

Report Number NCAP-TRC-97-006

V2556

New Car Assessment Program (NCAP)

Frontal Barrier Impact Test

Chrysler Corporation
1997 Jeep Cherokee Sport
multi-purpose passenger vehicle
NHTSA Number: MV0303
TRC Test Number: 970417

Prepared By:
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May 5, 1997

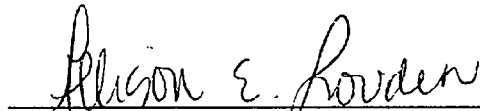
Final Report

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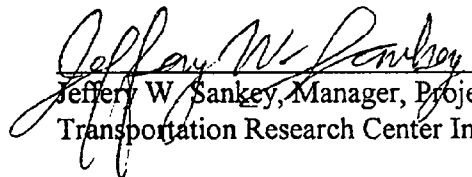
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16. Abstract A 56 kph (35 mph) frontal load cell barrier impact test was conducted on a 1997 Jeep Cherokee Sport multi-purpose passenger vehicle, NHTSA No. MV0303, at Transportation Research Center Inc. on April 17, 1997. This test was conducted in 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 419 millimeters. The ambient temperature was 22° C. The driver's Head Injury Criteria (HIC) was 692. The driver's chest maximum resultant acceleration with three (3) milliseconds minimum duration was 60.6 g. The driver's maximum chest deflection was 39 millimeters. The driver's left and right femur maximum axial forces were 6644 N and 8666 N, respectively. The passenger's HIC was 512. The passenger's chest maximum resultant acceleration with three (3) milliseconds minimum duration was 63.2 g. The passenger's maximum chest deflection was 40 millimeters. The passenger's left and right femur maximum axial forces were 6459 N and 5707 N, respectively.			
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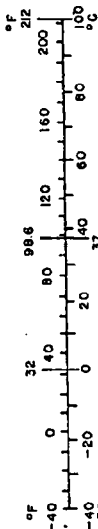
METRIC CONVERSION FACTORS

Approximate Conversions to Metric Measures

Symbol	When You Know	Multiply by	To Find	Symbol
LENGTH				
in	inches	2.5	centimeters	cm
ft	feet	30	centimeters	cm
yd	yards	0.9	meters	m
mi	miles	1.6	kilometers	km
AREA				
in ²	square inches	6.5	square centimeters	cm ²
ft ²	square feet	0.09	square meters	m ²
yd ²	square yards	0.8	square meters	m ²
mi ²	square miles	2.6	square kilometers	km ²
	acres	0.4	hectares	ha
MASS (weight)				
oz	ounces	28	grams	g
lb	pounds	0.45	kilograms	kg
	short tons (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	36	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 exactly. For other exact conversions and more detailed tables, see NIST Misc. Publ. 286, Units of Weights and Measures, Price \$2.25, SD Catalog No. C13.10200.

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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 Jeep Cherokee Sport multi-purpose passenger vehicle, NHTSA Number MV0303, 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 second use of the driver dummy and the first use of 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-thirty-three (133) 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 April 17, 1997.

The test vehicle, a 1997 Jeep Cherokee Sport multi-purpose passenger vehicle, NHTSA Number MV0303, was equipped with a 4.0-liter inline engine, automatic transmission, power steering, and power brakes. The vehicle's test weight was 1839 kg. The vehicle's impact speed was 56.2 kph. The vehicle sustained 419 mm of static crush during the impact.

The driver's Head Injury Criteria (HIC) was 692. The driver's chest maximum resultant acceleration with three (3) milliseconds minimum duration was 60.6 g. The driver's maximum chest deflection was 39 mm. The driver's left and right femur maximum axial forces were 6644 N and 8666 N, respectively.

The right front passenger's HIC was 512. The passenger's chest maximum resultant acceleration with three (3) milliseconds minimum duration was 63.2 g. The passenger's maximum chest deflection was 40 mm. The passenger's left and right femur maximum axial forces were 6459 N and 5707 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 the static rollover test.

Data Acquisition Explanations

The C5 position load cell, BC5F, exceeded the data channel's full scale from 25 to 30 milliseconds. This affected the load cell barrier Group #5 and grand total force calculations.

Table 1 Crash Test Summary

NHTSA number:	MV0303	
Test type:	Frontal Load Cell Barrier	
Test date:	04/17/97	
Test time:	1526	
Ambient temperature:	22° C	
Vehicle year/make/ model/body style:	1997/Jeep/Cherokee Sport/multi-purpose passenger vehicle	
Vehicle test weight:	1839 kg	
Impact angle ¹ :	0°	
Impact velocity ² :	Primary = 56.2 kph	
	Secondary = 56.2 kph	
Maximum static crush:	419 mm	
Average rebound:	911 mm	
Dummies:	Driver #192	Passenger #142
Type:	Part 572 E	Part 572 E
Location:	Left front	Right front
Restraint:	Airbag and 3-point unbelt	Airbag and 3-point unbelt
Number of data channels:	40	40
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/Jeep/Cherokee Sport/multi-purpose passenger vehicle

Color: Green

VIN: 1J4FJ68S3VL537199

NHTSA number: MV0303

Engine data:

 Placement: inline

 Cylinders: 6

 Displacement 4.0 liters

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

 FWD, RWD, X 4WD

Date vehicle received: 04/15/97

Odometer reading: 73

Dealer's name Tom Whiteside Auto Sales
and address: 15921 US 62
Mt. Sterling, OH 43143

Accessories:

Power steering	Yes	Automatic transmission	Yes
Power brakes	Yes	Automatic speed control	Yes
Power seats	No	Tilting steering wheel	Yes
Power windows	Yes	Telescoping steering wheel	No
Tinted glass	Yes	Air conditioning	Yes
Radio	Yes	Anti-skid brake	No
Clock	Yes	Rear window defroster	Yes
Other			

Certification data from vehicle's label:

Vehicle manufactured by: Chrysler Corporation

Date of manufacture: 02/97

VIN: 1J4FJ68S3VL537199

GVWR: 2223 kg

GAWR: Front: 1134 kg

 Rear: 1225 kg

Table 2 Test Vehicle Information, Cont'd.

Size of tires: P225/75R15

Tire pressure with maximum
capacity vehicle load:

Front: 33 psi

Rear: 33 psi

Spare tire: T125/90D16

Type of front seats: Bucket

Tire & capacity data from vehicle's label:

Recommended tire size: P215/75R15

Recommended cold tire pressure:

Front: 227 kPa

Rear: 227 kPa

Designated seating capacity:

Front NA

Rear NA

Total NA

Vehicle capacity weight: NA

Test vehicle attitude:

Delivered attitude: LF 798 mm; RF 800 mm; LR 800 mm; RR 800 mm

Pre-test attitude: LF 787 mm; RF 785 mm; LR 766 mm; RR 760 mm

Post-test attitude: LF 783 mm; RF 802 mm; LR 787 mm; RR 372 mm

Table 2 Test Vehicle Information Cont'd

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

Right front	435 kg	Right rear	347 kg
Left front	444 kg	Left rear	359 kg
Total front weight	879 kg	(55.3% of total vehicle weight)	
Total rear weight	706 kg	(44.7% of total vehicle weight)	
Total delivered weight	1585 kg		

Calculation of test vehicle's target test weight:

RCLW¹ = Rated cargo and luggage weight

GVWR = Gross Vehicle Weight Rating (2223 kg)

UDW = Unloaded delivered weight (1585 kg)

VCW = Vehicle capacity weight = GVWR - UDW = 2223 - 1585 = 638 kg

DSC = Designated seating capacity (5)

RCLW¹ = GVWR - UDW - 68 (DSC) = 2223 - 1585 - 68(5) = 298 kg

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

Target test weight = 1585 + 136 + 152 = 1873 kg

Target test weight = 1873 kg

Weight of test vehicle with required dummies and 48 kg of cargo weight:

Right front	473 kg	Right rear	438 kg
Left front	486 kg	Left rear	442 kg
Total front weight	959 kg	(52.1% of total vehicle weight)	
Total rear weight	880 kg	(47.9% of total vehicle weight)	
Total test weight	1839 kg	(1.8% under target test weight)	

Weight of ballast secured in vehicle: 3 kg

Components removed to meet target test weight: Rear door glass, door liner, power window motor, tail light, rear bumper

CG rearward of front wheel centerline: 1215 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: 970417
NHTSA number: MV0303
Test date: 04/17/97
Test time: 1526
Test type: Frontal load cell barrier
Impact angle: 0°
Ambient temperature
at impact area: 22° C
Temperature in
occupant compartment: 20° C
Impact velocity:
 Primary 56.2 kph
 Secondary 56.2 kph
 Specified range 55.5 to 57.1 kph

Distance from vehicle to barrier:

 Entering velocity trap 356 mm
 Exiting velocity trap 51 mm

Test vehicle static crush:

Overall length of test vehicle:

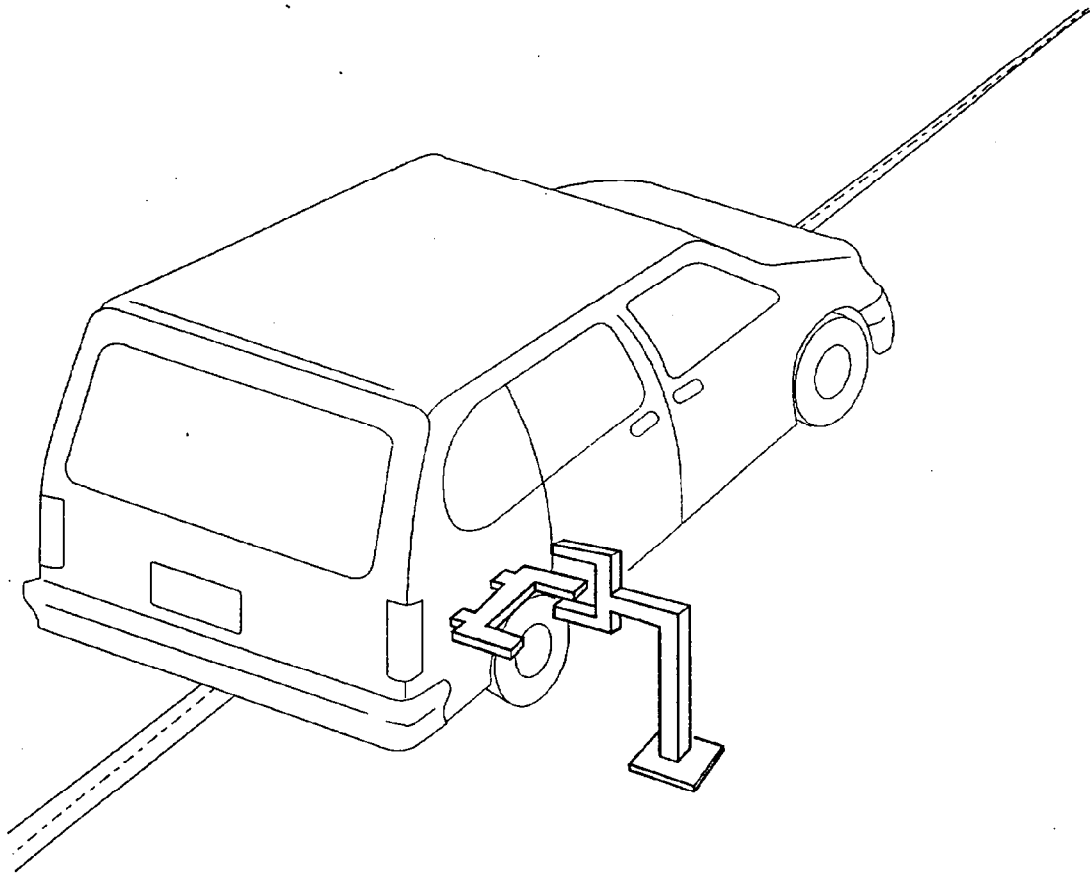
Pre-test:	L	4166 mm;	C	4215 mm;	R	4172 mm
Post-test:	L	3991 mm;	C	3824 mm;	R	3866 mm
Total crush:	L	175 mm;	C	391 mm;	R	306 mm
Average crush:		291 mm				

Test vehicle rebound from flat barrier:

Distance from test vehicle to barrier:

Post-test:	L	874 mm;	C	1002 mm;	R	857 mm
Average rebound		911 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.

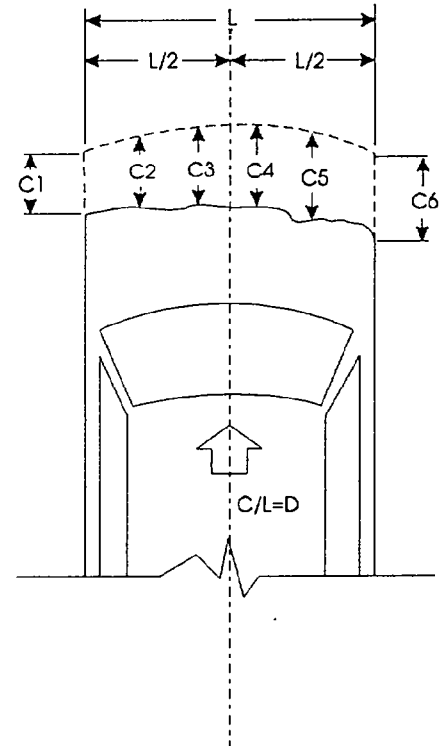
Figure 2 Accident Investigation Division Data
for 56 kph (35 mph) Frontal Barrier Impact

NHTSA number: MV0303
 Test date: 04/17/97
 Vehicle year/make/
 model/body style: 1997/Jeep/Cherokee Sport/multi-purpose passenger vehicle
 Vehicle size category: Special purpose vehicle
 VIN: 1J4FJ68S3VL537199
 Build date: 02/97
 Test weight: 1839 kg
 Vehicle wheelbase: 2540 mm
 Maximum width: 1685 mm
 Front overhang: 724 mm

Collision Deformation
 Classification (CDC) code: 12FDEW2

Crush depth
 measurements:

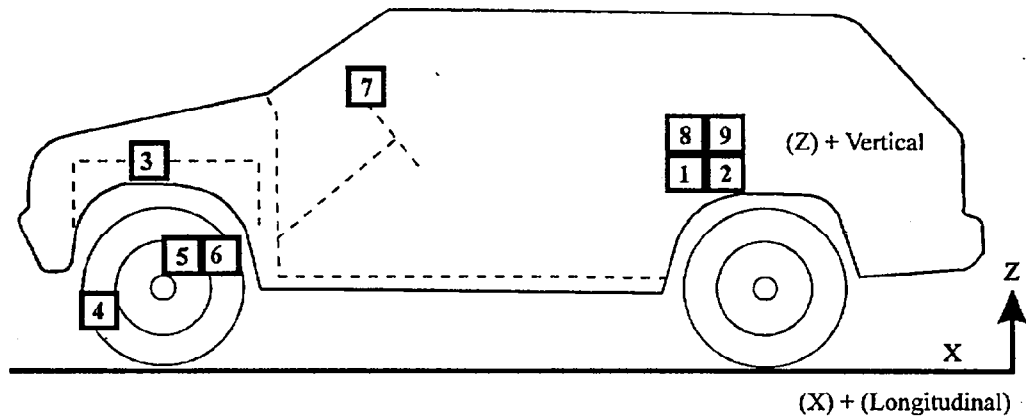
C1	=	175 mm
C2	=	315 mm
C3	=	411 mm
C4	=	419 mm
C5	=	360 mm
C6	=	306 mm



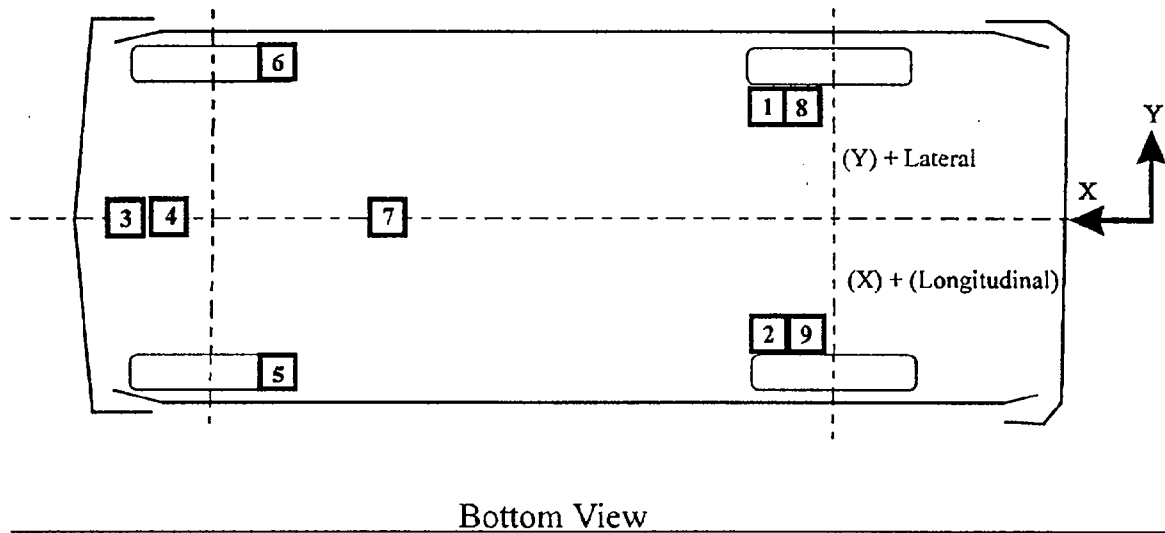
Midpoint of damage: D: Vehicle Longitudinal Centerline

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: 970417 No. LOCATION	X	Y	Z	POSITIVE DIRECTION	NEGATIVE DIRECTION
1 LEFT REAR SEAT CROSSMEMBER LONGITUDINAL REDUNDANT	1549 mm	625 mm	505 mm	4.6 g @ 128.9 ms 4.5 g @ 128.9 ms	39.4 g @ 34.5 ms 39.9 g @ 34.6 ms
2 RIGHT REAR SEAT CROSSMEMBER LONGITUDINAL REDUNDANT	1549 mm	-659 mm	505 mm	3.5 g @ 137.4 ms 3.6 g @ 137.4 ms	35.0 g @ 37.2 ms 33.8 g @ 37.0 ms
3 ENGINE TOP LONGITUDINAL	3605 mm	-25 mm	1029 mm	42.6 g @ 33.8 ms	208.8 g @ 26.2 ms
4 ENGINE BOTTOM LONGITUDINAL	3321 mm	-48 mm	315 mm	78.4 g @ 32.1 ms	251.2 g @ 26.2 ms
5 RIGHT BRAKE CALIPER LONGITUDINAL	3390 mm	-585 mm	332 mm	22.8 g @ 60.0 ms	75.0 g @ 32.8 ms
6 LEFT BRAKE CALIPER LONGITUDINAL	3390 mm	585 mm	332 mm	41.0 g @ 61.6 ms	108.8 g @ 25.8 ms
7 INSTRUMENT PANEL CENTER LONGITUDINAL	2792 mm	0 mm	1200 mm	148.0 g @ 43.0 ms	91.3 g @ 21.8 ms

REFERENCE: X: + FORWARD ACCELERATION
Y: + LEFT FROM VEHICLE CENTERLINE
Z: + UP FROM GROUND LEVEL

Table 5 Post-Impact Dummy/Vehicle Data

Visible Dummy Contact Points:

	<u>Driver #142</u>	<u>Passenger #192</u>
Head	Airbag, head restraint	Airbag, head restraint
Chest	Airbag	Airbag
Abdomen	Lower steering wheel rim	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	Difficult, no tools required	Difficult, no tools required

Seat Movement:

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

Glazing Damage:

The lower portion of the windshield was cracked on impact.

Other Notable Impact Effects:

None

Table 6 FMVSS 208 Data Summary

Vehicle year/make/
model/body style: 1997/Jeep/Cherokee Sport/multi-purpose passenger vehicle

Vehicle NHTSA number: MV0303

Test date: 04/17/97

	Driver Dummy #192		Passenger Dummy #142	
<u>Maximum Accelerations:</u>				
Head X-axis	-59.9	g	-51.2	g
Head Y-axis	18.8	g	7.3	g
Head Z-axis	-26.1	g	-24.3	g
Head resultant	65.0	g	56.4	g
Chest X-axis	-59.7	g	-64.6	g
Chest Y-axis	8.0	g	5.5	g
Chest Z-axis	-22.0	g	-18.5	g
Chest resultant ¹	60.6	g	63.2	g
Chest resultant time interval ¹	.003	sec	.003	sec
<u>Head Injury Criteria (HIC) Values:</u>				
HIC ²	692		512	
HIC starting time	.053	sec	.049	sec
HIC ending time	.089	sec	.085	sec
Average head resultant acceleration during HIC time interval	51.7	g	45.8	g
<u>Maximum Chest Deflections:</u>				
Chest X-axis	39	mm	40	mm
Maximum chest deflection time	.059	sec	.063	sec
<u>Maximum Compressive Femur Forces:</u>				
Left femur	6644	N	6459	N
Right femur	8666	N	5707	N
<u>Maximum Seat Belt Forces:</u>				
Lap belt	3066	N	2786	N
Shoulder belt	5557	N	5549	N

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

¹ 0.003 Sec. Minimum duration.

² The maximum HIC time interval is 36 milliseconds.

Table 7 Hybrid III Data Summary

Vehicle year/make/
model/body style: 1997/Jeep/Cherokee Sport/multi-purpose passenger vehicle
Vehicle NHTSA number: MV0303
Test date: 04/17/97

	Driver Dummy #192	Passenger Dummy #142
<u>Maximum Forces</u>		
Neck X-axis shear force	714 N	501 N
Neck Y-axis shear force	-172 N	253 N
Neck Z-axis axial force	3090 N	1927 N
<u>Maximum Moments</u>		
Neck moment about X-axis	28.5 N·m	17.2 N·m
Neck moment about Y-axis	-46.4 N·m	-38.4 N·m
Neck moment about Z-axis	25.5 N·m	9.7 N·m
<u>Maximum Accelerations:</u>		
Pelvis X-axis	-70.8 g	-58.6 g
Pelvis Y-axis	9.2 g	-7.8 g
Pelvis Z-axis	11.3 g	15.6 g
Pelvis resultant	71.0 g	58.8 g

Table 7 Hybrid III Data Summary, Cont'd.

Vehicle year/make/
model/body style: 1997/Jeep/Cherokee Sport/multi-purpose passenger vehicle
Vehicle NHTSA number: MV0303
Test date: 04/17/97

	Driver Dummy #192	Passenger Dummy #142
Left upper tibia moment about X-axis	71.7 N·m	-145.3 N·m
Left upper tibia moment about Y-axis	-82.9 N·m	76.9 N·m
Right upper tibia moment about X-axis	134.1 N·m	-47.5 N·m
Right upper tibia moment about Y-axis	198.4 N·m	-85.6 N·m
Left lower tibia X-axis force	532 N	-764 N
Left lower tibia Z-axis force	-1586 N	-3844 N
Left lower tibia moment about Y-axis	37.0 N·m	59.2 N·m
Right lower tibia X-axis force	-1904 N	-685 N
Right lower tibia Z-axis force	-4522 N	-1609 N
Right lower tibia moment about Y-axis	-325.2 N·m	52.8 N·m
Left foot X-axis acceleration	-88.3 g	-149.9 g
Left foot Z-axis acceleration at heel	59.9 g	-183.3 g
Left foot Z-axis acceleration at toe	83.8 g	-295.0 g
Right foot X-axis acceleration	-137.5 g	133.8 g
Right foot Z-axis acceleration at heel	-143.9 g	71.4 g
Right foot Z-axis acceleration at toe	-251.4 g	203.9 g

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

Dummy Kinematic Summary

Driver Dummy

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

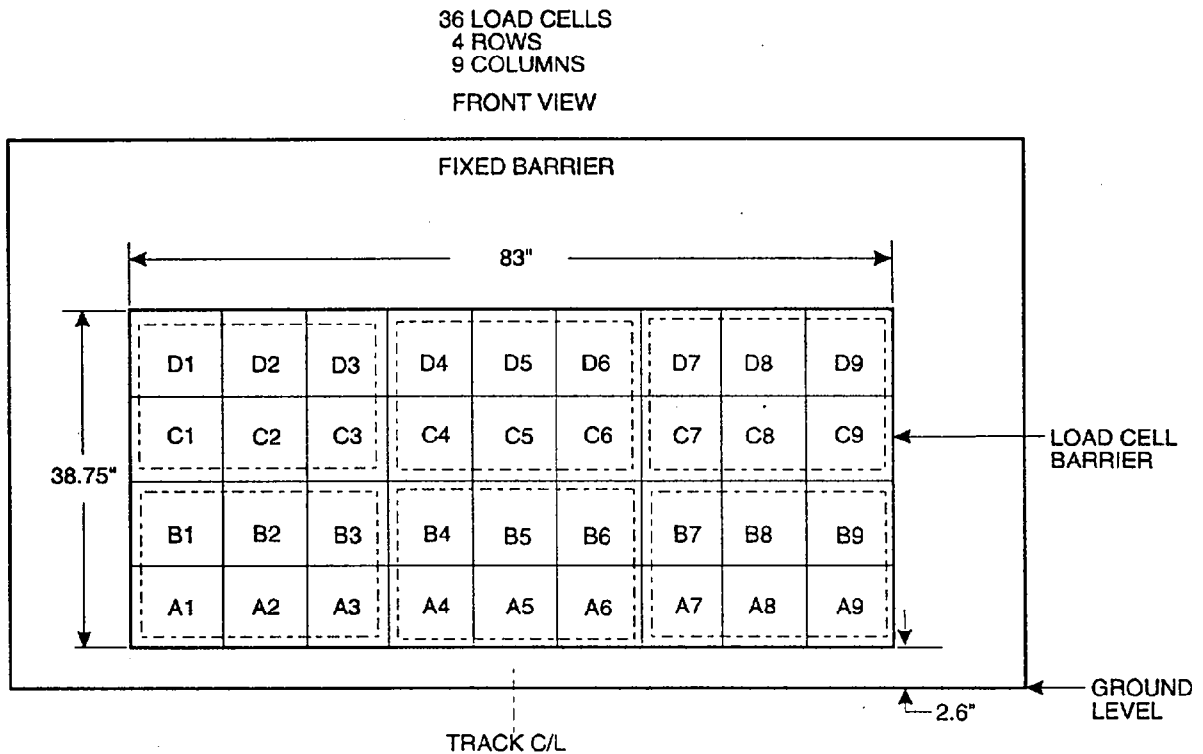
Right Front Passenger Dummy

Upon impact, the right front passenger dummy translated forward on the seat impacting both knees into the instrument panel. The dummy's head rotated forward as the dummy's head and chest were restrained by the passenger's airbag and the dummy's torso was restrained by the three-point unbelt. The dummy's head rotated rearward into the head restraint as the dummy rebounded into the seat back. The dummy came to rest seated upright 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.	2828 mm	2835 mm
Shoulder belt length as measured on Part 572 dummy.	870 mm	835 mm
Lap belt length as measured on Part 572 dummy.	804 mm	800 mm
<u>Shoulder belt spool-off length:</u>		
As determined by film analysis	66 mm	64 mm
As determined mechanically	67 mm	75 mm
As determined electronically	69 mm	103 mm
<u>Belt stretch length:</u>		
As measured mechanically	0 mm/m	0 mm/m
As measured electronically	0 mm/m	7 mm/m
<u>Retractor lock-up time:</u>		
As determined by shoulder belt spool-off	55 ms	60 ms

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	0.0 kN @ 277.1 ms	43.6 kN @ 76.5 ms
Total group 2	1.1 kN @ 2.1 ms	57.1 kN @ 74.9 ms
Total group 3	0.1 kN @ 192.1 ms	43.8 kN @ 73.8 ms
Total group 4	0.0 kN @ 226.5 ms	121.8 kN @ 13.3 ms
Total group 5 ¹	0.9 kN @ 0.3 ms	613.9 kN @ 26.6 ms
Total group 6	0.1 kN @ 145.1 ms	167.6 kN @ 21.0 ms
Total load cell force ¹	-0.1 kN @ 192.1 ms	900.5 kN @ 26.4 ms

Tension is positive
Compression is negative

¹ See data acquisition explanation.

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.:

Adhesive around inner perimeter, plastic trim around outer perimeter.

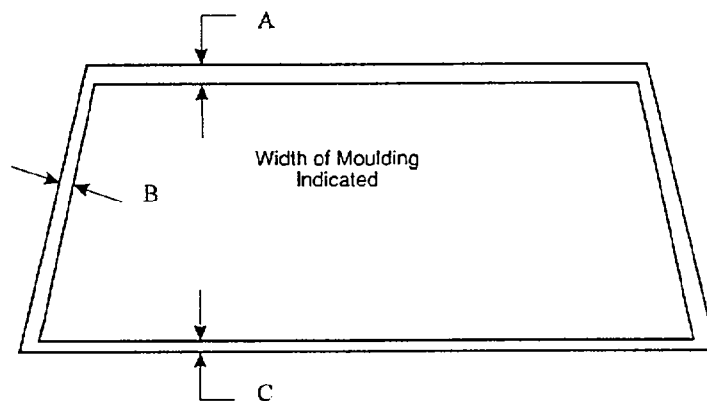
FMVSS 212 requirements: The post-test periphery retention amount must be at least 75% of the pre-test periphery measurement for vehicles NOT equipped with automatic restraints, and 50% for each side of windshield for vehicles equipped with automatic restraint systems for front occupants.

Windshield periphery measurements:

	<u>Pre-test</u>	<u>Post-test</u>	<u>Percent retention</u>
Right side	1965 mm	1965 mm	100
Left side	1965 mm	1965 mm	100
Total	3930 mm	3930 mm	100

Pre-test windshield mounting material temperature: 20° C

A = 24 mm
B = 24 mm
C = 24 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 = 1345 mm

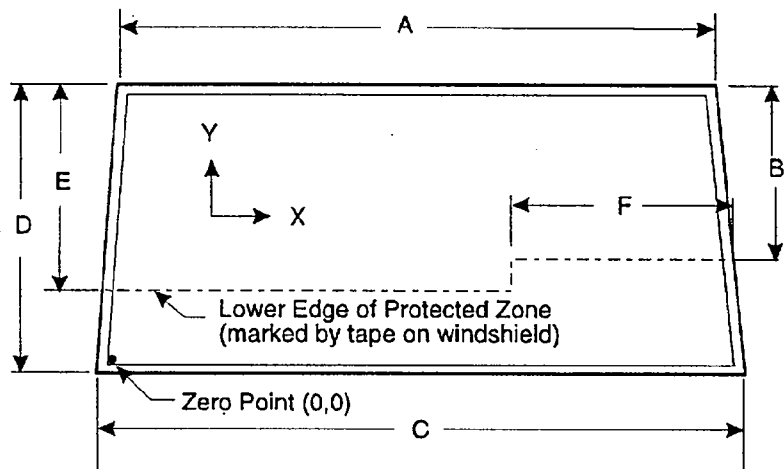
B = 335 mm

C = 1544 mm

D = 606 mm

E = 400 mm

F = 996 mm



FRONT VIEW

Method of adhering protected zone template to windshield: NA

Areas of windshield template penetration greater than 6 mm: NA

Coordinates	
X	Y

- 1.
- 2.
- 3.

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

- 1.
- 2.
- 3.

Table 10 Fuel System Data

Vehicle year/make/ model/body style:	1997/Jeep/Cherokee Sport/multi-purpose passenger vehicle
NHTSA number:	MV0303
Fuel system capacity:	76.5 liters (from owner's manual)
Usable capacity:	75.7 liters (furnished by COTR)
Test volume range:	70.3 liters to 71.9 liters (92-94% of usable)
Actual test volume:	71.9 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.	Yes
Details of fuel system:	The fuel tank was located behind the rear axle, between the frame rails. The fuel filler neck was located on the left side and entered the rear of the fuel tank. The fuel lines ran along the left frame rail to the engine compartment.

Table 11 FMVSS 301 Post-Impact Test Data

NHTSA number: MV0303
Test date: 04/17/97
Vehicle year/make/
model/body style: 1997/Jeep/Cherokee Sport/multi-purpose passenger vehicle

Test requirements:

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

Test vehicle impact type:

- ☒ Frontal (56 kph)
☐ Oblique (48 kph) with ___° barrier face first contacting ___ (driver/pass.) side
☐ Rear moving barrier (48 kph)
☐ Lateral moving barrier (32 kph)

Fuel system fluid spillage measurements:

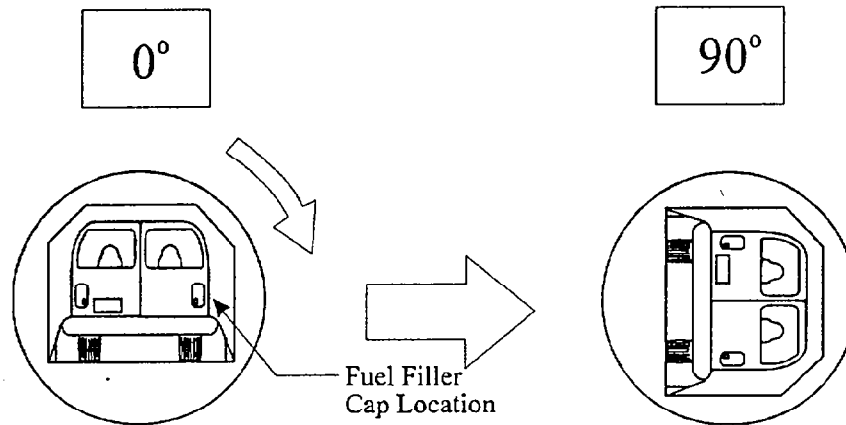
	<u>Test Results</u>	<u>Maximum Allowable</u>
1. From impact until vehicle motion ceases	0 g	28 g
2. 5-minute period after vehicle motion ceases	0 g	142 g
3. Next 25 minutes after 5-minute period	0 g	28 g/min

Fuel system fluid spillage location(s): None

Figure 7 FMVSS 301 Static Rollover Test Data

NHTSA number: MV0303

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	

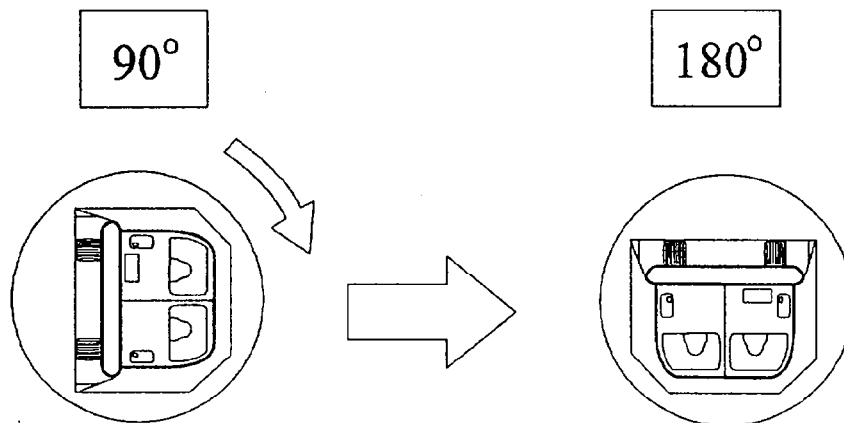
Fuel system fluid spillage measurements:

	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		

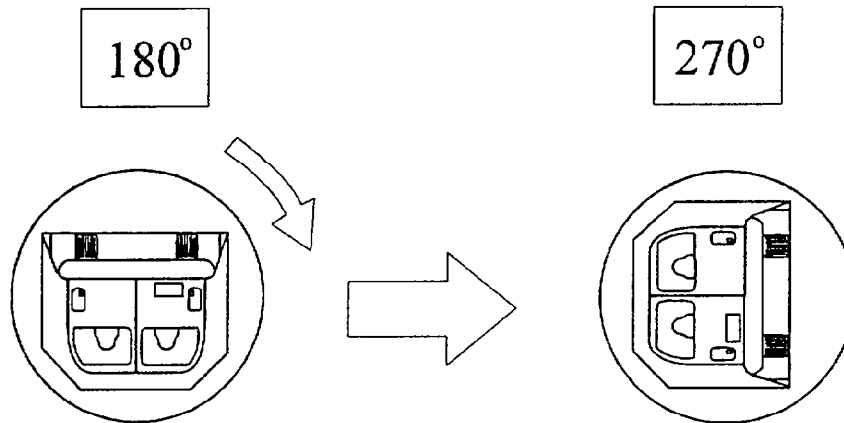
Fuel system fluid spillage measurements:

90° to 180° 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 = 21 minutes

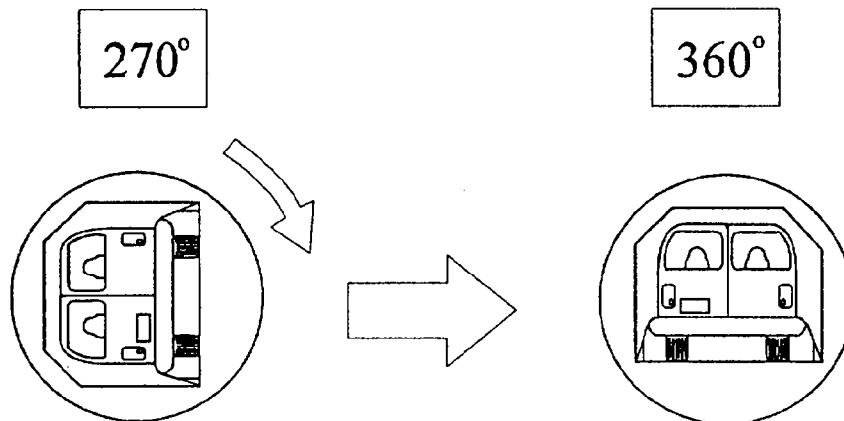
Fuel system fluid spillage measurements:

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:

	Test Results	Maximum Allowable
<u>270° to 360° rotation</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

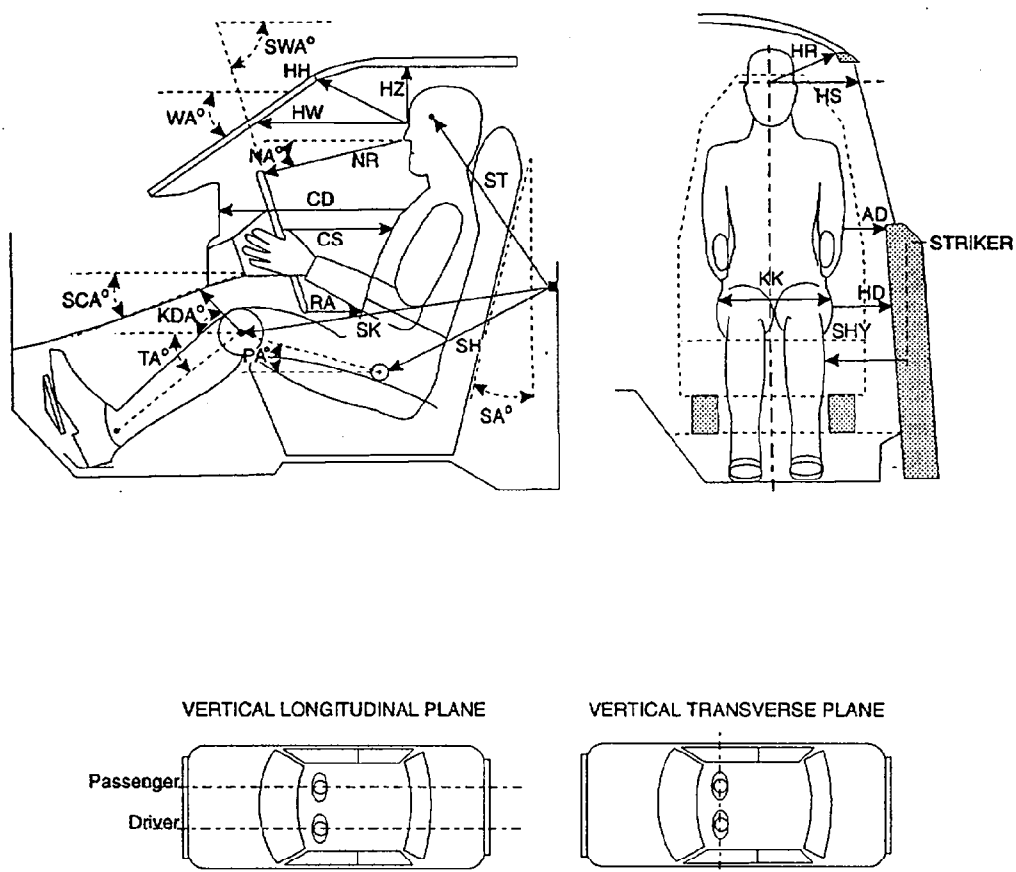


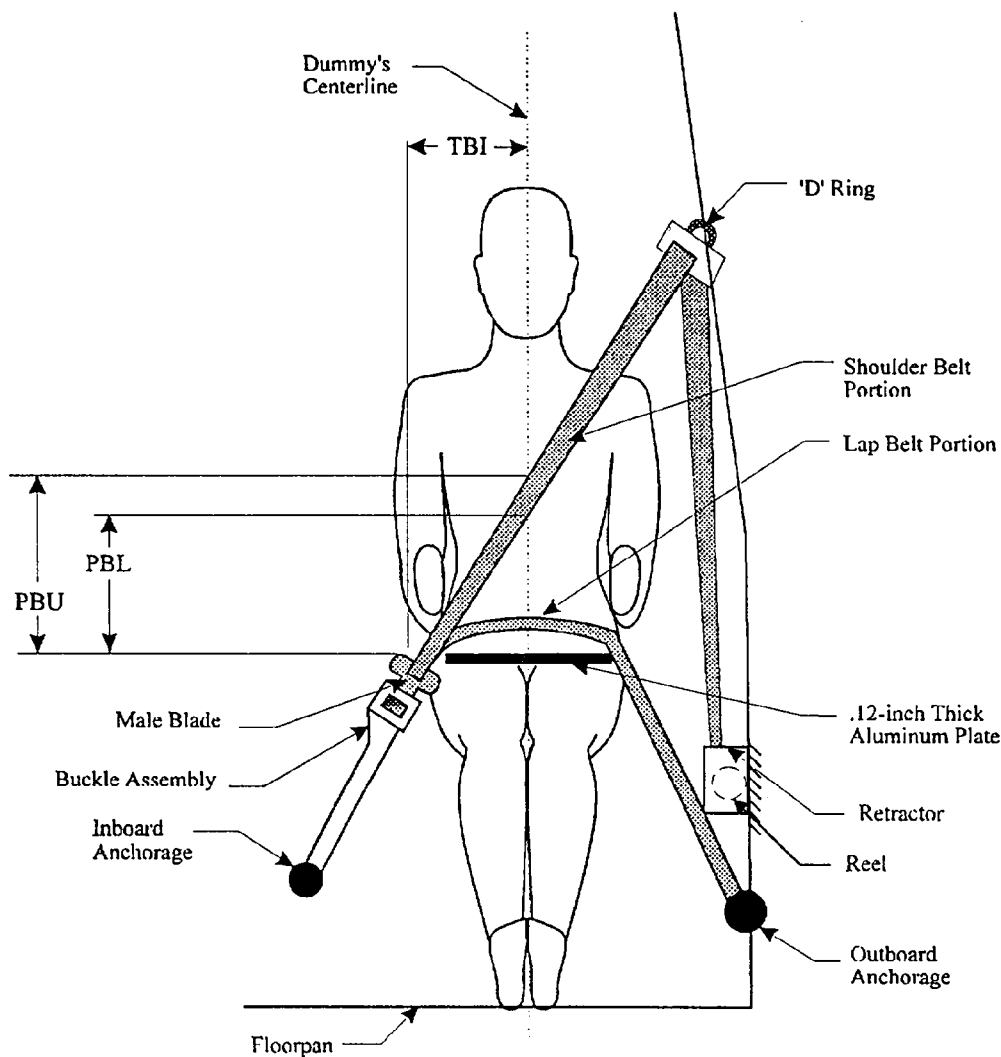
Table 12 Dummy Measurement Data For Front Seat Occupants

<u>Designation</u>	<u>Type of Measurement</u>	<u>Driver (Serial #192)</u>	<u>Passenger (Serial #142)</u>
WA	Windshield angle	42°	42°
SWA	Steering wheel angle	65°	NA
SCA	Steering column angle	25°	NA
SA	Seat back angle	15°	15°
HZ	Head to roof	159 mm	168 mm
HH	Head to header	368 mm	365 mm
HW	Head to windshield	464 mm	405 mm
HR	Head to side header	238 mm	234 mm
NR	Nose to rim	351 mm	NA
NA	Nose to rim angle	13°	NA
CD	Chest to dash	489 mm	529 mm
CS	Steering wheel to chest	289 mm	NA
RA	Rim to abdomen	148 mm	NA
KDL	Left knee to dash	161 mm	144 mm
KDR	Right knee to dash	152 mm	146 mm
KDA	Outboard knee to dash angle	34°	24°
PA	Pelvic angle	24°	23°
TA	Tibial angle	44°	46°
KK	Knee to knee	346 mm	269 mm
ST ¹	Striker to head	619 mm	594 mm
	Striker to head angle	-84°	-85°
SK ¹	Striker to knee	574 mm	593 mm
	Striker to knee angle	-5°	-5°
SH ¹	Striker to H-point	202 mm	211 mm
	Striker to H-point angle	10°	10°
SHY	Striker to H-point (Y dir.)	186 mm	186 mm
HS	Head to side window	307 mm	305 mm
HD	H-point to door	134 mm	118 mm
AD	Arm to door	70 mm	68 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	347 mm	331 mm
PBI - Top surface of aluminum plate to belt lower edge	272 mm	245 mm
TBI - Dummy centerline to intersection of upper torso belt and lap belt	283 mm	276 mm

Figure 10 Camera Positions

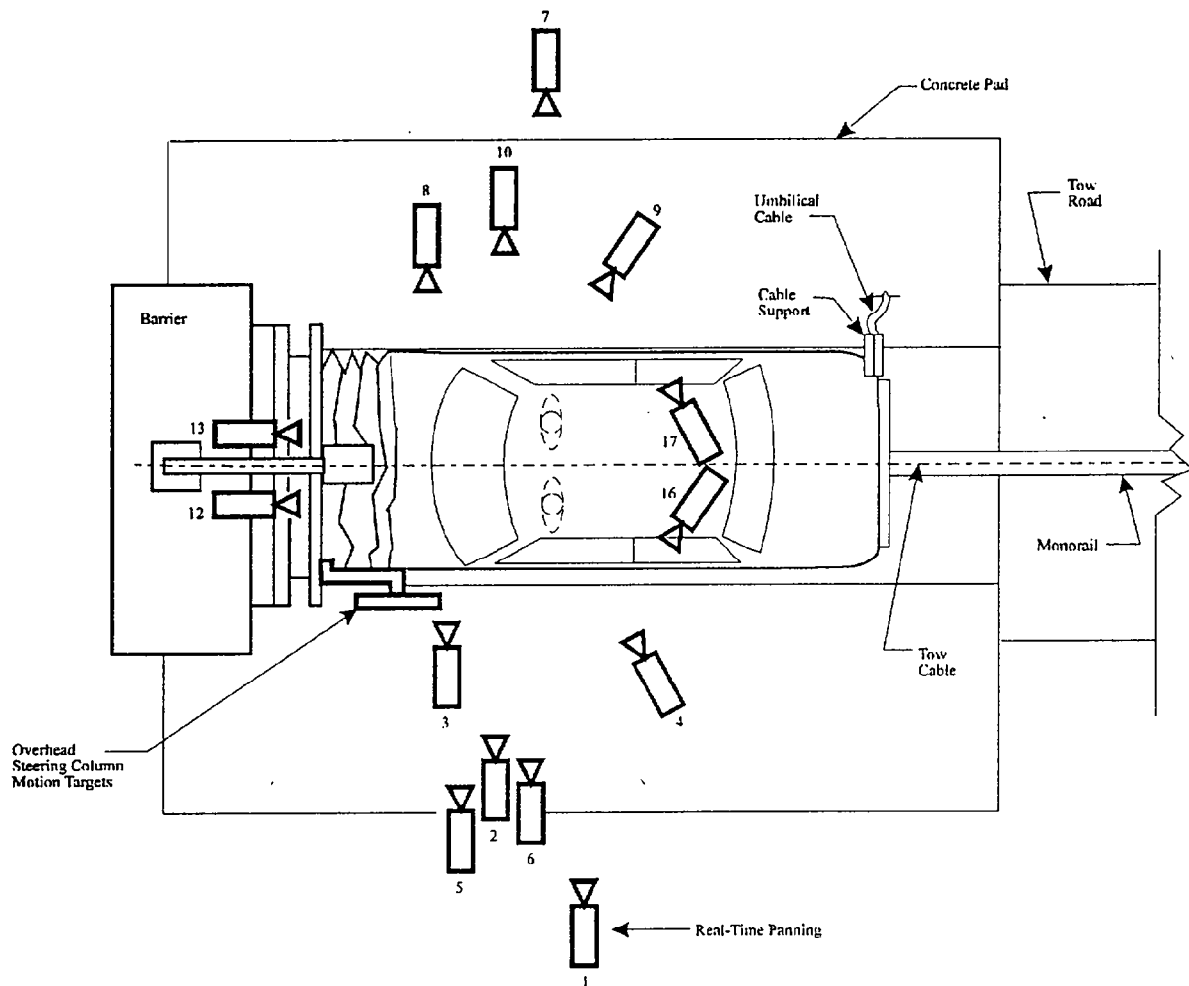


Figure 10 Camera Positions, Cont'd.

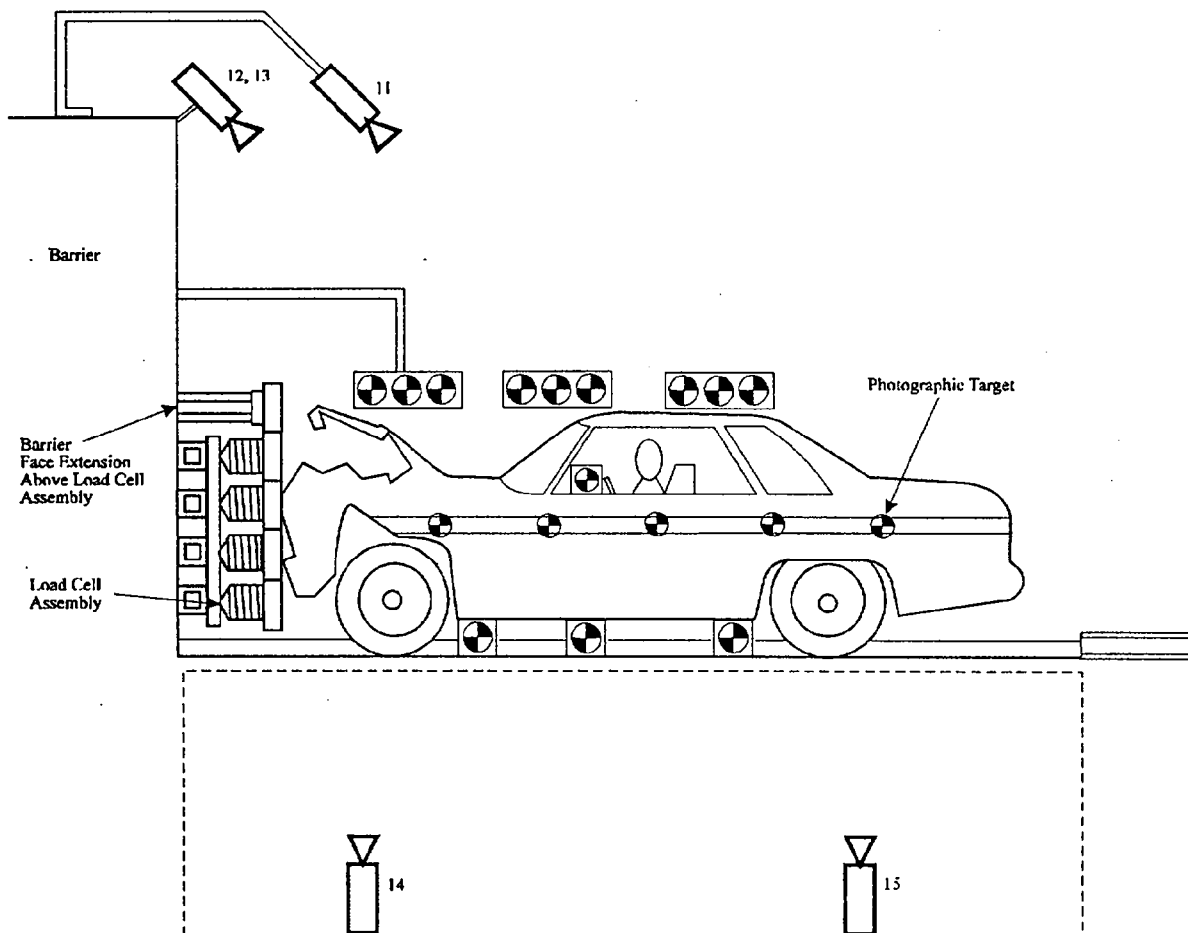


Table 13 Motion Picture Camera Locations

Test Number: 970417

Vehicle Year/Make/Model/Body Style: 1997/Jeep/Cherokee Sport/multi-purpose passenger vehicle

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	6858 mm	2591 mm	-27°	6706 mm	25 mm	992 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	2438 mm	1118 mm	-12°	2286 mm	25 mm	998 frames/s
5	Column movement - upper	-2438 mm	8534 mm	2616 mm	-14°	NA	25 mm	998 frames/s
6	Column movement - lower	-2438 mm	8534 mm	1908 mm	-9°	NA	25 mm	1010 frames/s
7	Right side overall	-2065 mm	-6767 mm	942 mm	-2°	NA	13 mm	1020 frames/s
8	Right windshield intrusion	-968 mm	-7775 mm	1118 mm	0°	NA	50 mm	1008 frames/s
9	Passenger angled view	-986 mm	2438 mm	1151 mm	7°	2286 mm	25 mm	1002 frames/s
10	Right medium tight	-4674 mm	6553 mm	2540 mm	-26°	6096 mm	25 mm	992 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	1002 frames/s
14	Crush & fluid spillage - front pit	-1283 mm	0 mm	-2347 mm	90°	NA	13 mm	988 frames/s
15	Fluid spillage - rear pit	-2522 mm	0 mm	-2515 mm	90°	NA	13 mm	1005 frames/s
16	Driver seat belt movement	NA	NA	NA	NA	NA	NA mm	1005 frames/s
17	Passenger seat belt movement	NA	NA	NA	NA	NA	NA mm	998 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

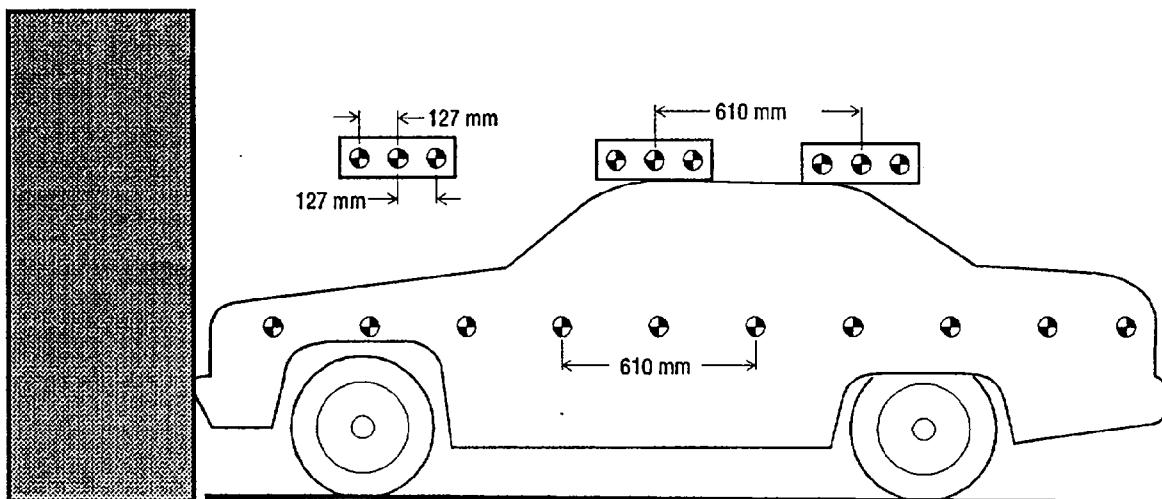


Figure 12 Pre-Test And Post-Test Measurement Points

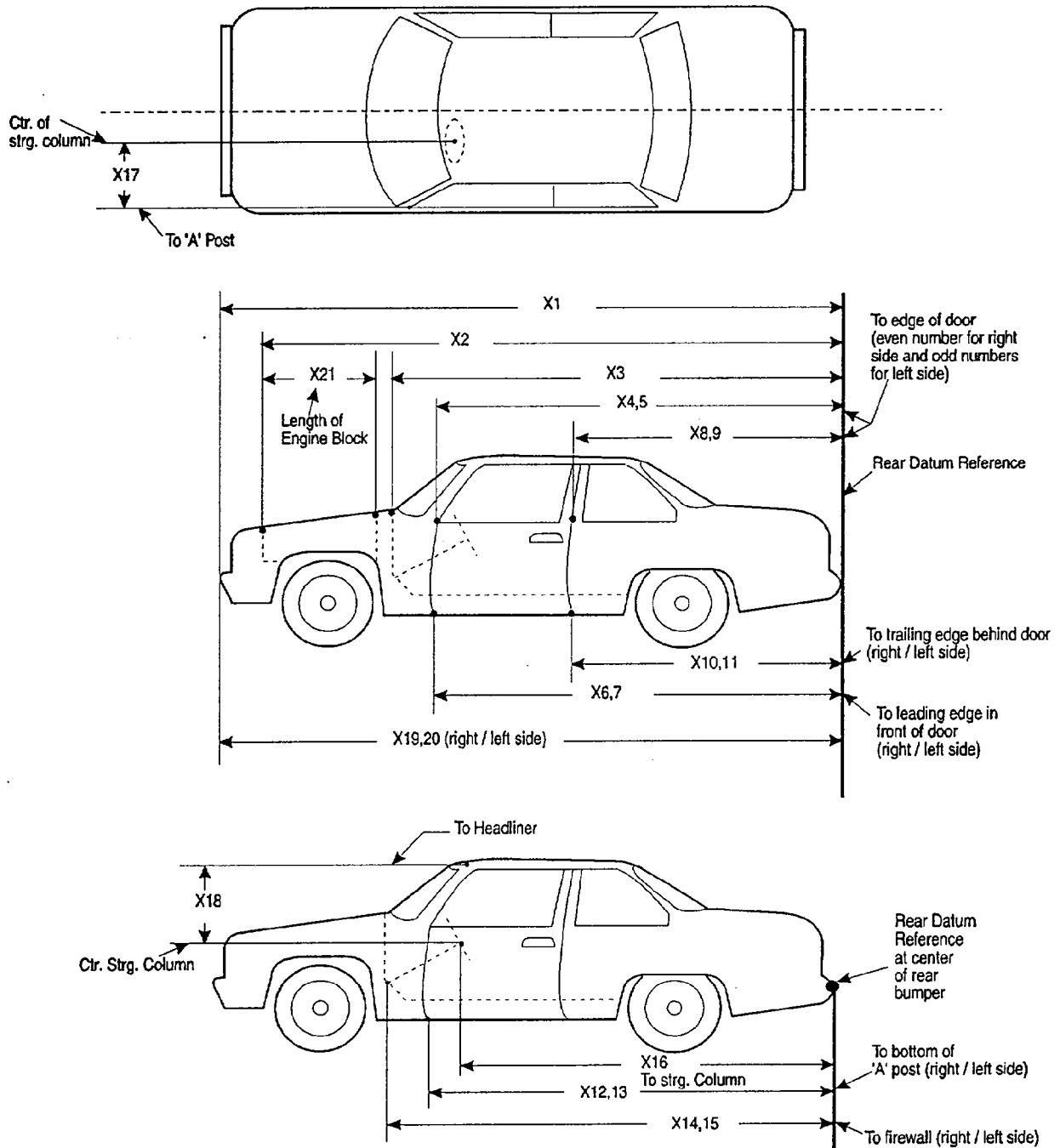


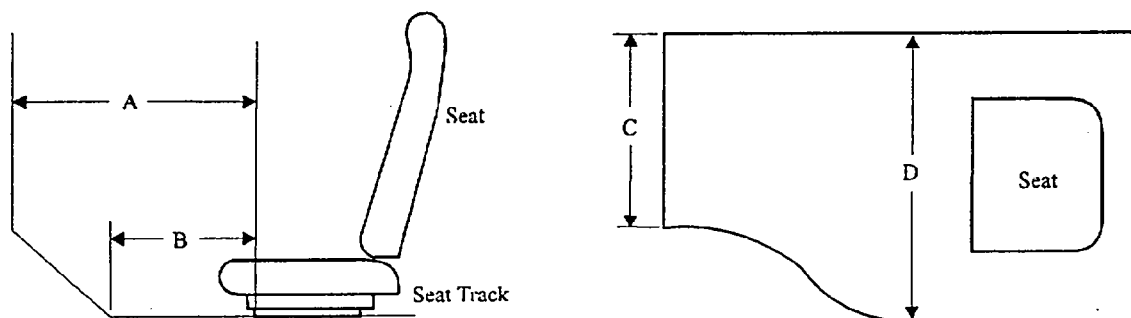
Table 14 Impacted Vehicle Measurements

Test number: 970417

Vehicle year/make/model/body style: 1997/Jeep/Cherokee Sport/multi-purpose passenger vehicle

No.	Type of measurement	Pre-test	Post-test	Difference
X1	Total length of vehicle at centerline	4215 mm	3824 mm	391 mm
X2	Rear surface of vehicle to front of engine block	3788 mm	3560 mm	228 mm
X3	Rear surface of vehicle to firewall	3101 mm	3092 mm	9 mm
X4	Rear surface of vehicle to upper leading edge of right door	2811 mm	2835 mm	-24 mm
X5	Rear surface of vehicle to upper leading edge of left door	2819 mm	2842 mm	-23 mm
X6	Rear surface of vehicle to lower leading edge of right door	2861 mm	2842 mm	19 mm
X7	Rear surface of vehicle to lower leading edge of left door	2852 mm	2839 mm	13 mm
X8	Rear surface of vehicle to upper trailing edge of right door	1911 mm	1933 mm	-22 mm
X9	Rear surface of vehicle to upper trailing edge of left door	1912 mm	1935 mm	-23 mm
X10	Rear surface of vehicle to lower trailing edge of right door	1931 mm	1910 mm	21 mm
X11	Rear surface of vehicle to lower trailing edge of left door	1922 mm	1909 mm	13 mm
X12	Rear surface of vehicle to bottom of "A" post on right side	2812 mm	2822 mm	-10 mm
X13	Rear surface of vehicle to bottom of "A" post on left side	2814 mm	2826 mm	-12 mm
X14	Rear surface of vehicle to firewall - right side	3064 mm	3045 mm	19 mm
X15	Rear surface of vehicle to firewall - left side	3061 mm	3095 mm	-34 mm
X16	Rear surface of vehicle to steering wheel center	2425 mm	2535 mm	-110 mm
X17	Center of steering column to "A" post	315 mm	262 mm	53 mm
X18	Center of steering column to headliner	410 mm	365 mm	45 mm
X19	Rear surface of vehicle to right side of front bumper	4172 mm	3866 mm	306 mm
X20	Rear surface of vehicle to left side of front bumper	4166 mm	3991 mm	175 mm
X21	Length of engine block	670 mm	670 mm	0 mm
RD	Rear surface of vehicle to right side of dash panel	2726 mm	2738 mm	-12 mm
CD	Rear surface of vehicle to center of dash panel	2645 mm	2660 mm	-15 mm
LD	Rear surface of vehicle to left side of dash panel	2721 mm	2741 mm	-20 mm

Figure 13 Vehicle Intrusion Measurements
Static Footwell Deformation



Driver's Side

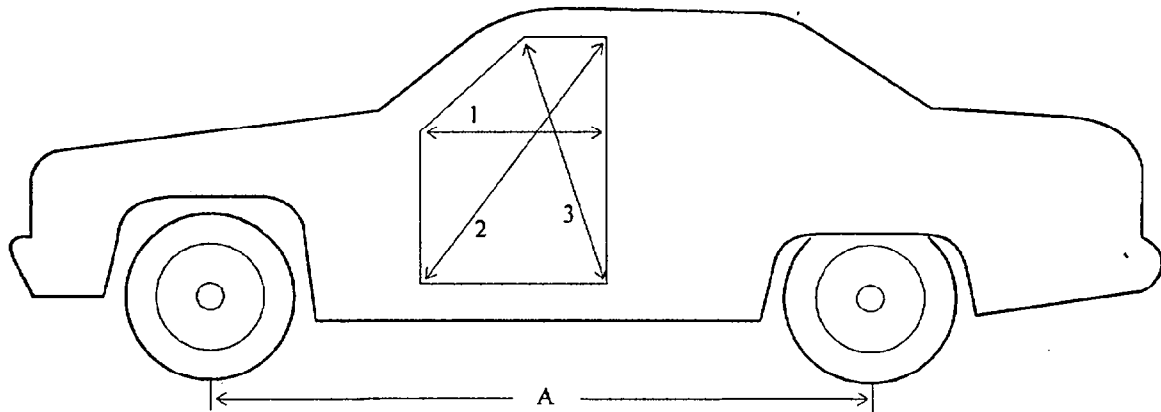
Measurement	Pre-Test	Post-Test	Difference
A	653 mm	613 mm	40 mm
B	568 mm	550 mm	18 mm
C	357 mm	285 mm	72 mm
D	250 mm	257 mm	-7 mm

Passenger's Side

Measurement	Pre-Test	Post-Test	Difference
A	628 mm	506 mm	122 mm
B	507 mm	470 mm	37 mm
C	287 mm	250 mm	37 mm
D	348 mm	344 mm	4 mm

Figure 14 Vehicle Intrusion Measurements

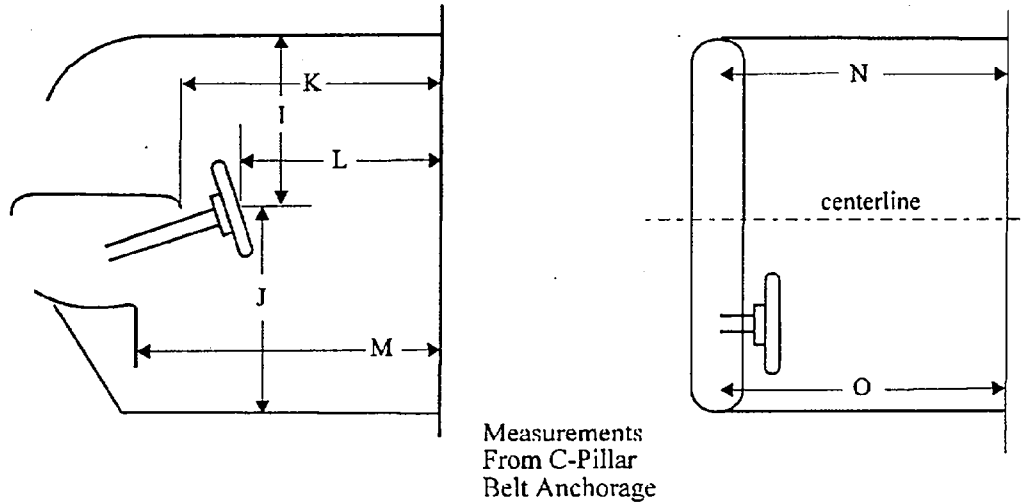
Door Opening Width



Units (mm)	Left			Right		
Measurement	1	2	3	1	2	3
Pre-Test	884 mm	1375 mm	1040 mm	894 mm	1380 mm	1028 mm
Post-Test	867 mm	1344 mm	1089 mm	876 mm	1355 mm	1056 mm
Difference	17 mm	31 mm	-49 mm	18 mm	25 mm	-28 mm

Units (mm)	A = Wheelbase Left	A = Wheelbase Right
Pre-Test	2540 mm	2540 mm
Post-Test	2463 mm	2454 mm
Difference	77 mm	86 mm

Figure 15 Vehicle Intrusion Measurements
Static Passenger Compartment Intrusion



Measurement	Pre-Test	Post-Test	Difference
I	450 mm	384 mm	66 mm
J	653 mm	751 mm	-98 mm
K (driver's side)	2511 mm	2741 mm	-230 mm
L	2314 mm	2284 mm	30 mm
M (driver's side)	1800 mm	1768 mm	32 mm
N	2581 mm	2561 mm	20 mm
O	2534 mm	2479 mm	55 mm
Passenger's side	2540 mm	2738 mm	-198 mm
Passenger's side	1800 mm	1754 mm	46 mm

Appendix A

Photographs

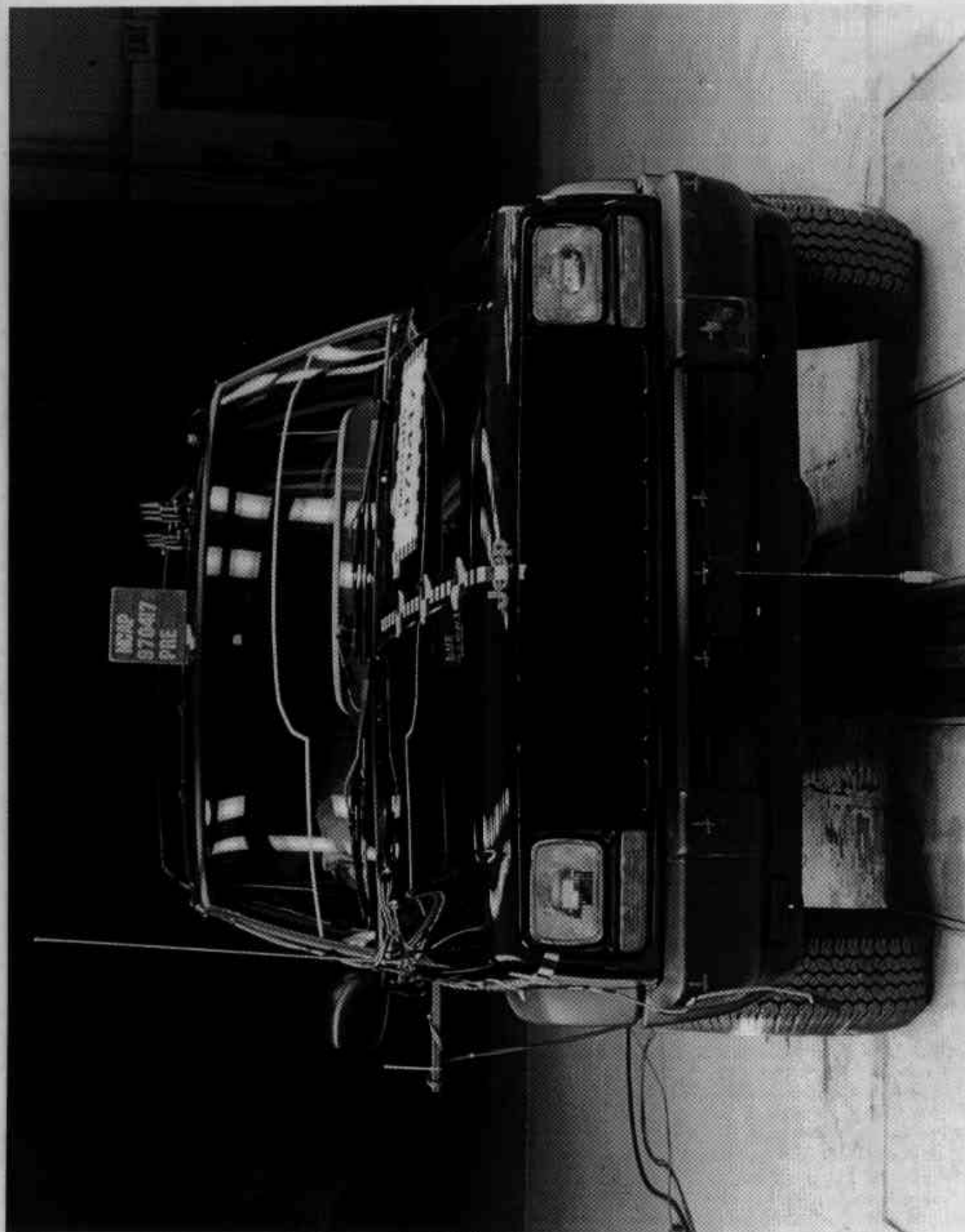


Figure A-1 Pre-Test Front View
A-2

970417

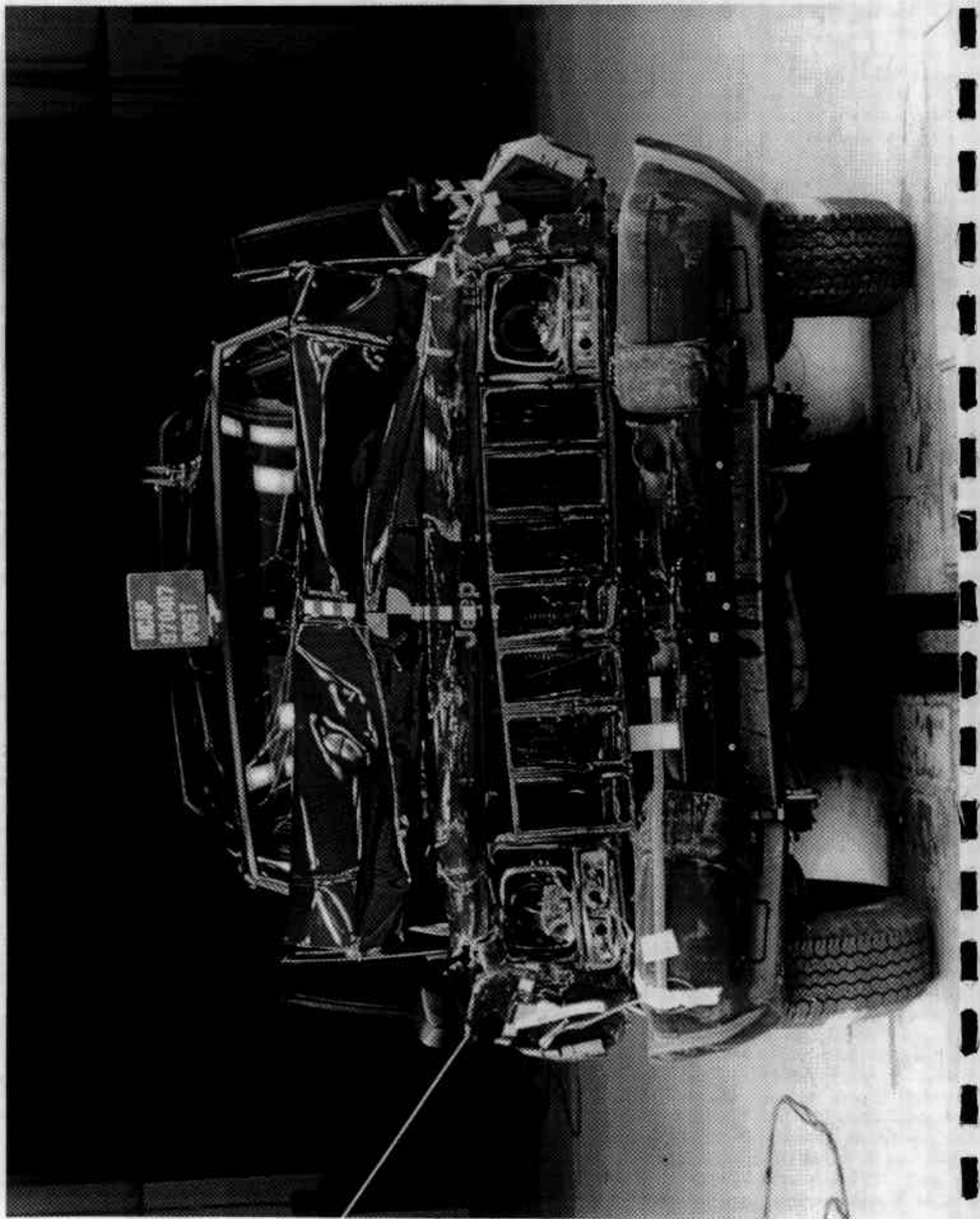


Figure A-2 Post-Test Front View
A-3

970417

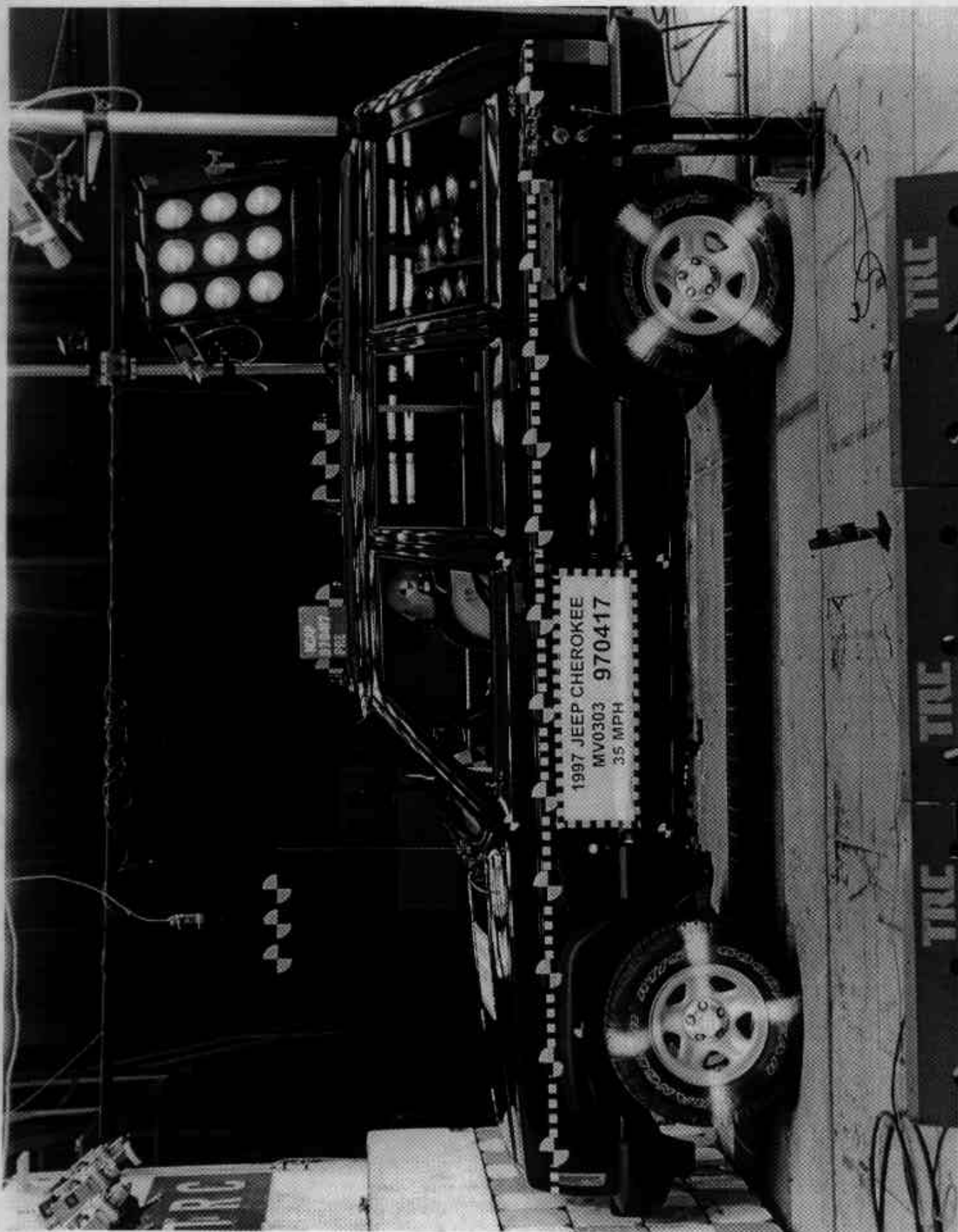


Figure A-3 Pre-Test Left Side View

A-4

970417

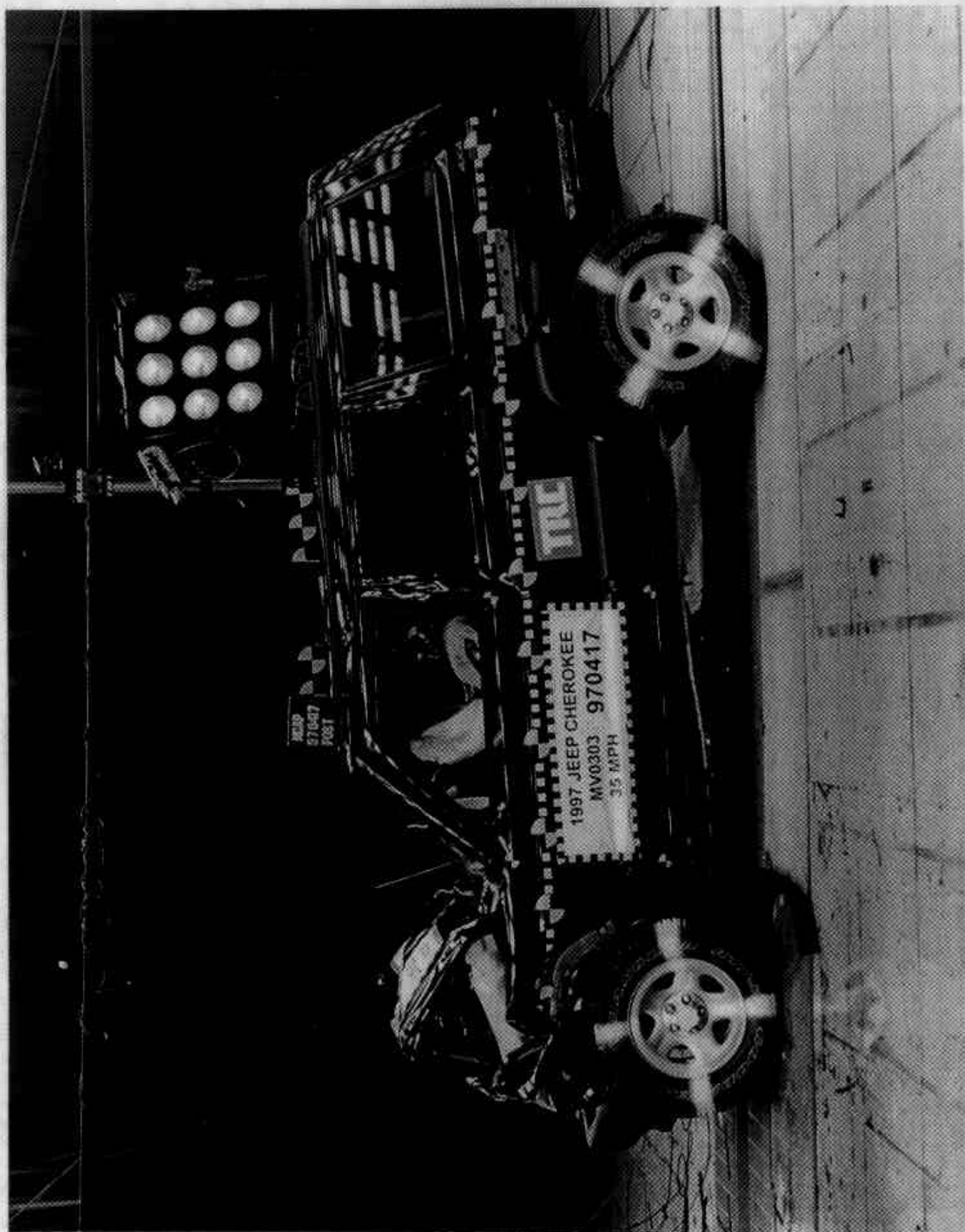


Figure A-4 Post-Test Left Side View
A-5

970417

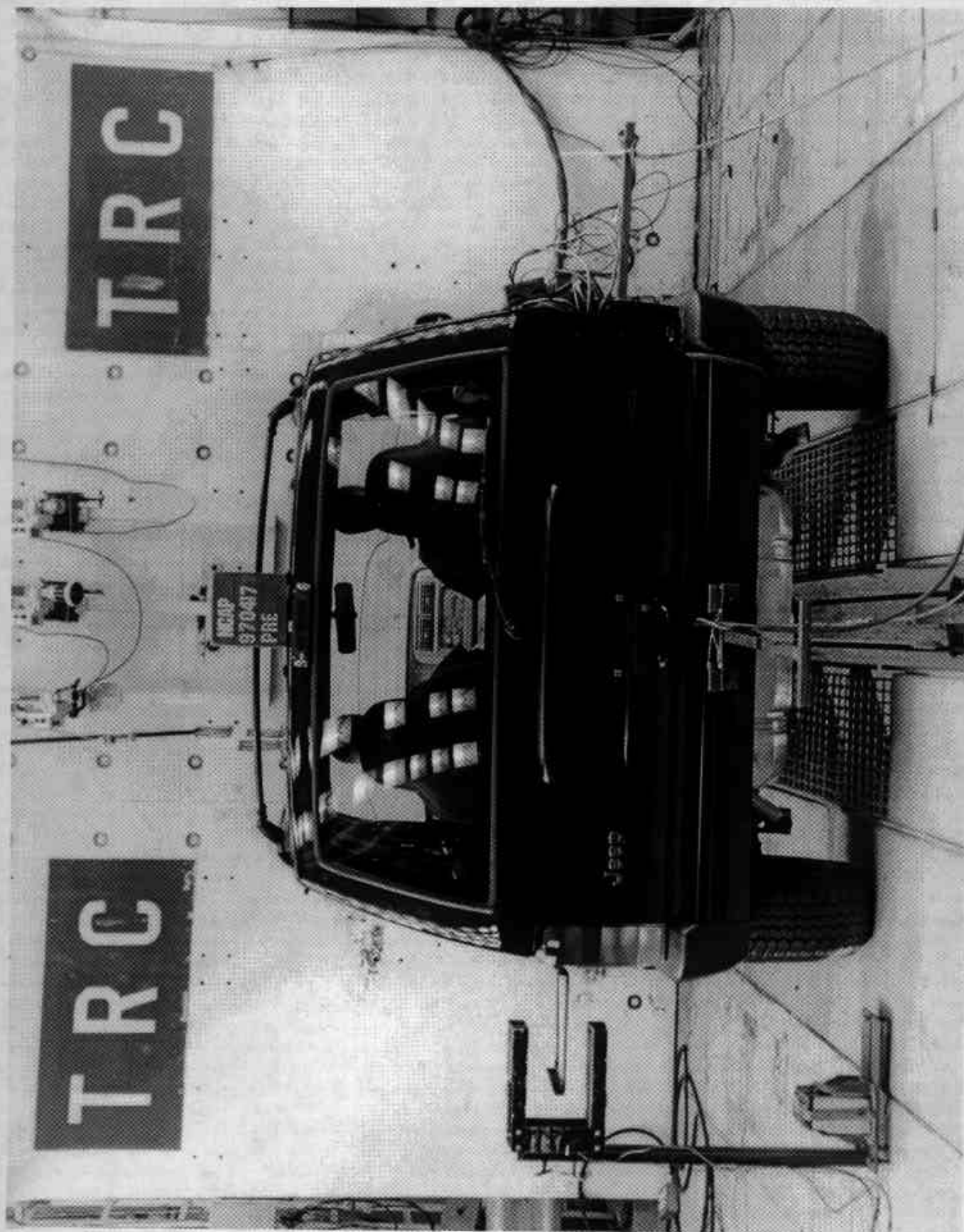


Figure A-5 Pre-Test Rear View
A-6

970417

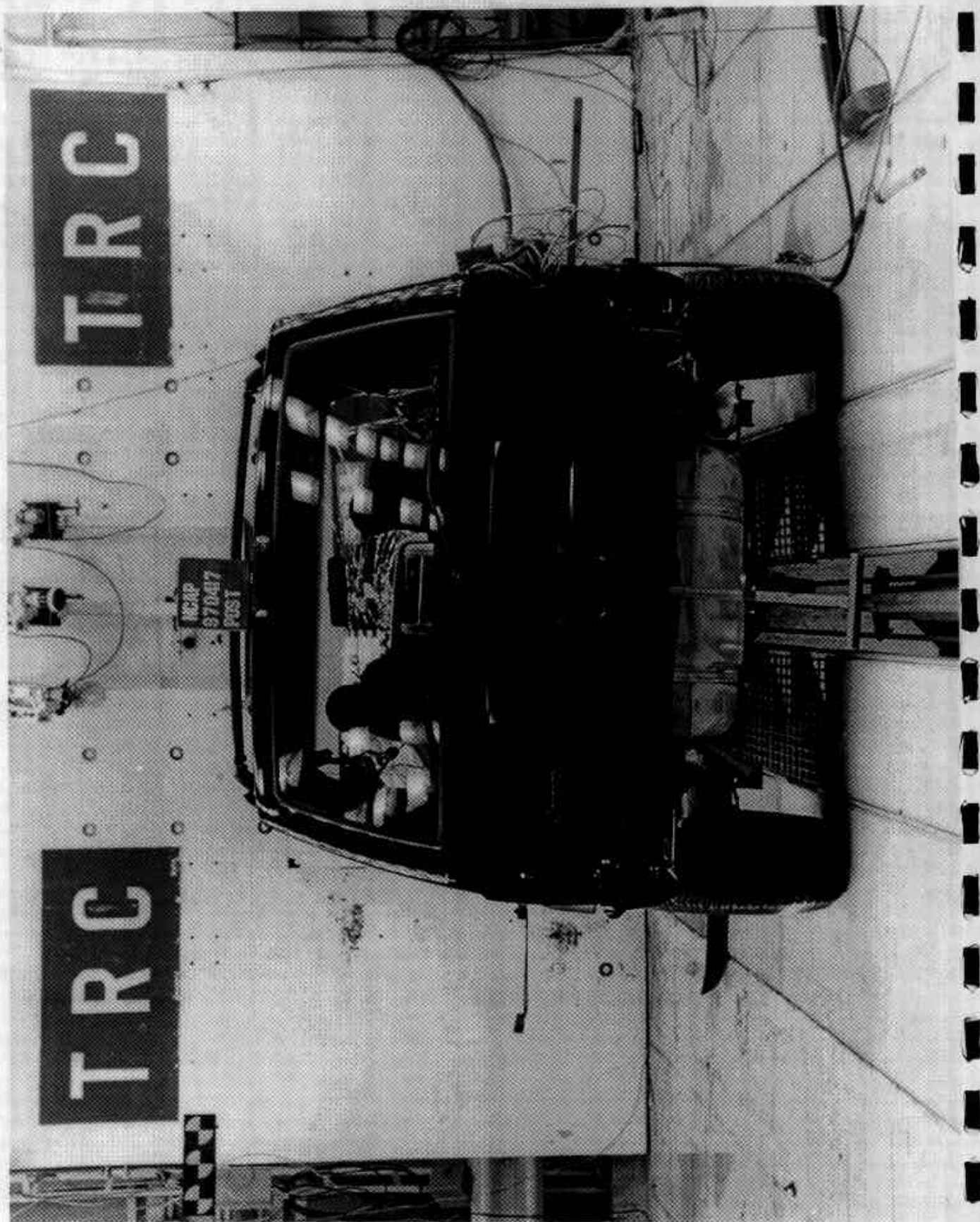


Figure A-6 Post-Test Rear View
A-7

970417

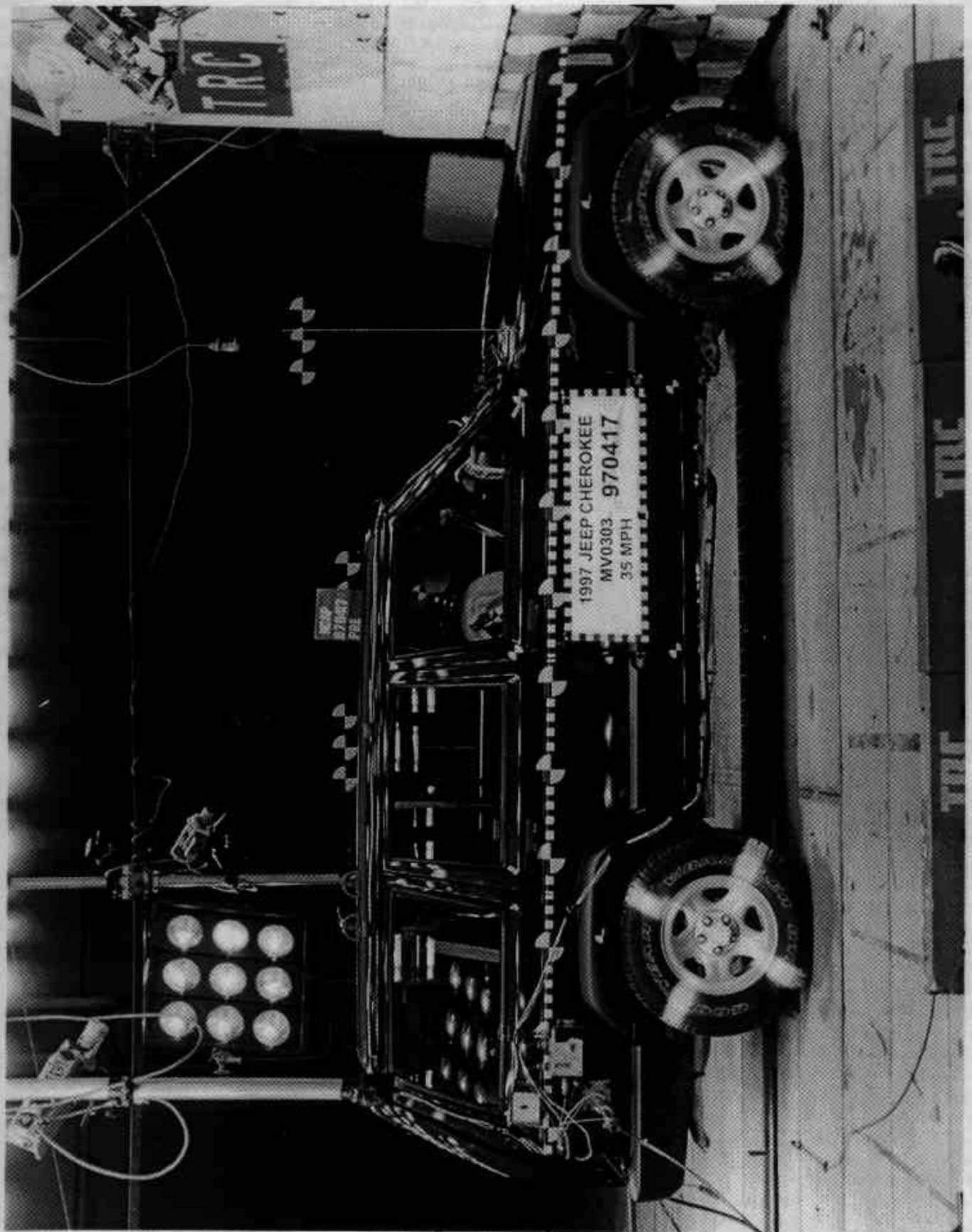


Figure A-7 Pre-Test Right Side View
A-8

970417

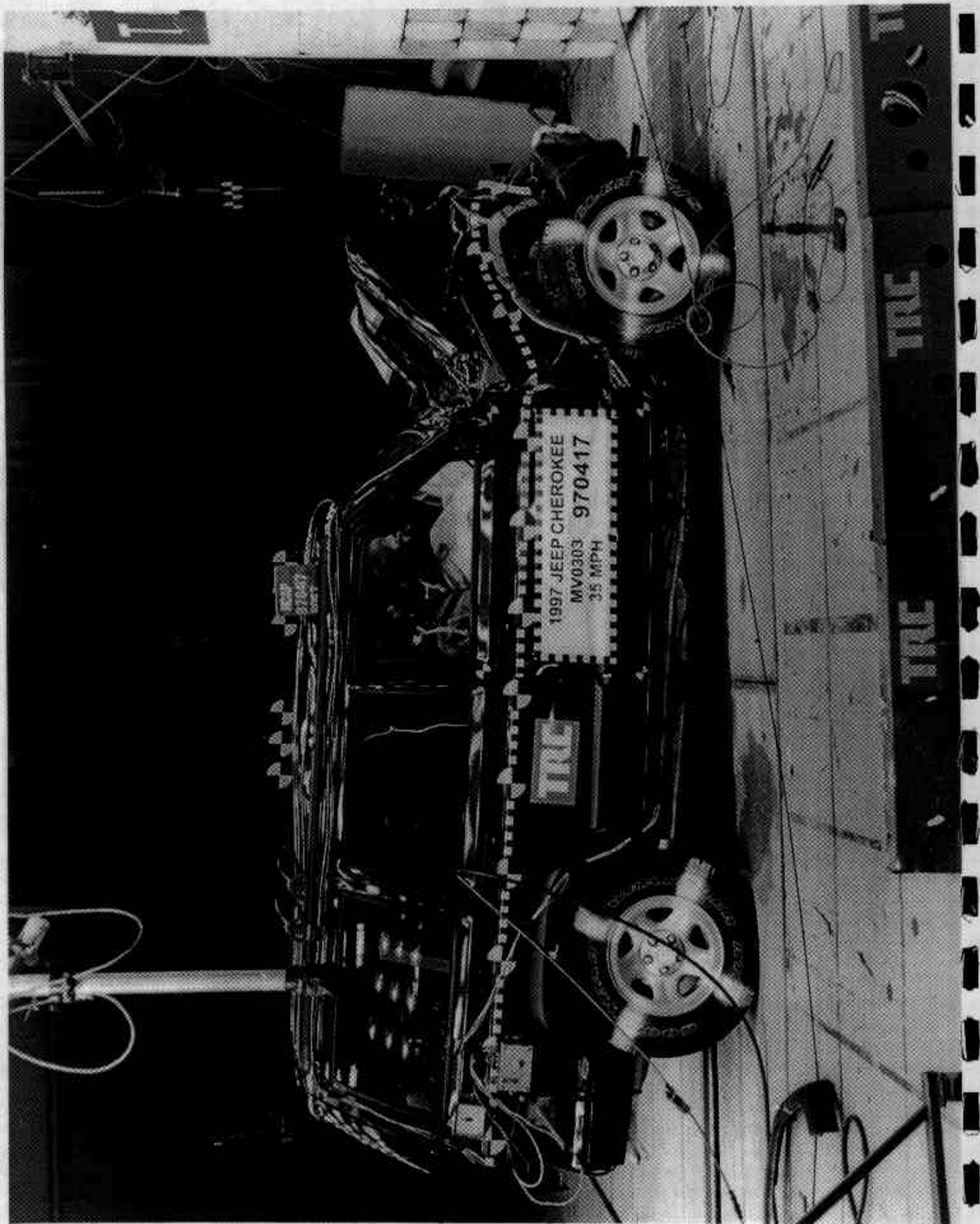


Figure A-8 Post-Test Right Side View
A-9

970417



Figure A-9 Pre-Test Right Front Three-Quarter View
A-10

970417

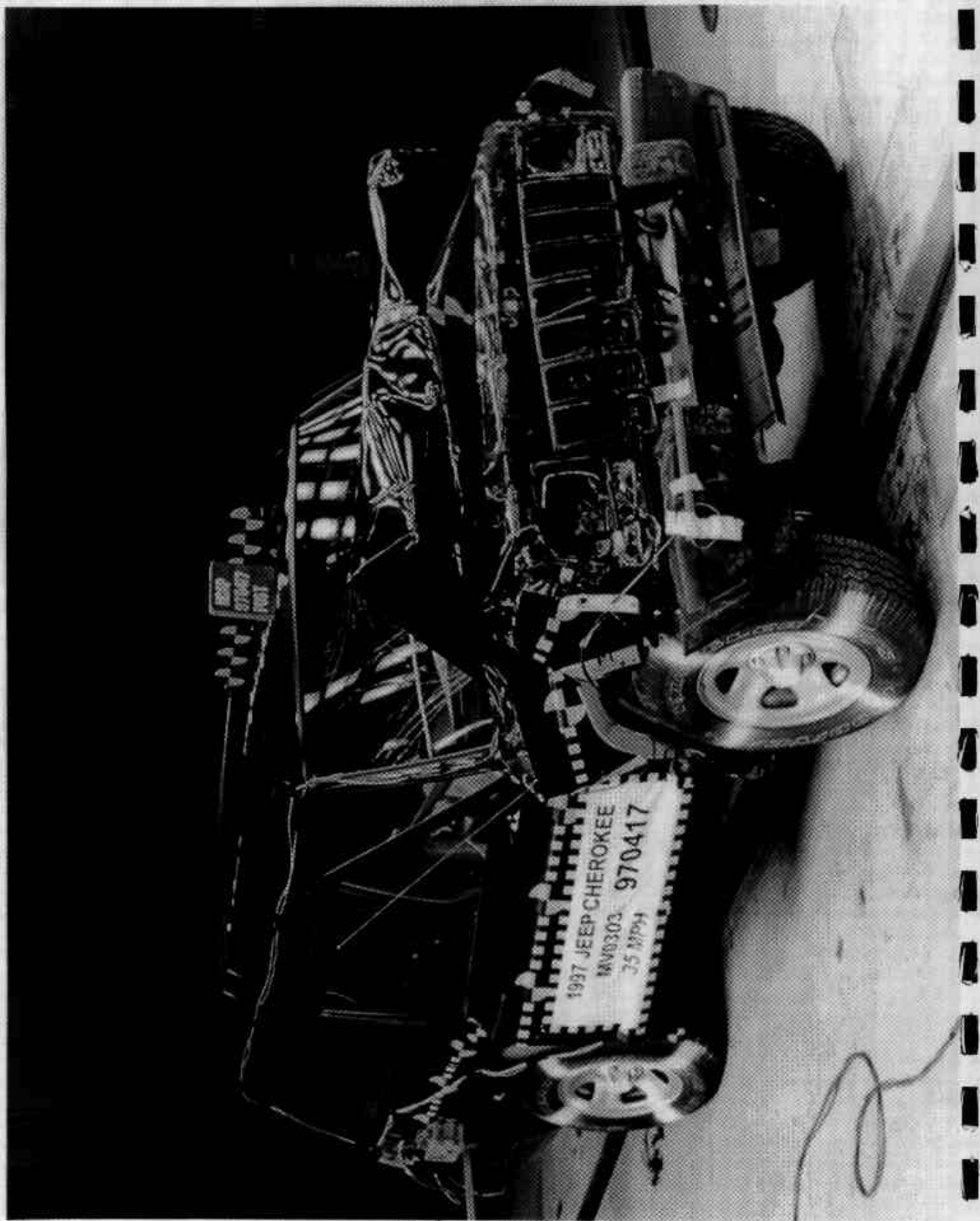


Figure A-10 Post-Test Right Front Three-Quarter View
A-11

970417

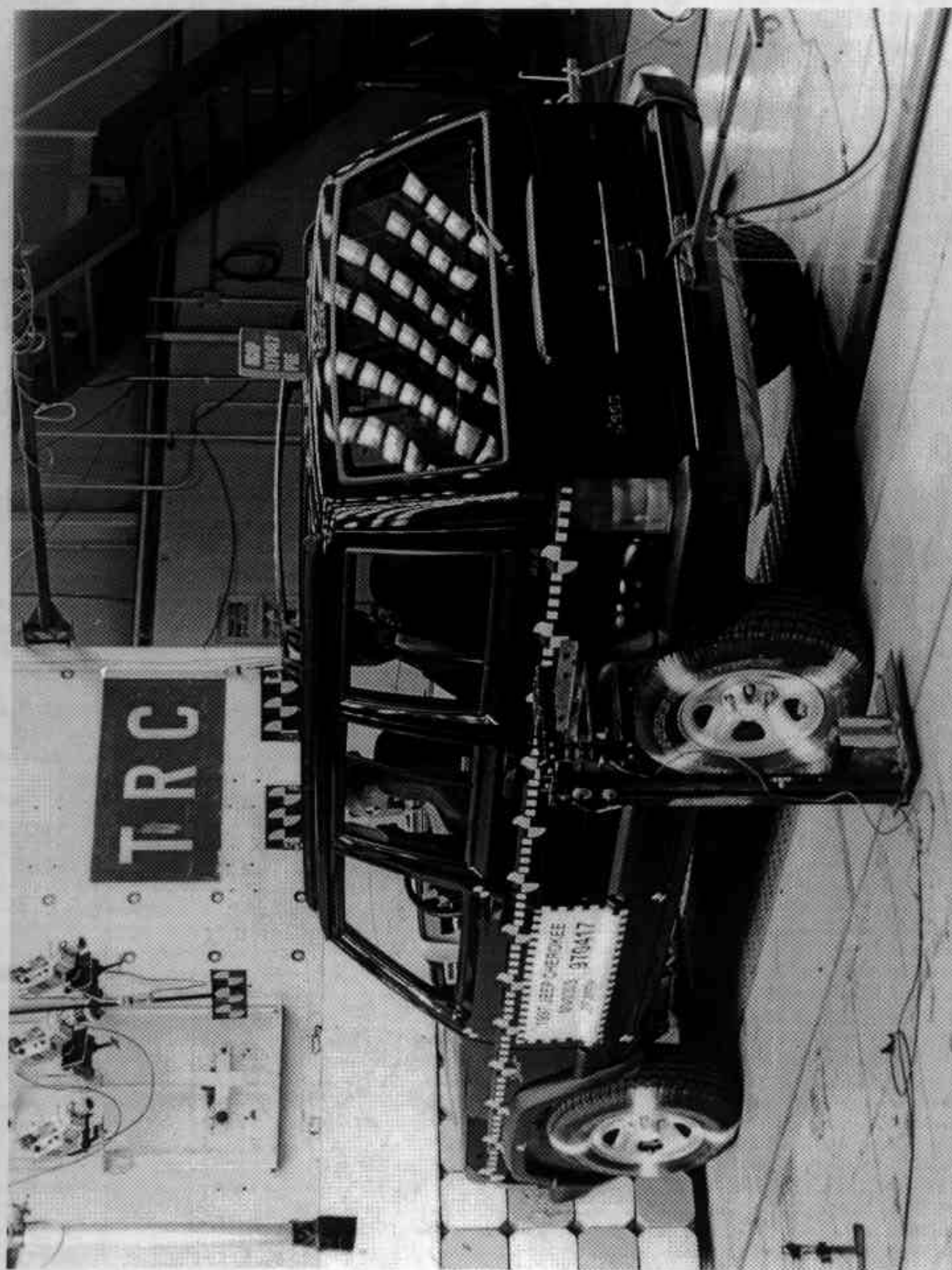


Figure A-11 Pre-Test Left Rear Three-Quarter View

A-12

970417

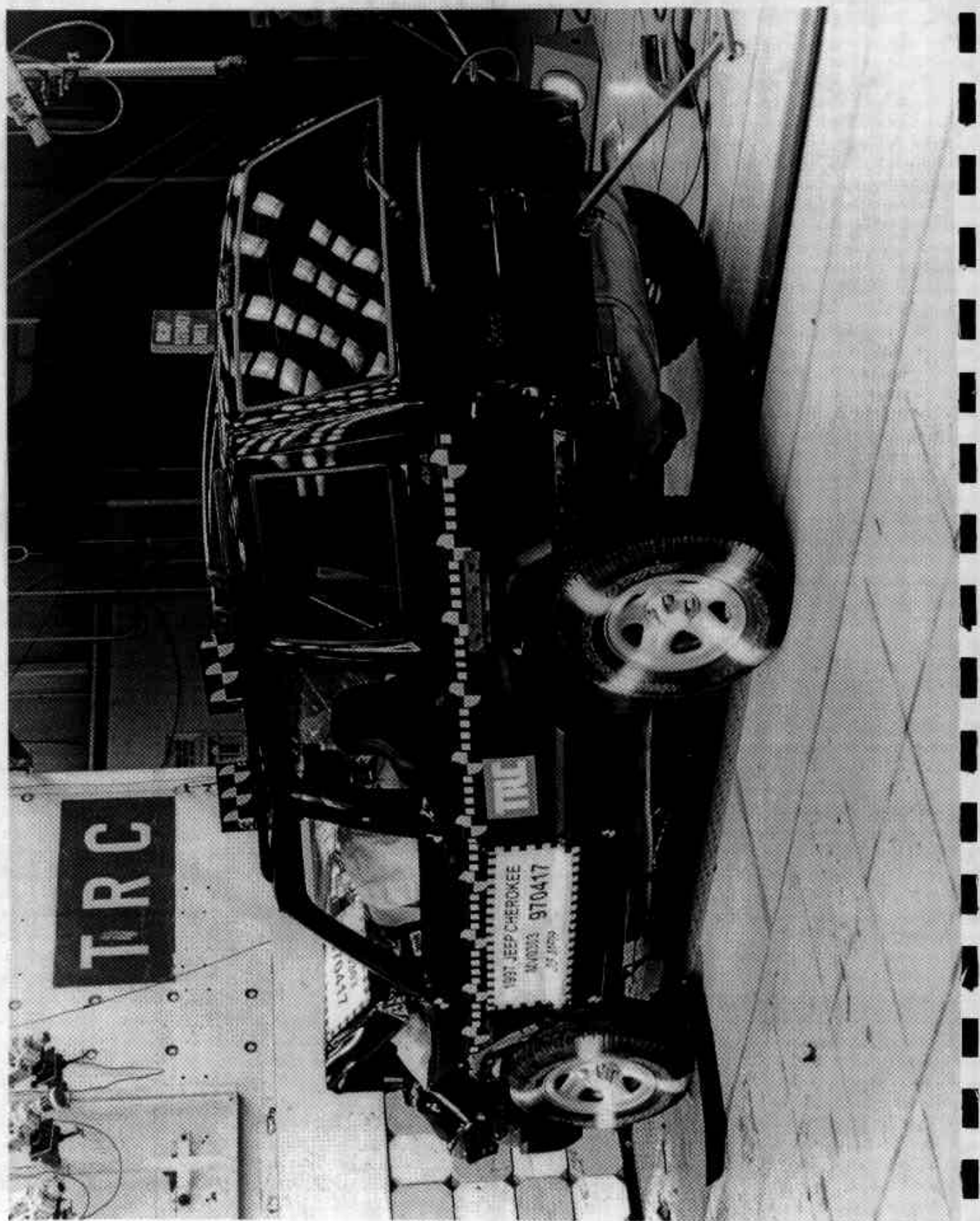


Figure A-12 Post-Test Left Rear Three-Quarter View
A-13

970417



Figure A-13 Pre-Test Windshield View
A-14

970417

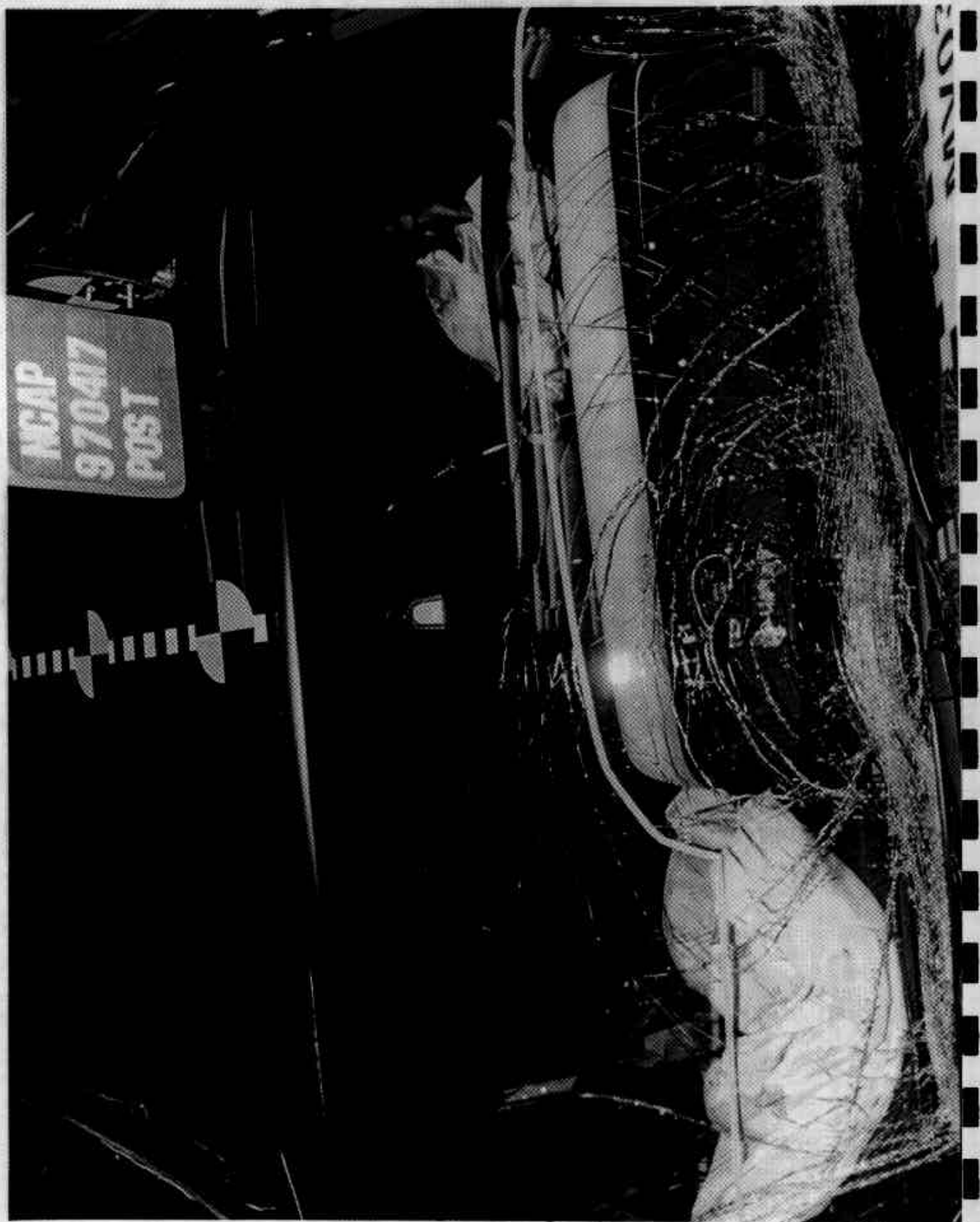


Figure A-14 Post-Test Windshield View
A-15

970417

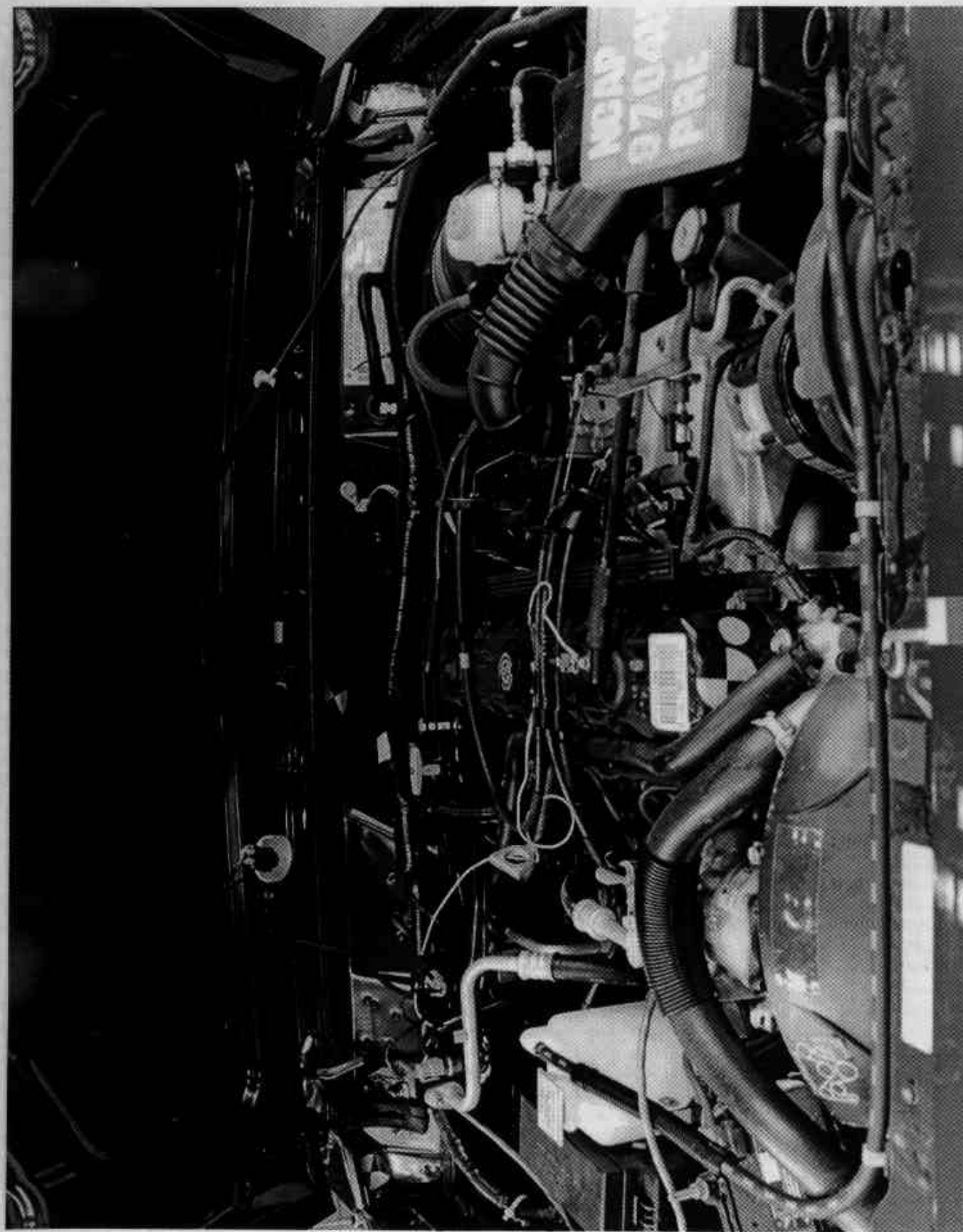


Figure A-15 Pre-Test Engine Compartment View

A-16

970417

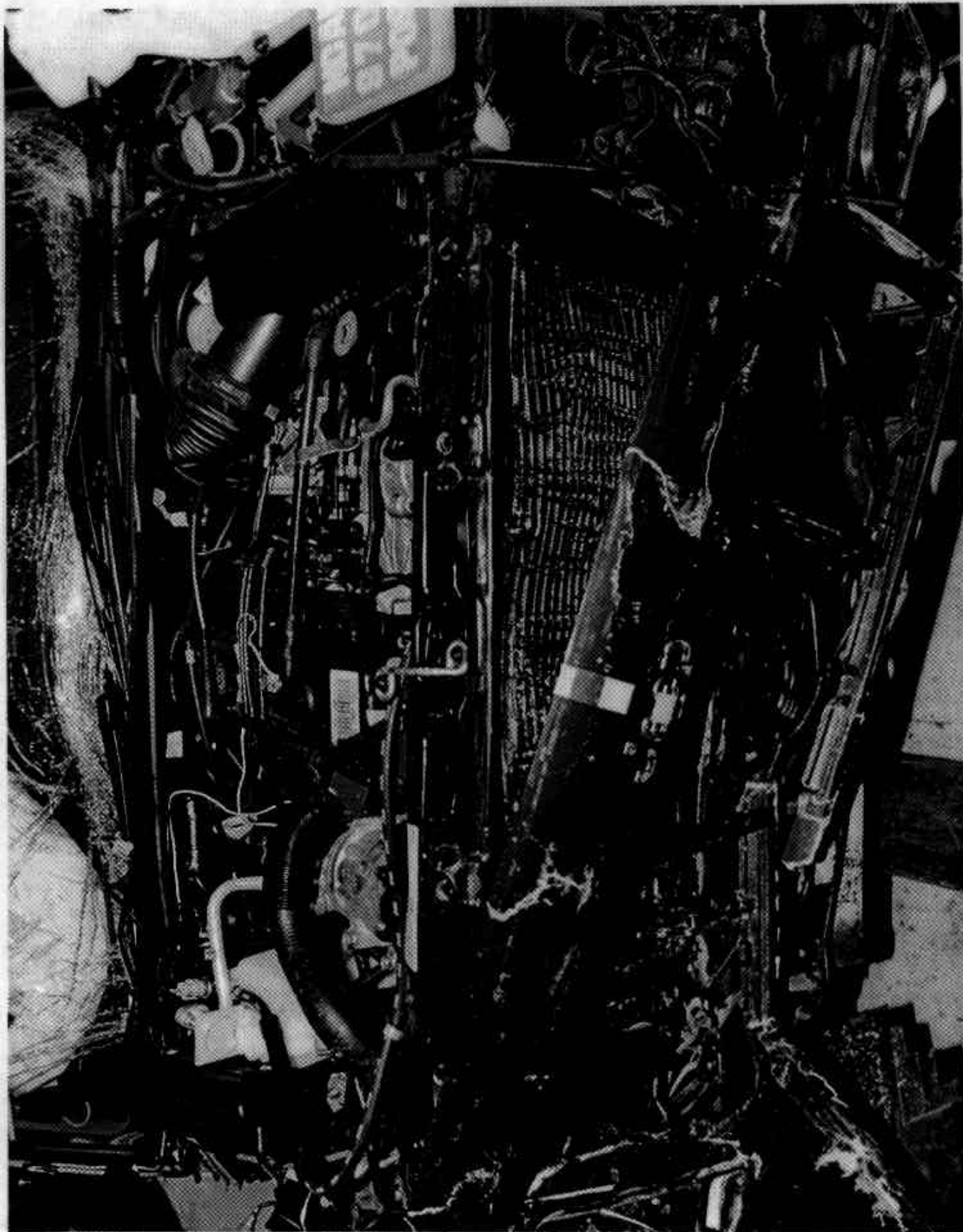


Figure A-16 Post-Test Engine Compartment View
A-17

970417



Figure A-17 Pre-Test Fuel Filler Cap View
A-18

970417

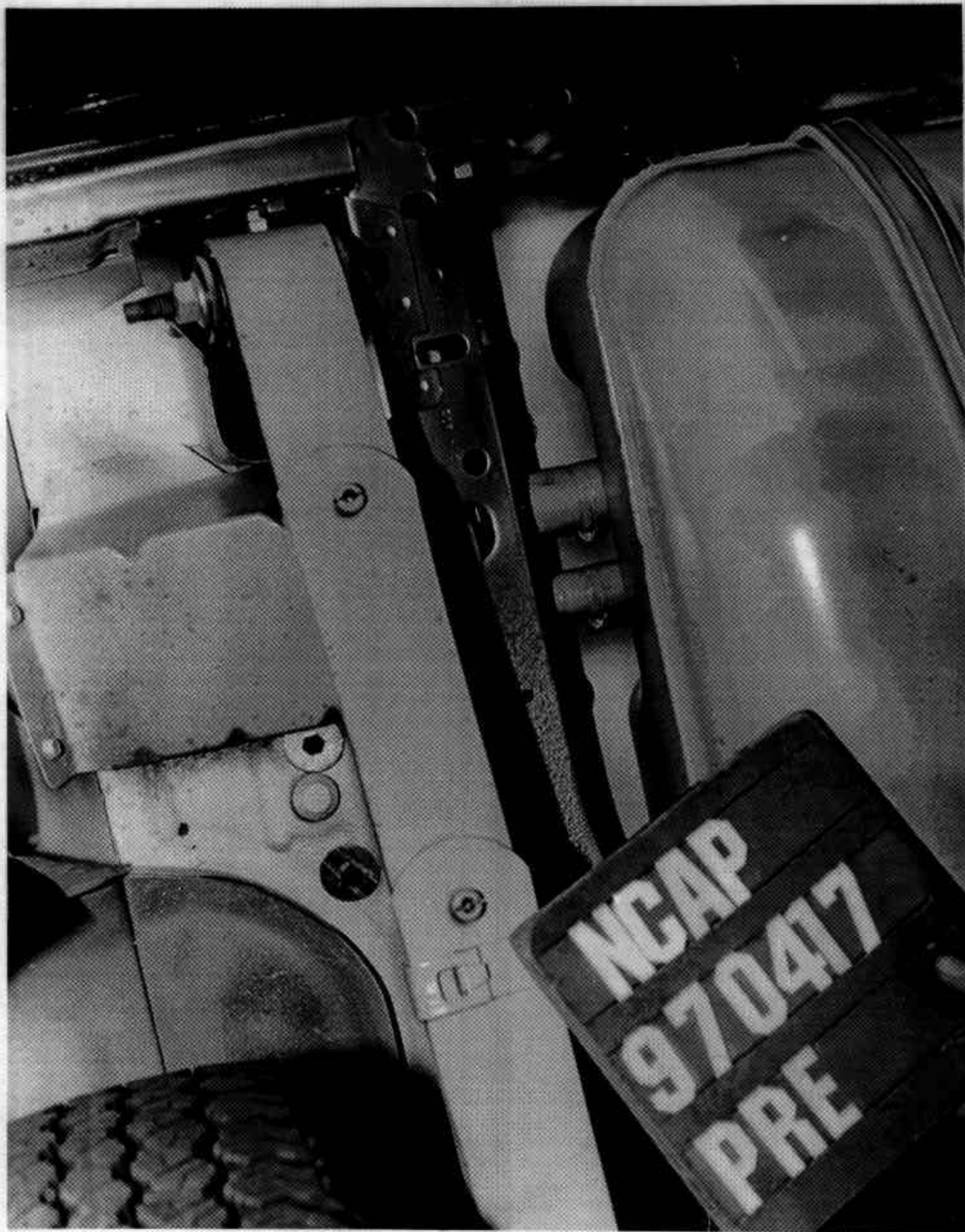


Figure A-18 Pre-Test Fuel Filler Neck View
A-19

970417



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

970417



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

970417

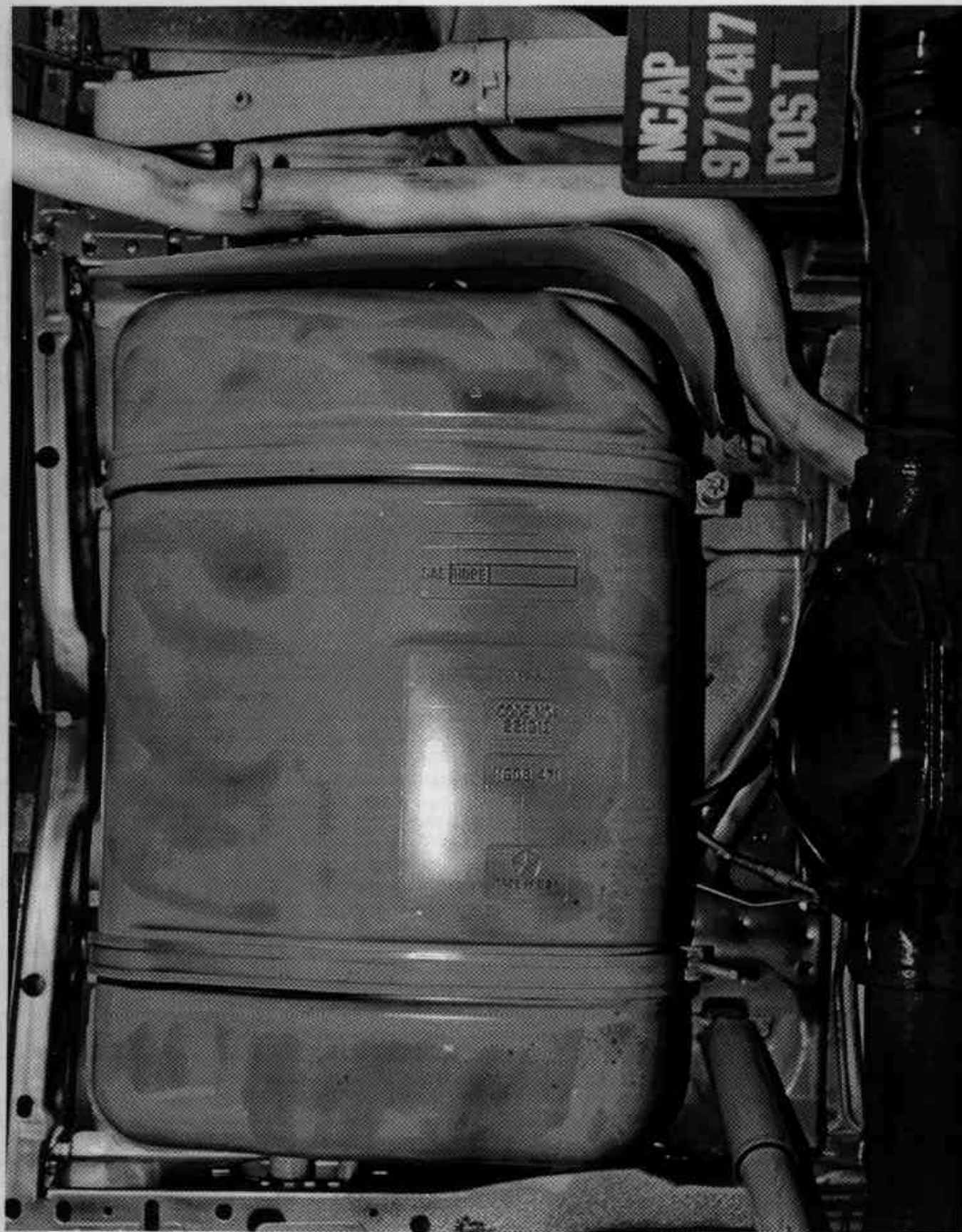


Figure A-21 Post-Test Fuel Tank View
A-22

970417

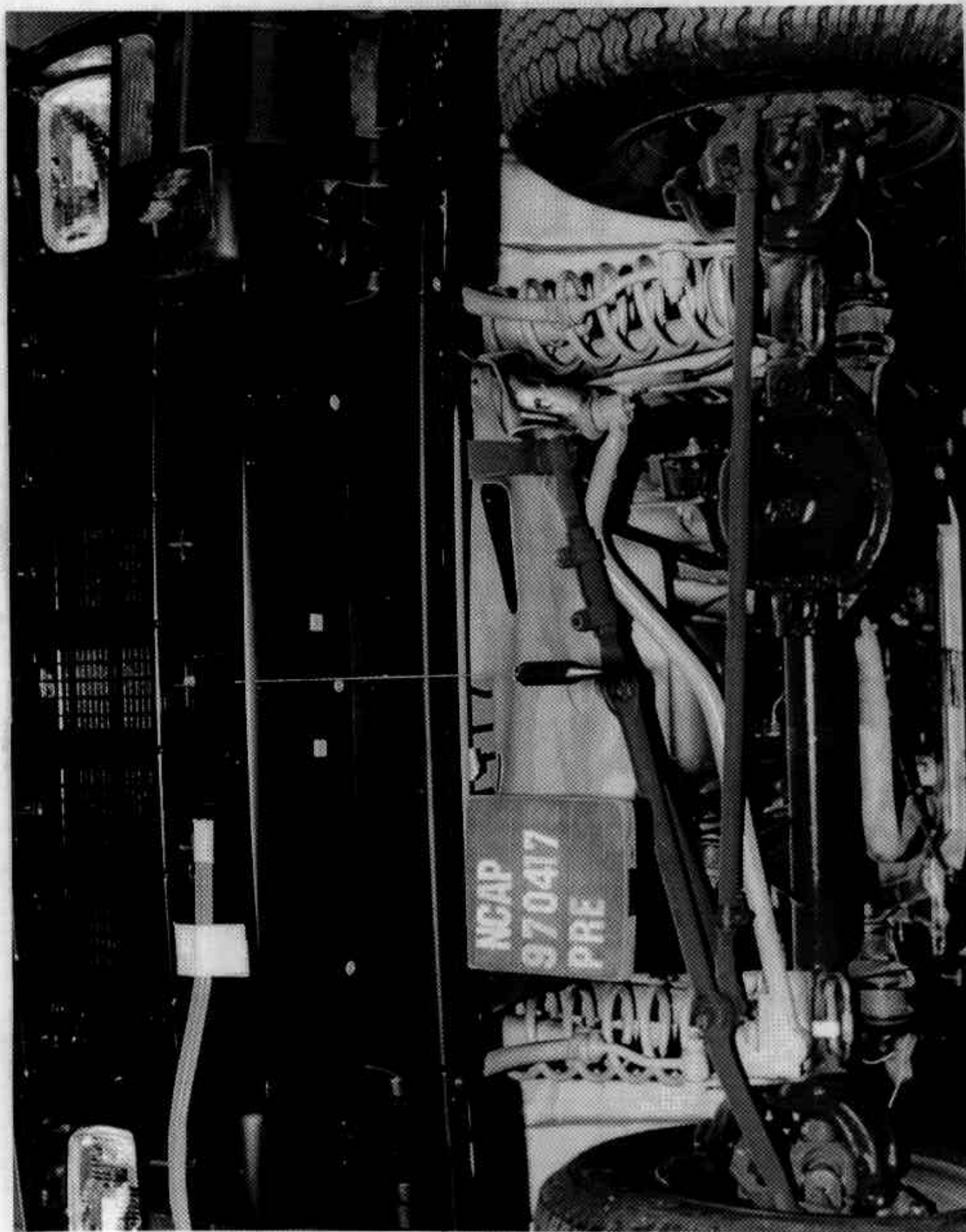


Figure A-22 Pre-Test Front Underbody View
A-23

970417

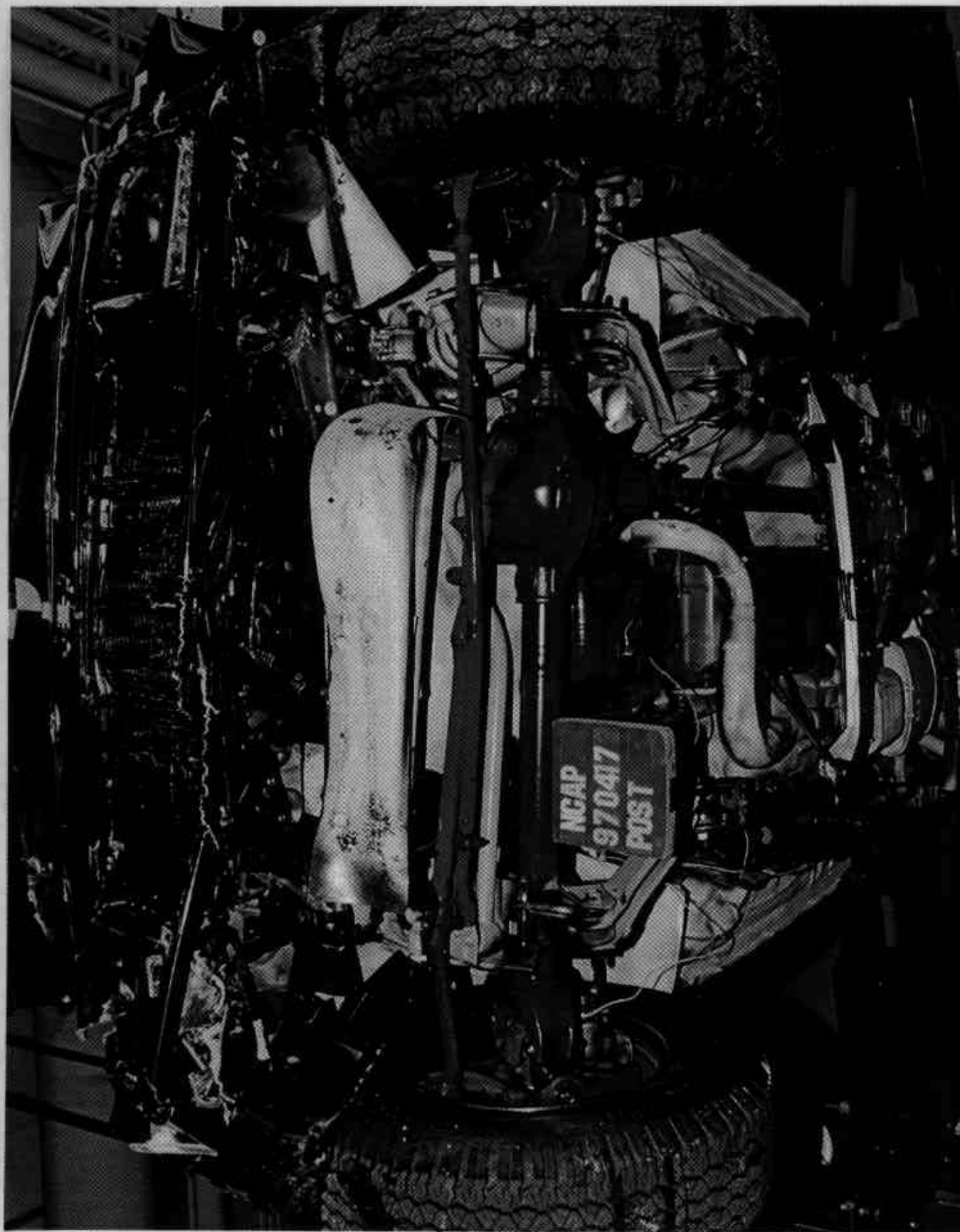


Figure A-23 Post-Test Front Underbody View

A-24

970417



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

970417



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

970417



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

970417



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

970417

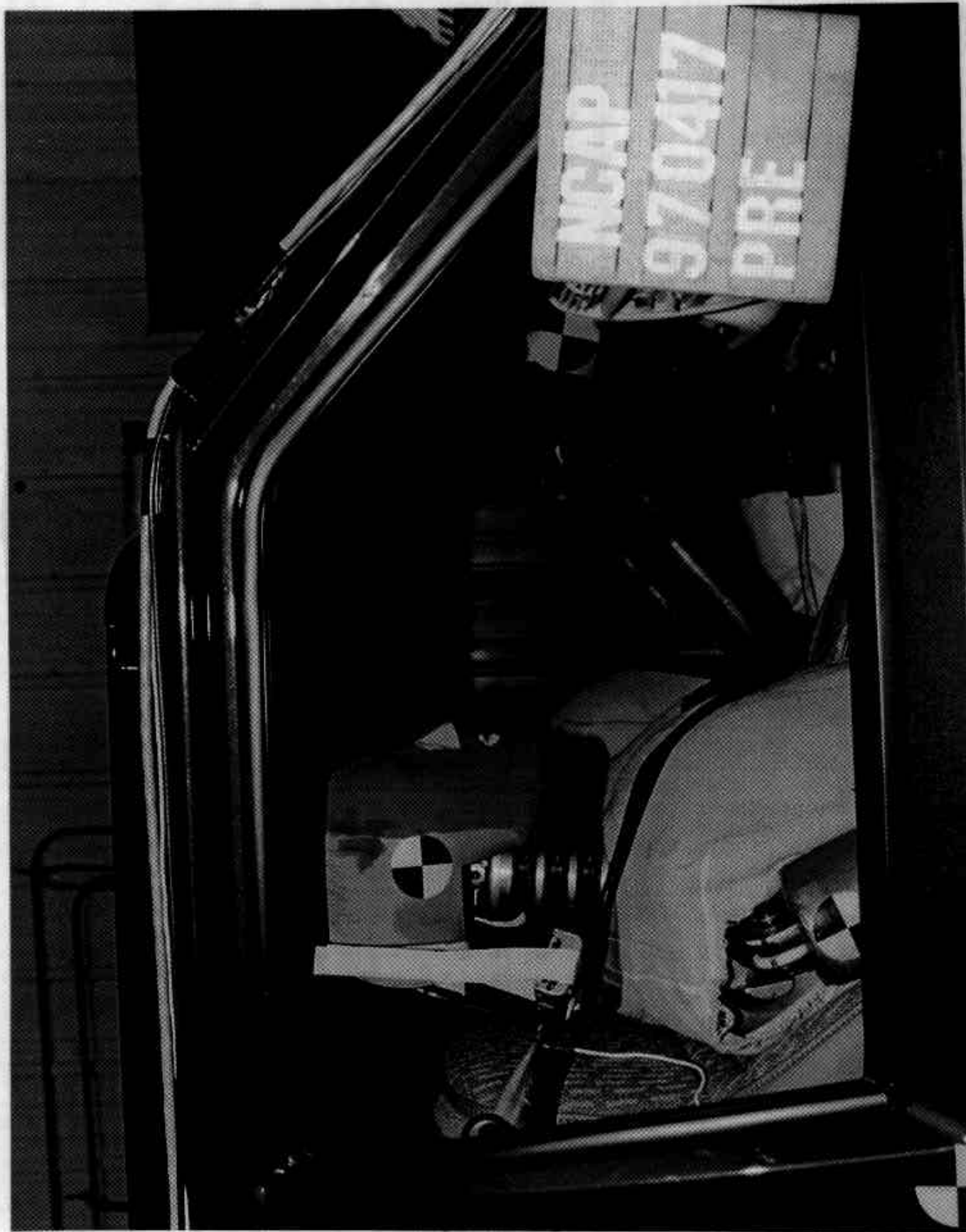


Figure A-28 Pre-Test Passenger Dummy Position View
A-29

970417



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

970417

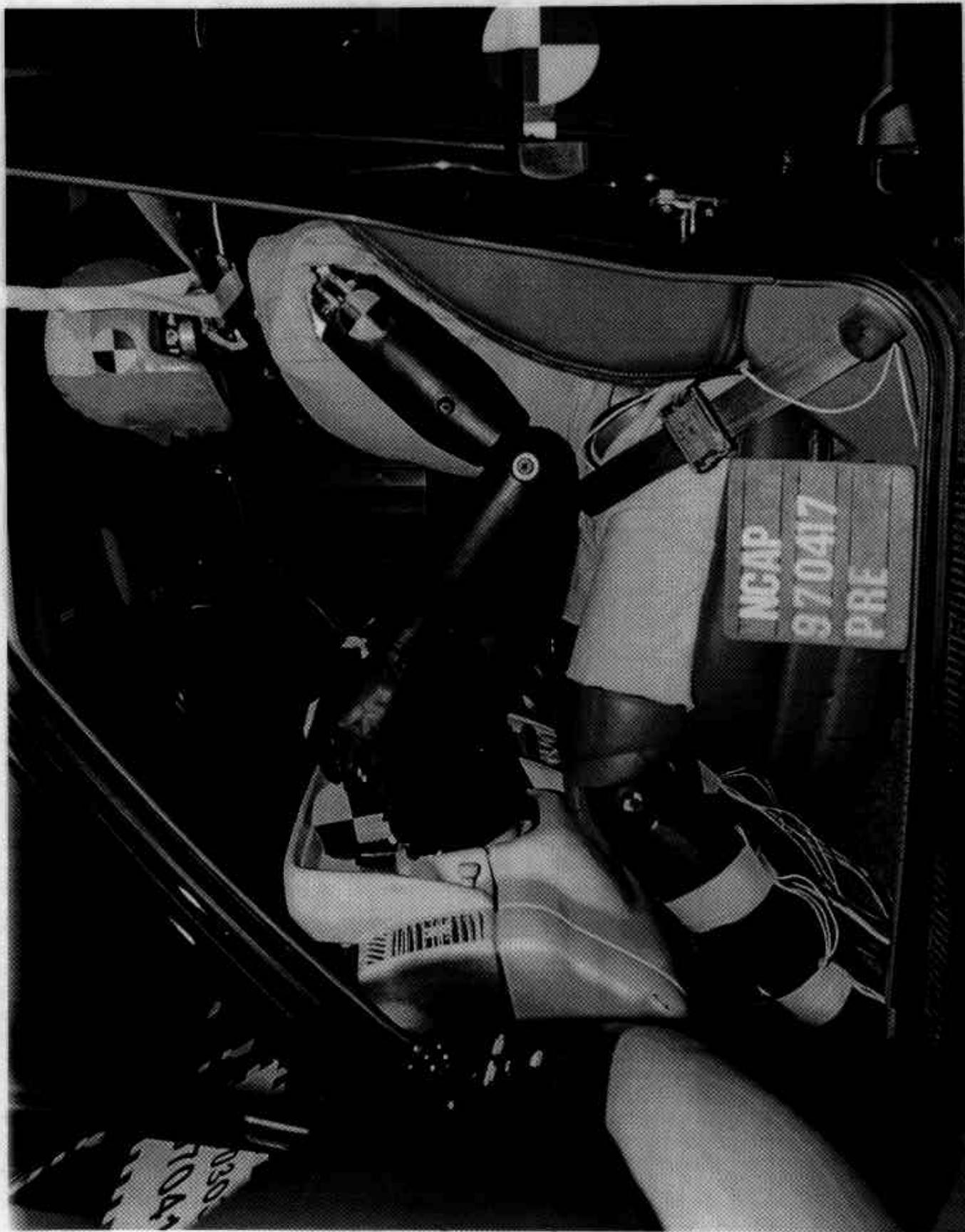


Figure A-30 Pre-Test Driver Dummy and Vehicle Interior - View 1

A-31

970417

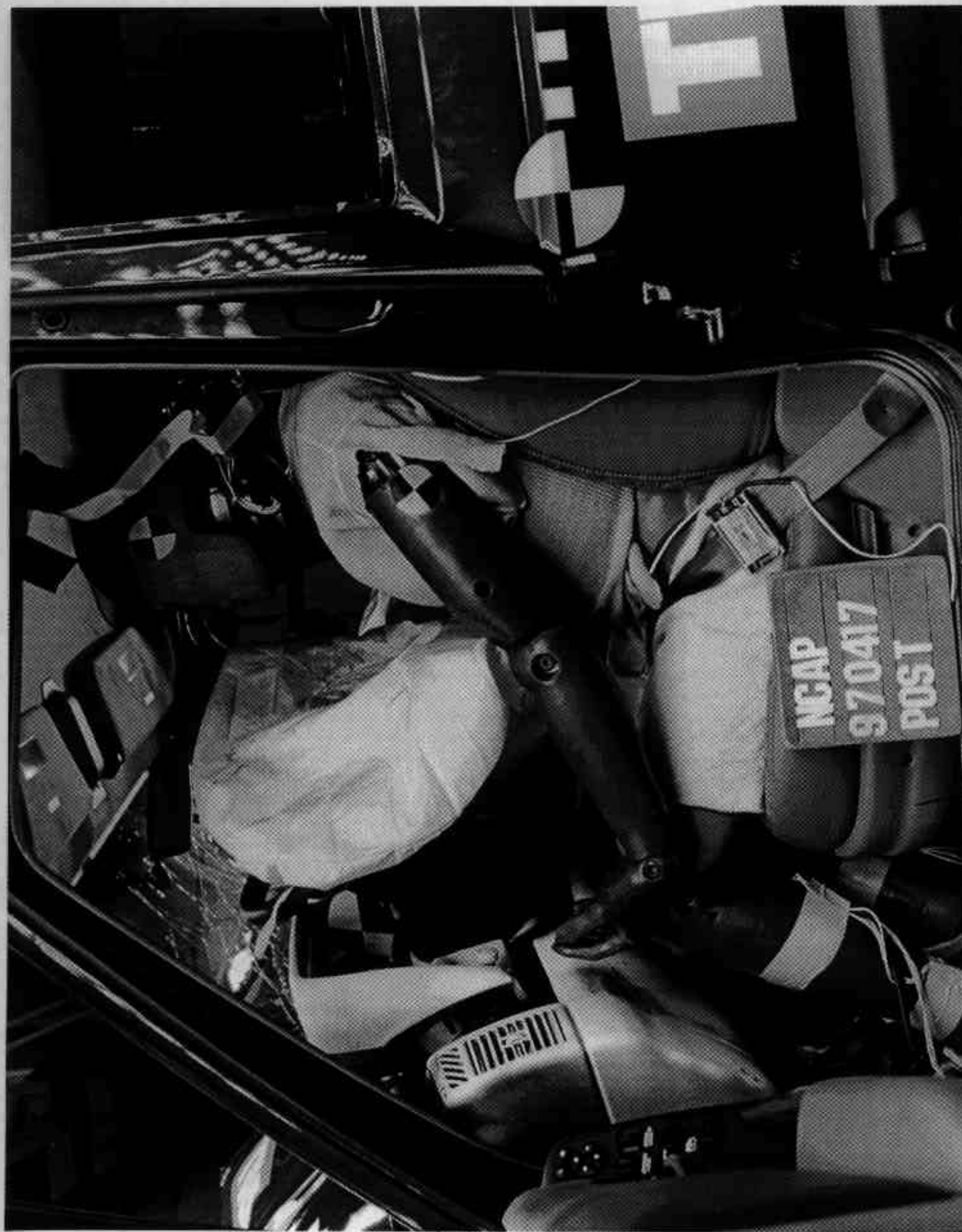


Figure A-31 Post-Test Driver Dummy and Vehicle Interior - View 1

A-32

970417



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

A-33

970417



Figure A-33 Post-Test Driver Dummy and Vehicle Interior - View 2

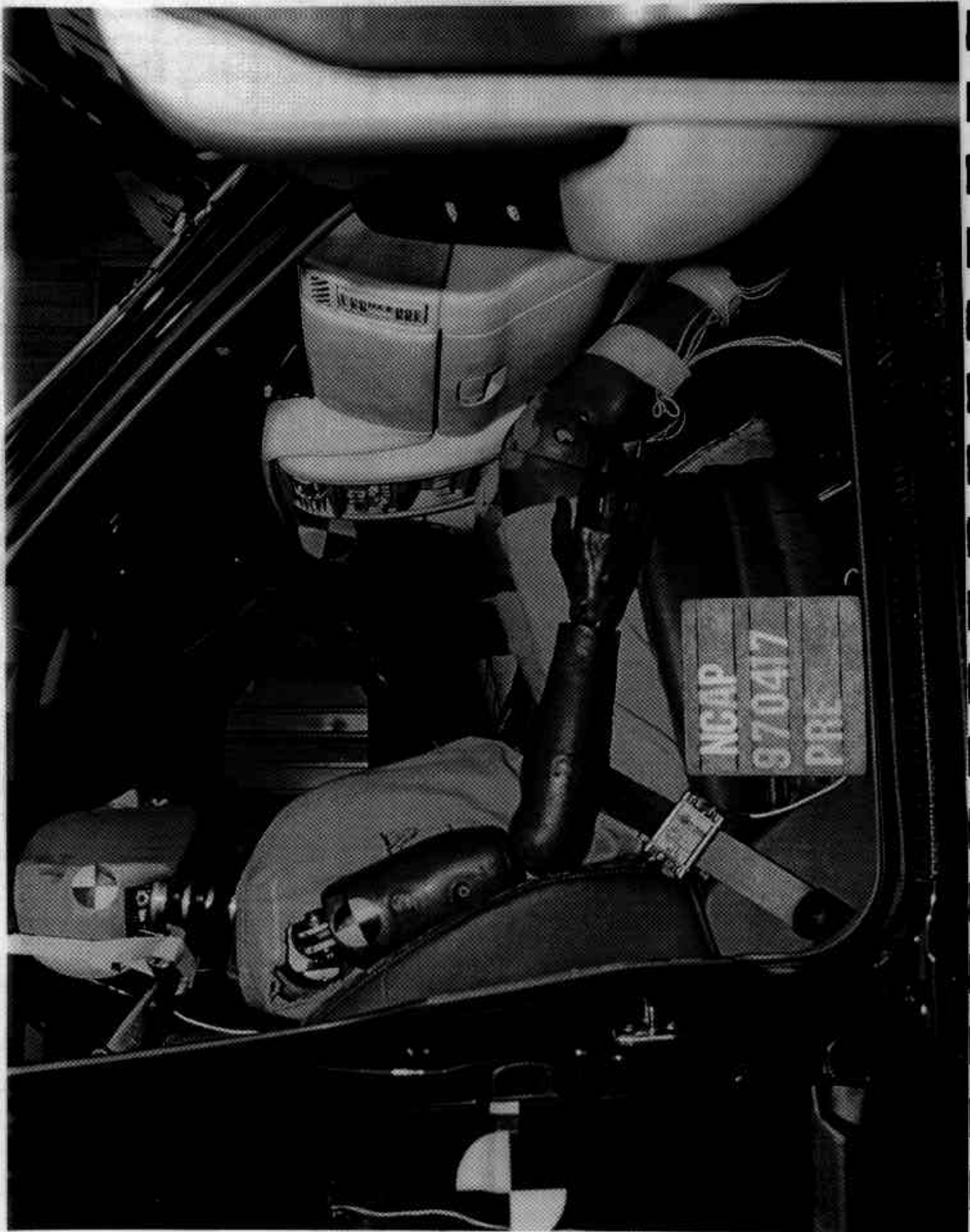


Figure A-34 Pre-Test Passenger Dummy and Vehicle Interior - View 1

A-35

970417



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

A-36

970417

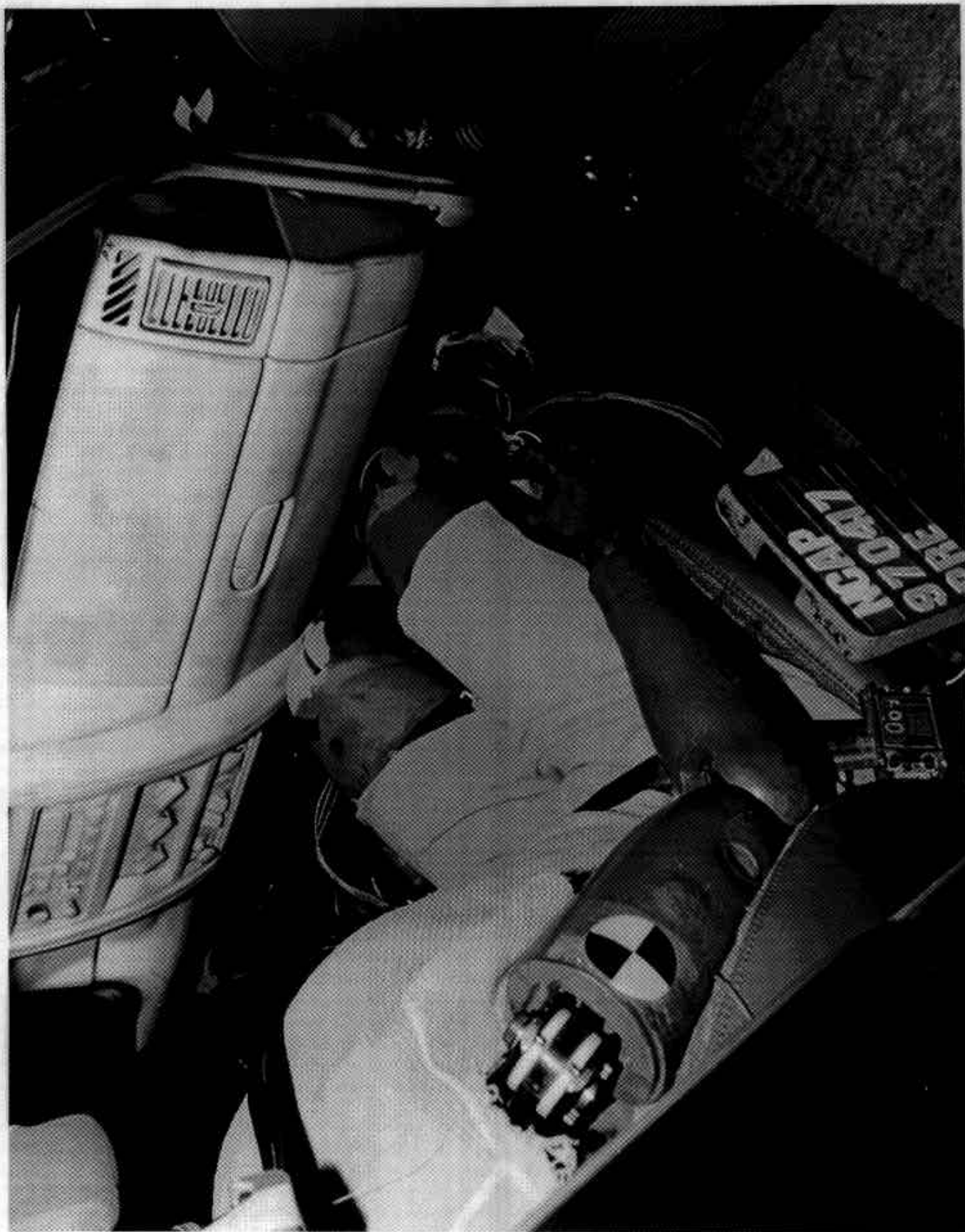


Figure A-36 Pre-Test Passenger Dummy and Vehicle Interior - View 2

A-37

970417

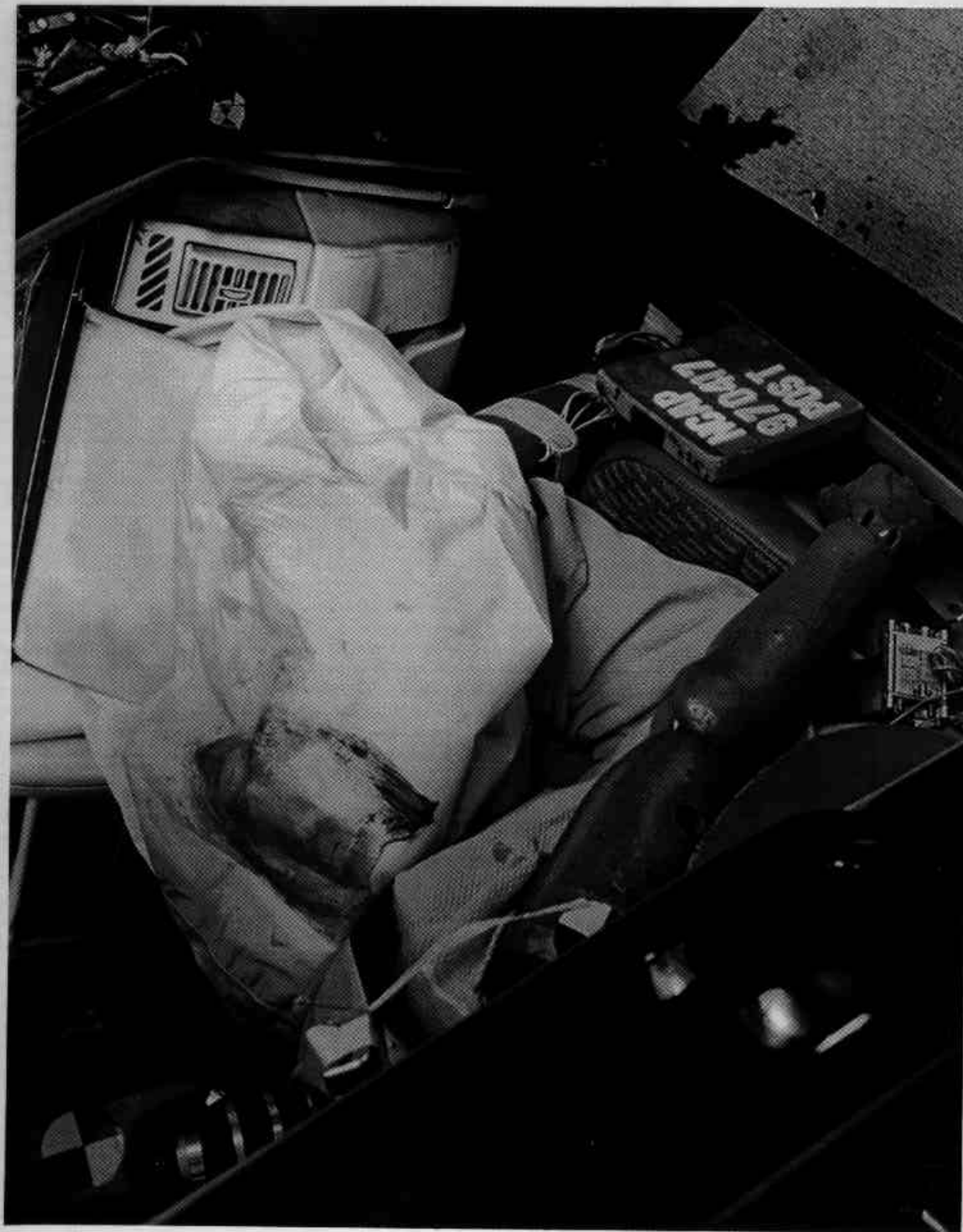


Figure A-37 Post-Test Passenger Dummy and Vehicle Interior - View 2

A-38

970417



Figure A-38 Post-Test Driver Dummy View
A-39

970417

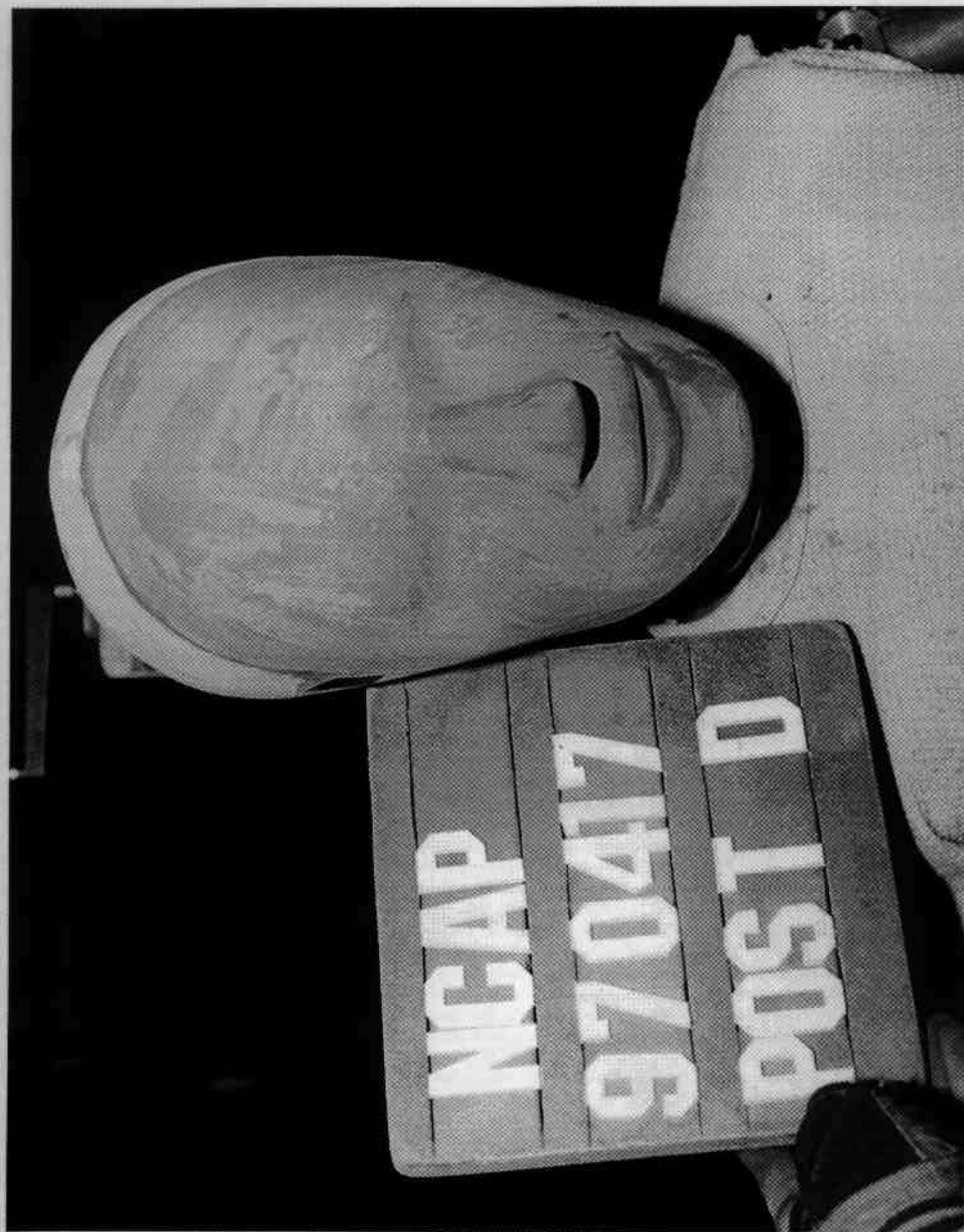


Figure A-39 Post-Test Driver Dummy Head Contact - View 1



Figure A-40 Post-Test Driver Dummy Head Contact - View 2

A-41

970417



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

A-42

970417

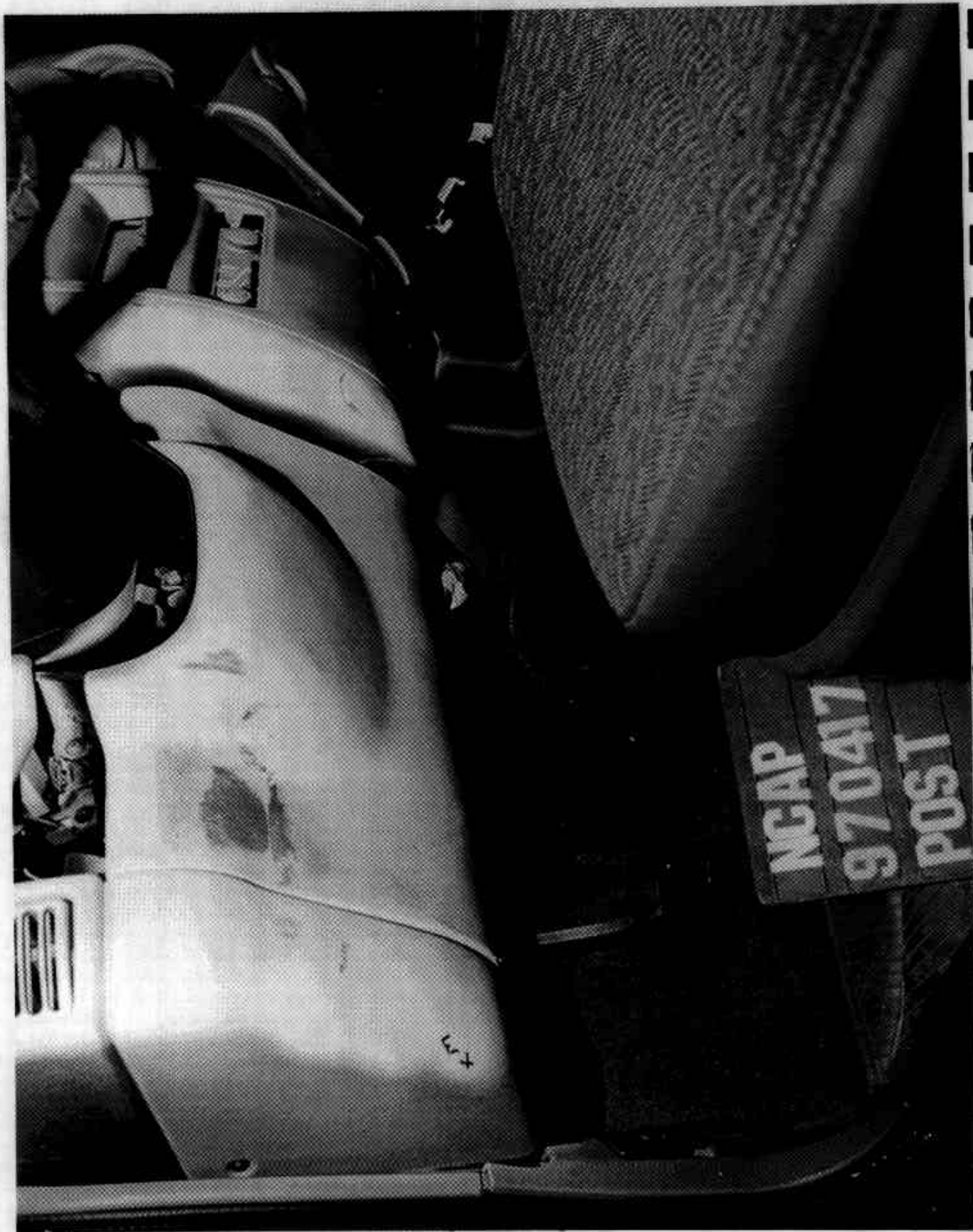


Figure A-42 Post-Test Driver Dummy Knee Contact - View 2
A-43

970417



Figure A-43 Post-Test Passenger Dummy View

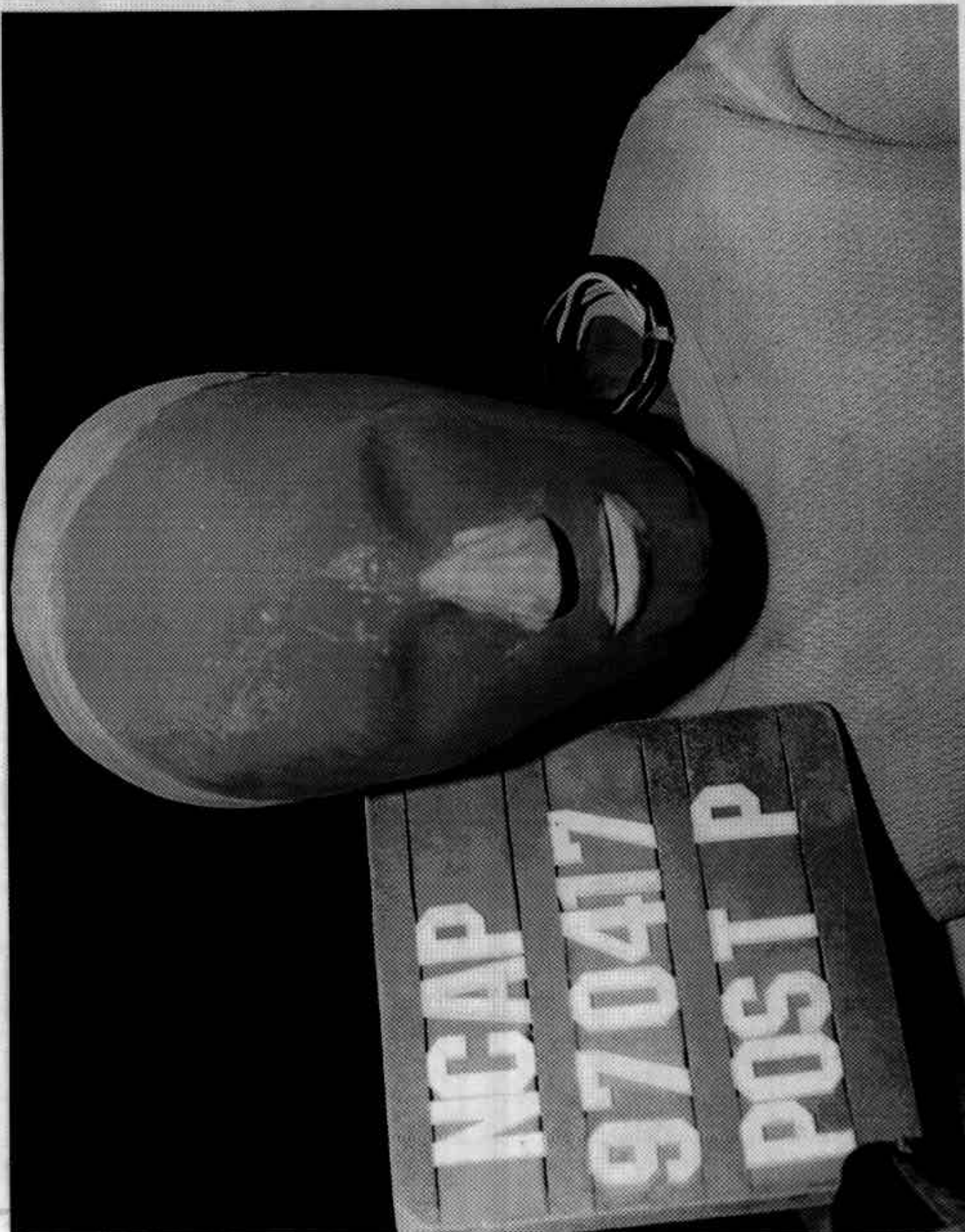


Figure A-44 Post-Test Passenger Dummy Head Contact - View 1
A-45

970417

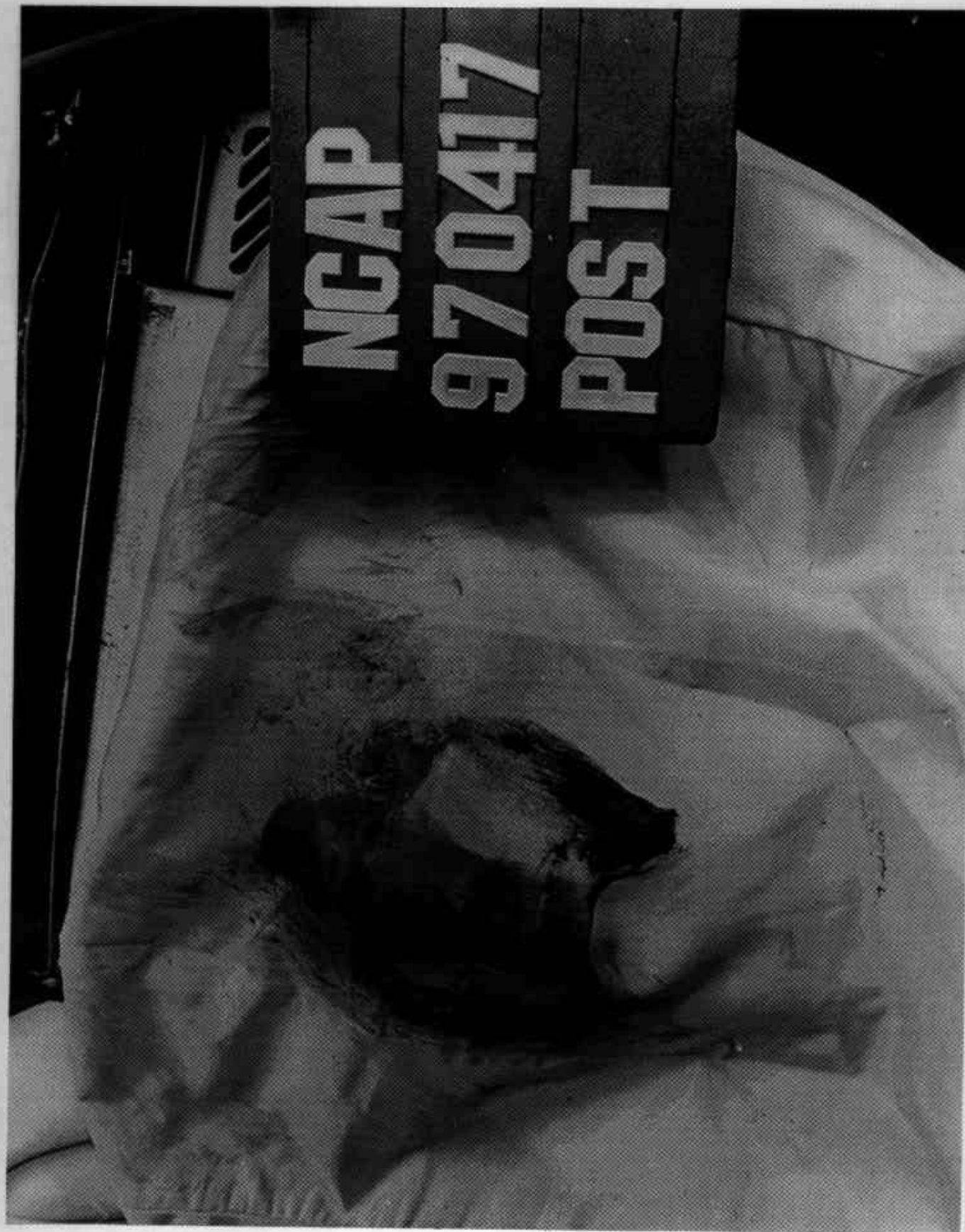


Figure A-45 Post-Test Passenger Dummy Head Contact - View 2

A-46

970417



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

A-47

970417



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

A-48

970417

MFD BY	CHRYSLER	DATE OF MFR	GWR
	CORPORATION	2-97	2223 KG(04900 LB)
GWR FRONT	WITH TIRES	RIMS AT	COLD
1134 KG(2500 LB)	P215/75R15	15X7.0	227 KPA(33 PSI)
GWR REAR	WITH TIRES	RIMS AT	COLD
1225 KG(2700 LB)	P215/75R15	15X7.0	227 KPA(33 PSI)

THIS VEHICLE CONFORMS TO ALL APPLICABLE FEDERAL MOTOR VEHICLE SAFETY STANDARDS IN EFFECT ON THE DATE OF MANUFACTURE SHOWN ABOVE.

VIN: 1J4FJ68S3VL537199 TYPE: MPV SINGLE X DUAL



MDX: 021707 608 PAINT:PGF VEHICLE MADE IN U.S.A. TRIM:5C3 4648503

Figure A-48 Pre-Test Vehicle Certification Label View
A-49

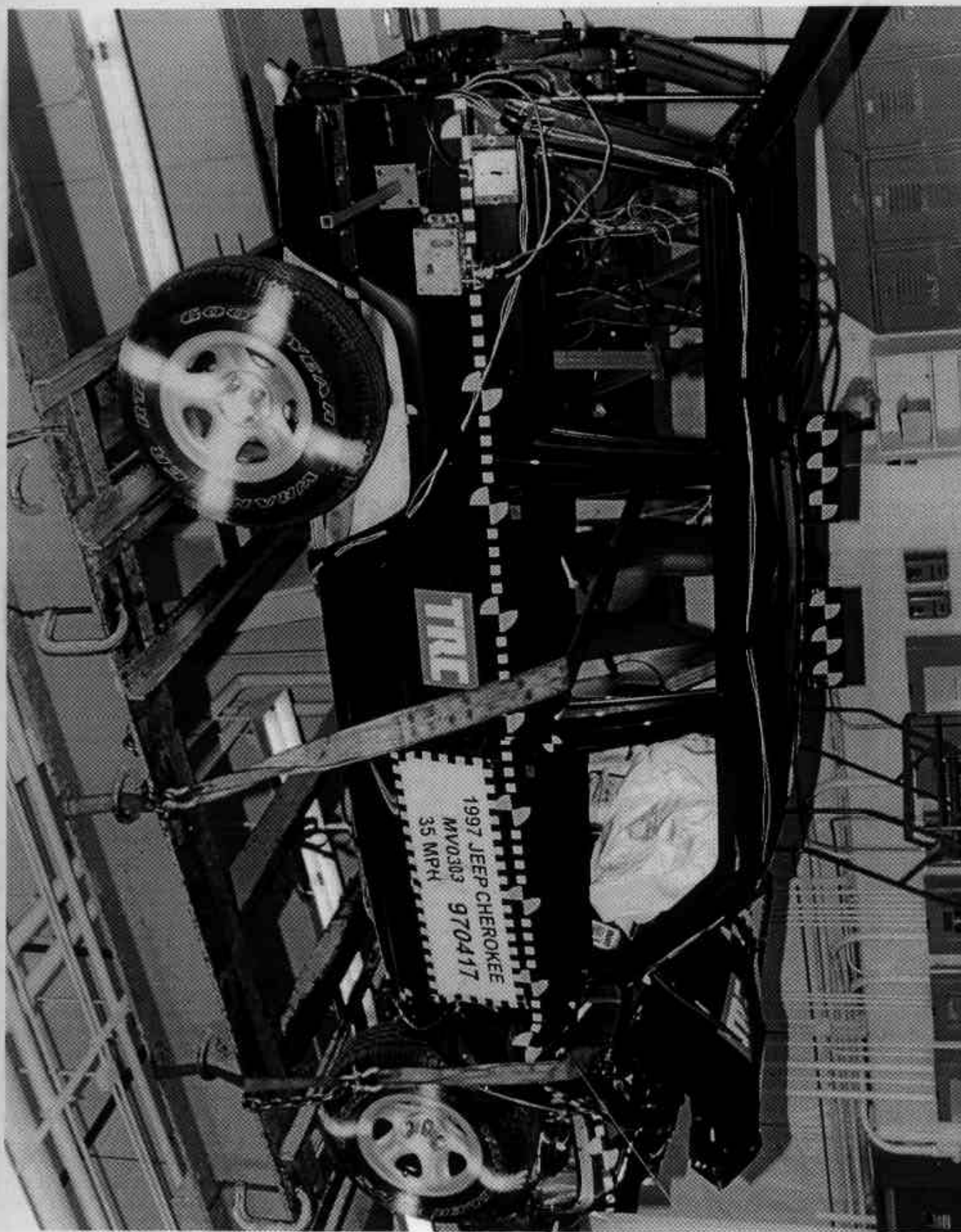


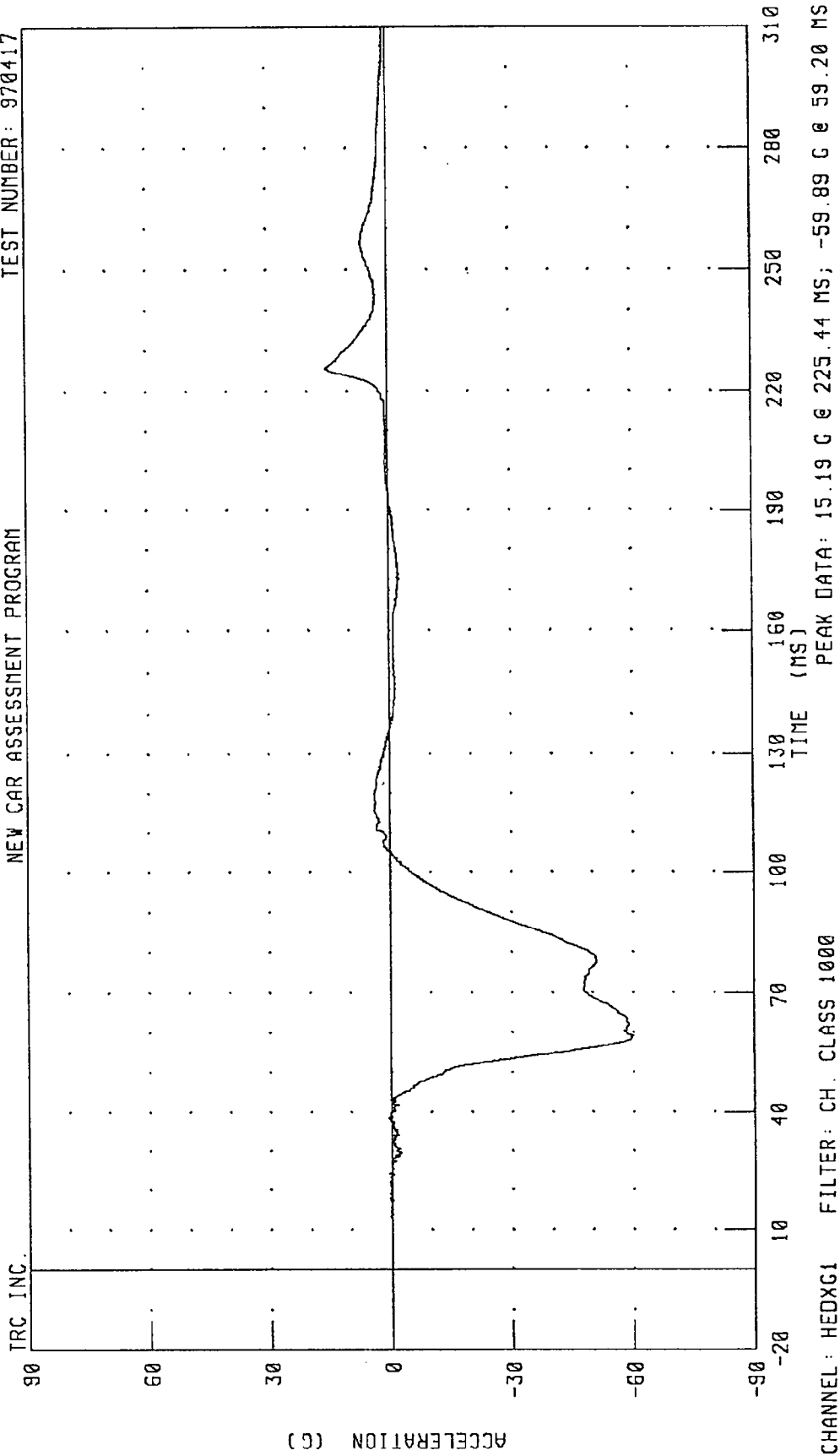
Figure A-49 Post-Test Vehicle on Static Rollover Machine View

Appendix B

Data Plots

1997 JEEP CHEROKEE SPORT INTO FRONTAL LOAD CELL BARRIER
 DRIVER HEAD X-AXIS ACCELERATION
 NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 970417

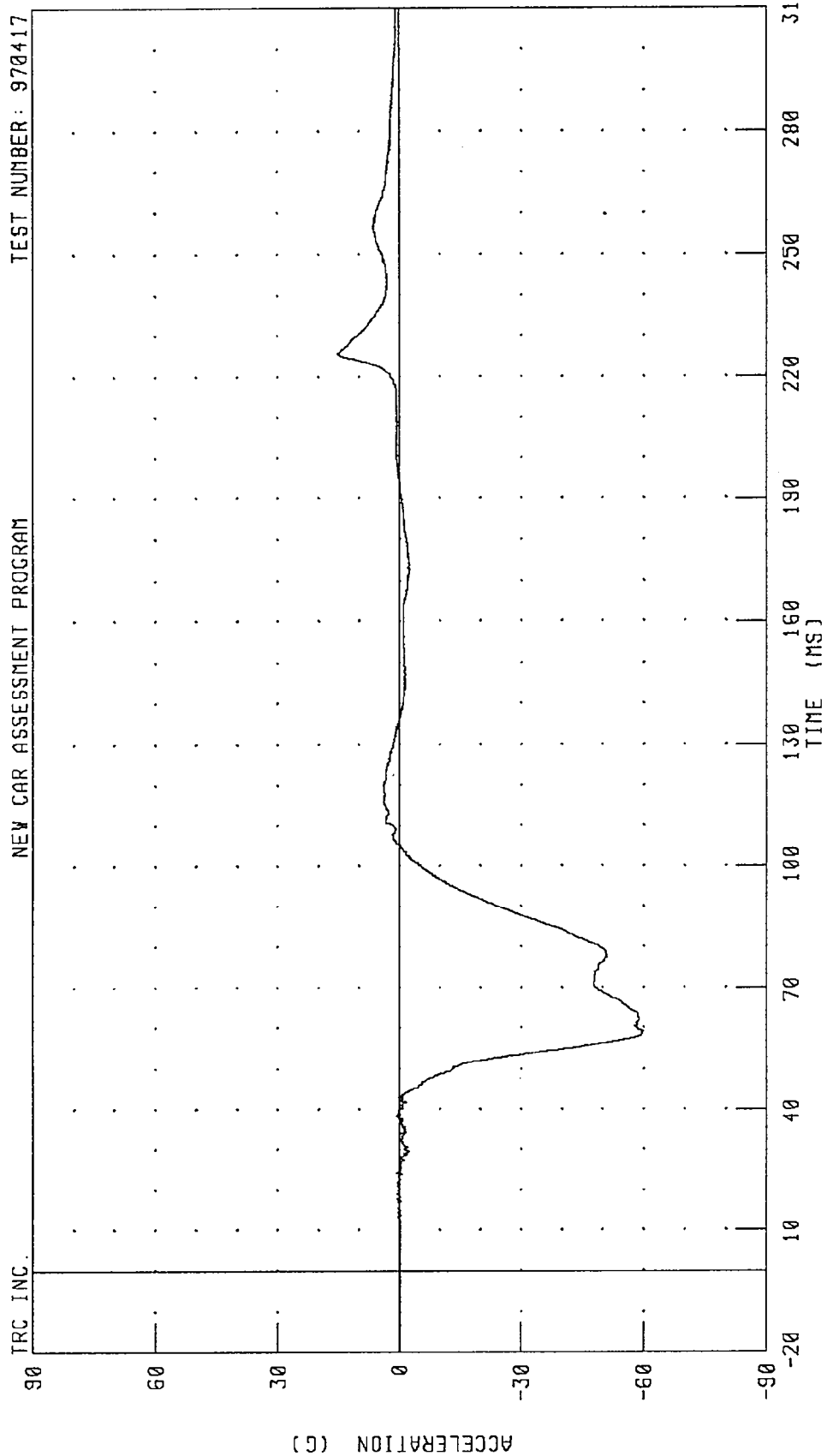


CHANNEL: HEDXG1 FILTER: CH. CLASS 1000

PEAK DATA: 15.19 G @ 225.44 MS; -59.89 G @ 59.20 MS

1997 JEEP CHEROKEE SPORT INTO FRONTAL LOAD CELL BARRIER
 DRIVER HEAD X-AXIS ACCELERATION
 NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 970417



PEAK DATA: 15.19 G @ 225.44 MS, -59.89 G @ 59.20 MS

CHANNEL: HEDXG1 FILTER: CH. CLASS 1000

1997 JEEP CHEROKEE SPORT INTO FRONTAL LOAD CELL BARRIER
 DRIVER HEAD Y-AXIS ACCELERATION
 NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 970417

TRC INC.

90

60

30

0

-30

-60

-90

ACCELERATION (G)

-20

10

40

70

100

130

160

190

220

250

280

310

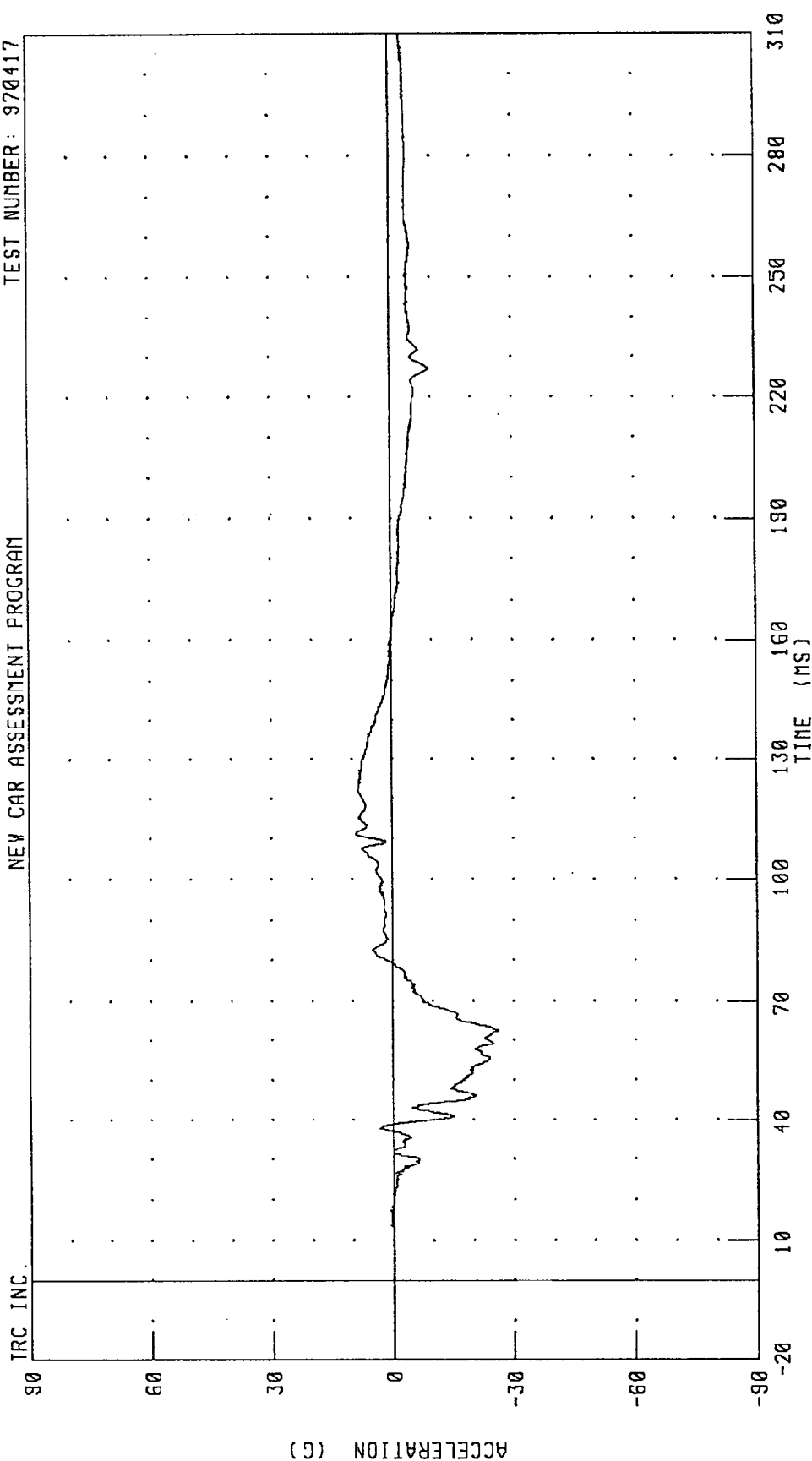
TIME (MS)

PEAK DATA: 18.76 G @ 81.04 MS; -3.76 G @ 176.80 MS

CHANNEL: HEDYG1 FILTER: CH. CLASS 1000

1997 JEEP CHEROKEE SPORT INTO FRONTAL LOAD CELL BARRIER
 DRIVER HEAD Z-AXIS ACCELERATION
 NEW CAR ASSESSMENT PROGRAM

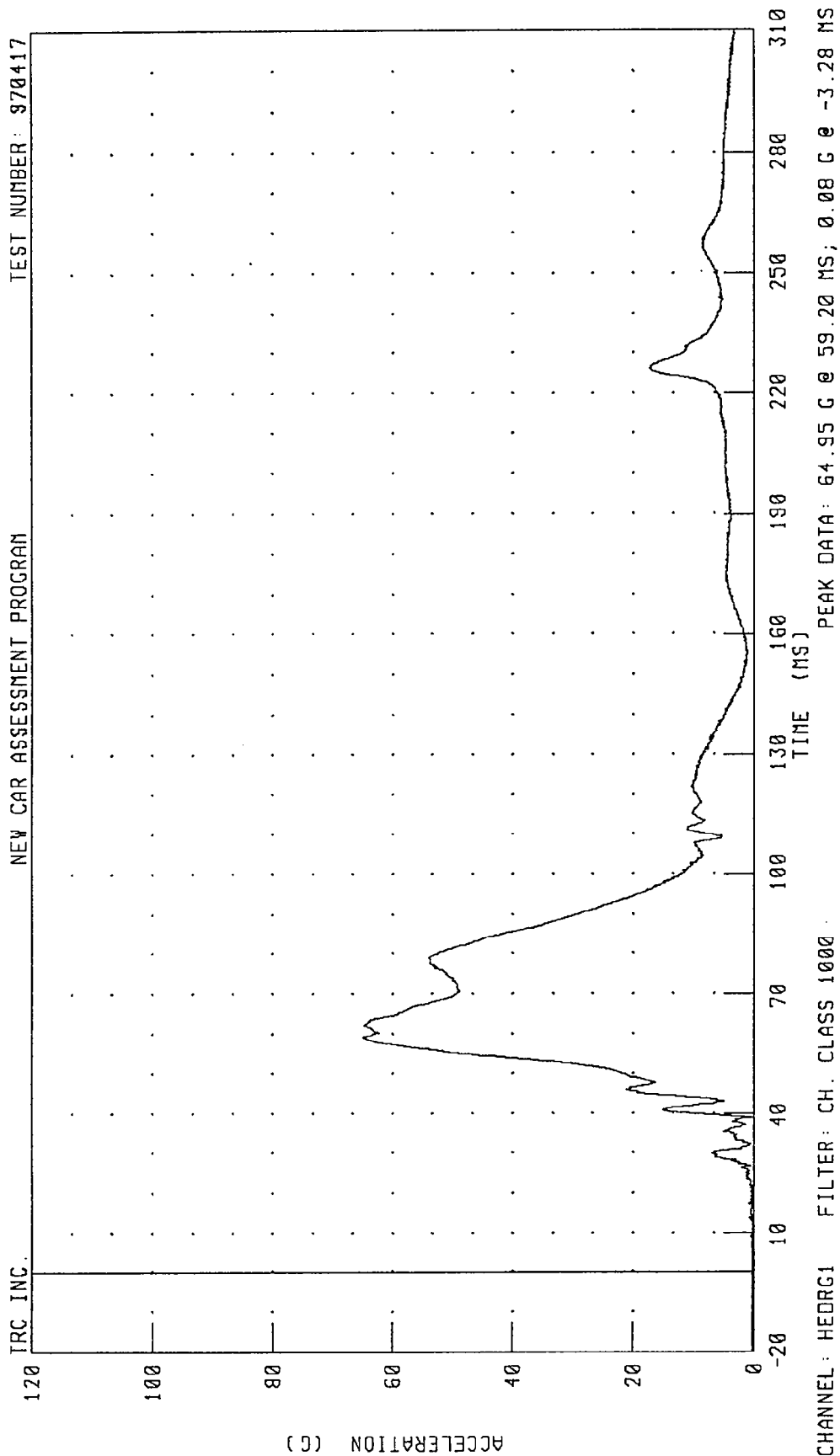
TEST NUMBER: 970417



CHANNEL: HEDZG1 FILTER: CH. CLASS 1000

1997 JEEP CHEROKEE SPORT INTO FRONTAL LOAD CELL BARRIER
 DRIVER HEAD RESULTANT ACCELERATION
 NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 970417

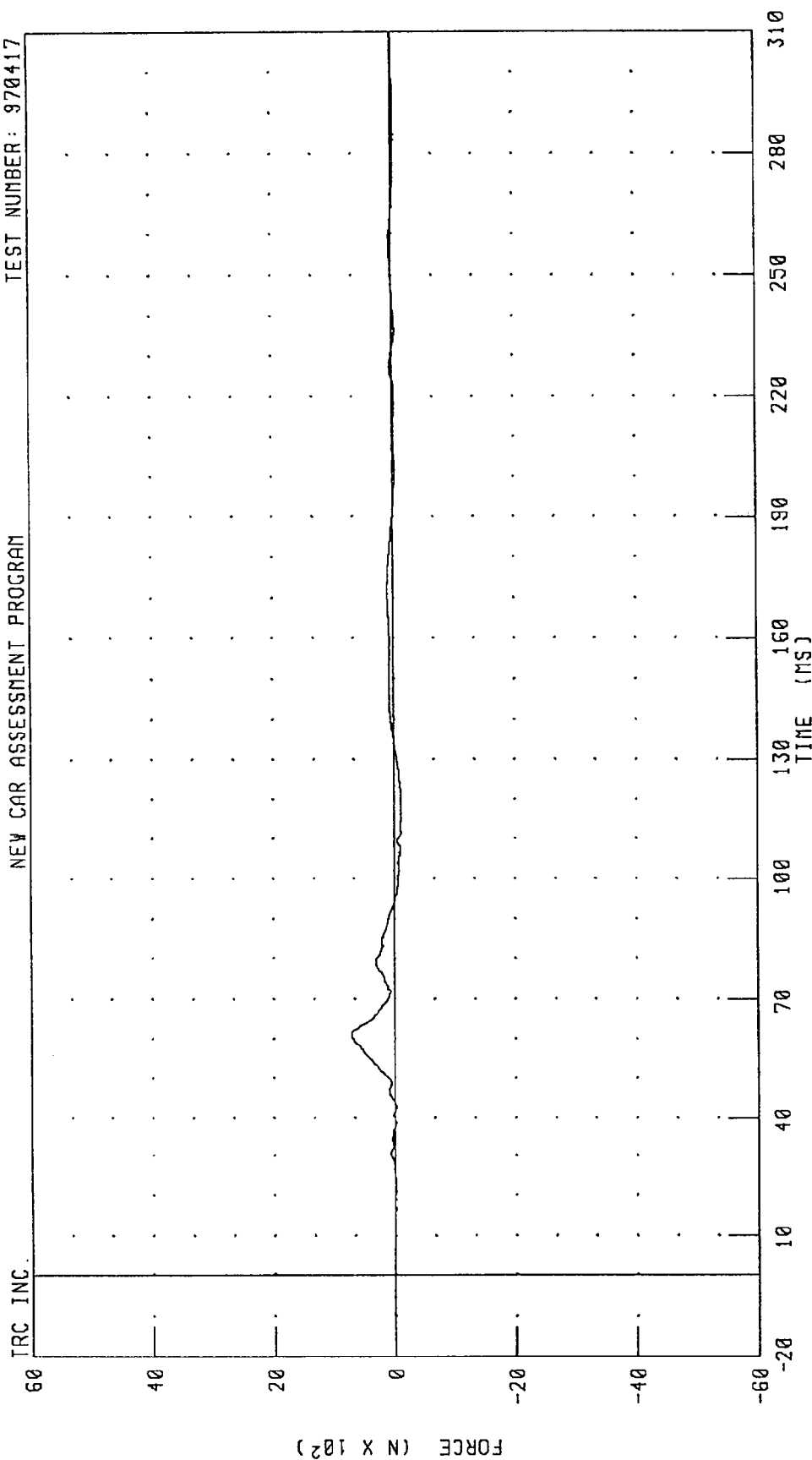


PEAK DATA: 64.95 G @ 59.20 MS; 0.08 G @ -3.28 MS

CHANNEL: HEDRG1 FILTER: CH. CLASS 1000

1997 JEEP CHEROKEE SPORT INTO FRONTAL LOAD CELL BARRIER
 DRIVER NECK X-AXIS SHEAR FORCE
 NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 970417



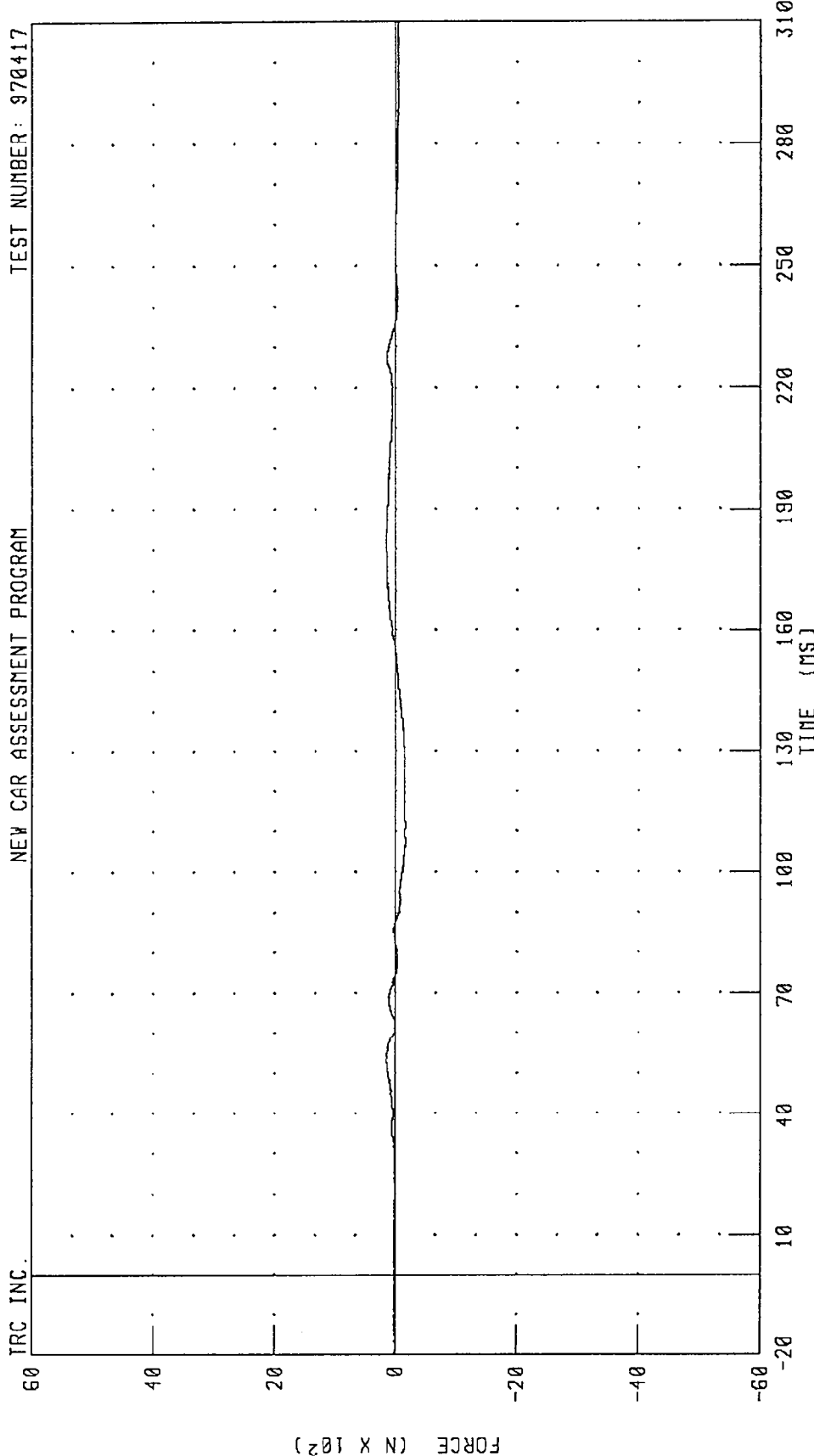
CHANNEL: NEKXF1 FILTER: CH. CLASS 1000
 PEAK DATA: 714.36 N @ 60.40 MS; -124.01 N @ 116.32 MS

1997 JEEP CHEROKEE SPORT INTO FRONTAL LOAD CELL BARRIER
 DRIVER NECK Y-AXIS SHEAR FORCE

TEST NUMBER: 970417

NEW CAR ASSESSMENT PROGRAM

IRC INC.

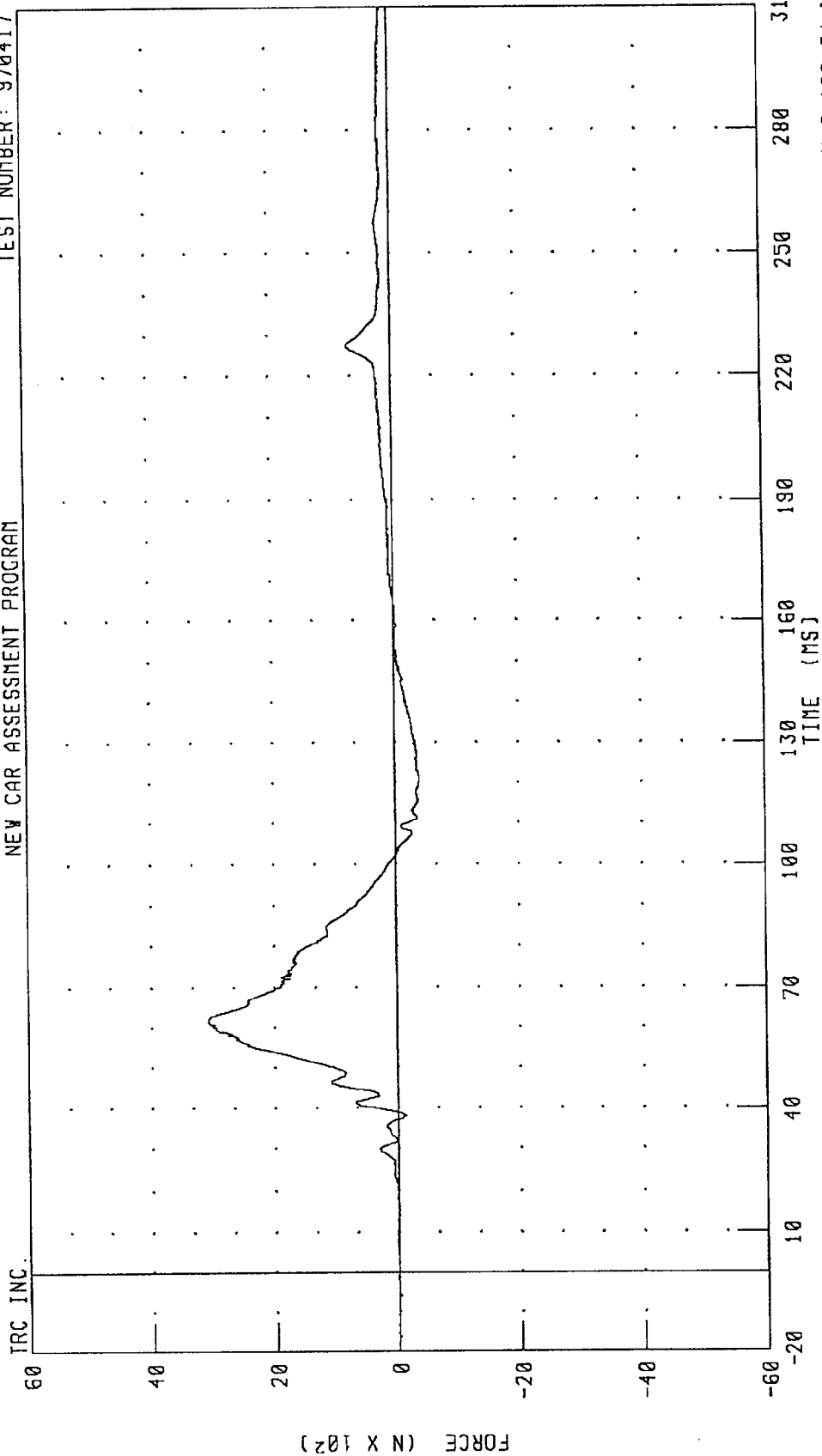


PEAK DATA: 157.62 N @ 53.20 MS; -172.48 N @ 107.76 MS

CHANNEL: NEKYF1 FILTER: CH. CLASS 1000

1997 JEEP CHEROKEE SPORT INTO FRONTAL LOAD CELL BARRIER
 DRIVER NECK Z-AXIS AXIAL FORCE
 NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 970417



1997 JEEP CHEROKEE SPORT INTO FRONTAL LOAD CELL BARRIER
 DRIVER NECK MOMENT ABOUT X AXIS
 NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 970417

TRC INC.

180

120

60

TORQUE (N·M)

B-9

-60

-120

-180

310
280
250
220
190
160
130
100
70
40
10
-20

TIME (MS)

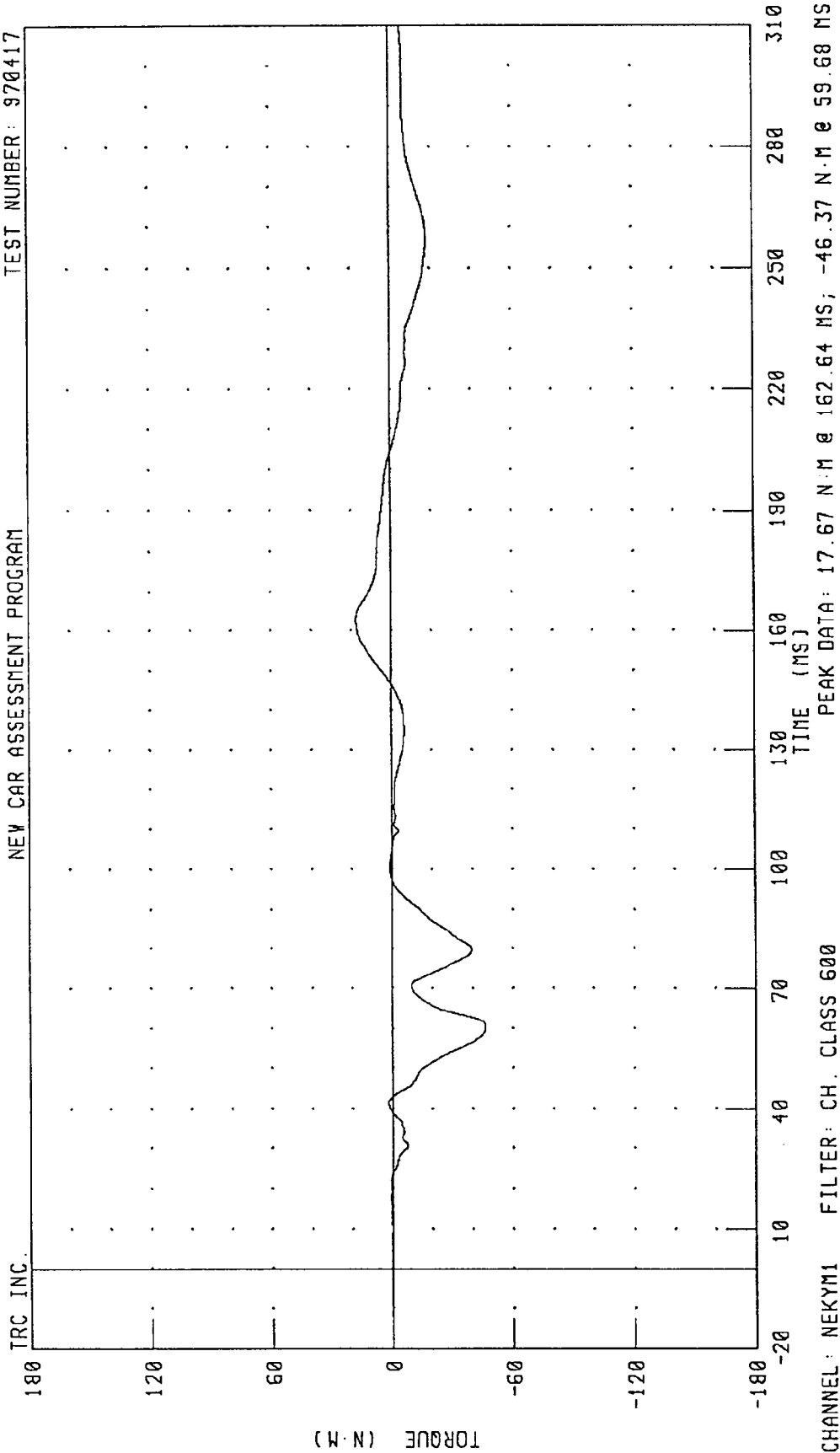
CHANNEL: NEKXM1 FILTER: CH. CLASS 600

PEAK DATA: 28.45 N·M @ 95.28 MS; -15.31 N·M @ 177.52 MS

970417

1997 JEEP CHEROKEE SPORT INTO FRONTAL LOAD CELL BARRIER
 DRIVER NECK MOMENT ABOUT Y AXIS
 NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 970417



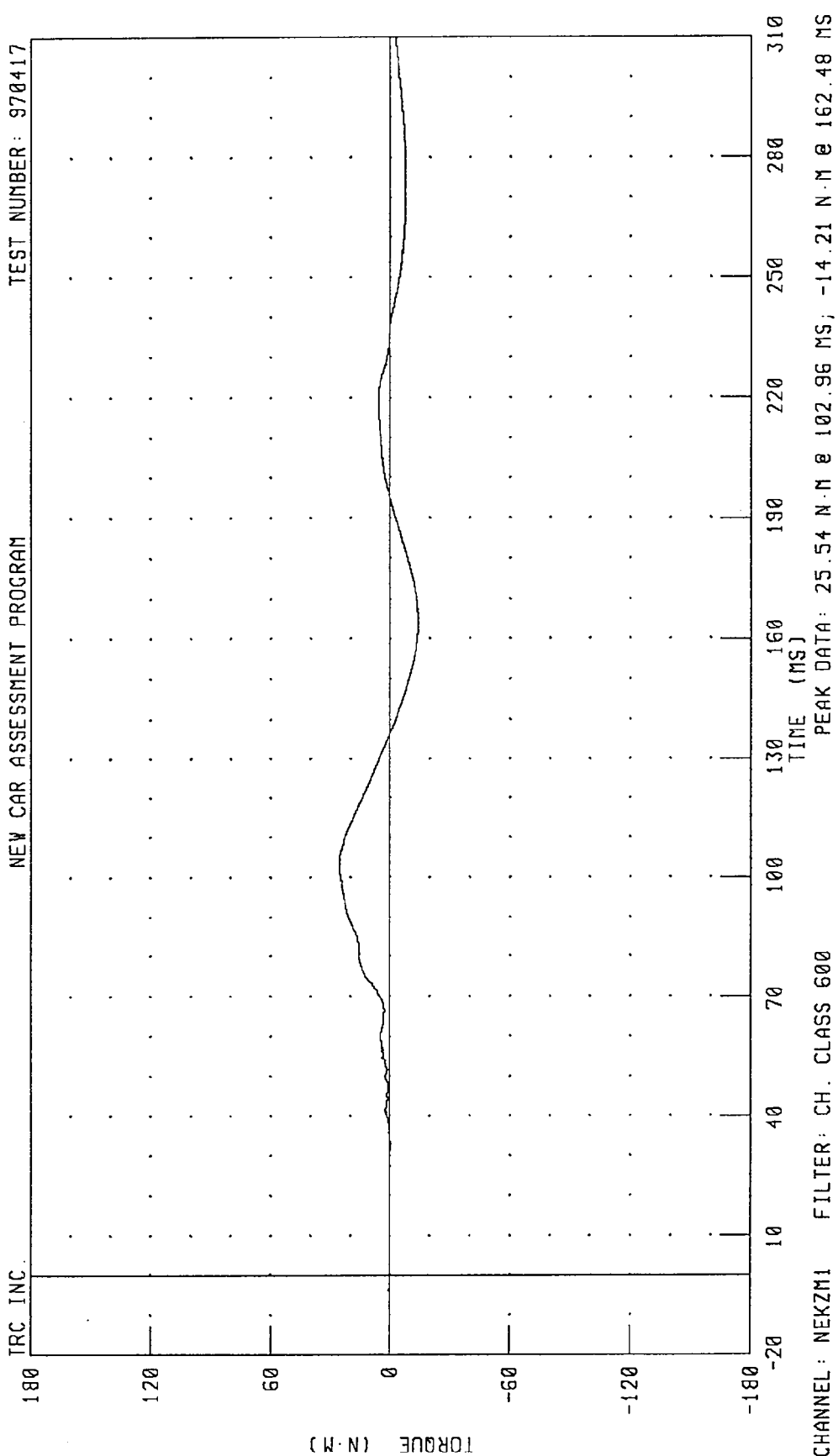
CHANNEL: NEKYM1 FILTER: CH. CLASS 600

PEAK DATA: 17.67 N-M @ 162.64 MS; -46.37 N-M @ 59.68 MS

1997 JEEP CHEROKEE SPORT INTO FRONTAL LOAD CELL BARRIER
DRIVER NECK MOMENT ABOUT Z AXIS

NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 970417

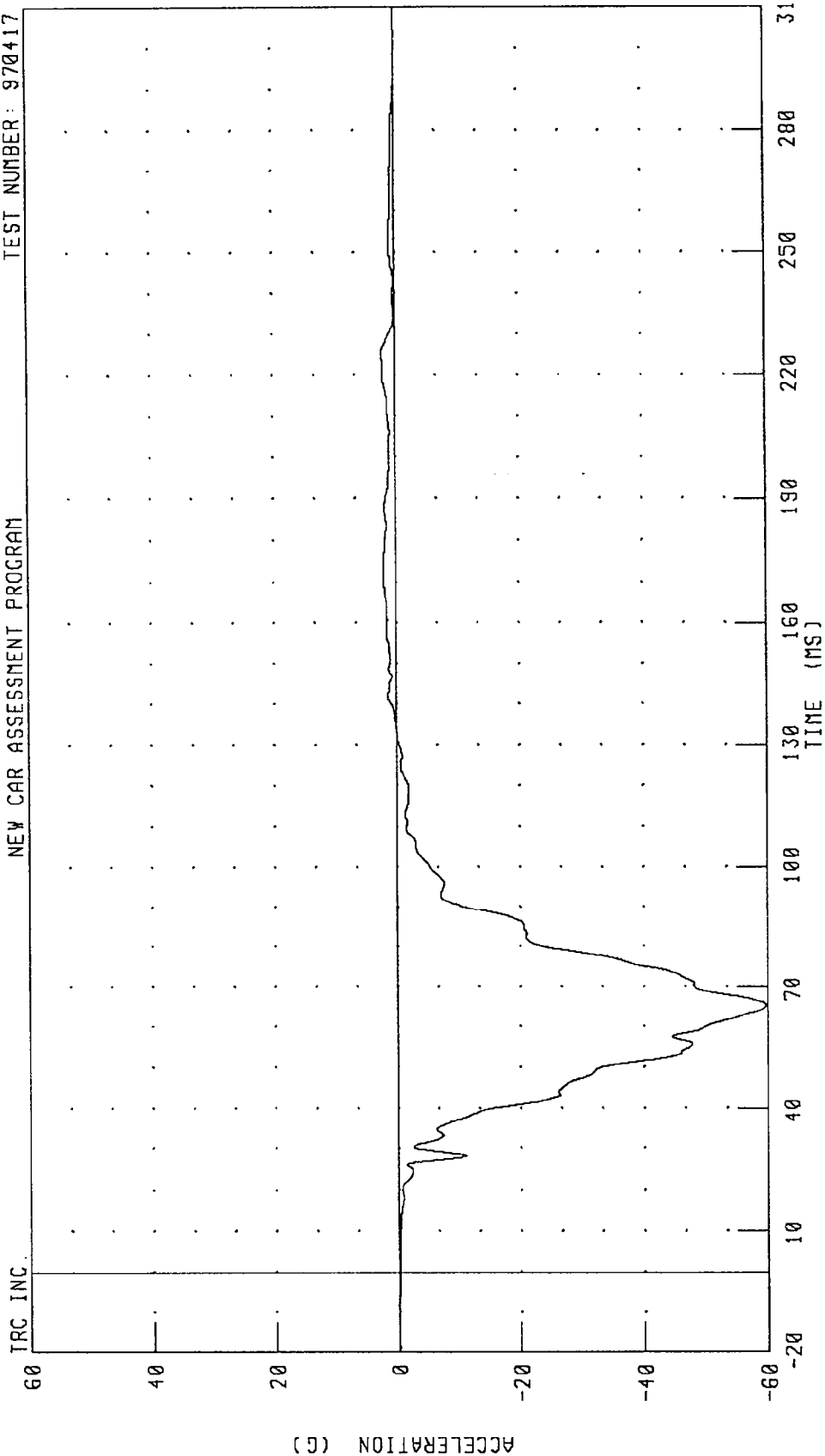


CHANNEL: NEKZM1 FILTER: CH. CLASS 600

PEAK DATA: 25.54 N-M @ 102.96 MS; -14.21 N-M @ 162.48 MS

1997 JEEP CHEROKEE SPORT INTO FRONTAL LOAD CELL BARRIER
 DRIVER CHEST X-AXIS ACCELERATION
 NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 970417

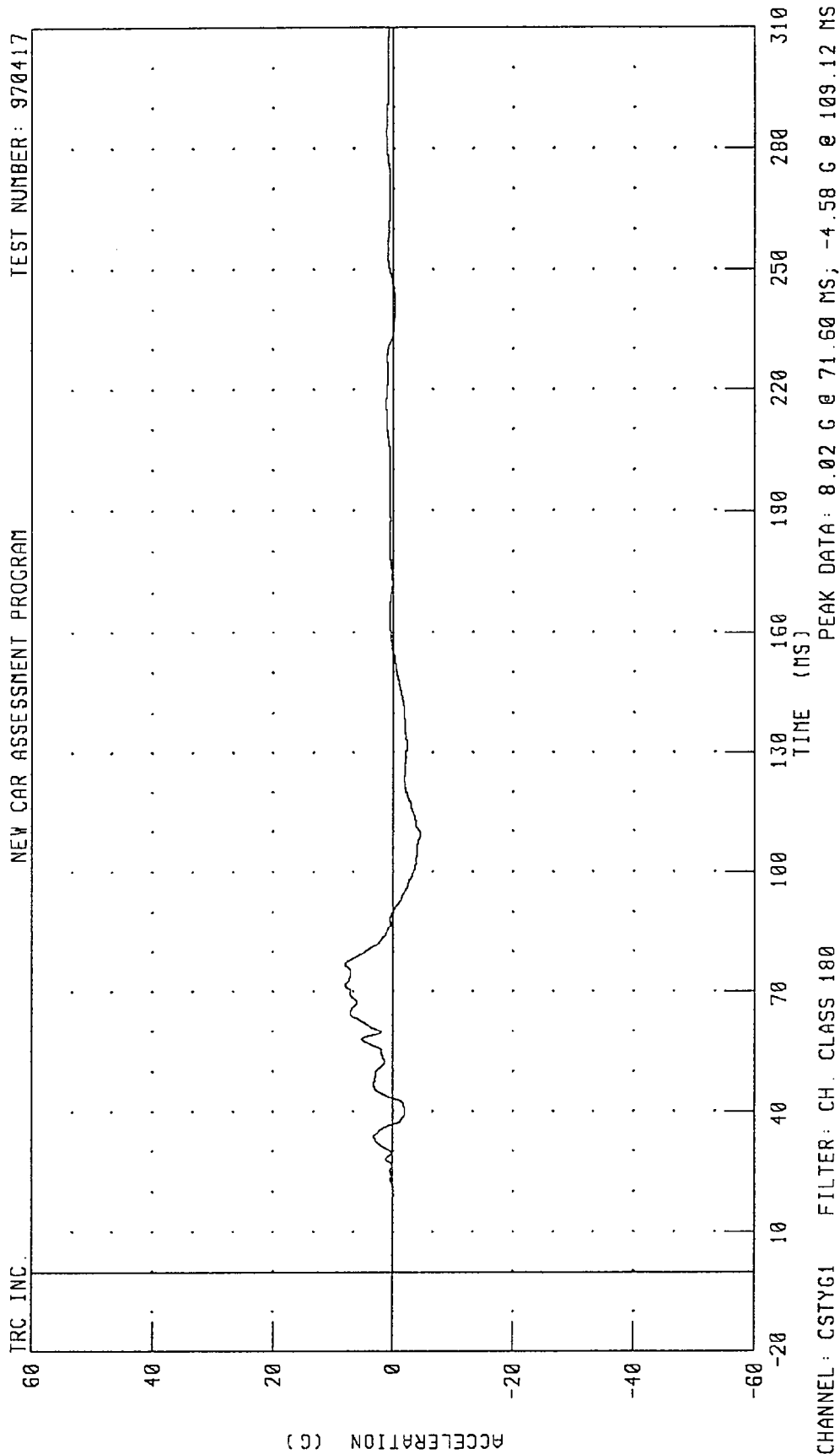


CHANNEL: CSTXG1 FILTER: CH. CLASS 180

1997 JEEP CHEROKEE SPORT INTO FRONTAL LOAD CELL BARRIER
 DRIVER CHEST Y-AXIS ACCELERATION
 NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 970417

TRC INC.

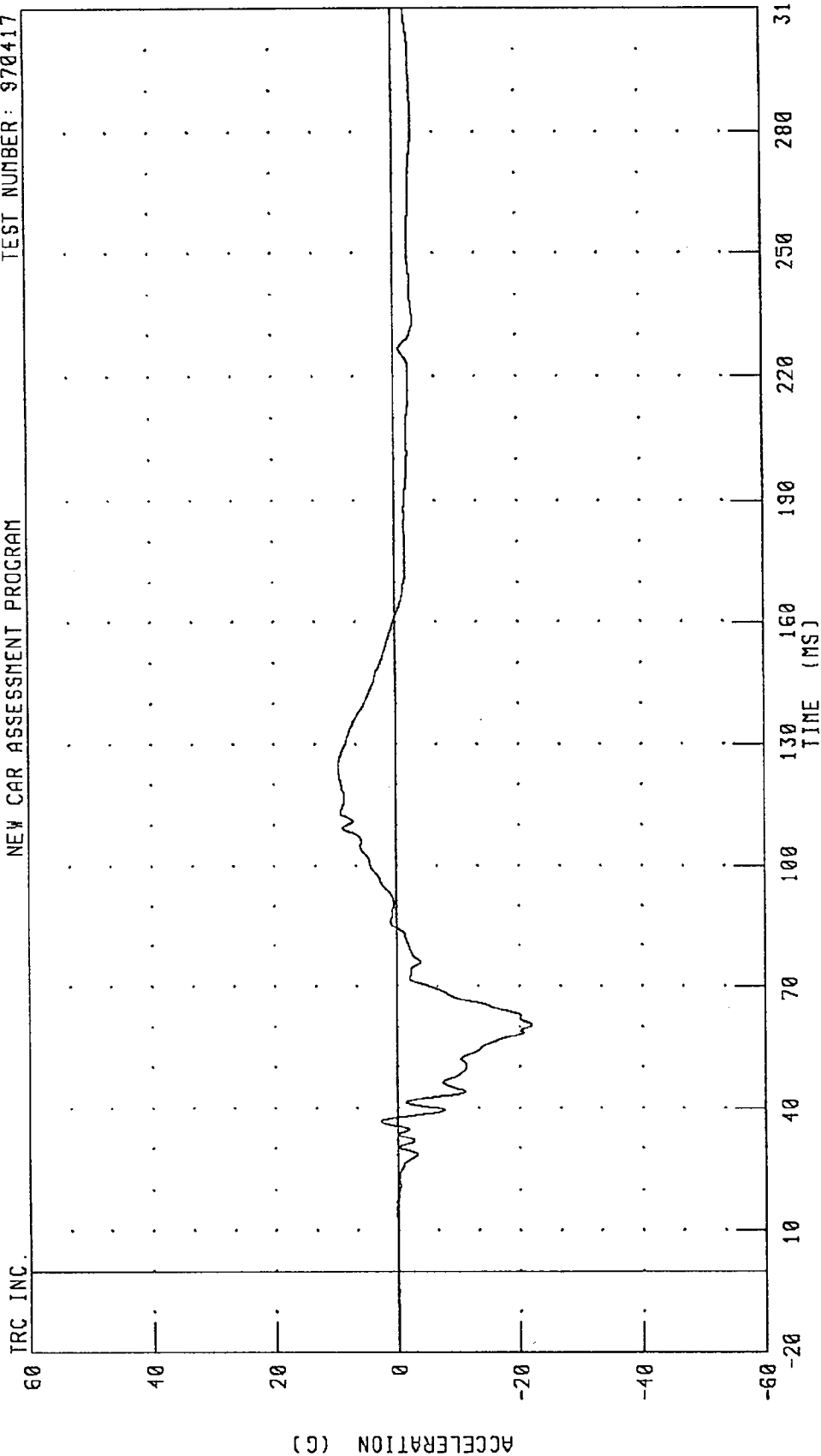


CHANNEL: CSTYG1 FILTER: CH. CLASS 180

PEAK DATA: 8.02 G @ 71.60 MS; -4.58 G @ 109.12 MS

1997 JEEP CHEROKEE SPORT INTO FRONTAL LOAD CELL BARRIER
 DRIVER CHEST Z-AXIS ACCELERATION
 NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 970417



CHANNEL: CSTZG1 FILTER: CH. CLASS 180

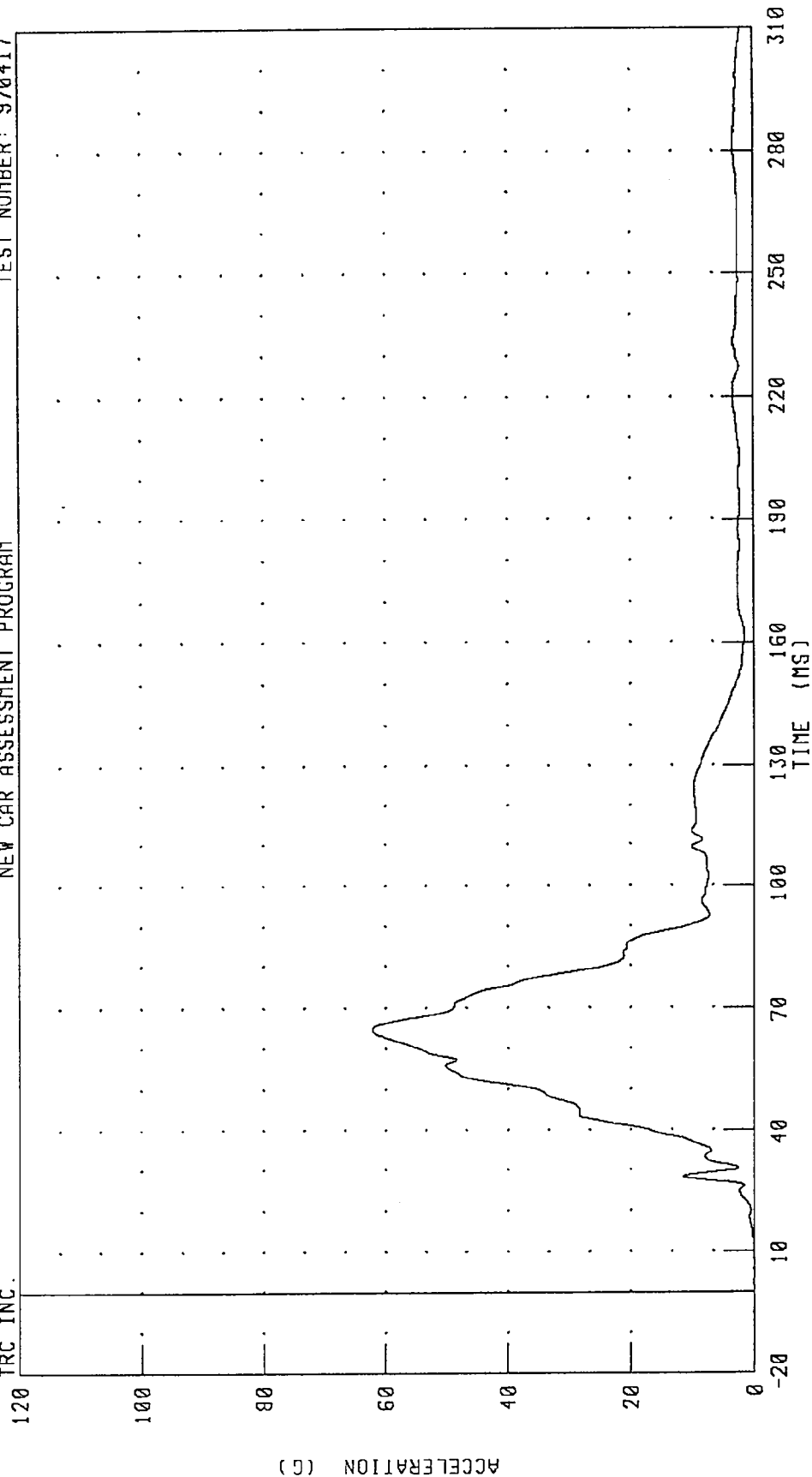
PEAK DATA: 9.49 G @ 124.24 MS; -22.04 G @ 60.48 MS

1997 JEEP CHEROKEE SPORT INTO FRONTAL LOAD CELL BARRIER
DRIVER CHEST RESULTANT ACCELERATION

TEST NUMBER: 970417

NEW CAR ASSESSMENT PROGRAM

TRC INC.



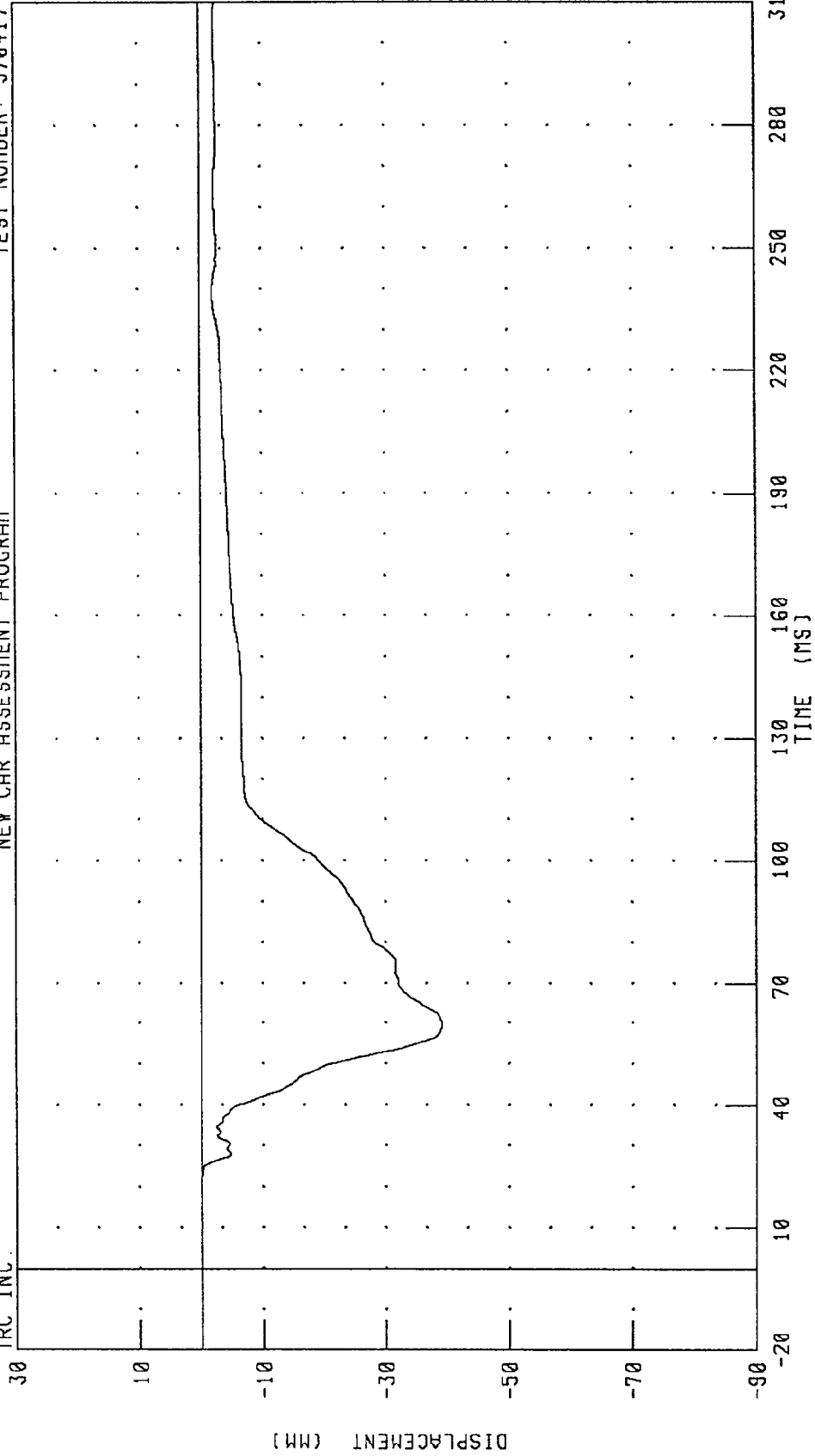
CHANNEL: CSTRG1 FILTER: CH. CLASS 180

PEAK DATA: 62.01 G @ 64.96 MS; 0.01 G @ -20.00 MS

1997 JEEP CHEROKEE SPORT INTO FRONTAL LOAD CELL BARRIER
 DRIVER CHEST DEFLECTION
 NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 970417

TRC INC.



PEAK DATA: 0.01 MM @ 3.60 MS; -39.21 MM @ 59.44 MS

CHANNEL: CSTXD1 FILTER: CH. CLASS 180

1997 JEEP CHEROKEE SPORT INTO FRONTAL LOAD CELL BARRIER
DRIVER PELVIS X-AXIS ACCELERATION

TEST NUMBER: 970417

NEW CAR ASSESSMENT PROGRAM

TRC INC.

40

20

0

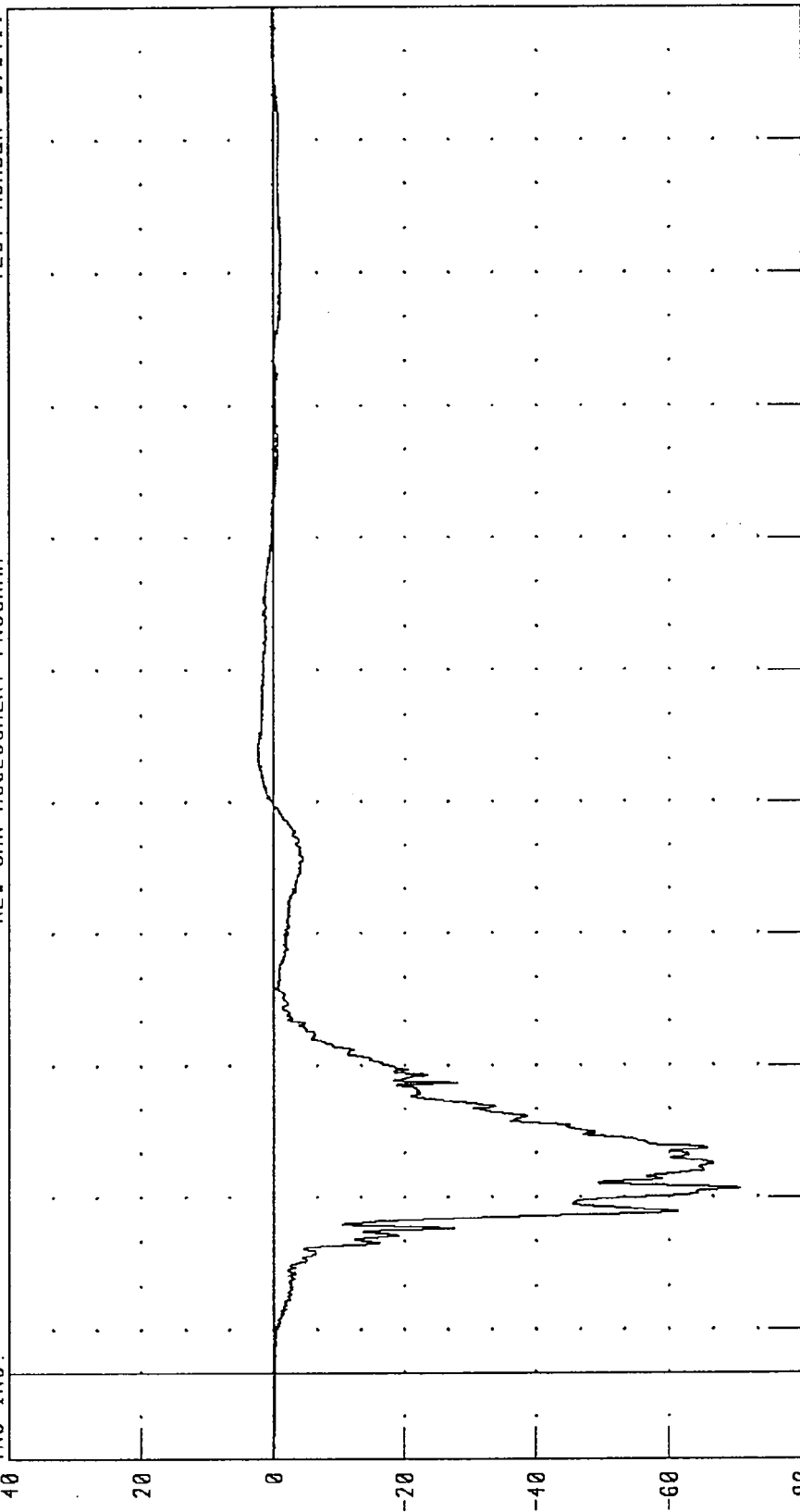
-20

-40

-60

-80

ACCELERATION (G)



PEAK DATA: 2.32 G @ 138.80 MS; -70.82 G @ 42.00 MS

CHANNEL: PEYXG1 FILTER: CH. CLASS 1000

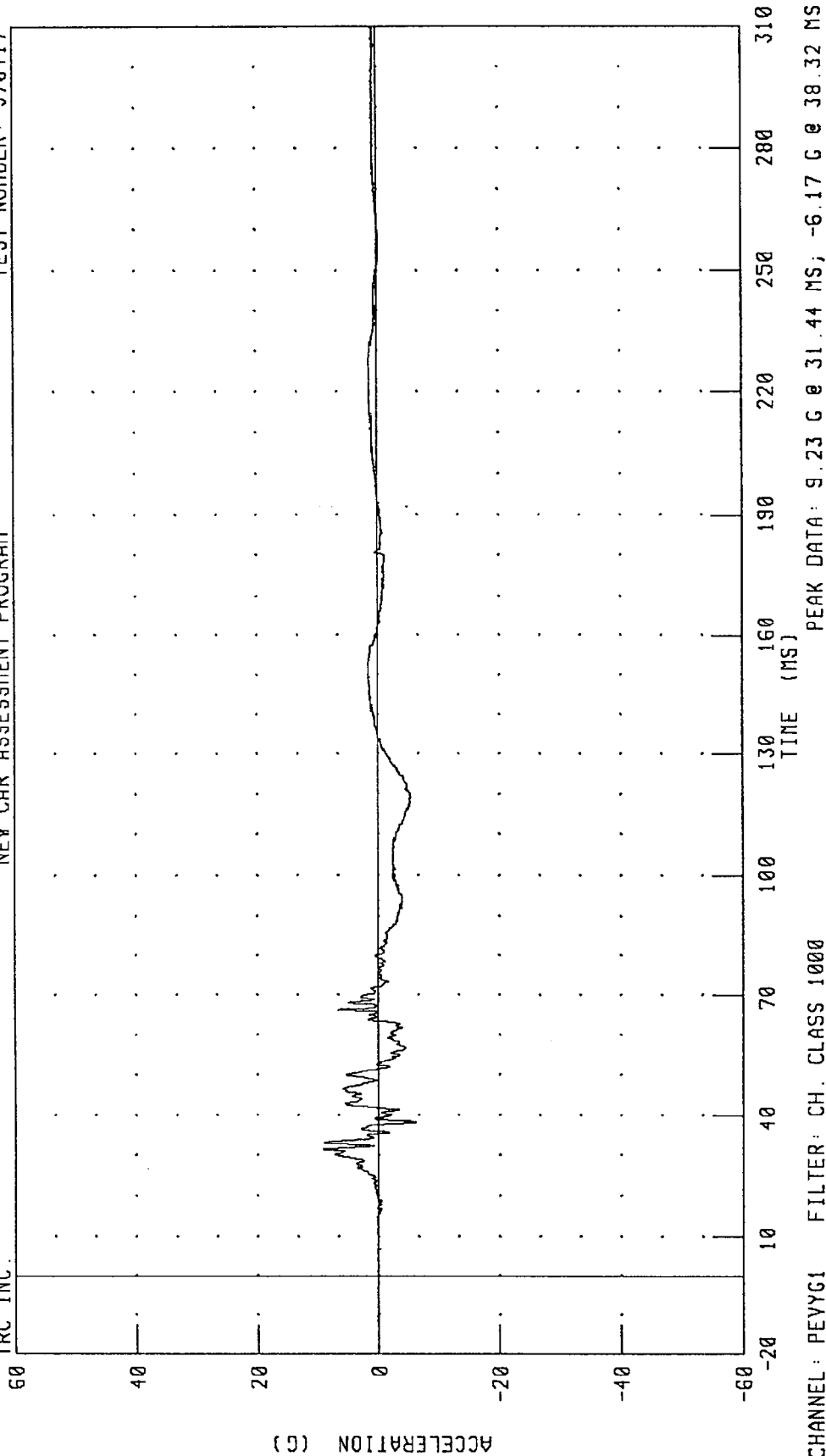
970417

1997 JEEP CHEROKEE SPORT INTO FRONTAL LOAD CELL BARRIER
DRIVER PELVIS Y-AXIS ACCELERATION

TEST NUMBER: 970417

NEW CAR ASSESSMENT PROGRAM

TRC INC.



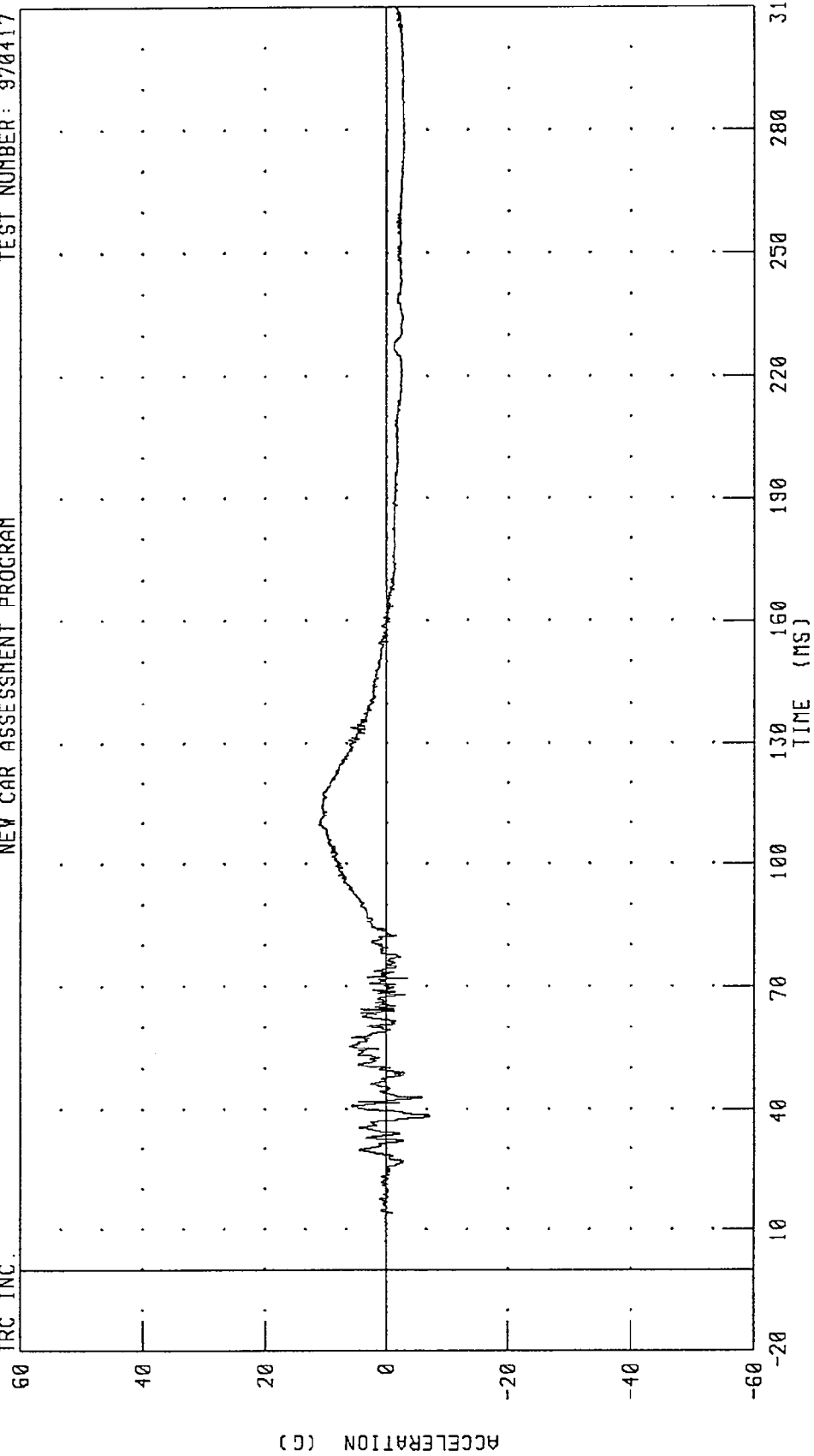
CHANNEL: PEVYG1 FILTER: CH. CLASS 1000

1997 JEEP CHEROKEE SPORT INTO FRONTAL LOAD CELL BARRIER
DRIVER PELVIS Z-AXIS ACCELERATION

TEST NUMBER: 970417

NEW CAR ASSESSMENT PROGRAM

TRC INC.



CHANNEL: PEVZG1 FILTER: CH. CLASS 1000

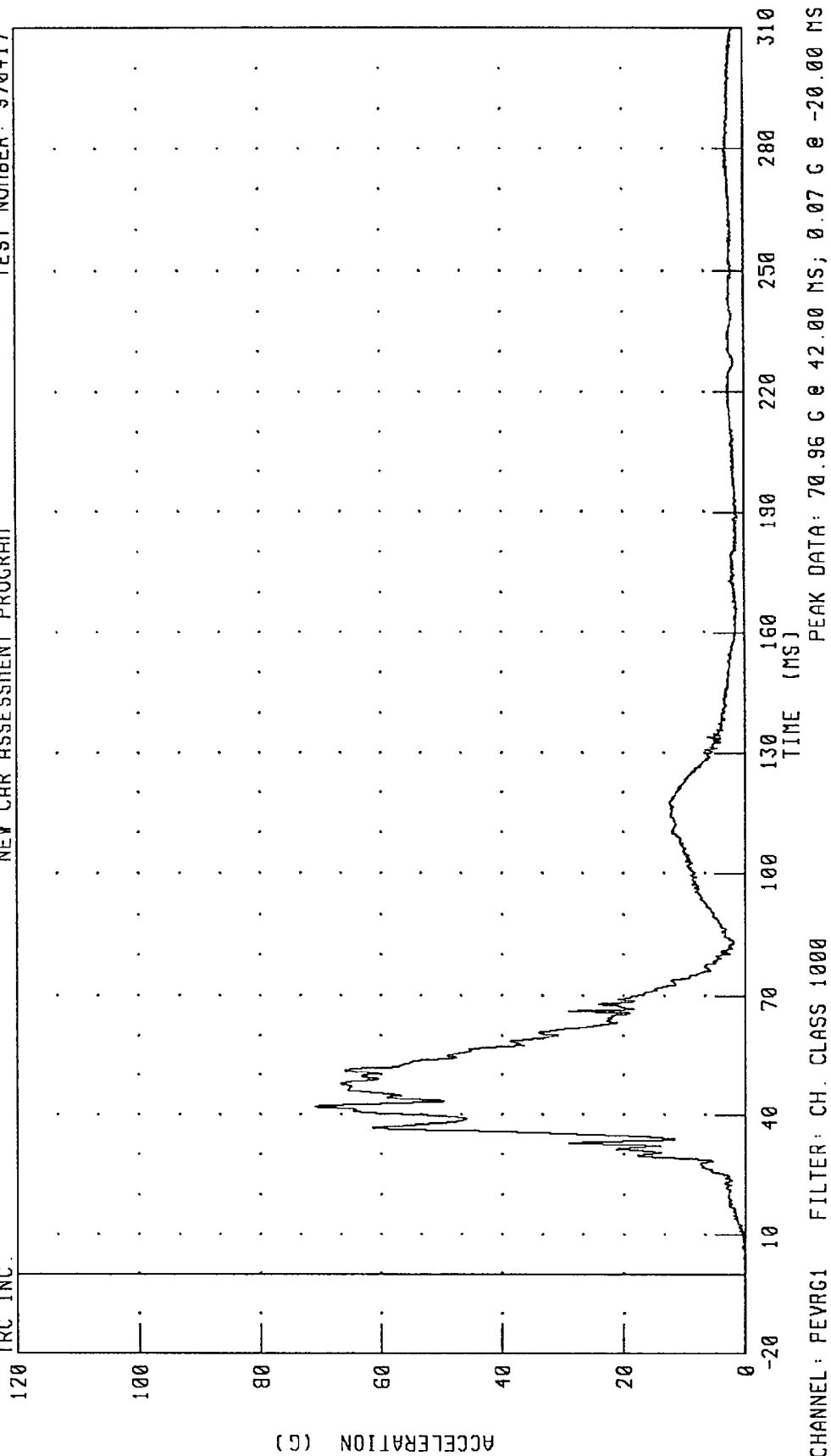
PEAK DATA: 11.27 G @ 109.68 MS; -7.05 G @ 38.24 MS

1997 JEEP CHEROKEE SPORT INTO FRONTAL LOAD CELL BARRIER
 DRIVER PELVIS RESULTANT ACCELERATION

TEST NUMBER: 970417

NEW CAR ASSESSMENT PROGRAM

TRC INC.



CHANNEL: PEVRG1 FILTER: CH. CLASS 1000

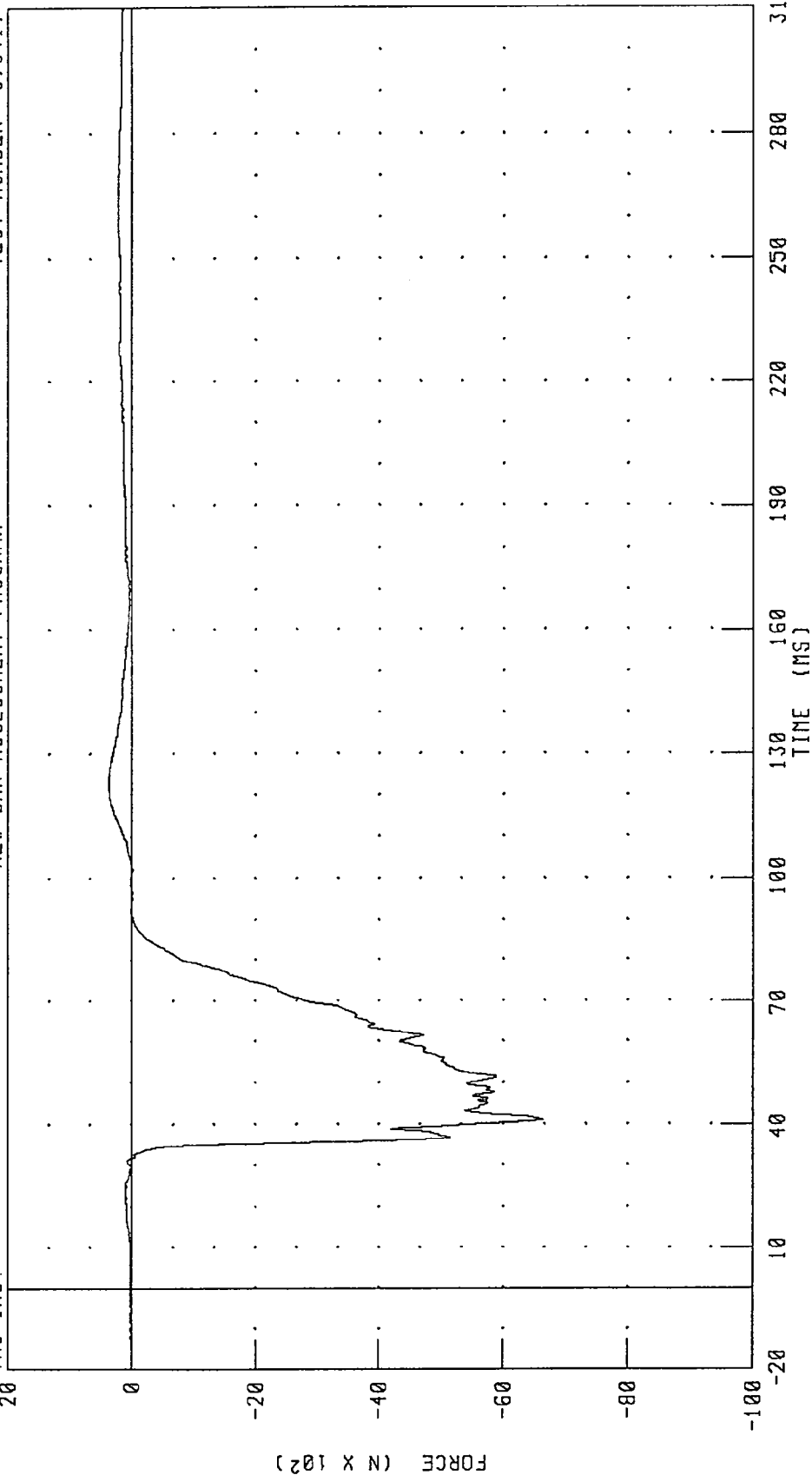
PEAK DATA: 70.96 G @ 42.00 MS; 0.07 G @ -20.00 MS

1997 JEEP CHEROKEE SPORT INTO FRONTAL LOAD CELL BARRIER
DRIVER LEFT FEMUR FORCE

TEST NUMBER: 970417

NEW CAR ASSESSMENT PROGRAM

TRC INC.

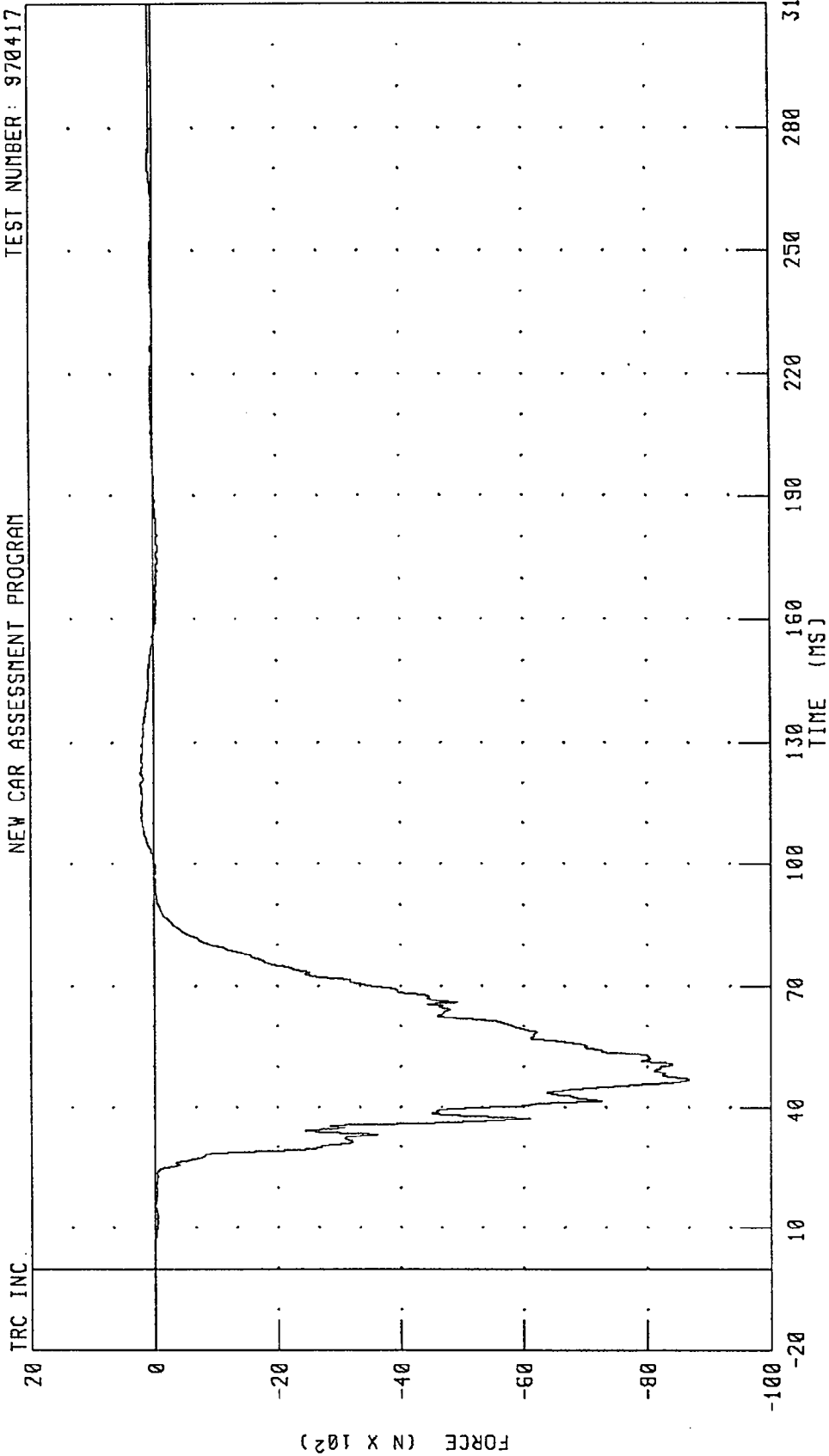


PEAK DATA: 373.68 N @ 123.12 MS; -6644.47 N @ 41.12 MS

CHANNEL: LFMF1 FILTER: CH. CLASS 600

1997 JEEP CHEROKEE SPORT INTO FRONTAL LOAD CELL BARRIER
 DRIVER RIGHT FEMUR FORCE
 NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 970417



PEAK DATA: 221.00 N @ 119.68 MS; -86.66 N @ 47.04 MS

CHANNEL: RFMFI FILTER: CH. CLASS 600

1997 JEEP CHEROKEE SPORT INTO FRONTAL LOAD CELL BARRIER
DRIVER HEAD X-AXIS ACCELERATION - REDUNDANT

TEST NUMBER: 970417

NEW CAR ASSESSMENT PROGRAM

TRC INC.

90

60

30

0

-30

-60

-90

ACCELERATION (G)

310

280

250

220

190

160

130

100

70

40

10

-20

-90

TIME (MS)

CHANNEL: HEDXR1 FILTER: CH. CLASS 1000

PEAK DATA: 15.54 G @ 225.44 MS; -60.67 G @ 58.96 MS

1997 JEEP CHEROKEE SPORT INTO FRONTAL LOAD CELL BARRIER
 DRIVER HEAD Y-AXIS ACCELERATION - REDUNDANT
 NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 970417

TRC INC.

90

60

30

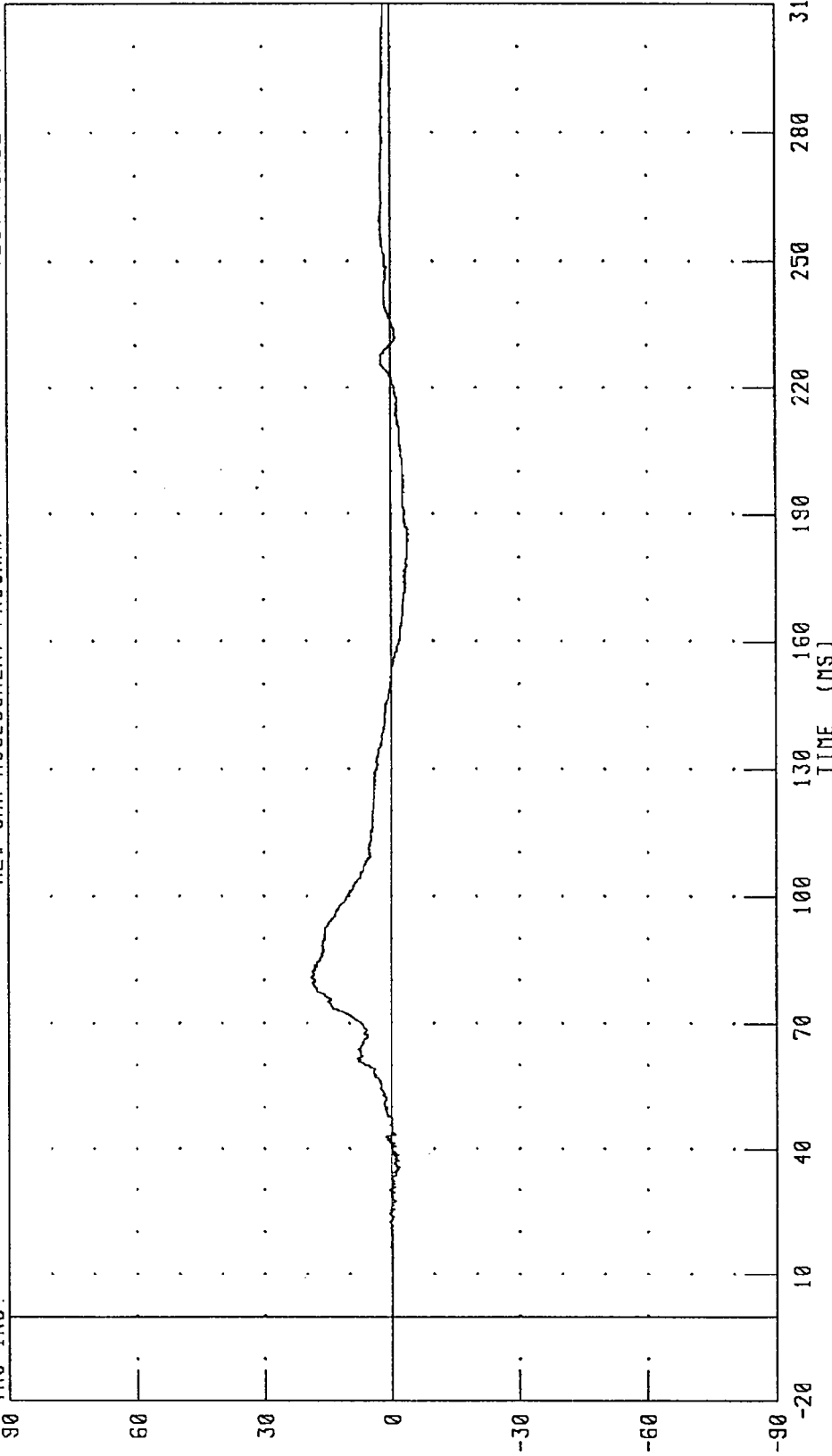
ACCELERATION (G)

0

-30

-60

-90



CHANNEL: HEDYR1 FILTER: CH. CLASS 1000

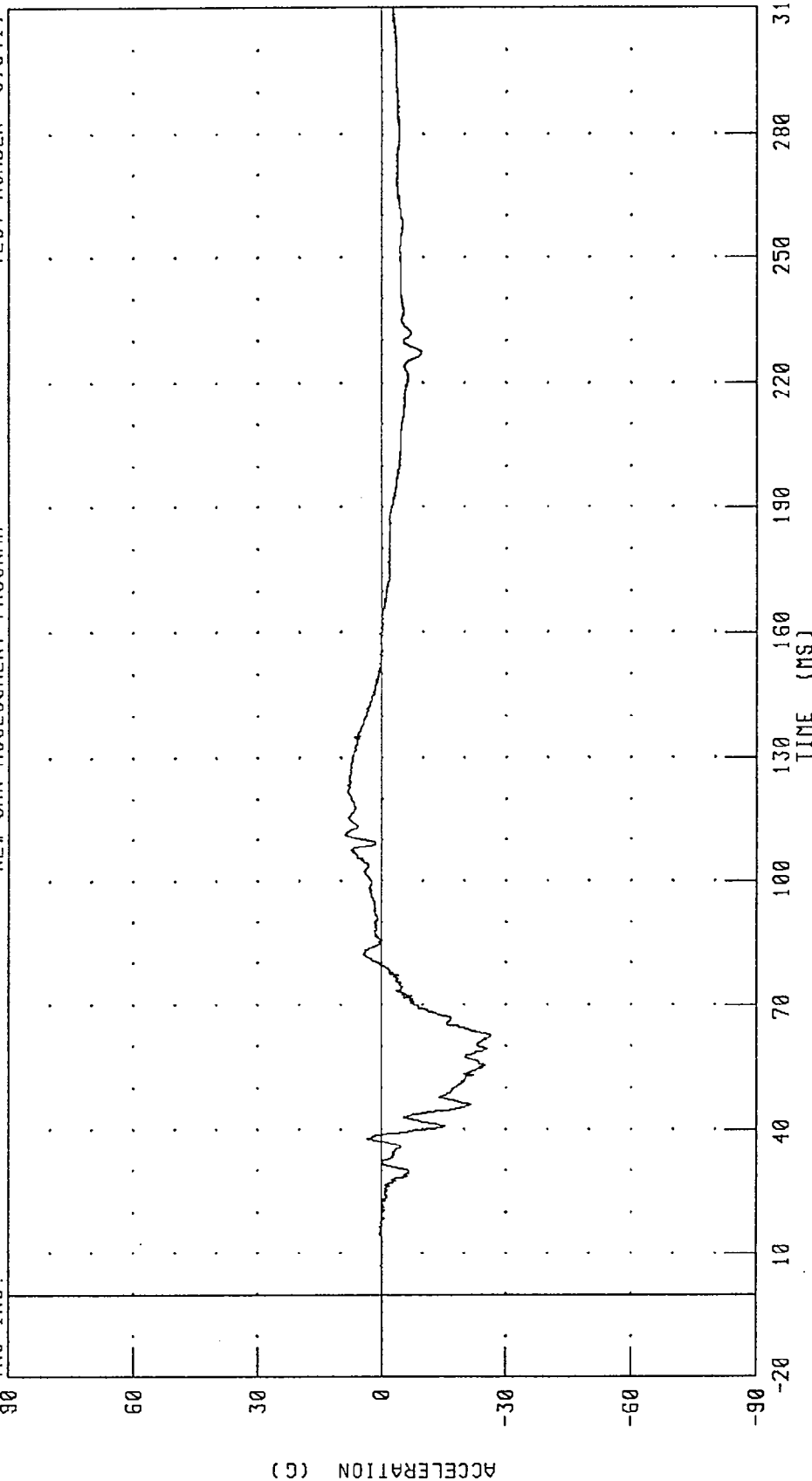
PEAK DATA: 19.00 G @ 80.56 MS; -4.05 G @ 183.92 MS

1997 JEEP CHEROKEE SPORT INTO FRONTAL LOAD CELL BARRIER
DRIVER HEAD Z-AXIS ACCELERATION - REDUNDANT

TEST NUMBER: 970417

NEW CAR ASSESSMENT PROGRAM

TRC INC.



CHANNEL: HEDZR1 FILTER: CH. CLASS 1000

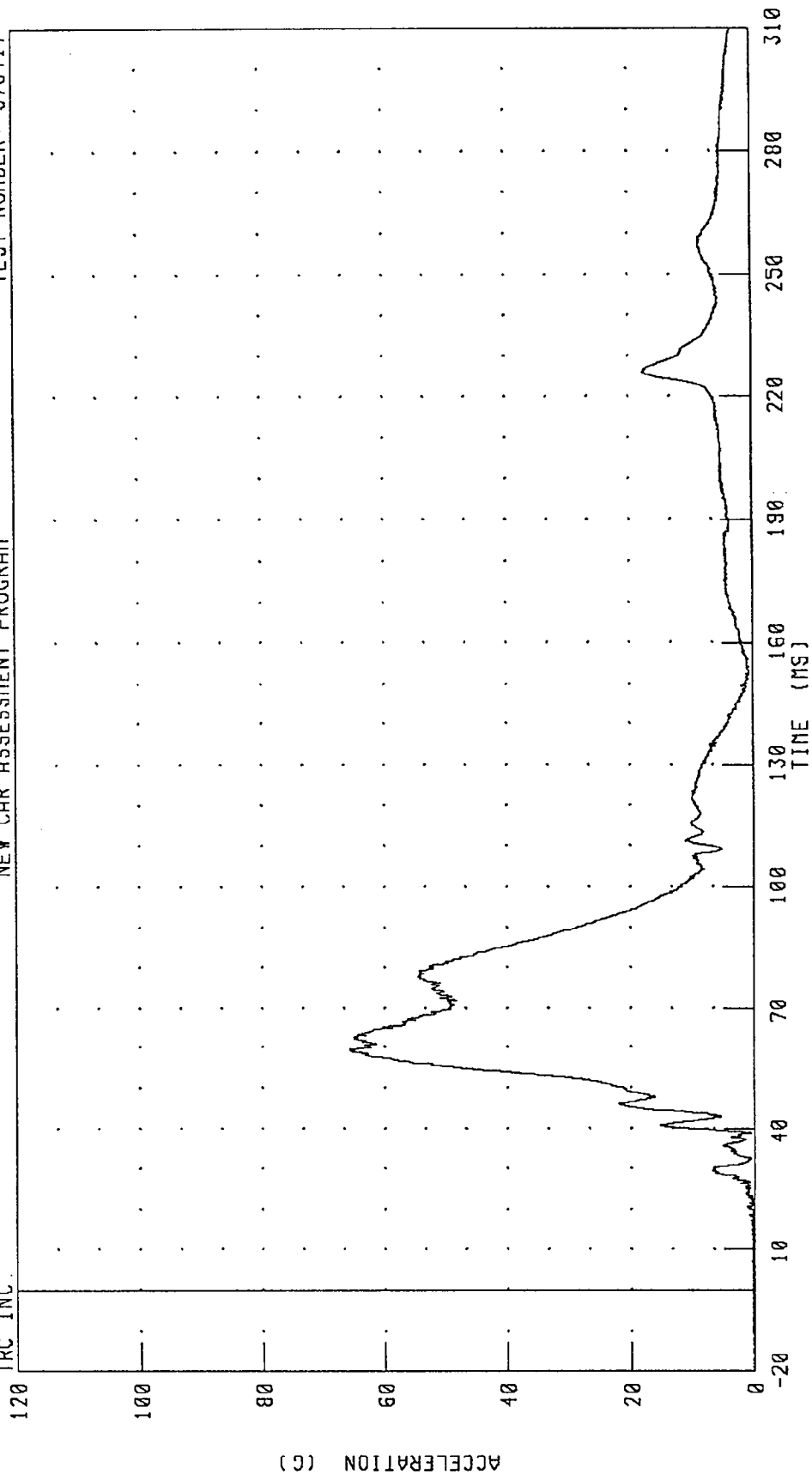
PEAK DATA: 8.92 G @ 111.20 MS; -26.46 G @ 62.88 MS

1997 JEEP CHEROKEE SPORT INTO FRONTAL LOAD CELL BARRIER
DRIVER HEAD RESULTANT ACCELERATION - REDUNDANT

TEST NUMBER: 970417

NEW CAR ASSESSMENT PROGRAM

TRC INC.



PEAK DATA: 65.78 G @ 59.44 MS; 0.13 G @ 17.52 MS

CHANNEL: HEDRR1 FILTER: CH. CLASS 1000

1997 JEEP CHEROKEE SPORT INTO FRONTAL LOAD CELL BARRIER
DRIVER CHEST X-AXIS ACCELERATION - REDUNDANT

TEST NUMBER: 970417

NEW CAR ASSESSMENT PROGRAM

TRC INC.

60

40

20

0

-20

-40

-60

ACCELERATION (G)

TIME (MS)

310

280

250

220

190

160

130

100

70

40

10

CHANNEL: CSTXR1 FILTER: CH. CLASS 180

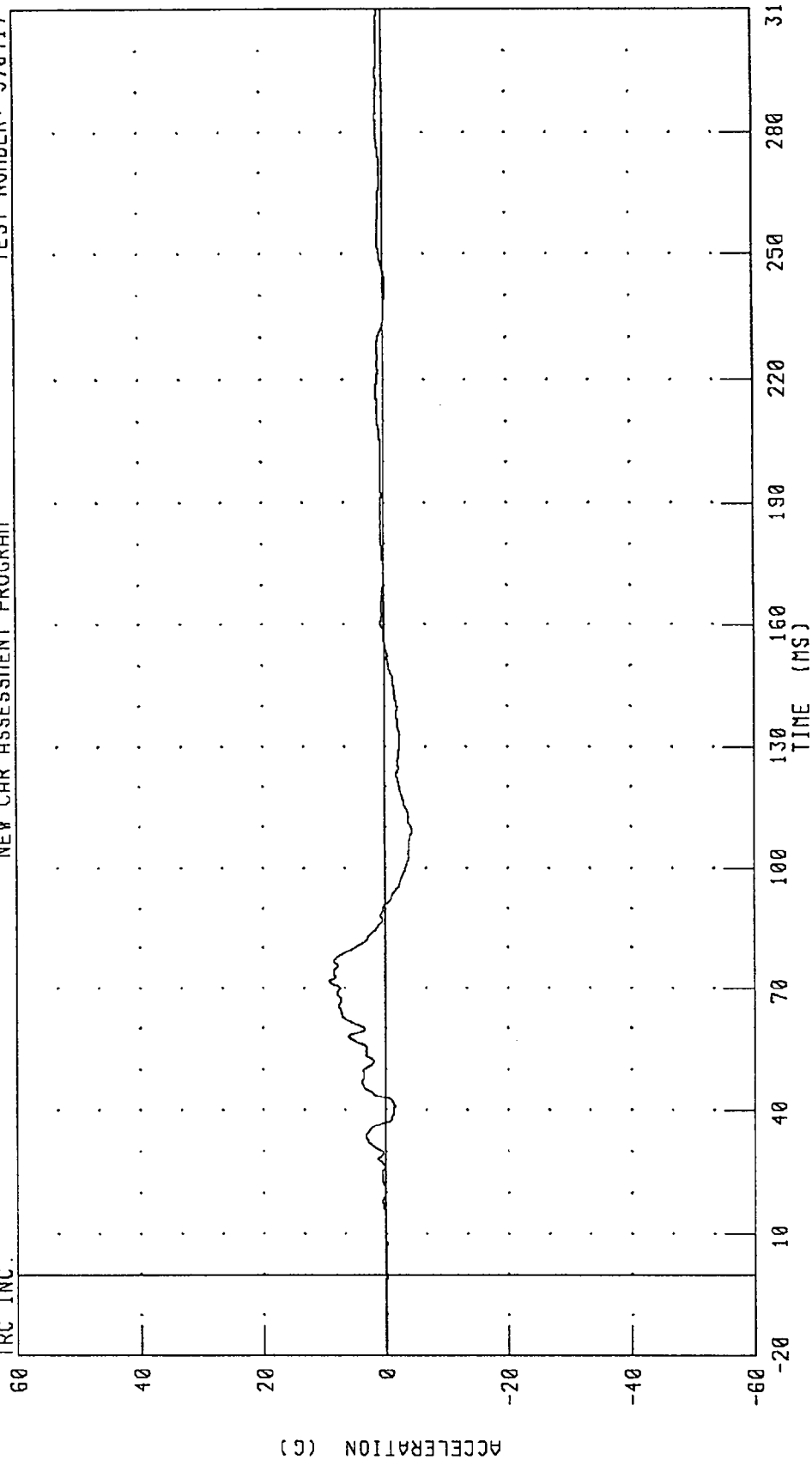
PEAK DATA: 2.32 G @ 225.12 MS; -59.09 G @ 65.12 MS

1997 JEEP CHEROKEE SPORT INTO FRONTAL LOAD CELL BARRIER
DRIVER CHEST Y-AXIS ACCELERATION - REDUNDANT

TEST NUMBER: 970417

NEW CAR ASSESSMENT PROGRAM

TRC INC.



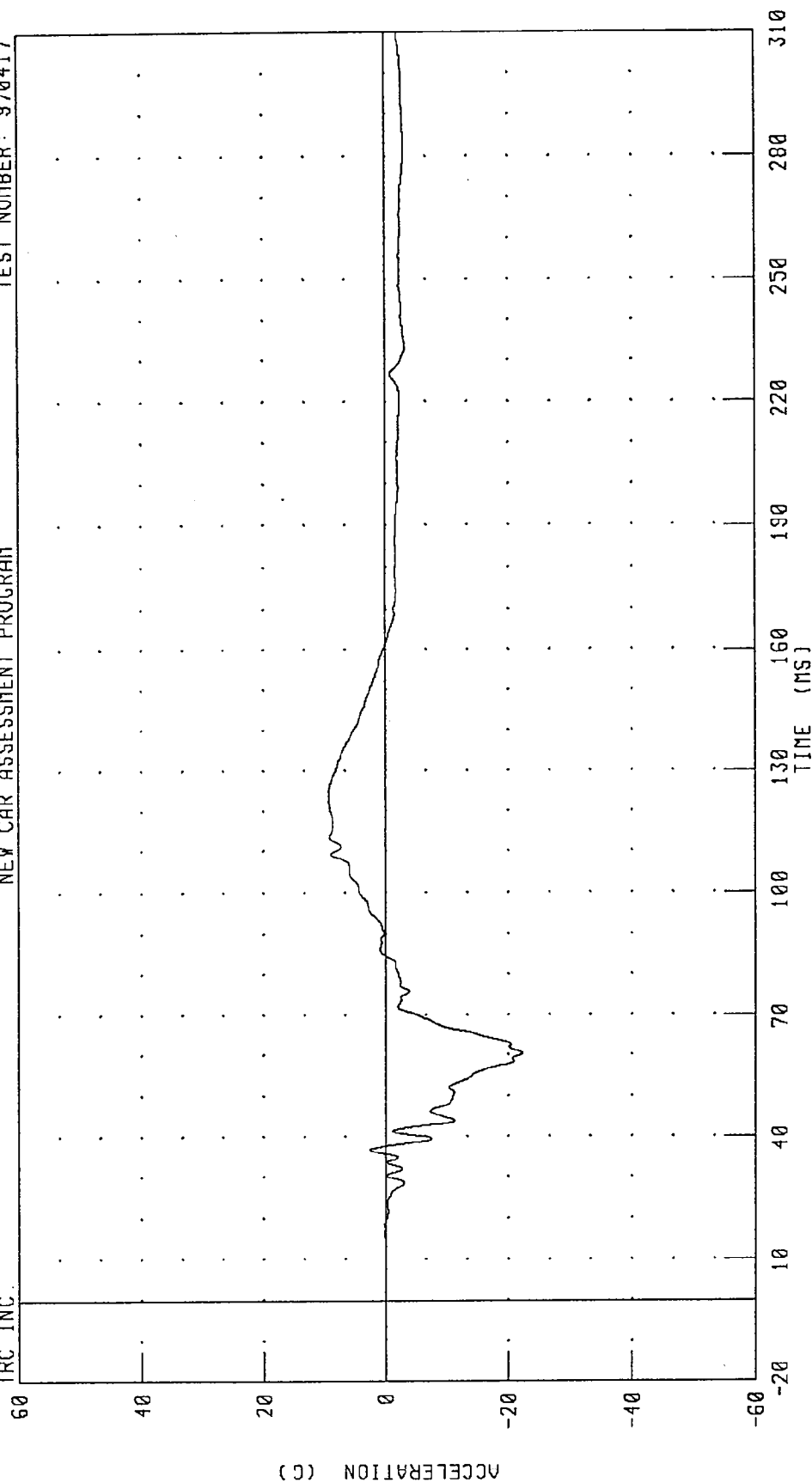
CHANNEL: CSTYR1 FILTER: CH. CLASS 180

PEAK DATA: 9.20 G @ 71.68 MS; -4.43 G @ 108.96 MS

1997 JEEP CHEROKEE SPORT INTO FRONTAL LOAD CELL BARRIER
 DRIVER CHEST Z-AXIS ACCELERATION - REDUNDANT
 NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 970417

TRC INC.



PEAK DATA: 9.38 G @ 123.44 MS; -22.33 G @ 60.40 MS

CHANNEL: CSTZR1 FILTER: CH. CLASS 180

1997 JEEP CHEROKEE SPORT INTO FRONTAL LOAD CELL BARRIER
DRIVER CHEST RESULTANT ACCELERATION - REDUNDANT

TEST NUMBER: 970417

NEW CAR ASSESSMENT PROGRAM

TRC INC.

120

100

80

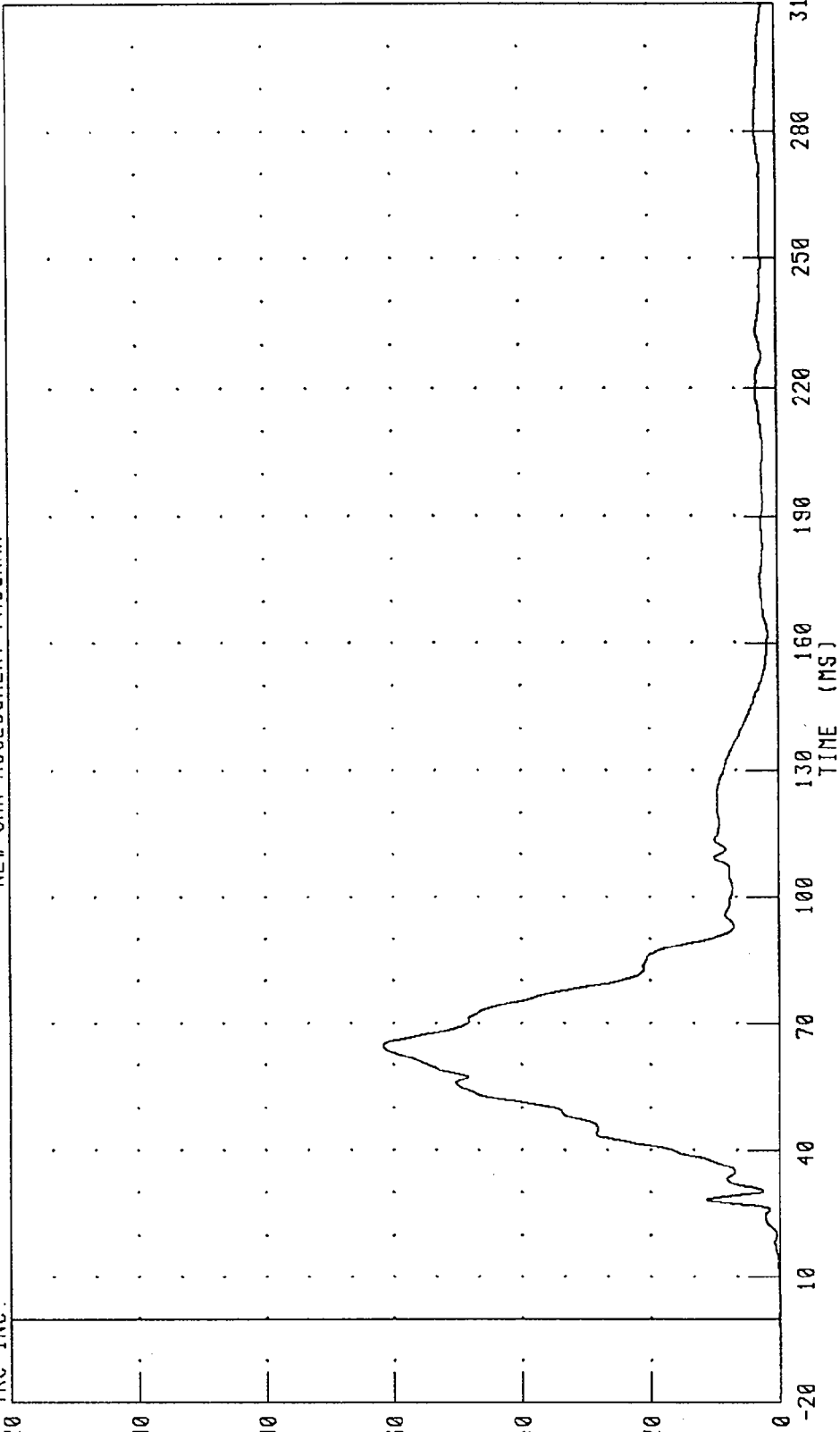
60

40

20

0

ACCELERATION (G)



CHANNEL: CSTRR1 FILTER: CH. CLASS 180

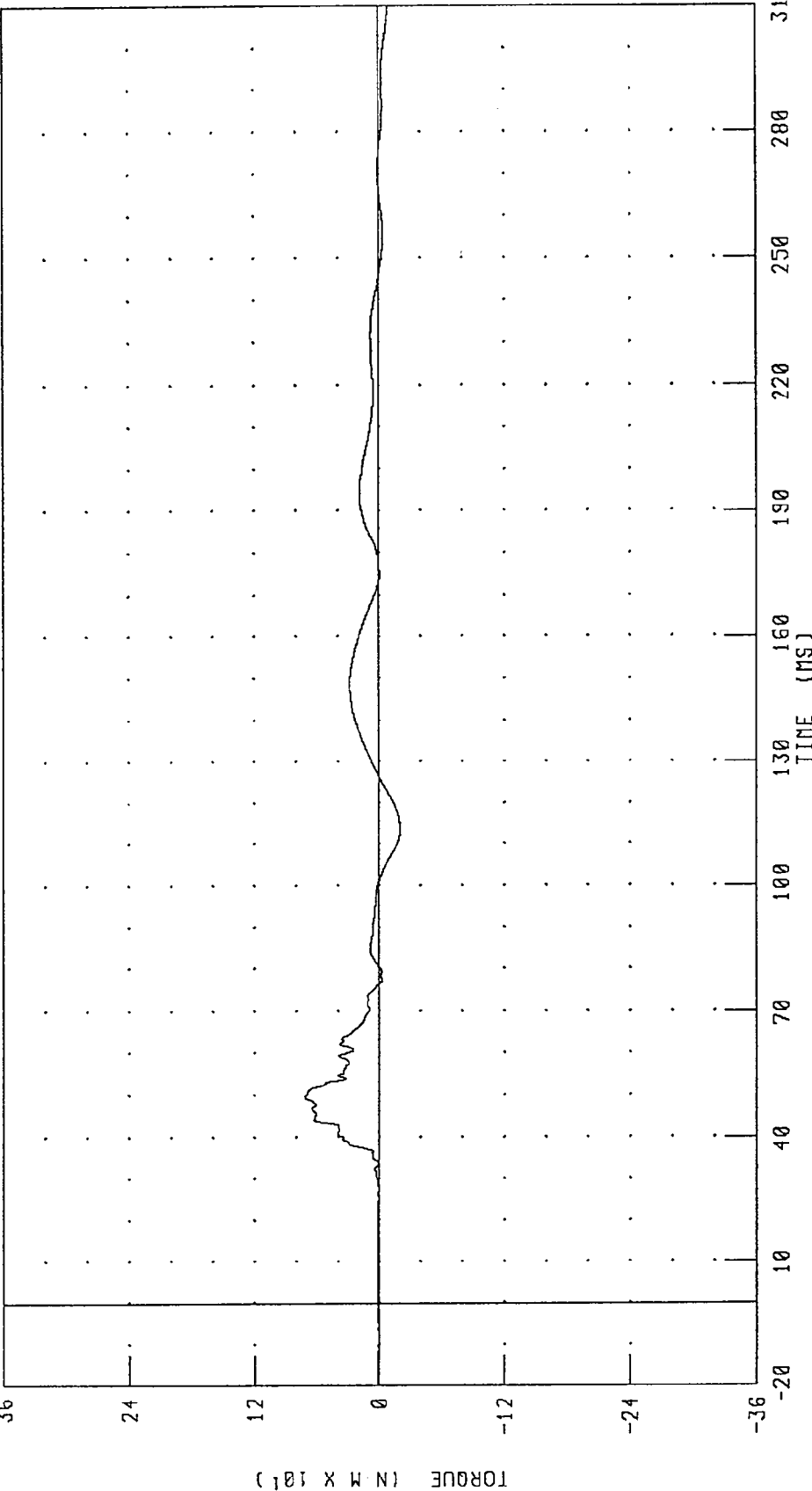
PEAK DATA: 61.53 G @ 64.88 MS; 0.01 G @ -20.00 MS

1997 JEEP CHEROKEE SPORT INTO FRONTAL LOAD CELL BARRIER
DRIVER LEFT UPPER TIBIA MOMENT ABOUT X AXIS

TEST NUMBER: 970417

NEW CAR ASSESSMENT PROGRAM

TRC INC.



PEAK DATA: 71.73 N.M @ 49.60 MS; -20.55 N.M @ 113.76 MS

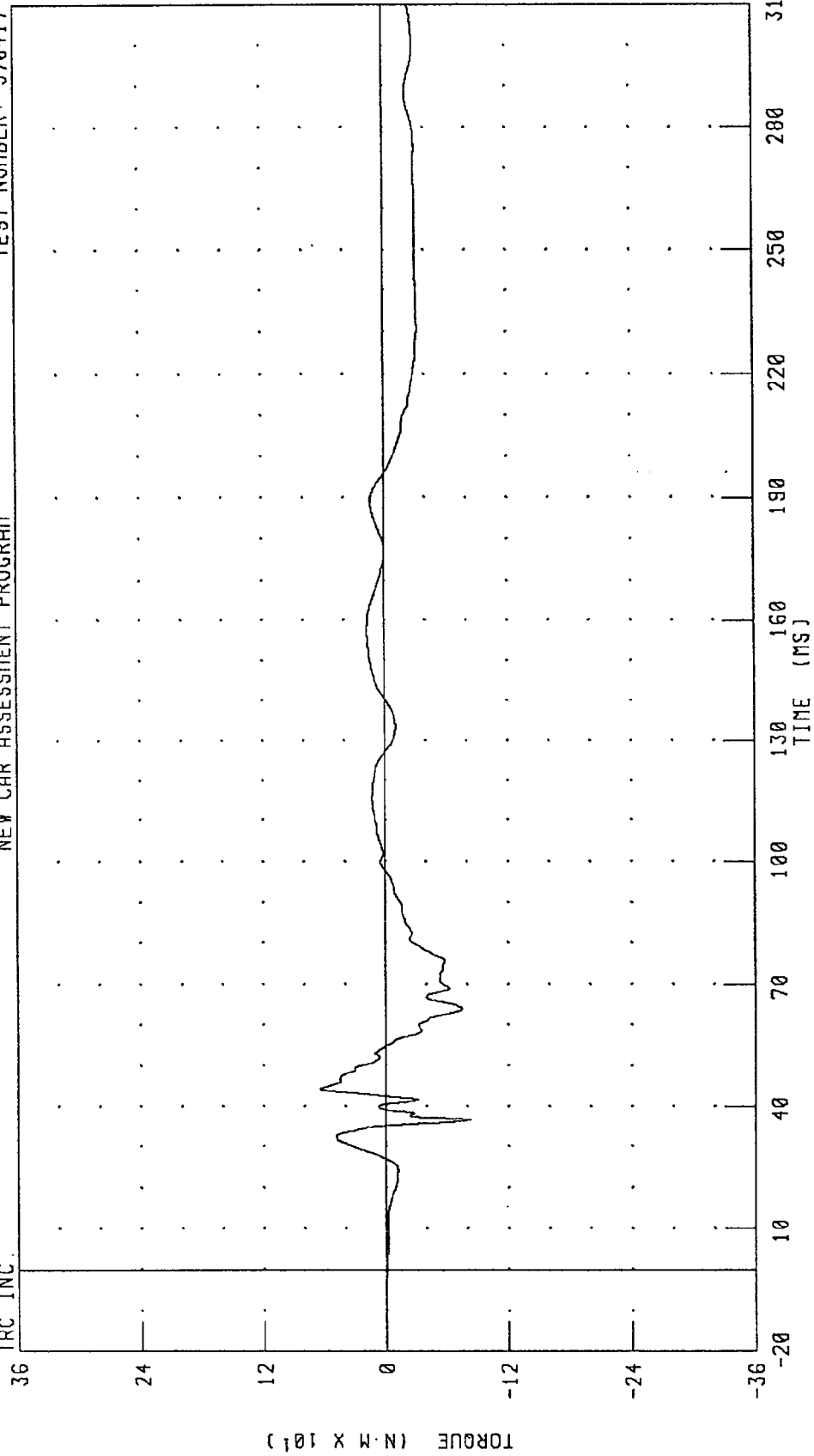
CHANNEL: TBLXM1 FILTER: CH. CLASS 600

1997 JEEP CHEROKEE SPORT INTO FRONTAL LOAD CELL BARRIER
DRIVER LEFT UPPER TIBIA MOMENT ABOUT Y AXIS

TEST NUMBER: 970417

NEW CAR ASSESSMENT PROGRAM

TRC INC.



CHANNEL: TBLYM1 FILTER: CH. CLASS 600

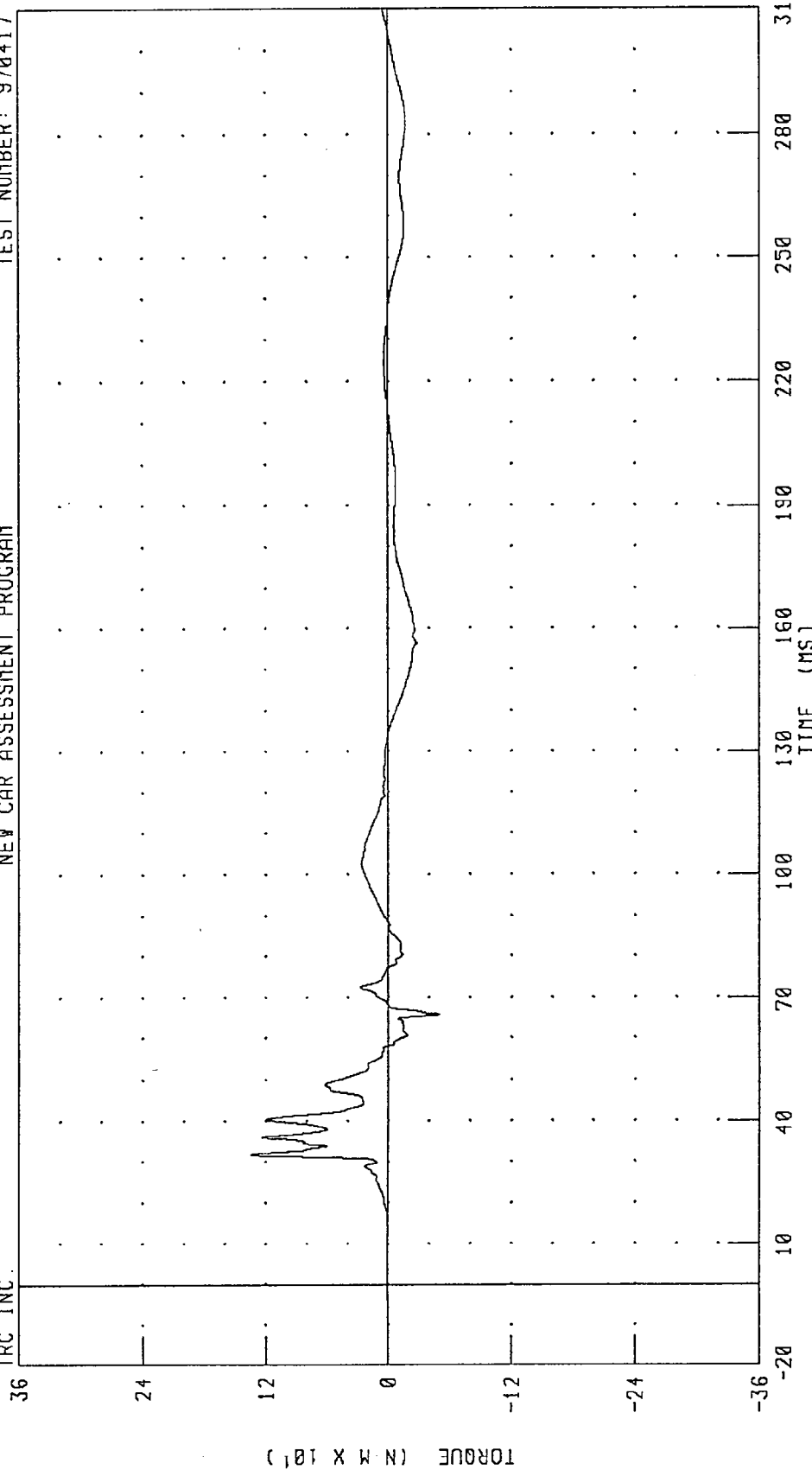
PEAK DATA: 64.85 N.M @ 44.32 MS; -82.88 N.M @ 36.56 MS

1997 JEEP CHEROKEE SPORT INTO FRONTAL LOAD CELL BARRIER
DRIVER RIGHT UPPER TIBIA MOMENT ABOUT X AXIS

TEST NUMBER: 970417

NEW CAR ASSESSMENT PROGRAM

TRC INC.



PEAK DATA: 134.10 N.M @ 31.76 MS; -49.34 N.M @ 65.84 MS

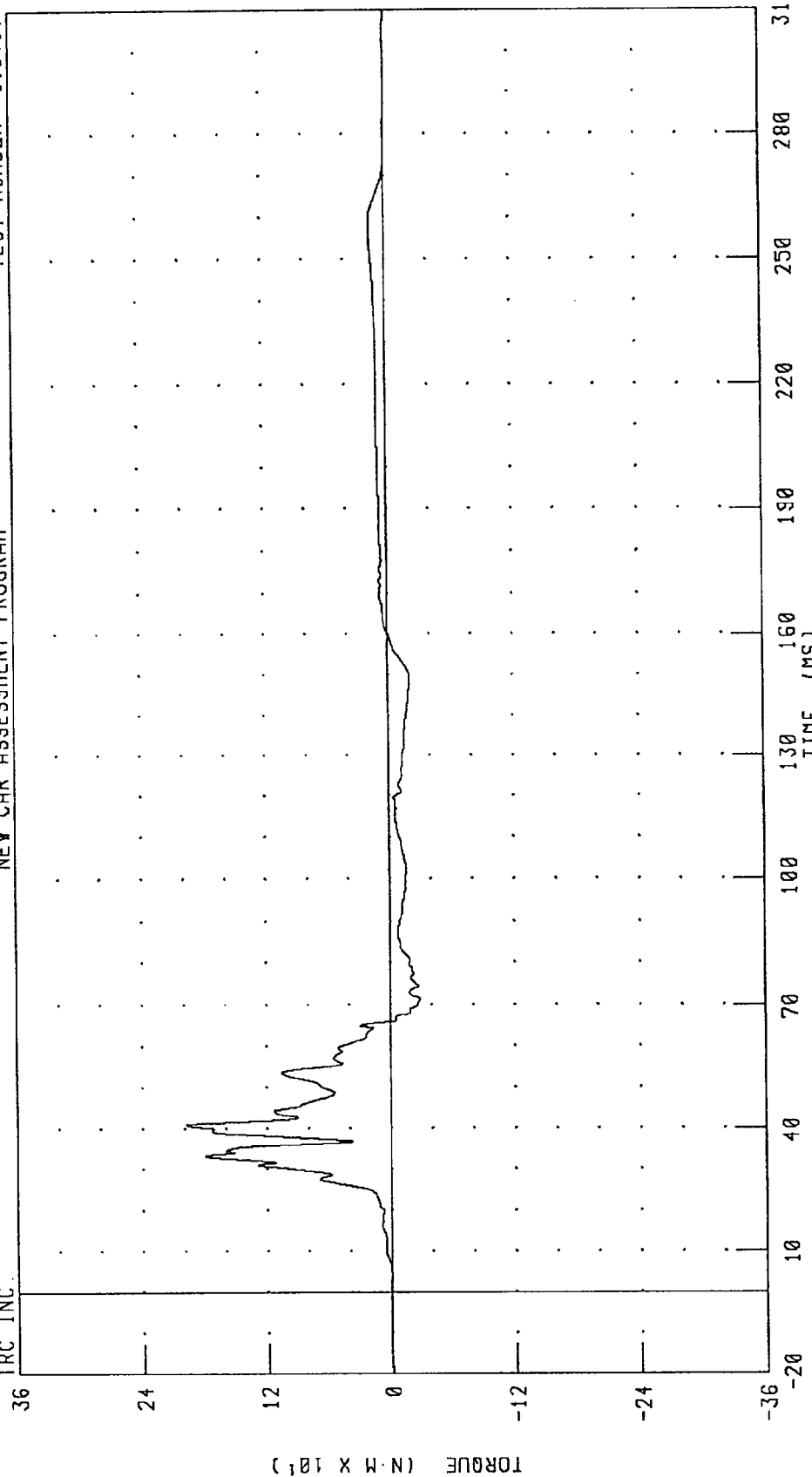
CHANNEL: TBRXM1 FILTER: CH. CLASS 600

1997 JEEP CHEROKEE SPORT INTO FRONTAL LOAD CELL BARRIER
DRIVER RIGHT UPPER TIBIA MOMENT ABOUT Y AXIS

TEST NUMBER: 970417

NEW CAR ASSESSMENT PROGRAM

TRC INC.



PEAK DATA: 198.39 N.M @ 41.04 MS; -28.94 N.M @ 71.36 MS

CHANNEL: TBRYM1 FILTER: CH. CLASS 600

1997 JEEP CHEROKEE SPORT INTO FRONTAL LOAD CELL BARRIER
DRIVER LEFT LOWER TIBIA X-AXIS FORCE

TEST NUMBER: 970417

NEW CAR ASSESSMENT PROGRAM

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: 220.95 N @ 64.00 MS; -532.05 N @ 44.40 MS

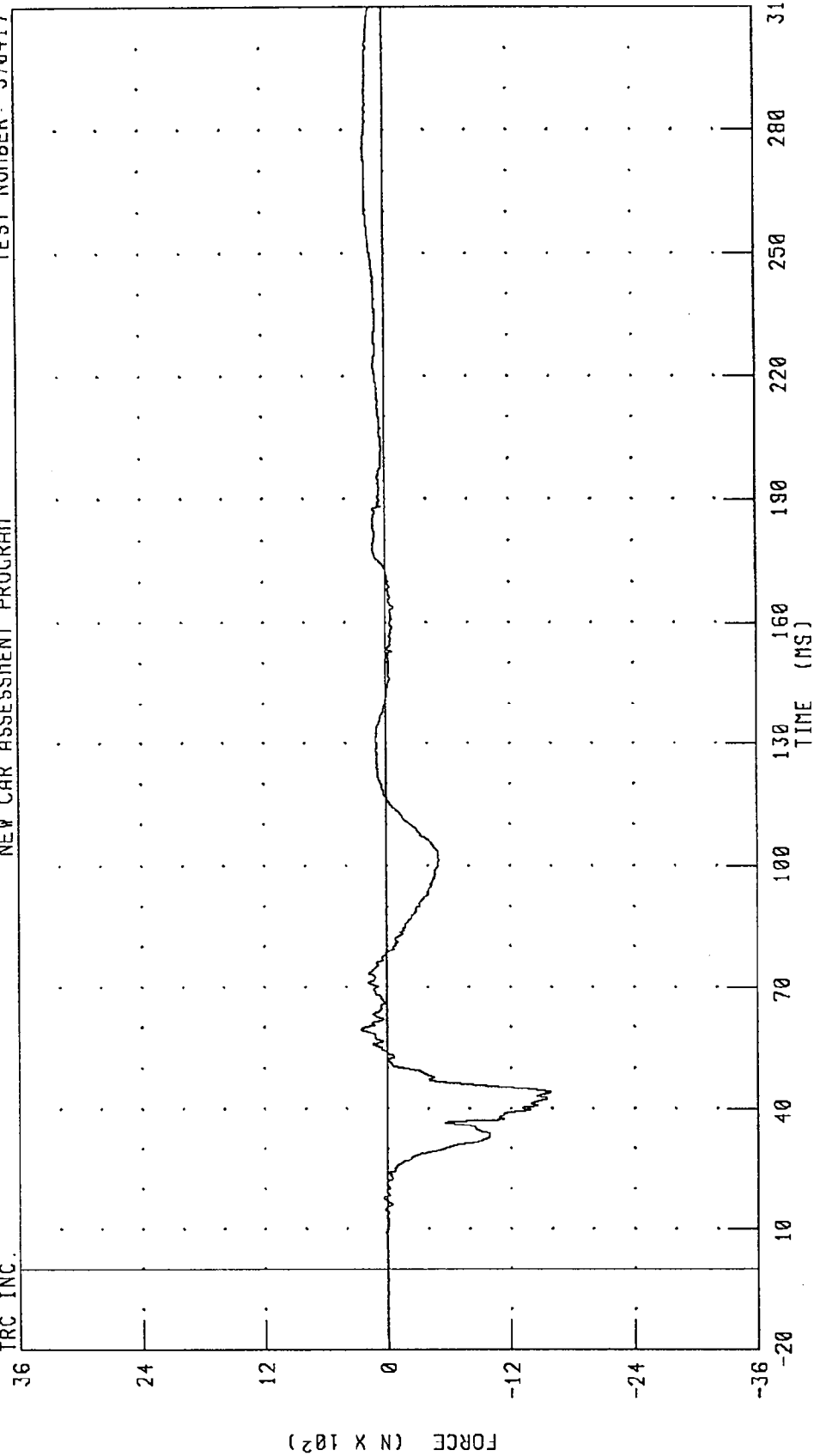
CHANNEL: ANLXF1 FILTER: CH. CLASS 600

1997 JEEP CHEROKEE SPORT INTO FRONTAL LOAD CELL BARRIER
DRIVER LEFT LOWER TIBIA Z-AXIS FORCE

TEST NUMBER: 970417

NEW CAR ASSESSMENT PROGRAM

TRC INC.



PEAK DATA: 254.88 N @ 59.44 MS; -1586.43 N @ 41.08 MS

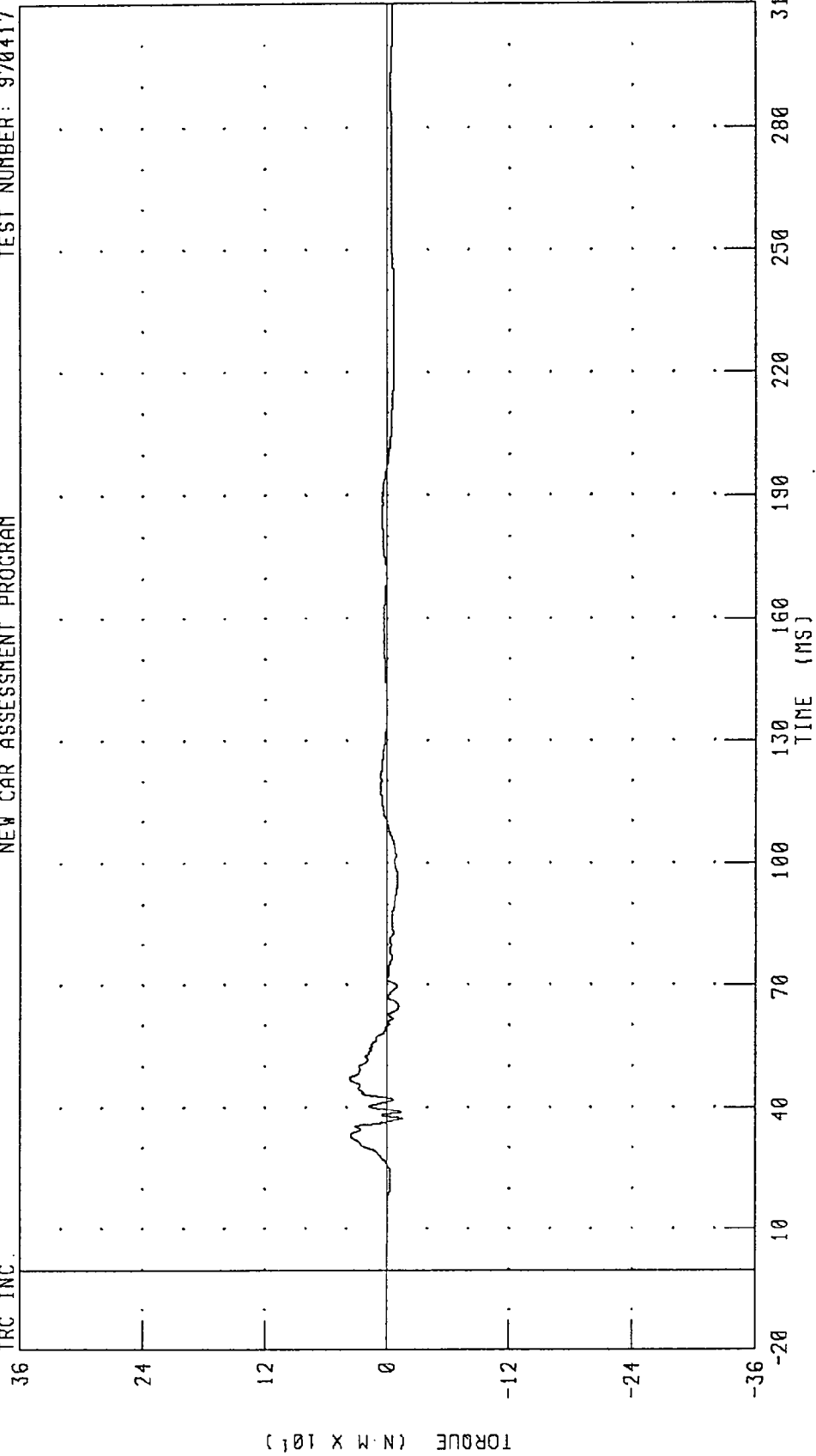
CHANNEL: ANLZF1 FILTER: CH. CLASS 600

1997 JEEP CHEROKEE SPORT INTO FRONTAL LOAD CELL BARRIER
DRIVER LEFT LOWER TIBIA MOMENT ABOUT Y AXIS

TEST NUMBER: 970417

NEW CAR ASSESSMENT PROGRAM

TRC INC.



CHANNEL: ANLYM1 FILTER: CH. CLASS 600

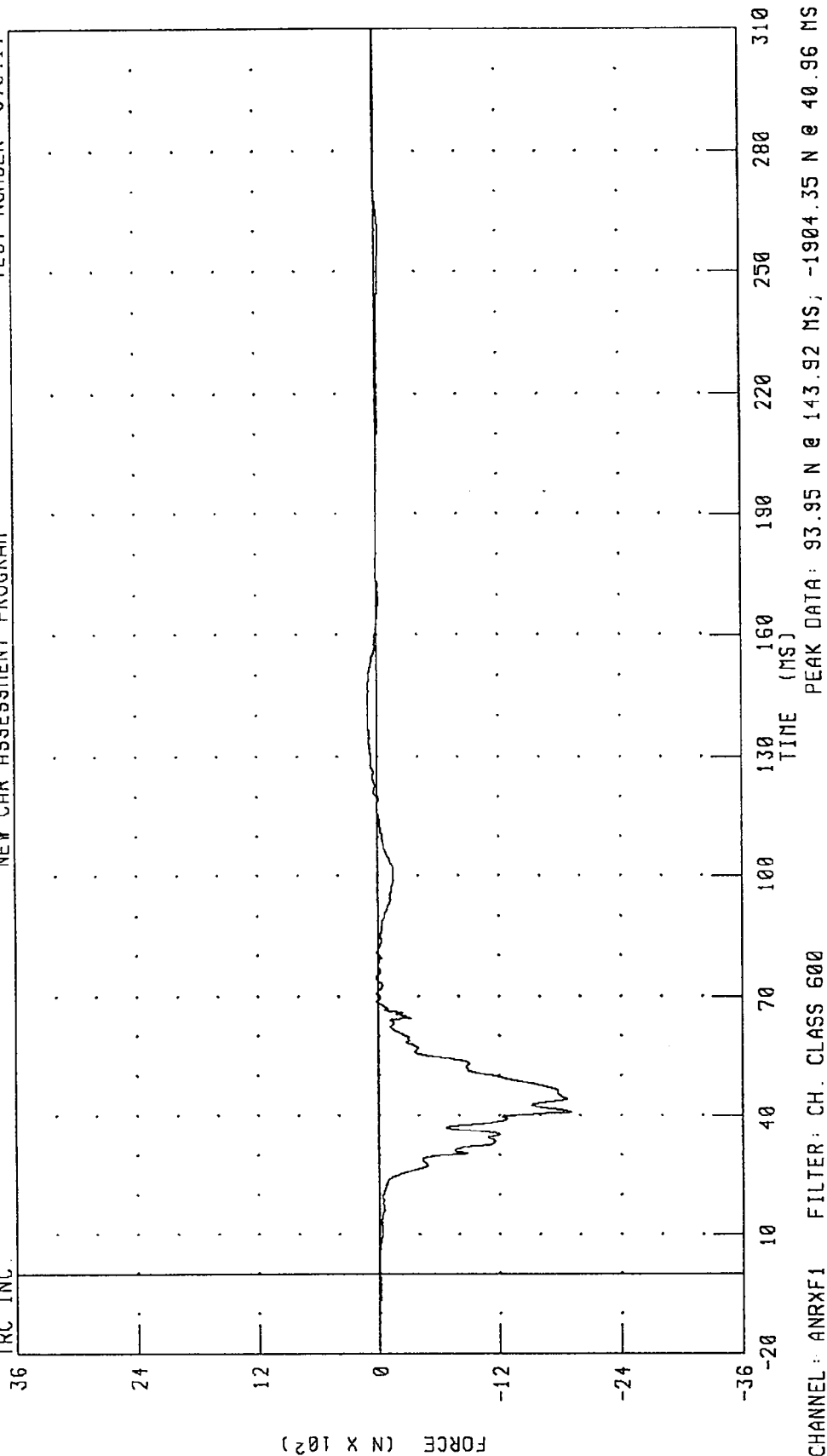
PEAK DATA: 36.96 N·M @ 47.04 MS; -15.55 N·M @ 37.36 MS

1997 JEEP CHEROKEE SPORT INTO FRONTAL LOAD CELL BARRIER
DRIVER RIGHT LOWER TIBIA X-AXIS FORCE

TEST NUMBER: 970417

NEW CAR ASSESSMENT PROGRAM

TRC INC.



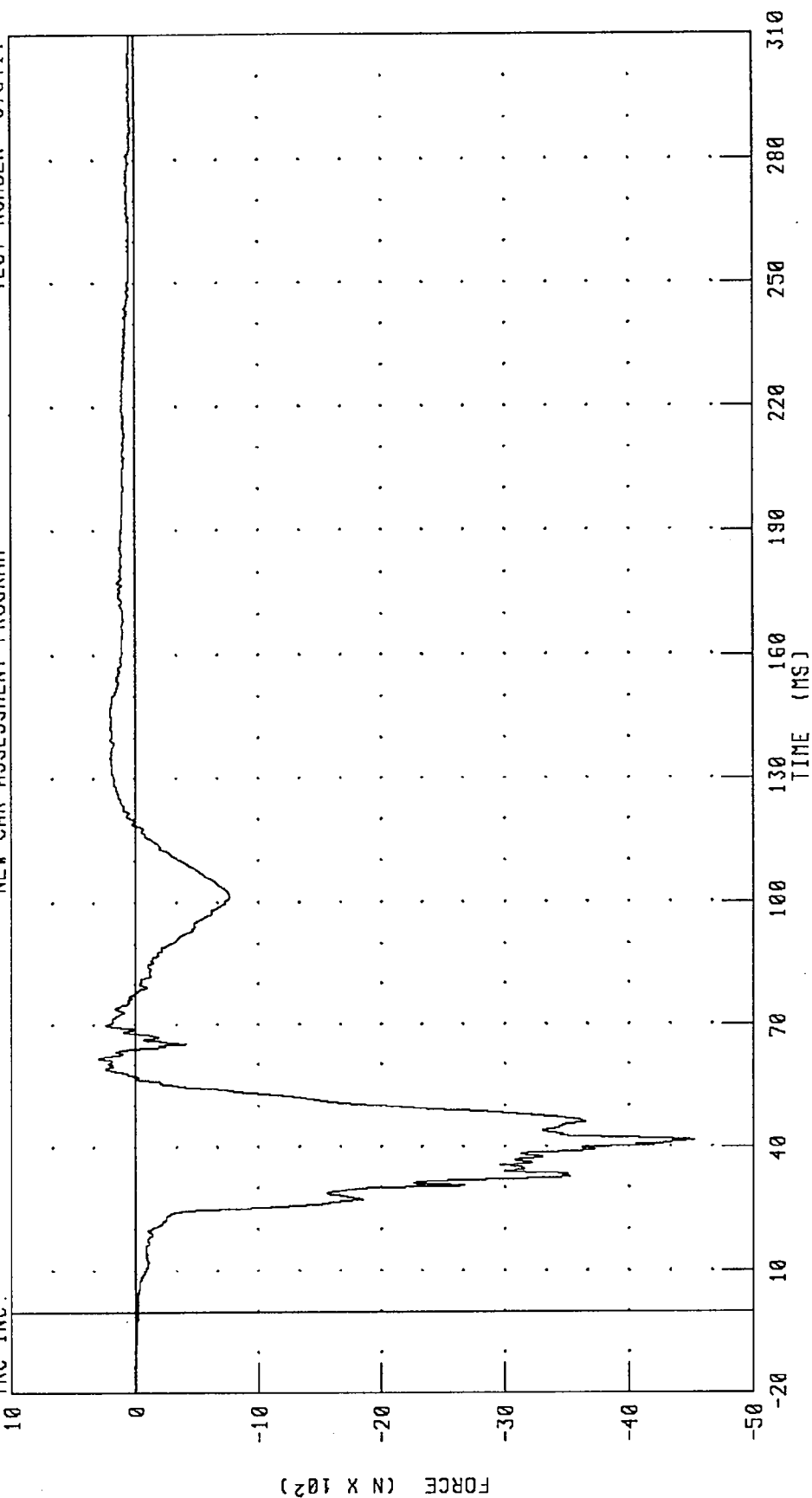
970417

B-38

1997 JEEP CHEROKEE SPORT INTO FRONTAL LOAD CELL BARRIER
 DRIVER RIGHT LOWER TIBIA Z-AXIS FORCE
 NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 970417

TRC INC.



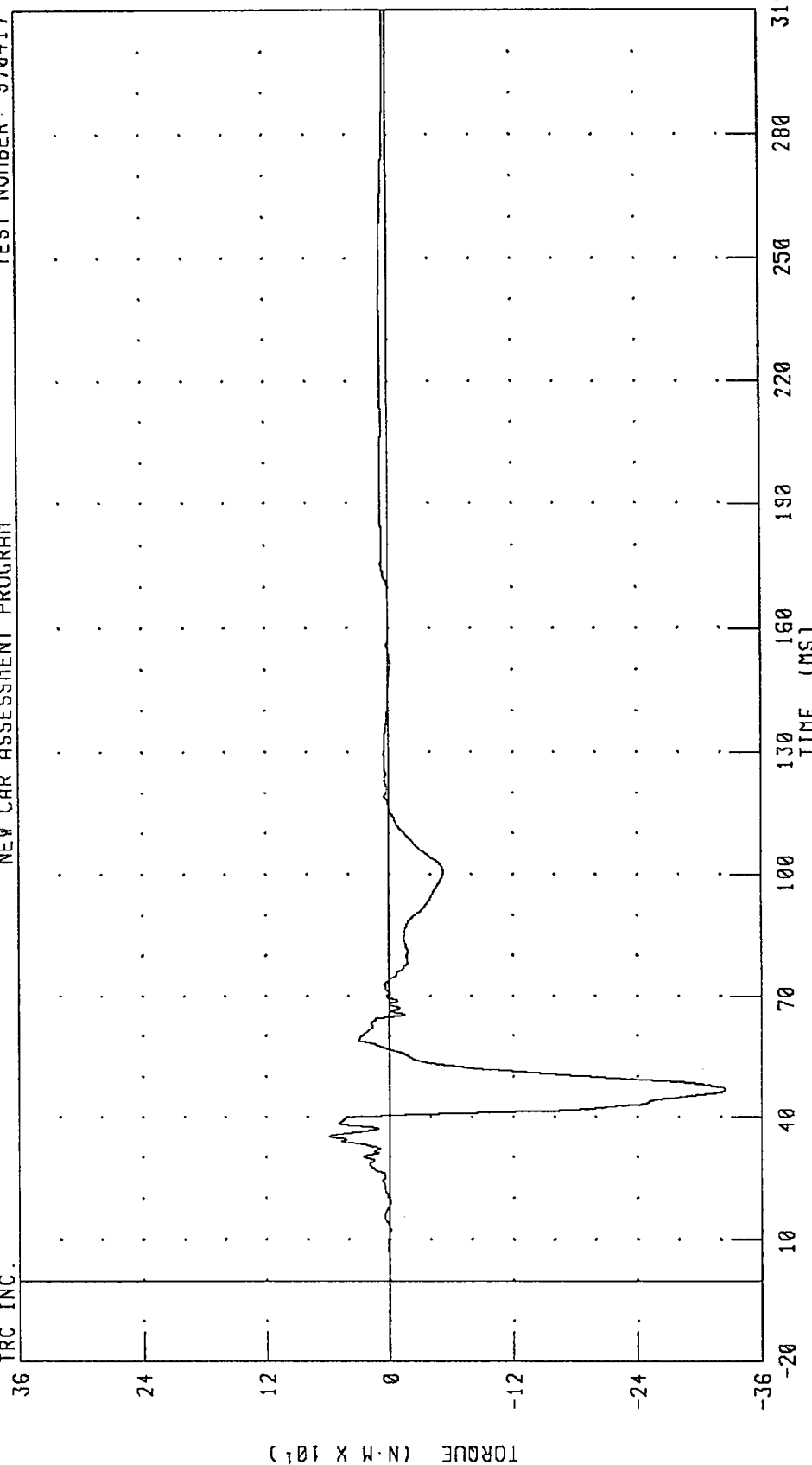
CHANNEL: ANRZF1 FILTER: CH. CLASS 600

1997 JEEP CHEROKEE SPORT INTO FRONTAL LOAD CELL BARRIER
 DRIVER RIGHT LOWER TIBIA MOMENT ABOUT Y AXIS

TEST NUMBER: 970417

NEW CAR ASSESSMENT PROGRAM

TRC INC.



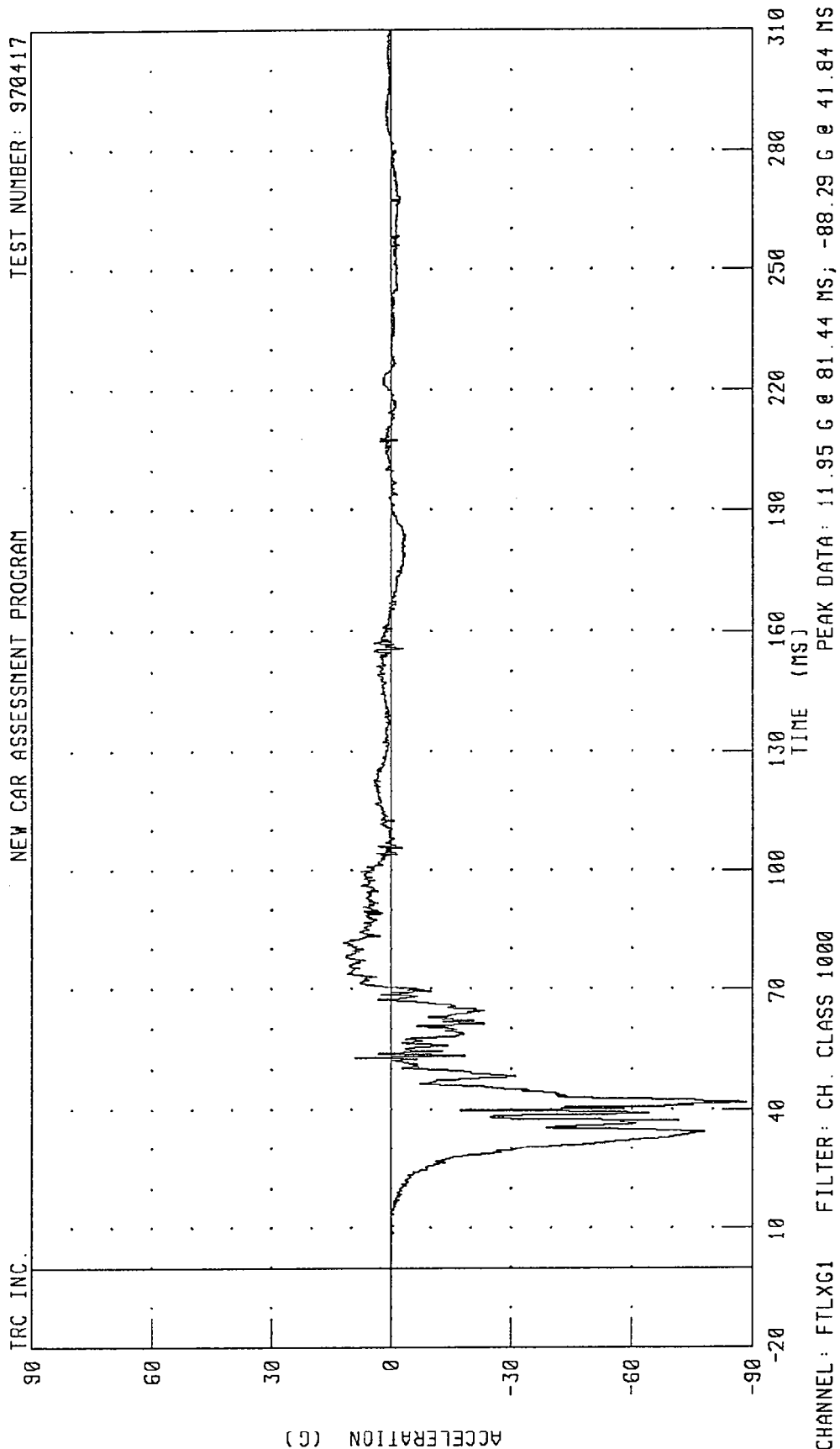
PEAK DATA: 58.92 N-M @ 35.20 MS; -325.19 N-M @ 46.80 MS

CHANNEL: ANRYM1 FILTER: CH. CLASS 600

1997 JEEP CHEROKEE SPORT INTO FRONTAL LOAD CELL BARRIER
 DRIVER LEFT FOOT X-AXIS ACCELERATION
 NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 970417

TRC INC.

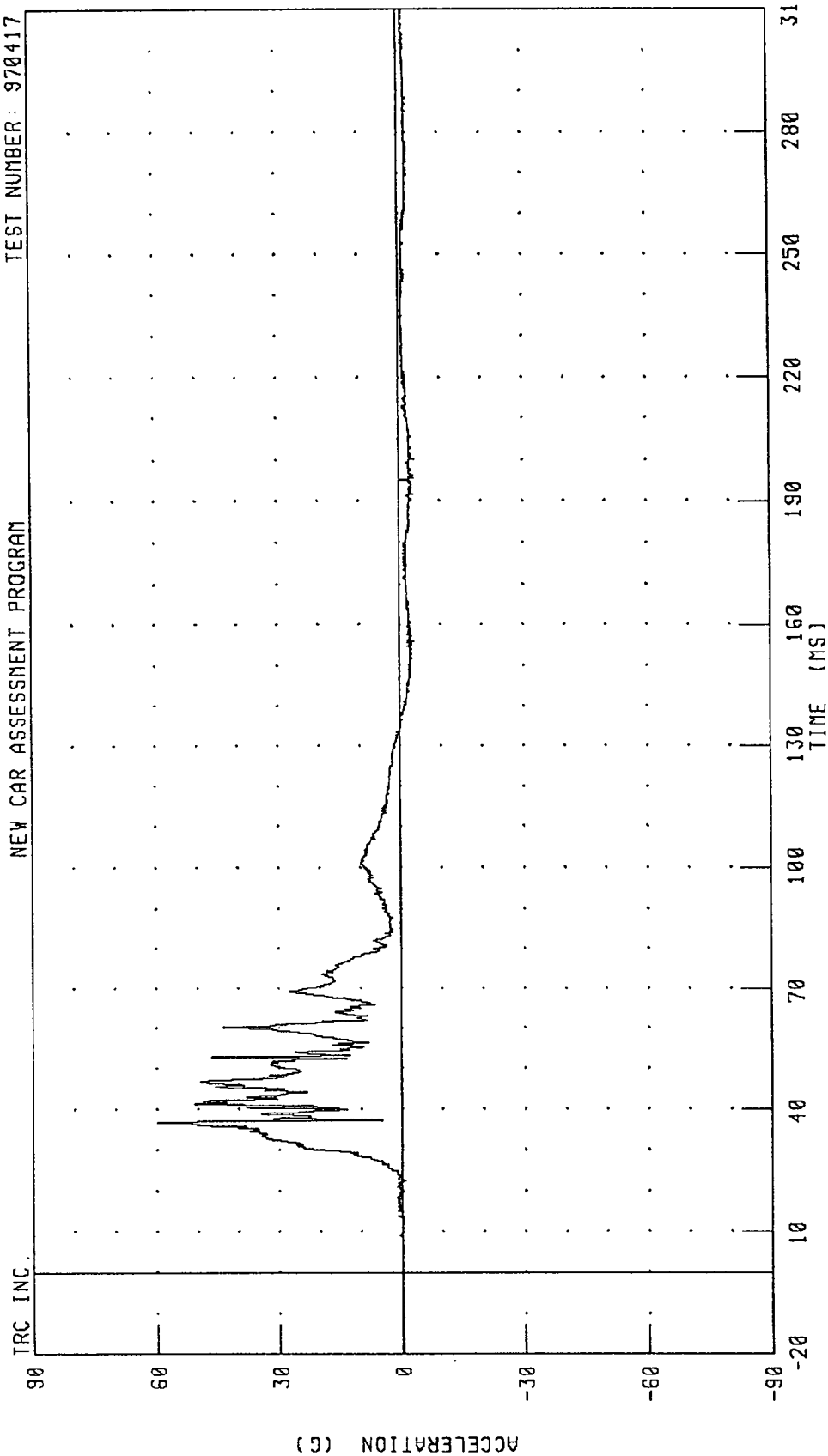


CHANNEL: FTLXG1 FILTER: CH. CLASS 1000

1997 JEEP CHEROKEE SPORT INTO FRONTAL LOAD CELL BARRIER
DRIVER LEFT FOOT Z-AXIS ACCELERATION AT HEEL

TEST NUMBER: 970417

NEW CAR ASSESSMENT PROGRAM



CHANNEL: FTLZH1 FILTER: CH. CLASS 1000

PEAK DATA: 59.91 G @ 36.80 MS; -3.82 G @ 200.40 MS

1997 JEEP CHEROKEE SPORT INTO FRONTAL LOAD CELL BARRIER
DRIVER LEFT FOOT Z-AXIS ACCELERATION AT TOE

TEST NUMBER: 970417

NEW CAR ASSESSMENT PROGRAM

TRC INC.

90

60

30

0

-30

-60

-90

ACCELERATION (G)

10

40

70

100

130

160

190

220

250

280

310

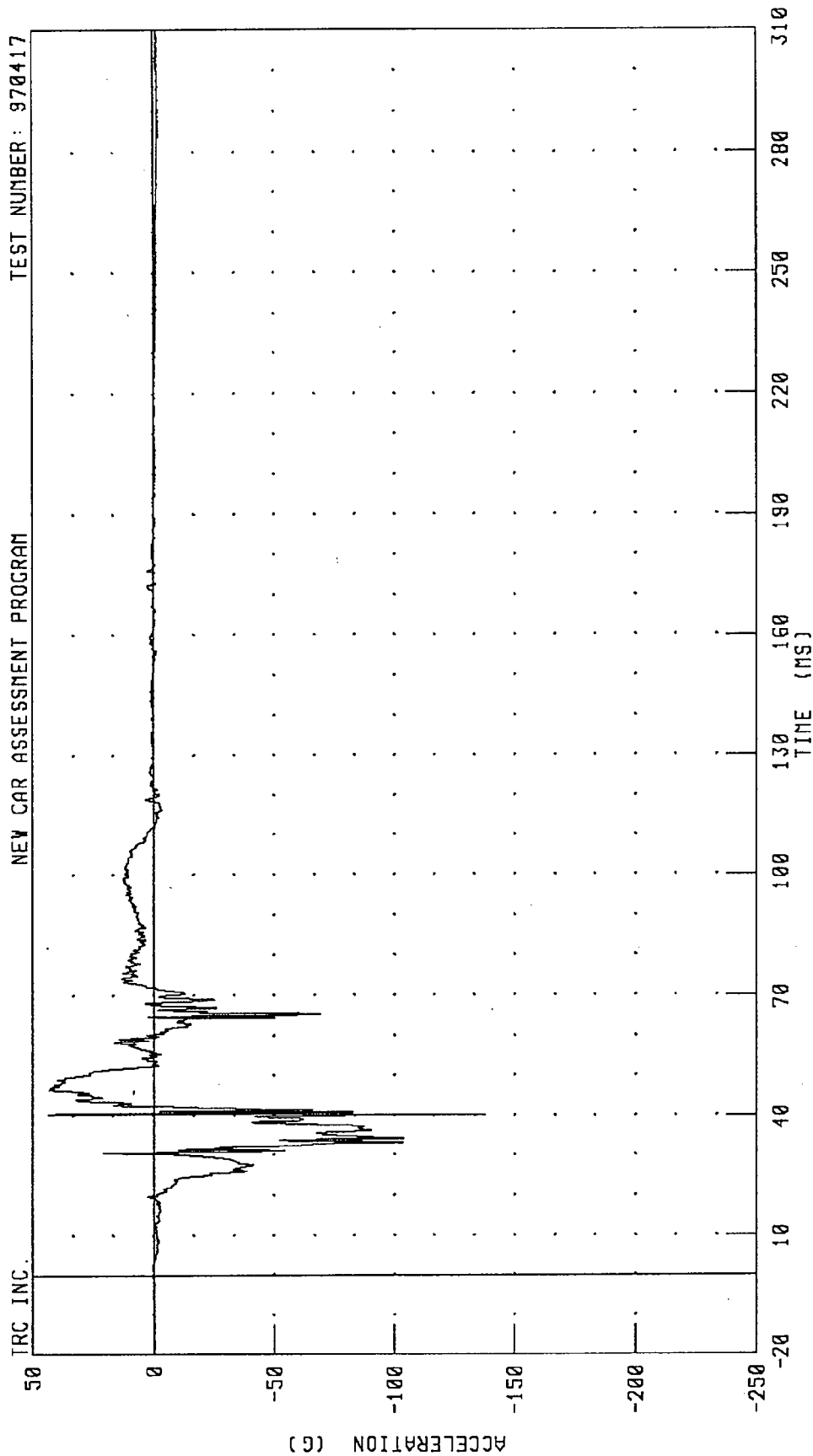
TIME (MS)

PEAK DATA: 83.76 G @ 31.76 MS; -66.59 G @ 39.84 MS

CHANNEL: FTLZT1 FILTER: CH. CLASS 1000

1997 JEEP CHEROKEE SPORT INTO FRONTAL LOAD CELL BARRIER
 DRIVER RIGHT FOOT X-AXIS ACCELERATION
 NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 970417



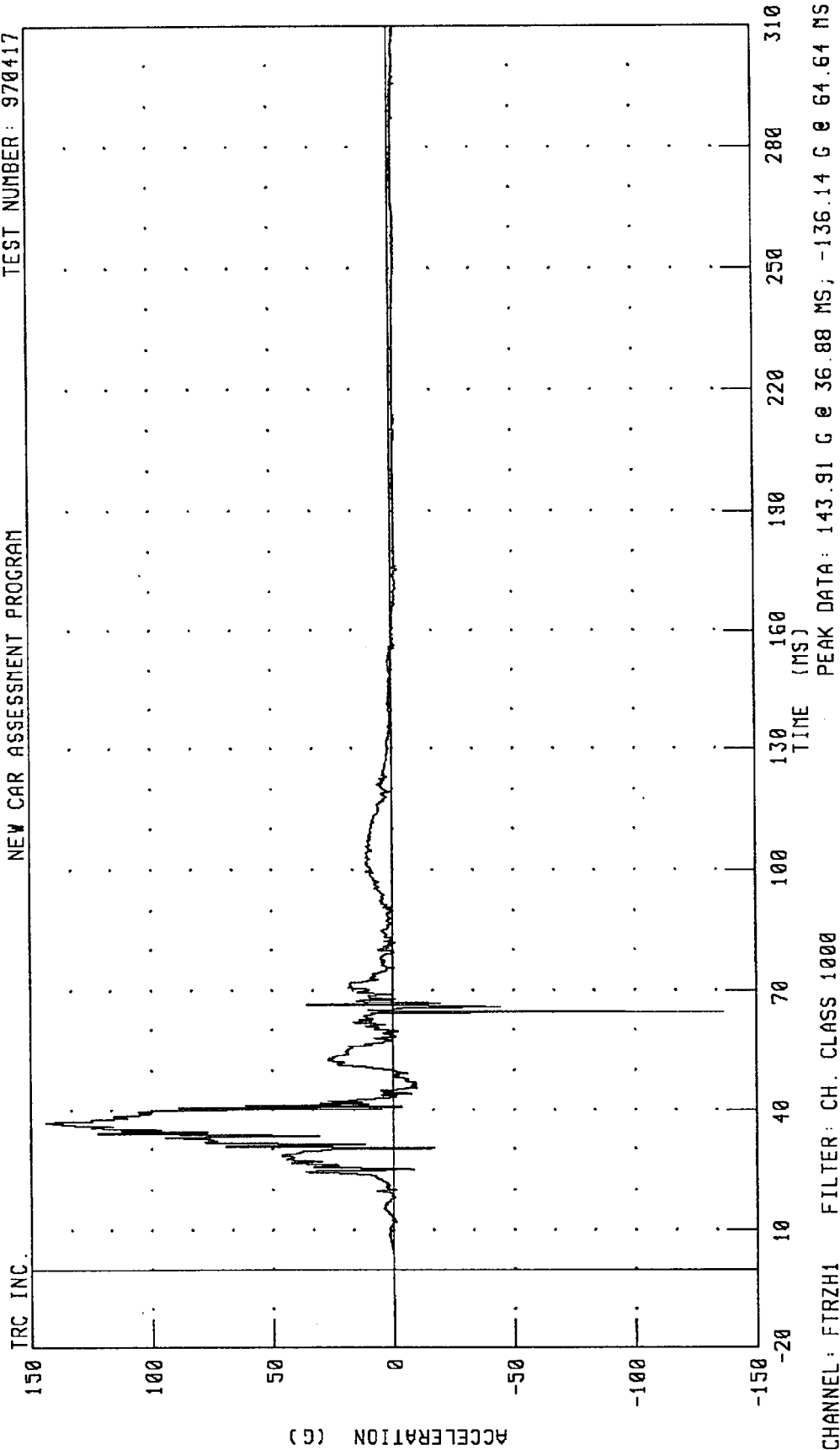
PEAK DATA: 43.70 G @ 40.56 MS; -137.48 G @ 40.24 MS

CHANNEL: FTRXG1 FILTER: CH. CLASS 1000

1997 JEEP CHEROKEE SPORT INTO FRONTAL LOAD CELL BARRIER
 DRIVER RIGHT FOOT Z-AXIS ACCELERATION AT HEEL

TEST NUMBER: 970417

NEW CAR ASSESSMENT PROGRAM

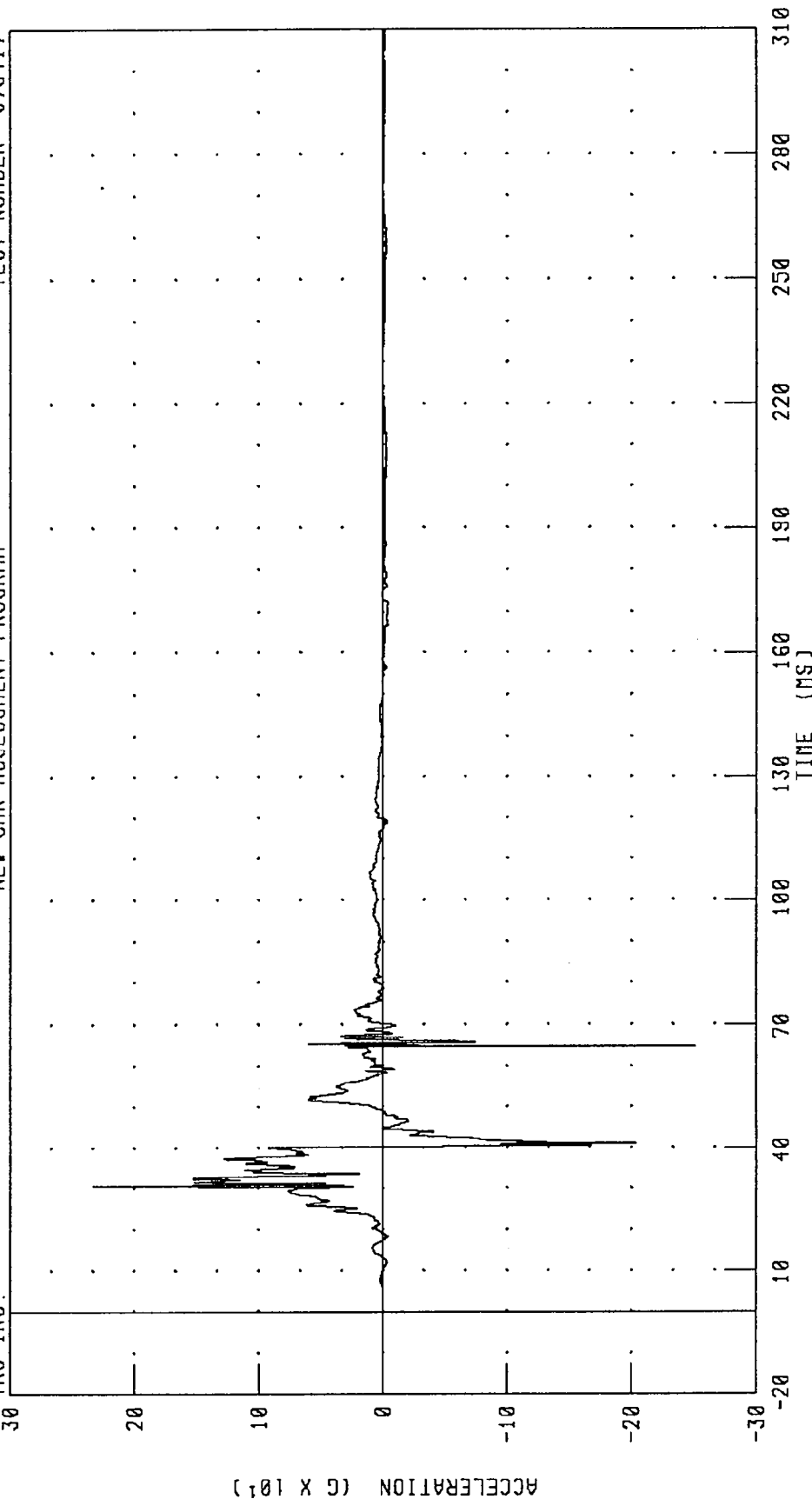


1997 JEEP CHEROKEE SPORT INTO FRONTAL LOAD CELL BARRIER
DRIVER RIGHT FOOT Z-AXIS ACCELERATION AT TOE

TEST NUMBER: 970417

NEW CAR ASSESSMENT PROGRAM

TRC INC.

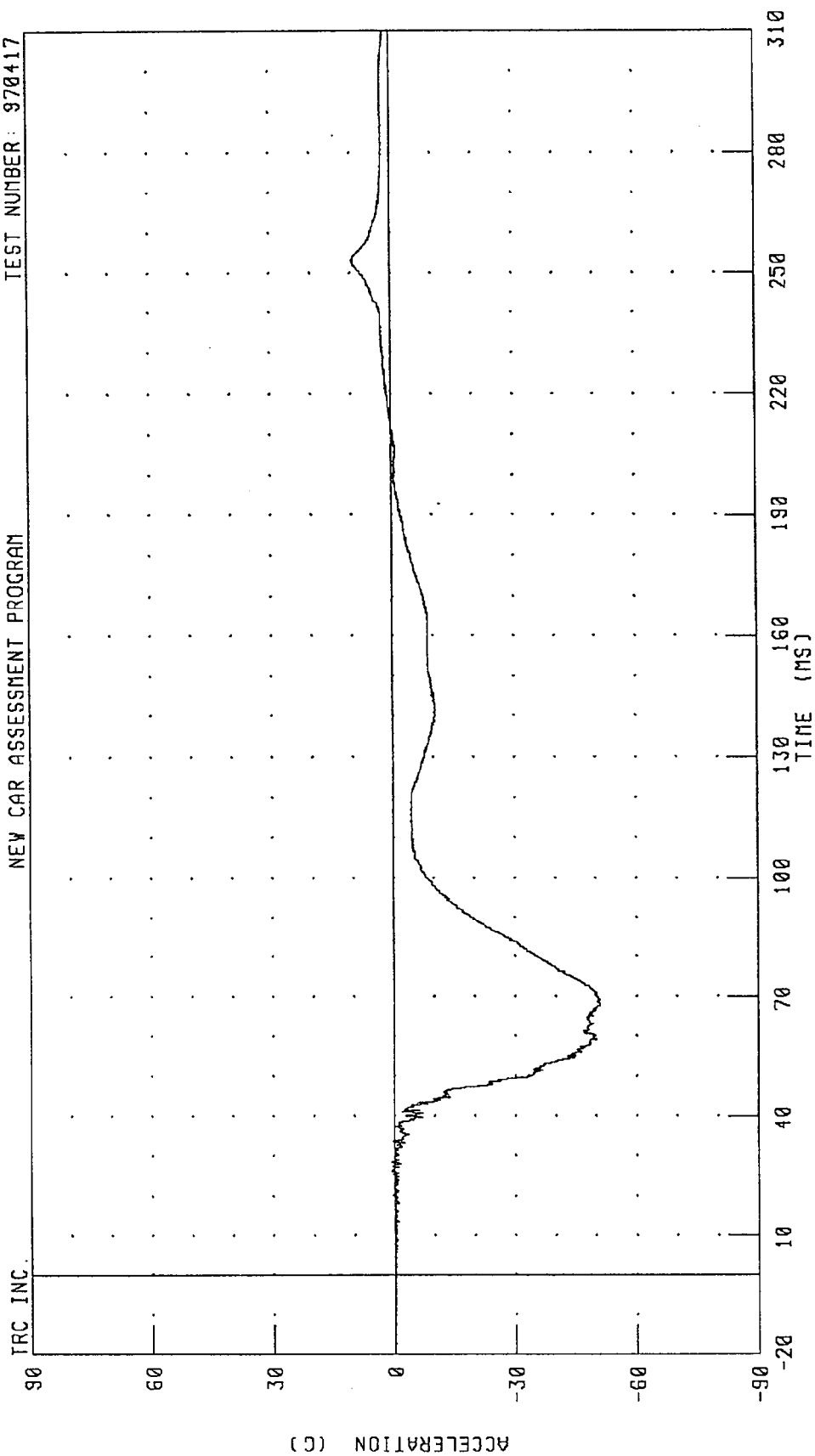


PEAK DATA: 233.20 G @ 30.56 MS; -251.37 G @ 64.80 MS

CHANNEL: FTRZT1 FILTER: CH. CLASS 1000

1997 JEEP CHEROKEE SPORT INTO FRONTAL LOAD CELL BARRIER
PASSENGER HEAD X-AXIS ACCELERATION
NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 970417



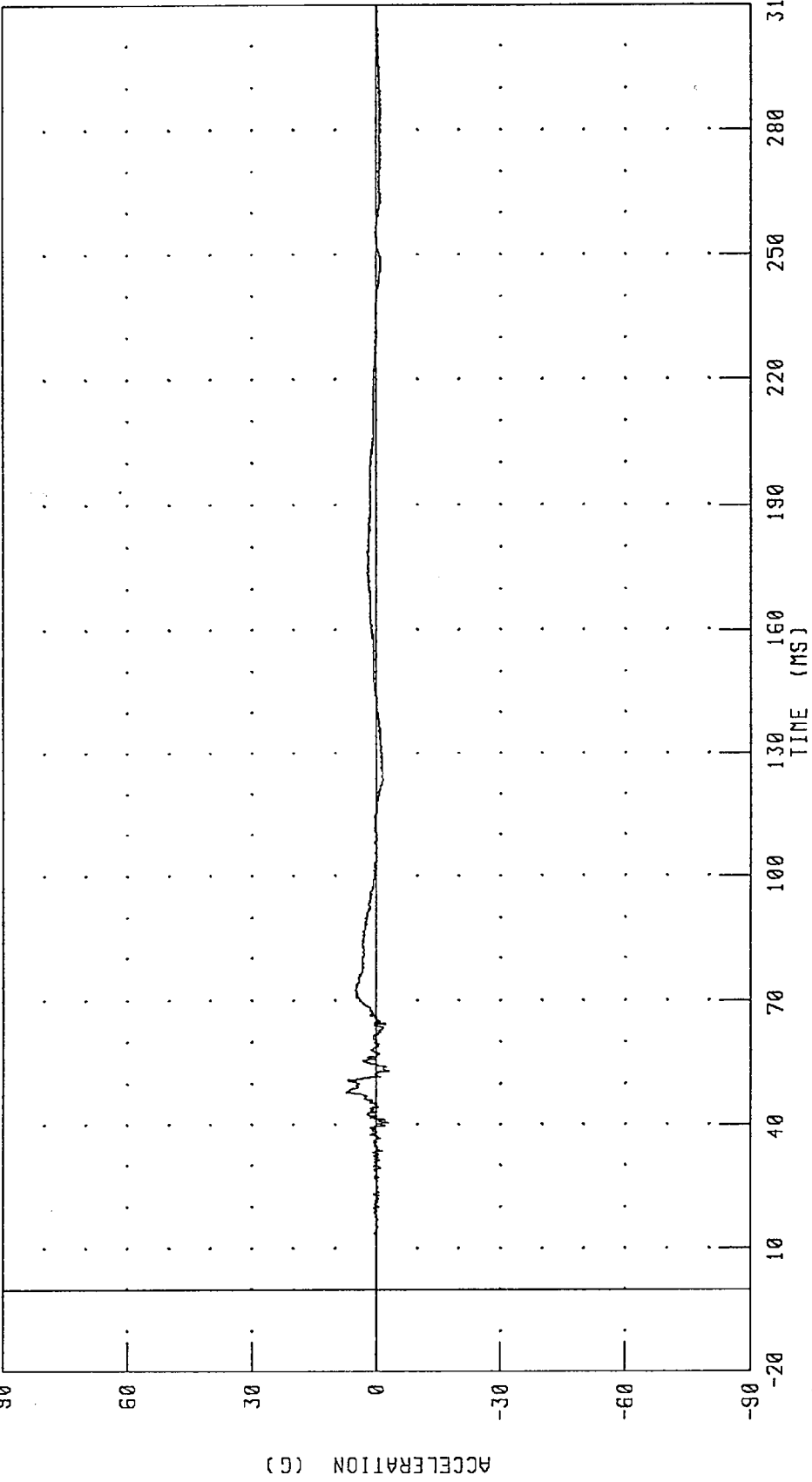
PEAK DATA: 8.70 G @ 252.64 MS; -51.15 G @ 67.92 MS

CHANNEL: HEDXC2 FILTER: CH. CLASS 1000

1997 JEEP CHEROKEE SPORT INTO FRONTAL LOAD CELL BARRIER
 PASSENGER HEAD Y-AXIS ACCELERATION
 NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 970417

TRC INC.

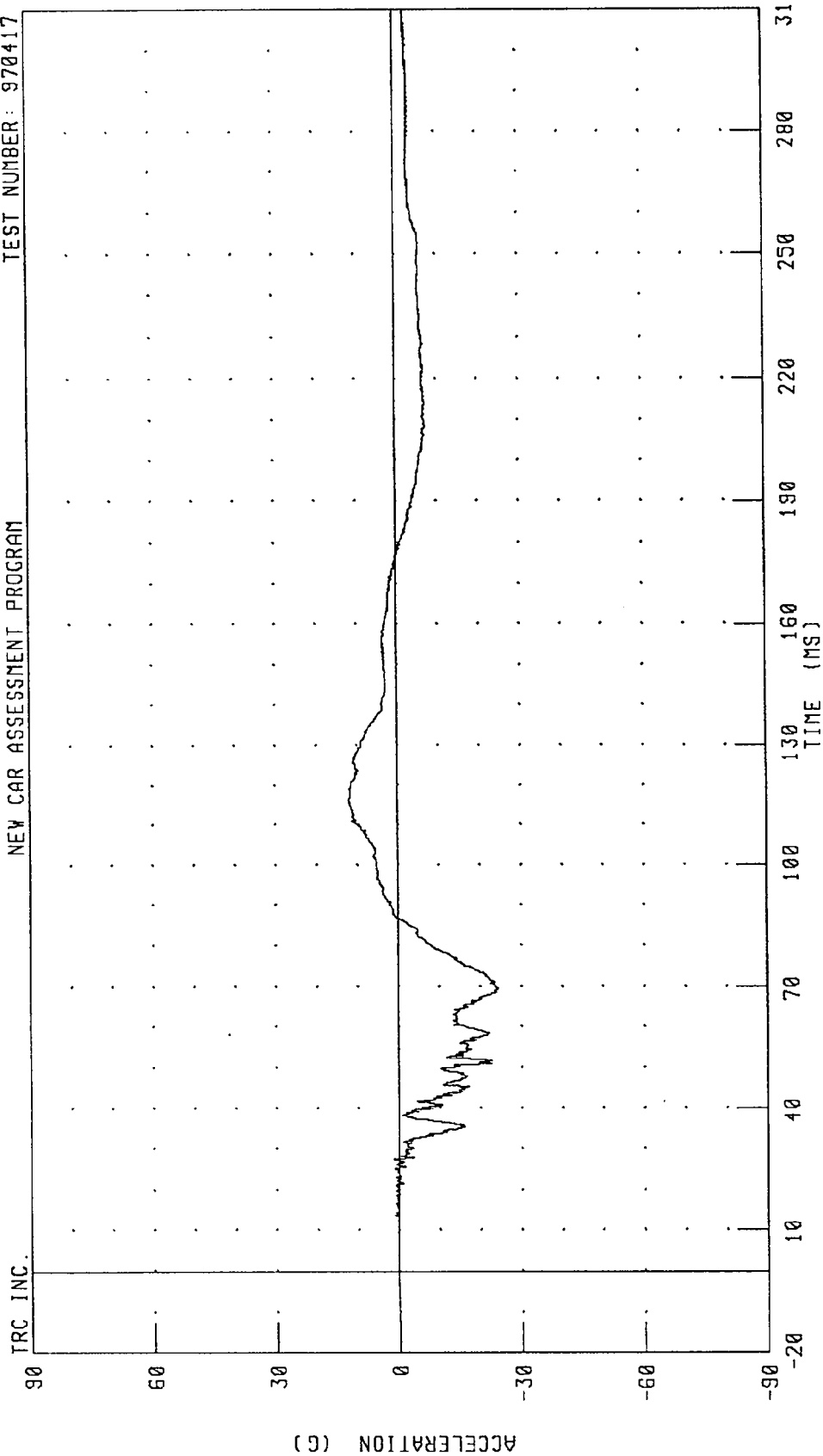


PEAK DATA: 7.32 G @ 48.00 MS; -3.06 G @ 40.56 MS

CHANNEL: HEDYC2 FILTER: CH. CLASS 1000

1997 JEEP CHEROKEE SPORT INTO FRONTAL LOAD CELL BARRIER
PASSENGER HEAD 2-AXIS ACCELERATION
NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 970417



CHANNEL: HEDZG2 FILTER: CH. CLASS 1000

PEAK DATA: 11.91 G @ 114.88 MS; -24.29 G @ 69.44 MS

1997 JEEP CHEROKEE SPORT INTO FRONTAL LOAD CELL BARRIER
PASSENGER HEAD RESULTANT ACCELERATION
NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 970417

TRC INC.

120

100

80

60

40

20

0

ACCELERATION (G)

TIME (MS)

310

280

250

220

190

160

130

100

70

40

10

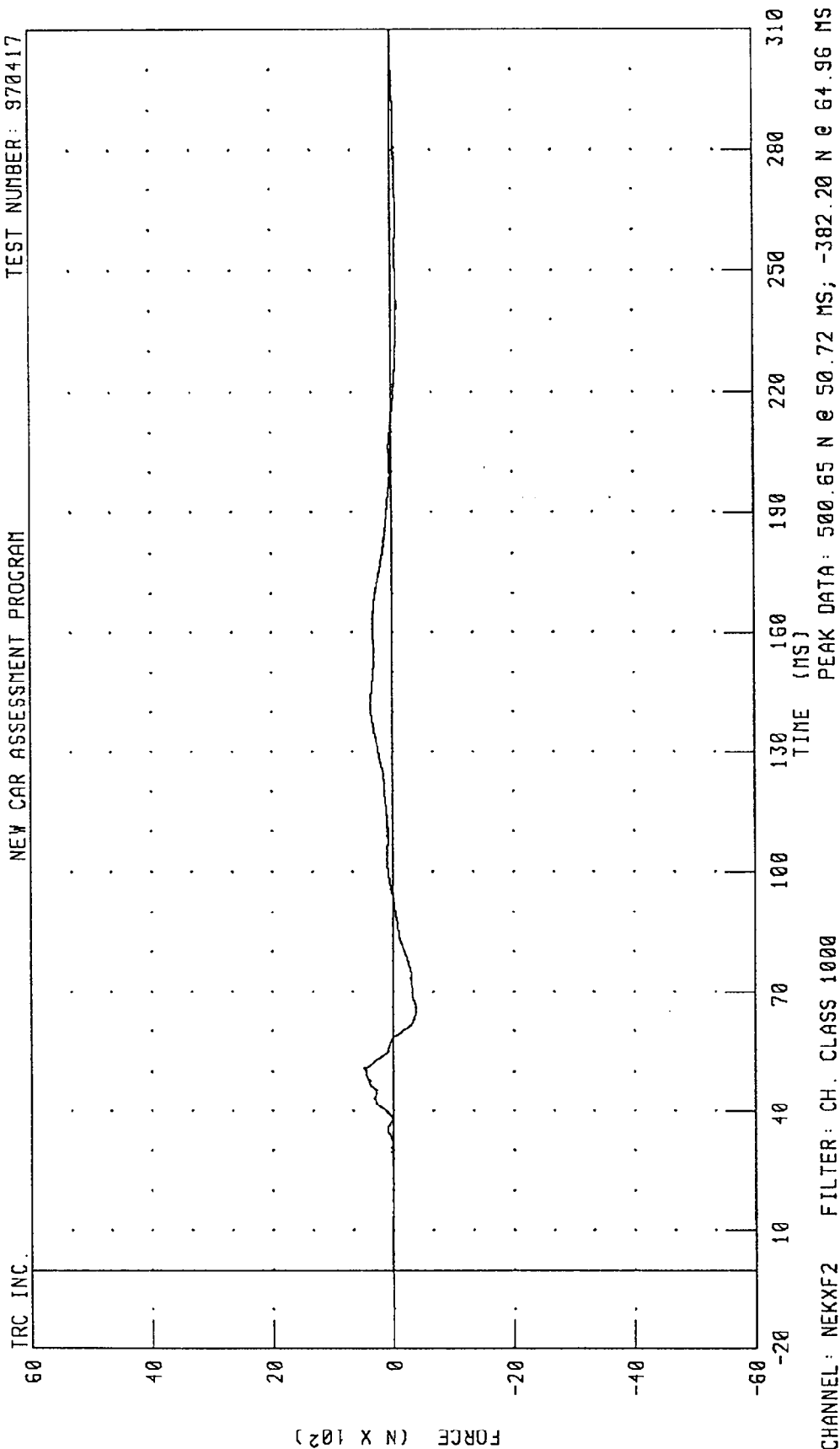
-20

PEAK DATA: 56.38 G @ 69.04 MS; 0.12 G @ 25.36 MS

CHANNEL: HEDRC2 FILTER: CH. CLASS 1000

1997 JEEP CHEROKEE SPORT INTO FRONTAL LOAD CELL BARRIER
PASSENGER NECK X-AXIS SHEAR FORCE
NEW CAR ASSESSMENT PROGRAM

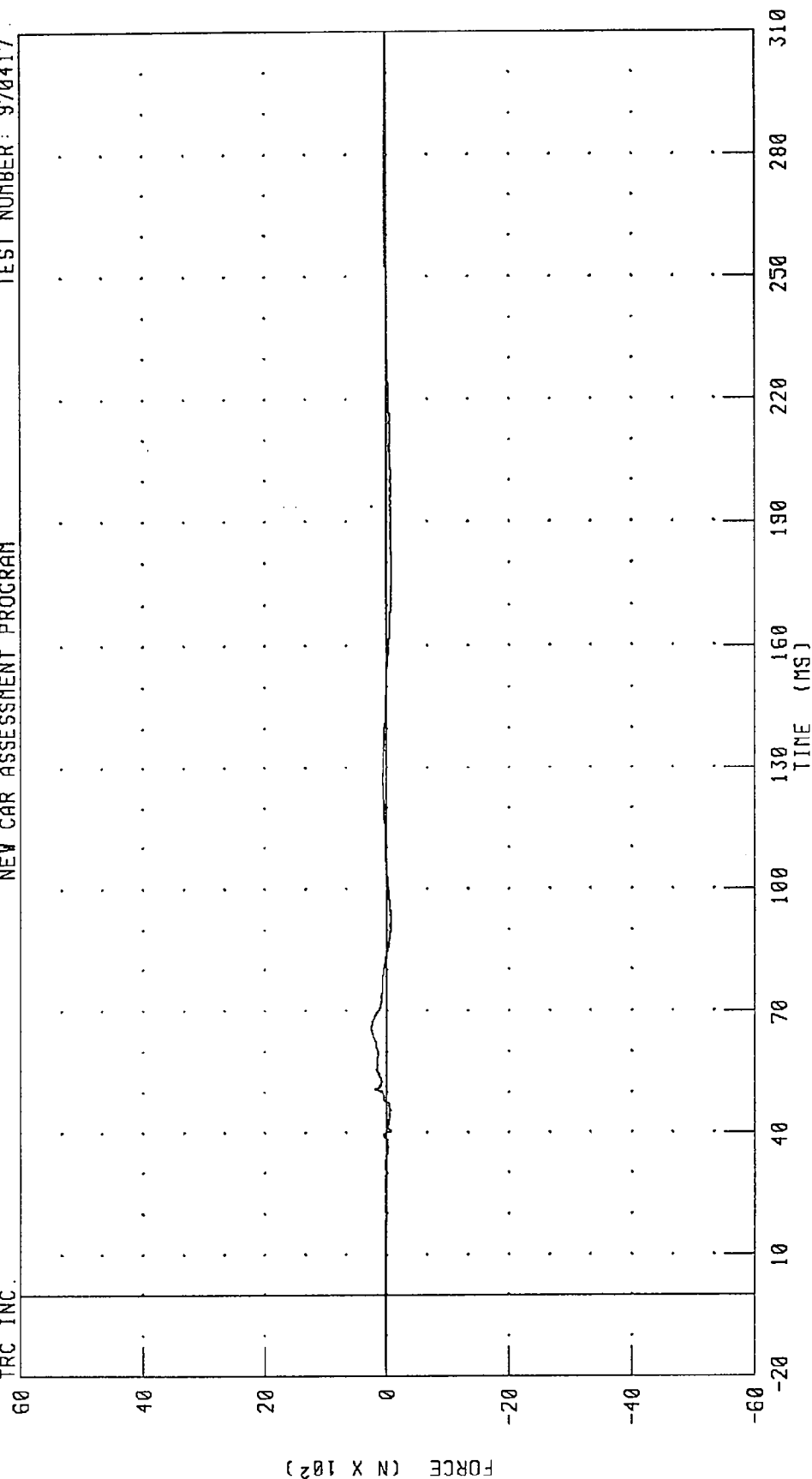
TEST NUMBER: 970417



1997 JEEP CHEROKEE SPORT INTO FRONTAL LOAD CELL BARRIER
PASSENGER NECK Y-AXIS SHEAR FORCE
NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 970417

TRC INC.

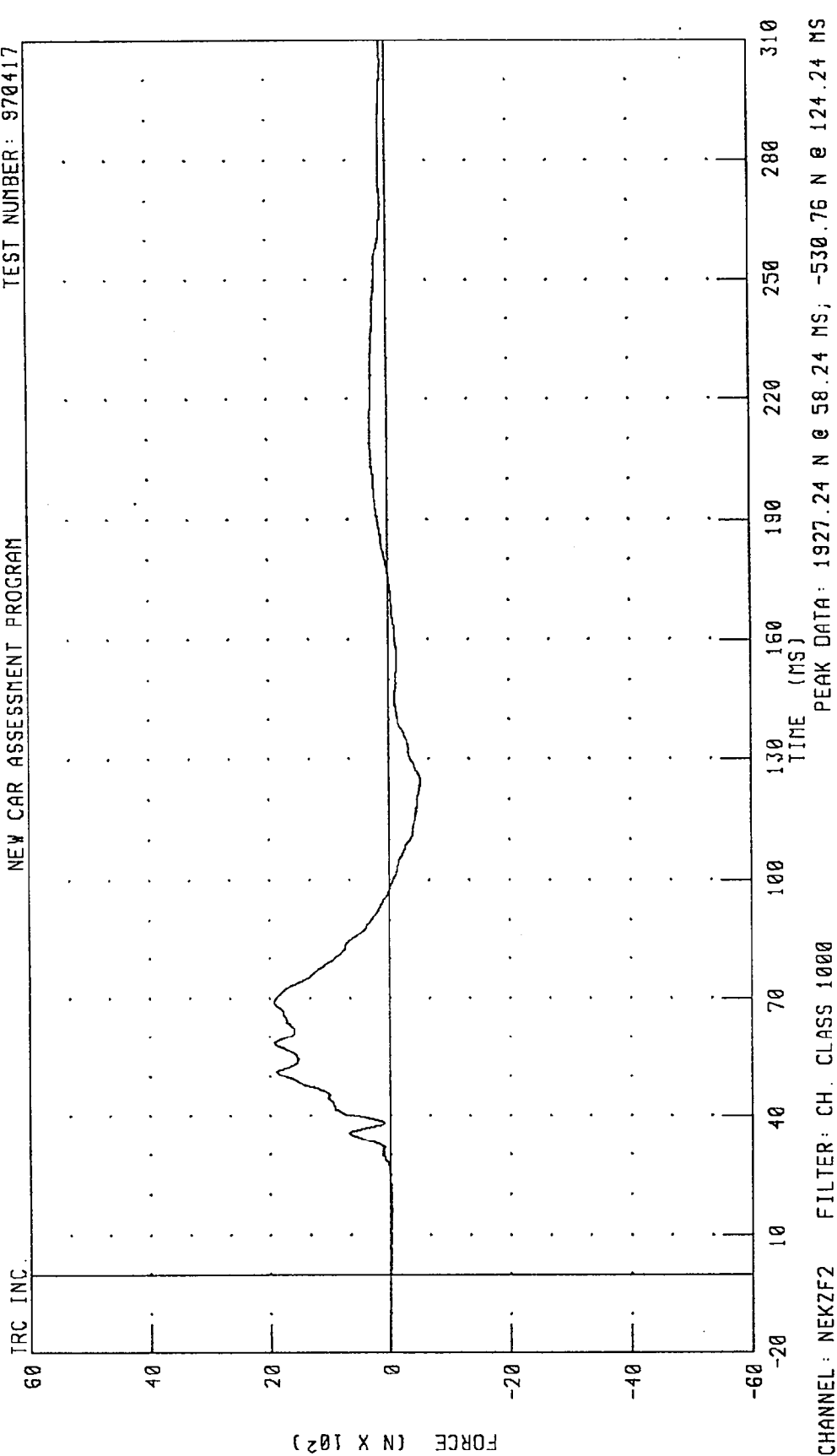


PEAK DATA: 253.49 N @ 65.44 MS; -81.03 N @ 178.08 MS

CHANNEL: NEKYF2 FILTER: CH. CLASS 1000

1997 JEEP CHEROKEE SPORT INTO FRONTAL LOAD CELL BARRIER
PASSENGER NECK Z-AXIS AXIAL FORCE
NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 970417



PEAK DATA: 1927.24 N @ 58.24 MS; -530.76 N @ 124.24 MS

CHANNEL: NEKZF2 FILTER: CH. CLASS 1000

1997 JEEP CHEROKEE SPORT INTO FRONTAL LOAD CELL BARRIER
PASSENGER NECK MOMENT ABOUT X AXIS
NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 970417

TRC INC.

180

120

60

0

-60

-120

-180

TORQUE (N·M)

310
280
250
220
190
160
130
100
70
40
10
-20

TIME (MS)

CHANNEL: NEKX2 FILTER: CH. CLASS 600

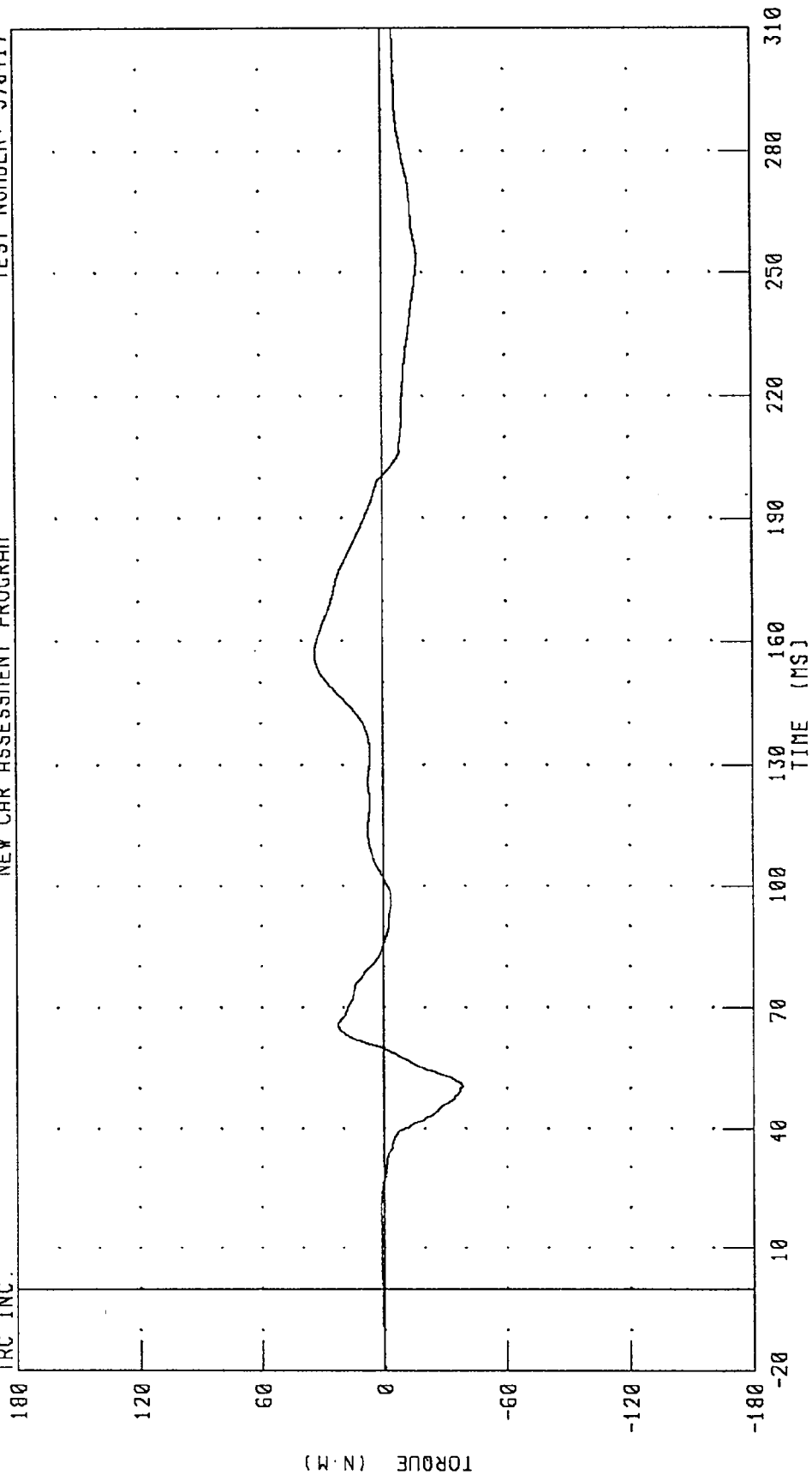
PEAK DATA: 17.16 N·M @ 54.32 MS; -5.52 N·M @ 118.48 MS

1997 JEEP CHEROKEE SPORT INTO FRONTAL LOAD CELL BARRIER
PASSENGER NECK MOMENT ABOUT Y AXIS

TEST NUMBER: 970417

NEW CAR ASSESSMENT PROGRAM

TRC INC.



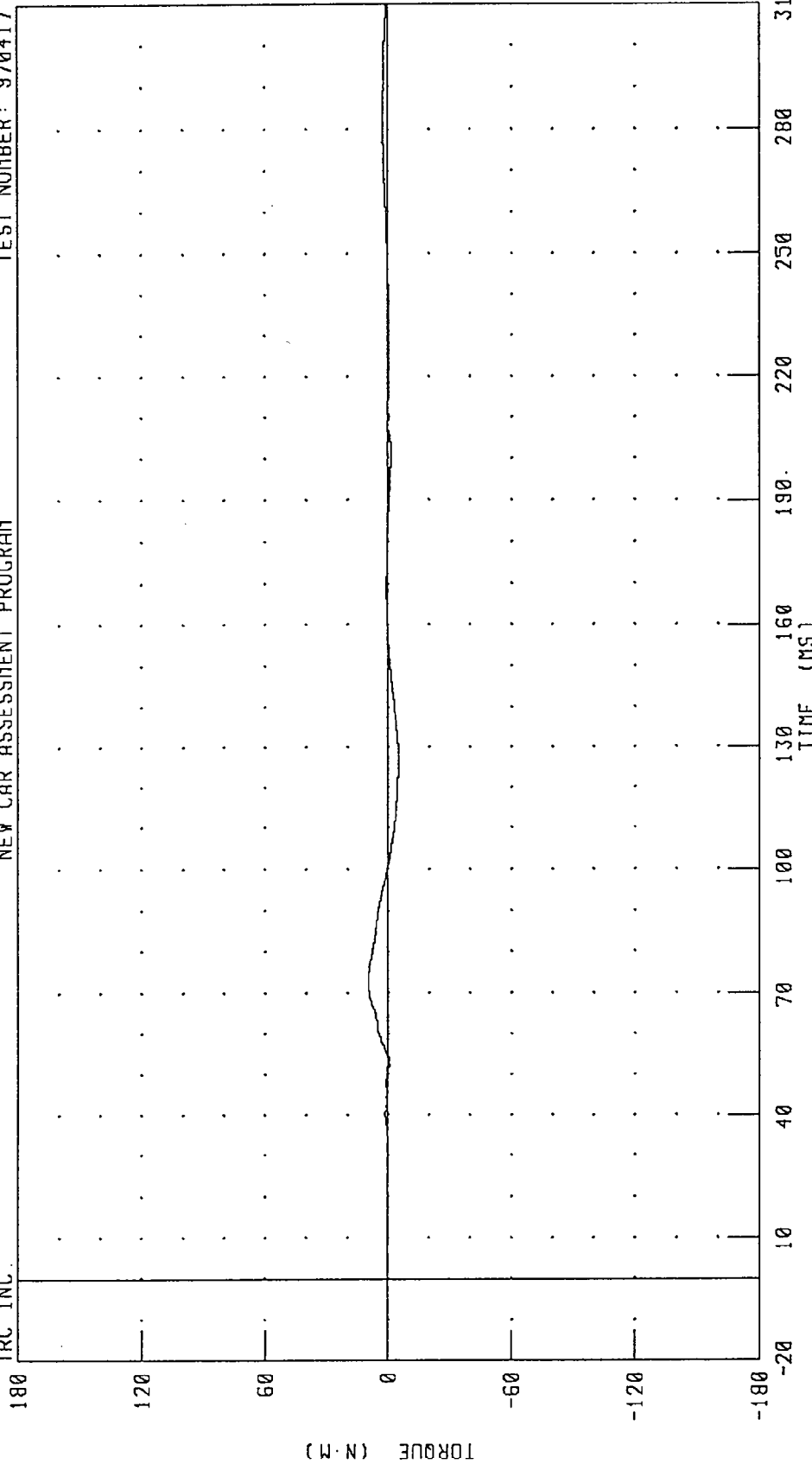
CHANNEL: NEKYM2 - FILTER: CH. CLASS 600 PEAK DATA: 33.59 N.M @ 156.72 MS; -38.40 N.M @ 50.48 MS

1997 JEEP CHEROKEE SPORT INTO FRONTAL LOAD CELL BARRIER
PASSENGER NECK MOMENT ABOUT Z AXIS

TEST NUMBER: 970417

NEW CAR ASSESSMENT PROGRAM

TRC INC.

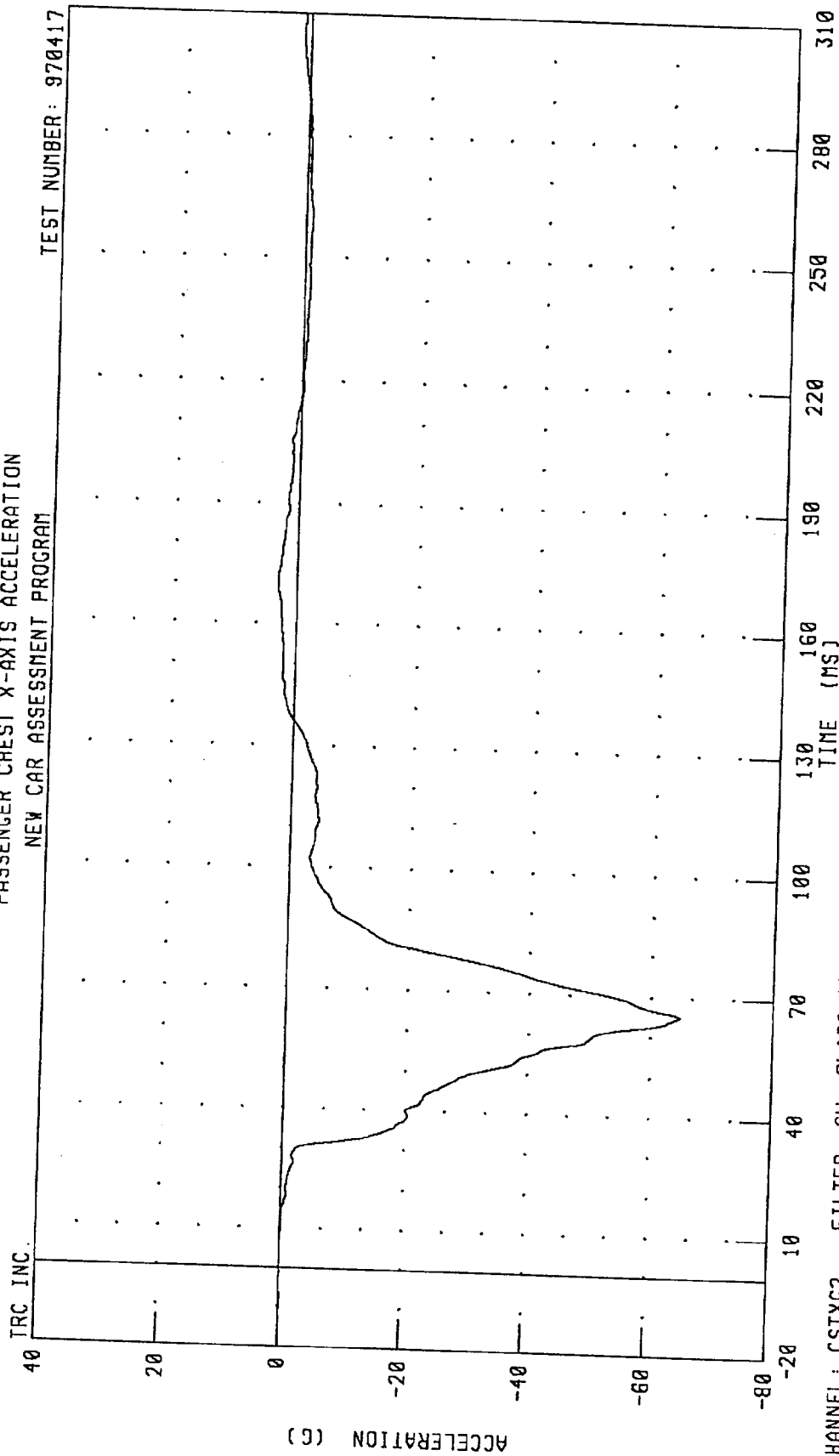


PEAK DATA: 9.72 N·M @ 9.72 MS; -4.93 N·M @ 127.04 MS

CHANNEL: NEKZM2 FILTER: CH. CLASS 600

1997 JEEP CHEROKEE SPORT INTO FRONTAL LOAD CELL BARRIER
 PASSENGER CHEST X-AXIS ACCELERATION
 NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 970417



PEAK DATA: 3.05 G @ 171.36 MS; -64.62 G @ 65.28 MS

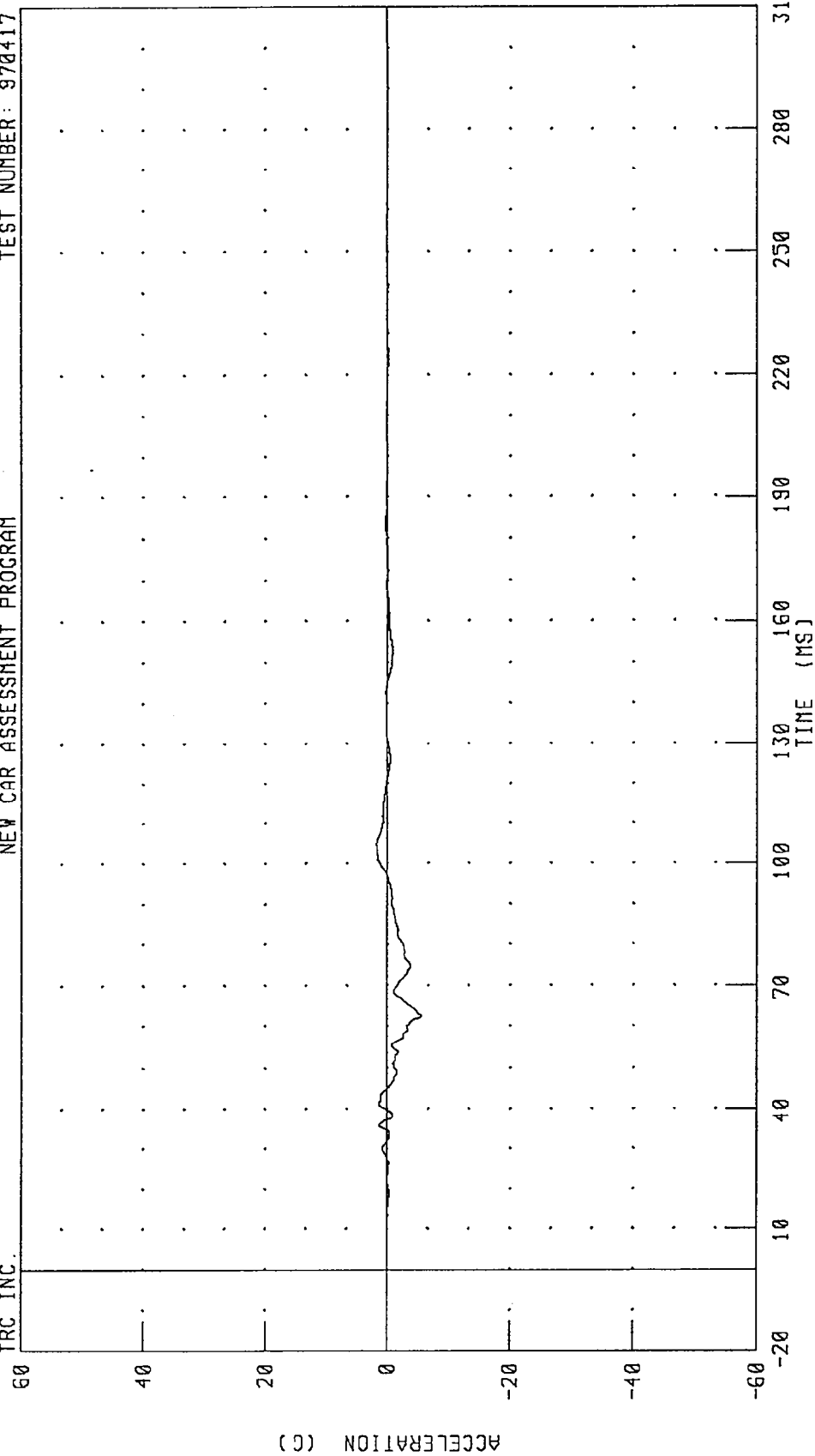
CHANNEL: CSTXG2 FILTER: CH. CLASS 180

1997 JEEP CHEROKEE SPORT INTO FRONTAL LOAD CELL BARRIER
PASSENGER CHEST Y-AXIS ACCELERATION

TEST NUMBER: 970417

NEW CAR ASSESSMENT PROGRAM

TRC INC.

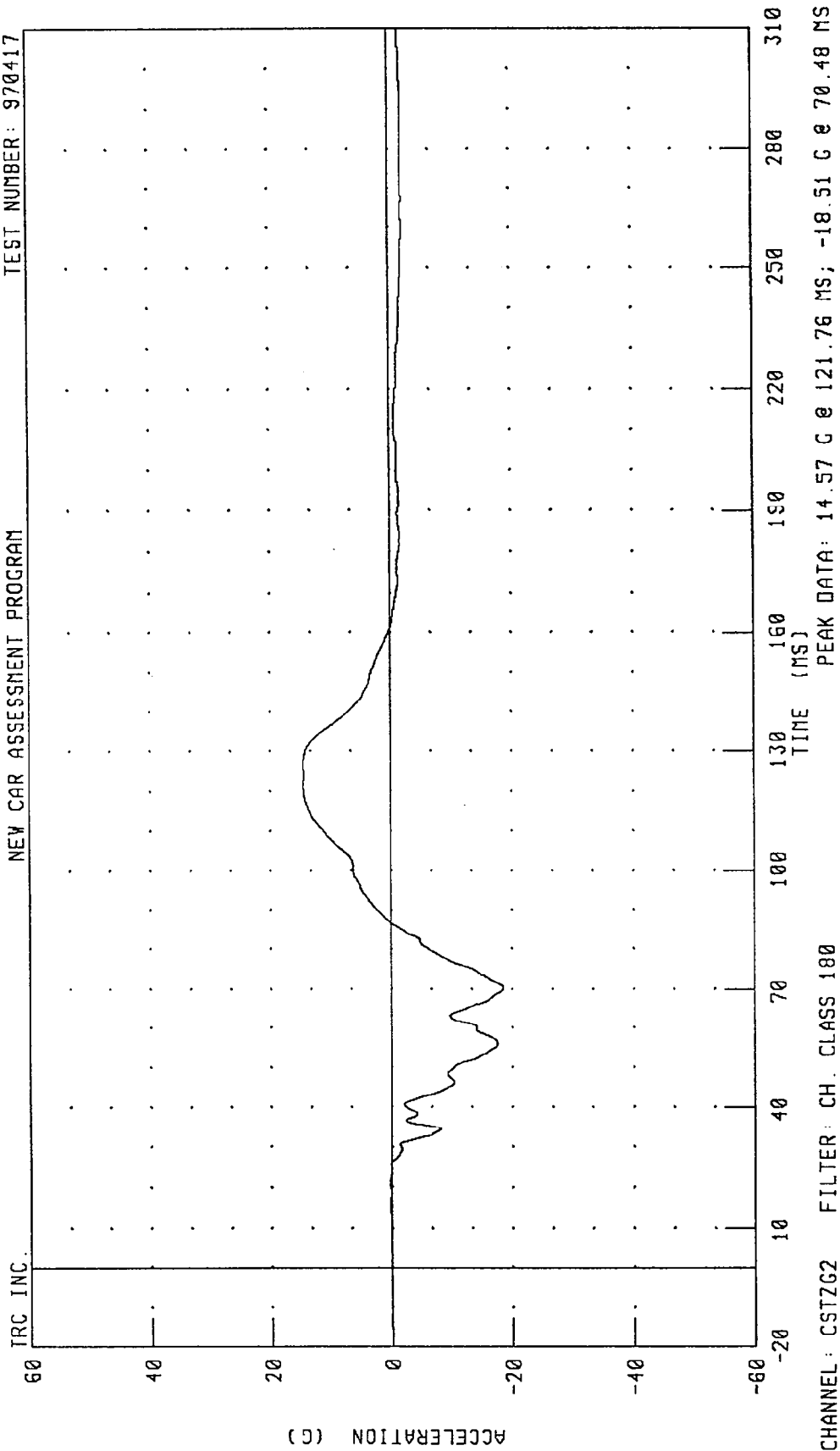


CHANNEL: CSTYG2 FILTER: CH. CLASS 180

PEAK DATA: 1.80 G @ 104.72 MS; -5.51 G @ 62.40 MS

1997 JEEP CHEROKEE SPORT INTO FRONTAL LOAD CELL BARRIER
PASSENGER CHEST Z-AXIS ACCELERATION
NEW CAR ASSESSMENT PROGRAM

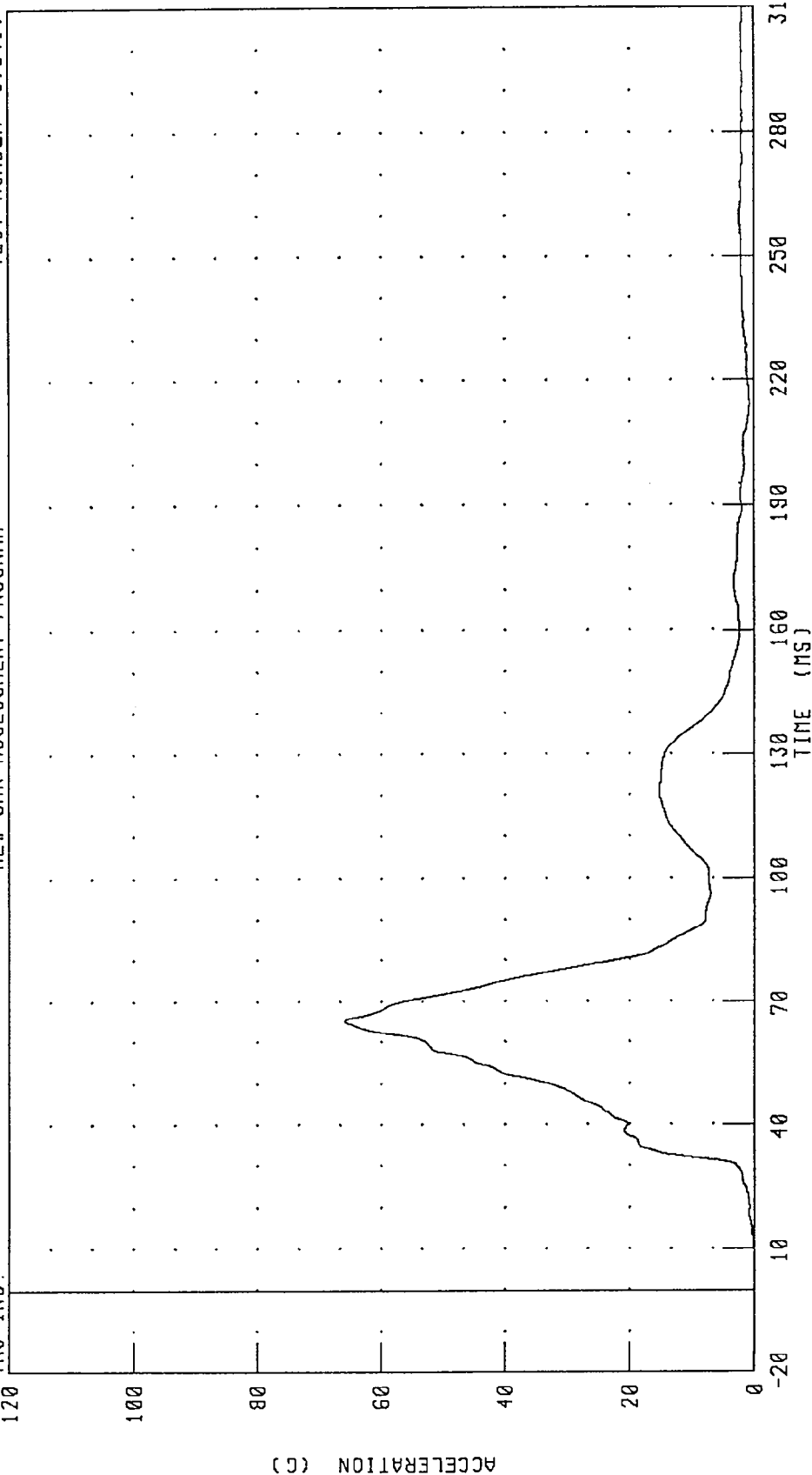
TEST NUMBER: 970417



1997 JEEP CHEROKEE SPORT INTO FRONTAL LOAD CELL BARRIER
PASSENGER CHEST RESULTANT ACCELERATION
NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 970417

TRC INC.



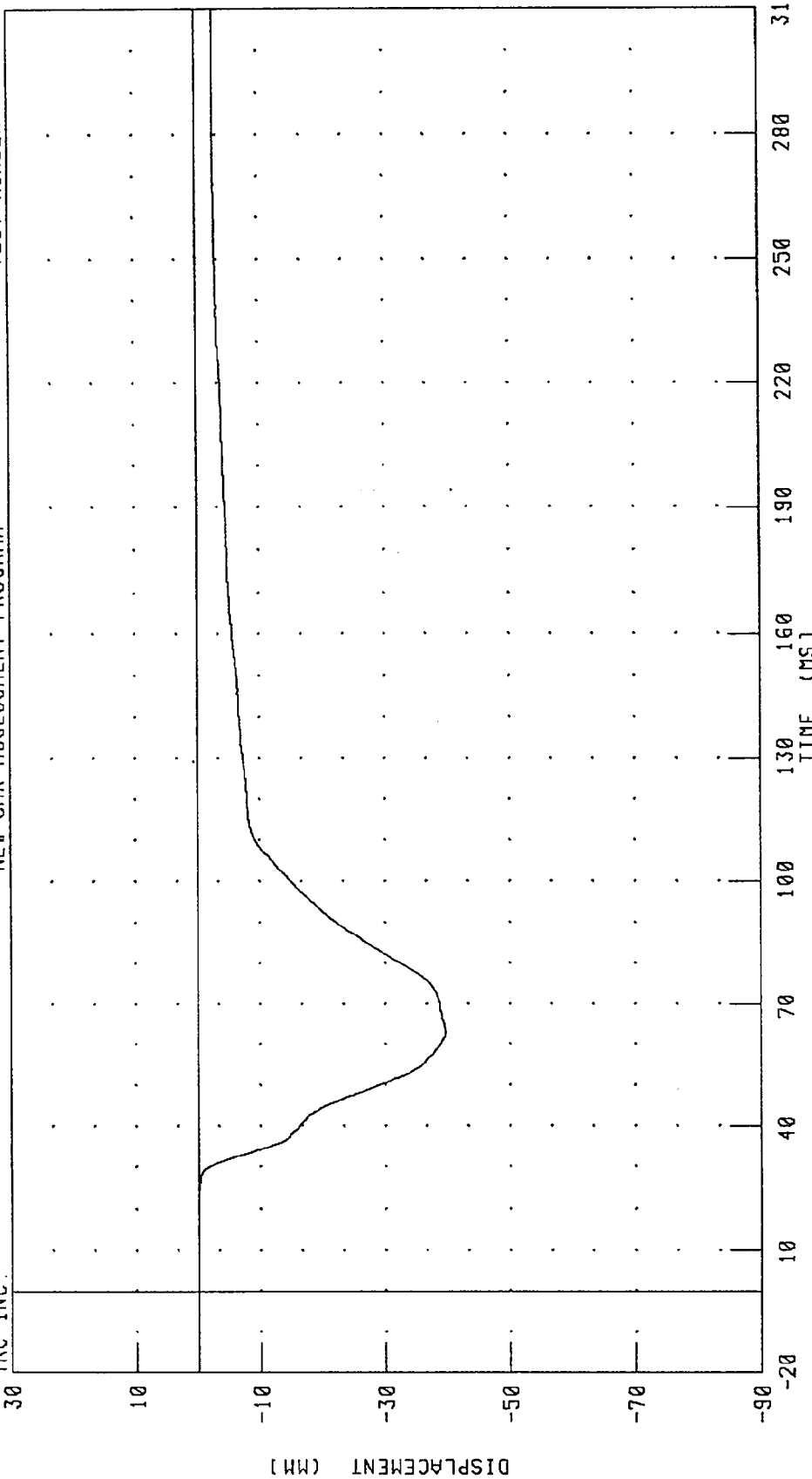
CHANNEL: CSTRG2 FILTER: CH. CLASS 180

PEAK DATA: 65.95 G @ 65.28 MS; 0.01 G @ -20.00 MS

1997 JEEP CHEROKEE SPORT INTO FRONTAL LOAD CELL BARRIER
PASSENGER CHEST DEFLECTION
NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 970417

TRC INC.



PEAK DATA: 0.01 MM @ -1.44 MS; -39.67 MM @ 62.88 MS

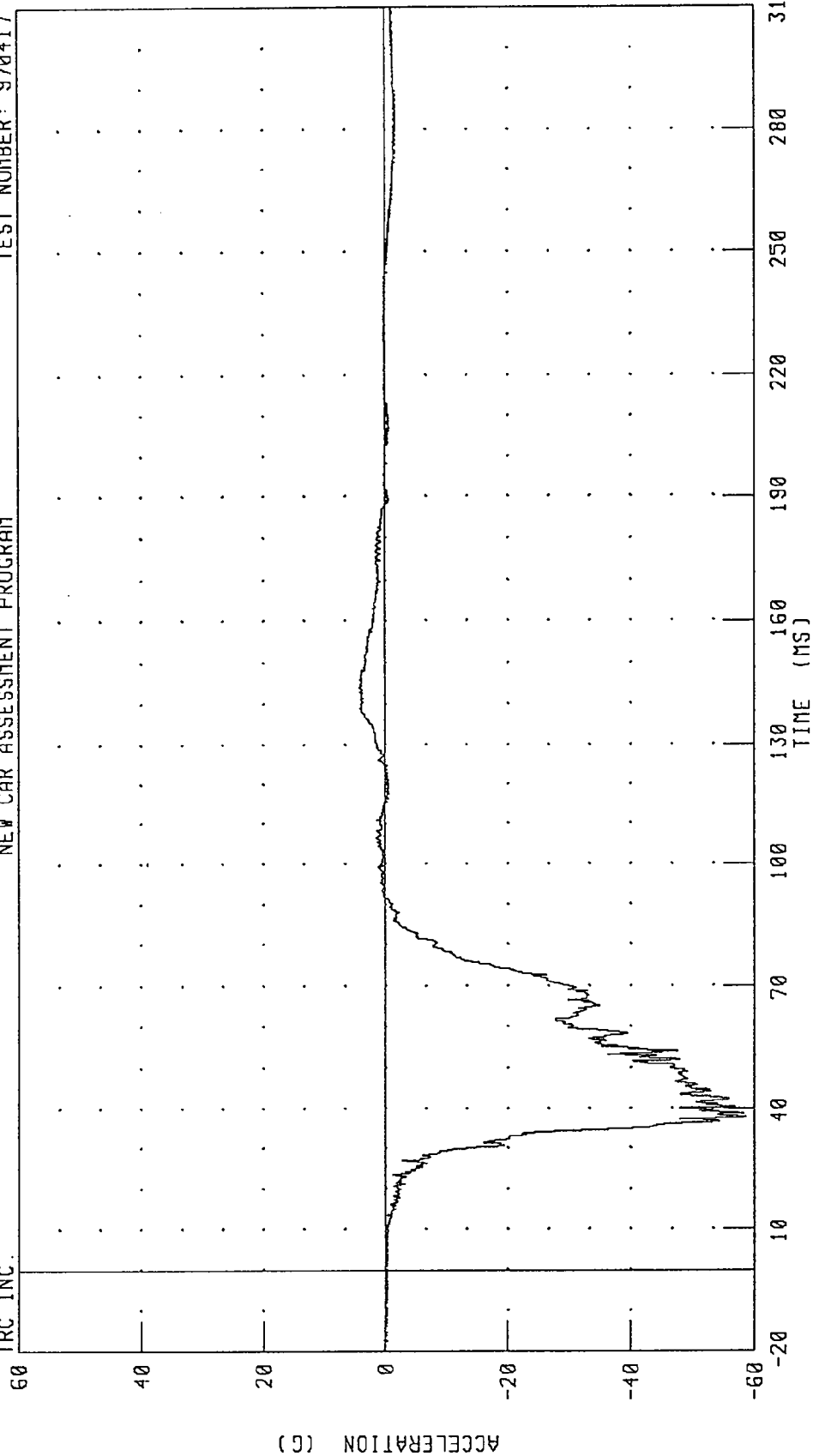
CHANNEL: CSTXD2 FILTER: CH. CLASS 180

1997 JEEP CHEROKEE SPORT INTO FRONTAL LOAD CELL BARRIER
PASSENGER PELVIS X-AXIS ACCELERATION

TEST NUMBER: 970417

NEW CAR ASSESSMENT PROGRAM

TRC INC.



CHANNEL: PEVXG2 FILTER: CH. CLASS 1000

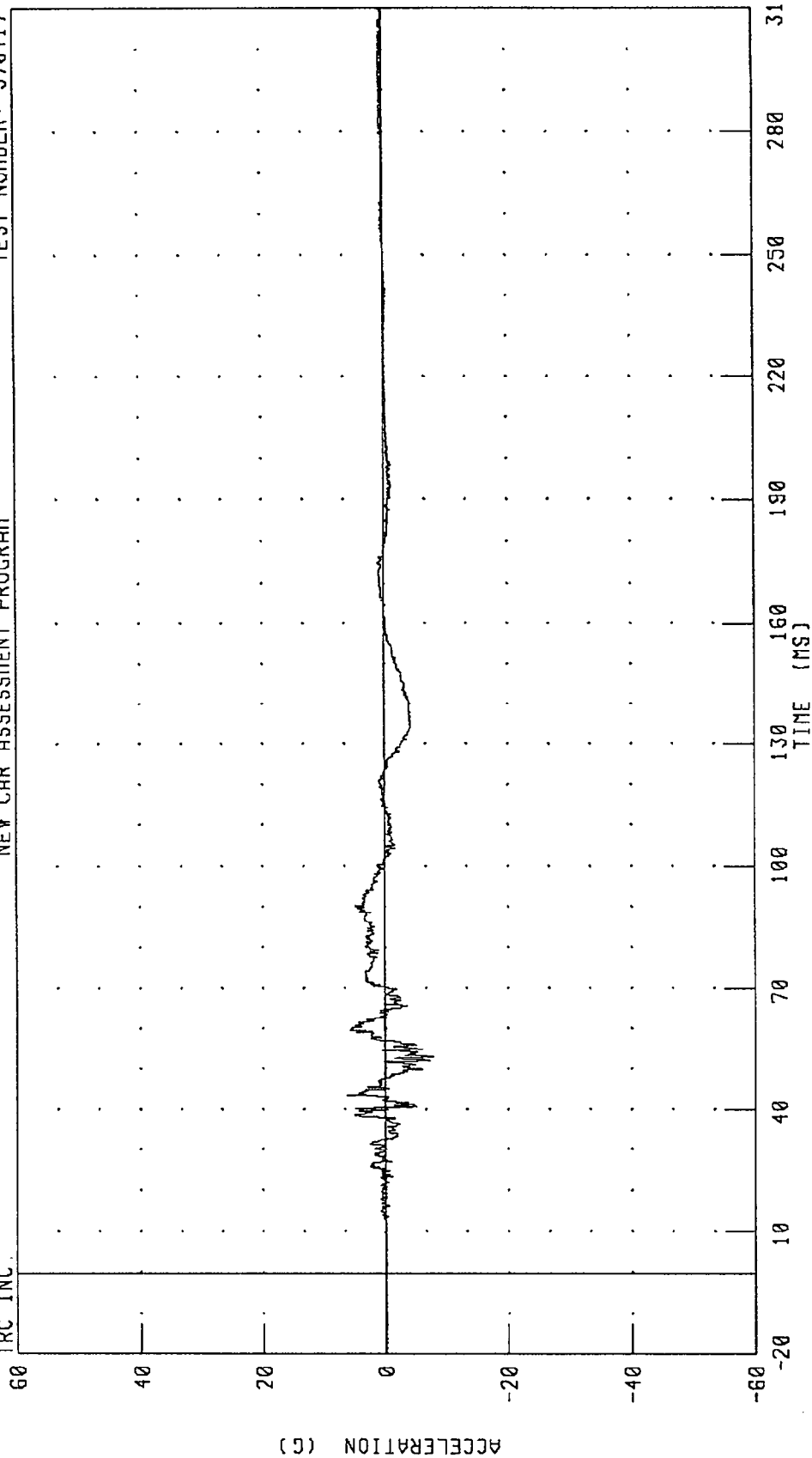
PEAK DATA: 4.44 G @ 144.08 MS; -58.63 G @ 37.92 MS

1997 JEEP CHEROKEE SPORT INTO FRONTAL LOAD CELL BARRIER
PASSENGER PELVIS Y-AXIS ACCELERATION

TEST NUMBER: 970417

NEW CAR ASSESSMENT PROGRAM

TRC INC.



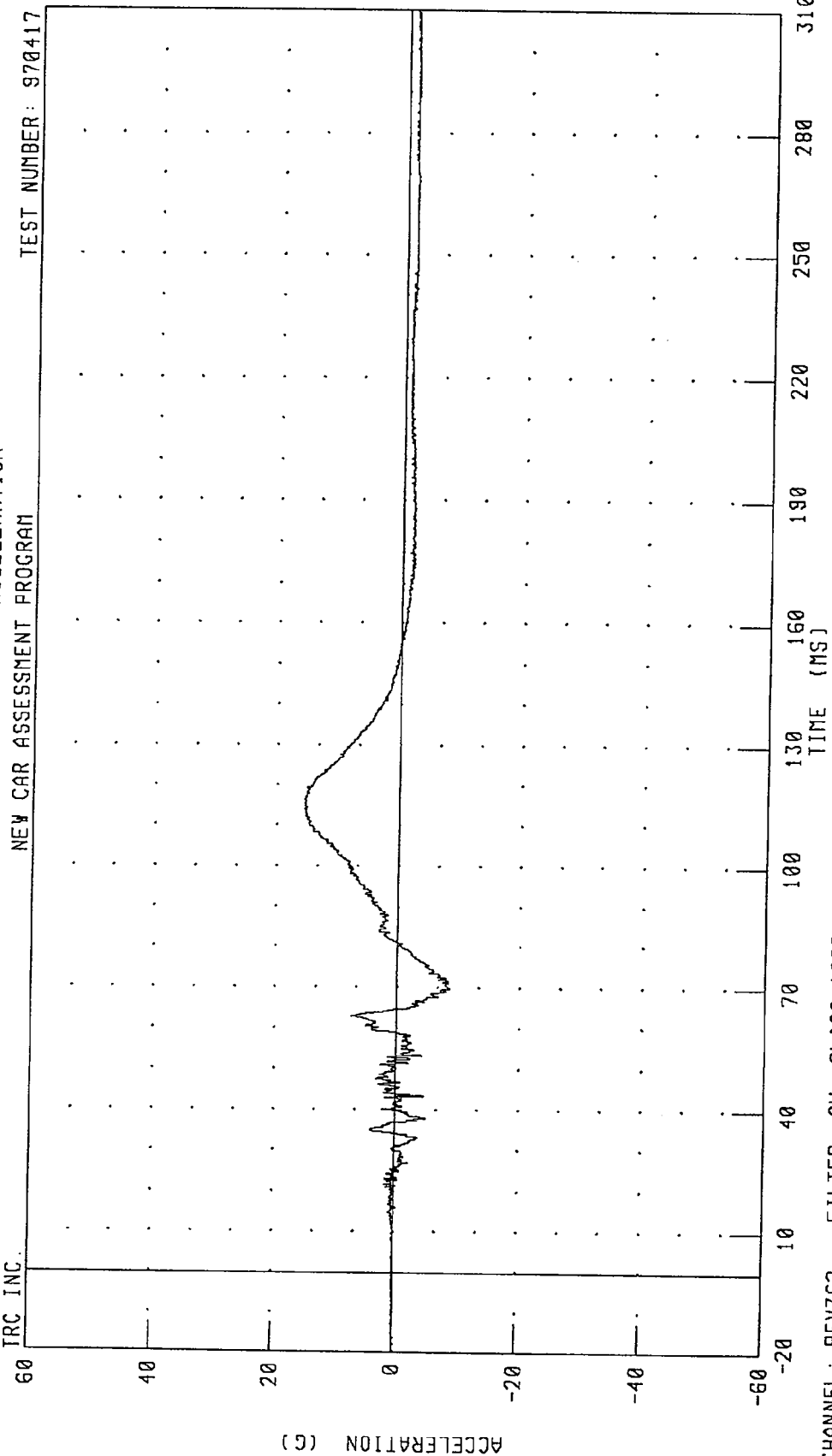
PEAK DATA: 6.35 G @ 43.44 MS; -7.80 G @ 52.96 MS

CHANNEL: PEVYG2 FILTER: CH. CLASS 1000

1997 JEEP CHEROKEE SPORT INTO FRONTAL LOAD CELL BARRIER
PASSENGER PELVIS Z-AXIS ACCELERATION
NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 970417

TRC INC.

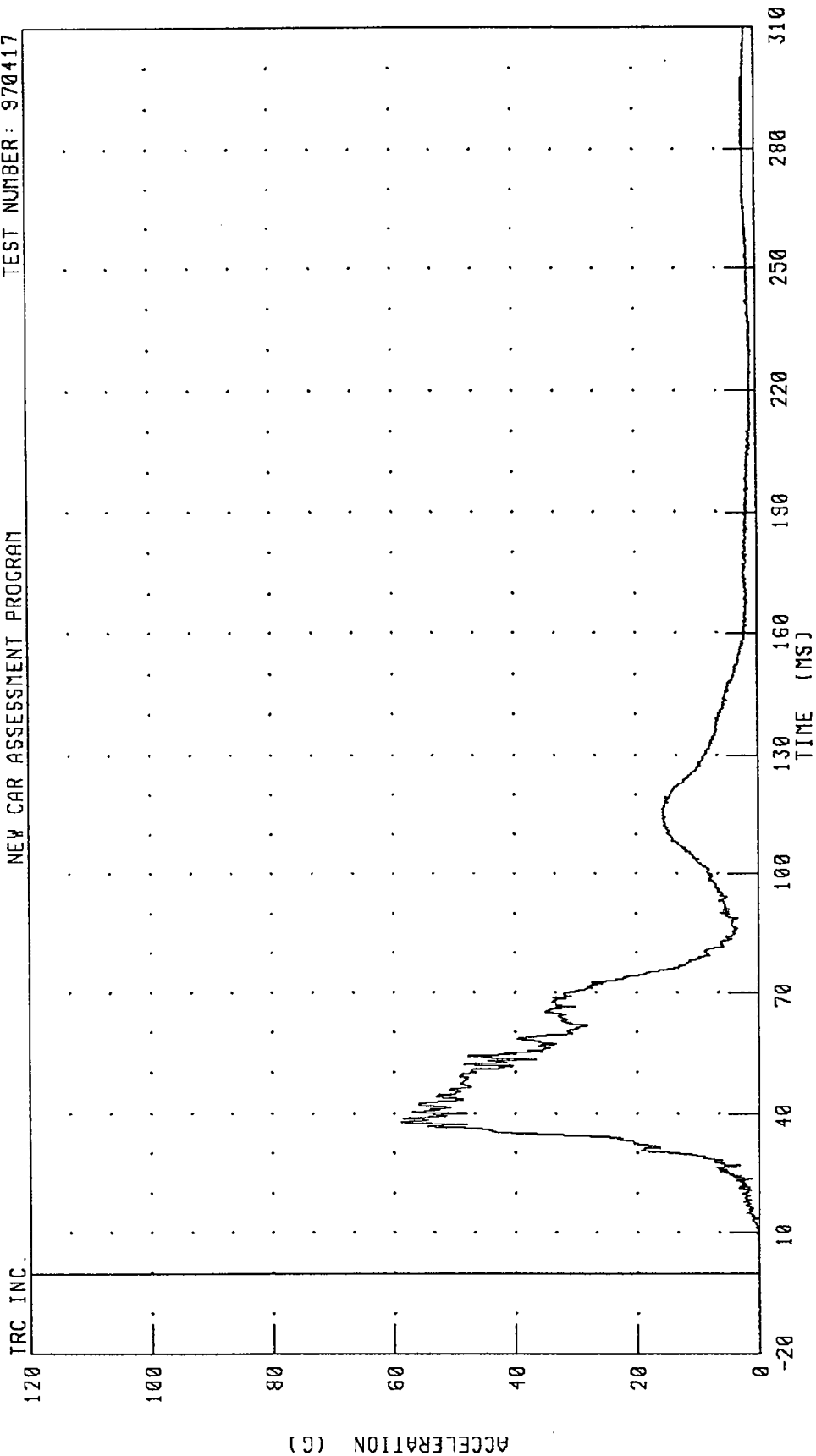


CHANNEL: PEVZG2 FILTER: CH. CLASS 1000

PEAK DATA: 15.64 G @ 114.00 MS; -8.70 G @ 69.84 MS

1997 JEEP CHEROKEE SPORT INTO FRONTAL LOAD CELL BARRIER
PASSENGER PELVIS RESULTANT ACCELERATION
NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 970417



PEAK DATA: 58.76 G @ 37.92 MS; 0.10 G @ -20.00 MS

CHANNEL: PEVRG2 FILTER: CH. CLASS 1000

1997 JEEP CHEROKEE SPORT INTO FRONTAL LOAD CELL BARRIER
PASSENGER LEFT FEMUR FORCE
NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 970417

TRC INC.

20

0

-20

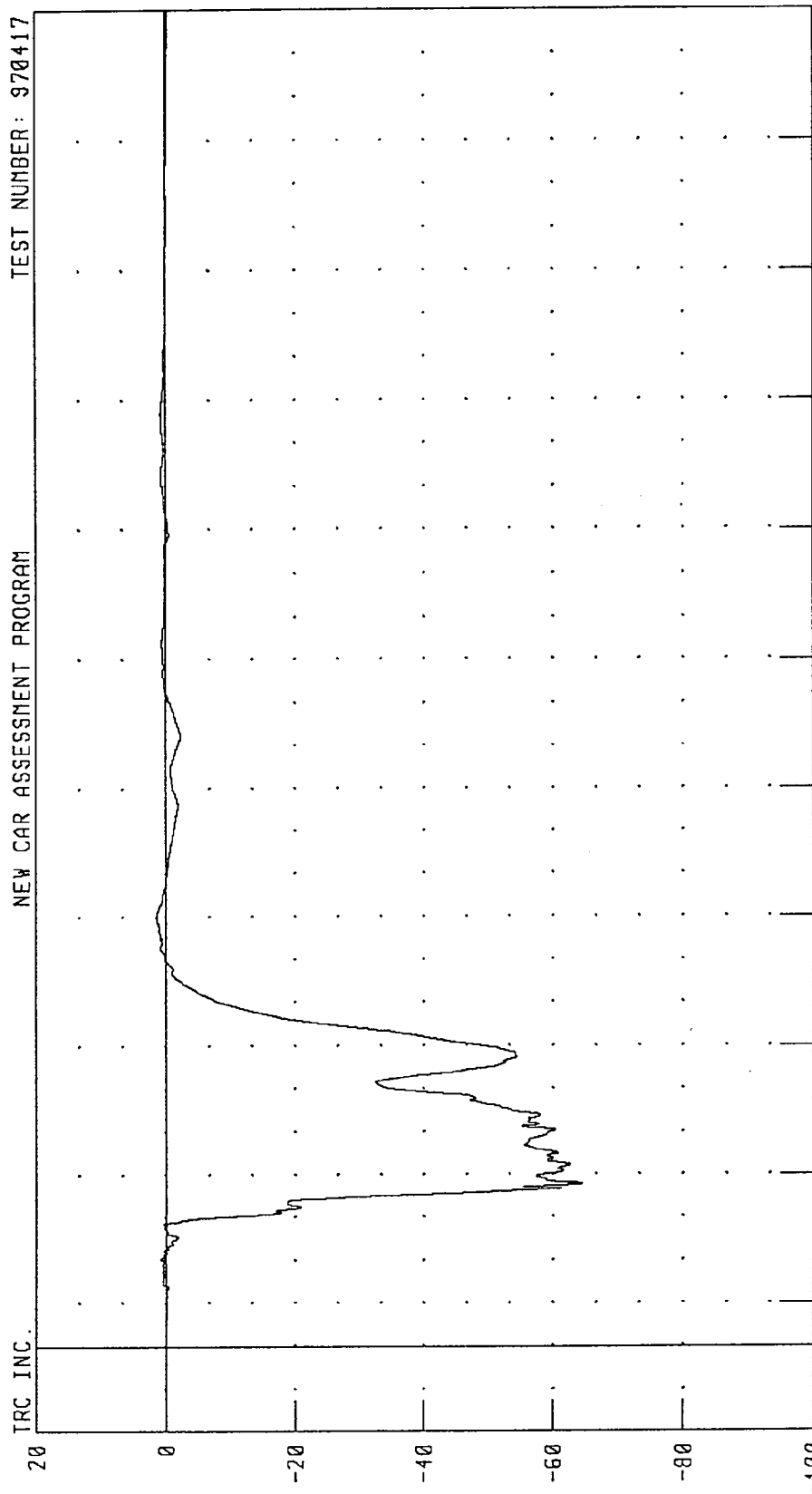
-40

-60

-80

-100

FORCE (N X 10²)



TIME (MS) 310 280 250 220 190 160 130 100 70 40 10

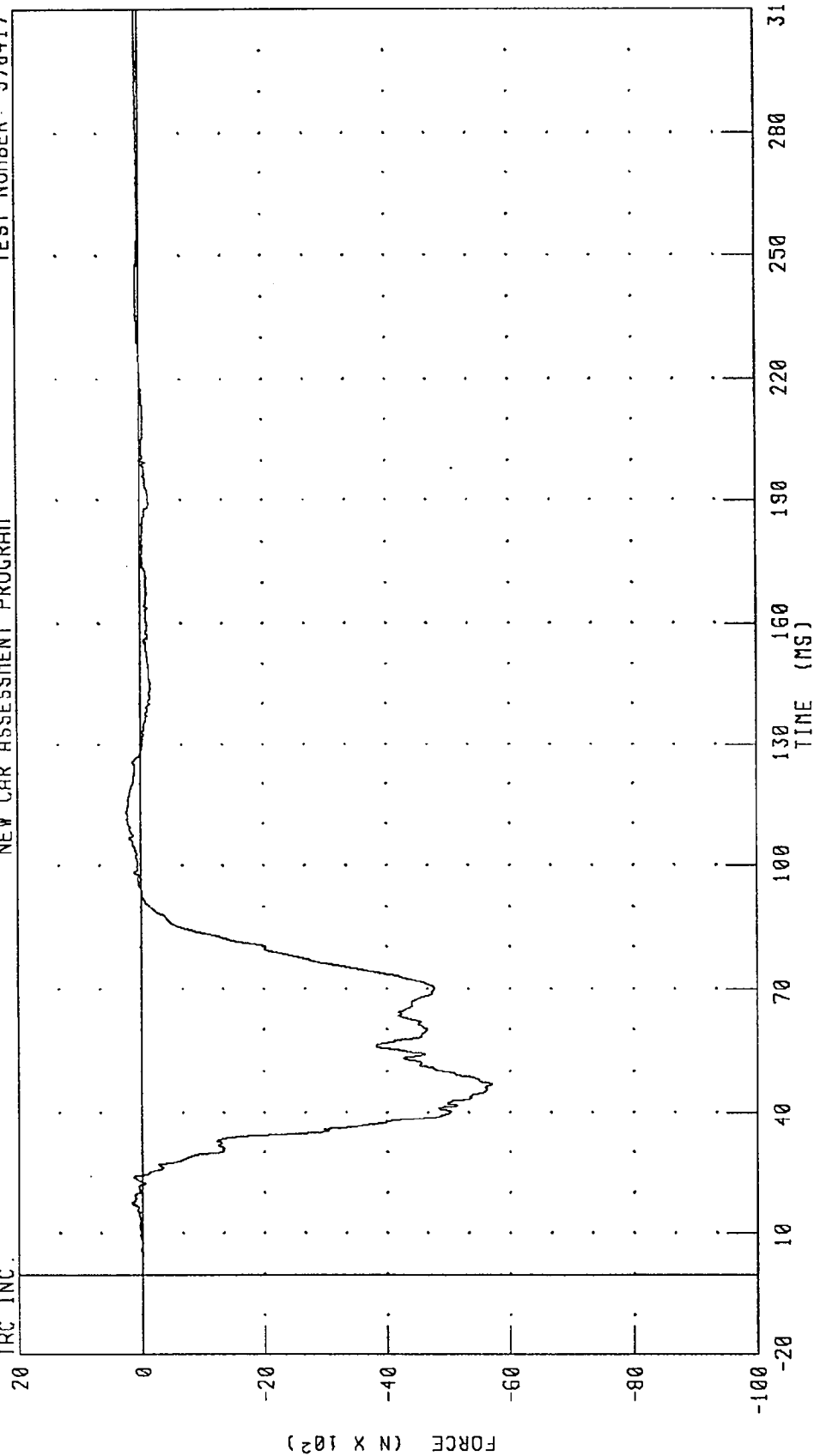
CHANNEL: LFMF2 FILTER: CH. CLASS 600

PEAK DATA: 149.46 N @ 100.00 MS; -6459.46 N @ 37.92 MS

1997 JEEP CHEROKEE SPORT INTO FRONTAL LOAD CELL BARRIER
PASSENGER RIGHT FEMUR FORCE
NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 970417

TRC INC.



CHANNEL: RFMF2 FILTER: CH. CLASS 600

PEAK DATA: 229.71 N @ 112.88 MS; -5706.75 N @ 46.88 MS

1997 JEEP CHEROKEE SPORT INTO FRONTAL LOAD CELL BARRIER
PASSENGER HEAD X-AXIS ACCELERATION - REDUNDANT
NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 970417

TRC INC.

90

60

30

ACCELERATION (G)

0

-30

-60

-90

310

280

250

220

190

160

130

100

70

40

10

-20

TIME (MS)

PEAK DATA: 9.93 G @ 252.96 MS; -50.89 G @ 68.08 MS

CHANNEL: HEDXR2 FILTER: CH. CLASS 1000

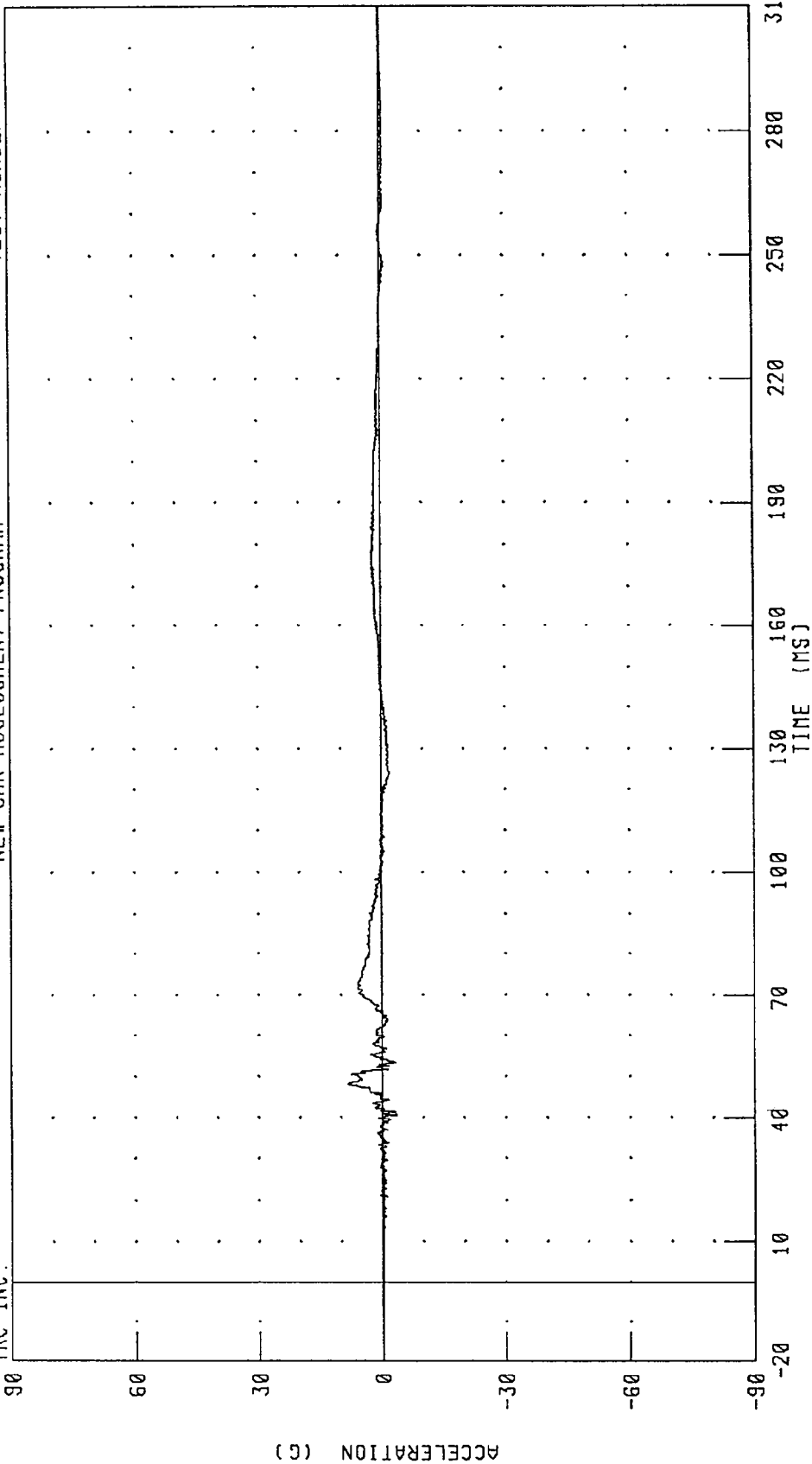
970417

1997 JEEP CHEROKEE SPORT INTO FRONTAL LOAD CELL BARRIER
PASSENGER HEAD Y-AXIS ACCELERATION - REDUNDANT

TEST NUMBER: 970417

NEW CAR ASSESSMENT PROGRAM

TRC INC.



PEAK DATA: 8.30 G @ 48.08 MS; -3.51 G @ 40.64 MS

CHANNEL: HEDYR2 FILTER: CH. CLASS 1000

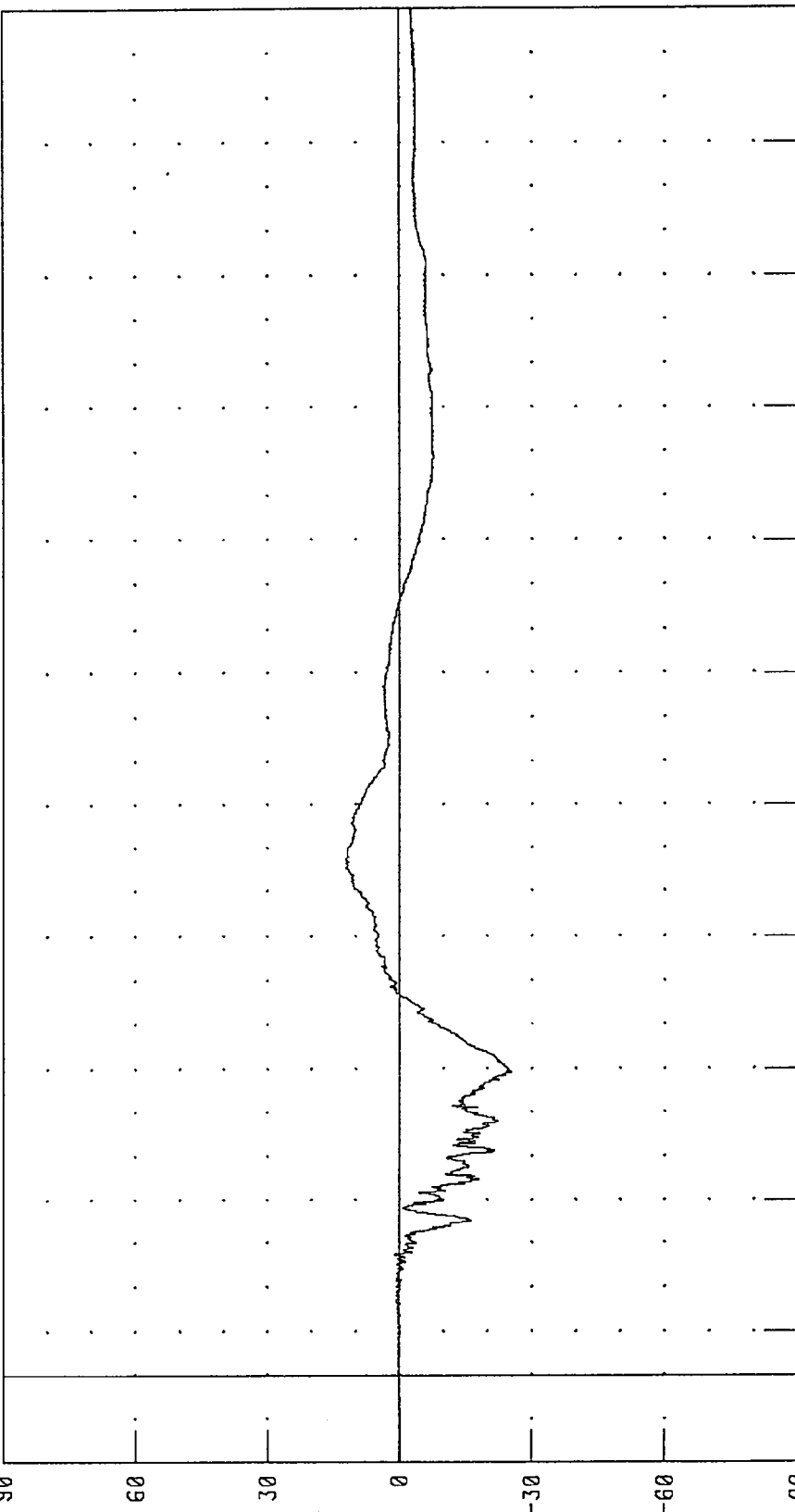
1997 JEEP CHEROKEE SPORT INTO FRONTAL LOAD CELL BARRIER
PASSENGER HEAD Z-AXIS ACCELERATION - REDUNDANT

TEST NUMBER: 970417

NEW CAR ASSESSMENT PROGRAM

TRC INC.

90



PEAK DATA: 12.10 G @ 115.20 MS, -25.40 G @ 69.28 MS

CHANNEL: HEDZR2 FILTER: CH. CLASS 1000

1997 JEEP CHEROKEE SPORT INTO FRONTAL LOAD CELL BARRIER
PASSENGER HEAD RESULTANT ACCELERATION - REDUNDANT

TEST NUMBER: 970417

NEW CAR ASSESSMENT PROGRAM

TRC INC.

120

100

80

60

40

20

0

ACCELERATION (G)

TIME (MS)

310

280

250

220

190

160

130

100

70

40

10

PEAK DATA: 56.68 G @ 69.36 MS; 0.08 G @ 26.24 MS

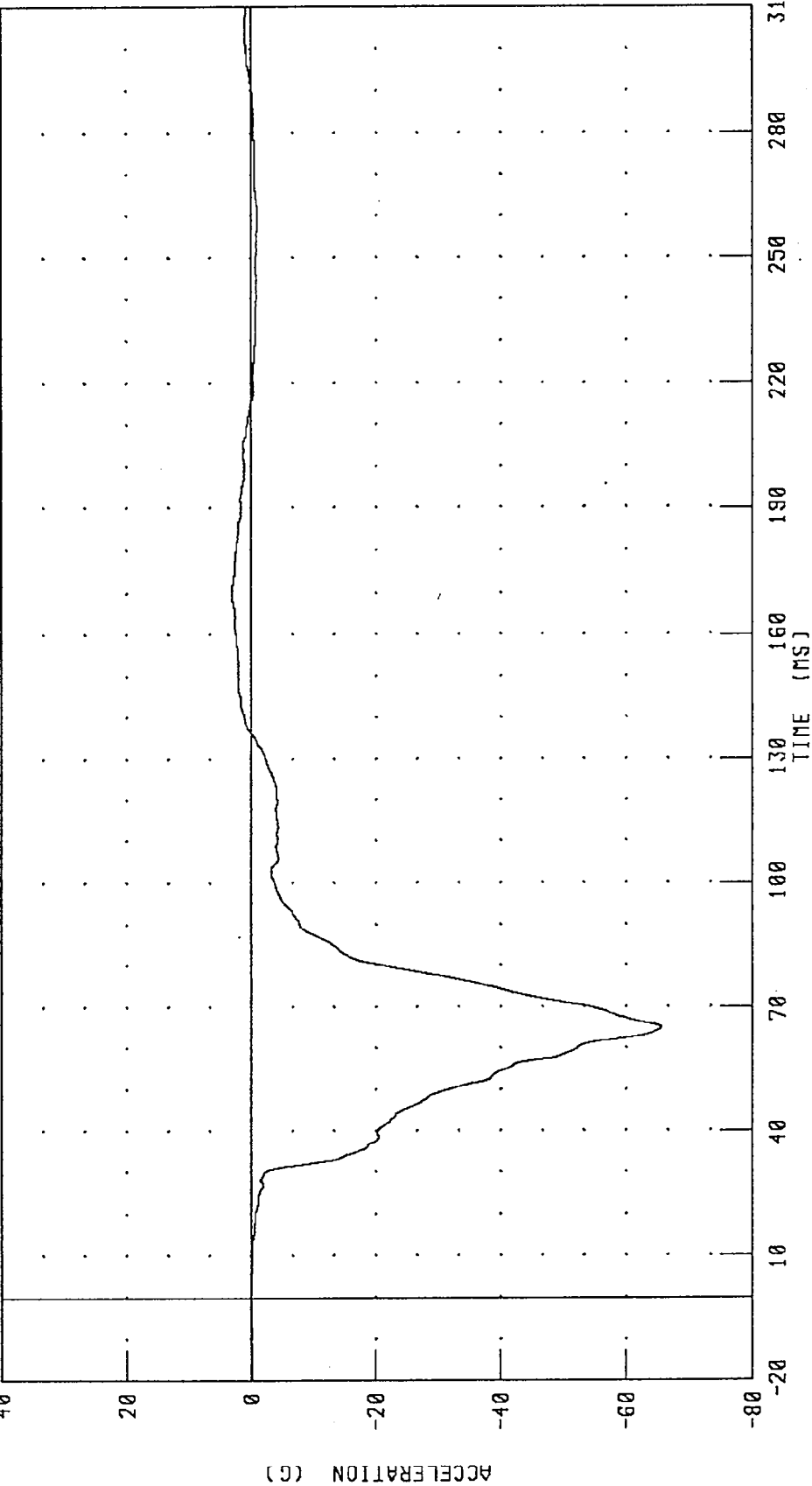
CHANNEL: HEDRR2 FILTER: CH. CLASS 1000

1997 JEEP CHEROKEE SPORT INTO FRONTAL LOAD CELL BARRIER
PASSENGER CHEST X-AXIS ACCELERATION - REDUNDANT

TEST NUMBER: 970417

NEW CAR ASSESSMENT PROGRAM

TRC INC.



CHANNEL: CSTXR2 FILTER: CH. CLASS 180

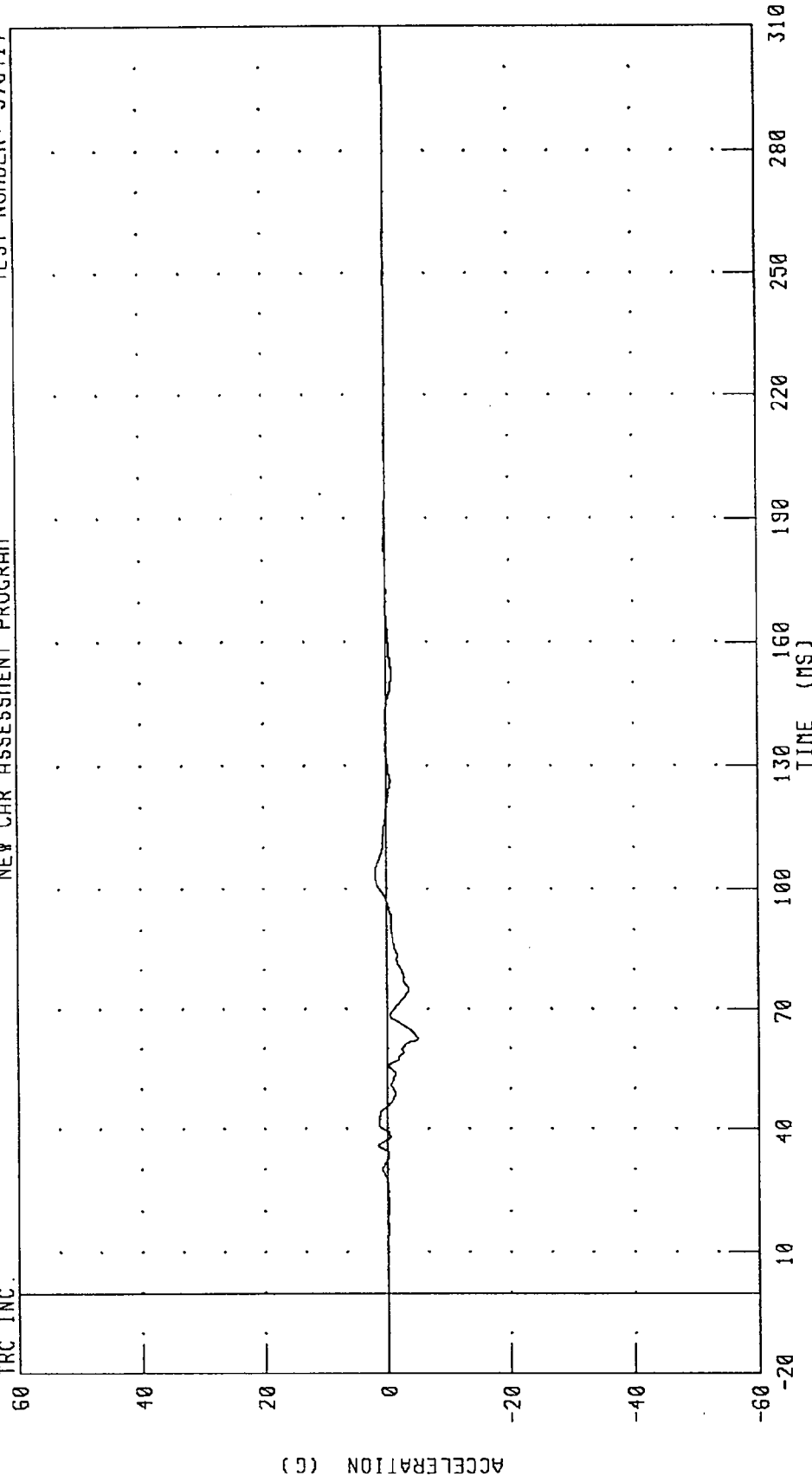
PEAK DATA: 3.11 G @ 169.20 MS; -65.54 G @ 65.12 MS

1997 JEEP CHEROKEE SPORT INTO FRONTAL LOAD CELL BARRIER
PASSENGER CHEST Y-AXIS ACCELERATION - REDUNDANT

TEST NUMBER: 970417

NEW CAR ASSESSMENT PROGRAM

TRC INC.



CHANNEL: CSTYR2 FILTER: CH. CLASS 180

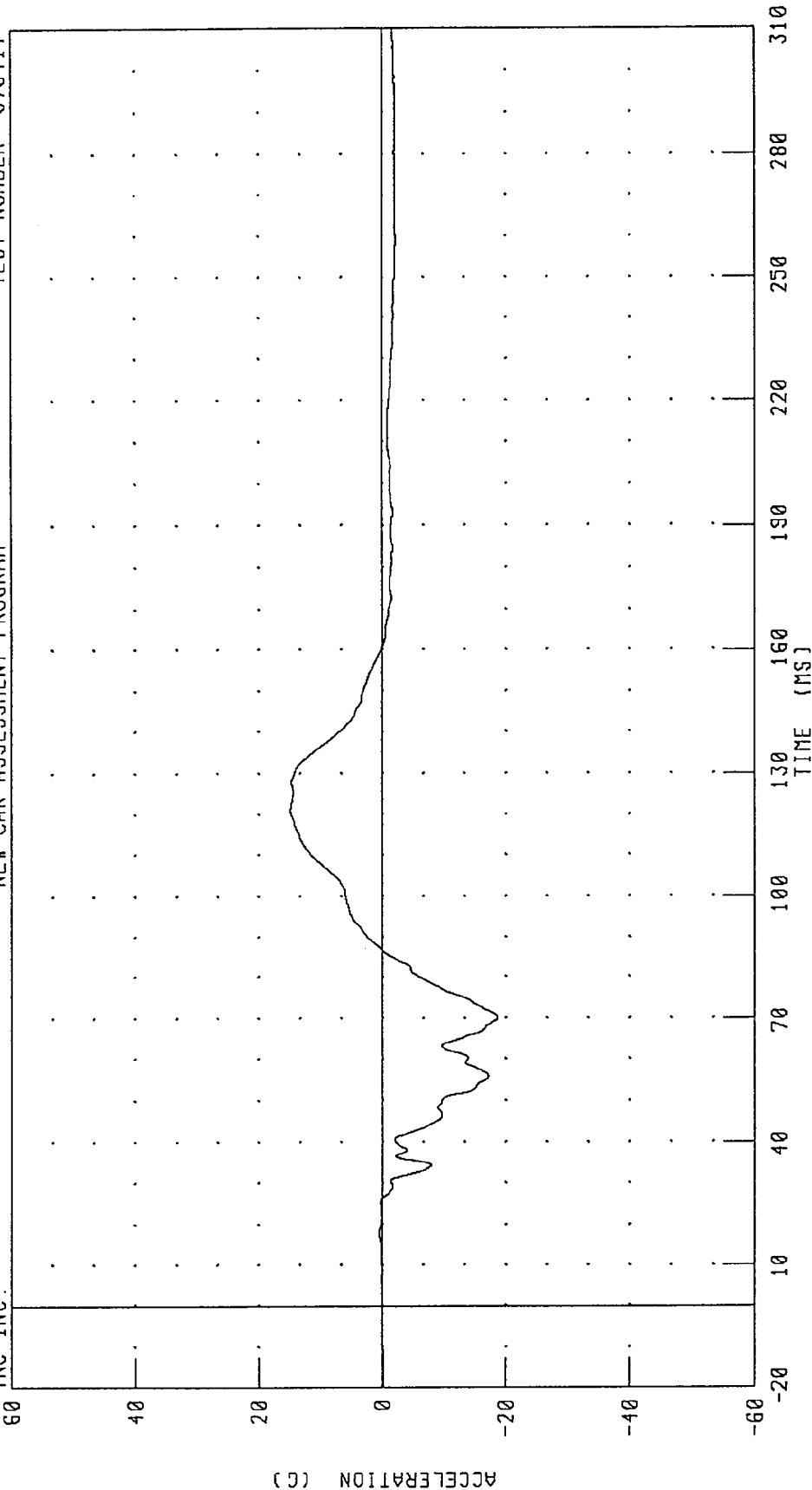
PEAK DATA: 1.93 G @ 103.76 MS; -5.09 G @ 62.56 MS

1997 JEEP CHEROKEE SPORT INTO FRONTAL LOAD CELL BARRIER
PASSENGER CHEST Z-AXIS ACCELERATION - REDUNDANT

TEST NUMBER: 970417

NEW CAR ASSESSMENT PROGRAM

TRC INC.



PEAK DATA: 14.86 G @ 120.96 MS; -18.70 G @ 70.40 MS

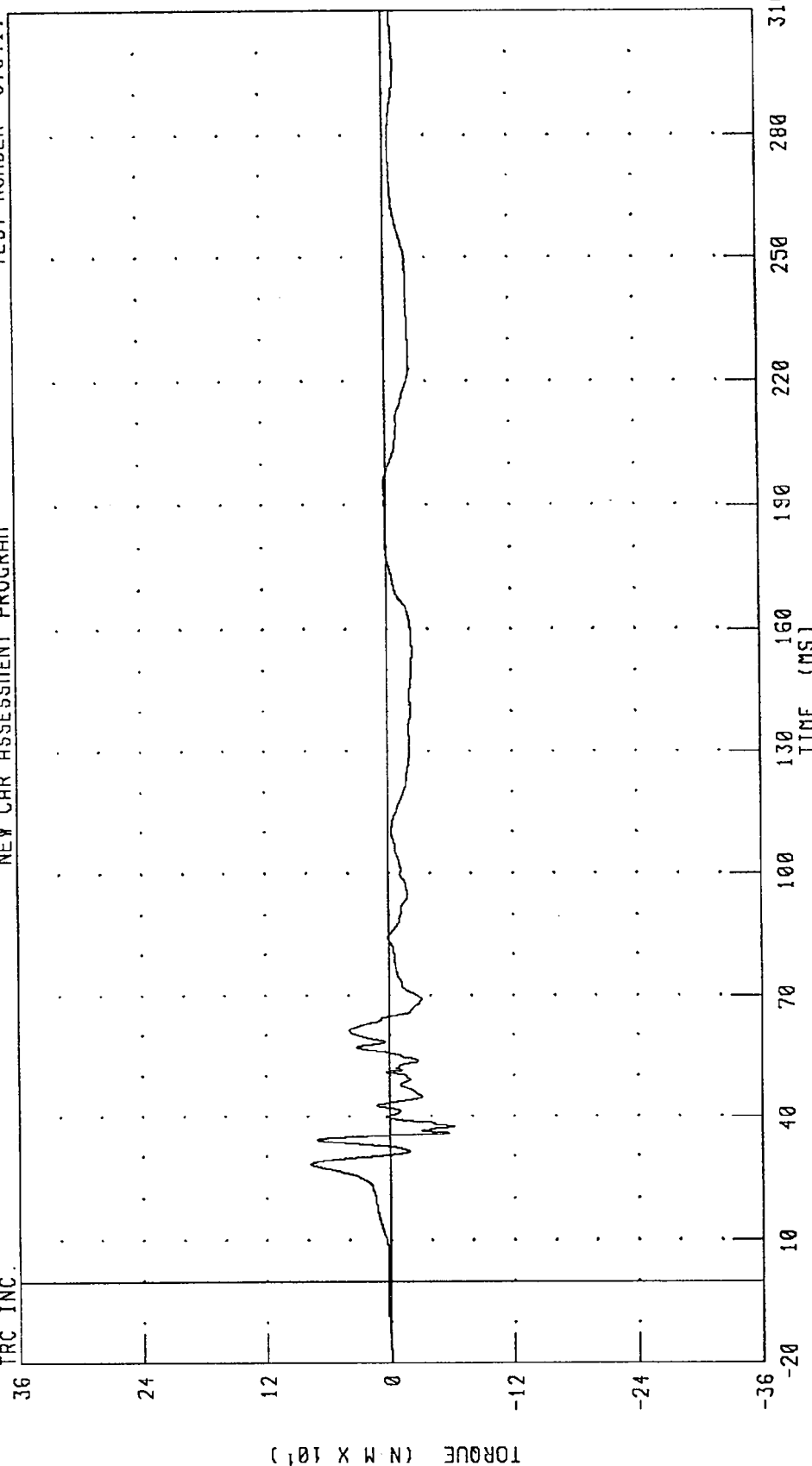
CHANNEL: CSTZR2 FILTER: CH. CLASS 180

1997 JEEP CHEROKEE SPORT INTO FRONTAL LOAD CELL BARRIER
PASSENGER LEFT UPPER TIBIA MOMENT ABOUT Y AXIS

TEST NUMBER: 970417

NEW CAR ASSESSMENT PROGRAM

TRC INC.



PEAK DATA: 76.90 N.M @ 28.24 MS; -62.16 N.M @ 37.60 MS

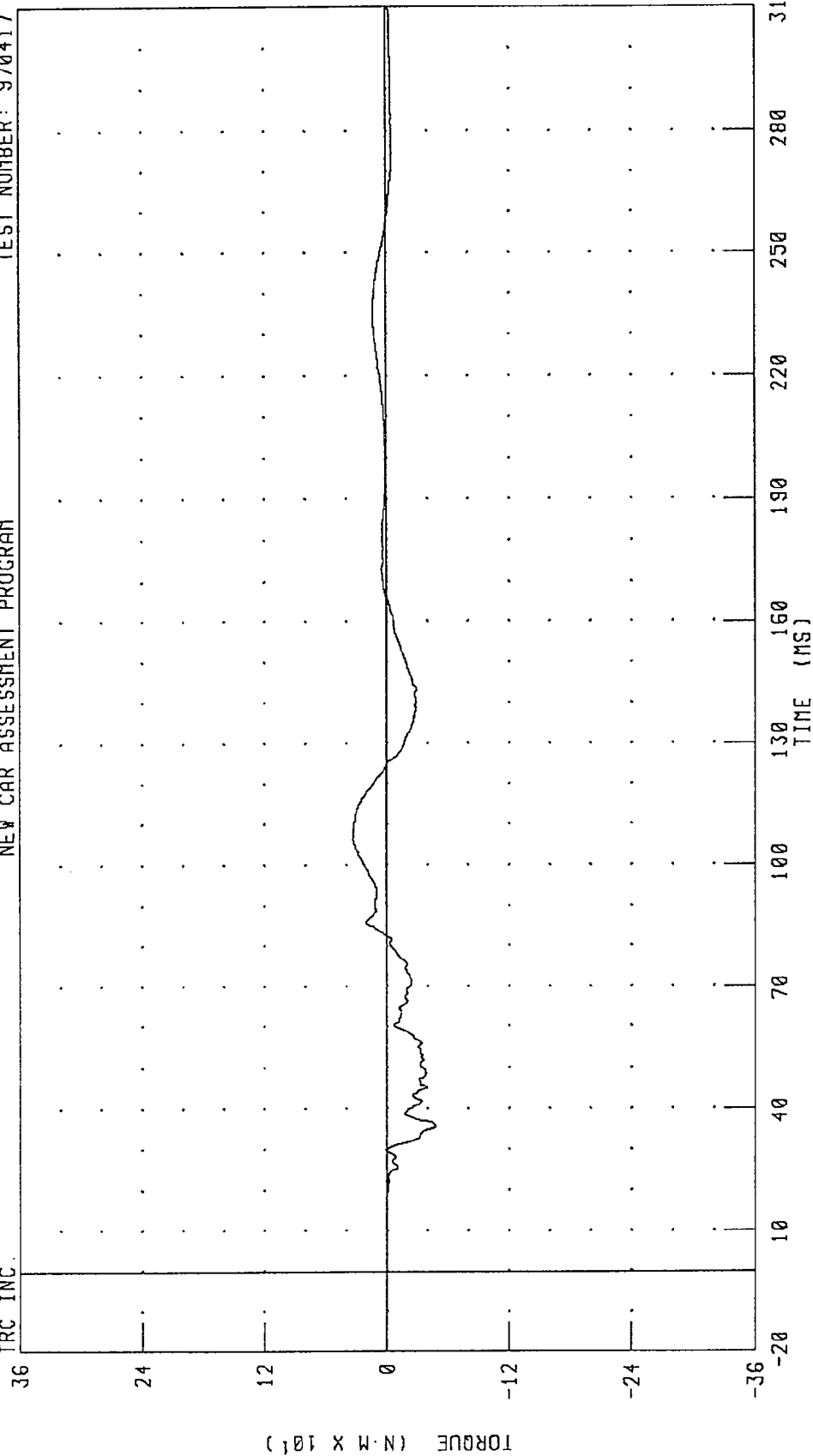
CHANNEL: TBLYM2 FILTER: CH. CLASS 600

1997 JEEP CHEROKEE SPORT INTO FRONTAL LOAD CELL BARRIER
PASSENGER RIGHT UPPER TIBIA MOMENT ABOUT X AXIS

TEST NUMBER: 970417

NEW CAR ASSESSMENT PROGRAM

TRC INC.



CHANNEL: TBRXM2 FILTER: CH. CLASS 600

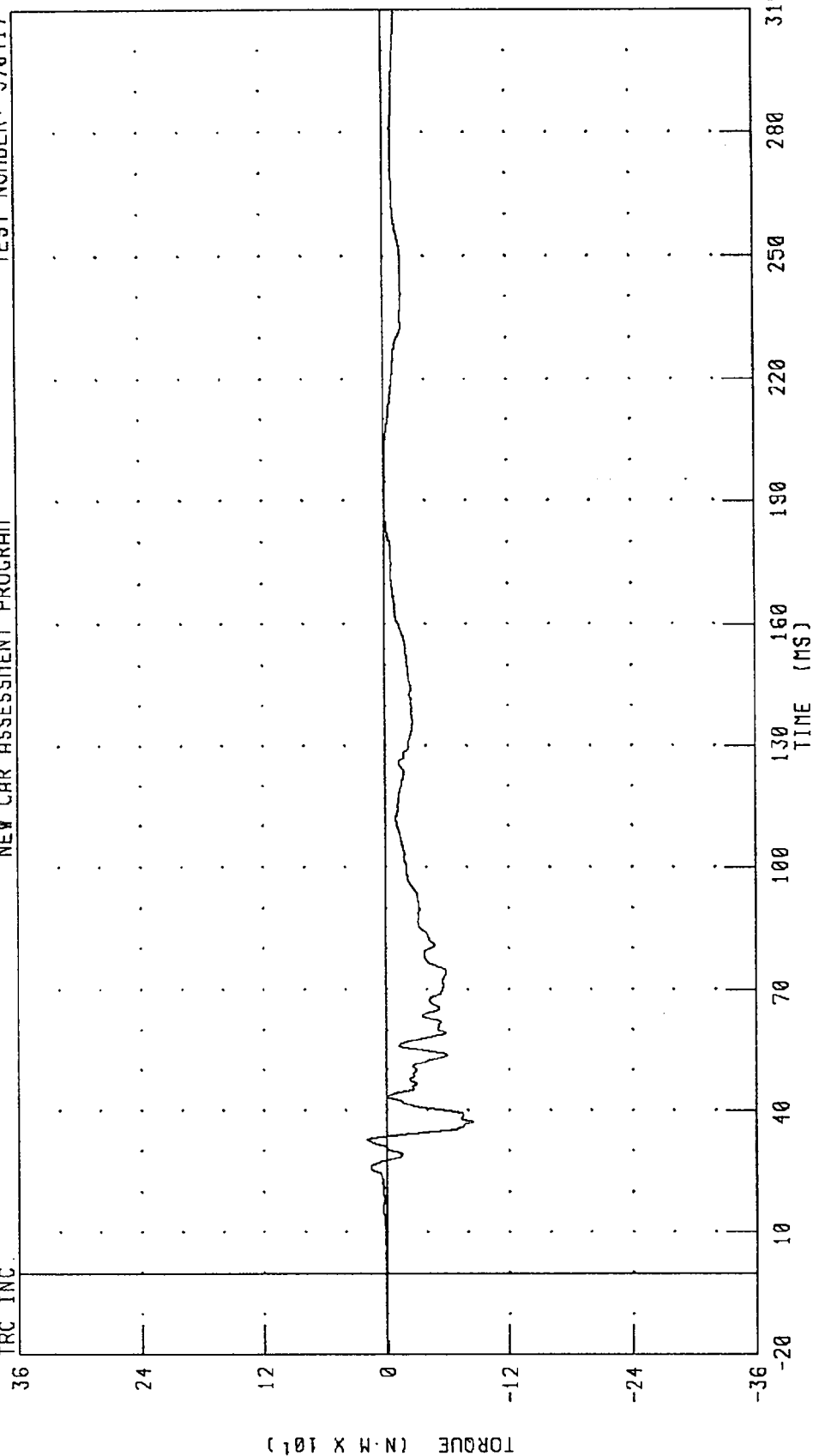
PEAK DATA: 33.71 N.M @ 106.88 MS; -47.54 N.M @ 35.68 MS

1997 JEEP CHEROKEE SPORT INTO FRONTAL LOAD CELL BARRIER
PASSENGER RIGHT UPPER TIBIA MOMENT ABOUT Y AXIS

TEST NUMBER: 970417

NEW CAR ASSESSMENT PROGRAM

TRC INC.



CHANNEL: TBRYM2 FILTER: CH. CLASS 600

PEAK DATA: 18.89 N·M @ 32.72 MS; -85.56 N·M @ 37.20 MS

1997 JEEP CHEROKEE SPORT INTO FRONTAL LOAD CELL BARRIER
PASSENGER LEFT LOWER TIBIA X-AXIS FORCE
NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 970417

TRC INC.

36

24

12

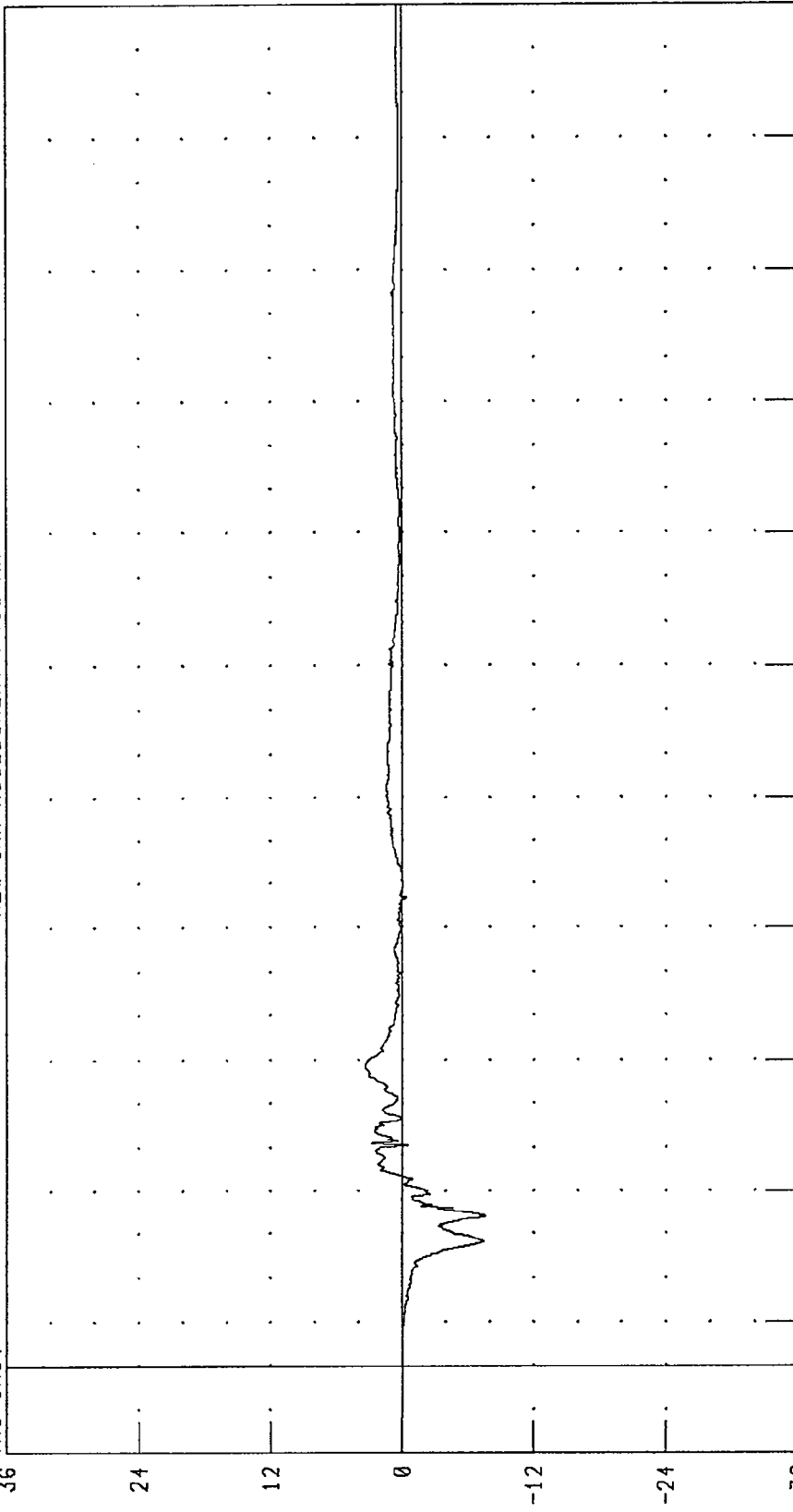
0

-12

-24

-36

FORCE (N X 10²)

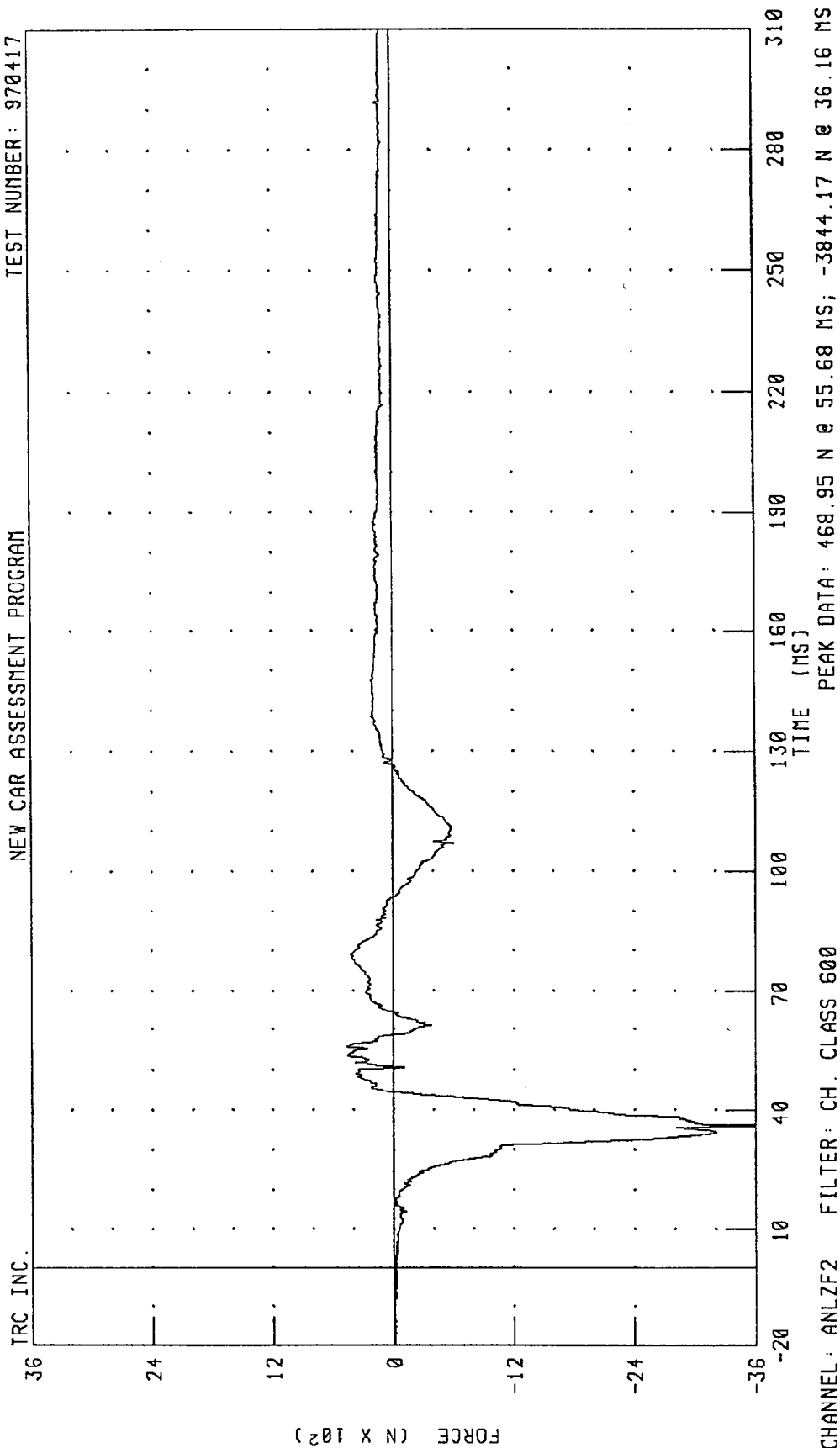


TIME (MS)
PEAK DATA: 337.00 N @ 68.64 MS; -763.55 N @ 34.16 MS

CHANNEL: ANLXF2 FILTER: CH. CLASS 600

1997 JEEP CHEROKEE SPORT INTO FRONTAL LOAD CELL BARRIER
PASSENGER LEFT LOWER TIBIA Z-AXIS FORCE
NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 970417

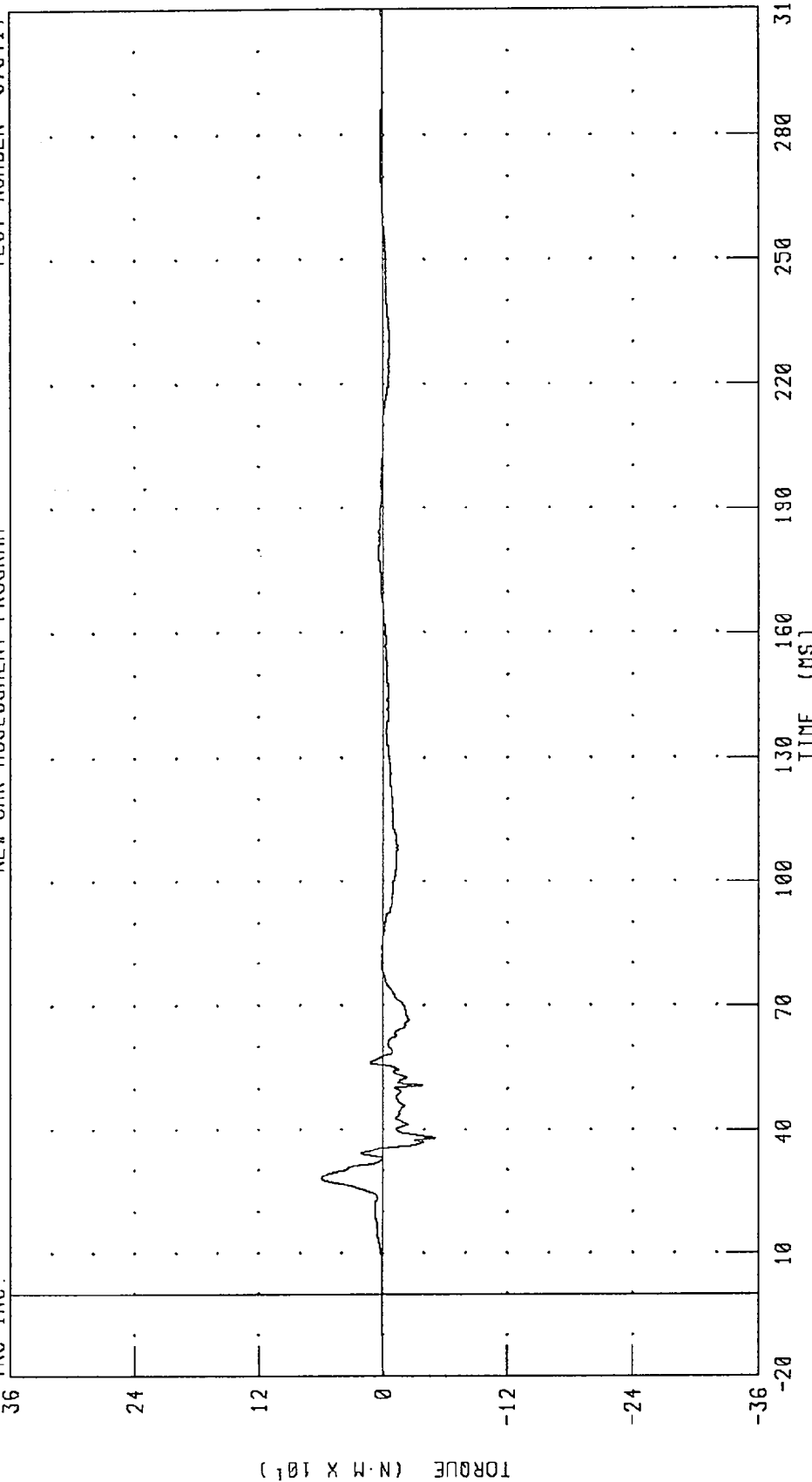


1997 JEEP CHEROKEE SPORT INTO FRONTAL LOAD CELL BARRIER
PASSENGER LEFT LOWER TIBIA MOMENT ABOUT Y AXIS

TEST NUMBER: 970417

NEW CAR ASSESSMENT PROGRAM

TRC INC.



CHANNEL: ANLYM2 FILTER: CH. CLASS 600

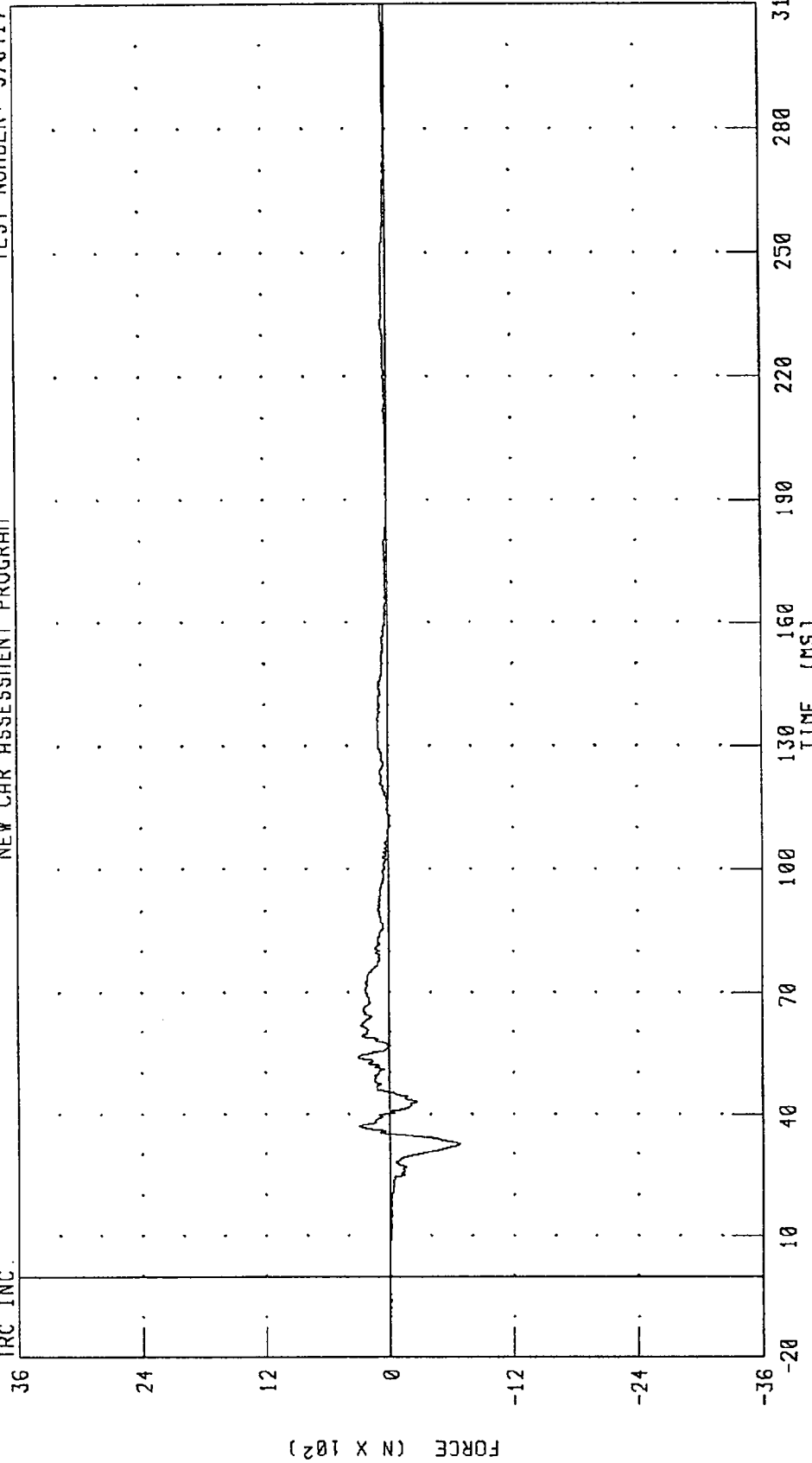
PEAK DATA: 59.22 N·M @ 28.08 MS; -50.37 N·M @ 38.16 MS

1997 JEEP CHEROKEE SPORT INTO FRONTAL LOAD CELL BARRIER
PASSENGER RIGHT LOWER TIBIA X-AXIS FORCE

TEST NUMBER: 970417

NEW CAR ASSESSMENT PROGRAM

TRC INC.



PEAK DATA: 307.09 N @ 53.76 MS; -684.74 N @ 32.48 MS

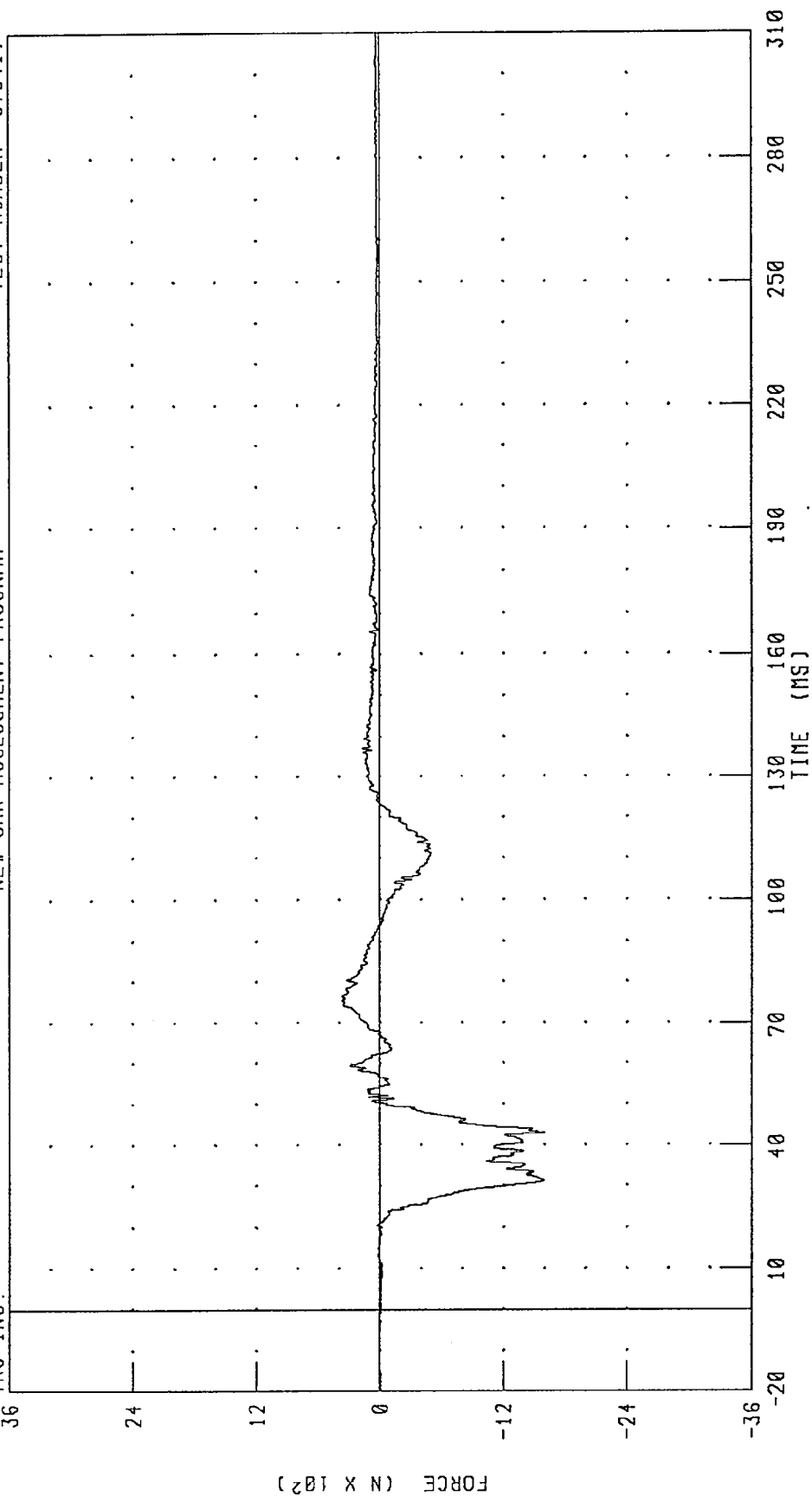
CHANNEL: ANRXF2 FILTER: CH. CLASS 600

1997 JEEP CHEROKEE SPORT INTO FRONTAL LOAD CELL BARRIER
PASSENGER RIGHT LOWER TIBIA Z-AXIS FORCE

TEST NUMBER: 970417

NEW CAR ASSESSMENT PROGRAM

TRC INC.



PEAK DATA: 374.13 N @ 76.64 MS; -1609.33 N @ 42.96 MS

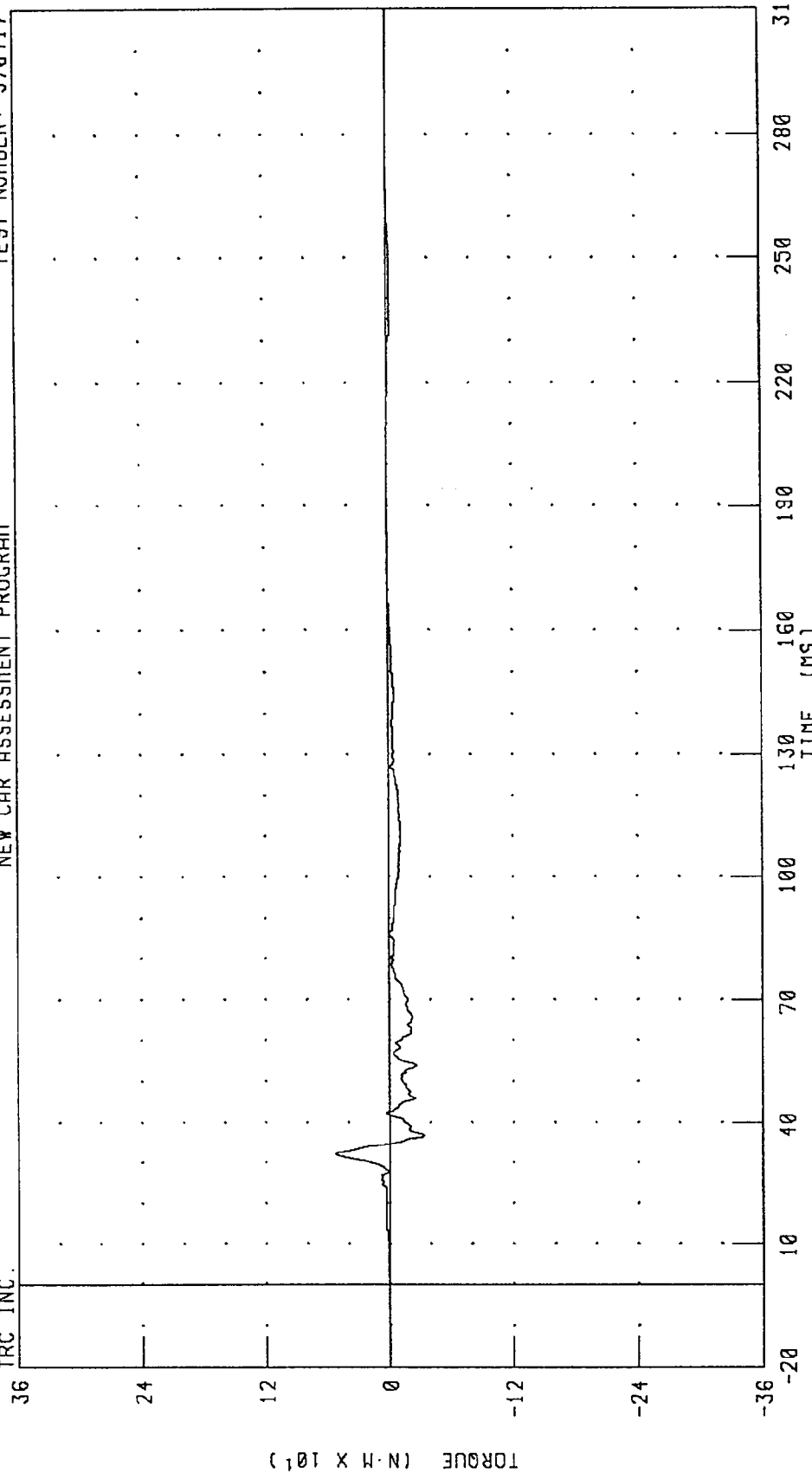
CHANNEL: ANRZF2 FILTER: CH. CLASS 600

1997 JEEP CHEROKEE SPORT INTO FRONTAL LOAD CELL BARRIER
PASSENGER RIGHT LOWER TIBIA MOMENT ABOUT Y AXIS

TEST NUMBER: 970417

NEW CAR ASSESSMENT PROGRAM

TRC INC.



PEAK DATA: 52.82 N·m @ 32.24 MS; -33.57 N·m @ 36.80 MS

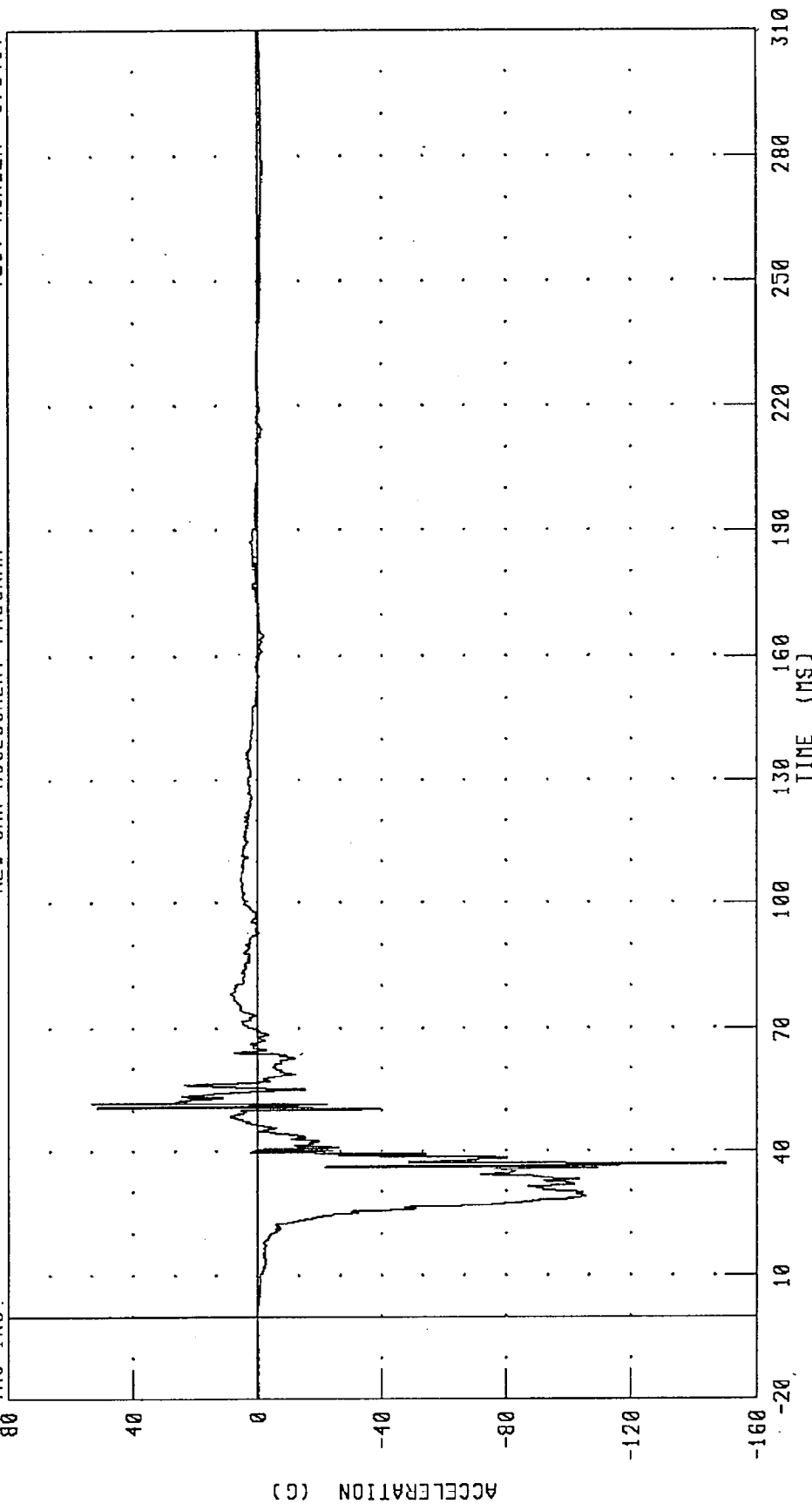
CHANNEL: ANRYM2 FILTER: CH. CLASS 600

1997 JEEP CHEROKEE SPORT INTO FRONTAL LOAD CELL BARRIER
PASSENGER LEFT FOOT X-AXIS ACCELERATION

TEST NUMBER: 970417

NEW CAR ASSESSMENT PROGRAM

TRC INC.



CHANNEL: FTLXG2 FILTER: CH. CLASS 1000

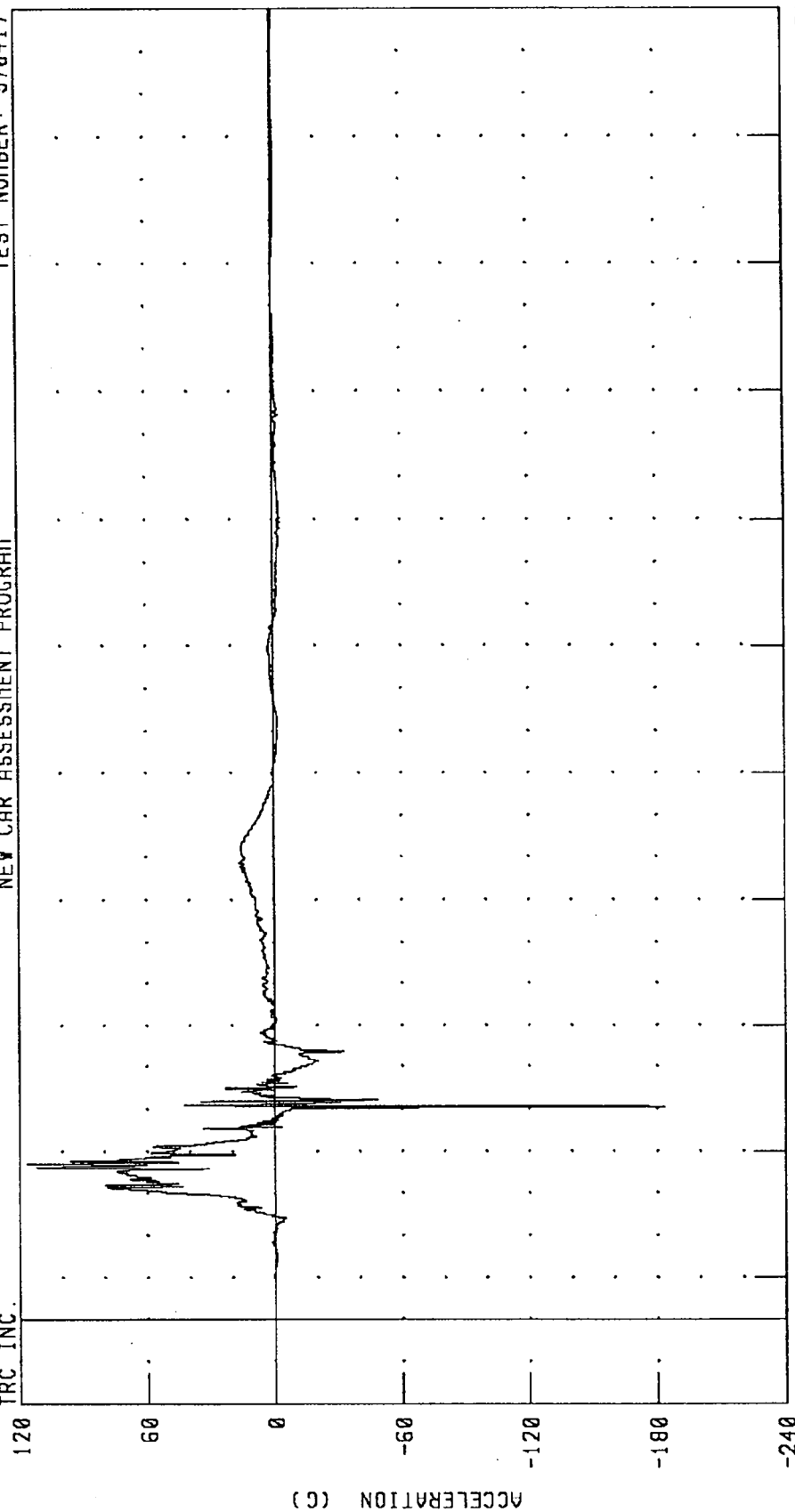
PEAK DATA: 53.12 G @ 51.84 MS; -149.88 G @ 36.80 MS

1997 JEEP CHEROKEE SPORT INTO FRONTAL LOAD CELL BARRIER
PASSENGER LEFT FOOT Z-AXIS ACCELERATION AT HEEL

TEST NUMBER: 970417

NEW CAR ASSESSMENT PROGRAM

TRC INC.



PEAK DATA: 116.19 G @ 37.20 MS; -183.31 G @ 50.48 MS

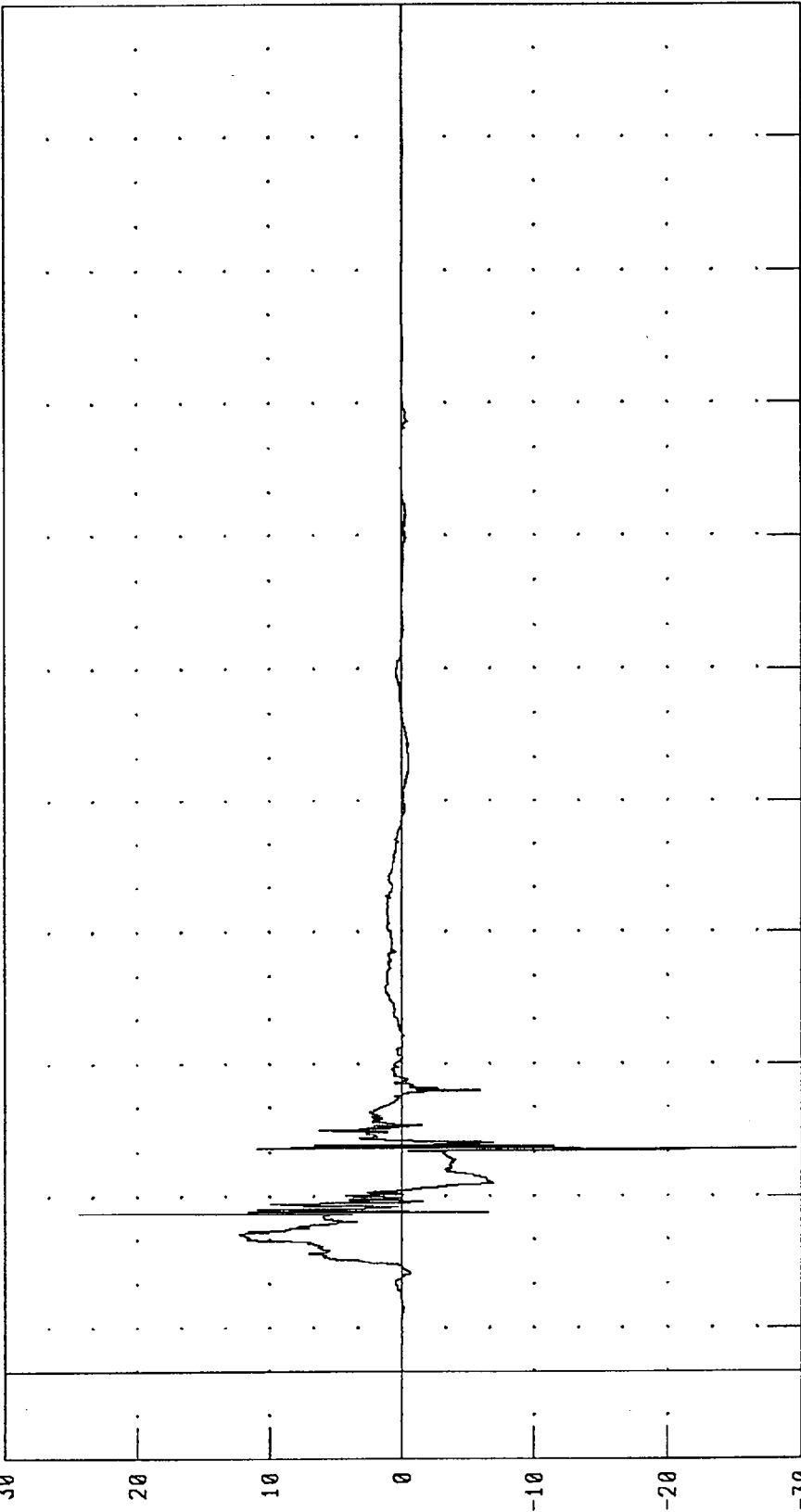
CHANNEL: FTLZH2 FILTER: CH. CLASS 1000

1997 JEEP CHEROKEE SPORT INTO FRONTAL LOAD CELL BARRIER
PASSENGER LEFT FOOT Z-AXIS ACCELERATION AT TOE

TEST NUMBER: 970417

NEW CAR ASSESSMENT PROGRAM

TRC INC.



PEAK DATA: 243.68 G @ 36.16 MS; -295.03 G @ 50.64 MS

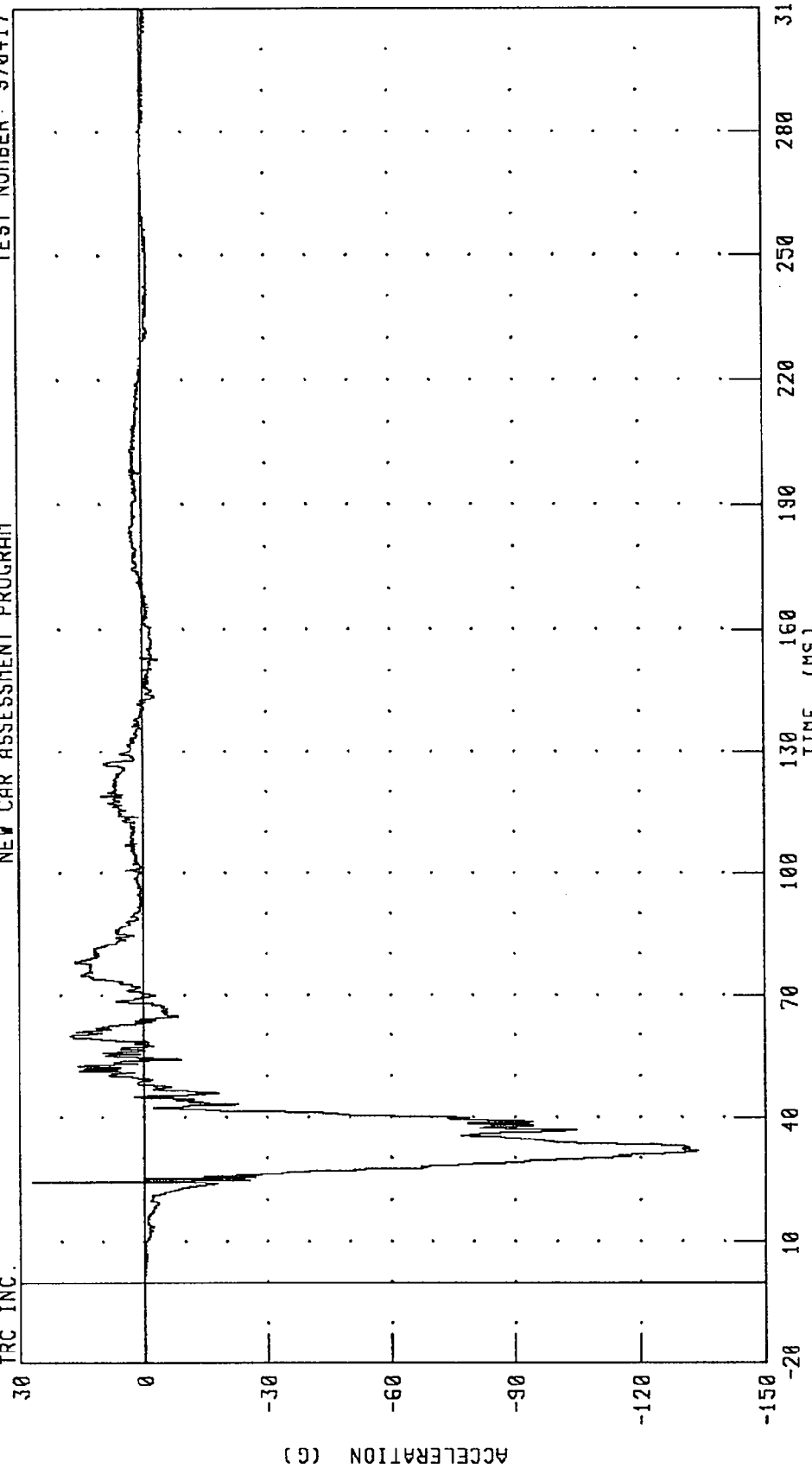
CHANNEL: FTLZT2 FILTER: CH. CLASS 1000

1997 JEEP CHEROKEE SPORT INTO FRONTAL LOAD CELL BARRIER
PASSENGER RIGHT FOOT X-AXIS ACCELERATION

TEST NUMBER: 970417

NEW CAR ASSESSMENT PROGRAM

TRC INC.

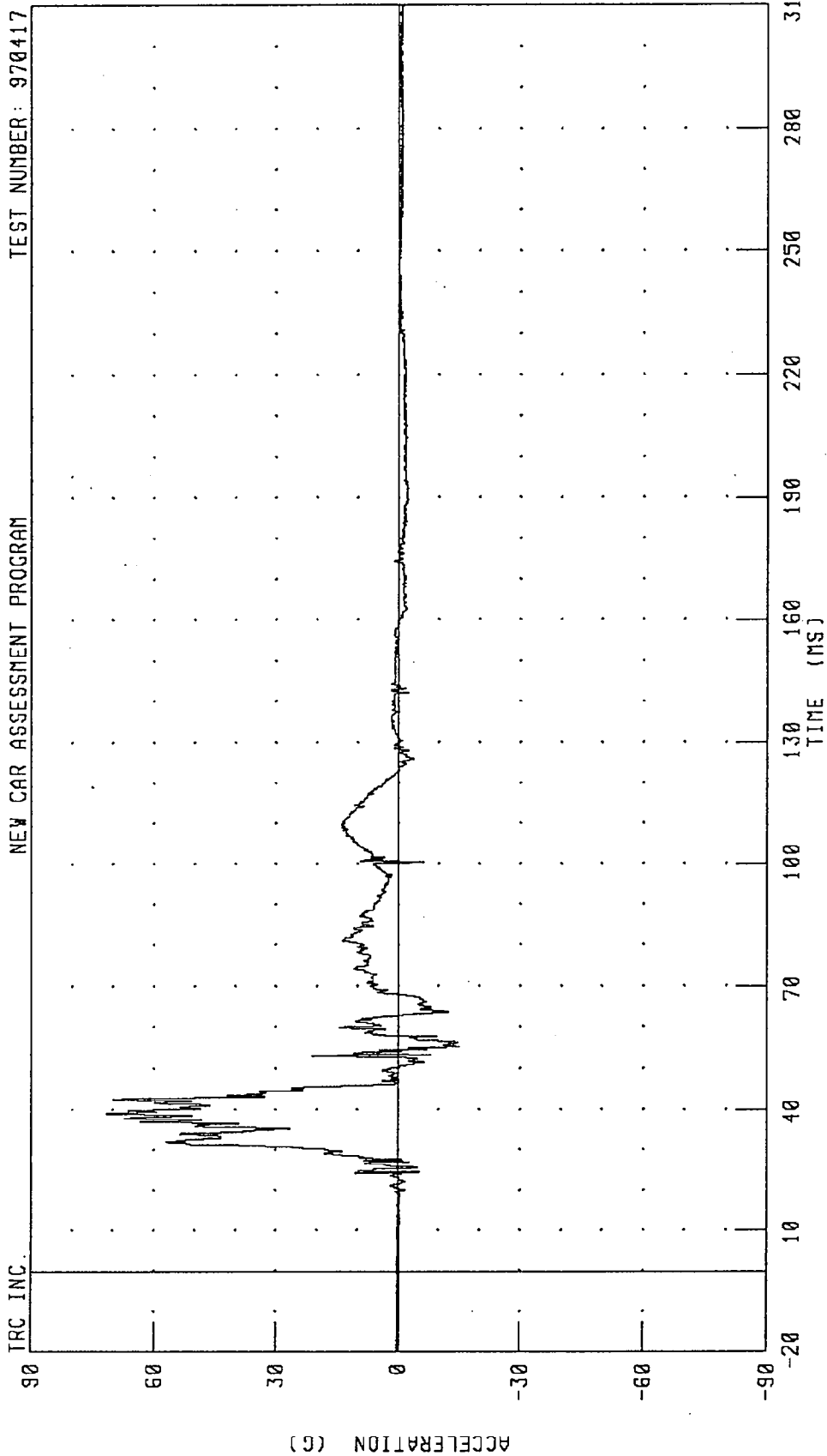


PEAK DATA: 26.80 G @ 24.40 MS; -133.77 G @ 31.84 MS

CHANNEL: FTRXG2 FILTER: CH. CLASS 1000

1997 JEEP CHEROKEE SPORT INTO FRONTAL LOAD CELL BARRIER
PASSENGER RIGHT FOOT Z-AXIS ACCELERATION AT HEEL

NEW CAR ASSESSMENT PROGRAM TEST NUMBER: 970417



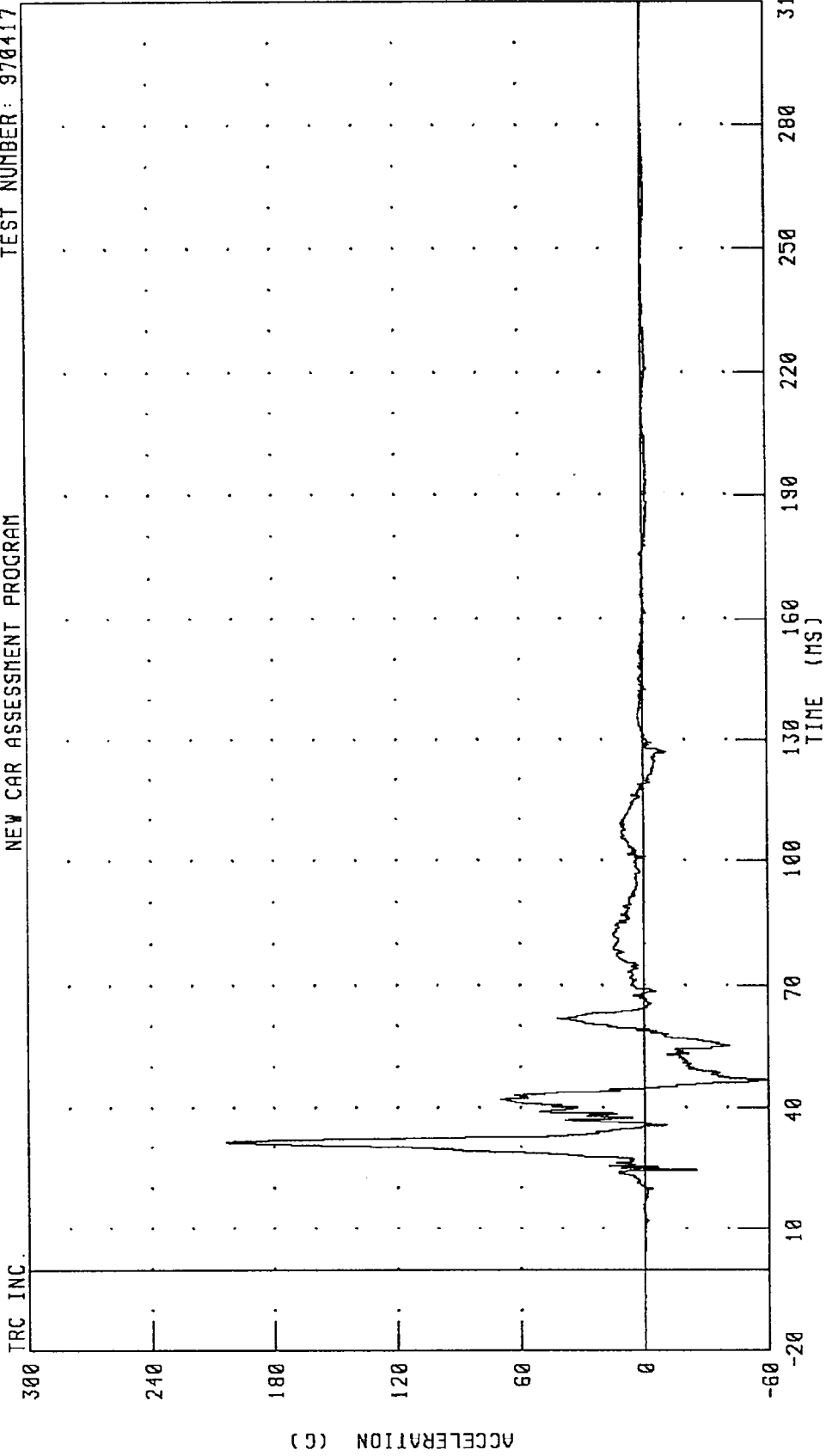
CHANNEL: FTRZH2 FILTER: CH. CLASS 1000

PEAK DATA: 71.40 G @ 39.12 MS; -15.07 G @ 55.28 MS

1997 JEEP CHEROKEE SPORT INTO FRONTAL LOAD CELL BARRIER
PASSENGER RIGHT FOOT Z-AXIS ACCELERATION AT TOE

TEST NUMBER: 970417

NEW CAR ASSESSMENT PROGRAM



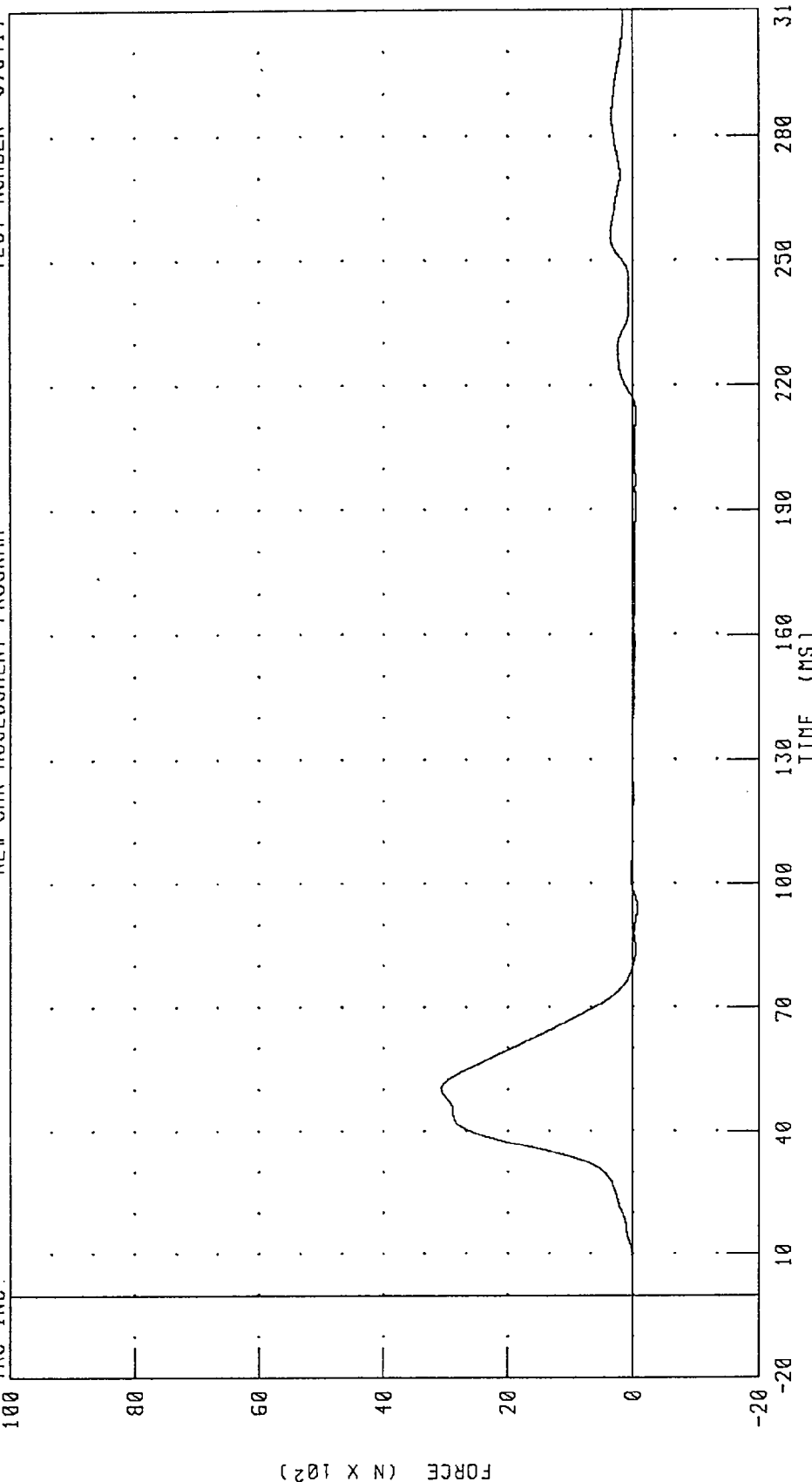
CHANNEL: FTRZT2 FILTER: CH. CLASS 1000

PEAK DATA: 203.85 G @ 31.28 MS; -59.71 G @ 46.64 MS

1997 JEEP CHEROKEE SPORT INTO FRONTAL LOAD CELL BARRIER
 DRIVER LAP BELT OUTBOARD FORCE
 NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 970417

TRC INC.



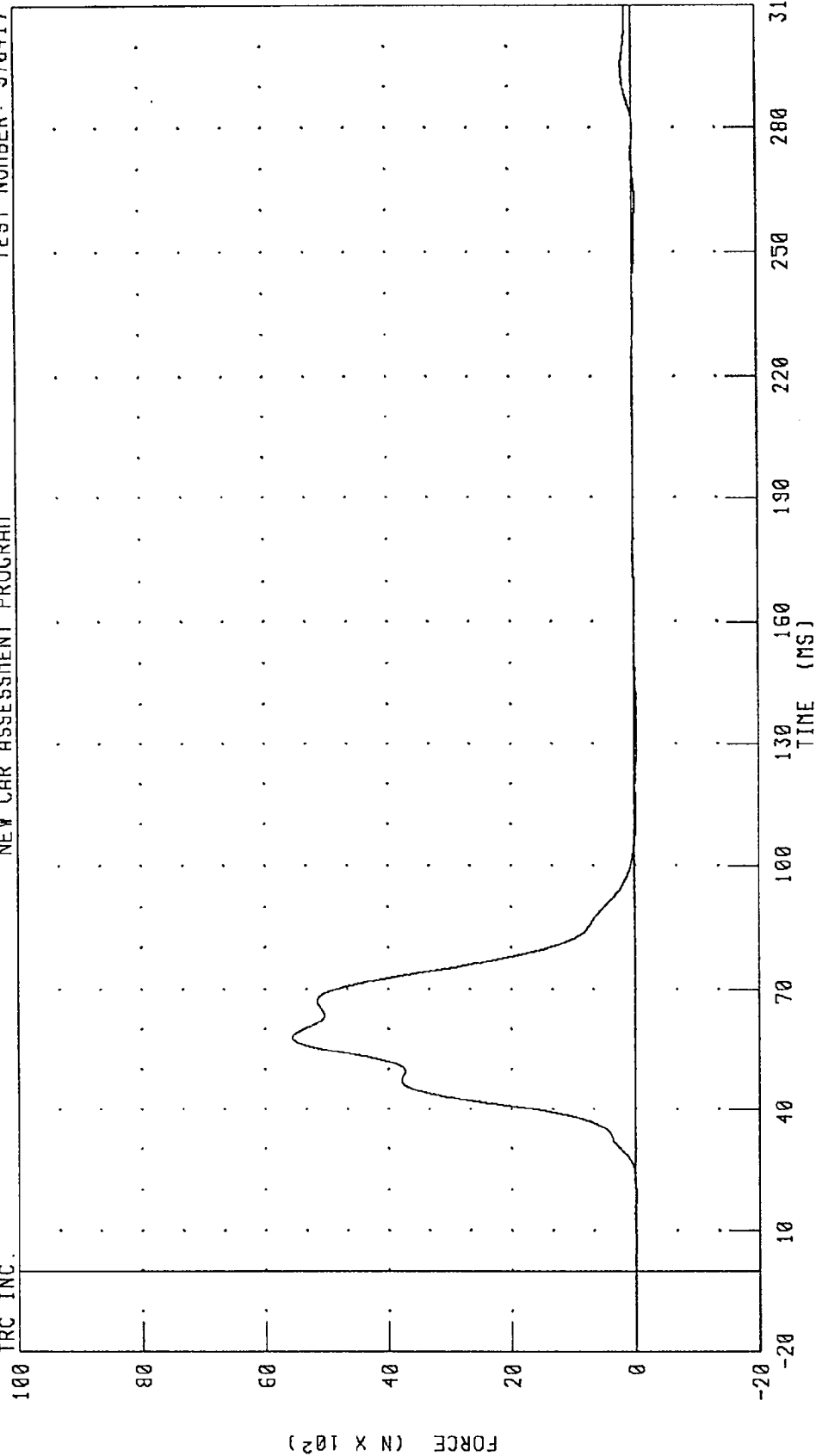
PEAK DATA: 3065.55 N @ 50.24 MS; -64.25 N @ 94.24 MS

CHANNEL: LBOF1 FILTER: CH. CLASS 60

1997 JEEP CHEROKEE SPORT INTO FRONTAL LOAD CELL BARRIER
 DRIVER SHOULDER BELT FORCE
 NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 970417

TRC INC.



PEAK DATA: 5556.67 N @ 58.00 MS; -53.36 N @ 261.92 MS

CHANNEL: SHBF1 FILTER: CH. CLASS 60

1997 JEEP CHEROKEE SPORT INTO FRONTAL LOAD CELL BARRIER
 DRIVER SHOULDER BELT DISPLACEMENT
 NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 970417

TRC INC.

150

120

90

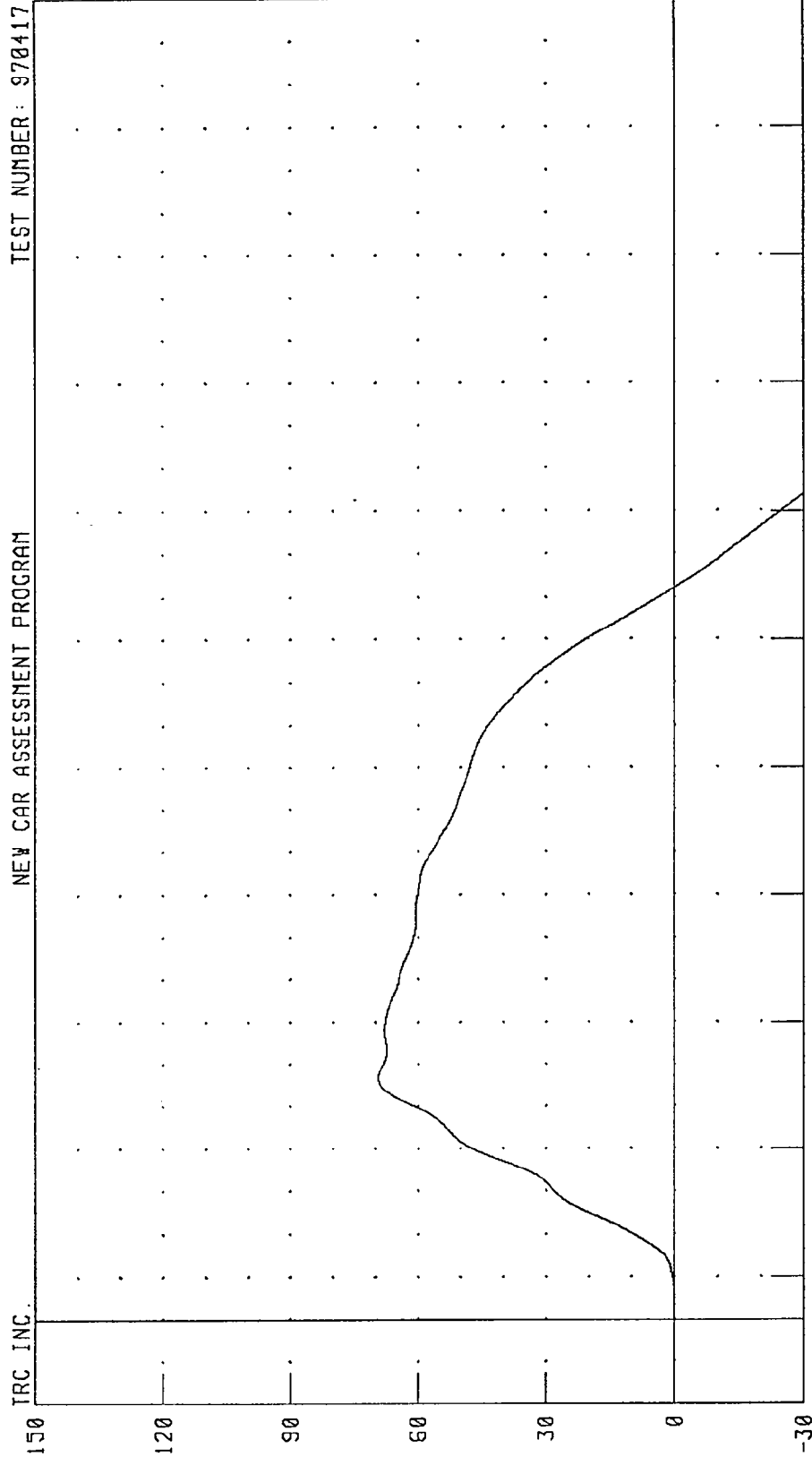
60

30

0

-30

DISPLACEMENT (MM)



-20

10

40

70

100

130

160

190

220

250

280

310

TIME (MS)

PEAK DATA: 69.36 MM @ 56.72 MS; -55.19 MM @ 227.84 MS

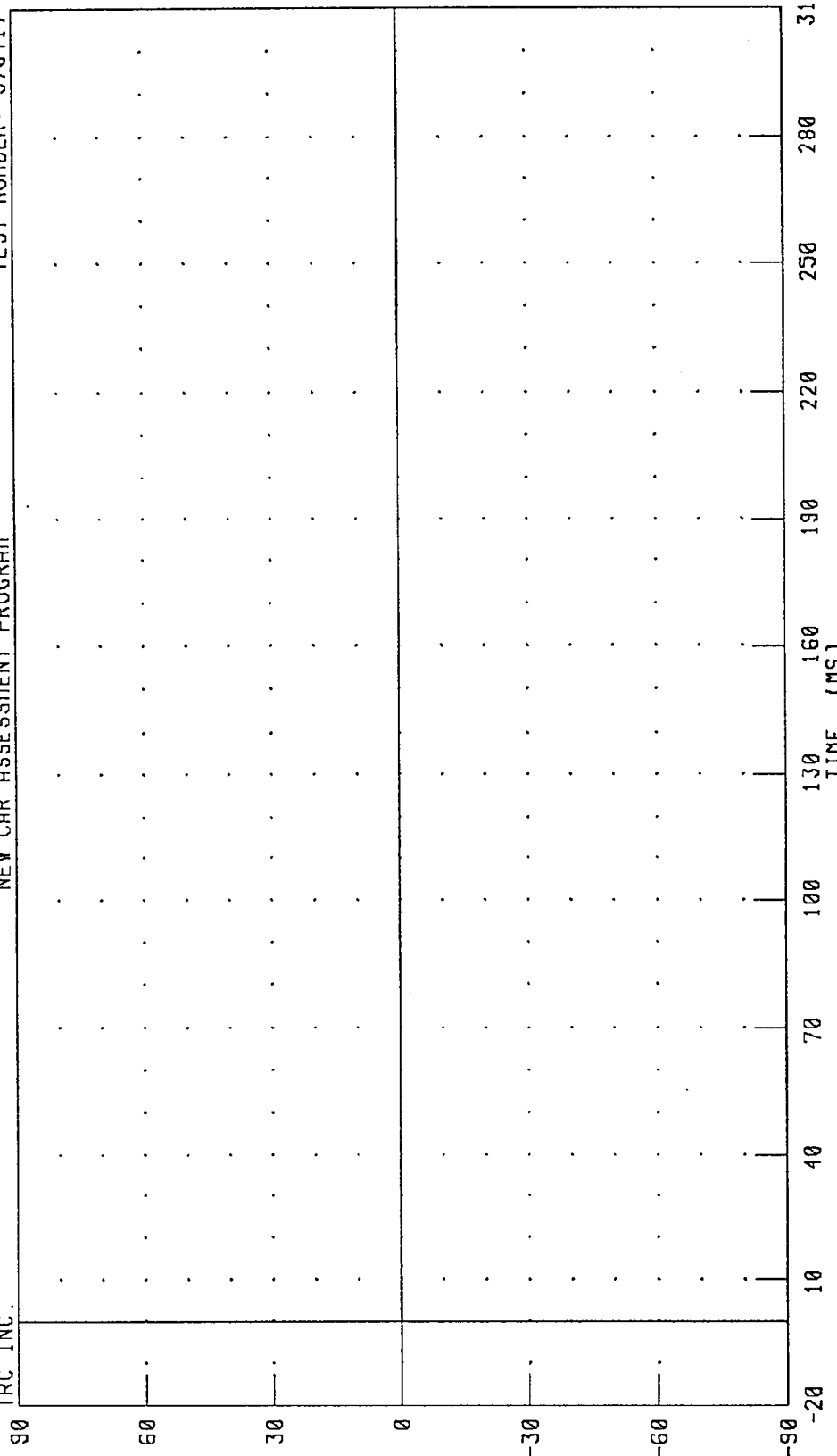
FILTER: CH. CLASS 60

CHANNEL: SHB01

1997 JEEP CHEROKEE SPORT INTO FRONTAL LOAD CELL BARRIER
 DRIVER SEAT BELT EXTENSION
 NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 970417

TRC INC.



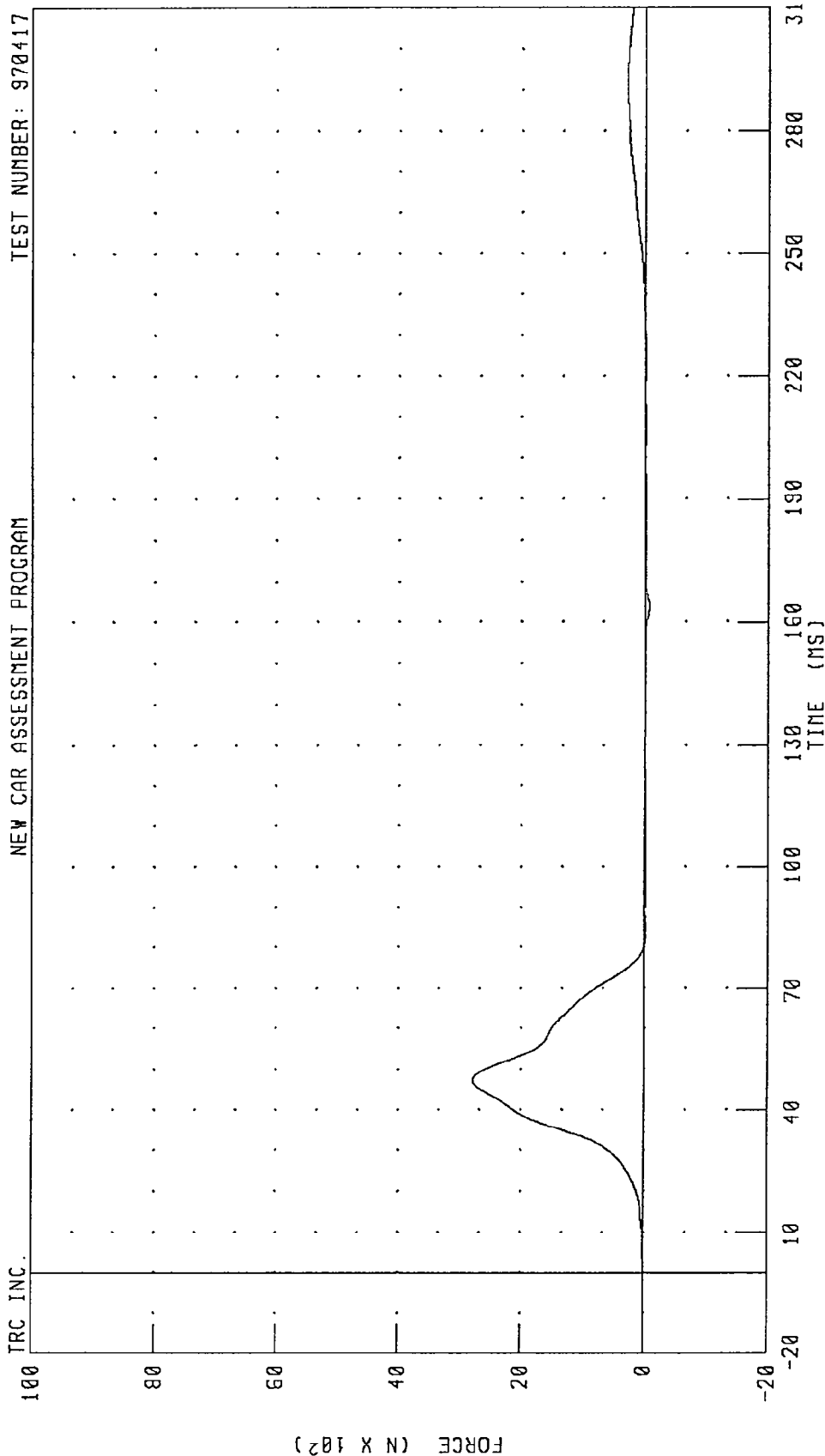
PEAK DATA: 0.00 MM @ 304.16 MS; 0.00 MM @ 133.60 MS

CHANNEL: SBED1 FILTER: CH. CLASS 60

1997 JEEP CHEROKEE SPORT INTO FRONTAL LOAD CELL BARRIER
PASSENGER LAP BELT OUTBOARD FORCE
NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 970417

TRC INC.

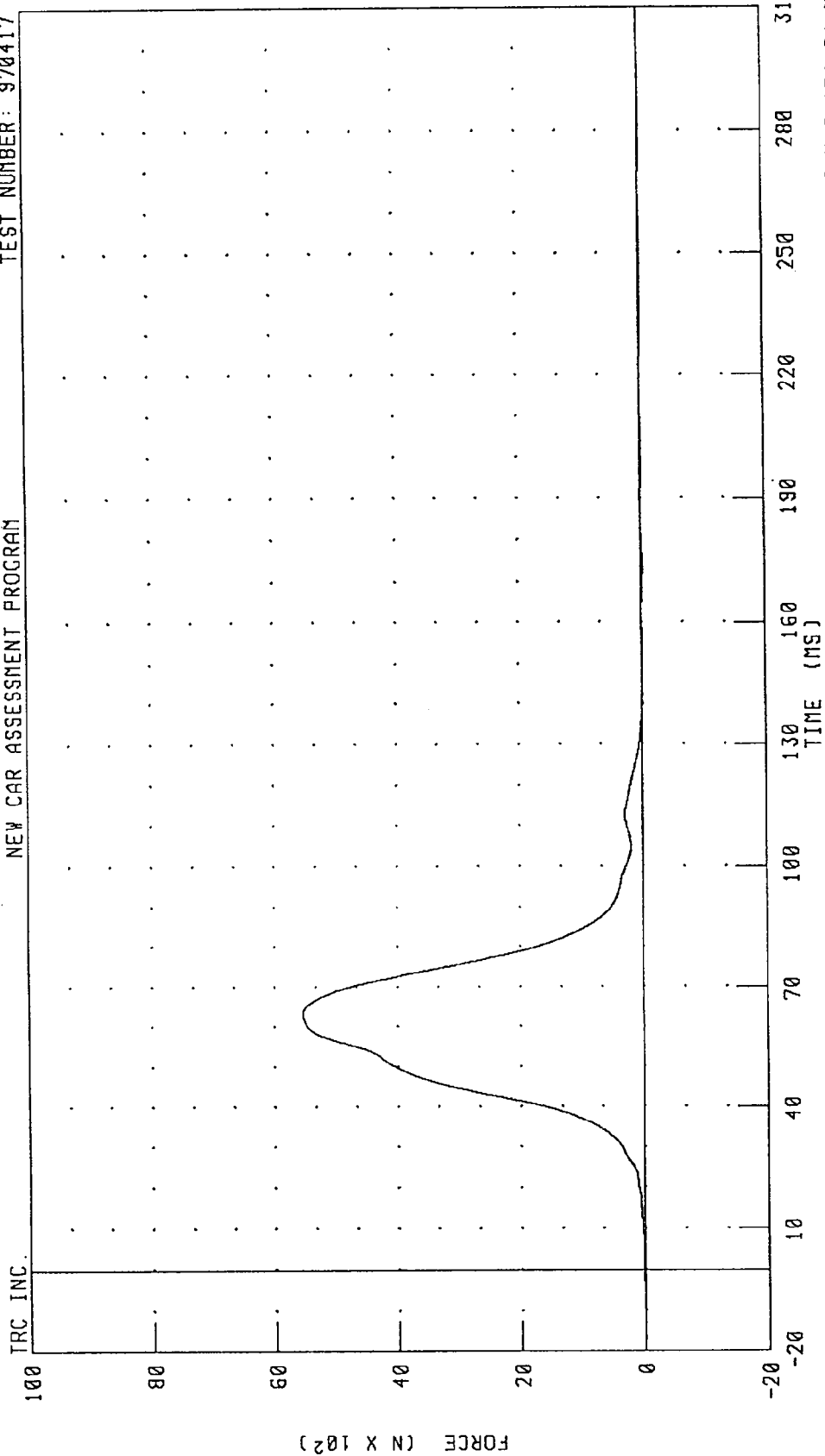


PEAK DATA: 2785.76 N @ 47.28 MS; -73.55 N @ 164.00 MS

CHANNEL: LBOF2 FILTER: CH. CLASS 60

1997 JEEP CHEROKEE SPORT INTO FRONTAL LOAD CELL BARRIER
PASSENGER SHOULDER BELT FORCE
NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 970417



CHANNEL: SHBF2 FILTER: CH. CLASS 60

PEAK DATA: 5548.66 N @ 63.44 MS; -26.16 N @ 174.24 MS

1997 JEEP CHEROKEE SPORT INTO FRONTAL LOAD CELL BARRIER
PASSENGER SHOULDER BELT DISPLACEMENT
NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 970417

TRC INC.

150

120

90

60

30

0

-30

DISPLACEMENT (MM)

-20

10

40

70

100

130

160

190

220

250

280

310

TIME (MS)

CHANNEL: SHBD2

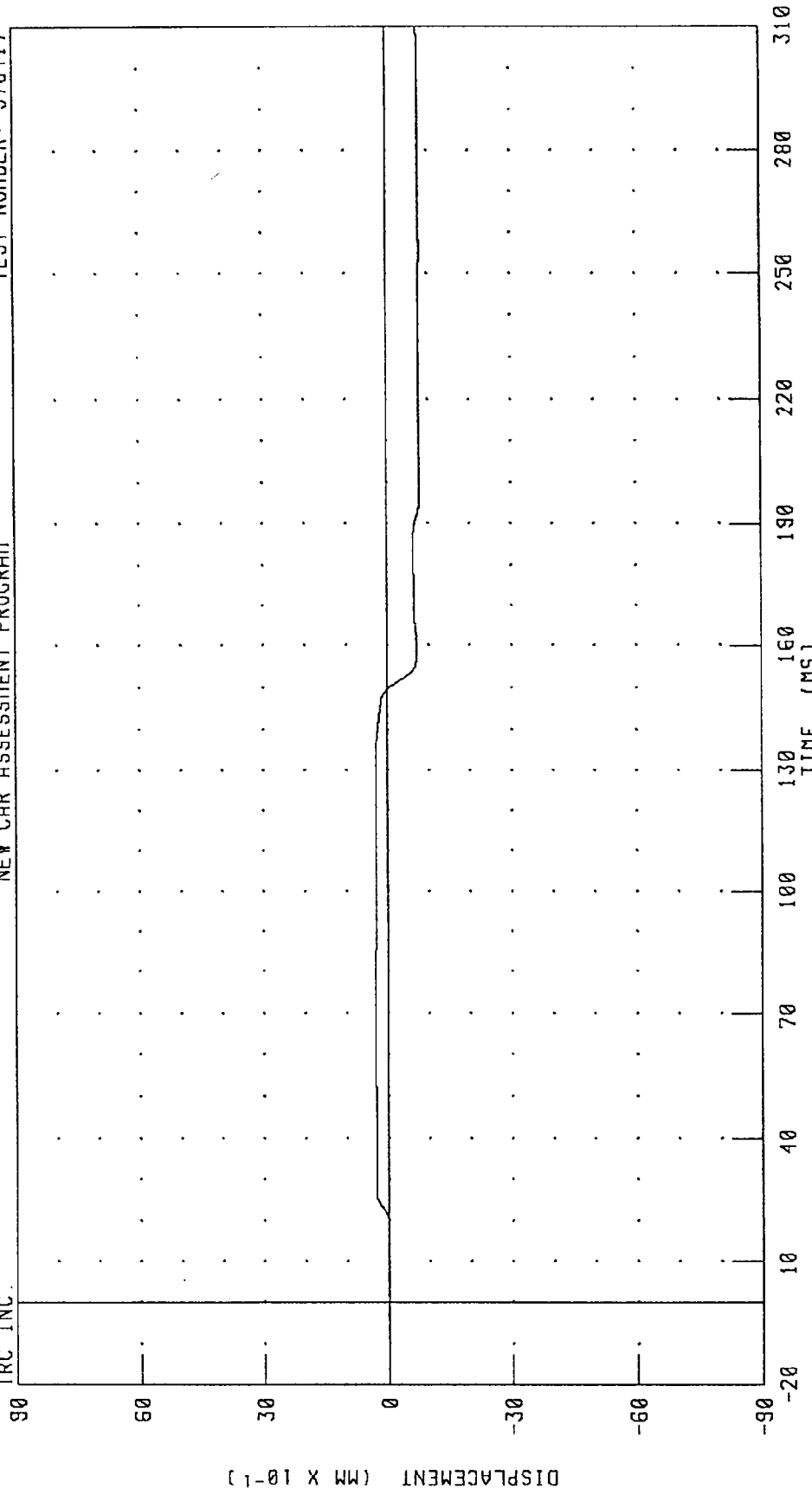
FILTER: CH. CLASS 60

PEAK DATA: 103.51 MM @ 65.04 MS; 0.01 MM @ -20.00 MS

1997 JEEP CHEROKEE SPORT INTO FRONTAL LOAD CELL BARRIER
PASSENGER SEAT BELT EXTENSION
NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 970417

TRC INC.



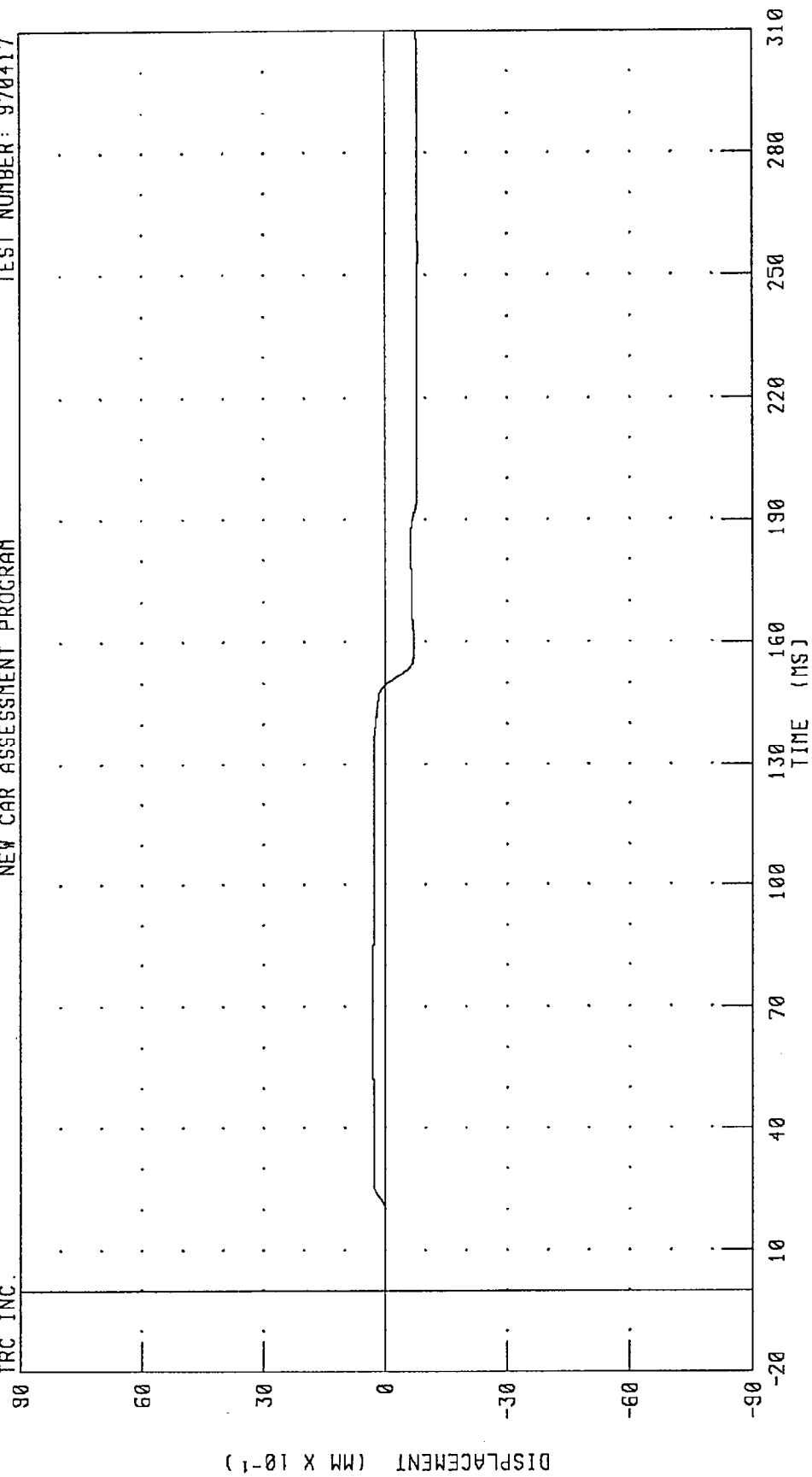
PEAK DATA: 0.31 MM @ 59.84 MS; -0.80 MM @ 256.00 MS

CHANNEL: SBED2 FILTER: CH. CLASS 60

1997 JEEP CHEROKEE SPORT INTO FRONTAL LOAD CELL BARRIER
PASSENGER SEAT BELT EXTENSION
NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 970417

TRC INC.



PEAK DATA: 0.31 MM @ 59.84 MS; -0.80 MM @ 256.00 MS

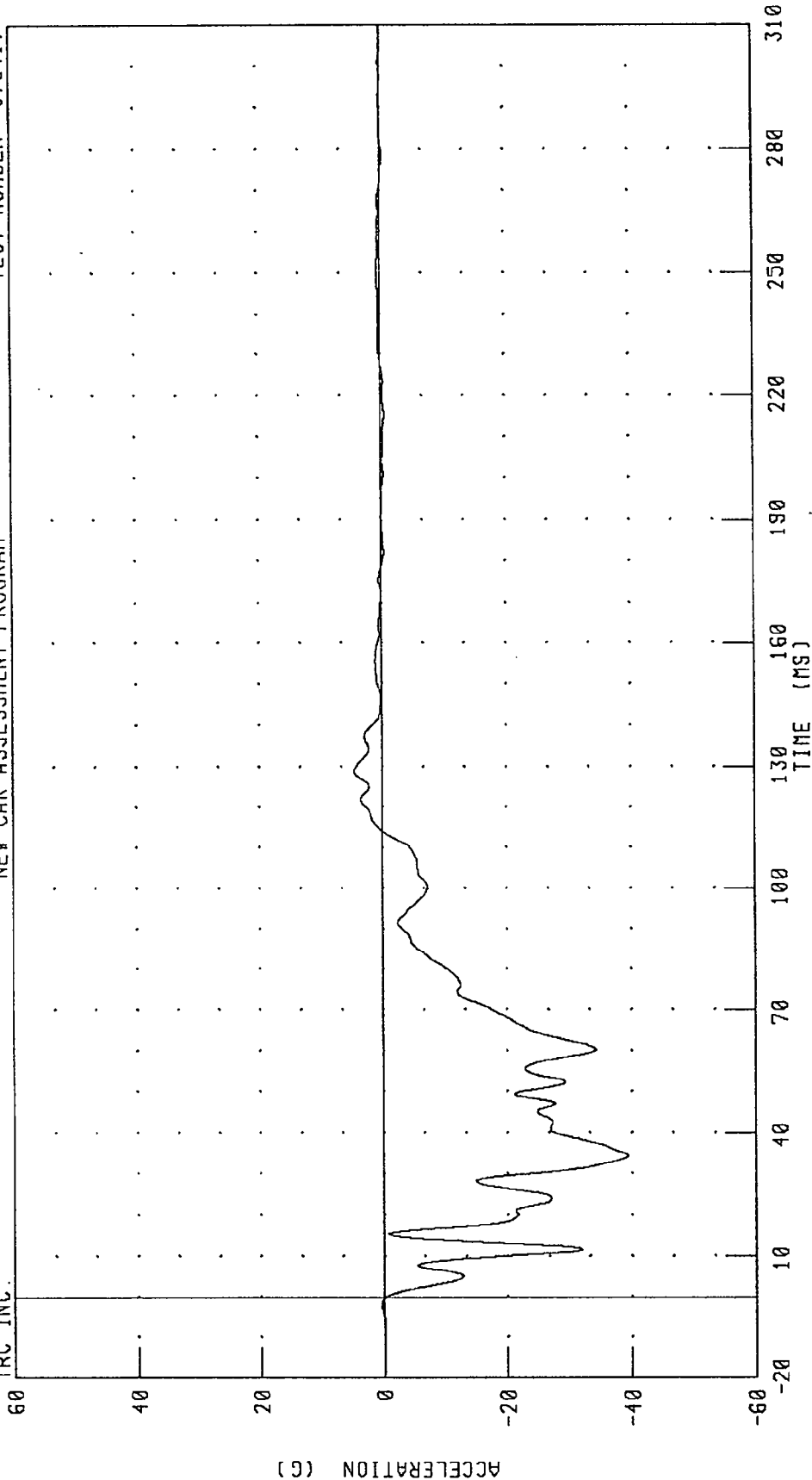
CHANNEL: SBED2 FILTER: CH. CLASS 60

1997 JEEP CHEROKEE SPORT INTO FRONTAL LOAD CELL BARRIER
LEFT REAR SEAT X-AXIS ACCELERATION

TEST NUMBER: 970417

NEW CAR ASSESSMENT PROGRAM

TRC INC.



CHANNEL: TLRXG1 FILTER: CH. CLASS 60

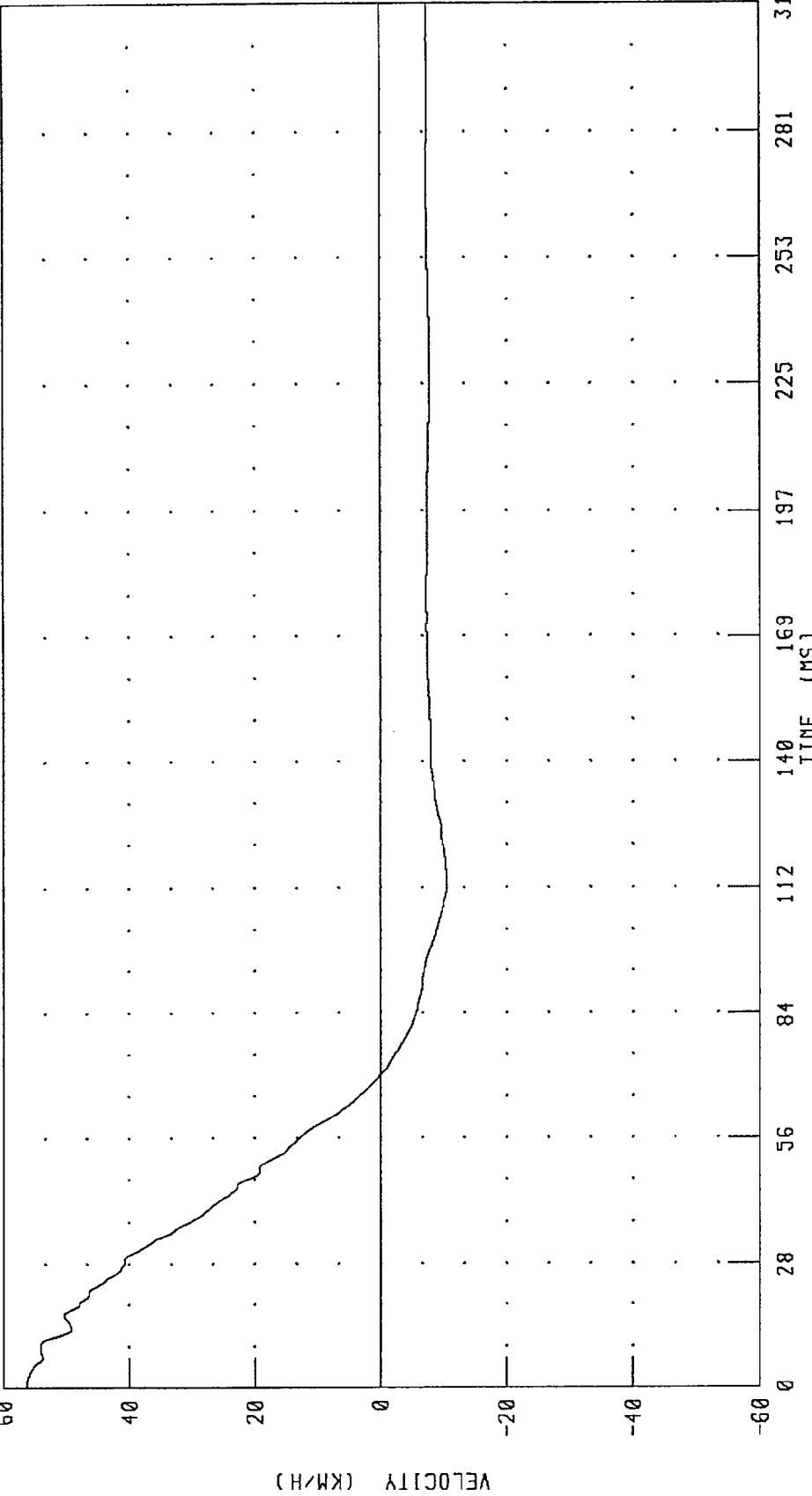
PEAK DATA: 4.61 G @ 128.88 MS; -39.43 G @ 34.48 MS

1997 JEEP CHEROKEE SPORT INTO FRONTAL LOAD CELL BARRIER
LEFT REAR SEAT X-AXIS VELOCITY

TEST NUMBER: 970417

NEW CAR ASSESSMENT PROGRAM

TRC INC.

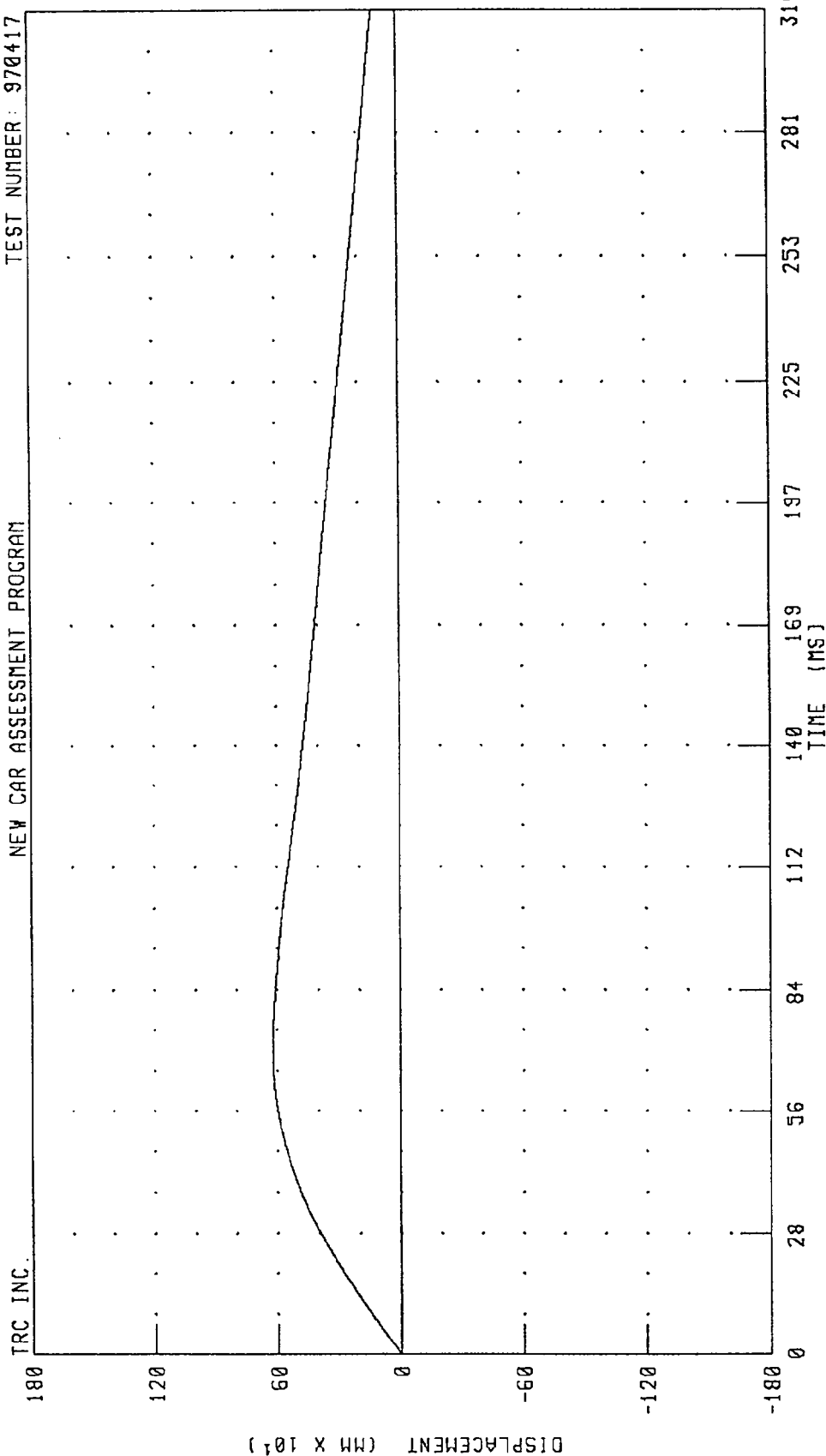


CHANNEL: TLRXV1 FILTER: CH. CLASS 180

PEAK DATA: 56.21 KM/H @ 0.80 MS; -10.50 KM/H @ 112.32 MS

1997 JEEP CHEROKEE SPORT INTO FRONTAL LOAD CELL BARRIER
 LEFT REAR SEAT X-AXIS DISPLACEMENT
 NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 970417

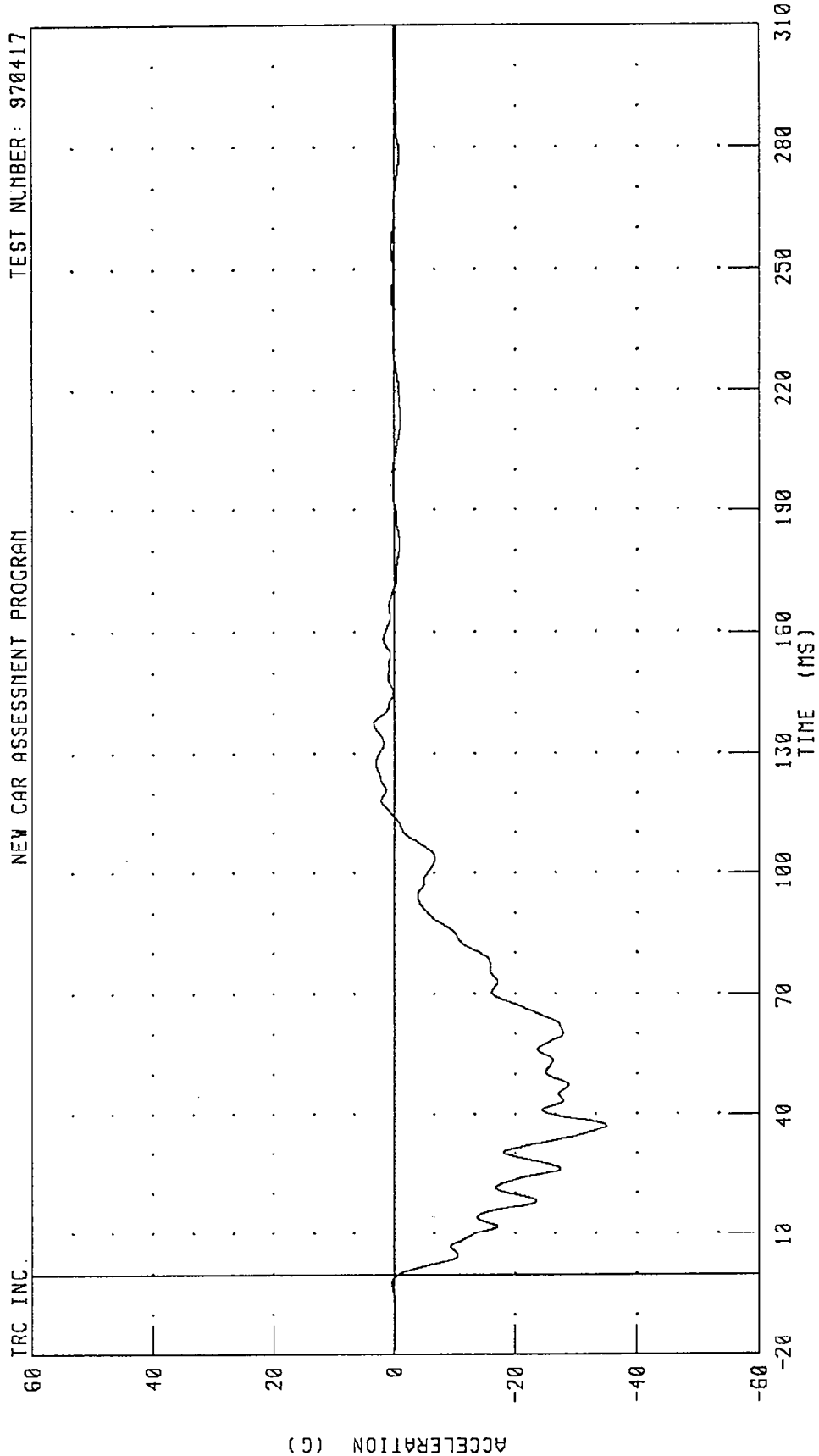


PEAK DATA: 621.18 MM @ 70.56 MS; 0.00 MM @ 0.00 MS

CHANNEL: TLRXD1 FILTER: CH. CLASS 180

1997 JEEP CHEROKEE SPORT INTO FRONTAL LOAD CELL BARRIER
 RIGHT REAR SEAT X-AXIS ACCELERATION
 NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 970417

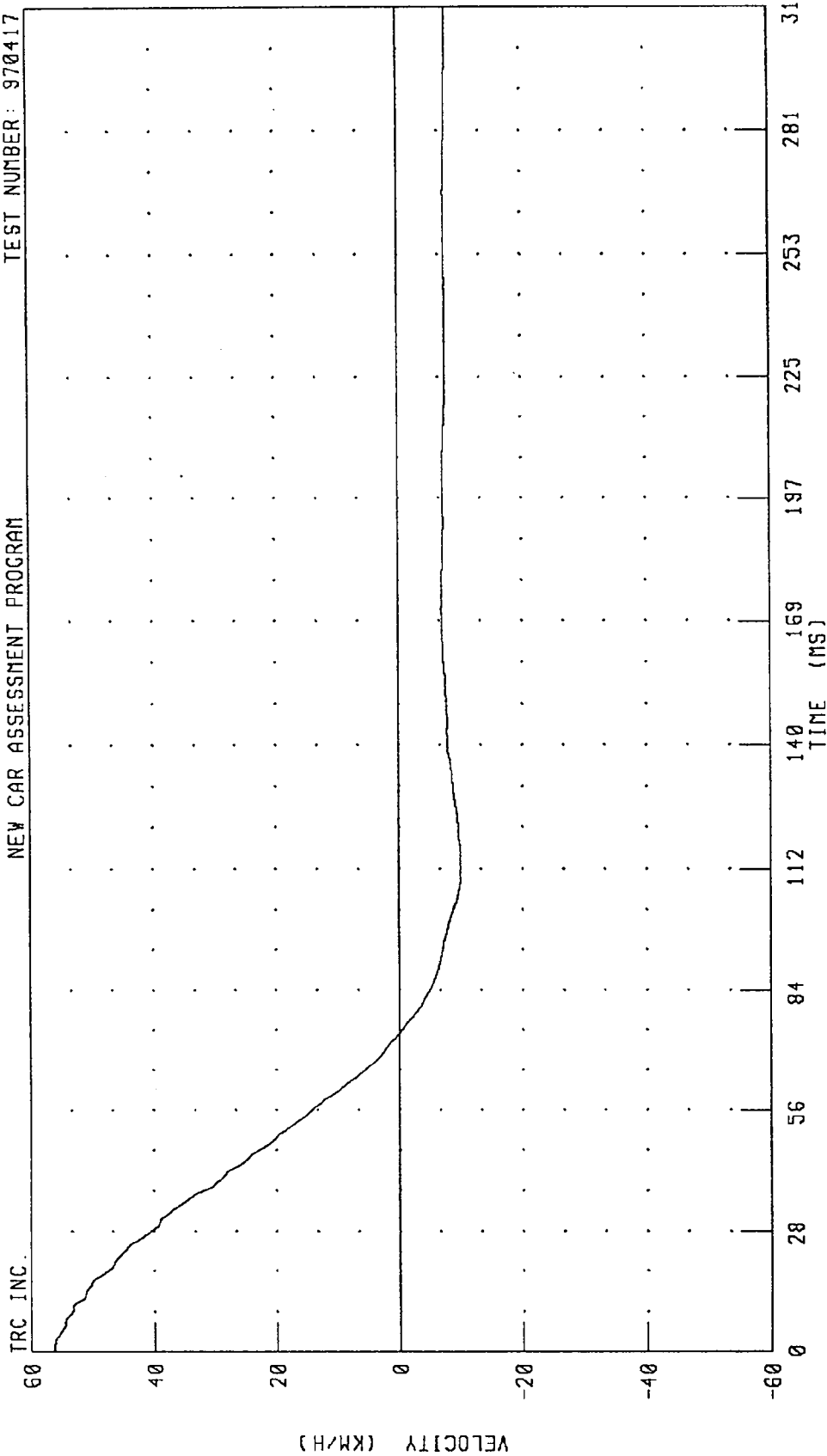


PEAK DATA: 3.46 G @ 137.44 MS; -35.02 G @ 37.20 MS

CHANNEL: TRRXG1 FILTER: CH. CLASS 60

1997 JEEP CHEROKEE SPORT INTO FRONTAL LOAD CELL BARRIER
 RIGHT REAR SEAT X-AXIS VELOCITY
 NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 970417



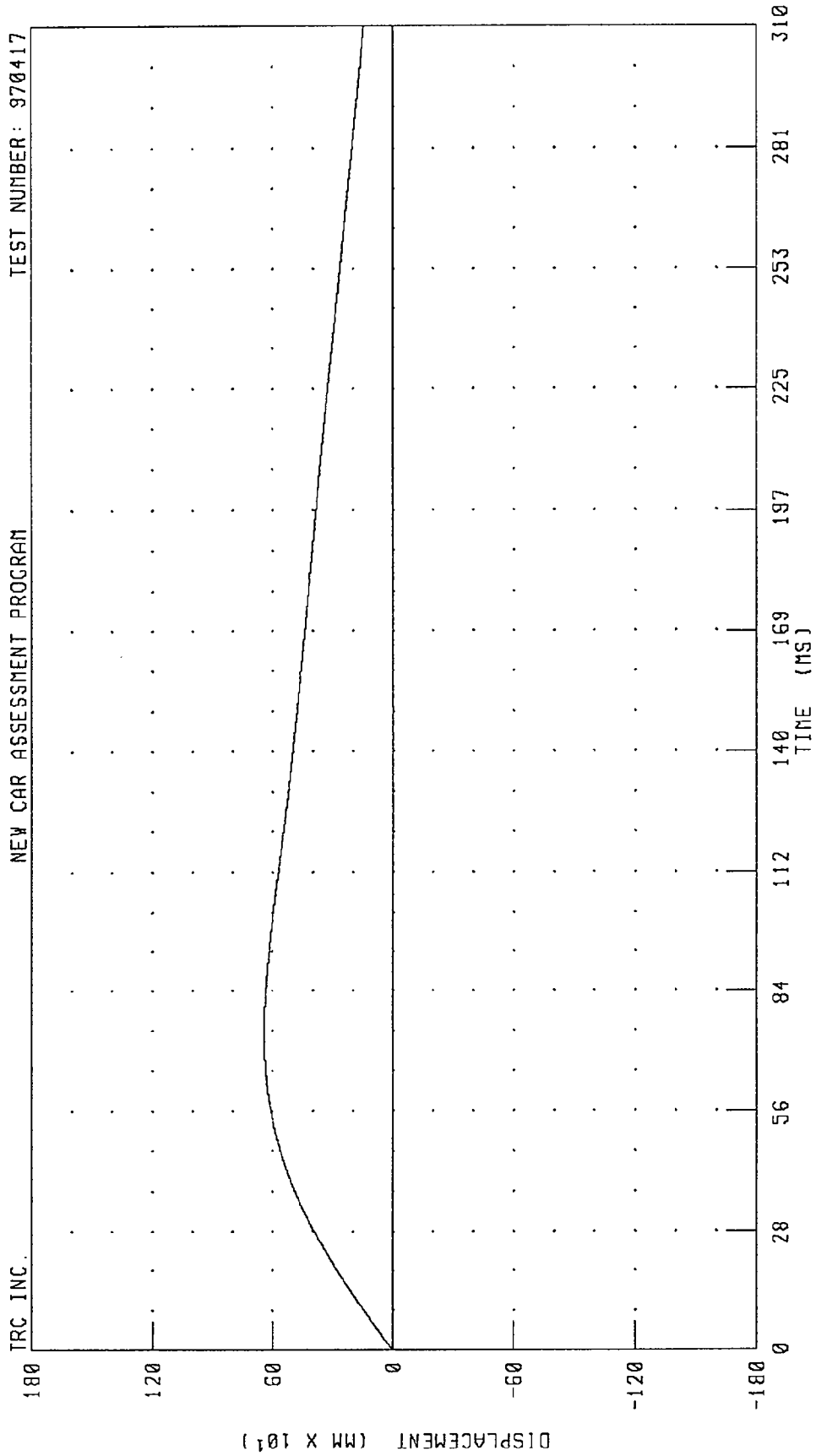
PEAK DATA: 56.20 KM/H @ 0.16 MS; -10.05 KM/H @ 113.44 MS

CHANNEL: TRRXV1 FILTER: CH. CLASS 180

1997 JEEP CHEROKEE SPORT INTO FRONTAL LOAD CELL BARRIER
 RIGHT REAR SEAT X-AXIS DISPLACEMENT

NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 970417

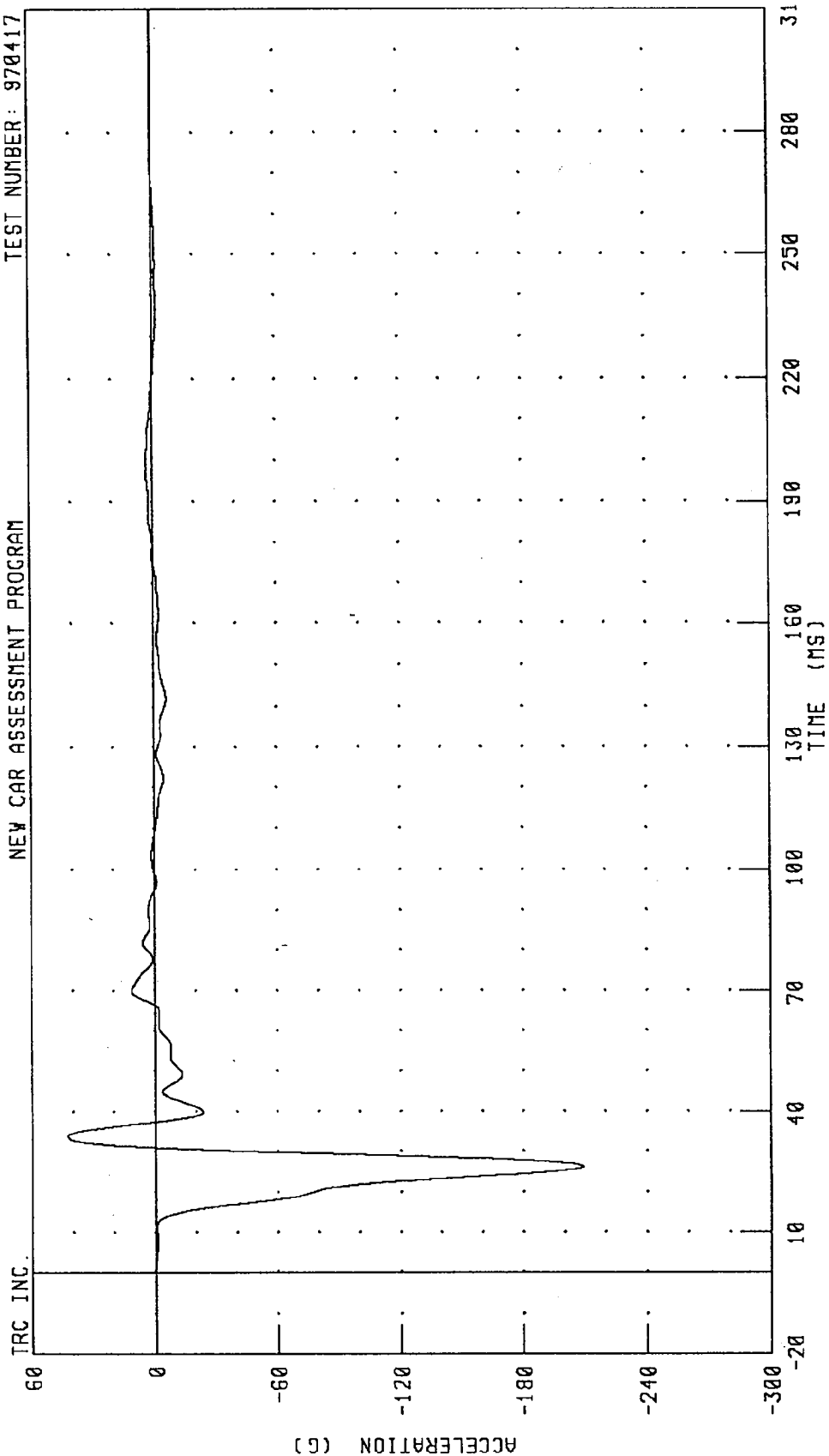


PEAK DATA: 640.98 MM @ 74.48 MS; 0.00 MM @ 0.00 MS

CHANNEL: TRRXD1 FILTER: CH. CLASS 180

1997 JEEP CHEROKEE SPORT INTO FRONTAL LOAD CELL BARRIER
ENGINE TOP X-AXIS ACCELERATION
NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 970417



PEAK DATA: 42.61 G @ 33.84 MS; -208.76 G @ 26.24 MS

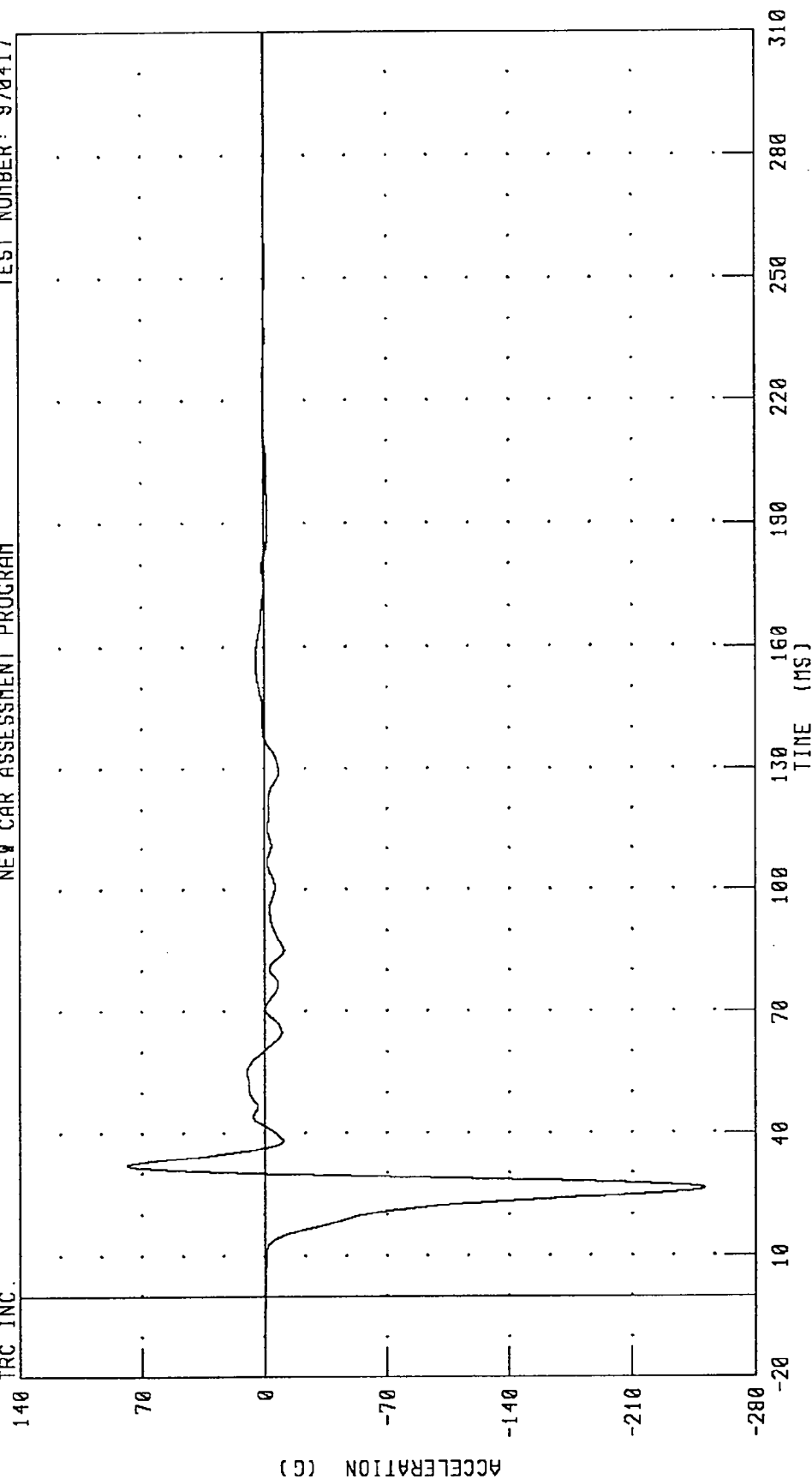
CHANNEL: ENGCG1 FILTER: CH. CLASS 60

1997 JEEP CHEROKEE SPORT INTO FRONTAL LOAD CELL BARRIER
ENGINE BOTTOM X-AXIS ACCELERATION

TEST NUMBER: 970417

NEW CAR ASSESSMENT PROGRAM

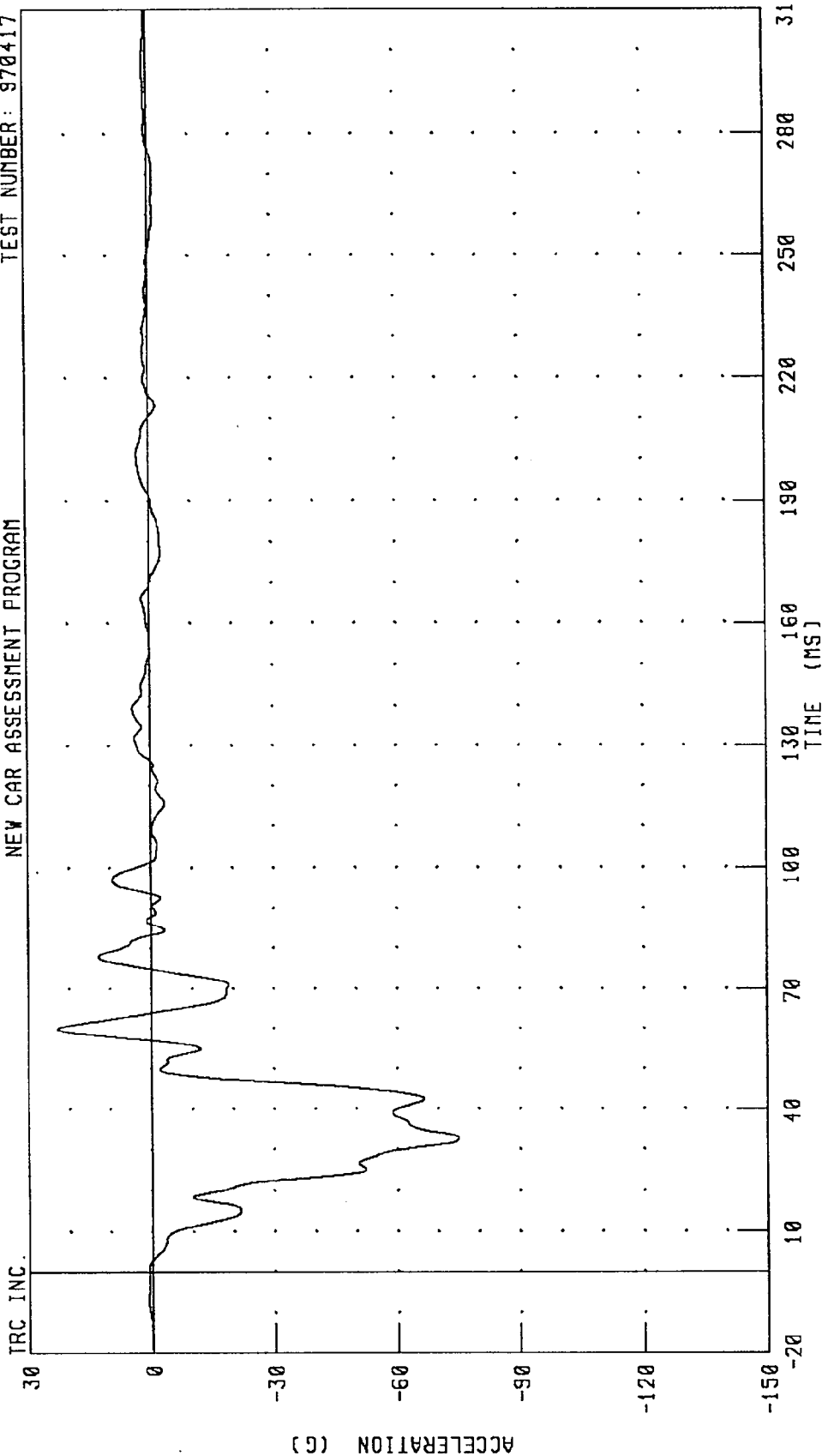
TRC INC.



CHANNEL: ENGXC2 FILTER: CH. CLASS 60

1997 JEEP CHEROKEE SPORT INTO FRONTAL LOAD CELL BARRIER
 RIGHT BRAKE CALIPER X-AXIS ACCELERATION
 NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 970417



PEAK DATA: 22.78 G @ 60.00 MS; -75.00 G @ 32.80 MS

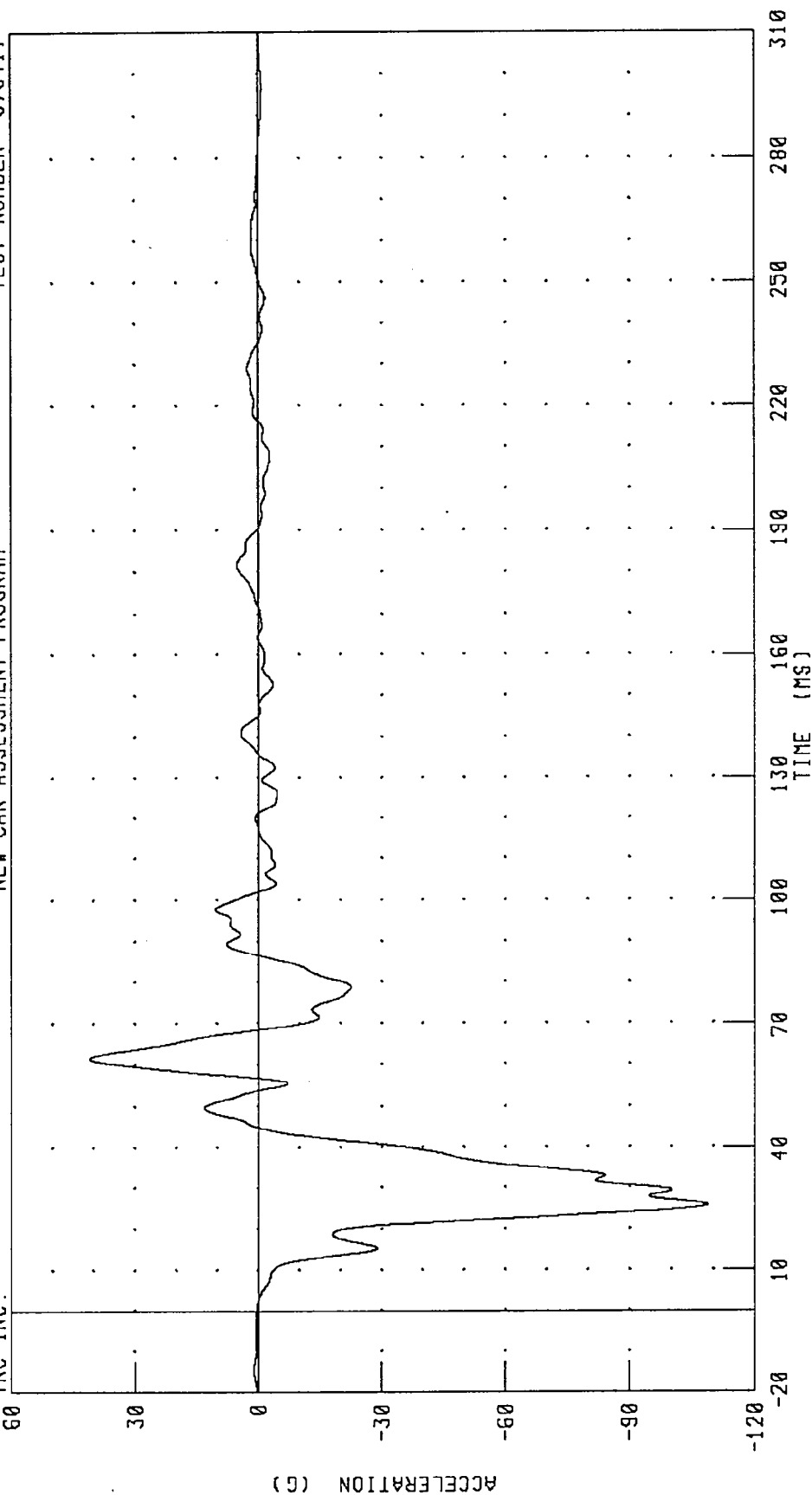
CHANNEL: BCRXG1 FILTER: CH. CLASS 60

1997 JEEP CHEROKEE SPORT INTO FRONTAL LOAD CELL BARRIER
LEFT BRAKE CALIPER X-AXIS ACCELERATION

TEST NUMBER: 970417

NEW CAR ASSESSMENT PROGRAM

TRC INC.



CHANNEL: BCLXG1 FILTER: CH. CLASS 60

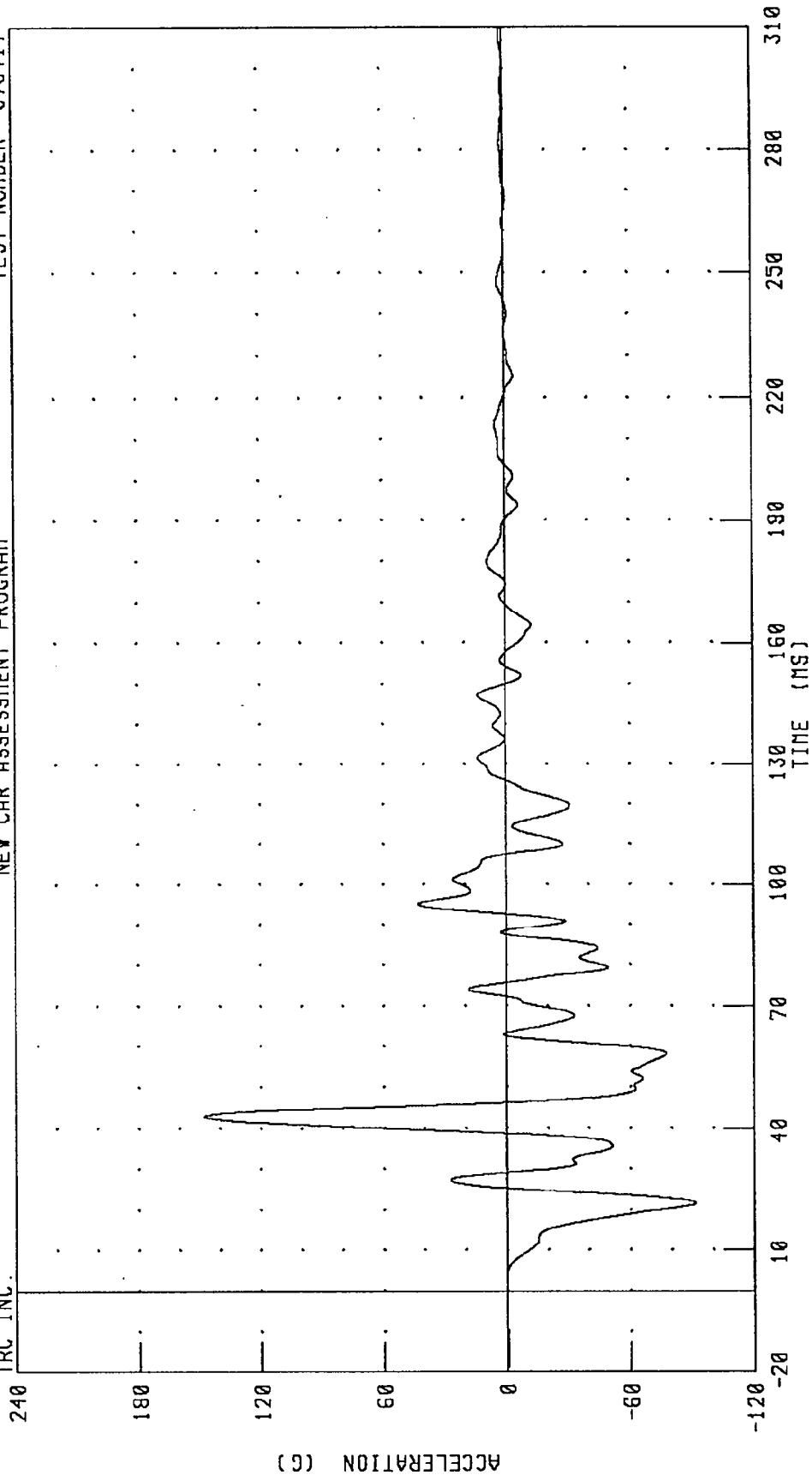
PEAK DATA: 41.00 G @ 61.60 MS, -108.77 G @ 25.76 MS

1997 JEEP CHEROKEE SPORT INTO FRONTAL LOAD CELL BARRIER
INSTRUMENT PANEL CENTER X-AXIS ACCELERATION

TEST NUMBER: 970417

NEW CAR ASSESSMENT PROGRAM

TRC INC.

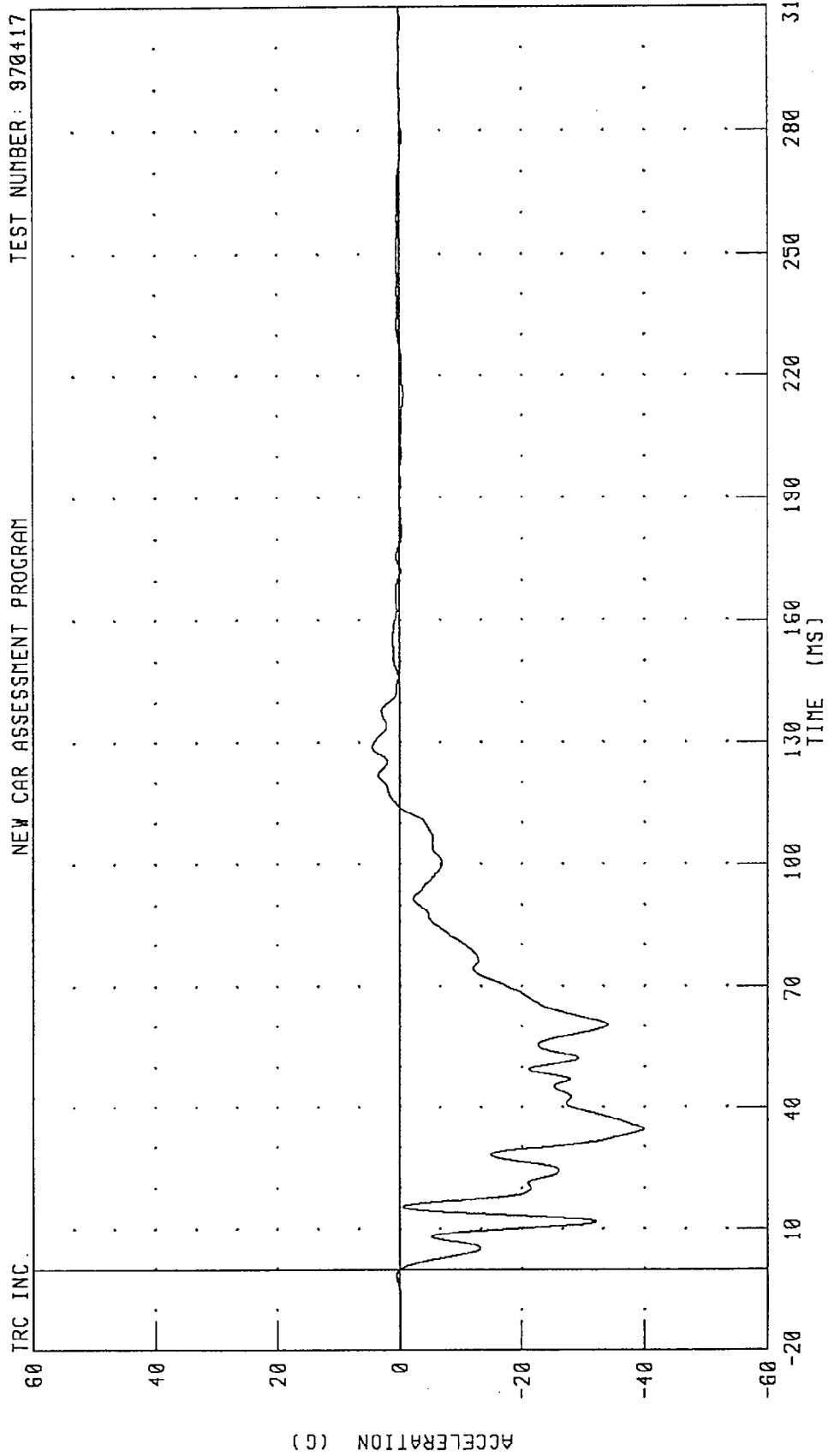


CHANNEL: DPCXG1 FILTER: CH. CLASS 60

1997 JEEP CHEROKEE SPORT INTO FRONTAL LOAD CELL BARRIER
LEFT REAR SEAT REDUNDANT X-AXIS ACCELERATION

TEST NUMBER: 970417

NEW CAR ASSESSMENT PROGRAM



CHANNEL: TLRXGA FILTER: CH. CLASS 60

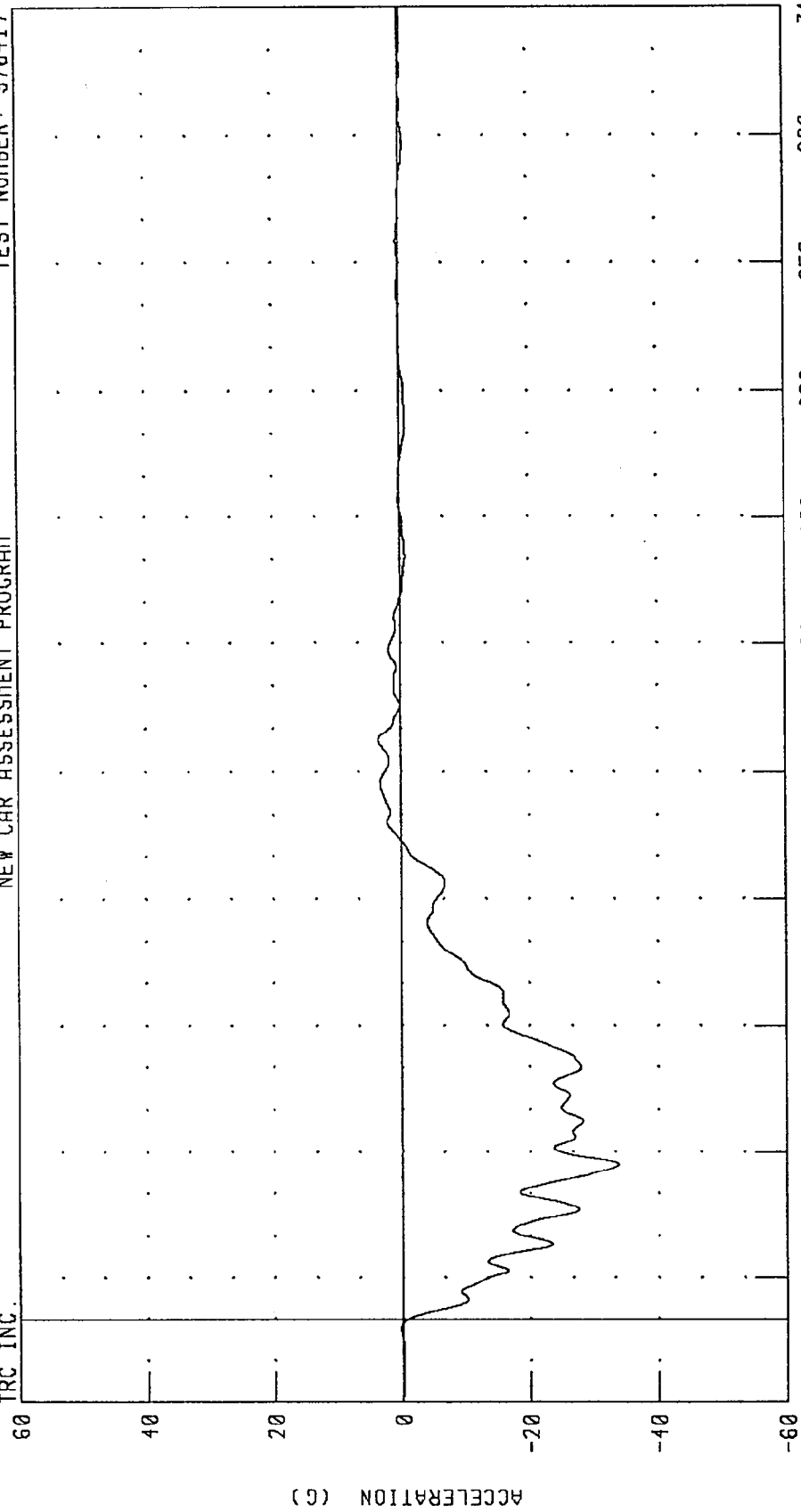
PEAK DATA: 4.52 G @ 128.88 MS; -39.89 G @ 34.64 MS

1997 JEEP CHEROKEE SPORT INTO FRONTAL LOAD CELL BARRIER
RIGHT REAR SEAT REDUNDANT X-AXIS ACCELERATION

TEST NUMBER: 970417

NEW CAR ASSESSMENT PROGRAM

TRC INC.



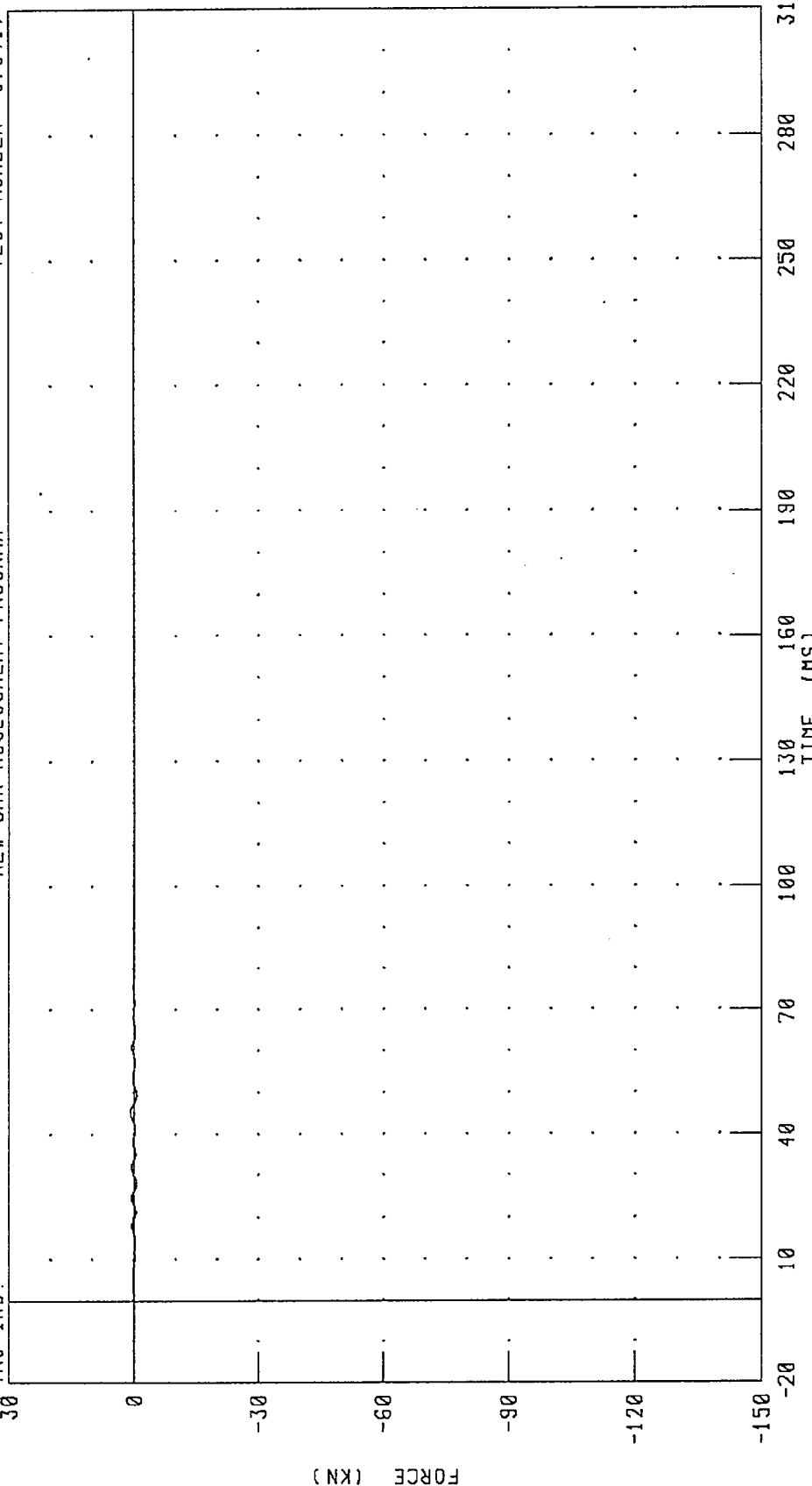
CHANNEL: TRRXGA FILTER: CH. CLASS 60

1997 JEEP CHEROKEE SPORT INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION A1 FORCE

TEST NUMBER: 970417

NEW CAR ASSESSMENT PROGRAM

TRC INC.



PEAK DATA: 0.80 KN @ 45.28 MS; -0.68 KN @ 49.52 MS

FILTER: CH. CLASS 60

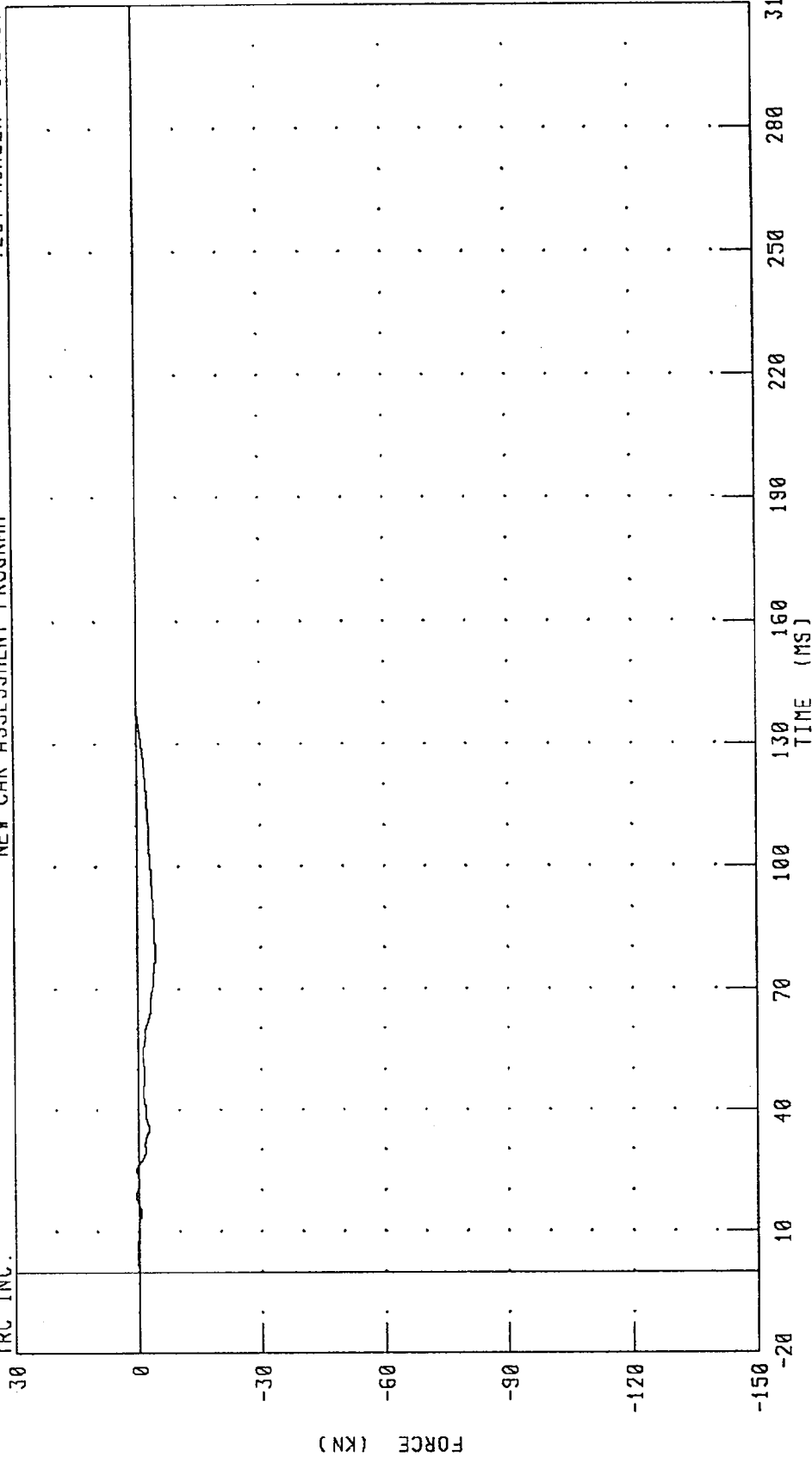
CHANNEL: BA1F

1997 JEEP CHEROKEE SPORT INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION A2 FORCE

TEST NUMBER: 970417

NEW CAR ASSESSMENT PROGRAM

TRC INC.



CHANNEL: BA2F

FILTER: CH. CLASS 60

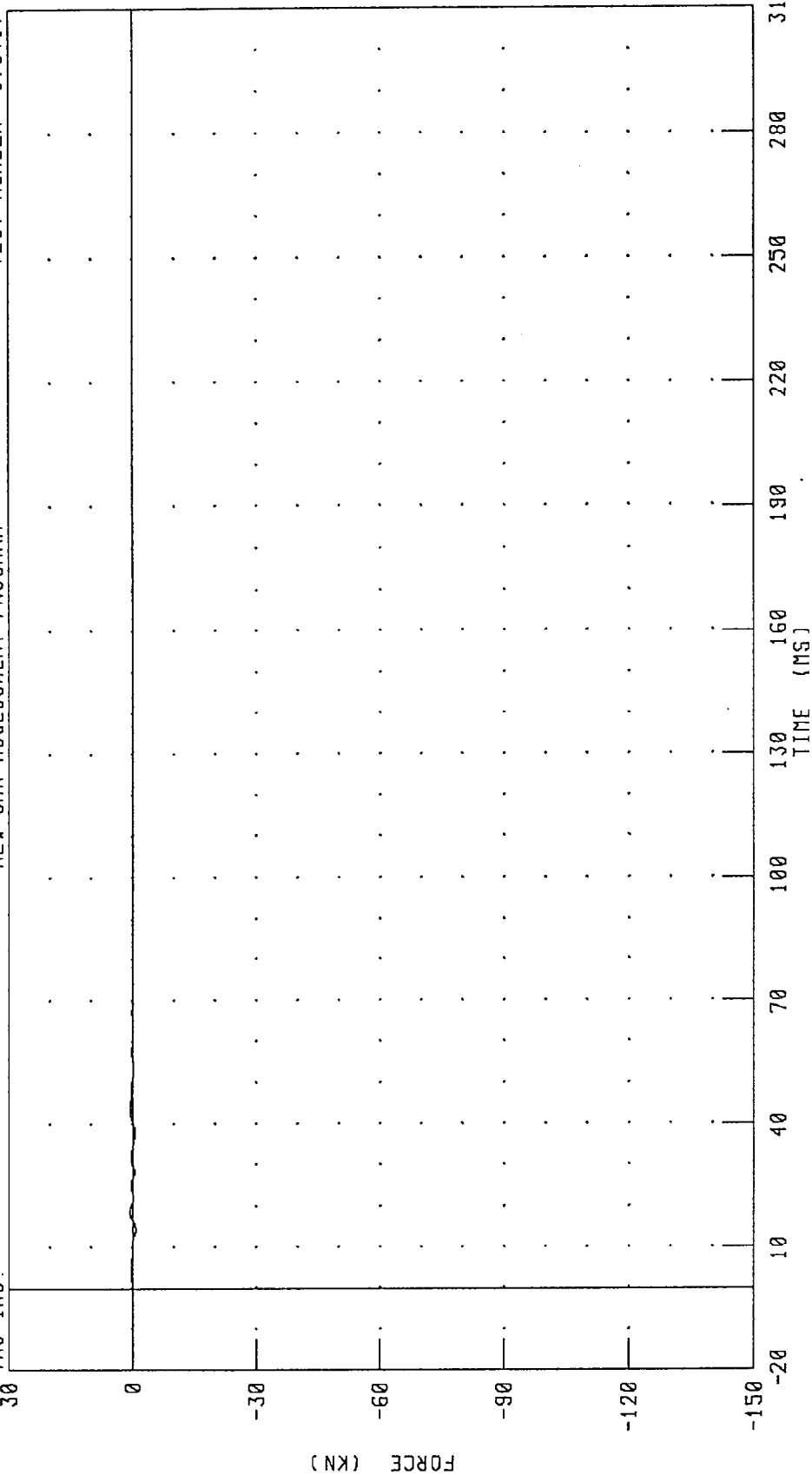
PEAK DATA: 0.44 KN @ 18.40 MS; -4.27 KN @ 79.20 MS

1997 JEEP CHEROKEE SPORT INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION A3 FORCE

TEST NUMBER: 970417

NEW CAR ASSESSMENT PROGRAM

TRC INC.



CHANNEL: BA3F

FILTER: CH. CLASS 60

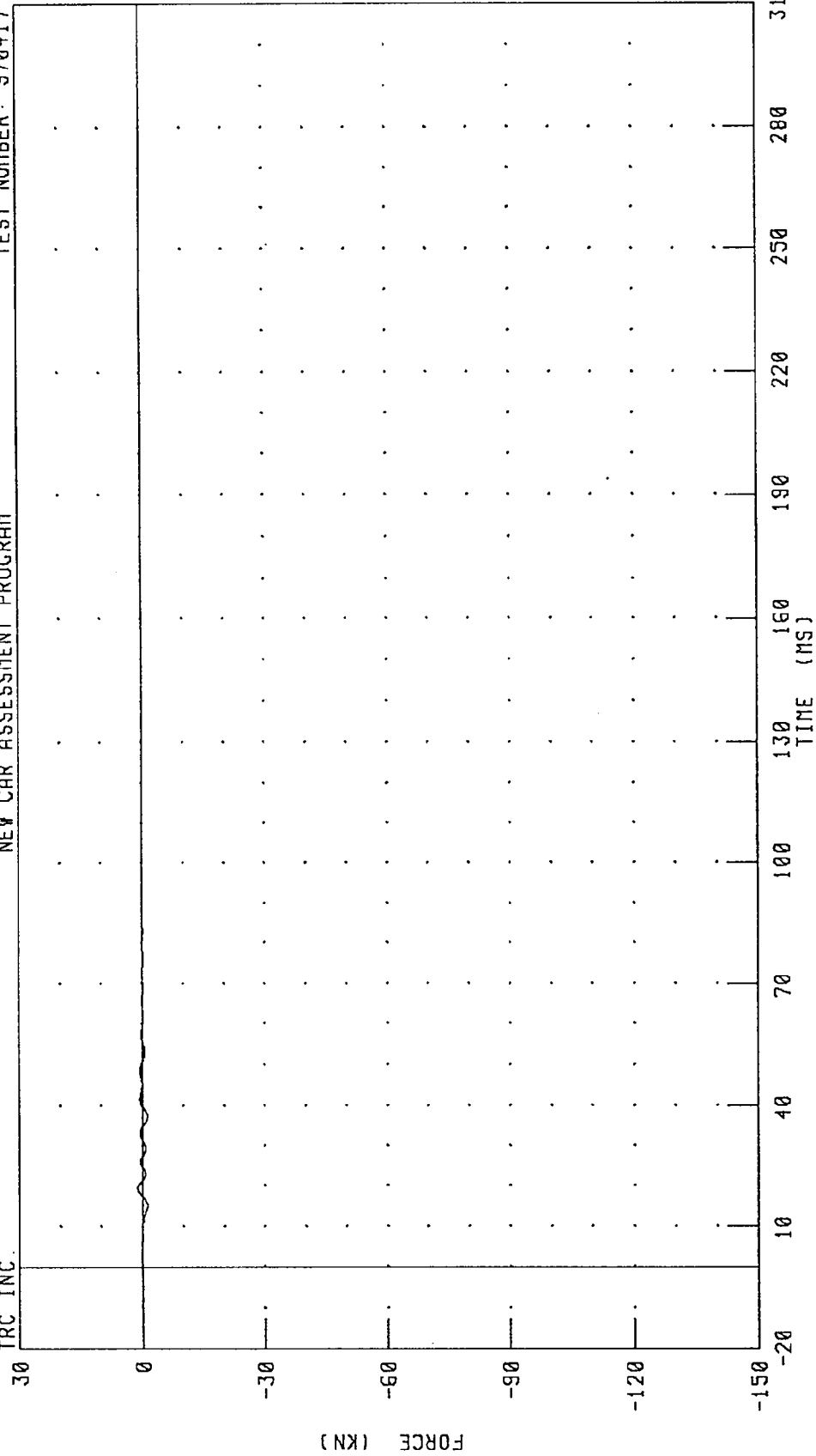
PEAK DATA: 0.60 KN @ 18.72 MS; -0.74 KN @ 14.32 MS

1997 JEEP CHEROKEE SPORT INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION A4 FORCE

TEST NUMBER: 970417

NEW CAR ASSESSMENT PROGRAM

TRC INC.



PEAK DATA: 1.11 KN @ 19.36 MS; -1.31 KN @ 37.28 MS

FILTER: CH. CLASS 60

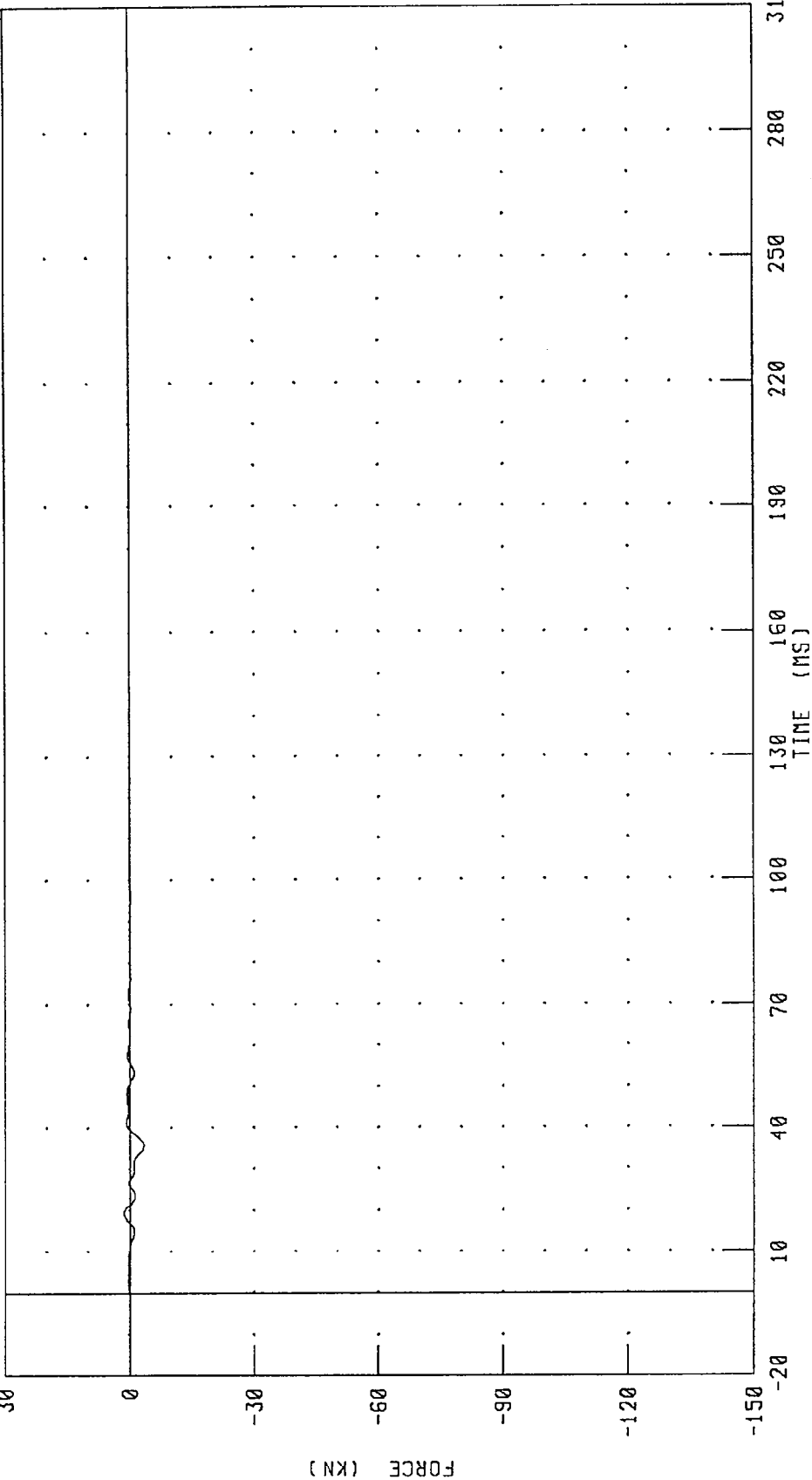
CHANNEL: BA4F

1997 JEEP CHEROKEE SPORT INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION A5 FORCE

TEST NUMBER: 970417

NEW CAR ASSESSMENT PROGRAM

TRC INC.



PEAK DATA: 1.43 KN @ 19.36 MS; -3.50 KN @ 35.76 MS

FILTER: CH. CLASS 60

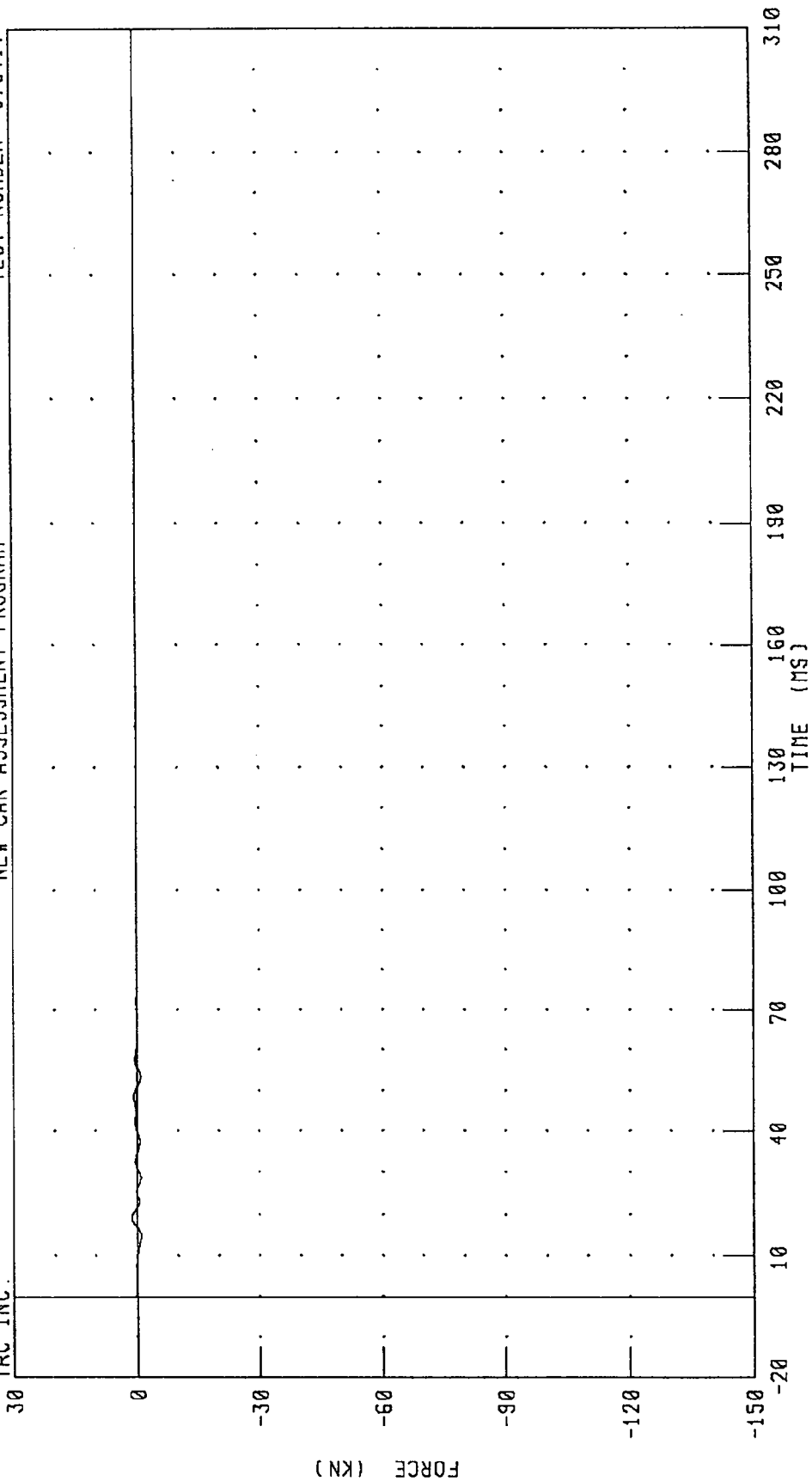
CHANNEL: BASF

1997 JEEP CHEROKEE SPORT INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION A6 FORCE

TEST NUMBER: 970417

NEW CAR ASSESSMENT PROGRAM

TRC INC.



PEAK DATA: 1.28 KN @ 19.20 MS, -1.02 KN @ 14.80 MS

FILTER: CH. CLASS 60

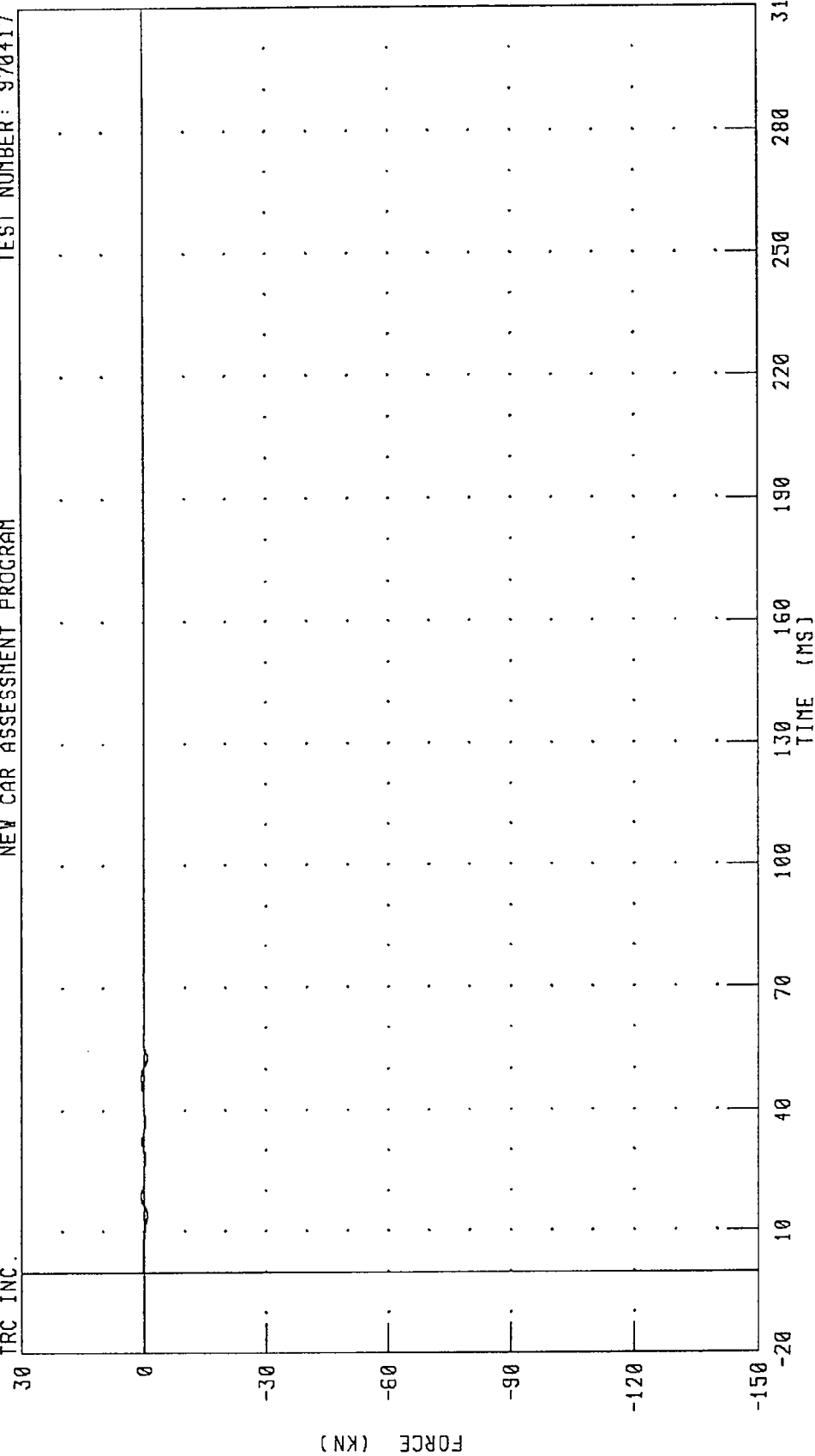
CHANNEL: BA6F

1997 JEEP CHEROKEE SPORT INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION A7 FORCE

TEST NUMBER: 970417

NEW CAR ASSESSMENT PROGRAM

TRC INC.



PEAK DATA: 0.75 KN @ 18.72 MS; -0.81 KN @ 52.88 MS

FILTER: CH. CLASS 60

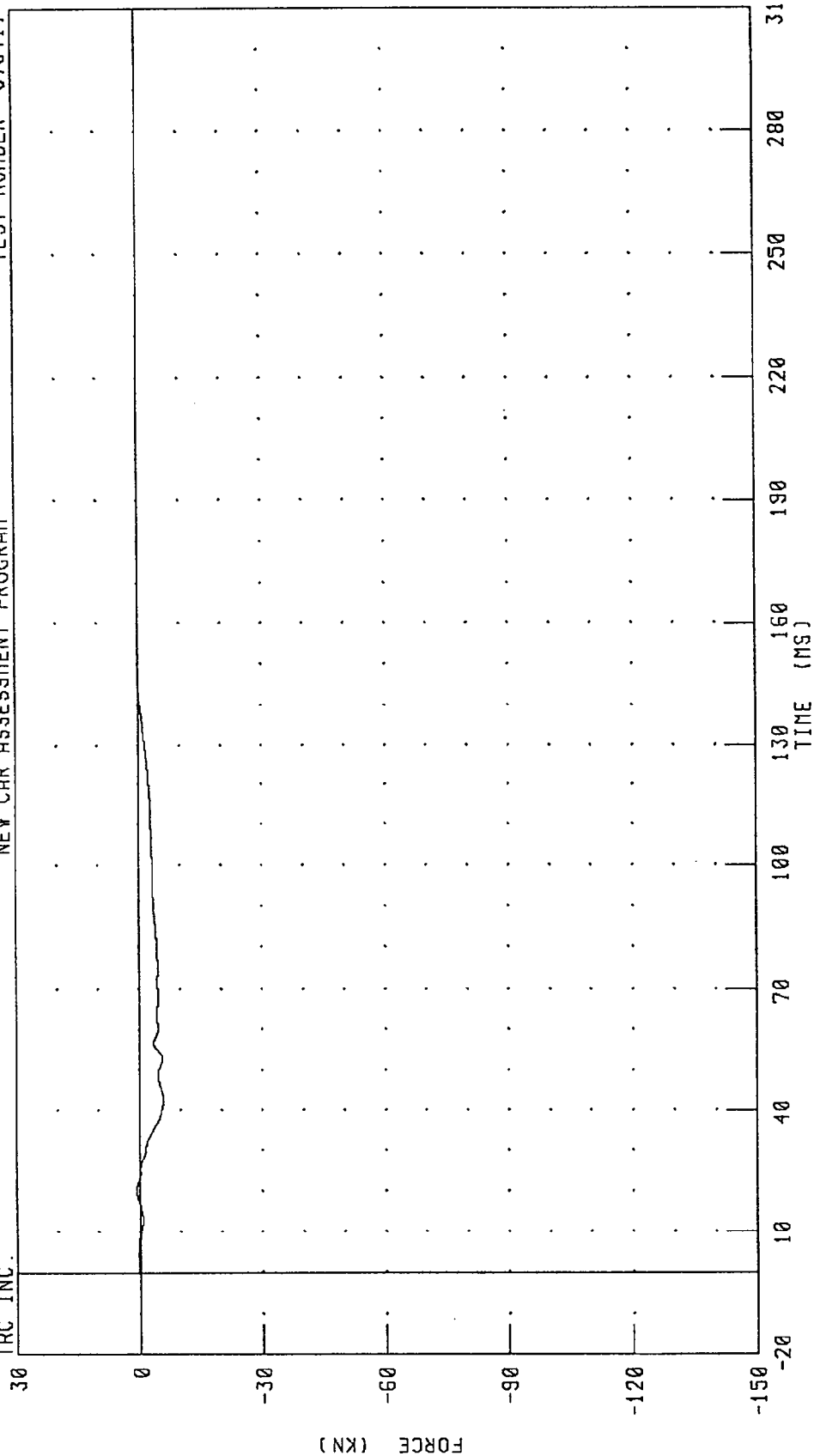
CHANNEL: BA7F

1997 JEEP CHEROKEE SPORT INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION A8 FORCE

TEST NUMBER: 970417

NEW CAR ASSESSMENT PROGRAM

TRC INC.



PEAK DATA: 0.79 KN @ 20.32 MS; -5.94 KN @ 42.64 MS

FILTER: CH. CLASS 60

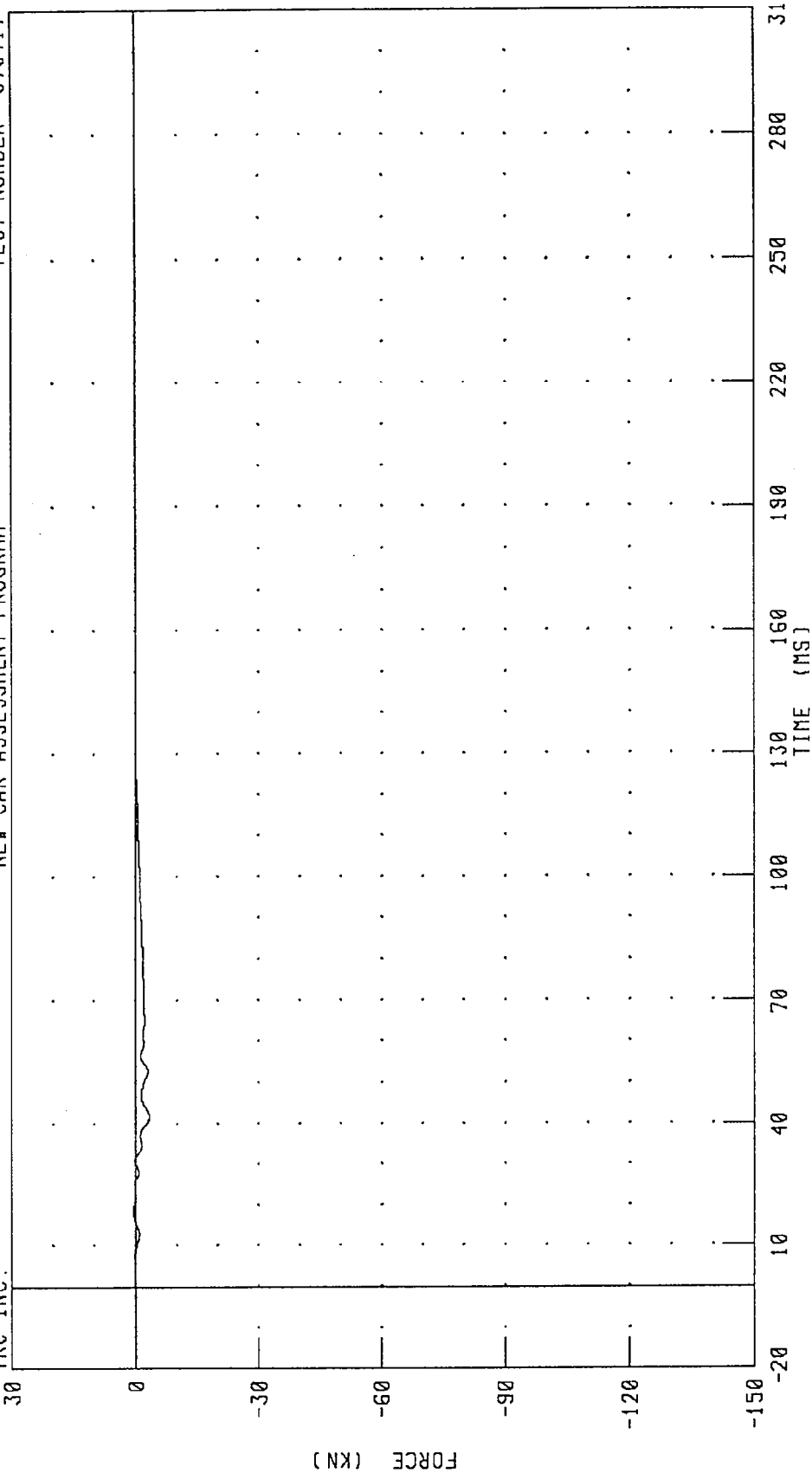
CHANNEL: BA8F

1997 JEEP CHEROKEE SPORT INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION A9 FORCE

TEST NUMBER: 970417

NEW CAR ASSESSMENT PROGRAM

TRC INC.



PEAK DATA: 0.47 KN @ 18.40 MS; -3.28 KN @ 41.84 MS

FILTER: CH. CLASS 60

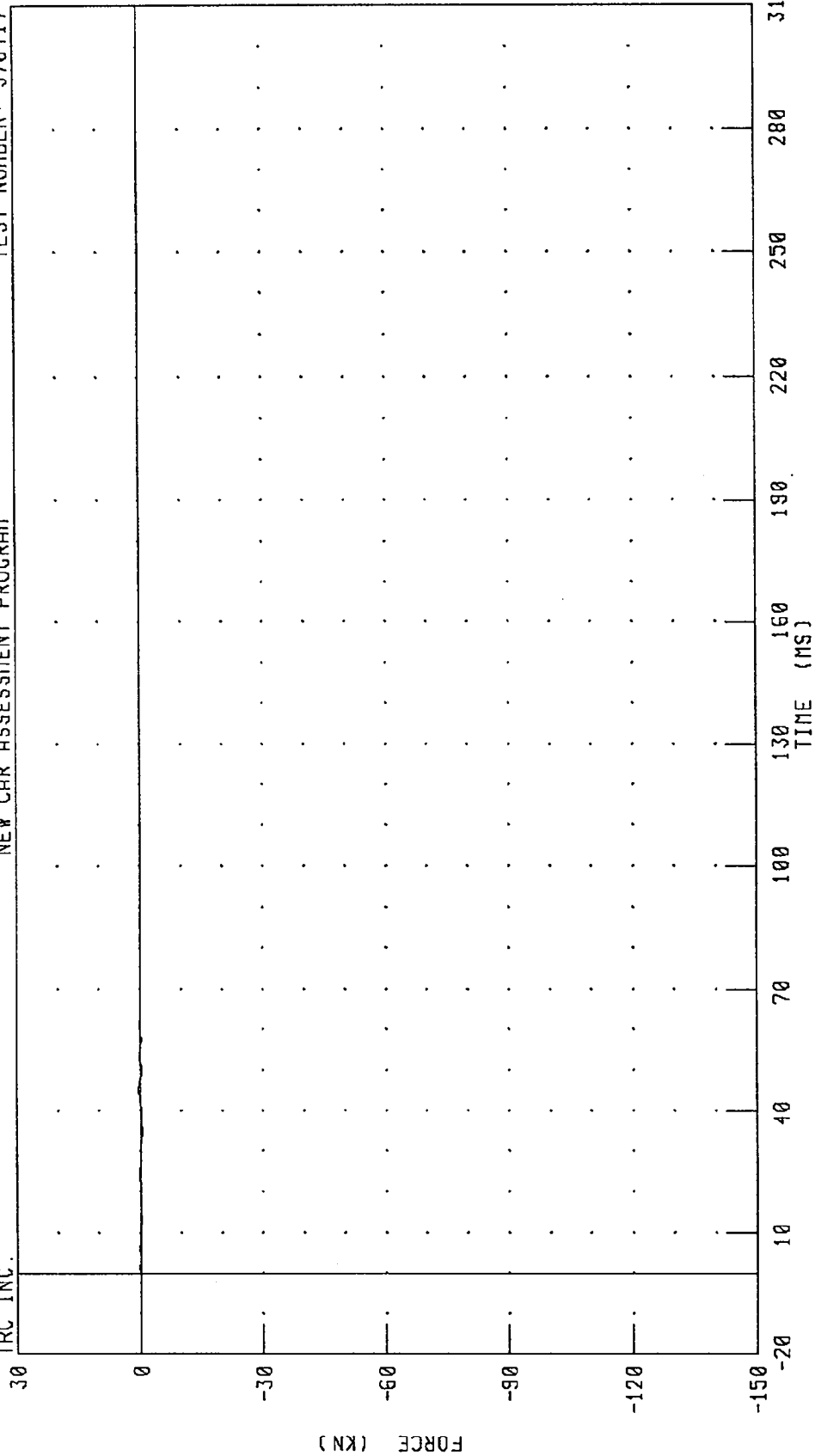
CHANNEL: BASF

1997 JEEP CHEROKEE SPORT INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION B1 FORCE

TEST NUMBER: 970417

NEW CAR ASSESSMENT PROGRAM

TRC INC.



PEAK DATA: 0.36 KN @ 45.28 MS; -0.58 KN @ 34.72 MS

FILTER: CH. CLASS 60

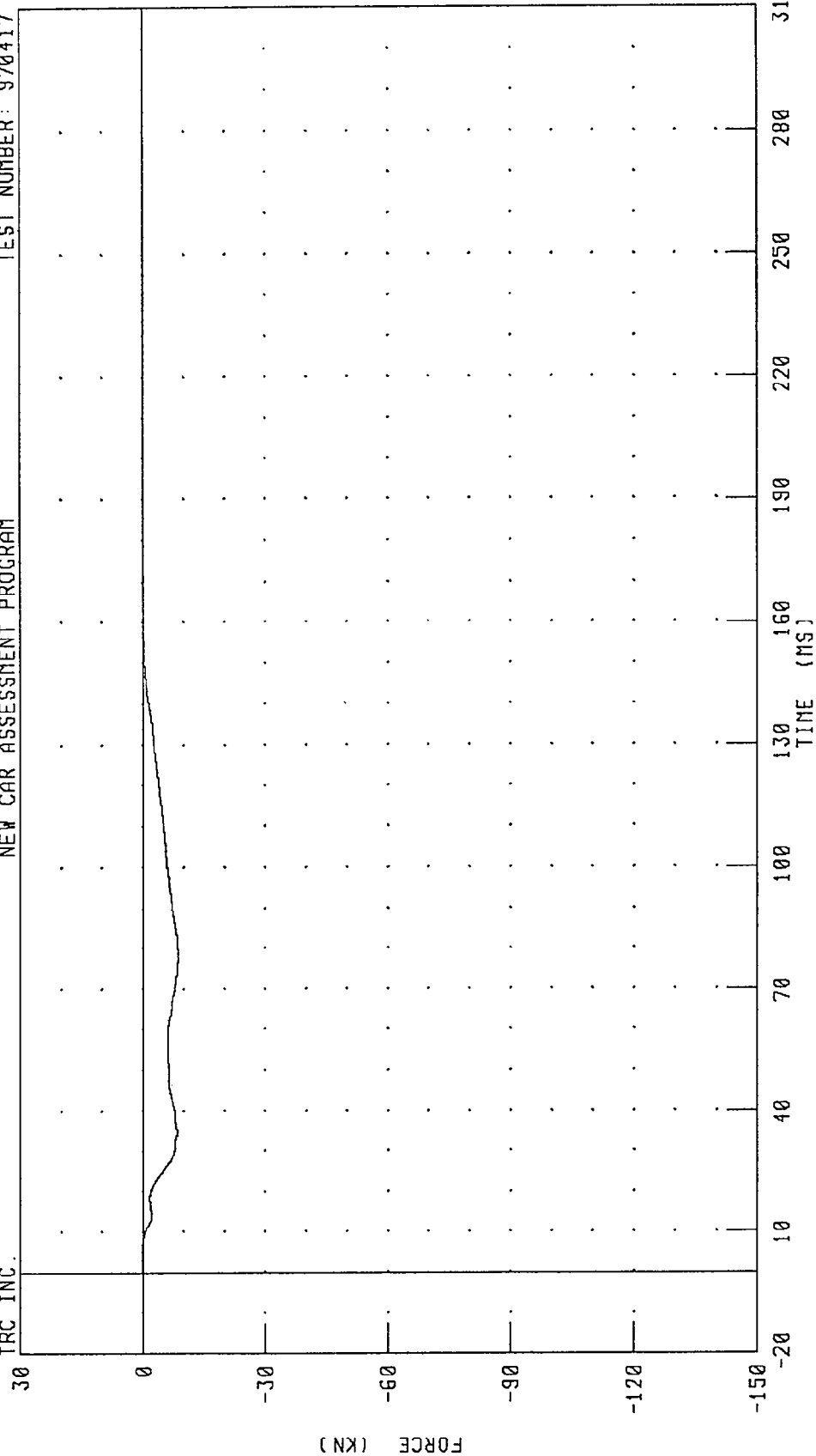
CHANNEL: BBIF

1997 JEEP CHEROKEE SPORT INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION B2 FORCE

TEST NUMBER: 970417

NEW CAR ASSESSMENT PROGRAM

TRC INC.



PEAK DATA: 0.16 KN @ 5.84 MS; -8.57 KN @ 78.32 MS

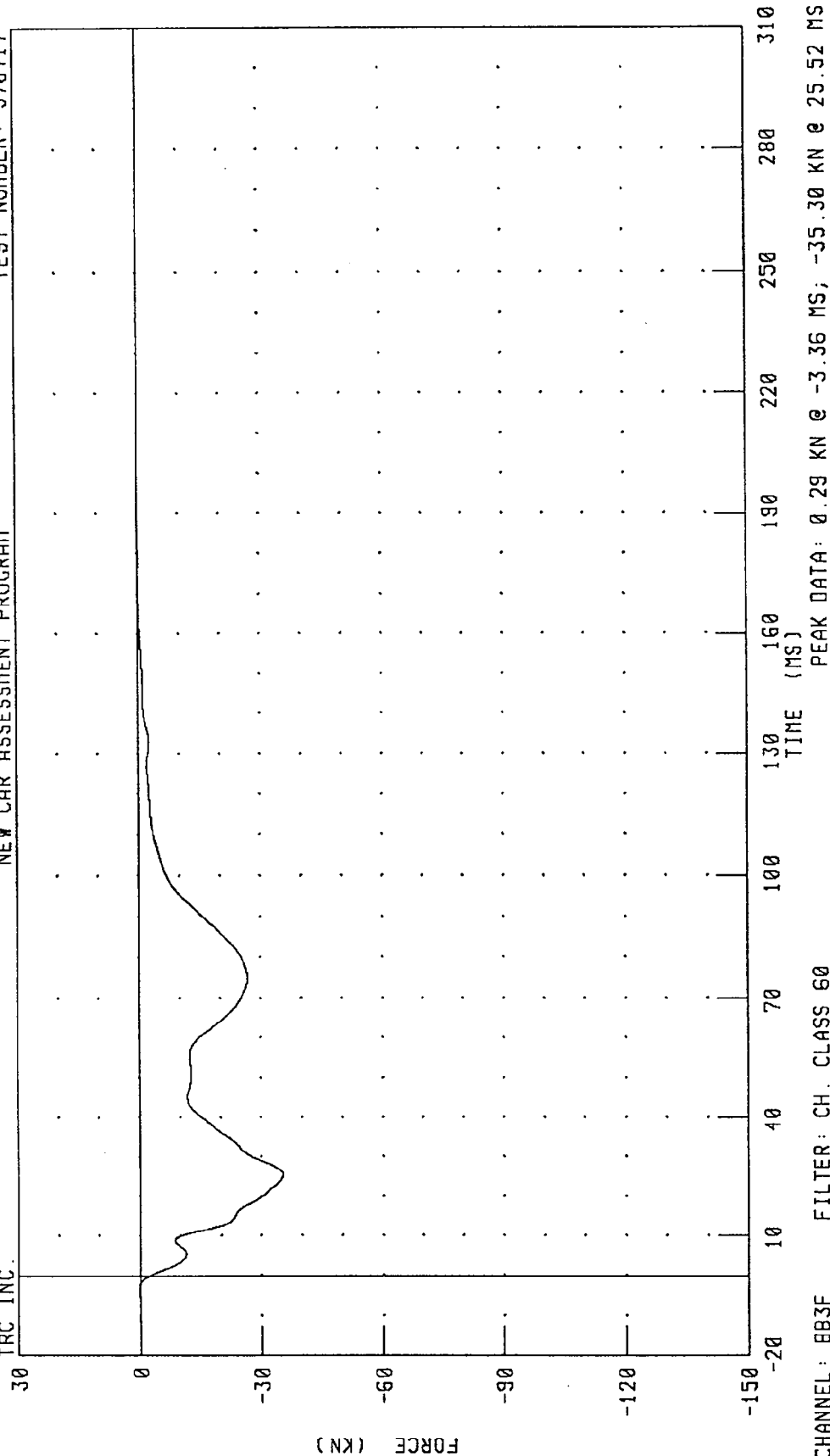
CHANNEL: BB2F FILTER: CH. CLASS 60

1997 JEEP CHEROKEE SPORT INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION B3 FORCE

TEST NUMBER: 970417

NEW CAR ASSESSMENT PROGRAM

TRC INC.



CHANNEL: BB3F FILTER: CH. CLASS 60

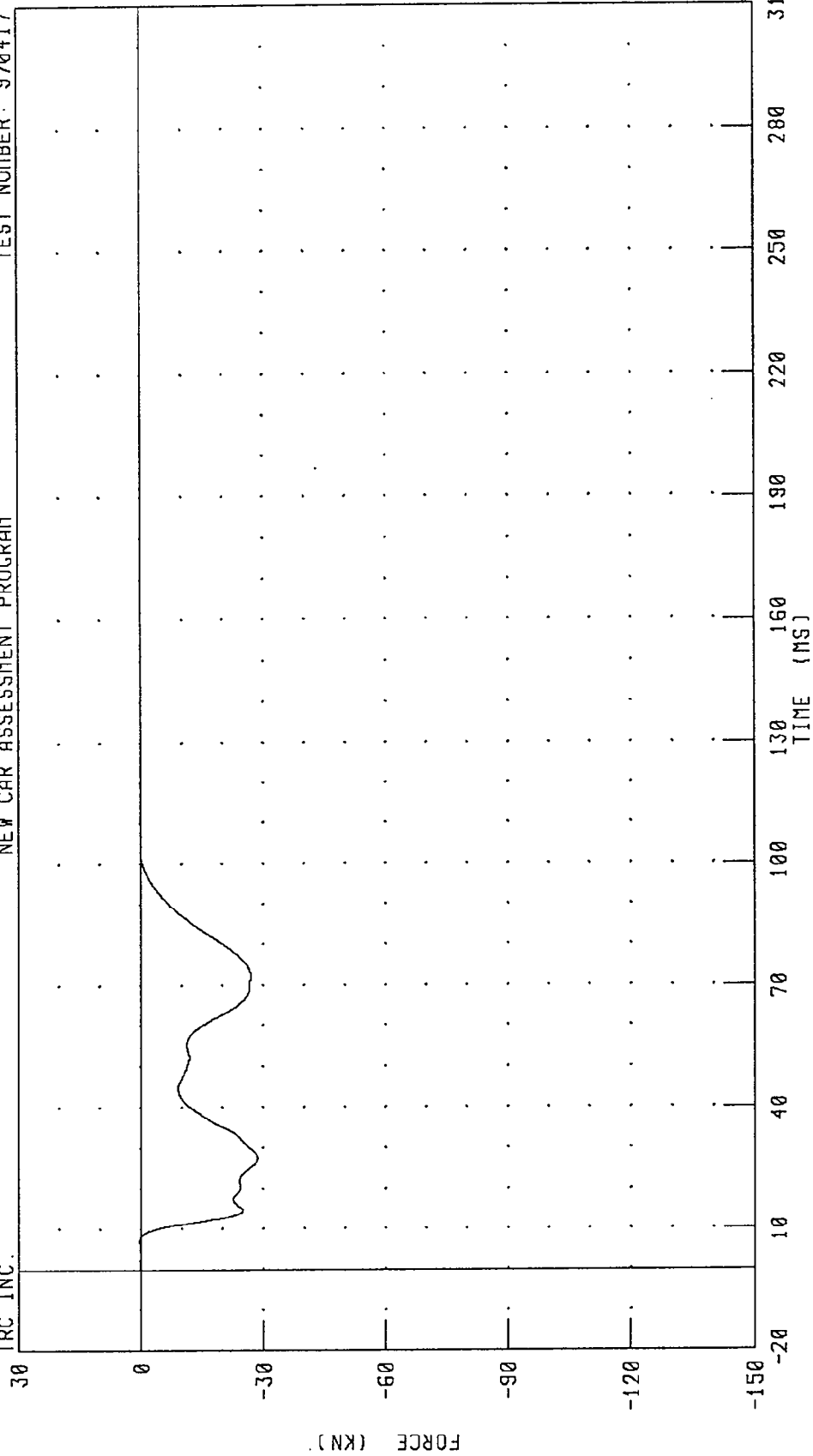
PEAK DATA: 0.29 KN @ -3.36 MS; -35.30 KN @ 25.52 MS

1997 JEEP CHEROKEE SPORT INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION B4 FORCE

TEST NUMBER: 970417

NEW CAR ASSESSMENT PROGRAM

TRC INC.



PEAK DATA: 0.34 KN @ 6.96 MS; -28.62 KN @ 27.60 MS

FILTER: CH. CLASS 60

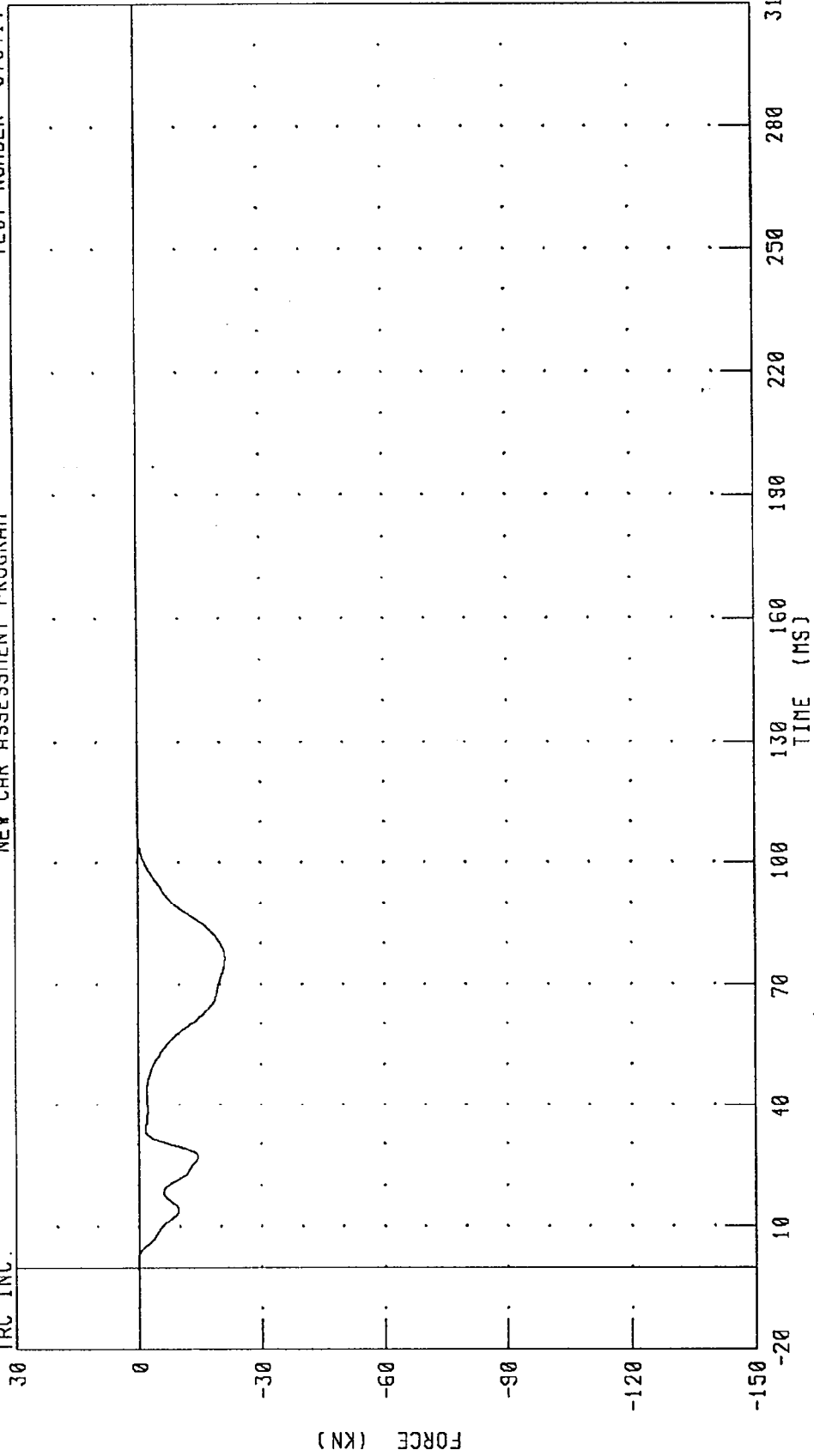
CHANNEL: BB4F

1997 JEEP CHEROKEE SPORT INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION B5 FORCE

TEST NUMBER: 970417

NEW CAR ASSESSMENT PROGRAM

TRC INC.



PEAK DATA: 0.30 KN @ 1.44 MS; -21.26 KN @ 76.40 MS

FILTER: CH. CLASS 60

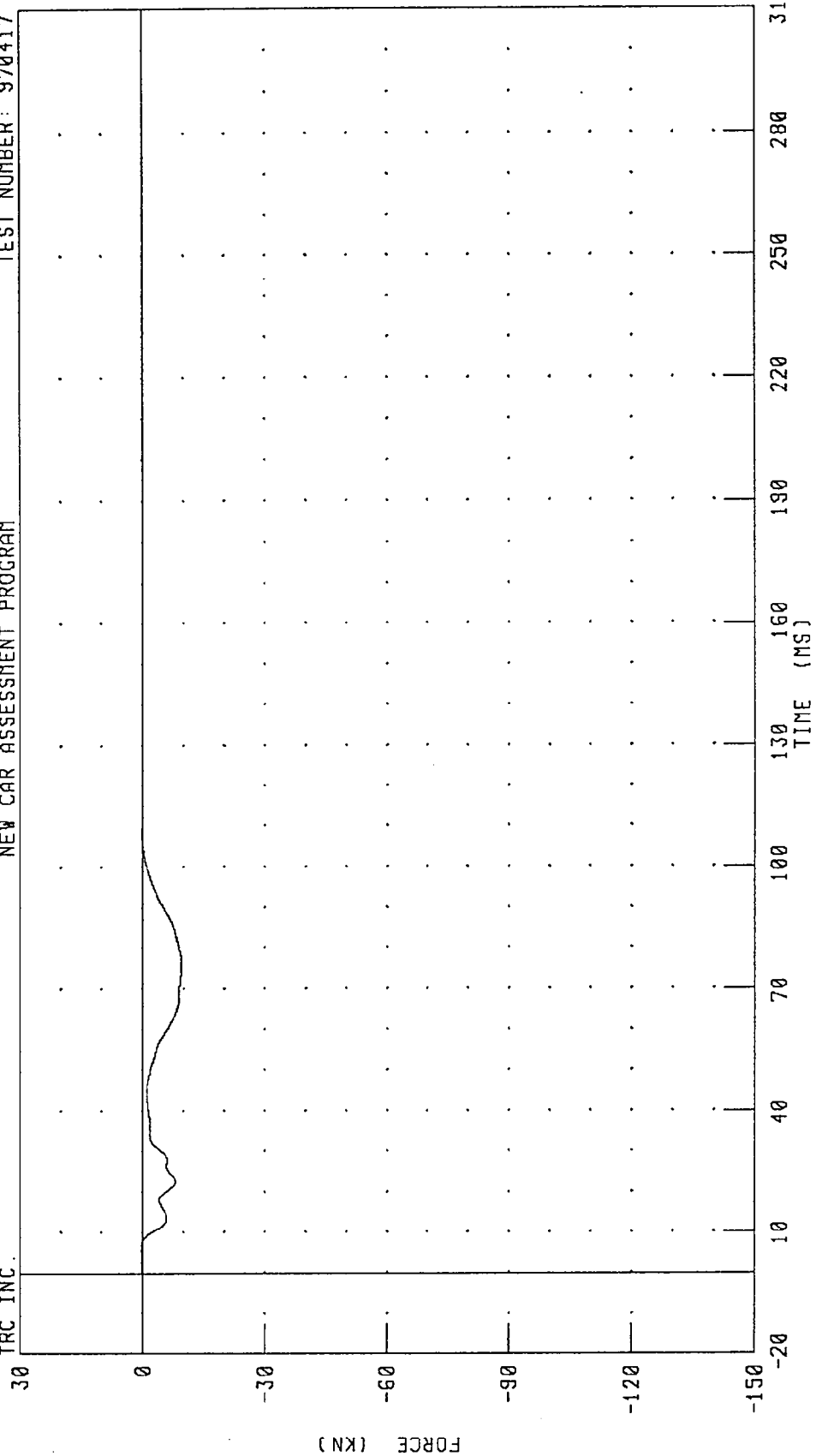
CHANNEL: BB5F

1997 JEEP CHEROKEE SPORT INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION B6 FORCE

TEST NUMBER: 970417

NEW CAR ASSESSMENT PROGRAM

TRC INC.



PEAK DATA: 0.30 KN @ 5.92 MS; -9.53 KN @ 75.92 MS

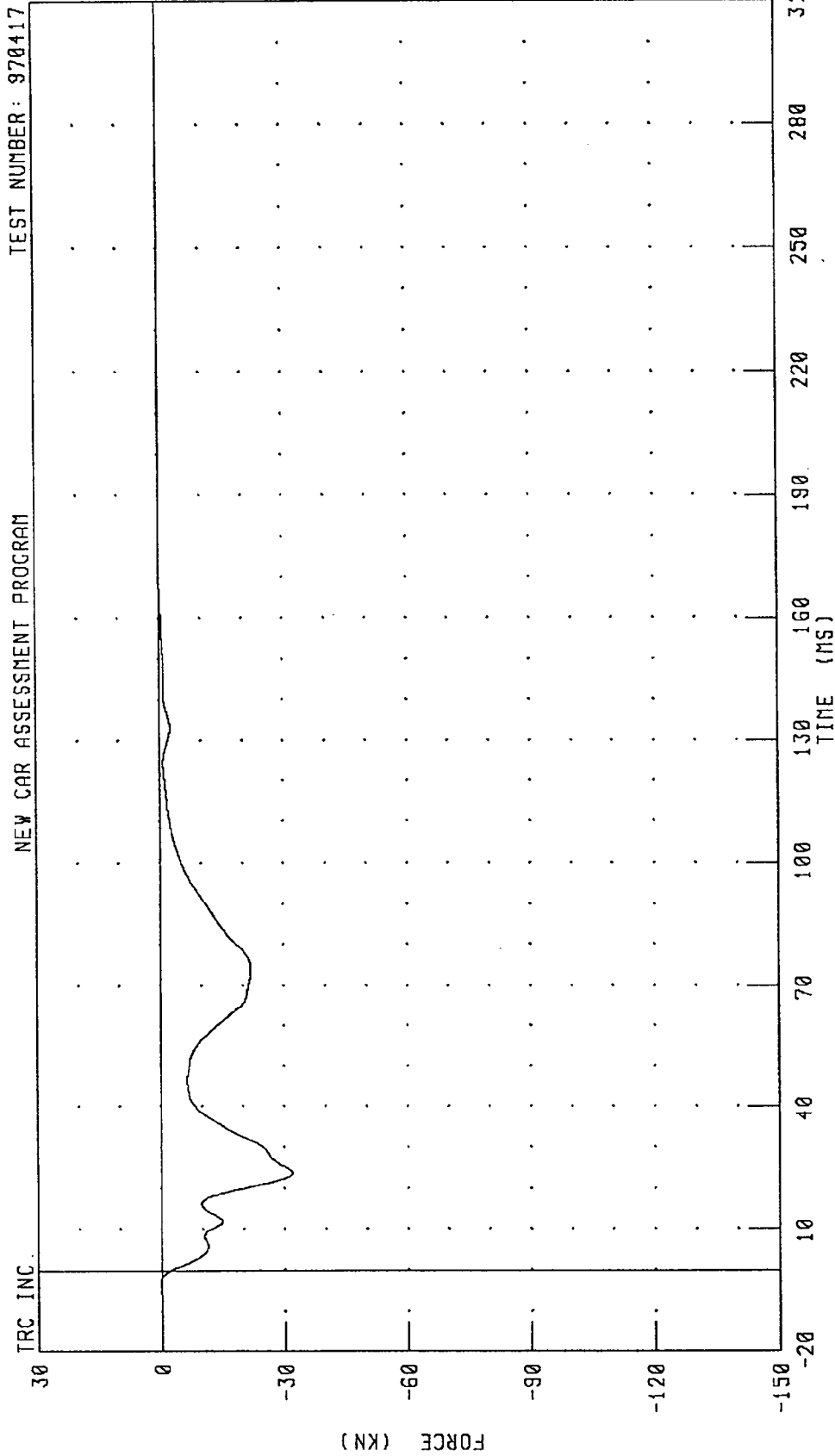
FILTER: CH. CLASS 60

CHANNEL: BB6F

1997 JEEP CHEROKEE SPORT INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION B7 FORCE

TEST NUMBER: 970417

NEW CAR ASSESSMENT PROGRAM



PEAK DATA: 0.27 KN @ -3.36 MS; -31.98 KN @ 23.68 MS

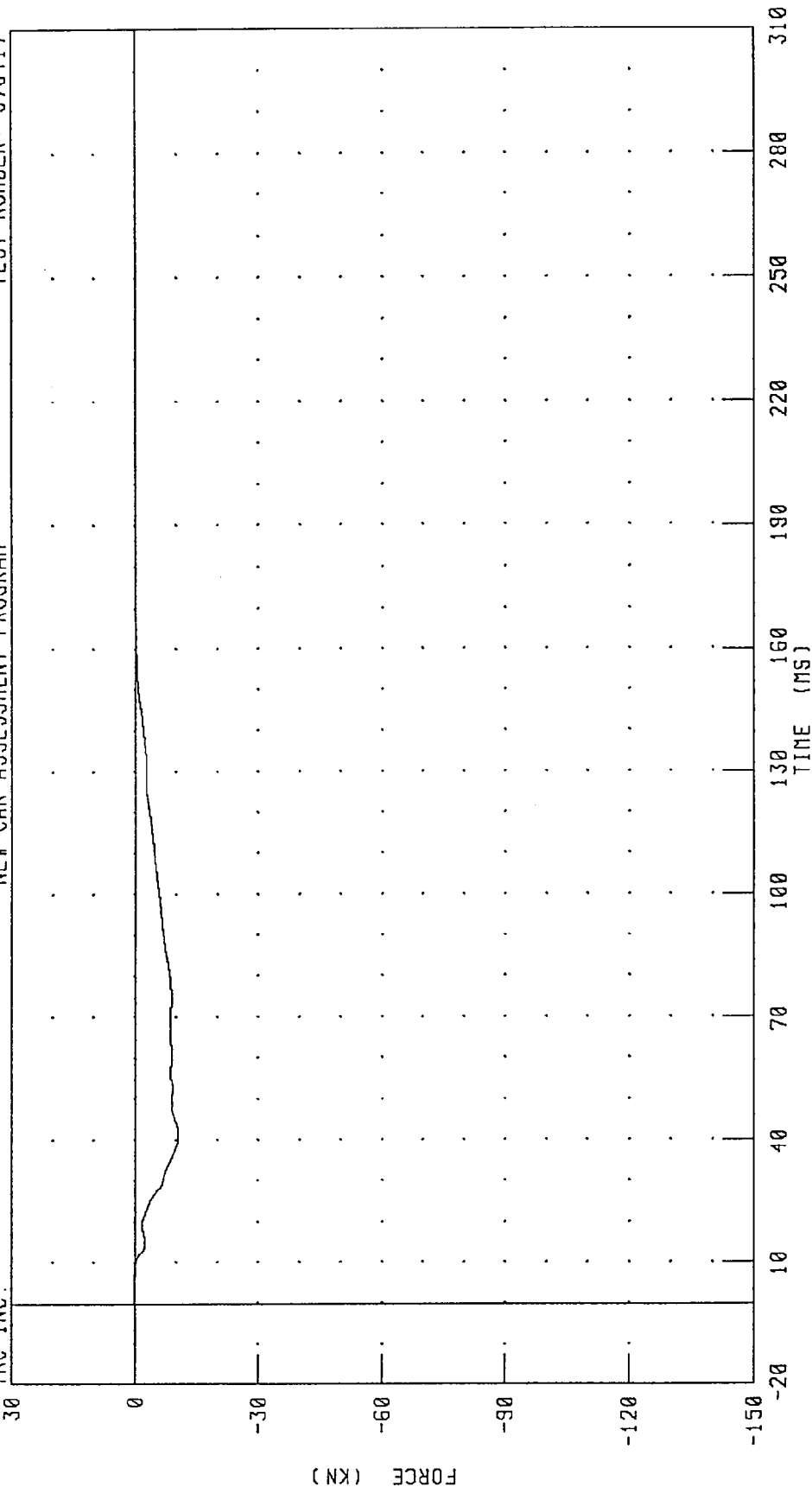
CHANNEL: BB7F FILTER: CH. CLASS 60

1997 JEEP CHEROKEE SPORT INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION B8 FORCE

TEST NUMBER: 970417

NEW CAR ASSESSMENT PROGRAM

TRC INC.



PEAK DATA: 0.16 KN @ 1.52 MS; -10.58 KN @ 41.20 MS

FILTER: CH. CLASS 60

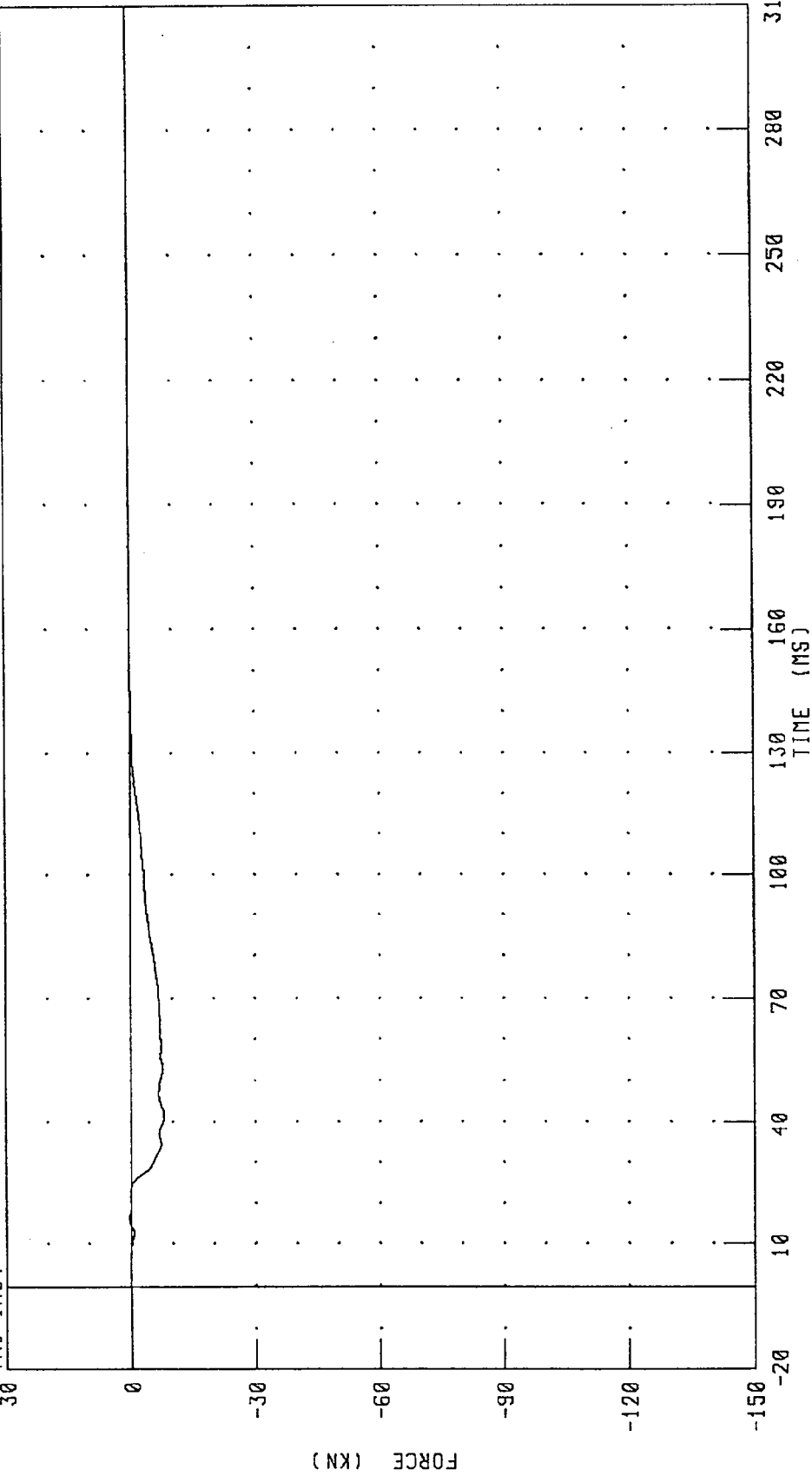
CHANNEL: BB8F

1997 JEEP CHEROKEE SPORT INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION B9 FORCE

TEST NUMBER: 970417

NEW CAR ASSESSMENT PROGRAM

TRC INC.



PEAK DATA: 0.58 KN @ 16.16 MS; -8.04 KN @ 41.52 MS

FILTER: CH. CLASS 60

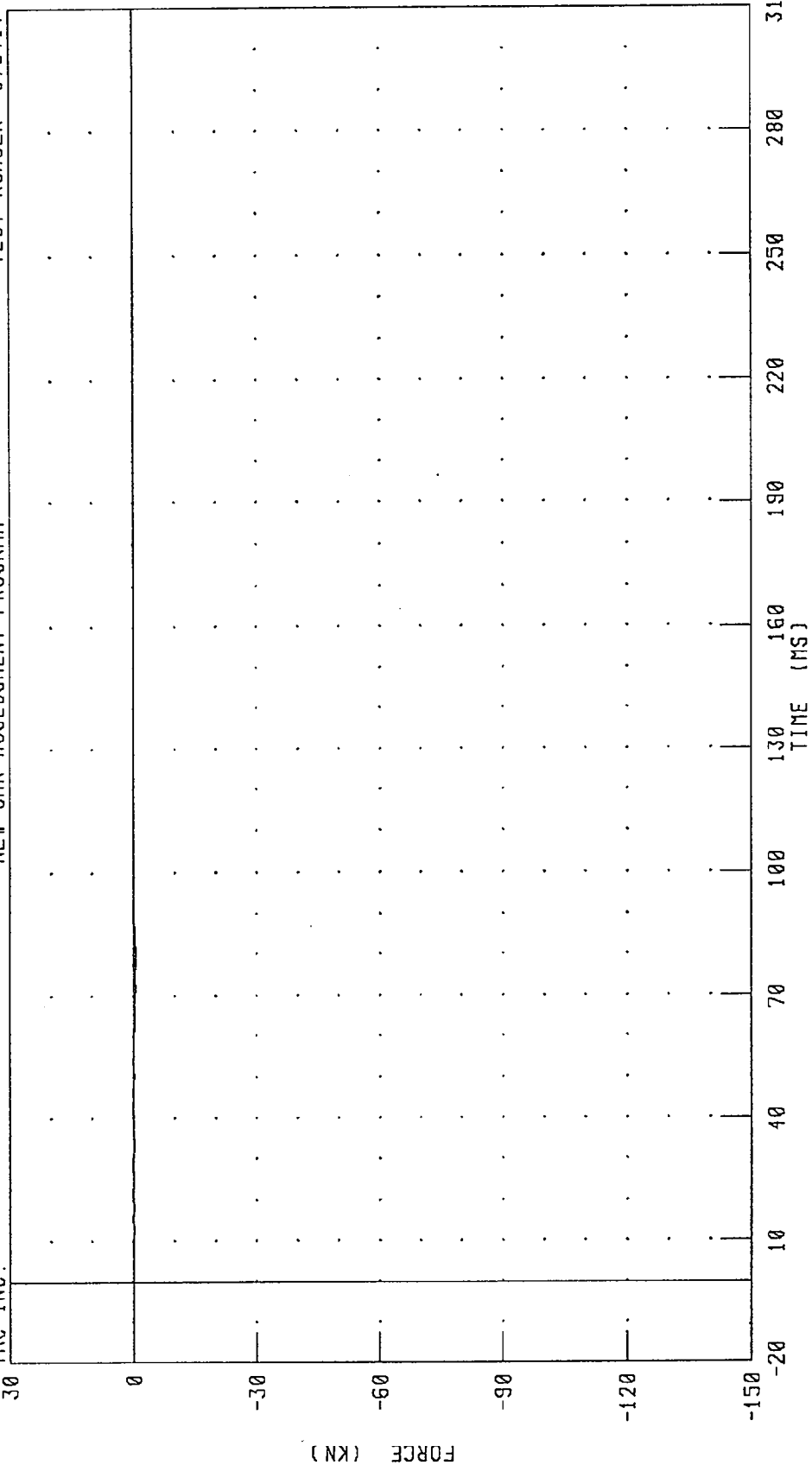
CHANNEL: BB9F

1997 JEEP CHEROKEE SPORT INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION C1 FORCE

TEST NUMBER: 970417

NEW CAR ASSESSMENT PROGRAM

TRC INC.



PEAK DATA: 0.21 KN @ 28.88 MS; -0.48 KN @ 79.60 MS

FILTER: CH. CLASS 60

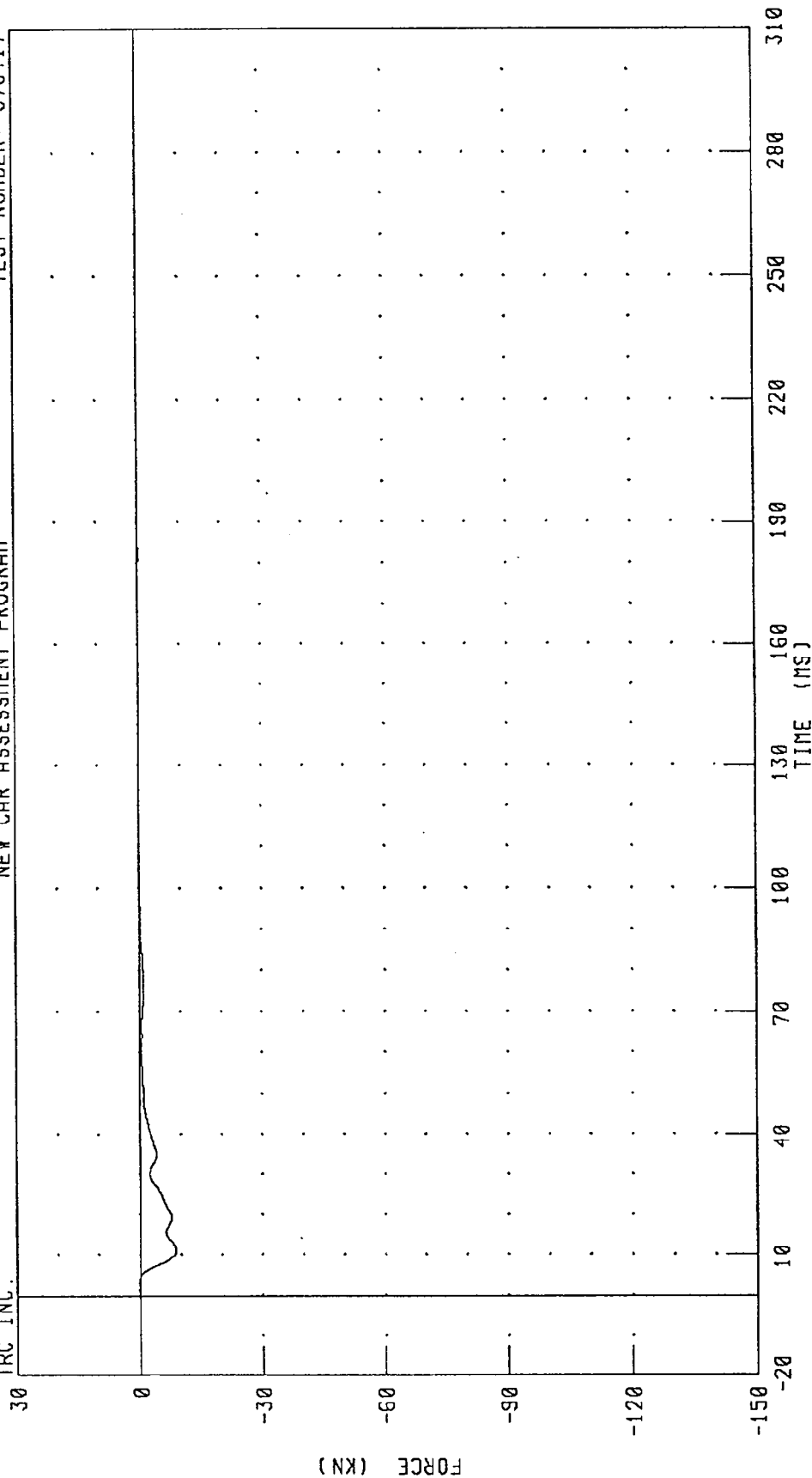
CHANNEL: BC1F

1997 JEEP CHEROKEE SPORT INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION C2 FORCE

TEST NUMBER: 970417

NEW CAR ASSESSMENT PROGRAM

TRC INC.



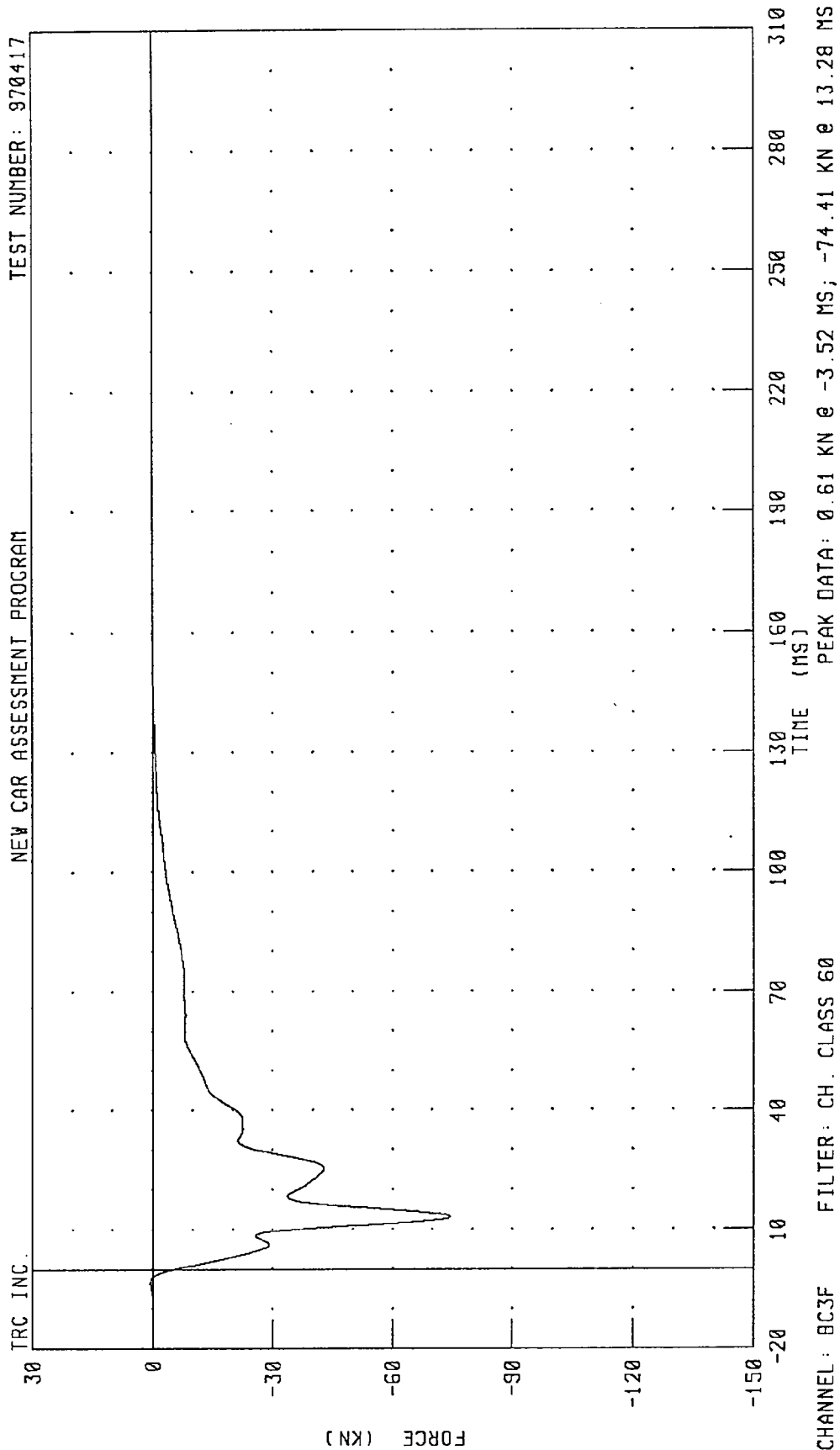
CHANNEL: BC2F

FILTER: CH. CLASS 60

PEAK DATA: 0.29 KN @ 2.48 MS; -8.69 KN @ 11.20 MS

1997 JEEP CHEROKEE SPORT INTO FRONTAL LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION C3 FORCE
 NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 970417



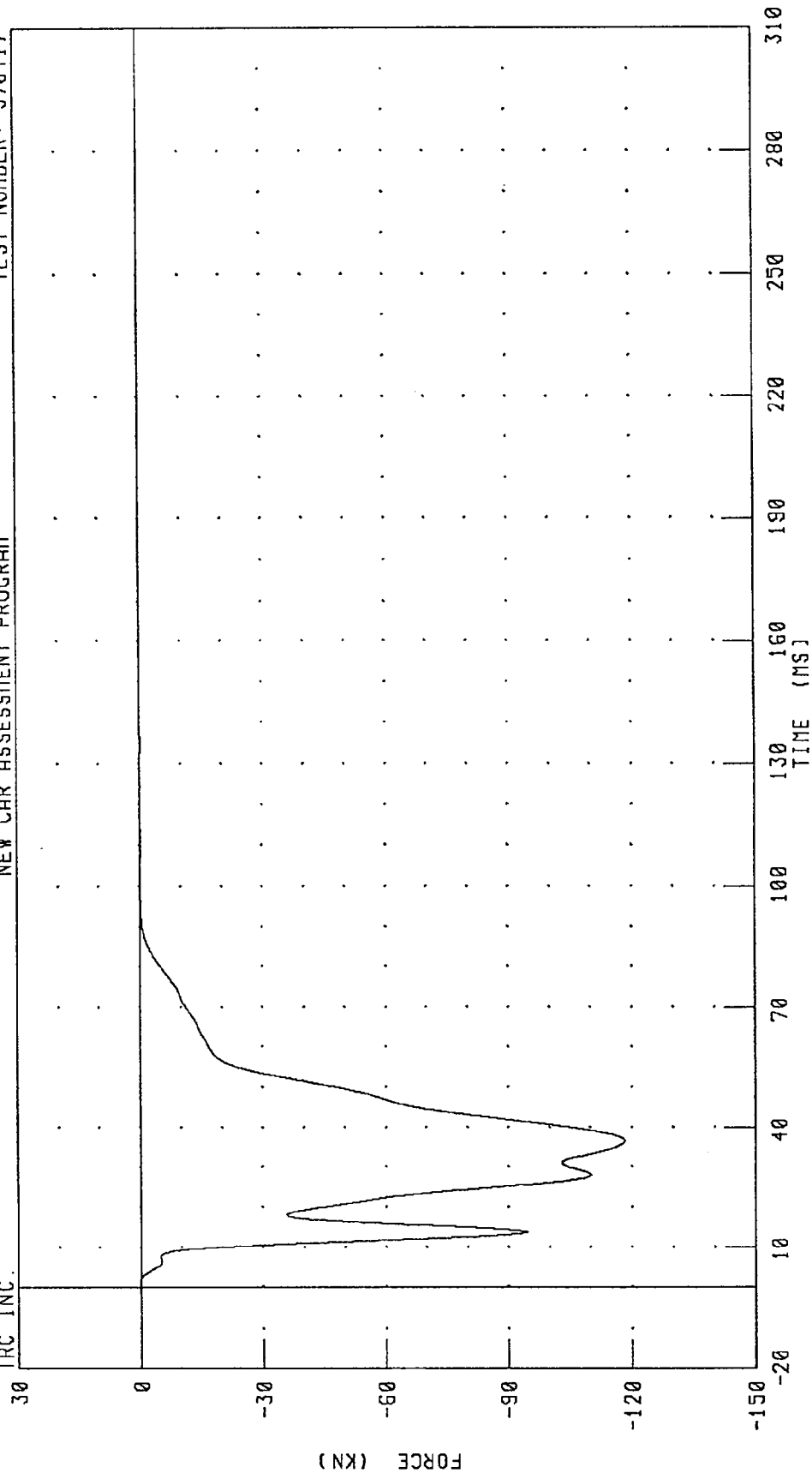
CHANNEL: BC3F FILTER: CH. CLASS 60

1997 JEEP CHEROKEE SPORT INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION C4 FORCE

TEST NUMBER: 970417

NEW CAR ASSESSMENT PROGRAM

TRC INC.



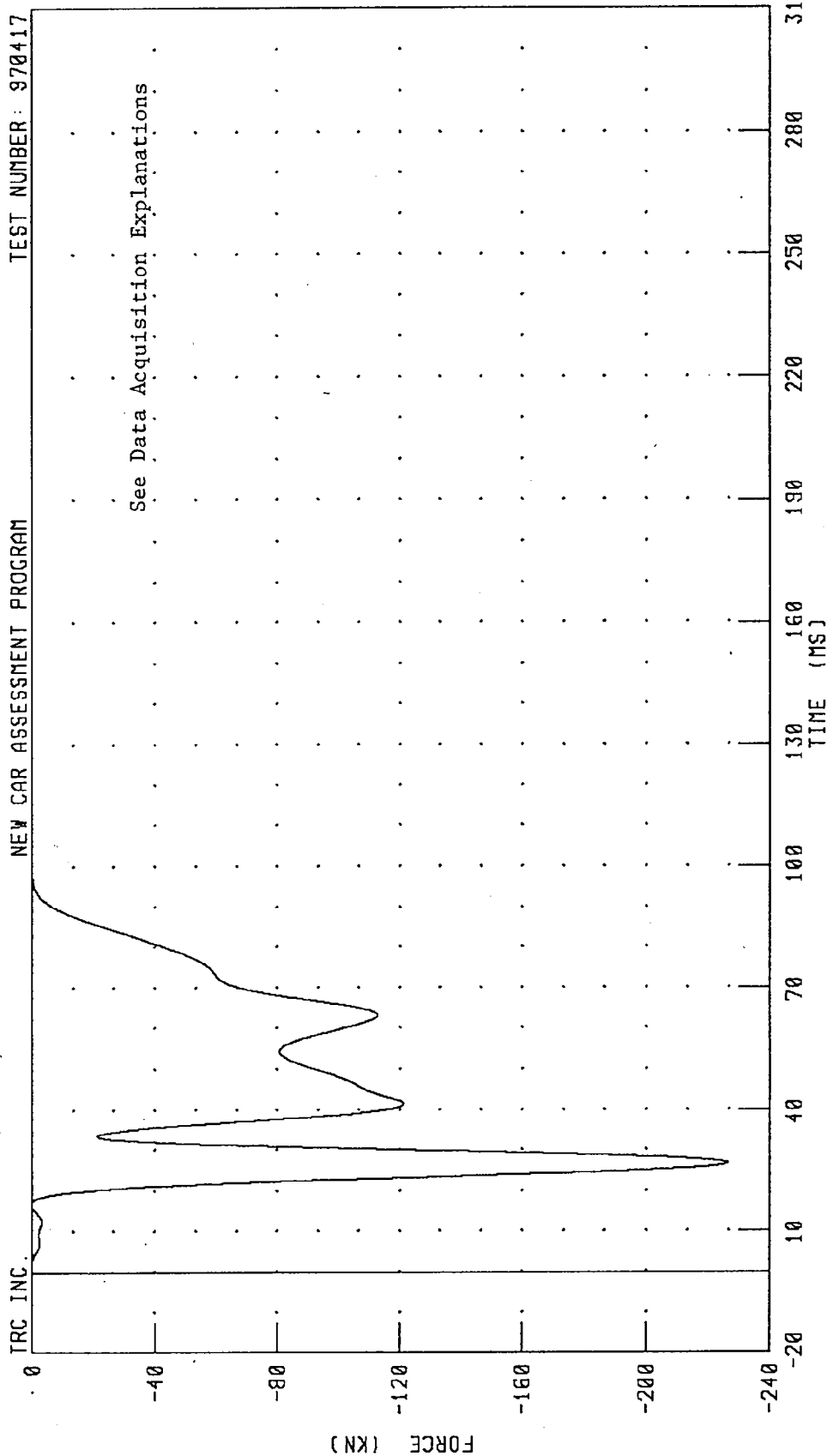
PEAK DATA: 0.32 KN @ 0.48 MS; -118.37 KN @ 36.64 MS

CHANNEL: BC4F FILTER: CH. CLASS 60

1997 JEEP CHEROKEE SPORT INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION C5 FORCE

TEST NUMBER: 970417

NEW CAR ASSESSMENT PROGRAM



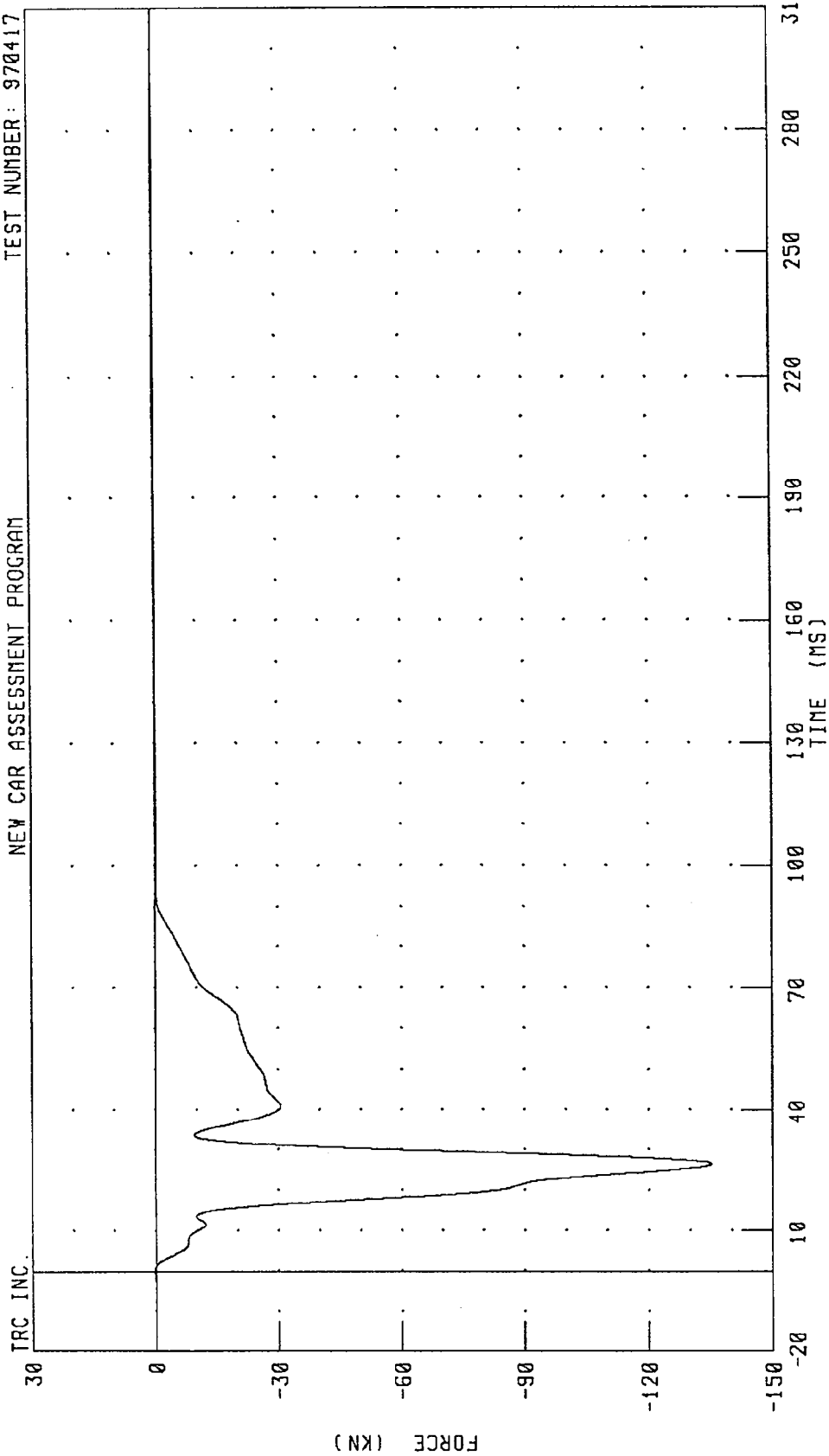
PEAK DATA: 0.44 KN @ 16.88 MS; -225.47 KN @ 26.72 MS

CHANNEL: BC5F FILTER: CH. CLASS 60

1997 JEEP CHEROKEE SPORT INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION C6 FORCE

TEST NUMBER: 970417

NEW CAR ASSESSMENT PROGRAM



PEAK DATA: 0.30 KN @ -0.32 MS; -135.23 KN @ 26.40 MS

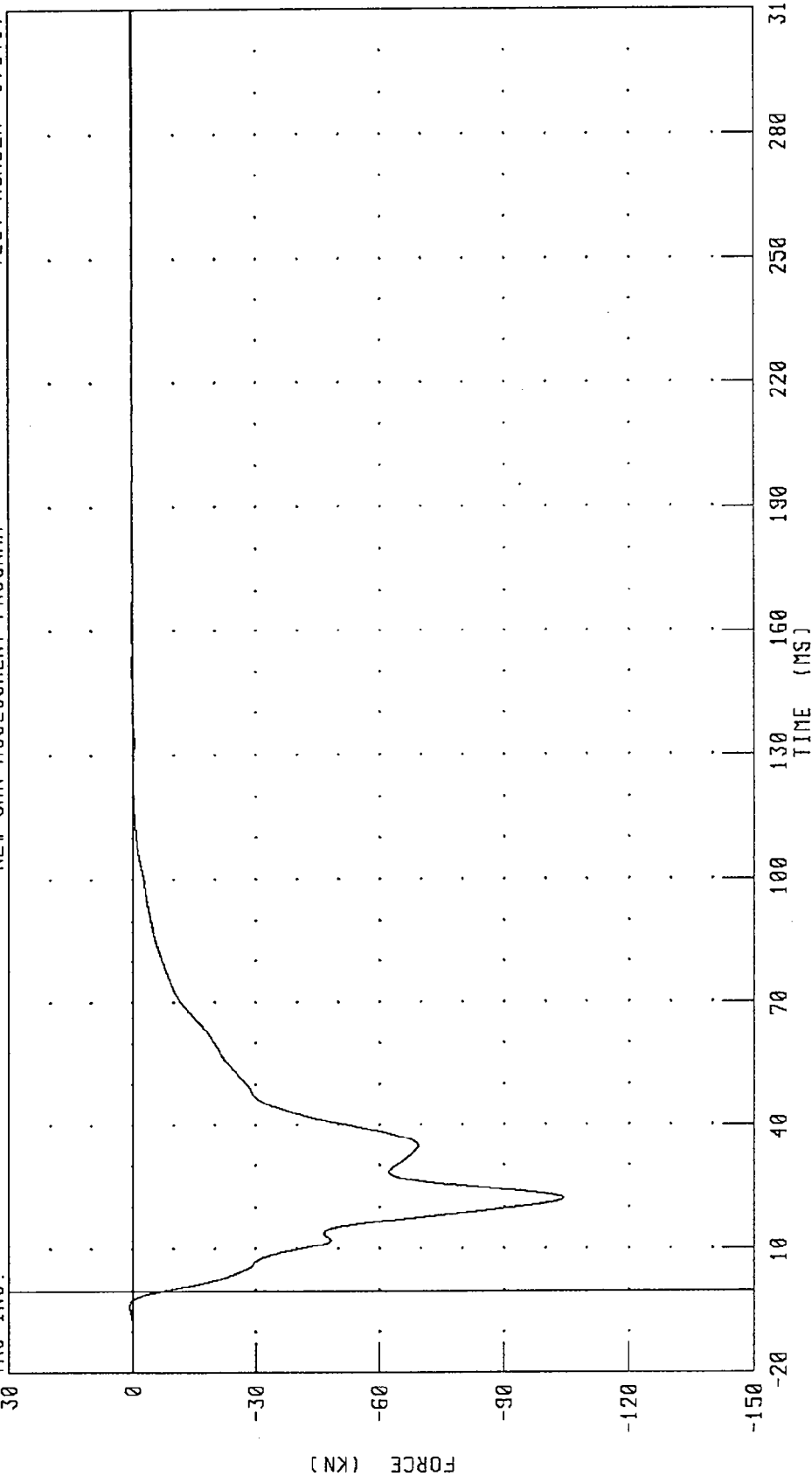
CHANNEL: BC6F FILTER: CH. CLASS 60

1997 JEEP CHEROKEE SPORT INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION C7 FORCE

TEST NUMBER: 970417

NEW CAR ASSESSMENT PROGRAM

TRC INC.



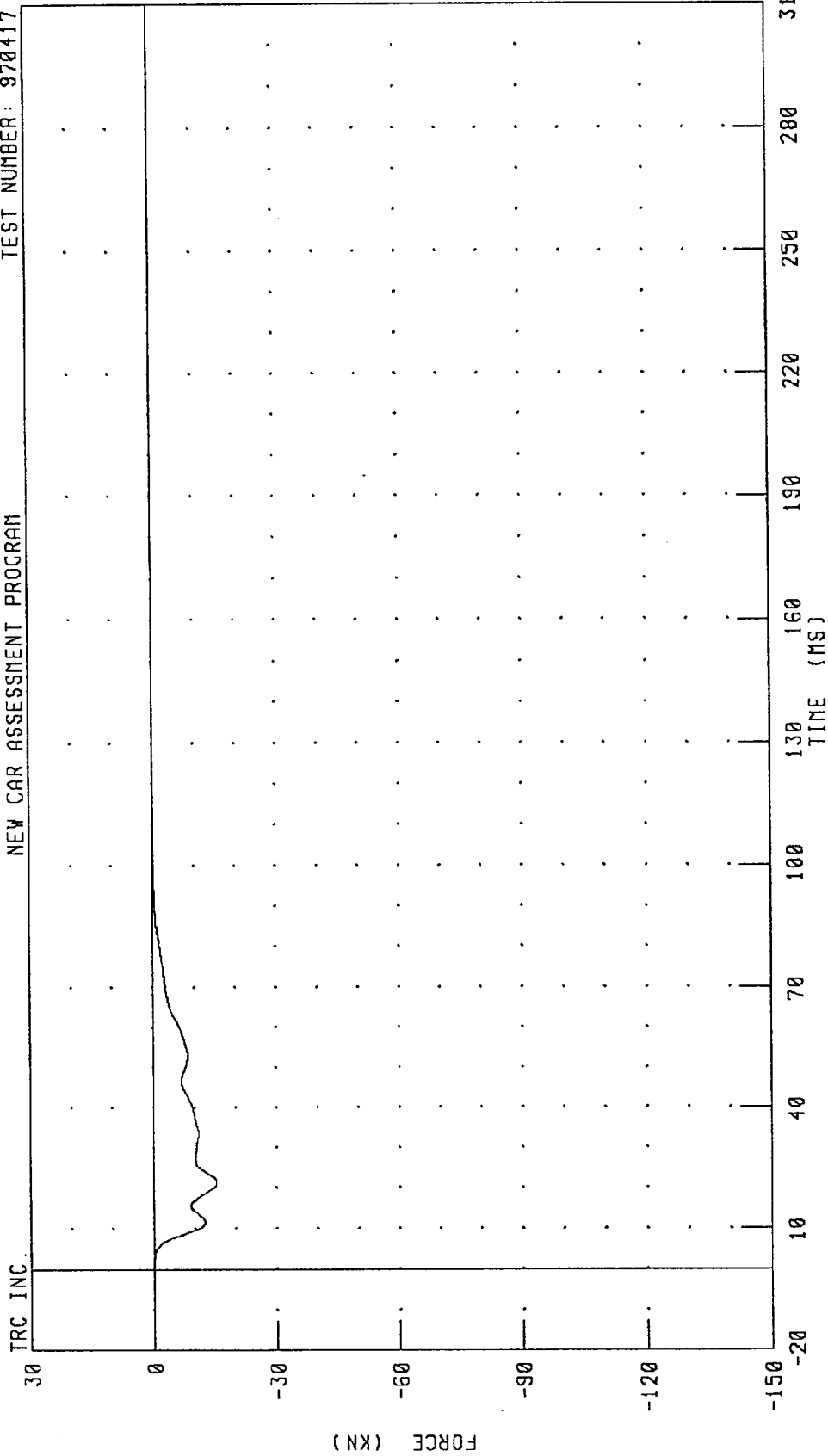
PEAK DATA: 0.67 KN @ -3.84 MS; -104.39 KN @ 22.24 MS

FILTER: CH. CLASS 60

CHANNEL: BC7F

1997 JEEP CHEROKEE SPORT INTO FRONTAL LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION C8 FORCE
 NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 970417



PEAK DATA: 0.01 KN @ -20.00 MS; -15.39 KN @ 21.20 MS

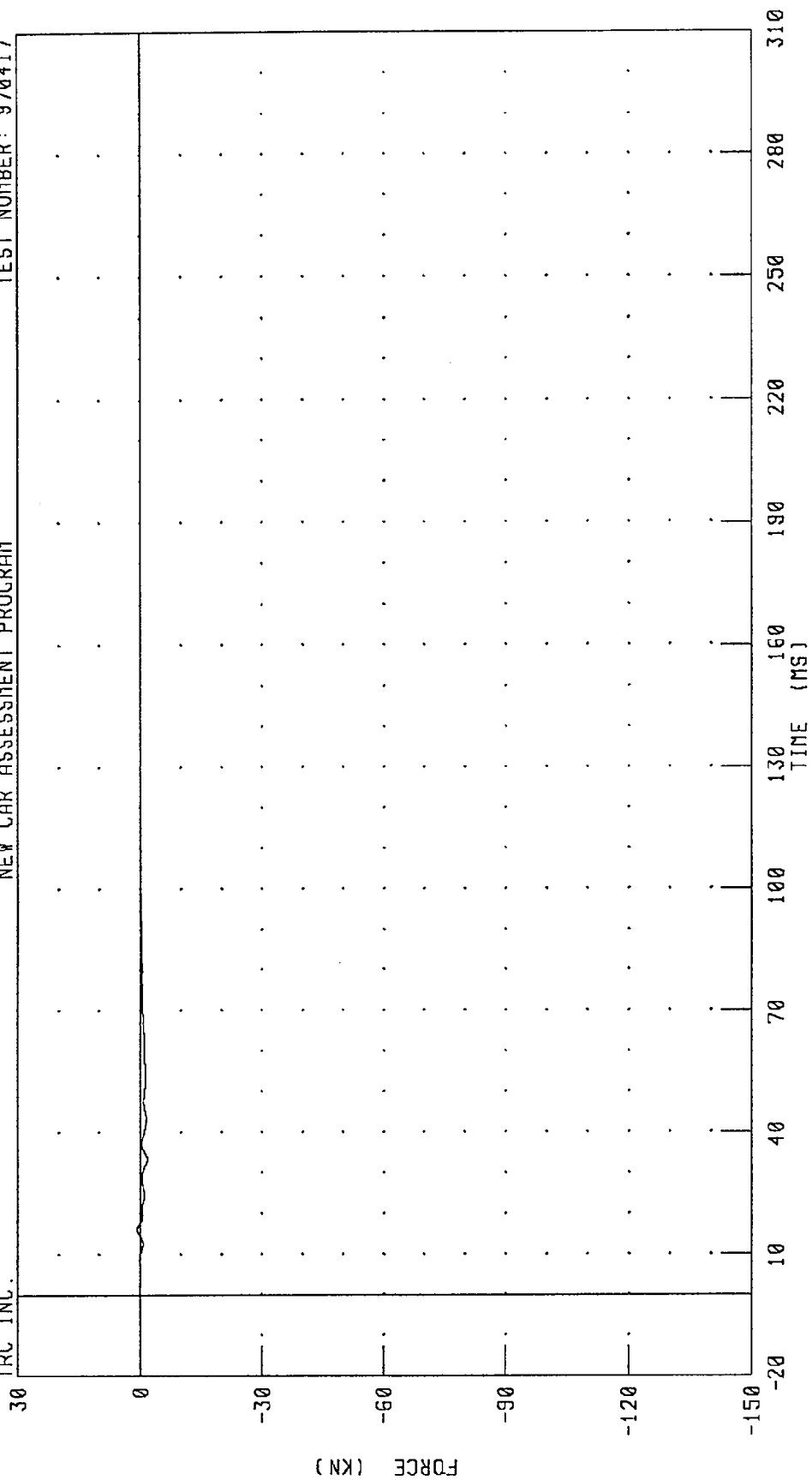
CHANNEL: BC8F FILTER: CH. CLASS 60

1997 JEEP CHEROKEE SPORT INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION C9 FORCE

TEST NUMBER: 970417

NEW CAR ASSESSMENT PROGRAM

TRC INC.



PEAK DATA: 0.69 KN @ 16.08 MS; -1.74 KN @ 33.52 MS

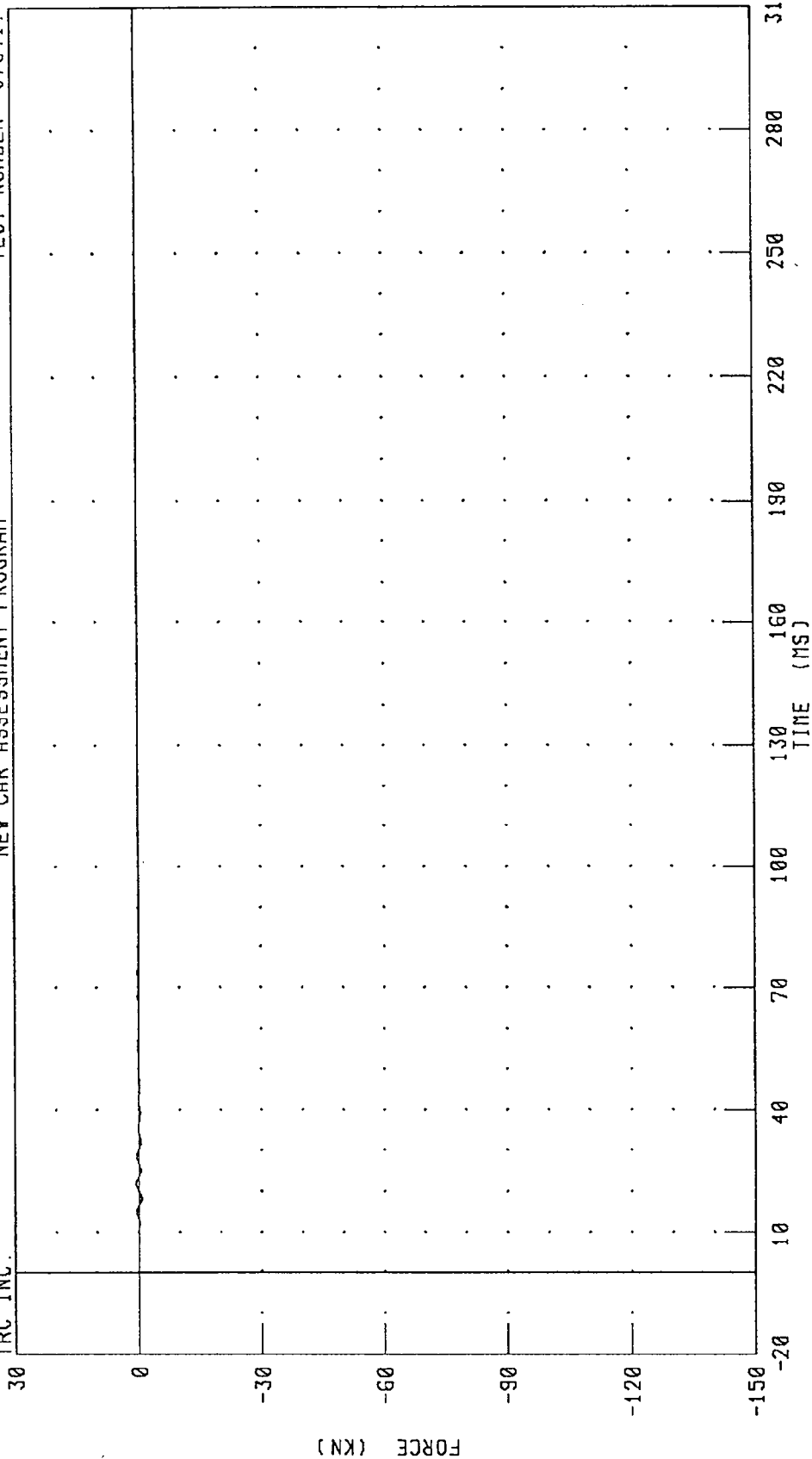
CHANNEL: BC9F FILTER: CH. CLASS 60

1997 JEEP CHEROKEE SPORT INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION D1 FORCE

TEST NUMBER: 970417

NEW CAR ASSESSMENT PROGRAM

TRC INC.



PEAK DATA: 0.66 KN @ 21.92 MS; -0.72 KN @ 18.40 MS

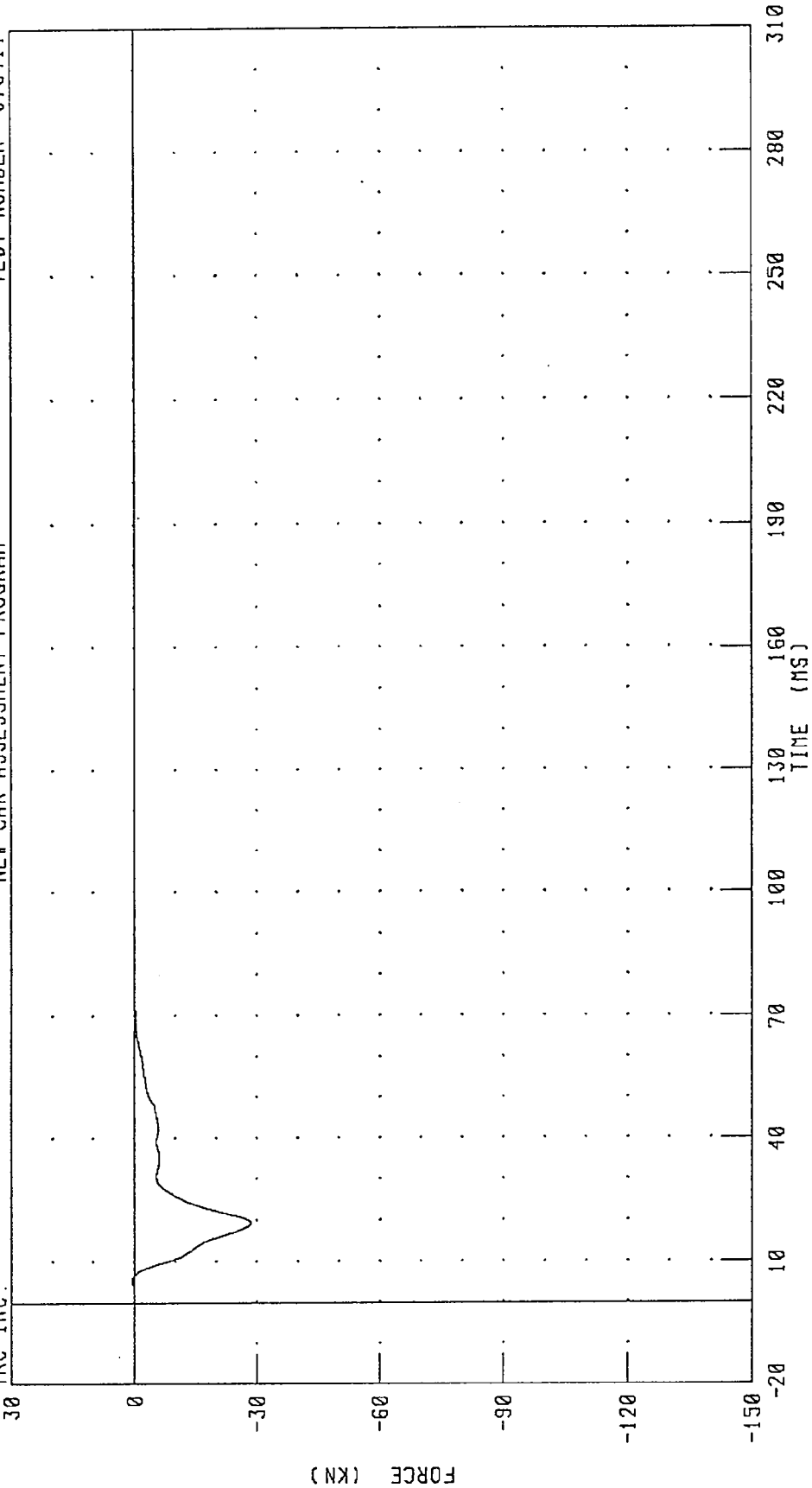
CHANNEL: BD1F FILTER: CH. CLASS 60

1997 JEEP CHEROKEE SPORT INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION D2 FORCE

TEST NUMBER: 970417

NEW CAR ASSESSMENT PROGRAM

TRC INC.



PEAK DATA: 0.40 KN @ 5.28 MS; -28.58 KN @ 19.36 MS

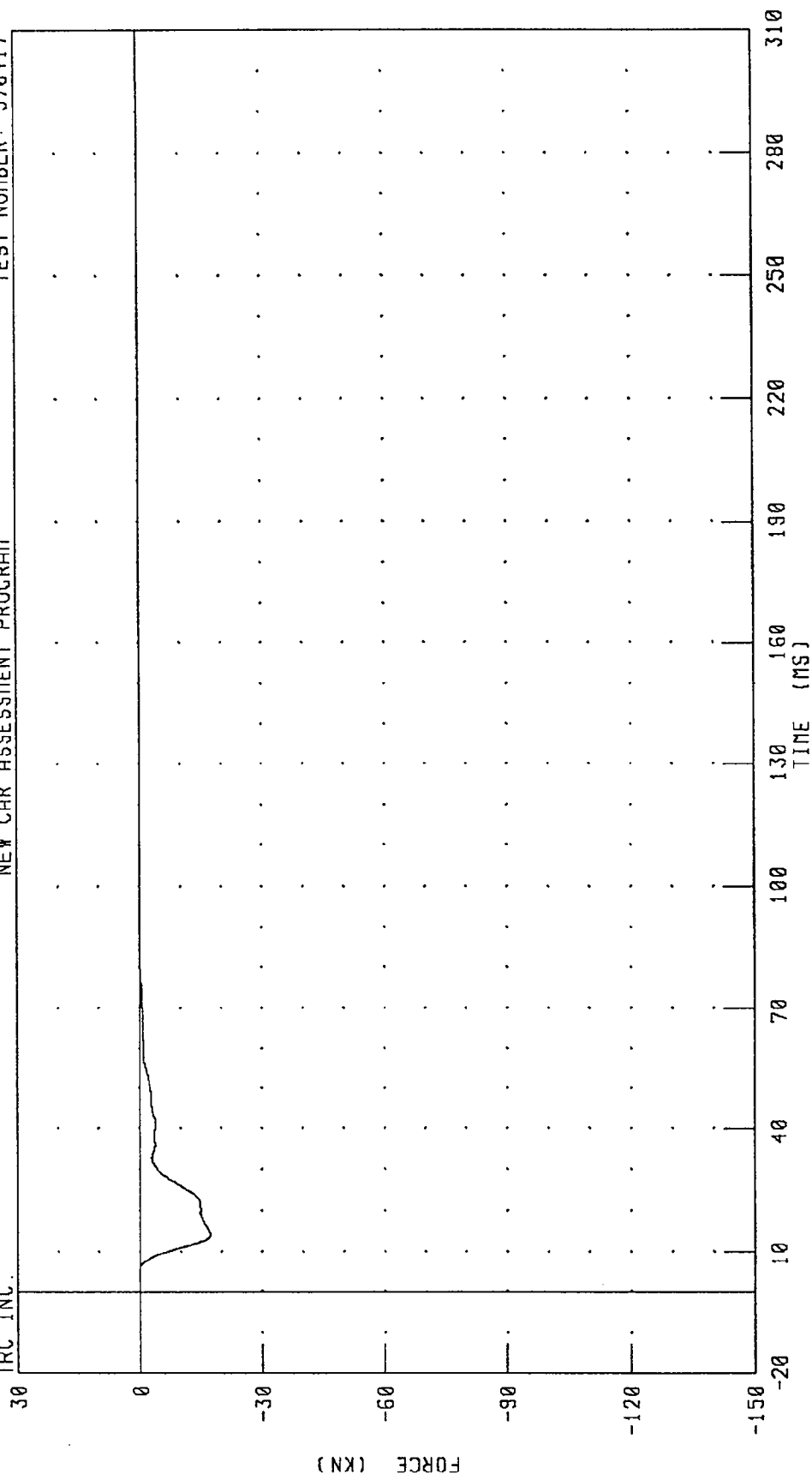
CHANNEL: BD2F FILTER: CH. CLASS 60

1997 JEEP CHEROKEE SPORT INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION D3 FORCE

TEST NUMBER: 970417

NEW CAR ASSESSMENT PROGRAM

TRC INC.



PEAK DATA: 0.19 KN @ 4.72 MS; -17.33 KN @ 14.16 MS

FILTER: CH. CLASS 60

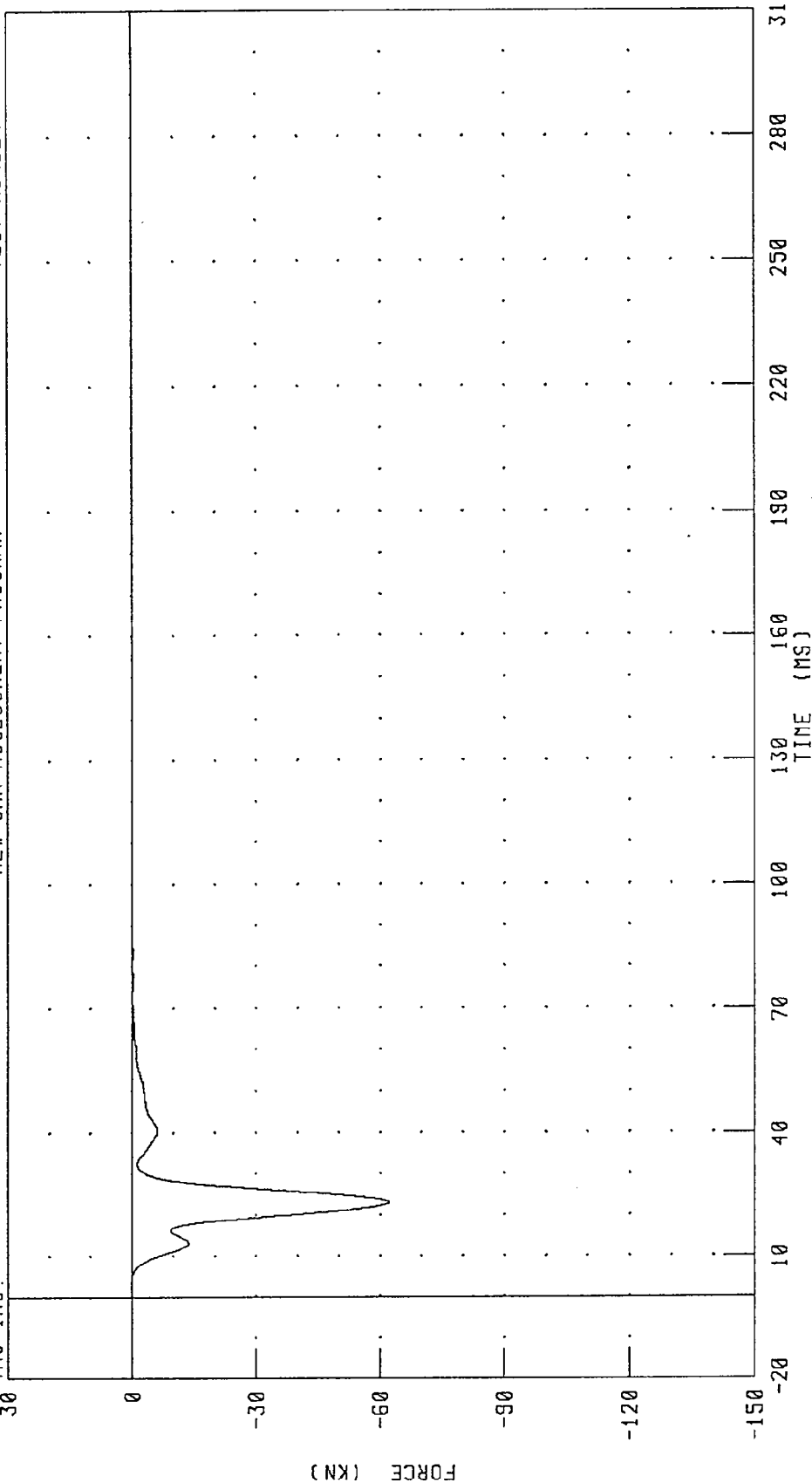
CHANNEL: BD3F

1997 JEEP CHEROKEE SPORT INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION D4 FORCE

NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 970417

TRC INC.



PEAK DATA: 0.11 KN @ 2.56 MS; -62.28 KN @ 23.12 MS

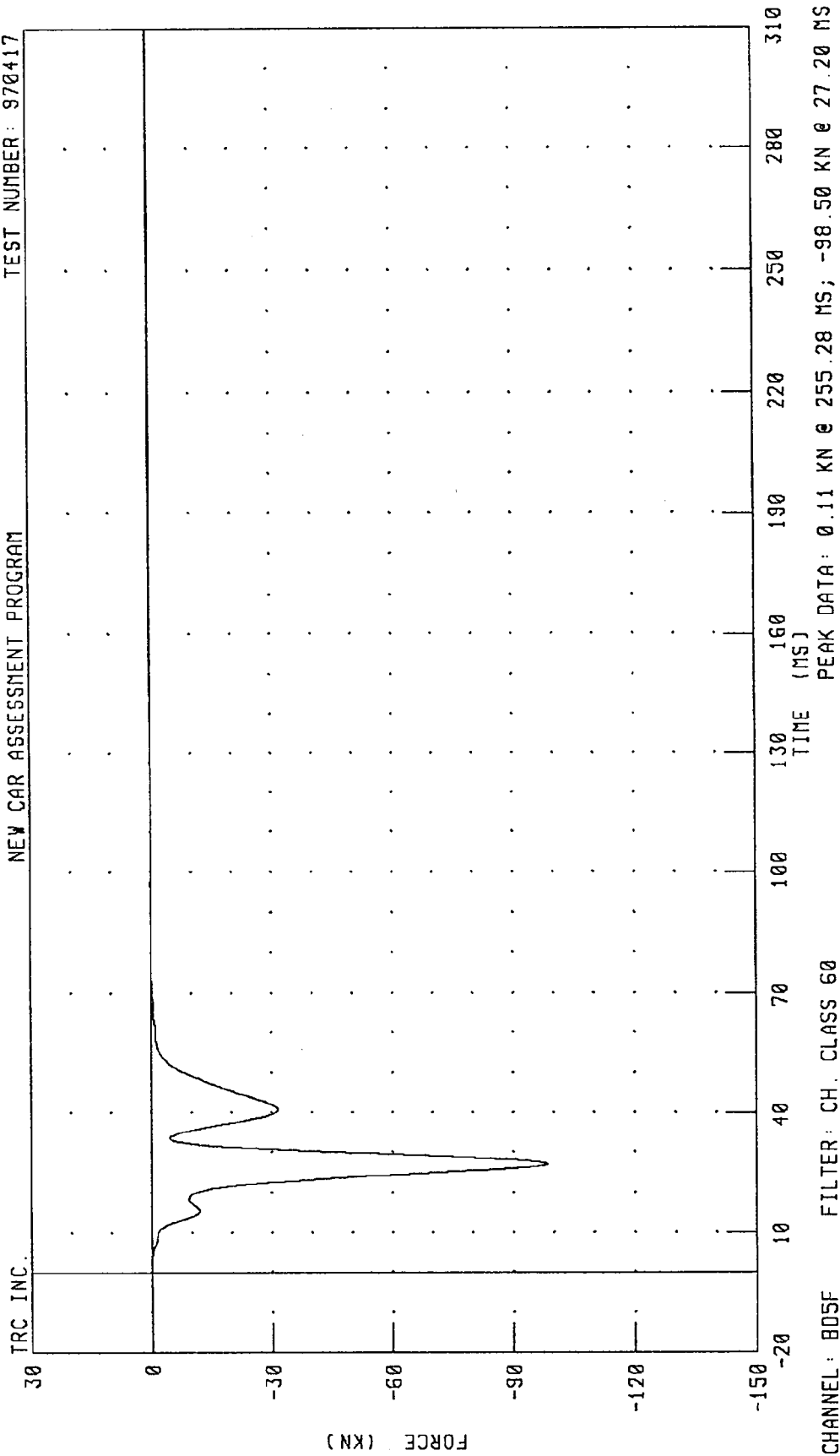
FILTER: CH. CLASS 60

CHANNEL: BD4F

1997 JEEP CHEROKEE SPORT INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION D5 FORCE

TEST NUMBER: 970417

NEW CAR ASSESSMENT PROGRAM



CHANNEL: B05F

FILTER: CH. CLASS 60

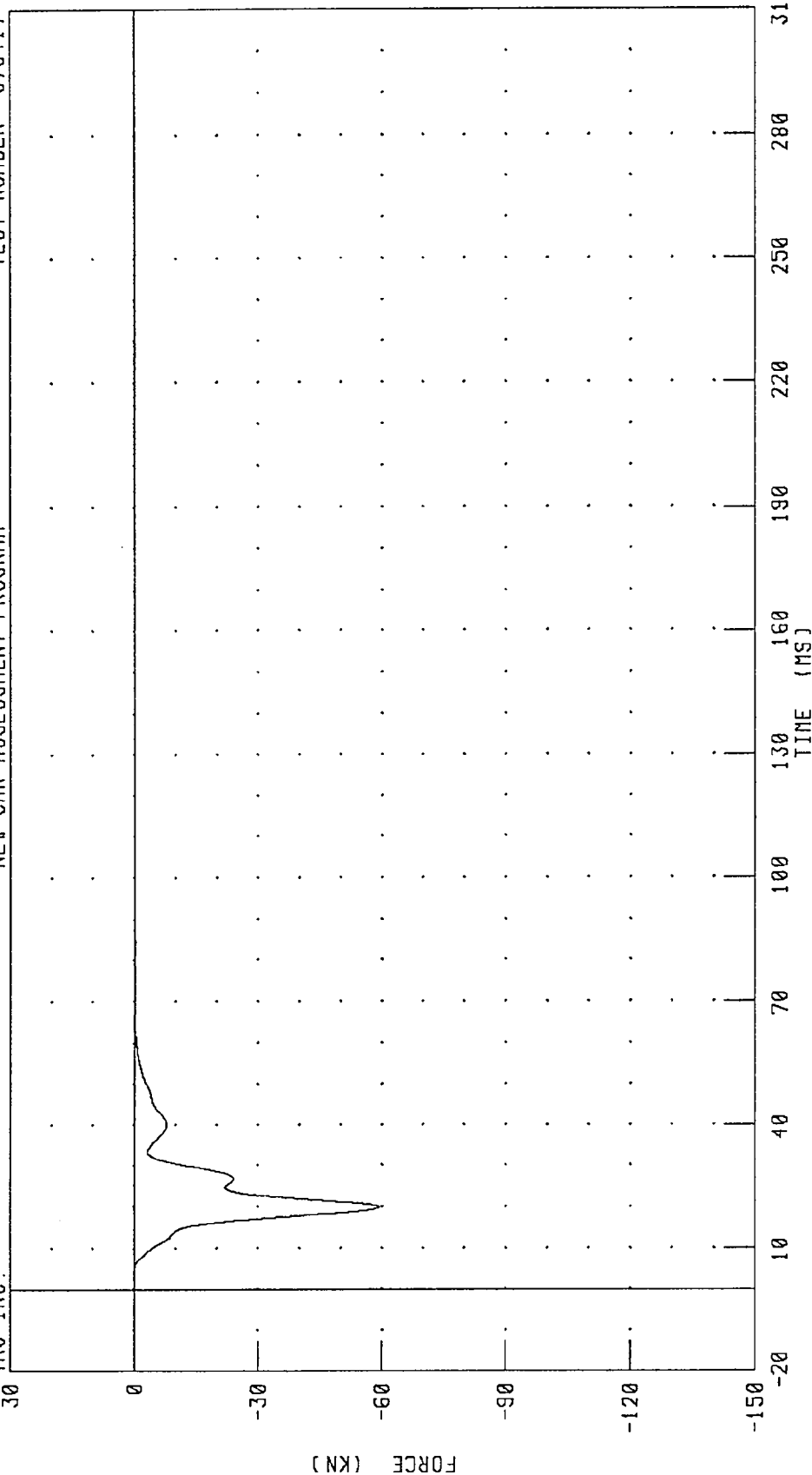
PEAK DATA: 0.11 KN @ 255.28 MS; -98.50 KN @ 27.20 MS

1997 JEEP CHEROKEE SPORT INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION D6 FORCE

TEST NUMBER: 970417

NEW CAR ASSESSMENT PROGRAM

TRC INC.



PEAK DATA: 0.08 KN @ 2.72 MS; -59.38 KN @ 20.00 MS

FILTER: CH. CLASS 60

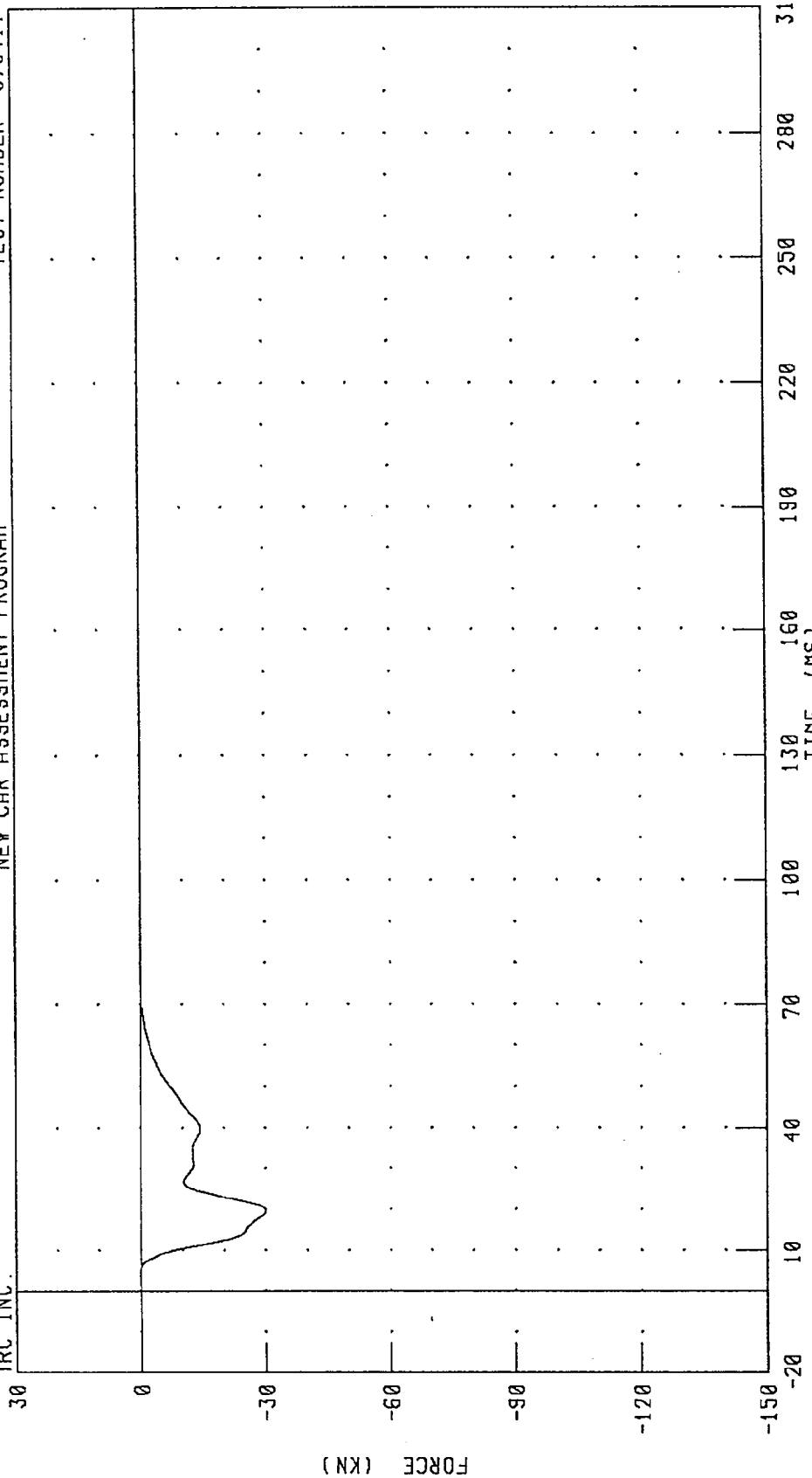
CHANNEL: BD6F

1997 JEEP CHEROKEE SPORT INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION D7 FORCE

TEST NUMBER: 970417

NEW CAR ASSESSMENT PROGRAM

TRC INC.



PEAK DATA: 0.20 KN @ 4.08 MS; -30.12 KN @ 19.76 MS

FILTER: CH. CLASS 60

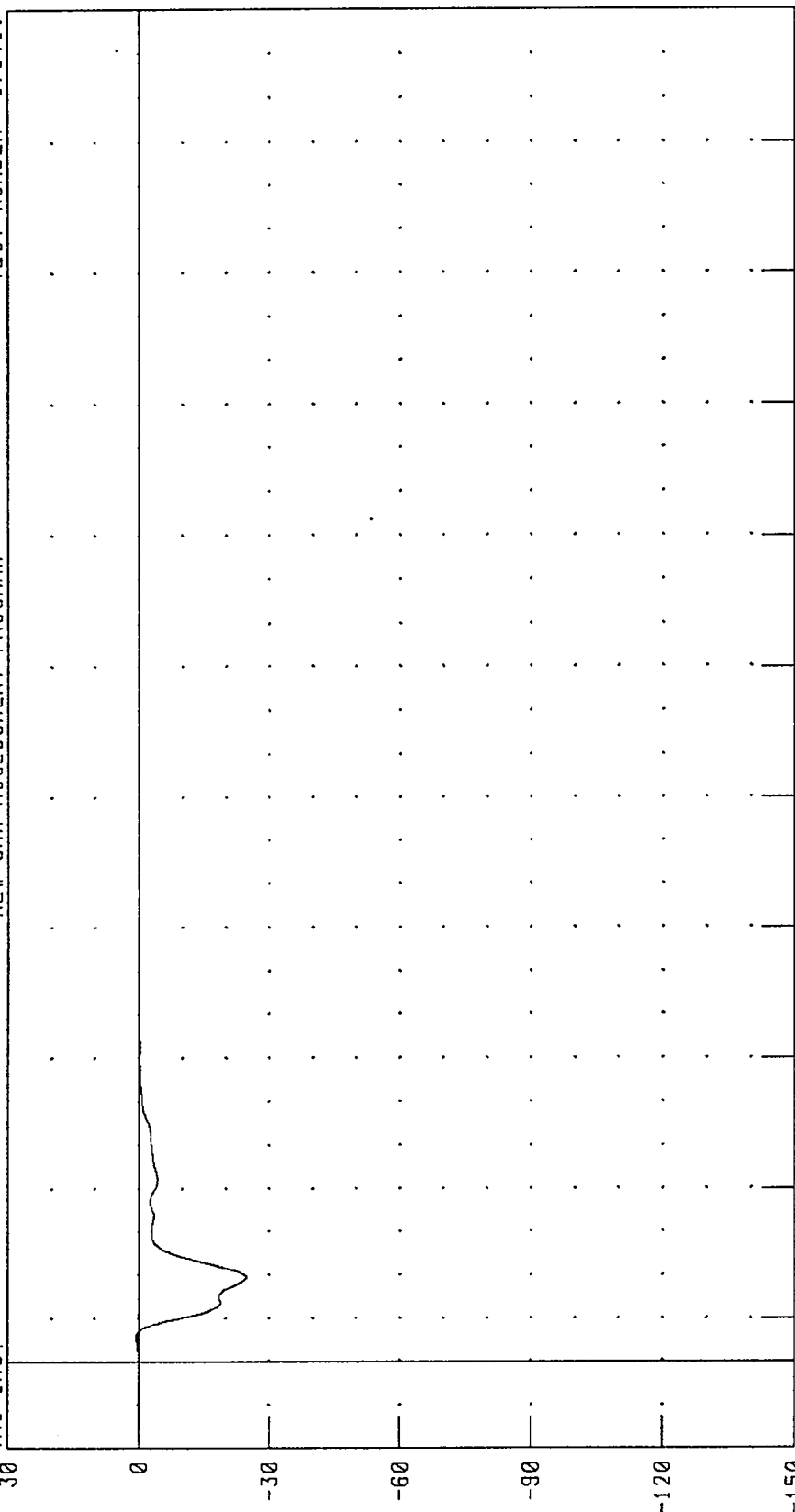
CHANNEL: BD7F

1997 JEEP CHEROKEE SPORT INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION D8 FORCE

TEST NUMBER: 970417

NEW CAR ASSESSMENT PROGRAM

TRC INC.



PEAK DATA: 0.45 KN @ 5.52 MS; -24.68 KN @ 19.44 MS

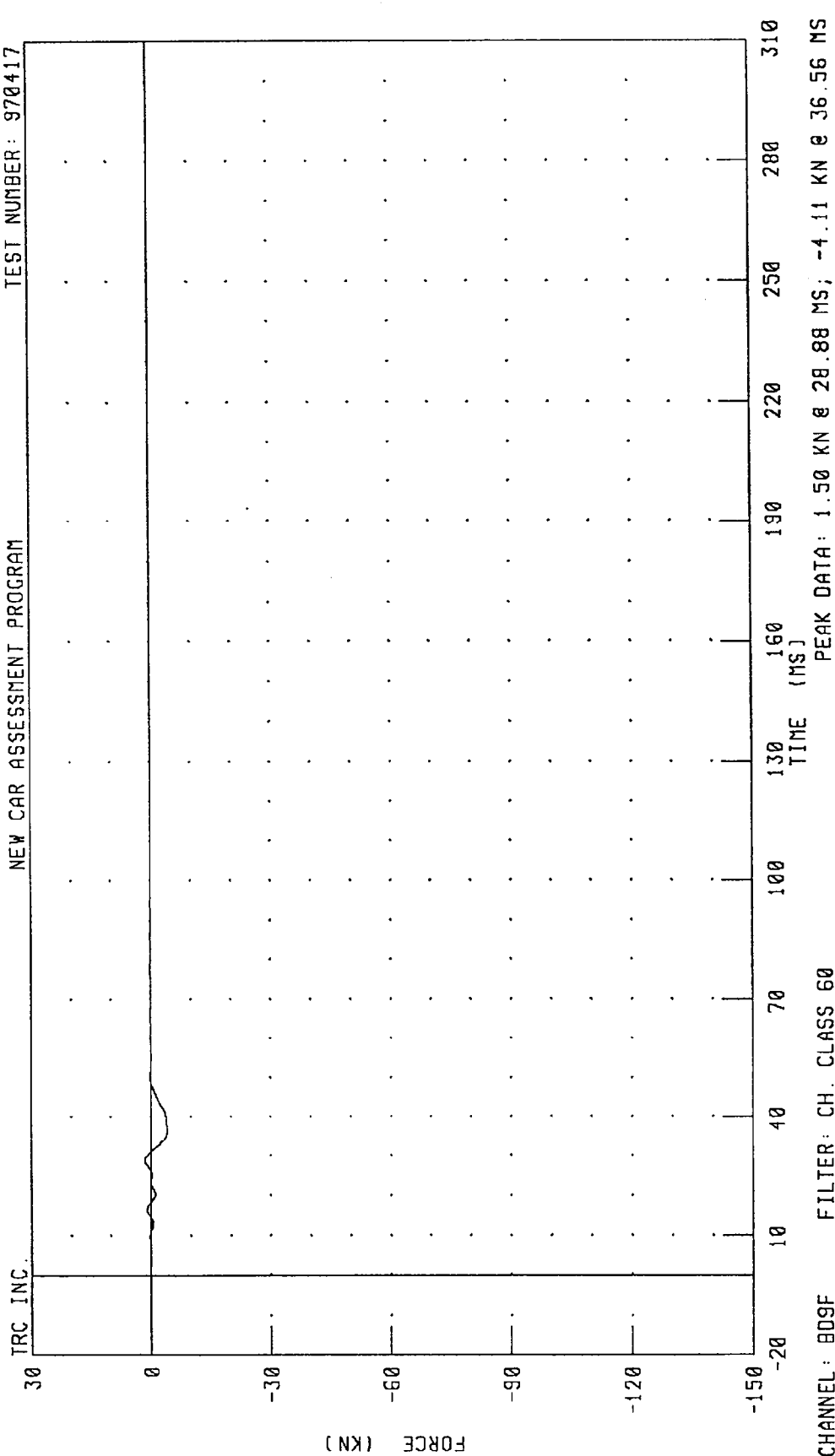
TIME (MS)

FILTER: CH. CLASS 60

CHANNEL: B08F

1997 JEEP CHEROKEE SPORT INTO FRONTAL LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION D9 FORCE
 NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 970417

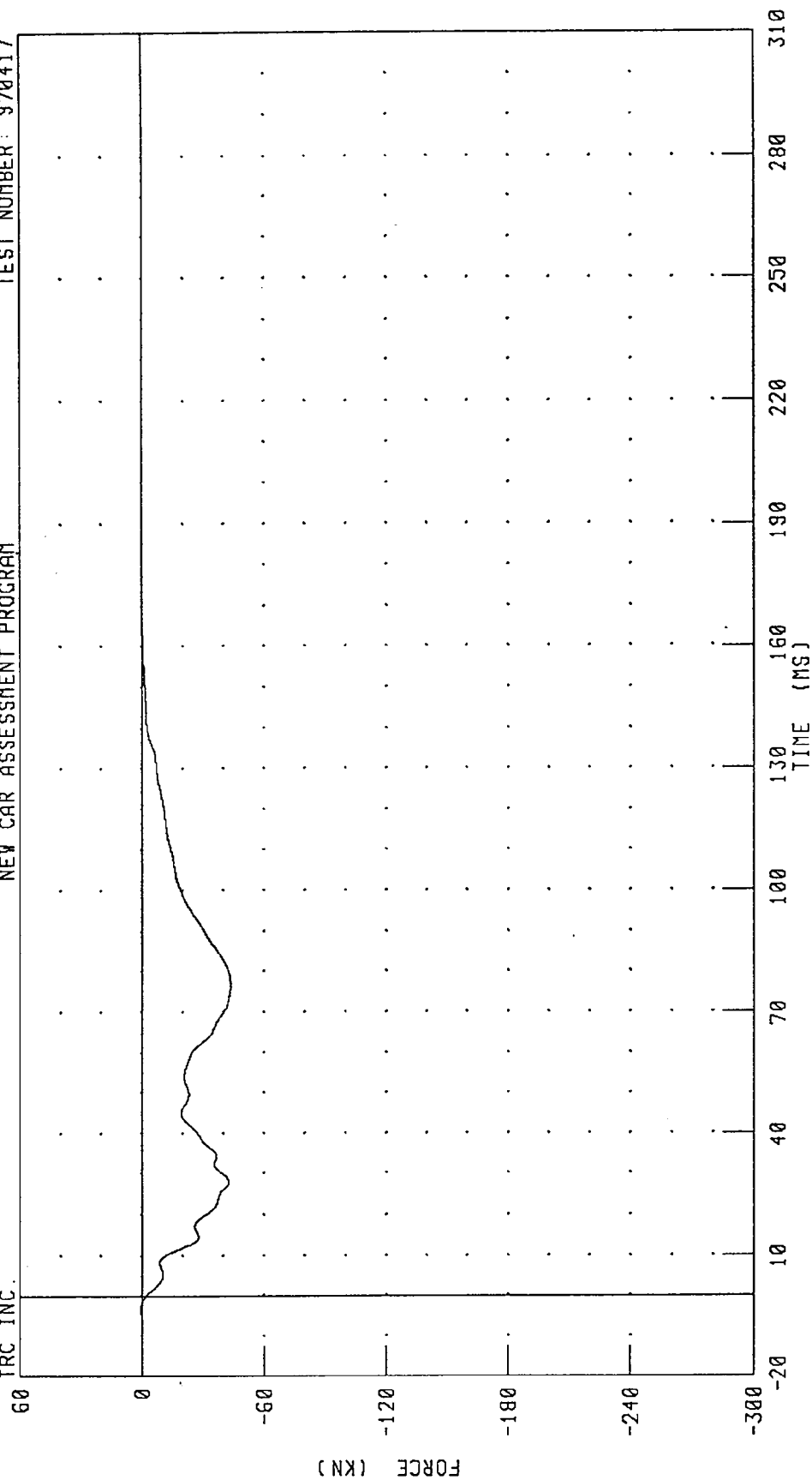


1997 JEEP CHEROKEE SPORT INTO FRONTAL LOAD CELL BARRIER
 LOAD CELL BARRIER GROUP # 1 FORCE TOTAL

TEST NUMBER: 970417

NEW CAR ASSESSMENT PROGRAM

TRC INC.



CHANNEL: LCBGIF FILTER: CH. CLASS 60

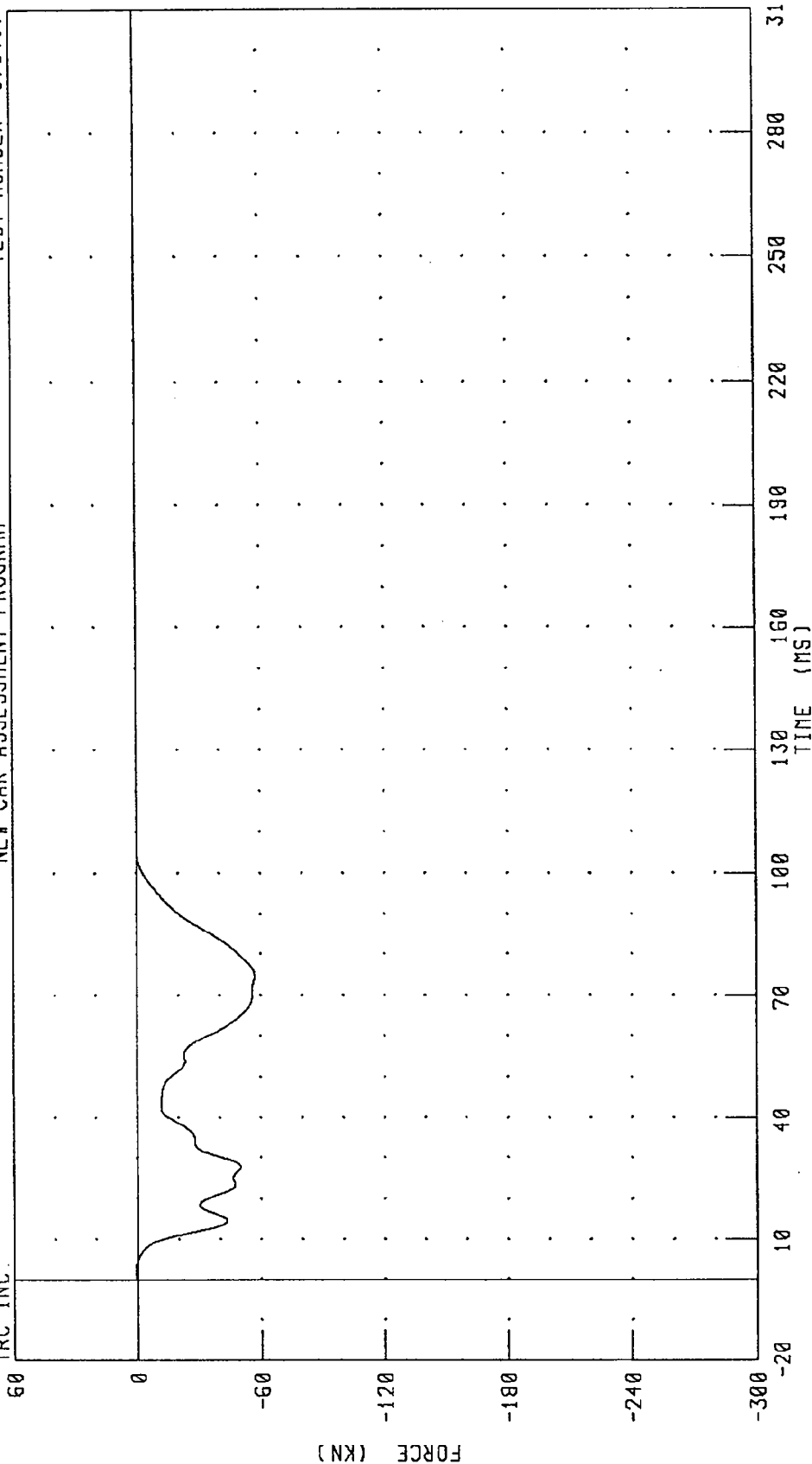
PEAK DATA: 0.24 KN @ -3.36 MS; -43.65 KN @ 76.48 MS

1997 JEEP CHEROKEE SPORT INTO FRONTAL LOAD CELL BARRIER
 LOAD CELL BARRIER GROUP # 2 FORCE TOTAL

TEST NUMBER: 970417

NEW CAR ASSESSMENT PROGRAM

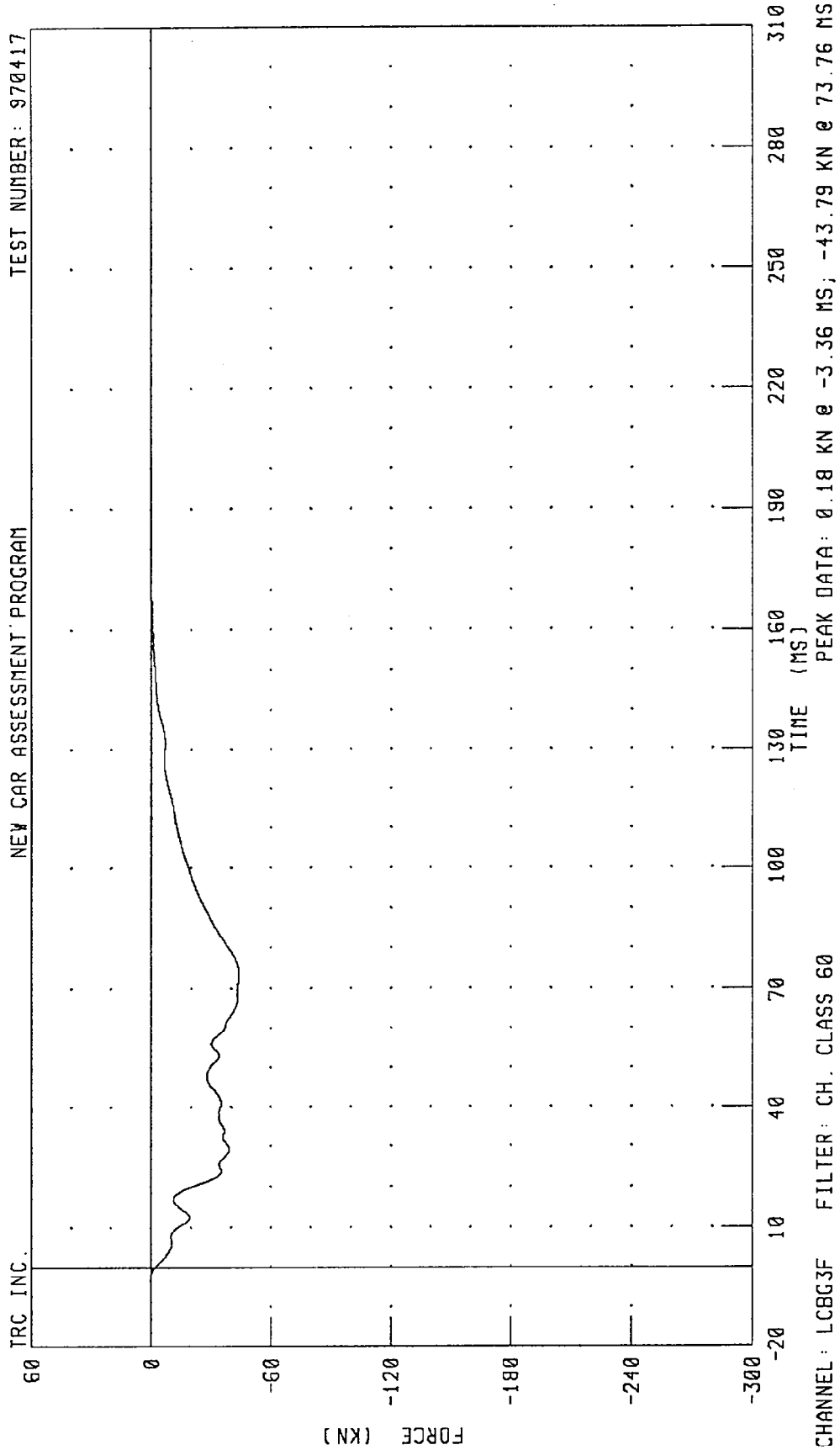
TRC INC.



CHANNEL: LCBG2F FILTER: CH. CLASS 60

PEAK DATA: 1.10 KN @ 2.08 MS; -57.06 KN @ 74.88 MS

1997 JEEP CHEROKEE SPORT INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER GROUP # 3 FORCE TOTAL

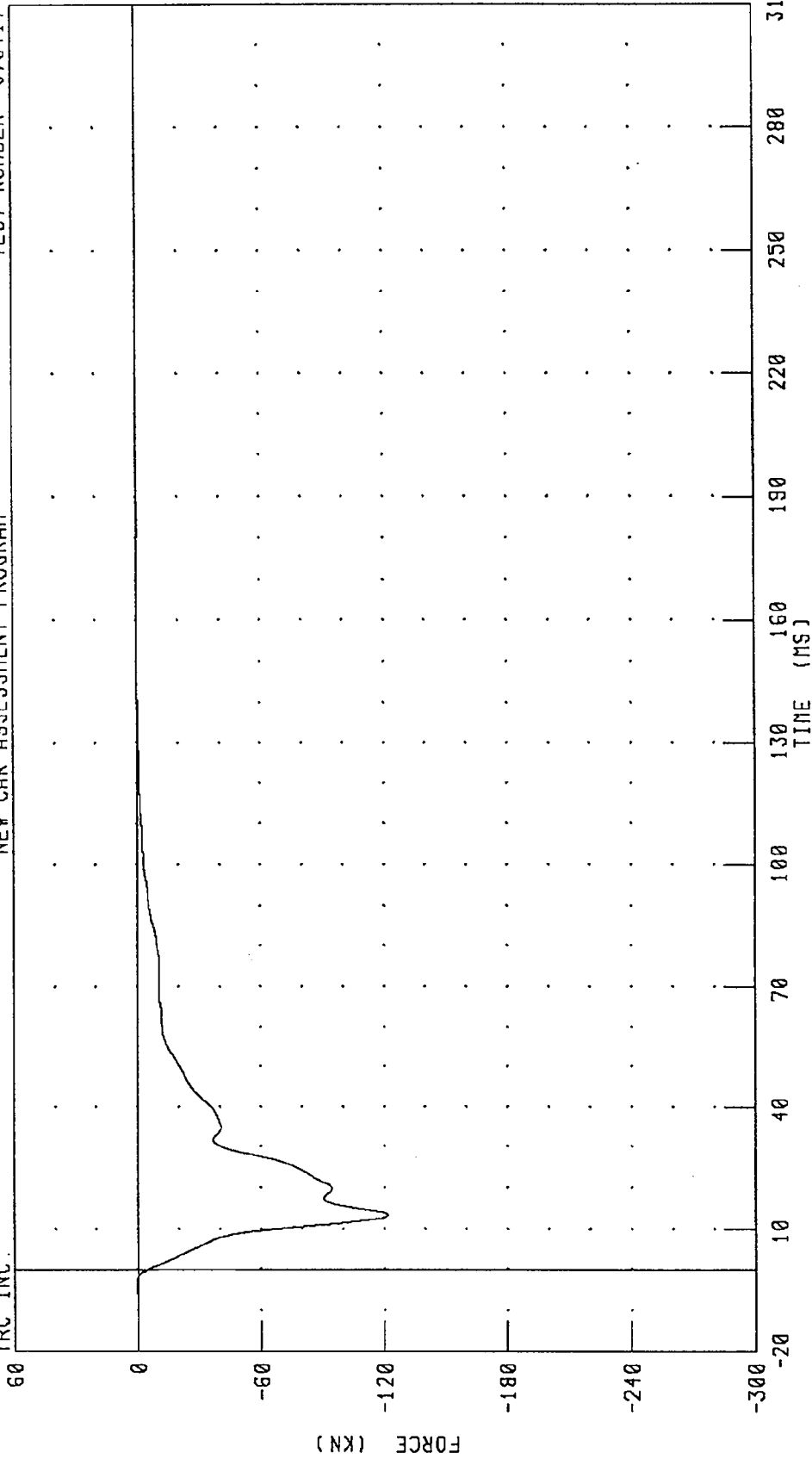


1997 JEEP CHEROKEE SPORT INTO FRONTAL LOAD CELL BARRIER
 LOAD CELL BARRIER GROUP # 4 FORCE TOTAL

TEST NUMBER: 970417

NEW CAR ASSESSMENT PROGRAM

TRC INC.



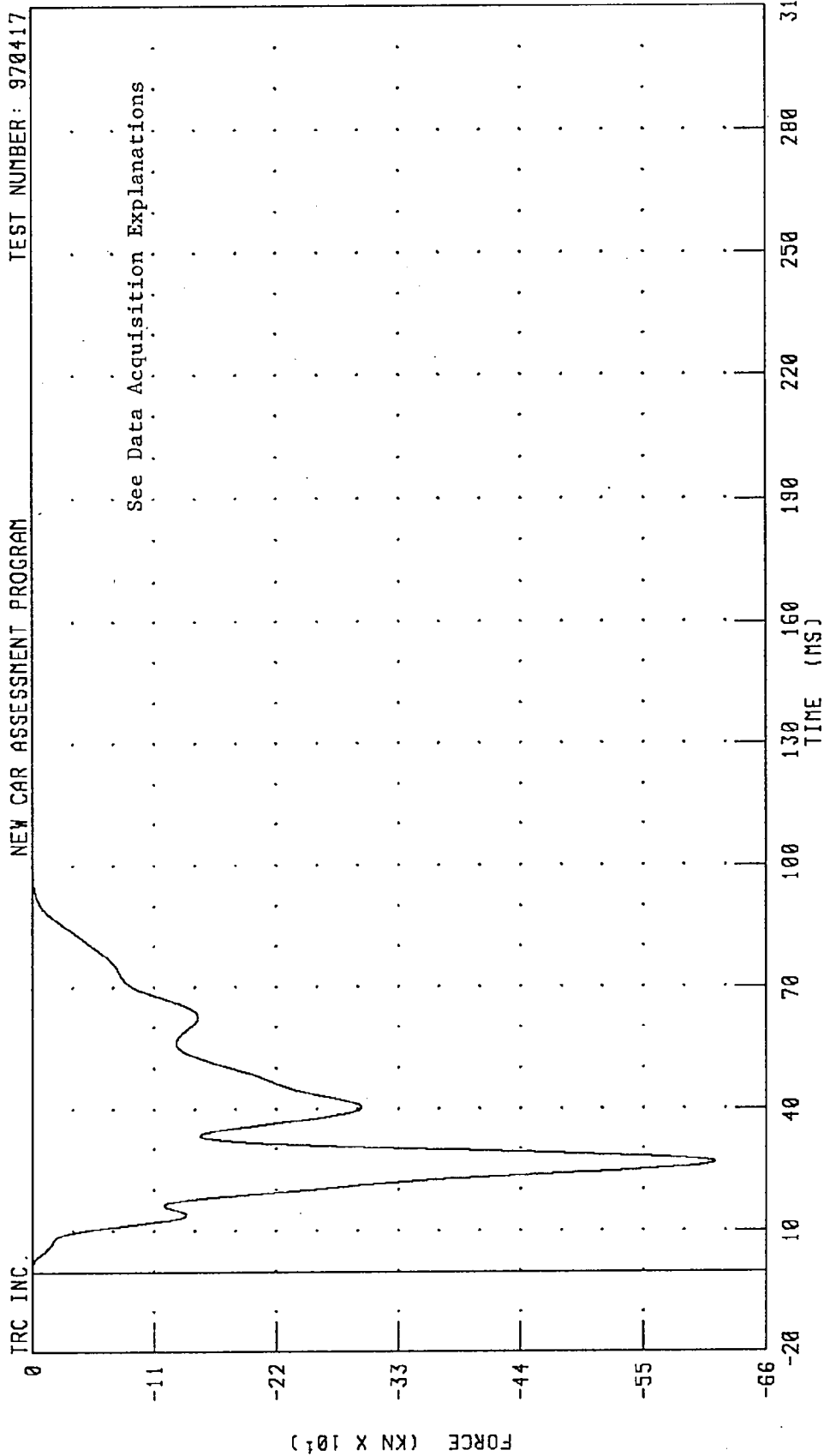
PEAK DATA: 0.59 KN @ -3.52 MS; -121.82 KN @ 13.28 MS

CHANNEL: LCBG4F FILTER: CH. CLASS 60

1997 JEEP CHEROKEE SPORT INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER GROUP # 5 FORCE TOTAL

NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 970417



See Data Acquisition Explanations

CHANNEL: LCBG5F FILTER: CH. CLASS 60

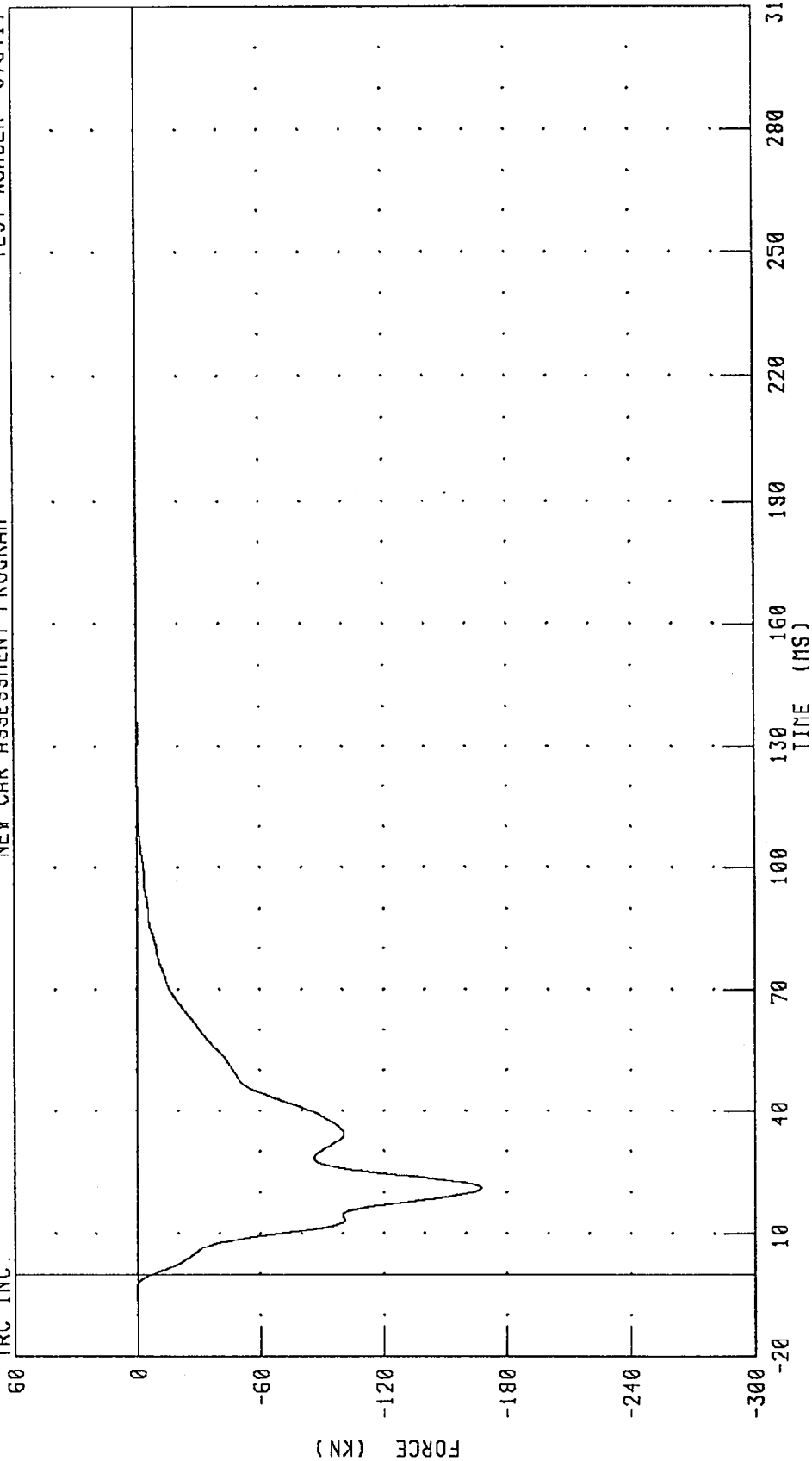
PEAK DATA: 0.91 KN @ 0.32 MS; -613.91 KN @ 26.64 MS

1997 JEEP CHEROKEE SPORT INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER GROUP # 6 FORCE TOTAL

TEST NUMBER: 970417

NEW CAR ASSESSMENT PROGRAM

TRC INC.



CHANNEL: LCBG6F FILTER: CH. CLASS 60

PEAK DATA: 0.60 KN @ -3.84 MS; -167.57 KN @ 21.04 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

26-FEB-97

TRC INC.

TEST NO: 192C36ED1

572E SN192 EXT.DIMENSION CAL36

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 J. Lee

RUN NUMBER: 022697.0925

TRANSPORTATION RESEARCH CENTER INC.

HEAD DROP TEST

HYBRID III

26-FEB-97

TRC INC.

TEST NO: 192C36HD1

572E SN192 HEAD DROP CAL 36

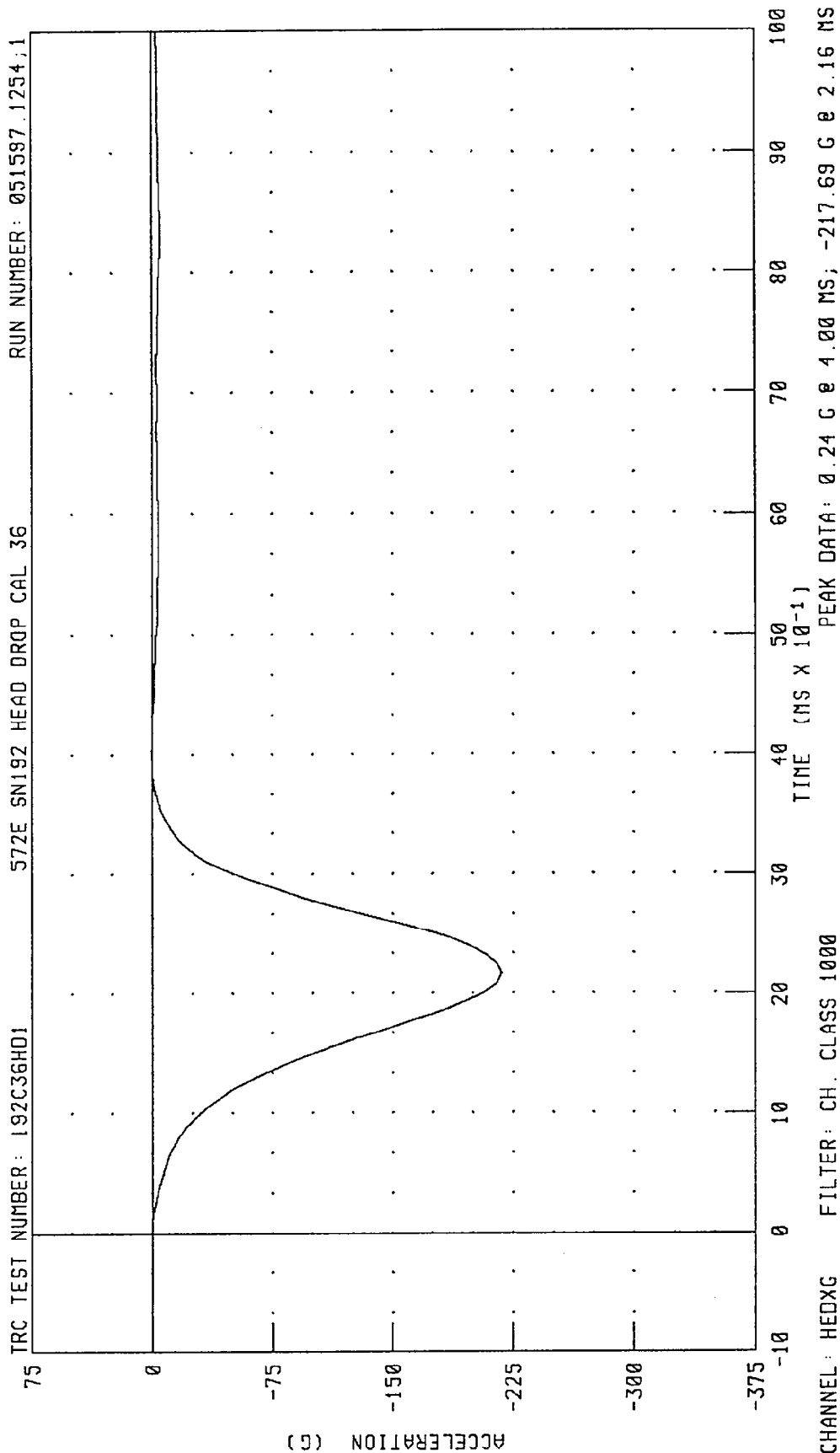
TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	18.9-25.6 DEG. C	21.1 DEG. C
RELATIVE HUMIDITY	10 - 70 %	30.0 %
PEAK RESULTANT ACCELERATION	225 - 275 G	252.26 G
PEAK LATERAL ACCELERATION	15 G MAX	-7.39 G
IS ACCELERATION CURVE UNIMODAL?	YES	YES

TEST MEETS SPECIFICATIONS

TECHNICIAN Richard L. Van

RUN NUMBER: 022697.1036;1

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



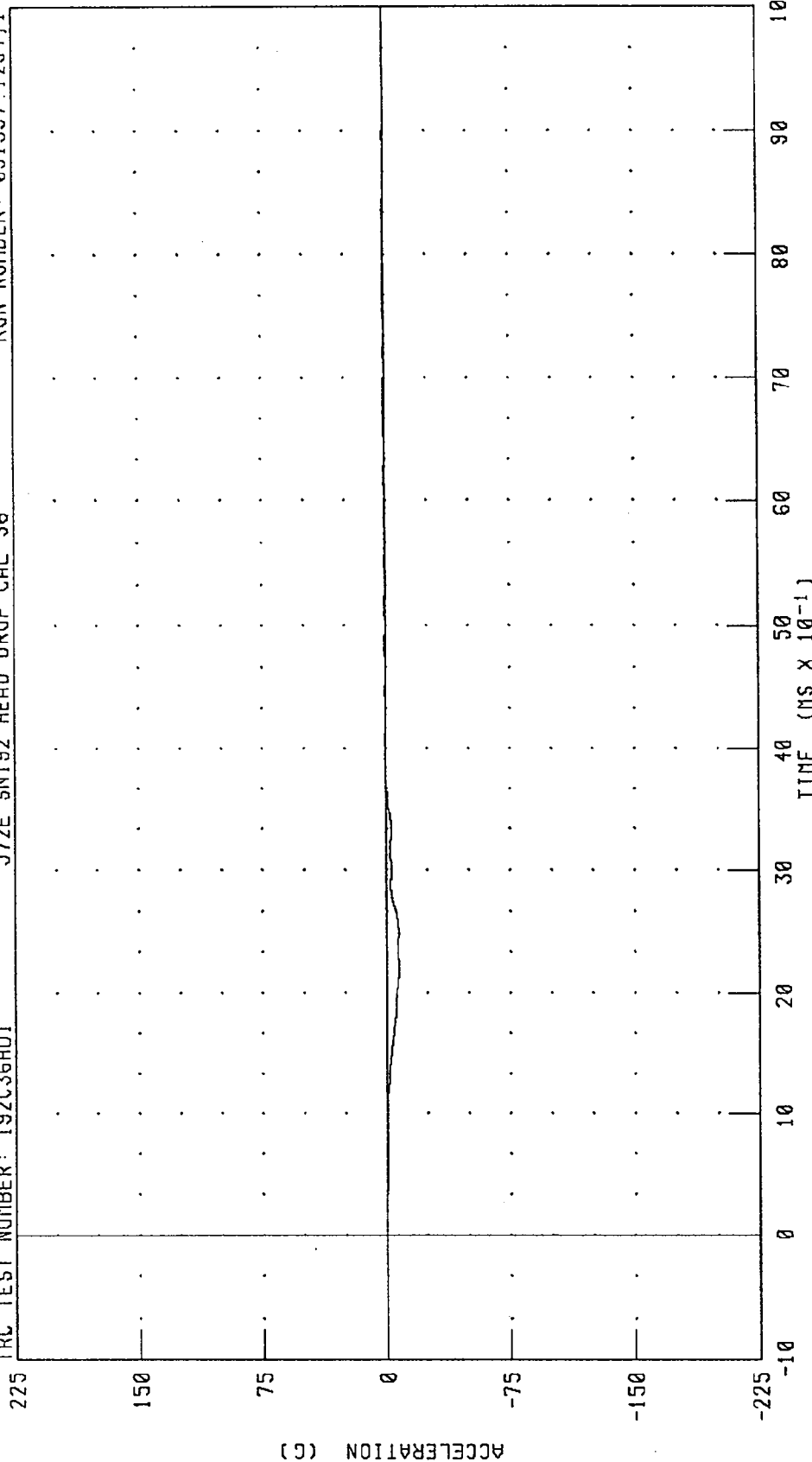
CHANNEL: HEDXG FILTER: CH. CLASS 1000

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

TRC TEST NUMBER: 192C36HD1

572E SN192 HEAD DROP CAL 36

RUN NUMBER: 051597.1254.1

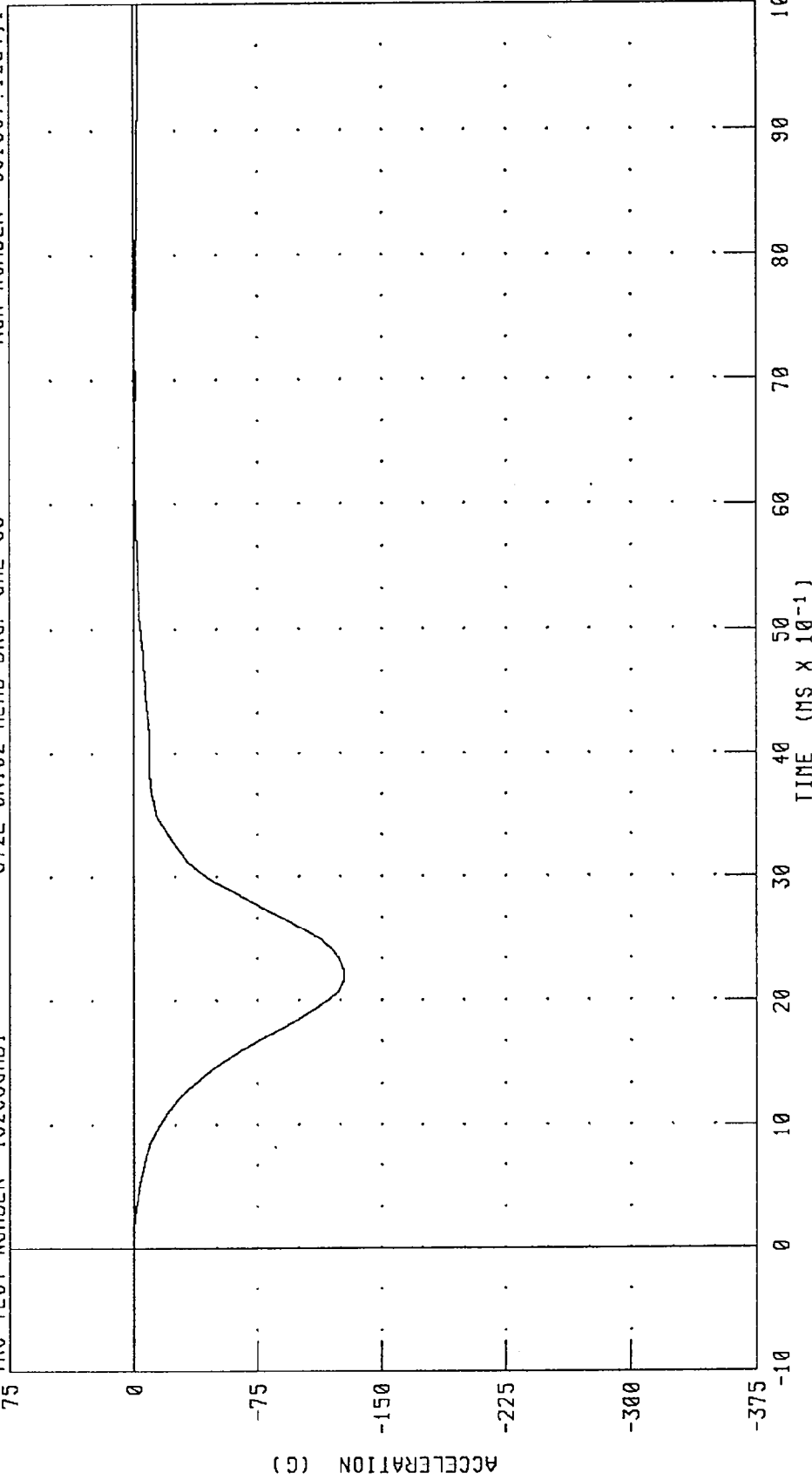


PEAK DATA: 0.93 G @ 3.84 MS; -7.40 G @ 2.16 MS

CHANNEL: HEDYG FILTER: CH. CLASS 1000

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

TRC TEST NUMBER: 192C36HD1 572E SN192 HEAD DROP CAL 36 RUN NUMBER: 051597.1254;1



PEAK DATA: 0.07 G @ 0.08 MS; -127.28 G @ 2.24 MS

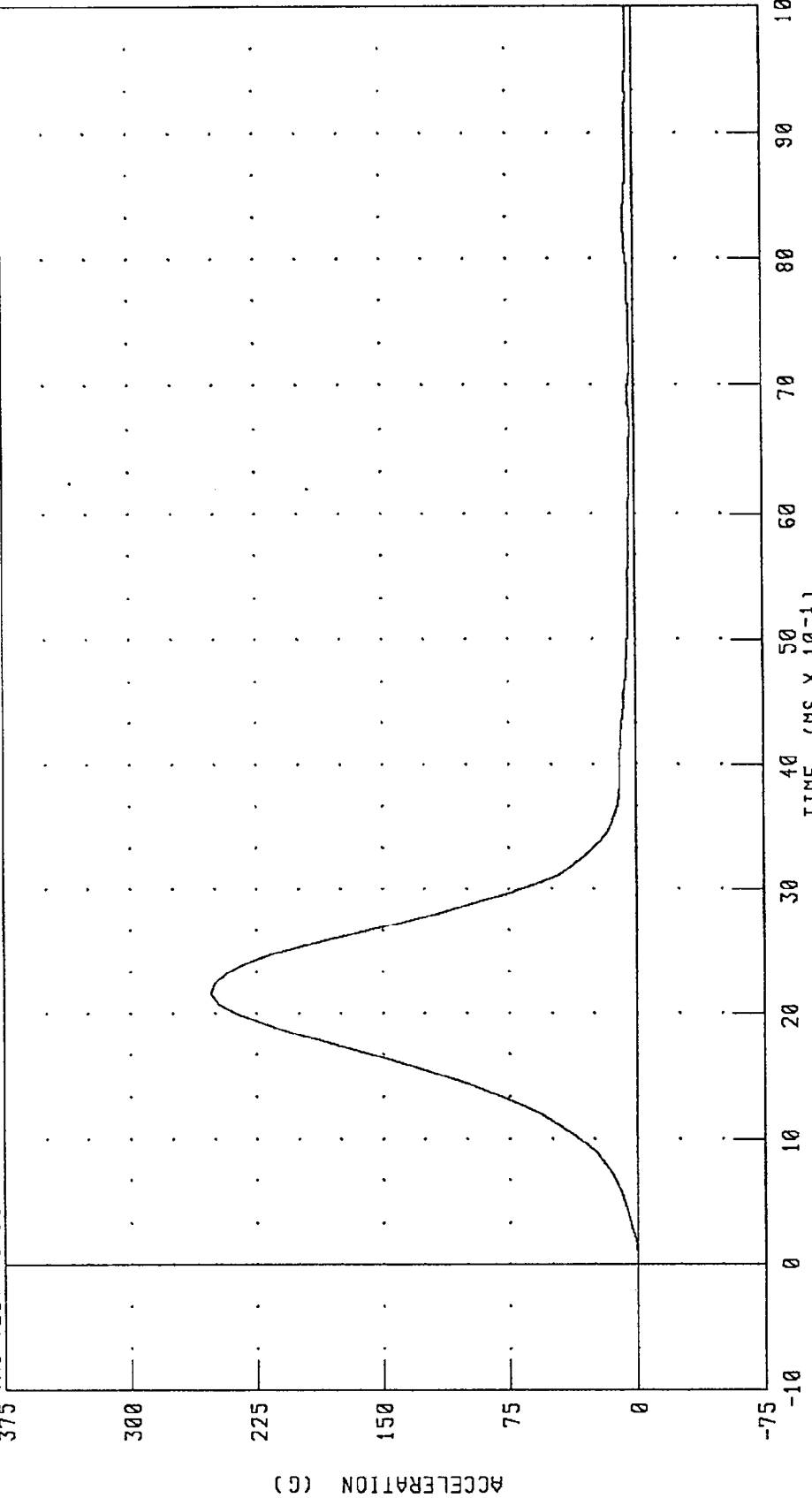
CHANNEL: HEDZG FILTER: CH. CLASS 1000

PART 572-E HYBRID III HEAD CALIBRATION
HEAD RESULTANT ACCELERATION

TRC TEST NUMBER: 192C36HD1

572E SN192 HEAD DROP CAL 36

RUN NUMBER: 051597.1254.1



PEAK DATA: 252.26 G @ 2.16 MS; 0.09 G @ -0.64 MS

CHANNEL: HEDRG FILTER: CH. CLASS 1000

TRANSPORTATION RESEARCH CENTER INC.
NECK FLEXION TEST - 6 CHANNEL TRANSDUCER

HYBRID III

26-FEB-97

TRC INC. TEST NO: 192C36NF2 572E SN192 NECK FLEXION CAL36

TEST PARAMETER		SPECIFICATION	TEST RESULTS
TEMPERATURE		20.6-22.2 DEG. C	21.1 DEG. C
RELATIVE HUMIDITY		10 - 70 %	30.0 %
IMPACT VELOCITY		6.89 - 7.13 M/S	6.99 M/S
PENDULUM DECELERATION	10 MS	22.50 - 27.50 G	22.71 G
	20 MS	17.60 - 22.60 G	20.47 G
	30 MS	12.50 - 18.50 G	15.03 G
MAX PENDULUM G		29 G MAX	23.40 G
MAX PENDULUM G ABOVE 30 MS		29 G MAX	14.99 G
DECELERATION-TIME CURVE DECAY TIME TO 5 G		34 - 42 MS	38.08 MS
D PLANE	MAX	64 - 78 DEG.	72.74 DEG.
ROTATION	TIME	57 - 64 MS	58.24 MS
MOMENT ABOUT OCCIPITAL CONDYLE	MAX	88.2 - 108.5 NM	100.77 NM
	TIME	47 - 58 MS	51.28 MS
ROTATION ANGLE-TIME CURVE DECAY TIME TO ZERO		113 - 128 MS	113.36 MS
POSITIVE MOMENT-TIME CURVE DECAY TIME TO ZERO		97 - 107 MS	100.80 MS

TEST MEETS SPECIFICATIONS

TECHNICIAN Richard L. Van

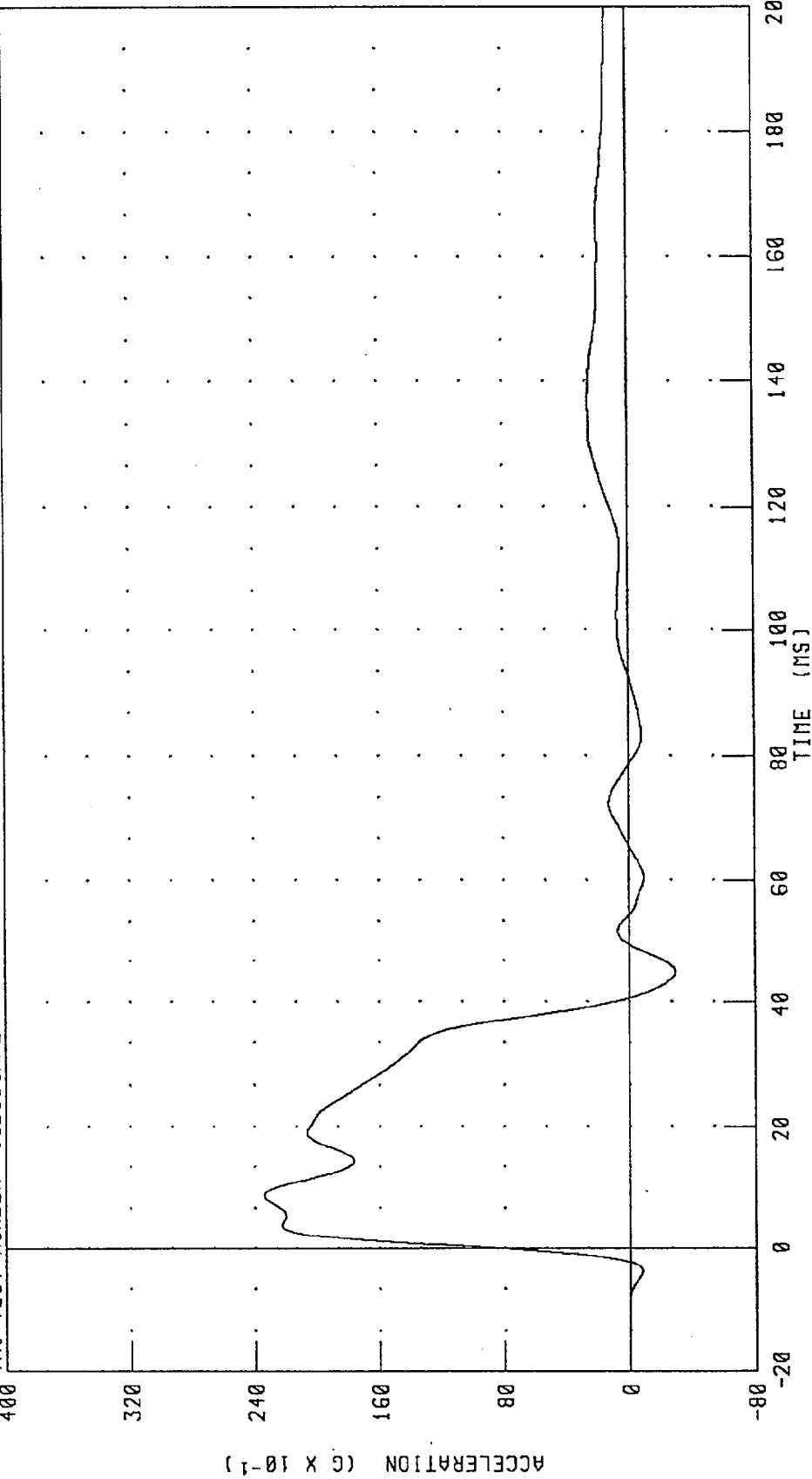
RUN NUMBER: 022697.1256;1

PART 572-E HYBRID III NECK FLEXION CALIBRATION
 PENDULUM DECELERATION

TRC TEST NUMBER: 192C36NF2

572E SN192 NECK FLEXION CAL36

RUN NUMBER: 051597.1254;1



PEAK DATA: 23.41 G @ 8.80 MS; -2.93 G @ 44.88 MS

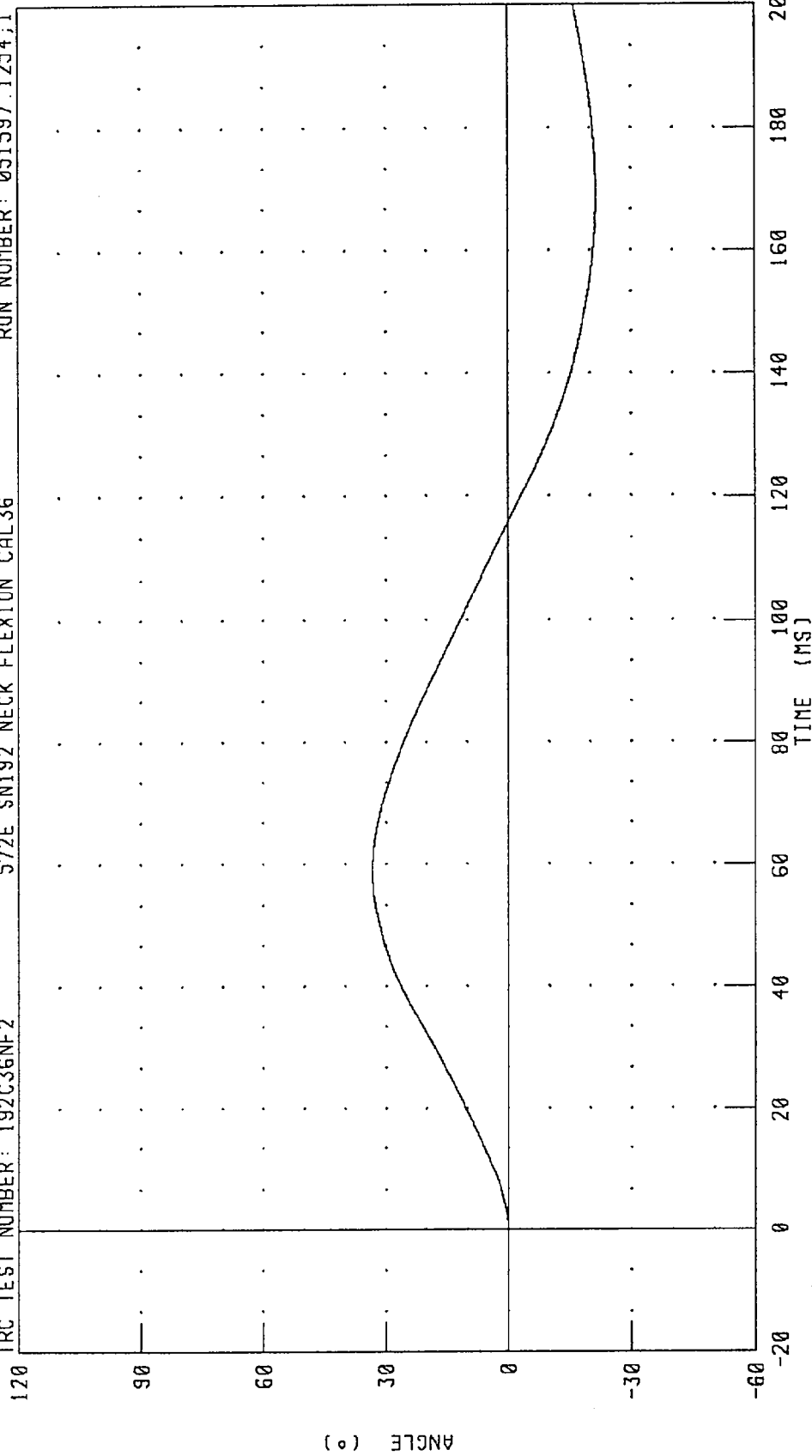
CHANNEL: PENXG FILTER: CH. CLASS 60

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

TRC TEST NUMBER: 192C36NF2

572E SN192 NECK FLEXION CAL36

RUN NUMBER: 051597.1254;1



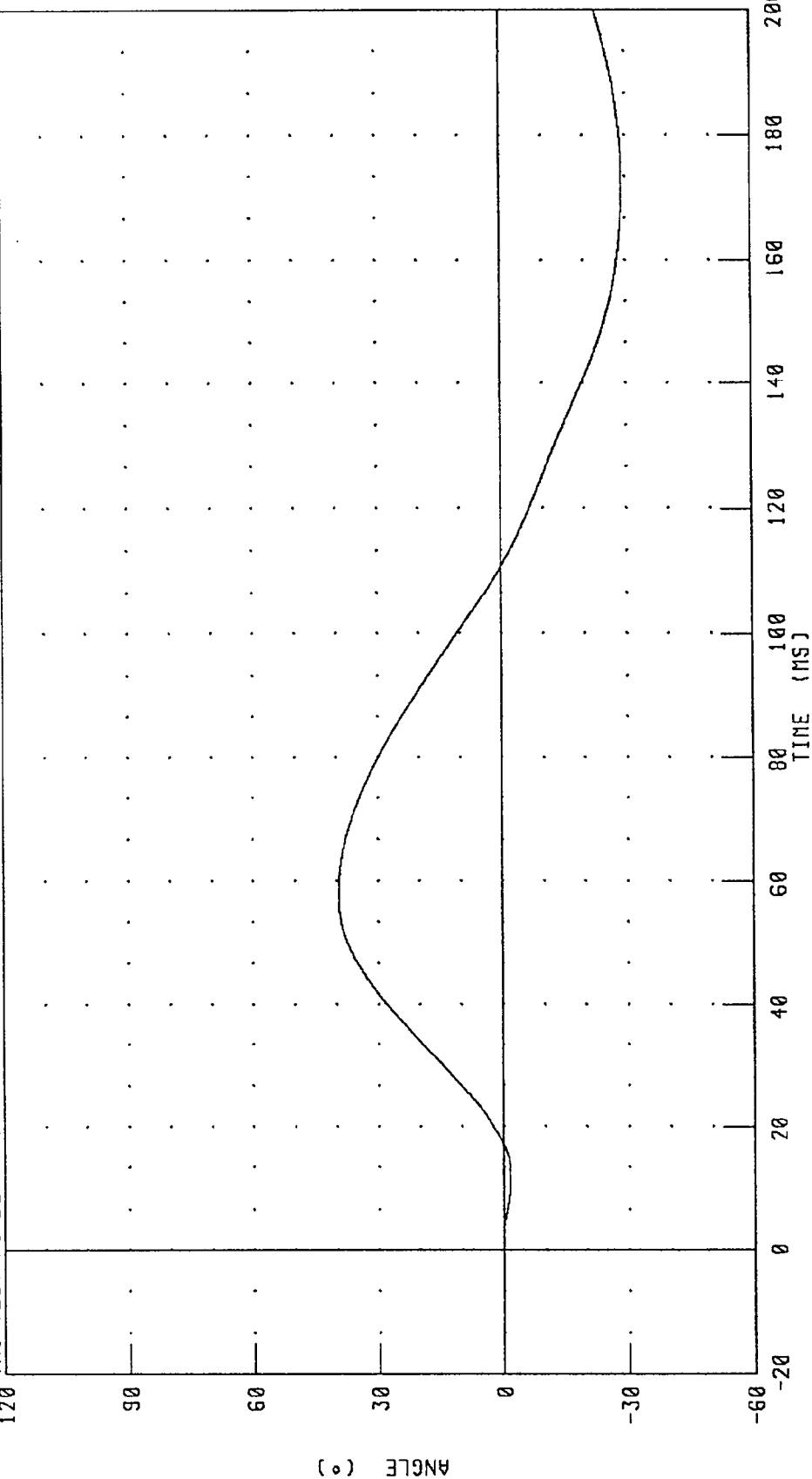
PEAK DATA: 33.26 ° @ 58.80 MS; -21.50 ° @ 169.20 MS

CHANNEL: BETA FILTER: CH. CLASS 60

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

TRC TEST NUMBER: 192C36NF2 RUN NUMBER: 051597.1254,1

572E SN192 NECK FLEXION CAL36



PEAK DATA: 39.49 ° @ 57.76 MS; -29.24 ° @ 172.88 MS

CHANNEL: THETA FILTER: CH. CLASS 60

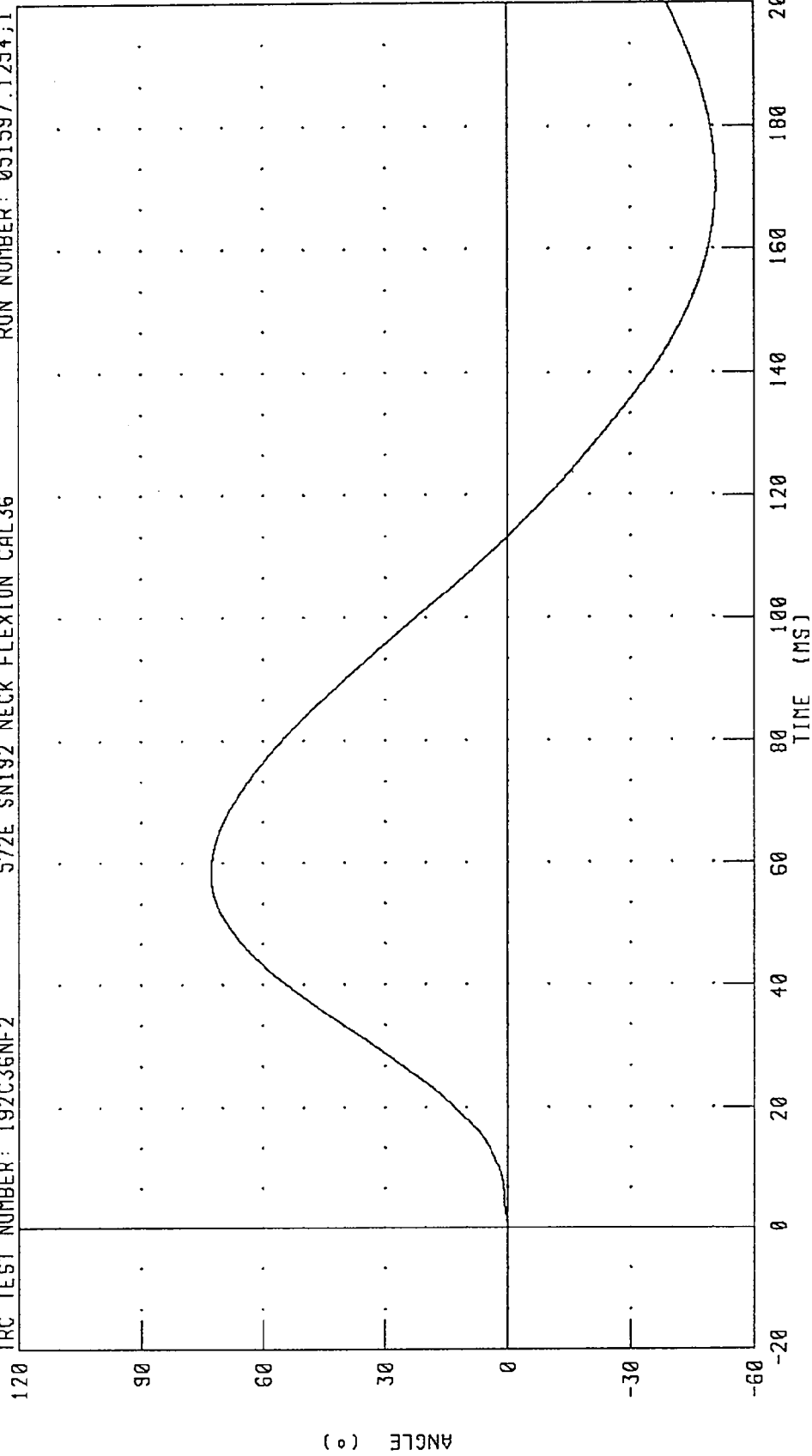
PART 572-E HYBRID III NECK FLEXION CALIBRATION

TOTAL ROTATION

TRC TEST NUMBER: 192C36NF2

572E SN192 NECK FLEXION CAL36

RUN NUMBER: 051597.1254;1



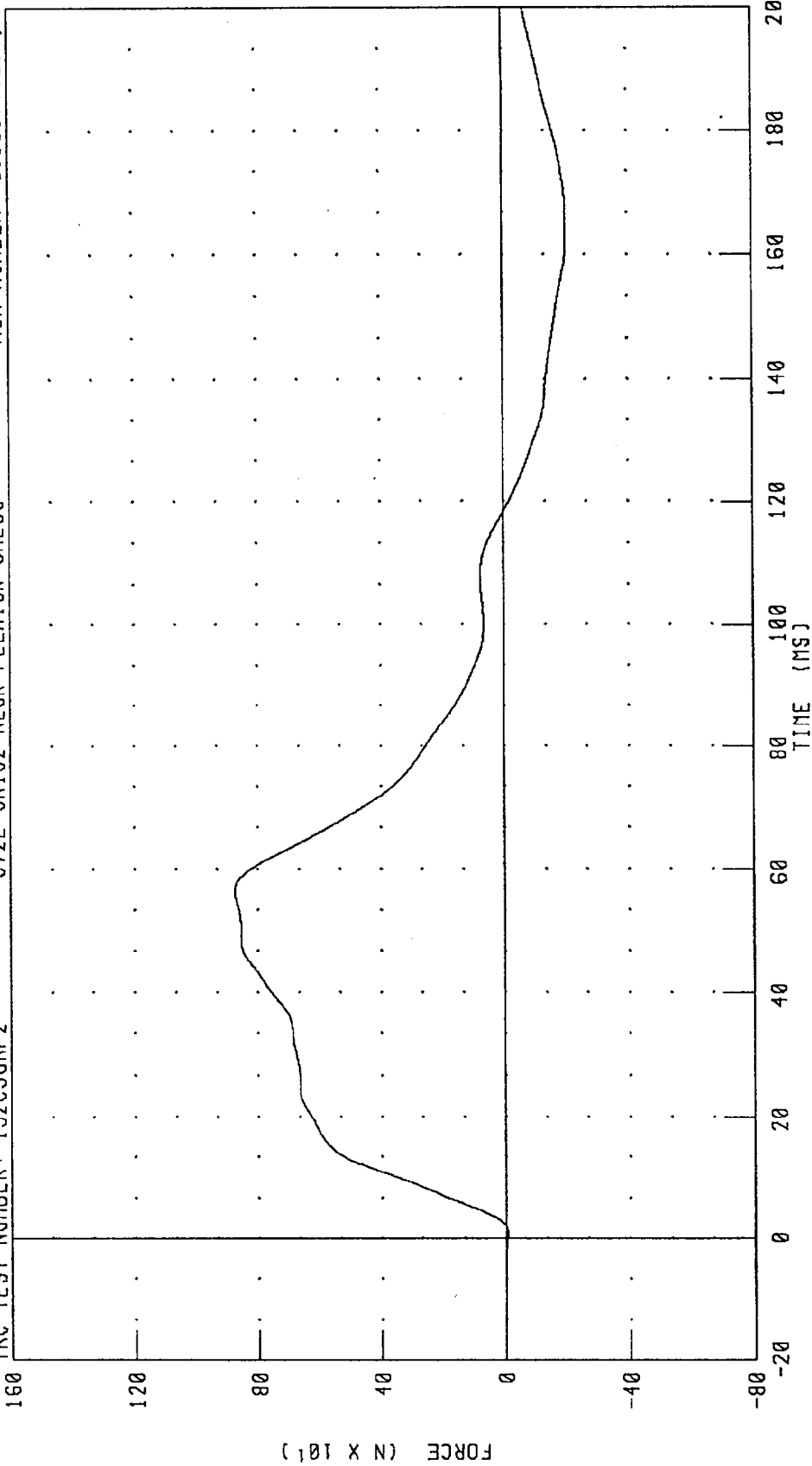
PEAK DATA: 72.74 ° @ 58.24 MS; -50.69 ° @ 170.80 MS

CHANNEL: TOTAL FILTER: CH. CLASS 60

PART 572-E HYBRID III NECK FLEXION CALIBRATION

NECK FORCE X AXIS

TRC TEST NUMBER: 192C36NF2 572E SN192 NECK FLEXION CAL36 RUN NUMBER: 051597 1254;1



PEAK DATA: 875.95 N @ 56.48 MS; -204.13 N @ 166.32 MS

CHANNEL: NEKXF FILTER: CH. CLASS 60

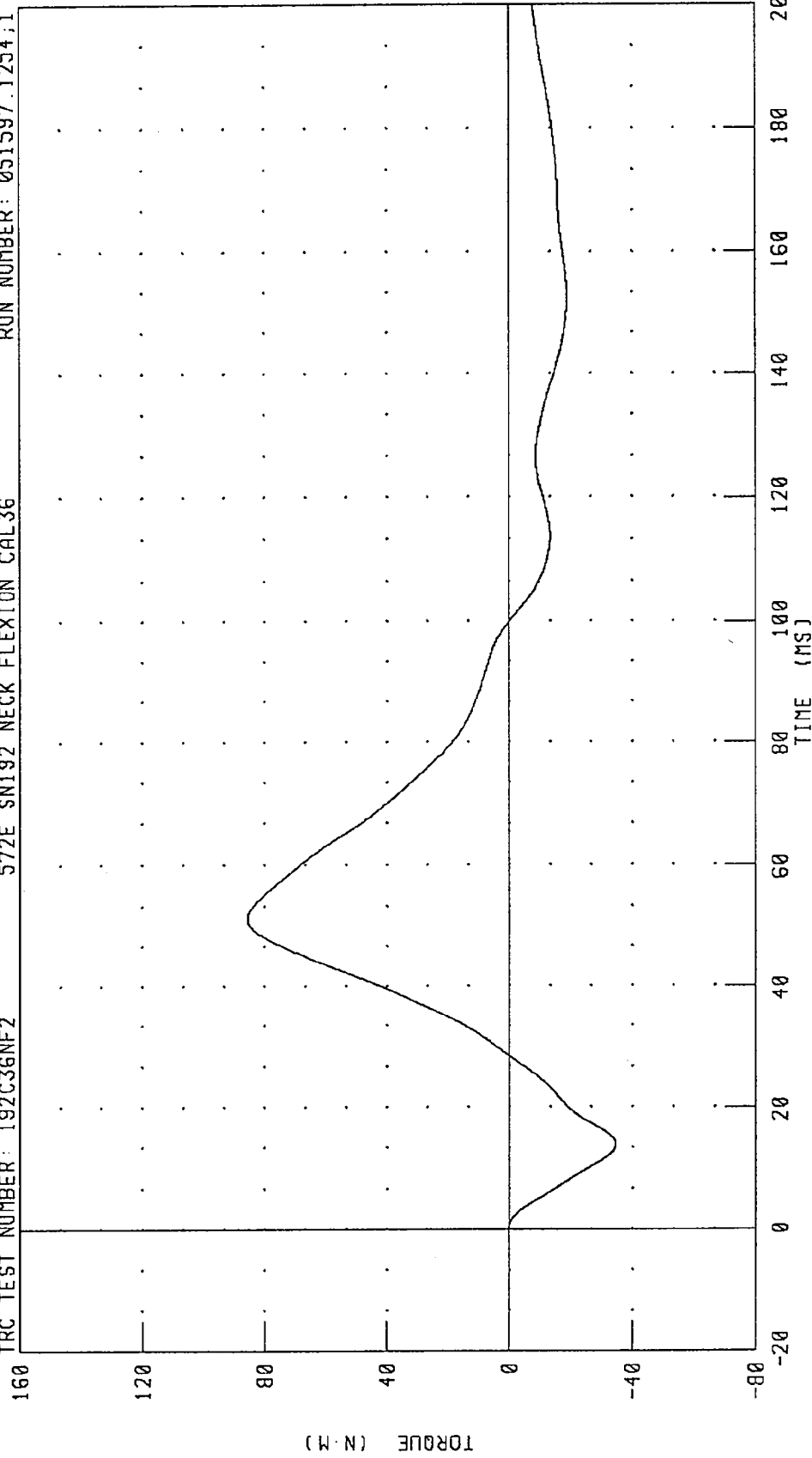
PART 572-E HYBRID III NECK FLEXION CALIBRATION

NECK MOMENT Y AXIS

TRC TEST NUMBER: 192C36NF2

572E SN192 NECK FLEXION CAL36

RUN NUMBER: 051597.1254;1



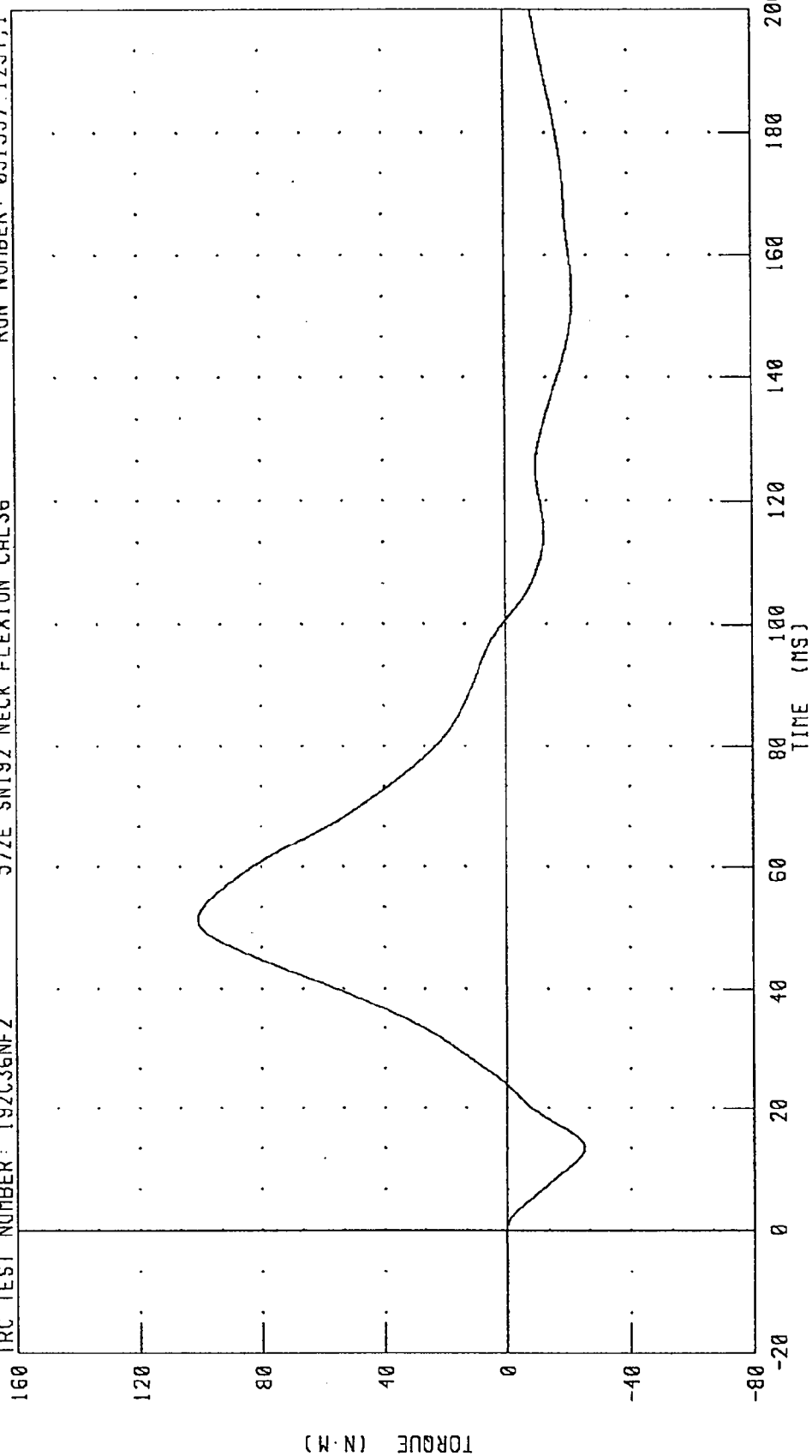
PEAK DATA: 85.57 N.M @ 51.20 MS; -34.54 N.M @ 13.84 MS

CHANNEL: NEKYM FILTER: CH. CLASS 60

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

TRC TEST NUMBER: 192C36NF2 RUN NUMBER: 051597 1254;1

572E SN192 NECK FLEXION CAL36



PEAK DATA: 100.77 N·M @ 51.28 ms; -25.07 N·M @ 134.44 ms

CHANNEL: NEKOM FILTER: CH. CLASS 60

TRANSPORTATION RESEARCH CENTER INC.
NECK EXTENSION TEST - 6 CHANNEL TRANSDUCER

HYBRID III

26-FEB-97

TRC INC. TEST NO: 192C36NE3 572E SN192 NECK EXT. CAL36

TEST PARAMETER		SPECIFICATION	TEST RESULTS
TEMPERATURE		20.6 - 22.2 DEG. C	21.1 DEG. C
RELATIVE HUMIDITY		10 - 70 %	30.0 %
IMPACT VELOCITY		5.95 - 6.19 M/S	6.00 M/S
PENDULUM DECELERATION	10 MS	17.20 - 21.20 G	17.67 G
	20 MS	14.00 - 19.00 G	15.31 G
	30 MS	11.00 - 16.00 G	12.61 G
MAX PENDULUM G		22 G MAX	18.09 G
MAX PENDULUM G ABOVE 30 MS		22 G MAX	12.57 G
DECELERATION-TIME CURVE DECAY TIME TO 5 G		38 - 46 MS	43.28 MS
D PLANE	MAX	81 - 106 DEG.	95.77 DEG.
ROTATION	TIME	72 - 82 MS	77.12 MS
MOMENT ABOUT OCCIPITAL CONDYLE	MIN	-80.0/-52.9 NM	-64.85 NM
	TIME	65 - 79 MS	72.64 MS
ROTATION ANGLE-TIME CURVE DECAY TIME TO ZERO		147 - 174 MS	155.44 MS
NEGATIVE MOMENT-TIME CURVE DECAY TIME TO ZERO		120 - 148 MS	140.96 MS

TEST MEETS SPECIFICATIONS

TECHNICIAN Richard LaSalle

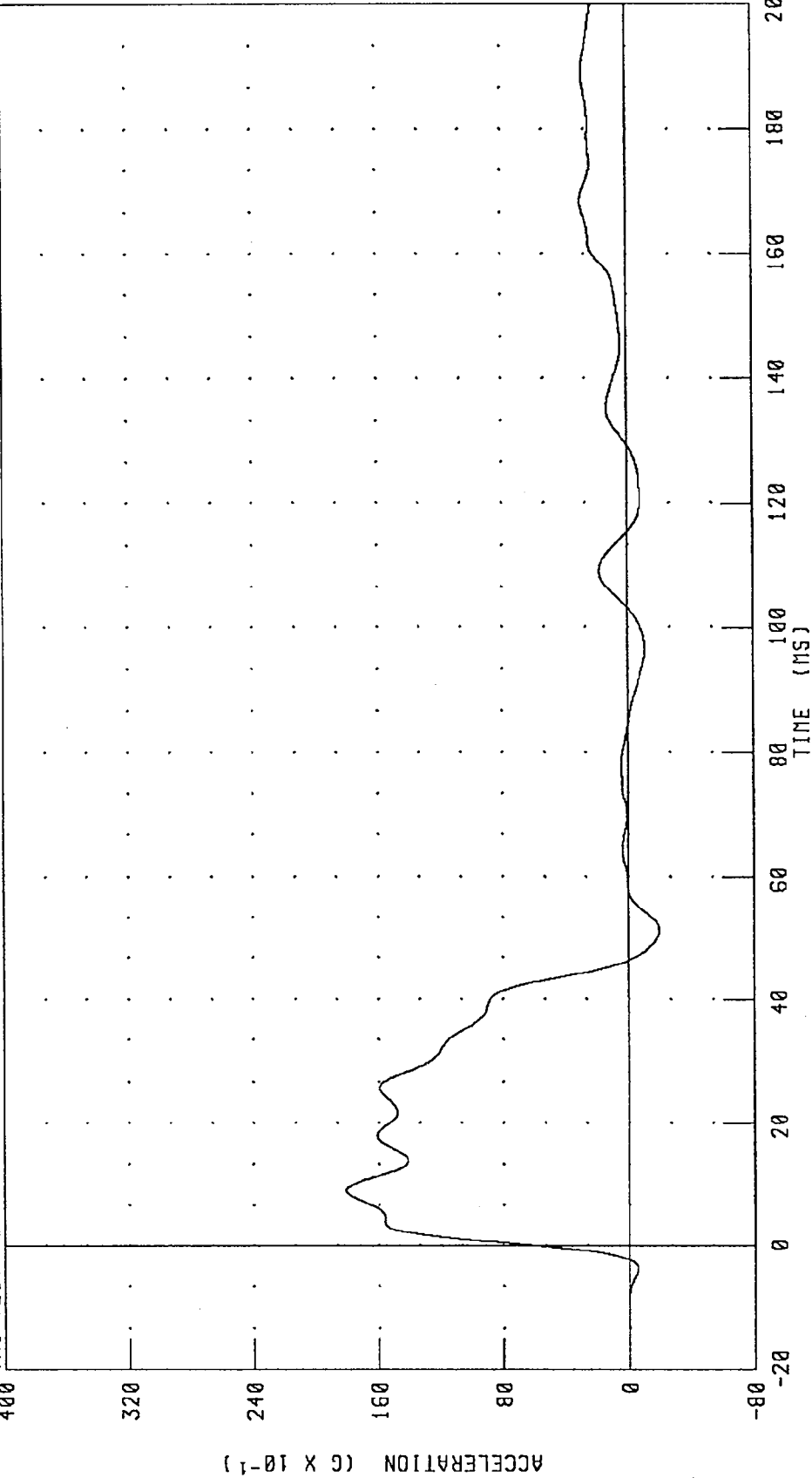
RUN NUMBER: 022697.1524;1

PART 572-E HYBRID III NECK EXTENSION CALIBRATION
 PENDULUM DECELERATION

TRC TEST NUMBER: 192C36NE3

572E SN192 NECK EXT. CAL36

RUN NUMBER: 051597.1254;1



PEAK DATA: 18.10 G @ 9.04 MS; -1.97 G @ 51.12 MS

CHANNEL: PENXC FILTER: CH. CLASS 60

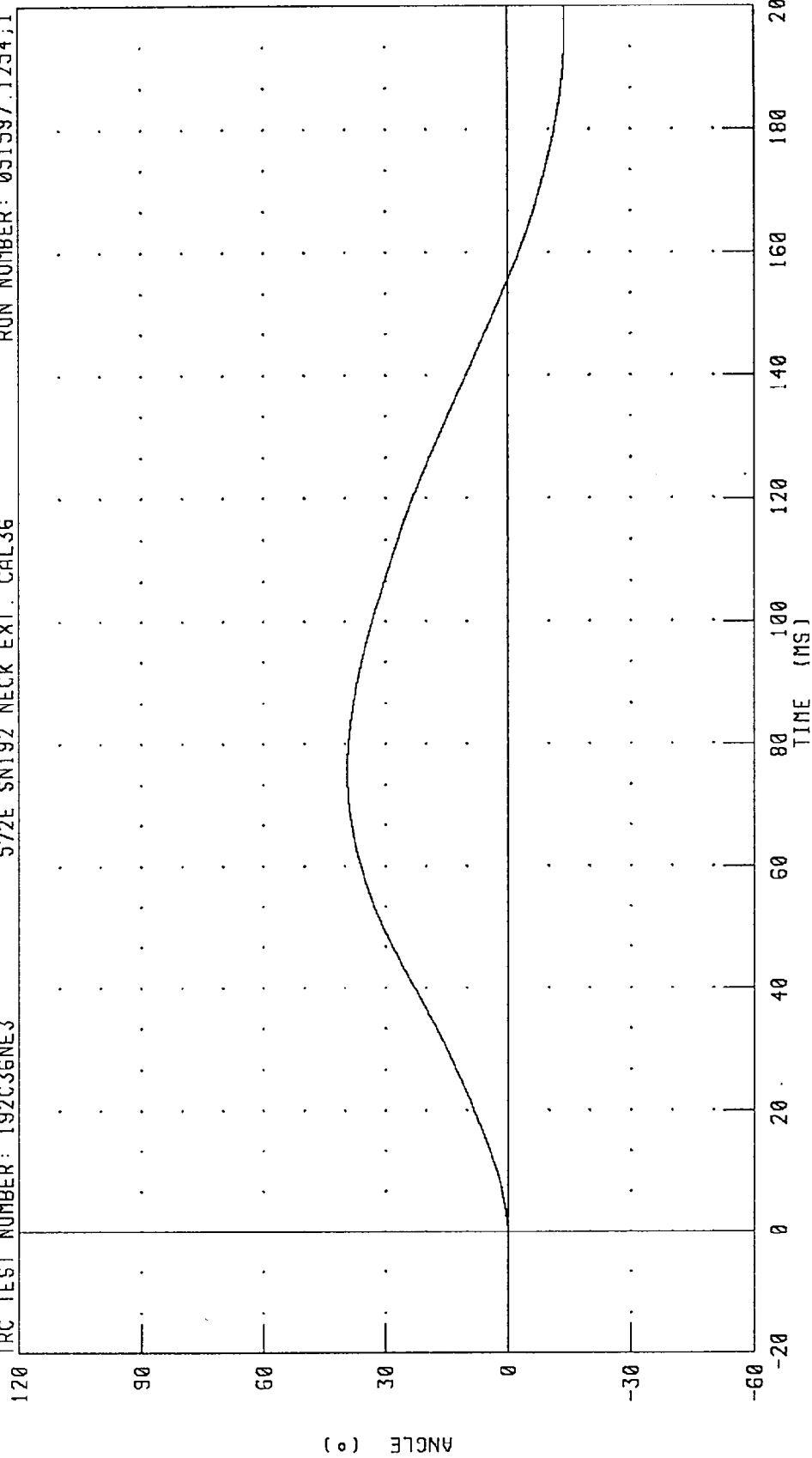
PART 572-E HYBRID III NECK EXTENSION CALIBRATION

ROTATION ABOUT BASE OF NECK

TRC TEST NUMBER: 192C36NE3

572E SN192 NECK EXT. CAL36

RUN NUMBER: 051597.1254;1



PEAK DATA: 39.38 ° @ 75.76 MS; -13.95 ° @ 195.84 MS

CHANNEL: BETA FILTER: CH. CLASS 60

ANGLE (°)

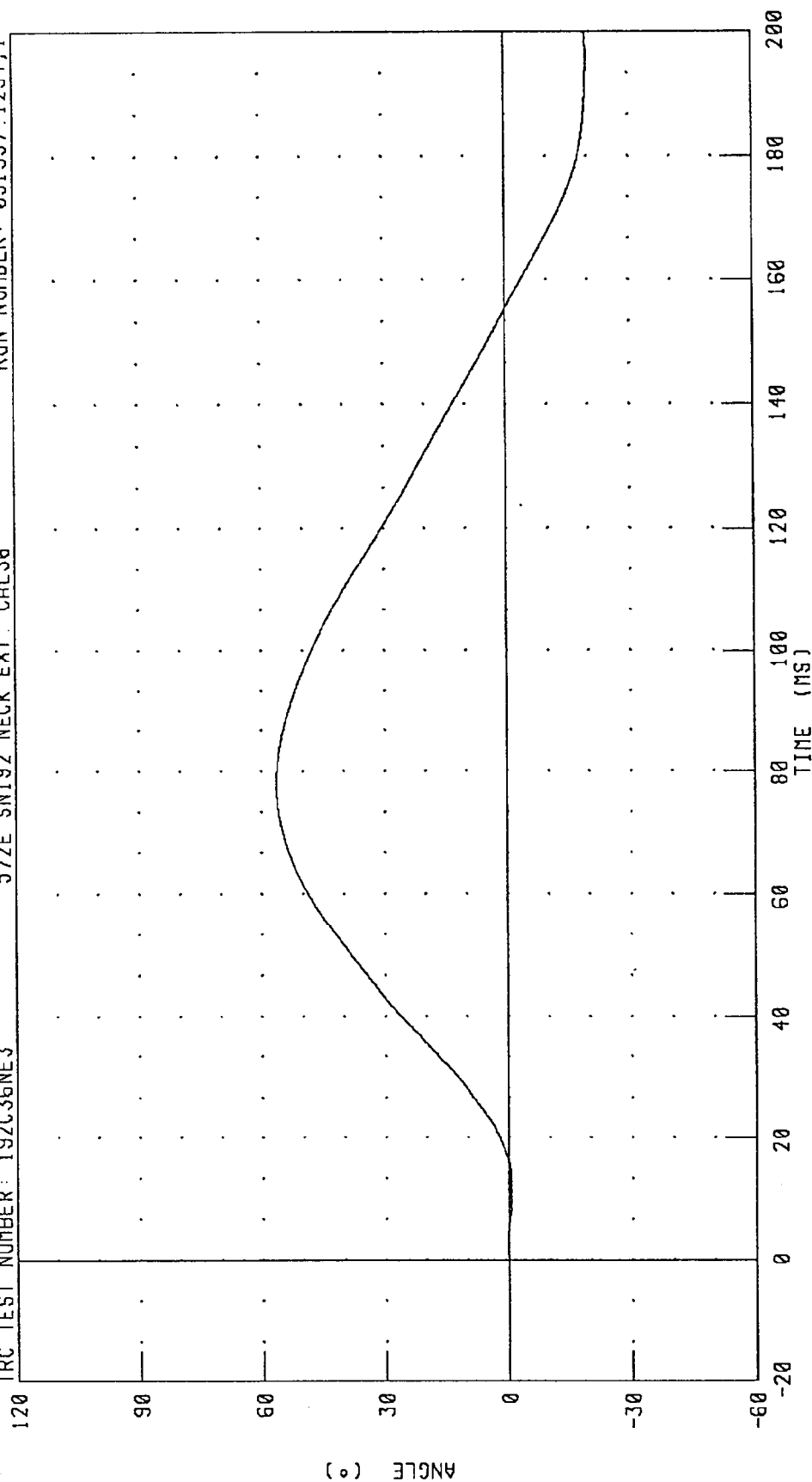
TIME (MS)

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

TRC TEST NUMBER: 192C36NE3

572E SN192 NECK EXT. CAL36

RUN NUMBER: 051597.1254;1



CHANNEL: THETA FILTER: CH. CLASS 60

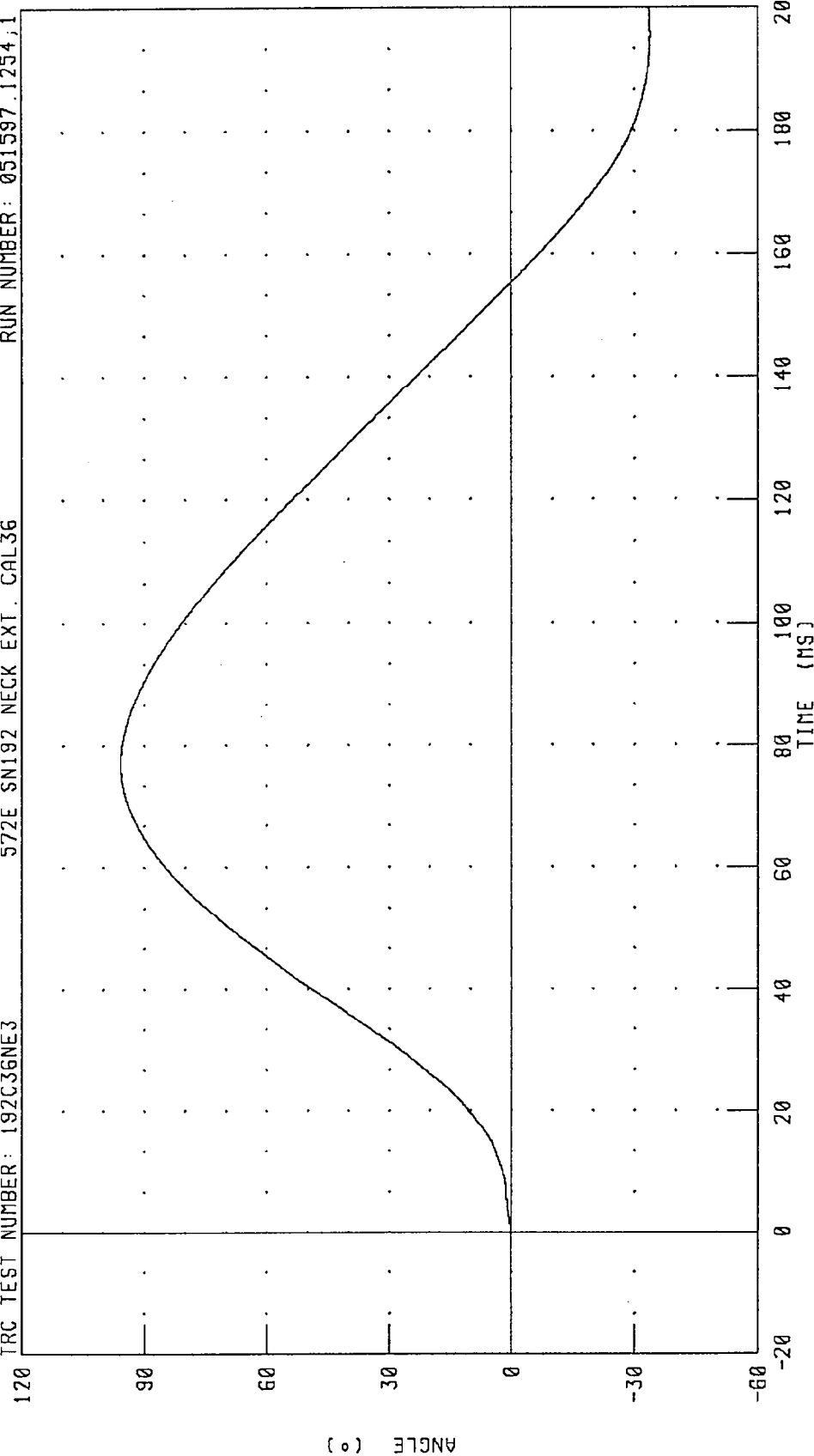
PART 572-E HYBRID III NECK EXTENSION CALIBRATION

TOTAL ROTATION

TRC TEST NUMBER: 192C36NE3

572E SN192 NECK EXT. CAL36

RUN NUMBER: 051597.1254;1



PEAK DATA: 95.78 ° @ 77.12 MS; -33.87 ° @ 195.76 MS

CHANNEL: TOTAL FILTER: CH. CLASS 60

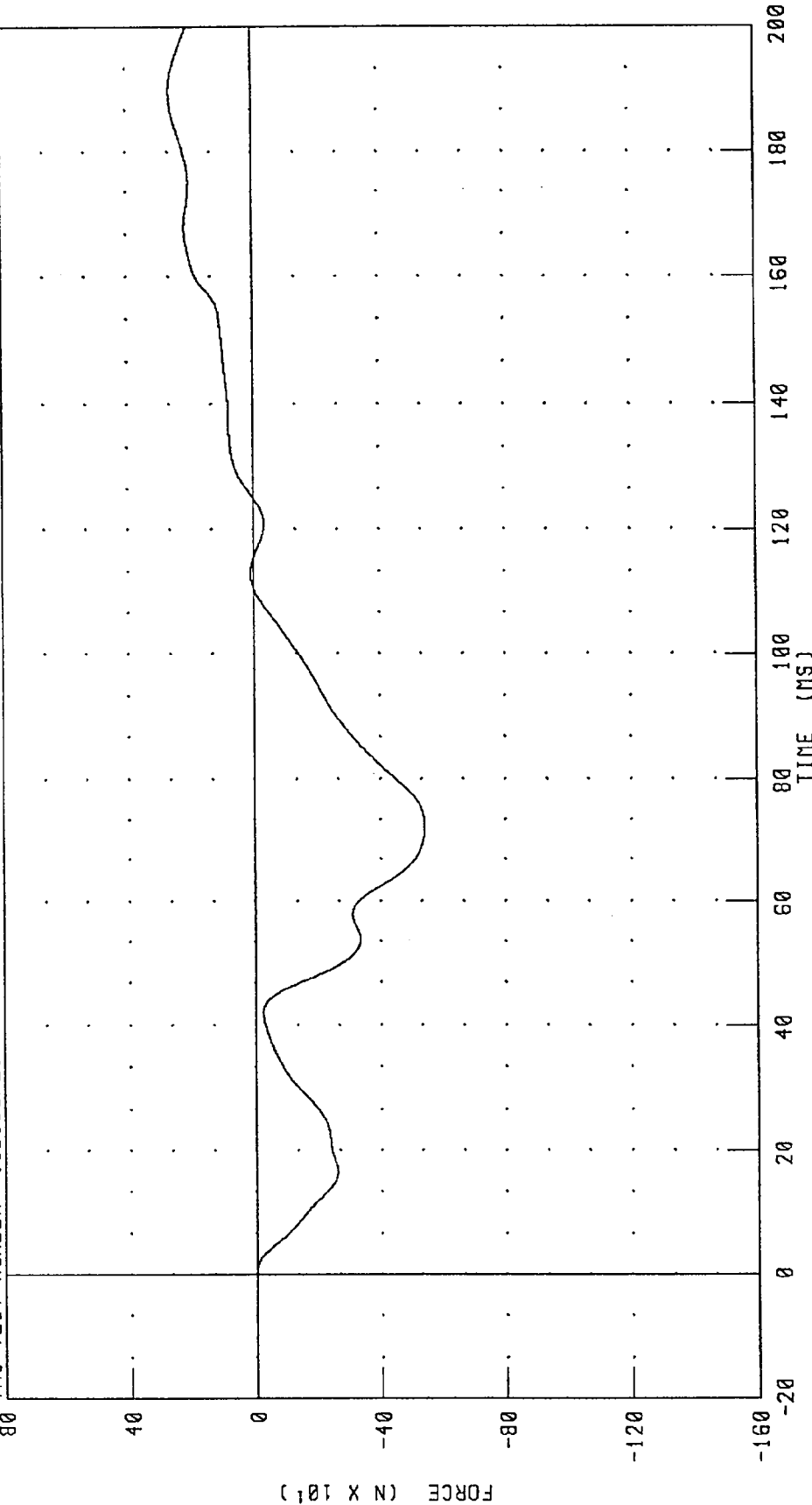
PART 572-E HYBRID III NECK EXTENSION CALIBRATION

NECK FORCE X AXIS

TRC TEST NUMBER: 192C3GNE3

572E SN192 NECK EXT. CAL36

RUN NUMBER: 051597.1254;1



PEAK DATA: 262.48 N @ 189.60 MS; -543.54 N @ 72.24 MS

CHANNEL: NEKXF FILTER: CH. CLASS 60

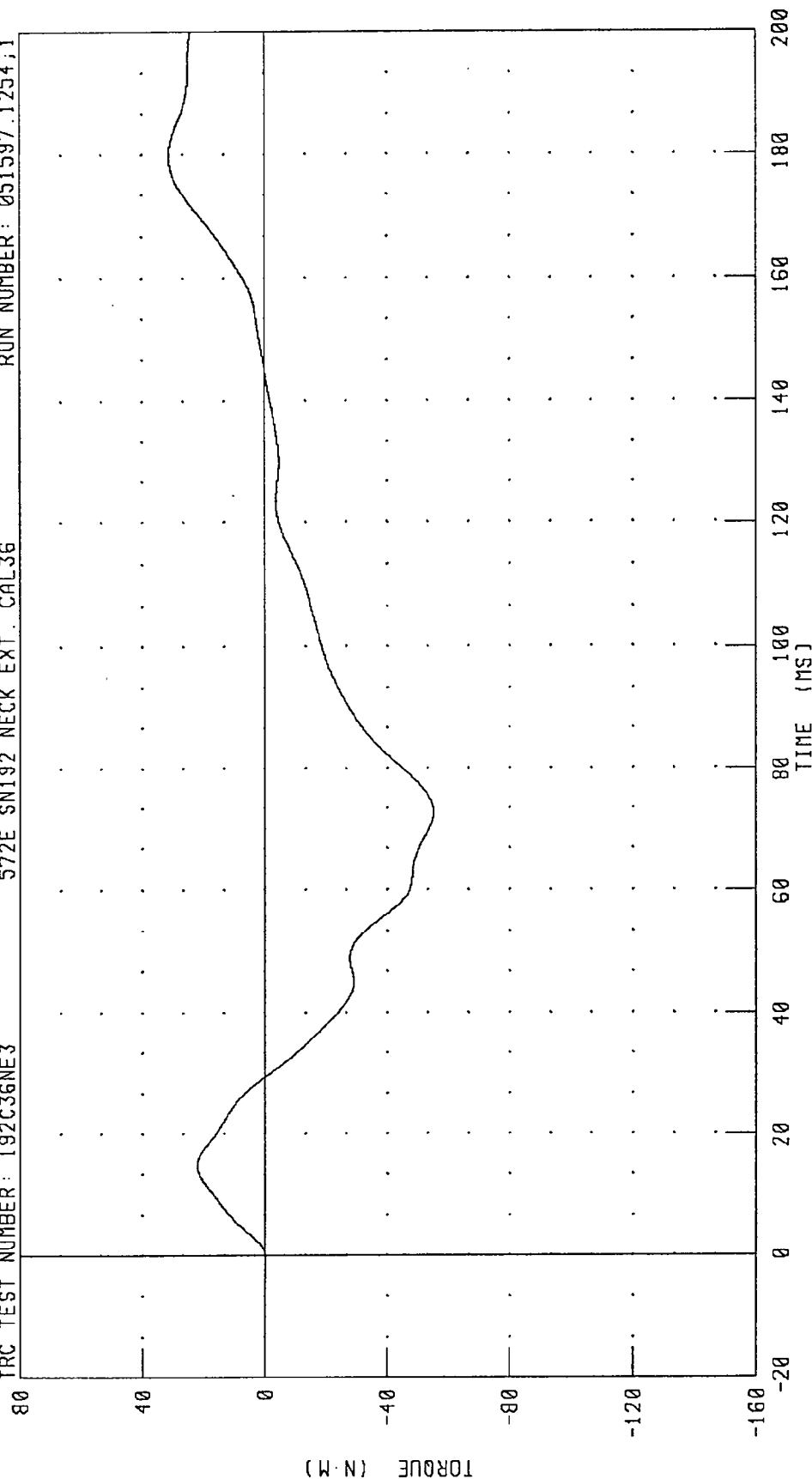
PART 572-E HYBRID III NECK EXTENSION CALIBRATION

NECK MOMENT Y AXIS

TRC TEST NUMBER: 192C36NE3

572E SN192 NECK EXT. CAL36

RUN NUMBER: 051597.1254;1



PEAK DATA: 31.21 N·M @ 179.76 MS; -55.19 N·M @ 72.64 MS

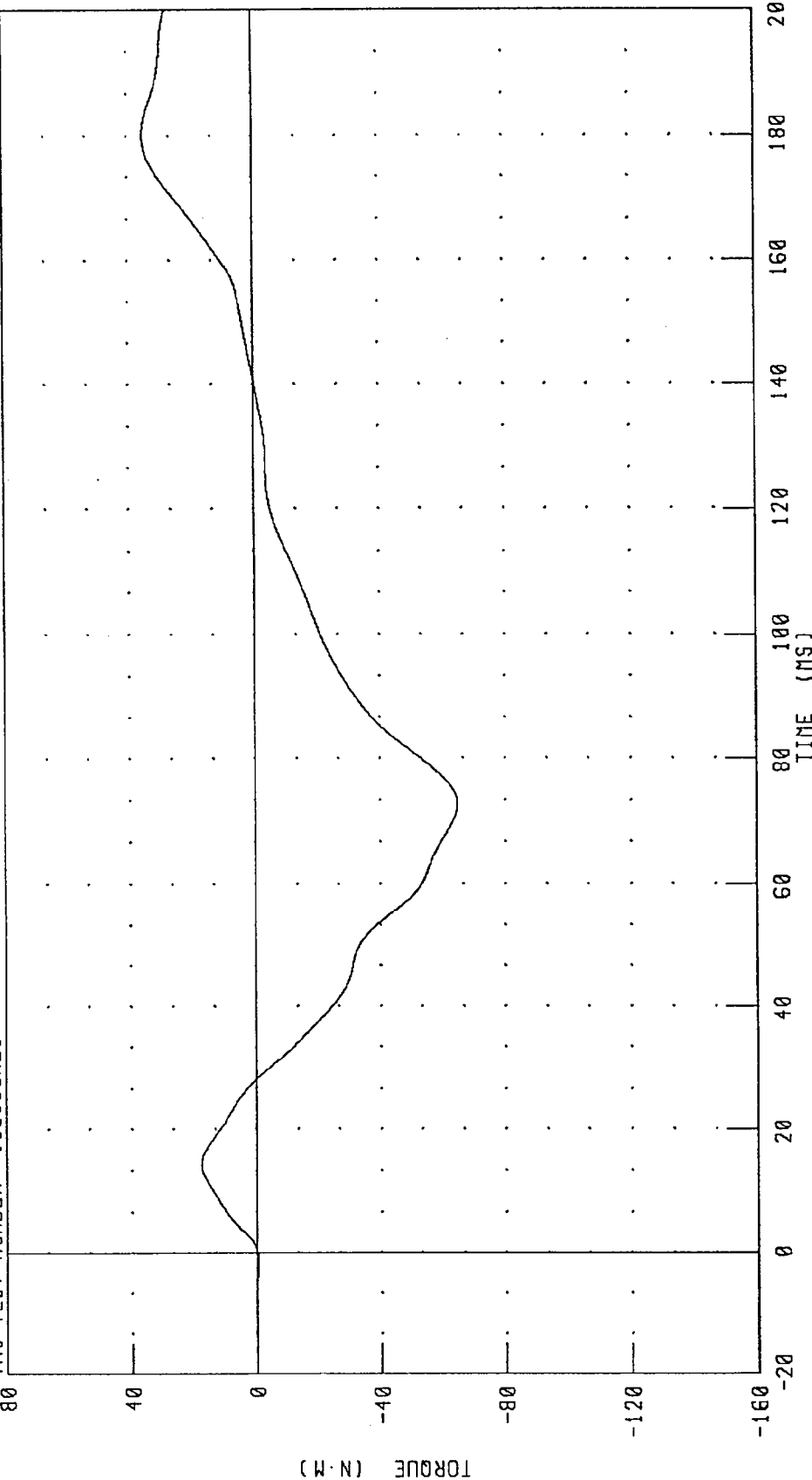
CHANNEL: NEKYM FILTER: CH. CLASS 60

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

TRC TEST NUMBER: 192C36NE3

572E SNI92 NECK EXT. CAL36

RUN NUMBER: 051597.1254;1



PEAK DATA: 35.09 N·M @ 180.24 MS; -64.85 N·M @ 72.64 MS

CHANNEL: NEKOM FILTER: CH. CLASS 60

TRANSPORTATION RESEARCH CENTER INC.

THORAX IMPACT TEST

HYBRID III

26-FEB-97

TRC INC.

TEST NO: 192C36TH1

572E SN192 H.S.THORAX CAL 36

TEST PARAMETER	HIGH SPEED TEST	TEST RESULTS
	SPECIFICATION	
TEMPERATURE	20.6-22.2 DEG. C	21.6 DEG. C
RELATIVE HUMIDITY	10 - 70 %	30.0 %
PENDULUM VELOCITY	6.59 - 6.83 M/S	6.71 M/S
MAXIMUM DEFLECTION	63.5 - 72.6 MM	67.2 MM
MAXIMUM RESISTIVE FORCE	5159 - 5894 N	5827. N
INTERNAL HYSTERESIS	69% - 85%	73.2%

TEST MEETS SPECIFICATIONS

TECHNICIAN Richard L. Lavan

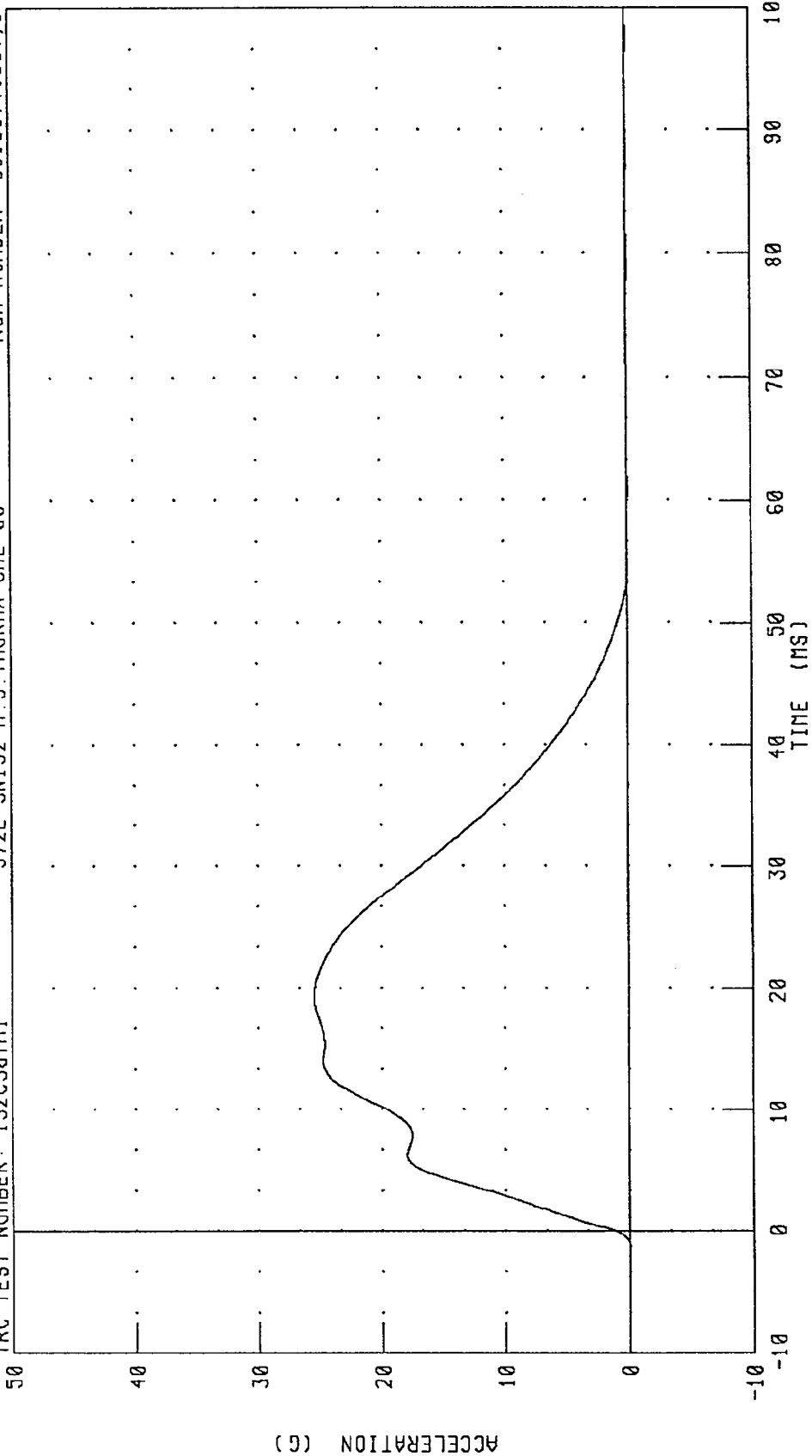
RUN NUMBER: 022697.0903;1

PART 572-E HYBRID III THORAX CALIBRATION
 PENDULUM DECELERATION

TRC TEST NUMBER: 192C36TH1

572E SN192 H.S. THORAX CAL 36

RUN NUMBER: 051597.1254;1

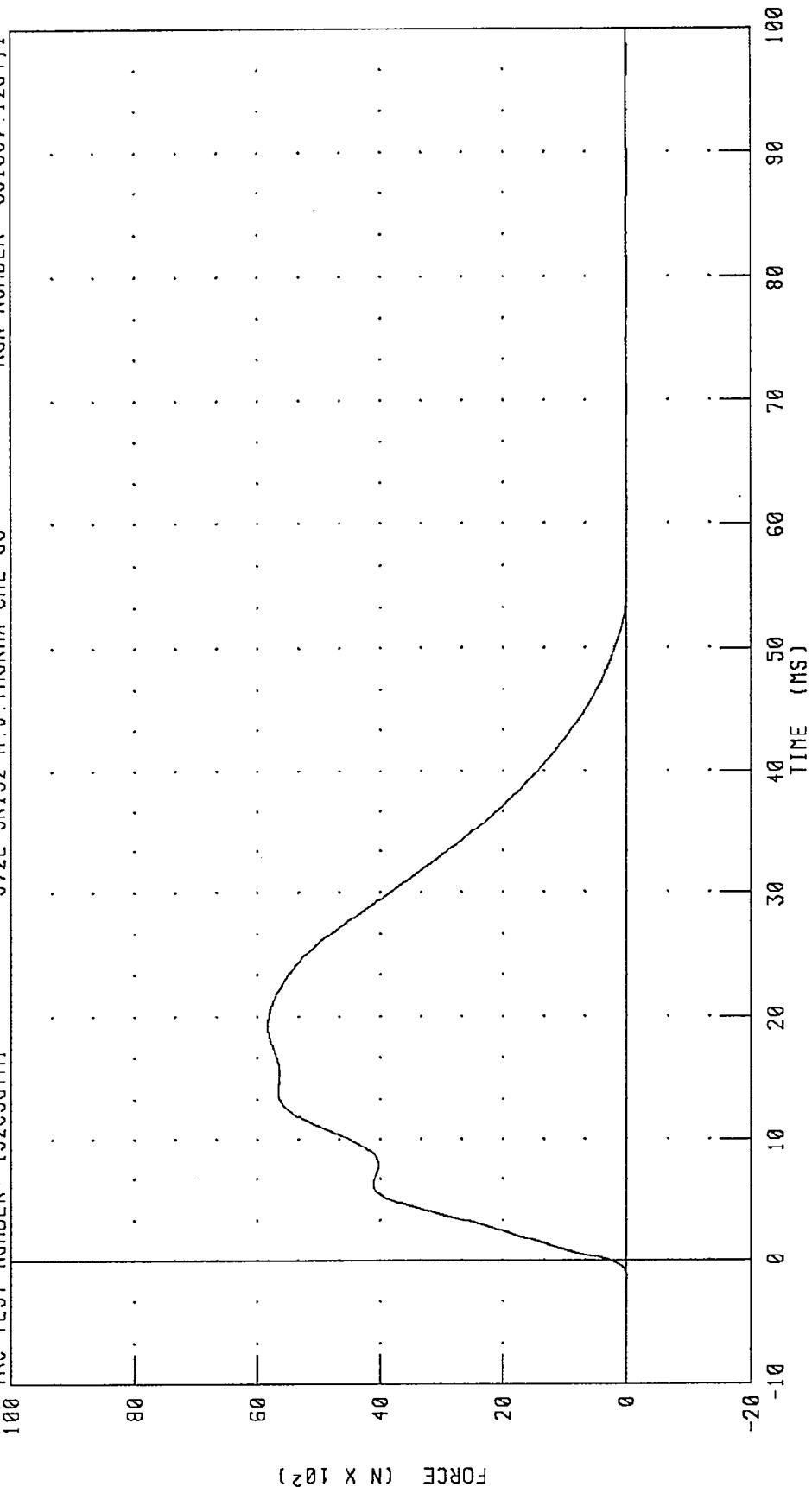


CHANNEL: PENXG FILTER: CH. CLASS 180

PEAK DATA: 25.44 G @ 19.28 MS; -0.04 G @ 79.36 MS

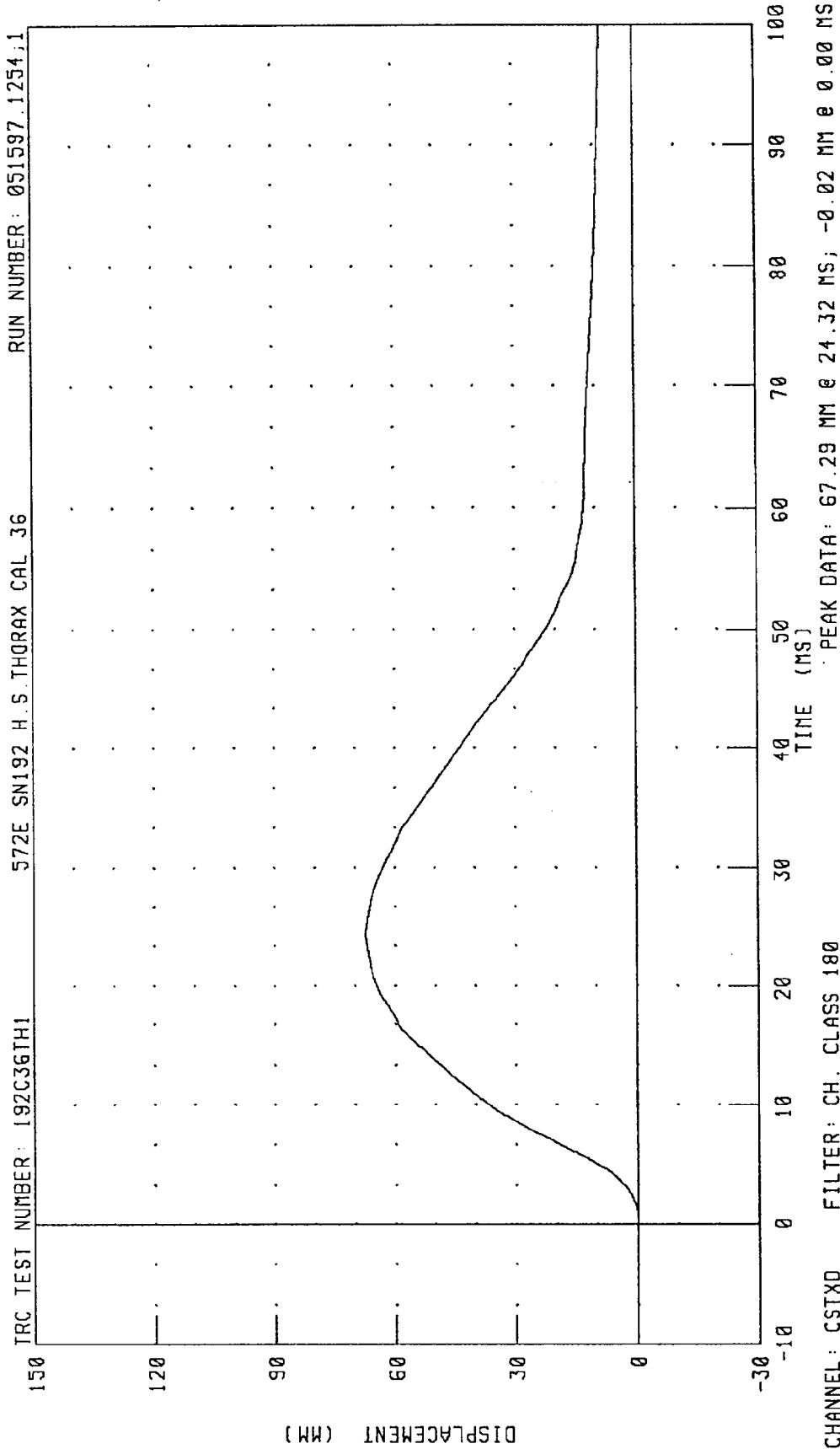
PART 572-E HYBRID III THORAX CALIBRATION
PENDULUM FORCE

TRC TEST NUMBER: 192C36TH1 572E SN192 H.S. THORAX CAL 36 RUN NUMBER: 051597.1254,1



CHANNEL: PENXF FILTER: CH. CLASS 180 PEAK DATA: 5827.23 N @ 19.28 MS, -8.75 N @ 79.36 MS

PART 572-E HYBRID III THORAX CALIBRATION
STERNUM DISPLACEMENT



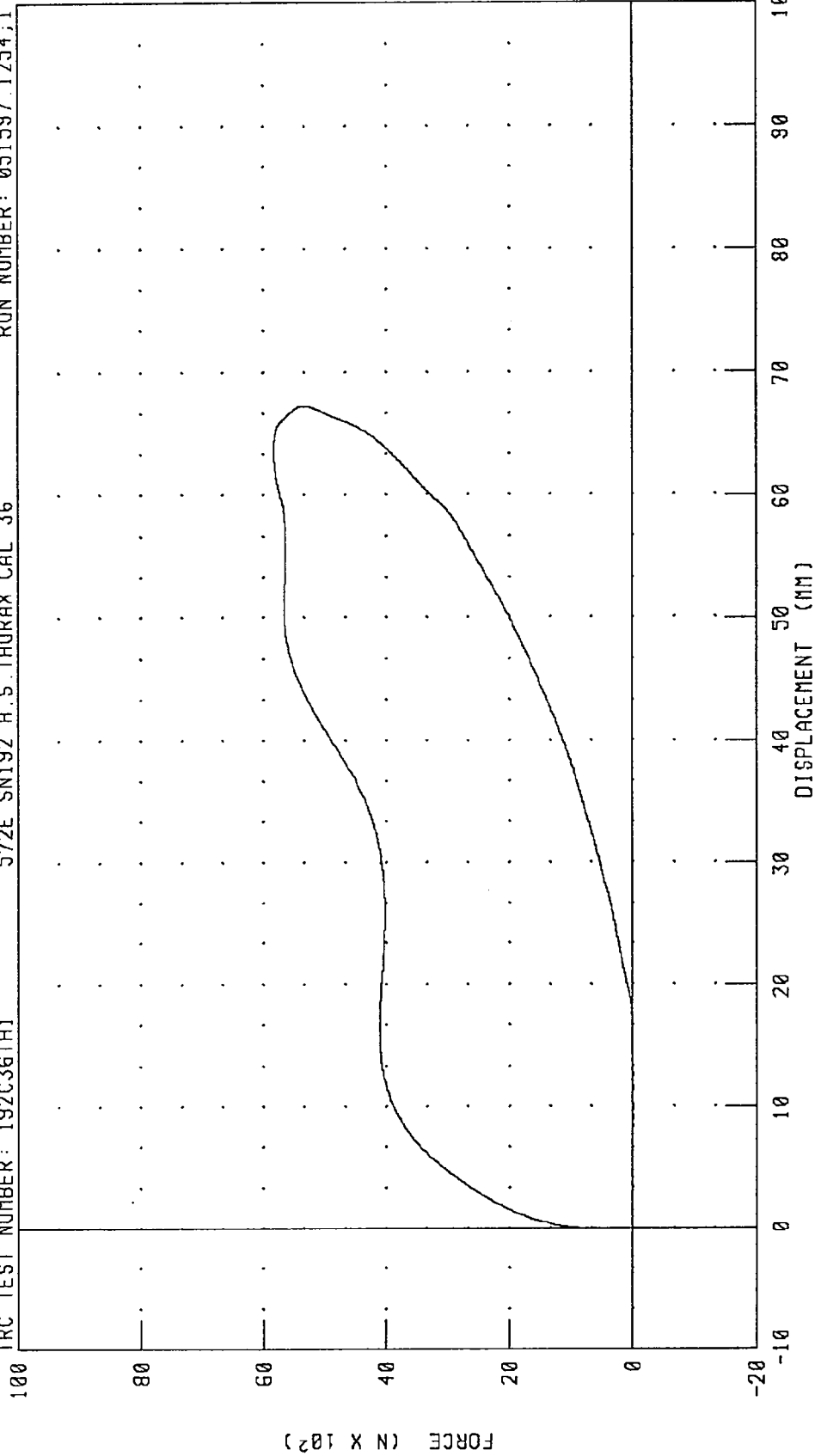
CHANNEL: CSTXD FILTER: CH. CLASS 180

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

TRC TEST NUMBER: 192C36TH1

572E SN192 H.S. THORAX CAL 36

RUN NUMBER: 051597.1254;1



CHANNEL: CSTXD
PENXF

FILTER: CH. CLASS 180
CH. CLASS 180

PEAK DATA:

67.29 MM @ 24.32 MS; -0.02 MM @ 0.00 MS
5827.23 N @ 19.28 MS; -8.75 N @ 79.36 MS

TRANSPORTATION RESEARCH CENTER INC.

RIGHT KNEE IMPACT TEST

HYBRID III

27-FEB-97

TRC INC.

TEST NO: 192C36RK1

572E SN192 RIGHT KNEE CAL 36

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	18.9-25.6 DEG. C	21.7 DEG. C
RELATIVE HUMIDITY	10 - 70 %	36.0 %
PROBE VELOCITY	2.07 - 2.13 M/S	2.11 M/S
PEAK KNEE IMPACT FORCE 5.0 KG PENDULUM	4715 - 5782 N	5347.5 N

TEST MEETS SPECIFICATIONS

TECHNICIAN Richard L. Van

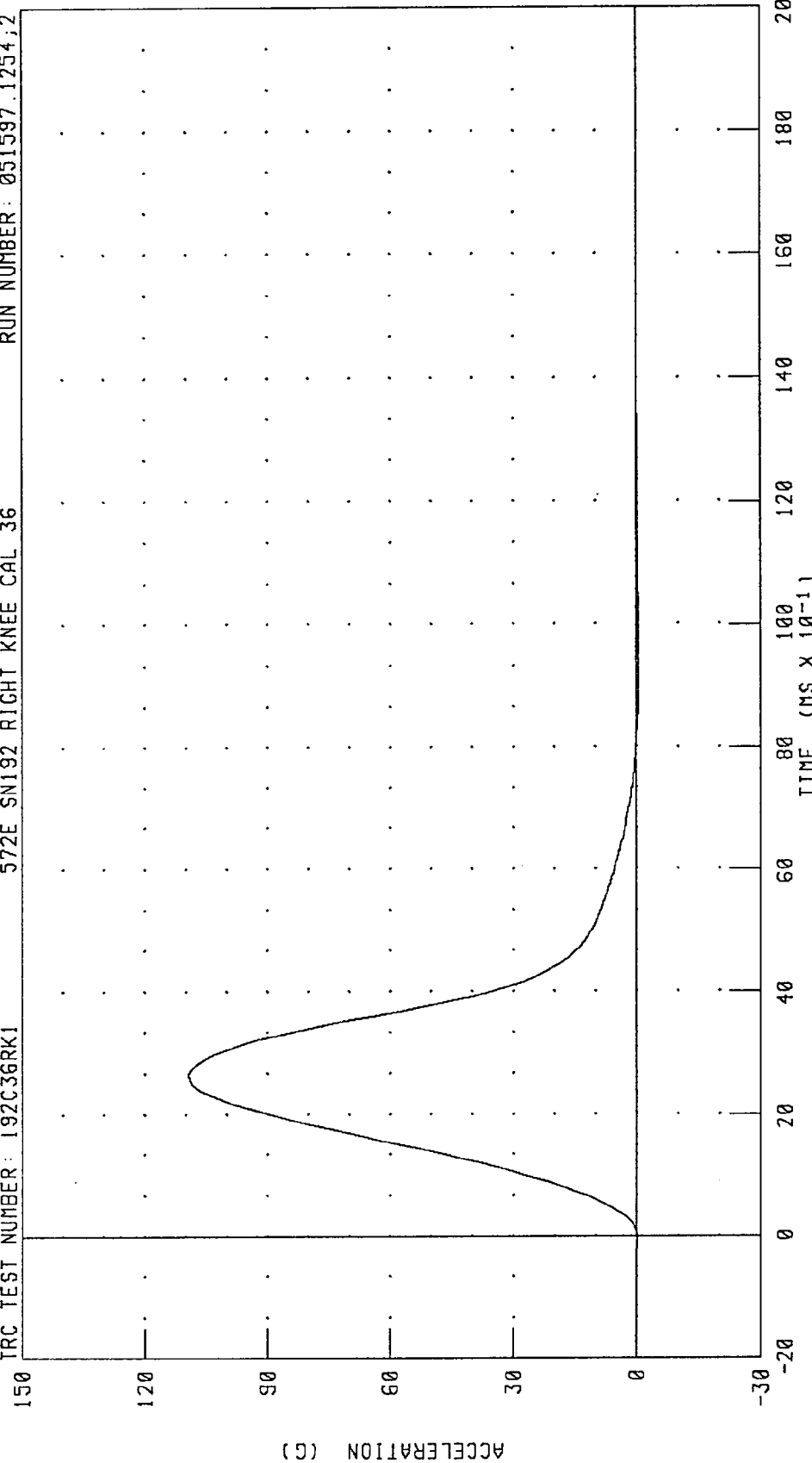
RUN NUMBER: 022797.0843;2

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

TRC TEST NUMBER: 192C36RK1

572E SN192 RIGHT KNEE CAL 36

RUN NUMBER: 051597.1254;2



PEAK DATA: 109.29 G @ 2.64 MS; -0.51 G @ 8.96 MS

CHANNEL: PENXG FILTER: CH. CLASS 600

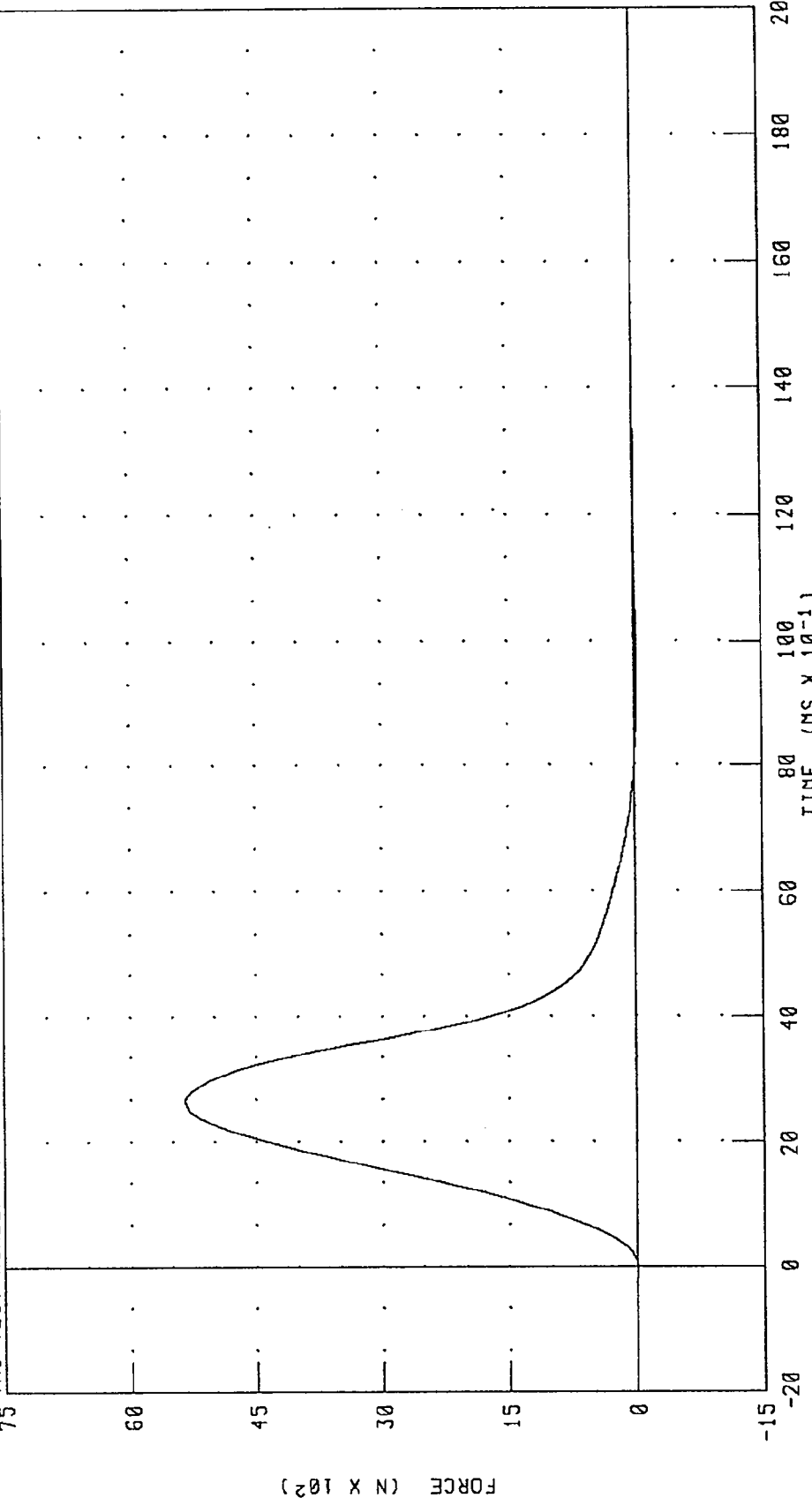
PART 572-E HYBRID III RIGHT KNEE CALIBRATION

PENDULUM FORCE (5 KG PEND.)

TRC TEST NUMBER: 192C36RK1

572E SN192 RIGHT KNEE CAL 36

RUN NUMBER: 051597.1254;2



PEAK DATA: 5347.58 N @ 2.64 MS; -25.20 N @ 8.96 MS

CHANNEL: PENXF FILTER: CH. CLASS 600

TRANSPORTATION RESEARCH CENTER INC.

LEFT KNEE IMPACT TEST

HYBRID III

27-FEB-97

TRC INC.

TEST NO: 192C36LK1

572E SN192 LEFT KNEE CAL 36

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	18.9-25.6 DEG. C	21.7 DEG. C
RELATIVE HUMIDITY	10 - 70 %	66.0 %
PROBE VELOCITY	2.07 - 2.13 M/S	2.12 M/S
PEAK KNEE IMPACT FORCE 5.0 KG PENDULUM	4715 - 5782 N	5340.0 N

TEST MEETS SPECIFICATIONS

TECHNICIAN Richard L. Van

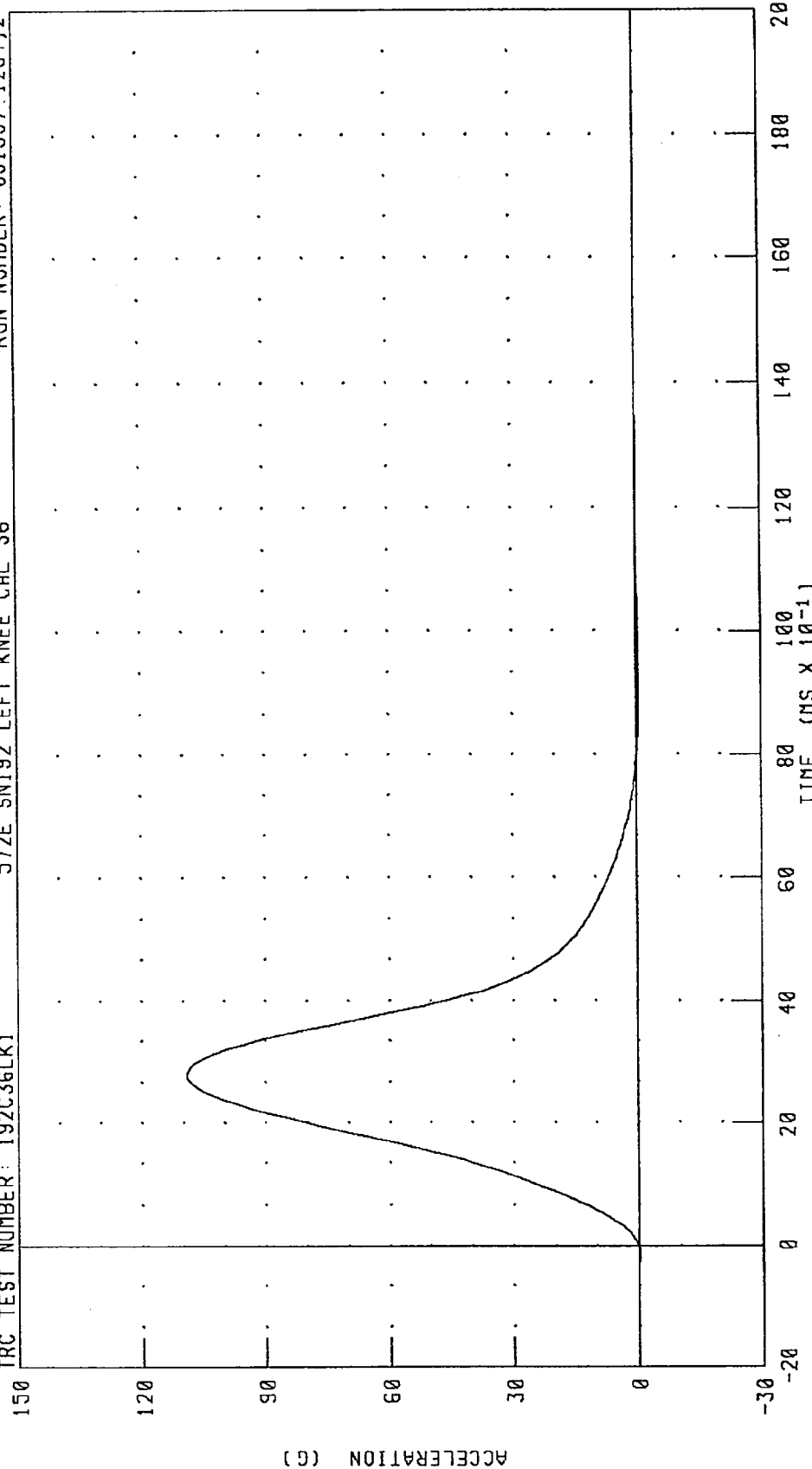
RUN NUMBER: 022797.0838;2

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

TRC TEST NUMBER: 192C36LK1

572E SN192 LEFT KNEE CAL 36

RUN NUMBER: 051597.1254;2



CHANNEL: PENXG FILTER: CH. CLASS 600

PEAK DATA: 109.14 G @ 2.80 MS; -0.52 G @ 9.04 MS

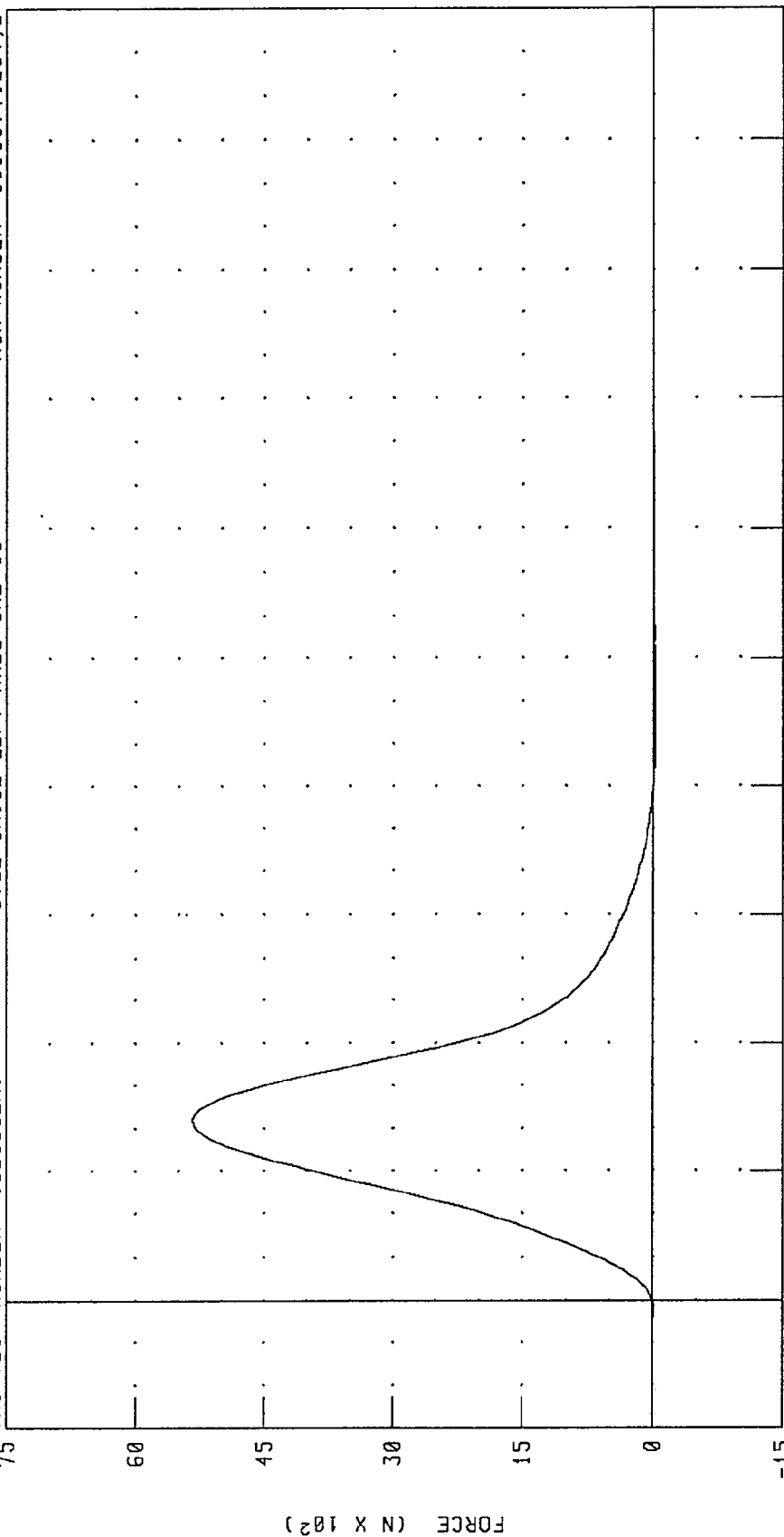
PART 572-E HYBRID III LEFT KNEE CALIBRATION

PENDULUM FORCE (5 KC PEND.)

TRC TEST NUMBER: 192C36LK1

572E SN192 LEFT KNEE CAL 36

RUN NUMBER: 051597.1254;2



CHANNEL: PENXF FILTER: CH. CLASS 600

PEAK DATA: 5340.07 N @ 2.80 MS; -25.46 N @ 9.04 NS

Pre-test Certification Data

Passenger Dummy S/N: 142

TRANSPORTATION RESEARCH CENTER INC.

HYBRID III EXTERNAL DIMENSIONS

SN 142 HUMANOID

10-MAR-97

TRC INC.

TEST NO: 142C37ED1

572E SN142 EXT.DIMENSION CAL37

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: 031097.1011

TRANSPORTATION RESEARCH CENTER INC.

HEAD DROP TEST

HYBRID III

11-MAR-97

TRC INC.

TEST NO: 142C37HD2

572E SN142 HEAD DROP CAL 37

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	18.9-25.6 DEG. C	21.1 DEG. C
RELATIVE HUMIDITY	10 - 70 %	32.0 %
PEAK RESULTANT ACCELERATION	225 - 275 G	236.24 G
PEAK LATERAL ACCELERATION	15 G MAX	-9.13 G
IS ACCELERATION CURVE UNIMODAL?	YES	YES

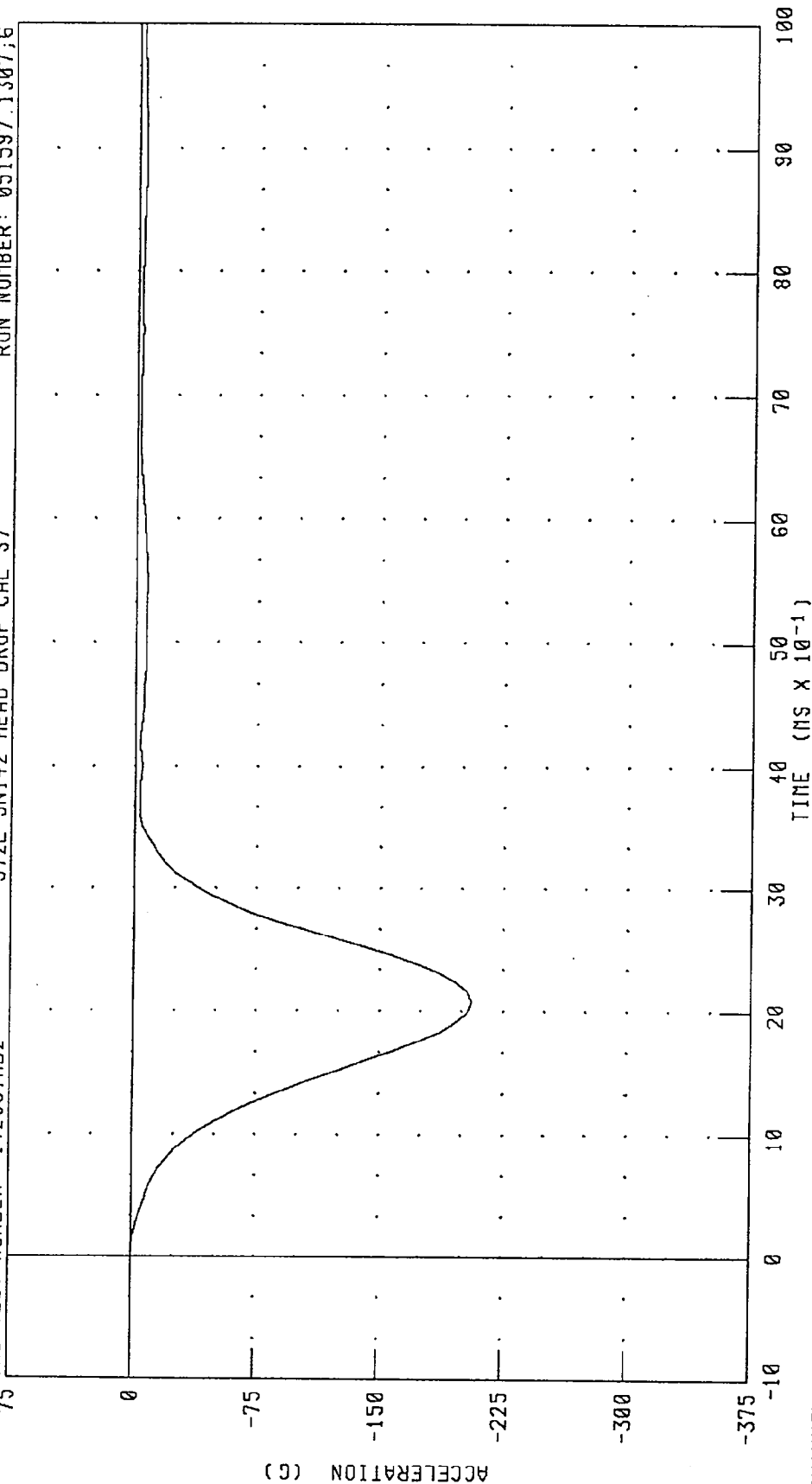
TEST MEETS SPECIFICATIONS

TECHNICIAN Richard Le Van

RUN NUMBER: 031197.1334;6

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

TRC TEST NUMBER: 142C37HD2 572E SN142 HEAD DROP CAL 37 RUN NUMBER: 051597.1307,6



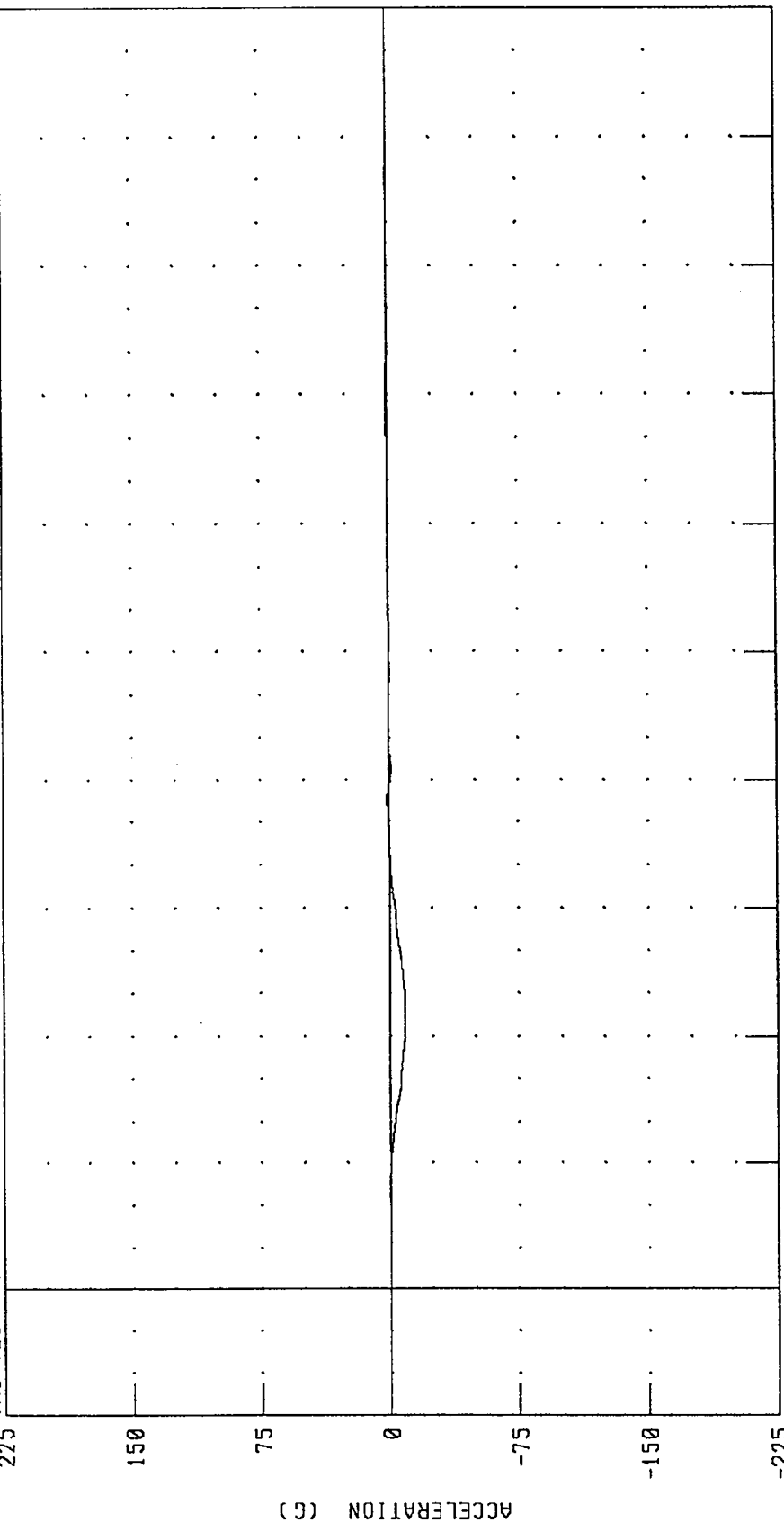
CHANNEL: HEDXC FILTER: CH. CLASS 1000 PEAK DATA: 0.10 G @ 0.00 MS; -205.86 G @ 2.08 MS

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

TRC TEST NUMBER: 142C37HD2

572E SNI42 HEAD DROP CAL 37

RUN NUMBER: 051597.1307,6



PEAK DATA: 1.25 G @ 3.84 MS; -9.14 G @ 2.24 MS

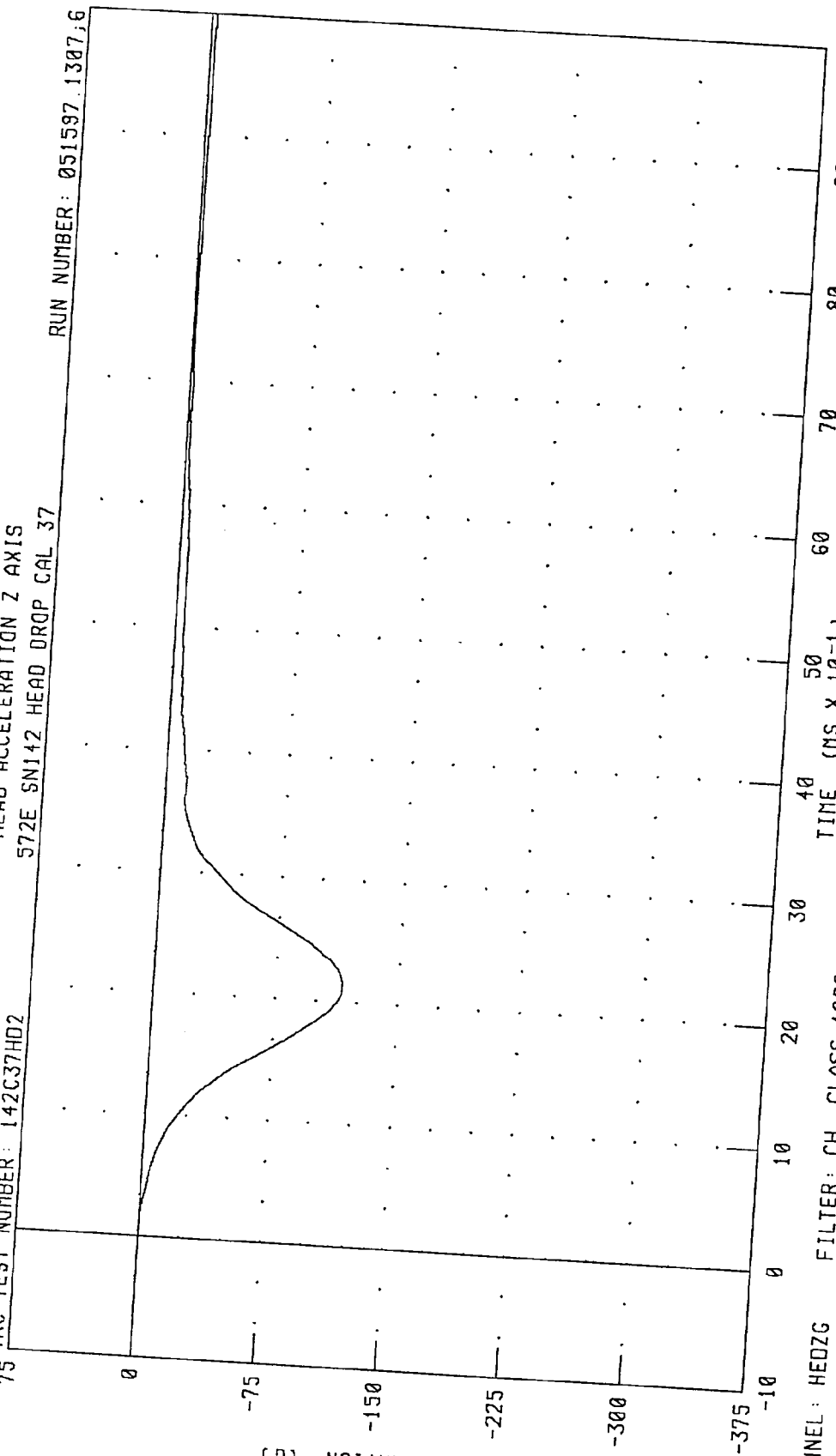
CHANNEL: HEDYG FILTER: CH. CLASS 1000

PART 572-E HYBRID III HEAD CALIBRATION
HEAD ACCELERATION Z AXIS
572E SN142 HEAD DROP CAL 37

RUN NUMBER: 051597.1307,6

TRC TEST NUMBER: 142C37HD2

ACCELERATION (G)



CHANNEL: HEDZG FILTER: CH. CLASS 1000

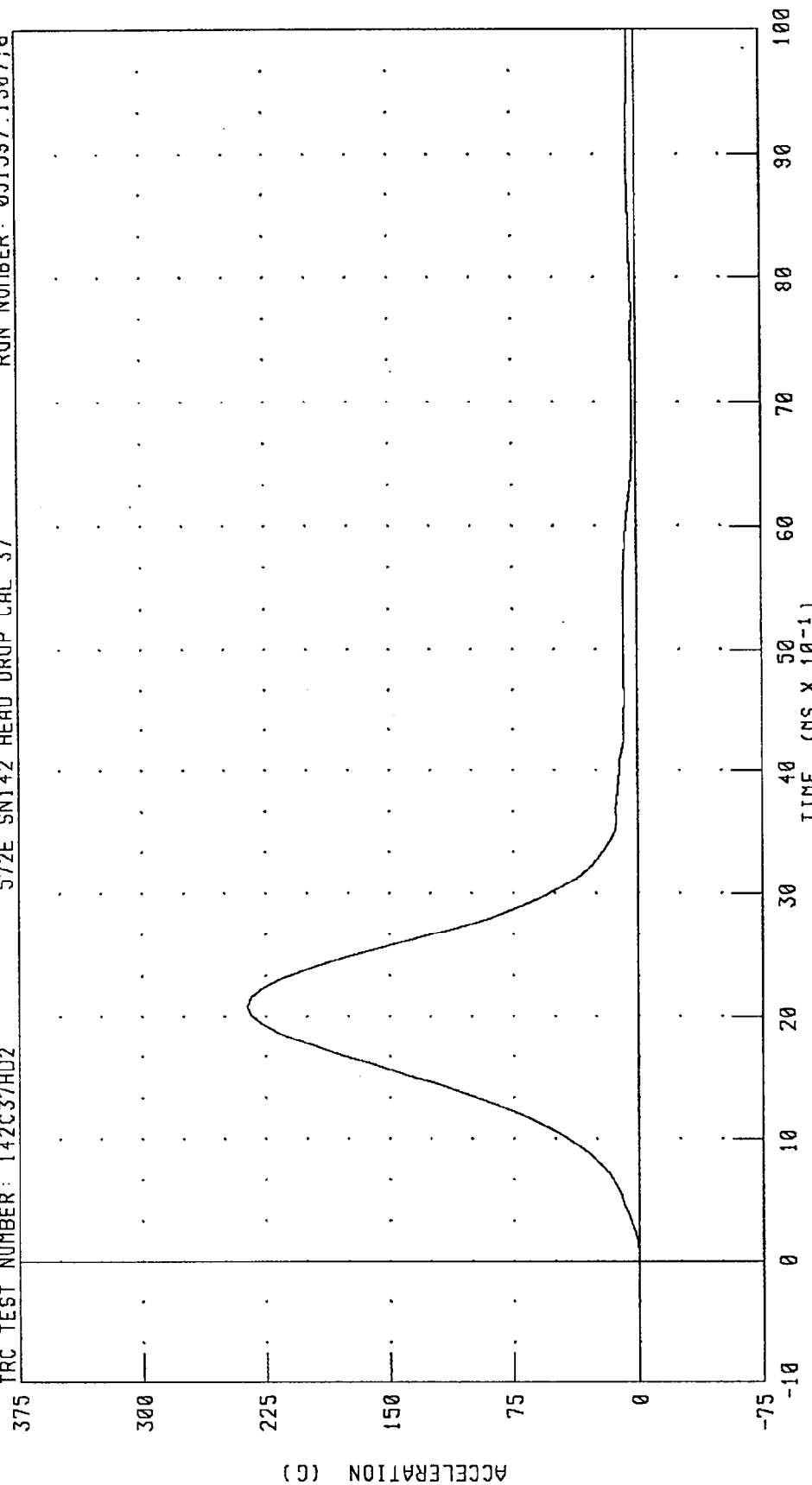
TIME (NS X 10⁻¹)
PEAK DATA: 0.06 G @ 0.08 MS; -115.74 G @ 2.16 MS

PART 572-E HYBRID III HEAD CALIBRATION
HEAD RESULTANT ACCELERATION

TRC TEST NUMBER: 142C37HD2

572E SN142 HEAD DROP CAL 37

RUN NUMBER: 051597.1307;6



PEAK DATA: 236.25 G @ 2.08 MS; 0.09 G @ -0.56 MS

CHANNEL: HEDRG FILTER: CH. CLASS 1000

TRANSPORTATION RESEARCH CENTER INC.
NECK FLEXION TEST - 6 CHANNEL TRANSDUCER

HYBRID III

10-MAR-97

TRC INC. TEST NO: 142C37NF1 572E SN142 NECK FLEXION CAL37

TEST PARAMETER		SPECIFICATION	TEST RESULTS
TEMPERATURE		20.6-22.2 DEG. C	21.1 DEG. C
RELATIVE HUMIDITY		10 - 70 %	32.0 %
IMPACT VELOCITY		6.89 - 7.13 M/S	6.99 M/S
PENDULUM DECELERATION	10 MS	22.50 - 27.50 G	22.67 G
	20 MS	17.60 - 22.60 G	21.33 G
	30 MS	12.50 - 18.50 G	17.90 G
MAX PENDULUM G		29 G MAX	23.28 G
MAX PENDULUM G ABOVE 30 MS		29 G MAX	17.84 G
DECELERATION-TIME CURVE DECAY TIME TO 5 G		34 - 42 MS	35.20 MS
D PLANE	MAX	64 - 78 DEG.	77.08 DEG.
ROTATION	TIME	57 - 64 MS	59.36 MS
MOMENT ABOUT OCCIPITAL CONDYLE	MAX	88.2 - 108.5 NM	95.71 NM
	TIME	47 - 58 MS	49.68 MS
ROTATION ANGLE-TIME CURVE DECAY TIME TO ZERO		113 - 128 MS	120.80 MS
POSITIVE MOMENT-TIME CURVE DECAY TIME TO ZERO		97 - 107 MS	101.36 MS

TEST MEETS SPECIFICATIONS

TECHNICIAN Richard L. Van

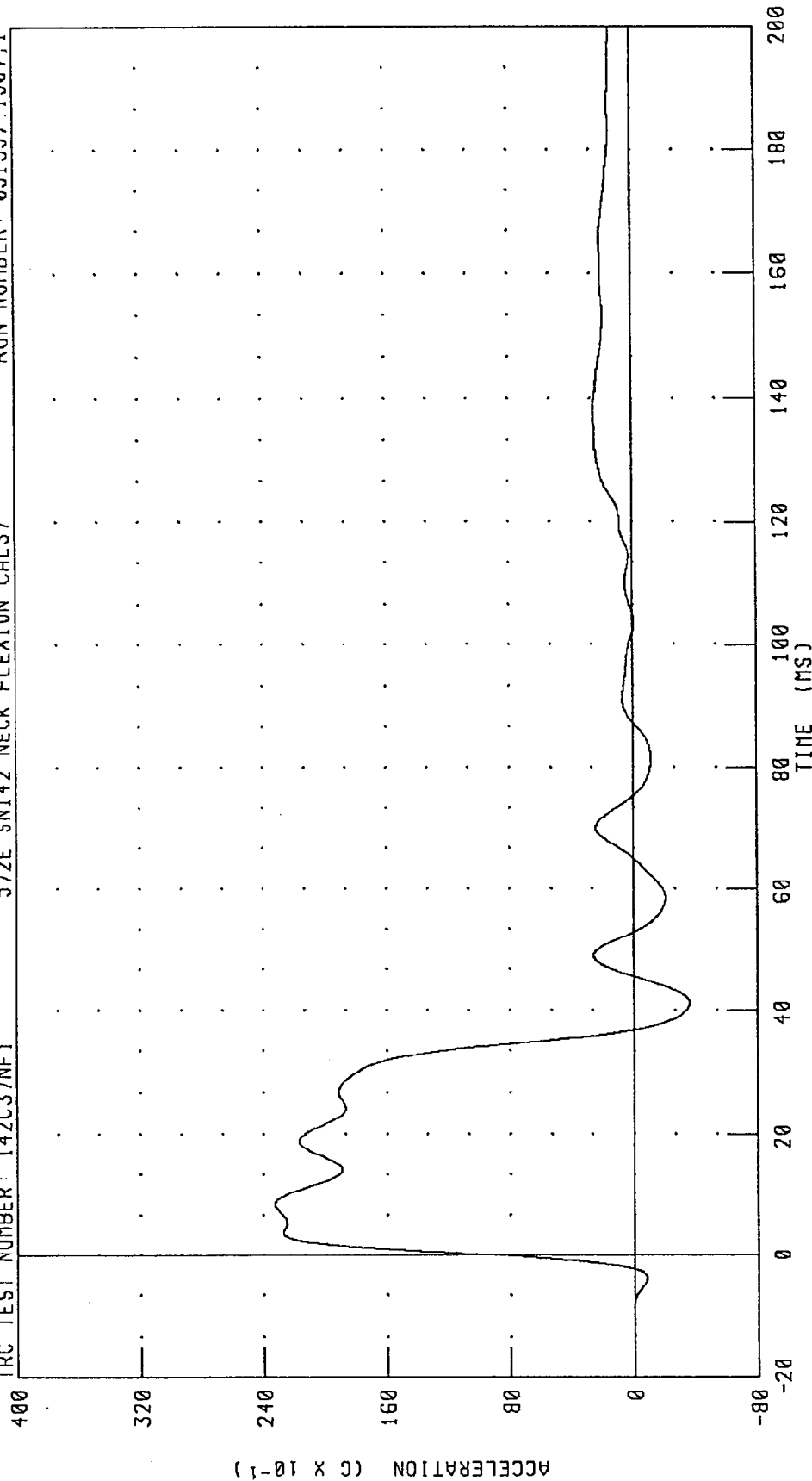
RUN NUMBER: 031197.1051;1

PART 572-E HYBRID III NECK FLEXION CALIBRATION
PENDULUM DECELERATION

TRC TEST NUMBER: 142C37NF1

572E SN142 NECK FLEXION CAL37

RUN NUMBER: 051597.1307.1

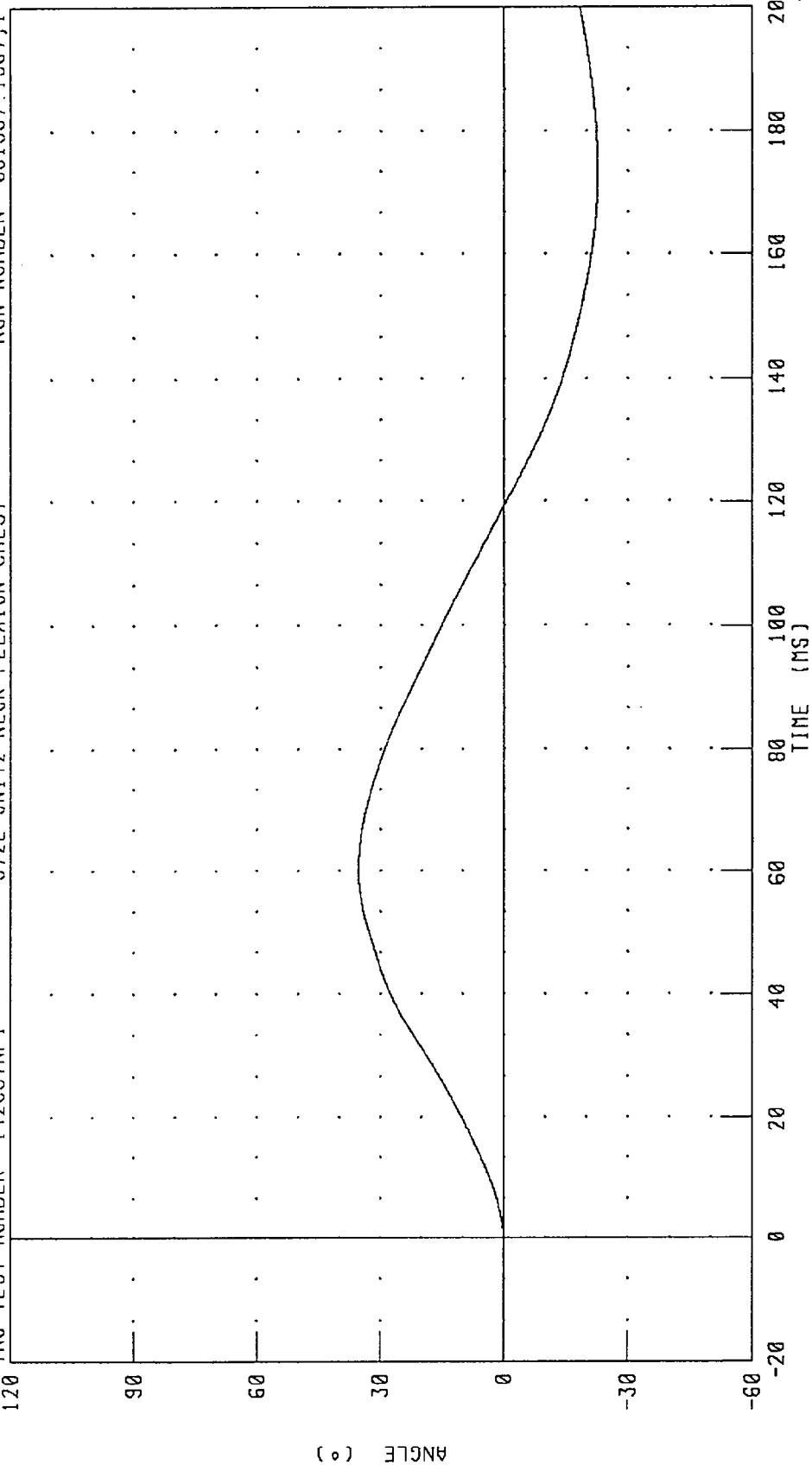


PEAK DATA: 23.28 G @ 8.56 MS; -3.57 G @ 41.12 MS

CHANNEL: PENXG FILTER: CH. CLASS 60

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

TRC TEST NUMBER: 142C37NF1 572E SN142 NECK FLEXION CAL37 RUN NUMBER: 051597.1307;1



PEAK DATA: 35.38 ° @ 59.92 MS; -22.62 ° @ 172.96 MS

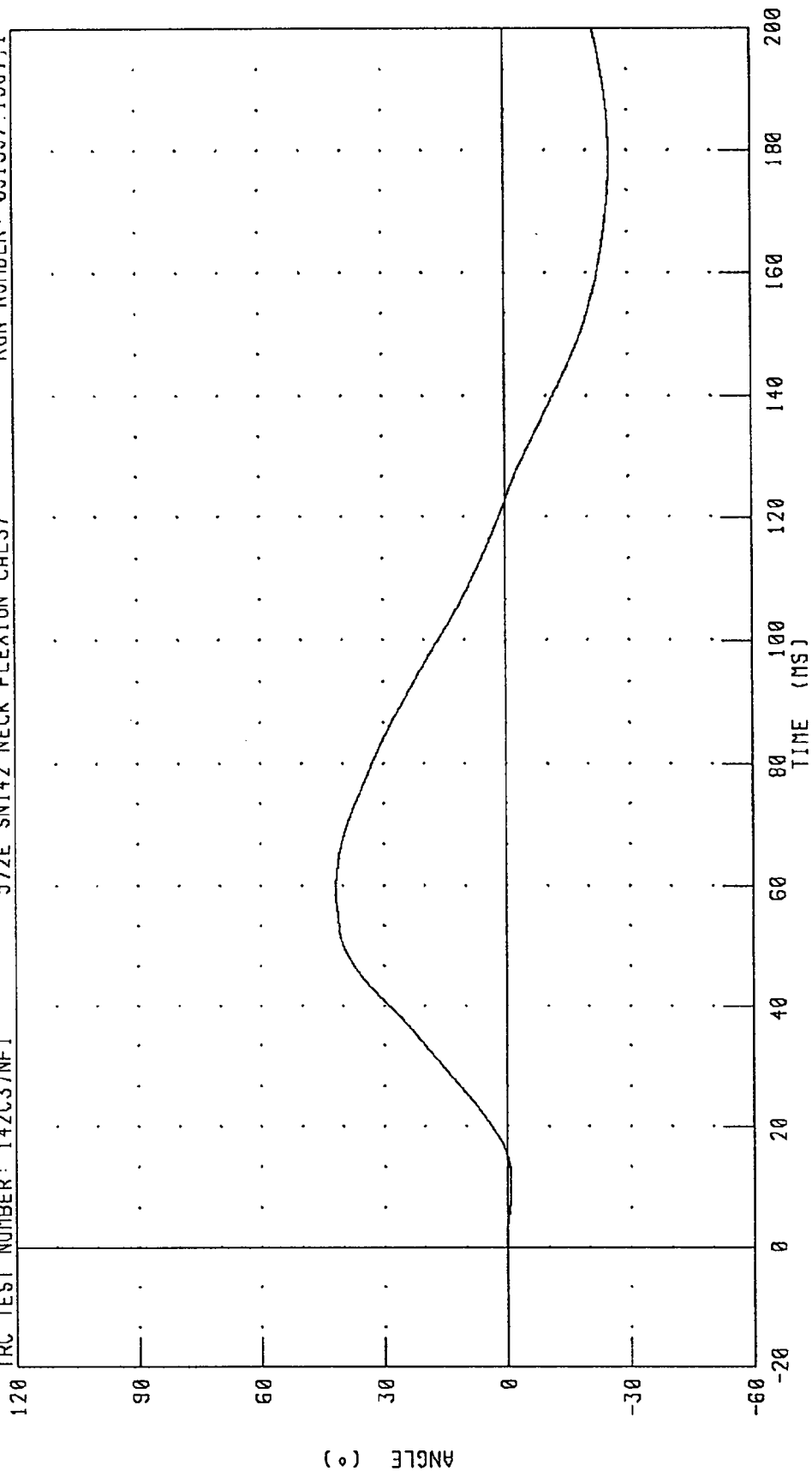
CHANNEL: BETA FILTER: CH. CLASS 60

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

TRC TEST NUMBER: 142C37NF1

572E SN142 NECK FLEXION CAL37

RUN NUMBER: 051597.1307;1



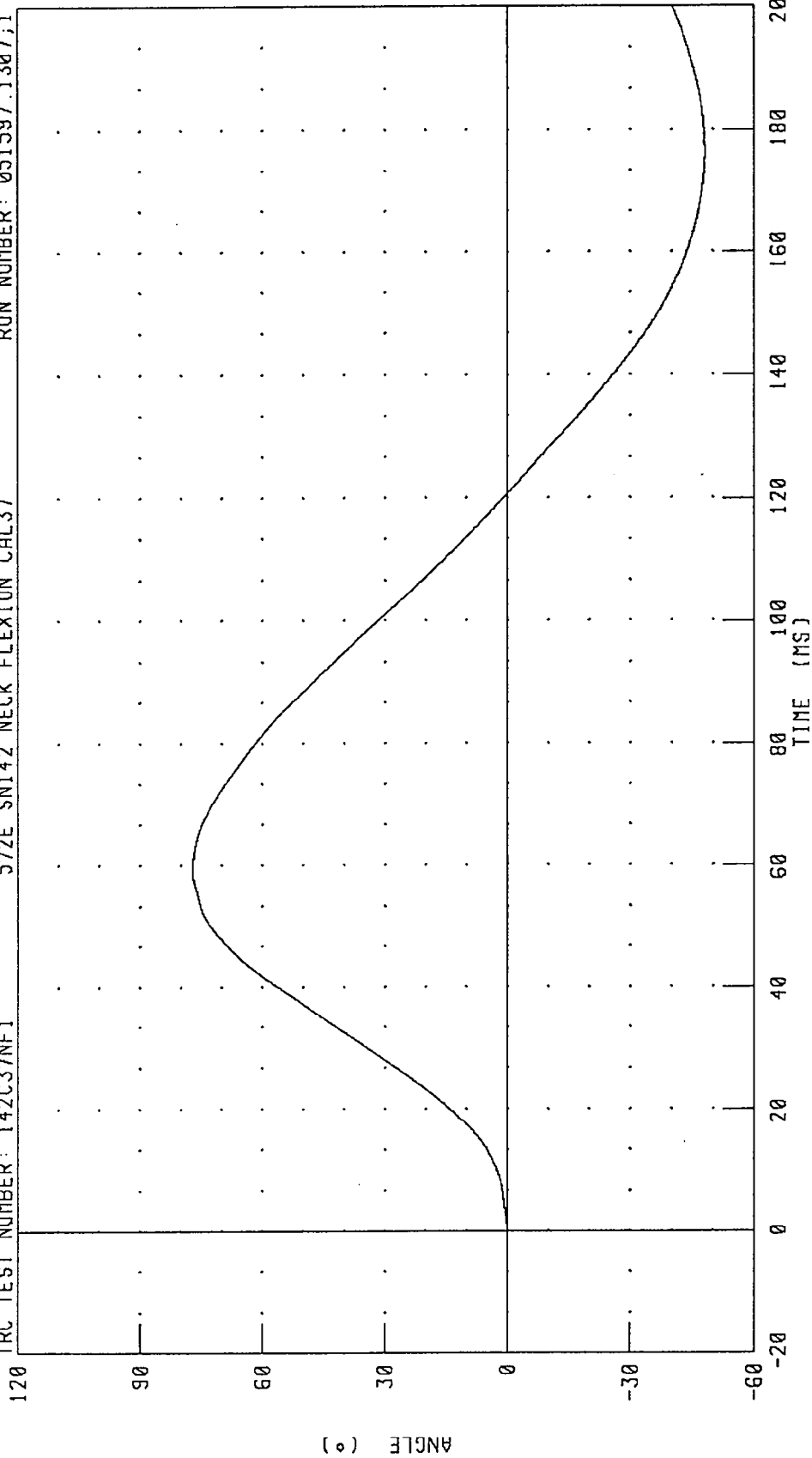
CHANNEL: THETA FILTER: CH. CLASS 60

PEAK DATA: 41.73 ° @ 58.96 MS; -25.60 ° @ 178.08 MS

PART 572-E HYBRID III NECK FLEXION CALIBRATION

TOTAL ROTATION

TRC TEST NUMBER: 142C37NF1 572E SN142 NECK FLEXION CAL37 RUN NUMBER: 051597.1307;1



PEAK DATA: 77.09 ° @ 59.36 MS; -48.11 ° @ 176.48 MS

CHANNEL: TOTAN FILTER: CH. CLASS 60

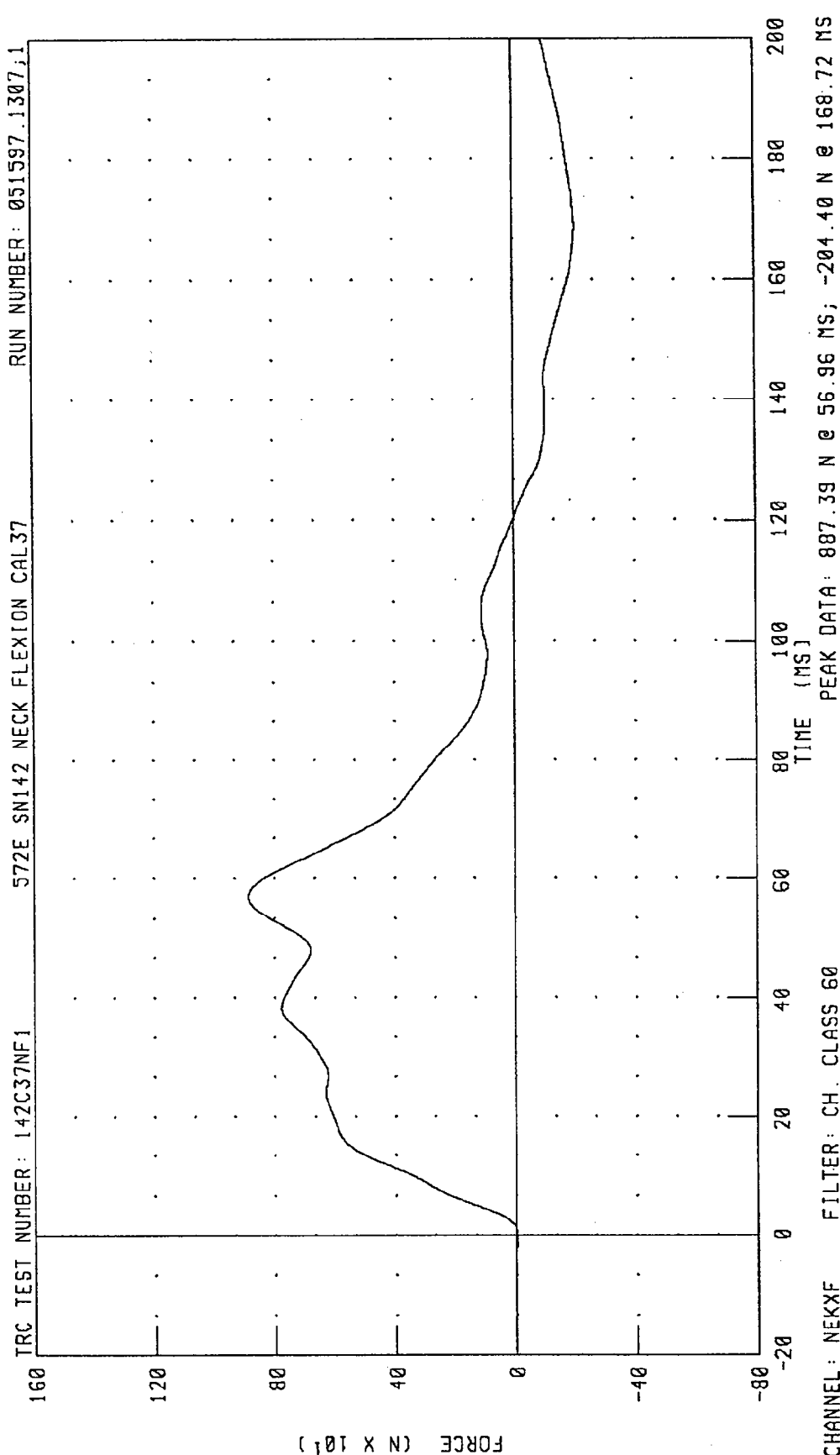
PART 572-E HYBRID III NECK FLEXION CALIBRATION

NECK FORCE X AXIS

TRC TEST NUMBER: 142C37NF1

572E SN142 NECK FLEXION CAL37

RUN NUMBER: 051597.1307;1



CHANNEL: NEKXF FILTER: CH. CLASS 60

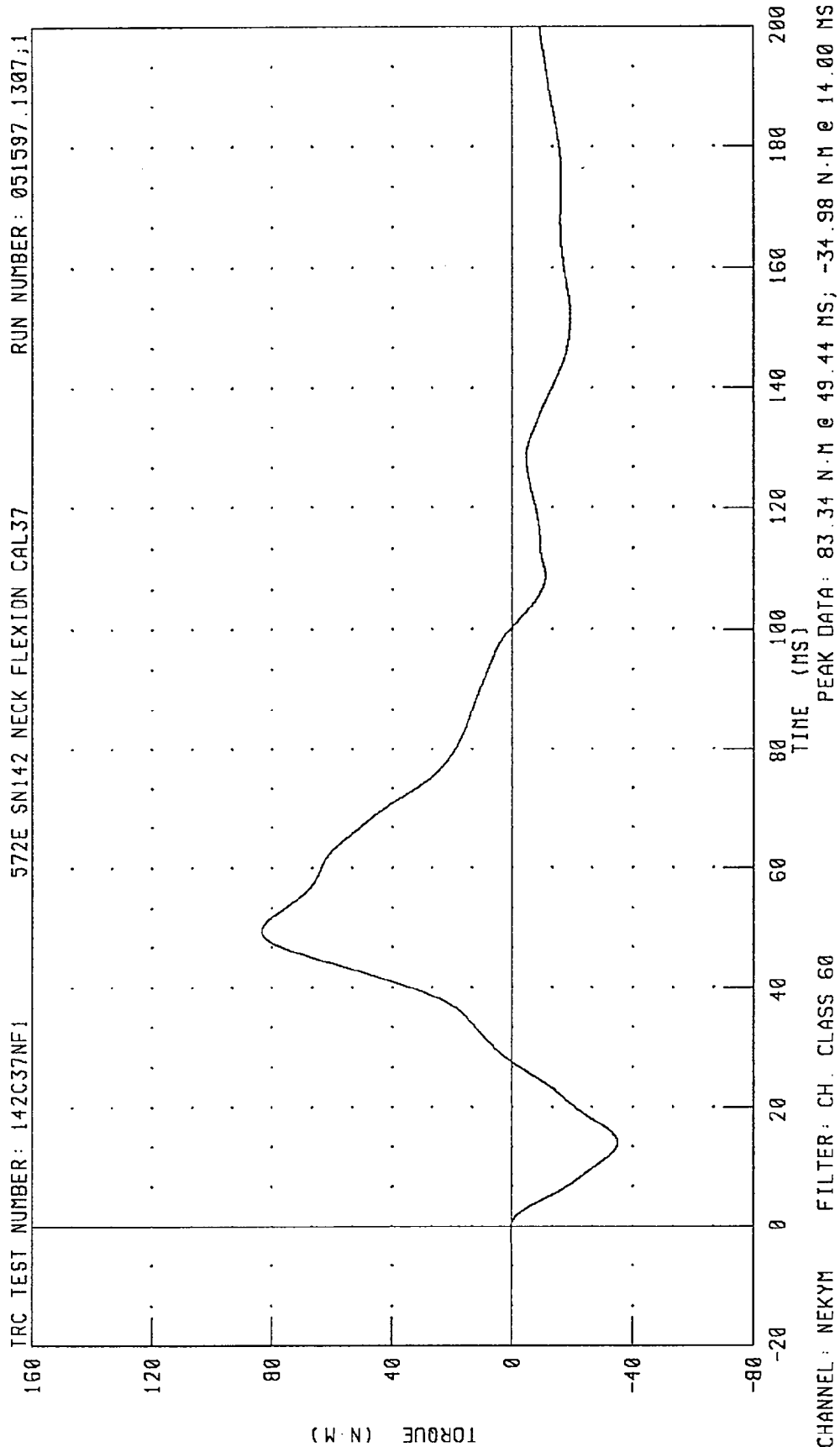
PART 572-E HYBRID III NECK FLEXION CALIBRATION

NECK MOMENT Y AXIS

TRC TEST NUMBER: 142C37NF1

572E SN142 NECK FLEXION CAL37

RUN NUMBER: 051597.1307;1



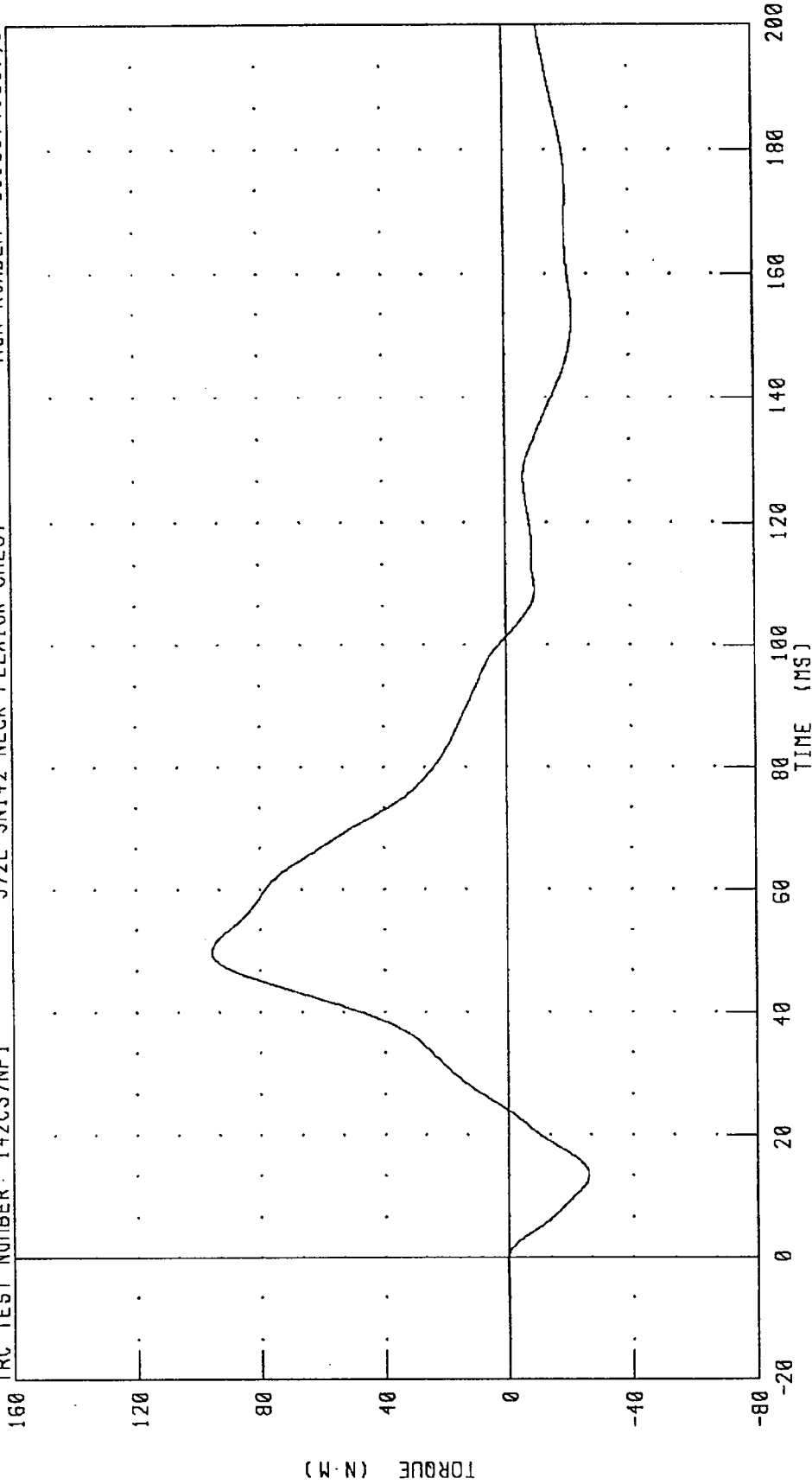
CHANNEL: NEKYM FILTER: CH. CLASS 60 PEAK DATA: 83.34 N·M @ 49.44 MS; -34.98 N·M @ 14.00 MS

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

TRC TEST NUMBER: 142C37NF1

572E SN142 NECK FLEXION CAL37

RUN NUMBER: 051597.1307;1



PEAK DATA: 95.71 N-M @ 49.68 MS; -25.78 N-M @ 13.44 MS

CHANNEL: NEKOM FILTER: CH. CLASS 60

TRANSPORTATION RESEARCH CENTER INC.

NECK EXTENSION TEST - 6 CHANNEL TRANSDUCER

HYBRID III

11-MAR-97

TRC INC. TEST NO: 142C37NE1

572E SN142 NECK EXT. CAL37

TEST PARAMETER		SPECIFICATION	TEST RESULTS
TEMPERATURE		20.6 - 22.2 DEG. C	21.1 DEG. C
RELATIVE HUMIDITY		10 - 70 %	32.0 %
IMPACT VELOCITY		5.95 - 6.19 M/S	6.05 M/S
PENDULUM DECELERATION	10 MS	17.20 - 21.20 G	18.22 G
	20 MS	14.00 - 19.00 G	16.12 G
	30 MS	11.00 - 16.00 G	14.94 G
MAX PENDULUM G		22 G MAX	18.61 G
MAX PENDULUM G ABOVE 30 MS		22 G MAX	14.90 G
DECELERATION-TIME CURVE DECAY TIME TO 5 G		38 - 46 MS	38.56 MS
D PLANE	MAX	81 - 106 DEG.	95.68 DEG.
ROTATION	TIME	72 - 82 MS	73.84 MS
MOMENT ABOUT OCCIPITAL CONDYLE	MIN	-80.0/-52.9 NM	-75.51 NM
	TIME	65 - 79 MS	68.96 MS
ROTATION ANGLE-TIME CURVE DECAY TIME TO ZERO		147 - 174 MS	151.60 MS
NEGATIVE MOMENT-TIME CURVE DECAY TIME TO ZERO		120 - 148 MS	134.88 MS

TEST MEETS SPECIFICATIONS

TECHNICIAN

Richard LeVan

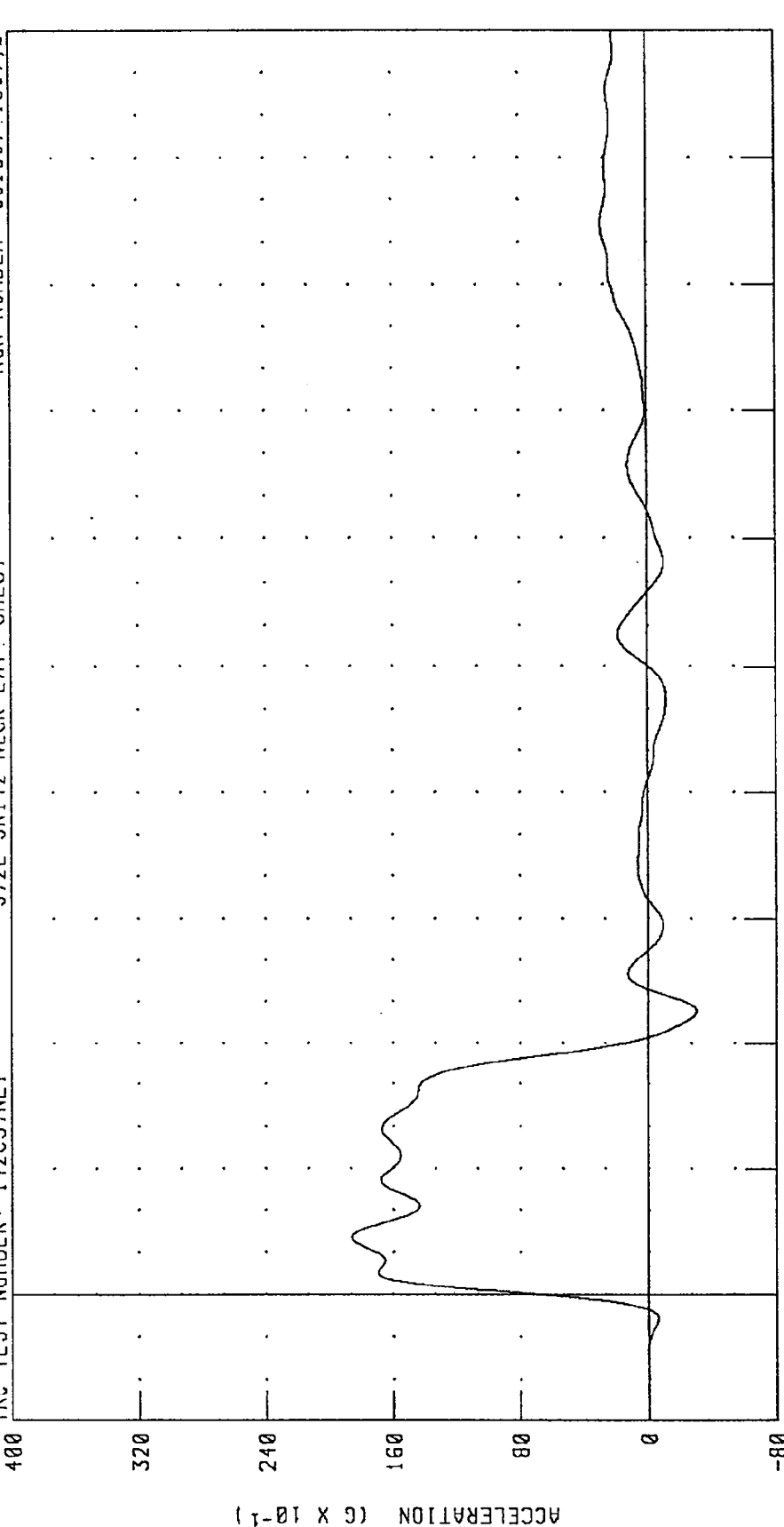
RUN NUMBER: 031197.1257;2

PART 572-E HYBRID III NECK EXTENSION CALIBRATION PENDULUM DECELERATION

TRC TEST NUMBER: 142C37NE1

572E SN142 NECK EXT. CAL37

RUN NUMBER: 051597.1307;2



PEAK DATA: 18.62 G @ 9.04 MS; -3.00 G @ 45.20 MS

CHANNEL: PENXG FILTER: CH. CLASS 60

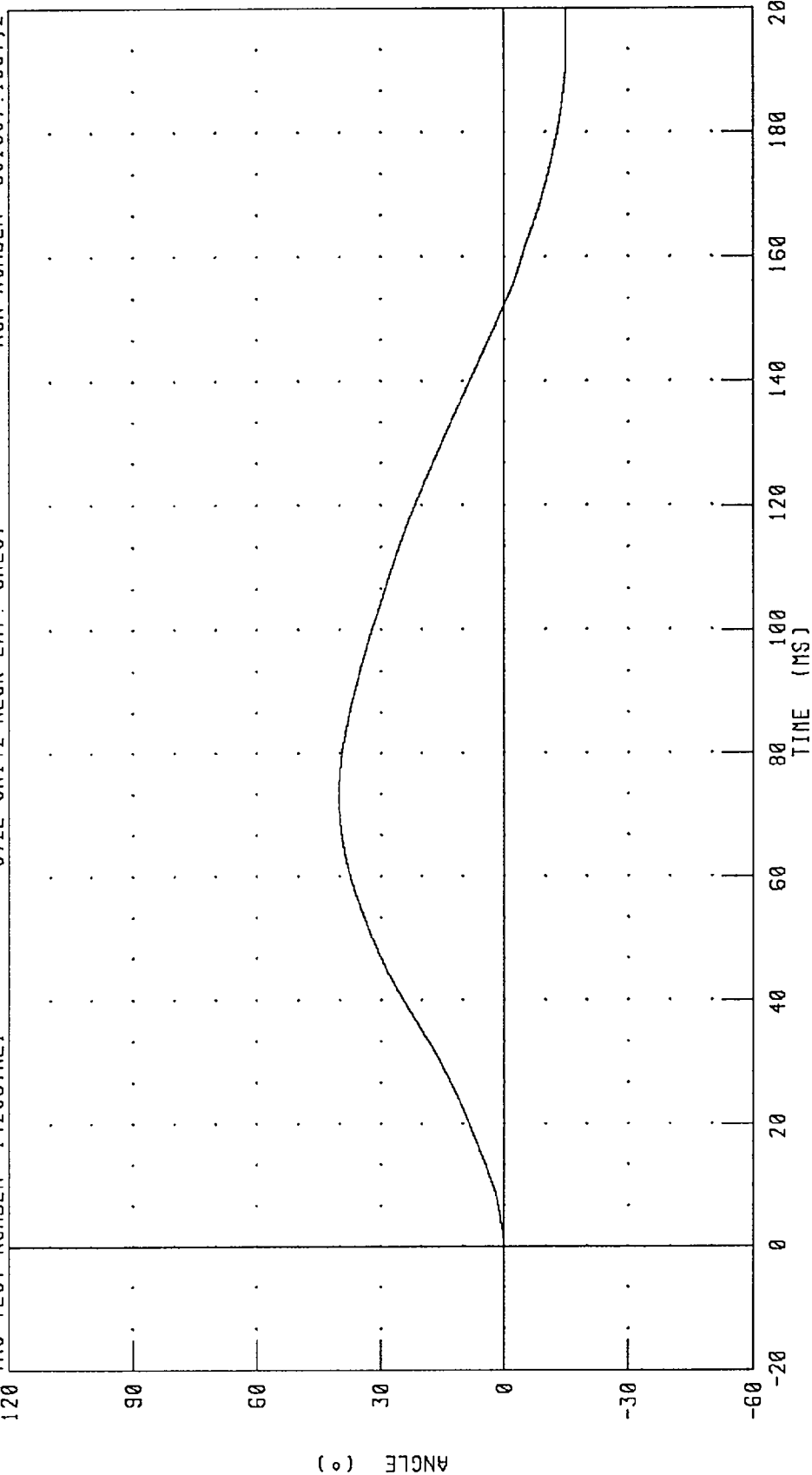
PART 572-E HYBRID III NECK EXTENSION CALIBRATION

ROTATION ABOUT BASE OF NECK

TRC TEST NUMBER: 142C37NE1

572E SN142 NECK EXT. CAL37

RUN NUMBER: 051597.1307;2



PEAK DATA: 40.18 ° @ 73.12 MS; -15.06 ° @ 195.60 MS

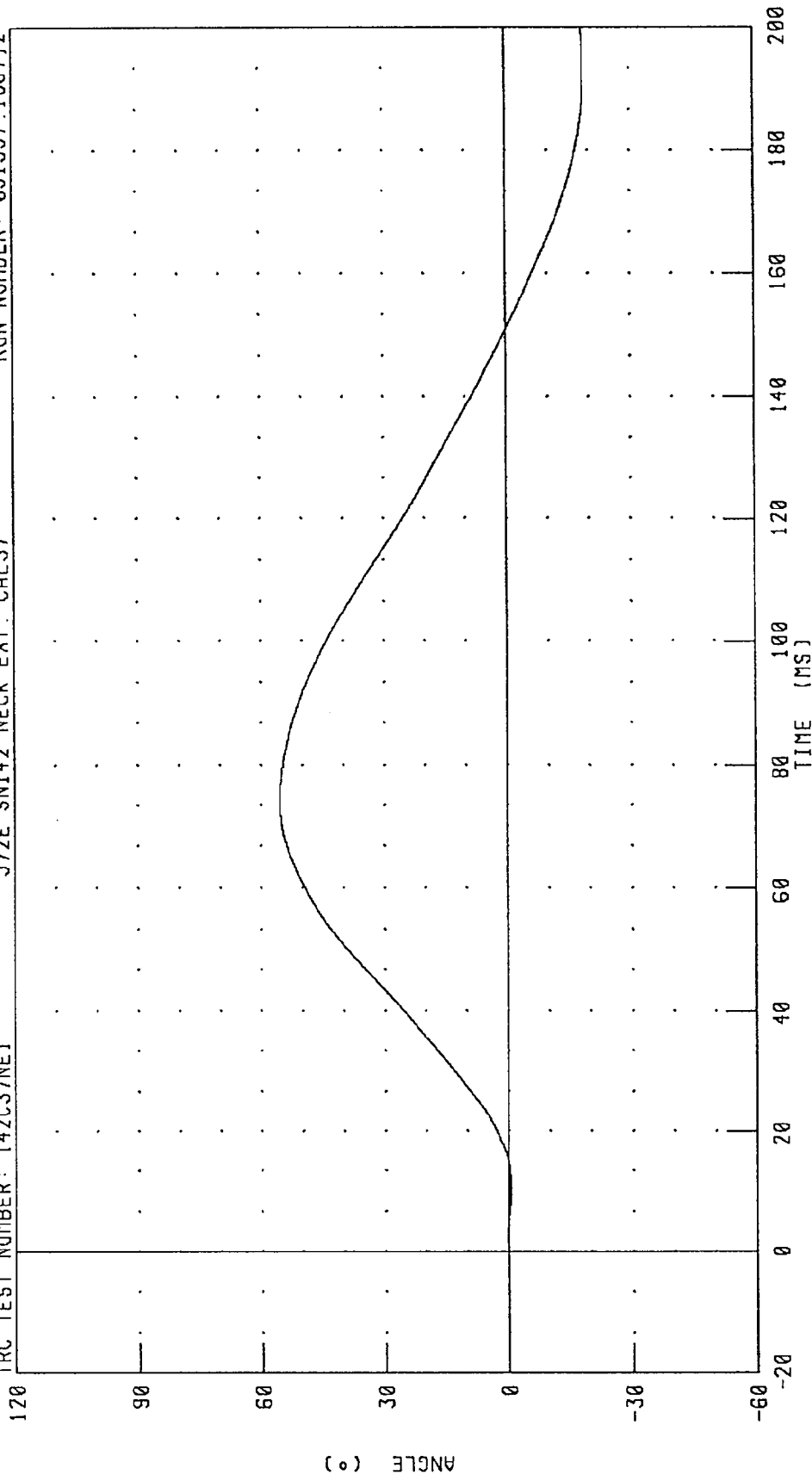
CHANNEL: BETA FILTER: CH. CLASS 60

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

TRC TEST NUMBER: 142C37NE1

572E SN142 NECK EXT. CAL37

RUN NUMBER: 051597.1307;2



PEAK DATA: 55.52 ° @ 74.24 MS; -18.87 ° @ 192.16 MS

CHANNEL: THETA FILTER: CH. CLASS 60

PART 572-E HYBRID III NECK EXTENSION CALIBRATION

TOTAL ROTATION

IRC TEST NUMBER: 142C37NE1

572E SN142 NECK EXT. CAL37

RUN NUMBER: 051597.1307;2

120

90

60

30

0

-30

-60

ANGLE (°)

TIME (MS)

200

180

160

140

120

100

80

60

40

20

0

-20

CHANNEL: TOTAN

FILTER: CH. CLASS 60

PEAK DATA: 95.68 ° @ 73.84 MS; -33.90 ° @ 194.08 MS

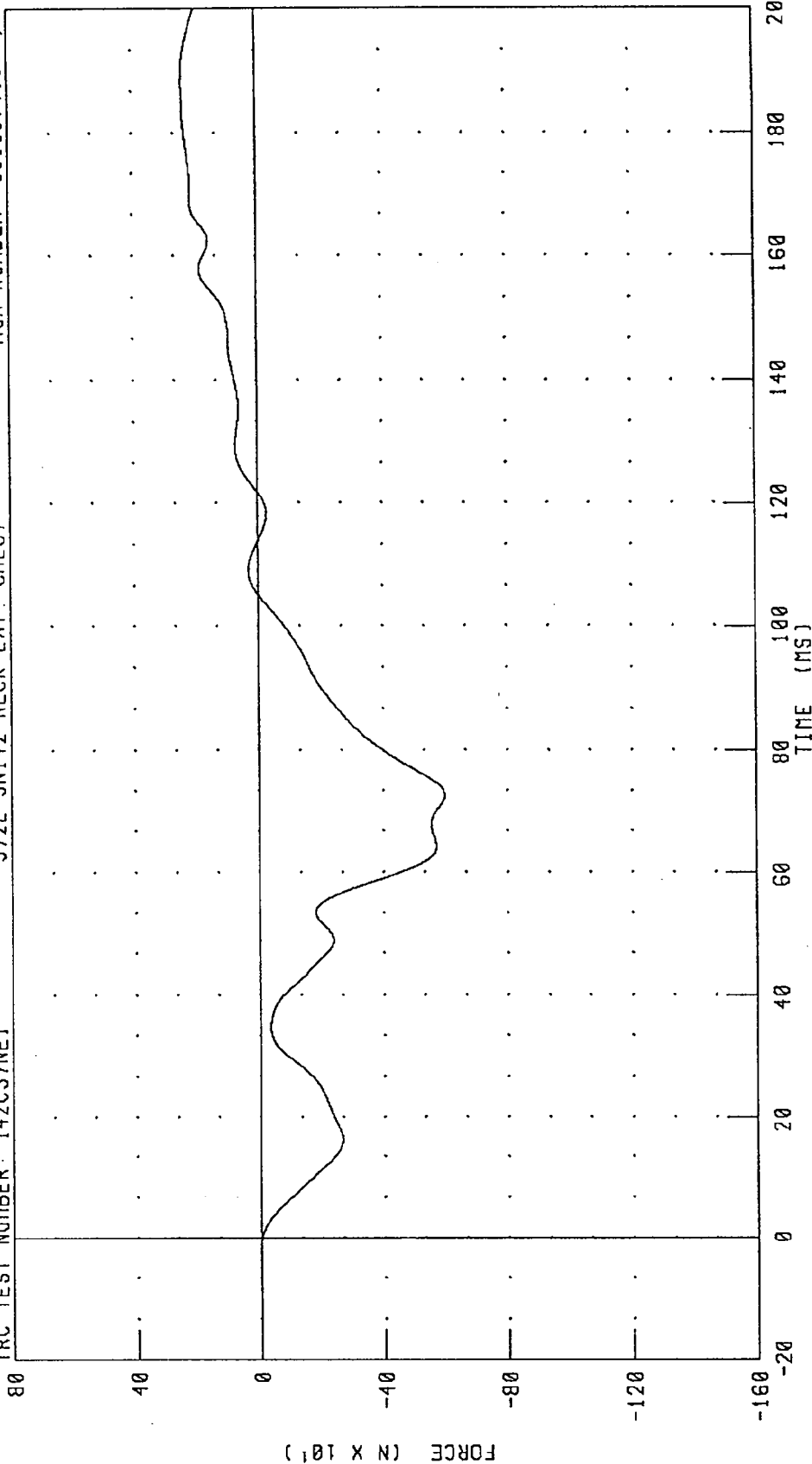
PART 572-E HYBRID III NECK EXTENSION CALIBRATION

NECK FORCE X AXIS

TRC TEST NUMBER: 142C37NE1

572E SN142 NECK EXT. CAL37

RUN NUMBER: 051597.1307;2



PEAK DATA: 238.72 N @ 188.00 MS; -598.82 N @ 72.64 MS

CHANNEL: NEKXF FILTER: CH. CLASS 60

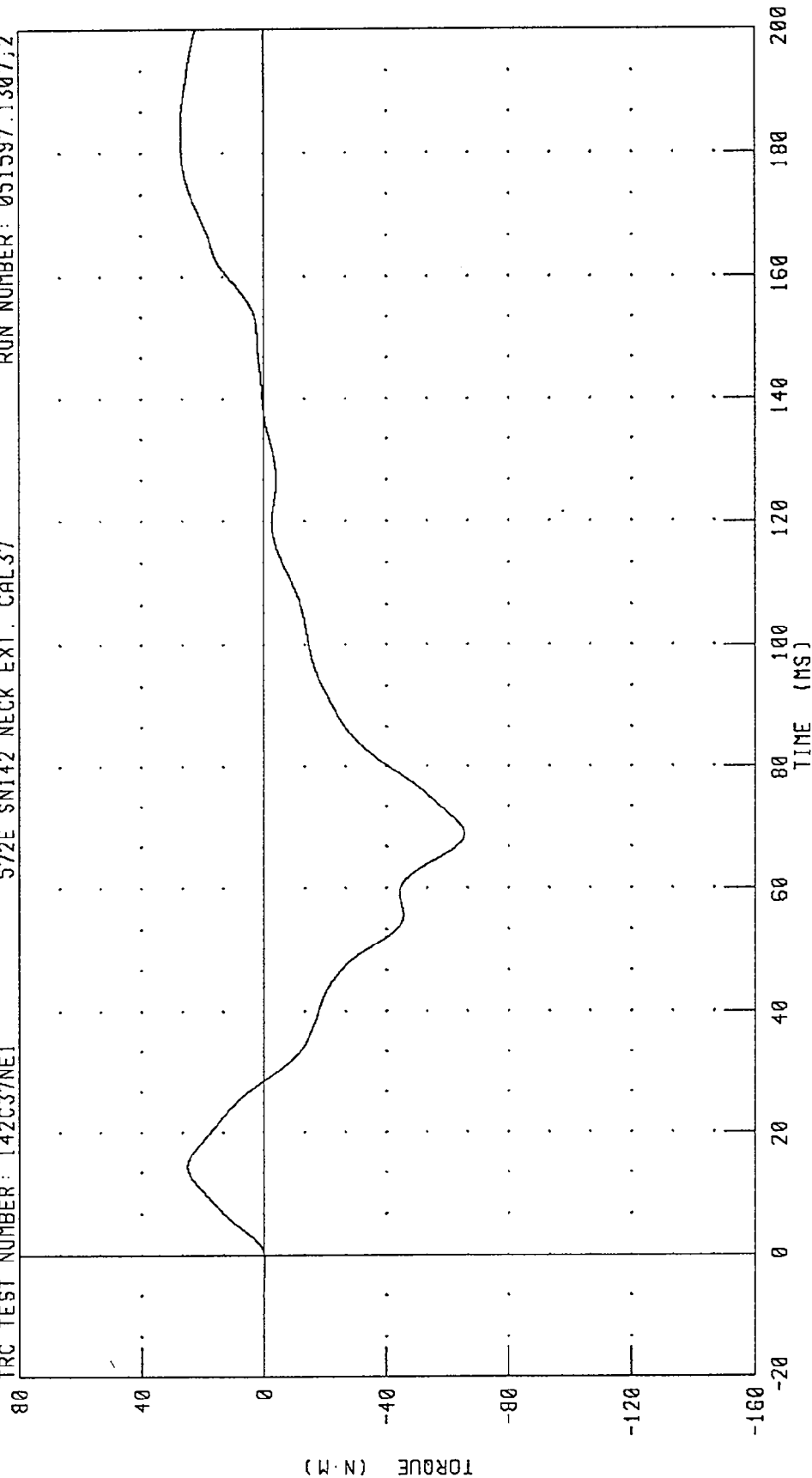
PART 572-E HYBRID III NECK EXTENSION CALIBRATION

NECK MOMENT Y AXIS

TRC TEST NUMBER: 142C37NE1

572E SN142 NECK EXT. CAL37

RUN NUMBER: 051597.1307.2



PEAK DATA: 27.23 N·M @ 183.20 MS; -65.56 N·M @ 68.80 MS

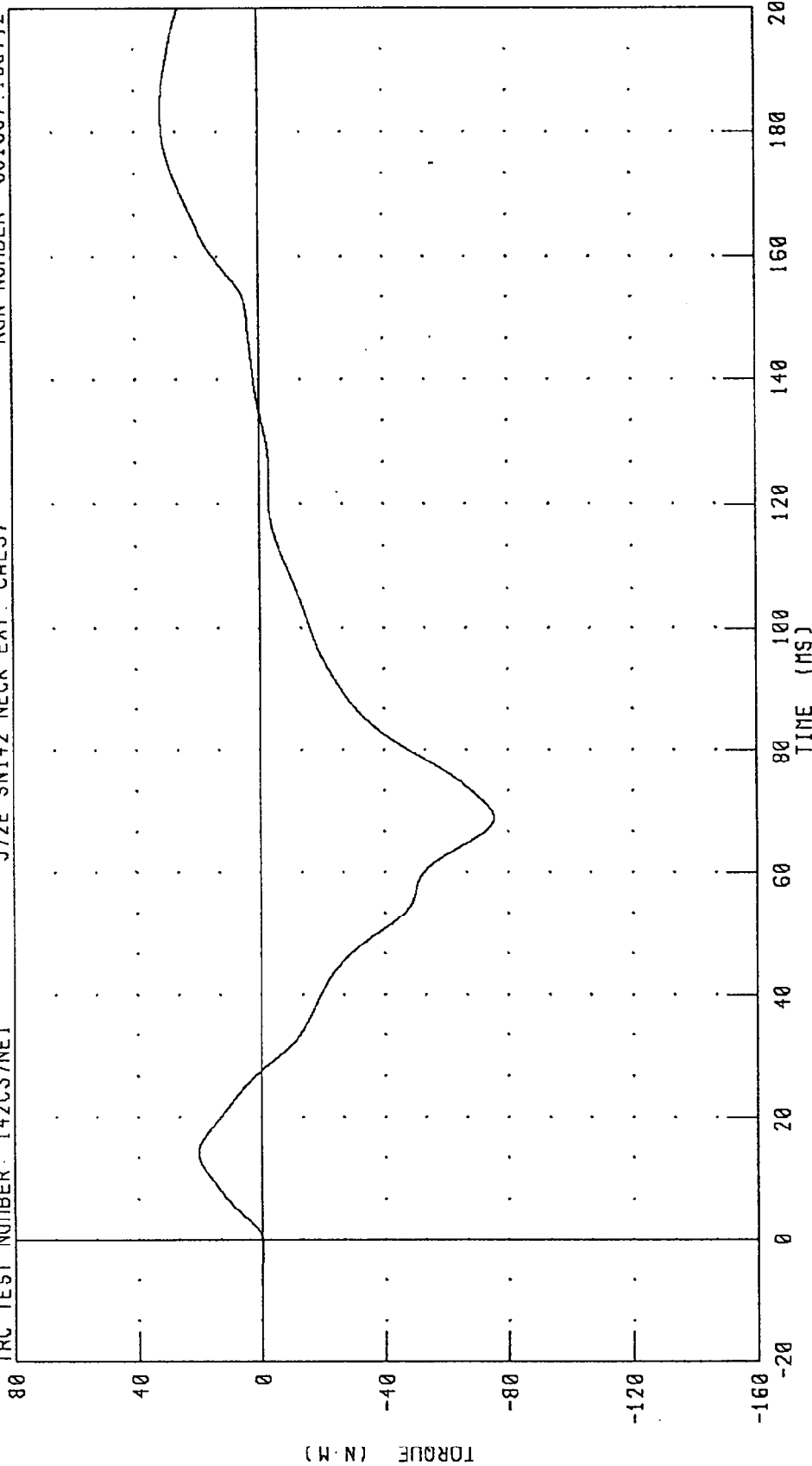
CHANNEL: NEKYM FILTER: CH. CLASS 60

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

TRC TEST NUMBER: 142C37NE1

572E SN142 NECK EXT. CAL37

RUN NUMBER: 051597.1307;2



PEAK DATA: 31.44 N.M @ 183.68 MS; -75.51 N.M @ 68.96 MS

CHANNEL: NEKOM FILTER: CH. CLASS 60

TRANSPORTATION RESEARCH CENTER INC.

THORAX IMPACT TEST

HYBRID III

11-MAR-97

TRC INC.

TEST NO: 142C37TH1

572E SN142 H.S.THORAX CAL37

TEST PARAMETER	HIGH SPEED TEST	TEST RESULTS
	SPECIFICATION	
TEMPERATURE	20.6-22.2 DEG. C	22.1 DEG. C
RELATIVE HUMIDITY	10 - 70 %	32.0 %
PENDULUM VELOCITY	6.59 - 6.83 M/S	6.62 M/S
MAXIMUM DEFLECTION	63.5 - 72.6 MM	72.1 MM
MAXIMUM RESISTIVE FORCE	5159 - 5894 N	5495. N
INTERNAL HYSTERESIS	69% - 85%	70.4%

TEST MEETS SPECIFICATIONS

TECHNICIAN Richard LeVan

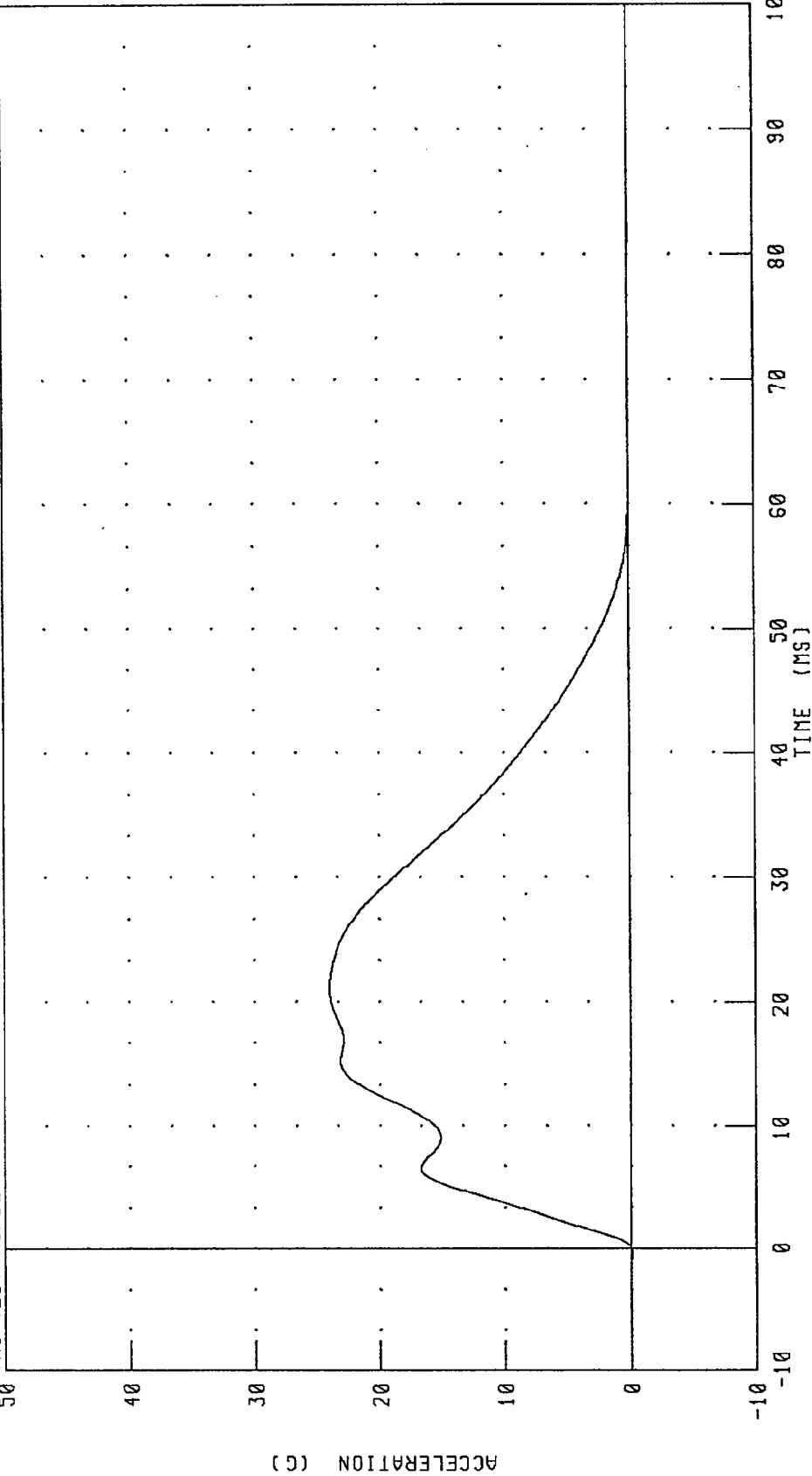
RUN NUMBER: 031197.1552;1

PART 572-E HYBRID III THORAX CALIBRATION
PENDULUM DECELERATION

TRC TEST NUMBER: 142C37TH1

572E SN142 H.S. THORAX CAL37

RUN NUMBER: 051597.1307;1



CHANNEL: PENXG FILTER: CH. CLASS 180

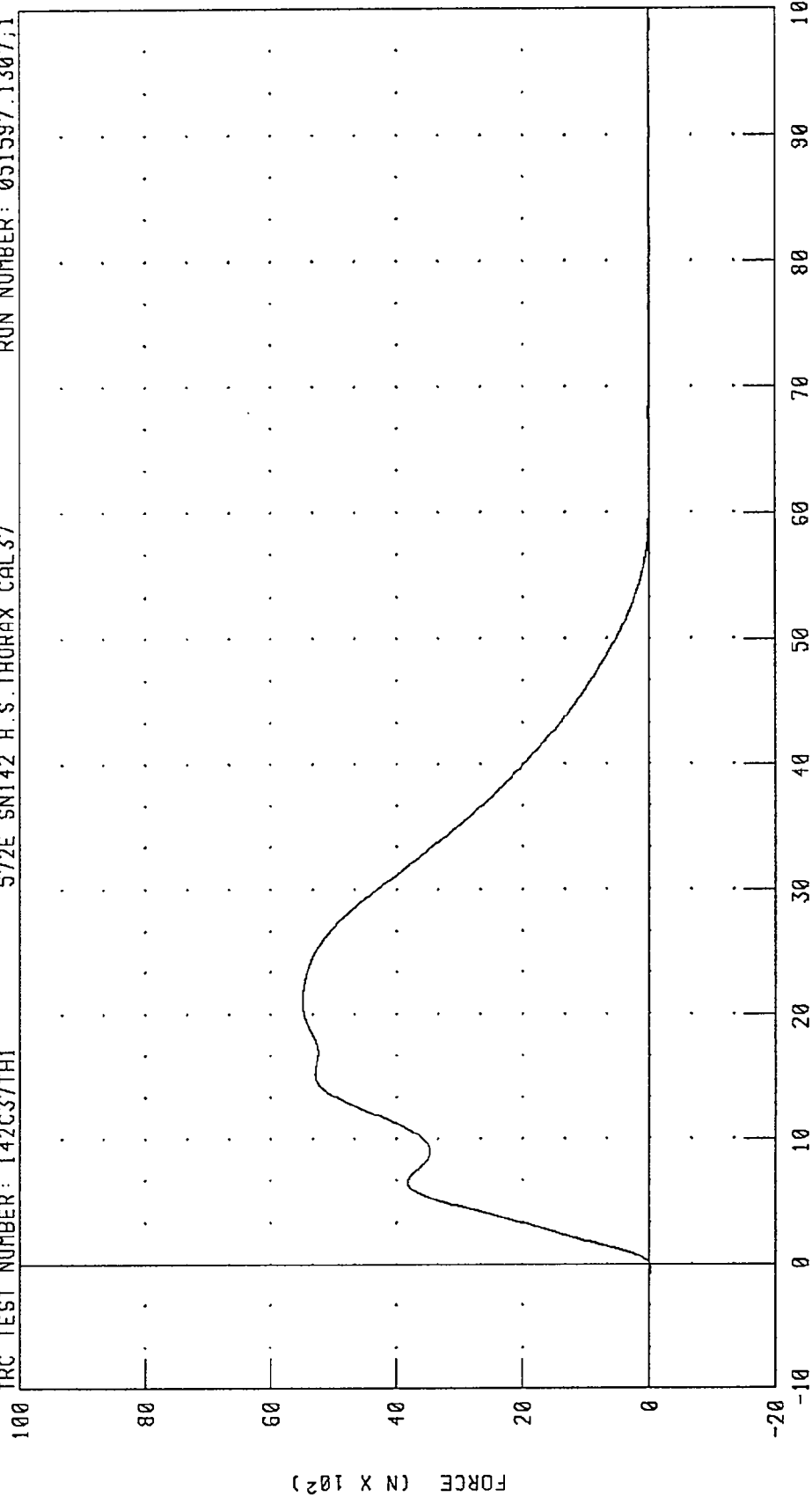
PEAK DATA: 23.99 G @ 21.04 MS; -0.06 G @ -0.32 MS

PART 572-E HYBRID III THORAX CALIBRATION
PENDULUM FORCE

TRC TEST NUMBER: 142C37TH1

572E SN142 H.S. THORAX CAL37

RUN NUMBER: 051597.1307;1



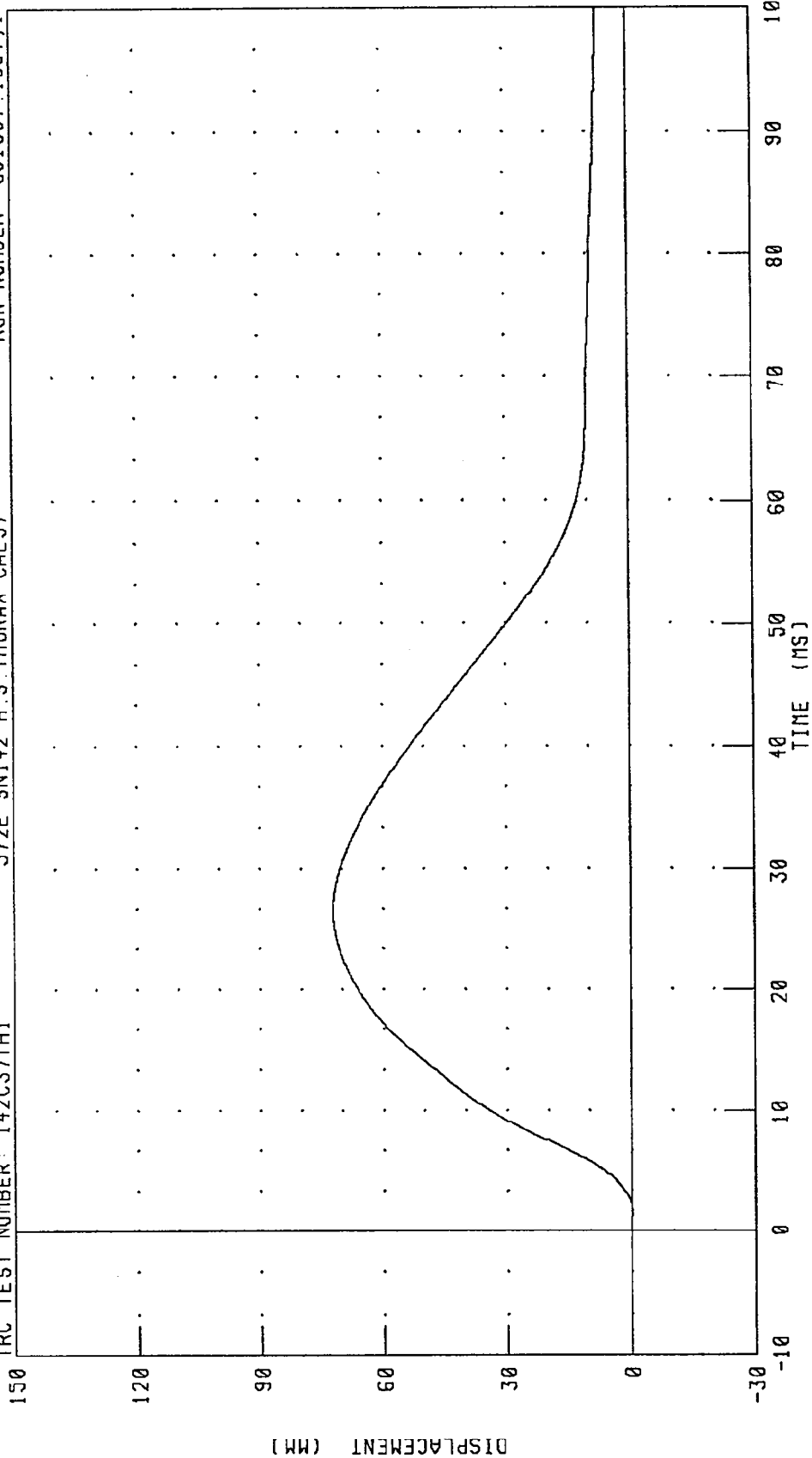
CHANNEL: PENXF FILTER: CH. CLASS 180 PEAK DATA: 5495.37 N @ 21.04 MS; -13.96 N @ -0.32 MS

PART 572-E HYBRID III THORAX CALIBRATION
STERNUM DISPLACEMENT

TRC TEST NUMBER: 142C37TH1

572E SN142 H.S. THORAX CAL37

RUN NUMBER: 051597.1307;1



PEAK DATA: 72.18 MM @ 26.48 MS; -0.07 MM @ 1.60 MS

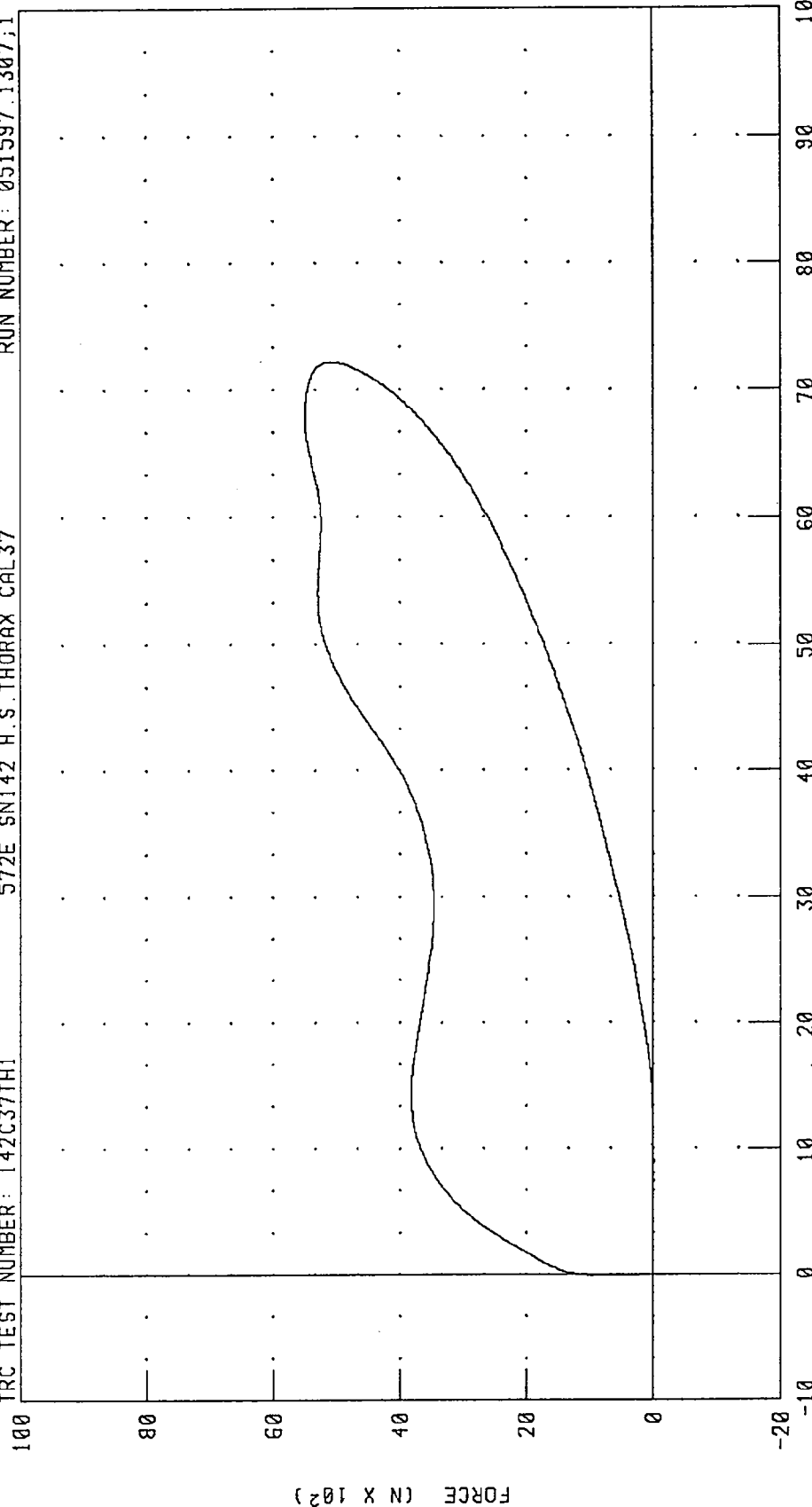
CHANNEL: CSTXD FILTER: CH. CLASS 180

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

TRC TEST NUMBER: 142C37TH1

572E SN142 H.S. THORAX CAL37

RUN NUMBER: 051597.1307,1



CHANNEL: CSTXD
PENXF

FILTER: CH. CLASS 180
CH. CLASS 180

DISPLACEMENT (MM)

PEAK DATA: 72.18 MM @ 26.48 MS; -0.07 MM @ 1.60 MS
5495.37 N @ 21.04 MS; -13.96 N @ -0.32 MS

TRANSPORTATION RESEARCH CENTER INC.

RIGHT KNEE IMPACT TEST

HYBRID III

10-MAR-97

TRC INC.

TEST NO: 142C37RK1

572E SN142 RIGHT KNEE CAL 37

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	18.9-25.6 DEG. C	21.1 DEG. C
RELATIVE HUMIDITY	10 - 70 %	37.0 %
PROBE VELOCITY	2.07 - 2.13 M/S	2.11 M/S
PEAK KNEE IMPACT FORCE 5.0 KG PENDULUM	4715 - 5782 N	5359.5 N

TEST MEETS SPECIFICATIONS

TECHNICIAN Richard L. Van

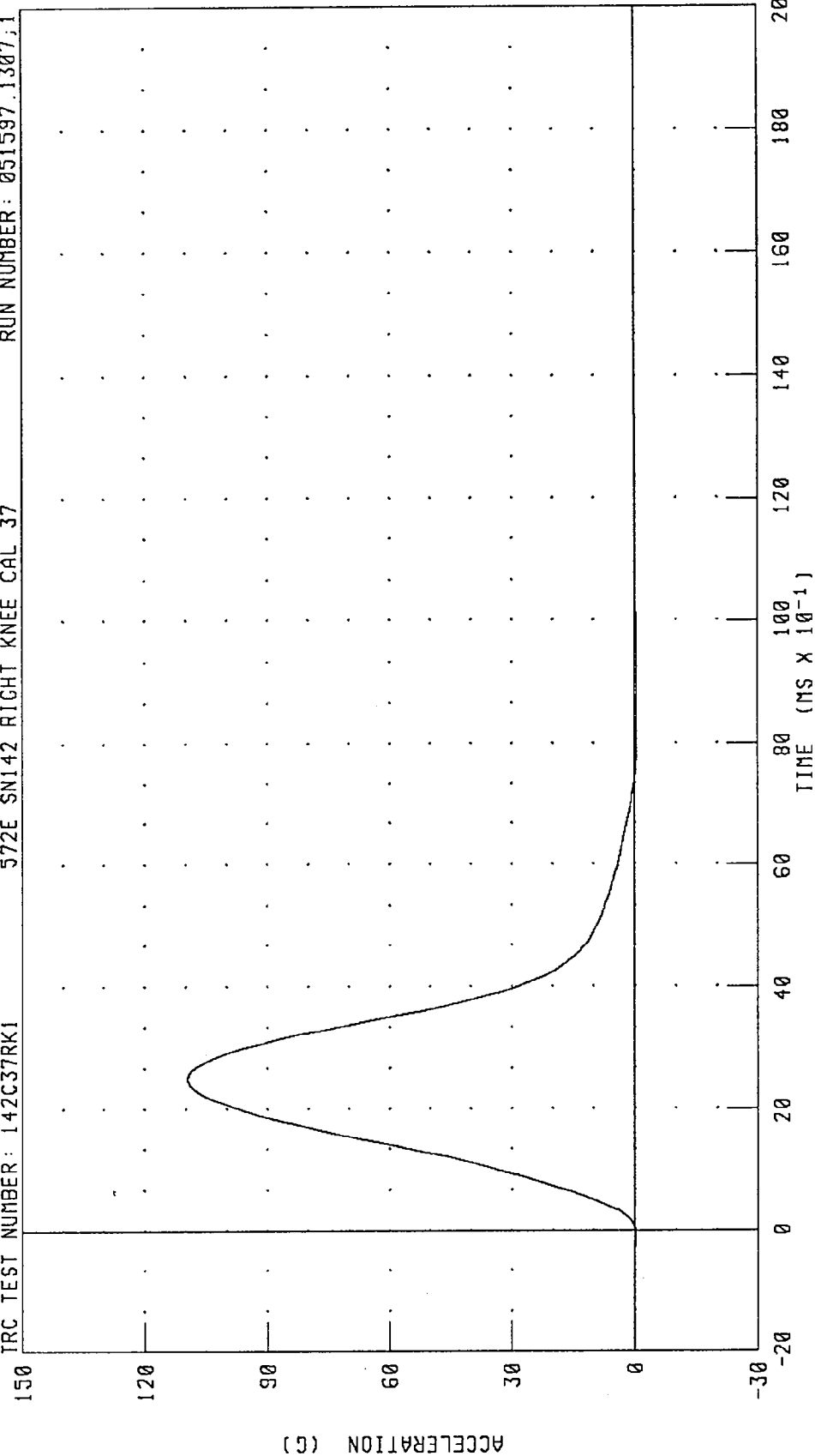
RUN NUMBER: 031097.1124;1

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

TRC TEST NUMBER: 142C37RK1

572E SN142 RIGHT KNEE CAL 37

RUN NUMBER: 051597.1307;1



PEAK DATA: 109.54 G @ 2.48 MS; -0.47 G @ 8.32 MS

CHANNEL: PENXG FILTER: CH. CLASS 600

PART 572-E HYBRID III RIGHT KNEE CALIBRATION

PENDULUM FORCE (5 KG PEND.)

572E SN142 RIGHT KNEE CAL 37

TRC TEST NUMBER: 142C37RK1

75

60

45

30

15

0

-15

-20

0

20

40

60

80

100

120

140

160

180

200

TIME (MS X 10⁻¹)

PEAK DATA: 5359.52 N @ 2.48 MS; -22.84 N @ 8.32 MS

CHANNEL: PENXF FILTER: CH. CLASS 600

RUN NUMBER: 051597.1307;1

FORCE (N X 10²)

0

15

30

45

60

75

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TRANSPORTATION RESEARCH CENTER INC.

LEFT KNEE IMPACT TEST

HYBRID III

10-MAR-97

TRC INC.

TEST NO: 142C37LK1

572E SN142 LEFT KNEE CAL 37

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	18.9-25.6 DEG. C	21.1 DEG. C
RELATIVE HUMIDITY	10 - 70 %	37.0 %
PROBE VELOCITY	2.07 - 2.13 M/S	2.11 M/S
PEAK KNEE IMPACT FORCE 5.0 KG PENDULUM	4715 - 5782 N	4928.5 N

TEST MEETS SPECIFICATIONS

TECHNICIAN Richard Le Van

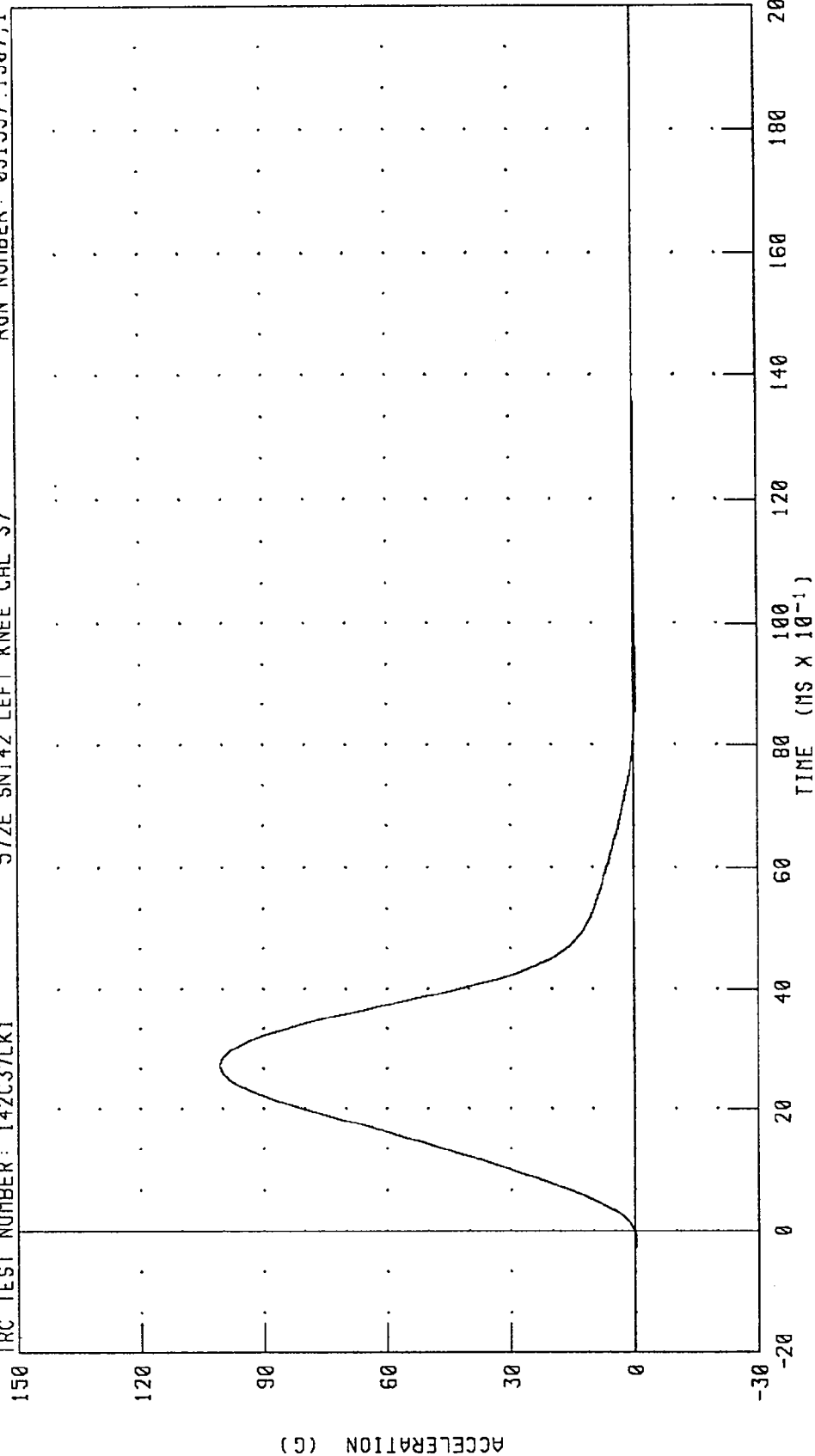
RUN NUMBER: 031097.1121;1

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

TRC TEST NUMBER: 142C37LK1

572E SN142 LEFT KNEE CAL 37

RUN NUMBER: 051597.1307;1



CHANNEL: PENXG FILTER: CH. CLASS 600

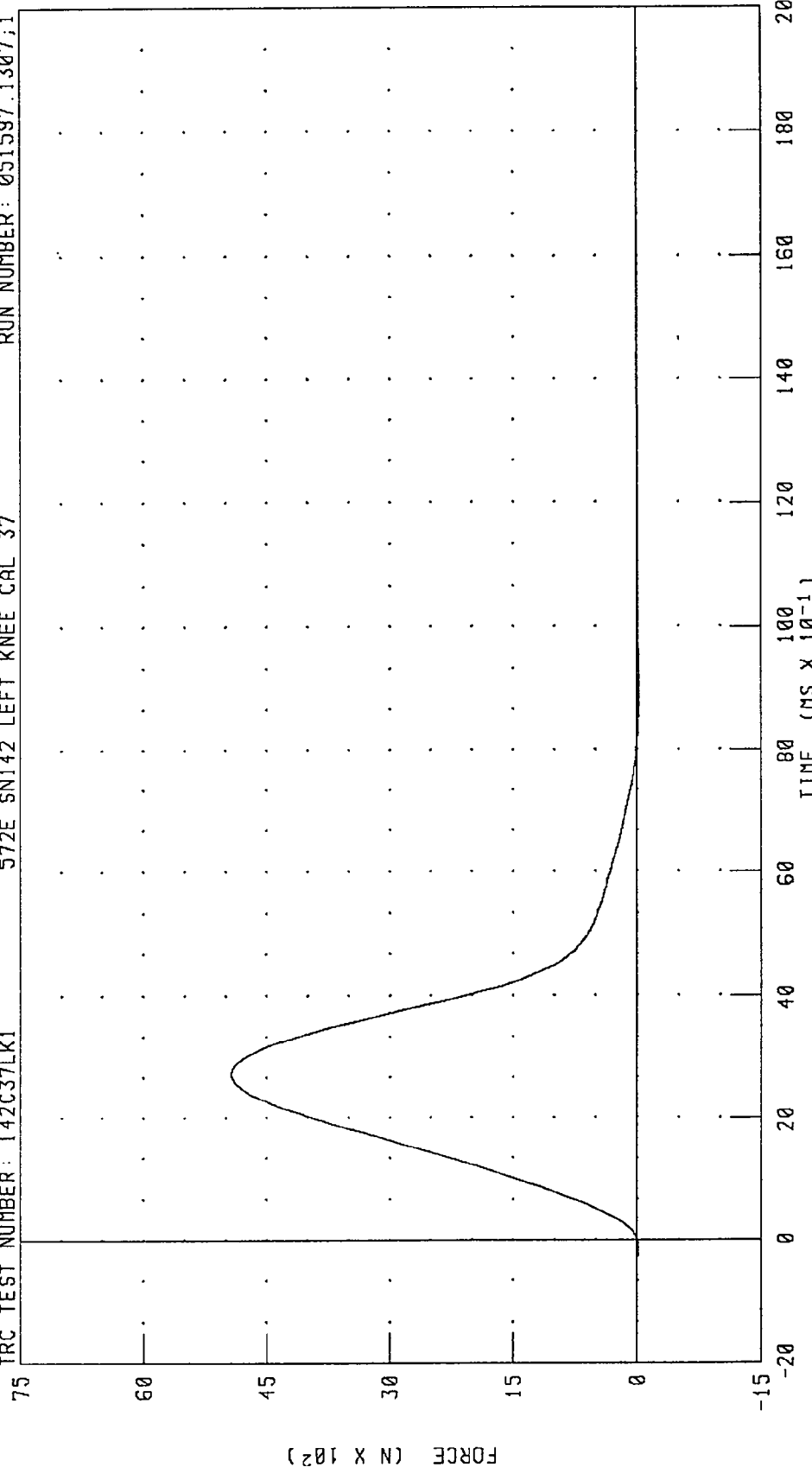
PEAK DATA: 100.73 G @ 2.72 MS; -0.42 G @ 8.88 MS

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

TRC TEST NUMBER: 142C37LK1

572E SN142 LEFT KNEE CAL 37

RUN NUMBER: 051597.1307;1



CHANNEL: PENXF FILTER: CH. CLASS 600 PEAK DATA: 4928.50 N @ 2.72 MS; -20.71 N @ 8.88 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	01/13/97	07/13/97
Head X-axis accelerometer-redundant	AJ8J7	7264	Endevco	01/13/97	07/13/97
Head Y-axis accelerometer	AAMP5	7264	Endevco	01/13/97	07/13/97
Head Y-axis accelerometer-redundant	J10458	7264	Endevco	01/13/97	07/13/97
Head Z-axis accelerometer	ACB35	7264	Endevco	01/13/97	07/13/97
Head Z-axis accelerometer-redundant	AC8W6	7264	Endevco	01/13/97	07/13/97
Chest X-axis accelerometer	ACCD0	7264	Endevco	01/13/97	07/13/97
Chest X-axis accelerometer-redundant	A79GJ	7264	Endevco	01/13/97	07/13/97
Chest Y-axis accelerometer	ACC82	7264	Endevco	01/13/97	07/13/97
Chest Y-axis accelerometer-redundant	AGR69	7264	Endevco	01/13/97	07/13/97
Chest Z-axis accelerometer	ACC59	7264	Endevco	01/13/97	07/13/97
Chest Z-axis accelerometer-redundant	AAL82	7264	Endevco	01/13/97	07/13/97
Left femur force load cell	263	2121	Denton	01/13/97	07/13/97
Right femur force load cell	264	2121	Denton	01/13/97	07/13/97
Neck X-axis force load cell	445	1716	Denton	01/13/97	07/13/97
Neck Y-axis force load cell	445	1716	Denton	01/13/97	07/13/97
Neck Z-axis force load cell	445	1716	Denton	01/13/97	07/13/97
Neck Moment about X-axis load cell	445	1716	Denton	01/13/97	07/13/97
Neck Moment about Y-axis load cell	445	1716	Denton	01/13/97	07/13/97
Neck Moment about Z-axis load cell	445	1716	Denton	01/13/97	07/13/97
Pelvis X-axis accelerometer	AJ694	7264	Endevco	01/13/97	07/13/97
Pelvis Y-axis accelerometer	AJ656	7264	Endevco	01/13/97	07/13/97
Pelvis Z-axis accelerometer	AJ788	7264	Endevco	01/13/97	07/13/97
Chest deflection potentiometer	87313-96	14CB1-2981	Vernitech	01/13/97	07/13/97
Lap belt force load cell	234	3419	Lebow	01/31/97	07/31/97
Shoulder belt force load cell	134	3419	Lebow	01/31/97	07/31/97

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	01/14/97	07/14/97
Left upper tibia moment about Y-axis load cell	617	1583	Denton	01/14/97	07/14/97
Right upper tibia moment about X-axis load cell	616	1583	Denton	01/14/97	07/14/97
Right upper tibia moment about Y-axis load cell	616	1583	Denton	01/14/97	07/14/97
Left Lower tibia X-axis force load cell	600	1584	Denton	01/14/97	07/14/97
Left Lower tibia Z-axis force load cell	600	1584	Denton	01/14/97	07/14/97
Left Lower tibia moment about Y-axis load cell	600	1584	Denton	01/14/97	07/14/97
Right Lower tibia X-axis force load cell	599	1584	Denton	01/14/97	07/14/97
Right Lower tibia Z-axis force load cell	599	1584	Denton	01/14/97	07/14/97
Right Lower tibia moment about Y-axis load cell	599	1584	Denton	01/14/97	07/14/97
Left foot X-axis accelerometer	10073	7264	Endevco	01/13/97	07/13/97
Left foot heel Z-axis accelerometer	10263	7264	Endevco	01/13/97	07/13/97
Left foot toe Z-axis accelerometer	10101	7264	Endevco	01/13/97	07/13/97
Right foot X-axis accelerometer	APYT4	7264	Endevco	01/13/97	07/13/97
Right foot heel Z-axis accelerometer	AP0R8	7264	Endevco	01/13/97	07/13/97
Right foot toe Z-axis accelerometer	10076	7264	Endevco	01/13/97	07/13/97

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	01/21/97	07/21/97
Head X-axis accelerometer-redundant	AC8L5	7264	Endevco	01/21/97	07/21/97
Head Y-axis accelerometer	ACC02	7264	Endevco	01/21/97	07/21/97
Head Y-axis accelerometer-redundant	ACCR7	7264	Endevco	01/21/97	07/21/97
Head Z-axis accelerometer	ACCF3	7264	Endevco	01/21/97	07/21/97
Head Z-axis accelerometer-redundant	A68JJ	7264	Endevco	01/21/97	07/21/97
Chest X-axis accelerometer	ACC14	7264	Endevco	01/21/97	07/21/97
Chest X-axis accelerometer-redundant	A65JJ	7264	Endevco	01/21/97	07/21/97
Chest Y-axis accelerometer	ACCR0	7264	Endevco	01/21/97	07/21/97
Chest Y-axis accelerometer-redundant	FH14J	7264	Endevco	01/21/97	07/21/97
Chest Z-axis accelerometer	ACCT5	7264	Endevco	01/21/97	07/21/97
Chest Z-axis accelerometer-redundant	AC745	7264	Endevco	01/21/97	07/21/97
Left femur force load cell	257	2121	Denton	01/21/97	07/21/97
Right femur force load cell	258	2121	Denton	01/21/97	07/21/97
Neck X-axis force load cell ¹	441	1716	Denton	01/21/97	07/21/97
Neck Y-axis force load cell ¹	441	1716	Denton	01/21/97	07/21/97
Neck Z-axis force load cell ¹	441	1716	Denton	01/21/97	07/21/97
Neck Moment about X-axis load cell ¹	441	1716	Denton	01/21/97	07/21/97
Neck Moment about Y-axis load cell ¹	441	1716	Denton	01/21/97	07/21/97
Neck Moment about Z-axis load cell ¹	441	1716	Denton	01/21/97	07/21/97
Pelvis X-axis accelerometer	CY63H	7264	Endevco	01/21/97	07/21/97
Pelvis Y-axis accelerometer	AMWA9	7264	Endevco	01/21/97	07/21/97
Pelvis Z-axis accelerometer	ANA55	7264	Endevco	01/21/97	07/21/97
Chest deflection potentiometer	142	14CB1-2981	Vernitech	01/21/97	07/21/97
Lap belt force load cell	590	3419	Lebow	01/31/97	07/31/97
Shoulder belt force load cell	613	3419	Lebow	12/12/96	06/12/97

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	01/21/97	07/21/97
Left upper tibia moment about Y-axis load cell	46	1583	Denton	01/21/97	07/21/97
Right upper tibia moment about X-axis load cell	35	1583	Denton	01/21/97	07/21/97
Right upper tibia moment about Y-axis load cell	35	1583	Denton	01/21/97	07/21/97
Left Lower tibia X-axis force load cell	42	1584	Denton	01/21/97	07/21/97
Left Lower tibia Z-axis force load cell	42	1584	Denton	01/21/97	07/21/97
Left Lower tibia moment about Y-axis load cell	42	1584	Denton	01/21/97	07/21/97
Right Lower tibia X-axis force load cell	39	1584	Denton	01/21/97	07/21/97
Right Lower tibia Z-axis force load cell	39	1584	Denton	01/21/97	07/21/97
Right Lower tibia moment about Y-axis load cell	39	1584	Denton	01/21/97	07/21/97
Left foot X-axis accelerometer	APA01	7264	Endevco	01/21/97	07/21/97
Left foot heel Z-axis accelerometer	10102	7264	Endevco	01/21/97	07/21/97
Left foot toe Z-axis accelerometer	10074	7264	Endevco	01/21/97	07/21/97
Right foot X-axis accelerometer	10088	7264	Endevco	01/21/97	07/21/97
Right foot heel Z-axis accelerometer	10089	7264	Endevco	01/21/97	07/21/97
Right foot toe Z-axis accelerometer	10087	7264	Endevco	01/21/97	07/21/97

Vehicle and Calibration Laboratory Instrument Calibrations

Vehicle Accelerometers

	Serial Number	Model Number	Manufacturer	Calibration Date	
				Last	Due
Left rear seat crossmember X-axis	AC701	7264	Endevco	11/18/96	05/18/97
Left rear seat crossmember X-axis redundant	J11129	7264	Endevco	03/12/97	09/12/97
Right rear seat crossmember X-axis	J14287	7264	Endevco	02/21/97	08/21/97
Right rear seat crossmember X-axis redundant	10288	7264	Endevco	03/12/97	09/12/97
Engine top X-axis	J11307	7264	Endevco	11/18/96	05/18/97
Engine bottom X-axis	CP50H	7264	Endevco	02/04/97	08/04/97
Right brake caliper X-axis	J14085	7264	Endevco	01/21/97	07/21/97
Left brake caliper X-axis	AJ8J9	7264	Endevco	11/18/96	05/18/97
Instrument panel center X-axis	10315	7264	Endevco	11/18/96	05/18/97

Calibration Laboratory Instruments

	Serial Number	Model Number	Manufacturer	Calibration Date	
				Last	Due
Neck bending pendulum accelerometer	CB27	7232	Endevco		
Neck bending rotary potentiometer	NA6	35425-1-102	Bournes	Mfr/ Specification	
Neck bending linear potentiometer	NA	5184-2051846003	Bournes		
Thorax/Hybrid II femur pendulum accelerometer	CC64	7232	Endevco		
Lumbar flexion force gauge	NA	DPPH-50	Chatillon	05/03/89	repaired
Lumbar flexion rotation gauge	CP17-0601-1	7020	Humphrey	Mfr. Specification	
Abdomen compression displacement gauge	4075-175	80294-2051941504	Bournes		
Abdomen compression force gauge	3443	3167	Lebow		
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

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Right Front Passenger Dummy #142

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+Knee slider displacement: Distance between femur and tibia
increased (in relation to a seated dummy)

Load cells:

+Femur force: Tension
+Seat belt force: Tension
+Barrier force: Tension

Neck load cells:

+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

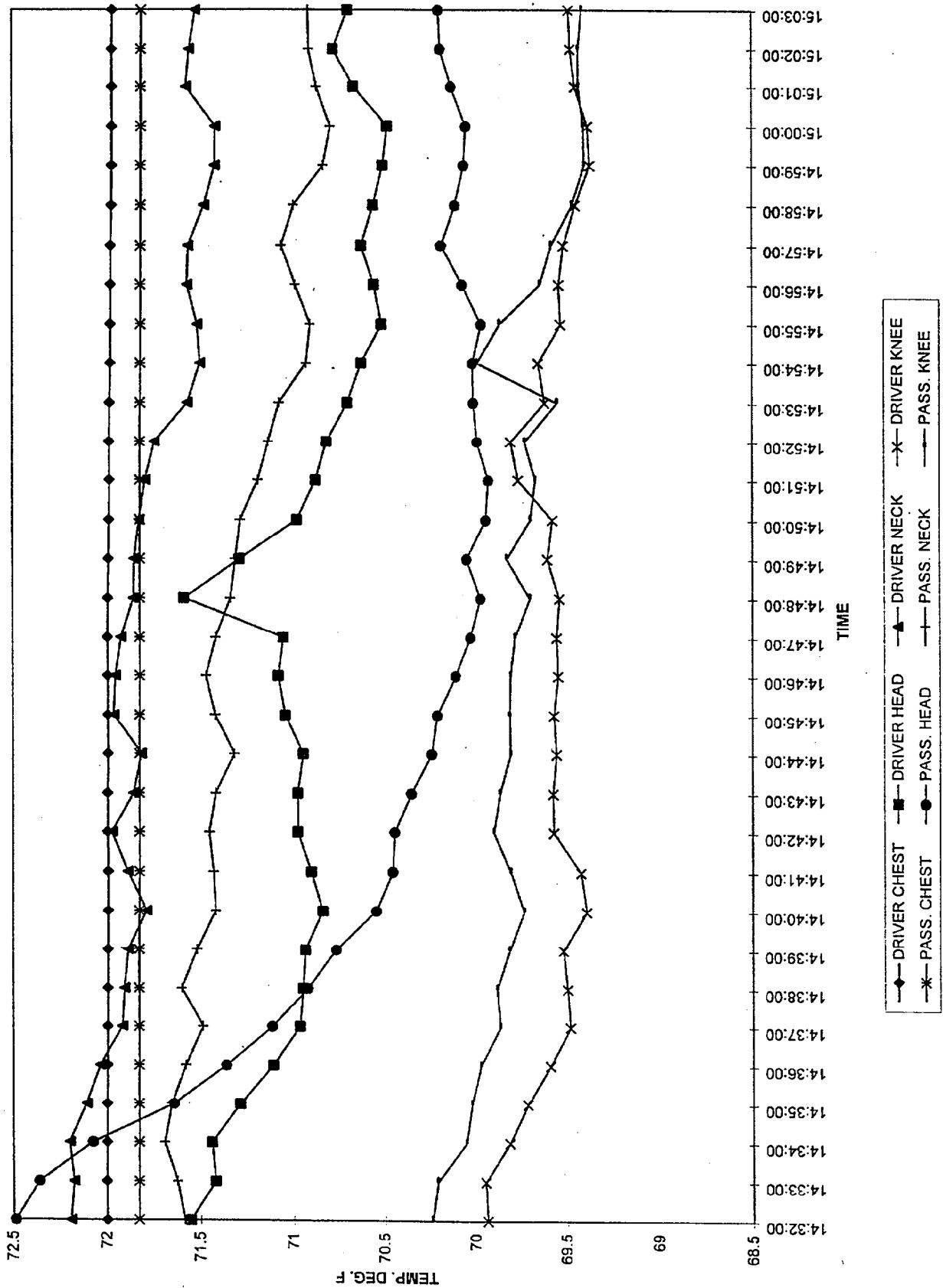
Tibia load cells:

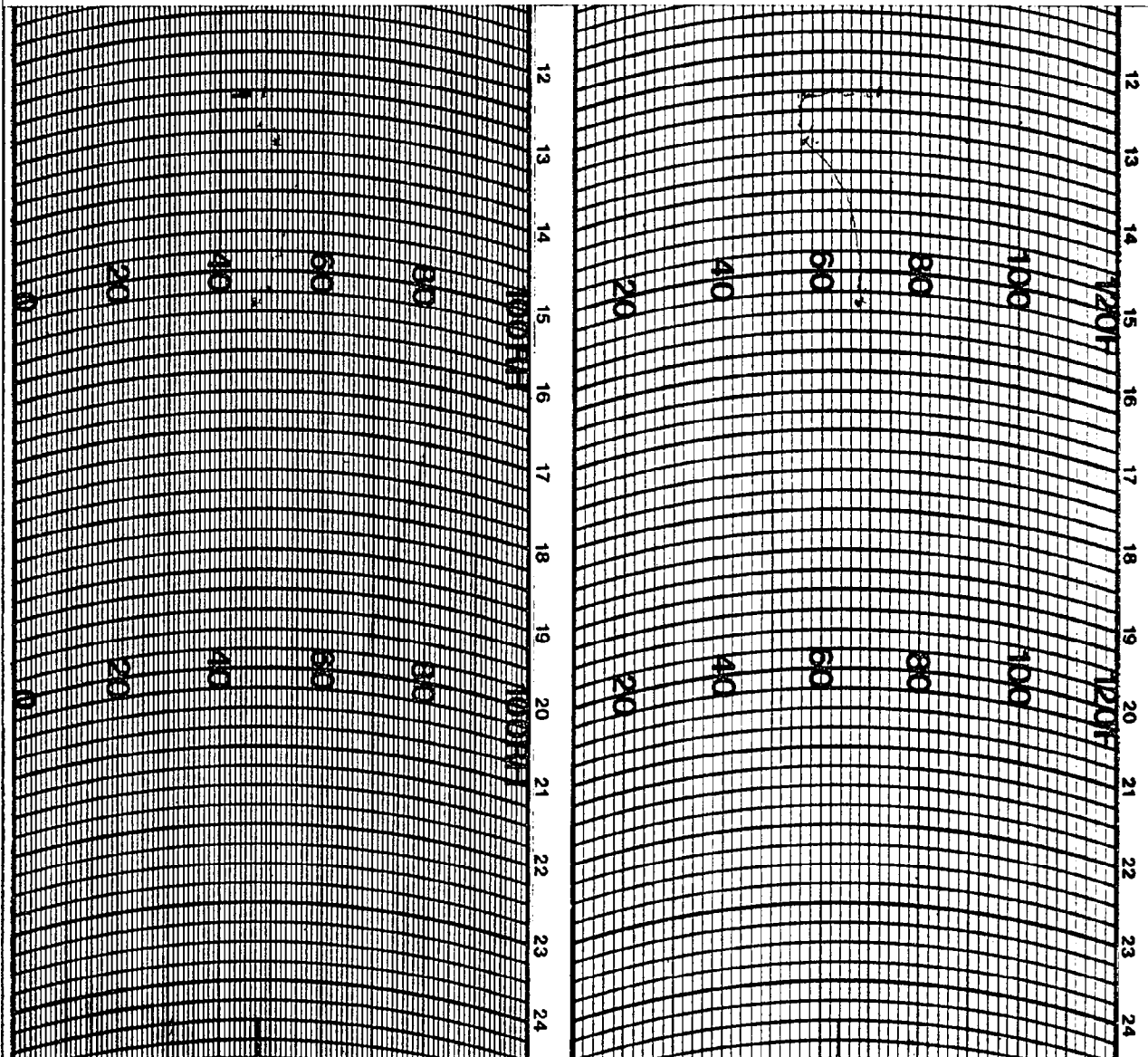
+X force: Tension
+Y force: Tension
+Z force: Tension
+X moment: Bottom of tibia moving leftward
+Y moment: Bottom of tibia moving rearward

Frequency Response Classes
SAE J211 OCT88

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

970417





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 4-18-97 ⁰⁵ DATE OFF _____

Appendix E

Restraint System Instructions from Owner's Manual

ILLUMINATED ENTRY

All interior lights will illuminate when the doors are unlocked using the Keyless Entry transmitter or when a door is opened. These lights will stay on for about 30 seconds or until the ignition is turned to the ON position.

OCCUPANT RESTRAINTS

One of the most important safety features in your vehicle is the restraint system. This system includes the front and rear seat belts. Your seat belts can also be used to hold infant and child restraint systems if you will be carrying children too small for adult-size belts.

Please pay careful attention to the information in this section. It tells you how to use your restraint system properly to keep you and your passengers as safe as possible.

WARNING!

In a collision you and your passengers can suffer much greater injuries if you are not properly buckled up. You can strike parts of the inside of the vehicle or other passengers, or you can be thrown out of the vehicle. Always be sure you and others in your vehicle are buckled up properly.

WARNING!

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 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 seat belts. Be sure everyone in your vehicle is in a seat using a seat belt properly.

2

16 THINGS TO KNOW BEFORE STARTING YOUR VEHICLE

Buckle up even though you are an excellent driver. Even on short trips. Someone else on the road may be a poor driver and cause a collision which involves you. And this can happen far from home or on your own street.

Research has shown that seat belts save lives. And they can reduce the seriousness of injuries in a collision. Some of the worst injuries happen when people are thrown from the vehicle. Seat belts provide protection against that, and they reduce the risk of injury caused by striking the inside of the vehicle. Everyone in a motor vehicle needs to be buckled up all the time.

Seat Belt Warning Light



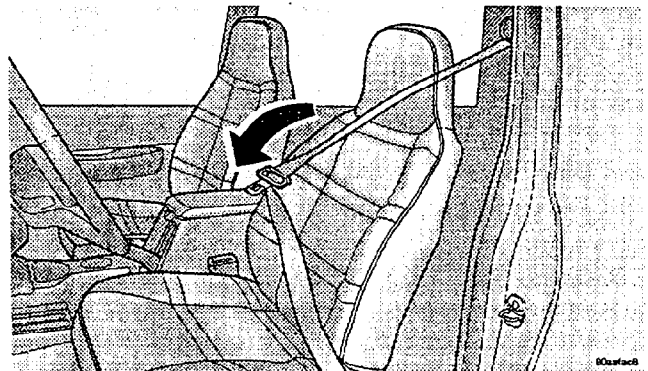
A warning chime and an indicator light will alert you to buckle the seat belts.

Unibelts

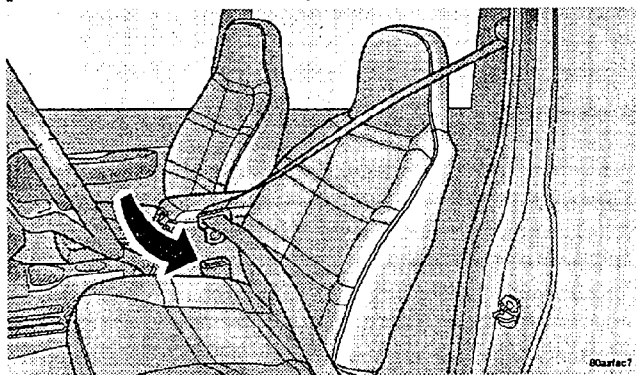
The outboard front and rear seats of your vehicle have combination lap/shoulder belts, or unbelt. The retractor is designed to lock during very sudden stops or impacts. This feature allows the shoulder part of the belt to move freely with you under normal conditions. But in a collision, the belt will lock and reduce the risk of your striking the inside of the vehicle or being thrown out.

Unibelt Operating Instructions

1. Enter the vehicle and close the door. Sit back and adjust the seat.
2. The latch plate of the belt is above the back of your seat. Grasp the latch plate and pull out the belt. Slide the latch plate up the webbing as far as necessary to make the belt go around your lap.



3. When the belt is long enough to fit, insert the latch plate into the buckle until you hear a "click".



WARNING!

A belt buckled into the wrong buckle will not protect you properly. The lap portion could ride too high on your body, possibly causing internal injuries. Always buckle your belt into the buckle nearest you.

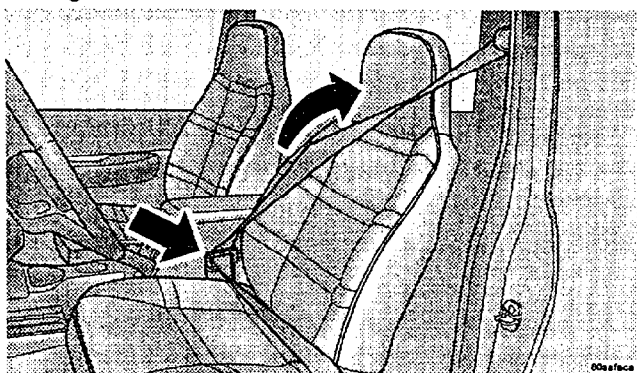
WARNING!

- A belt that is too loose will not protect you as well. In a sudden stop you could move too far forward, increasing the possibility of injury. Wear your seat belt snugly.
- A shoulder belt worn under your arm is very dangerous. Your body could fall into the inside surfaces of the vehicle in a crash, increasing head and neck injury. And a belt worn under the arm can cause internal injuries. Ribs aren't as strong as shoulder bones. Wear the belt over your shoulder so that your strongest bones will take the force in a collision.

2

18 THINGS TO KNOW BEFORE STARTING YOUR VEHICLE

4. Position the lap belt across your thighs, below your abdomen. If you need the lap portion tighter, pull up a bit on the shoulder part. A snug belt reduces the risk of sliding under the belt in a collision.



WARNING!

A lap belt worn too high can increase the risk of internal injury in a collision. The belt forces won't be at the strong hip and pelvic bones, but across your abdomen. Always wear the lap part of your seat belt as low as possible, and keep it snug.

5. Position the shoulder belt on your chest so that it is comfortable and not resting on your neck. The retractor will withdraw any slack in the belt.

WARNING!

A twisted belt can't do its job as well. In a collision it could even cut into you. Be sure your belt is straight. If you can't straighten a belt in your vehicle, take it to your dealer and have it fixed.

6. To release the belt, push the button on the buckle. The belt will automatically retract to its stowed position.

If necessary, slide the latch plate down the webbing to allow the belt to retract fully.

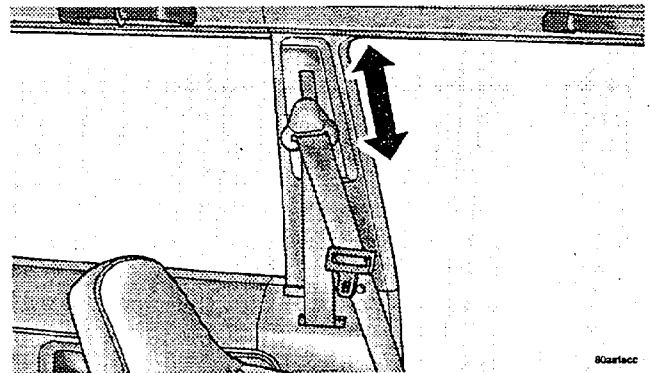
WARNING!

A frayed or torn belt could rip apart in a collision and leave you with no protection. Inspect your belts periodically, checking for cuts, frays, and loose parts. Damaged parts must be replaced immediately. Do not disassemble or modify the system. Seat belt assemblies must be replaced immediately after an accident if they have been damaged (bent retractor, torn webbing, etc.).

Adjustable Upper Shoulder Belt Anchorage

In the front seat the shoulder belt can be adjusted upward or downward to position the belt away from your neck. Push in on the anchorage and slide it up or down to reach to the position that serves you best.

2



As a guide, if you are shorter than average, you will prefer a lower position, and if you are taller than average, you'll prefer a higher position. When you release the turning loop, try to move it up or down to make sure that it is locked in position.

20 THINGS TO KNOW BEFORE STARTING YOUR VEHICLE

Rear Center Lap Belt

The rear center seating position has a lap belt only.

To fasten a lap belt, slip the latch plate into the buckle until it "clicks".

To lengthen the lap belt, tilt the latch plate and pull. To shorten the belt, pull the loose end of the webbing.

Wear the lap belt snug against the hips. Sit back and erect in the seat, then adjust the belt as tightly as is comfortable.

WARNING!

- A lap belt worn too loose or too high is dangerous. A belt worn too loose can allow you to slip down and under the belt in a collision. A belt that is too high will apply crash forces to the abdomen, not to the stronger hip bones. In either case, the risk of internal injuries is greater. Wear a lap belt low and snug.
- Belting two people into one seat belt can lead to greater injury. People belted together can crash into one another in an accident, hurting one another badly. Never use a belt for more than one person, no matter what their size.

Seat Belts And Pregnant Women

We recommend that pregnant women use seat belts throughout their pregnancies. Keeping the mother safe is the best way to keep the baby safe.

Pregnant women should wear the lap part of the belt across the thighs and as snug against the hips as possible. Keep the belt low so that it does not come across the abdomen. That way the strong bones of the hips will take the force if there is a collision.

Seat Belt Extender

If a seat belt is too short, even when fully extended, your dealer can provide you with a seat belt extender. This extender should be used only if the existing belt is not long enough. When it is not required, remove the extender and stow it.

WARNING!

Using a seat belt extender when not needed can increase the risk of injury in a collision. Only use when the lap belt is not long enough when it is worn low and snug, and in the recommended seating positions. Remove and stow when not needed.

2

Child Restraint

When we say that everyone in your vehicle needs to be buckled up all the time, we mean babies and children, too.

Every state in the United States and all Canadian provinces require small children to ride in proper restraint systems. This is the law, and you can be prosecuted for ignoring it.

WARNING!

In a collision, an unrestrained child, even a tiny baby, can become a missile inside the vehicle. The force required to hold even an infant on your lap could become so great that you could not hold the child, no matter how strong you are. The child and others could be badly injured. Any child riding in your vehicle should be in a proper restraint for the child's size.

Infants And Small Children

There are different sizes and types of restraints for children from newborn size to the bigger child almost large enough for an adult safety belt. Use the restraint that is correct for your child.

Two different child restraint systems are generally available.

- The infant carrier for babies weighing up to 20 lbs. (9 kg.)
- The child seat for small children over 20 lbs.

In addition, some manufacturers make systems that can be used first as an infant carrier, and then converted to a child seat as the child grows.

Here are some tips on getting the most out of your child restraint:

- Before buying any restraint system, make sure that it has a label certifying that it meets Motor Vehicle Safety Standard 213. We also recommend that before you buy a child restraint, you try it in the vehicle in the seats where you will use it.
- The restraint must be appropriate for your child's weight and height. Check the label on the restraint for this, too.
- If possible, install the restraint in the rear seat. According to accident statistics, children are safer when properly restrained in the rear seats rather than in the front.
- Carefully follow the instructions that come with the restraint. If you install the restraint improperly, it may not work when you need it.

WARNING!

- A rearward facing infant restraint should only be used in a rear seat. A rearward facing infant restraint in the front seat may be struck by a deploying passenger airbag which may cause severe or fatal injury to the infant.
- Improper installation can lead to failure of an infant or child restraint. It could come loose in a collision. The child could be badly injured or killed. Follow the manufacturer's directions exactly when installing an infant or child restraint.

- Infant and child restraints are secured in vehicle seats by the lap belt or the lap part of the lap/shoulder belt.

In the rear seat, you may have trouble tightening the belt on the child restraint because the buckle or latch plate interferes with the belt path opening on the restraint. Disconnect the latch plate from the buckle and twist the short buckle-end belt several turns to shorten it. Reassemble the latch plate to the buckle with the release button facing out.

In the front seat, move the seat forward to reposition the buckle against the side of the child restraint.

In the center rear seat, if the belt still can't be tightened or if pulling and pushing on the restraint loosens the belt, you may need to do something more. Disconnect the latch plate from the buckle, turn it over, and reconnect it to the buckle. If you still can't make the child restraint secure, try a different seating position.

- Buckle the child into the restraint exactly as the seat manufacturer's directions tell you. The cinching latch plate will keep the belt tight.
- When your infant carrier or child restraint is not in use, secure it with the seat belt or remove it from the vehicle. Don't leave it loose in the vehicle. In a sudden stop or collision it could strike occupants and injure them.
- Some child seat manufacturers recommend the use of a top anchorage (tether) strap in addition to the lap belt. Your vehicle has tether strap anchorages behind the rear seating positions for use with these child seats.

WARNING!

An incorrectly anchored tether strap could lead to seat failure and injury to the child. In a collision, the seat could come loose and allow the child to crash into the inside of the vehicle or other passengers, or even be thrown from the vehicle. Use only the specified anchor positions to secure a child restraint requiring top tether strap(s). Follow the instructions below. See your dealer for help if necessary.

Children Too Large For Child Seats

Children who are too large for child seats and who can sit upright by themselves should use the available lap/shoulder belts for best protection.

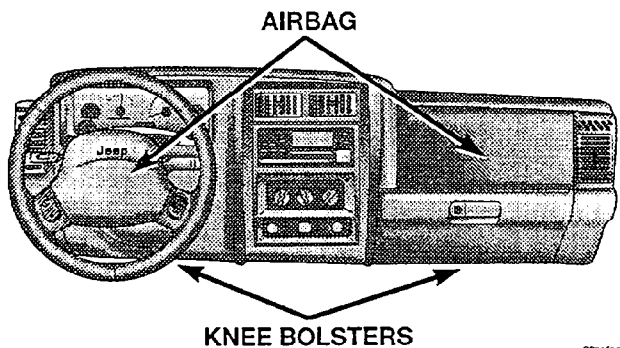
- Make sure that the child is seated upright in the seat.
- The lap belt should be fastened low on the hips and as snug as possible.
- Check belt fit periodically. A child's squirming or slouching can move the belt out of position.

If the shoulder belt contacts the face or neck, move the child closer to the middle of the vehicle. If this doesn't solve the problem, move the child to a rear seat lap belt.

Booster seats that may help overcome this problem are also available for use with lap/shoulder belts. Before buying a booster seat, make sure it has a label certifying that it meets applicable Motor Vehicle Safety Standards. Make sure it is satisfactory for use in this vehicle.

Driver And Right Front Passenger Supplemental Restraint System — Airbag

This vehicle has airbags for the driver and the right front passenger as a supplement to the seat belt restraint system. The driver's airbag is mounted in the steering wheel. The passenger side airbag is mounted in the instrument panel, above the glove compartment. These airbags inflate in higher speed impacts. They work with the instrument panel knee bolsters and the seat belts to provide improved protection for the driver and right front passenger.



WARNING!

- Relying on the airbag alone could lead to more severe injuries in a collision. The airbag works with your seat belt to restrain you properly. In some collisions the airbags won't deploy at all. Wear your seat belt even though you have an airbag.
- Being too close to the steering wheel or instrument panel during airbag deployment could cause serious injury. Airbags need room to inflate. Sit back, comfortably extending your arms to reach the steering wheel.
- Ignoring the AIRBAG light in your instrument panel could mean you won't have the airbags to protect you in a collision. If the light does not come on, stays on more than 6 to 8 seconds after you start the vehicle, or if it comes on as you drive, have the airbag system checked right away.
- The seat belt is designed to protect you in many types of collisions. The airbags deploy only in frontal collisions and will not deploy in collisions at slow speed. But even in collisions where the airbags do deploy, you need the seat belt to keep you in the right position for the airbags to protect you properly.

26 THINGS TO KNOW BEFORE STARTING YOUR VEHICLE

The airbag system consists of the following:

- A Crash Sensing/Diagnostic Computer
- AIRBAG Light
- Airbag/Inflator Unit (Driver & Passenger)
- Unique Steering Wheel And Column
- Interconnecting Wiring
- Knee Impact Bolsters

How The Airbag System Works

- A Crash Sensing Computer in the vehicle determines if a frontal impact is severe enough to require the airbags. The computer will not detect side, rollover, or rear impacts.

The computer monitors the readiness of the electronic parts of the system whenever the ignition switch is in the START or RUN position.

The computer also turns on the AIRBAG light in the instrument panel for 6 to 8 seconds when the ignition is first turned on, then turns the light off. If it detects a malfunction in any part of the system, it turns on the

light either momentarily or continuously. If the instrument cluster detects an airbag lamp failure it turns on the seat belt light either momentarily or continuously.

- The **Airbag/Inflator Units** are located in the center of the steering wheel for the driver and in the upper right side of the instrument panel for the front seat passenger. When the computer detects an impact requiring the airbags, it signals the inflator units. A large quantity of non-toxic nitrogen and/or argon gas is generated to inflate the airbag. The steering wheel hub trim cover and the upper right side of the instrument panel separate and fold out of the way as the bags inflate to their full size. The bags fully inflate in about 50-70 milliseconds. This is about half of the time it takes to blink your eyes. The bags then quickly deflate by venting the gas through pores in the airbag fabric toward the instrument panel. In this way the bags do not interfere with your control of the vehicle.

If A Deployment Occurs

The airbag system is designed to deploy when the impact sensor detects certain moderate-to-severe frontal collisions, and then immediately deflate.

NOTE: A frontal collision that is not severe enough to need airbag protection will not activate the system. This does not mean something is wrong with the airbag system.

If you do have a collision which deploys the airbag, any or all of the following may occur:

- The nylon airbag material may sometimes cause abrasions and/or skin reddening to the occupants as the airbag deploys and unfolds itself from the steering wheel and the upper right side of the instrument panel.

The abrasions are similar to friction rope burns or those you might get sliding along a carpet or gymnasium floor. They are not caused by contact with chemicals. They are not permanent and normally heal quickly. However, if you haven't healed significantly within a few days, or if you have any blistering, see your doctor immediately.

- As the airbag deflates you may see some smoke-like particles. The particles are a normal by-product of the process that generates the non-toxic nitrogen gas used

for airbag inflation. These airborne particles may irritate the skin, eyes, nose, or throat. If you have skin or eye irritation, rinse the area with cool water. For nose or throat irritation, move to fresh air. If the irritation continues, see your doctor.

If these particles settle on your clothing, follow the garment manufacturer's instructions for cleaning.

- Your vehicle may be driveable after the airbag deploys. If so, you can tuck the deployed airbag inside the opening in the steering wheel hub trim cover to make driving easier. You may tuck the passenger side airbag under the trim cover in the right side of the instrument panel.

WARNING!

A deployed airbag can't protect you in another collision. Have the airbag replaced by an authorized dealer as soon as possible.

Maintaining Your Airbag System

WARNING!

- Modifications to any part of the airbag system could cause it to fail when you need it. You could be injured because the airbag is not there to protect you. Do not modify the components, including adding any kind of badges or stickers to the steering wheel hub cover or the upper right side of the instrument panel. Do not modify the front bumper or vehicle body structure.
- You need proper knee impact protection in a collision. Do not mount or locate any aftermarket equipment on or behind the knee bolsters.
- It is dangerous to repair any part of the airbag system yourself. Don't try to repair any part of the airbag system. Be sure to tell anyone who works on your vehicle that it has an airbag system.

Airbag Light

You will want to have the airbag system ready to inflate for your protection in an impact. The airbag system is designed to be maintenance free. If any of the following occurs, have an authorized dealer service the system promptly:

- The AIRBAG light does not come on during the 6 to 8 seconds when the ignition switch is first turned on.
- The light remains on or flickers after the 6 to 8 second interval.
- The light flickers or comes on and remains on while driving.

NOTE: The previous mentioned conditions may be caused by a blown fuse. In this case the airbag system may not be ready to inflate for your protection. Promptly check fuse numbers 26 and 27 in the fuse panel. If a fuse needs to be replaced, do so only when the ignition key is in the OFF position. If fuses continue to blow, seek authorized service immediately.