO FRONTAL LOAD CELL BARRIER
 RIGHT BRAKE CALIPER X-AXIS ACCELERATION
 NEW CAR ASSESSMENT MS0104

TEST NUMBER: 941130

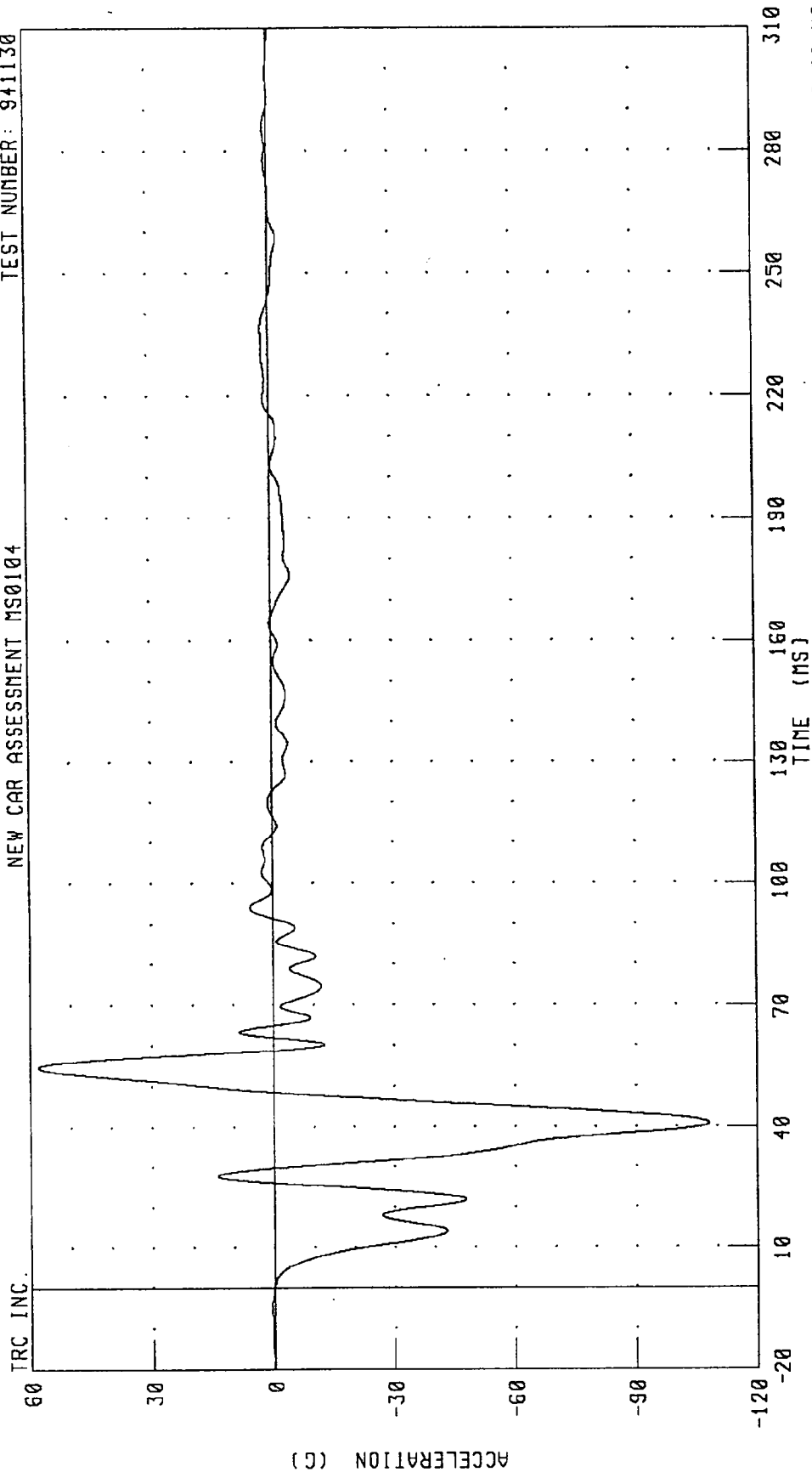


CHANNEL: BCRXG1 FILTER: CH. CLASS 60

PEAK DATA: 32.42 G @ 57.84 MS; -103.99 G @ 48.24 MS

1995 CHEVROLET S10 BLAZER INTO FRONTAL LOAD CELL BARRIER
LEFT BRAKE CALIPER X-AXIS ACCELERATION
NEW CAR ASSESSMENT MS0104

TEST NUMBER: 941130



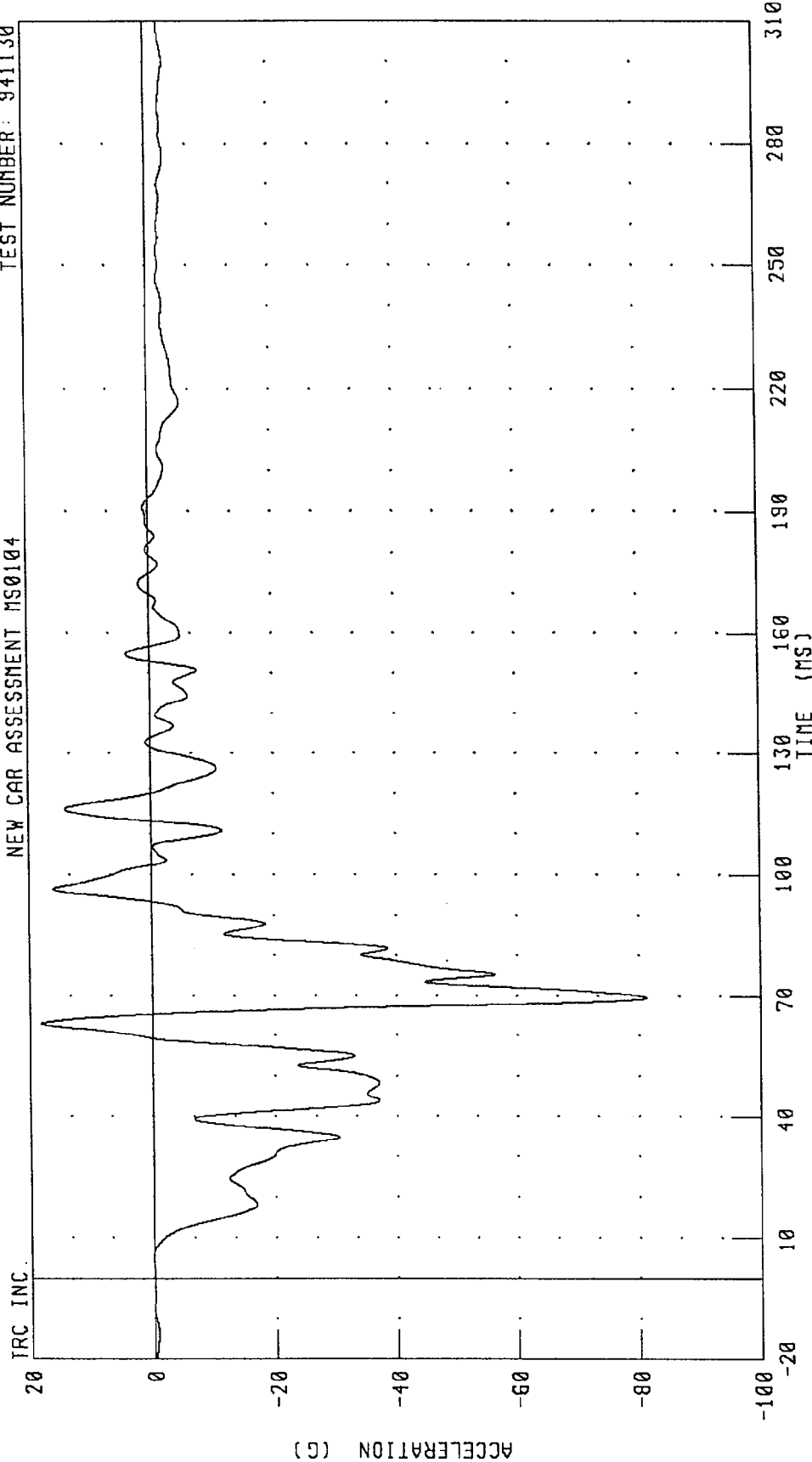
CHANNEL: BCLXG1 FILTER: CH. CLASS 60

PEAK DATA: 57.99 G @ 54.72 MS, -108.19 G @ 40.88 MS

1995 CHEVROLET S10 BLAZER INTO FRONTAL LOAD CELL BARRIER
INSTRUMENT PANEL CENTER X-AXIS ACCELERATION

TEST NUMBER: 941130

NEW CAR ASSESSMENT MS0104



PEAK DATA: 18.09 G @ 63.12 MS; -81.23 G @ 69.60 MS

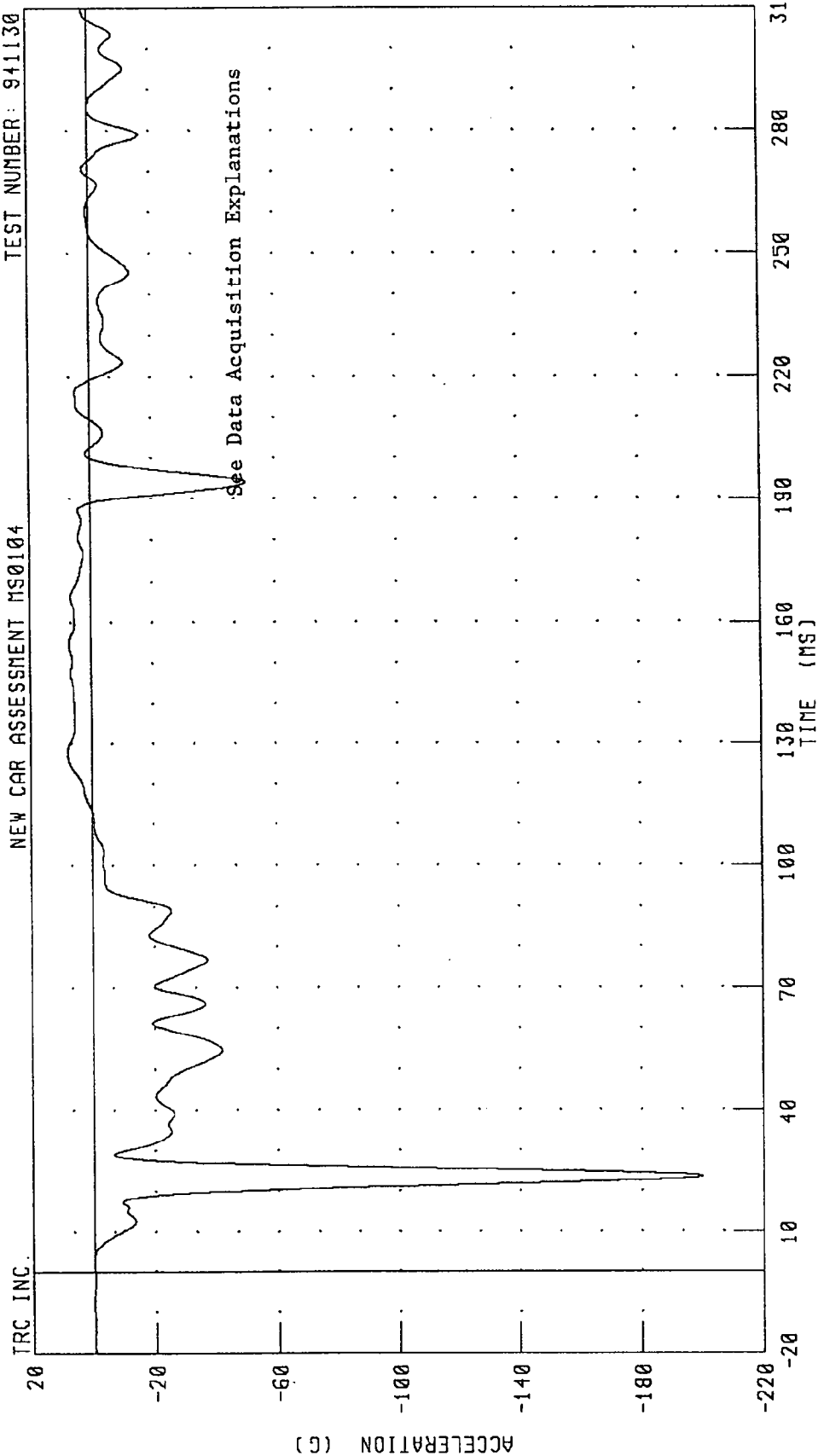
CHANNEL: DPCXG1 FILTER: CH. CLASS 60

TRC INC.

1995 CHEVROLET S10 BLAZER INTO FRONTAL LOAD CELL BARRIER
LEFT REAR SEAT REDUNDANT X-AXIS ACCELERATION

TEST NUMBER: 941130

NEW CAR ASSESSMENT MS0104



CHANNEL: TLRXGA FILTER: CH. CLASS 60

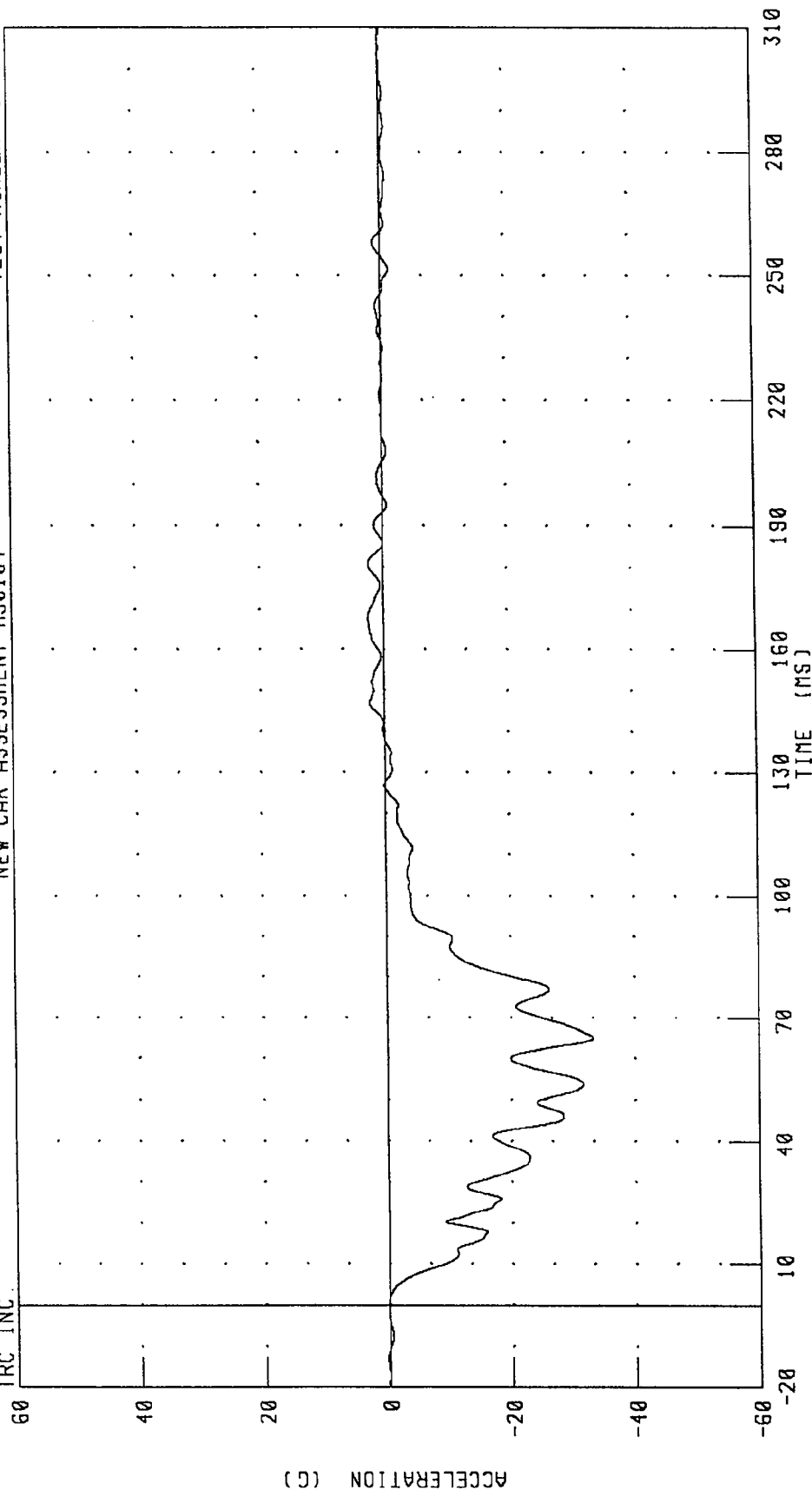
PEAK DATA: 7.73 G @ 127.76 MS; -200.03 G @ 23.60 MS

1995 CHEVROLET S10 BLAZER INTO FRONTAL LOAD CELL BARRIER
RIGHT REAR SEAT REDUNDANT X-AXIS ACCELERATION

TEST NUMBER: 941130

NEW CAR ASSESSMENT MS0104

TRC INC.



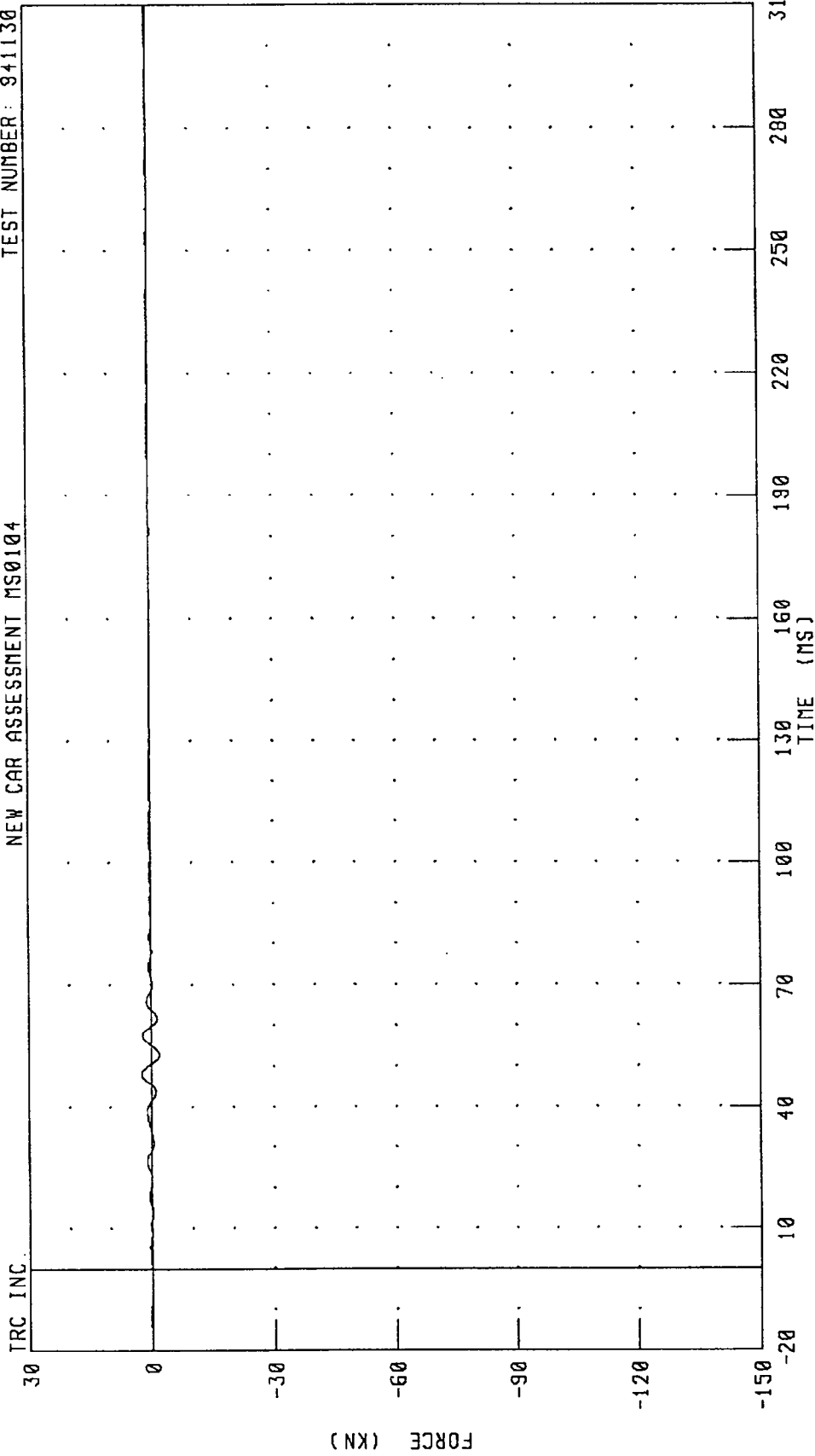
CHANNEL: TRRXGA FILTER: CH. CLASS 60

PEAK DATA: 2.52 G @ 167.92 MS; -33.29 G @ 65.12 MS

1995 CHEVROLET S10 BLAZER INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION A1 FORCE

TEST NUMBER: 941130

NEW CAR ASSESSMENT MS0104



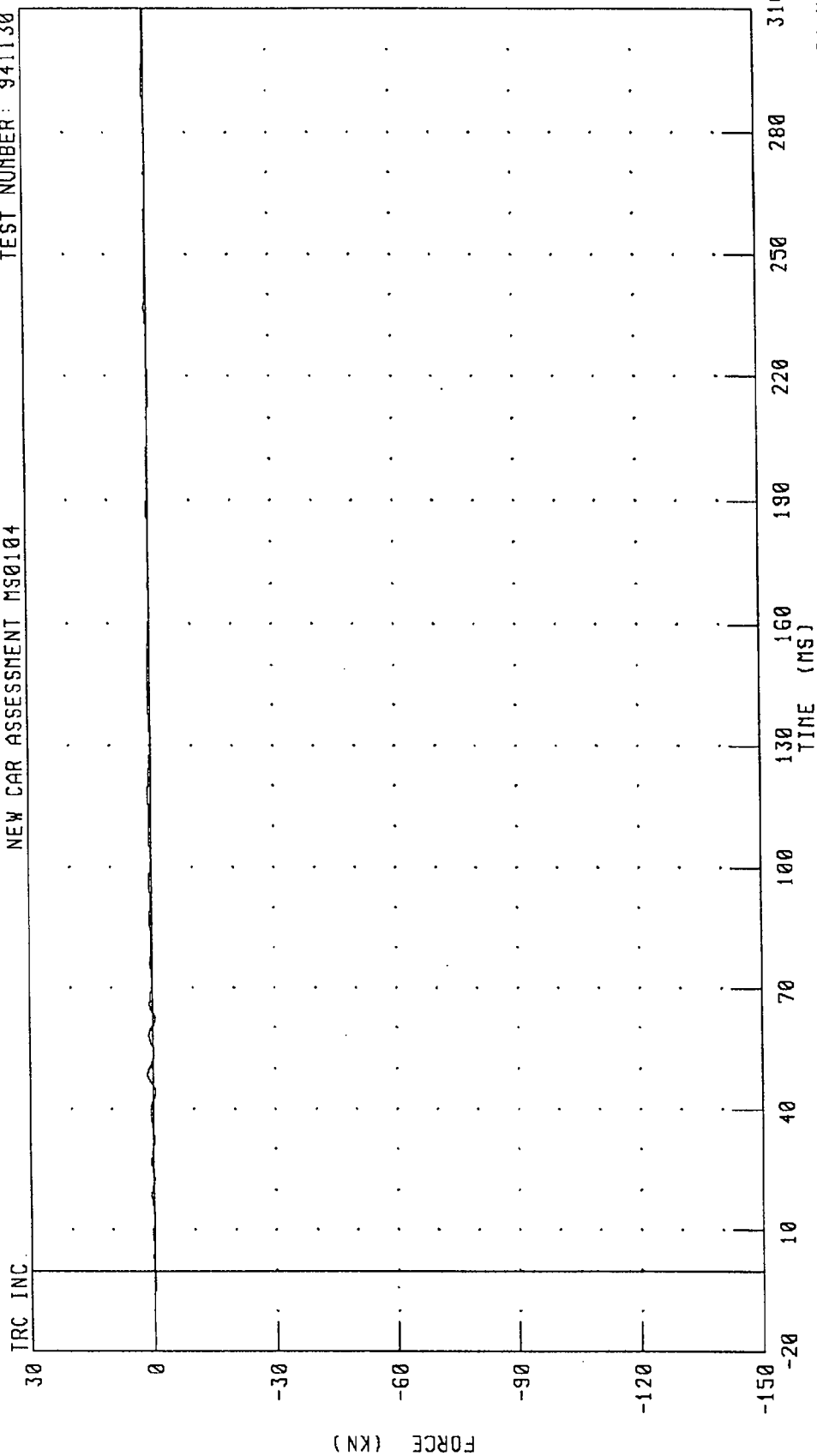
PEAK DATA: 2.35 KN @ 48.16 MS, -2.03 KN @ 52.96 MS

FILTER: CH. CLASS 60

CHANNEL: BA1F

1995 CHEVROLET S10 BLAZER INTO FRONTAL LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION A2 FORCE
 NEW CAR ASSESSMENT MS0104

TEST NUMBER: 941130



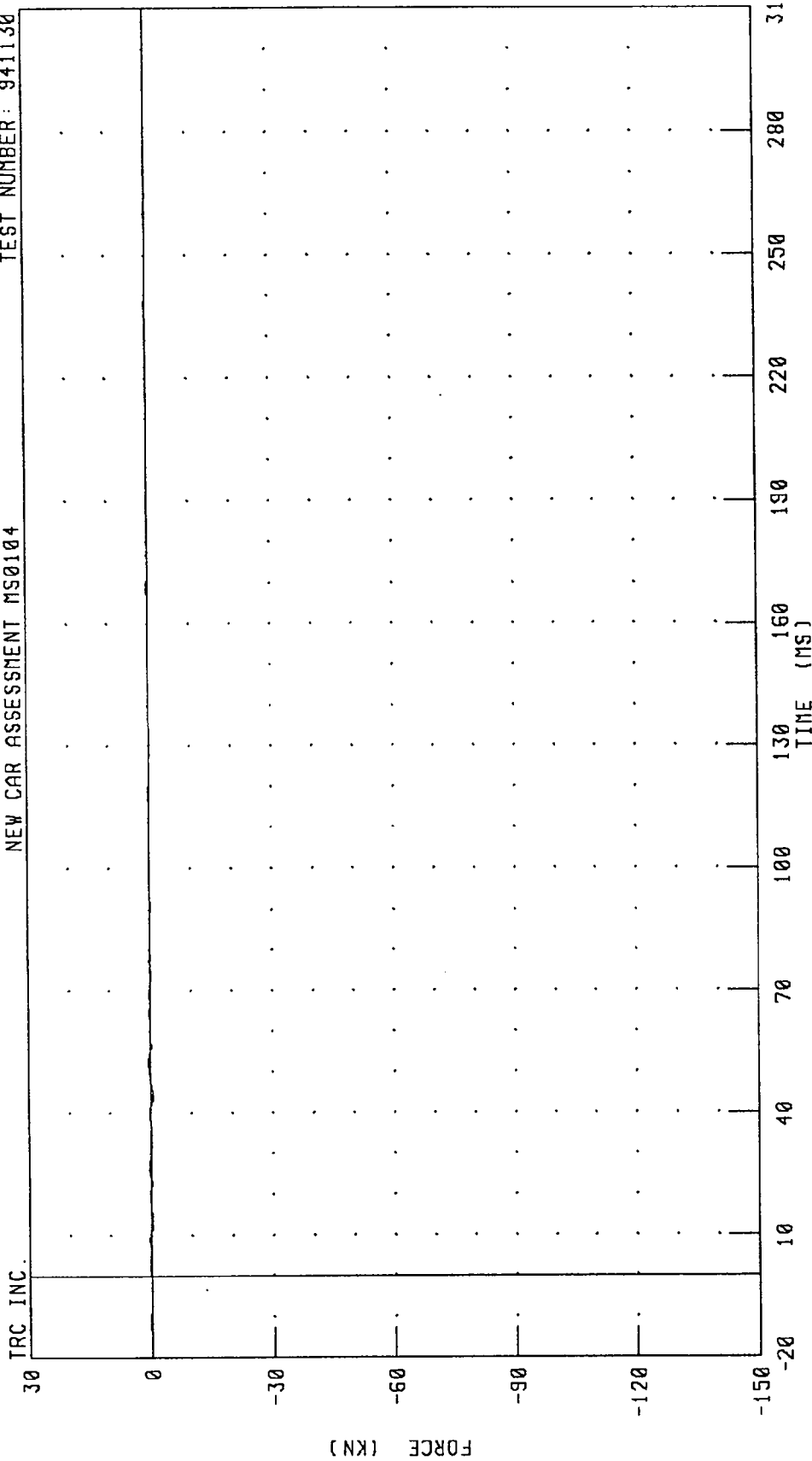
PEAK DATA: 1.18 KN @ 48.48 MS; -0.60 KN @ 44.24 MS

CHANNEL: BA2F FILTER: CH. CLASS 60

1995 CHEVROLET S10 BLAZER INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION A3 FORCE

TEST NUMBER: 941130

NEW CAR ASSESSMENT MS0104



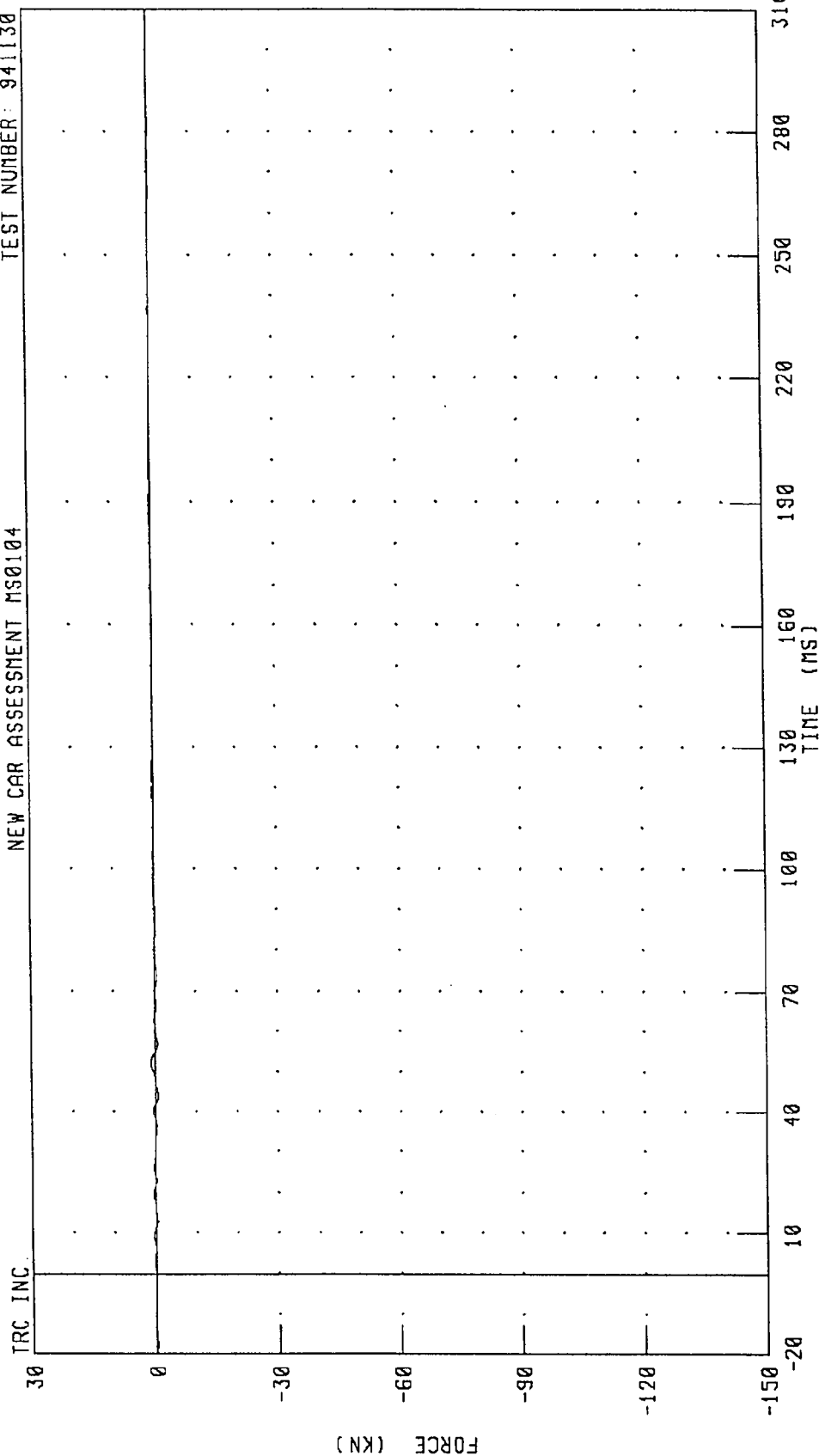
PEAK DATA: 0.45 KN @ 52.48 MS; -0.67 KN @ 44.16 MS

FILTER: CH. CLASS 60

CHANNEL: BA3F

1995 CHEVROLET S10 BLAZER INTO FRONTAL LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION A4 FORCE
 NEW CAR ASSESSMENT MS0104

TEST NUMBER: 941130



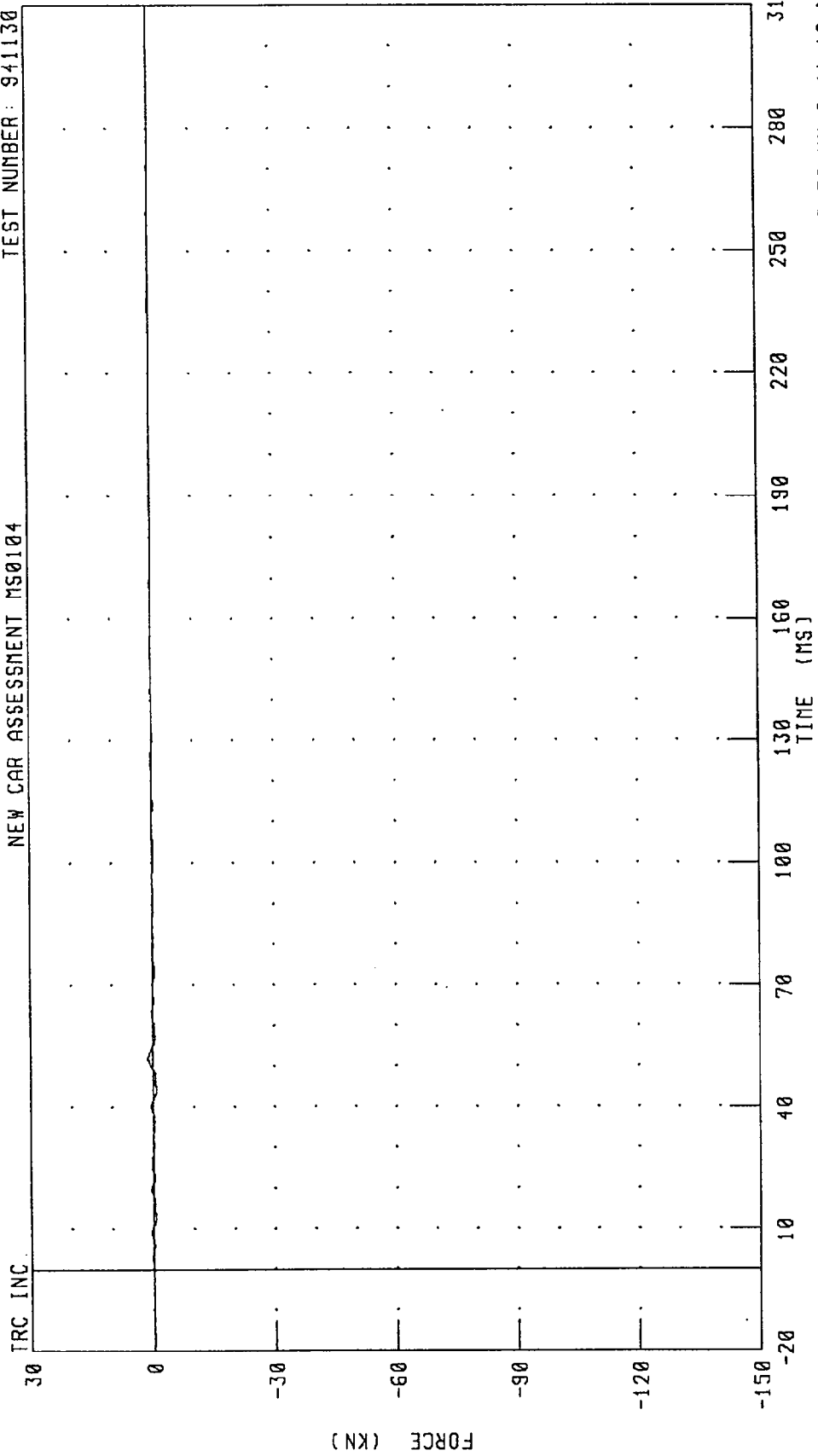
PEAK DATA: 0.99 KN @ 52.16 MS; -0.80 KN @ 43.92 MS

CHANNEL: BA4F FILTER: CH. CLASS 60

1995 CHEVROLET S10 BLAZER INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION A5 FORCE

TEST NUMBER: 941130

NEW CAR ASSESSMENT MS0104

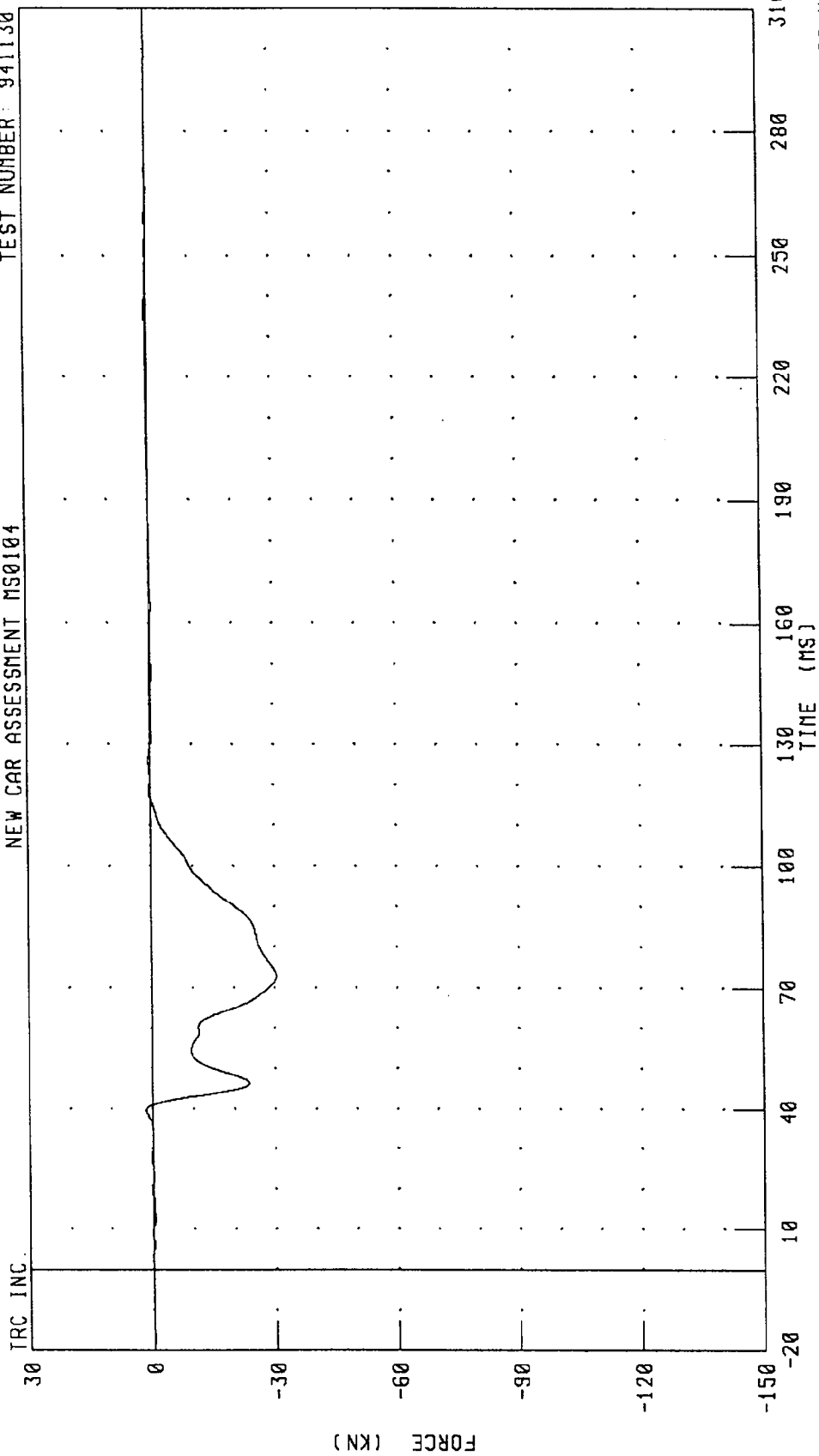


PEAK DATA: 1.13 KN @ 52.08 MS; -0.78 KN @ 44.16 MS

CHANNEL: BASF FILTER: CH. CLASS 60

1995 CHEVROLET S10 BLAZER INTO FRONTAL LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION A6 FORCE
 NEW CAR ASSESSMENT MS0104

TEST NUMBER: 941130



PEAK DATA: 1.64 KN @ 39.60 MS; -30.42 KN @ 72.88 MS

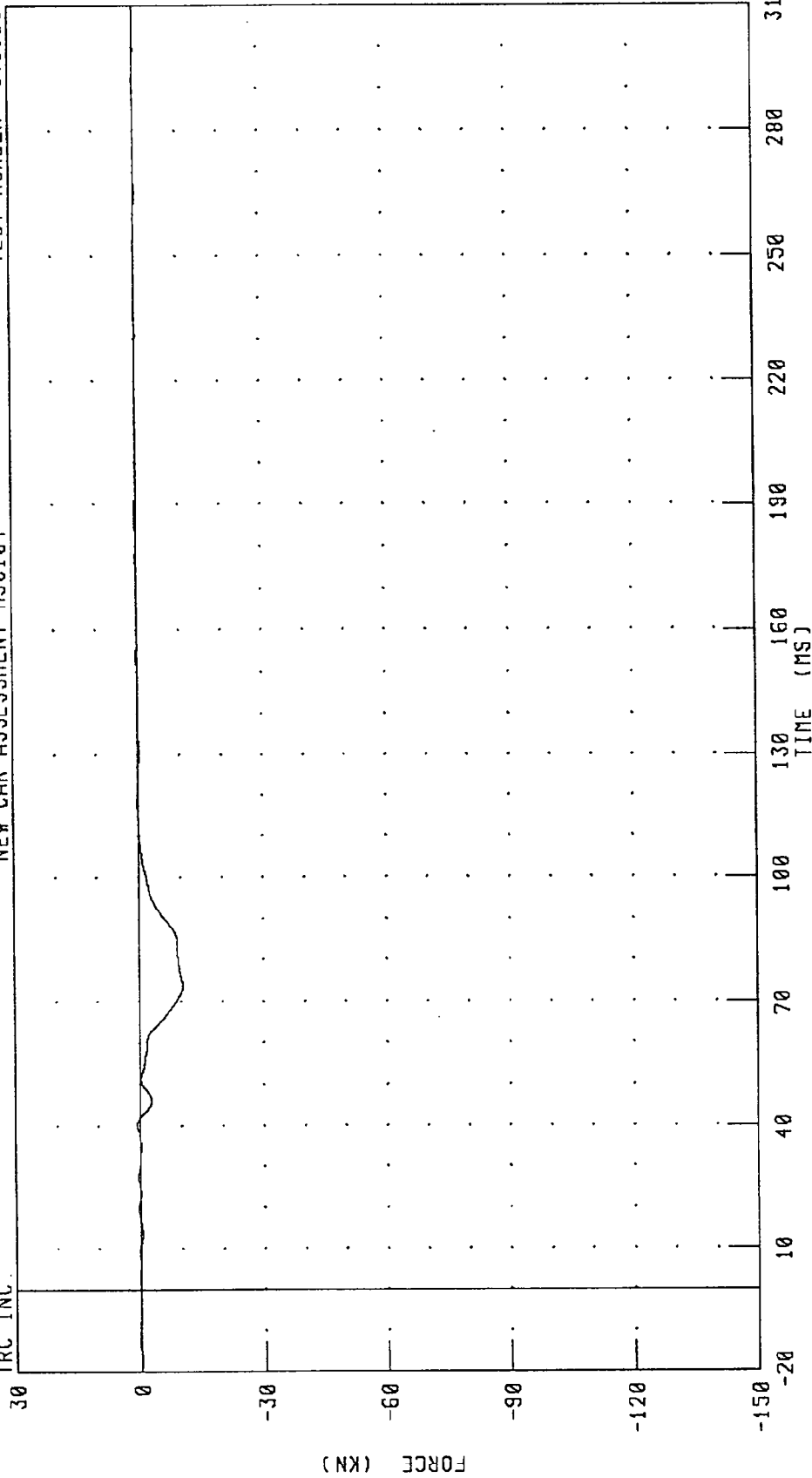
CHANNEL: BAGF FILTER: CH. CLASS 60

1995 CHEVROLET S10 BLAZER INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION A7 FORCE

TEST NUMBER: 941130

NEW CAR ASSESSMENT MS0104

TRC INC.



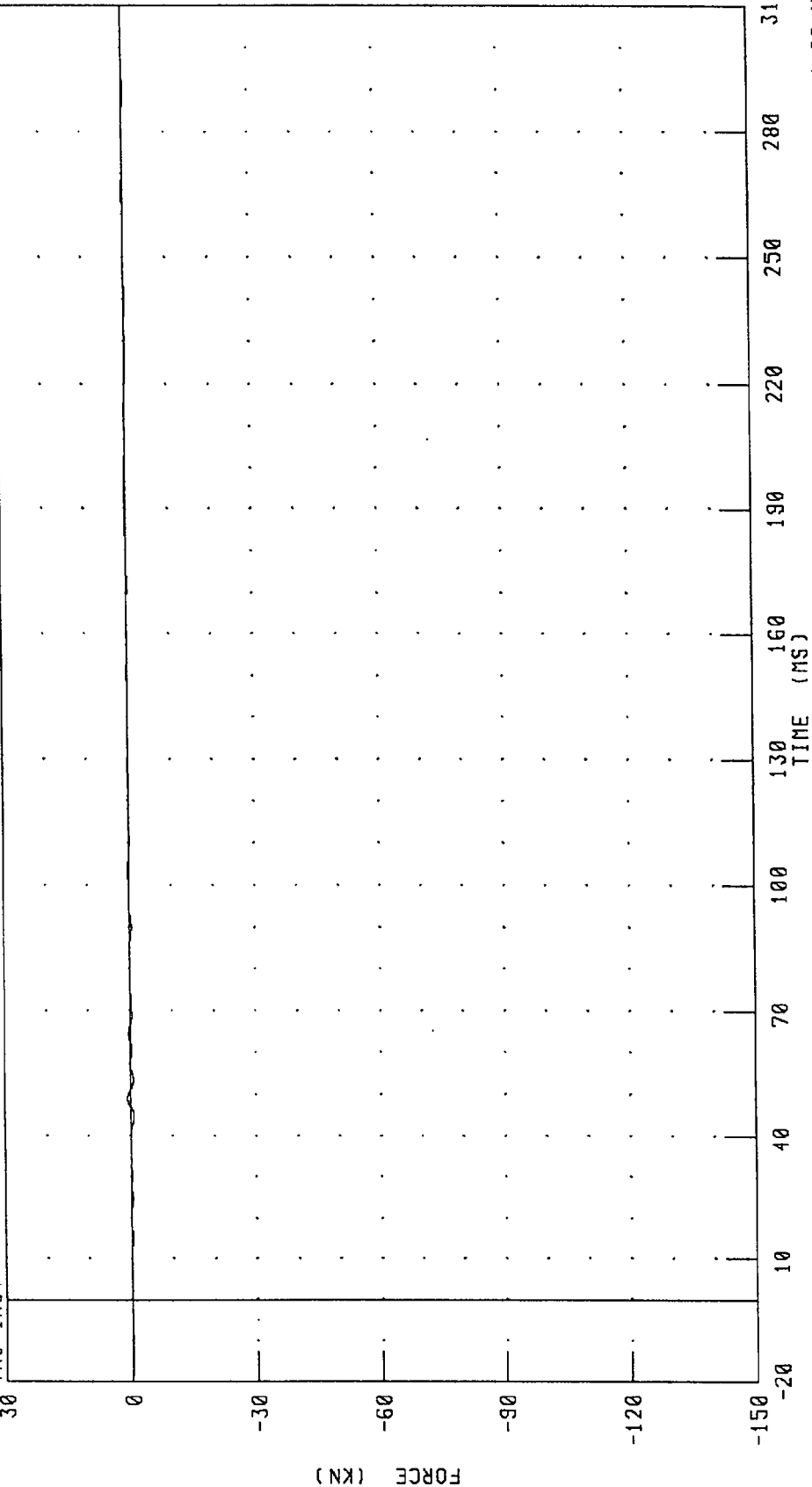
PEAK DATA: 0.72 KN @ 40.32 MS; -10.47 KN @ 73.68 MS

CHANNEL: BA7F FILTER: CH. CLASS 60

1995 CHEVROLET S10 BLAZER INTO FRONTAL LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION A8 FORCE
 NEW CAR ASSESSMENT MS0104

TEST NUMBER: 941130

TRC INC.



CHANNEL: B48F

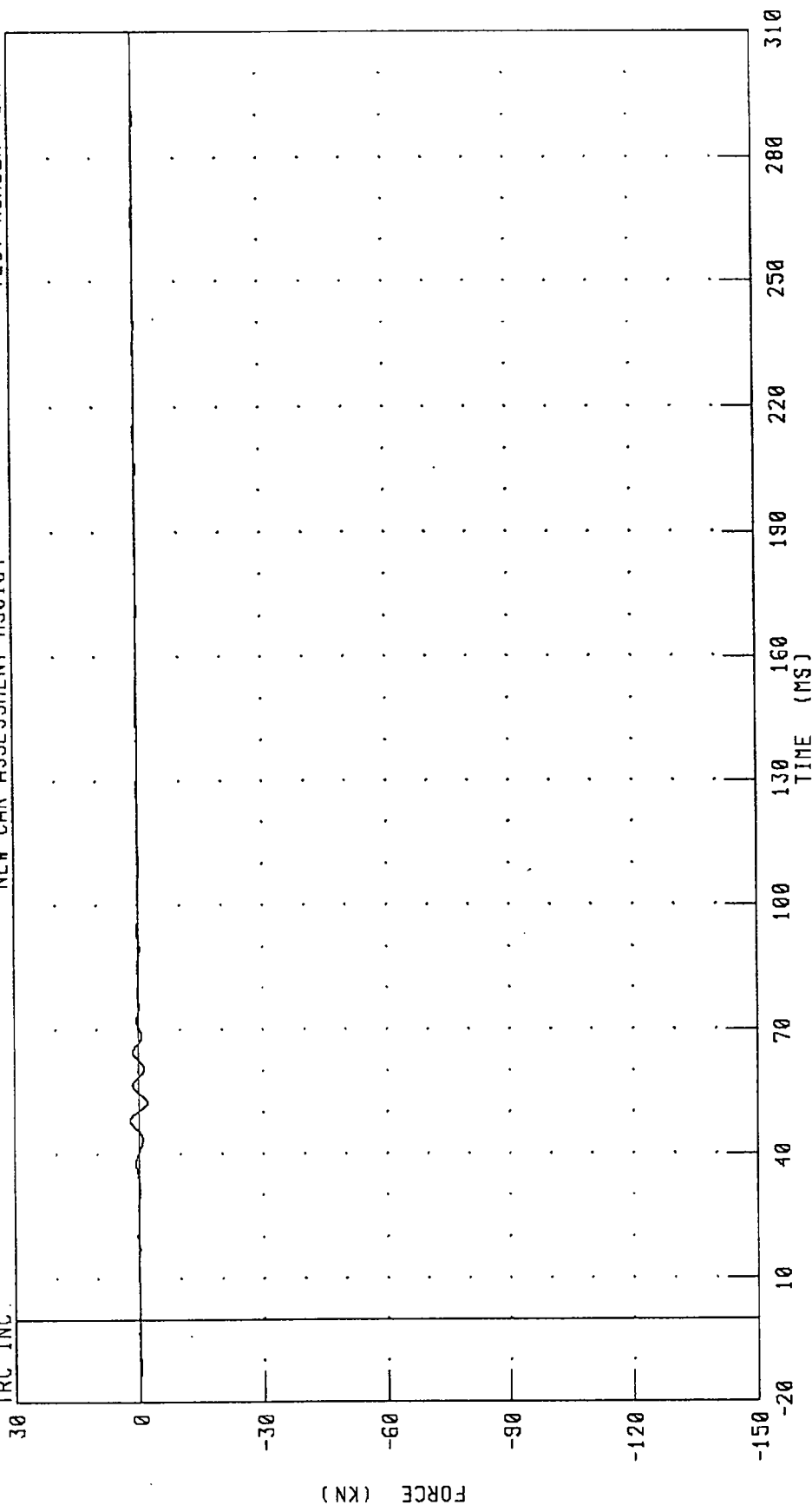
FILTER: CH. CLASS 60

PEAK DATA: 0.67 KN @ 48.96 MS; -0.83 KN @ 44.80 MS

1995 CHEVROLET S10 BLAZER INTO FRONTAL LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION AS FORCE
 NEW CAR ASSESSMENT MS0104

TEST NUMBER: 941130

TRC INC.



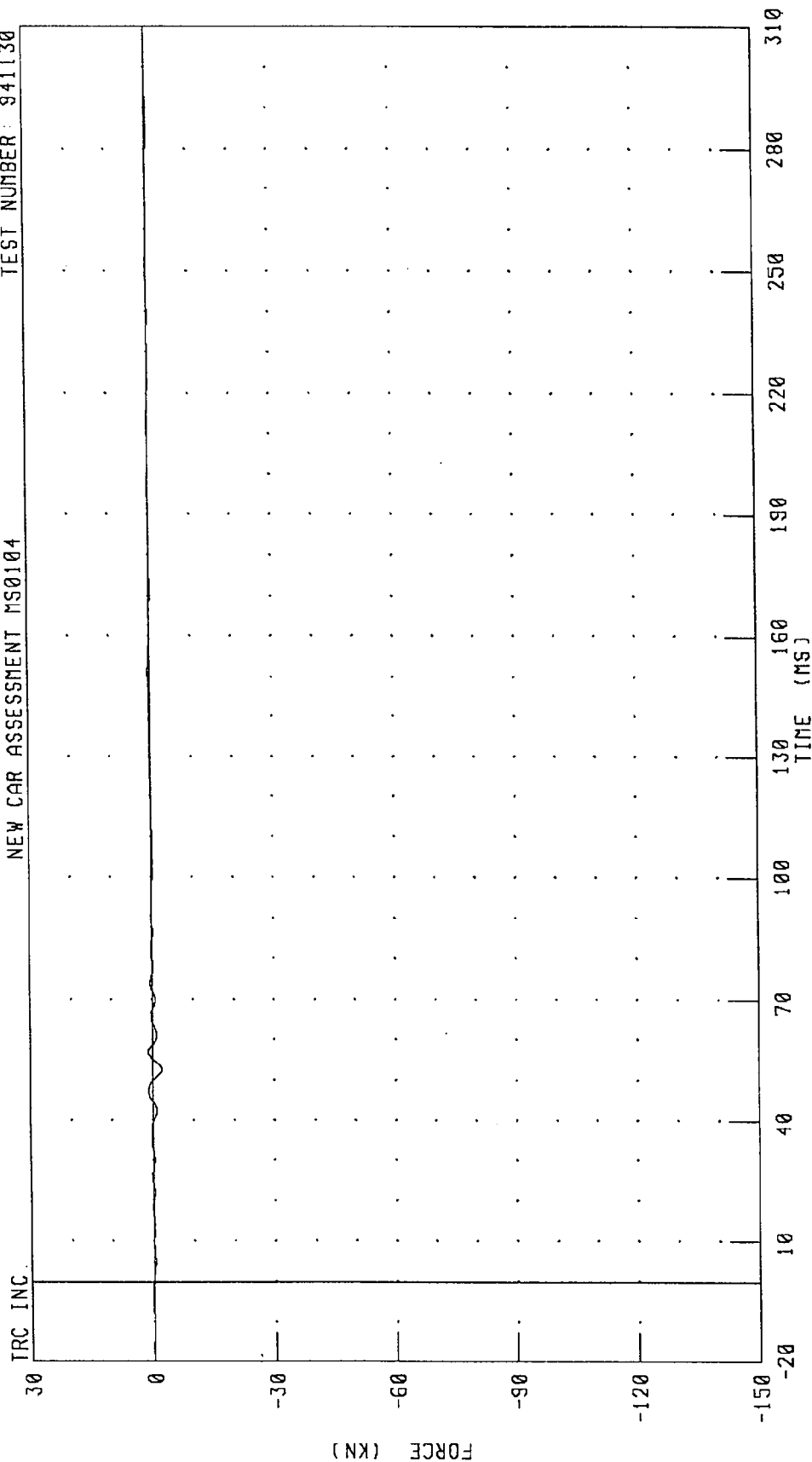
PEAK DATA: 1.98 KN @ 48.16 MS; -2.09 KN @ 52.40 MS

FILTER: CH. CLASS 60

CHANNEL: BASF

1995 CHEVROLET S10 BLAZER INTO FRONTAL LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION B1 FORCE
 NEW CAR ASSESSMENT MS0104

TEST NUMBER: 941130



PEAK DATA: 0.96 KN @ 56.88 MS; -2.29 KN @ 52.56 MS

FILTER: CH. CLASS 60

CHANNEL: BB1F

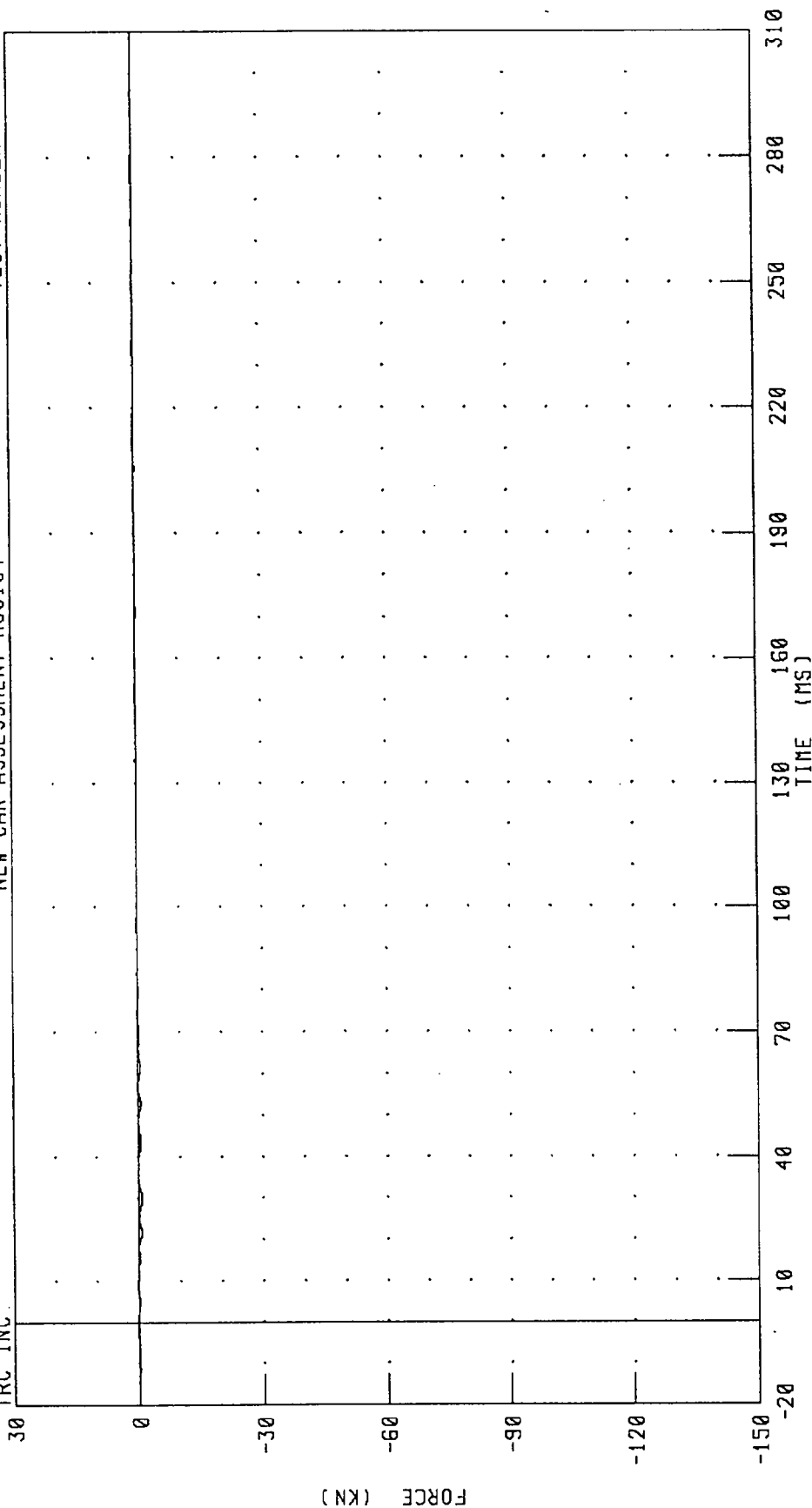
TRC INC.

1995 CHEVROLET S10 BLAZER INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION B2 FORCE

TEST NUMBER: 941130

NEW CAR ASSESSMENT MS0104

TRC INC.



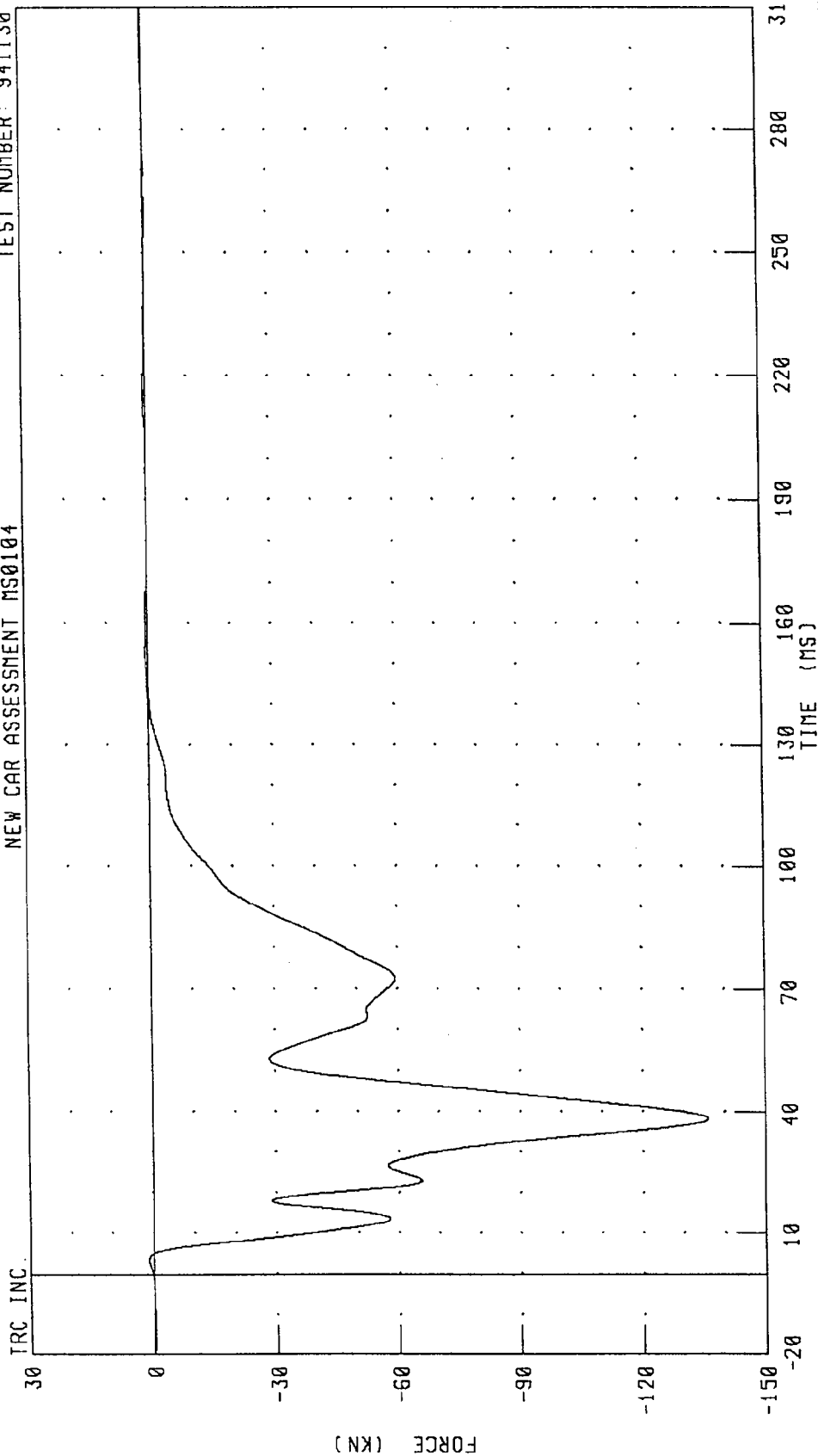
PEAK DATA: 0.20 KN @ 213.36 MS; -0.86 KN @ 21.76 MS

FILTER: CH. CLASS 60

CHANNEL: BB2F

1995 CHEVROLET S10 BLAZER INTO FRONTAL LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION B3 FORCE
 NEW CAR ASSESSMENT MS0104

TEST NUMBER: 941130



PEAK DATA: 1.20 KN @ 3.36 MS; -135.95 KN @ 38.24 MS

FILTER: CH. CLASS 60

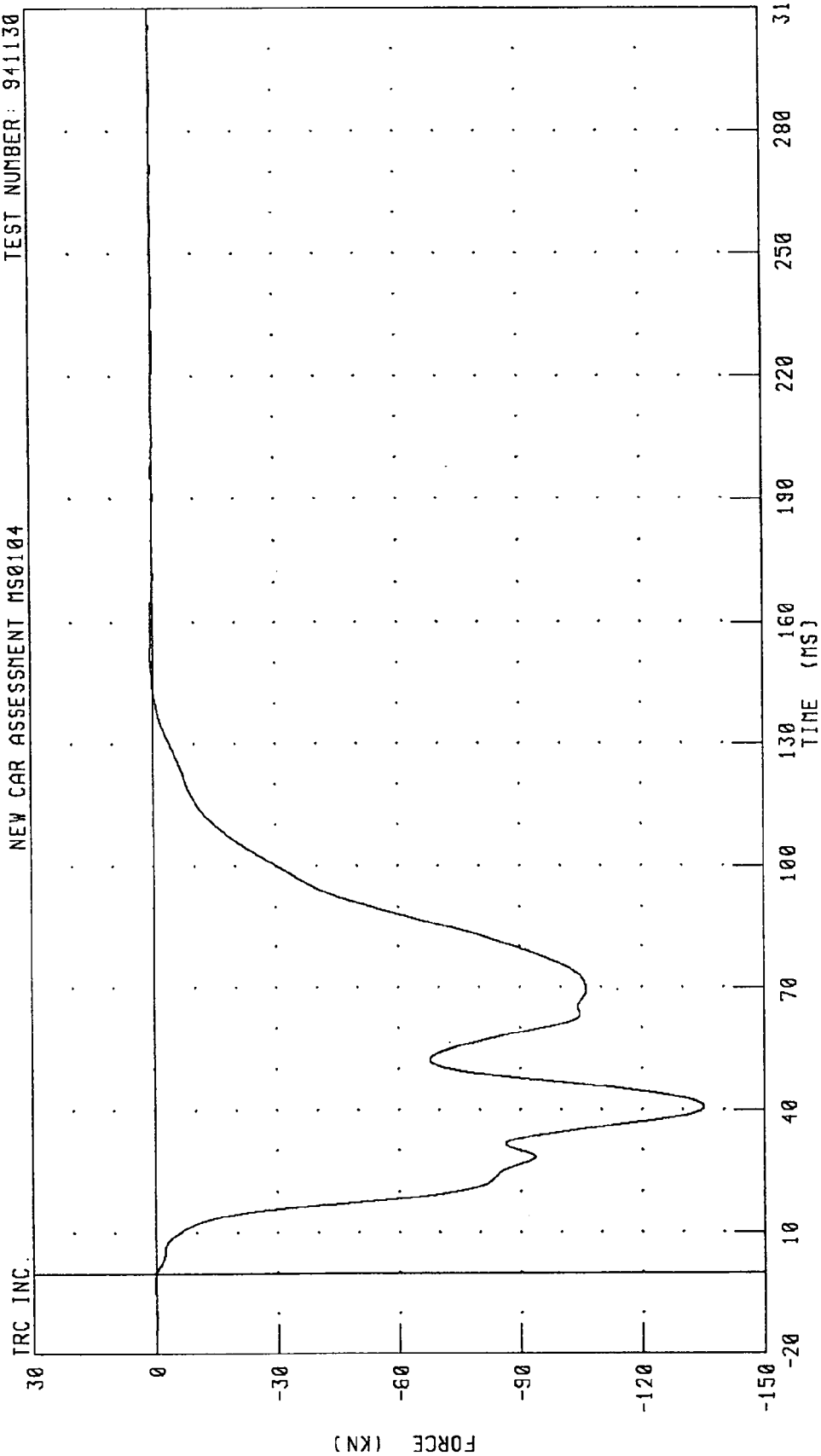
CHANNEL: BB3F

TRC INC.

1995 CHEVROLET S10 BLAZER INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION B4 FORCE

TEST NUMBER: 941130

NEW CAR ASSESSMENT MS0104



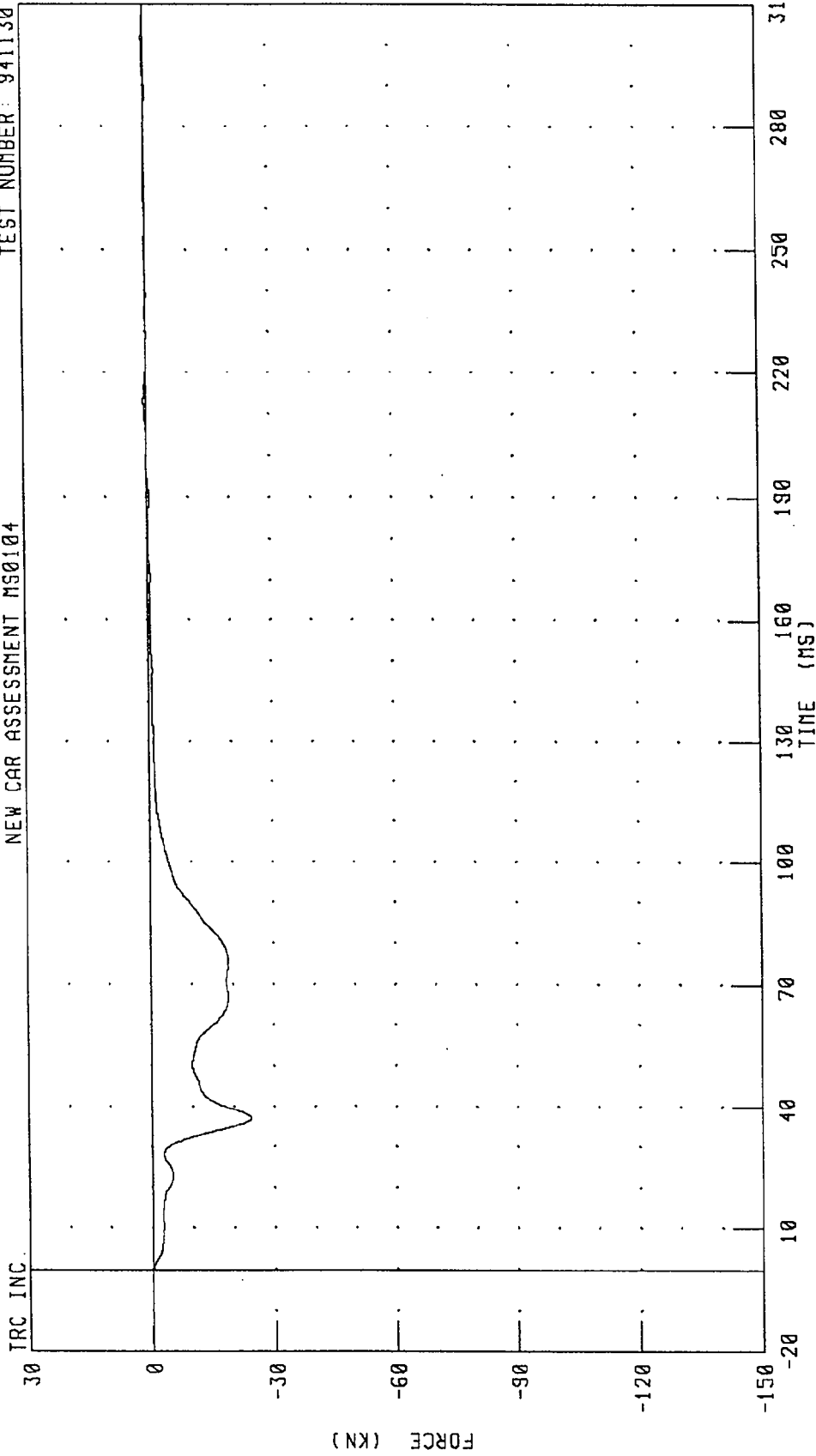
PEAK DATA: 0.67 KN @ 152.24 MS; -135.28 KN @ 40.80 MS

FILTER: CH. CLASS 60

CHANNEL: BB4F

1995 CHEVROLET S10 BLAZER INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION B5 FORCE
NEW CAR ASSESSMENT MS0104

TEST NUMBER: 941130

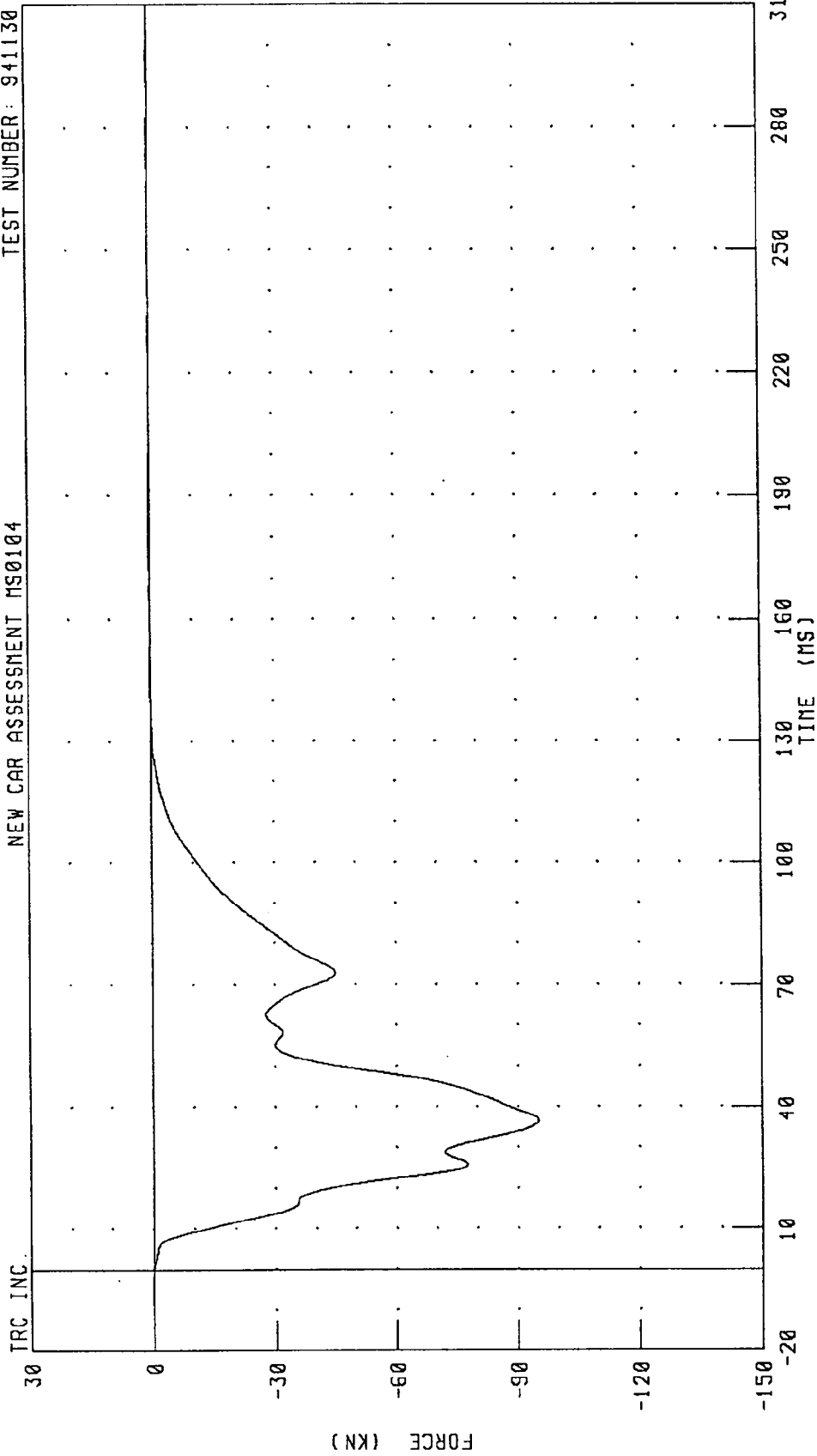


PEAK DATA: 0.61 KN @ 213.04 MS; -24.23 KN @ 37.12 MS

CHANNEL: B85F FILTER: CH. CLASS 60

1995 CHEVROLET S10 BLAZER INTO FRONTAL LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION B6 FORCE
 NEW CAR ASSESSMENT MS0104

TEST NUMBER: 941130

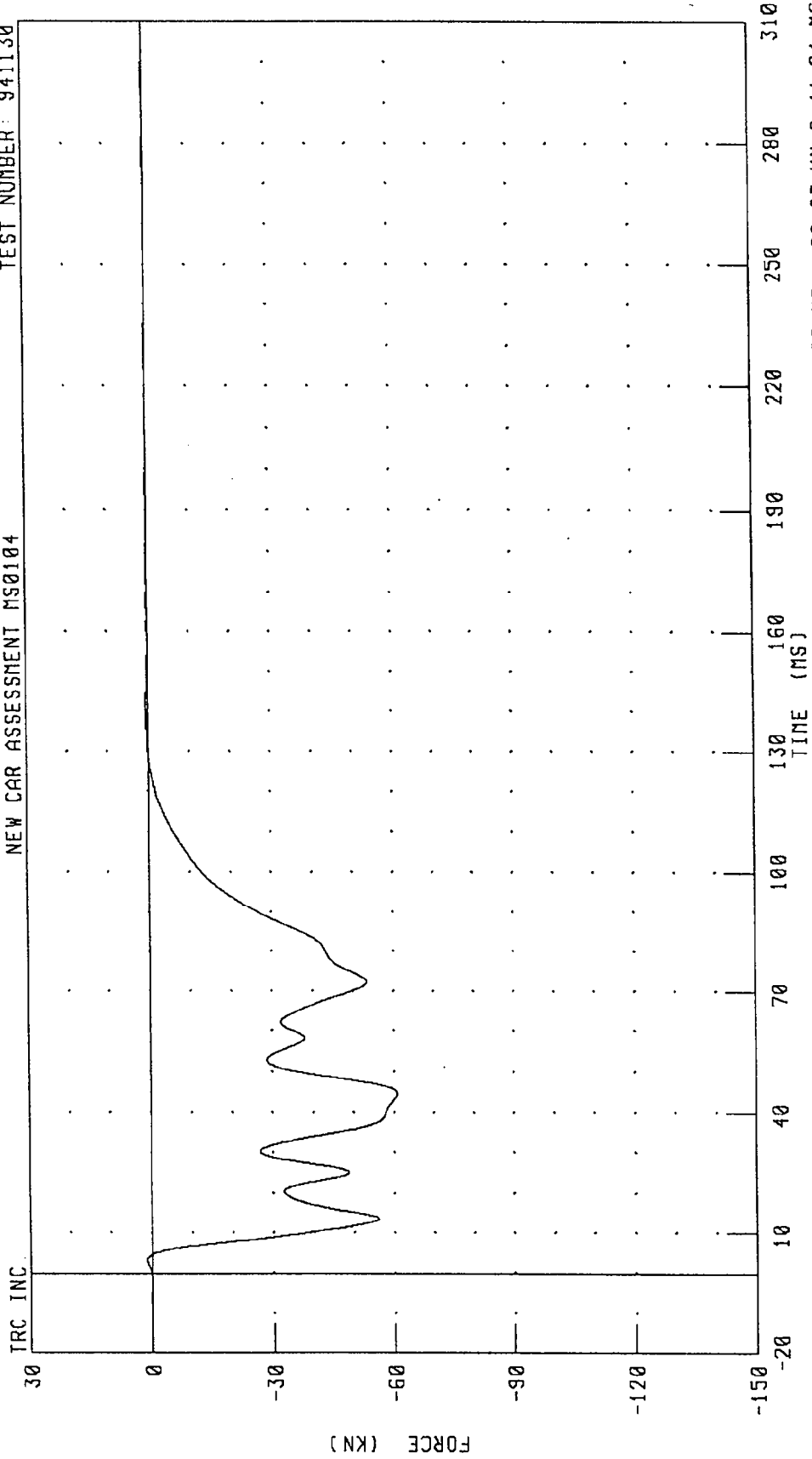


PEAK DATA: 0.30 KN @ 260.96 MS; -95.19 KN @ 36.64 MS

CHANNEL: BB6F FILTER: CH. CLASS 60

1995 CHEVROLET S10 BLAZER INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION B7 FORCE
NEW CAR ASSESSMENT MS0104

TEST NUMBER: 941130



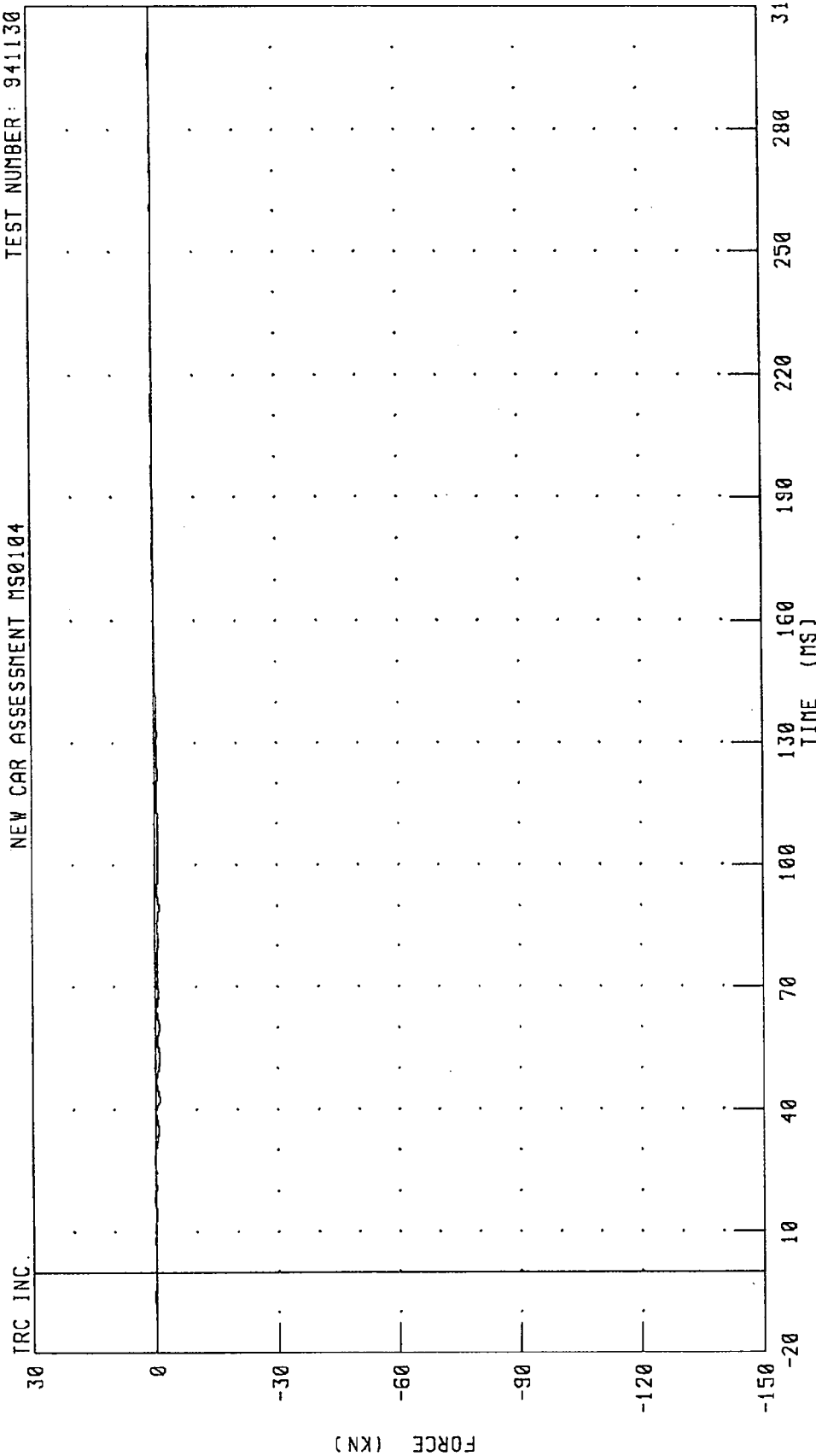
PEAK DATA: 1.18 KN @ 3.20 MS; -60.93 KN @ 44.64 MS

CHANNEL: BB7F FILTER: CH. CLASS 60

1995 CHEVROLET S10 BLAZER INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION B8 FORCE

TEST NUMBER: 941130

NEW CAR ASSESSMENT MS0104



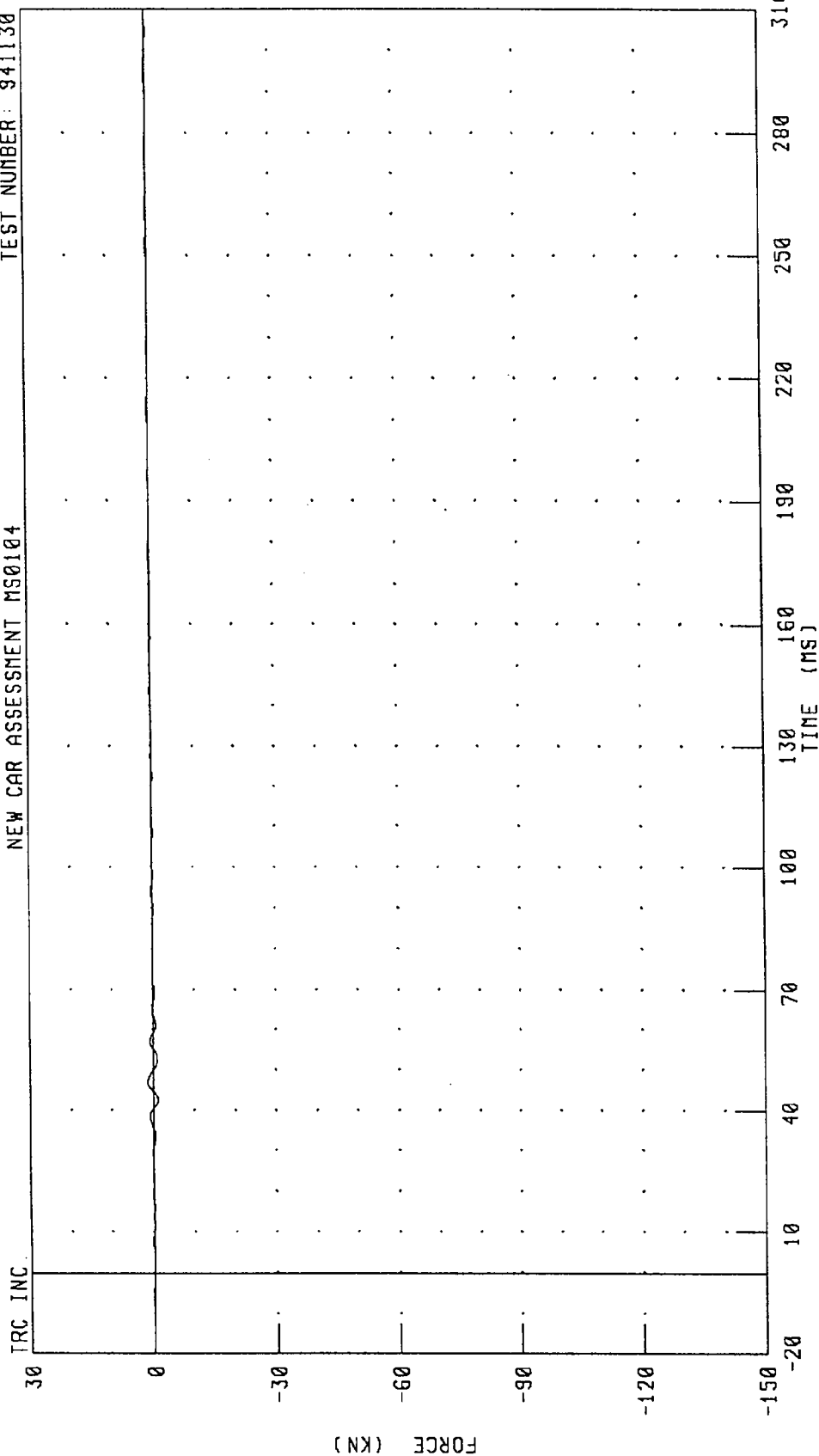
PEAK DATA: 0.24 KN @ 211.68 MS; -1.03 KN @ 42.56 MS

FILTER: CH. CLASS 60

CHANNEL: BB8F

1995 CHEVROLET S10 BLAZER INTO FRONTAL LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION B9 FORCE
 NEW CAR ASSESSMENT MS0104

TEST NUMBER: 941130

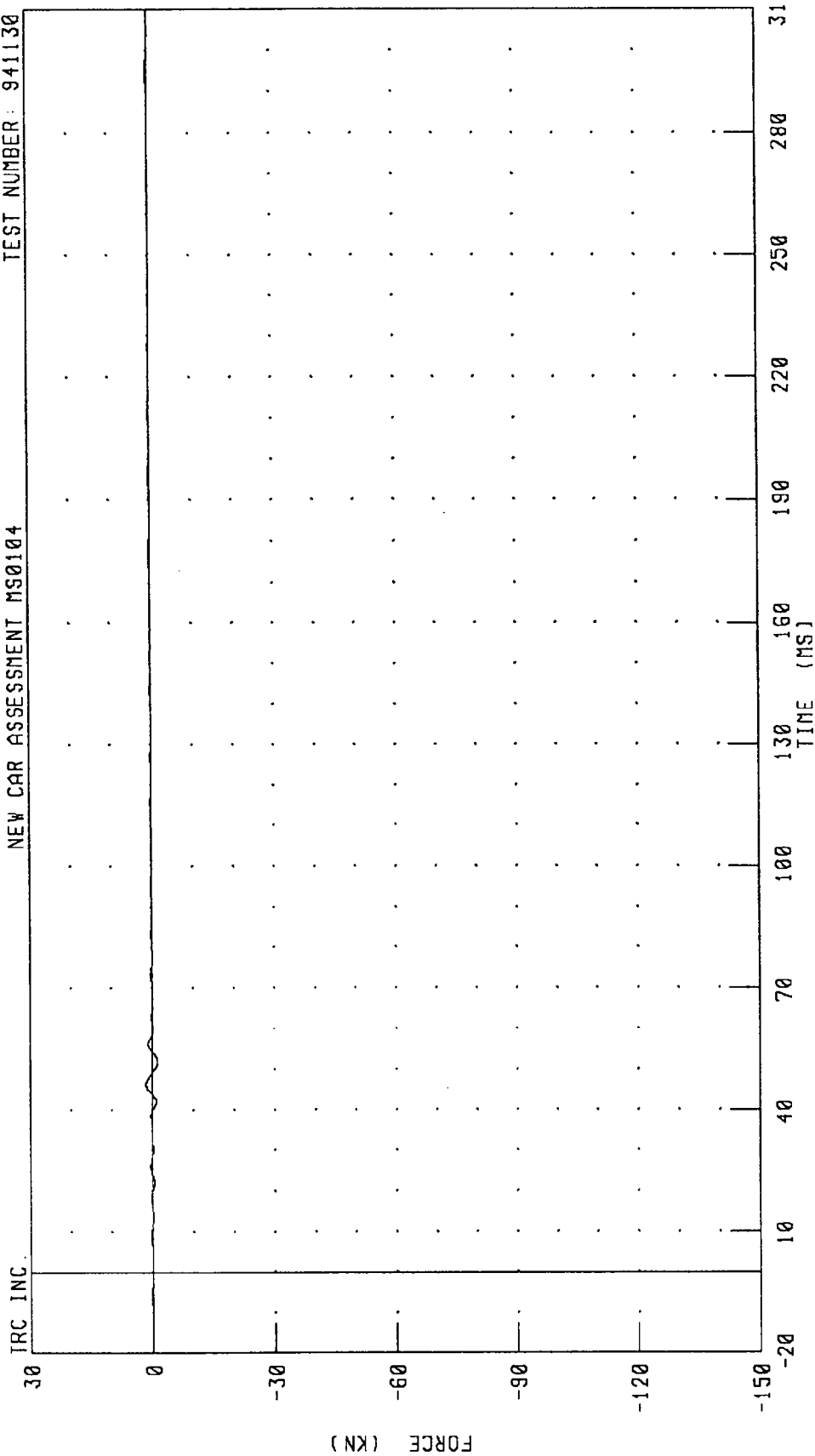


PEAK DATA: 1.24 KN @ 46.88 MS; -1.31 KN @ 42.64 MS

CHANNEL: BB9F FILTER: CH. CLASS 60

1995 CHEVROLET S10 BLAZER INTO FRONTAL LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION C1 FORCE
 NEW CAR ASSESSMENT MS0104

TEST NUMBER: 941130



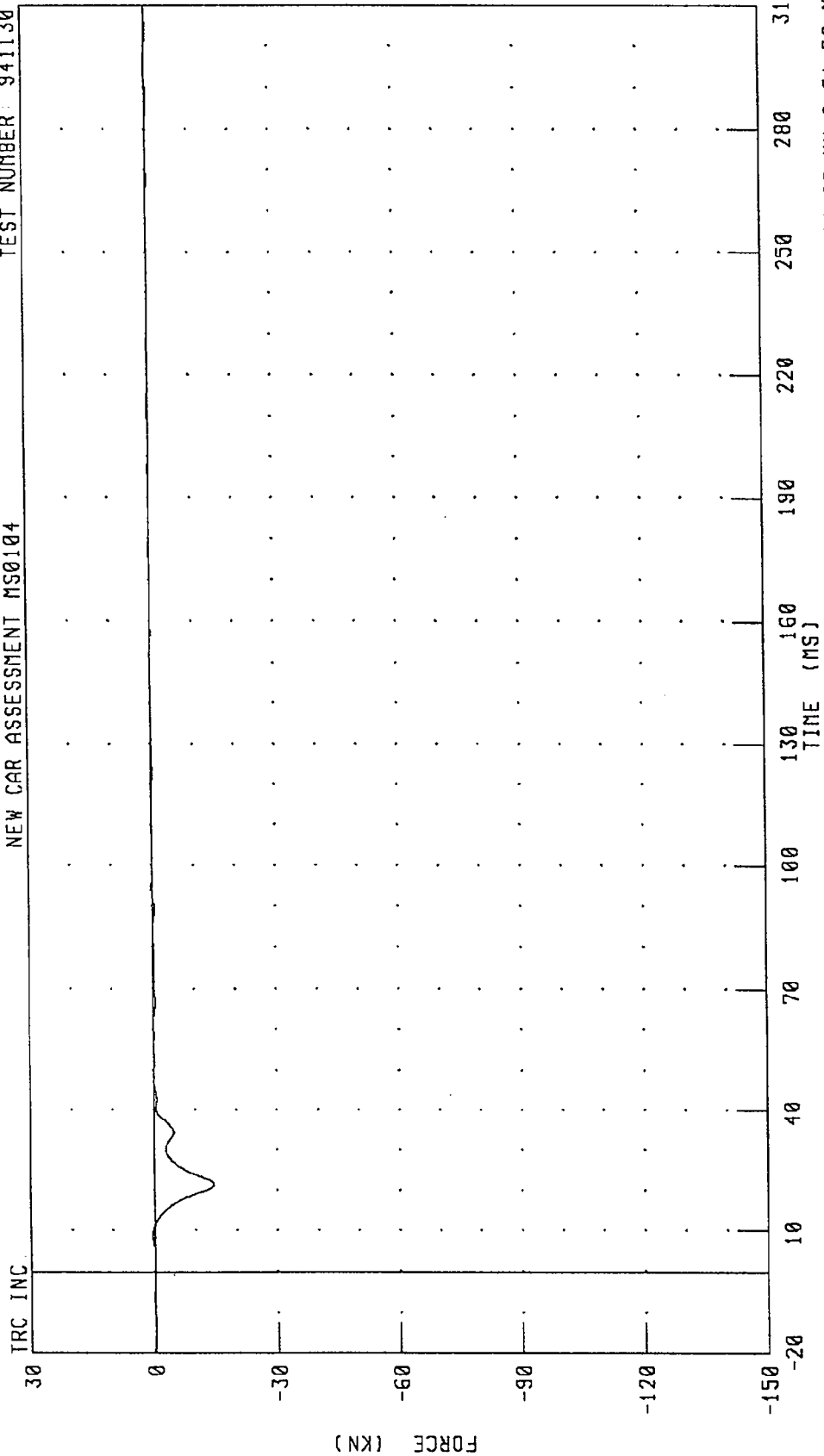
PEAK DATA: 1.43 KN @ 46.16 MS; -1.38 KN @ 51.92 MS

CHANNEL: BC1F FILTER: CH. CLASS 60

1995 CHEVROLET S10 BLAZER INTO FRONTAL LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION C2 FORCE

TEST NUMBER: 941130

NEW CAR ASSESSMENT MS0104



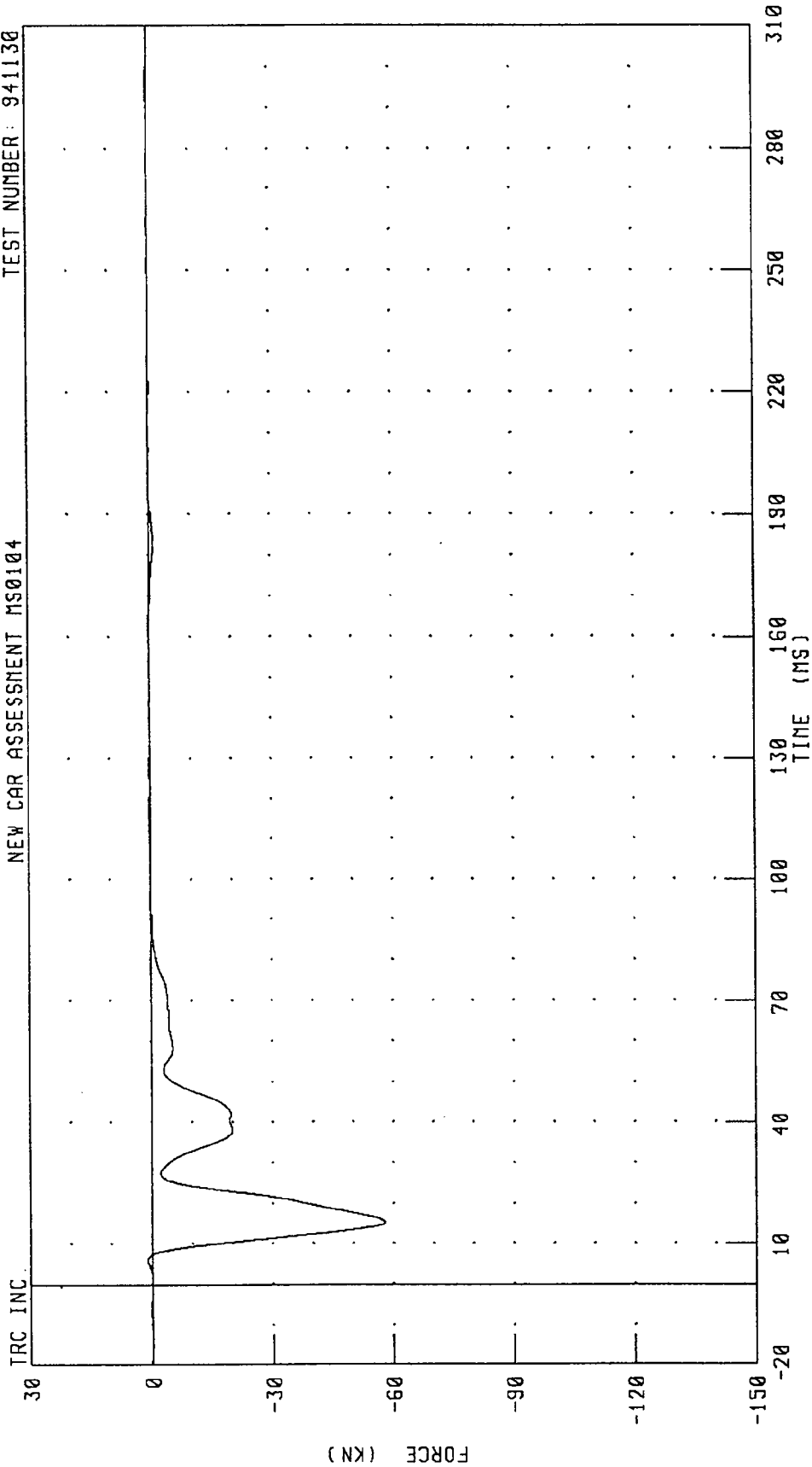
PEAK DATA: 0.44 KN @ 8.56 MS, -14.62 KN @ 21.52 MS

FILTER: CH. CLASS 60

CHANNEL: BC2F

1995 CHEVROLET S10 BLAZER INTO FRONTAL LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION C3 FORCE
 NEW CAR ASSESSMENT MS0104

TEST NUMBER: 941130



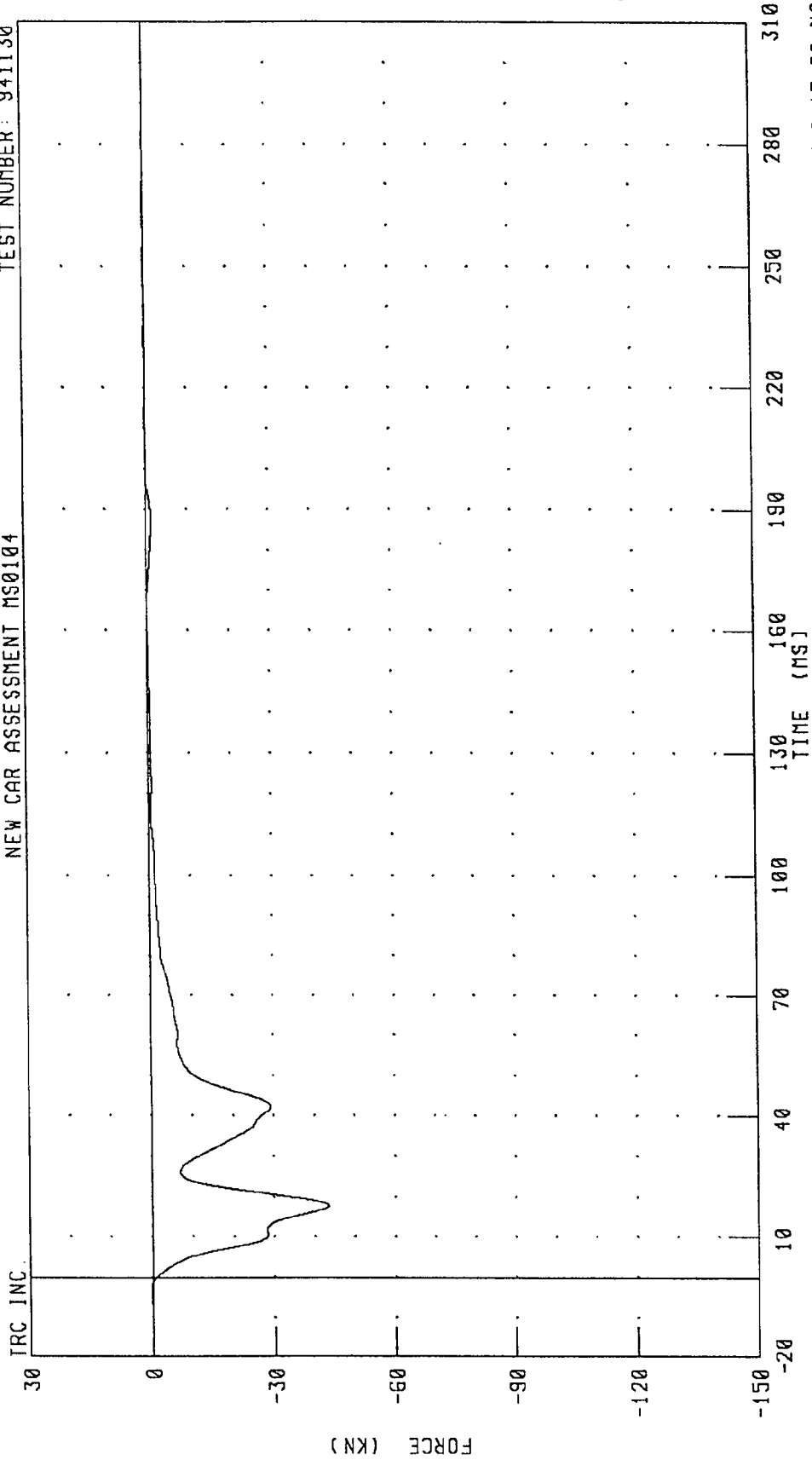
CHANNEL: BC3F FILTER: CH. CLASS 60

PEAK DATA: 1.00 KN @ 6.00 MS; -57.94 KN @ 15.44 MS

1995 CHEVROLET S10 BLAZER INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION C4 FORCE

TEST NUMBER: 941130

NEW CAR ASSESSMENT MS0104



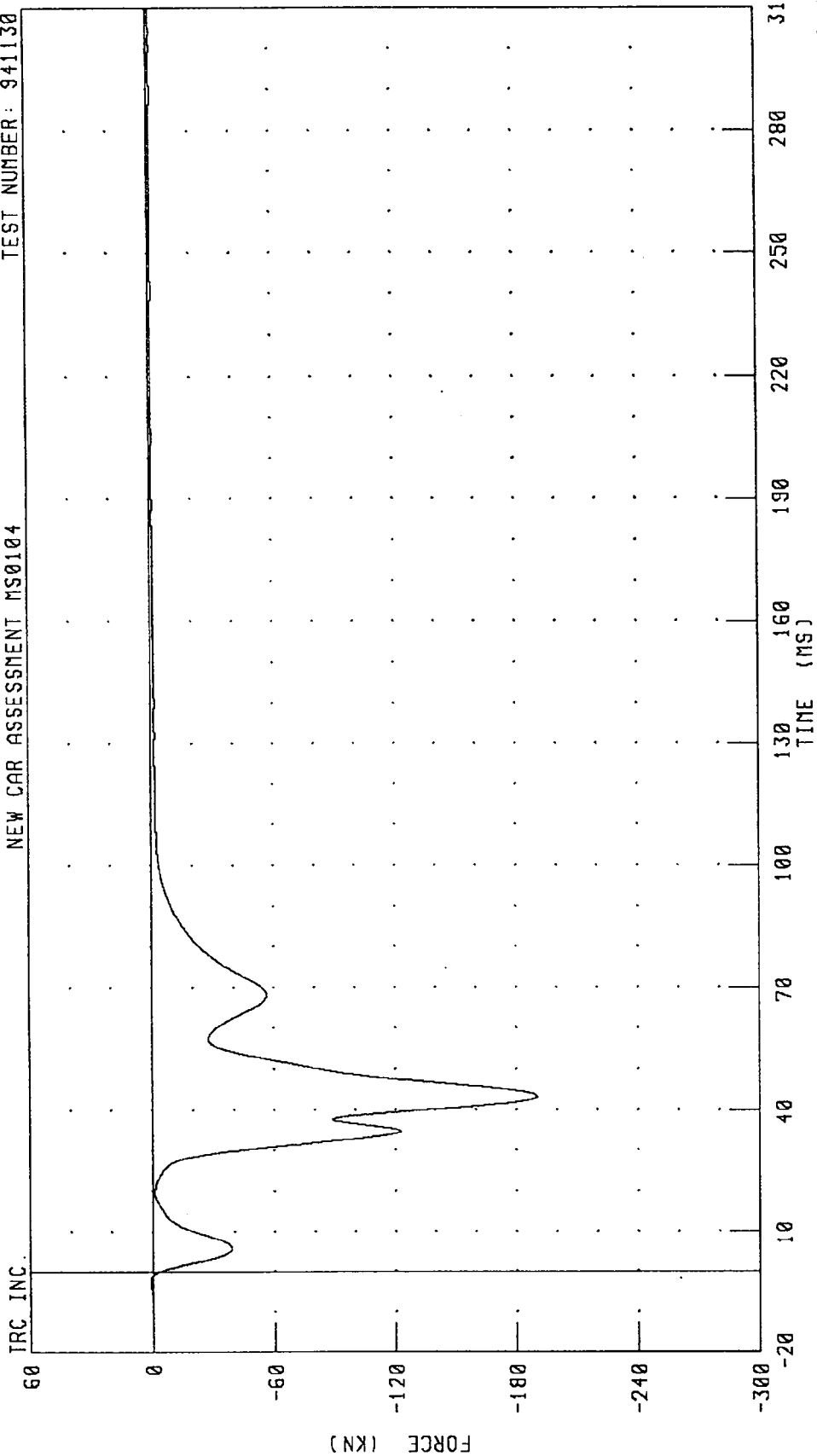
CHANNEL: BC4F, FILTER: CH. CLASS 60

PEAK DATA: 0.32 KN @ -3.20 MS; -43.47 KN @ 17.92 MS

1995 CHEVROLET S10 BLAZER INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION C5 FORCE

TEST NUMBER: 941130

NEW CAR ASSESSMENT MS0104



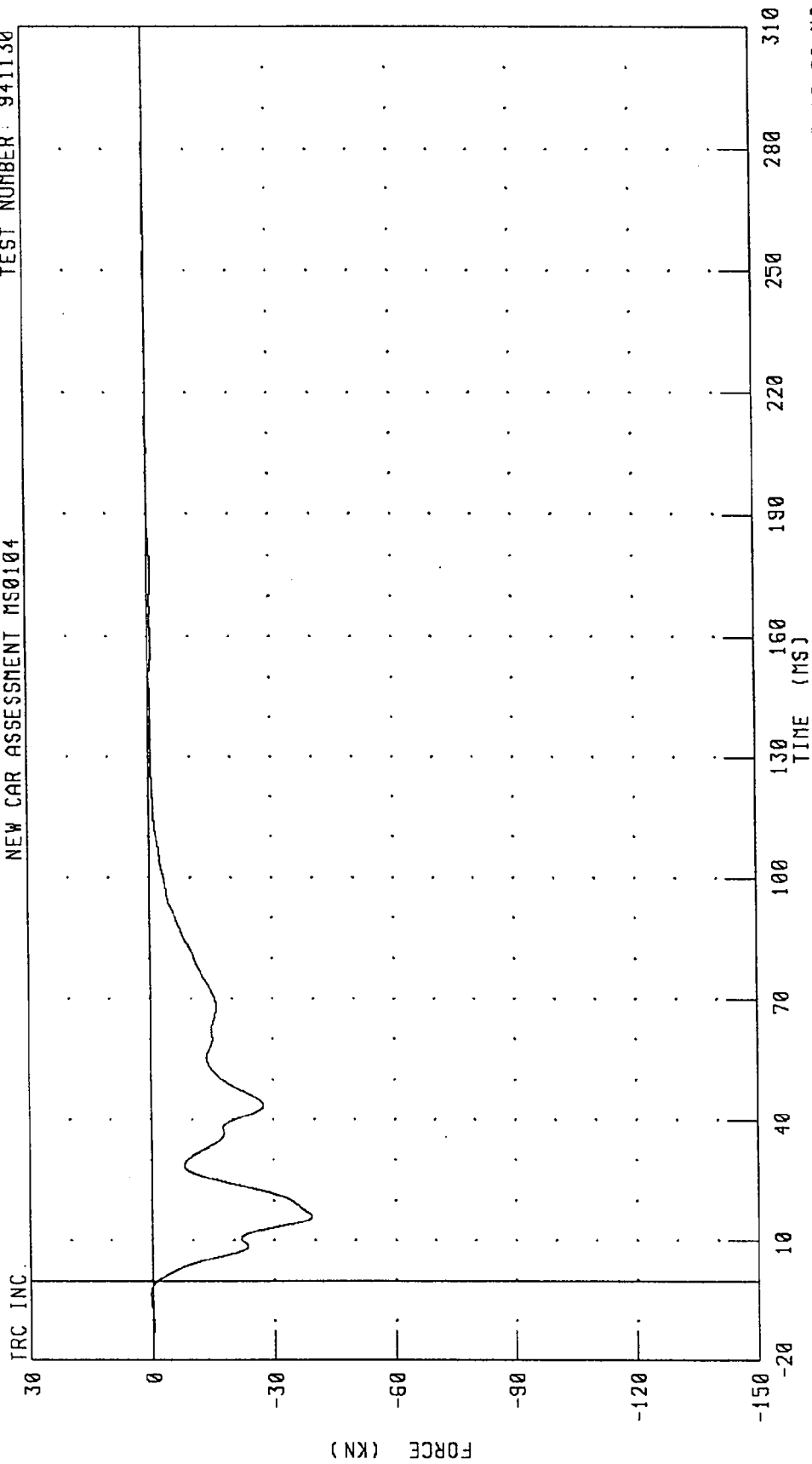
PEAK DATA: 1.19 KN @ -2.48 MS; -190.40 KN @ 43.28 MS

CHANNEL: BC5F FILTER: CH. CLASS 60

1995 CHEVROLET S10 BLAZER INTO FRONTAL LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION C6 FORCE

TEST NUMBER: 941130

NEW CAR ASSESSMENT MS0104



PEAK DATA: 0.35 KN @ -3.44 MS; -39.29 KN @ 16.00 MS

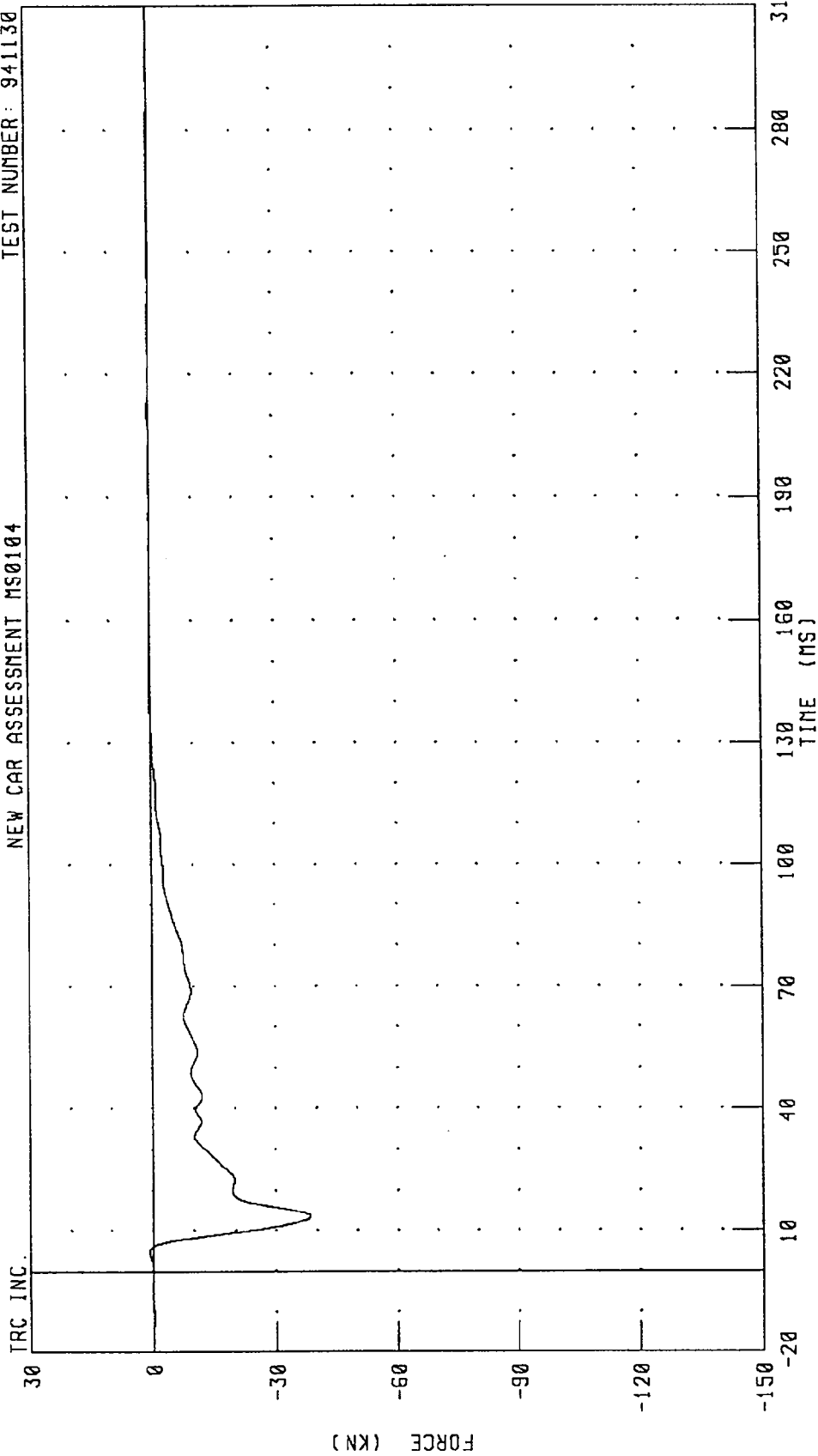
FILTER: CH. CLASS 60

CHANNEL: BCGF

TRC INC.

1995 CHEVROLET S10 BLAZER INTO FRONTAL LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION C7 FORCE
 NEW CAR ASSESSMENT MS0104

TEST NUMBER: 941130

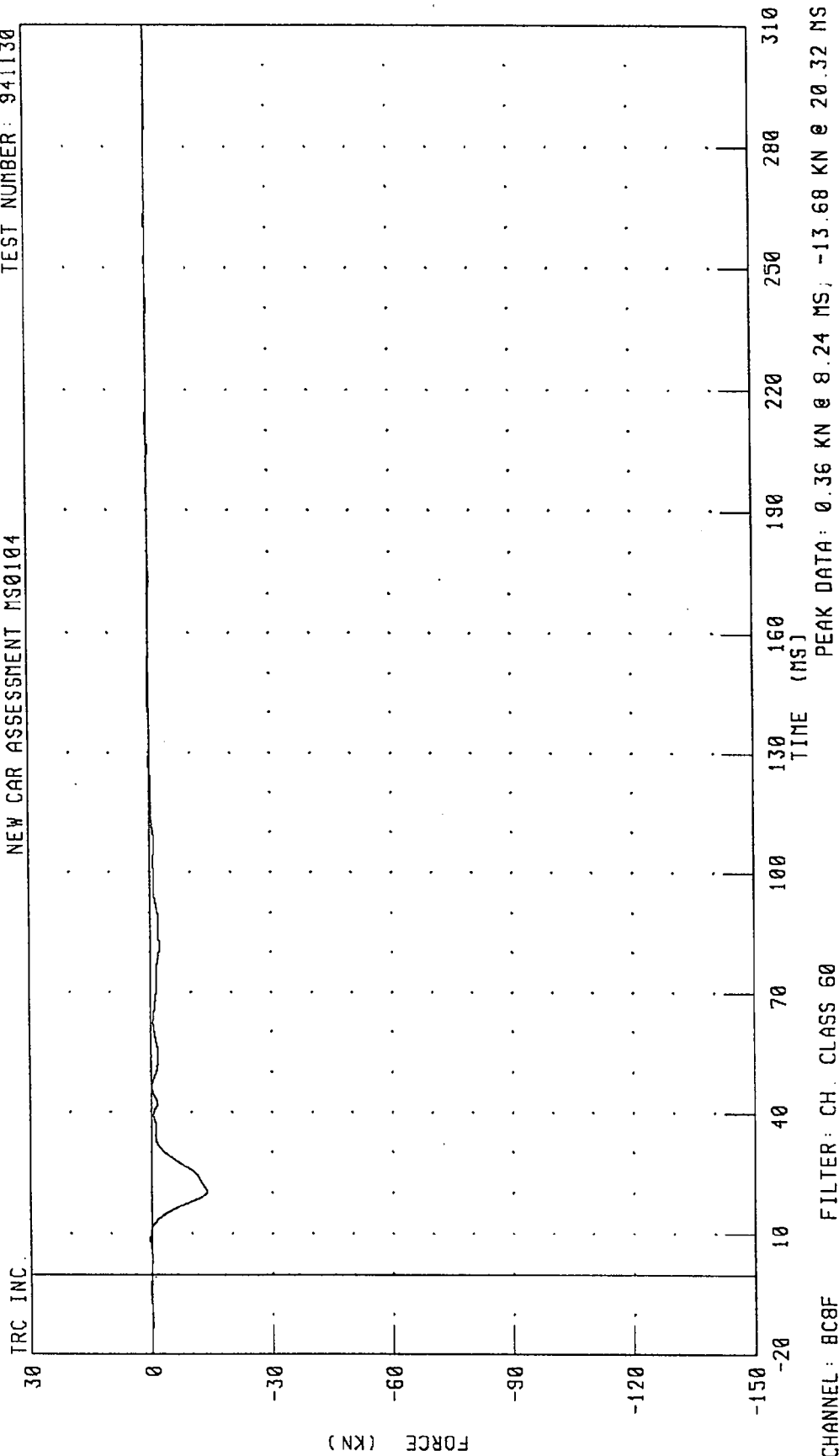


CHANNEL: BC7F FILTER: CH. CLASS 60

PEAK DATA: 0.74 KN @ 4.72 MS; -38.41 KN @ 13.52 MS

1995 CHEVROLET S10 BLAZER INTO FRONTAL LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION C8 FORCE
 NEW CAR ASSESSMENT MS0104

TEST NUMBER: 941130



PEAK DATA: 0.36 KN @ 8.24 MS; -13.68 KN @ 20.32 MS

CHANNEL: BC8F FILTER: CH. CLASS 60

TRC INC.

FORCE (KN)

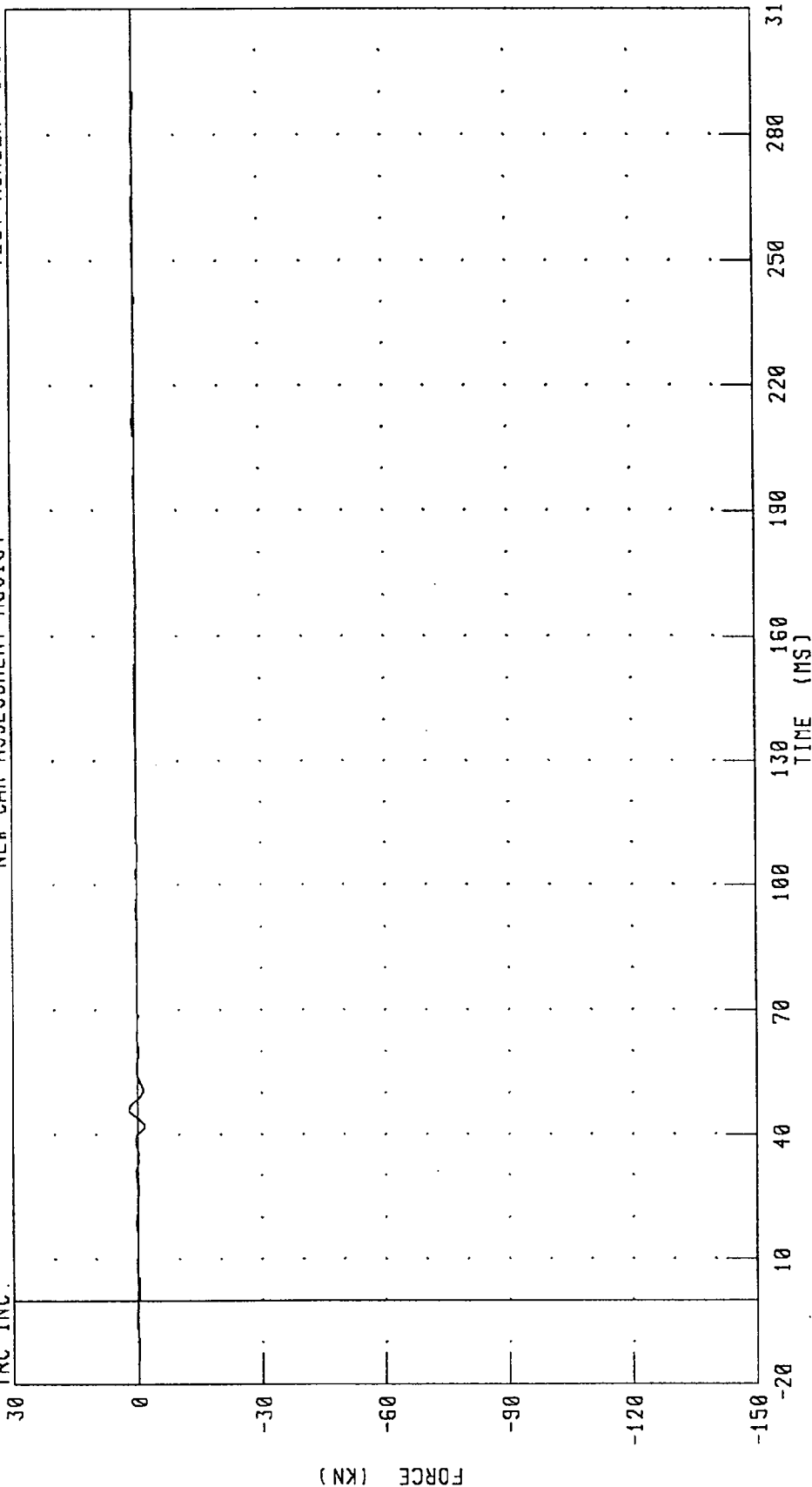
TIME (MS)

1995 CHEVROLET S10 BLAZER INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION C9 FORCE

TEST NUMBER: 941130

NEW CAR ASSESSMENT MS0104

TRC INC.



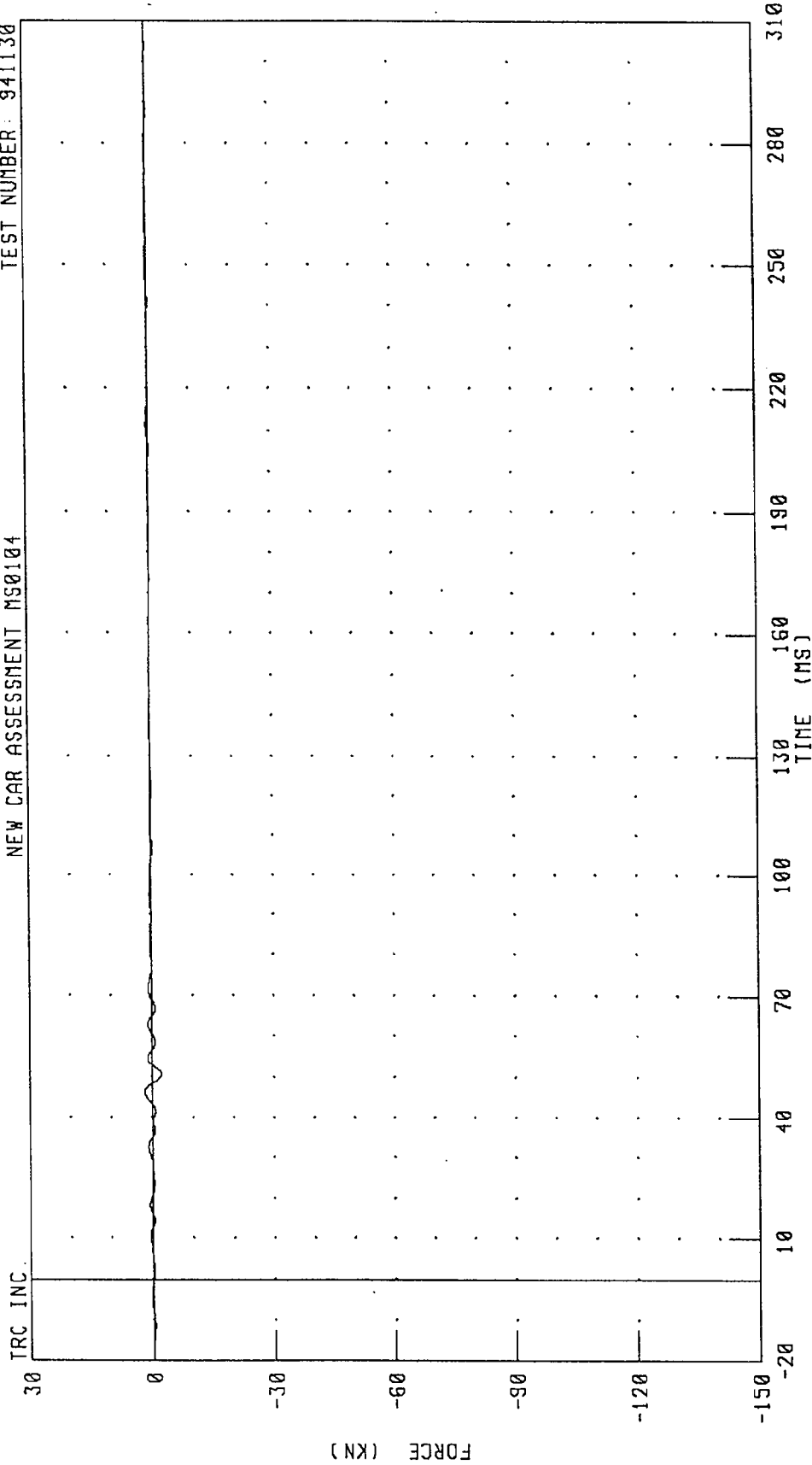
PEAK DATA: 1.96 KN @ 46.08 MS; -1.64 KN @ 42.24 MS

CHANNEL: BC9F FILTER: CH. CLASS 60

1995 CHEVROLET S10 BLAZER INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION D1 FORCE

TEST NUMBER: 941130

NEW CAR ASSESSMENT MS0104



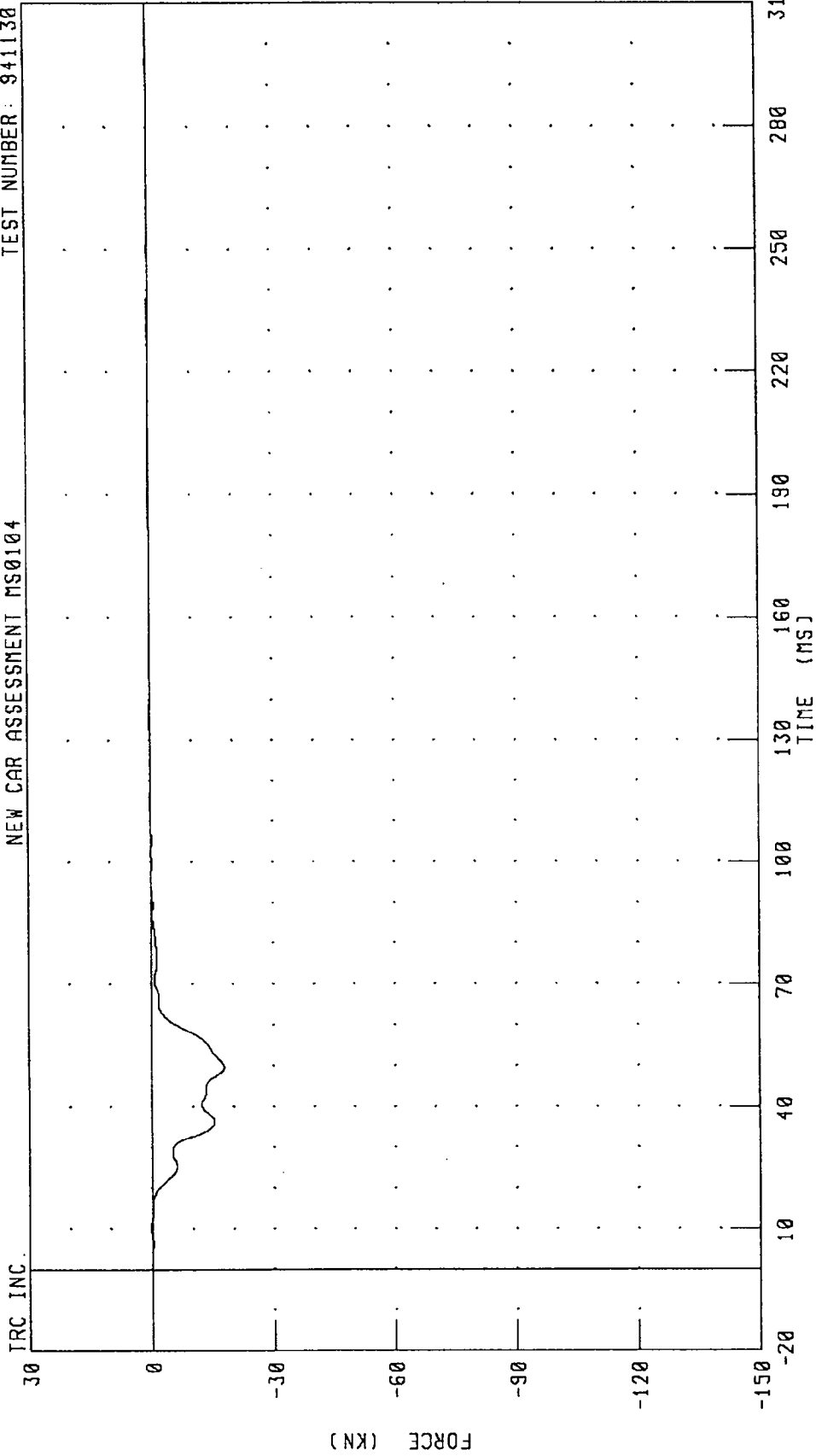
PEAK DATA: 1.82 KN @ 46.24 MS; -2.42 KN @ 50.64 MS

CHANNEL: B01F FILTER: CH. CLASS 60

1995 CHEVROLET S10 BLAZER INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION D2 FORCE

TEST NUMBER: 941130

NEW CAR ASSESSMENT MS0104



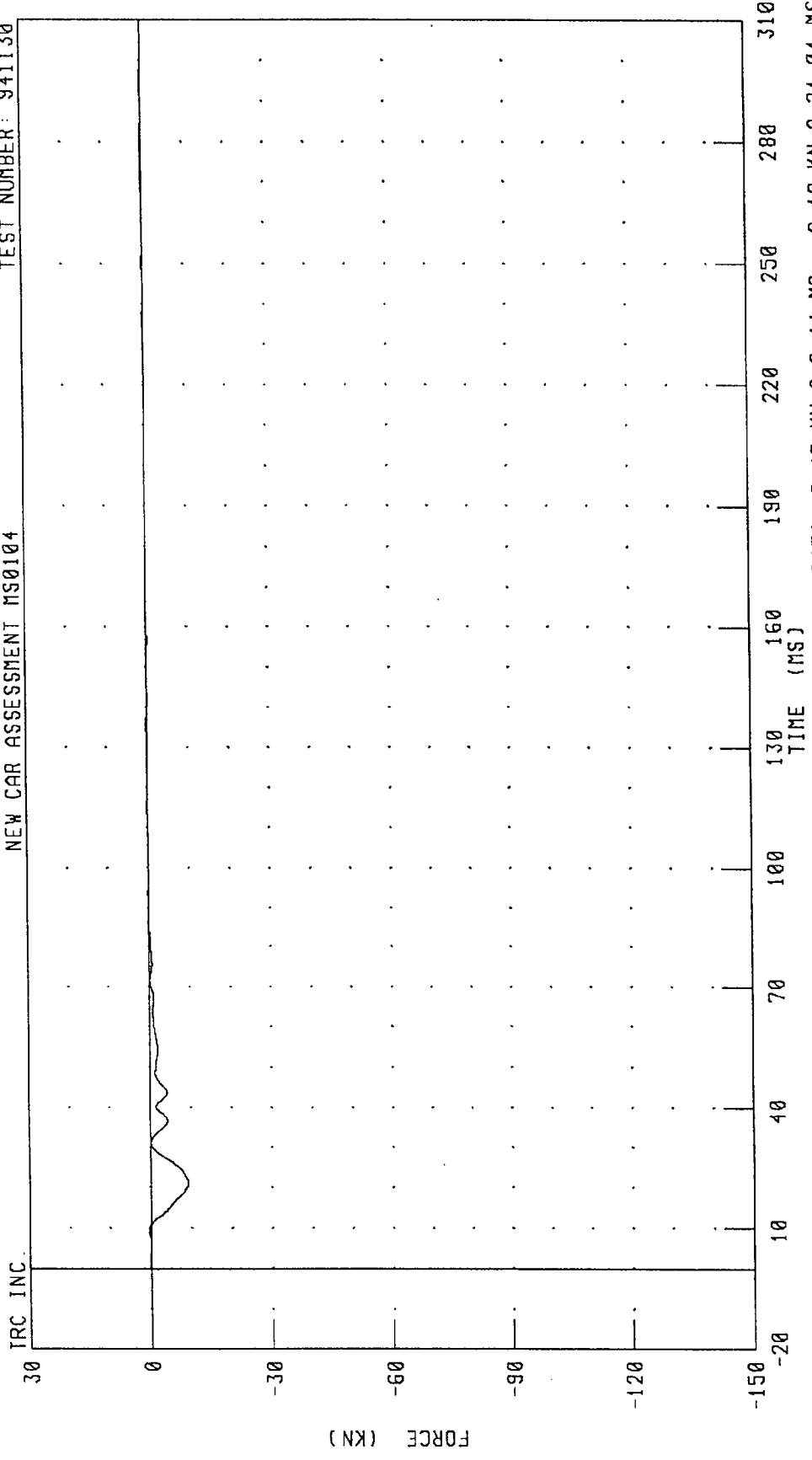
PEAK DATA: 0.24 KN @ 150.48 MS; -17.73 KN @ 49.68 MS

CHANNEL: BD2F FILTER: CH. CLASS 60

1995 CHEVROLET S10 BLAZER INTO FRONTAL LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION 03 FORCE

TEST NUMBER: 941130

NEW CAR ASSESSMENT MS0104



PEAK DATA: 0.47 KN @ 9.44 MS, -9.19 KN @ 21.04 MS

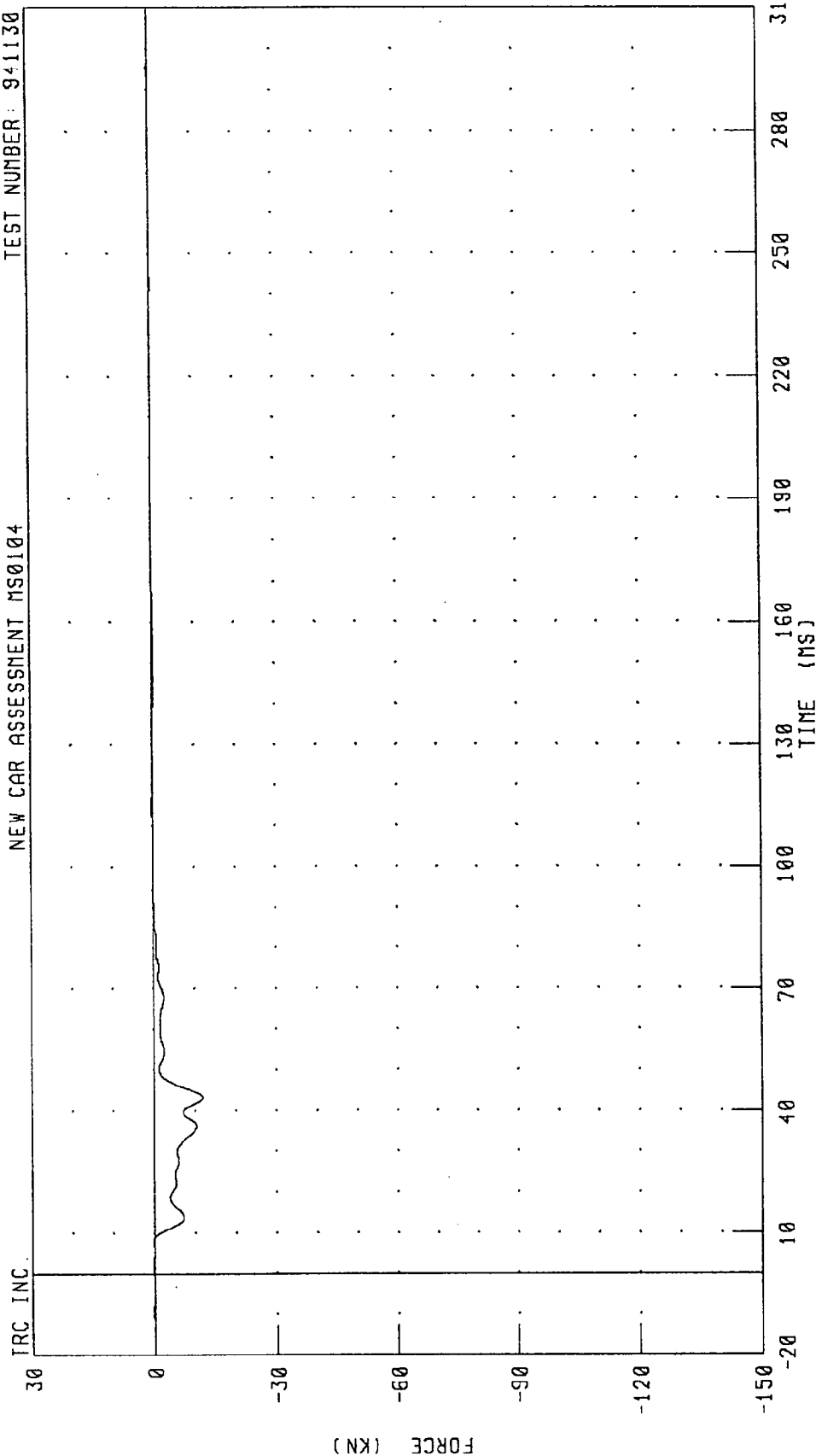
FILTER: CH. CLASS 60

CHANNEL: B03F

1995 CHEVROLET S10 BLAZER INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION D4 FORCE

TEST NUMBER: 941130

NEW CAR ASSESSMENT MS0104

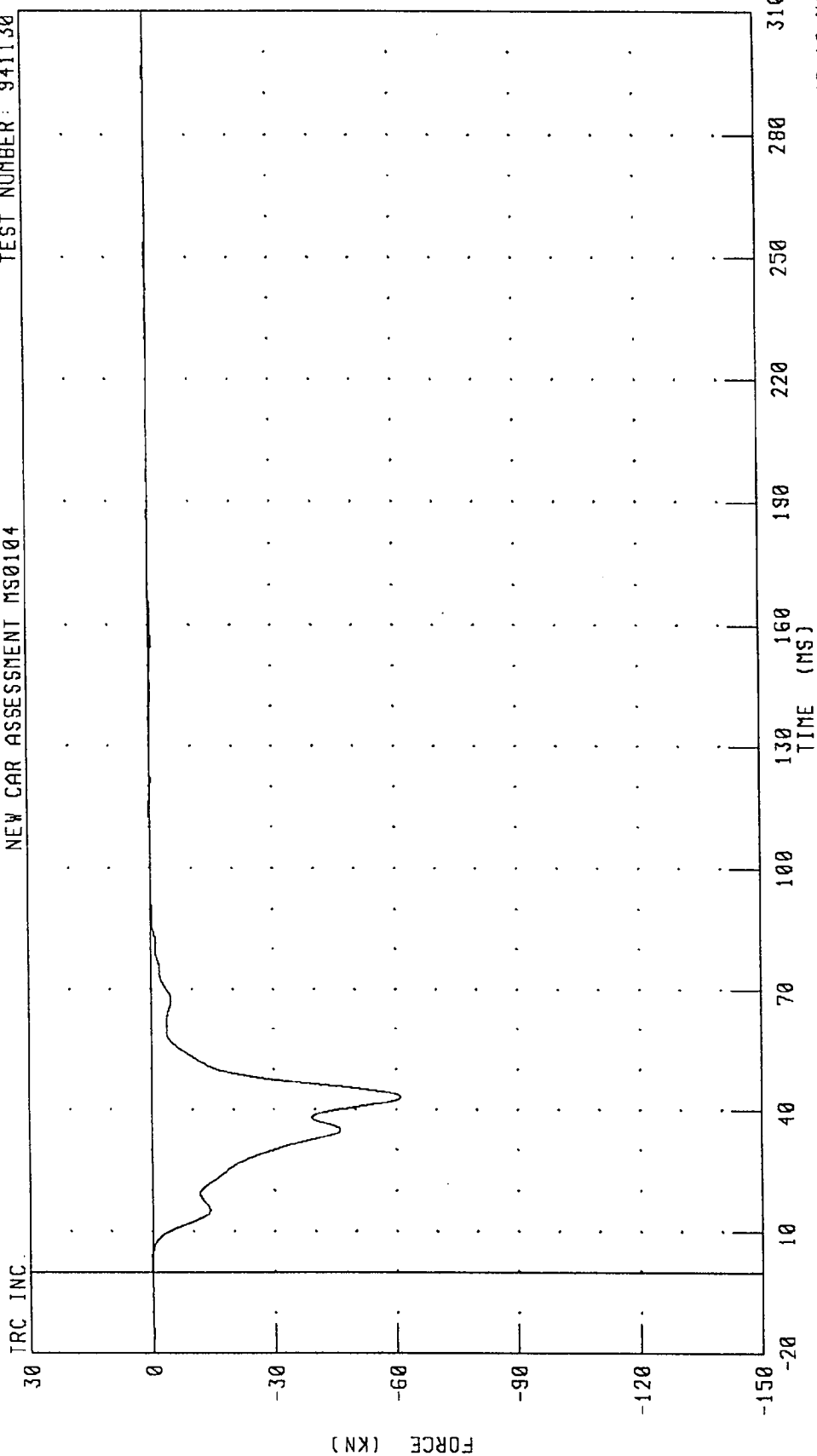


PEAK DATA: 0.24 KN @ 2.32 MS; -11.93 KN @ 43.28 MS

CHANNEL: B04F FILTER: CH. CLASS 60

1995 CHEVROLET S10 BLAZER INTO FRONTAL LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION 05 FORCE
 NEW CAR ASSESSMENT MS0104

TEST NUMBER: 941130



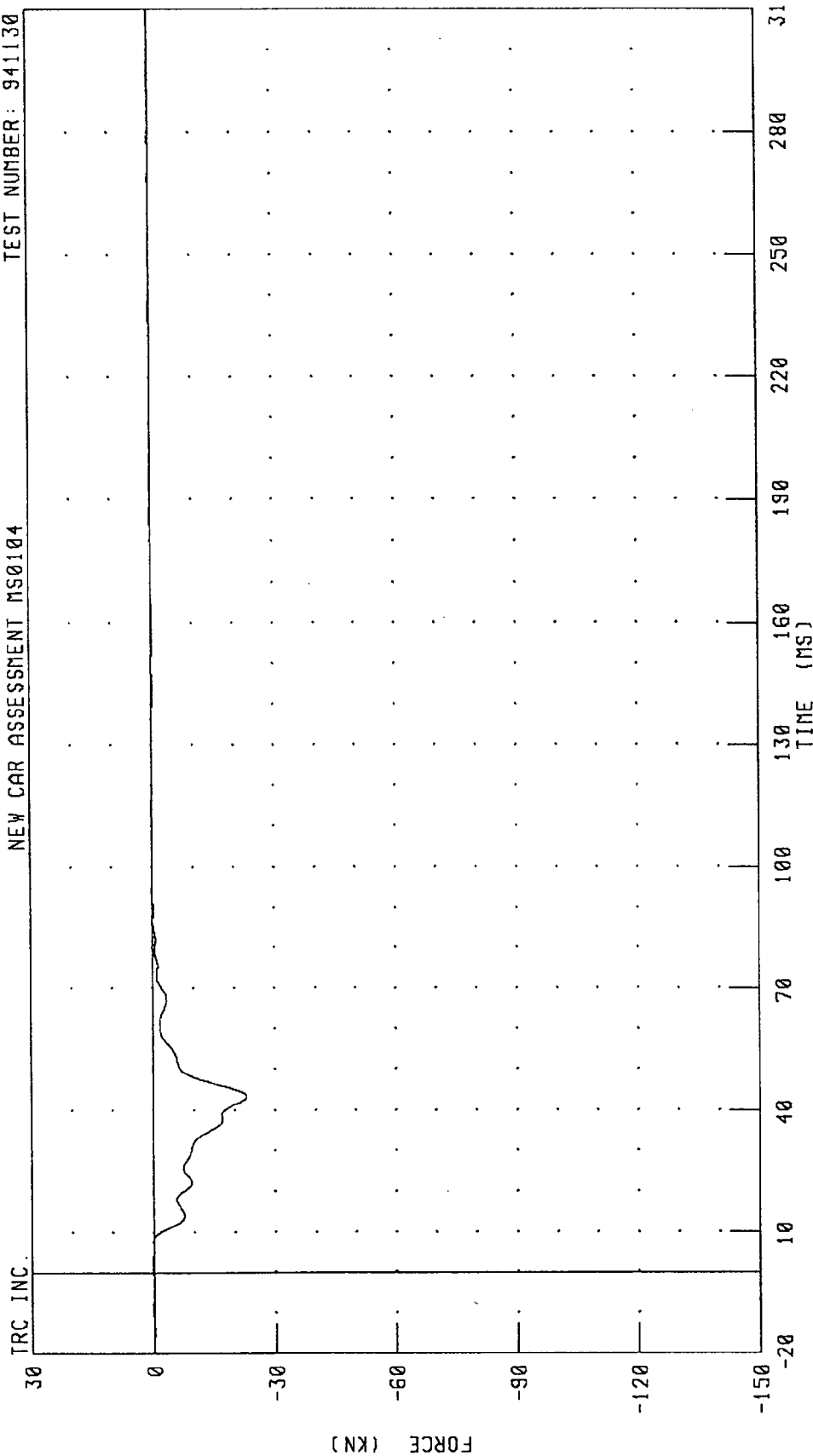
PEAK DATA: 0.30 KN @ 2.56 MS; -61.28 KN @ 43.12 MS

FILTER: CH. CLASS 60

CHANNEL: B05F

1995 CHEVROLET S10 BLAZER INTO FRONTAL LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION D6 FORCE
 NEW CAR ASSESSMENT MS0104

TEST NUMBER: 941130

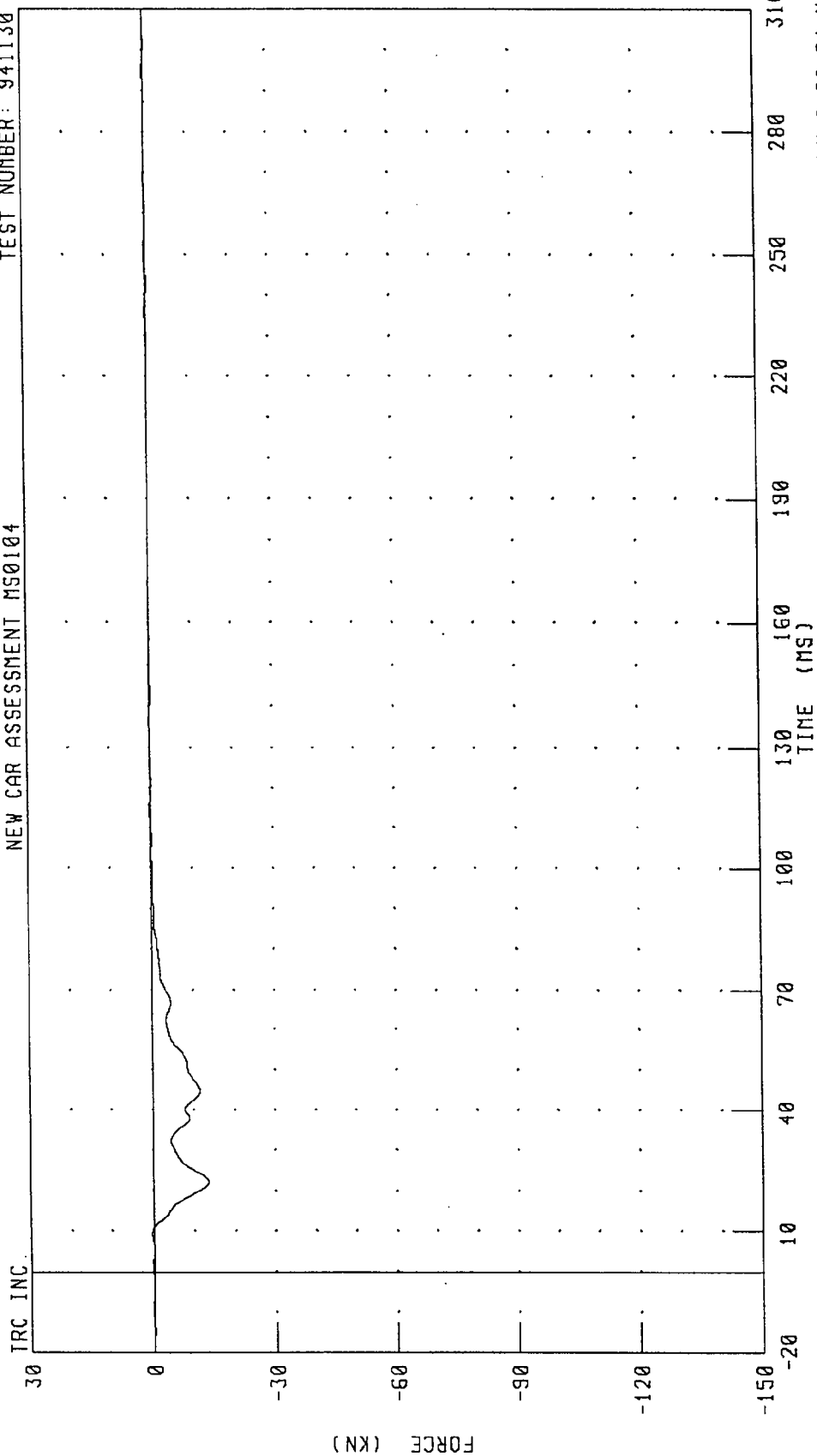


PEAK DATA: 0.24 KN @ 2.40 MS; -22.99 KN @ 43.36 MS

CHANNEL: BD6F FILTER: CH. CLASS 60

1995 CHEVROLET S10 BLAZER INTO FRONTAL LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION D7 FORCE
 NEW CAR ASSESSMENT MS0104

TEST NUMBER: 941130



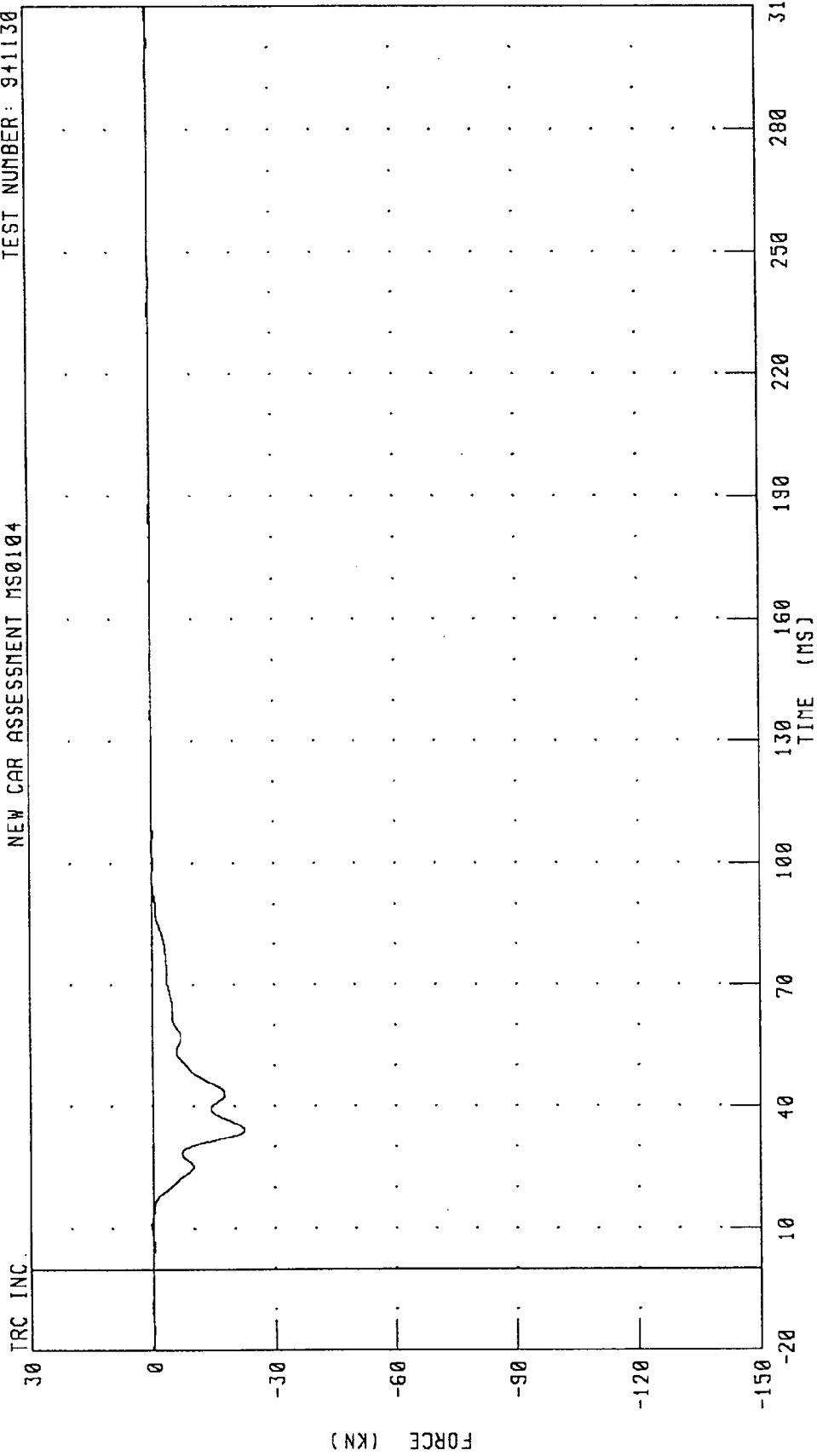
CHANNEL: B07F FILTER: CH. CLASS 60

PEAK DATA: 0.38 KN @ 9.28 MS; -13.54 KN @ 22.24 MS

1995 CHEVROLET S10 BLAZER INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION D8 FORCE

TEST NUMBER: 941130

NEW CAR ASSESSMENT MS0104

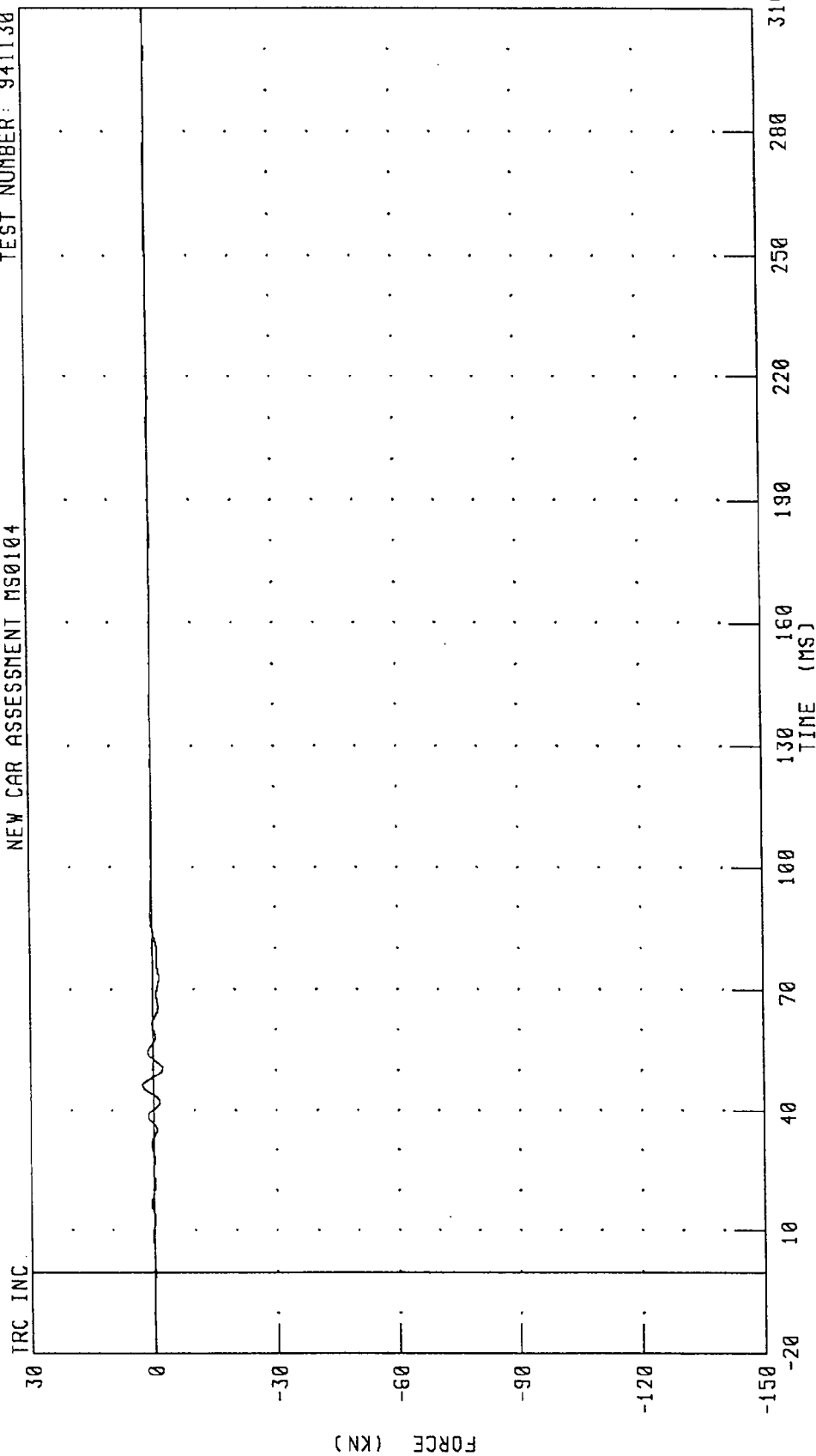


PEAK DATA: 0.38 KN @ 10.72 MS; -22.52 KN @ 34.32 MS

CHANNEL: BD8F FILTER: CH. CLASS 60

1995 CHEVROLET S10 BLAZER INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION D9 FORCE

NEW CAR ASSESSMENT MS0104 TEST NUMBER: 941130

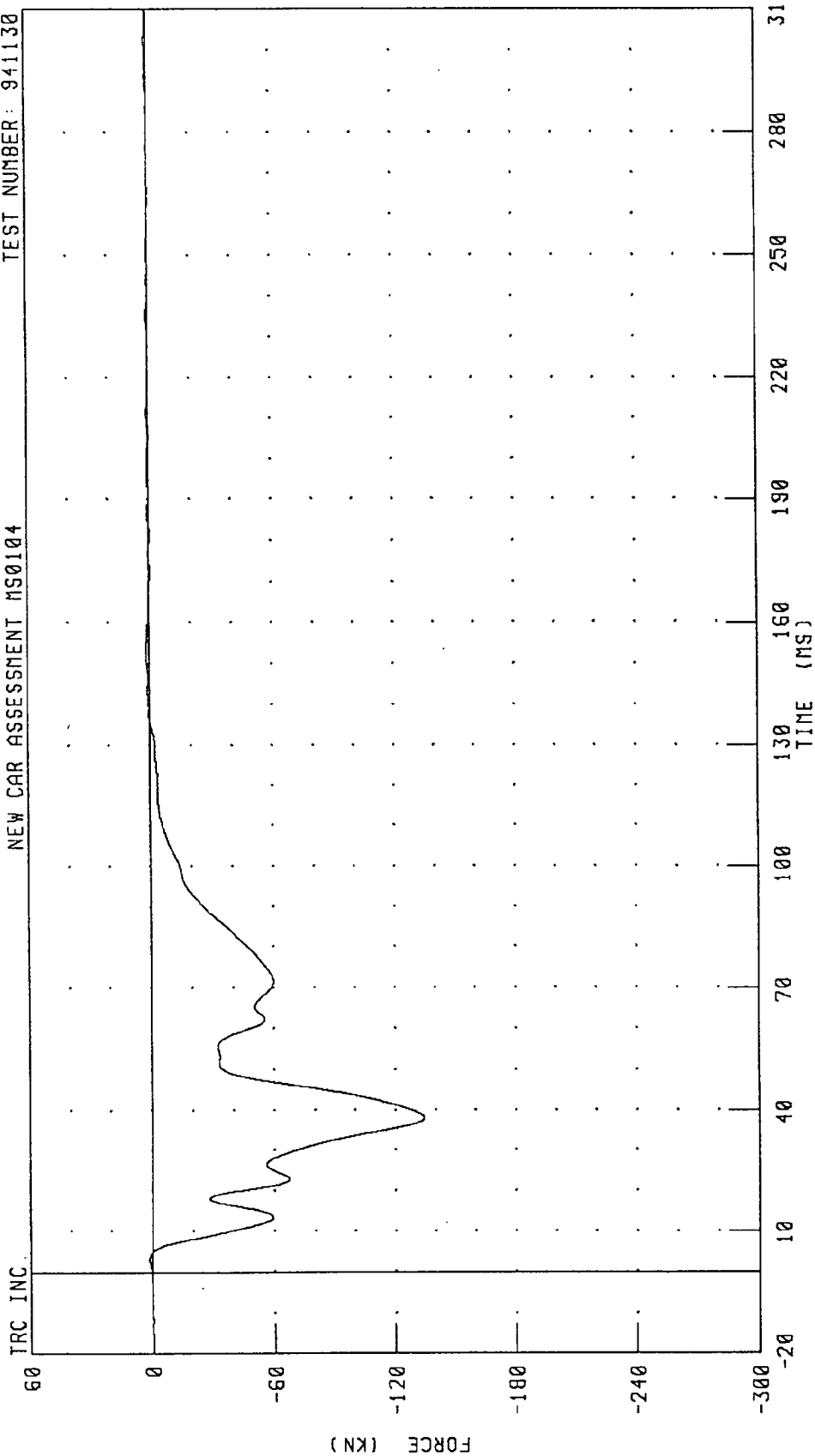


PEAK DATA: 2.53 KN @ 46.24 MS; -2.38 KN @ 50.32 MS

CHANNEL: B09F FILTER: CH. CLASS 60

1995 CHEVROLET S10 BLAZER INTO FRONTAL LOAD CELL BARRIER
 LOAD CELL BARRIER GROUP # 1 FORCE TOTAL
 NEW CAR ASSESSMENT MS0104

TEST NUMBER: 941130

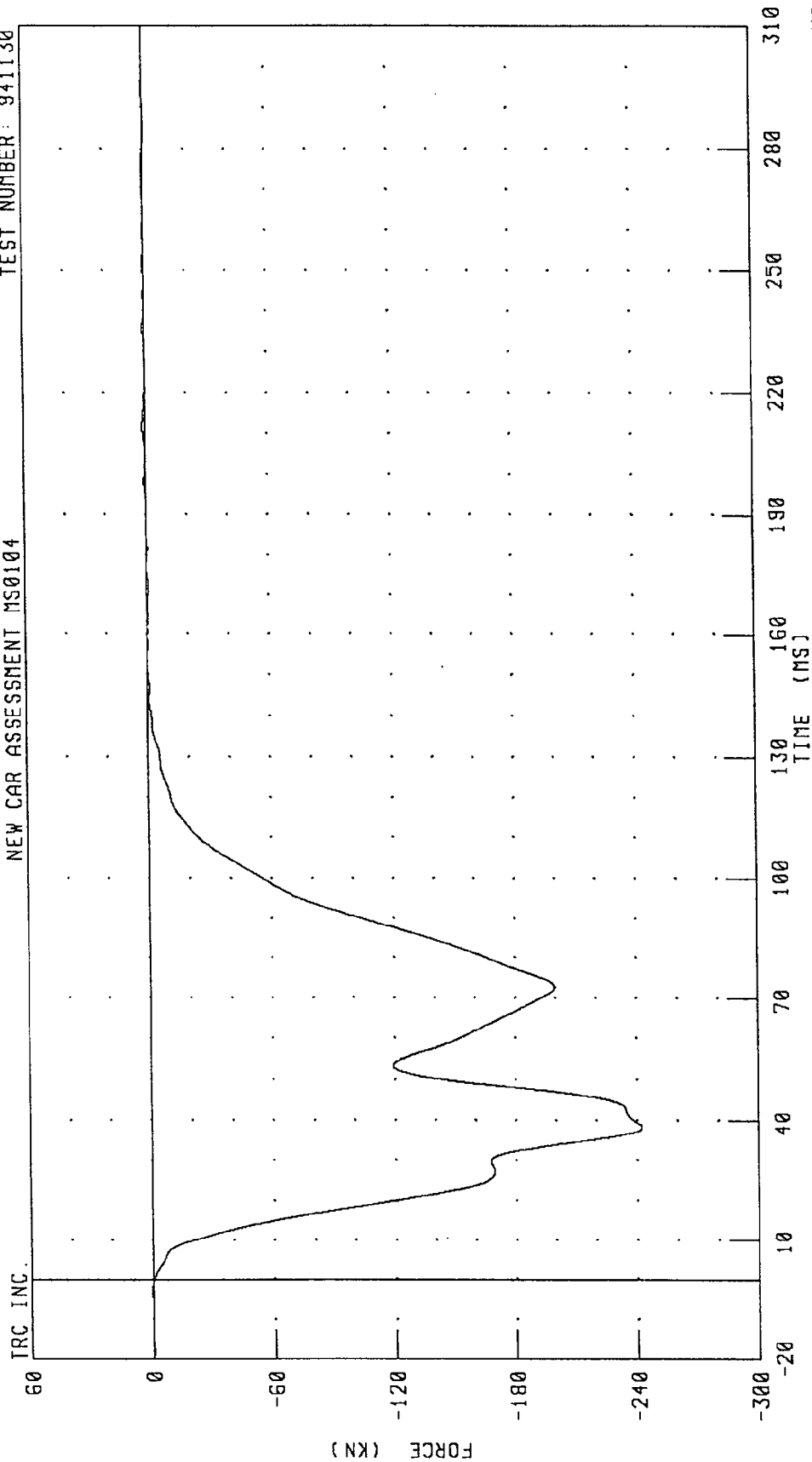


PEAK DATA: 1.62 KN @ 152.00 MS, -134.34 KN @ 38.16 MS

CHANNEL: LCBGIF FILTER: CH. CLASS 60

1995 CHEVROLET S10 BLAZER INTO FRONTAL LOAD CELL BARRIER
 LOAD CELL BARRIER GROUP # 2 FORCE TOTAL
 NEW CAR ASSESSMENT MS0104

TEST NUMBER: 941130

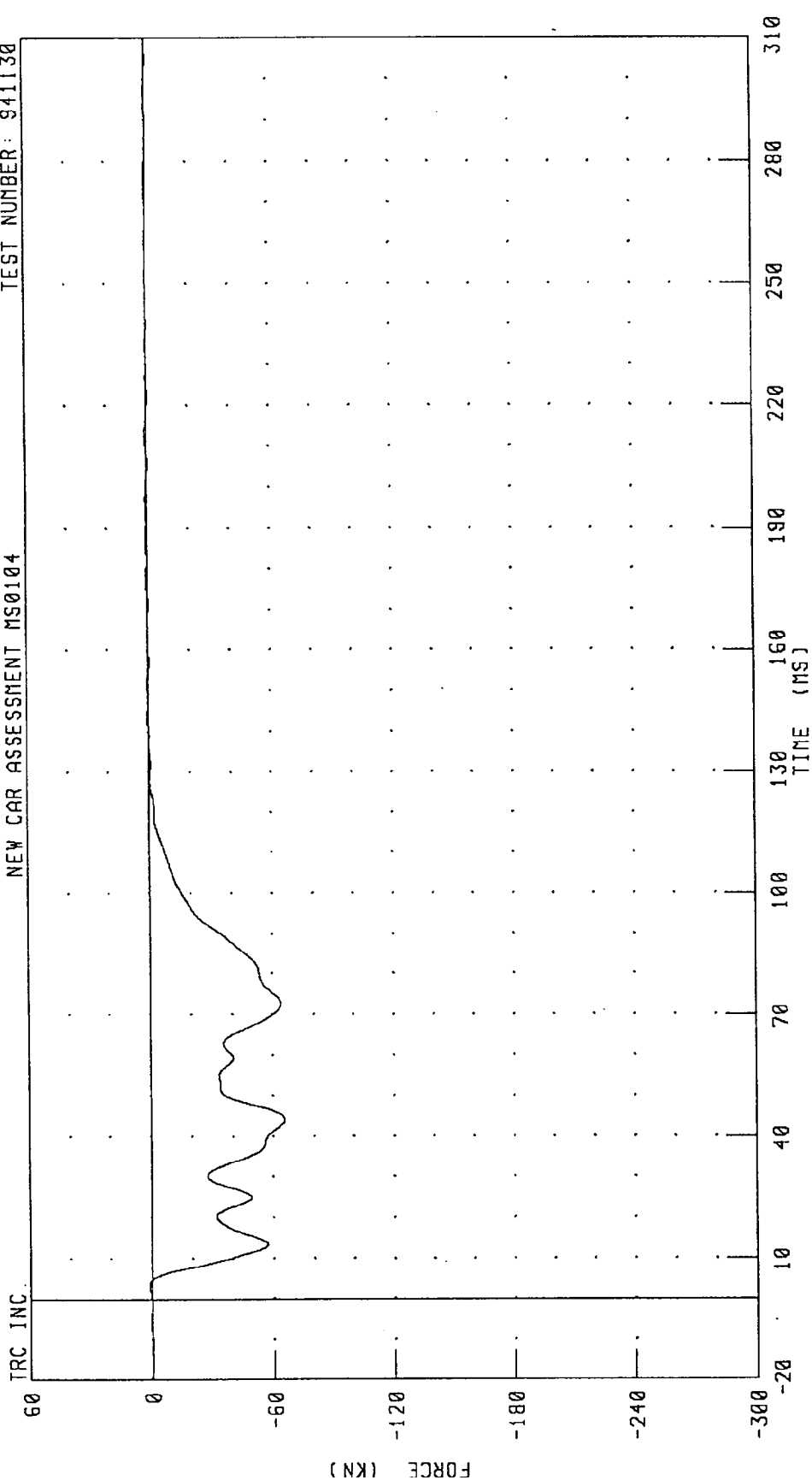


CHANNEL: LCBG2F FILTER: CH. CLASS 60

PEAK DATA: 1.32 KN @ 211.44 MS; -242.57 KN @ 38.24 MS

1995 CHEVROLET S10 BLAZER INTO FRONTAL LOAD CELL BARRIER
 LOAD CELL BARRIER GROUP # 3 FORCE TOTAL
 NEW CAR ASSESSMENT MS0104

TEST NUMBER: 941130



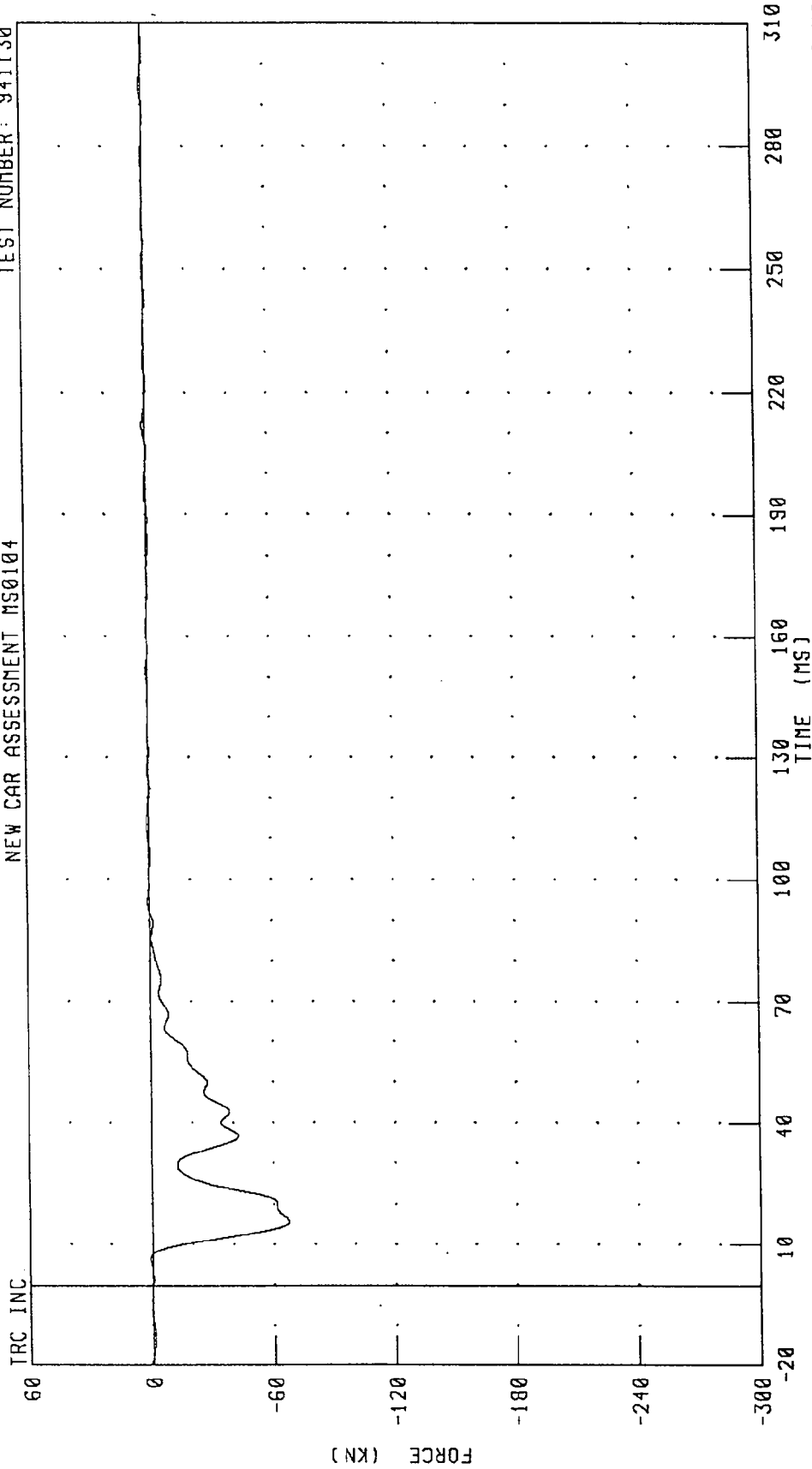
PEAK DATA: 1.11 KN @ 3.20 MS; -65.61 KN @ 44.16 MS

CHANNEL: LCBG3F FILTER: CH. CLASS 60

1995 CHEVROLET S10 BLAZER INTO FRONTAL LOAD CELL BARRIER
 LOAD CELL BARRIER GROUP # 4 FORCE TOTAL

TEST NUMBER: 941130

NEW CAR ASSESSMENT MS0104



PEAK DATA: 1.33 KN @ 211.68 MS; -67.22 KN @ 15.76 MS

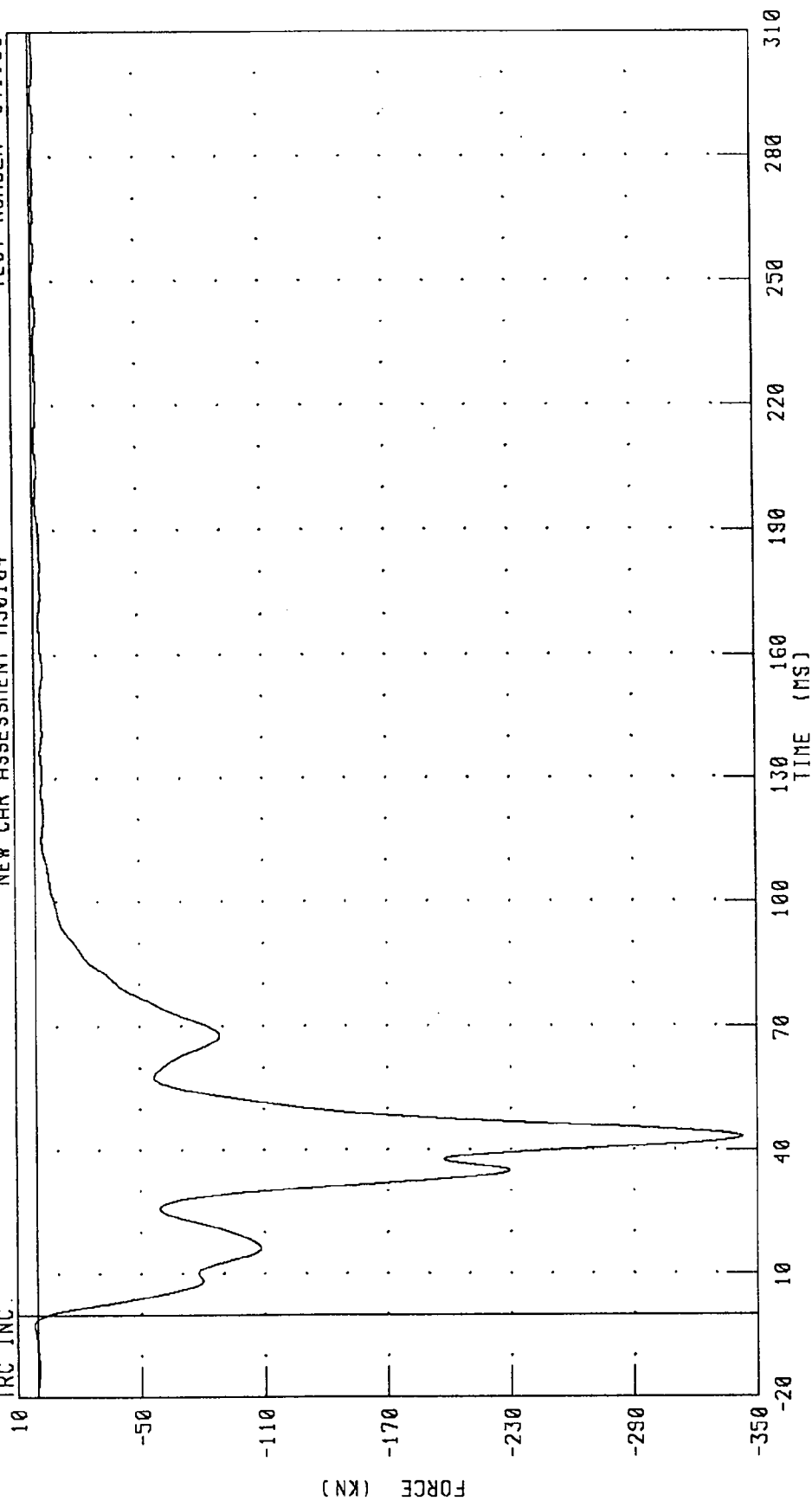
CHANNEL: LCBG4F FILTER: CH. CLASS 60

1995 CHEVROLET S10 BLAZER INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER GROUP # 5 FORCE TOTAL

TEST NUMBER: 941130

NEW CAR ASSESSMENT MS0104

TRC INC.

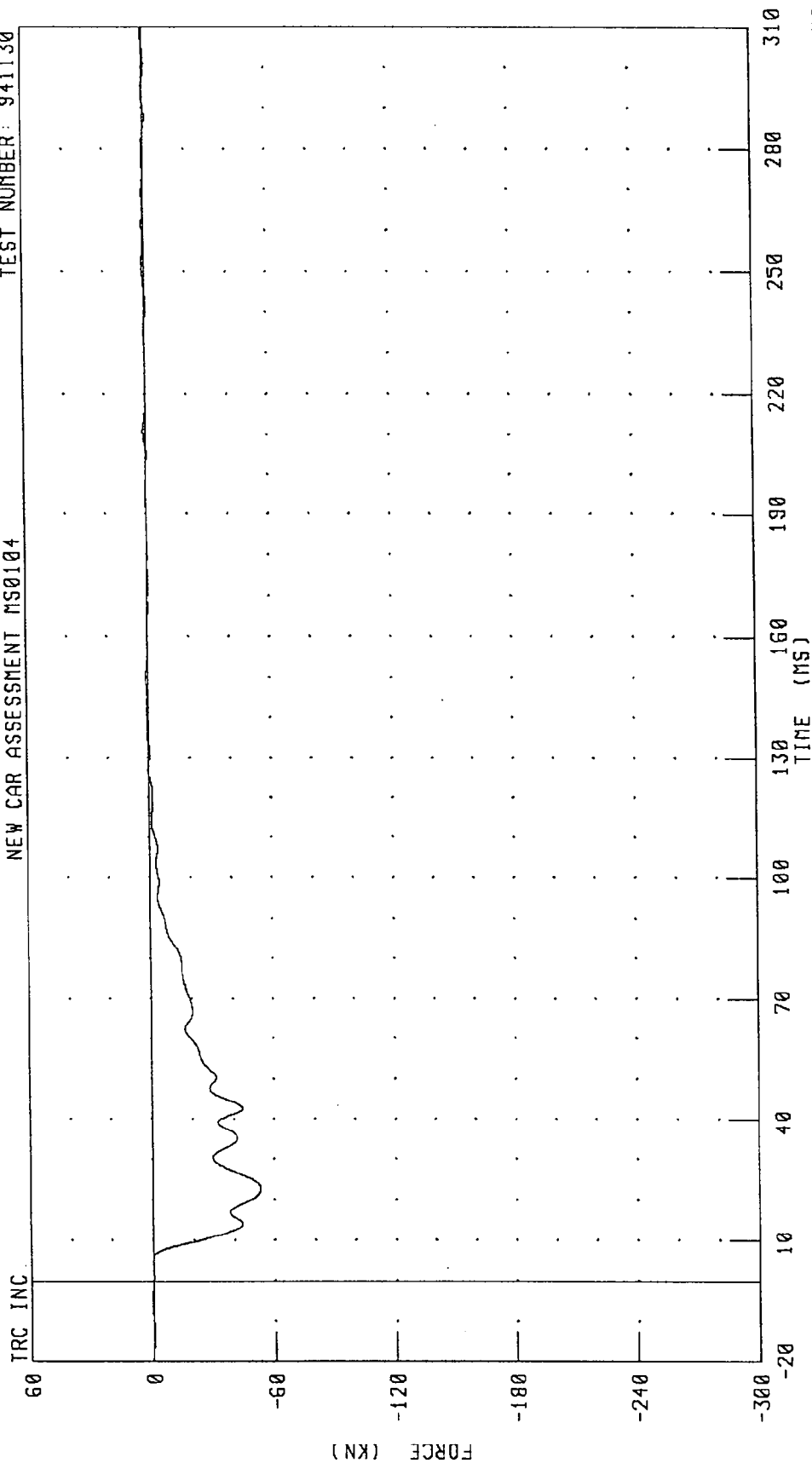


PEAK DATA: 1.67 KN @ -2.72 MS; -342.67 KN @ 43.20 MS

CHANNEL: LCBG5F FILTER: CH. CLASS 60

1995 CHEVROLET S10 BLAZER INTO FRONTAL LOAD CELL BARRIER
 LOAD CELL BARRIER GROUP # 6 FORCE TOTAL
 NEW CAR ASSESSMENT MS0104

TEST NUMBER: 941130



PEAK DATA: 1.22 KN @ 210.72 MS; -52.99 KN @ 22.64 MS

CHANNEL: LCBG6F FILTER: CH. CLASS 60

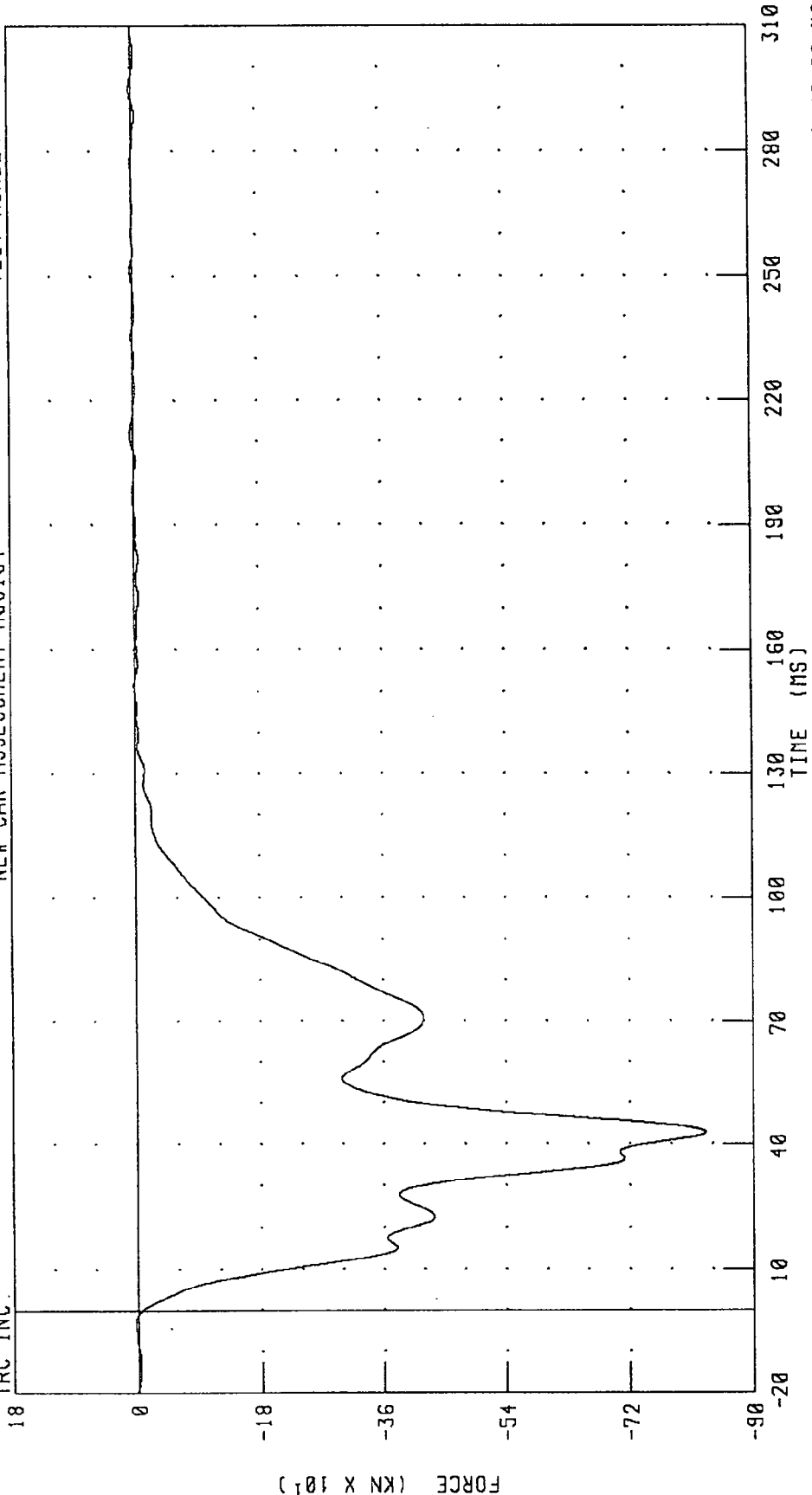
1995 CHEVROLET S10 BLAZER INTO FRONTAL LOAD CELL BARRIER

TOTAL LOAD CELL BARRIER FORCE

NEW CAR ASSESSMENT MS0104

TEST NUMBER: 941130

TRC INC.



CHANNEL: LCBCT

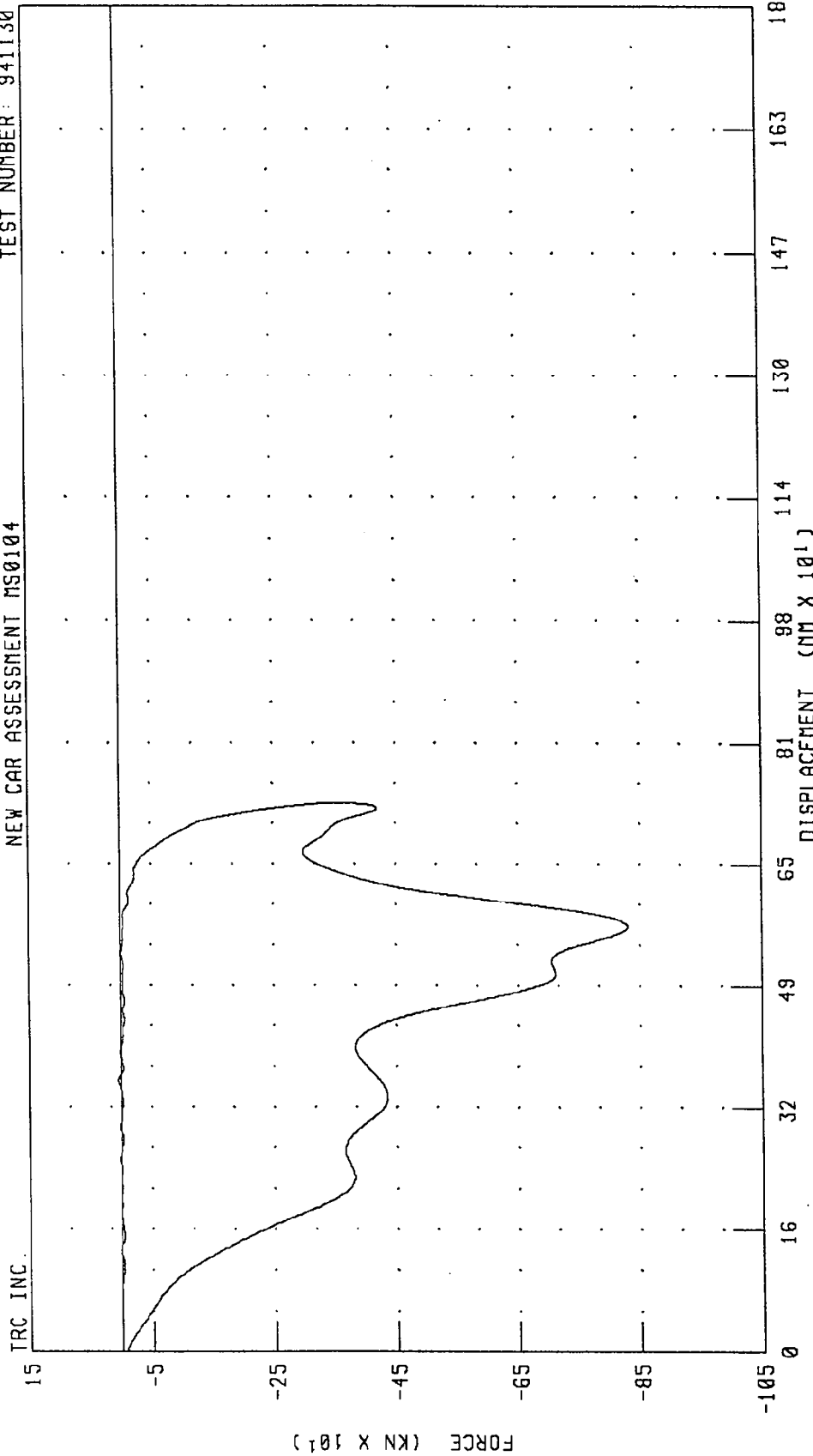
FILTER: CH. CLASS 60

PEAK DATA: 4.92 KN @ 211.36 MS; -830.68 KN @ 42.88 MS

1995 CHEVROLET S10 BLAZER INTO FRONTAL LOAD CELL BARRIER
TOTAL LOAD CELL BARRIER FORCE VS AVERAGE VEHICLE X-AXIS DISPLACEMENT

TEST NUMBER: 941130

NEW CAR ASSESSMENT MS0104



CHANNEL: OTHXD FILTER: CH. CLASS 180
LCBGT CH. CLASS 60
DISPLACEMENT (MM X 10¹)
PEAK DATA: 736.33 NM @ 77.68 MS; -830.68 KN @ 42.88 MS
4.92 KN @ 211.36 MS

Appendix C

Dummy Certification Data

Pre-test Certification Data

Driver Dummy S/N: 192

TRANSPORTATION RESEARCH CENTER INC.

HYBRID III EXTERNAL DIMENSIONS

192 ALDERSON

21-NOV-94

TRC INC.

TEST NO: 192C23ED1

572E SN192 EXT.DIMENSION CAL23

TEST PARAMETER	(DIMEN.)	SPECIFICATION	TEST RESULTS
LOCATION FOR CHEST CIRCUMFERENCE (AA)		429 - 434 MM	432. MM
LOCATION FOR WAIST CIRCUMFERENCE (BB)		226 - 231 MM	229. MM
CHEST CIRCUMFERENCE	(Y)	970 -1001 MM	980. MM
WAIST CIRCUMFERENCE	(Z)	836 - 866 MM	851. MM
CHEST DEPTH	(O)	213 - 229 MM	218. MM
H-POINT HEIGHT	(C)	84 - 89 MM	84. MM
H-POINT FROM SEATBACK	(D)	135 - 140 MM	135. MM
SKULL CAP TO BACKLINE	(H)	41 - 46 MM	43. MM
TOTAL SITTING HEIGHT	(A)	879 - 889 MM	889. MM
THIGH CLEARANCE	(F)	140 - 155 MM	150. MM
BUTTOCK KNEE LENGTH	(K)	579 - 605 MM	597. MM
BUTTOCK POPLITEAL LENGTH	(N)	452 - 478 MM	470. MM
POPLITEAL HEIGHT	(L)	429 - 455 MM	447. MM
KNEE PIVOT HEIGHT	(M)	485 - 500 MM	493. MM
FOOT LENGTH	(P)	252 - 267 MM	259. MM
FOOT BREADTH	(W)	91 - 107 MM	102. MM
SHOULDER PIVOT FROM BACKLINE	(E)	84 - 94 MM	94. MM
SHOULDER BREADTH	(V)	422 - 437 MM	429. MM
SHOULDER PIVOT HEIGHT	(B)	506 - 521 MM	516. MM
ELBOW REST HEIGHT	(J)	191 - 211 MM	211. MM
SHOULDER-ELBOW LENGTH	(I)	330 - 345 MM	345. MM
BACK OF ELBOW TO WRIST PIVOT	(G)	290 - 305 MM	290. MM

DUMMY MEETS SPECIFICATIONS

TECHNICIAN

Pete F. 50

RUN NUMBER: 112394.1253

TRANSPORTATION RESEARCH CENTER INC.

HEAD DROP TEST

HYBRID III

22-NOV-94

TRC INC.

TEST NO: 192C23HD1

572E SN192 HEAD DROP CAL 23

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	18.9-25.6 DEG. C	21.1 DEG. C
RELATIVE HUMIDITY	10 - 70 %	50.0 %
PEAK RESULTANT ACCELERATION	225 - 275 G	226.11 G
PEAK LATERAL ACCELERATION	15 G MAX	2.99 G
IS ACCELERATION CURVE UNIMODAL?	YES	YES

TEST MEETS SPECIFICATIONS

TECHNICIAN

John R. Smith

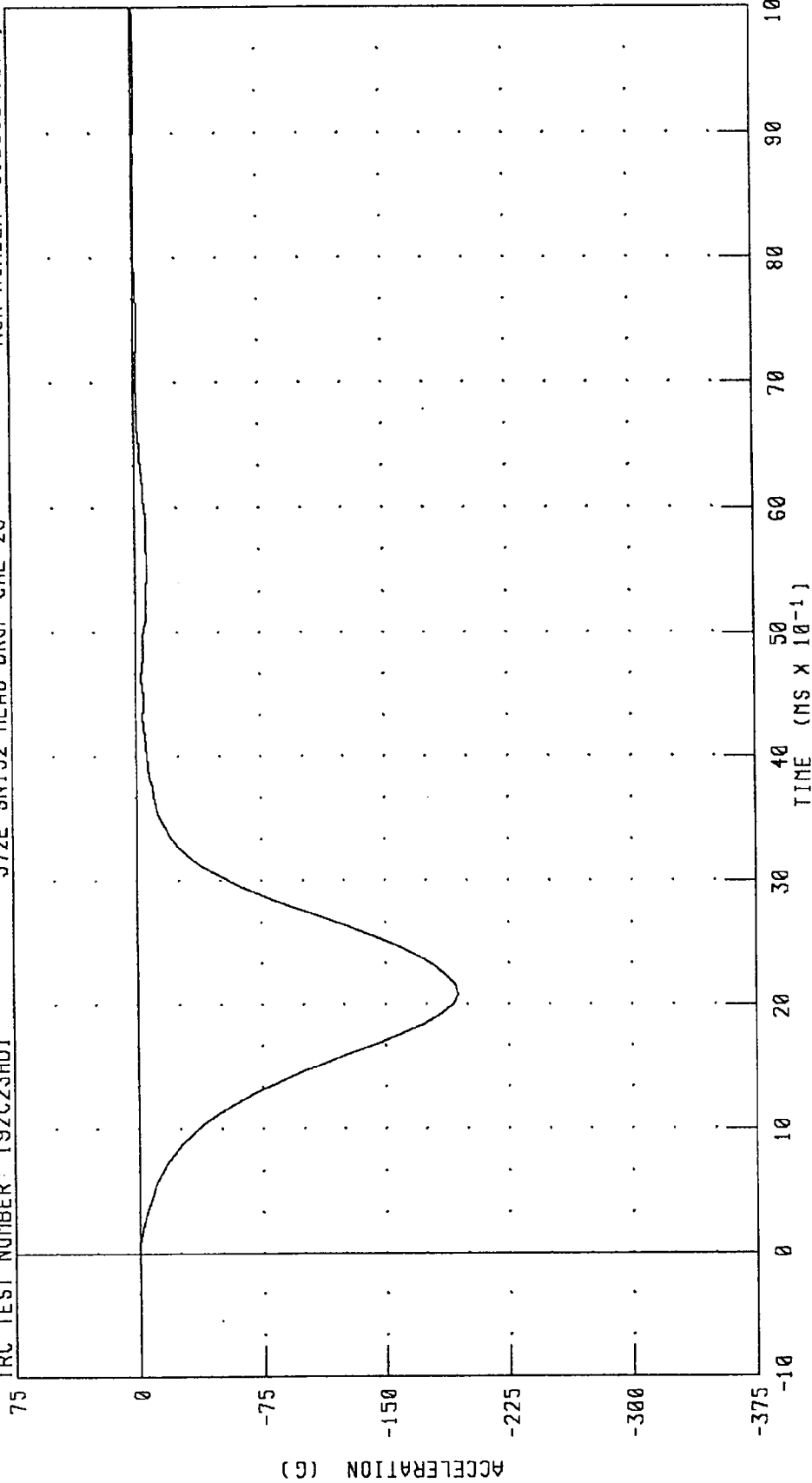
RUN NUMBER: 112294.1443;1

PART 572-E HYBRID III HEAD CALIBRATION
HEAD ACCELERATION X AXIS

TRC TEST NUMBER: 192C23HD1

572E SN192 HEAD DROP CAL 23

RUN NUMBER: 010395.1554.1.



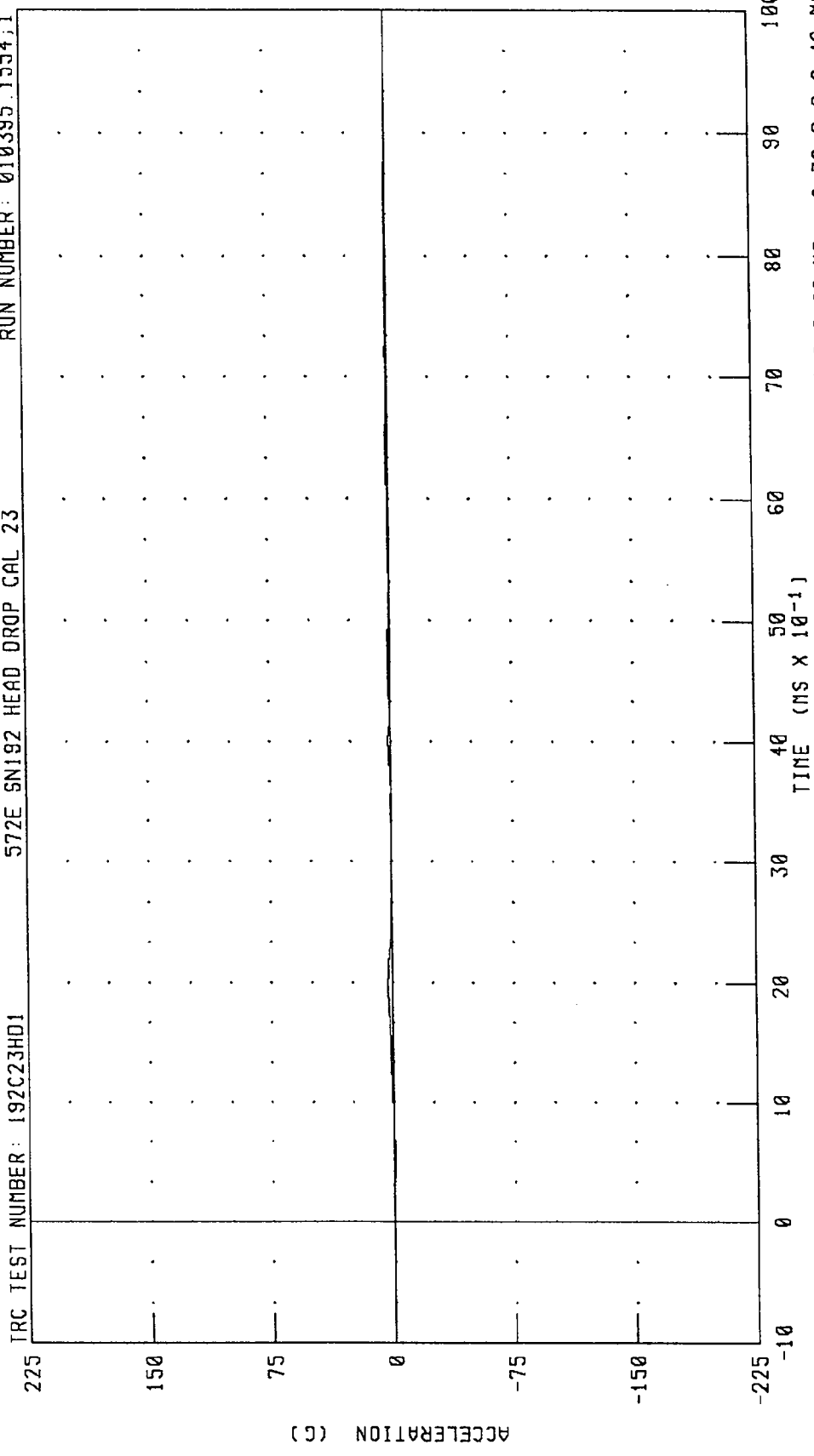
PEAK DATA: 0.05 G @ 0.00 MS; -194.19 G @ 2.08 MS

CHANNEL: HEDXG FILTER: CH. CLASS 1000

PART 572-E HYBRID III HEAD CALIBRATION

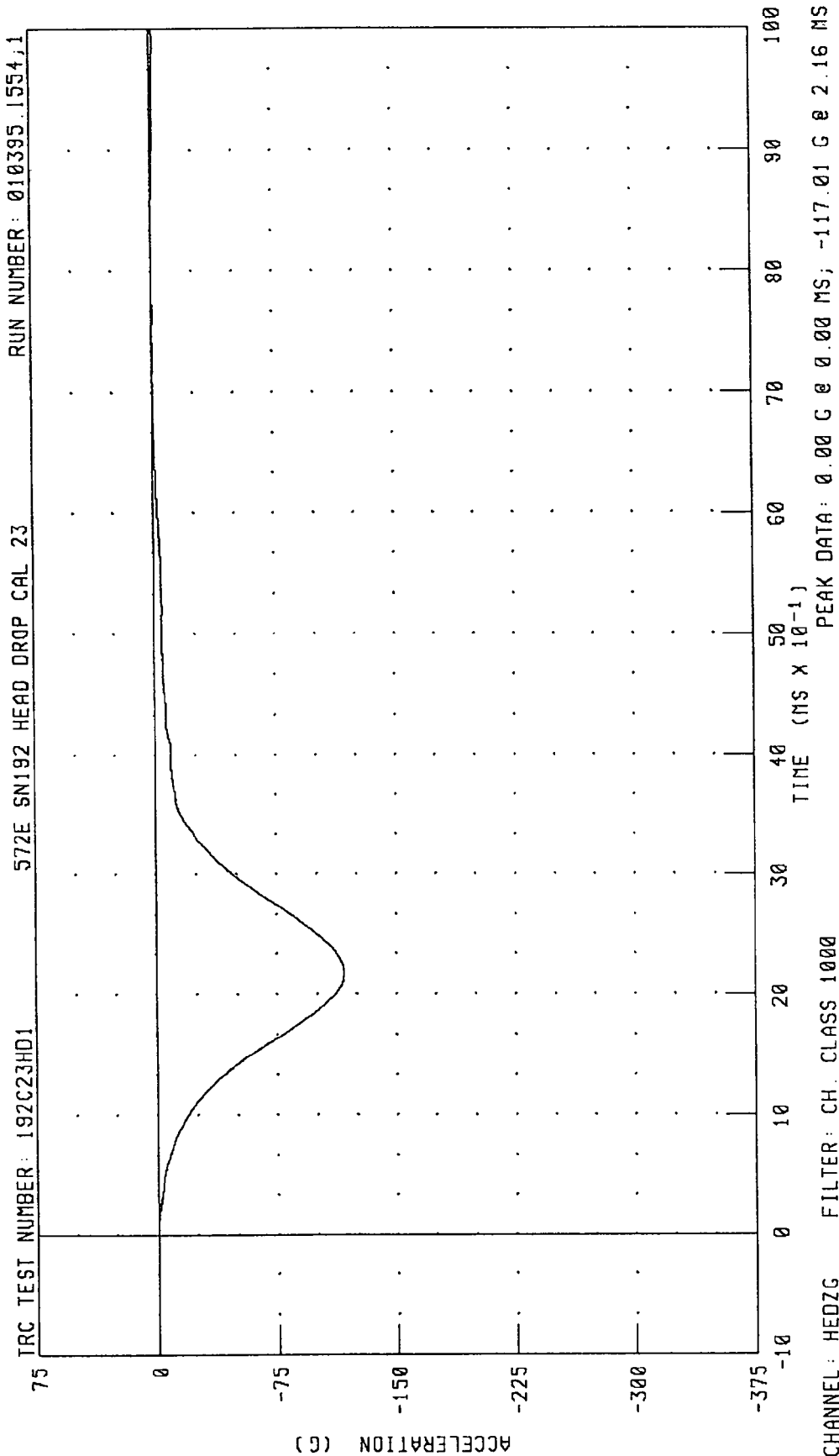
HEAD ACCELERATION Y AXIS

572E SN192 HEAD DROP CAL 23 RUN NUMBER: 010395.1554;1



CHANNEL: HEDYG FILTER: CH. CLASS 1000

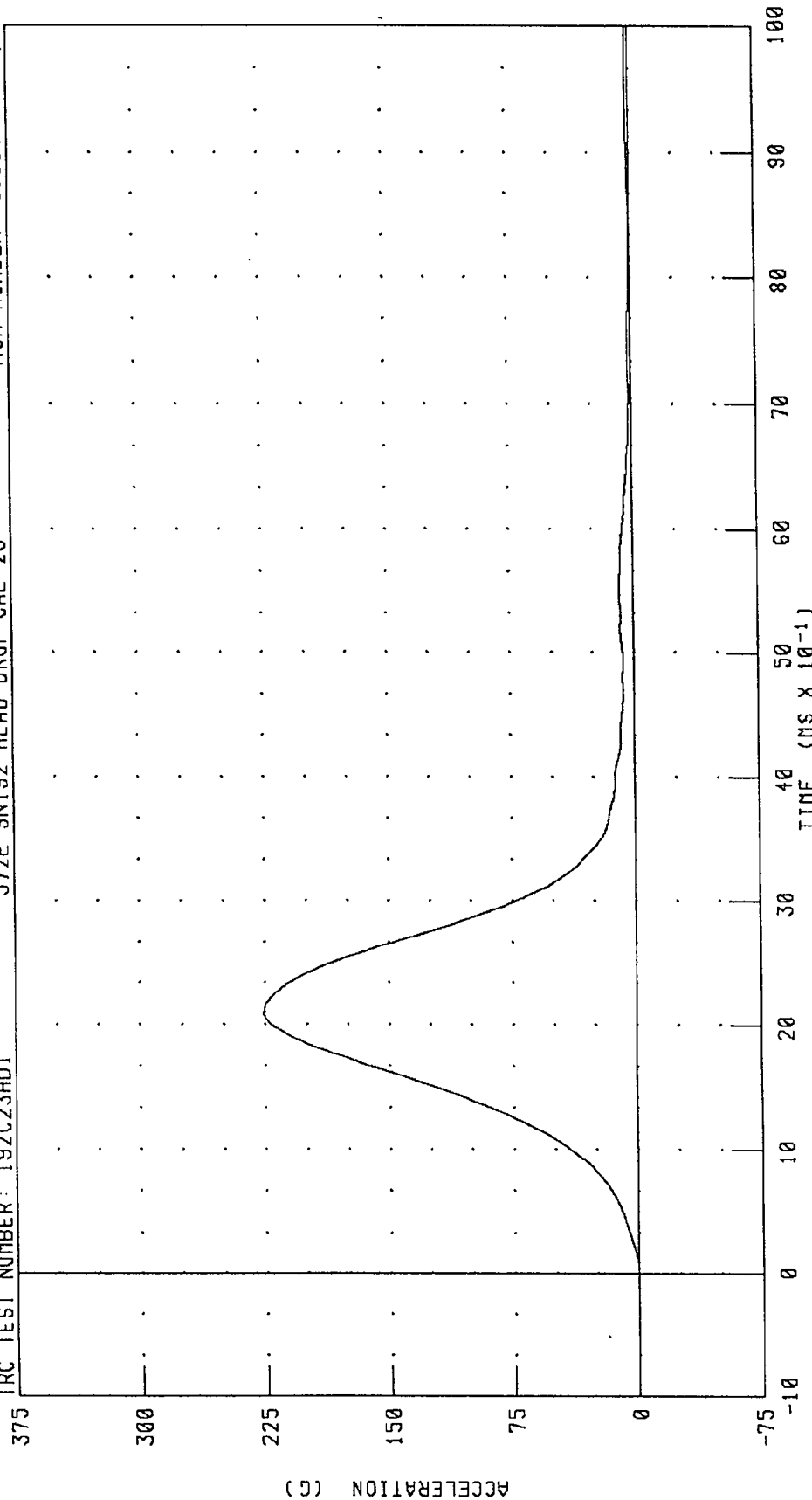
PART 572-E HYBRID III HEAD CALIBRATION
HEAD ACCELERATION Z AXIS



PART 572-E HYBRID III HEAD CALIBRATION
 HEAD RESULTANT ACCELERATION
 572E SN192 HEAD DROP CAL 23

RUN NUMBER: 010395 1554;1

TRC TEST NUMBER: 192C23HD1



CHANNEL: HEDRG FILTER: CH. CLASS 1000

TRANSPORTATION RESEARCH CENTER INC.

NECK FLEXION TEST - 6 CHANNEL TRANSDUCER

HYBRID III

23-NOV-94

TRC INC. TEST NO: 192C23NF1 572E SN192 NECK FLEXION CAL23

TEST PARAMETER		SPECIFICATION	TEST RESULTS
TEMPERATURE		20.6-22.2 DEG. C	20.6 DEG. C
RELATIVE HUMIDITY		10 - 70 %	30.0 %
IMPACT VELOCITY		6.89 - 7.13 M/S	7.06 M/S
PENDULUM DECELERATION	10 MS	22.50 - 27.50 G	22.53 G
	20 MS	17.60 - 22.60 G	20.48 G
	30 MS	12.50 - 18.50 G	17.48 G
MAX PENDULUM G		29 G MAX	23.33 G
MAX PENDULUM G ABOVE 30 MS		29 G MAX	17.45 G
DECELERATION-TIME CURVE DECAY TIME TO 5 G		34 - 42 MS	38.08 MS
D PLANE	MAX	64 - 78 DEG.	66.05 DEG.
ROTATION	TIME	57 - 64 MS	58.24 MS
MOMENT ABOUT OCCIPITAL CONDYLE	MAX	88.2 - 108.5 NM	93.79 NM
	TIME	47 - 58 MS	50.56 MS
ROTATION ANGLE-TIME CURVE DECAY TIME TO ZERO		113 - 128 MS	113.76 MS
POSITIVE MOMENT-TIME CURVE DECAY TIME TO ZERO		97 - 107 MS	102.96 MS

TEST MEETS SPECIFICATIONS

TECHNICIAN Pete F. S.

RUN NUMBER: 112394.0858;2

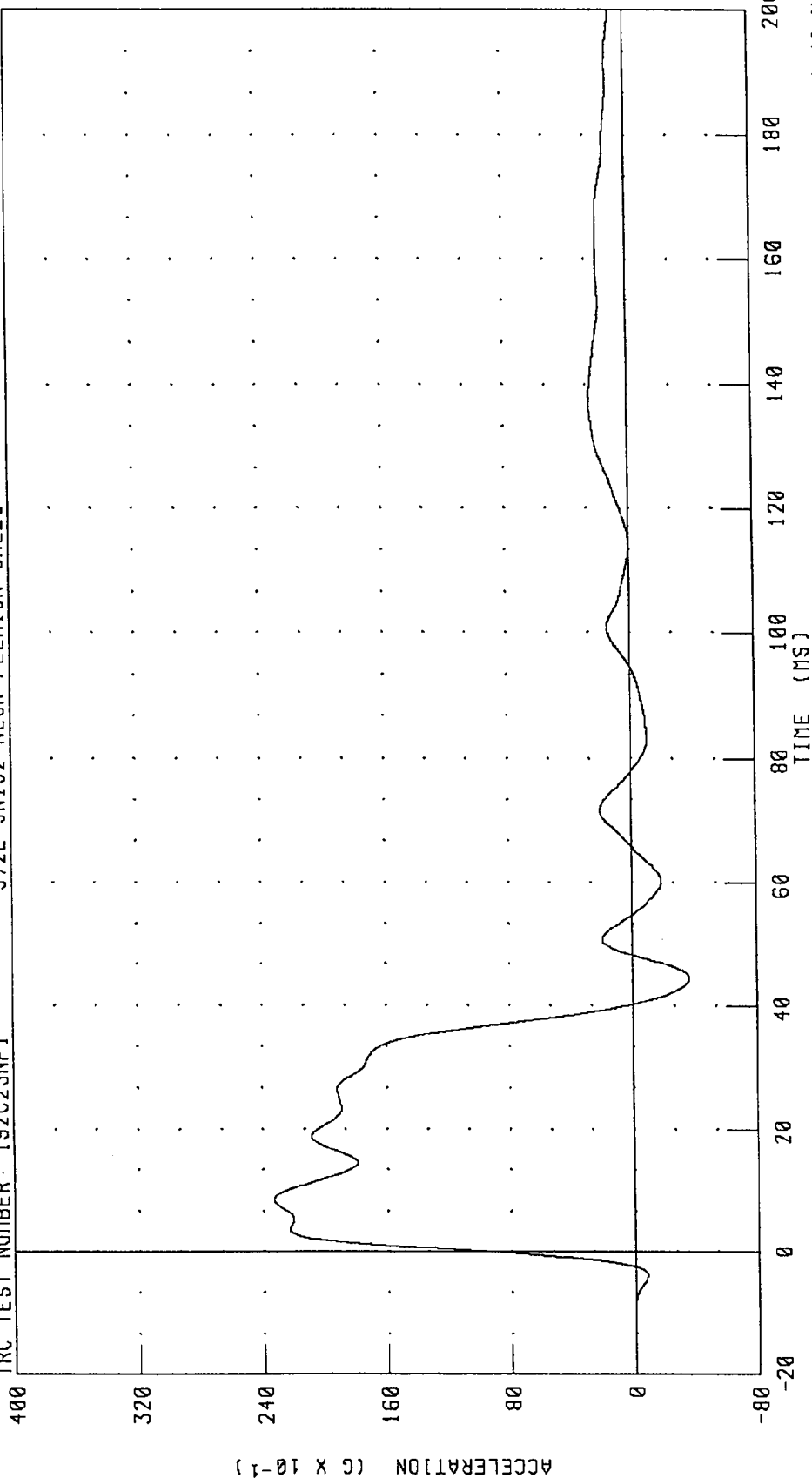
PART 572-E HYBRID III NECK FLEXION CALIBRATION

PENDULUM DECELERATION

RUN NUMBER: 010395.1554;2

572E SN192 NECK FLEXION CAL23

TRC TEST NUMBER: 192C23NF1



CHANNEL: PENXG FILTER: CH. CLASS 60

PEAK DATA: 23.33 G @ 8.48 MS; -3.64 G @ 44.40 MS

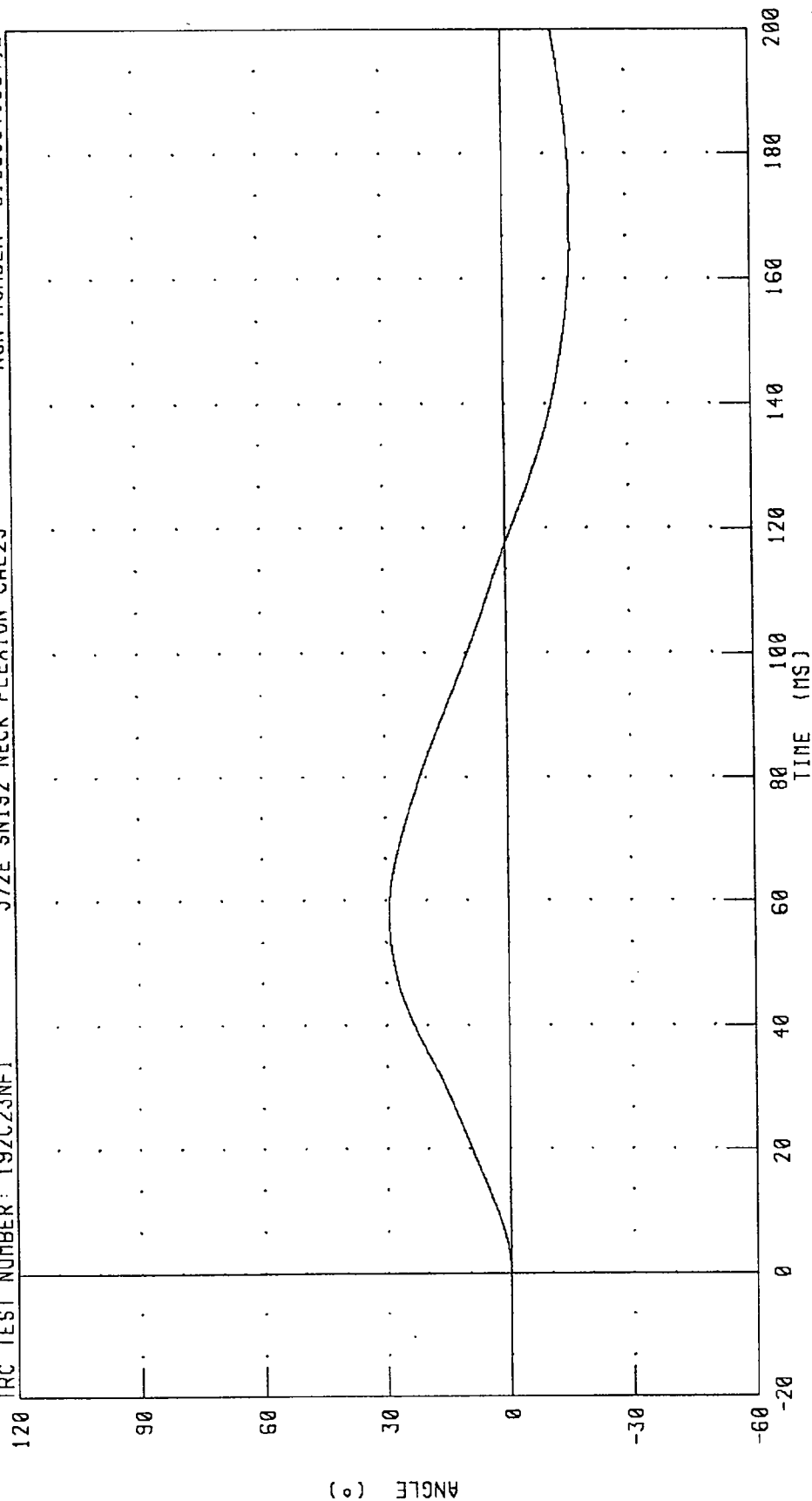
PART 572-E HYBRID III NECK FLEXION CALIBRATION

ROTATION ABOUT BASE OF NECK

TRC TEST NUMBER: 192C23NF1

572E SN192 NECK FLEXION CAL23

RUN NUMBER: 010395.1554,2



PEAK DATA: 28.98 ° @ 57.92 MS; -16.35 ° @ 174.40 MS

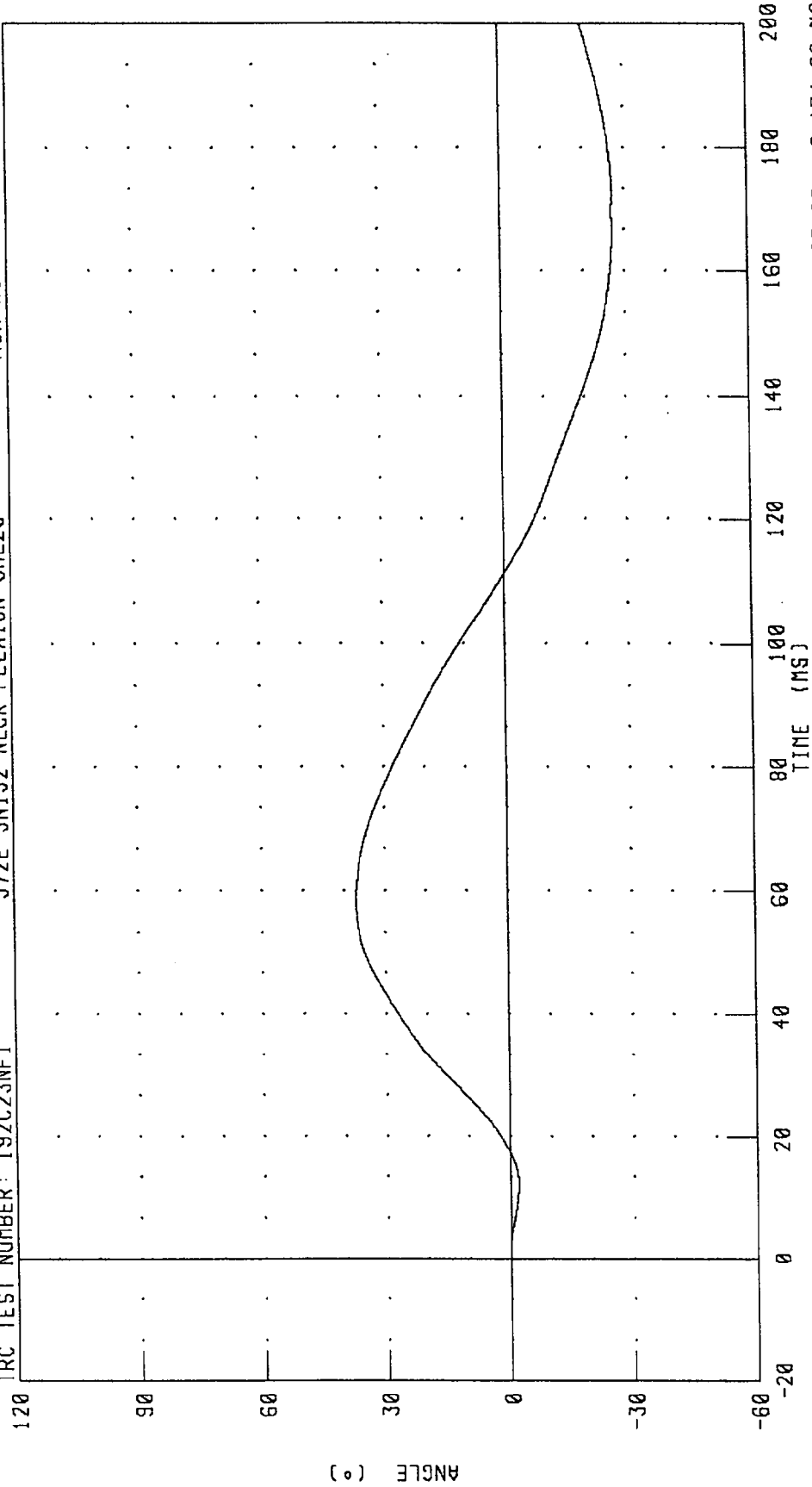
CHANNEL: BETA FILTER: CH. CLASS 60

PART 572-E HYBRID III NECK FLEXION CALIBRATION
 ROTATION ABOUT OCCIPITAL CONDYLE

RUN NUMBER: 010395.1554,2

572E SN192 NECK FLEXION CAL23

TRC TEST NUMBER: 192C23NF1



CHANNEL: THETA FILTER: CH. CLASS 60

PEAK DATA: 37.08 ° @ 58.32 MS; -27.03 ° @ 174.08 MS

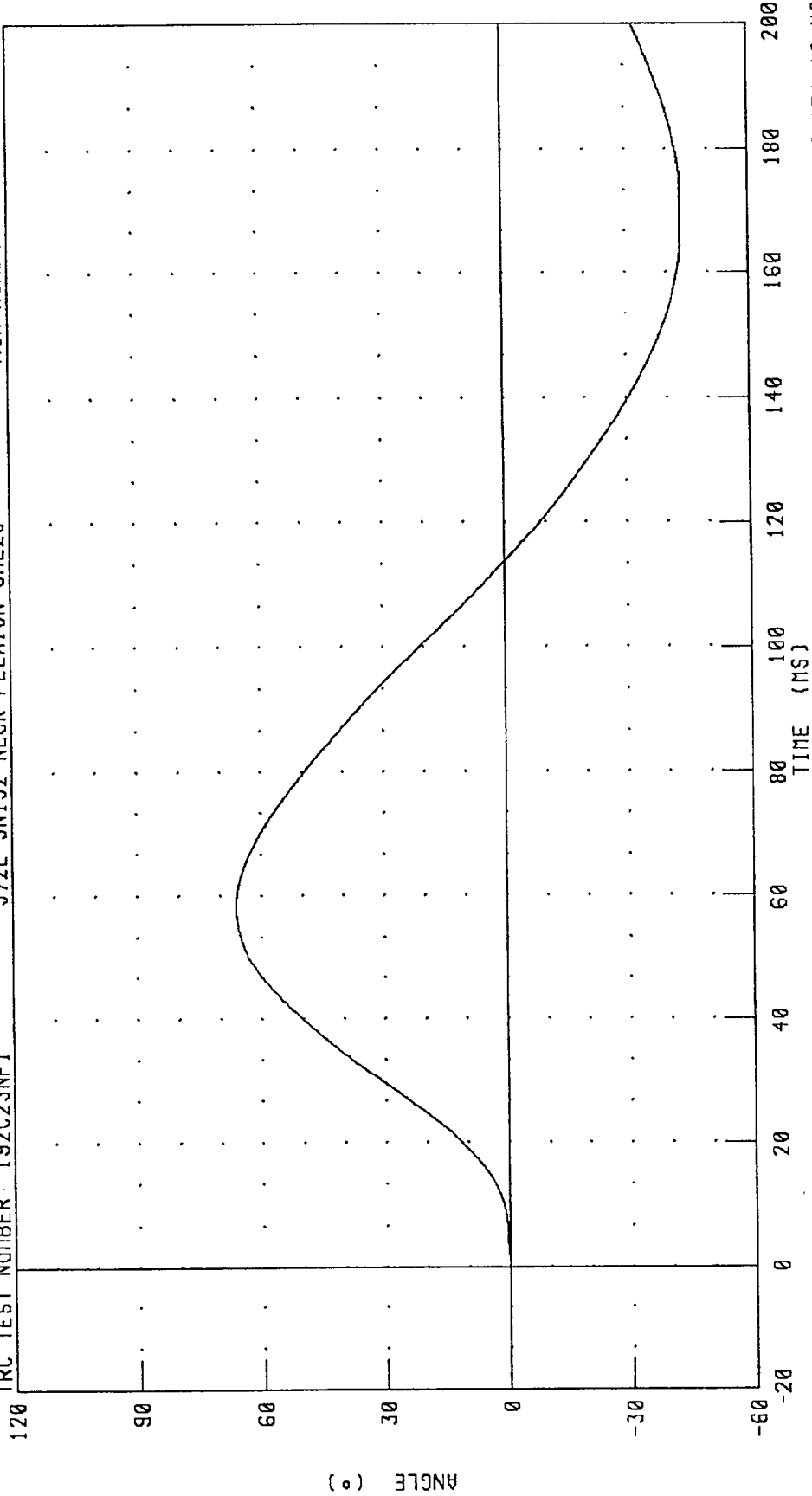
PART 572-E HYBRID III NECK FLEXION CALIBRATION

TOTAL ROTATION

TRC TEST NUMBER: 192C23NF1

572E SN192 NECK FLEXION CAL23

RUN NUMBER: 010395 1554;2



PEAK DATA: 66.06 ° @ 58.24 MS; -43.37 ° @ 174.16 MS

CHANNEL: TOTAL FILTER: CH. CLASS 60

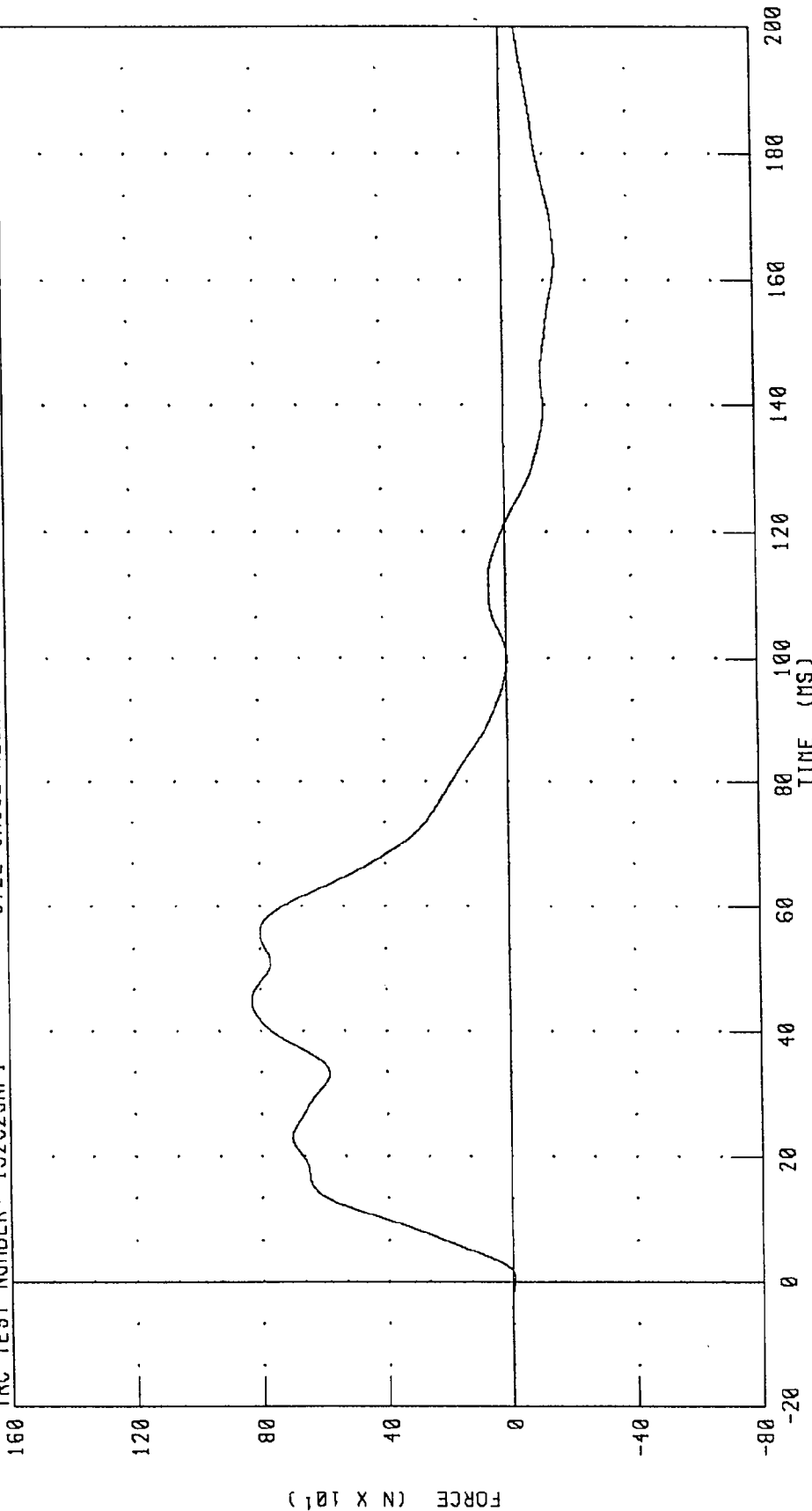
PART 572-E HYBRID III NECK FLEXION CALIBRATION

NECK FORCE X AXIS

RUN NUMBER: 010395.1554;2

572E SN192 NECK FLEXION CAL23

TRC TEST NUMBER: 192C23NF1



PEAK DATA: 828.49 N @ 44.88 MS; -167.52 N @ 163.12 MS

FILTER: CH. CLASS 60

CHANNEL: NEKXF

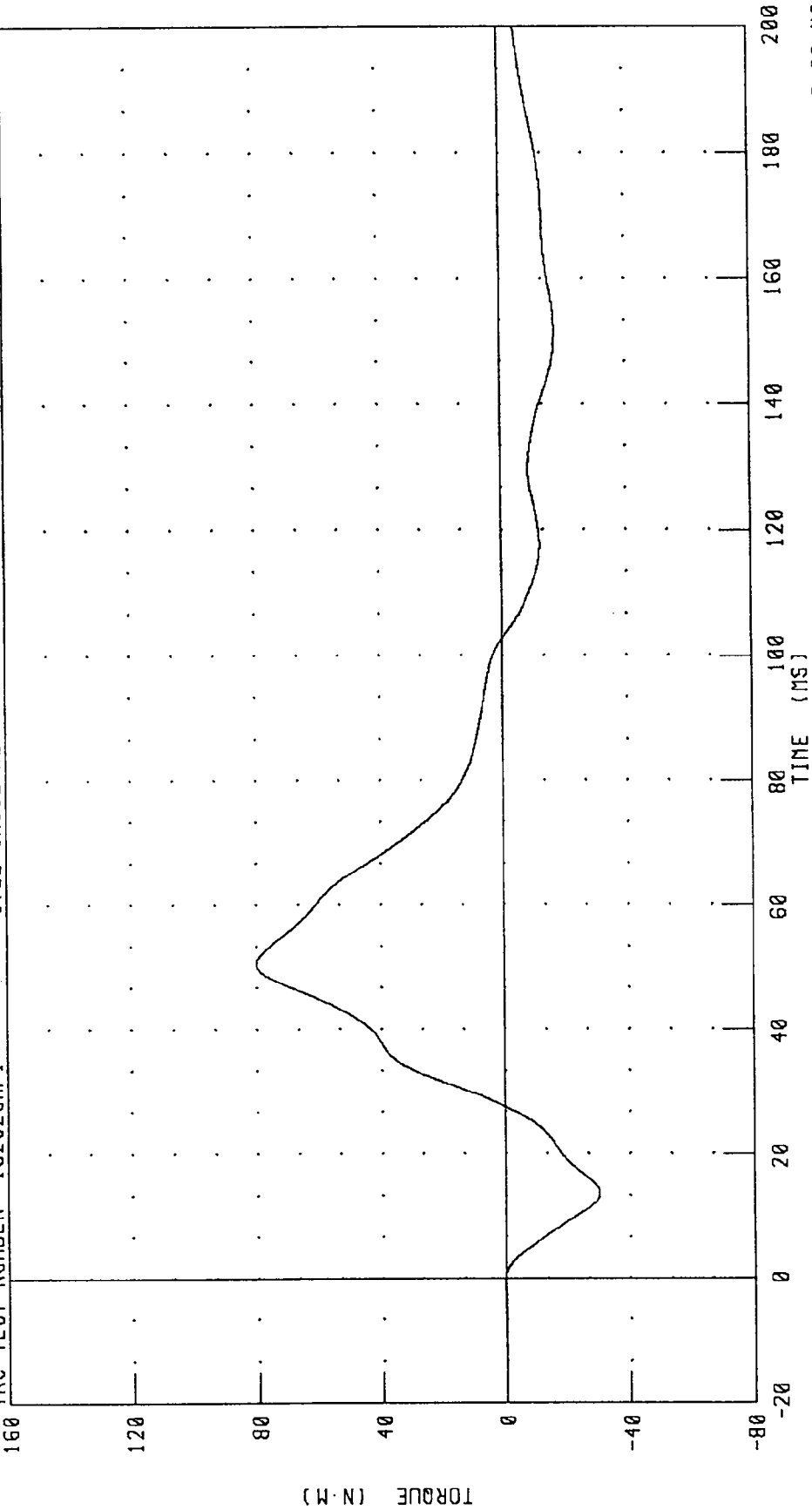
PART 572-E HYBRID III NECK FLEXION CALIBRATION

NECK MOMENT Y AXIS

TRC TEST NUMBER: 192C23NF1

572E SN192 NECK FLEXION CAL23

RUN NUMBER: 010395.1554;2



PEAK DATA: 80.13 N.M @ 50.64 MS; -30.24 N.M @ 13.68 MS

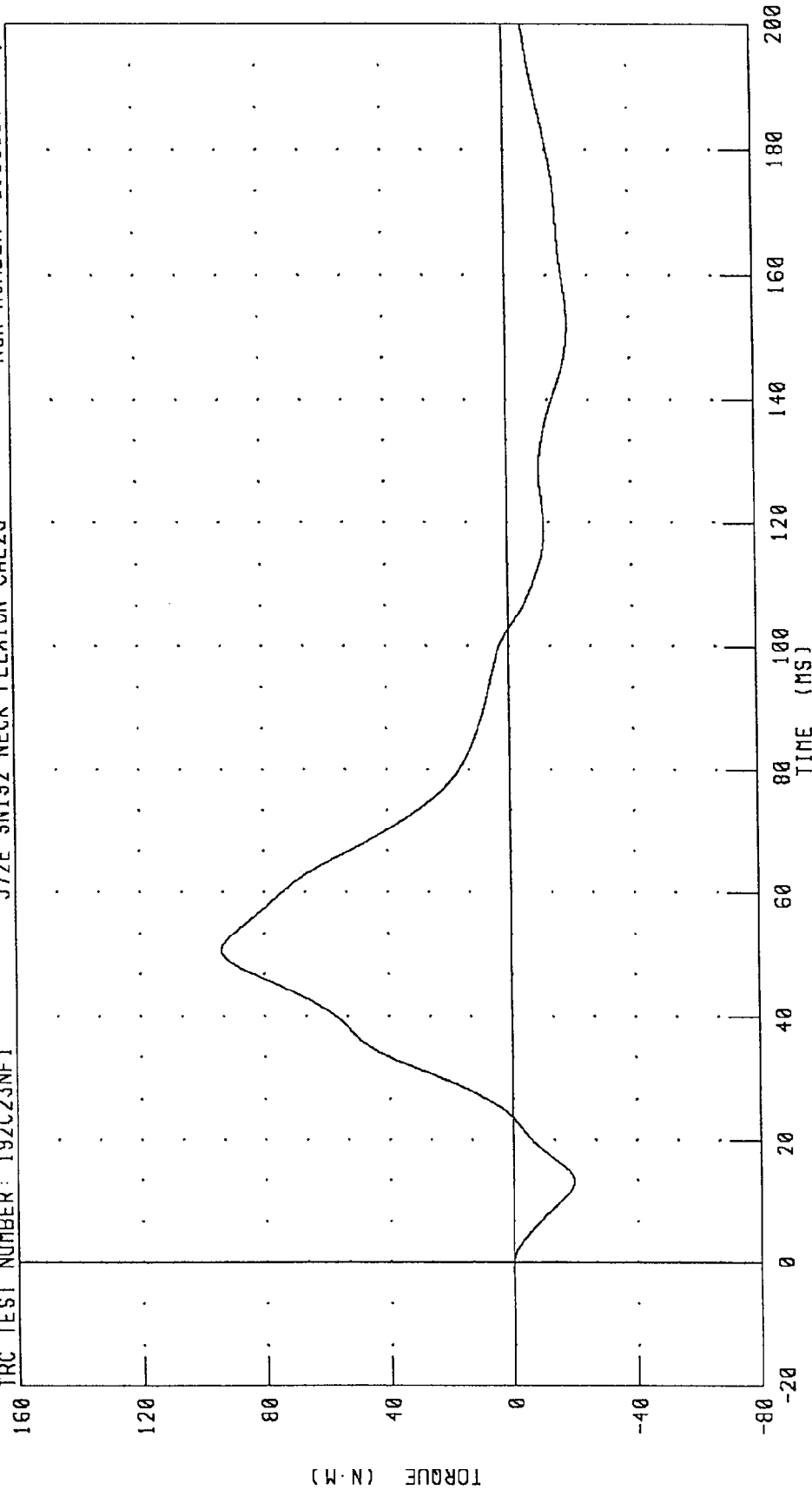
CHANNEL: NEKYM FILTER: CH. CLASS 60

PART 572-E HYBRID III NECK FLEXION CALIBRATION
TOTAL MOMENT ABOUT OCCIPITAL CONDYLE

TRC TEST NUMBER: 192C23NF1

572E SN192 NECK FLEXION CAL23

RUN NUMBER: 010395.1554;2



PEAK DATA: 93.79 N·M @ 50.56 MS; -19.83 N·M @ 152.16 MS

CHANNEL: NEKOM FILTER: CH. CLASS 60

TRANSPORTATION RESEARCH CENTER INC.

NECK EXTENSION TEST - 6 CHANNEL TRANSDUCER

HYBRID III

23-NOV-94

TRC INC. TEST NO: 192C23NE1 572E SN192 NECK EXT. CAL23

TEST PARAMETER		SPECIFICATION	TEST RESULTS
TEMPERATURE		20.6 - 22.2 DEG. C	20.6 DEG. C
RELATIVE HUMIDITY		10 - 70 %	30.0 %
IMPACT VELOCITY		5.95 - 6.19 M/S	6.00 M/S
PENDULUM DECELERATION	10 MS	17.20 - 21.20 G	17.92 G
	20 MS	14.00 - 19.00 G	15.89 G
	30 MS	11.00 - 16.00 G	14.55 G
MAX PENDULUM G		22 G MAX	18.88 G
MAX PENDULUM G ABOVE 30 MS		22 G MAX	14.51 G
DECELERATION-TIME CURVE DECAY TIME TO 5 G		38 - 46 MS	40.16 MS
D PLANE	MAX	81 - 106 DEG.	92.72 DEG.
ROTATION	TIME	72 - 82 MS	75.28 MS
MOMENT ABOUT OCCIPITAL CONDYLE	MIN	-80.0/-52.9 NM	-58.55 NM
	TIME	65 - 79 MS	70.40 MS
ROTATION ANGLE-TIME CURVE DECAY TIME TO ZERO		147 - 174 MS	156.16 MS
NEGATIVE MOMENT-TIME CURVE DECAY TIME TO ZERO		120 - 148 MS	138.48 MS

TEST MEETS SPECIFICATIONS

TECHNICIAN Pete F. S.

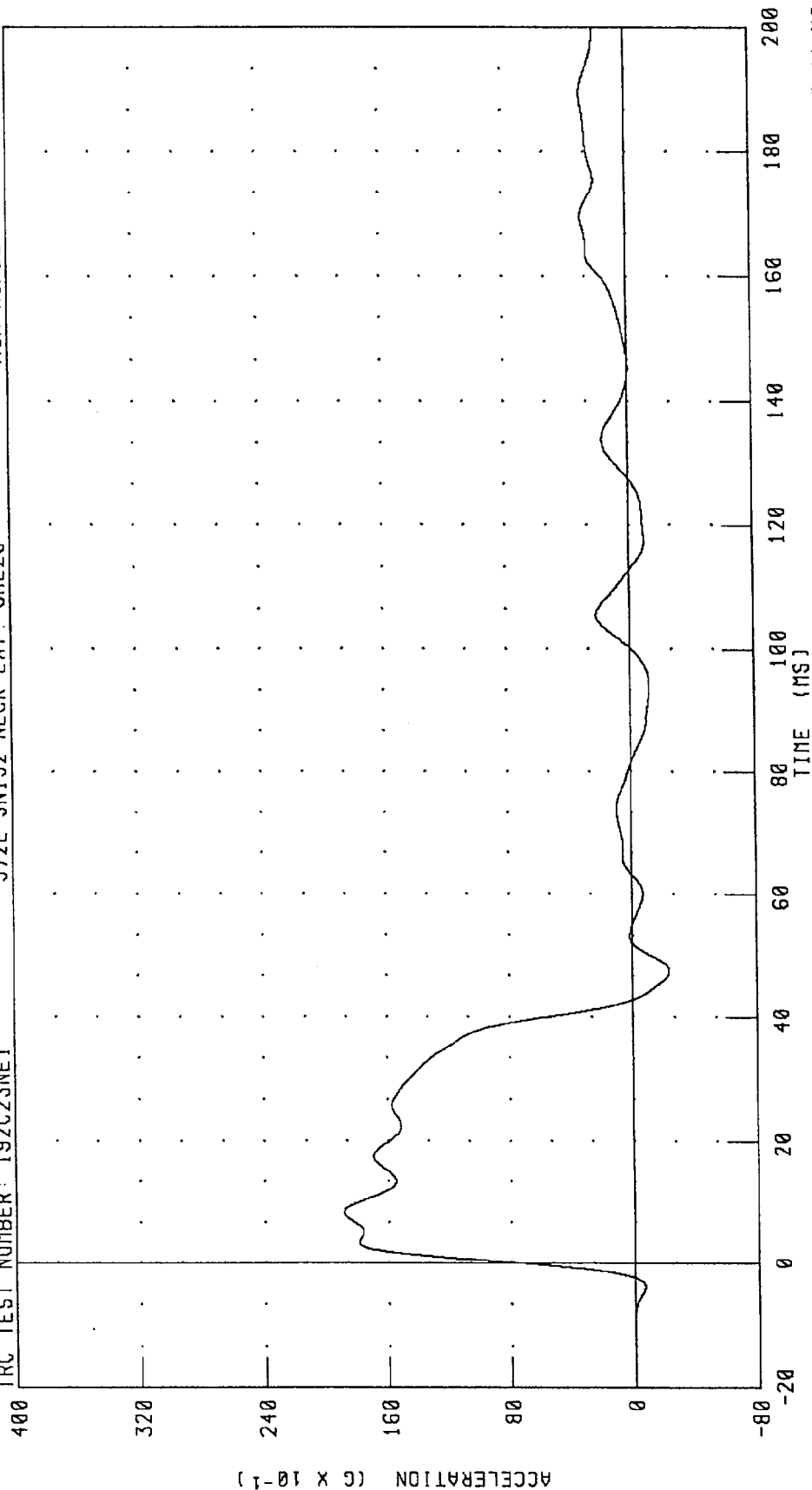
RUN NUMBER: 112394.0906;1

PART 572-E HYBRID III NECK EXTENSION CALIBRATION
 PENDULUM DECELERATION

RUN NUMBER: 010395.1554;1

572E SN192 NECK EXT. CAL23

TRC TEST NUMBER: 192C23NE1



PEAK DATA: 18.88 G @ 8.32 MS; -2.37 G @ 47.44 MS

CHANNEL: PENXG FILTER: CH. CLASS 60

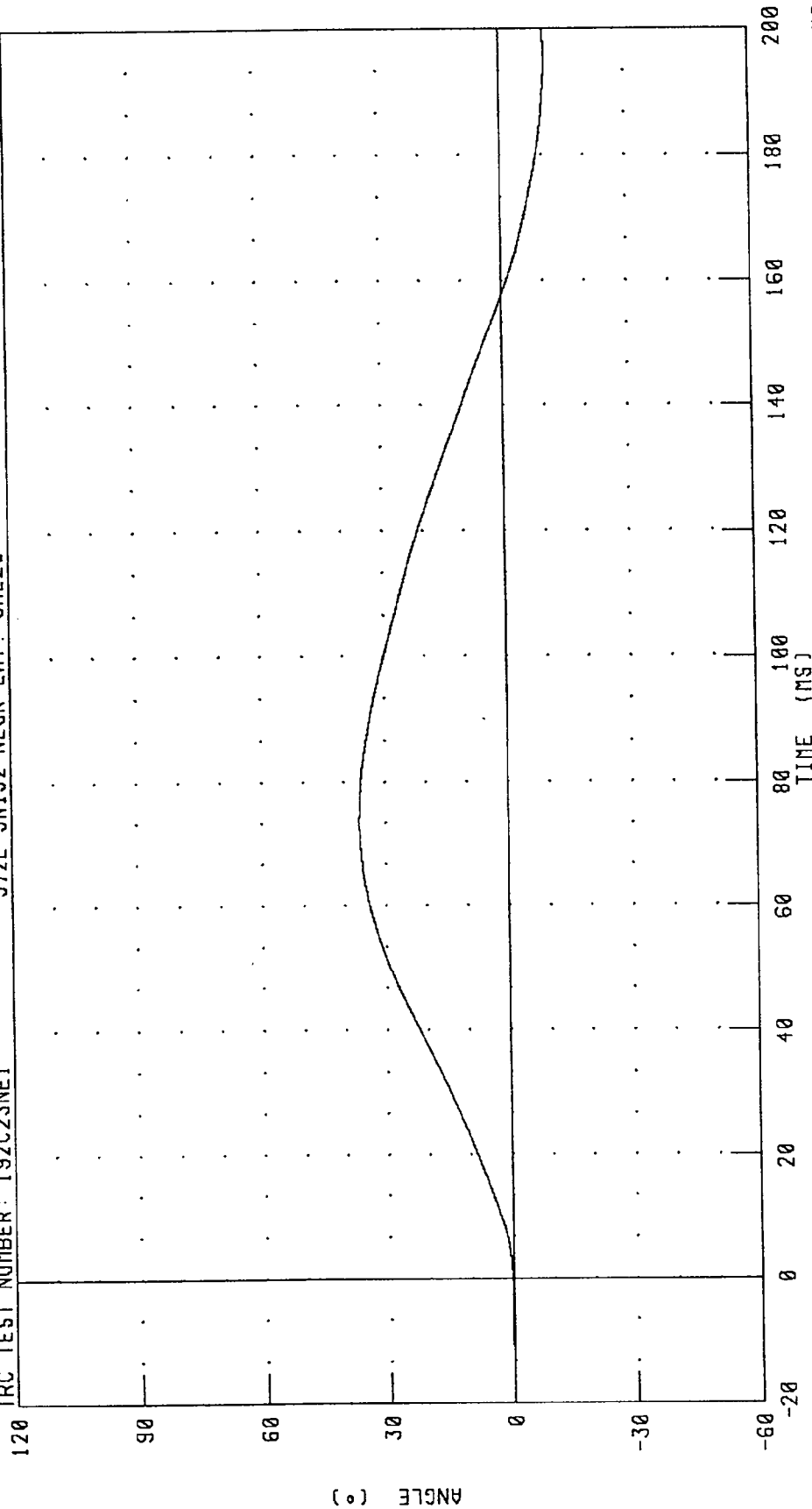
PART 572-E HYBRID III NECK EXTENSION CALIBRATION

ROTATION ABOUT BASE OF NECK

572E SN192 NECK EXT. CAL23

RUN NUMBER: 010395.1554,1

IRC TEST NUMBER: 192C23NE1



PEAK DATA: 36.25 ° @ 73.28 MS; -10.83 ° @ 195.36 MS

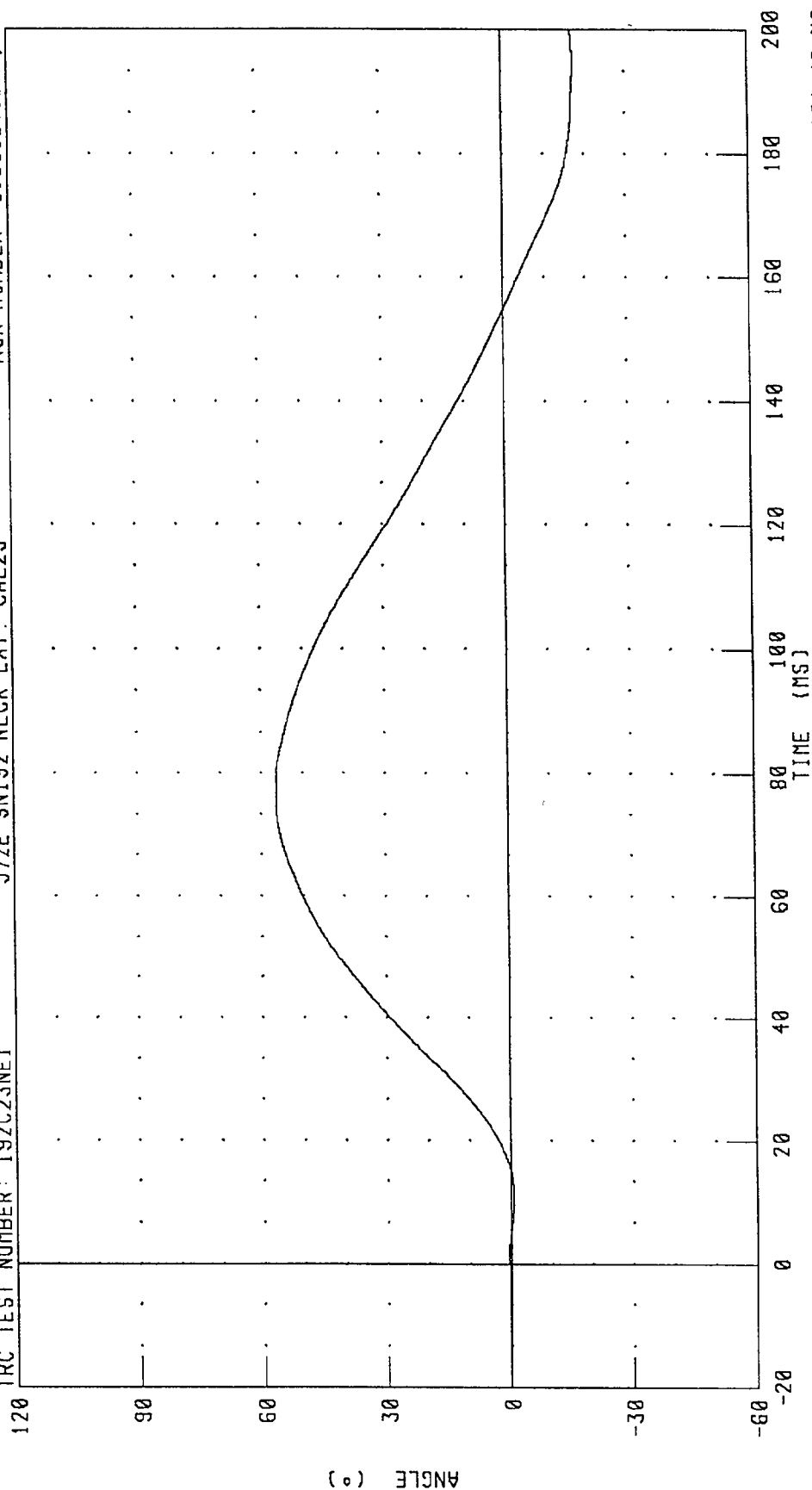
CHANNEL: BETA FILTER: CH CLASS 60

PART 572-E HYBRID III NECK EXTENSION CALIBRATION
 ROTATION ABOUT OCCIPITAL CONDYLE

RUN NUMBER: 010395.1554;1

572E SN192 NECK EXT. CAL23

TRC TEST NUMBER: 192C23NE1



CHANNEL: THETA FILTER: CH. CLASS 60

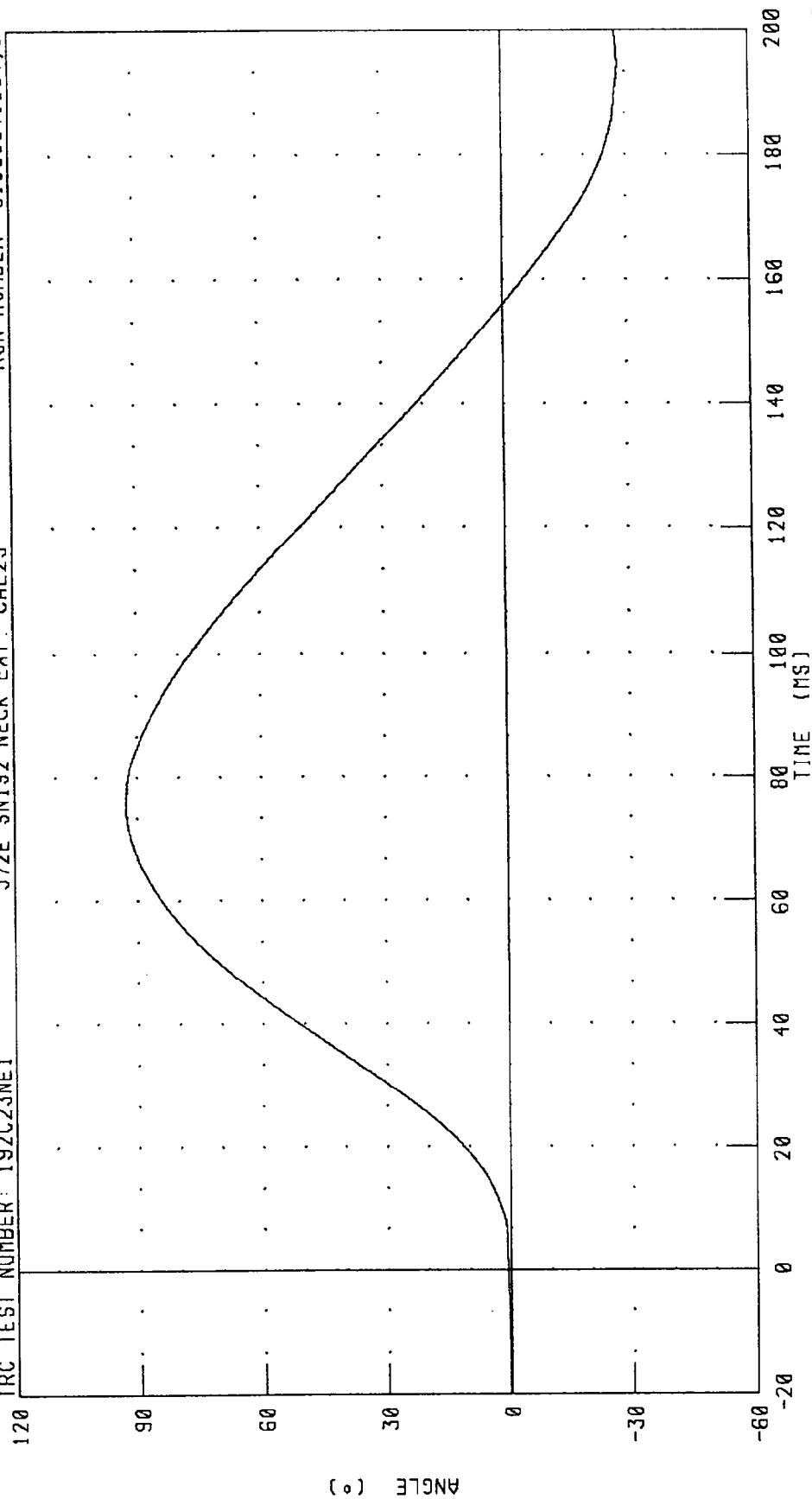
PART 572-E HYBRID III NECK EXTENSION CALIBRATION

TOTAL ROTATION

TRC TEST NUMBER: 192C23NE1

572E SN192 NECK EXT. CAL23

RUN NUMBER: 010395.1554;1



PEAK DATA: 92.73 ° @ 75.28 MS; -28.29 ° @ 194.64 MS

CHANNEL: TOTAL FILTER: CH. CLASS 60

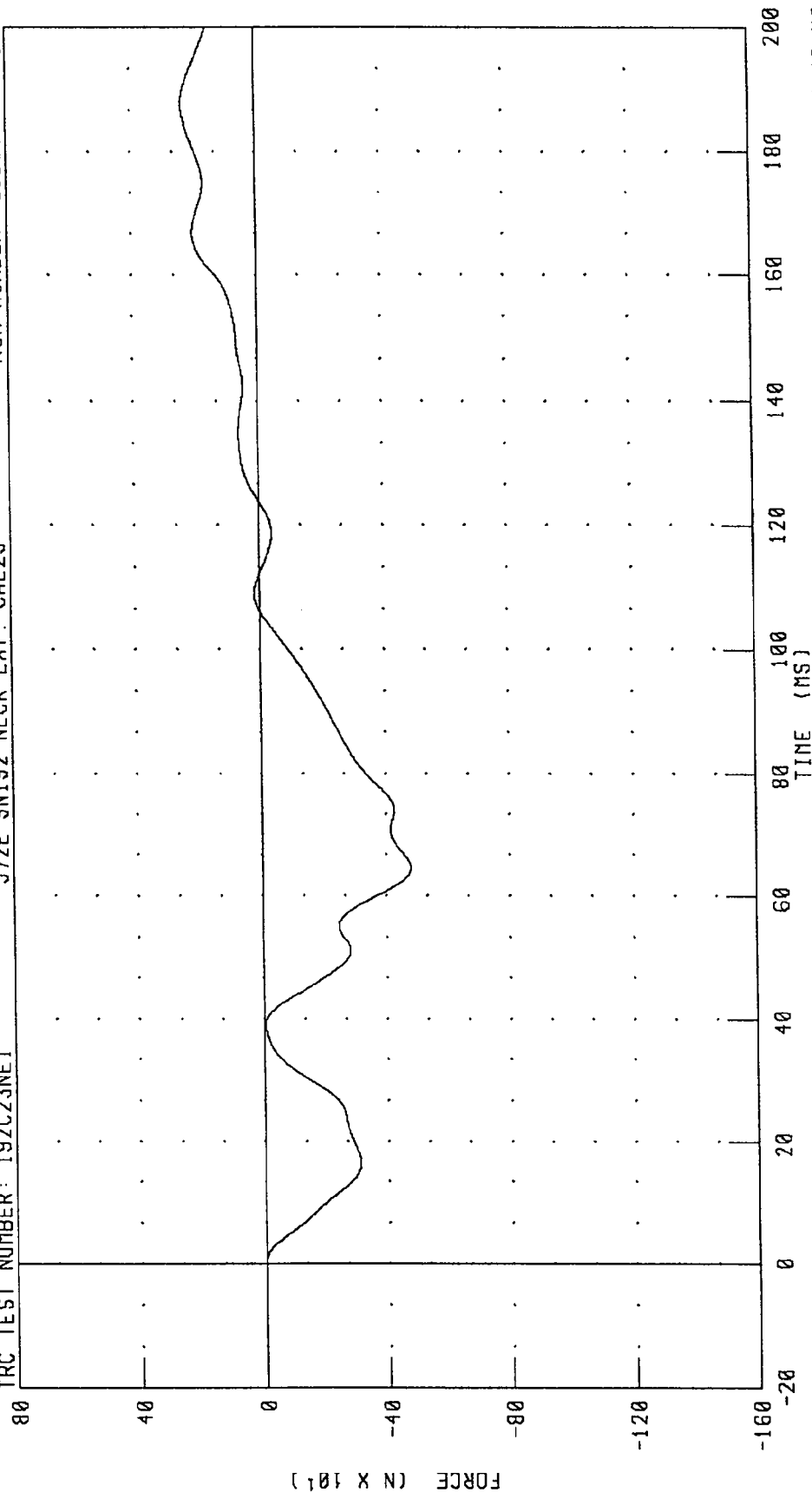
PART 572-E HYBRID 111 NECK EXTENSION CALIBRATION

NECK FORCE X AXIS

TRC TEST NUMBER: 192C23NE1

572E SN192 NECK EXT. CAL23

RUN NUMBER: 010395.1554;1



CHANNEL: NEKXF FILTER: CH. CLASS 60

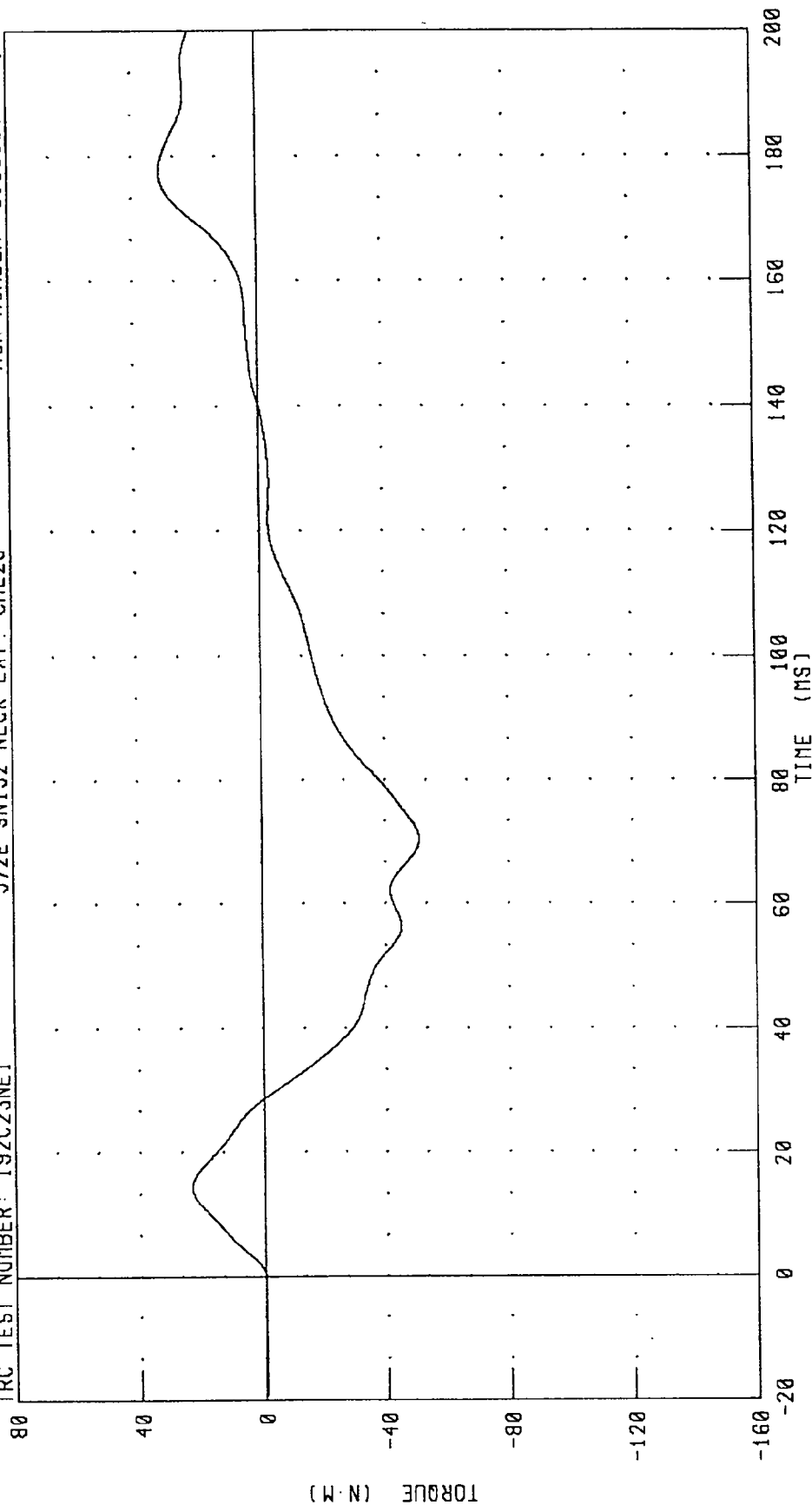
PART 572-E HYBRID III NECK EXTENSION CALIBRATION

NECK MOMENT Y AXIS

TRC TEST NUMBER: 192C23NE1

572E SN192 NECK EXT. CAL23

RUN NUMBER: 010395.1554.1



PEAK DATA: 31.15 N.M @ 177.60 MS; -51.15 N.M @ 70.40 MS

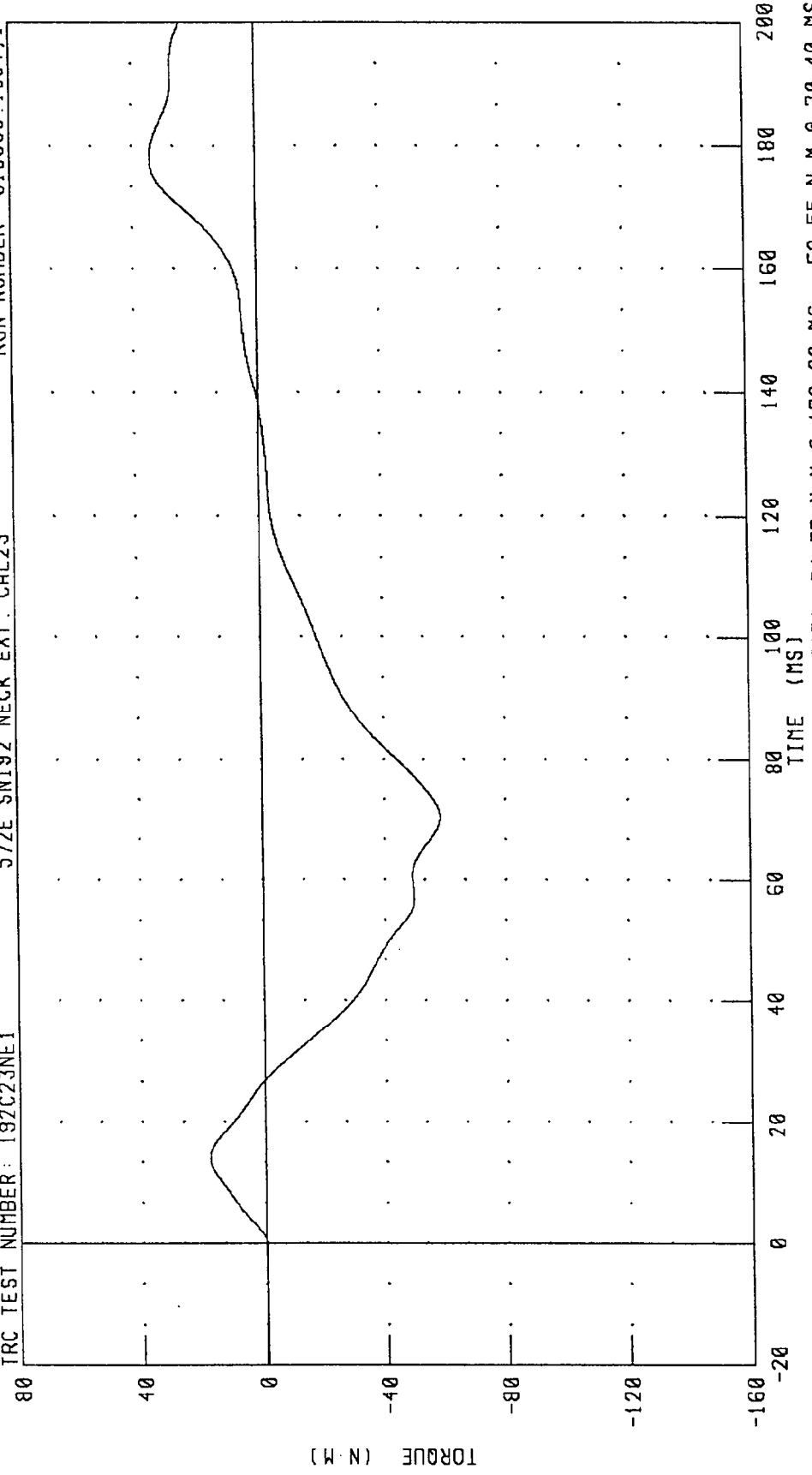
CHANNEL: NEKYM FILTER: CH. CLASS 60

PART 572-E HYBRID III NECK EXTENSION CALIBRATION
TOTAL MOMENT ABOUT OCCIPITAL CONDYLE

TRC TEST NUMBER: 192C23NE1

572E SN192 NECK EXT. CAL23

RUN NUMBER: 010395.1554,1



CHANNEL: NEKOM FILTER: CH. CLASS 60

TRANSPORTATION RESEARCH CENTER INC.

THORAX IMPACT TEST

HYBRID III

23-NOV-94

TRC INC.

TEST NO: 192C23TH1

572E SN192 H.S.THORAX CAL23

TEST PARAMETER	HIGH SPEED TEST	TEST RESULTS
	SPECIFICATION	
TEMPERATURE	20.6-22.2 DEG. C	20.6 DEG. C
RELATIVE HUMIDITY	10 - 70 %	30.0 %
PENDULUM VELOCITY	6.59 - 6.83 M/S	6.68 M/S
MAXIMUM DEFLECTION	63.5 - 72.6 MM	63.8 MM
MAXIMUM RESISTIVE FORCE	5159 - 5894 N	5677. N
INTERNAL HYSTERESIS	69% - 85%	73.3%

TEST MEETS SPECIFICATIONS

TECHNICIAN Pete F. S.

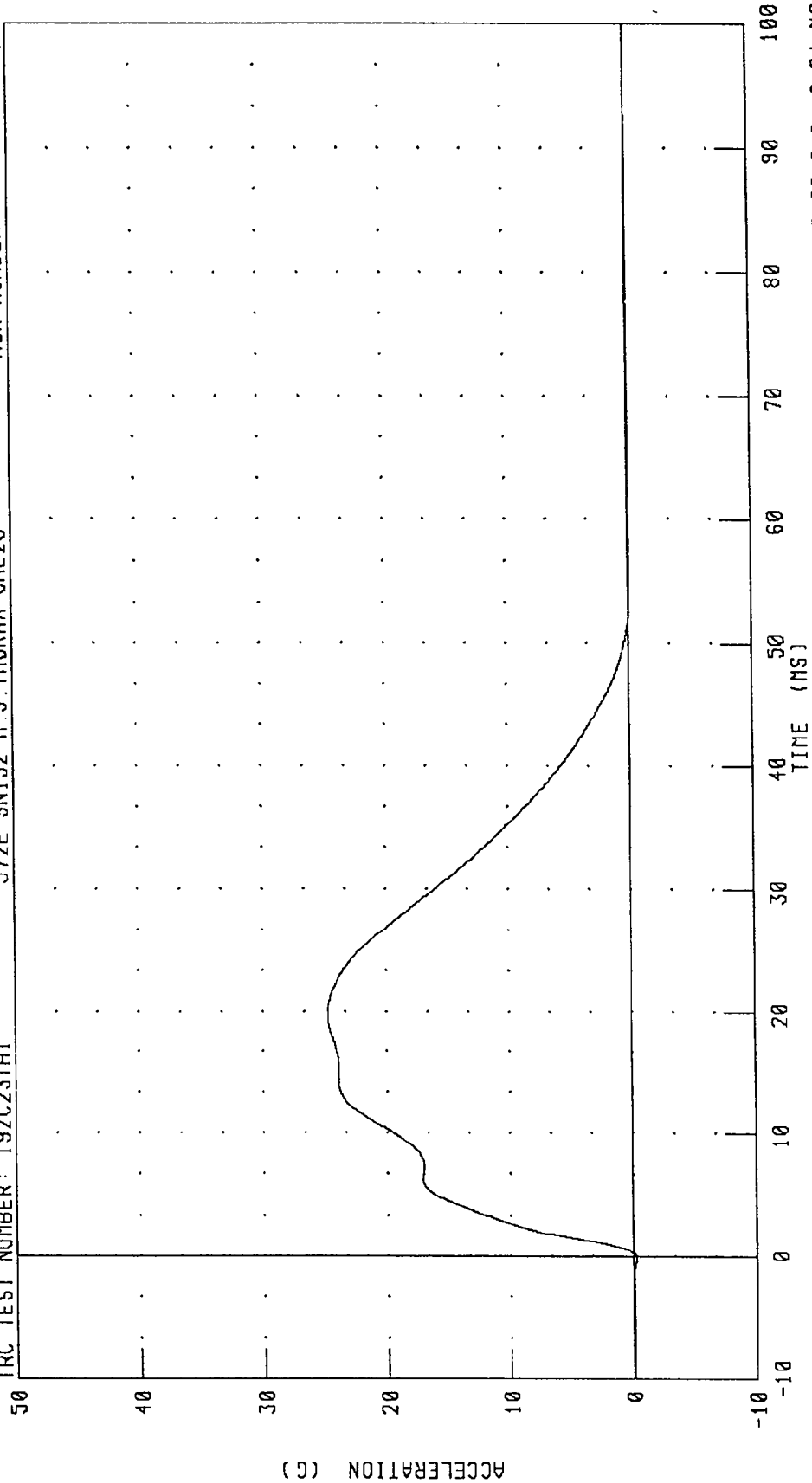
RUN NUMBER: 112394.1031;1

PART 572-E HYBRID III THORAX CALIBRATION
 PENDULUM DECELERATION

IRC TEST NUMBER: 192C23TH1

572E SN192 H.S. THORAX CAL23

RUN NUMBER: 010395.1554;1

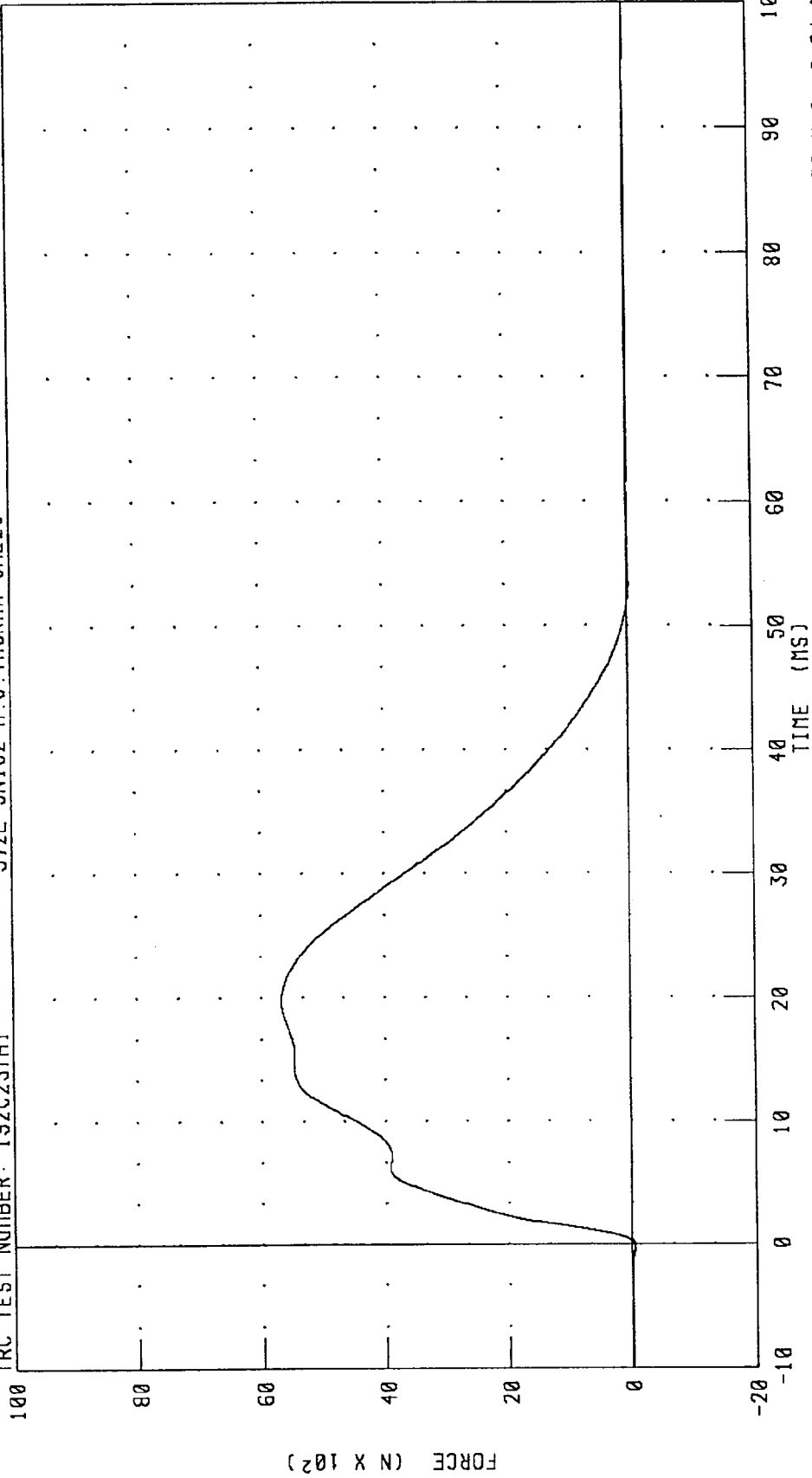


CHANNEL: PENXG FILTER: CH. CLASS 180

PEAK DATA: 24.78 G @ 19.68 MS; -0.22 G @ -0.24 MS

PART 572-E HYBRID III THORAX CALIBRATION
 PENDULUM FORCE

TRC TEST NUMBER: 192C23TH1 572E SN192 H.S. THORAX CAL23 RUN NUMBER: 010395.1554.11



CHANNEL: PENXF FILTER: CH. CLASS 180

PEAK DATA: 5677.05 N @ 19.68 MS; -51.32 N @ -0.24 MS

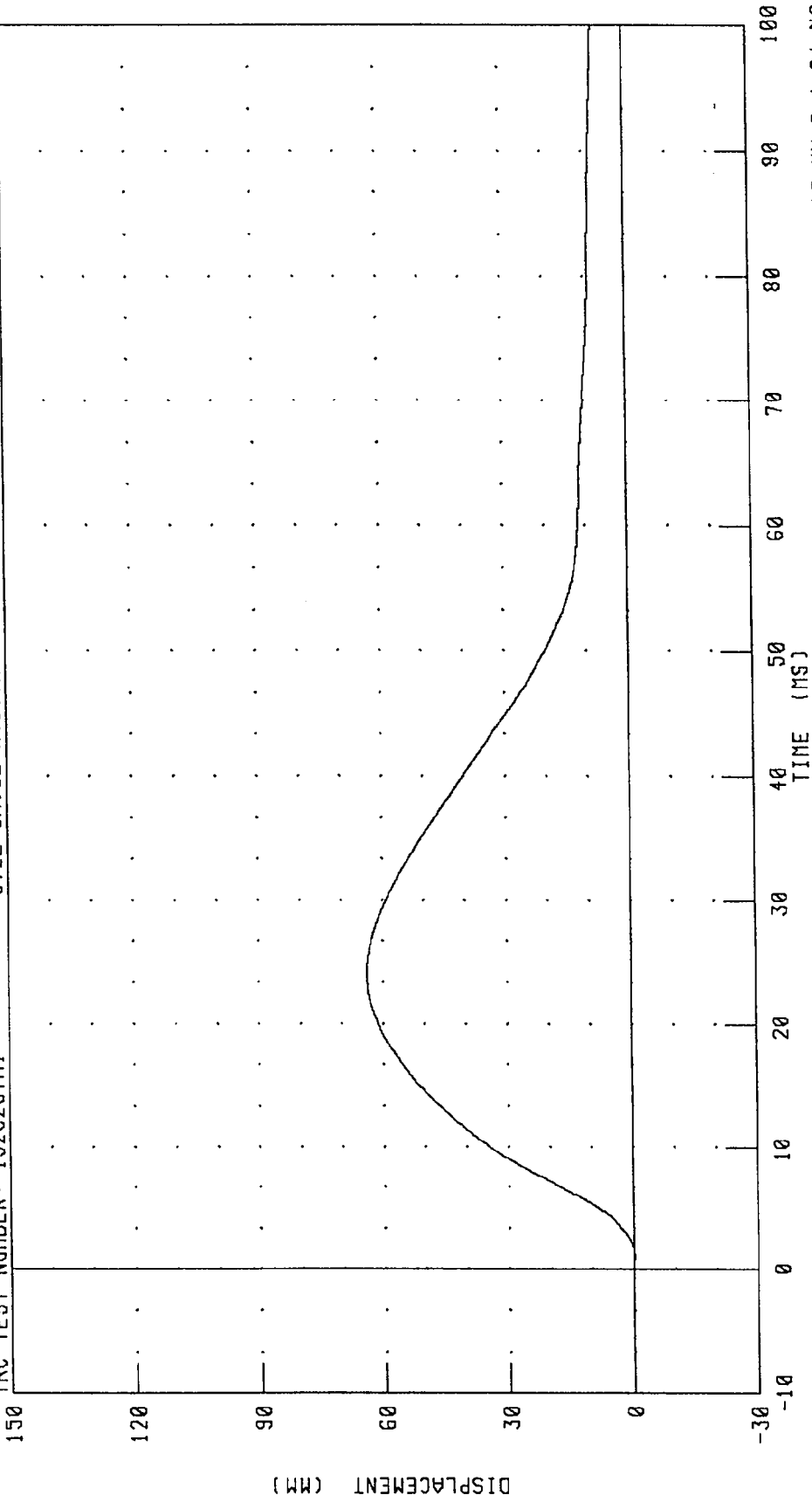
PART 572-E HYBRID III THORAX CALIBRATION

STERNUM DISPLACEMENT

572E SN192 H.S. THORAX CAL23

TRC TEST NUMBER: 192C23TH1

RUN NUMBER: 010395.1554;1



PEAK DATA: 63.81 MM @ 24.08 MS; -0.07 MM @ 1.04 MS

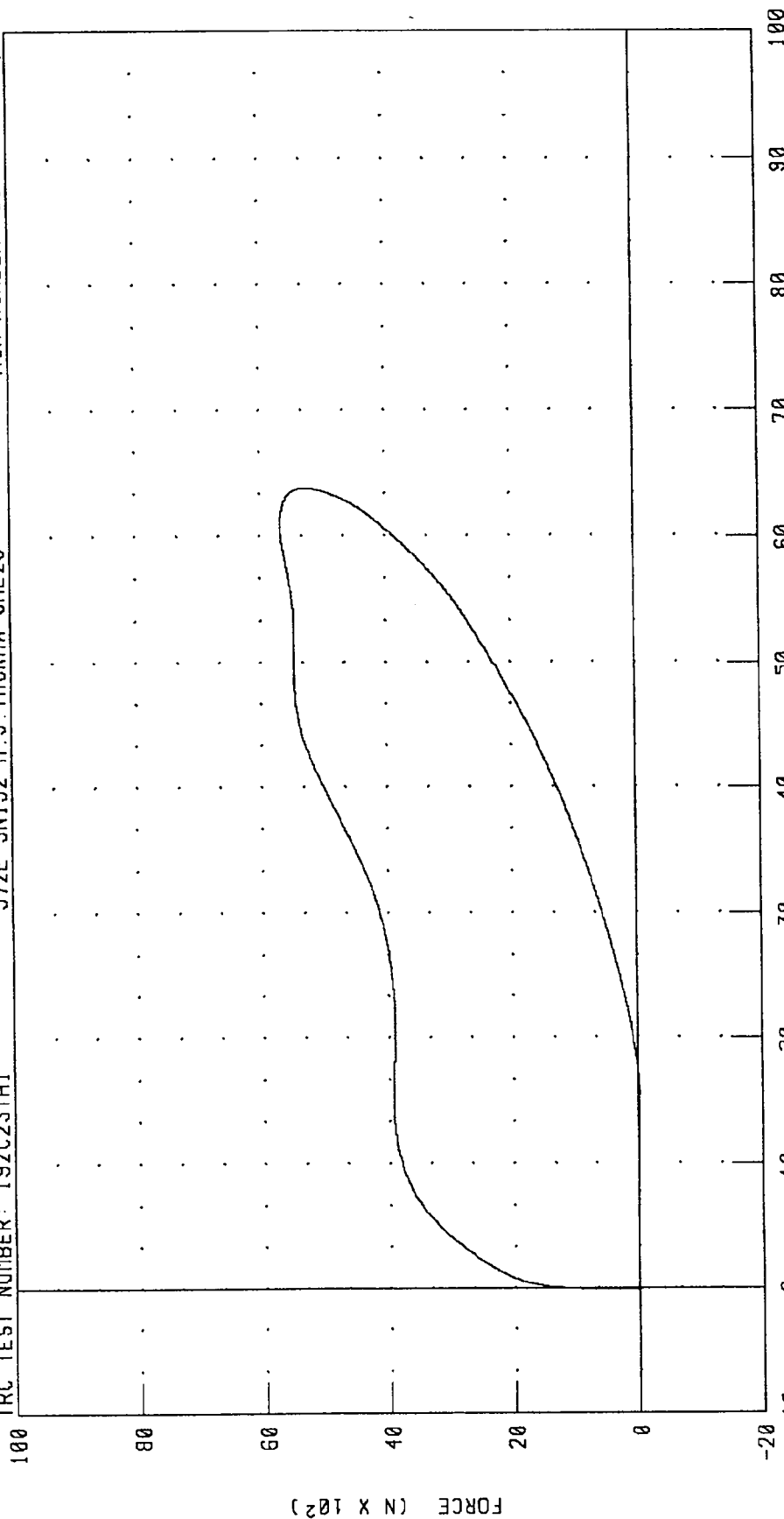
CHANNEL: CSTXD FILTER: CH. CLASS 180

PART 572-E HYBRID III THORAX CALIBRATION
CHEST DISPLACEMENT VS PENDULUM FORCE

TRC TEST NUMBER: 192C23TH1

572E SN192 H.S. THORAX CAL23

RUN NUMBER: 010395.1554;1



DISPLACEMENT (MM)

CHANNEL: CSTXD
PENXF

FILTER: CH. CLASS 180
CH. CLASS 180

PEAK DATA: 63.81 MM @ 24.08 MS; -0.07 NM @ 1.04 MS
5677.05 N @ 19.68 MS; -51.32 N @ -0.24 MS

TRANSPORTATION RESEARCH CENTER INC.

RIGHT KNEE IMPACT TEST

HYBRID III

22-NOV-94

TRC INC.

TEST NO: 192C23RK1

572E SN192 RIGHT KNEE CAL 23

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	18.9-25.6 DEG. C	21.1 DEG. C
RELATIVE HUMIDITY	10 - 70 %	50.0 %
PROBE VELOCITY	2.07 - 2.13 M/S	2.08 M/S
PEAK KNEE IMPACT FORCE 5.0 KG PENDULUM	4714 - 5783 N	5127.9 N

TEST MEETS SPECIFICATIONS

TECHNICIAN Pete Foss

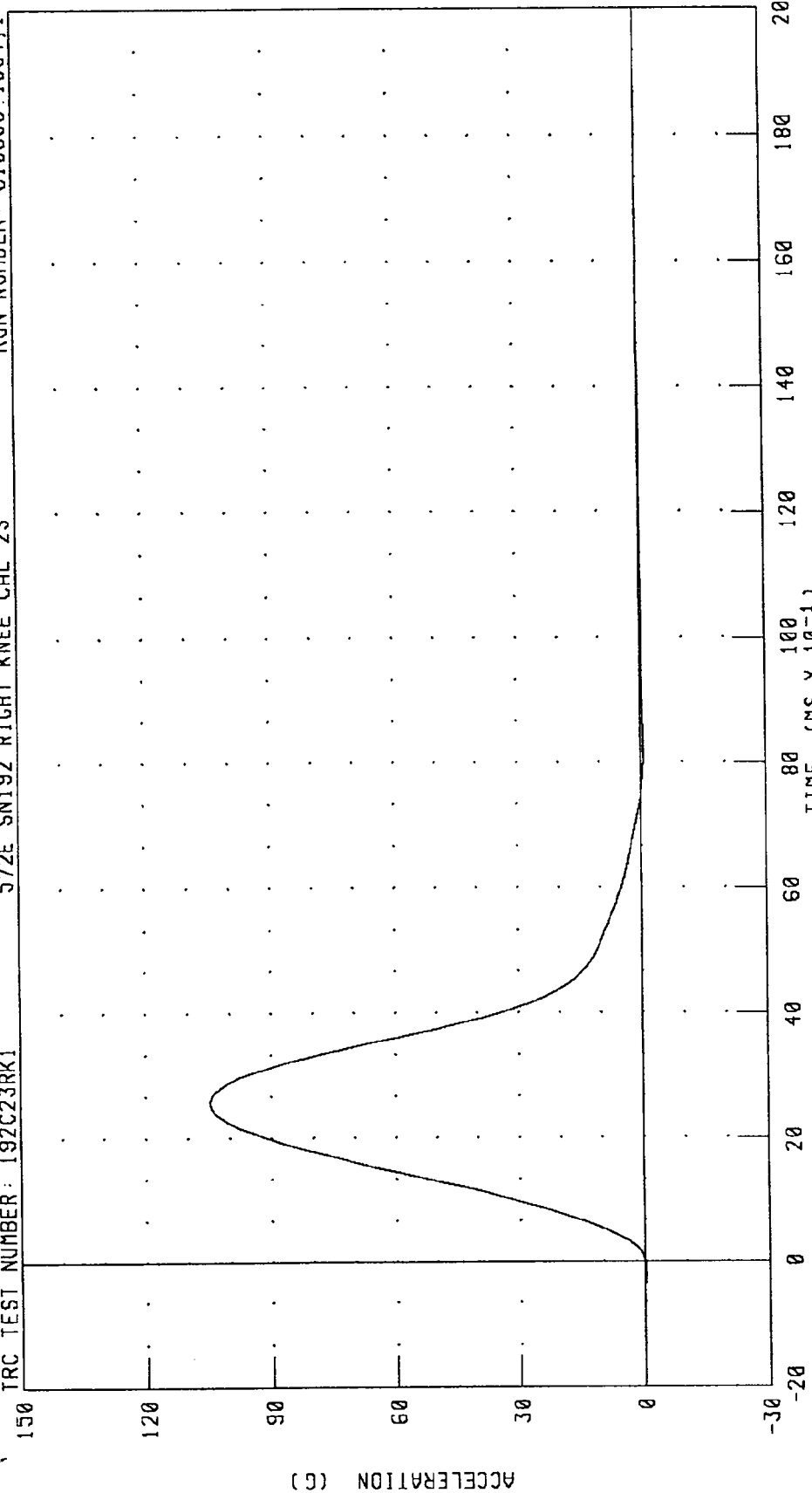
RUN NUMBER: 112294.1457;1

PART 572-E HYBRID III RIGHT KNEE CALIBRATION
 PENDULUM DECELERATION (5 KG PEND.)

RUN NUMBER: 010395.1554.1

572E SN192 RIGHT KNEE CAL 23

TRC TEST NUMBER: 192C23RK1



PEAK DATA: 104.81 G @ 2.56 MS; -0.69 G @ 8.24 MS

CHANNEL: PENXG FILTER: CH. CLASS 600

PART 572-E HYBRID III RIGHT KNEE CALIBRATION

PENDULUM FORCE (5 KG PEND.)

572E SN192 RIGHT KNEE CAL 23

TRC TEST NUMBER: 192C23RK1

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TRANSPORTATION RESEARCH CENTER INC.

LEFT KNEE IMPACT TEST

HYBRID III

22-NOV-94

TRC INC.

TEST NO: 192C23LK1

572E SN192 LEFT KNEE CAL 23

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	18.9-25.6 DEG. C	21.1 DEG. C
RELATIVE HUMIDITY	10 - 70 %	50.0 %
PROBE VELOCITY	2.07 - 2.13 M/S	2.08 M/S
PEAK KNEE IMPACT FORCE 5.0 KG PENDULUM	4714 - 5783 N	4990.2 N

TEST MEETS SPECIFICATIONS

TECHNICIAN

[Signature]

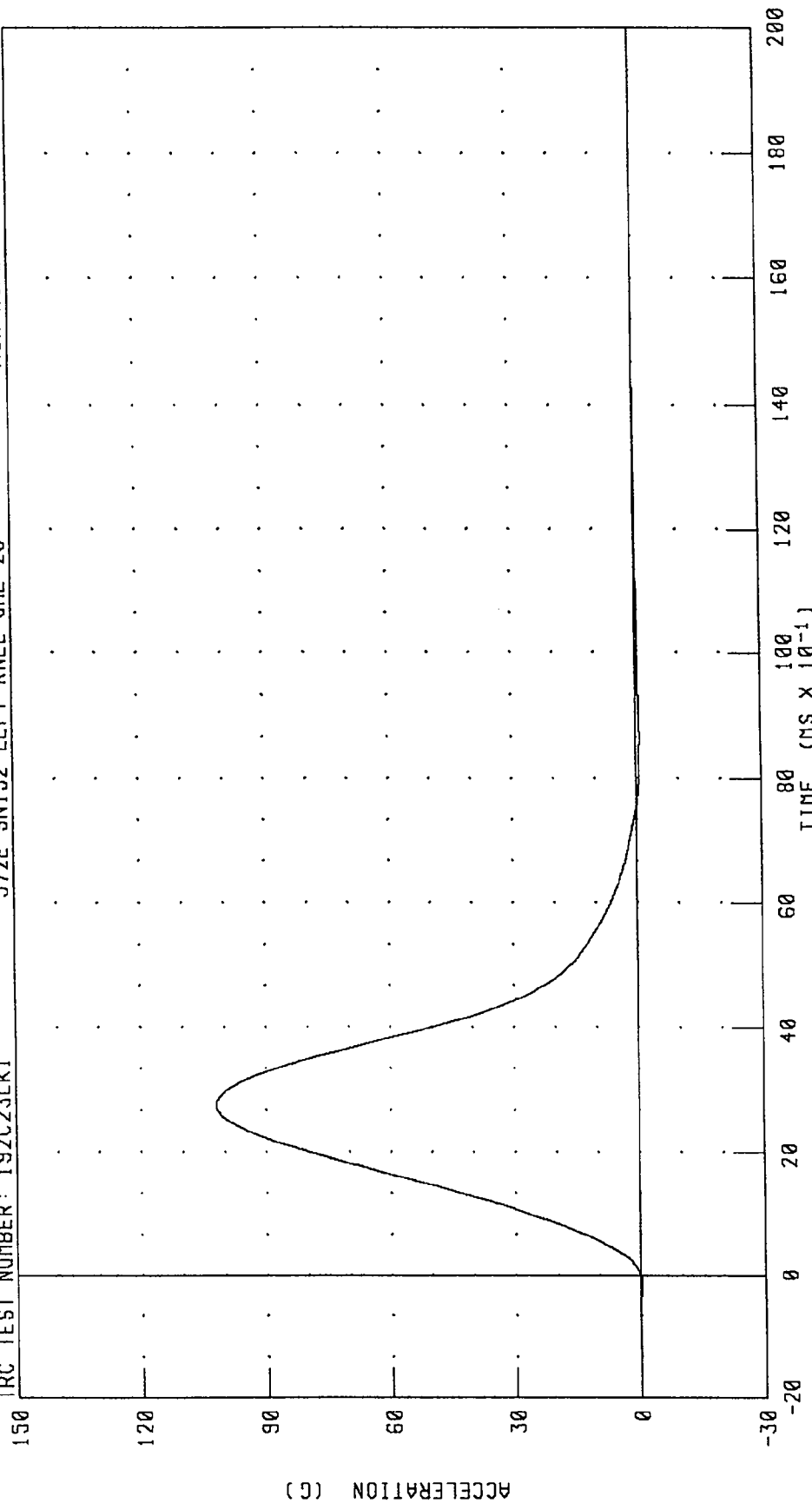
RUN NUMBER: 112294.1454;1

PART 572-E HYBRID III LEFT KNEE CALIBRATION
 PENDULUM DECELERATION (5 KG PEND.)

RUN NUMBER: 010395.1554;1

572E SN192 LEFT KNEE CAL 23

TRC TEST NUMBER: 192C23LK1



PEAK DATA: 101.99 G @ 2.72 MS; -0.82 G @ 8.64 MS

CHANNEL: PENXG FILTER: CH. CLASS 600

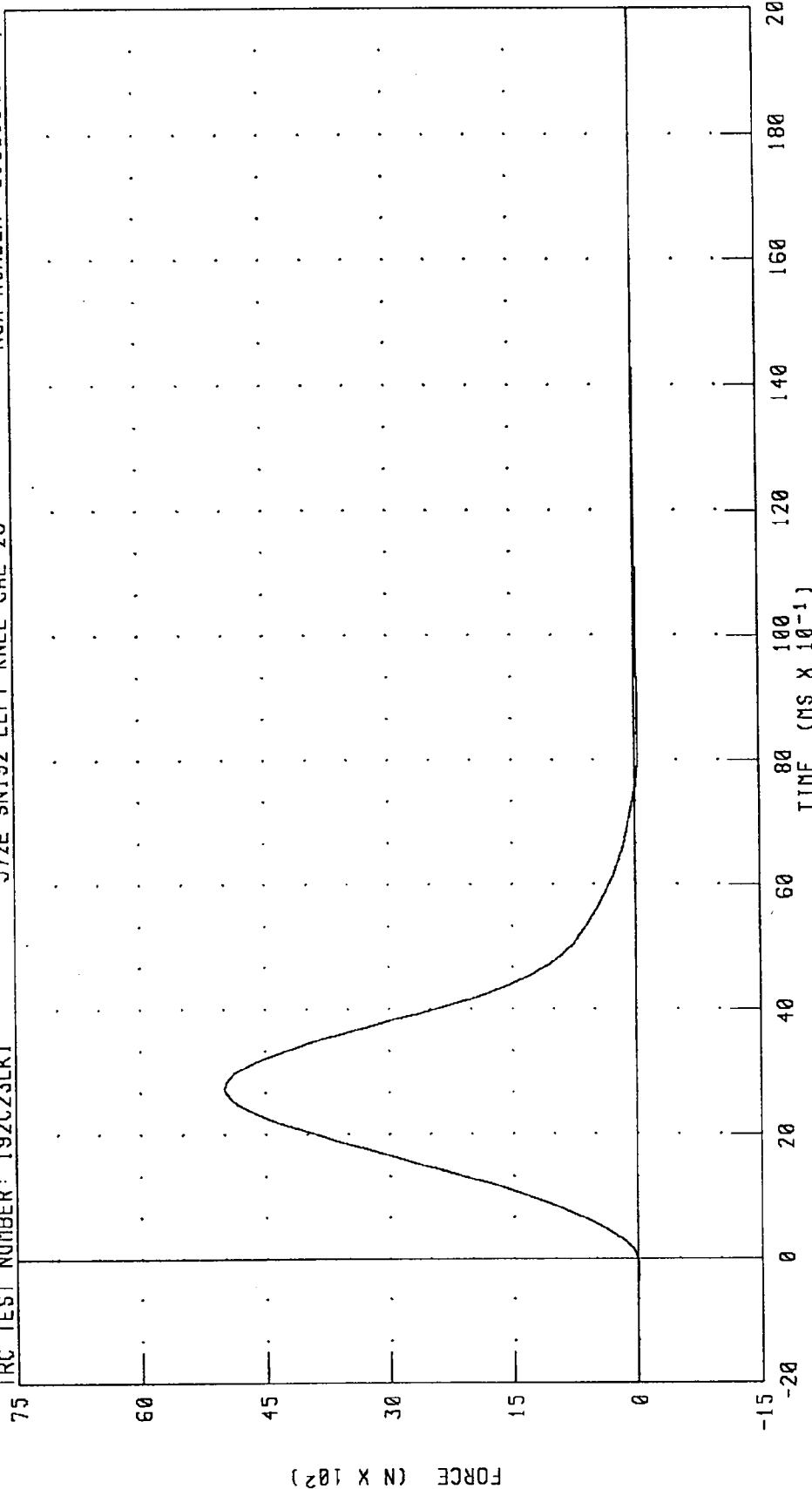
PART 572-E HYBRID III LEFT KNEE CALIBRATION

PENDULUM FORCE (5 KG PEND.)

TRC TEST NUMBER: 192C23LK1

572E SN192 LEFT KNEE CAL 23

RUN NUMBER: 010395.1554.1



CHANNEL: PENXF FILTER: CH. CLASS 600

Pre-test Certification Data

Passenger Dummy S/N: 142

TRANSPORTATION RESEARCH CENTER INC.
HYBRID III EXTERNAL DIMENSIONS

142 HUMANOID

21-NOV-94

TRC INC.

TEST NO: 142C24ED1

572E SN142 EXT.DIMENSION CAL24

TEST PARAMETER	(DIMEN.)	SPECIFICATION	TEST RESULTS
LOCATION FOR CHEST CIRCUMFERENCE (AA)		429 - 434 MM	432. MM
LOCATION FOR WAIST CIRCUMFERENCE (BB)		226 - 231 MM	229. MM
CHEST CIRCUMFERENCE	(Y)	970 -1001 MM	986. MM
WAIST CIRCUMFERENCE	(Z)	836 - 866 MM	848. MM
CHEST DEPTH	(O)	213 - 229 MM	221. MM
H-POINT HEIGHT	(C)	84 - 89 MM	84. MM
H-POINT FROM SEATBACK	(D)	135 - 140 MM	137. MM
SKULL CAP TO BACKLINE	(H)	41 - 46 MM	43. MM
TOTAL SITTING HEIGHT	(A)	879 - 889 MM	879. MM
THIGH CLEARANCE	(F)	140 - 155 MM	145. MM
BUTTOCK KNEE LENGTH	(K)	579 - 605 MM	602. MM
BUTTOCK POPLITEAL LENGTH	(N)	452 - 478 MM	470. MM
POPLITEAL HEIGHT	(L)	429 - 455 MM	445. MM
KNEE PIVOT HEIGHT	(M)	485 - 500 MM	488. MM
FOOT LENGTH	(P)	252 - 267 MM	257. MM
FOOT BREADTH	(W)	91 - 107 MM	97. MM
SHOULDER PIVOT FROM BACKLINE	(E)	84 - 94 MM	91. MM
SHOULDER BREADTH	(V)	422 - 437 MM	429. MM
SHOULDER PIVOT HEIGHT	(B)	506 - 521 MM	508. MM
ELBOW REST HEIGHT	(J)	191 - 211 MM	203. MM
SHOULDER-ELBOW LENGTH	(I)	330 - 345 MM	345. MM
BACK OF ELBOW TO WRIST PIVOT	(G)	290 - 305 MM	292. MM

DUMMY MEETS SPECIFICATIONS

TECHNICIAN

Pete Foss

RUN NUMBER: 112394.1250

TRANSPORTATION RESEARCH CENTER INC.

HEAD DROP TEST

HYBRID III

22-NOV-94

TRC INC.

TEST NO: 142C24HD1

572E SN142 HEAD DROP CAL 24

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	18.9-25.6 DEG. C	21.1 DEG. C
RELATIVE HUMIDITY	10 - 70 %	50.0 %
PEAK RESULTANT ACCELERATION	225 - 275 G	248.73 G
PEAK LATERAL ACCELERATION	15 G MAX	-2.76 G
IS ACCELERATION CURVE UNIMODAL?	YES	YES

TEST MEETS SPECIFICATIONS

TECHNICIAN Pete F. S.

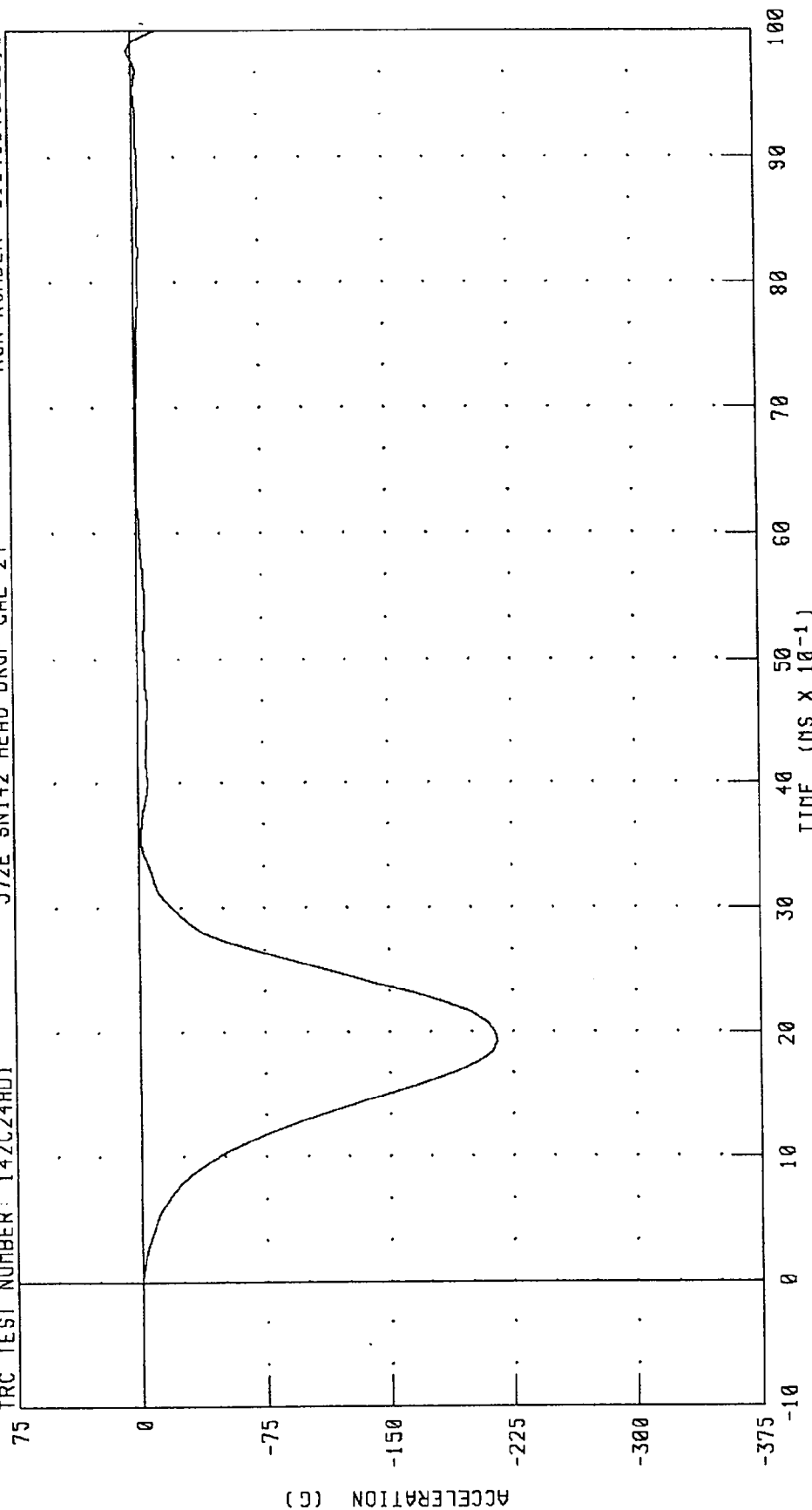
RUN NUMBER: 112294.1430;3

PART 572-E HYBRID III HEAD CALIBRATION
HEAD ACCELERATION X AXIS

TRC TEST NUMBER: 142C24HD1

572E SN142 HEAD DROP CAL 24

RUN NUMBER: 010495.0928,3



PEAK DATA: 2.96 G @ 9.84 MS; -215.62 G @ 1.92 MS

CHANNEL: HEDXG FILTER: CH. CLASS 1000

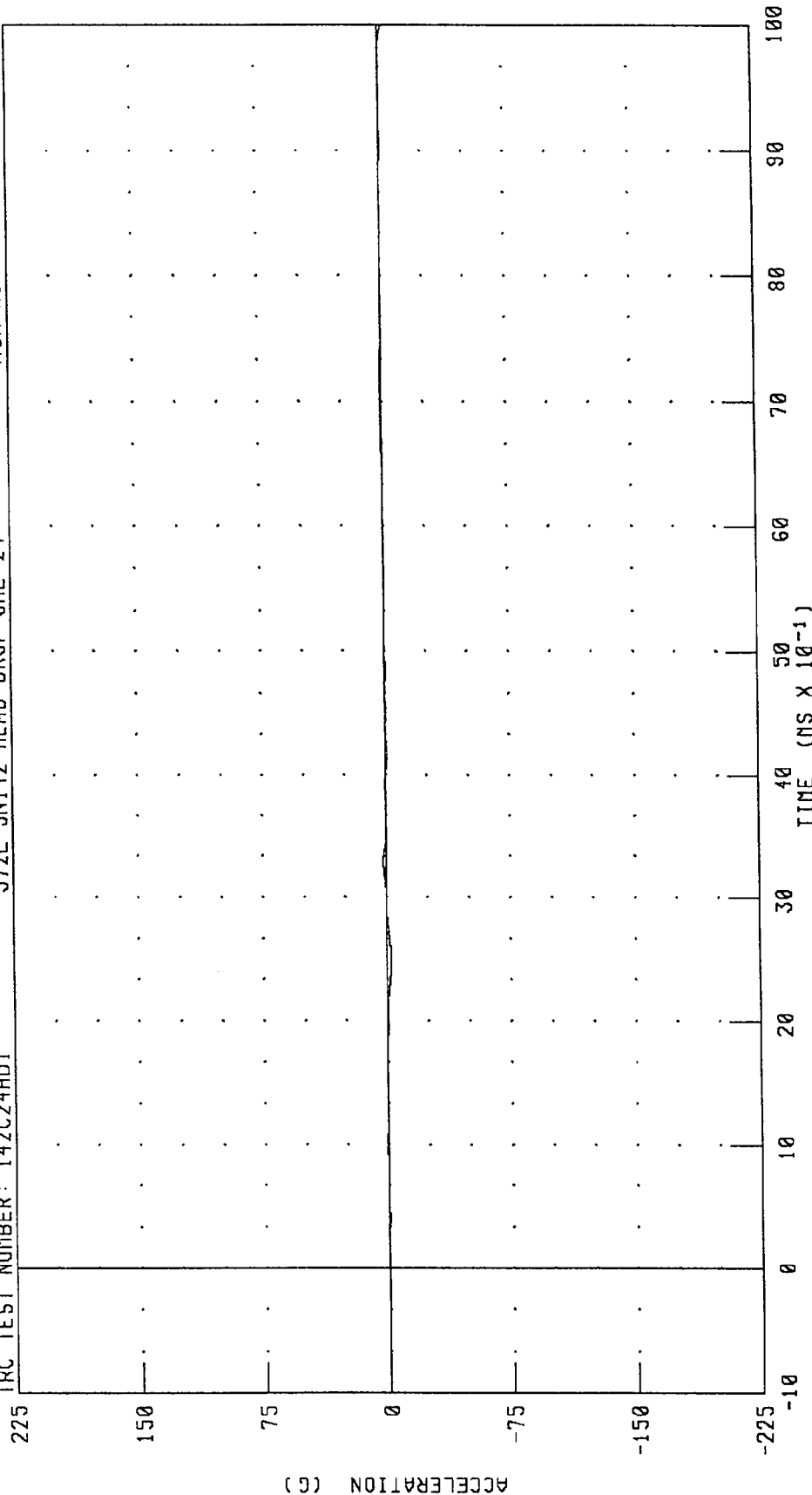
PART 572-E HYBRID III HEAD CALIBRATION

HEAD ACCELERATION Y AXIS

RUN NUMBER: 010495.0928;3

572E SN142 HEAD DROP CAL 24

TRC TEST NUMBER: 142C24HD1



CHANNEL: HEDYG FILTER: CH. CLASS 1000

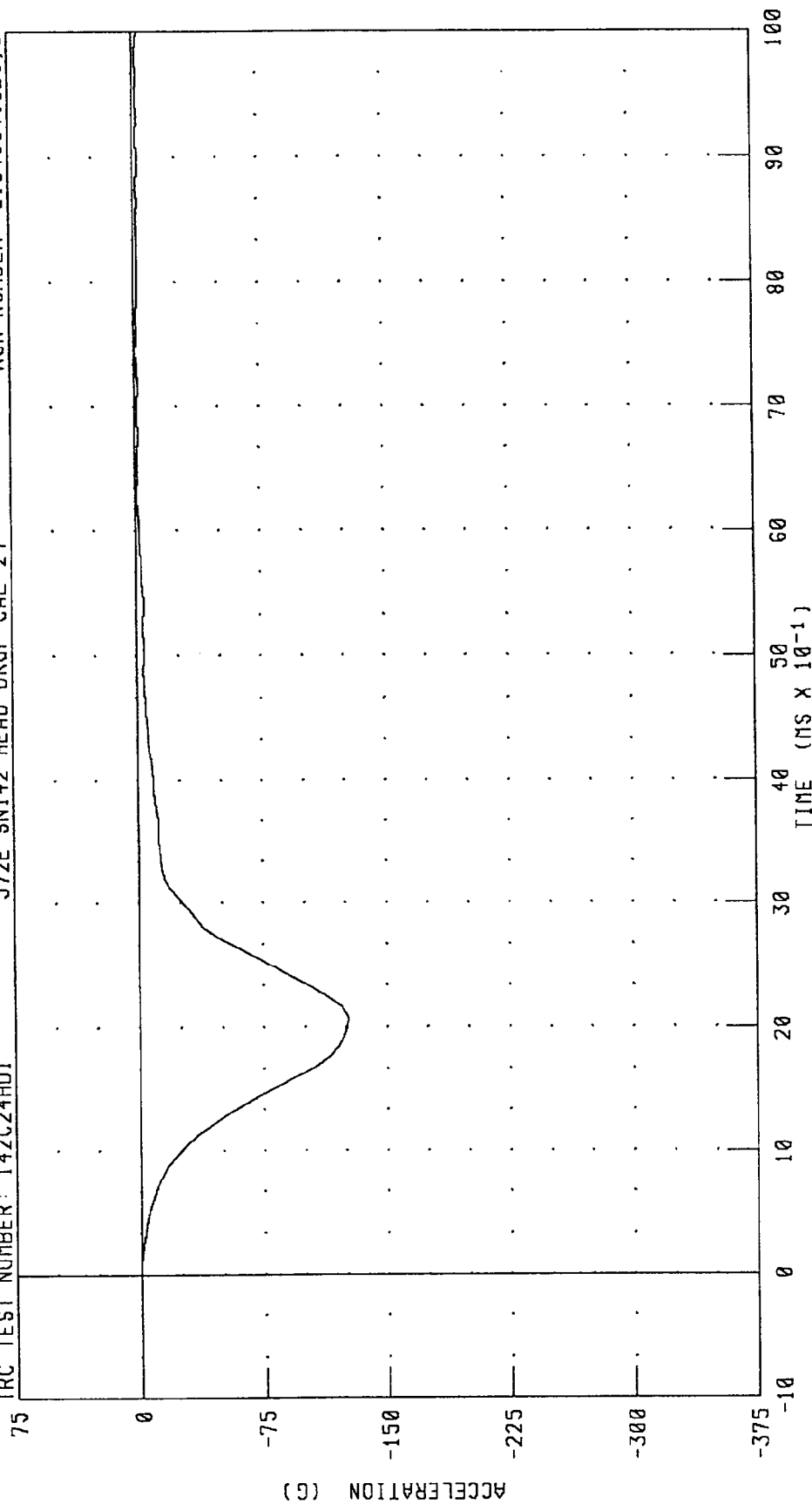
PART 572-E HYBRID III HEAD CALIBRATION

HEAD ACCELERATION Z AXIS

TRC TEST NUMBER: 142C24HD1

572E SN142 HEAD DRQP CAL 24

RUN NUMBER: 010495.0928,3



PEAK DATA: 0.05 G @ -0.24 MS; -126.33 G @ 2.08 MS

CHANNEL: HEDZG FILTER: CH. CLASS 1000

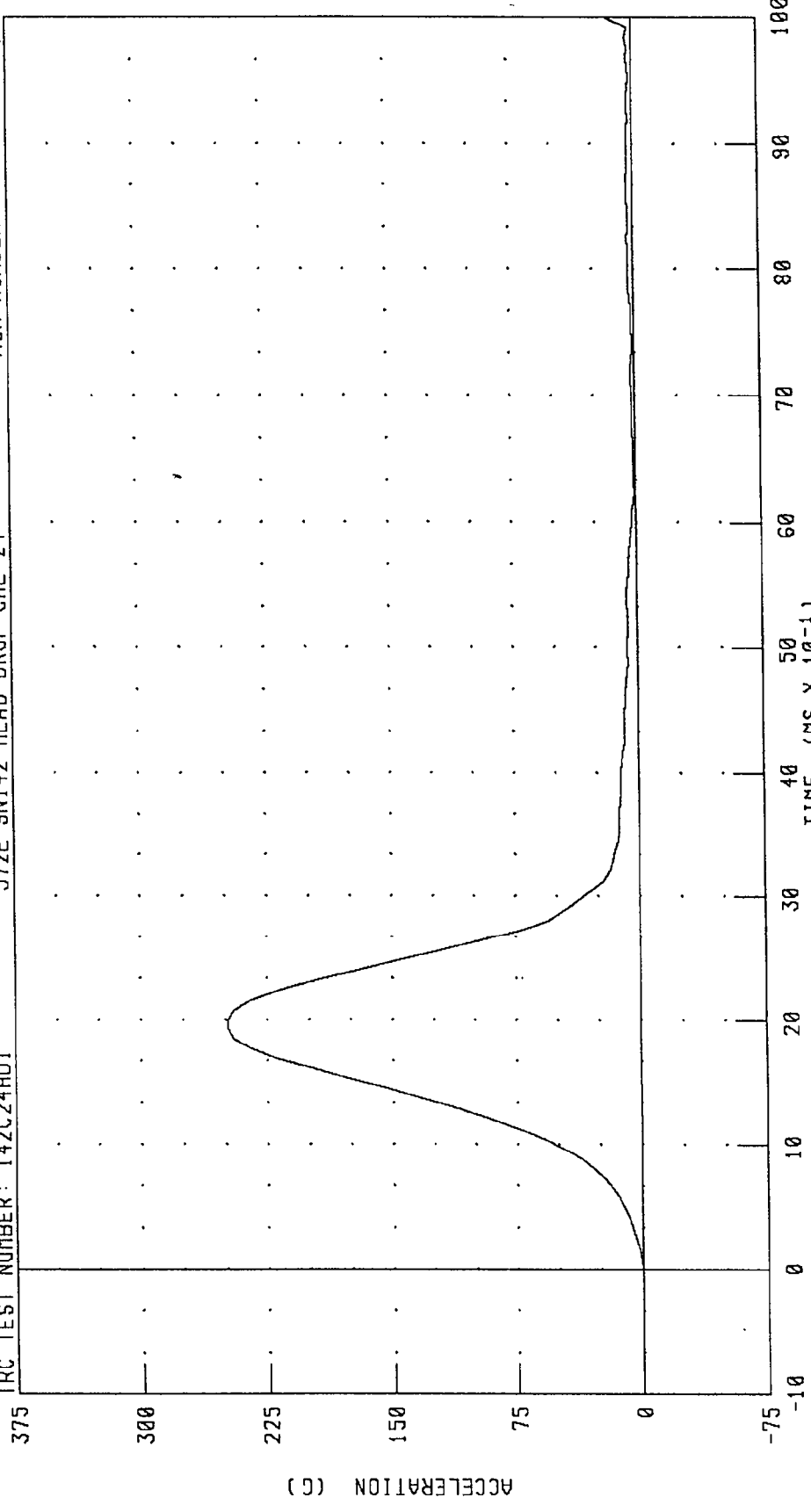
PART 572-E HYBRID III HEAD CALIBRATION

HEAD RESULTANT ACCELERATION

572E SN142 HEAD DROP CAL 24

RUN NUMBER: 010495.0928;3

TRC TEST NUMBER: 142C24H01



PEAK DATA: 248.73 G @ 2.00 MS; 0.03 G @ -0.08 MS

CHANNEL: HEDRG FILTER: CH. CLASS 1000

TRANSPORTATION RESEARCH CENTER INC.

NECK FLEXION TEST - 6 CHANNEL TRANSDUCER

HYBRID III

23-NOV-94

TRC INC. TEST NO: 142C24NF1 572E SN142 NECK FLEXION CAL24

TEST PARAMETER		SPECIFICATION	TEST RESULTS
TEMPERATURE		20.6-22.2 DEG. C	20.6 DEG. C
RELATIVE HUMIDITY		10 - 70 %	30.0 %
IMPACT VELOCITY		6.89 - 7.13 M/S	6.99 M/S
PENDULUM DECELERATION	10 MS	22.50 - 27.50 G	24.67 G
	20 MS	17.60 - 22.60 G	21.03 G
	30 MS	12.50 - 18.50 G	15.76 G
MAX PENDULUM G		29 G MAX	25.09 G
MAX PENDULUM G ABOVE 30 MS		29 G MAX	15.73 G
DECELERATION-TIME CURVE DECAY TIME TO 5 G		34 - 42 MS	37.04 MS
D PLANE	MAX	64 - 78 DEG.	71.78 DEG.
ROTATION	TIME	57 - 64 MS	59.28 MS
MOMENT ABOUT OCCIPITAL CONDYLE	MAX	88.2 - 108.5 NM	92.22 NM
	TIME	47 - 58 MS	50.32 MS
ROTATION ANGLE-TIME CURVE DECAY TIME TO ZERO		113 - 128 MS	114.32 MS
POSITIVE MOMENT-TIME CURVE DECAY TIME TO ZERO		97 - 107 MS	102.48 MS

TEST MEETS SPECIFICATIONS

TECHNICIAN *Steve Kent*

RUN NUMBER: 112394.0748;1

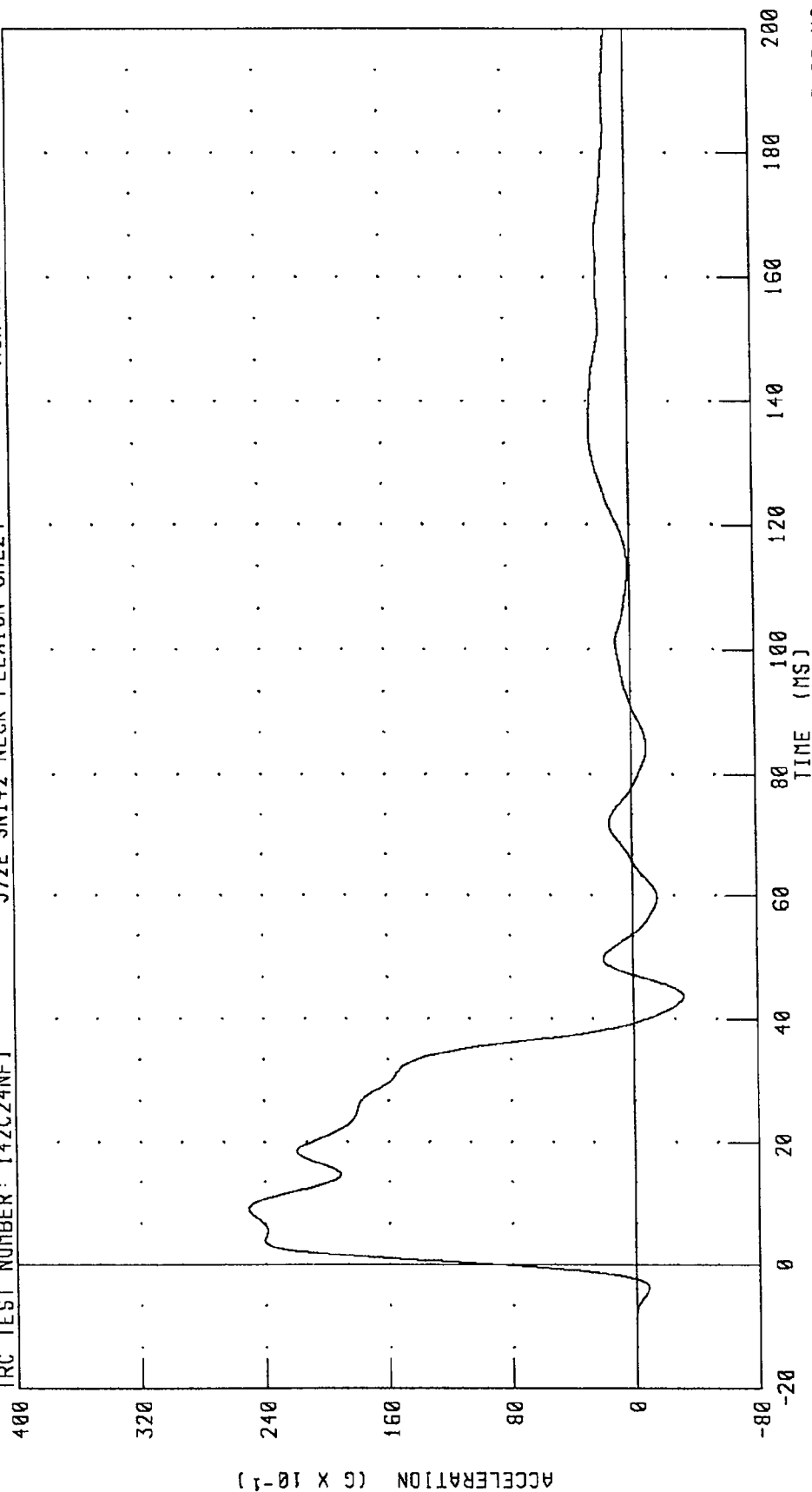
PART 572-E HYBRID III NECK FLEXION CALIBRATION

PENDULUM DECELERATION

TRC TEST NUMBER: 142C24NF1

572E SN142 NECK FLEXION CAL24

RUN NUMBER: 010495.0928;1



CHANNEL: PENXG FILTER: CH. CLASS 60

PEAK DATA: 25.09 G @ 9.04 MS; -3.22 G @ 43.68 MS

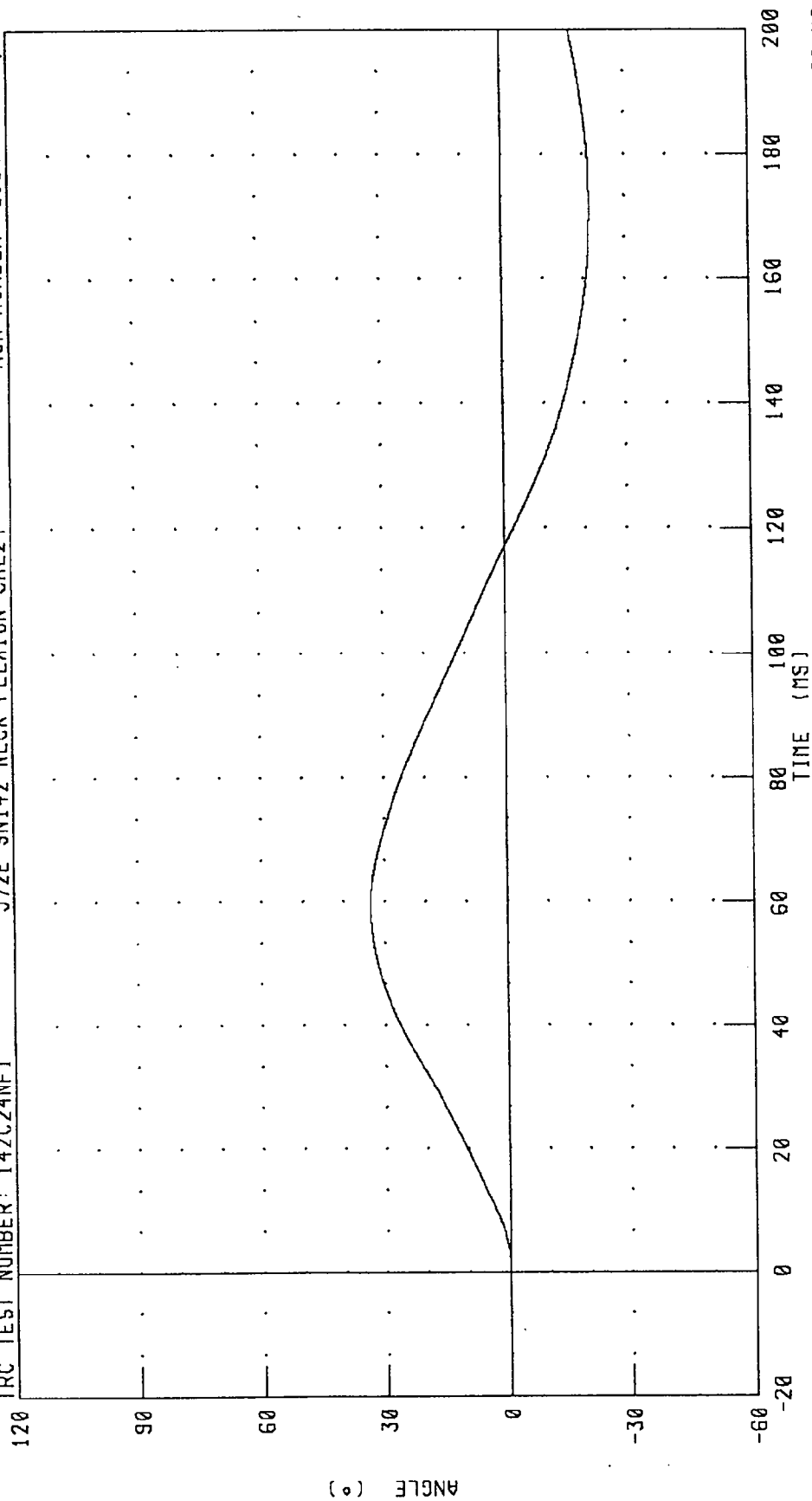
PART 572-E HYBRID III NECK FLEXION CALIBRATION

ROTATION ABOUT BASE OF NECK

572E SN142 NECK FLEXION CAL24

TRC TEST NUMBER: 142C24NF1

RUN NUMBER: 010495.0928,1



CHANNEL: BETA FILTER: CH. CLASS 60

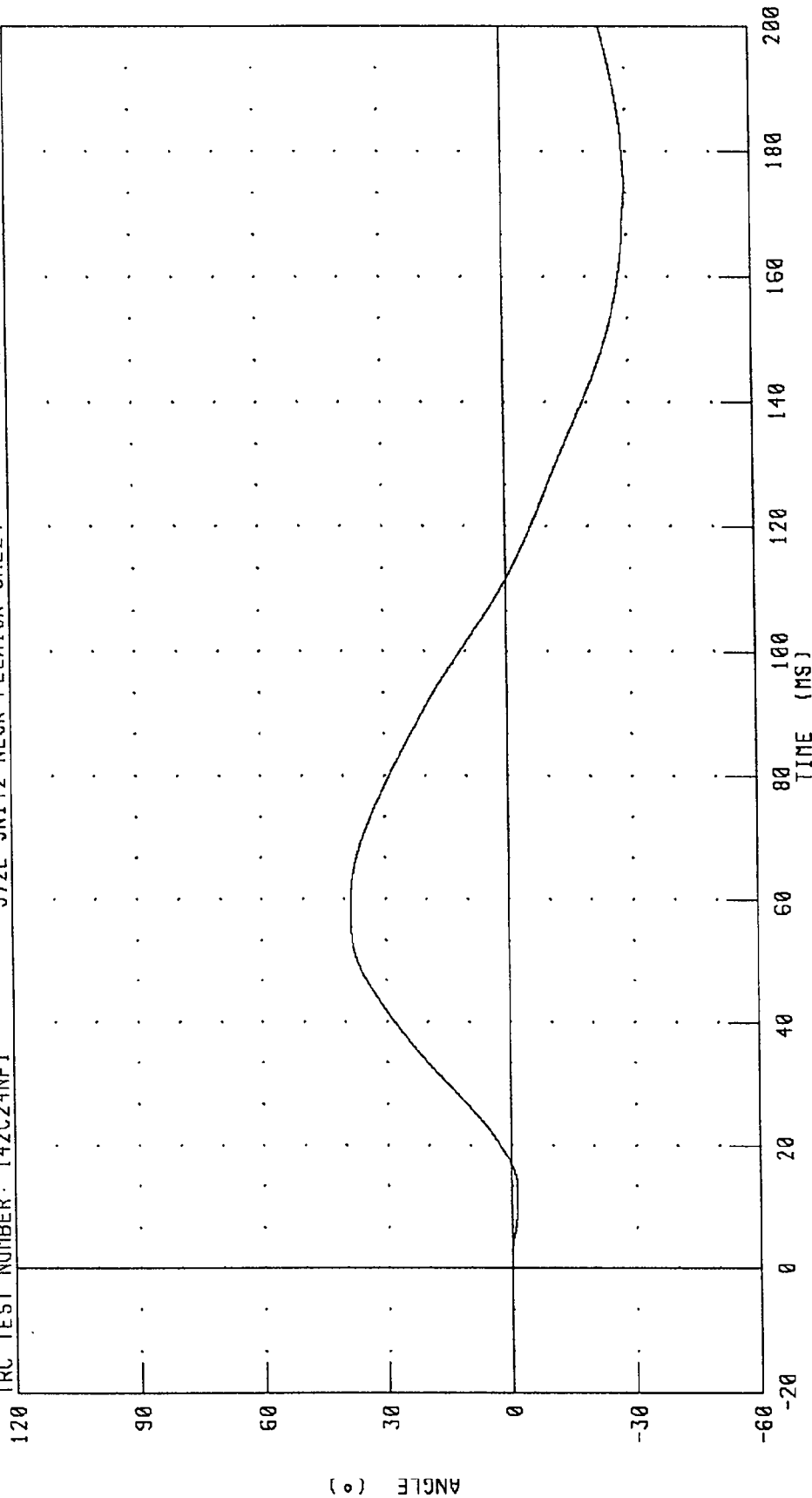
PEAK DATA: 33.42 ° @ 59.28 MS; -21.48 ° @ 171.68 MS

PART 572-E HYBRID III NECK FLEXION CALIBRATION
 ROTATION ABOUT OCCIPITAL CONDYLE

RUN NUMBER: 010495.0928;1

TRC TEST NUMBER: 142C24NF1

572E SN142 NECK FLEXION CAL24



CHANNEL: THETA FILTER: CH. CLASS 60

PEAK DATA: 38.36 ° @ 56.80 MS; -29.58 ° @ 174.72 MS

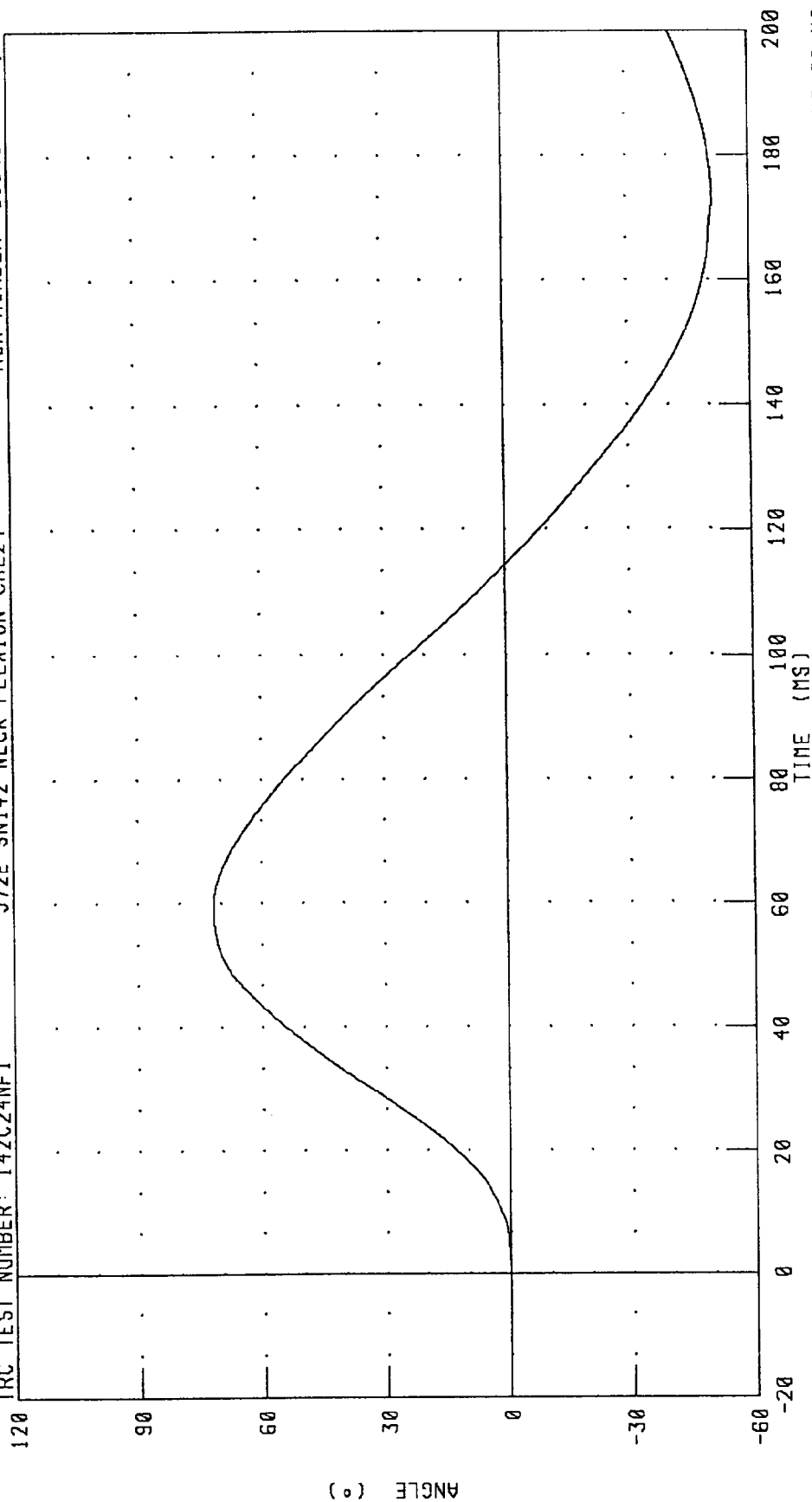
PART 572-E HYBRID III NECK FLEXION CALIBRATION

TOTAL ROTATION

TRC TEST NUMBER: 142C24NF1

572E SN142 NECK FLEXION CAL24

RUN NUMBER: 010495.0928,1



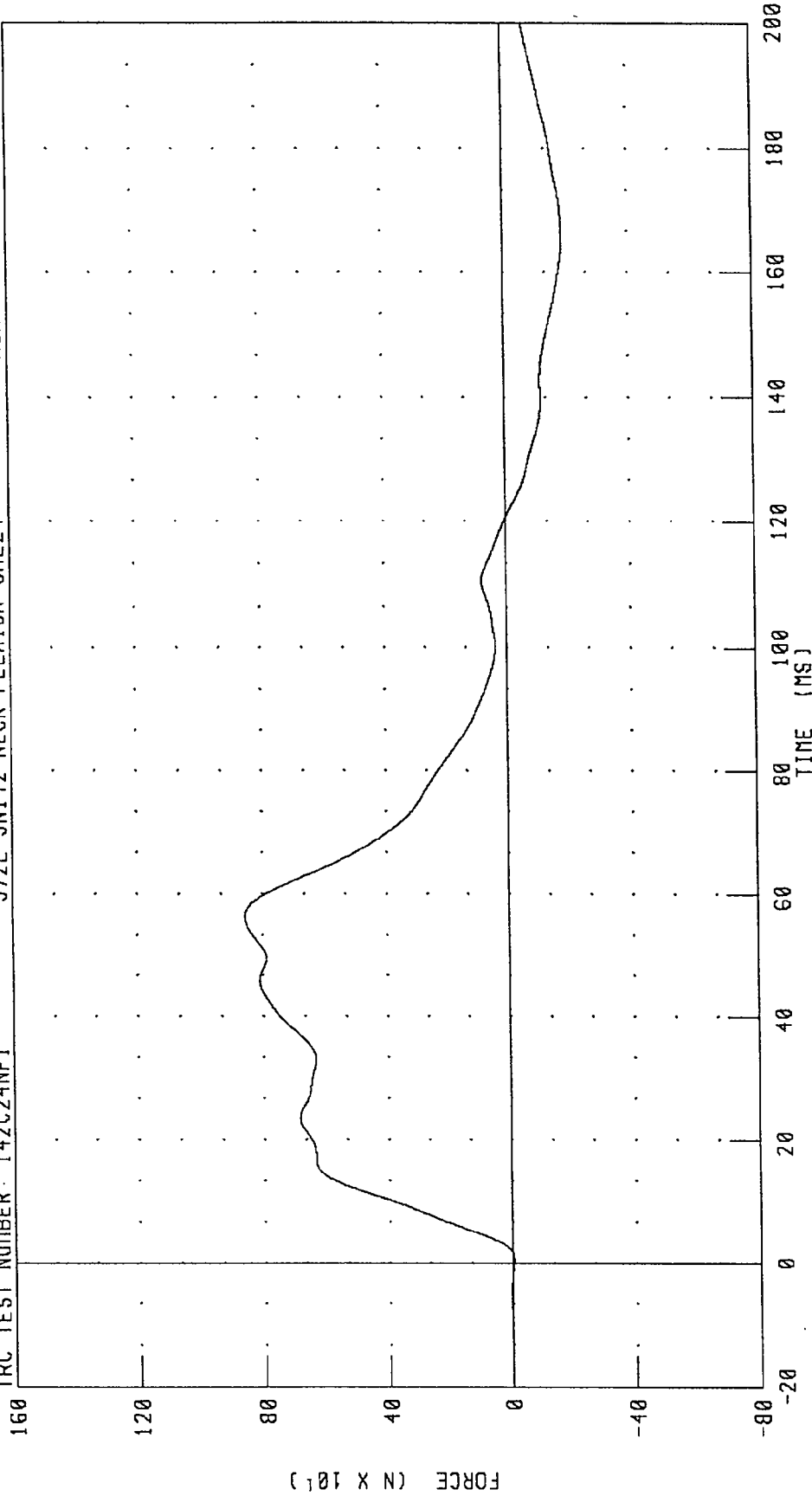
PEAK DATA: 71.78 ° @ 59.28 MS; -51.00 ° @ 173.68 MS

CHANNEL: TOTAN FILTER: CH. CLASS 60

PART 572-E HYBRID III NECK FLEXION CALIBRATION

NECK FORCE X AXIS

TRC TEST NUMBER: 142024NF1 572E SN142 NECK FLEXION CAL24 RUN NUMBER: 010495.0928,1



CHANNEL: NEKXF FILTER: CH. CLASS 60

PEAK DATA: 857.52 N @ 56.32 MS; -189.81 N @ 165.92 MS

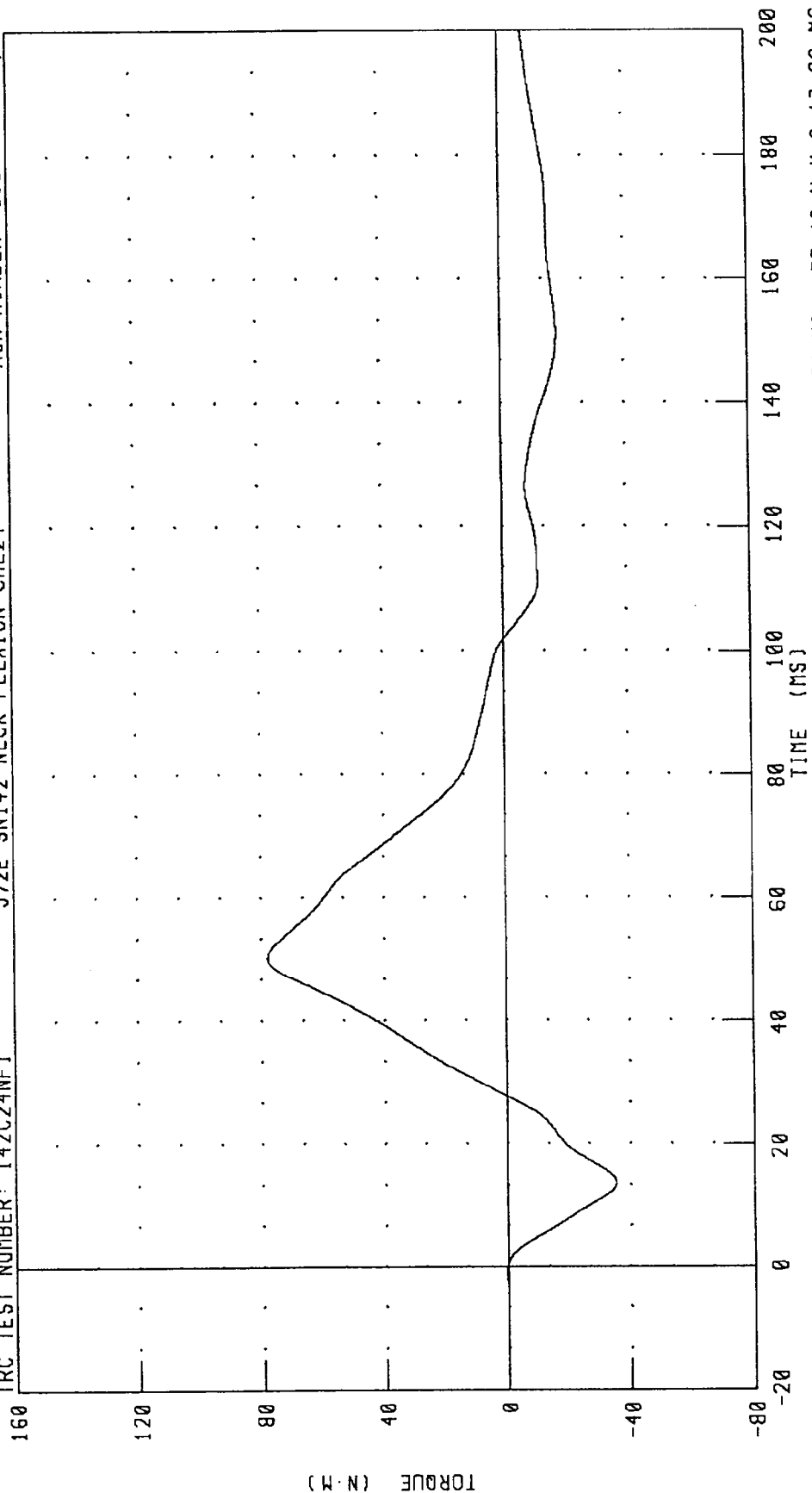
PART 572-E HYBRID III NECK FLEXION CALIBRATION

NECK MOMENT Y AXIS

TRC TEST NUMBER: 142024NF1

572E SN142 NECK FLEXION CAL24

RUN NUMBER: 010495.0928;1



CHANNEL: NEKYM FILTER: CH. CLASS 60

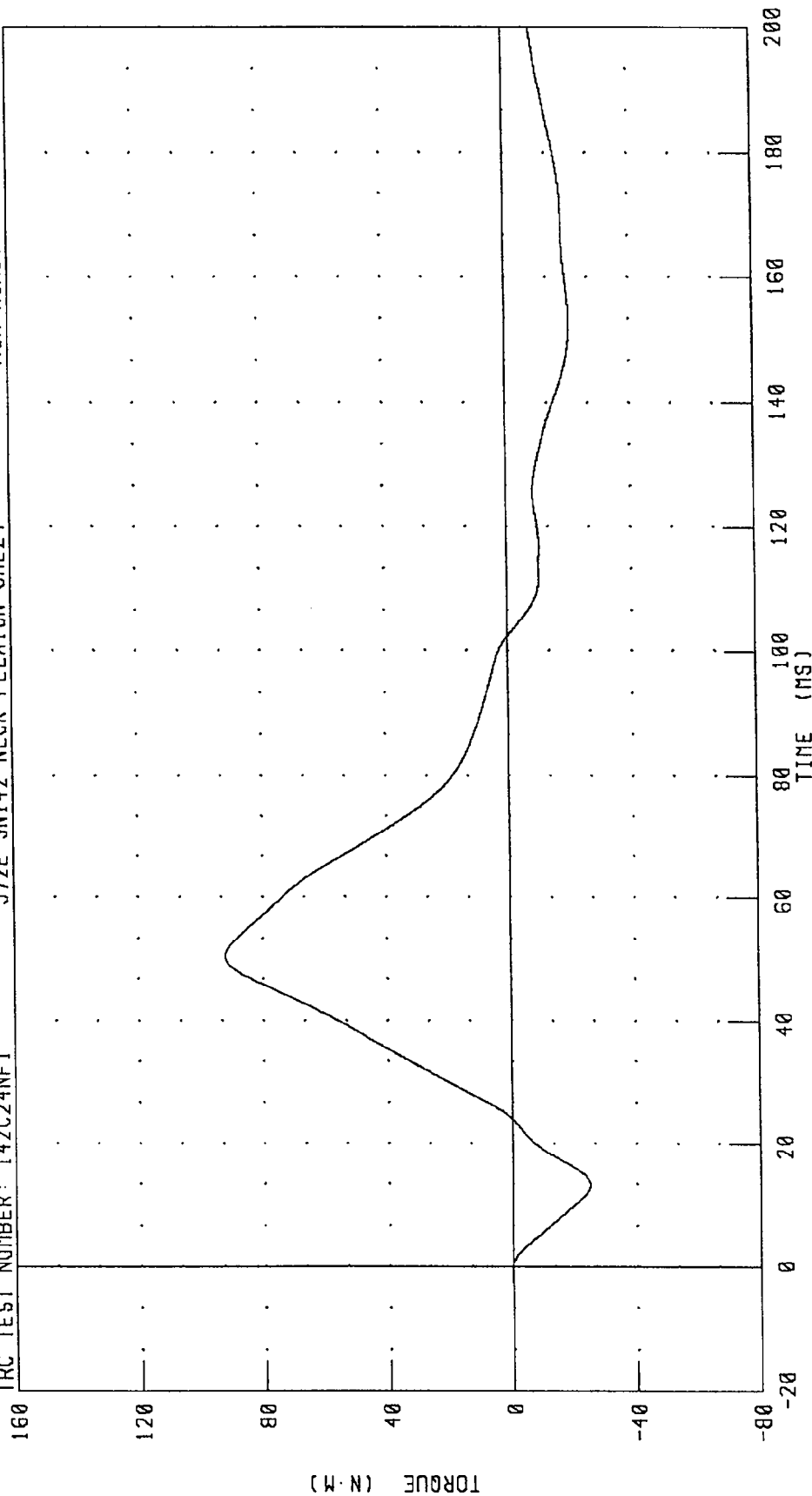
PEAK DATA: 78.13 N·M @ 50.24 MS; -35.18 N·M @ 13.68 MS

PART 572-E HYBRID III NECK FLEXION CALIBRATION
TOTAL MOMENT ABOUT OCCIPITAL CONDYLE

TRC TEST NUMBER: 142C24NF1

572E SNI42 NECK FLEXION CAL24

RUN NUMBER: 010495 0928.1



PEAK DATA: 92.22 N·M @ 50.32 MS; -24.89 N·M @ 13.20 MS

CHANNEL: NEKOM FILTER: CH. CLASS 60

TRANSPORTATION RESEARCH CENTER INC.

NECK EXTENSION TEST - 6 CHANNEL TRANSDUCER

HYBRID III

23-NOV-94

TRC INC. TEST NO: 142C24NE1 572E SN142 NECK EXT. CAL24

TEST PARAMETER		SPECIFICATION	TEST RESULTS
TEMPERATURE		20.6 - 22.2 DEG. C	20.6 DEG. C
RELATIVE HUMIDITY		10 - 70 %	30.0 %
IMPACT VELOCITY		5.95 - 6.19 M/S	6.00 M/S
PENDULUM DECELERATION	10 MS	17.20 - 21.20 G	18.55 G
	20 MS	14.00 - 19.00 G	14.96 G
	30 MS	11.00 - 16.00 G	12.82 G
MAX PENDULUM G		22 G MAX	19.25 G
MAX PENDULUM G ABOVE 30 MS		22 G MAX	12.79 G
DECELERATION-TIME CURVE DECAY TIME TO 5 G		38 - 46 MS	42.80 MS
D PLANE	MAX	81 - 106 DEG.	95.72 DEG.
ROTATION	TIME	72 - 82 MS	76.16 MS
MOMENT ABOUT OCCIPITAL CONDYLE	MIN	-80.0/-52.9 NM	-66.66 NM
	TIME	65 - 79 MS	70.80 MS
ROTATION ANGLE-TIME CURVE DECAY TIME TO ZERO		147 - 174 MS	154.48 MS
NEGATIVE MOMENT-TIME CURVE DECAY TIME TO ZERO		120 - 148 MS	141.36 MS

TEST MEETS SPECIFICATIONS

TECHNICIAN Peter E. S.

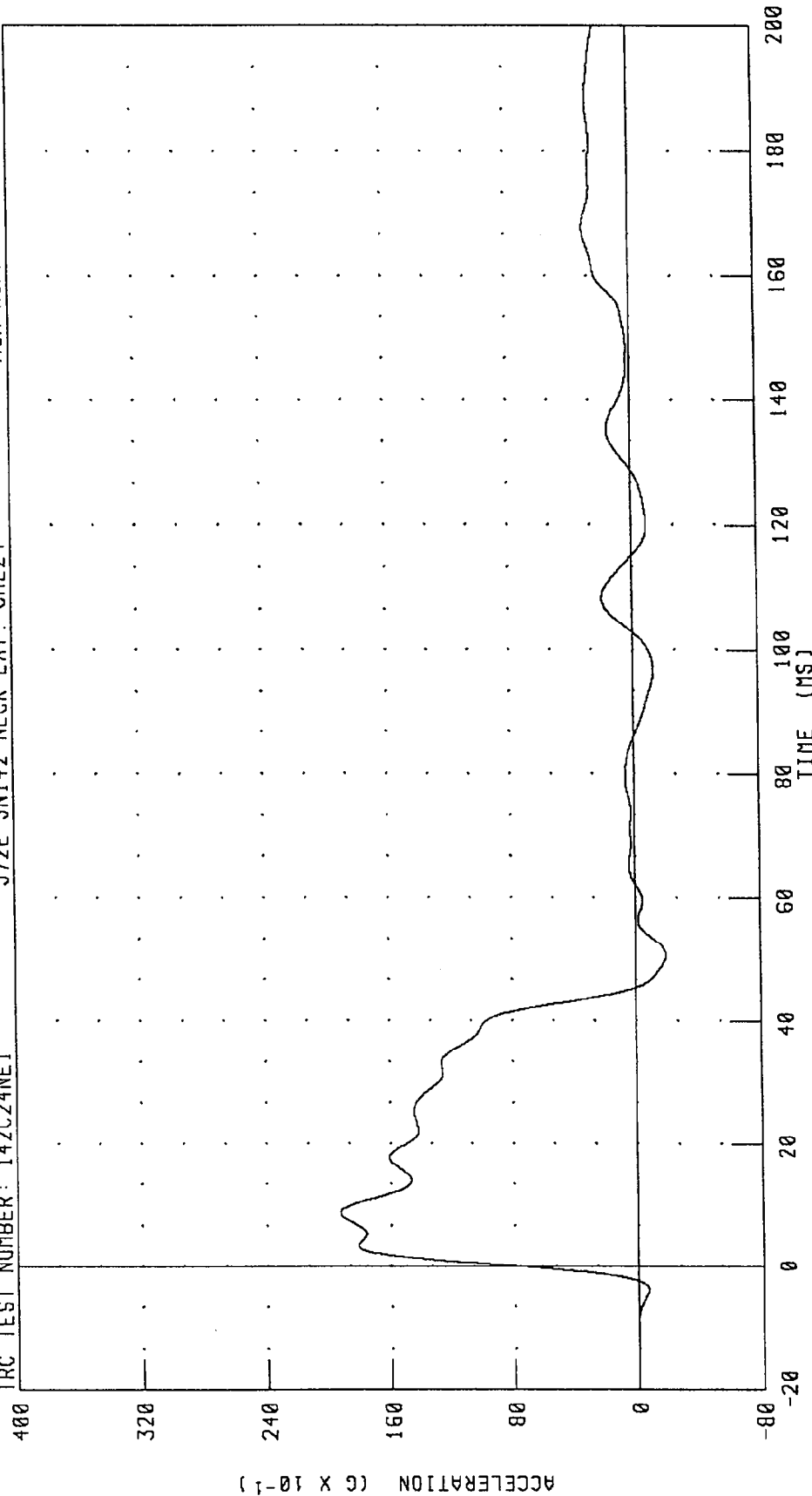
RUN NUMBER: 112394.0759;1

PART 572-E HYBRID III NECK EXTENSION CALIBRATION
PENDULUM DECELERATION

IRC TEST NUMBER: 142C24NE1

572E SN142 NECK EXT. CAL24

RUN NUMBER: 010495.0928,1



PEAK DATA: 19.26 G @ 8.72 MS; -1.94 G @ 50.72 MS

CHANNEL: PENXC FILTER: CH. CLASS 60

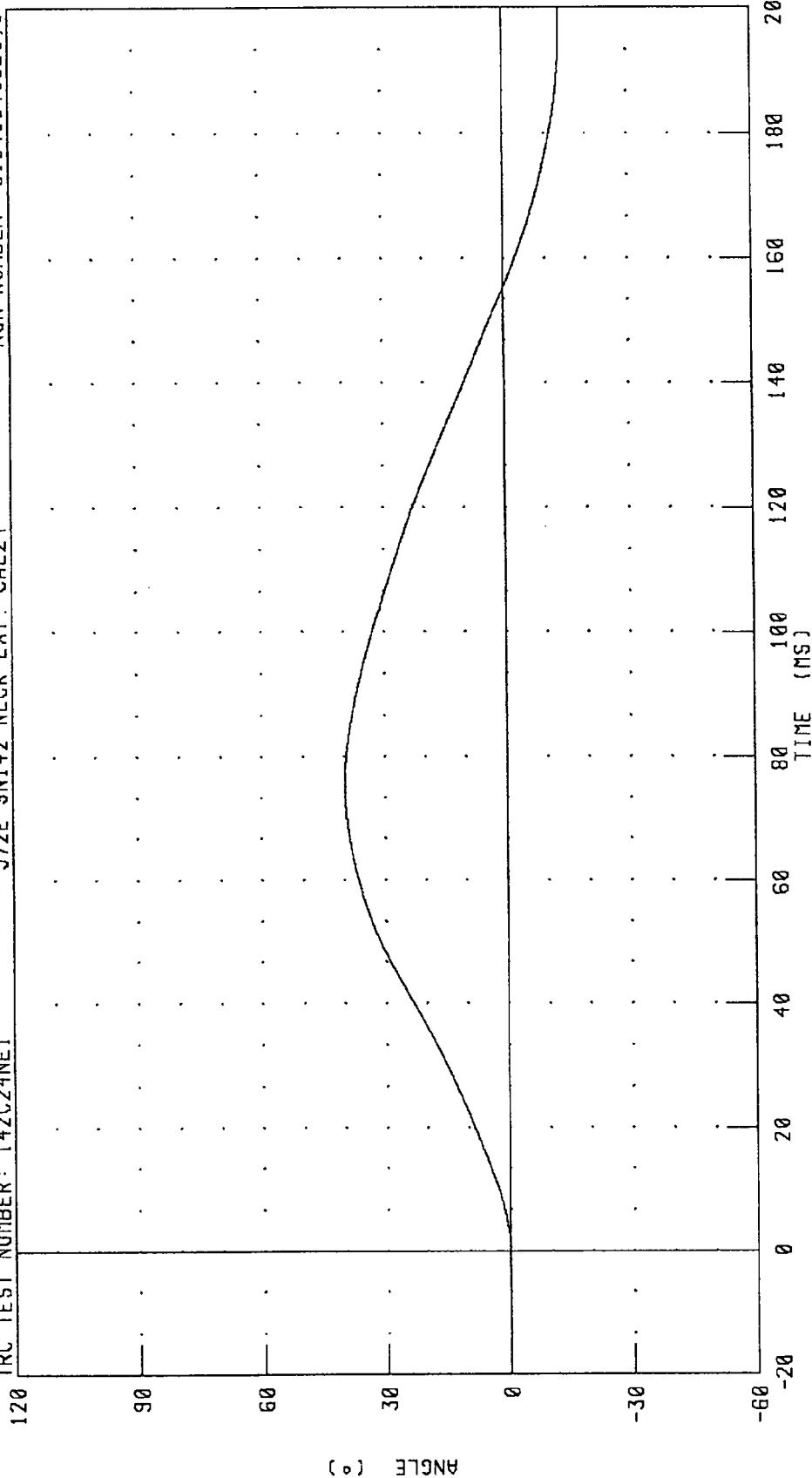
PART 572-E HYBRID III NECK EXTENSION CALIBRATION

ROTATION ABOUT BASE OF NECK

TRC TEST NUMBER: 142C24NE1

572E SN142 NECK EXT. CAL24

RUN NUMBER: 010495.0928.1



CHANNEL: BETA FILTER: CH. CLASS 60

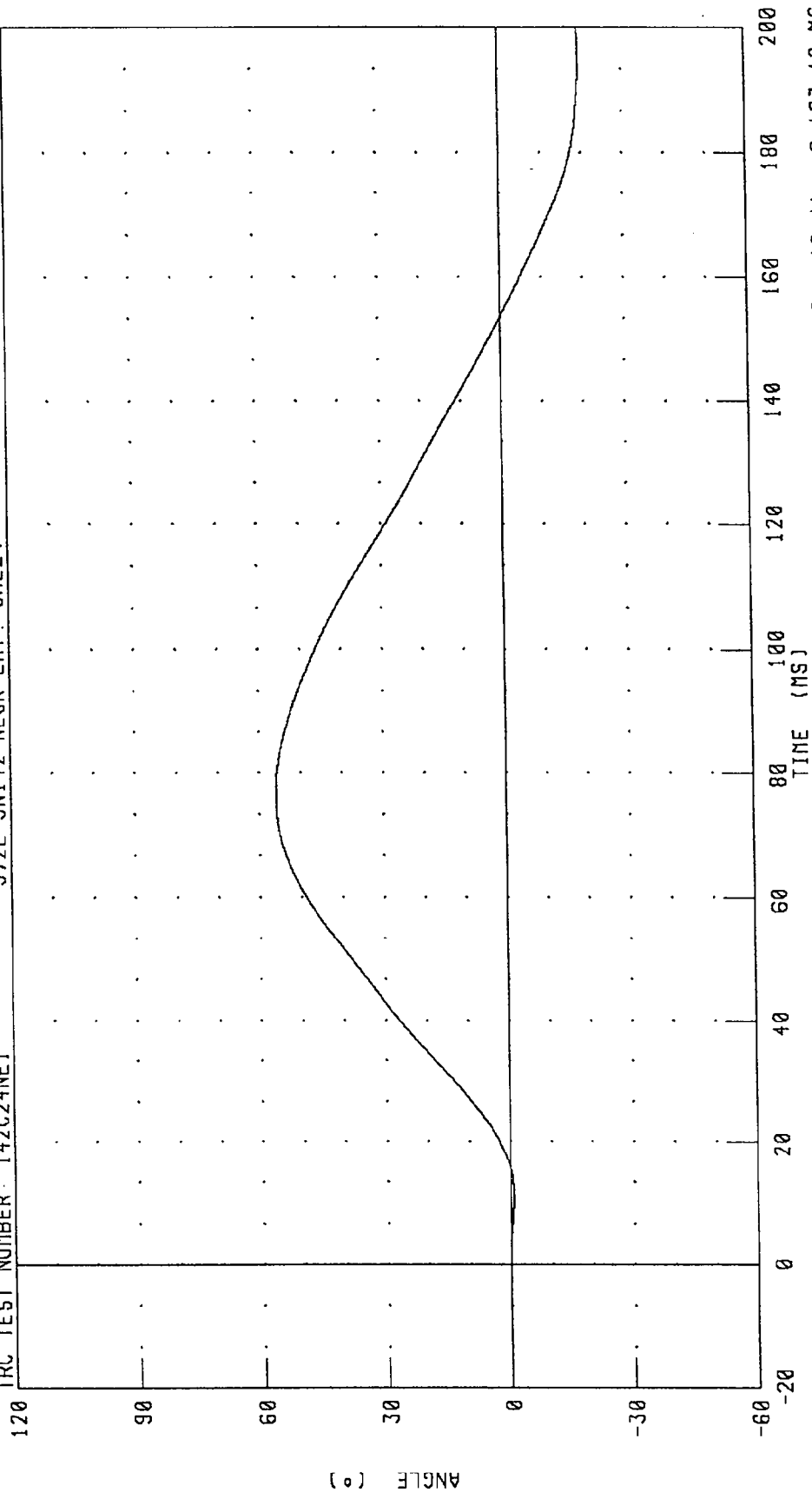
PEAK DATA: 39.68 ° @ 75.76 MS, -13.78 ° @ 197.04 MS

PART 572-E HYBRID III NECK EXTENSION CALIBRATION
 ROTATION ABOUT OCCIPITAL CONDYLE

RUN NUMBER: 010495.0928;1

572E SN142 NECK EXT. CAL24

TRC TEST NUMBER: 142C24NE1



CHANNEL: THETA FILTER: CH. CLASS 60

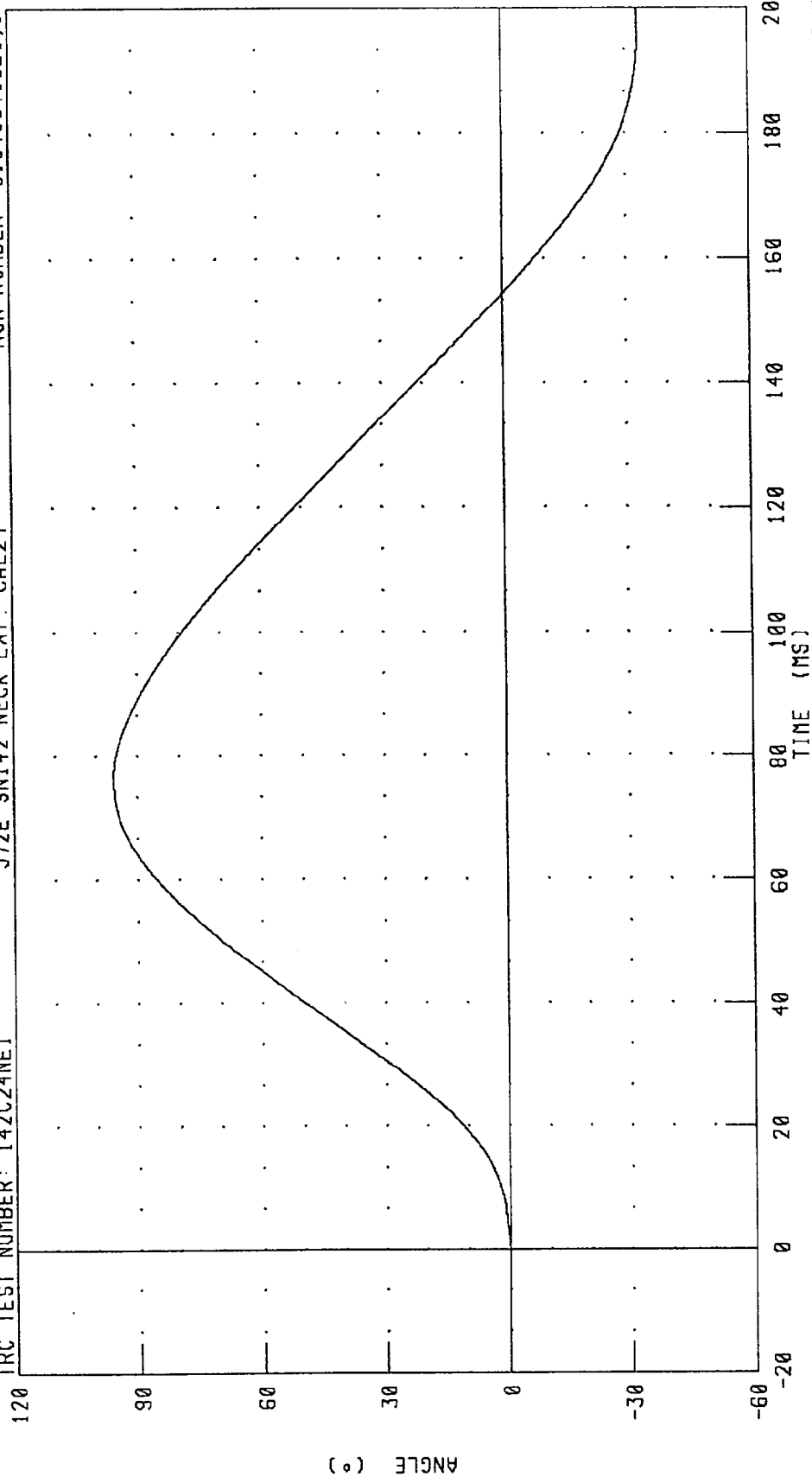
PART 572-E HYBRID III NECK EXTENSION CALIBRATION

TOTAL ROTATION

TRC TEST NUMBER: 142C24NE1

572E SN142 NECK EXT. CAL24

RUN NUMBER: 010495.0928,1



PEAK DATA: 95.73 ° @ 76.16 MS; -33.20 ° @ 197.28 MS

CHANNEL: TOTAL FILTER: CH. CLASS 60

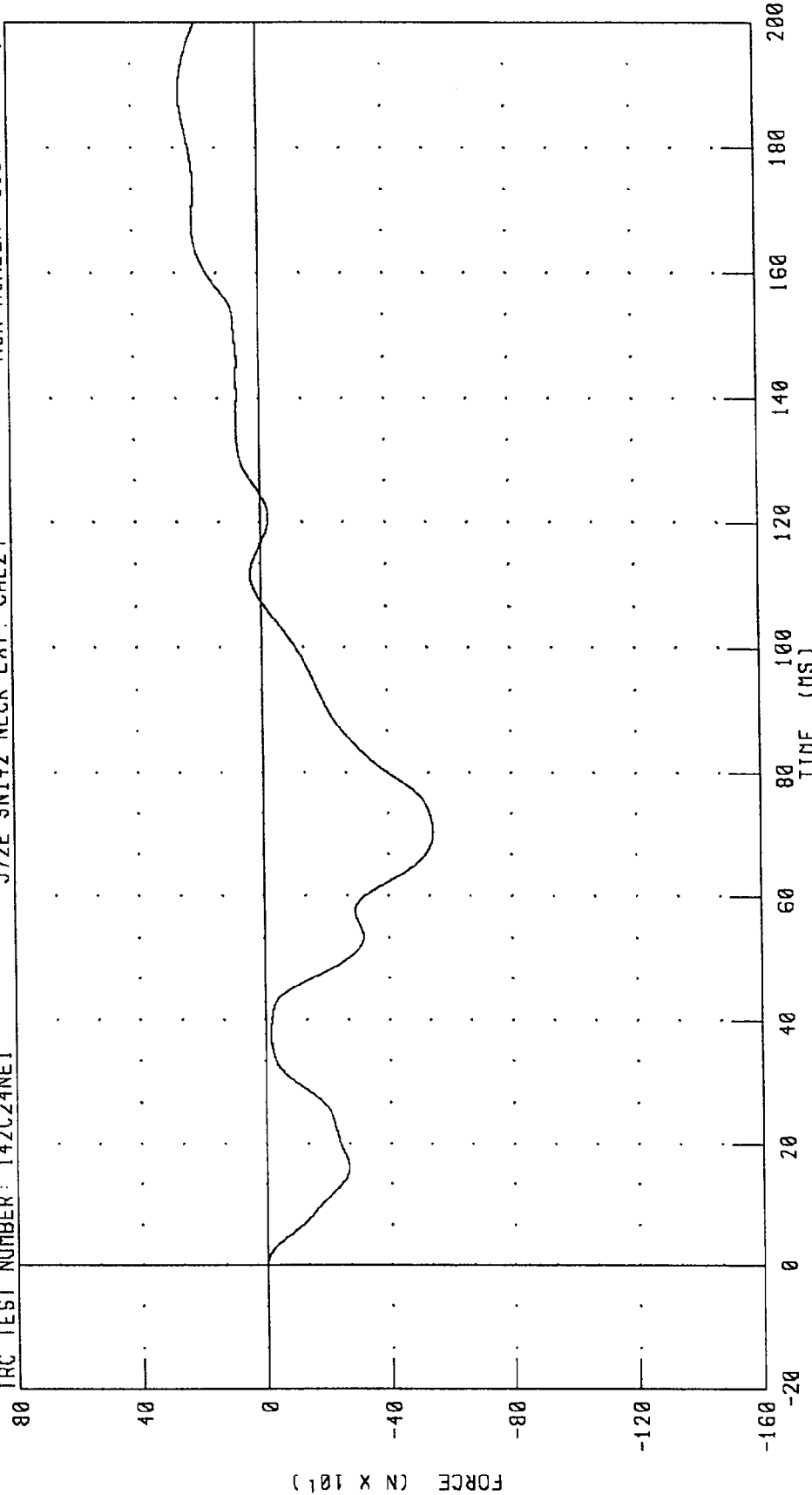
PART 572-E HYBRID III NECK EXTENSION CALIBRATION

NECK FORCE X AXIS

RUN NUMBER: 010495.0928,1

572E SN142 NECK EXT. CAL24

IRC TEST NUMBER: 142C24NE1



PEAK DATA: 248.29 N @ 189.04 MS; -547.10 N @ 70.32 MS

CHANNEL: NEKXF FILTER: CH. CLASS 60

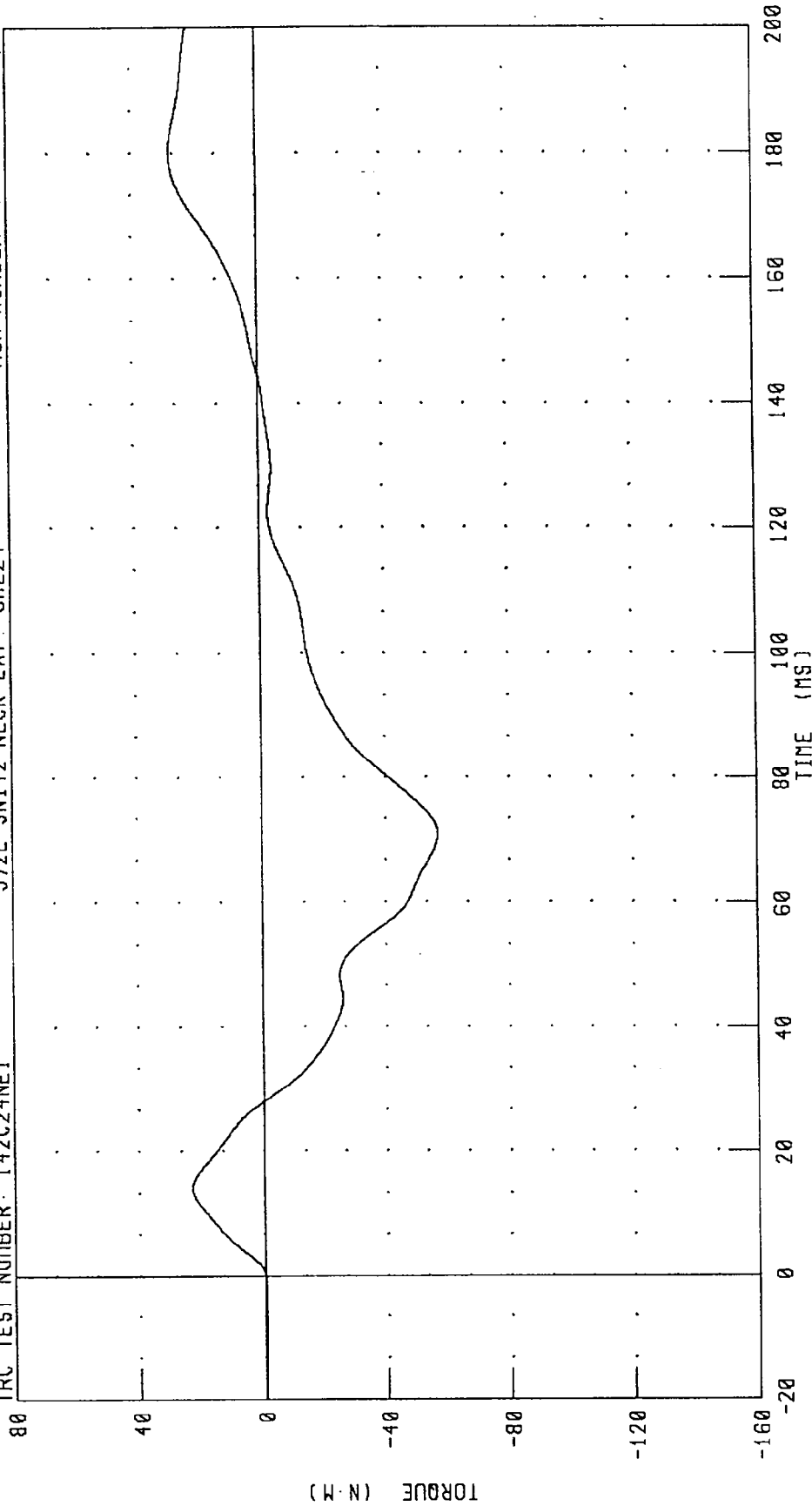
PART 572-E HYBRID III NECK EXTENSION CALIBRATION

NECK MOMENT Y AXIS

TRC TEST NUMBER: 142C24NE1

572E SN142 NECK EXT. CAL24

RUN NUMBER: 010495.0928;1



PEAK DATA: 27.80 N-M @ 180.08 MS; -56.94 N-M @ 70.80 MS

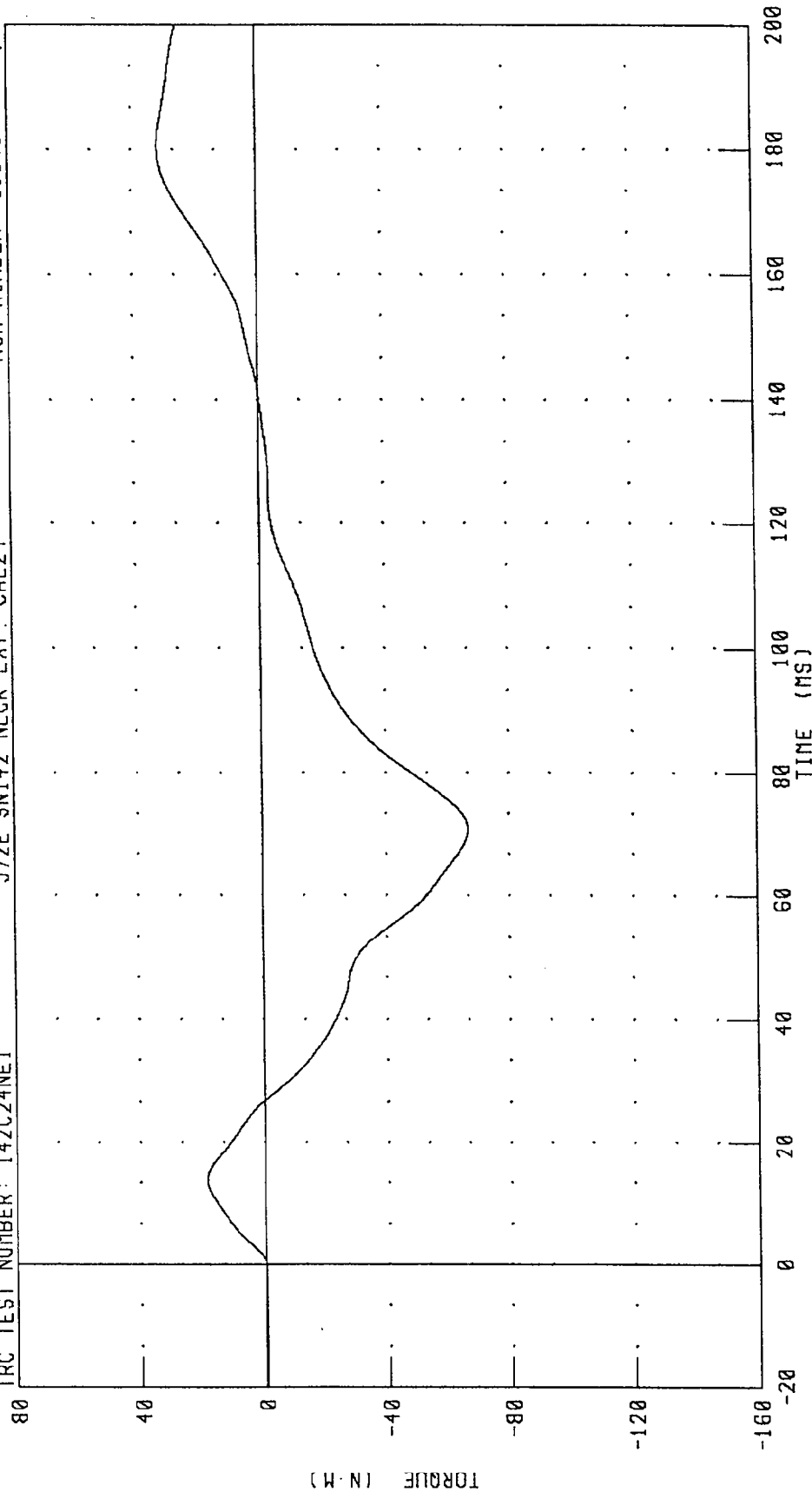
CHANNEL: NEKYM FILTER: CH. CLASS 60

PART 572-E HYBRID III NECK EXTENSION CALIBRATION
TOTAL MOMENT ABOUT OCCIPITAL CONDYLE

TRC TEST NUMBER: 142C24NE1

572E SN142 NECK EXT. CAL24

RUN NUMBER: 010495.0928.1



PEAK DATA: 31.70 N.M @ 180.64 MS, -66.66 N.M @ 70.80 MS

CHANNEL: NEKOM FILTER: CH. CLASS 60

TRANSPORTATION RESEARCH CENTER INC.

THORAX IMPACT TEST

HYBRID III

23-NOV-94

TRC INC.

TEST NO: 142C24TH1

572E SN142 H.S.THORAX CAL24

TEST PARAMETER	HIGH SPEED TEST	TEST RESULTS
	SPECIFICATION	
TEMPERATURE	20.6-22.2 DEG. C	20.6 DEG. C
RELATIVE HUMIDITY	10 - 70 %	30.0 %
PENDULUM VELOCITY	6.59 - 6.83 M/S	6.68 M/S
MAXIMUM DEFLECTION	63.5 - 72.6 MM	70.0 MM
MAXIMUM RESISTIVE FORCE	5159 - 5894 N	5485. N
INTERNAL HYSTERESIS	69% - 85%	73.0%

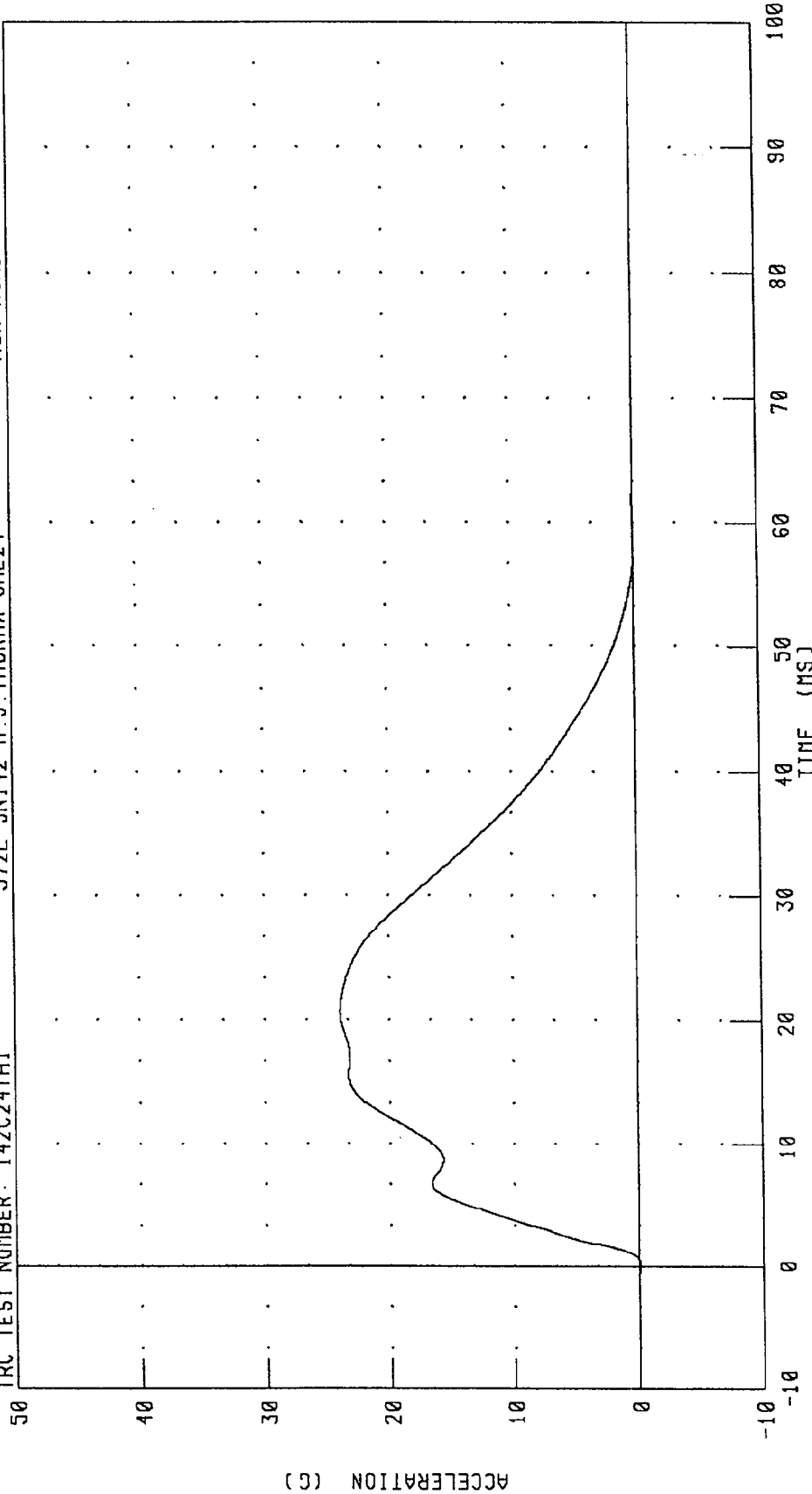
TEST MEETS SPECIFICATIONS

TECHNICIAN Rita F. S.

RUN NUMBER: 112394.0929;1

PART 572-E HYBRID III THORAX CALIBRATION
PENDULUM DECELERATION

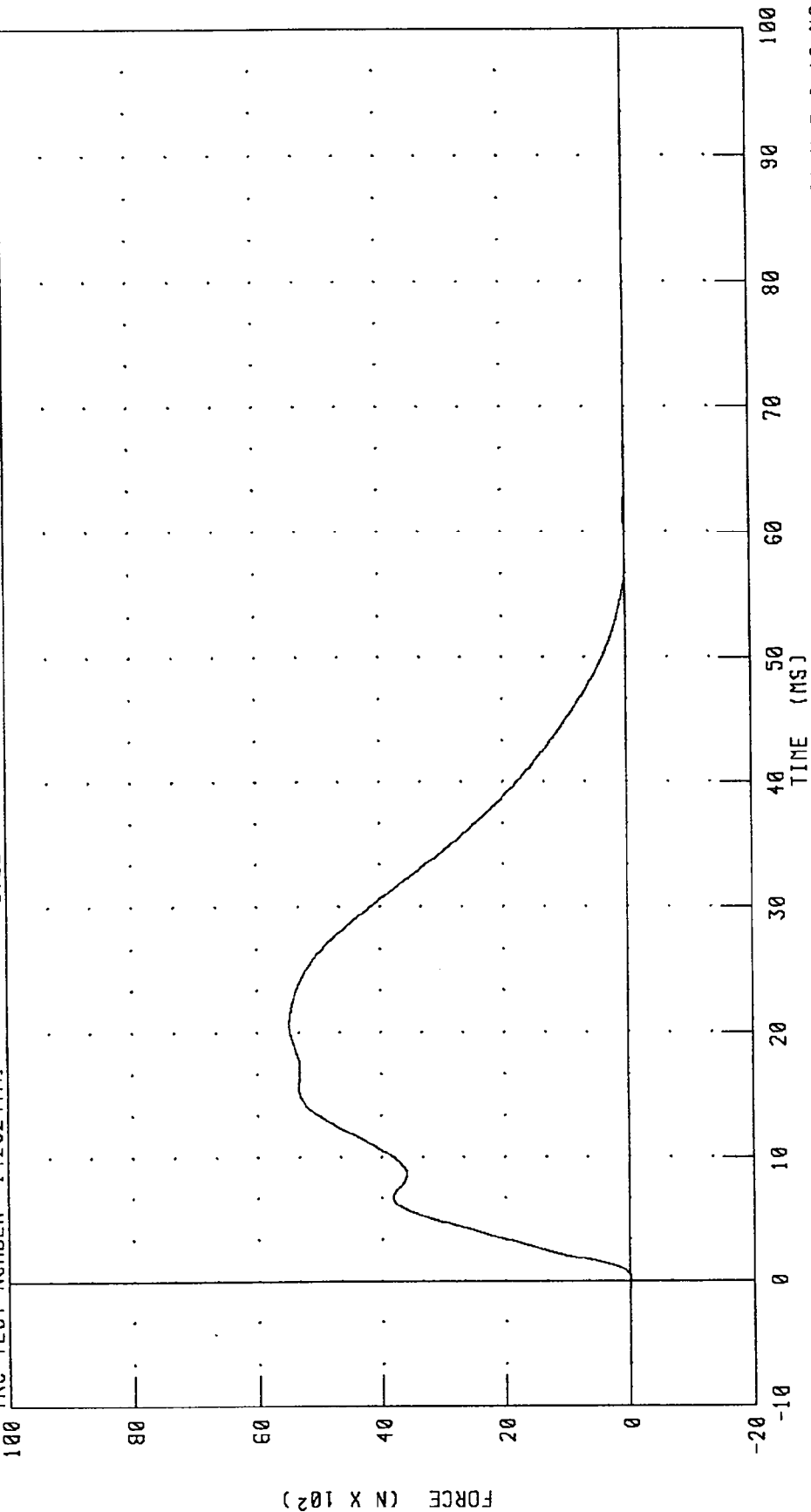
TRC TEST NUMBER: 142C24TH1 572E SN142 H.S. THORAX CAL24 RUN NUMBER: 010495.0928,1



CHANNEL: PENXC FILTER: CH. CLASS 180 PEAK DATA: 23.94 G @ 20.64 MS; -0.09 G @ 0.16 MS

PART 572-E HYBRID III THORAX CALIBRATION
PENDULUM FORCE

TRC TEST NUMBER: 142C24TH1 572E SN142 H.S. THORAX CAL24 RUN NUMBER: 010495.0928.1



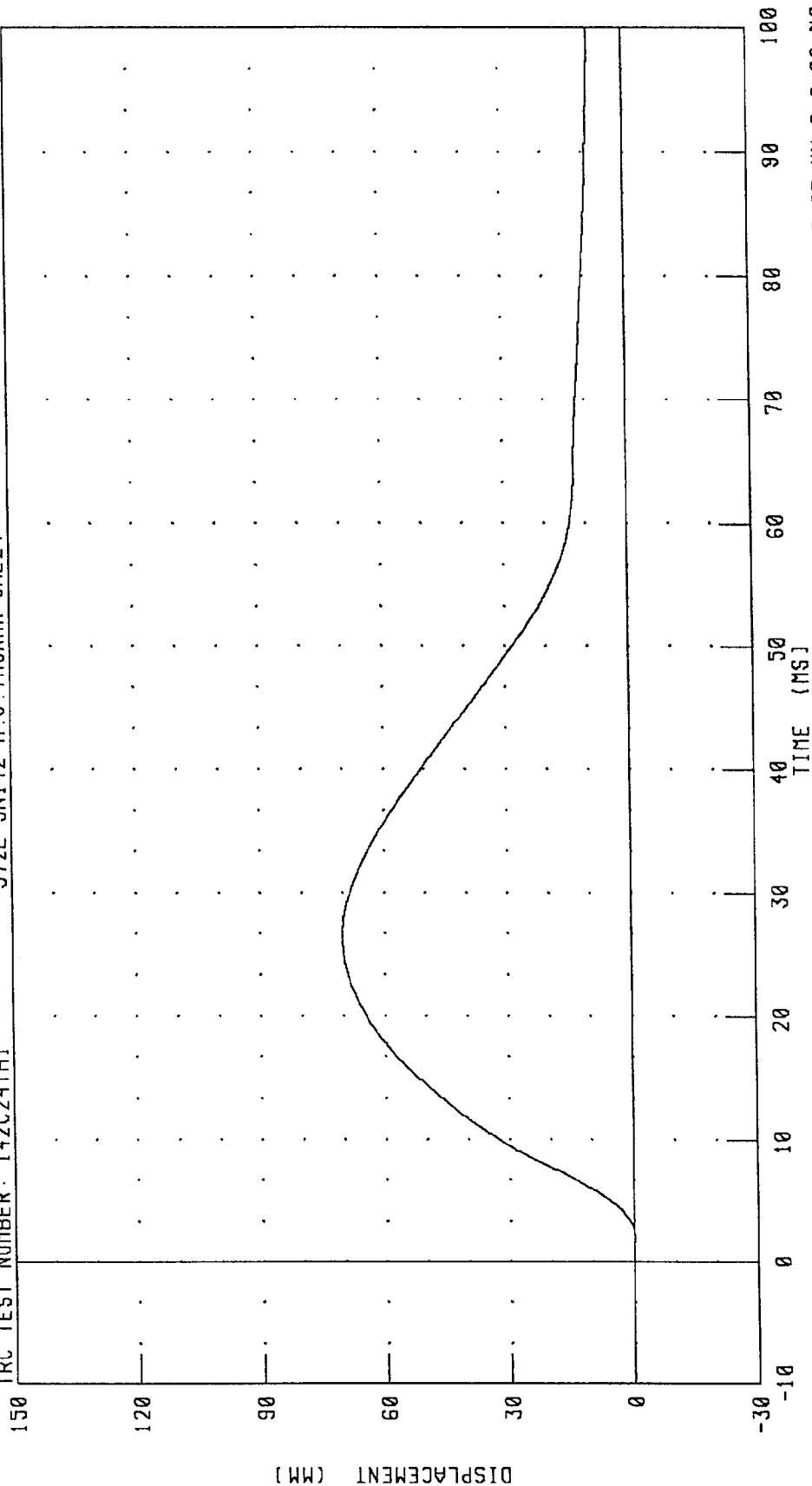
CHANNEL: PENXF FILTER: CH. CLASS 180

PEAK DATA: 5485.38 N @ 20.64 MS; -19.81 N @ 0.16 MS

PART 572-E HYBRID III THORAX CALIBRATION

STERNUM DISPLACEMENT

TRC TEST NUMBER: 142C24TH1 572E SN142 H.S. THORAX CAL24 RUN NUMBER: 010495 0928,1



PEAK DATA: 70.09 MM @ 26.48 MS; -0.07 MM @ 2.00 MS

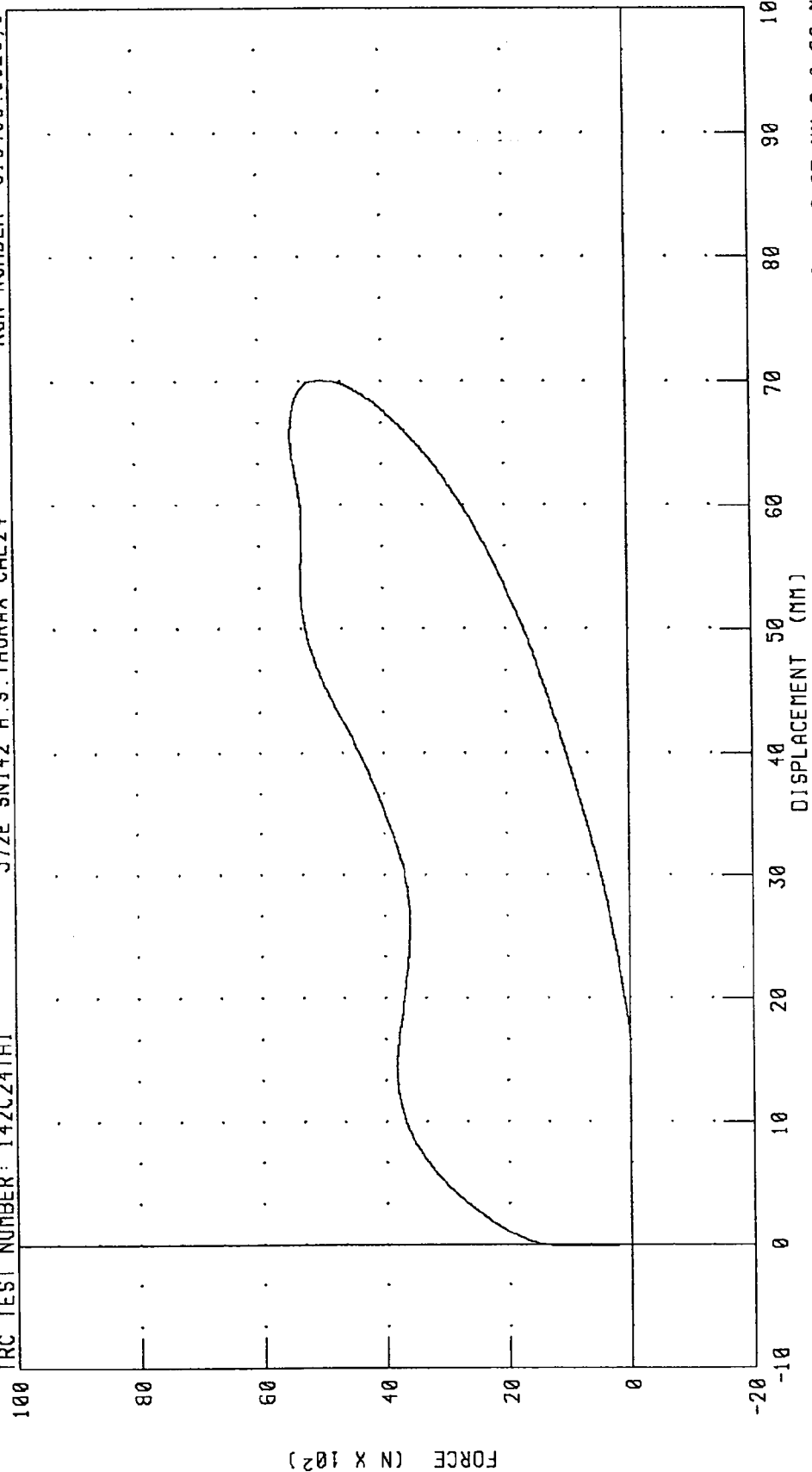
CHANNEL: CSTXD FILTER: CH. CLASS 180

PART 572-E HYBRID III THORAX CALIBRATION
CHEST DISPLACEMENT VS PENDULUM FORCE

TRC TEST NUMBER: 142C24TH1

572E SN142 H.S. THORAX CAL24

RUN NUMBER: 010495.0928,1



CHANNEL: CSTXD
PENXF

FILTER: CH. CLASS 180
CH. CLASS 180

PEAK DATA:

70.09 MM @ 26.48 MS; -0.07 MM @ 2.00 MS
5485.38 N @ 20.64 MS; -19.81 N @ 0.16 MS

TRANSPORTATION RESEARCH CENTER INC.

RIGHT KNEE IMPACT TEST

HYBRID III

22-NOV-94

TRC INC.

TEST NO: 142C24RK1

572E SN142 RIGHT KNEE CAL 24

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	18.9-25.6 DEG. C	21.1 DEG. C
RELATIVE HUMIDITY	10 - 70 %	50.0 %
PROBE VELOCITY	2.07 - 2.13 M/S	2.08 M/S
PEAK KNEE IMPACT FORCE 5.0 KG PENDULUM	4714 - 5783 N	5354.6 N

TEST MEETS SPECIFICATIONS

TECHNICIAN Pete A. S.

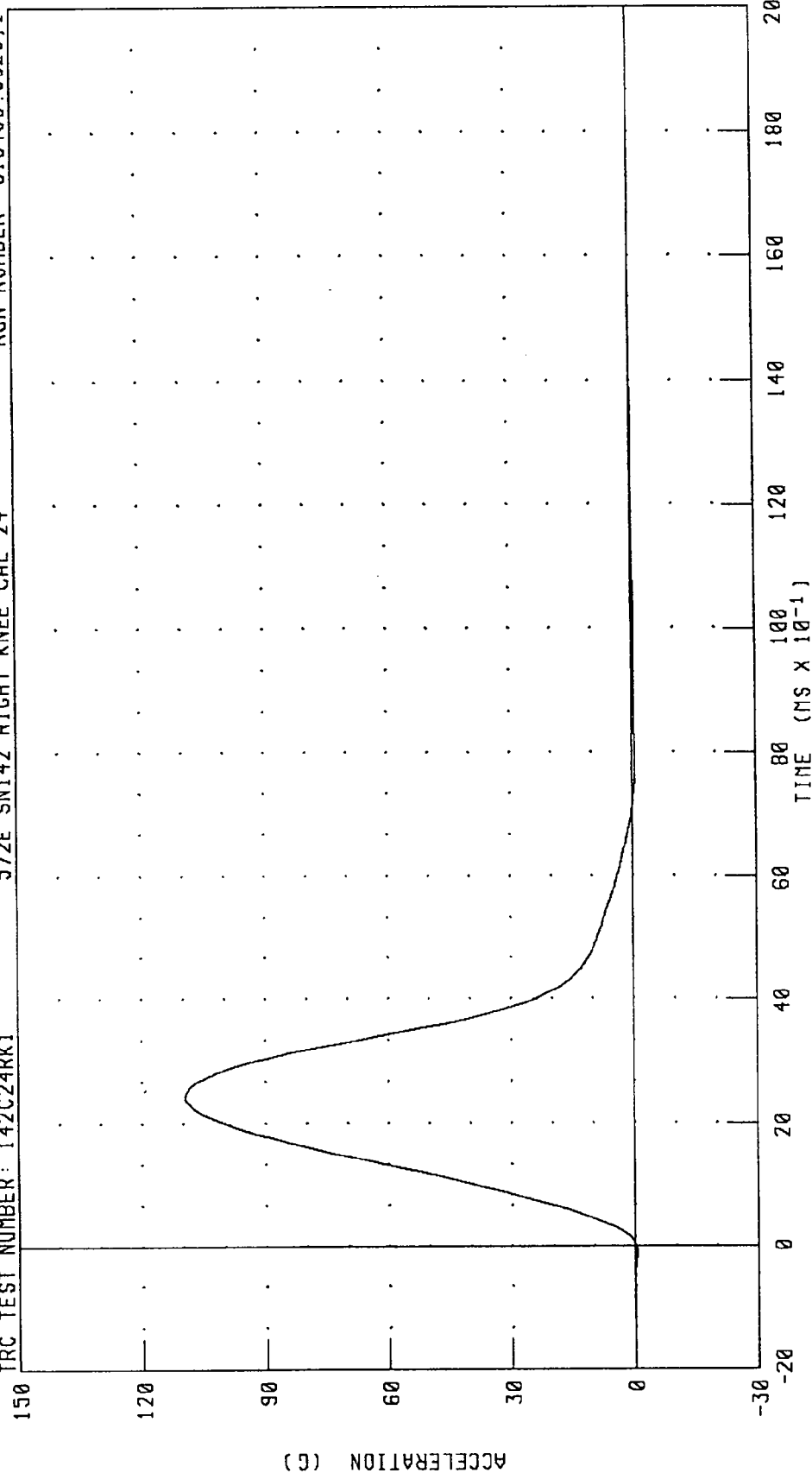
RUN NUMBER: 112294.1450;1

PART 572-E HYBRID III RIGHT KNEE CALIBRATION
 PENDULUM DECELERATION (5 KG PEND.)

RUN NUMBER: 010495.0928;1

TRC TEST NUMBER: 142C24RK1

572E SN142 RIGHT KNEE CAL 24



PEAK DATA: 109.44 G @ 2.40 MS; -0.78 G @ 7.76 MS

CHANNEL: PENXG FILTER: CH. CLASS 600

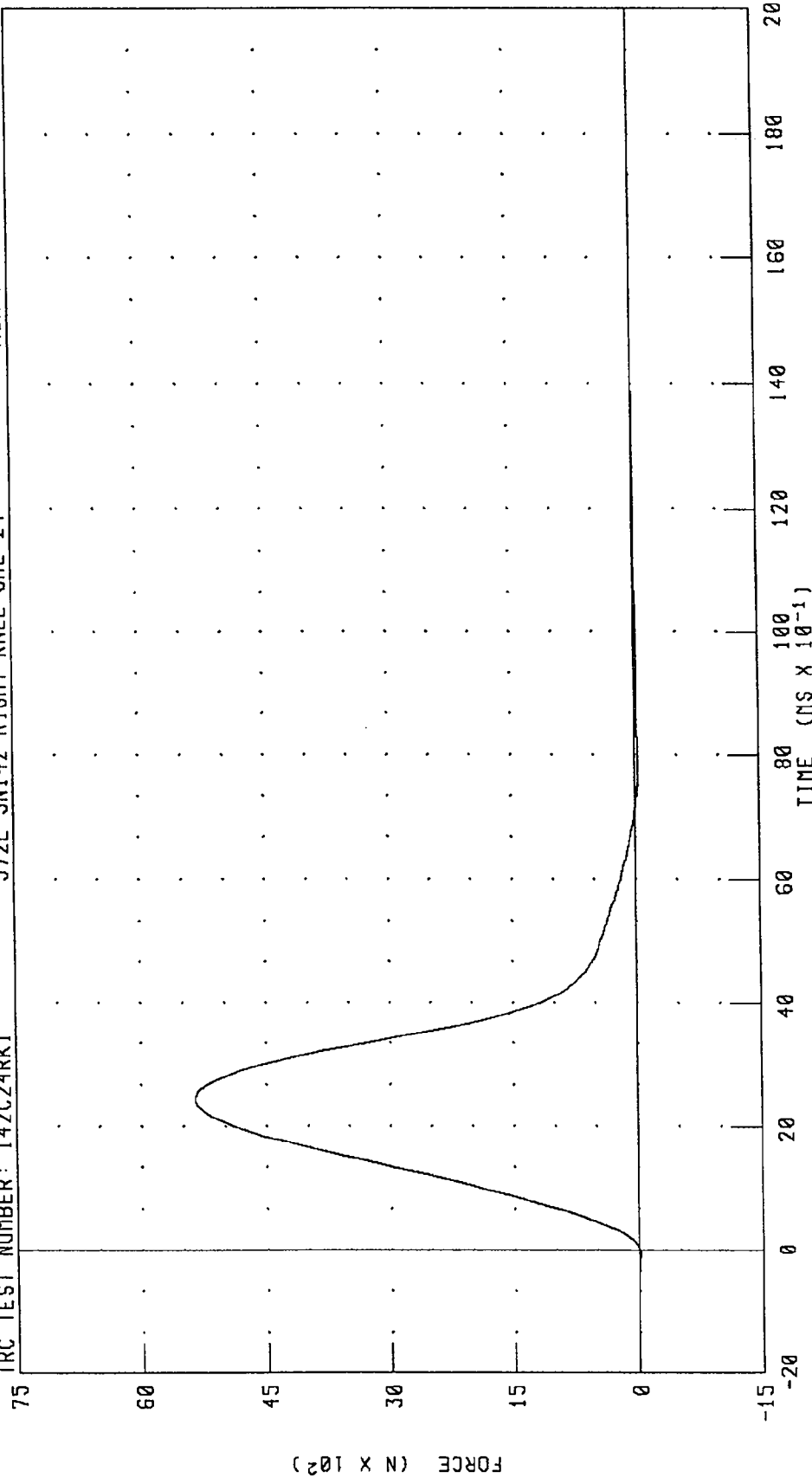
PART 572-E HYBRID III RIGHT KNEE CALIBRATION

PENDULUM FORCE (5 KG PEND.)

572E SN142 RIGHT KNEE CAL 24

RUN NUMBER: 010495.0928,1

TRC TEST NUMBER: 142C24RK1



CHANNEL: PENXF FILTER: CH. CLASS 600

PEAK DATA: 5354.69 N @ 2.40 NS; -38.05 N @ 7.76 NS

TRANSPORTATION RESEARCH CENTER INC.

LEFT KNEE IMPACT TEST

HYBRID III

22-NOV-94

TRC INC.

TEST NO: 142C24LK1

572E SN142 LEFT KNEE CAL 24

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	18.9-25.6 DEG. C	21.1 DEG. C
RELATIVE HUMIDITY	10 - 70 %	50.0 %
PROBE VELOCITY	2.07 - 2.13 M/S	2.08 M/S
PEAK KNEE IMPACT FORCE 5.0 KG PENDULUM	4714 - 5783 N	5572.6 N

TEST MEETS SPECIFICATIONS

TECHNICIAN

Pete F. J.

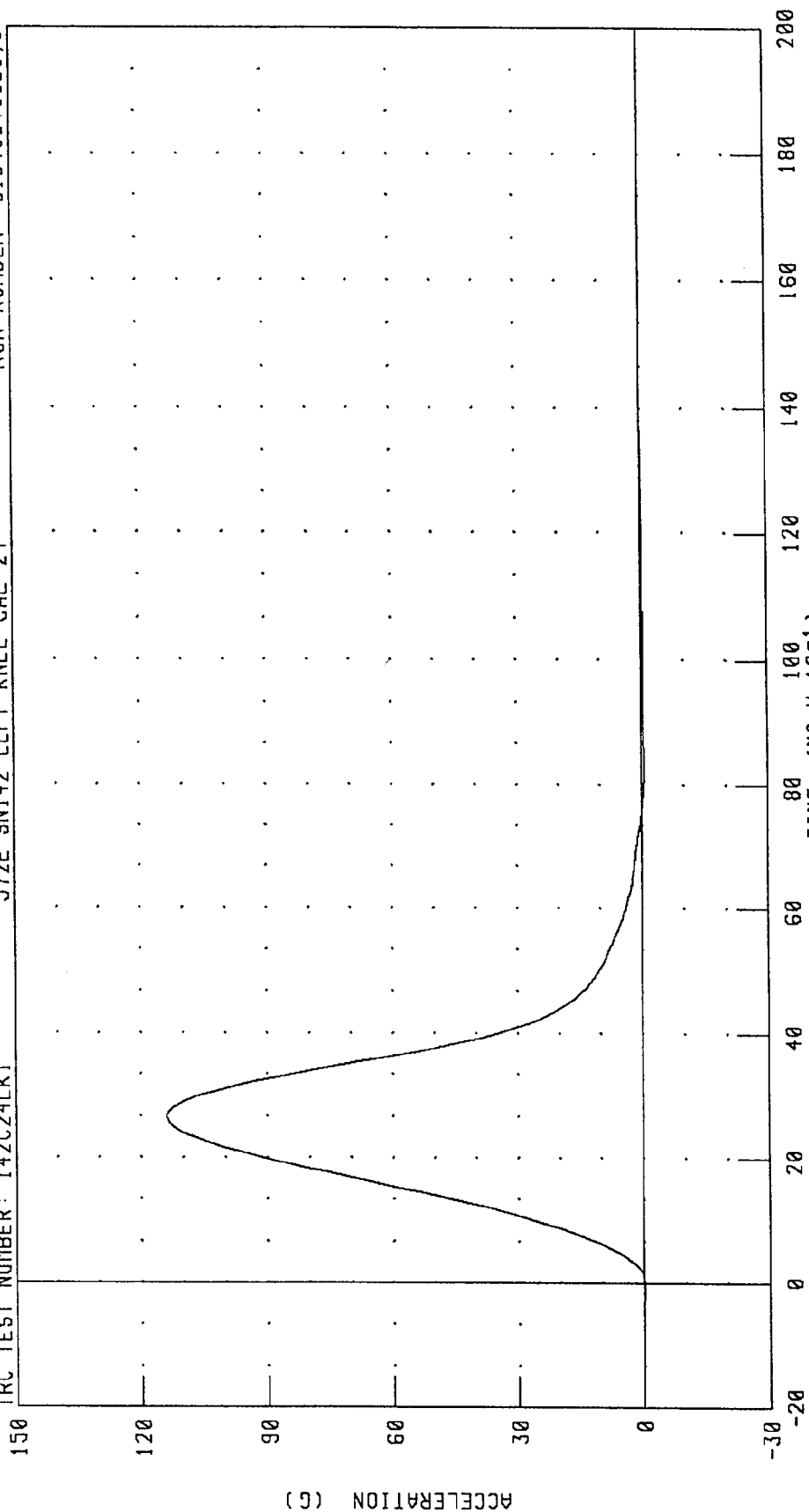
RUN NUMBER: 112294.1515;1

PART 572-E HYBRID III LEFT KNEE CALIBRATION
 PENDULUM DECELERATION (5 KG PEND.)

TRC TEST NUMBER: 142C24LK1

572E SN142 LEFT KNEE CAL 24

RUN NUMBER: 010495.0928.1



CHANNEL: PENXC FILTER: CH. CLASS 600

PEAK DATA: 113.89 G @ 2.64 MS; -0.67 G @ 8.32 MS

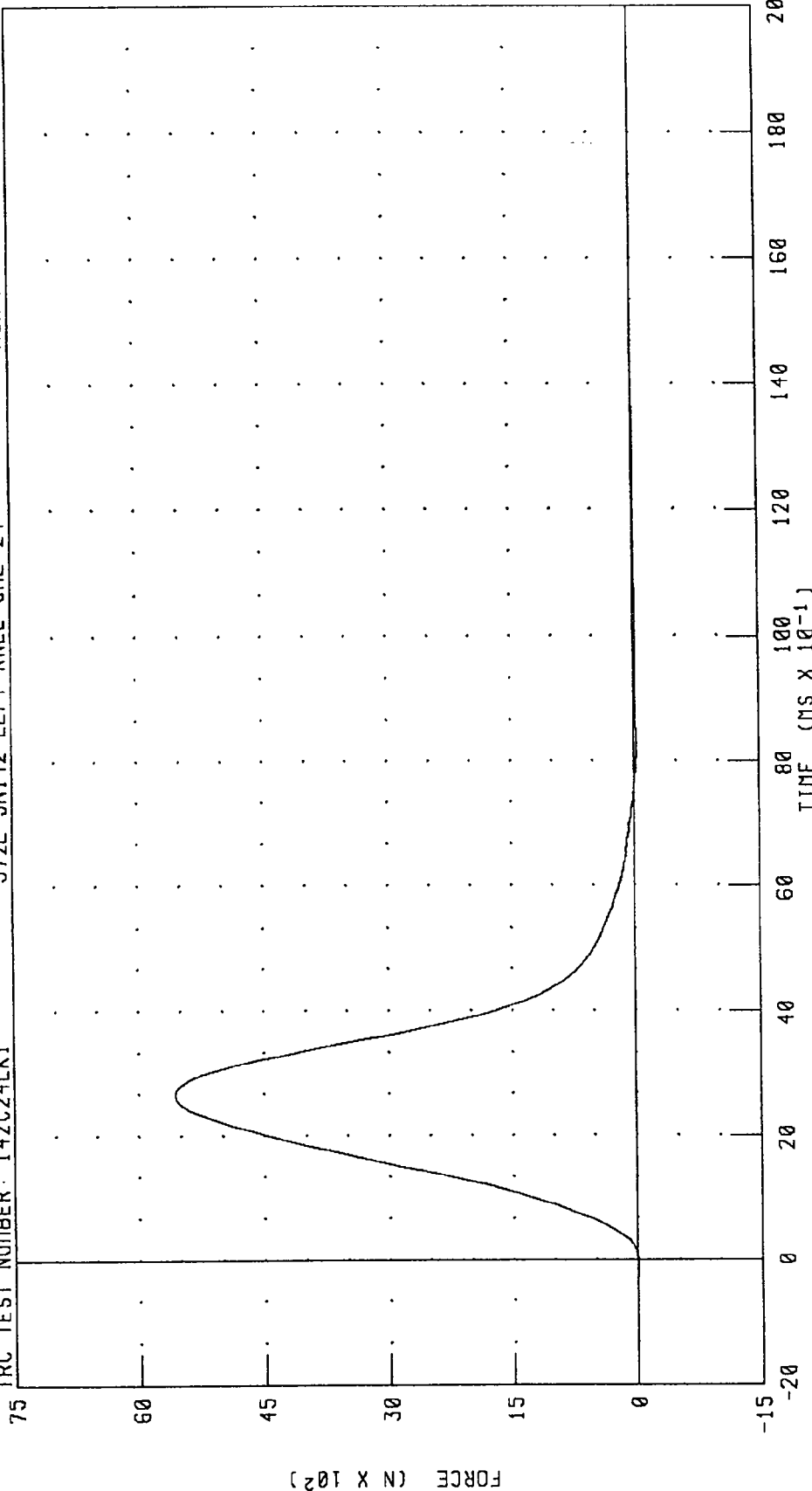
PART 572-E HYBRID III LEFT KNEE CALIBRATION

PENDULUM FORCE (5 KG PEND.)

RUN NUMBER: 010495.0928,1

TRC TEST NUMBER: 142C24LK1

572E SNI42 LEFT KNEE CAL 24



CHANNEL: PENXF FILTER: CH. CLASS 600

Appendix D

Miscellaneous Test Information

Dummy Instrument Calibrations

Driver Dummy #192

	Serial Number	Model Number	Manufacturer	Calibration Date	
				Last	Due
Head X-axis accelerometer	AAL82	7264	Endevco	08/30/94	02/28/95
Head Y-axis accelerometer	A84JJ	7264	Endevco	08/30/94	02/28/95
Head Z-axis accelerometer	DW04J	7264	Endevco	08/30/94	02/28/95
Chest X-axis accelerometer	CT22H	7264	Endevco	08/30/94	02/28/95
Chest Y-axis accelerometer	AC708	7264	Endevco	08/30/94	02/28/95
Chest Z-axis accelerometer	CW59H	7264	Endevco	08/30/94	02/28/95
Left femur force load cell	986	2430	GSE	08/30/94	02/28/95
Right femur force load cell	987	2430	GSE	08/30/94	02/28/95
Neck X-axis force load cell ¹	085	1716	Denton	08/30/94	02/28/95
Neck Y-axis force load cell ¹	085	1716	Denton	08/30/94	02/28/95
Neck Z-axis force load cell ¹	085	1716	Denton	08/30/94	02/28/95
Neck Moment about X-axis load cell ¹	085	1716	Denton	08/30/94	02/28/95
Neck Moment about Y-axis load cell ¹	085	1716	Denton	08/30/94	02/28/95
Neck Moment about Z-axis load cell ¹	085	1716	Denton	08/30/94	02/28/95
Chest deflection potentiometer ¹	87313-96	81422A	Vernitech	08/30/94	02/28/95
Lap belt force load cell	571	3419	Lebow	08/19/94	02/19/95
Shoulder belt force load cell	610	3419	Lebow	08/19/94	02/19/95
Shoulder belt spool-out potentiometer	A51808	PT-101-50A	Celesco	11/30/94	05/30/95
Shoulder belt stretch potentiometer	2087	20514101	Bournes	11/30/94	05/30/95

¹ Hybrid III use only.

Dummy Instrument Calibrations

Right Front Passenger Dummy #142

	Serial Number	Model Number	Manufacturer	Calibration Date Last	Due
Head X-axis accelerometer	FH25J	7264	Endevco	08/29/94	02/28/95
Head Y-axis accelerometer	CY32H	7264	Endevco	08/29/94	02/28/95
Head Z-axis accelerometer	DB81H	7264	Endevco	08/29/94	02/28/95
Chest X-axis accelerometer	A79GJ	7264	Endevco	08/29/94	02/28/95
Chest Y-axis accelerometer	AC8W6	7264	Endevco	08/29/94	02/28/95
Chest Z-axis accelerometer	CW42H	7264	Endevco	08/29/94	02/28/95
Left femur force load cell	901	2430	GSE	08/30/94	02/28/95
Right femur force load cell	902	2430	GSE	08/30/94	02/28/95
Neck X-axis force load cell ¹	0280	1716	Denton	08/30/94	02/28/95
Neck Y-axis force load cell ¹	0280	1716	Denton	08/30/94	02/28/95
Neck Z-axis force load cell ¹	0280	1716	Denton	08/30/94	02/28/95
Neck Moment about X-axis load cell ¹	0280	1716	Denton	08/30/94	02/28/95
Neck Moment about Y-axis load cell ¹	0280	1716	Denton	08/30/94	02/28/95
Neck Moment about Z-axis load cell ¹	0280	1716	Denton	08/30/94	02/28/95
Chest deflection potentiometer ¹	90320B	81422A	Vernitech	08/29/94	02/28/95
Lap belt force load cell	130	3419	Lebow	08/19/94	02/19/95
Shoulder belt force load cell	615	3419	Lebow	08/19/94	02/19/95
Shoulder belt spool-out potentiometer	A128	PT-101-50A	Celesco	11/30/94	05/30/95
Shoulder belt stretch potentiometer	3	20514101	Bournes	11/30/94	05/30/95

¹ Hybrid III use only.

Vehicle and Calibration Laboratory Instrument Calibrations

Vehicle Accelerometers

	Serial Number	Model Number	Manufacturer	Calibration Date	
				Last	Due
Left rear seat crossmember X-axis	ACCG5	7264	Endevco	07/05/94	01/05/95
Left rear seat crossmember X-axis redundant	DY61J	7264	Endevco	10/27/94	04/27/95
Right rear seat crossmember X-axis	DW34JC	7264	Endevco	10/27/94	04/27/95
Right rear seat crossmember X-axis redundant	CR59H	7264	Endevco	08/08/94	02/08/95
Engine top X-axis	AGRJ1	7264	Endevco	08/24/94	02/24/95
Engine bottom X-axis	CC71H	7264	Endevco	08/09/94	02/09/95
Right brake caliper X-axis	AGRG7	7264	Endevco	09/08/94	03/08/95
Left brake caliper X-axis	DT96JT	7264	Endevco	11/07/94	05/07/95
Instrument panel center X-axis	CW87H	7264	Endevco	09/08/94	03/08/95

Calibration Laboratory Instruments

	Serial Number	Model Number	Manufacturer	Calibration Date	
				Last	Due
Neck bending pendulum accelerometer	CB27	7232	Endevco	09/26/94	03/26/95
Neck bending rotary potentiometer	NA	35435-1-102	Bournes	Mfr. Specification	
Neck bending linear potentiometer	NA	5184-2051846003	Bournes	09/26/94	03/26/95
Thorax/Hybrid II femur pendulum accelerometer	CC64	7232	Endevco	09/26/94	03/26/95
Lumbar flexion force gauge	NA	DPPH-50	Chatillon	05/03/89	repaired
Lumbar flexion rotation gauge	CP17-0601-1	7020	Humphrey	Mfr. Specification	
Abdomen compression displacement gauge	4075-175	80294-2051941504	Bournes	09/26/94	03/26/95
Abdomen compression force gauge	3443	3167	Lebow	09/26/94	03/26/95
Hybrid III femur pendulum accelerometer	CG83	7232	Endevco	09/26/94	03/26/95

Sign Convention
NHTSA Data Tape Reference Guide

<u>Accelerometers:</u>	+X: Forward	
	+Y: Leftward	
	+Z: Upward	
<u>Potentiometers:</u>	+Chest longitudinal deflection:	Outward
	+Chest lateral deflection:	Leftward
	+Seat belt displacement:	Outward
	+Seat belt extension:	Elongation
	+Knee slider displacement:	Distance between femur and tibia increased (in relation to a seated dummy)
<u>Load cells:</u>	+Femur force:	Tension
	+Seat belt force:	Tension
	+Barrier force:	Tension
<u>Neck load cells:</u>	+X force:	Head pushed forward
	+y force:	Head pushed leftward
	+Z force:	Head pulled upward (tension on neck)
	+X moment:	Right ear rotating toward right shoulder
	+Y moment:	Chin rotating toward chest
	+Z moment:	Chin rotating toward left shoulder
<u>Tibia load cells:</u>	+X force:	Tension
	+Y force:	Tension
	+Z force:	Tension
	+X moment:	Bottom of tibia moving leftward
	+Y moment:	Bottom of tibia moving rearward

Frequency Response Classes

SAE J211 OCT88

Typical Test Measurements

Channel Class

Vehicle Structural Accelerations for use in:

Total vehicle comparison	60
Collision simulation input	60
Component analysis	600
Integration for velocity or displacement	180

Barrier Face Forces 60

Belt Restraint System Loads 60

Anthropomorphic Test Device

Head accelerations (linear and angular) 1000

Neck

Forces 1000

Moments 600

Thorax

Spine accelerations 180

Rib accelerations 1000

Sternum accelerations 1000

Deflections 180

Lumbar

Forces 1000

Moments 1000

Pelvis

Accelerations 1000

Forces 1000

Moments 1000

Femur/Knee/Tibia/Ankle

Forces 600

Moments 600

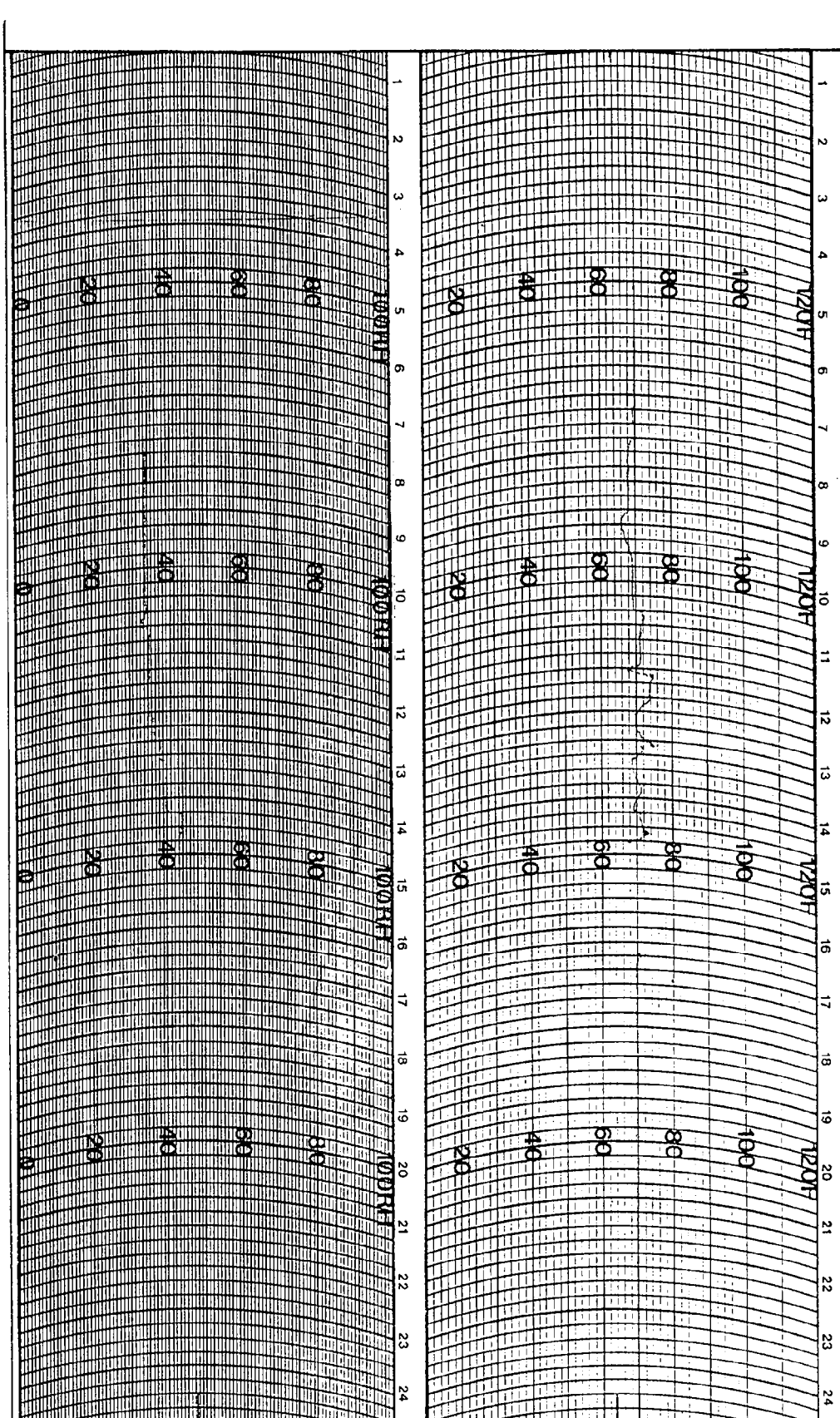
Displacements 180

Sled Accelerations 60

Steering Column Loads 600

Head form Accelerations 1000



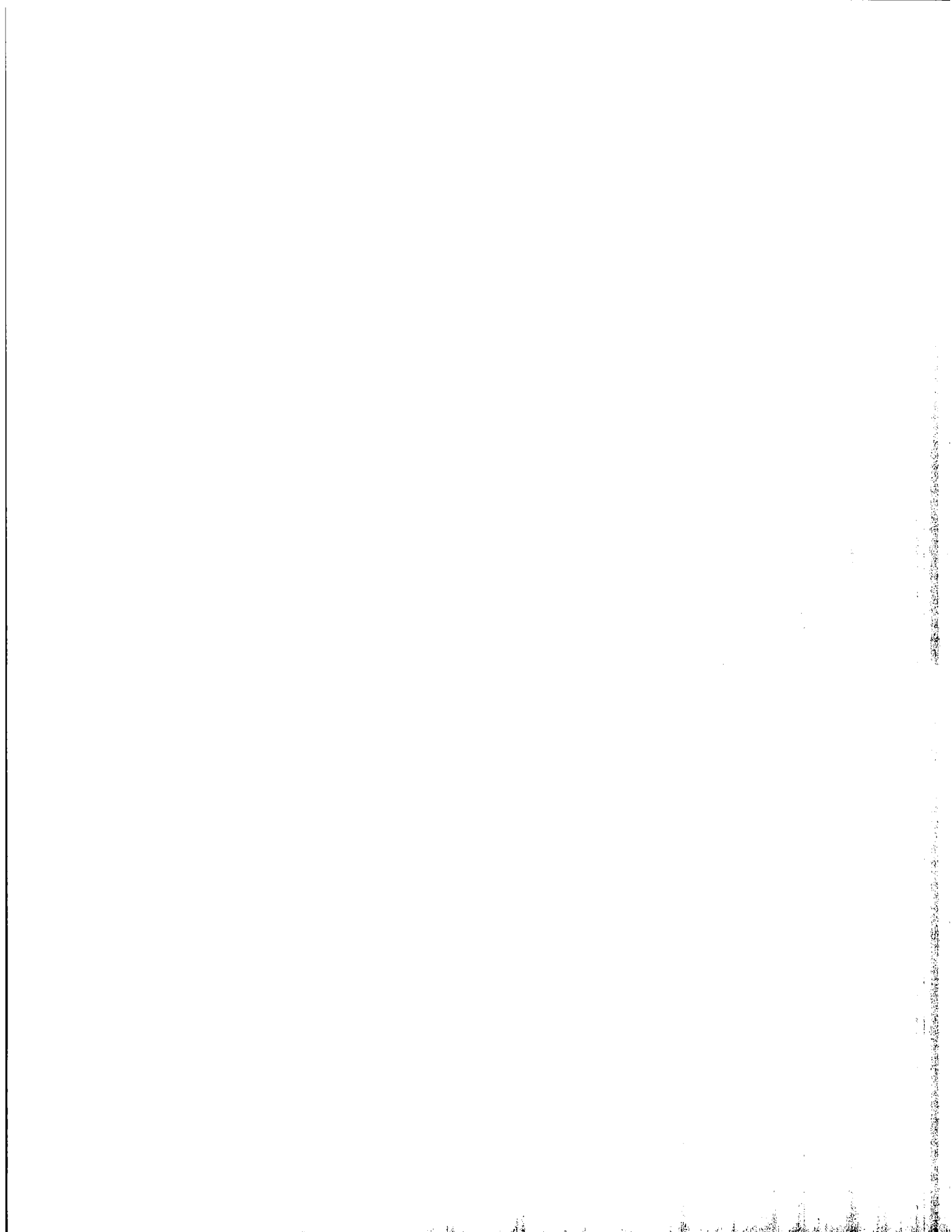


WEATHER MEASURE
P.O. BOX 41257
SACRAMENTO, CA. 95841
PHONE (916) 481-7565

HYGROTHERMOGRAPH
1 DAY

CHART # C311 D HF
PART # 699123

STATION _____ DATE ON _____ DATE OFF _____



Appendix E

Restraint System Instructions from Owner's Manual

Seats & Restraint Systems

Section

1

Here you'll find information about the seats in your vehicle and how to use your safety belts properly. You can also learn about some things you should *not* do with air bags and safety belts.

Seats and Seat Controls

This section tells you about the seats — how to adjust them, and fold them up and down.

Manual Front Seat (Except Easy Entry)



CAUTION:

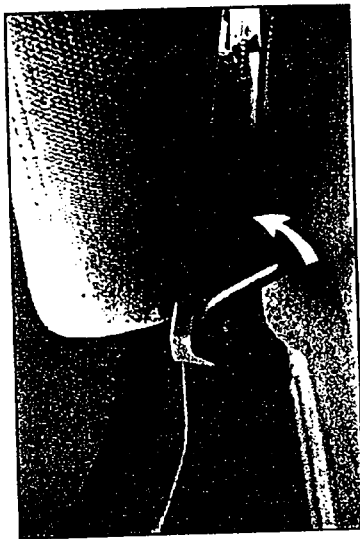
You can lose control of the vehicle if you try to adjust a manual driver's seat while the vehicle is moving. The sudden movement could startle and confuse you, or make you push a pedal when you don't want to. Adjust the driver's seat only when the vehicle is not moving.

Move the lever under the front of the seat towards the driver's door to unlock it. Slide the seat to where you want it. Then release the lever and try to move the seat with your body to make sure the seat is locked into place.



Manual Front Seat (Easy Entry Only)

Move the lever under the front of the seat up to unlock it. Slide the seat to where you want it. Then release the lever and try to move the seat with your body to make sure the seat is locked into place.



Manual Lumbar Adjustment

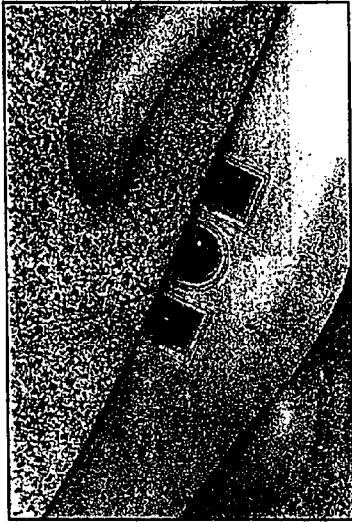
If you have this feature, there will be a knob with six settings on the outside of the driver and passenger bucket seats.

Turn the knob counterclockwise to increase lumbar support and clockwise to decrease lumbar support.



Power Driver's Seat

If you have this feature, there will be a control pad on the front of your driver's seat.

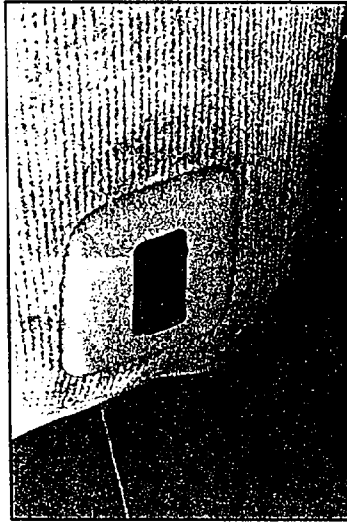


The left control makes the rear of the seat go up and down.

The right control makes the front of the seat go up and down.

The center control makes the whole seat go up and down or forward and rearward.

Power Lumbar Adjustment



If you have this feature, there will be a control on the front of your driver's seat. Press and hold the passenger's side of the control until you have the desired lumbar support. To decrease the driver's side of the control.

Reclining Front Seatbacks

To adjust the seatback, lift the lever on the outer side of the seat. Release the lever to lock the seatback where you want it. Pull up on the lever and the seat will go to an upright position.



But don't have a seatback reclined if your vehicle is moving.

⚠ CAUTION:

Sitting in a reclined position when your vehicle is in motion can be dangerous. Even if you buckle up, your safety belts can't do their job when you're reclined like this.

The shoulder belt can't do its job because it won't be against your body. Instead, it will be in front of you. In a crash, you could go into it, receiving neck or other injuries.

The lap belt can't do its job either. In a crash the belt could go up over your abdomen. The belt forces would be there, not at your pelvic bones. This could cause serious internal injuries.

For proper protection when the vehicle is in motion, have the seatback upright. Then sit well back in the seat and wear your safety belt properly.

Front Seatback Latches (2-Door Models)

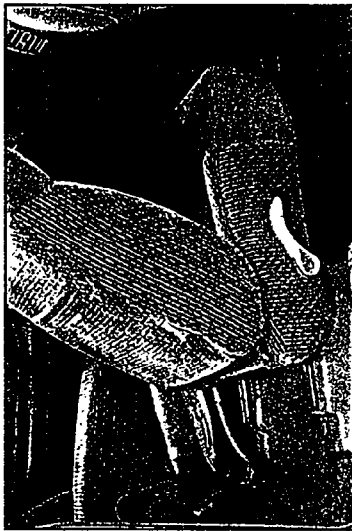
The front seatback folds forward to let people get into the back seat. Your seatback will move back and forth freely, unless you come to a sudden stop. Then it will lock in place.

There's one time the seatback may not fold without some help from you. That's if your vehicle is parked going down a fairly steep hill.



To fold a front seatback forward, push the seatback toward the rear as you lift this latch. Then the seatback will fold forward. The latch must be down for the seat to work properly.

Easy Entry Seat (2-Door Models)



The outside front passenger seat of your vehicle makes it easy to get in and out of the rear vehicle area.

- When you tilt the outside front passenger seatback fully forward, the whole seat will slide forward.
- After someone gets into the rear seat area, move the seatback to its original position. Then move the seat rearward until it locks.



CAUTION:

If an easy entry right front seat isn't locked, it can move. In a sudden stop or crash, the person sitting there could be injured. After you've used it, be sure to push rearward on an easy entry seat to be sure it is locked.

- To get out, again tilt the seatback fully forward.

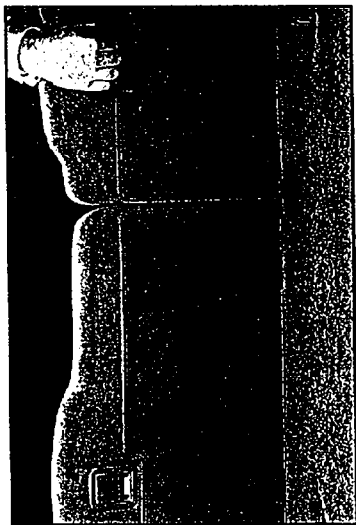
Head Restraints

Head restraints are fixed on some models and adjustable on others. Slide an adjustable head restraint up or down so that the top of the restraint is closest to the top of your ears. This position reduces the chance of a neck injury in a crash.

Your adjustable head restraint may also be tilted forward for greater comfort.

Rear Folding Seat

Your utility vehicle has a folding rear seat which lets you fold the seatbacks down for more cargo space.



The rear seat release handles are in the upper center of the rear of the seatbacks. Push back on the seatbacks as you pull up on the handles.

To raise the seatbacks, just lift up the seatbacks and push until they lock in the upright position.

Push and pull on the seatbacks to check that the latches have locked in the upright position. If they haven't, have them fixed immediately.

Safety Belts: They're for Everyone

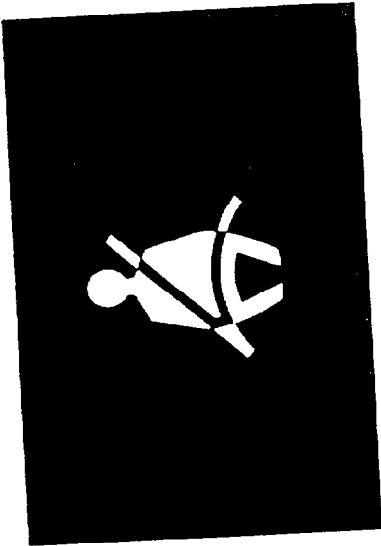
This part of the manual tells you how to use safety belts properly. It also tells you some things you should not do with safety belts.

And it explains the Supplemental Inflatable Restraint, or "air bag" system.



CAUTION:

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



Your vehicle has a light that comes on as a reminder to buckle up. (See "Safety Belt Reminder Light" in the Index.)

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

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

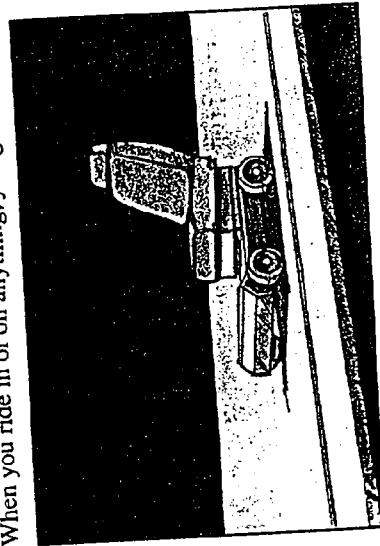
A few crashes are mild, and some crashes can be so serious that even buckled up a person wouldn't survive. But most crashes are in between. In many of them, people who buckle up can survive and sometimes walk away. Without belts they could have been badly hurt or killed.

After more than 25 years of safety belts in vehicles, the facts are clear. In most crashes buckling up does matter ... a lot!

Why Safety Belts Work

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

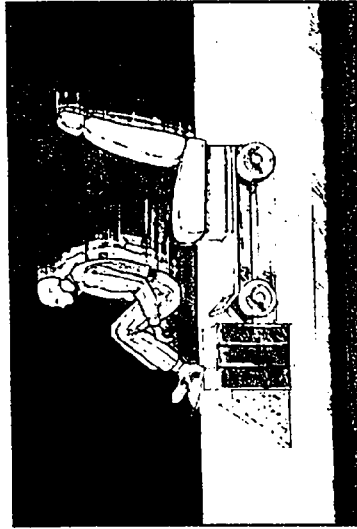
Take the simplest vehicle. Suppose it's just a seat on wheels.



Put someone on it.



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



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





or the instrument panel ...



or the safety belts!

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

Here Are Questions Many People Ask About Safety Belts — and the Answers

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

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

Q: *Why don't they just put in air bags so people won't have to wear safety belts?*

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

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

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

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

Safety belts are for everyone.

How to Wear Safety Belts Properly

Adults

This part is only for people of adult size.

Be aware that there are special things to know about safety belts and children. And there are different rules for smaller children and babies. If a child will be riding in your vehicle, see the part of this manual called "Children." Follow those rules for everyone's protection.

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

We'll start with the driver position.

Driver Position

This part describes the driver's restraint system.

Lap-Shoulder Belt

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

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



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

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

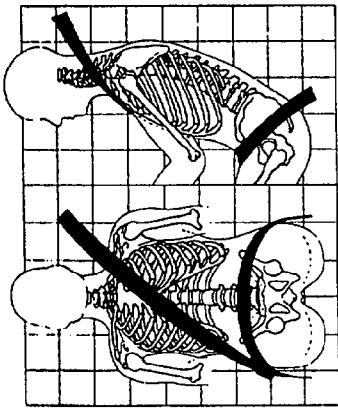
Pull up on the latch plate to make sure it is secure.

If the belt isn't long enough, see "Safety Belt Extender" at the end of this section.

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



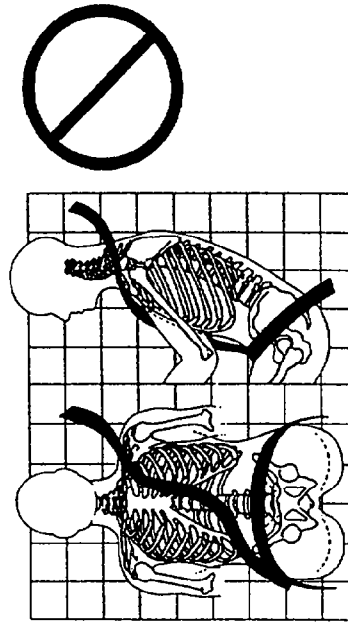
5. To make the lap part tight, pull down on the buckle end of the belt as you pull up on the shoulder belt.



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

The safety belt locks if there's a sudden stop or a crash.

Q: What's wrong with this?

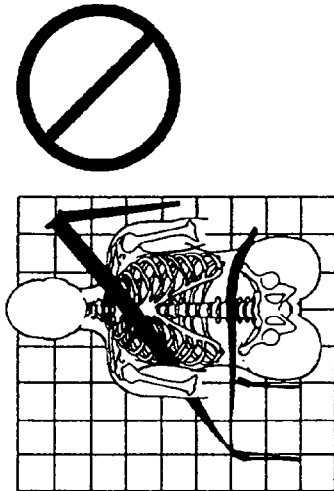


A: The shoulder belt is too loose. It won't give nearly as much protection this way.

⚠ CAUTION:

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

Q: What's wrong with this?

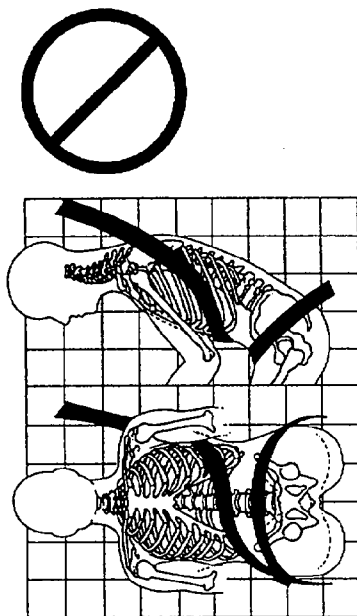


A: The belt is buckled in the wrong place.

⚠ CAUTION:

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

Q: What's wrong with this?

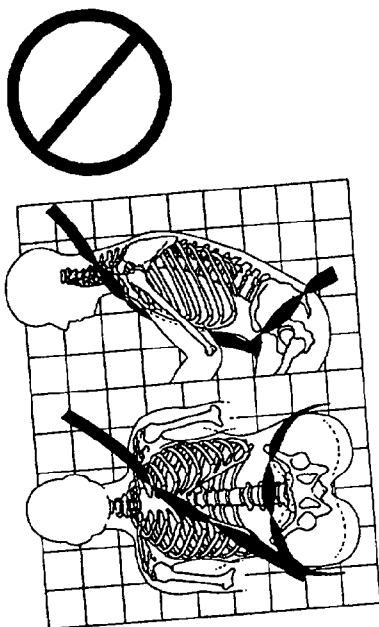


A: The shoulder belt is worn under the arm. It should be worn over the shoulder at all times.

⚠ CAUTION:

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

Q: What's wrong with this?



A: The belt is twisted across the body.

CAUTION:

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



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

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

Supplemental Inflatable Restraint System (SIR)

This part explains the Supplemental Inflatable Restraint (SIR) system, or air bag.

Your vehicle has an air bag for the driver.

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



CAUTION:

You can be severely injured or killed in a crash if you aren't wearing your safety belt — even if you have an air bag. Wearing your safety belt during a crash helps reduce your chance of hitting things inside the vehicle or being ejected from it. The air bag is only a supplemental restraint. That is, it works with safety belts but doesn't replace them. Air bags are designed to work only in moderate to severe crashes where the front of your vehicle hits something. They aren't designed to inflate at all in rollover, rear, side, or low-speed frontal crashes. Everyone in your vehicle, including the driver, should wear a safety belt properly — whether or not there's an air bag for that person.



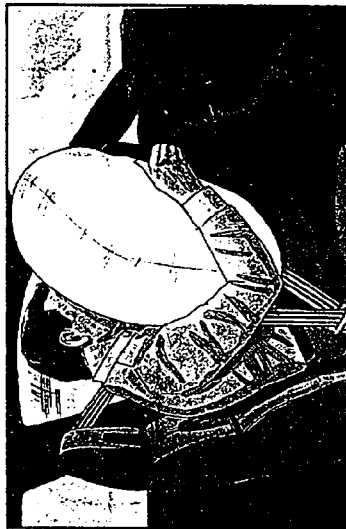
CAUTION:

Air bags inflate with great force, faster than the blink of an eye. If you're too close to an inflating air bag, it could seriously injure you. Safety belts help keep you in position for an air bag inflation in a crash. Always wear your safety belt, even with an air bag, and sit as far back as you can while still maintaining control of your vehicle.

AIR BAG

There is an air bag readiness light on the instrument panel, which shows AIR BAG. The system checks the air bag's electrical system for malfunctions. The light tells you if there is an electrical problem. See "Air Bag Readiness Light" in the Index for more information.

How the Air Bag System Works



Where is the air bag?

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



CAUTION:

Don't put anything on, or attach anything to, the steering wheel. Also, don't put anything (such as pets or objects) between the driver and the steering wheel. If something is between an occupant and an air bag, it could affect the performance of the air bag — or worse, it could cause injury.

When should an air bag inflate?

The air bag is designed to inflate in moderate to severe frontal or near-frontal crashes. The air bag will inflate only if the impact speed is above the system's designed "threshold level." If your vehicle goes straight into a wall that doesn't move or deform, the threshold level is about 14 to 18 mph (23 to 29 km/h). The threshold level can vary, however, with specific vehicle design, so that it can be somewhat above or below this range. If your vehicle strikes something that will move or deform, such as a parked car, the threshold level will be higher. The air bag is not designed to inflate in rollovers, side impacts, or rear impacts, because inflation would not help the occupant.

In any particular crash, no one can say whether an air bag should have inflated simply because of the damage to a vehicle or because of what the repair costs were. Inflation is determined by the angle of the impact and the vehicle's deceleration. Vehicle damage is only one indication of this.

The air bag system is designed to work properly under a wide range of conditions, including off-road usage. Observe safe driving speeds, especially on rough terrain. As always, wear your safety belt. See "Off-Road Driving" in the Index for more tips on off-road driving.

What makes an air bag inflate?

In a frontal impact of sufficient severity, the air bag sensing system detects that the vehicle is suddenly stopping as a result of a crash. The sensing system triggers a chemical reaction of the sodium azide sealed in the inflator. The reaction produces nitrogen gas, which inflates the air bag. The inflator, air bag, and related hardware are all part of the air bag module packed inside the steering wheel.

How does an air bag restrain?

In moderate to severe frontal or near-frontal collisions, even belted occupants can contact the steering wheel. The air bag supplements the protection provided by safety belts. Air bags distribute the force of the impact more evenly over the occupant's upper body, stopping the occupant more gradually. But air bags would not help you in many types of collisions, including rollovers and rear and side impacts, primarily because an occupant's motion is not toward the air bag. Air bags should never be

regarded as anything more than a supplement to safety belts, and then only in moderate to severe frontal or near-frontal collisions.

What will you see after an air bag inflates?

After the air bag inflates, it quickly deflates. This occurs so quickly that some people may not even realize the air bag inflated. Some components of the air bag module in the steering wheel hub will be hot for a short time, but the part of the bag that comes into contact with you will not be hot to the touch. There will be some smoke and dust coming from vents in the deflated air bag. Air bag inflation will not prevent the driver from seeing or from being able to steer the vehicle, nor will it stop people from leaving the vehicle.



CAUTION:

When an air bag inflates, there is dust in the air. This dust could cause breathing problems for people with a history of asthma or other breathing trouble. To avoid this, everyone in the vehicle should get out as soon as it is safe to do so. If you have breathing problems but can't get out of the vehicle after an air bag inflates, then get fresh air by opening a window or door.

- The air bag is designed to inflate only once. After it inflates, you'll need some new parts for your air bag system. If you don't get them, the air bag system won't be there to help protect you in another crash. A new system will include the air bag module and possibly other parts. The service manual for your vehicle covers the need to replace other parts.
- Your vehicle is equipped with a diagnostic module, which records information about the air bag system. The module records information about the readiness of the system, when the sensors are activated and driver's safety belt usage at deployment.
- Let only qualified technicians work on your air bag system. Improper service can mean that your air bag system won't work properly. See your dealer for service.

NOTICE:

If you damage the cover for the driver's air bag, it may not work properly. You may have to replace the air bag module. Do not open or break the air bag cover.

Servicing Your Air Bag-Equipped Vehicle

The air bag affects how your vehicle should be serviced. There are parts of the air bag system in several places around your vehicle. You don't want the system to inflate while someone is working on your vehicle. Your GM dealer and the 1995 GM Service Manual have information about servicing your vehicle and the air bag system. To purchase a service manual, see "Service Publications" in the Index. The air bag system does not need regular maintenance.

CAUTION:

For up to 2 minutes after the ignition key is turned off and the battery is disconnected, an air bag can still inflate during improper service. You can be injured if you are close to an air bag when it inflates. Avoid wires wrapped with yellow tape or yellow connectors. They are probably part of the air bag system. Be sure to follow proper service procedures and make sure the person performing work for you is qualified to do so.

Adding Equipment to Your Air Bag-Equipped Vehicle

Q: *If I add a push bumper or a bicycle rack to the front of my vehicle, will it keep the air bag from working properly?*

A: As long as the push bumper or bicycle rack is attached to your vehicle so that the vehicle's basic structure isn't changed, it's not likely to keep the air bags from working properly in a crash.

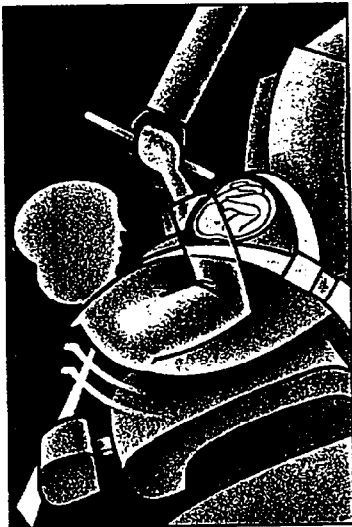
Q: *Is there anything I might add to the front of the vehicle that could keep the air bag from working properly?*

A: Yes. If you add things that change your vehicle's frame, bumper system, front end sheet metal or height, they may keep the air bag system from working properly. Also, the air bag system may not work properly if you relocate any of the air bag sensors. If you have any question about this, you should contact Customer Assistance before you modify your vehicle. (The phone numbers and addresses for Customer Assistance are in Step Two of the Customer Satisfaction Procedure in this manual. See "Customer Satisfaction Procedure" in the Index.)

Safety Belt Use During Pregnancy

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

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



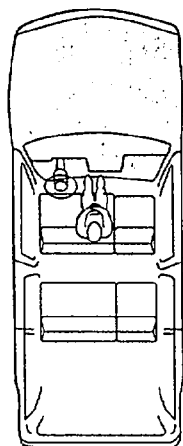
The best way to protect the fetus is to protect the mother. When a safety belt is worn properly, it's more likely that the fetus won't be hurt in a crash. For pregnant women, as for anyone, the key to making safety belts effective is wearing them properly.

Right Front Passenger Position

The right front passenger's safety belt works the same way as the driver's safety belt. See "Driver Position," earlier in this section.

When the shoulder belt is pulled out all the way, it will lock. If it does, let it go back all the way and start again.

Center Front Passenger Position (4-Door Models)



Lap Belt

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



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

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



Buckle, position and release it the same way as the lap part of a lap-shoulder belt. If the belt isn't long enough, see "Safety Belt Extender" at the end of this section.

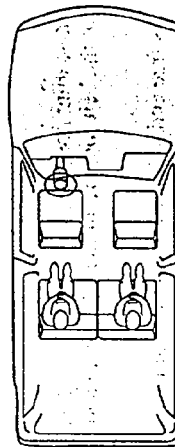
Make sure the release button on the buckle is positioned so you would be able to unbuckle the safety belt quickly if you ever had to.

Rear Seat Passengers

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

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

Rear Seat Outside Passenger Positions



Lap-Shoulder Belt

The positions next to the windows have lap-shoulder belts. Here's how to wear one properly.



1. Pick up the latch plate and pull the belt across you. Don't let it get twisted. On four-door models, the shoulder belt may lock if you pull the belt across you very quickly. If this happens, let the belt go back slightly to unlock it. Then pull the belt across you more slowly.

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

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

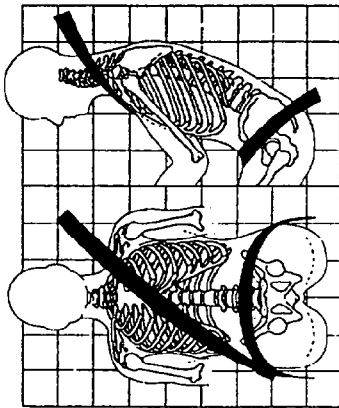
When the shoulder belt is pulled out all the way, it will lock. If it does, let it go back all the way and start again.

If the belt is not long enough, see "Safety Belt Extender" at the end of this section.

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



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



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

The safety belt locks if there's a sudden stop or a crash.

On four-door models, the safety belt also locks if you pull the belt very quickly out of the retractor.



CAUTION:

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



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

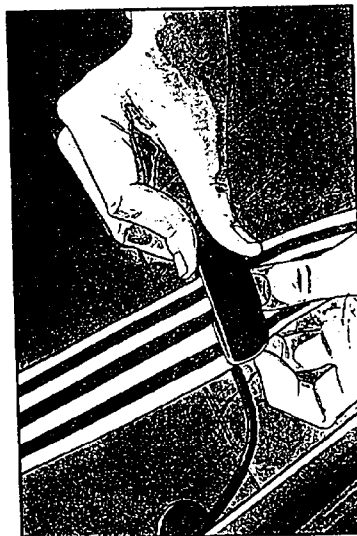
Rear Safety Belt Comfort Guides for Children and Small Adults (4-Door Models)

Four-door models have rear shoulder belt comfort guides. This feature will provide added comfort for children who have outgrown child restraints and for small adults. The comfort guides pull the shoulder belts away from the neck and head.

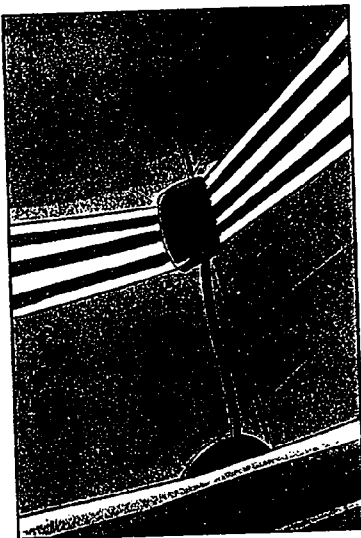


There is one guide for each outside passenger position in the rear seat. You will find them tucked in between the seatback and the interior body, about half-way down the edge of the seatback. Here is how you should install the comfort guides on the shoulder belts:

1. Pull the elastic cord out from between the edge of the seatback and the interior body to remove the guide from its storage clip.



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



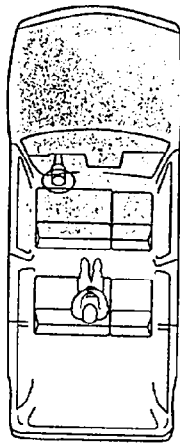
3. Be sure that the belt is not twisted and it lies flat. The elastic cord must be under the belt and the guide on top.



4. Buckle the belt around the child, and make sure that both the lap belt and the shoulder belt are secured properly. Make sure that the shoulder belt crosses the shoulder. See "Safety Belts, Rear Seat Passengers" in the Index.

To remove and store the comfort guides, just perform these steps in reverse order. Squeeze the belt edges together so that you can take them out from the guides. Pull the guide upward to expose its storage clip, and then slide the guide onto the clip. Rotate the guide and clip inward and in between the seatback and the interior body, leaving only the loop of elastic cord exposed.

Center Rear Passenger Position (4-Door Models)



Lap Belt



When you sit in the center rear seating position, you have a lap safety belt which has a retractor.

1. Pick up the latch plate and pull the belt across you. Don't let it get twisted.
2. Push the latch plate into the buckle until it clicks. Pull up on the latch plate to make sure it is secure.
3. Feed the lap belt into the retractor to tighten it.



4. Position and release it the same way as the lap part of a lap-shoulder belt.

If the belt isn't long enough, see "Safety Belt Extender" at the end of this section. Make sure the release button on the buckle is positioned so you would be able to unbuckle the safety belt quickly if you ever had to.

Children

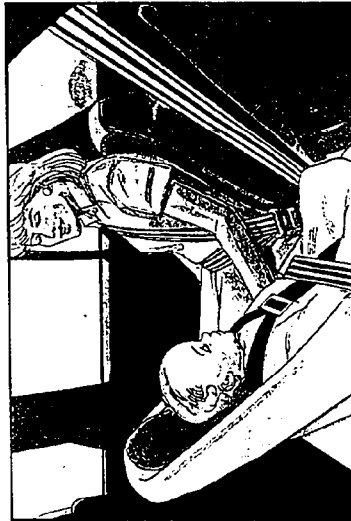
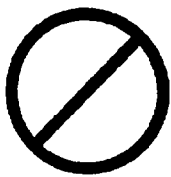
Everyone in a vehicle needs protection! That includes infants and all children smaller than adult size. In fact, the law in every state in the United States and in every Canadian province says children up to some age must be restrained while in a vehicle.

Smaller Children and Babies



CAUTION:

Smaller children and babies should always be restrained in a child or infant restraint. The instructions for the restraint will say whether it is the right type and size for your child. A very young child's hip bones are so small that a regular belt might not stay low on the hips, as it should. Instead, the belt will likely be over the child's abdomen. In a crash the belt would apply force right on the child's abdomen, which could cause serious or fatal injuries. So, be sure that any child small enough for one is always properly restrained in a child or infant restraint.



⚠ CAUTION:

Never hold a baby in your arms while riding in a vehicle. A baby doesn't weigh much — until a crash. During a crash a baby will become so heavy you can't hold it. For example, in a crash at only 25 mph (40 km/h), a 12-pound (5.5 kg) baby will suddenly become a 240-pound (110 kg) force on your arms. The baby would be almost impossible to hold.

Secure the baby in an infant restraint.

Child Restraints

Be sure to follow the instructions for the restraint. You may find these instructions on the restraint itself or in a booklet, or both. These restraints use the belt system in your vehicle, but the child also has to be secured within the restraint to help reduce the chance of personal injury. The instructions that come with the infant or child restraint will show you how to do that.

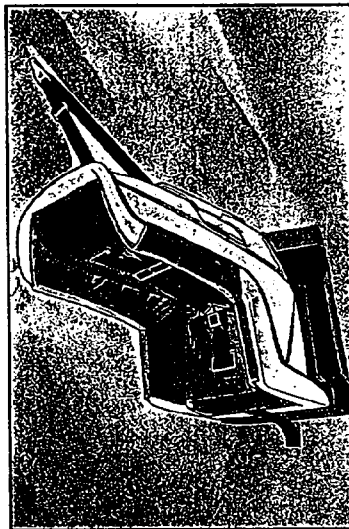
Where to Put the Restraint

Accident statistics show that children are safer if they are restrained in the rear rather than the front seat. We at General Motors therefore recommend that you put your child restraint in a rear seat outside position unless the child is an infant and you're the only adult in the vehicle. In that case, you might want to secure the restraint in the right front seat where you can keep an eye on the baby.

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

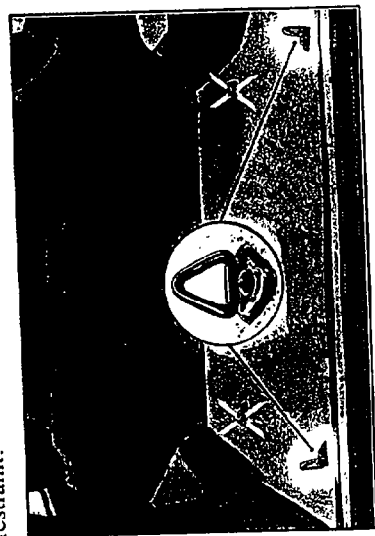
Keep in mind that an unsecured child restraint can move around in a collision or sudden stop and injure people in the vehicle. Be sure to properly secure any child restraint in your vehicle — even when no child is in it.

Top Strap



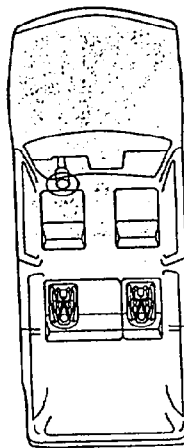
If your child restraint has a top strap, it should be anchored.

Anchor brackets for the rear outside seat positions are located on the floor in the cargo area. Don't use the front set of tie-down brackets. Anchor the top strap to the rearmost bracket on the same side of the vehicle as the child restraint.



Once you have the top strap anchored, you'll be ready to secure the child restraint itself.

Securing a Child Restraint in a Rear Outside Seat Position



You'll be using the lap-shoulder belt. See the earlier part about the top strap if the child restraint has one.

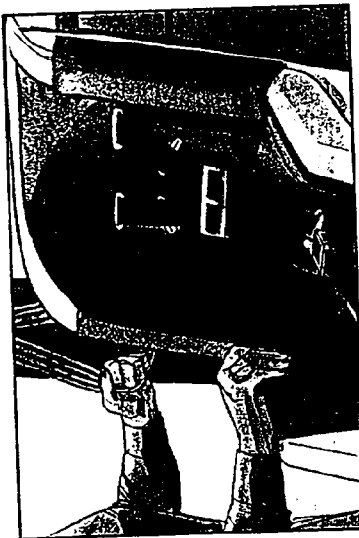
1. Put the restraint on the seat. Follow the instructions for the child restraint.
2. Secure the child in the child restraint as the instructions say.
3. Pick up the latch plate, and run the lap and shoulder portions of the vehicle's safety belt through or around the restraint. The child restraint instructions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

If the shoulder belt goes in front of the child's face or neck, put it behind the child restraint.

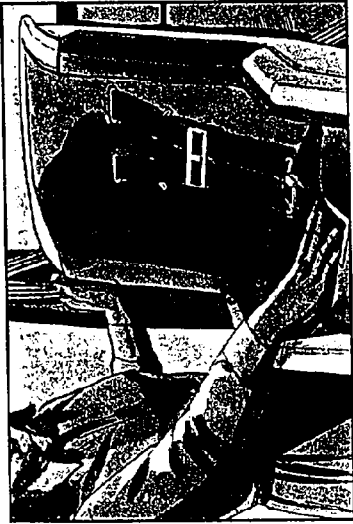
4. Buckle the belt. Make sure the release button is positioned so you would be able to unbuckle the safety belt quickly if you ever had to.



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



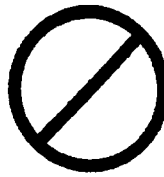
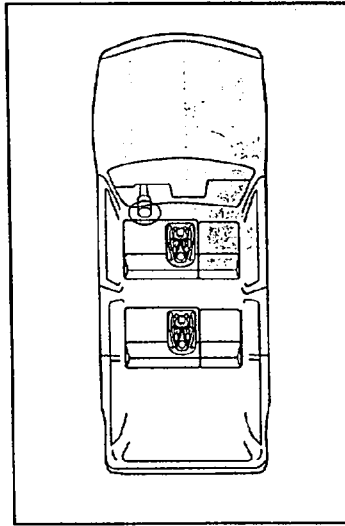
6. To tighten the belt, feed the shoulder belt into the retractor while you push down on the child restraint.



7. Push and pull the child restraint in different directions to be sure it is secure.

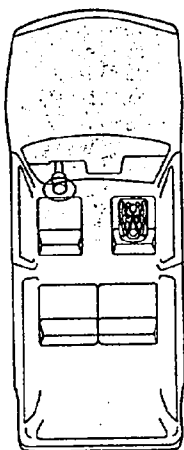
To remove the child restraint, just unbuckle the vehicle's safety belt and let it go back all the way. The safety belt will move freely again and be ready to work for an adult or larger child passenger.

Center Seat Positions (4-Door Models)



Don't use child restraint in these positions. The restraints won't work properly.

Securing a Child Restraint in the Right Front Seat Position



You'll be using the lap-shoulder belt. See the earlier part about the top strap if the child restraint has one.

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

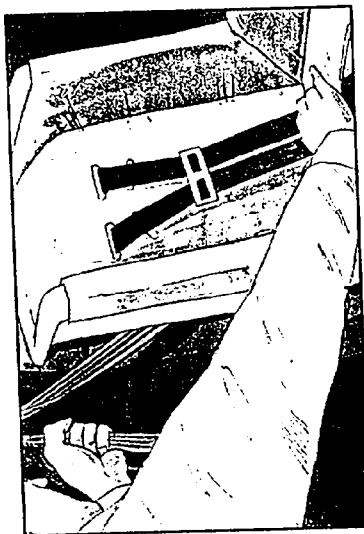
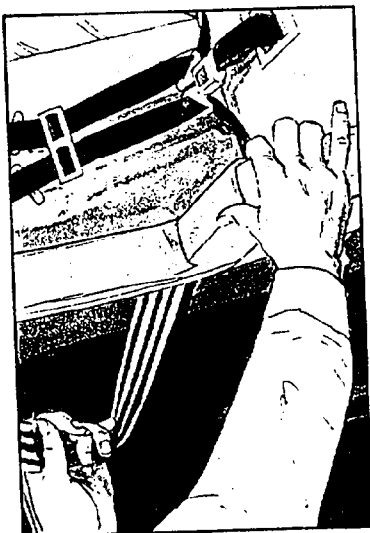
If the shoulder belt goes in front of the child's face or neck, put it behind the child restraint.



4. Buckle the belt.

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

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



6. To tighten the belt, feed the shoulder belt back into the retractor while you push down on the child restraint.
7. Push and pull the child restraint in different directions to be sure it is secure. If you're using a bucket seat, adjust the seat forward until the lap portion of the safety belt holds the restraint firmly. But don't move it any more than needed to tighten the lap belt.

To remove the child restraint, just unbuckle the vehicle's safety belt and let it go back all the way.

The safety belt will move freely again and be ready to work for an adult or larger child passenger.

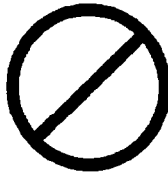
Larger Children



Children who have outgrown child restraints should wear the vehicle's safety belts.

If you have the choice, a child should sit next to a window so the child can wear a lap-shoulder belt and get the additional restraint a shoulder belt can provide.

- Children who aren't buckled up can be thrown out in a crash.
- Children who aren't buckled up can strike other people who are.



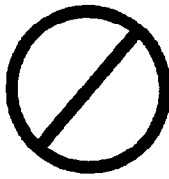
CAUTION:

Never do this

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

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

A: Move the child toward the center of the vehicle, but be sure that the shoulder belt still is on the child's shoulder, so that in a crash the child's upper body would have the restraint that belts provide. If the child is sitting in a rear outside position of a four-door model, see "Rear Safety Belt Comfort Guides" in the Index. If the child is so small that the shoulder belt is still very close to the child's face or neck, you might want to place the child in a seat that has a lap belt, if your vehicle has one.



⚠ CAUTION:

Never do this.

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

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

Safety Belt Extender

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

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

Checking Your Restraint Systems

Now and then, make sure all your belts, buckles, latch plates, retractors, anchorages and reminder systems are working properly. Look for any other loose or damaged restraint system parts. If you see anything that might keep a restraint system from doing its job, have it repaired.

Torn or frayed belts may not protect you in a crash. They can rip apart under impact forces. If a belt is torn or frayed, get a new one right away.

Replacing Seat and Restraint System Parts After a Crash

If you've had a crash, do you need new belts?

After a very minor collision, nothing may be necessary. But if the belts were stretched, as they would be if worn during a more severe crash, then you need new belts.

If belts are cut or damaged, replace them. Collision damage also may mean you will need to have safety belt or seat parts repaired or replaced. New parts and repairs may be necessary even if the belt wasn't being used at the time of the collision.

Before replacing any safety belt, see your dealer for the correct part number. You'll need the model year and model number for your vehicle. The model year is on your title and registration. And you can find the model number on the Certification/Tire label of your vehicle. See "Certification/Tire Label" in the Index.



The model number on the replacement belt must be listed on the safety belt you want to replace. Pull the shoulder belt all the way out to see this label.