

V2476

Report Number NCAP-TRC-97-001

New Car Assessment Program (NCAP)

Frontal Barrier Impact Test

Ford Motor Company

1997 Ford Club Wagon

Van

NHTSA Number: MV0206

TRC Test Number: 961205

Prepared By:

Transportation Research Center Inc.

10820 State Route 347

East Liberty, OH 43319



January 2, 1997

Final Report

Prepared For:

U. S. Department of Transportation

National Highway Traffic Safety Administration

Performance Standards,

Office of Crashworthiness Standards,

Motor Vehicle Information Division

Mail Code: NPS-22

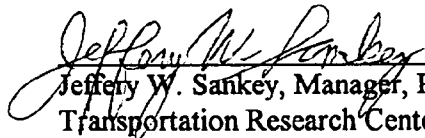
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1. Report No. NCAP-TRC-97-001	2. Government Accession No.	3. Recipient's Catalog No.	
4. Title and Subtitle Final Report of New Car Assessment Program (NCAP) Frontal Barrier Impact Test of a 1997 Ford Club Wagon Van, NHTSA No. MV0206		5. Report Date January 2, 1997	
		6. Performing Organization Code TRC	
7. Author(s) Jeffery W. Sankey, Manager, Project Operations		8. Performing Organization Report No. NCAP-TRC-97-001	
9. Performing Organization Name and Address Transportation Research Center Inc. 10820 State Route 347 East Liberty, OH 43319-0367		10. Work Unit No. (TRAIS)	
		11. Contract or Grant No. DTNH22-96-D-22010	
12. Sponsoring Agency Name and Address U. S. Department of Transportation National Highway Traffic Safety Administration Performance Standards., Office of Crashworthiness Standards; Motor Vehicle Information Division, Mail Code NPS-22, 400 Seventh Street, S. W., Room 5315, Washington, DC 20590		13. Type of Report and Period Covered Final Report December 1996-January 1997	
		14. Sponsoring Agency Code NPS-22	
15. Supplemental Notes			
16. Abstract A 56 kph (35 mph) frontal load cell barrier impact test was conducted on a 1997 Ford Club Wagon van, NHTSA No. MV0206, at Transportation Research Center Inc. on December 5, 1996. This test was conducted in accordance with Office of Crashworthiness Standards NCAPTP090196 for the determination of vehicle crashworthiness. The barrier impact velocity was 56.2 kph. The vehicle's maximum static crush was 552 millimeters. The ambient temperature was 22° C. The driver's Head Injury Criteria (HIC) was 932. The driver's chest maximum resultant acceleration with three (3) milliseconds minimum duration was 47.6 g. The driver's maximum chest deflection was 42 millimeters. The driver's left and right femur maximum axial forces were 3447 N and 2239 N, respectively. The passenger's HIC was 565. The passenger's chest maximum resultant acceleration with three (3) milliseconds minimum duration was 49.5 g. The passenger's maximum chest deflection was 45 millimeters. The passenger's left and right femur maximum axial forces were 4415 N and 3980 N, respectively.			
17. Key Words 56 kph (35 mph) Frontal Barrier Impact Test: New Car Assessment Program (NCAP)		18. Distribution Statement Copies of this report are available from: National Highway Traffic Safety Admin. Technical Reference Division 400 Seventh Street, S. W., Room 5108 Washington, DC 20590	
19. Security Classif. (of this report) Unclassified	20. Security Classif. (of this page) Unclassified	21. Number of Pages 355	22. Price

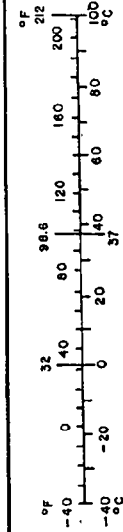
METRIC CONVERSION FACTORS

Approximate Conversions to Metric Measures

Symbol	When You Know	Multiply by	To Find	Symbol
LENGTH				
in	inches	2.5	centimeters	cm
ft	feet	30	meters	m
yd	yards	0.9	kilometers	km
mi	miles	1.6		
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

Approximate Conversions from Metric Measures

Symbol	When You Know	Multiply by	To Find	Symbol
LENGTH				
mm	millimeters	0.04	inches	in
cm	centimeters	0.4	inches	in
m	meters	3.3	feet	ft
m	meters	1.1	yards	yd
km	kilometers	0.6	miles	mi
AREA				
cm ²	square centimeters	0.16	square inches	in ²
m ²	square meters	1.2	square yards	yd ²
km ²	square kilometers	0.4	square miles	mi ²
ha	hectares (10,000 m ²)	2.5	acres	
MASS (weight)				
g	grams	0.035	ounces	oz
kg	kilograms	2.2	pounds	lb
t	tonnes (1000 kg)	1.1	short tons	
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



*1 in = 2.54 (exact). For other exact conversions and more detailed tables, see NBS Misc. Publ. 286, Units of Weights and Measures, Price \$2.25, SO Catalog No. C13.1-0230.

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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 Crashworthiness Standards by Transportation Research Center Inc. (TRC) under Contract Number DTNH22-96-D-22010.

The purpose of this test was to obtain vehicle crashworthiness and occupant restraint system performance data for the subject vehicle, a 1997 Ford Club Wagon Van, NHTSA Number MC0206, at an impact speed in excess of the current 48 kph (30 mph) FMVSS 208, 212, 219, and 301 requirements.

Test Procedure

This 56 kph (35 mph) test was conducted in accordance with NHTSA's Office of Crashworthiness Standards Laboratory Indicant Test Procedure, NCAPTP090196. 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 load cells to measure lap and shoulder belt forces and potentiometers to measure shoulder belt stretch and spoolout. 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 Appendix B 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 primary and redundant head and chest accelerometers to measure longitudinal, lateral, and vertical accelerations, and with left and right femur load cells to measure axial forces. The dummies were also instrumented with neck moment and force load cells, chest deflection potentiometers, foot accelerometers to measure longitudinal and vertical axis accelerations, and upper and lower tibia load cells to measure forces and moments.

The one-hundred-twenty-seven (127) data channels were digitally sampled and recorded at 12,500 samples per second and processed per Section 11.13 of the Laboratory Indicant Test Procedure.

The crash event was recorded by one (1) real-time panning motion picture camera and sixteen (16) 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 December 5, 1996.

The test vehicle, a 1997 Ford Club Wagon van, NHTSA Number MV0206, was equipped with a 4.2-liter inline engine, automatic transmission, power steering, and power brakes. The vehicle's test weight was 2595 kg. The vehicle's impact speed was 56.2 kph. The vehicle sustained 552 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 47.6 g. The driver's maximum chest deflection was 42 mm. The driver's left and right femur maximum axial forces were 3447 N and 2239 N, respectively.

The right front passenger's HIC was 565. The passenger's chest maximum resultant acceleration with three (3) milliseconds minimum duration was 49.5 g. The passenger's maximum chest deflection was 45 mm. The passenger's left and right femur maximum axial forces were 4415 N and 3980 N, respectively.

There was no loss of windshield periphery retention.

There was no penetration through the windshield.

Following the impact, no fluid spilled from the vehicle's fuel system prior to the static rollover test or during any portion of the static rollover test.

Data Acquisition Explanations

The passenger dummy's left foot toe Z-axis acceleration data channel, FTLZT2, recorded no good data due to a cable problem.

The vehicle's left brake caliper X-axis acceleration data channel, BCRSG1, exceeded its data channel's full scale impact between approximately 60 to 80 milliseconds.

The vehicle's center instrument panel X-axis acceleration data channel, DPCXG1, exceeded its full scale input at approximately 75 milliseconds and 80 milliseconds.

No shoulder belt load cells or potentiometers were used to avoid influencing the shoulder belt webbing pretensioners.

Table 1 Crash Test Summary

NHTSA number:	MV0206	
Test type:	Frontal Load Cell Barrier	
Test date:	12/05/96	
Test time:	1707	
Ambient temperature:	22° C	
Vehicle year/make/ model/body style:	1997/Ford/Club Wagon/van	
Vehicle test weight:	2595 kg	
Impact angle ¹ :	0°	
Impact velocity ² :	Primary = 56.2 kph Secondary = 56.3 kph	
Maximum static crush:	552 mm	
Average rebound:	703 mm	
Dummies:	Driver #192	Passenger #142
Type:	Part 572 E	Part 572 E
Location:	Left front	Right front
Restraint:	Airbag and 3-point belt	Airbag and 3-point belt
Number of data channels:	40/dummy	
Number of cameras:	High-speed 16 Real-time 1	

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:	1997/Ford/Club Wagon/van		
Color:	White		
VIN:	1FMEE1122VHA49444		
NHTSA number:	MV0206		
Engine data:			
Placement:	Inline		
Cylinders:	6		
Displacement	4.2 liters		
Transmission data:	<u>3</u> speed, ___ manual, <u>X</u> automatic, <u>X</u> overdrive ___ FWD, <u>X</u> RWD, ___ 4WD		
Date vehicle received:	11/26/96		
Odometer reading:	84		
Dealer's name and address:	Ricart Ford Inc. P. O. Box 27130 Columbus, OH 43227		
<u>Accessories:</u>			
Power steering	Yes	Automatic transmission	Yes
Power brakes	Yes	Automatic speed control	No
Power seats	No	Tilting steering wheel	No
Power windows	No	Telescoping steering wheel	No
Tinted glass	Yes	Air conditioning	Yes
Radio	Yes	Anti-skid brake	Yes
Clock	Yes	Rear window defroster	No
Other	None		
<u>Certification data from vehicle's label:</u>			
Vehicle manufactured by:	Ford Motor Company		
Date of manufacture:	10/96		
VIN:	1FMEE1122VHA49444		
GVWR:	3175 kg		
GAWR: Front:	1542 kg		
Rear:	1723 kg		

Table 2 Test Vehicle Information, Cont'd.

Size of tires: P235/75R15

Tire pressure with maximum
capacity vehicle load:

Front: 241 kPa

Rear: 283 kPa

Spare tire: P235/75R15

Type of front seats: Bucket

Tire & capacity data from vehicle's label:

Recommended tire size: P235/75R15XL

Recommended cold tire pressure:

Front: 241 kPa

Rear: 283 kPa

Designated seating capacity:

Front NA

Rear NA

Rear NA

Total NA

Vehicle capacity weight: NA

Test vehicle attitude:

Delivered attitude: LF 847 mm; RF 857 mm; LR 852 mm; RR 861 mm

Pre-test attitude: LF 840 mm; RF 839 mm; LR 823 mm; RR 825 mm

Post-test attitude: LF 816 mm; RF 930 mm; LR 861 mm; RR 765 mm

Table 2 Test Vehicle Information Cont'd

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

Right front	610 kg	Right rear	530 kg
Left front	637 kg	Left rear	539 kg
Total front weight	1247 kg	(53.8% of total vehicle weight)	
Total rear weight	1069 kg	(46.2% of total vehicle weight)	
Total delivered weight	2316 kg		

Calculation of test vehicle's target test weight:

RCLW¹ = Rated cargo and luggage weight

GVWR = Gross Vehicle Weight Rating (3175 kg)

UDW = Unloaded delivered weight (2316 kg)

VCW = Vehicle capacity weight = GVWR - UDW = 3175 - 2316 = 859 kg

DSC = Designated seating capacity (8)

RCLW¹ = GVWR - UDW - 68 (DSC) = 3175 - 2316 - 68(8) = 315 kg

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

Target test weight = 2316 + 136 + 152 = 2604 kg

Target test weight = 2604 kg

Weight of test vehicle with required dummies and 129.5 kg of cargo weight:

Right front	624 kg	Right rear	670 kg
Left front	632 kg	Left rear	669 kg
Total front weight	1256 kg	(48.4% of total vehicle weight)	
Total rear weight	1339 kg	(51.6% of total vehicle weight)	
Total test weight	2595 kg	(0.3% under target test weight)	

Weight of ballast secured in vehicle: 11 kg

Components removed to meet target test weight: None

CG rearward of front wheel centerline: 1809 mm

¹ Cargo weight for multipurpose passenger vehicles, trucks, and buses is the vehicle's rated cargo and luggage weight from the vehicle's label or 136 kilograms, whichever is less.

Table 3 Post-Impact Data

Test number: 961205
NHTSA number: MV0206
Test date: 12/05/96
Test time: 1707
Test type: Frontal load cell barrier
Impact angle: 0°
Ambient temperature
at impact area: 22° C
Temperature in
occupant compartment: 21° C
Impact velocity:
Primary 56.2 kph
Secondary 56.3 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:

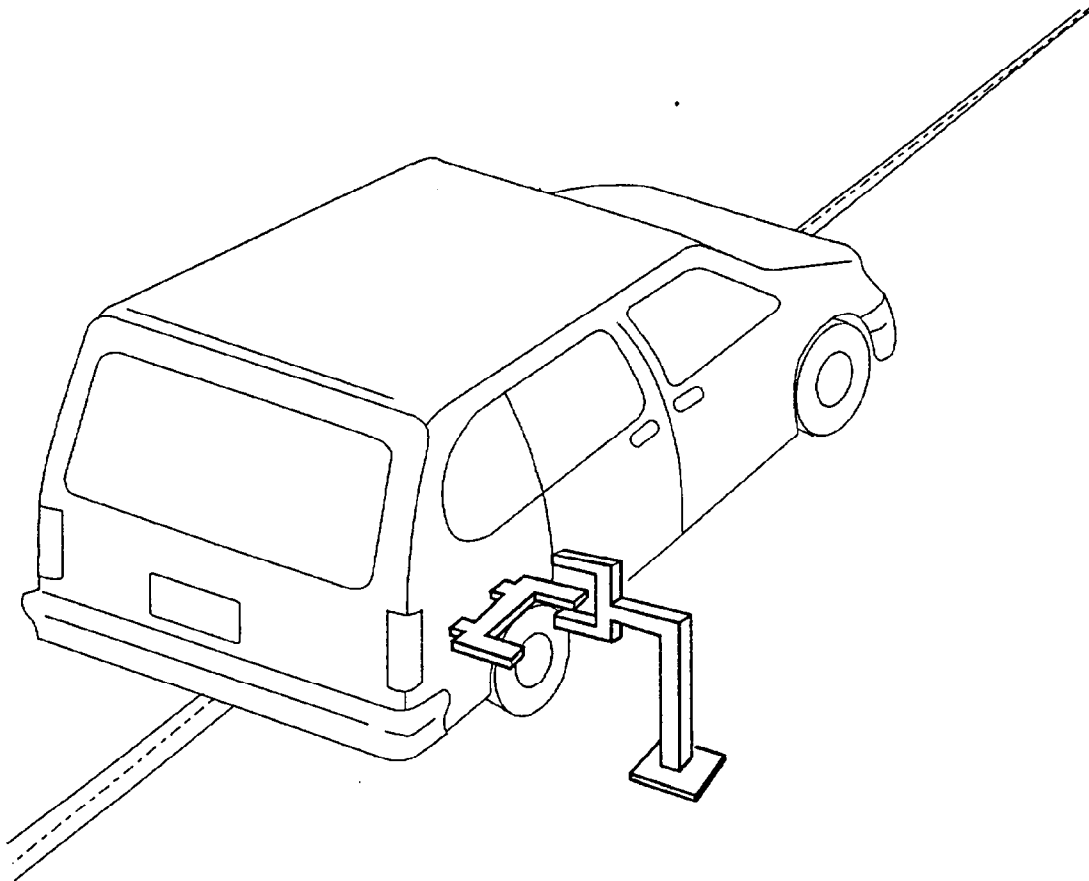
Pre-test: L 5285 mm; C 5370 mm; R 5290 mm
Post-test: L 4800 mm; C 4833 mm; R 4854 mm
Total crush: L 485 mm; C 537 mm; R 436 mm
Average crush: 486 mm

Test vehicle rebound from flat barrier:

Distance from test vehicle to barrier:

Post-test: L 740 mm; C 702 mm; R 668 mm
Average rebound 703 mm

Figure 1 Impact Velocity Measurement System



The final vane clears the final 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: MV0206
 Test date: 12/05/96
 Vehicle year/make/
 model/body style: 1997/Ford/Club Wagon/van
 Vehicle size category: Van
 VIN: 1FMEE1122VHA49444
 Build date: 10/96
 Test weight: 2595 kg
 Vehicle wheelbase: 3505 mm
 Maximum width: NA
 Front overhang: 684 mm

Collision Deformation
 Classification (CDC) code: 12FDEW4

Crush depth
 measurements:

C1	=	485 mm
C2	=	497 mm
C3	=	530 mm
C4	=	552 mm
C5	=	485 mm
C6	=	436 mm

Midpoint of damage: D: Vehicle Longitudinal Centerline

Length of damaged region: L: 1525 mm

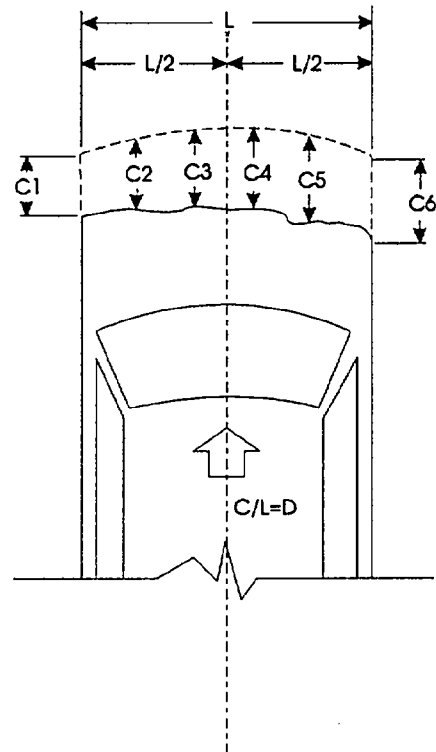
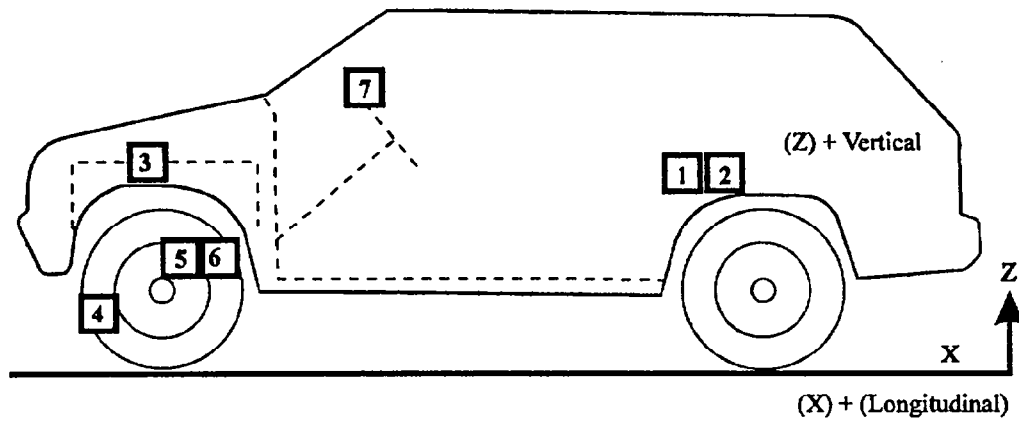
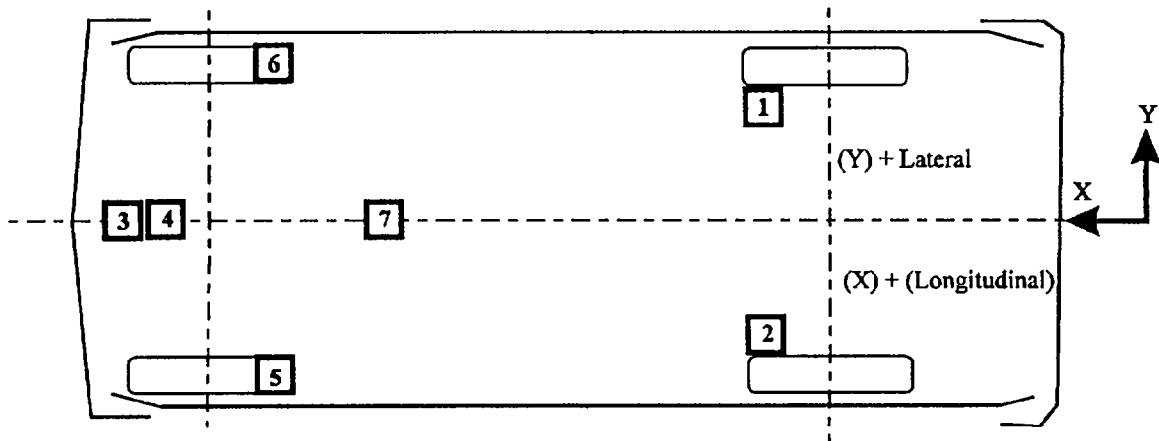


Figure 3 Vehicle Accelerometer Placement



Side View



Bottom View

Table 4 Vehicle Accelerometer Locations and Data Summary

TEST NUMBER: 961205 No. LOCATION	X	Y	Z	POSITIVE DIRECTION	NEGATIVE DIRECTION
1 LEFT REAR SEAT CROSSMEMBER LONGITUDINAL REDUNDANT	2707 mm	630 mm	630 mm	3.7 g @ 132.1 ms 3.6 g @ 132.0 ms	38.5 g @ 15.0 ms 38.8 g @ 15.0 ms
2 RIGHT REAR SEAT CROSSMEMBER LONGITUDINAL REDUNDANT	2730 mm	-622 mm	630 mm	3.3 g @ 133.9 ms 3.3 g @ 133.8 ms	39.9 g @ 14.2 ms 40.6 g @ 14.2 ms
3 ENGINE TOP LONGITUDINAL	4220 mm	80 mm	1060 mm	16.8 g @ 59.8 ms	88.6 g @ 39.9 ms
4 ENGINE BOTTOM LONGITUDINAL	4300 mm	-60 mm	266 mm	13.6 g @ 59.6 ms	75.6 g @ 40.1 ms
5 RIGHT BRAKE CALIPER LONGITUDINAL ¹	4484 mm	-745 mm	357 mm	---	---
6 LEFT BRAKE CALIPER LONGITUDINAL	4484 mm	745 mm	357 mm	41.1 g @ 41.6 ms	78.7 g @ 14.6 ms
7 INSTRUMENT PANEL CENTER LONGITUDINAL ¹	4342 mm	-125 mm	1399 mm	---	---

REFERENCE: X: + FORWARD ACCELERATION
Y: + LEFT FROM VEHICLE CENTERLINE
Z: + UP FROM GROUND LEVEL
¹See DATA ACQUISITION EXPLANATIONS

Table 5 Post-Impact Dummy/Vehicle Data

Visible Dummy Contact Points:

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

Door Opening:

	<u>Left</u>	<u>Right</u>
Front	Difficult, no tools required	Difficult, no tools required
Rear	NA	Easy

Seat Movement:

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

Glazing Damage: The entire windshield cracked on impact.

Other Notable Impact Effects: Left front tire was flattened upon impact.

Table 6 FMVSS 208 Data Summary

Vehicle year/make/
model/body style: 1997/Ford/Club Wagon/van
Vehicle NHTSA number: MV0206
Test date: 12/05/96

	Driver Dummy #192		Passenger Dummy #142	
<u>Maximum Accelerations:</u>				
Head X-axis	-74.5	g	-52.4	g
Head Y-axis	-5.4	g	-13.4	g
Head Z-axis	-16.3	g	-27.1	g
Head resultant	74.5	g	58.6	g
Chest X-axis	-48.5	g	-50.4	g
Chest Y-axis	-6.9	g	-7.5	g
Chest Z-axis ¹	11.6	g	-11.5	g
Chest resultant ²	47.6	g	49.5	g
Chest resultant time interval ²	.003	sec	.003	sec
<u>Head Injury Criteria (HIC) Values:</u>				
HIC ³	932		565	
HIC starting time	.0470	sec	.0524	sec
HIC ending time	.0825	sec	.0874	sec
Average head resultant acceleration during HIC time interval	58.5	g	48.1	g
<u>Maximum Chest Deflections:</u>				
Chest X-axis	42	mm	45	mm
Maximum chest deflection time	.0665	sec	.0662	sec
<u>Maximum Compressive Femur Forces:</u>				
Left femur	3447	N	4415	N
Right femur	2239	N	3980	N
<u>Maximum Seat Belt Forces:</u>				
Lap belt	126	N	2195	N
Shoulder belt ⁴	NA		NA	

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

- ¹ Passenger redundant acceleration data channel
- ² 0.003 Sec. Minimum duration.
- ³ The maximum HIC time interval is 36 milliseconds.
- ⁴ See Data Acquisition Explanations

Table 7 Hybrid III Data Summary

Vehicle year/make/
model/body style: 1997/Ford/Club Wagon/van
Vehicle NHTSA number: MV0206
Test date: 12/05/96

	Driver Dummy #192	Passenger Dummy #142
<u>Maximum Forces</u>		
Neck X-axis shear force	-602 N	859 N
Neck Y-axis shear force	-144 N	178 N
Neck Z-axis axial force	1795 N	2110 N
 <u>Maximum Moments</u>		
Neck moment about X-axis	-12.2 N·m	-27.1 N·m
Neck moment about Y-axis	51.6 N·m	-52.1 N·m
Neck moment about Z-axis	-5.8 N·m	-20.8 N·m
 <u>Maximum Accelerations:</u>		
Pelvis X-axis	-47.5 g	-50.4 g
Pelvis Y-axis	-11.0 g	8.2 g
Pelvis Z-axis	27.6 g	14.1 g
Pelvis resultant	51.0 g	50.8 g

Table 7 Hybrid III Data Summary, Cont'd.

Vehicle year/make/
model/body style: 1997/Ford/Club Wagon/van

Vehicle NHTSA number: MV0206

Test date: 12/05/96

	Driver Dummy #192	Passenger Dummy #142
Left upper tibia moment about X-axis	32.8 N·m	-54.3 N·m
Left upper tibia moment about Y-axis	-192.0 N·m	126.3 N·m
Right upper tibia moment about X-axis	-66.6 N·m	75.6 N·m
Right upper tibia moment about Y-axis	88.0 N·m	127.0 N·m
Left lower tibia X-axis force	2469 N	-949 N
Left lower tibia Z-axis force	-5556 N	-4475 N
Left lower tibia moment about Y-axis	-238.4 N·m	-22.4 N·m
Right lower tibia X-axis force	-1158 N	-992 N
Right lower tibia Z-axis force	-2843 N	-2364 N
Right lower tibia moment about Y-axis	77.5 N·m	31.4 N·m
Left foot X-axis acceleration	-286.1 g	-83.1 g
Left foot Z-axis acceleration at heel	83.2 g	57.6 g
Left foot Z-axis acceleration at toe ¹	190.4 g	NA
Right foot X-axis acceleration	-151.9 g	-78.6 g
Right foot Z-axis acceleration at heel	151.0 g	-159.3 g
Right foot Z-axis acceleration at toe	324.9 g	-184.6 g

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

¹ See Data Acquisition Explanations

Dummy Kinematic Summary

Driver Dummy

Upon impact, the driver dummy translated forward on the seat impacting both knees into the instrument panel. The dummy's head rotated forward as its head and chest impacted the airbag. The dummy was restrained by the airbag and three-point unbelt. The dummy rebounded rearward into the seat back and head restraint. The driver dummy came to rest seated in the driver's seat restrained by the three-point unbelt.

Right Front Passenger Dummy

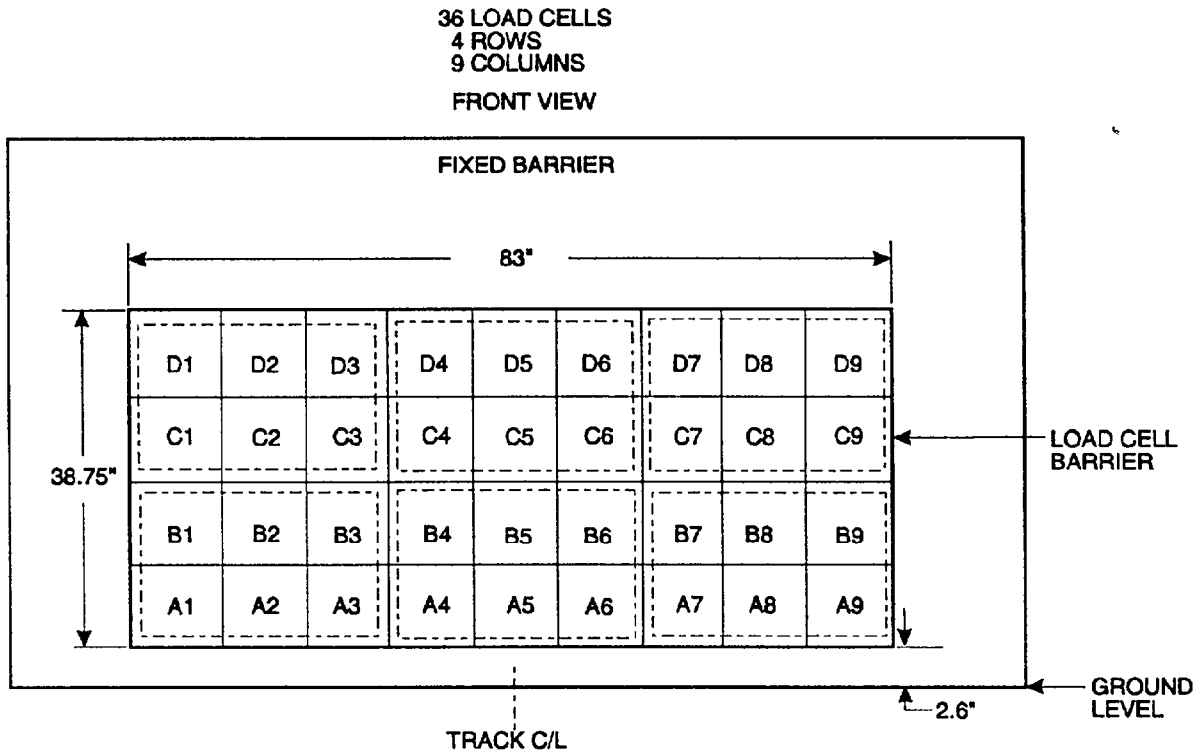
Upon impact, the right front passenger dummy translated forward on the seat impacting both knees into the instrument panel. The dummy's head rotated forward as its head and chest impacted the airbag. The dummy was restrained by the passenger's airbag and three-point unbelt. The dummy's head rotated rearward into the head restraint as it rebounded into the seat back. The dummy then came to rest in the right front passenger's seat, 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.	2997 mm	3018 mm
Shoulder belt length as measured on Part 572 dummy.	880 mm	907 mm
Lap belt length as measured on Part 572 dummy.	942 mm	851 mm
<u>Shoulder belt spool-off length:</u>		
As determined by film analysis	30 mm	25 mm
As determined mechanically	52 mm	42 mm
As determined electronically ¹	NA	NA
<u>Belt stretch length:</u>		
As measured mechanically	0 mm/m	2 mm/m
As measured electronically ¹	NA	NA
<u>Retractor lock-up time:</u>		
As determined by shoulder belt spool-off	31 ms	21 ms

¹ 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	2.9 kN @ -1.2 ms	188.8 kN @ 31.4 ms
Total group 2	0.8 kN @ 121.6 ms	27.6 kN @ 6.7 ms
Total group 3	3.5 kN @ -1.4 ms	175.8 kN @ 39.0 ms
Total group 4	1.4 kN @ -0.7 ms	141.0 kN @ 15.8 ms
Total group 5	1.2 kN @ -3.8 ms	165.3 kN @ 40.6 ms
Total group 6	1.5 kN @ -1.4 ms	157.2 kN @ 16.6 ms
Total load cell force	6.7 kN @ -2.3 ms	722.7 kN @ 40.7 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:

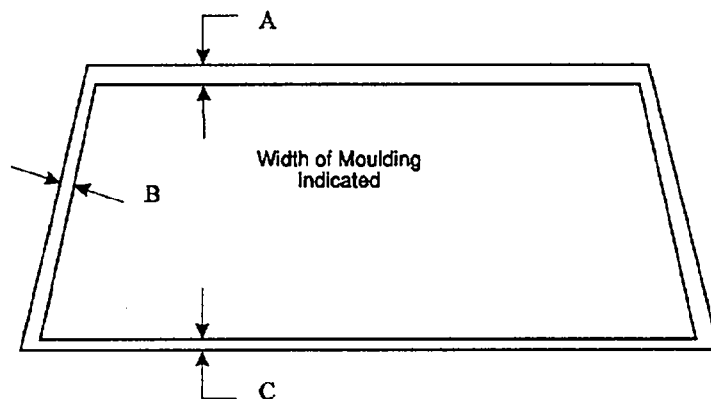
	<u>Pre-test</u>	<u>Post-test</u>	<u>Percent retention</u>
Right side	2427 mm	2427 mm	100
Left side	2427 mm	2427 mm	100
Total	4854 mm	4854 mm	100

Pre-test windshield mounting material temperature: 21° C

A = 23 mm

B = 23 mm

C = 15 mm



Front view of windshield¹

Loss of windshield retention lengths: None

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:

A = 1600 mm

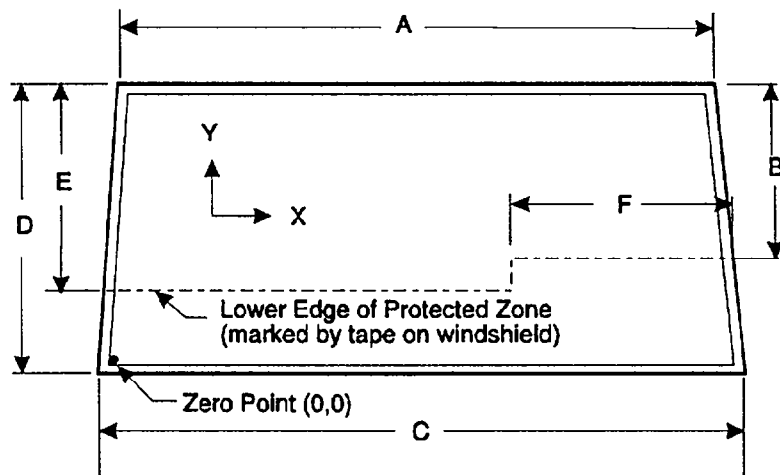
B = 500 mm

C = 1866 mm

D = 821 mm

E = 566 mm

F = 1034 mm



FRONT VIEW

Method of adhering protected zone template to windshield: NA

Areas of windshield template penetration greater than 6 mm: NA

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

Coordinates	
X	Y
1.	
2.	
3.	

- 1.
- 2.
- 3.

Table 10 Fuel System Data

Vehicle year/make/ model/body style:	1997/Ford/Club Wagon/van
NHTSA number:	MV0206
Fuel system capacity:	132.5 liters (from owner's manual)
Usable capacity:	132.5 liters (furnished by COTR)
Test volume range:	121.9 liters to 124.6 liters (92-94% of usable)
Actual test volume:	123.0 liters (with entire fuel system filled)
Test fluid type:	Stoddard solvent
Specific gravity:	0.764
Kinematic viscosity:	0.99 centistoke
Test fluid color:	Purple
Did electric fuel pump operate with ignition switch "on" and the engine not operating.	No
Details of fuel system:	The fuel tank was located in front of the rear axle between the left frame rail and the driveshaft. The fuel filler neck was located on the left side. The fuel lines ran along the left frame rail.

Table 11 FMVSS 301 Post-Impact Test Data

NHTSA number: MV0206
Test date: 12/05/96
Vehicle year/make/
model/body style: 1997/Ford/Club Wagon/van

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:

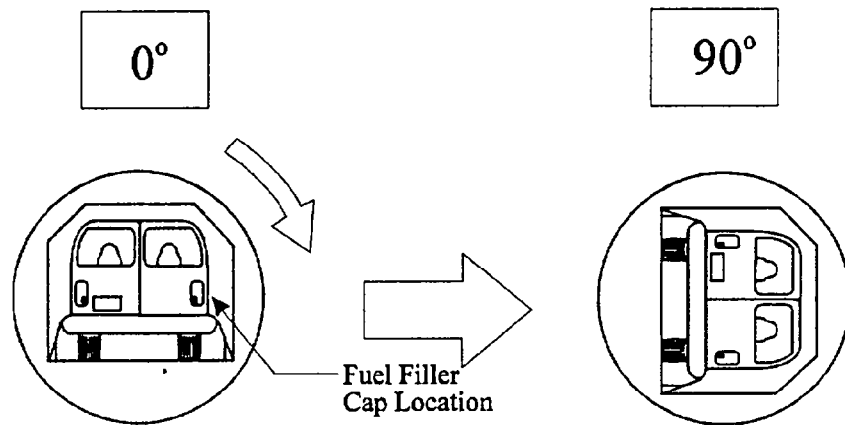
	<u>Test Results</u>	<u>Maximum Allowable</u>
1. From impact until vehicle motion ceases	0 g	28 g
2. 5-minute period after vehicle motion ceases	0 g	142 g
3. Next 25 minutes after 5-minute period	0 g	28 g/min

Fuel system fluid spillage location(s): None

Figure 7 FMVSS 301 Static Rollover Test Data

NHTSA number: MV0206

Test phase



Static rollover machine rotation time information: (specified range is 1-3 minutes)

Time required for machine to rotate 90° = 2 minutes, 0 seconds

FMVSS 301 position hold time = 5 minutes, 0 seconds

Total = 7 minutes, 0 seconds

Next whole minute interval = 7 minutes

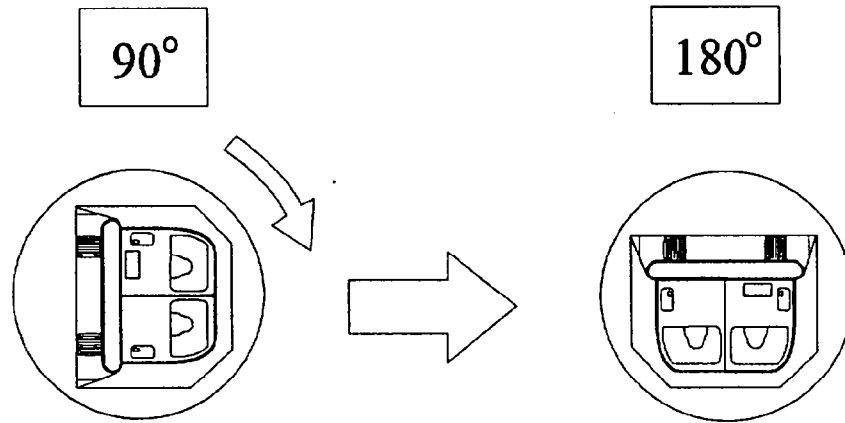
Fuel system fluid spillage measurements:

	Test Results	Maximum Allowable
<u>0° to 90° rotation (fuel filler cap down)</u>		
1. First five minutes from onset of rotation	0 g	142 g
2. Sixth minute from onset of rotation	0 g	28 g
3. Seventh minute from onset of rotation	0 g	28 g

Fuel system fluid spillage location(s): None

Figure 7 FMVSS 301 Static Rollover Test Data, Cont'd.

Test phase



Static rollover machine rotation time information: (specified range is 1-3 minutes)

Time required for machine to rotate 90° = 2 minutes, 0 seconds
FMVSS 301 position hold time = 5 minutes, 0 seconds
Total = 7 minutes, 0 seconds
Next whole minute interval = 14 minutes

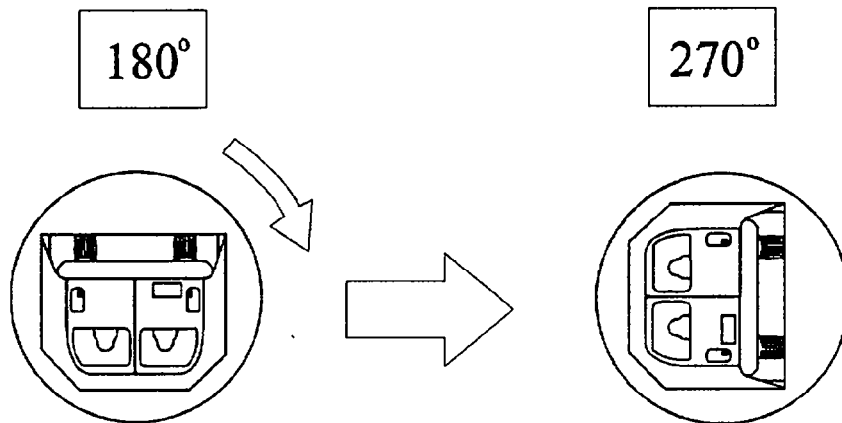
Fuel system fluid spillage measurements:

<u>90° to 180° rotation</u>		Test Results	Maximum Allowable
1.	First five minutes from onset of rotation	0 g	142 g
2.	Sixth minute from onset of rotation	0 g	28 g
3.	Seventh minute from onset of rotation	0 g	28 g

Fuel system fluid spillage location(s): None

Figure 7 FMVSS 301 Static Rollover Test Data, Cont'd.

Test phase



Static rollover machine rotation time information: (specified range is 1-3 minutes)

Time required for machine to rotate 90°	=	2 minutes,	0 seconds
FMVSS 301 position hold time	=	5 minutes,	0 seconds
Total	=	7 minutes,	0 seconds
Next whole minute interval	=	21 minutes	

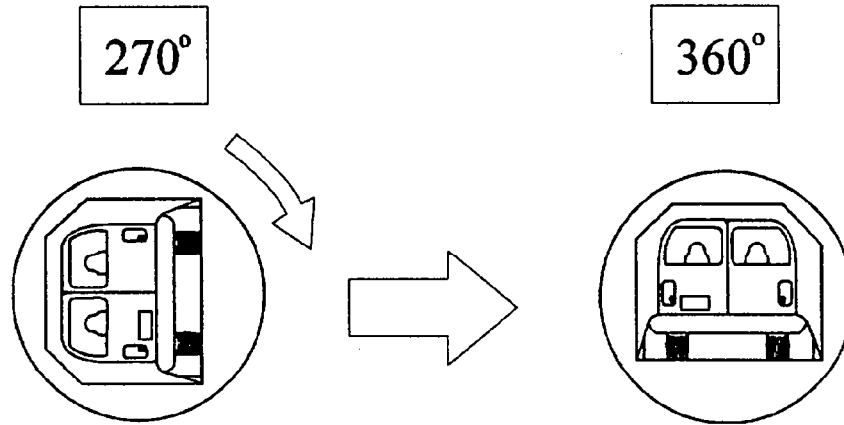
Fuel system fluid spillage measurements:

180° to 270° rotation	Test Results	Maximum Allowable
1. First five minutes from onset of rotation	0 g	142 g
2. Sixth minute from onset of rotation	0 g	28 g
3. Seventh minute from onset of rotation	0 g	28 g

Fuel system fluid spillage location(s): None

Figure 7 FMVSS 301 Static Rollover Test Data, Cont'd.

Test phase



Static rollover machine rotation time information: (specified range is 1-3 minutes)

Time required for machine to rotate 90° = 2 minutes, 0 seconds
 FMVSS 301 position hold time = 5 minutes, 0 seconds
 Total = 7 minutes, 0 seconds
 Next whole minute interval = 28 minutes

Fuel system fluid spillage measurements:

<u>270° to 360° rotation</u>	<u>Test Results</u>	<u>Maximum Allowable</u>
1. First five minutes from onset of rotation	0 g	142 g
2. Sixth minute from onset of rotation	0 g	28 g
3. Seventh minute from onset of rotation	0 g	28 g

Fuel system fluid spillage location(s): None

Section 4.0

Occupant, Camera, and Vehicle Information

Figure 8 Dummy Measurement Locations for Front Seat Occupants

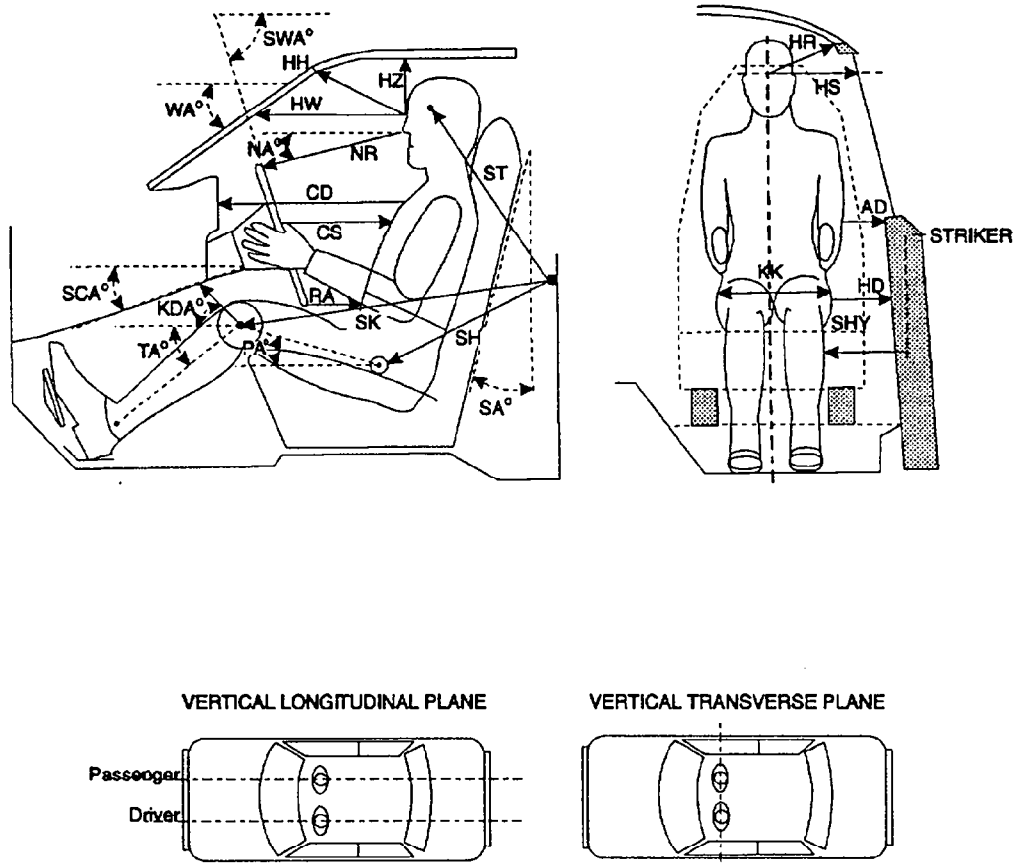


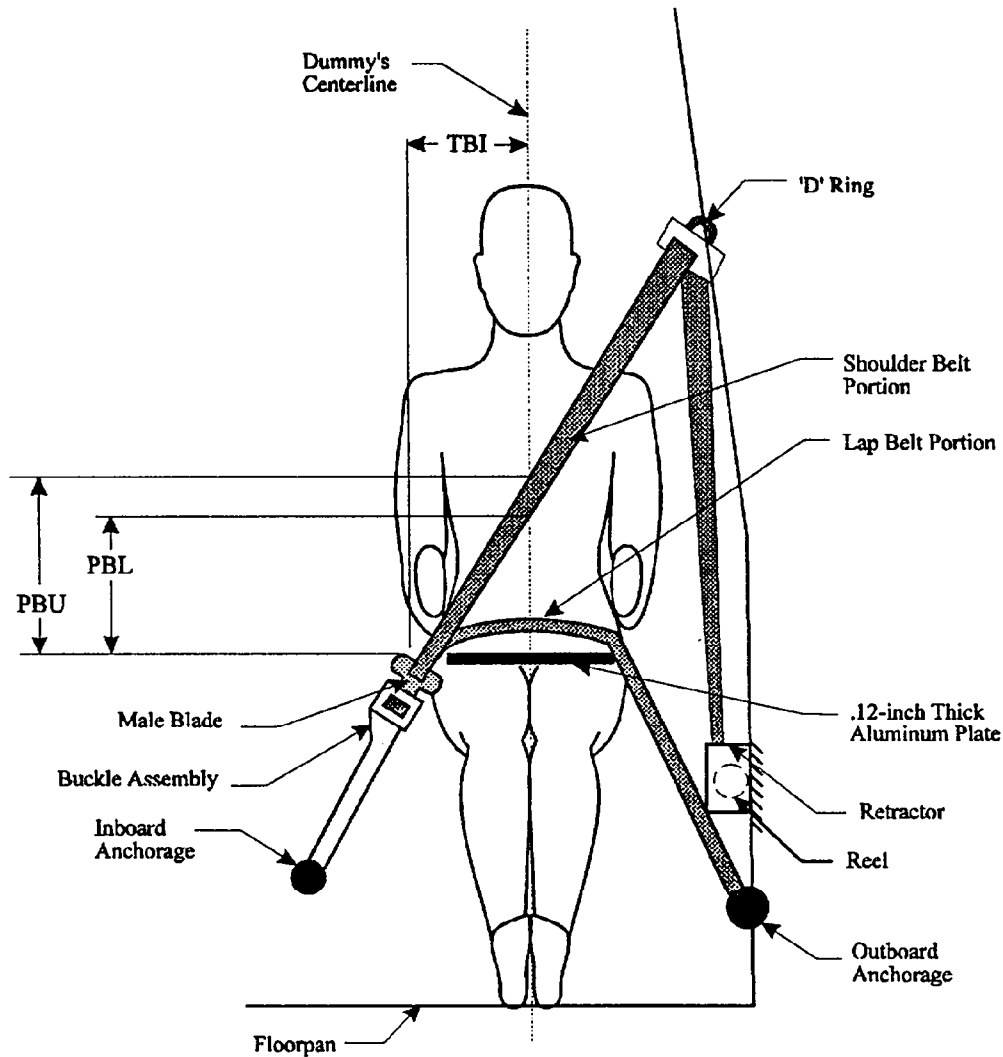
Table 12 Dummy Measurement Data For Front Seat Occupants

Designation	Type of Measurement	Driver (Serial #192)	Passenger (Serial #142)
WA	Windshield angle	47°	47°
SWA	Steering wheel angle	70°	NA
SCA	Steering column angle	20°	NA
SA	Seat back angle	17°	12°
HZ	Head to roof	293 mm	281 mm
HH	Head to header	508 mm	457 mm
HW	Head to windshield	670 mm	629 mm
HR	Head to side header	309 mm	291 mm
NR	Nose to rim	370 mm	NA
NA	Nose to rim angle	6°	NA
CD	Chest to dash	590 mm	498 mm
CS	Steering wheel to chest	308 mm	NA
RA	Rim to abdomen	176 mm	NA
KDL	Left knee to dash	155 mm	130 mm
KDR	Right knee to dash	147 mm	156 mm
KDA	Outboard knee to dash angle	22°	27°
PA	Pelvic angle	25°	21°
TA	Tibial angle	52°	57°
KK	Knee to knee	272 mm	256 mm
ST ¹	Striker to head	525 mm	527 mm
	Striker to head angle	-78°	-80°
SK ¹	Striker to knee	545 mm	553 mm
	Striker to knee angle	6°	7°
SH ¹	Striker to H-point	249 mm	212 mm
	Striker to H-point angle	40°	38°
SHY	Striker to H-point (Y dir.)	232 mm	211 mm
HS	Head to side window	368 mm	340 mm
HD	H-point to door	152 mm	153 mm
AD	Arm to door	101 mm	97 mm

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

¹ A negative angle indicates the measurement point was above the striker.

Figure 9 Seat Belt Positioning Data



	Driver	Passenger
PBU - Top surface of aluminum plate to belt upper edge	330 mm	330 mm
PBI - Top surface of aluminum plate to belt lower edge	249 mm	249 mm
TBI - Dummy centerline to intersection of upper torso belt and lap belt	266 mm	272 mm

Figure 10 Camera Positions

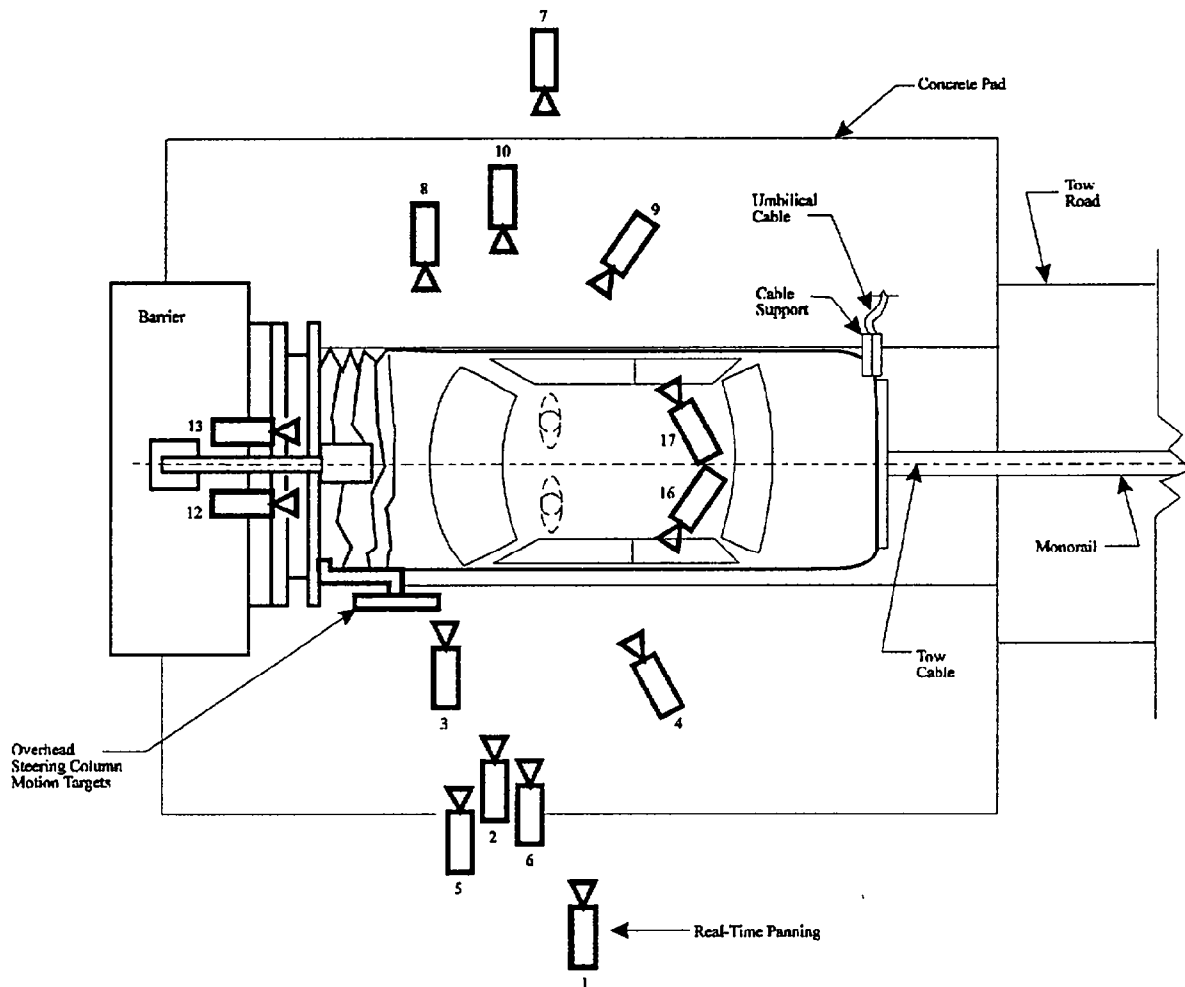


Figure 10 Camera Positions, Cont'd.

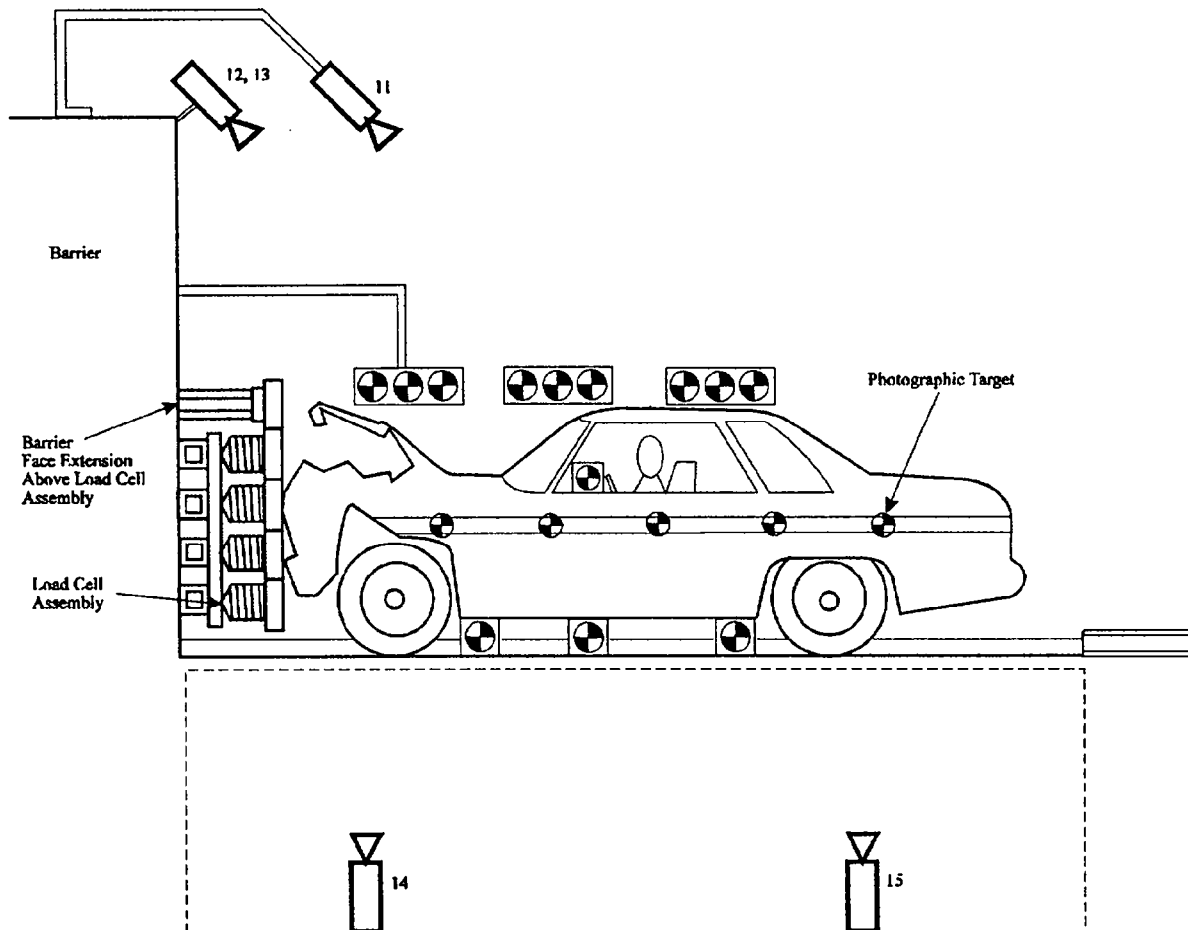


Table 13 Motion Picture Camera Locations

Test Number: 961205

Vehicle Year/Make/Model/Body Style: 1997/Ford/Club Wagon/van

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	16 mm	24 frames/s
2	Left Barrier to seat back	-4572 mm	6250 mm	2591 mm	-27°	5850 mm	25 mm	990 frames/s
3	Left windshield intrusion	-1346 mm	7859 mm	1074 mm	0°	NA	50 mm	1005 frames/s
4	Dummy angled view	-1054 mm	2440 mm	1118 mm	-12°	2400 mm	25 mm	992 frames/s
5	Column movement - upper	-3640 mm	8535 mm	2616 mm	-14°	NA	25 mm	995 frames/s
6	Column movement - lower	-3640 mm	8535 mm	1908 mm	-9°	NA	25 mm	1002 frames/s
7	Right side overall	-2065 mm	-6767 mm	942 mm	-2°	NA	13 mm	1010 frames/s
8	Right windshield intrusion	-968 mm	-7775 mm	1118 mm	0°	NA	50 mm	1000 frames/s
9	Passenger angled view	-986 mm	-2590 mm	1151 mm	7°	2250 mm	25 mm	1000 frames/s
10	Right medium tight	-4674 mm	-6700 mm	2540 mm	-26°	6165 mm	25 mm	990 frames/s
11	Windshield - barrier center	-925 mm	0 mm	2489 mm	-40°	NA	13 mm	998 frames/s
12	Driver - barrier view	-173 mm	368 mm	2159 mm	-41°	NA	17 mm	1000 frames/s
13	Passenger - barrier view	-114 mm	-351 mm	2159 mm	-40°	NA	17 mm	1000 frames/s
14	Crush & fluid spillage - front pit	-1283 mm	0 mm	-2347 mm	90°	NA	13 mm	992 frames/s
15	Fluid spillage - rear pit	-2522 mm	0 mm	-2515 mm	90°	NA	13 mm	1000 frames/s
16	Driver seat belt movement	NA	NA	NA	NA	NA	13 mm	1002 frames/s
17	Passenger seat belt movement	NA	NA	NA	NA	NA	13 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 11 Vehicle Target Locations

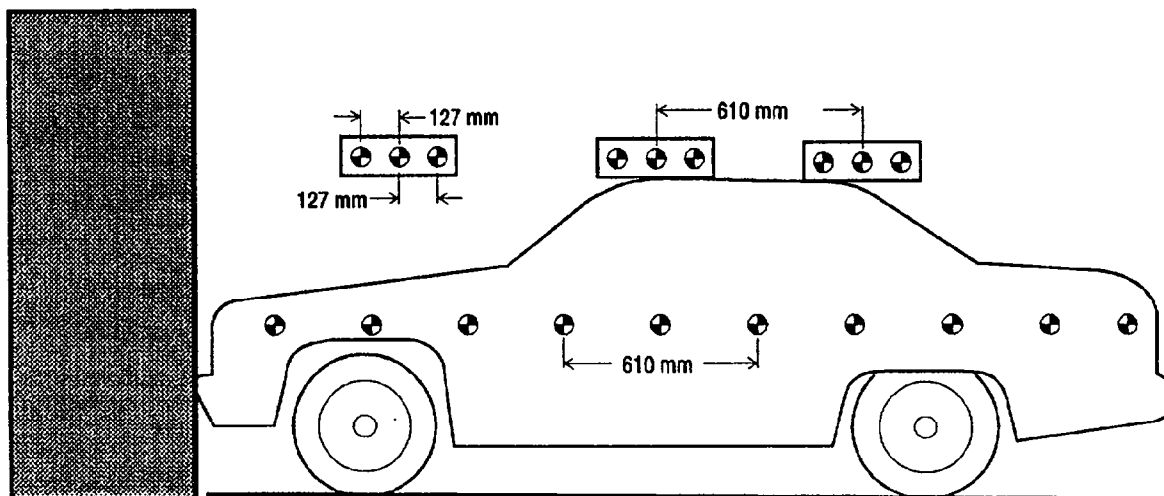


Figure 12 Pre-Test And Post-Test Measurement Points

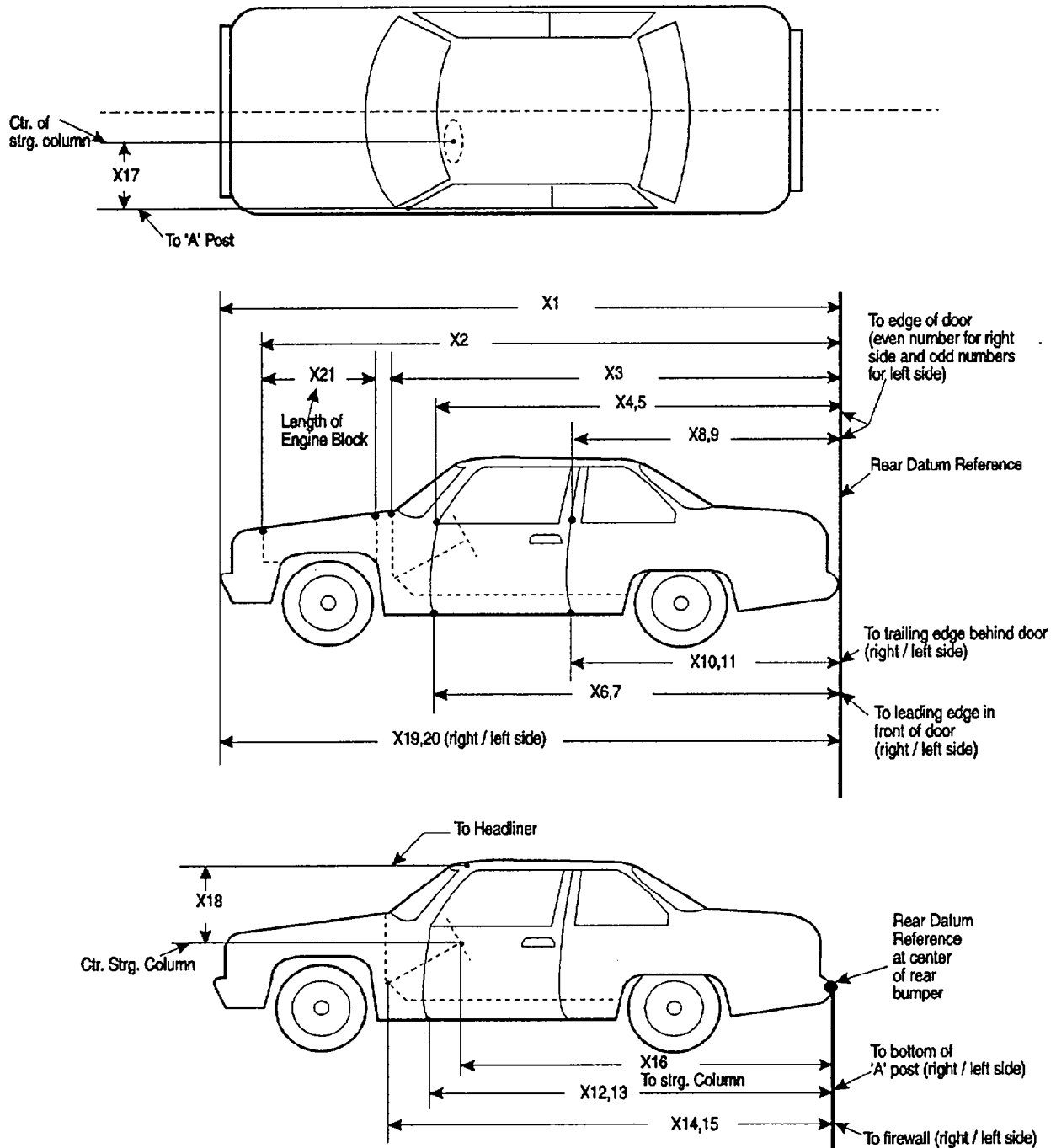


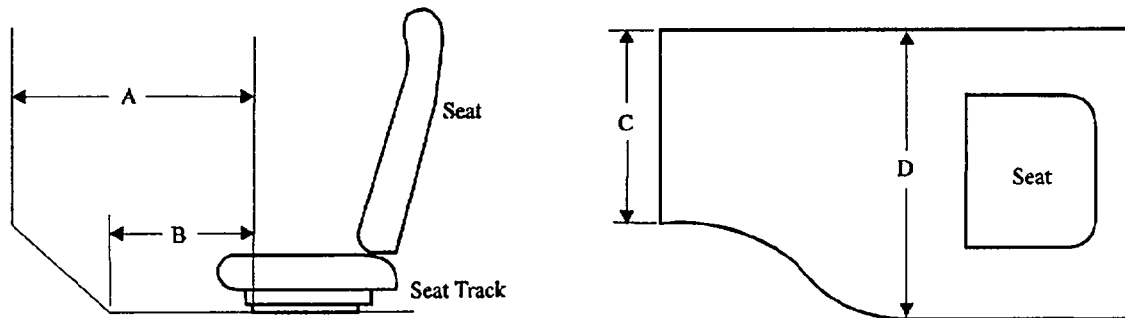
Table 14 Impacted Vehicle Measurements

Test number: 961205

Vehicle year/make/model/body style: 1997/Ford/Club Wagon/van

No.	Type of measurement	Pre-test	Post-test	Difference
X1	Total length of vehicle at centerline	5370 mm	4833 mm	537 mm
X2	Rear surface of vehicle to front of engine block	4804 mm	4688 mm	116 mm
X3	Rear surface of vehicle to firewall	4691 mm	4642 mm	49 mm
X4	Rear surface of vehicle to upper leading edge of right door	4237 mm	4250 mm	-13 mm
X5	Rear surface of vehicle to upper leading edge of left door	4237 mm	4253 mm	-16 mm
X6	Rear surface of vehicle to lower leading edge of right door	4055 mm	4073 mm	-18 mm
X7	Rear surface of vehicle to lower leading edge of left door	4065 mm	4070 mm	-5 mm
X8	Rear surface of vehicle to upper trailing edge of right door	3201 mm	3230 mm	-29 mm
X9	Rear surface of vehicle to upper trailing edge of left door	3201 mm	3225 mm	-24 mm
X10	Rear surface of vehicle to lower trailing edge of right door	3194 mm	3212 mm	-18 mm
X11	Rear surface of vehicle to lower trailing edge of left door	3197 mm	3210 mm	-13 mm
X12	Rear surface of vehicle to bottom of "A" post on right side	4171 mm	4182 mm	-11 mm
X13	Rear surface of vehicle to bottom of "A" post on left side	4168 mm	4175 mm	-7 mm
X14	Rear surface of vehicle to firewall - right side	4674 mm	4660 mm	14 mm
X15	Rear surface of vehicle to firewall - left side	4665 mm	4638 mm	27 mm
X16	Rear surface of vehicle to steering wheel center	3749 mm	3827 mm	-78 mm
X17	Center of steering column to "A" post	313 mm	270 mm	43 mm
X18	Center of steering column to headliner	515 mm	513 mm	2 mm
X19	Rear surface of vehicle to right side of front bumper	5290 mm	4854 mm	436 mm
X20	Rear surface of vehicle to left side of front bumper	5285 mm	4800 mm	485 mm
X21	Length of engine block	710 mm	710 mm	0 mm
RD	Rear surface of vehicle to right side of dash panel	3970 mm	4038 mm	-68 mm
CD	Rear surface of vehicle to center of dash panel	3990 mm	4012 mm	-22 mm
LD	Rear surface of vehicle to left side of dash panel	3989 mm	4047 mm	-58 mm

Figure 13 Vehicle Intrusion Measurements
Static Footwell Deformation



Driver's Side

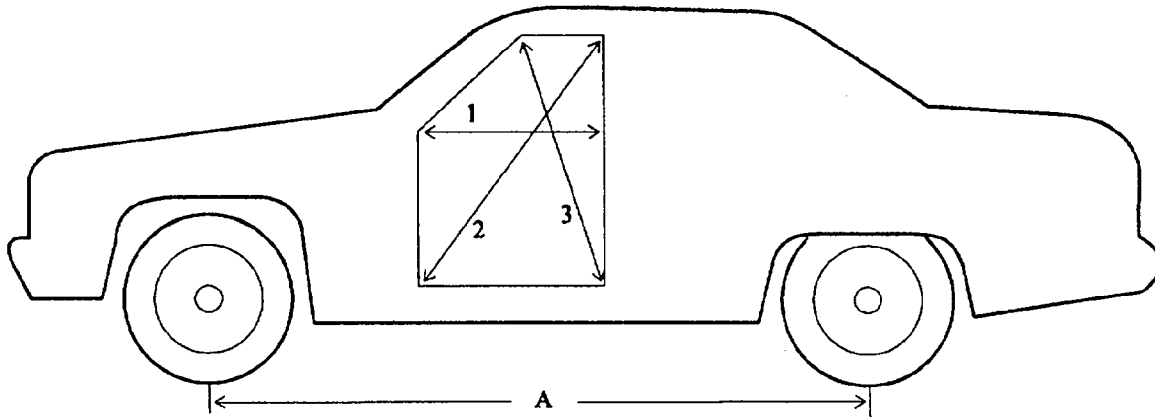
Measurement	Pre-Test	Post-Test	Difference
A	813 mm	770 mm	43 mm
B	530 mm	497 mm	33 mm
C	297 mm	290 mm	7 mm
D	343 mm	343 mm	0 mm

Passenger's Side

Measurement	Pre-Test	Post-Test	Difference
A	738 mm	698 mm	40 mm
B	544 mm	521 mm	23 mm
C	270 mm	277 mm	-7 mm
D	318 mm	314 mm	4 mm

Figure 14 Vehicle Intrusion Measurements

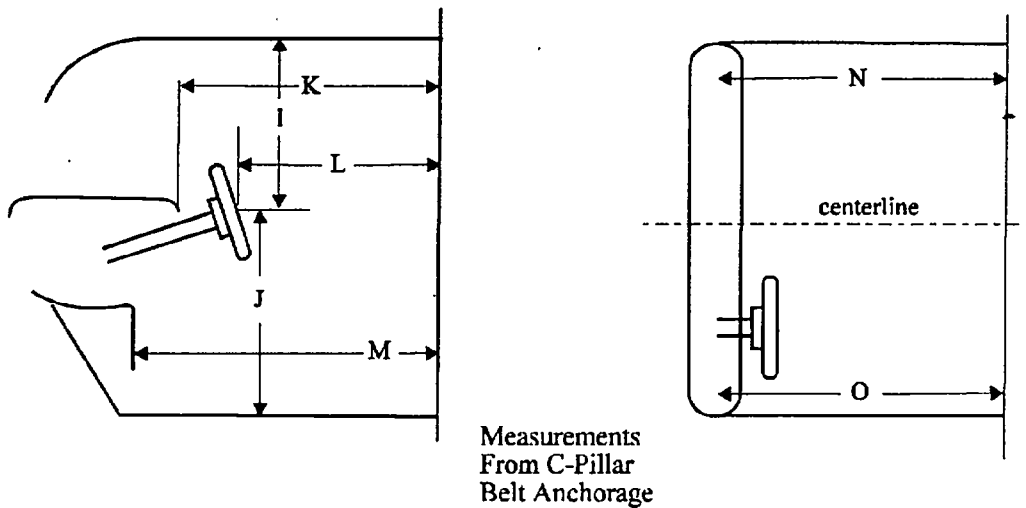
Door Opening Width



Units (mm)	Left			Right		
Measurement	1	2	3	1	2	3
Pre-Test	1037 mm	1682 mm	1515 mm	1037 mm	1594 mm	1512 mm
Post-Test	1075 mm	1657 mm	1565 mm	1024 mm	1574 mm	1561 mm
Difference	-38 mm	25 mm	-50 mm	13 mm	20 mm	-49 mm

Units (mm)	A = Wheelbase Left	A = Wheelbase Right
Pre-Test	3505 mm	3505 mm
Post-Test	3380 mm	3385 mm
Difference	125 mm	120 mm

Vehicle Intrusion Measurements
Static Passenger Compartment Intrusion



Measurement	Pre-Test	Post-Test	Difference
I	547 mm	520 mm	27 mm
J	747 mm	840 mm	-93 mm
K (driver's side)	3648 mm	3645 mm	3 mm
L	3391 mm	3360 mm	31 mm
M (driver's side)	3701 mm	3630 mm	71 mm
N	3899 mm	3860 mm	39 mm
O	3696 mm	3655 mm	41 mm
Passenger's side	3751 mm	3720 mm	31 mm
Passenger's side	3806 mm	3747 mm	59 mm

Appendix A

Photographs



Figure A-1 Pre-Test Front View

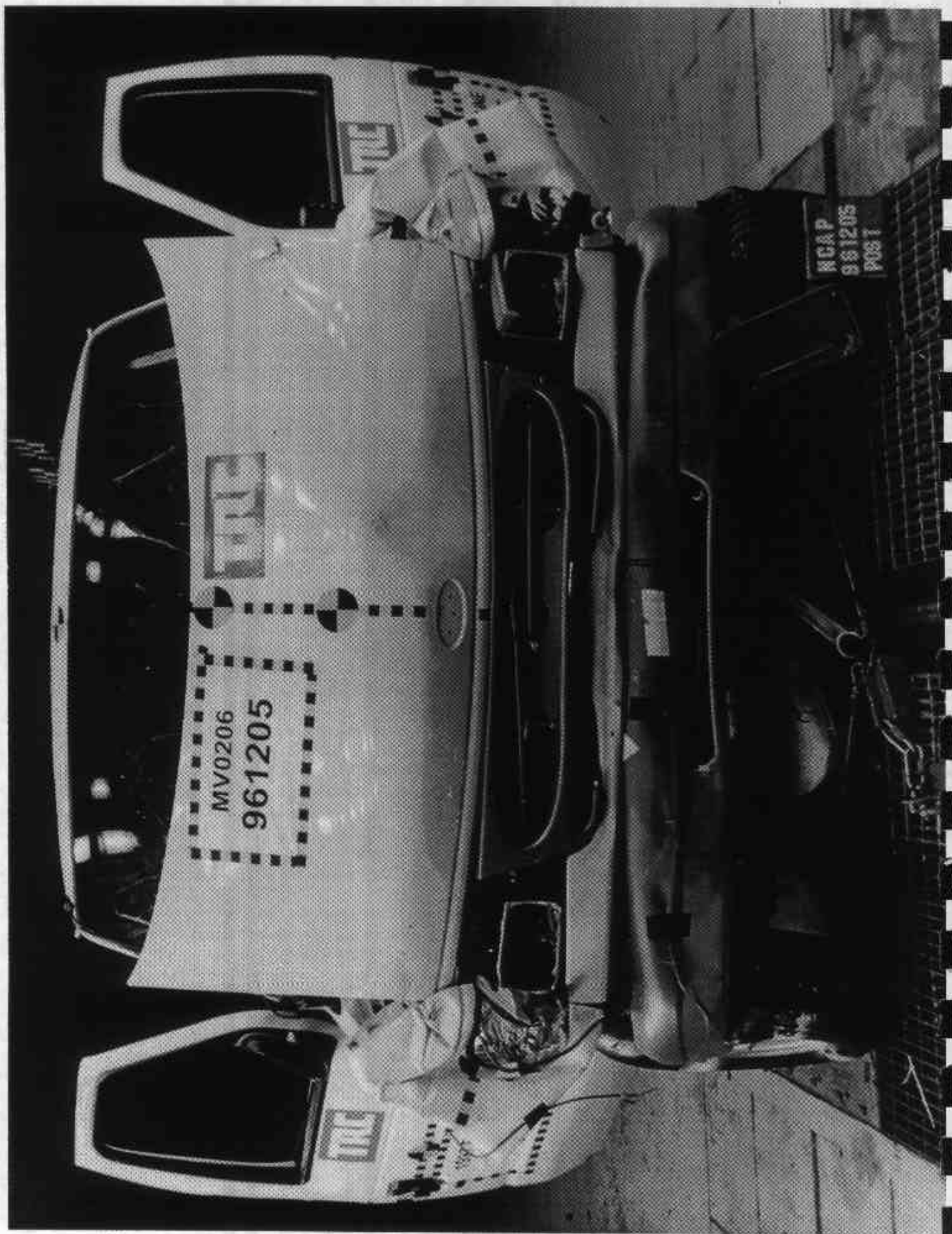


Figure A-2 Post-Test Front View

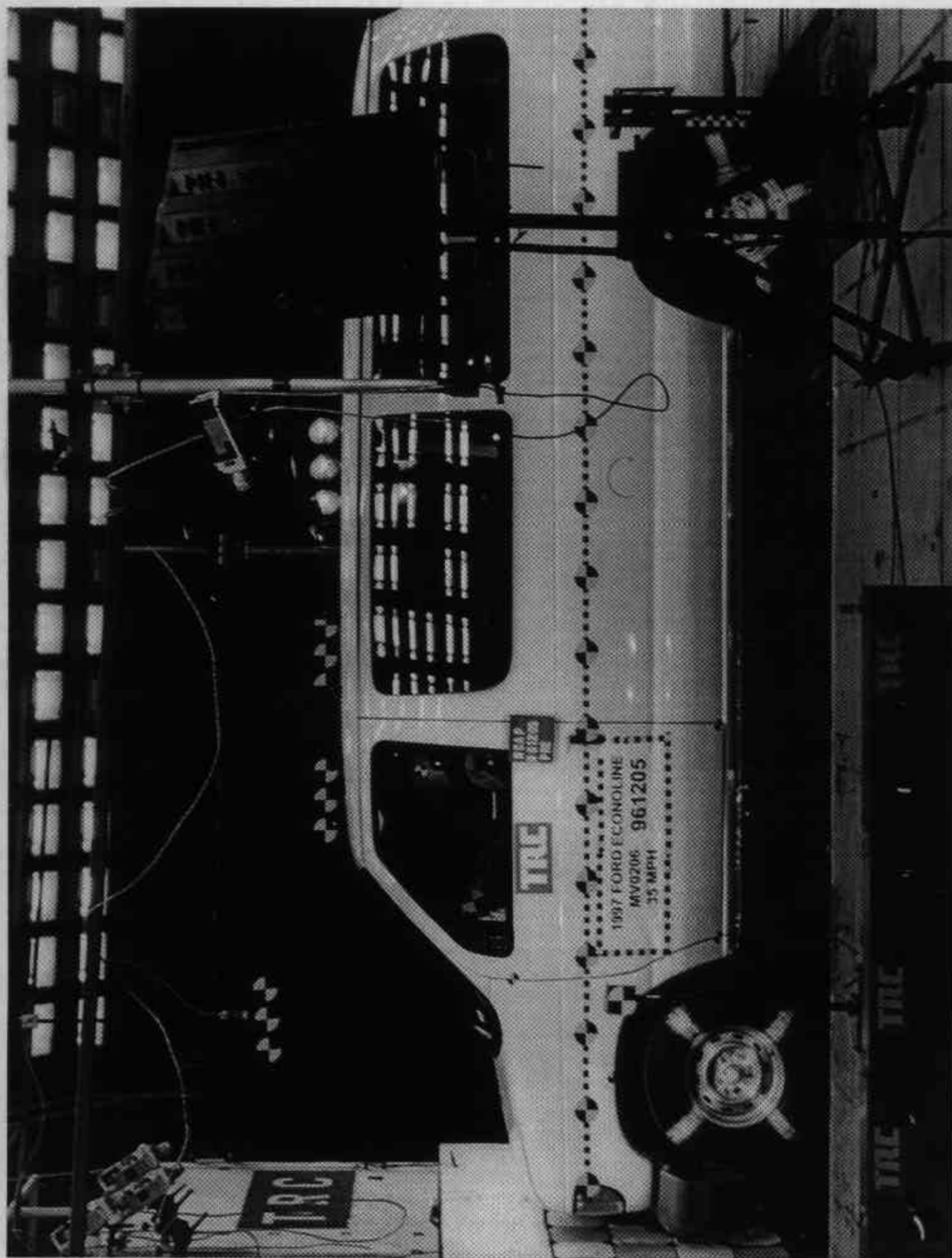


Figure A-3 Pre-Test Left Side View

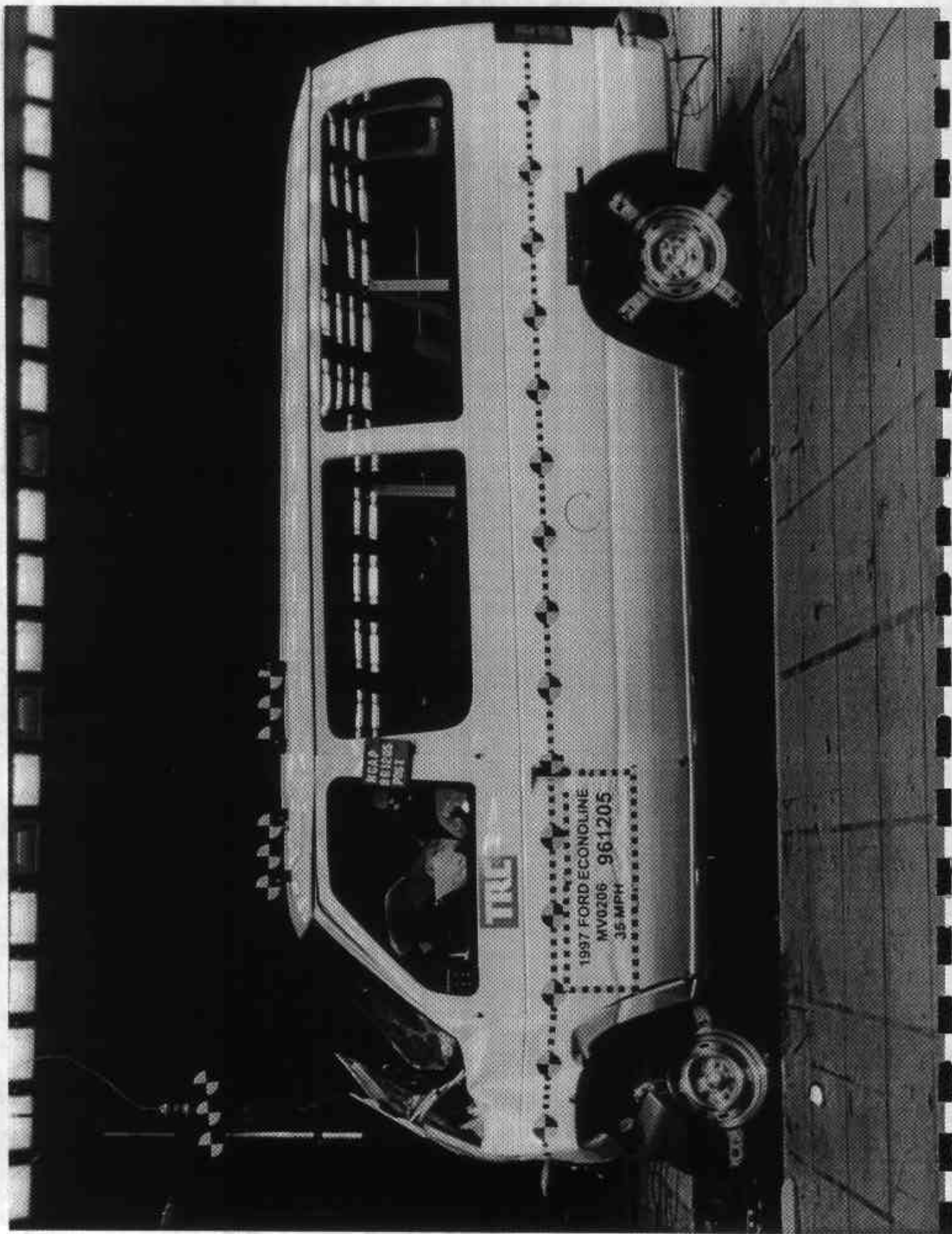


Figure A-4 Post-Test Left Side View



Figure A-5 Pre-Test Rear View

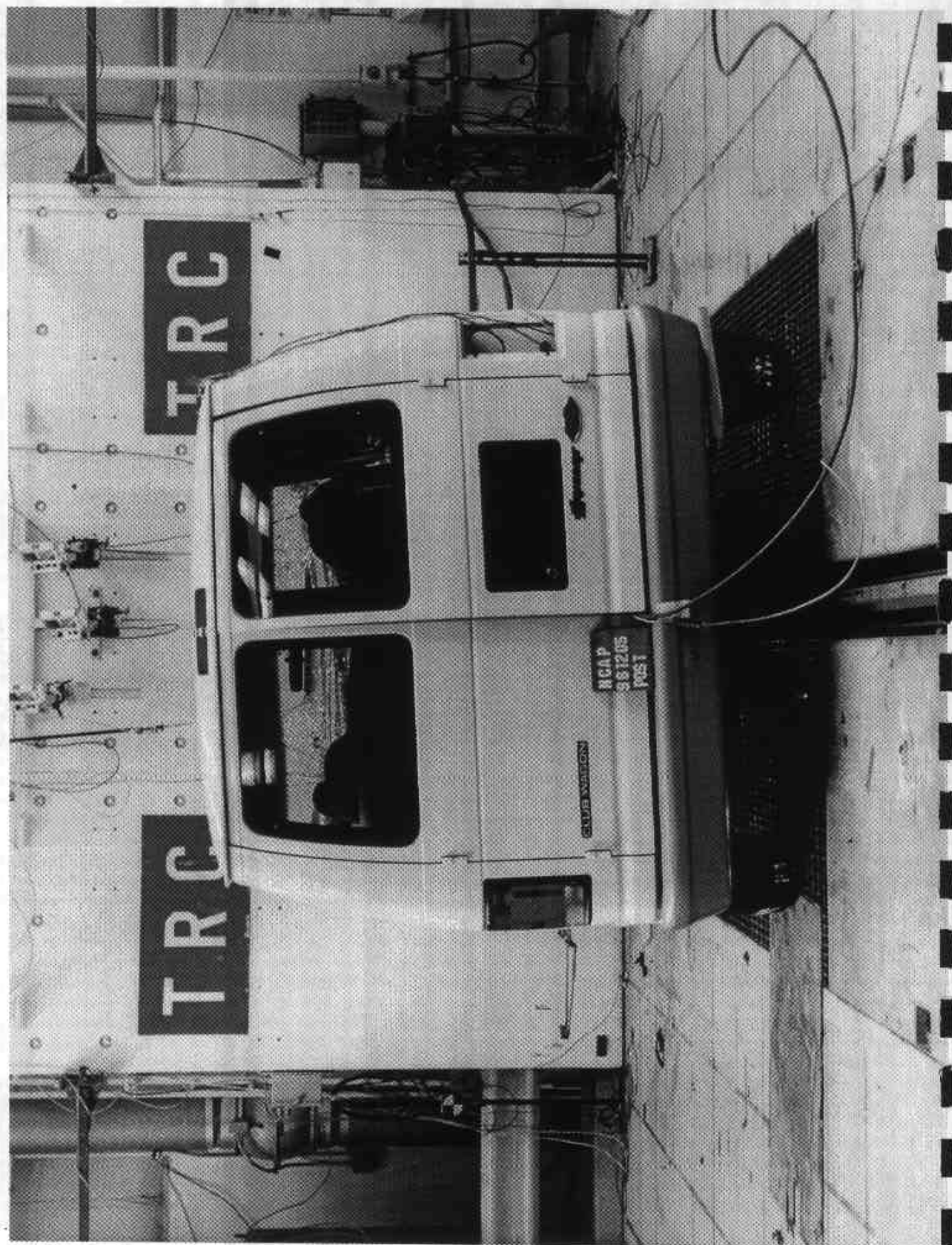


Figure A-6 Post-Test Rear View



Figure A-7 Pre-Test Right Side View

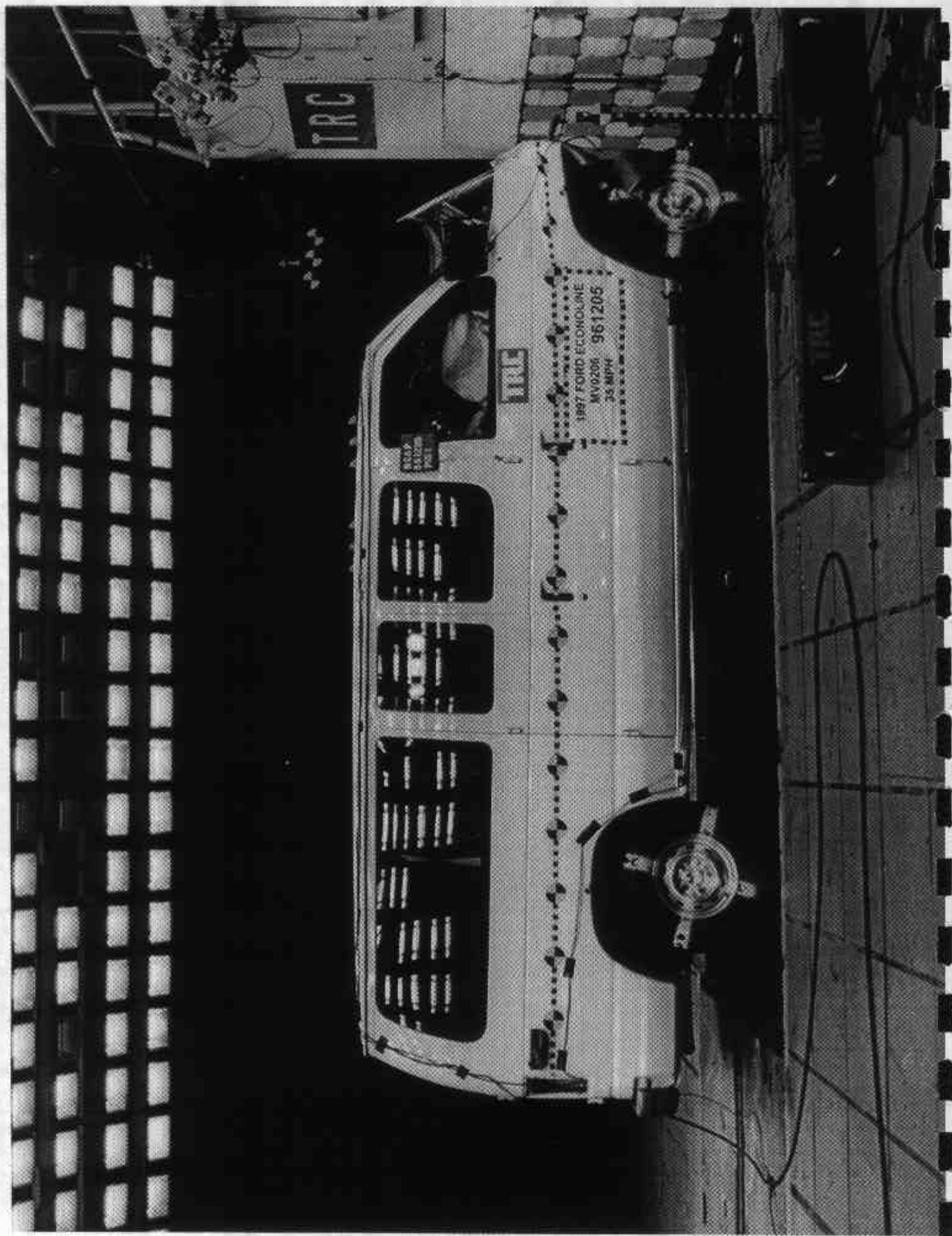


Figure A-8 Post-Test Right Side View



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

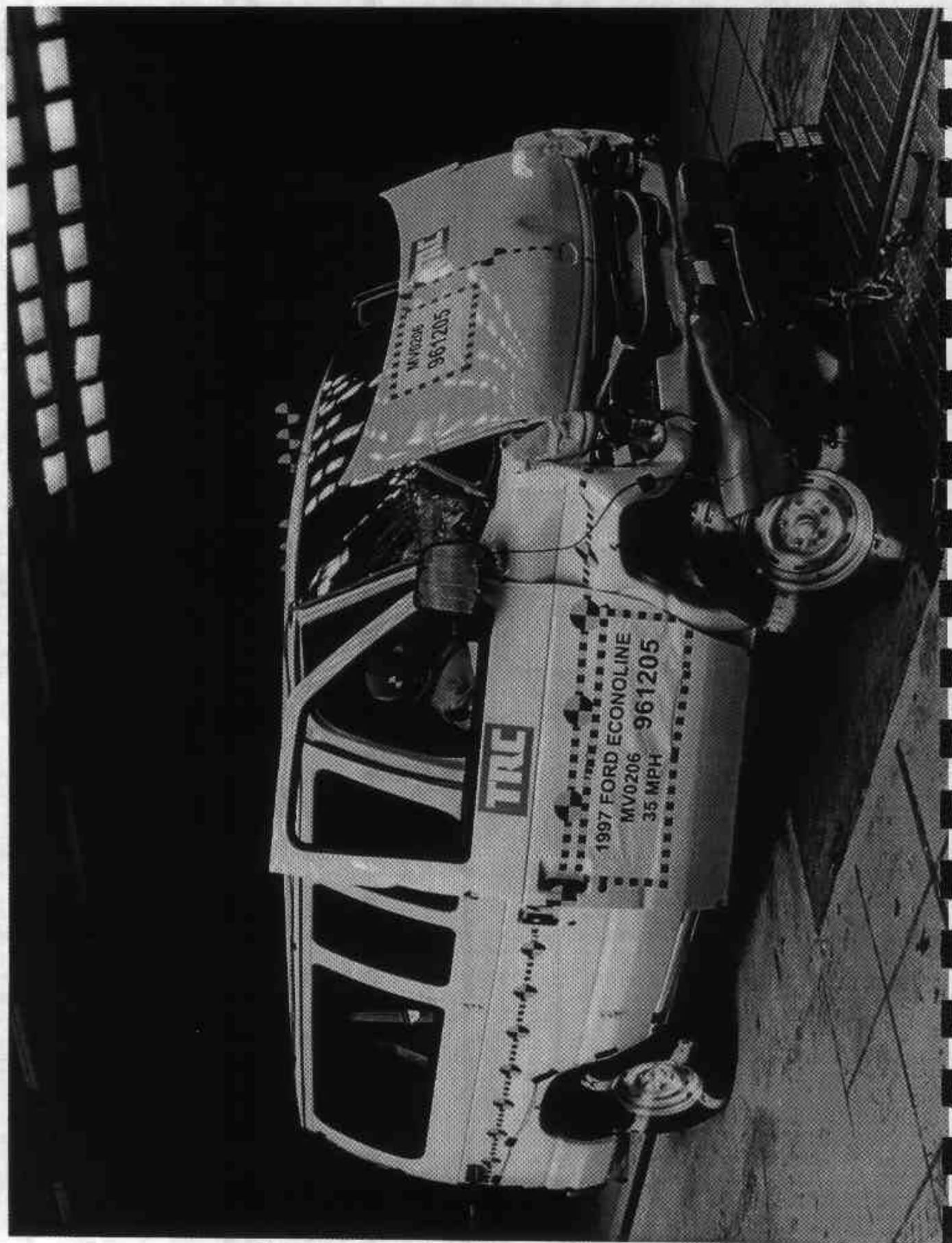


Figure A-10 Post-Test Right Front Three-Quarter View

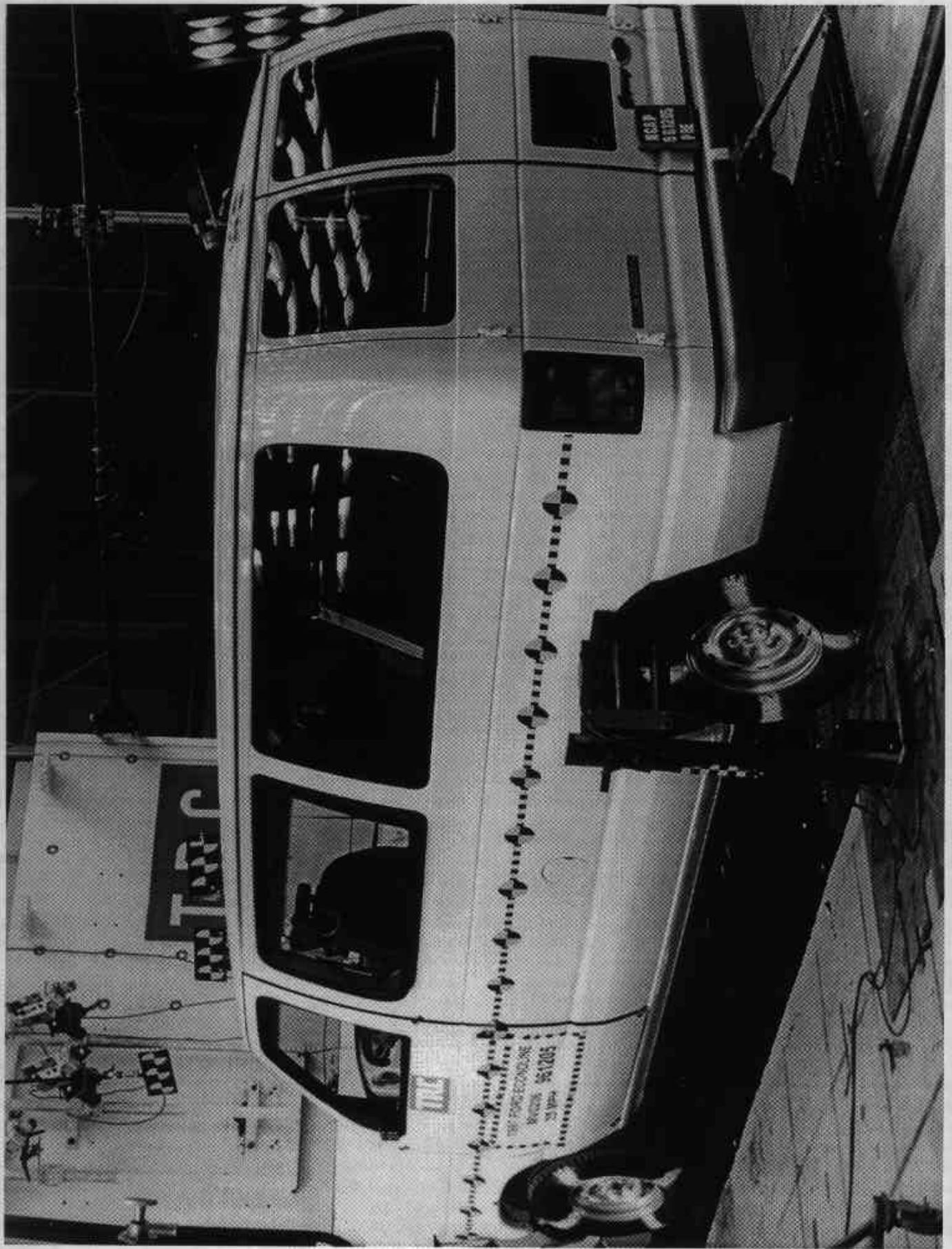


Figure A-11 Pre-Test Left Rear Three-Quarter View

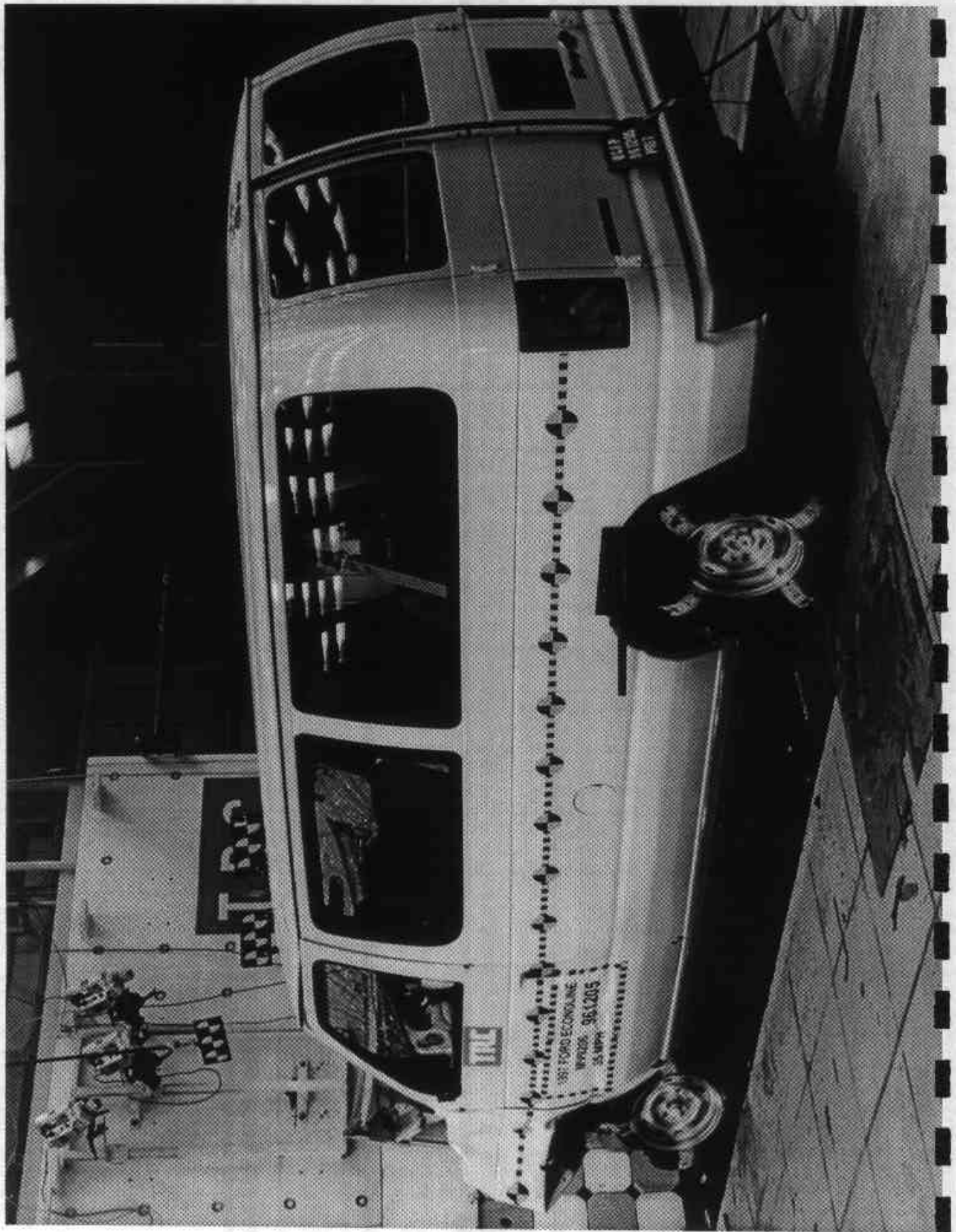


Figure A-12 Post-Test Left Rear Three-Quarter View



Figure A-13 Pre-Test Windshield View



Figure A-14 Post-Test Windshield View

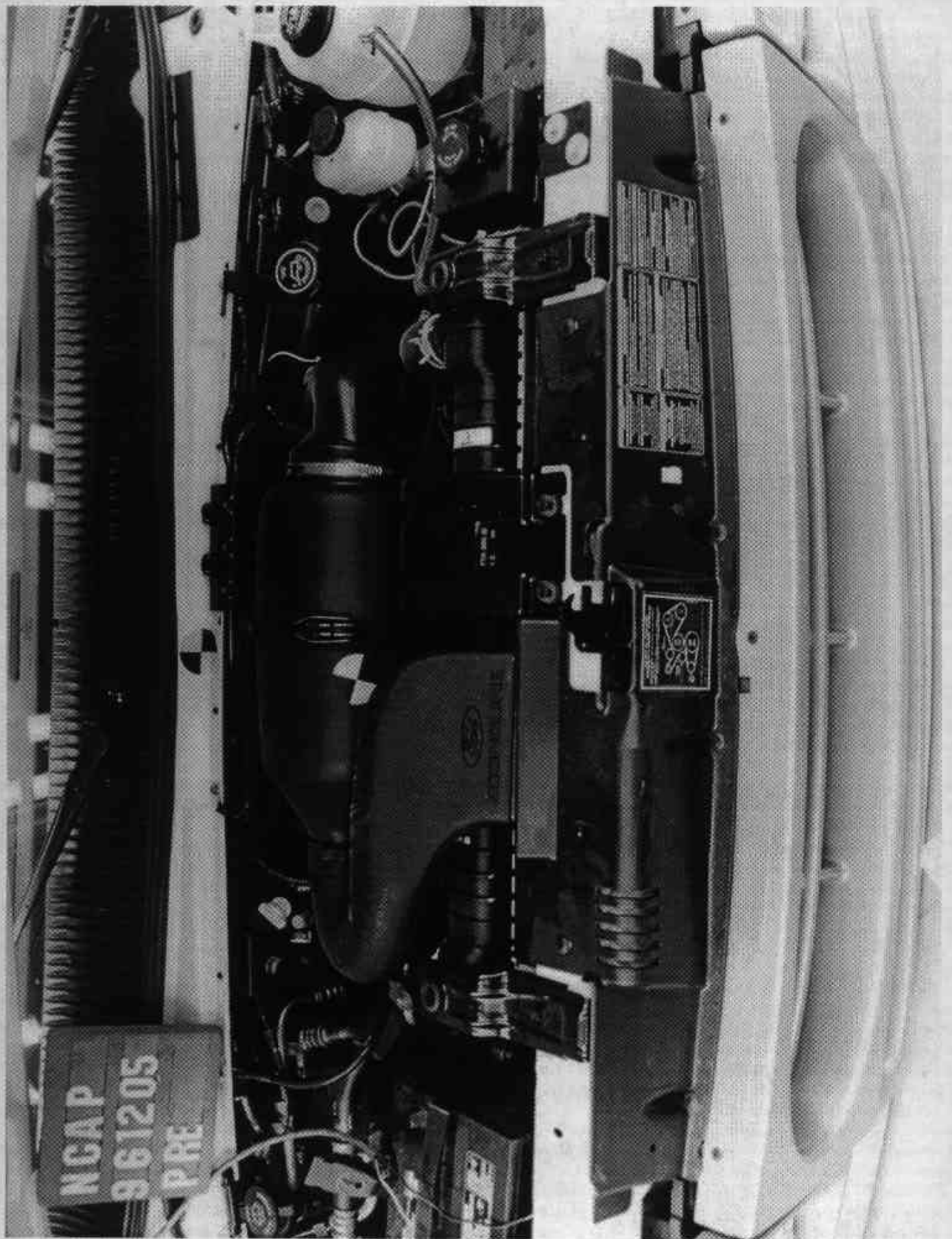


Figure A-15 Pre-Test Engine Compartment View

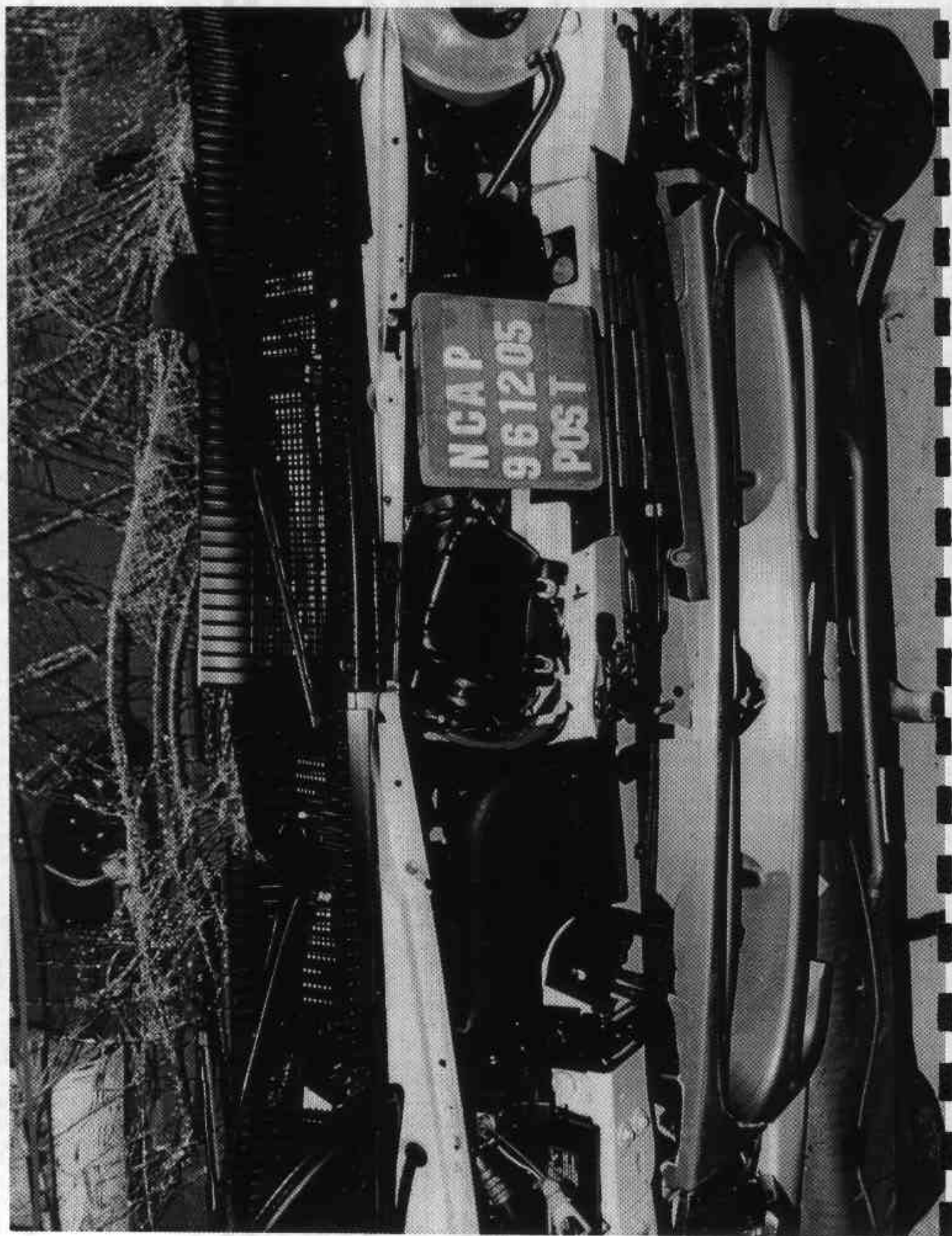


Figure A-16 Post-Test Engine Compartment View

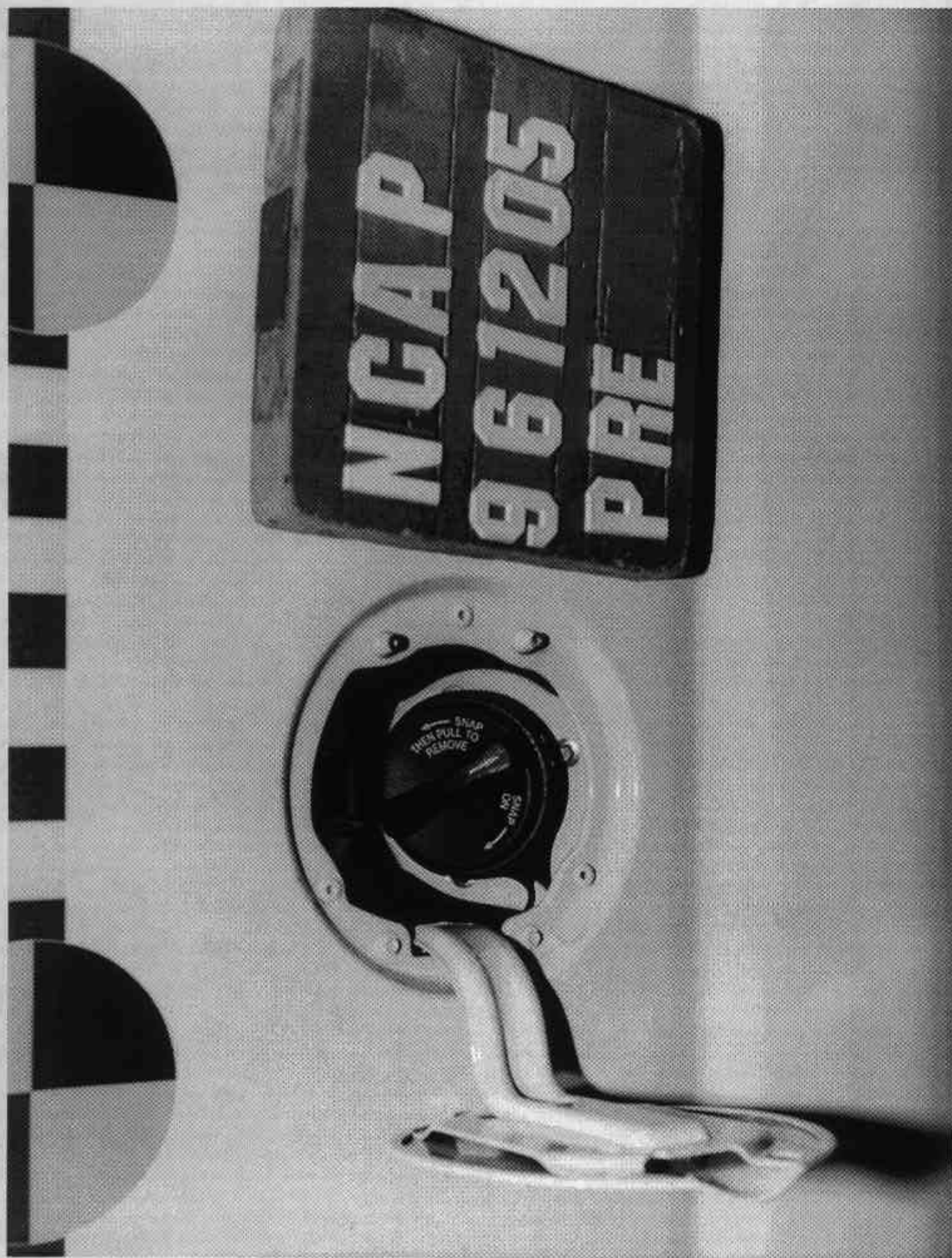


Figure A-17 Pre-Test Fuel Filler Cap View

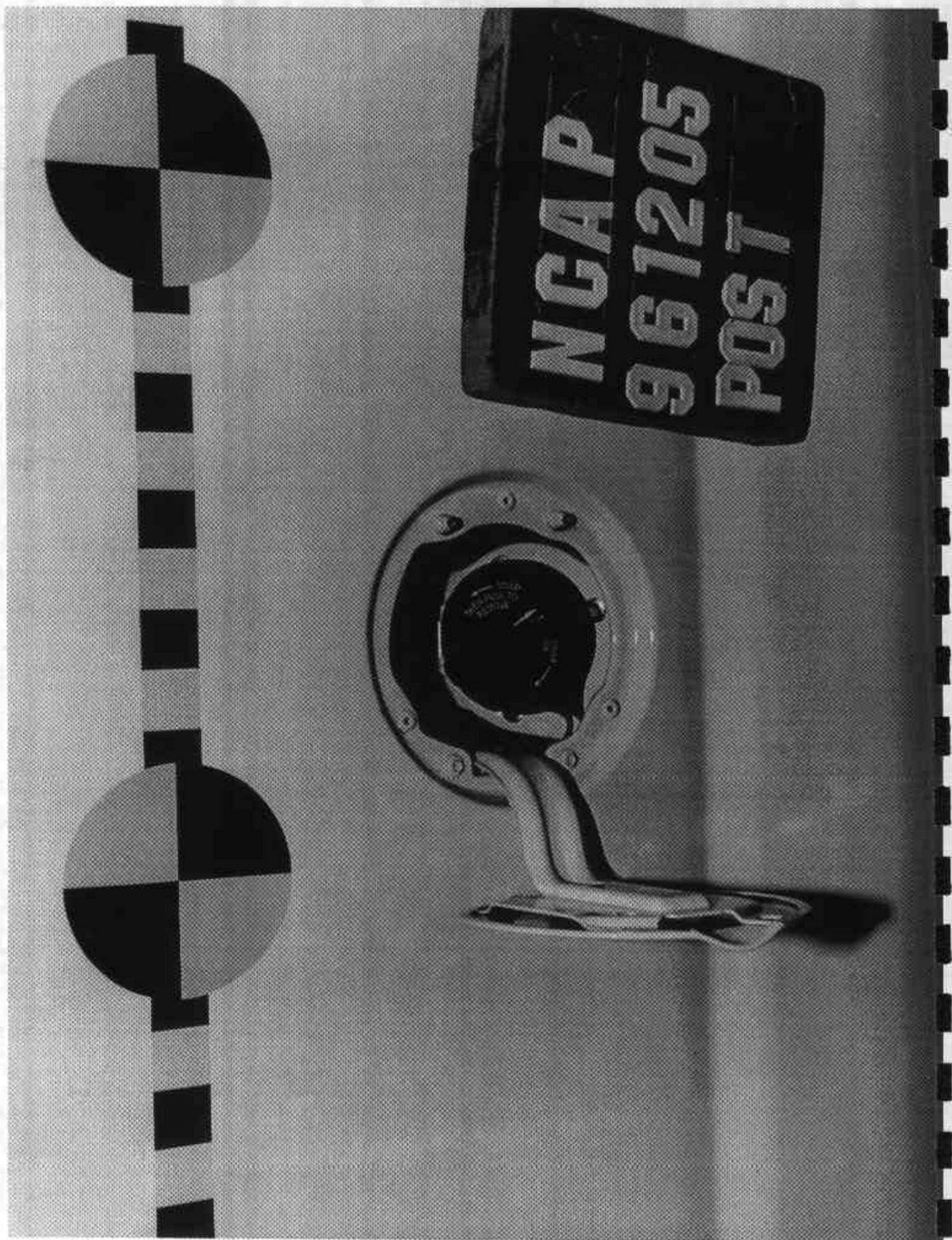


Figure A-18 Post-Test Fuel Filler Cap View

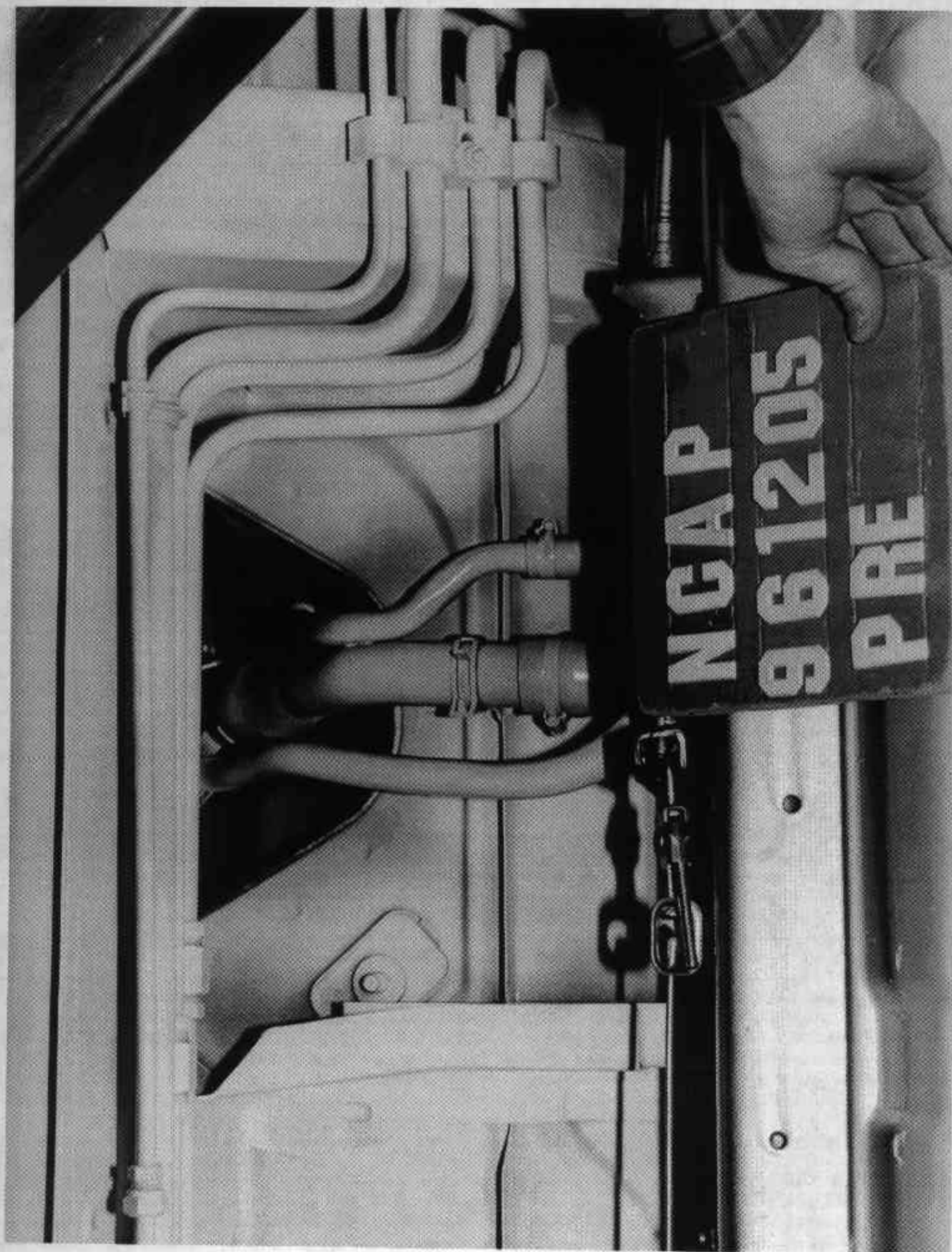


Figure A-19 Pre-Test Fuel Filler Neck View

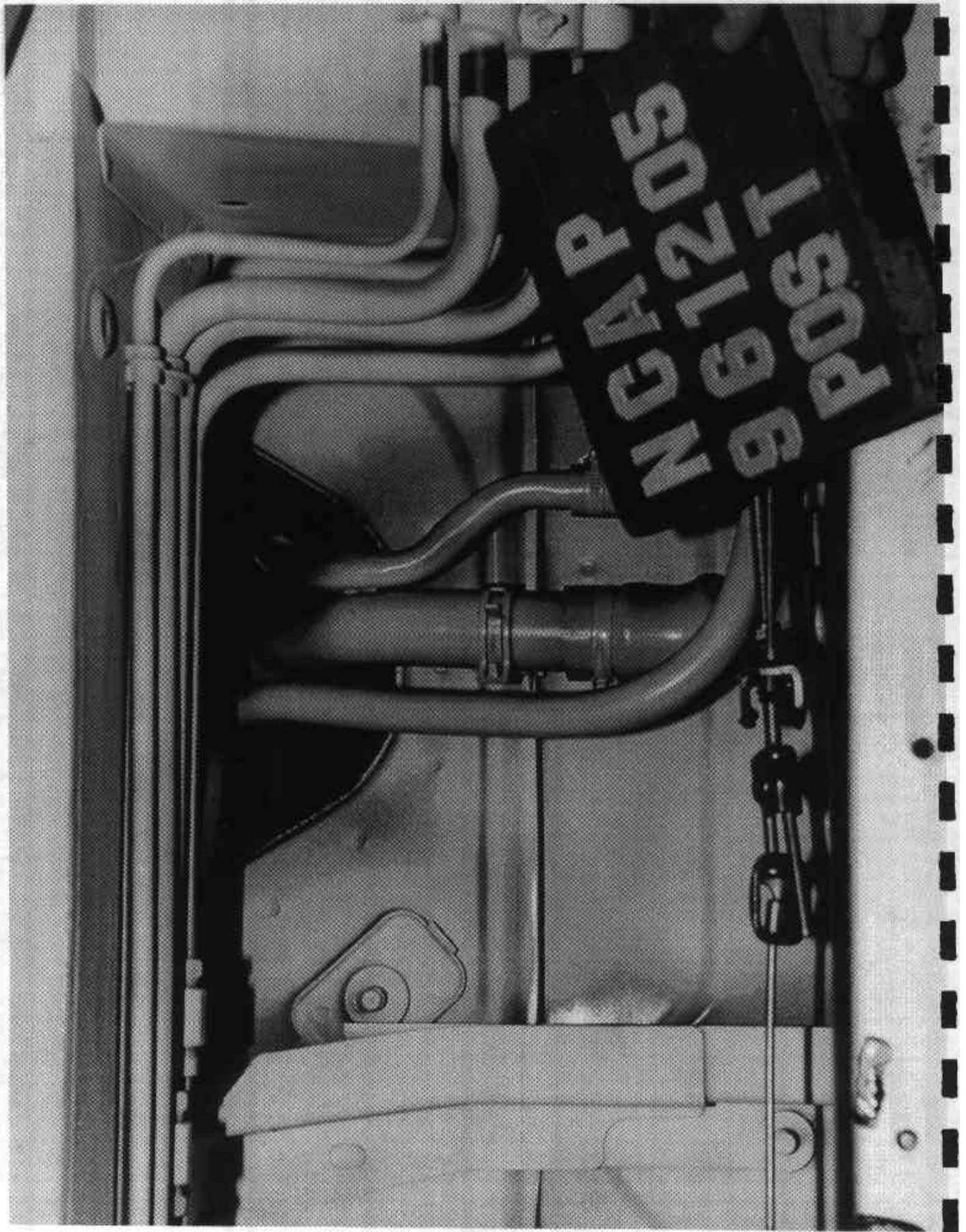


Figure A-20 Post-Test Fuel Filler Neck View

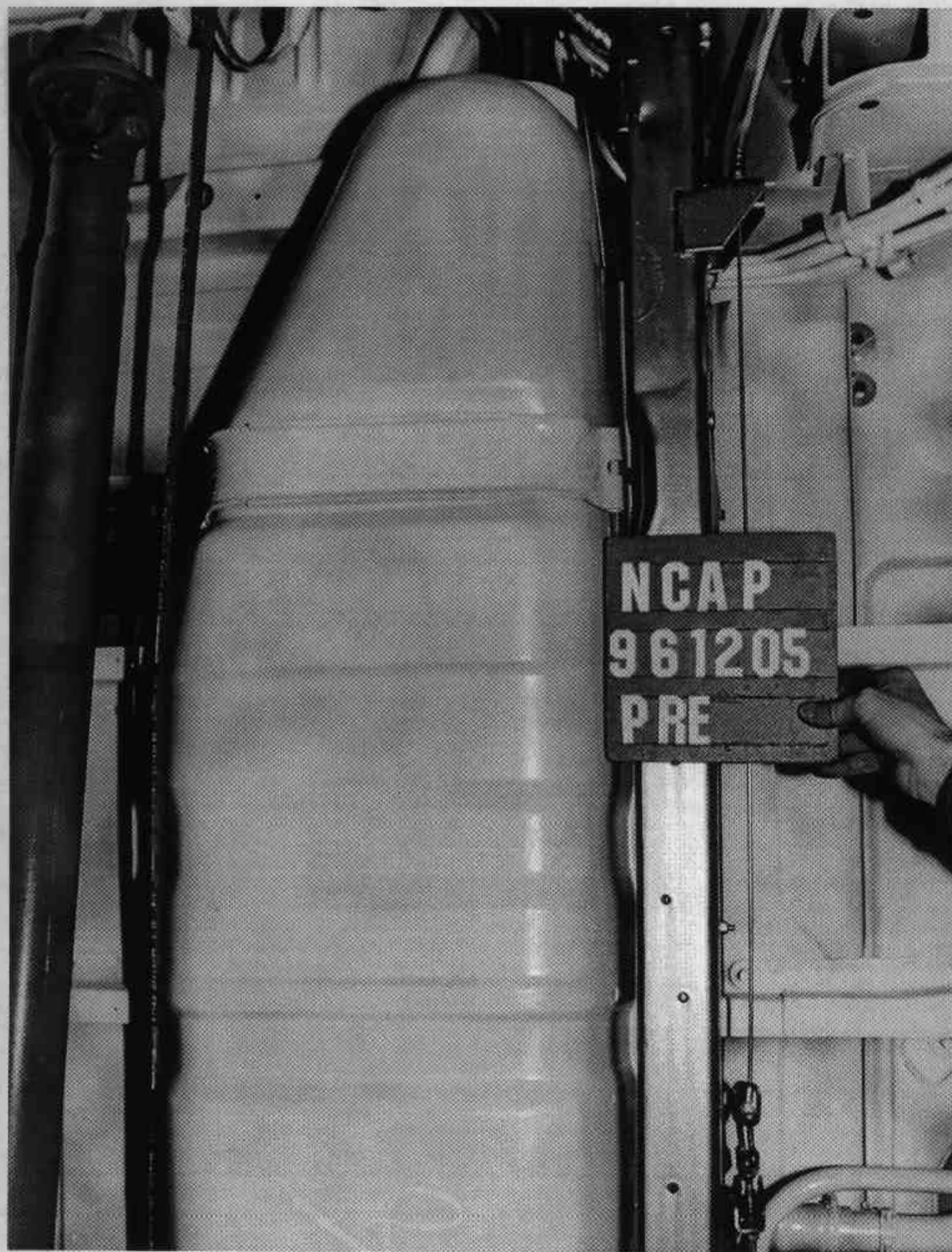


Figure A-21 Pre-Test Fuel Tank - View 1

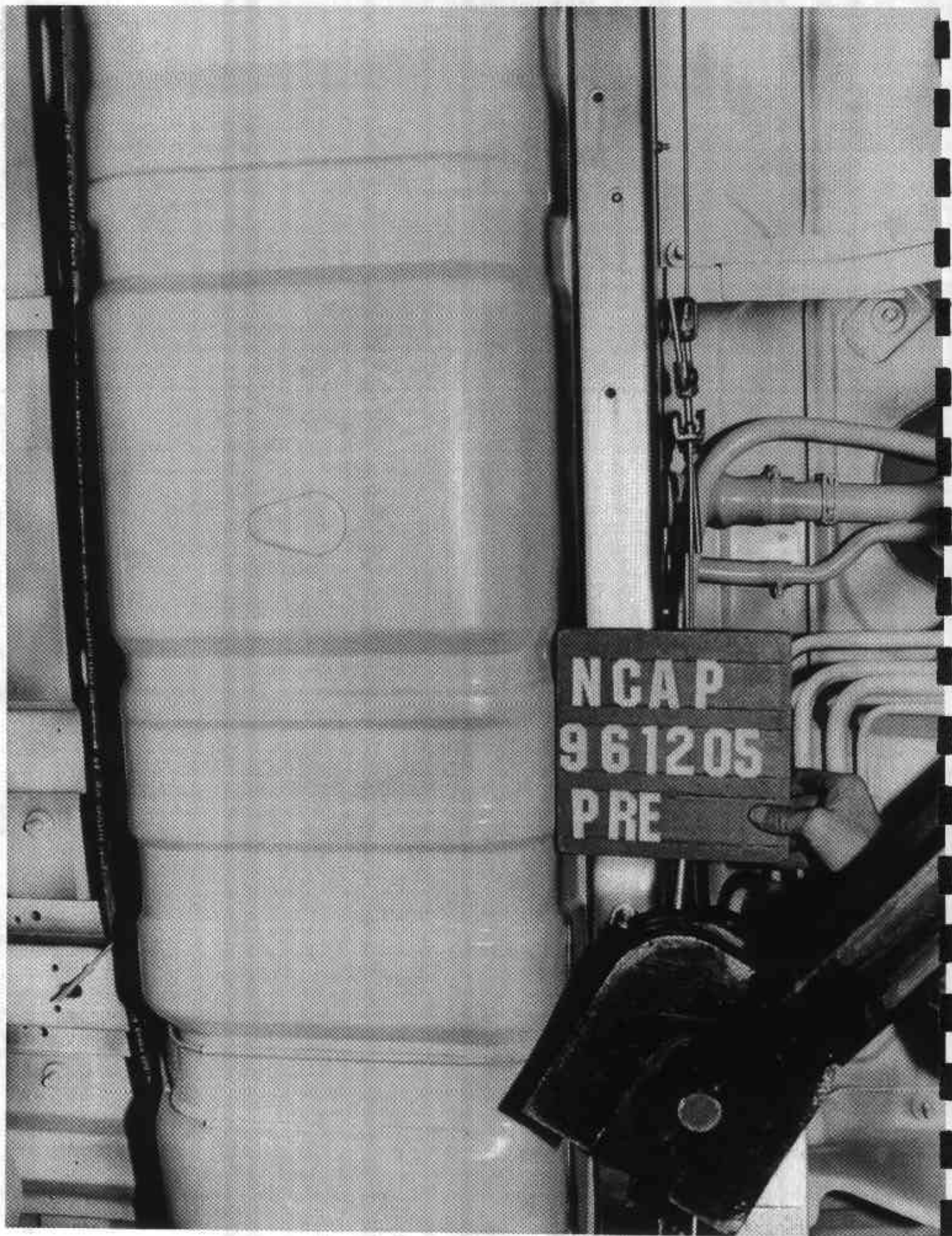


Figure A-22 Pre-Test Fuel Tank - View 2

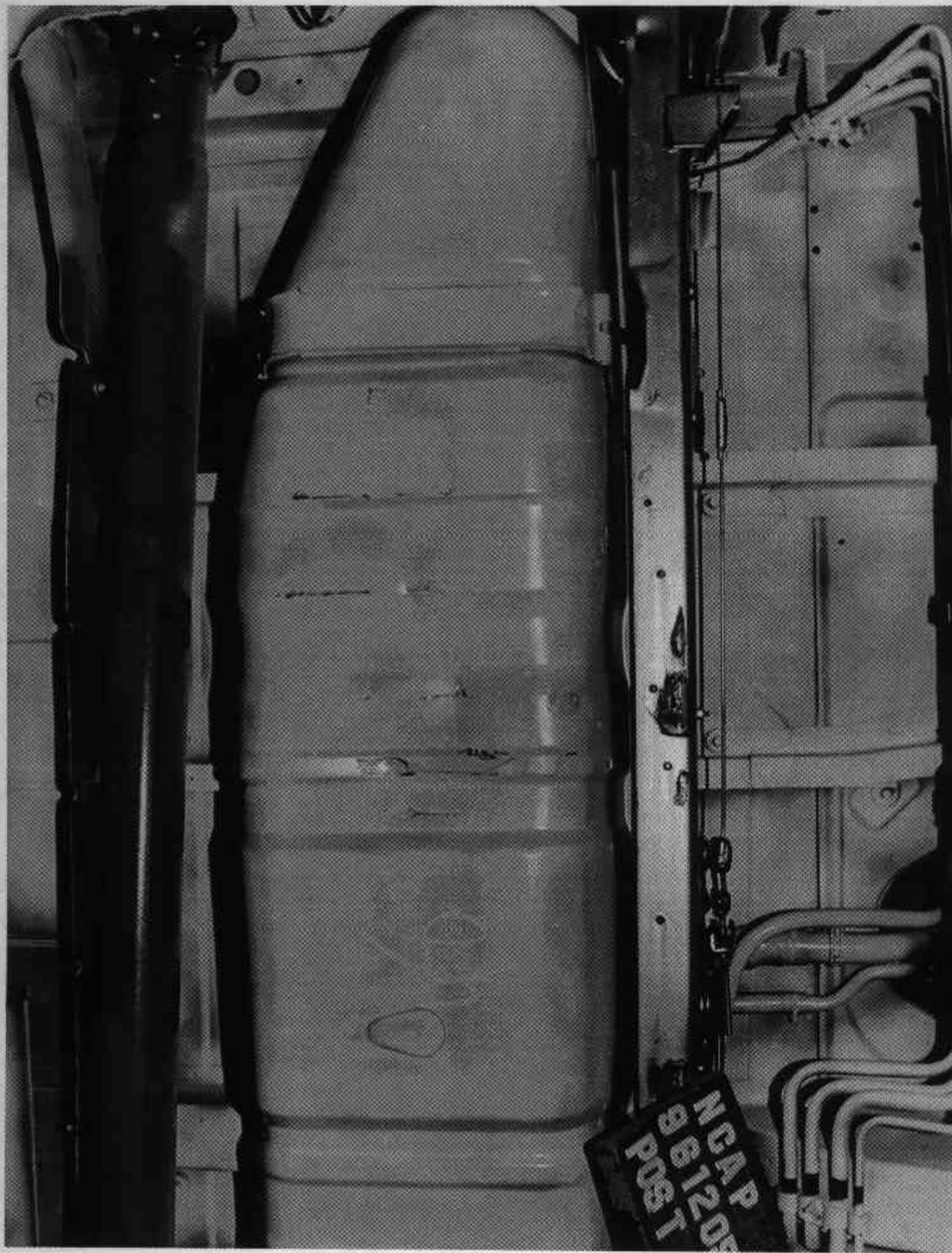


Figure A-23 Post-Test Fuel Tank - View 1

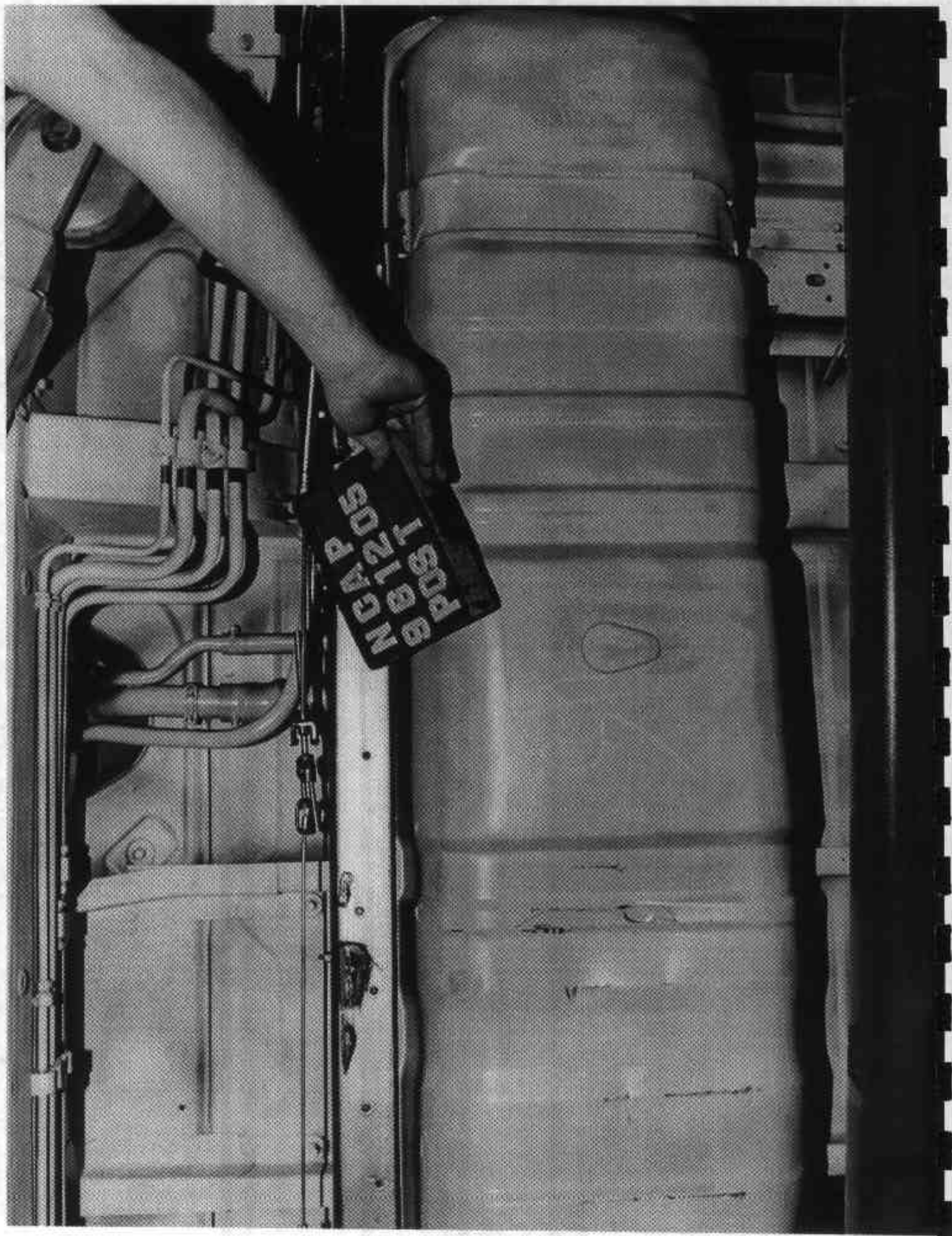


Figure A-24 Post-Test Fuel Tank - View 2

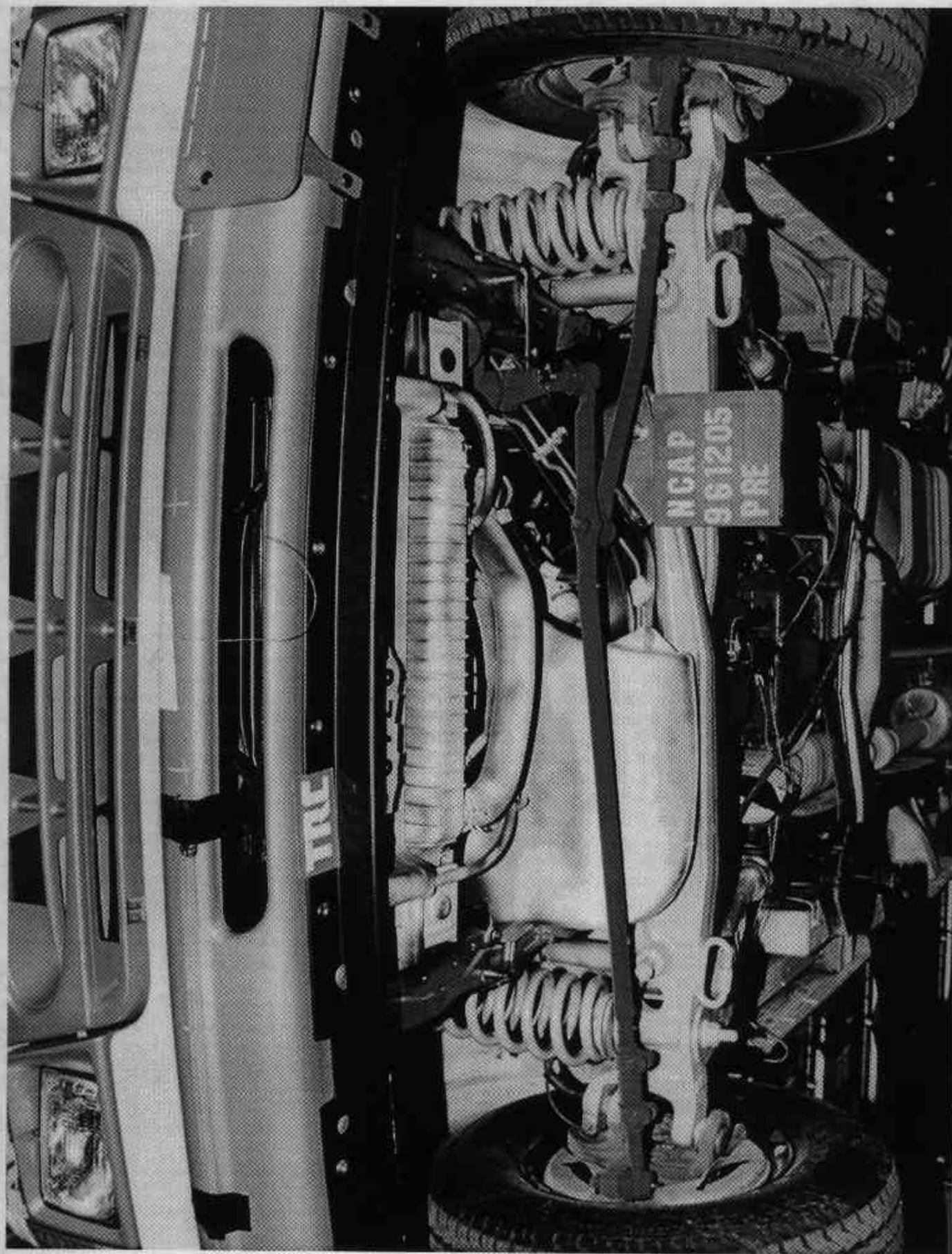


Figure A-25 Pre-Test Front Underbody View

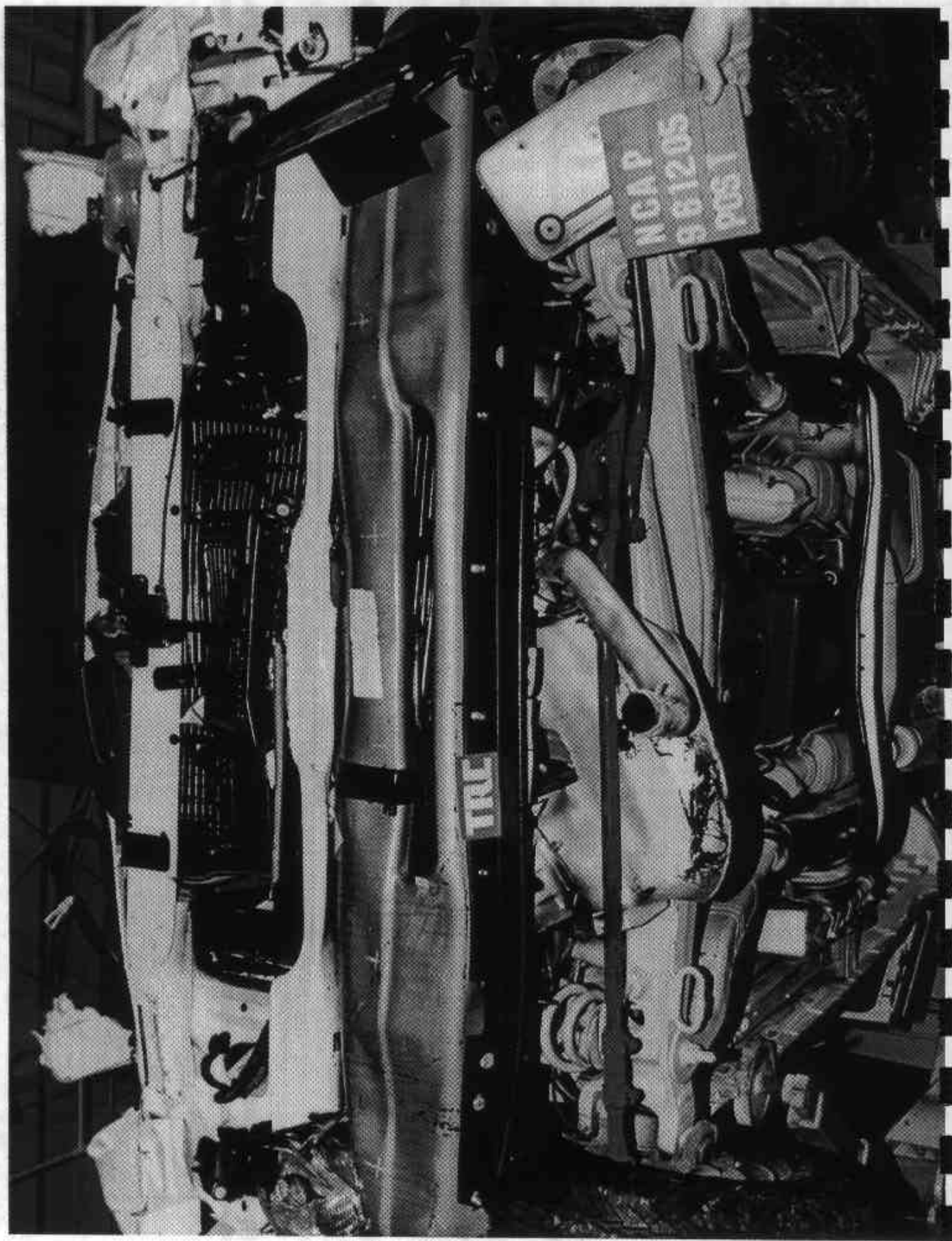


Figure A-26 Post-Test Front Underbody View

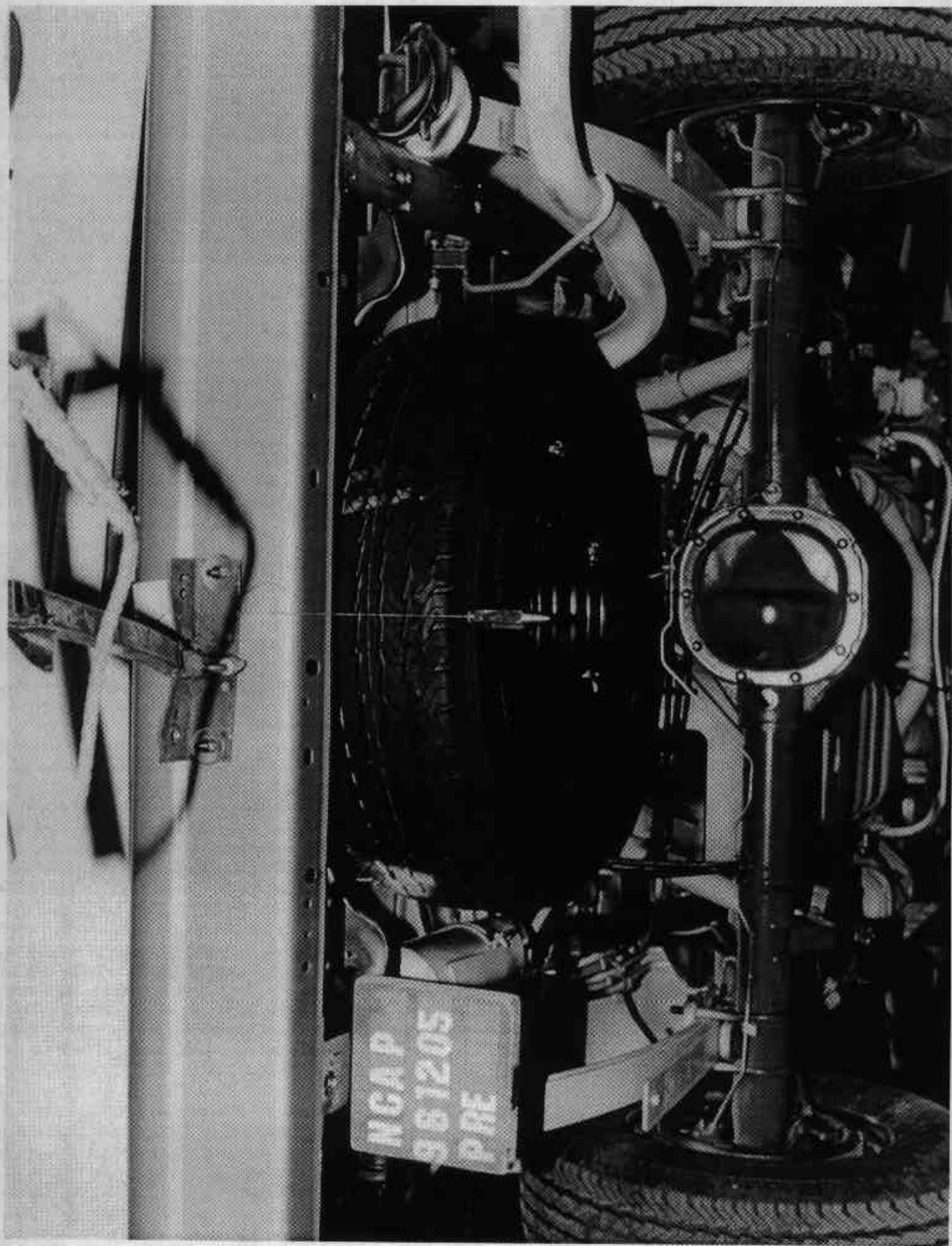


Figure A-27 Pre-Test Rear Underbody View

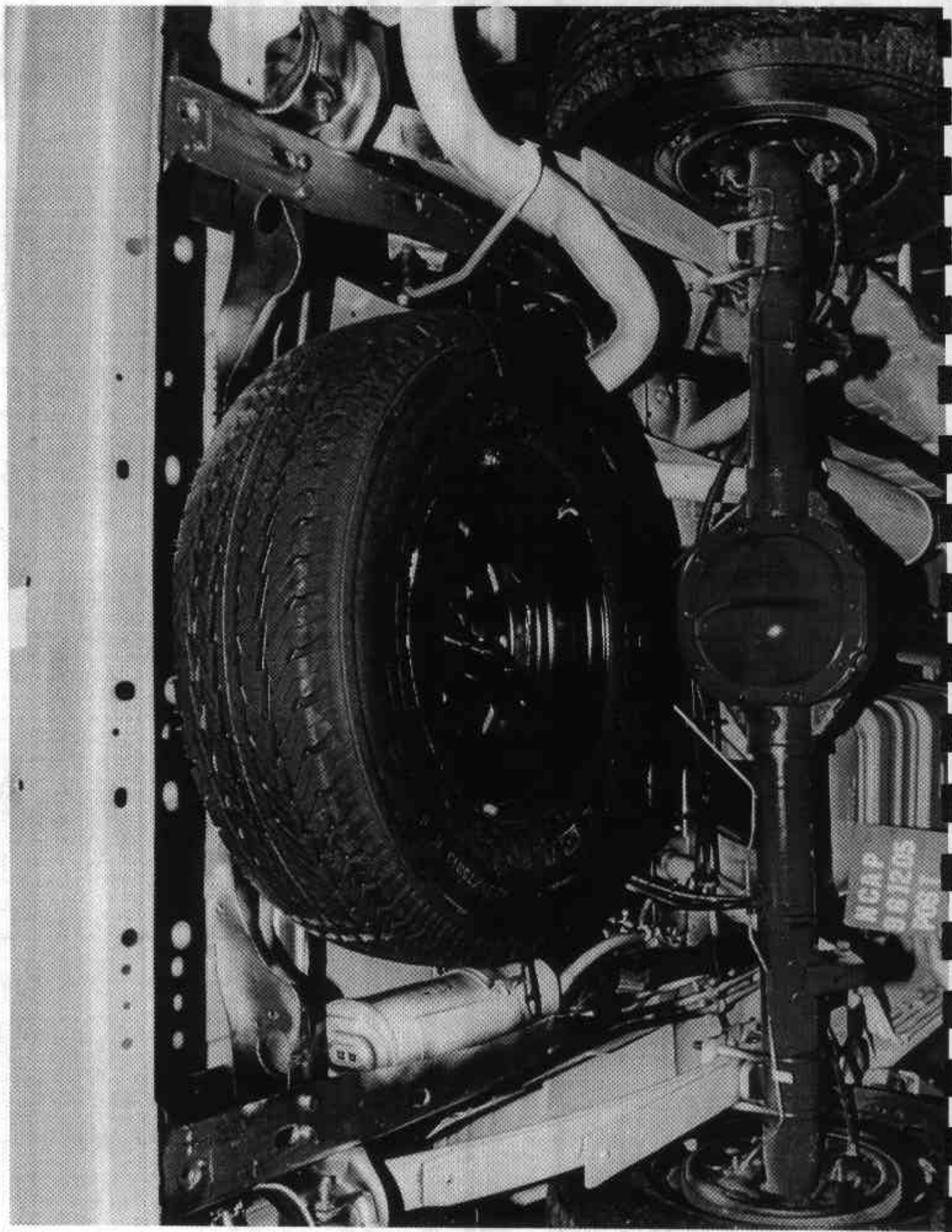


Figure A-28 Post-Test Rear Underbody View

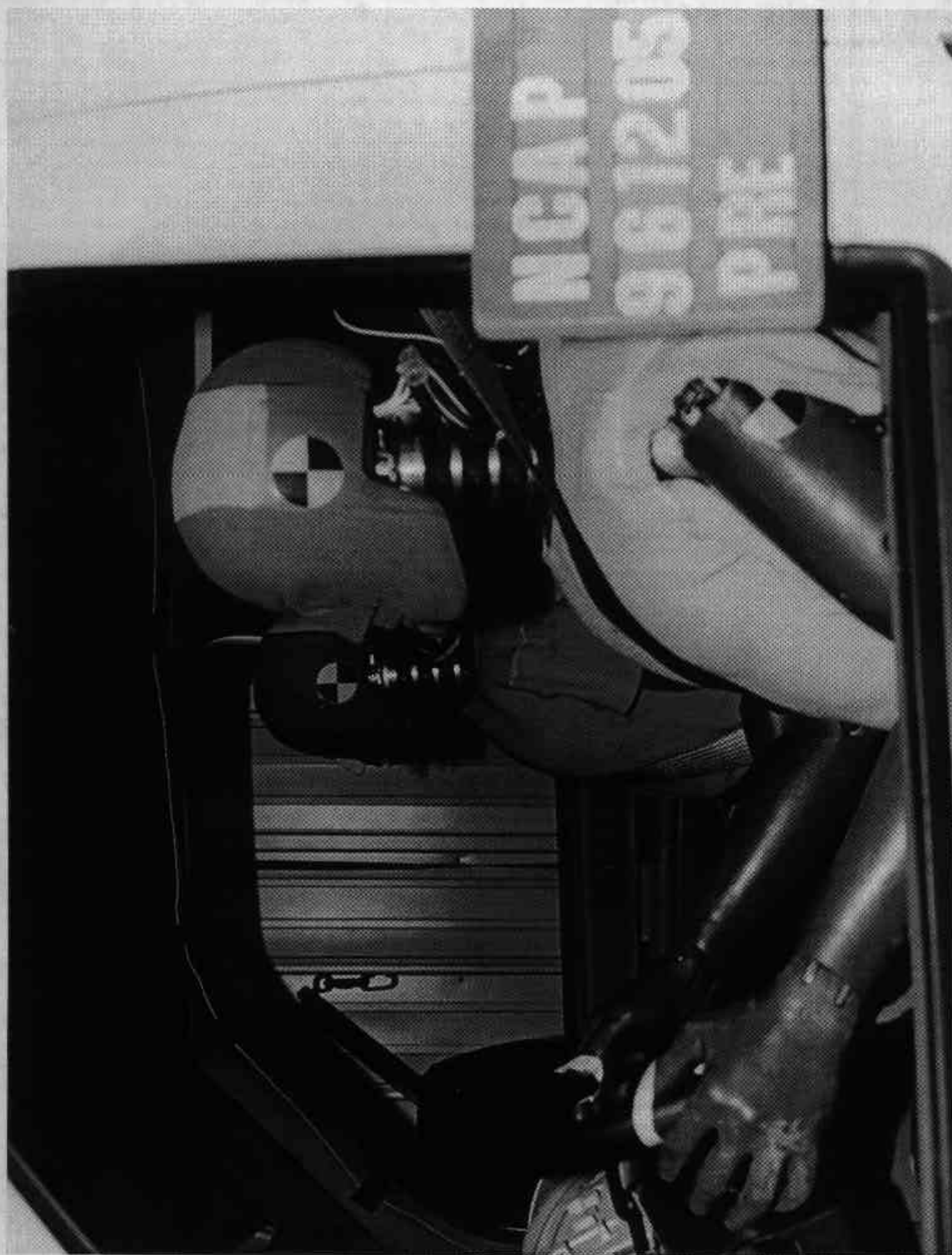


Figure A-29 Pre-Test Driver Dummy Position View



Figure A-30 Post-Test Driver Dummy Position View

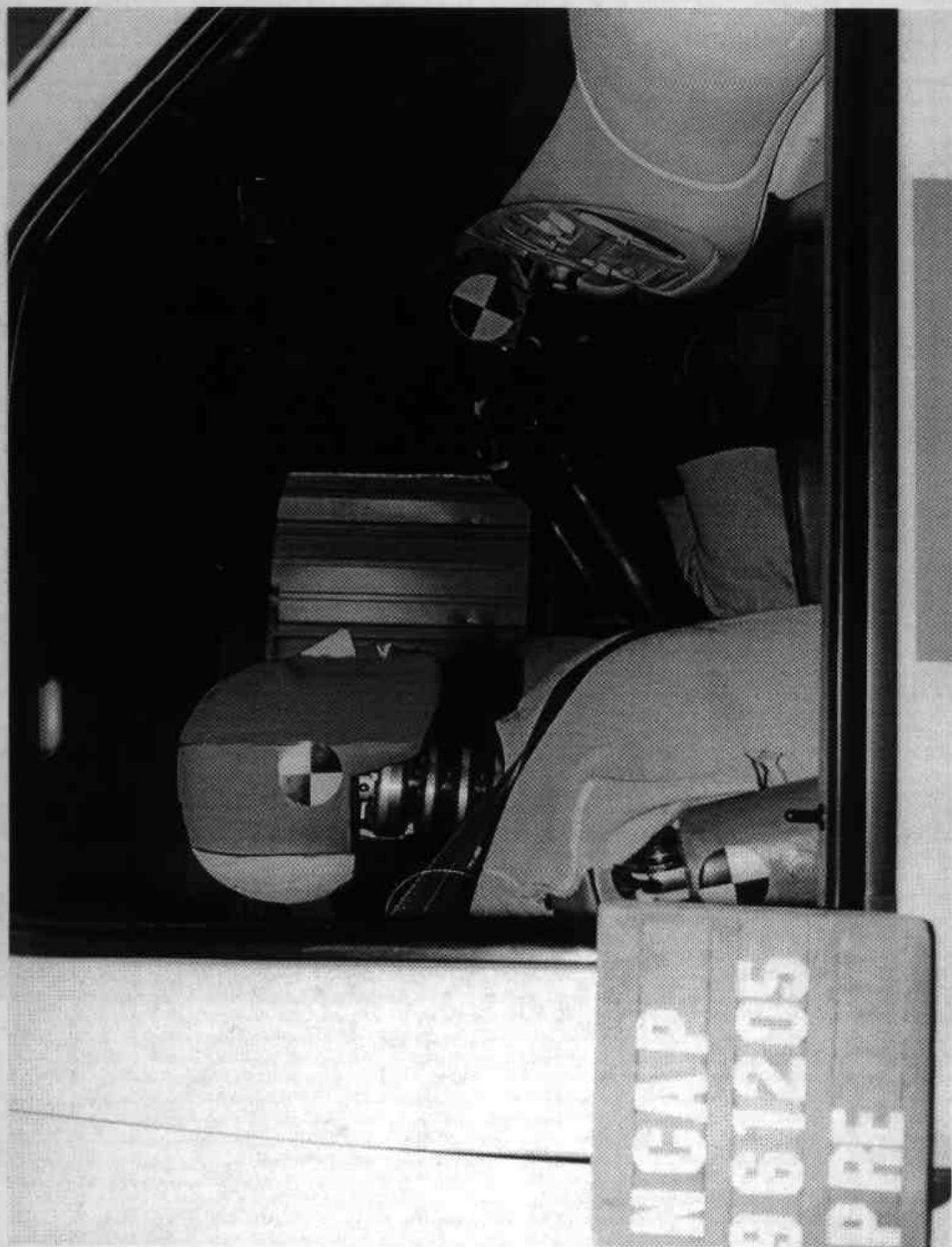


Figure A-31 Pre-Test Passenger Dummy Position View



Figure A-32 Post-Test Passenger Dummy Position View

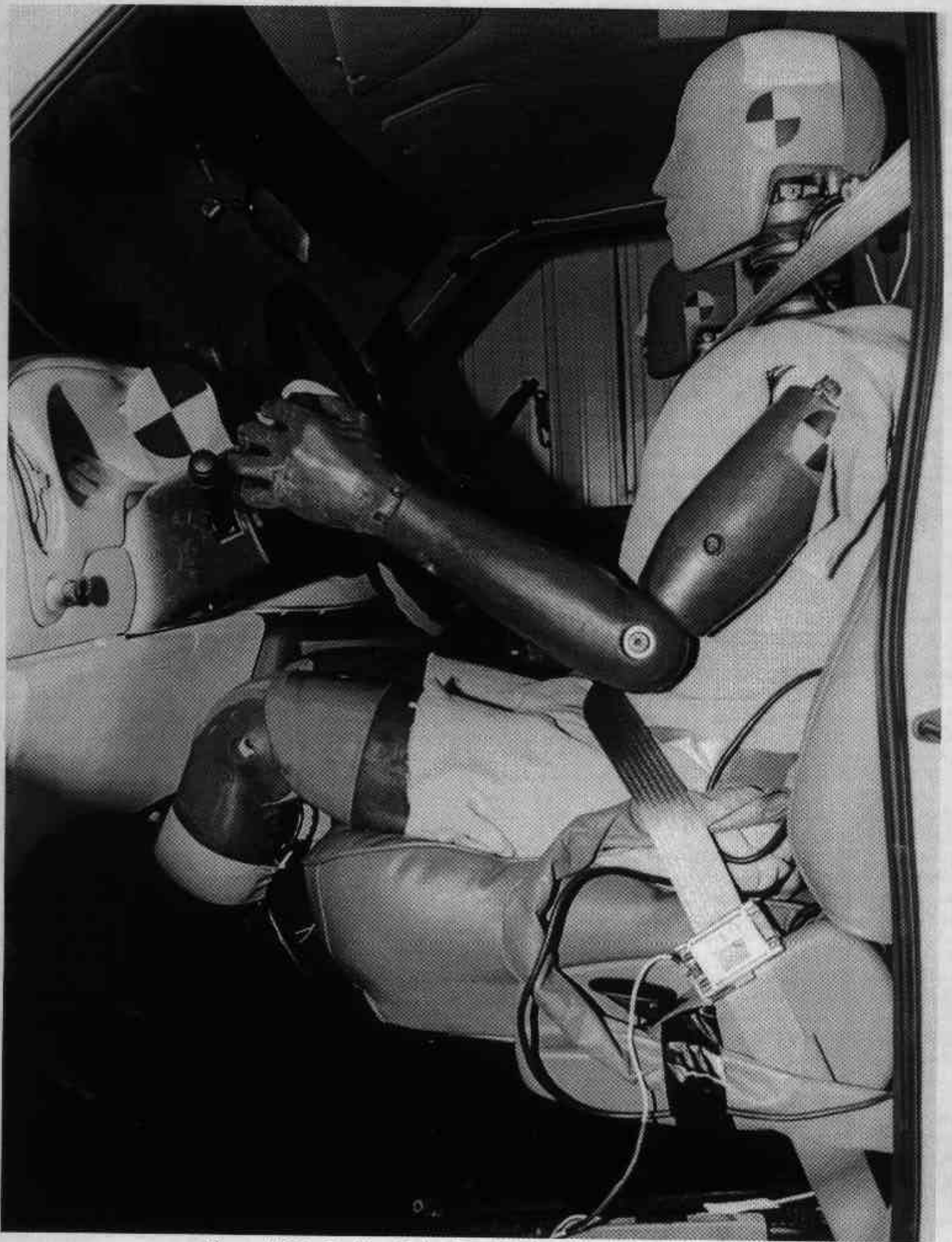


Figure A-33 Pre-Test Driver Dummy & Vehicle Interior - View 1



Figure A-34 Post-Test Driver Dummy & Vehicle Interior - View 1



Figure A-35 Pre-Test Driver Dummy & Vehicle Interior - View 2

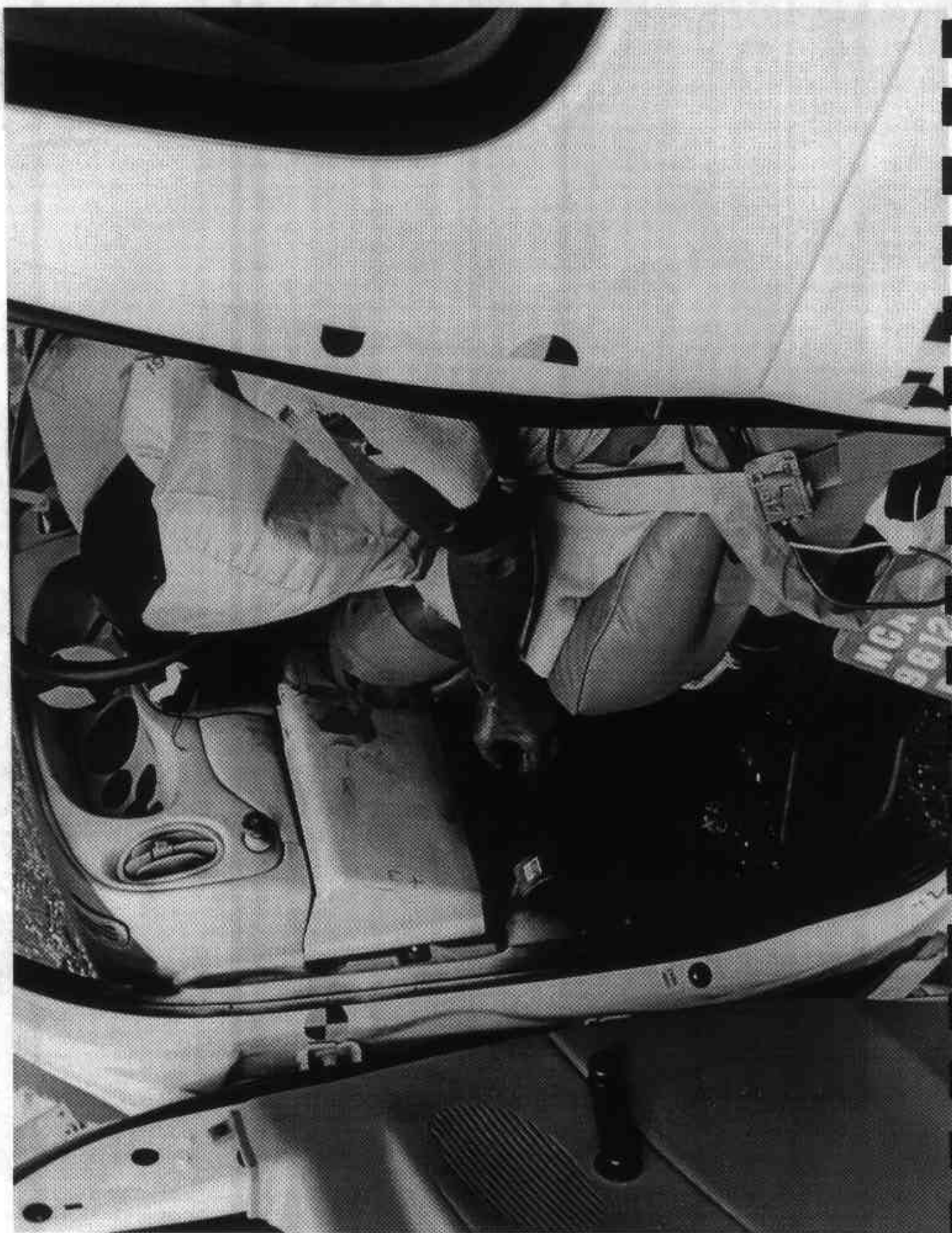


Figure A-36 Post-Test Driver Dummy & Vehicle Interior - View 2



Figure A-37 Pre-Test Passenger Dummy & Vehicle Interior - View 1

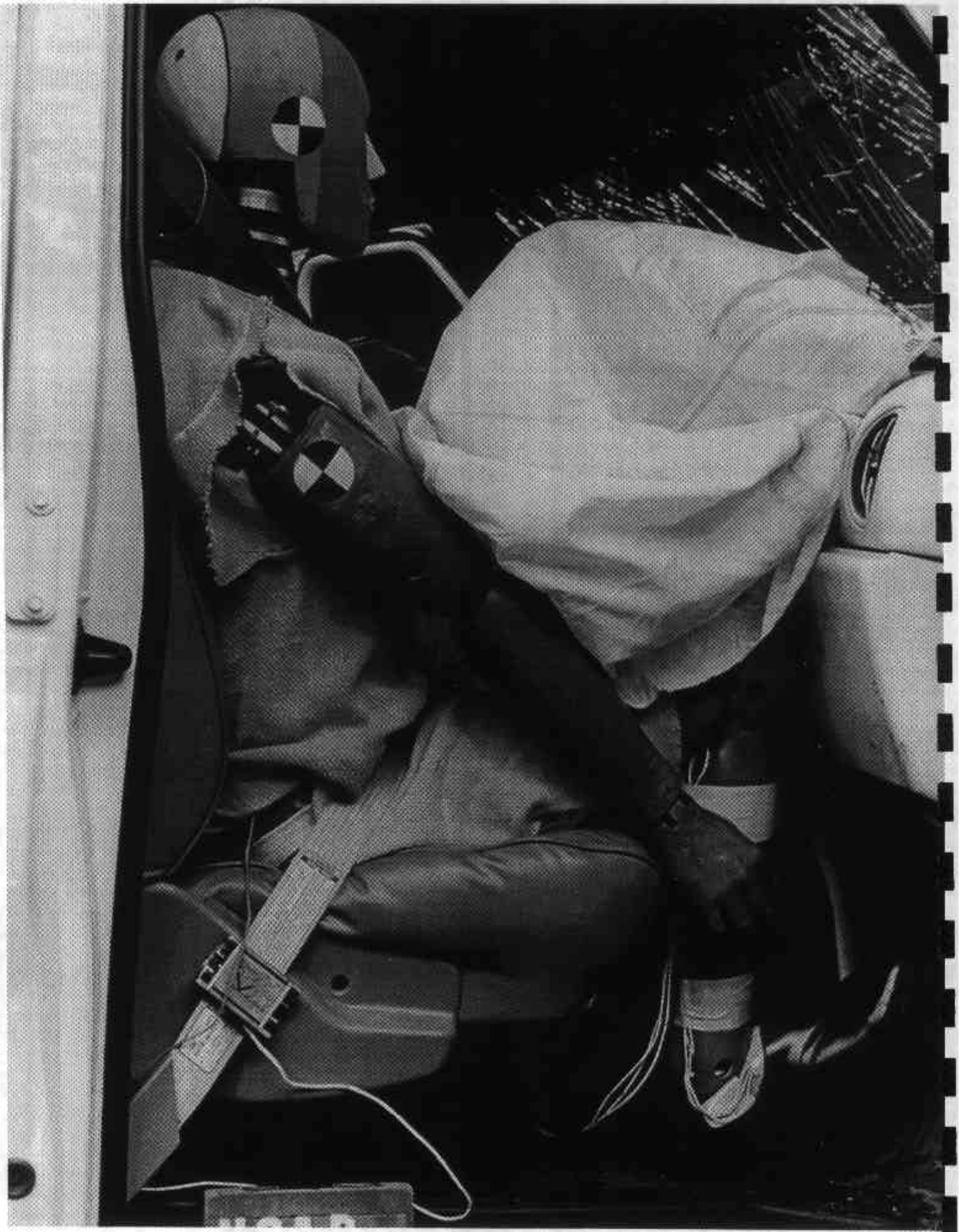


Figure A-38 Post-Test Passenger Dummy & Vehicle Interior - View 1



Figure A-39 Pre-Test Passenger Dummy & Vehicle Interior - View 2



Figure A-40 Post-Test Passenger Dummy & Vehicle Interior - View 2

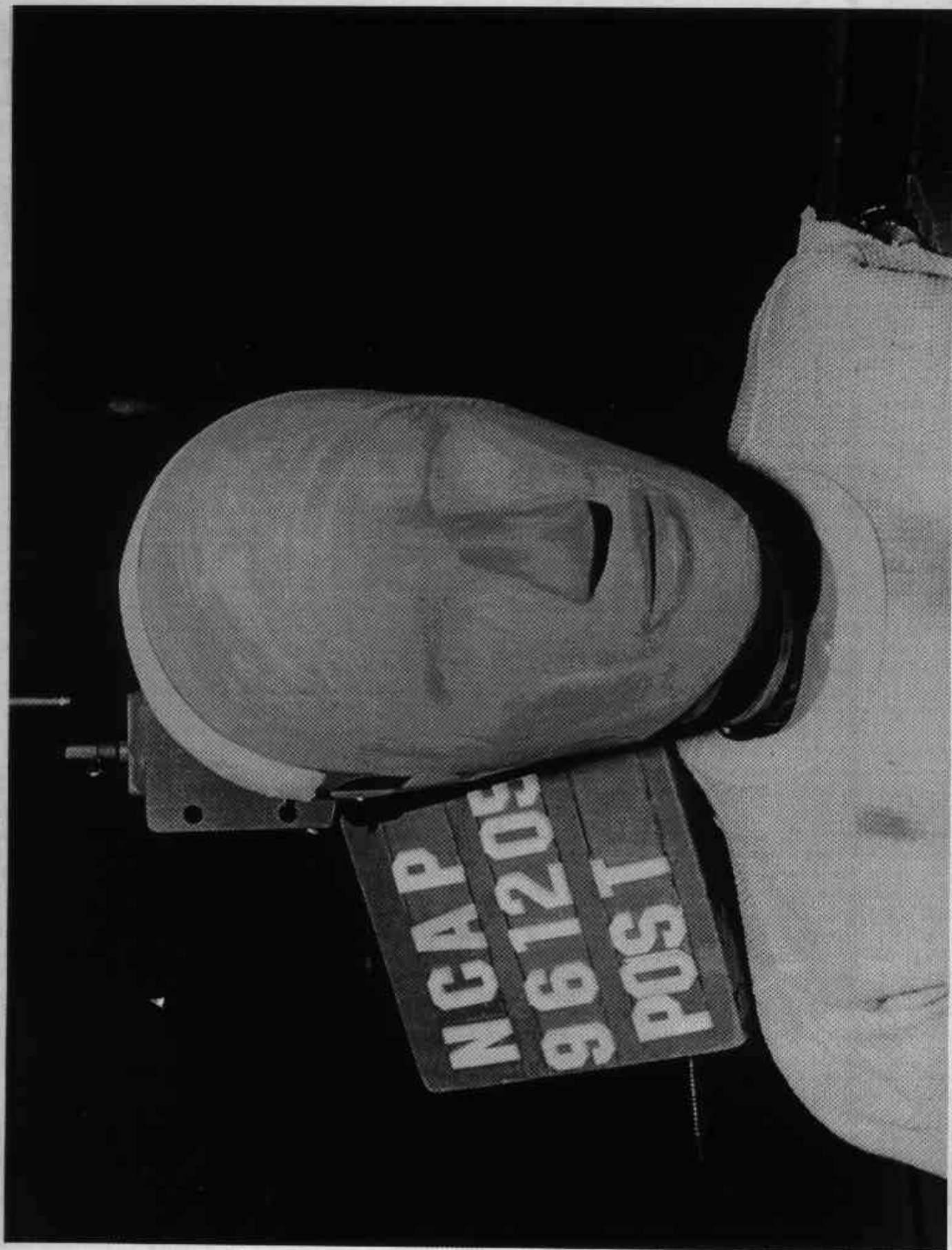


Figure A-41 Post-Test Driver Dummy Head Contact - View 1

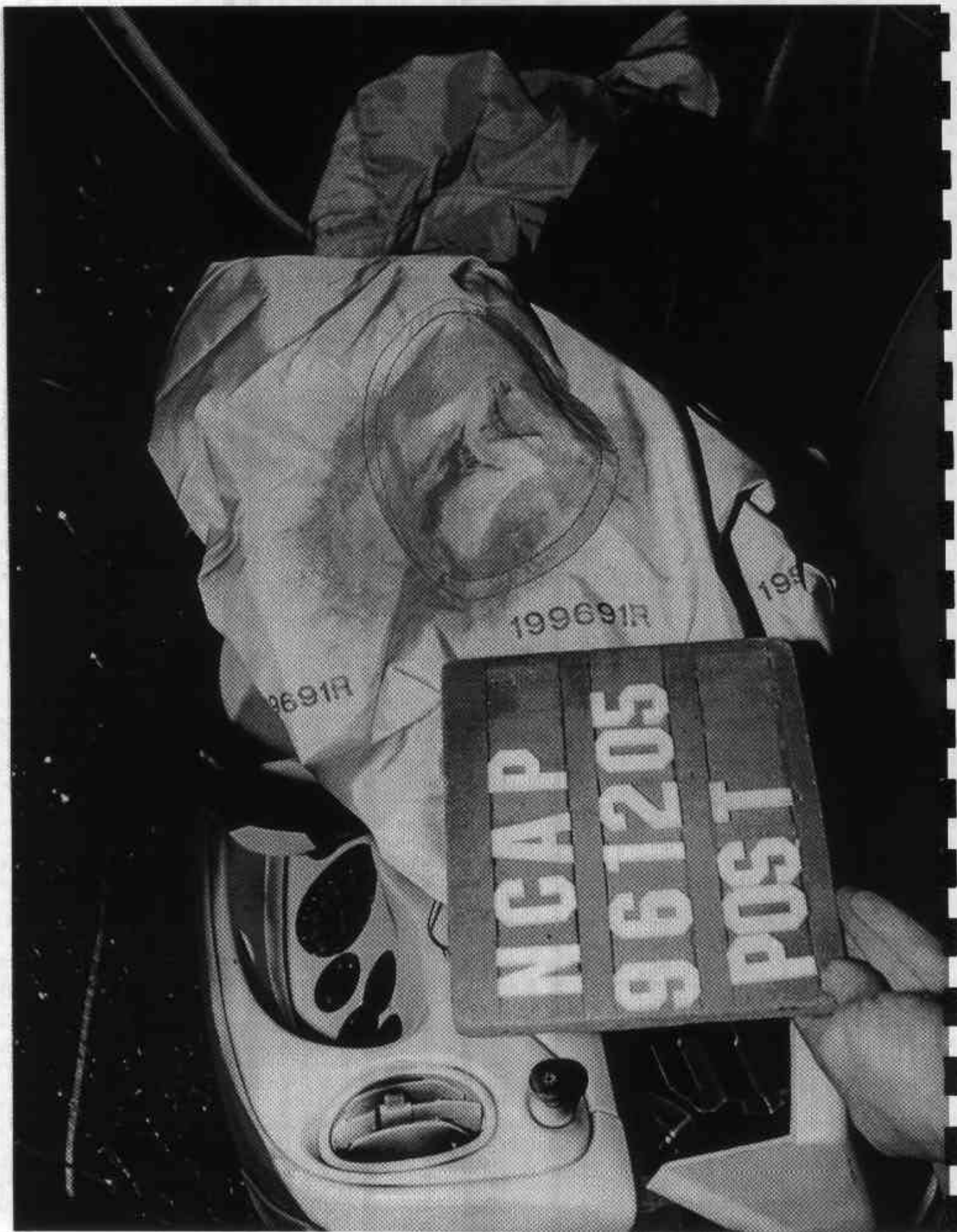


Figure A-42 Post-Test Driver Dummy Head Contact - View 2



Figure A-43 Post-Test Driver Dummy Head Contact - View 3

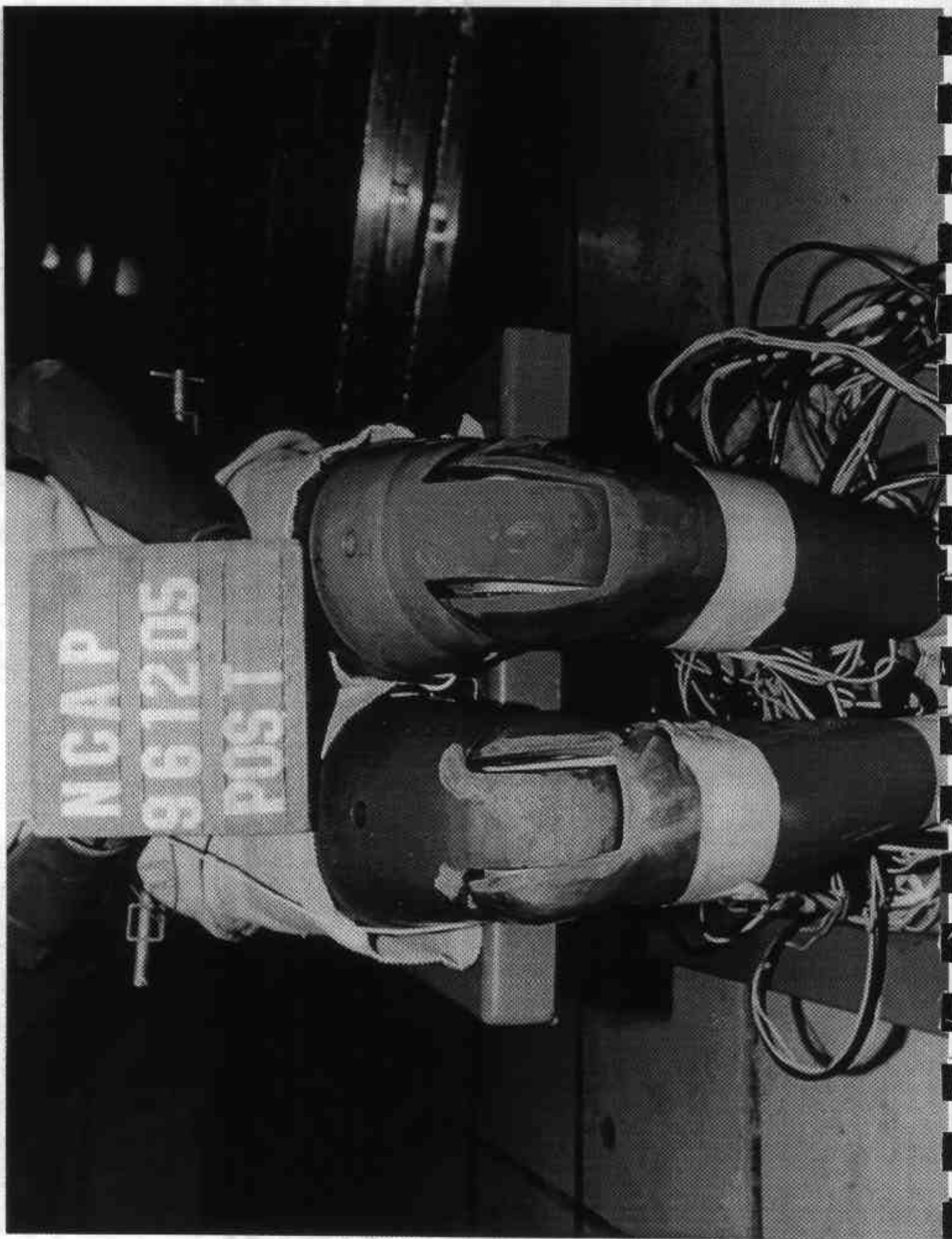


Figure A-44 Post-Test Driver Dummy Knee Contact - View 1



Figure A-45 Post-Test Driver Dummy Knee Contact - View 2

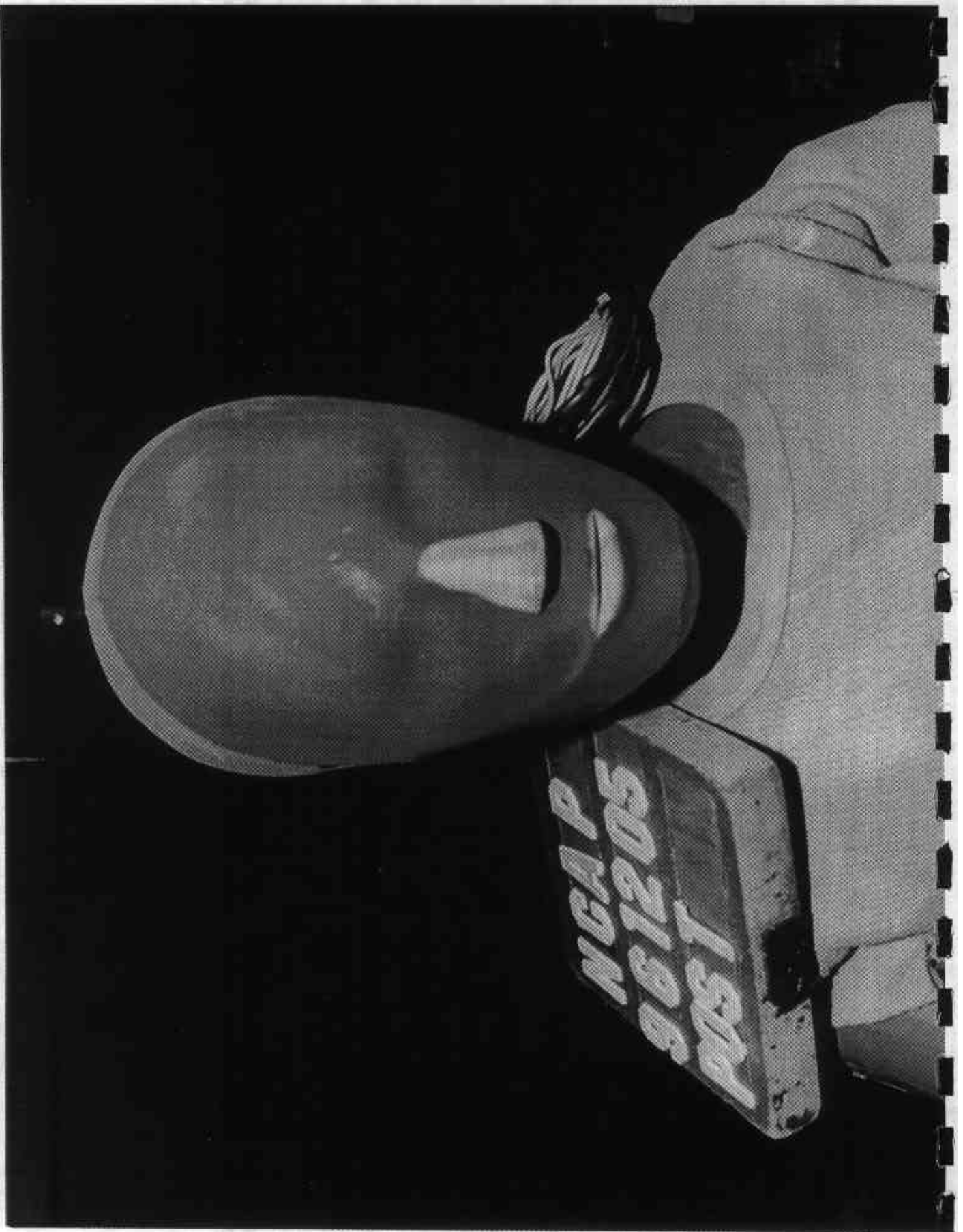


Figure A-46 Post-Test Passenger Dummy Head Contact - View 1



Figure A-47 Post-Test Passenger Dummy Head Contact - View 2

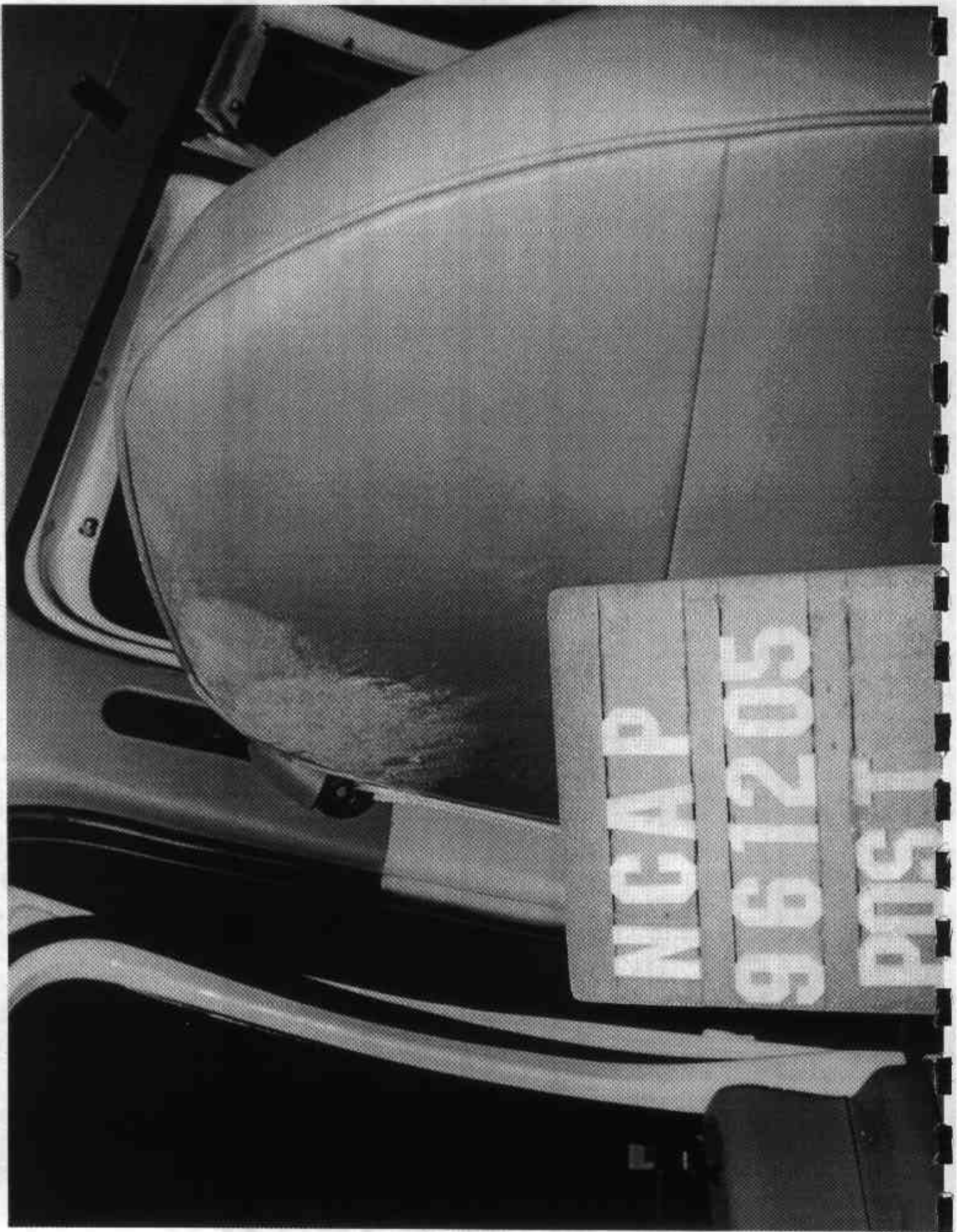


Figure A-48 Post-Test Passenger Dummy Head Contact - View 3

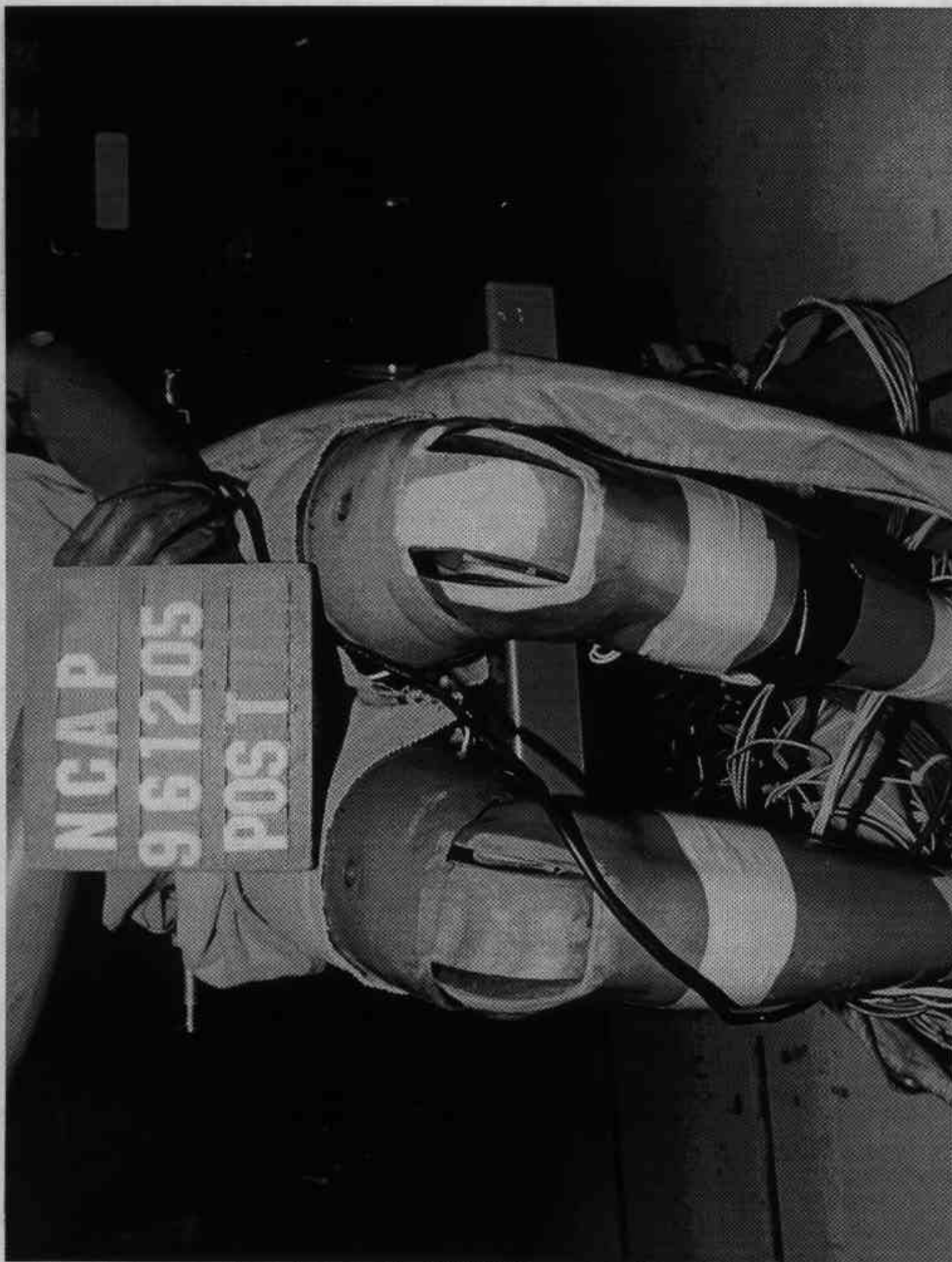


Figure A-49 Post-Test Passenger Dummy Knee Contact View

MFD. BY FORD MOTOR CO. DATE: 10/96 GVWR: 7000LB/ 3175KG
 FRONT GAWR: 3400LB 1542KG REAR GAWR: 3800LB 1723KG
 WITH P235/75R15XL TIRES WITH P235/75R15XL TIRES
 15X6.0J RIMS 15X6.0J RIMS
 AT 241 kPa/ 35 PSI COLD AT 283 kPa/ 41 PSI COLD
 THIS VEHICLE CONFORMS TO ALL APPLICABLE FEDERAL MOTOR VEHICLE
 SAFETY STANDARDS IN EFFECT ON THE DATE OF MANUFACTURE SHOWN ABOVE.
 VIN: 1FMEEL122VHA49444 TYPE: MPV



EXT PAINT COLORS: Y0 RC: 47 DS0: F0140
 138 C A2 17 U BH C T0289
 MADE IN U.S.A. ULC 07608-3520472-00

Figure A-50 Pre-Test Vehicle Certification Label View



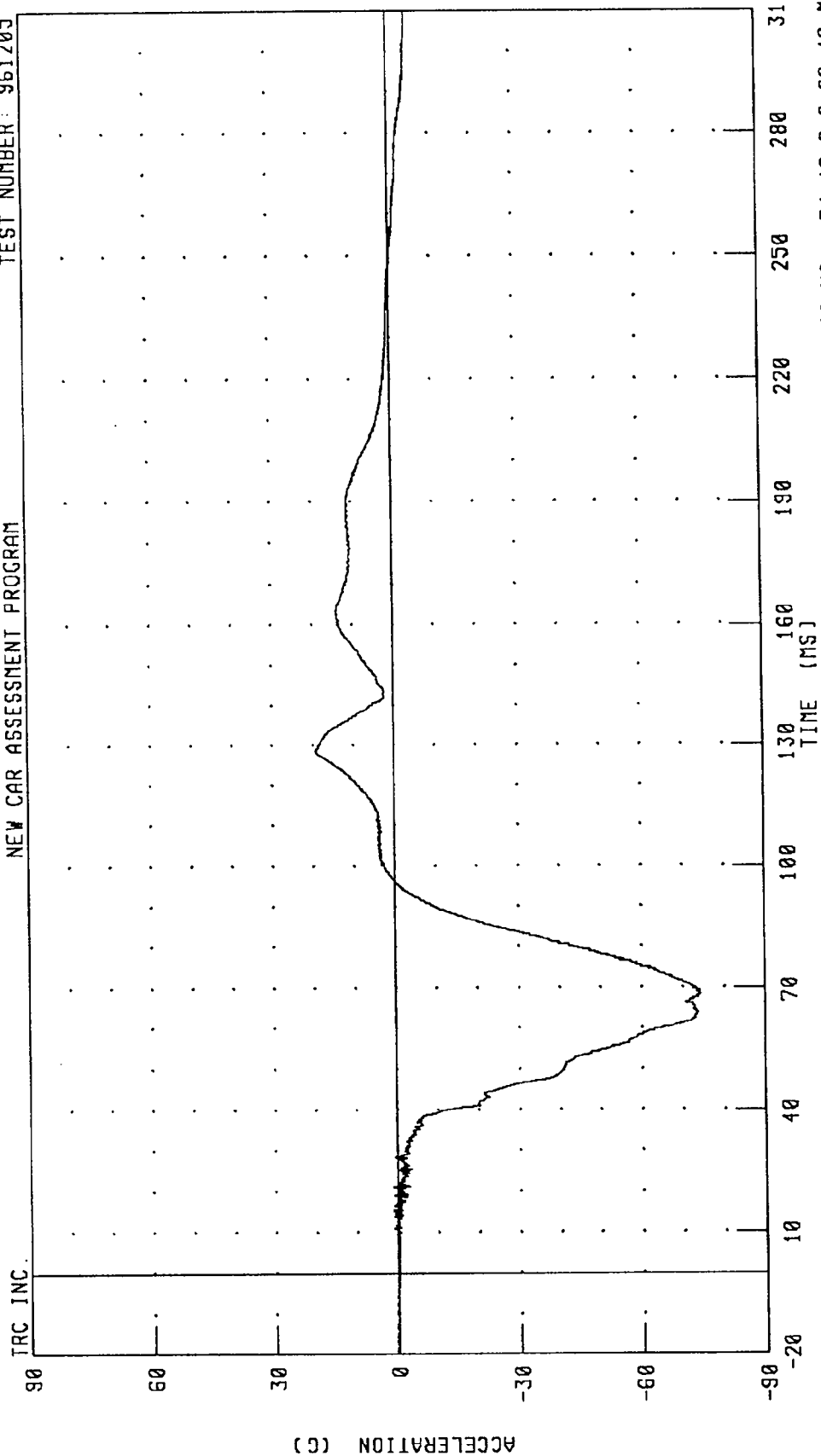
Figure A-51 Post-Test Vehicle on Static Rollover Machine View

Appendix B

Data Plots

1997 FORD CLUB WAGON VAN INTO FRONTAL LOAD CELL BARRIER
 DRIVER HEAD X-AXIS ACCELERATION
 NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 961205

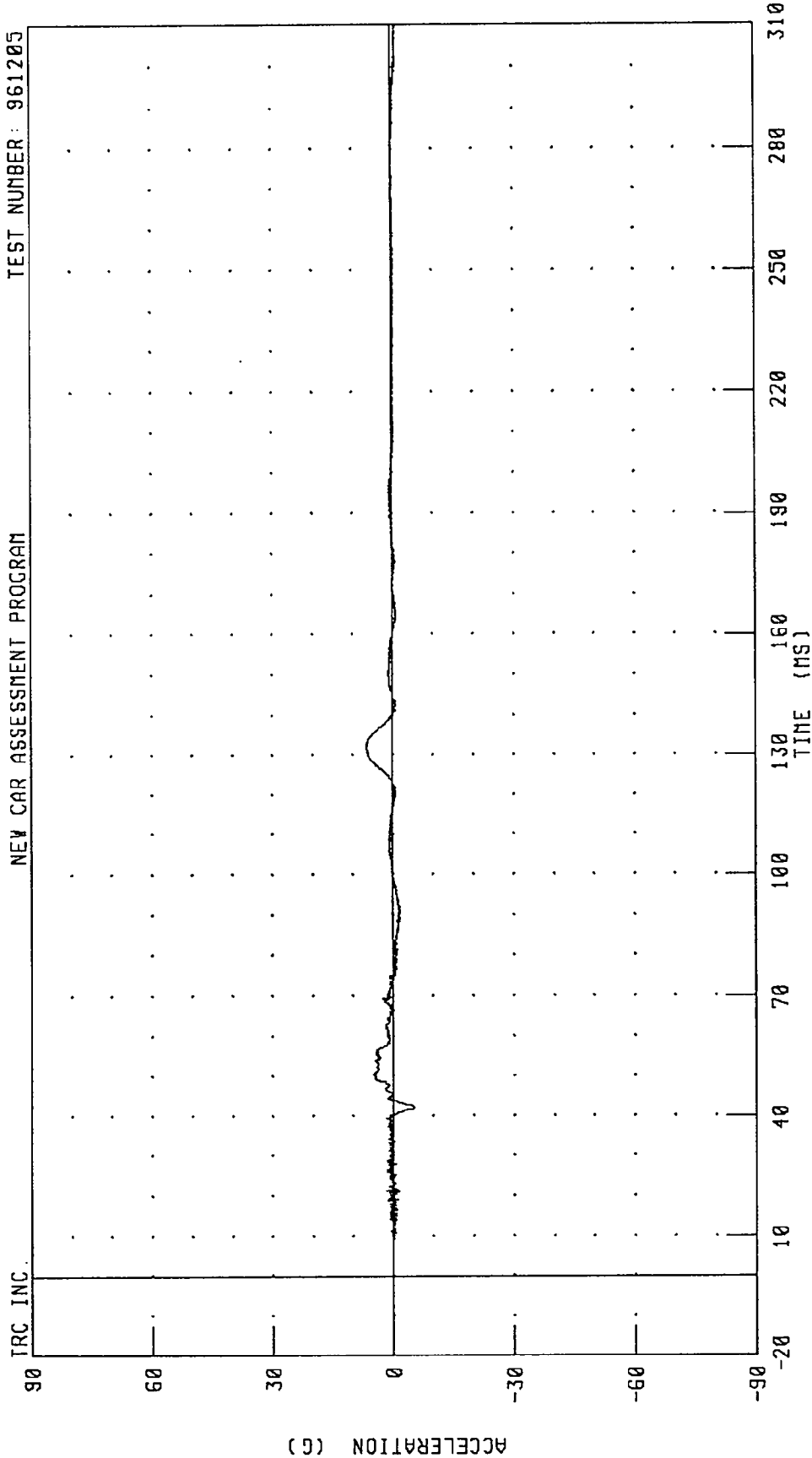


PEAK DATA: 19.30 G @ 128.08 MS; -74.46 G @ 68.40 MS

CHANNEL: HEDXG1 FILTER: CH. CLASS 1000

1997 FORD CLUB WAGON VAN INTO FRONTAL LOAD CELL BARRIER
 DRIVER HEAD Y-AXIS ACCELERATION
 NEW CAR ASSESSMENT PROGRAM

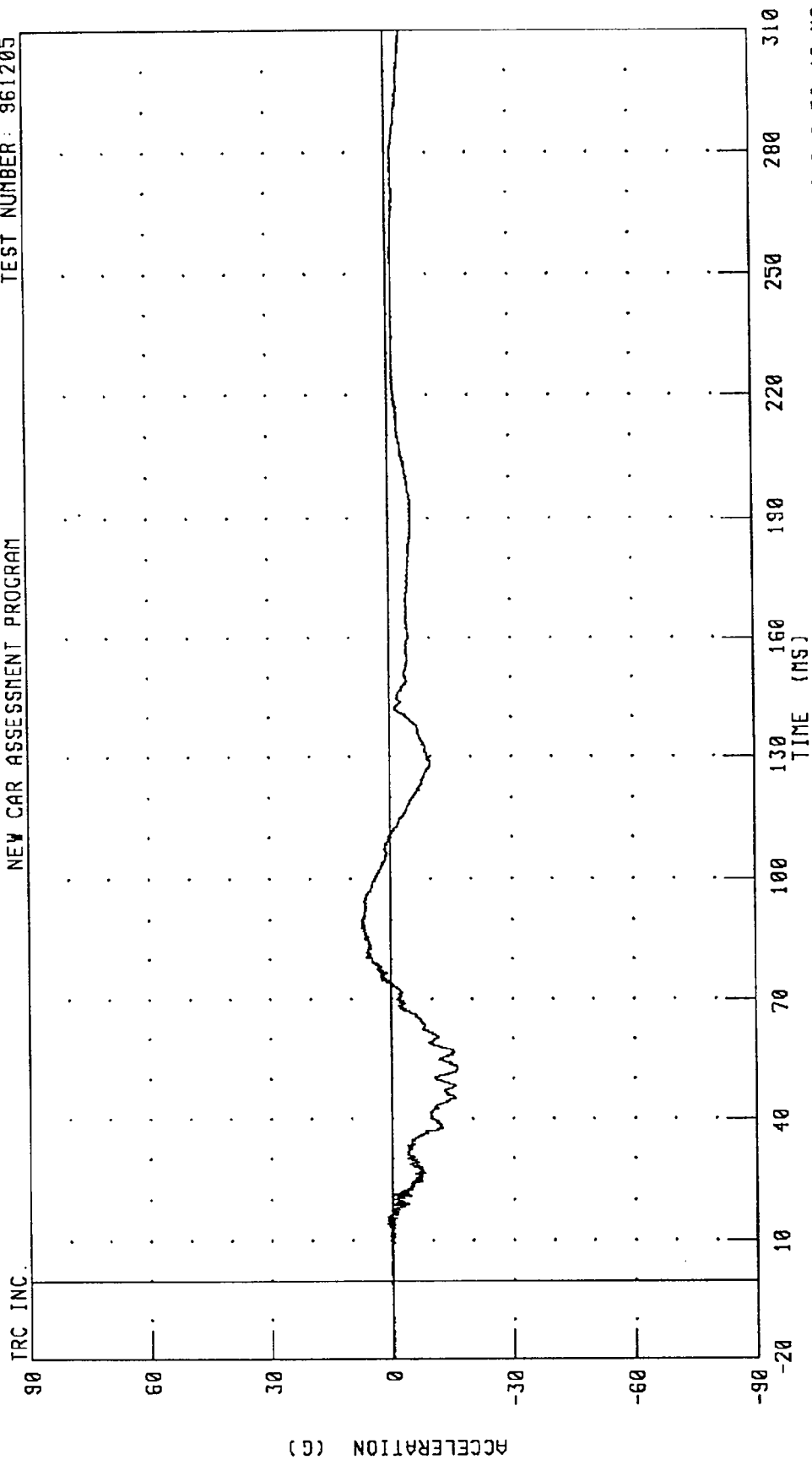
TEST NUMBER: 961205



CHANNEL: HEDYG1 FILTER: CH. CLASS 1000

1997 FORD CLUB WAGON VAN INTO FRONTAL LOAD CELL BARRIER
 DRIVER HEAD Z-AXIS ACCELERATION
 NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 961205



PEAK DATA: 7.45 G @ 89.28 MS; -16.29 G @ 52.40 MS

CHANNEL: HEDZG1 FILTER: CH. CLASS 1000

1997 FORD CLUB WAGON VAN INTO FRONTAL LOAD CELL BARRIER
DRIVER HEAD RESULTANT ACCELERATION
NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 961205

IRC INC.

120

100

80

60

40

20

0

ACCELERATION (G)

-20

10

40

70

100

130

160

190

220

250

280

310

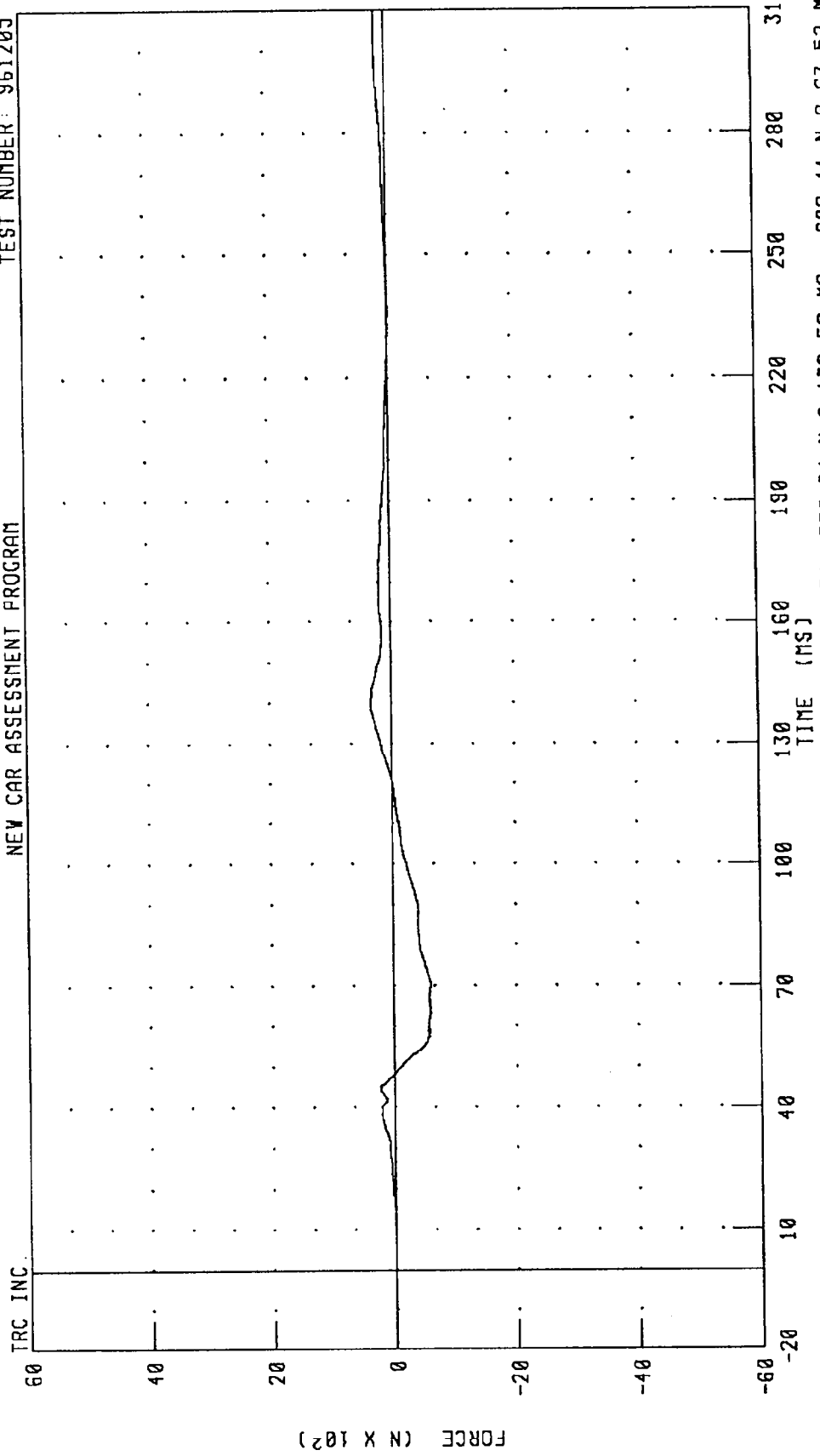
TIME (MS)

PEAK DATA: 74.52 G @ 68.40 MS; 0.12 G @ -18.24 MS

CHANNEL: HEDRG1 FILTER: CH. CLASS 1000

1997 FORD CLUB WAGON VAN INTO FRONTAL LOAD CELL BARRIER
 DRIVER NECK X-AXIS SHEAR FORCE
 NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 961205

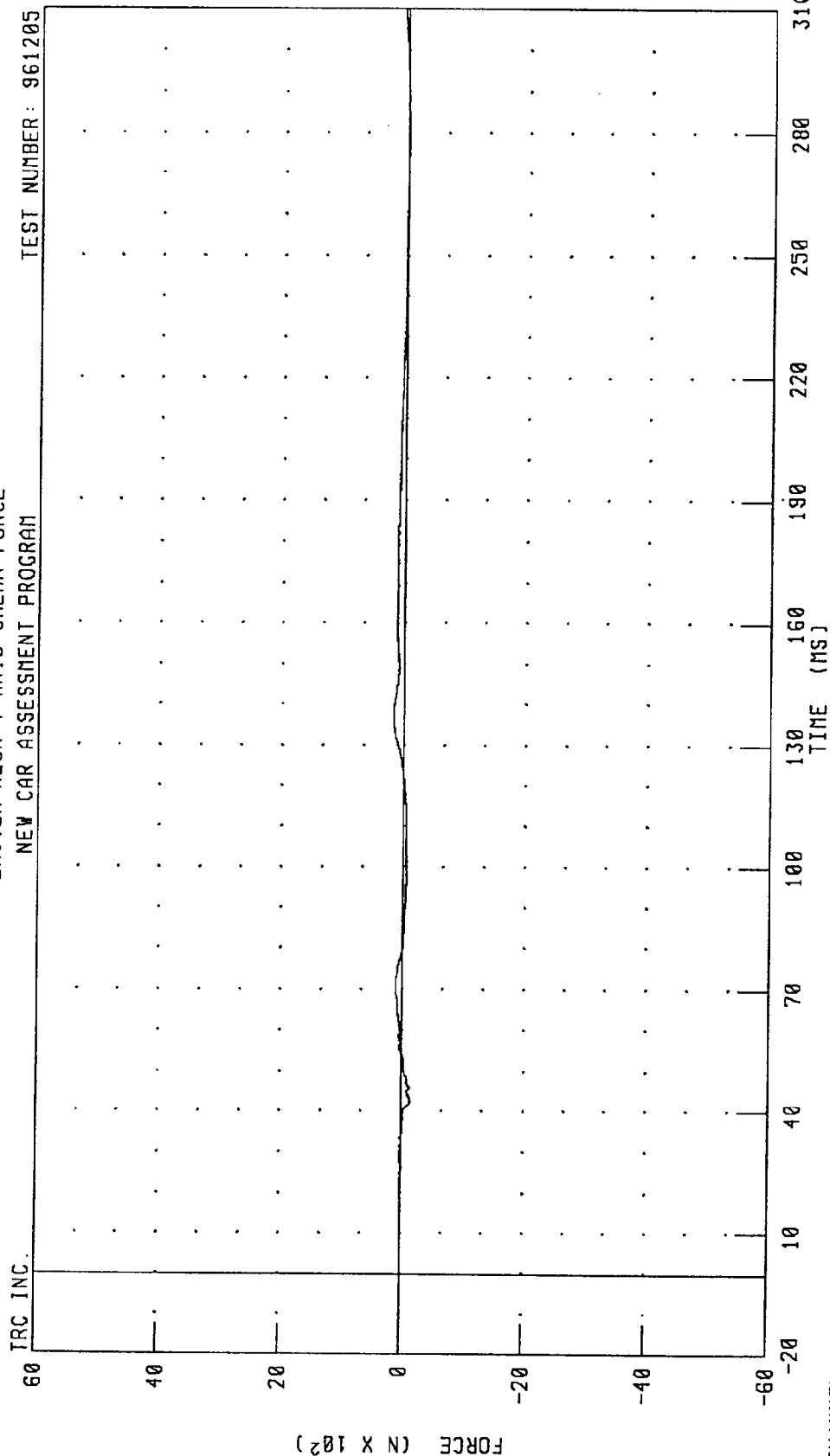


PEAK DATA: 336.04 N @ 138.56 MS; -602.41 N @ 63.52 MS

CHANNEL: NEKXF1 FILTER: CH. CLASS 1000

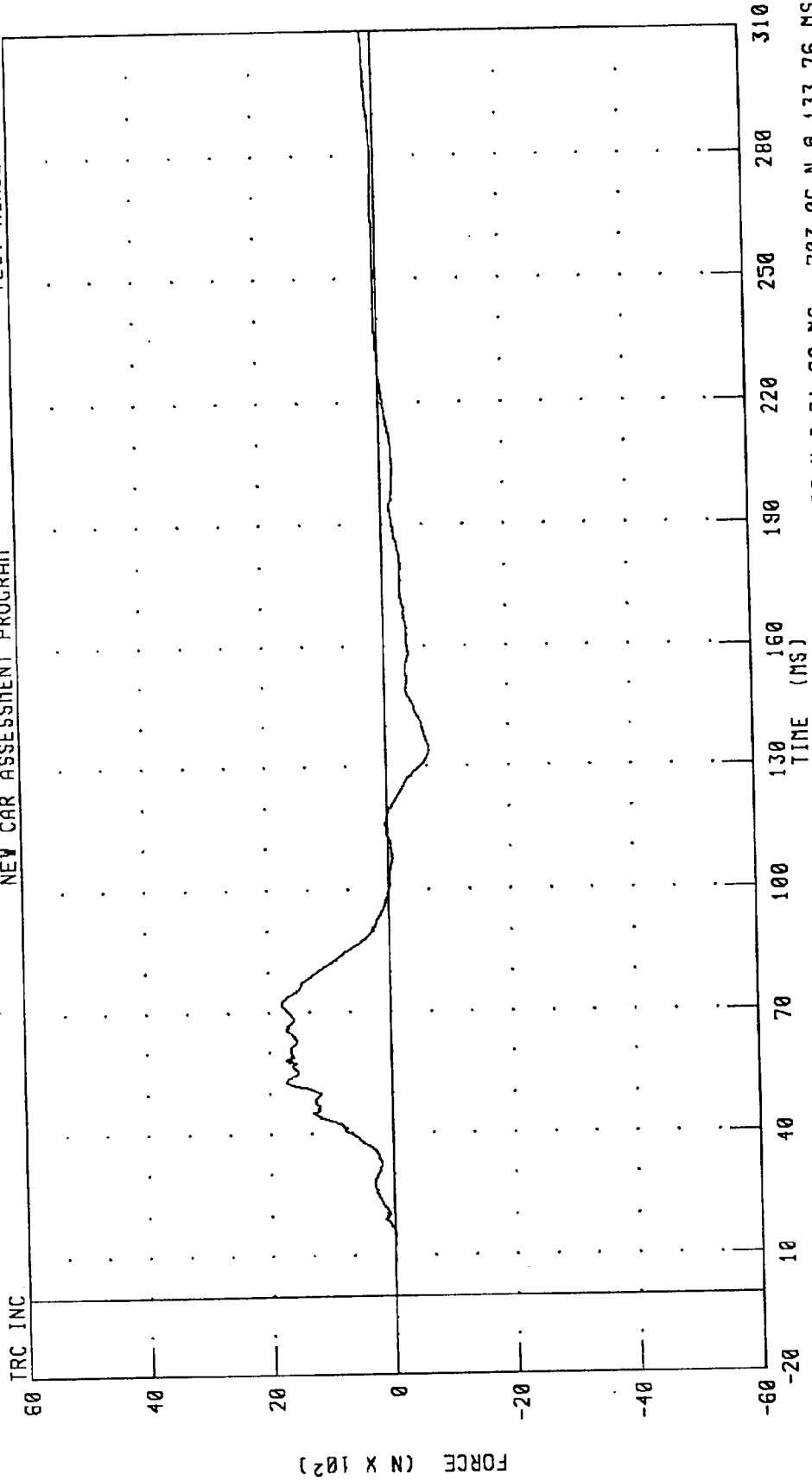
1997 FORD CLUB WAGON VAN INTO FRONTAL LOAD CELL BARRIER
 DRIVER NECK Y-AXIS SHEAR FORCE
 NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 961205



1997 FORD CLUB WAGON VAN INTO FRONTAL LOAD CELL BARRIER
 DRIVER NECK Z-AXIS AXIAL FORCE
 NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 961205

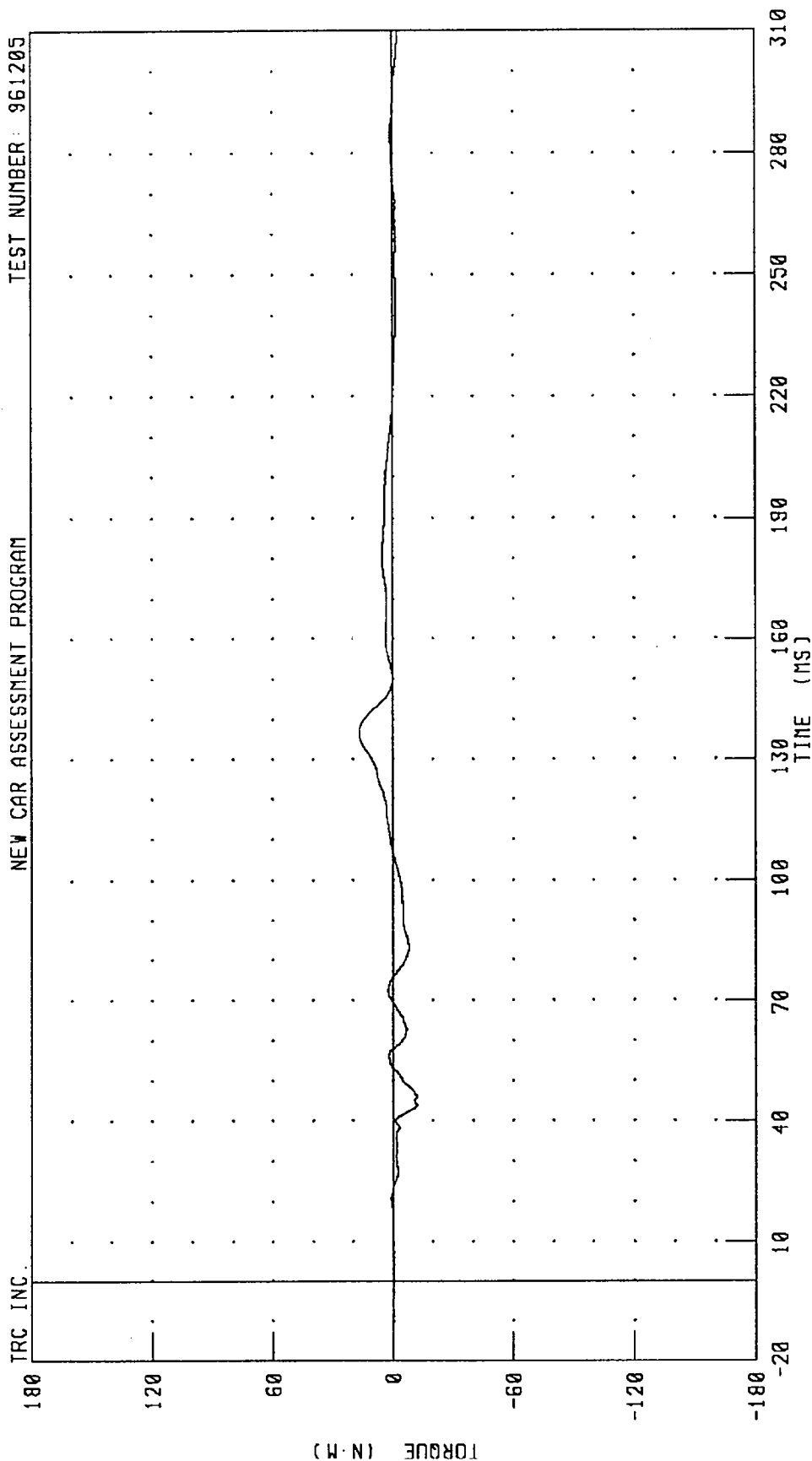


CHANNEL: NEKZF1 FILTER: CH. CLASS 1000

PEAK DATA: 1794.88 N @ 71.92 MS; -703.06 N @ 133.76 MS

1997 FORD CLUB WAGON VAN INTO FRONTAL LOAD CELL BARRIER
 DRIVER NECK MOMENT ABOUT X AXIS
 NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 961205

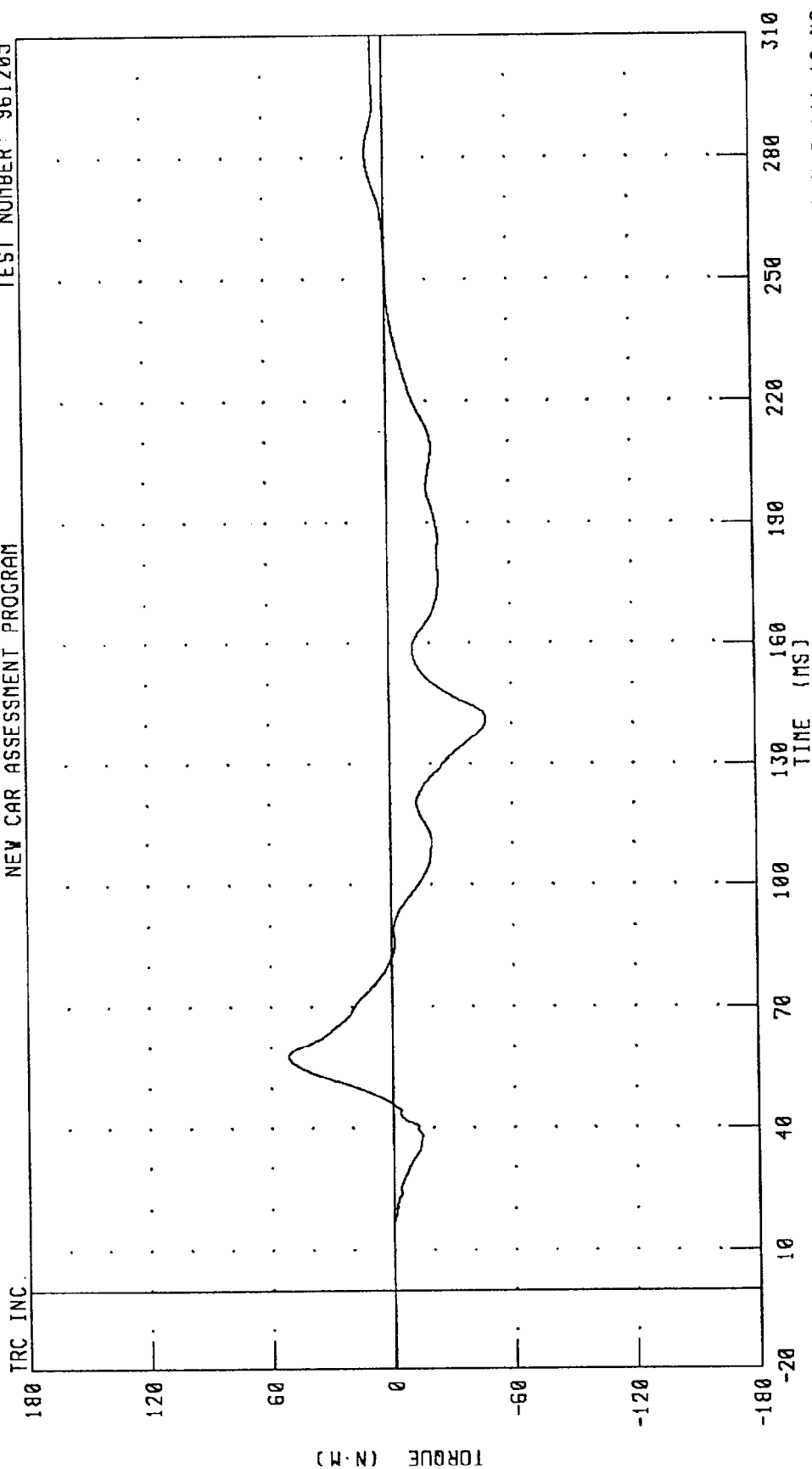


CHANNEL: NEKXMI FILTER: CH. CLASS 600

1997 FORD CLUB WAGON VAN INTO FRONTAL LOAD CELL BARRIER
DRIVER NECK MOMENT ABOUT Y AXIS

NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 961205



PEAK DATA: 51.59 N·M @ 58.08 MS; -47.34 N·M @ 141.12 MS

CHANNEL: NEKYM1 FILTER: CH. CLASS 600

1997 FORD CLUB WAGON VAN INTO FRONTAL LOAD CELL BARRIER
DRIVER NECK MOMENT ABOUT Z AXIS

NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 961205

TRC INC.

180

120

60

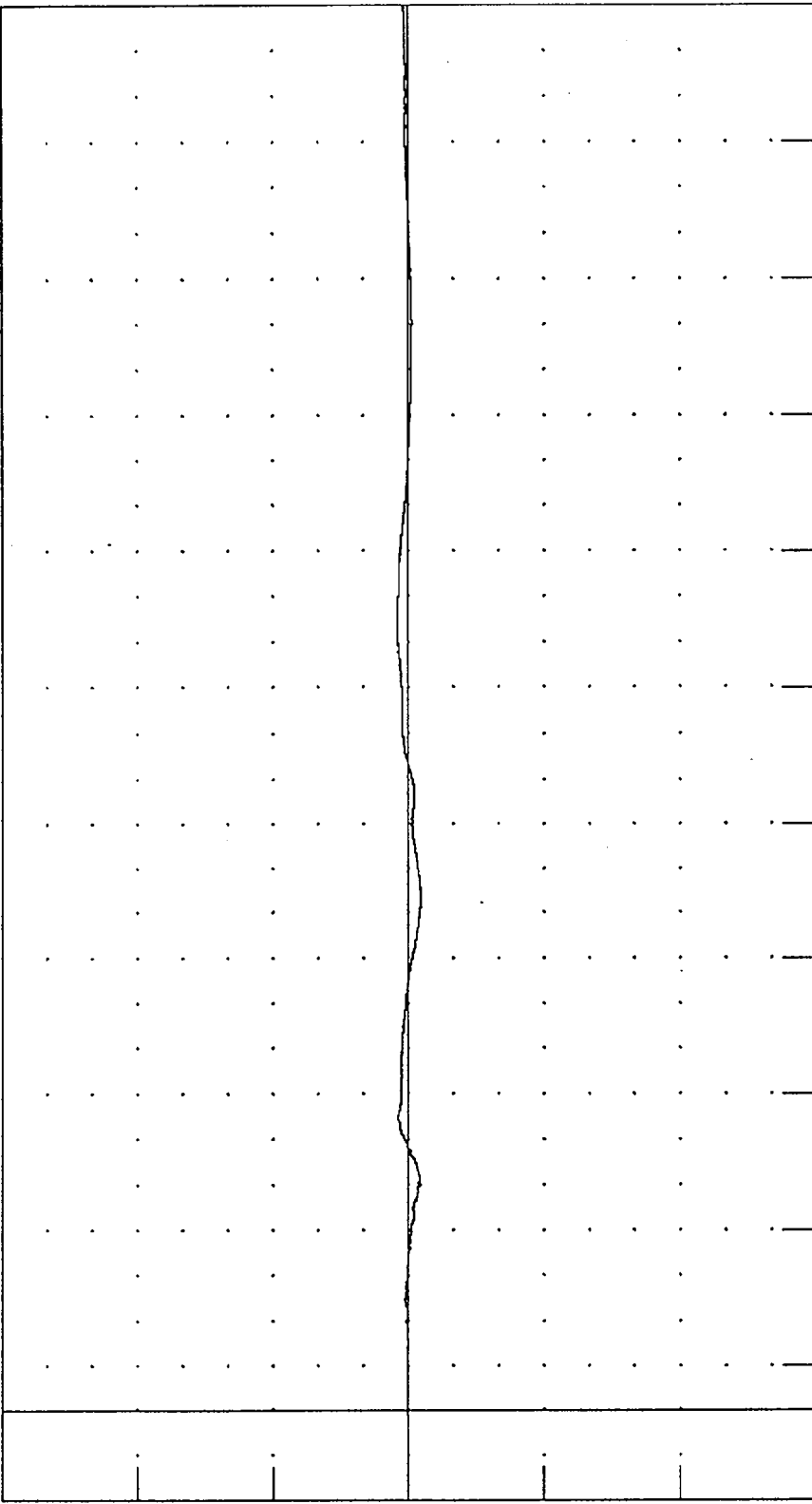
0

-60

-120

-180

TORQUE (N·M)

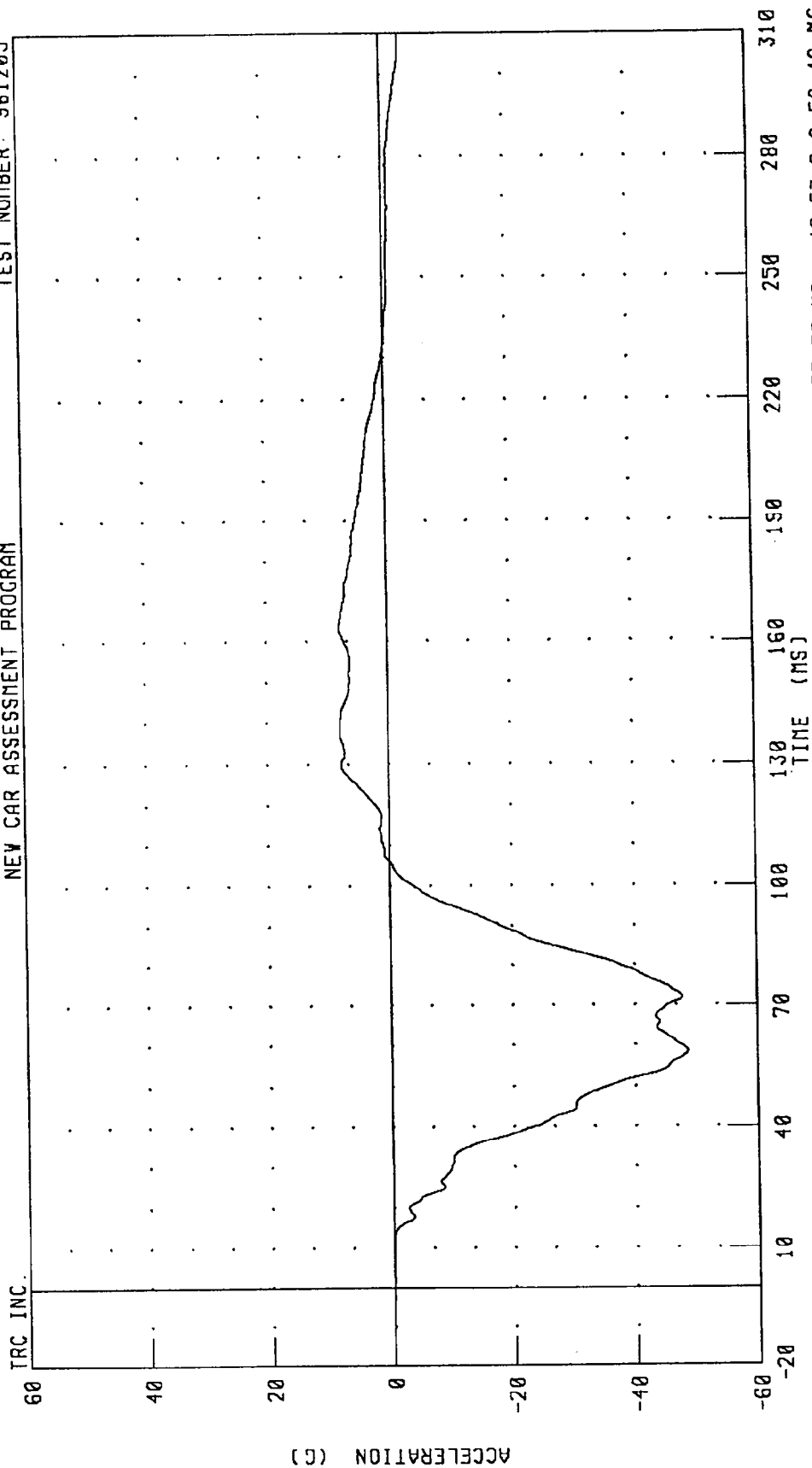


310
280
250
220
190
160
130
TIME (MS)
PEAK DATA: 4.67 N·M @ 173.28 MS; -5.76 N·M @ 50.00 MS

CHANNEL: NEKZM1 FILTER: CH. CLASS 600

1997 FORD CLUB WAGON VAN INTO FRONTAL LOAD CELL BARRIER
 DRIVER CHEST X-AXIS ACCELERATION
 NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 961205



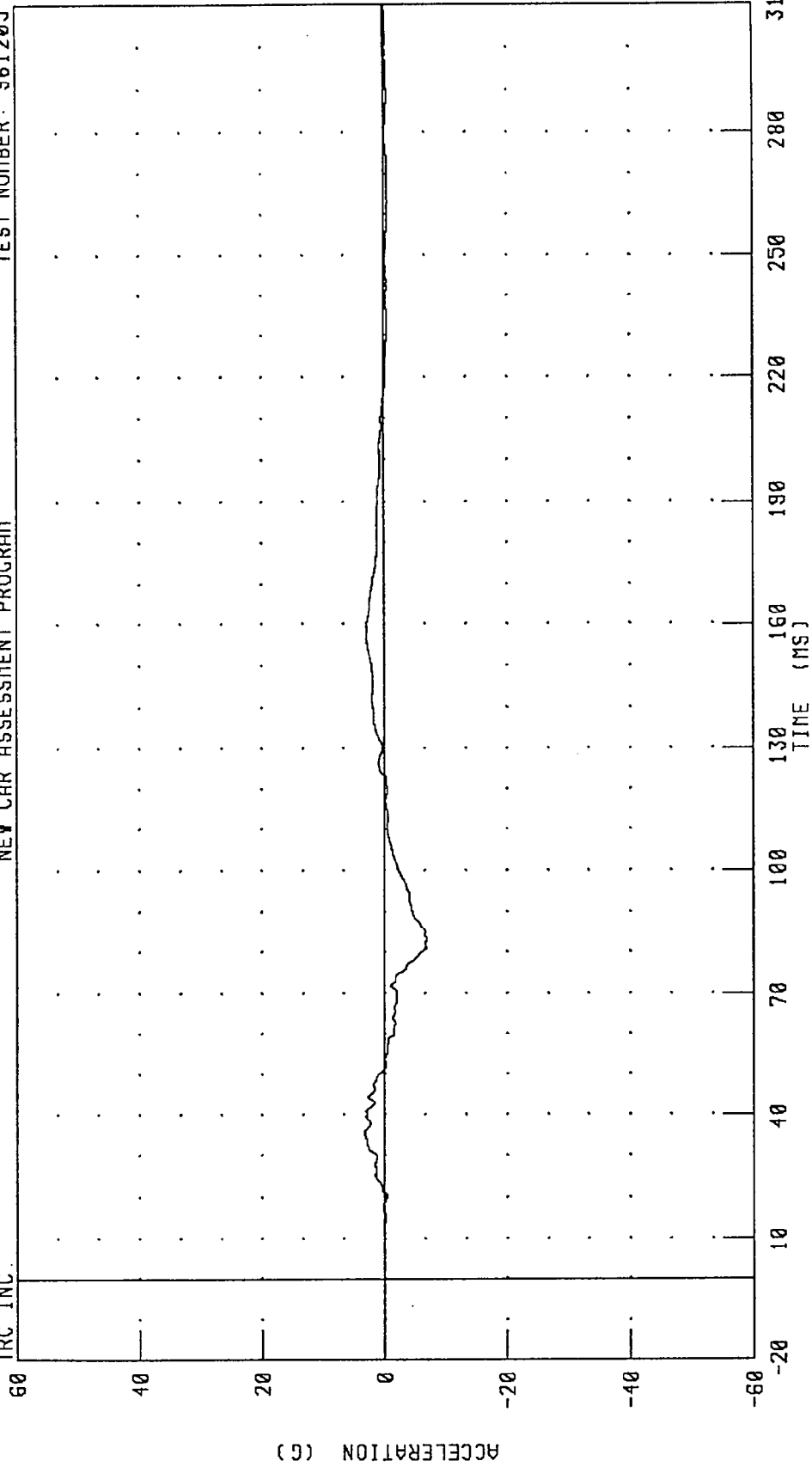
PEAK DATA: 8.02 G @ 137.36 MS; -48.53 G @ 58.48 MS

CHANNEL: CSTXG1 FILTER: CH. CLASS 180

1997 FORD CLUB WAGON VAN INTO FRONTAL LOAD CELL BARRIER
 DRIVER CHEST Y-AXIS ACCELERATION
 NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 961205

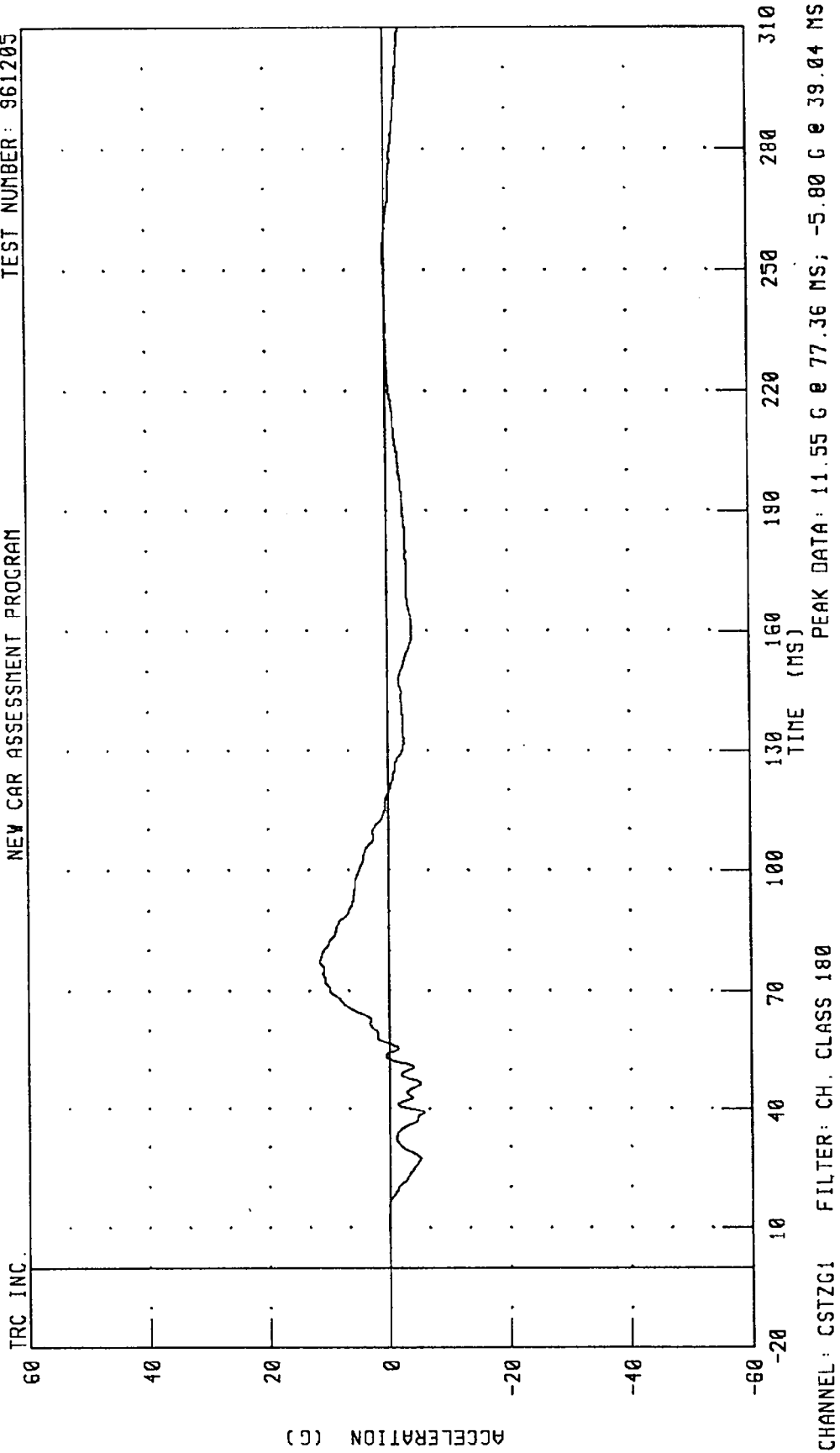
TRC INC.



CHANNEL: CSTYG1 FILTER: CH. CLASS 180

1997 FORD CLUB WAGON VAN INTO FRONTAL LOAD CELL BARRIER
 DRIVER CHEST Z-AXIS ACCELERATION
 NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 961205



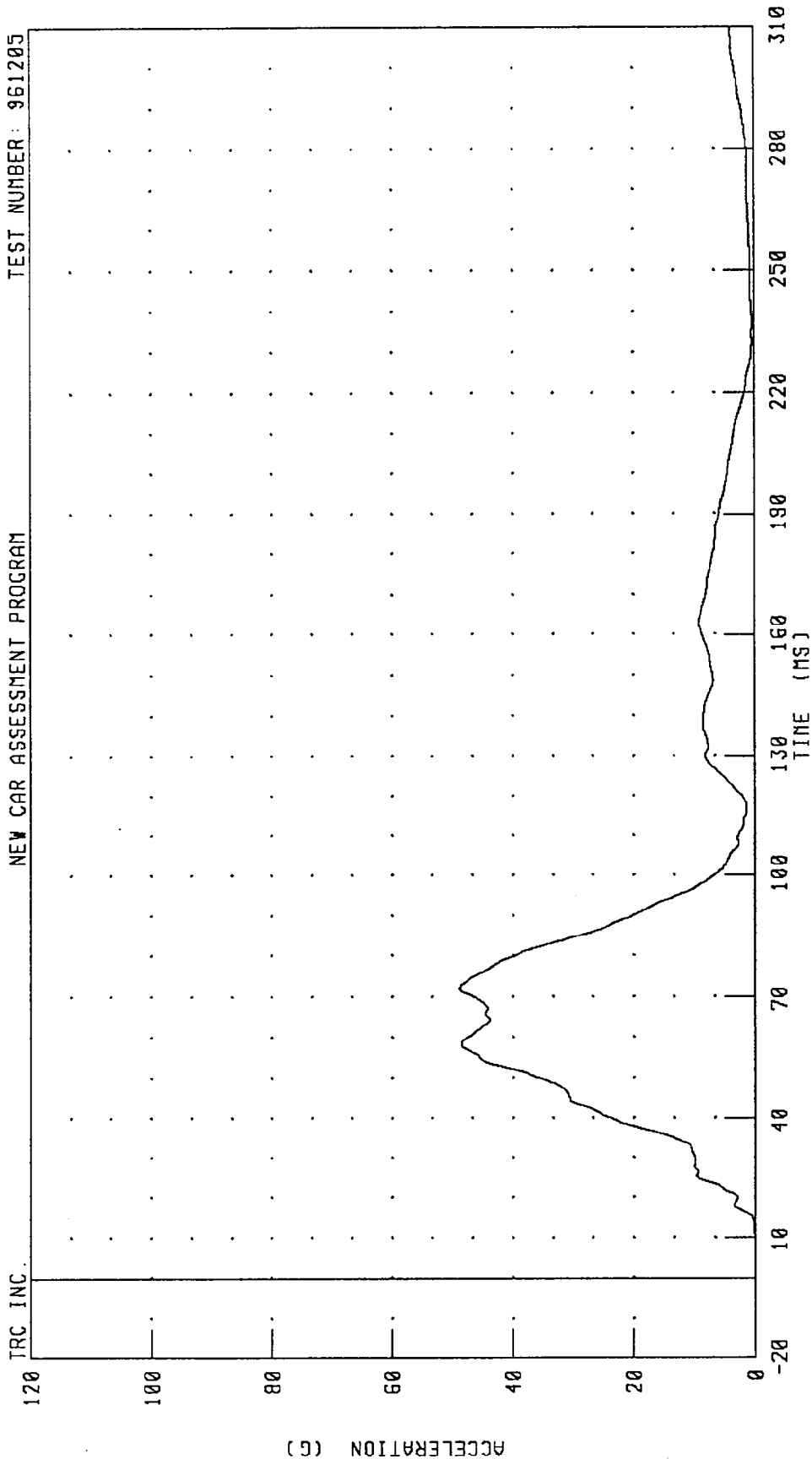
CHANNEL: CSTZG1 FILTER: CH. CLASS 180

PEAK DATA: 11.55 G @ 77.36 MS; -5.80 G @ 39.04 MS

1997 FORD CLUB WAGON VAN INTO FRONTAL LOAD CELL BARRIER
 DRIVER CHEST RESULTANT ACCELERATION
 NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 961205

TRC INC.



CHANNEL: CSTRG1 FILTER: CH. CLASS 180

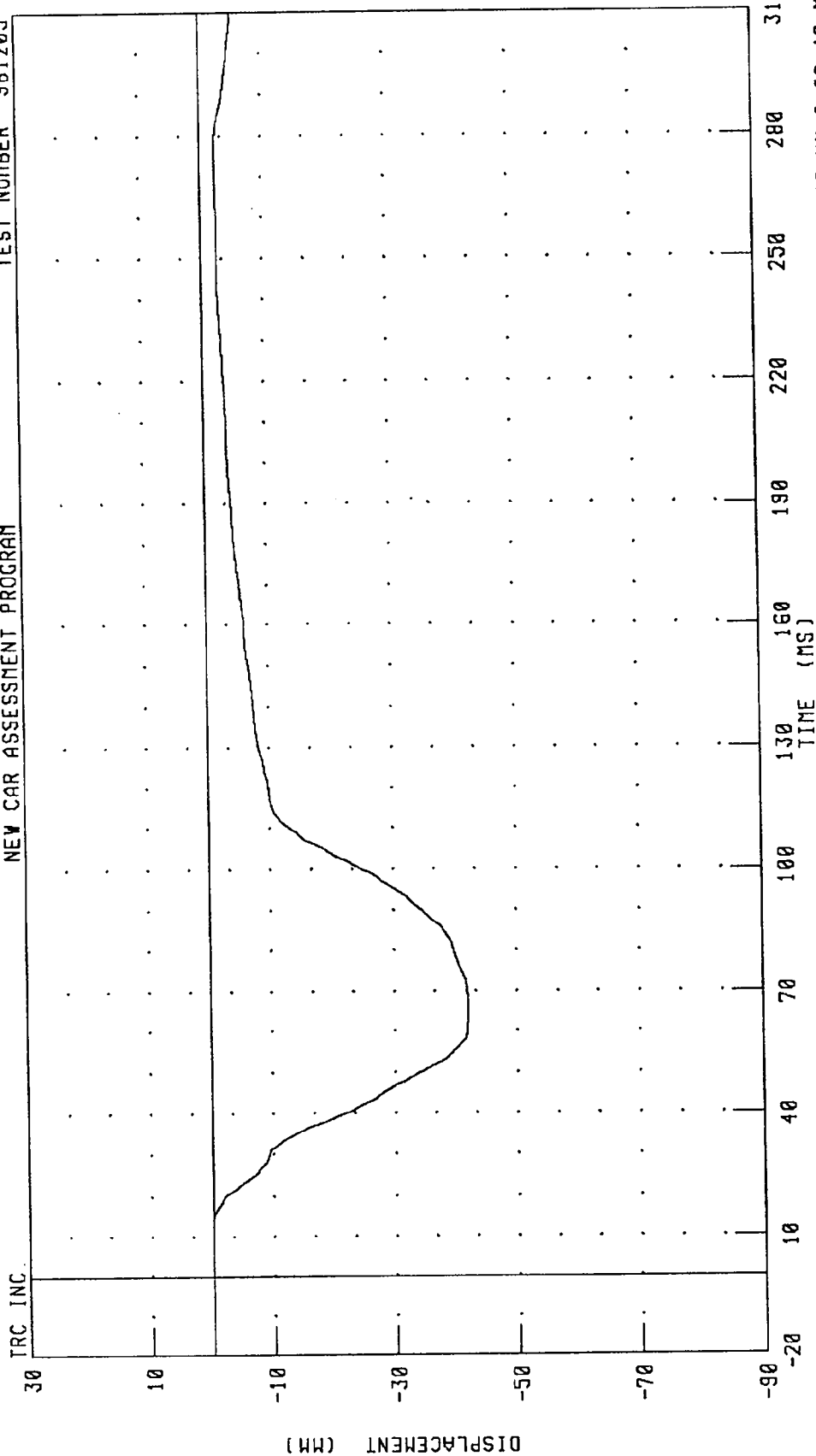
PEAK DATA: 48.86 G @ 72.00 MS; 0.01 G @ -20.00 MS

1997 FORD CLUB WAGON VAN INTO FRONTAL LOAD CELL BARRIER

DRIVER CHEST DEFLECTION

NEW CAR ASSESSMENT PROGRAM

TEST NUMBER 961205



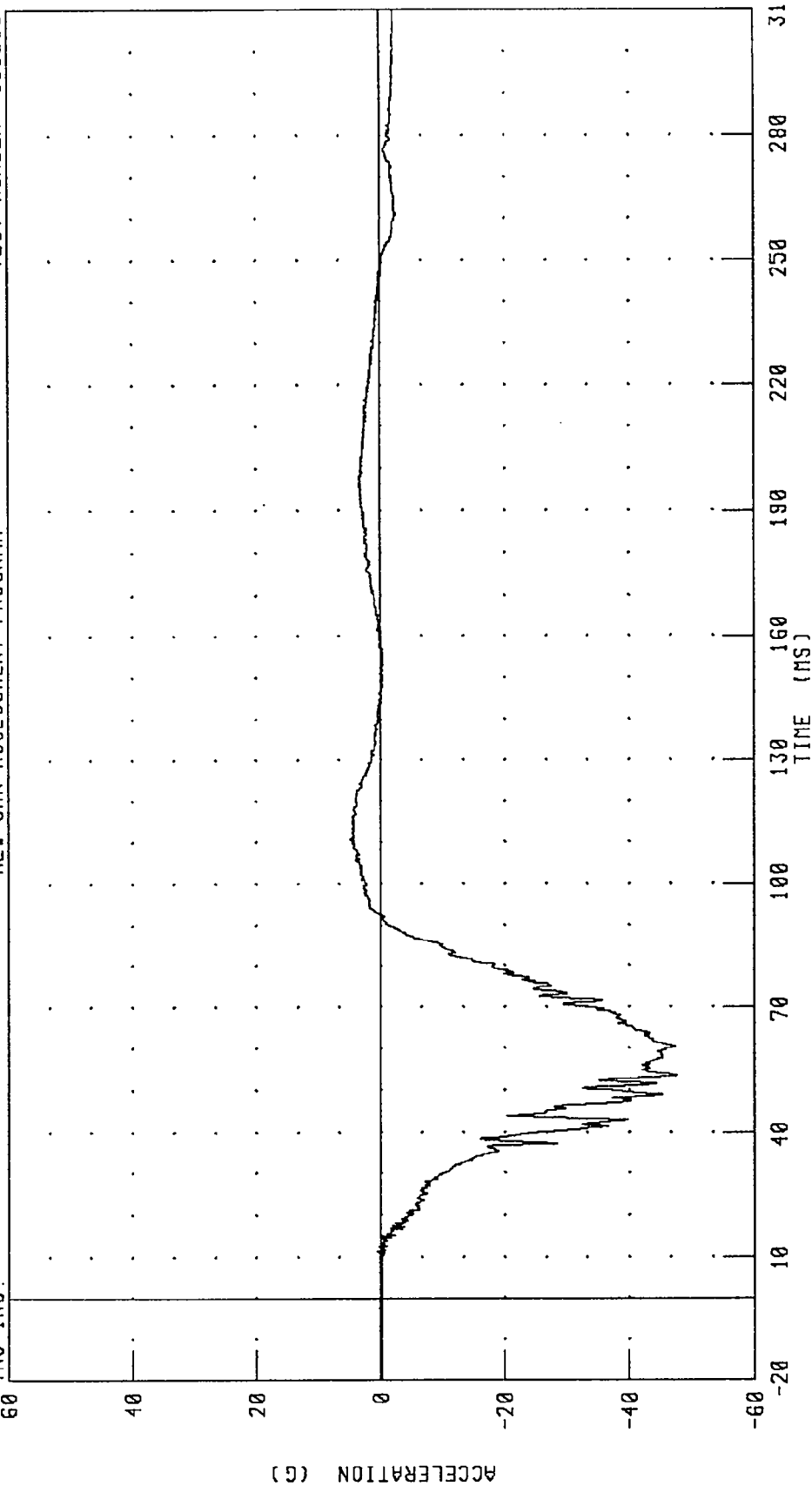
CHANNEL: CSTXD1 FILTER: CH. CLASS 180

PEAK DATA: 0.01 MM @ -16.24 MS; -42.02 MM @ 66.48 MS

1997 FORD CLUB WAGON VAN INTO FRONTAL LOAD CELL BARRIER
DRIVER PELVIS X-AXIS ACCELERATION
NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 961205

TRC INC.

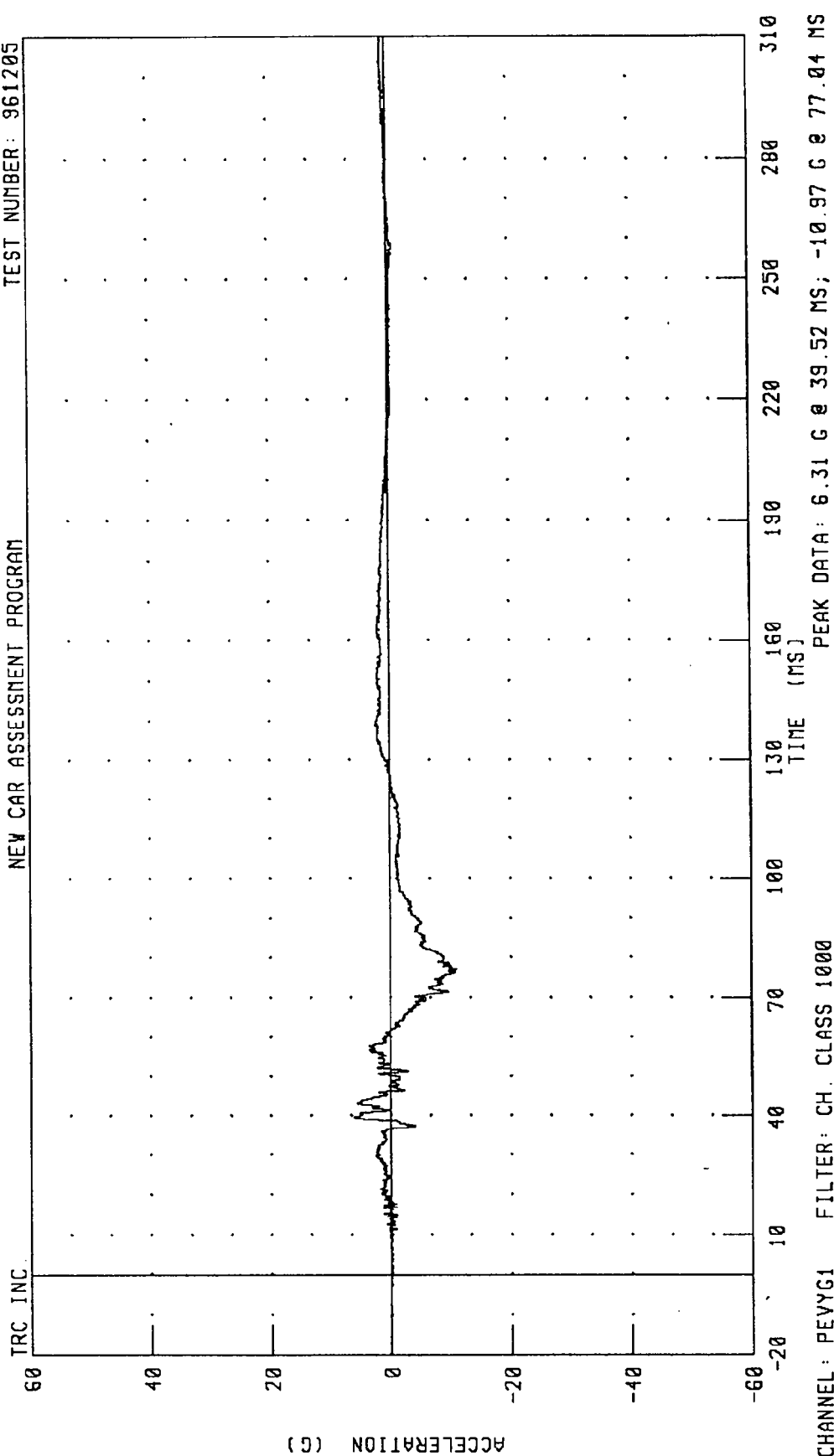


CHANNEL: PEVXC1 FILTER: CH. CLASS 1000

PEAK DATA: 4.85 G @ 110.72 MS; -47.54 G @ 53.44 MS

1997 FORD CLUB WAGON VAN INTO FRONTAL LOAD CELL BARRIER
 DRIVER PELVIS Y-AXIS ACCELERATION
 NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 961205



CHANNEL: PEVYGI FILTER: CH. CLASS 1000

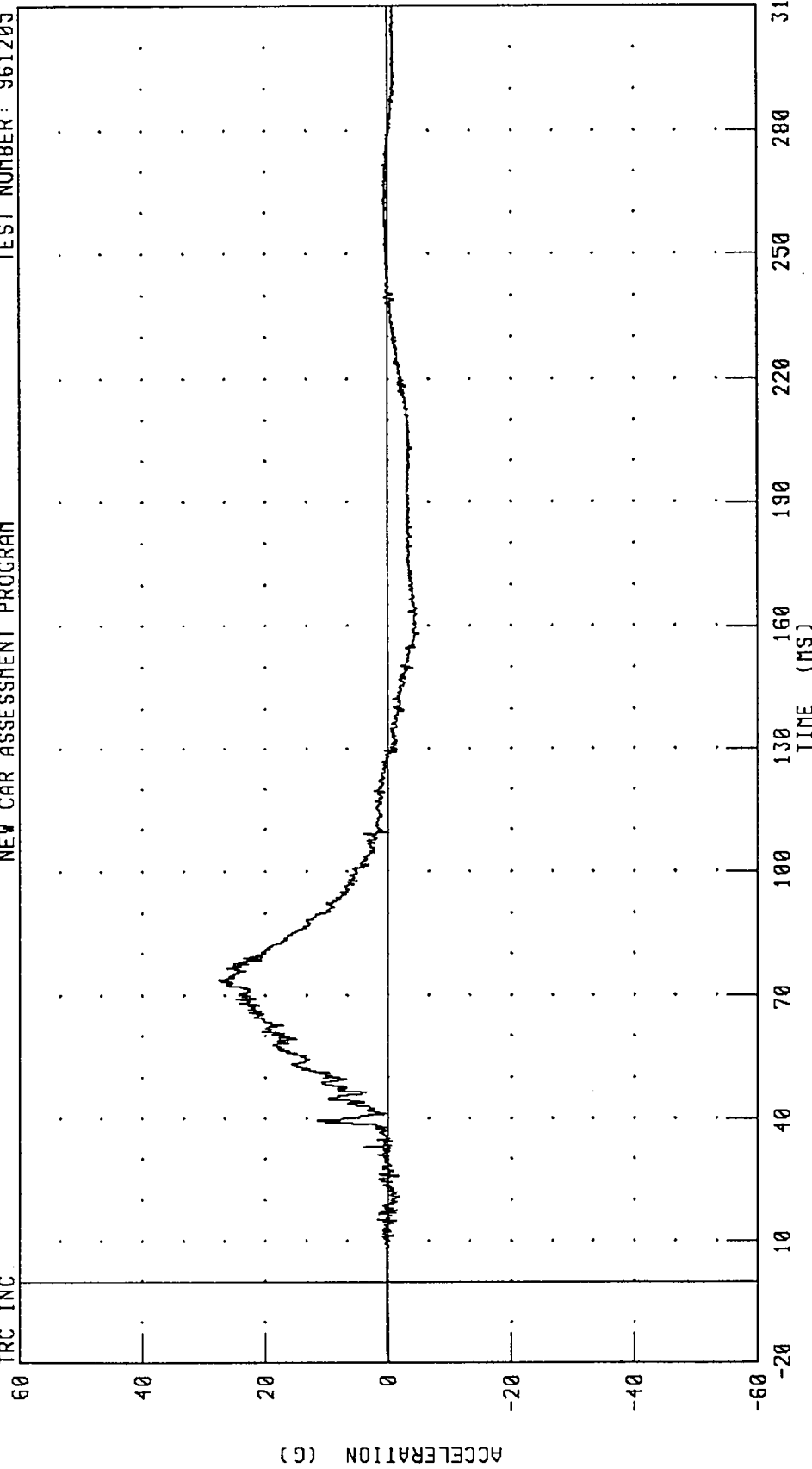
PEAK DATA: 6.31 G @ 39.52 MS; -10.97 G @ 77.04 MS

1997 FORD CLUB WAGON VAN INTO FRONTAL LOAD CELL BARRIER
 DRIVER PELVIS Z-AXIS ACCELERATION

TEST NUMBER: 961205

NEW CAR ASSESSMENT PROGRAM

TRC INC.

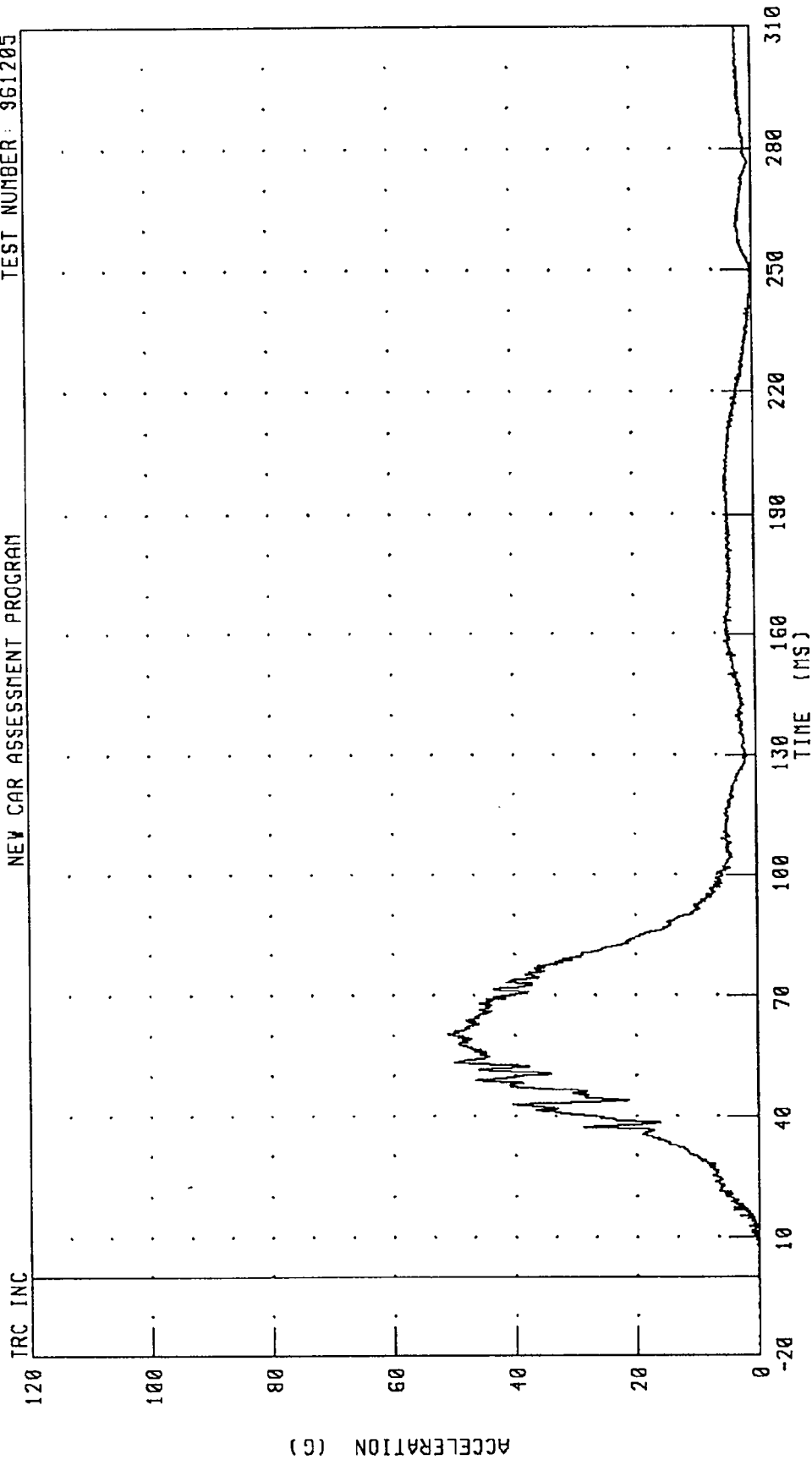


PEAK DATA: 27.61 G @ 73.92 MS; -5.00 G @ 158.24 MS

CHANNEL: PEVZG1 FILTER: CH. CLASS 1000

1997 FORD CLUB WAGON VAN INTO FRONTAL LOAD CELL BARRIER
 DRIVER PELVIS RESULTANT ACCELERATION
 NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 961205

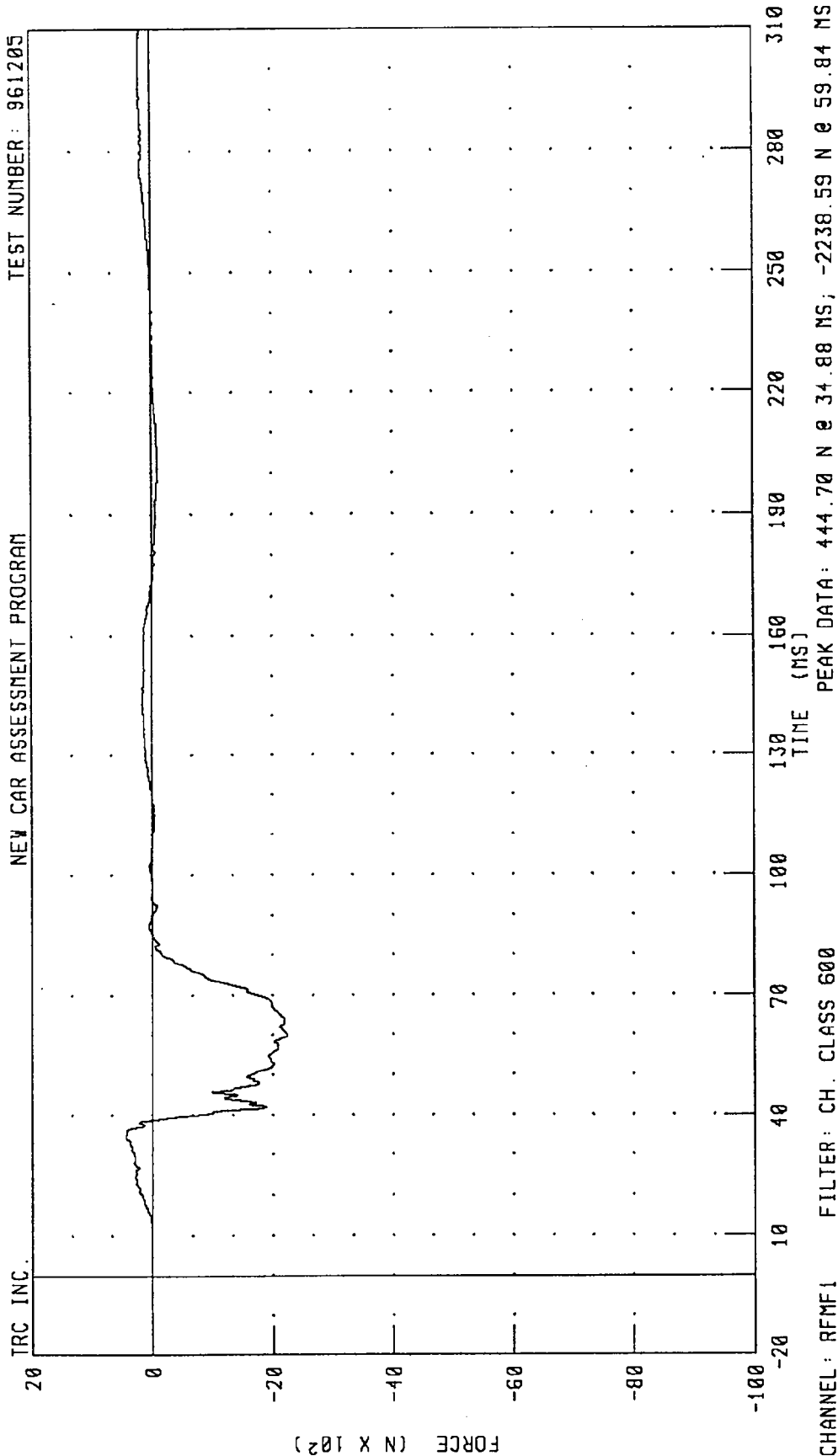


PEAK DATA: 51.00 G @ 60.56 MS; 0.12 G @ -20.00 MS

CHANNEL: PEVRG1 FILTER: CH. CLASS 1000

1997 FORD CLUB WAGON VAN INTO FRONTAL LOAD CELL BARRIER
 DRIVER RIGHT FEMUR FORCE
 NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 961205



PEAK DATA: 444.70 N @ 34.88 MS; -2238.59 N @ 59.84 MS

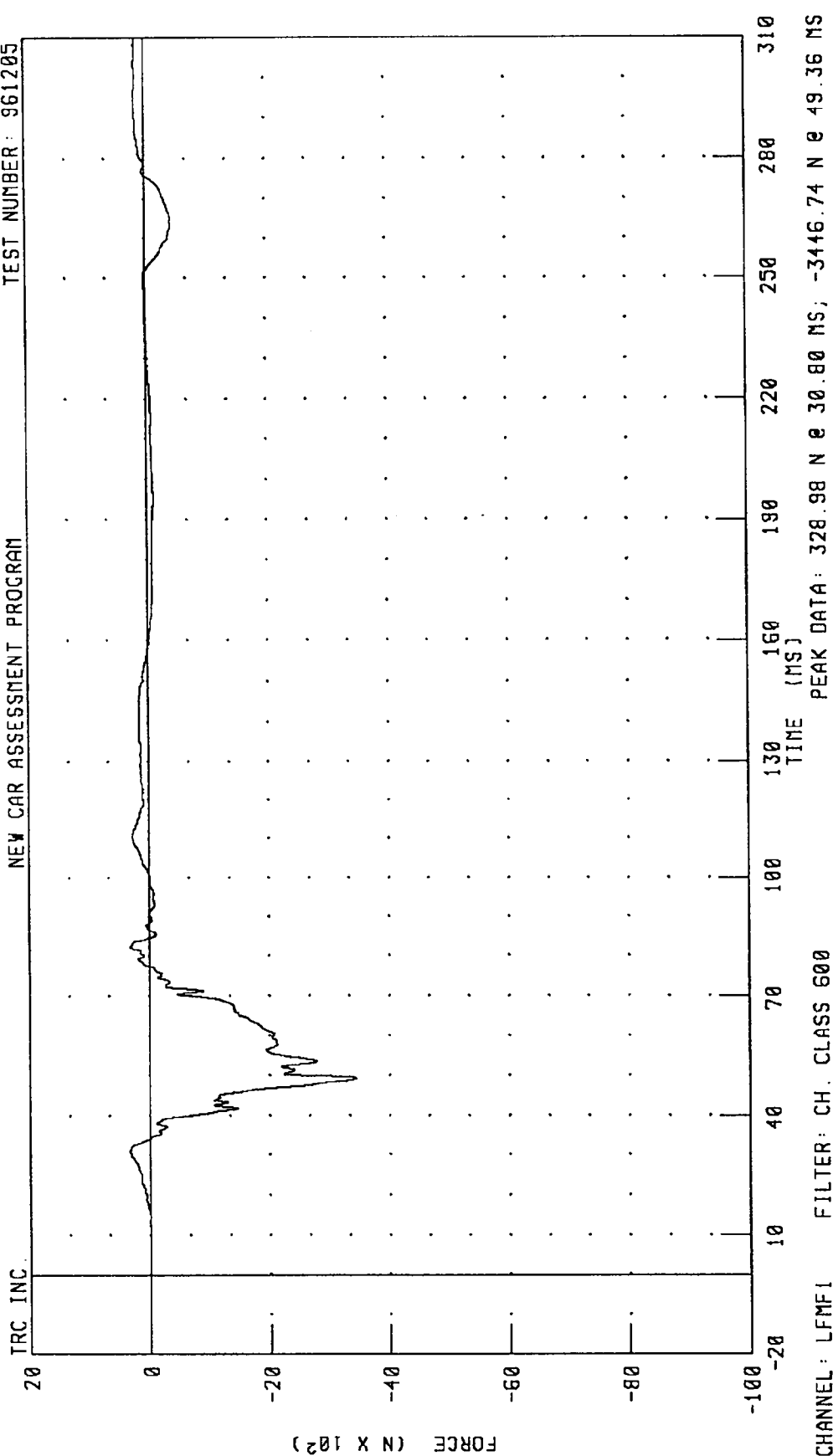
CHANNEL: RFMF1 FILTER: CH. CLASS 600

1997 FORD CLUB WAGON VAN INTO FRONTAL LOAD CELL BARRIER

DRIVER LEFT FEMUR FORCE

NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 961205

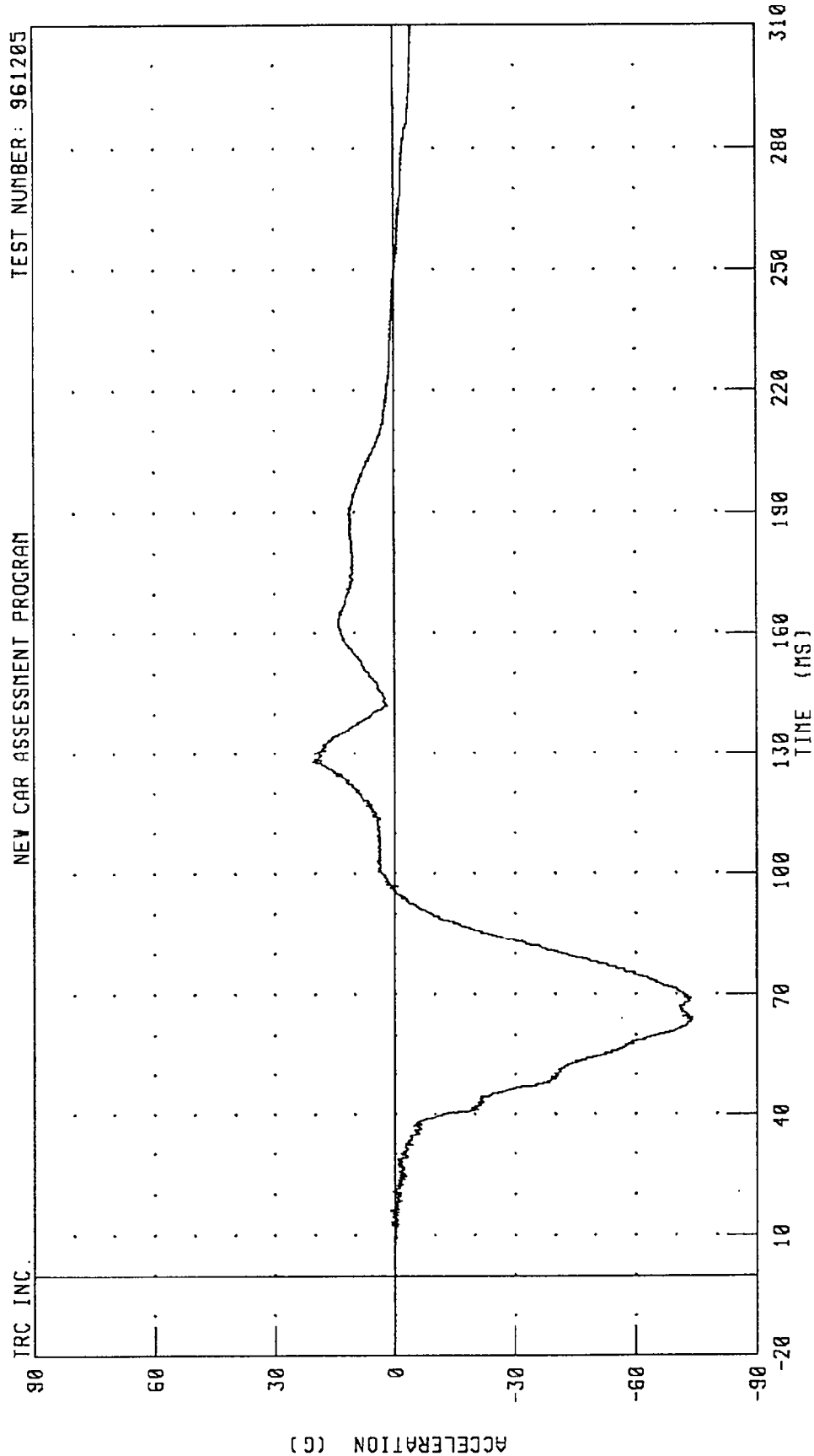


PEAK DATA: 328.98 N @ 30.80 MS; -3416.74 N @ 49.36 MS

CHANNEL: LFMF1 FILTER: CH. CLASS 600

1997 FORD CLUB WAGON VAN INTO FRONTAL LOAD CELL BARRIER
 DRIVER HEAD X-AXIS ACCELERATION - REDUNDANT
 NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 961205

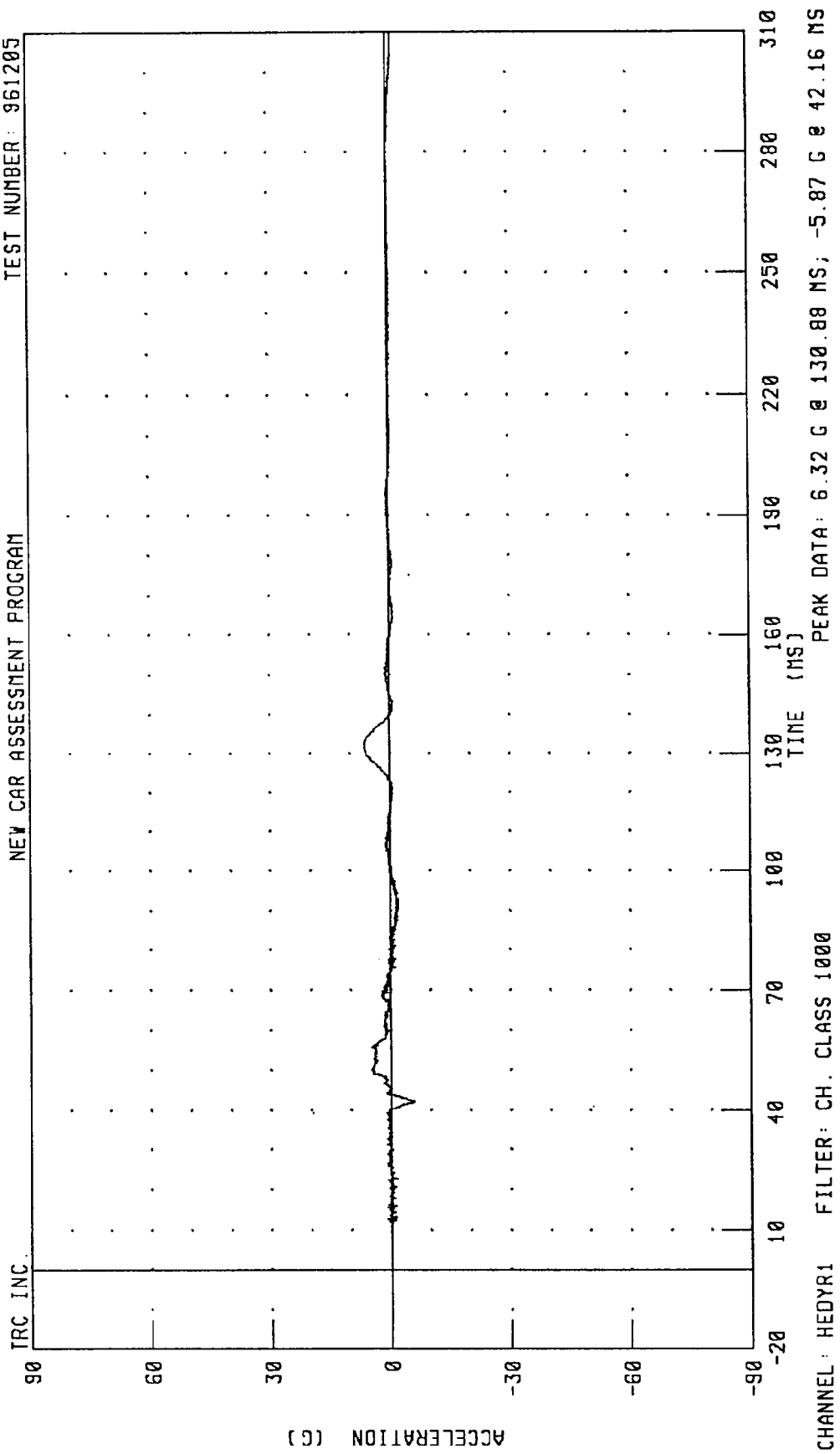


CHANNEL: HEDXR1 FILTER: CH. CLASS 1000

PEAK DATA: 20.56 G @ 127.84 MS, -73.94 G @ 63.60 MS

1997 FORD CLUB WAGON VAN INTO FRONTAL LOAD CELL BARRIER
 DRIVER HEAD Y-AXIS ACCELERATION - REDUNDANT
 NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 961205

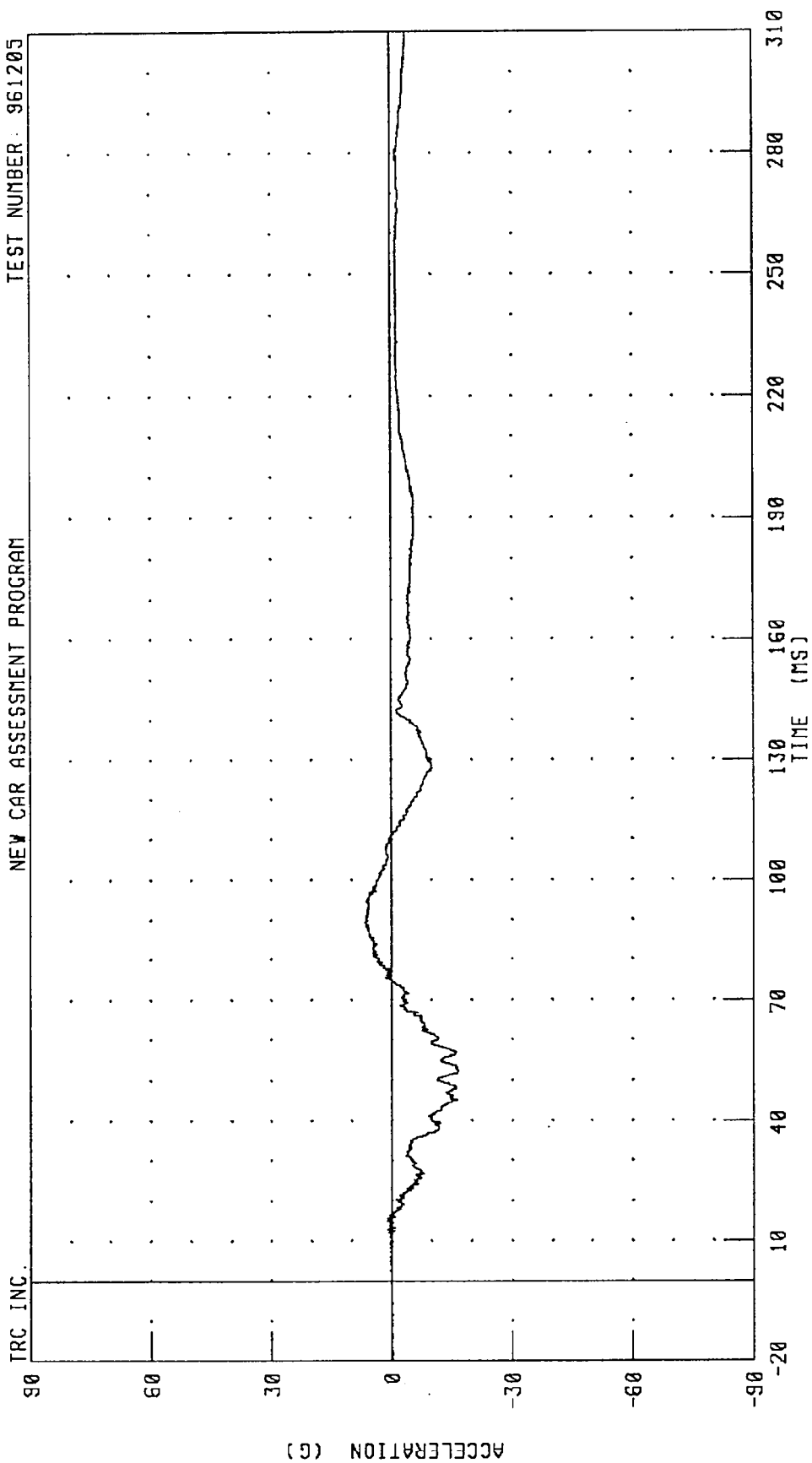


CHANNEL: HEDYR1 FILTER: CH. CLASS 1000 PEAK DATA: 6.32 G @ 130.88 MS; -5.87 G @ 42.16 MS

1997 FORD CLUB WAGON VAN INTO FRONTAL LOAD CELL BARRIER
DRIVER HEAD Z-AXIS ACCELERATION - REDUNDANT

NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 961205

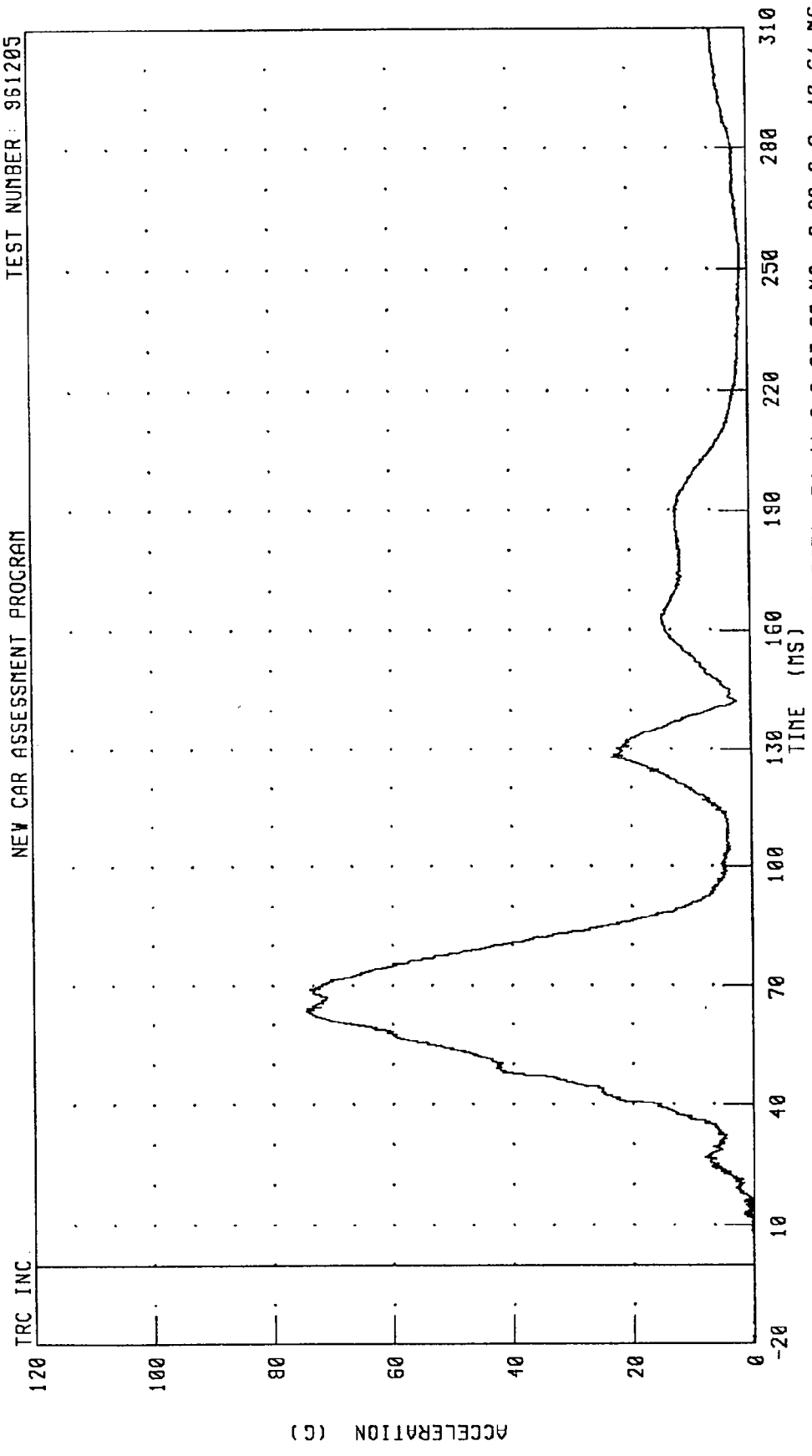


CHANNEL: HEDZR1 FILTER: CH. CLASS 1000

PEAK DATA: 6.68 G @ 89.44 MS; -16.84 G @ 52.24 MS

1997 FORD CLUB WAGON VAN INTO FRONTAL LOAD CELL BARRIER
 DRIVER HEAD RESULTANT ACCELERATION - REDUNDANT
 NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 961205



PEAK DATA: 74.41 G @ 63.60 MS; 0.00 G @ -10.64 NS

CHANNEL: HEORR1 FILTER: CH. CLASS 1000

1997 FORD CLUB WAGON VAN INTO FRONTAL LOAD CELL BARRIER
DRIVER CHEST X-AXIS ACCELERATION - REDUNDANT

TEST NUMBER: 961205

NEW CAR ASSESSMENT PROGRAM

TRC INC.

60

40

20

0

-20

-40

-60

ACCELERATION (G)

310

280

250

220

190

160

130

100

70

40

10

-20

-40

-60

TIME (MS)

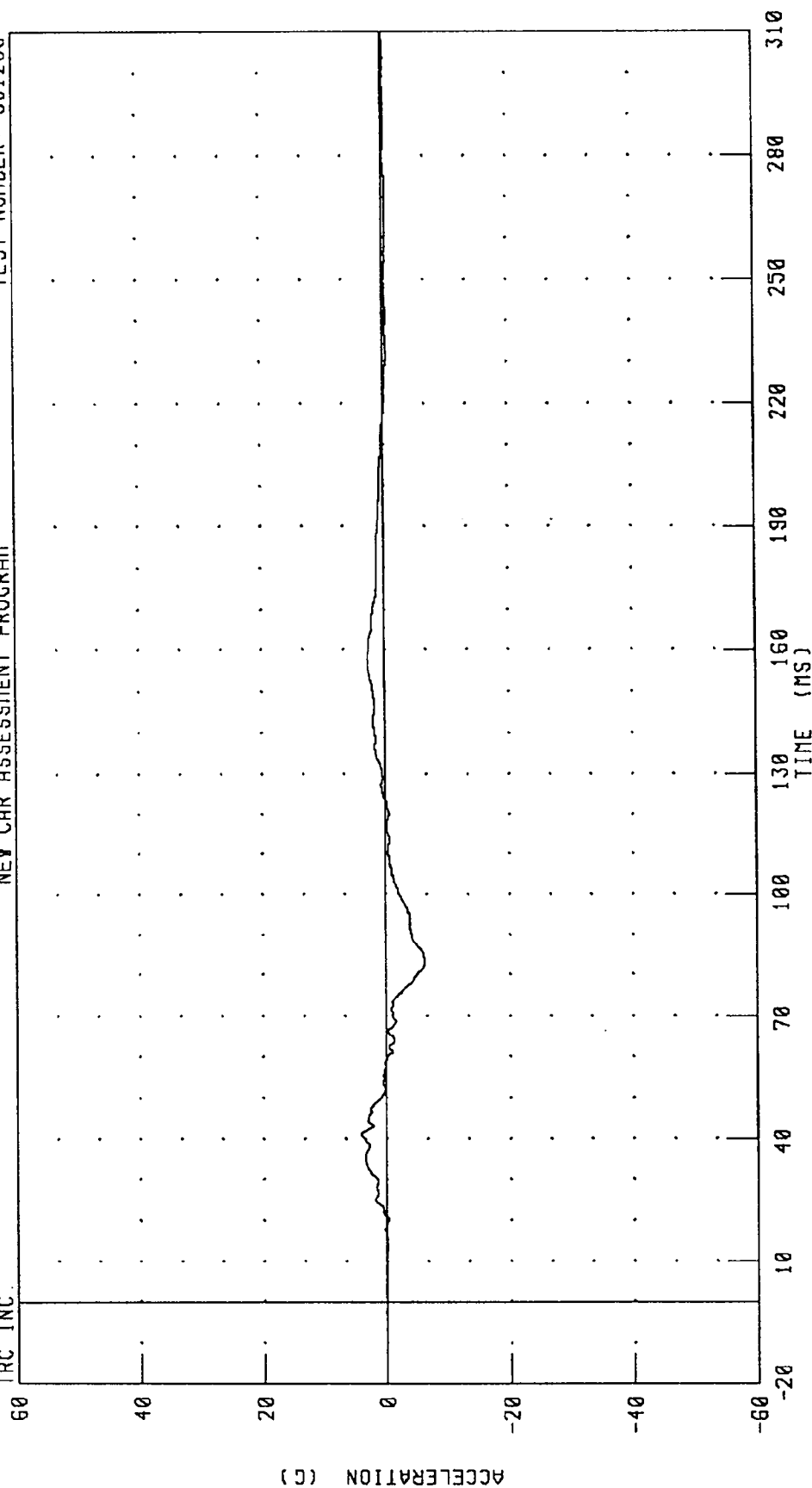
CHANNEL: CSTXR1 FILTER: CH. CLASS 180

PEAK DATA: 8.31 G @ 137.60 MS; -48.53 G @ 57.92 MS

1997 FORD CLUB WAGON VAN INTO FRONTAL LOAD CELL BARRIER
 DRIVER CHEST Y-AXIS ACCELERATION - REDUNDANT
 NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 961205

TRC INC.

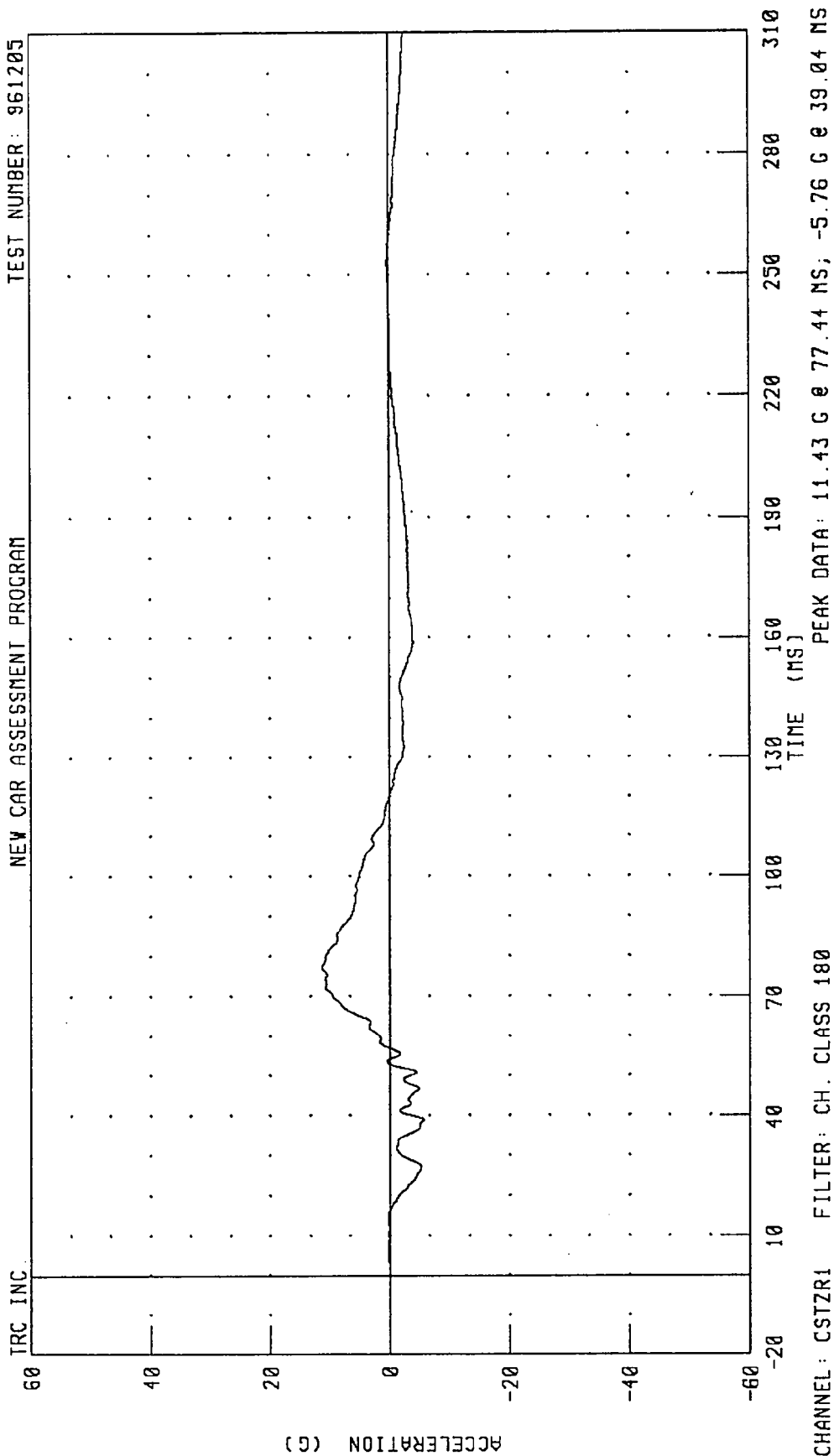


PEAK DATA: 4.11 G @ 41.12 MS; -6.29 G @ 82.96 MS

CHANNEL: CSTYR1 FILTER: CH. CLASS 180

1997 FORD CLUB WAGON VAN INTO FRONTAL LOAD CELL BARRIER
 DRIVER CHEST Z-AXIS ACCELERATION - REDUNDANT
 NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 961205

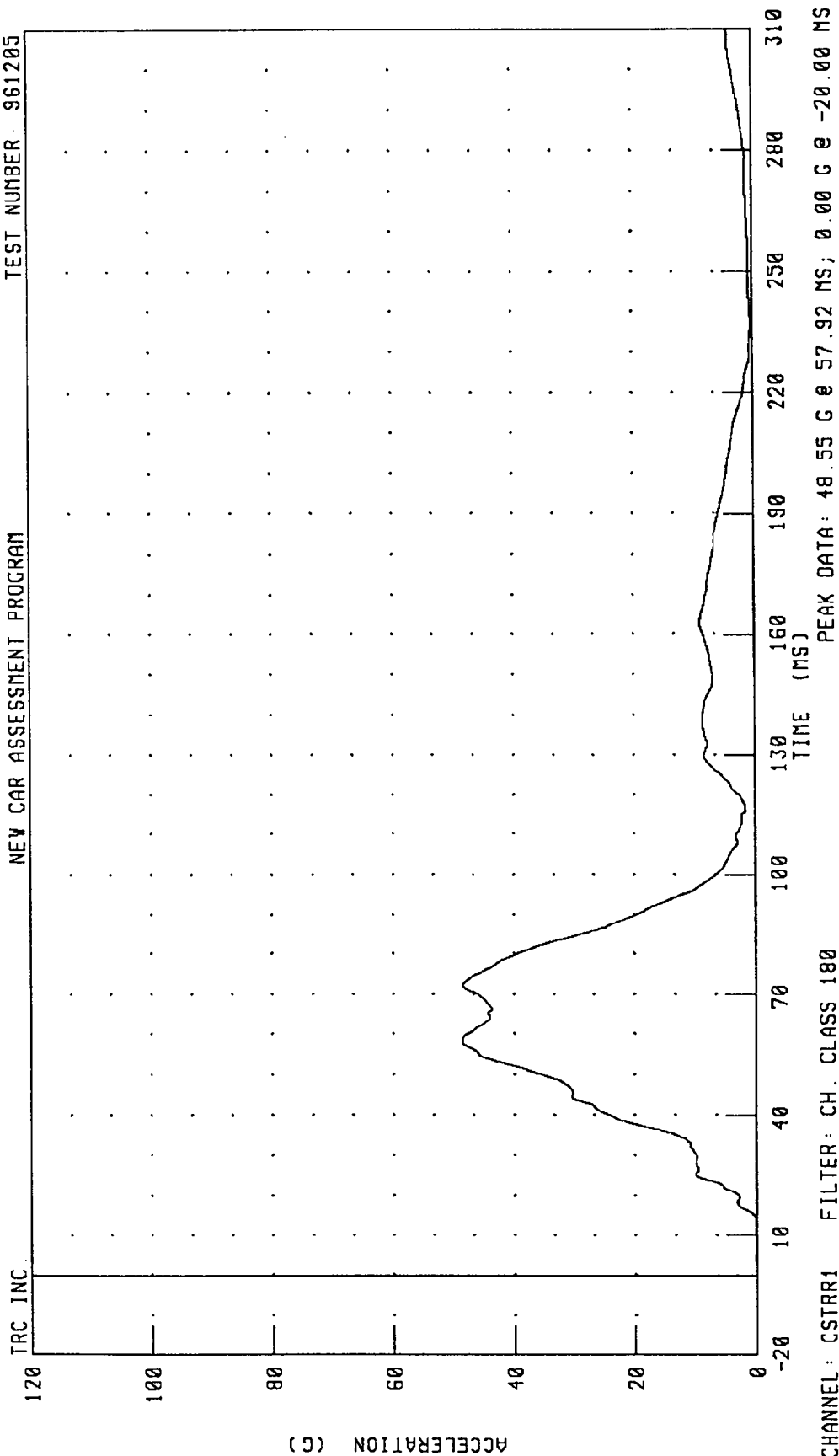


PEAK DATA: 11.43 G @ 77.44 MS; -5.76 G @ 39.04 MS

CHANNEL: CSTZR1 FILTER: CH. CLASS 180

1997 FORD CLUB WAGON VAN INTO FRONTAL LOAD CELL BARRIER
 DRIVER CHEST RESULTANT ACCELERATION - REDUNDANT
 NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 961205



CHANNEL: CSTRR1 FILTER: CH. CLASS 180

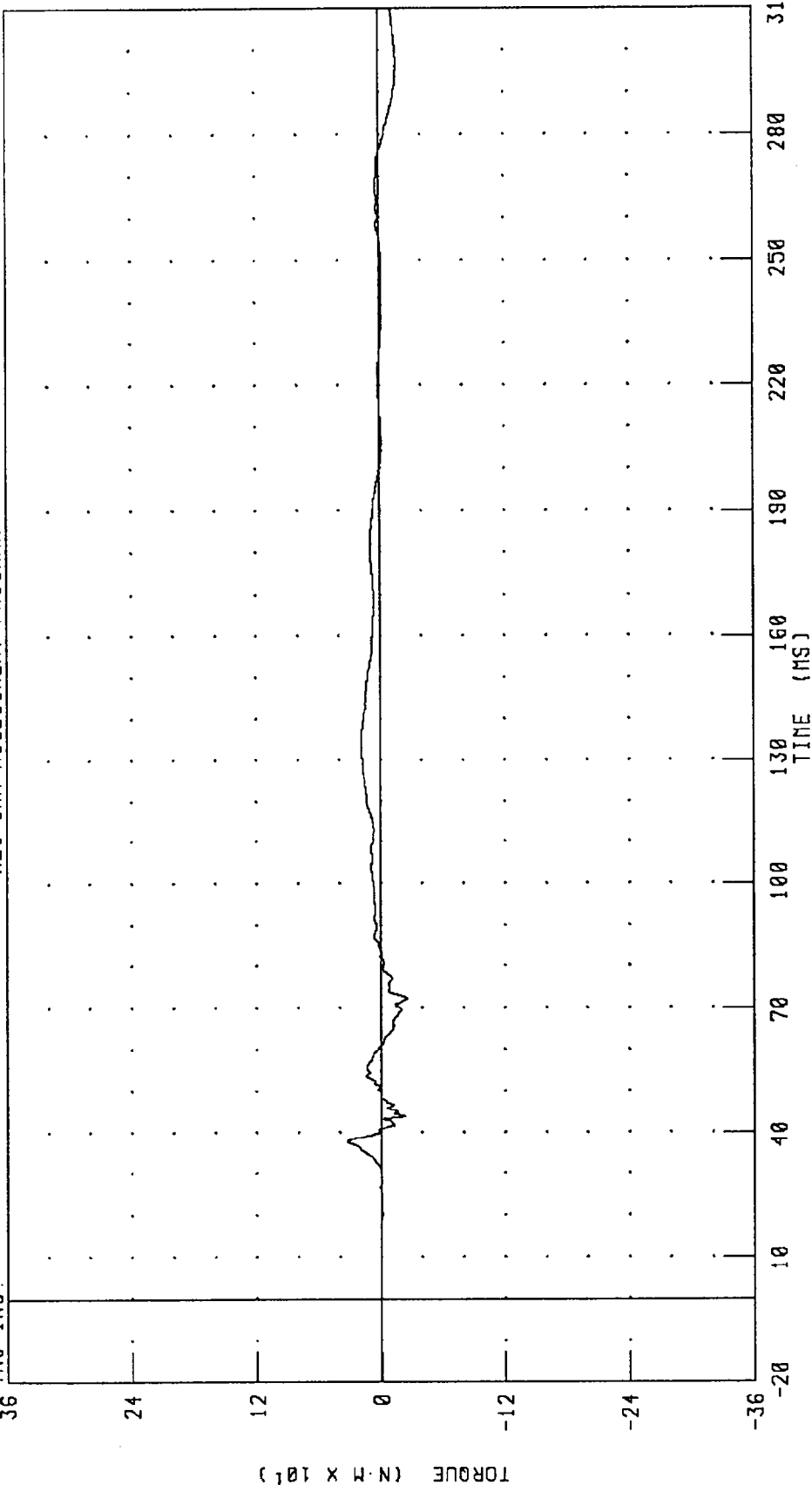
PEAK DATA: 48.55 G @ 57.92 MS; 0.00 G @ -20.00 MS

1997 FORD CLUB WAGON VAN INTO FRONTAL LOAD CELL BARRIER
DRIVER LEFT UPPER TIBIA MOMENT ABOUT X AXIS

TEST NUMBER: 961205

NEW CAR ASSESSMENT PROGRAM

TRC INC.



CHANNEL: TBLXM1 FILTER: CH. CLASS 600

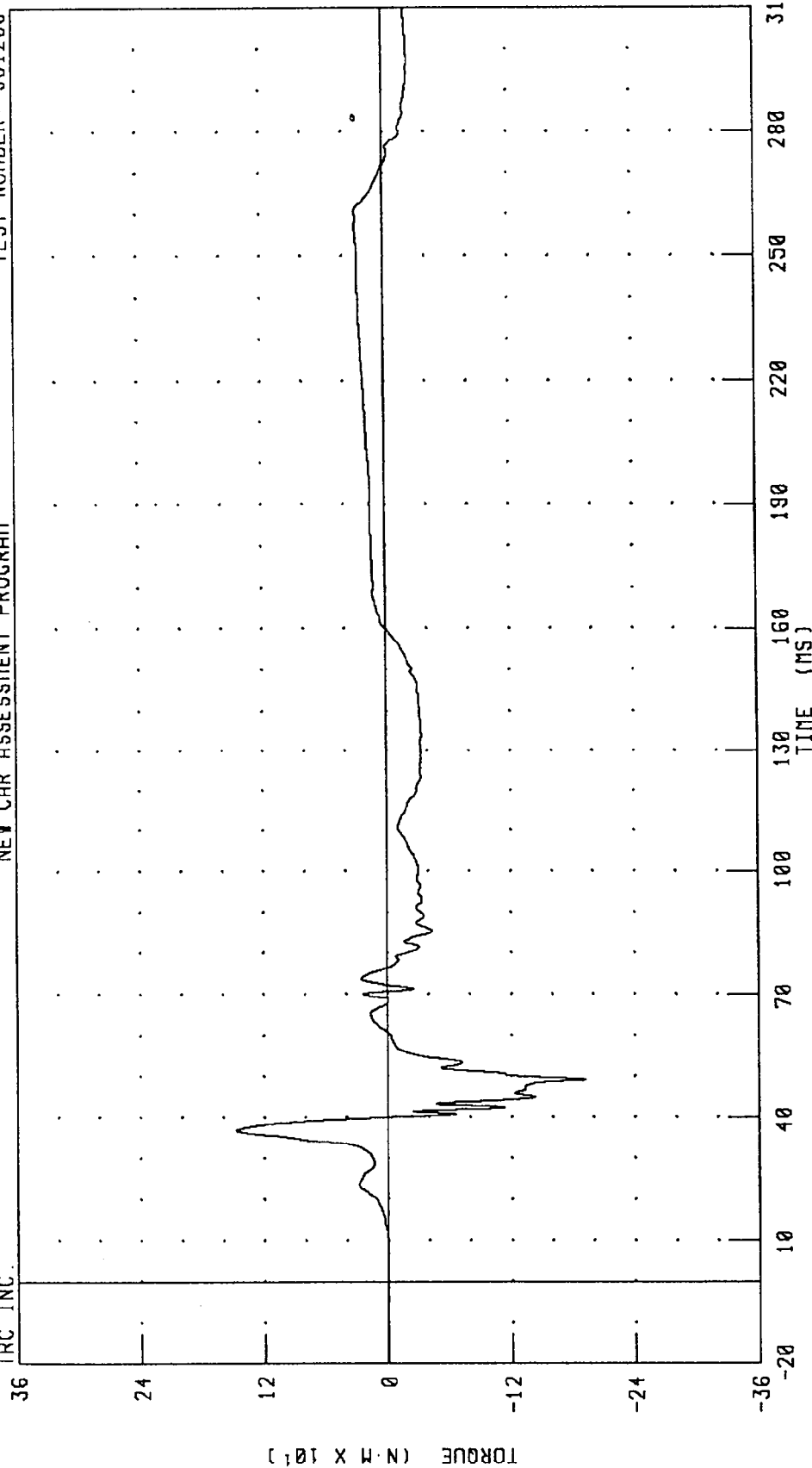
PEAK DATA: 32.77 N·m @ 37.92 ms; -25.61 N·m @ 72.24 ms

1997 FORD CLUB WAGON VAN INTO FRONTAL LOAD CELL BARRIER
DRIVER LEFT UPPER TIBIA MOMENT ABOUT Y AXIS

TEST NUMBER: 961205

NEW CAR ASSESSMENT PROGRAM

TRC INC.



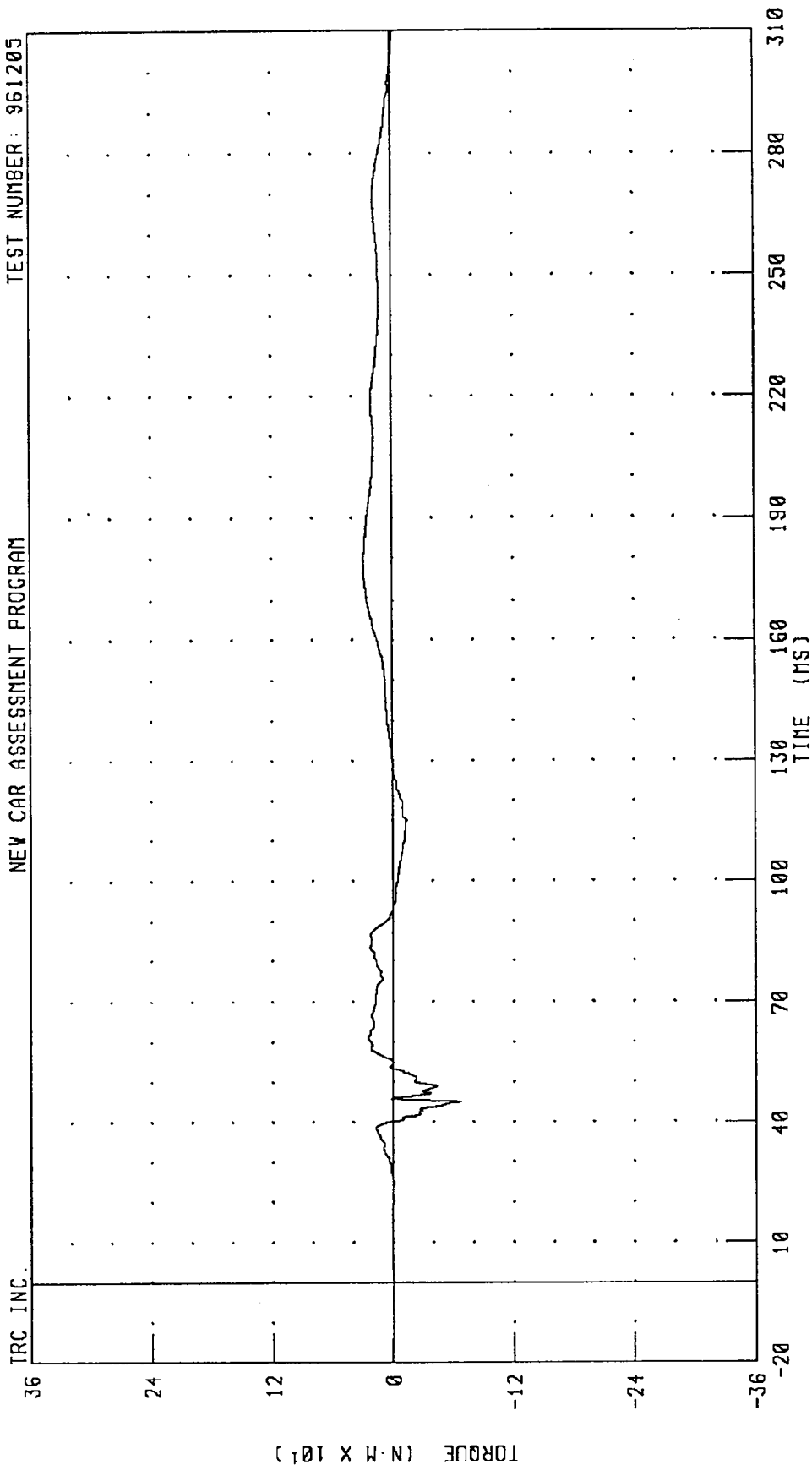
CHANNEL: TBLYM1 FILTER: CH. CLASS 600

PEAK DATA: 147.75 N·m @ 37.04 ms; -191.97 N·m @ 49.20 ms

1997 FORD CLUB WAGON VAN INTO FRONTAL LOAD CELL BARRIER
 DRIVER RIGHT UPPER TIBIA MOMENT ABOUT X AXIS

TEST NUMBER: 961205

NEW CAR ASSESSMENT PROGRAM



PEAK DATA: 28.39 N·M @ 179.92 MS; -66.58 N·M @ 45.04 MS

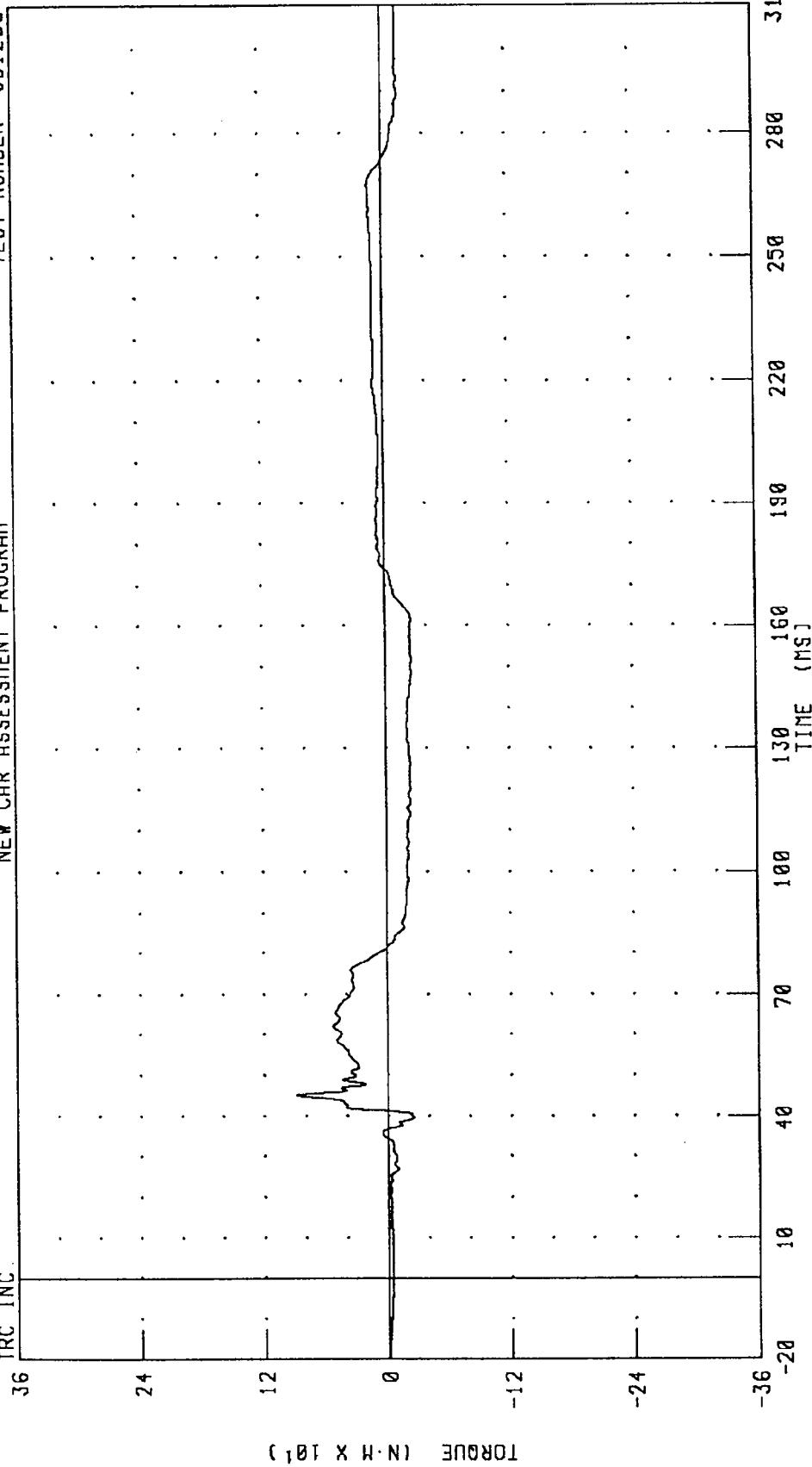
CHANNEL: TBRXM1 FILTER: CH. CLASS 600

1997 FORD CLUB WAGON VAN INTO FRONTAL LOAD CELL BARRIER
 DRIVER RIGHT UPPER TIBIA MOMENT ABOUT Y AXIS

TEST NUMBER: 961205

NEW CAR ASSESSMENT PROGRAM

TRC INC.



PEAK DATA: 87.98 N·m @ 45.20 ms; -26.16 N·m @ 39.68 ms

CHANNEL: TBRYM1 FILTER: CH. CLASS 600

1997 FORD CLUB WAGON VAN INTO FRONTAL LOAD CELL BARRIER
 DRIVER LEFT LOWER TIBIA X-AXIS FORCE
 NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 961205

TRC INC.

36

24

12

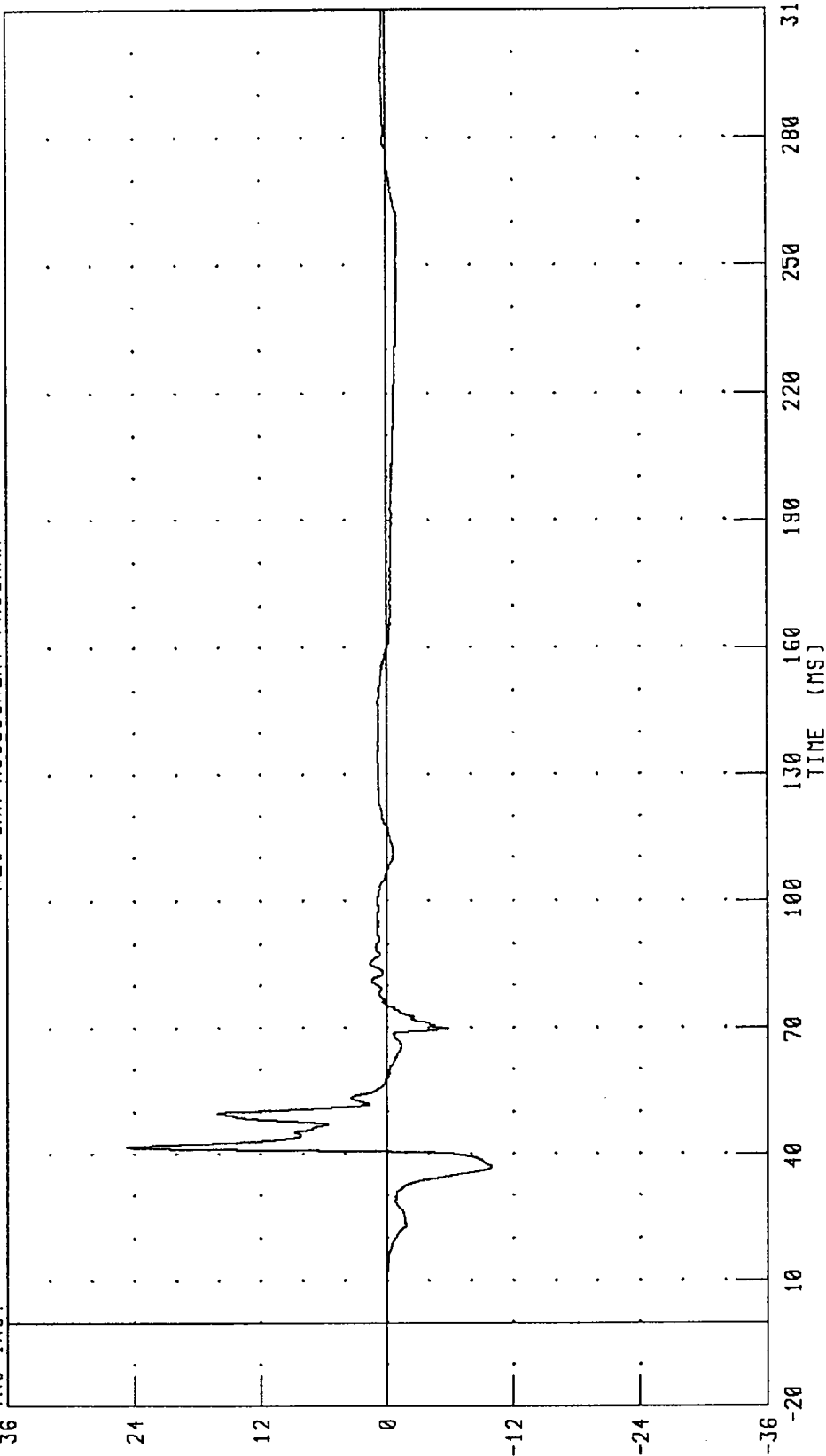
0

-12

-24

-36

FORCE (N X 10²)

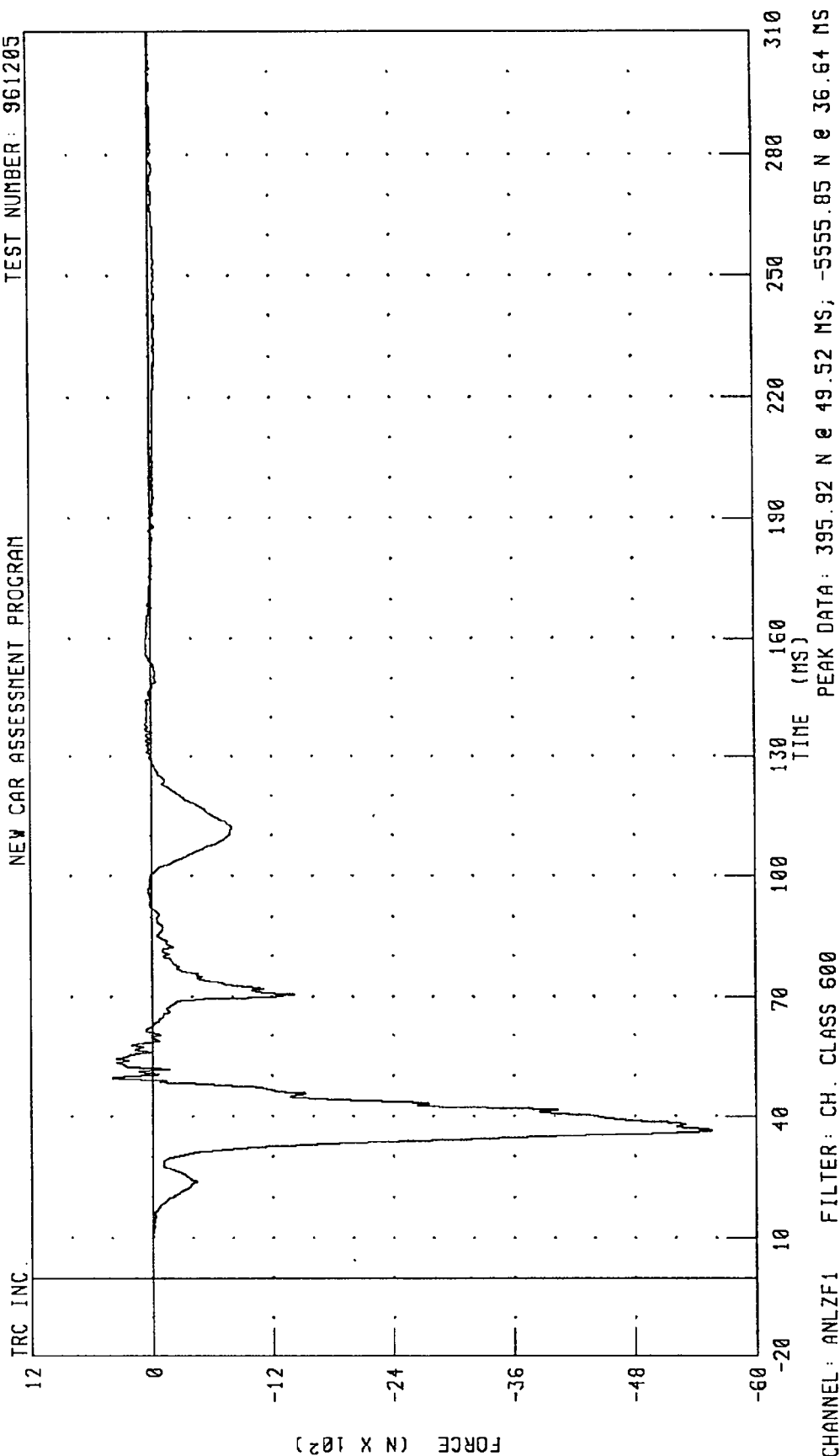


CHANNEL: ANLXF1 FILTER: CH. CLASS 600

PEAK DATA: 2469.10 N @ 41.84 MS; -991.70 N @ 36.96 MS

1997 FORD CLUB WAGON VAN INTO FRONTAL LOAD CELL BARRIER
 DRIVER LEFT LOWER TIBIA Z-AXIS FORCE
 NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 961205

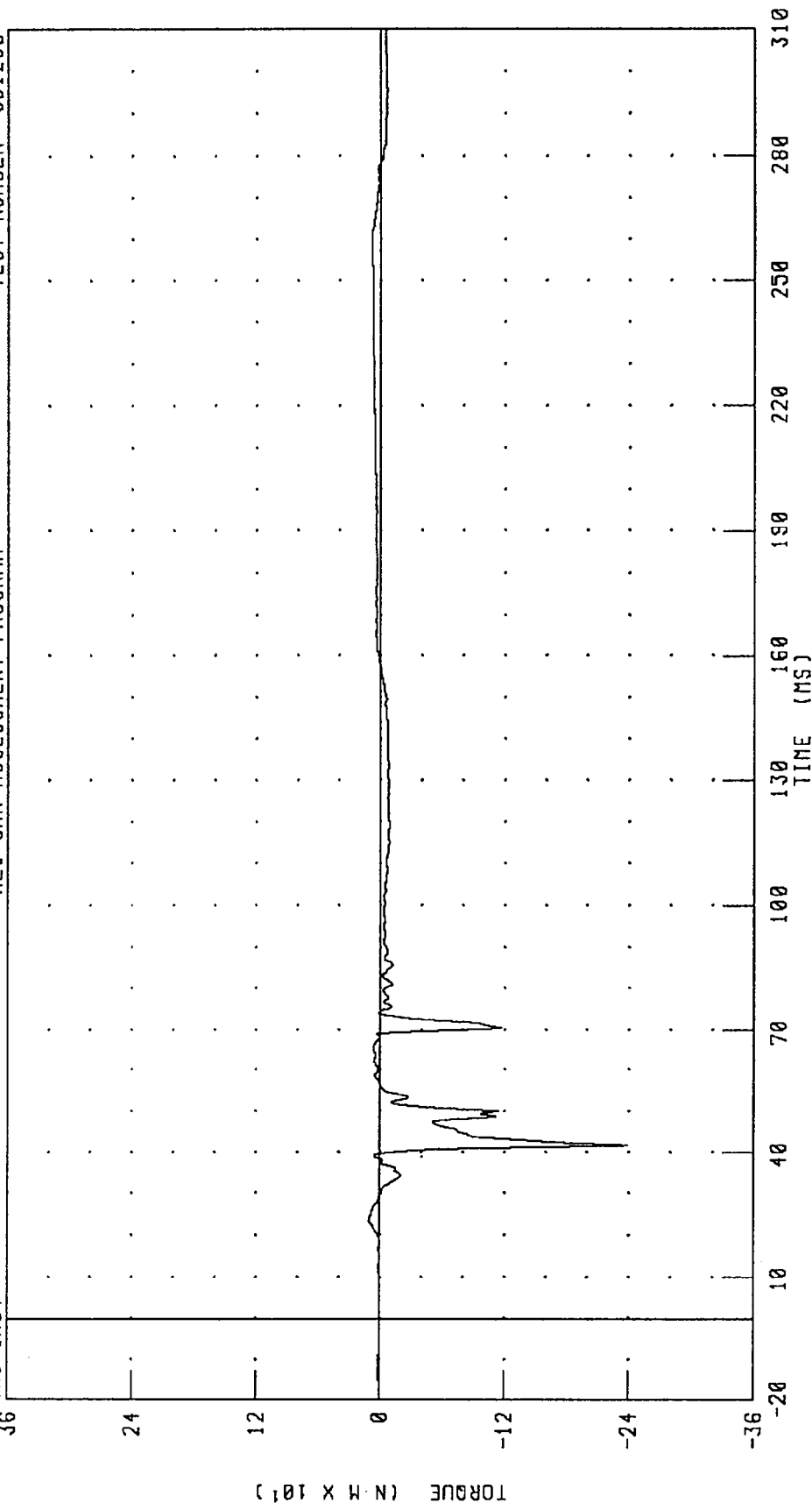


1997 FORD CLUB WAGON VAN INTO FRONTAL LOAD CELL BARRIER
DRIVER LEFT LOWER TIBIA MOMENT ABOUT Y AXIS

NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 961205

TRC INC.

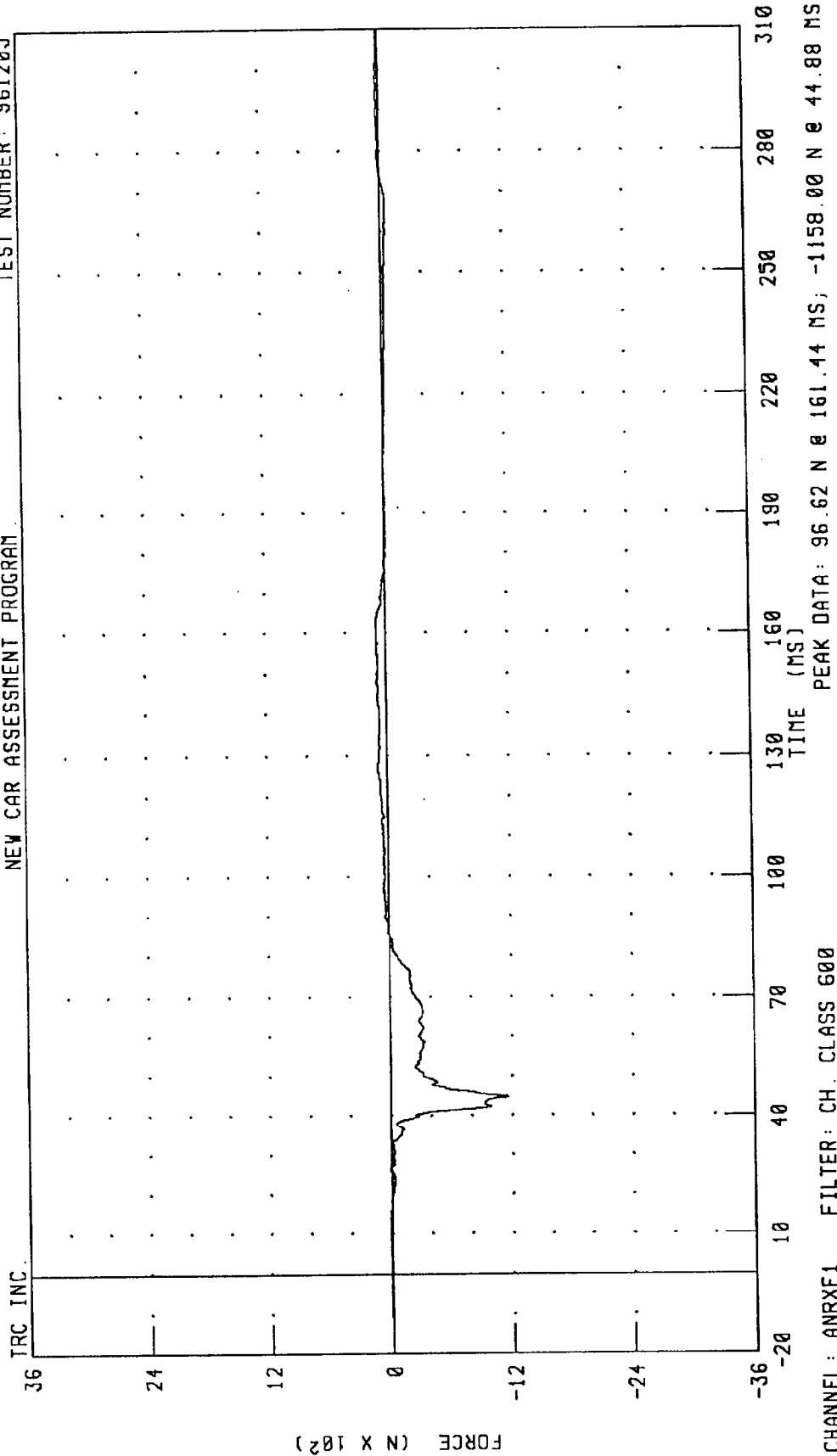


CHANNEL: ANLYM1 FILTER: CH. CLASS 600

PEAK DATA: 10.33 N·M @ 23.60 MS; -238.40 N·M @ 41.76 MS

1997 FORD CLUB WAGON VAN INTO FRONTAL LOAD CELL BARRIER
 DRIVER RIGHT LOWER TIBIA X-AXIS FORCE
 NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 961205



1997 FORD CLUB WAGON VAN INTO FRONTAL LOAD CELL BARRIER
 DRIVER RIGHT LOWER TIBIA Z-AXIS FORCE
 NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 961205

TRC INC.

36

24

12

0

-12

-24

-36

FORCE (N X 10²)

TIME (MS)

310

280

250

220

190

160

130

100

70

40

10

-20

PEAK DATA: 138.56 N @ 145.04 MS; -2943.42 N @ 42.00 MS

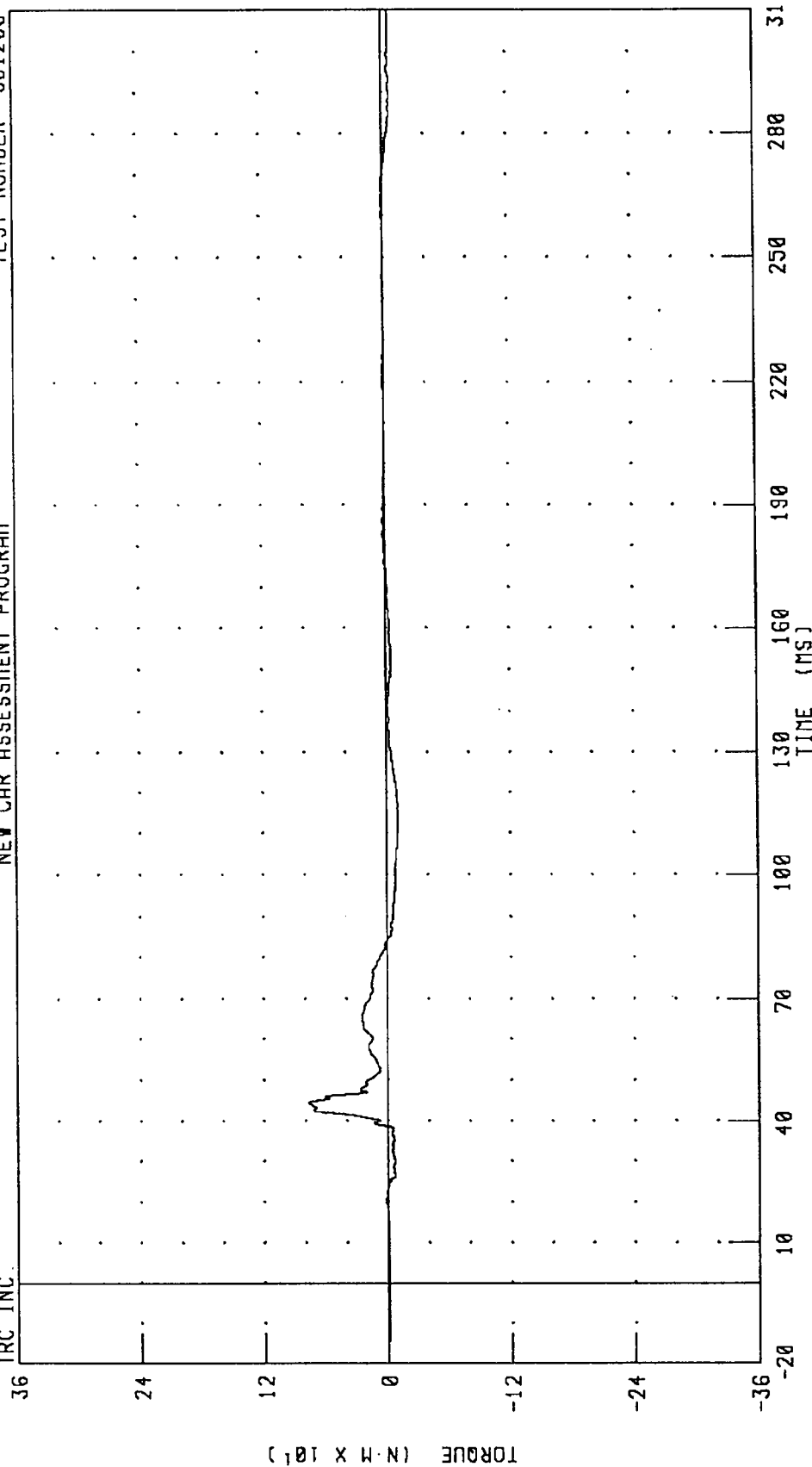
CHANNEL: ANRZF1 FILTER: CH. CLASS 600

1997 FORD CLUB WAGON VAN INTO FRONTAL LOAD CELL BARRIER
DRIVER RIGHT LOWER TIBIA MOMENT ABOUT Y AXIS

TEST NUMBER: 961205

NEW CAR ASSESSMENT PROGRAM

TRC INC.



CHANNEL: ANRYM1 FILTER: CH. CLASS 600

PEAK DATA: 77.52 N-M @ 44.48 MS; -11.27 N-M @ 115.60 MS

1997 FORD CLUB WAGON VAN INTO FRONTAL LOAD CELL BARRIER
 DRIVER LEFT FOOT X-AXIS ACCELERATION
 NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 961205

TRC INC.

180

90

0

-90

-180

-270

-360

ACCELERATION (G)

TIME (MS)

310

280

250

220

190

160

130

100

70

40

10

-20

CHANNEL: FTLXG1

FILTER: CH. CLASS 1000

PEAK DATA:

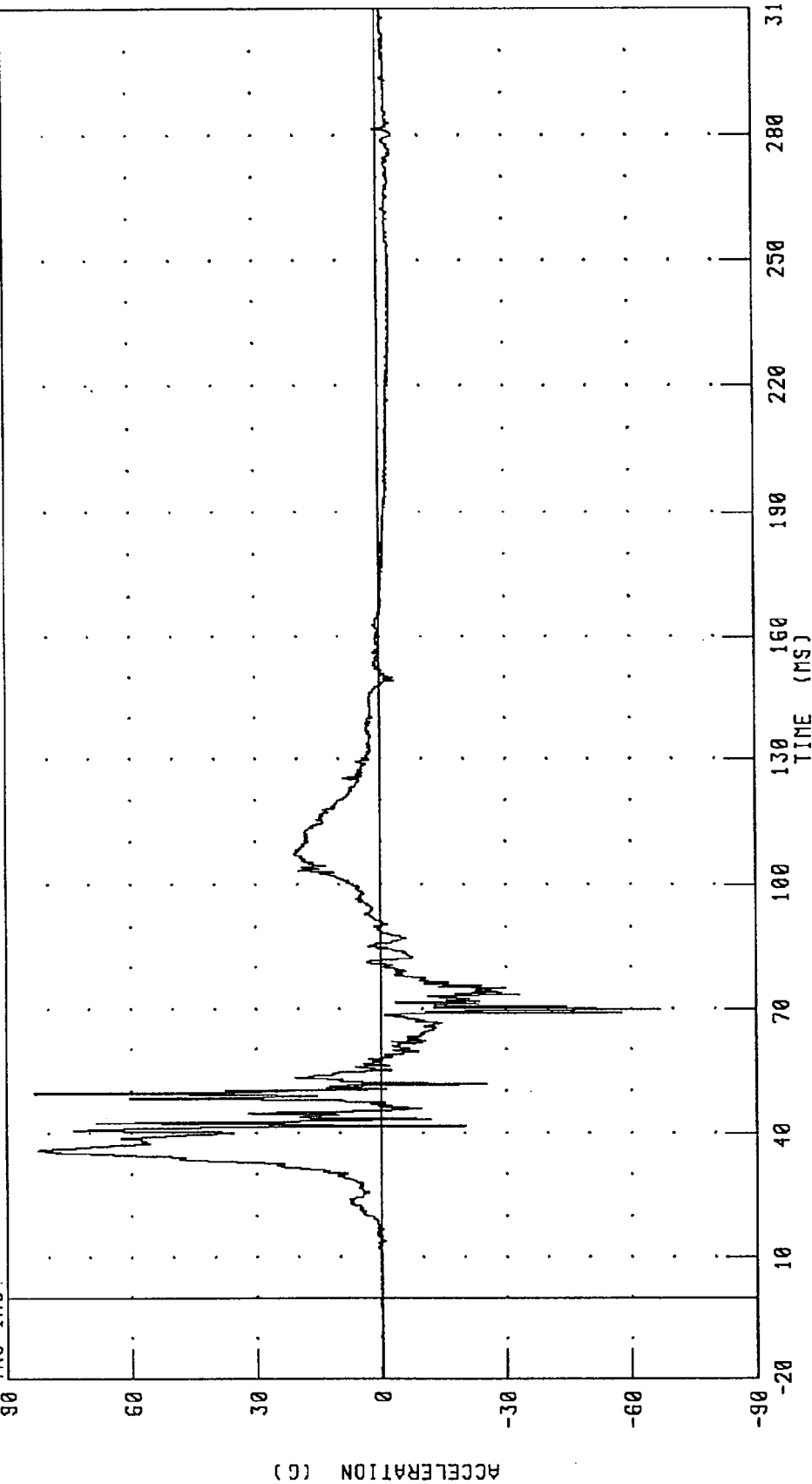
73.92 G @ 69.36 MS; -286.09 G @ 41.76 MS

1997 FORD CLUB WAGON VAN INTO FRONTAL LOAD CELL BARRIER
 DRIVER LEFT FOOT Z-AXIS ACCELERATION AT HEEL

TEST NUMBER: 961205

NEW CAR ASSESSMENT PROGRAM

TRC INC.



CHANNEL: FTLZH1 FILTER: CH. CLASS 1000

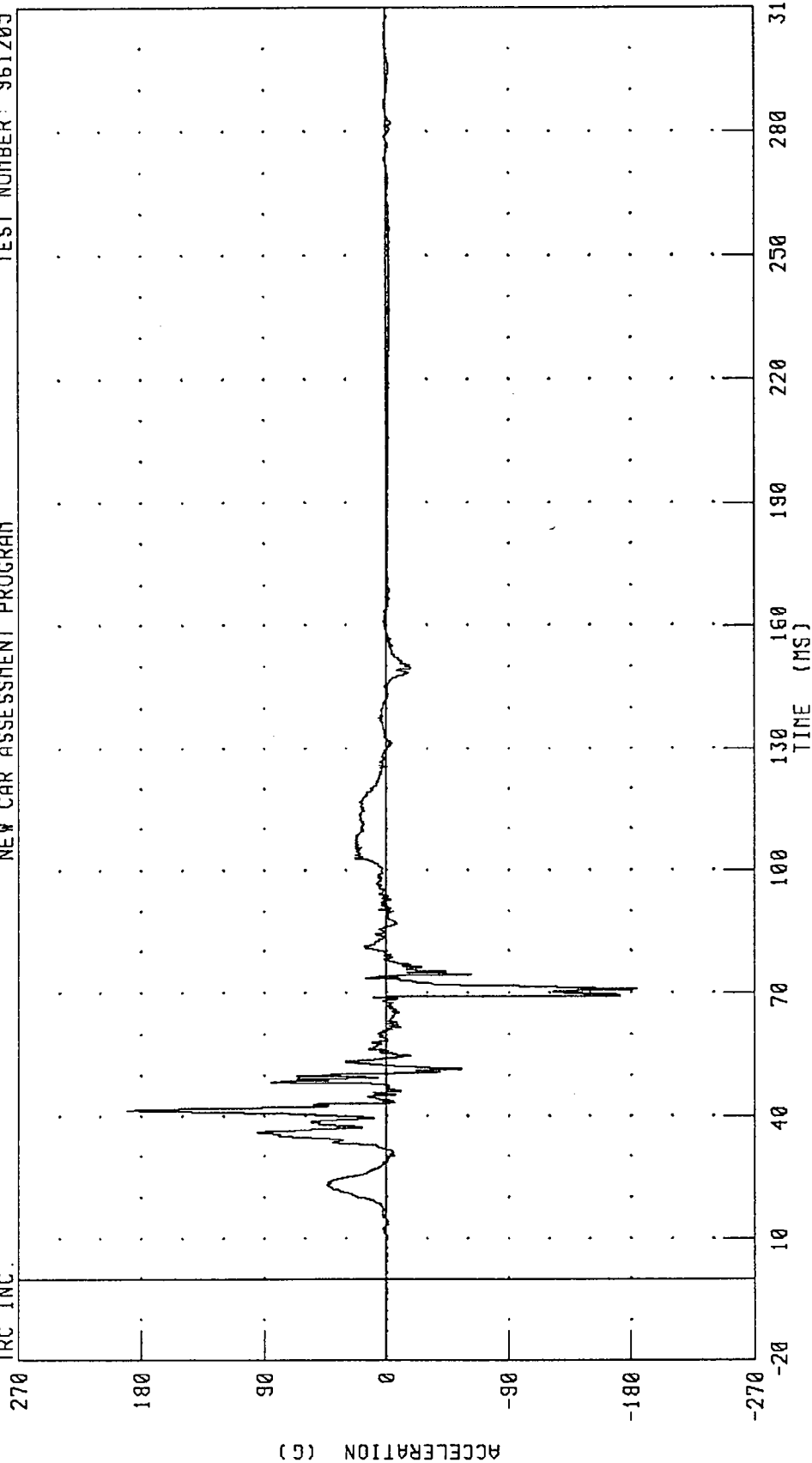
PEAK DATA: 83.25 G @ 49.52 MS, -66.97 G @ 70.00 MS

1997 FORD CLUB WAGON VAN INTO FRONTAL LOAD CELL BARRIER
DRIVER LEFT FOOT Z-AXIS ACCELERATION AT TOE

TEST NUMBER: 961205

NEW CAR ASSESSMENT PROGRAM

TRC INC.

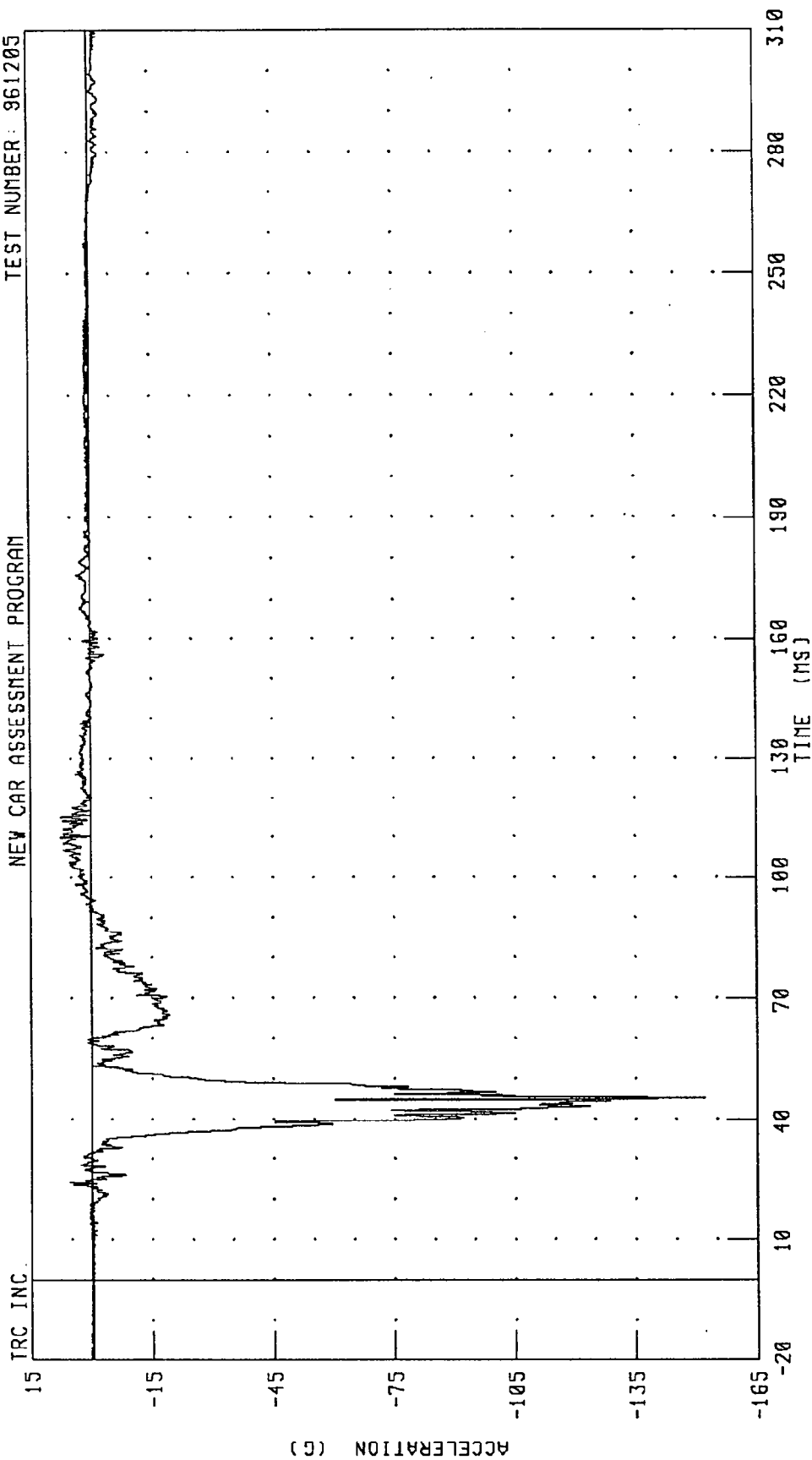


CHANNEL: FTLZT1 FILTER: CH. CLASS 1000

PEAK DATA: 190.44 G @ 41.52 MS; -184.49 G @ 70.96 MS

1997 FORD CLUB WAGON VAN INTO FRONTAL LOAD CELL BARRIER
 DRIVER RIGHT FOOT X-AXIS ACCELERATION
 NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 961205



CHANNEL: FTRXG1 FILTER: CH. CLASS 1000

PEAK DATA: 7.57 G @ 110.00 MS; -151.92 G @ 45.28 MS

1997 FORD CLUB WAGON VAN INTO FRONTAL LOAD CELL BARRIER
 DRIVER RIGHT FOOT Z-AXIS ACCELERATION AT HEEL

TEST NUMBER: 961205

NEW CAR ASSESSMENT PROGRAM

TRC INC.

165

135

105

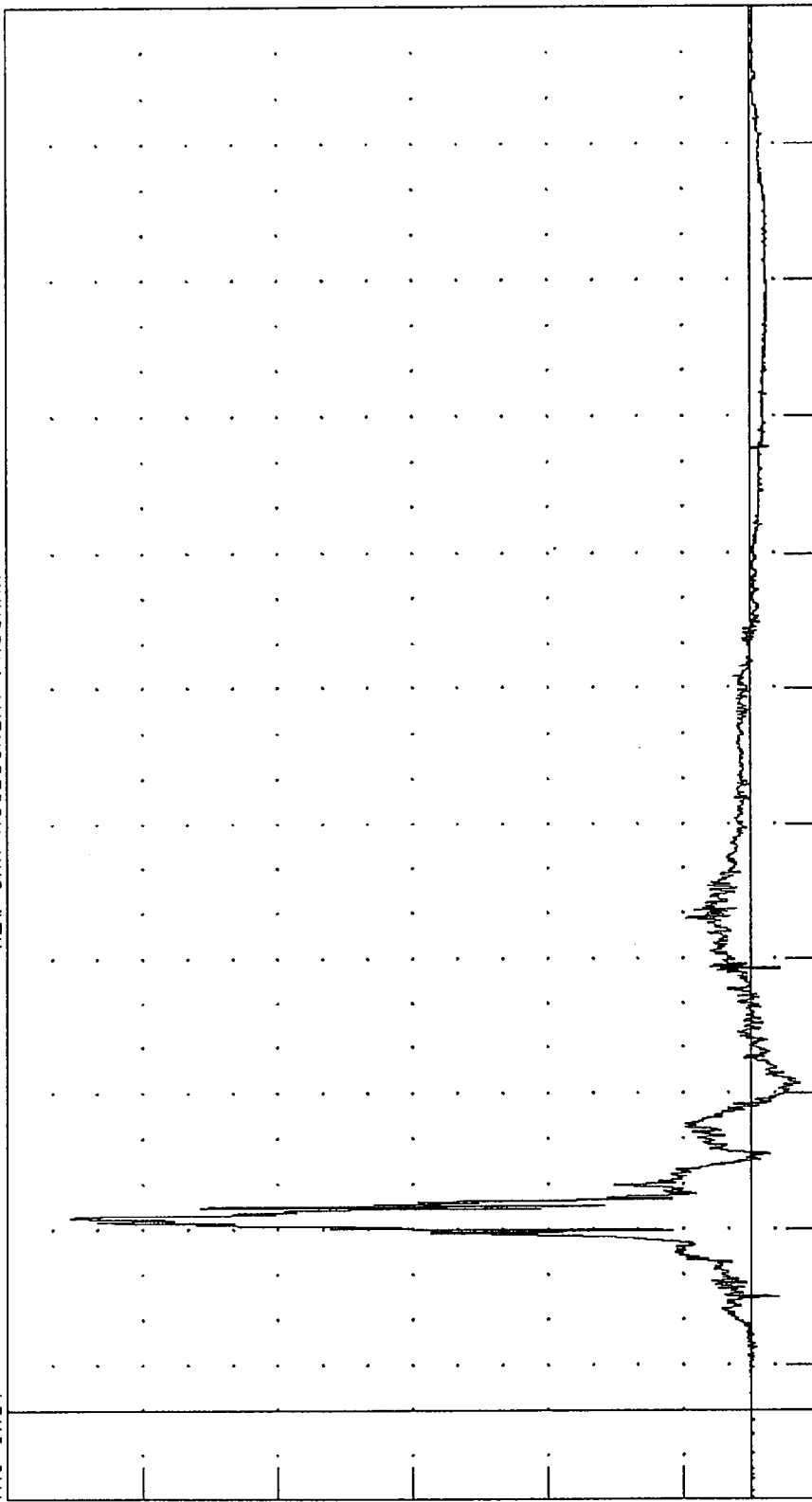
75

45

15

-15

ACCELERATION (G)



TIME (MS)

PEAK DATA: 150.95 G @ 42.56 MS; -10.64 G @ 72.16 MS

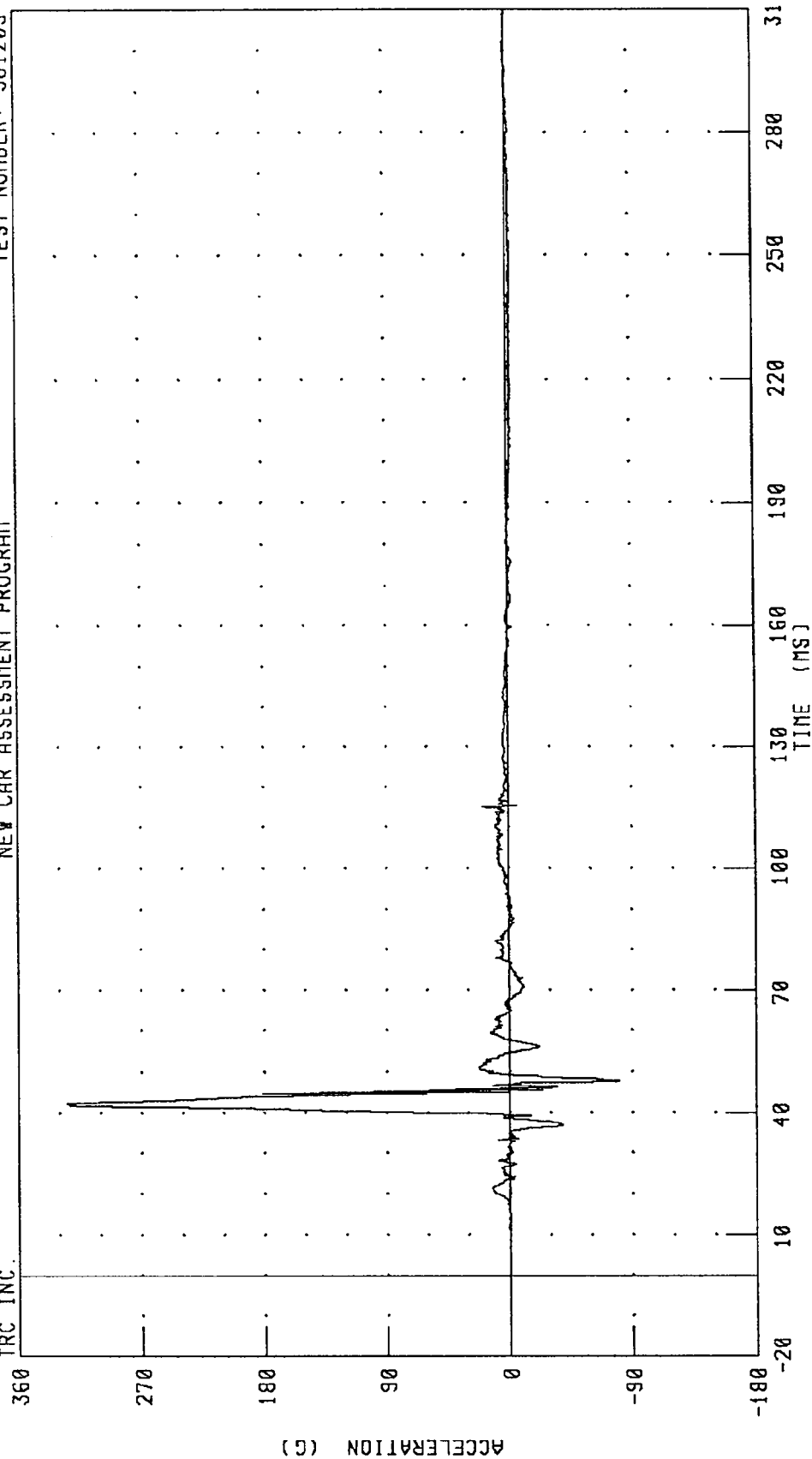
CHANNEL: FTRZH1 FILTER: CH. CLASS 1000

1997 FORD CLUB WAGON VAN INTO FRONTAL LOAD CELL BARRIER
 DRIVER RIGHT FOOT Z-AXIS ACCELERATION AT TOE

TEST NUMBER: 961205

NEW CAR ASSESSMENT PROGRAM

TRC INC.



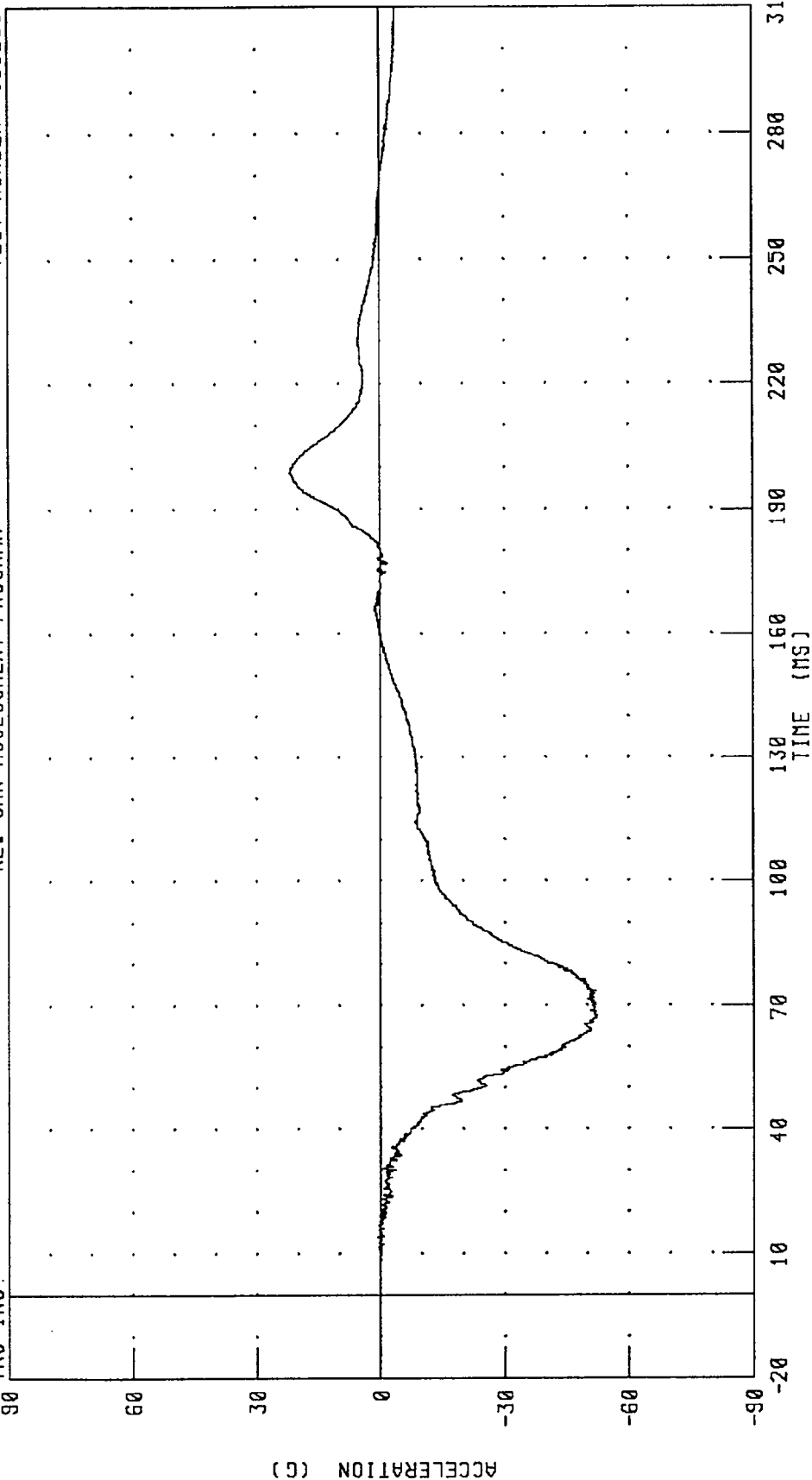
PEAK DATA: 324.90 G @ 42.40 MS; -79.93 G @ 47.68 MS

CHANNEL: FTRZT1 FILTER: CH. CLASS 1000

1997 FORD CLUB WAGON VAN INTO FRONTAL LOAD CELL BARRIER
PASSENGER HEAD X-AXIS ACCELERATION
NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 961205

TRC INC.

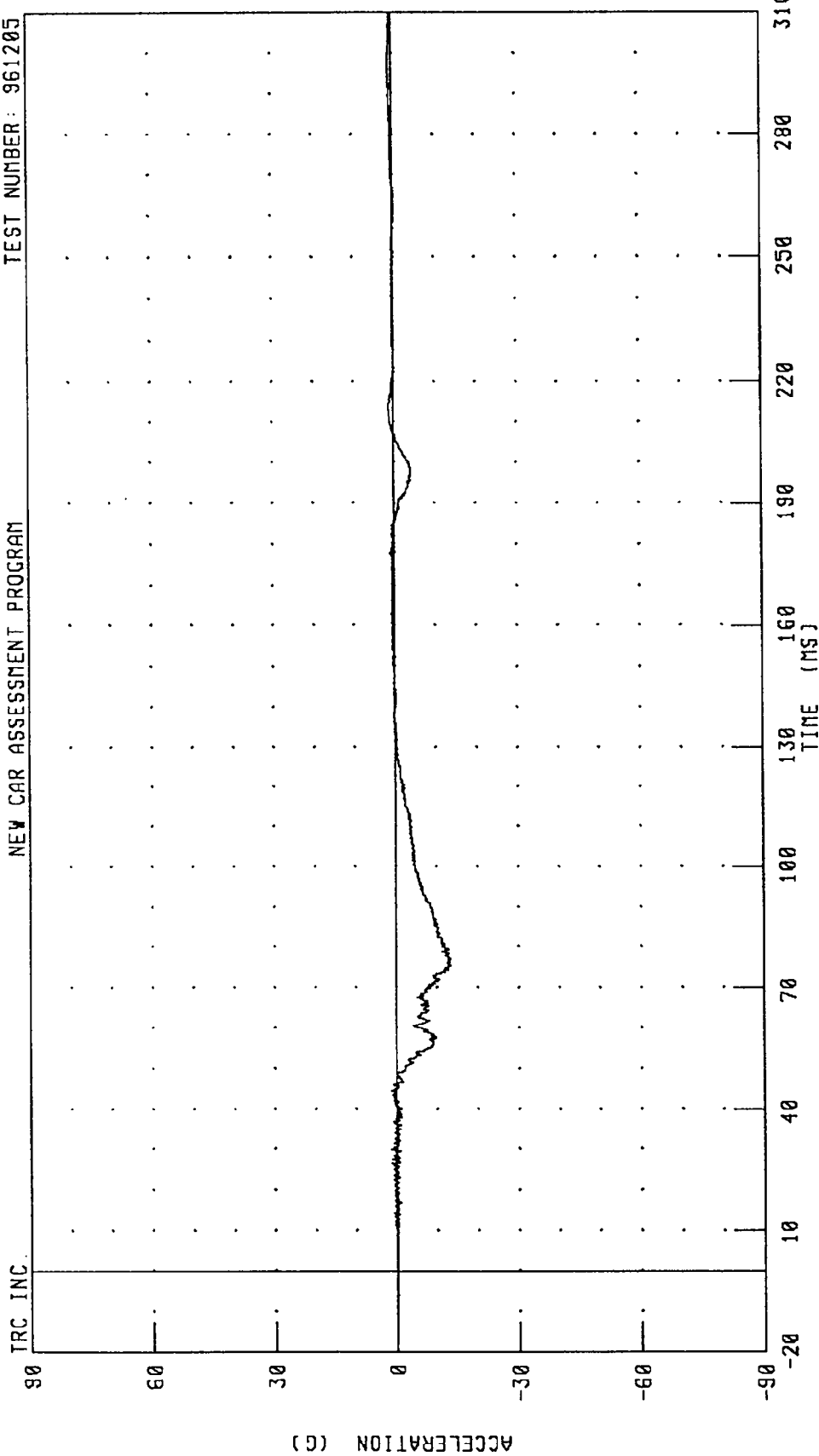


CHANNEL: HEDXC2 FILTER: CH. CLASS 1000

PEAK DATA: 21.78 G @ 198.80 MS; -52.42 G @ 67.04 MS

1997 FORD CLUB WAGON VAN INTO FRONTAL LOAD CELL BARRIER
PASSENGER HEAD Y-AXIS ACCELERATION
NEW CAR ASSESSMENT PROGRAM

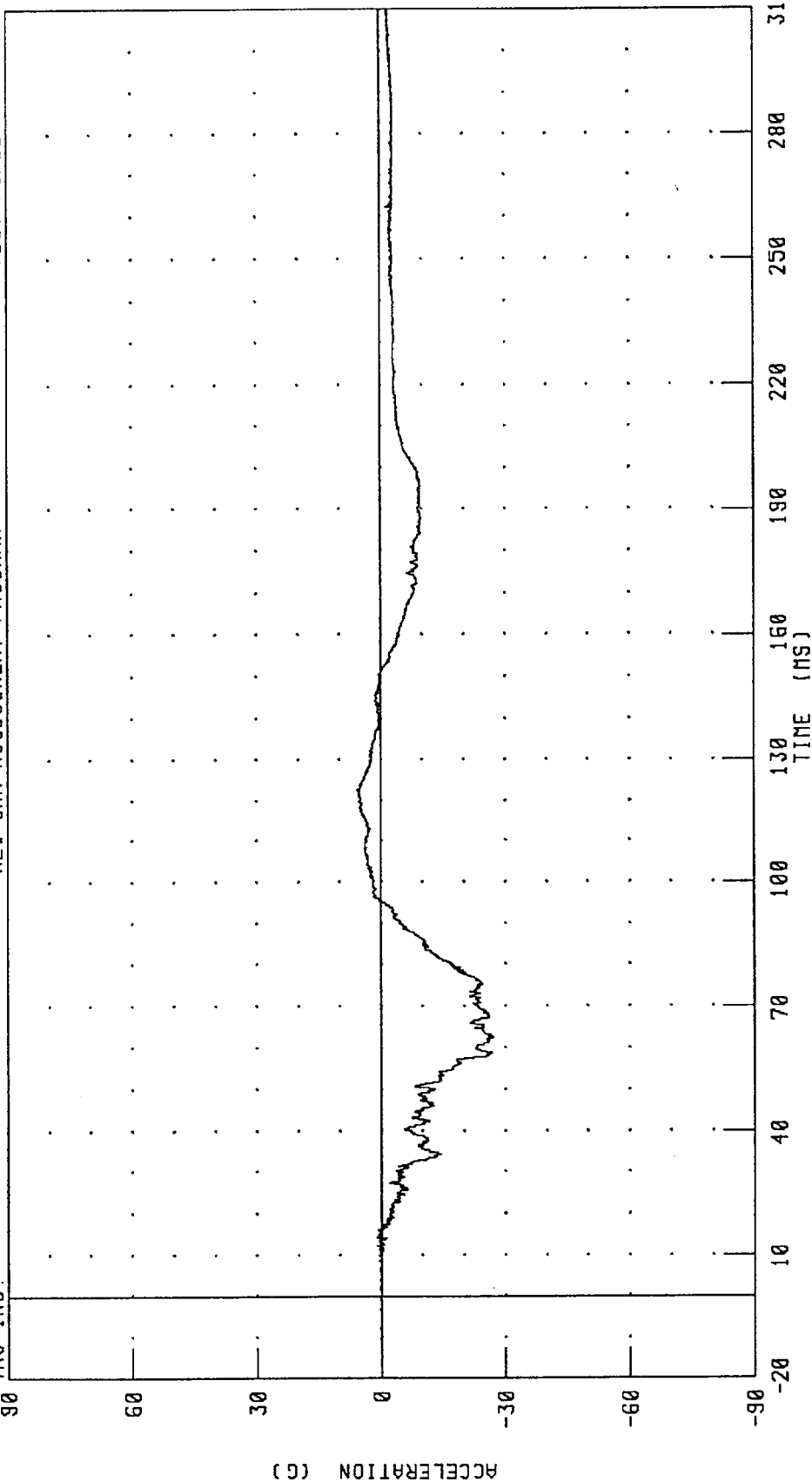
TEST NUMBER: 961205



1997 FORD CLUB WAGON VAN INTO FRONTAL LOAD CELL BARRIER
PASSENGER HEAD Z-AXIS ACCELERATION
NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 961205

TRC INC.

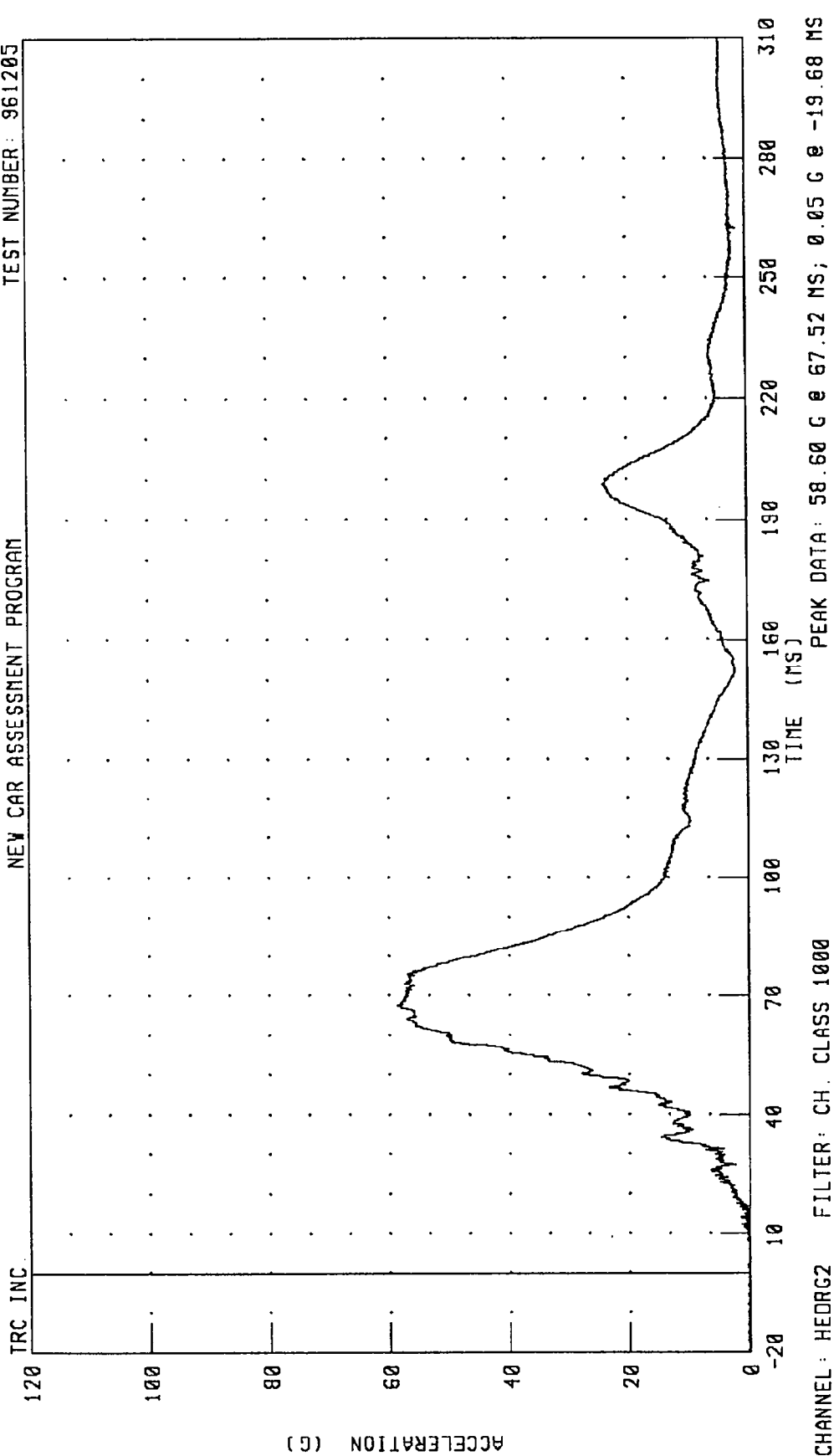


CHANNEL: HEDZG2 FILTER: CH. CLASS 1000

PEAK DATA: 5.48 G @ 122.64 MS; -27.13 G @ 62.64 MS

1997 FORD CLUB WAGON VAN INTO FRONTAL LOAD CELL BARRIER
PASSENGER HEAD RESULTANT ACCELERATION
NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 961205



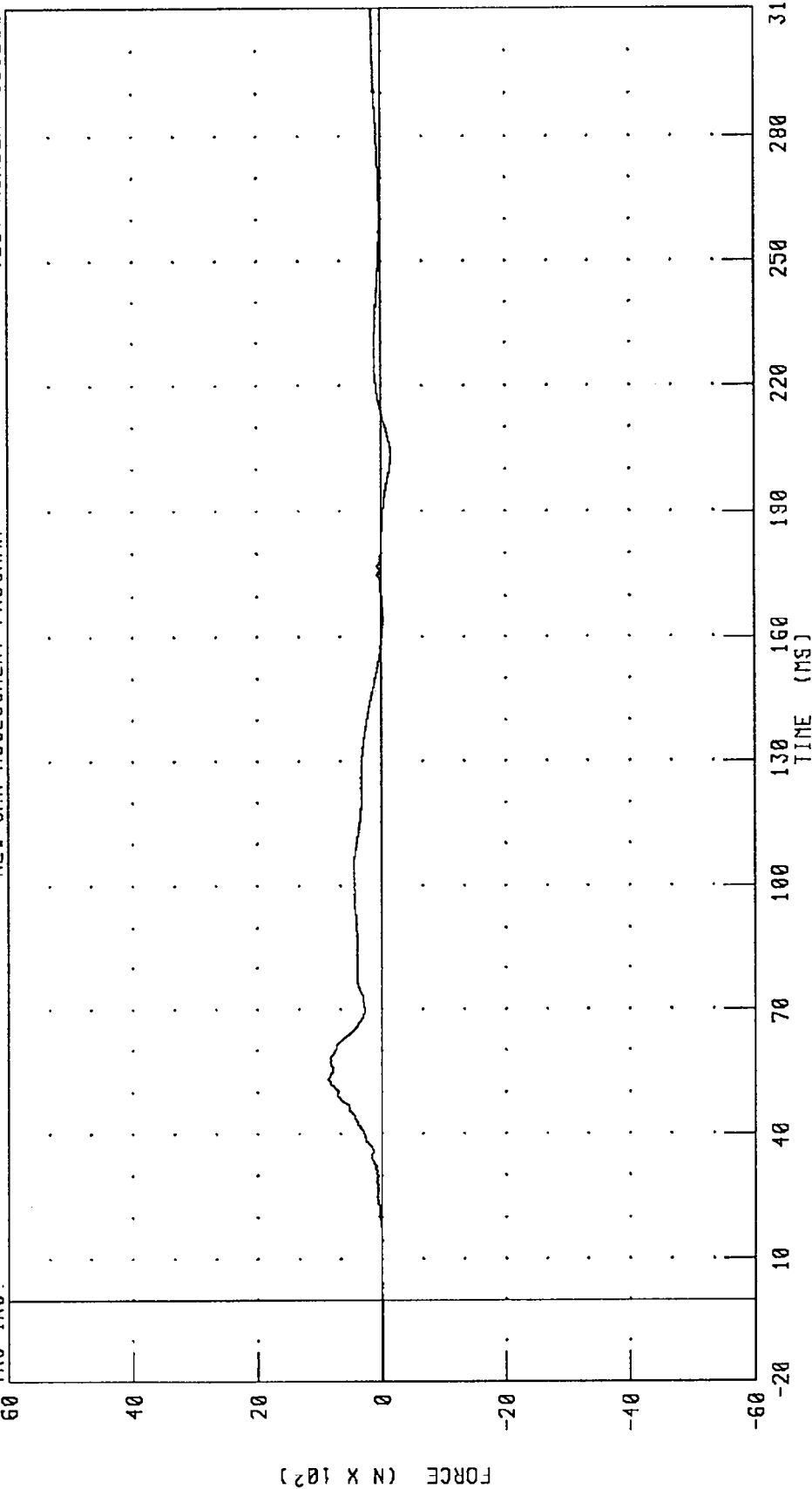
CHANNEL: HEDRG2 FILTER: CH. CLASS 1000

PEAK DATA: 58.60 G @ 67.52 MS; 0.05 G @ -19.68 MS

1997 FORD CLUB WAGON VAN INTO FRONTAL LOAD CELL BARRIER
PASSENGER NECK X-AXIS SHEAR FORCE
NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 961205

TRC INC.

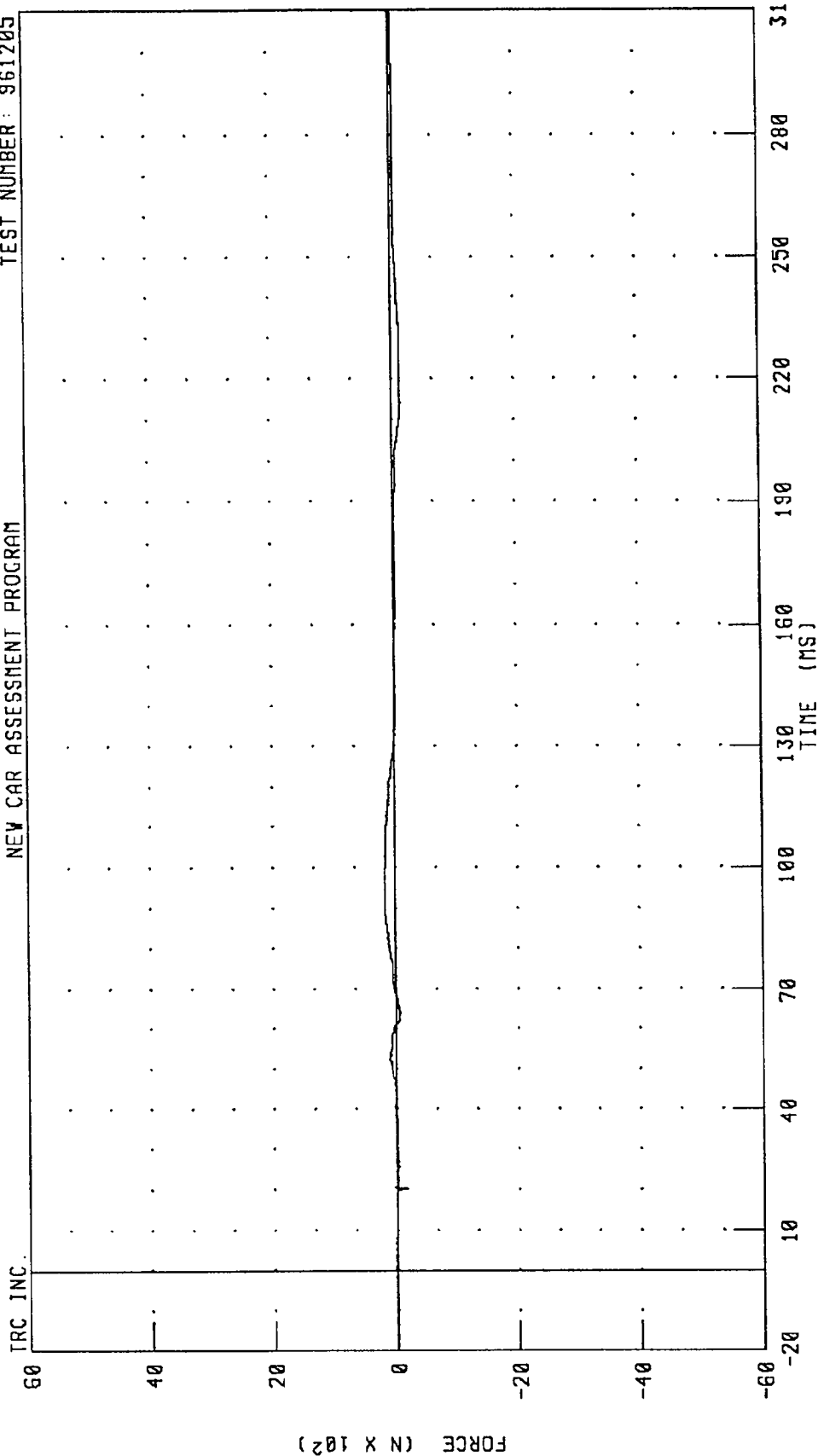


CHANNEL: NEKXF2 FILTER: CH. CLASS 1000

PEAK DATA: 859.37 N @ 52.88 MS; -153.56 N @ 203.04 MS

1997 FORD CLUB WAGON VAN INTO FRONTAL LOAD CELL BARRIER
PASSENGER NECK Y-AXIS SHEAR FORCE
NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 961205



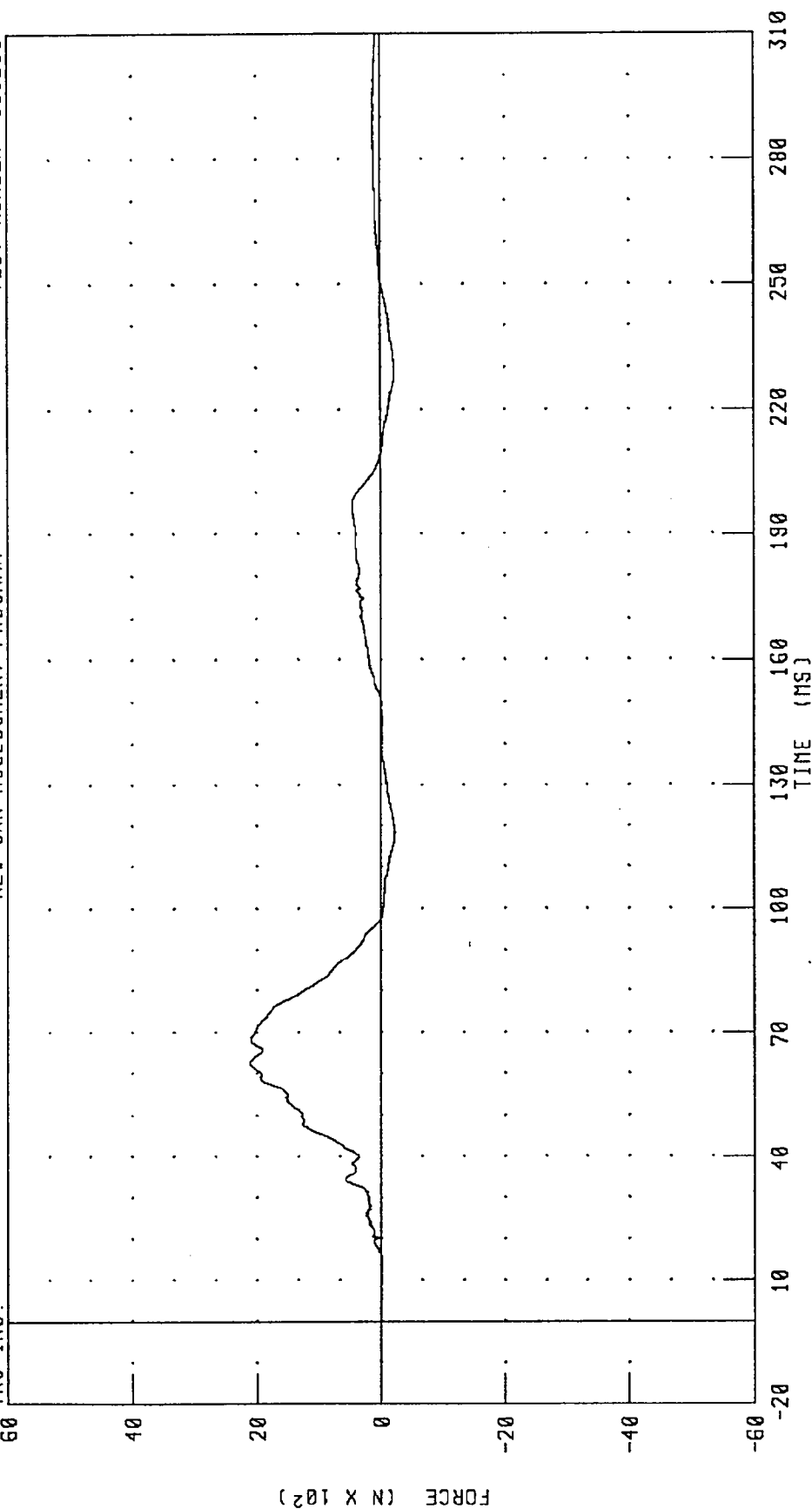
PEAK DATA: 178.10 N @ 91.36 MS; -174.15 N @ 20.24 MS

CHANNEL: NEKYF2 FILTER: CH. CLASS 1000

1997 FORD CLUB WAGON VAN INTO FRONTAL LOAD CELL BARRIER
PASSENGER NECK Z-AXIS AXIAL FORCE
NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 961205

IRC INC.

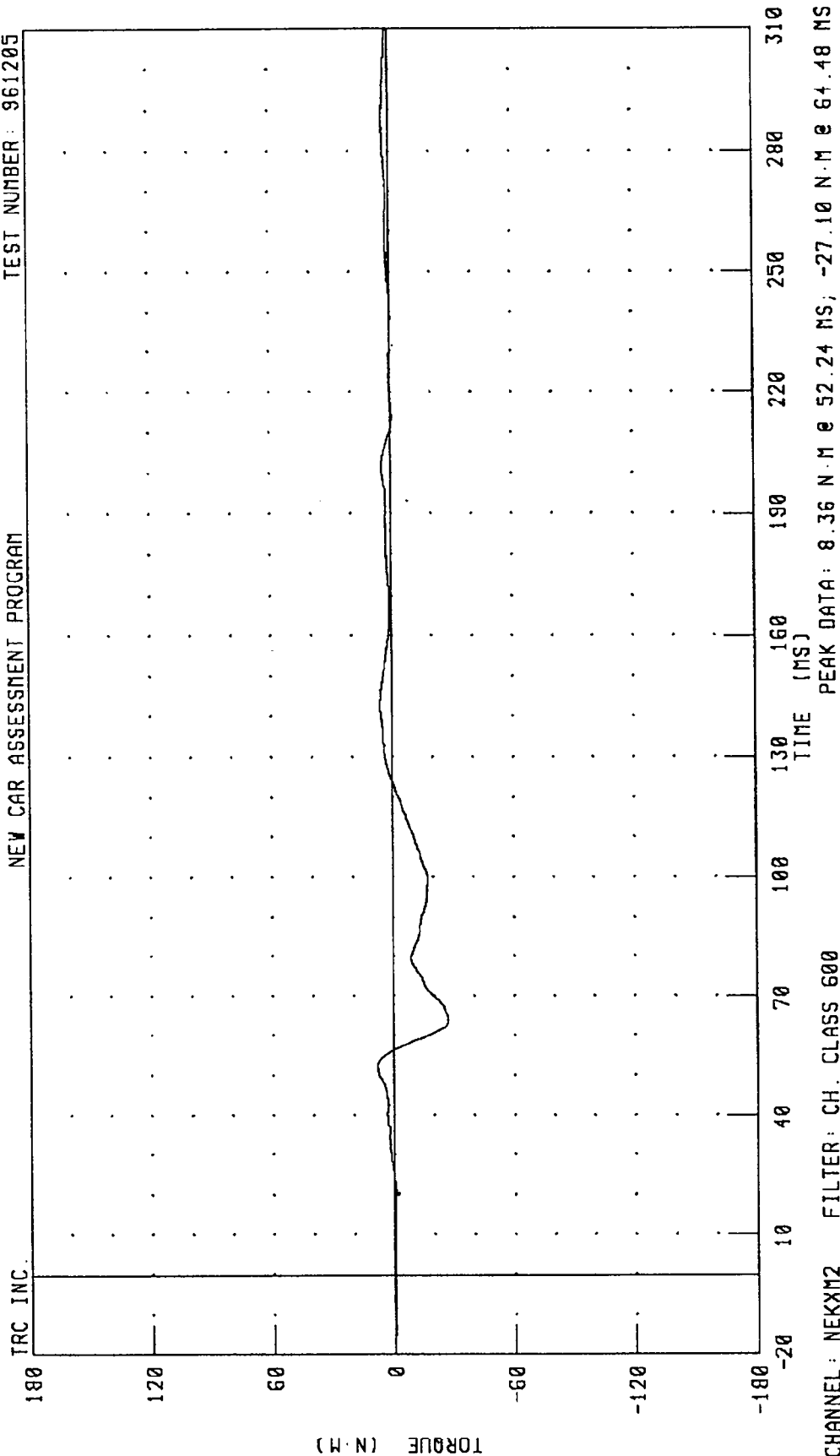


PEAK DATA: 2109.79 N @ 62.40 MS; -230.88 N @ 118.48 MS

CHANNEL: NEKZF2 FILTER: CH. CLASS 1000

1997 FORD CLUB WAGON VAN INTO FRONTAL LOAD CELL BARRIER
PASSENGER NECK MOMENT ABOUT X AXIS
NEW CAR ASSESSMENT PROGRAM

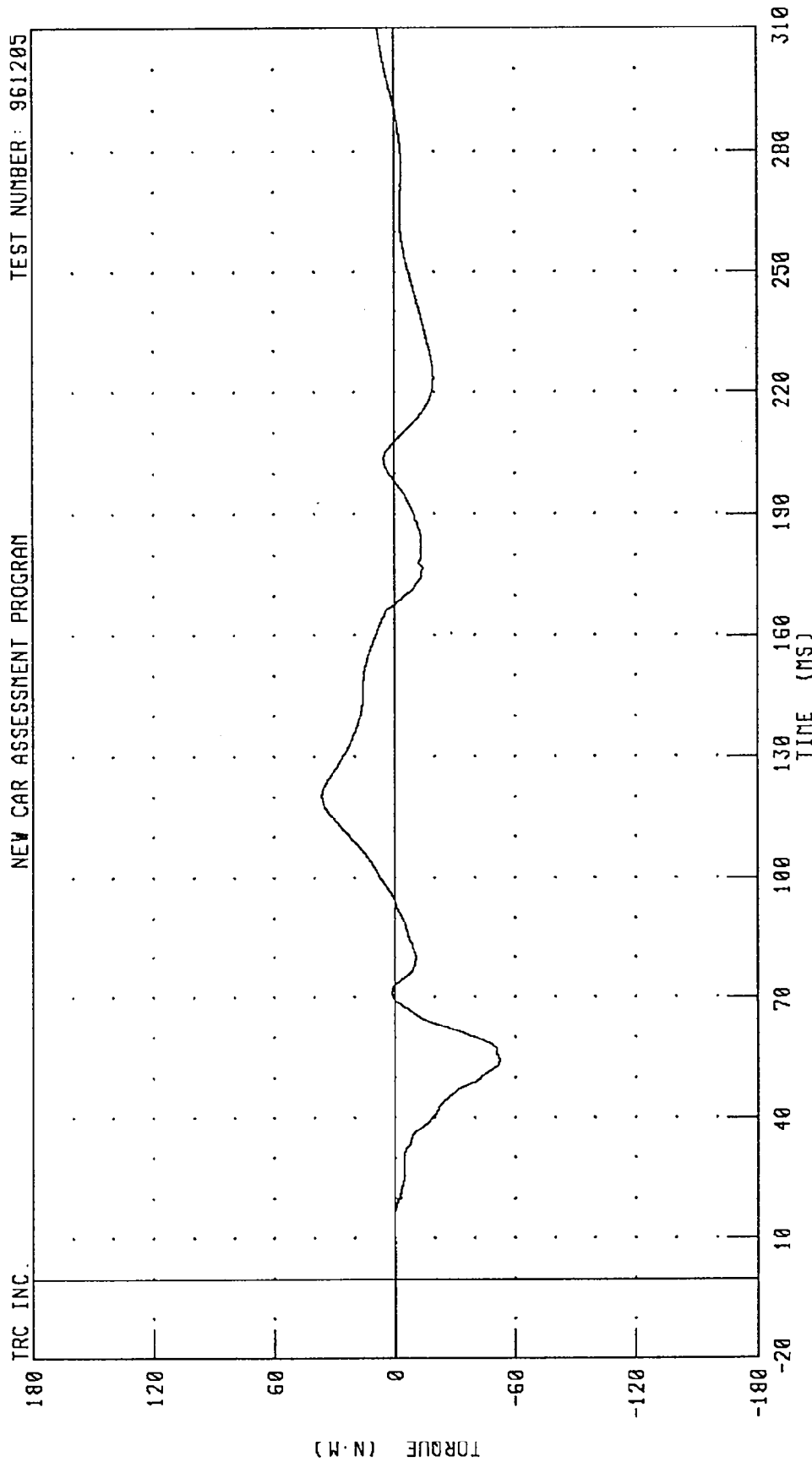
TEST NUMBER: 961205



CHANNEL: NEKX12 FILTER: CH. CLASS 600

1997 FORD CLUB WAGON VAN INTO FRONTAL LOAD CELL BARRIER
PASSENGER NECK MOMENT ABOUT Y AXIS
NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 961205

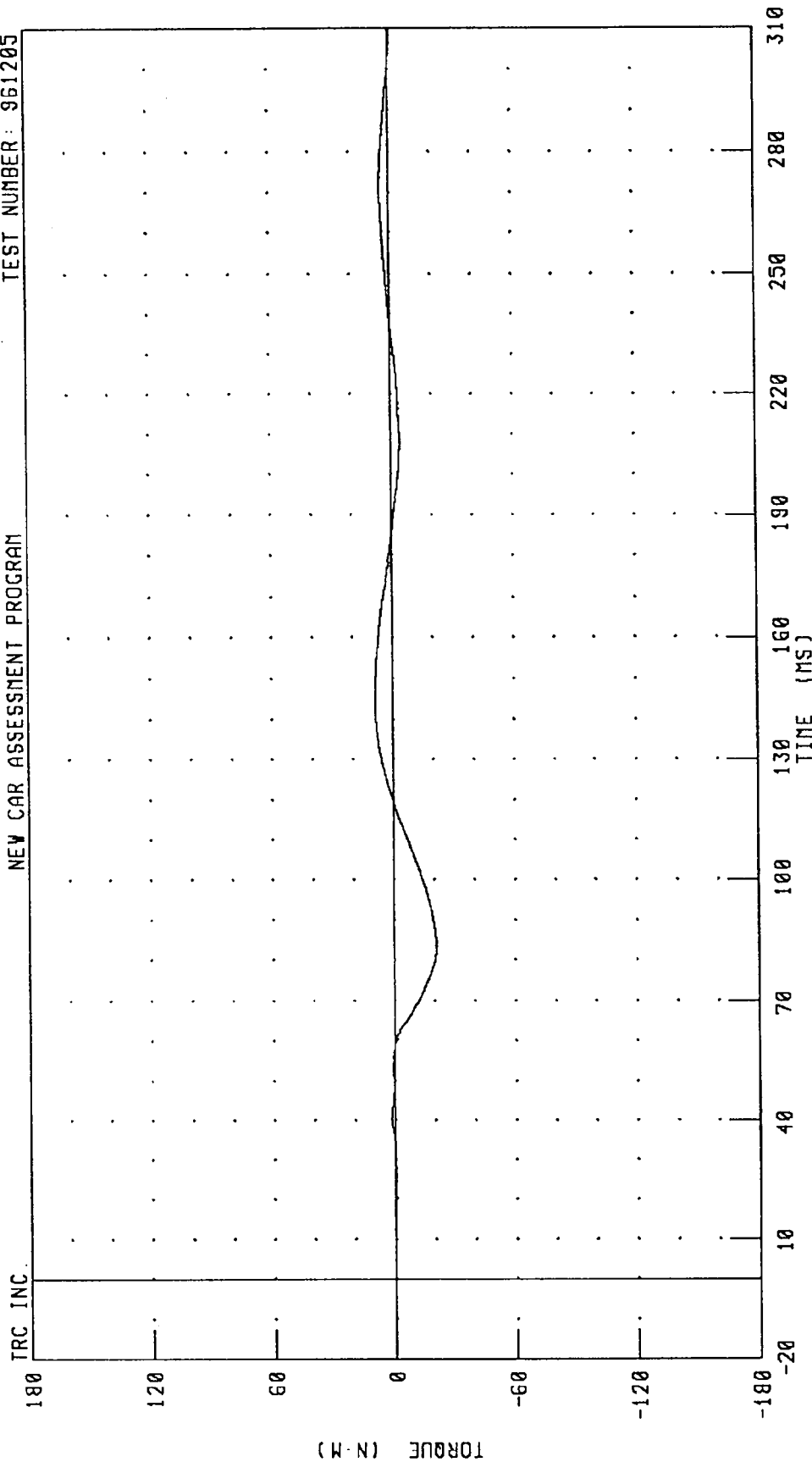


PEAK DATA: 36.68 N-M @ 120.48 MS; -52.10 N-M @ 54.56 MS

CHANNEL: NEKYM2 FILTER: CH. CLASS 600

1997 FORD CLUB WAGON VAN INTO FRONTAL LOAD CELL BARRIER
PASSENGER NECK MOMENT ABOUT Z AXIS
NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 961205



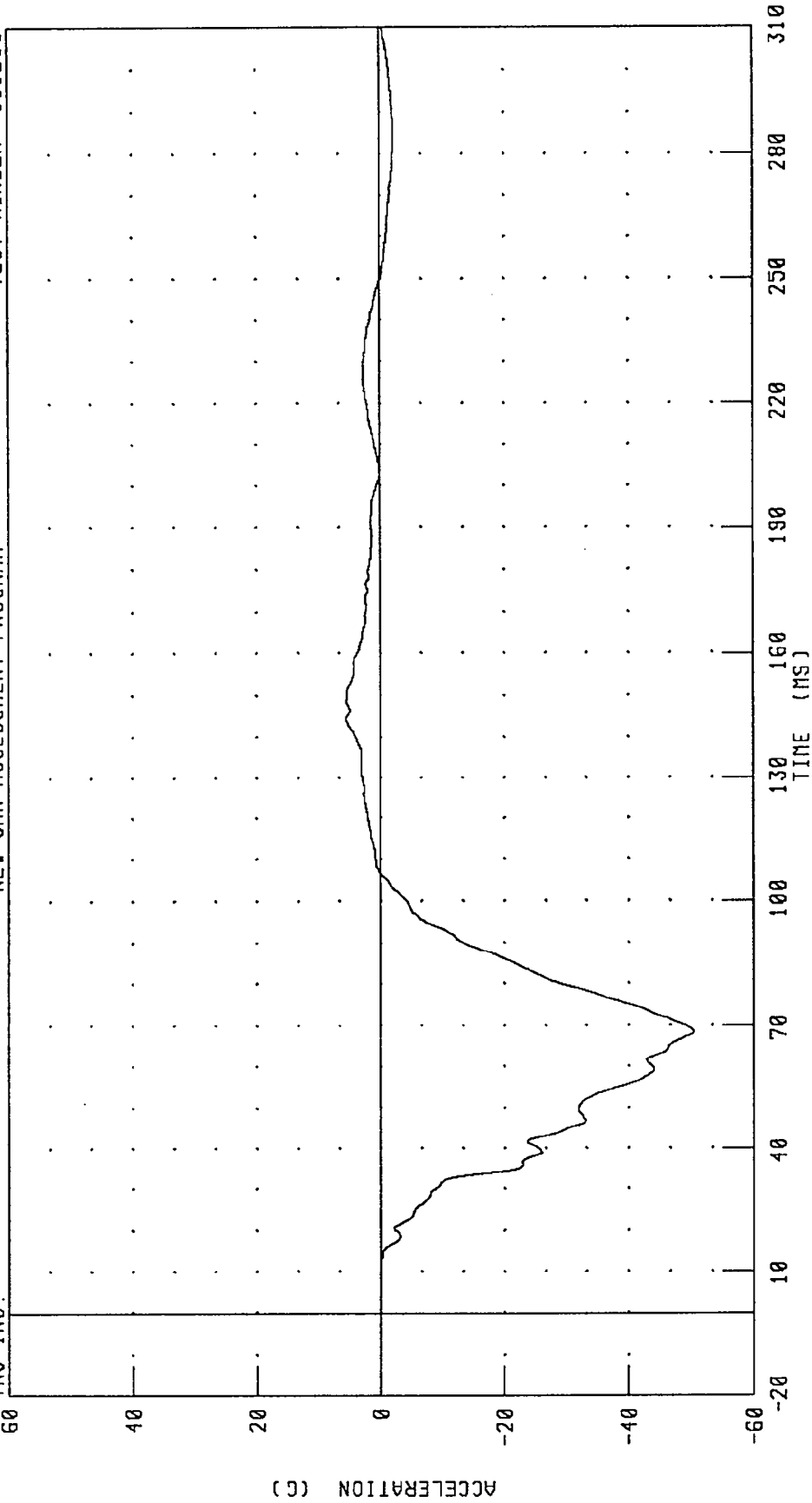
PEAK DATA: 8.91 N-M @ 143.12 MS; -20.83 N-M @ 83.52 MS

CHANNEL: NEKZM2 FILTER: CH. CLASS 600

1997 FORD CLUB WAGON VAN INTO FRONTAL LOAD CELL BARRIER
PASSENGER CHEST X-AXIS ACCELERATION
NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 961205

TRC INC.

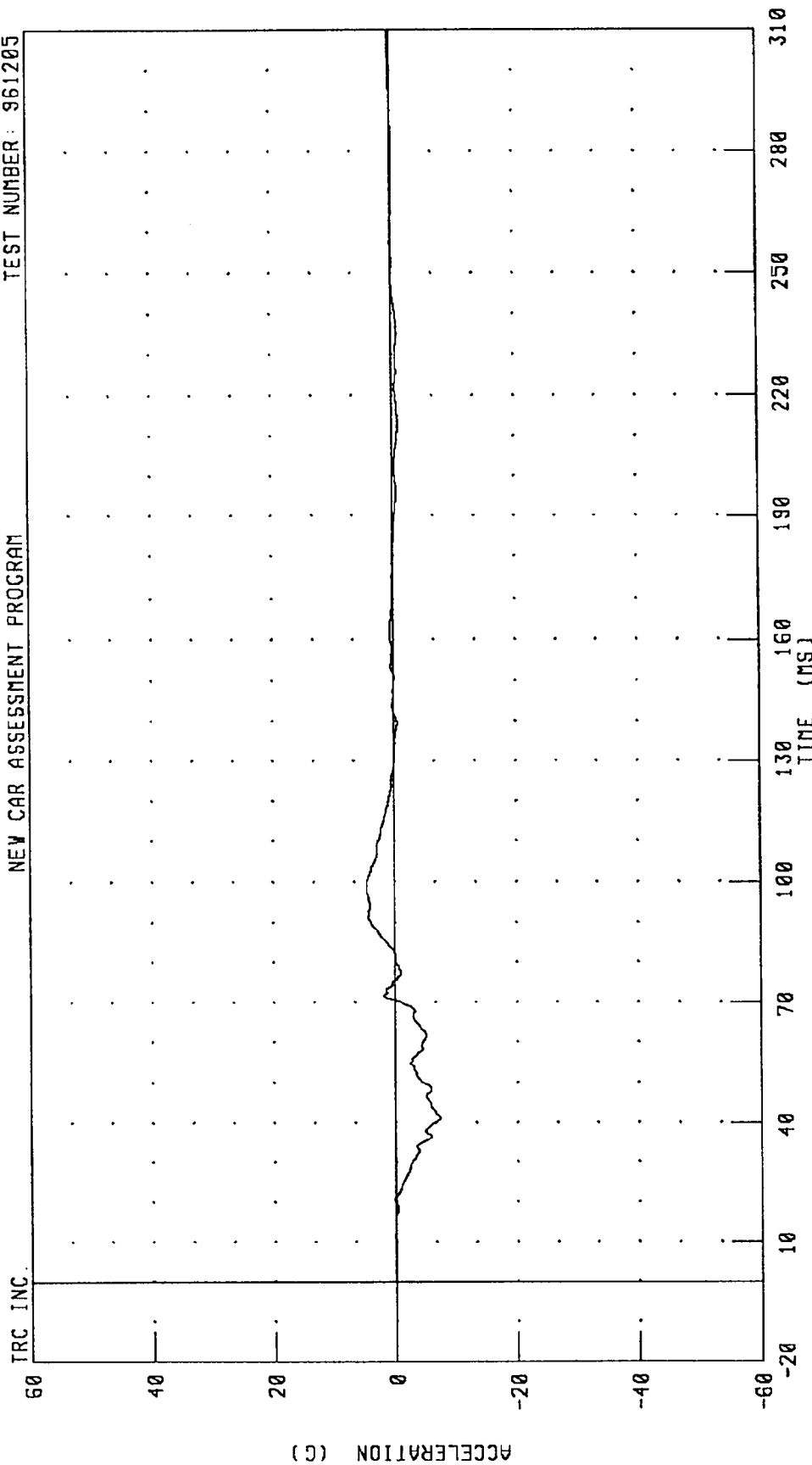


CHANNEL: CSTXG2 FILTER: CH. CLASS 180

PEAK DATA: 5.59 G @ 144.48 MS; -50.38 G @ 68.48 MS

1997 FORD CLUB WAGON VAN INTO FRONTAL LOAD CELL BARRIER
PASSENGER CHEST Y-AXIS ACCELERATION
NEW CAR ASSESSMENT PROGRAM

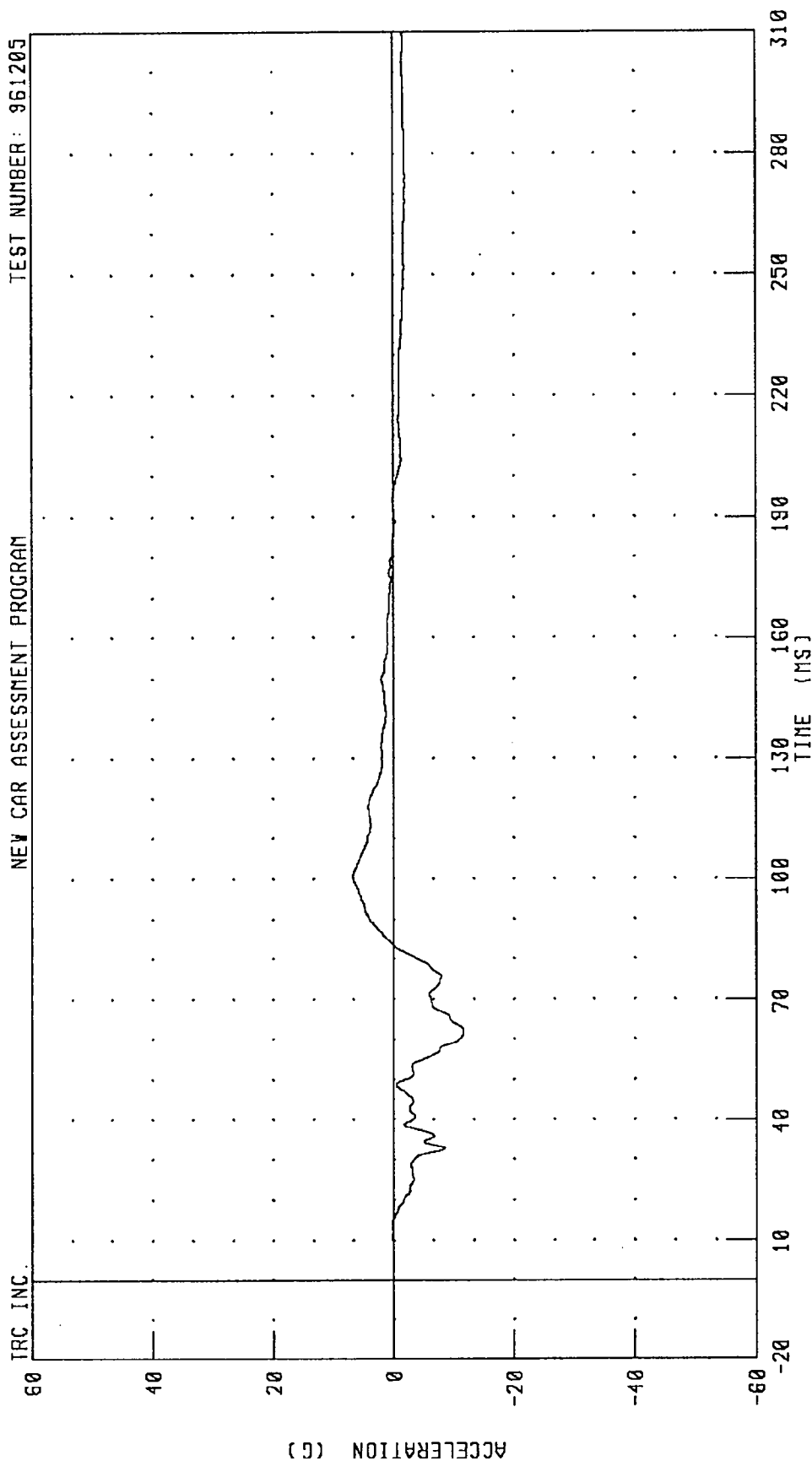
TEST NUMBER: 961205



CHANNEL: CSTYG2 FILTER: CH. CLASS 180 PEAK DATA: 4.64 G @ 99.44 MS; -7.46 G @ 41.36 MS

1997 FORD CLUB WAGON VAN INTO FRONTAL LOAD CELL BARRIER
PASSENGER CHEST Z-AXIS ACCELERATION
NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 961205

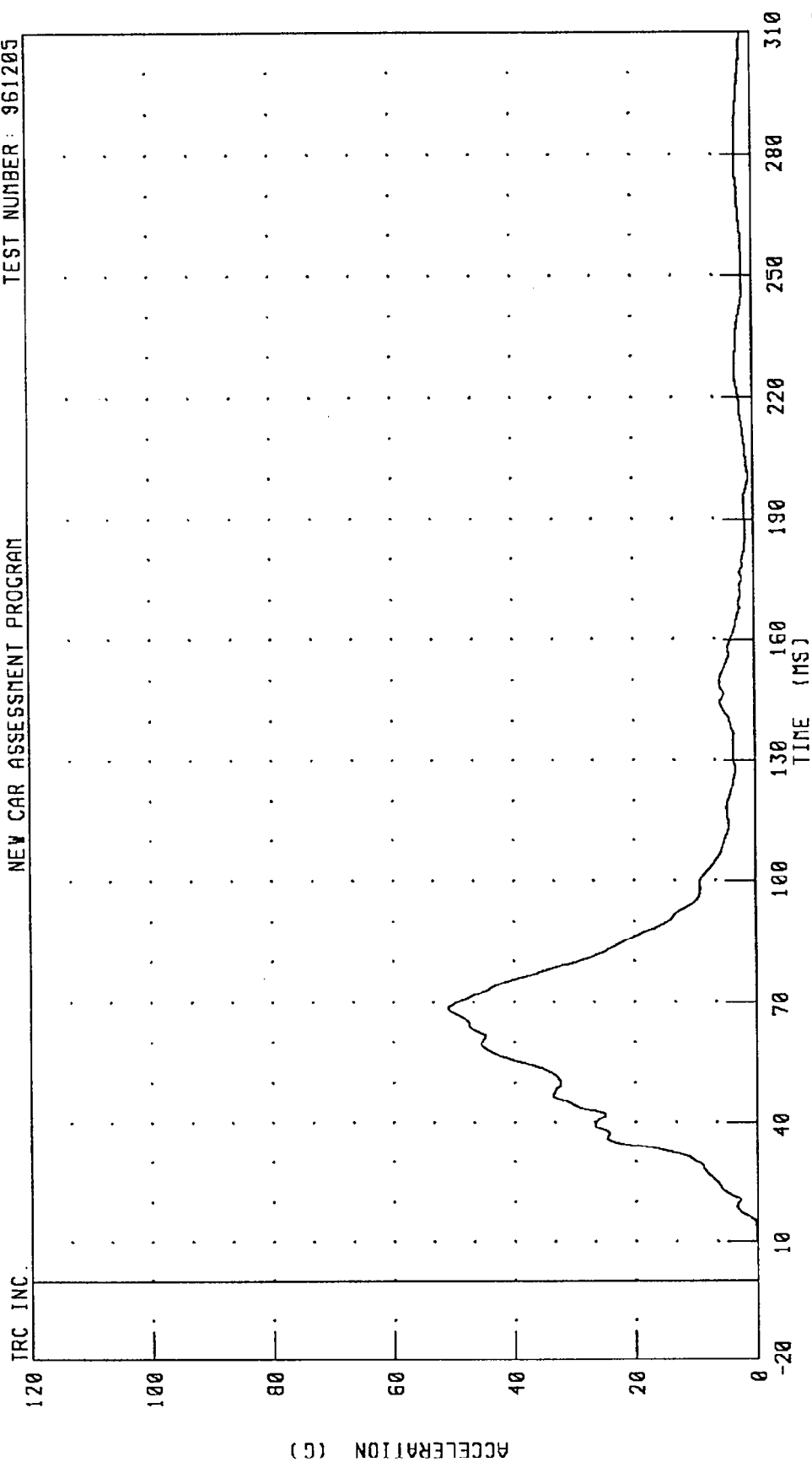


PEAK DATA: 6.74 G @ 100.48 MS; -11.49 G @ 61.60 MS

CHANNEL: CSTZG2 FILTER: CH. CLASS 180

1997 FORD CLUB WAGON VAN INTO FRONTAL LOAD CELL BARRIER
PASSENGER CHEST RESULTANT ACCELERATION
NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 961205



PEAK DATA: 50.89 G @ 68.48 MS; 0.01 G @ -20.00 MS

CHANNEL: CSTRG2 FILTER: CH. CLASS 180

1997 FORD CLUB WAGON VAN INTO FRONTAL LOAD CELL BARRIER

PASSENGER CHEST DEFLECTION

NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 961205

TRC INC.

30

10

DISPLACEMENT (MM)

-10

-30

-50

-70

-90

-20

10

40

70

100

130

160

190

220

250

280

310

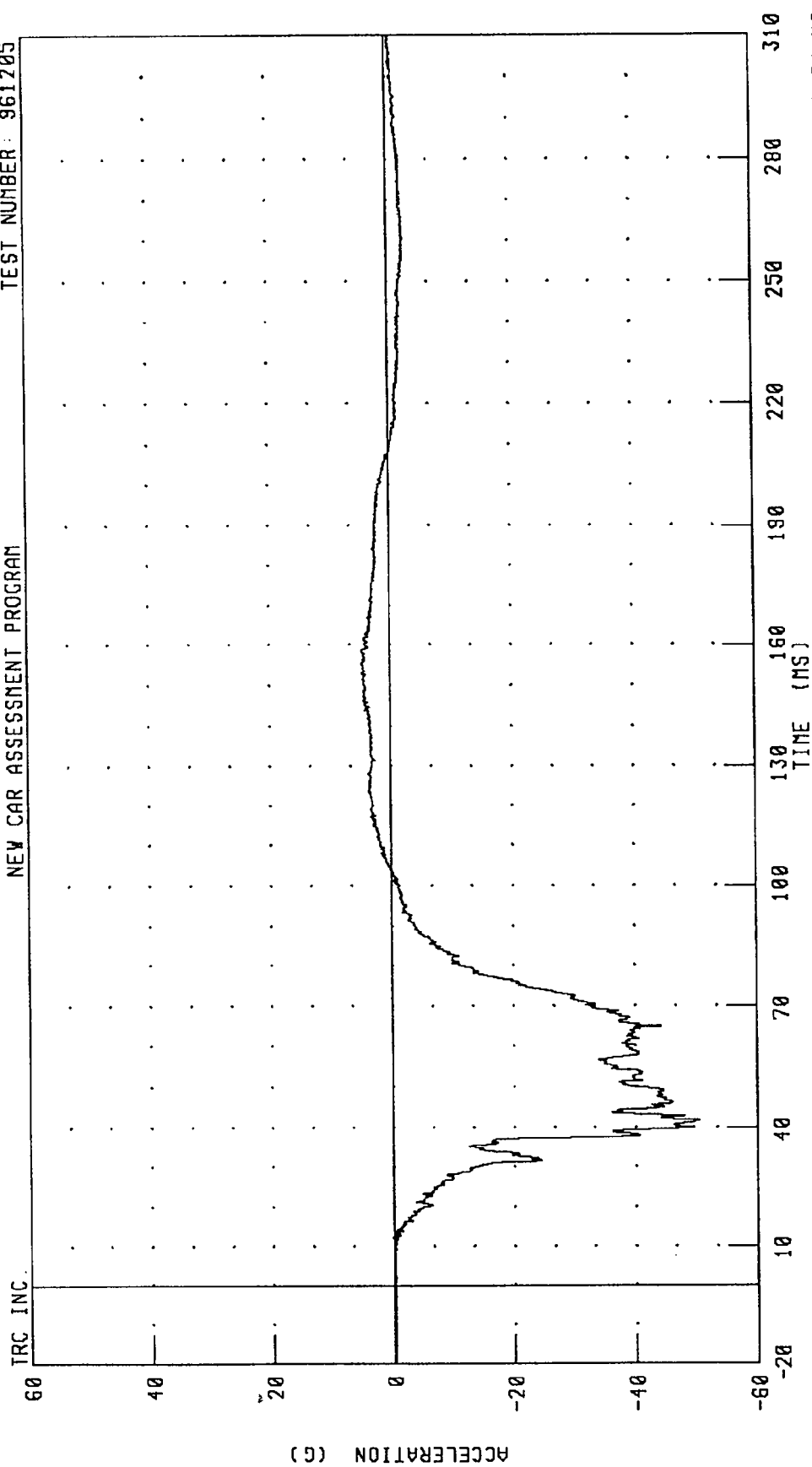
TIME (MS)

PEAK DATA: 0.01 MM @ -0.72 MS; -44.62 MM @ 66.24 MS

CHANNEL: CSTXD2 FILTER: CH. CLASS 180

1997 FORD CLUB WAGON VAN INTO FRONTAL LOAD CELL BARRIER
PASSENGER PELVIS X-AXIS ACCELERATION
NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 961205



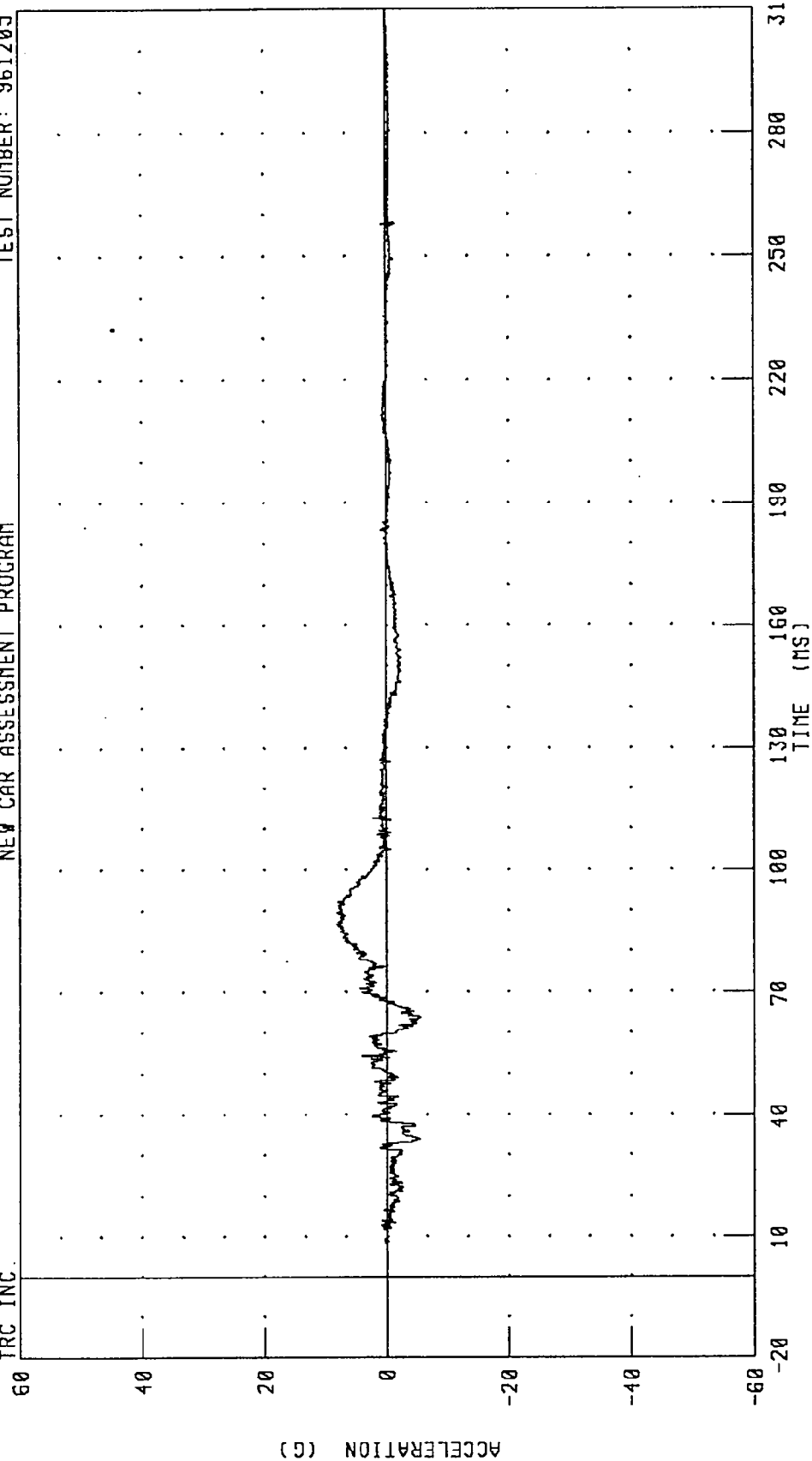
CHANNEL: PEVXG2 FILTER: CH. CLASS 1000

PEAK DATA: 4.80 G @ 152.88 MS; -50.42 G @ 41.84 MS

1997 FORD CLUB WAGON VAN INTO FRONTAL LOAD CELL BARRIER
PASSENGER PELVIS Y-AXIS ACCELERATION
NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 961205

TRC INC.

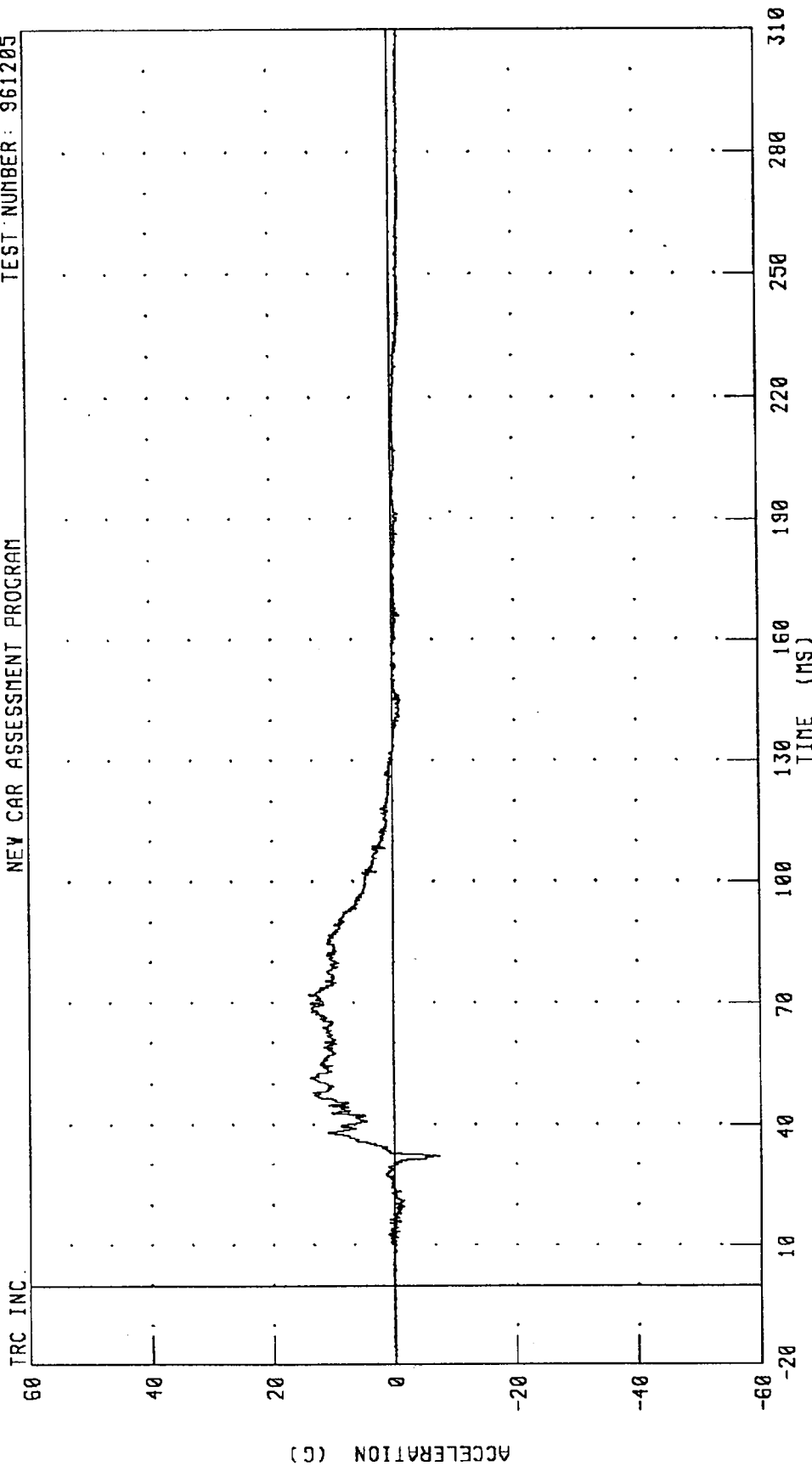


CHANNEL: PEVY62 FILTER: CH. CLASS 1000

PEAK DATA: 8.15 G @ 86.48 MS; -5.64 G @ 63.92 MS

1997 FORD CLUB WAGON VAN INTO FRONTAL LOAD CELL BARRIER
PASSENGER PELVIS Z-AXIS ACCELERATION
NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 961205



PEAK DATA: 14.11 G @ 71.92 MS; -7.37 G @ 32.16 MS

CHANNEL: PEVZG2 FILTER: CH. CLASS 1000

1997 FORD CLUB WAGON VAN INTO FRONTAL LOAD CELL BARRIER
PASSENGER PELVIS RESULTANT ACCELERATION
NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 961205

TRC INC.

120

100

80

60

ACCELERATION (G)

40

20

0

-20

10

40

70

100

130

160

190

220

250

280

310

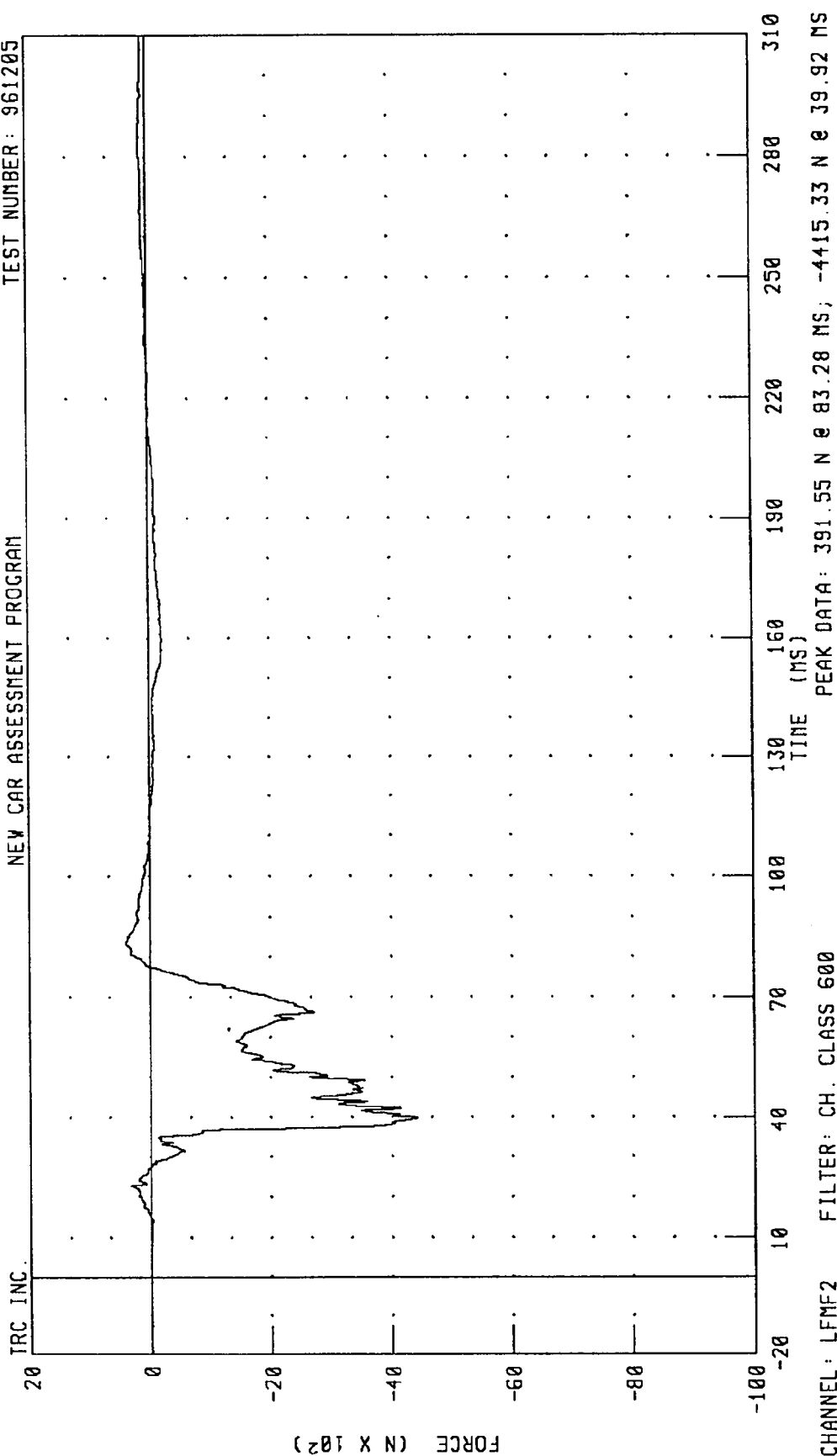
TIME (MS)

PEAK DATA: 50.82 G @ 41.84 MS; 0.11 G @ 9.12 MS

CHANNEL: PEVRG2 FILTER: CH. CLASS 1000

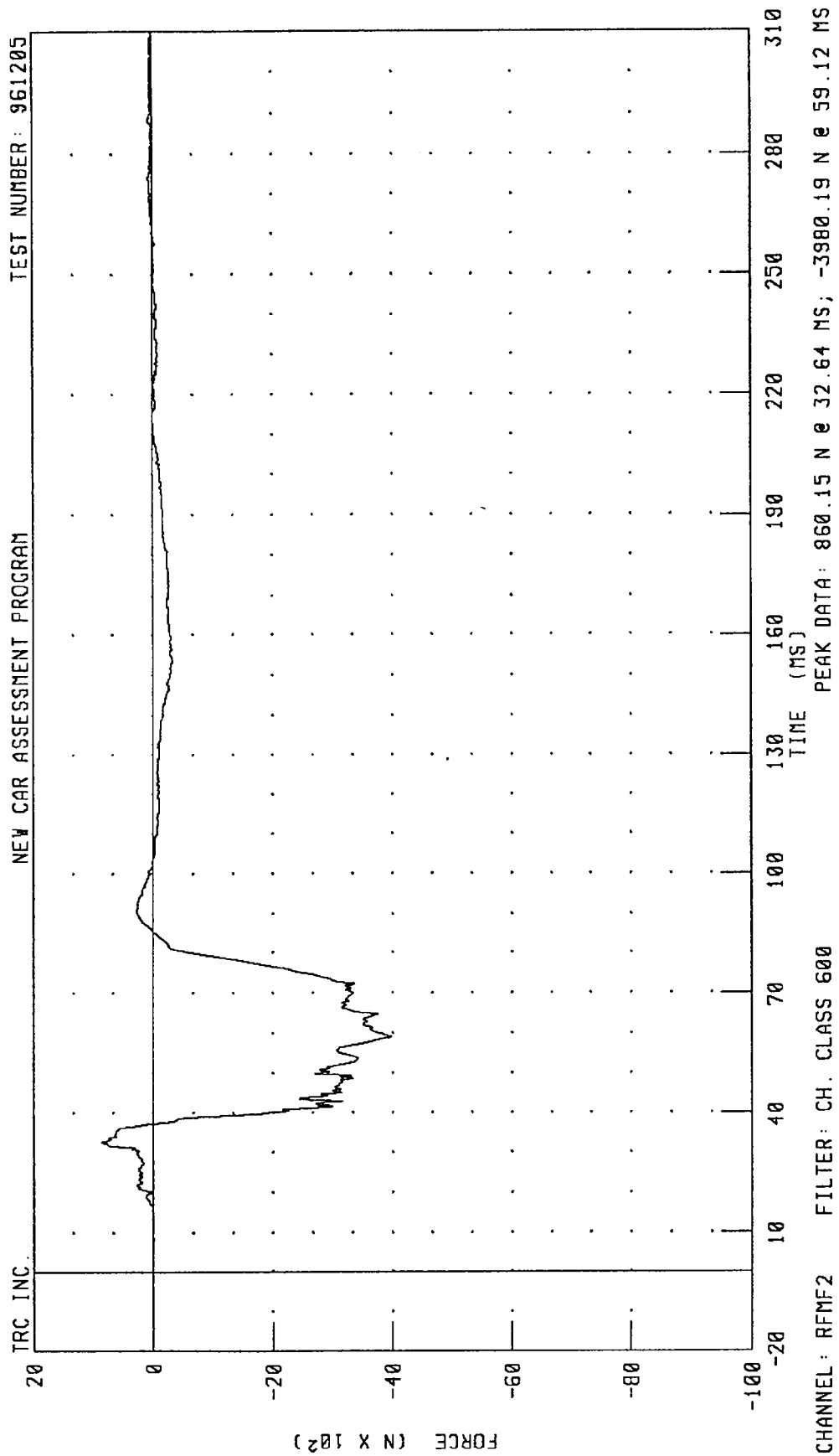
1997 FORD CLUB WAGON VAN INTO FRONTAL LOAD CELL BARRIER
PASSENGER LEFT FEMUR FORCE
NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 961205



1997 FORD CLUB WAGON VAN INTO FRONTAL LOAD CELL BARRIER
PASSENGER RIGHT FEMUR FORCE
NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 961205



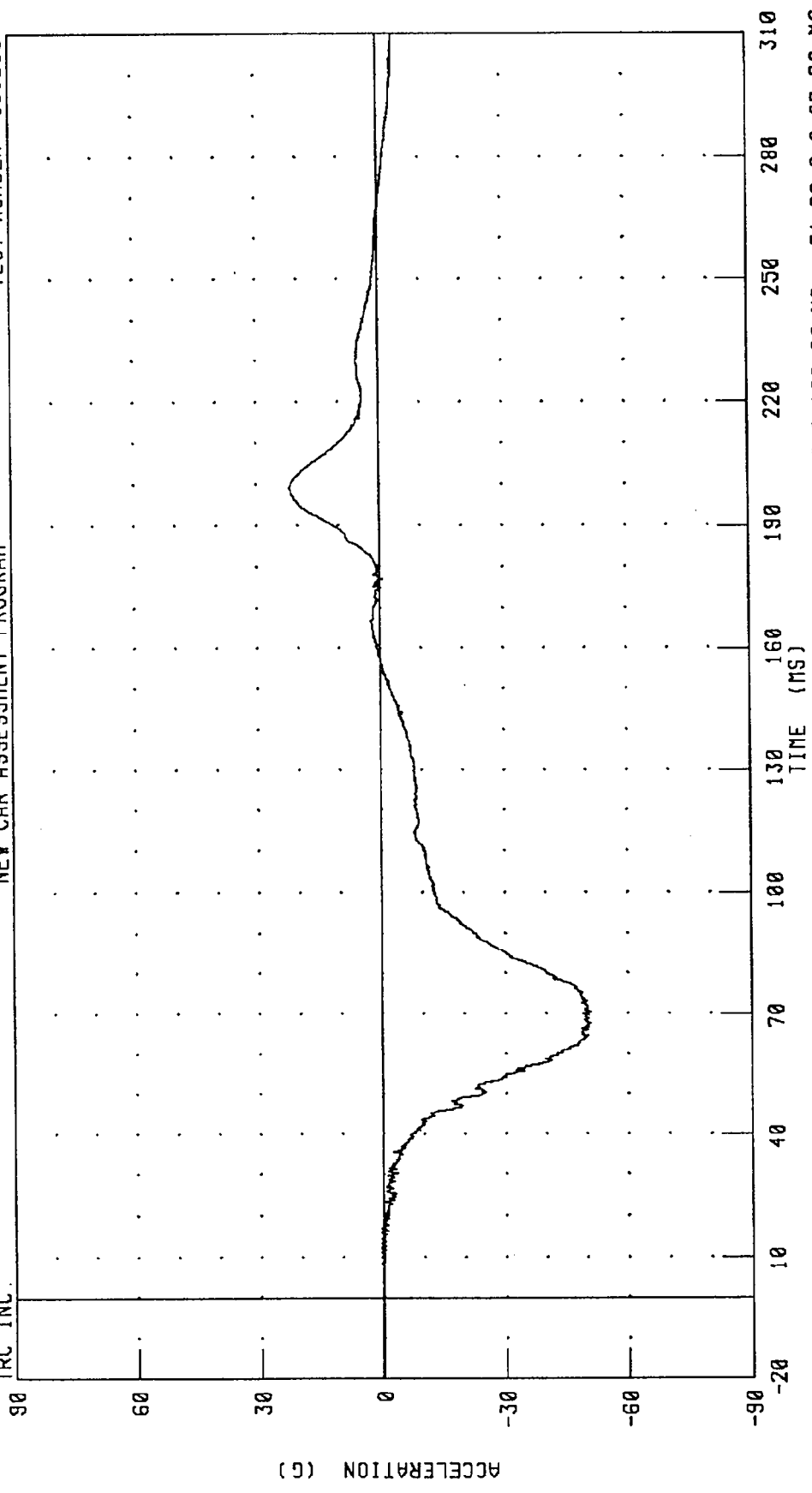
PEAK DATA: 860.15 N @ 32.64 MS; -3980.19 N @ 59.12 MS

CHANNEL: RFMF2 FILTER: CH. CLASS 600

1997 FORD CLUB WAGON VAN INTO FRONTAL LOAD CELL BARRIER
 PASSENGER HEAD X-AXIS ACCELERATION - REDUNDANT
 NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 961205

TRC INC.



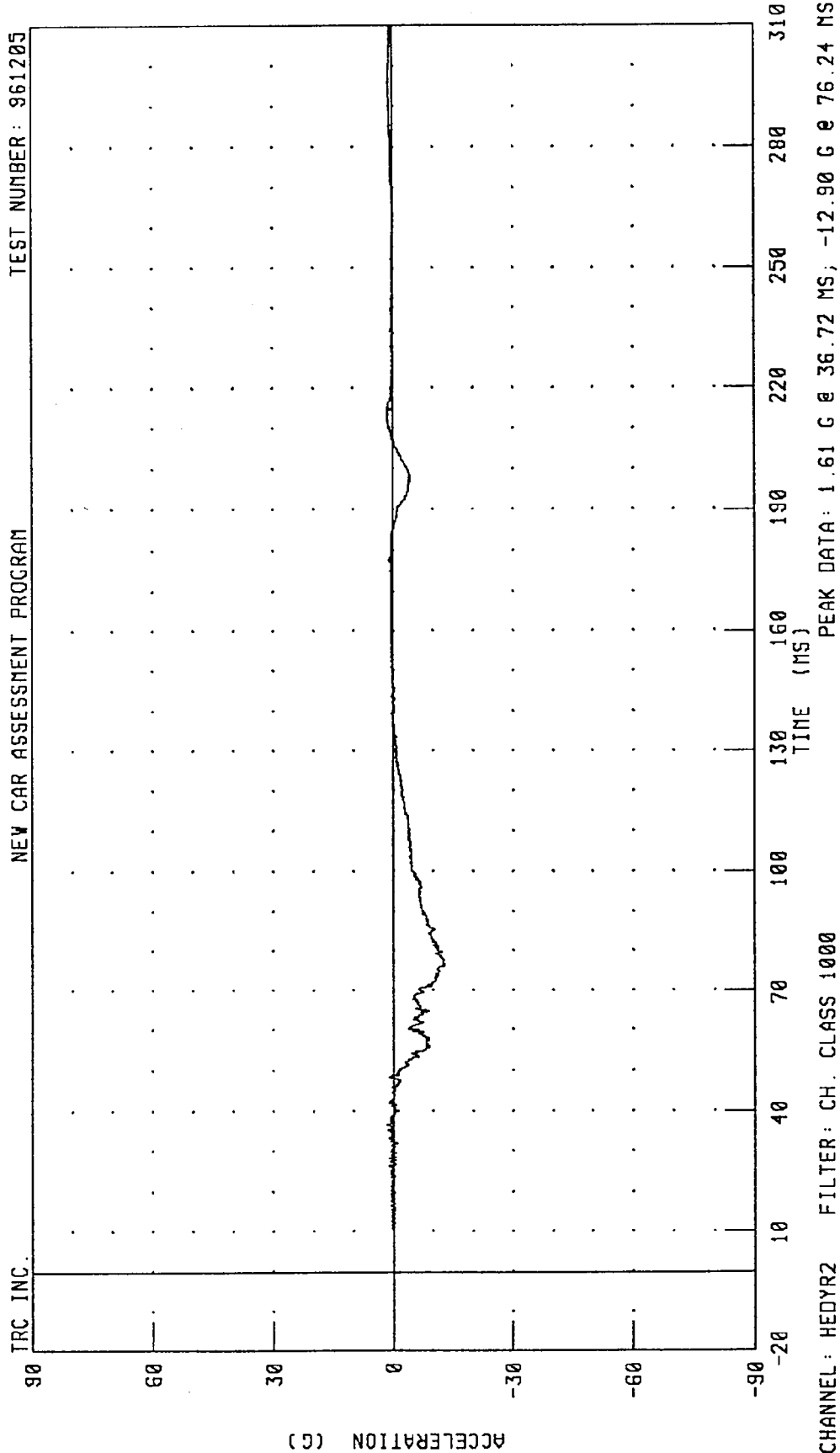
PEAK DATA: 22.12 G @ 198.96 MS; -51.00 G @ 67.76 MS

CHANNEL: HEDXR2 FILTER: CH. CLASS 1000

1997 FORD CLUB WAGON VAN INTO FRONTAL LOAD CELL BARRIER
PASSENGER HEAD Y-AXIS ACCELERATION - REDUNDANT
NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 961205

TRC INC.

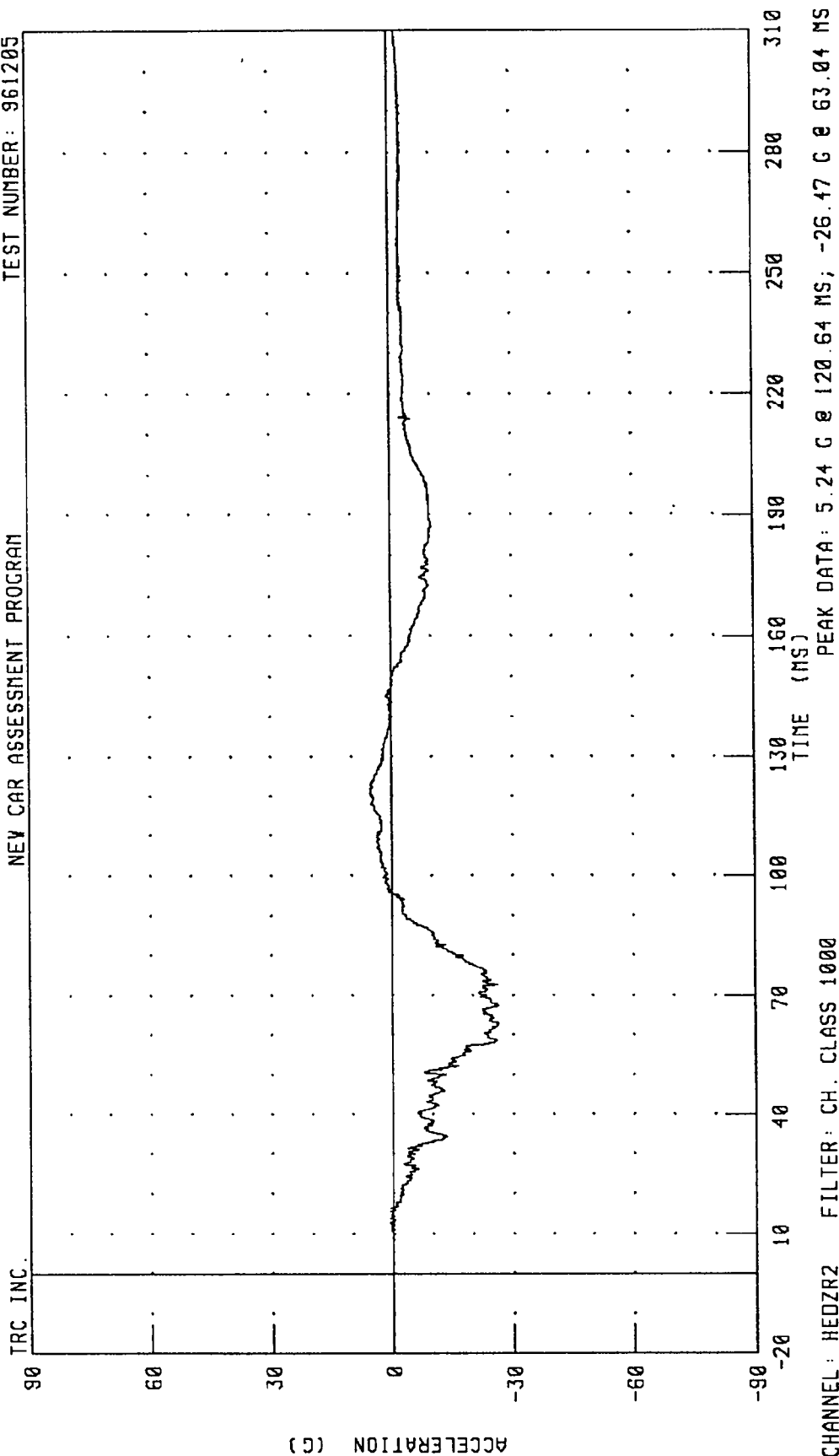


CHANNEL: HEDYR2 FILTER: CH. CLASS 1000

PEAK DATA: 1.61 G @ 36.72 MS; -12.90 G @ 76.24 MS

1997 FORD CLUB WAGON VAN INTO FRONTAL LOAD CELL BARRIER
PASSENGER HEAD Z-AXIS ACCELERATION - REDUNDANT
NEW CAR ASSESSMENT PROGRAM

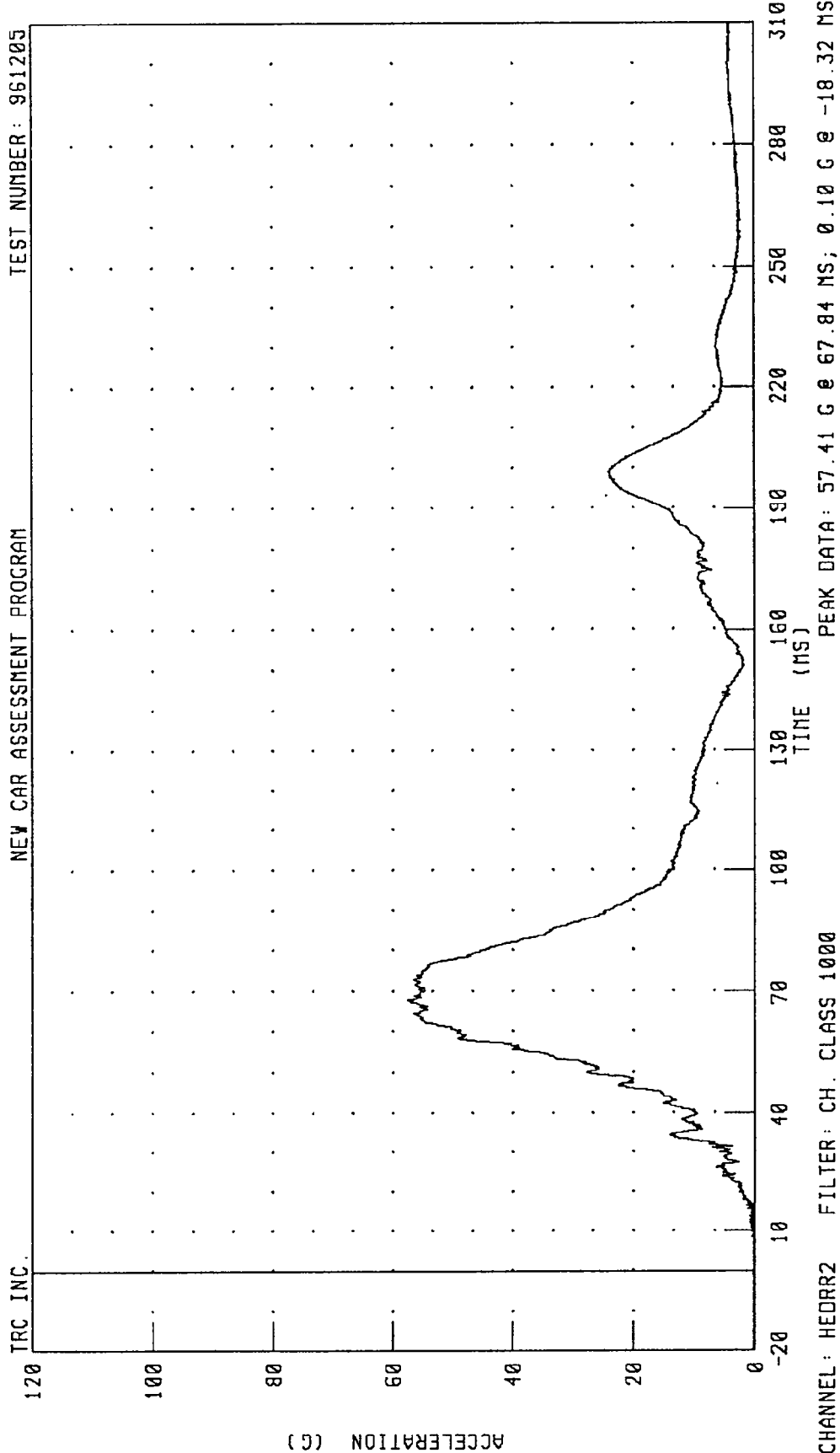
TEST NUMBER: 961205



1997 FORD CLUB WAGON VAN INTO FRONTAL LOAD CELL BARRIER
PASSENGER HEAD RESULTANT ACCELERATION - REDUNDANT
NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 961205

TRC INC.



CHANNEL: HEDRR2 FILTER: CH. CLASS 1000

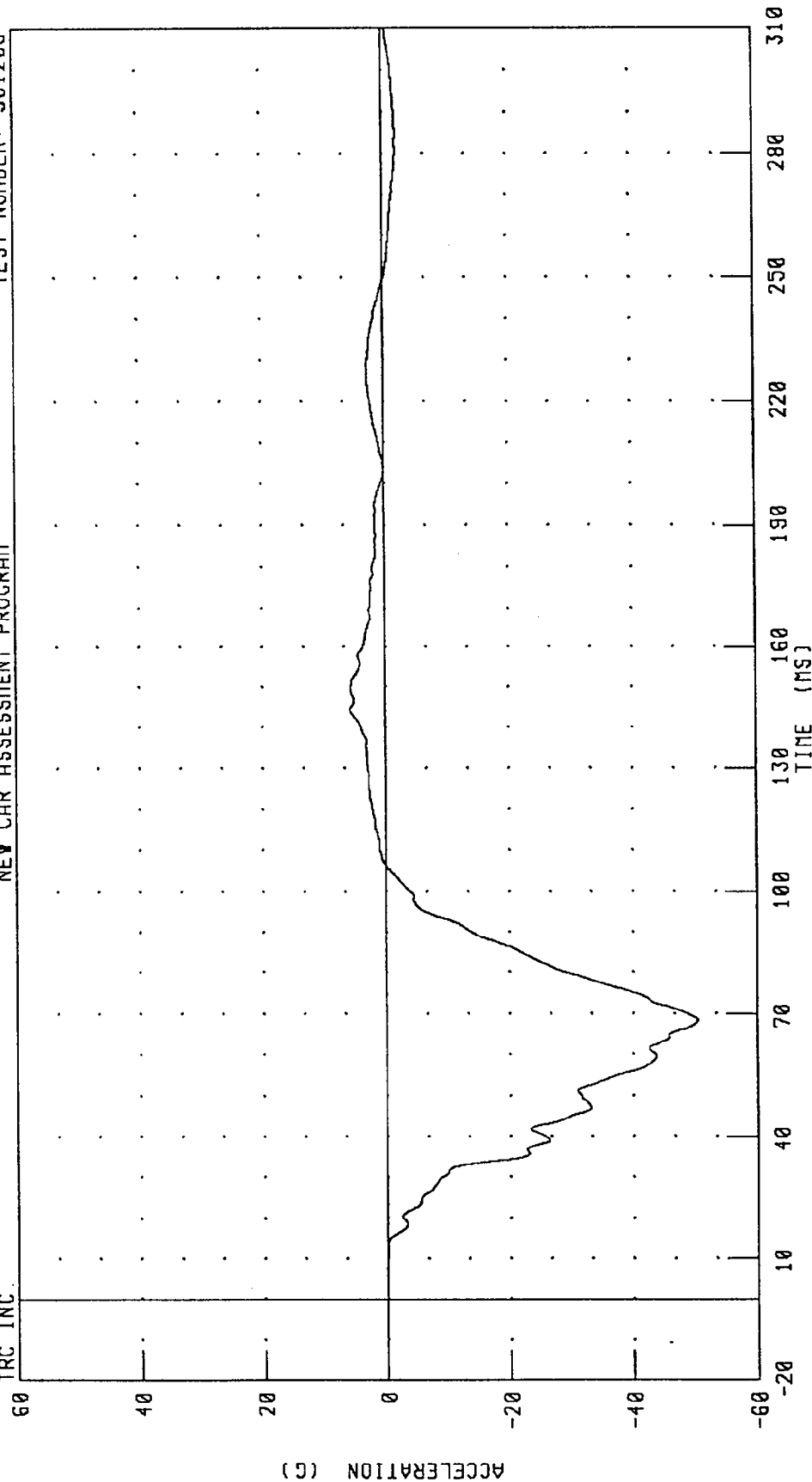
PEAK DATA: 57.41 G @ 67.84 MS; 18.32 G @ 18.32 MS

1997 FORD CLUB WAGON VAN INTO FRONTAL LOAD CELL BARRIER
PASSENGER CHEST X-AXIS ACCELERATION - REDUNDANT

TEST NUMBER: 961205

NEW CAR ASSESSMENT PROGRAM

TRC INC.



CHANNEL: CSTXR2 FILTER: CH. CLASS 180

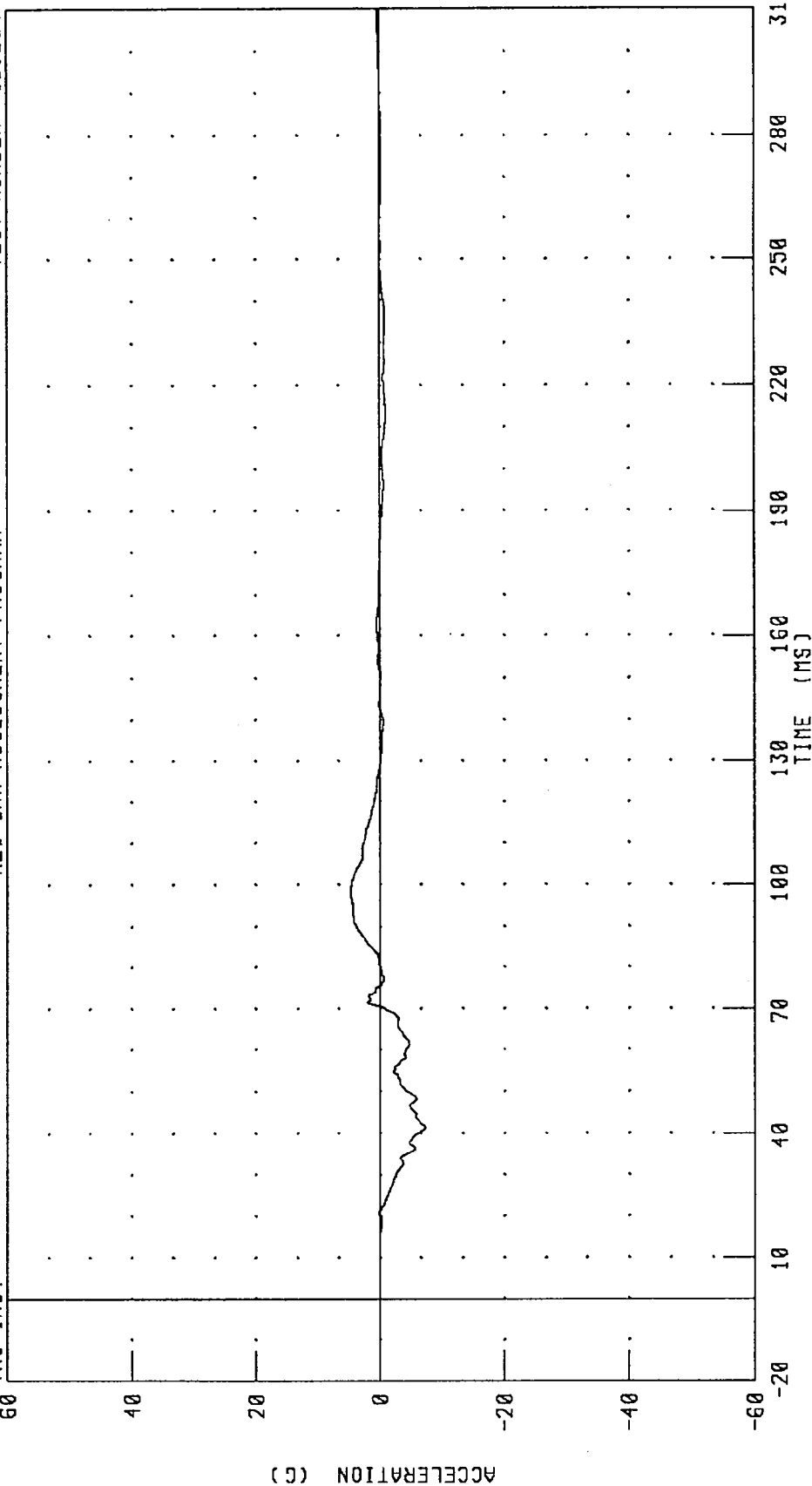
PEAK DATA: 5.76 G @ 144.48 MS; -50.41 G @ 68.32 MS

1997 FORD CLUB WAGON VAN INTO FRONTAL LOAD CELL BARRIER
PASSENGER CHEST Y-AXIS ACCELERATION - REDUNDANT

TEST NUMBER: 961205

NEW CAR ASSESSMENT PROGRAM

TRC INC.

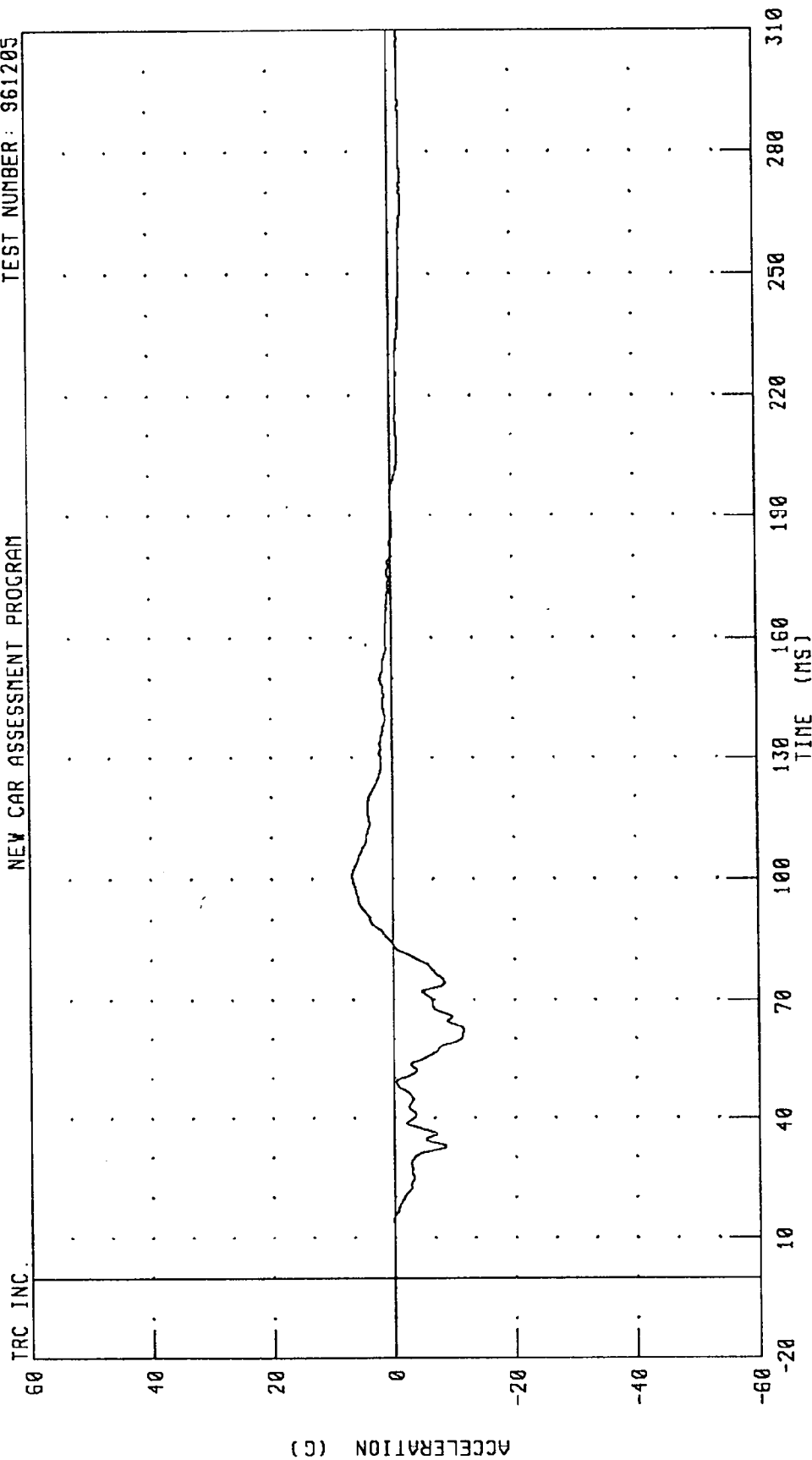


CHANNEL: CSTYR2 FILTER: CH. CLASS 180

PEAK DATA: 4.76 G @ 97.60 MS; -7.31 G @ 41.44 MS

1997 FORD CLUB WAGON VAN INTO FRONTAL LOAD CELL BARRIER
PASSENGER CHEST Z-AXIS ACCELERATION - REDUNDANT
NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 961205



PEAK DATA: 6.73 G @ 100.80 MS; -11.46 G @ 62.48 MS

CHANNEL: CSTZR2 FILTER: CH. CLASS 180

TRC INC.

1997 FORD CLUB WAGON VAN INTO FRONTAL LOAD CELL BARRIER
PASSENGER CHEST RESULTANT ACCELERATION - REDUNDANT
NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 961205

TRC INC.

120

100

80

60

40

20

0

ACCELERATION (G)

310

TIME (MS)

100

70

40

10

-20

CHANNEL: CSTRR2 FILTER: CH. CLASS 180

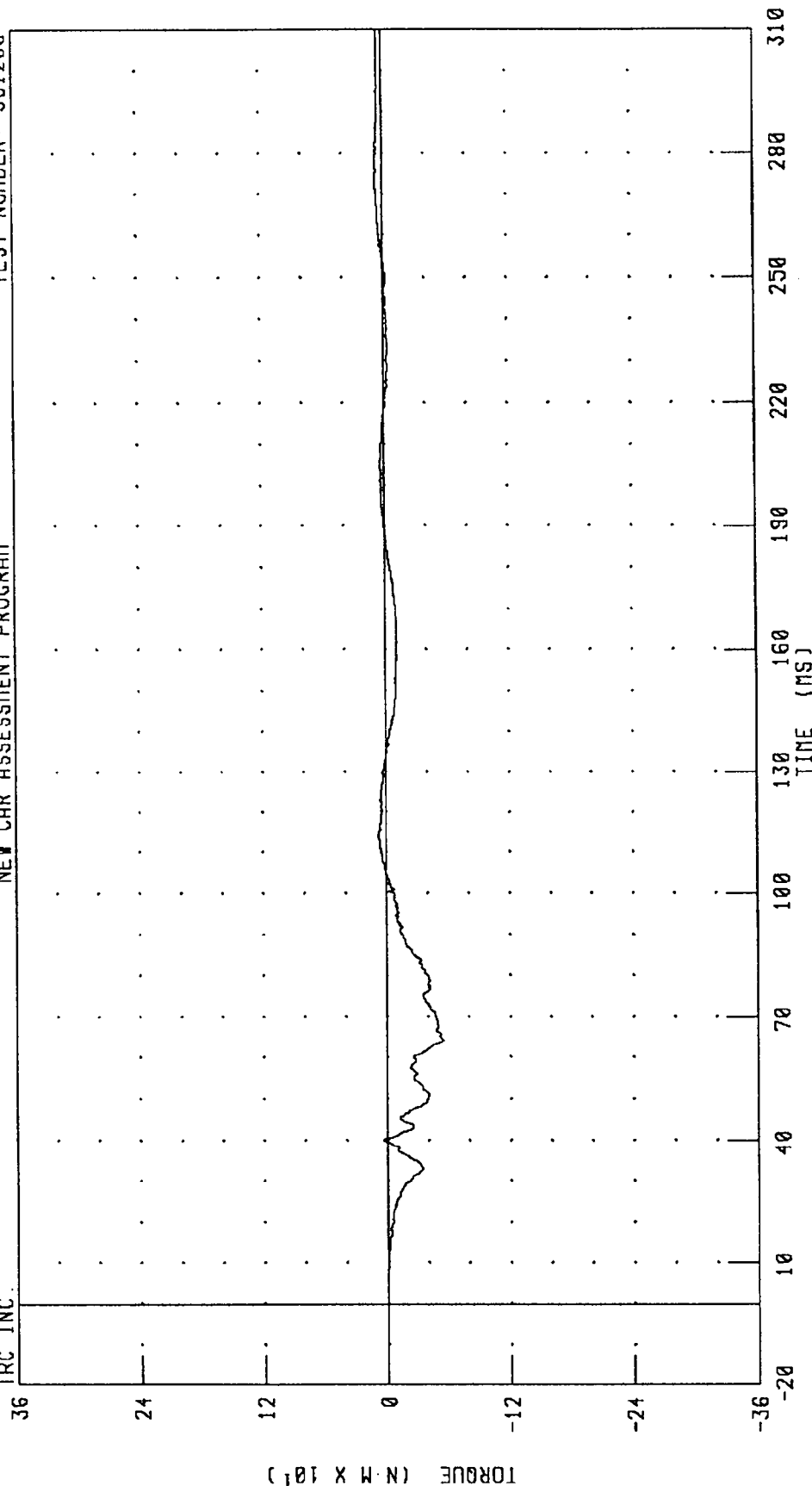
PEAK DATA: 50.91 G @ 68.32 MS; 0.01 G @ -20.00 MS

1997 FORD CLUB WAGON VAN INTO FRONTAL LOAD CELL BARRIER
PASSENGER LEFT UPPER TIBIA MOMENT ABOUT X AXIS

TEST NUMBER: 961205

NEW CAR ASSESSMENT PROGRAM

TRC INC.



PEAK DATA: 7.70 N-M @ 114.16 MS; -54.32 N-M @ 64.24 MS

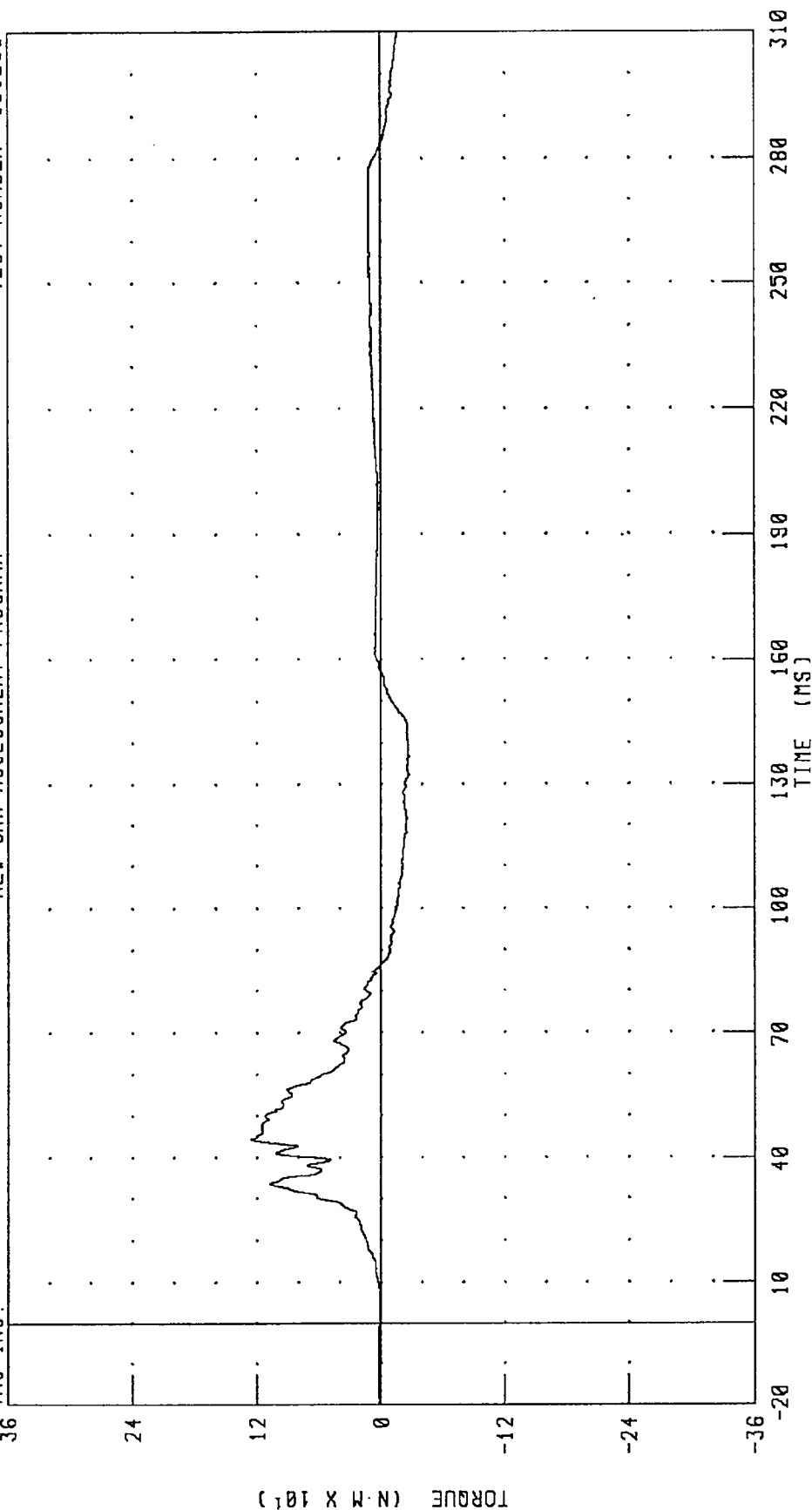
CHANNEL: TBLXM2 FILTER: CH. CLASS 600

1997 FORD CLUB WAGON VAN INTO FRONTAL LOAD CELL BARRIER
PASSENGER LEFT UPPER TIBIA MOMENT ABOUT Y AXIS

TEST NUMBER: 961205

NEW CAR ASSESSMENT PROGRAM

TRC INC.



PEAK DATA: 126.28 N·m @ 44.40 ms; -27.00 N·m @ 132.32 ms

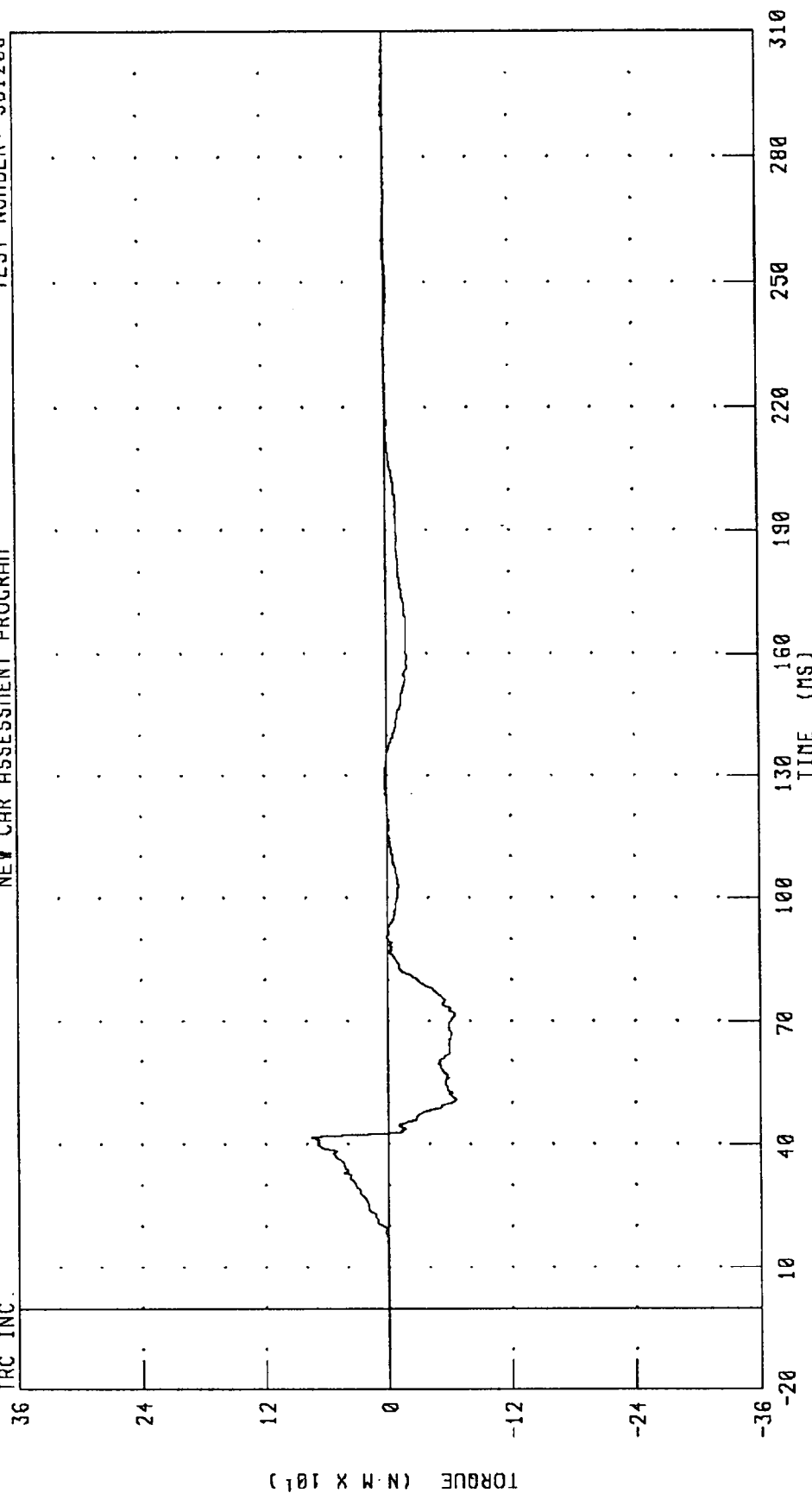
CHANNEL: TBLM2 FILTER: CH. CLASS 600

1997 FORD CLUB WAGON VAN INTO FRONTAL LOAD CELL BARRIER
PASSENGER RIGHT UPPER TIBIA MOMENT ABOUT X AXIS

TEST NUMBER: 961205

NEW CAR ASSESSMENT PROGRAM

TRC INC.



PEAK DATA: 75.62 N·M @ 41.68 MS; -65.82 N·M @ 50.80 MS

CHANNEL: TBRXM2 FILTER: CH. CLASS 600

1997 FORD CLUB WAGON VAN INTO FRONTAL LOAD CELL BARRIER
PASSENGER RIGHT UPPER TIBIA MOMENT ABOUT Y AXIS

TEST NUMBER: 961205

NEW CAR ASSESSMENT PROGRAM

TRC INC.

36

24

TORQUE (N·M X 10¹)

12

0

-12

-24

-36

-20

10

40

70

100

130

160

190

220

250

280

310

TIME (MS)

PEAK DATA: 126.97 N·M @ 43.04 MS; -17.53 N·M @ 134.88 MS

CHANNEL: TBRYM2

FILTER: CH. CLASS 600

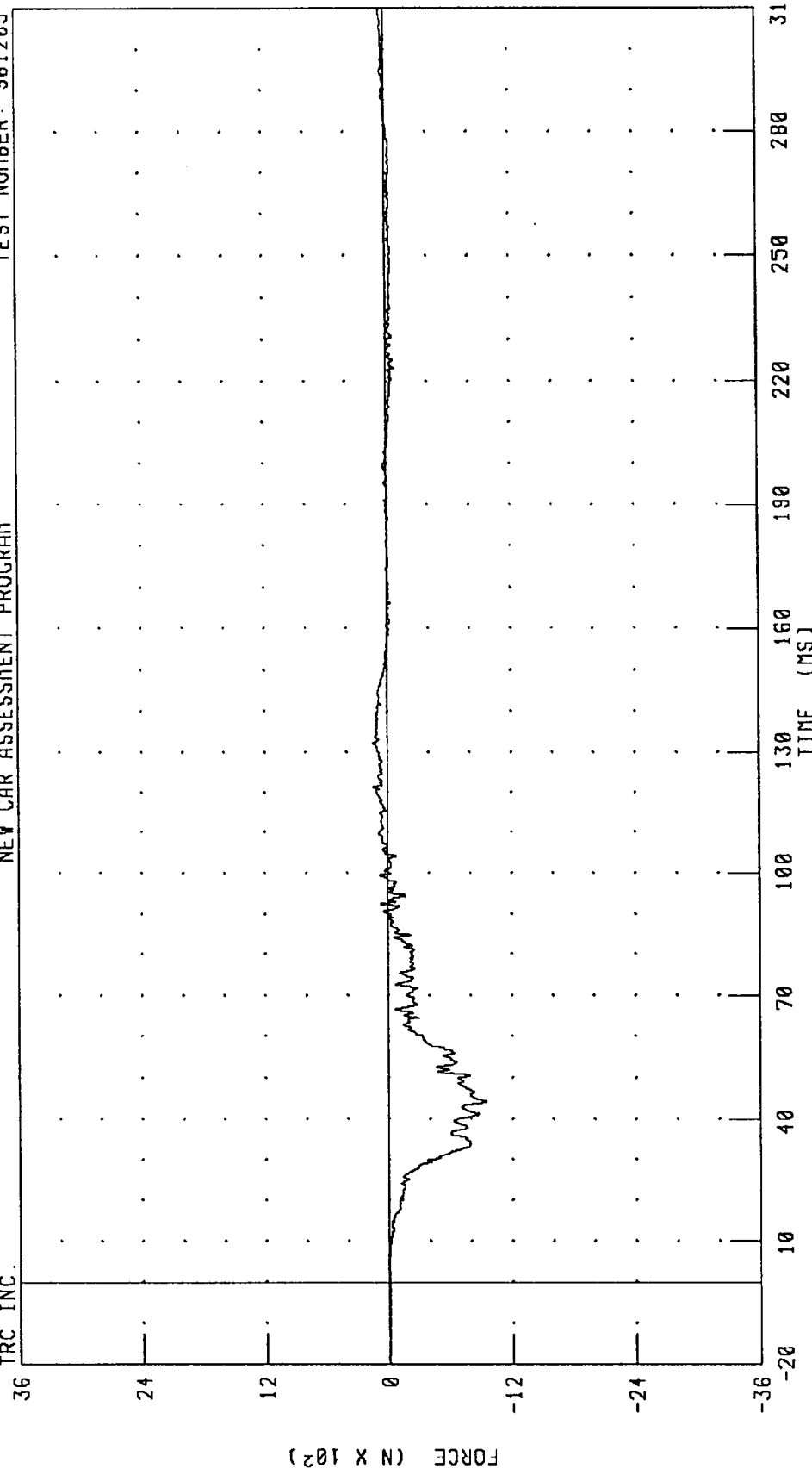
961205

1997 FORD CLUB WAGON VAN INTO FRONTAL LOAD CELL BARRIER
PASSENGER LEFT LOWER TIBIA X-AXIS FORCE

TEST NUMBER: 961205

NEW CAR ASSESSMENT PROGRAM

TRC INC.



PEAK DATA: 146.77 N @ 121.36 MS; -948.56 N @ 44.32 MS

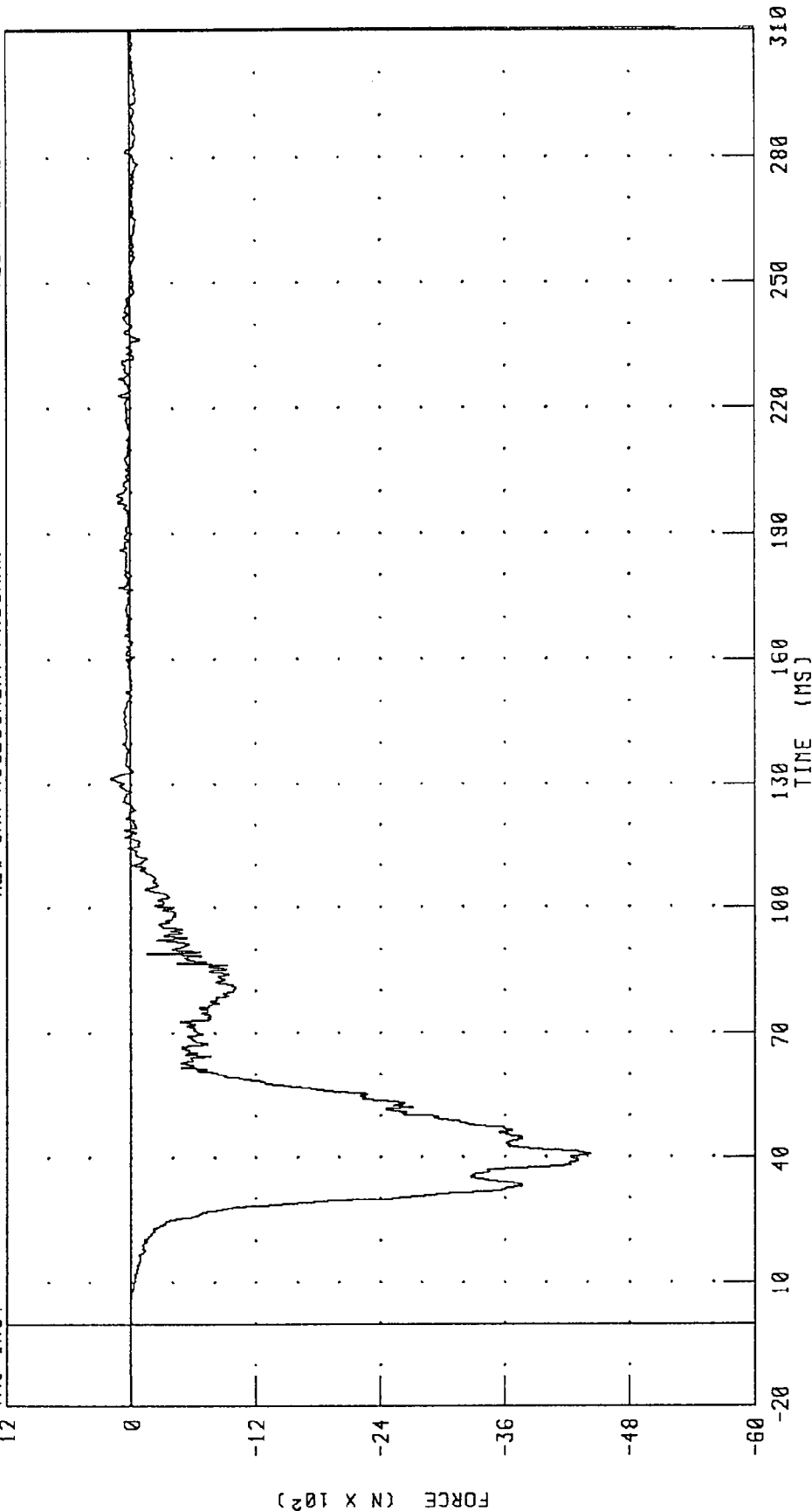
CHANNEL: ANLXF2 FILTER: CH. CLASS 600

1997 FORD CLUB WAGON VAN INTO FRONTAL LOAD CELL BARRIER
PASSENGER LEFT LOWER TIBIA Z-AXIS FORCE

TEST NUMBER: 961205

NEW CAR ASSESSMENT PROGRAM

TRC INC.



CHANNEL: ANLZF2 FILTER: CH. CLASS 600

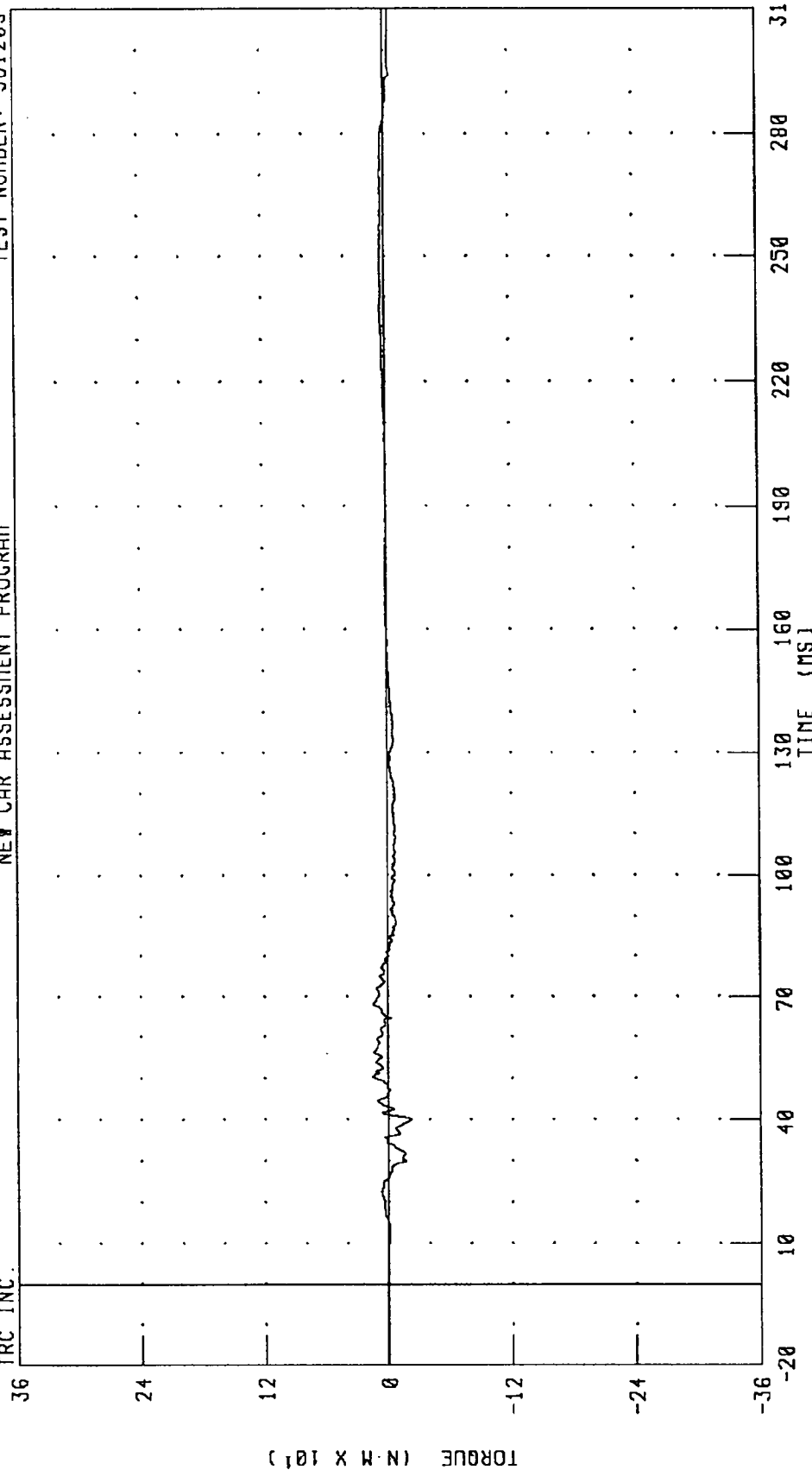
PEAK DATA: 194.03 N @ 131.44 MS; -4475.15 N @ 40.80 MS

1997 FORD CLUB WAGON VAN INTO FRONTAL LOAD CELL BARRIER
PASSENGER LEFT LOWER TIBIA MOMENT ABOUT Y AXIS

TEST NUMBER: 961205

NEW CAR ASSESSMENT PROGRAM

TRC INC.

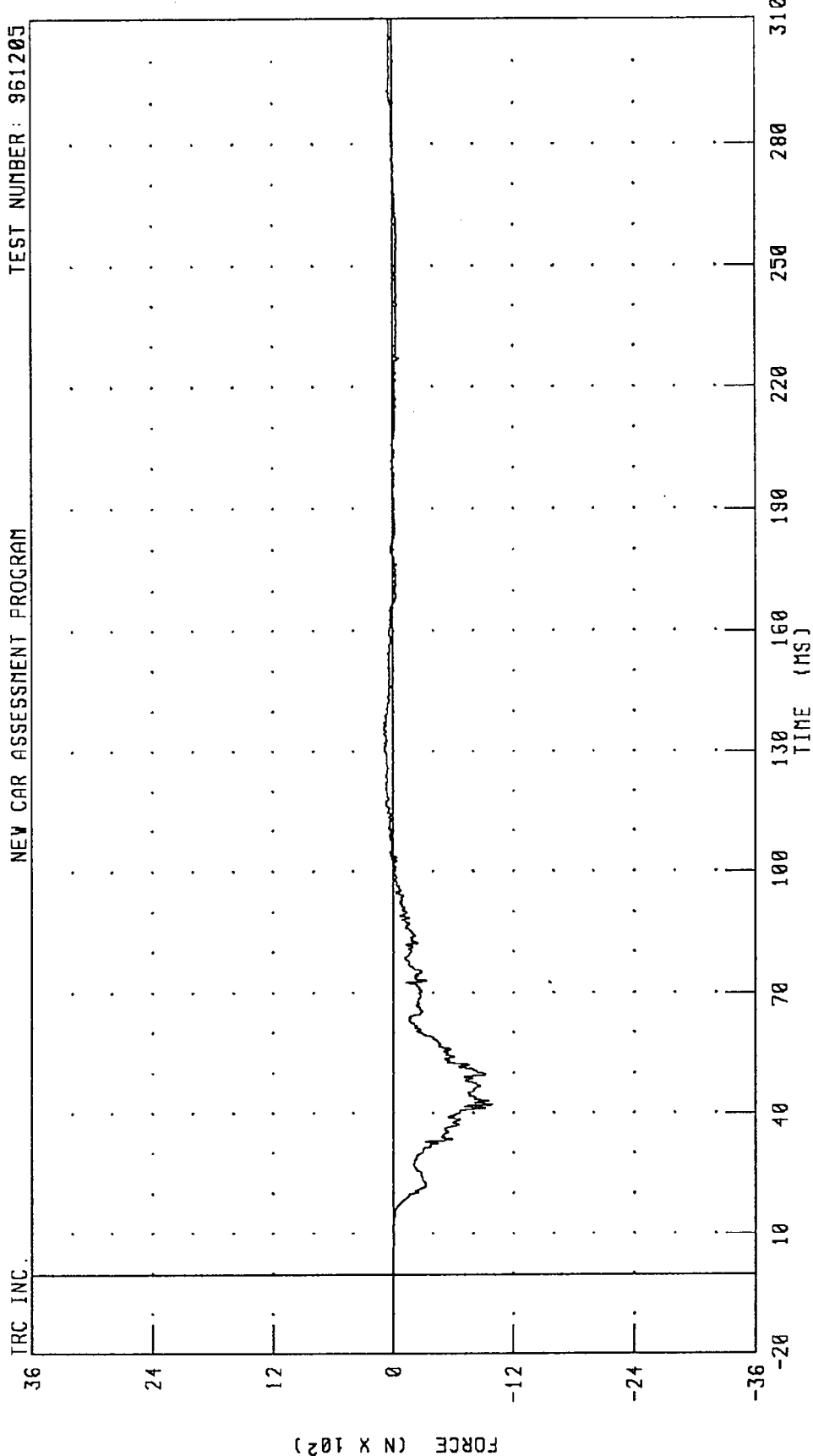


CHANNEL: ANLYM2 FILTER: CH. CLASS 600

1997 FORD CLUB WAGON VAN INTO FRONTAL LOAD CELL BARRIER
PASSENGER RIGHT LOWER TIBIA X-AXIS FORCE
NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 961205

IRC INC.

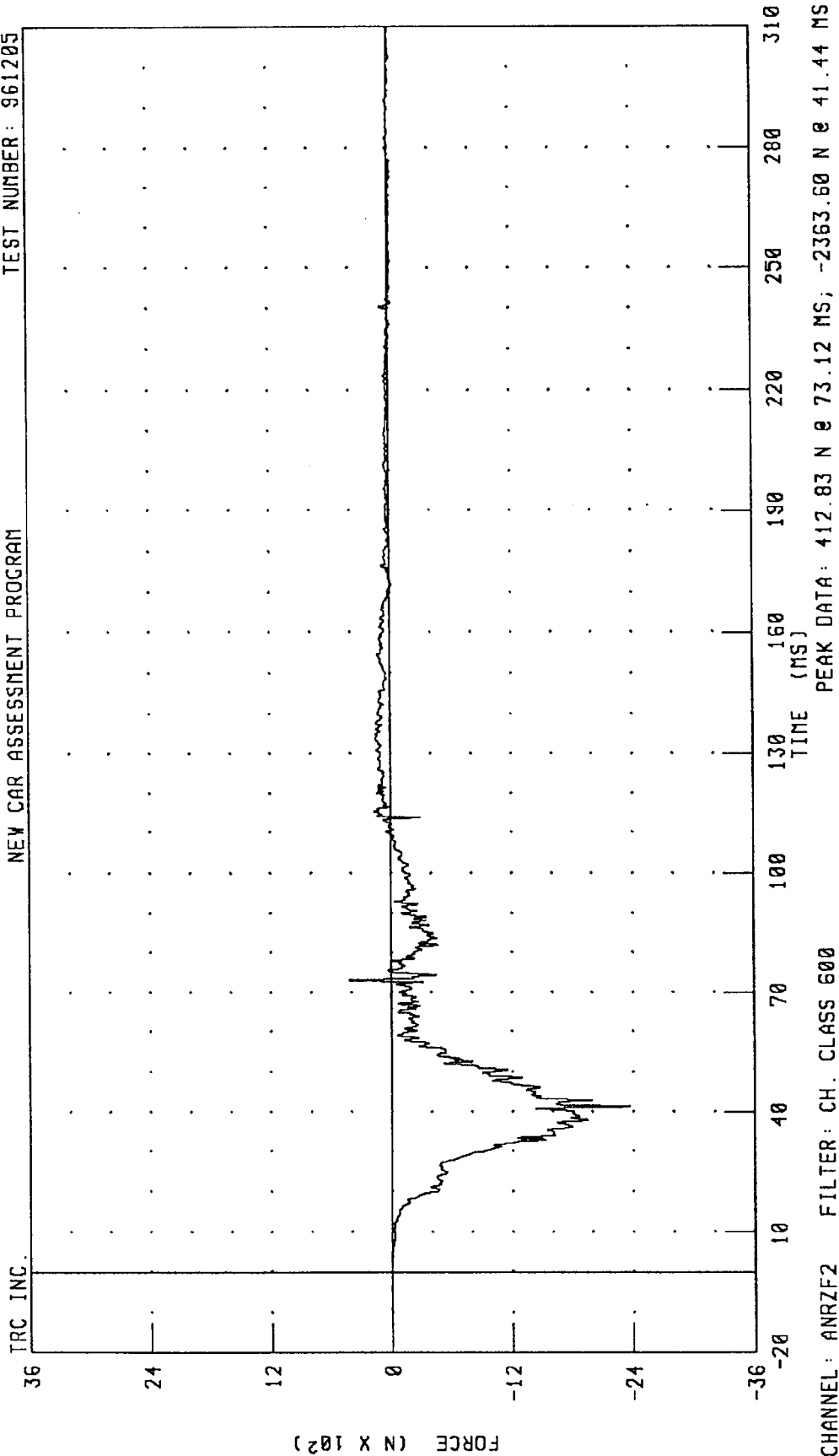


CHANNEL: ANRXP2 FILTER: CH. CLASS 600

PEAK DATA: 93.52 N @ 135.68 MS; -992.15 N @ 42.24 MS

1997 FORD CLUB WAGON VAN INTO FRONTAL LOAD CELL BARRIER
PASSENGER RIGHT LOWER TIBIA Z-AXIS FORCE
NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 961205



1997 FORD CLUB WAGON VAN INTO FRONTAL LOAD CELL BARRIER
PASSENGER RIGHT LOWER TIBIA MOMENT ABOUT Y AXIS

TEST NUMBER: 961205

NEW CAR ASSESSMENT PROGRAM

TRC INC.

36

24

12

0

-12

-24

-36

TORQUE (N·M X 10¹)

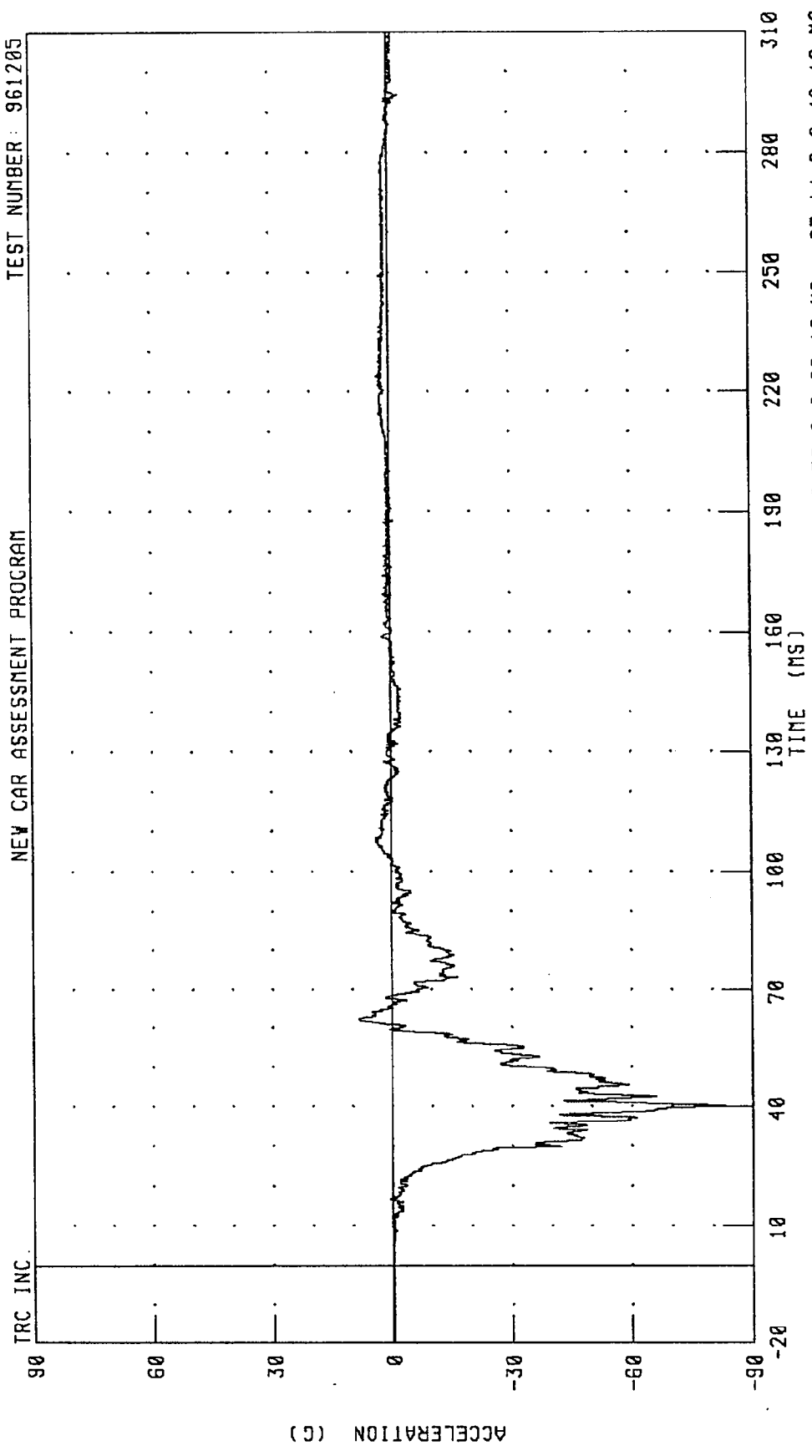
TIME (MS)

PEAK DATA: 31.43 N·M @ 40.88 MS; -23.49 N·M @ 172.96 MS

CHANNEL: ANRYM2 FILTER: CH. CLASS 600

1997 FORD CLUB WAGON VAN INTO FRONTAL LOAD CELL BARRIER
PASSENGER LEFT FOOT X-AXIS ACCELERATION
NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 961205



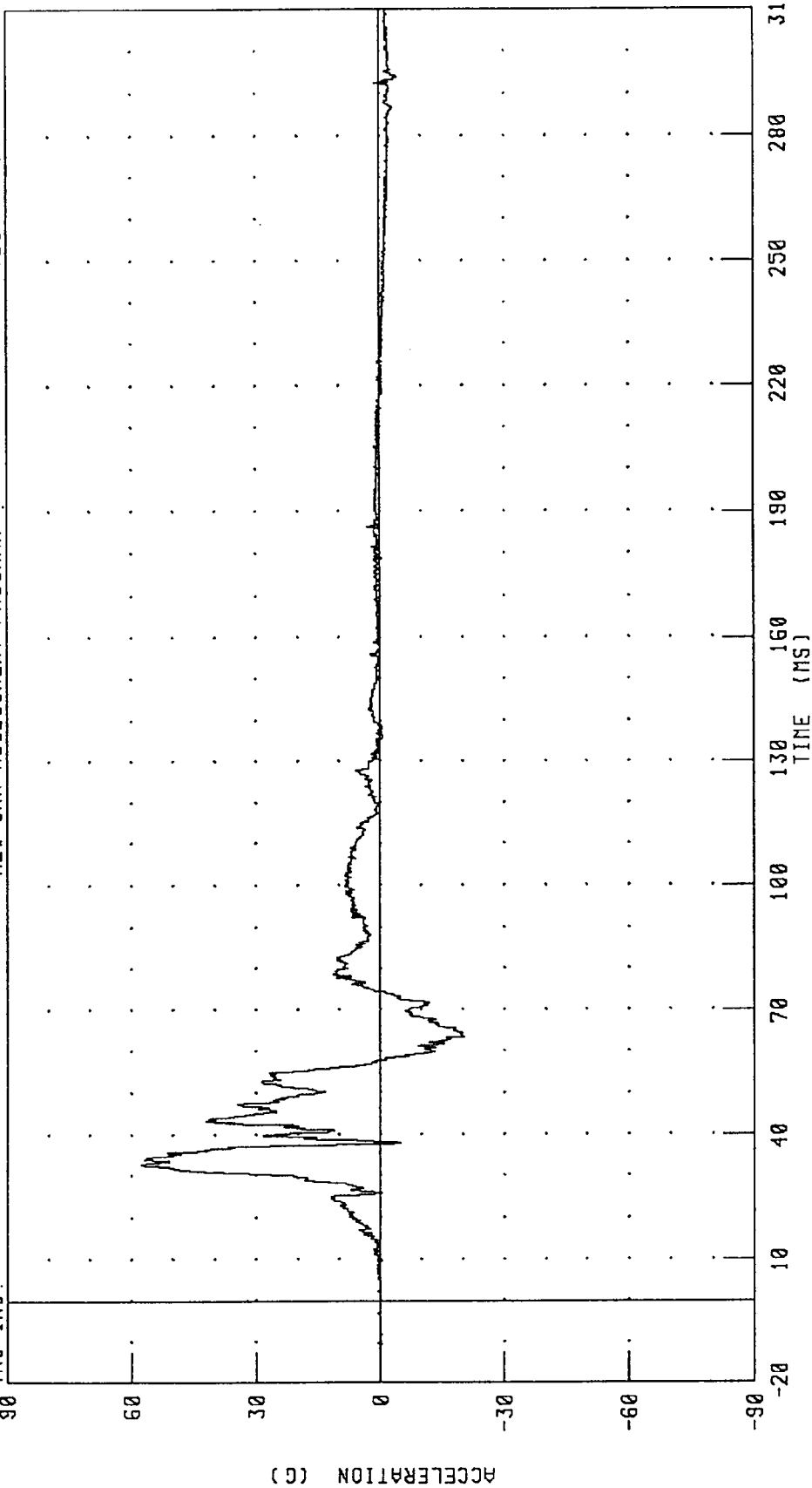
CHANNEL: FTLXG2 FILTER: CH. CLASS 1000 PEAK DATA: 8.50 G @ 62.16 MS; -83.14 G @ 40.16 MS

1997 FORD CLUB WAGON VAN INTO FRONTAL LOAD CELL BARRIER
PASSENGER LEFT FOOT Z-AXIS ACCELERATION AT HEEL

TEST NUMBER: 961205

NEW CAR ASSESSMENT PROGRAM

TRC INC.



CHANNEL: FTLZH2 FILTER: CH. CLASS 1000

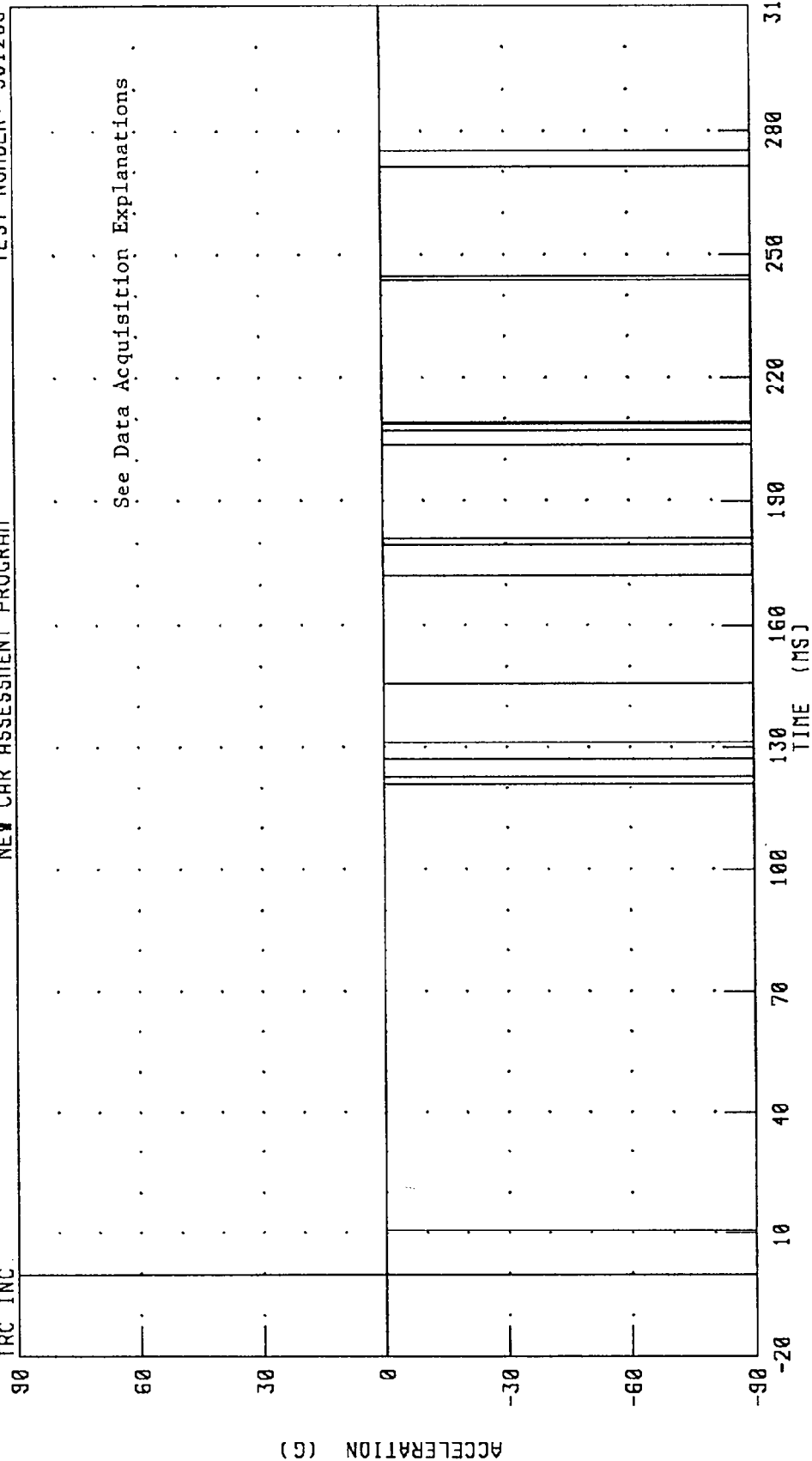
PEAK DATA: 57.63 G @ 32.64 MS; -20.26 G @ 63.52 MS

1997 FORD CLUB WAGON VAN INTO FRONTAL LOAD CELL BARRIER
PASSENGER LEFT FOOT Z-AXIS ACCELERATION AT TOE

TEST NUMBER: 961205

NEW CAR ASSESSMENT PROGRAM

TRC INC.



PEAK DATA: 0.00 G @ -20.00 MS; -1556.72 G @ 209.28 MS

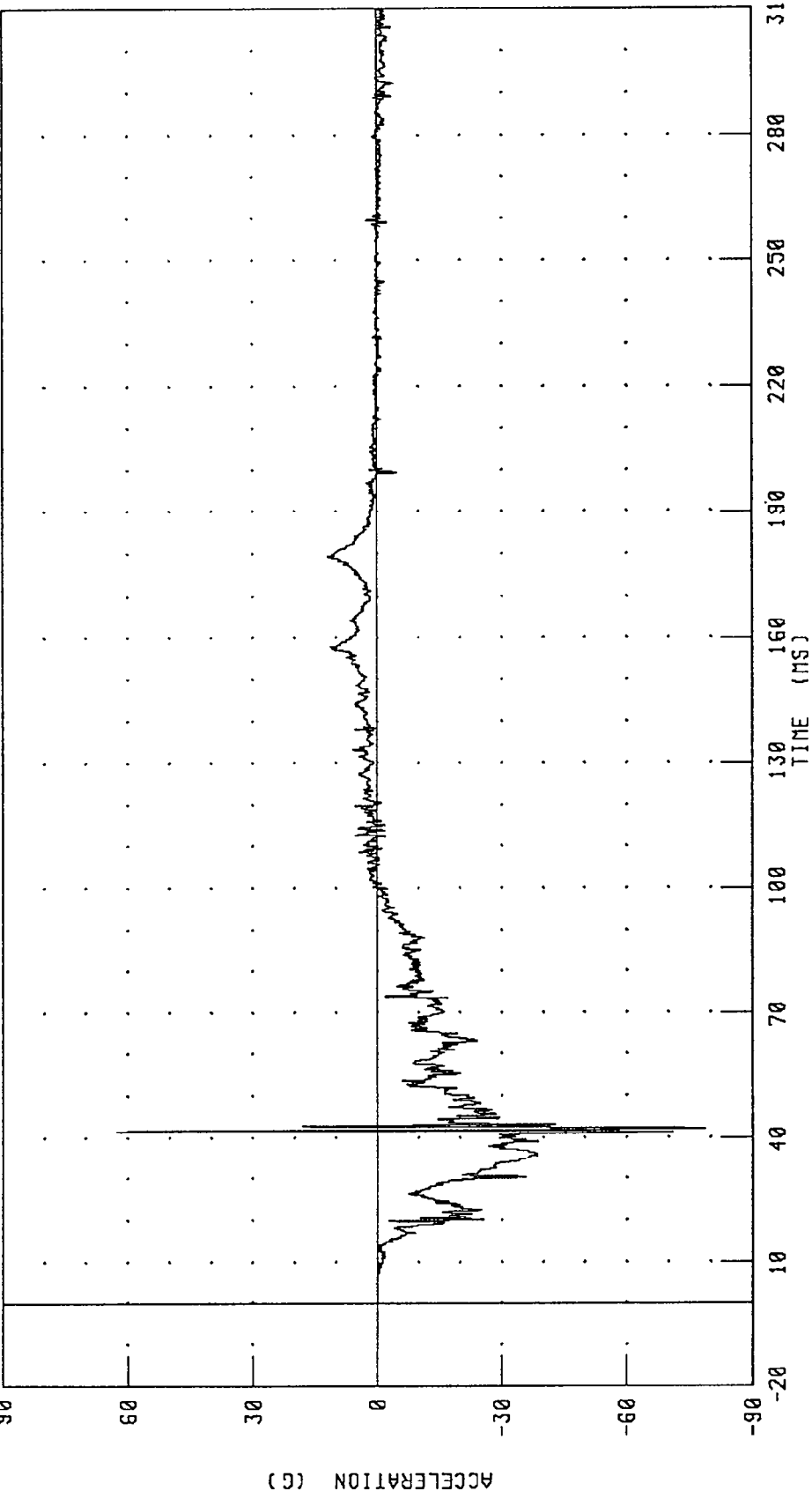
CHANNEL: FTLZT2 FILTER: CH. CLASS 1000

1997 FORD CLUB WAGON VAN INTO FRONTAL LOAD CELL BARRIER
PASSENGER RIGHT FOOT X-AXIS ACCELERATION

TEST NUMBER: 961205

NEW CAR ASSESSMENT PROGRAM

TRC INC.

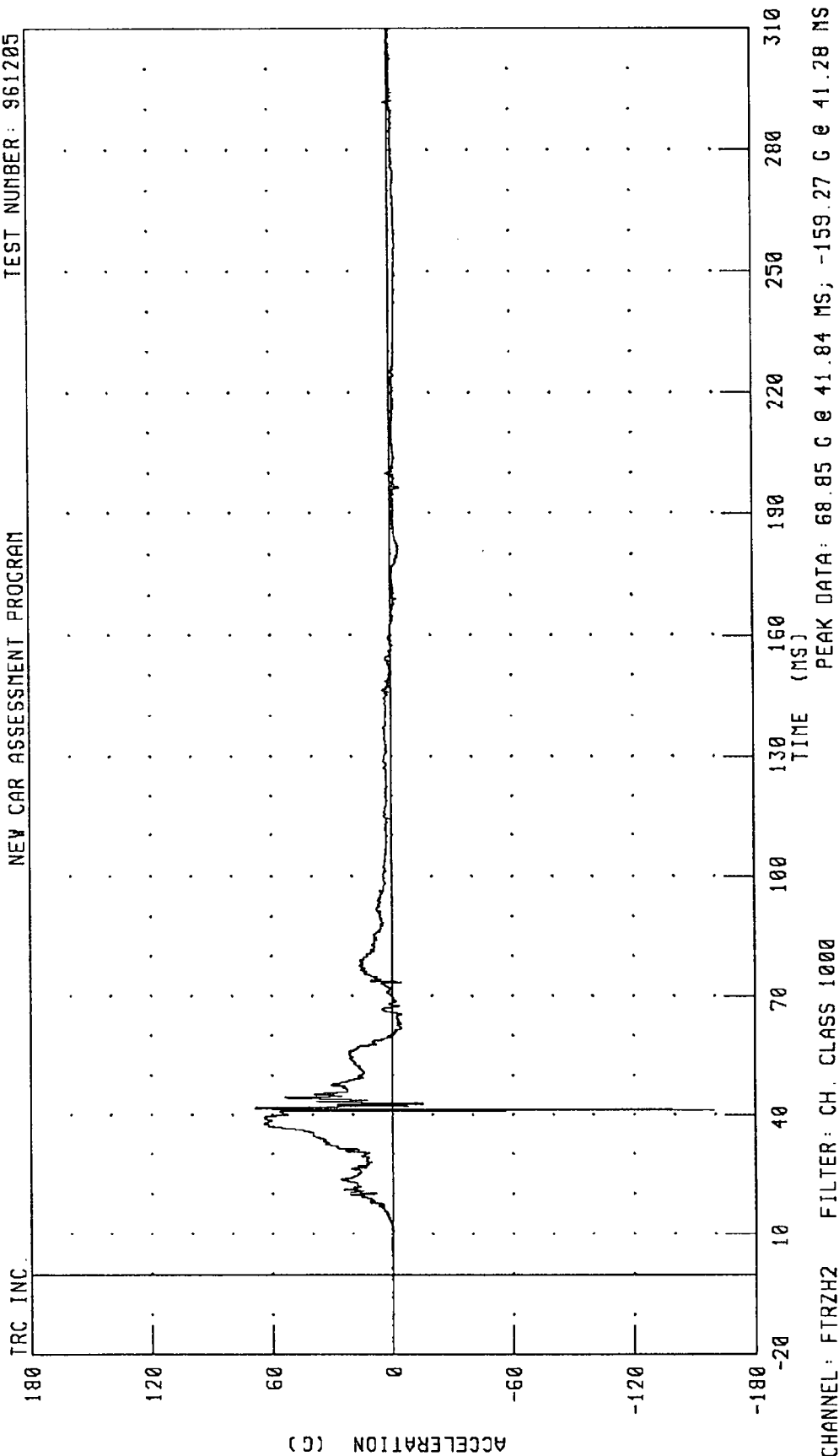


PEAK DATA: 62.73 G @ 41.60 MS; -78.63 G @ 42.08 MS

CHANNEL: FTRXG2 FILTER: CH. CLASS 1000

1997 FORD CLUB WAGON VAN INTO FRONTAL LOAD CELL BARRIER
PASSENGER RIGHT FOOT Z-AXIS ACCELERATION AT HEEL
NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 961205



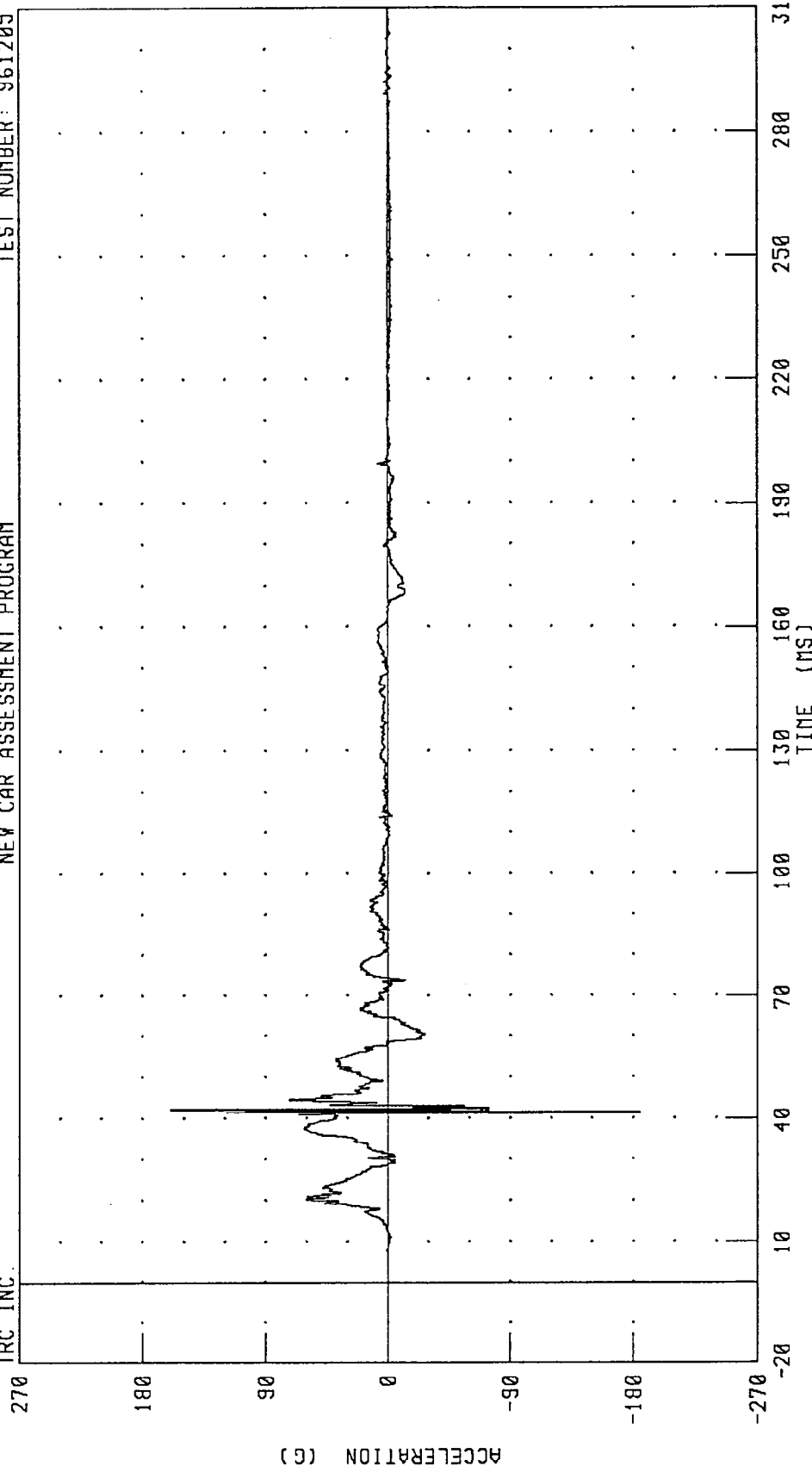
CHANNEL: FTRZH2 FILTER: CH. CLASS 1000

1997 FORD CLUB WAGON VAN INTO FRONTAL LOAD CELL BARRIER
PASSENGER RIGHT FOOT Z-AXIS ACCELERATION AT TOE

TEST NUMBER: 961205

NEW CAR ASSESSMENT PROGRAM

TRC INC.

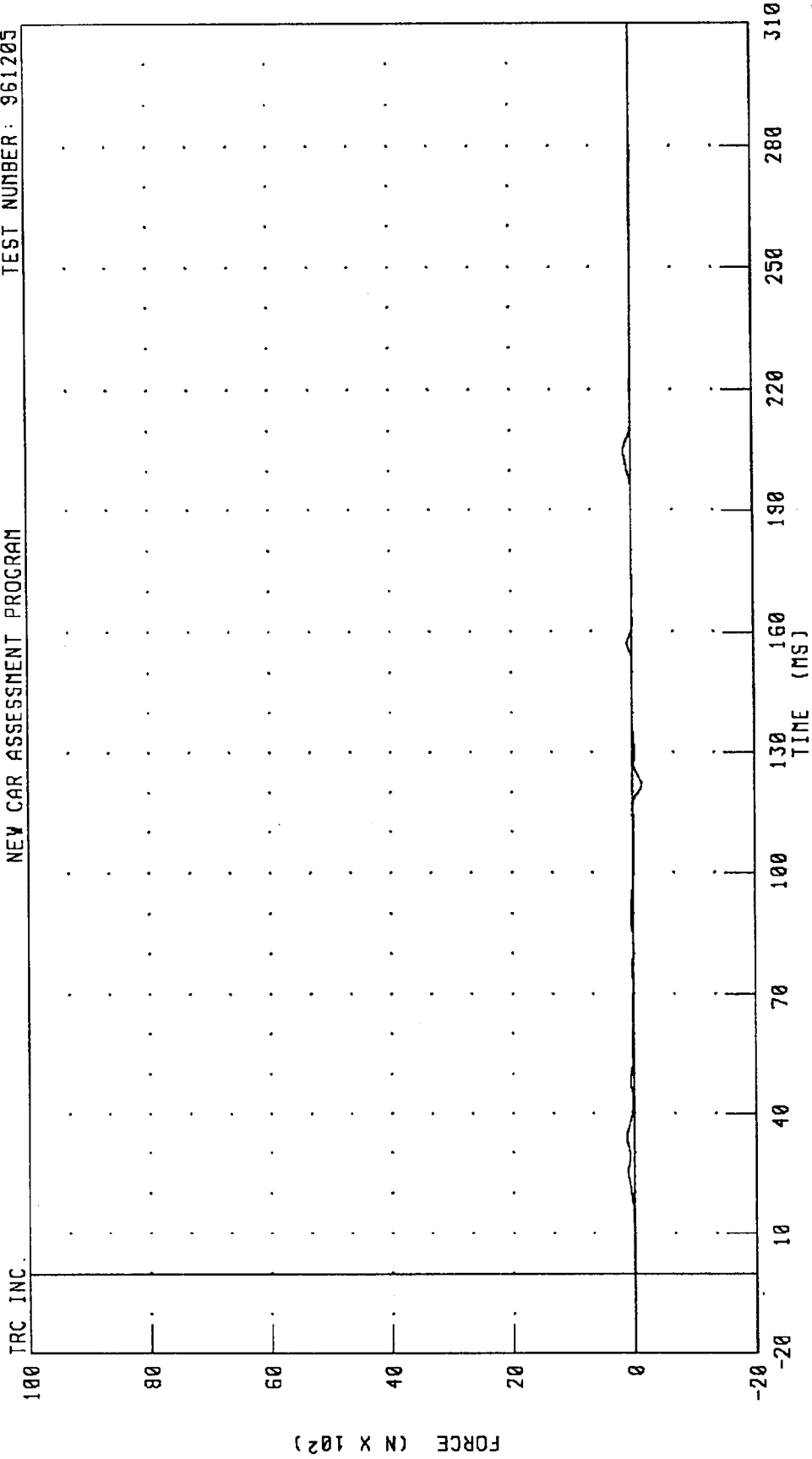


PEAK DATA: 159.46 G @ 42.08 MS; -184.56 G @ 156.36 MS

CHANNEL: FTRZT2 FILTER: CH. CLASS 1000

1997 FORD CLUB WAGON VAN INTO FRONTAL LOAD CELL BARRIER
 DRIVER LAP BELT OUTBOARD FORCE
 NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 961205



PEAK DATA: 126.03 N @ 33.84 MS; -155.94 N @ 121.92 MS

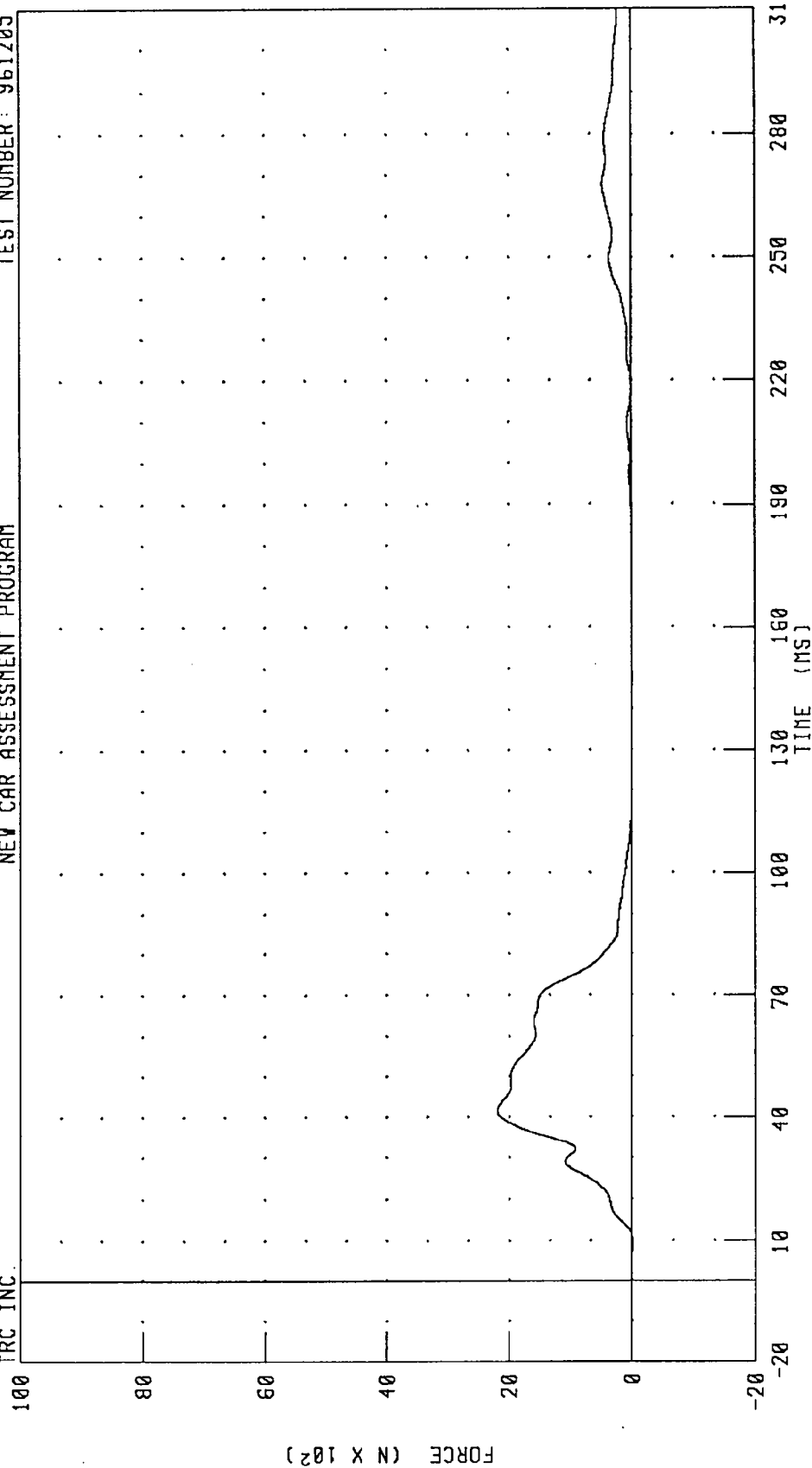
CHANNEL: LBOF1 FILTER: CH. CLASS 60

1997 FORD CLUB WAGON VAN INTO FRONTAL LOAD CELL BARRIER
PASSENGER LAP BELT OUTBOARD FORCE

TEST NUMBER: 961205

NEW CAR ASSESSMENT PROGRAM

TRC INC.



PEAK DATA: 2194.94 N @ 41.60 MS; -7.36 N @ 9.76 MS

FILTER: CH. CLASS 60

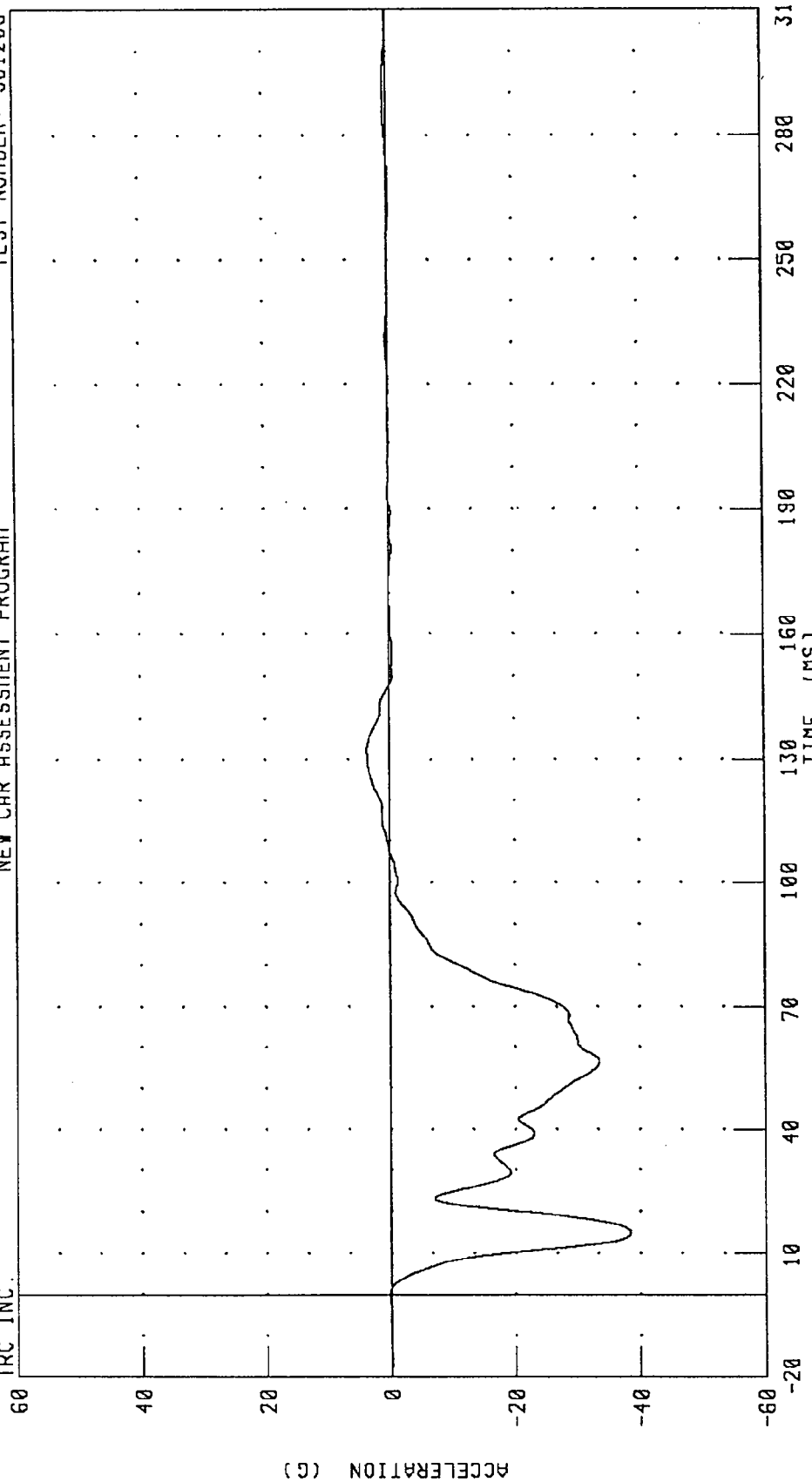
CHANNEL: LBOF2

1997 FORD CLUB WAGON VAN INTO FRONTAL LOAD CELL BARRIER
LEFT REAR SEAT X-AXIS ACCELERATION

TEST NUMBER: 961205

NEW CAR ASSESSMENT PROGRAM

TRC INC.



PEAK DATA: 3.69 G @ 132.08 MS; -38.50 G @ 14.96 MS

CHANNEL: TLRXG1 FILTER: CH. CLASS 60

1997 FORD CLUB WAGON VAN INTO FRONTAL LOAD CELL BARRIER
 LEFT REAR SEAT X-AXIS VELOCITY
 NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 961205

TRC INC.

60

40

20

0

-20

-40

-60

VELOCITY (KM/H)

310

281

253

225

197

169

140

112

84

56

28

0

TIME (MS)

PEAK DATA: 56.20 KM/H @ 2.48 MS; -8.52 KM/H @ 106.24 MS

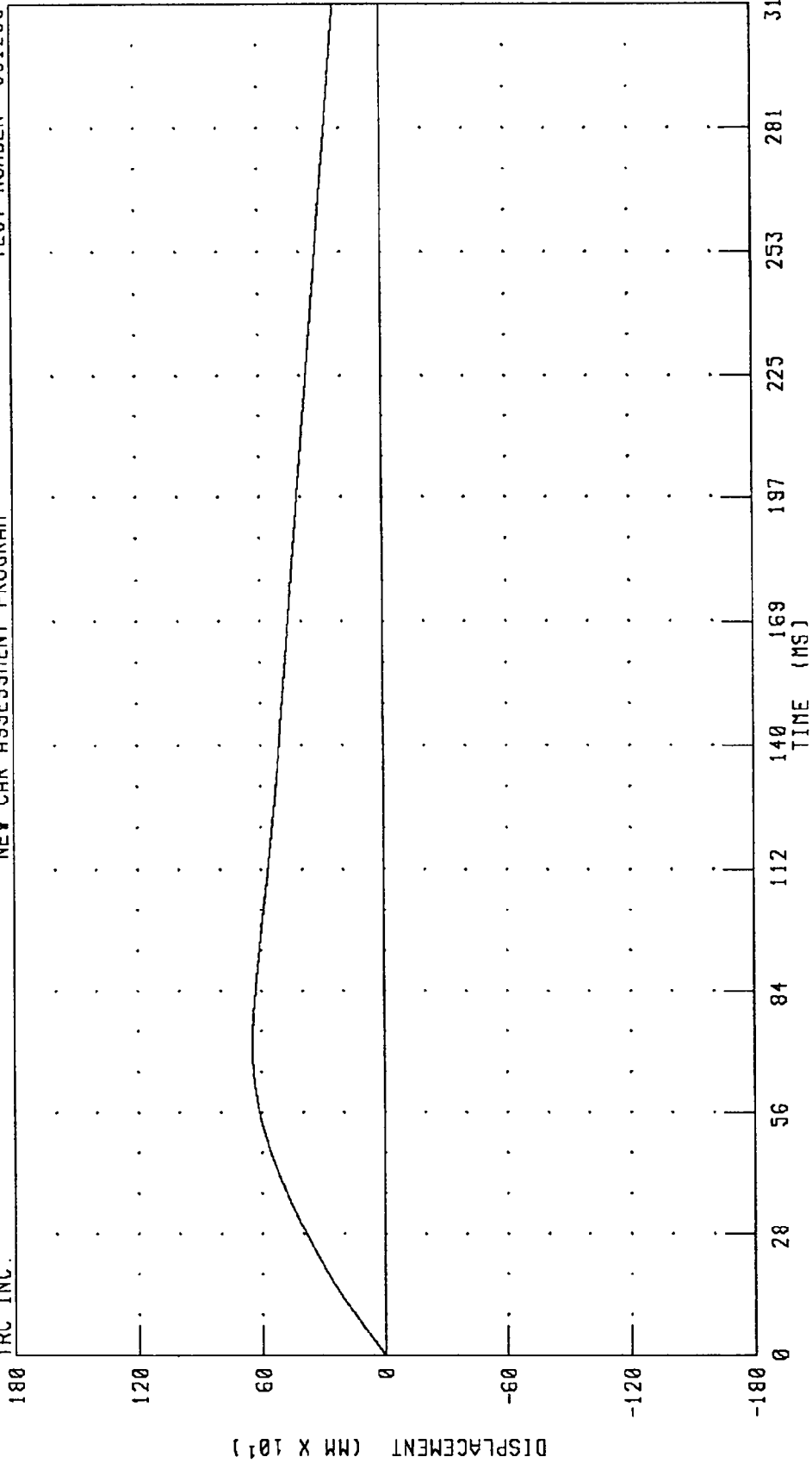
CHANNEL: TLRXV1 FILTER: CH. CLASS 180

1997 FORD CLUB WAGON VAN INTO FRONTAL LOAD CELL BARRIER
LEFT REAR SEAT X-AXIS DISPLACEMENT

TEST NUMBER: 961205

NEW CAR ASSESSMENT PROGRAM

TRC INC.

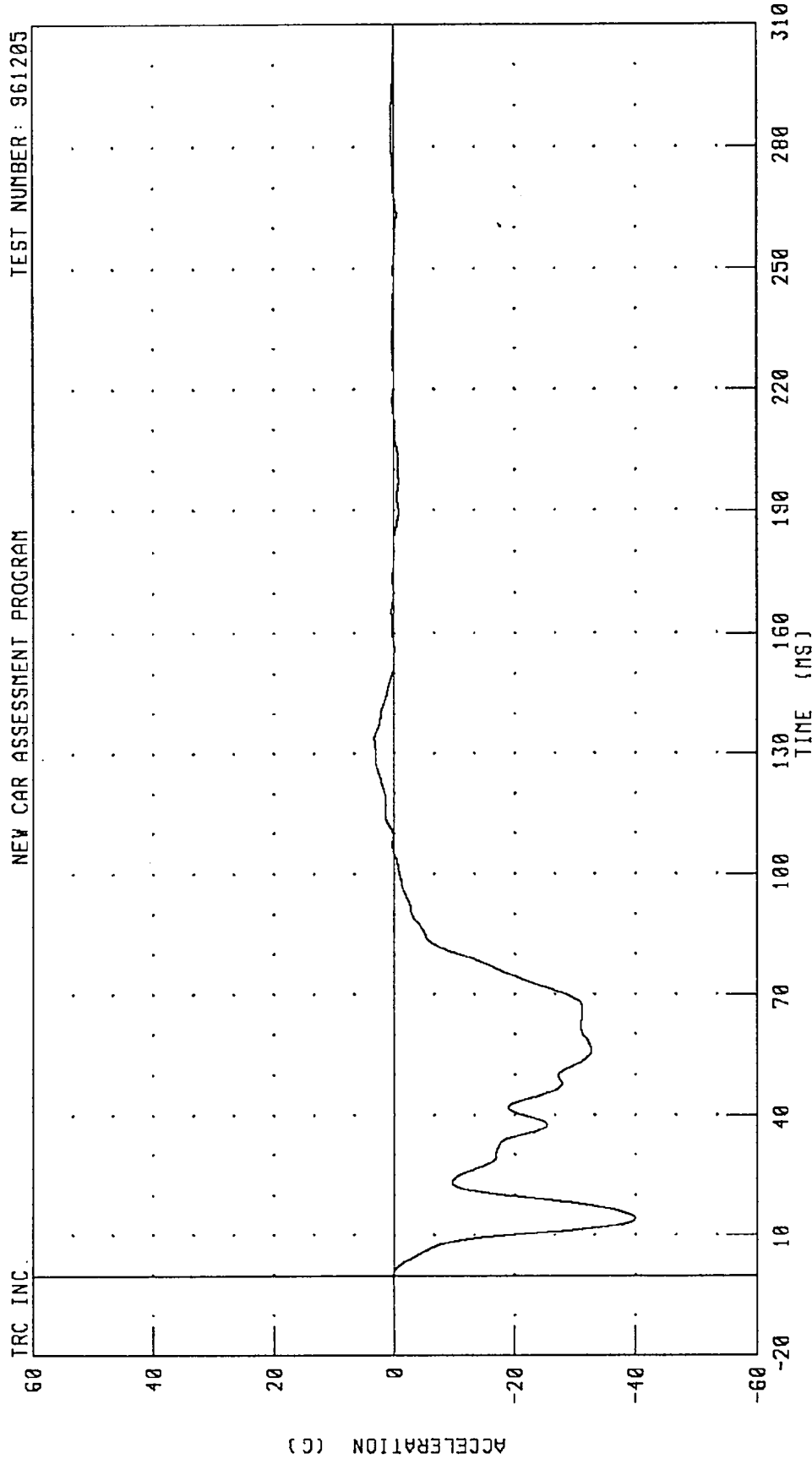


PEAK DATA: 645.64 MM @ 71.68 MS; 0.00 MM @ 0.00 MS

CHANNEL: TLRXD1 FILTER: CH. CLASS 180

1997 FORD CLUB WAGON VAN INTO FRONTAL LOAD CELL BARRIER
RIGHT REAR SEAT X-AXIS ACCELERATION
NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 961205

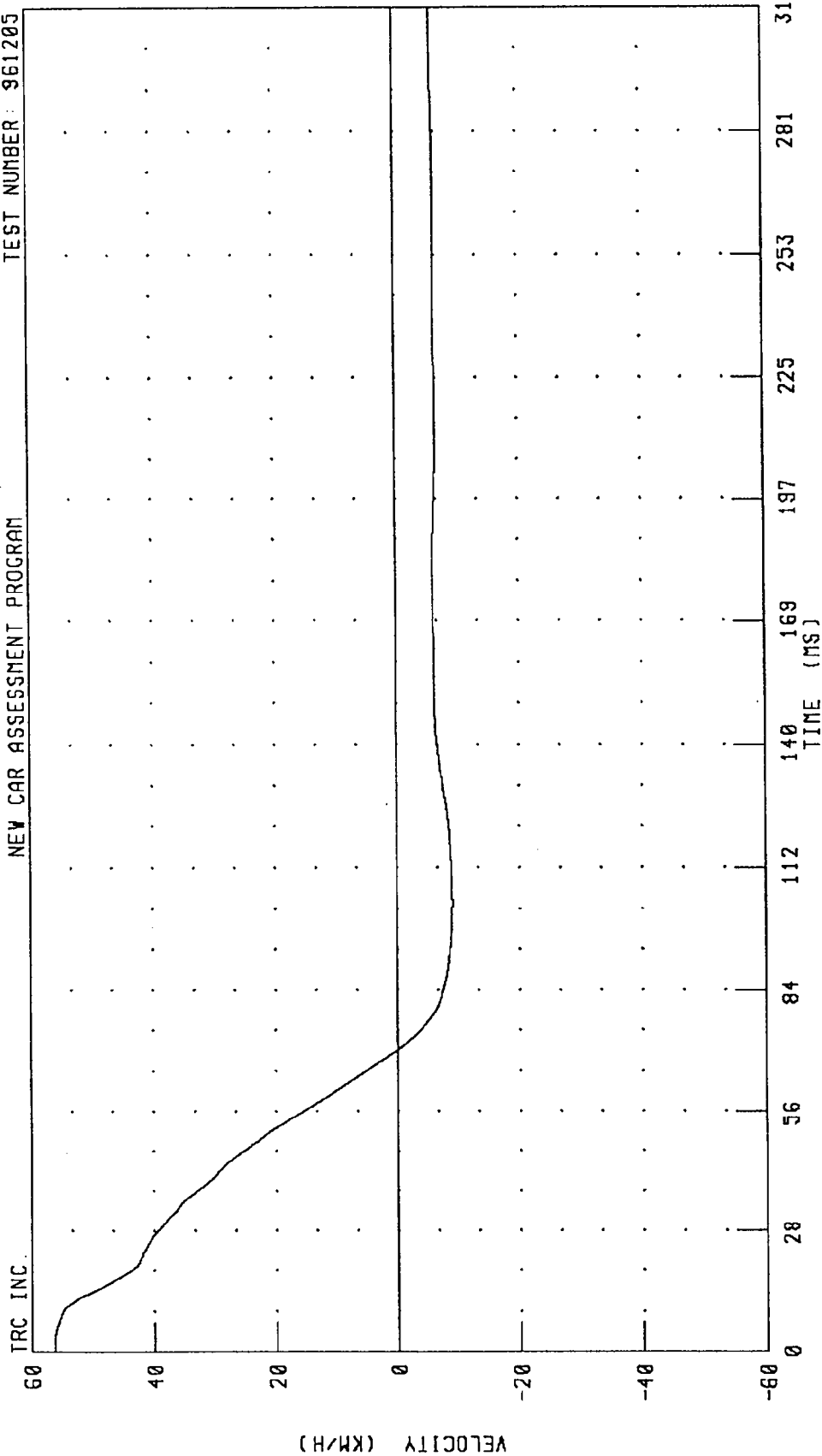


PEAK DATA: 3.34 G @ 133.92 MS; -39.93 G @ 14.24 MS

CHANNEL: TRRXG1 FILTER: CH. CLASS 60

1997 FORD CLUB WAGON VAN INTO FRONTAL LOAD CELL BARRIER
 RIGHT REAR SEAT X-AXIS VELOCITY
 NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 961205



PEAK DATA: 56.20 KM/H @ 2.24 MS; -9.10 KM/H @ 104.72 MS

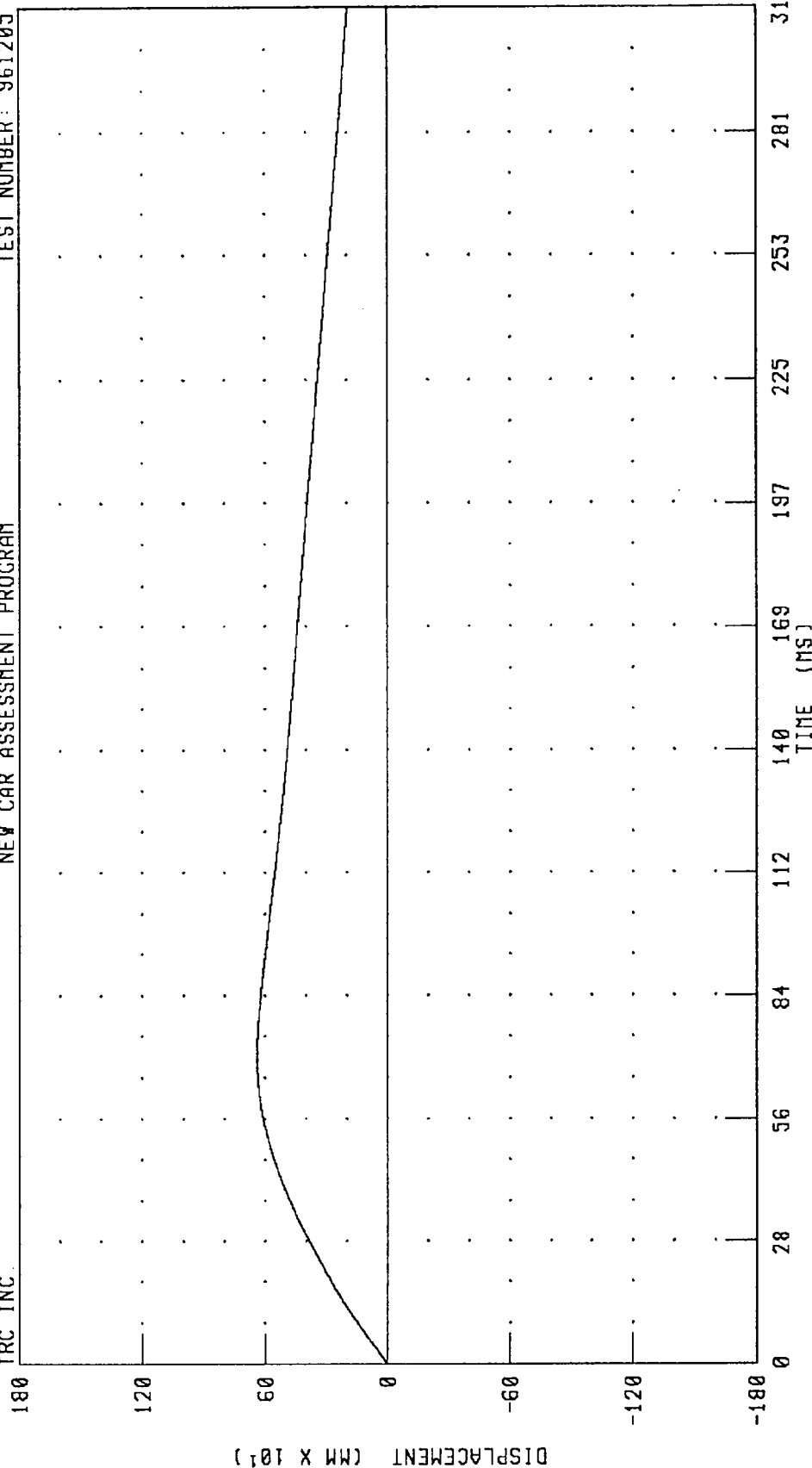
CHANNEL: TRRXV1 FILTER: CH. CLASS 180

1997 FORD CLUB WAGON VAN INTO FRONTAL LOAD CELL BARRIER
RIGHT REAR SEAT X-AXIS DISPLACEMENT

TEST NUMBER: 961205

NEW CAR ASSESSMENT PROGRAM

TRC INC.

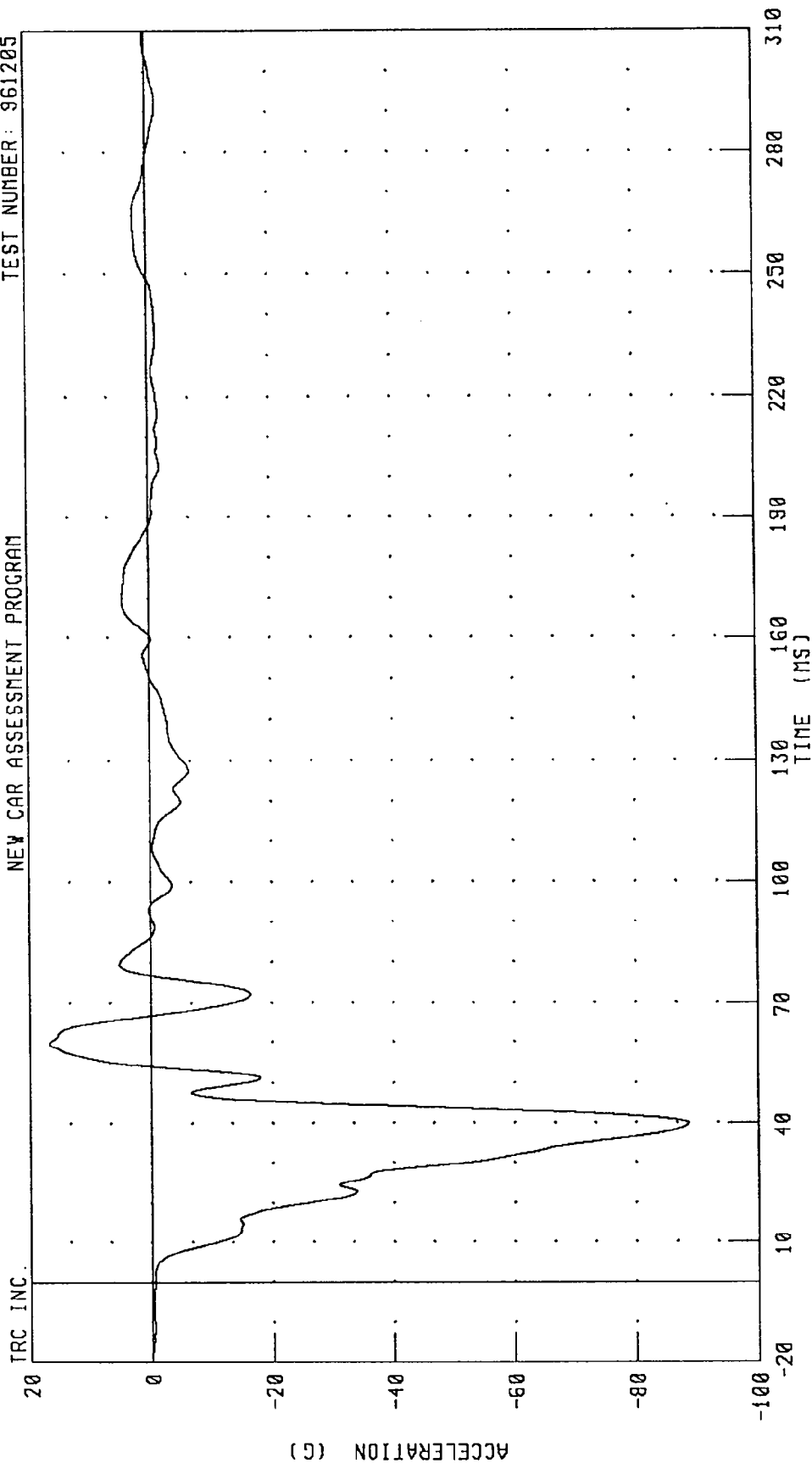


PEAK DATA: 639.89 MM @ 70.64 MS; 0.00 MM @ 0.00 MS

CHANNEL: TRRXD1 FILTER: CH. CLASS 180

1997 FORD CLUB WAGON VAN INTO FRONTAL LOAD CELL BARRIER
ENGINE TOP X-AXIS ACCELERATION
NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 961205

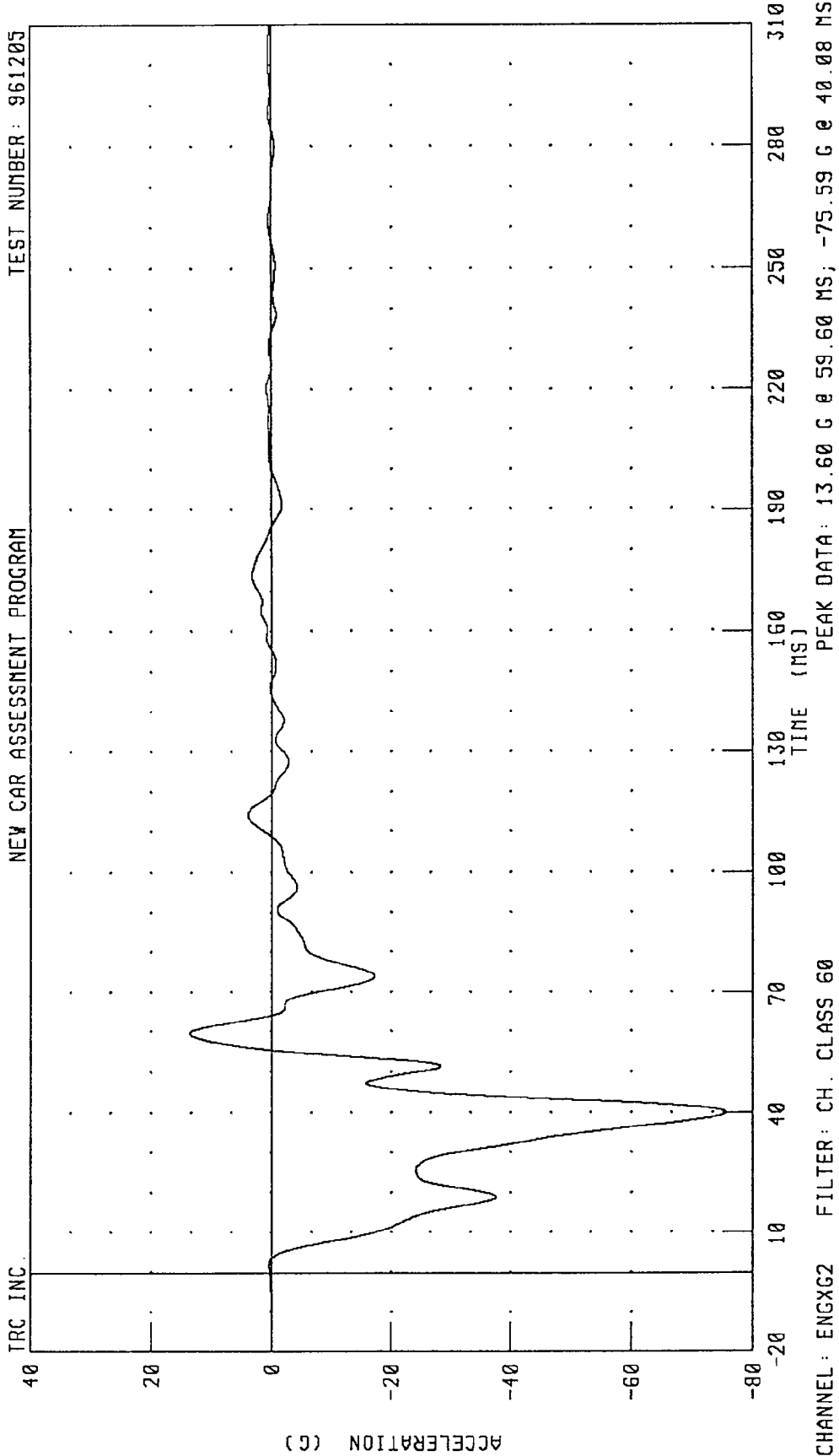


CHANNEL: ENGXC1 FILTER: CH. CLASS 60

1997 FORD CLUB WAGON VAN INTO FRONTAL LOAD CELL BARRIER
ENGINE BOTTOM X-AXIS ACCELERATION
NEW CAR ASSESSMENT PROGRAM

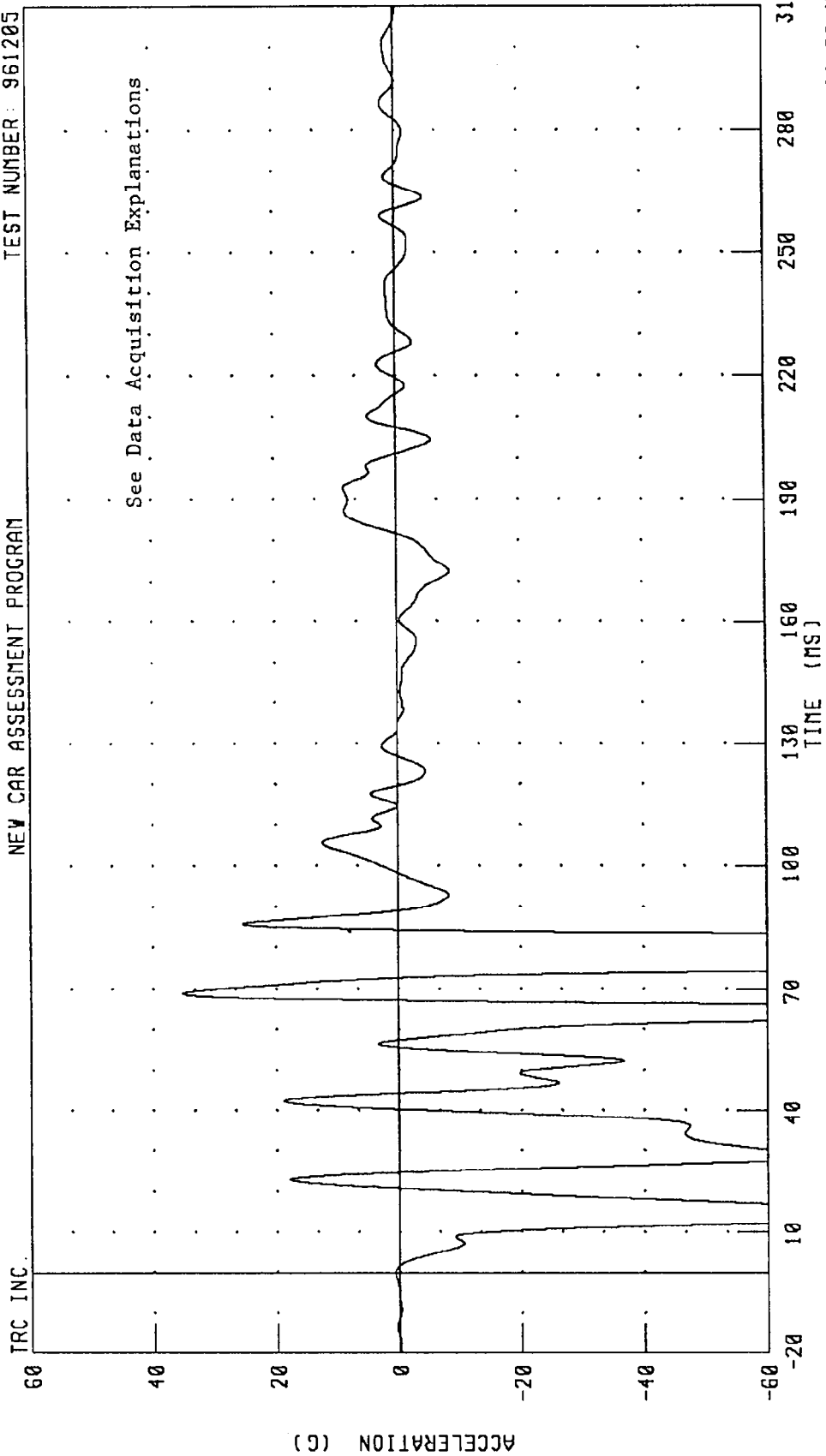
TEST NUMBER: 961205

IRC INC.



1997 FORD CLUB WAGON VAN INTO FRONTAL LOAD CELL BARRIER
RIGHT BRAKE CALIPER X-AXIS ACCELERATION
NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 961205



CHANNEL: BCRXG1 FILTER: CH. CLASS 60

PEAK DATA: 35.27 G @ 69.04 MS; -492.33 G @ 78.88 MS

1997 FORD CLUB WAGON VAN INTO FRONTAL LOAD CELL BARRIER
LEFT BRAKE CALIPER X-AXIS ACCELERATION

TEST NUMBER: 961205

NEW CAR ASSESSMENT PROGRAM

TRC INC.

90

60

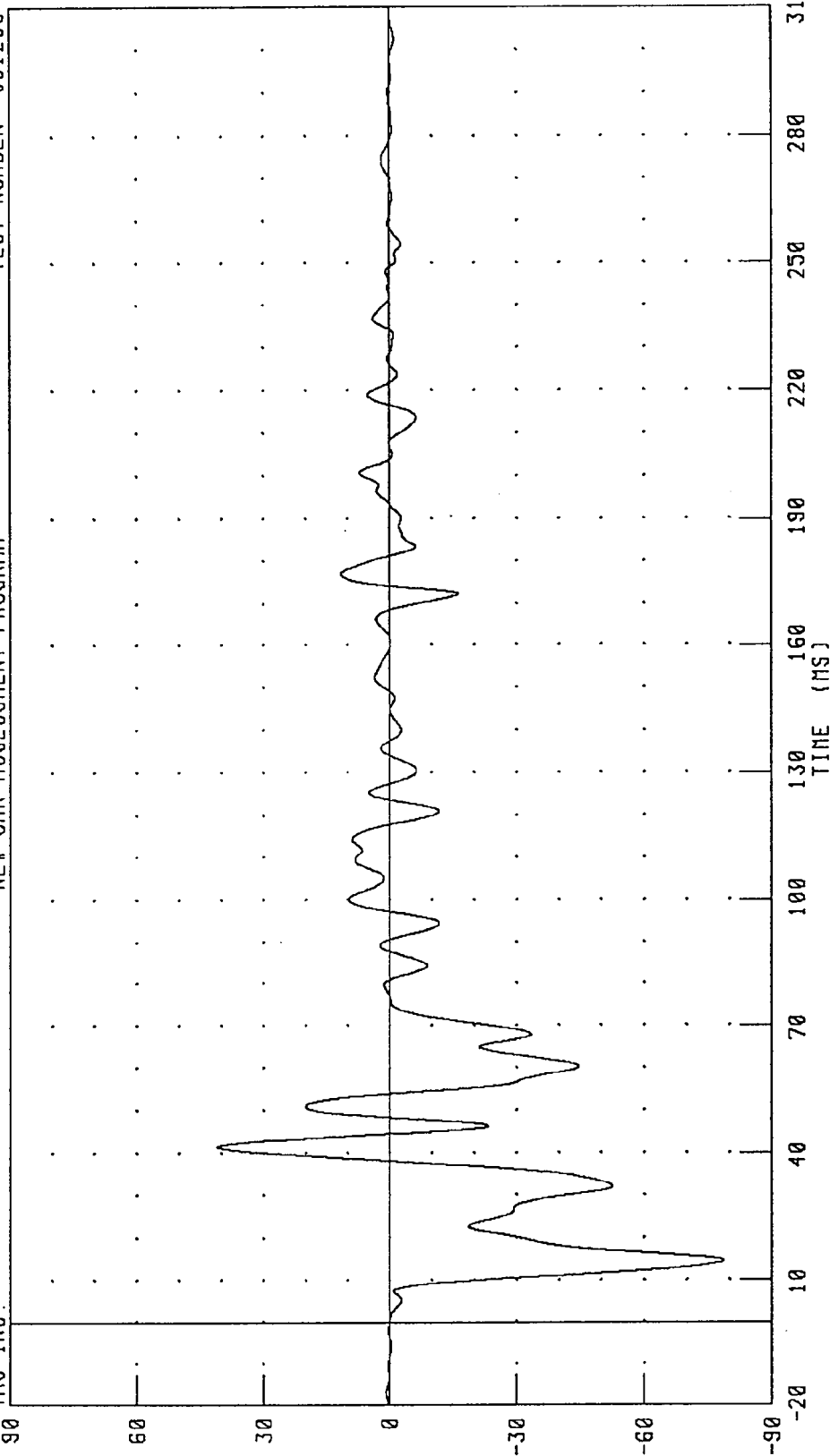
30

ACCELERATION (G)

-30

-60

-90

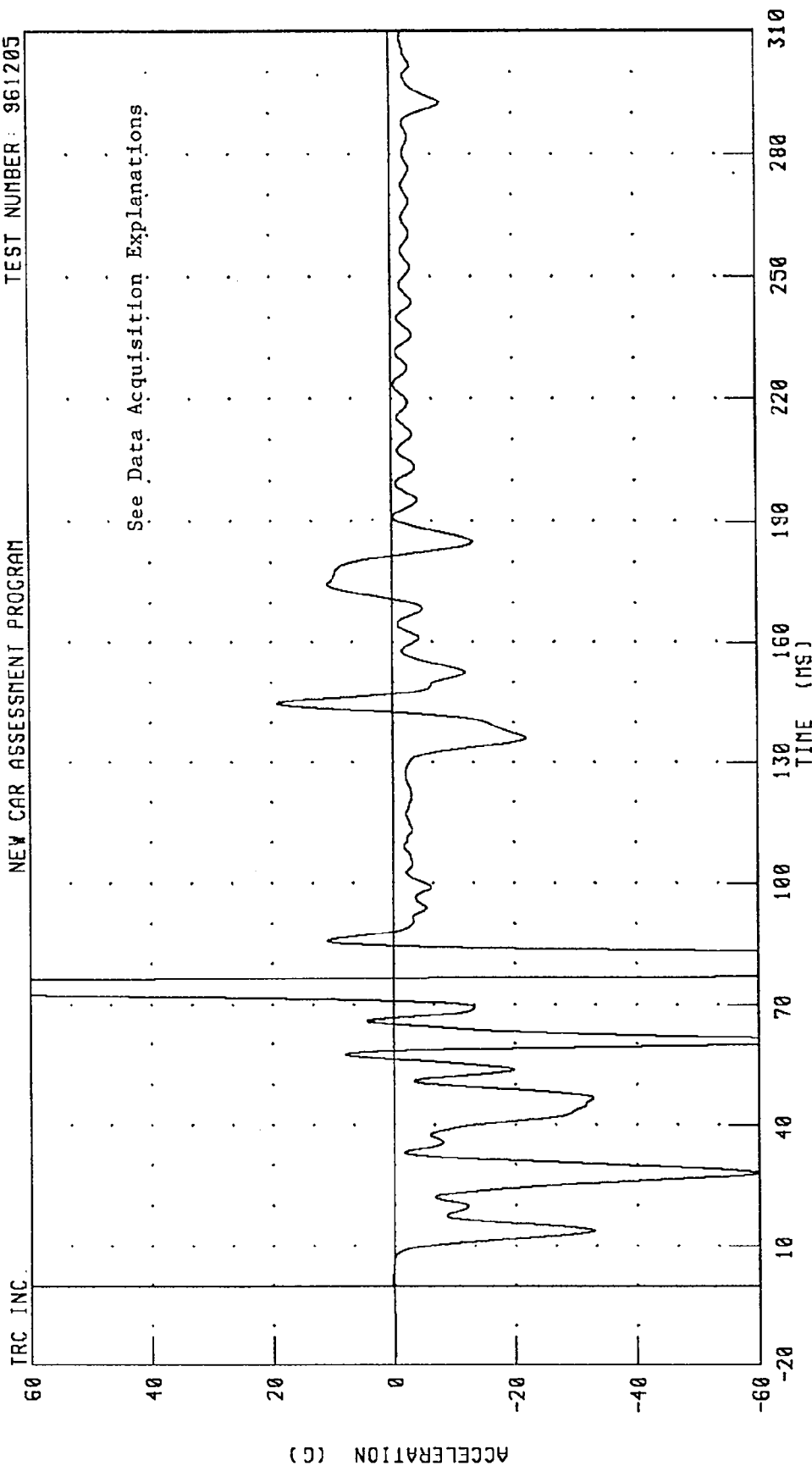


CHANNEL: BCLXG1 FILTER: CH. CLASS 60

PEAK DATA: 41.07 G @ 41.60 MS; -78.71 G @ 14.56 MS

1997 FORD CLUB WAGON VAN INTO FRONTAL LOAD CELL BARRIER
INSTRUMENT PANEL CENTER X-AXIS ACCELERATION
NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 961205



CHANNEL: DPCXG1 FILTER: CH. CLASS 60

PEAK DATA: 200.11 G @ 74.80 MS; -355.80 G @ 79.60 MS

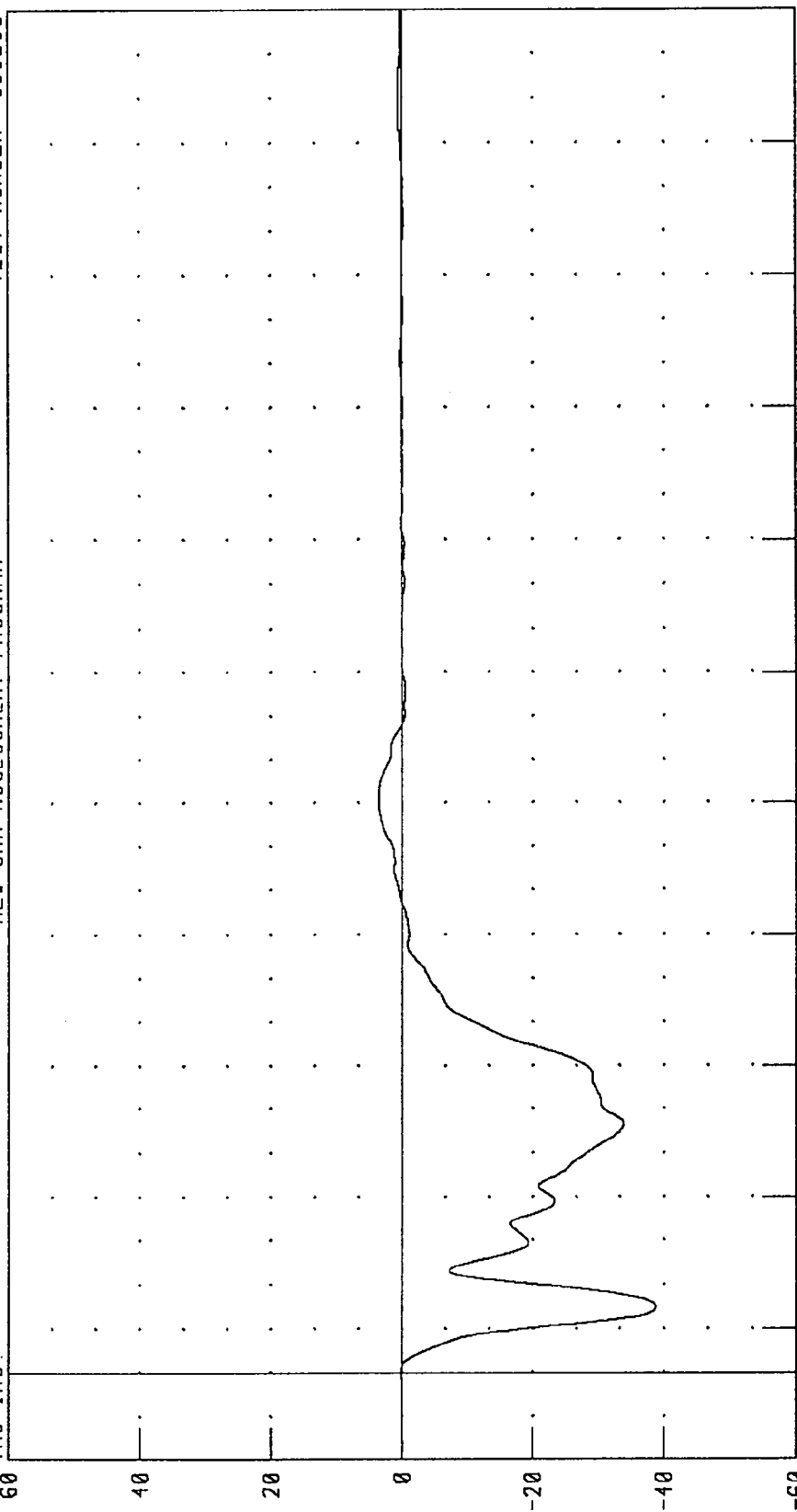
1997 FORD CLUB WAGON VAN INTO FRONTAL LOAD CELL BARRIER
LEFT REAR SEAT REDUNDANT X-AXIS ACCELERATION

TEST NUMBER: 961205

NEW CAR ASSESSMENT PROGRAM

TRC INC.

60



PEAK DATA: 3.65 G @ 132.00 MS; -38.78 G @ 14.96 MS

CHANNEL: TLRXGA FILTER: CH. CLASS 60

1997 FORD CLUB WAGON VAN INTO FRONTAL LOAD CELL BARRIER
RIGHT REAR SEAT REDUNDANT X-AXIS ACCELERATION

TEST NUMBER: 961205

NEW CAR ASSESSMENT PROGRAM

TRC INC.

60

40

20

ACCELERATION (G)

0

-20

-40

-60

TIME (MS)

130

160

190

220

250

280

310

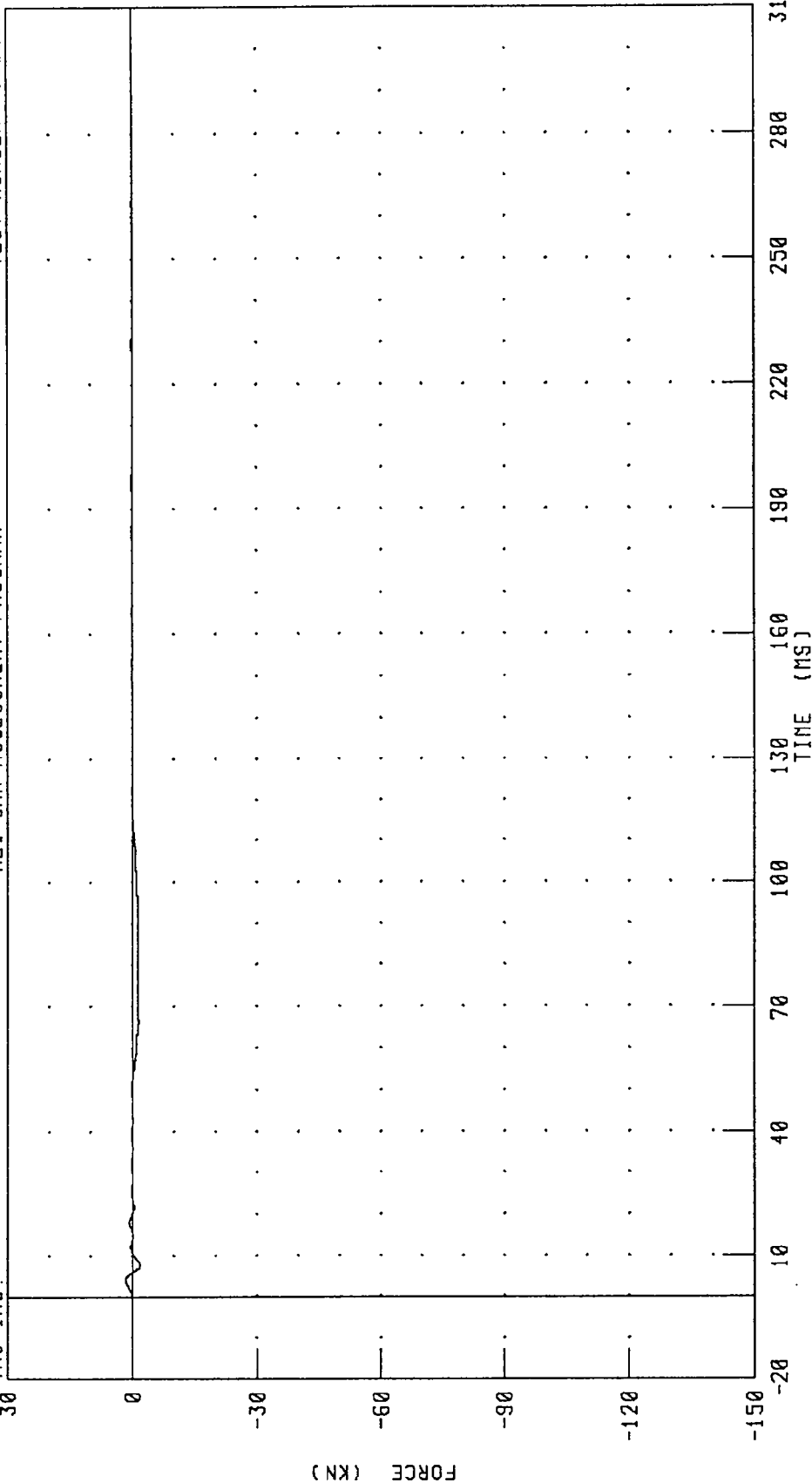
CHANNEL: TRRXGA FILTER: CH. CLASS 60

PEAK DATA: 3.34 G @ 133.84 MS; -40.61 G @ 14.16 MS

1997 FORD CLUB WAGON VAN INTO FRONTAL LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION A1 FORCE
 NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 961205

TRC INC.



PEAK DATA: 1.58 KN @ 4.00 MS; -1.94 KN @ 7.60 MS

FILTER: CH. CLASS 60

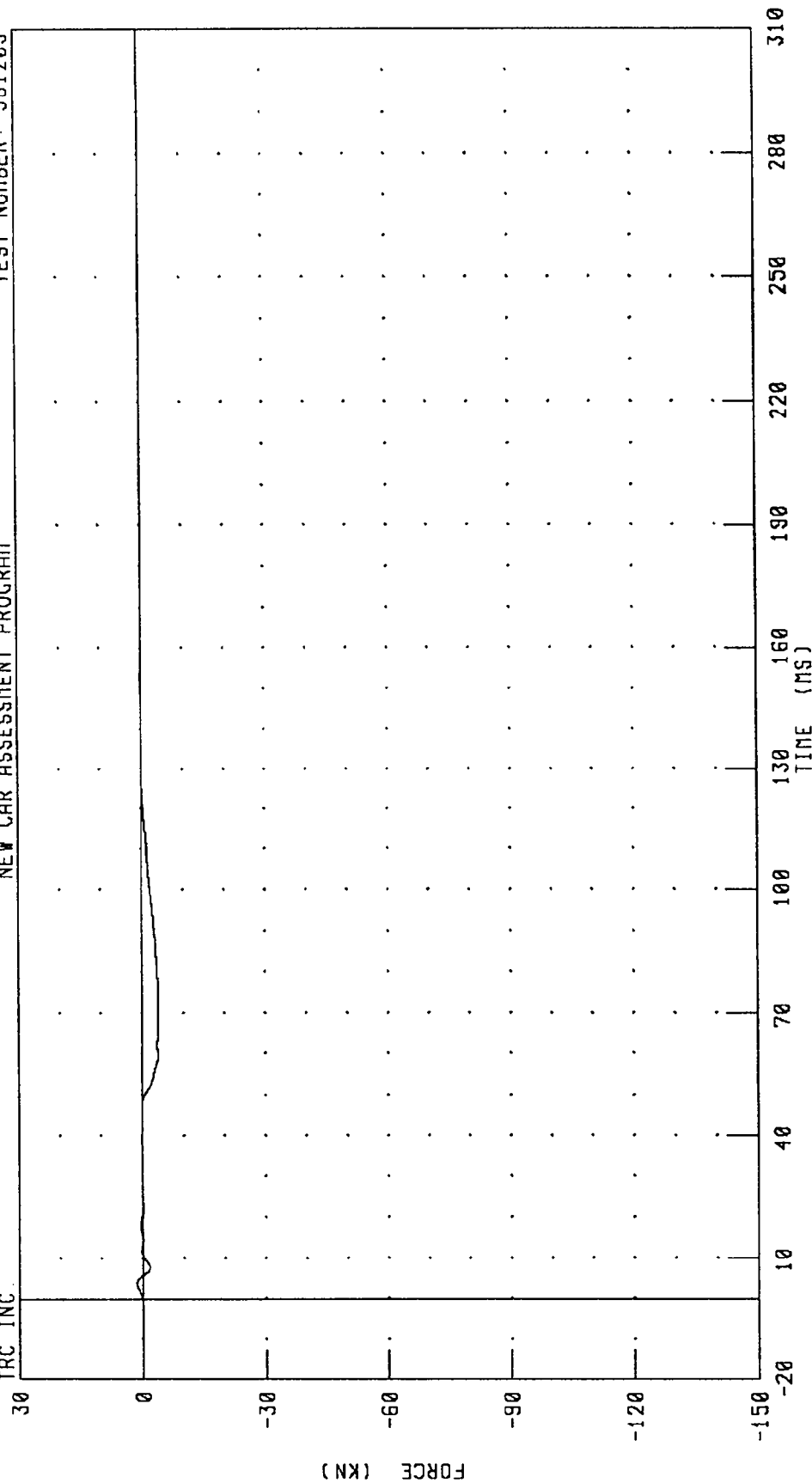
CHANNEL: BAIF

1997 FORD CLUB WAGON VAN INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION A2 FORCE

TEST NUMBER: 961205

NEW CAR ASSESSMENT PROGRAM

TRC INC.

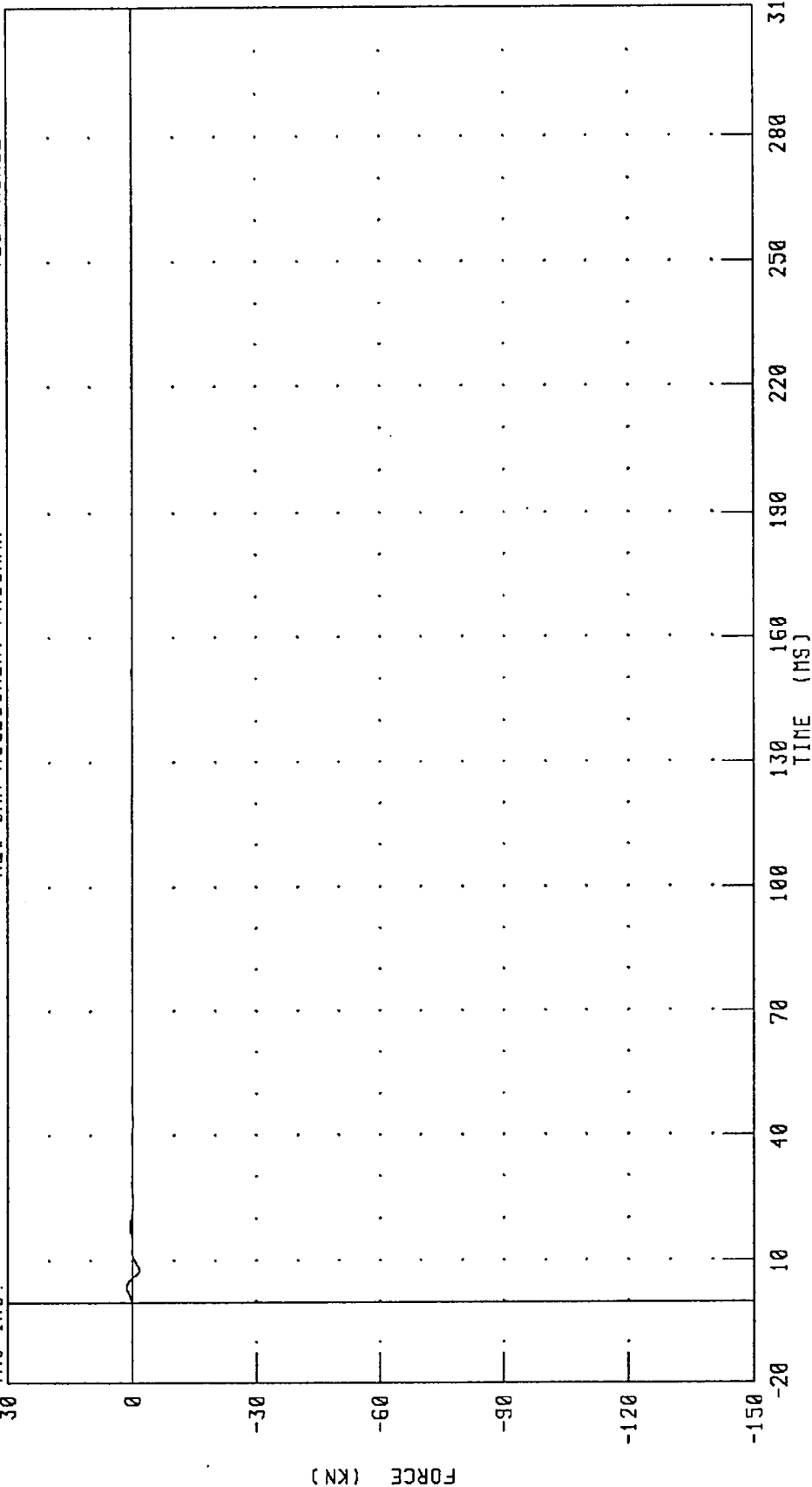


CHANNEL: BA2F FILTER: CH. CLASS 60 PEAK DATA: 1.42 KN @ 3.68 MS; -3.97 KN @ 67.20 MS

1997 FORD CLUB WAGON VAN INTO FRONTAL LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION A3 FORCE
 NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 961205

TRC INC.



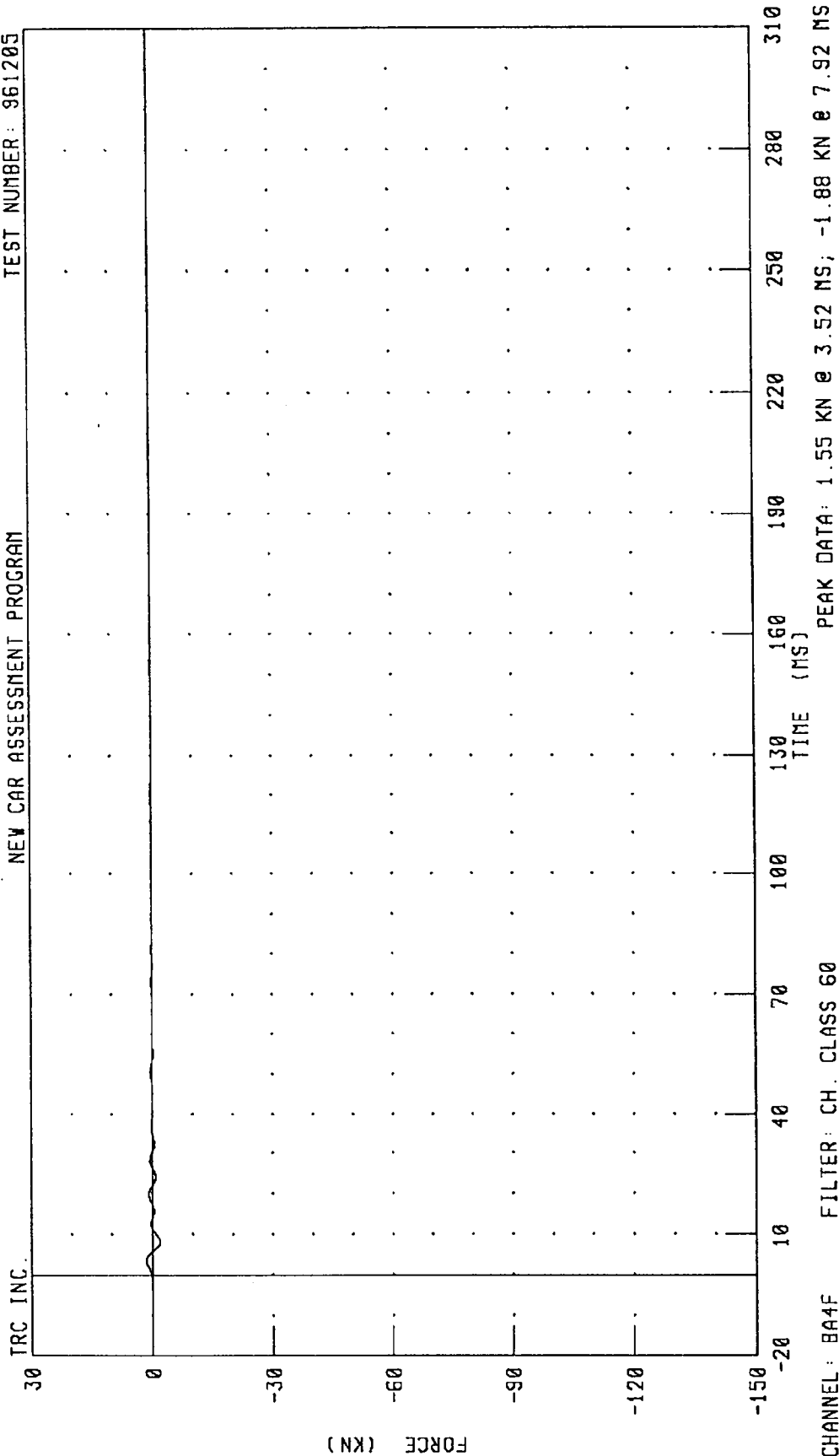
PEAK DATA: 1.30 KN @ 3.68 MS; -1.70 KN @ 7.68 MS

FILTER: CH. CLASS 60

CHANNEL: BA3F

1997 FORD CLUB WAGON VAN INTO FRONTAL LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION A4 FORCE
 NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 961205



PEAK DATA: 1.55 KN @ 3.52 MS; -1.88 KN @ 7.92 MS

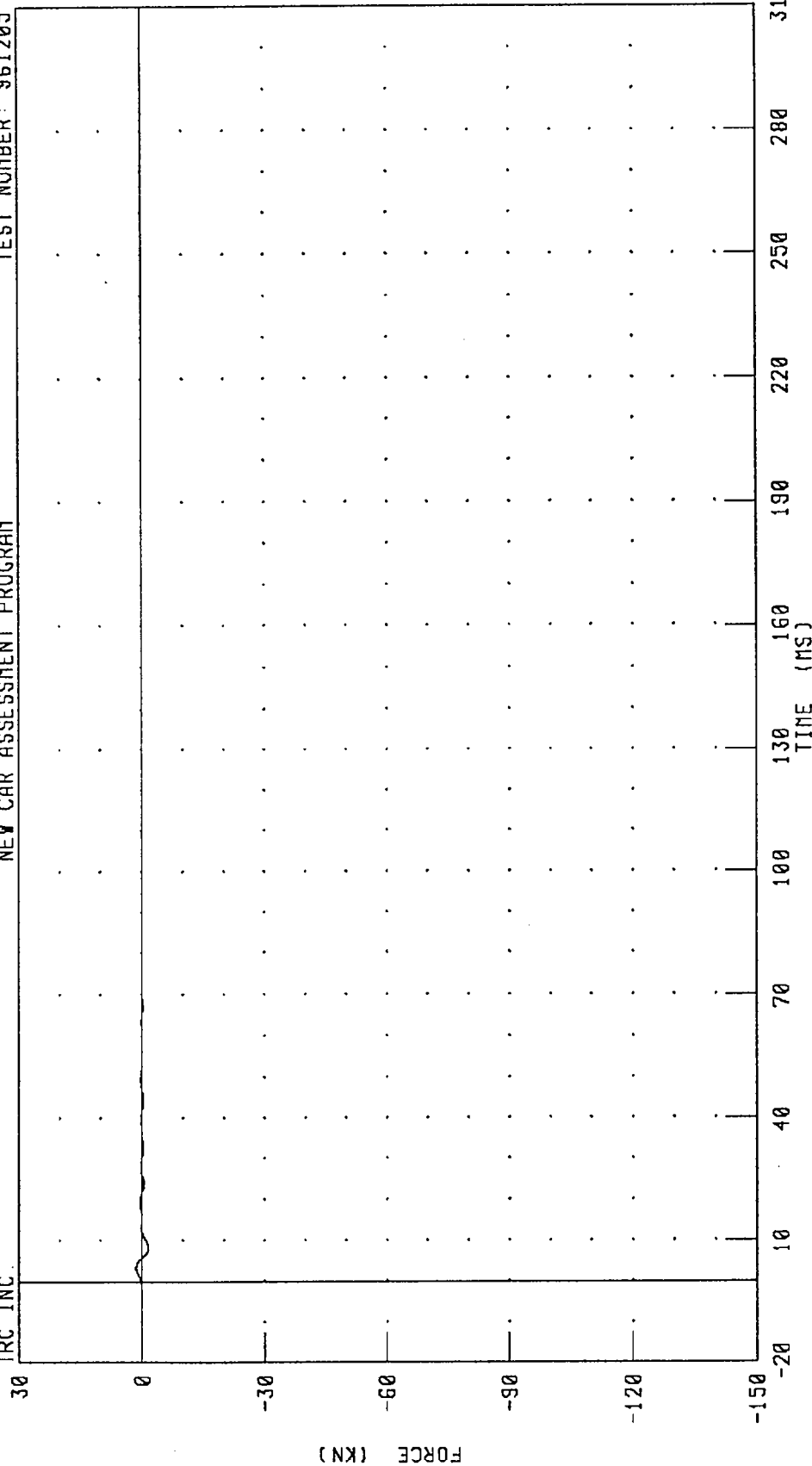
CHANNEL: BA4F FILTER: CH. CLASS 60

1997 FORD CLUB WAGON VAN INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION A5 FORCE

TEST NUMBER: 961205

NEW CAR ASSESSMENT PROGRAM

TRC INC.



PEAK DATA: 1.40 KN @ 3.36 MS; -1.59 KN @ 8.00 MS

FILTER: CH. CLASS 60

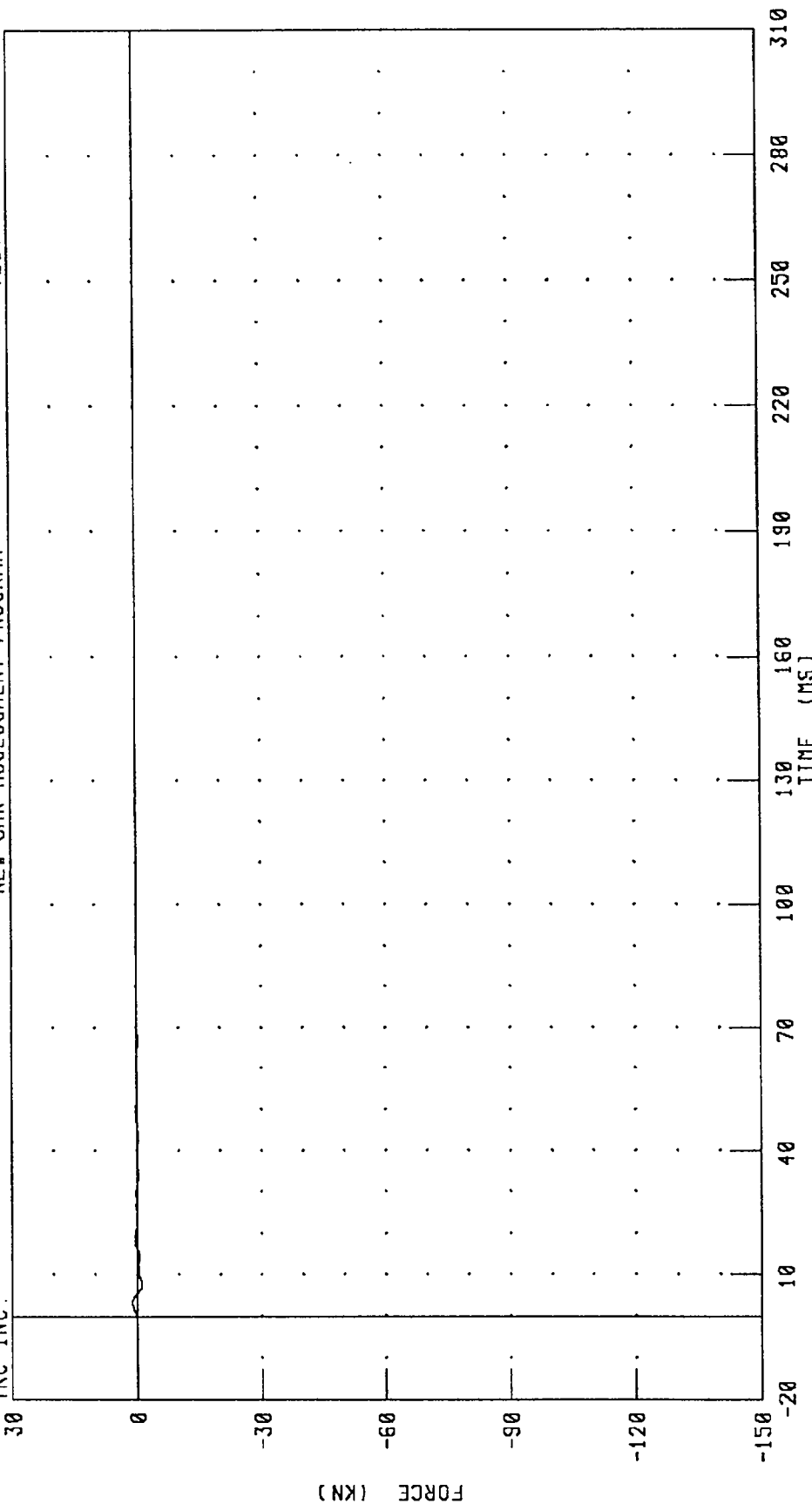
CHANNEL: BA5F

1997 FORD CLUB WAGON VAN INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION A6 FORCE

TEST NUMBER: 961205

NEW CAR ASSESSMENT PROGRAM

TRC INC.



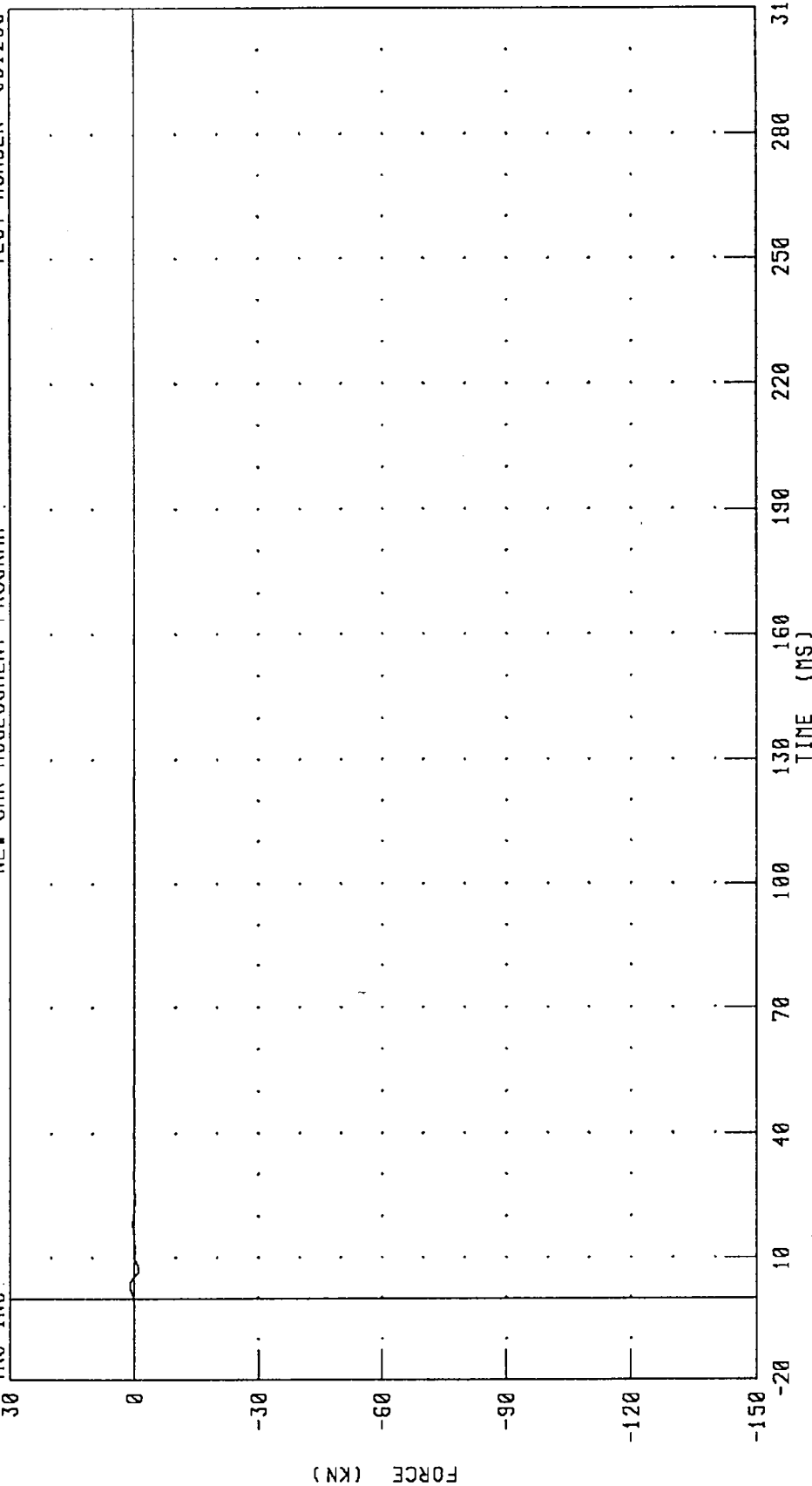
CHANNEL: BA6F FILTER: CH. CLASS 60

1997 FORD CLUB WAGON VAN INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION A7 FORCE

TEST NUMBER: 961205

NEW CAR ASSESSMENT PROGRAM

TRC INC.



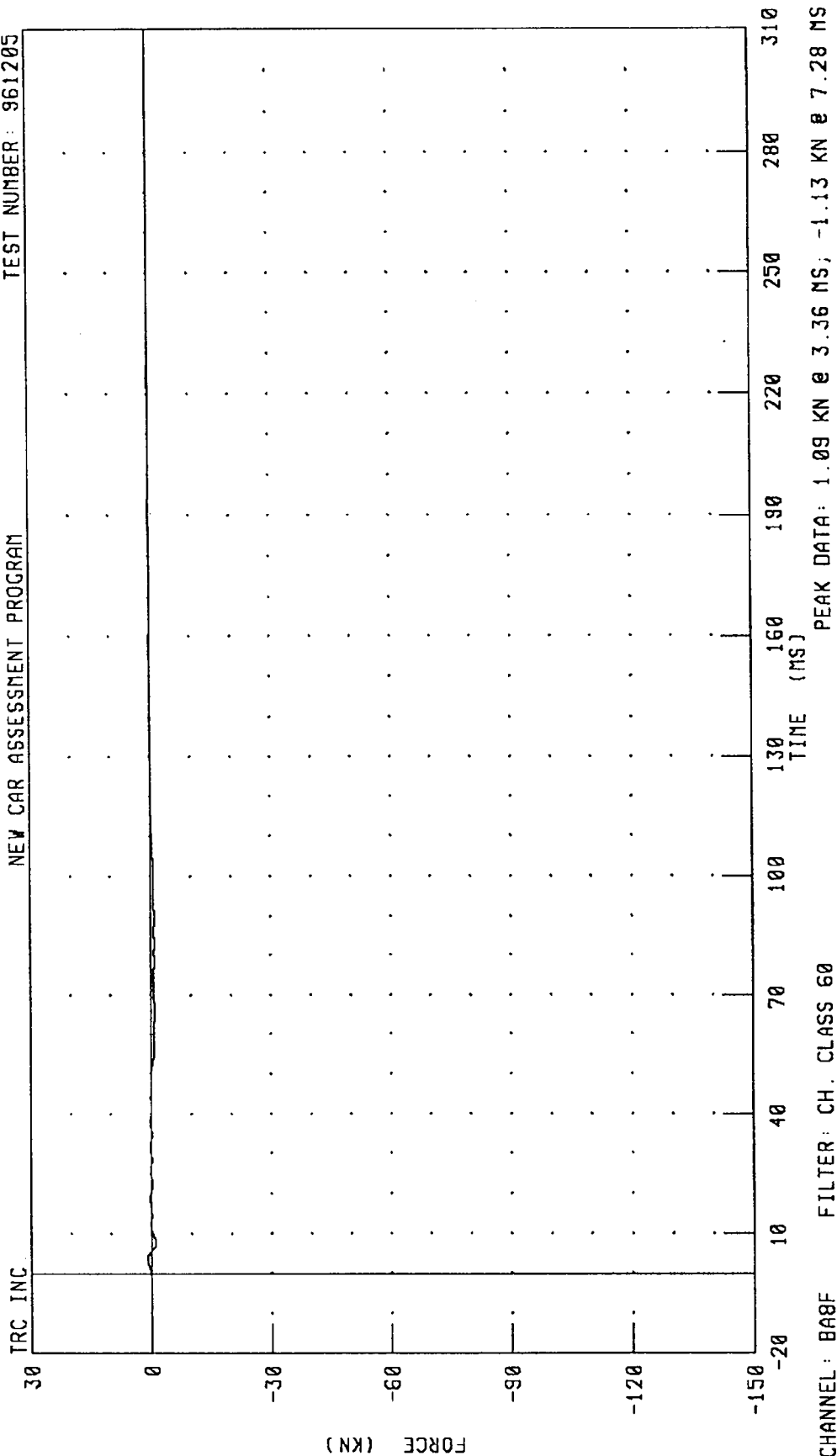
PEAK DATA: 1.06 KN @ 3.12 MS; -1.18 KN @ 7.04 MS

FILTER: CH. CLASS 60

CHANNEL: BA7F

1997 FORD CLUB WAGON VAN INTO FRONTAL LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION A8 FORCE
 NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 961205



PEAK DATA: 1.09 KN @ 3.36 MS, -1.13 KN @ 7.28 MS

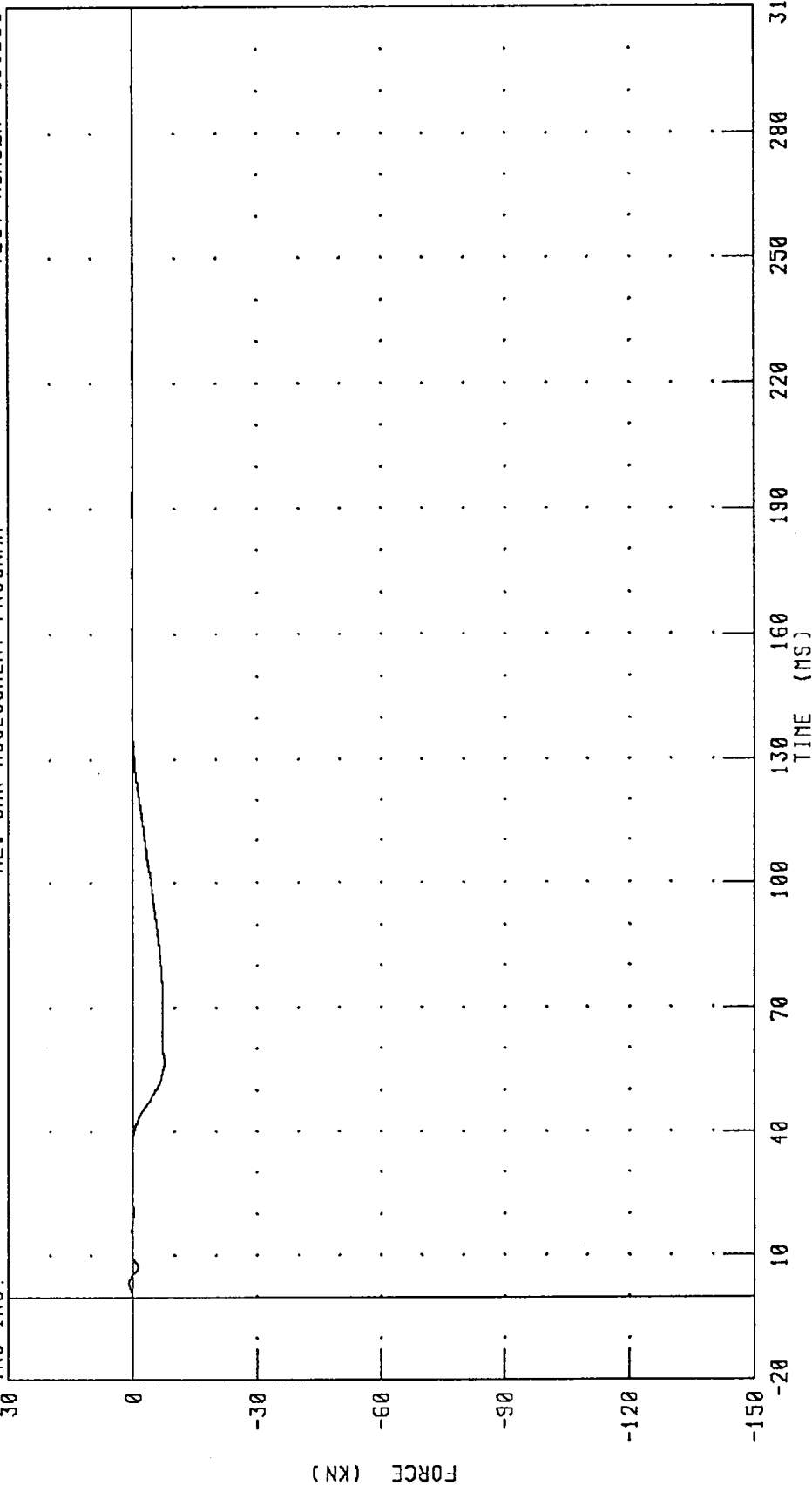
CHANNEL: BA8F FILTER: CH. CLASS 60

1997 FORD CLUB WAGON VAN INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION AS FORCE

TEST NUMBER: 961205

NEW CAR ASSESSMENT PROGRAM

TRC INC.



PEAK DATA: 0.94 KN @ 3.44 MS; -7.62 KN @ 56.88 MS

FILTER: CH. CLASS 60

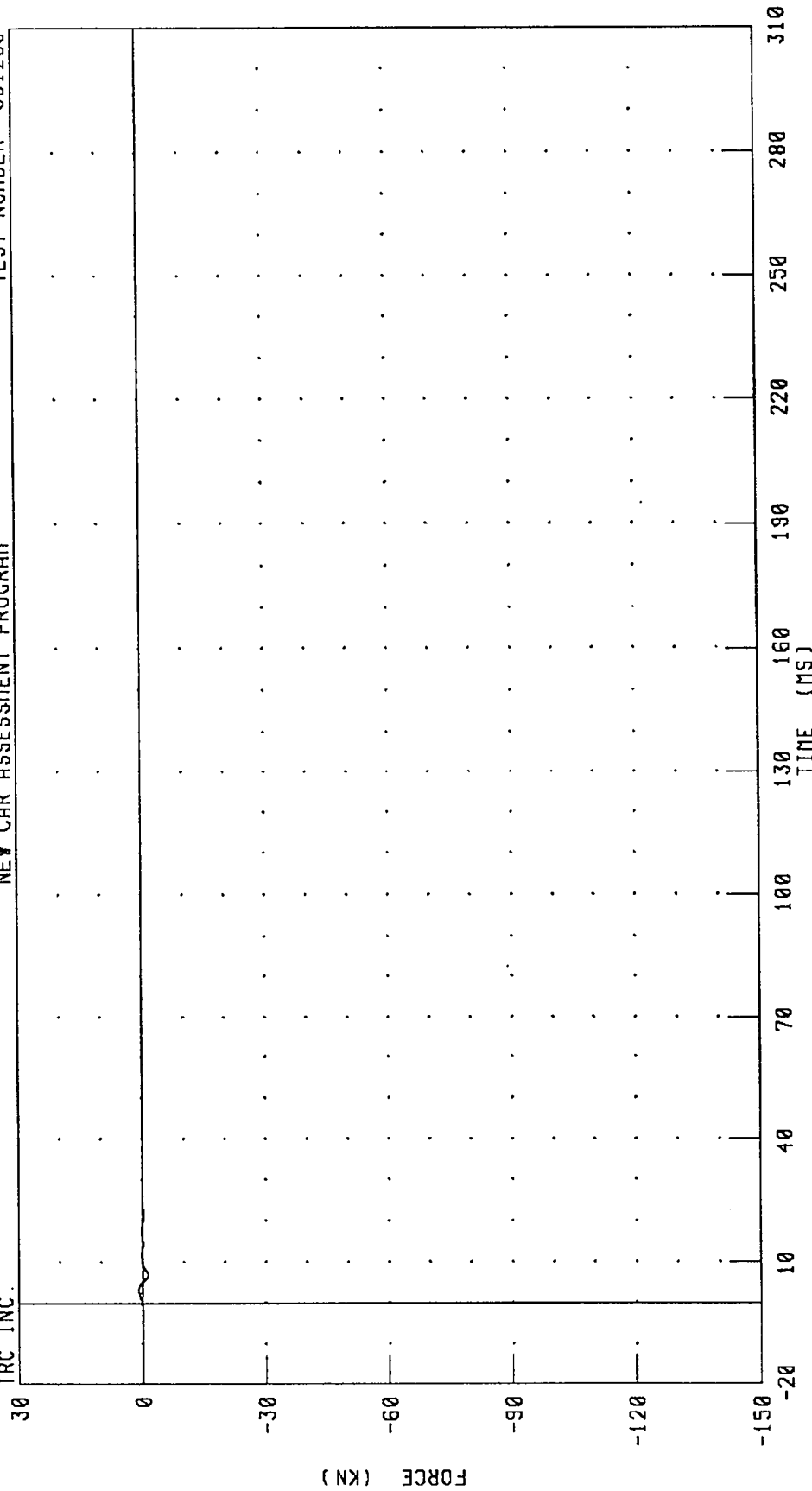
CHANNEL: BA9F

1997 FORD CLUB WAGON VAN INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION B1 FORCE

TEST NUMBER: 961205

NEW CAR ASSESSMENT PROGRAM

TRC INC.



PEAK DATA: 0.92 KN @ 3.12 MS; -1.30 KN @ 6.72 MS

FILTER: CH. CLASS 60

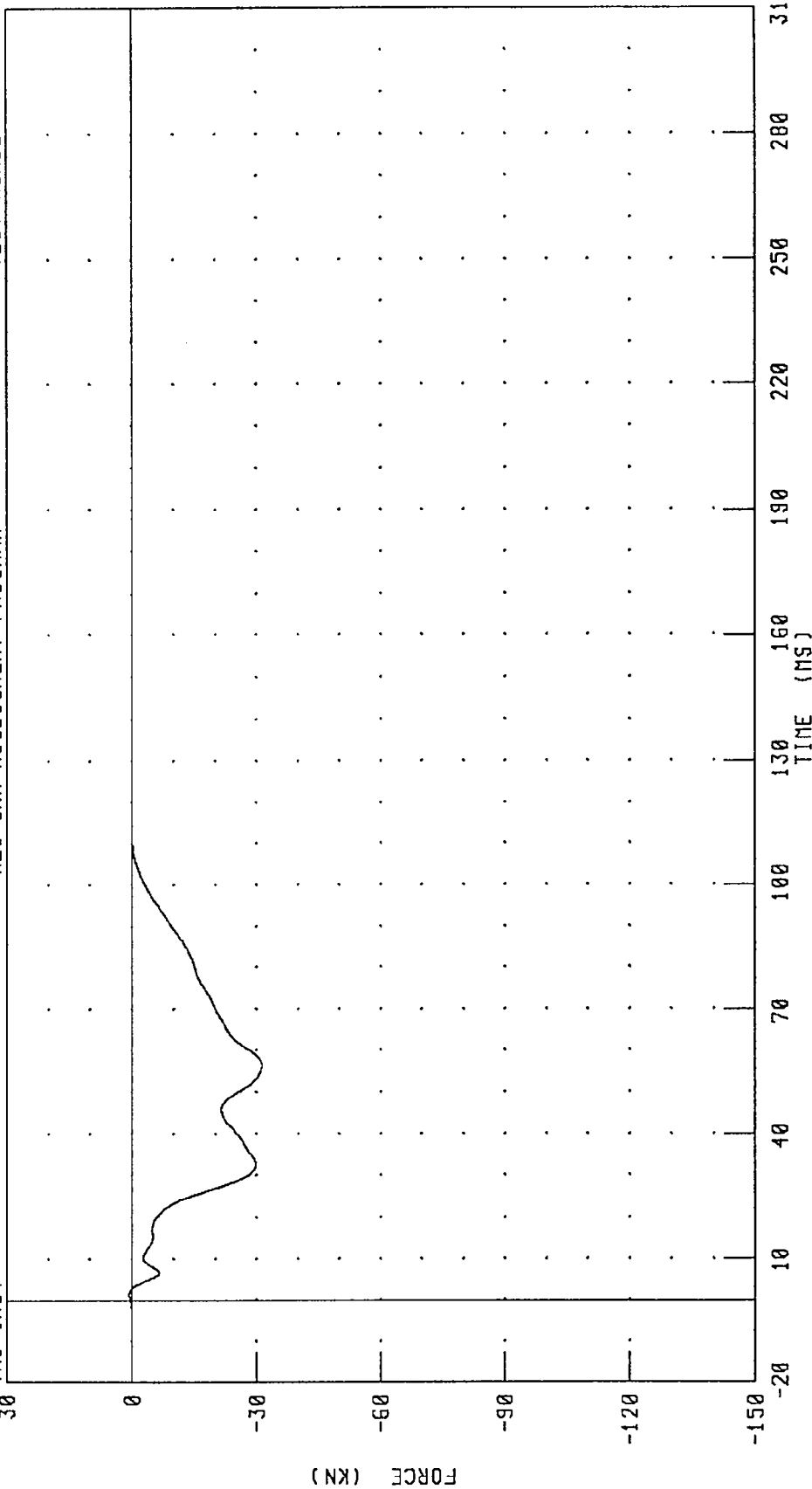
CHANNEL: BB1F

1997 FORD CLUB WAGON VAN INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION B2 FORCE

TEST NUMBER: 961205

NEW CAR ASSESSMENT PROGRAM

TRC INC.



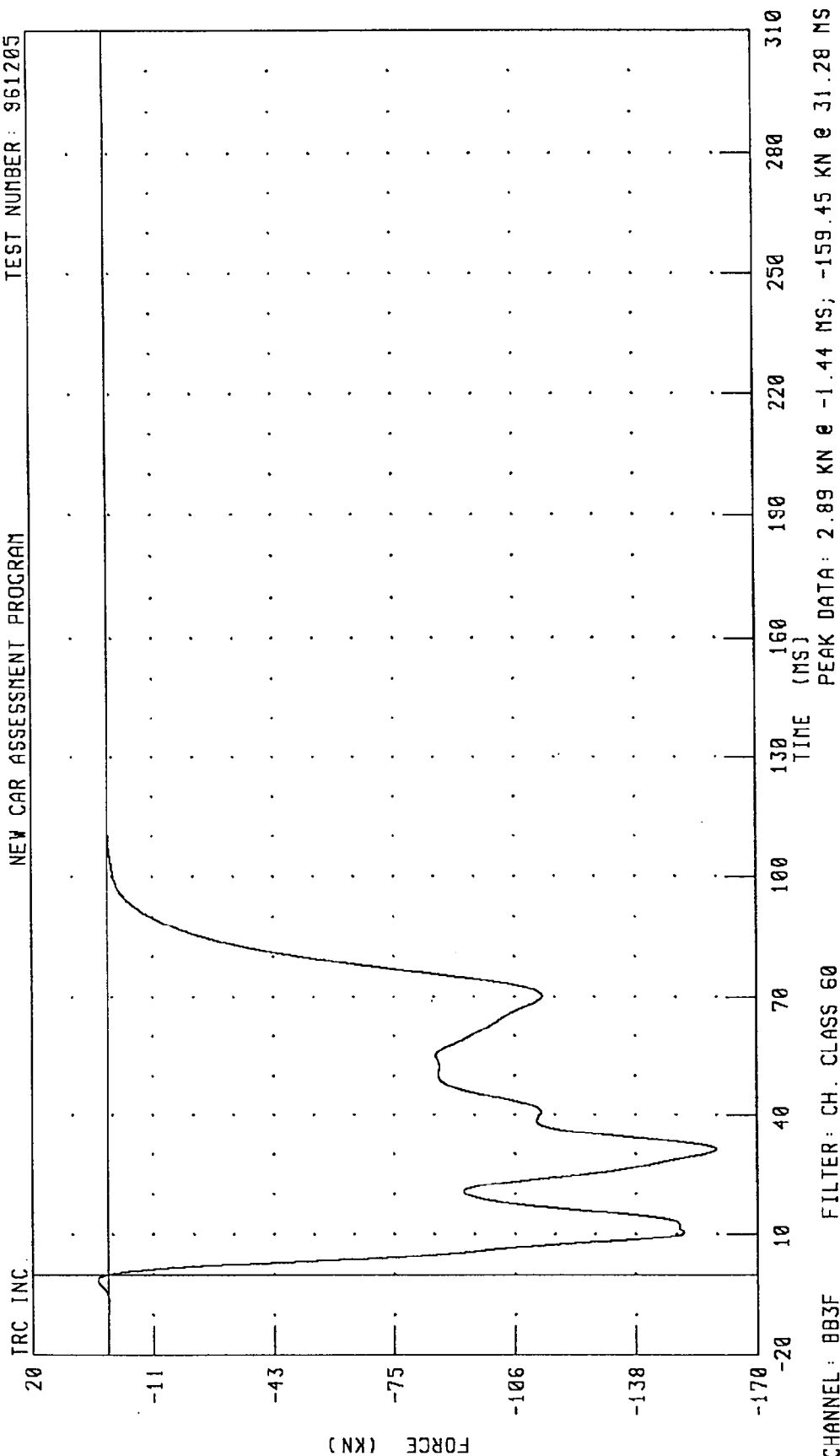
PEAK DATA: 0.63 KN @ 1.28 MS; -31.21 KN @ 56.32 MS

FILTER: CH. CLASS 60

CHANNEL: 882F

1997 FORD CLUB WAGON VAN INTO FRONTAL LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION B3 FORCE
 NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 961205



PEAK DATA: 2.89 KN @ -1.44 MS; -159.45 KN @ 31.28 MS

FILTER: CH. CLASS 60

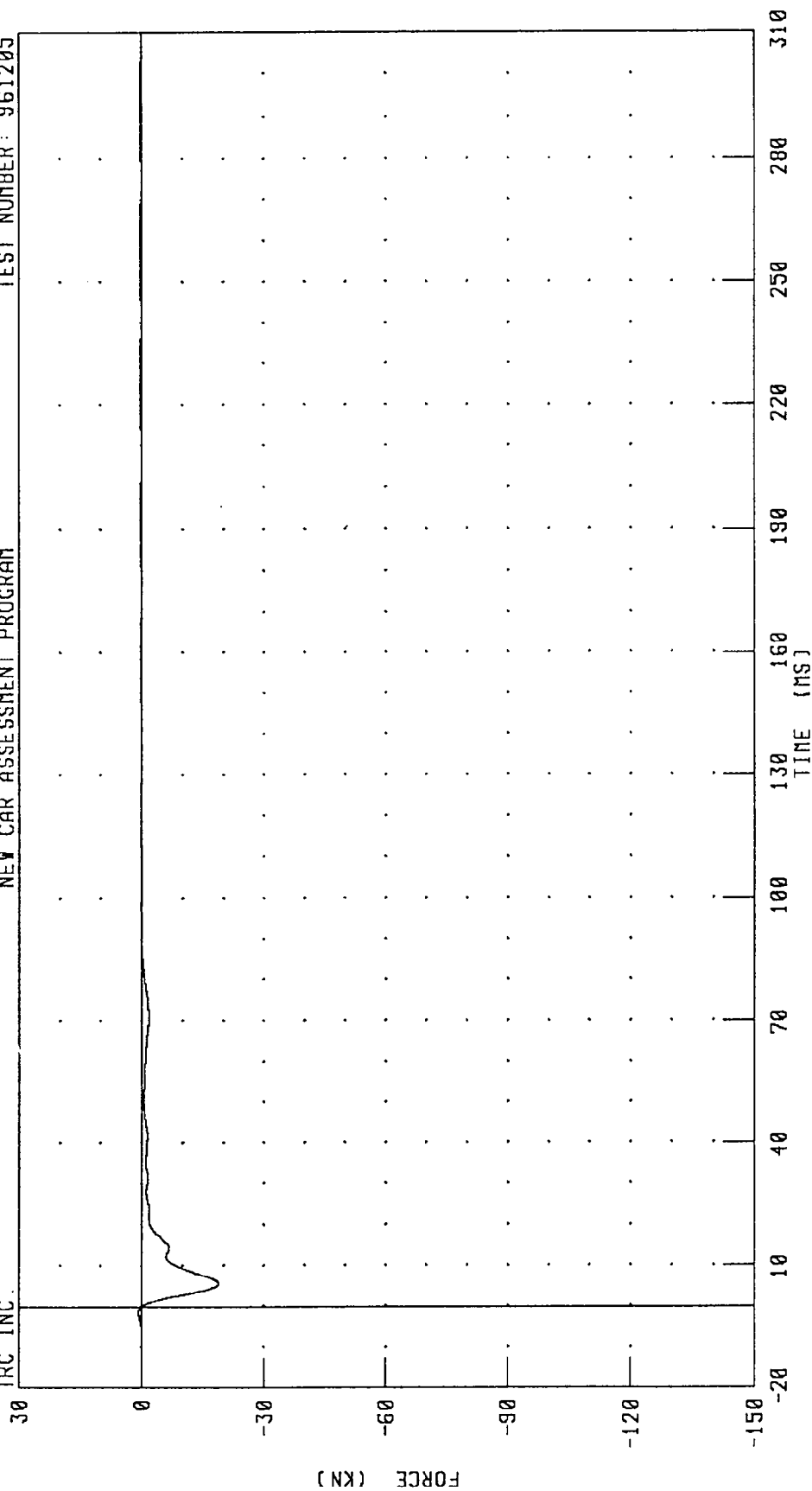
CHANNEL: BB3F

1997 FORD CLUB WAGON VAN INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION B4 FORCE

TEST NUMBER: 961205

NEW CAR ASSESSMENT PROGRAM

TRC INC.



PEAK DATA: 0.67 KN @ -1.52 MS; -18.81 KN @ 5.52 MS

FILTER: CH. CLASS 60

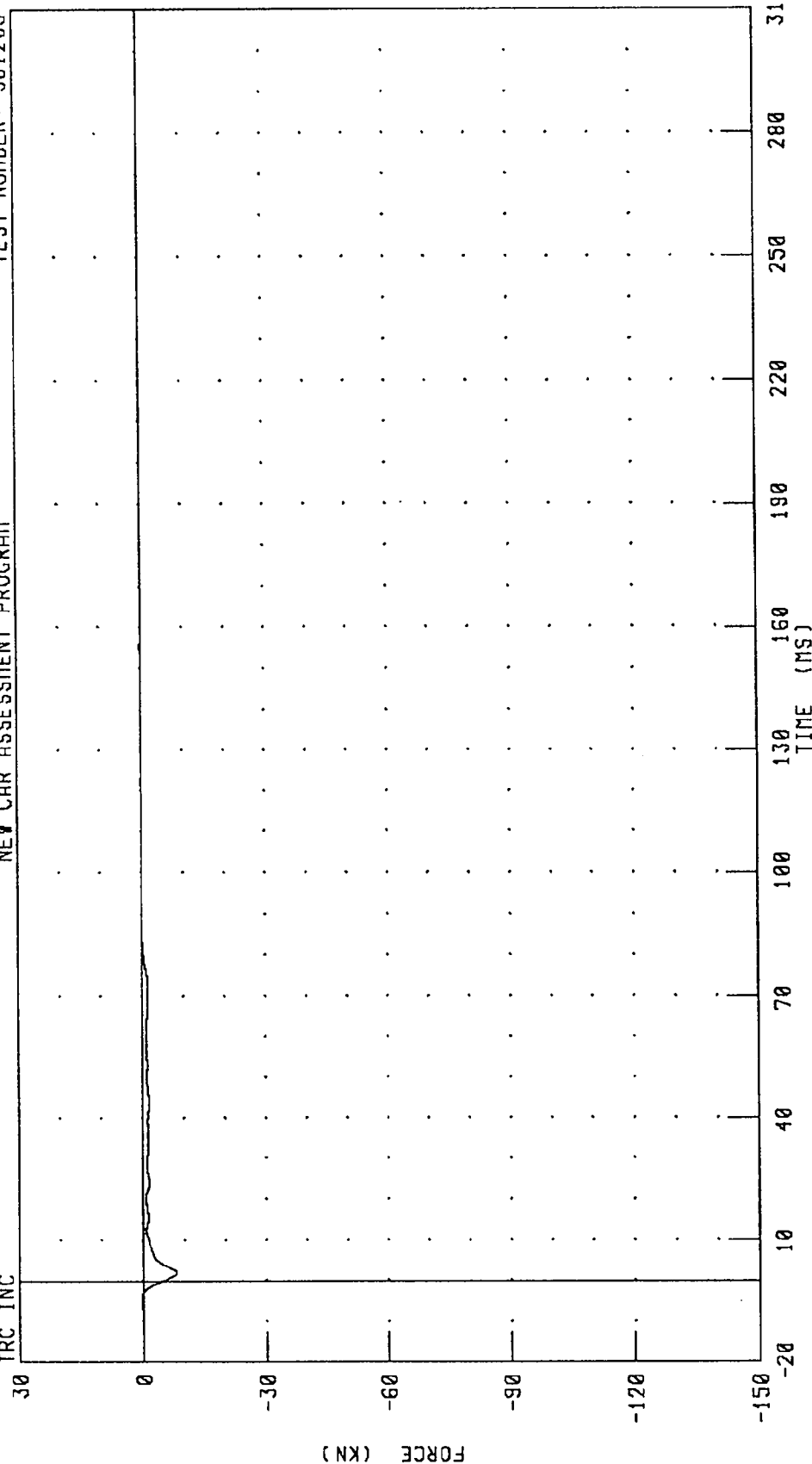
CHANNEL: BB4F

1997 FORD CLUB WAGON VAN INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION B5 FORCE

TEST NUMBER: 961205

NEW CAR ASSESSMENT PROGRAM

TRC INC



PEAK DATA: 0.31 KN @ -4.40 MS; -8.12 KN @ 2.00 MS

FILTER: CH. CLASS 60

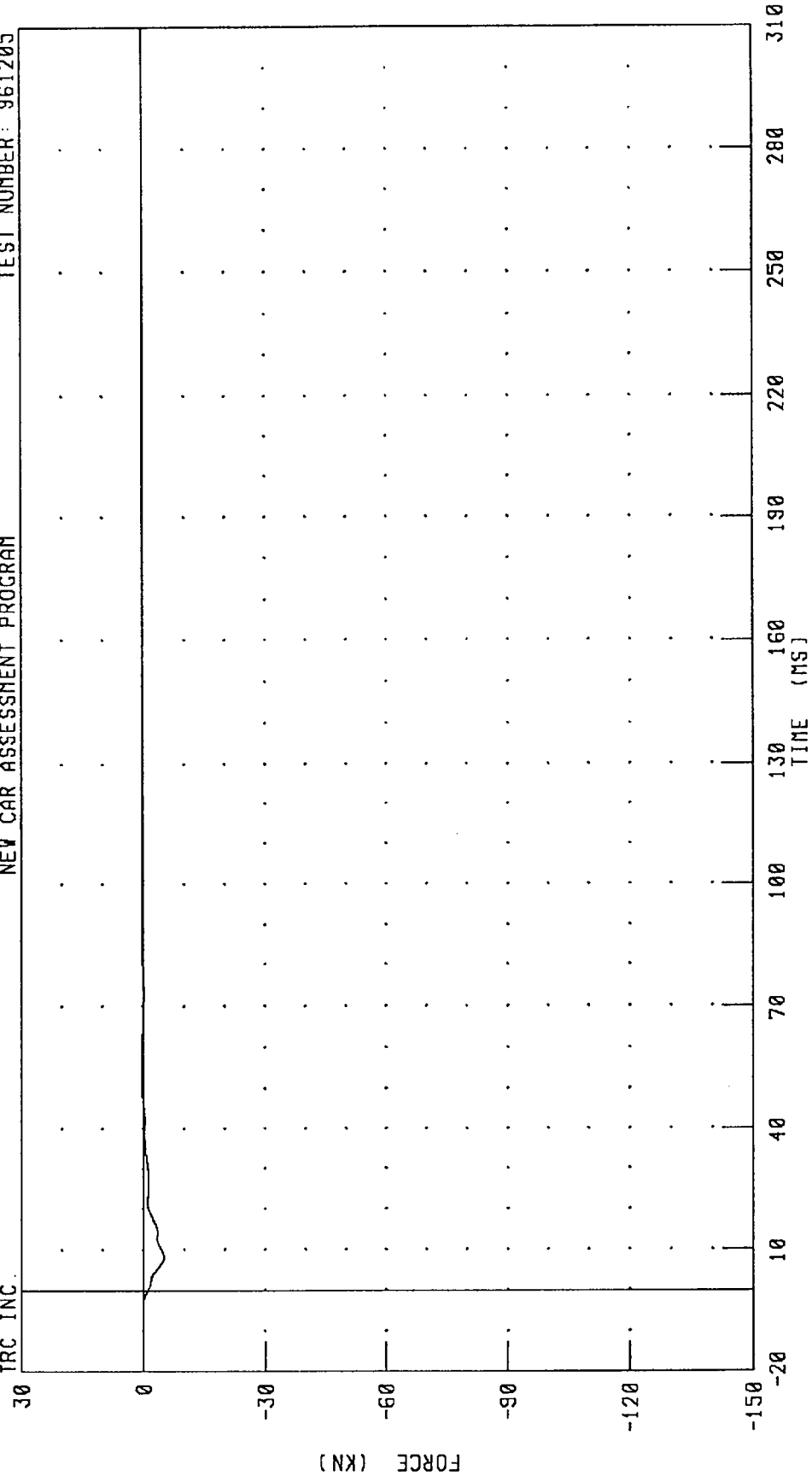
CHANNEL: BBSF

1997 FORD CLUB WAGON VAN INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION B6 FORCE

TEST NUMBER: 961205

NEW CAR ASSESSMENT PROGRAM

TRC INC.



PEAK DATA: 0.24 KN @ 122.64 MS; -5.05 KN @ 8.32 MS

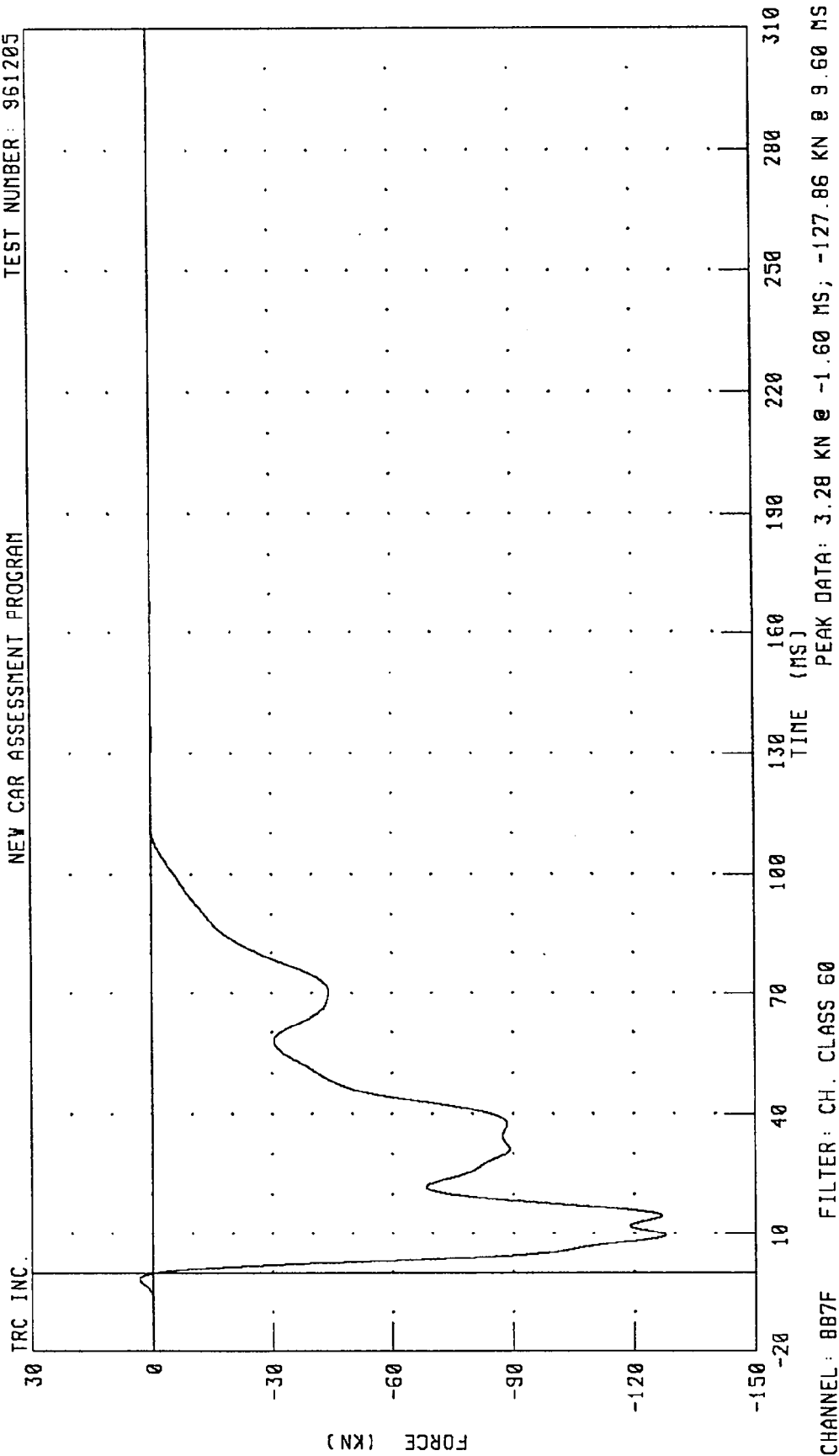
FILTER: CH. CLASS 60

CHANNEL: BB6F

1997 FORD CLUB WAGON VAN INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION B7 FORCE

TEST NUMBER: 961205

NEW CAR ASSESSMENT PROGRAM

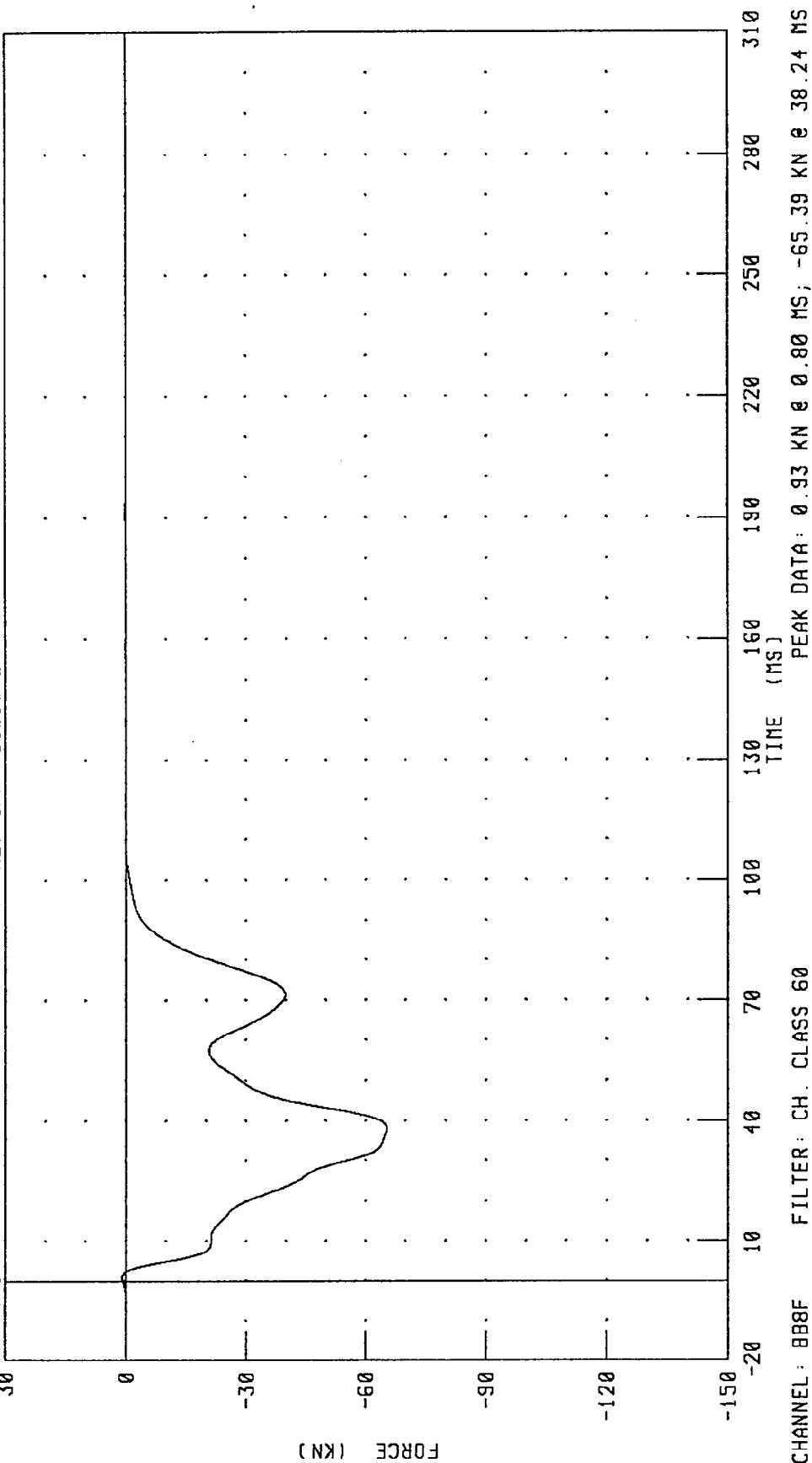


1997 FORD CLUB WAGON VAN INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION B8 FORCE

TEST NUMBER: 961205

NEW CAR ASSESSMENT PROGRAM

IRC INC.



CHANNEL: BB8F

FILTER: CH. CLASS 60

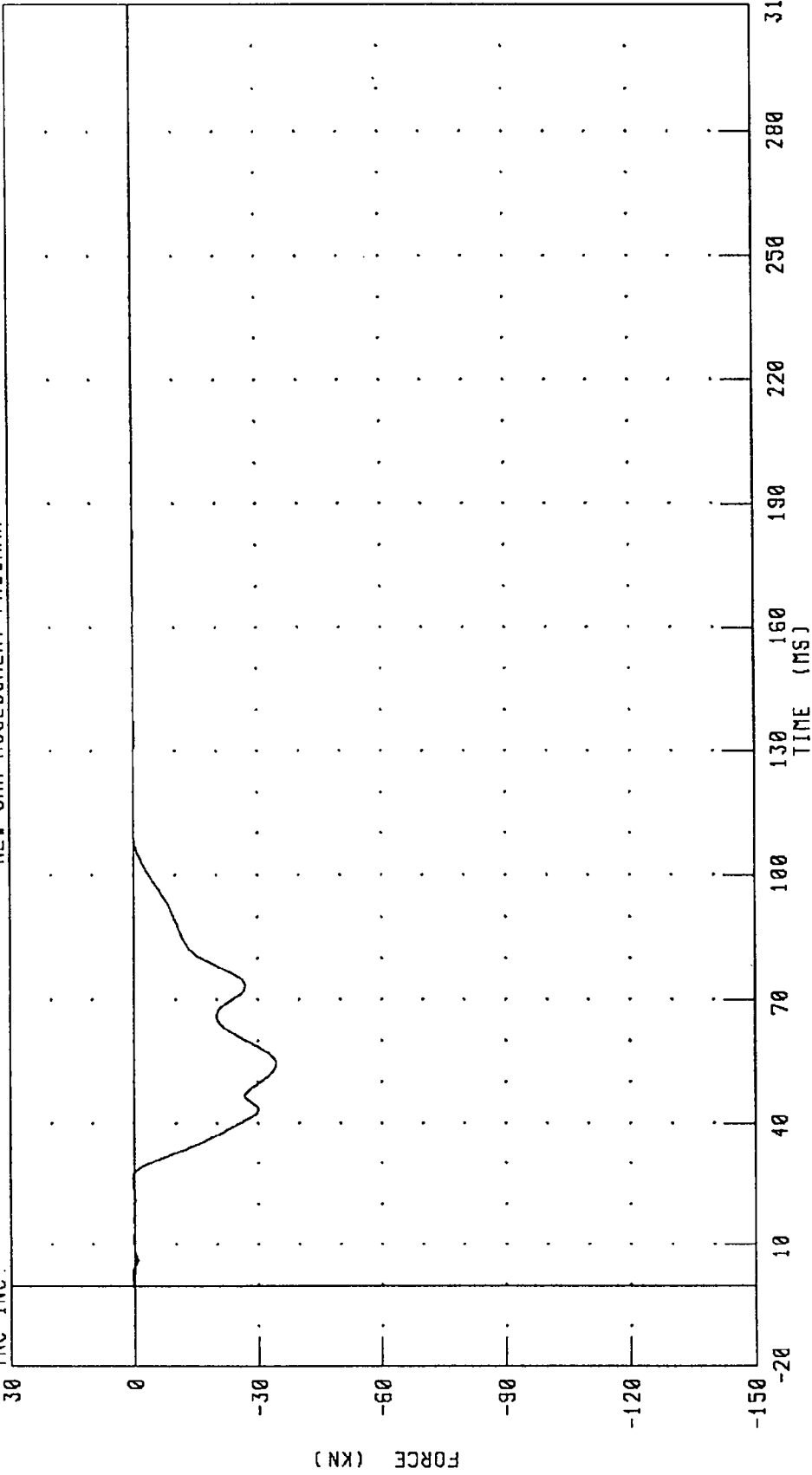
PEAK DATA: 0.93 KN @ 0.80 MS; -65.39 KN @ 38.24 MS

1997 FORD CLUB WAGON VAN INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION B9 FORCE

TEST NUMBER: 961205

NEW CAR ASSESSMENT PROGRAM

TRC INC.



PEAK DATA: 0.51 KN @ 2.56 MS; -34.38 KN @ 54.48 MS

FILTER: CH. CLASS 60

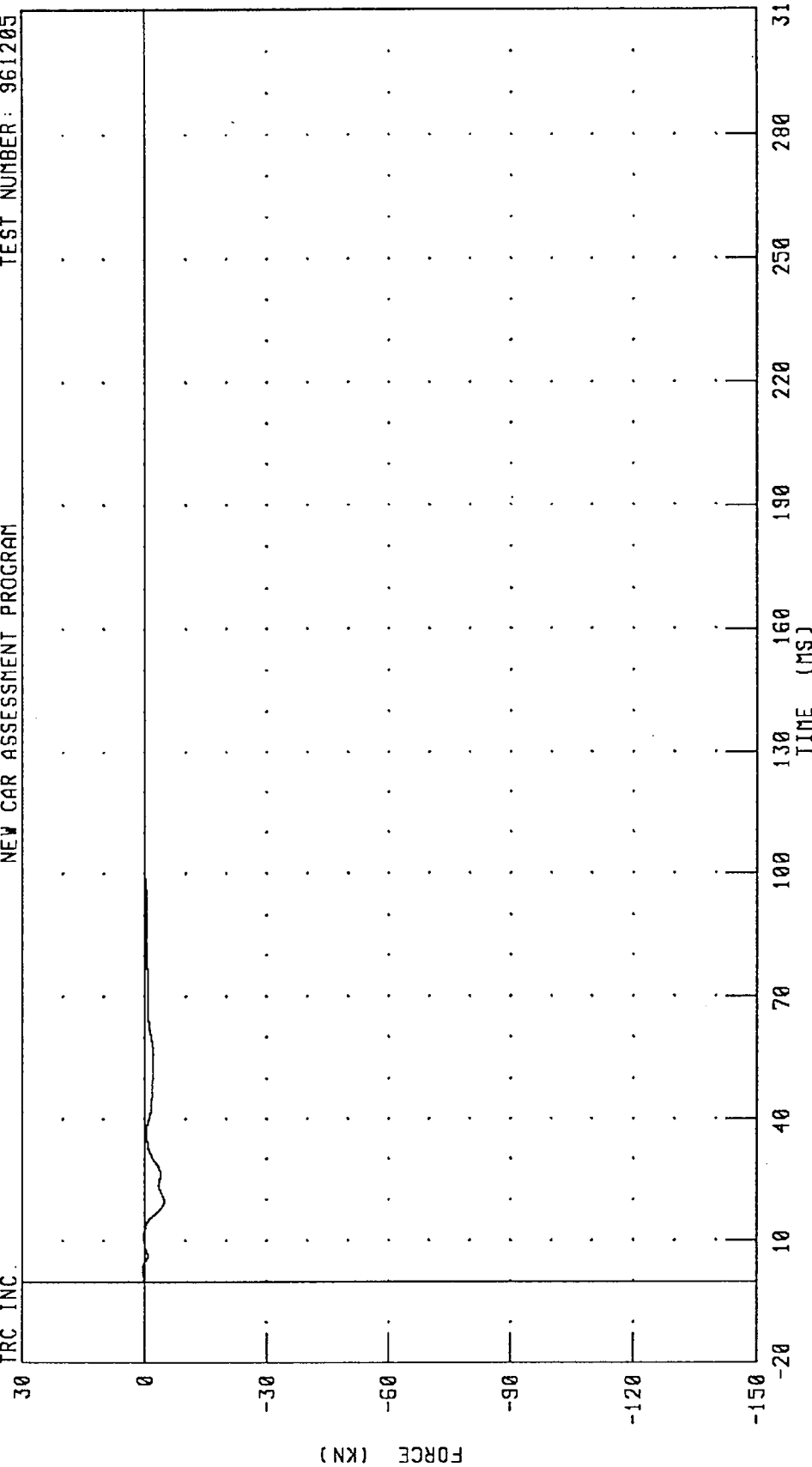
CHANNEL: BBSF

1997 FORD CLUB WAGON VAN INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION C1 FORCE

TEST NUMBER: 961205

NEW CAR ASSESSMENT PROGRAM

TRC INC.



PEAK DATA: 0.57 KN @ 2.96 MS; -4.79 KN @ 19.60 MS

FILTER: CH. CLASS 60

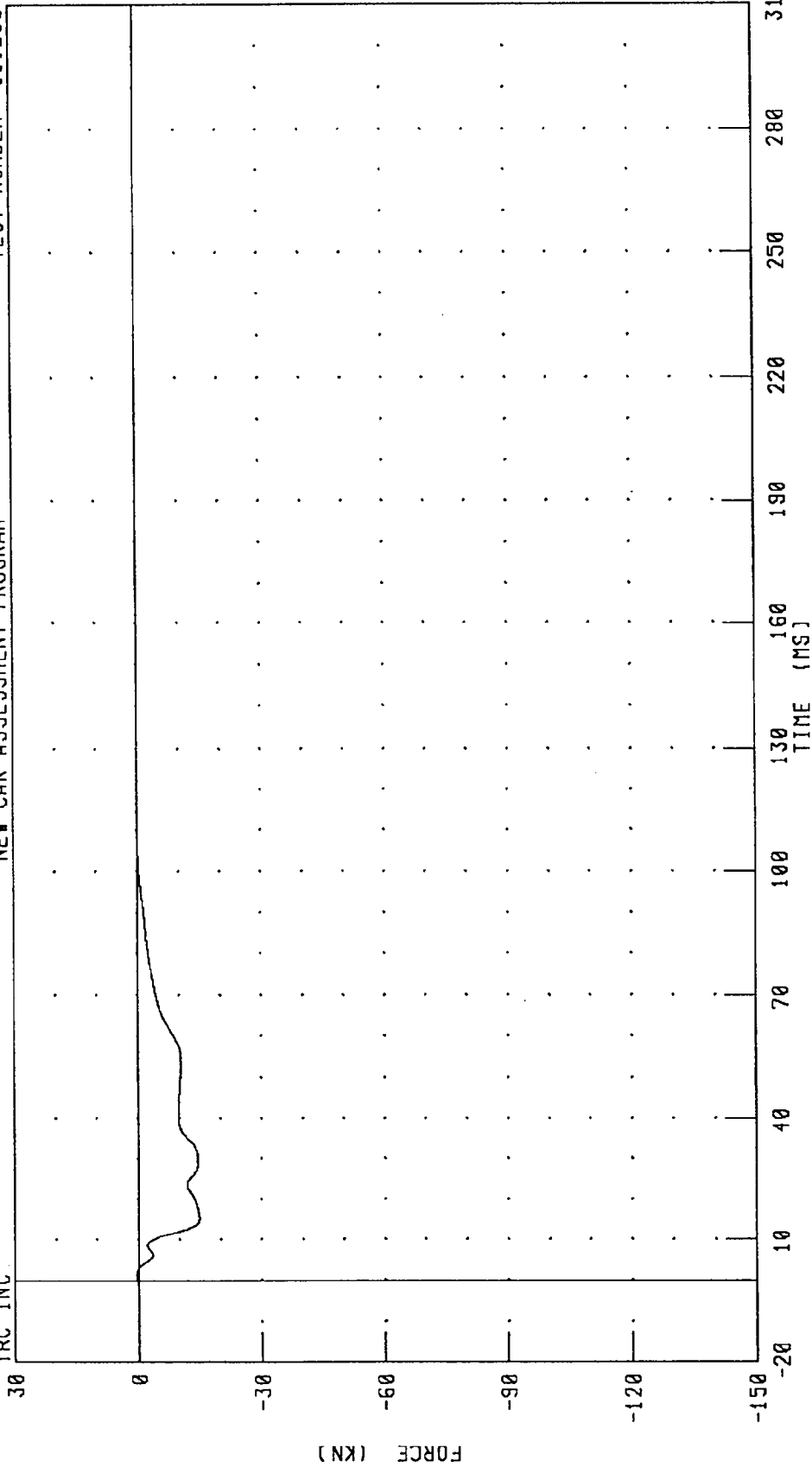
CHANNEL: BC1F

1997 FORD CLUB WAGON VAN INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION C2 FORCE

TEST NUMBER: 961205

NEW CAR ASSESSMENT PROGRAM

TRC INC



PEAK DATA: 0.45 KN @ 1.36 MS; -14.91 KN @ 15.28 MS

FILTER: CH. CLASS 60

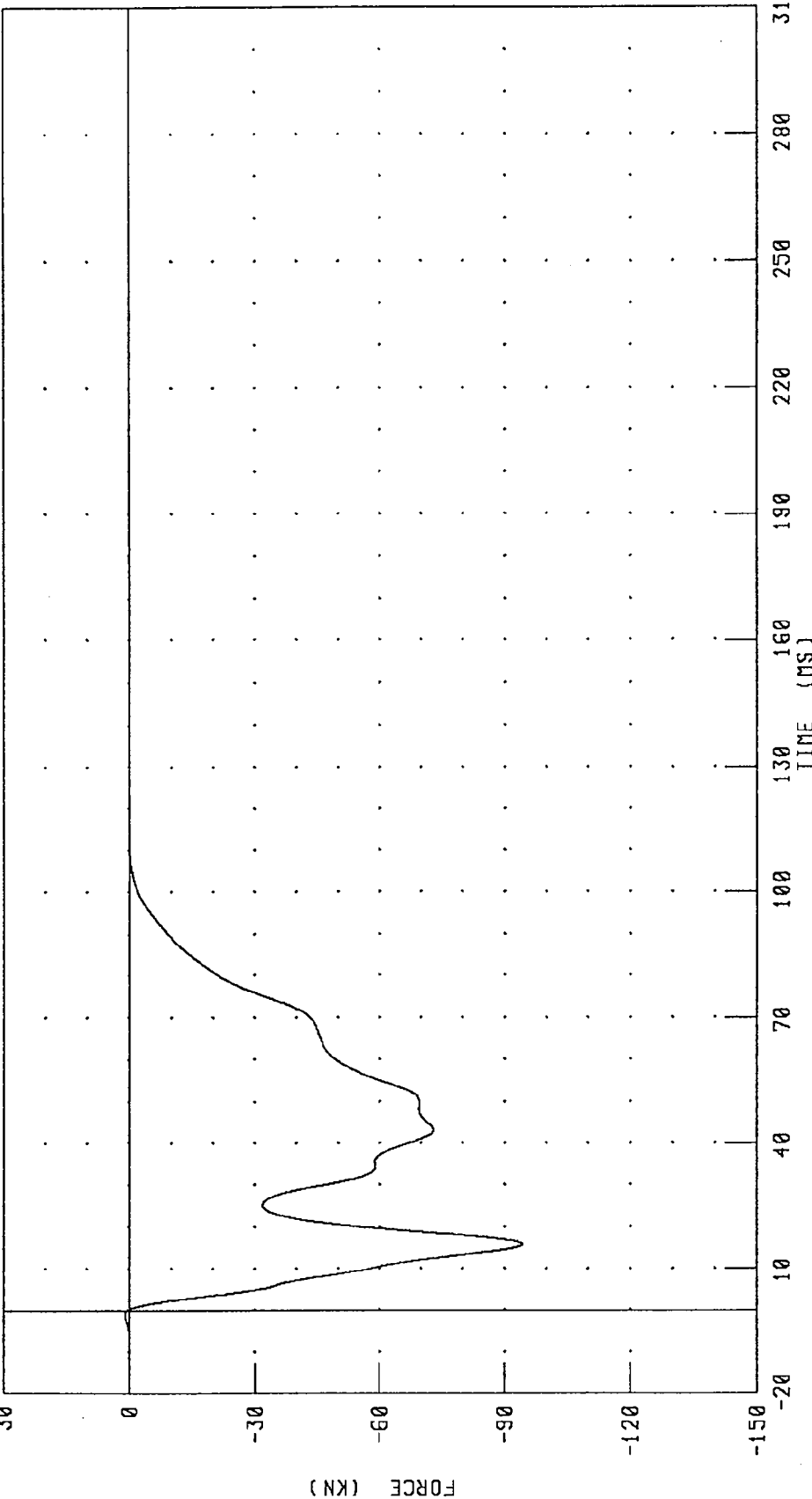
CHANNEL: BC2F

1997 FORD CLUB WAGON VAN INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION C3 FORCE

TEST NUMBER: 961205

NEW CAR ASSESSMENT PROGRAM

TRC INC.



PEAK DATA: 1.09 KN @ -1.20 MS, -94.39 KN @ 15.92 MS

FILTER: CH. CLASS 60

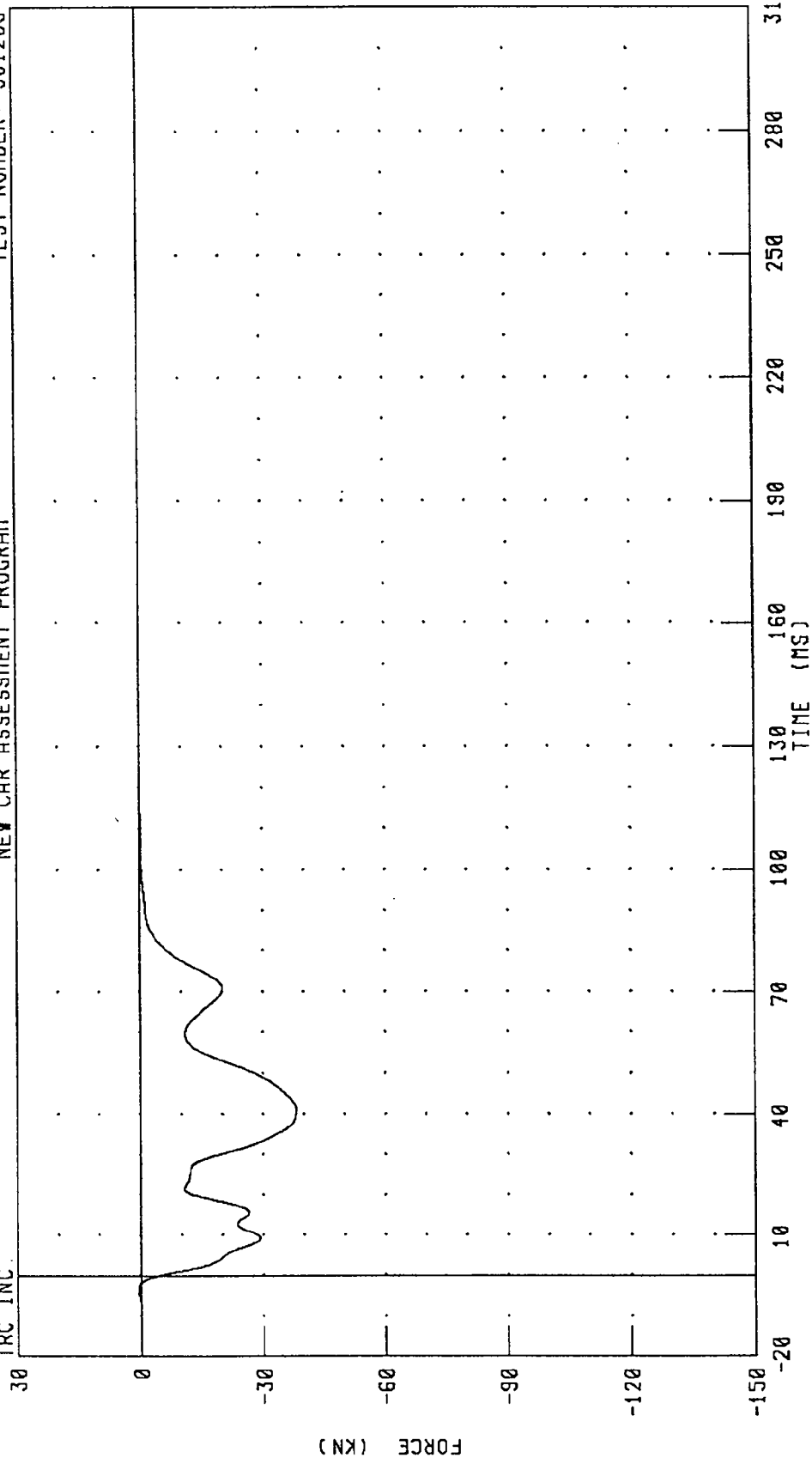
CHANNEL: BC3F

1997 FORD CLUB WAGON VAN INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION C4 FORCE

TEST NUMBER: 961205

NEW CAR ASSESSMENT PROGRAM

TRC INC.



PEAK DATA: 0.59 KN @ -3.28 MS; -38.10 KN @ 41.04 MS

FILTER: CH. CLASS 60

CHANNEL: BC4F

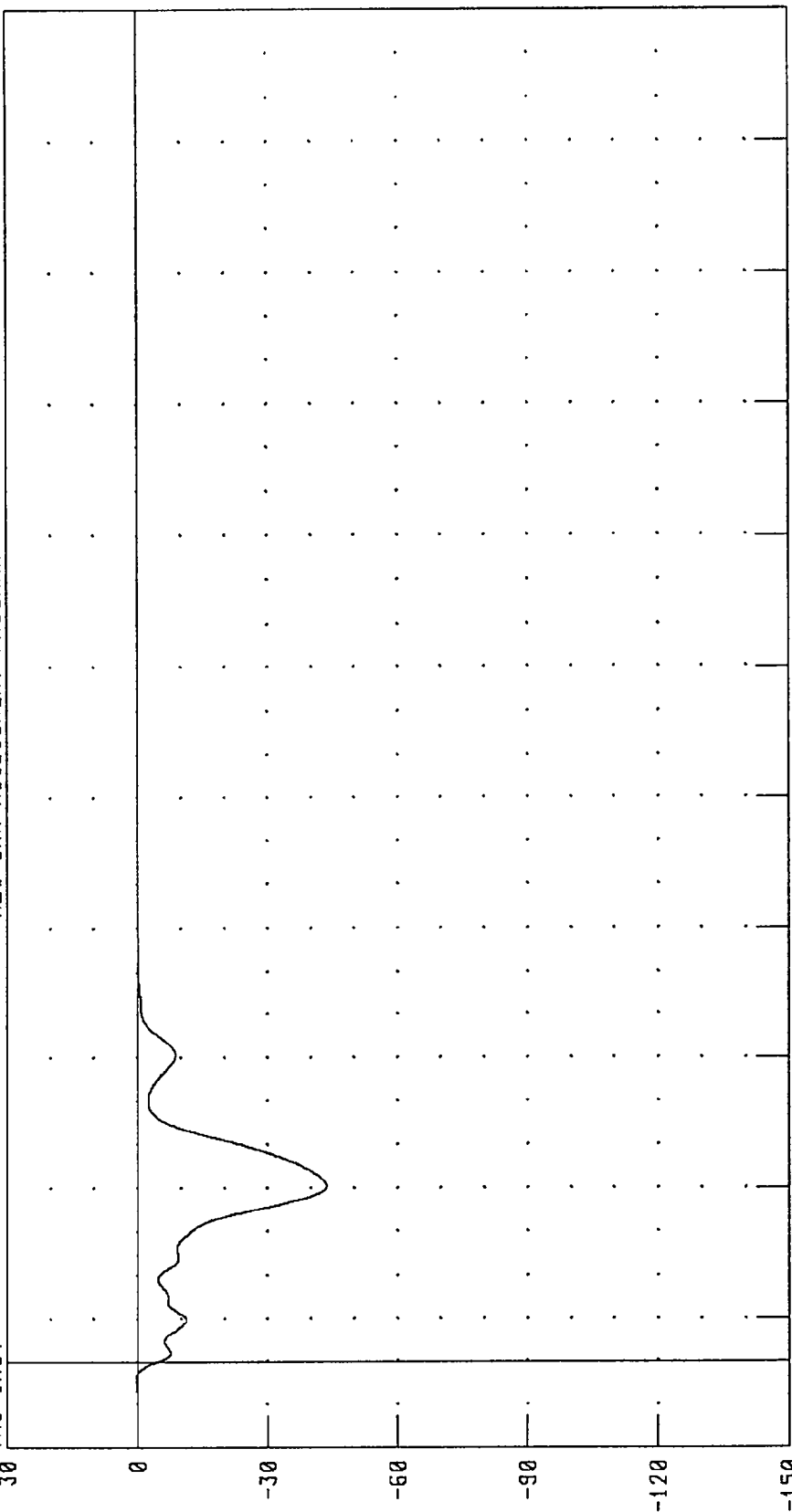
1997 FORD CLUB WAGON VAN INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION C5 FORCE

TEST NUMBER: 961205

NEW CAR ASSESSMENT PROGRAM

IRC INC.

30



PEAK DATA: 0.31 KN @ -4.32 MS; -43.61 KN @ 40.48 MS

FILTER: CH. CLASS 60

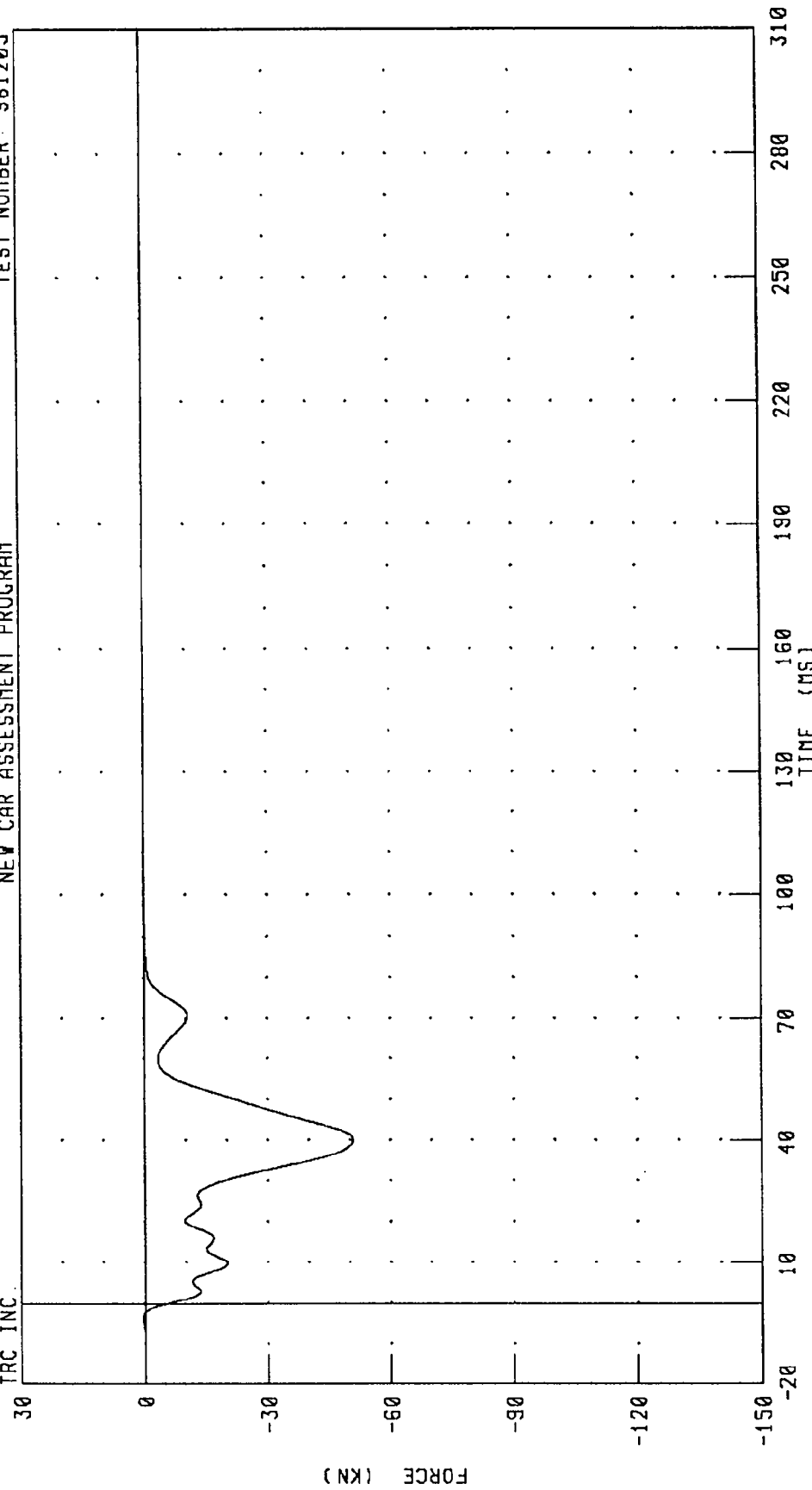
CHANNEL: BC5F

1997 FORD CLUB WAGON VAN INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION C6 FORCE

TEST NUMBER: 961205

NEW CAR ASSESSMENT PROGRAM

TRC INC.



PEAK DATA: 0.51 KN @ -3.76 MS; -50.90 KN @ 40.16 MS

FILTER: CH. CLASS 60

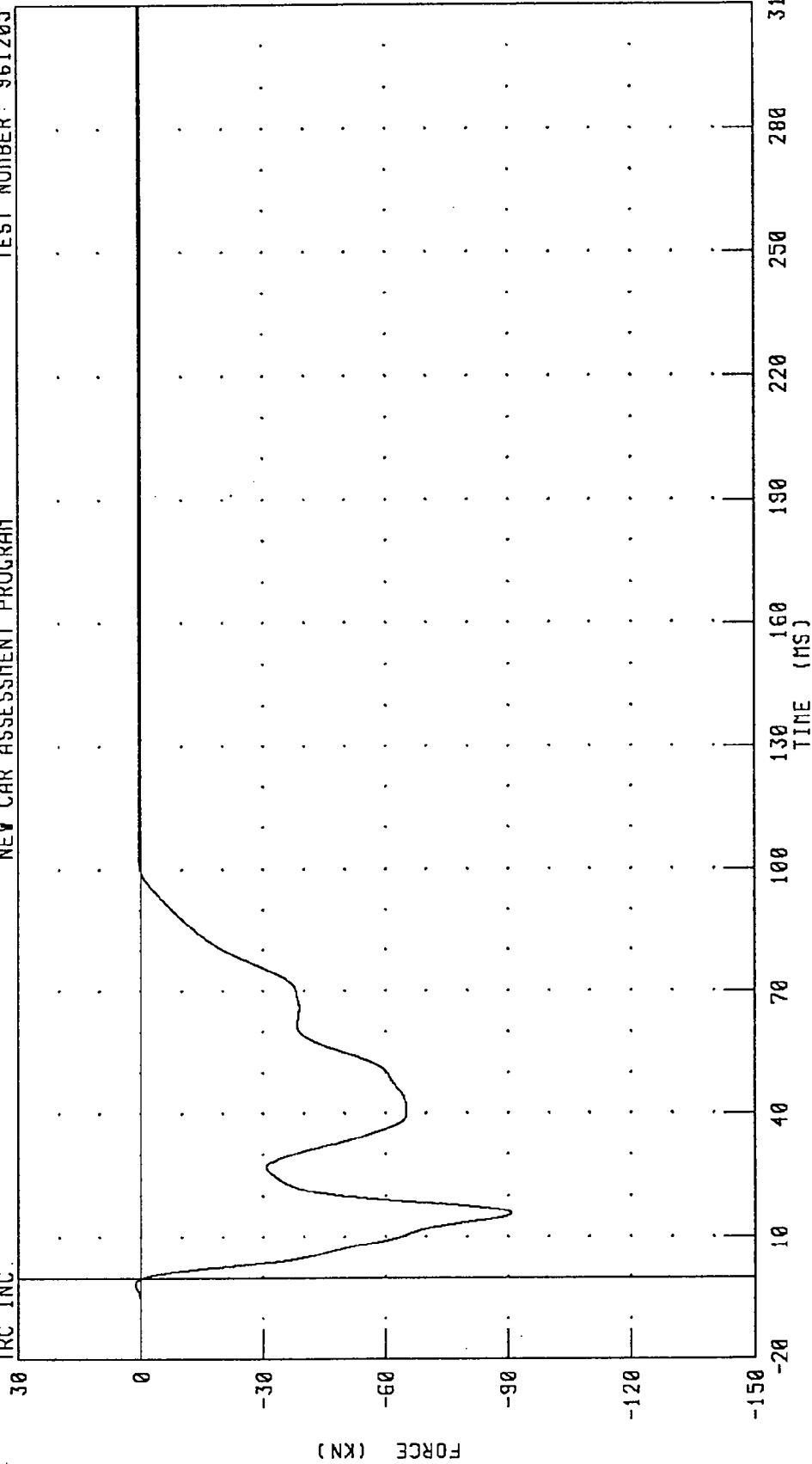
CHANNEL: BC6F

1997 FORD CLUB WAGON VAN INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION C7 FORCE

TEST NUMBER: 961205

NEW CAR ASSESSMENT PROGRAM

TRC INC.



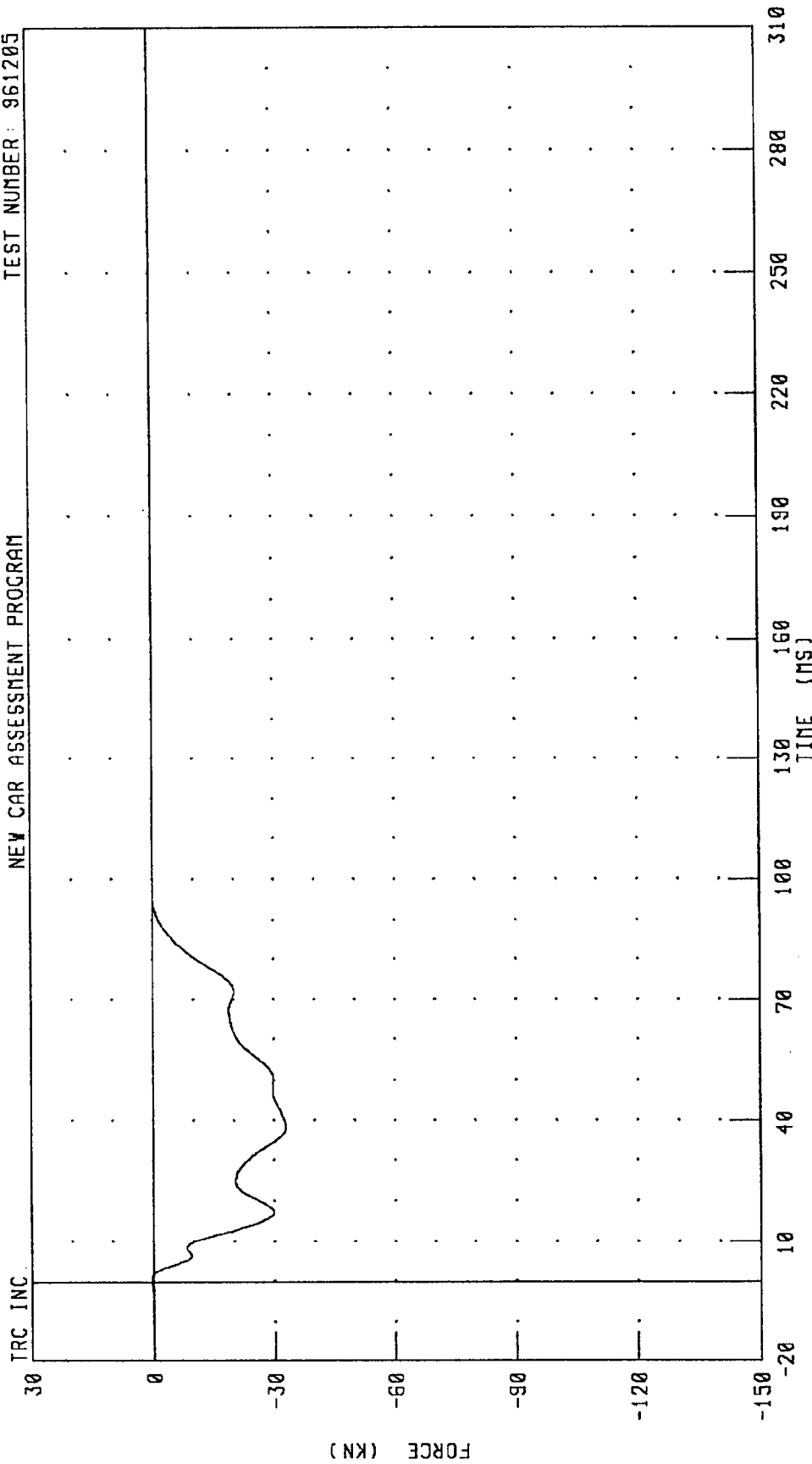
PEAK DATA: 1.31 KN @ -1.68 MS; -90.79 KN @ 15.76 MS

FILTER: CH. CLASS 60

CHANNEL: BC7F

1997 FORD CLUB WAGON VAN INTO FRONTAL LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION C8 FORCE
 NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 961205



PEAK DATA: 0.50 KN @ 0.48 MS; -32.81 KN @ 38.48 MS

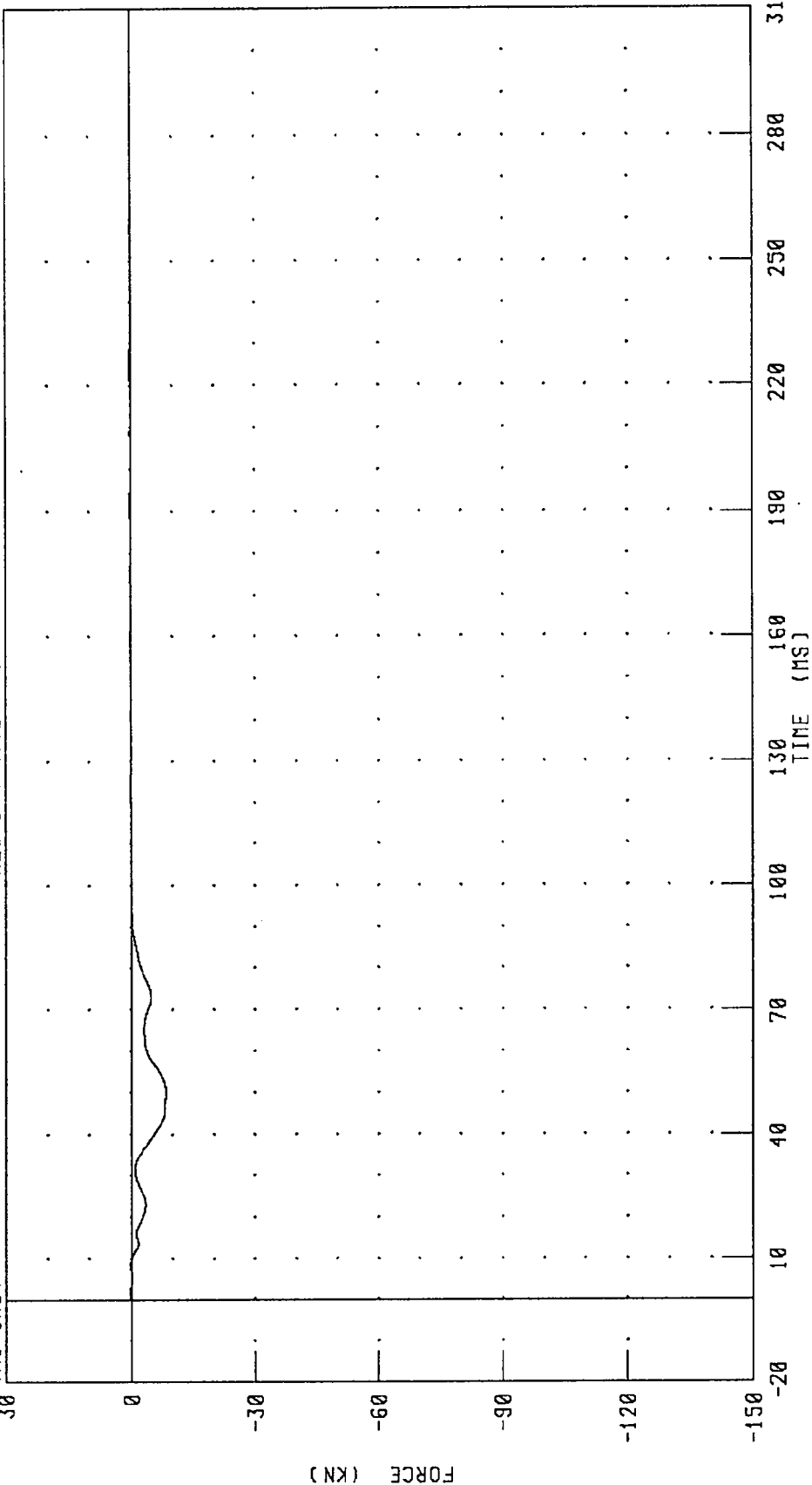
CHANNEL: BC8F FILTER: CH. CLASS 60

1997 FORD CLUB WAGON VAN INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION C9 FORCE

NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 961205

TRC INC.

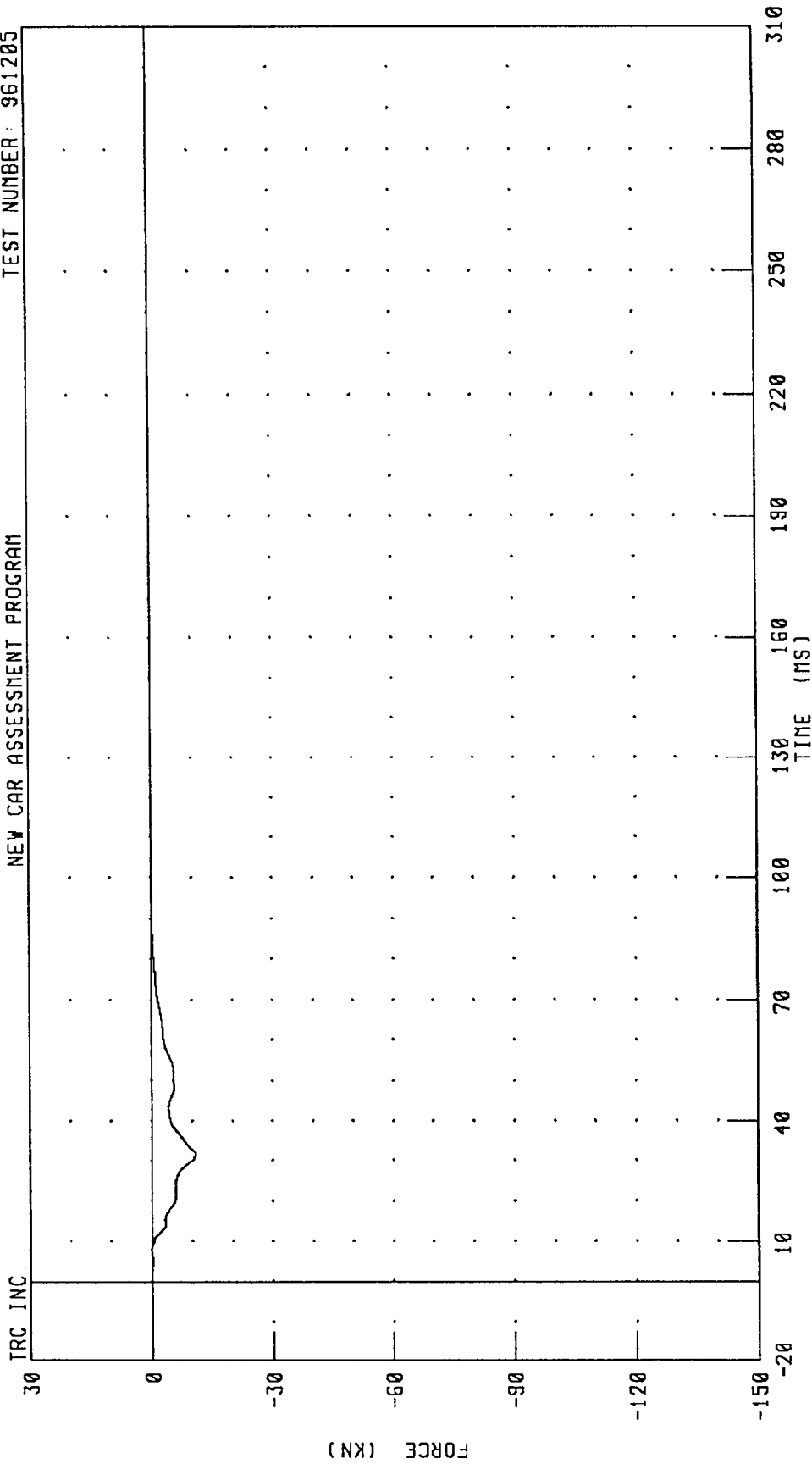


CHANNEL: BC9F FILTER: CH. CLASS 60

PEAK DATA: 0.19 KN @ 8.24 MS; -8.37 KN @ 50.32 MS

1997 FORD CLUB WAGON VAN INTO FRONTAL LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION D1 FORCE
 NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 961205



CHANNEL: 801F FILTER: CH. CLASS 60

PEAK DATA: 0.25 KN @ 7.68 MS; -10.81 KN @ 31.36 MS

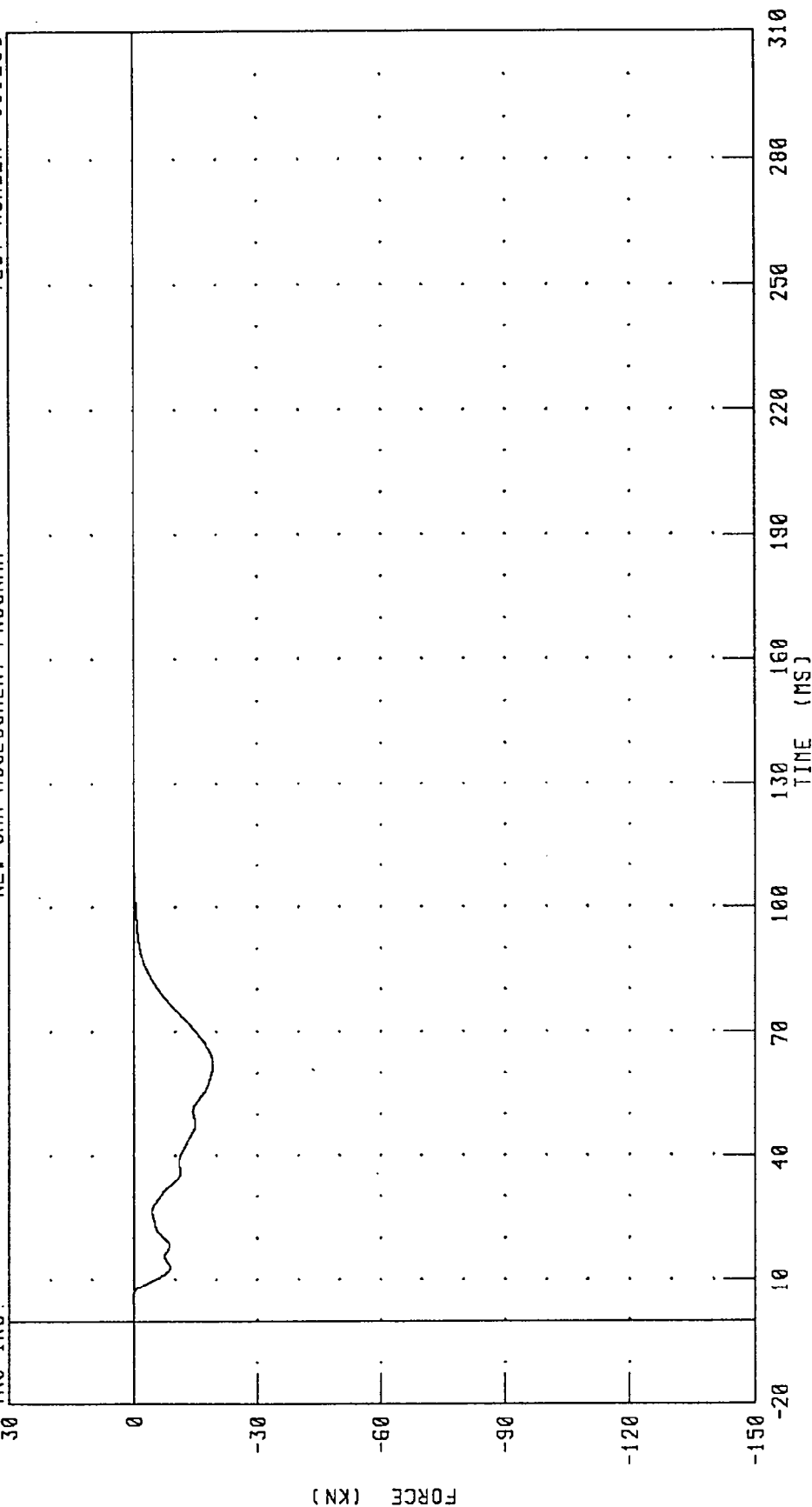
961205

1997 FORD CLUB WAGON VAN INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION D2 FORCE

TEST NUMBER: 961205

NEW CAR ASSESSMENT PROGRAM

TRC INC.



PEAK DATA: 0.16 KN @ 5.60 MS; -19.20 KN @ 62.32 MS

FILTER: CH. CLASS 60

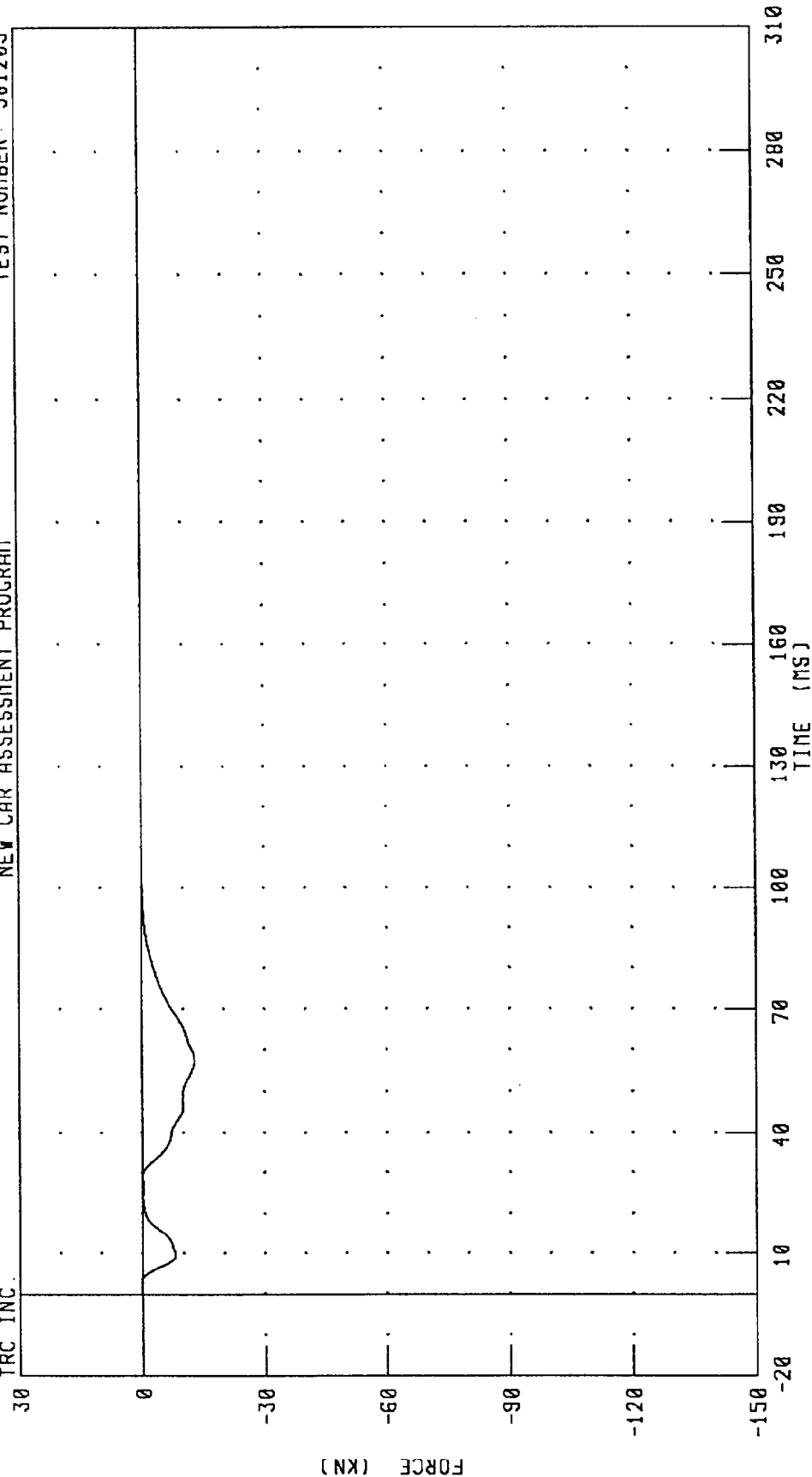
CHANNEL: BD2F

1997 FORD CLUB WAGON VAN INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION D3 FORCE

TEST NUMBER: 961205

NEW CAR ASSESSMENT PROGRAM

TRC INC.



PEAK DATA: 0.27 KN @ 2.32 MS; -12.83 KN @ 57.68 MS

FILTER: CH. CLASS 60

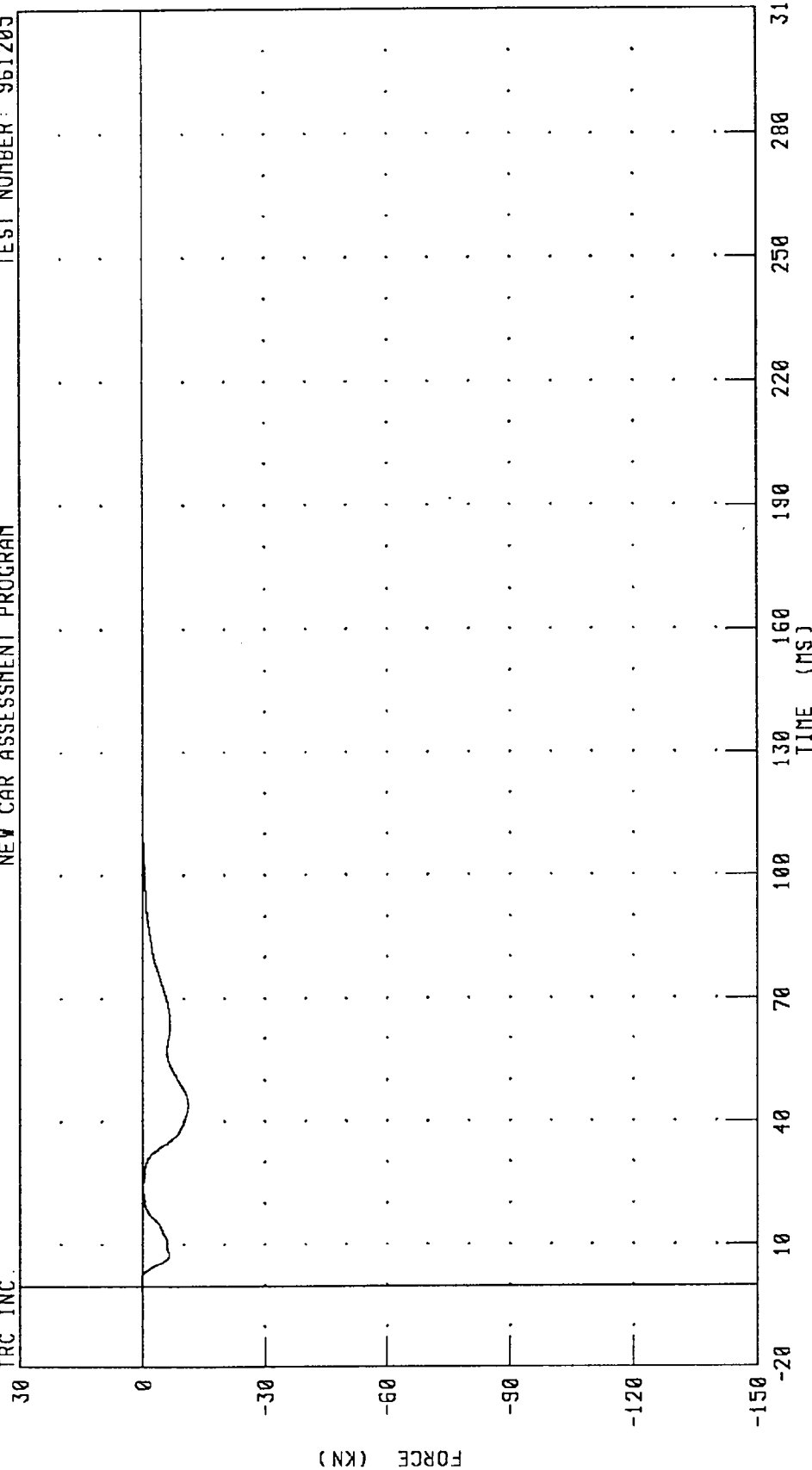
CHANNEL: B03F

1997 FORD CLUB WAGON VAN INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION D4 FORCE

TEST NUMBER: 961205

NEW CAR ASSESSMENT PROGRAM

TRC INC.



PEAK DATA: 0.32 KN @ 1.04 MS; -11.11 KN @ 44.16 MS

FILTER: CH. CLASS 60

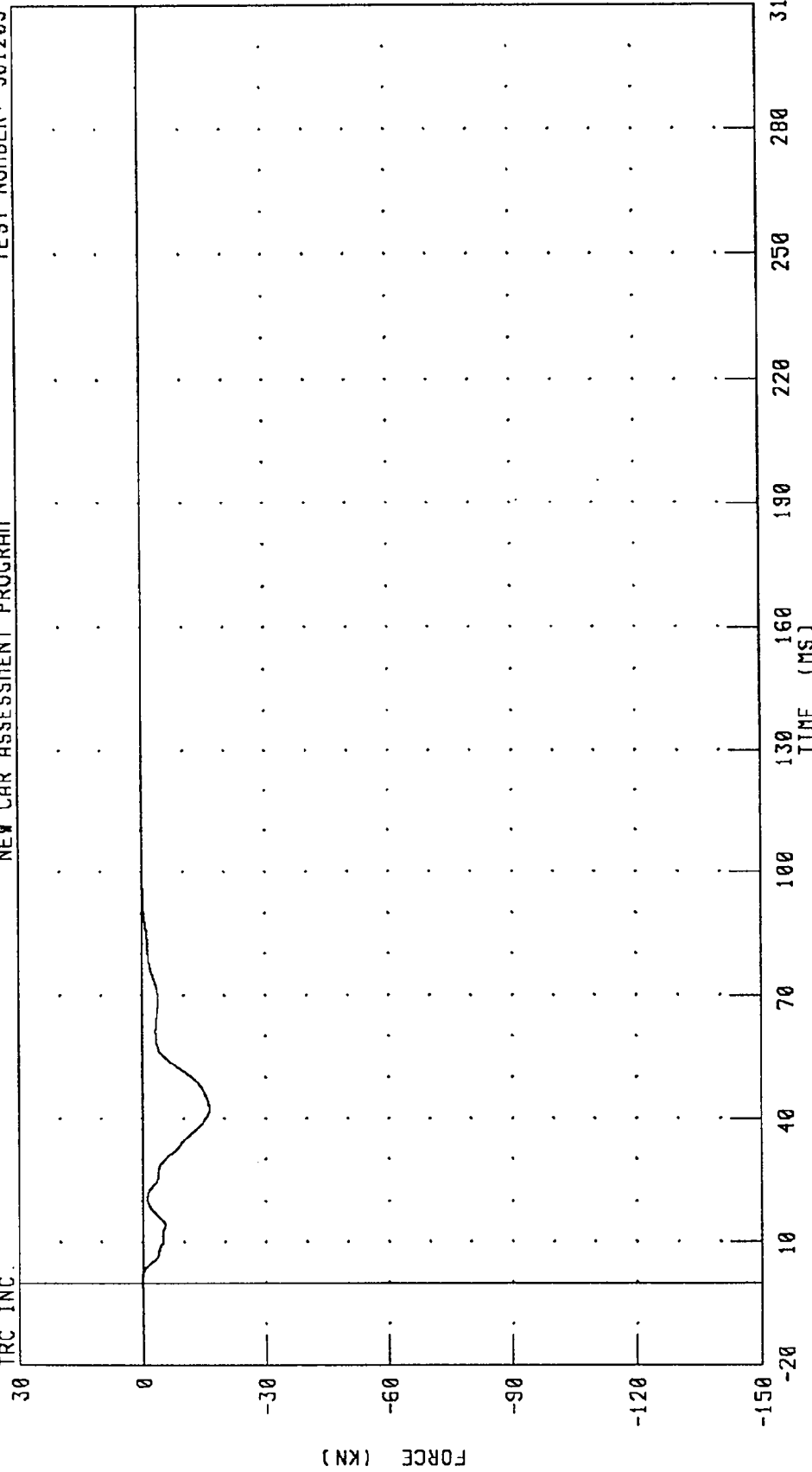
CHANNEL: BD4F

1997 FORD CLUB WAGON VAN INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION D5 FORCE

TEST NUMBER: 961205

NEW CAR ASSESSMENT PROGRAM

TRC INC.



PEAK DATA: 0.21 KN @ 0.88 MS; -16.27 KN @ 42.48 MS

FILTER: CH. CLASS 60

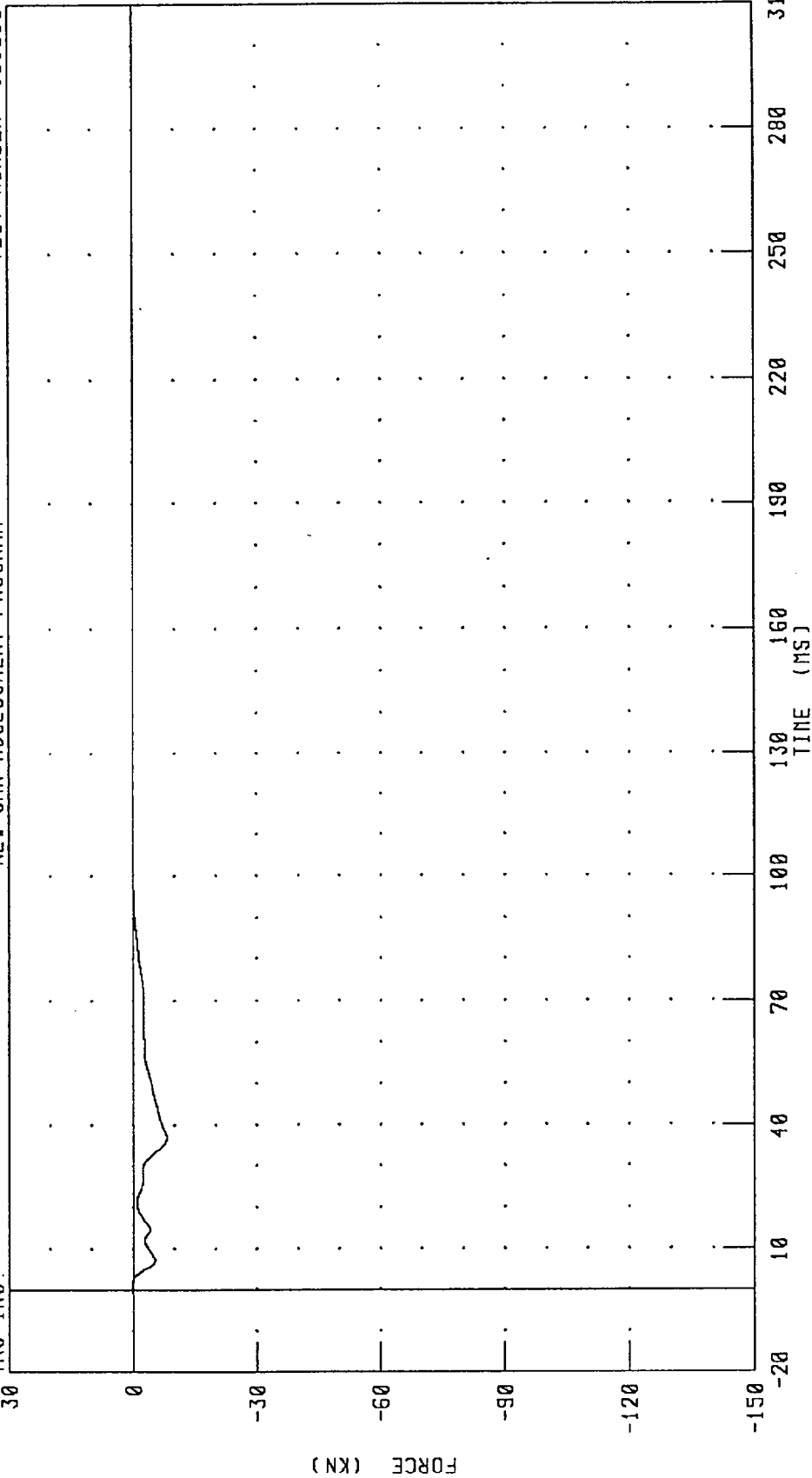
CHANNEL: B05F

1997 FORD CLUB WAGON VAN INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION D6 FORCE

TEST NUMBER: 961205

NEW CAR ASSESSMENT PROGRAM

TRC INC.



PEAK DATA: 0.23 KN @ 0.96 MS; -8.17 KN @ 37.04 MS

FILTER: CH. CLASS 60

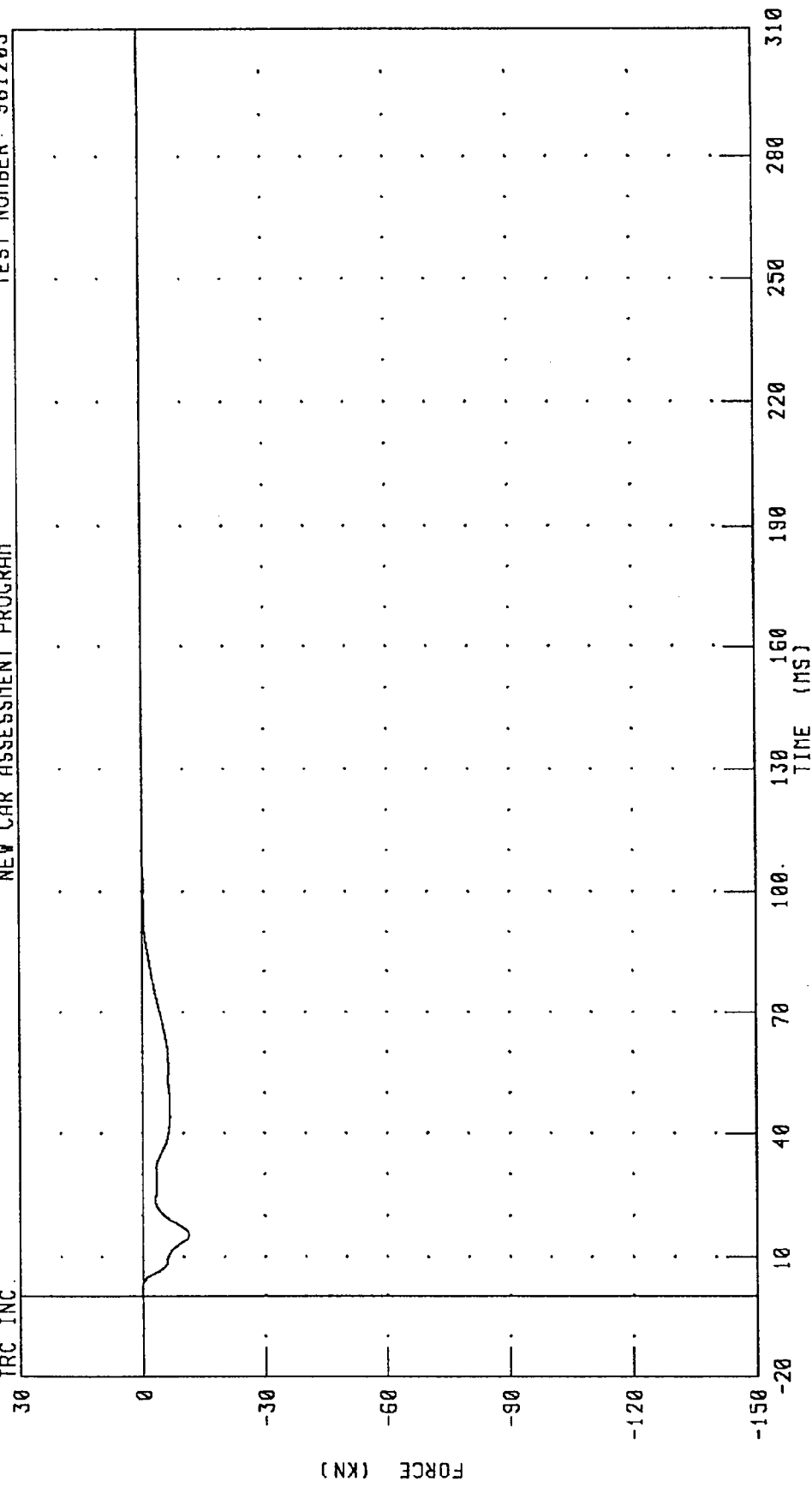
CHANNEL: BD6F

1997 FORD CLUB WAGON VAN INTO FRONTAL LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION D7 FORCE

TEST NUMBER: 961205

NEW CAR ASSESSMENT PROGRAM

TRC INC.



PEAK DATA: 0.16 KN @ 1.36 MS; -11.20 KN @ 15.44 MS

FILTER: CH. CLASS 60

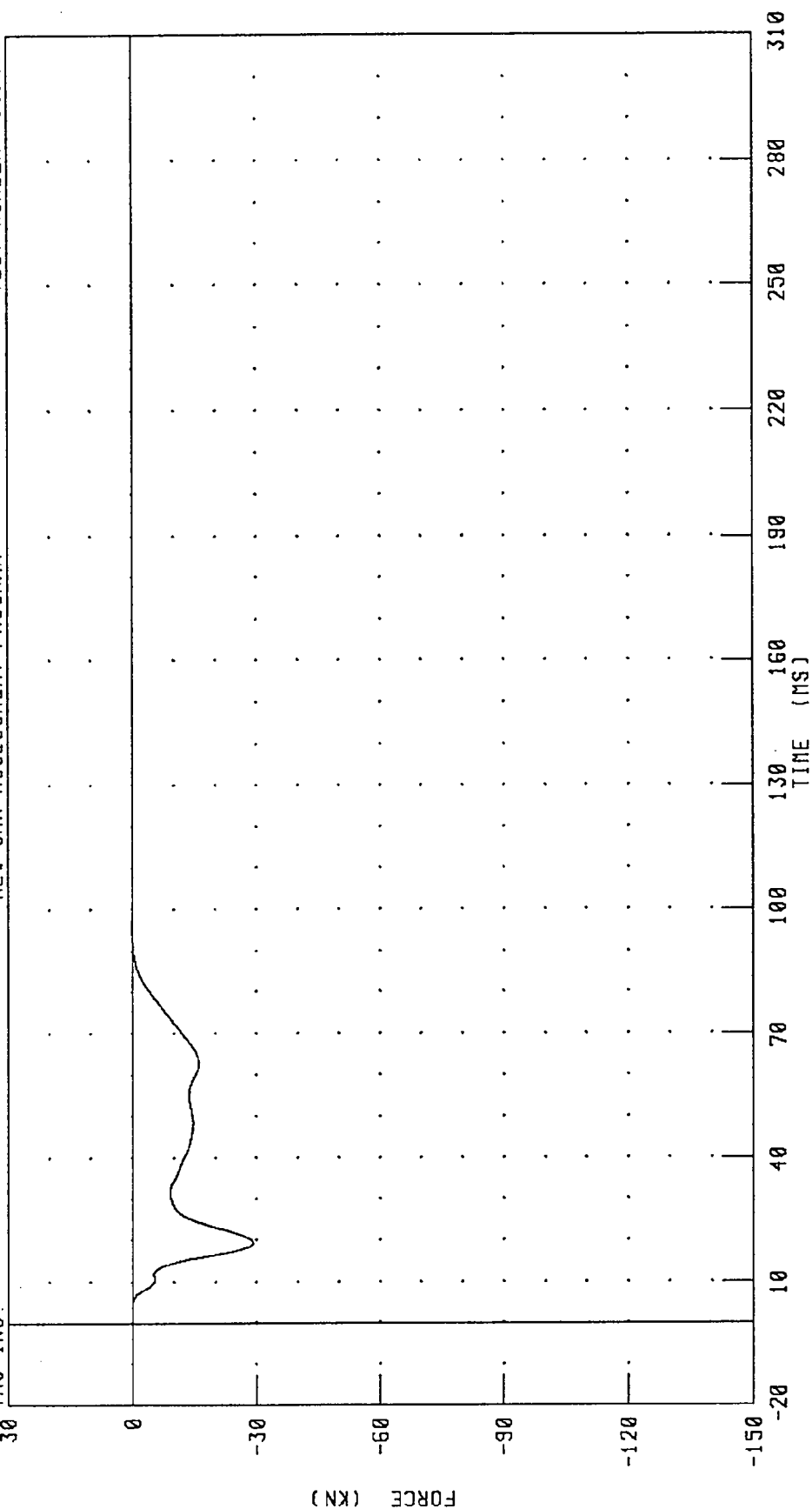
CHANNEL: B07F

1997 FORD CLUB WAGON VAN INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION D8 FORCE

TEST NUMBER: 961205

NEW CAR ASSESSMENT PROGRAM

TRC INC.



PEAK DATA: 0.11 KN @ 95.68 MS; -29.13 KN @ 19.36 MS

FILTER: CH. CLASS 60

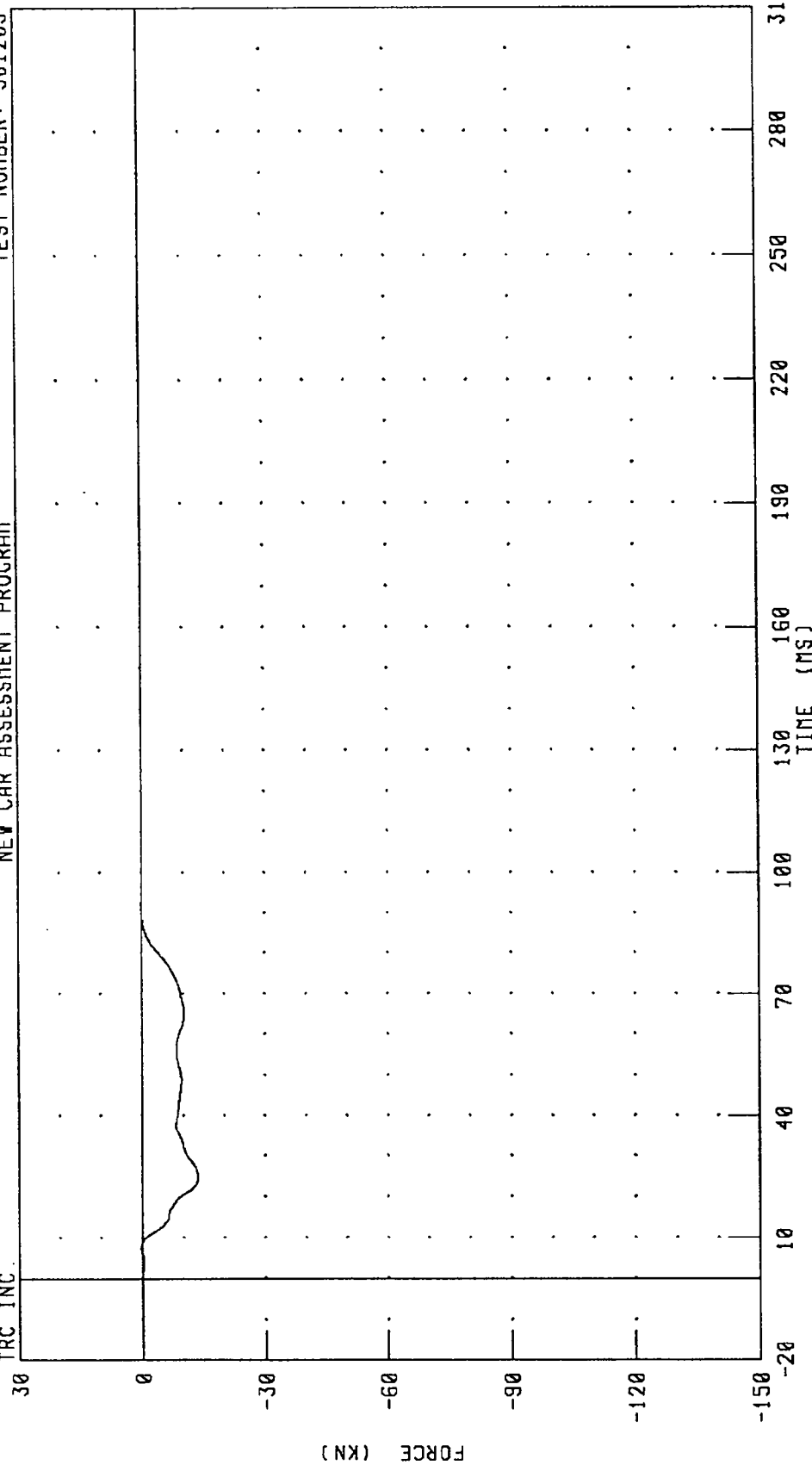
CHANNEL: BD8F

1997 FORD CLUB WAGON VAN INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION D9 FORCE

TEST NUMBER: 961205

NEW CAR ASSESSMENT PROGRAM

TRC INC.



PEAK DATA: 0.36 KN @ 7.44 MS; -13.54 KN @ 24.72 MS

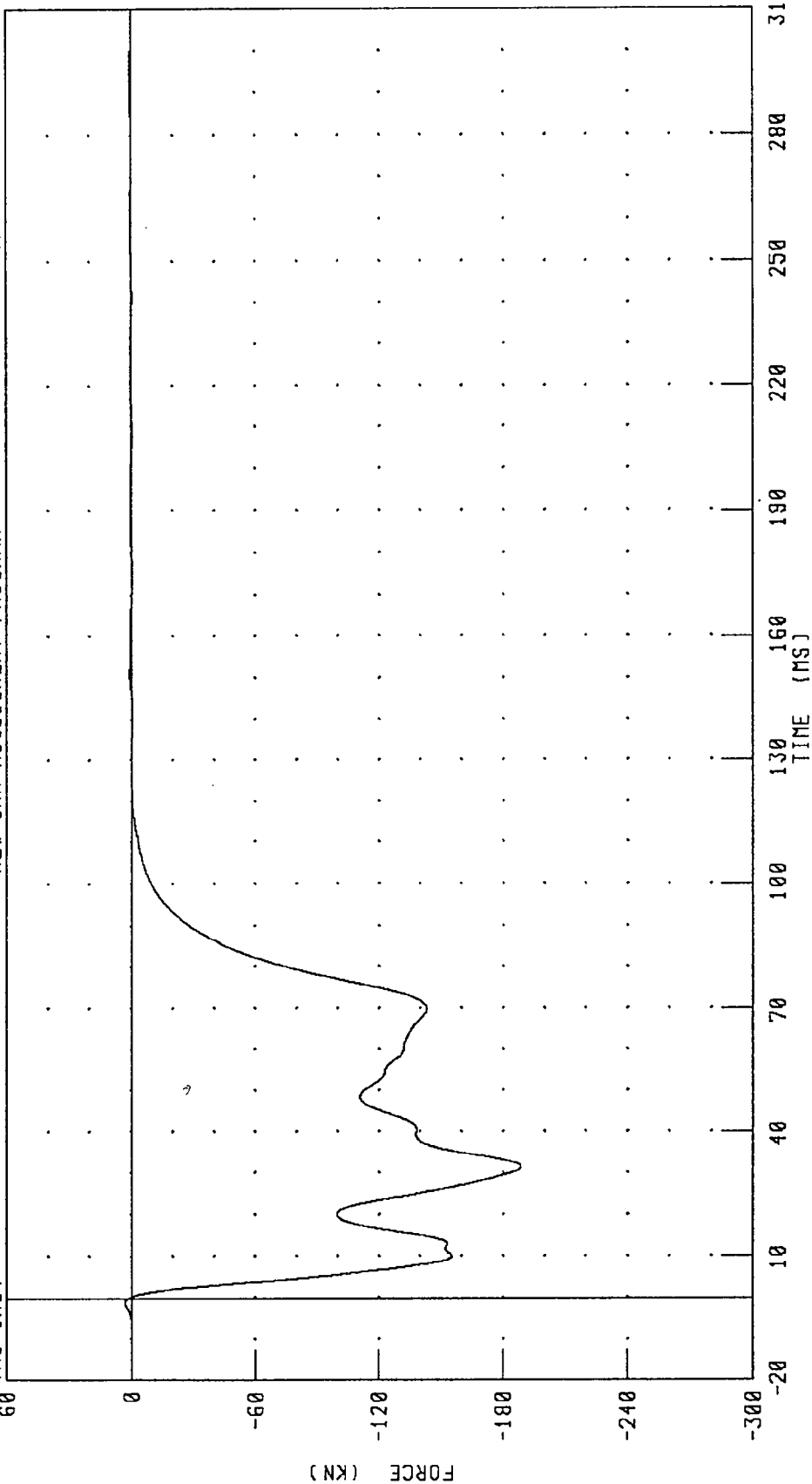
FILTER: CH. CLASS 60

CHANNEL: B09F

1997 FORD CLUB WAGON VAN INTO FRONTAL LOAD CELL BARRIER
 LOAD CELL BARRIER GROUP # 1 FORCE TOTAL
 NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 961205

TRC INC.

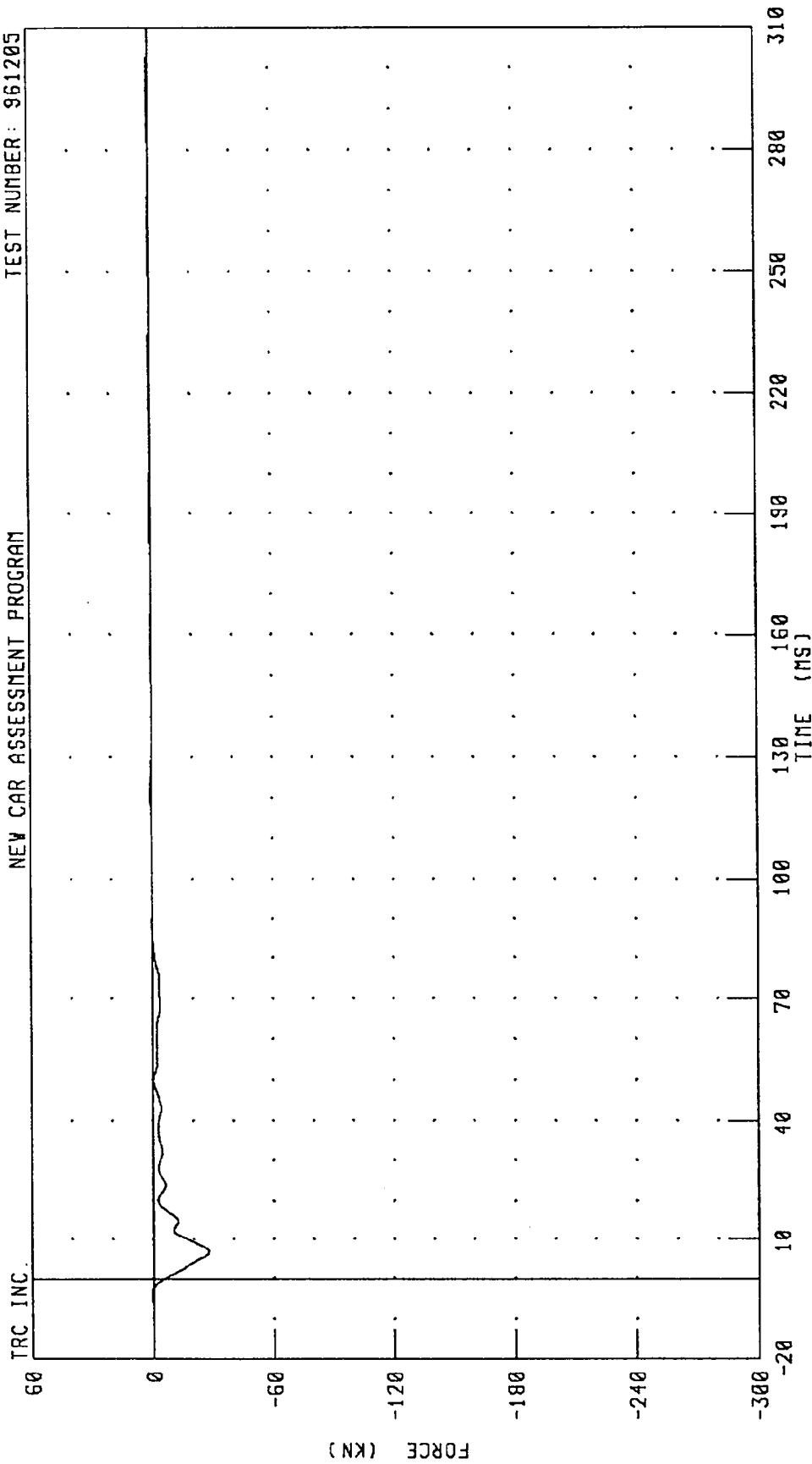


CHANNEL: LCBGIF FILTER: CH. CLASS 60

PEAK DATA: 2.89 KN @ -1.20 MS; -188.79 KN @ 31.44 MS

1997 FORD CLUB WAGON VAN INTO FRONTAL LOAD CELL BARRIER
 LOAD CELL BARRIER GROUP # 2 FORCE TOTAL
 NEW CAR ASSESSMENT PROGRAM

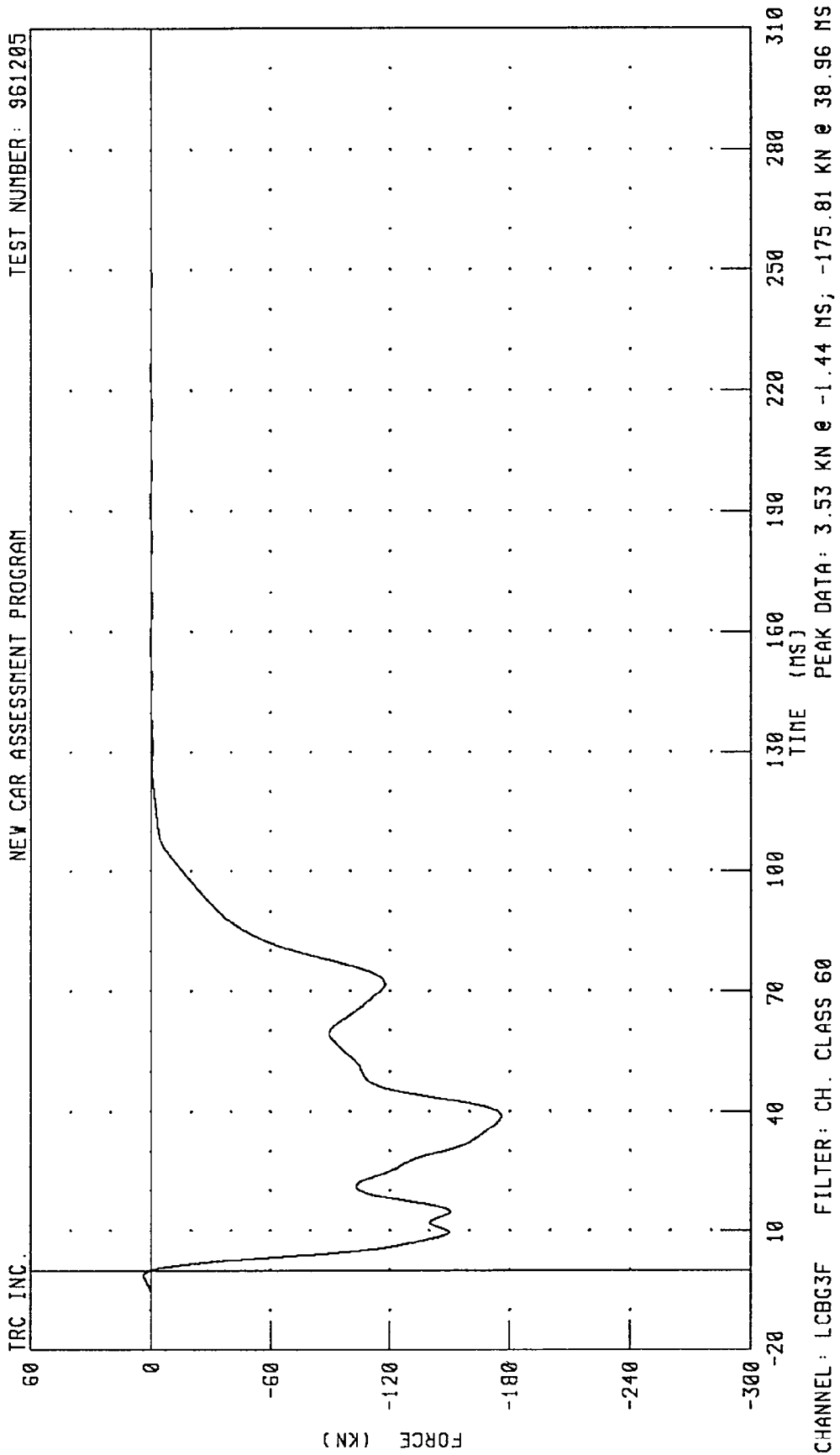
TEST NUMBER: 961205



CHANNEL: LCBG2F FILTER: CH. CLASS 60
 PEAK DATA: 0.78 KN @ 121.60 MS; -27.64 KN @ 6.72 MS

1997 FORD CLUB WAGON VAN INTO FRONTAL LOAD CELL BARRIER
 LOAD CELL BARRIER GROUP # 3 FORCE TOTAL
 NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 961205



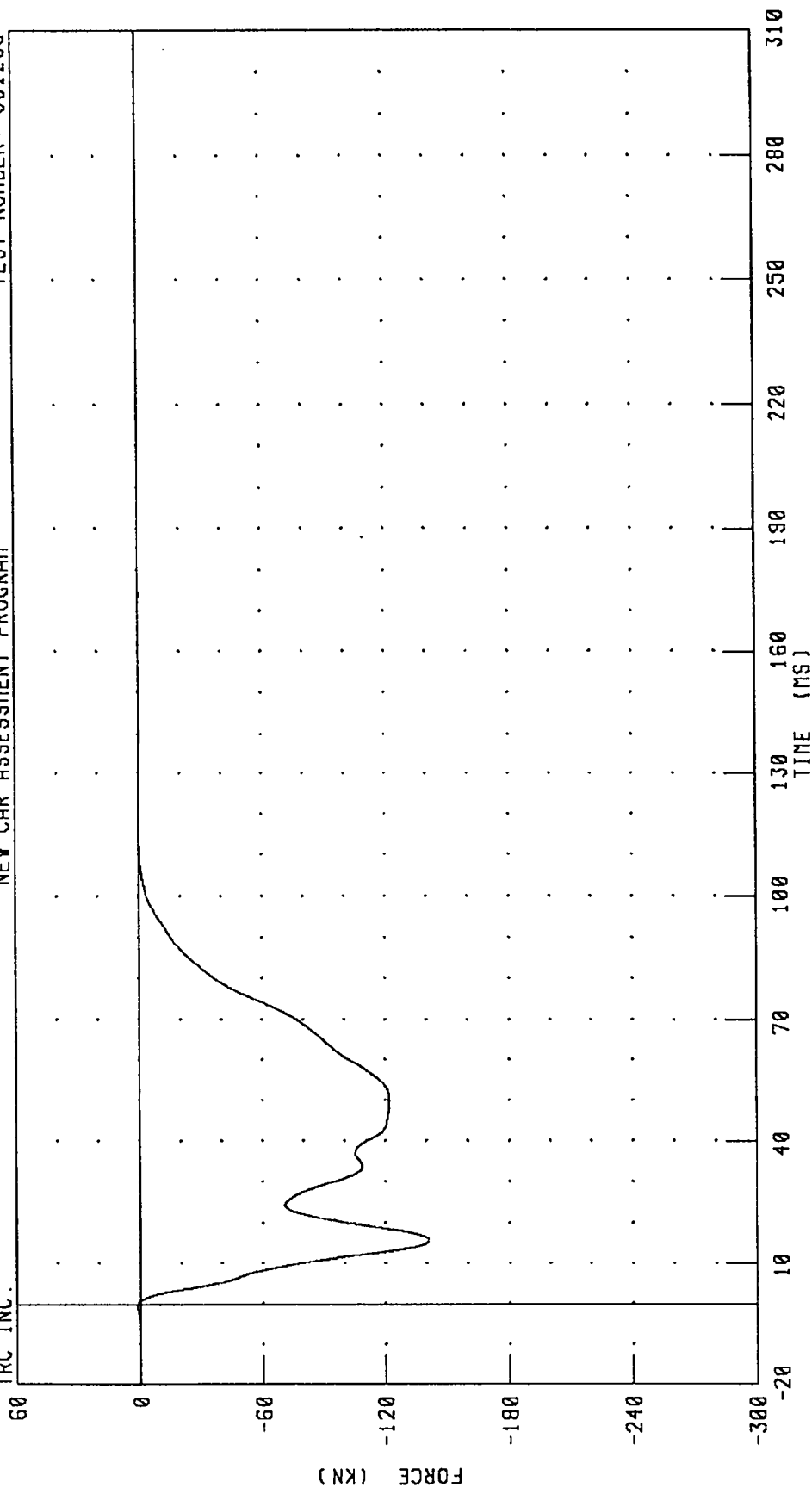
CHANNEL: LCBG3F FILTER: CH. CLASS 60

1997 FORD CLUB WAGON VAN INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER GROUP # 4 FORCE TOTAL

TEST NUMBER: 961205

NEW CAR ASSESSMENT PROGRAM

TRC INC.



PEAK DATA: 1.36 KN @ -0.72 MS; -141.03 KN @ 15.84 MS

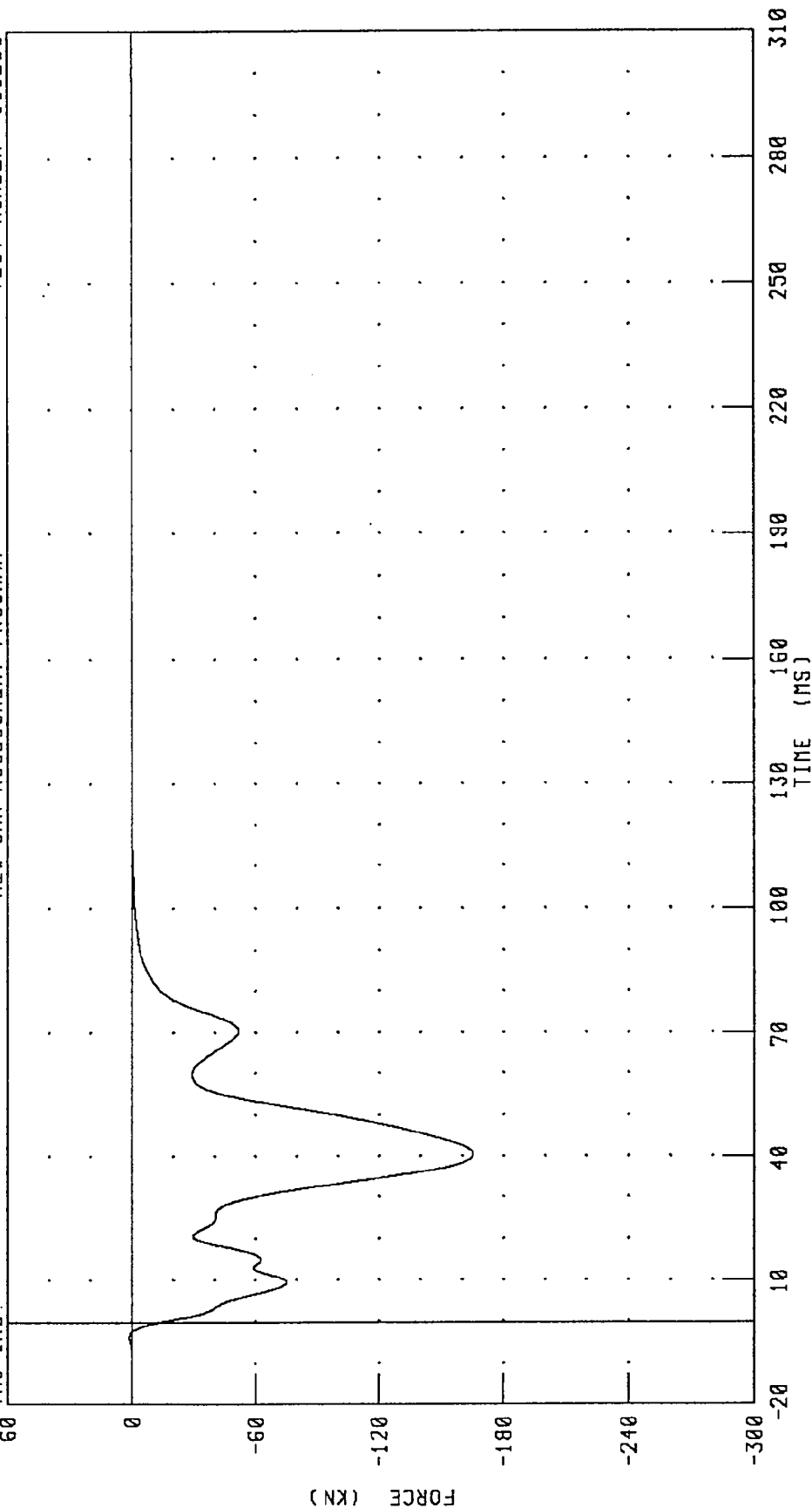
CHANNEL: LCBG4F FILTER: CH. CLASS 60

1997 FORD CLUB WAGON VAN INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER GROUP # 5 FORCE TOTAL

TEST NUMBER: 961205

NEW CAR ASSESSMENT PROGRAM

TRC INC.

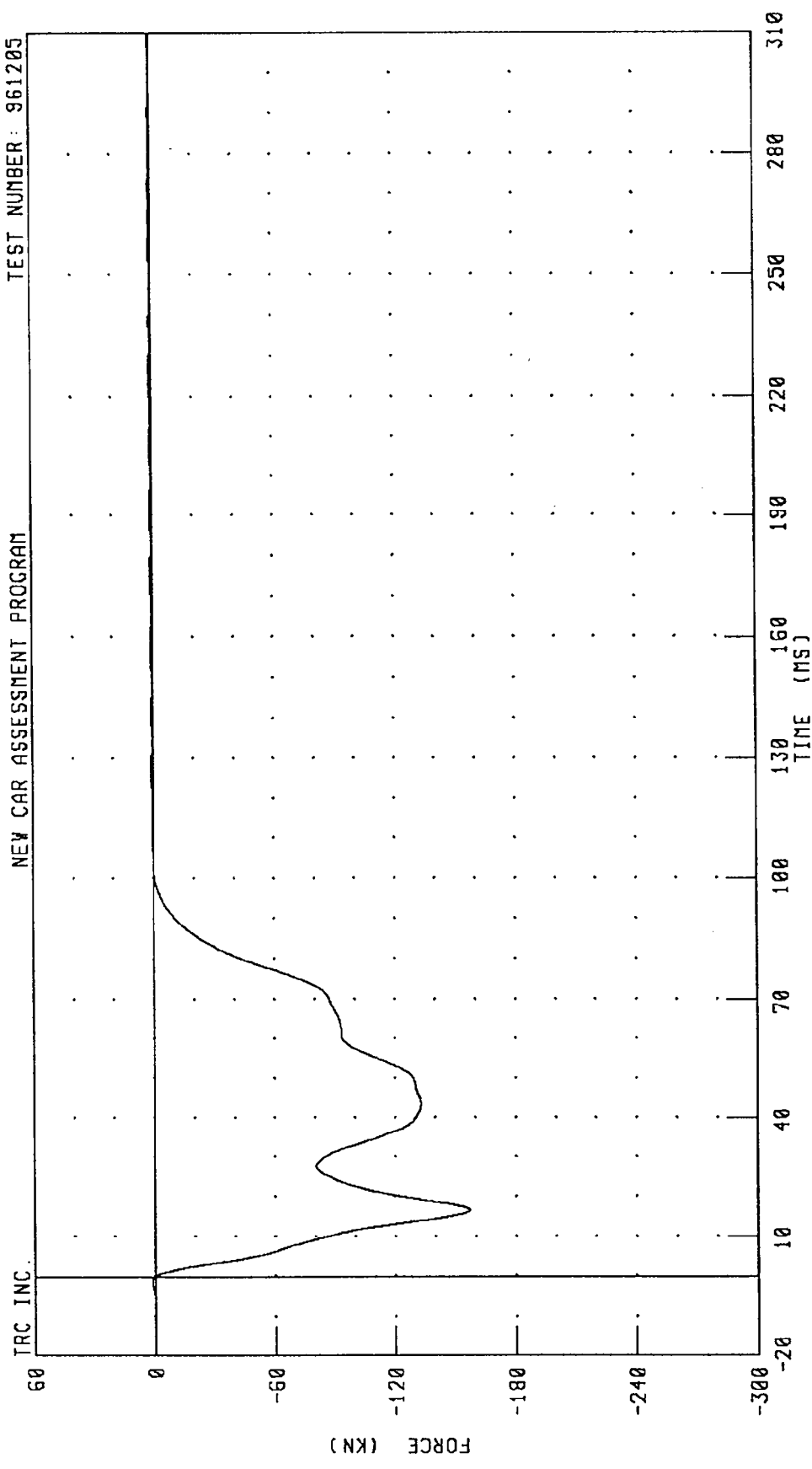


PEAK DATA: 1.25 KN @ -3.76 MS; -165.33 KN @ 40.64 MS

CHANNEL: LCBG5F FILTER: CH. CLASS 60

1997 FORD CLUB WAGON VAN INTO FRONTAL LOAD CELL BARRIER
 LOAD CELL BARRIER GROUP # 6 FORCE TOTAL
 NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 961205



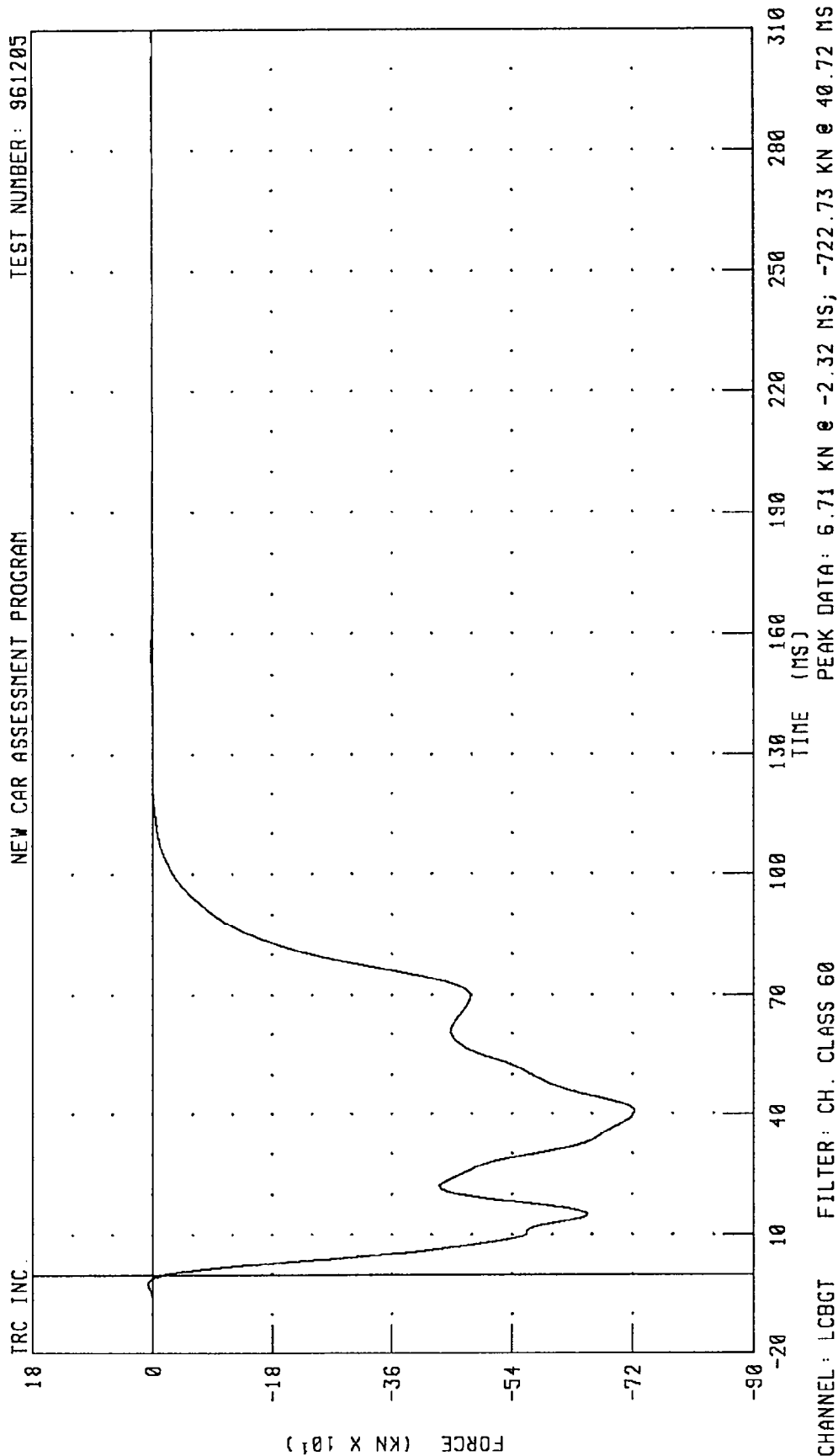
PEAK DATA: 1.52 KN @ -1.44 MS; -157.17 KN @ 16.64 MS

CHANNEL: LCBG6F FILTER: CH. CLASS 60

1997 FORD CLUB WAGON VAN INTO FRONTAL LOAD CELL BARRIER
 TOTAL LOAD CELL BARRIER FORCE
 NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 961205

TRC INC.



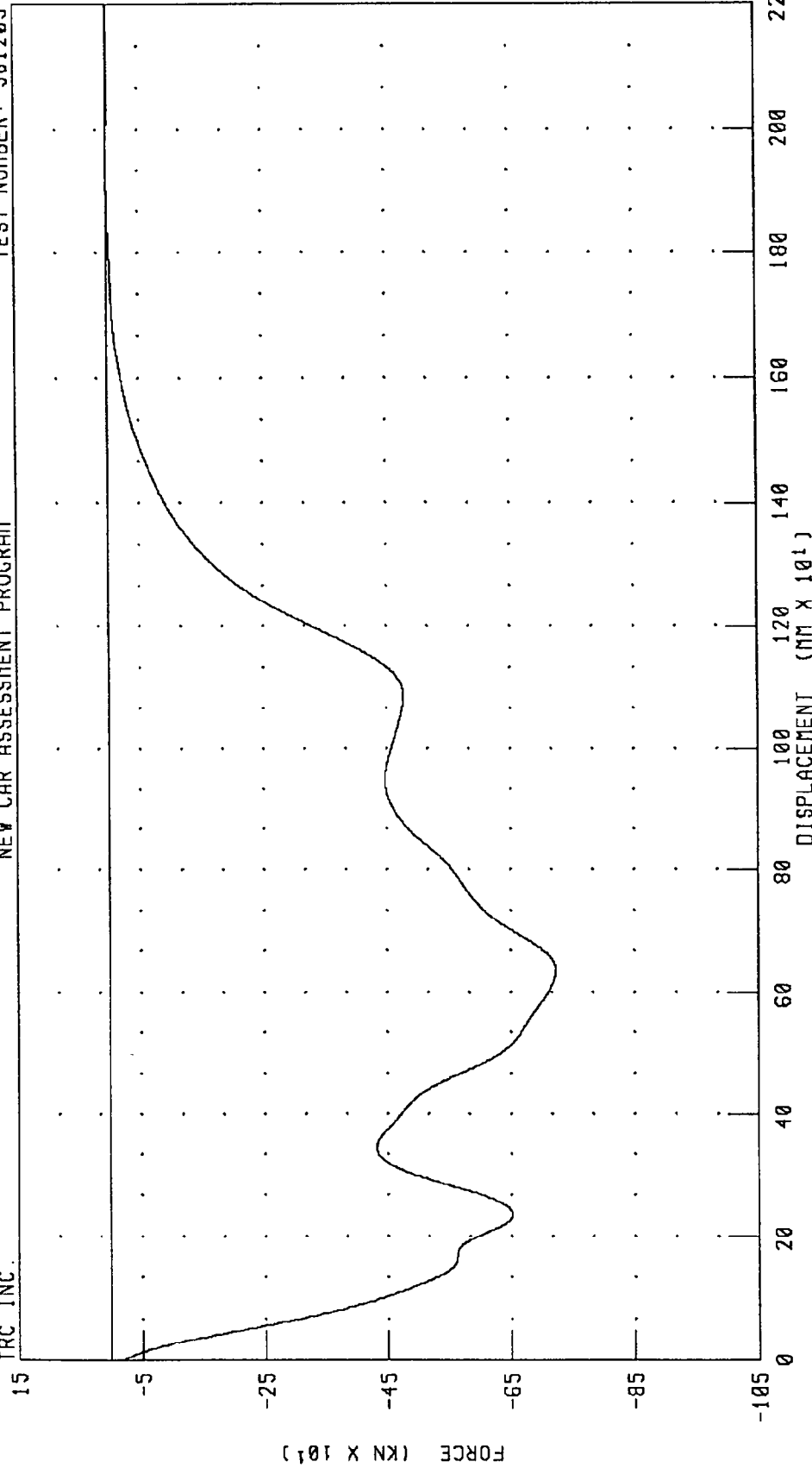
CHANNEL: LCBGT FILTER: CH. CLASS 60

1997 FORD CLUB WAGON VAN INTO FRONTAL LOAD CELL BARRIER
TOTAL LOAD CELL BARRIER FORCE VS AVERAGE VEHICLE X-AXIS DISPLACEMENT

TEST NUMBER: 961205

NEW CAR ASSESSMENT PROGRAM

TRC INC.



CHANNEL: 0THXD FILTER: CH. CLASS 180
LCBGT CH. CLASS 60
PEAK DATA: 4822.93 MM @ 310.00 MS; -0.00 MM @ 0.00 MS
2.19 KN @ 155.28 MS; -722.73 KN @ 40.72 MS

Appendix C

Dummy Certification Data

Pre-test Certification Data

Driver Dummy S/N: 192

TRANSPORTATION RESEARCH CENTER INC.
HYBRID III EXTERNAL DIMENSIONS
SN 192 ALDERSON

21-NOV-96

TRC INC. TEST NO: 192C34ED1 572E SN192 EXT.DIMENSION CAL34

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 *Richard L. Van*

RUN NUMBER: 112196.1005

TRANSPORTATION RESEARCH CENTER INC.

HEAD DROP TEST

HYBRID III

22-NOV-96

TRC INC.

TEST NO: 192C34HD1

572E SN192 HEAD DROP CAL 34

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	18.9-25.6 DEG. C	21.1 DEG. C
RELATIVE HUMIDITY	10 - 70 %	30.0 %
PEAK RESULTANT ACCELERATION	225 - 275 G	256.79 G
PEAK LATERAL ACCELERATION	15 G MAX	6.49 G
IS ACCELERATION CURVE UNIMODAL?	YES	YES

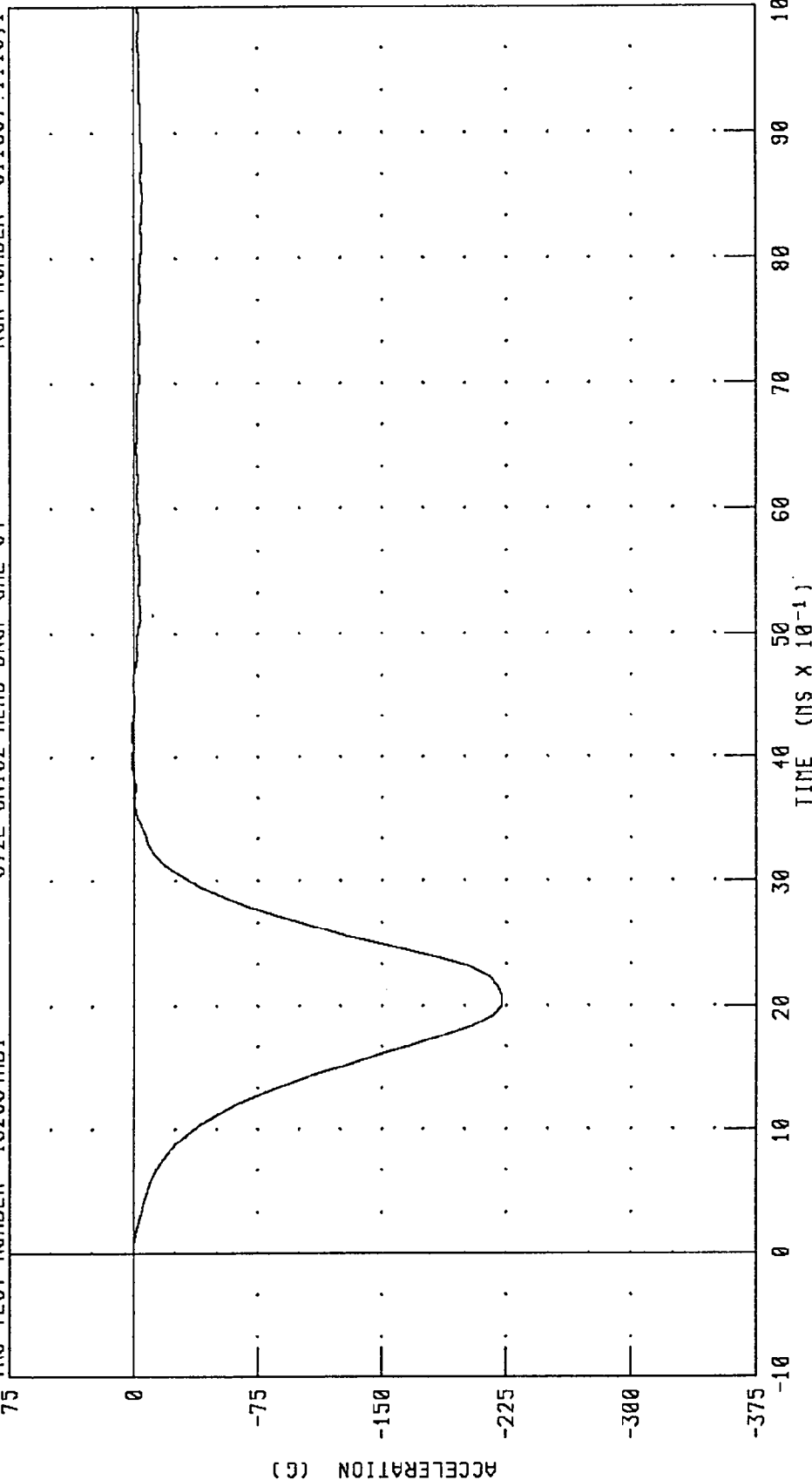
TEST MEETS SPECIFICATIONS

TECHNICIAN Richard L. Lora

RUN NUMBER: 112296.1248;1

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

TRC TEST NUMBER: 192C34HD1 572E SN192 HEAD DRQP CAL 34 RUN NUMBER: 011097.1115;1



PEAK DATA: 1.40 G @ 3.92 MS; -222.59 G @ 2.00 MS

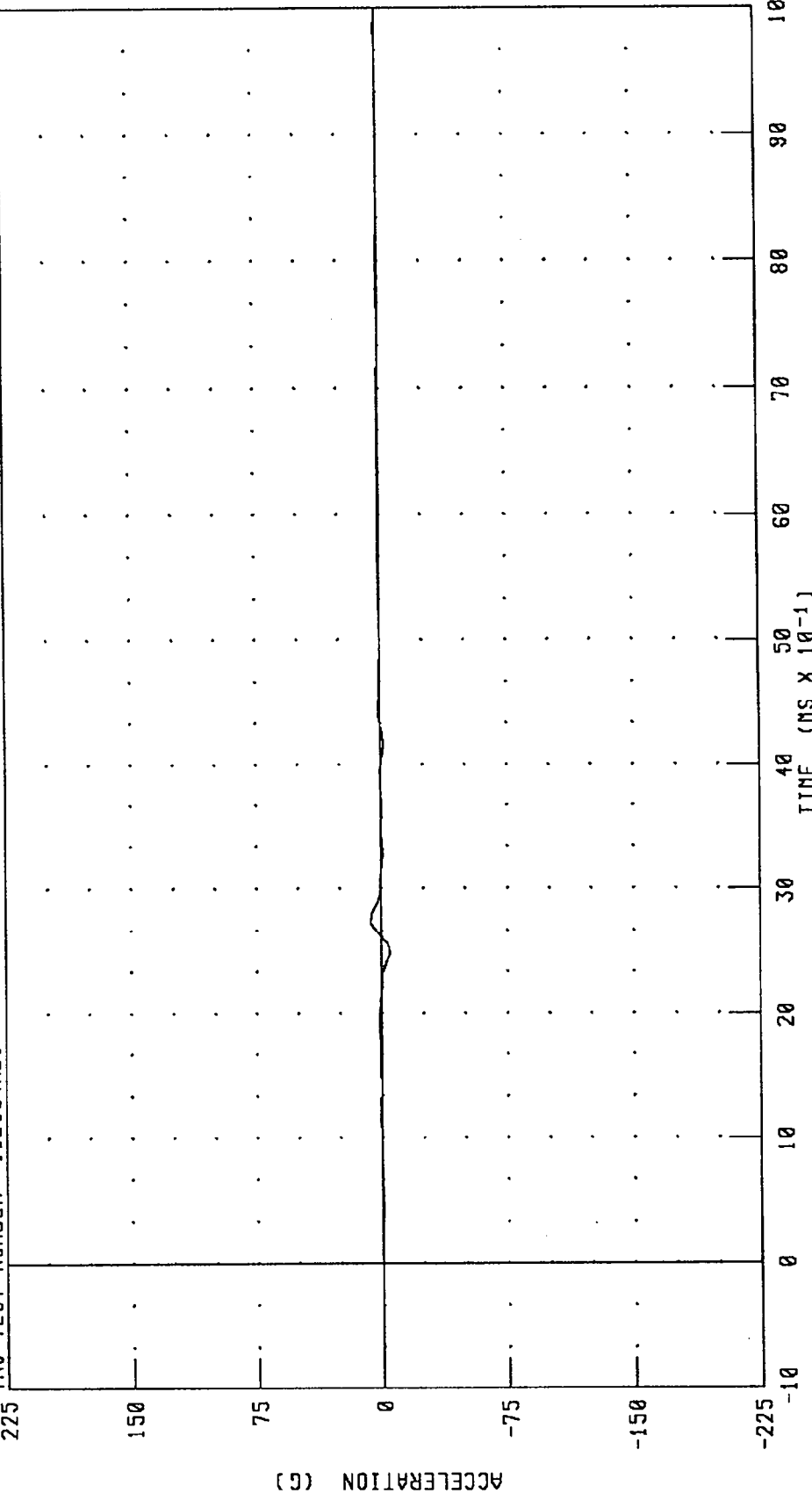
CHANNEL: HEDXG FILTER: CH. CLASS 1000

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

TRC TEST NUMBER: 192C34HD1

572E SN192 HEAD DROP CAL 34

RUN NUMBER: 011097.1115.1



PEAK DATA: 6.50 G @ 2.72 MS; -5.20 G @ 2.48 MS

CHANNEL: HEDYG FILTER: CH. CLASS 1000

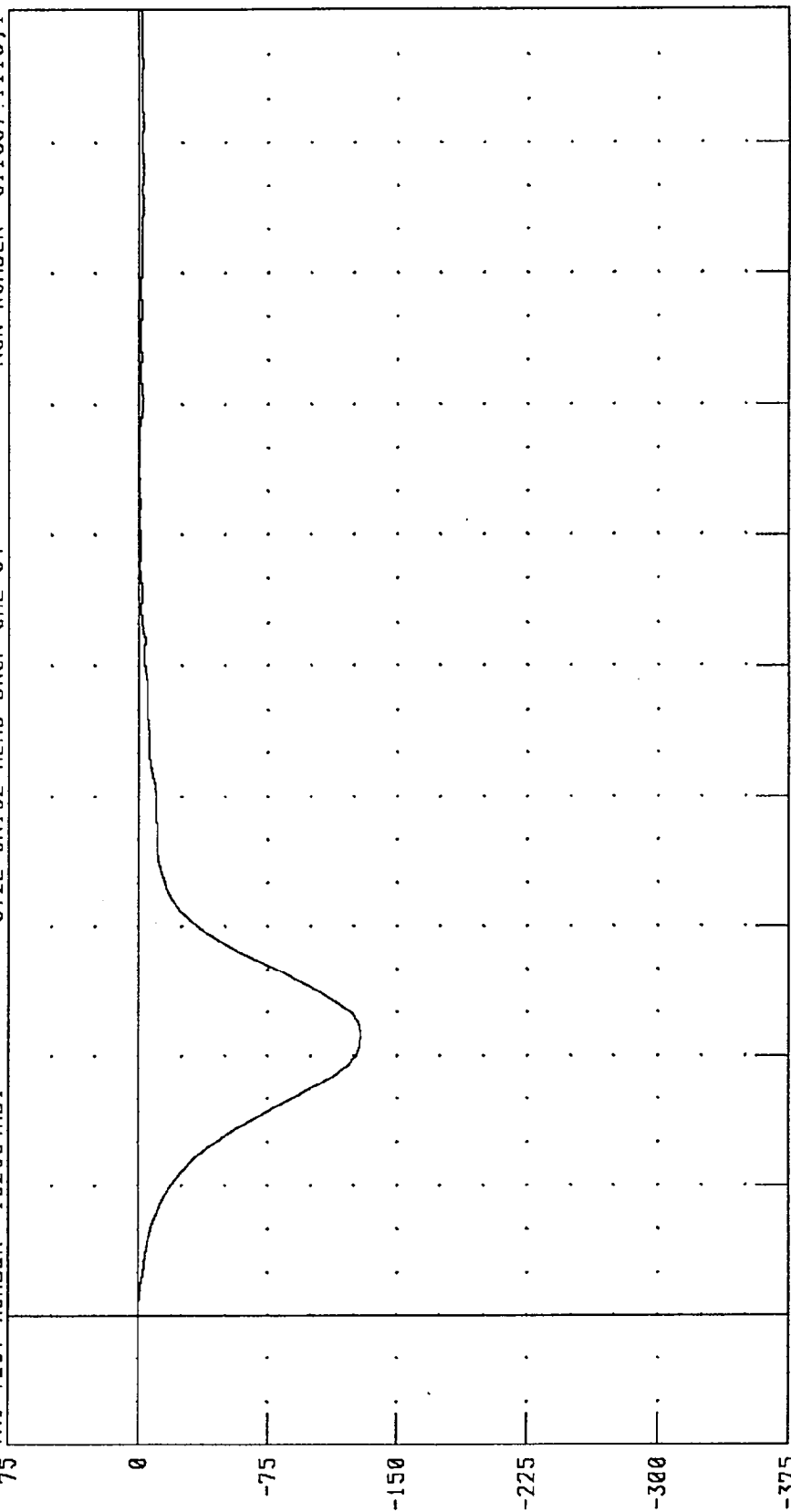
PART 572-E HYBRID III HEAD CALIBRATION
HEAD ACCELERATION Z AXIS

TRC TEST NUMBER: 192C34HD1

572E SN192 HEAD DROP CAL 34

RUN NUMBER: 011087.1115;1

75



ACCELERATION (G)

TIME (MS X 10⁻¹)

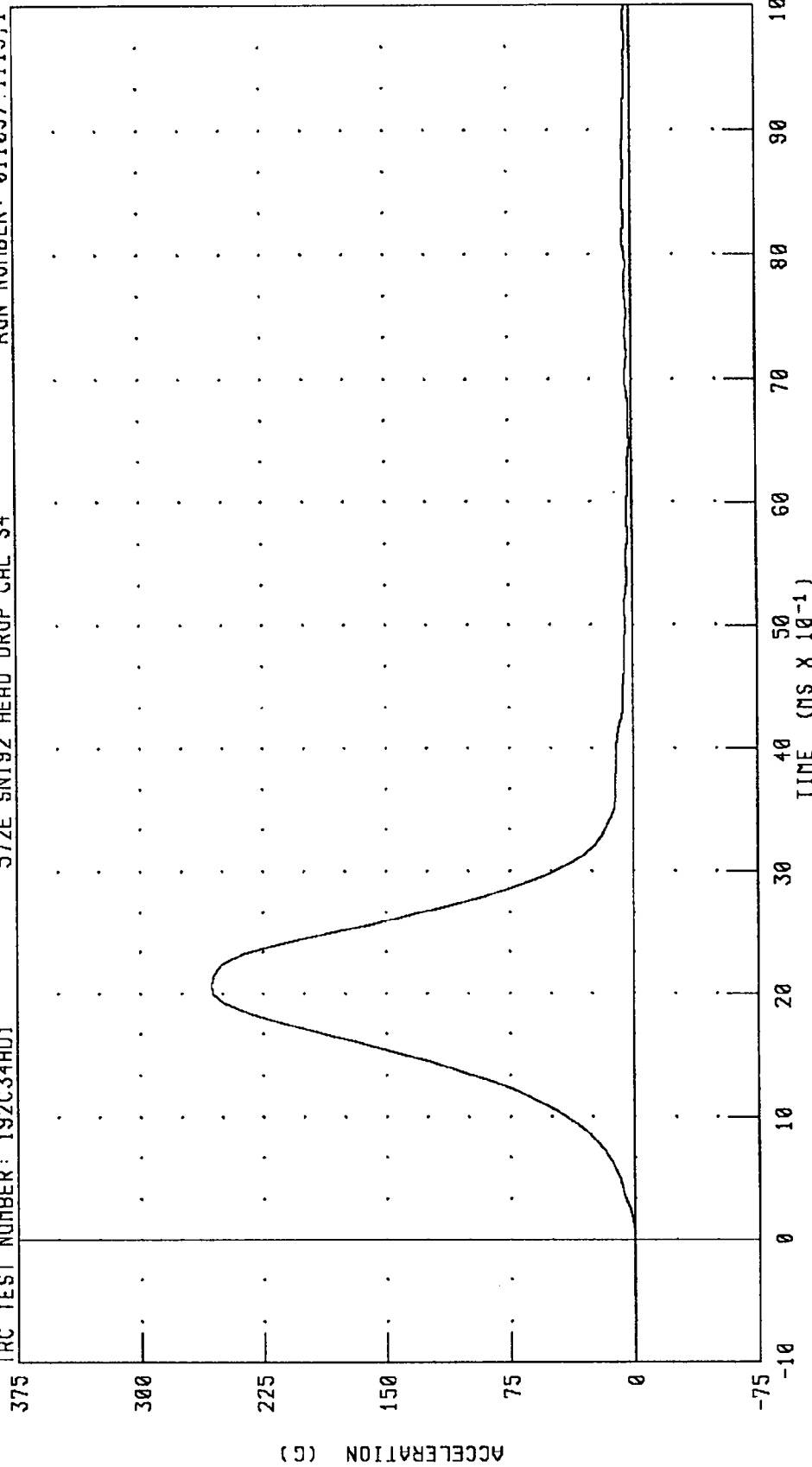
CHANNEL: HEDZG FILTER: CH. CLASS 1000

PEAK DATA: 0.01 G @ 0.00 MS; -129.18 G @ 2.16 MS

PART 572-E HYBRID III HEAD CALIBRATION
HEAD RESULTANT ACCELERATION

572E SN192 HEAD DROP CAL 34 RUN NUMBER: 011097.1115,1

TRC TEST NUMBER: 192C34HD1



PEAK DATA: 256.79 G @ 2.08 MS; 0.18 G @ 0.00 MS

CHANNEL: HEDRG FILTER: CH. CLASS 1000

TRANSPORTATION RESEARCH CENTER INC.

NECK FLEXION TEST - 6 CHANNEL TRANSDUCER

HYBRID III

26-NOV-96

TRC INC. TEST NO: 192C34NF1 572E SN192 NECK FLEXION CAL34

TEST PARAMETER		SPECIFICATION	TEST RESULTS
TEMPERATURE		20.6-22.2 DEG. C	21.1 DEG. C
RELATIVE HUMIDITY		10 - 70 %	36.0 %
IMPACT VELOCITY		6.89 - 7.13 M/S	6.93 M/S
PENDULUM DECELERATION	10 MS	22.50 - 27.50 G	23.76 G
	20 MS	17.60 - 22.60 G	21.82 G
	30 MS	12.50 - 18.50 G	17.80 G
MAX PENDULUM G		29 G MAX	24.31 G
MAX PENDULUM G ABOVE 30 MS		29 G MAX	17.76 G
DECELERATION-TIME CURVE DECAY TIME TO 5 G		34 - 42 MS	35.20 MS
D PLANE	MAX	64 - 78 DEG.	68.81 DEG.
ROTATION	TIME	57 - 64 MS	57.84 MS
MOMENT ABOUT OCCIPITAL CONDYLE	MAX	88.2 - 108.5 NM	101.59 NM
	TIME	47 - 58 MS	48.24 MS
ROTATION ANGLE-TIME CURVE DECAY TIME TO ZERO		113 - 128 MS	113.12 MS
POSITIVE MOMENT-TIME CURVE DECAY TIME TO ZERO		97 - 107 MS	98.08 MS

TEST MEETS SPECIFICATIONS

TECHNICIAN Richard Le Van

RUN NUMBER: 112696.1606;2

PART 572-E HYBRID III NECK FLEXION CALIBRATION
PENDULUM DECELERATION

TRC TEST NUMBER: 192C34NF1

572E SNI92 NECK FLEXION CAL34

RUN NUMBER: 011097.1115;2

400

320

ACCELERATION (G X 10⁻¹)

240

160

80

0

-80

-20

0

20

40

60

80

100

120

140

160

180

200

TIME (MS)

PEAK DATA: 24.32 G @ 8.96 MS; -3.81 G @ 41.28 MS

CHANNEL: PENXG FILTER: CH. CLASS 60

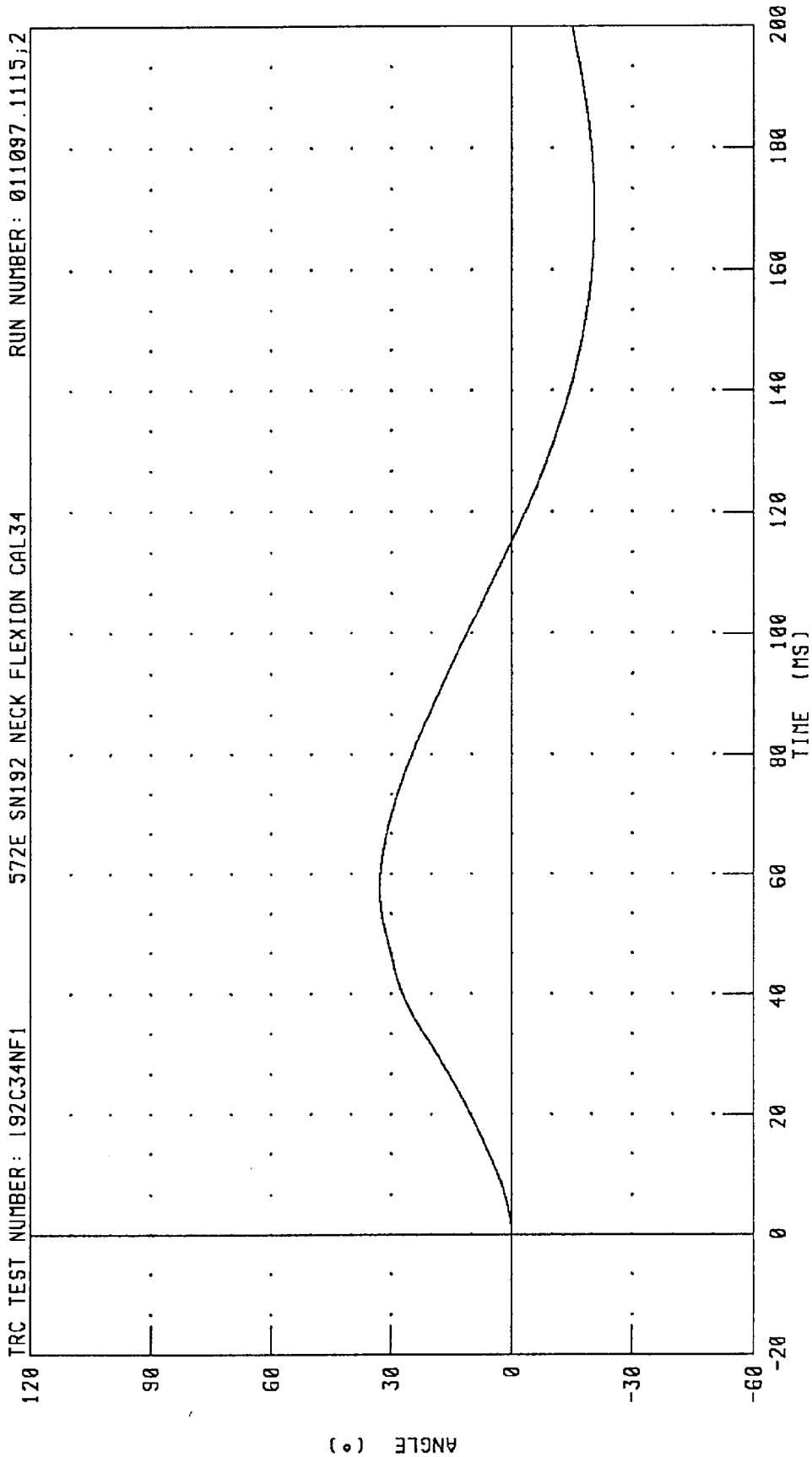
PART 572-E HYBRID III NECK FLEXION CALIBRATION

ROTATION ABOUT BASE OF NECK

TRC TEST NUMBER: 192C34NF1

572E SN192 NECK FLEXION CAL34

RUN NUMBER: 011097.1115;2



PEAK DATA: 32.80 ° @ 57.68 MS; -20.53 ° @ 168.80 MS

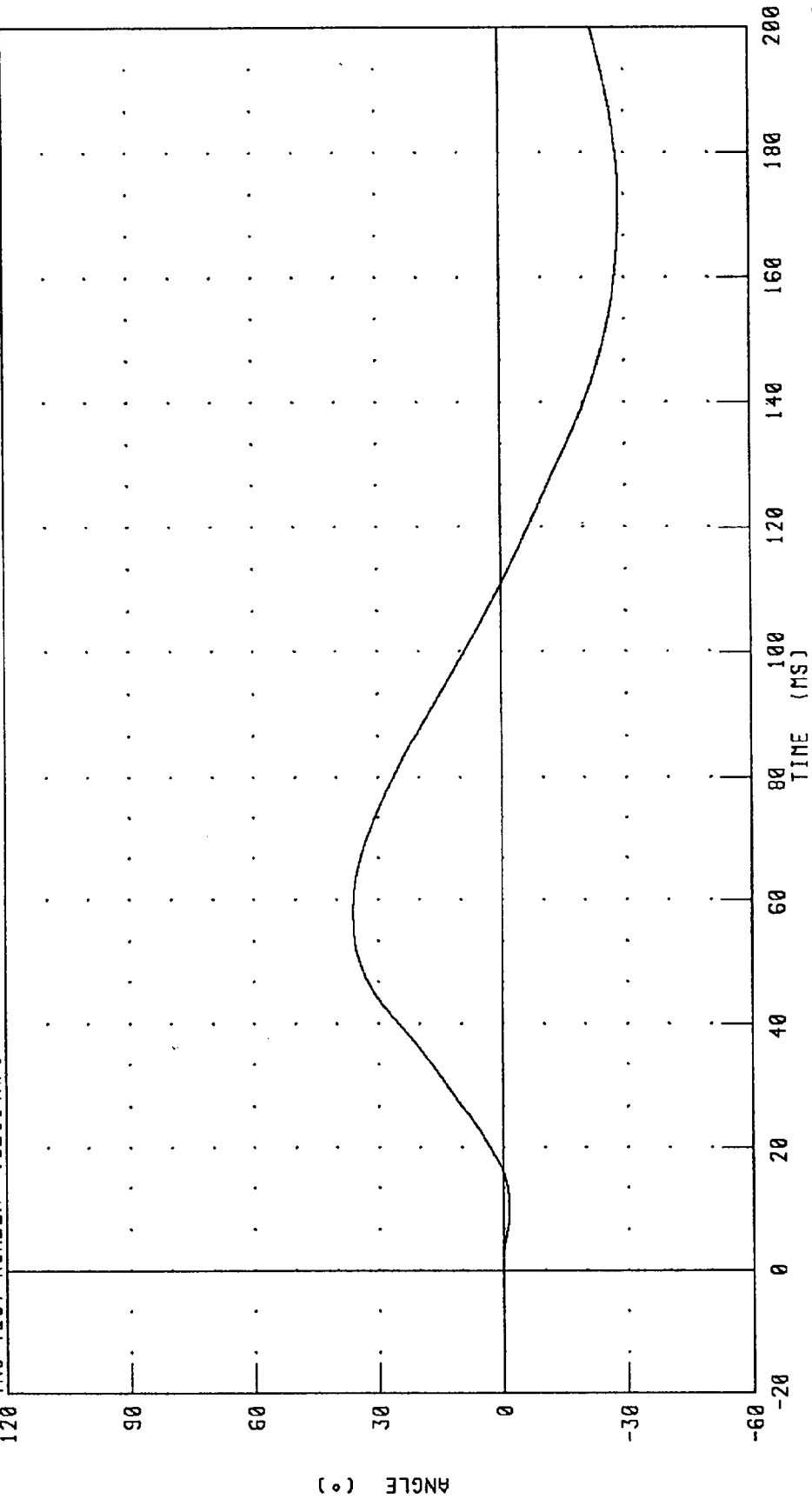
CHANNEL: BETA FILTER: CH. CLASS 60

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

TRC TEST NUMBER: 192C34NF1

572E SN192 NECK FLEXION CAL34

RUN NUMBER: 011097.1115;2



PEAK DATA: 36.02 ° @ 58.00 MS; -28.65 ° @ 172.08 MS

CHANNEL: THETA FILTER: CH. CLASS.60

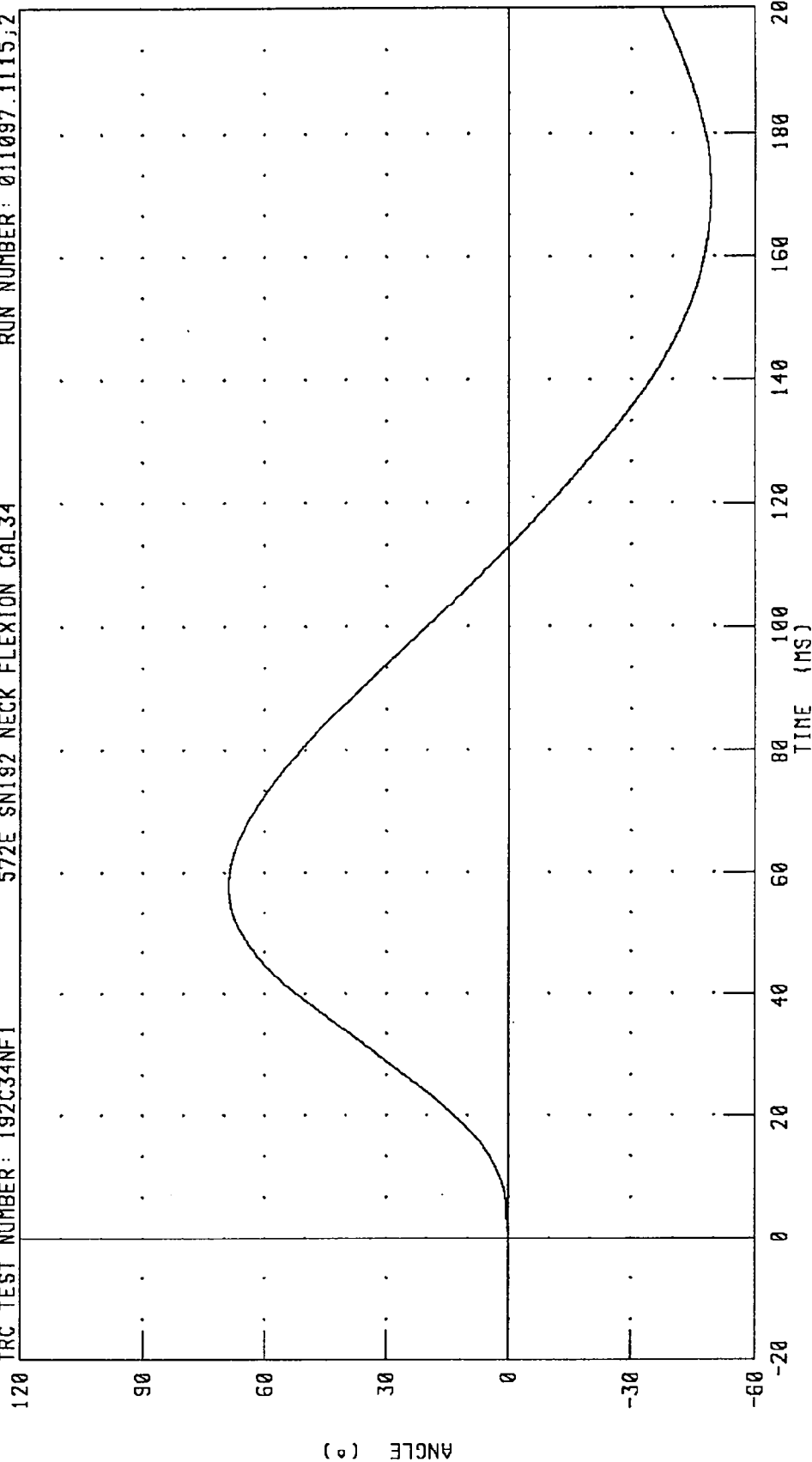
PART 572-E HYBRID III NECK FLEXION CALIBRATION

TOTAL ROTATION

TRC TEST NUMBER: 192C34NF1

572E SN192 NECK FLEXION CAL34

RUN NUMBER: 011097.1115.2



CHANNEL: TOTAN FILTER: CH. CLASS 60

PEAK DATA: 68.82 ° @ 57.84 MS; -49.16 ° @ 170.16 MS

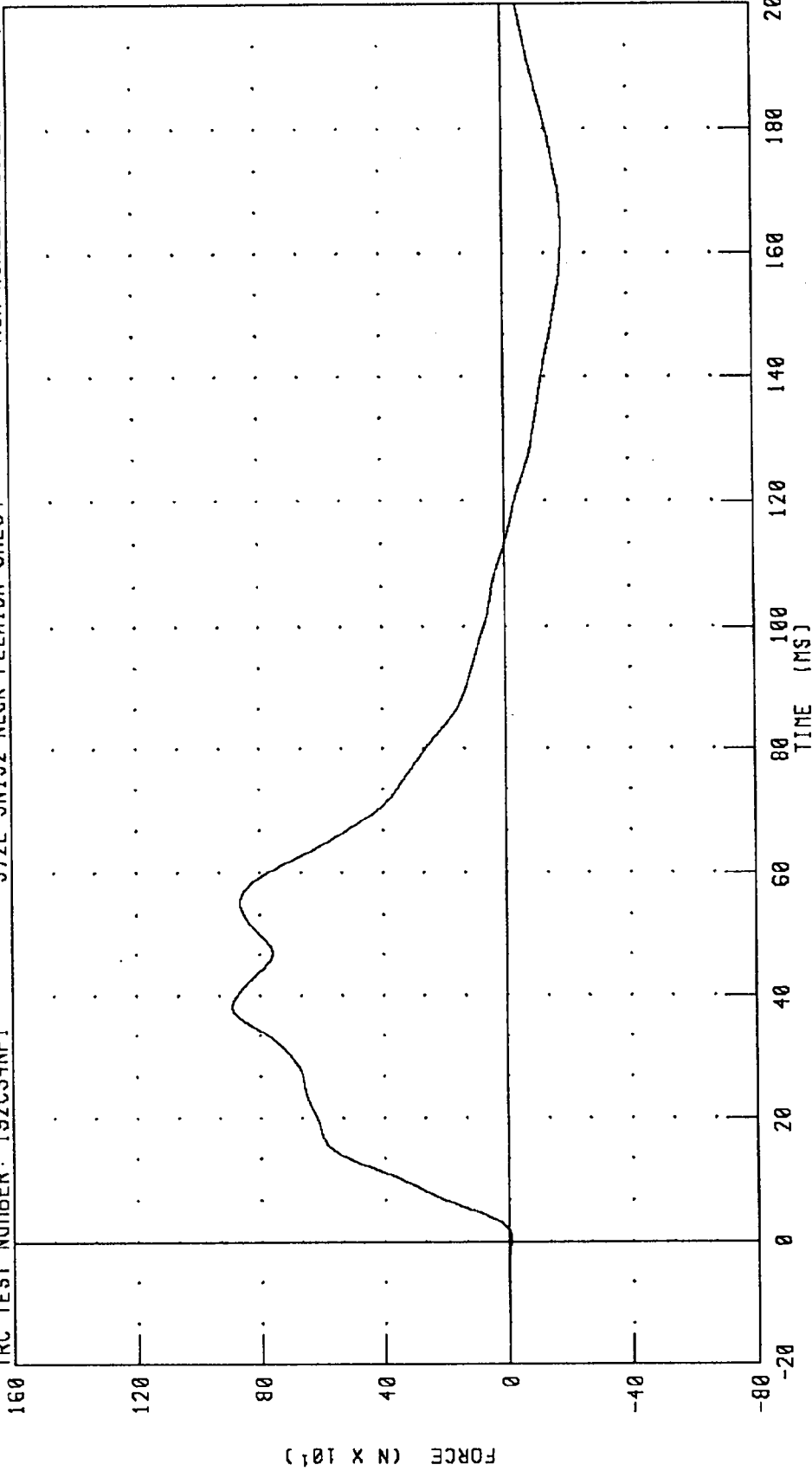
PART 572-E HYBRID III NECK FLEXION CALIBRATION

NECK FORCE X AXIS

RUN NUMBER: 011097.1115.2

TRC TEST NUMBER: 192C34NF1

572E SN192 NECK FLEXION CAL34



PEAK DATA: 890.79 N @ 38.16 MS; -188.38 N @ 163.20 MS

CHANNEL: NEKXF FILTER: CH. CLASS 60

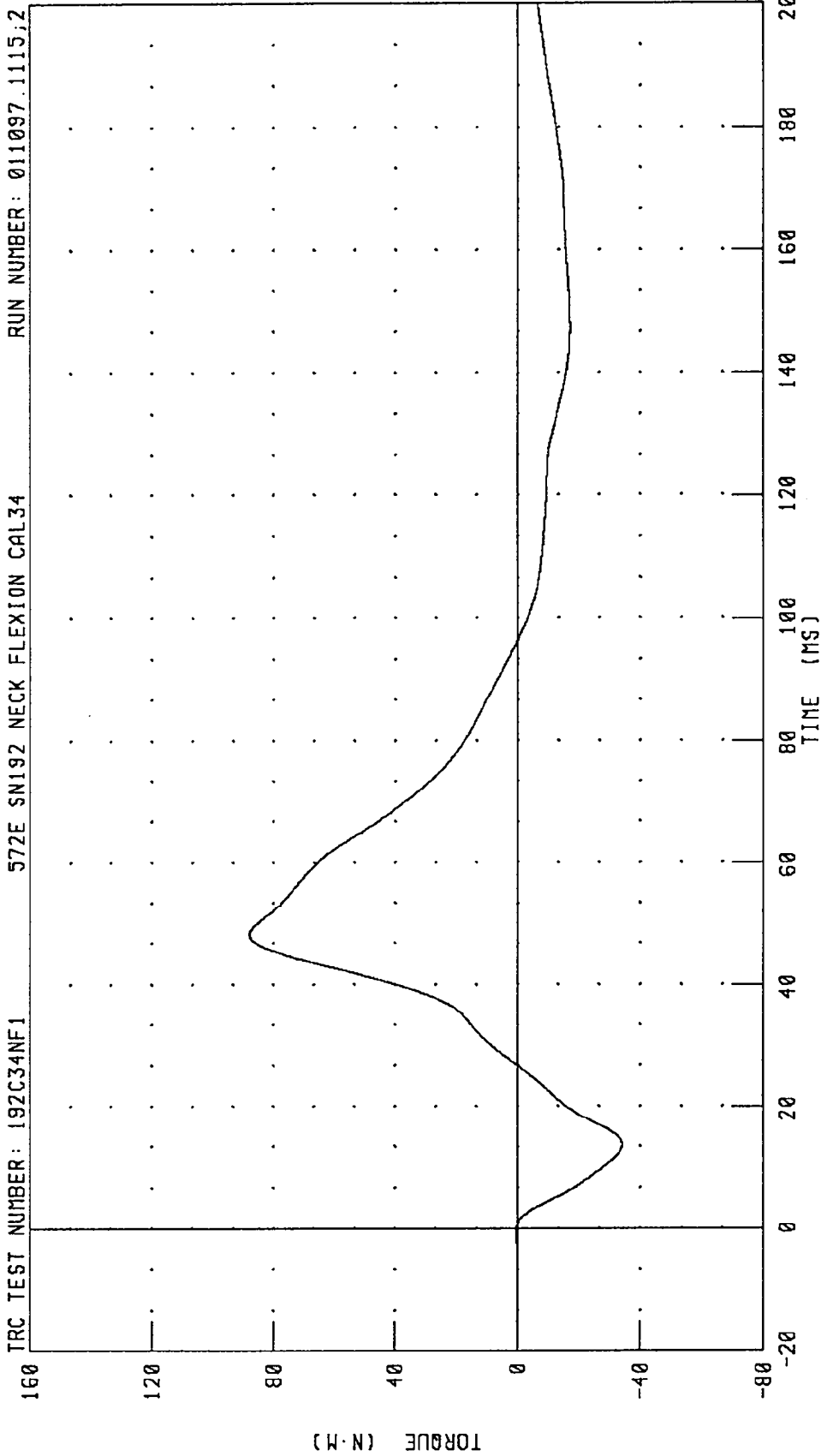
PART 572-E HYBRID III NECK FLEXION CALIBRATION

NECK MOMENT Y AXIS

TRC TEST NUMBER: 192C34NF1

572E SN192 NECK FLEXION CAL34

RUN NUMBER: 011097.1115,2



CHANNEL: NEKYM

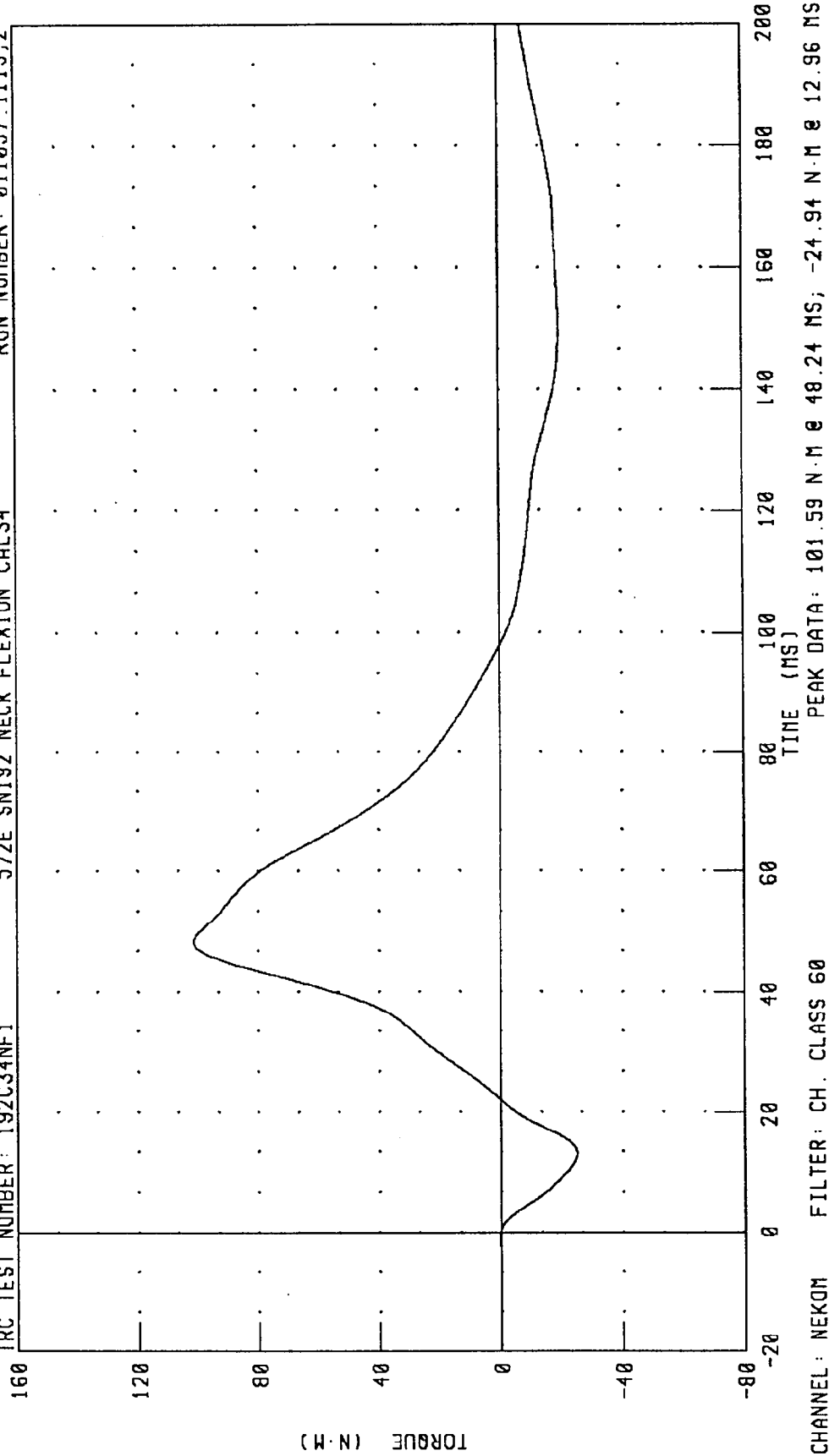
FILTER: CH. CLASS 60

PEAK DATA: 87.95 N·M @ 48.08 MS, -34.09 N·M @ 13.68 MS

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

IRC TEST NUMBER: 192C34NF1 RUN NUMBER: 011097.1115;2

572E SN192 NECK FLEXION CAL34



CHANNEL: NEKOM FILTER: CH. CLASS 60

TRANSPORTATION RESEARCH CENTER INC.

NECK EXTENSION TEST - 6 CHANNEL TRANSDUCER

HYBRID III

27-NOV-96

TRC INC. TEST NO: 192C34NE1 572E SN192 NECK EXT. CAL34

TEST PARAMETER		SPECIFICATION	TEST RESULTS
TEMPERATURE		20.6 - 22.2 DEG. C	21.1 DEG. C
RELATIVE HUMIDITY		10 - 70 %	28.0 %
IMPACT VELOCITY		5.95 - 6.19 M/S	6.10 M/S
PENDULUM DECELERATION	10 MS	17.20 - 21.20 G	18.26 G
	20 MS	14.00 - 19.00 G	17.47 G
	30 MS	11.00 - 16.00 G	14.21 G
MAX PENDULUM G		22 G MAX	18.77 G
MAX PENDULUM G ABOVE 30 MS		22 G MAX	14.30 G
DECELERATION-TIME CURVE DECAY TIME TO 5 G		38 - 46 MS	38.00 MS
D PLANE	MAX	81 - 106 DEG.	97.62 DEG.
ROTATION	TIME	72 - 82 MS	75.68 MS
MOMENT ABOUT OCCIPITAL CONDYLE	MIN	-80.0/-52.9 NM	-63.41 NM
	TIME	65 - 79 MS	70.48 MS
ROTATION ANGLE-TIME CURVE DECAY TIME TO ZERO		147 - 174 MS	156.64 MS
NEGATIVE MOMENT-TIME CURVE DECAY TIME TO ZERO		120 - 148 MS	137.92 MS

TEST MEETS SPECIFICATIONS

TECHNICIAN Richard L. Van

RUN NUMBER: 112796.0906;1

PART 572-E HYBRID III NECK EXTENSION CALIBRATION

PENDULUM DECELERATION

TRC TEST NUMBER: 192C34NE1

572E SN192 NECK EXT. CAL34

RUN NUMBER: 011097.1115;1

400

320

240

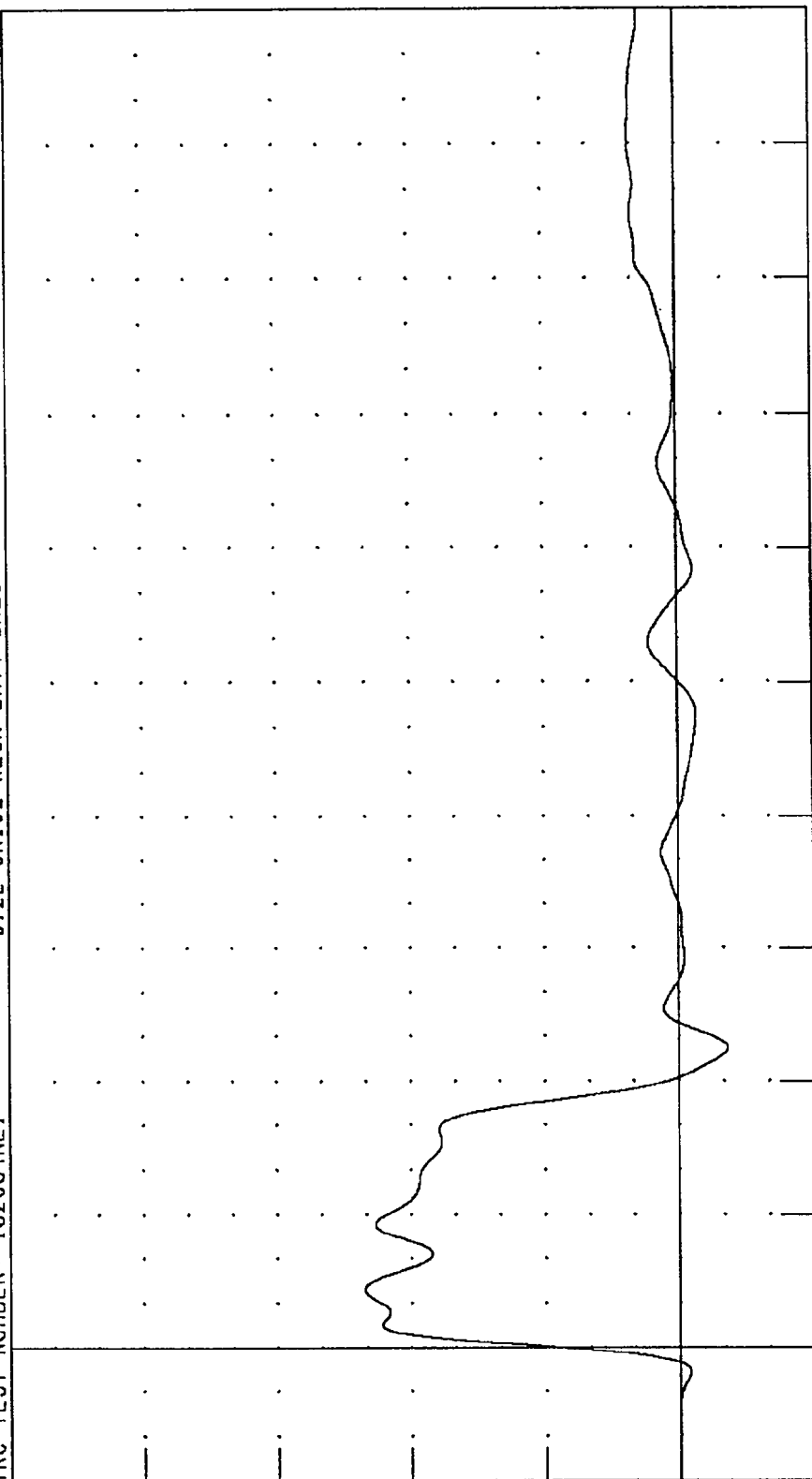
160

80

0

-80

ACCELERATION (G X 10⁻¹)



PEAK DATA: 18.78 G @ 8.72 MS; -2.87 G @ 44.96 MS

CHANNEL: PENXG FILTER: CH. CLASS 60

PART 572-E HYBRID III NECK EXTENSION CALIBRATION

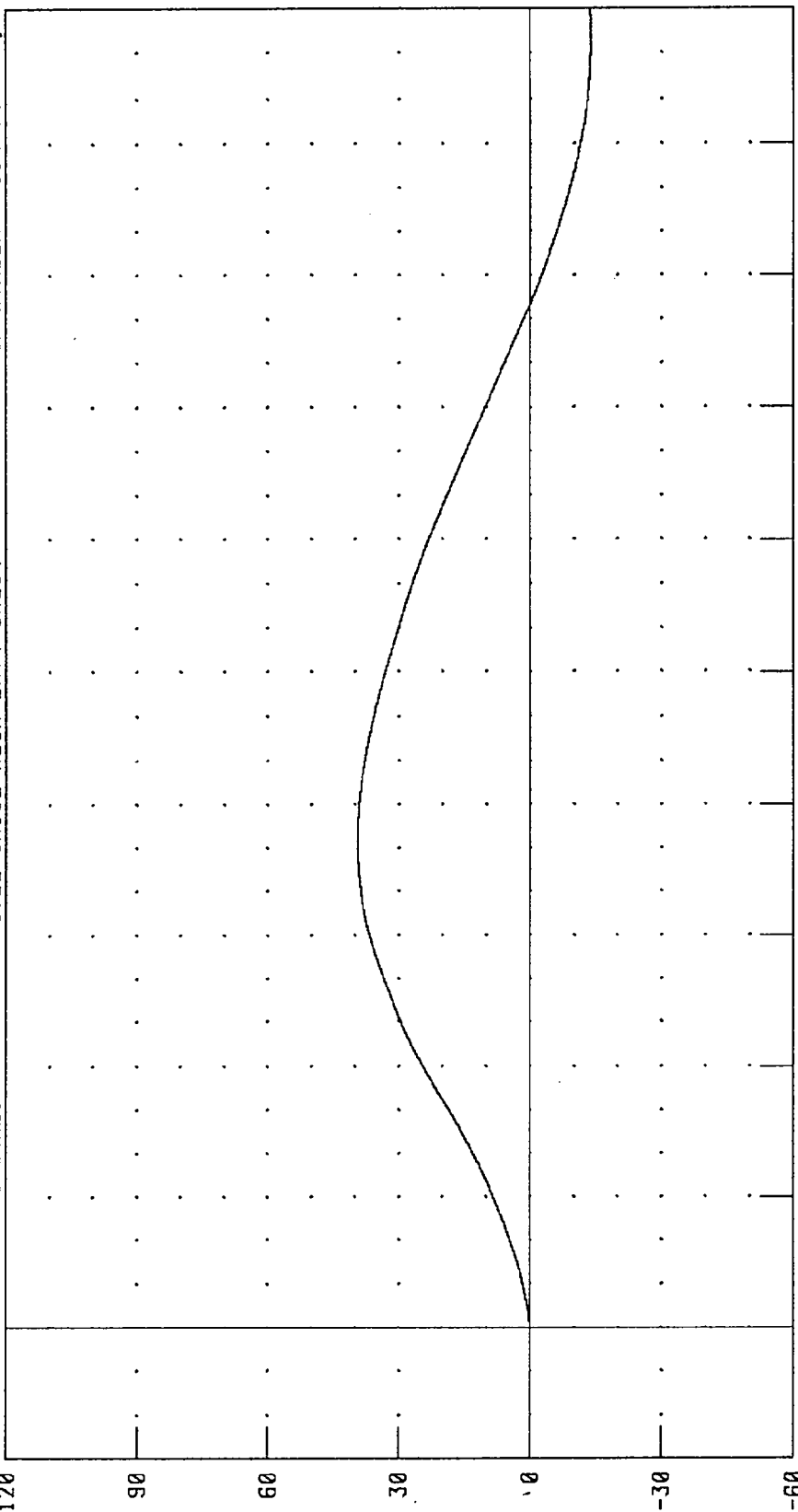
ROTATION ABOUT BASE OF NECK

TRC TEST NUMBER: 192C34NE1

572E SN192 NECK EXT. CAL34

RUN NUMBER: 011097.1115.1

120



ANGLE (°)

TIME (ms)

CHANNEL: BETA

FILTER: CH. CLASS 60

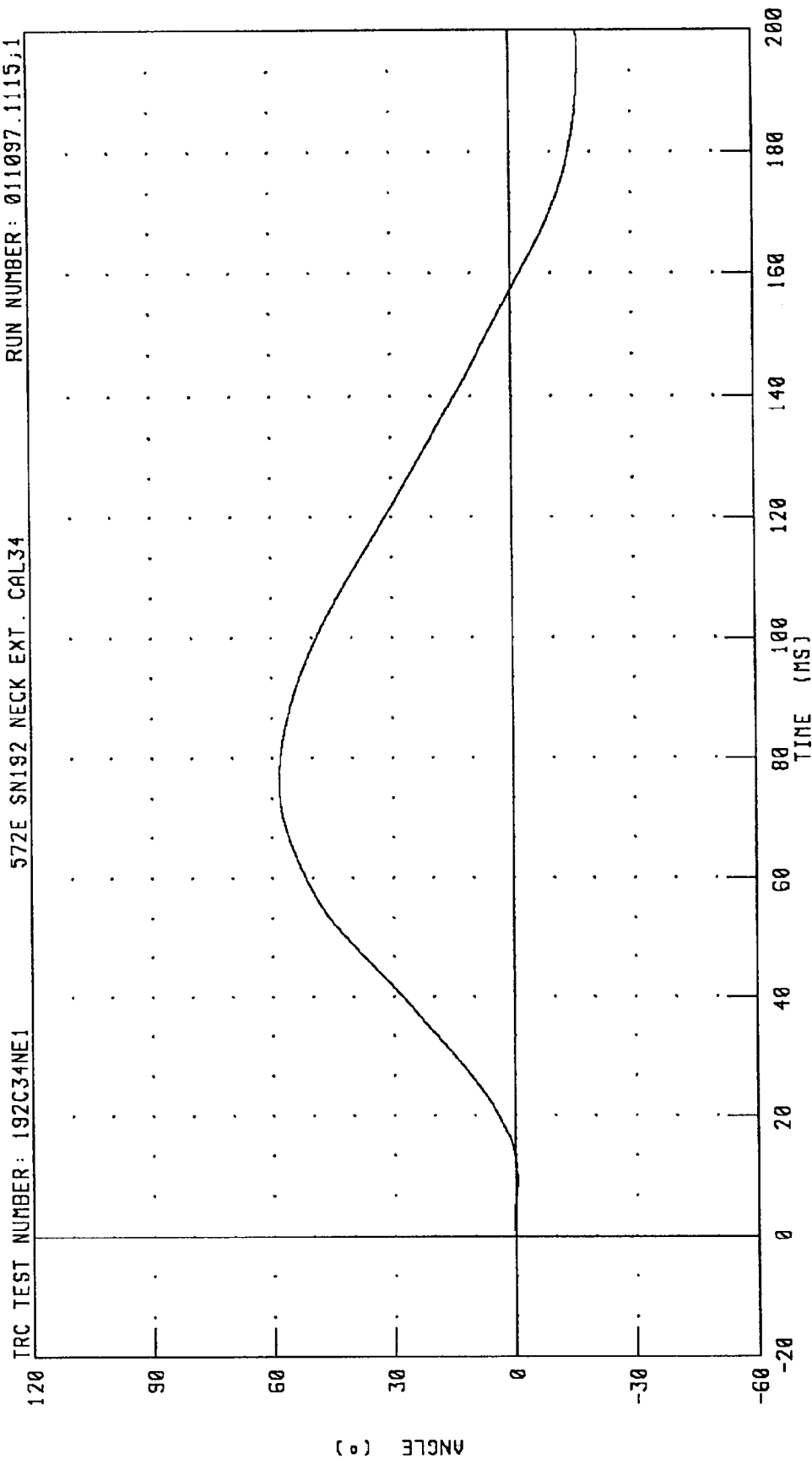
PEAK DATA: 39.42 ° @ 74.64 MS; -13.86 ° @ 195.60 MS

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

TRC TEST NUMBER: 192C34NE1

572E SN192 NECK EXT. CAL34

RUN NUMBER: 011097.1115,1



CHANNEL: THETA FILTER: CH. CLASS 60

PEAK DATA: 58.22 ° @ 76.16 MS; -16.89 ° @ 195.60 MS

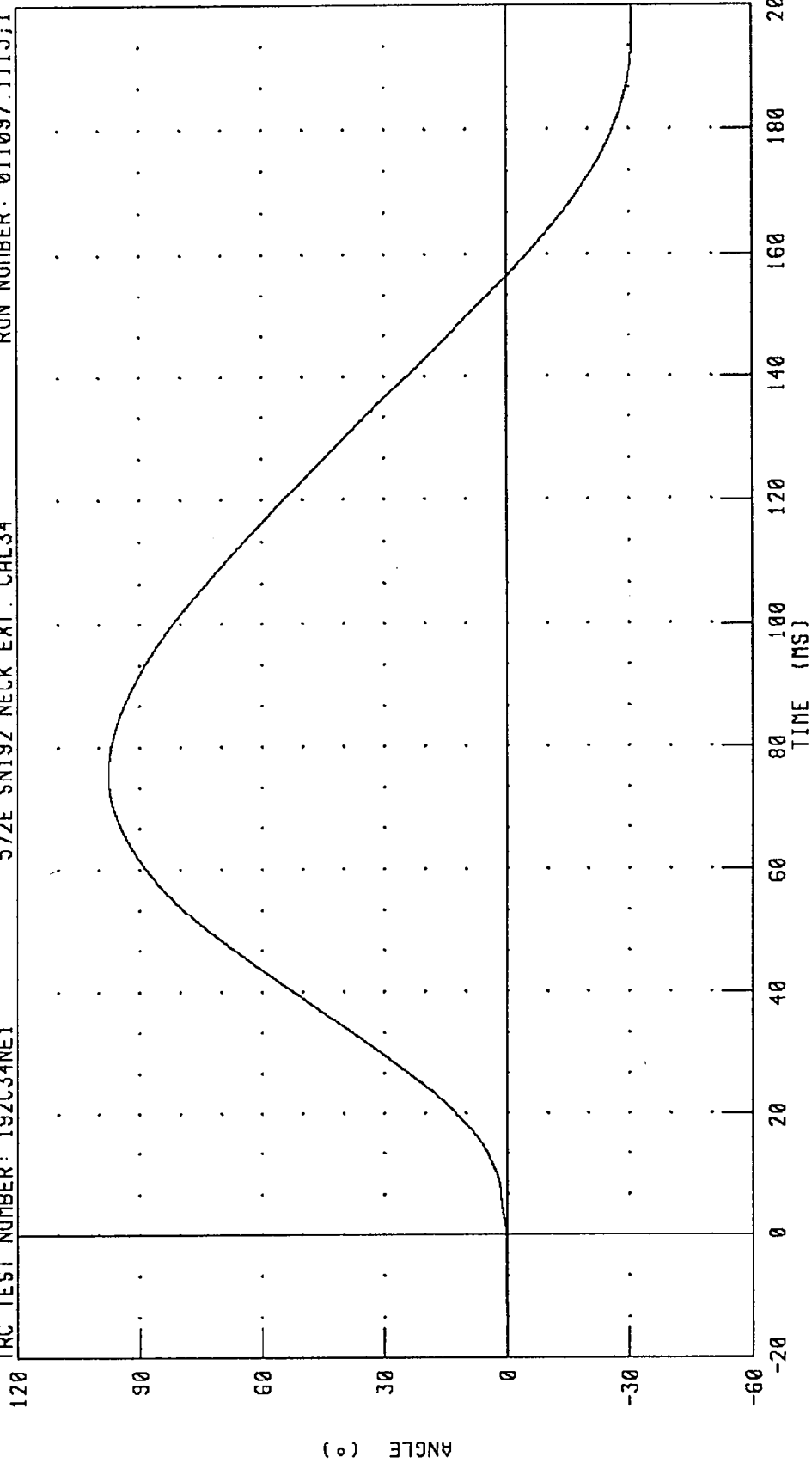
PART 572-E HYBRID III NECK EXTENSION CALIBRATION

TOTAL ROTATION

TRC TEST NUMBER: 192C34NE1

572E SN192 NECK EXT. CAL34

RUN NUMBER: 011097.1115;1



PEAK DATA: 97.62 ° @ 75.68 MS; -30.75 ° @ 195.60 MS

CHANNEL: TOTAL FILTER: CH. CLASS 60

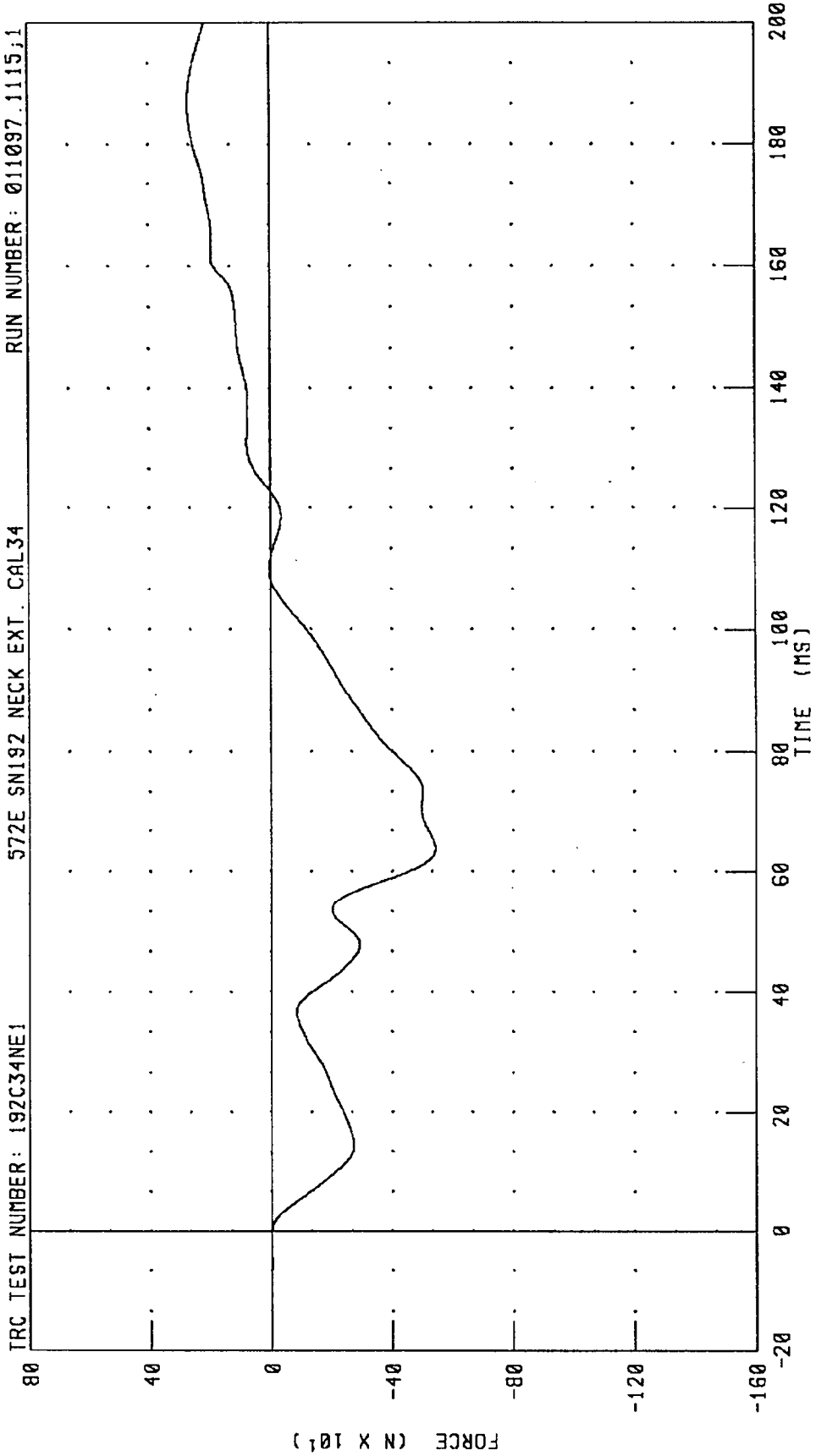
PART 572-E HYBRID IJI NECK EXTENSION CALIBRATION

NECK FORCE X AXIS

TRC TEST NUMBER: 192C34NE1

572E SN192 NECK EXT. CAL34

RUN NUMBER: 011097.1115;1



PEAK DATA: 270.34 N e 186.88 MS; -544.41 N e 63.68 MS

CHANNEL: NEKXF FILTER: CH. CLASS 60

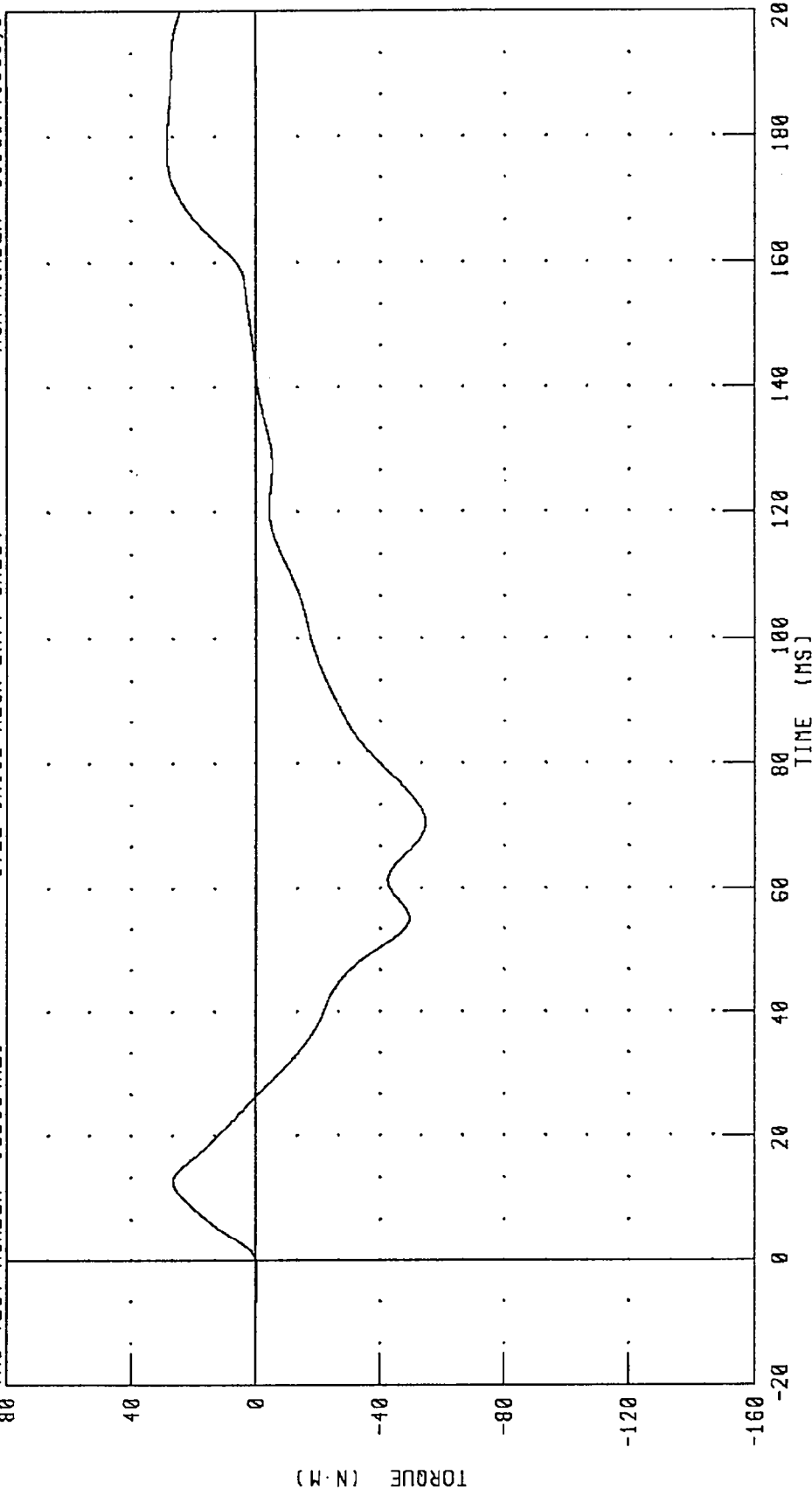
PART 572-E HYBRID III NECK EXTENSION CALIBRATION

NECK MOMENT Y AXIS

TRC TEST NUMBER: 192C34NE1

572E SNI92 NECK EXT. CAL34

RUN NUMBER: 011097.1115;1



PEAK DATA: 28.55 N.M @ 177.92 MS; -54.56 N.M @ 70.48 MS

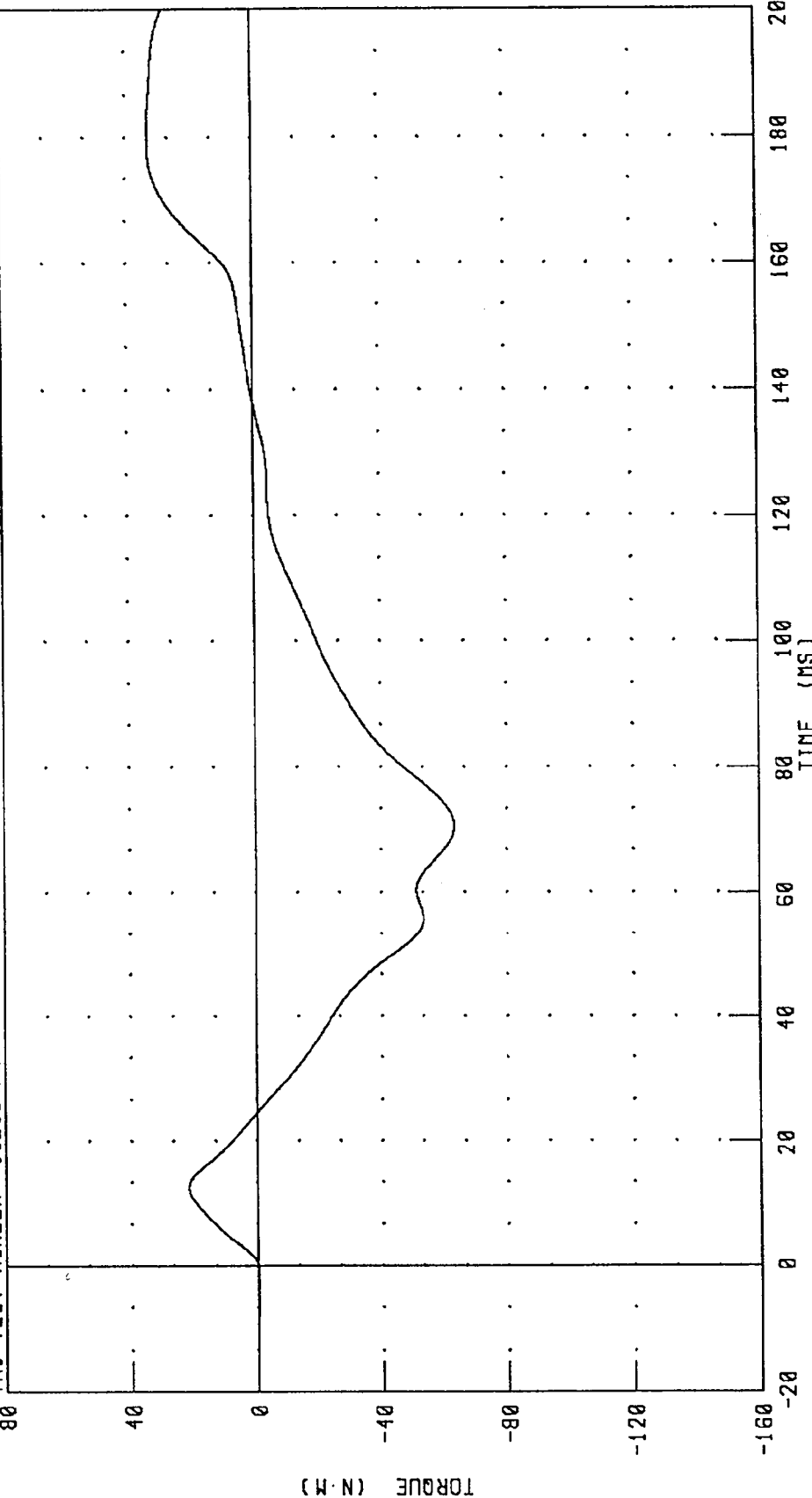
CHANNEL: NEKYM FILTER: CH. CLASS 60

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

TRC TEST NUMBER: 192C34NE1

572E SN192 NECK EXT. CAL34

RUN NUMBER: 011097.1115;1



PEAK DATA: 32.96 N.M @ 180.32 MS; -63.41 N.M @ 70.48 MS

CHANNEL: NEKOM FILTER: CH. CLASS 60

TRANSPORTATION RESEARCH CENTER INC.

THORAX IMPACT TEST

HYBRID III

27-NOV-96

TRC INC.

TEST NO: 192C34TH1

572E SN 192 H.S.THORAX CAL 34

TEST PARAMETER	HIGH SPEED TEST	TEST RESULTS
	SPECIFICATION	
TEMPERATURE	20.6-22.2 DEG. C	21.1 DEG. C
RELATIVE HUMIDITY	10 - 70 %	28.0 %
PENDULUM VELOCITY	6.59 - 6.83 M/S	6.71 M/S
MAXIMUM DEFLECTION	63.5 - 72.6 MM	64.1 MM
MAXIMUM RESISTIVE FORCE	5159 - 5894 N	5716. N
INTERNAL HYSTERESIS	69% - 85%	74.0%

TEST MEETS SPECIFICATIONS

TECHNICIAN Richard L. Van

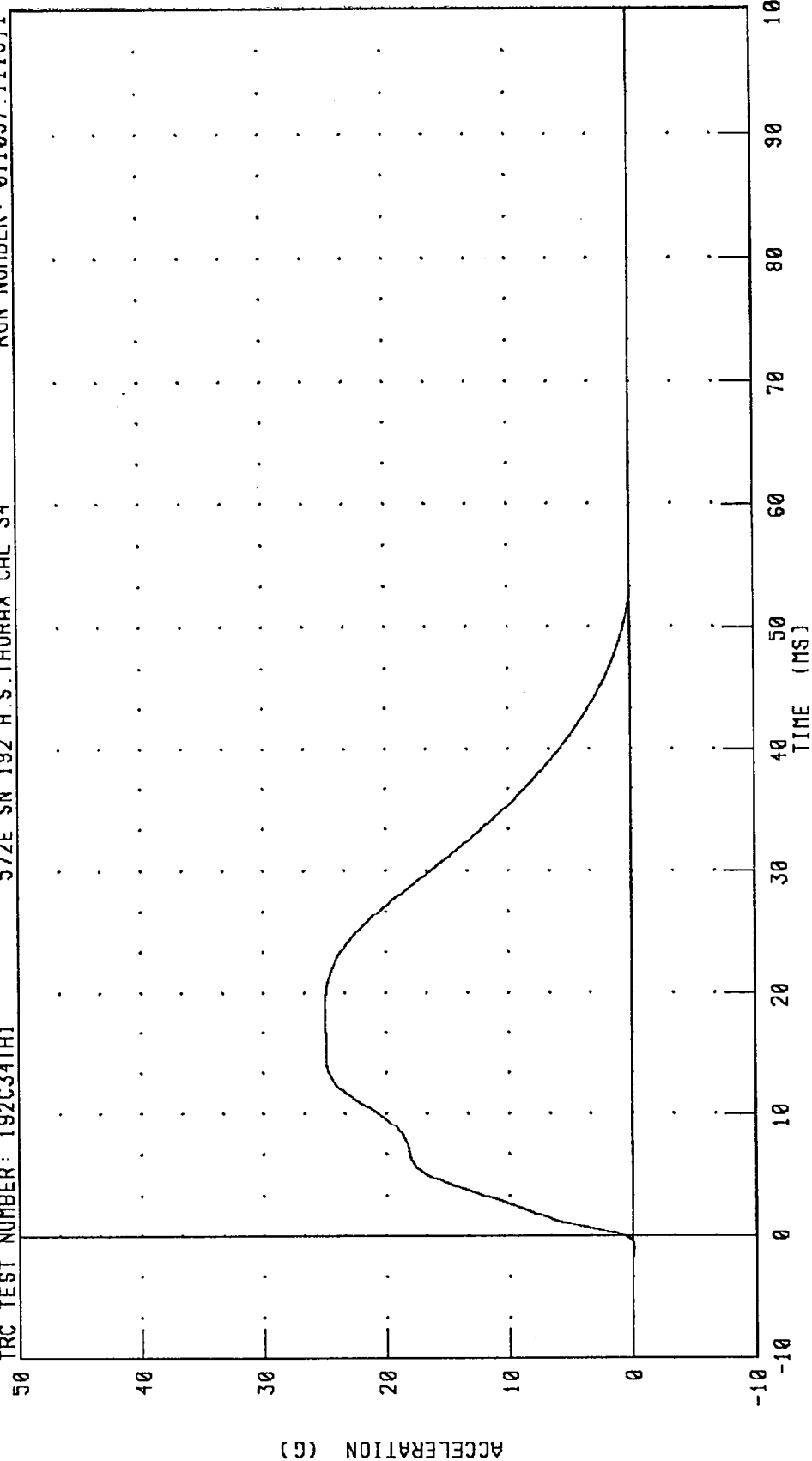
RUN NUMBER: 112796.1134;1

PART 572-E HYBRID III THORAX CALIBRATION
PENDULUM DECELERATION

TRC TEST NUMBER: 192C34TH1

572E SN 192 H.S. THORAX CAL 34

RUN NUMBER: 011097.1115.1



CHANNEL: PENXG FILTER: CH. CLASS 180

PEAK DATA: 24.96 G @ 18.56 MS; -0.10 G @ -0.96 MS

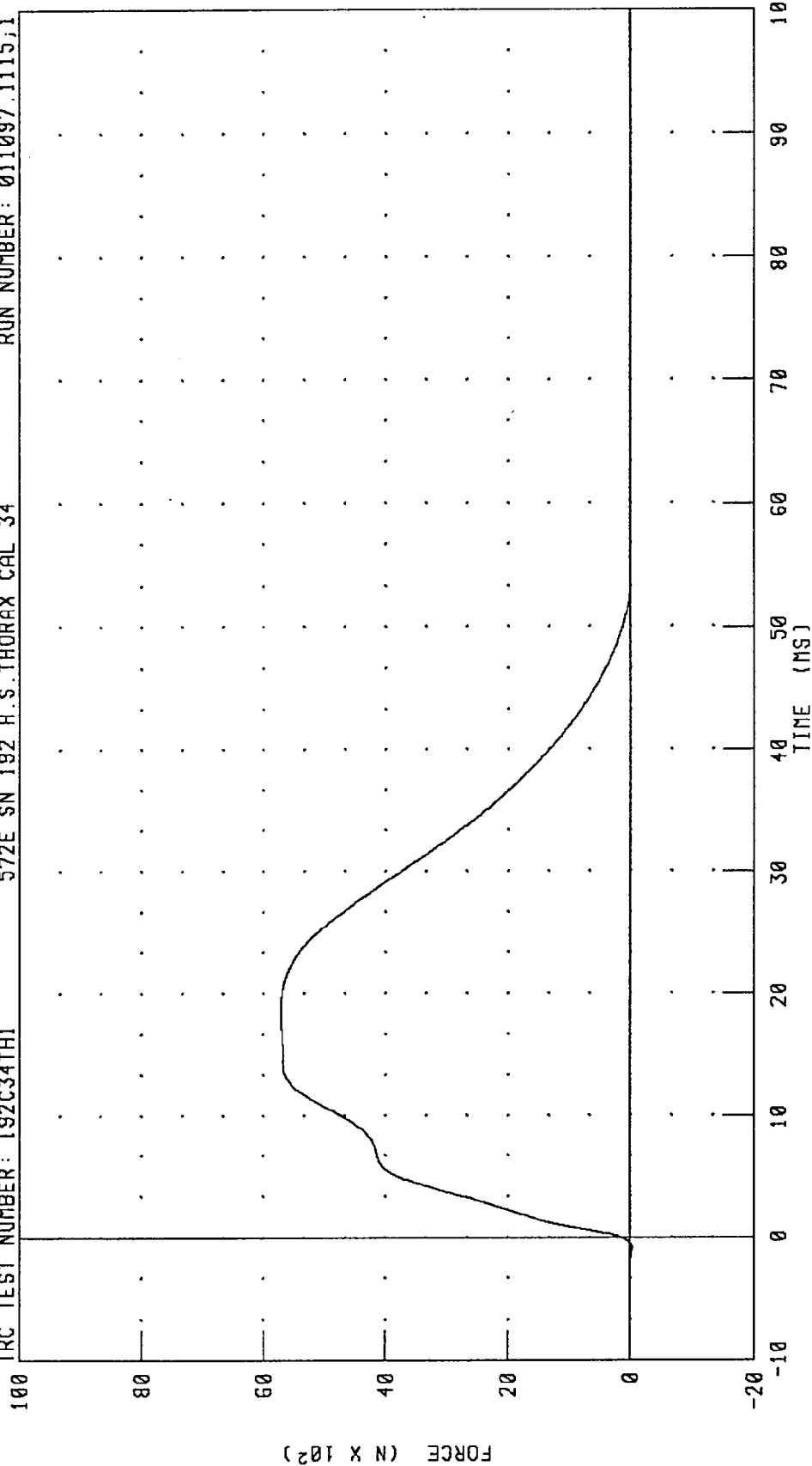
PART 572-E HYBRID III THORAX CALIBRATION

PENDULUM FORCE

TRC TEST NUMBER: 192C34TH1

572E SN 192 H.S. THORAX CAL 34

RUN NUMBER: 011097.1115,1



PEAK DATA: 5717.00 N @ 18.56 MS; -23.91 N @ -0.96 MS

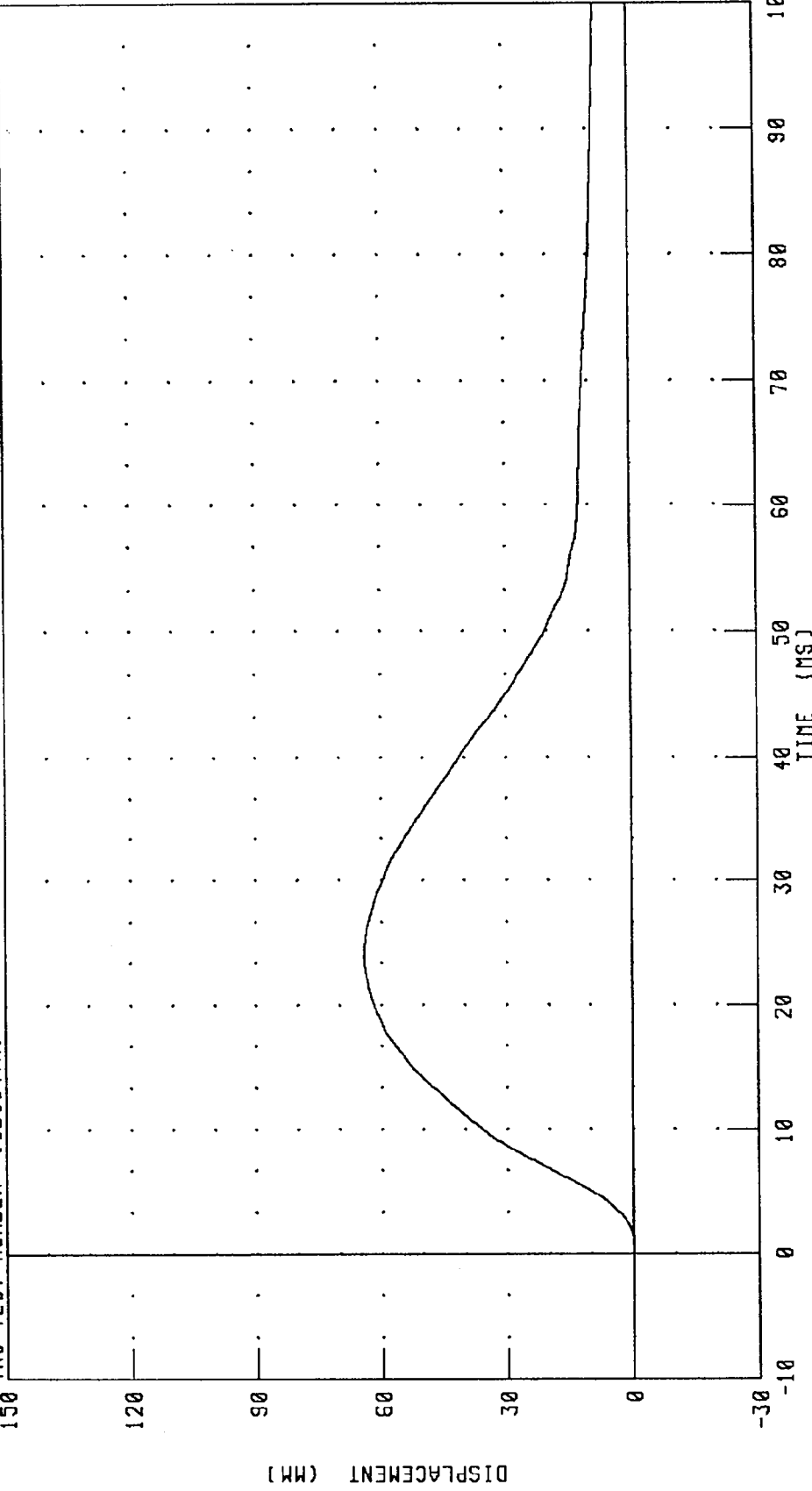
CHANNEL: PENXF FILTER: CH. CLASS 180

PART 572-E HYBRID III THORAX CALIBRATION
STERNUM DISPLACEMENT

TRC TEST NUMBER: 192C34TH1

572E SN 192 H.S. THORAX CAL 34

RUN NUMBER: 011097.1115.1



PEAK DATA: 64.15 MM @ 23.84 MS; -0.04 MM @ 0.24 MS

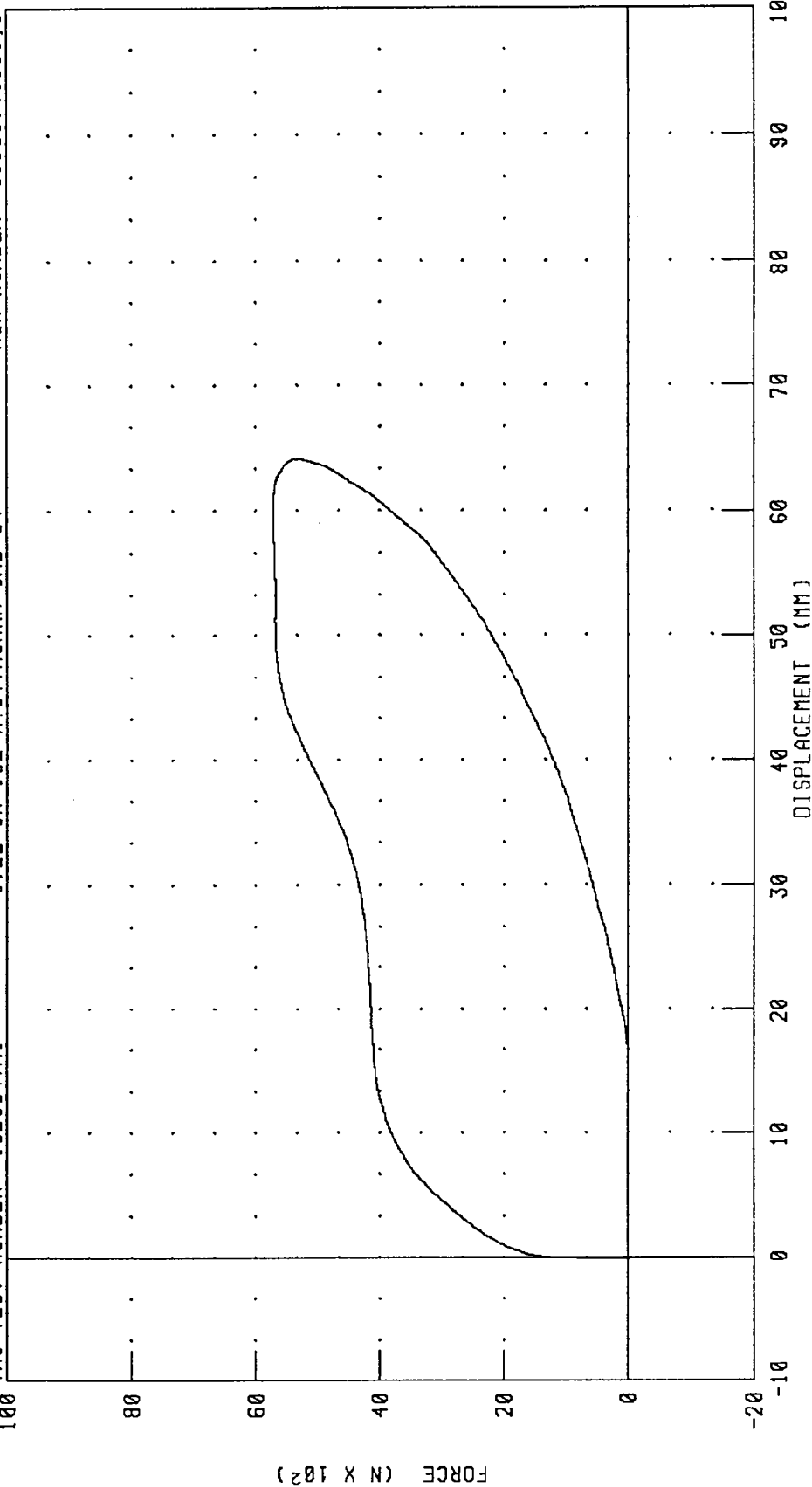
CHANNEL: CSTXD FILTER: CH. CLASS 180

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

TRC TEST NUMBER: 192C34IH1

572E SN 192 H.S.THORAX CAL 34

RUN NUMBER: 011097.1115;1



CHANNEL: CSTXD FILTER: CH. CLASS 180
PENXF CH. CLASS 180

PEAK DATA: 64.15 MM @ 23.84 MS; -0.04 MM @ 0.24 MS
5717.00 N @ 18.56 MS; -23.91 N @ -0.96 MS

TRANSPORTATION RESEARCH CENTER INC.

RIGHT KNEE IMPACT TEST

HYBRID III

21-NOV-96

TRC INC.

TEST NO: 192C34RK2

572E SN192 RIGHT KNEE CAL 34

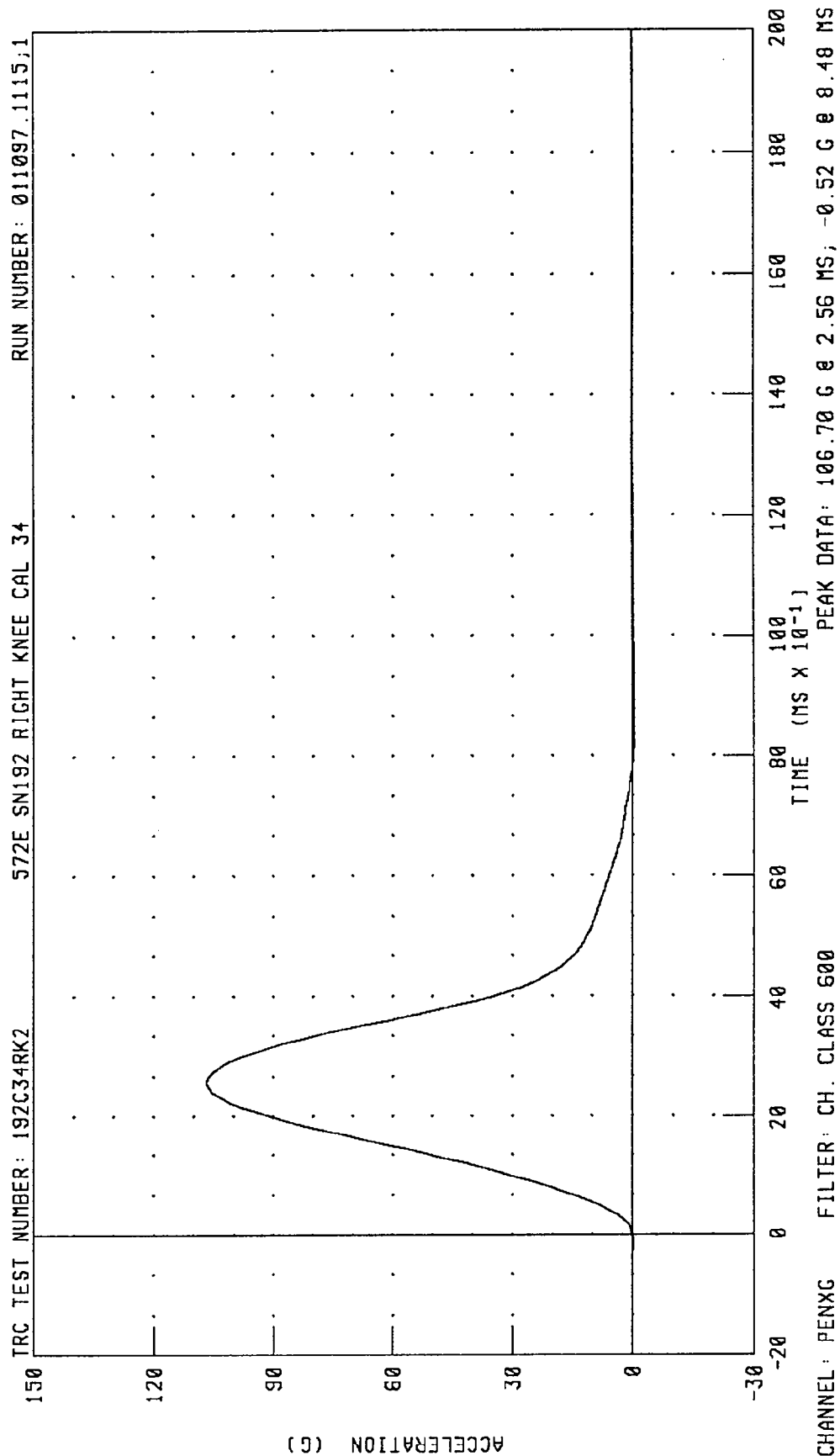
TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	18.9-25.6 DEG. C	21.1 DEG. C
RELATIVE HUMIDITY	10 - 70 %	30.0 %
PROBE VELOCITY	2.07 - 2.13 M/S	2.11 M/S
PEAK KNEE IMPACT FORCE 5.0 KG PENDULUM	4715 - 5782 N	5220.7 N

TEST MEETS SPECIFICATIONS

TECHNICIAN Richard LeVass

RUN NUMBER: 112196.1522;1

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



CHANNEL: PENXG FILTER: CH. CLASS 600

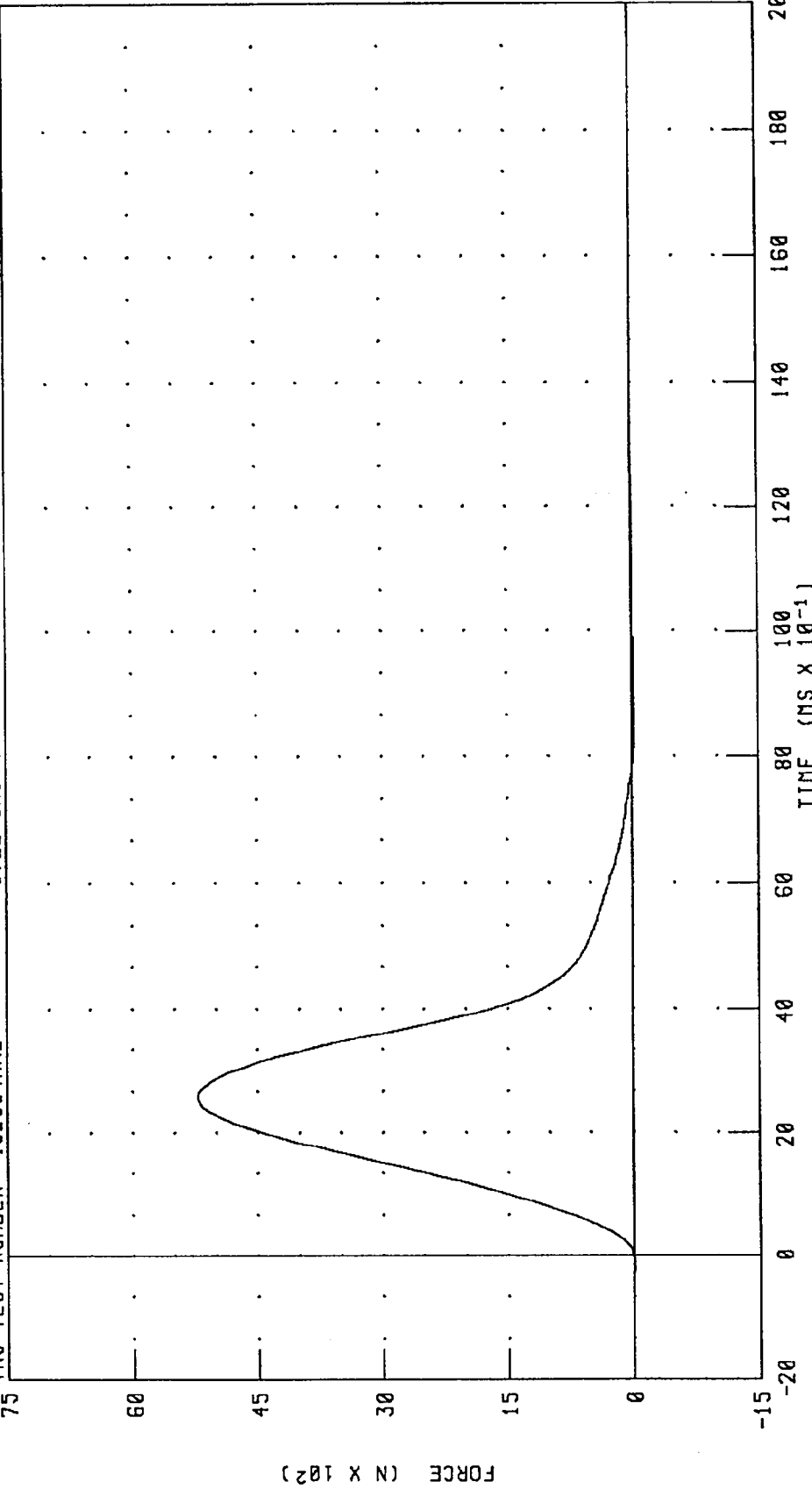
PART 572-E HYBRID III RIGHT KNEE CALIBRATION

PENDULUM FORCE (5 KG PEND.)

TRC TEST NUMBER: 192C34RK2

572E SN192 RIGHT KNEE CAL 34

RUN NUMBER: 011097.1115.1



CHANNEL: PENXF

FILTER: CH. CLASS 600

PEAK DATA: 5220.78 N @ 2.56 MS; -25.60 N @ 8.48 MS

TRANSPORTATION RESEARCH CENTER INC.

LEFT KNEE IMPACT TEST

HYBRID III

21-NOV-96

TRC INC.

TEST NO: 192C34LK1

572E SN192 LEFT KNEE CAL 34

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	18.9-25.6 DEG. C	21.1 DEG. C
RELATIVE HUMIDITY	10 - 70 %	30.0 %
PROBE VELOCITY	2.07 - 2.13 M/S	2.11 M/S
PEAK KNEE IMPACT FORCE 5.0 KG PENDULUM	4715 - 5782 N	5610.6 N

TEST MEETS SPECIFICATIONS

TECHNICIAN

Richard LeVan

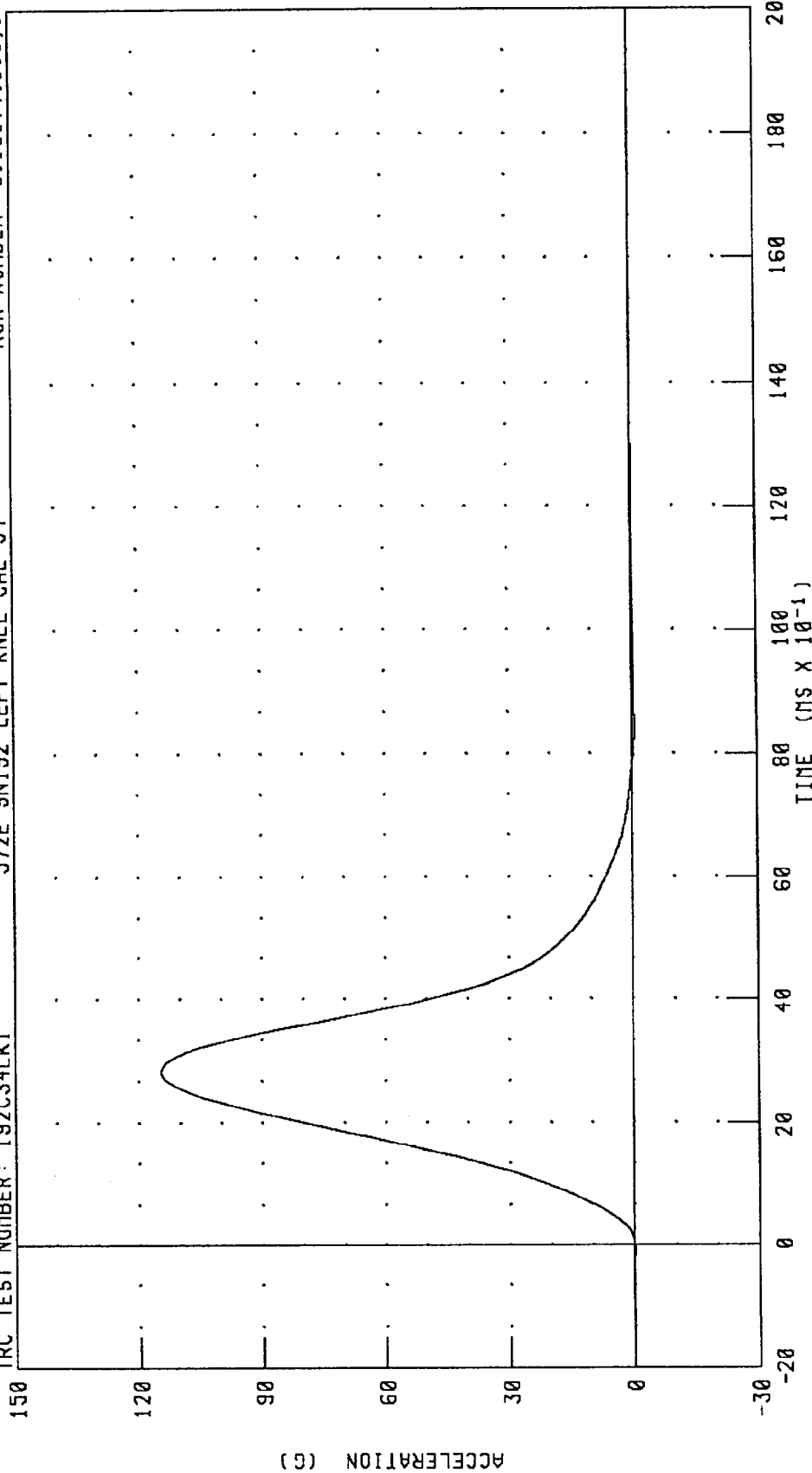
RUN NUMBER: 112196.1459;1

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

TRC TEST NUMBER: 192C34LK1

572E SN192 LEFT KNEE CAL 34

RUN NUMBER: 011097.1115.1



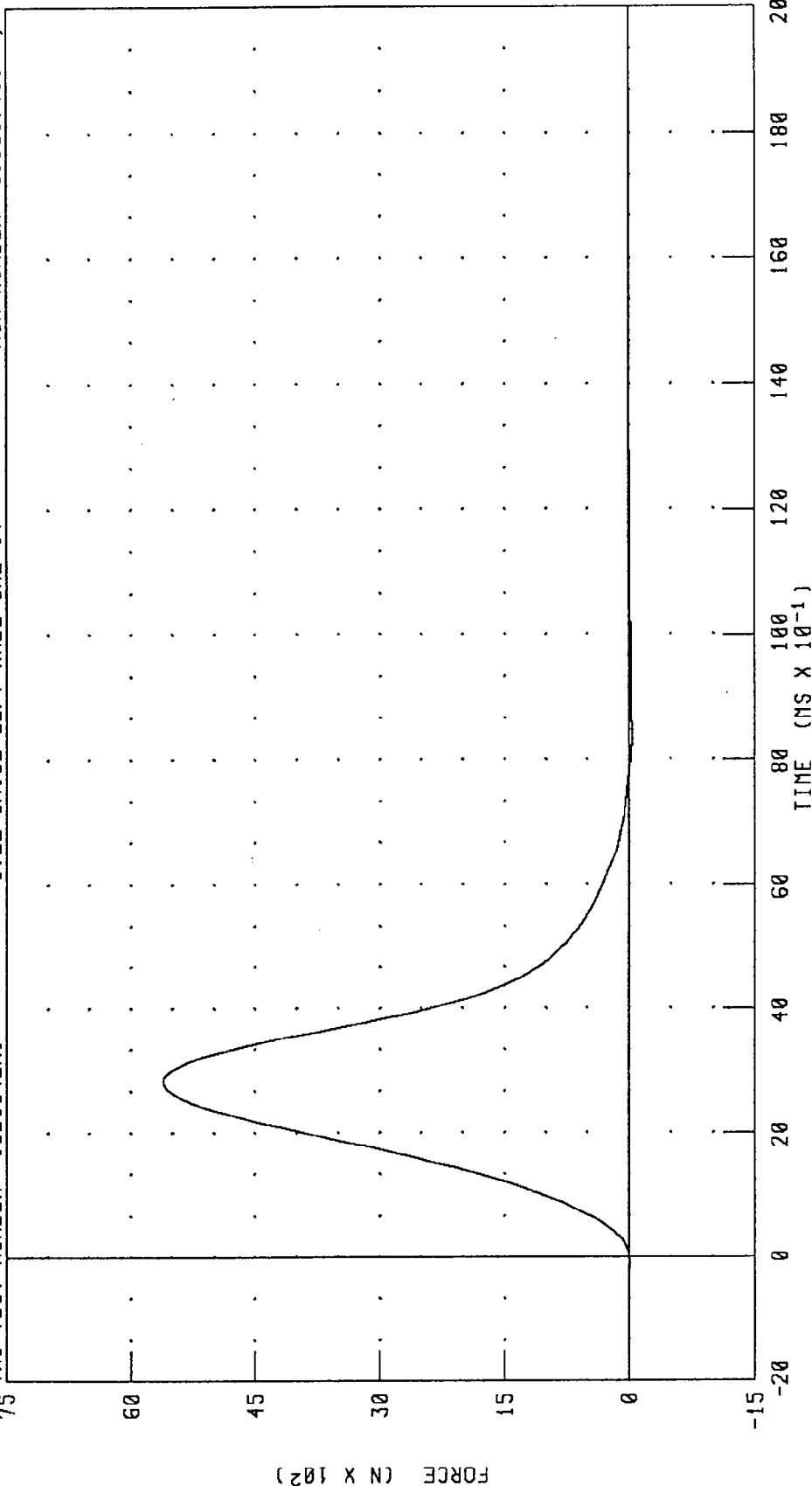
CHANNEL: PENXG FILTER: CH. CLASS 600

PART 572-E HYBRID III LEFT KNEE CALIBRATION

PENDULUM FORCE (5 KG PEND.)

572E SN192 LEFT KNEE CAL 34 RUN NUMBER: 011097.1115;1

TRC TEST NUMBER: 192C34LK1



PEAK DATA: 5610.68 N @ 2.80 MS; -31.50 N @ 8.40 MS

CHANNEL: PENXF FILTER: CH. CLASS 600

Pre-test Certification Data

Passenger Dummy S/N: 142

TRANSPORTATION RESEARCH CENTER INC.
HYBRID III EXTERNAL DIMENSIONS
SN 142 HUMANOID

21-NOV-96

TRC INC. TEST NO: 142C35ED1 572E SN142 EXT.DIMENSION CAL35

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 *Richard L. L...*

RUN NUMBER: 112196.1001

TRANSPORTATION RESEARCH CENTER INC.

HEAD DROP TEST

HYBRID III

21-NOV-96

TRC INC.

TEST NO: 142C35HD1

572E SN142 HEAD DROP CAL 35

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	18.9-25.6 DEG. C	21.1 DEG. C
RELATIVE HUMIDITY	10 - 70 %	30.0 %
PEAK RESULTANT ACCELERATION	225 - 275 G	266.14 G
PEAK LATERAL ACCELERATION	15 G MAX	-5.82 G
IS ACCELERATION CURVE UNIMODAL?	YES	YES

TEST MEETS SPECIFICATIONS

TECHNICIAN Richard L. Van

RUN NUMBER: 112196.1628;1

PART 572-E HYBRID III HEAD CALIBRATION

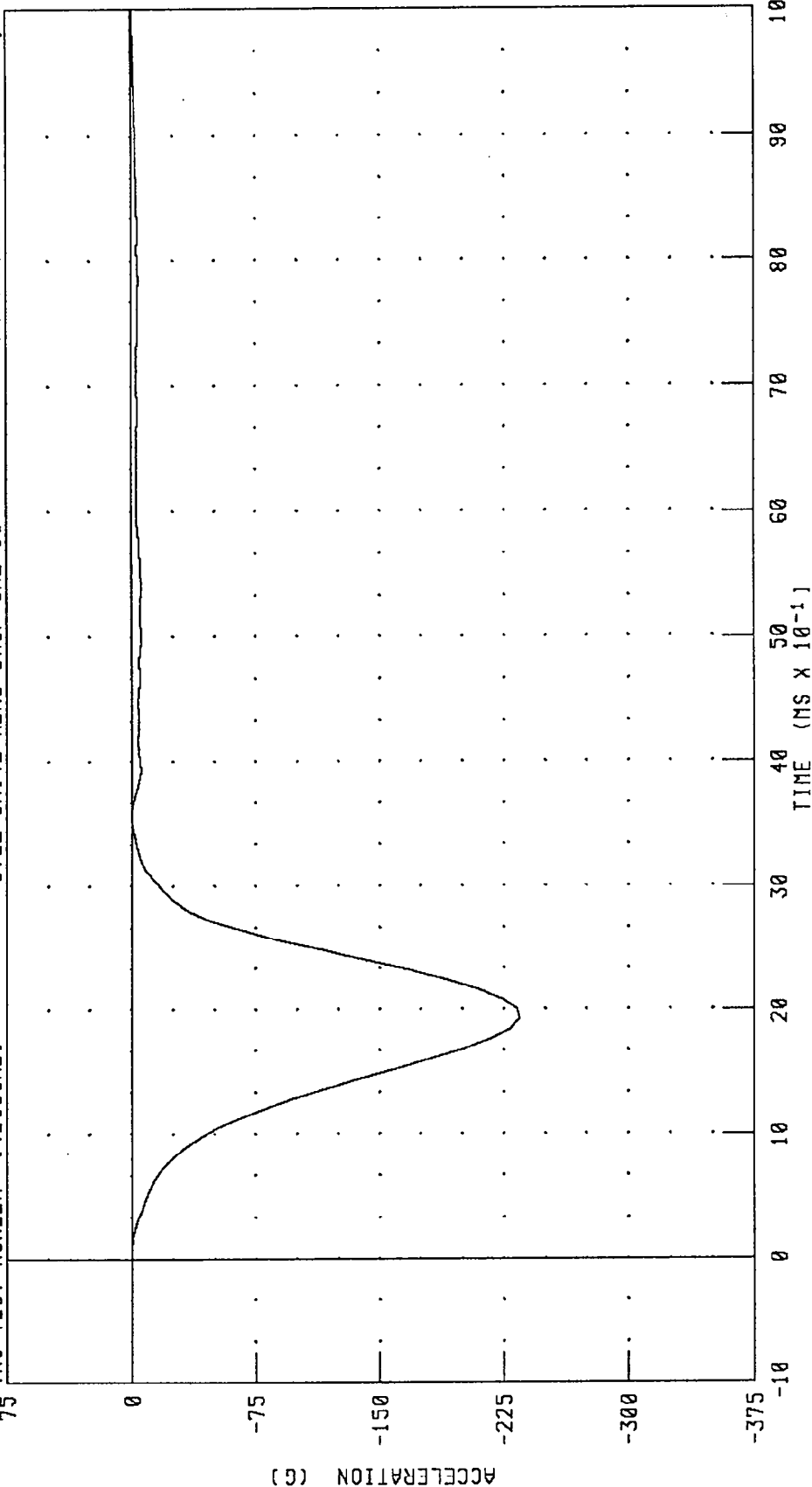
HEAD ACCELERATION X AXIS

572E SN142 HEAD DROP CAL 35

TRC TEST NUMBER: 142C35HD1

75

RUN NUMBER: 011097.1133.1

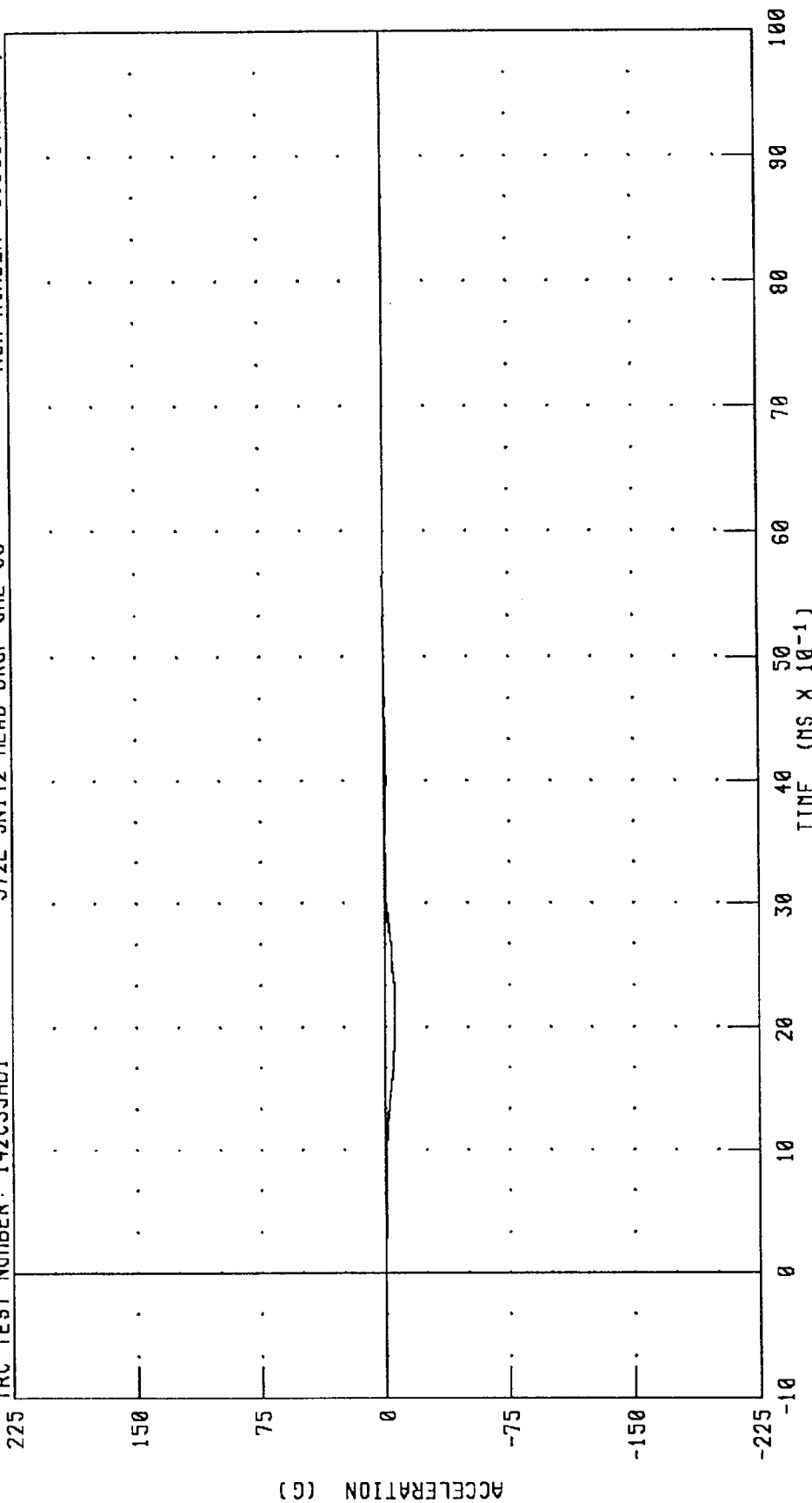


PEAK DATA: 0.08 G @ 0.00 MS, -234.15 G @ 1.92 MS

CHANNEL: HEDXG FILTER: CH. CLASS 1000

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

TRC TEST NUMBER: 142C35HD1 572E SN142 HEAD DRQP CAL 35 RUN NUMBER: 011097.1133.1



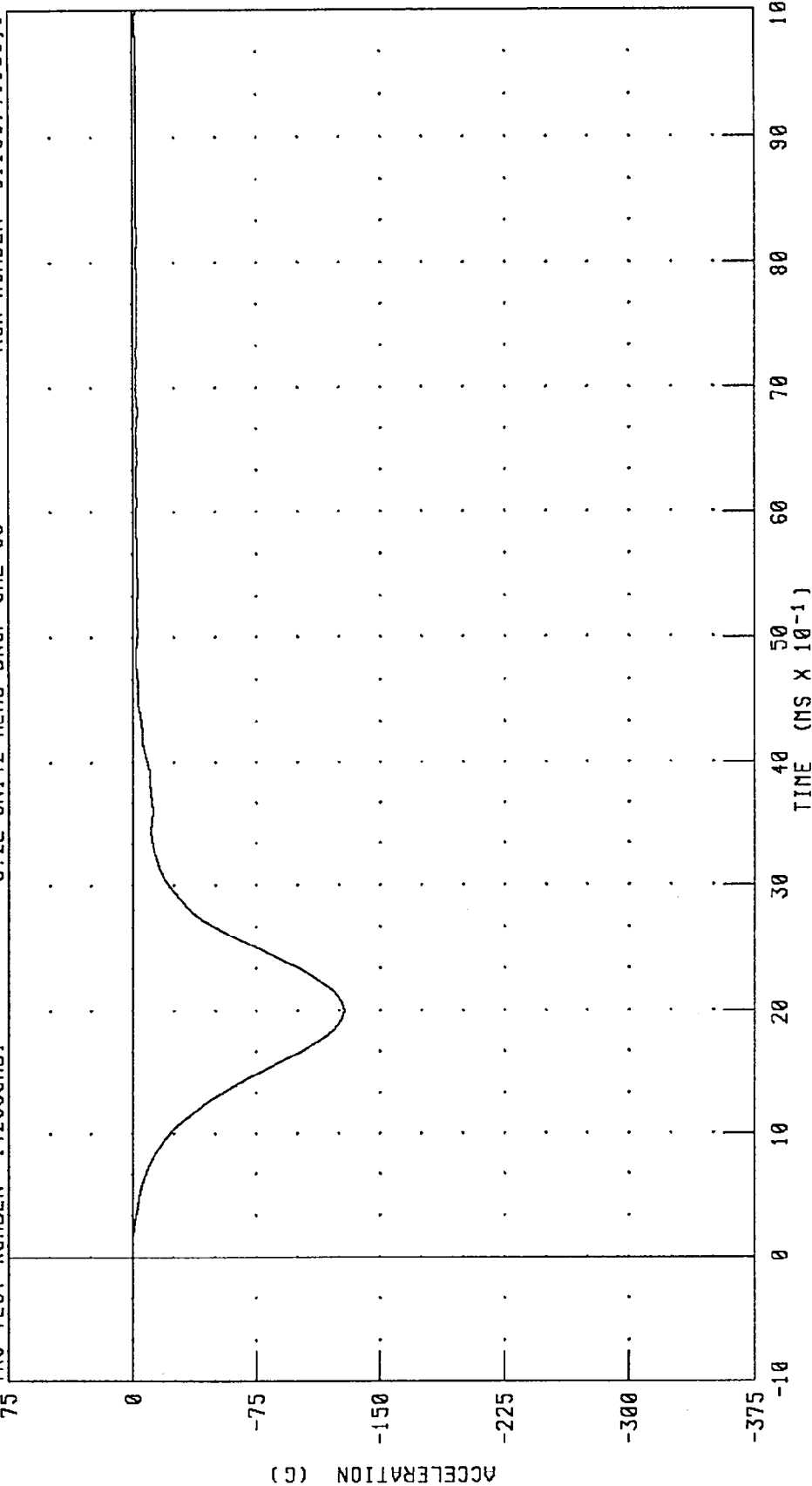
CHANNEL: HEDYG FILTER: CH. CLASS 1000 PEAK DATA: 0.46 G @ 5.28 MS; -5.83 G @ 2.00 MS

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

TRC TEST NUMBER: 142C35HD1

572E SN142 HEAD DROP CAL 35

RUN NUMBER: 011097.1133;1



PEAK DATA: -0.06 G @ 0.08 MS; -128.10 G @ 2.00 MS

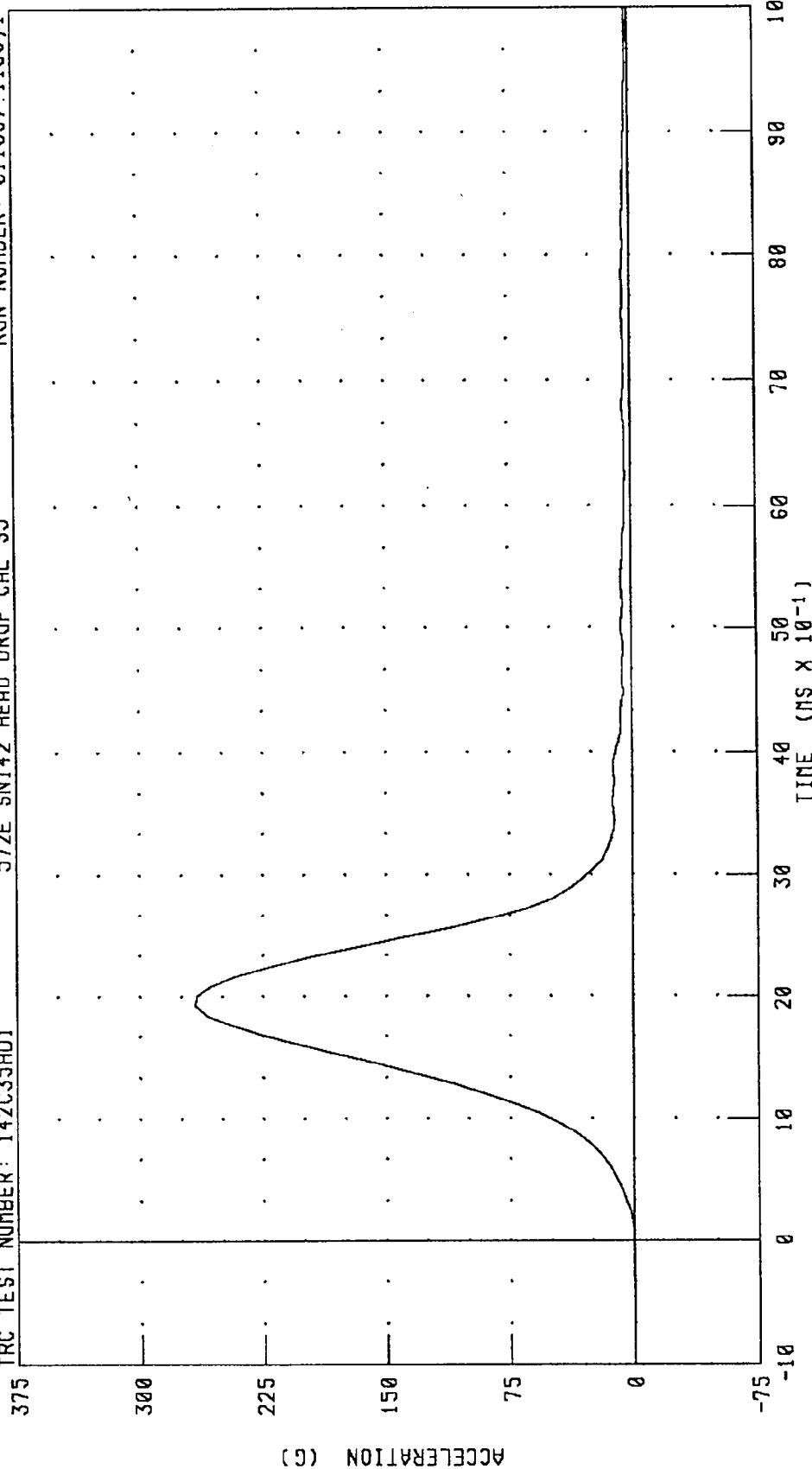
CHANNEL: HEDZG FILTER: CH. CLASS 1000

PART 572-E HYBRID III HEAD CALIBRATION
HEAD RESULTANT ACCELERATION

TRC TEST NUMBER: 142C35HD1

572E SN142 HEAD DROP CAL 35

RUN NUMBER: 011097.1133;1



CHANNEL: HEDRG FILTER: CH. CLASS 1000

PEAK DATA: 266.15 G @ 1.92 MS; 0.08 G @ 0.08 MS

TRANSPORTATION RESEARCH CENTER INC.

NECK FLEXION TEST - 6 CHANNEL TRANSDUCER

HYBRID III

26-NOV-96

TRC INC. TEST NO: 142C35NF9 572E SN142 NECK FLEXION CAL35

TEST PARAMETER		SPECIFICATION	TEST RESULTS
TEMPERATURE		20.6-22.2 DEG. C	21.1 DEG. C
RELATIVE HUMIDITY		10 - 70 %	36.0 %
IMPACT VELOCITY		6.89 - 7.13 M/S	7.06 M/S
PENDULUM DECELERATION	10 MS	22.50 - 27.50 G	23.20 G
	20 MS	17.60 - 22.60 G	20.99 G
	30 MS	12.50 - 18.50 G	15.21 G
MAX PENDULUM G		29 G MAX	23.87 G
MAX PENDULUM G ABOVE 30 MS		29 G MAX	15.16 G
DECELERATION-TIME CURVE DECAY TIME TO 5 G		34 - 42 MS	37.36 MS
D PLANE	MAX	64 - 78 DEG.	76.71 DEG.
ROTATION	TIME	57 - 64 MS	58.16 MS
MOMENT ABOUT OCCIPITAL CONDYLE	MAX	88.2 - 108.5 NM	100.91 NM
	TIME	47 - 58 MS	51.60 MS
ROTATION ANGLE-TIME CURVE DECAY TIME TO ZERO		113 - 128 MS	115.60 MS
POSITIVE MOMENT-TIME CURVE DECAY TIME TO ZERO		97 - 107 MS	99.84 MS

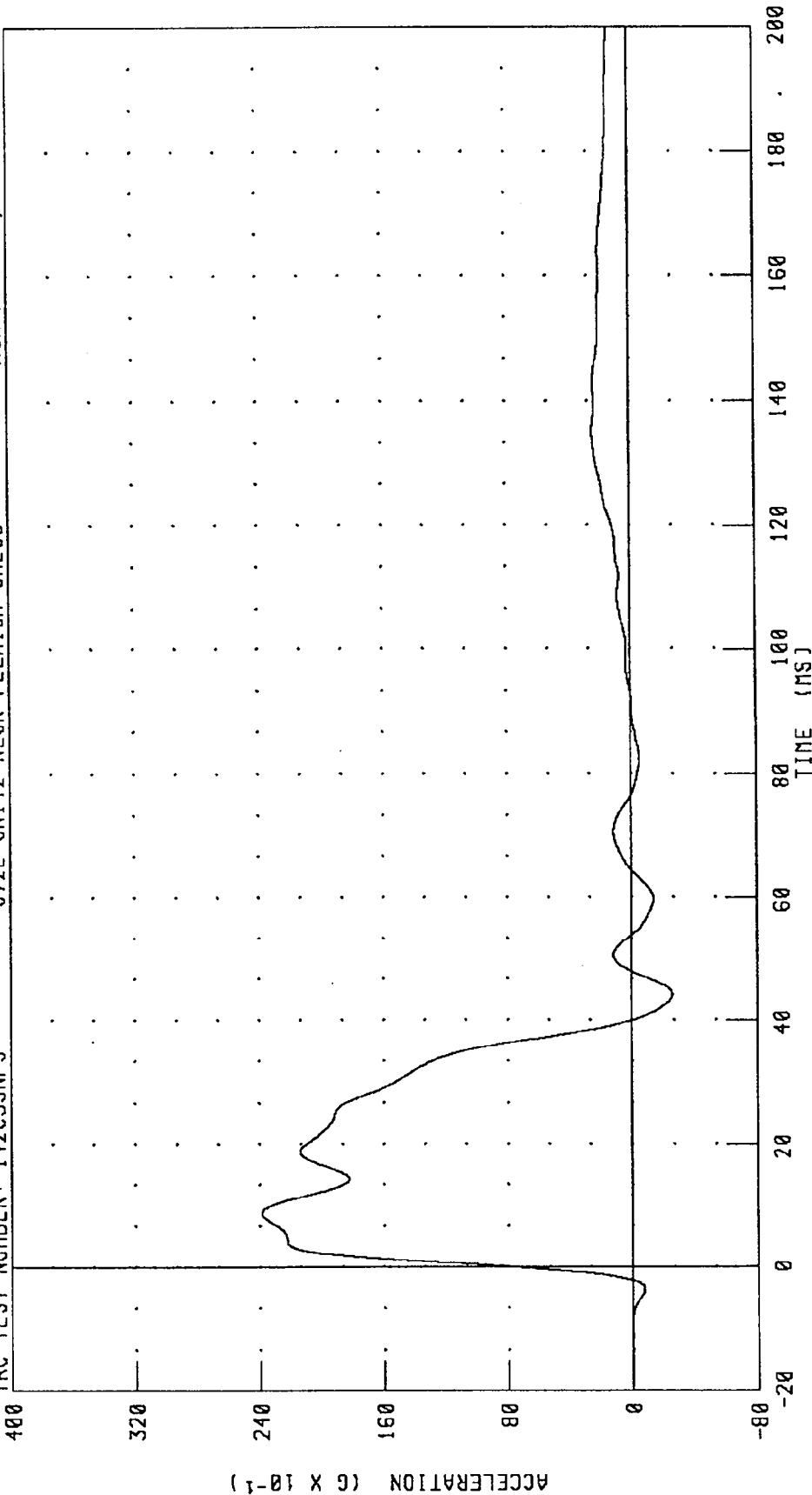
TEST MEETS SPECIFICATIONS

TECHNICIAN Richard L. Van

RUN NUMBER: 112696.1016;1

PART 572-E HYBRID III NECK FLEXION CALIBRATION
PENDULUM DECELERATION

TRC TEST NUMBER: 142C35NF9 572E SN142 NECK FLEXION CAL35 RUN NUMBER: 011097.1133.1



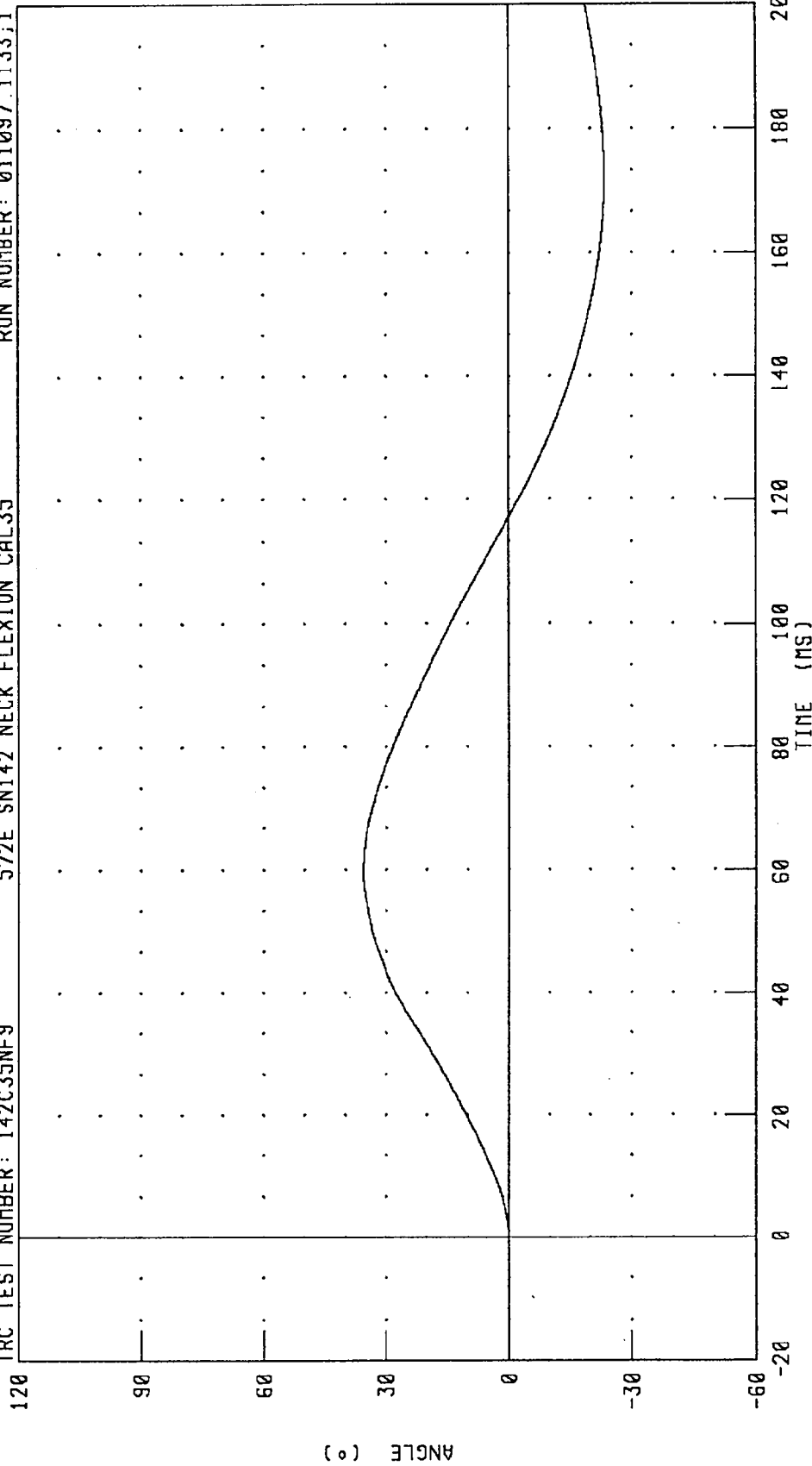
PEAK DATA: 23.88 G @ 8.64 MS; -2.59 G @ 44.08 MS

CHANNEL: PENXG FILTER: CH. CLASS 60

PART 572-E HYBRID 111 NECK FLEXION CALIBRATION
 ROTATION ABOUT BASE OF NECK

TRC TEST NUMBER: 142C35NF9 RUN NUMBER: 011097.1133;1

572E SN142 NECK FLEXION CAL35



PEAK DATA: 35.54 ° @ 59.36 MS; -23.31 ° @ 171.84 MS

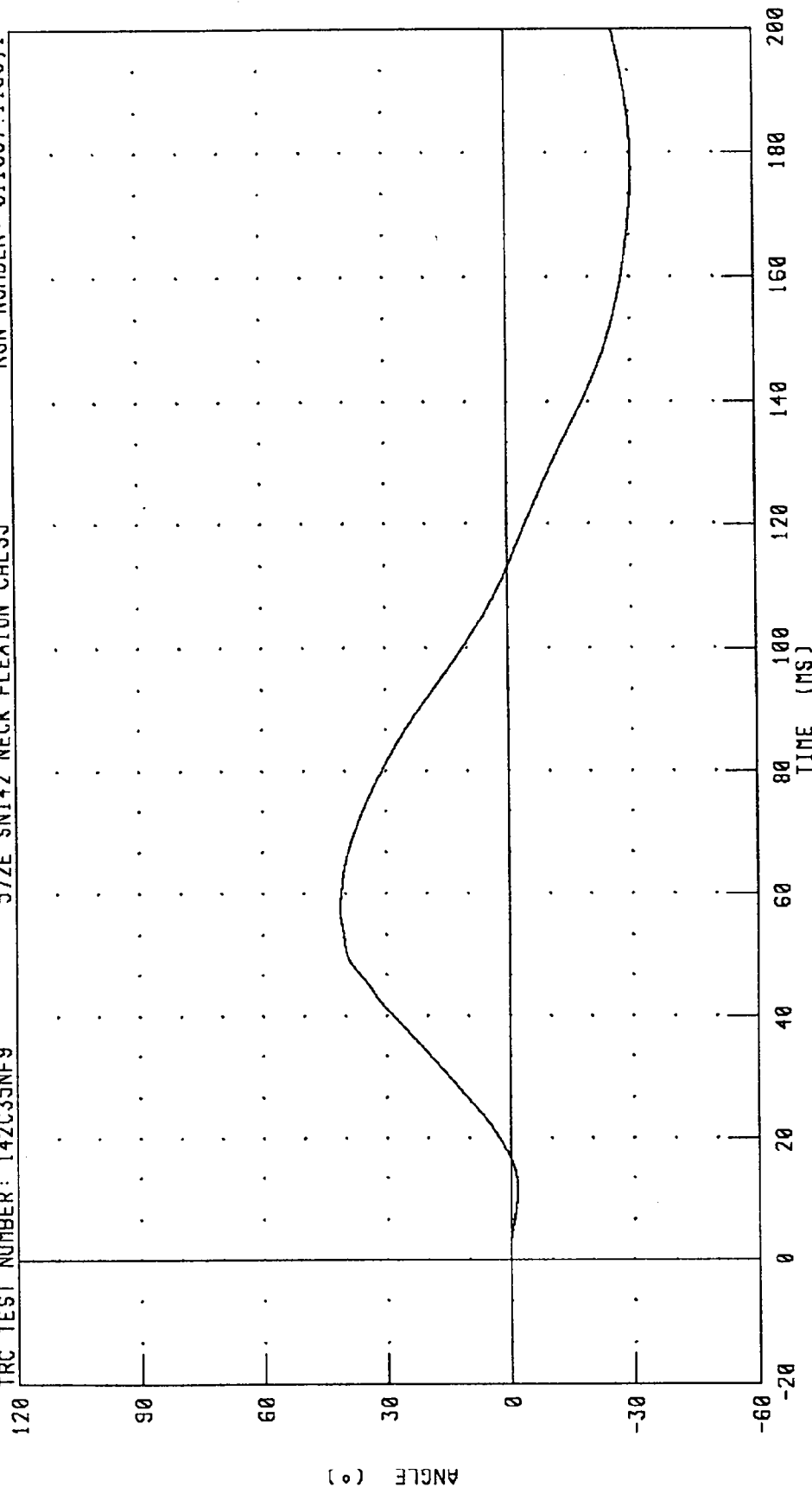
CHANNEL: BETA FILTER: CH. CLASS 60

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

TRC TEST NUMBER: 142C35NF9

572E SN142 NECK FLEXION CAL35

RUN NUMBER: 011097.1133.1



CHANNEL: THETA FILTER: CH. CLASS 60

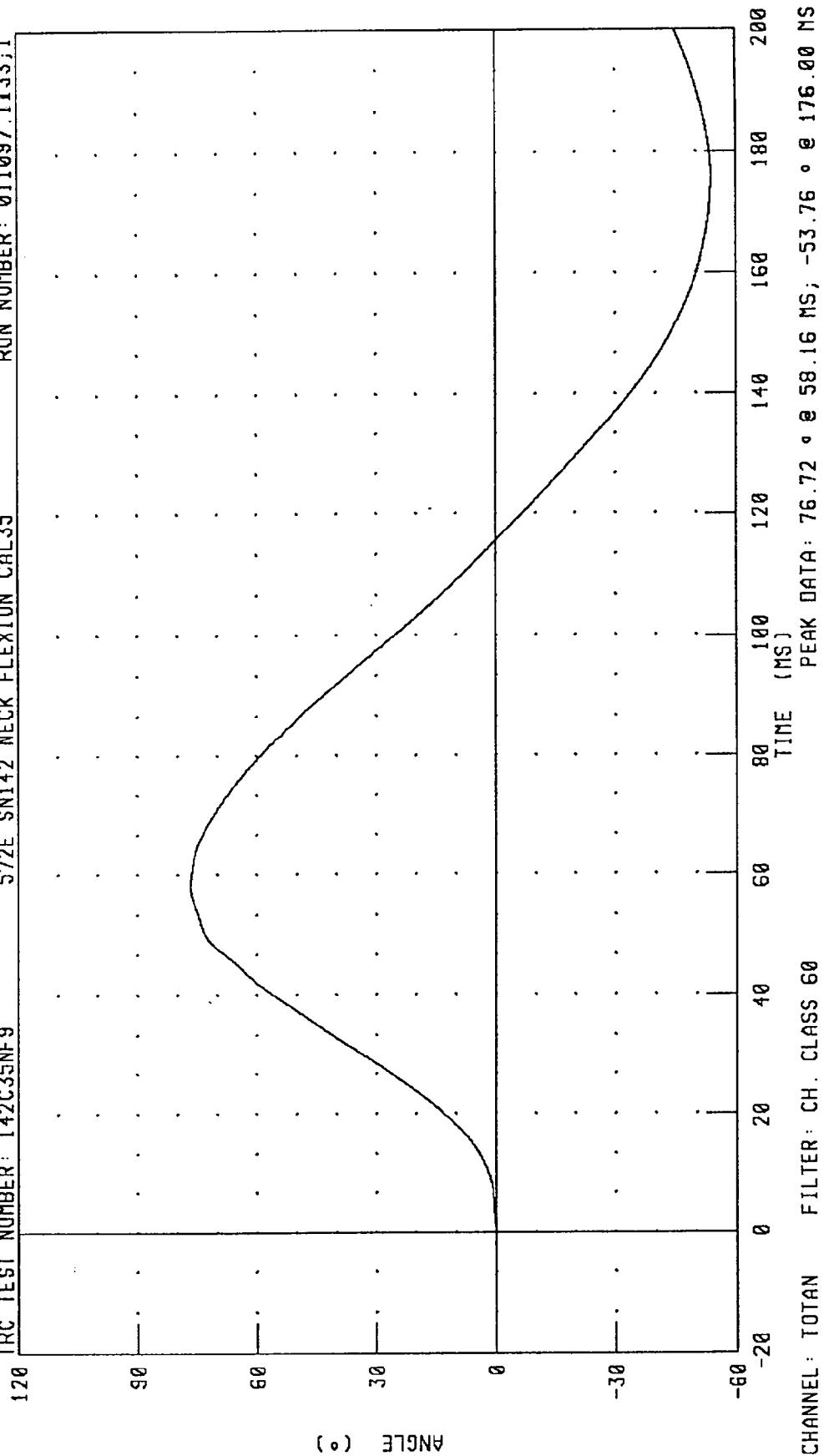
PART 572-E HYBRID III NECK FLEXION CALIBRATION

TOTAL ROTATION

TRC TEST NUMBER: 142C35NF9

572E SN142 NECK FLEXION CAL35

RUN NUMBER: 011097.1133;1



CHANNEL: TOTAL FILTER: CH. CLASS 60

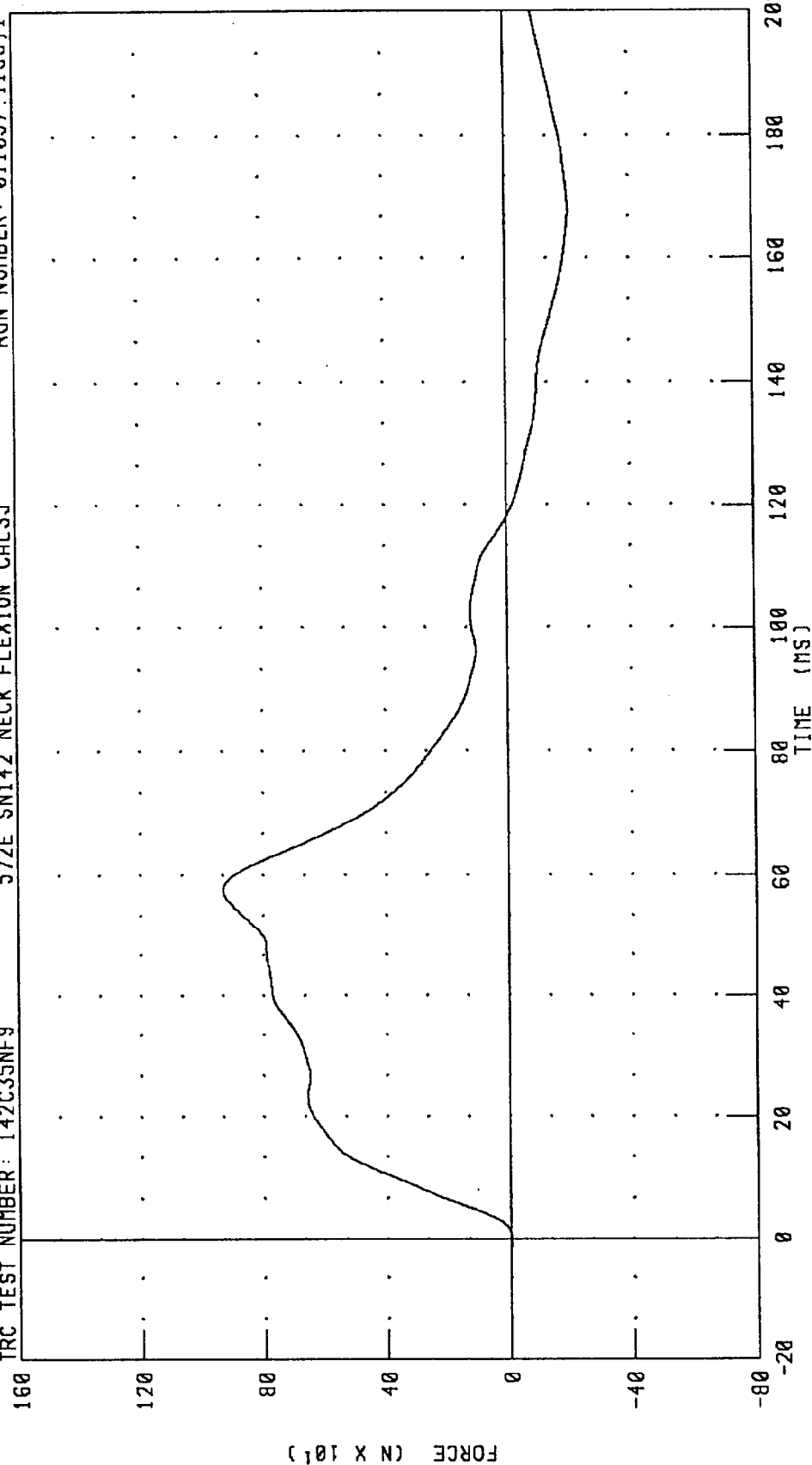
PART 572-E HYBRID III NECK FLEXION CALIBRATION

NECK FORCE X AXIS

TRC TEST NUMBER: 142C35NF9

572E SN142 NECK FLEXION CAL35

RUN NUMBER: 011097.1133;1



PEAK DATA: 931.02 N @ 57.60 MS; -204.86 N @ 167.76 MS

CHANNEL: NEKXF FILTER: CH. CLASS 60

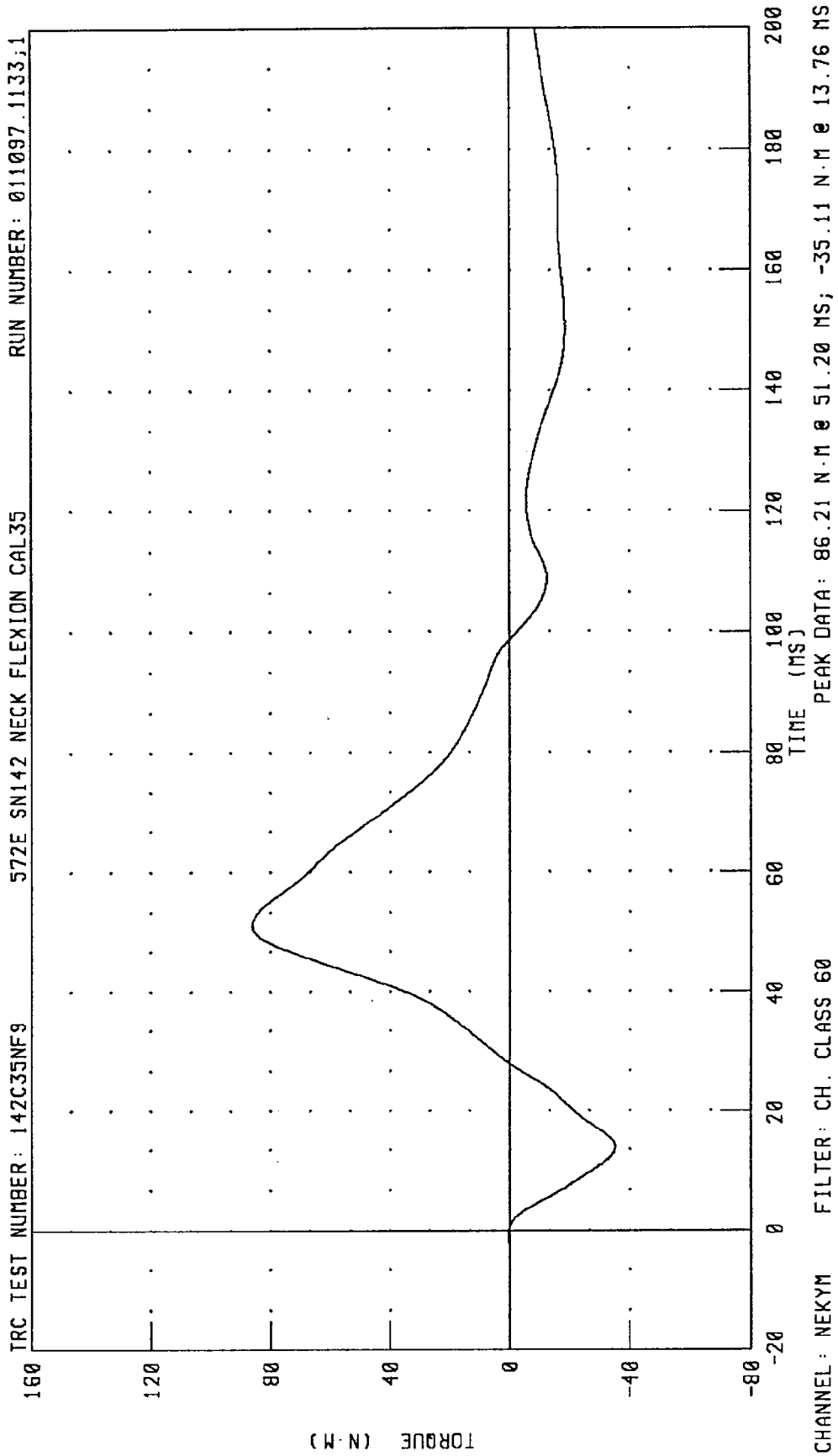
PART 572-E HYBRID III NECK FLEXION CALIBRATION

NECK MOMENT Y AXIS

TRC TEST NUMBER: 142C35NF9

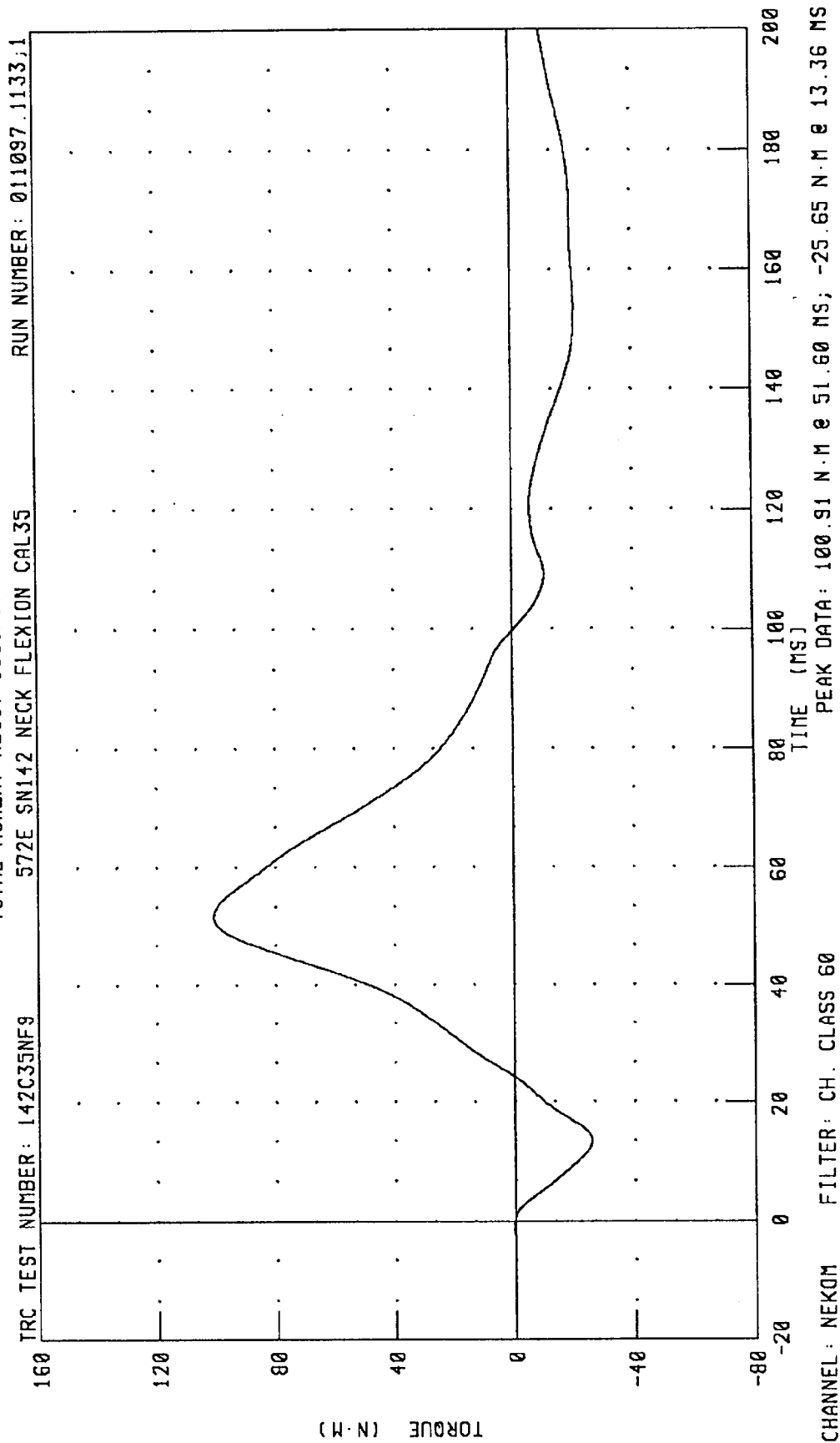
572E SN142 NECK FLEXION CAL35

RUN NUMBER: 011097.1133;1



CHANNEL: NEKYM FILTER: CH. CLASS 60 PEAK DATA: 86.21 N-M @ 51.20 MS; -35.11 N-M @ 13.76 MS

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



TRANSPORTATION RESEARCH CENTER INC.

NECK EXTENSION TEST - 6 CHANNEL TRANSDUCER

HYBRID III

25-NOV-96

TRC INC. TEST NO: 142C35NE2 572E SN142 NECK EXT. CAL35

TEST PARAMETER		SPECIFICATION	TEST RESULTS
TEMPERATURE		20.6 - 22.2 DEG. C	21.1 DEG. C
RELATIVE HUMIDITY		10 - 70 %	45.0 %
IMPACT VELOCITY		5.95 - 6.19 M/S	6.10 M/S
PENDULUM DECELERATION	10 MS	17.20 - 21.20 G	18.10 G
	20 MS	14.00 - 19.00 G	17.00 G
	30 MS	11.00 - 16.00 G	14.83 G
MAX PENDULUM G		22 G MAX	18.45 G
MAX PENDULUM G ABOVE 30 MS		22 G MAX	14.78 G
DECELERATION-TIME CURVE DECAY TIME TO 5 G		38 - 46 MS	40.32 MS
D PLANE	MAX	81 - 106 DEG.	96.33 DEG.
ROTATION	TIME	72 - 82 MS	72.08 MS
MOMENT ABOUT OCCIPITAL CONDYLE	MIN	-80.0/-52.9 NM	-75.08 NM
	TIME	65 - 79 MS	68.72 MS
ROTATION ANGLE-TIME CURVE DECAY TIME TO ZERO		147 - 174 MS	151.84 MS
NEGATIVE MOMENT-TIME CURVE DECAY TIME TO ZERO		120 - 148 MS	134.56 MS

TEST MEETS SPECIFICATIONS

TECHNICIAN Richard Le Van

RUN NUMBER: 112596.1304;3

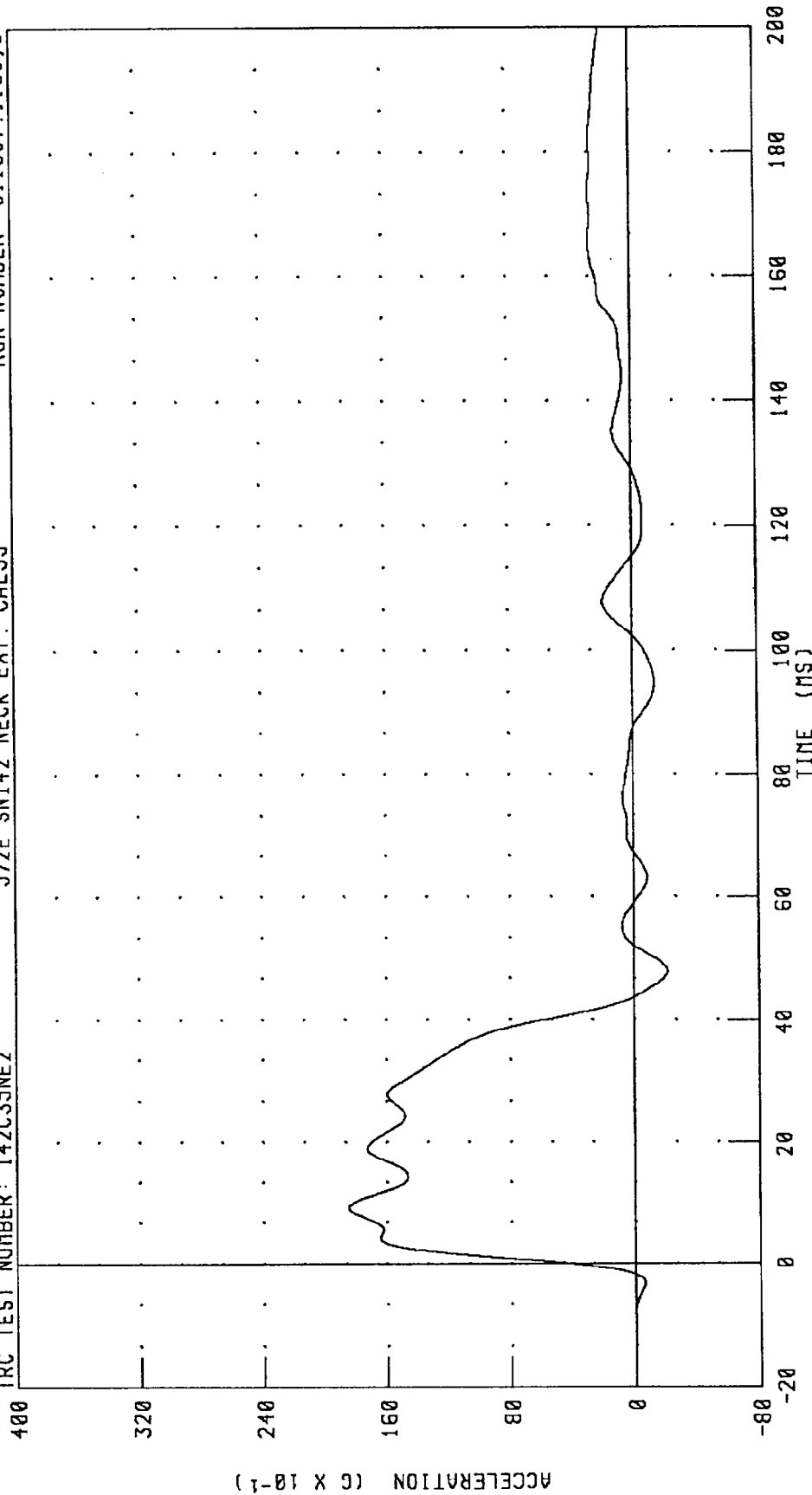
PART 572-E HYBRID III NECK EXTENSION CALIBRATION

PENDULUM DECELERATION

TRC TEST NUMBER: 142C35NE2

572E SN142 NECK EXT. CAL35

RUN NUMBER: 011097.1133;3



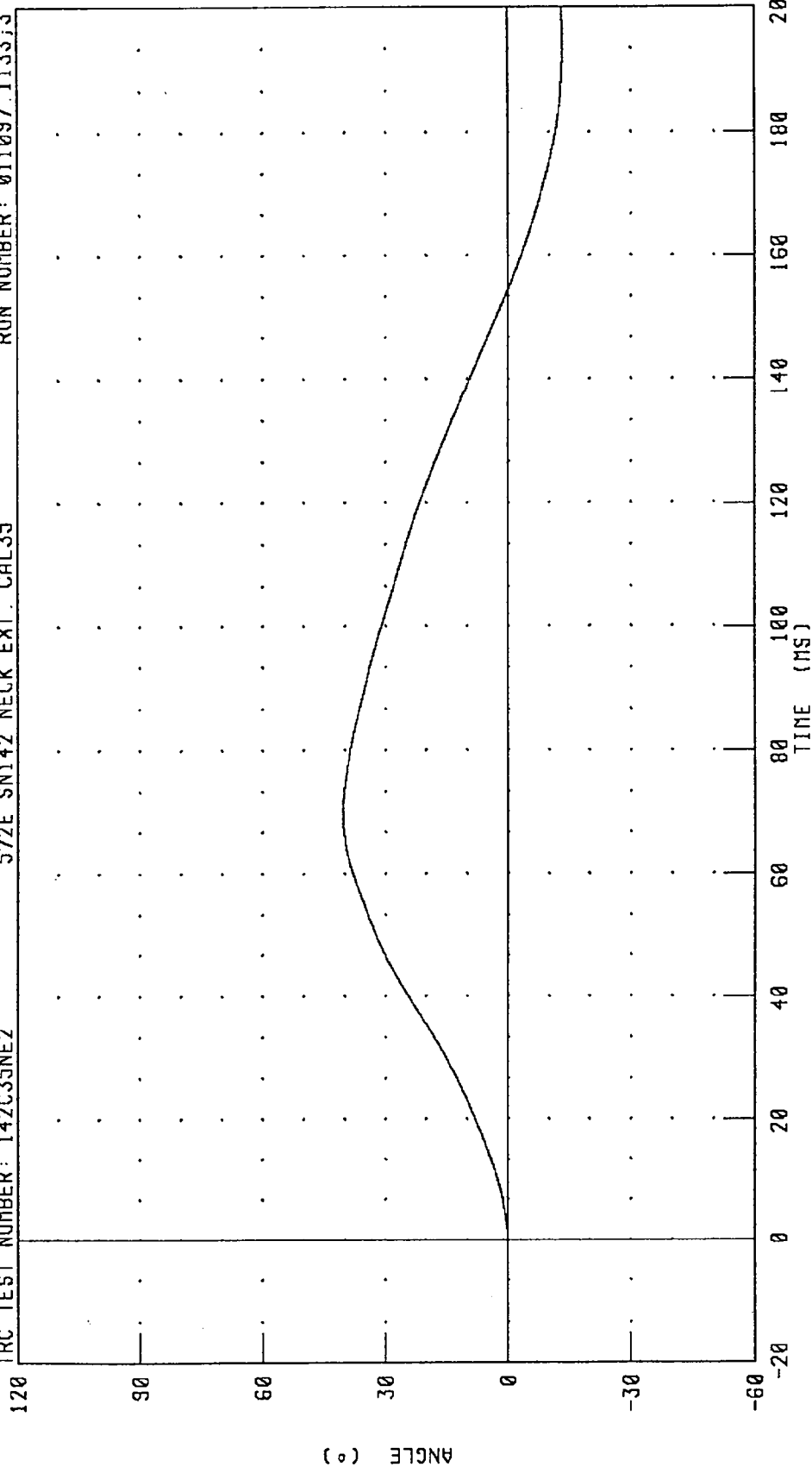
PEAK DATA: 18.46 G @ 9.04 MS; -2.12 G @ 47.84 MS

CHANNEL: PENXG FILTER: CH. CLASS 60

PART 572-E HYBRID III NECK EXTENSION CALIBRATION
 ROTATION ABOUT BASE OF NECK

TRC TEST NUMBER: 142C35NE2 RUN NUMBER: 011097.1133;3

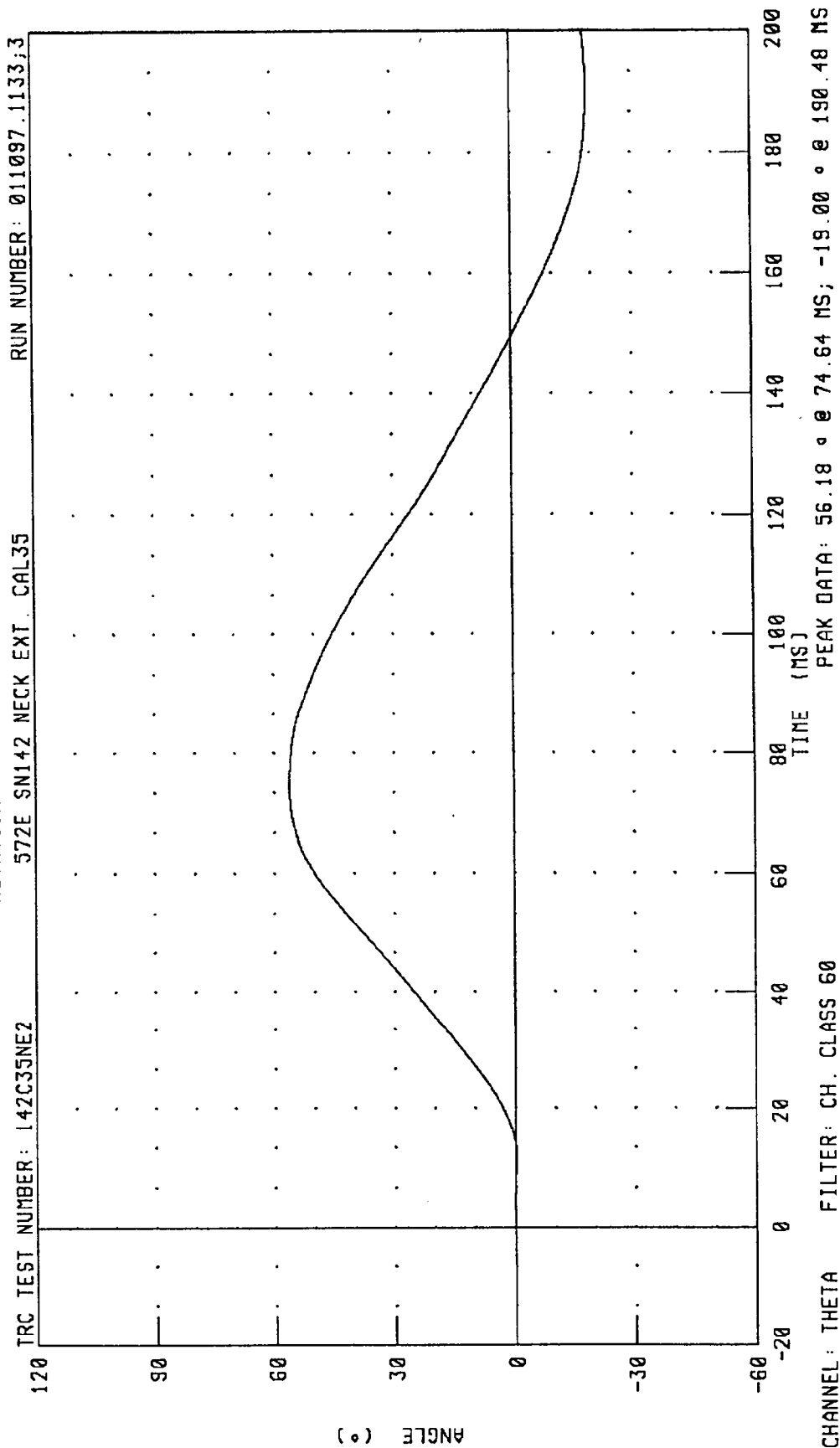
572E SN142 NECK EXT. CAL35



PEAK DATA: 40.47 ° @ 69.68 MS; -13.37 ° @ 194.40 MS

CHANNEL: BETA FILTER: CH. CLASS 60

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



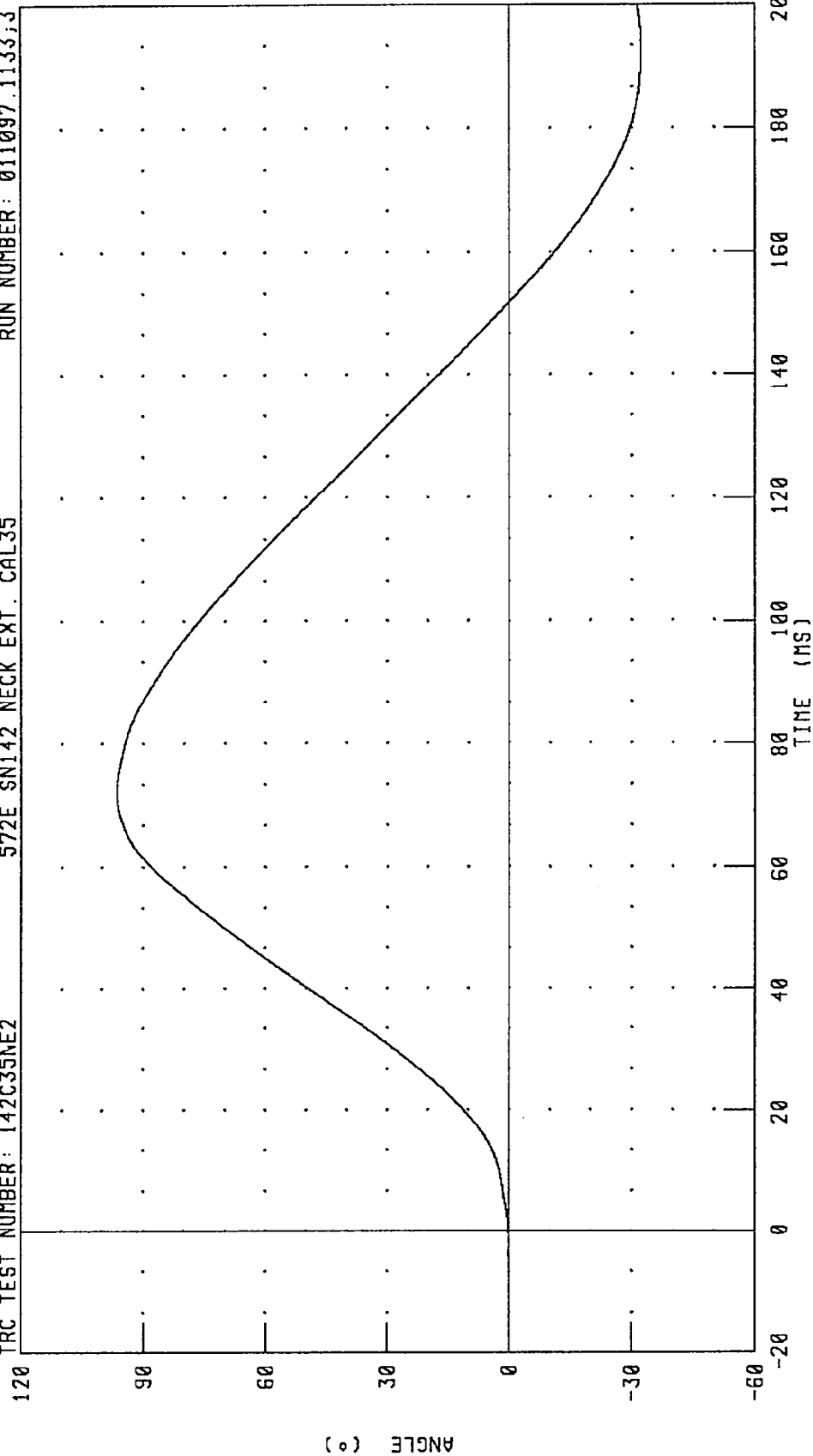
PART 572-E HYBRID III NECK EXTENSION CALIBRATION

TOTAL ROTATION

TRC TEST NUMBER: 142C35NE2

572E SN142 NECK EXT. CAL35

RUN NUMBER: 011097.1133;3



PEAK DATA: 96.34 ° @ 72.08 MS; -32.31 ° @ 192.72 MS

CHANNEL: TOTAN FILTER: CH. CLASS 60

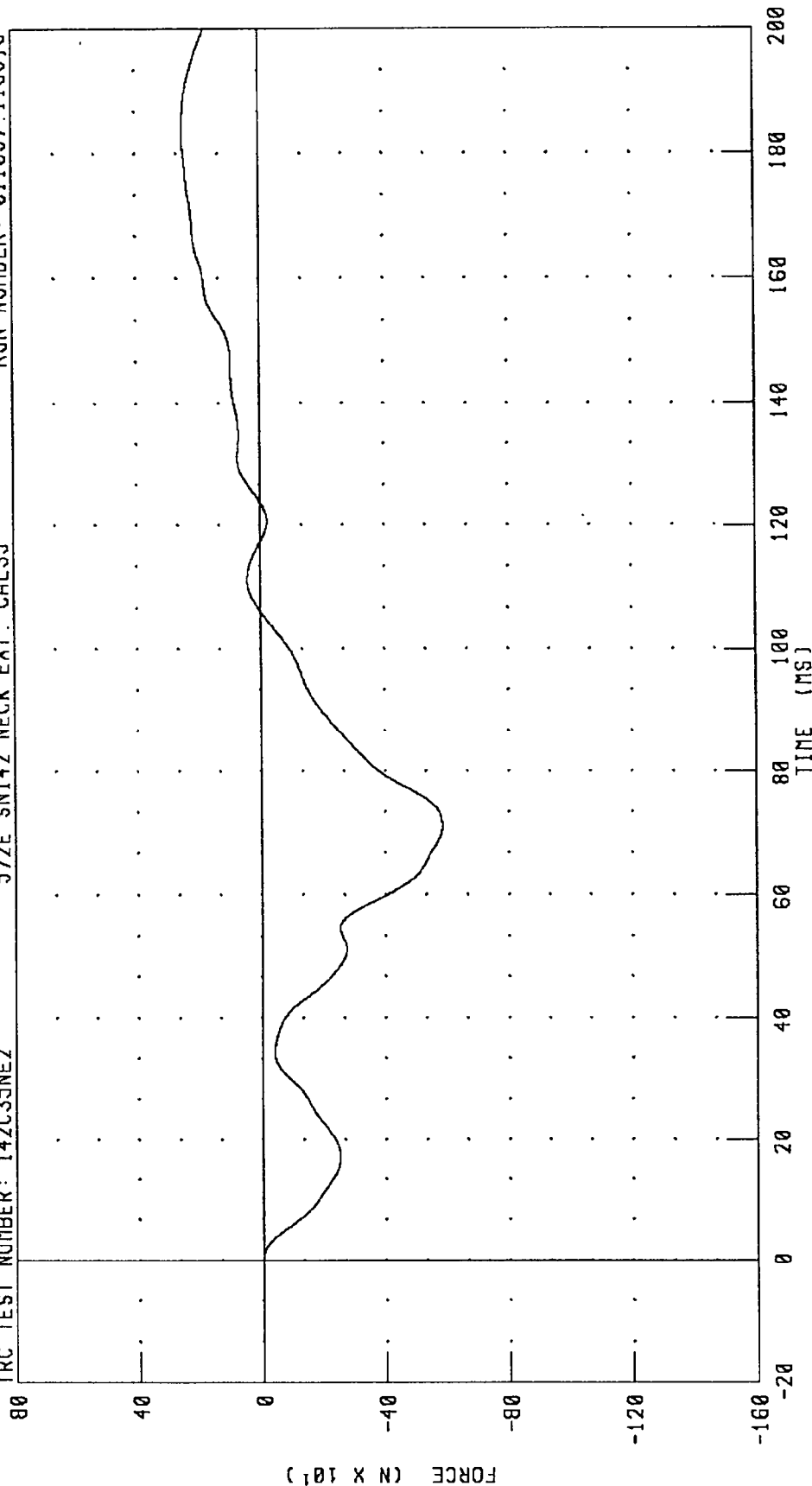
PART 572-E HYBRID III NECK EXTENSION CALIBRATION

NECK FORCE X AXIS

TRC TEST NUMBER: 142C35NE2

572E SN142 NECK EXT. CAL35

RUN NUMBER: 011097.1133,3

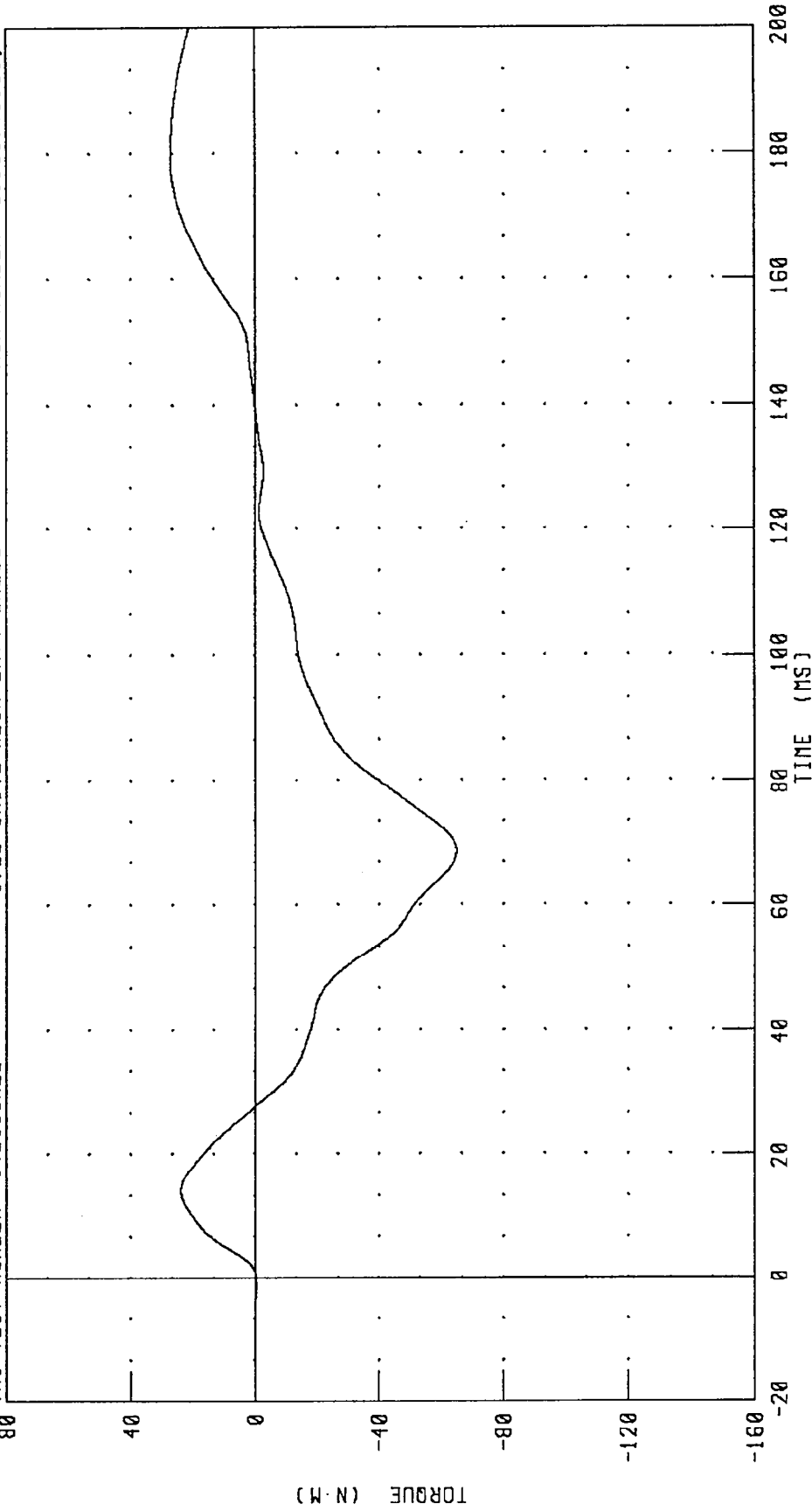


PEAK DATA: 248.09 N @ 182.96 MS; -584.95 N @ 71.04 MS

CHANNEL: NEKXF FILTER: CH. CLASS 60

PART 572-E HYBRID III NECK EXTENSION CALIBRATION
NECK MOMENT Y AXIS

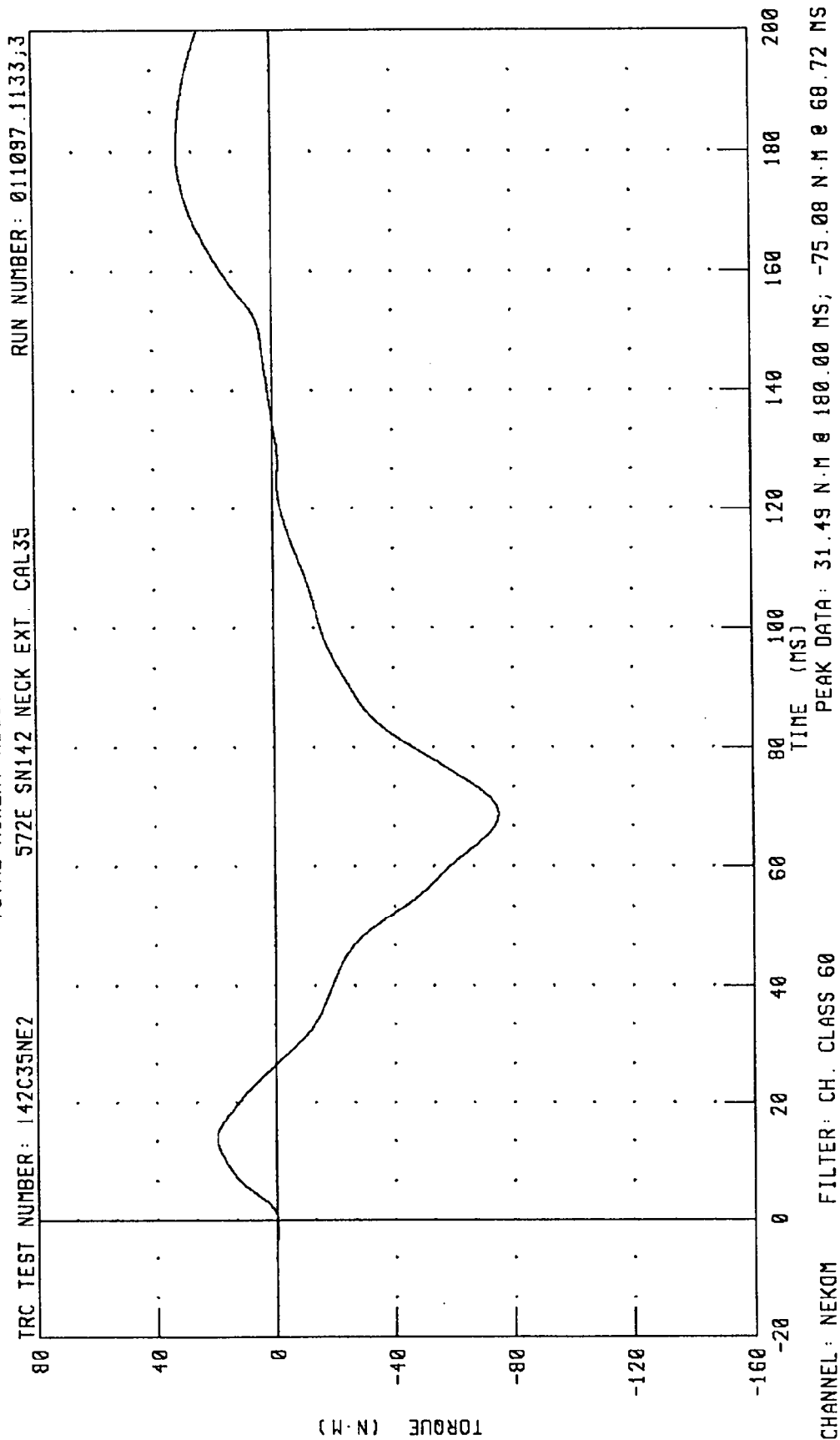
TRC TEST NUMBER: 142C35NE2 572E SN142 NECK EXT. CAL35 RUN NUMBER: 011097 1133;3



PEAK DATA: 27.17 N·M @ 179.28 MS; -64.91 N·M @ 68.40 MS

CHANNEL: NEKYM FILTER: CH. CLASS 60

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



TRANSPORTATION RESEARCH CENTER INC.

THORAX IMPACT TEST

HYBRID III

26-NOV-96

TRC INC.

TEST NO: 142C35TH1

572E SN 142 H.S.THORAX CAL 35

TEST PARAMETER	HIGH SPEED TEST	TEST RESULTS
	SPECIFICATION	
TEMPERATURE	20.6-22.2 DEG. C	21.4 DEG. C
RELATIVE HUMIDITY	10 - 70 %	36.0 %
PENDULUM VELOCITY	6.59 - 6.83 M/S	6.68 M/S
MAXIMUM DEFLECTION	63.5 - 72.6 MM	71.7 MM
MAXIMUM RESISTIVE FORCE	5159 - 5894 N	5687. N
INTERNAL HYSTERESIS	69% - 85%	71.5%

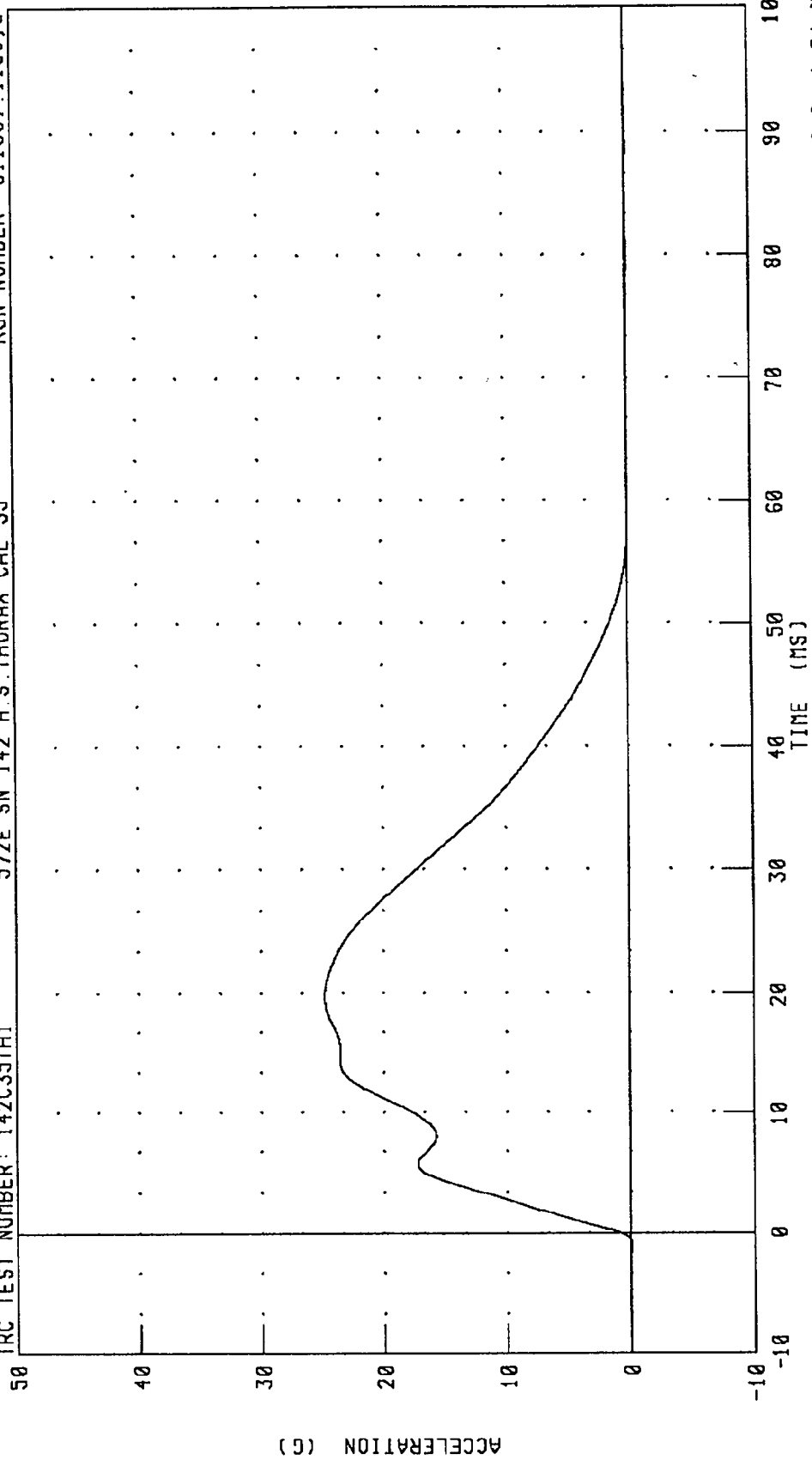
TEST MEETS SPECIFICATIONS

TECHNICIAN Richard L. Van

RUN NUMBER: 011097.1028;3

PART 572-E HYBRID III THORAX CALIBRATION
PENDULUM DECELERATION

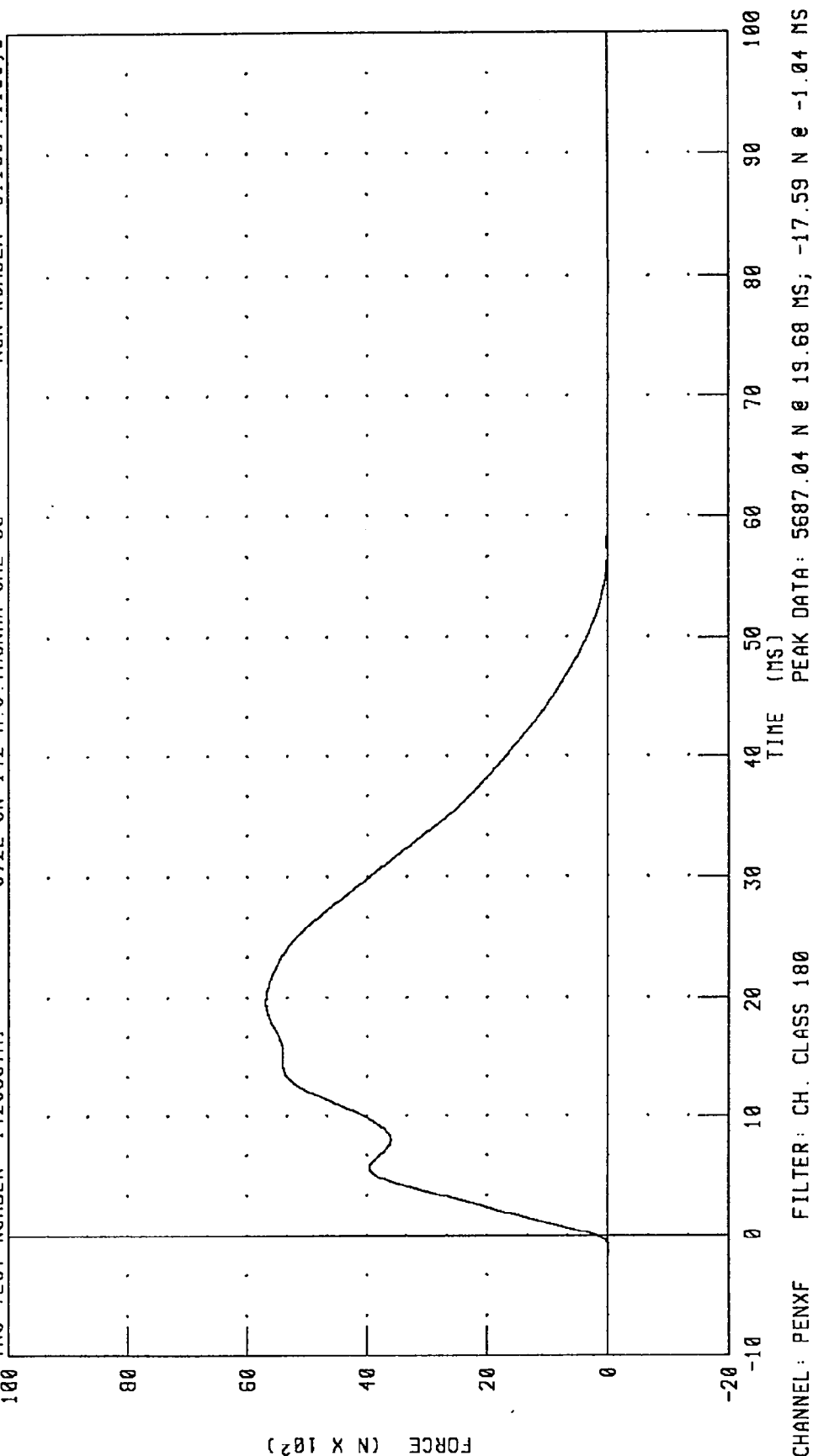
TRC TEST NUMBER: 142C35TH1 572E SN 142 H.S. THORAX CAL 35 RUN NUMBER: 011097.1133;3



CHANNEL: PENXG FILTER: CH. CLASS 180 PEAK DATA: 24.83 G @ 19.68 MS; -0.08 G @ -1.04 MS

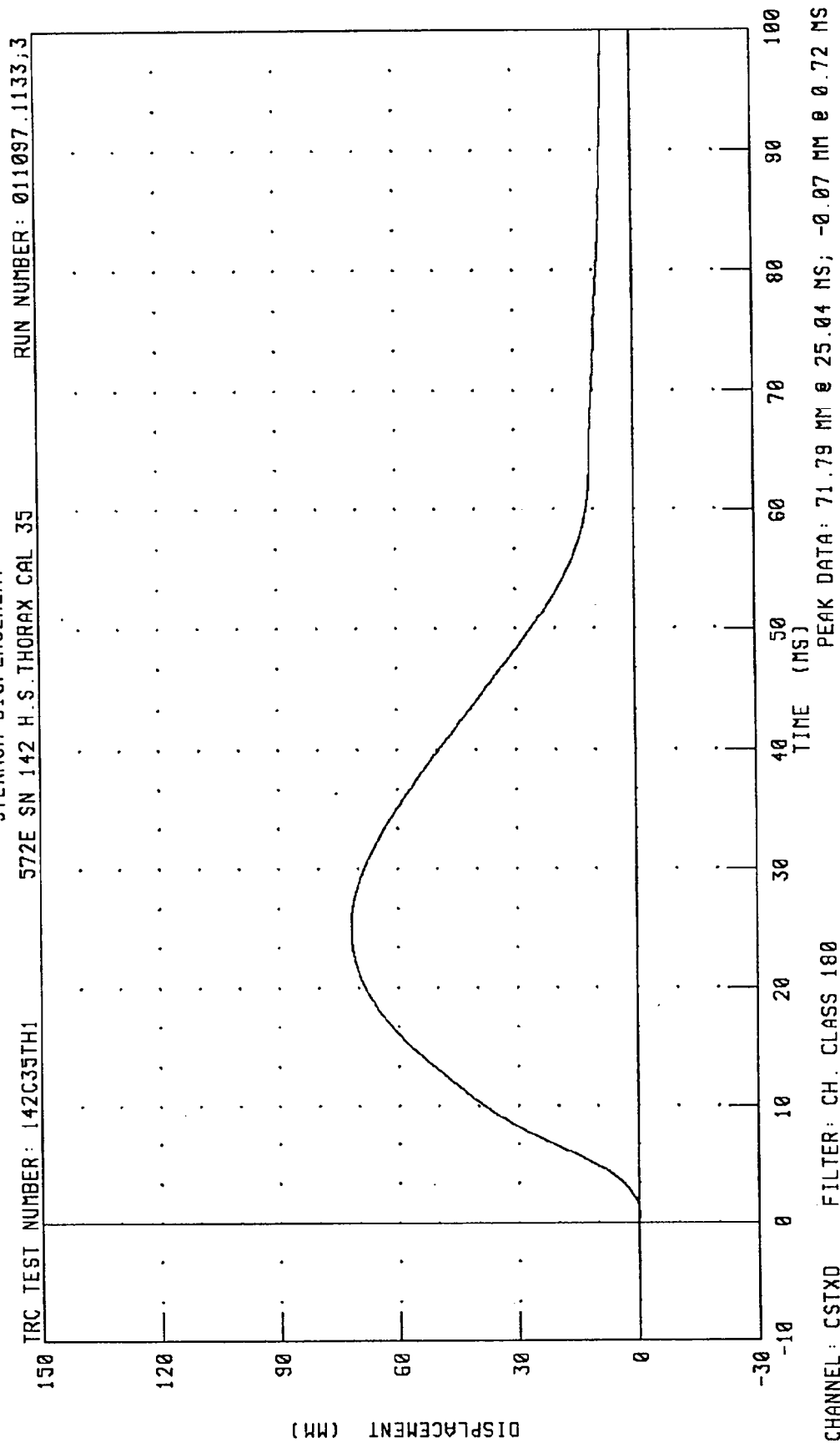
PART 572-E HYBRID III THORAX CALIBRATION
 PENDULUM FORCE

TRC TEST NUMBER: 142C35TH1 572E SN 142 H.S. THORAX CAL 35 RUN NUMBER: 011097.1133;3



CHANNEL: PENXF FILTER: CH. CLASS 180

PART 572-E HYBRID III THORAX CALIBRATION STERNUM DISPLACEMENT

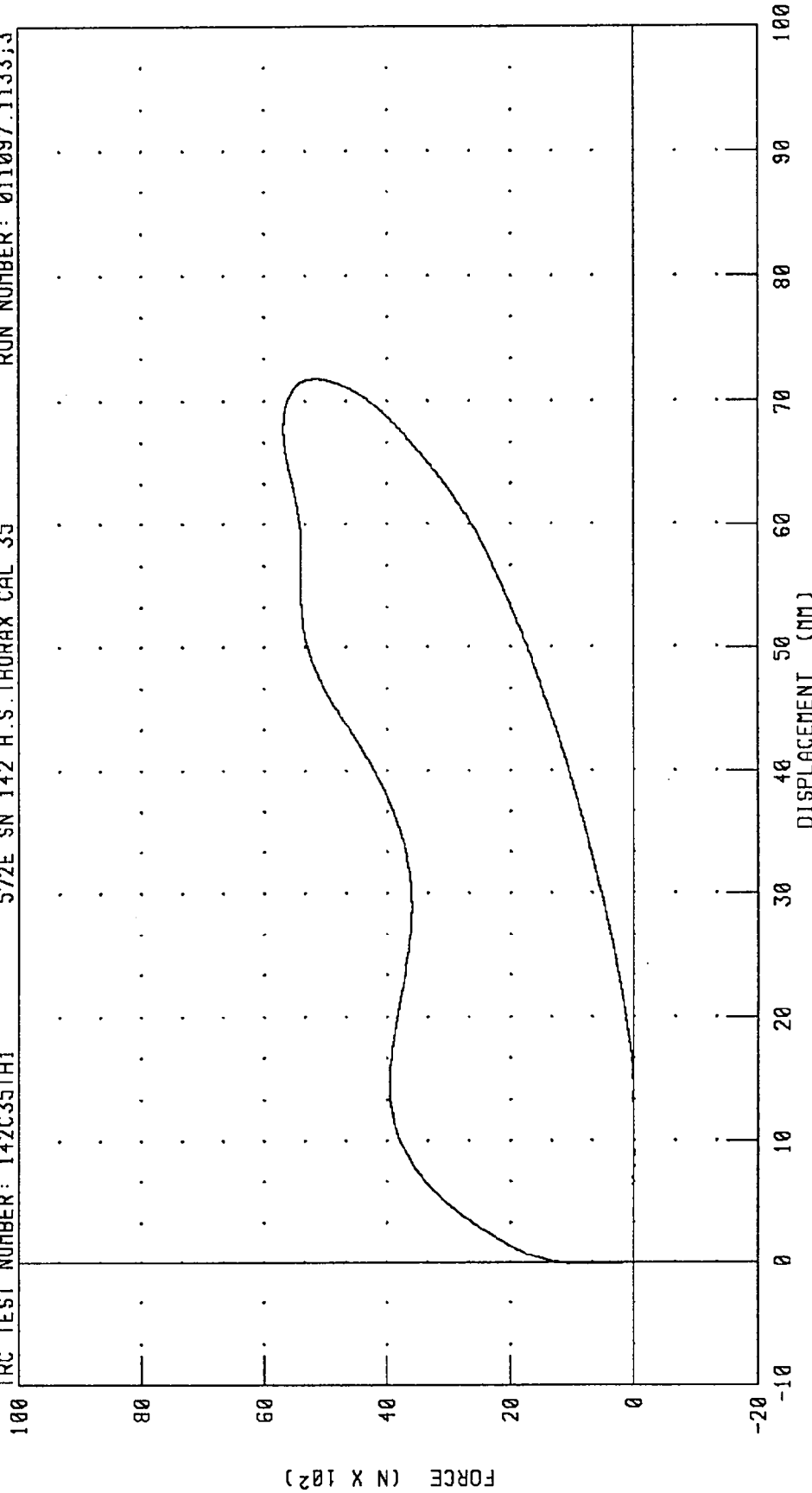


PART 572-E HYBRID III THORAX CALIBRATION
CHEST DISPLACEMENT VS PENDULUM FORCE

TRC TEST NUMBER: 142C35TH1

572E SN 142 H.S. THORAX CAL 35

RUN NUMBER: 011097.1133;3



CHANNEL: CSTXD
PENXF

PEAK DATA:

71.79 MM @ 25.04 MS;
5687.04 N @ 19.68 MS;

-0.07 MM @ 0.72 MS
-17.59 N @ -1.04 MS

TRANSPORTATION RESEARCH CENTER INC.

RIGHT KNEE IMPACT TEST

HYBRID III

21-NOV-96

TRC INC.

TEST NO: 142C35RK1

572E SN142 RIGHT KNEE CAL 35

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	18.9-25.6 DEG. C	21.1 DEG. C
RELATIVE HUMIDITY	10 - 70 %	30.0 %
PROBE VELOCITY	2.07 - 2.13 M/S	2.11 M/S
PEAK KNEE IMPACT FORCE 5.0 KG PENDULUM	4715 - 5782 N	5535.0 N

TEST MEETS SPECIFICATIONS

TECHNICIAN

Richard Le Van

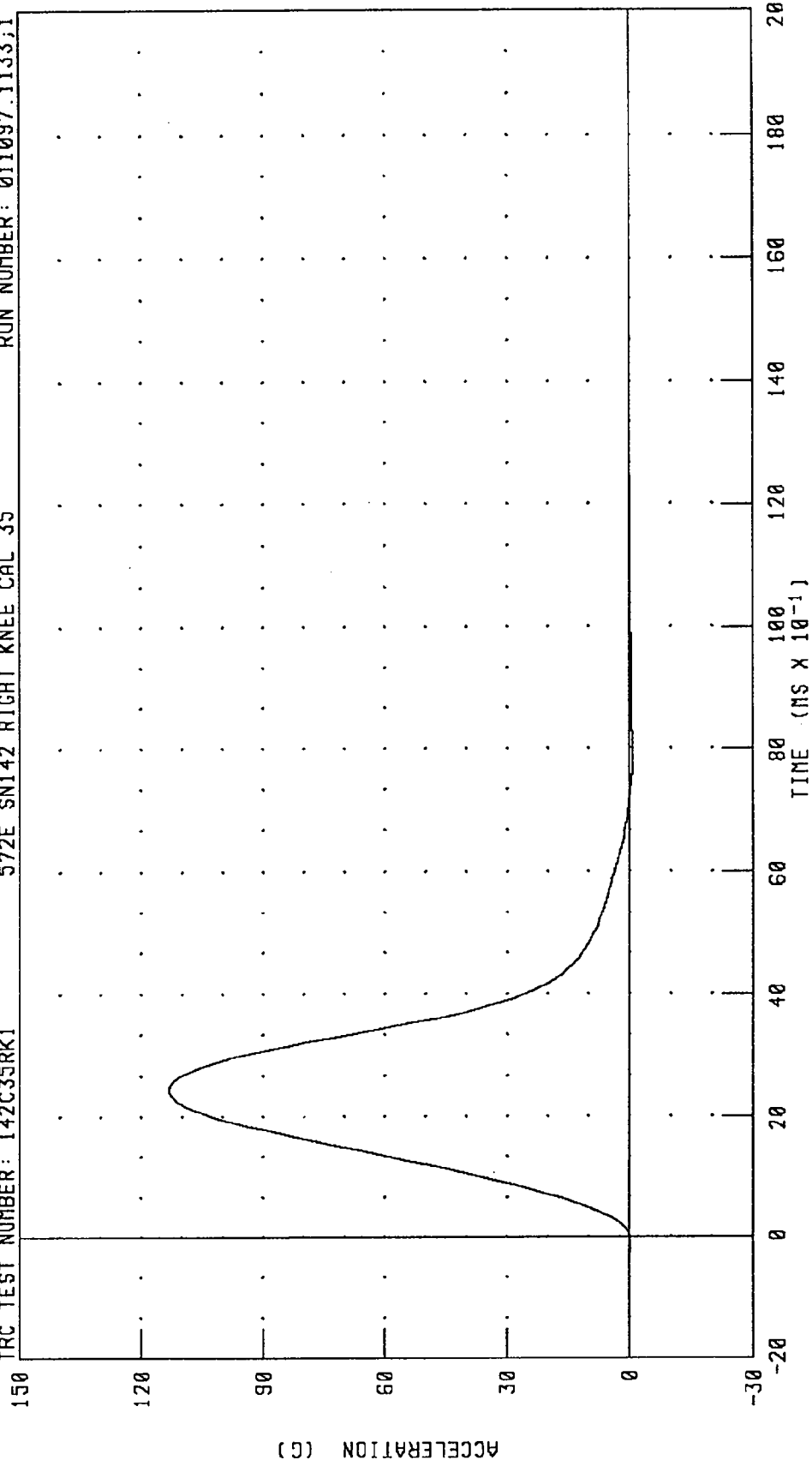
RUN NUMBER: 112196.1509;1

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

TRC TEST NUMBER: 142C35RK1

572E SN142 RIGHT KNEE CAL 35

RUN NUMBER: 011097.1133;1



CHANNEL: PENXG FILTER: CH. CLASS 600

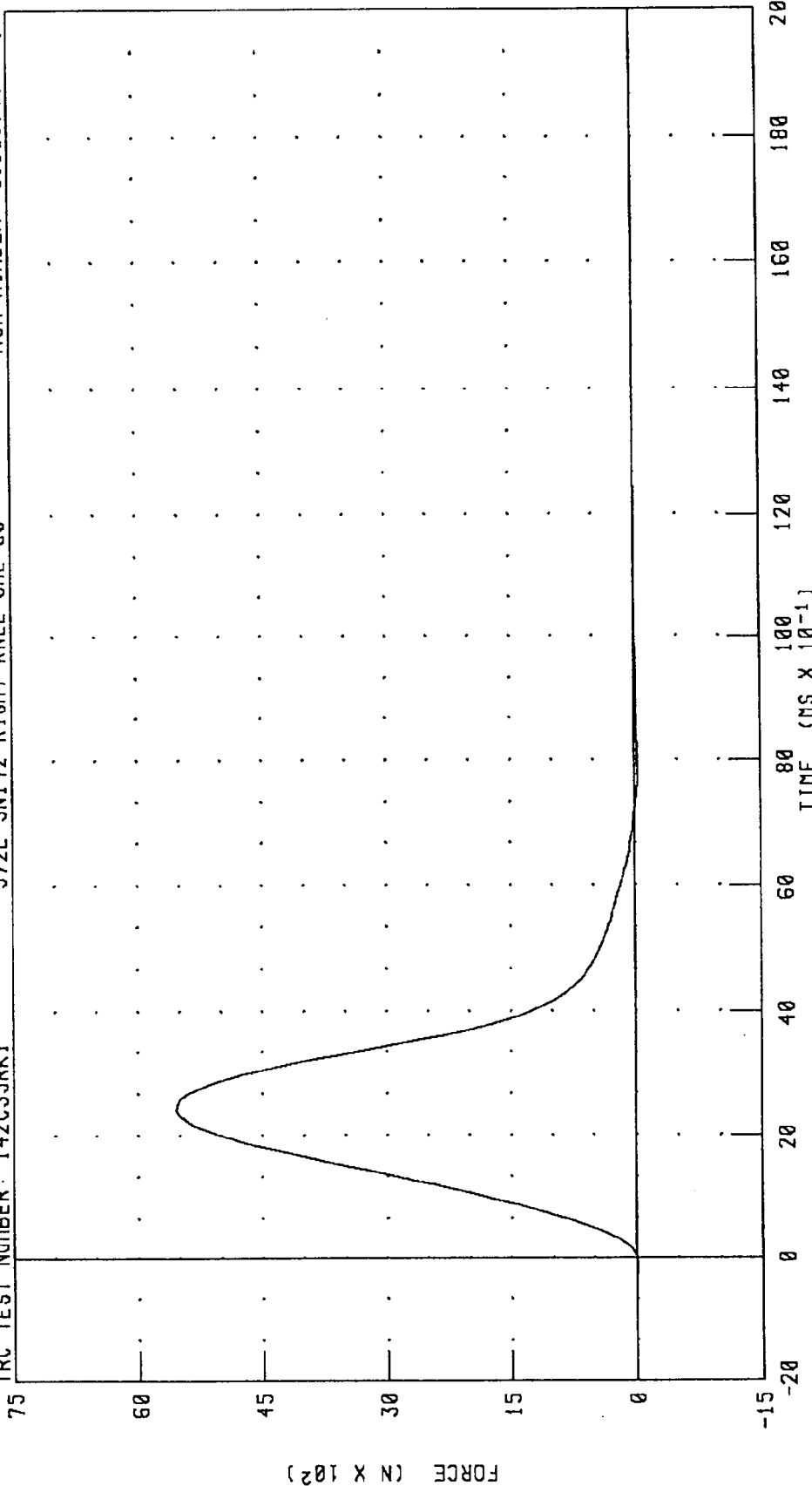
PEAK DATA: 113.13 G @ 2.40 MS; -0.75 G @ 7.92 MS

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

TRC TEST NUMBER: 142C35RK1

572E SN142 RIGHT KNEE CAL 35

RUN NUMBER: 011097.1133;1



PEAK DATA: 5535.09 N @ 2.40 MS; -36.62 N @ 7.92 MS

CHANNEL: PENXF FILTER: CH. CLASS 600

TRANSPORTATION RESEARCH CENTER INC.

LEFT KNEE IMPACT TEST

HYBRID III

21-NOV-96

TRC INC.

TEST NO: 142C35LK1

572E SN142 LEFT KNEE CAL 35

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	18.9-25.6 DEG. C	21.1 DEG. C
RELATIVE HUMIDITY	10 - 70 %	30.0 %
PROBE VELOCITY	2.07 - 2.13 M/S	2.11 M/S
PEAK KNEE IMPACT FORCE 5.0 KG PENDULUM	4715 - 5782 N	5458.0 N

TEST MEETS SPECIFICATIONS

TECHNICIAN

Richard L. Van

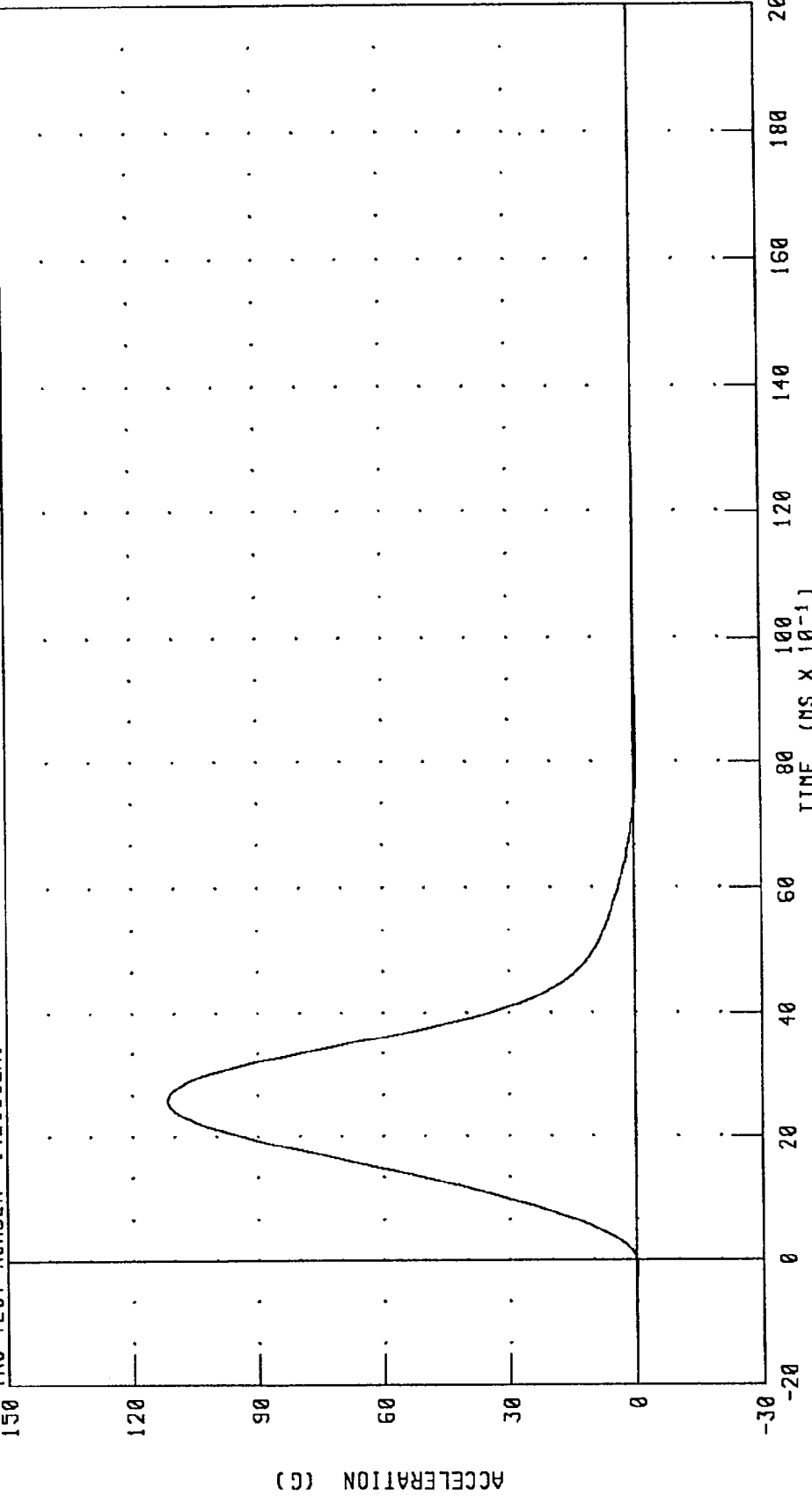
RUN NUMBER: 112196.1506;1

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

TRC TEST NUMBER: 142C35LK1

572E SN142 LEFT KNEE CAL 35

RUN NUMBER: 011097.1133;1

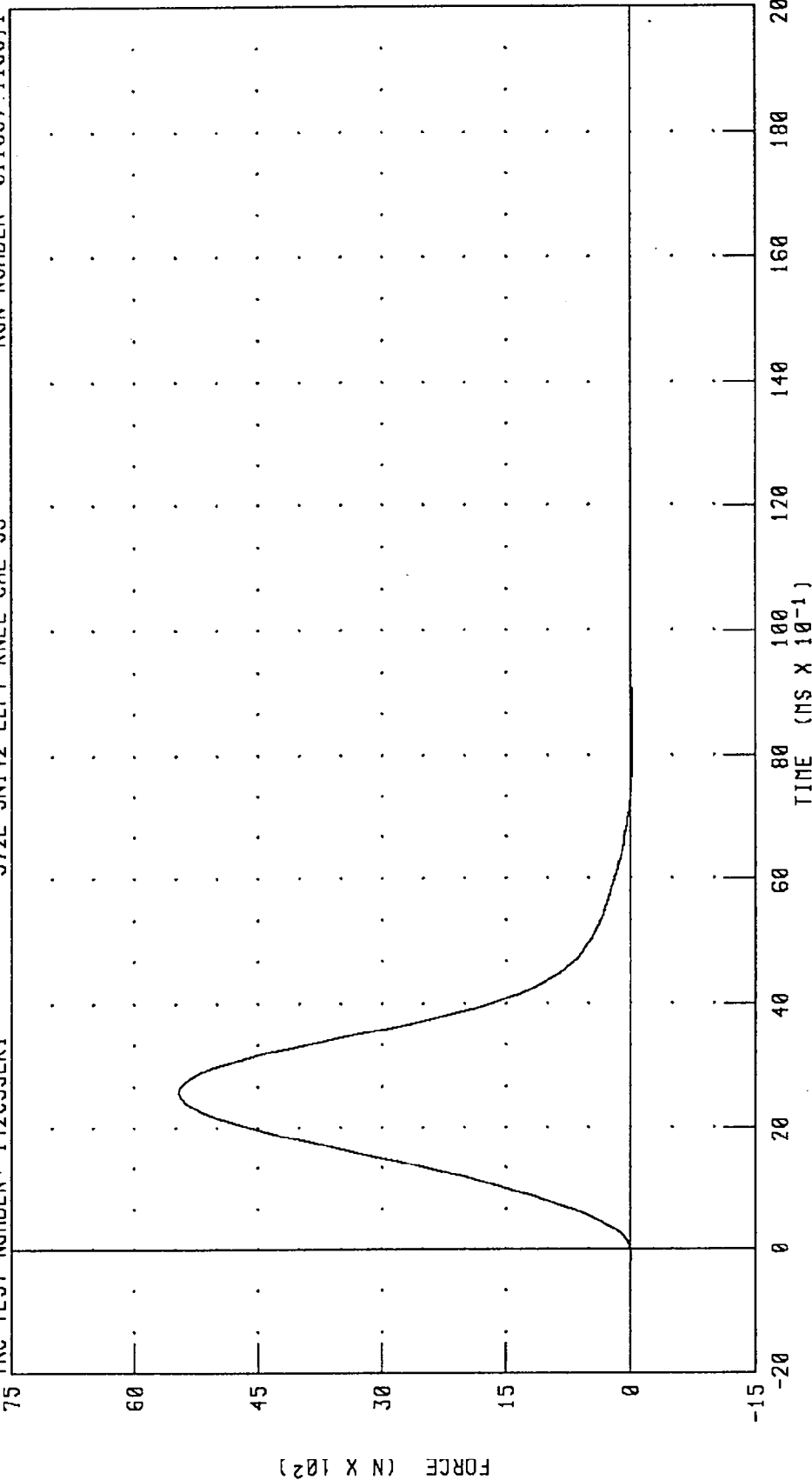


PEAK DATA: 111.55 G @ 2.56 MS; -0.53 G @ 7.92 MS

CHANNEL: PENXG FILTER: CH. CLASS 600

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

TRC TEST NUMBER: 142C35LK1 572E SN142 LEFT KNEE CAL 35 RUN NUMBER: 011097 1133,1



CHANNEL: PENXF FILTER: CH. CLASS 600 PEAK DATA: 5458.08 N @ 2.56 MS; -26.09 N @ 7.92 MS

Appendix D

Miscellaneous Test Information

Dummy Instrument Calibrations
Driver Dummy #192

	Serial Number	Model Number	Manufacturer	Calibration Date	
				Last	Due
Head X-axis accelerometer	AAL54	7264	Endevco	07/26/96	01/26/97
Head X-axis accelerometer-redundant	AJ8J7	7264	Endevco	08/15/96	02/15/97
Head Y-axis accelerometer	AAMP5	7264	Endevco	07/26/96	01/26/97
Head Y-axis accelerometer-redundant	J10458	7264	Endevco	08/15/96	02/15/97
Head Z-axis accelerometer	ACB35	7264	Endevco	07/26/96	01/26/97
Head Z-axis accelerometer-redundant	AC8W6	7264	Endevco	08/15/96	02/15/97
Chest X-axis accelerometer	ACCD0	7264	Endevco	07/26/96	01/26/97
Chest X-axis accelerometer-redundant	A79GJ	7264	Endevco	08/15/96	02/15/97
Chest Y-axis accelerometer	ACC82	7264	Endevco	07/26/96	01/26/97
Chest Y-axis accelerometer-redundant	AGR69	7264	Endevco	08/15/96	02/15/97
Chest Z-axis accelerometer	ACC59	7264	Endevco	07/26/96	01/26/97
Chest Z-axis accelerometer-redundant	AAL82	7264	Endevco	08/15/96	02/15/97
Left femur force load cell	263	2121	Denton	07/29/96	01/29/97
Right femur force load cell	264	2121	Denton	07/29/96	01/29/97
Neck X-axis force load cell	445	1716	Denton	07/29/96	01/29/97
Neck Y-axis force load cell	445	1716	Denton	07/29/96	01/29/97
Neck Z-axis force load cell	445	1716	Denton	07/29/96	01/29/97
Neck Moment about X-axis load cell	445	1716	Denton	07/29/96	01/29/97
Neck Moment about Y-axis load cell	445	1716	Denton	07/29/96	01/29/97
Neck Moment about Z-axis load cell	445	1716	Denton	07/29/96	01/29/97
Pelvis X-axis accelerometer	AJ694	7264	Endevco	08/15/96	02/15/97
Pelvis Y-axis accelerometer	AJ656	7264	Endevco	08/15/96	02/15/97
Pelvis Z-axis accelerometer	AJ788	7264	Endevco	08/15/96	02/15/97
Chest deflection potentiometer	87313-96	14CB1-2981	Vernitech	08/30/96	02/30/97
Lap belt force load cell	590	3419	Lebow	07/03/96	01/03/97
Shoulder belt force load cell	NA ¹	NA ¹	NA ¹	NA ¹	NA ¹

¹ See Data Acquisition Explanations.

Dummy Instrument Calibrations, Cont'd.
Driver Dummy #192

	Serial Number	Model Number	Manufacturer	Calibration Date Last Due	
Left upper tibia moment about X-axis load cell	617	1583	Denton	08/20/96	02/20/97
Left upper tibia moment about Y-axis load cell	617	1583	Denton	08/20/96	02/20/97
Right upper tibia moment about X-axis load cell	616	1583	Denton	08/20/96	02/20/97
Right upper tibia moment about Y-axis load cell	616	1583	Denton	08/20/96	02/20/97
Left Lower tibia X-axis force load cell	600	1584	Denton	08/20/96	02/20/97
Left Lower tibia Z-axis force load cell	600	1584	Denton	08/20/96	02/20/97
Left Lower tibia moment about Y-axis load cell	600	1584	Denton	08/20/96	02/20/97
Right Lower tibia X-axis force load cell	599	1584	Denton	08/20/96	02/20/97
Right Lower tibia Z-axis force load cell	599	1584	Denton	08/20/96	02/20/97
Right Lower tibia moment about Y-axis load cell	599	1584	Denton	08/20/96	02/20/97
Left foot X-axis accelerometer	10073	7264	Endevco	08/15/96	02/15/97
Left foot heel Z-axis accelerometer	10263	7264	Endevco	08/15/96	02/15/97
Left foot toe Z-axis accelerometer	10101	7264	Endevco	08/15/96	02/15/97
Right foot X-axis accelerometer	APYT4	7264	Endevco	08/15/96	02/15/97
Right foot heel Z-axis accelerometer	AP0R8	7264	Endevco	08/15/96	02/15/97
Right foot toe Z-axis accelerometer	10076	7264	Endevco	08/15/96	02/15/97

Dummy Instrument Calibrations, Cont'd.
Driver Dummy #192

	Serial Number	Model Number	Manufacturer	Calibration Date	
				Last	Due
Left knee left sensor	574	1587	Denton	08/20/96	02/20/97
Left knee right sensor	574	1587	Denton	08/20/96	02/20/97
Right knee left sensor	573	1587	Denton	08/20/96	02/20/97
Right knee right sensor	573	1587	Denton	08/20/96	02/20/97

Dummy Instrument Calibrations, Cont'd.
Right Front Passenger Dummy #142

	Serial Number	Model Number	Manufacturer	Calibration Date Last	Due
Head X-axis accelerometer	ACC63	7264	Endevco	07/26/96	01/26/97
Head X-axis accelerometer-redundant	AC8L5	7264	Endevco	08/15/96	02/15/97
Head Y-axis accelerometer	ACC02	7264	Endevco	07/26/96	01/26/97
Head Y-axis accelerometer-redundant	ACCR7	7264	Endevco	08/15/96	02/15/97
Head Z-axis accelerometer	ACCF3	7264	Endevco	07/26/96	01/26/97
Head Z-axis accelerometer-redundant	A68JJ	7264	Endevco	08/15/96	02/15/97
Chest X-axis accelerometer	ACC14	7264	Endevco	07/26/96	01/26/97
Chest X-axis accelerometer-redundant	A65JJ	7264	Endevco	08/15/96	02/15/97
Chest Y-axis accelerometer	ACCR0	7264	Endevco	07/26/96	01/26/97
Chest Y-axis accelerometer-redundant	FH14J	7264	Endevco	08/15/96	02/15/97
Chest Z-axis accelerometer	ACCT5	7264	Endevco	07/26/96	01/26/97
Chest Z-axis accelerometer-redundant	AC745	7264	Endevco	08/15/96	02/15/97
Left femur force load cell	257	2121	Denton	07/29/96	01/29/97
Right femur force load cell	258	2121	Denton	07/29/96	01/29/97
Neck X-axis force load cell ¹	441	1716	Denton	10/19/96	04/19/97
Neck Y-axis force load cell ¹	441	1716	Denton	10/19/96	04/19/97
Neck Z-axis force load cell ¹	441	1716	Denton	10/19/96	04/19/97
Neck Moment about X-axis load cell ¹	441	1716	Denton	10/19/96	04/19/97
Neck Moment about Y-axis load cell ¹	441	1716	Denton	10/19/96	04/19/97
Neck Moment about Z-axis load cell ¹	441	1716	Denton	10/19/96	04/19/97
Pelvis X-axis accelerometer	CY63H	7264	Endevco	08/15/96	02/15/97
Pelvis Y-axis accelerometer	AMWA9	7264	Endevco	08/15/96	02/15/97
Pelvis Z-axis accelerometer	ANA55	7264	Endevco	08/15/96	02/15/97
Chest deflection potentiometer	142	14CB1-2981	Vernitech	08/30/96	02/30/97
Lap belt force load cell	236	3419	Lebow	07/03/96	01/03/97
Shoulder belt force load cell	NA ¹	NA ¹	NA ¹	NA ¹	NA ¹

¹ See Data Acquisition Explanations.

Dummy Instrument Calibrations, Cont'd
Right Front Passenger Dummy #142

	Serial Number	Model Number	Manufacturer	Calibration Date	
				Last	Due
Left upper tibia moment about X-axis load cell	46	1583	Denton	08/20/96	02/20/97
Left upper tibia moment about Y-axis load cell	46	1583	Denton	08/20/96	02/20/97
Right upper tibia moment about X-axis load cell	35	1583	Denton	08/20/96	02/20/97
Right upper tibia moment about Y-axis load cell	35	1583	Denton	08/20/96	02/20/97
Left Lower tibia X-axis force load cell	42	1584	Denton	08/20/96	02/20/97
Left Lower tibia Z-axis force load cell	42	1584	Denton	08/20/96	02/20/97
Left Lower tibia moment about Y-axis load cell	42	1584	Denton	08/20/96	02/20/97
Right Lower tibia X-axis force load cell	39	1584	Denton	08/20/96	02/20/97
Right Lower tibia Z-axis force load cell	39	1584	Denton	08/20/96	02/20/97
Right Lower tibia moment about Y-axis load cell	39	1584	Denton	08/20/96	02/20/97
Left foot X-axis accelerometer	APA01	7264	Endevco	08/15/96	02/15/97
Left foot heel Z-axis accelerometer	10102	7264	Endevco	08/15/96	02/15/97
Left foot toe Z-axis accelerometer	10074	7264	Endevco	08/15/96	02/15/97
Right foot X-axis accelerometer	10088	7264	Endevco	08/15/96	02/15/97
Right foot heel Z-axis accelerometer	10089	7264	Endevco	08/15/96	02/15/97
Right foot toe Z-axis accelerometer	10087	7264	Endevco	08/15/96	02/15/97

Dummy Instrument Calibrations, Cont'd.
Right Front Passenger Dummy #142

	Serial Number	Model Number	Manufacturer	Calibration Date Last	Due
Left knee left sensor	21	1587	Denton	08/20/96	02/20/97
Left knee right sensor	21	1587	Denton	08/20/96	02/20/97
Right knee left sensor	42	1587	Denton	08/20/96	02/20/97
Right knee right sensor	42	1587	Denton	08/20/96	02/20/97

Vehicle and Calibration Laboratory Instrument Calibrations

Vehicle Accelerometers

	Serial Number	Model Number	Manufacturer	Calibration Date	
				Last	Due
Left rear seat crossmember X-axis	J11342	7264	Endevco	08/16/96	02/16/97
Left rear seat crossmember X-axis redundant	J14287	7264	Endevco	06/20/96	12/20/96
Right rear seat crossmember X-axis	J14150	7264	Endevco	06/04/96	12/04/96
Right rear seat crossmember X-axis redundant	J14171	7264	Endevco	11/18/96	05/18/97
Engine top X-axis	J10789	7264	Endevco	11/13/96	05/13/97
Engine bottom X-axis	10288	7264	Endevco	06/04/96	12/04/96
Right brake caliper X-axis	J13570	7264	Endevco	11/18/96	05/18/97
Left brake caliper X-axis	AJ658	7264	Endevco	11/18/96	05/18/97
Instrument panel center X-axis	AJ786	7264	Endevco	07/05/96	01/05/97

A. T. D. Calibration Laboratory Instruments

	Serial Number	Model Number	Manufacturer	Calibration Date	
				Last	Due
Neck bending pendulum accelerometer	CB27	7232	Endevco	09/18/96	03/18/97
Neck bending rotary potentiometer (Beta)	006	66575-1-102	Bournes	07/22/96	01/22/97
Neck bending linear potentiometer (Theta)	007	66575-1-102	Bournes	07/22/96	01/22/97
Thorax pendulum accelerometer	CC64	7232	Endevco	09/18/96	03/18/97
Hybrid III femur pendulum accelerometer	CB35	7232	Endevco	09/18/96	03/18/97

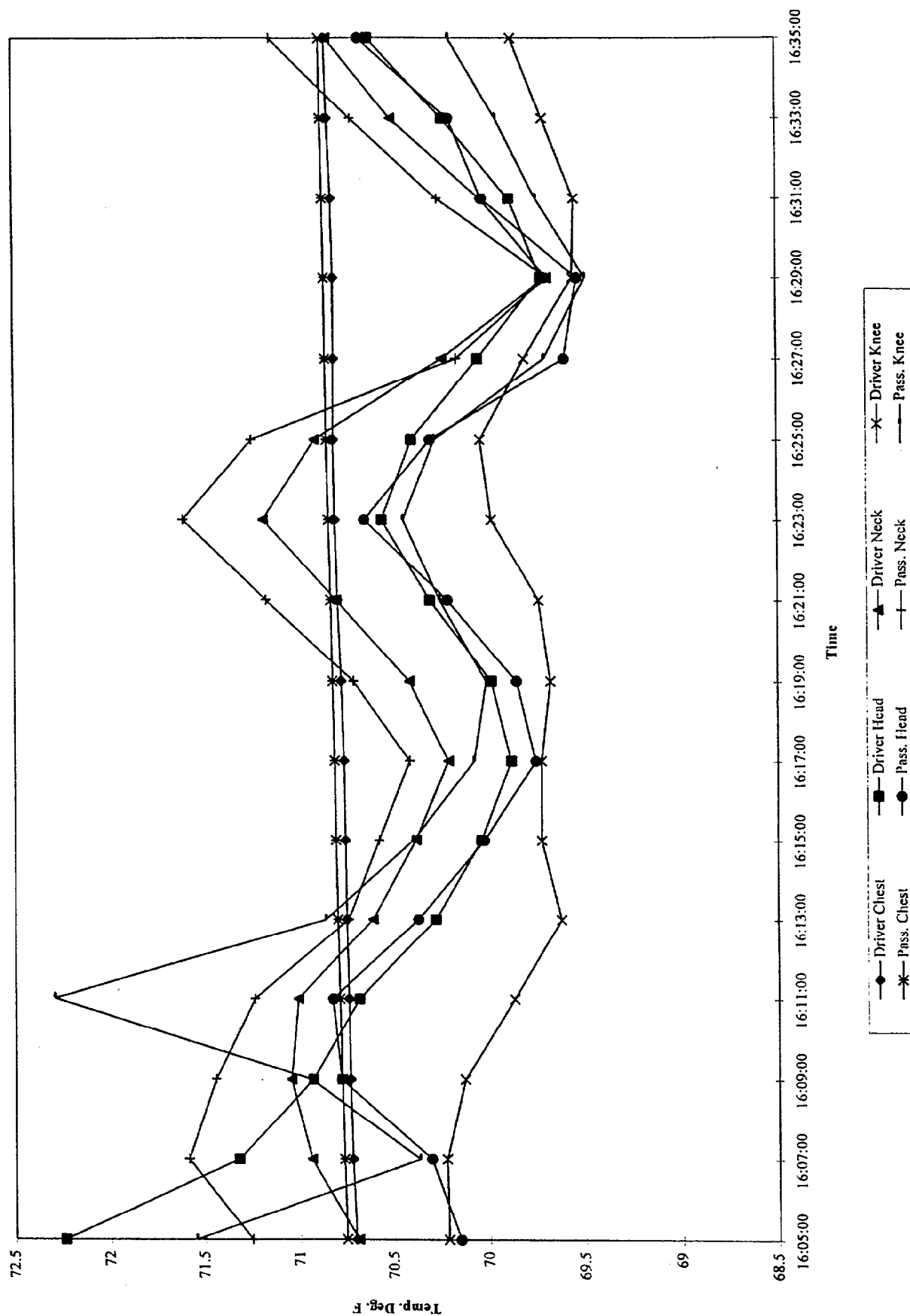
Sign Convention
NHTSA Data Tape Reference Guide

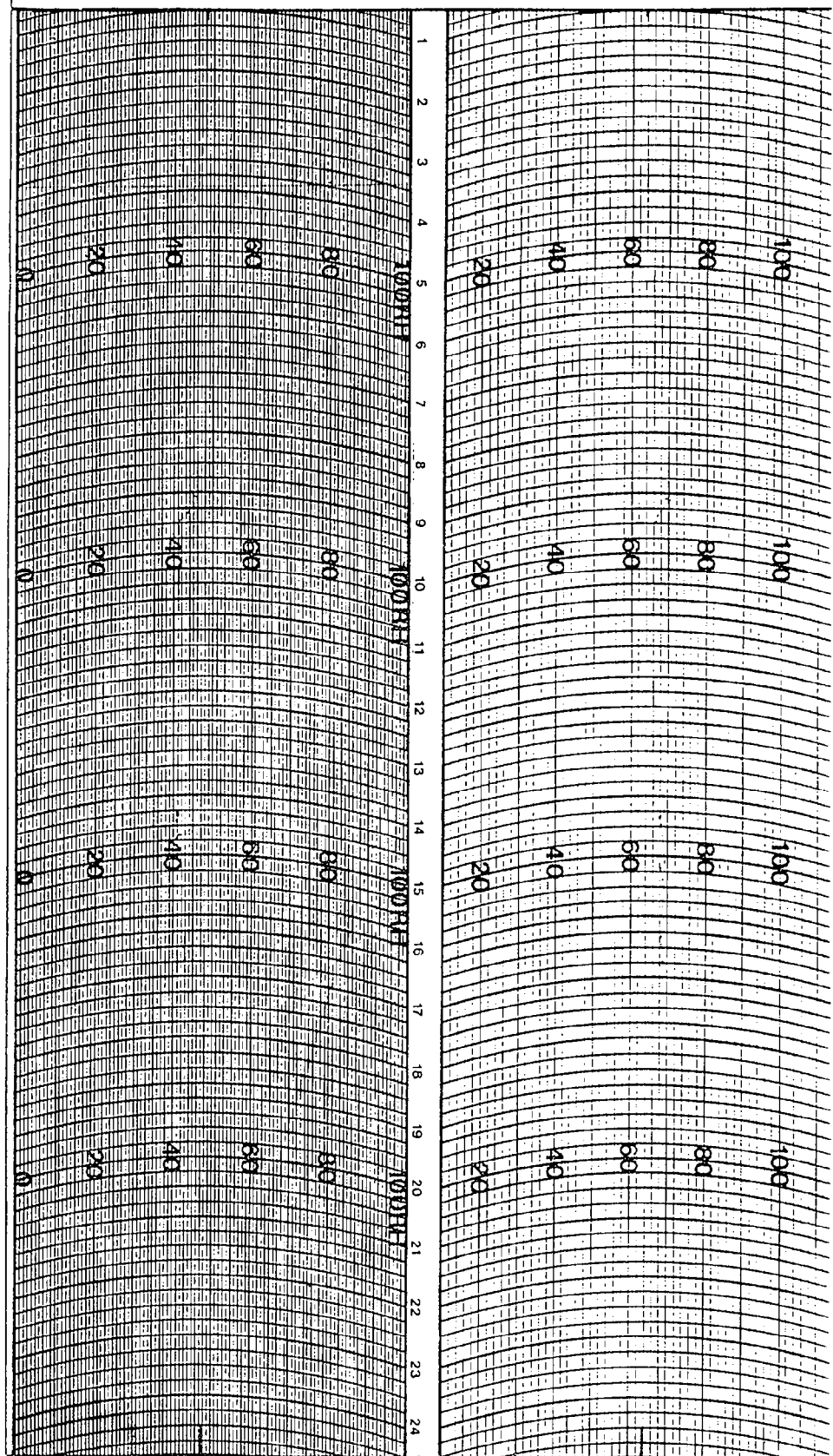
<u>Accelerometers:</u>	+X: Forward	
	+Y: Leftward	
	+Z: Upward	
<u>Potentiometers:</u>	+Chest longitudinal deflection:	Outward
	+Chest lateral deflection:	Leftward
	+Seat belt displacement:	Outward
	+Seat belt extension:	Elongation
	+Knee slider displacement:	Distance between femur and tibia increased (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

<u>Typical Test Measurements</u>	<u>Channel Class</u>
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

961205





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

HYGROTHERMOGRAPH
1 DAY

CHART # C311 D HF
PART # 699123

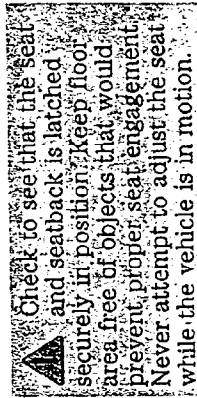
STATION _____ DATE ON _____ DATE OFF _____

Appendix E

Restraint System Instructions from Owner's Manual

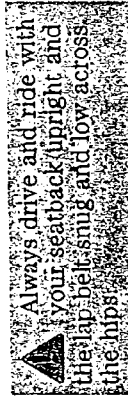
Seating and safety restraints

4. Make sure the safety belt is not twisted, then insert the seat belt tongue into detachable anchor until you hear a "click" and feel the latch engage.



SAFETY RESTRAINTS

Safety restraints precautions



Seating and safety restraints

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

▲ Each seating position in your vehicle has a specific safety belt assembly which is made up of one buckle and one tongue that are designed to be used as a pair. Use the shoulder belt on the outside shoulder only. Never wear the shoulder belt under the arm. (2) Never swing around your feet over the inside shoulder. (3) Never use a single belt for more than one person.

Safety belt buckle pretensioner

Your vehicle is equipped with safety belt buckle pretensioners at the driver and front passenger seating positions.

The safety belt buckle pretensioner is a device which removes excess webbing from the safety belt system. The safety belt buckle pretensioner uses the same crash sensor system as the air bag supplemental restraint system

Seating and safety restraints

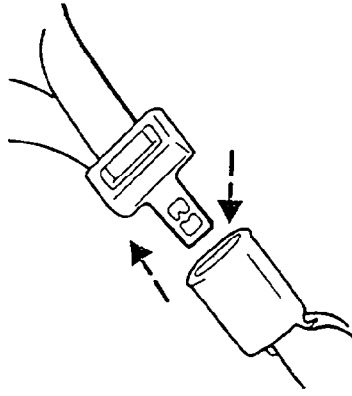
(SRS). When the safety belt buckle pretensioner deploys, the buckle moves downward, pulling excess webbing from the lap and shoulder safety belt.

Combination lap and shoulder belts

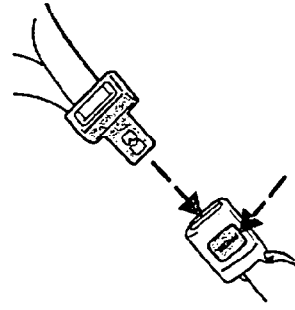
To fasten the safety belt, insert the tongue into the slot in the buckle.

To disconnect the safety belt at:

- front seating positions, push the red release button on the end of the buckle and remove the tongue from the buckle.



- rear seating positions, push the red release button on the side of the buckle and remove the tongue from the buckle.



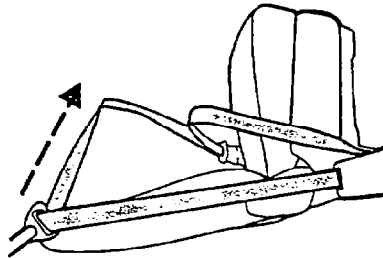
Seating and safety restraints



The outboard safety restraints in the vehicle are combination lap and shoulder belts. The front passenger and rear outboard seating positions safety belts have two types of locking modes.

Vehicle sensitive (emergency) locking mode

In this mode, the shoulder belt will allow freedom of movement, locking tight only on hard braking, hard cornering or impacts of approximately 8 km/h (5 mph) or more. The front seat belts can also be made to lock by jerking on the belt.



Automatic locking mode

In this mode, the safety belt is locked in a certain position by the occupant and remains locked until the webbing is fully retracted.

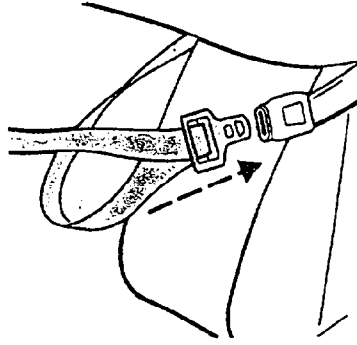
The automatic locking mode is not available on the driver belt.

When to use the automatic locking mode

- When a tight lap/shoulder fit is desired.
- Any time a child safety seat is installed in the vehicle. Refer to *Children and infant or Child safety seats* later in this section.

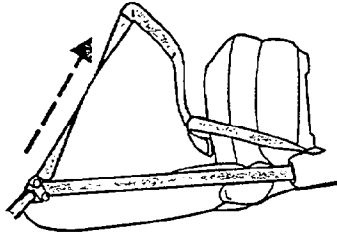
Using the automatic locking mode

1. Buckle the combination lap and shoulder belt.



Seating and safety restraints

2. Grasp the shoulder portion and pull downward until the entire belt is extracted.



3. Allow the belt to retract. As the belt retracts, you will hear a clicking sound. This indicates the safety belt is now in the automatic locking mode.

Canceling the automatic locking mode

Disconnect the combination lap/shoulder belt and allow it to retract completely to cancel the automatic locking mode and activate the vehicle sensitive (emergency) locking mode.

Front safety belt height adjustment

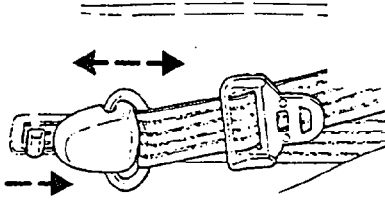
Your vehicle has safety belt height adjustments for the driver and front passenger. Adjust the height of the shoulder belt so the belt rests across the middle of your shoulder.

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Seating and safety restraints

To lower the height of the shoulder belt:

1. Push the button down
2. Slide down



To raise the height of the shoulder belt:

1. Slide up
2. Pull down on the height adjustment assembly to make sure it is locked in place

Lap belts

The lap belts in the center seating position of the three-passenger bench seat and both inboard seats of the four-passenger bench seat do not adjust automatically. You must adjust them to fit snugly and low as possible around your hips. Do not wear the lap belt around your waist.

Make sure you insert the tongue into the correct buckle. If you need to lengthen the belt, turn the tongue at a right angle to the belt and pull across your lap until it reaches the buckle. If you need to tighten the belt, pull the loose end of the webbing until it is snug

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Seating and safety restraints

across the hips. Shorten and fasten the belt when not in use.

Safety belt extension assembly

If the safety belt assembly is too short, even when fully extended, 20 cm (eight inches) can be added to the safety belt assembly by adding a safety belt extension assembly. Safety belt extension assemblies are available for front or rear seating positions and are not interchangeable.

- Front seating positions (part number 611C22)
- Rear seating positions (part number 611C22)

Safety belt extension assemblies can be obtained from your dealer at no cost.

Use only extensions manufactured by the same supplier as the safety belt. Manufacturer identification is located at the end of the webbing on the label. Also, use the safety belt extension only if the safety belt is too short for you when fully extended. Do not use extension to change the fit of the shoulder belt across the torso.

Safety belt indicator light and warning chime

The seat belt warning light illuminates in the instrument cluster and a chime sounds to remind the occupants to fasten their safety belts.

Seating and safety restraints

Conditions of operation

If...	Then...
The driver's safety belt is not buckled before the ignition key is turned to ON...	The safety belt indicator illuminates for one to two minutes and the warning chime sounds for four to eight seconds.
The driver's side safety belt is buckled while the indicator light is illuminated and the warning chime is sounding...	The safety belt indicator light and warning chime turn off.
The driver's safety belt is buckled before the ignition key is turned to ON...	The safety belt warning light and indicator chime remain off.

Safety belt inspection after a collision, maintenance and care

Check the safety belt system periodically to make sure that it works properly and is not damaged. Check the safety belts to make sure there are no nicks, wears or cuts.

All safety belt assemblies, including retractors, buckles, front seat belt buckle support assemblies (slide bar) (if so equipped), shoulder belt height adjusters (if so equipped), child safety seat tether bracket assemblies (if so equipped) and attaching hardware, should be inspected after any collision. Ford recommends that all safety belt assemblies used in vehicles involved in a collision be replaced. However, if the collision was minor and a qualified technician finds that the belts do not show damage and continue to

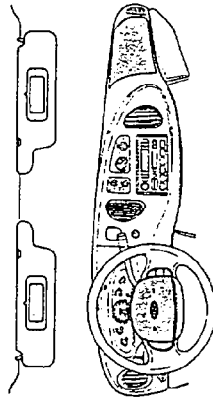
Seating and safety restraints

operate properly, they do not need to be replaced. Safety belt assemblies not in use during a collision should also be inspected and replaced if either damage or improper operation is noted.

AIR BAG SUPPLEMENTAL RESTRAINT SYSTEM (SRS)

Important air bag precautions and warnings

Your vehicle is equipped with a supplemental restraint system designed to work with the safety belts to help protect you and your right front passenger in the event of certain collisions described in the section *How does the air bag supplemental restraint system work?*



⚠ All occupants of the vehicle, including the driver, should always wear their safety belts. Failure to do so may increase the risk of personal injury in the event of a collision.

⚠ The right front passenger air bag is not designed to restrain occupants in the center front seating position.

Seating and safety restraints

⚠ Do not place objects or mount equipment on or near the dashboard area, steering wheel or in front of the passenger that may come in contact with a deploying air bag. Failure to follow this instruction may increase the risk of personal injury in the event of a collision.

⚠ Do not attempt to service, repair, or modify the Air Bag Supplemental Restraint System or its fuses. See your Ford or Lincoln Mercury dealer.

⚠ If you are close to an inflating air bag, it could seriously injure you. Sit against the seatback and position your seat such that it is as far back from the steering wheel as possible but still allows you to properly control the vehicle.

Children and air bags

⚠ Children should be placed in the rear in an appropriate child safety seat that is properly secured to the vehicle.

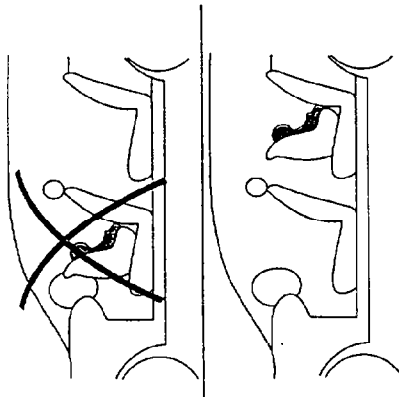
Seating and safety restraints

Children should always wear their safety belts. Failure to follow this instruction may increase the risk of personal injury in the event of a collision.

Rear-facing infant seats MUST always be secured in the rear seat. In vehicles without a rear seat, a rear-facing infant seat should be secured in the front seat **ONLY** if your vehicle does not have a passenger side air bag or your vehicle is equipped with a passenger air bag deactivation switch and the switch is turned **OFF**.

When using forward-facing child safety seats in vehicles with only two seating positions, the forward-facing child safety seat cannot be placed in the rear of the vehicle. Move the passenger seat as far back from the instrument panel as possible. Never secure rear-facing infant seats in the front seat.

For additional important safety information on the proper use of seat belts, child seats and infant seats, please read the entire *Seating and safety restraints* chapter in this owner's guide.



Seating and safety restraints

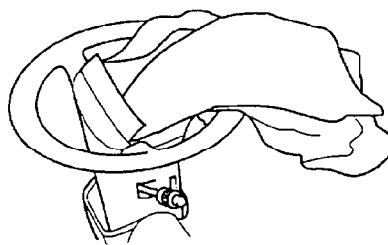
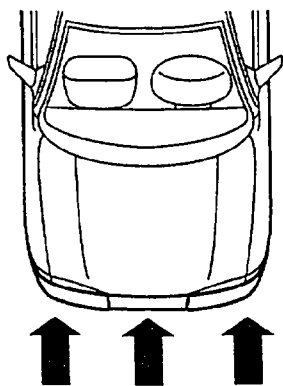
How does the air bag supplemental restraint system work?

The Air Bag Supplemental Restraint System is designed to activate when the vehicle sustains sufficient longitudinal (lengthwise) deceleration that is equal to or greater than hitting an immovable barrier head on at a range of about 12-24 km/h (8-14 mph).

The fact that the air bags did not inflate in a collision does not mean that something is wrong with the system. Rather, it means the forces were not of the type sufficient to cause activation.

If the vehicle experiences sufficient longitudinal deceleration, the system is activated and the air bags inflate rapidly. After the air bag inflates, it will quickly deflate. This occurs so quickly that some people may not even realize that the air bag inflated.

After the air bag deployment, you may notice a smoke-like, powdery residue or smell the burnt propellant (which is used to lubricate the air bag) or sodium compounds, such as sodium carbonates (e.g., baking soda) that result from the combustion process that inflates the air bag. Small amounts of sodium hydroxide may be present which may irritate the skin and eyes, but none of the residue is toxic.



Seating and safety restraints

The Air Bag Supplemental Restraint System will reduce, but not eliminate all injuries in an accident.

 Several air bag system components get hot after inflation. Do not try to touch them after inflation.

 The air bag will only inflate once and the pretensioners (if equipped) will only activate once. The system is designed to function on a one-time-only basis. If the air bag is inflated, THE AIR BAG WILL NOT FUNCTION AGAIN AND MUST BE REPLACED IMMEDIATELY. If the pretensioners activate (if equipped), THE PRETENSIONERS WILL NOT FUNCTION AGAIN AND MUST BE REPLACED IMMEDIATELY. If the pretensioners are not replaced, this will increase the risk of injury in a subsequent collision.

The SRS consists of:

- driver and passenger air bag modules (which include the inflators and air bags),
- one or more impact and safing sensors,
- a readiness light and tone,
- driver and front passenger safety belt buckle pretensioners

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Seating and safety restraints

- and the electrical wiring which connects the components.

The diagnostic module monitors its own internal circuits and the supplemental air bag electrical system readiness (including the impact sensors), the system wiring, the air bag system readiness light, the air bag back up power and the air bag igniters.

Determining if the system is operational

The SRS uses a readiness light in the instrument cluster or a tone to indicate the condition of the system. Refer to the *Air bag readiness* section in the *Instrumentation* chapter. Routine maintenance of the air bag is not required.

A difficulty with the system is indicated by one or more of the following:

- The readiness light will either flash or stay lit.
- The readiness light will not illuminate immediately after ignition is turned on.
- A group of five beeps will be heard. The tone pattern will repeat periodically until the problem and light are repaired.

If any of these things happen, even intermittently, have the SRS serviced at your dealership or by a qualified technician immediately. Unless serviced, the system may



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Seating and safety restraints

not function properly in the event of a collision.

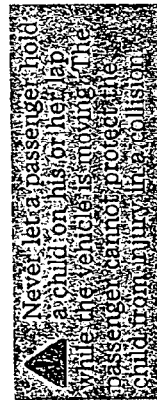
Disposal of air bags and air bag equipped vehicles

For disposal of air bags or air bag equipped vehicles, see your local dealership or qualified technician. Air bags **MUST BE** disposed of by qualified personnel.

SAFETY RESTRAINTS FOR CHILDREN

Important child restraint precautions

You are required by law to use safety restraints for children in the U.S. and Canada. If small children ride in your vehicle (generally children who are four years old or younger and who weigh 18 kg [40 lbs] or less), you must put them in safety seats made especially for children. Check your local and state laws for specific requirements regarding the safety of children in your vehicle.



Always follow the instructions and warnings that come with any infant or child restraint you might use.

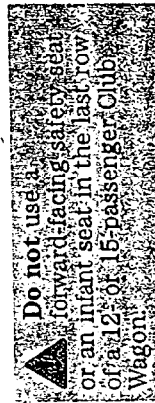
Children should be placed in the rear seat of your vehicle. Accident statistics suggest that children are

Seating and safety restraints

safer when properly restrained in the rear seating positions than in the front seating position.

Install forward-facing convertible safety seats only in vehicle seating positions equipped with lap-shoulder belts. Forward facing convertible safety seats can be used in the center of the three-passenger second row bench seat only if a top tether strap is used. Ford recommends placing forward-facing safety seats in the second row and using safety seats with top tether straps for added protection. For more information on top tether straps see *attaching safety seats with tether straps* in this section.

Any booster seat that places the vehicle's lap belt or shoulder belt around a shield above and ahead of the child's hips should not be used in this vehicle.



Children and safety belts

Children who are too large for child safety seats (as specified by your child safety seat manufacturer) should always wear safety belts.

Follow all the important safety restraint and air bag precautions

Seating and safety restraints

that apply to adult passengers in your vehicle.

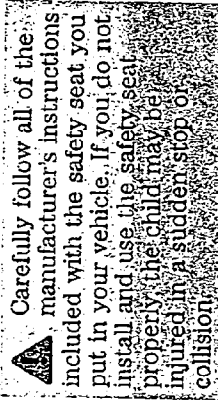
If the shoulder belt portion of a combination lap and shoulder belt can be positioned so it does not cross or rest in front of the child's face or neck, the child should wear the lap and shoulder belt. Moving the child closer to the center of the vehicle may help provide a good shoulder belt fit.

To improve the fit of lap and shoulder belts on children who have outgrown child safety seats, Ford recommends use of a belt-positioning booster seat that is labelled as conforming to all Federal motor vehicle safety standards. Belt-positioning booster seats raise the child and provide a shorter, firmer seating cushion that encourages safer seating posture and better fit of lap and shoulder belts on the child. A

belt-positioning booster should be used if the shoulder belt rests in front of the child's face or neck, or if the lap belt does not fit snugly on both thighs, or if the thighs are too short to let the child sit all the way back on the seat cushion when the lower legs hang over the edge of the seat cushion. You may wish to discuss the special needs of your child with your pediatrician.

Seating and safety restraints

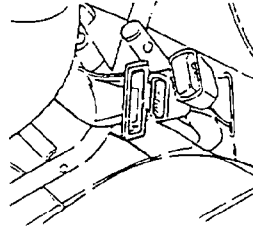
Child and infant or child safety seats



Ford recommends the use of a child safety seat having a top tether strap. Install the child safety seat in a seating position which is capable of providing a tether anchorage. For more information on top tether straps see *Attaching safety seats with tether straps* in this chapter.

When installing a child safety seat:

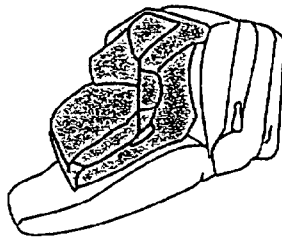
- Use the correct safety belt buckle for that seating position.
- Make sure the tongue is securely fastened in the buckle.
- Keep the buckle release button pointing up and away from the safety seat, with the tongue between the child seat and the release button, to prevent accidental unbuckling.
- Place seatbacks in the upright position.
- Put the safety belt in the automatic locking mode. Refer to *Using the automatic locking mode* in this chapter.



Seating and safety restraints

Installing child safety seats in combination lap and shoulder belt seating positions

1. Position the child safety seat in a seat with a combination lap and shoulder belt.



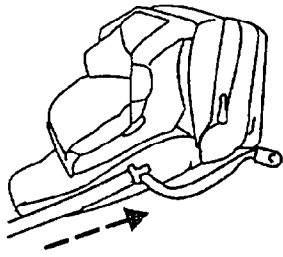
If you choose to install a child safety seat in the front passenger seat, move the seat as far back as possible.



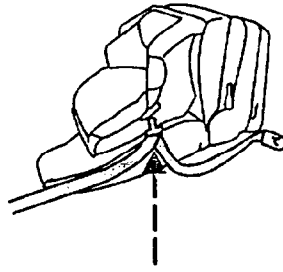
Rear-facing child seats or infant carriers should never be placed in the front seats.

Seating and safety restraints

2. Pull down on the shoulder belt and then grasp the shoulder belt and lap belt together.

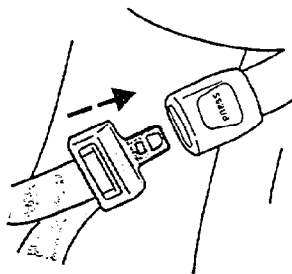


3. While holding the shoulder and lap belt portions together, route the tongue through the child seat according to the child seat manufacturers' instructions. Be sure the belt webbing is not twisted.

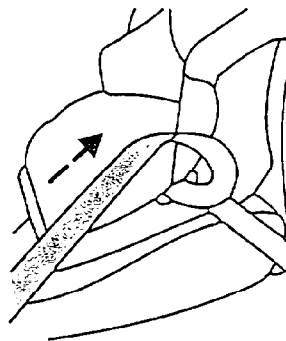


Seating and safety restraints

4. Insert the belt tongue into the proper buckle for that seating position until you hear and feel the latch engage. Make sure the tongue is latched securely by pulling on it.



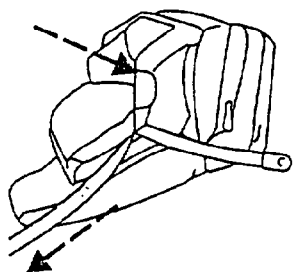
5. To put the retractor in the automatic locking mode, grasp the shoulder portion of the belt and pull downward until all of the belt is extracted and a click is heard.



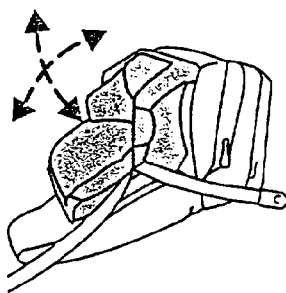
6. Allow the belt to retract. The belt will click as it retracts to indicate it is in the automatic locking mode.

Seating and safety restraints

7. Pull the lap belt portion across the child seat toward the buckle and pull up on the shoulder belt while pushing down with knee on the child seat.



8. Allow the safety belt to retract to remove any slack in the belt.
9. Before placing the child in the seat, forcibly tilt the seat forward and back to make sure the seat is securely held in place.



10. Try to pull the belt out of the retractor to make sure the retractor is in the automatic locking mode (you should not be able to pull more belt out). If the retractor is not locked, unbuckle the belt and repeat steps two through nine.

Seating and safety restraints

Check to make sure the child seat is properly secured before each use.

Installing a child safety seat at the rear center seating position with locking adjustable lap belt

1. Lengthen the lap belt. To lengthen the belt, hold tongue so that its bottom is perpendicular to the direction of webbing while sliding the tongue up the webbing.
2. Place the child safety seat in the center seating position.
3. Route the tongue and webbing through the child seat according to the child seat manufacturer's instructions.
4. Insert the belt tongue into the proper buckle for the center seating position until you hear a snap and feel it latch. Make sure the tongue is securely fastened to the buckle by pulling on tongue.
5. Push down on the child seat while pulling on the loose end of the lap belt webbing to tighten the belt.
6. Before placing the child into child seat, forcibly tilt the child seat from side-to-side and in forward directions to ensure that the seat is held securely in place. If the child seat moves excessively, repeat steps 5 and 6, or properly install the child seat in a different seating position.

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Seating and safety restraints

Attaching safety seats with tether straps

Some manufacturers make safety seats that include a tether strap that goes over the back of the vehicle seat and attaches to an anchoring point. Other manufacturers offer the tether strap as an accessory. Contact the manufacturer of your child safety seat for information about ordering a tether strap.

Tether anchorage

 Children should be placed in the rear in an appropriate child safety seat that is properly secured to the vehicle.

 Rear-facing infant seats must always be secured in the rear seat. In vehicles without a rear seat, a rear-facing infant seat should be secured in the front seat only if your vehicle does not have a passenger side air bag or your vehicle is equipped with a passenger air bag deactivation switch and the switch is turned to "Off".

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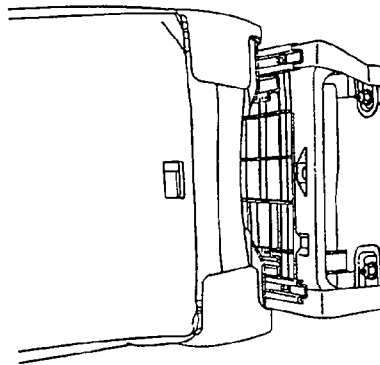
Seating and safety restraints



Front passenger seating position

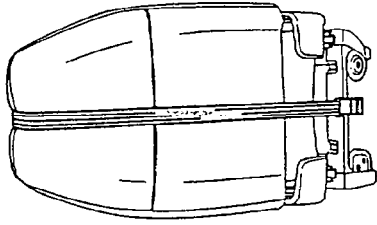
The front passenger seating position does not require any tether hardware. The tether can be attached directly to the rear of the front seat.

1. Position the child safety seat on the front right-hand passenger seat.
2. Adjust the front right-hand passenger seat full forward.

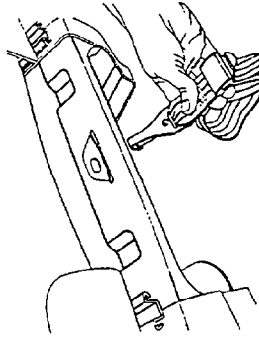


Seating and safety restraints

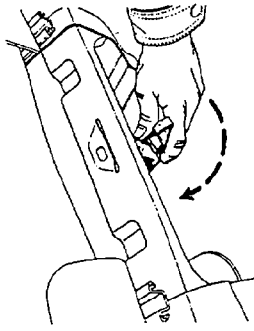
3. Route the child safety seat tether strap over the back of the front right-hand passenger seat as shown.



4. Grasp the tether strap and position it to the seat pedestal as shown.

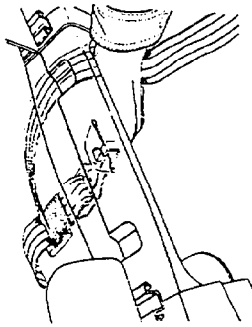


5. Rotate the tether strap as shown.

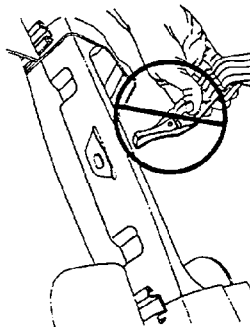


Seating and safety restraints

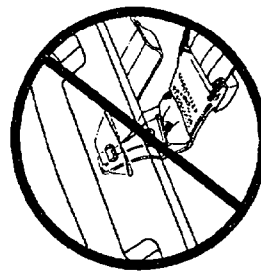
6. Clip the tether strap to the seat pedestal as shown.



Do not clip the tether strap to the seat pedestal as shown.

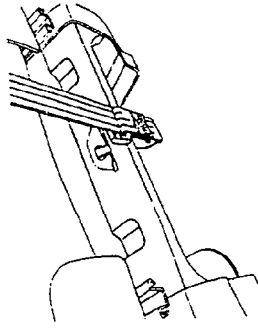
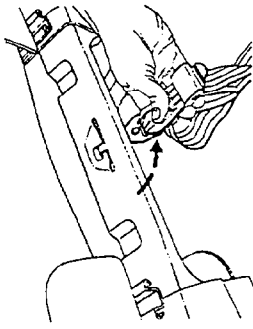


If the tether strap is clipped incorrectly (as shown) the child safety seat may not be retained properly in the event of a collision.



Seating and safety restraints

7. Rotate the tether strap clip as shown.
8. Adjust the front right-hand passenger seat to the full rearward position.
9. Refer to the instructions in this section under *installing child safety seats in combination lap and shoulder belt seating positions* to secure the child safety seat.
10. Tighten the child safety seat tether strap according to the manufacturer's instructions.



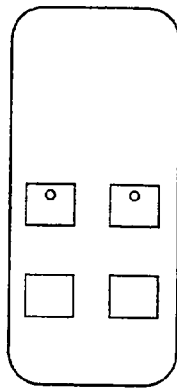
For additional important safety information on the proper use of seatbelts, child seats and infant seats, please read the entire *Seating and safety restraints* chapter in this owner's guide.

Seating and safety restraints

Rear seating positions

Attachment holes have been provided in your vehicle to attach anchor hardware, if required. Tether anchor hardware kits (Part No. 613D74) including instructions, may be obtained at no charge from any Ford dealer.

- Second row bucket seats (at rear of lower seat frame)



- 3-passenger bench seat (on rear rail of seat cushion frame)

