7542

Report Number NCAP-TRC-97-004

New Car Assessment Program (NCAP)

Frontal Barrier Impact Test

Toyota Motor Corporation

1997 Toyota Tacoma

pickup truck

NHTSA Number: MV5107

TRC Test Number: 970224

Prepared By:

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10820 State Route 347

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March 20, 1997

Final Report

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16. Abstract

A 56 kph (35 mph) frontal load cell barrier impact test was conducted on a 1997 Toyota Tacoma pickup truck, NHTSA No. MV5107, at Transportation Research Center Inc. on February 24, 1997. This test was conducted in accordance with Office of Crashworthiness Standards NCAPTP090196 for the determination of vehicle crashworthiness. The barrier impact velocity was 56.3 kph. The vehicle's maximum static crush was 416 millimeters. The ambient temperature was 23° C.

The driver's Head Injury Criteria (HIC) was 1411. The driver's chest maximum resultant acceleration with three (3) milliseconds minimum duration was 68.2 g. The driver's maximum chest deflection was 39 millimeters. The driver's left and right femur maximum axial forces were 5411 N and 1933 N, respectively.

The passenger's HIC was 962. The passenger's chest maximum resultant acceleration with three (3) milliseconds minimum duration was 49.7 g. The passenger's maximum chest deflection was 56 millimeters. The passenger's left and right femur maximum axial forces were 3222 N and 3882 N, respectively.

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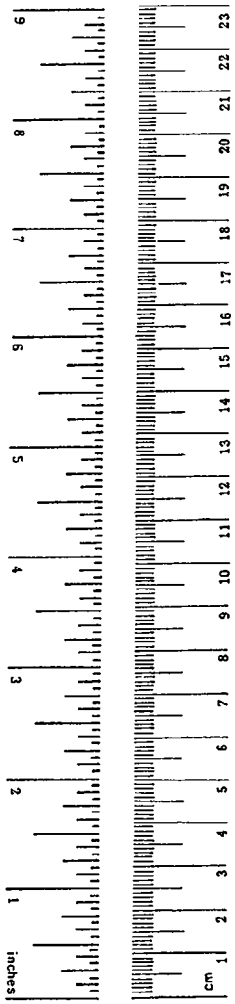
METRIC CONVERSION FACTORS

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

*1 in = 2.54 (exactly). For other exact conversions and more detailed tables, see NBS Misc. Publ. 286, Units of Weights and Measures, Price $2.25, SD Catalog No. C13.10:286.



Approximate Conversions from Metric Measures

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

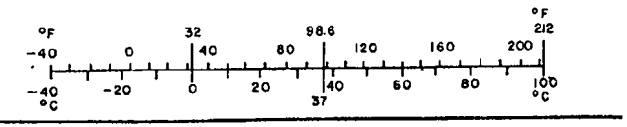


Table of Contents

Section	Description	Page
1.0	Purpose and Test Procedure	1-1
2.0	Frontal Barrier Impact Test Summary	2-1
3.0	FMVSS 212, 219 (partial), and 301 Data	3-1
4.0	Occupant, Camera, And Vehicle Information	4-1
Appendix A	Photographs	A-1
Appendix B	Data Plots	B-1
Appendix C	Dummy Certification Data	C-1
Appendix D	Miscellaneous Test Information	D-1
Appendix E	Restraint System Instructions From Owner's Manual	E-1

List of Tables

Number	Title	Page
1	Crash Test Summary	2-4
2	Test Vehicle Information	2-5
3	Post-Impact Data	2-8
4	Vehicle Accelerometer Locations and Data Summary	2-12
5	Post-Impact Dummy/Vehicle Data	2-13
6	FMVSS 208 Data Summary	2-14
7	Hybrid III Data Summary	2-15
8	Seat Belt Performance Assessment Test Data	2-18
9	Load Cell Barrier Data Summary	2-20
10	Fuel System Data	3-4
11	FMVSS 301 Post-Impact Test Data	3-5
12	Dummy Measurement Data for Front Seat Occupants	4-3
13	Motion Picture Camera Locations	4-7
14	Impacted Vehicle Measurements	4-10

List of Figures

Number	Title	Page
1	Impact Velocity Measurement System	2-9
2	Accident Investigation Division Data For 56 kph (35 mph) Frontal Barrier Impact	2-10
3	Vehicle Accelerometer Placement	2-11
4	Load Cell Barrier Configuration	2-19
5	FMVSS 212 Test Data	3-2
6	FMVSS 219 Test Data	3-3
7	FMVSS 301 Static Rollover Test Data	3-6
8	Dummy Measurement Locations For Front Seat Occupants	4-2
9	Seat Belt Positioning Data	4-4
10	Camera Positions	4-5
11	Vehicle Target Locations	4-8
12	Pre-Test and Post-Test Measurement Points	4-9
13	Vehicle Intrusion Measurements, Static Footwell Deformation	4-11
14	Vehicle Intrusion Measurements, Door Opening Width	4-12
15	Vehicle Intrusion Measurements, Static Passenger Compartment Intrusion	4-13

List of Photographs

Figure A-1 Pre-Test Front View
Figure A-2 Post-Test Front View
Figure A-3 Pre-Test Left Side View
Figure A-4 Post-Test Left Side View
Figure A-5 Pre-Test Rear View
Figure A-6 Post-Test Rear View
Figure A-7 Pre-Test Right Side View
Figure A-8 Post-Test Right Side View
Figure A-9 Pre-Test Right Front Three-Quarter View
Figure A-10 Post-Test Right Front Three-Quarter View
Figure A-11 Pre-Test Left Rear Three-Quarter View
Figure A-12 Post-Test Left Rear Three-Quarter View
Figure A-13 Pre-Test Windshield View
Figure A-14 Post-Test Windshield View
Figure A-15 Pre-Test Engine Compartment View
Figure A-16 Post-Test Engine Compartment View
Figure A-17 Pre-Test Fuel Filler Cap View
Figure A-18 Post-Test Fuel Filler Cap View
Figure A-19 Pre-Test Fuel Filler Neck View
Figure A-20 Post-Test Fuel Filler Neck View
Figure A-21 Pre-Test Fuel Tank View
Figure A-22 Post-Test Fuel Tank View
Figure A-23 Pre-Test Front Underbody View
Figure A-24 Post-Test Front Underbody View
Figure A-25 Pre-Test Rear Underbody View
Figure A-26 Post-Test Rear Underbody View
Figure A-27 Pre-Test Driver's Knee Bolster View
Figure A-28 Pre-Test Passenger's Knee Bolster View

List Of Photographs, Cont'd.

Figure A-29 Pre-Test Steering Column View
Figure A-30 Post-Test Steering Column View
Figure A-31 Pre-Test Driver Dummy Position View
Figure A-32 Post-Test Driver Dummy Position View
Figure A-33 Pre-Test Passenger Dummy Position View
Figure A-34 Post-Test Passenger Dummy Position View
Figure A-35 Pre-Test Driver Dummy & Vehicle Interior - View 1
Figure A-36 Post-Test Driver Dummy & Vehicle Interior - View 1
Figure A-37 Pre-Test Driver Dummy & Vehicle Interior - View 2
Figure A-38 Post-Test Driver Dummy & Vehicle Interior - View 2
Figure A-39 Pre-Test Passenger Dummy & Vehicle Interior - View 1
Figure A-40 Post-Test Passenger Dummy & Vehicle Interior - View 1
Figure A-41 Pre-Test Passenger Dummy & Vehicle Interior - View 2
Figure A-42 Post-Test Passenger Dummy & Vehicle Interior - View 2
Figure A-43 Post-Test Driver Dummy Head Contact - View 1
Figure A-44 Post-Test Driver Dummy Head Contact - View 2
Figure A-45 Post-Test Driver Dummy Head Contact - View 3
Figure A-46 Post-Test Driver Dummy Knee Contact - View 1
Figure A-47 Post-Test Driver Dummy Knee Contact - View 2
Figure A-48 Post-Test Passenger Dummy Head Contact View
Figure A-49 Post-Test Passenger Dummy Knee Contact - View 1
Figure A-50 Post-Test Passenger Dummy Knee Contact - View 2
Figure A-51 Pre-Test Vehicle Certification Label View
Figure A-52 Post-Test Vehicle On Static Rollover Machine View

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 Toyota Tacoma pickup truck, NHTSA Number MV5107, 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 third use of the driver dummy and the second 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 February 24, 1997.

The test vehicle, a 1997 Toyota Tacoma pickup truck, NHTSA Number MV5107, was equipped with a 2.4-liter inline engine, manual transmission, power steering, and power brakes. The vehicle's test weight was 1575 kg. The vehicle's impact speed was 56.3 kph. The vehicle sustained 416 mm of static crush during the impact.

The driver's Head Injury Criteria (HIC) was 1411. The driver's chest maximum resultant acceleration with three (3) milliseconds minimum duration was 68.2 g. The driver's maximum chest deflection was 39 mm. The driver's left and right femur maximum axial forces were 5411 N and 1933 N, respectively.

The right front passenger's HIC was 962. The passenger's chest maximum resultant acceleration with three (3) milliseconds minimum duration was 49.7 g. The passenger's maximum chest deflection was 56 mm. The passenger's left and right femur maximum axial forces were 3222 N and 3882 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 driver's seat belt extension potentiometer, SBED1, lost data between 72 and 80 milliseconds.

The engine bottom X-axis accelerometer, ENGXG2, lost data after 59 milliseconds due to the vehicle's crush cutting the accelerometer's cable.

The load cell barrier positions B4 and B7 load cells did not return to zero following the crash test event. This affected the load cell barrier's 2 and 3 group totals and grand total calculations.

The driver right lower tibia Z-axis force load cell, ANRZF1, recorded a spike at 37 milliseconds which exceeded the load cell's full scale capacity.

The driver's seat belt went out of view due to vehicle deformation causing motion of the driver's seat belt spoolout camera mount.

Table 1 Crash Test Summary

NHTSA number:	MV5107	
Test type:	Frontal Load Cell Barrier	
Test date:	02/24/97	
Test time:	1544	
Ambient temperature:	23° C	
Vehicle year/make/ model/body style:	1997/Toyota/Tacoma/pickup truck	
Vehicle test weight:	1575 kg	
Impact angle[1]:	0°	
Impact velocity[2]:	Primary = 56.3 kph Secondary = 56.3 kph	
Maximum static crush:	416 mm	
Average rebound:	271 mm	
Dummies:	Driver #192	Passenger #142
Type:	Part 572 E	Part 572 E
Location:	Left front	Right front
Restraint:	Airbag and 3-point unibelt	Airbag and 3-point unibelt
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/Toyota/Tacoma/pickup truck
Color:	White
VIN:	4TAVL52N7VZ230152
NHTSA number:	MV5107
Engine data:	
Placement:	inline
Cylinders:	4
Displacement	2.4 liters
Transmission data:	_5_speed, _X_manual, ___automatic, ___overdrive
	___FWD, _X_RWD, ___4WD
Date vehicle received:	01/20/97
Odometer reading:	76
Dealer's name and address:	Germain Toyota of Columbus 5777 Scarborough Blvd. Columbus, OH 43232

Accessories:

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

Certification data from vehicle's label:

Vehicle manufactured by:	TABC, Inc.
Date of manufacture:	09/96
VIN:	4TAVL52N7VZ230152
GVWR:	4500 lbs.
GAWR: Front:	2200 lbs.
Rear:	2500 lbs.

Table 2 Test Vehicle Information, Cont'd.

Size of tires:	P215/70R14
Tire pressure with maximum capacity vehicle load:	
Front:	35 psi
Rear:	35 psi
Spare tire:	
Type of front seats:	Split bench

Tire & capacity data from vehicle's label:

Recommended tire size:	P215/70R14
Recommended cold tire pressure:	
Front:	29 psi
Rear:	29 psi

Designated seating capacity:

Front	NA
Rear	NA
Total	NA

Vehicle capacity weight: NA

Test vehicle attitude:

Delivered attitude:	LF 720 mm;	RF 725 mm;	LR 765 mm;	RR 763 mm
Pre-test attitude:	LF 704 mm;	RF 712 mm;	LR 716 mm;	RR 725 mm
Post-test attitude:	LF 705 mm;	RF 759 mm;	LR 738 mm;	RR 758 mm

Table 2 Test Vehicle Information Cont'd

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

Right front	355	kg	Right rear	277	kg
Left front	387	kg	Left rear	273	kg
Total front weight	742	kg	(57.4% of total vehicle weight)		
Total rear weight	550	kg	(42.6% of total vehicle weight)		
Total delivered weight	1292	kg			

Calculation of test vehicle's target test weight:

RCLW[1] = Rated cargo and luggage weight

GVWR = Gross Vehicle Weight Rating (2041 kg)

UDW = Unloaded delivered weight (1292 kg)

VCW = Vehicle capacity weight = GVWR - UDW = 2041 - 1292 = 749 kg

DSC = Designated seating capacity (4)

RCLW[1] = GVWR - UDW - 68 (DSC) = 2041 - 1292 - 68(4) = 477 kg

Target test weight = UDW + RCLW[1] + (Number of Hybrid III dummies x 76 kg/dummy)

Target test weight = 1292 + 136 + 152 = 1580 kg

Target test weight = 1580 kg

Weight of test vehicle with required dummies and 131 kg of cargo weight:

Right front	387	kg	Right rear	377	kg
Left front	421	kg	Left rear	390	kg
Total front weight	808	kg	(51.3% of total vehicle weight)		
Total rear weight	767	kg	(48.7% of total vehicle weight)		
Total test weight	1575	kg	(0.3% under target test weight)		

Weight of ballast secured in vehicle: 0 kg

Components removed to meet target test weight: tail light, bumper, trim

CG rearward of front wheel centerline: 1509 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:	970224
NHTSA number:	MV5107
Test date:	02/24/97
Test time:	1544
Test type:	Frontal load cell barrier
Impact angle:	0°
Ambient temperature at impact area:	23° C
Temperature in occupant compartment:	20° C
Impact velocity:	
Primary	56.3 kph
Secondary	56.3 kph
Specified range	55.5 to 57.1 kph

Distance from vehicle to barrier:

Entering velocity trap	356 mm
Exiting velocity trap	51 mm

Test vehicle static crush:

Overall length of test vehicle:

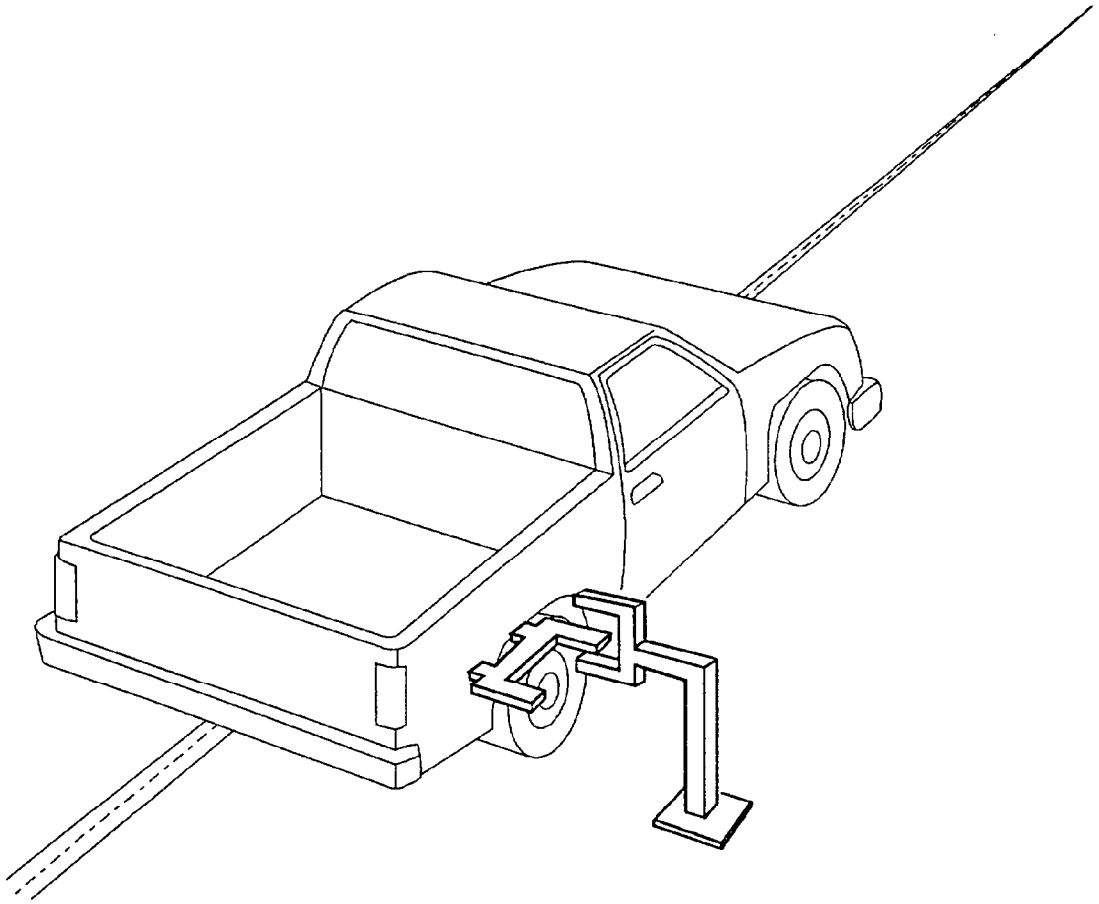
Pre-test:	L	4955 mm;	C	5058 mm;	R	4956 mm
Post-test:	L	4590 mm;	C	4642 mm;	R	4580 mm
Total crush:	L	365 mm;	C	416 mm;	R	376 mm
Average crush:	385 mm					

Test vehicle rebound from flat barrier:

Distance from test vehicle to barrier:

Post-test:	L	289 mm;	C	246 mm;	R	278 mm
Average rebound	271 mm					

Figure 1 Impact Velocity Measurement System

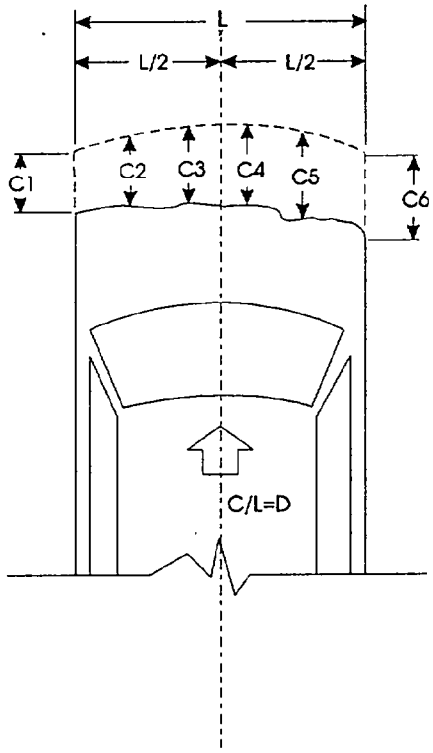


The final vane clears the final emitter/receiver pair 51 millimeters before impact.

The vanes have 305-millimeter spacing.

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

NHTSA number:	MV5107
Test date:	02/24/97
Vehicle year/make/ model/body style:	1997/Toyota/Tacoma/pickup truck
Vehicle size category:	Small pickup
VIN:	4TAVL52N7VZ230152
Build date:	09/96
Test weight:	1575 kg
Vehicle wheelbase:	3098 mm
Maximum width:	1670 mm
Front overhang:	705 mm



Collision Deformation Classification (CDC) code: 12FDEW2

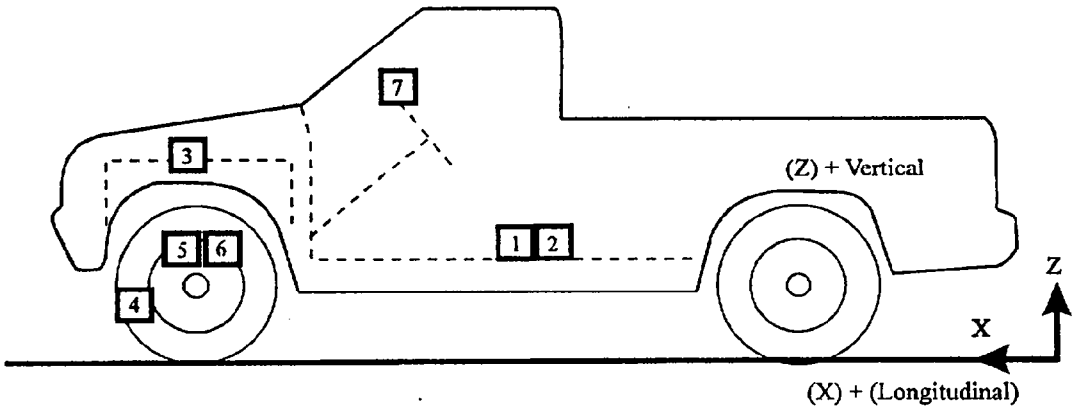
Crush depth measurements:

C1	=	365 mm
C2	=	408 mm
C3	=	415 mm
C4	=	405 mm
C5	=	412 mm
C6	=	376 mm

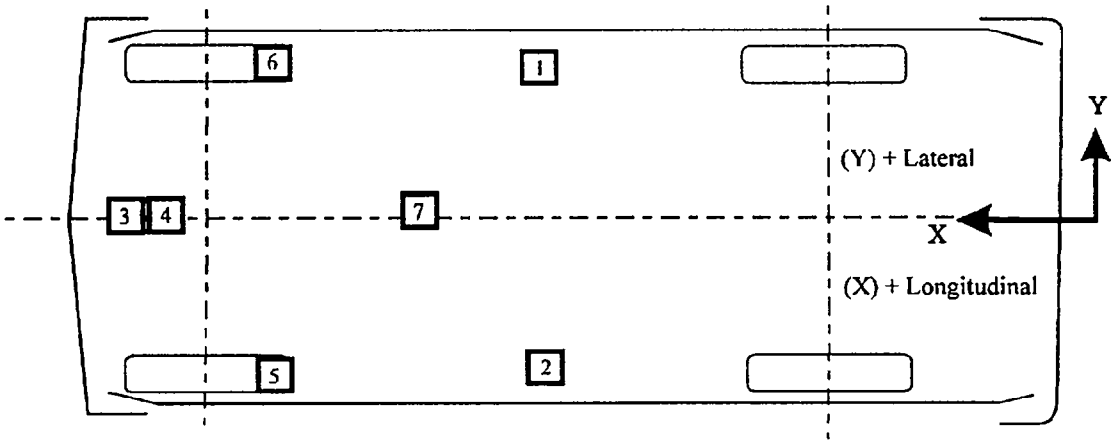
Midpoint of damage: D: Vehicle Longitudinal Centerline

Length of damaged region: L: 1524 mm

Figure 3 Vehicle Accelerometer Placement



Side View



Bottom View

Table 4 Vehicle Accelerometer Locations and Data Summary

TEST NUMBER: 970224 No. LOCATION	X	Y	Z	POSITIVE DIRECTION		NEGATIVE DIRECTION	
1 LEFT REAR SEAT CROSSMEMBER	2472 mm	620 mm	544 mm				
LONGITUDINAL				16.8 g	@ 20.2 ms	86.9 g	@ 15.8 ms
REDUNDANT				15.2 g	@ 20.2 ms	85.2 g	@ 15.8 ms
2 RIGHT REAR SEAT CROSSMEMBER	2472 mm	-630 mm	544 mm				
LONGITUDINAL				11.4 g	@ 21.4 ms	84.5 g	@ 16.6 ms
REDUNDANT				13.4 g	@ 21.4 ms	87.5 g	@ 16.6 ms
3 ENGINE TOP	4598 mm	-45 mm	866 mm				
LONGITUDINAL				56.6 g	@ 31.4 ms	194.4 g	@ 23.2 ms
4 ENGINE BOTTOM	4515 mm	22 mm	209 mm				
LONGITUDINAL[1]				---	---	---	---
5 RIGHT BRAKE CALIPER	4204 mm	-664 mm	359 mm				
LONGITUDINAL				80.1 g	@ 47.4 ms	124.1 g	@ 11.4 ms
6 LEFT BRAKE CALIPER	4192 mm	663 mm	359 mm				
LONGITUDINAL				97.2 g	@ 50.0 ms	183.4 g	@ 33.0 ms
7 INSTRUMENT PANEL CENTER	3681 mm	-40 mm	1102 mm				
LONGITUDINAL				16.3 g	@ 98.1 ms	59.0 g	@ 21.5 ms

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

[1] See DATA ACQUISITION EXPLANATIONS

Table 5 Post-Impact Dummy/Vehicle Data

Visible Dummy Contact Points:

	Driver #192	Passenger #142
Head	Airbag, head restraint	Chest, head restraint
Chest	Airbag	None
Abdomen	Lower steering wheel rim	None
Left knee	Instrument panel	Instrument panel
Right knee	Instrument panel	Instrument panel

Door Opening:

	Left	Right
Front	Easy	Easy
Rear	NA	NA

Seat Movement:

	Seat Back Failure	Seat Shift
Front	Driver's seat back rotated rearward	None
Rear	NA	NA

Glazing Damage: None

Other Notable Impact Effects: None

Table 6 FMVSS 208 Data Summary

Vehicle year/make/
model/body style: 1997/Toyota/Tacoma/pickup truck

Vehicle NHTSA number: MV5107

Test date: 02/24/97

	Driver Dummy #192		Passenger Dummy #142	
Maximum Accelerations:				
Head X-axis	-97.2	g	-49.6	g
Head Y-axis	8.6	g	-5.7	g
Head Z-axis	-36.0	g	-65.3	g
Head resultant	98.4	g	69.7	g
Chest X-axis	-73.3	g	-50.5	g
Chest Y-axis	9.5	g	7.0	g
Chest Z-axis	-18.8	g	-15.1	g
Chest resultant[1]	68.2	g	49.7	g
Chest resultant time interval[1]	.003	sec	.003	sec
Head Injury Criteria (HIC) Values:				
HIC[2]	1411		962	
HIC starting time	.046	sec	.056	sec
HIC ending time	.076	sec	.092	sec
Average head resultant acceleration during HIC time interval	73.7	g	59.0	g
Maximum Chest Deflections:				
Chest X-axis	39	mm	56	mm
Maximum chest deflection time	.056	sec	.079	sec
Maximum Compressive Femur Forces:				
Left femur	5411	N	3222	N
Right femur	1933	N	3882	N
Maximum Seat Belt Forces:				
Lap belt	7613	N	7442	N
Shoulder belt	7875	N	8576	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/Toyota/Tacoma/pickup truck

Vehicle NHTSA number: MV5107

Test date: 02/24/97

	Driver Dummy #192	Passenger Dummy #142
Maximum Forces		
Neck X-axis shear force	355 N	1742 N
Neck Y-axis shear force	-259 N	332 N
Neck Z-axis axial force	3453 N	2723 N
Maximum Moments		
Neck moment about X-axis	-19.2 N·m	-16.3 N·m
Neck moment about Y-axis	-31.9 N·m	112.4 N·m
Neck moment about Z-axis	8.6 N·m	4.2 N·m
Maximum Accelerations:		
Pelvis X-axis	-75.4 g	-66.3 g
Pelvis Y-axis	19.0 g	10.7 g
Pelvis Z-axis	18.1 g	24.6 g
Pelvis resultant	76.6 g	68.5 g

Table 7 Hybrid III Data Summary, Cont'd.

Vehicle year/make/
model/body style: 1997/Toyota/Tacoma/pickup truck

Vehicle NHTSA number: MV5107

Test date: 02/24/97

	Driver Dummy #192	Passenger Dummy #142
Left upper tibia moment about X-axis	-83.9 N·m	-82.7 N·m
Left upper tibia moment about Y-axis	130.4 N·m	196.6 N·m
Right upper tibia moment about X-axis	92.4 N·m	67.1 N·m
Right upper tibia moment about Y-axis	275.1 N·m	-118.4 N·m
Left lower tibia X-axis force	-873 N	-1800 N
Left lower tibia Z-axis force	-4644 N	-4098 N
Left lower tibia moment about Y-axis	30.8 N·m	111.4 N·m
Right lower tibia X-axis force	-2324 N	1233 N
Right lower tibia Z-axis force[1]	-8902 N	-3432 N
Right lower tibia moment about Y-axis	104.1 N·m	-104.9 N·m
Left foot X-axis acceleration	-91.2 g	-206.2 g
Left foot Z-axis acceleration at heel	-147.9 g	-213.6 g
Left foot Z-axis acceleration at toe	244.2 g	-240.7 g
Right foot X-axis acceleration	-293.5 g	-107.3 g
Right foot Z-axis acceleration at heel	272.3 g	-95.1 g
Right foot Z-axis acceleration at toe	709.8 g	-141.4 g

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

[1] See Data Acquisition Explanations

Dummy Kinematic Summary

Driver Dummy

Upon impact, the driver dummy translated forward on the seat impacting both knees into the instrument panel. The dummy's head and chest were restrained by the driver's airbag as the dummy's torso was restrained by the three-point unibelt. 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 unibelt.

Right Front Passenger Dummy

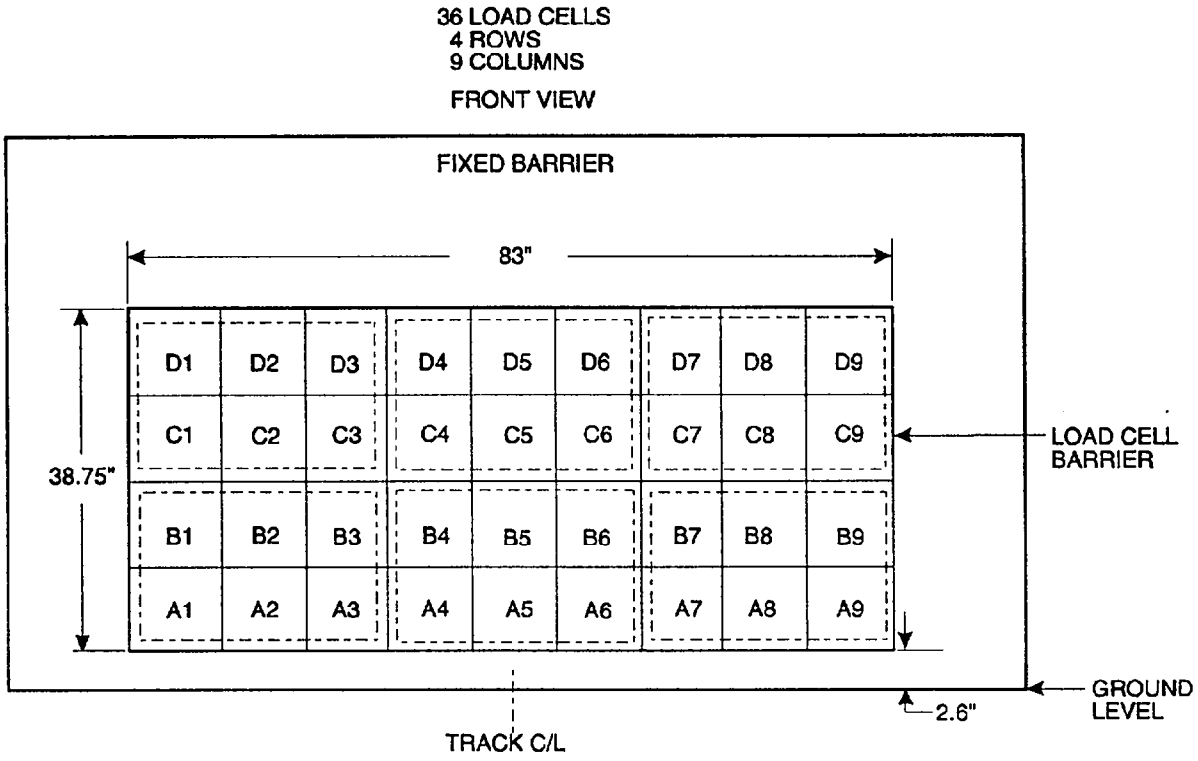
Upon impact, the right front passenger dummy translated forward on the seat impacting both knees into the instrument panel. The dummy's head rotated forward, hitting the dummy's chest, as the dummy's torso was restrained by the three-point unibelt. The dummy's head rotated rearward into the head restraint as the dummy rebounded into the seat back. The dummy then rose up and settled back down into the seat. The dummy came to rest seated upright in the right front passenger's seat.

Table 8 Seat Belt Performance Assessment Test Data

	Driver 192	Passenger 142
Belt length data:		
Belt length from trim panel exit to bolt hole anchor point for continuous webbing systems.	2972 mm	2956 mm
Shoulder belt length as measured on Part 572 dummy.	875 mm	920 mm
Lap belt length as measured on Part 572 dummy.	944 mm	965 mm
Shoulder belt spool-off length:		
As determined by film analysis[1]	33 mm	48 mm
As determined mechanically	41 mm	47 mm
As determined electronically	58 mm	53 mm
Belt stretch length:		
As measured mechanically	0 mm/m	0 mm/m
As measured electronically[1]	0 mm/m	50 mm/m
Retractor lock-up time:		
As determined by shoulder belt spool-off	57 ms	80 ms

[1] See Data Acquisition Explanations.

Figure 4 Load Cell Barrier Configuration



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

Table 9 Load Cell Barrier Data Summary

Location	Positive direction					Negative direction				
Total group 1	0.4	kN	@	0.1	ms	46.2	kN	@	9.7	ms
Total group 2 [1,2]	----	kN	@	----	ms	272.9	kN	@	29.3	ms
Total group 3 [1]	3.5	kN	@	0.3	ms	174.2	kN	@	9.7	ms
Total group 4	0.4	kN	@	0.9	ms	63.2	kN	@	21.4	ms
Total group 5	0.1	kN	@	278.1	ms	295.2	kN	@	23.1	ms
Total group 6	0.4	kN	@	229.7	ms	43.1	kN	@	19.4	ms
Total load cell force [1,2]	----	kN	@	----	ms	808.9	kN	@	23.1	ms

Tension is positive
Compression is negative

[1] See Data Acquisition Explanations
[2] No positive value in time frame of interest.

Section 3.0

FMVSS 212, 219 (partial), and 301 Data

Figure 5 FMVSS 212 Test Data

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

Plastic trim around outer perimeter, adhesive around inner perimeter.

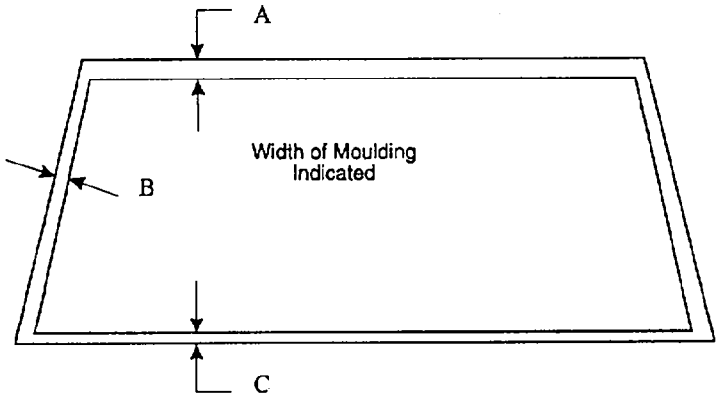
FMVSS 212 requirements: The post-test periphery retention amount must be at least 75% of the pre-test periphery measurement for vehicles NOT equipped with automatic restraints, and 50% for each side of windshield for vehicles equipped with automatic restraint systems for front occupants.

Windshield periphery measurements:

	Pre-test	Post-test	Percent retention
Right side	1855 mm	1855 mm	100
Left side	1855 mm	1855 mm	100
Total	3710 mm	3710 mm	100

Pre-test windshield mounting material temperature: 20° C

A = 17 mm
B = 17 mm
C = 20 mm



Front view of windshield[1]

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 = 1140 mm

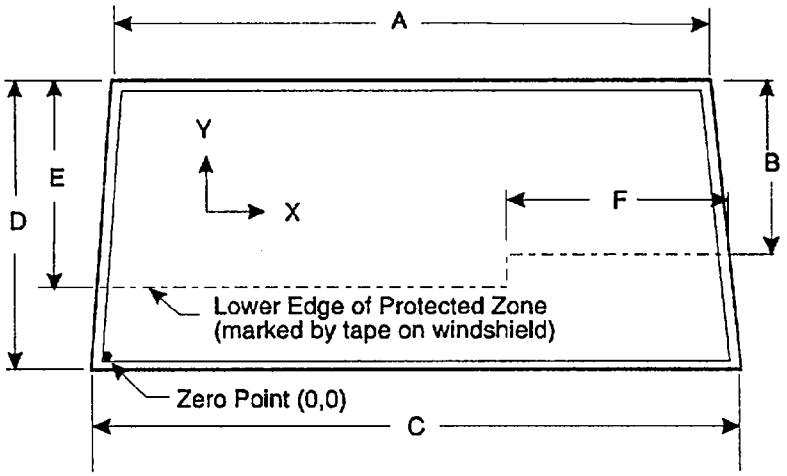
B = 381 mm

C = 1414 mm

D = 635 mm

E = 395 mm

F = 531 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/Toyota/Tacoma/pickup truck
NHTSA number:	MV5107
Fuel system capacity:	57.0 liters (from owner's manual)
Usable capacity:	56.4 liters (furnished by COTR)
Test volume range:	51.9 liters to 53.0 liters (92-94% of usable)
Actual test volume:	53.0 liters (with entire fuel system filled)
Test fluid type:	Stoddard solvent
Specific gravity:	0.764
Kinematic viscosity:	0.99 centistoke
Test fluid color:	Purple
Did electric fuel pump operate with ignition switch "on" and the engine not operating.	No
Details of fuel system:	The fuel tank was located in front of the rear axle between the left frame rail and the driveshaft. The fuel filler neck was located on the left side. The fuel lines ran along the left frame rail to the engine compartment.

Table 11 FMVSS 301 Post-Impact Test Data

NHTSA number: MV5107

Test date: 02/24/97

Vehicle year/make/ model/body style: 1997/Toyota/Tacoma/pickup truck

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:

_x_ Frontal (_56_ kph)

___ Oblique (48 kph) with __° barrier face first contacting ___ (driver/pass.) side

___ Rear moving barrier (48 kph)

___ Lateral moving barrier (32 kph)

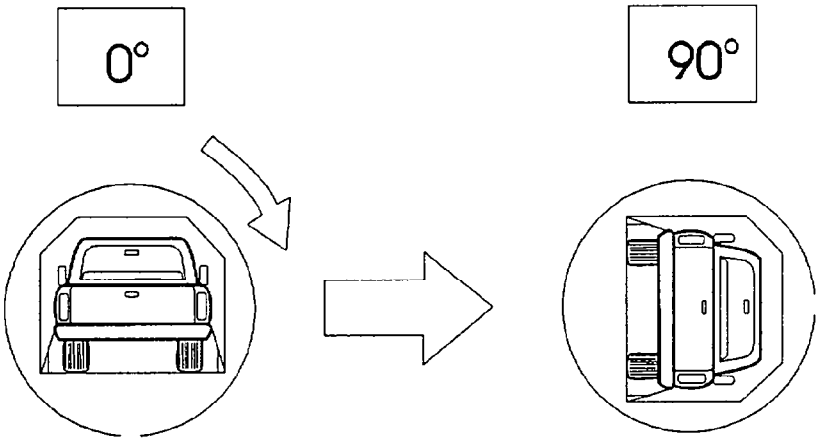
Fuel system fluid spillage measurements:

		Test Results	Maximum Allowable
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: MV5107
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	

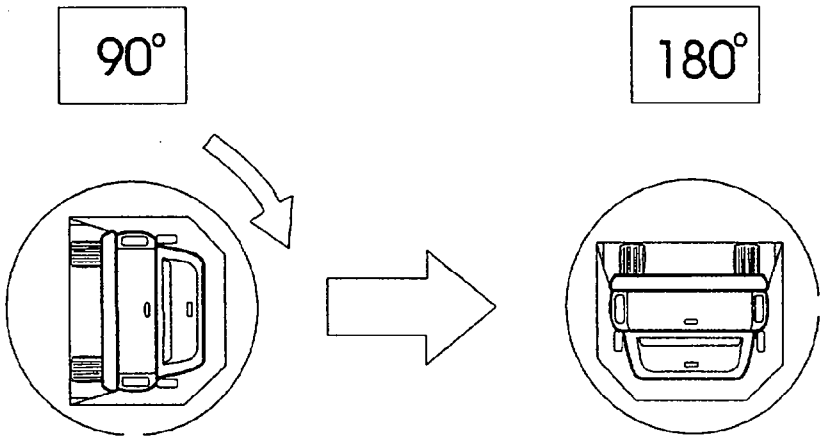
Fuel system fluid spillage measurements:

0° to 90° rotation (fuel filler cap down)	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	=	14	minutes		

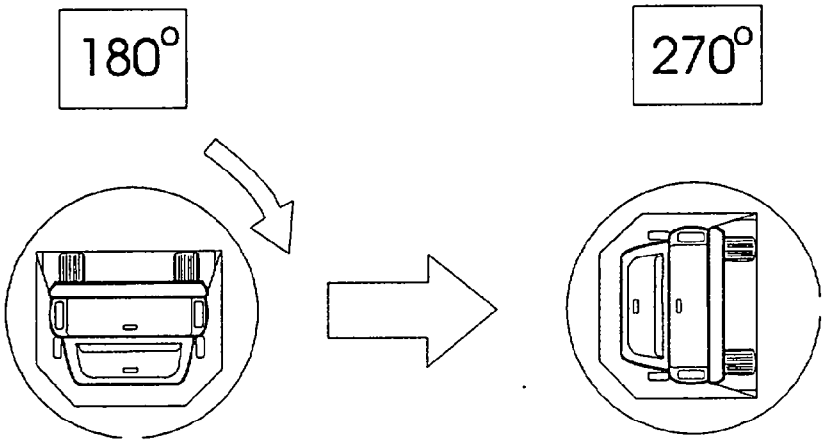
Fuel system fluid spillage measurements:

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	

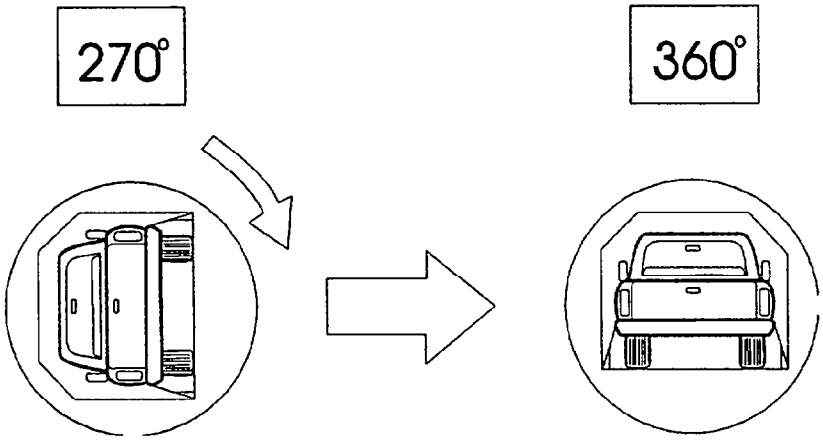
Fuel system fluid spillage measurements:

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:

270° to 360° 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

Section 4.0

Occupant, Camera, and Vehicle Information

Figure 8 Dummy Measurement Locations for Front Seat Occupants

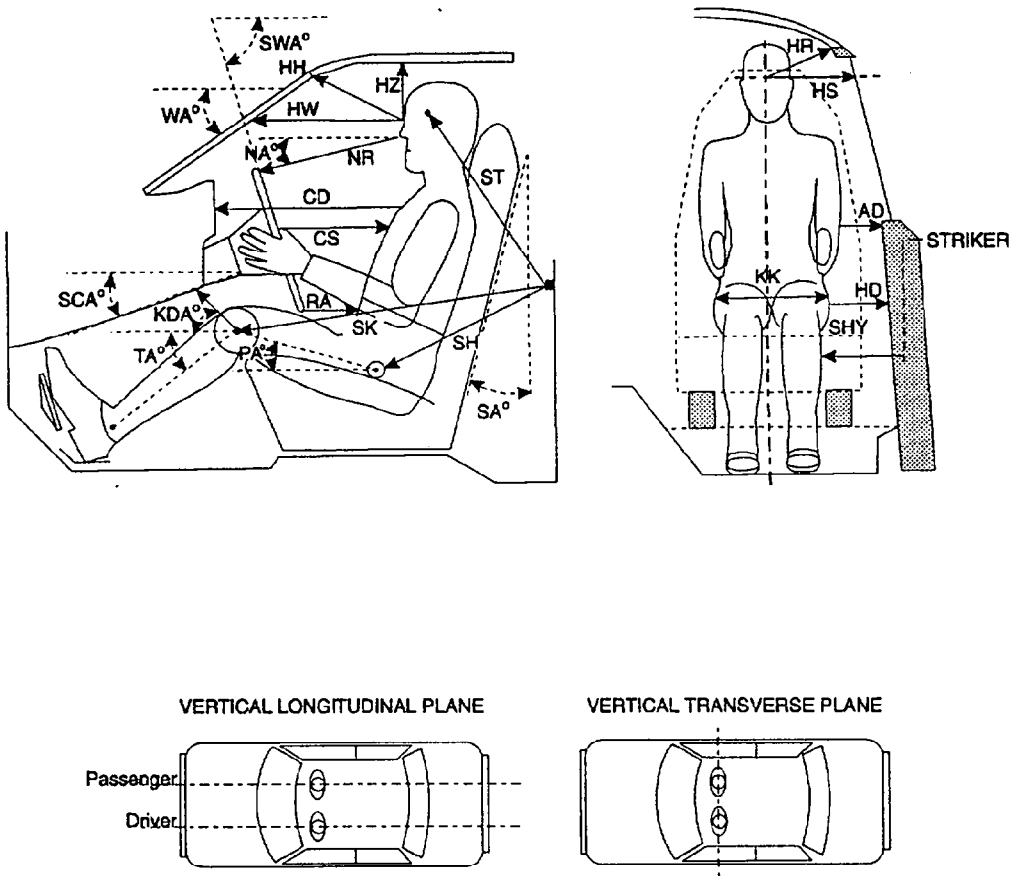


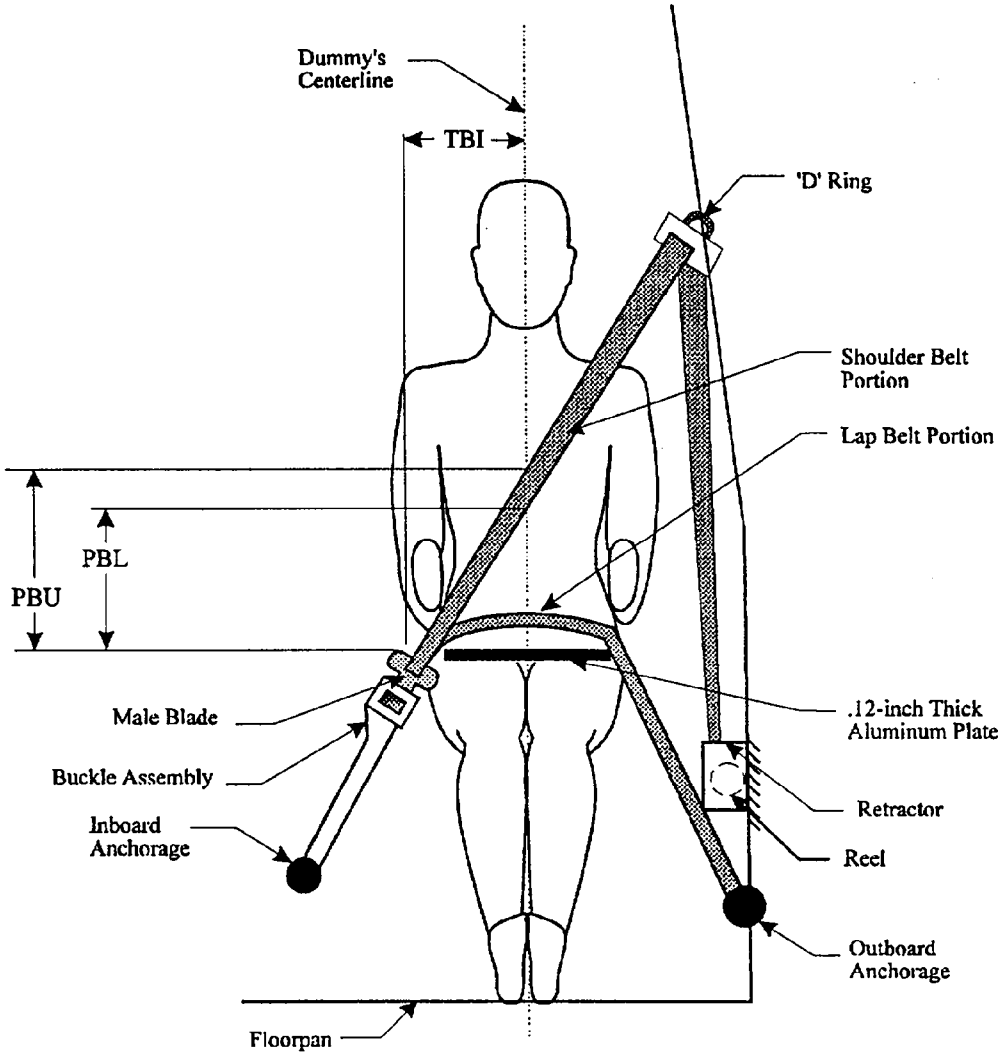
Table 12 Dummy Measurement Data For Front Seat Occupants

Designation	Type of Measurement	Driver (Serial #192)	Passenger (Serial #142)
WA	Windshield angle	39°	39°
SWA	Steering wheel angle	64°	NA
SCA	Steering column angle	26°	NA
SA	Seat back angle	28°	28°
HZ	Head to roof	190 mm	197 mm
HH	Head to header	392 mm	380 mm
HW	Head to windshield	523 mm	505 mm
HR	Head to side header	232 mm	213 mm
NR	Nose to rim	406 mm	NA
NA	Nose to rim angle	11°	NA
CD	Chest to dash	574 mm	552 mm
CS	Steering wheel to chest	328 mm	NA
RA	Rim to abdomen	202 mm	NA
KDL	Left knee to dash	224 mm	197 mm
KDR	Right knee to dash	230 mm	194 mm
KDA	Outboard knee to dash angle	31°	30°
PA	Pelvic angle	21°	23°
TA	Tibial angle	30°	33.5°
KK	Knee to knee	351 mm	273 mm
ST[1]	Striker to head	571 mm	548 mm
	Striker to head angle	-68.5°	-63°
SK[1]	Striker to knee	691 mm	723 mm
	Striker to knee angle	3°	1°
SH[1]	Striker to H-point	349 mm	359 mm
	Striker to H-point angle	20°	16°
SHY	Striker to H-point (Y dir.)	220 mm	212 mm
HS	Head to side window	293 mm	270 mm
HD	H-point to door	178 mm	153 mm
AD	Arm to door	101 mm	93 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 192	Passenger 142
PBU - Top surface of aluminum plate to belt upper edge	339 mm	321 mm
PBI - Top surface of aluminum plate to belt lower edge	248 mm	237 mm
TBI - Dummy centerline to intersection of upper torso belt and lap belt	242 mm	271 mm

Figure 10 Camera Positions

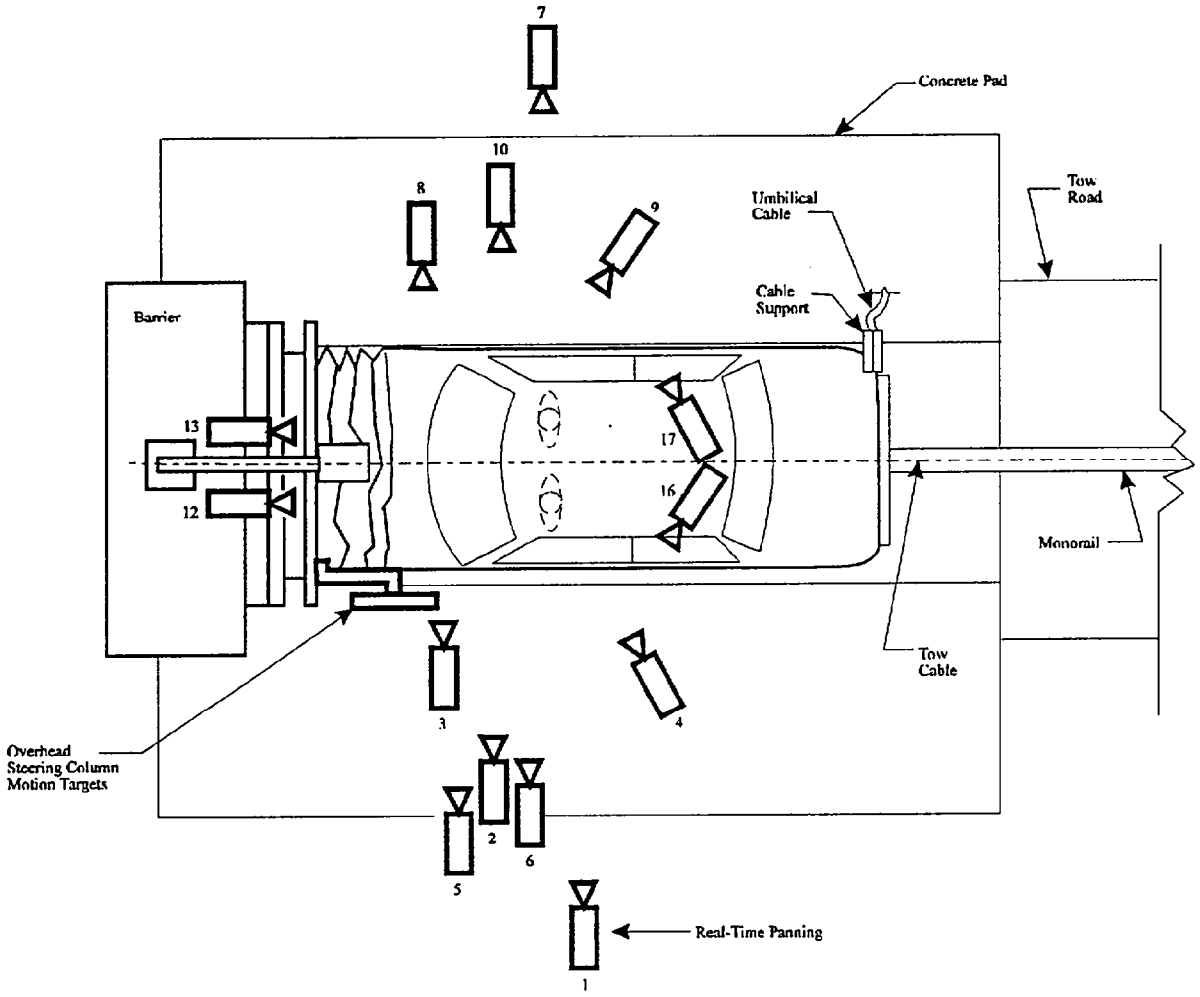


Figure 10 Camera Positions, Cont'd.

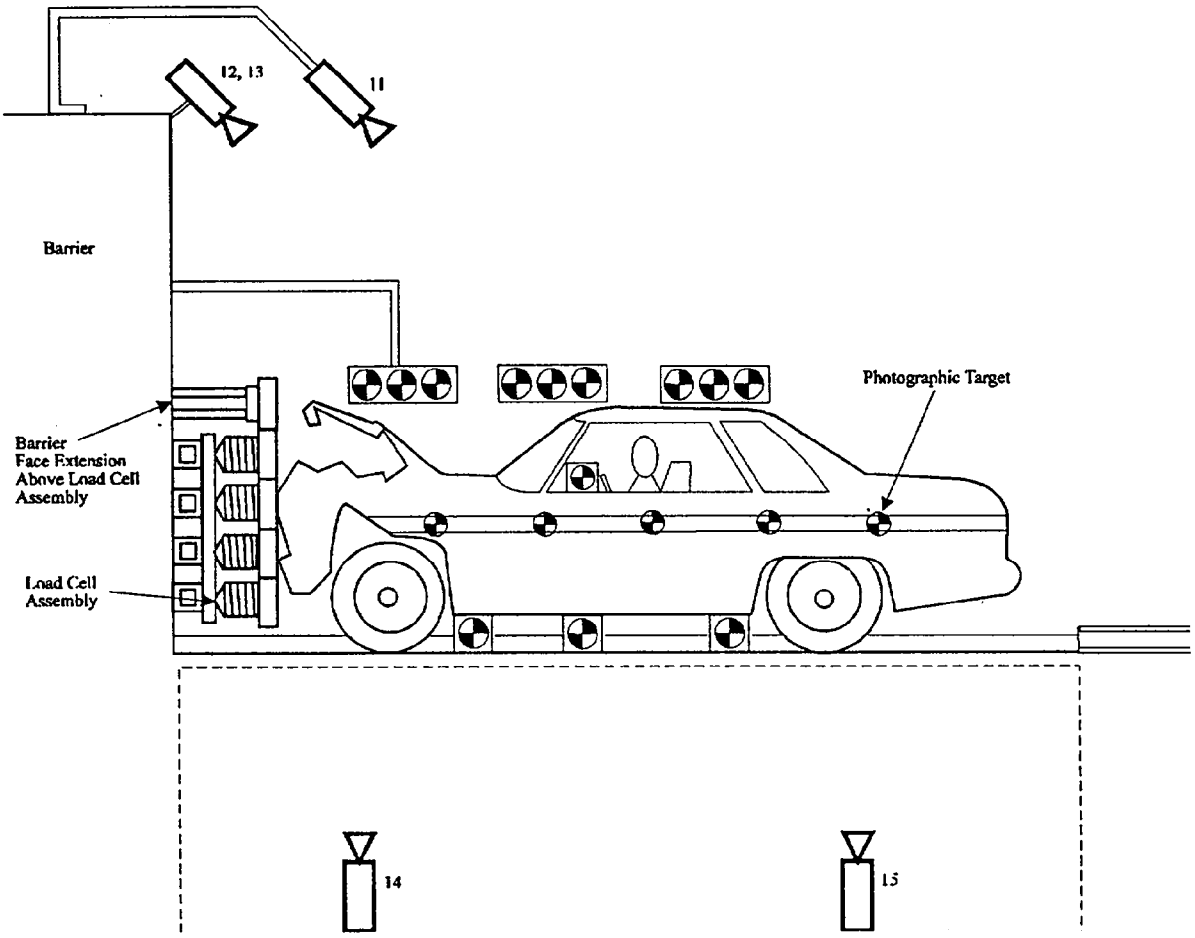


Table 13 Motion Picture Camera Locations

Test Number: 970224

Vehicle Year/Make/Model/Body Style: 1997/Toyota/Tacoma/pickup truck

Camera Number	View	Camera Positions[1] X	Y	Z	Angle[2]	Film Plane to Head Target	Lens	Film Speed
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	7315 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	2743 mm	1118 mm	-12°	2134 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	1002 frames/s
7	Right side overall	-2065 mm	-6767 mm	942 mm	-2°	NA	13 mm	1012 frames/s
8	Right windshield intrusion	-968 mm	-7775 mm	1118 mm	0°	NA	50 mm	1000 frames/s
9	Passenger angled view	-986 mm	-2743 mm	1151 mm	7°	2134 mm	25 mm	1005 frames/s
10	Right medium tight	-4674 mm	-6096 mm	2540 mm	-26°	5486 mm	25 mm	1020 frames/s
11	Windshield - barrier center	-925 mm	0 mm	2489 mm	-40°	NA	13 mm	1025 frames/s
12	Driver - barrier view	-173 mm	368 mm	2159 mm	-41°	NA	17 mm	1002 frames/s
13	Passenger - barrier view	-114 mm	-351 mm	2159 mm	-40°	NA	17 mm	1000 frames/s
14	Crush & fluid spillage - front pit	-1283 mm	0 mm	-2347 mm	90°	NA	13 mm	992 frames/s
15	Fluid spillage - rear pit	-2522 mm	0 mm	-2515 mm	90°	NA	13 mm	1000 frames/s
16	Driver seat belt movement	NA	NA	NA	NA	NA	NA mm	1002 frames/s
17	Passenger seat belt movement	NA	NA	NA	NA	NA	NA mm	995 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

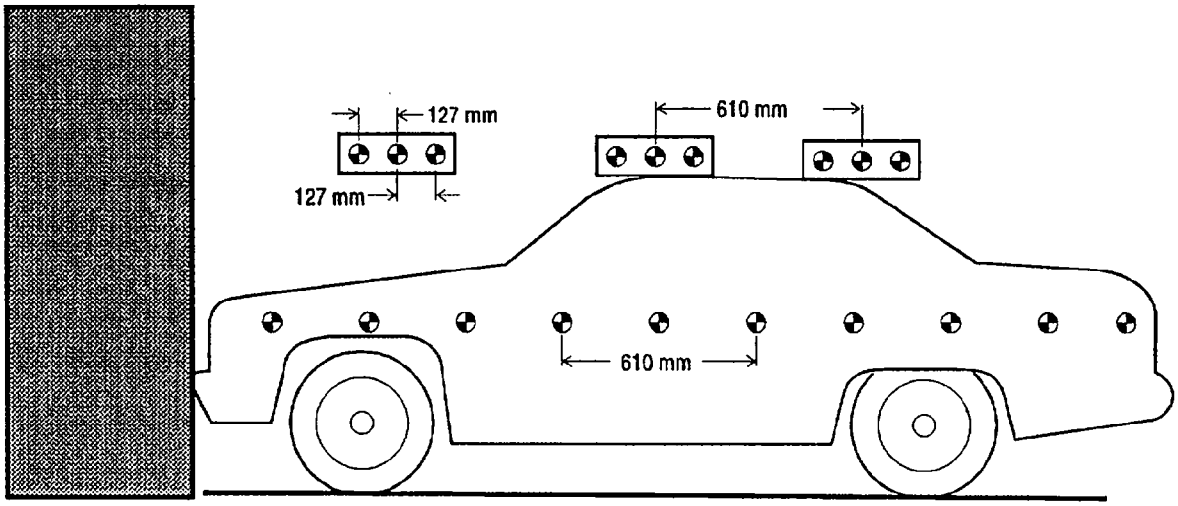


Figure 12 Pre-Test And Post-Test Measurement Points

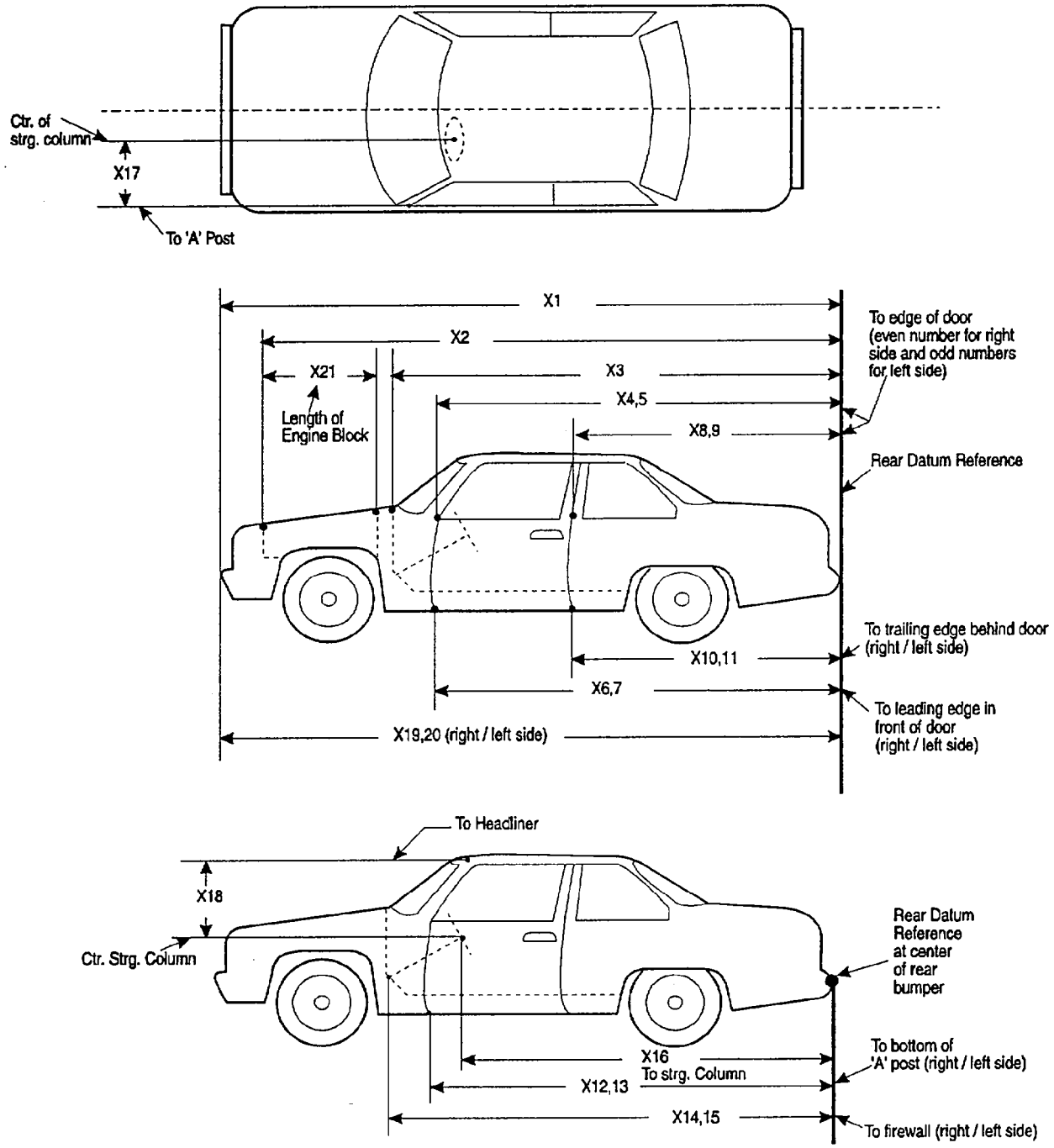


Table 14 Impacted Vehicle Measurements

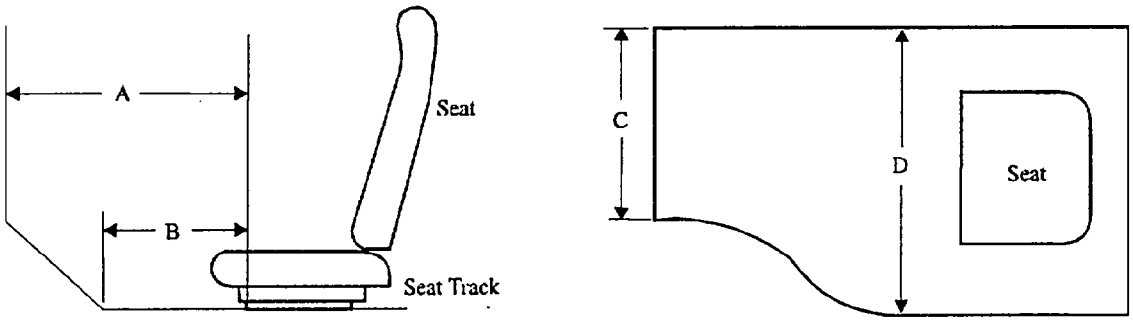
Test number: 970224

Vehicle year/make/model/body style: 1997/Toyota/Tacoma/pickup truck

No.	Type of measurement	Pre-test	Post-test	Difference
X1	Total length of vehicle at centerline	5058 mm	4642 mm	416 mm
X2	Rear surface of vehicle to front of engine block	4637 mm	4462 mm	175 mm
X3	Rear surface of vehicle to firewall	4068 mm	4036 mm	32 mm
X4	Rear surface of vehicle to upper leading edge of right door	3800 mm	3817 mm	-17 mm
X5	Rear surface of vehicle to upper leading edge of left door	3806 mm	3806 mm	0 mm
X6	Rear surface of vehicle to lower leading edge of right door	3794 mm	3784 mm	10 mm
X7	Rear surface of vehicle to lower leading edge of left door	3777 mm	3780 mm	-3 mm
X8	Rear surface of vehicle to upper trailing edge of right door	2676 mm	2700 mm	-24 mm
X9	Rear surface of vehicle to upper trailing edge of left door	2677 mm	2699 mm	-22 mm
X10	Rear surface of vehicle to lower trailing edge of right door	2676 mm	2685 mm	-9 mm
X11	Rear surface of vehicle to lower trailing edge of left door	2672 mm	2679 mm	-7 mm
X12	Rear surface of vehicle to bottom of "A" post on right side	3782 mm	3799 mm	-17 mm
X13	Rear surface of vehicle to bottom of "A" post on left side	3782 mm	3789 mm	-7 mm
X14	Rear surface of vehicle to firewall - right side	4040 mm	4075 mm	-35 mm
X15	Rear surface of vehicle to firewall - left side	4030 mm	4065 mm	-35 mm
X16	Rear surface of vehicle to steering wheel center	3388 mm	3394 mm	-6 mm
X17	Center of steering column to "A" post	280 mm	267 mm	13 mm
X18	Center of steering column to headliner	420 mm	388 mm	32 mm
X19	Rear surface of vehicle to right side of front bumper	4956 mm	4580 mm	376 mm
X20	Rear surface of vehicle to left side of front bumper	4955 mm	4590 mm	365 mm
X21	Length of engine block	500 mm	500 mm	0 mm
RD	Rear surface of vehicle to right side of dash panel	3625 mm	3630 mm	-5 mm
CD	Rear surface of vehicle to center of dash panel	3616 mm	3622 mm	-6 mm
LD	Rear surface of vehicle to left side of dash panel	3624 mm	3645 mm	-19 mm

Figure 13 Vehicle Intrusion Measurements

Static Footwell Deformation



Driver's Side

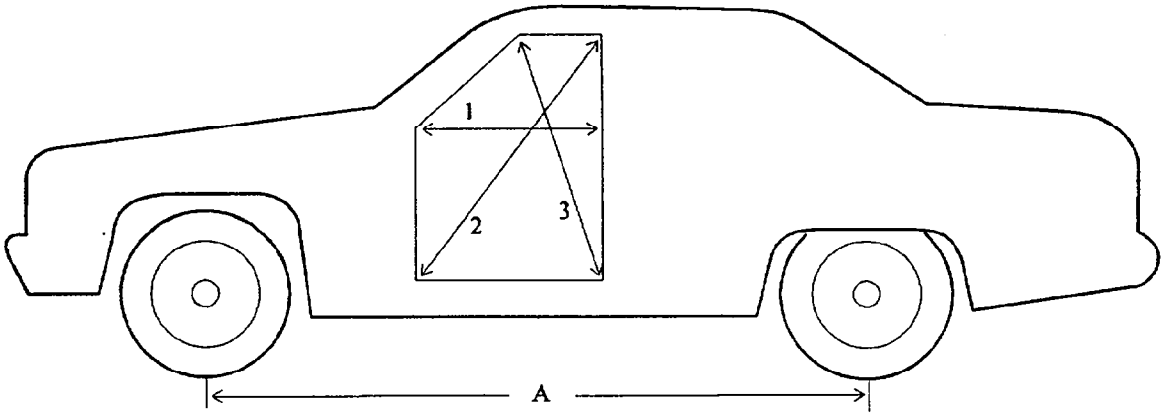
Measurement	Pre-Test	Post-Test	Difference
A	649 mm	645 mm	4 mm
B	573 mm	555 mm	18 mm
C	395 mm	410 mm	-15 mm
D	410 mm	437 mm	-27 mm

Passenger's Side

Measurement	Pre-Test	Post-Test	Difference
A	630 mm	621 mm	9 mm
B	572 mm	553 mm	19 mm
C	412 mm	380 mm	32 mm
D	388 mm	434 mm	-46 mm

Figure 14 Vehicle Intrusion Measurements

Door Opening Width

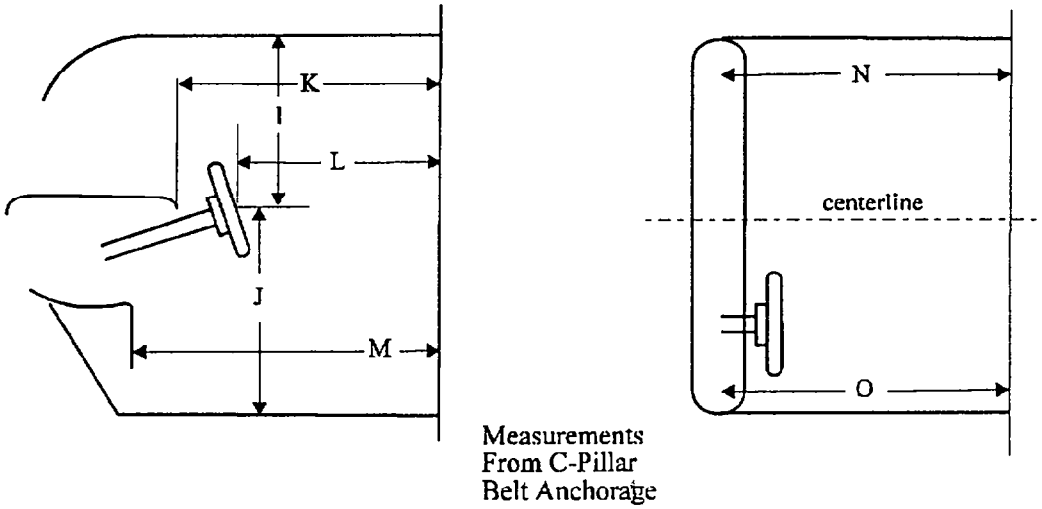


Units (mm)	Left			Right		
Measurement	1	2	3	1	2	3
Pre-Test	1062 mm	1434 mm	1135 mm	1081 mm	1435 mm	1154 mm
Post-Test	1055 mm	1449 mm	1157 mm	1070 mm	1431 mm	1155 mm
Difference	7 mm	-15 mm	-22 mm	11 mm	4 mm	-1 mm

Units (mm)	A = Wheelbase Left	A = Wheelbase Right
Pre-Test	3098 mm	3098 mm
Post-Test	2985 mm	2985 mm
Difference	113 mm	113 mm

Figure 15 Vehicle Intrusion Measurements

Static Passenger Compartment Intrusion



Measurements
From C-Pillar
Belt Anchorage

Measurement	Pre-Test	Post-Test	Difference
I	410 mm	388 mm	22 mm
J	567 mm	693 mm	-126 mm
K (driver's side)	1426 mm	1415 mm	11 mm
L	1156 mm	1127 mm	29 mm
M (driver's side)	1518 mm	1500 mm	18 mm
N	1460 mm	1426 mm	34 mm
O	1457 mm	1450 mm	7 mm
Passenger's side	1431 mm	1397 mm	34 mm
Passenger's side	1472 mm	1470 mm	2 mm

Appendix A

Photographs

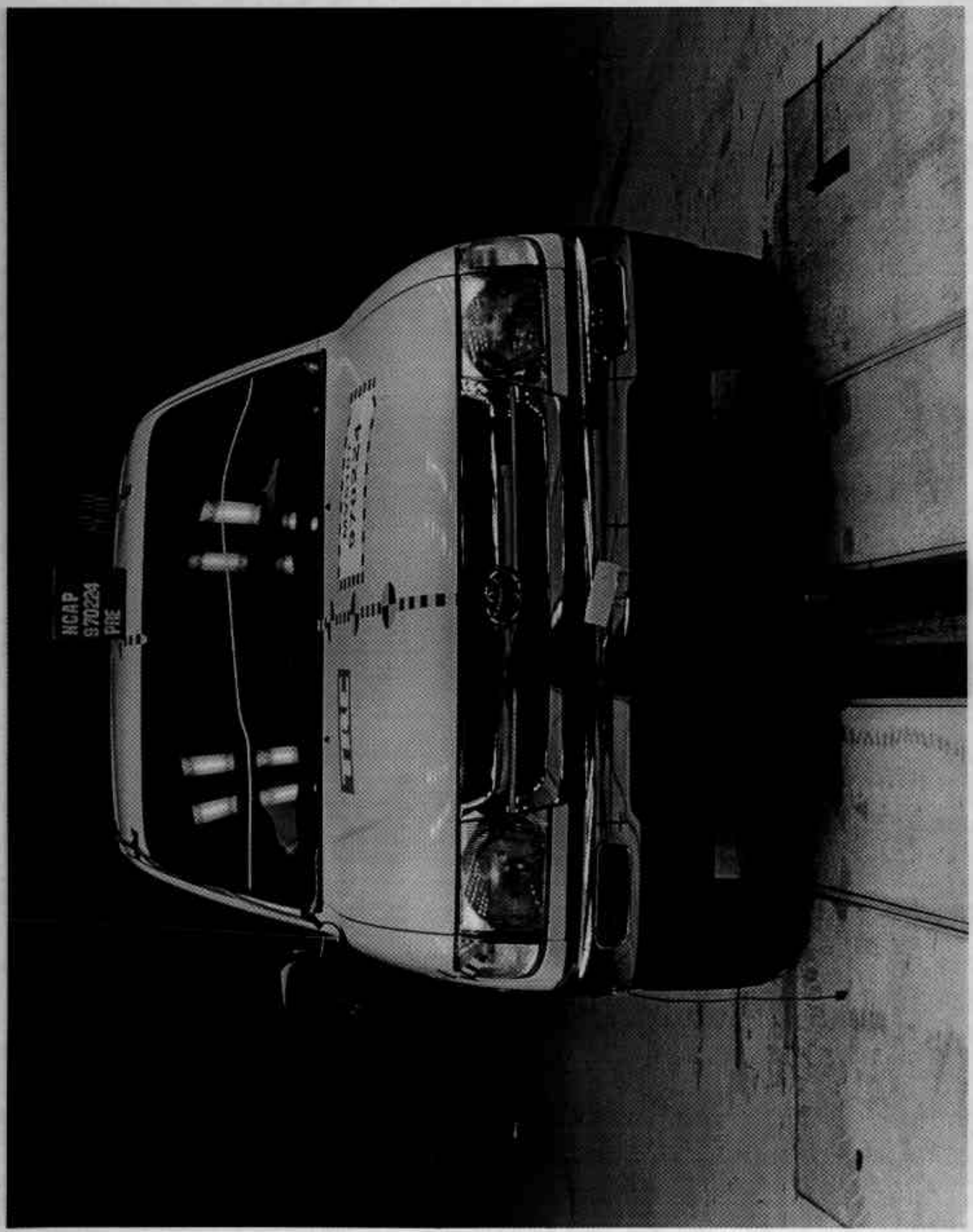


Figure A-1 Pre-Test Front View

Figure A-2 Post-Test Front View

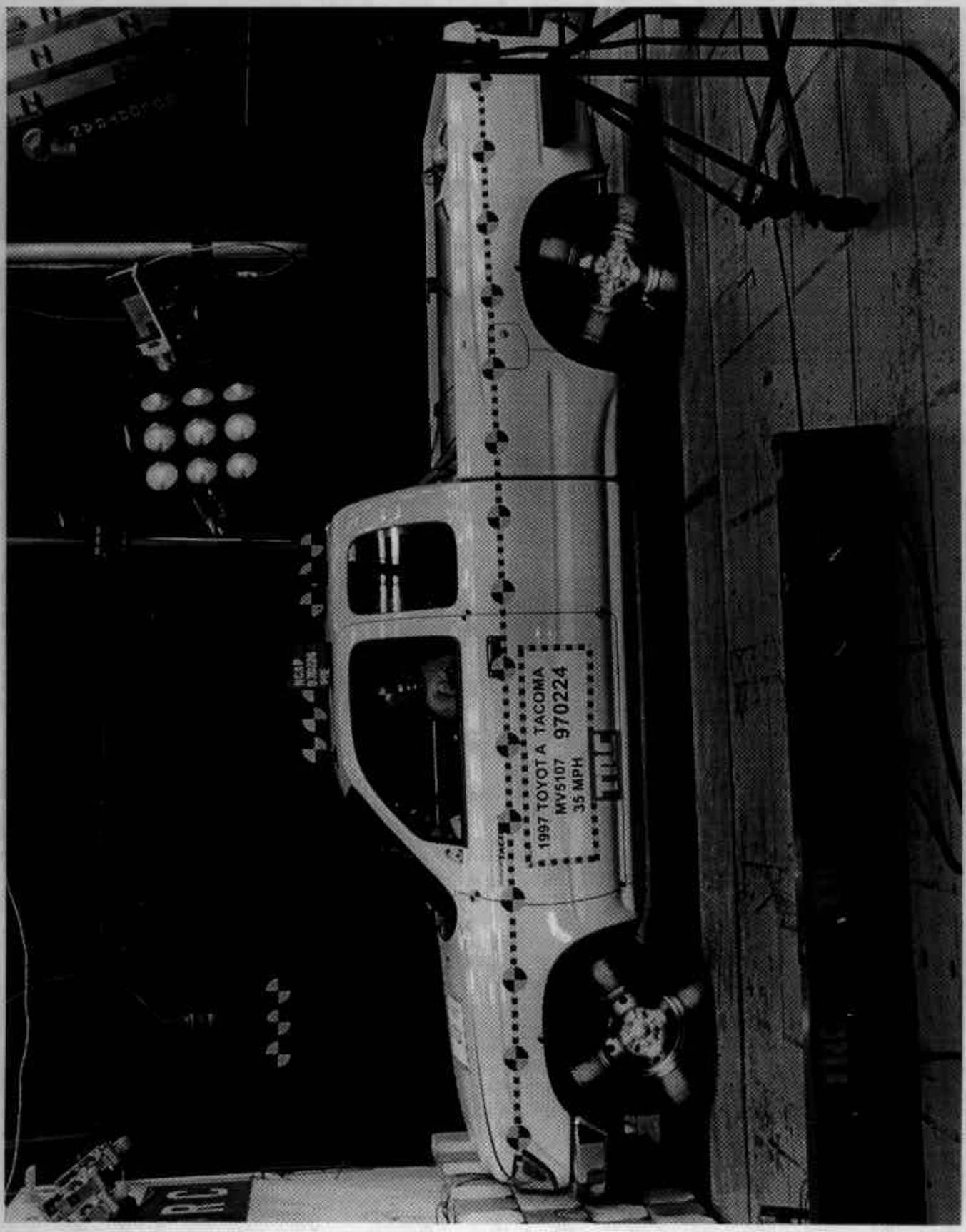


Figure A-3 Pre-Test Left Side View

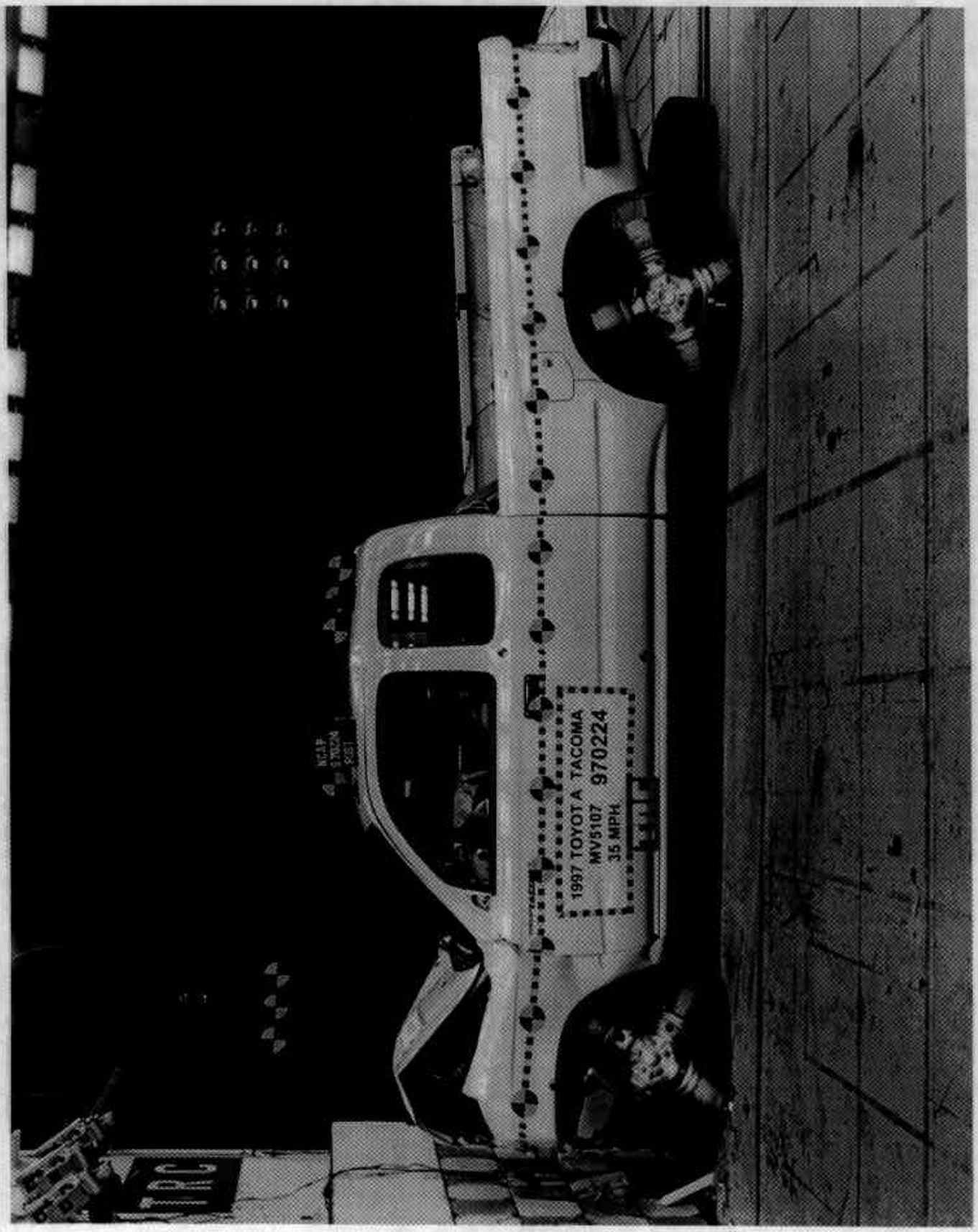


Figure A-4 Post-Test Left Side View

Figure A-5 Pre-Test Rear View

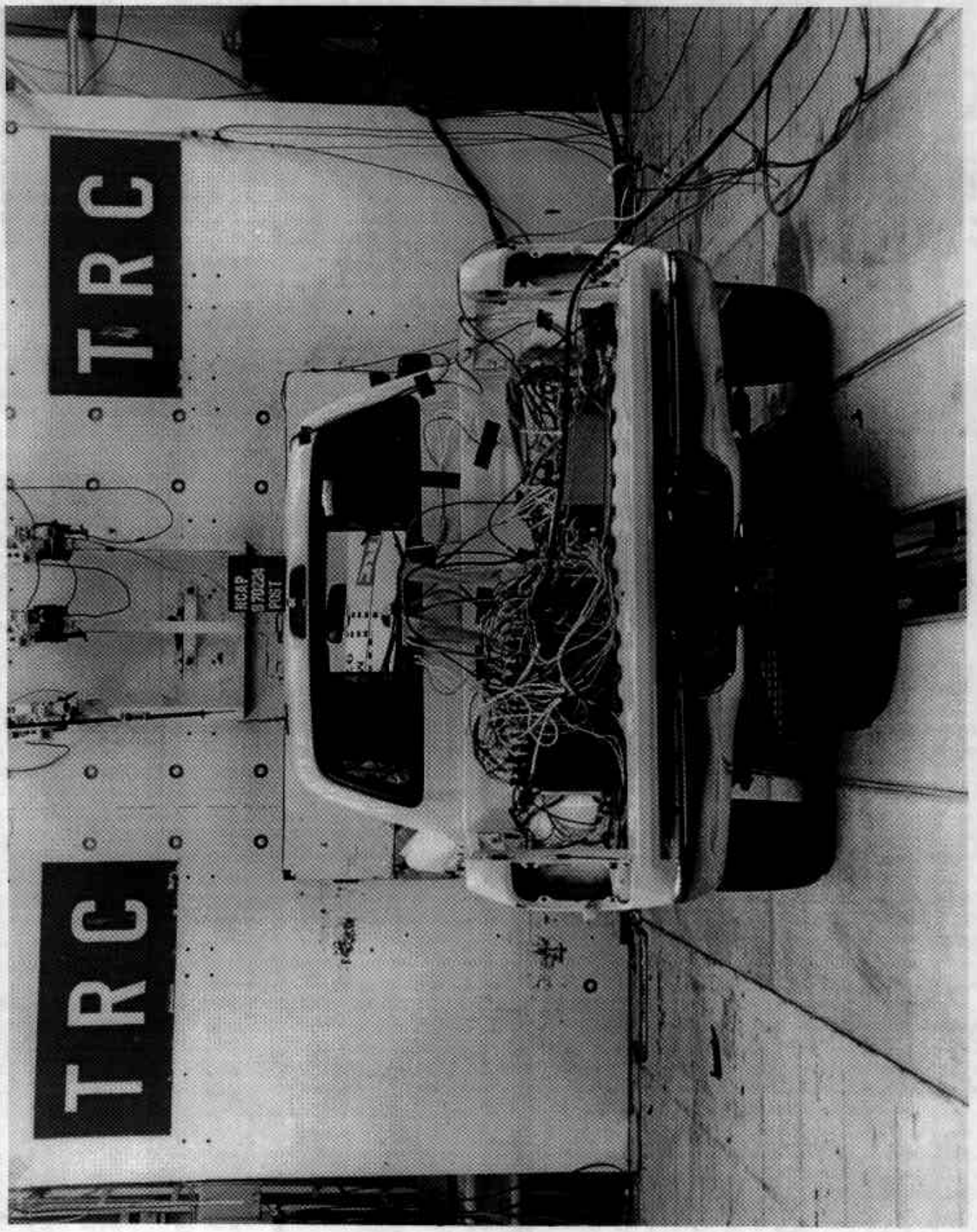


Figure A-6 Post-Test Rear View

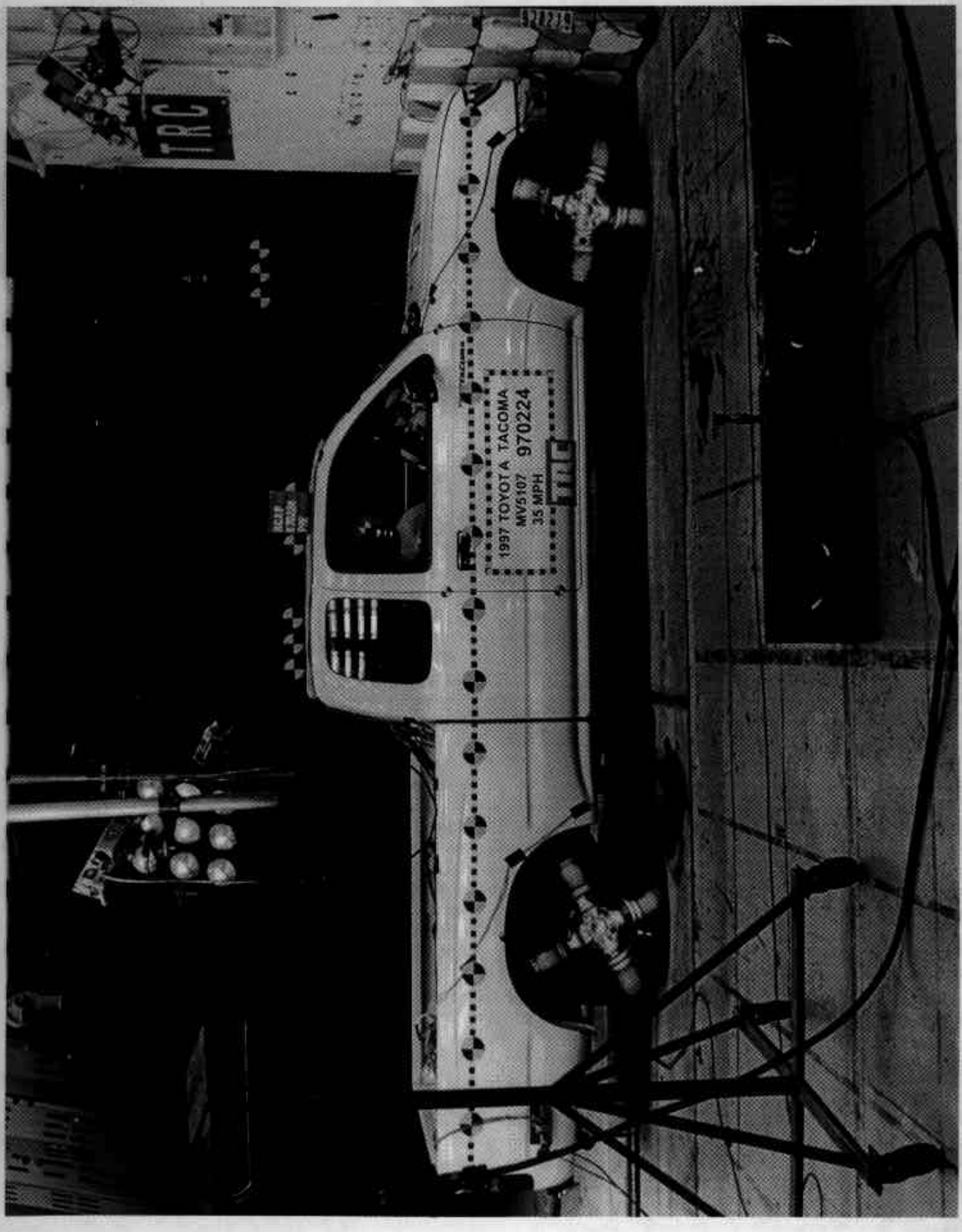


Figure A-7 Pre-Test Right Side View

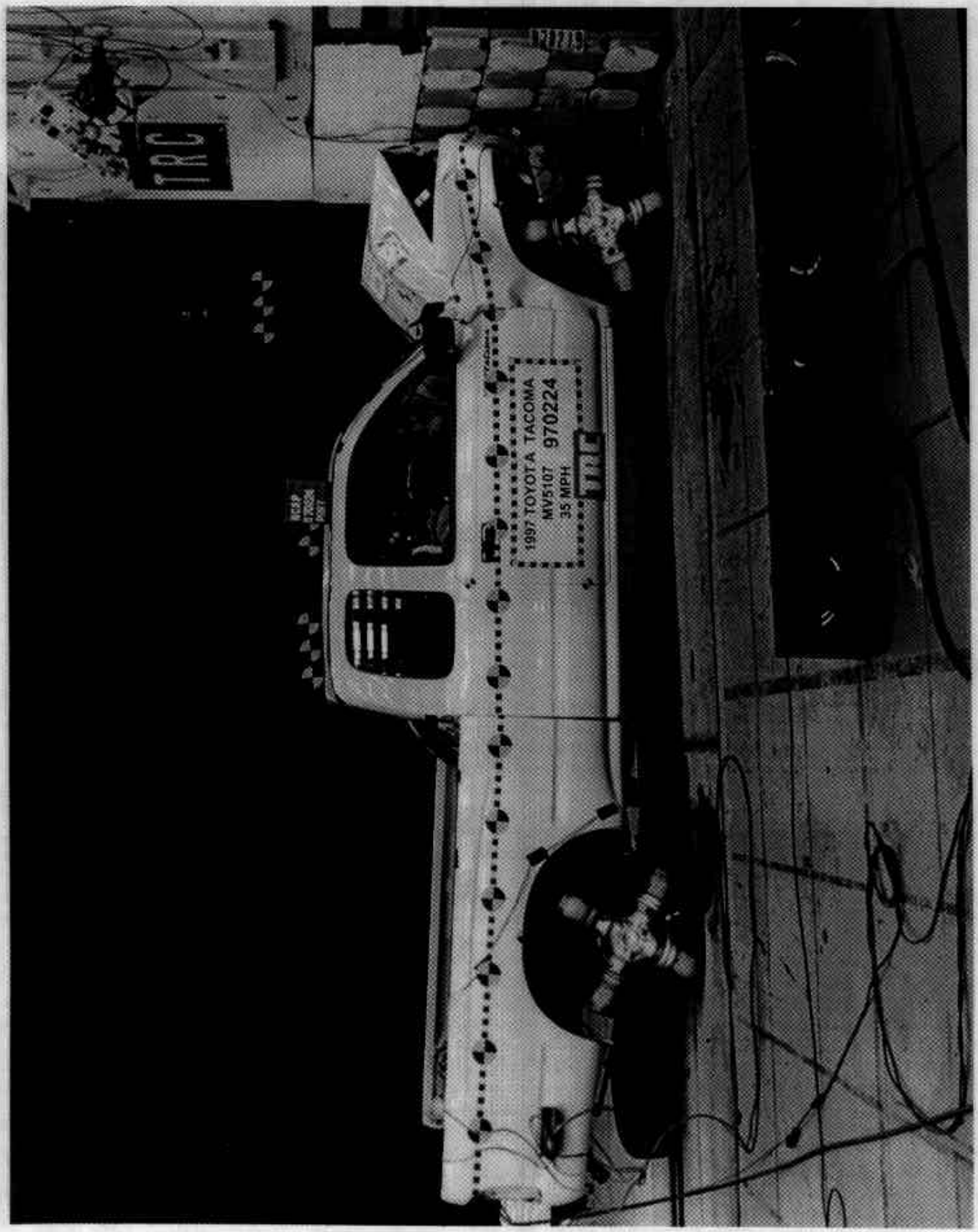


Figure A-8 Post-Test Right Side View

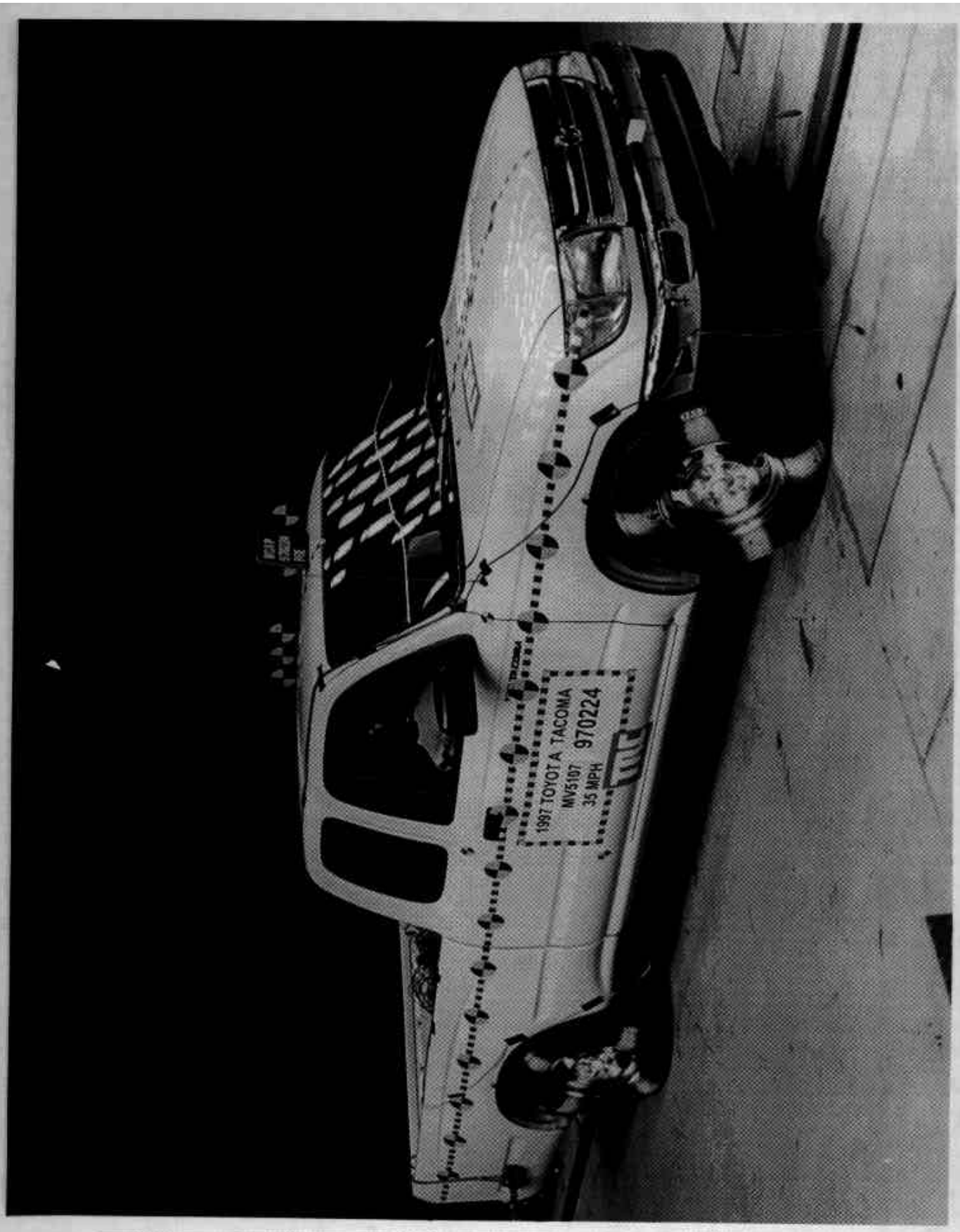


Figure A-9 Pre-Test Right Front Three-Quarter View

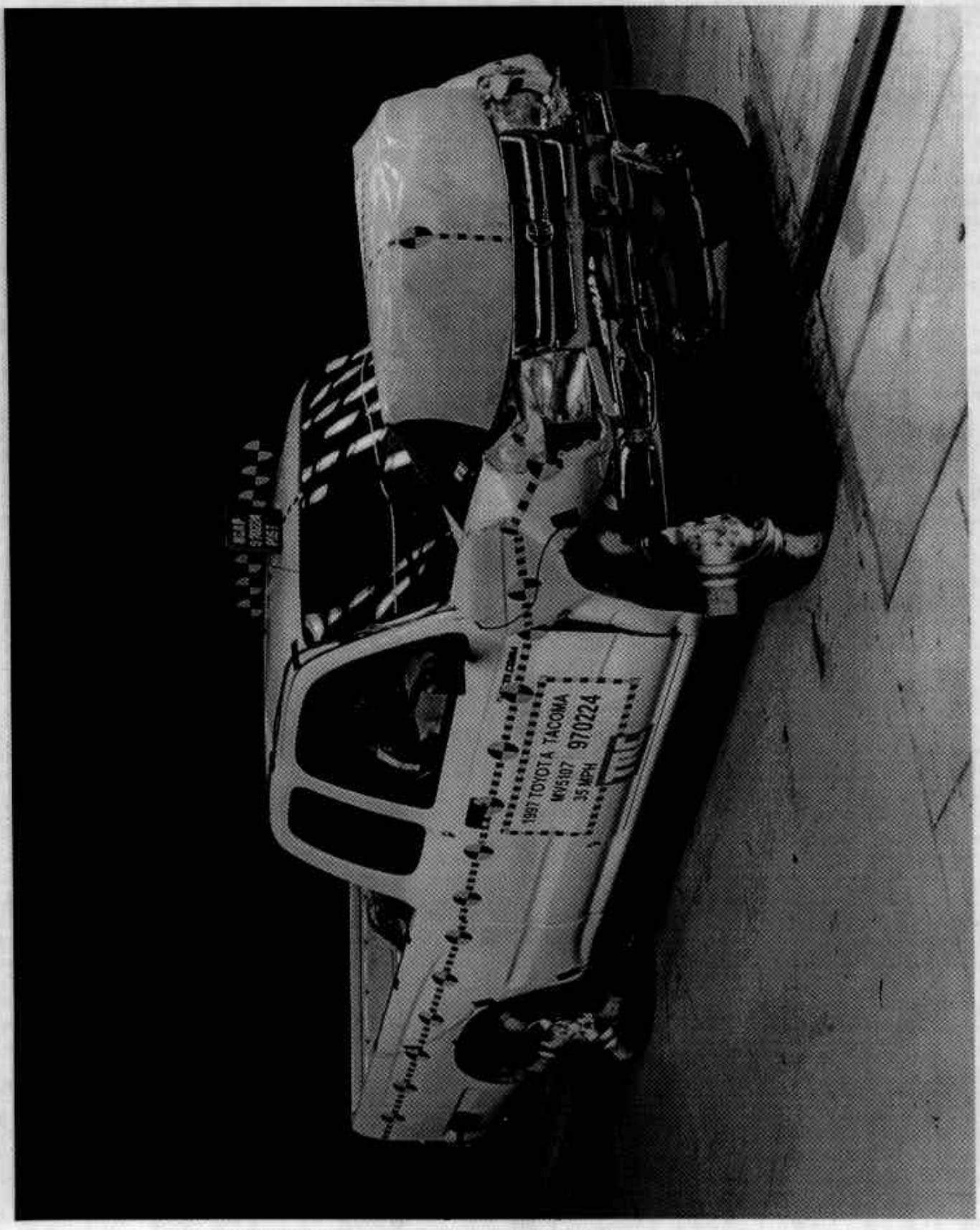


Figure A-10 Post-Test Right Front Three-Quarter View

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

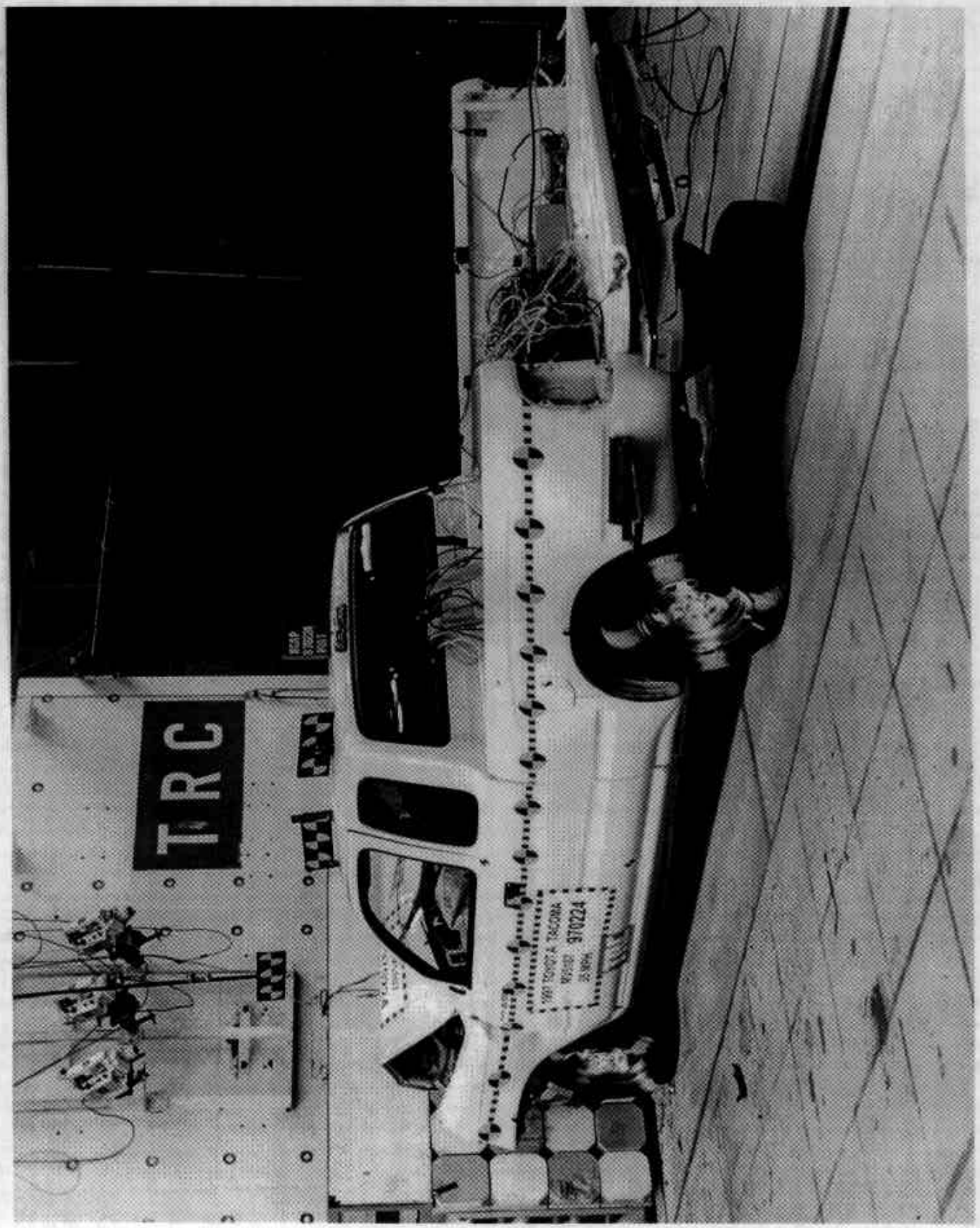


Figure A-12 Post-Test Left Rear Three-Quarter View

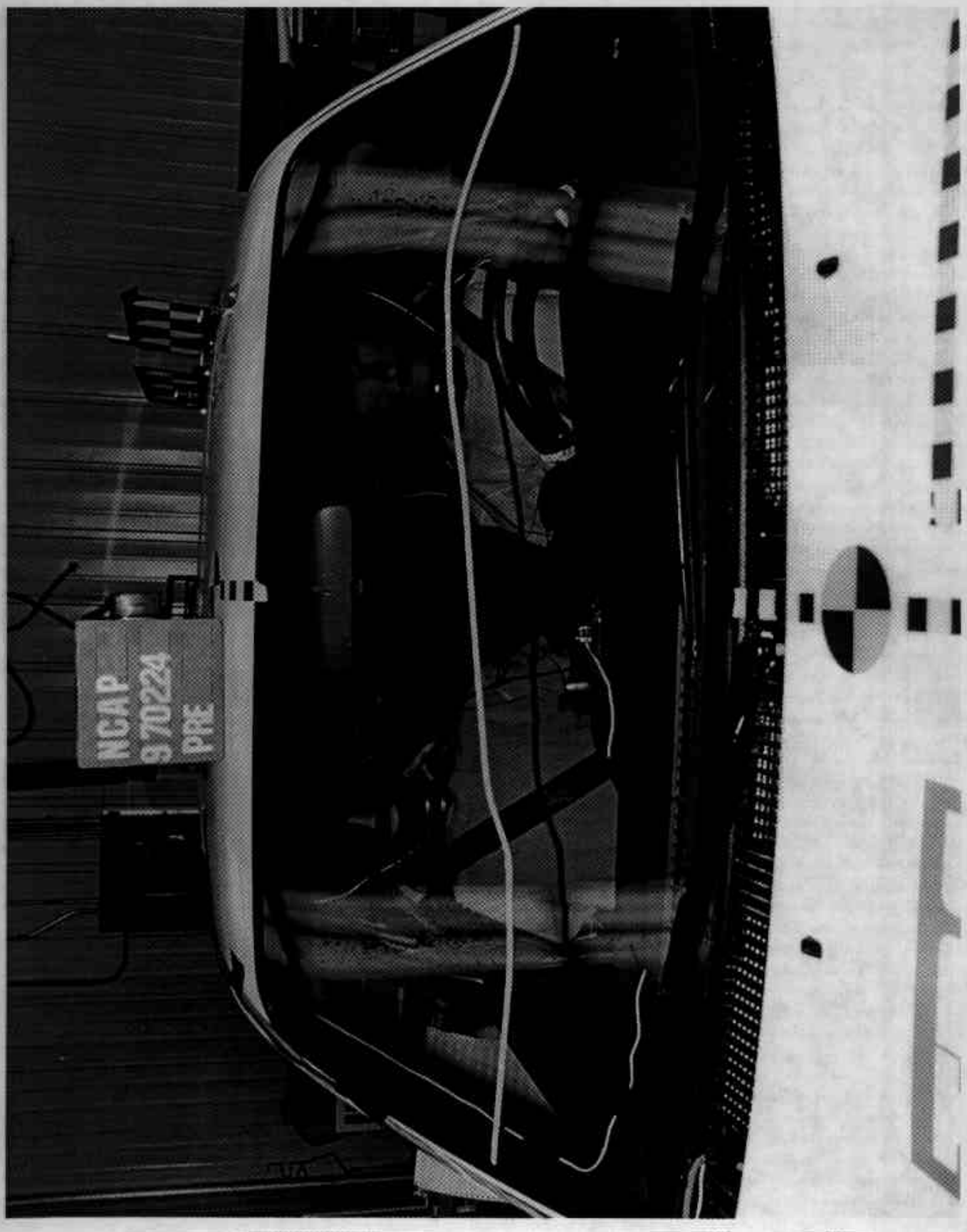


Figure A-13 Pre-Test Windshield View

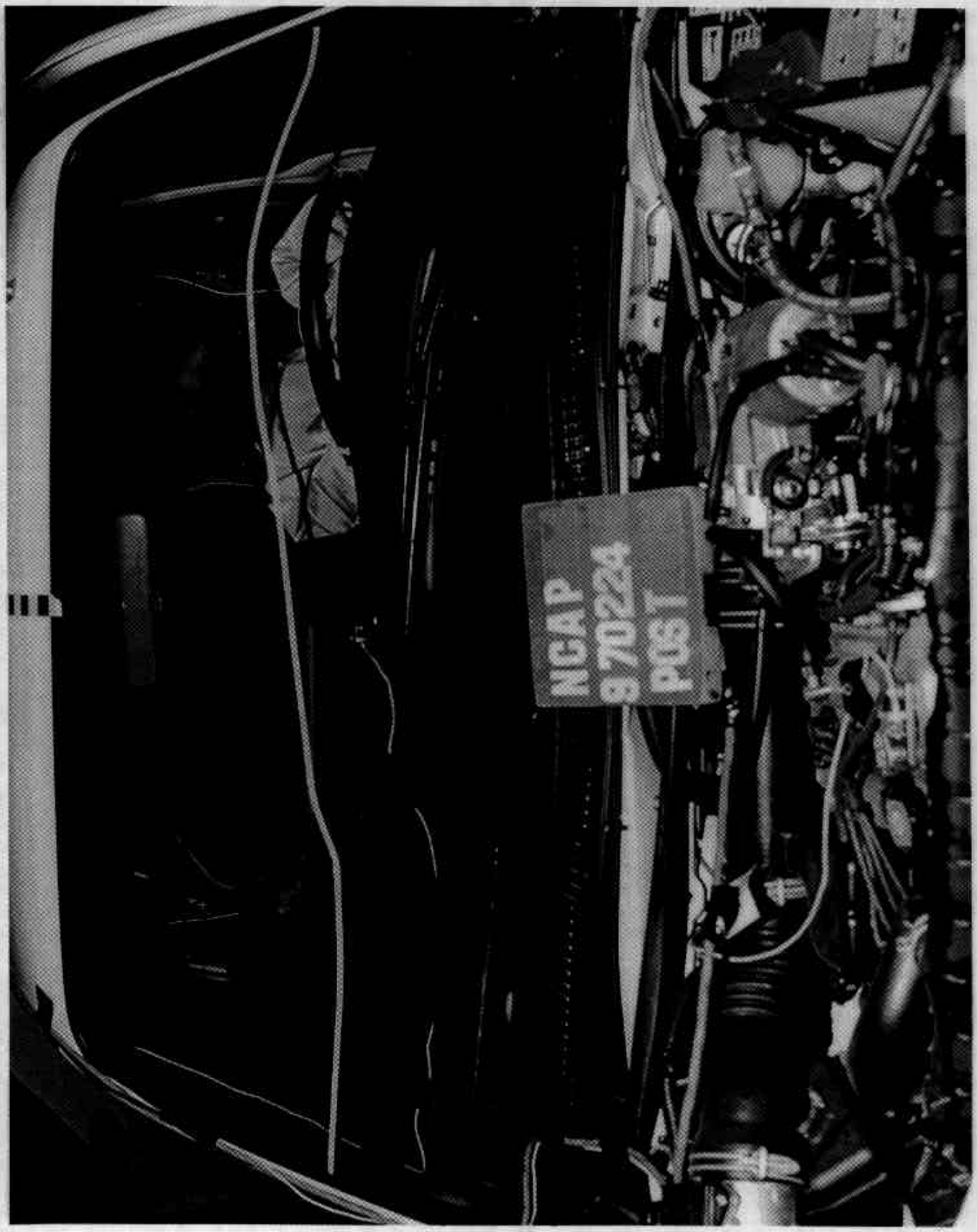


Figure A-14 Post-Test Windshield View

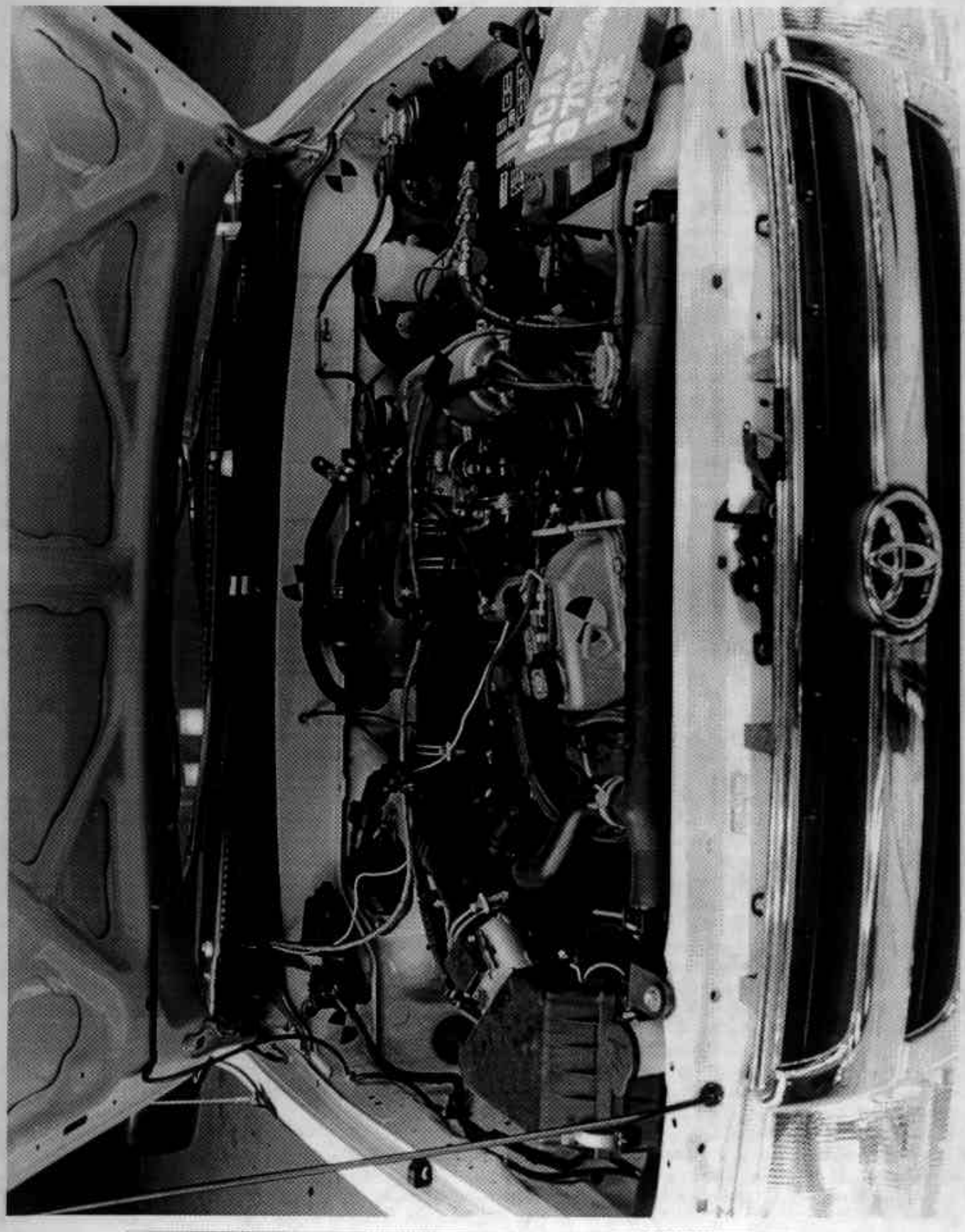


Figure A-15 Pre-Test Engine Compartment View

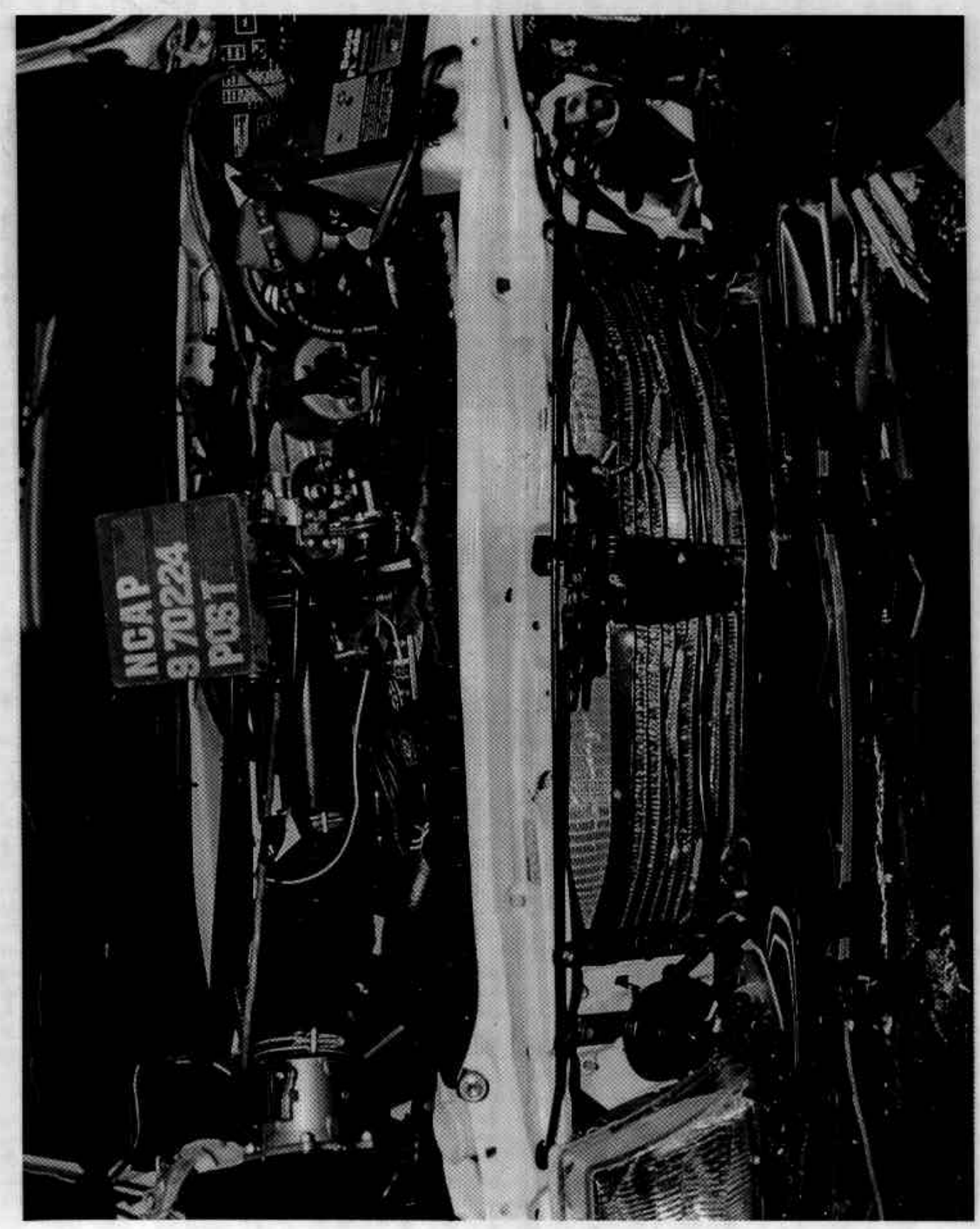


Figure A-16 Post-Test Engine Compartment View

Figure A-17 Pre-Test Fuel Filler Cap View

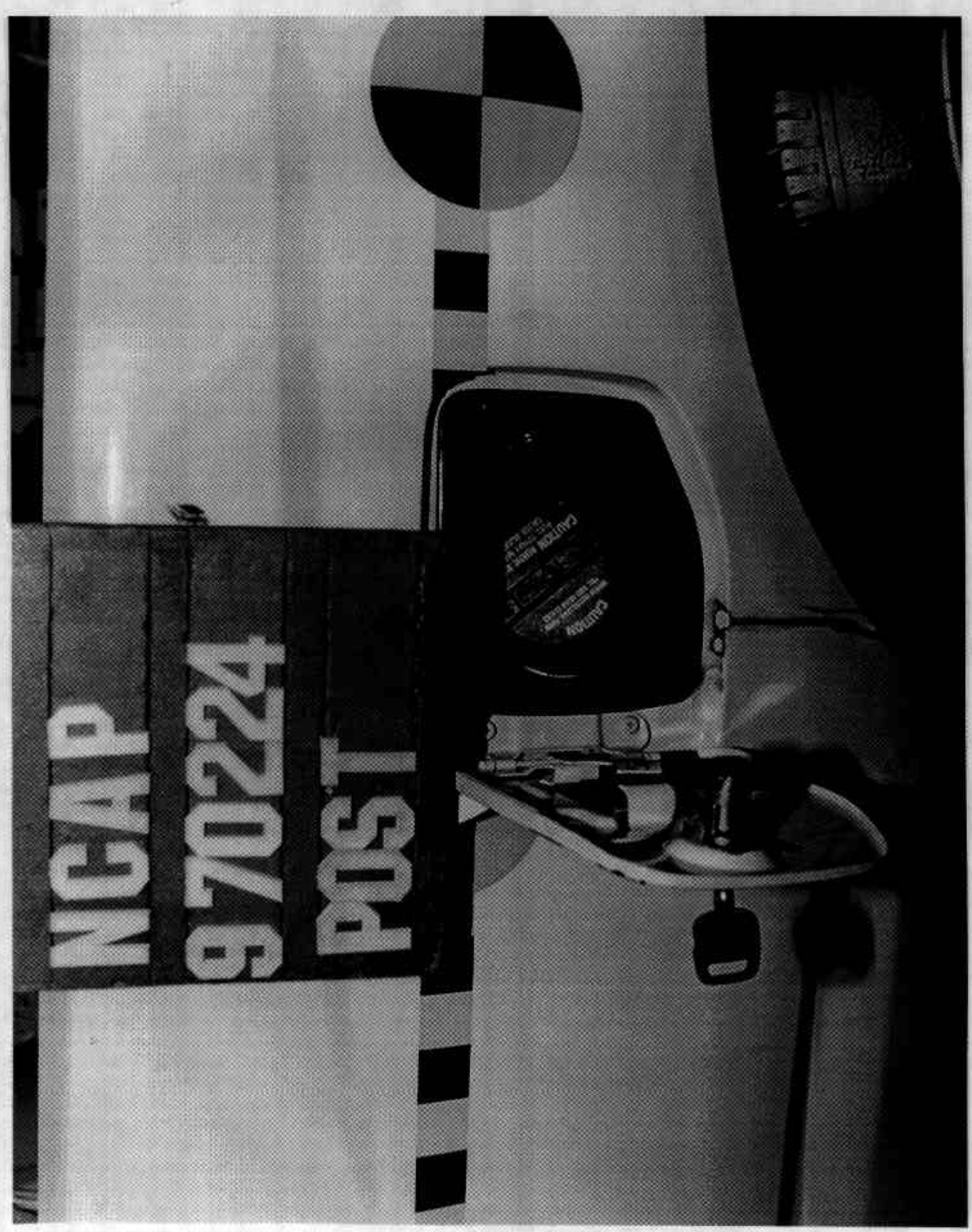


Figure A-18 Post-Test Fuel Filler Cap View

Figure A-19 Pre-Test Fuel Filler Neck View

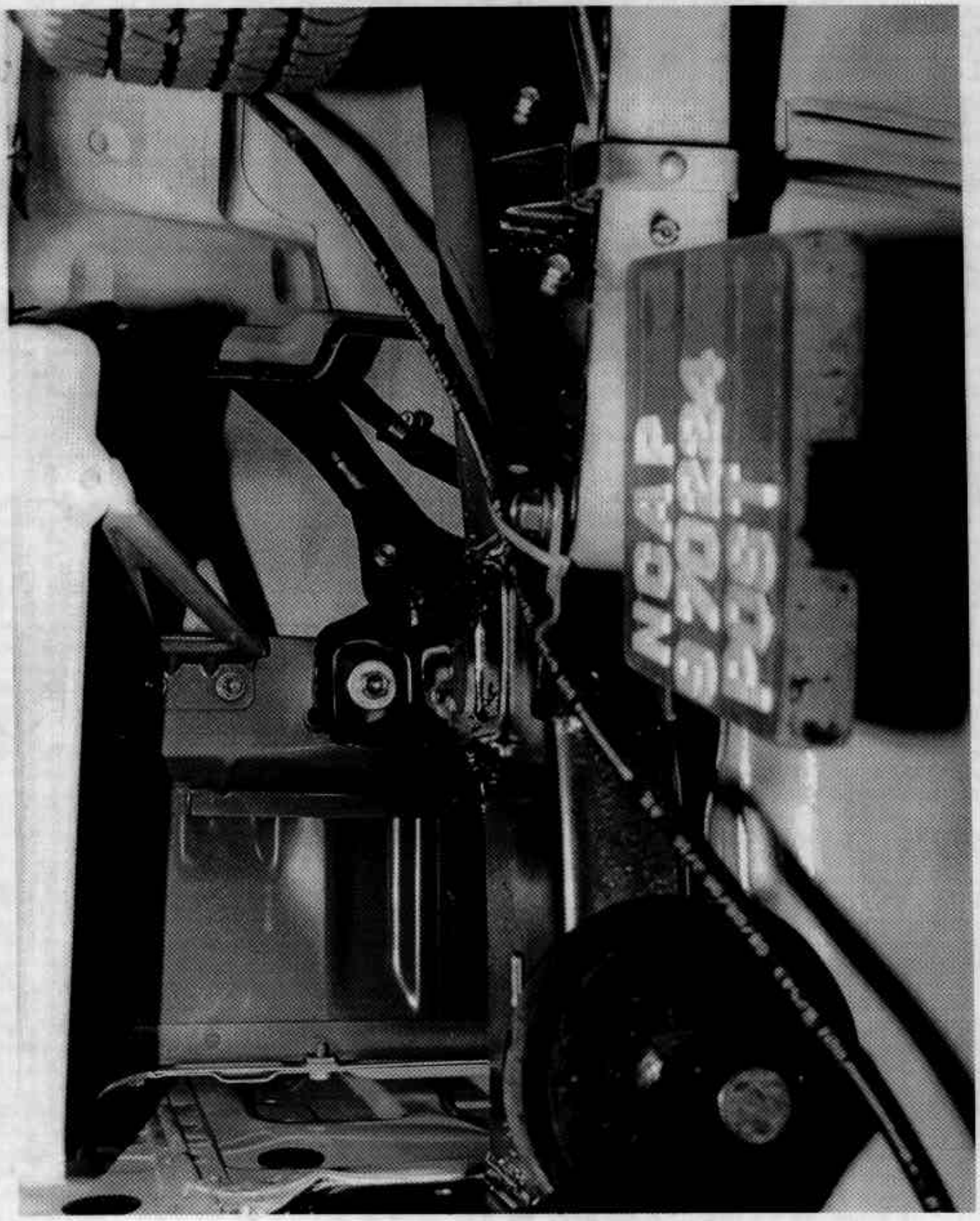


Figure A-20 Post-Test Fuel Filler Neck View

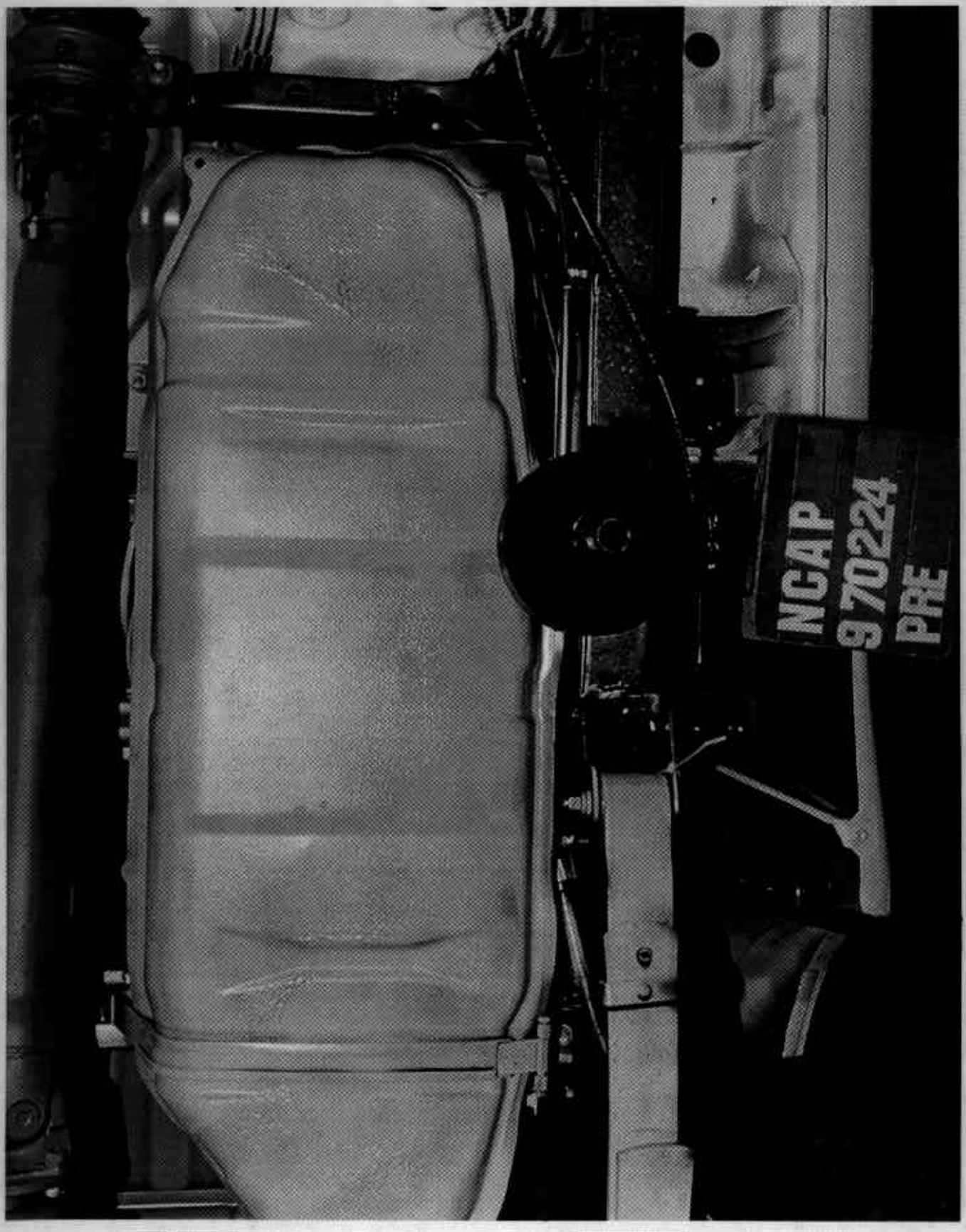


Figure A-21 Pre-Test Fuel Tank View

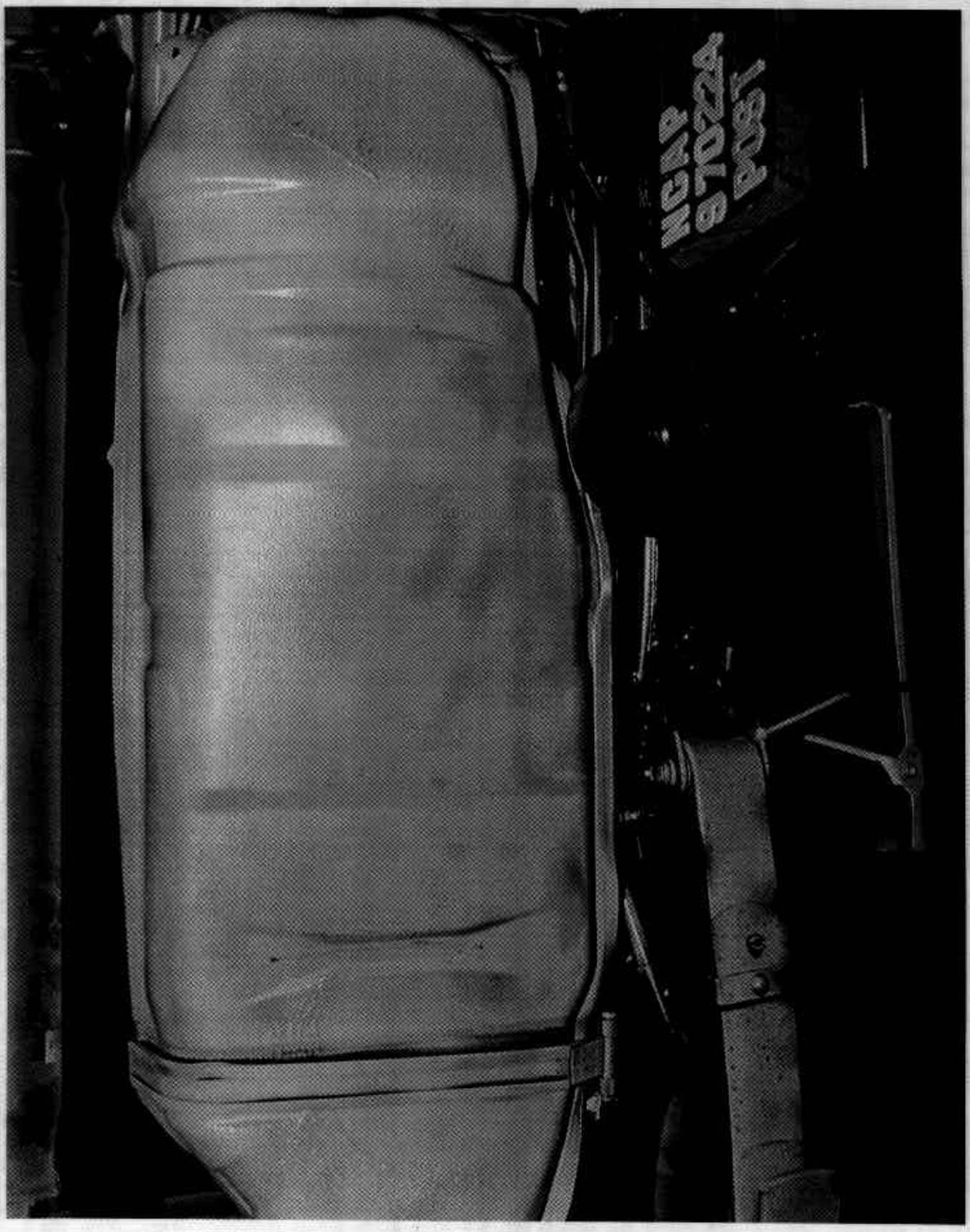


Figure A-22 Post-Test Fuel Tank View

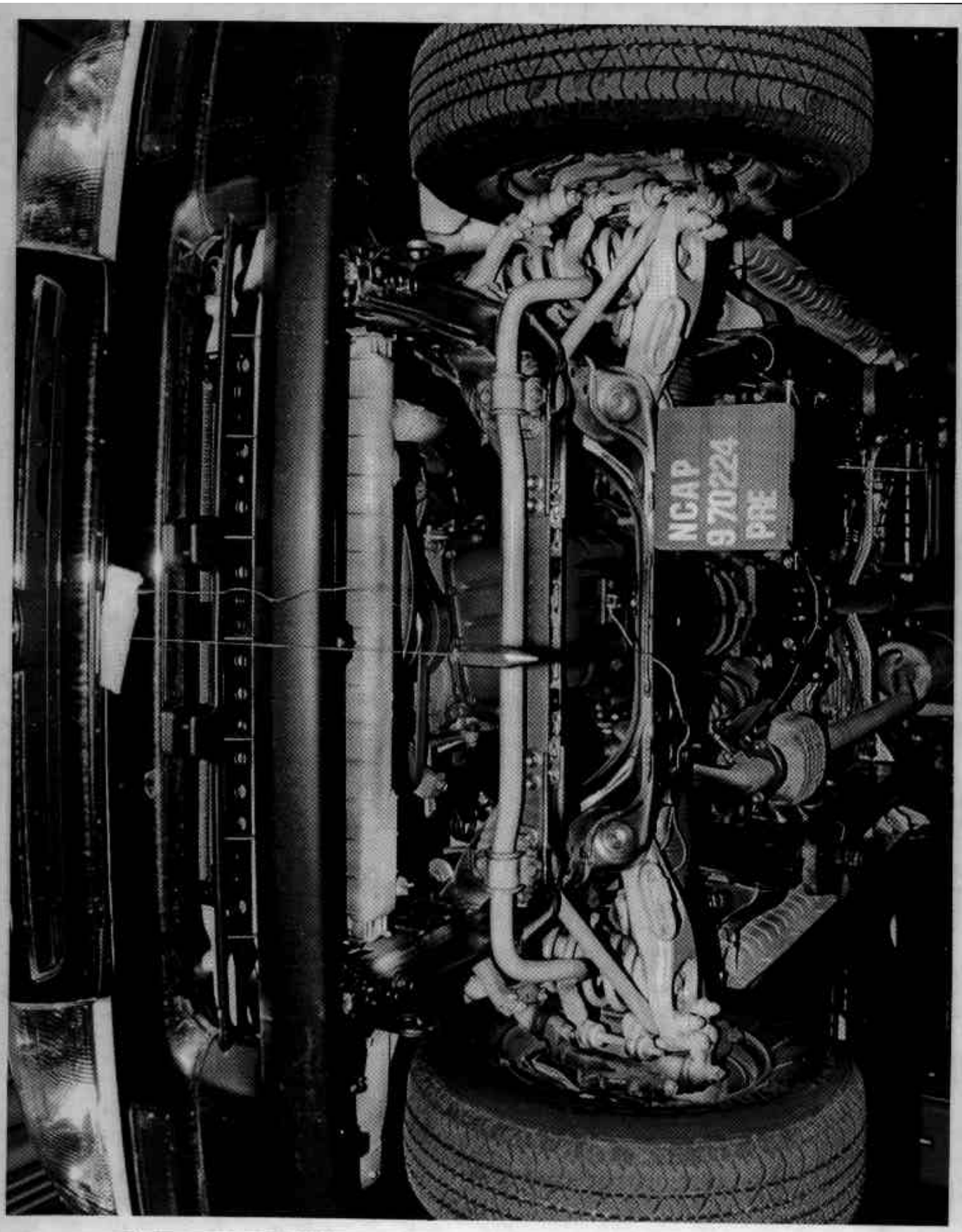


Figure A-23 Pre-Test Front Underbody View

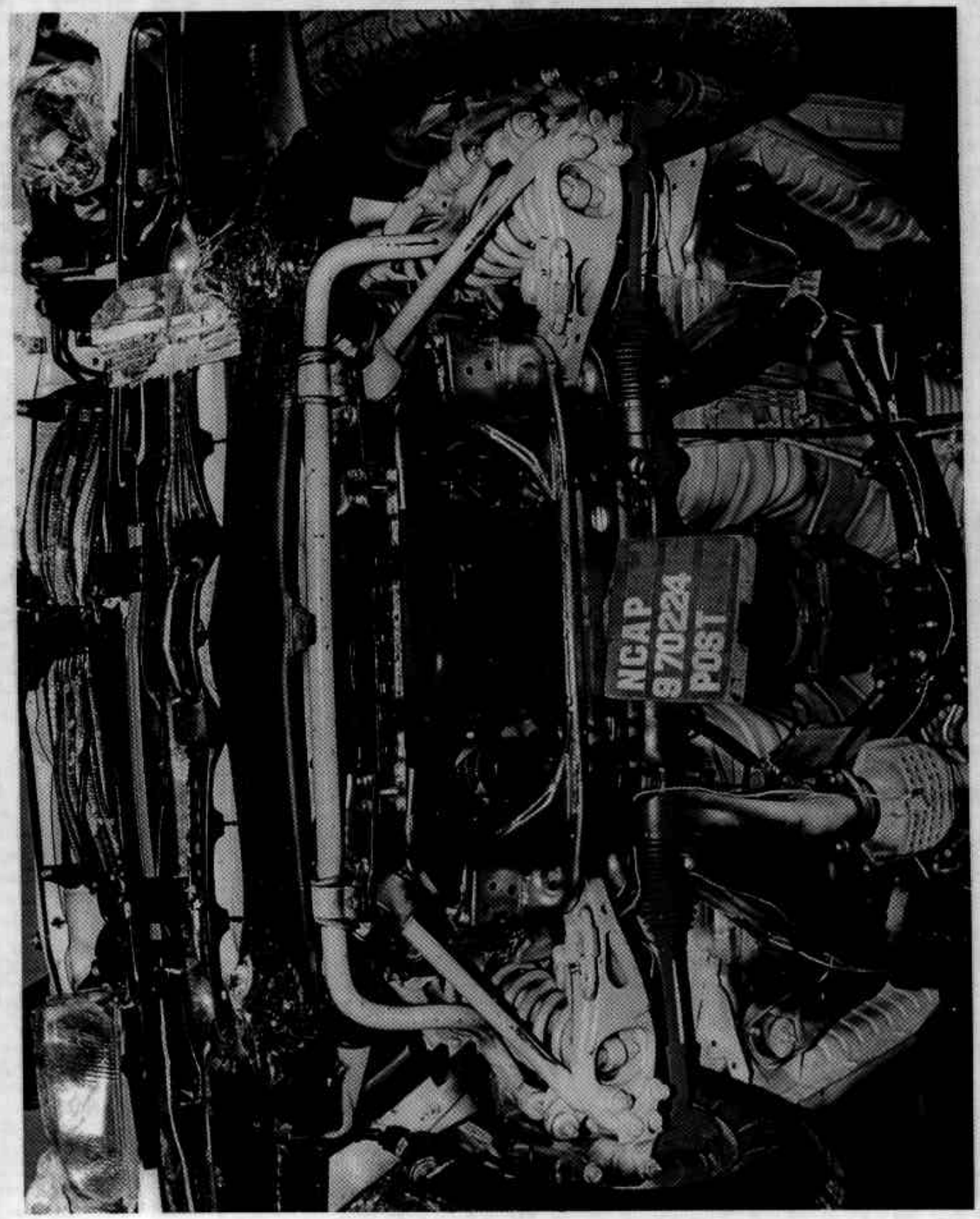


Figure A-24 Post-Test Front Underbody View

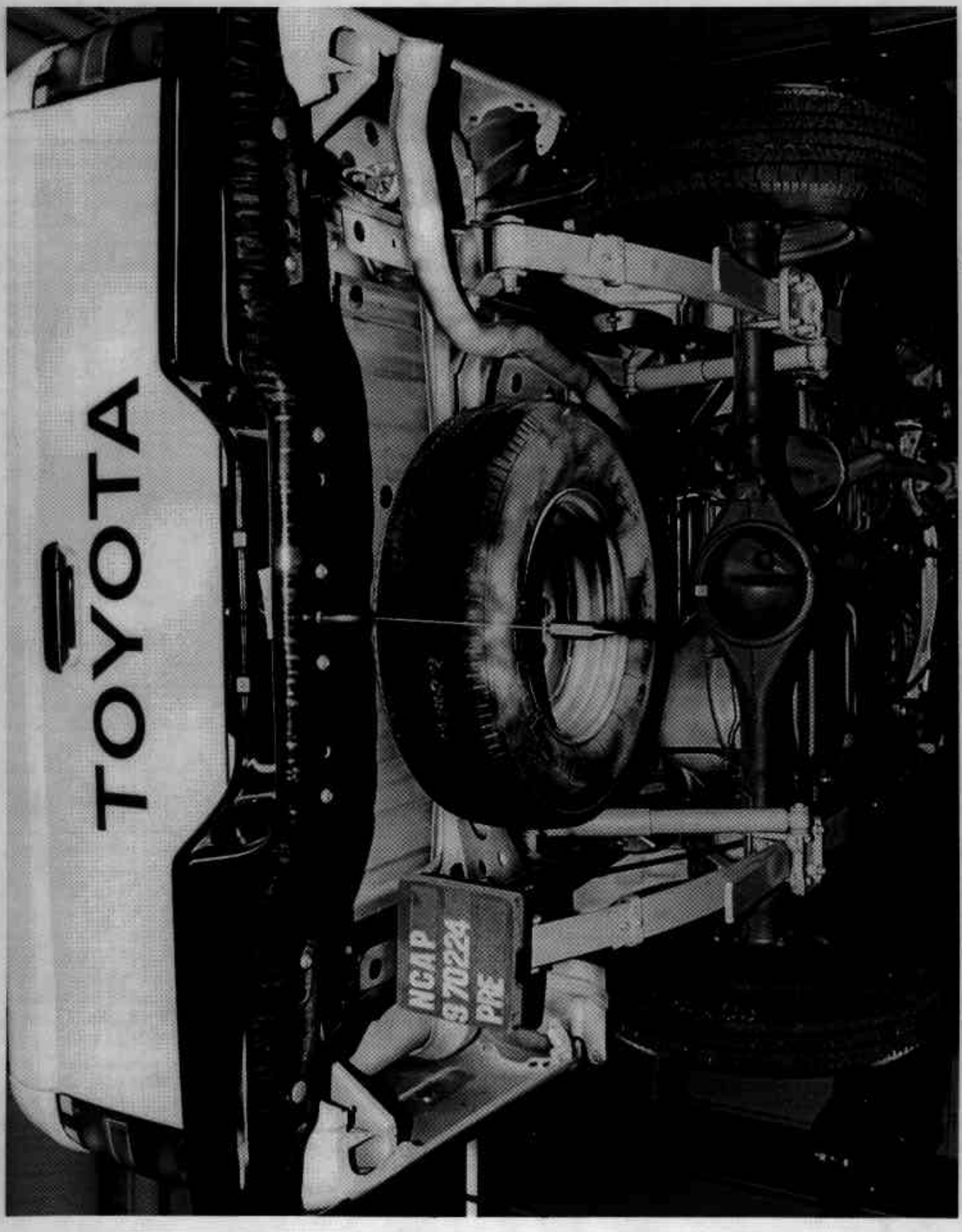


Figure A-25 Pre-Test Rear Underbody View

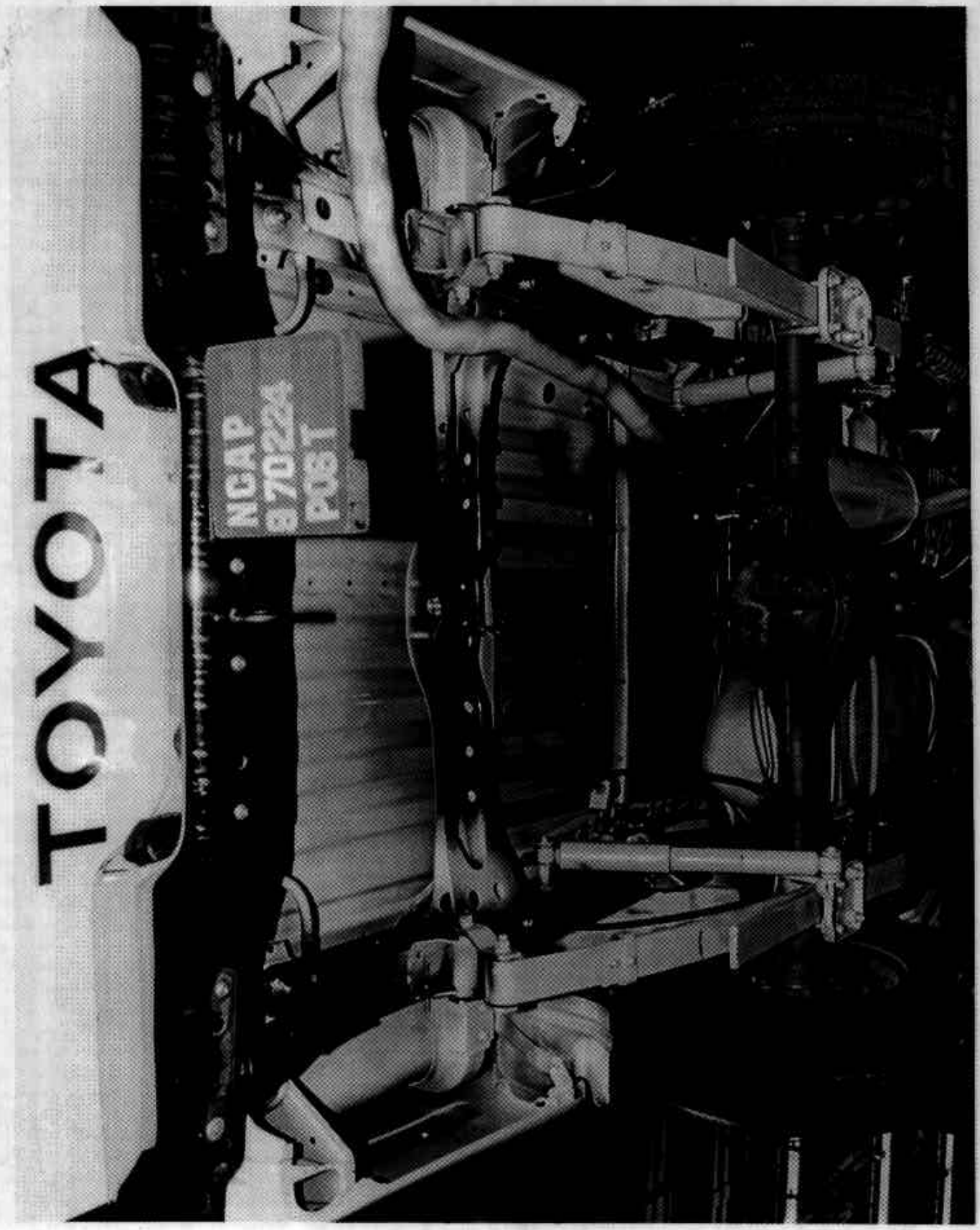


Figure A-26 Post-Test Rear Underbody View

Figure A-27 Pre-Test Driver's Knee Bolster View

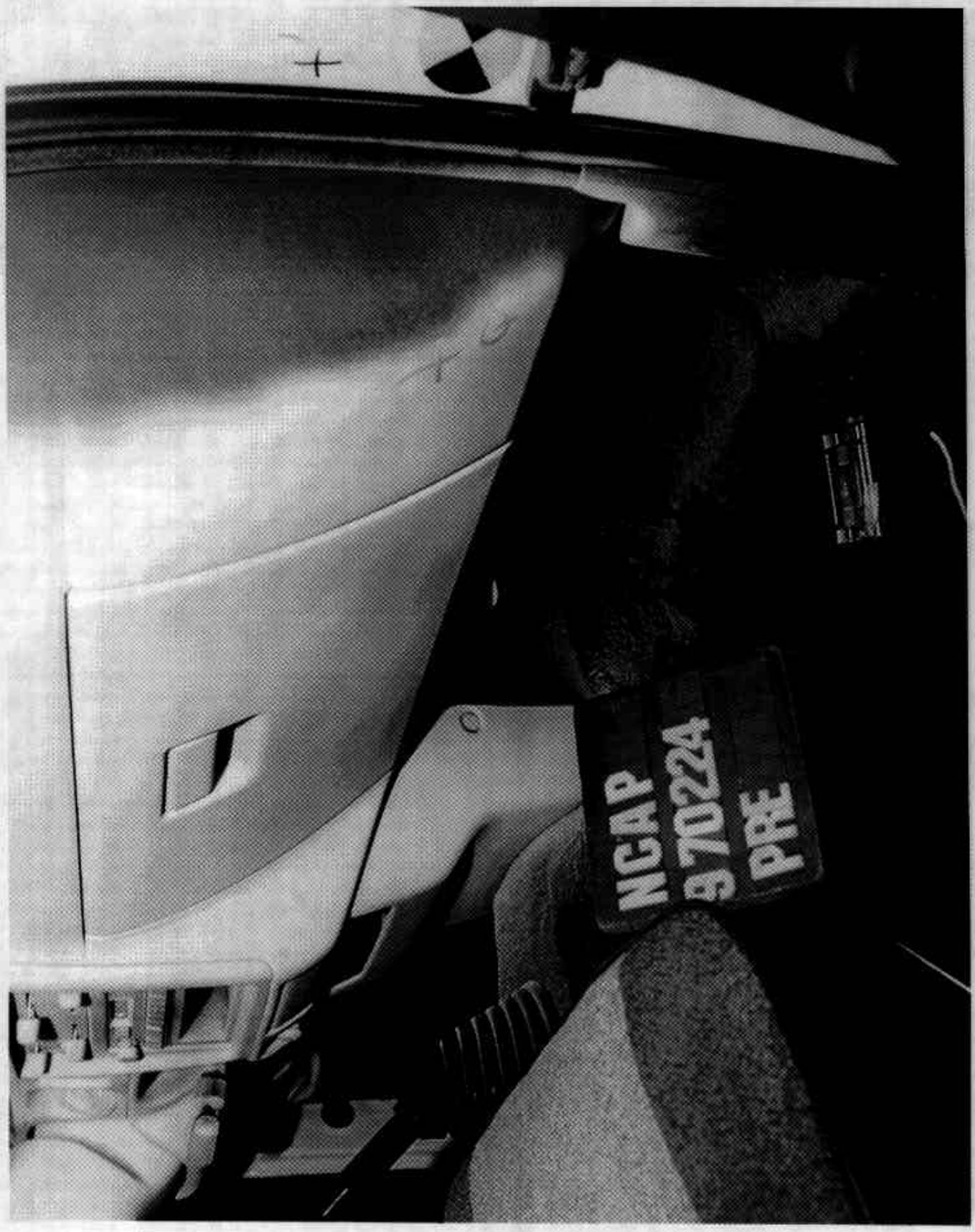


Figure A-28 Pre-Test Passenger's Knee Bolster View

Figure A-29 Pre-Test Steering Column View

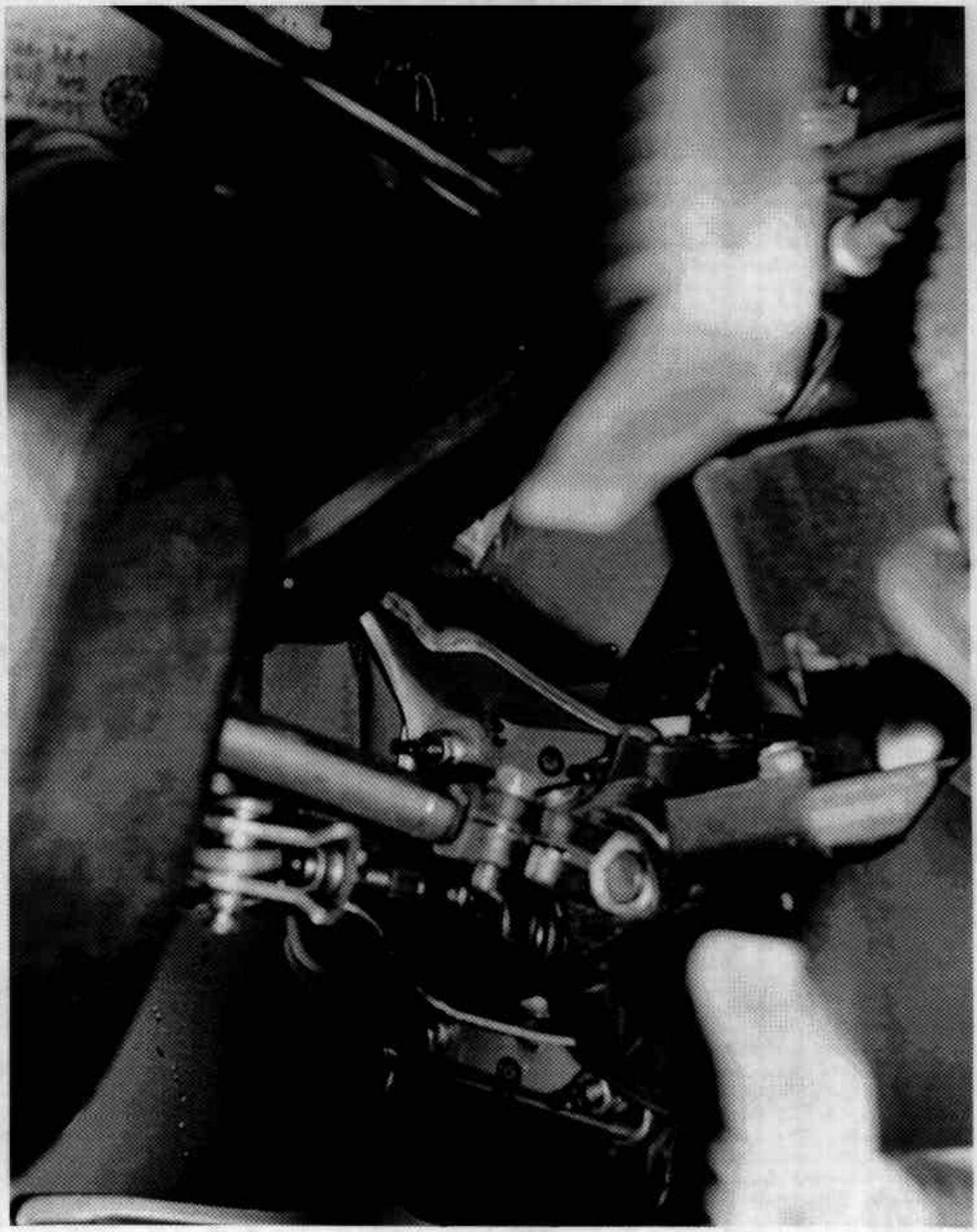


Figure A-30 Post-Test Steering Column View

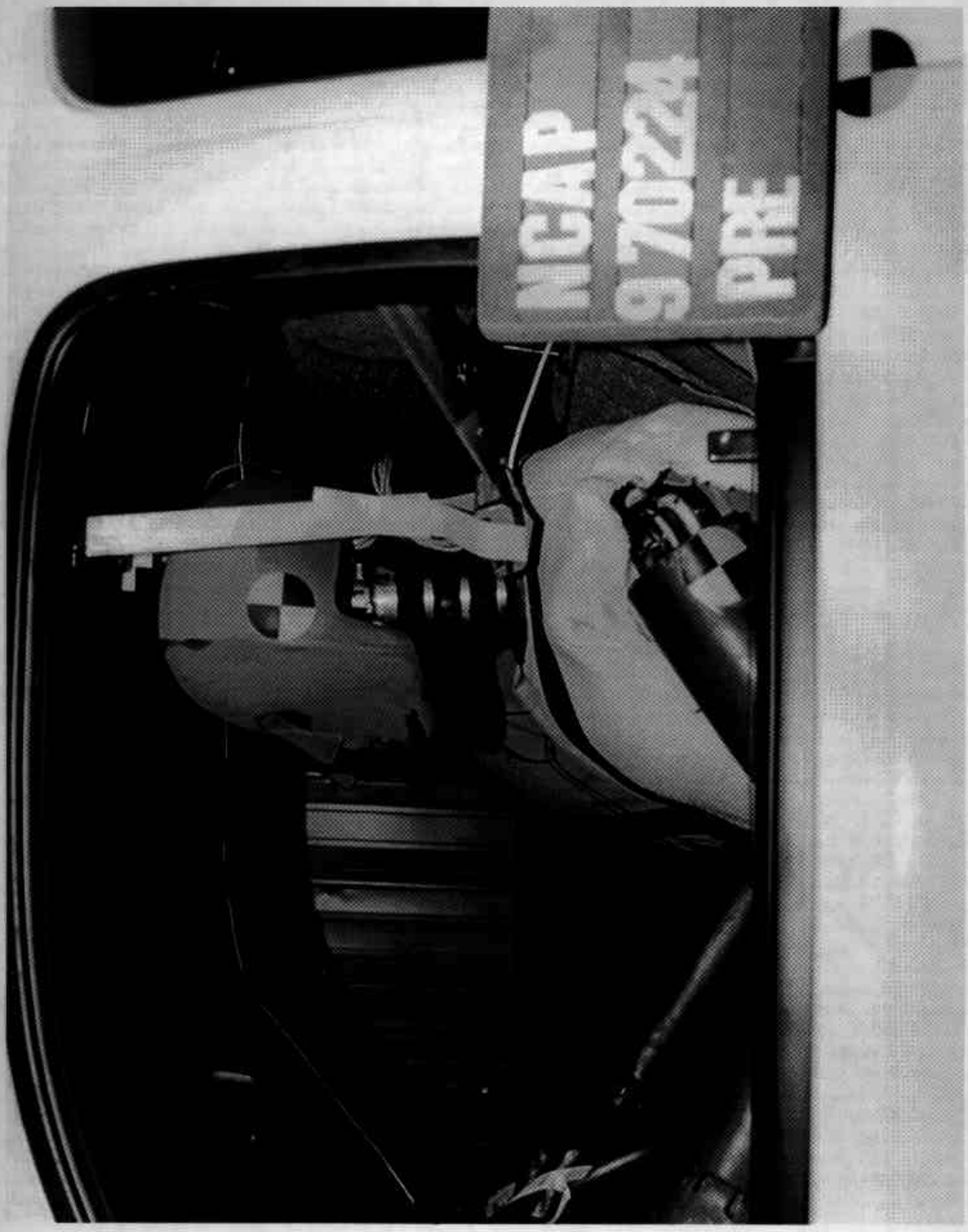


Figure A-31 Pre-Test Driver Dummy Position View

Figure A-32 Post-Test Driver Dummy Position View

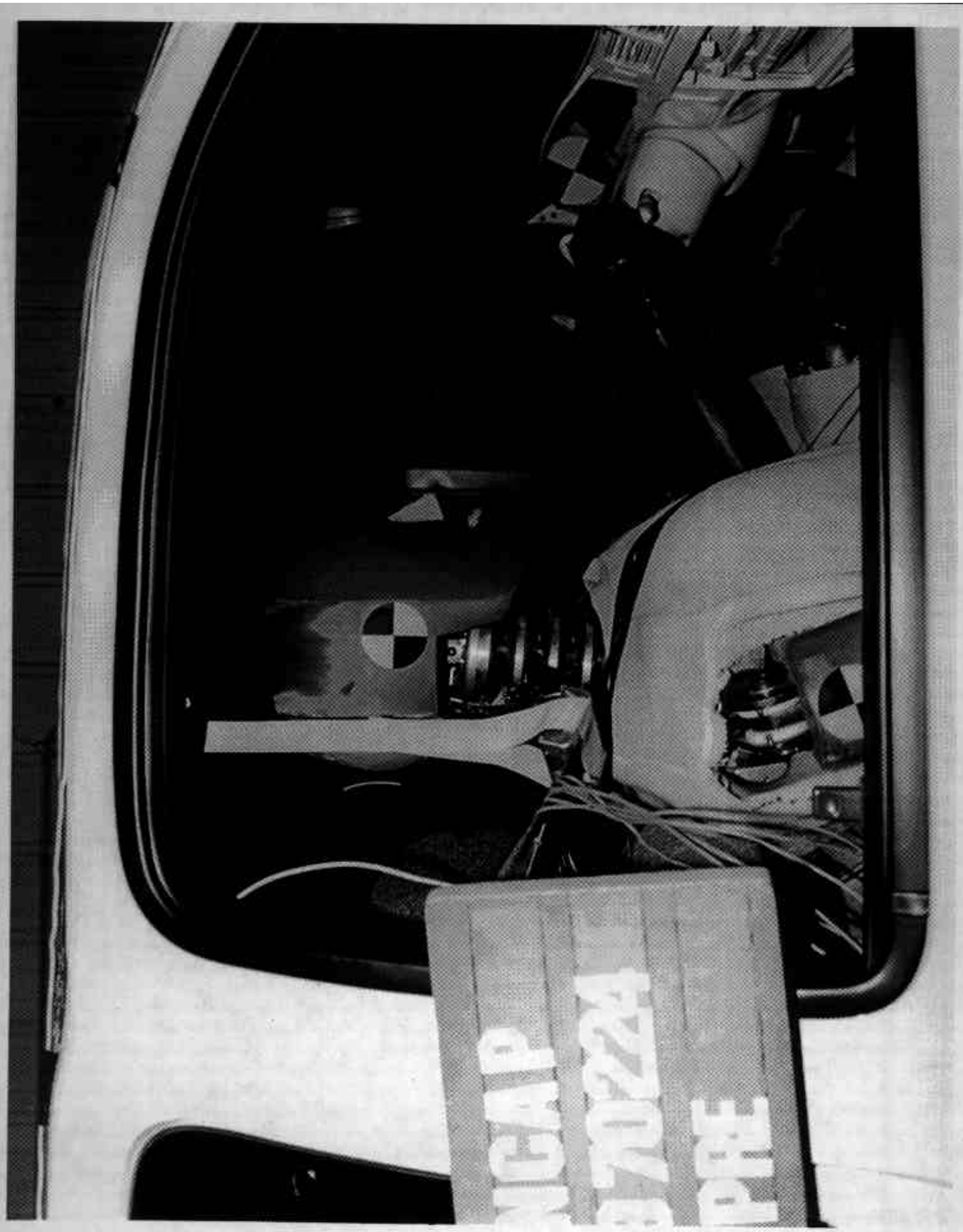


Figure A-33 Pre-Test Passenger Dummy Position View

Figure A-34 Post-Test Passenger Dummy Position View

Figure A-35 Pre-Test Driver Dummy and Vehicle Interior - View 1

Figure A-36 Post-Test Driver Dummy and Vehicle Interior - View 1

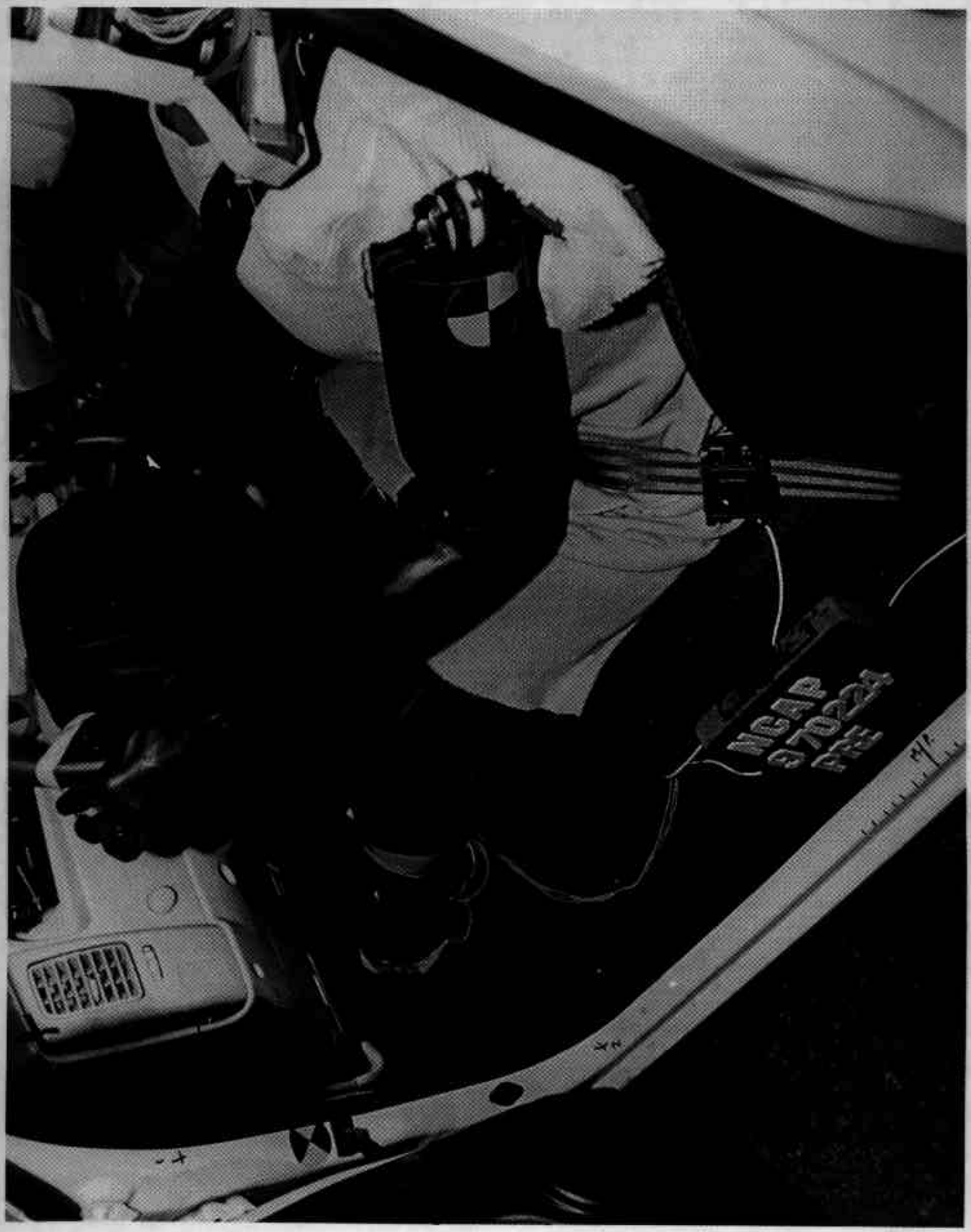


Figure A-37 Pre-Test Driver Dummy and Vehicle Interior - View 2

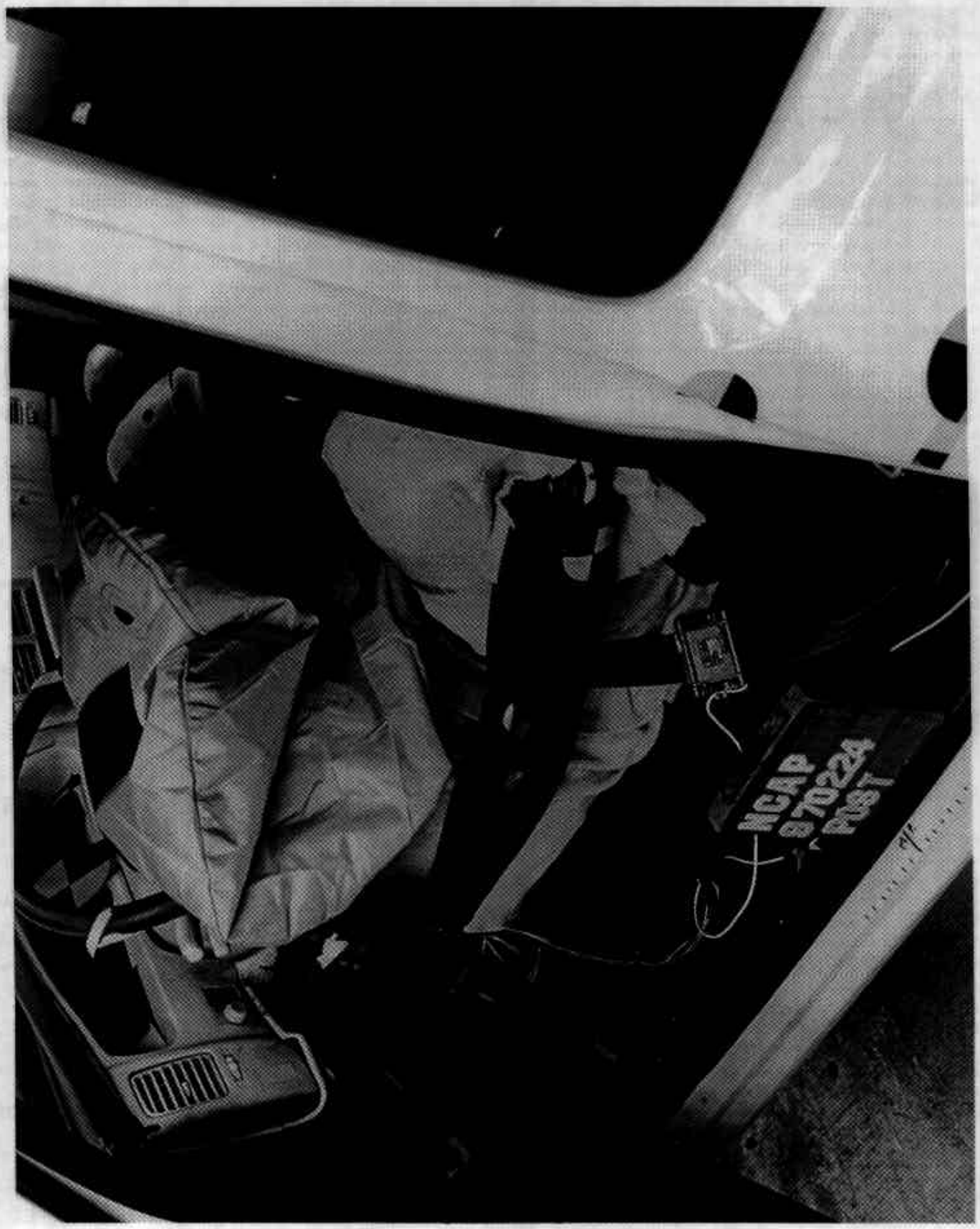


Figure A-38 Post-Test Driver Dummy and Vehicle Interior - View 2

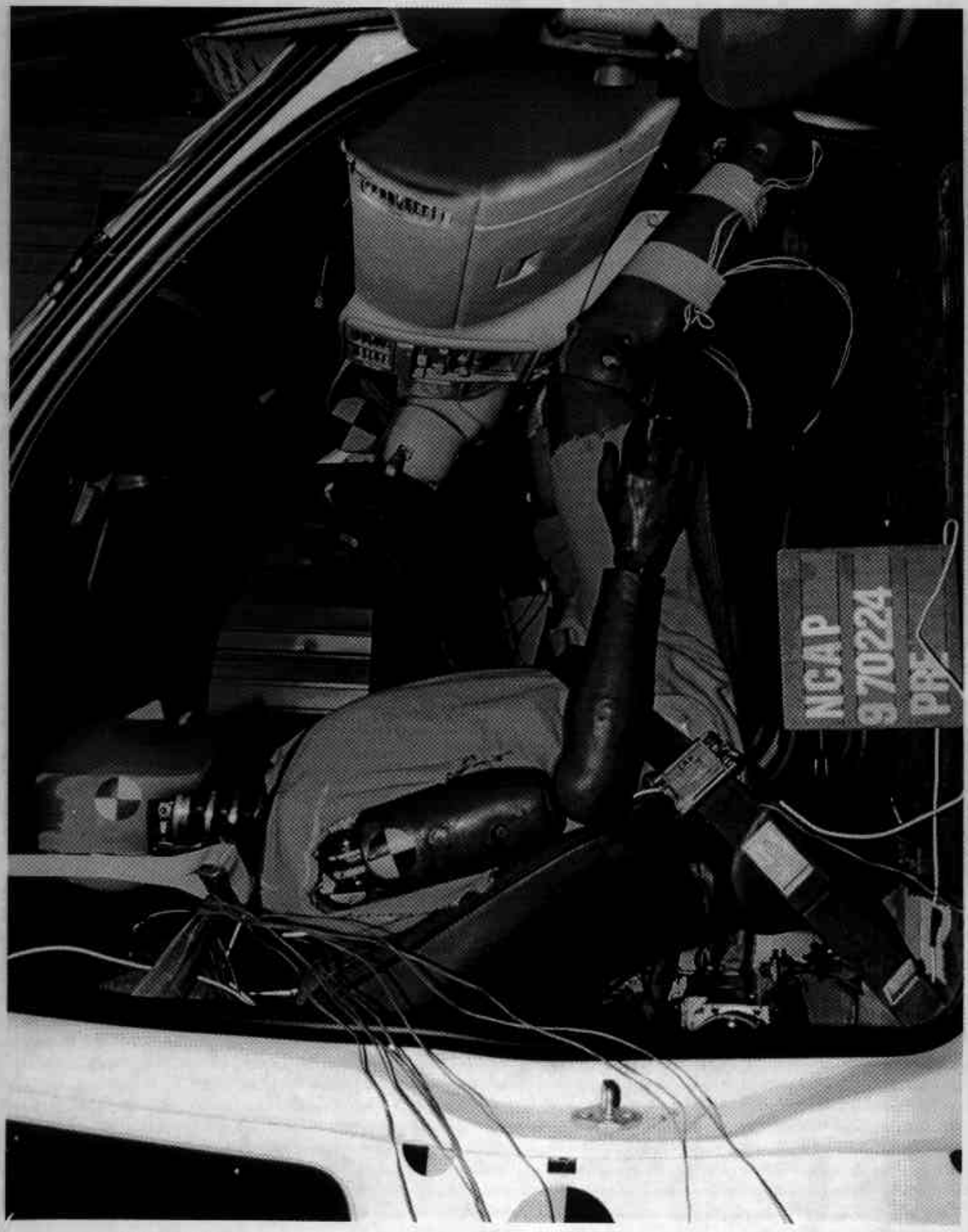


Figure A-39 Pre-Test Passenger Dummy and Vehicle Interior - View 1

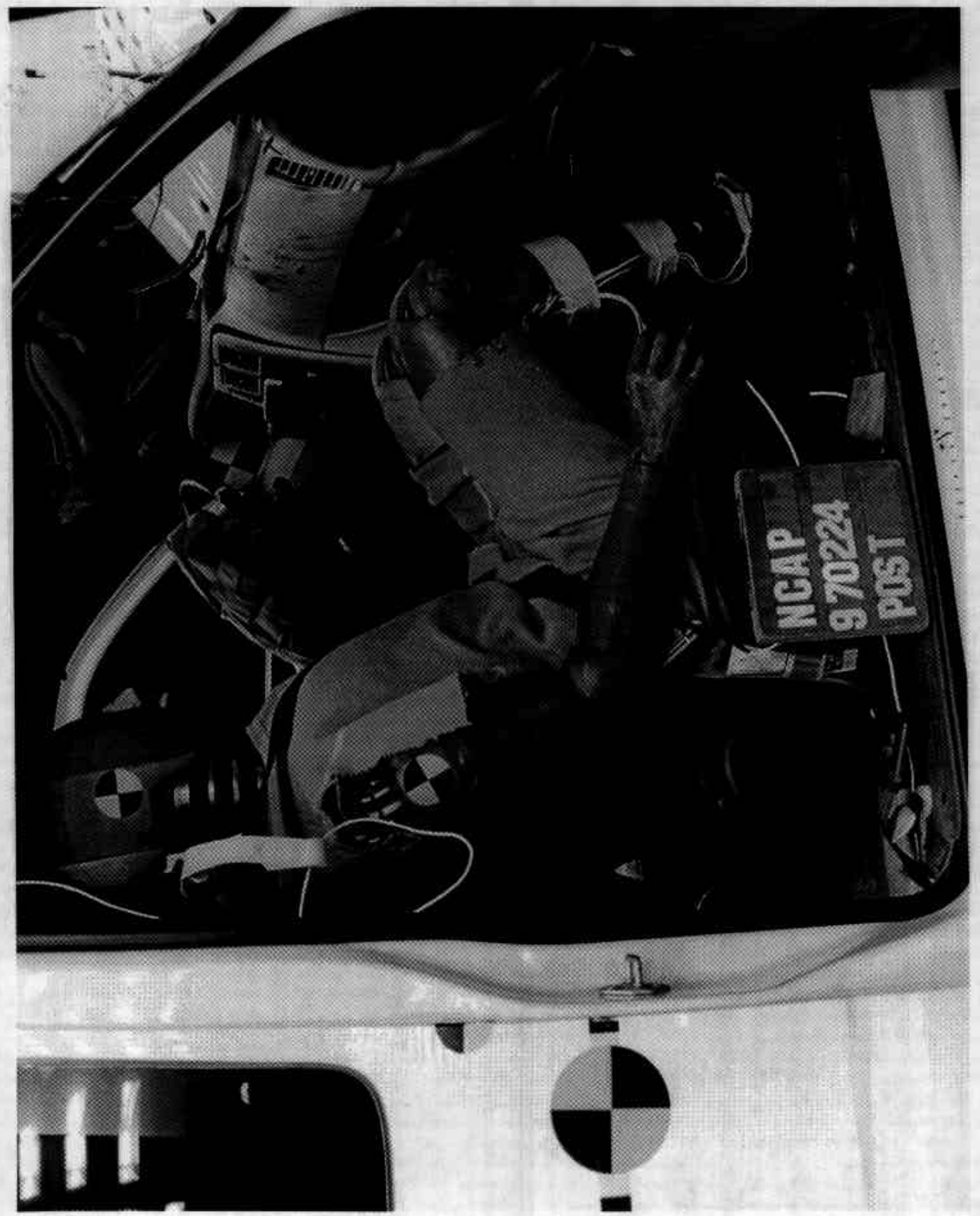


Figure A-40 Post-Test Passenger Dummy and Vehicle Interior - View 1

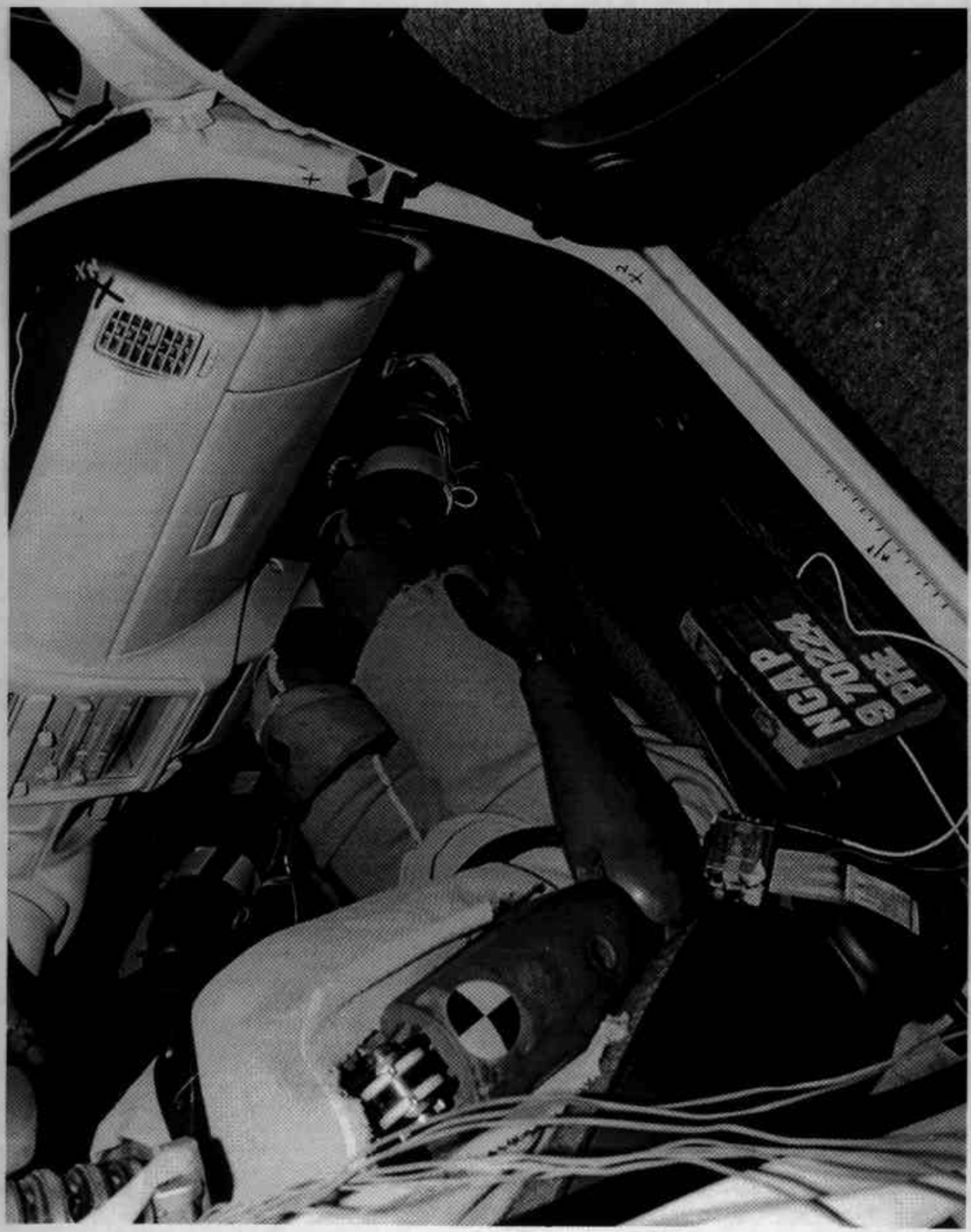


Figure A-41 Pre-Test Passenger Dummy and Vehicle Interior - View 2

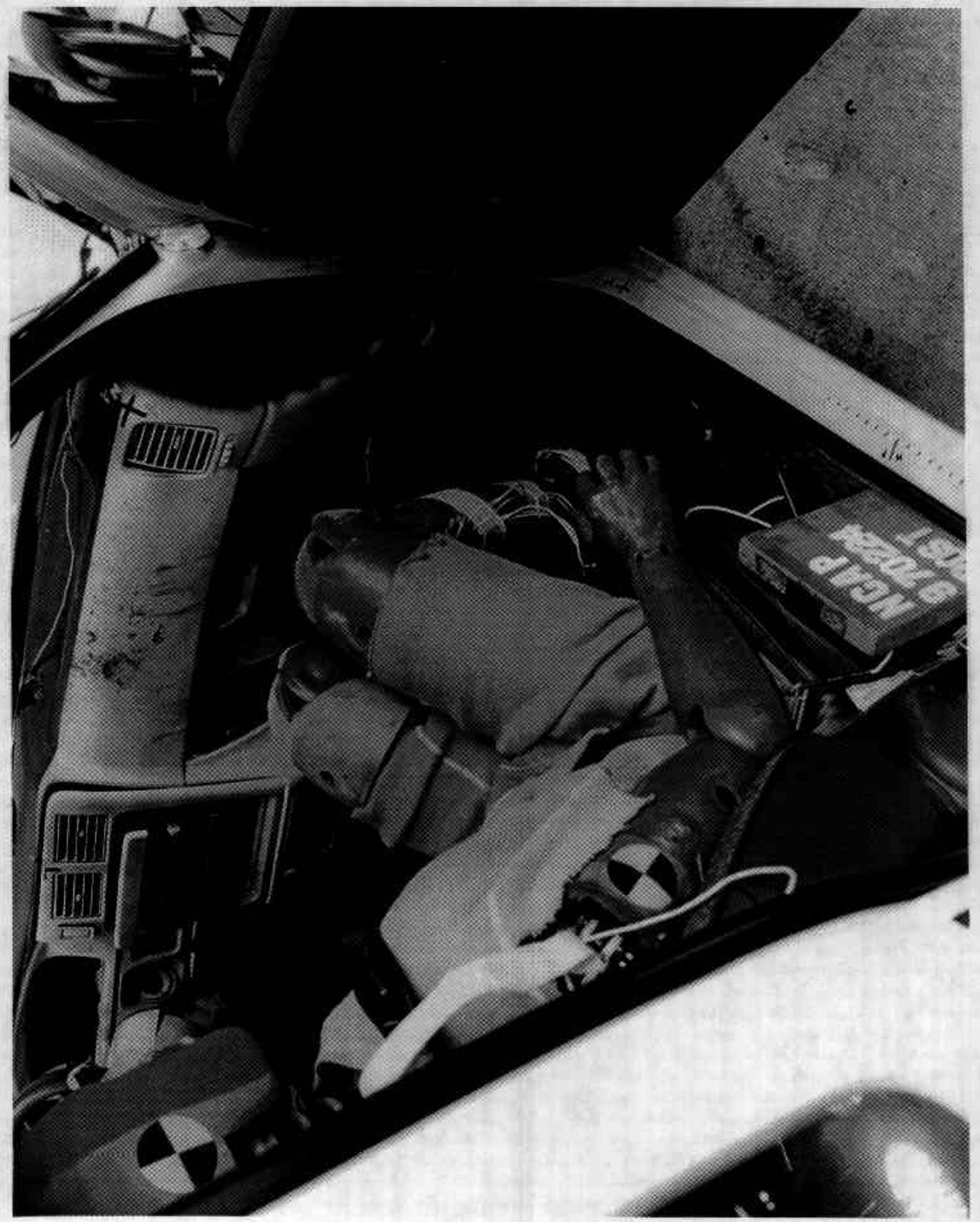


Figure A-42 Post-Test Passenger Dummy and Vehicle Interior - View 2

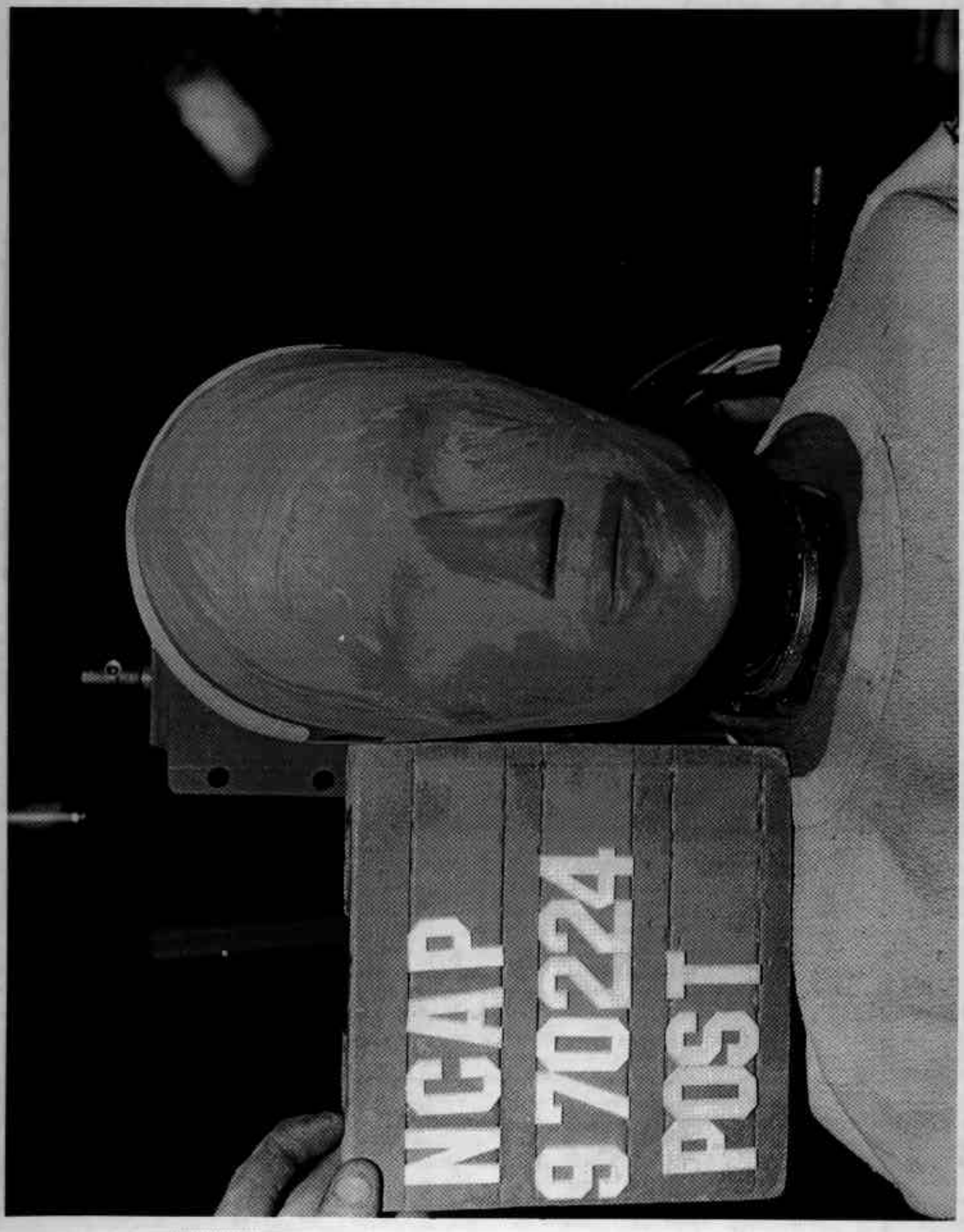


Figure A-43 Post-Test Driver Dummy Head Contact - View 1

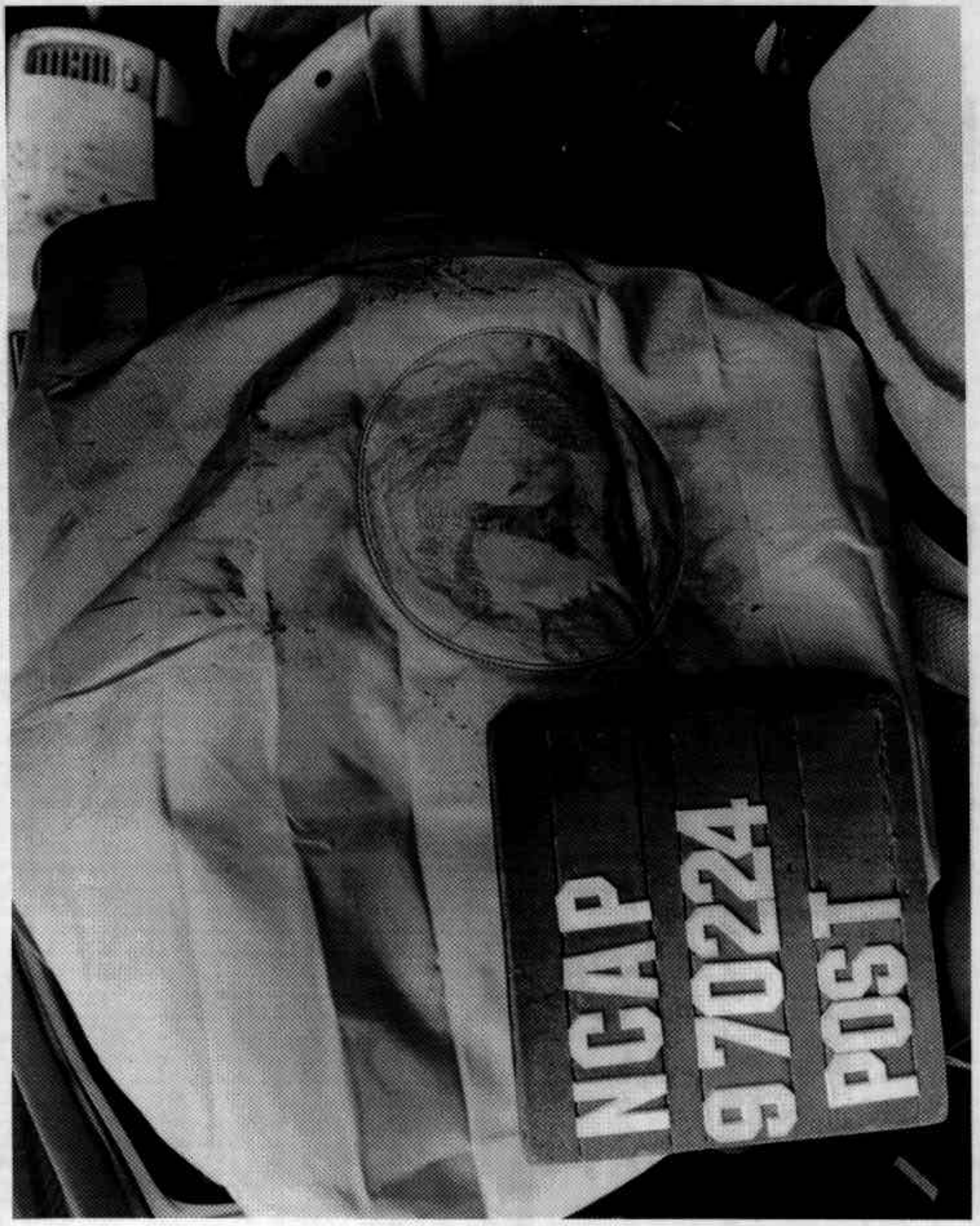


Figure A-44 Post-Test Driver Dummy Head Contact - View 2

Figure A-45 Post-Test Driver Dummy Head Contact - View 3

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

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

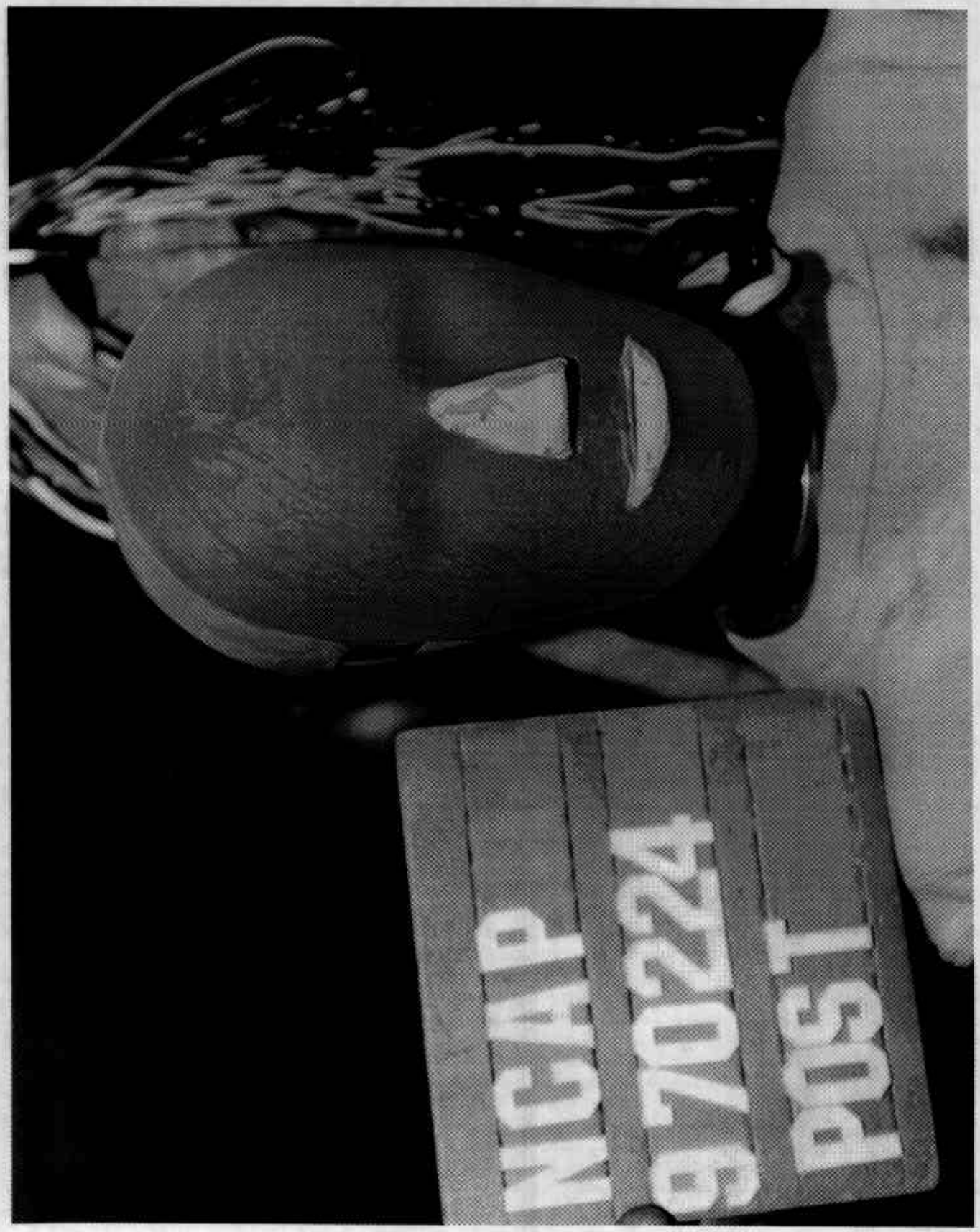


Figure A-48 Post-Test Passenger Dummy Head Contact View

Figure A-49 Post-Test Passenger Dummy Knee Contact - View 1

Figure A-50 Post-Test Passenger Dummy Knee Contact - View 2

Figure A-51 Pre-Test Vehicle Certification Label View

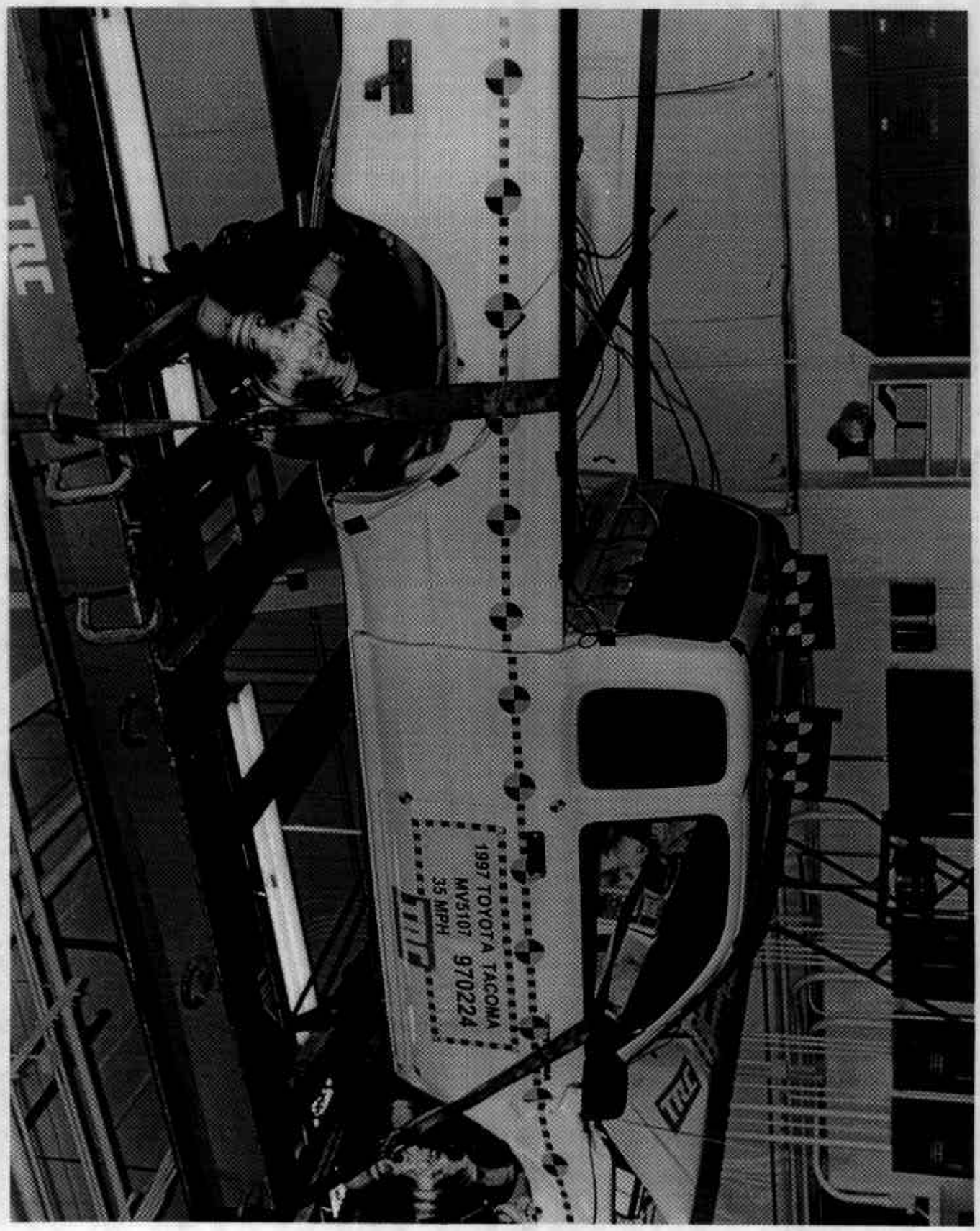
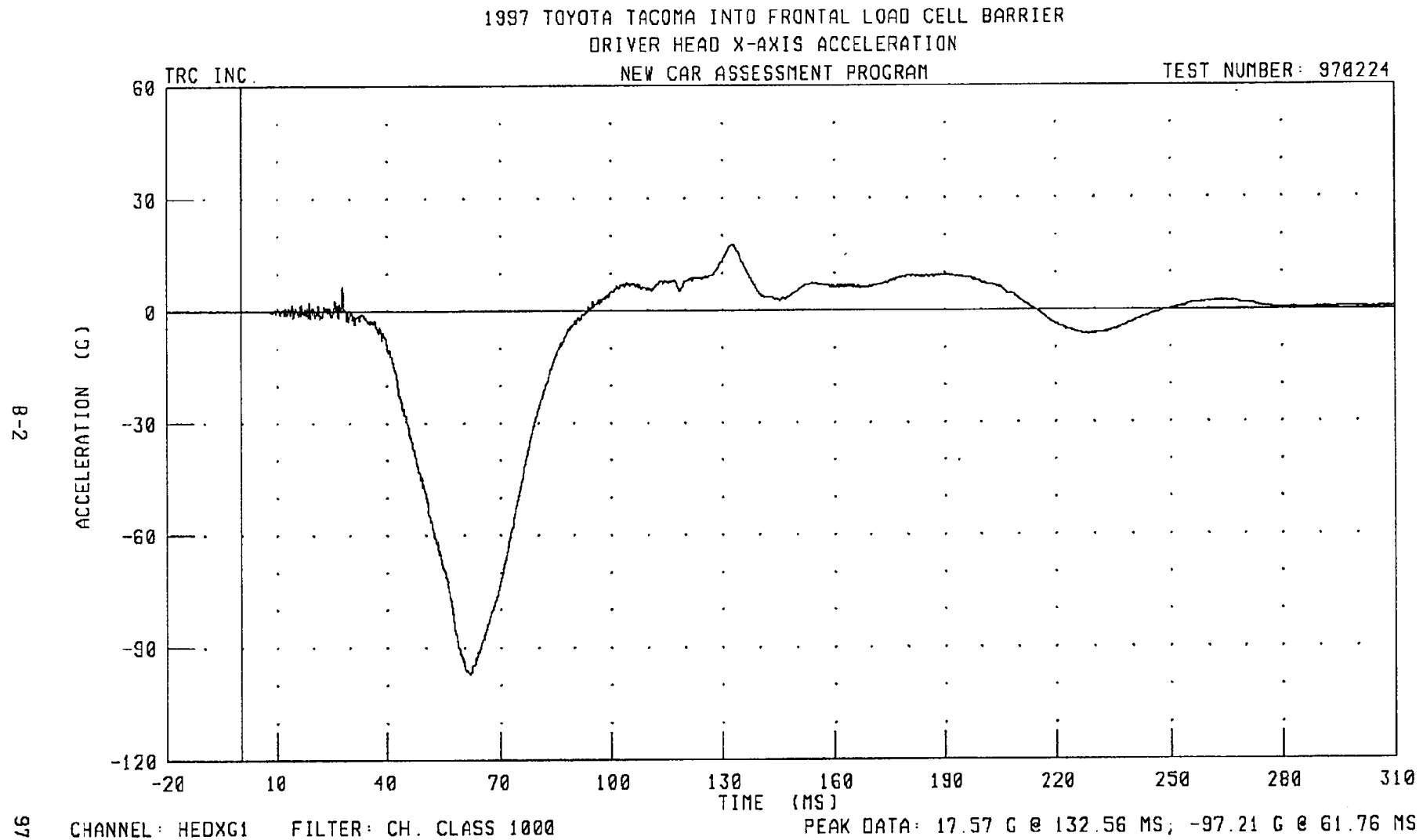


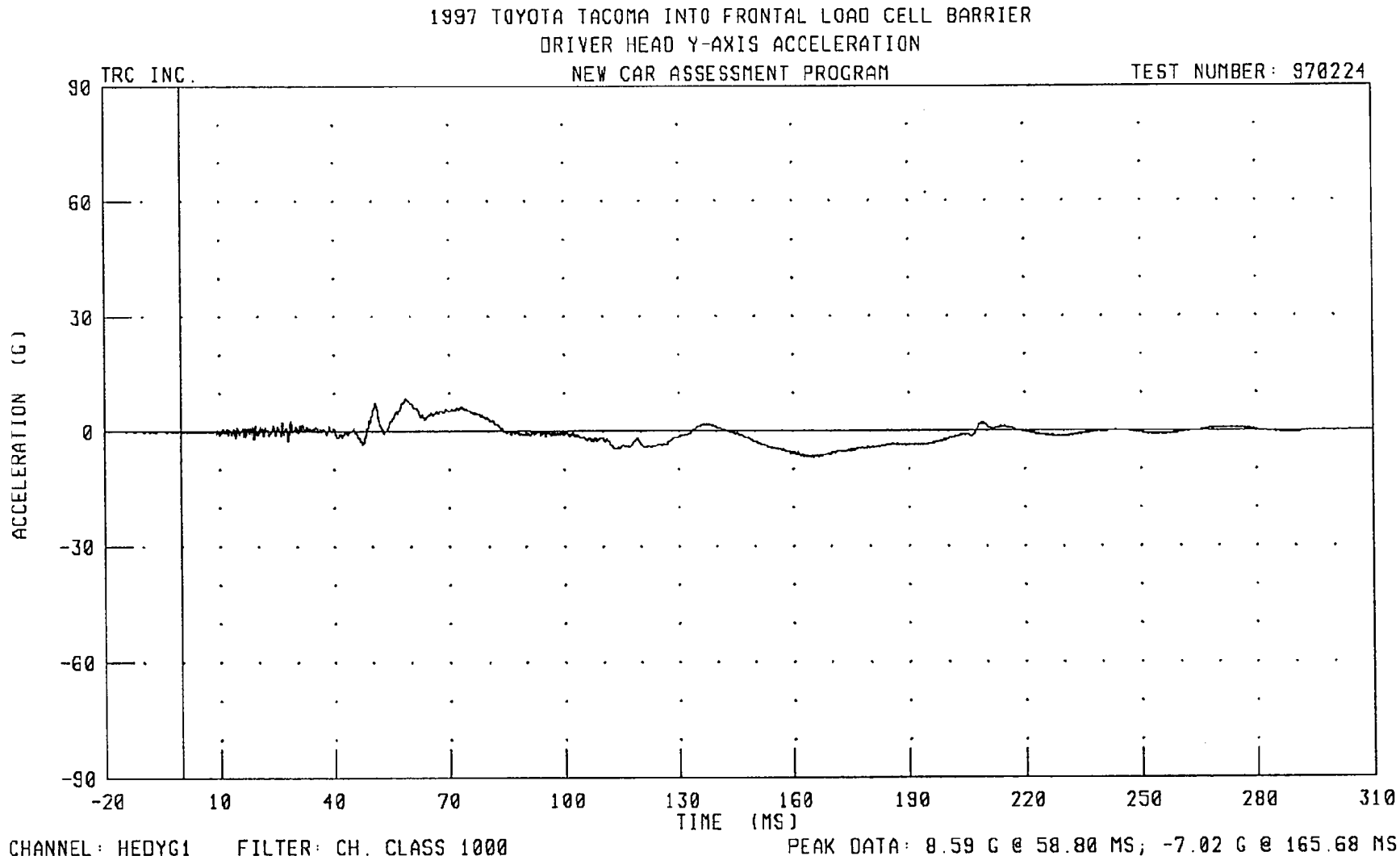
Figure A-52 Post-Test Vehicle on Static Rollover Machine View

Appendix B

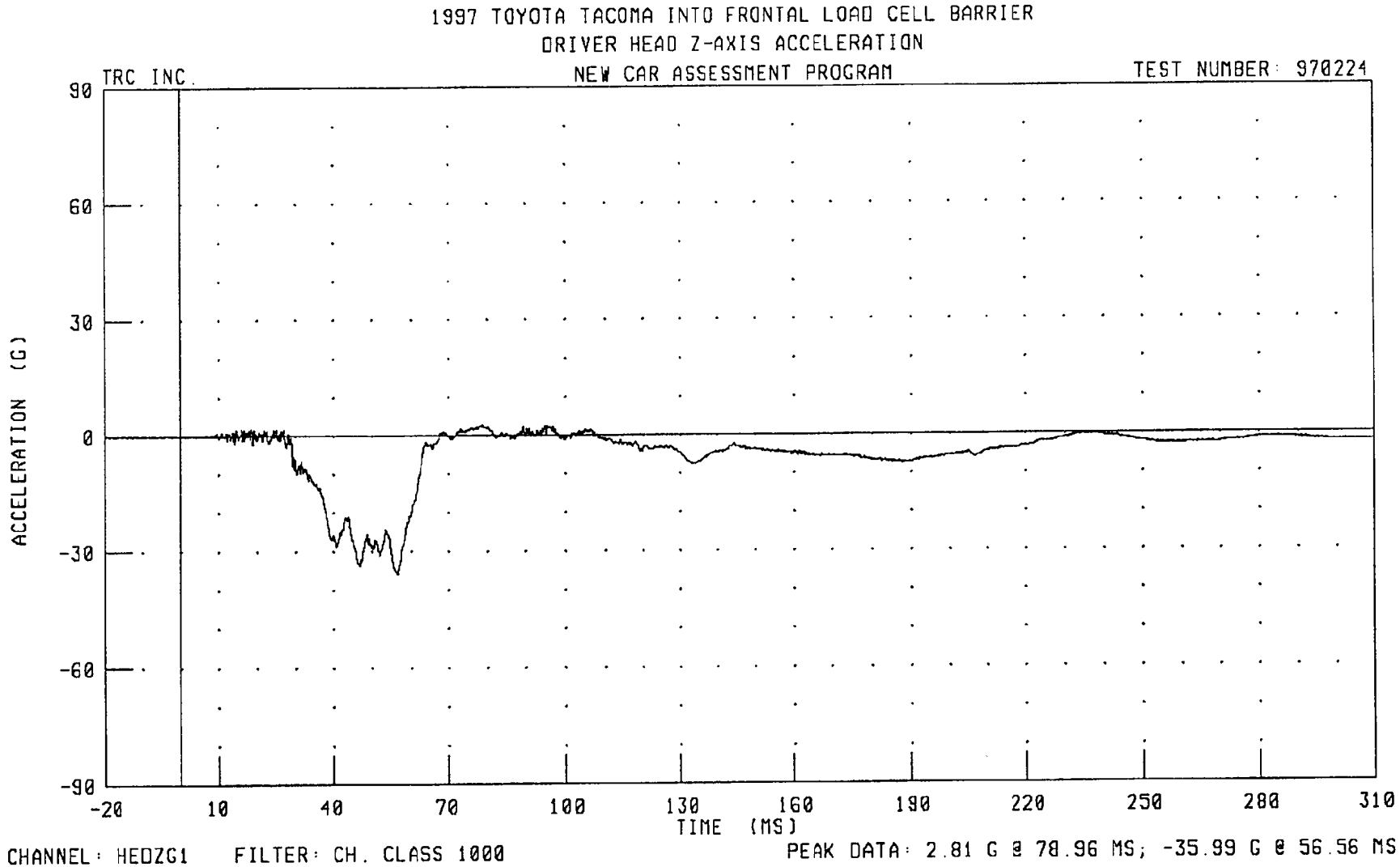
Data Plots


1997 TOYOTA TACOMA INTO FRONTAL LOAD CELL BARRIER
DRIVER HEAD X-AXIS ACCELERATION
TRC INC.
NEW CAR ASSESSMENT PROGRAM
TEST NUMBER: 970224
60
30
0
-30
-60
-90
-120
ACCELERATION (G)
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: HEDXG1
FILTER: CH. CLASS 1000
PEAK DATA: 17.57 G @ 132.56 MS; -97.21 G @ 61.76 MS

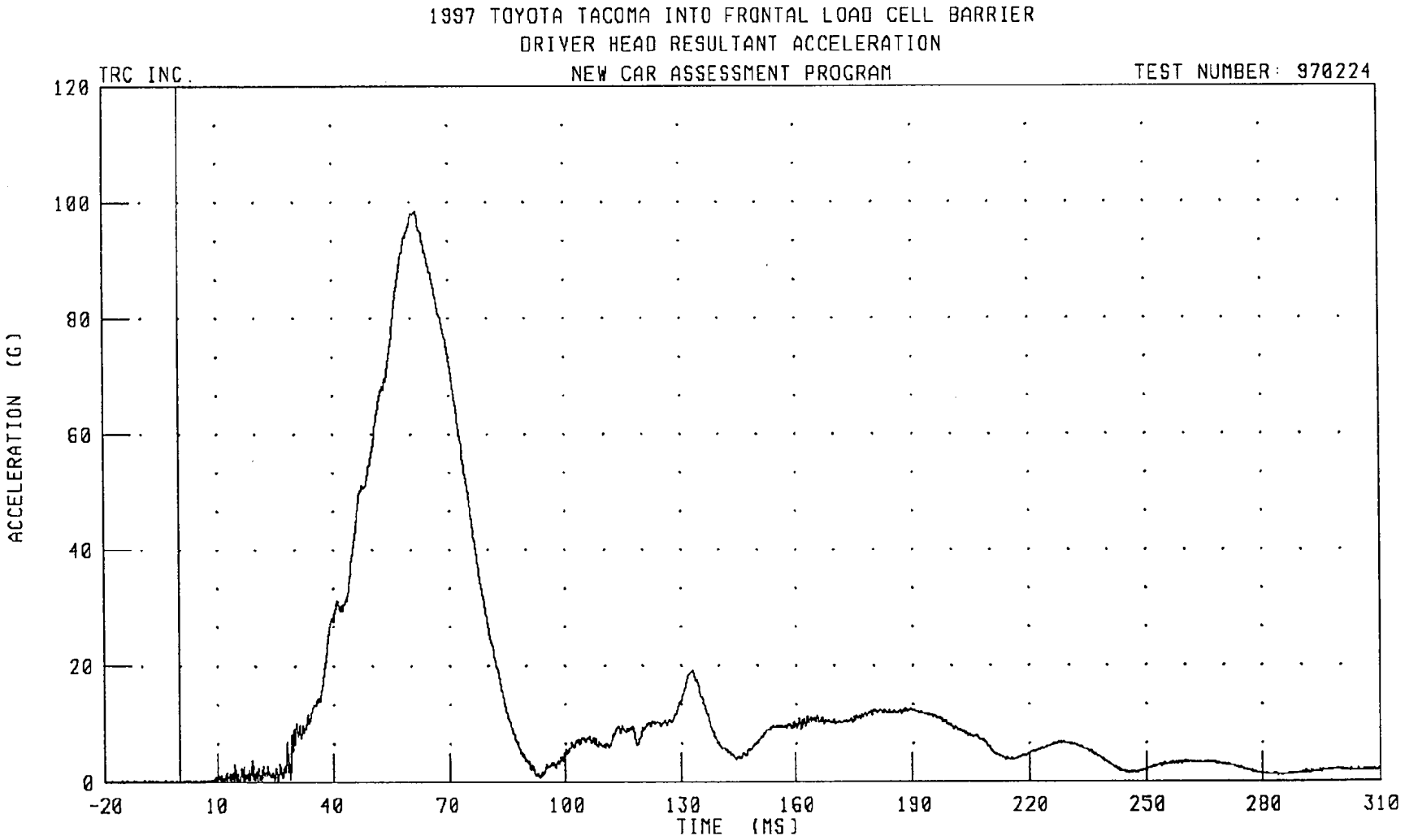
970224


1997 TOYOTA TACOMA INTO FRONTAL LOAD CELL BARRIER
DRIVER HEAD Y-AXIS ACCELERATION
TRC INC.
NEW CAR ASSESSMENT PROGRAM
TEST NUMBER: 970224
90
60
30
0
-30
-60
-90
ACCELERATION (G)
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: HEDYG1
FILTER: CH. CLASS 1000
PEAK DATA: 8.59 G @ 58.80 MS; -7.02 G @ 165.68 MS

970224


1997 TOYOTA TACOMA INTO FRONTAL LOAD CELL BARRIER
DRIVER HEAD Z-AXIS ACCELERATION
TRC INC.
NEW CAR ASSESSMENT PROGRAM
TEST NUMBER: 970224
90
60
30
0
-30
-60
-90
ACCELERATION (G)
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: HEDZG1
FILTER: CH. CLASS 1000
PEAK DATA: 2.81 G @ 78.96 MS; -35.99 G @ 56.56 MS

970224

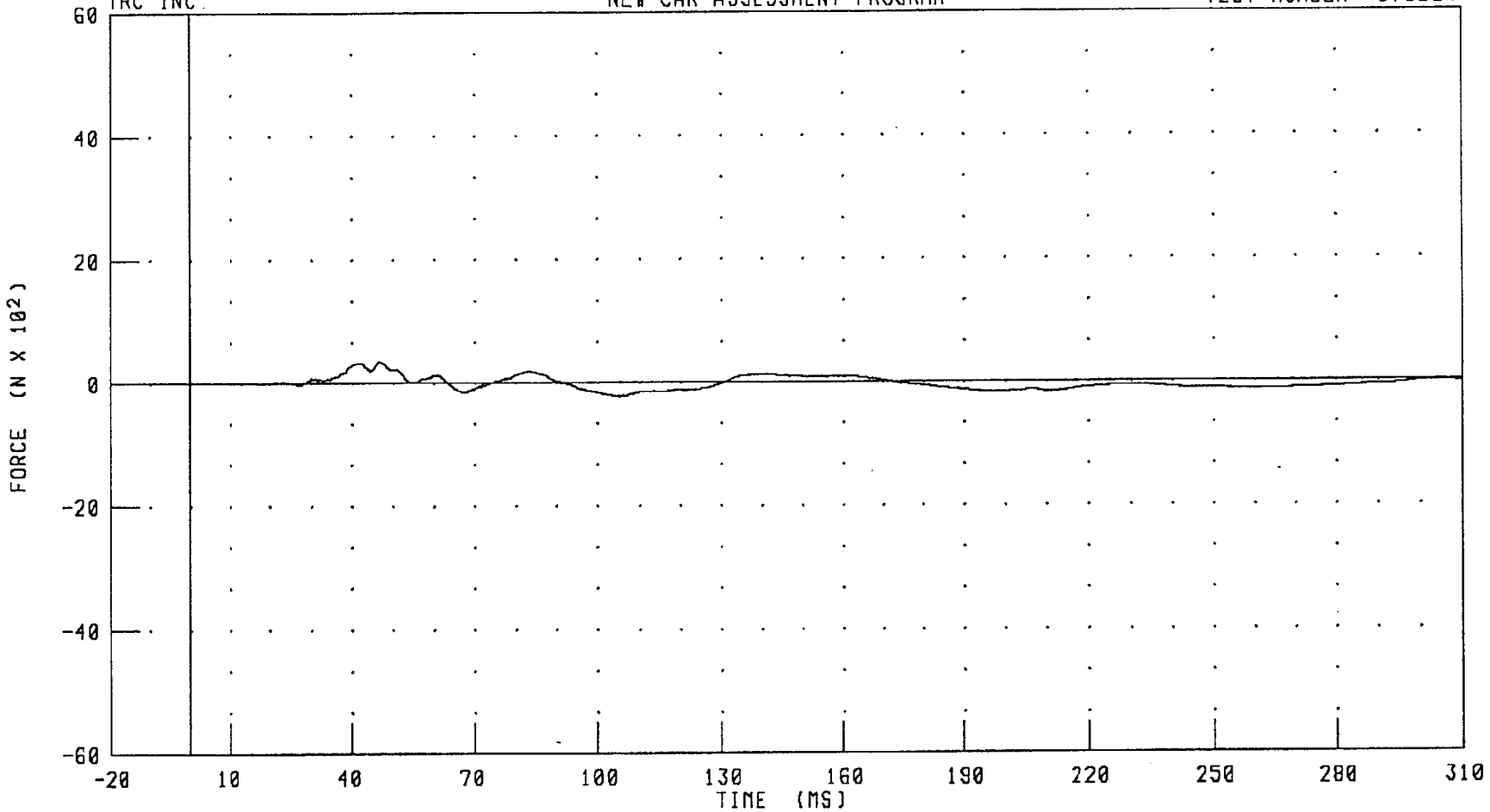

1997 TOYOTA TACOMA INTO FRONTAL LOAD CELL BARRIER
DRIVER HEAD RESULTANT ACCELERATION
TRC INC.
NEW CAR ASSESSMENT PROGRAM
TEST NUMBER: 970224
ACCELERATION (G)
120
100
80
60
40
20
0
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: HEDRG1
FILTER: CH. CLASS 1000
PEAK DATA: 98.40 G @ 61.76 MS; 0.13 G @ -15.68 MS

970224

1997 TOYOTA TACOMA INTO FRONTAL LOAD CELL BARRIER
DRIVER NECK X-AXIS SHEAR FORCE
NEW CAR ASSESSMENT PROGRAM

TRC INC.

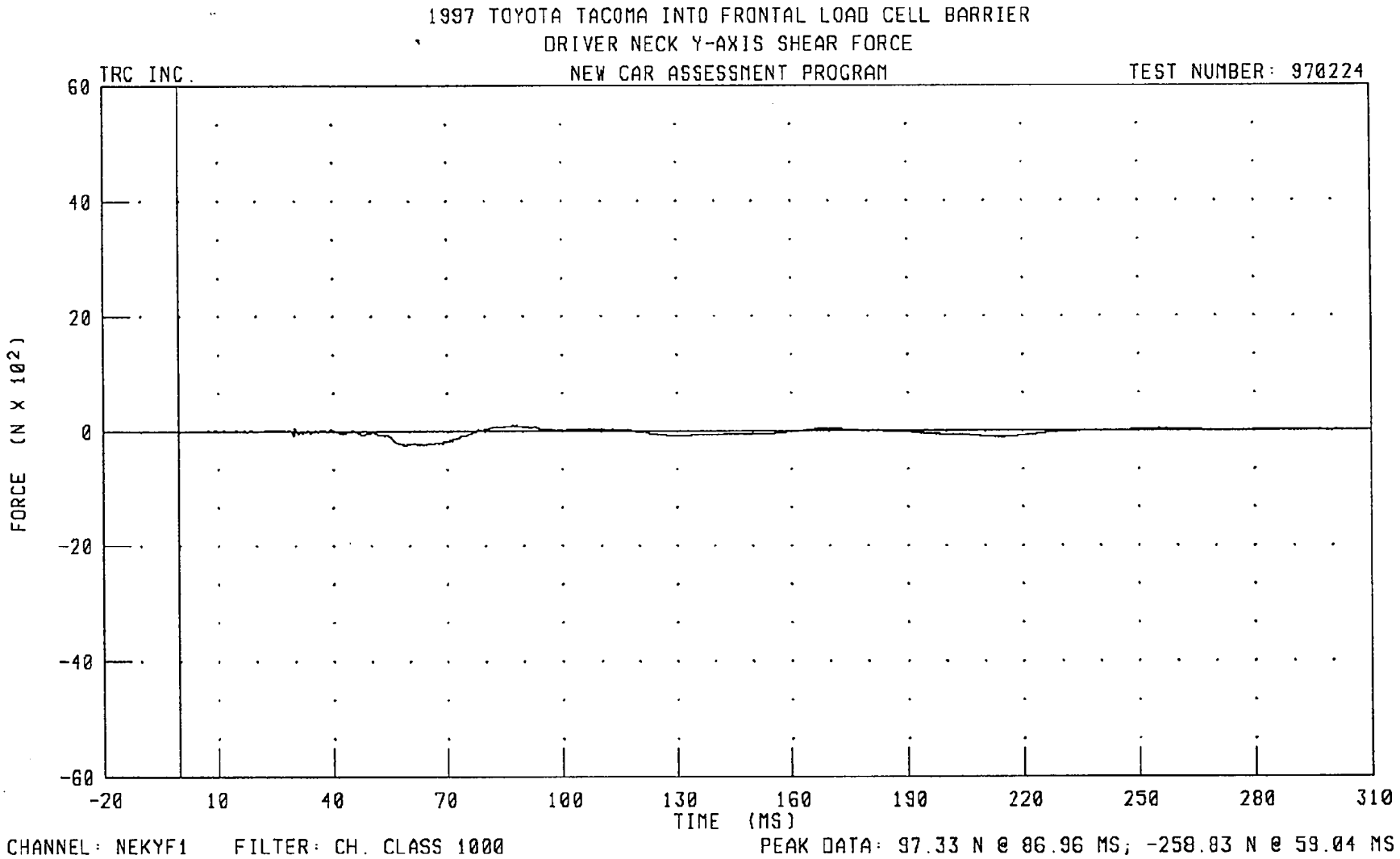
TEST NUMBER: 970224



CHANNEL: NEKXF1 FILTER: CH. CLASS 1000

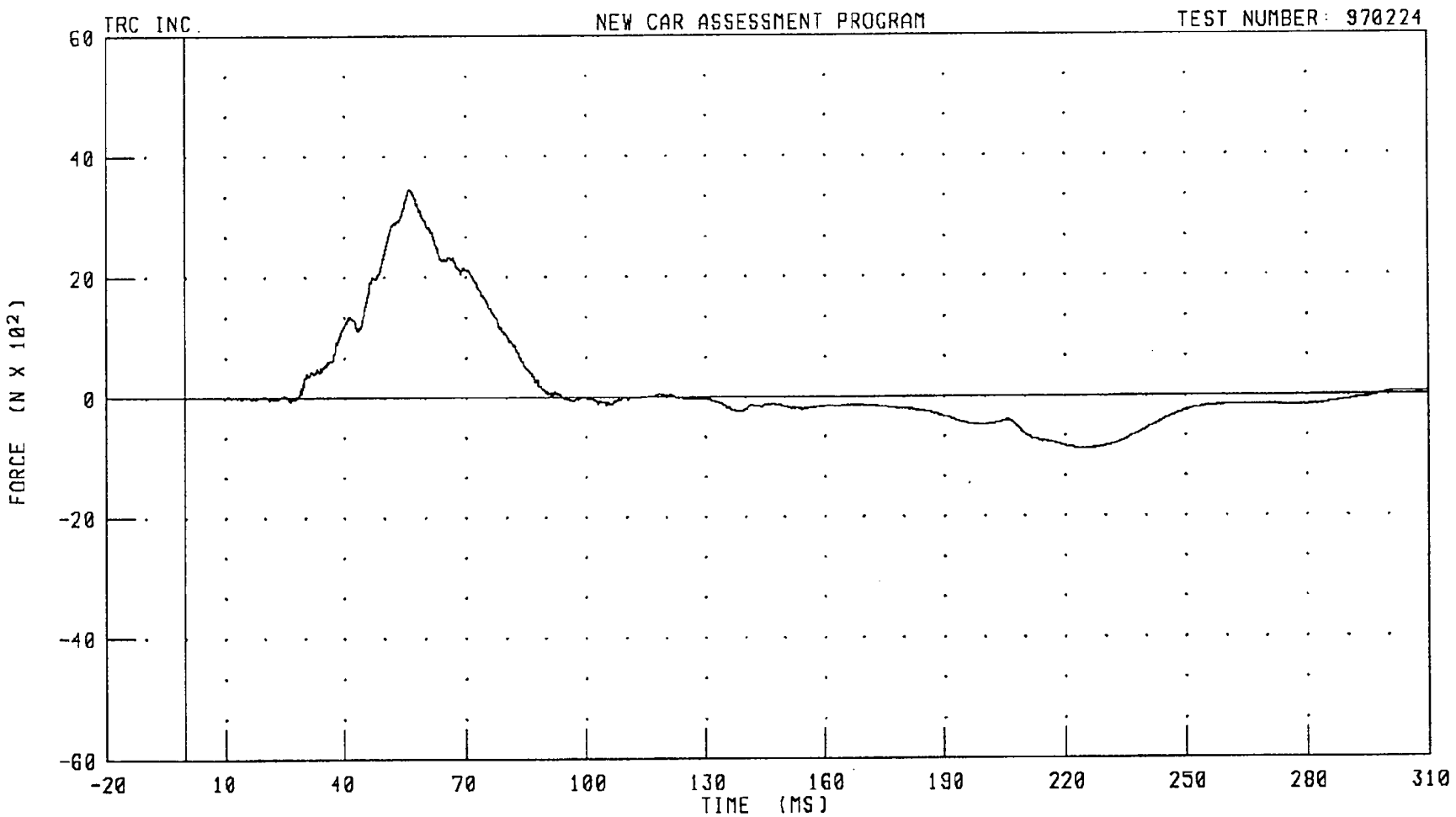
PEAK DATA: 354.92 N @ 46.72 MS; -231.51 N @ 105.20 MS

970224


1997 TOYOTA TACOMA INTO FRONTAL LOAD CELL BARRIER
DRIVER NECK Y-AXIS SHEAR FORCE
TRC INC.
NEW CAR ASSESSMENT PROGRAM
TEST NUMBER: 970224
60
40
20
0
-20
-40
-60
FORCE (N X 10²)
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: NEKYF1
FILTER: CH. CLASS 1000
PEAK DATA: 97.33 N @ 86.96 MS; -258.83 N @ 59.04 MS

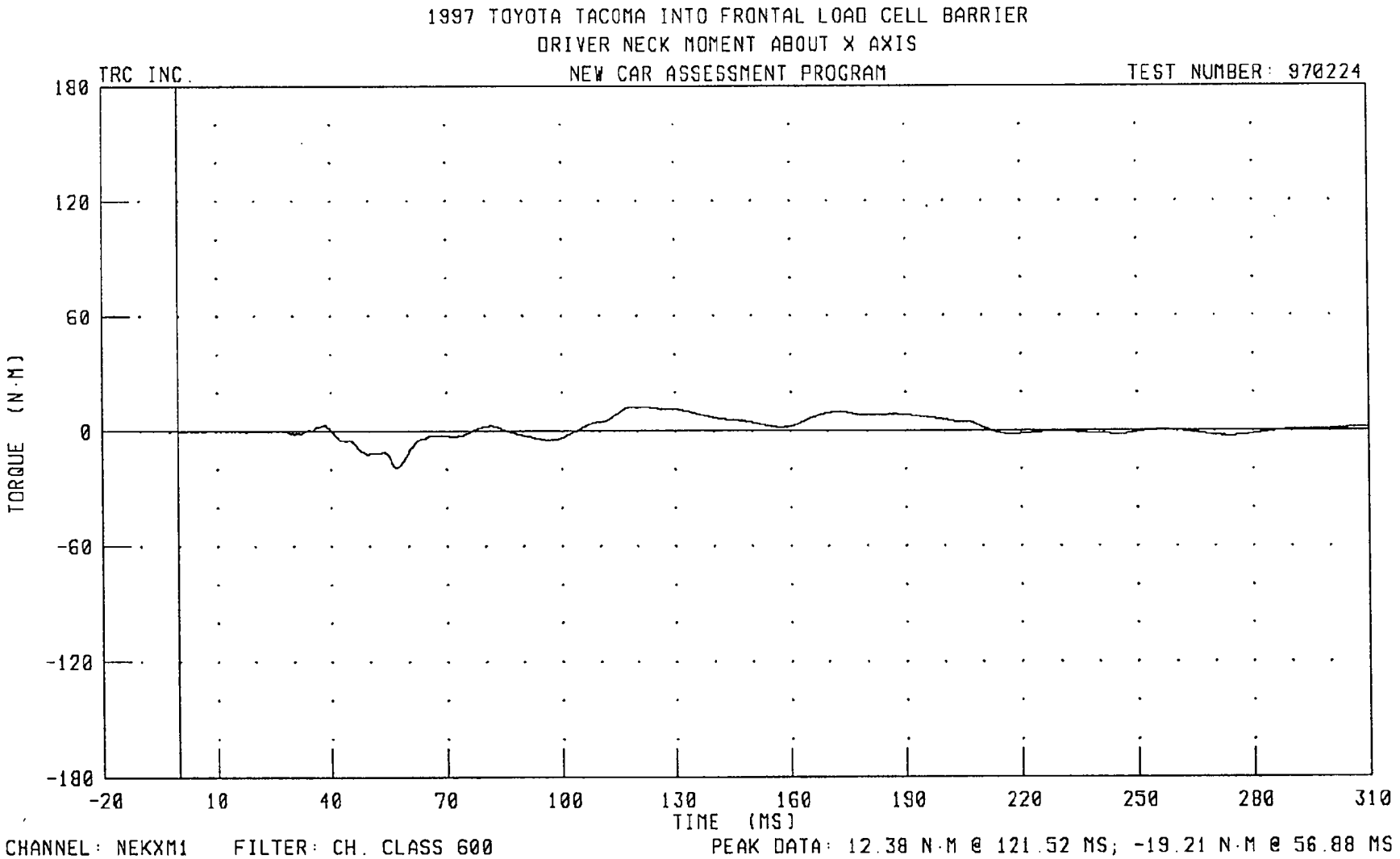
970224

1997 TOYOTA TACOMA INTO FRONTAL LOAD CELL BARRIER
DRIVER NECK Z-AXIS AXIAL FORCE



CHANNEL: NEKZF1 FILTER: CH. CLASS 1000

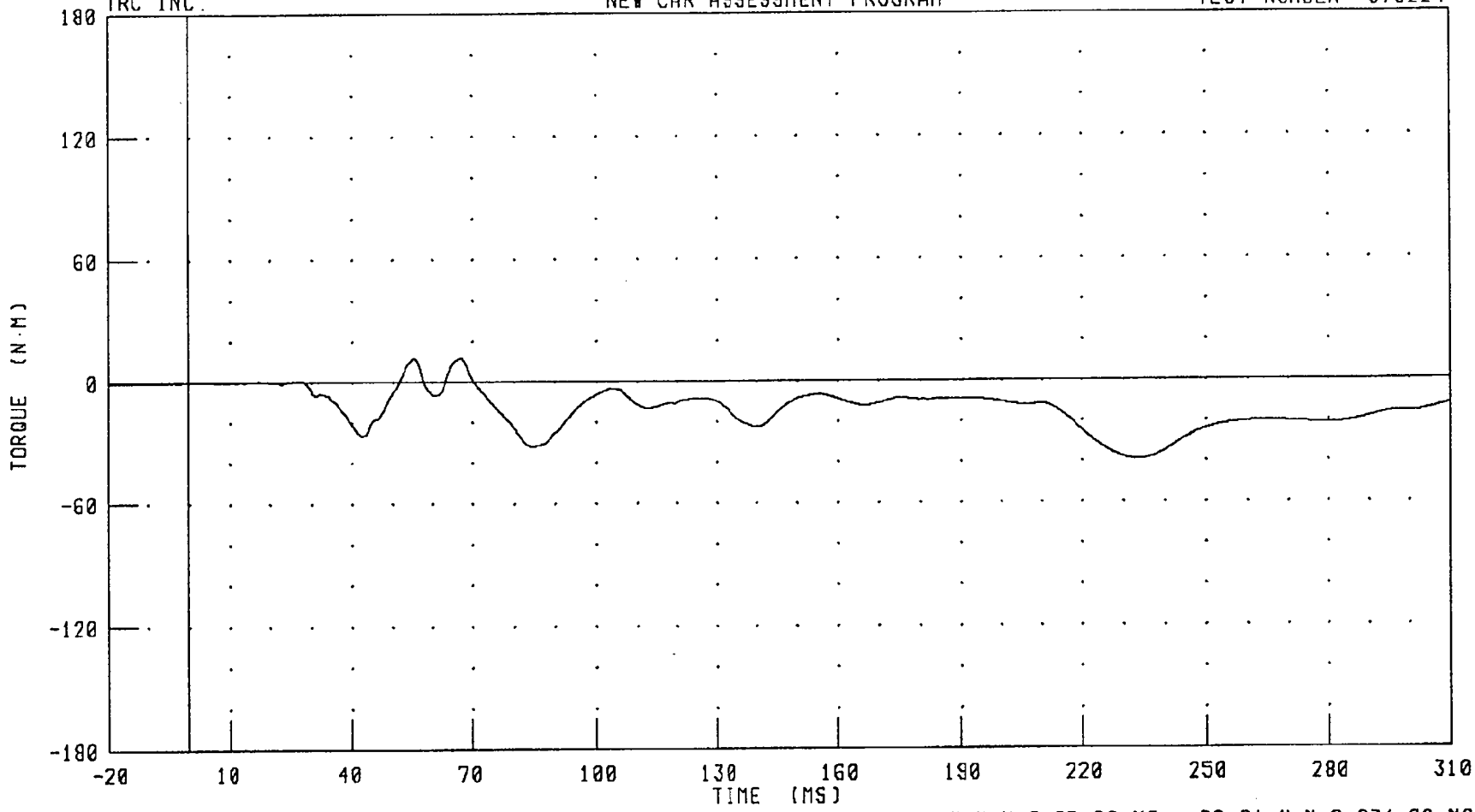
PEAK DATA: 3453.45 N @ 56.24 MS; -886.39 N @ 223.84 MS


1997 TOYOTA TACOMA INTO FRONTAL LOAD CELL BARRIER
DRIVER NECK MOMENT ABOUT X AXIS
TRC INC.
NEW CAR ASSESSMENT PROGRAM
TEST NUMBER: 970224
180
120
60
0
-60
-120
-180
TORQUE (N-M)
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: NEKXM1
FILTER: CH. CLASS 600
PEAK DATA: 12.38 N-M @ 121.52 MS; -19.21 N-M @ 56.88 MS

1997 TOYOTA TACOMA INTO FRONTAL LOAD CELL BARRIER
DRIVER NECK MOMENT ABOUT Y AXIS
NEW CAR ASSESSMENT PROGRAM

TRC INC.

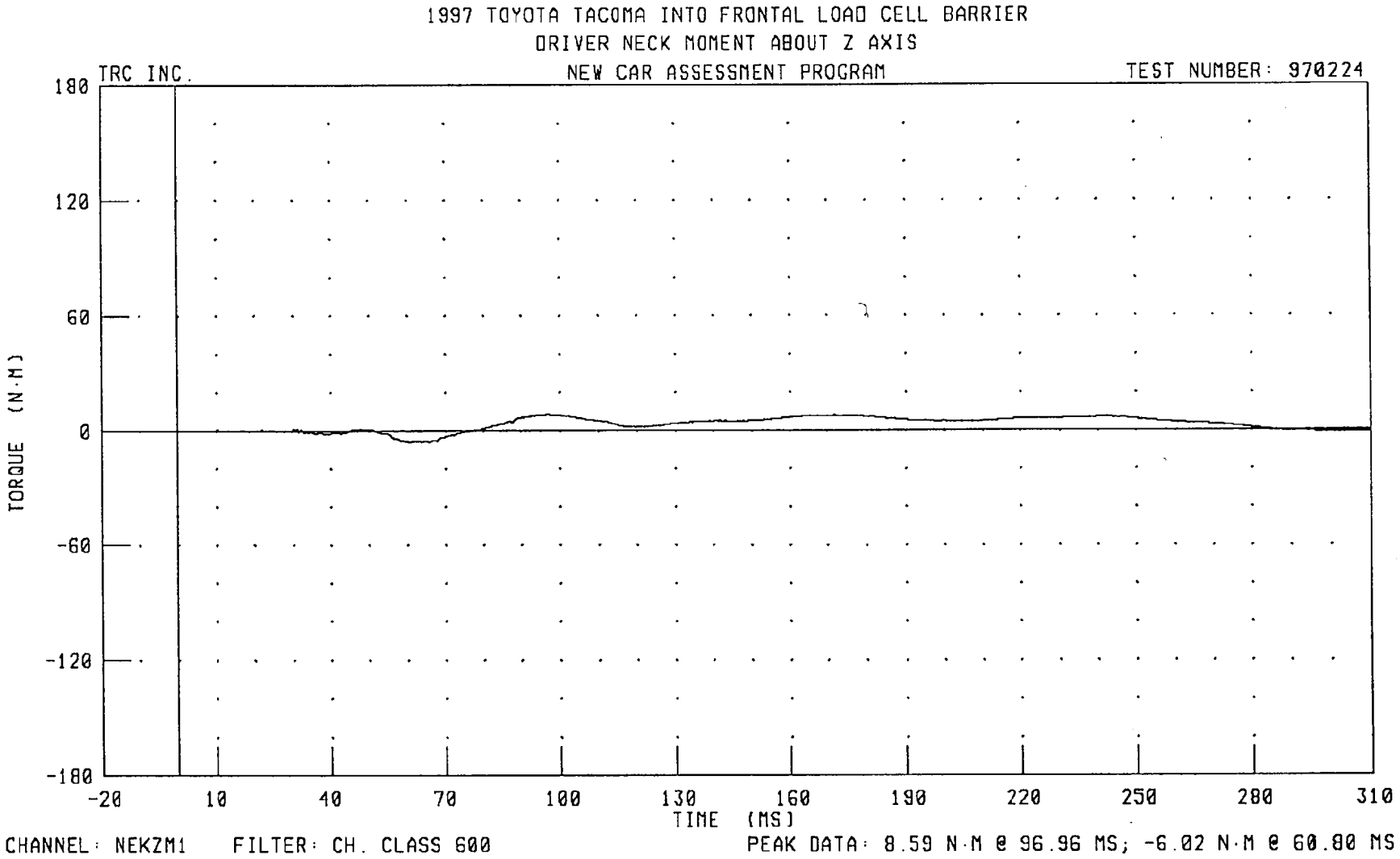
TEST NUMBER: 970224



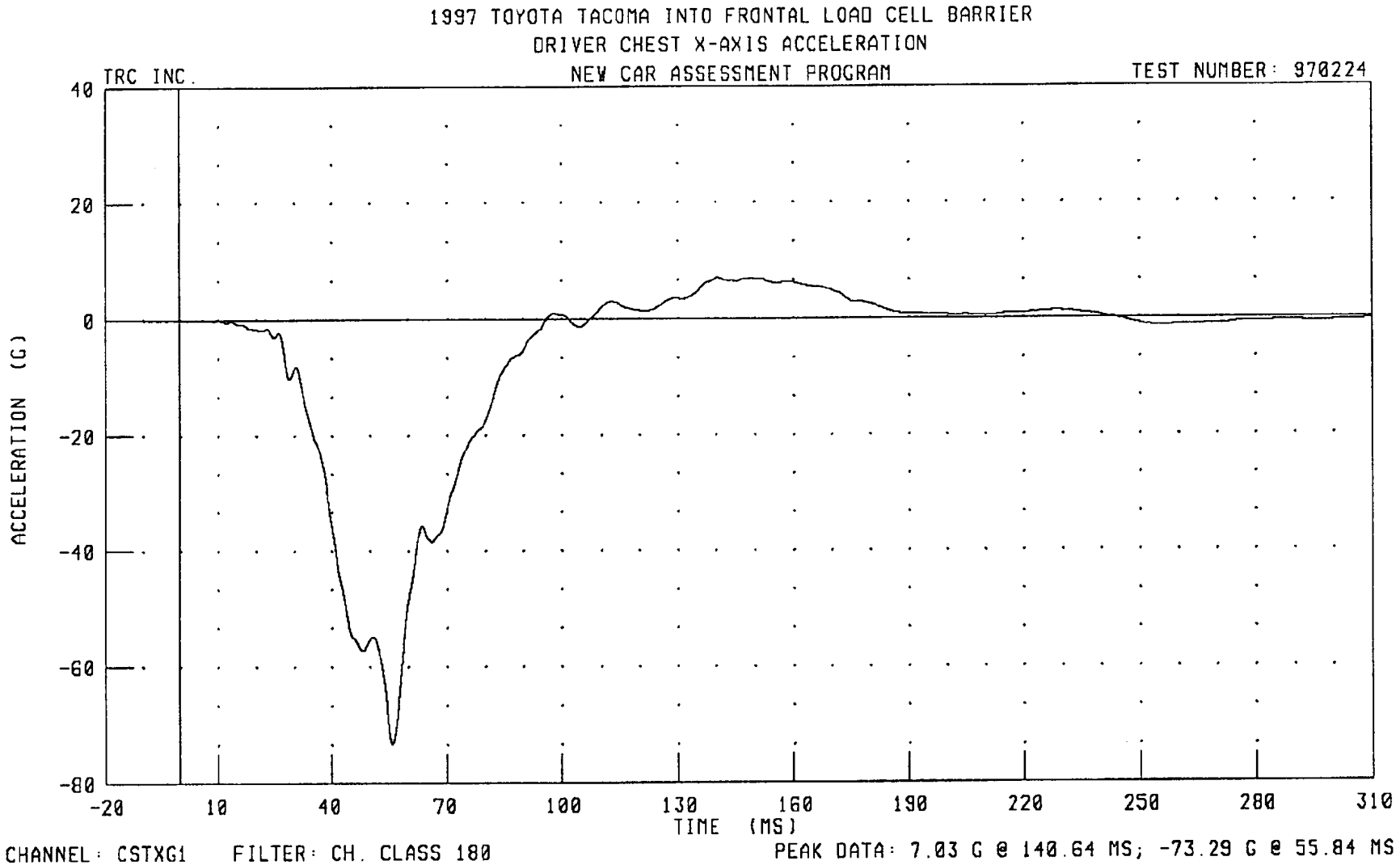
CHANNEL: NEKYM1 FILTER: CH. CLASS 600

PEAK DATA: 11.63 N-M @ 67.28 MS; -39.01 N-M @ 234.00 MS

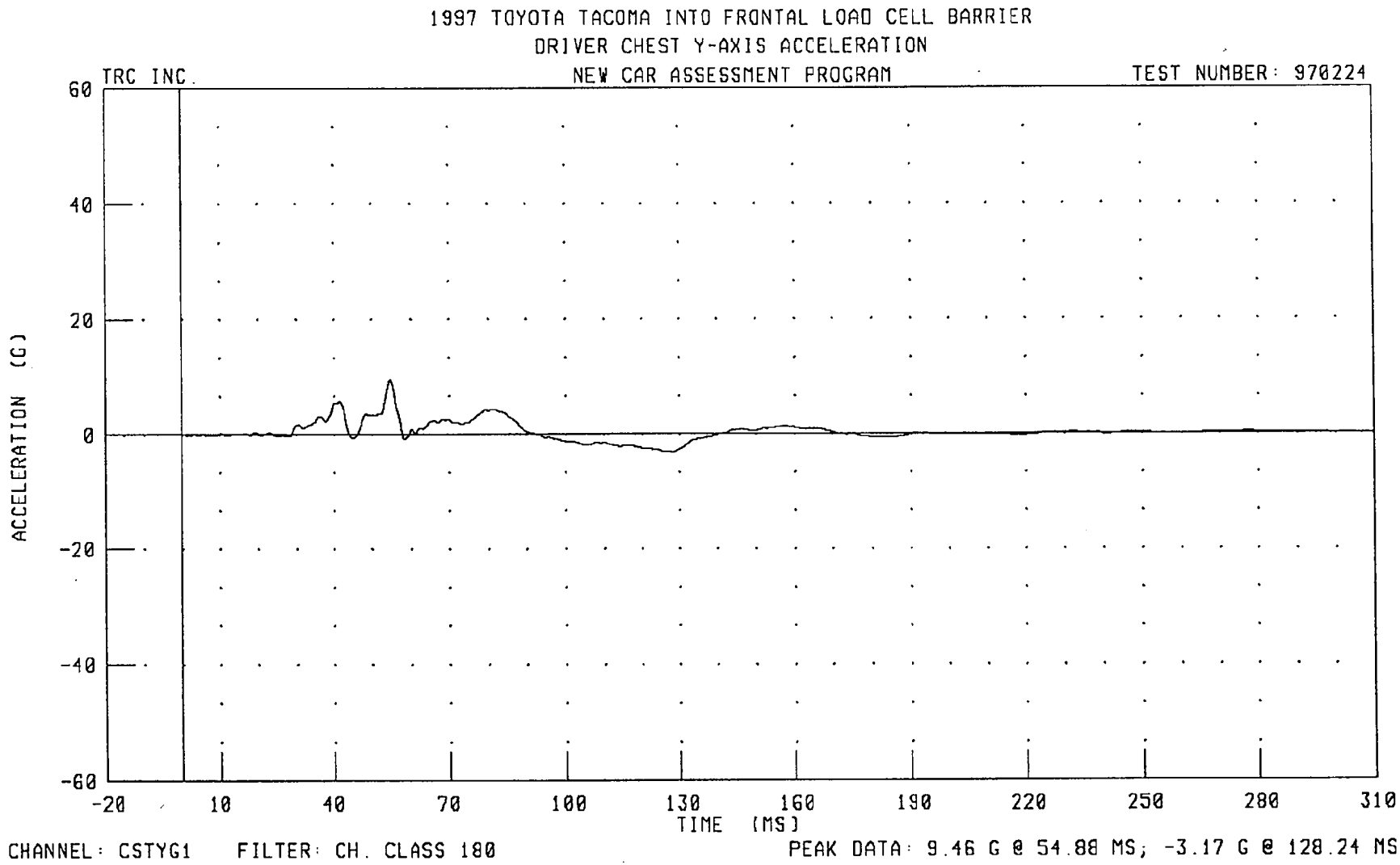
970224


1997 TOYOTA TACOMA INTO FRONTAL LOAD CELL BARRIER
DRIVER NECK MOMENT ABOUT Z AXIS
TRC INC.
NEW CAR ASSESSMENT PROGRAM
TEST NUMBER: 970224
180
120
60
0
-60
-120
-180
TORQUE (N-M)
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: NEKZM1
FILTER: CH. CLASS 600
PEAK DATA: 8.59 N-M @ 96.96 MS; -6.02 N-M @ 60.80 MS

970224

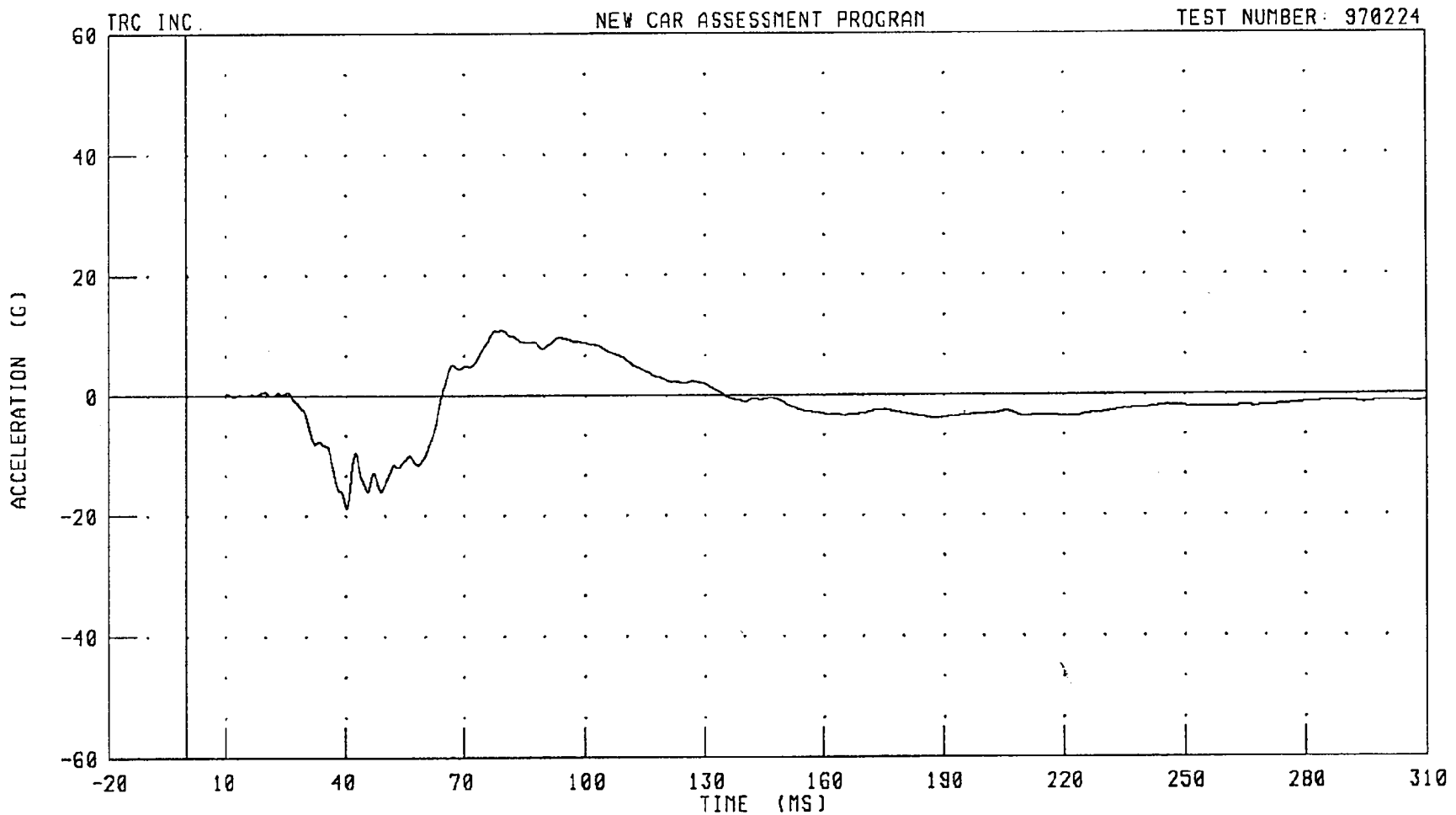

1997 TOYOTA TACOMA INTO FRONTAL LOAD CELL BARRIER
DRIVER CHEST X-AXIS ACCELERATION
TRC INC.
NEW CAR ASSESSMENT PROGRAM
TEST NUMBER: 970224
ACCELERATION (G)
40
20
0
-20
-40
-60
-80
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: CSTXG1
FILTER: CH. CLASS 180
PEAK DATA: 7.03 G @ 140.64 MS; -73.29 G @ 55.84 MS

970224


1997 TOYOTA TACOMA INTO FRONTAL LOAD CELL BARRIER
DRIVER CHEST Y-AXIS ACCELERATION
TRC INC.
NEW CAR ASSESSMENT PROGRAM
TEST NUMBER: 970224
60
40
20
0
-20
-40
-60
ACCELERATION (G)
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: CSTYG1
FILTER: CH. CLASS 180
PEAK DATA: 9.46 G @ 54.88 MS; -3.17 G @ 128.24 MS

970224

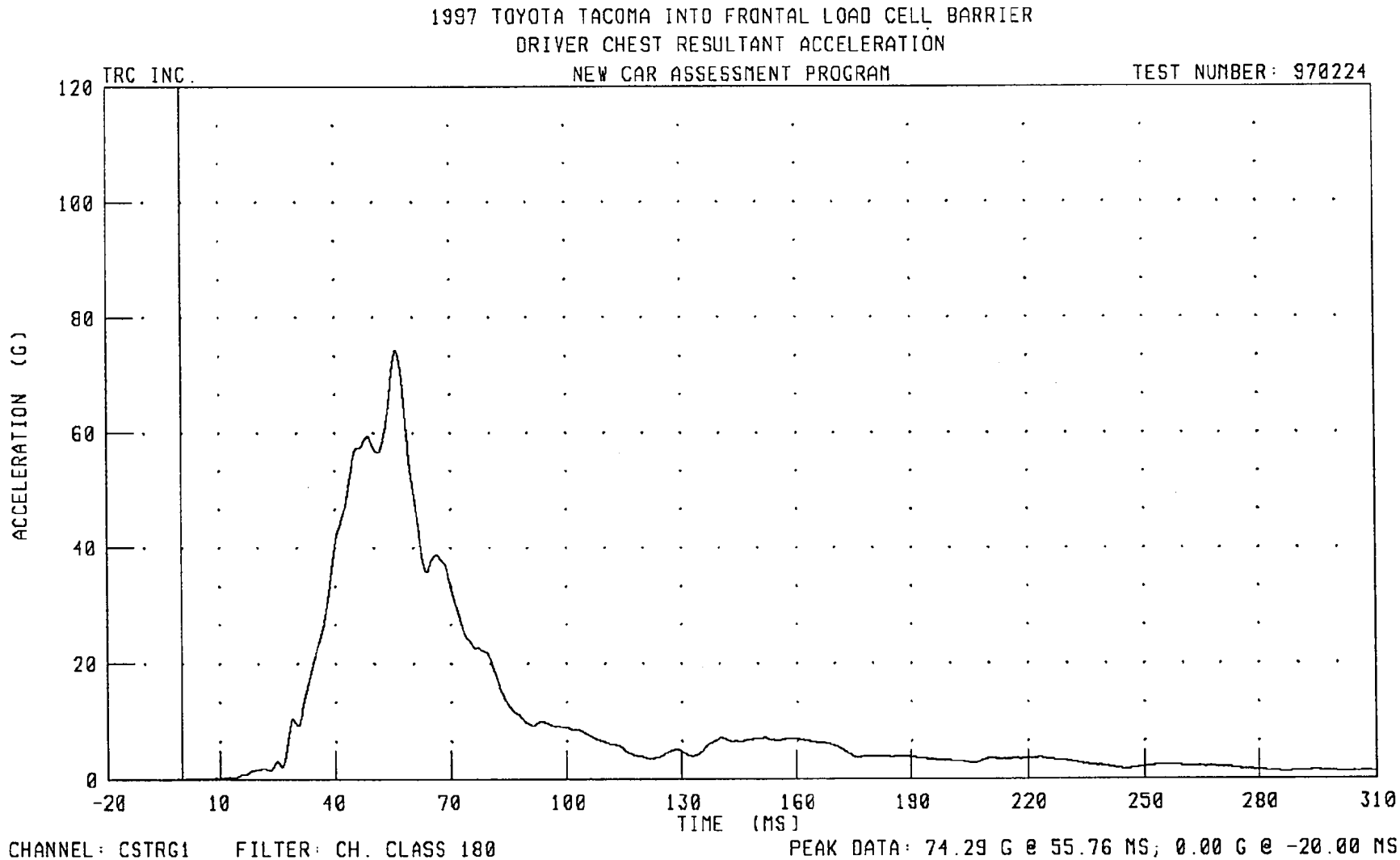
1997 TOYOTA TACOMA INTO FRONTAL LOAD CELL BARRIER
DRIVER CHEST Z-AXIS ACCELERATION



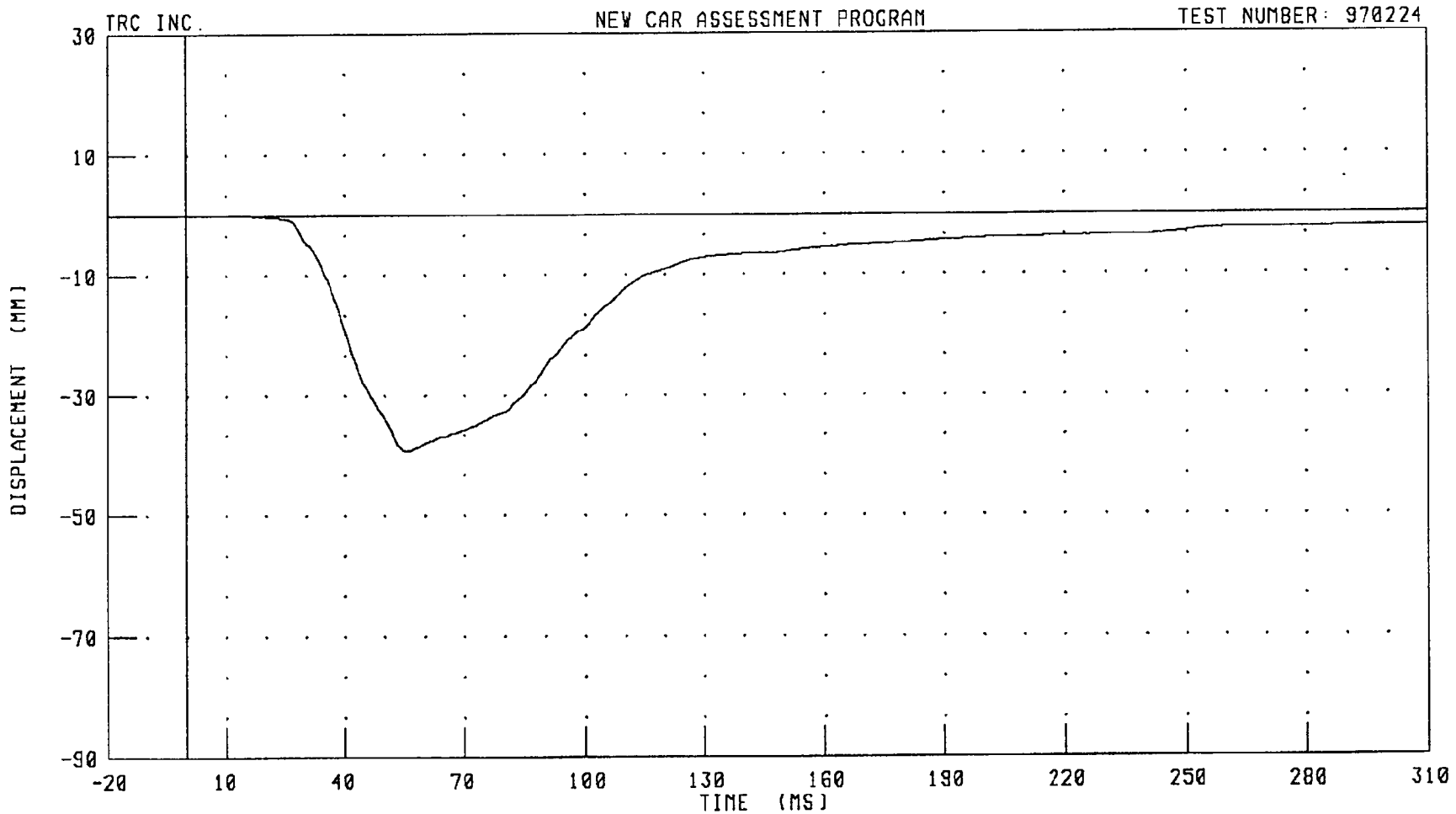
CHANNEL: CSTZG1 FILTER: CH. CLASS 180

PEAK DATA: 10.88 G @ 79.60 MS; -18.80 G @ 40.32 MS

970224

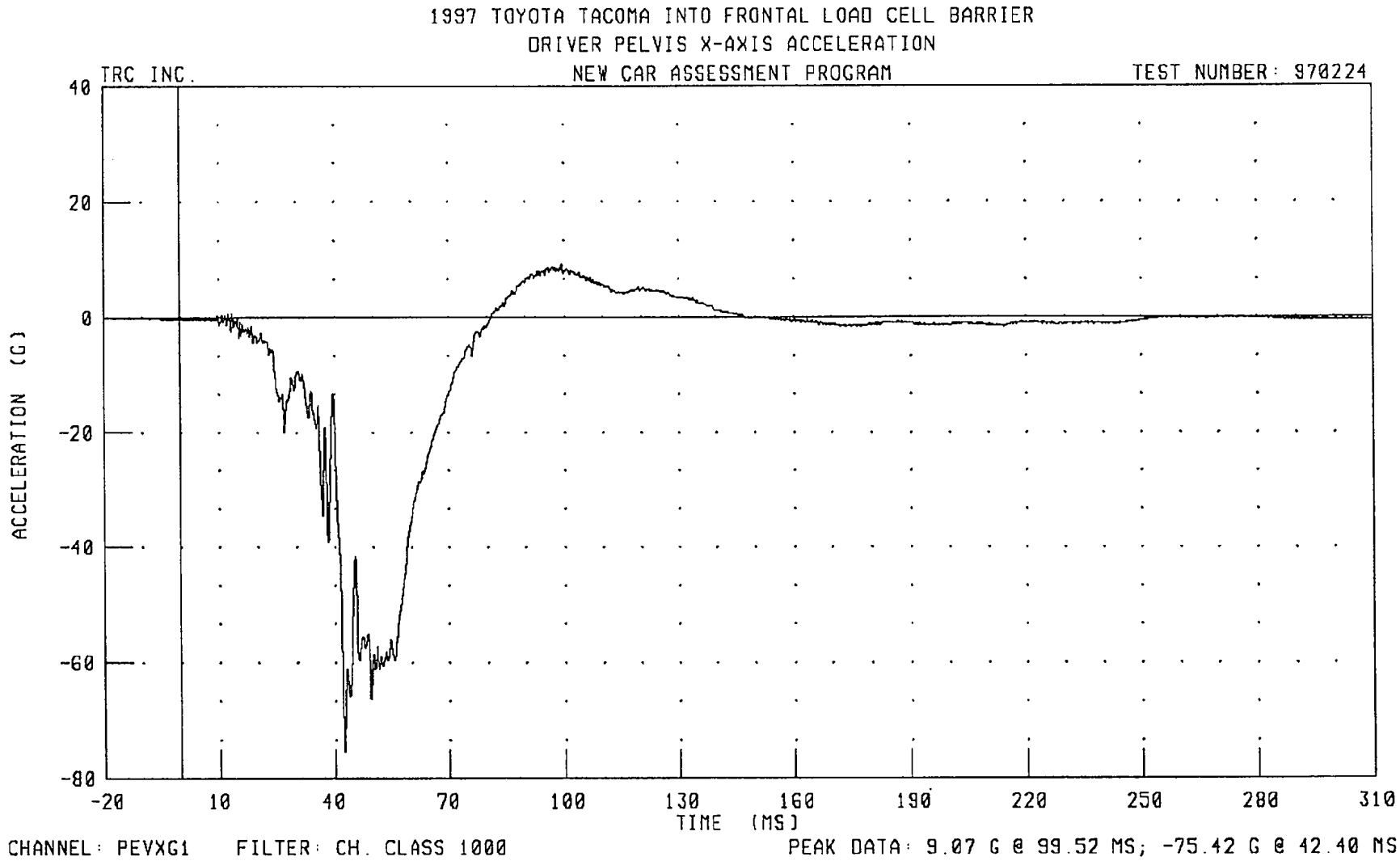

1997 TOYOTA TACOMA INTO FRONTAL LOAD CELL BARRIER
DRIVER CHEST RESULTANT ACCELERATION
TRC INC.
NEW CAR ASSESSMENT PROGRAM
TEST NUMBER: 970224
ACCELERATION (G)
120
100
80
60
40
20
0
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: CSTRG1
FILTER: CH. CLASS 180
PEAK DATA: 74.29 G @ 55.76 MS; 0.00 G @ -20.00 MS

1997 TOYOTA TACOMA INTO FRONTAL LOAD CELL BARRIER
DRIVER CHEST DEFLECTION
NEW CAR ASSESSMENT PROGRAM

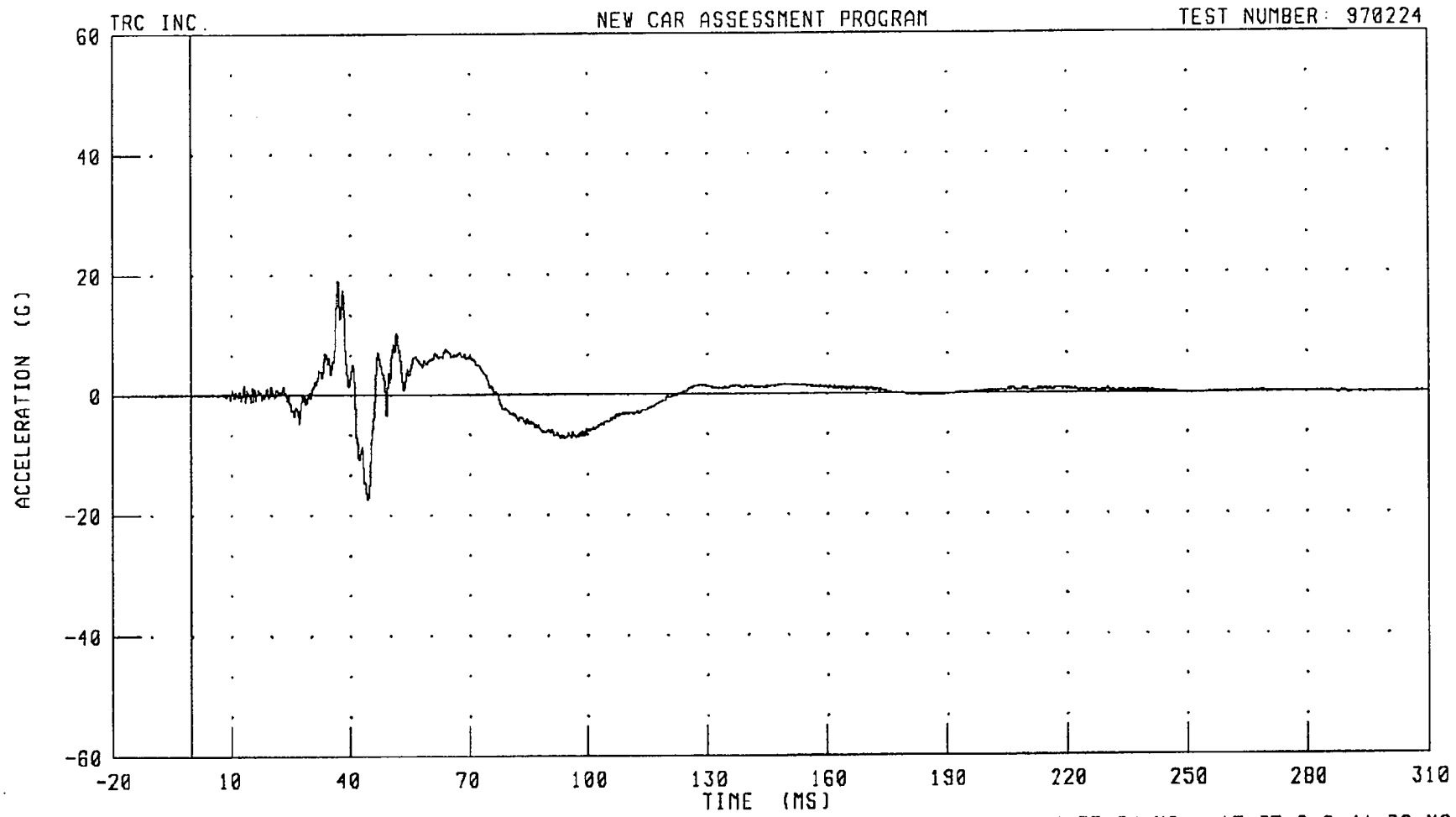


CHANNEL: CSTXD1 FILTER: CH. CLASS 180

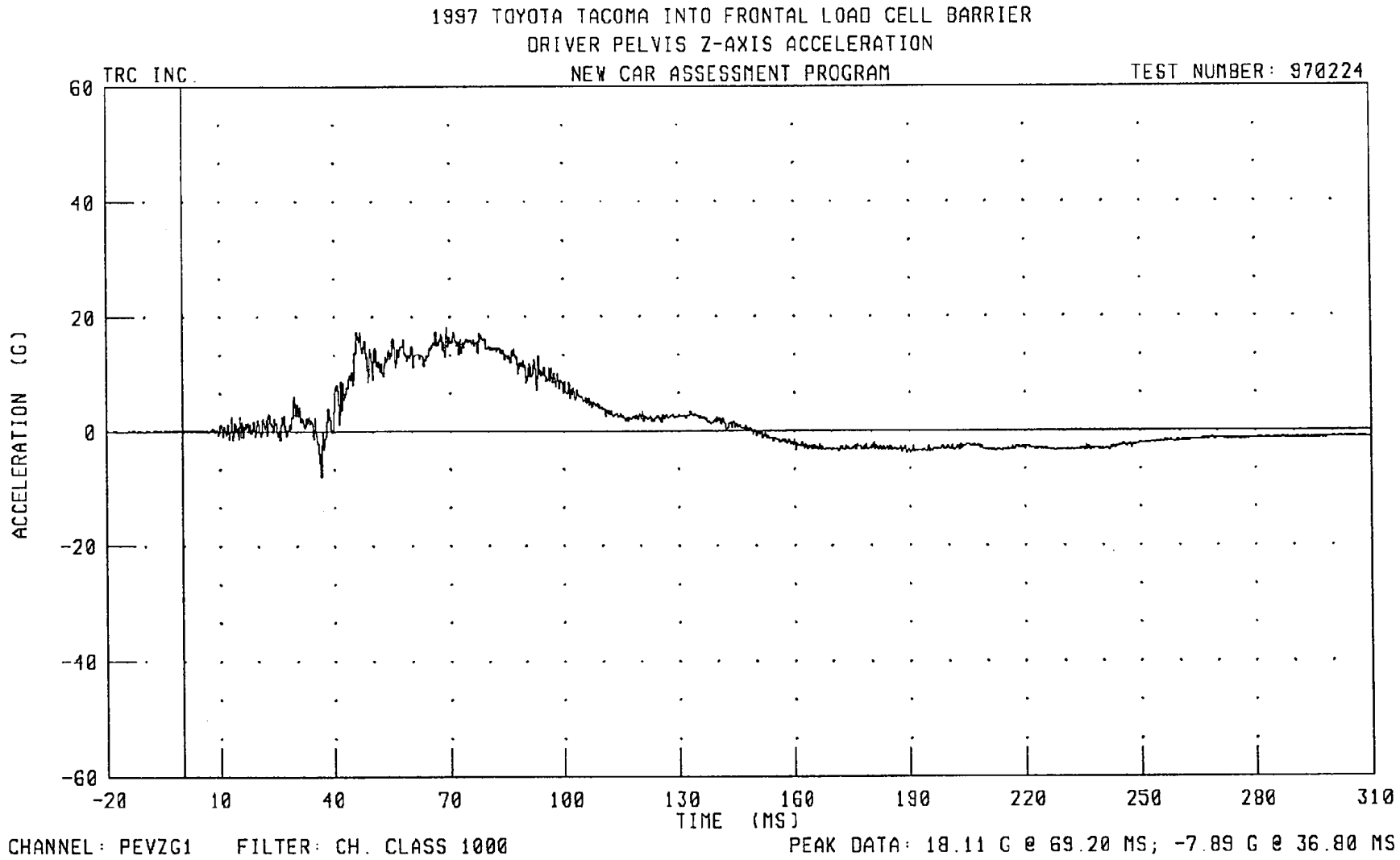
PEAK DATA: 0.01 MM @ -2.40 MS; -39.36 MM @ 55.84 MS


1997 TOYOTA TACOMA INTO FRONTAL LOAD CELL BARRIER
DRIVER PELVIS X-AXIS ACCELERATION
TRC INC.
NEW CAR ASSESSMENT PROGRAM
TEST NUMBER: 970224
ACCELERATION (G)
40
20
0
-20
-40
-60
-80
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: PEVXG1
FILTER: CH. CLASS 1000
PEAK DATA: 9.07 G @ 99.52 MS; -75.42 G @ 42.40 MS

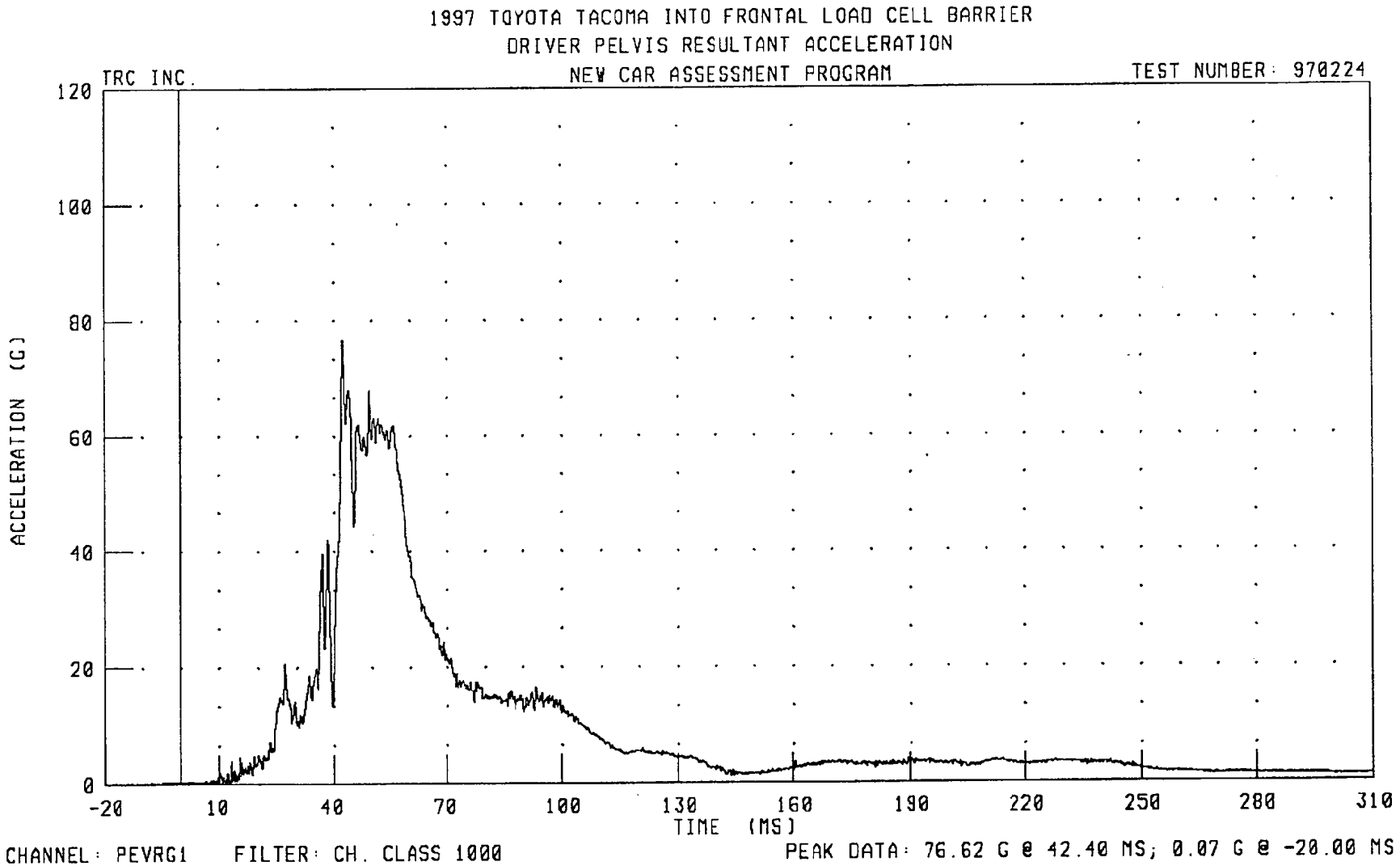
1997 TOYOTA TACOMA INTO FRONTAL LOAD CELL BARRIER
DRIVER PELVIS Y-AXIS ACCELERATION



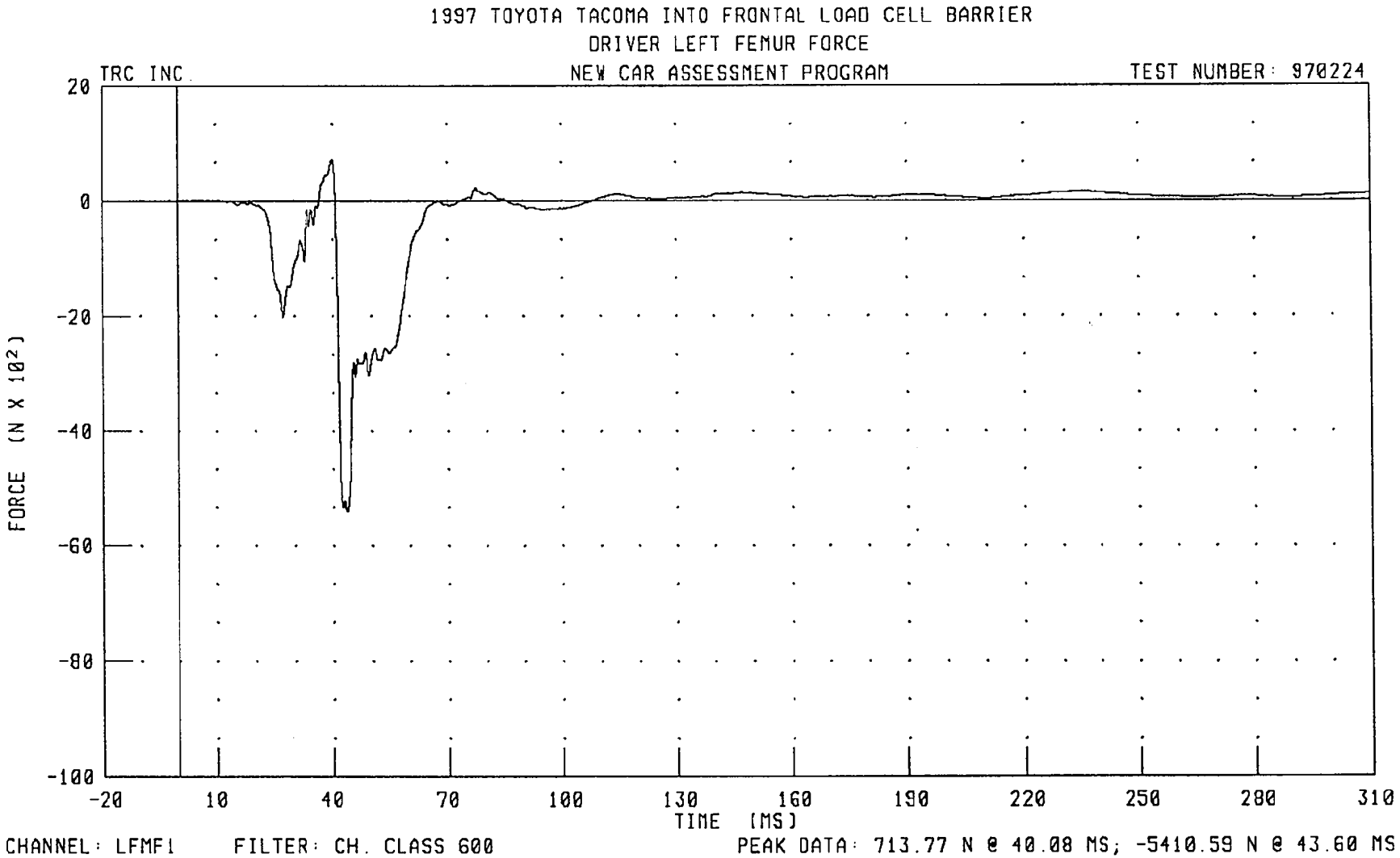
CHANNEL: PEVYG1 FILTER: CH. CLASS 1000 PEAK DATA: 18.96 G @ 37.04 MS; -17.37 G @ 44.32 MS

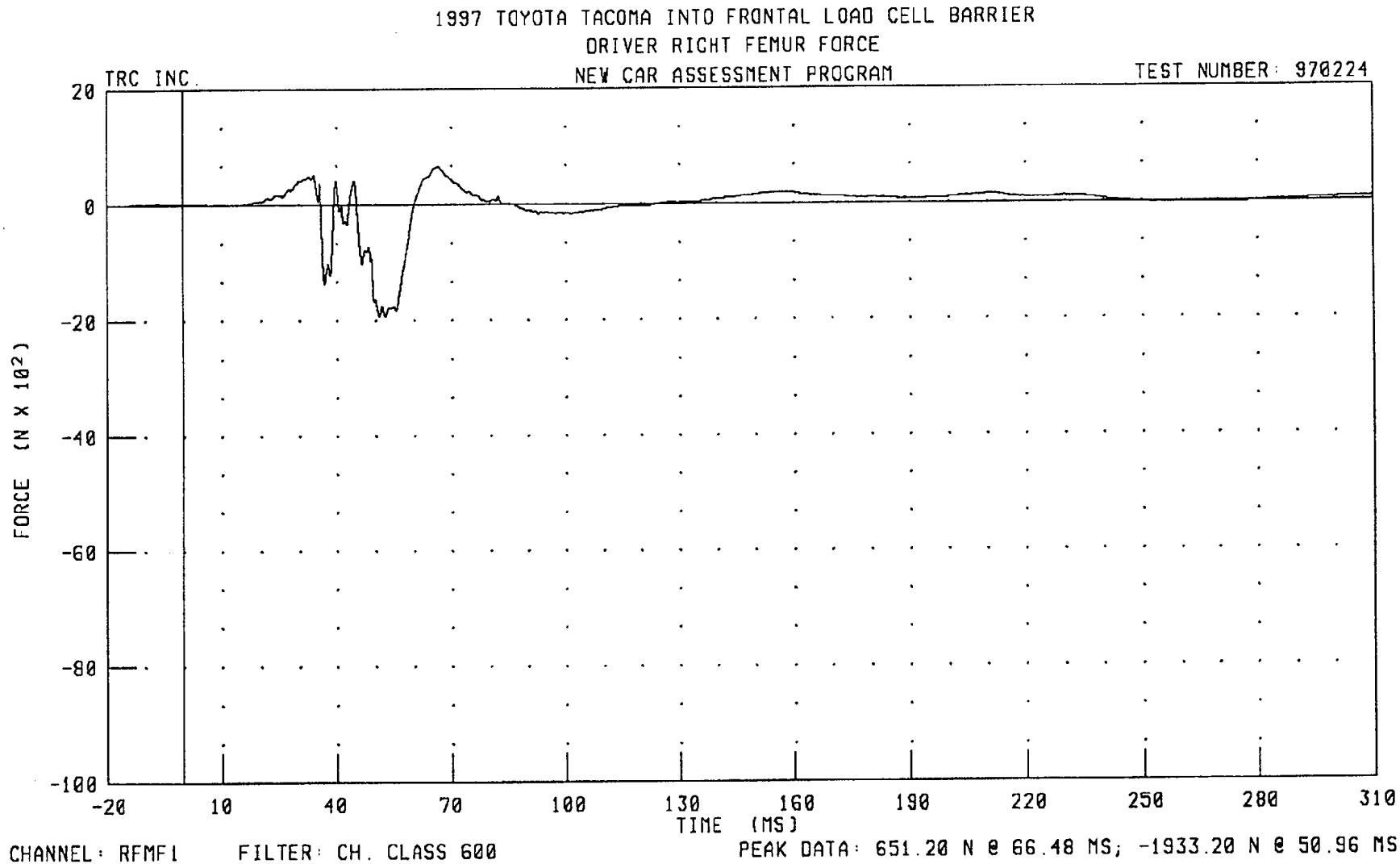

1997 TOYOTA TACOMA INTO FRONTAL LOAD CELL BARRIER
DRIVER PELVIS Z-AXIS ACCELERATION
TRC INC.
NEW CAR ASSESSMENT PROGRAM
TEST NUMBER: 970224
60
40
20
0
-20
-40
-60
ACCELERATION (G)
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: PEVZG1
FILTER: CH. CLASS 1000
PEAK DATA: 18.11 G @ 69.20 MS; -7.89 G @ 36.80 MS

970224

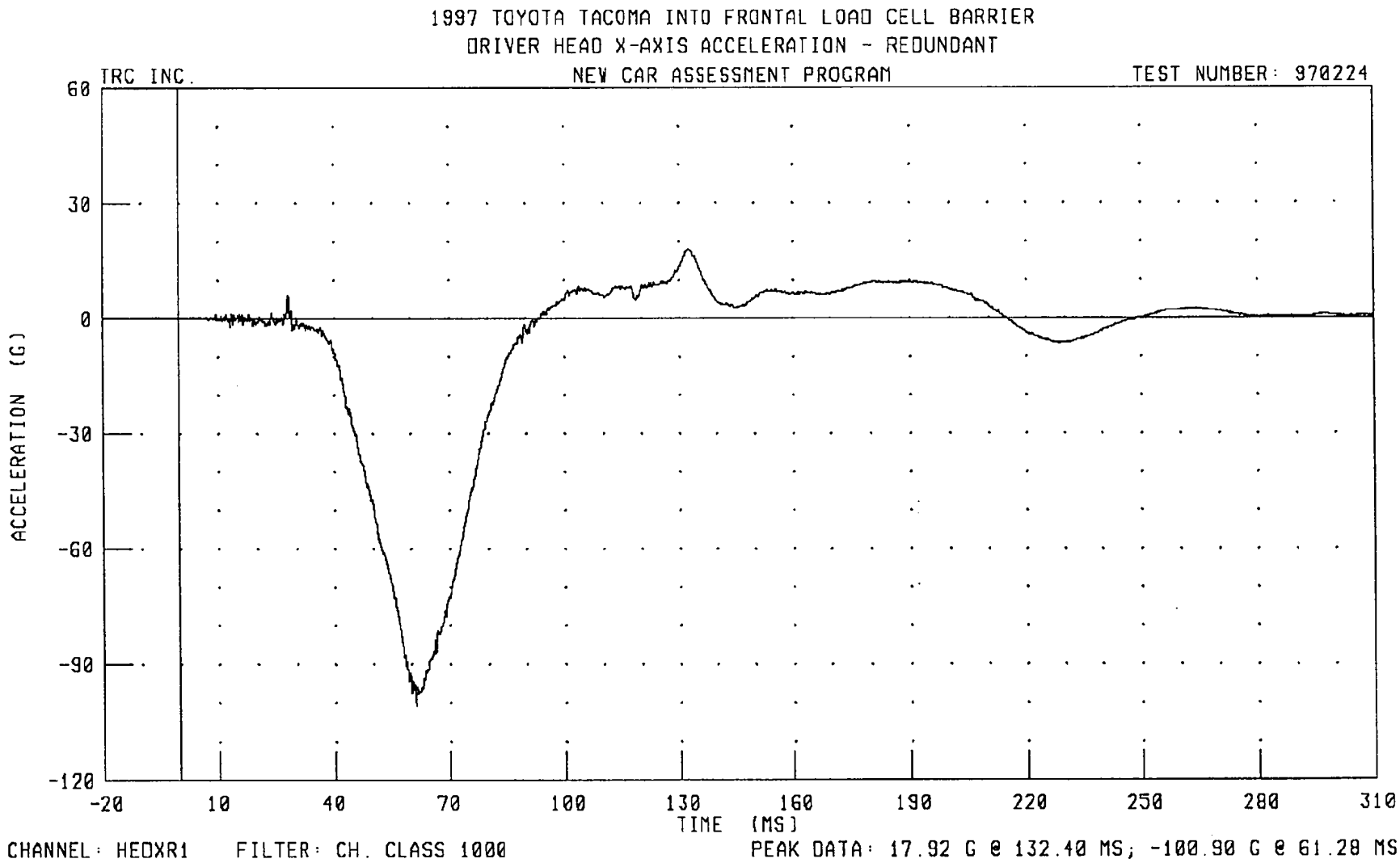

1997 TOYOTA TACOMA INTO FRONTAL LOAD CELL BARRIER
DRIVER PELVIS RESULTANT ACCELERATION
NEW CAR ASSESSMENT PROGRAM
TRC INC.
TEST NUMBER: 970224
ACCELERATION (G)
120
100
80
60
40
20
0
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: PEVRG1
FILTER: CH. CLASS 1000
PEAK DATA: 76.62 G @ 42.40 MS; 0.07 G @ -20.00 MS

970224

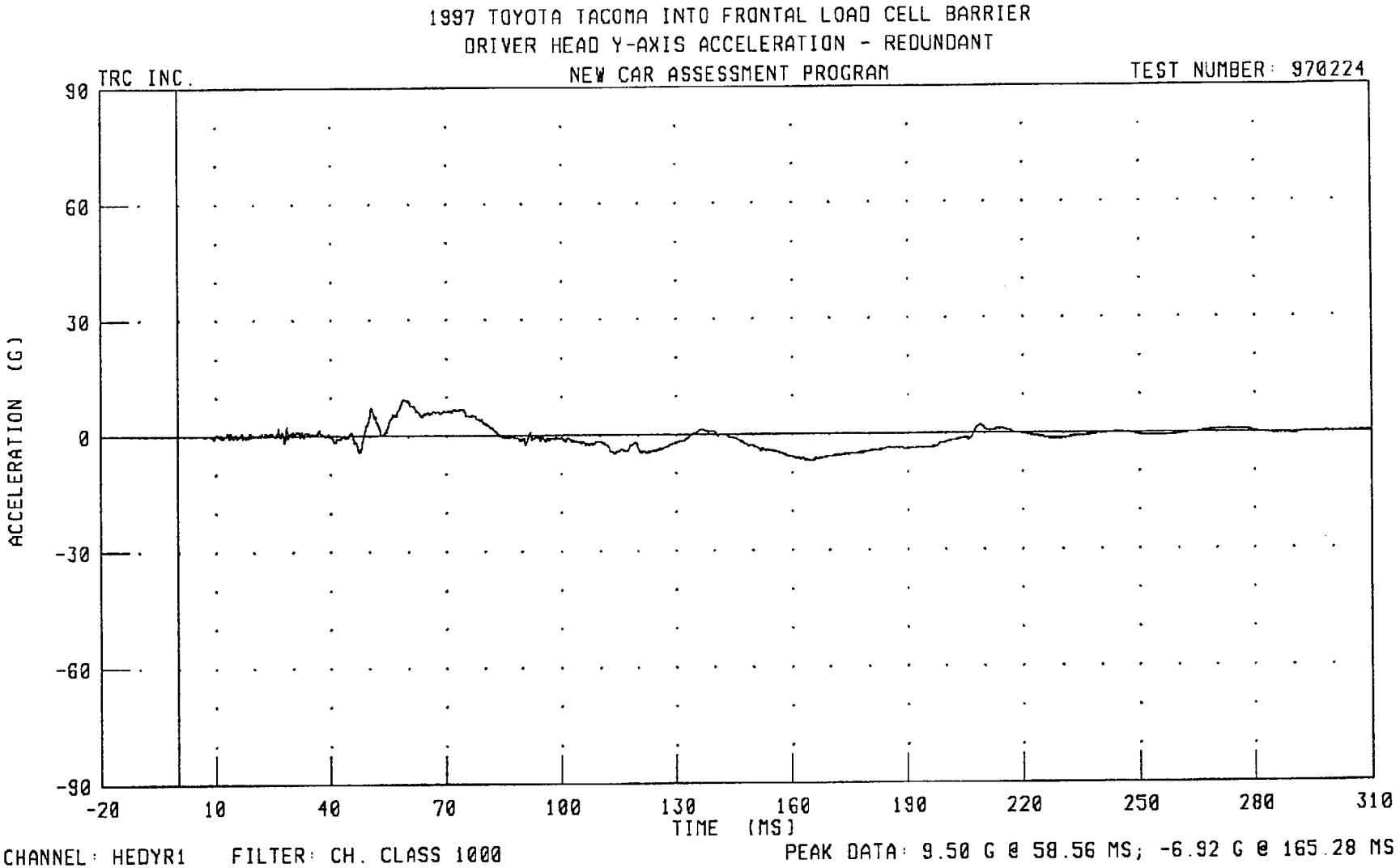

1997 TOYOTA TACOMA INTO FRONTAL LOAD CELL BARRIER
DRIVER LEFT FEMUR FORCE
TRC INC
NEW CAR ASSESSMENT PROGRAM
TEST NUMBER: 970224
20
0
-20
-40
-60
-80
-100
FORCE (N X 10²)
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: LFMF1
FILTER: CH. CLASS 600
PEAK DATA: 713.77 N @ 40.08 MS; -5410.59 N @ 43.60 MS


1997 TOYOTA TACOMA INTO FRONTAL LOAD CELL BARRIER
DRIVER RIGHT FEMUR FORCE
NEW CAR ASSESSMENT PROGRAM
TRC INC.
TEST NUMBER: 970224
20
0
-20
-40
-60
-80
-100
FORCE (N X 10²)
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: RFMF1
FILTER: CH. CLASS 600
PEAK DATA: 651.20 N @ 66.48 MS; -1933.20 N @ 50.96 MS

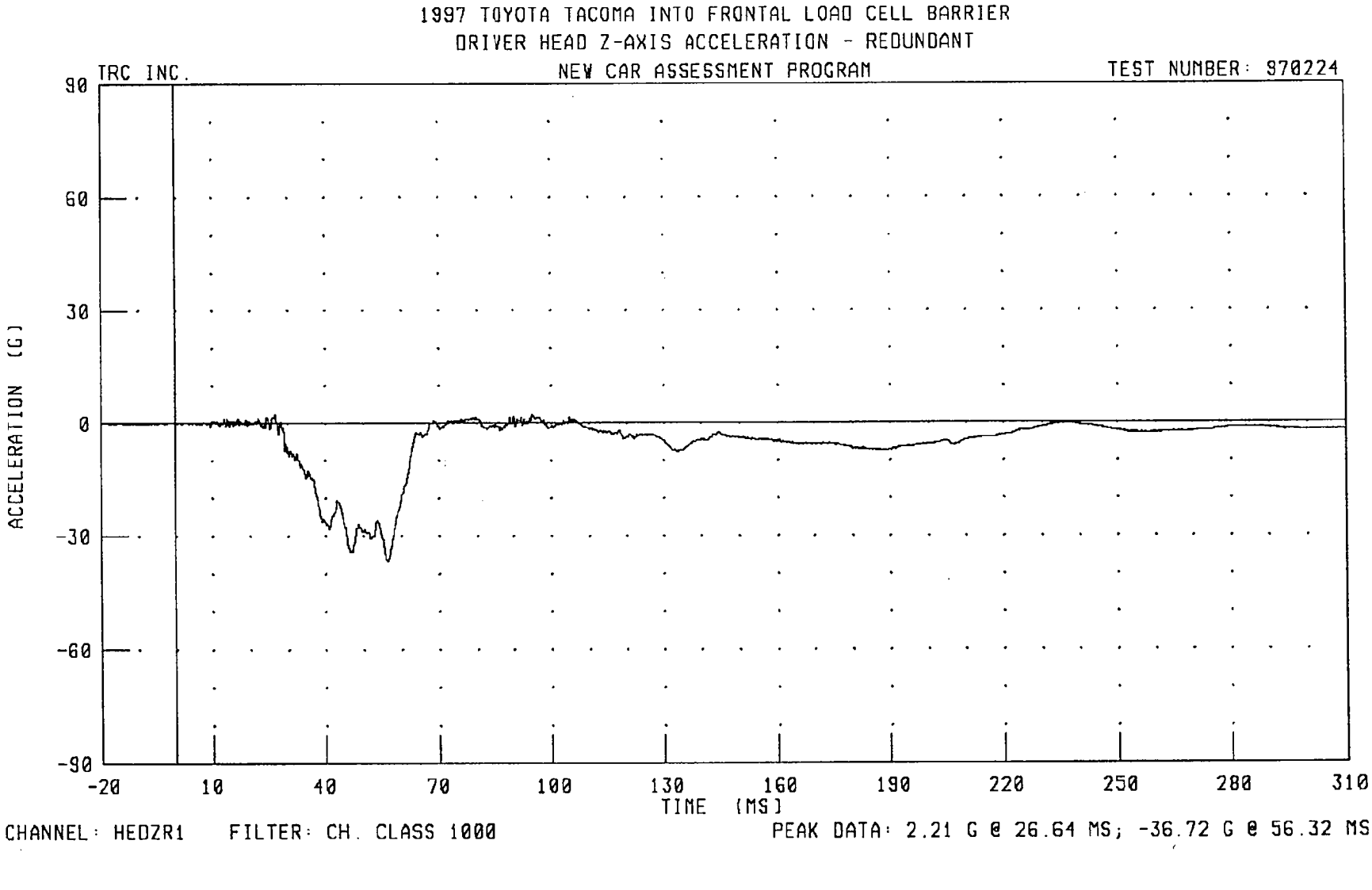
970224


1997 TOYOTA TACOMA INTO FRONTAL LOAD CELL BARRIER
DRIVER HEAD X-AXIS ACCELERATION - REDUNDANT
TRC INC.
NEW CAR ASSESSMENT PROGRAM
TEST NUMBER: 970224
60
30
0
-30
-60
-90
-120
ACCELERATION (G)
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: HEDXR1
FILTER: CH. CLASS 1000
PEAK DATA: 17.92 G @ 132.40 MS; -100.90 G @ 61.28 MS

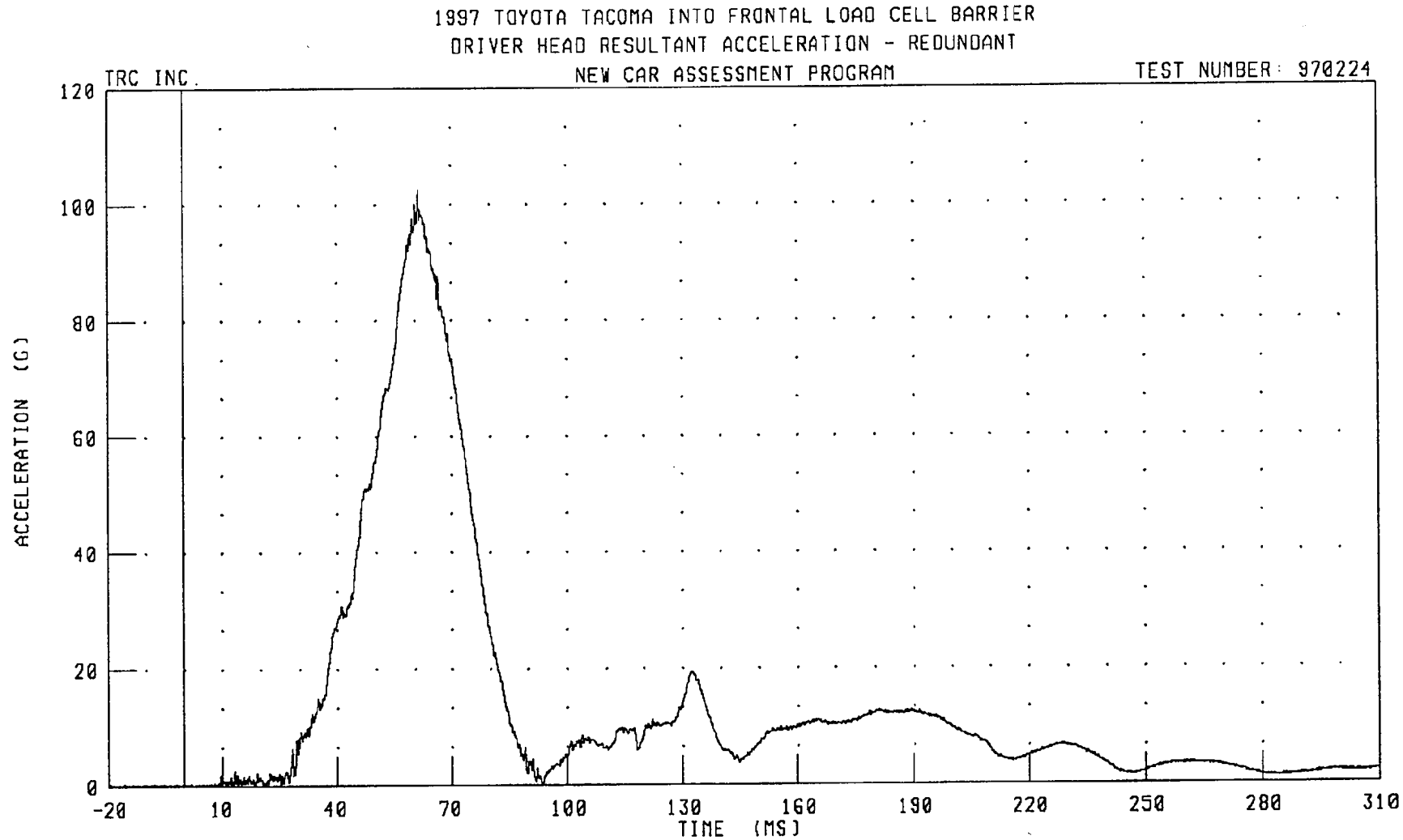
970224


1997 TOYOTA TACOMA INTO FRONTAL LOAD CELL BARRIER
DRIVER HEAD Y-AXIS ACCELERATION - REDUNDANT
TRC INC.
NEW CAR ASSESSMENT PROGRAM
TEST NUMBER: 970224
90
60
30
0
-30
-60
-90
ACCELERATION (G)
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: HEDYR1
FILTER: CH. CLASS 1000
PEAK DATA: 9.50 G @ 58.56 MS; -6.92 G @ 165.28 MS

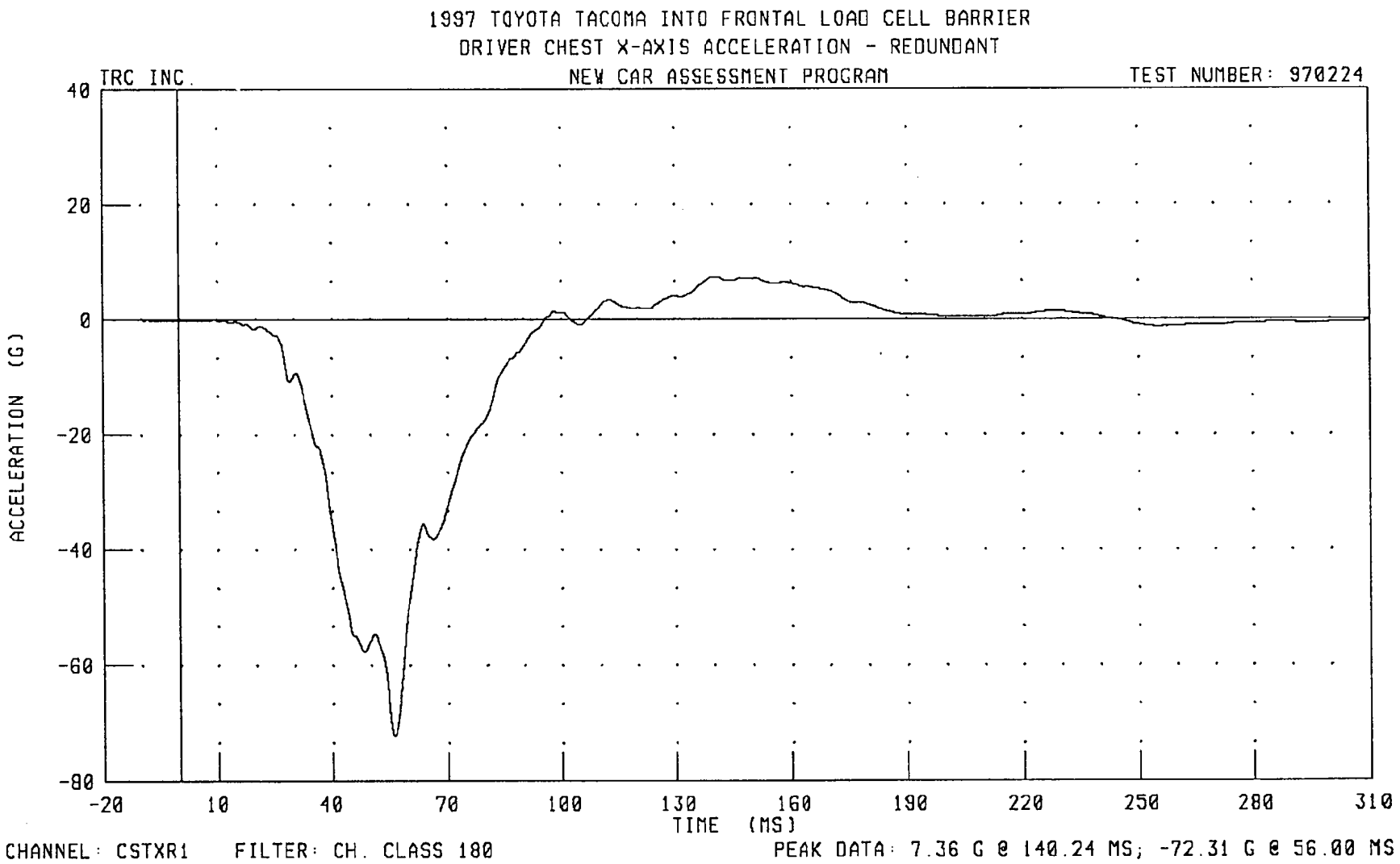
970224

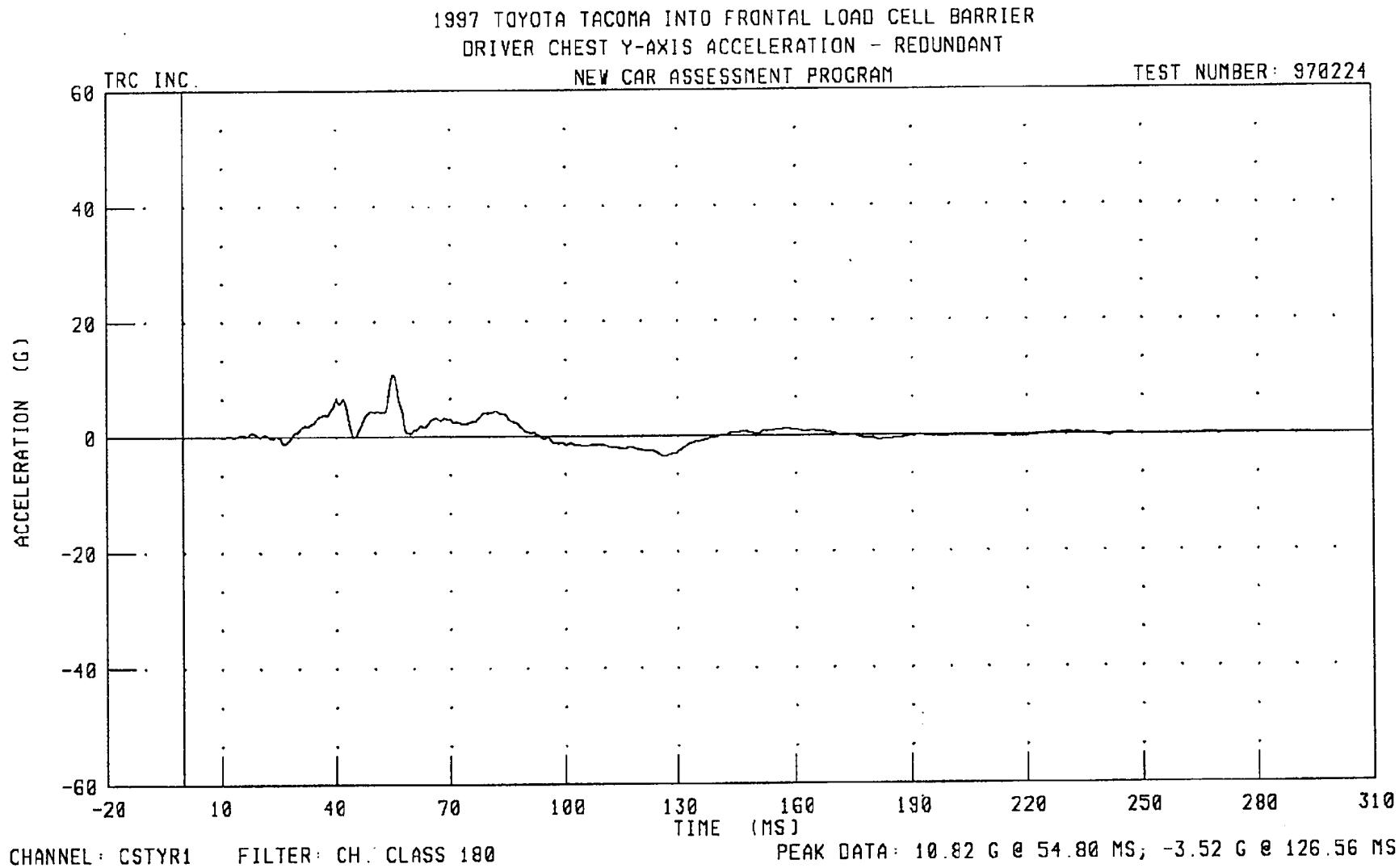

1997 TOYOTA TACOMA INTO FRONTAL LOAD CELL BARRIER
DRIVER HEAD Z-AXIS ACCELERATION - REDUNDANT
TRC INC.
NEW CAR ASSESSMENT PROGRAM
TEST NUMBER: 970224
90
60
30
0
-30
-60
-90
ACCELERATION (G)
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: HEDZR1
FILTER: CH. CLASS 1000
PEAK DATA: 2.21 G @ 26.64 MS; -36.72 G @ 56.32 MS

970224

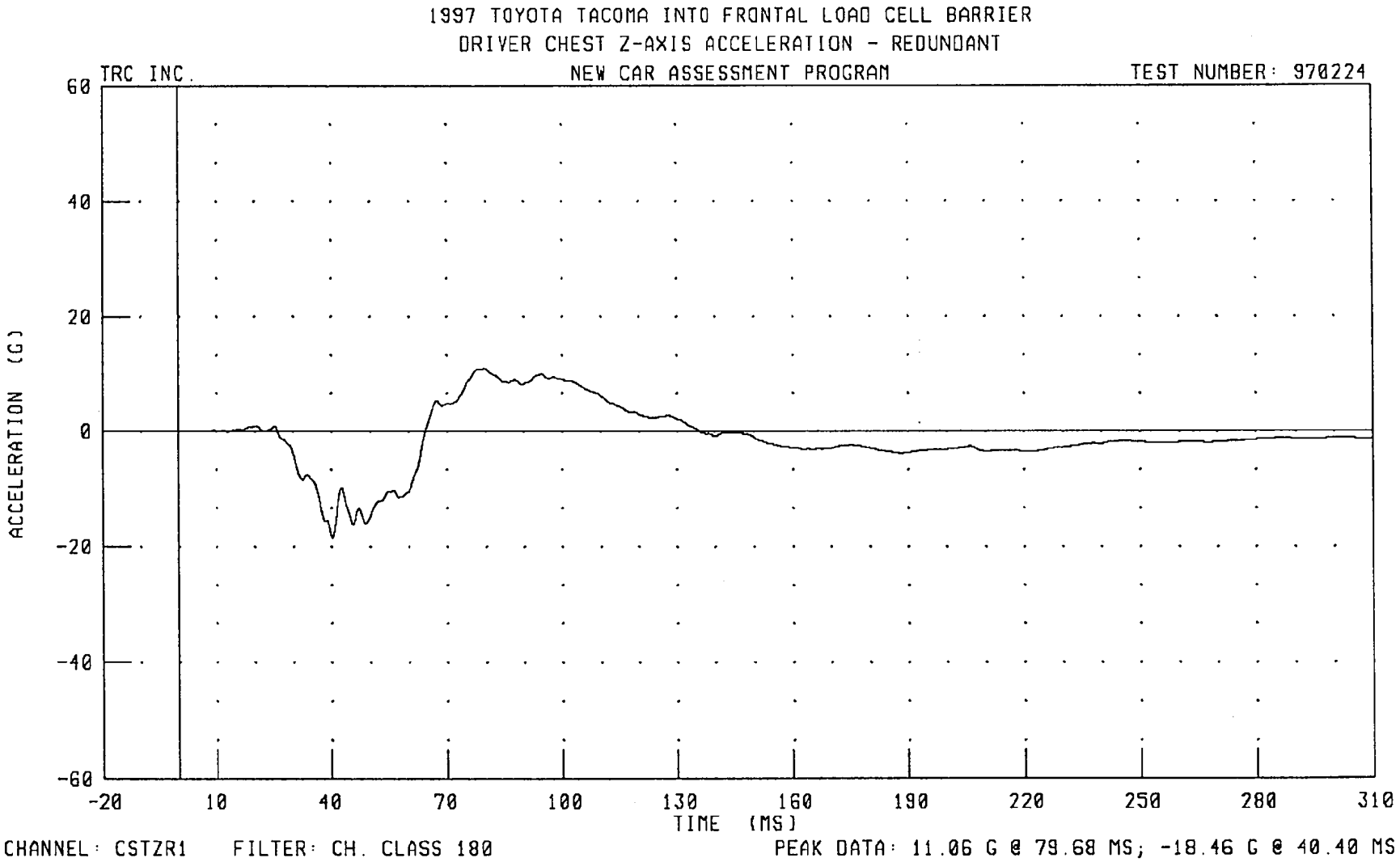

1997 TOYOTA TACOMA INTO FRONTAL LOAD CELL BARRIER
DRIVER HEAD RESULTANT ACCELERATION - REDUNDANT
NEW CAR ASSESSMENT PROGRAM
TRC INC.
TEST NUMBER: 970224
ACCELERATION (G)
120
100
80
60
40
20
0
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: HEDRR1
FILTER: CH. CLASS 1000
PEAK DATA: 102.56 G @ 61.28 MS; 0.10 G @ -19.28 MS

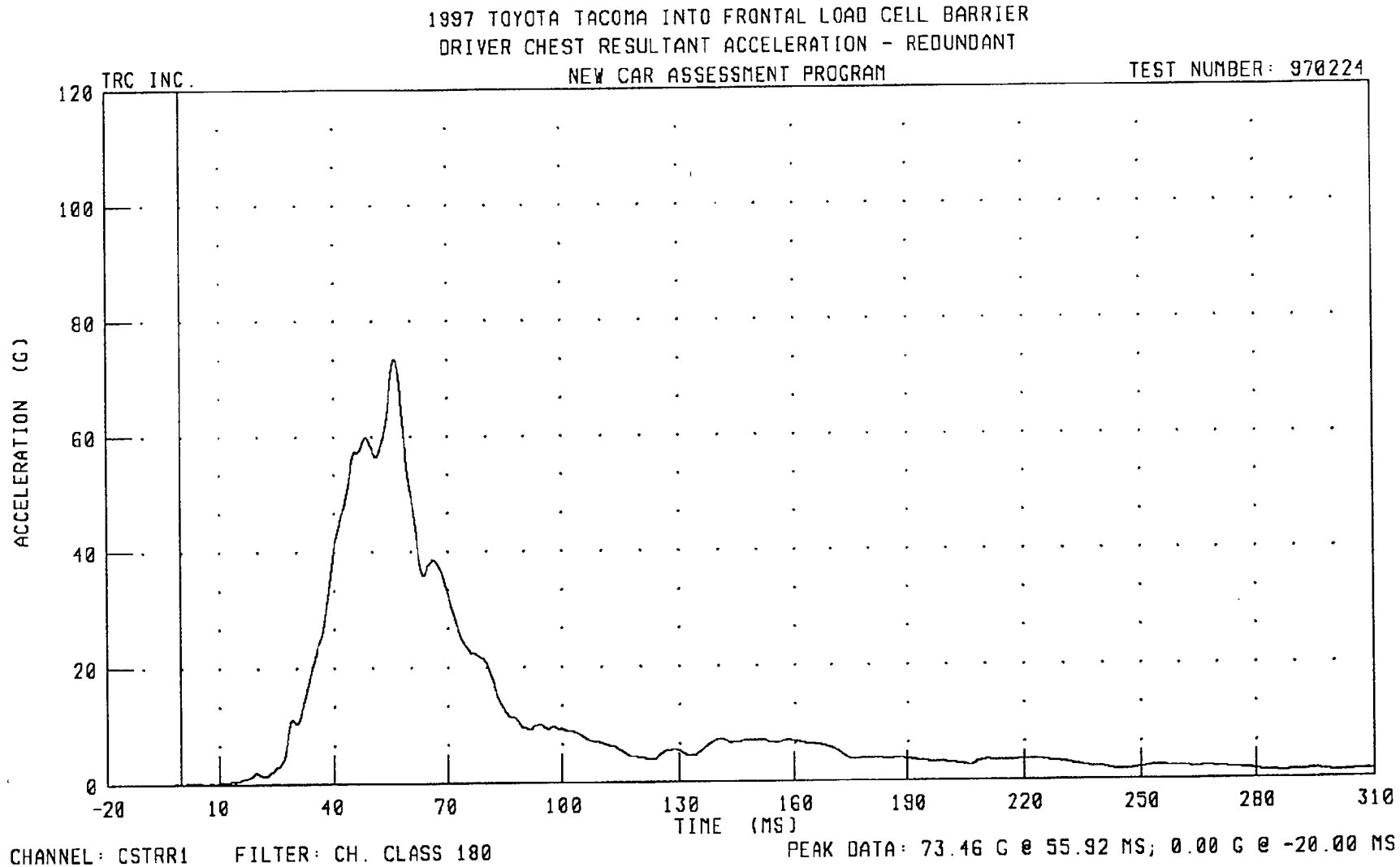
970224


1997 TOYOTA TACOMA INTO FRONTAL LOAD CELL BARRIER
DRIVER CHEST X-AXIS ACCELERATION - REDUNDANT
TRC INC.
NEW CAR ASSESSMENT PROGRAM
TEST NUMBER: 970224
ACCELERATION (G)
40
20
0
-20
-40
-60
-80
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: CSTXR1
FILTER: CH. CLASS 180
PEAK DATA: 7.36 G @ 140.24 MS; -72.31 G @ 56.00 MS

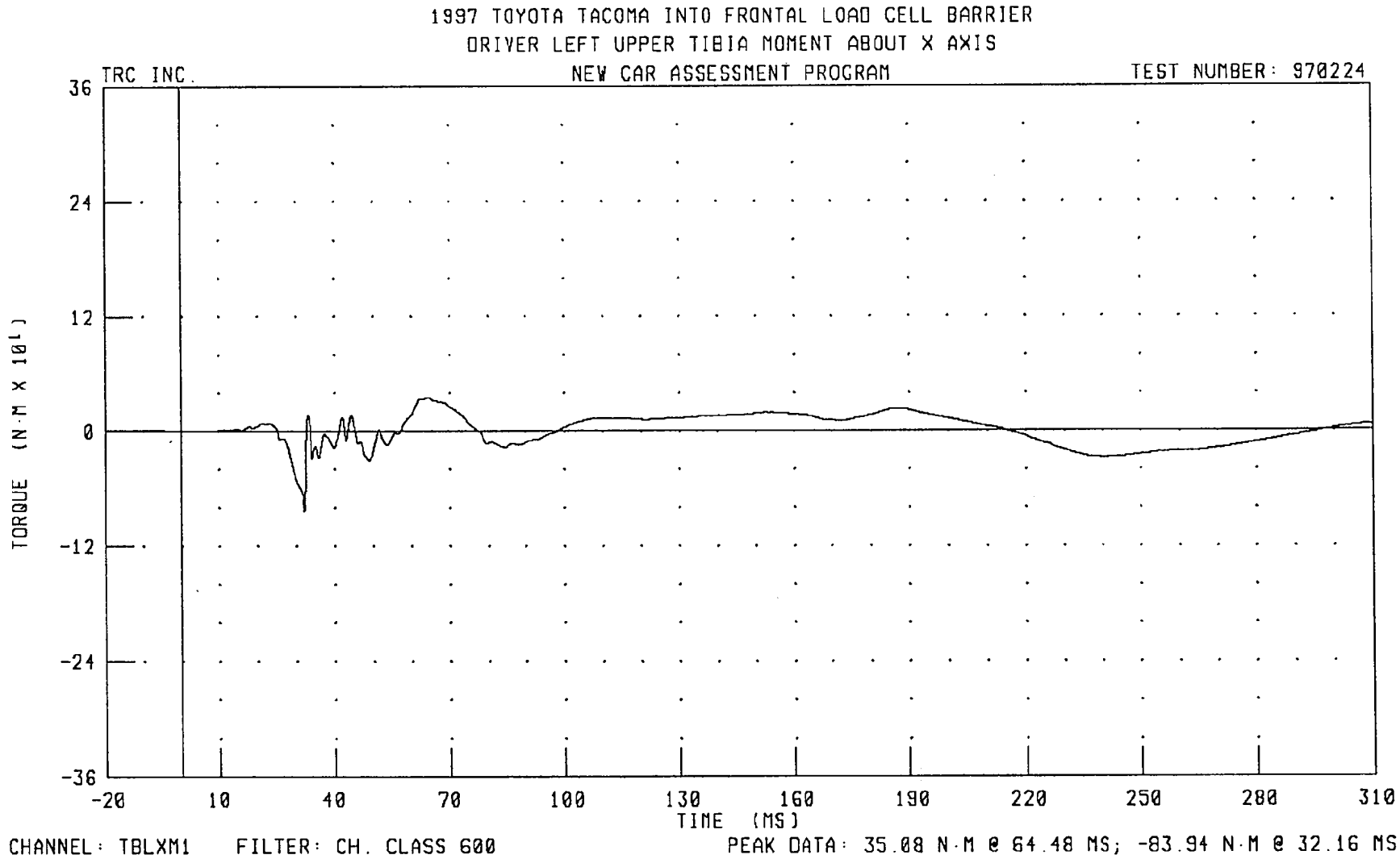

1997 TOYOTA TACOMA INTO FRONTAL LOAD CELL BARRIER
DRIVER CHEST Y-AXIS ACCELERATION - REDUNDANT
TRC INC.
NEW CAR ASSESSMENT PROGRAM
TEST NUMBER: 970224
60
40
20
0
-20
-40
-60
ACCELERATION (G)
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: CSTYR1
FILTER: CH. CLASS 180
PEAK DATA: 10.82 G @ 54.80 MS; -3.52 G @ 126.56 MS

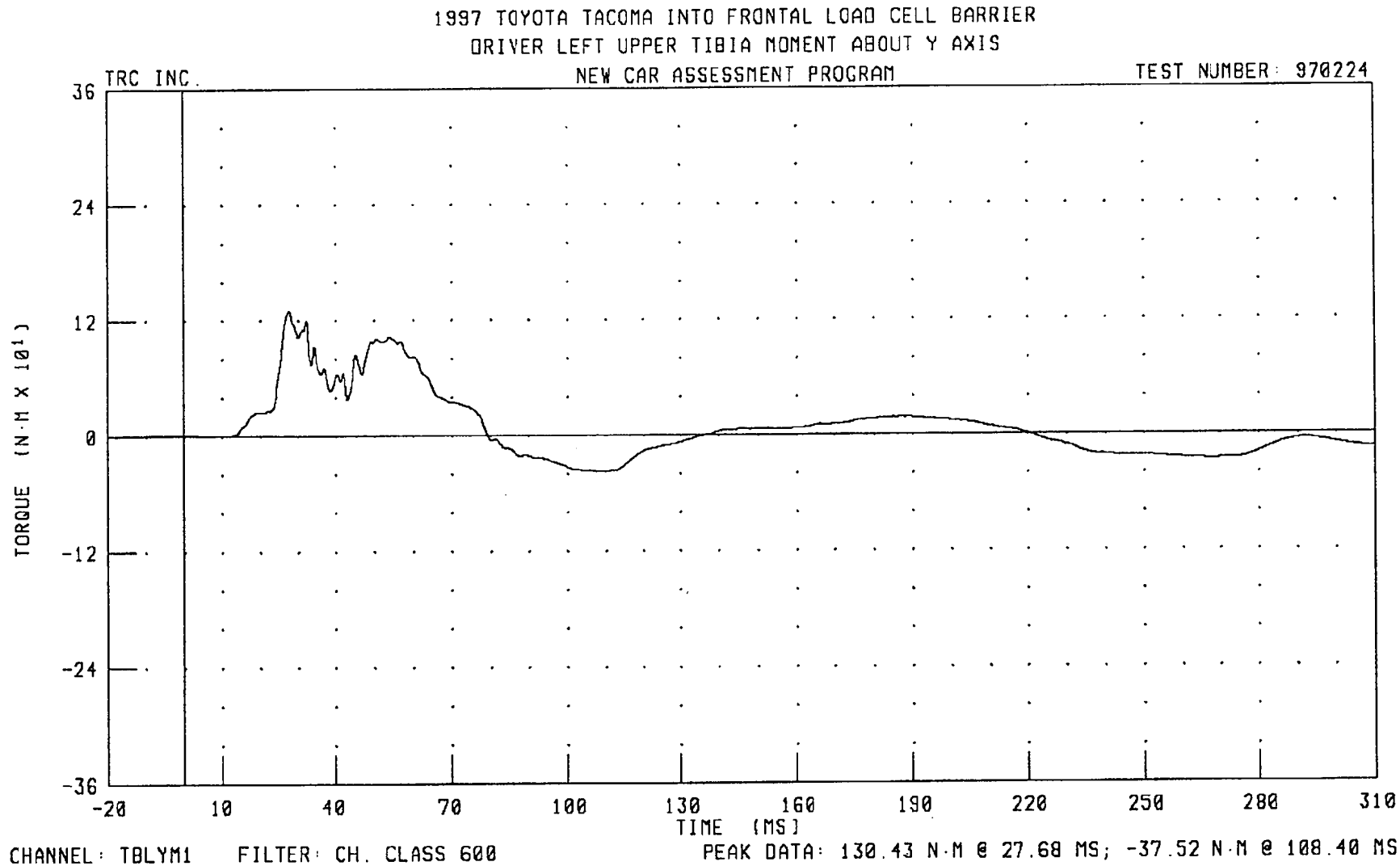
970224


1997 TOYOTA TACOMA INTO FRONTAL LOAD CELL BARRIER
DRIVER CHEST Z-AXIS ACCELERATION - REDUNDANT
TRC INC.
NEW CAR ASSESSMENT PROGRAM
TEST NUMBER: 970224
60
40
20
0
-20
-40
-60
ACCELERATION (G)
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: CSTZR1
FILTER: CH. CLASS 180
PEAK DATA: 11.06 G @ 79.68 MS; -18.46 G @ 40.40 MS

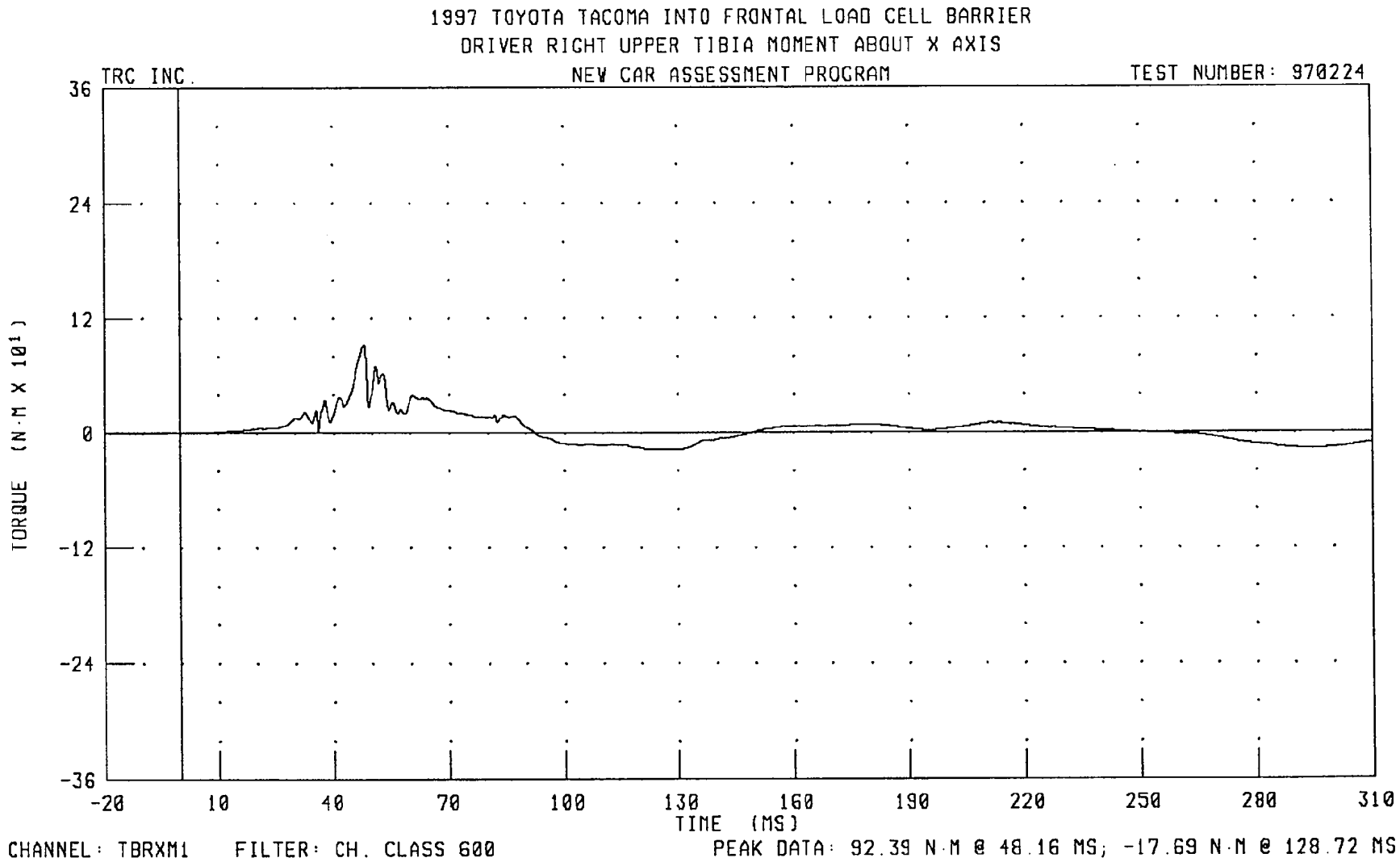

1997 TOYOTA TACOMA INTO FRONTAL LOAD CELL BARRIER
DRIVER CHEST RESULTANT ACCELERATION - REDUNDANT
NEW CAR ASSESSMENT PROGRAM
TRC INC.
TEST NUMBER: 970224
ACCELERATION (G)
120
100
80
60
40
20
0
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: CSTRR1
FILTER: CH. CLASS 180
PEAK DATA: 73.46 G @ 55.92 MS; 0.00 G @ -20.00 MS

970224

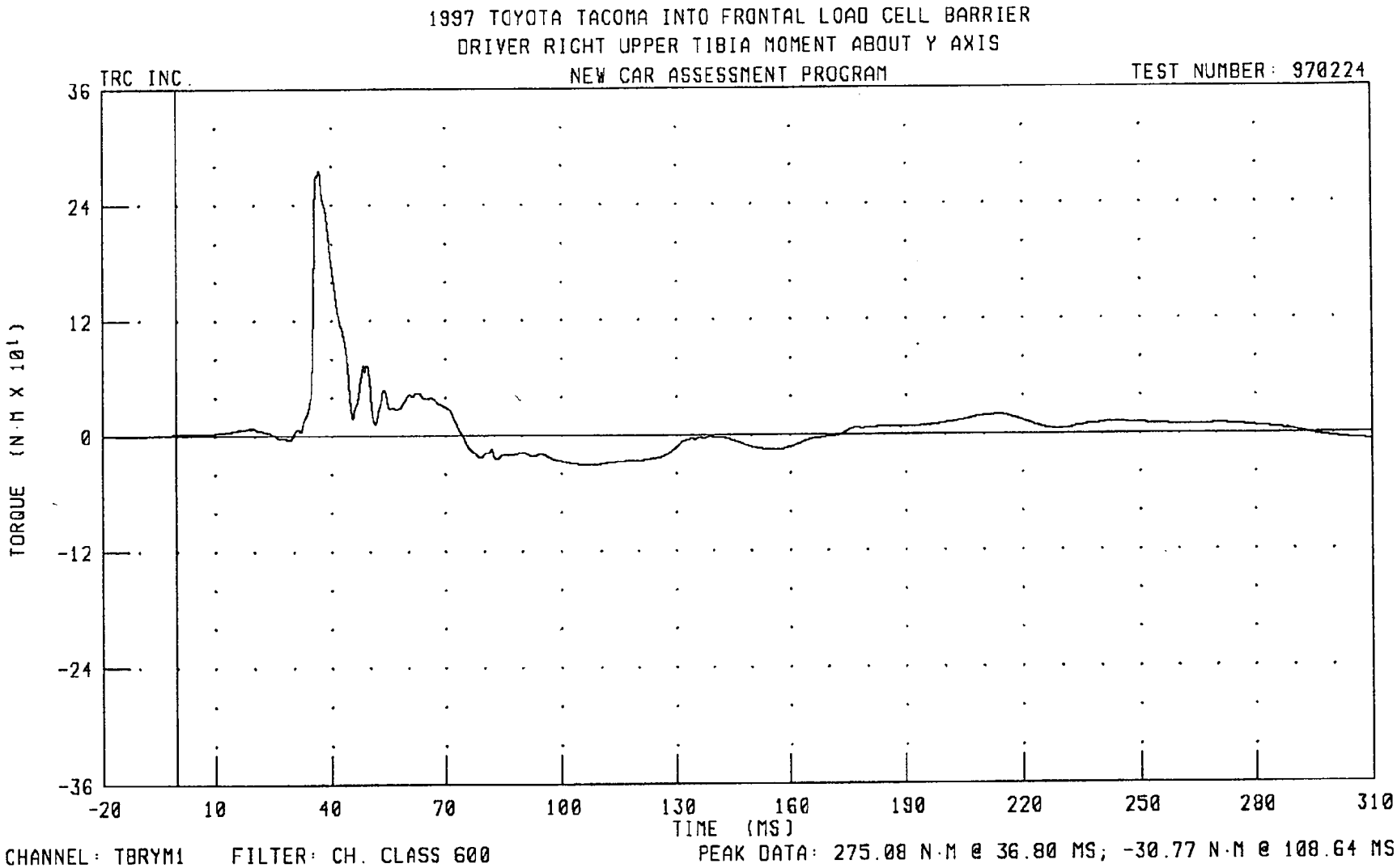

1997 TOYOTA TACOMA INTO FRONTAL LOAD CELL BARRIER
DRIVER LEFT UPPER TIBIA MOMENT ABOUT X AXIS
TRC INC.
NEW CAR ASSESSMENT PROGRAM
TEST NUMBER: 970224
TORQUE (N·M X 10¹)
36
24
12
0
-12
-24
-36
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: TBLXM1
FILTER: CH. CLASS 600
PEAK DATA: 35.08 N·M @ 64.48 MS; -83.94 N·M @ 32.16 MS


1997 TOYOTA TACOMA INTO FRONTAL LOAD CELL BARRIER
DRIVER LEFT UPPER TIBIA MOMENT ABOUT Y AXIS
TRC INC.
NEW CAR ASSESSMENT PROGRAM
TEST NUMBER: 970224
36
24
12
0
-12
-24
-36
TORQUE (N-M X 10¹)
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: TBLYM1
FILTER: CH. CLASS 600
PEAK DATA: 130.43 N-M @ 27.68 MS; -37.52 N-M @ 108.40 MS

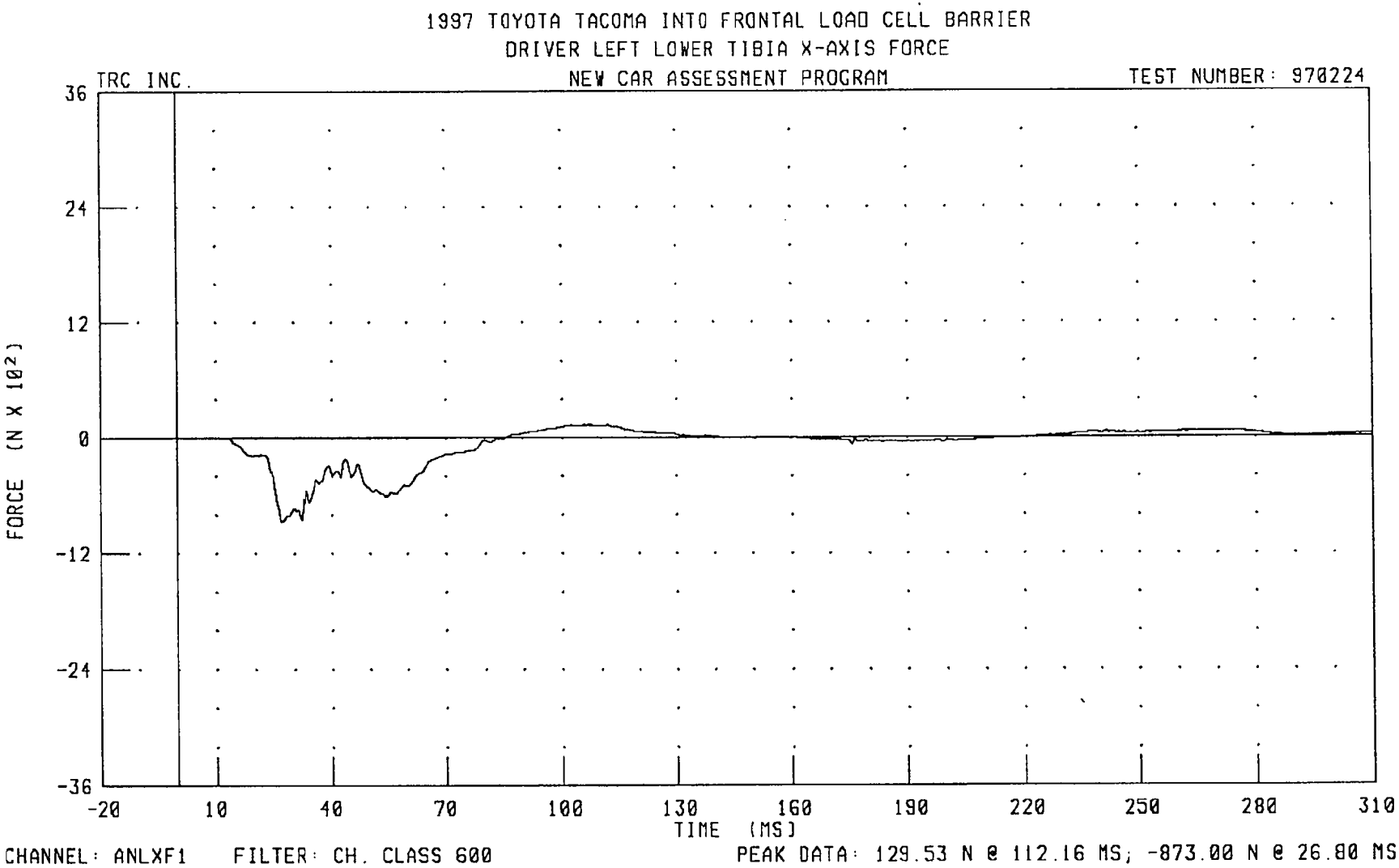
970224


1997 TOYOTA TACOMA INTO FRONTAL LOAD CELL BARRIER
DRIVER RIGHT UPPER TIBIA MOMENT ABOUT X AXIS
TRC INC.
NEW CAR ASSESSMENT PROGRAM
TEST NUMBER: 970224
TORQUE (N·M X 10¹)
36
24
12
0
-12
-24
-36
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: TBRXM1
FILTER: CH. CLASS 600
PEAK DATA: 92.39 N·M @ 48.16 MS; -17.69 N·M @ 128.72 MS

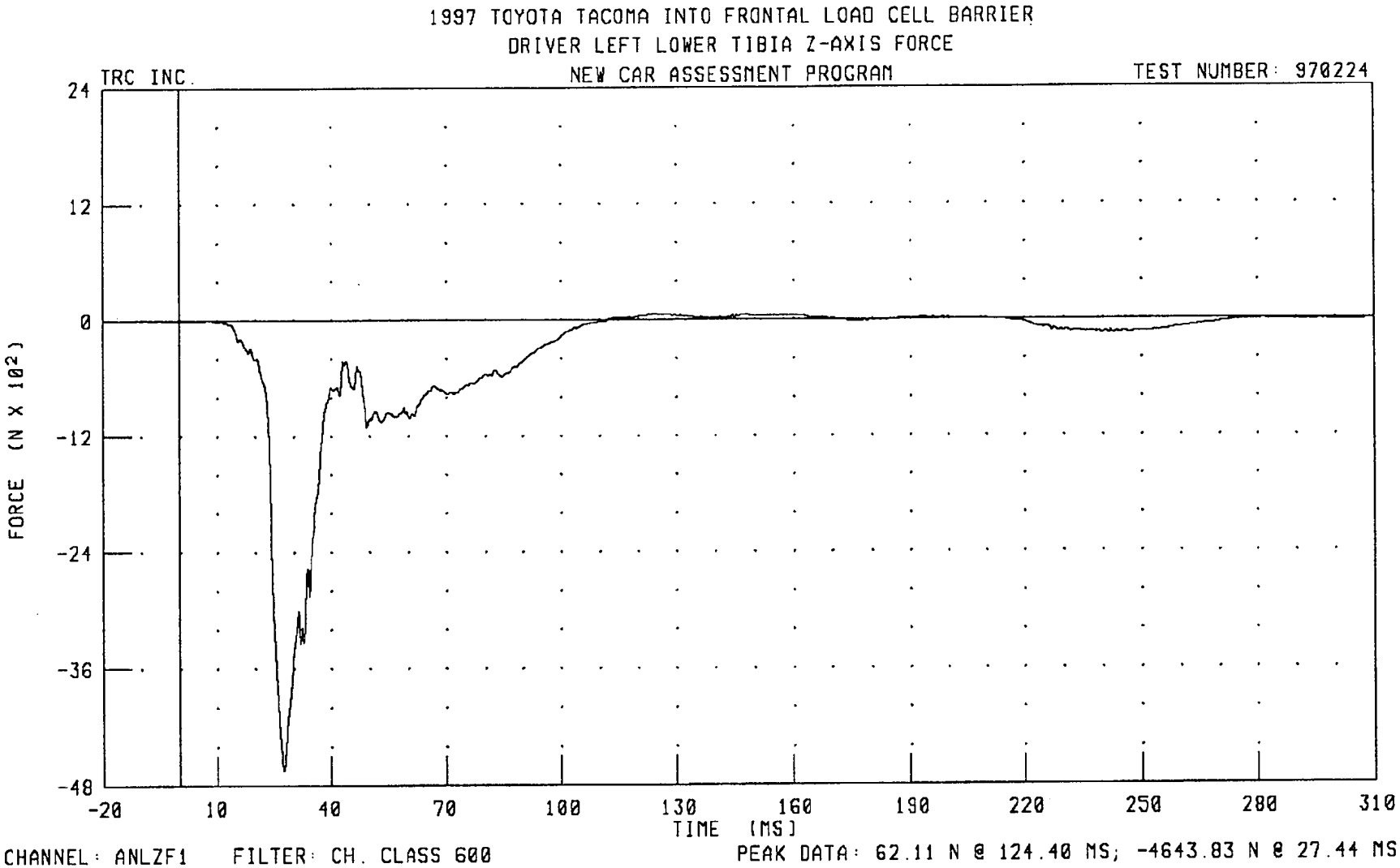
970224


1997 TOYOTA TACOMA INTO FRONTAL LOAD CELL BARRIER
DRIVER RIGHT UPPER TIBIA MOMENT ABOUT Y AXIS
TRC INC.
NEW CAR ASSESSMENT PROGRAM
TEST NUMBER: 970224
36
24
12
0
-12
-24
-36
TORQUE (N-M X 10¹)
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: TBRYM1
FILTER: CH. CLASS 600
PEAK DATA: 275.08 N-M @ 36.80 MS; -30.77 N-M @ 108.64 MS

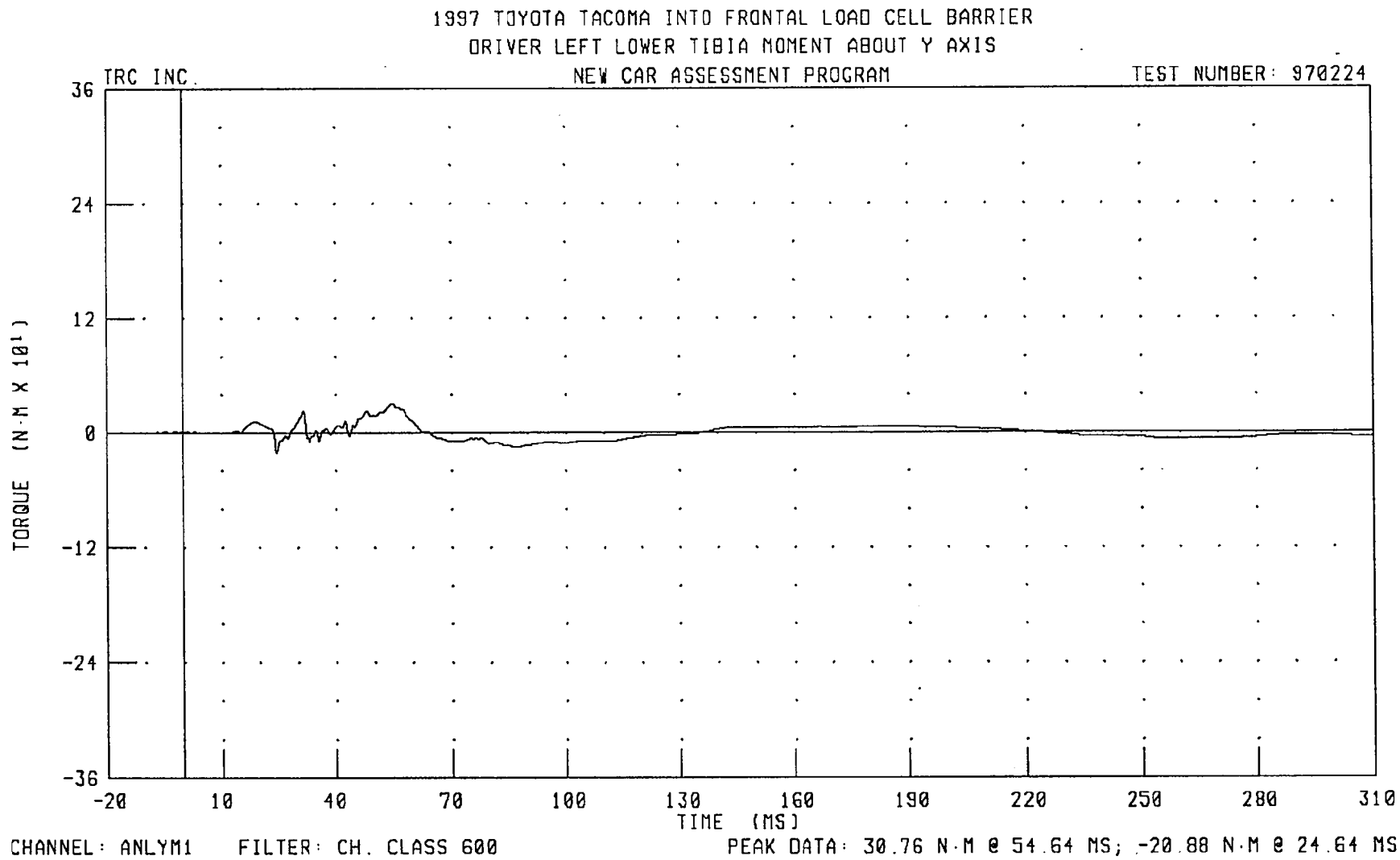
970224


1997 TOYOTA TACOMA INTO FRONTAL LOAD CELL BARRIER
DRIVER LEFT LOWER TIBIA X-AXIS FORCE
TRC INC.
NEW CAR ASSESSMENT PROGRAM
TEST NUMBER: 970224
36
24
12
0
-12
-24
-36
FORCE (N X 10²)
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: ANLXF1
FILTER: CH. CLASS 600
PEAK DATA: 129.53 N @ 112.16 MS; -873.00 N @ 26.80 MS

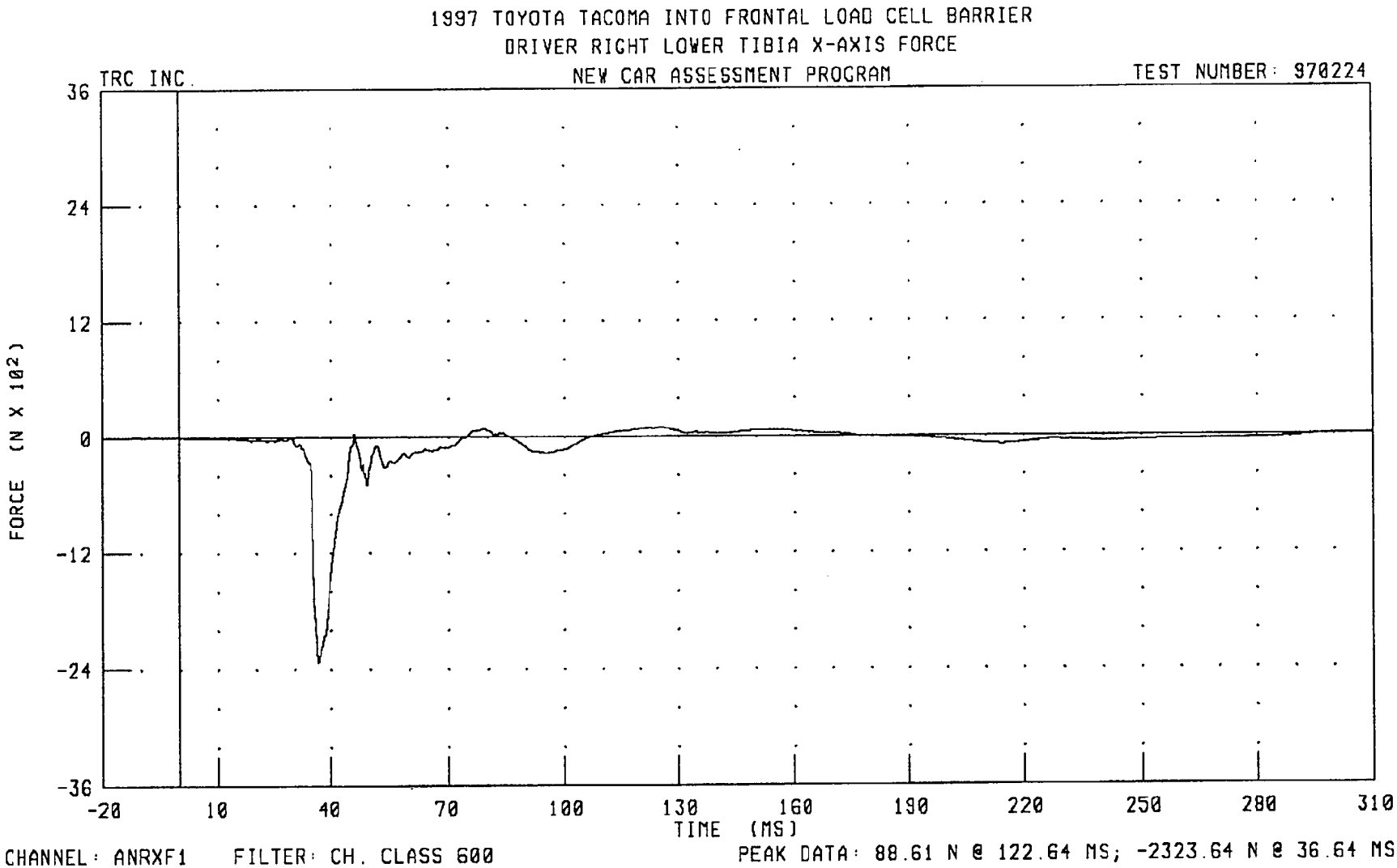
970224


1997 TOYOTA TACOMA INTO FRONTAL LOAD CELL BARRIER
DRIVER LEFT LOWER TIBIA Z-AXIS FORCE
TRC INC.
NEW CAR ASSESSMENT PROGRAM
TEST NUMBER: 970224
24
12
0
-12
-24
-36
-48
FORCE (N X 10²)
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: ANLZF1
FILTER: CH. CLASS 600
PEAK DATA: 62.11 N @ 124.40 MS; -4643.83 N @ 27.44 MS

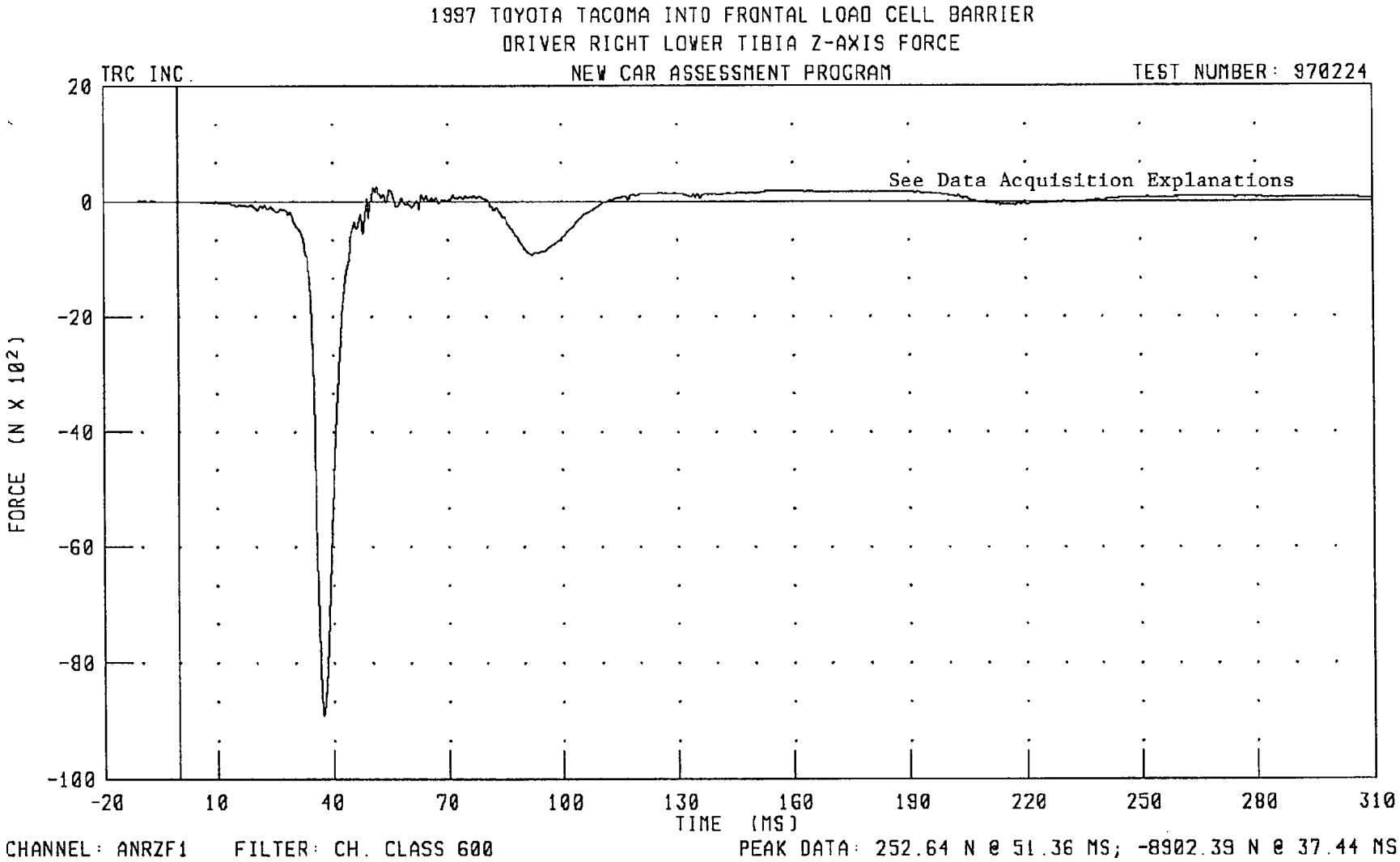
970224


1997 TOYOTA TACOMA INTO FRONTAL LOAD CELL BARRIER
DRIVER LEFT LOWER TIBIA MOMENT ABOUT Y AXIS
TRC INC.
NEW CAR ASSESSMENT PROGRAM
TEST NUMBER: 970224
TORQUE (N·M X 10¹)
36
24
12
0
-12
-24
-36
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: ANLYM1
FILTER: CH. CLASS 600
PEAK DATA: 30.76 N·M @ 54.64 MS; -20.88 N·M @ 24.64 MS

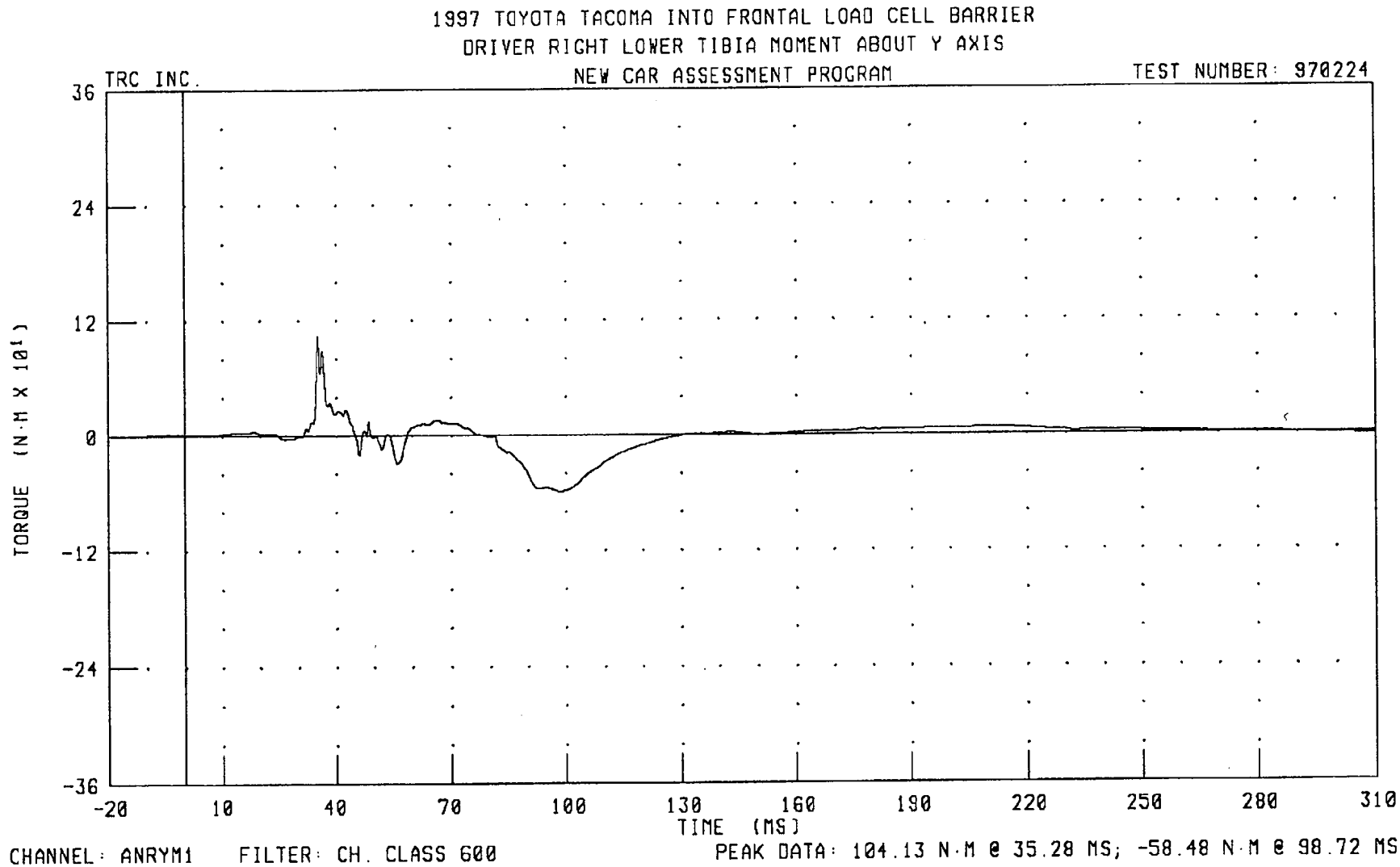
970224


1997 TOYOTA TACOMA INTO FRONTAL LOAD CELL BARRIER
DRIVER RIGHT LOWER TIBIA X-AXIS FORCE
TRC INC.
NEW CAR ASSESSMENT PROGRAM
TEST NUMBER: 970224
36
24
12
0
-12
-24
-36
FORCE (N X 10²)
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: ANRXF1
FILTER: CH. CLASS 600
PEAK DATA: 88.61 N @ 122.64 MS; -2323.64 N @ 36.64 MS

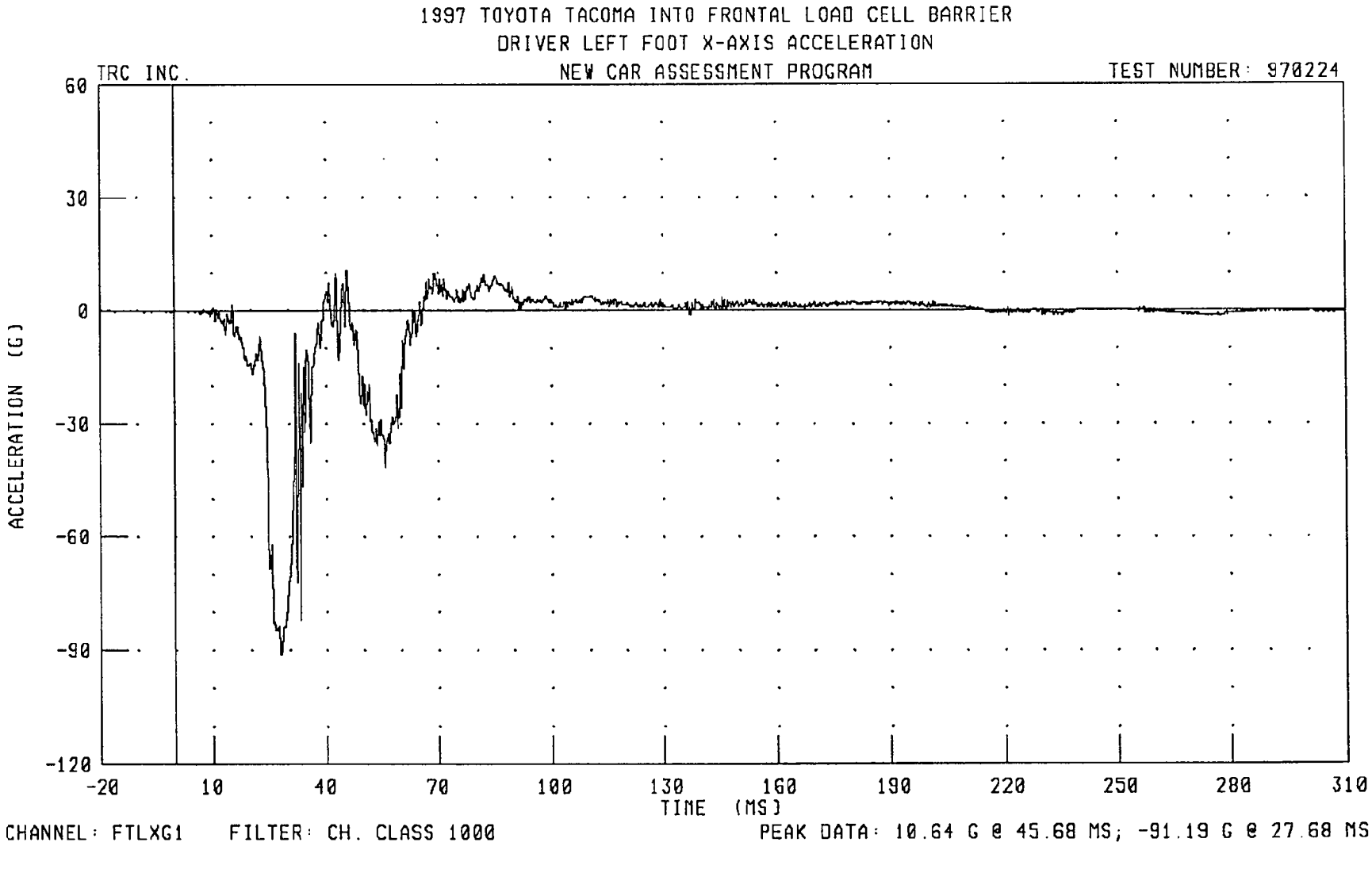
970224


1997 TOYOTA TACOMA INTO FRONTAL LOAD CELL BARRIER
DRIVER RIGHT LOWER TIBIA Z-AXIS FORCE
TRC INC.
NEW CAR ASSESSMENT PROGRAM
TEST NUMBER: 970224
See Data Acquisition Explanations
FORCE (N X 10²)
20
0
-20
-40
-60
-80
-100
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: ANRZF1
FILTER: CH. CLASS 600
PEAK DATA: 252.64 N @ 51.36 MS; -8902.39 N @ 37.44 MS

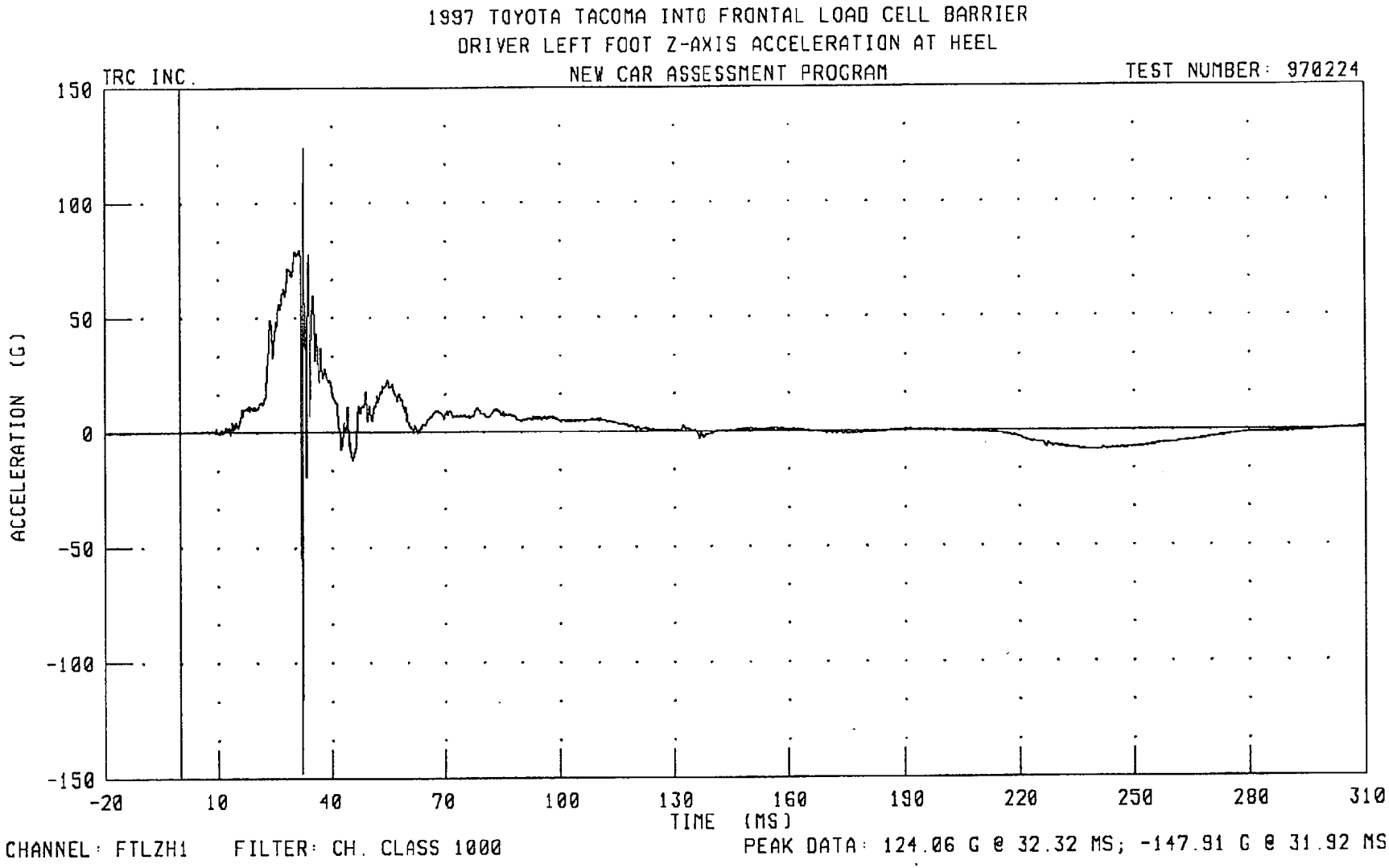
970224


1997 TOYOTA TACOMA INTO FRONTAL LOAD CELL BARRIER
DRIVER RIGHT LOWER TIBIA MOMENT ABOUT Y AXIS
TRC INC.
NEW CAR ASSESSMENT PROGRAM
TEST NUMBER: 970224
36
24
12
0
-12
-24
-36
TORQUE (N·M X 10¹)
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: ANRYM1
FILTER: CH. CLASS 600
PEAK DATA: 104.13 N·M @ 35.28 MS; -58.48 N·M @ 98.72 MS

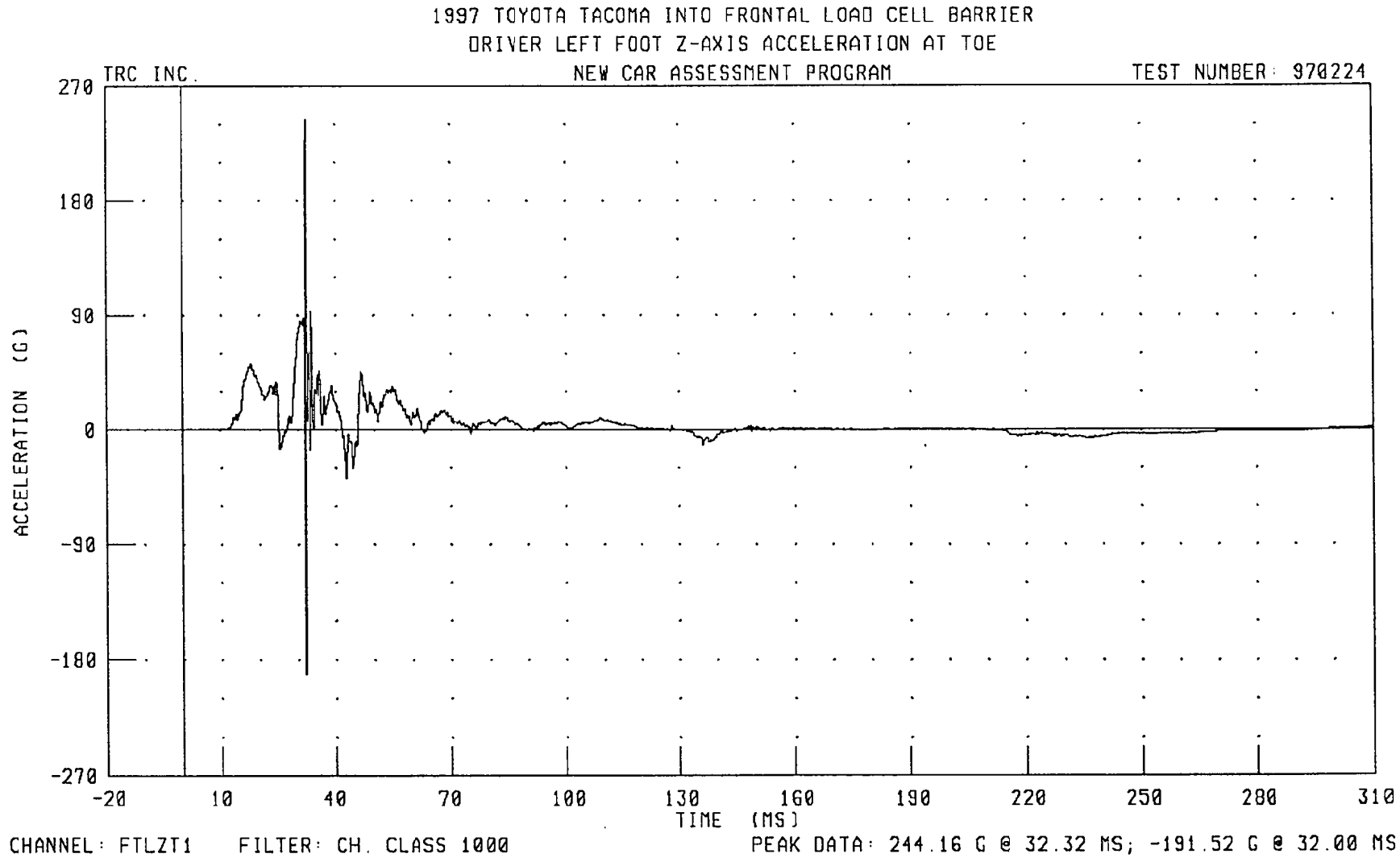
970224

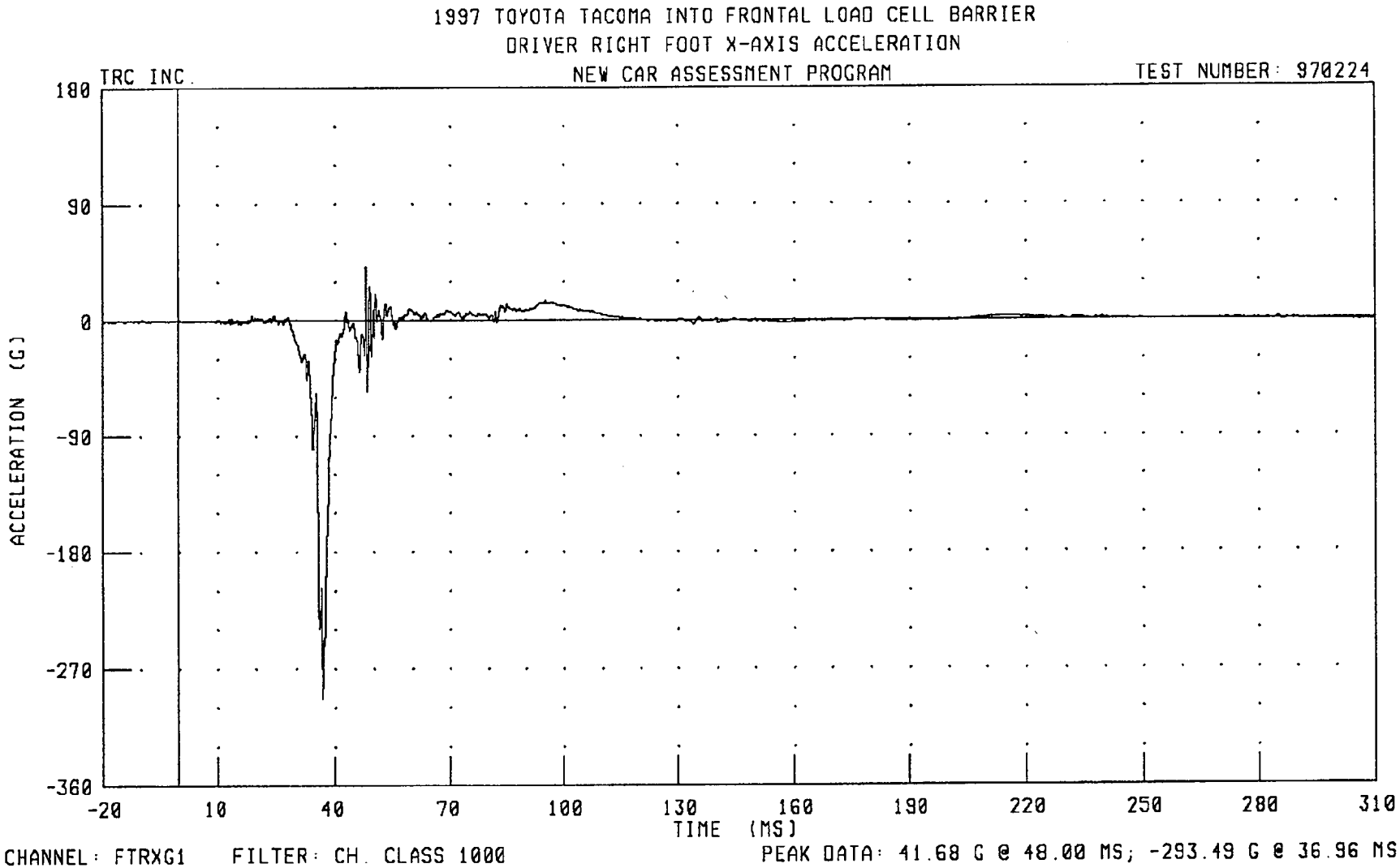

1997 TOYOTA TACOMA INTO FRONTAL LOAD CELL BARRIER
DRIVER LEFT FOOT X-AXIS ACCELERATION
TRC INC.
NEW CAR ASSESSMENT PROGRAM
TEST NUMBER: 970224
60
30
0
-30
-60
-90
-120
ACCELERATION (G)
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: FTLXG1
FILTER: CH. CLASS 1000
PEAK DATA: 10.64 G @ 45.68 MS; -91.19 G @ 27.68 MS

970224

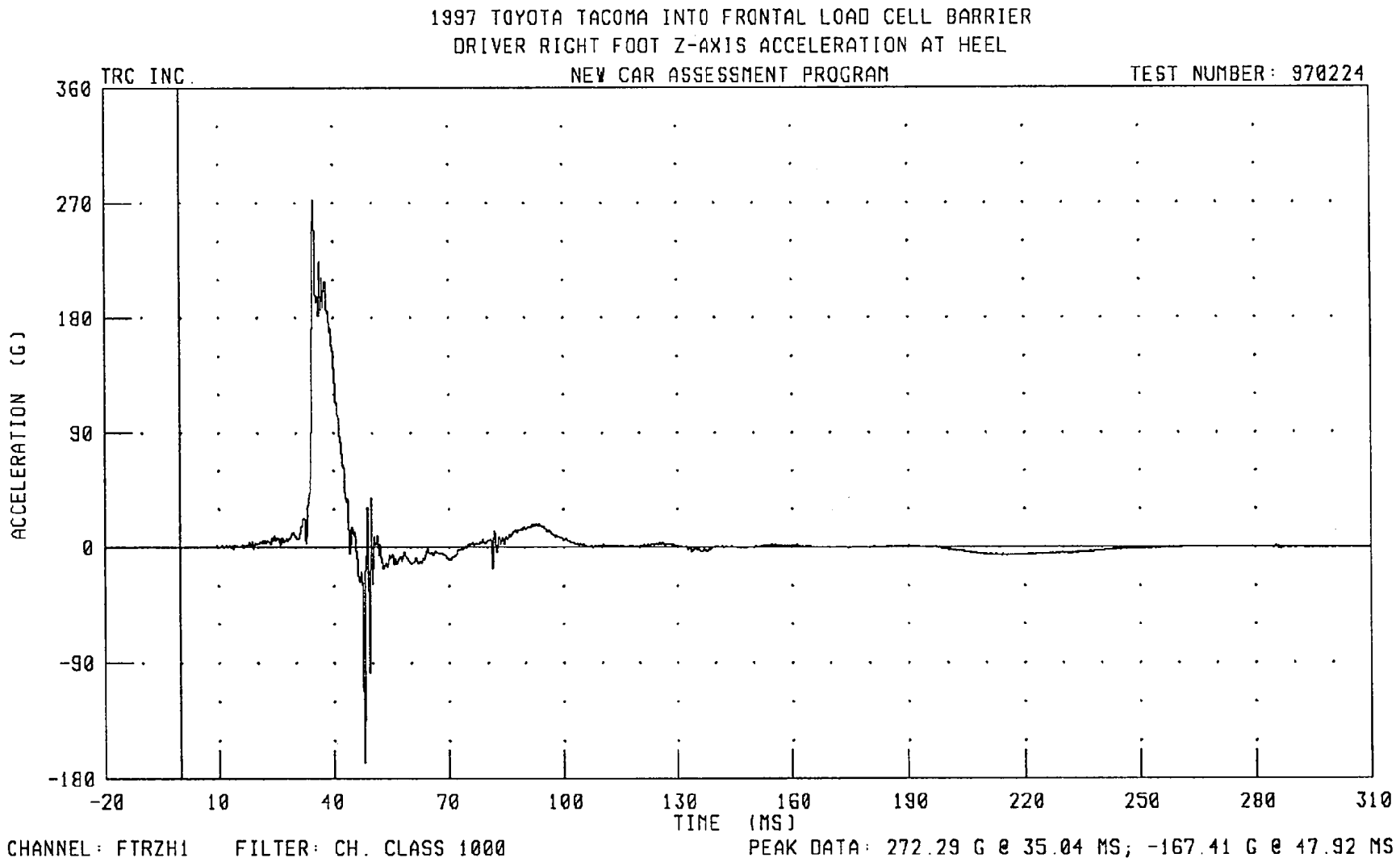

1997 TOYOTA TACOMA INTO FRONTAL LOAD CELL BARRIER
DRIVER LEFT FOOT Z-AXIS ACCELERATION AT HEEL
TRC INC.
NEW CAR ASSESSMENT PROGRAM
TEST NUMBER: 970224
150
100
50
0
-50
-100
-150
ACCELERATION (G)
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: FTLZH1
FILTER: CH. CLASS 1000
PEAK DATA: 124.06 G @ 32.32 MS; -147.91 G @ 31.92 MS

970224

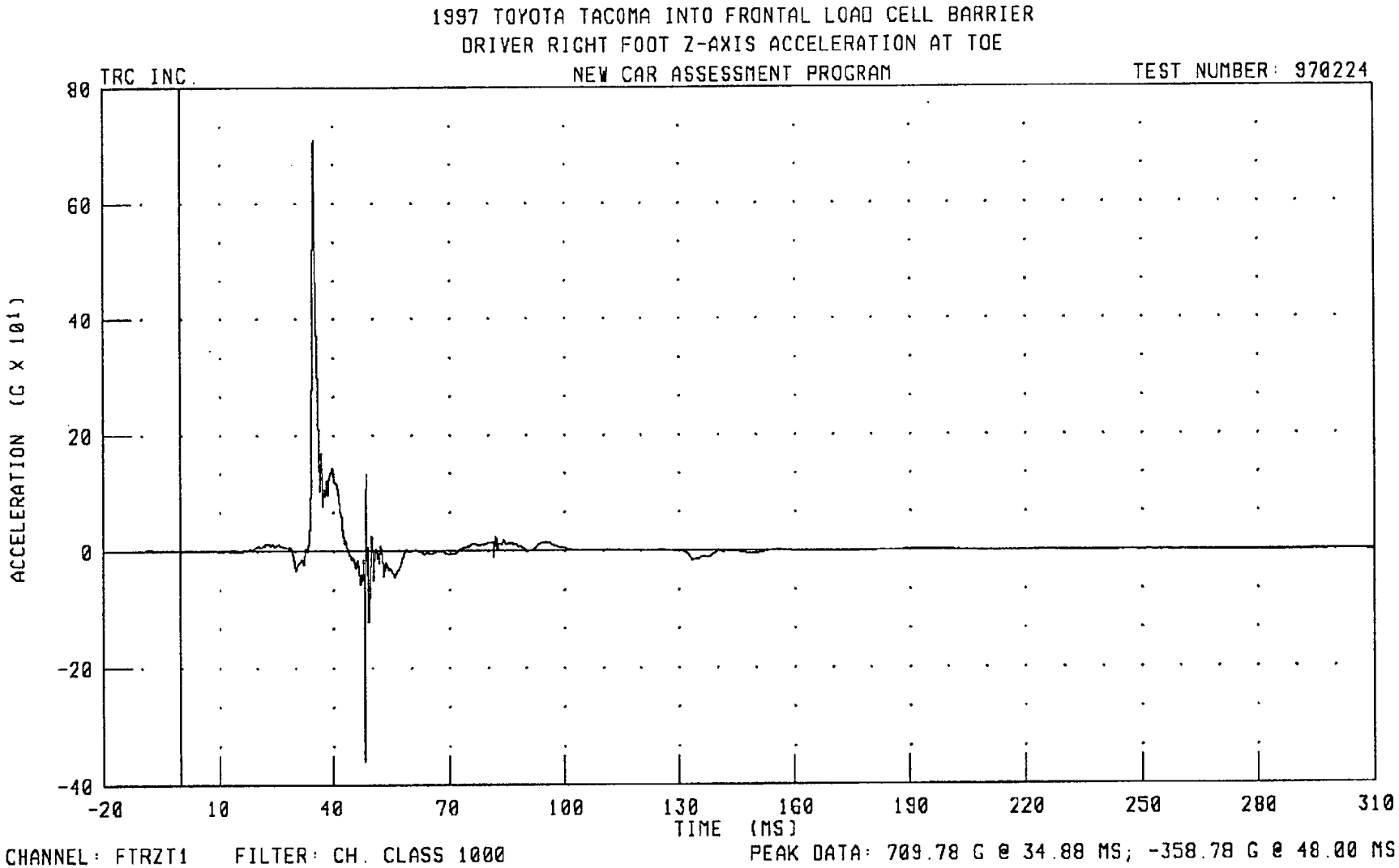

1997 TOYOTA TACOMA INTO FRONTAL LOAD CELL BARRIER
DRIVER LEFT FOOT Z-AXIS ACCELERATION AT TOE
TRC INC.
NEW CAR ASSESSMENT PROGRAM
TEST NUMBER: 970224
270
180
90
0
-90
-180
-270
ACCELERATION (G)
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: FTLZT1
FILTER: CH. CLASS 1000
PEAK DATA: 244.16 G @ 32.32 MS; -191.52 G @ 32.00 MS


1997 TOYOTA TACOMA INTO FRONTAL LOAD CELL BARRIER
DRIVER RIGHT FOOT X-AXIS ACCELERATION
TRC INC.
NEW CAR ASSESSMENT PROGRAM
TEST NUMBER: 970224
180
90
0
-90
-180
-270
-360
ACCELERATION (G)
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: FTRXG1
FILTER: CH. CLASS 1000
PEAK DATA: 41.68 G @ 48.00 MS; -293.49 G @ 36.96 MS

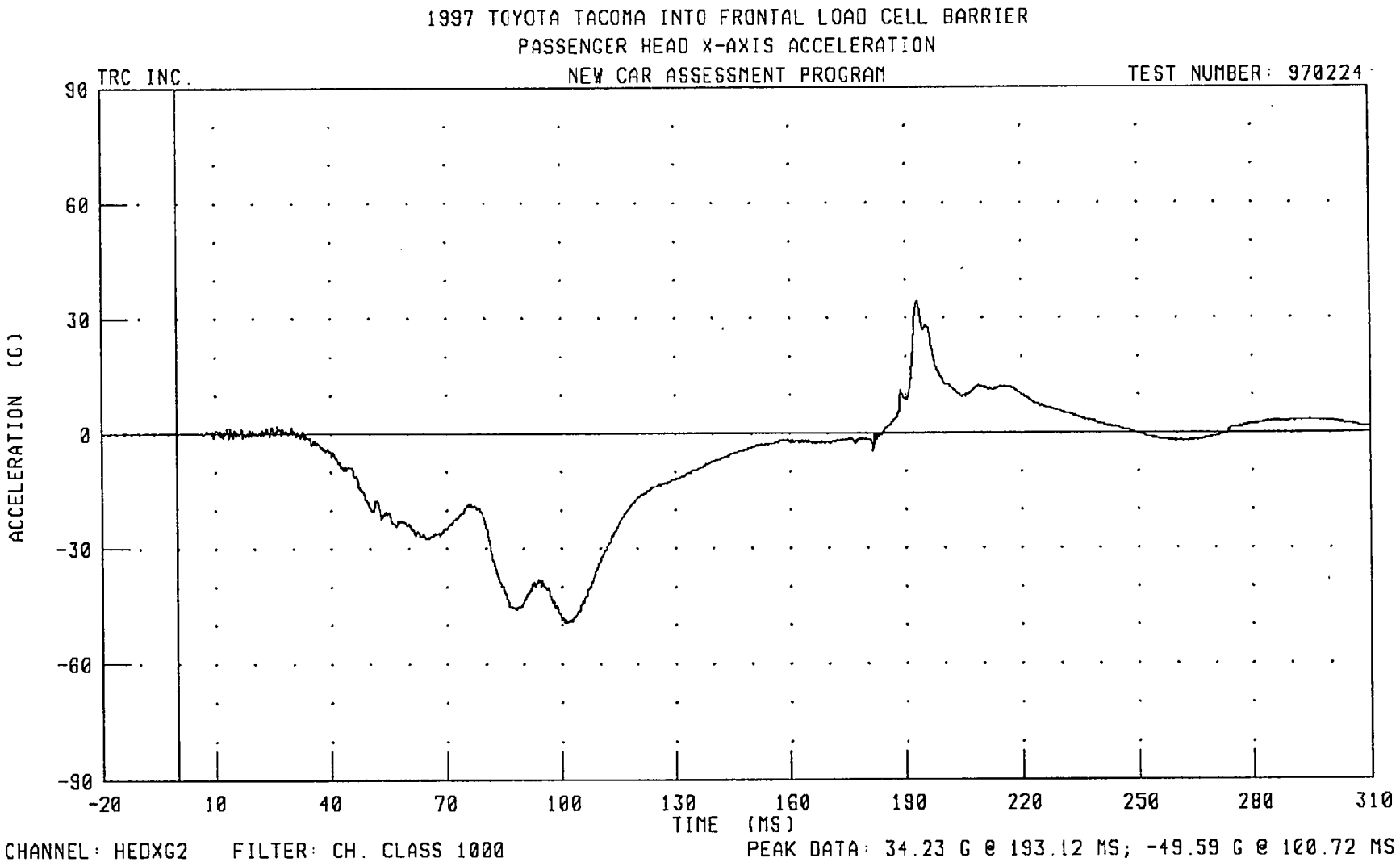
970224

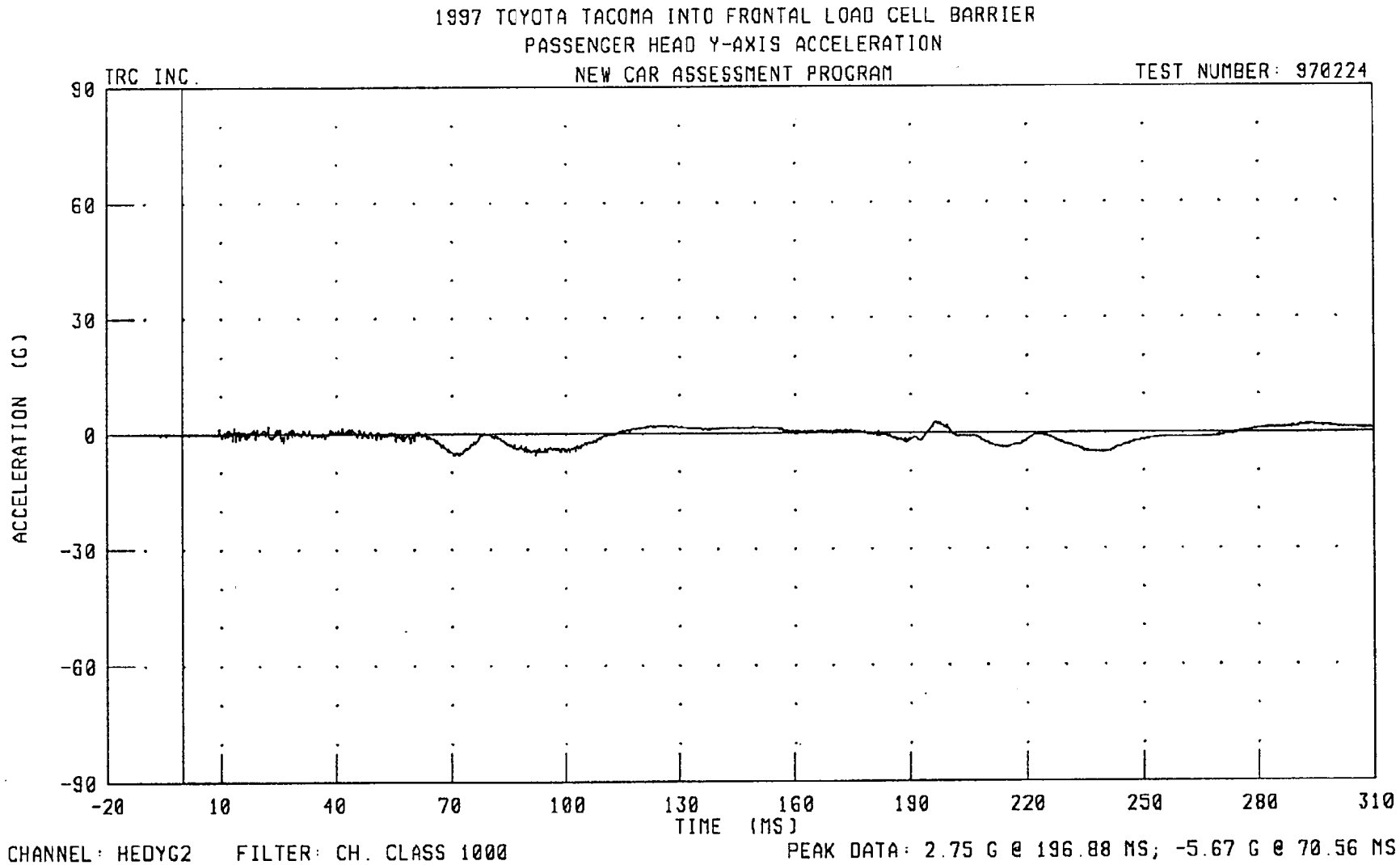

1997 TOYOTA TACOMA INTO FRONTAL LOAD CELL BARRIER
DRIVER RIGHT FOOT Z-AXIS ACCELERATION AT HEEL
TRC INC.
NEW CAR ASSESSMENT PROGRAM
TEST NUMBER: 970224
360
270
180
90
0
-90
-180
ACCELERATION (G)
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: FTRZH1
FILTER: CH. CLASS 1000
PEAK DATA: 272.29 G @ 35.04 MS; -167.41 G @ 47.92 MS

970224

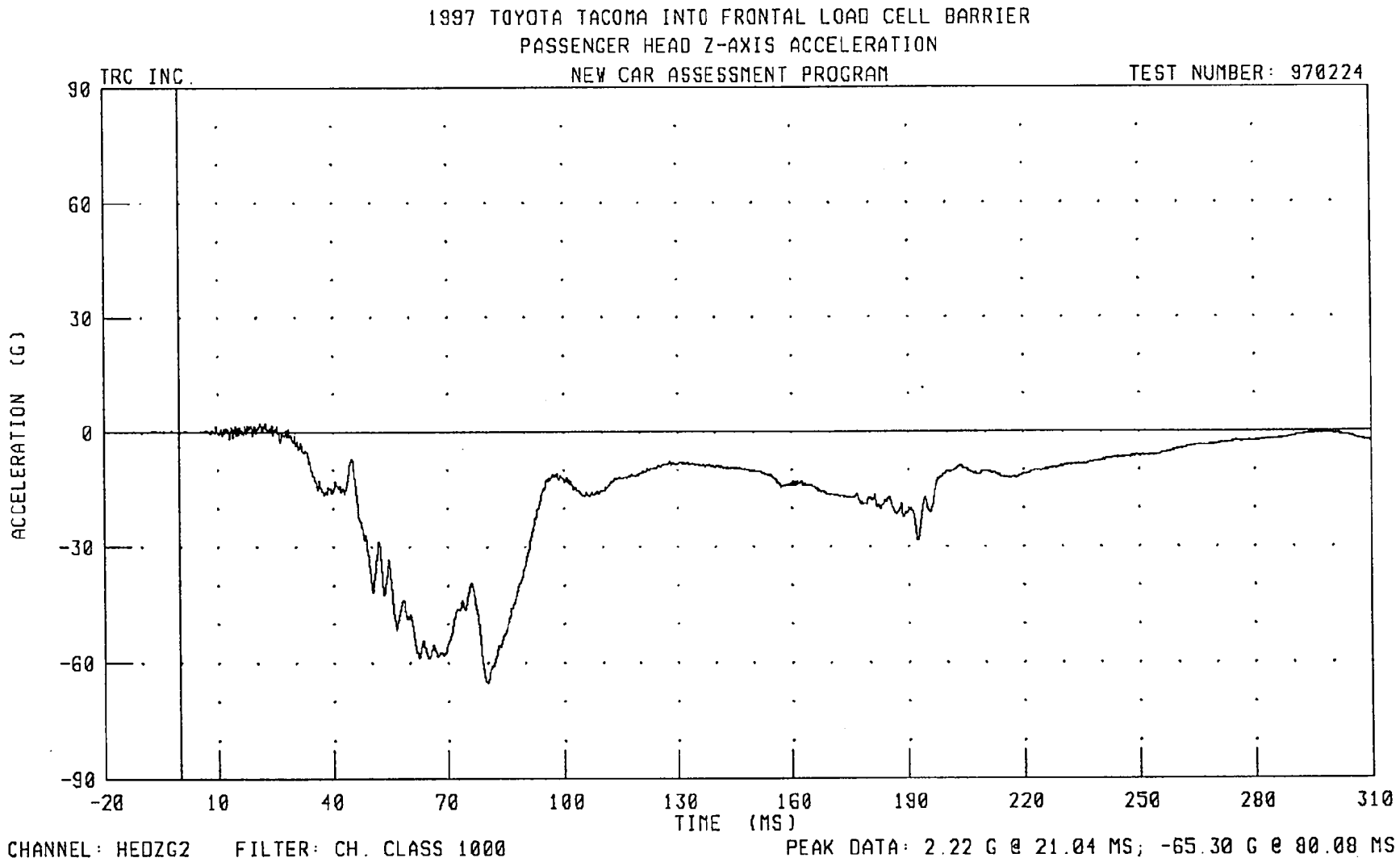

1997 TOYOTA TACOMA INTO FRONTAL LOAD CELL BARRIER
DRIVER RIGHT FOOT Z-AXIS ACCELERATION AT TOE
TRC INC.
NEW CAR ASSESSMENT PROGRAM
TEST NUMBER: 970224
ACCELERATION (G X 10¹)
80
60
40
20
0
-20
-40
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: FTRZT1
FILTER: CH. CLASS 1000
PEAK DATA: 709.78 G @ 34.88 MS; -358.78 G @ 48.00 MS

970224

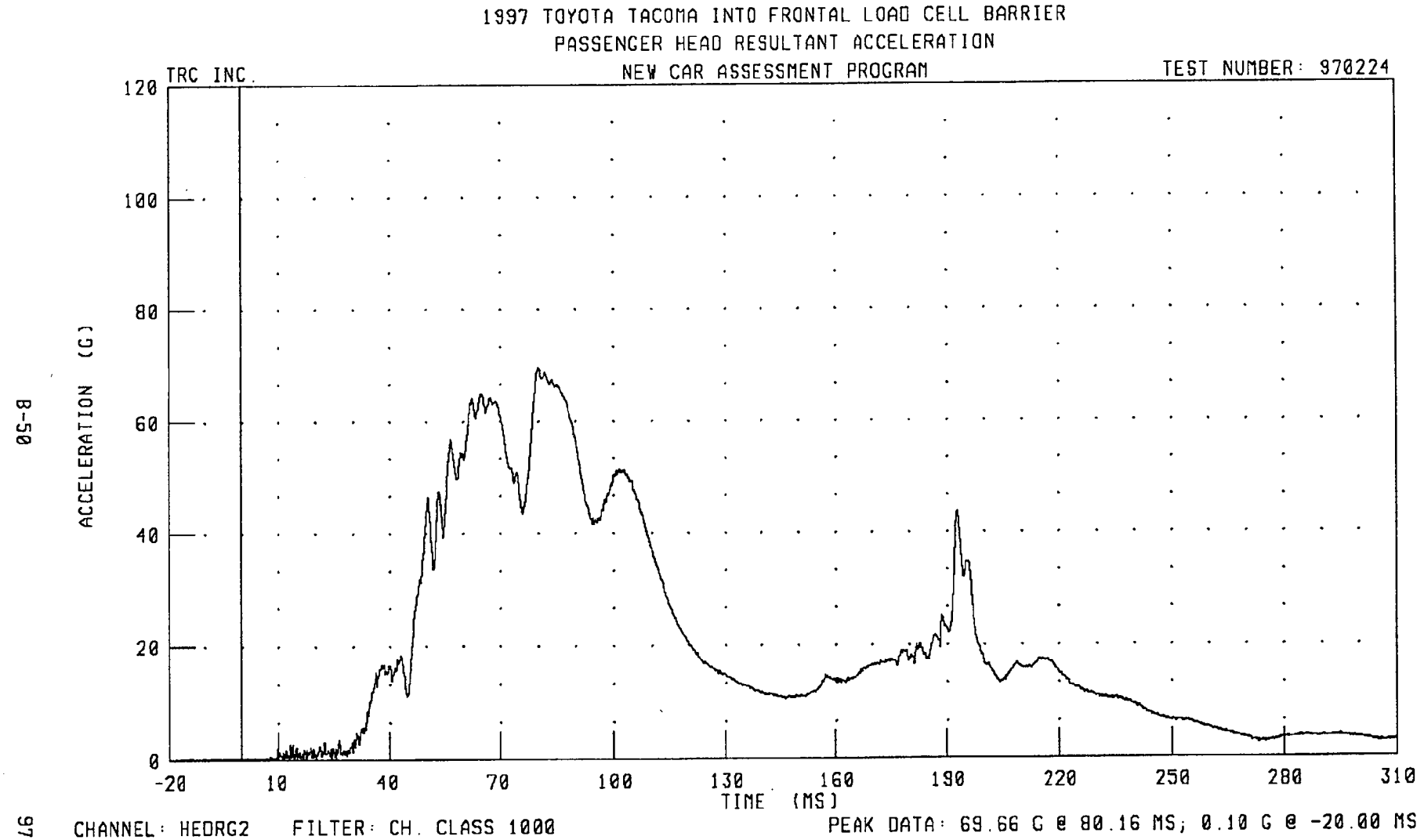

1997 TOYOTA TACOMA INTO FRONTAL LOAD CELL BARRIER
PASSENGER HEAD X-AXIS ACCELERATION
TRC INC.
NEW CAR ASSESSMENT PROGRAM
TEST NUMBER: 970224
90
60
30
0
-30
-60
-90
ACCELERATION (G)
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: HEDXG2
FILTER: CH. CLASS 1000
PEAK DATA: 34.23 G @ 193.12 MS; -49.59 G @ 100.72 MS

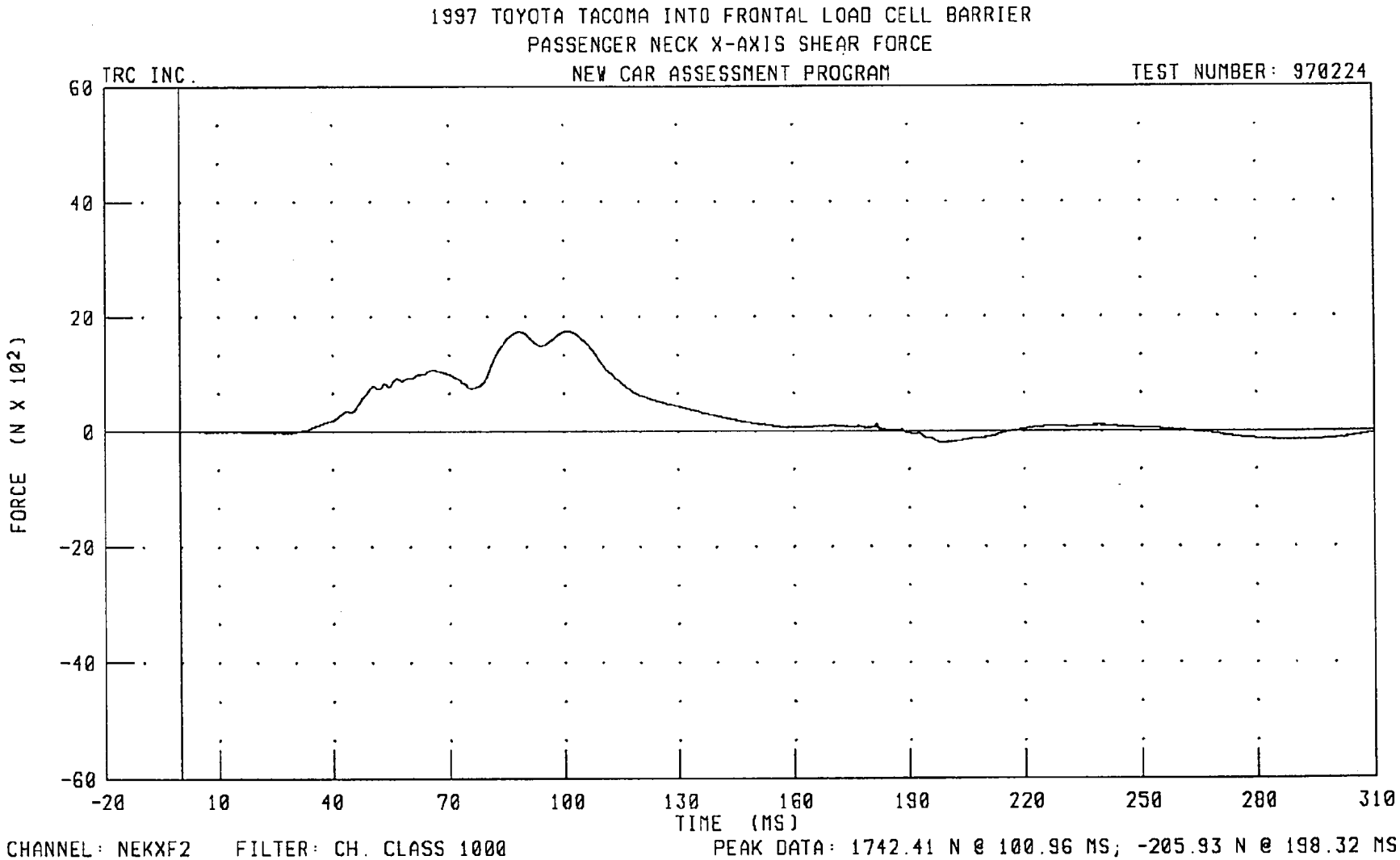

1997 TOYOTA TACOMA INTO FRONTAL LOAD CELL BARRIER
PASSENGER HEAD Y-AXIS ACCELERATION
TRC INC.
NEW CAR ASSESSMENT PROGRAM
TEST NUMBER: 970224
90
60
30
0
-30
-60
-90
ACCELERATION (G)
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: HEDYG2
FILTER: CH. CLASS 1000
PEAK DATA: 2.75 G @ 196.88 MS; -5.67 G @ 70.56 MS

970224

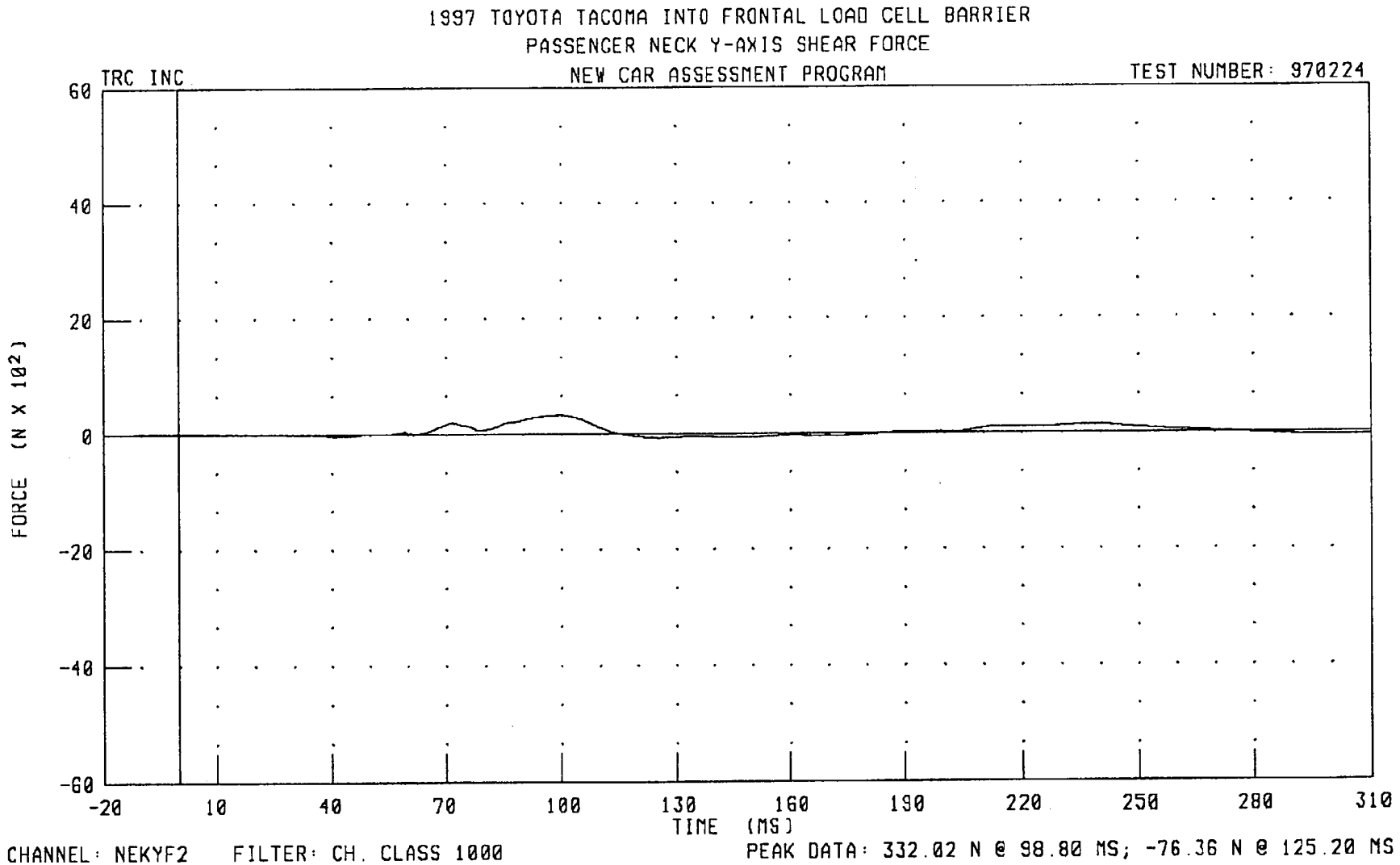

1997 TOYOTA TACOMA INTO FRONTAL LOAD CELL BARRIER
PASSENGER HEAD Z-AXIS ACCELERATION
TRC INC.
NEW CAR ASSESSMENT PROGRAM
TEST NUMBER: 970224
90
60
30
0
-30
-60
-90
ACCELERATION (G)
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: HEDZG2
FILTER: CH. CLASS 1000
PEAK DATA: 2.22 G @ 21.04 MS; -65.30 G @ 80.08 MS

970224

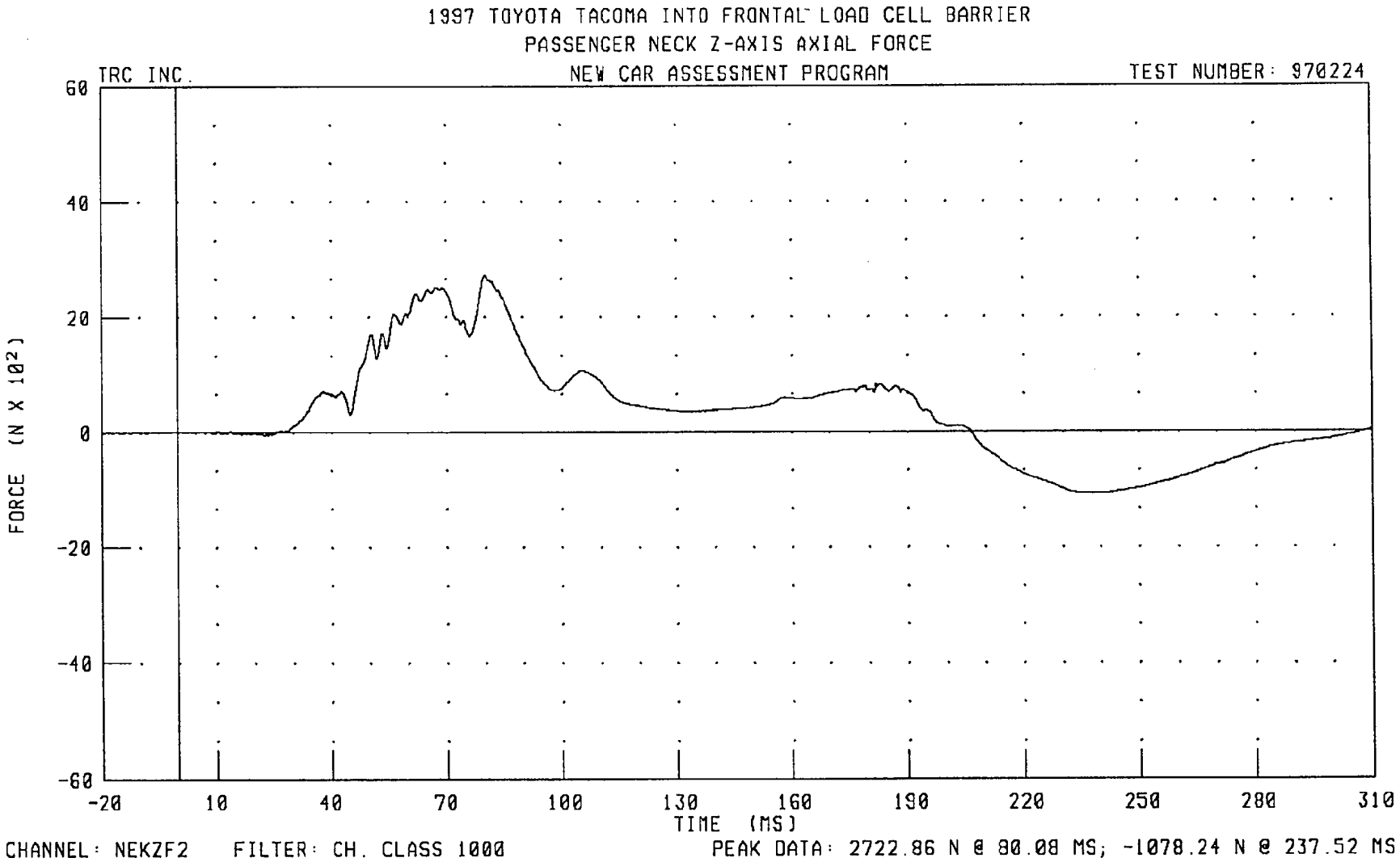

1997 TOYOTA TACOMA INTO FRONTAL LOAD CELL BARRIER
PASSENGER HEAD RESULTANT ACCELERATION
NEW CAR ASSESSMENT PROGRAM
TRC INC.
TEST NUMBER: 970224
ACCELERATION (G)
120
100
80
60
40
20
0
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: HEDRG2
FILTER: CH. CLASS 1000
PEAK DATA: 69.66 G @ 80.16 MS; 0.10 G @ -20.00 MS
B-50
970224


1997 TOYOTA TACOMA INTO FRONTAL LOAD CELL BARRIER
PASSENGER NECK X-AXIS SHEAR FORCE
TRC INC.
NEW CAR ASSESSMENT PROGRAM
TEST NUMBER: 970224
FORCE (N X 10²)
60
40
20
0
-20
-40
-60
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: NEKXF2
FILTER: CH. CLASS 1000
PEAK DATA: 1742.41 N @ 100.96 MS; -205.93 N @ 198.32 MS

970224

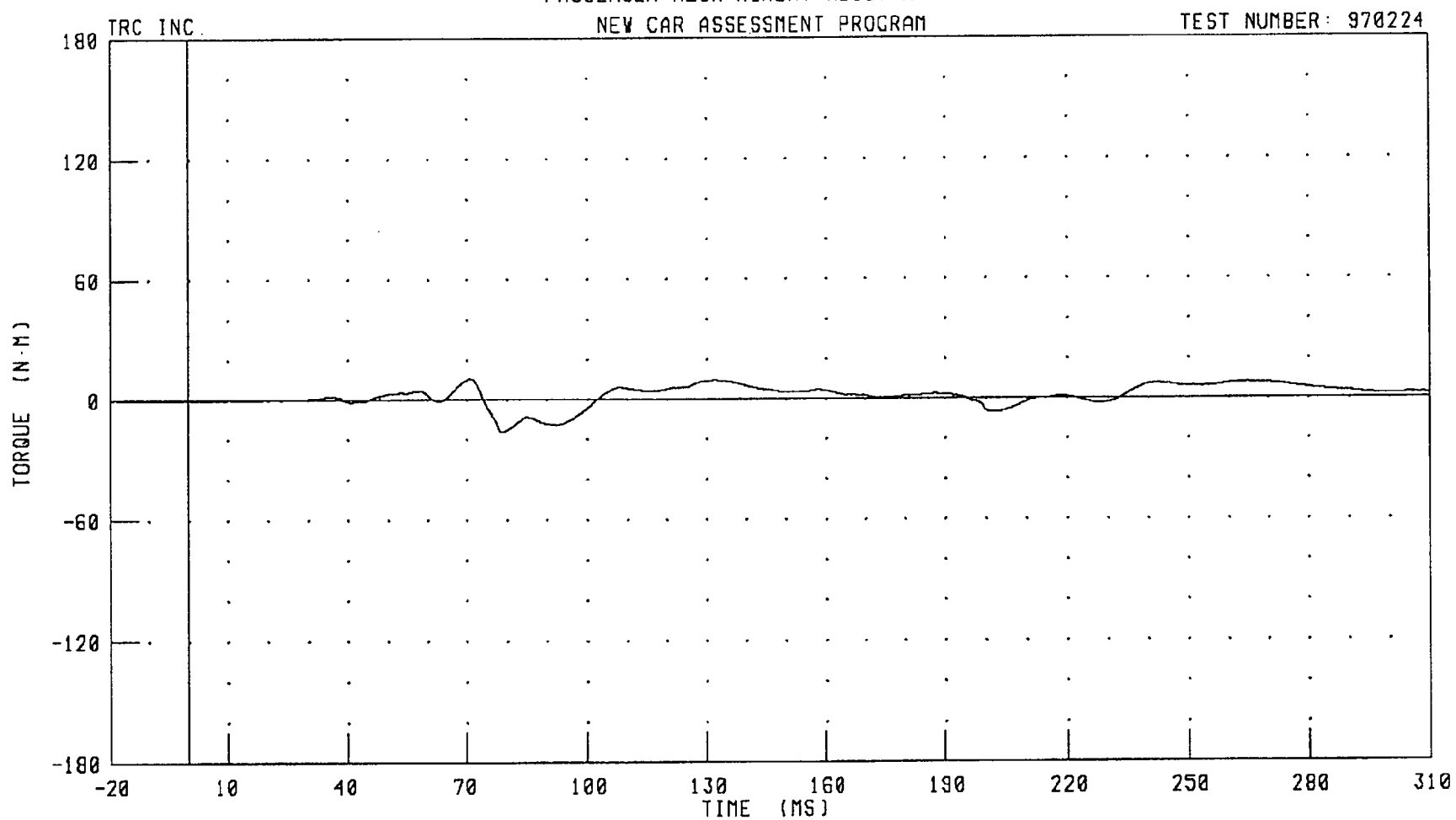

1997 TOYOTA TACOMA INTO FRONTAL LOAD CELL BARRIER
PASSENGER NECK Y-AXIS SHEAR FORCE
NEW CAR ASSESSMENT PROGRAM
TRC INC
TEST NUMBER: 970224
60
40
20
0
-20
-40
-60
FORCE (N X 10²)
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: NEKYF2
FILTER: CH. CLASS 1000
PEAK DATA: 332.02 N @ 98.80 MS; -76.36 N @ 125.20 MS

970224


1997 TOYOTA TACOMA INTO FRONTAL LOAD CELL BARRIER
PASSENGER NECK Z-AXIS AXIAL FORCE
TRC INC.
NEW CAR ASSESSMENT PROGRAM
TEST NUMBER: 970224
FORCE (N X 10²)
60
40
20
0
-20
-40
-60
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: NEKZF2
FILTER: CH. CLASS 1000
PEAK DATA: 2722.86 N @ 80.08 MS; -1078.24 N @ 237.52 MS

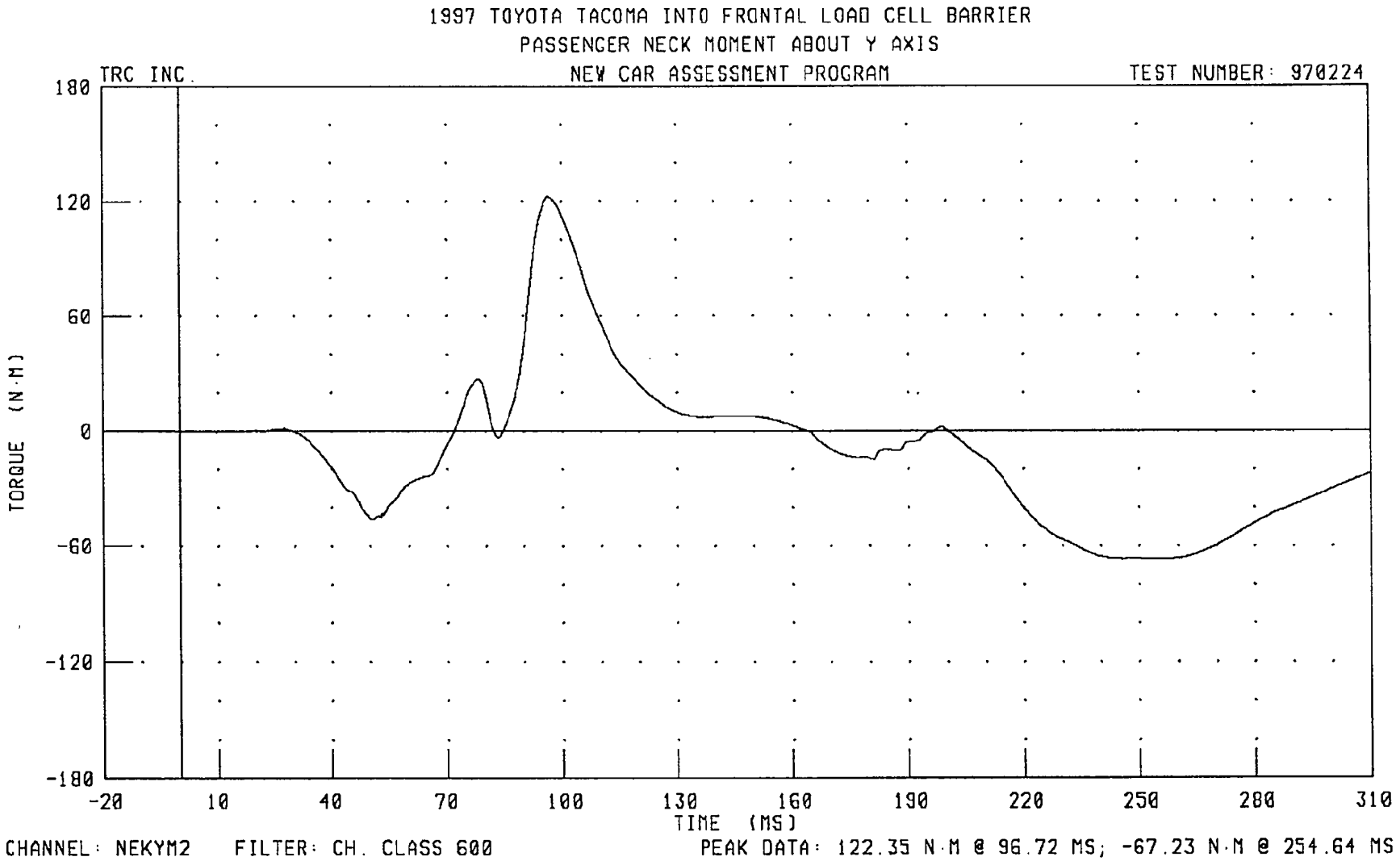
970224

1997 TOYOTA TACOMA INTO FRONTAL LOAD CELL BARRIER
PASSENGER NECK MOMENT ABOUT X AXIS

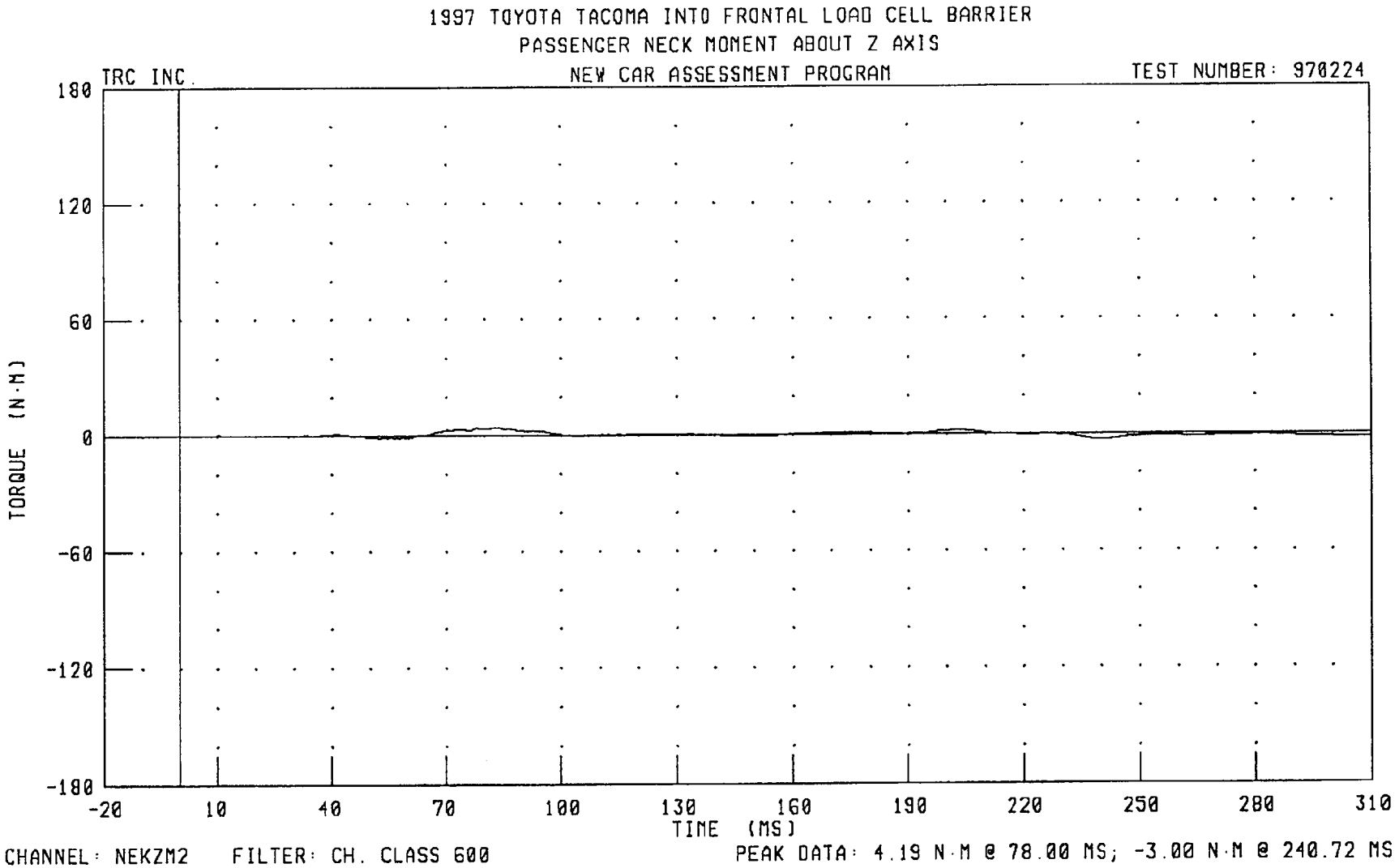


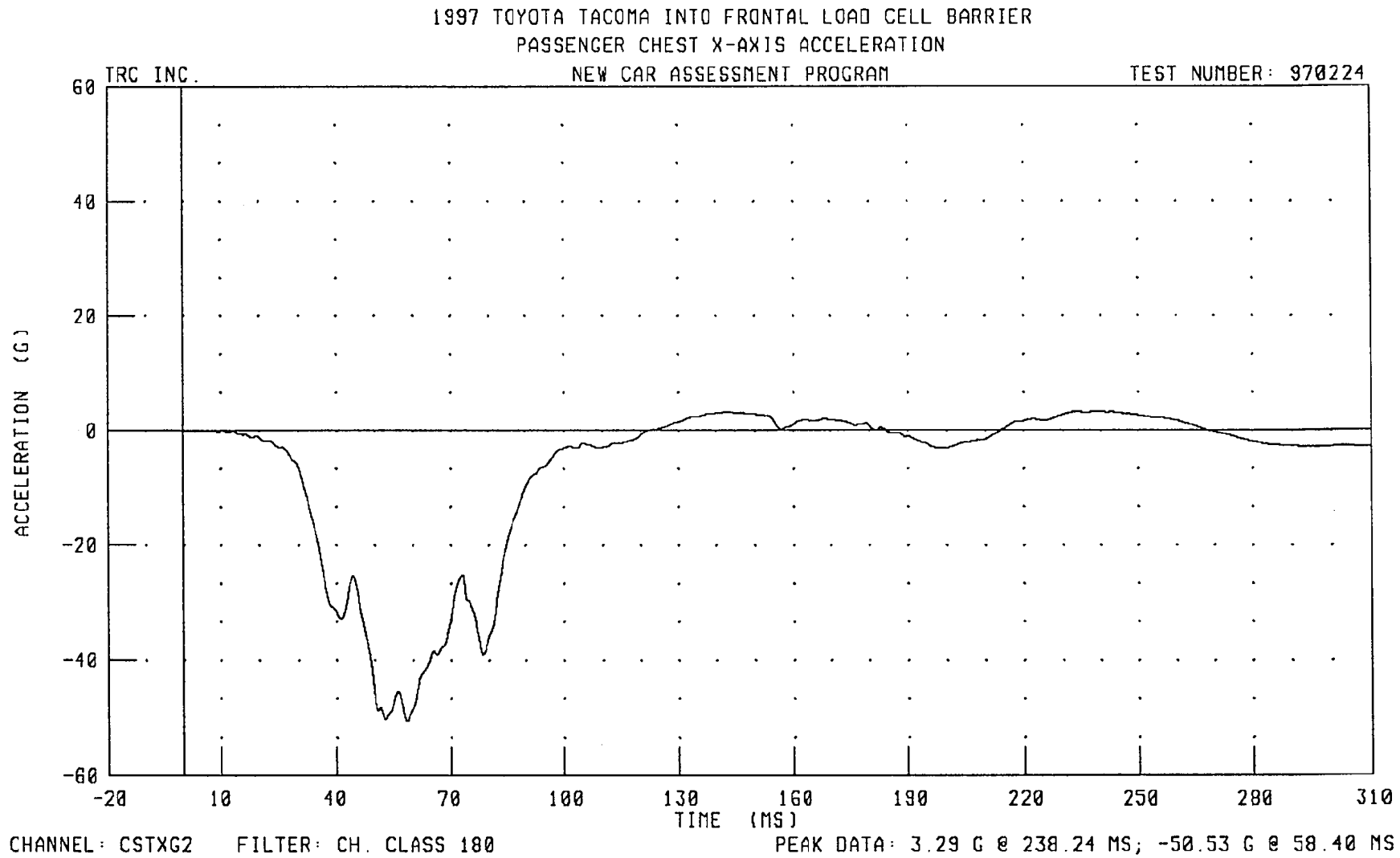
CHANNEL: NEKXM2 FILTER: CH. CLASS 600

PEAK DATA: 10.52 N-M @ 70.80 MS; -16.34 N-M @ 79.28 MS


1997 TOYOTA TACOMA INTO FRONTAL LOAD CELL BARRIER
PASSENGER NECK MOMENT ABOUT Y AXIS
TRC INC.
NEW CAR ASSESSMENT PROGRAM
TEST NUMBER: 970224
180
120
60
0
-60
-120
-180
TORQUE (N-M)
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: NEKYM2
FILTER: CH. CLASS 600
PEAK DATA: 122.35 N-M @ 96.72 MS; -67.23 N-M @ 254.64 MS

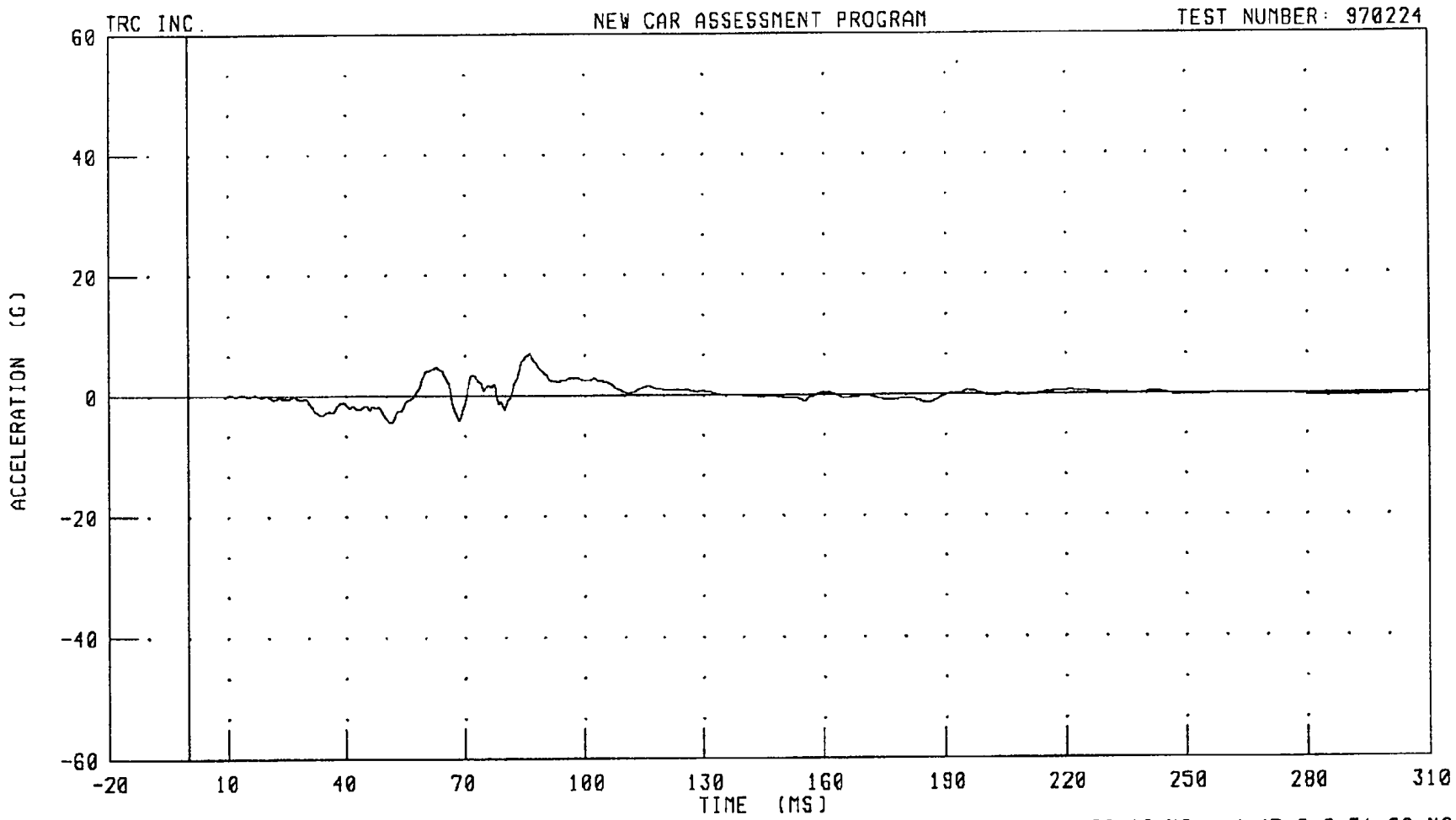
970224


1997 TOYOTA TACOMA INTO FRONTAL LOAD CELL BARRIER
PASSENGER NECK MOMENT ABOUT Z AXIS
TRC INC.
NEW CAR ASSESSMENT PROGRAM
TEST NUMBER: 970224
180
120
60
0
-60
-120
-180
TORQUE (N-M)
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: NEKZM2
FILTER: CH. CLASS 600
PEAK DATA: 4.19 N-M @ 78.00 MS; -3.00 N-M @ 240.72 MS

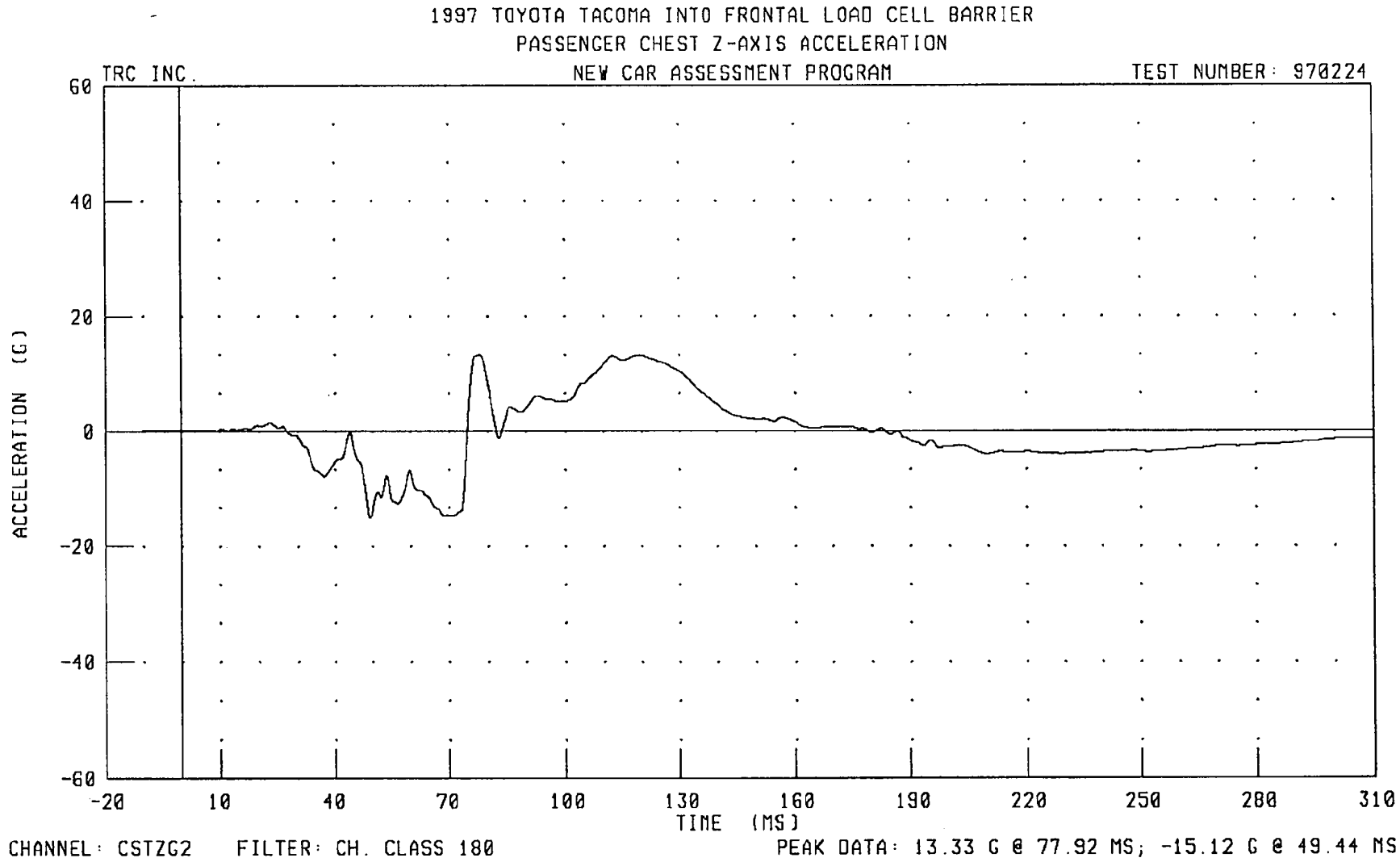

1997 TOYOTA TACOMA INTO FRONTAL LOAD CELL BARRIER
PASSENGER CHEST X-AXIS ACCELERATION
TRC INC.
NEW CAR ASSESSMENT PROGRAM
TEST NUMBER: 970224
60
40
20
0
-20
-40
-60
ACCELERATION (G)
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: CSTXG2
FILTER: CH. CLASS 180
PEAK DATA: 3.29 G @ 238.24 MS; -50.53 G @ 58.40 MS

970224

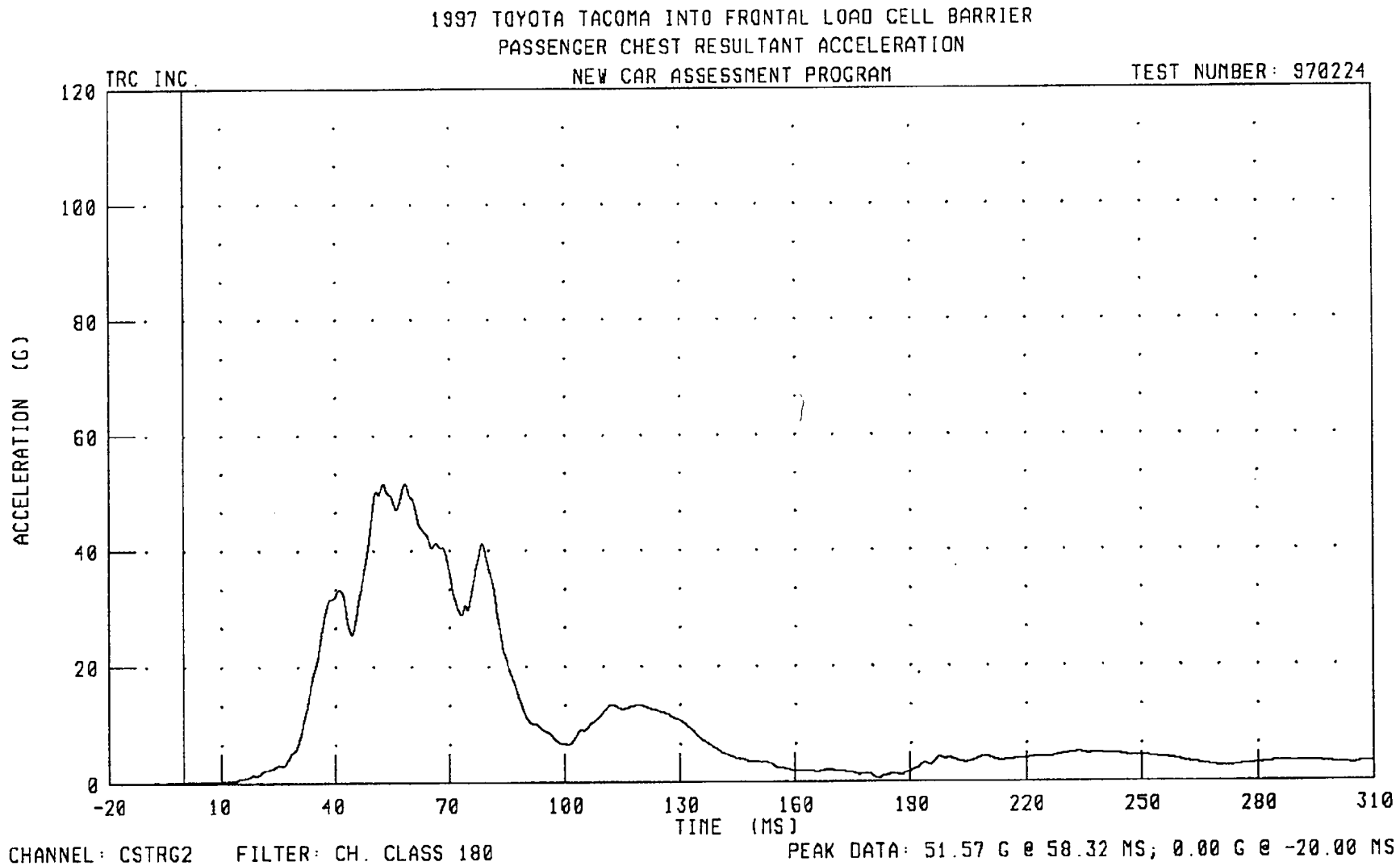
1997 TOYOTA TACOMA INTO FRONTAL LOAD CELL BARRIER
PASSENGER CHEST Y-AXIS ACCELERATION



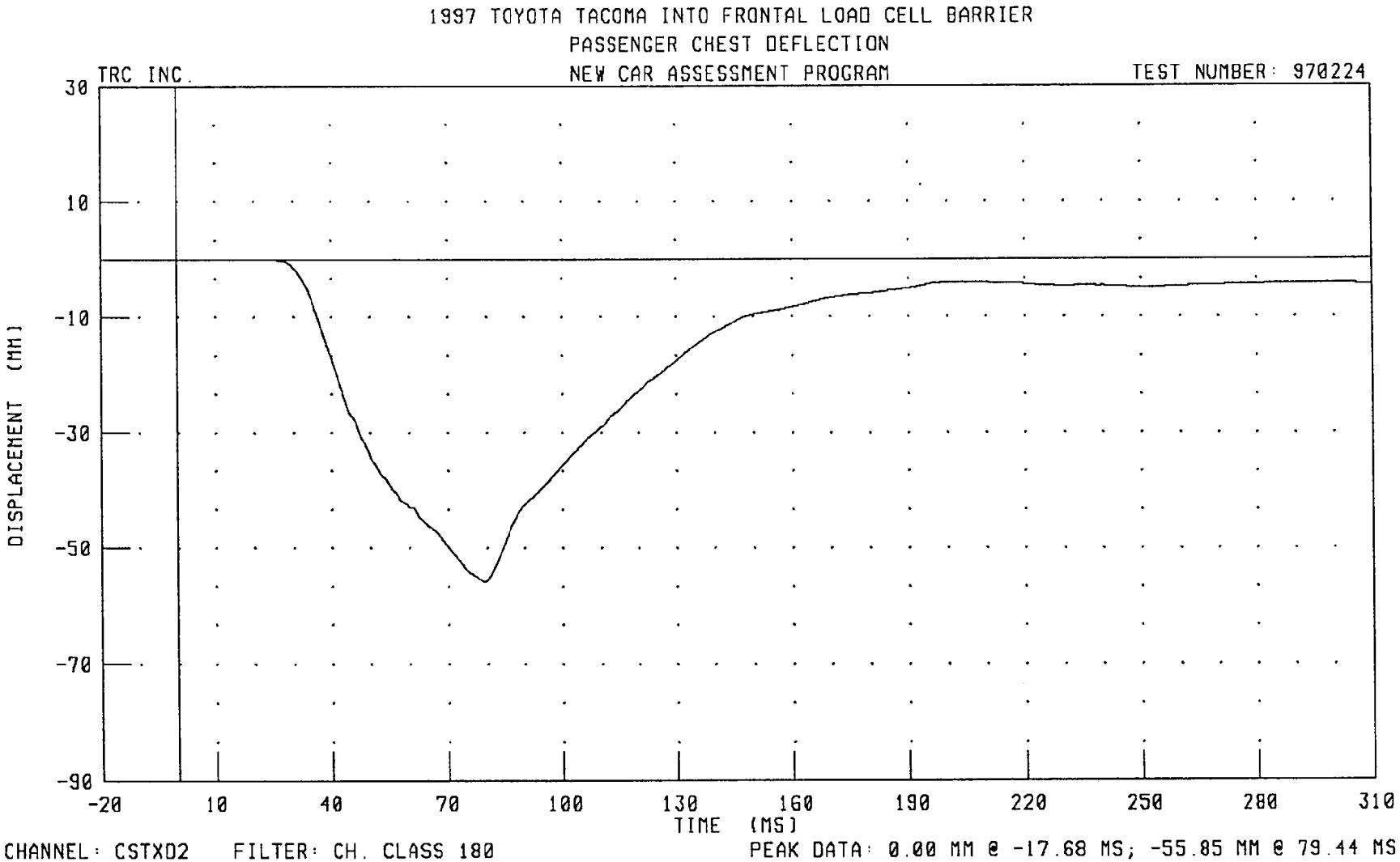
CHANNEL: CSTYG2 FILTER: CH. CLASS 180 PEAK DATA: 6.98 G @ 86.16 MS; -4.47 G @ 51.28 MS


1997 TOYOTA TACOMA INTO FRONTAL LOAD CELL BARRIER
PASSENGER CHEST Z-AXIS ACCELERATION
TRC INC.
NEW CAR ASSESSMENT PROGRAM
TEST NUMBER: 970224
60
40
20
0
-20
-40
-60
ACCELERATION (G)
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: CSTZG2
FILTER: CH. CLASS 180
PEAK DATA: 13.33 G @ 77.92 MS; -15.12 G @ 49.44 MS

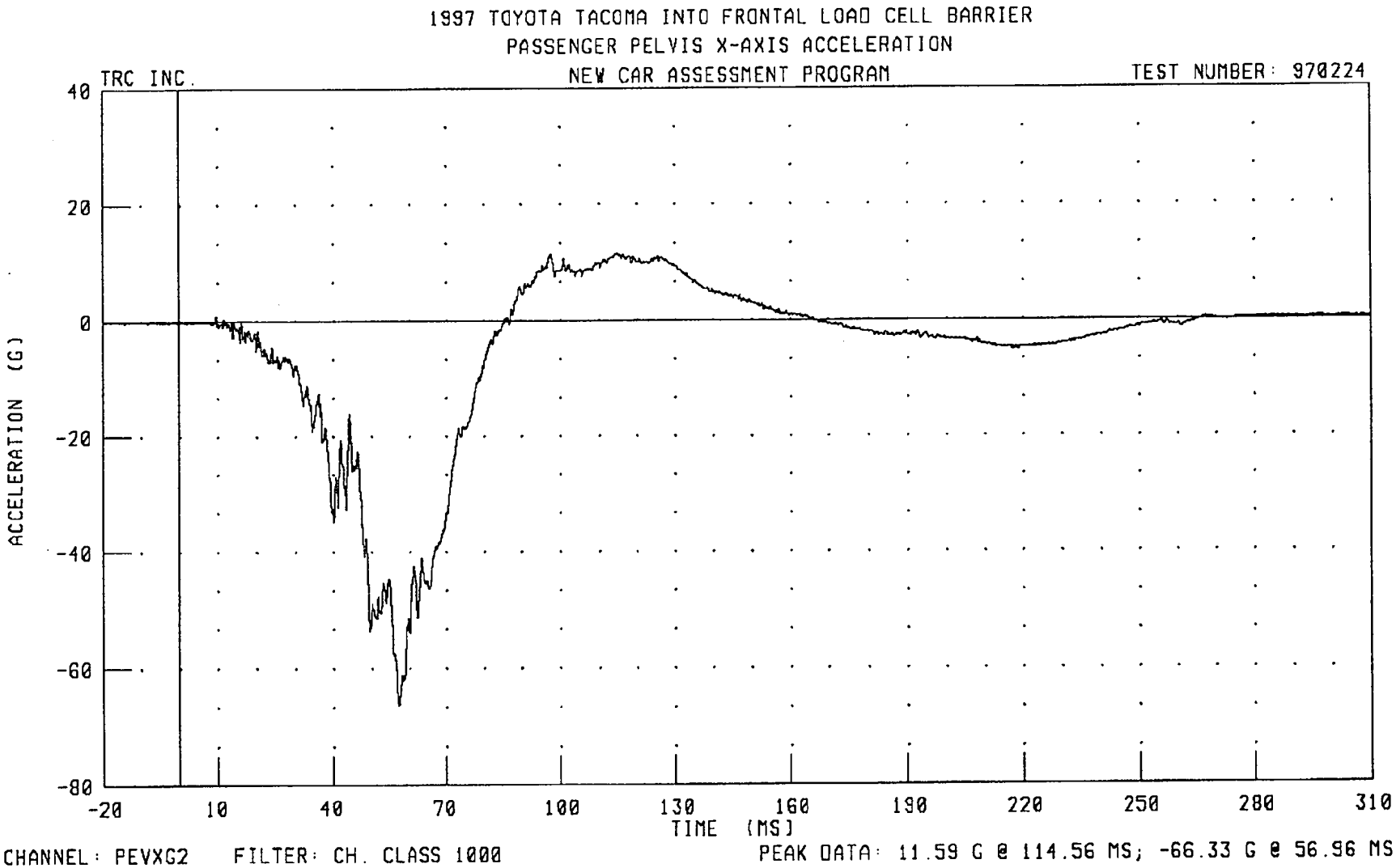
970224


1997 TOYOTA TACOMA INTO FRONTAL LOAD CELL BARRIER
PASSENGER CHEST RESULTANT ACCELERATION
NEW CAR ASSESSMENT PROGRAM
TRC INC.
TEST NUMBER: 970224
ACCELERATION (G)
120
100
80
60
40
20
0
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: CSTRG2
FILTER: CH. CLASS 180
PEAK DATA: 51.57 G @ 58.32 MS; 0.00 G @ -20.00 MS

970224

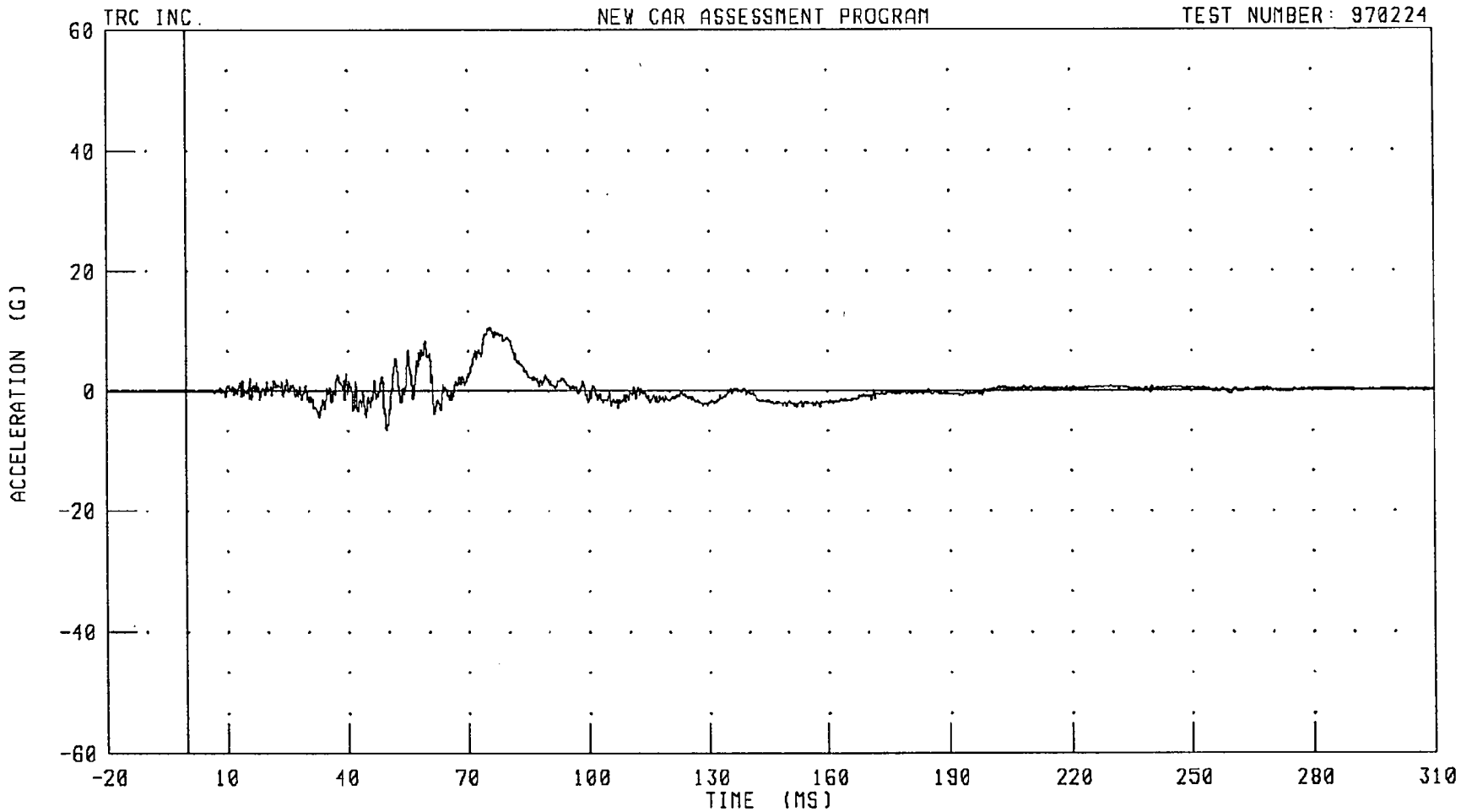

1997 TOYOTA TACOMA INTO FRONTAL LOAD CELL BARRIER
PASSENGER CHEST DEFLECTION
NEW CAR ASSESSMENT PROGRAM
TRC INC.
TEST NUMBER: 970224
30
10
-10
-30
-50
-70
-90
DISPLACEMENT (MM)
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: CSTXD2
FILTER: CH. CLASS 180
PEAK DATA: 0.00 MM @ -17.68 MS; -55.85 MM @ 79.44 MS

970224


1997 TOYOTA TACOMA INTO FRONTAL LOAD CELL BARRIER
PASSENGER PELVIS X-AXIS ACCELERATION
TRC INC.
NEW CAR ASSESSMENT PROGRAM
TEST NUMBER: 970224
ACCELERATION (G)
40
20
0
-20
-40
-60
-80
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: PEVXG2
FILTER: CH. CLASS 1000
PEAK DATA: 11.59 G @ 114.56 MS; -66.33 G @ 56.96 MS

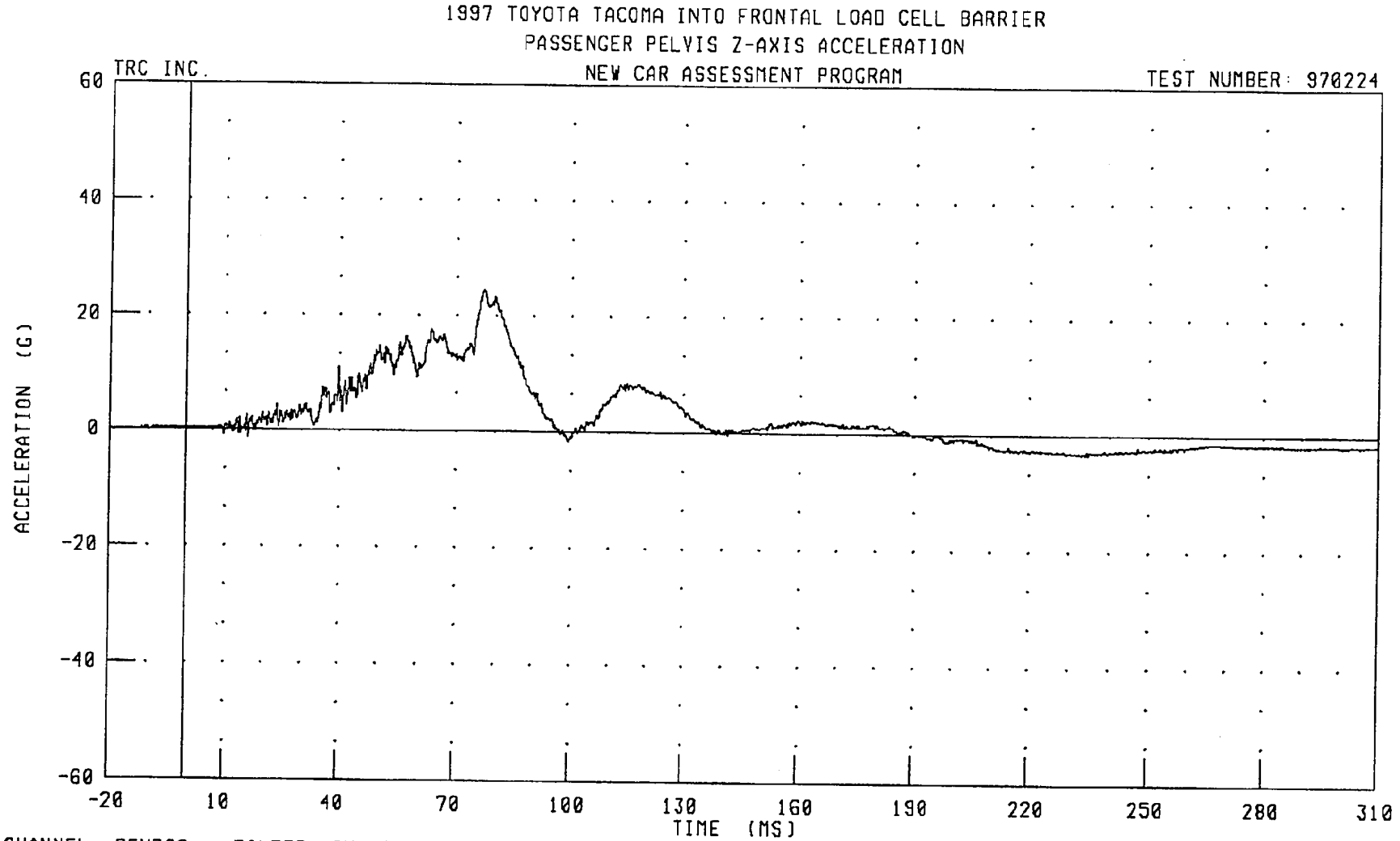
970224

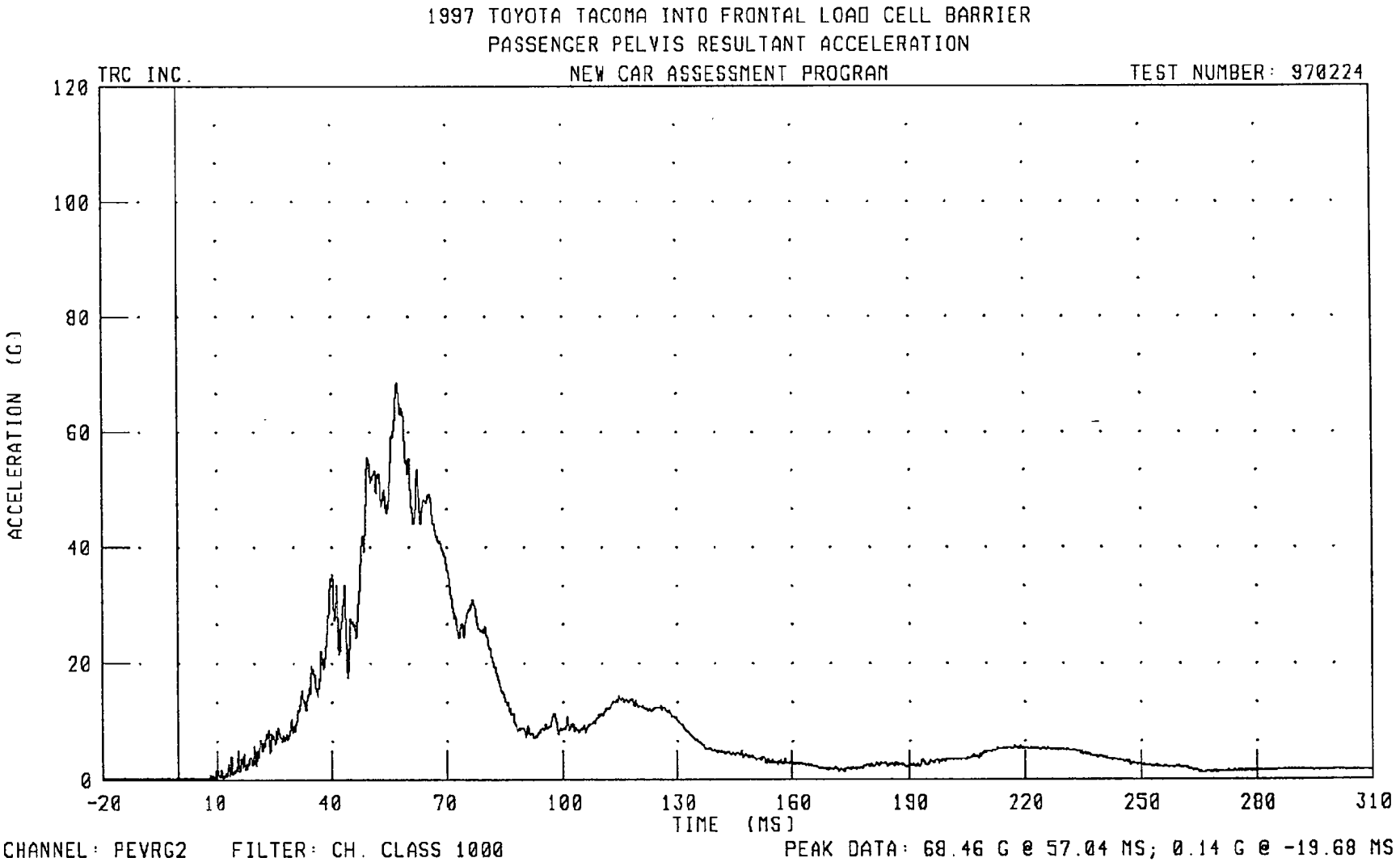
1997 TOYOTA TACOMA INTO FRONTAL LOAD CELL BARRIER
PASSENGER PELVIS Y-AXIS ACCELERATION



CHANNEL: PEVYG2 FILTER: CH. CLASS 1000 PEAK DATA: 10.71 G @ 75.52 MS; -6.57 G @ 49.60 MS

970224


1997 TOYOTA TACOMA INTO FRONTAL LOAD CELL BARRIER
PASSENGER PELVIS Z-AXIS ACCELERATION
TRC INC.
NEW CAR ASSESSMENT PROGRAM
TEST NUMBER: 970224
ACCELERATION (G)
60
40
20
0
-20
-40
-60
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: PEVZG2
FILTER: CH. CLASS 1000
PEAK DATA: 24.62 G @ 77.12 MS; -3.45 G @ 233.04 MS

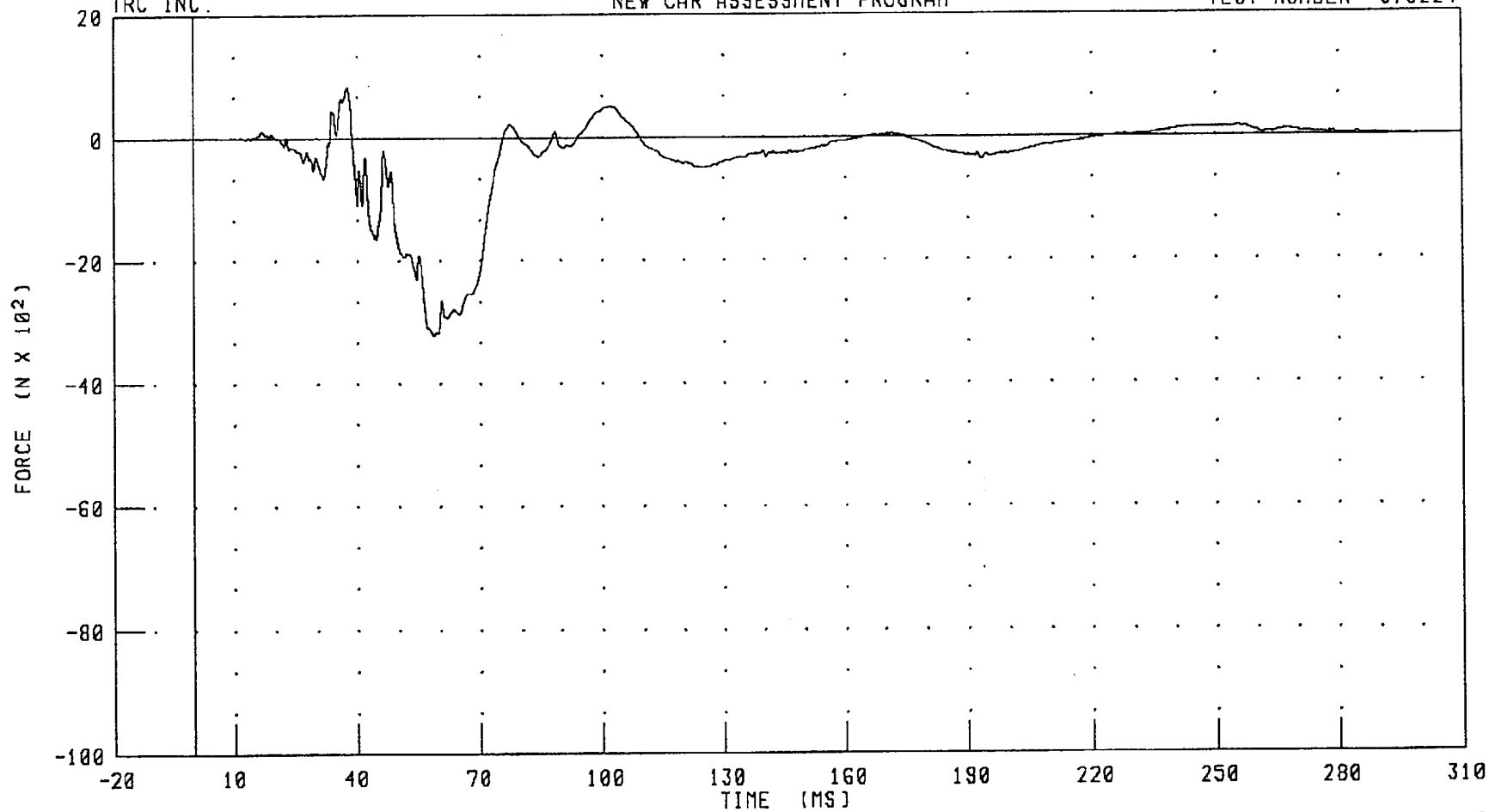

1997 TOYOTA TACOMA INTO FRONTAL LOAD CELL BARRIER
PASSENGER PELVIS RESULTANT ACCELERATION
TRC INC.
NEW CAR ASSESSMENT PROGRAM
TEST NUMBER: 970224
ACCELERATION (G)
120
100
80
60
40
20
0
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: PEVRG2
FILTER: CH. CLASS 1000
PEAK DATA: 68.46 G @ 57.04 MS; 0.14 G @ -19.68 MS

970224

1997 TOYOTA TACOMA INTO FRONTAL LOAD CELL BARRIER
PASSENGER LEFT FEMUR FORCE
NEW CAR ASSESSMENT PROGRAM

TRC INC.

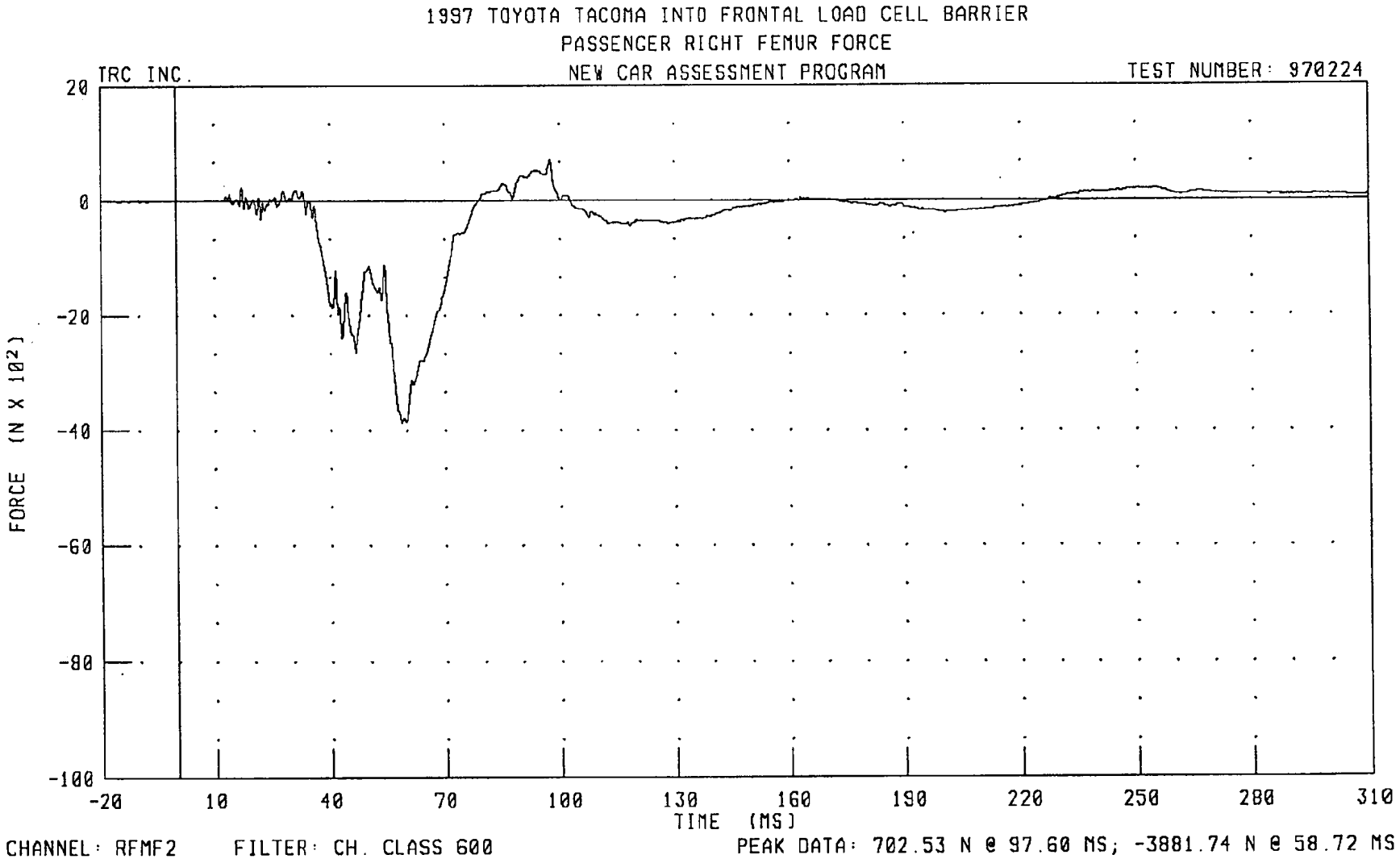
TEST NUMBER: 970224



CHANNEL: LFMF2 FILTER: CH. CLASS 600

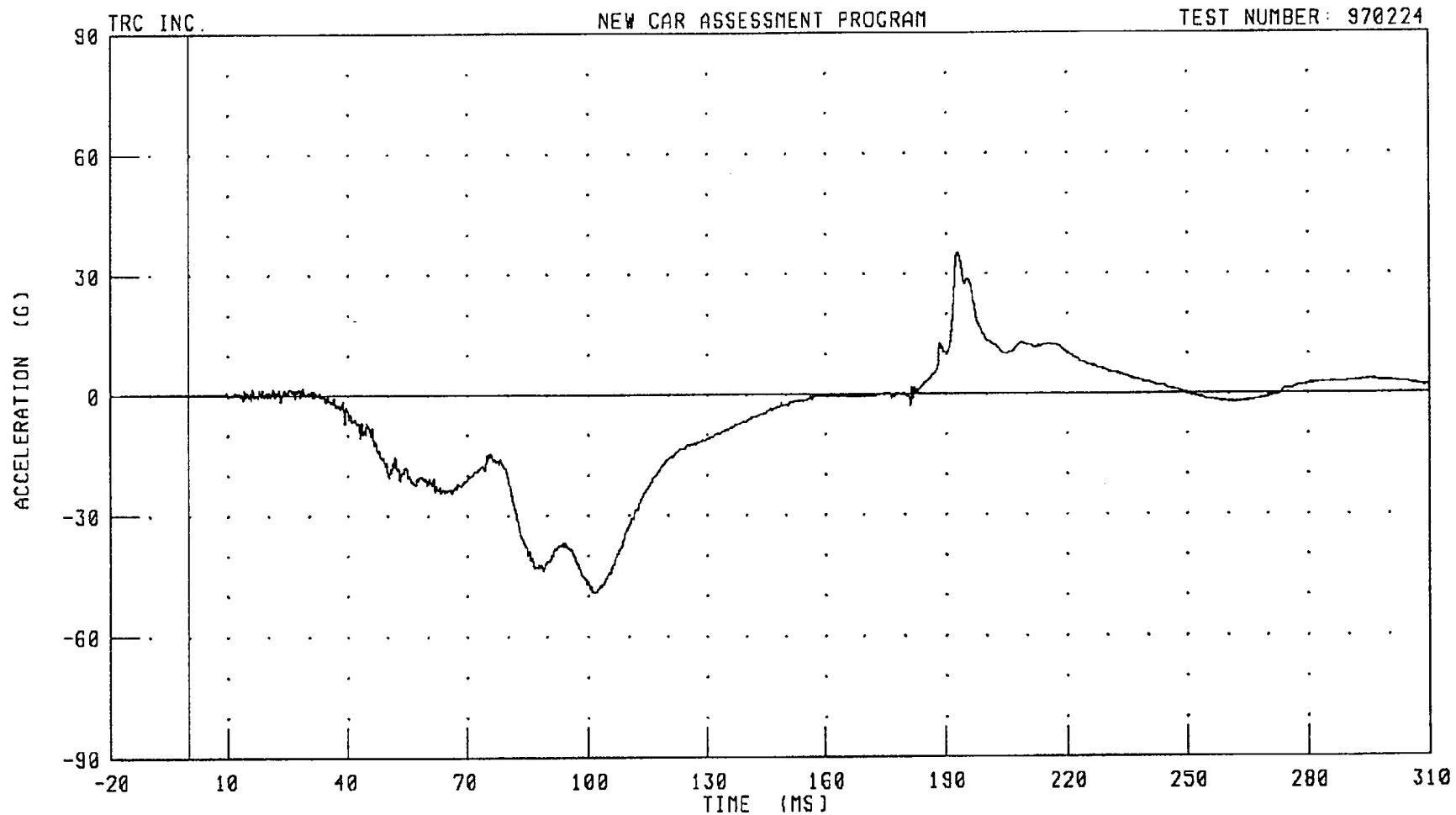
PEAK DATA: 834.78 N @ 37.76 MS; -3222.49 N @ 58.48 MS

970224


1997 TOYOTA TACOMA INTO FRONTAL LOAD CELL BARRIER
PASSENGER RIGHT FEMUR FORCE
NEW CAR ASSESSMENT PROGRAM
TRC INC.
TEST NUMBER: 970224
20
0
-20
-40
-60
-80
-100
FORCE (N X 10²)
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: RFMF2
FILTER: CH. CLASS 600
PEAK DATA: 702.53 N @ 97.60 MS; -3881.74 N @ 58.72 MS

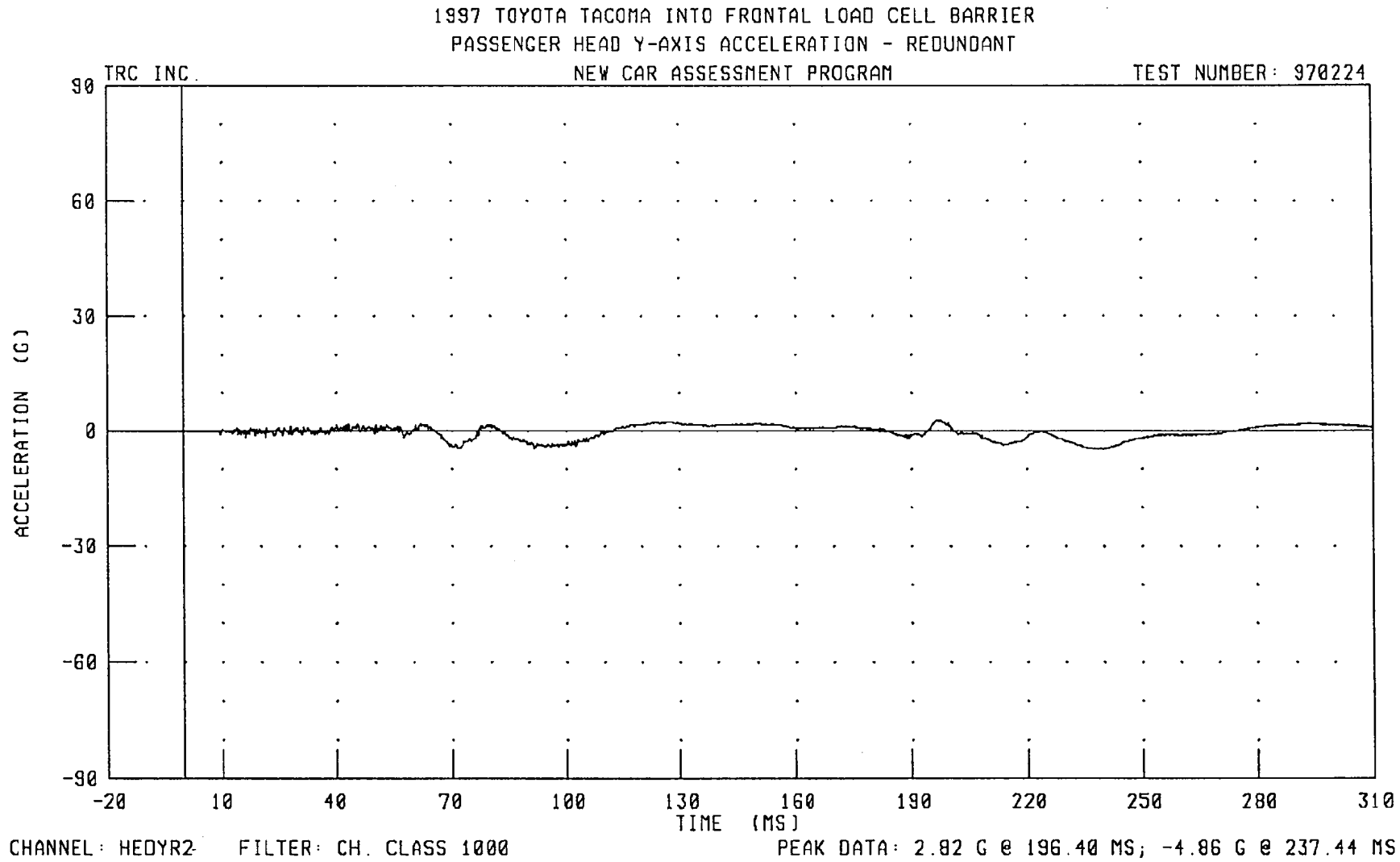
970224

1997 TOYOTA TACOMA INTO FRONTAL LOAD CELL BARRIER
PASSENGER HEAD X-AXIS ACCELERATION - REDUNDANT

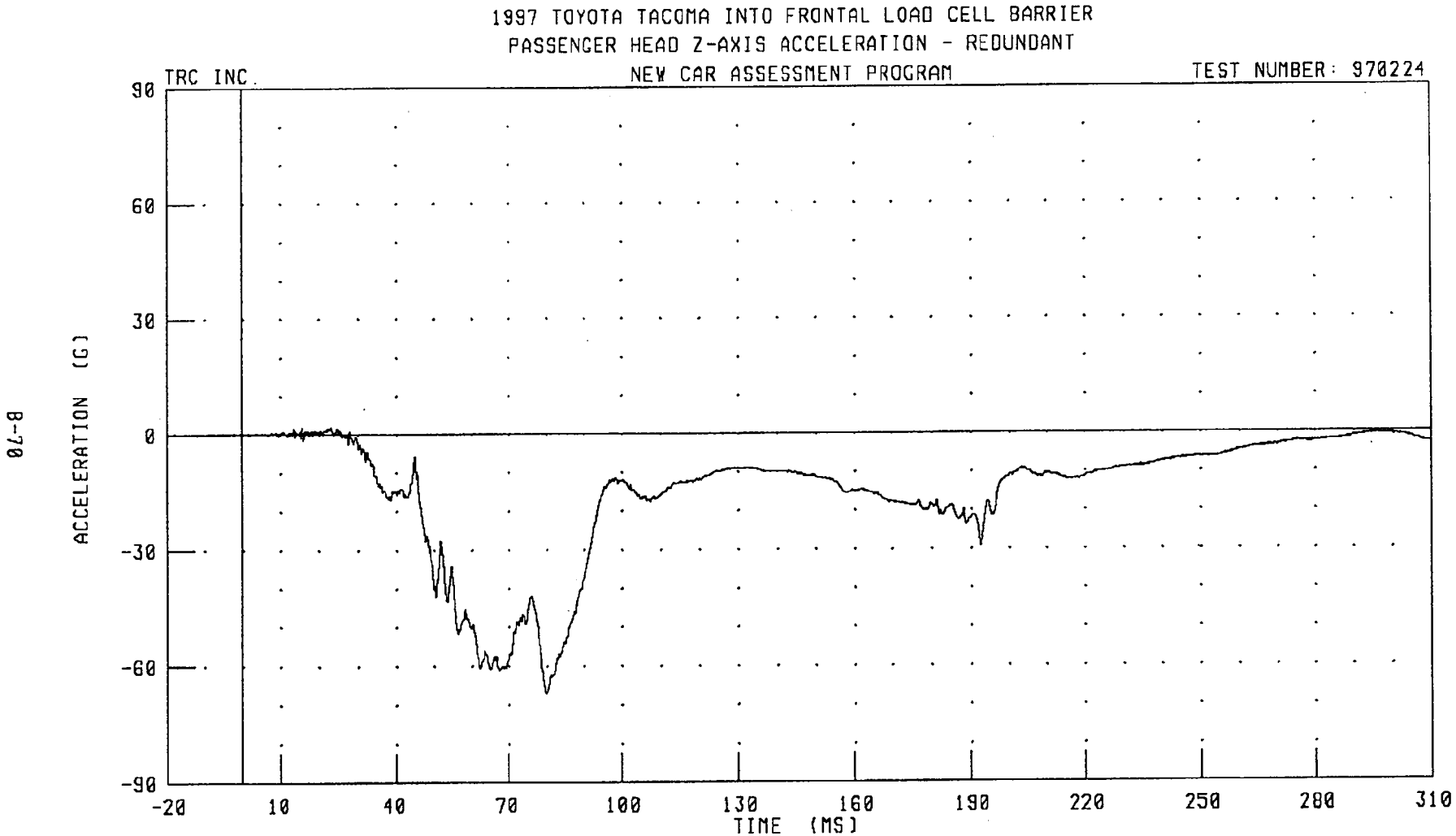


CHANNEL: HEDXR2 FILTER: CH. CLASS 1000

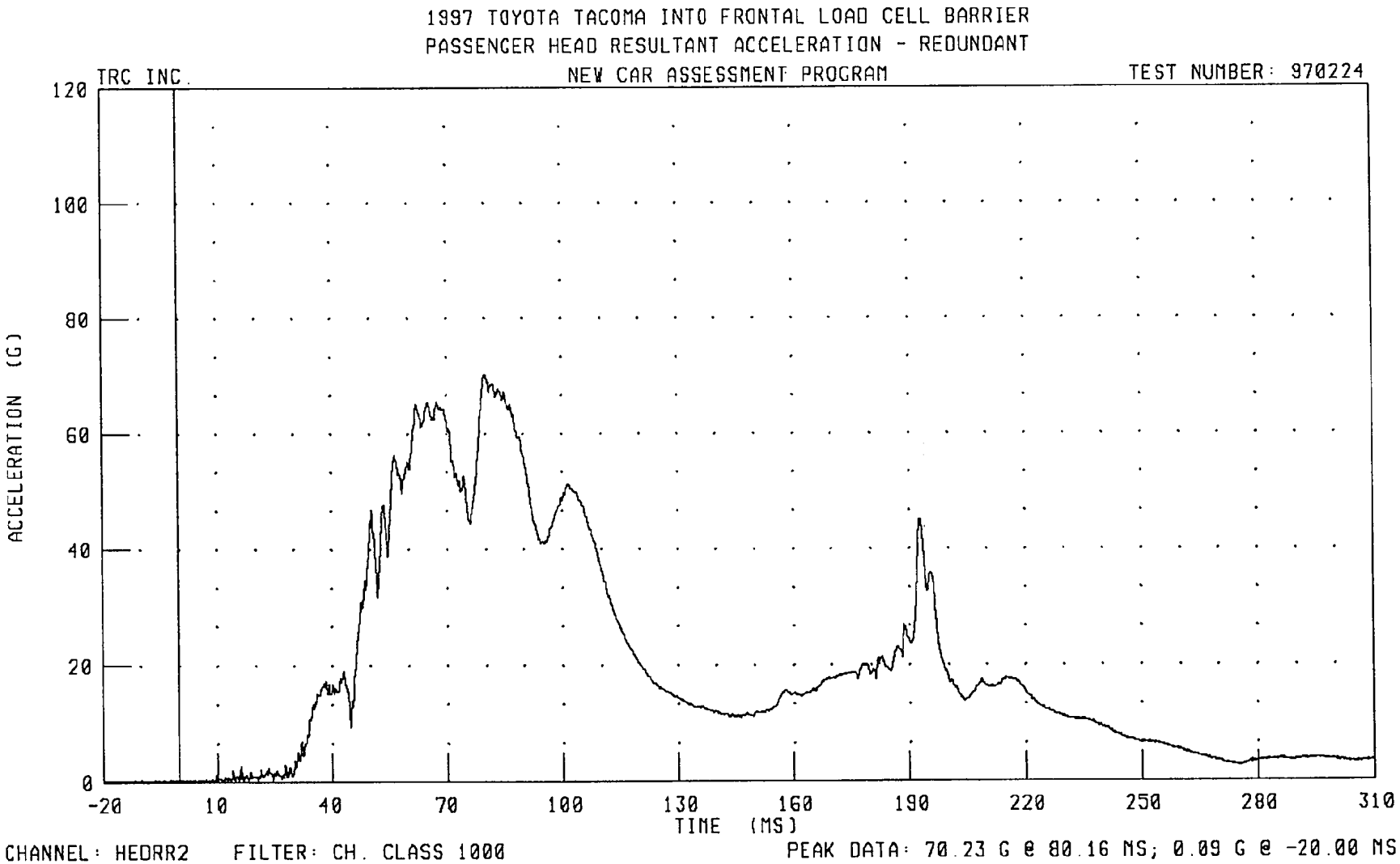
PEAK DATA: 35.39 G @ 193.12 MS; -49.31 G @ 101.52 MS


1997 TOYOTA TACOMA INTO FRONTAL LOAD CELL BARRIER
PASSENGER HEAD Y-AXIS ACCELERATION - REDUNDANT
TRC INC.
NEW CAR ASSESSMENT PROGRAM
TEST NUMBER: 970224
90
60
30
0
-30
-60
-90
ACCELERATION (G)
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: HEDYR2
FILTER: CH. CLASS 1000
PEAK DATA: 2.82 G @ 196.40 MS; -4.86 G @ 237.44 MS

970224

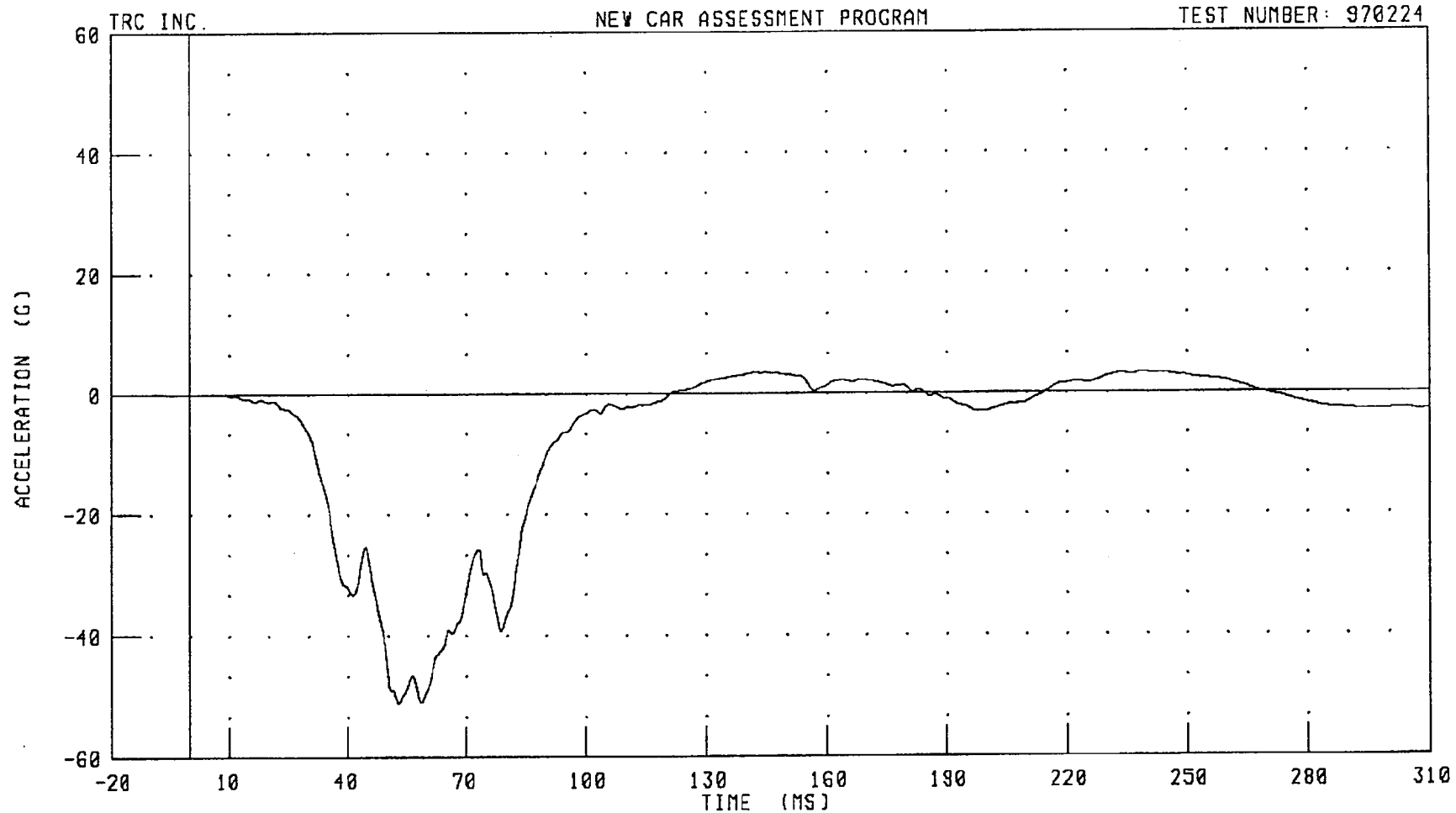

1997 TOYOTA TACOMA INTO FRONTAL LOAD CELL BARRIER
PASSENGER HEAD Z-AXIS ACCELERATION - REDUNDANT
NEW CAR ASSESSMENT PROGRAM
TRC INC.
TEST NUMBER: 970224
ACCELERATION (G)
90
60
30
0
-30
-60
-90
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: HEDZR2
FILTER: CH. CLASS 1000
PEAK DATA: 2.04 G @ 23.28 MS; -67.03 G @ 79.84 MS

970224


1997 TOYOTA TACOMA INTO FRONTAL LOAD CELL BARRIER
PASSENGER HEAD RESULTANT ACCELERATION - REDUNDANT
TRC INC.
NEW CAR ASSESSMENT PROGRAM
TEST NUMBER: 970224
ACCELERATION (G)
120
100
80
60
40
20
0
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: HEDRR2
FILTER: CH. CLASS 1000
PEAK DATA: 70.23 G @ 80.16 MS; 0.09 G @ -20.00 MS

970224

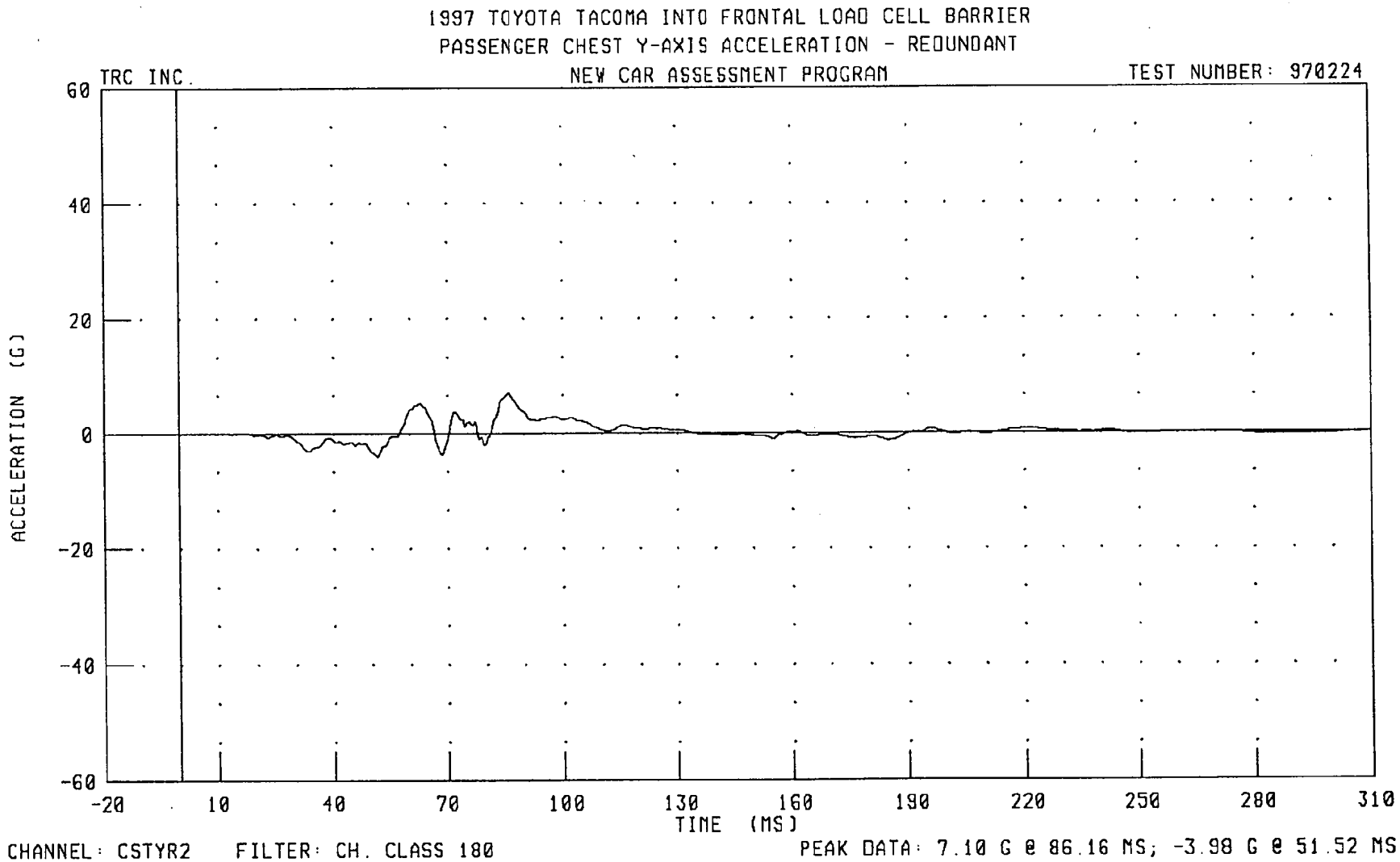
1997 TOYOTA TACOMA INTO FRONTAL LOAD CELL BARRIER
PASSENGER CHEST X-AXIS ACCELERATION - REDUNDANT



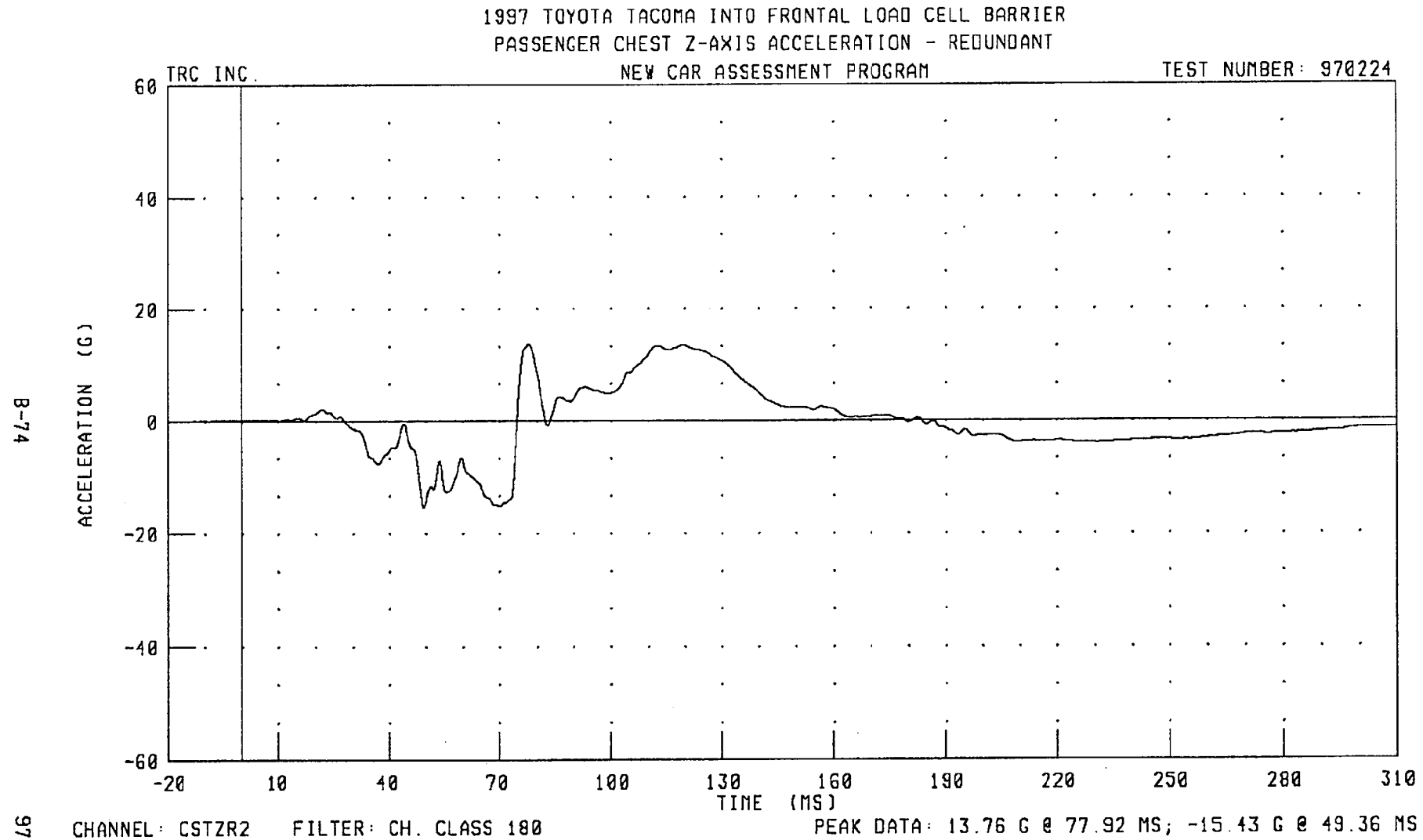
CHANNEL: CSTXR2 FILTER: CH. CLASS 180

PEAK DATA: 3.53 G @ 142.24 MS; -51.14 G @ 52.56 MS

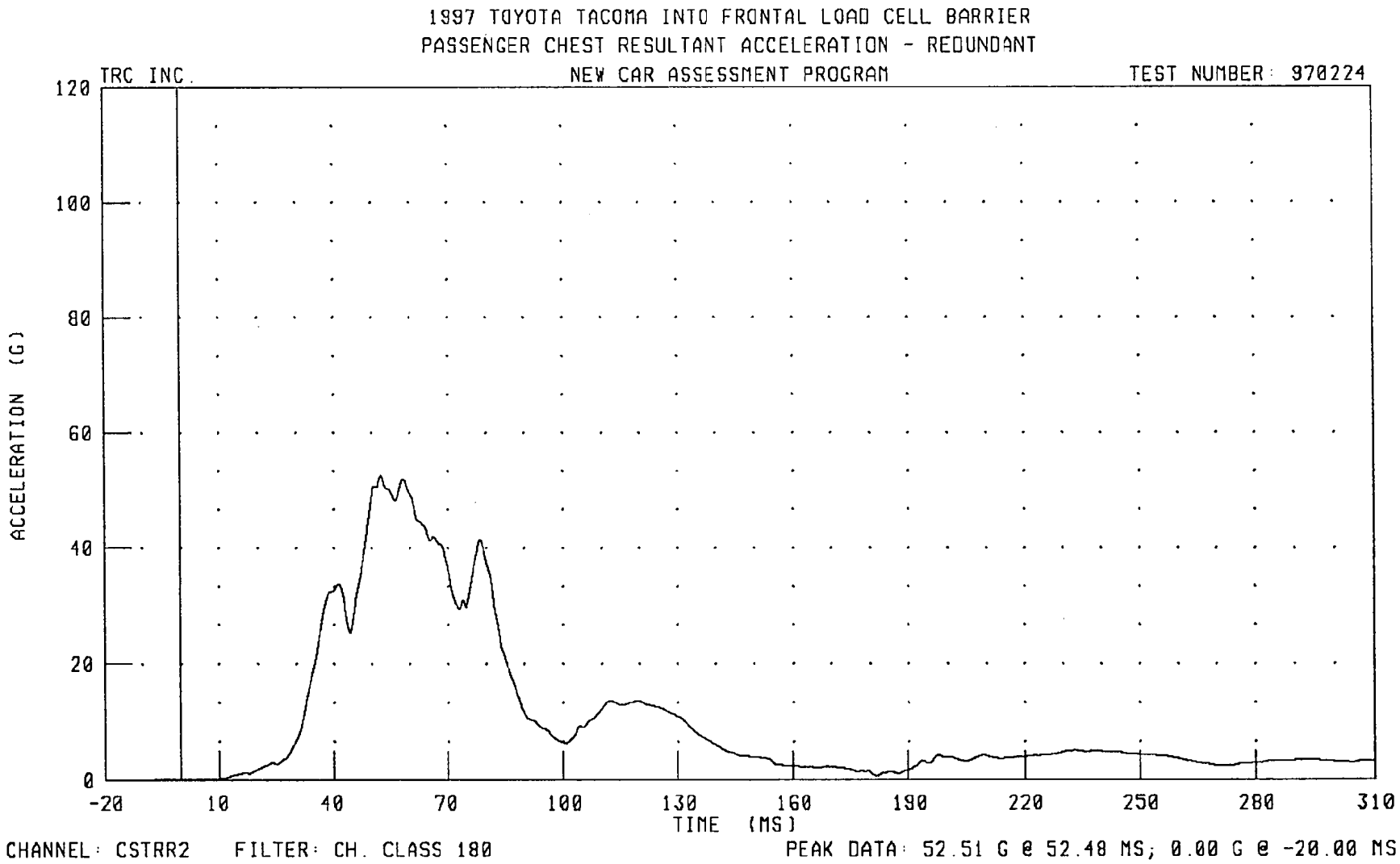
970224


1997 TOYOTA TACOMA INTO FRONTAL LOAD CELL BARRIER
PASSENGER CHEST Y-AXIS ACCELERATION - REDUNDANT
TRC INC.
NEW CAR ASSESSMENT PROGRAM
TEST NUMBER: 970224
60
40
20
0
-20
-40
-60
ACCELERATION (G)
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: CSTYR2
FILTER: CH. CLASS 180
PEAK DATA: 7.10 G @ 86.16 MS; -3.98 G @ 51.52 MS

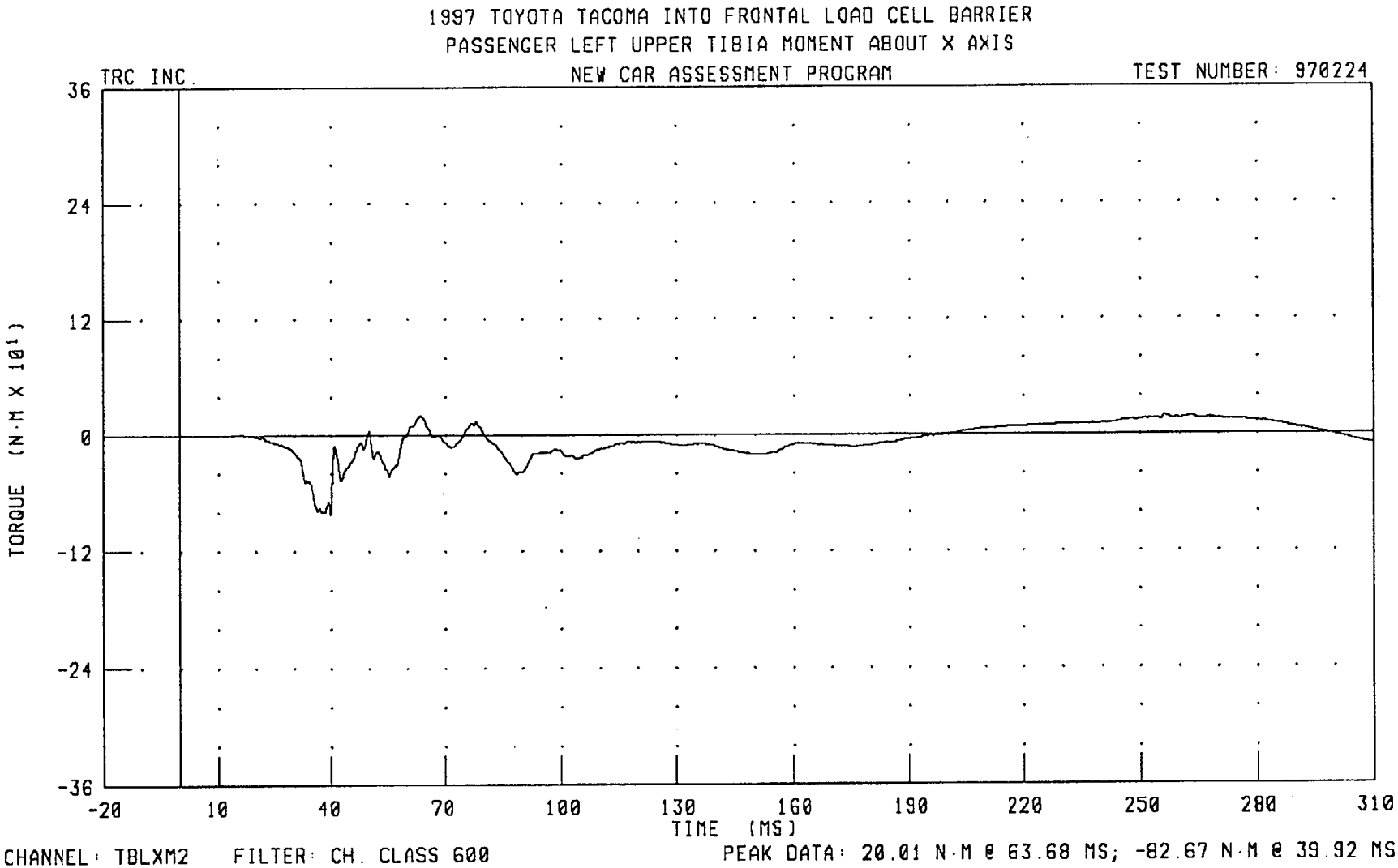
970224


1997 TOYOTA TACOMA INTO FRONTAL LOAD CELL BARRIER
PASSENGER CHEST Z-AXIS ACCELERATION - REDUNDANT
TRC INC.
NEW CAR ASSESSMENT PROGRAM
TEST NUMBER: 970224
60
40
20
0
-20
-40
-60
ACCELERATION (G)
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: CSTZR2
FILTER: CH. CLASS 180
PEAK DATA: 13.76 G @ 77.92 MS; -15.43 G @ 49.36 MS

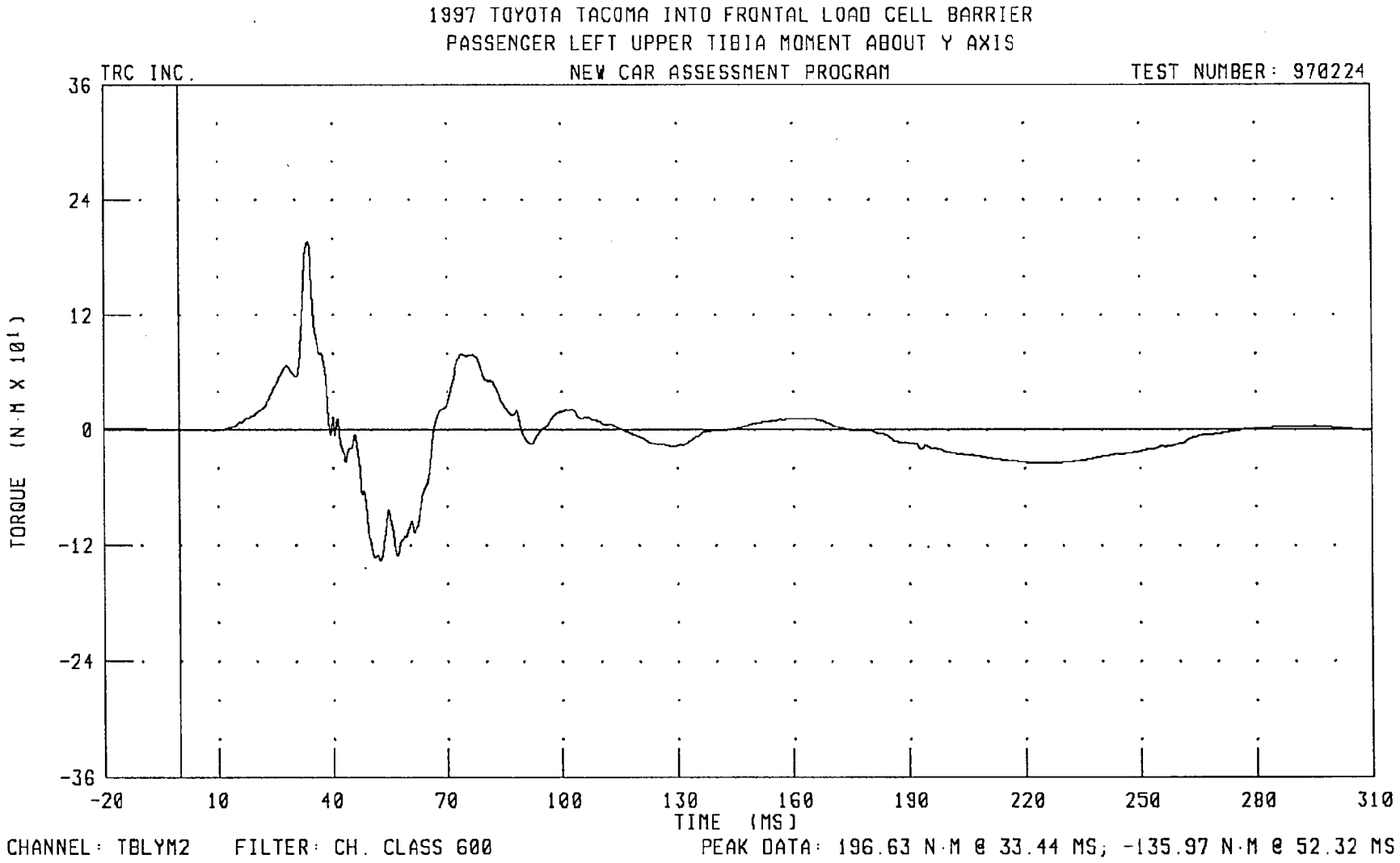
970224


1997 TOYOTA TACOMA INTO FRONTAL LOAD CELL BARRIER
PASSENGER CHEST RESULTANT ACCELERATION - REDUNDANT
TRC INC.
NEW CAR ASSESSMENT PROGRAM
TEST NUMBER: 970224
ACCELERATION (G)
120
100
80
60
40
20
0
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: CSTRR2
FILTER: CH. CLASS 180
PEAK DATA: 52.51 G @ 52.48 MS; 0.00 G @ -20.00 MS

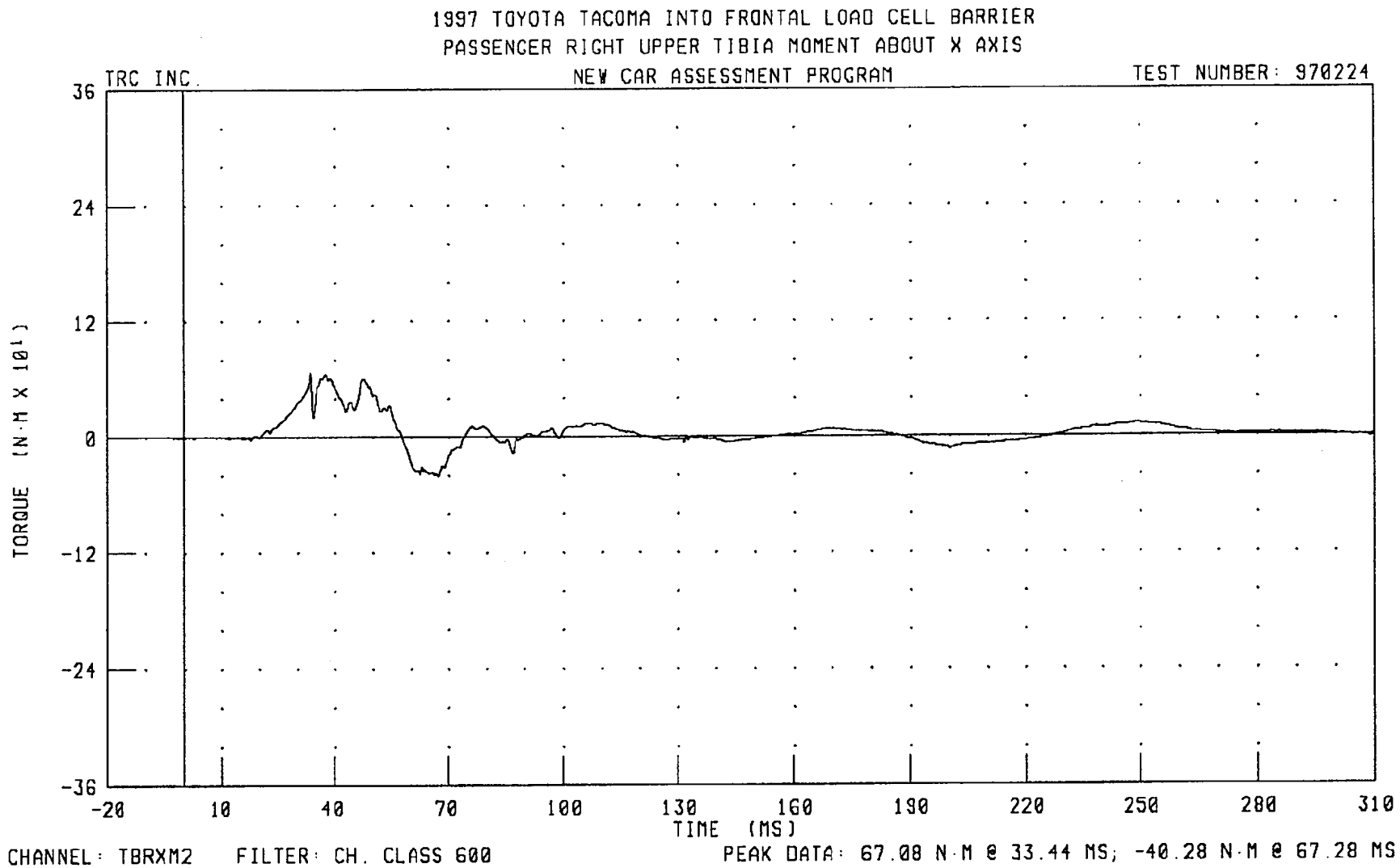
970224


1997 TOYOTA TACOMA INTO FRONTAL LOAD CELL BARRIER
PASSENGER LEFT UPPER TIBIA MOMENT ABOUT X AXIS
TRC INC.
NEW CAR ASSESSMENT PROGRAM
TEST NUMBER: 970224
TORQUE (N·M X 10¹)
36
24
12
0
-12
-24
-36
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: TBLXM2
FILTER: CH. CLASS 600
PEAK DATA: 20.01 N·M @ 63.68 MS; -82.67 N·M @ 39.92 MS

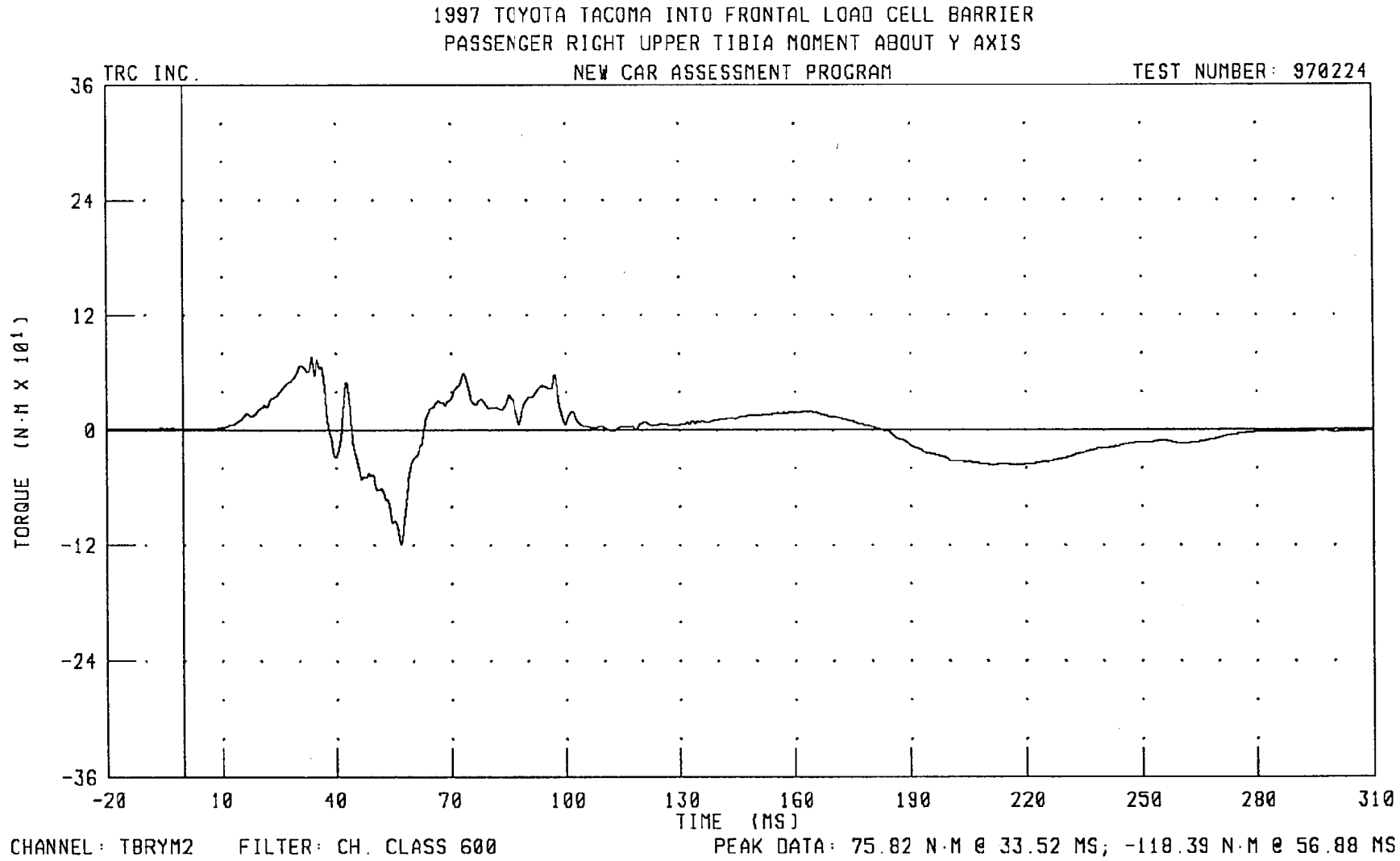
970224


1997 TOYOTA TACOMA INTO FRONTAL LOAD CELL BARRIER
PASSENGER LEFT UPPER TIBIA MOMENT ABOUT Y AXIS
TRC INC.
NEW CAR ASSESSMENT PROGRAM
TEST NUMBER: 970224
36
24
12
0
-12
-24
-36
TORQUE (N-M X 10¹)
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: TBLYM2
FILTER: CH. CLASS 600
PEAK DATA: 196.63 N-M @ 33.44 MS; -135.97 N-M @ 52.32 MS

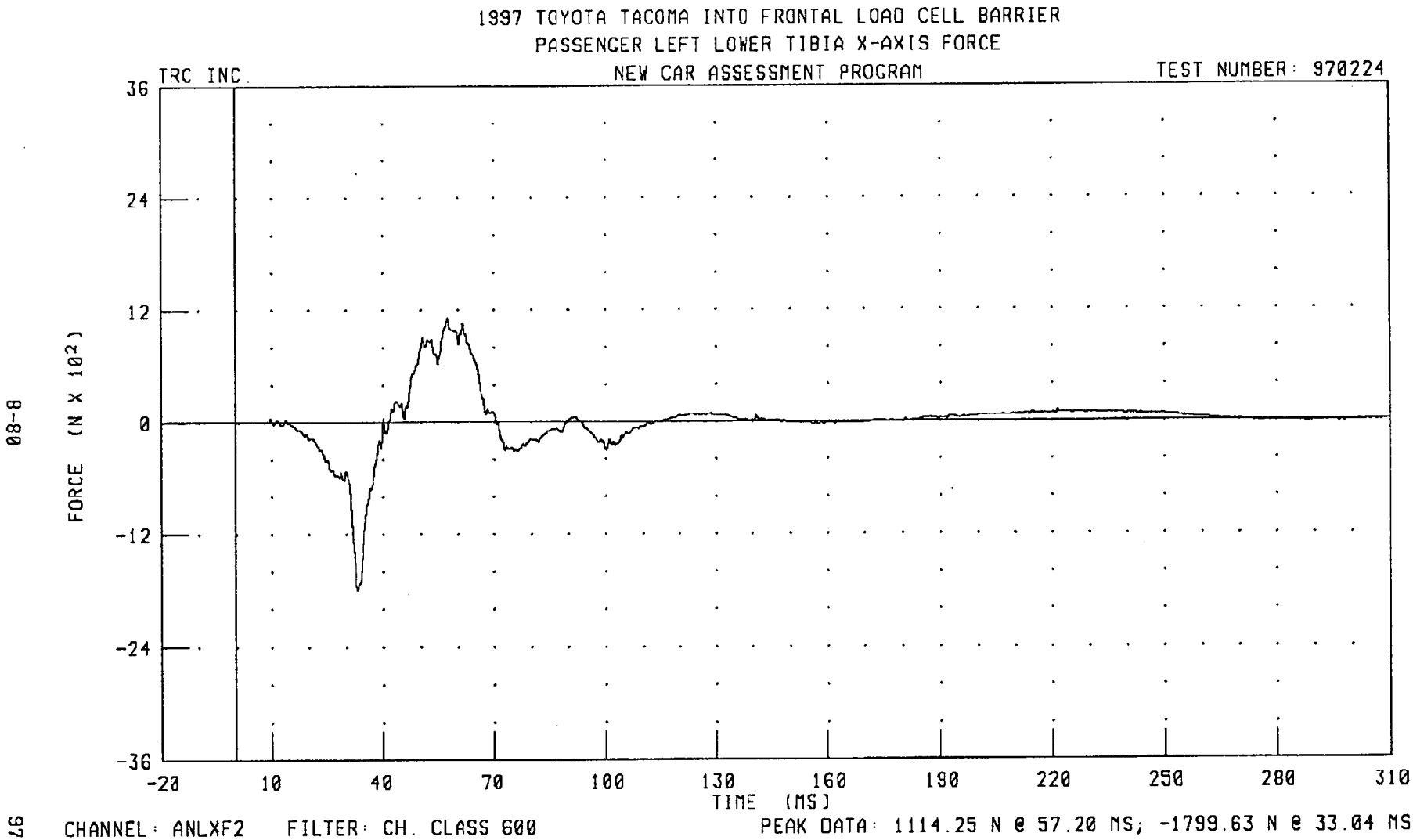
970224


1997 TOYOTA TACOMA INTO FRONTAL LOAD CELL BARRIER
PASSENGER RIGHT UPPER TIBIA MOMENT ABOUT X AXIS
TRC INC.
NEW CAR ASSESSMENT PROGRAM
TEST NUMBER: 970224
36
24
12
0
-12
-24
-36
TORQUE (N-M X 10¹)
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: TBRXM2
FILTER: CH. CLASS 600
PEAK DATA: 67.08 N-M @ 33.44 MS; -40.28 N-M @ 67.28 MS

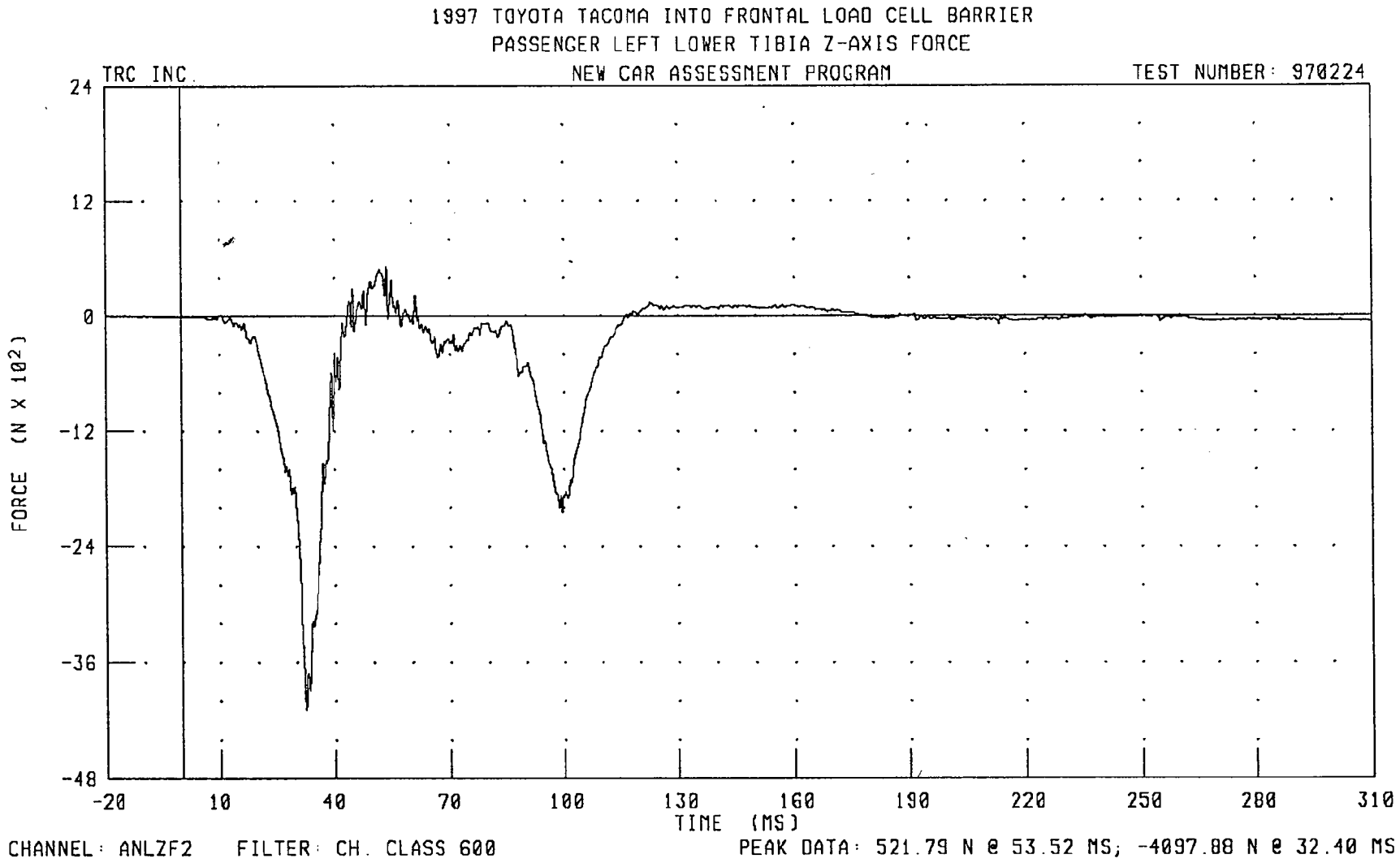
970224


1997 TOYOTA TACOMA INTO FRONTAL LOAD CELL BARRIER
PASSENGER RIGHT UPPER TIBIA MOMENT ABOUT Y AXIS
TRC INC.
NEW CAR ASSESSMENT PROGRAM
TEST NUMBER: 970224
36
24
12
0
-12
-24
-36
TORQUE (N-M X 10¹)
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: TBRYM2
FILTER: CH. CLASS 600
PEAK DATA: 75.82 N-M @ 33.52 MS; -118.39 N-M @ 56.88 MS

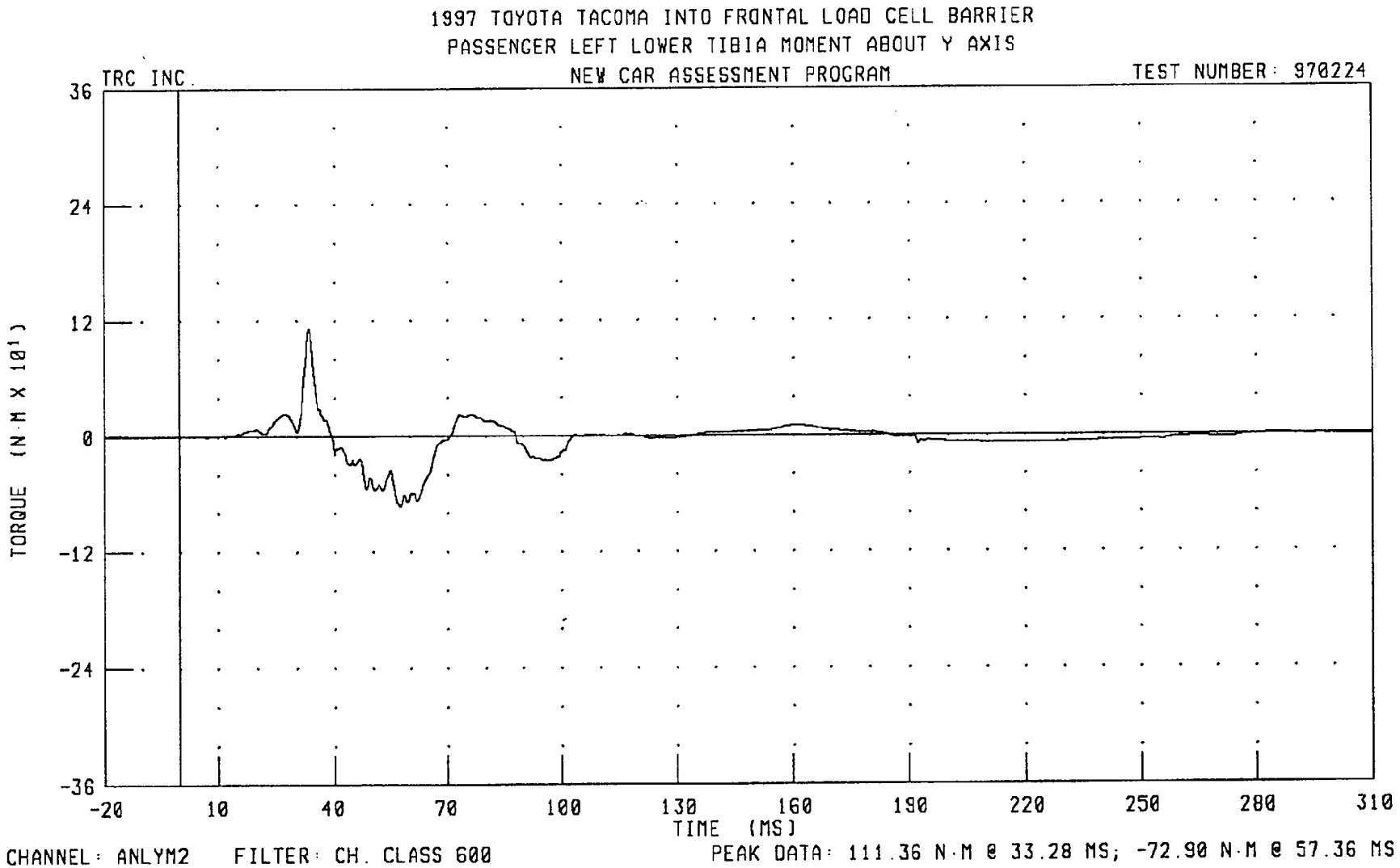
970224


1997 TOYOTA TACOMA INTO FRONTAL LOAD CELL BARRIER
PASSENGER LEFT LOWER TIBIA X-AXIS FORCE
TRC INC.
NEW CAR ASSESSMENT PROGRAM
TEST NUMBER: 970224
36
24
12
0
-12
-24
-36
FORCE (N X 10²)
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: ANLXF2
FILTER: CH. CLASS 600
PEAK DATA: 1114.25 N @ 57.20 MS; -1799.63 N @ 33.04 MS

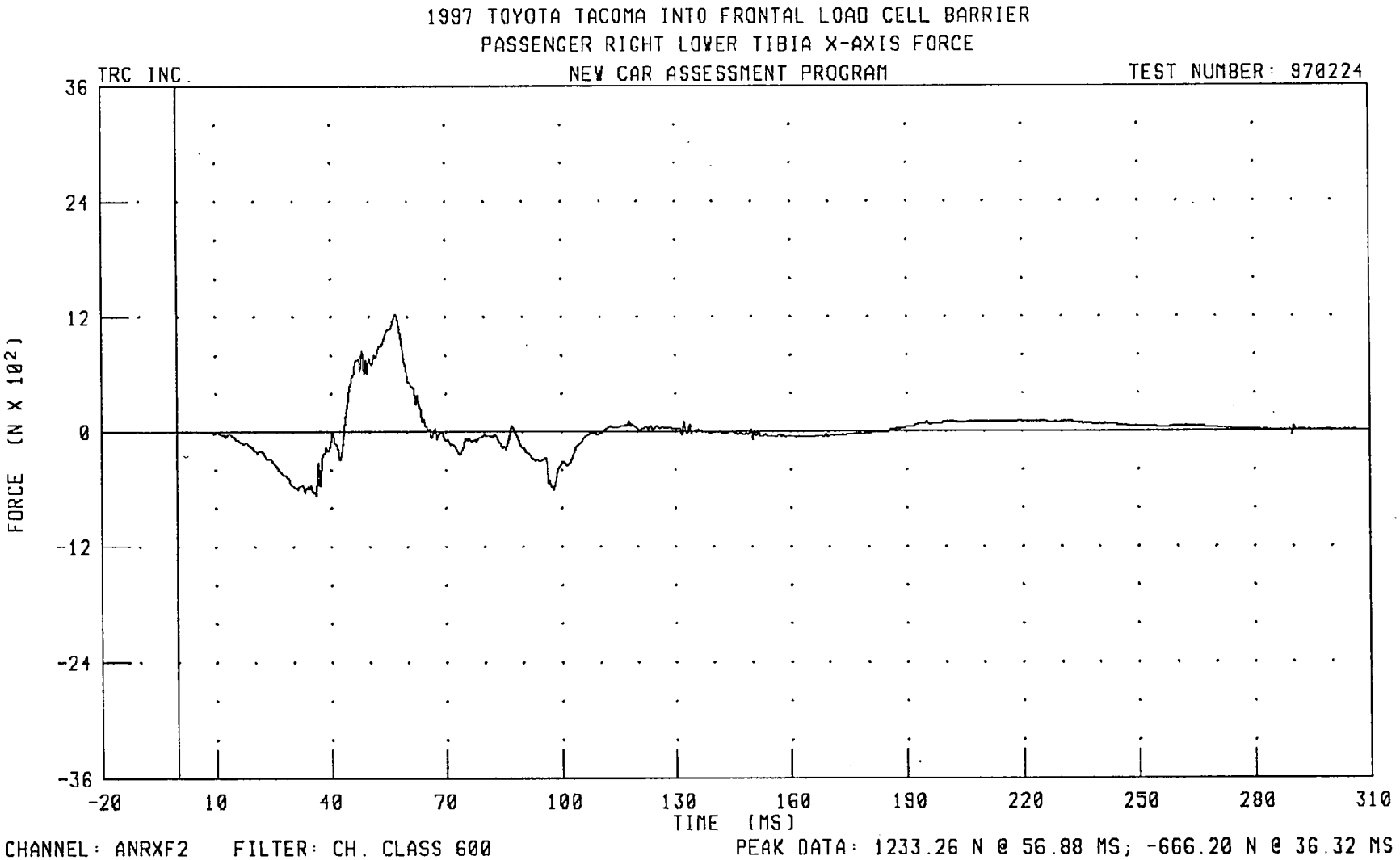
970224


1997 TOYOTA TACOMA INTO FRONTAL LOAD CELL BARRIER
PASSENGER LEFT LOWER TIBIA Z-AXIS FORCE
TRC INC.
NEW CAR ASSESSMENT PROGRAM
TEST NUMBER: 970224
24
12
0
-12
-24
-36
-48
FORCE (N X 10²)
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: ANLZF2
FILTER: CH. CLASS 600
PEAK DATA: 521.79 N @ 53.52 MS; -4097.88 N @ 32.40 MS

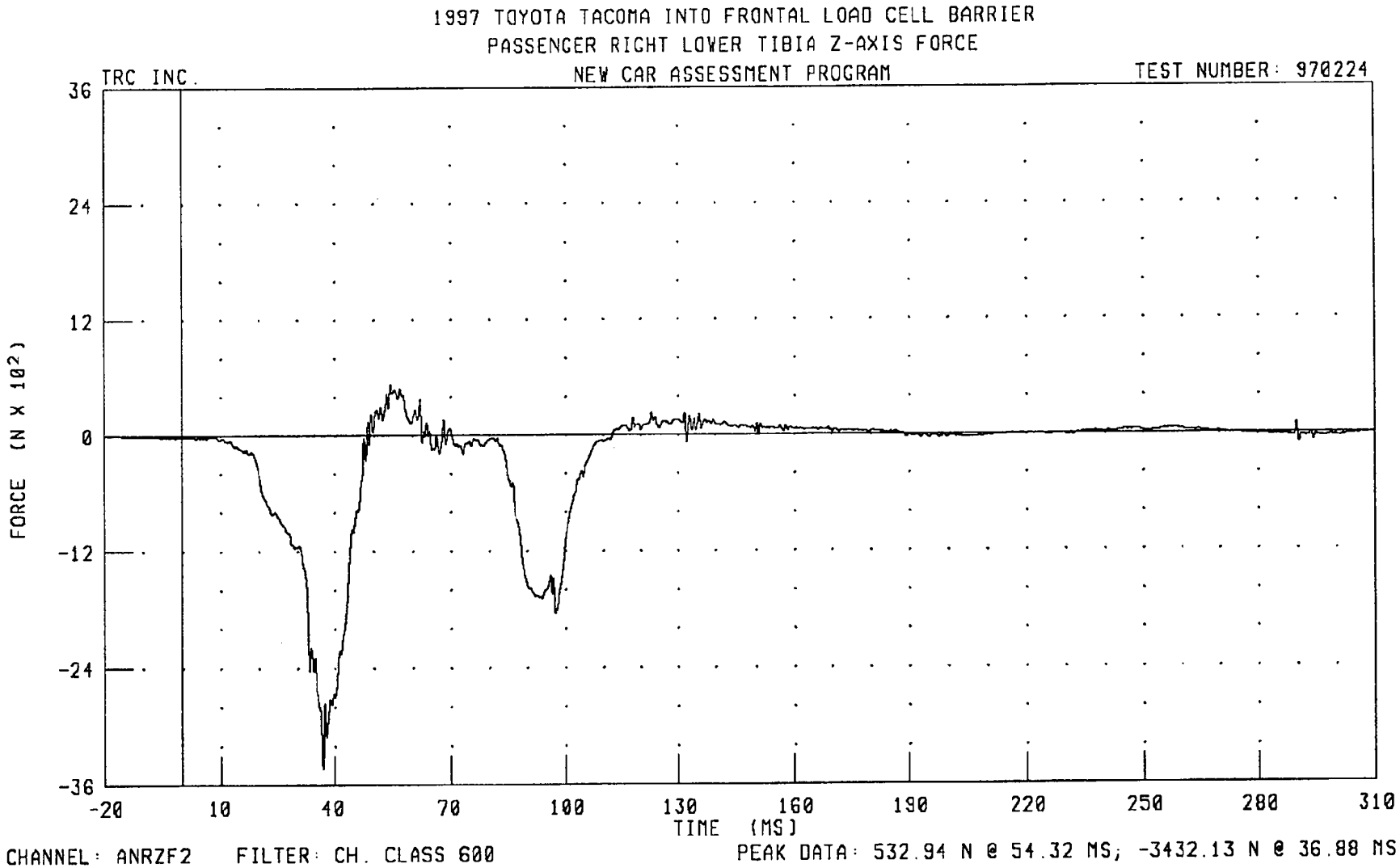
970224


1997 TOYOTA TACOMA INTO FRONTAL LOAD CELL BARRIER
PASSENGER LEFT LOWER TIBIA MOMENT ABOUT Y AXIS
TRC INC.
NEW CAR ASSESSMENT PROGRAM
TEST NUMBER: 970224
36
24
12
0
-12
-24
-36
TORQUE (N-M X 10¹)
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: ANLYM2
FILTER: CH. CLASS 600
PEAK DATA: 111.36 N-M @ 33.28 MS; -72.90 N-M @ 57.36 MS

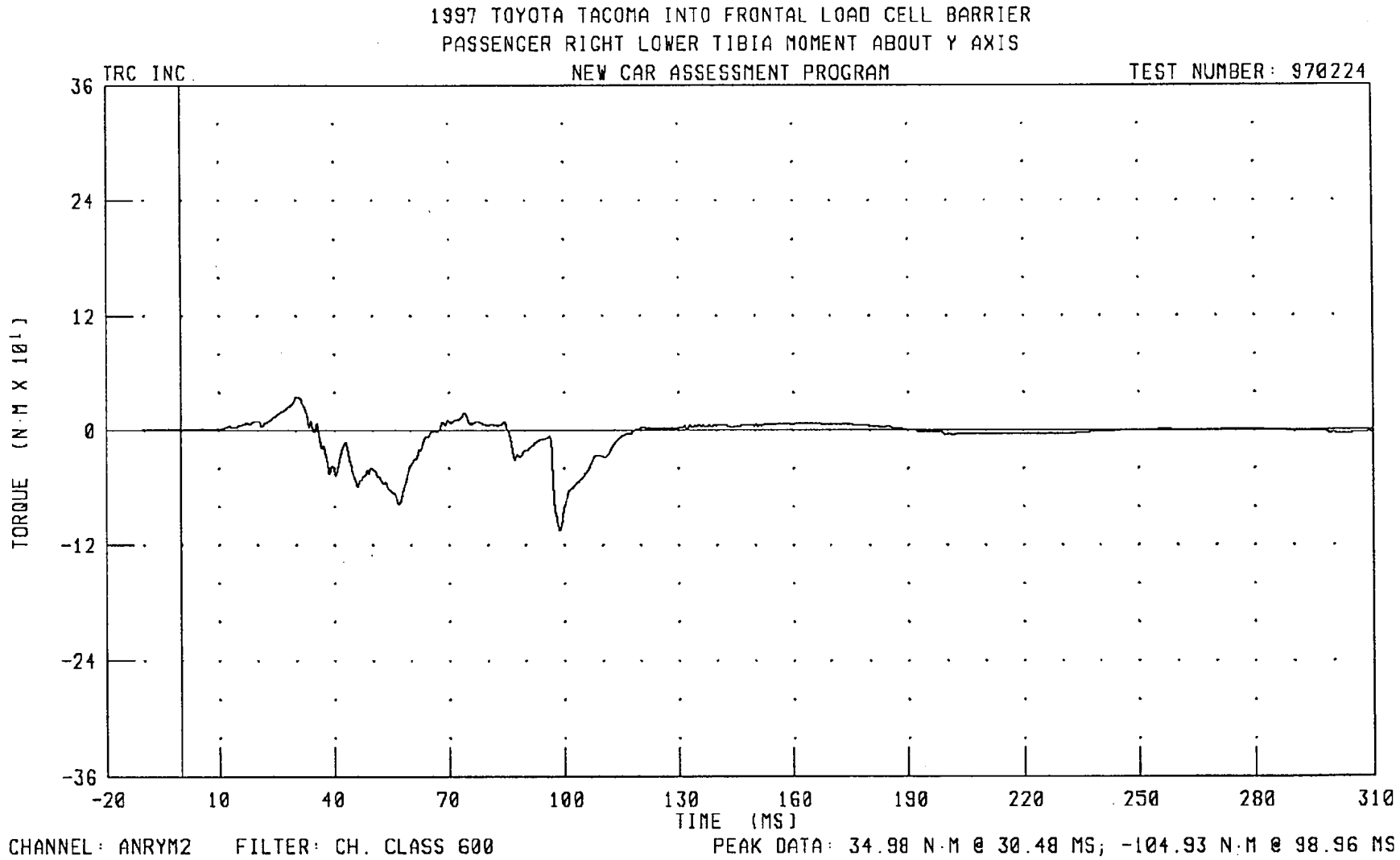
970224


1997 TOYOTA TACOMA INTO FRONTAL LOAD CELL BARRIER
PASSENGER RIGHT LOWER TIBIA X-AXIS FORCE
TRC INC.
NEW CAR ASSESSMENT PROGRAM
TEST NUMBER: 970224
36
24
12
0
-12
-24
-36
FORCE (N X 10²)
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: ANRXF2
FILTER: CH. CLASS 600
PEAK DATA: 1233.26 N @ 56.88 MS; -666.20 N @ 36.32 MS

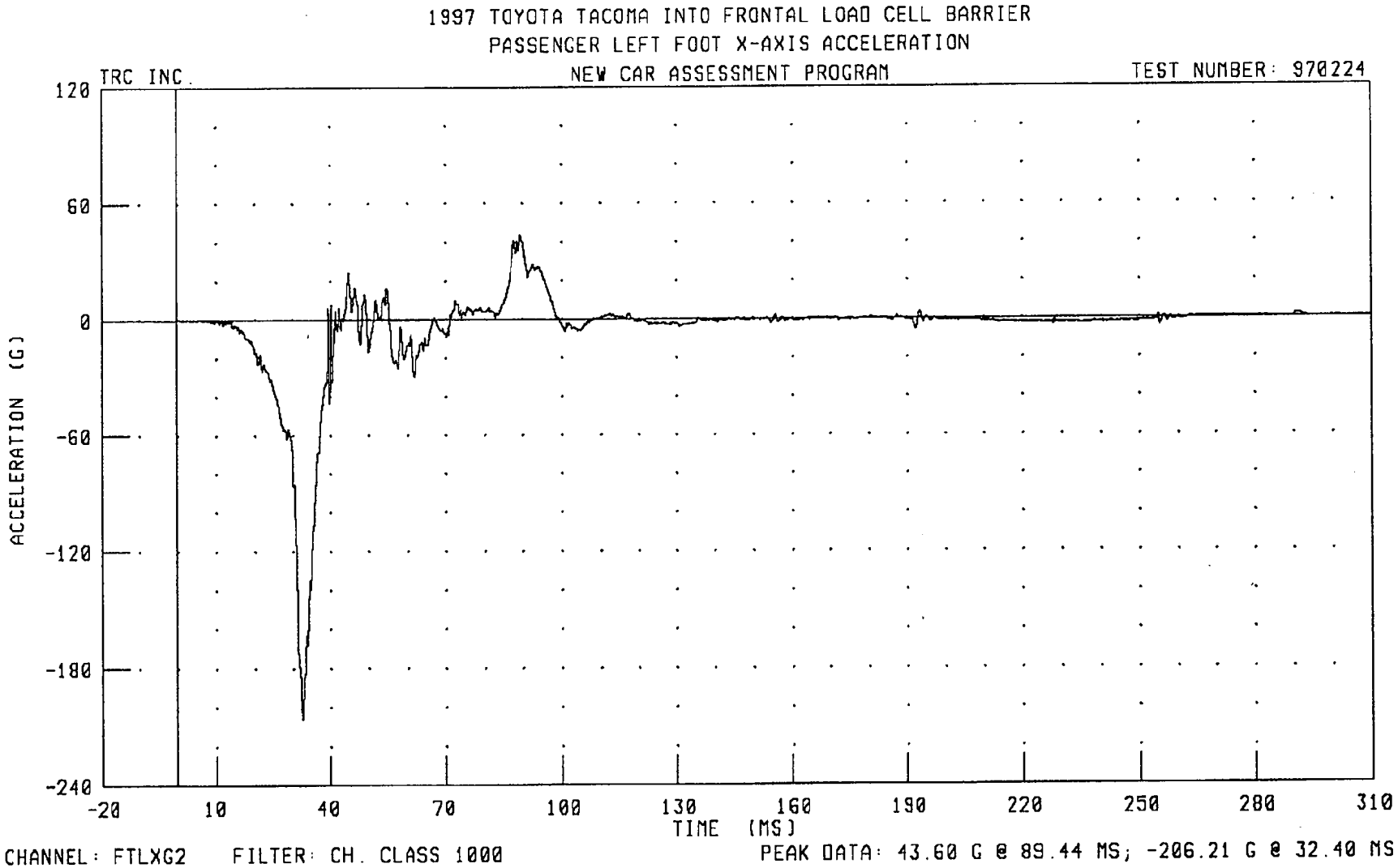
970224


1997 TOYOTA TACOMA INTO FRONTAL LOAD CELL BARRIER
PASSENGER RIGHT LOWER TIBIA Z-AXIS FORCE
TRC INC.
NEW CAR ASSESSMENT PROGRAM
TEST NUMBER: 970224
36
24
12
0
-12
-24
-36
FORCE (N X 10²)
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: ANRZF2
FILTER: CH. CLASS 600
PEAK DATA: 532.94 N @ 54.32 MS; -3432.13 N @ 36.88 MS

970224


1997 TOYOTA TACOMA INTO FRONTAL LOAD CELL BARRIER
PASSENGER RIGHT LOWER TIBIA MOMENT ABOUT Y AXIS
TRC INC.
NEW CAR ASSESSMENT PROGRAM
TEST NUMBER: 970224
TORQUE (N-M X 10¹)
36
24
12
0
-12
-24
-36
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: ANRYM2
FILTER: CH. CLASS 600
PEAK DATA: 34.98 N-M @ 30.48 MS; -104.93 N-M @ 98.96 MS

970224

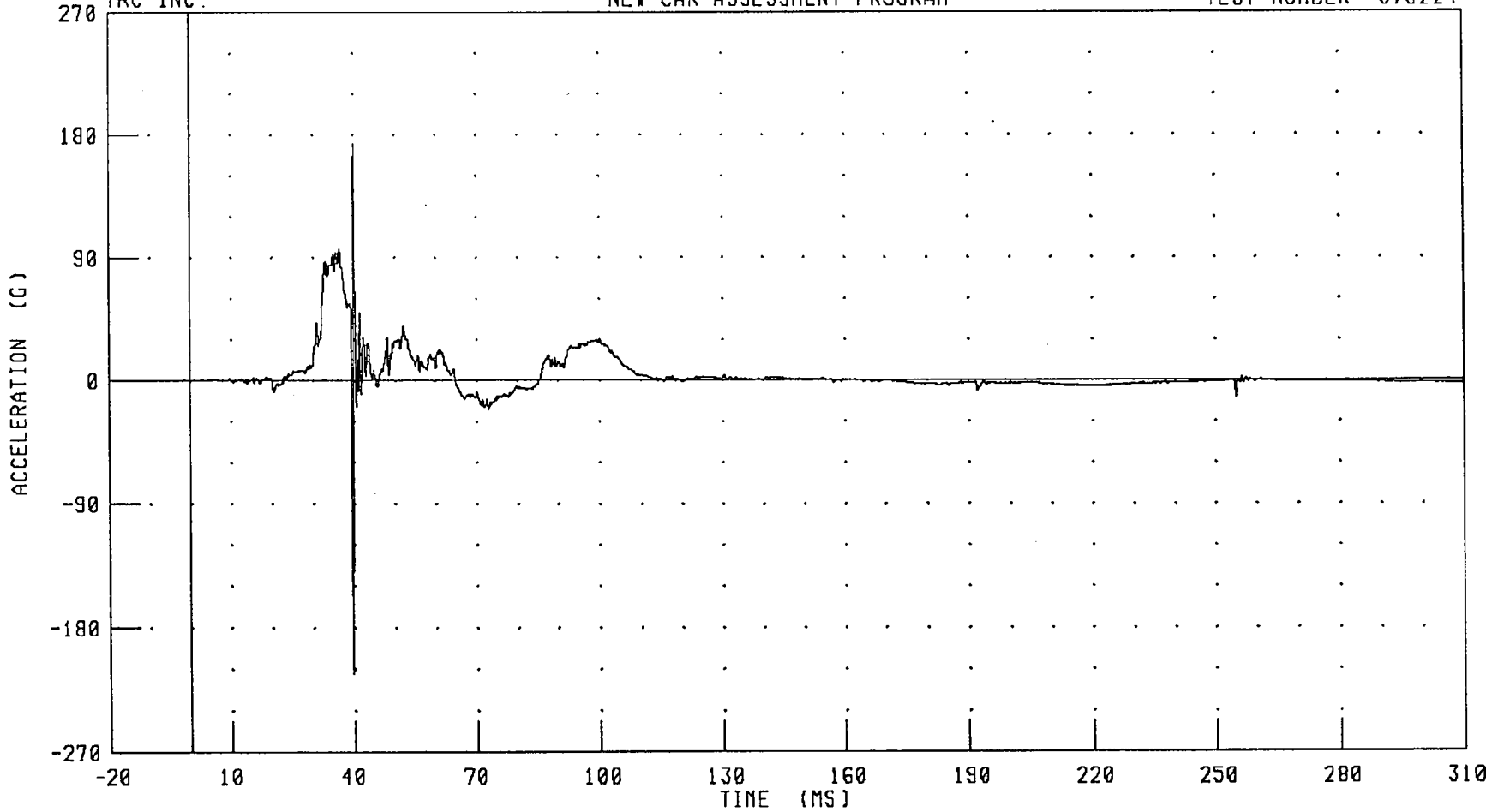

1997 TOYOTA TACOMA INTO FRONTAL LOAD CELL BARRIER
PASSENGER LEFT FOOT X-AXIS ACCELERATION
TRC INC.
NEW CAR ASSESSMENT PROGRAM
TEST NUMBER: 970224
120
60
0
-60
-120
-180
-240
ACCELERATION (G)
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: FTLXG2
FILTER: CH. CLASS 1000
PEAK DATA: 43.60 G @ 89.44 MS; -206.21 G @ 32.40 MS

98-8

970224

1997 TOYOTA TACOMA INTO FRONTAL LOAD CELL BARRIER
PASSENGER LEFT FOOT Z-AXIS ACCELERATION AT HEEL

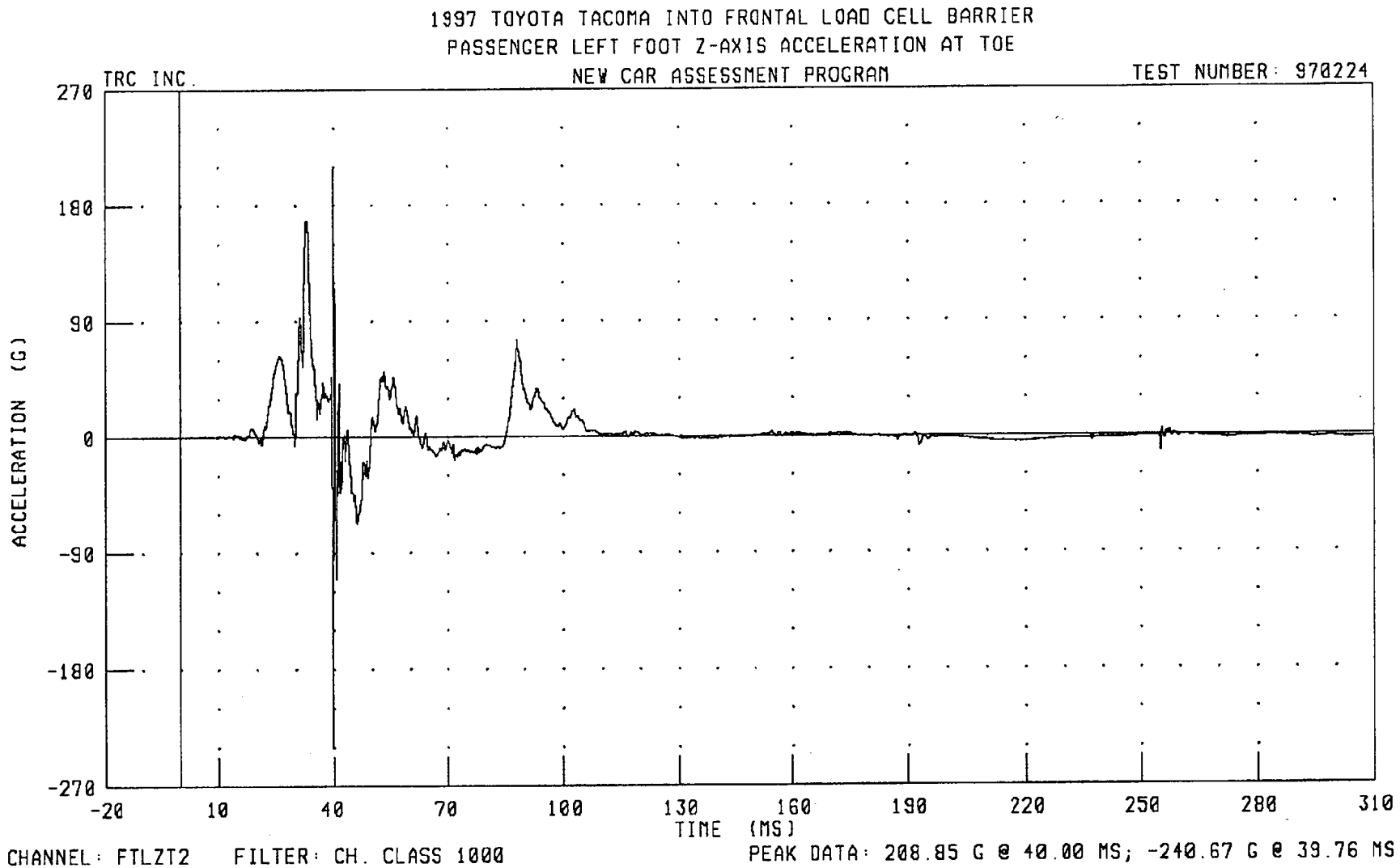
TRC INC. NEW CAR ASSESSMENT PROGRAM TEST NUMBER: 970224



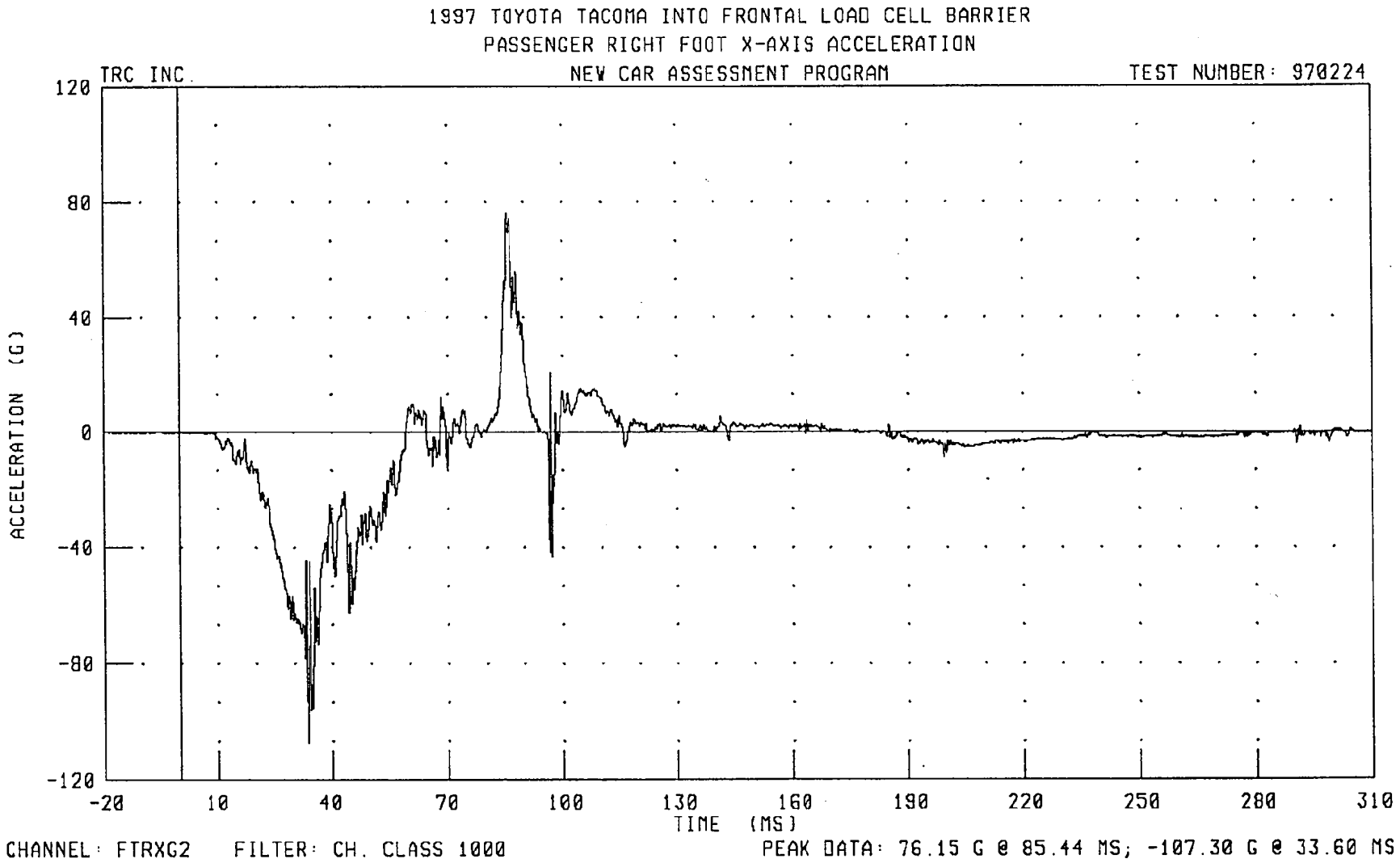
CHANNEL: FTLZH2 FILTER: CH. CLASS 1000 PEAK DATA: 173.73 G @ 40.16 MS; -213.59 G @ 39.68 MS

8-87

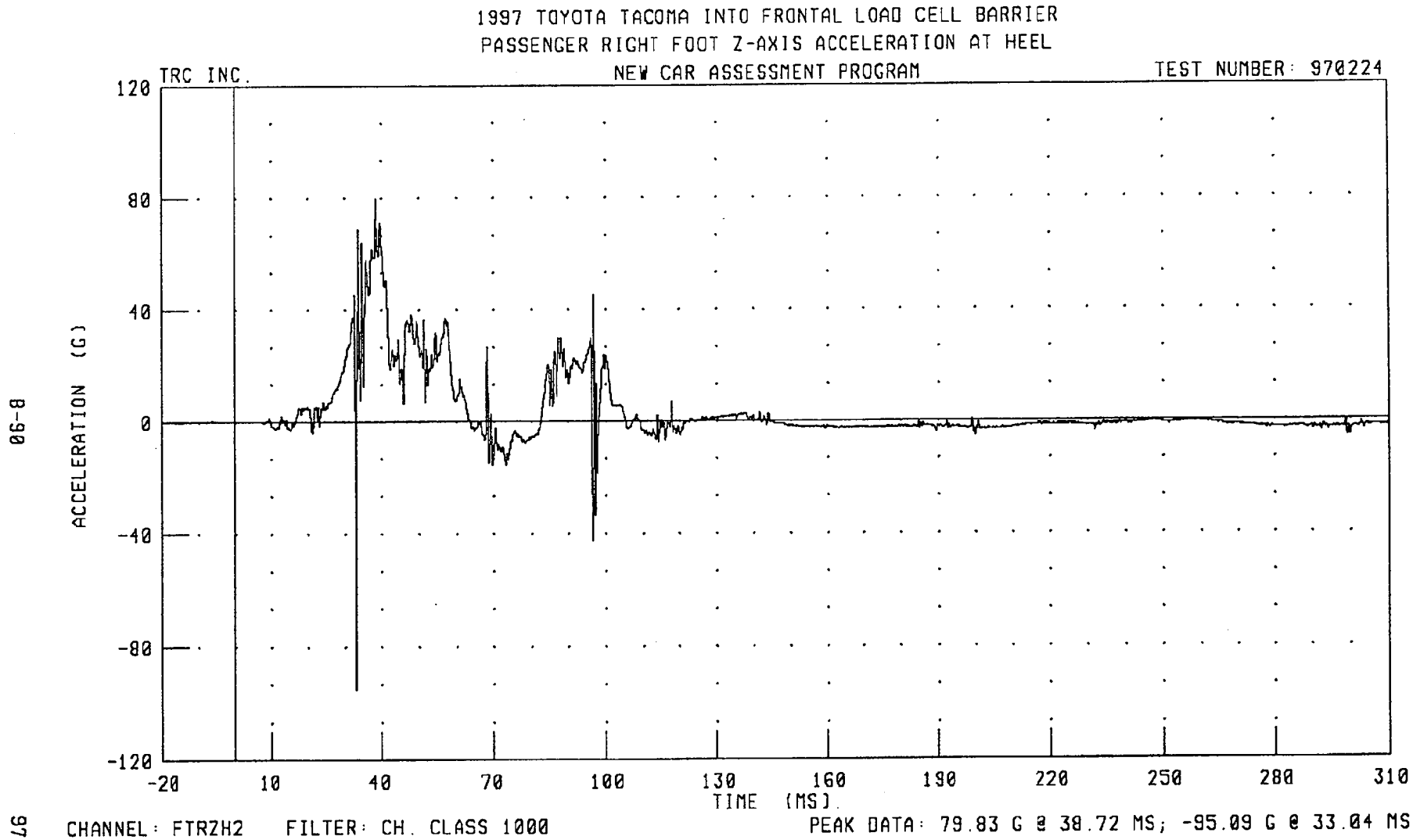
970224

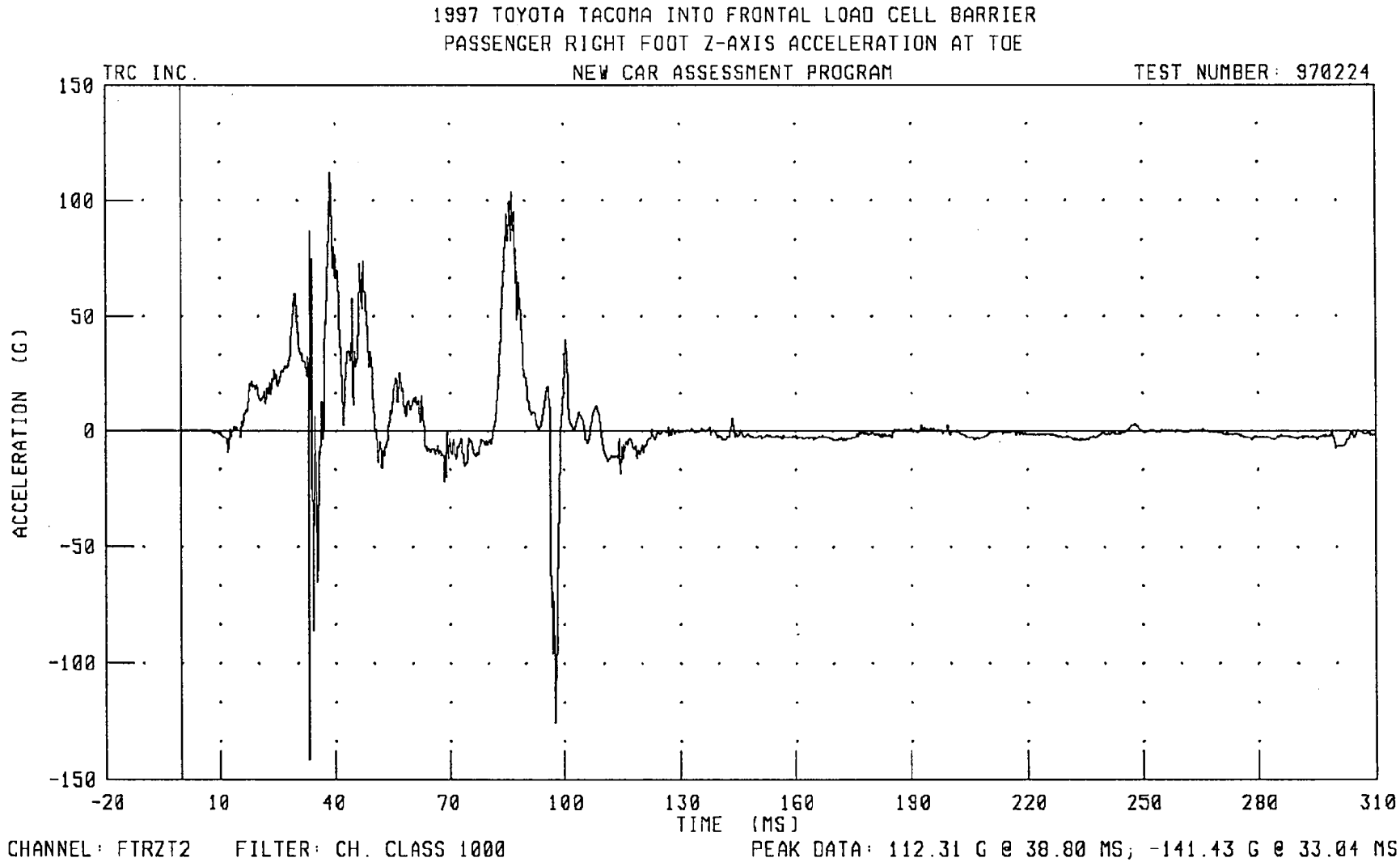

1997 TOYOTA TACOMA INTO FRONTAL LOAD CELL BARRIER
PASSENGER LEFT FOOT Z-AXIS ACCELERATION AT TOE
TRC INC.
NEW CAR ASSESSMENT PROGRAM
TEST NUMBER: 970224
270
180
90
0
-90
-180
-270
ACCELERATION (G)
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: FTLZT2
FILTER: CH. CLASS 1000
PEAK DATA: 208.85 G @ 40.00 MS; -240.67 G @ 39.76 MS

970224

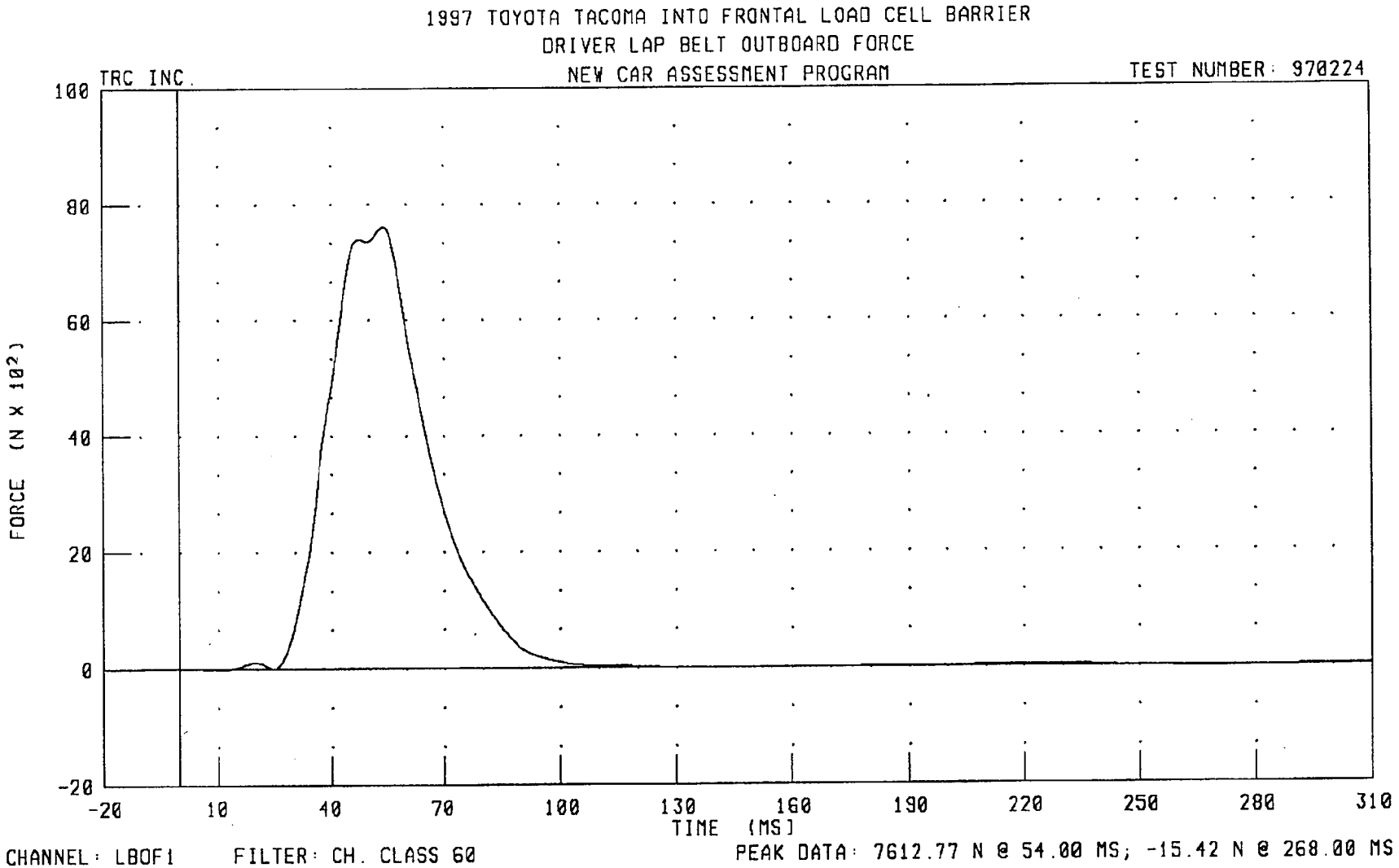

1997 TOYOTA TACOMA INTO FRONTAL LOAD CELL BARRIER
PASSENGER RIGHT FOOT X-AXIS ACCELERATION
TRC INC.
NEW CAR ASSESSMENT PROGRAM
TEST NUMBER: 970224
120
80
40
0
-40
-80
-120
ACCELERATION (G)
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: FTRXG2
FILTER: CH. CLASS 1000
PEAK DATA: 76.15 G @ 85.44 MS; -107.30 G @ 33.60 MS

970224

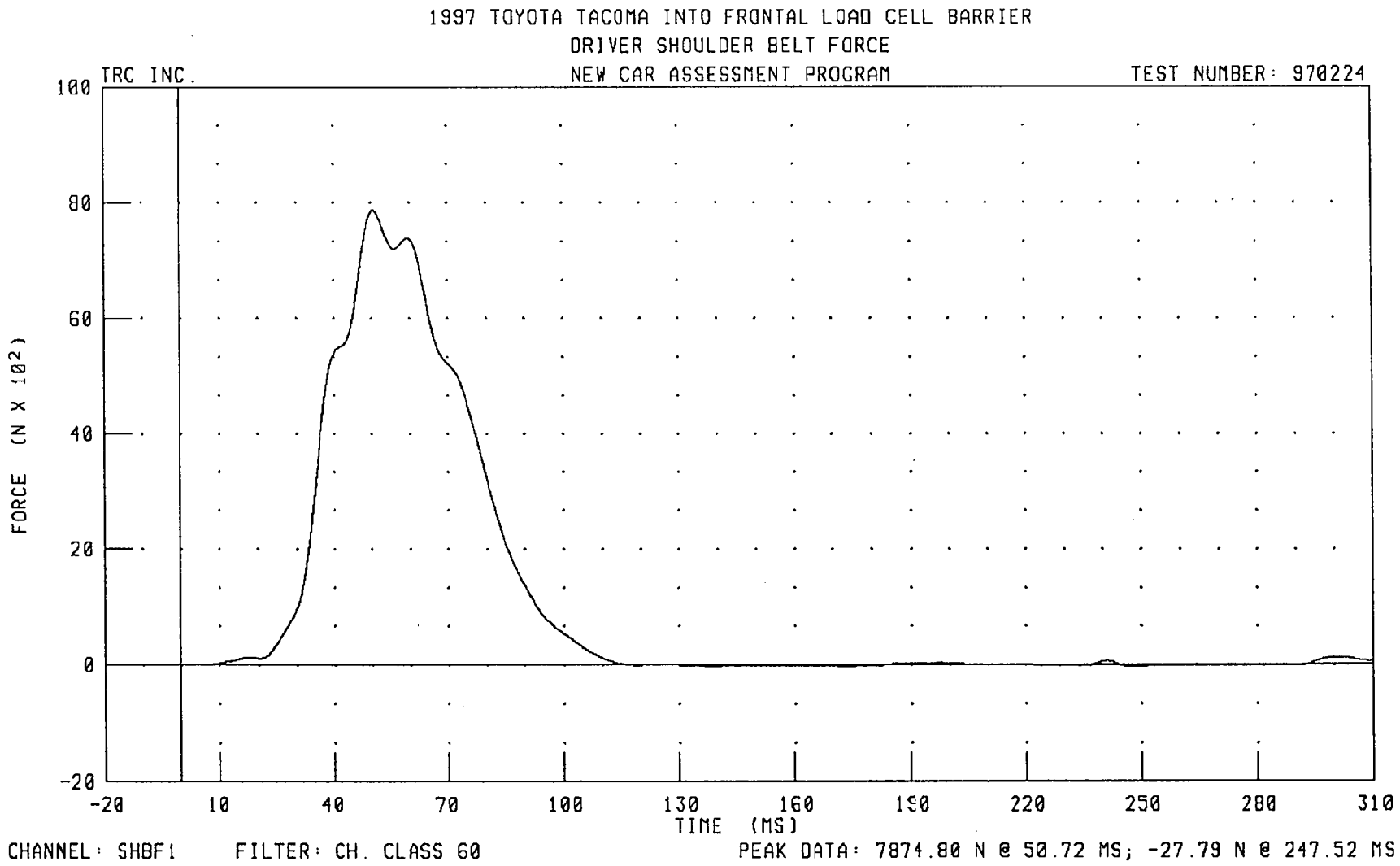

1997 TOYOTA TACOMA INTO FRONTAL LOAD CELL BARRIER
PASSENGER RIGHT FOOT Z-AXIS ACCELERATION AT HEEL
TRC INC.
NEW CAR ASSESSMENT PROGRAM
TEST NUMBER: 970224
120
80
40
0
-40
-80
-120
ACCELERATION (G)
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS).
CHANNEL: FTRZH2
FILTER: CH. CLASS 1000
PEAK DATA: 79.83 G @ 38.72 MS; -95.09 G @ 33.04 MS
B-90
970224


1997 TOYOTA TACOMA INTO FRONTAL LOAD CELL BARRIER
PASSENGER RIGHT FOOT Z-AXIS ACCELERATION AT TOE
TRC INC.
NEW CAR ASSESSMENT PROGRAM
TEST NUMBER: 970224
150
100
50
0
-50
-100
-150
ACCELERATION (G)
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: FTRZT2
FILTER: CH. CLASS 1000
PEAK DATA: 112.31 G @ 38.80 MS; -141.43 G @ 33.04 MS

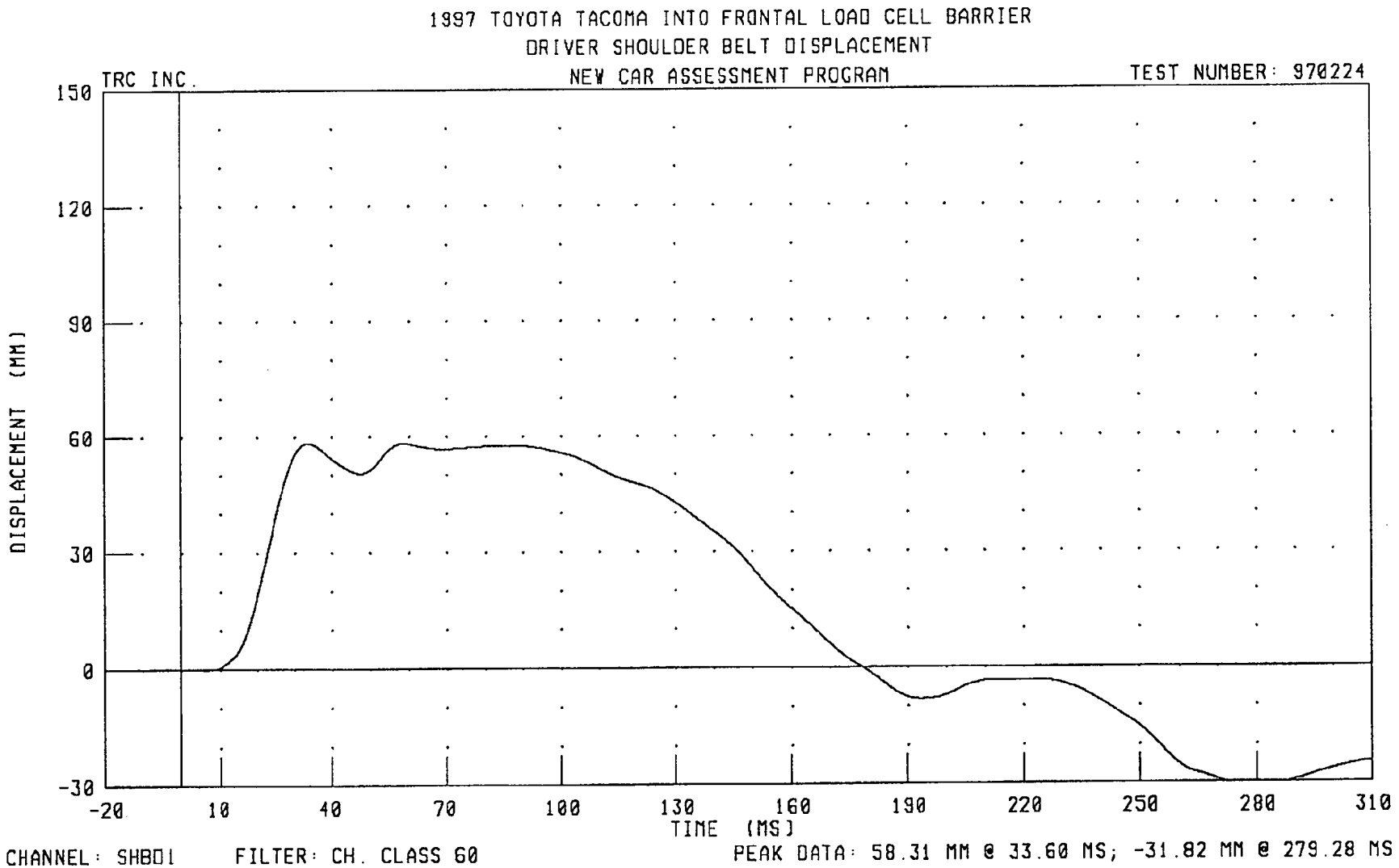
970224


1997 TOYOTA TACOMA INTO FRONTAL LOAD CELL BARRIER
DRIVER LAP BELT OUTBOARD FORCE
NEW CAR ASSESSMENT PROGRAM
TRC INC.
TEST NUMBER: 970224
100
80
60
40
20
0
-20
FORCE (N X 10²)
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: LBOF1
FILTER: CH. CLASS 60
PEAK DATA: 7612.77 N @ 54.00 MS; -15.42 N @ 268.00 MS

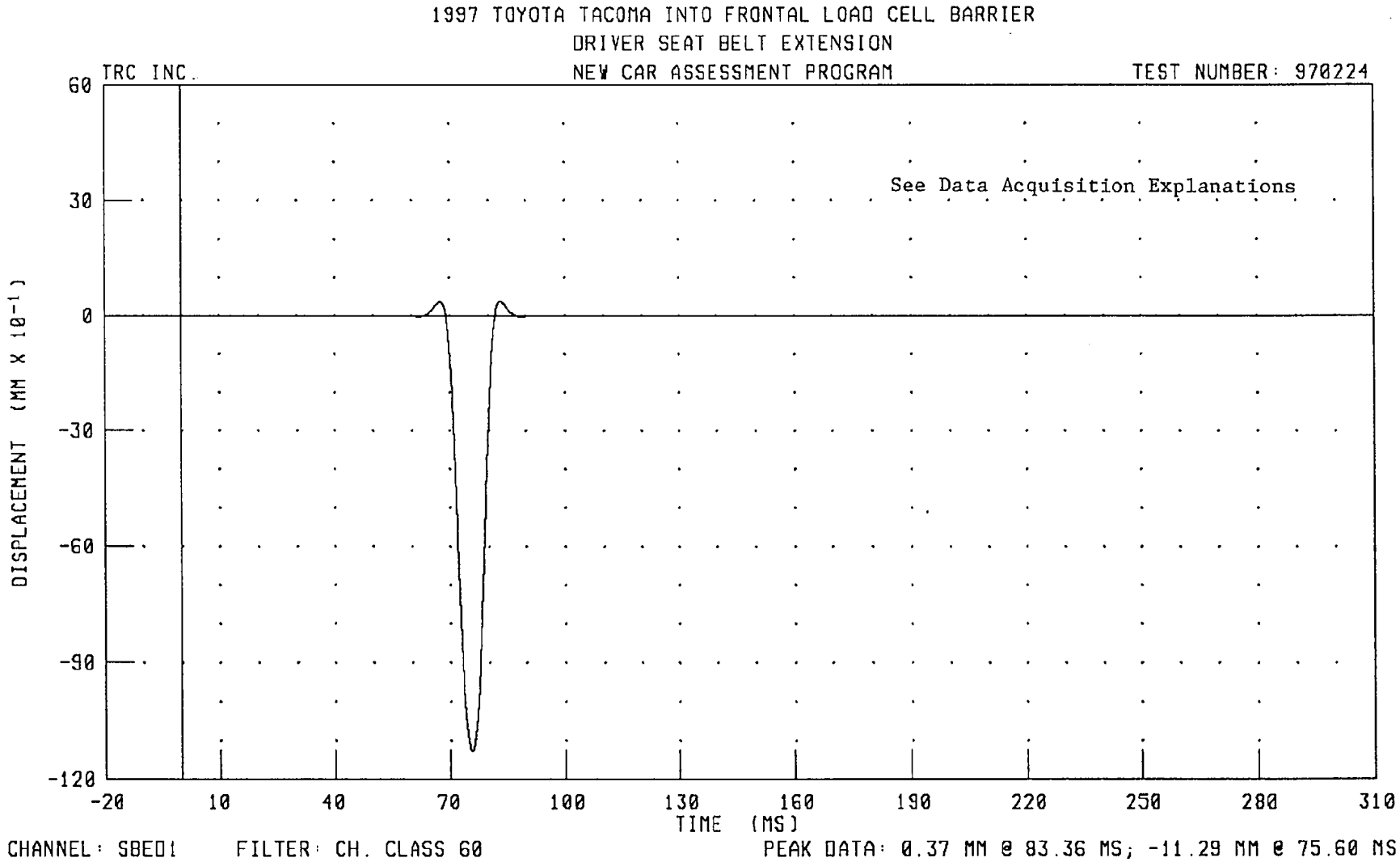
970224

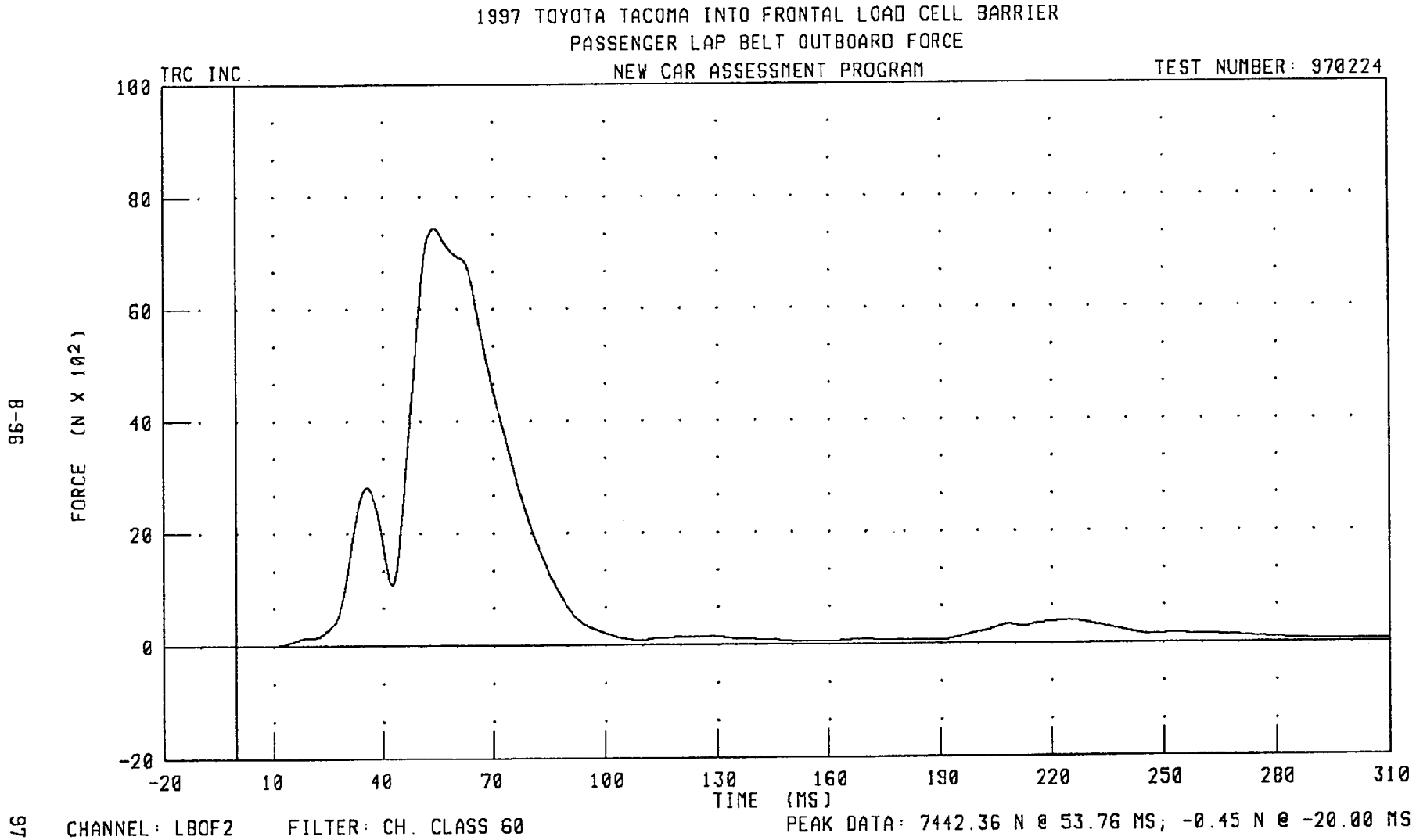

1997 TOYOTA TACOMA INTO FRONTAL LOAD CELL BARRIER
DRIVER SHOULDER BELT FORCE
TRC INC.
NEW CAR ASSESSMENT PROGRAM
TEST NUMBER: 970224
100
80
60
40
20
0
-20
FORCE (N X 10²)
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: SHBF1
FILTER: CH. CLASS 60
PEAK DATA: 7874.80 N @ 50.72 MS; -27.79 N @ 247.52 MS

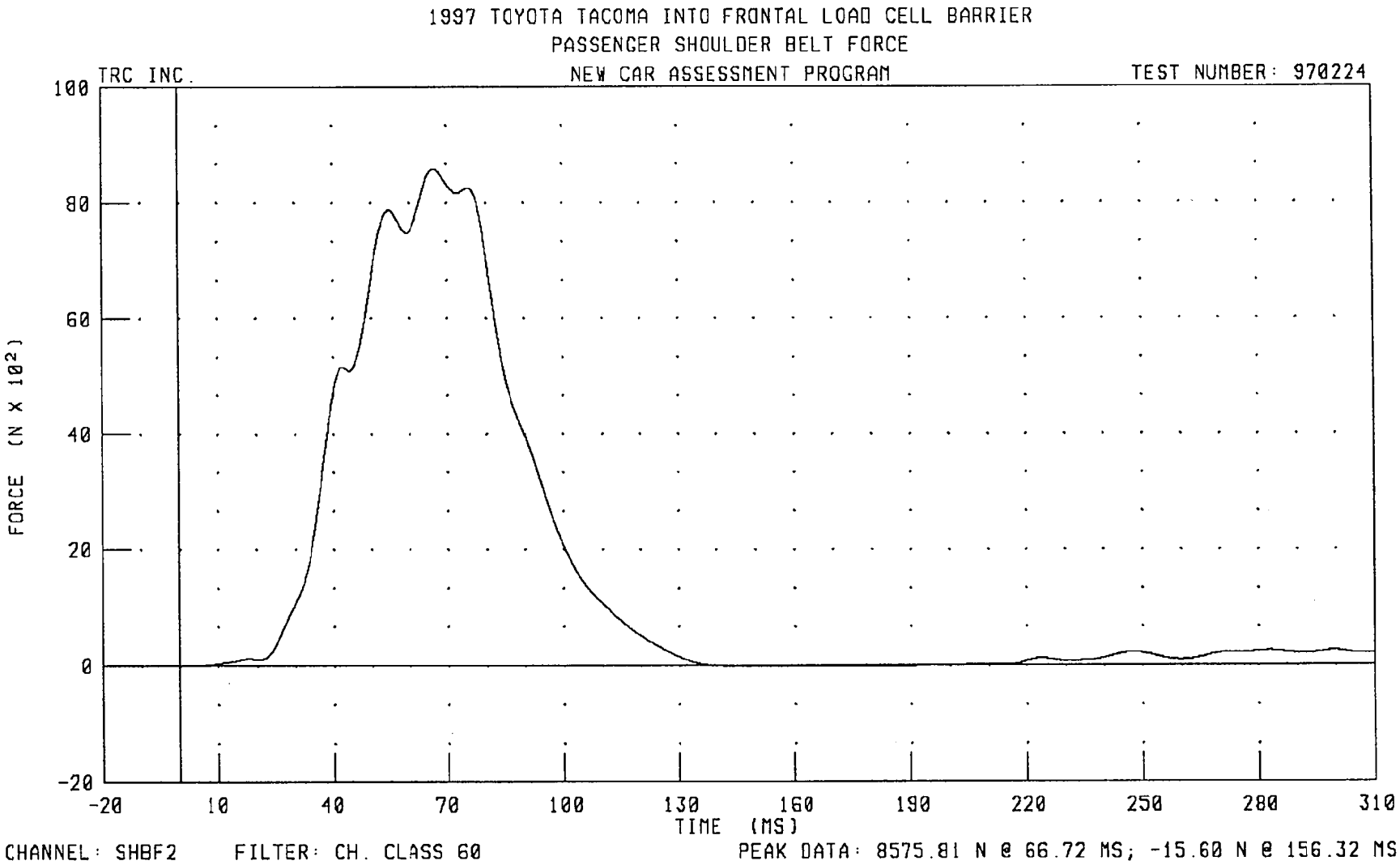
970224


1997 TOYOTA TACOMA INTO FRONTAL LOAD CELL BARRIER
DRIVER SHOULDER BELT DISPLACEMENT
NEW CAR ASSESSMENT PROGRAM
TRC INC.
TEST NUMBER: 970224
DISPLACEMENT (MM)
150
120
90
60
30
0
-30
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: SHBDI
FILTER: CH. CLASS 60
PEAK DATA: 58.31 MM @ 33.60 MS; -31.82 MM @ 279.28 MS

970224

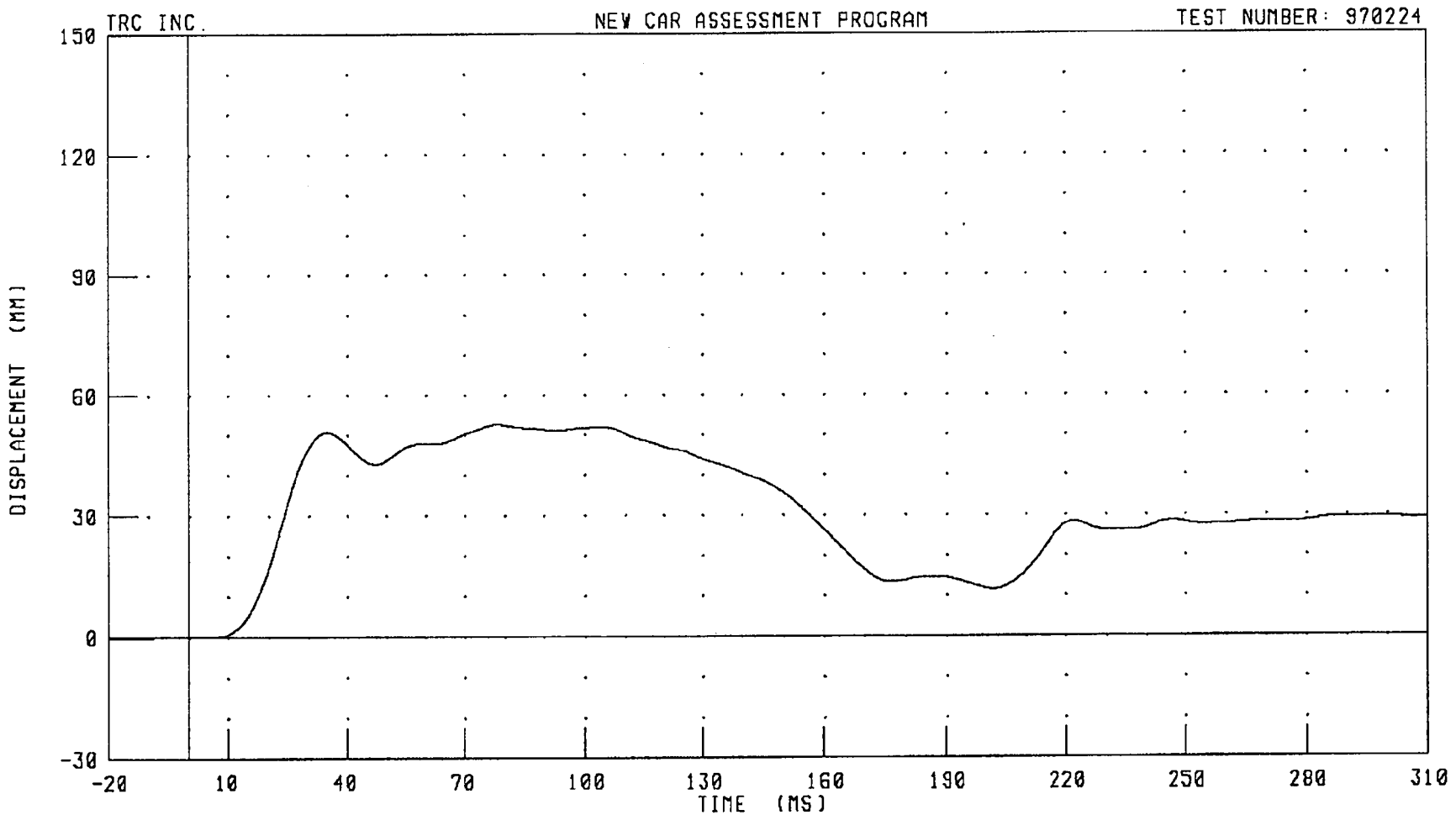

1997 TOYOTA TACOMA INTO FRONTAL LOAD CELL BARRIER
DRIVER SEAT BELT EXTENSION
TRC INC.
NEW CAR ASSESSMENT PROGRAM
TEST NUMBER: 970224
See Data Acquisition Explanations
DISPLACEMENT (MM X 10-1)
60
30
0
-30
-60
-90
-120
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: SBE01
FILTER: CH. CLASS 60
PEAK DATA: 0.37 MM @ 83.36 MS; -11.29 MM @ 75.60 MS


1997 TOYOTA TACOMA INTO FRONTAL LOAD CELL BARRIER
PASSENGER LAP BELT OUTBOARD FORCE
NEW CAR ASSESSMENT PROGRAM
TRC INC.
TEST NUMBER: 970224
FORCE (N X 10²)
100
80
60
40
20
0
-20
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: LBOF2
FILTER: CH. CLASS 60
PEAK DATA: 7442.36 N @ 53.76 MS; -0.45 N @ -20.00 MS


1997 TOYOTA TACOMA INTO FRONTAL LOAD CELL BARRIER
PASSENGER SHOULDER BELT FORCE
TRC INC.
NEW CAR ASSESSMENT PROGRAM
TEST NUMBER: 970224
100
80
60
40
20
0
-20
FORCE (N X 10²)
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: SHBF2
FILTER: CH. CLASS 60
PEAK DATA: 8575.81 N @ 66.72 MS; -15.60 N @ 156.32 MS

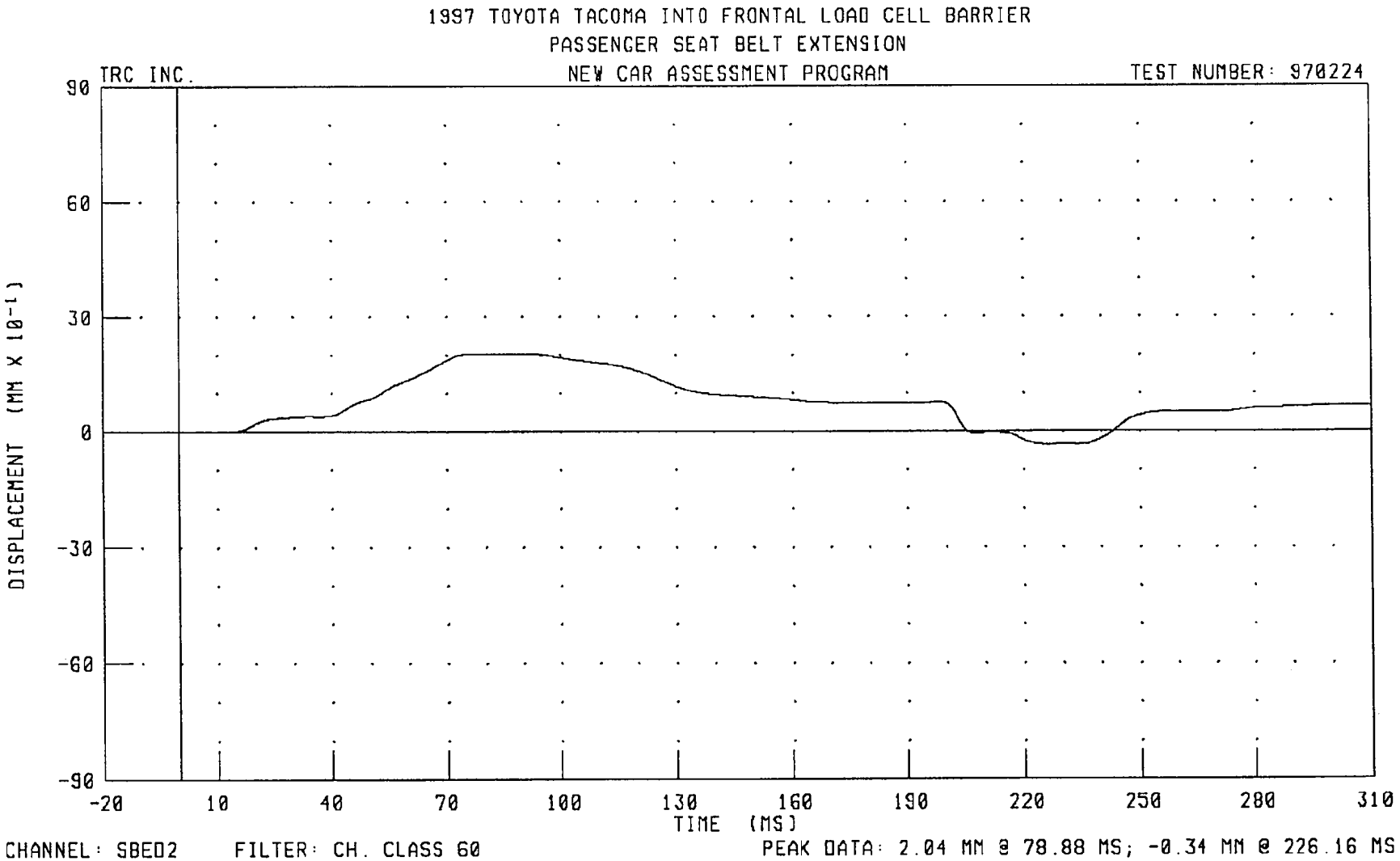
970224

1997 TOYOTA TACOMA INTO FRONTAL LOAD CELL BARRIER
PASSENGER SHOULDER BELT DISPLACEMENT

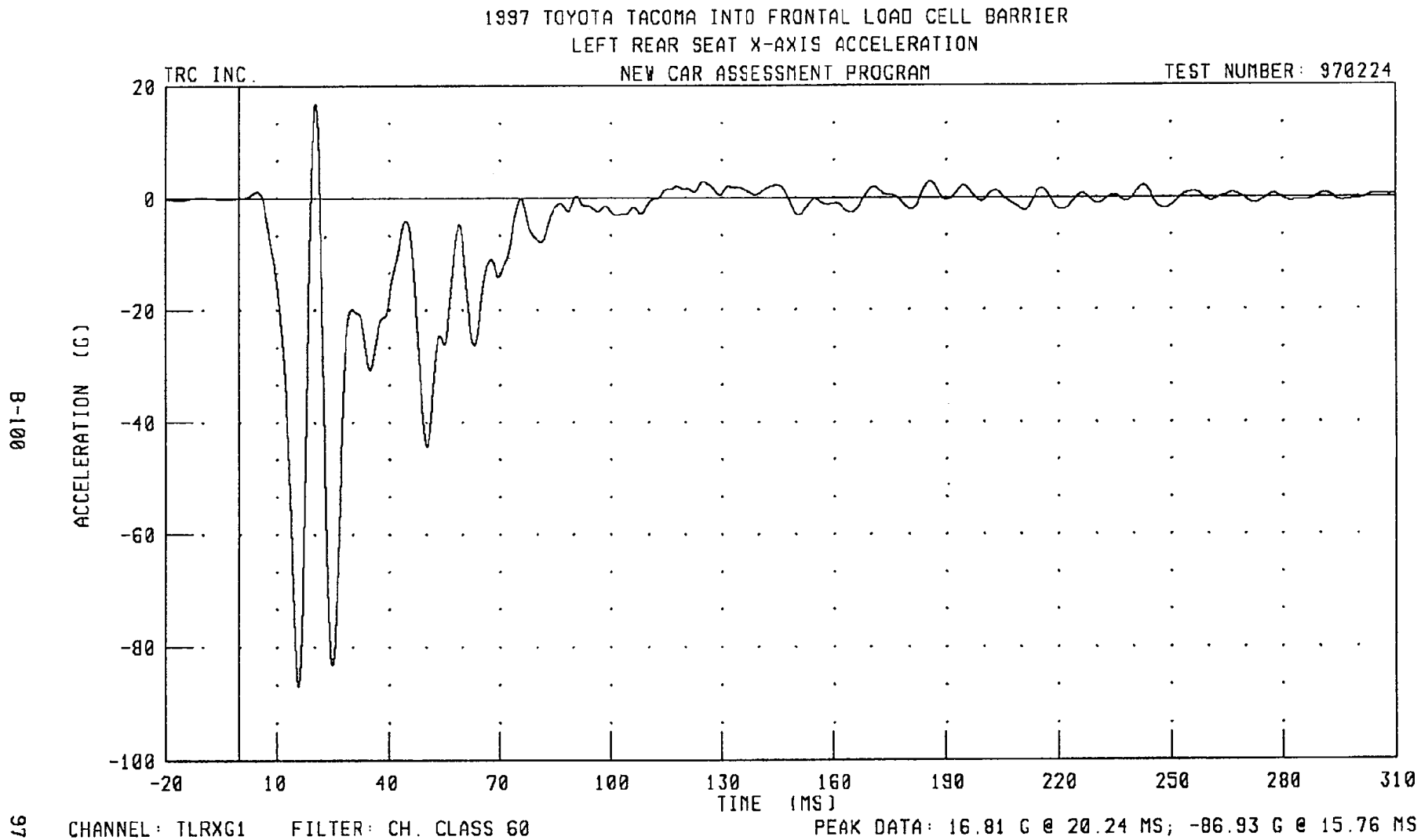


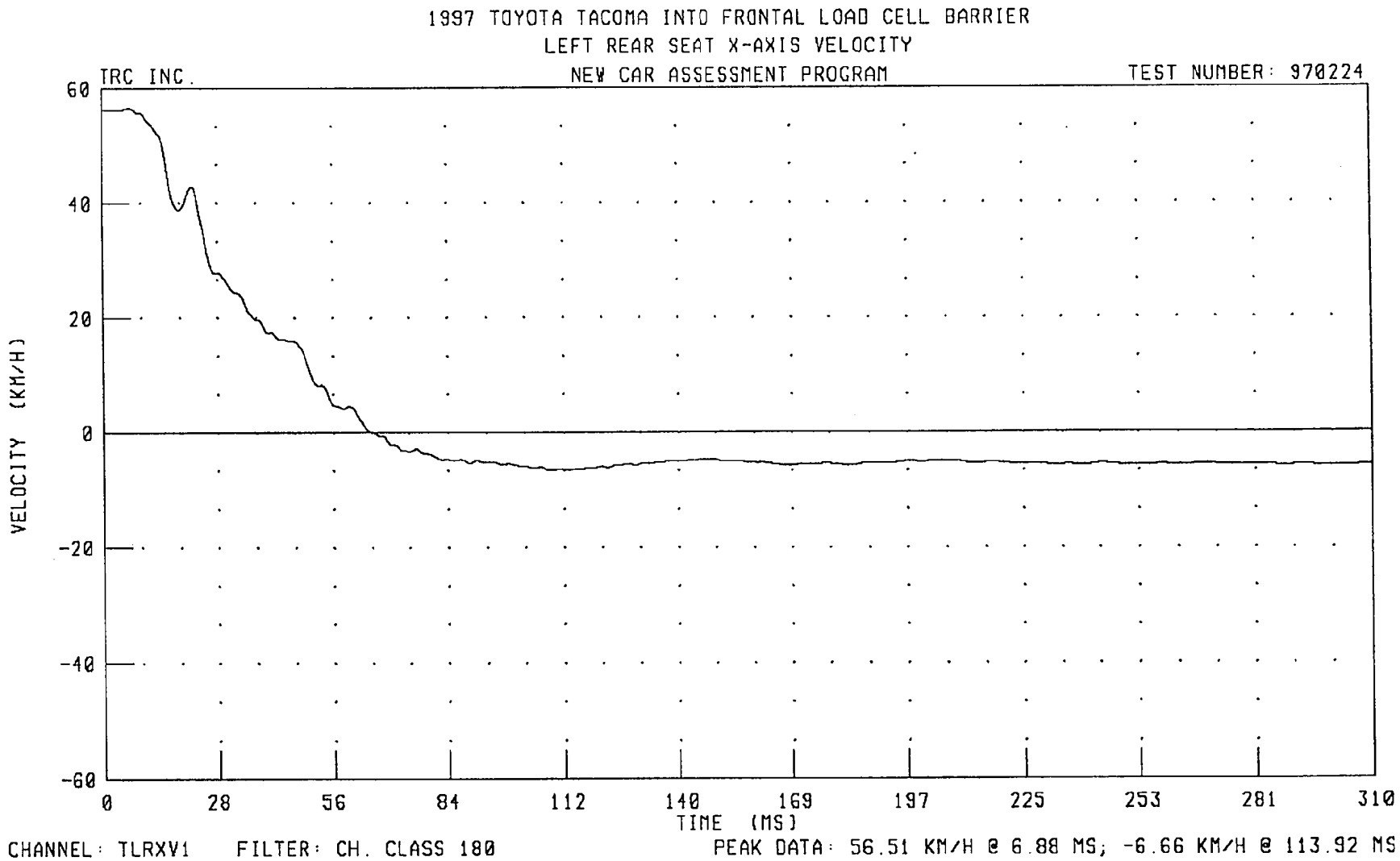
CHANNEL: SHB02 FILTER: CH. CLASS 60 PEAK DATA: 52.59 MM @ 78.24 MS; -0.14 MM @ -15.76 MS

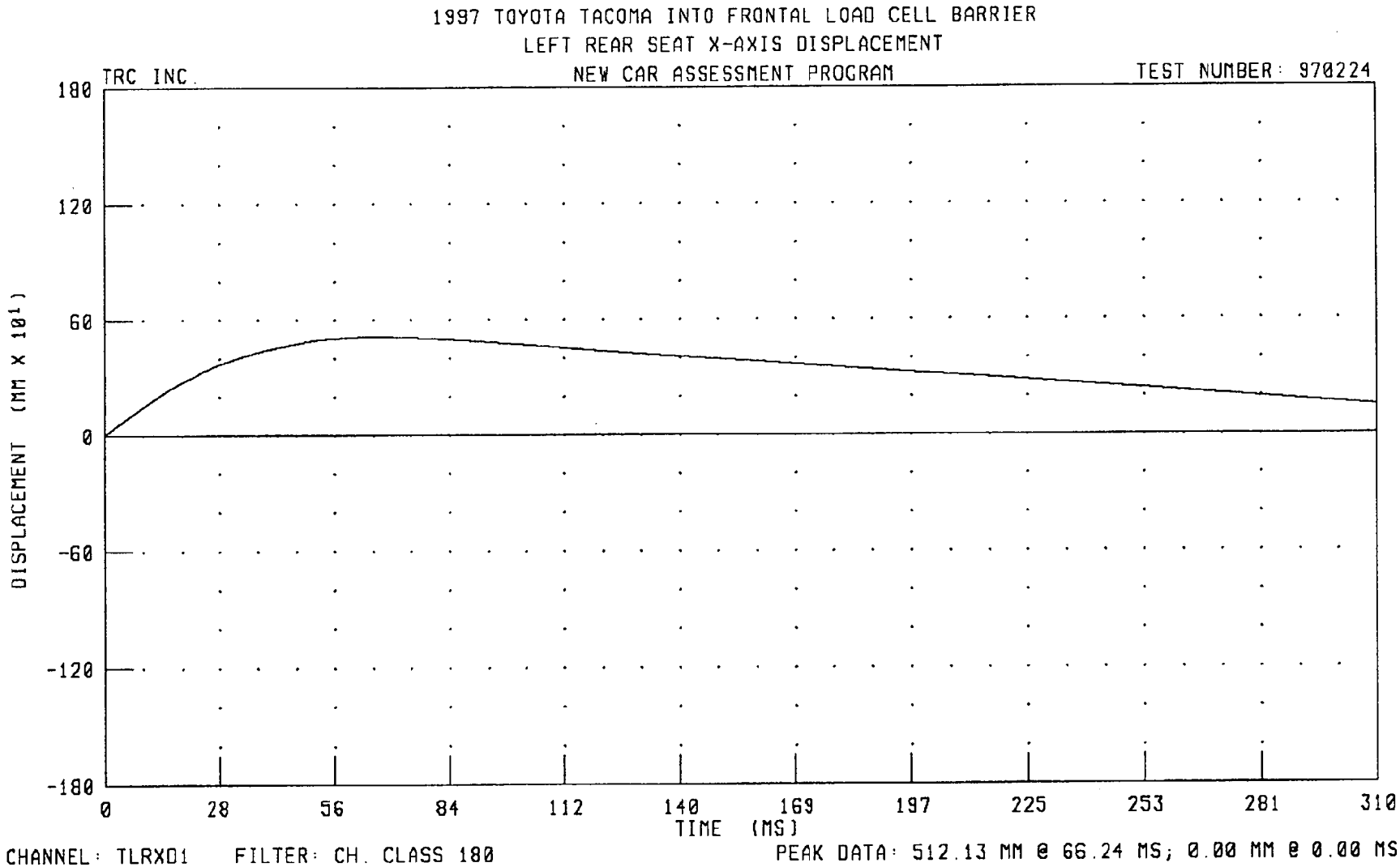
970224


1997 TOYOTA TACOMA INTO FRONTAL LOAD CELL BARRIER
PASSENGER SEAT BELT EXTENSION
TRC INC.
NEW CAR ASSESSMENT PROGRAM
TEST NUMBER: 970224
90
60
30
0
-30
-60
-90
DISPLACEMENT (MM X 10-1)
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: SBE02
FILTER: CH. CLASS 60
PEAK DATA: 2.04 MM @ 78.88 MS; -0.34 MM @ 226.16 MS

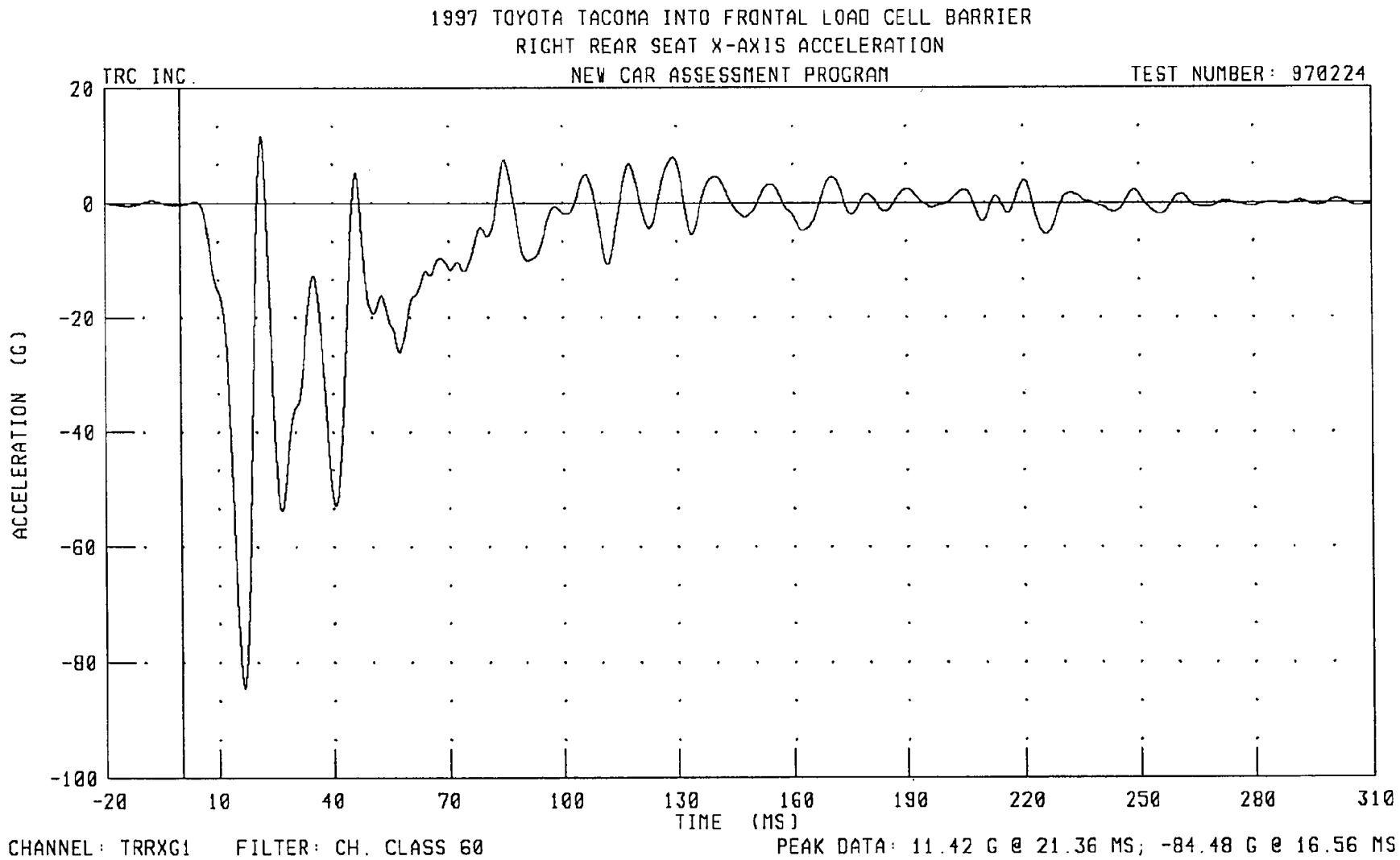
970224

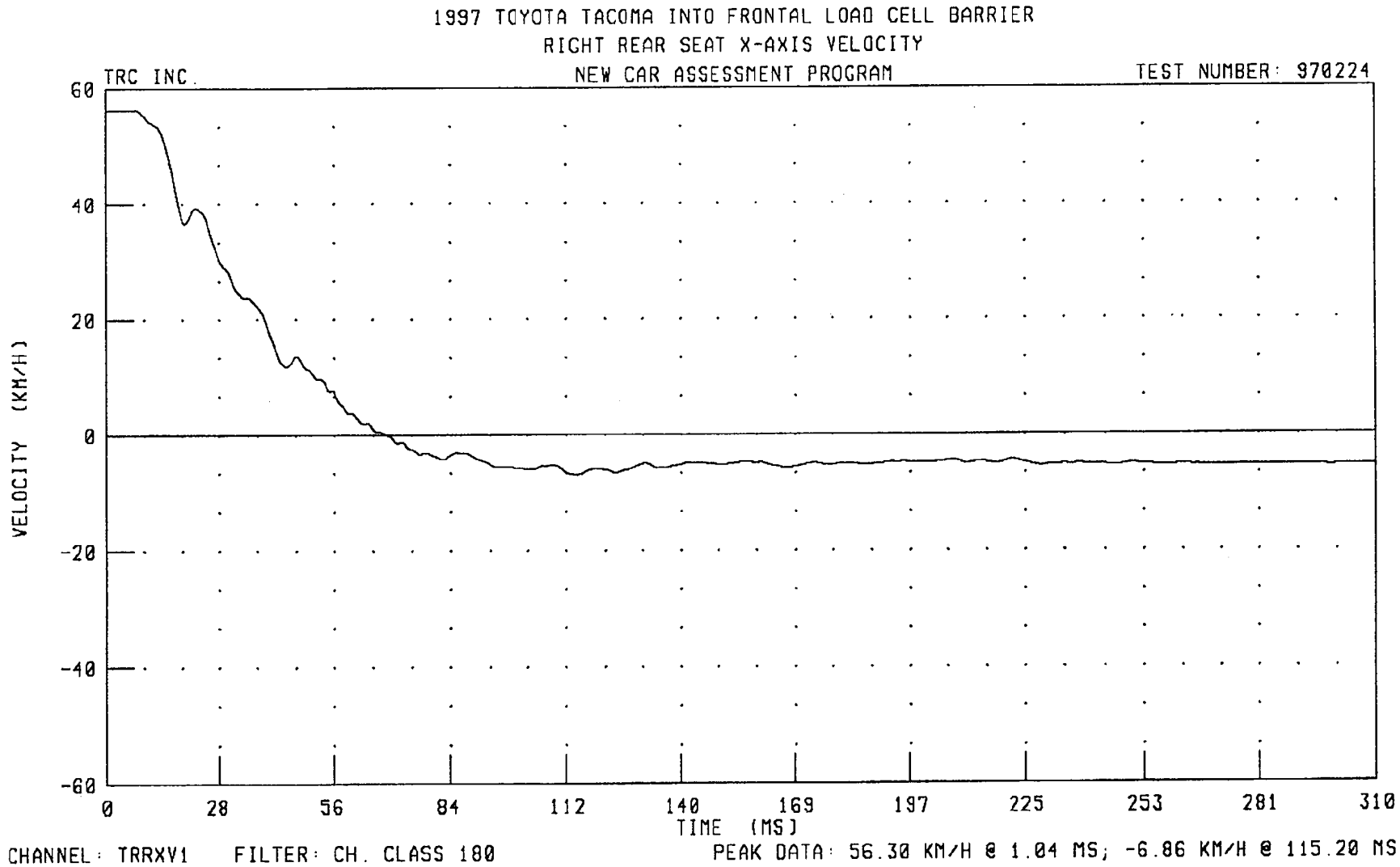

1997 TOYOTA TACOMA INTO FRONTAL LOAD CELL BARRIER
LEFT REAR SEAT X-AXIS ACCELERATION
TRC INC.
NEW CAR ASSESSMENT PROGRAM
TEST NUMBER: 970224
ACCELERATION (G)
20
0
-20
-40
-60
-80
-100
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: TLRXG1
FILTER: CH. CLASS 60
PEAK DATA: 16.81 G @ 20.24 MS; -86.93 G @ 15.76 MS
001-B
970224


1997 TOYOTA TACOMA INTO FRONTAL LOAD CELL BARRIER
LEFT REAR SEAT X-AXIS VELOCITY
TRC INC.
NEW CAR ASSESSMENT PROGRAM
TEST NUMBER: 970224
60
40
20
0
-20
-40
-60
VELOCITY (KM/H)
0
28
56
84
112
140
169
197
225
253
281
310
TIME (MS)
CHANNEL: TLRXV1
FILTER: CH. CLASS 180
PEAK DATA: 56.51 KM/H @ 6.88 MS; -6.66 KM/H @ 113.92 MS


1997 TOYOTA TACOMA INTO FRONTAL LOAD CELL BARRIER
LEFT REAR SEAT X-AXIS DISPLACEMENT
TRC INC.
NEW CAR ASSESSMENT PROGRAM
TEST NUMBER: 970224
180
120
60
0
-60
-120
-180
DISPLACEMENT (MM X 10¹)
0
28
56
84
112
140
169
197
225
253
281
310
TIME (MS)
CHANNEL: TLRXD1
FILTER: CH. CLASS 180
PEAK DATA: 512.13 MM @ 66.24 MS; 0.00 MM @ 0.00 MS

970224

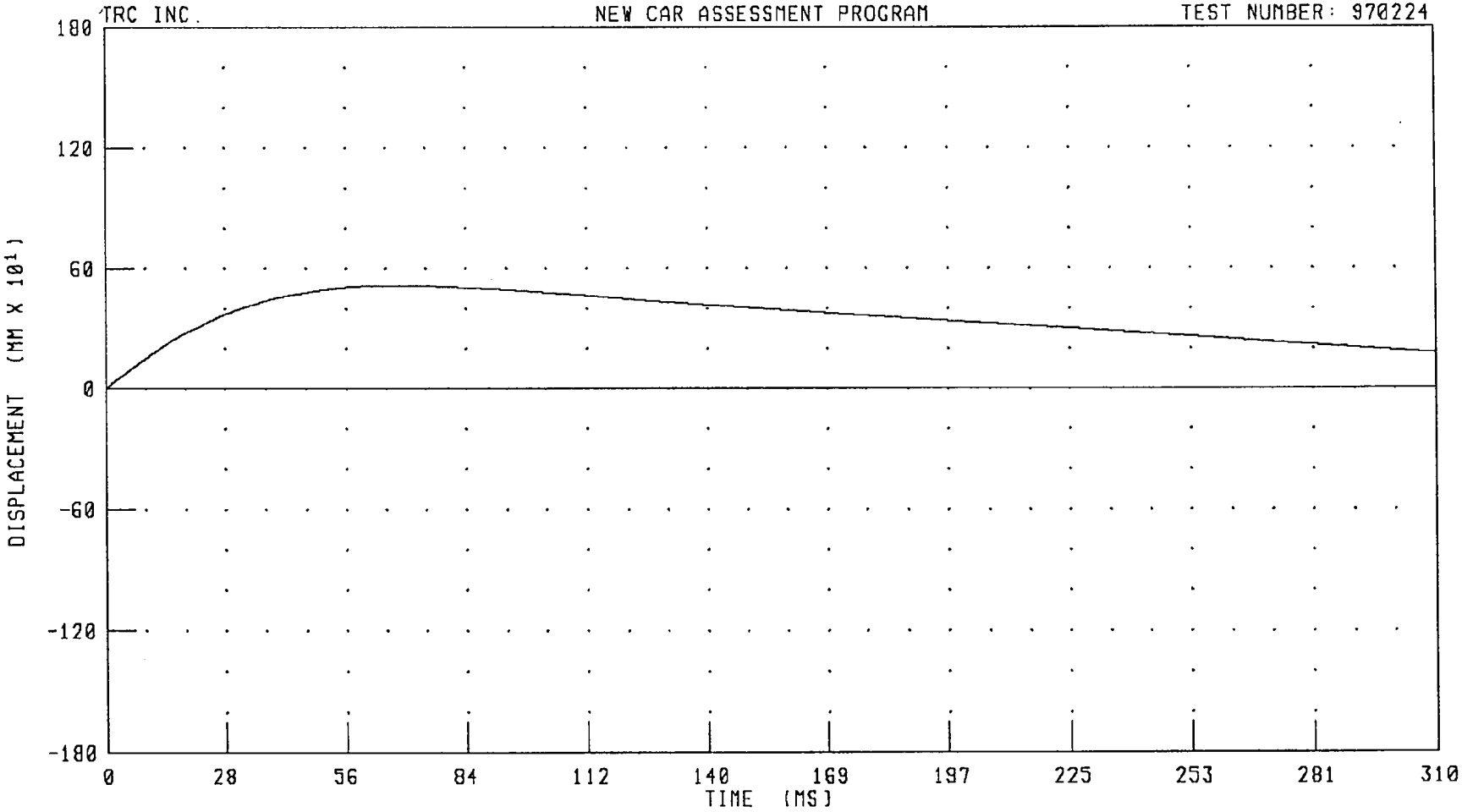

1997 TOYOTA TACOMA INTO FRONTAL LOAD CELL BARRIER
RIGHT REAR SEAT X-AXIS ACCELERATION
TRC INC.
NEW CAR ASSESSMENT PROGRAM
TEST NUMBER: 970224
ACCELERATION (G)
20
0
-20
-40
-60
-80
-100
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: TRRXG1
FILTER: CH. CLASS 60
PEAK DATA: 11.42 G @ 21.36 MS; -84.48 G @ 16.56 MS


1997 TOYOTA TACOMA INTO FRONTAL LOAD CELL BARRIER
RIGHT REAR SEAT X-AXIS VELOCITY
TRC INC.
NEW CAR ASSESSMENT PROGRAM
TEST NUMBER: 970224
60
40
20
0
-20
-40
-60
VELOCITY (KM/H)
0
28
56
84
112
140
169
197
225
253
281
310
TIME (MS)
CHANNEL: TRRXV1
FILTER: CH. CLASS 180
PEAK DATA: 56.30 KM/H @ 1.04 MS; -6.86 KM/H @ 115.20 MS

970224

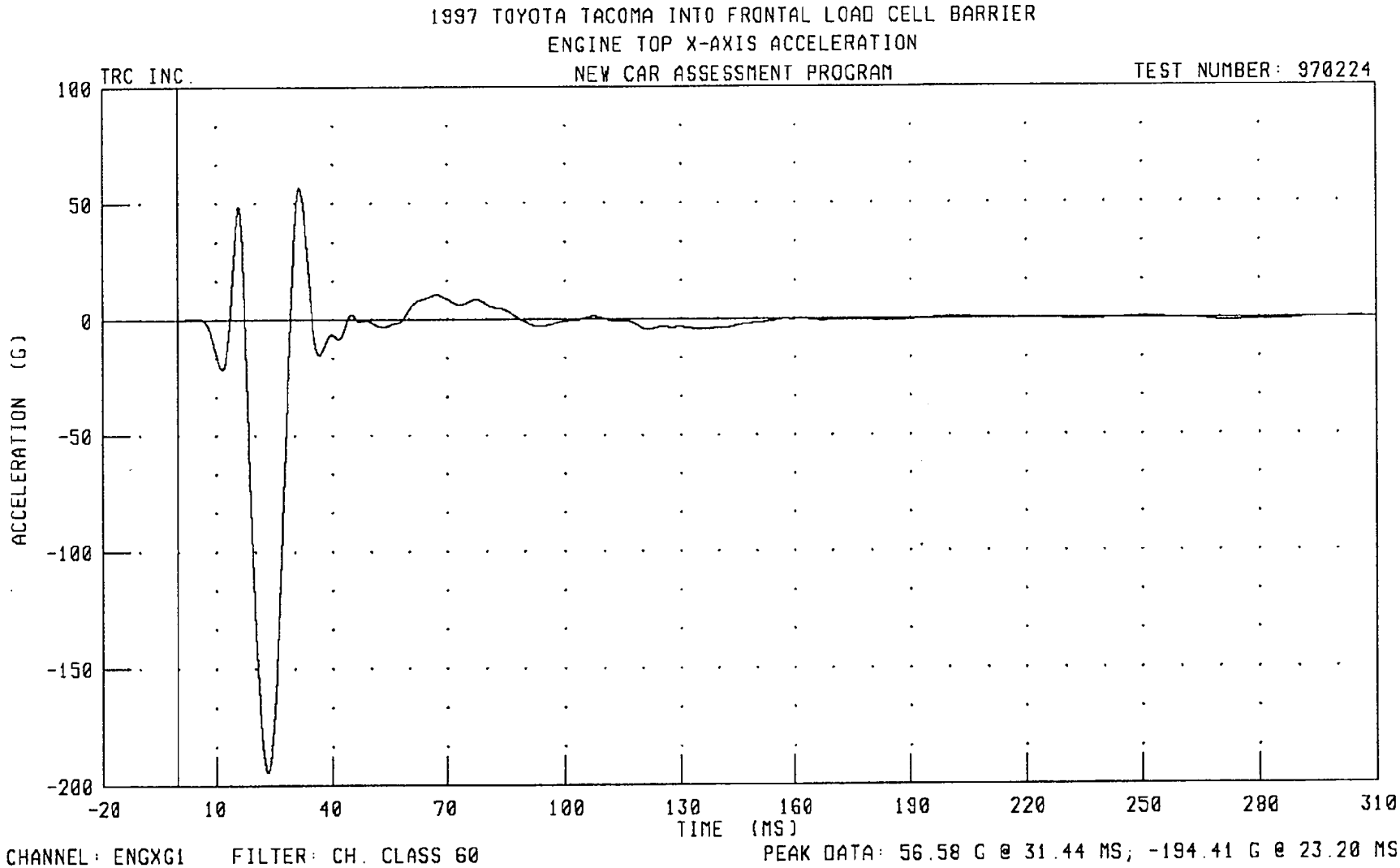
1997 TOYOTA TACOMA INTO FRONTAL LOAD CELL BARRIER
RIGHT REAR SEAT X-AXIS DISPLACEMENT

TRC INC. NEW CAR ASSESSMENT PROGRAM TEST NUMBER: 970224

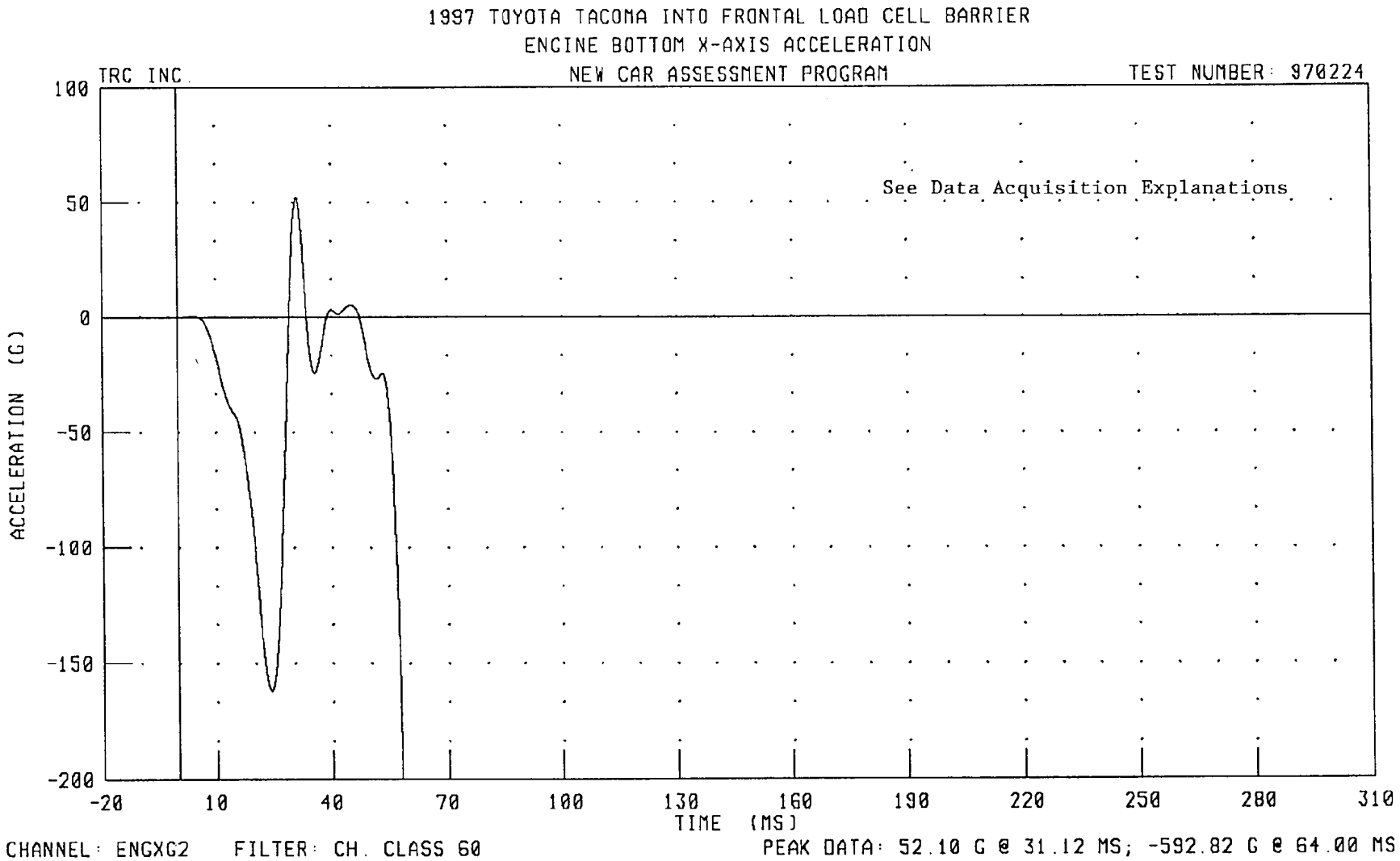


CHANNEL: TRRXD1 FILTER: CH. CLASS 180 PEAK DATA: 515.22 MM @ 68.80 MS; 0.00 MM @ 0.00 MS

970224

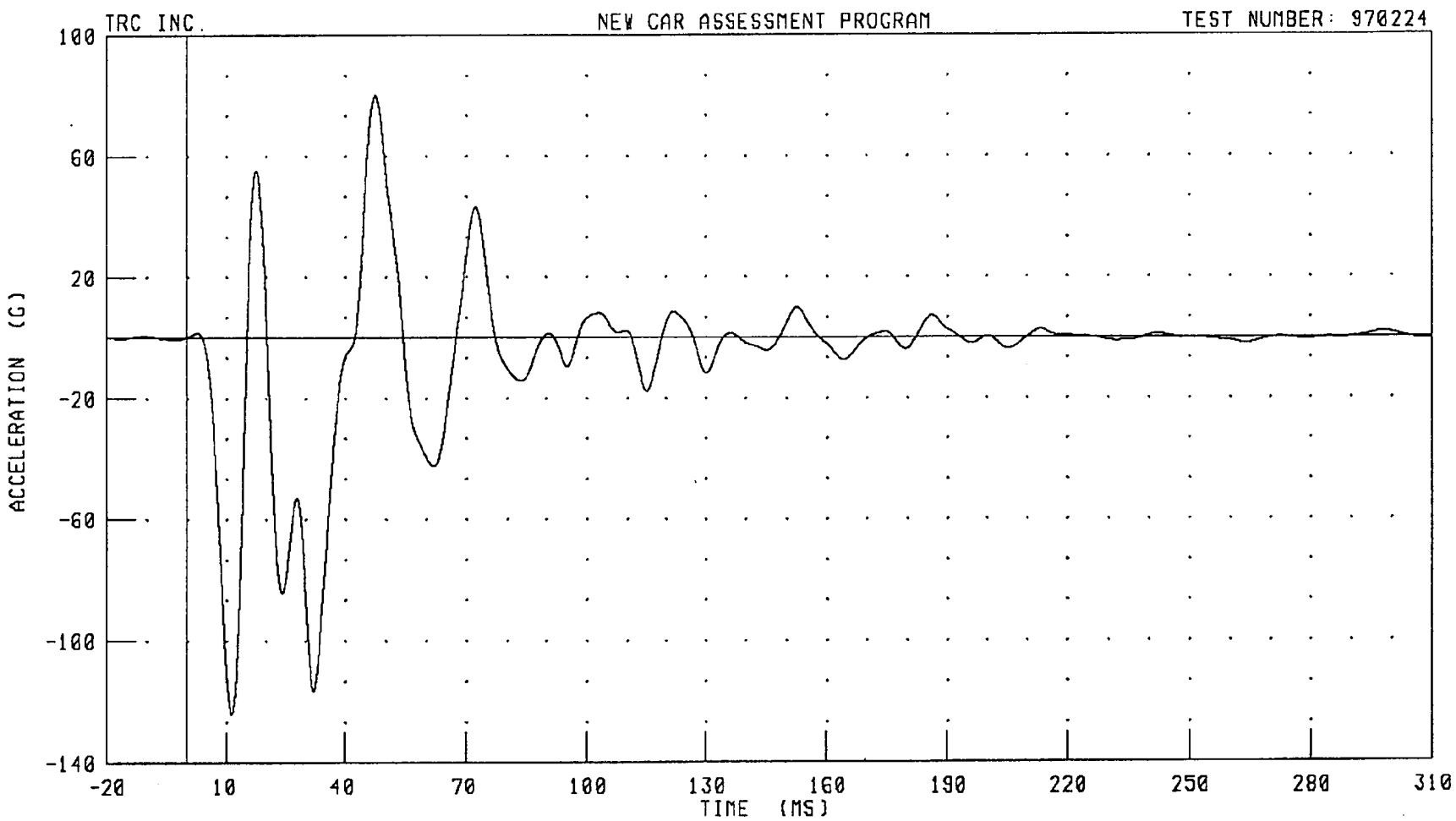

1997 TOYOTA TACOMA INTO FRONTAL LOAD CELL BARRIER
ENGINE TOP X-AXIS ACCELERATION
TRC INC.
NEW CAR ASSESSMENT PROGRAM
TEST NUMBER: 970224
100
50
0
-50
-100
-150
-200
ACCELERATION (G)
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: ENGXG1
FILTER: CH. CLASS 60
PEAK DATA: 56.58 G @ 31.44 MS; -194.41 G @ 23.20 MS

970224


1997 TOYOTA TACOMA INTO FRONTAL LOAD CELL BARRIER
ENGINE BOTTOM X-AXIS ACCELERATION
TRC INC
NEW CAR ASSESSMENT PROGRAM
TEST NUMBER: 970224
See Data Acquisition Explanations
ACCELERATION (G)
100
50
0
-50
-100
-150
-200
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: ENGXG2
FILTER: CH. CLASS 60
PEAK DATA: 52.10 G @ 31.12 MS; -592.82 G @ 64.00 MS

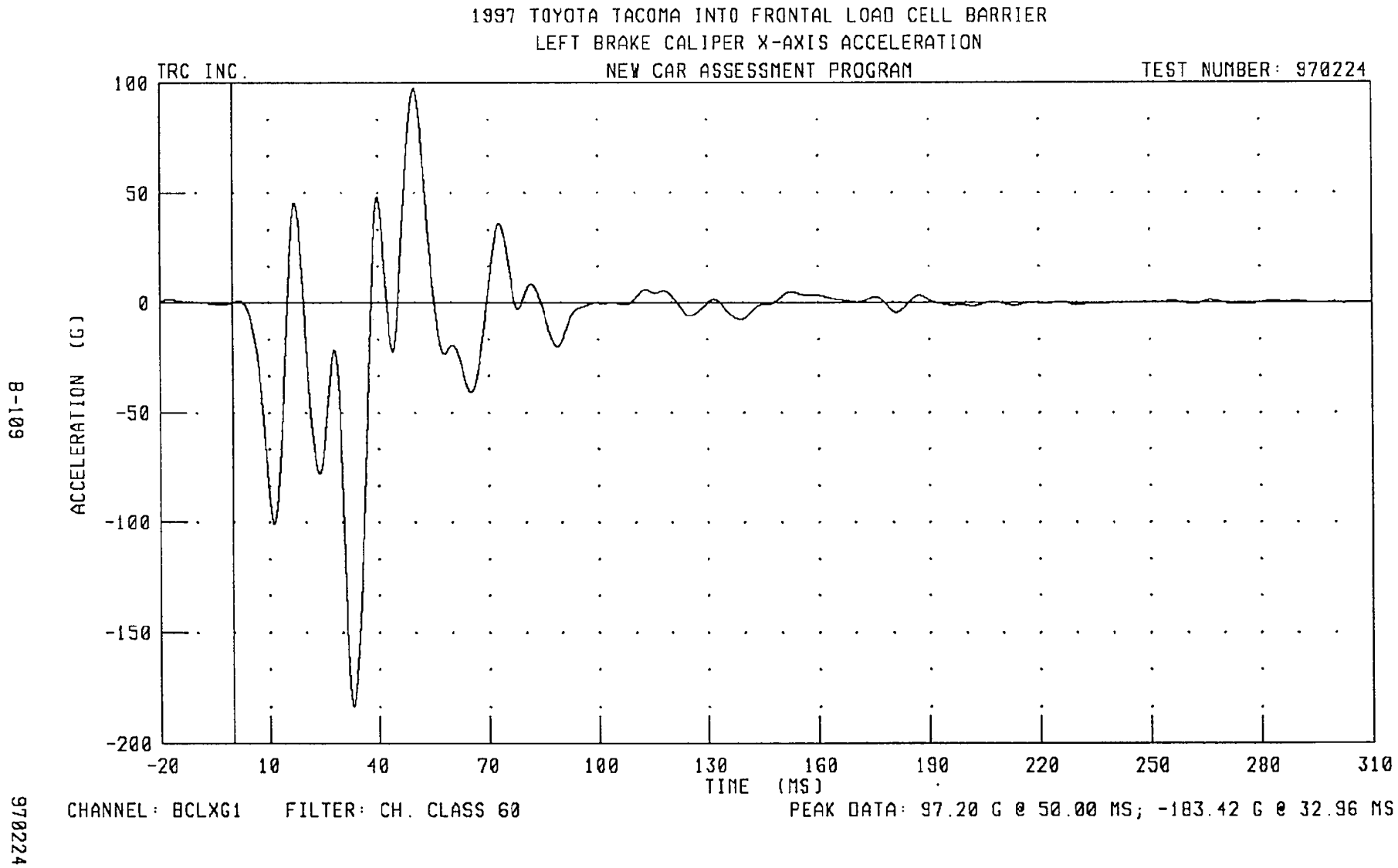
970224

1997 TOYOTA TACOMA INTO FRONTAL LOAD CELL BARRIER
RIGHT BRAKE CALIPER X-AXIS ACCELERATION

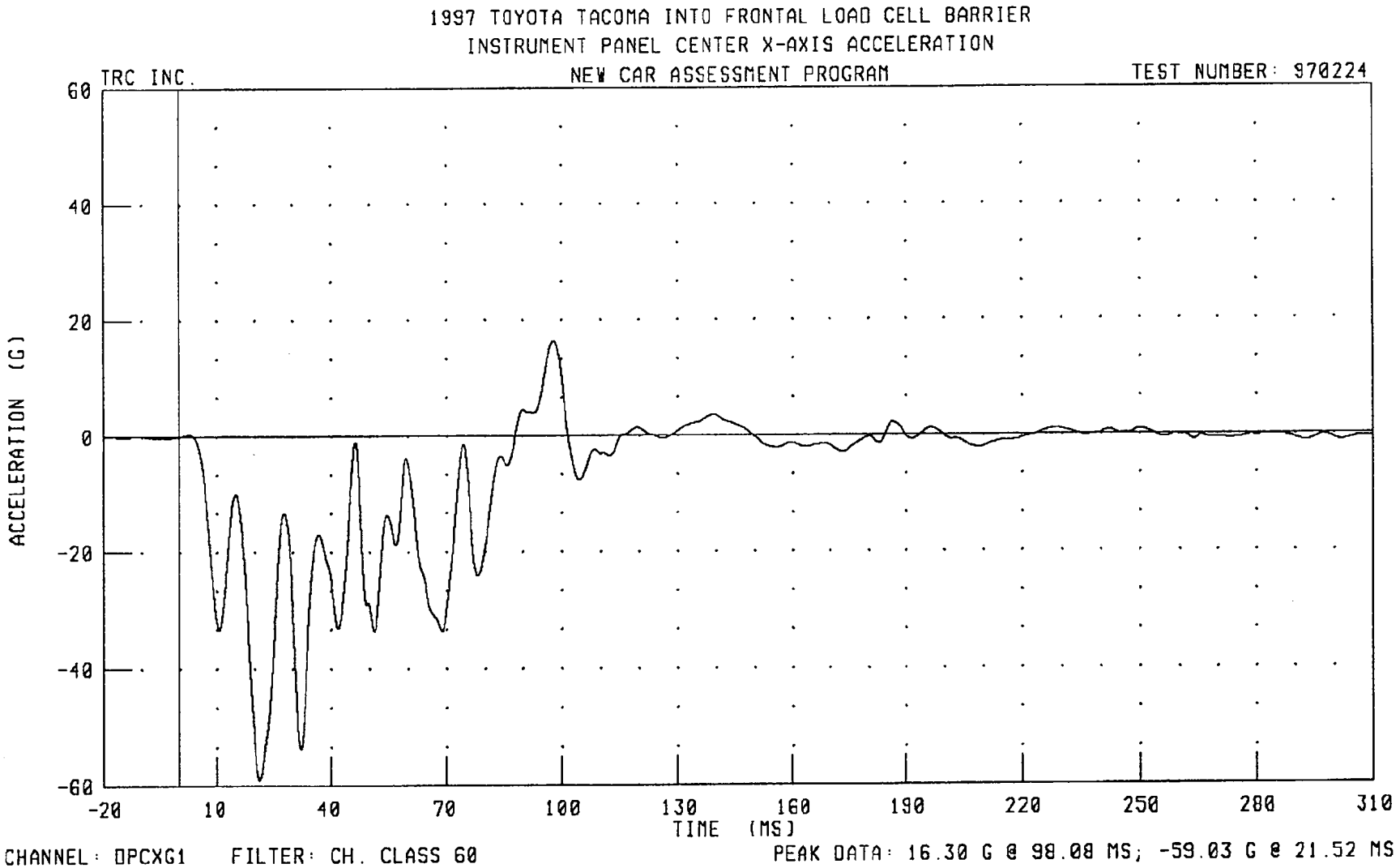


CHANNEL: BCRXG1 FILTER: CH. CLASS 60 PEAK DATA: 80.15 G @ 47.36 MS; -124.12 G @ 11.36 MS

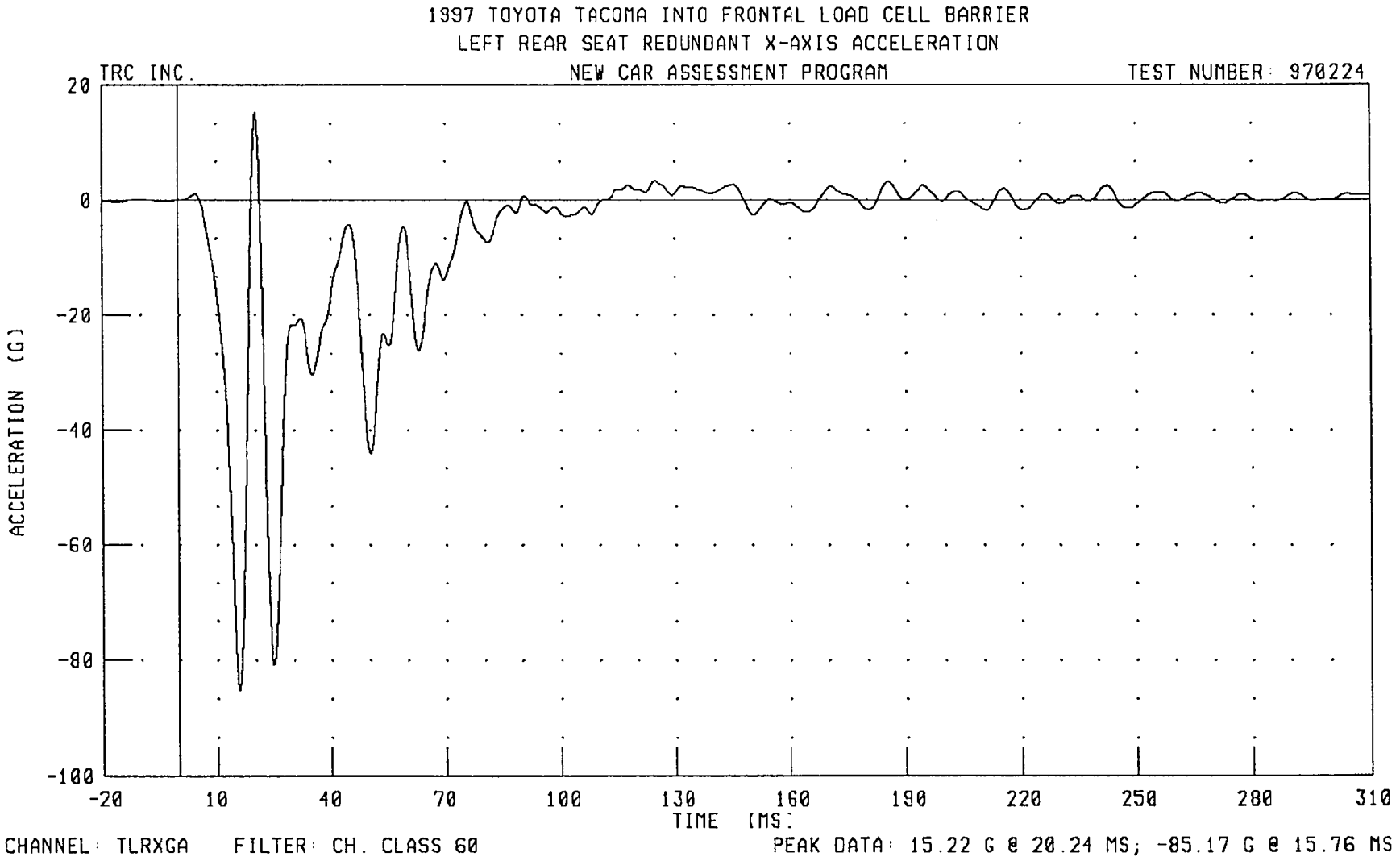
970224


1997 TOYOTA TACOMA INTO FRONTAL LOAD CELL BARRIER
LEFT BRAKE CALIPER X-AXIS ACCELERATION
TRC INC.
NEW CAR ASSESSMENT PROGRAM
TEST NUMBER: 970224
100
50
0
-50
-100
-150
-200
ACCELERATION (G)
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: BCLXG1
FILTER: CH. CLASS 60
PEAK DATA: 97.20 G @ 50.00 MS; -183.42 G @ 32.96 MS

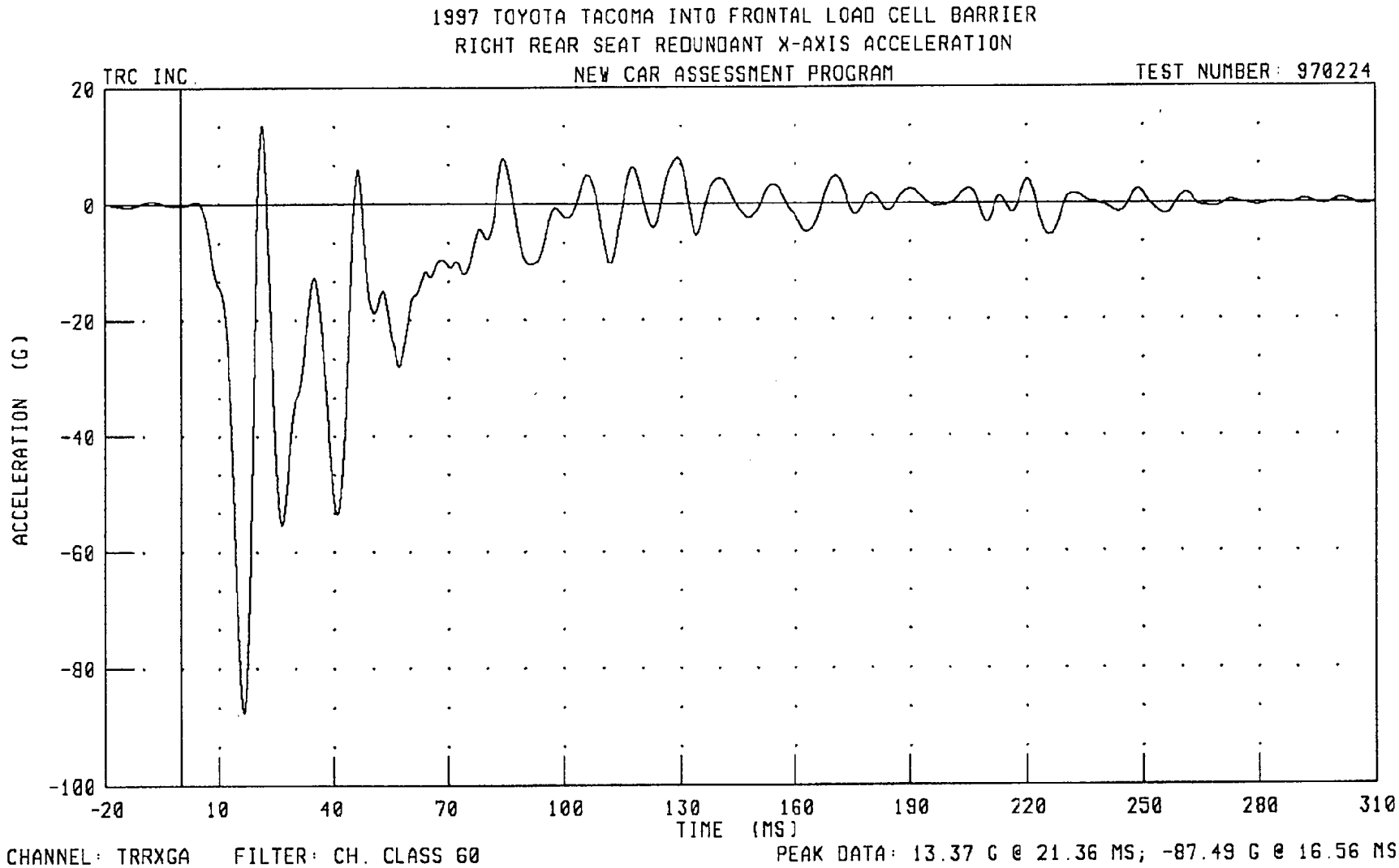
970224


1997 TOYOTA TACOMA INTO FRONTAL LOAD CELL BARRIER
INSTRUMENT PANEL CENTER X-AXIS ACCELERATION
TRC INC.
NEW CAR ASSESSMENT PROGRAM
TEST NUMBER: 970224
60
40
20
0
-20
-40
-60
ACCELERATION (G)
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: DPCXG1
FILTER: CH. CLASS 60
PEAK DATA: 16.30 G @ 98.08 MS; -59.03 G @ 21.52 MS

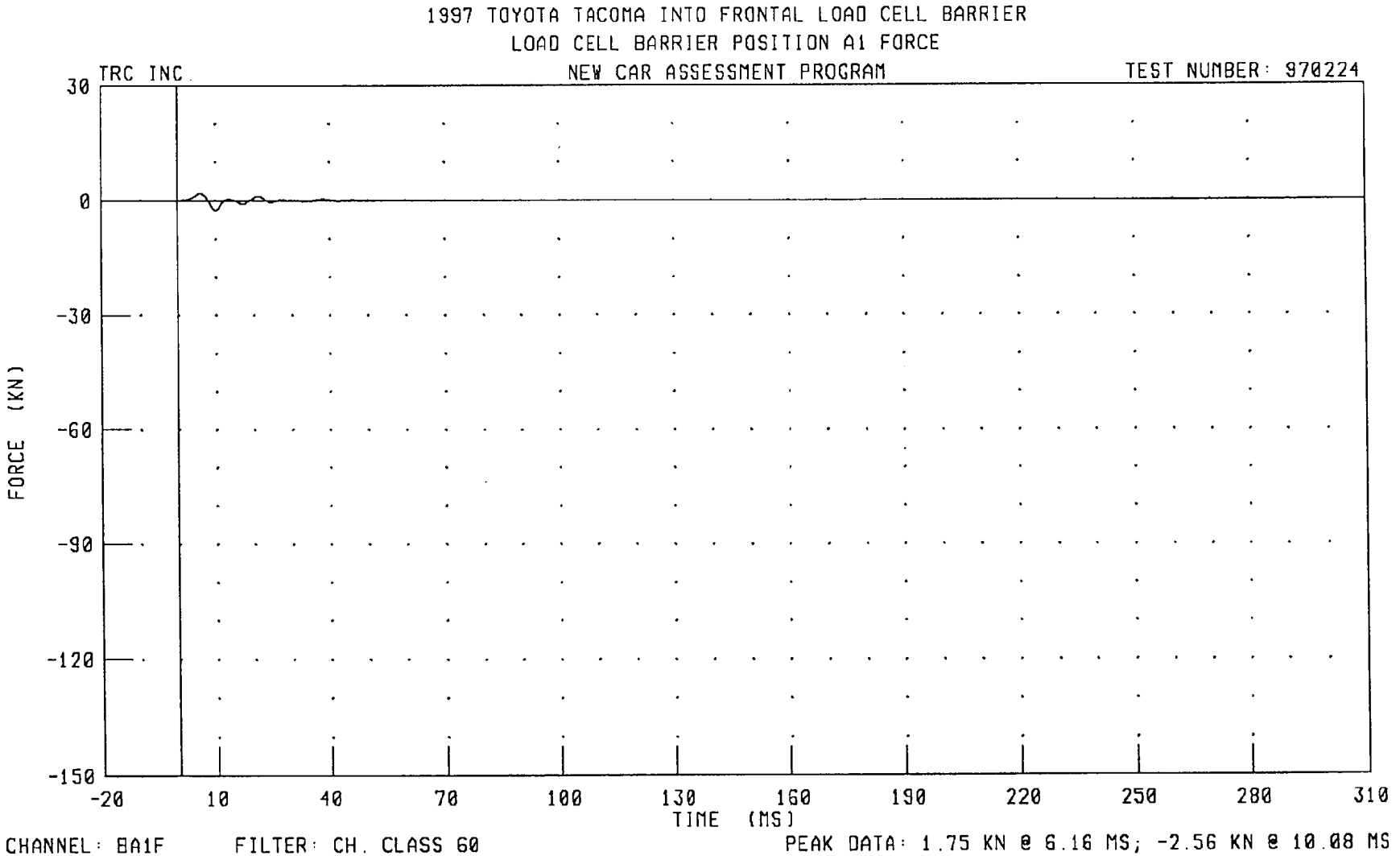
970224


1997 TOYOTA TACOMA INTO FRONTAL LOAD CELL BARRIER
LEFT REAR SEAT REDUNDANT X-AXIS ACCELERATION
TRC INC.
NEW CAR ASSESSMENT PROGRAM
TEST NUMBER: 970224
ACCELERATION (G)
20
0
-20
-40
-60
-80
-100
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: TLRXGA
FILTER: CH. CLASS 60
PEAK DATA: 15.22 G @ 20.24 MS; -85.17 G @ 15.76 MS

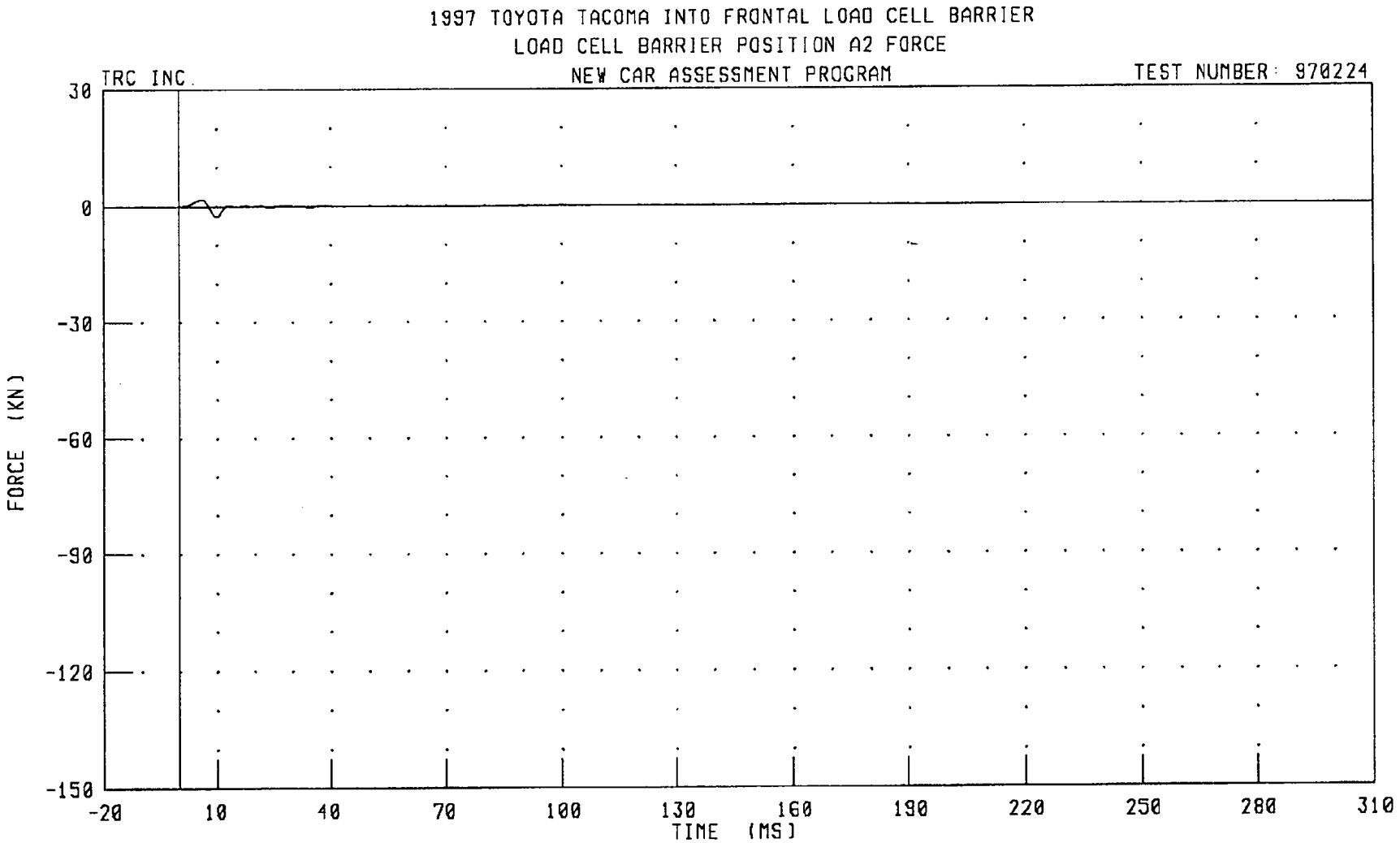
970224


1997 TOYOTA TACOMA INTO FRONTAL LOAD CELL BARRIER
RIGHT REAR SEAT REDUNDANT X-AXIS ACCELERATION
TRC INC.
NEW CAR ASSESSMENT PROGRAM
TEST NUMBER: 970224
ACCELERATION (G)
20
0
-20
-40
-60
-80
-100
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: TRRXGA
FILTER: CH. CLASS 60
PEAK DATA: 13.37 G @ 21.36 MS; -87.49 G @ 16.56 MS

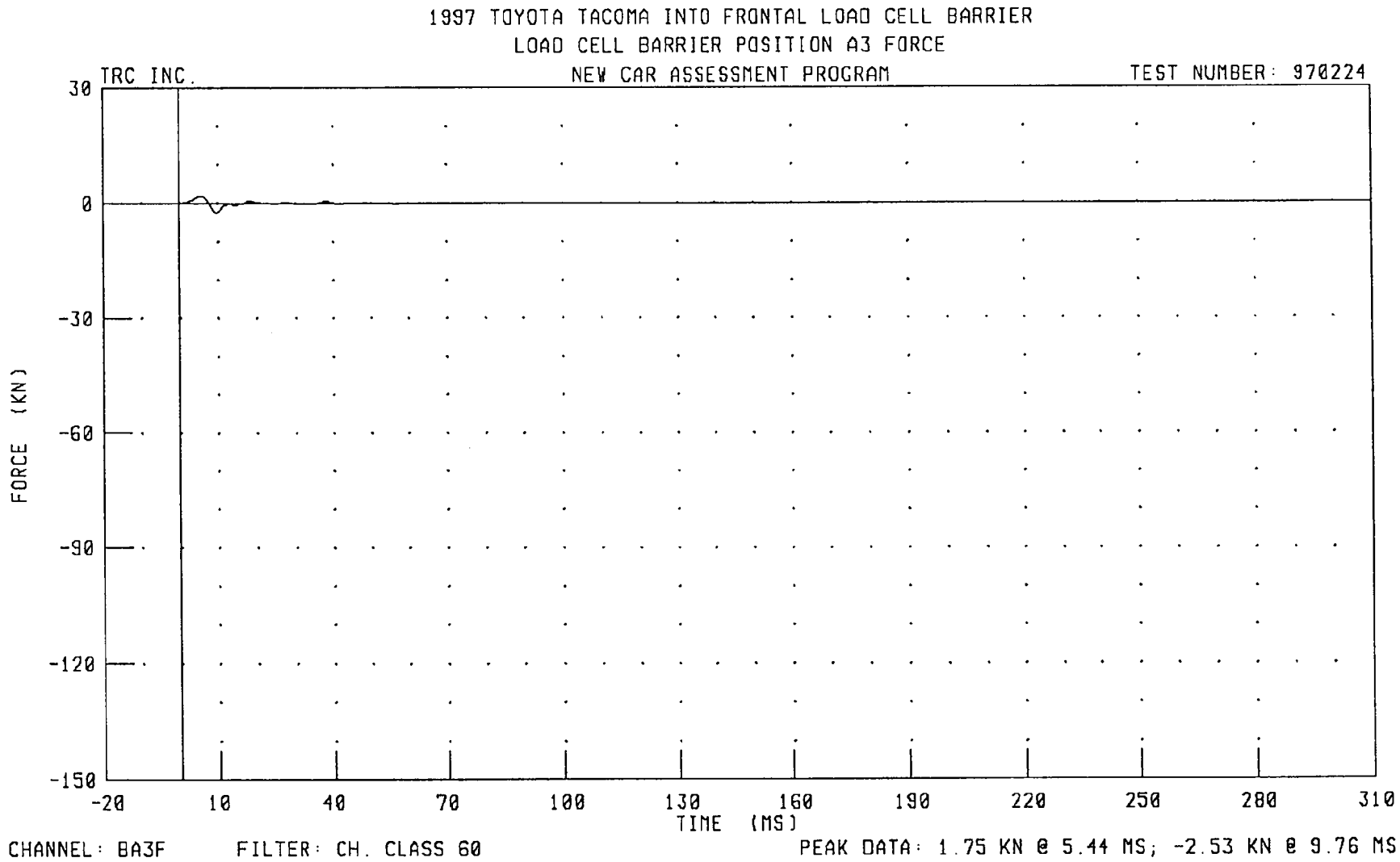
970224


1997 TOYOTA TACOMA INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION A1 FORCE
TRC INC.
NEW CAR ASSESSMENT PROGRAM
TEST NUMBER: 970224
30
0
-30
-60
-90
-120
-150
FORCE (KN)
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: BA1F
FILTER: CH. CLASS 60
PEAK DATA: 1.75 KN @ 6.16 MS; -2.56 KN @ 10.08 MS

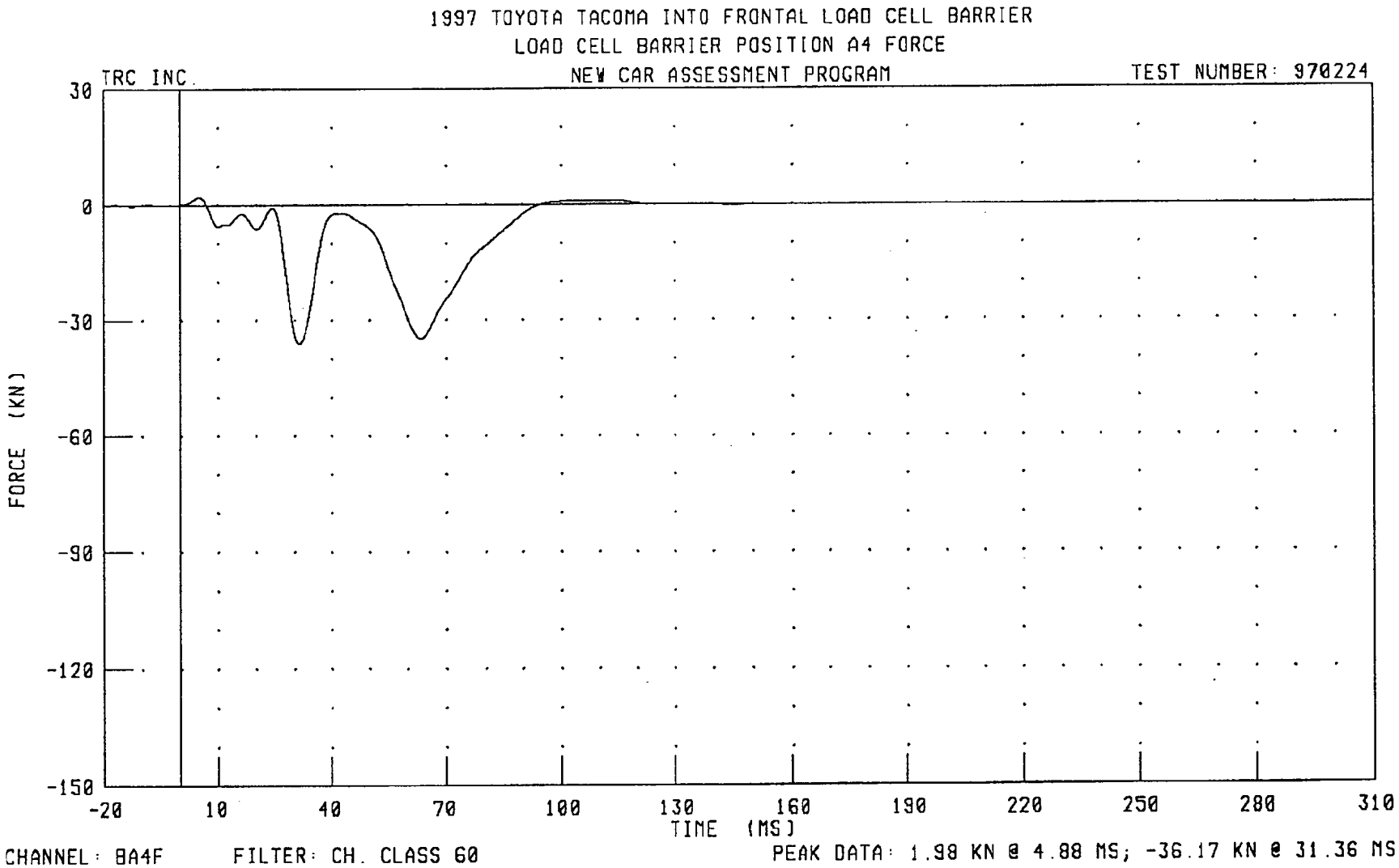
970224


1997 TOYOTA TACOMA INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION A2 FORCE
TRC INC.
NEW CAR ASSESSMENT PROGRAM
TEST NUMBER: 970224
30
0
-30
-60
-90
-120
-150
FORCE (KN)
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: BA2F
FILTER: CH. CLASS 60
PEAK DATA: 1.72 KN @ 5.76 MS; -2.70 KN @ 9.92 MS

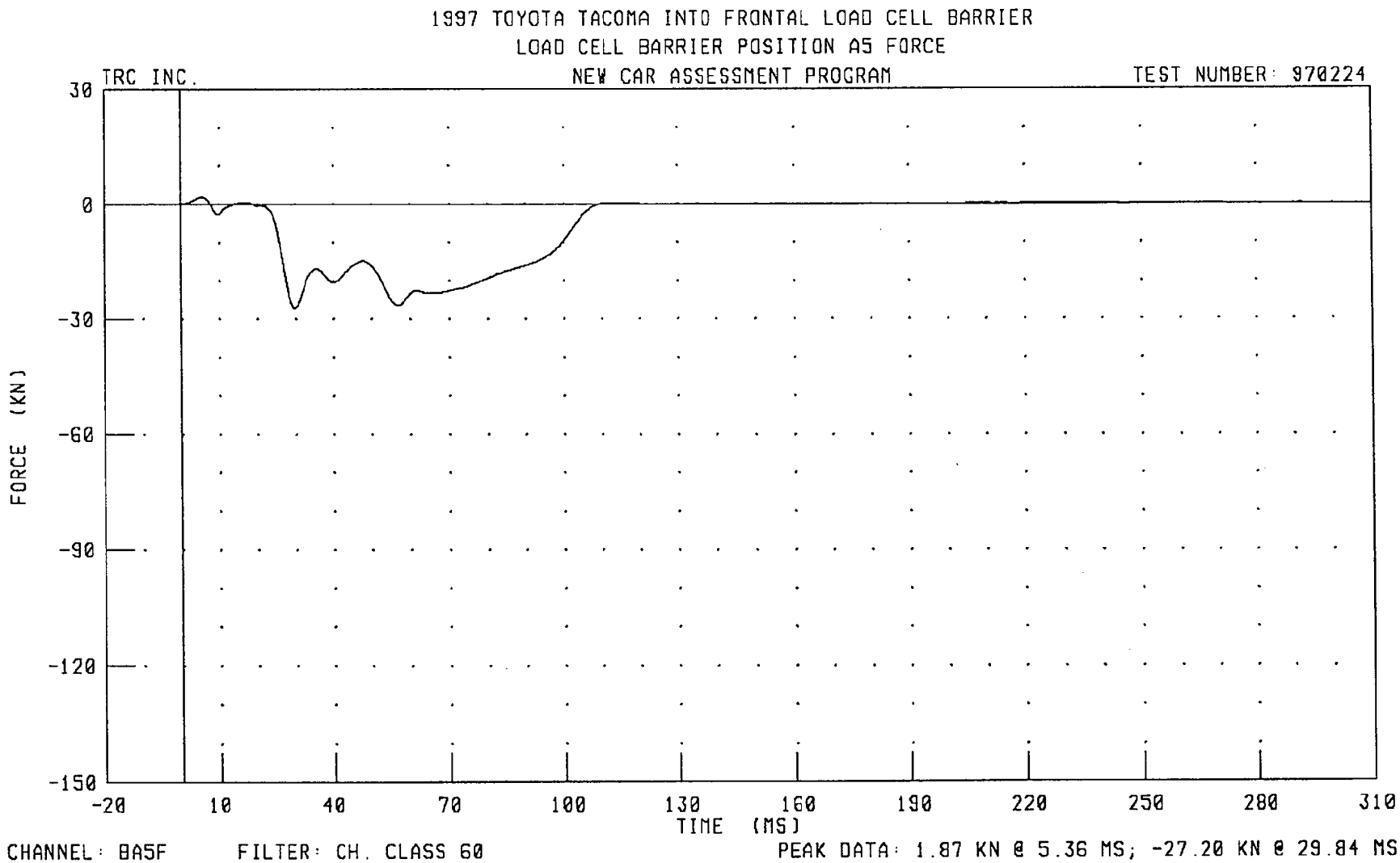
970224


1997 TOYOTA TACOMA INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION A3 FORCE
TRC INC.
NEW CAR ASSESSMENT PROGRAM
TEST NUMBER: 970224
30
0
-30
-60
-90
-120
-150
FORCE (KN)
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: BA3F
FILTER: CH. CLASS 60
PEAK DATA: 1.75 KN @ 5.44 MS; -2.53 KN @ 9.76 MS

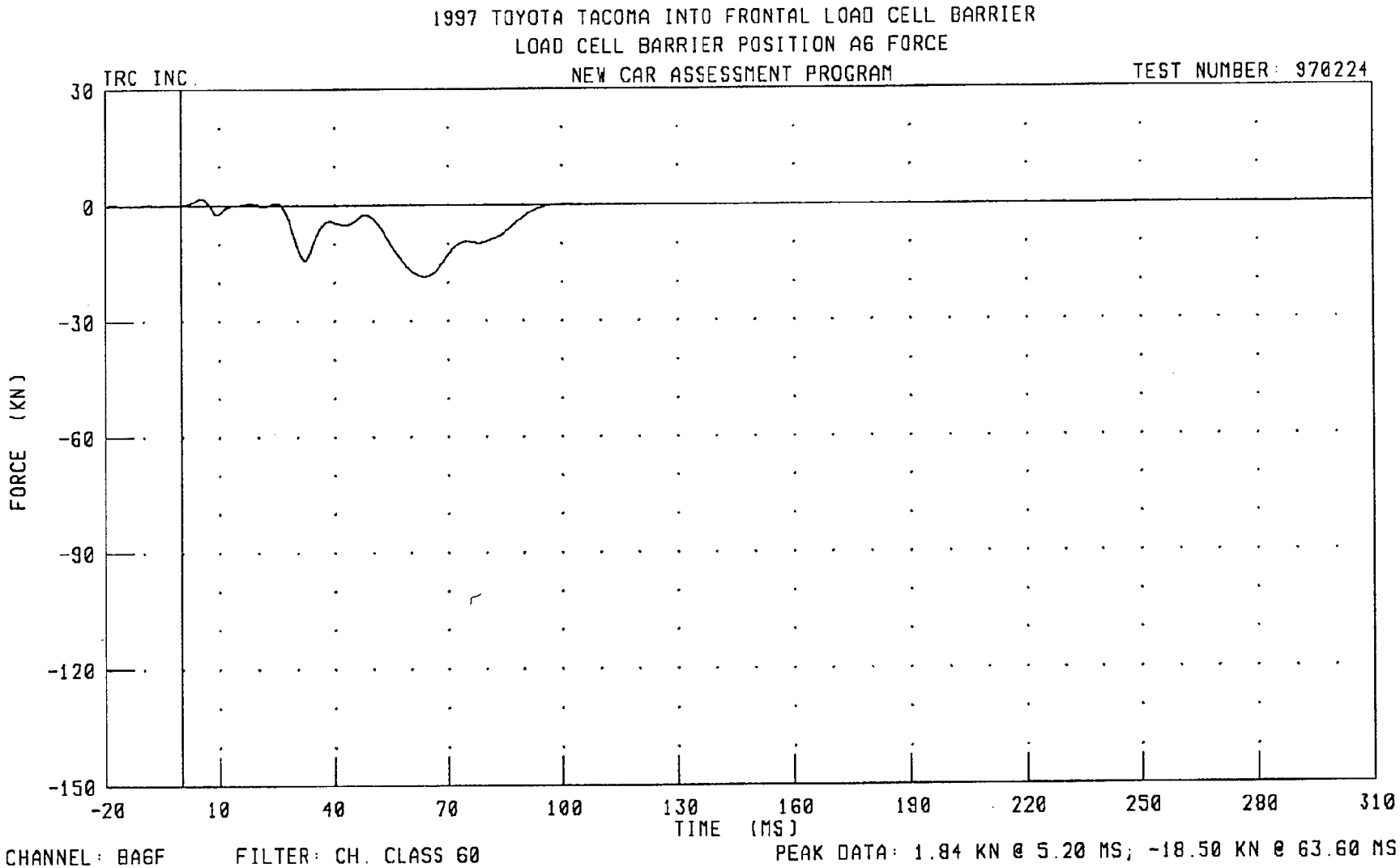
970224


1997 TOYOTA TACOMA INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION A4 FORCE
TRC INC.
NEW CAR ASSESSMENT PROGRAM
TEST NUMBER: 970224
30
0
-30
-60
-90
-120
-150
FORCE (KN)
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: 8A4F
FILTER: CH. CLASS 60
PEAK DATA: 1.98 KN @ 4.88 MS; -36.17 KN @ 31.36 MS

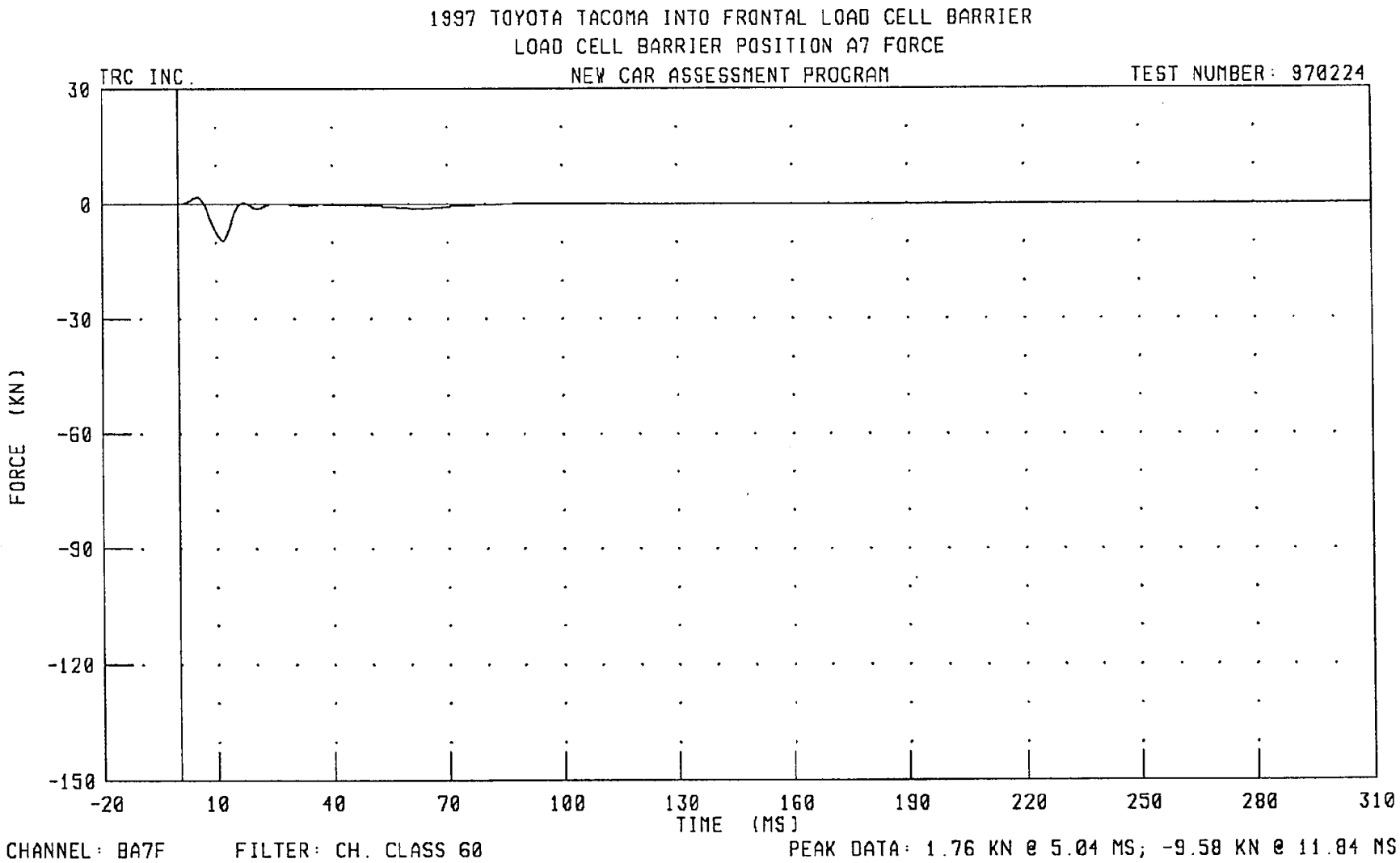
970224


1997 TOYOTA TACOMA INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION A5 FORCE
TRC INC.
NEW CAR ASSESSMENT PROGRAM
TEST NUMBER: 970224
30
0
-30
-60
-90
-120
-150
FORCE (KN)
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: BA5F
FILTER: CH. CLASS 60
PEAK DATA: 1.87 KN @ 5.36 MS; -27.20 KN @ 29.84 MS

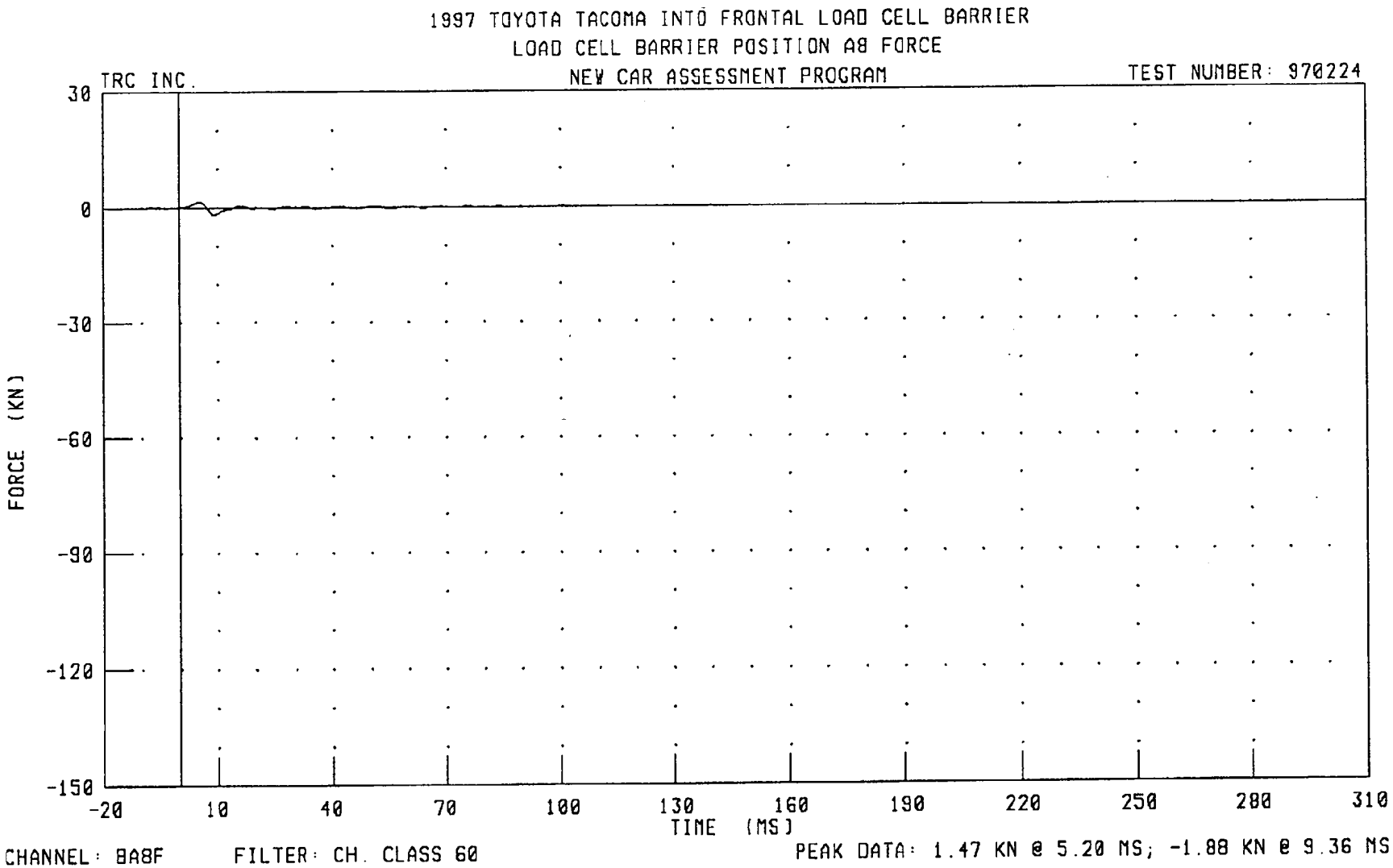
970224


1997 TOYOTA TACOMA INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION A6 FORCE
TRC INC.
NEW CAR ASSESSMENT PROGRAM
TEST NUMBER: 970224
30
0
-30
-60
-90
-120
-150
FORCE (KN)
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: BA6F
FILTER: CH. CLASS 60
PEAK DATA: 1.84 KN @ 5.20 MS; -18.50 KN @ 63.60 MS

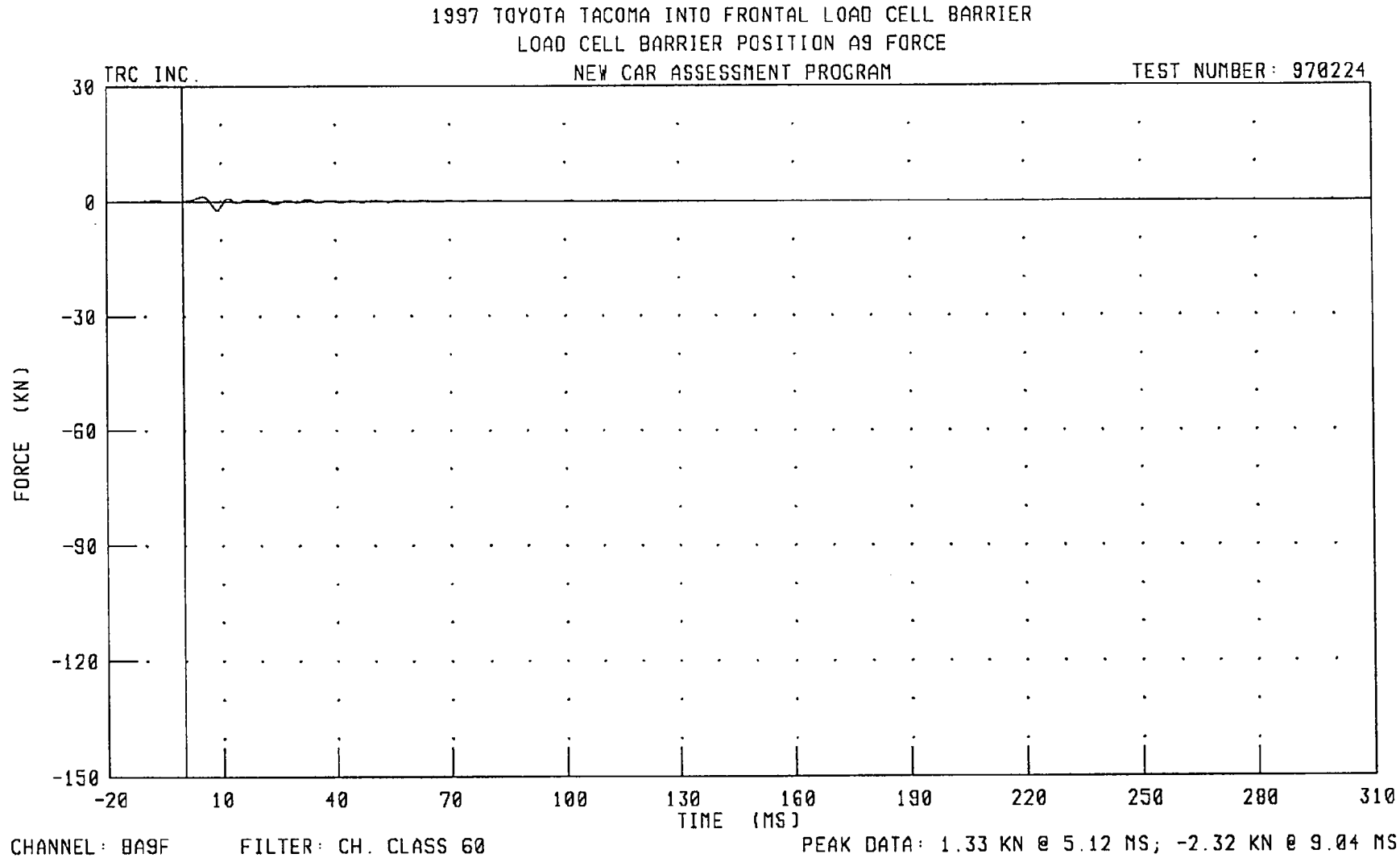
970224


1997 TOYOTA TACOMA INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION A7 FORCE
TRC INC.
NEW CAR ASSESSMENT PROGRAM
TEST NUMBER: 970224
30
0
-30
-60
-90
-120
-150
FORCE (KN)
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: BA7F
FILTER: CH. CLASS 60
PEAK DATA: 1.76 KN @ 5.04 MS; -9.58 KN @ 11.84 MS

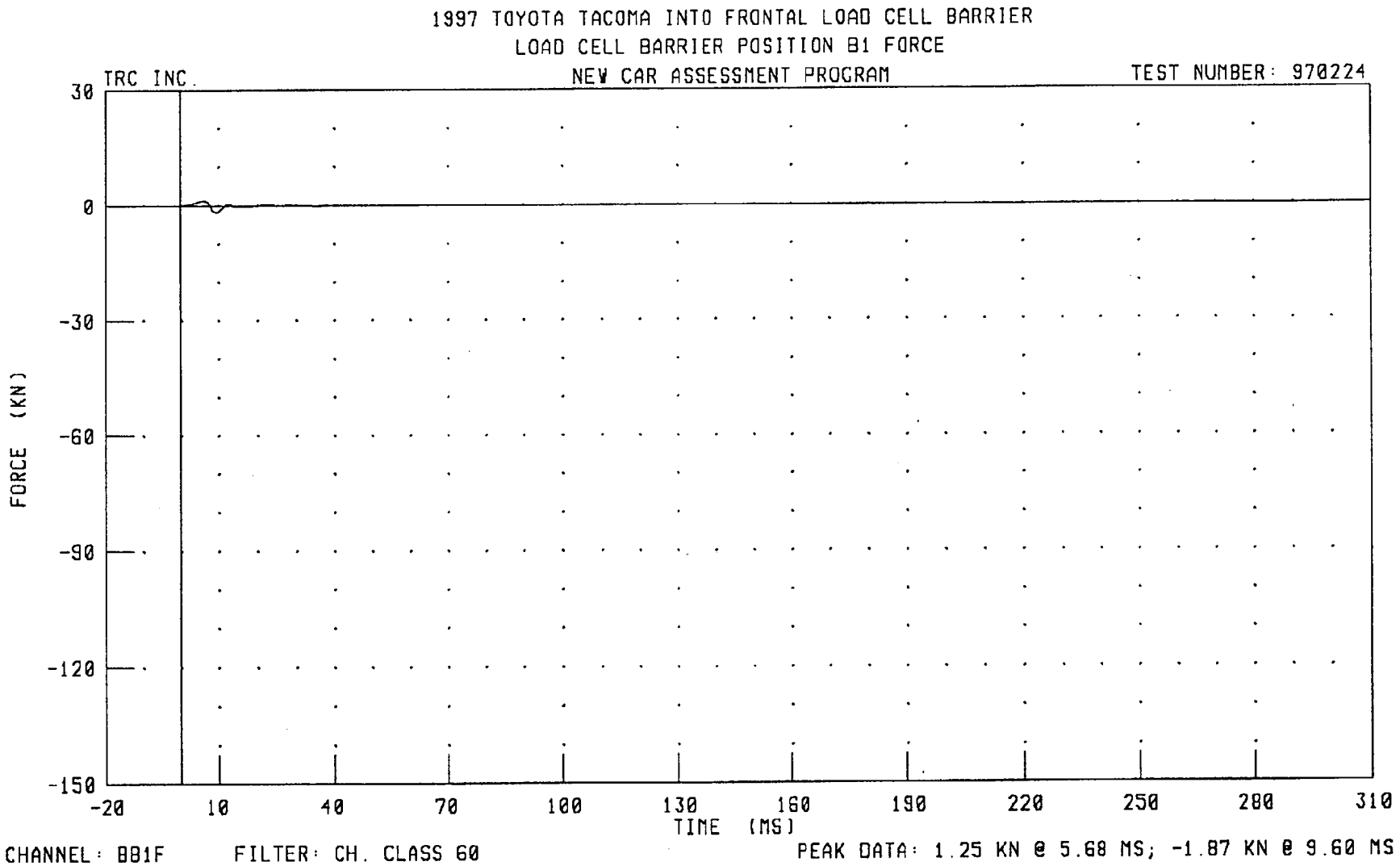
970224


1997 TOYOTA TACOMA INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION A8 FORCE
NEW CAR ASSESSMENT PROGRAM
TRC INC.
TEST NUMBER: 970224
30
0
-30
-60
-90
-120
-150
FORCE (KN)
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: 8A8F
FILTER: CH. CLASS 60
PEAK DATA: 1.47 KN @ 5.20 MS; -1.88 KN @ 9.36 MS

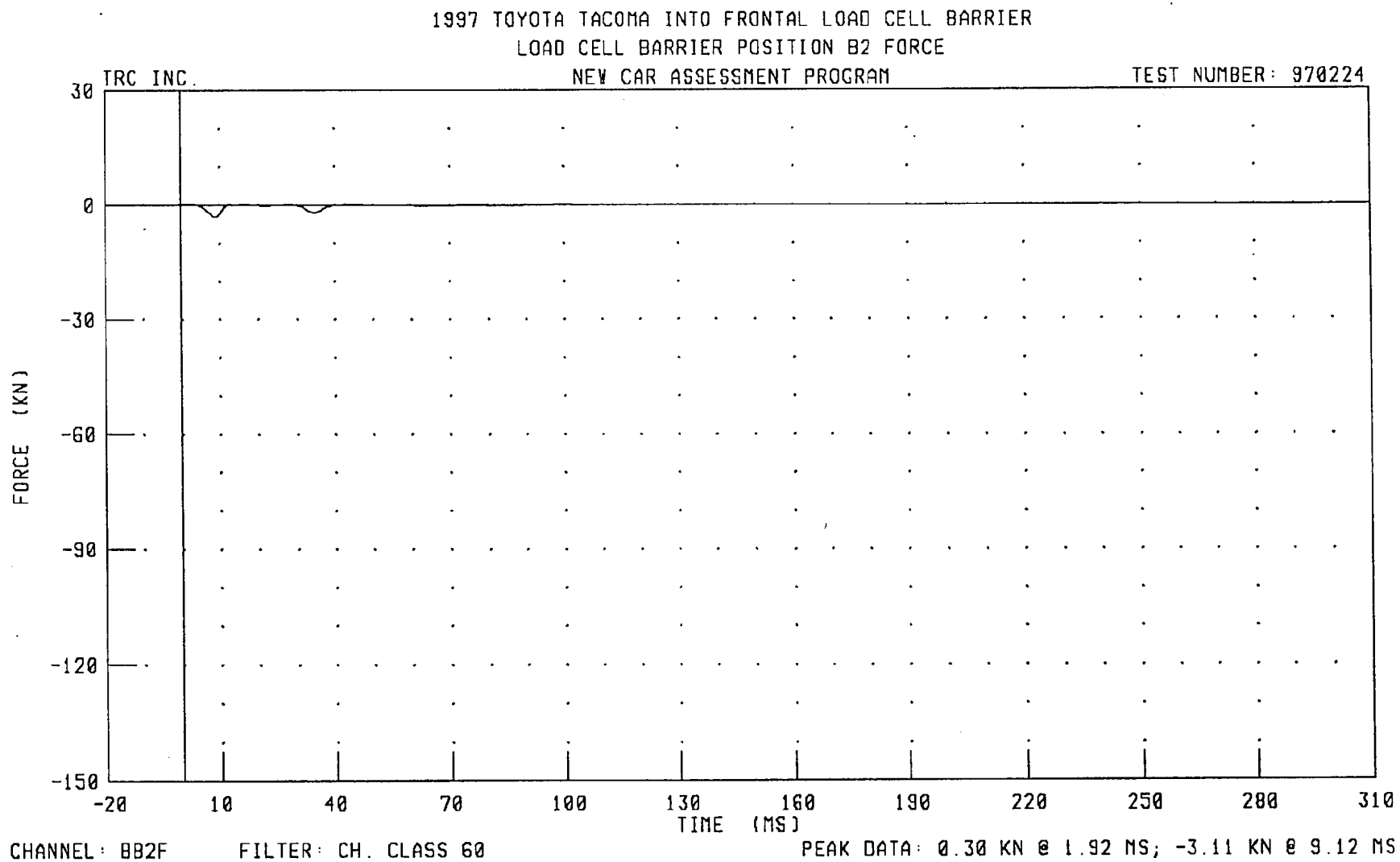
970224


1997 TOYOTA TACOMA INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION A9 FORCE
TRC INC.
NEW CAR ASSESSMENT PROGRAM
TEST NUMBER: 970224
30
0
-30
-60
-90
-120
-150
FORCE (KN)
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: BA9F
FILTER: CH. CLASS 60
PEAK DATA: 1.33 KN @ 5.12 MS; -2.32 KN @ 9.04 MS

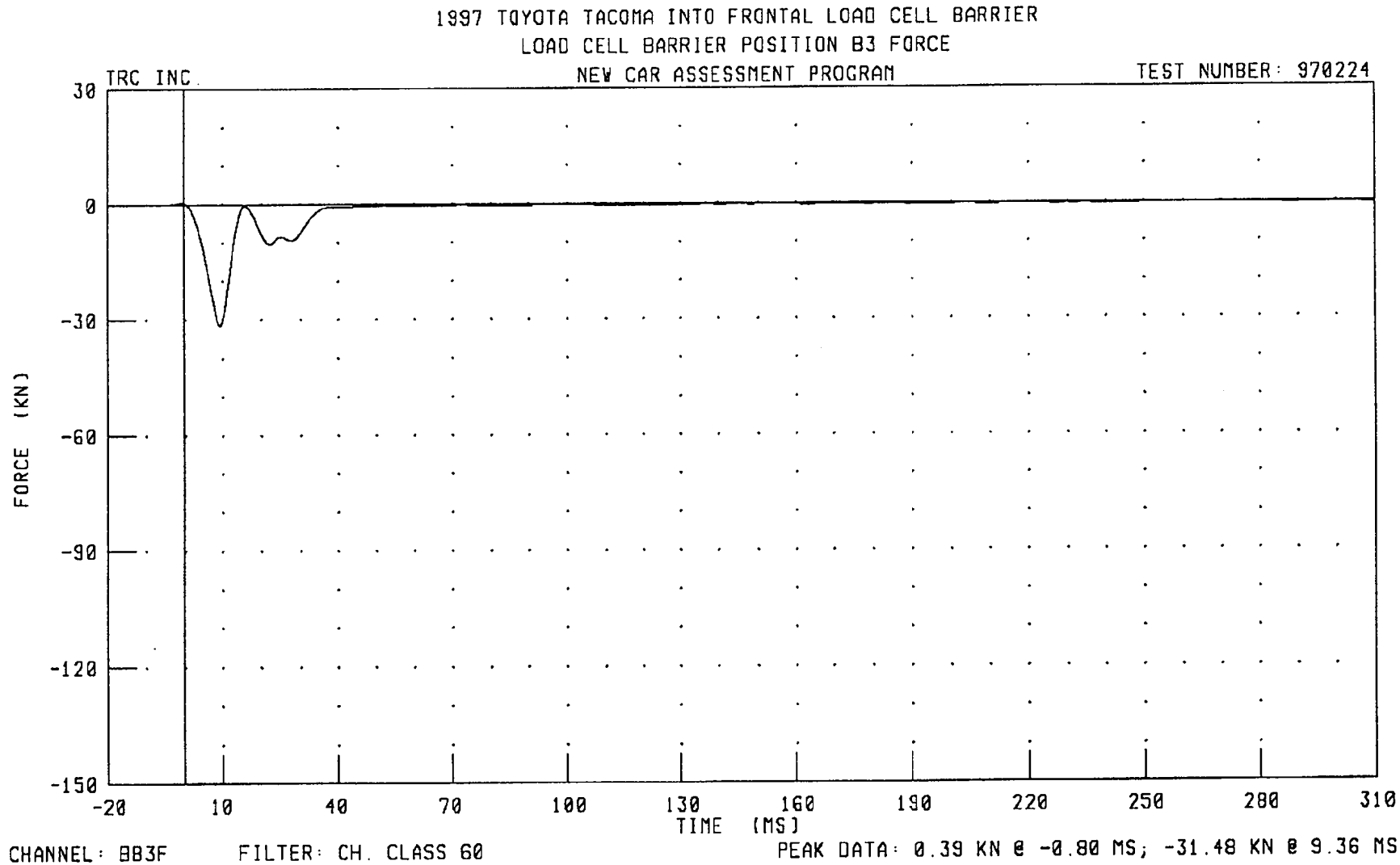
970224


1997 TOYOTA TACOMA INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION B1 FORCE
TRC INC.
NEW CAR ASSESSMENT PROGRAM
TEST NUMBER: 970224
30
0
-30
-60
-90
-120
-150
FORCE (KN)
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: B81F
FILTER: CH. CLASS 60
PEAK DATA: 1.25 KN @ 5.68 MS; -1.87 KN @ 9.60 MS

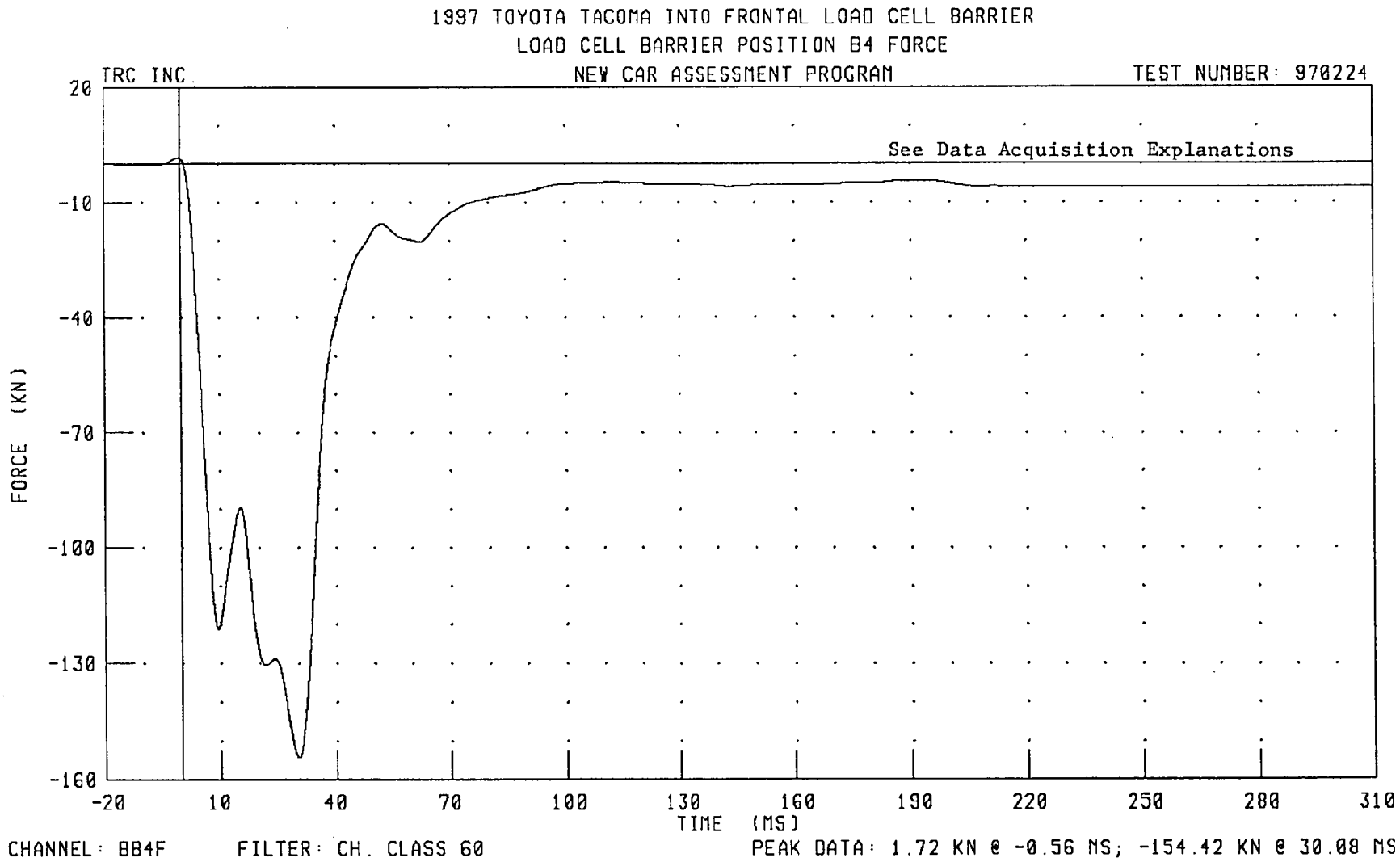
970224


1997 TOYOTA TACOMA INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION B2 FORCE
TRC INC.
NEW CAR ASSESSMENT PROGRAM
TEST NUMBER: 970224
30
0
-30
-60
-90
-120
-150
FORCE (KN)
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: BB2F
FILTER: CH. CLASS 60
PEAK DATA: 0.30 KN @ 1.92 MS; -3.11 KN @ 9.12 MS

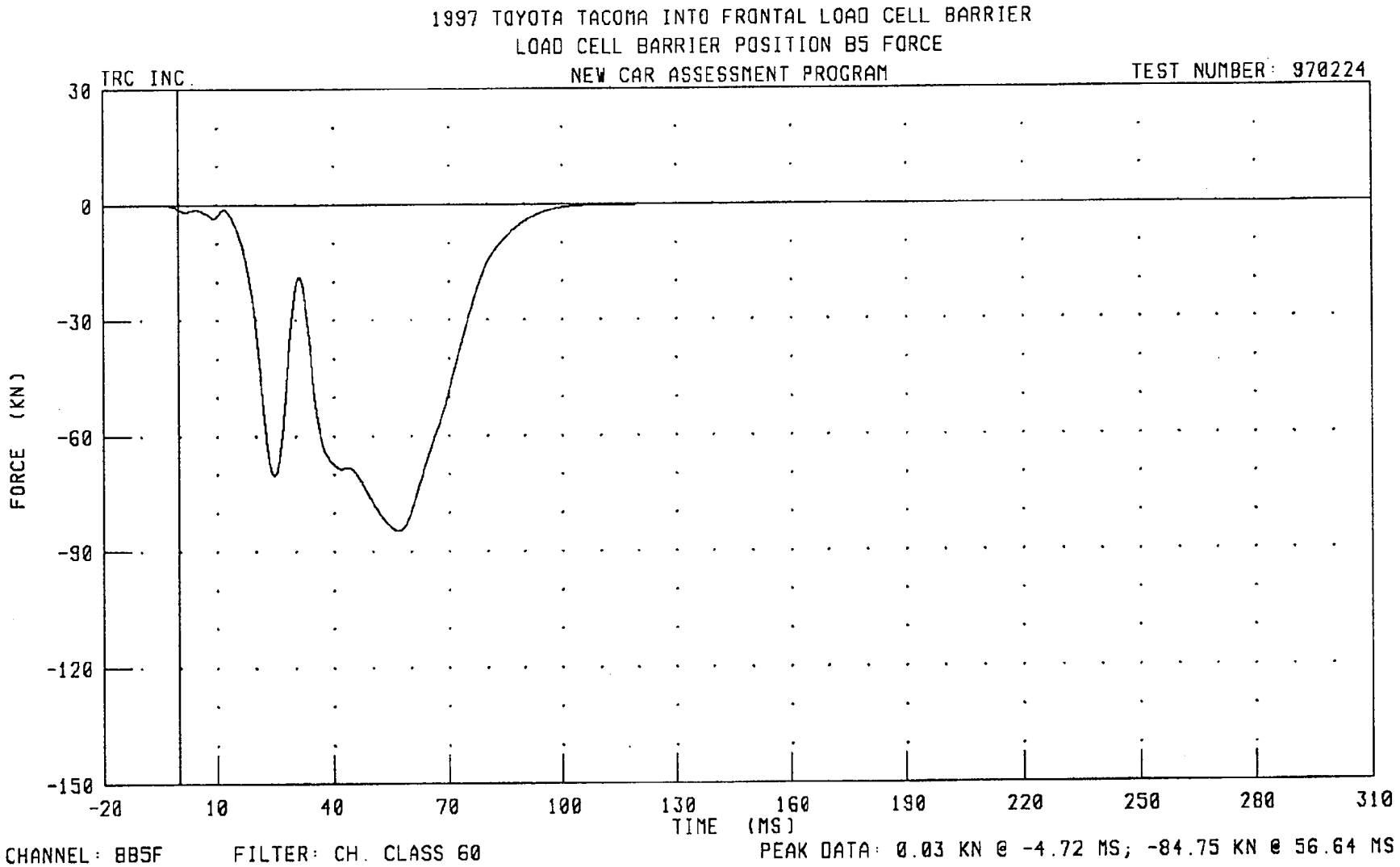
970224


1997 TOYOTA TACOMA INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION B3 FORCE
TRC INC.
NEW CAR ASSESSMENT PROGRAM
TEST NUMBER: 970224
30
0
-30
-60
-90
-120
-150
FORCE (KN)
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: 8B3F
FILTER: CH. CLASS 60
PEAK DATA: 0.39 KN @ -0.80 MS; -31.48 KN @ 9.36 MS

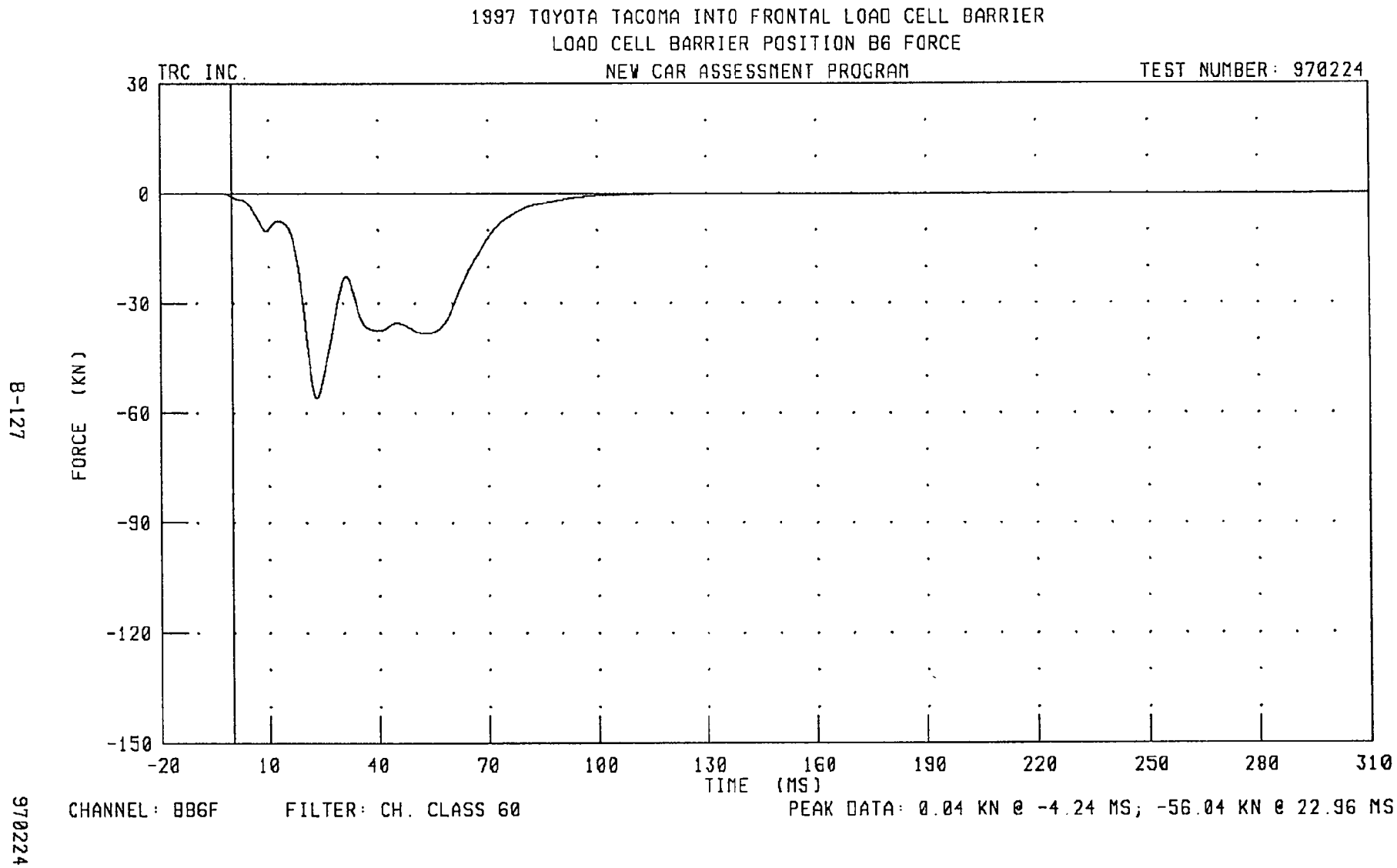
970224


1997 TOYOTA TACOMA INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION B4 FORCE
TRC INC.
NEW CAR ASSESSMENT PROGRAM
TEST NUMBER: 970224
See Data Acquisition Explanations
20
-10
-40
-70
-100
-130
-160
FORCE (KN)
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: BB4F
FILTER: CH. CLASS 60
PEAK DATA: 1.72 KN @ -0.56 MS; -154.42 KN @ 30.08 MS

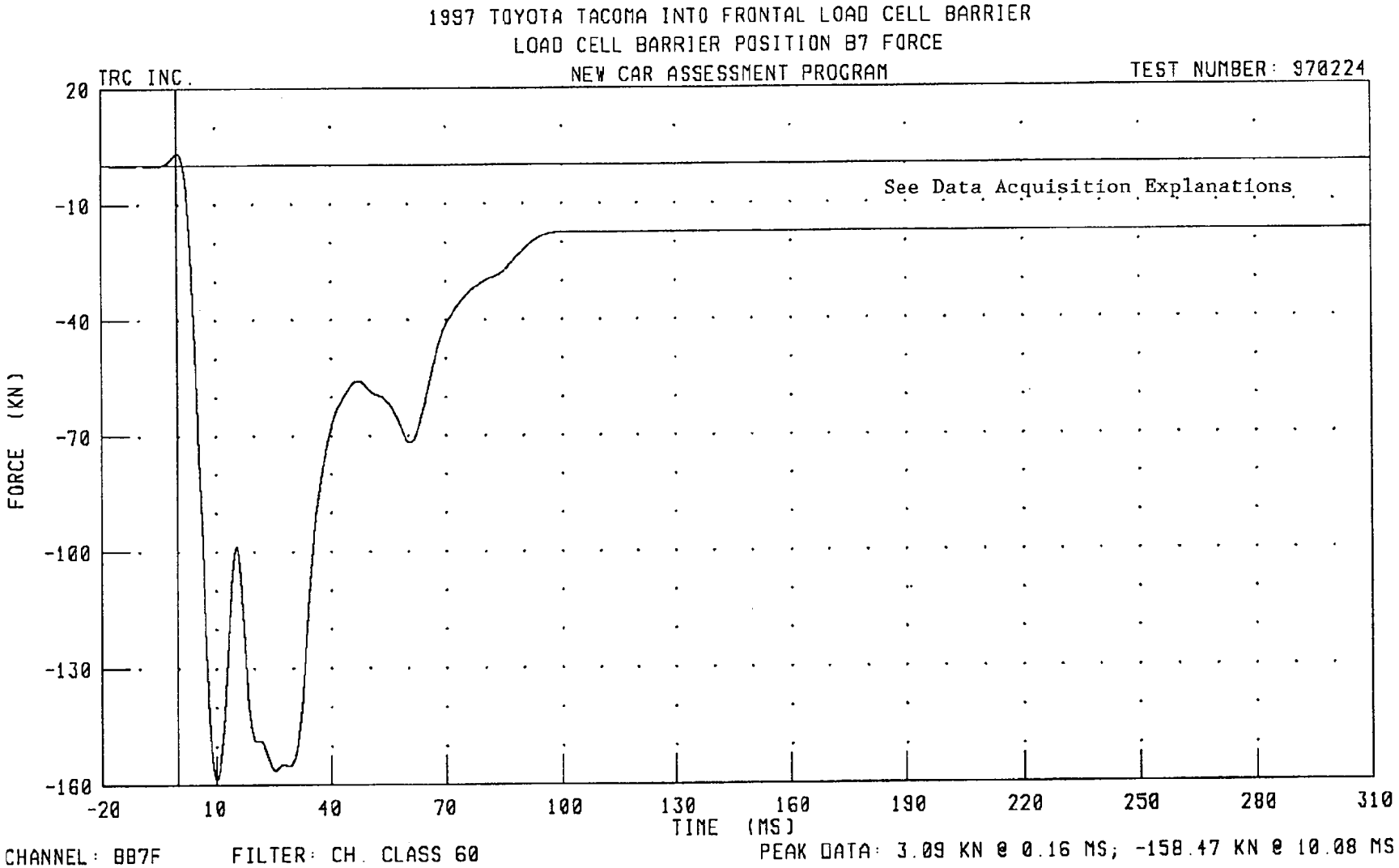
970224


1997 TOYOTA TACOMA INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION B5 FORCE
TRC INC.
NEW CAR ASSESSMENT PROGRAM
TEST NUMBER: 970224
30
0
-30
-60
-90
-120
-150
FORCE (KN)
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: 8B5F
FILTER: CH. CLASS 60
PEAK DATA: 0.03 KN @ -4.72 MS; -84.75 KN @ 56.64 MS

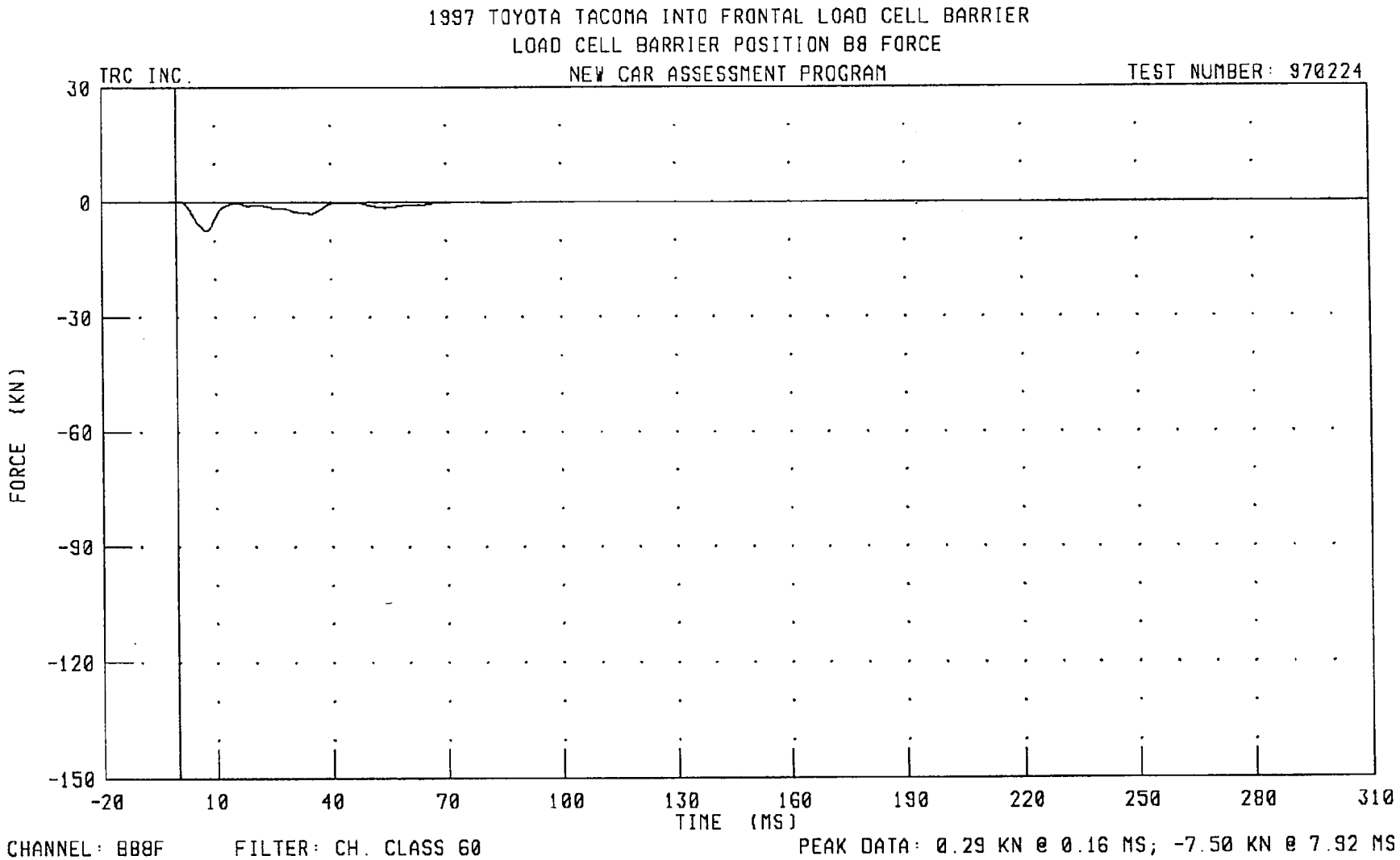
970224


1997 TOYOTA TACOMA INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION B6 FORCE
TRC INC.
NEW CAR ASSESSMENT PROGRAM
TEST NUMBER: 970224
30
0
-30
-60
-90
-120
-150
FORCE (KN)
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: B86F
FILTER: CH. CLASS 60
PEAK DATA: 0.04 KN @ -4.24 MS; -56.04 KN @ 22.96 MS

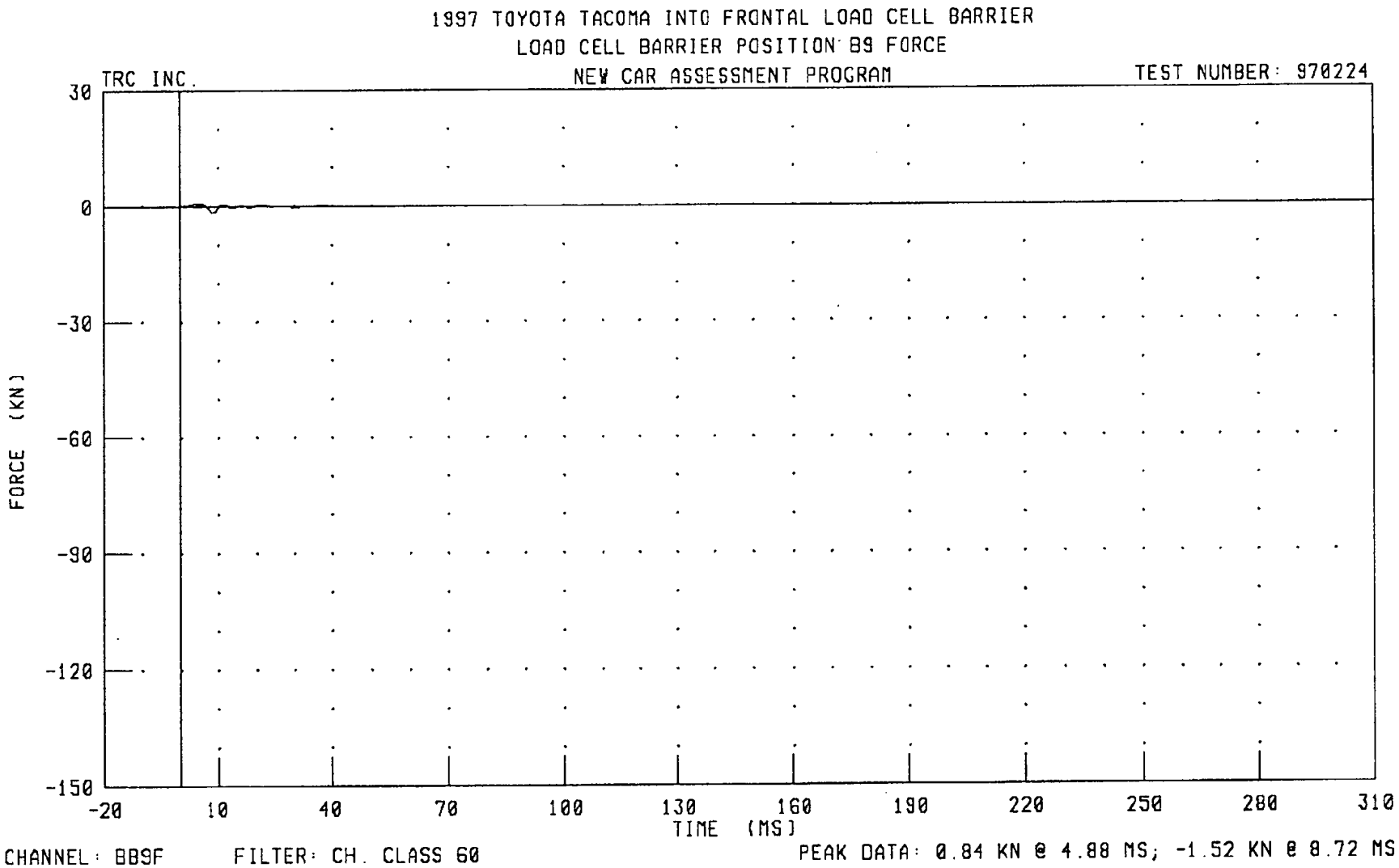
970224


1997 TOYOTA TACOMA INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION B7 FORCE
TRC INC.
NEW CAR ASSESSMENT PROGRAM
TEST NUMBER: 970224
See Data Acquisition Explanations
FORCE (KN)
20
-10
-40
-70
-100
-130
-160
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: B87F
FILTER: CH. CLASS 60
PEAK DATA: 3.09 KN @ 0.16 MS; -158.47 KN @ 10.08 MS

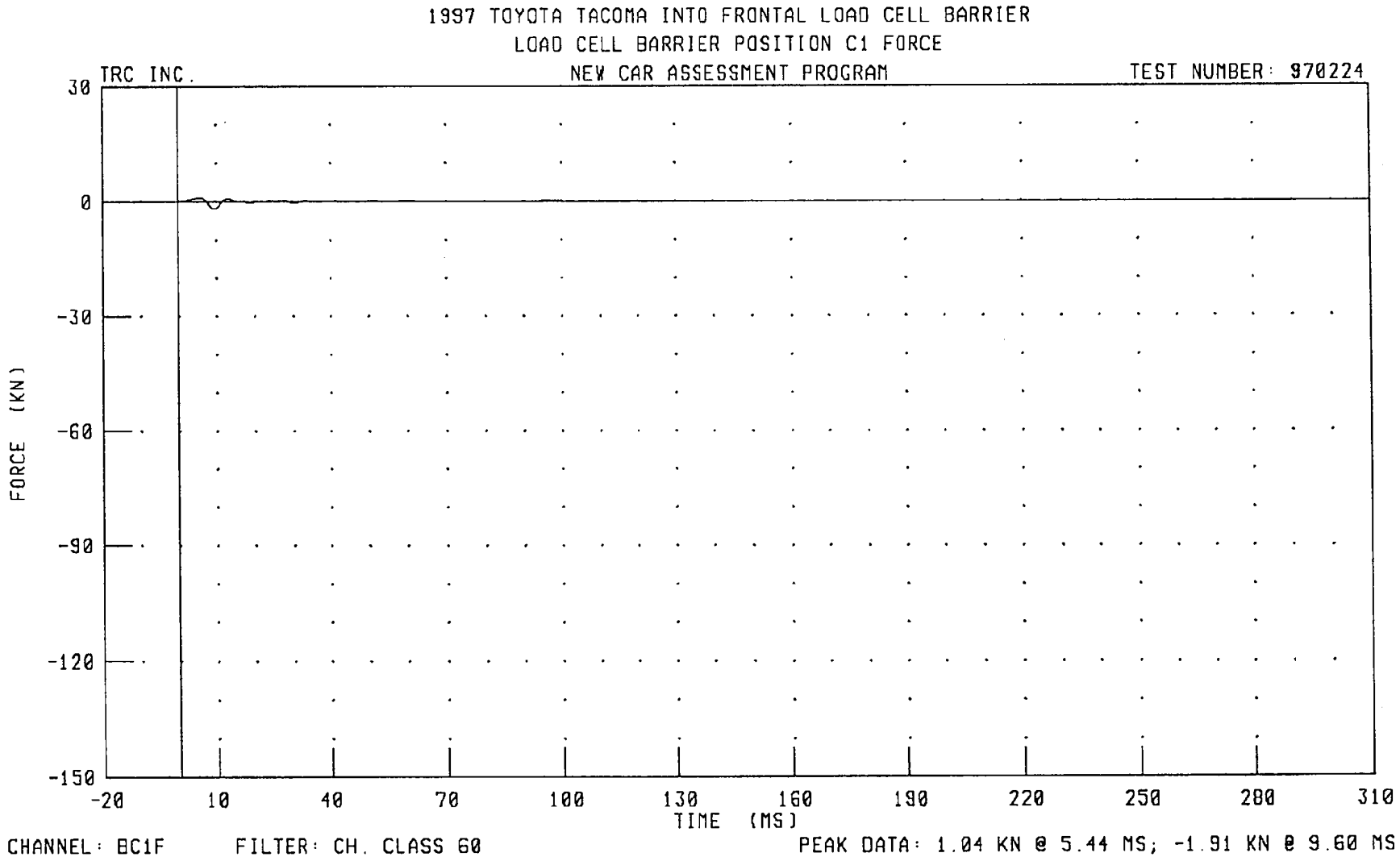
970224


1997 TOYOTA TACOMA INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION B8 FORCE
TRC INC.
NEW CAR ASSESSMENT PROGRAM
TEST NUMBER: 970224
30
0
-30
-60
-90
-120
-150
FORCE (KN)
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: B8BF
FILTER: CH. CLASS 60
PEAK DATA: 0.29 KN @ 0.16 MS; -7.50 KN @ 7.92 MS

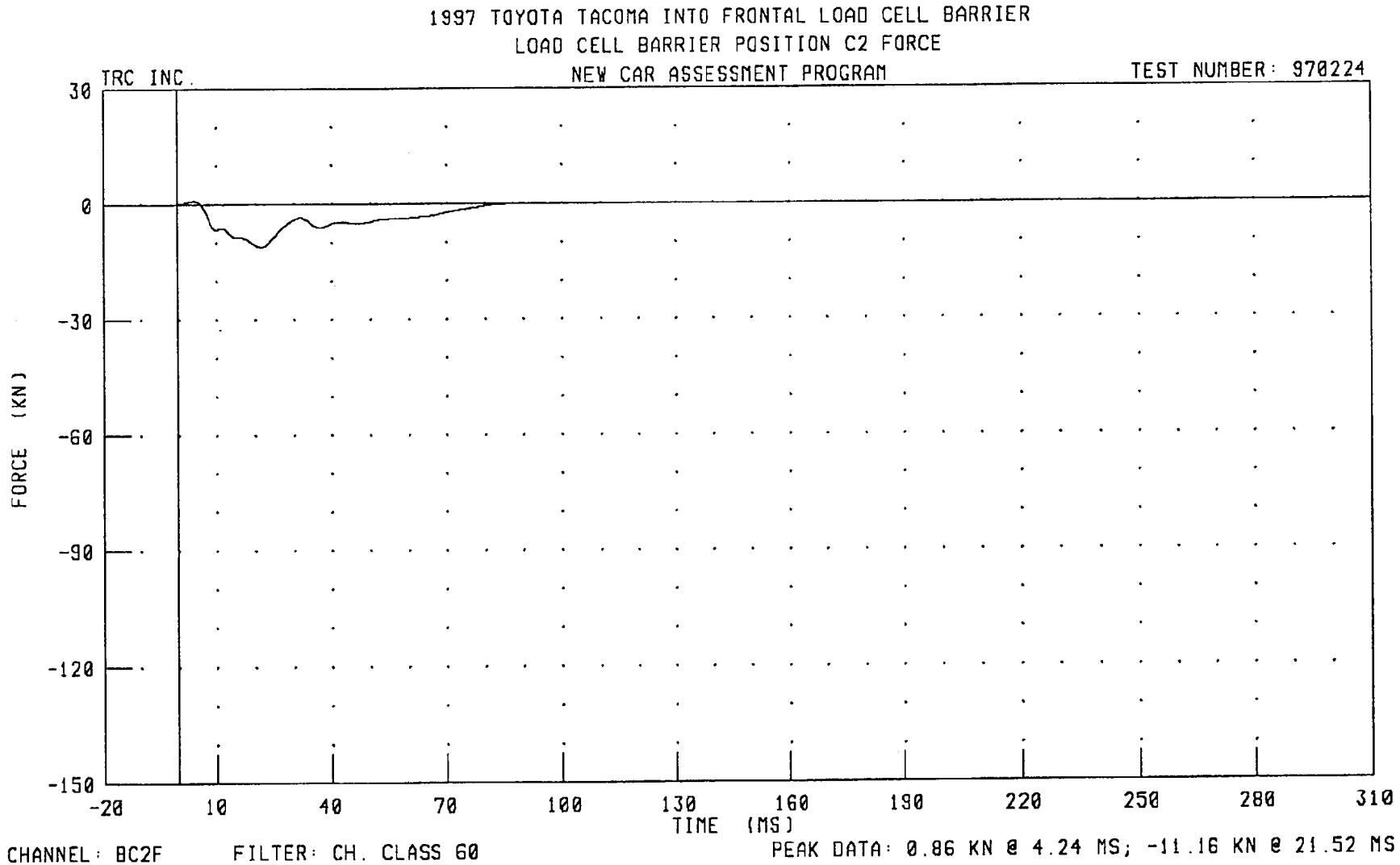
970224


1997 TOYOTA TACOMA INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION B9 FORCE
TRC INC.
NEW CAR ASSESSMENT PROGRAM
TEST NUMBER: 970224
30
0
-30
-60
-90
-120
-150
FORCE (KN)
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: BB9F
FILTER: CH. CLASS 60
PEAK DATA: 0.84 KN @ 4.88 MS; -1.52 KN @ 8.72 MS

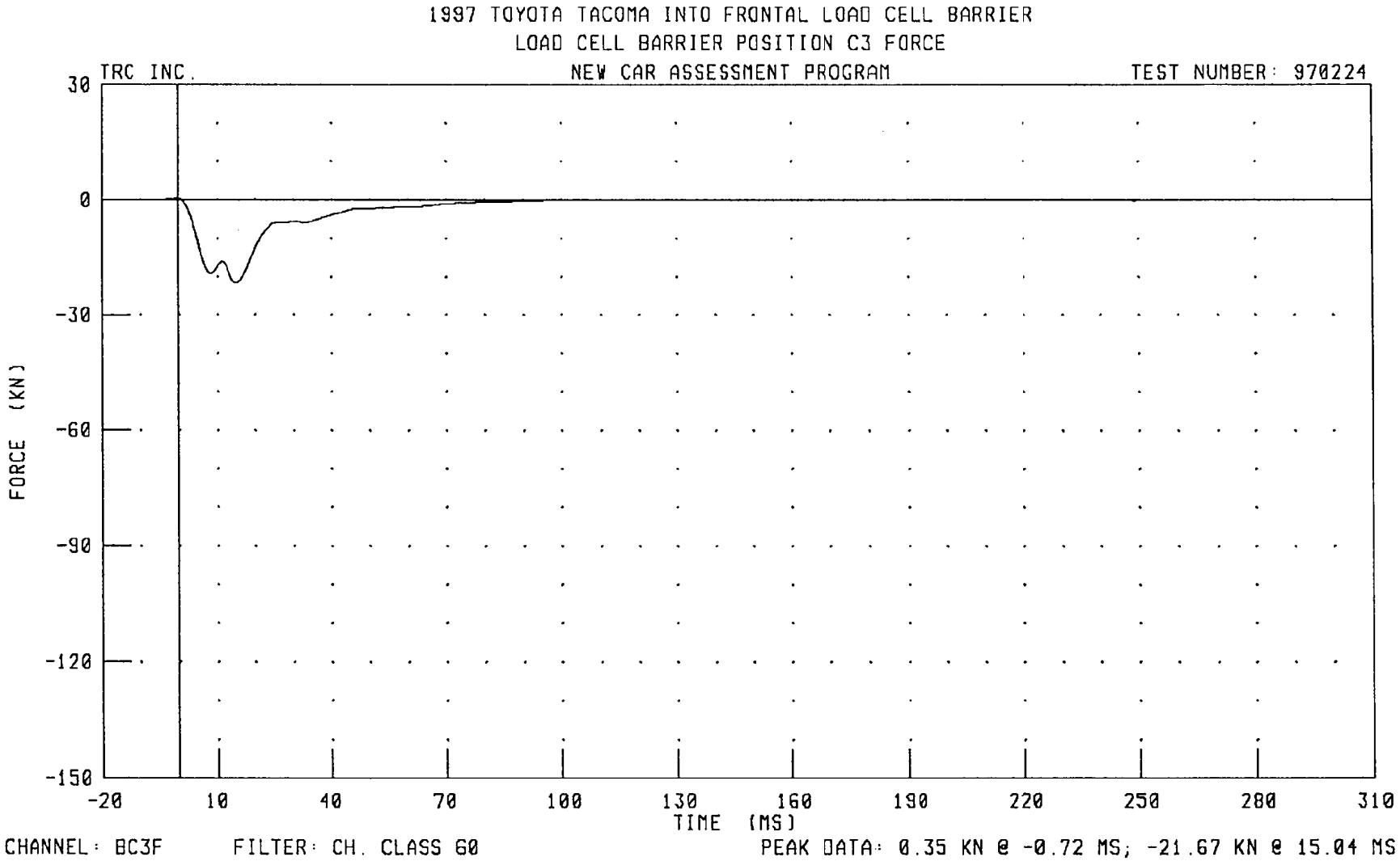
970224


1997 TOYOTA TACOMA INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION C1 FORCE
TRC INC.
NEW CAR ASSESSMENT PROGRAM
TEST NUMBER: 970224
30
0
-30
-60
-90
-120
-150
FORCE (KN)
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: BC1F
FILTER: CH. CLASS 60
PEAK DATA: 1.04 KN @ 5.44 MS; -1.91 KN @ 9.60 MS

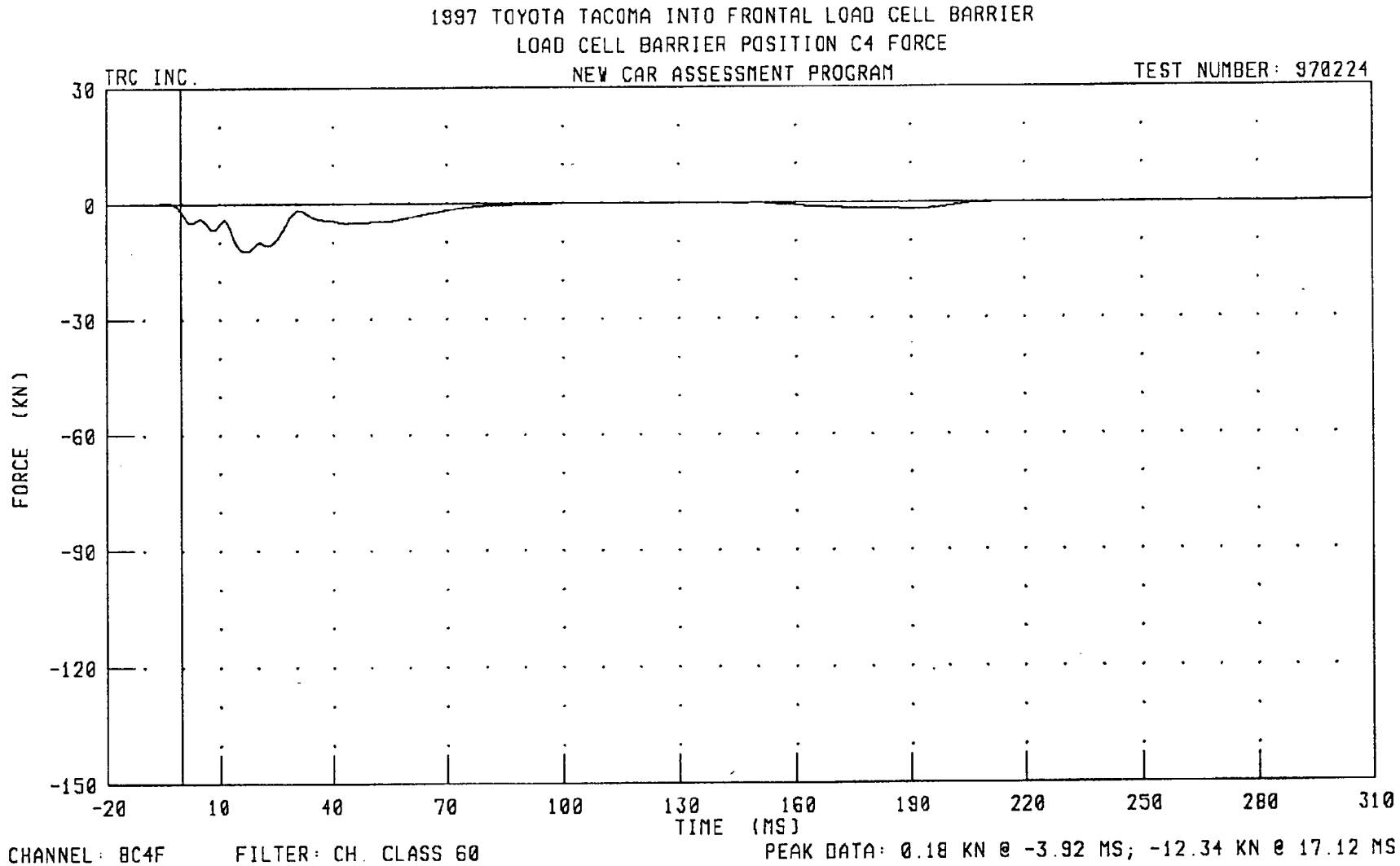
970224

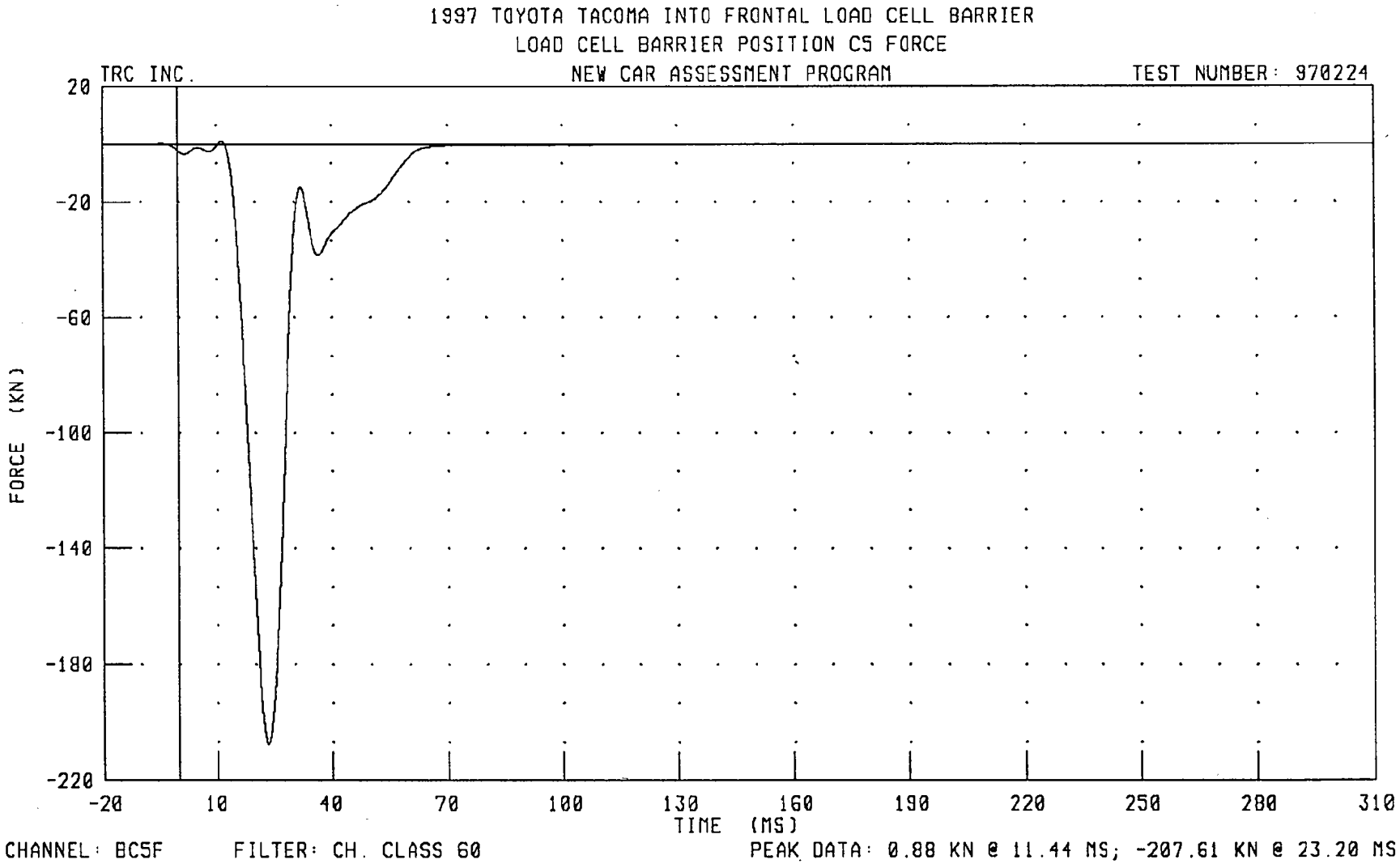

1997 TOYOTA TACOMA INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION C2 FORCE
TRC INC.
NEW CAR ASSESSMENT PROGRAM
TEST NUMBER: 970224
30
0
-30
-60
-90
-120
-150
FORCE (KN)
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: BC2F
FILTER: CH. CLASS 60
PEAK DATA: 0.86 KN @ 4.24 MS; -11.16 KN @ 21.52 MS

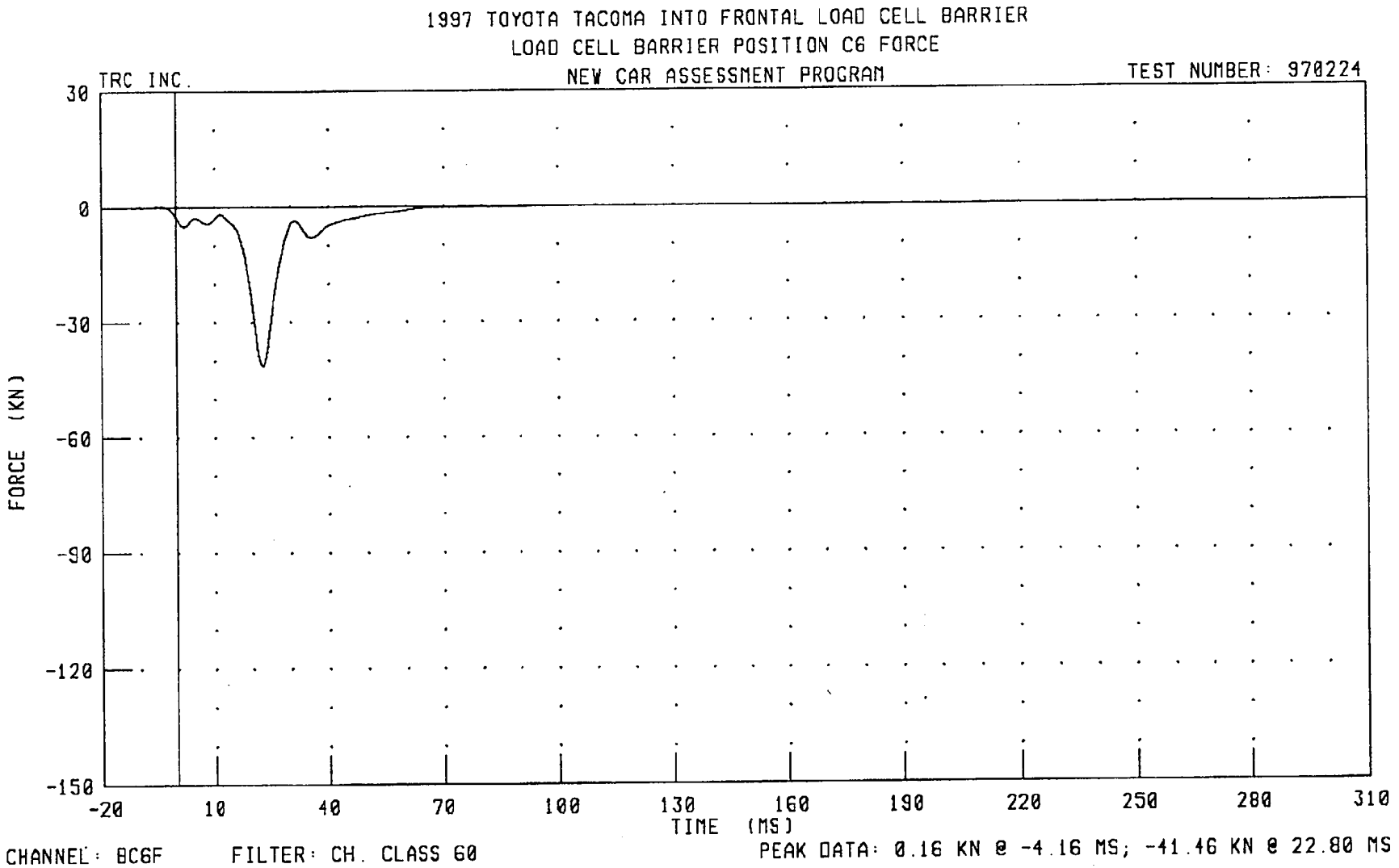
970224


1997 TOYOTA TACOMA INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION C3 FORCE
TRC INC.
NEW CAR ASSESSMENT PROGRAM
TEST NUMBER: 970224
30
0
-30
-60
-90
-120
-150
FORCE (KN)
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: BC3F
FILTER: CH. CLASS 60
PEAK DATA: 0.35 KN @ -0.72 MS; -21.67 KN @ 15.04 MS

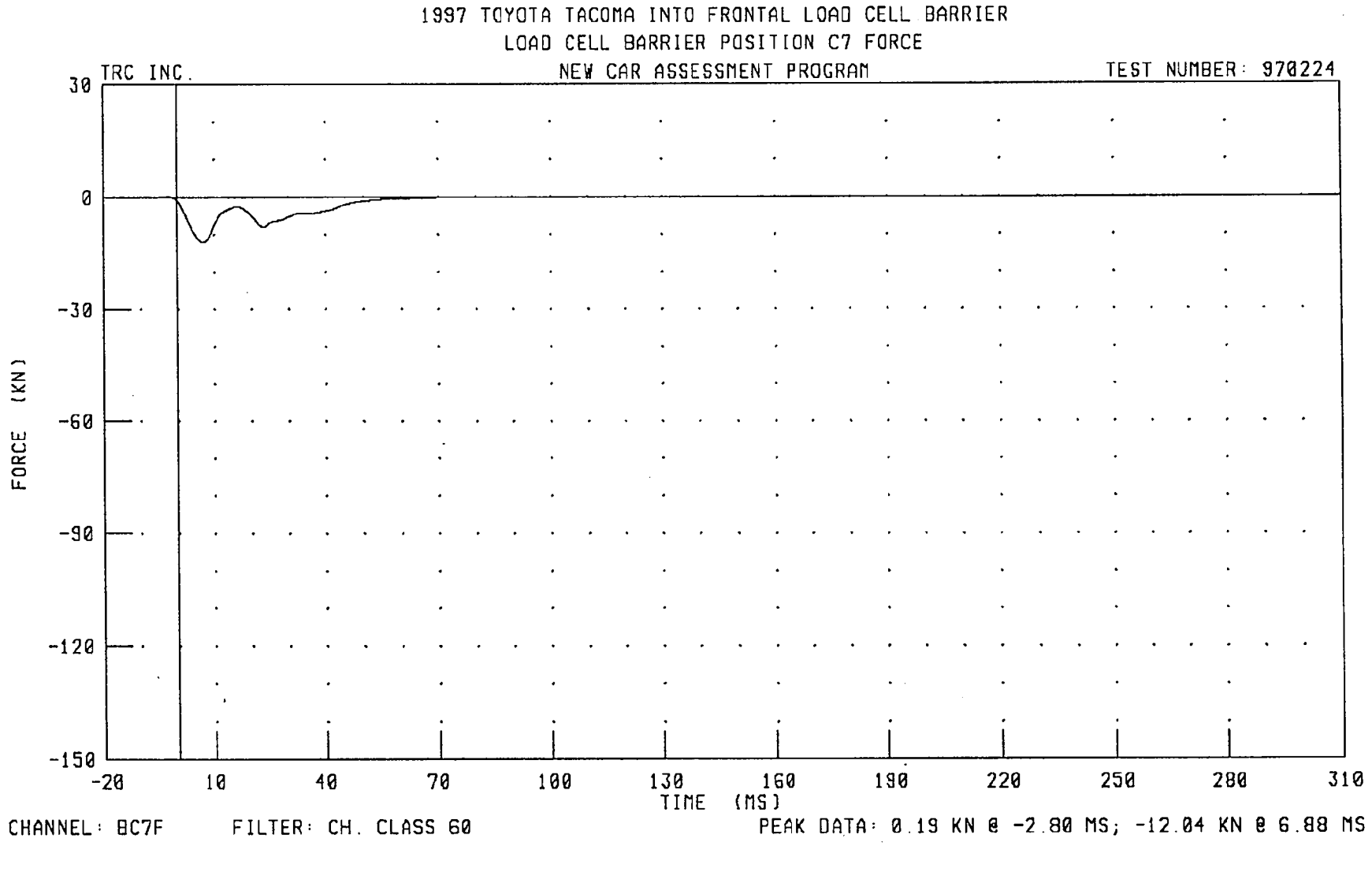
970224

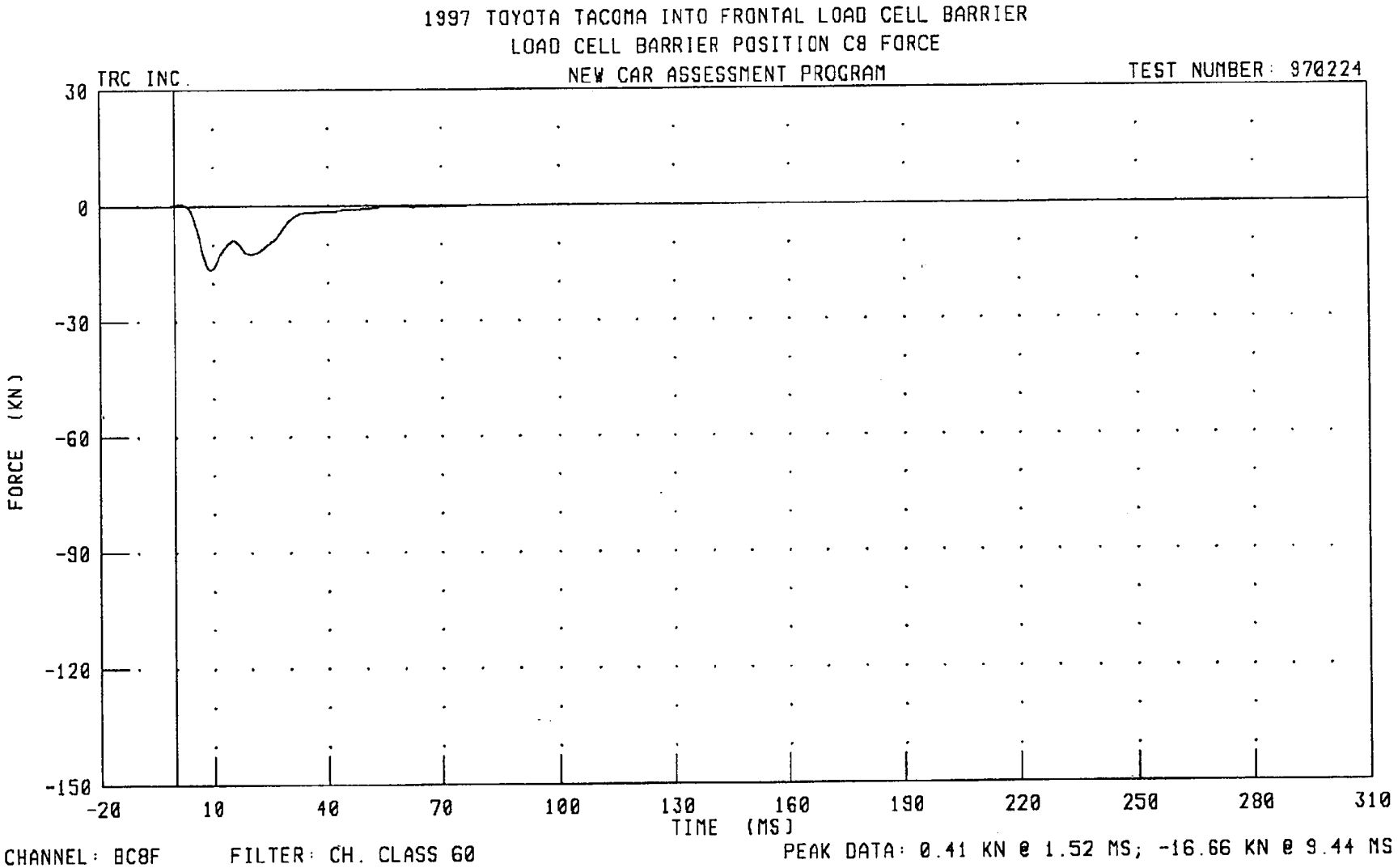

1997 TOYOTA TACOMA INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION C4 FORCE
TRC INC.
NEW CAR ASSESSMENT PROGRAM
TEST NUMBER: 970224
30
0
-30
-60
-90
-120
-150
FORCE (KN)
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: 8C4F
FILTER: CH. CLASS 60
PEAK DATA: 0.18 KN @ -3.92 MS; -12.34 KN @ 17.12 MS


1997 TOYOTA TACOMA INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION C5 FORCE
TRC INC.
NEW CAR ASSESSMENT PROGRAM
TEST NUMBER: 970224
20
-20
-60
-100
-140
-180
-220
FORCE (KN)
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: BC5F
FILTER: CH. CLASS 60
PEAK DATA: 0.88 KN @ 11.44 MS; -207.61 KN @ 23.20 MS

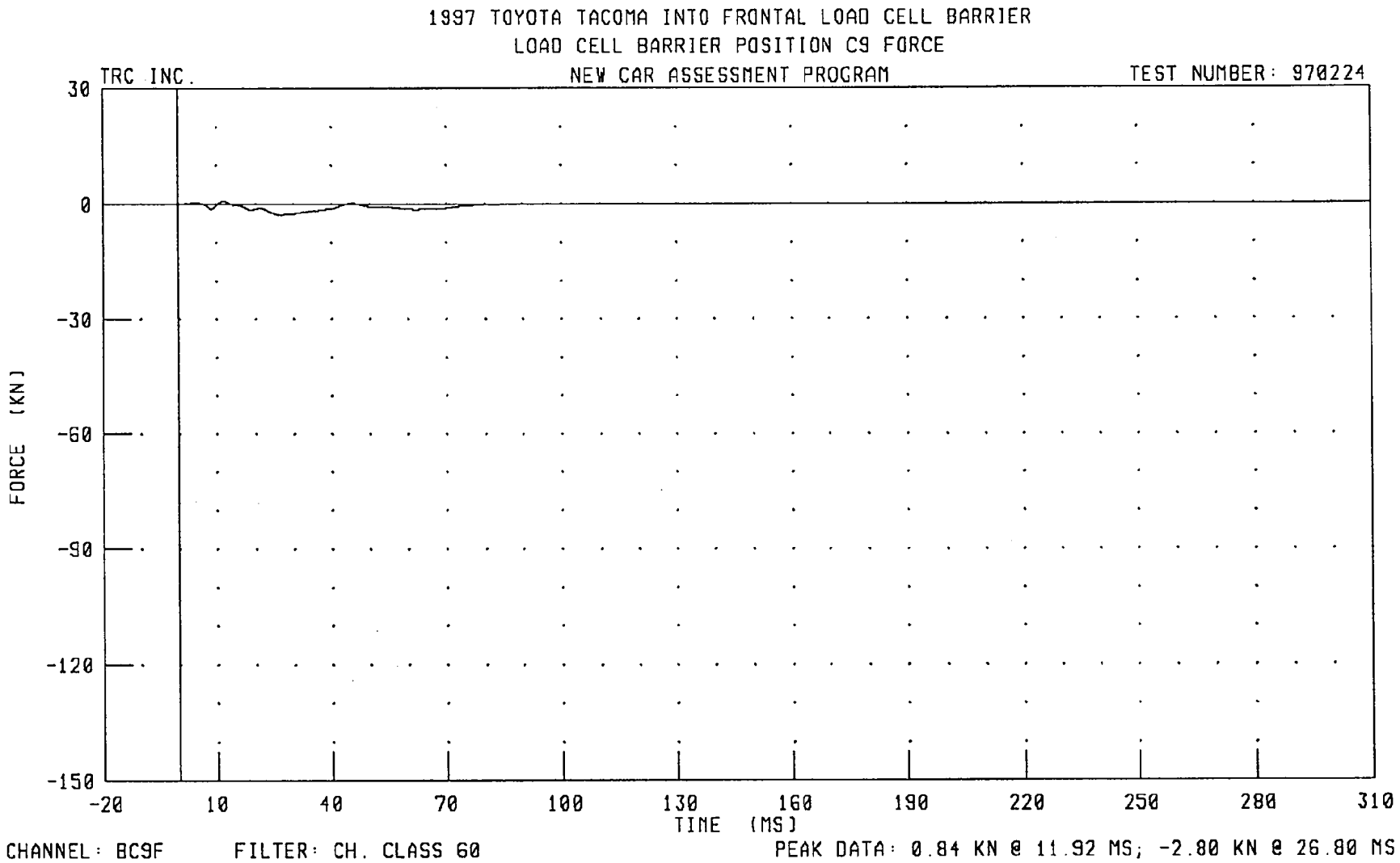

1997 TOYOTA TACOMA INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION C6 FORCE
NEW CAR ASSESSMENT PROGRAM
TRC INC.
TEST NUMBER: 970224
30
0
-30
-60
-90
-120
-150
FORCE (KN)
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: BC6F
FILTER: CH. CLASS 60
PEAK DATA: 0.16 KN @ -4.16 MS; -41.46 KN @ 22.80 MS

970224

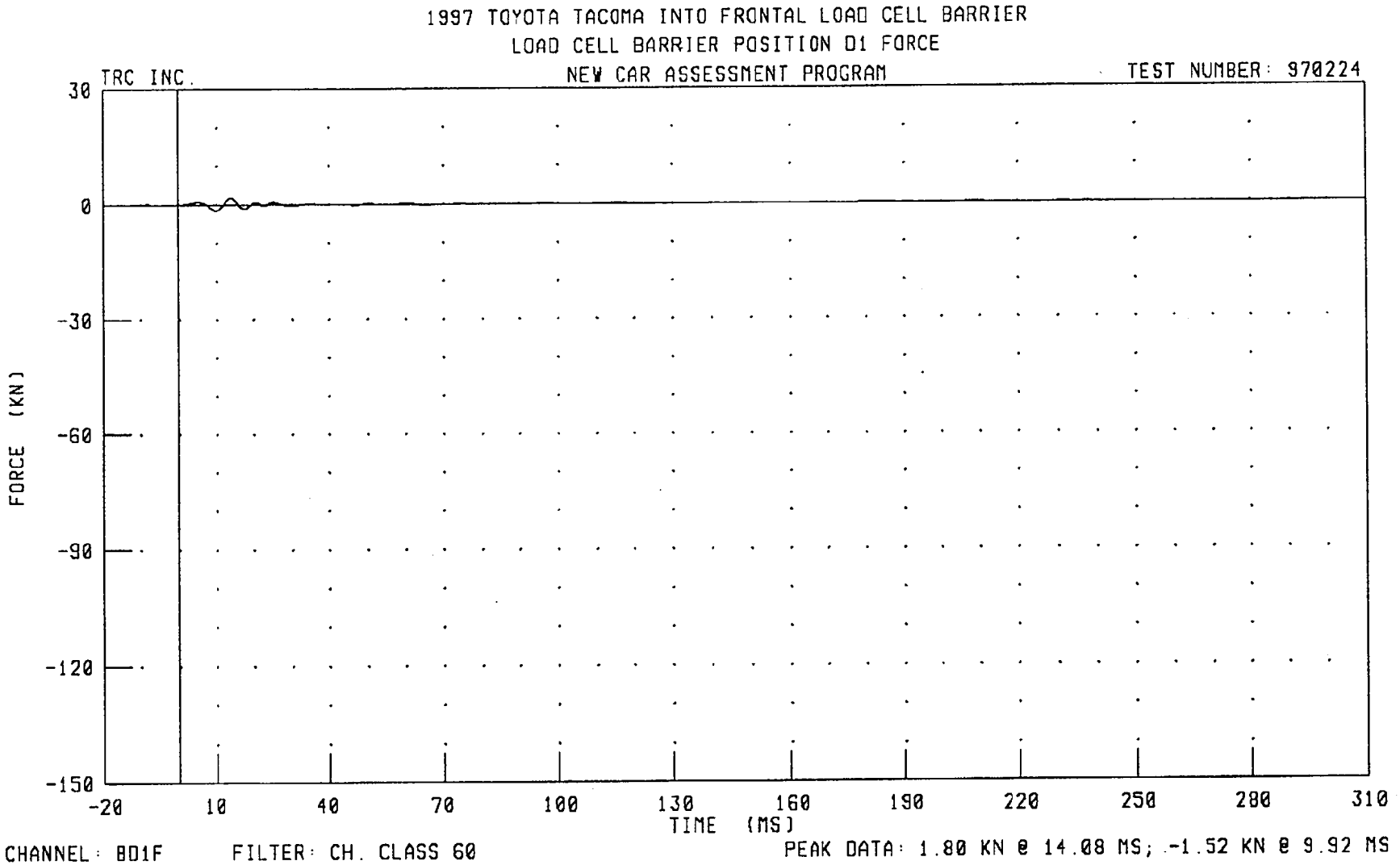

1997 TOYOTA TACOMA INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION C7 FORCE
TRC INC.
NEW CAR ASSESSMENT PROGRAM
TEST NUMBER: 970224
30
0
-30
-60
-90
-120
-150
FORCE (KN)
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: BC7F
FILTER: CH. CLASS 60
PEAK DATA: 0.19 KN @ -2.80 MS; -12.04 KN @ 6.88 MS


1997 TOYOTA TACOMA INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION C8 FORCE
NEW CAR ASSESSMENT PROGRAM
TRC INC.
TEST NUMBER: 970224
30
0
-30
-60
-90
-120
-150
FORCE (KN)
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: BC8F
FILTER: CH. CLASS 60
PEAK DATA: 0.41 KN @ 1.52 MS; -16.66 KN @ 9.44 MS

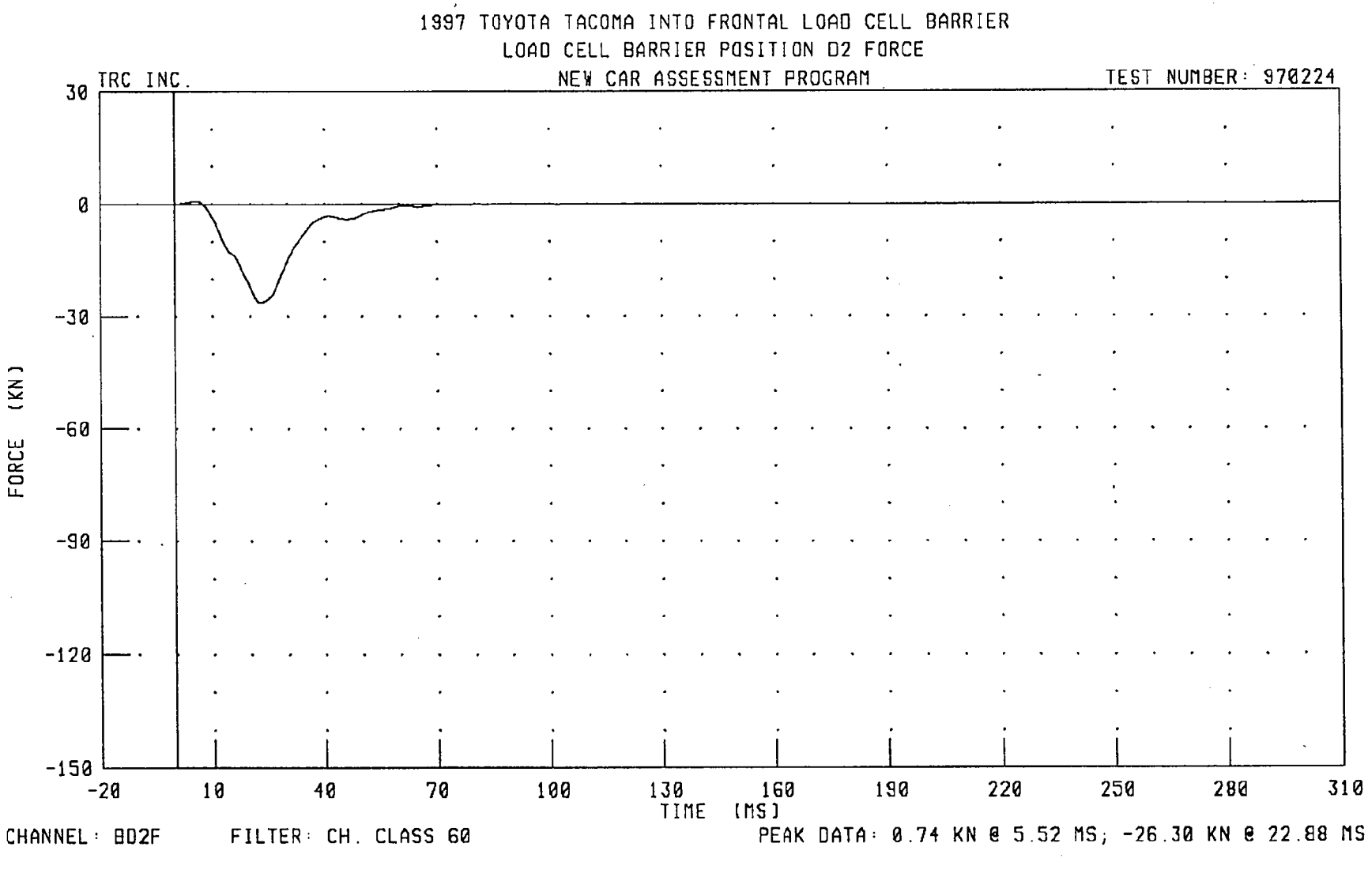
970224


1997 TOYOTA TACOMA INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION C9 FORCE
TRC INC.
NEW CAR ASSESSMENT PROGRAM
TEST NUMBER: 970224
30
0
-30
-60
-90
-120
-150
FORCE (KN)
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: BC9F
FILTER: CH. CLASS 60
PEAK DATA: 0.84 KN @ 11.92 MS; -2.80 KN @ 26.80 MS

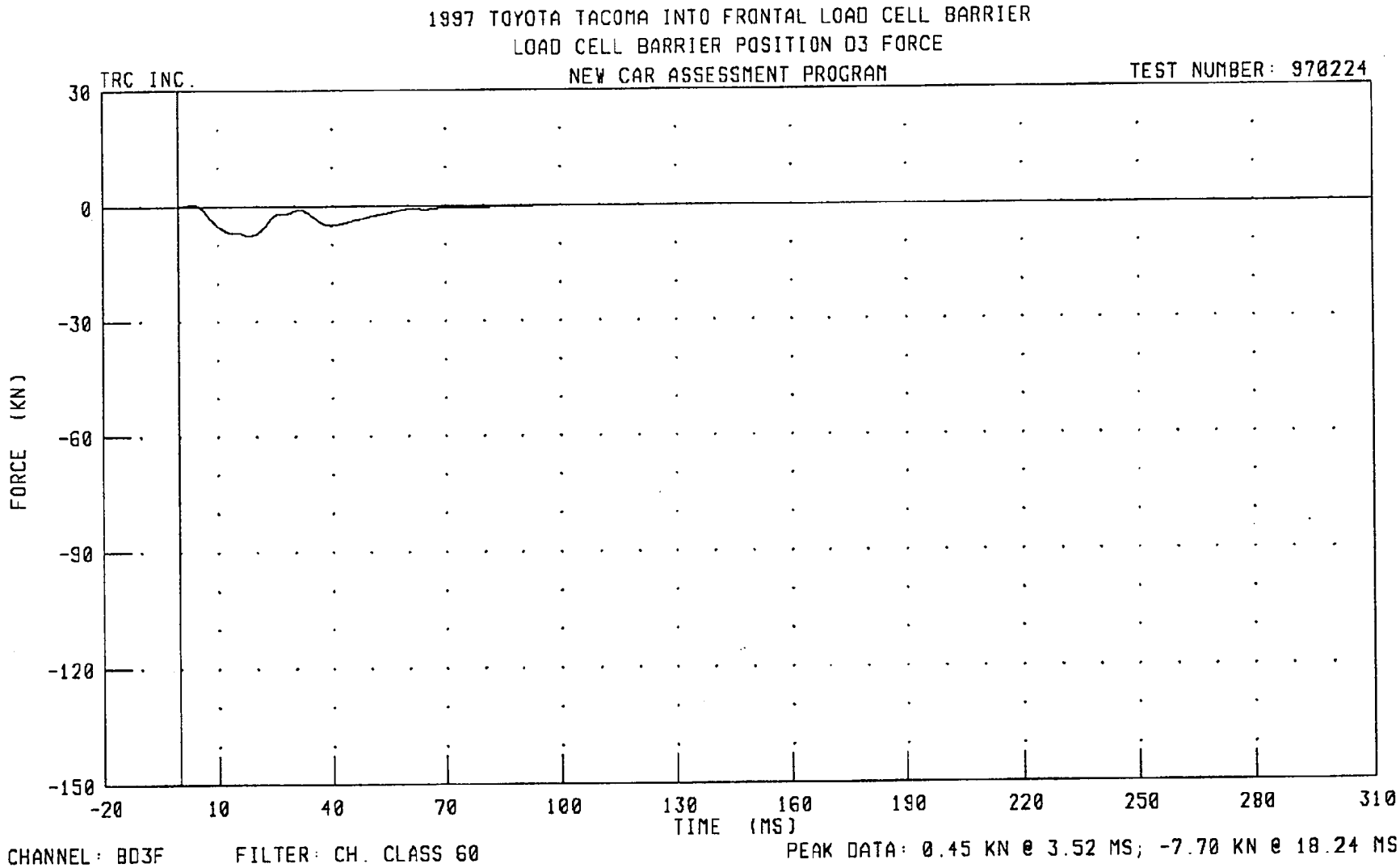
970224


1997 TOYOTA TACOMA INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION D1 FORCE
TRC INC.
NEW CAR ASSESSMENT PROGRAM
TEST NUMBER: 970224
30
0
-30
-60
-90
-120
-150
FORCE (KN)
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: BD1F
FILTER: CH. CLASS 60
PEAK DATA: 1.80 KN @ 14.08 MS; -1.52 KN @ 9.92 MS

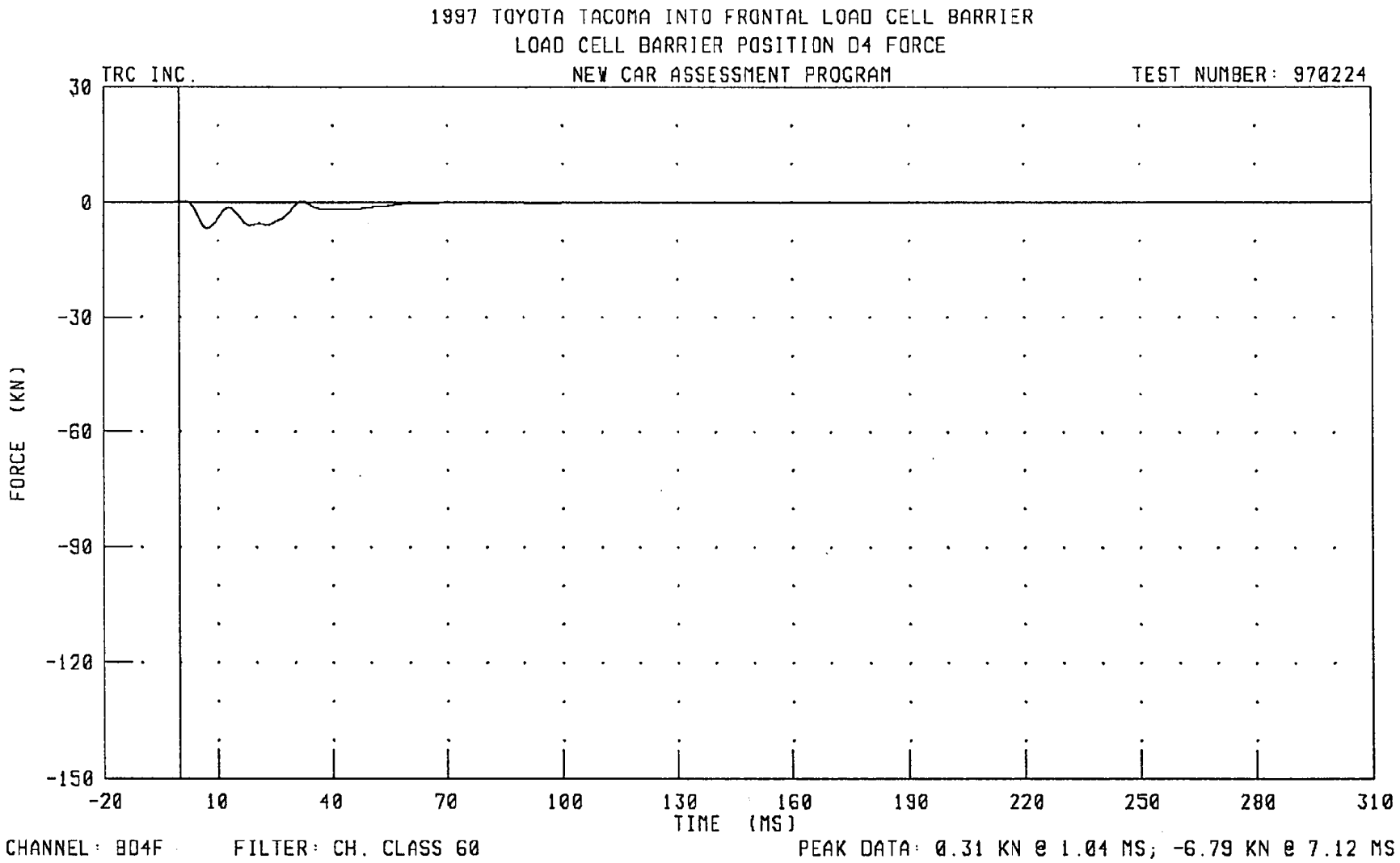
970224


1997 TOYOTA TACOMA INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION D2 FORCE
TRC INC.
NEW CAR ASSESSMENT PROGRAM
TEST NUMBER: 970224
30
0
-30
-60
-90
-120
-150
FORCE (KN)
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: BD2F
FILTER: CH. CLASS 60
PEAK DATA: 0.74 KN @ 5.52 MS; -26.30 KN @ 22.88 MS

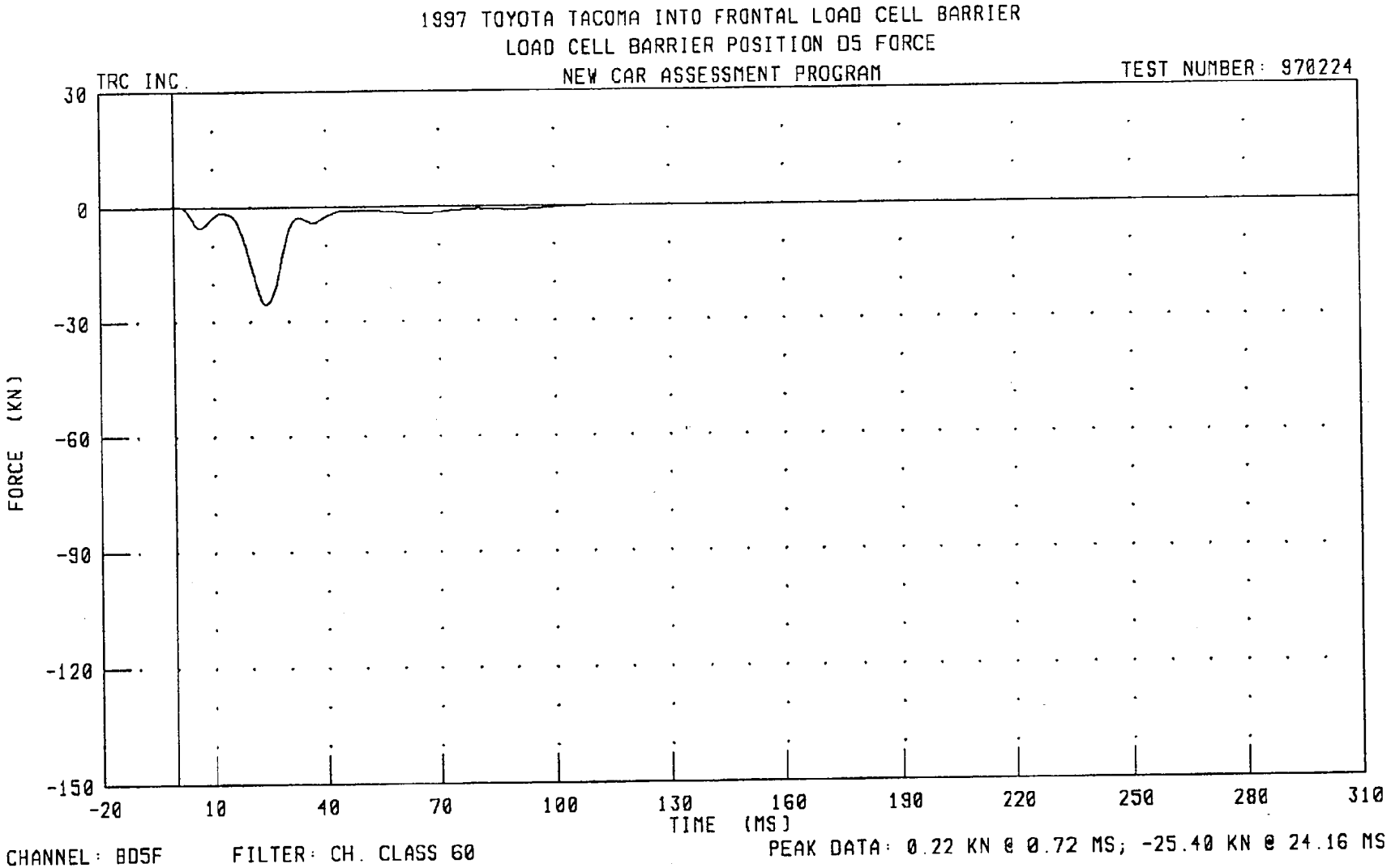
970224


1997 TOYOTA TACOMA INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION D3 FORCE
NEW CAR ASSESSMENT PROGRAM
TRC INC.
TEST NUMBER: 970224
30
0
-30
-60
-90
-120
-150
FORCE (KN)
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: BD3F
FILTER: CH. CLASS 60
PEAK DATA: 0.45 KN @ 3.52 MS; -7.70 KN @ 18.24 MS

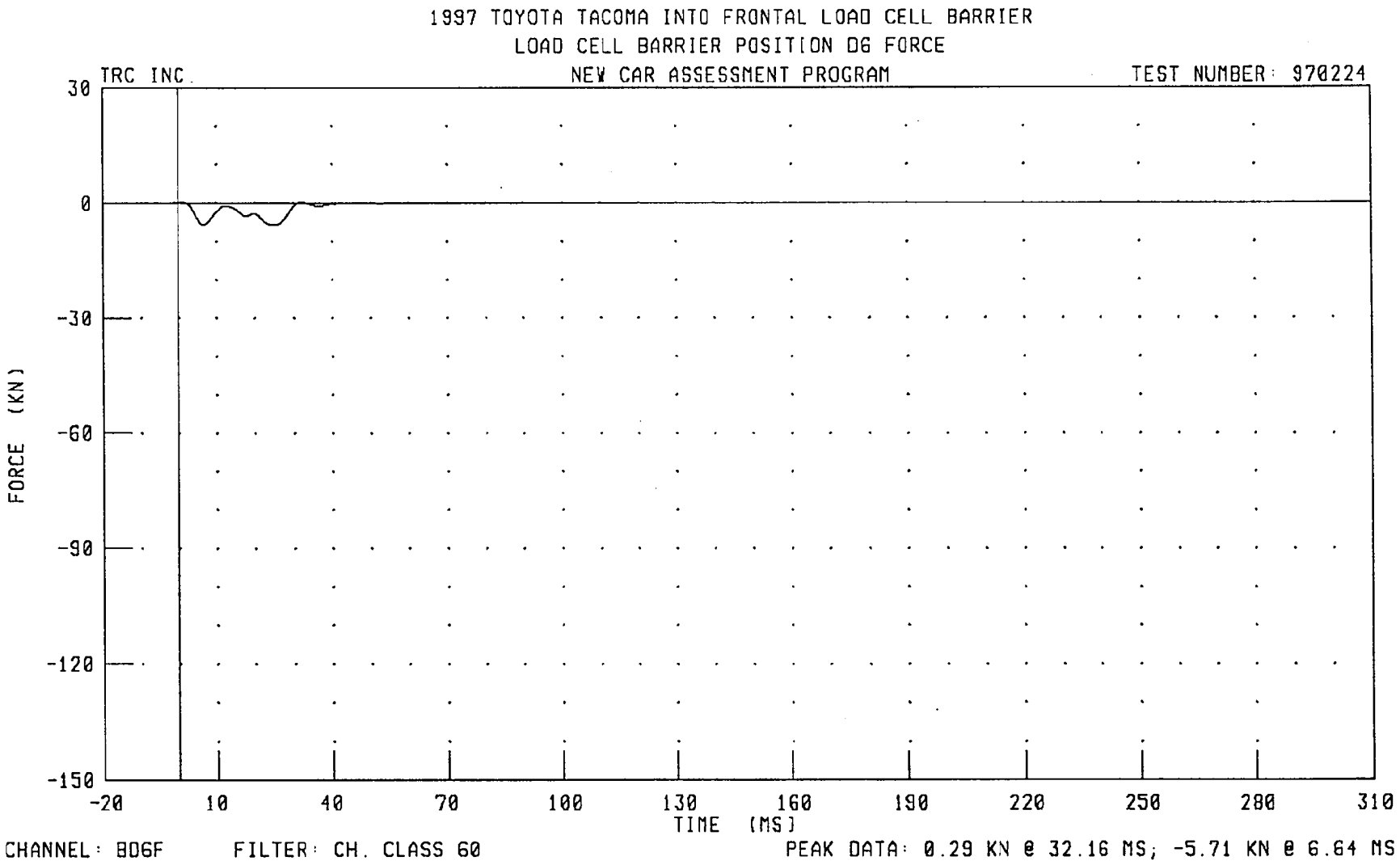
970224


1997 TOYOTA TACOMA INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION D4 FORCE
TRC INC.
NEW CAR ASSESSMENT PROGRAM
TEST NUMBER: 970224
30
0
-30
-60
-90
-120
-150
FORCE (KN)
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: B04F
FILTER: CH. CLASS 60
PEAK DATA: 0.31 KN @ 1.04 MS; -6.79 KN @ 7.12 MS

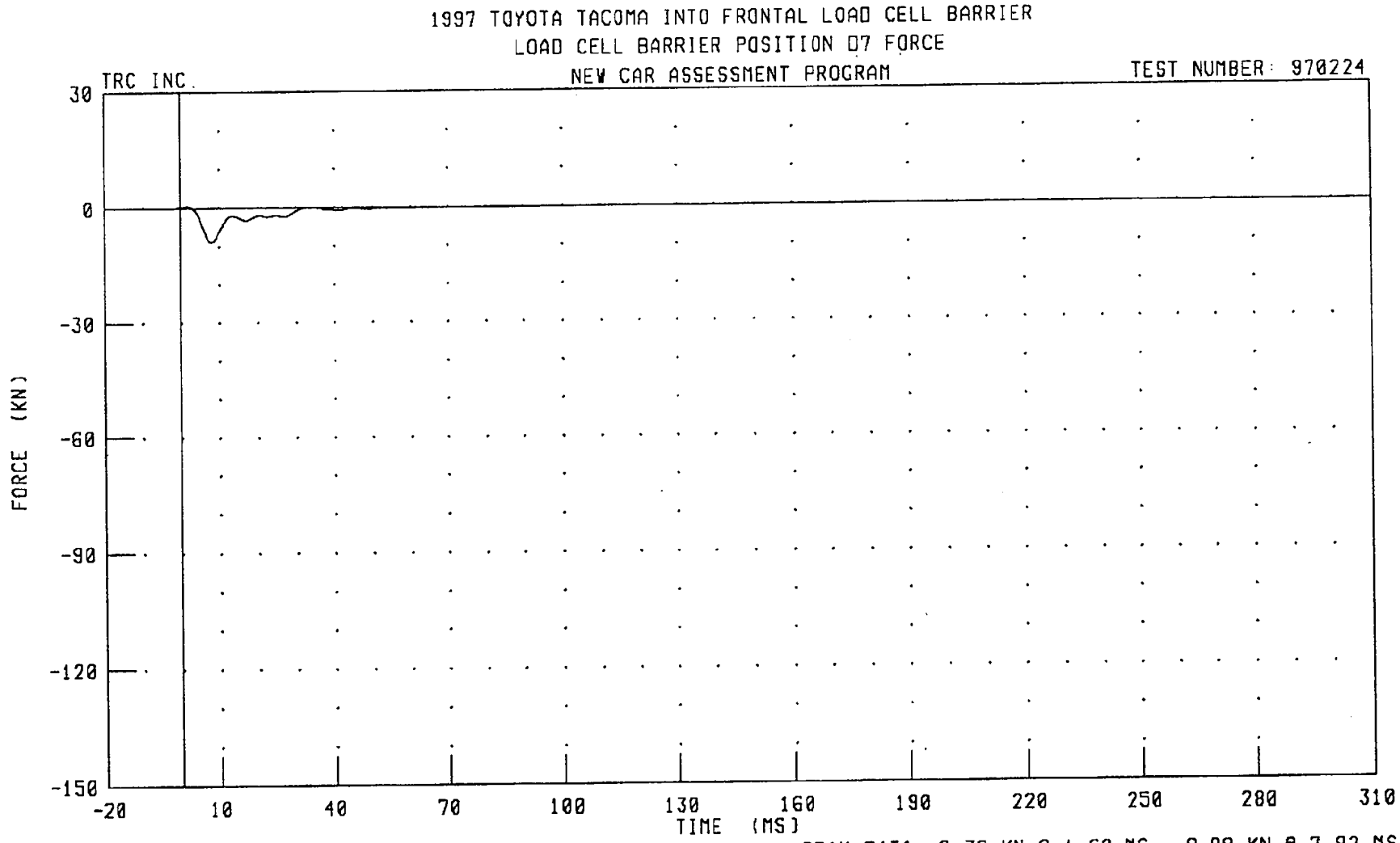
970224


1997 TOYOTA TACOMA INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION D5 FORCE
NEW CAR ASSESSMENT PROGRAM
TRC INC.
TEST NUMBER: 970224
30
0
-30
-60
-90
-120
-150
FORCE (KN)
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: BD5F
FILTER: CH. CLASS 60
PEAK DATA: 0.22 KN @ 0.72 MS; -25.40 KN @ 24.16 MS

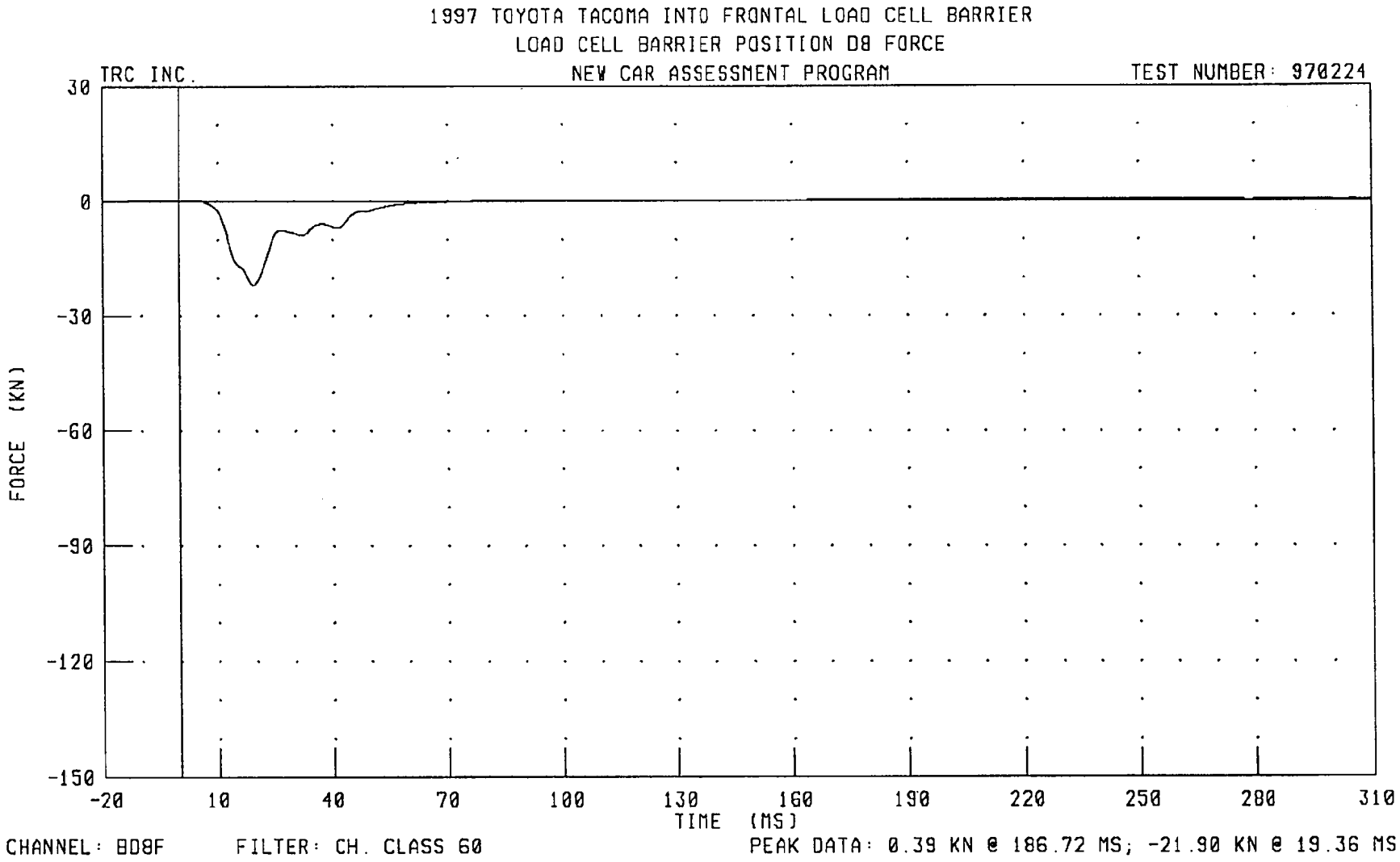
970224


1997 TOYOTA TACOMA INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION DG FORCE
TRC INC.
NEW CAR ASSESSMENT PROGRAM
TEST NUMBER: 970224
30
0
-30
-60
-90
-120
-150
FORCE (KN)
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: BDGF
FILTER: CH. CLASS 60
PEAK DATA: 0.29 KN @ 32.16 MS; -5.71 KN @ 6.64 MS

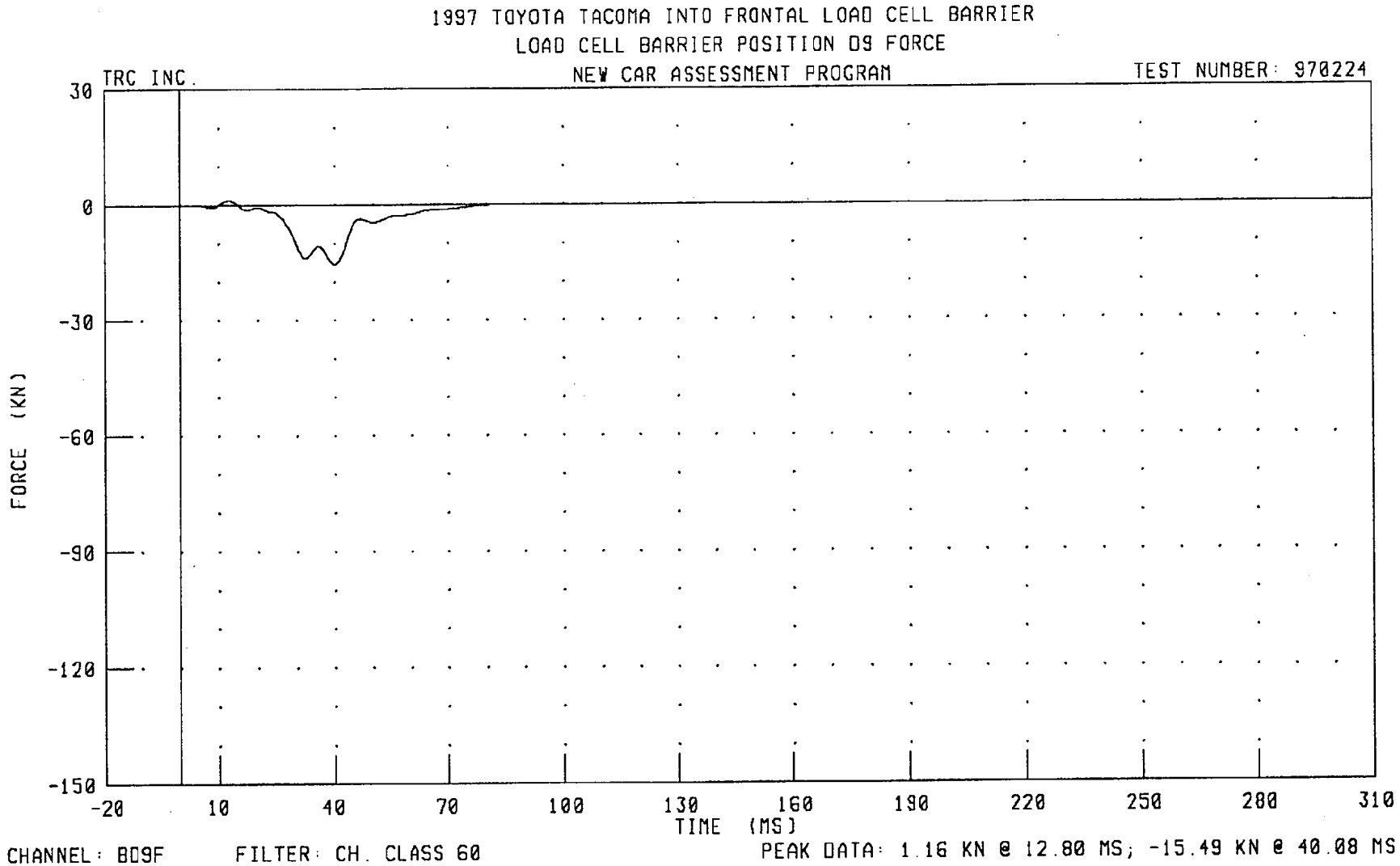
970224


1997 TOYOTA TACOMA INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION 07 FORCE
TRC INC.
NEW CAR ASSESSMENT PROGRAM
TEST NUMBER: 970224
30
0
-30
-60
-90
-120
-150
FORCE (KN)
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: B07F
FILTER: CH. CLASS 60
PEAK DATA: 0.39 KN @ 1.60 MS; -8.99 KN @ 7.92 MS

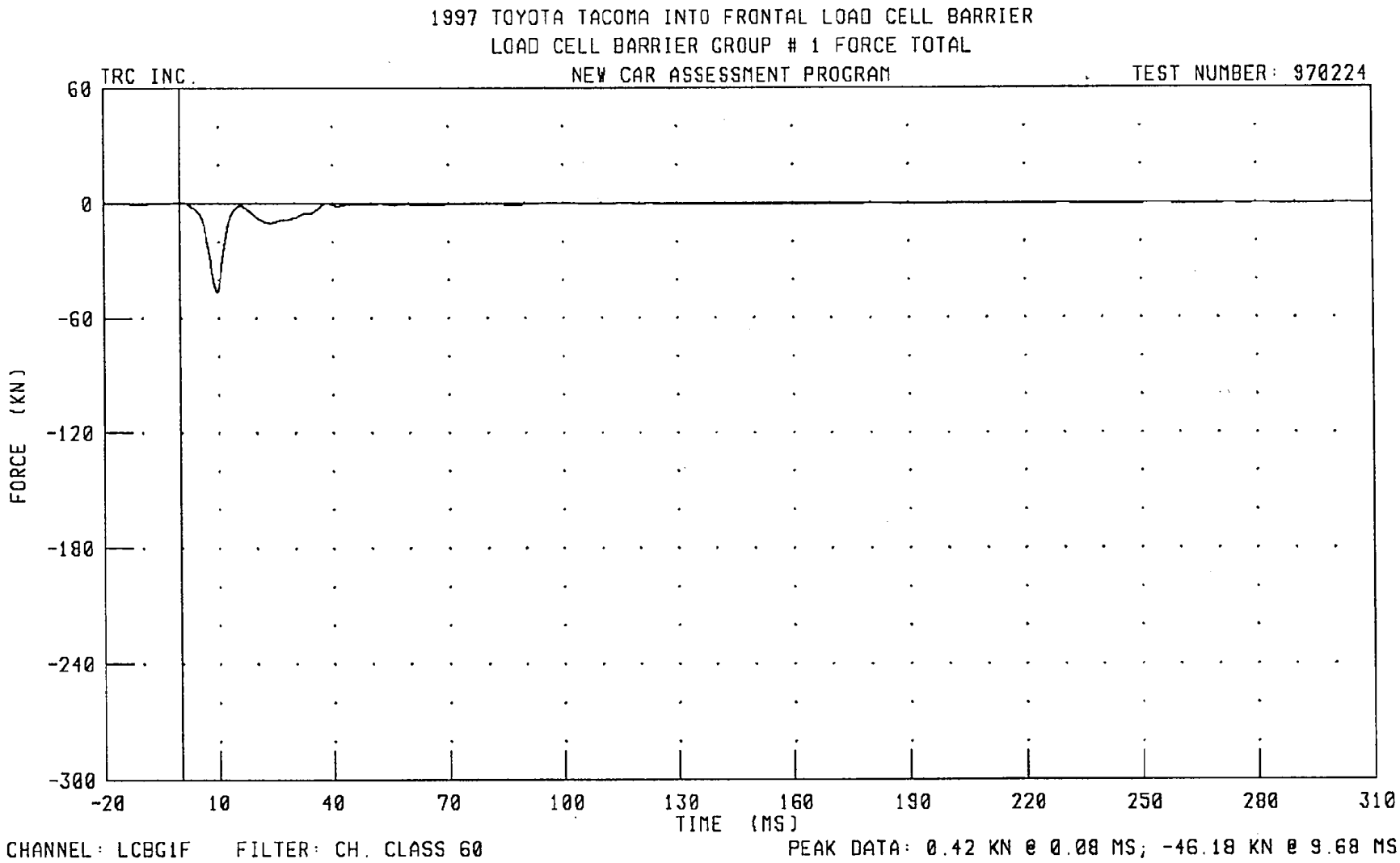
970224


1997 TOYOTA TACOMA INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION D8 FORCE
TRC INC.
NEW CAR ASSESSMENT PROGRAM
TEST NUMBER: 970224
30
0
-30
-60
-90
-120
-150
FORCE (KN)
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: BD8F
FILTER: CH. CLASS 60
PEAK DATA: 0.39 KN @ 186.72 MS; -21.90 KN @ 19.36 MS

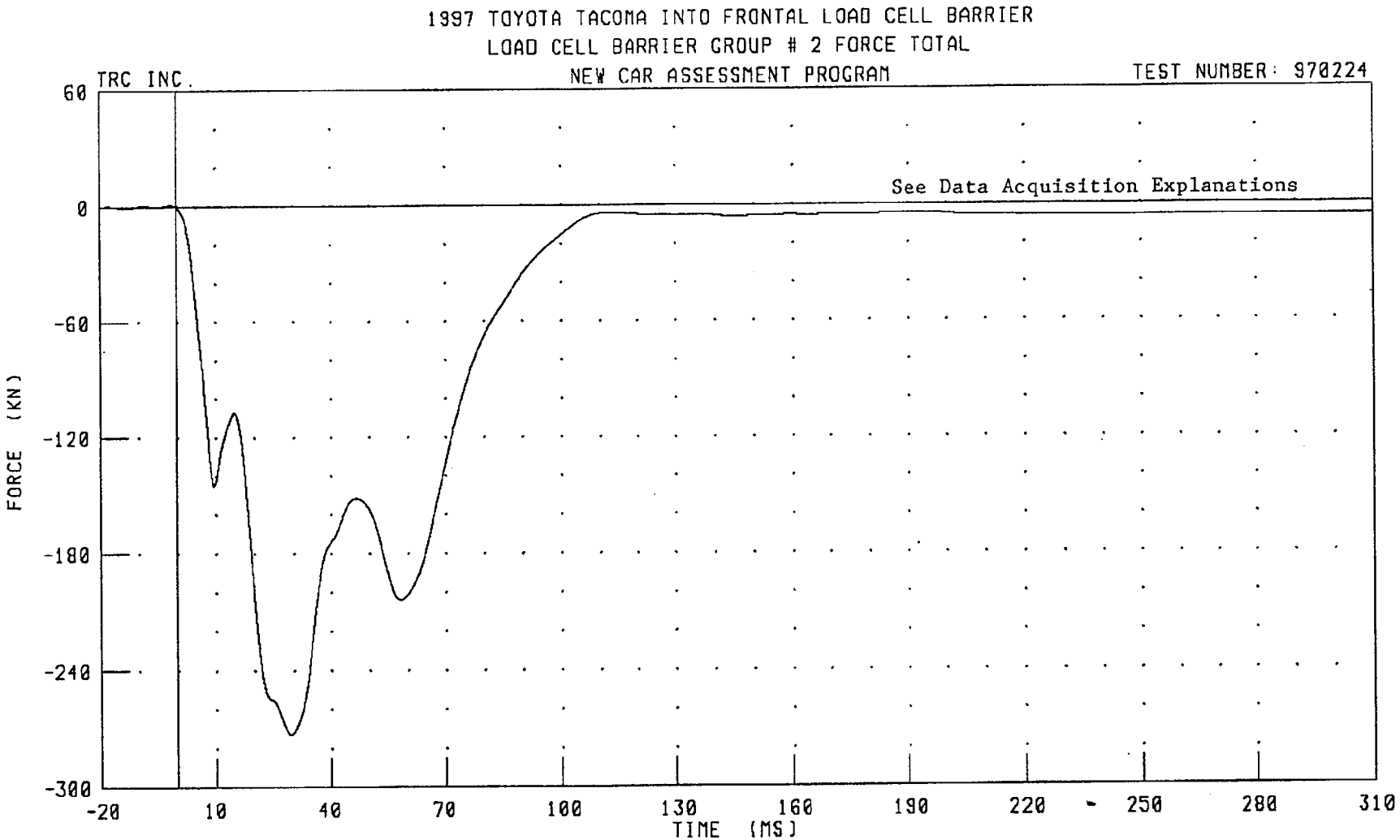
970224


1997 TOYOTA TACOMA INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION 09 FORCE
TRC INC.
NEW CAR ASSESSMENT PROGRAM
TEST NUMBER: 970224
30
0
-30
-60
-90
-120
-150
FORCE (KN)
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: BD9F
FILTER: CH. CLASS 60
PEAK DATA: 1.16 KN @ 12.80 MS; -15.49 KN @ 40.08 MS

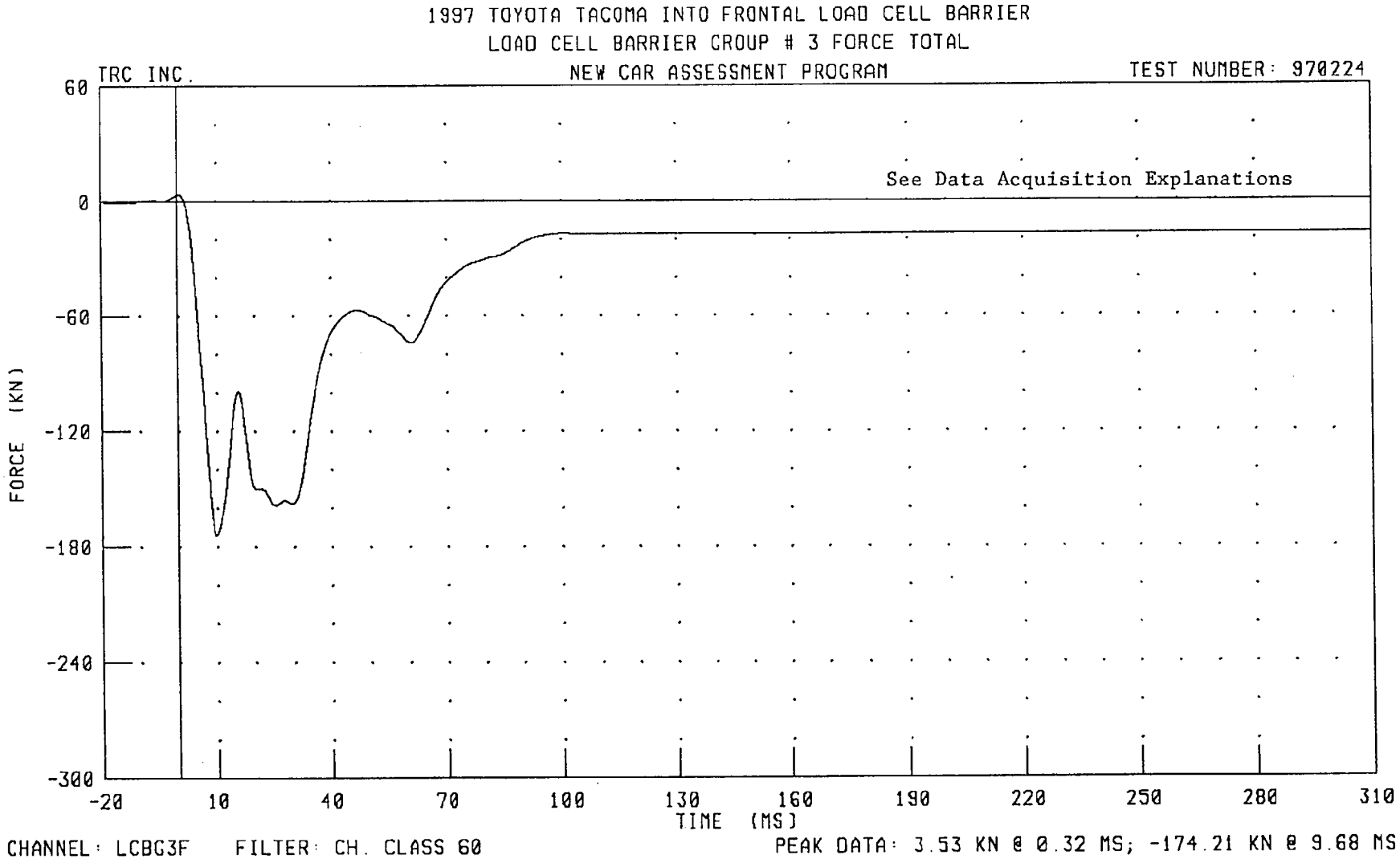
970224


1997 TOYOTA TACOMA INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER GROUP # 1 FORCE TOTAL
TRC INC.
NEW CAR ASSESSMENT PROGRAM
TEST NUMBER: 970224
60
0
-60
-120
-180
-240
-300
FORCE (KN)
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: LCBG1F
FILTER: CH. CLASS 60
PEAK DATA: 0.42 KN @ 0.08 MS; -46.18 KN @ 9.68 MS

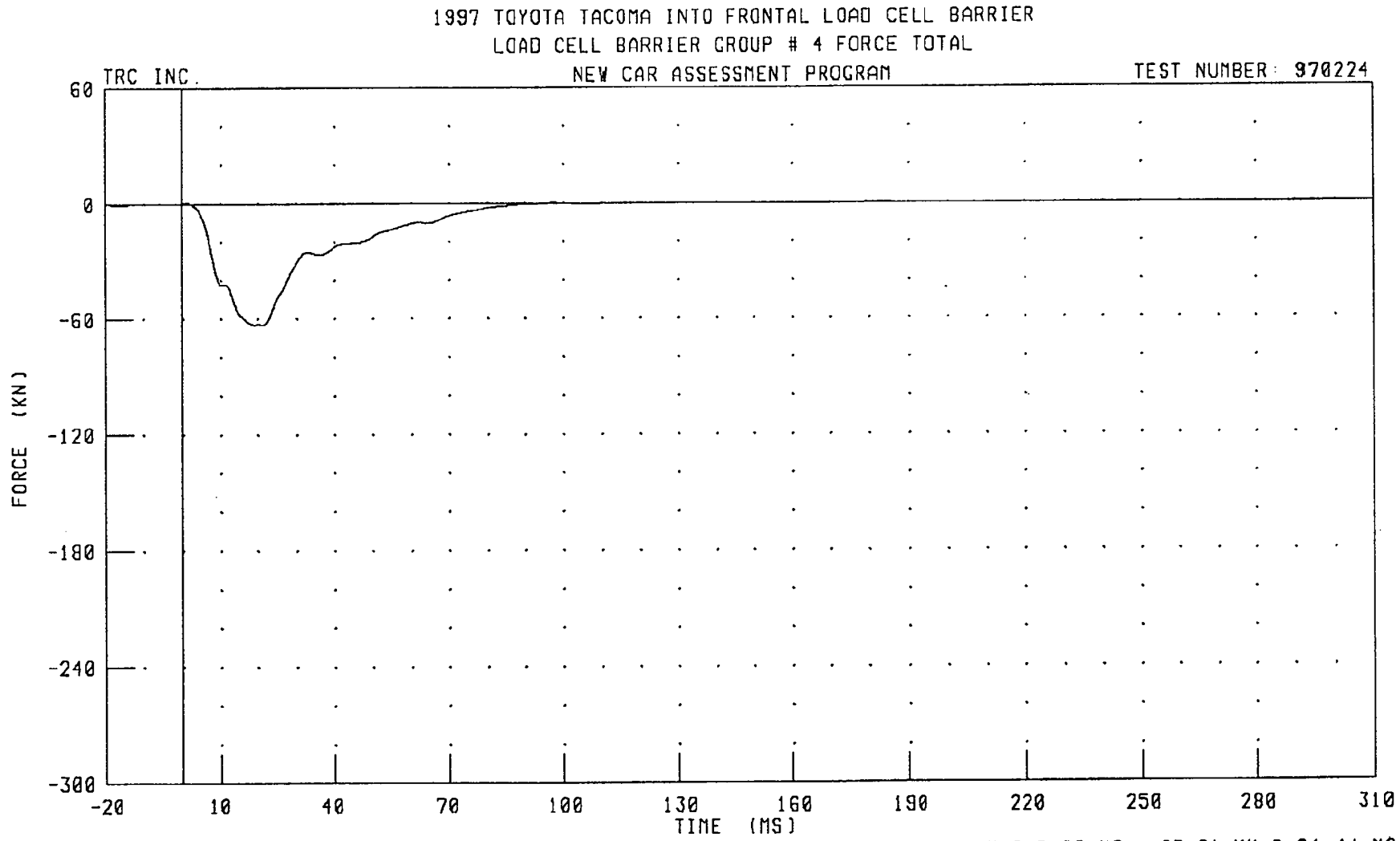
970224


1997 TOYOTA TACOMA INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER GROUP # 2 FORCE TOTAL
TRC INC.
NEW CAR ASSESSMENT PROGRAM
TEST NUMBER: 970224
See Data Acquisition Explanations
60
0
-60
-120
-180
-240
-300
FORCE (KN)
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: LCBG2F
FILTER: CH. CLASS 60
PEAK DATA: 0.76 KN @ -1.52 MS; -272.85 KN @ 29.28 MS

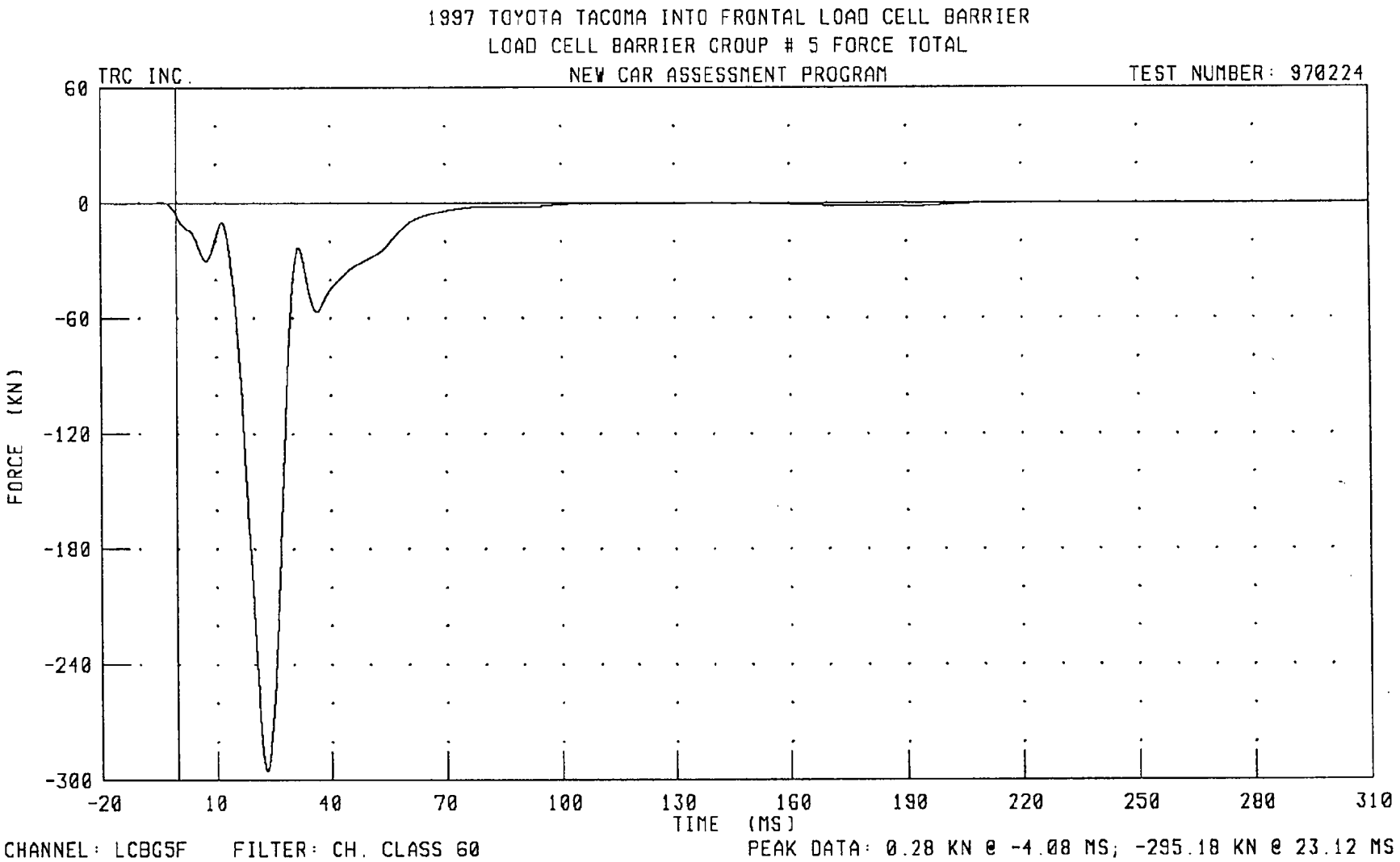
970224

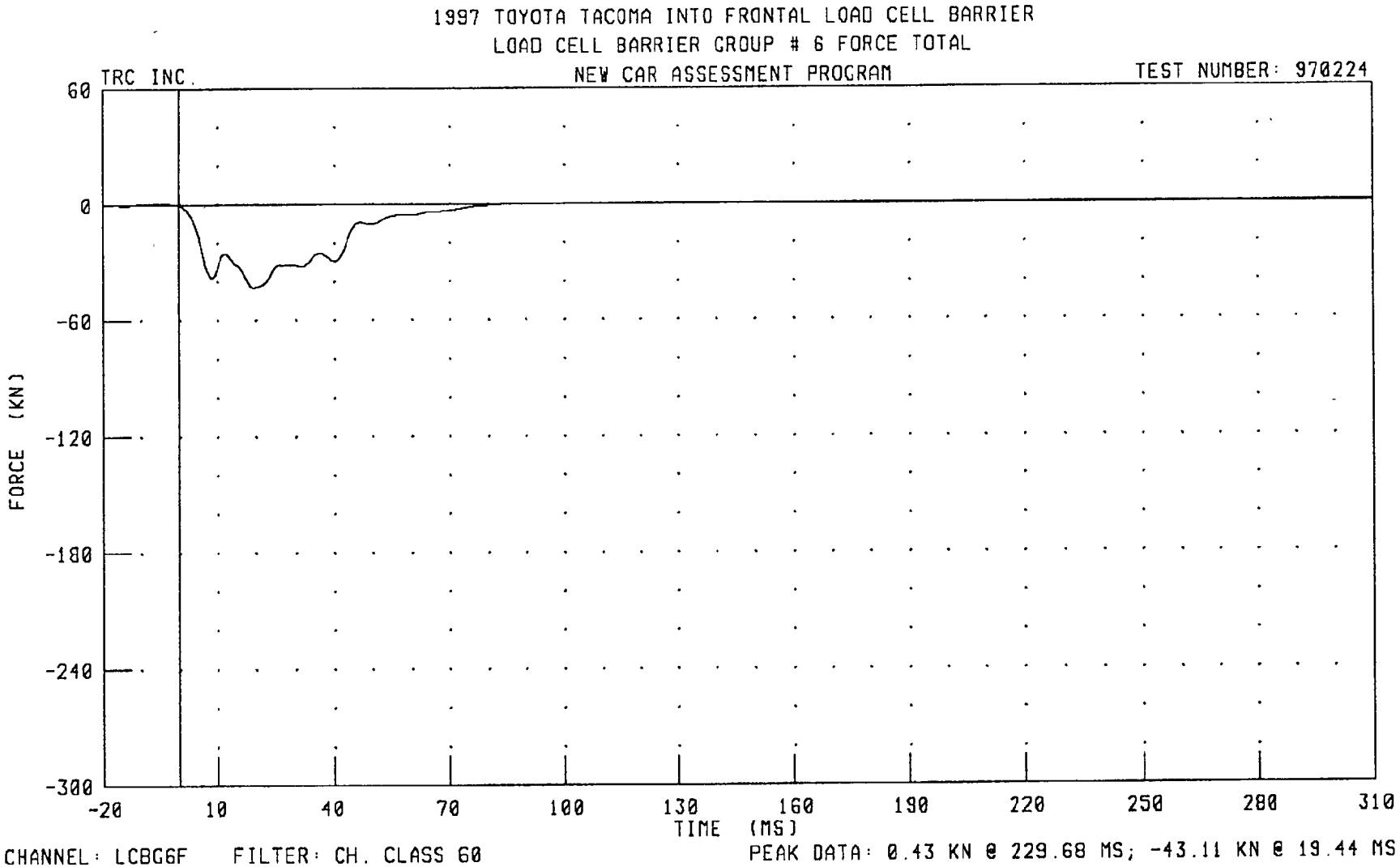

1997 TOYOTA TACOMA INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER GROUP # 3 FORCE TOTAL
TRC INC.
NEW CAR ASSESSMENT PROGRAM
TEST NUMBER: 970224
See Data Acquisition Explanations
60
0
-60
-120
-180
-240
-300
FORCE (KN)
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: LCBG3F
FILTER: CH. CLASS 60
PEAK DATA: 3.53 KN @ 0.32 MS; -174.21 KN @ 9.68 MS

970224

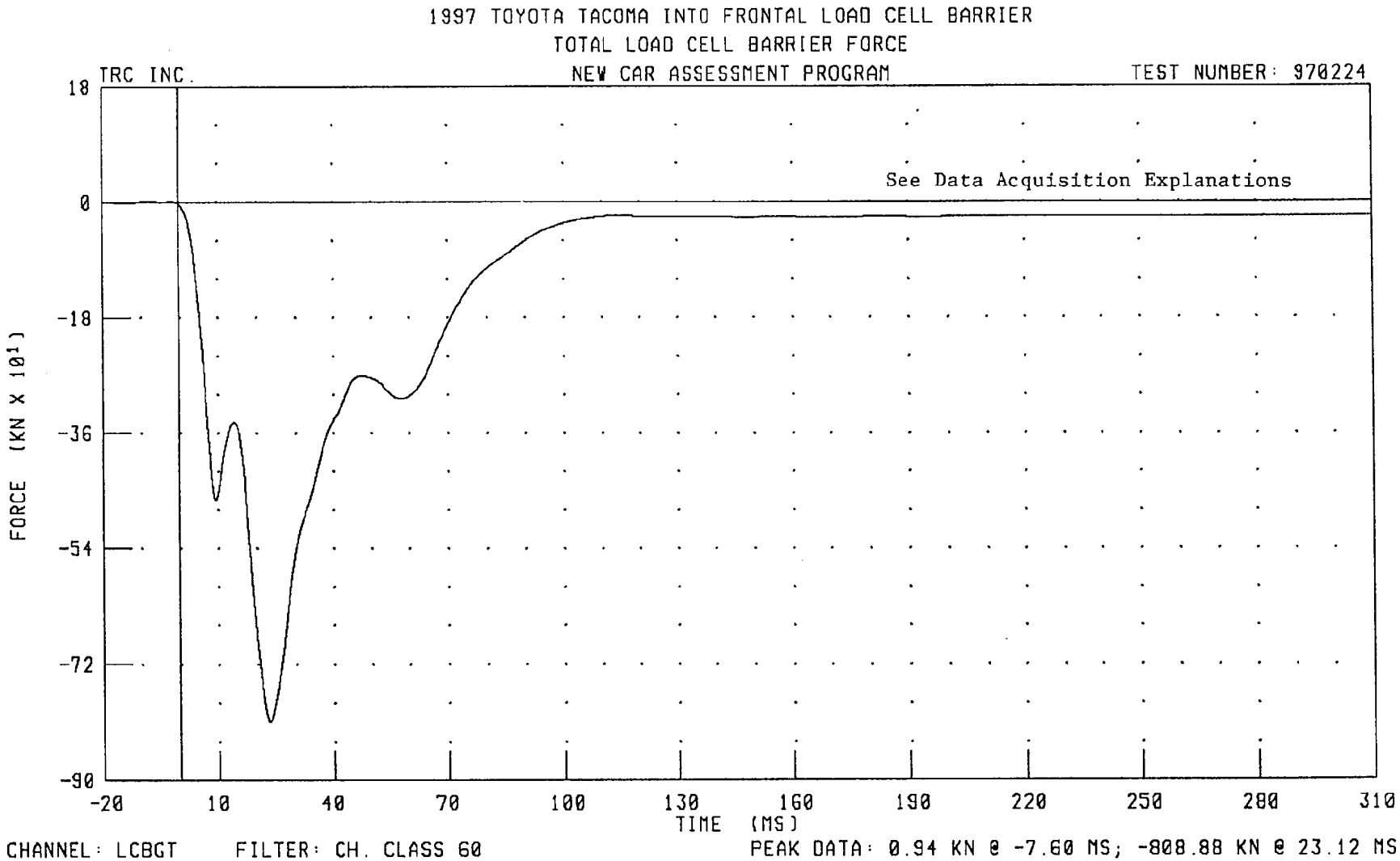

1997 TOYOTA TACOMA INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER GROUP # 4 FORCE TOTAL
TRC INC.
NEW CAR ASSESSMENT PROGRAM
TEST NUMBER: 970224
60
0
-60
-120
-180
-240
-300
FORCE (KN)
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: LCBG4F
FILTER: CH. CLASS 60
PEAK DATA: 0.39 KN @ 0.88 MS; -63.21 KN @ 21.44 MS

970224

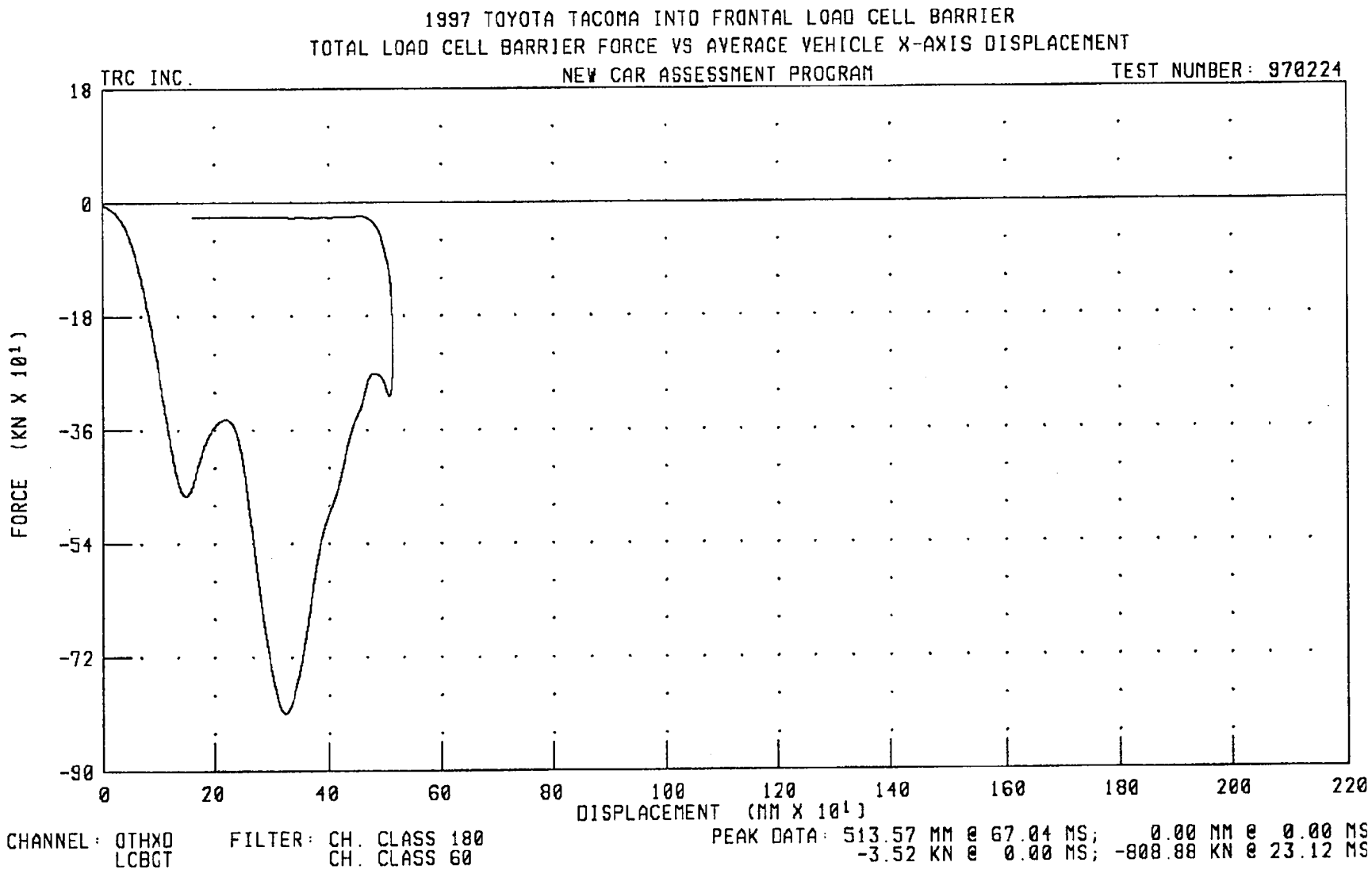

1997 TOYOTA TACOMA INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER GROUP # 5 FORCE TOTAL
TRC INC.
NEW CAR ASSESSMENT PROGRAM
TEST NUMBER: 970224
60
0
-60
-120
-180
-240
-300
FORCE (KN)
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: LCBG5F
FILTER: CH. CLASS 60
PEAK DATA: 0.28 KN @ -4.08 MS; -295.18 KN @ 23.12 MS


1997 TOYOTA TACOMA INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER GROUP # 6 FORCE TOTAL
TRC INC.
NEW CAR ASSESSMENT PROGRAM
TEST NUMBER: 970224
60
0
-60
-120
-180
-240
-300
FORCE (KN)
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: LCBG6F
FILTER: CH. CLASS 60
PEAK DATA: 0.43 KN @ 229.68 MS; -43.11 KN @ 19.44 MS

970224


1997 TOYOTA TACOMA INTO FRONTAL LOAD CELL BARRIER
TOTAL LOAD CELL BARRIER FORCE
NEW CAR ASSESSMENT PROGRAM
TRC INC.
TEST NUMBER: 970224
See Data Acquisition Explanations
FORCE (KN X 10¹)
18
0
-18
-36
-54
-72
-90
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: LCBGT
FILTER: CH. CLASS 60
PEAK DATA: 0.94 KN @ -7.60 MS; -808.88 KN @ 23.12 MS

970224


1997 TOYOTA TACOMA INTO FRONTAL LOAD CELL BARRIER
TOTAL LOAD CELL BARRIER FORCE VS AVERAGE VEHICLE X-AXIS DISPLACEMENT
TRC INC.
NEW CAR ASSESSMENT PROGRAM
TEST NUMBER: 970224
18
0
-18
-36
-54
-72
-90
FORCE (KN X 10¹)
0
20
40
60
80
100
120
140
160
180
200
220
DISPLACEMENT (MM X 10¹)
CHANNEL: OTHXD
LCBGT
FILTER: CH. CLASS 180
CH. CLASS 60
PEAK DATA: 513.57 MM @ 67.04 MS; 0.00 MM @ 0.00 MS
-3.52 KN @ 0.00 MS; -808.88 KN @ 23.12 MS

970224

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

14-JAN-97

TRC INC. TEST NO: 192C35ED1 572E SN192 EXT.DIMENSION CAL35

TEST PARAMETER	(DIMEN.)	SPECIFICATION	TEST RESULTS
LOCATION FOR CHEST CIRCUMFERENCE	(AA)	429 - 434 MM	432. MM
LOCATION FOR WAIST CIRCUMFERENCE	(BB)	226 - 231 MM	229. MM
CHEST CIRCUMFERENCE	(Y)	970 -1001 MM	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 LeVan

RUN NUMBER: 011497.1405

TRANSPORTATION RESEARCH CENTER INC.

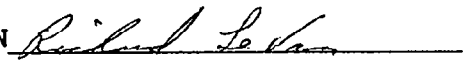
HEAD DROP TEST

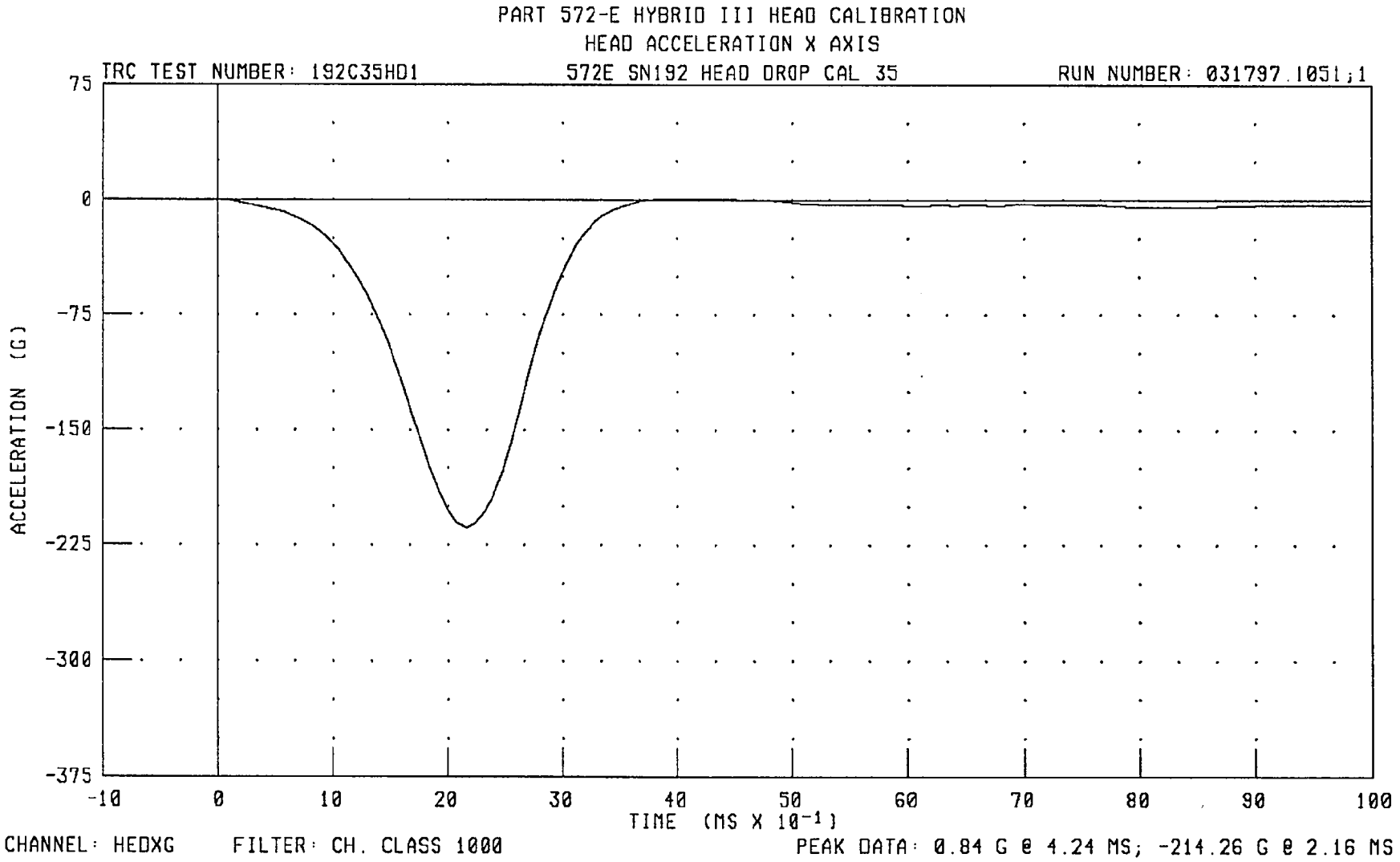
HYBRID III 14-JAN-97

TRC INC. TEST NO: 192C35HD1 572E SN192 HEAD DROP CAL 35

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	18.9-25.6 DEG. C	21.1 DEG. C
RELATIVE HUMIDITY	10 - 70 %	16.0 %
PEAK RESULTANT ACCELERATION	225 - 275 G	252.06 G
PEAK LATERAL ACCELERATION	15 G MAX	-11.44 G
IS ACCELERATION CURVE UNIMODAL?	YES	YES

TEST MEETS SPECIFICATIONS

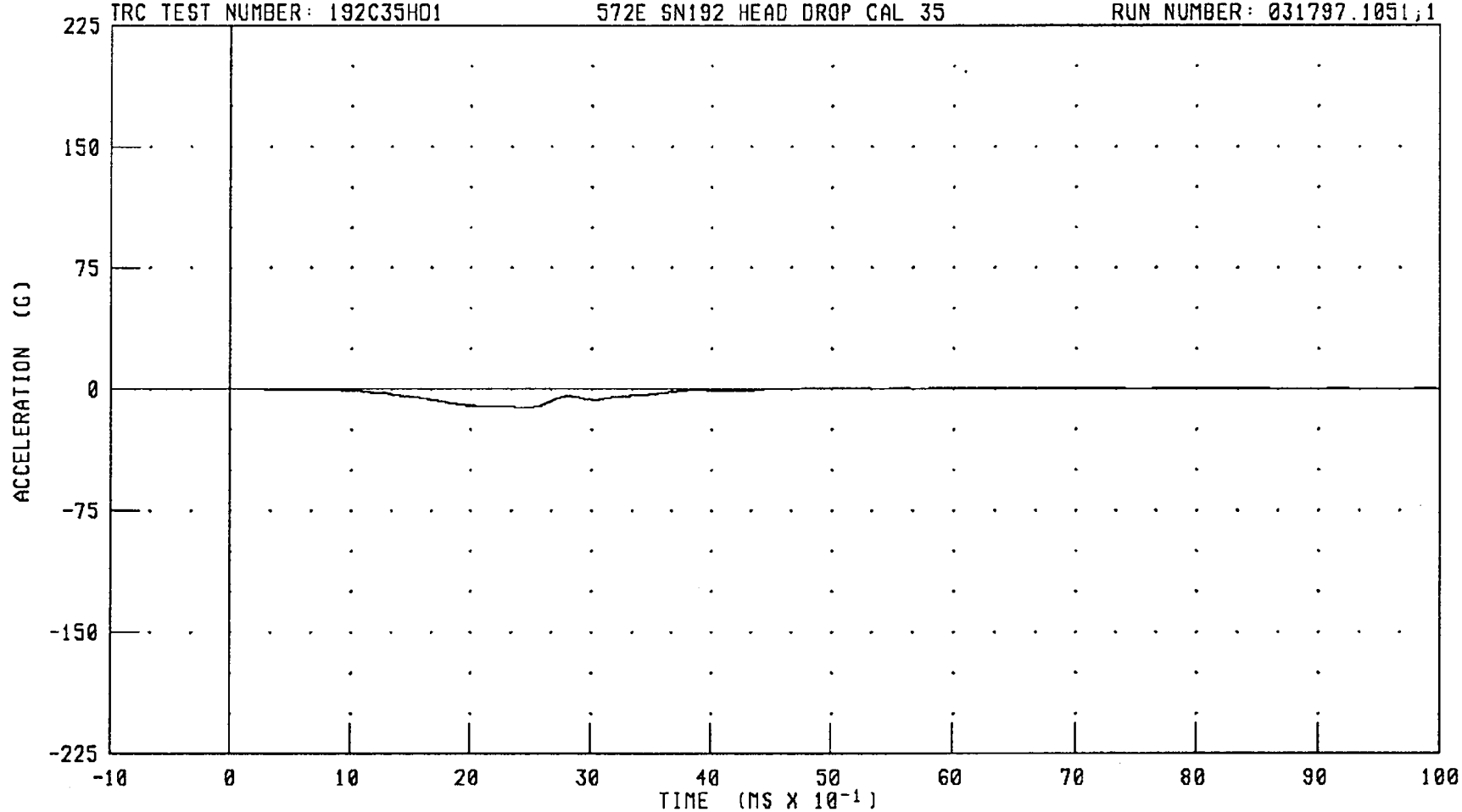
TECHNICIAN  RUN NUMBER: 011497.1507;1


PART 572-E HYBRID III HEAD CALIBRATION
HEAD ACCELERATION X AXIS
TRC TEST NUMBER: 192C35HD1
572E SN192 HEAD DROP CAL 35
RUN NUMBER: 031797.1051;1
75
0
-75
-150
-225
-300
-375
ACCELERATION (G)
-10
0
10
20
30
40
50
60
70
80
90
100
TIME (MS X 10-1)
CHANNEL: HEDXG
FILTER: CH. CLASS 1000
PEAK DATA: 0.84 G @ 4.24 MS; -214.26 G @ 2.16 MS

970224

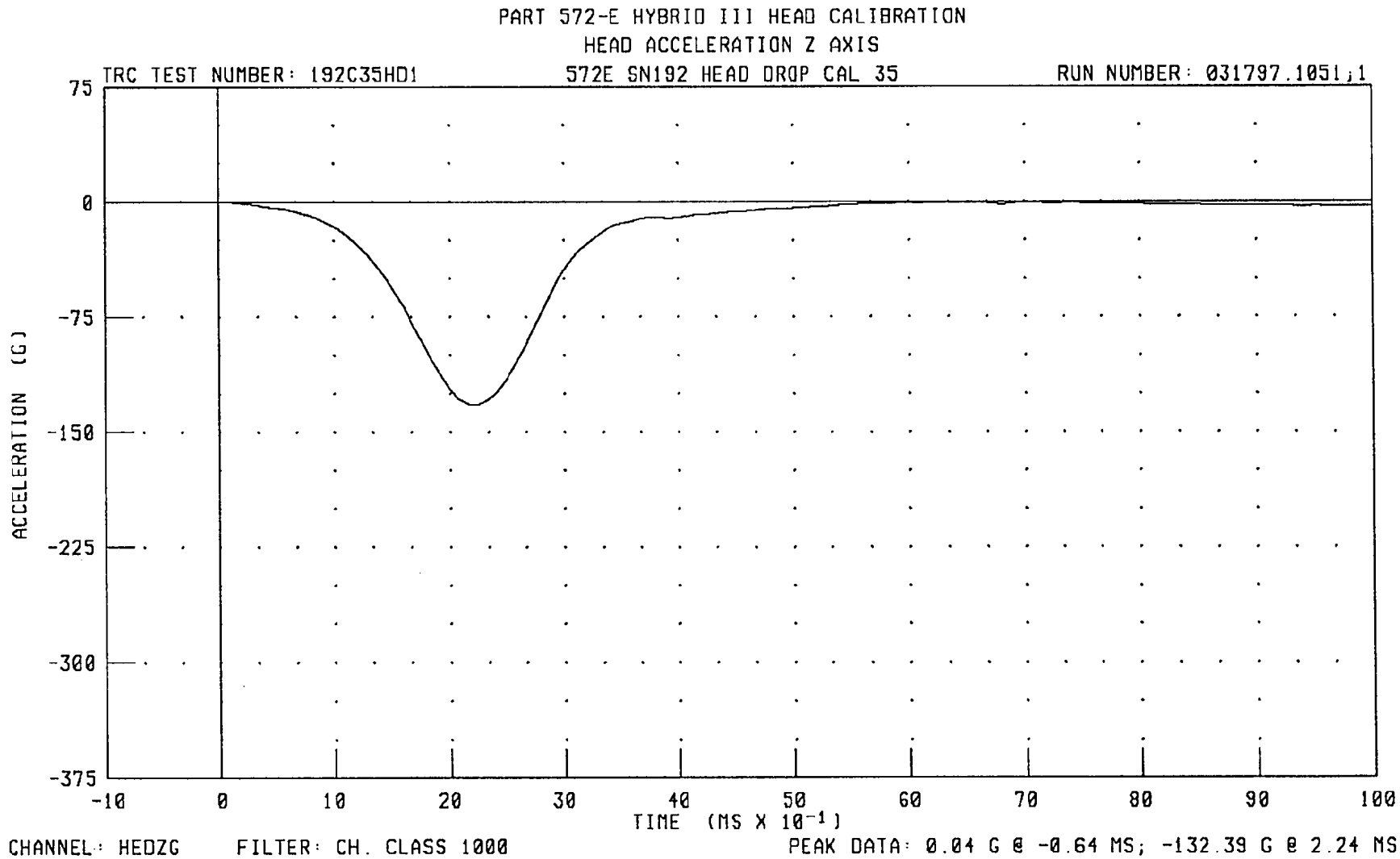
PART 572-E HYBRID III HEAD CALIBRATION
HEAD ACCELERATION Y AXIS

TRC TEST NUMBER: 192C35HD1 572E SN192 HEAD DROP CAL 35 RUN NUMBER: 031797.1051;1

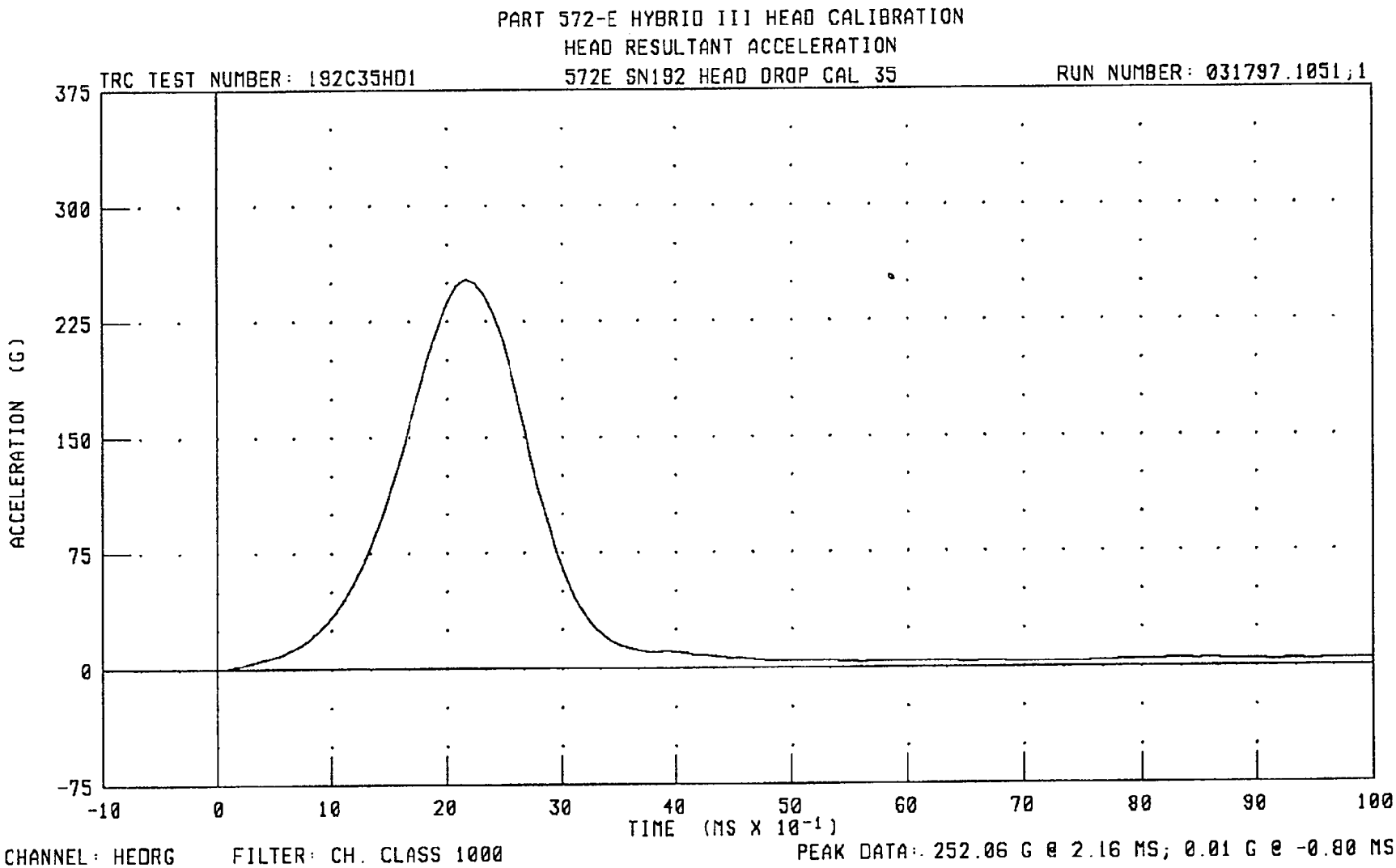


CHANNEL: HEDYG FILTER: CH. CLASS 1000 PEAK DATA: 0.86 G @ 7.04 MS; -11.45 G @ 2.48 MS

970224


PART 572-E HYBRID III HEAD CALIBRATION
HEAD ACCELERATION Z AXIS
TRC TEST NUMBER: 192C35HD1
572E SN192 HEAD DROP CAL 35
RUN NUMBER: 031797.1051;1
75
0
-75
-150
-225
-300
-375
ACCELERATION (G)
-10
0
10
20
30
40
50
60
70
80
90
100
TIME (MS X 10⁻¹)
CHANNEL: HEDZG
FILTER: CH. CLASS 1000
PEAK DATA: 0.04 G @ -0.64 MS; -132.39 G @ 2.24 MS

970224


PART 572-E HYBRID III HEAD CALIBRATION
HEAD RESULTANT ACCELERATION
TRC TEST NUMBER: 192C35HD1
572E SN192 HEAD DROP CAL 35
RUN NUMBER: 031797.1051;1
375
300
225
150
75
0
-75
ACCELERATION (G)
-10
0
10
20
30
40
50
60
70
80
90
100
TIME (MS X 10-1)
CHANNEL: HEDRG
FILTER: CH. CLASS 1000
PEAK DATA: 252.06 G @ 2.16 MS; 0.01 G @ -0.80 MS

TRANSPORTATION RESEARCH CENTER INC.

NECK FLEXION TEST - 6 CHANNEL TRANSDUCER

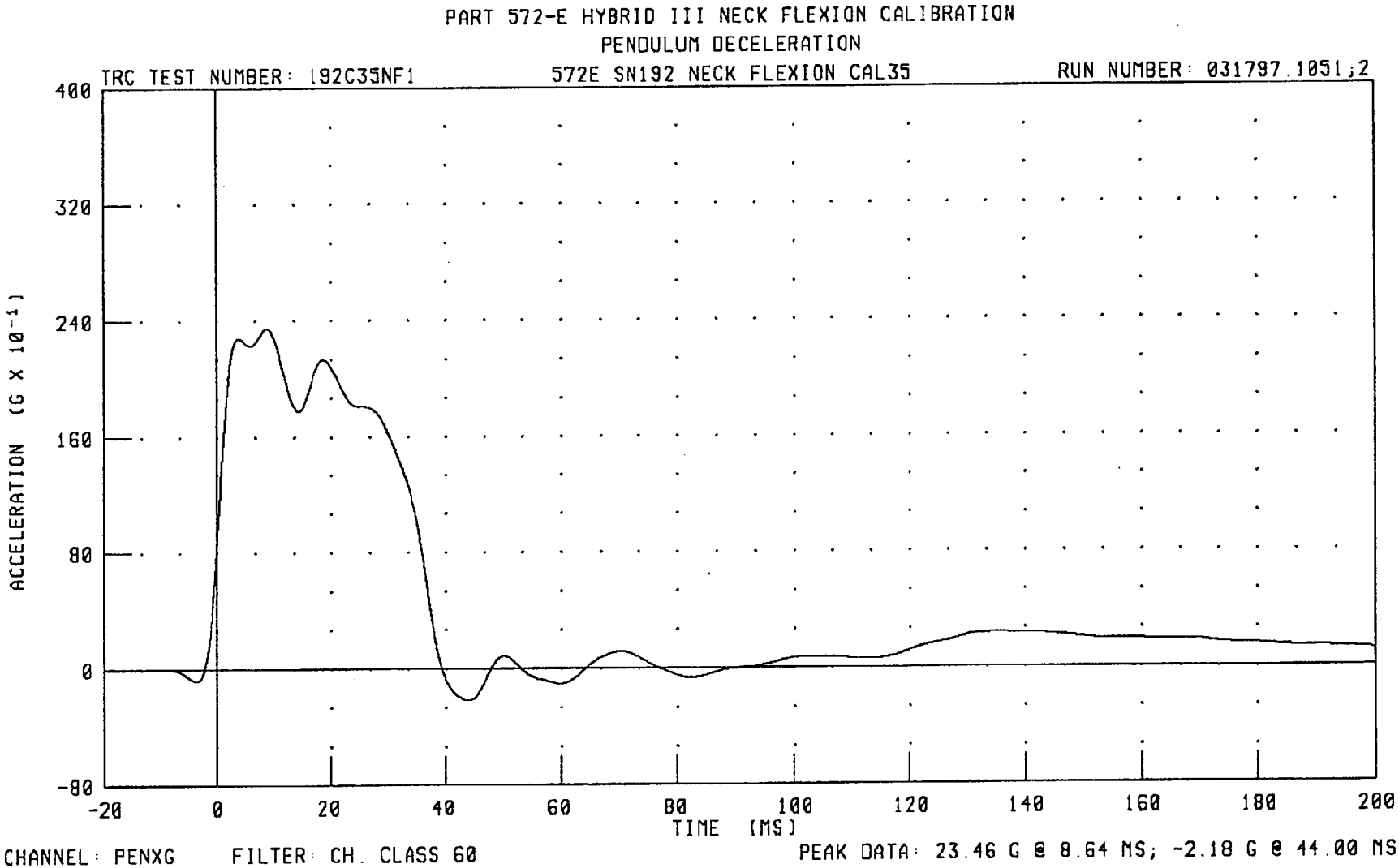
HYBRID III 14-JAN-97

TRC INC. TEST NO: 192C35NF1 572E SN192 NECK FLEXION CAL35

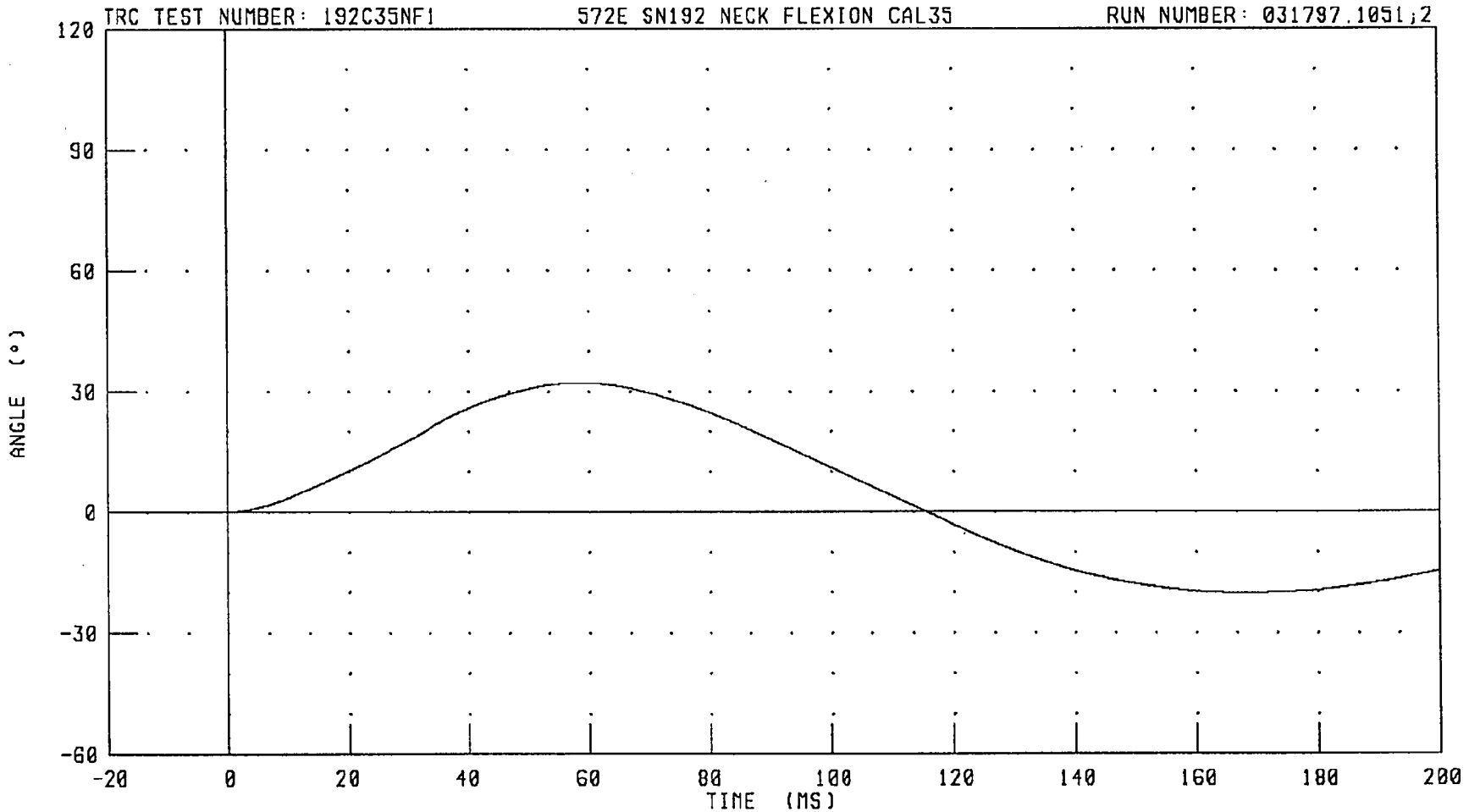
TEST PARAMETER		SPECIFICATION	TEST RESULTS
TEMPERATURE		20.6-22.2 DEG. C	21.1 DEG. C
RELATIVE HUMIDITY		10 - 70 %	16.0 %
IMPACT VELOCITY		6.89 - 7.13 M/S	6.93 M/S
PENDULUM DECELERATION	10 MS	22.50 - 27.50 G	22.66 G
	20 MS	17.60 - 22.60 G	20.78 G
	30 MS	12.50 - 18.50 G	16.07 G
MAX PENDULUM G		29 G MAX	23.46 G
MAX PENDULUM G ABOVE 30 MS		29 G MAX	15.99 G
DECELERATION-TIME CURVE DECAY TIME TO 5 G		34 - 42 MS	36.96 MS
D PLANE ROTATION	MAX	64 - 78 DEG.	70.11 DEG.
	TIME	57 - 64 MS	57.84 MS
MOMENT ABOUT OCCIPITAL CONDYLE	MAX	88.2 - 108.5 NM	96.03 NM
	TIME	47 - 58 MS	50.32 MS
ROTATION ANGLE-TIME CURVE DECAY TIME TO ZERO		113 - 128 MS	113.44 MS
POSITIVE MOMENT-TIME CURVE DECAY TIME TO ZERO		97 - 107 MS	100.48 MS

TEST MEETS SPECIFICATIONS

TECHNICIAN Richard L. Von RUN NUMBER: 011497.1616;2


PART 572-E HYBRID III NECK FLEXION CALIBRATION
PENDULUM DECELERATION
TRC TEST NUMBER: I92C35NF1
572E SN192 NECK FLEXION CAL35
RUN NUMBER: 031797.1051;2
ACCELERATION (G X 10⁻¹)
400
320
240
160
80
0
-80
-20
0
20
40
60
80
100
120
140
160
180
200
TIME (MS)
CHANNEL: PENXG
FILTER: CH. CLASS 60
PEAK DATA: 23.46 G @ 8.64 MS; -2.18 G @ 44.00 MS

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

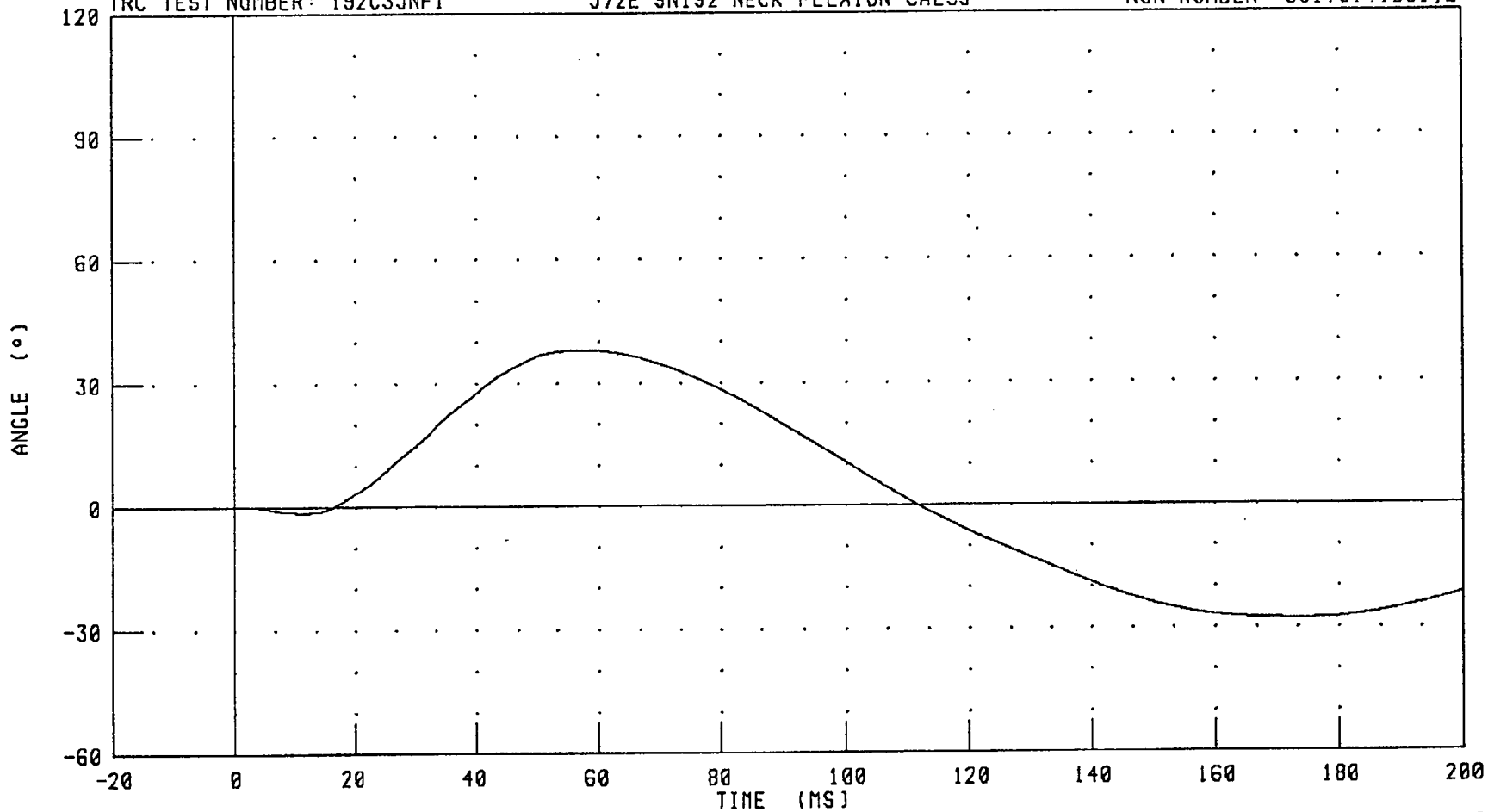


CHANNEL: BETA FILTER: CH. CLASS 60 PEAK DATA: 32.15 ° @ 58.48 MS; -20.24 ° @ 168.00 MS

970224

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

TRC TEST NUMBER: 192C35NF1 572E SN192 NECK FLEXION CAL35 RUN NUMBER: 031797.1051;2

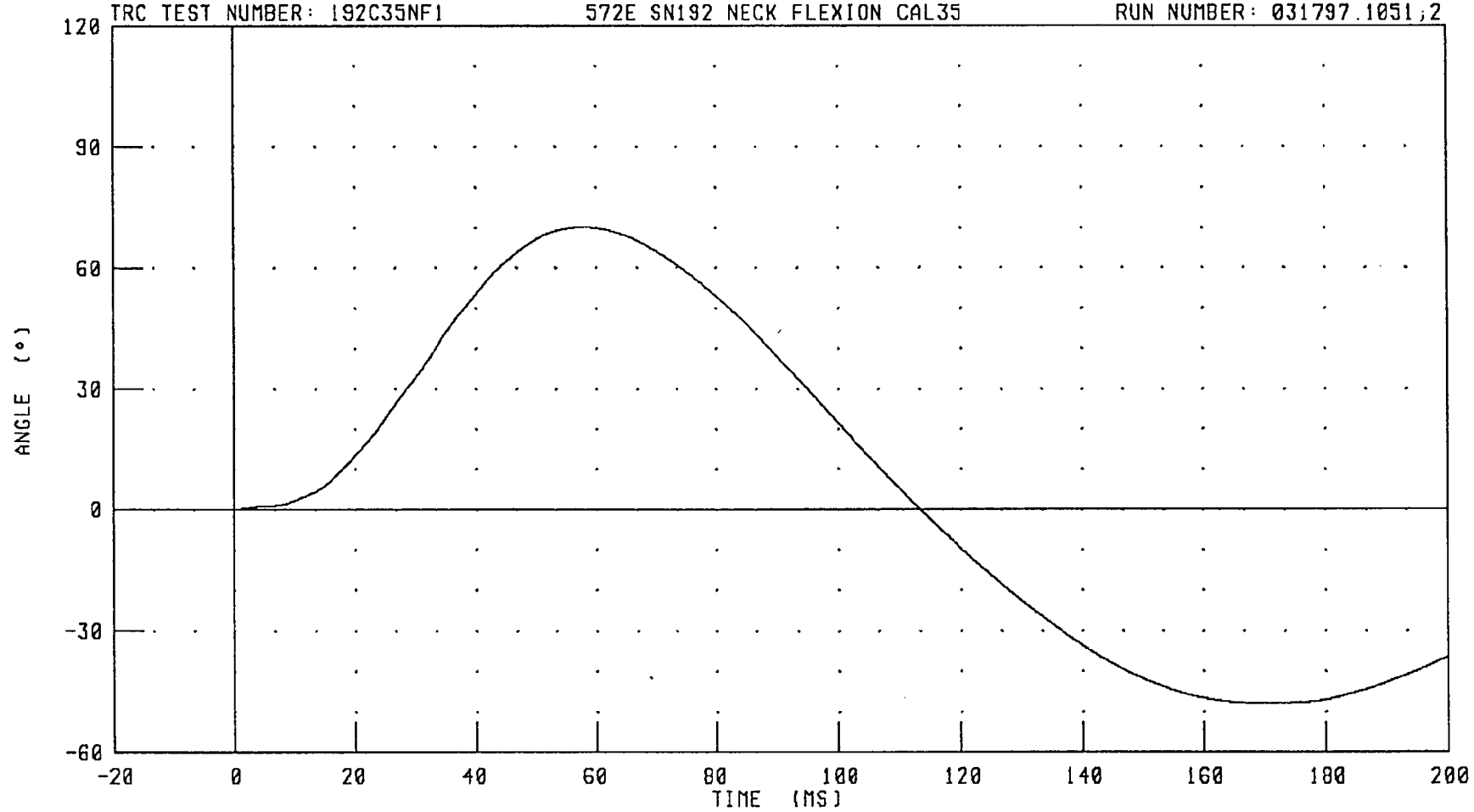


CHANNEL: THETA FILTER: CH. CLASS 60 PEAK DATA: 37.98 ° @ 57.36 MS; -27.80 ° @ 173.60 MS

970224

PART 572-E HYBRID III NECK FLEXION CALIBRATION
TOTAL ROTATION

TRC TEST NUMBER: 192C35NF1 572E SN192 NECK FLEXION CAL35 RUN NUMBER: 031797.1051;2



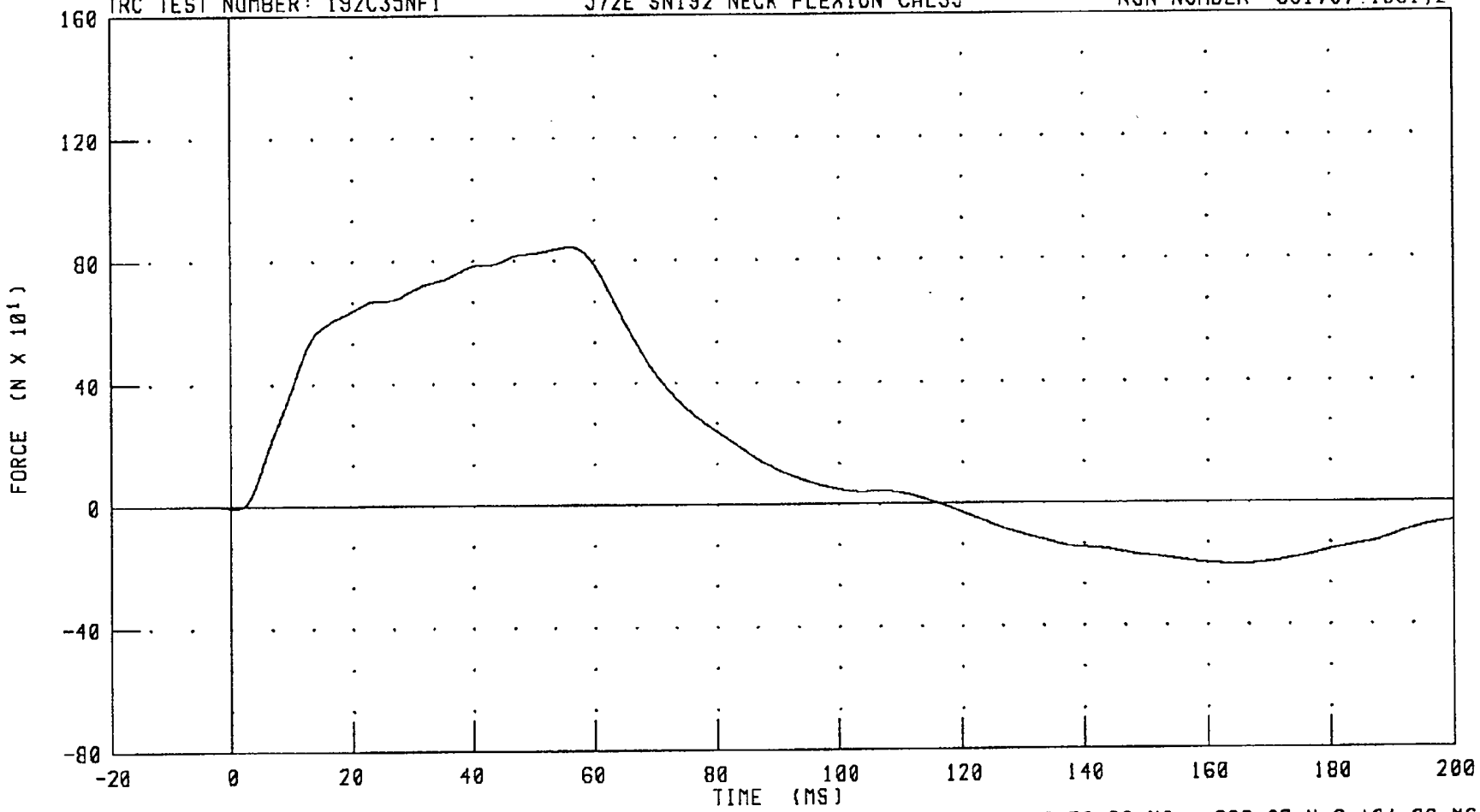
CHANNEL: TOTAN FILTER: CH. CLASS 60 PEAK DATA: 70.12 ° @ 57.84 MS; -47.96 ° @ 170.16 MS

970224

PART 572-E HYBRID III NECK FLEXION CALIBRATION

NECK FORCE X AXIS

TRC TEST NUMBER: 192C35NF1 572E SN192 NECK FLEXION CAL35 RUN NUMBER: 031797.1051;2



CHANNEL: NEKXF FILTER: CH. CLASS 60 PEAK DATA: 843.66 N @ 56.00 MS; -202.27 N @ 164.96 MS

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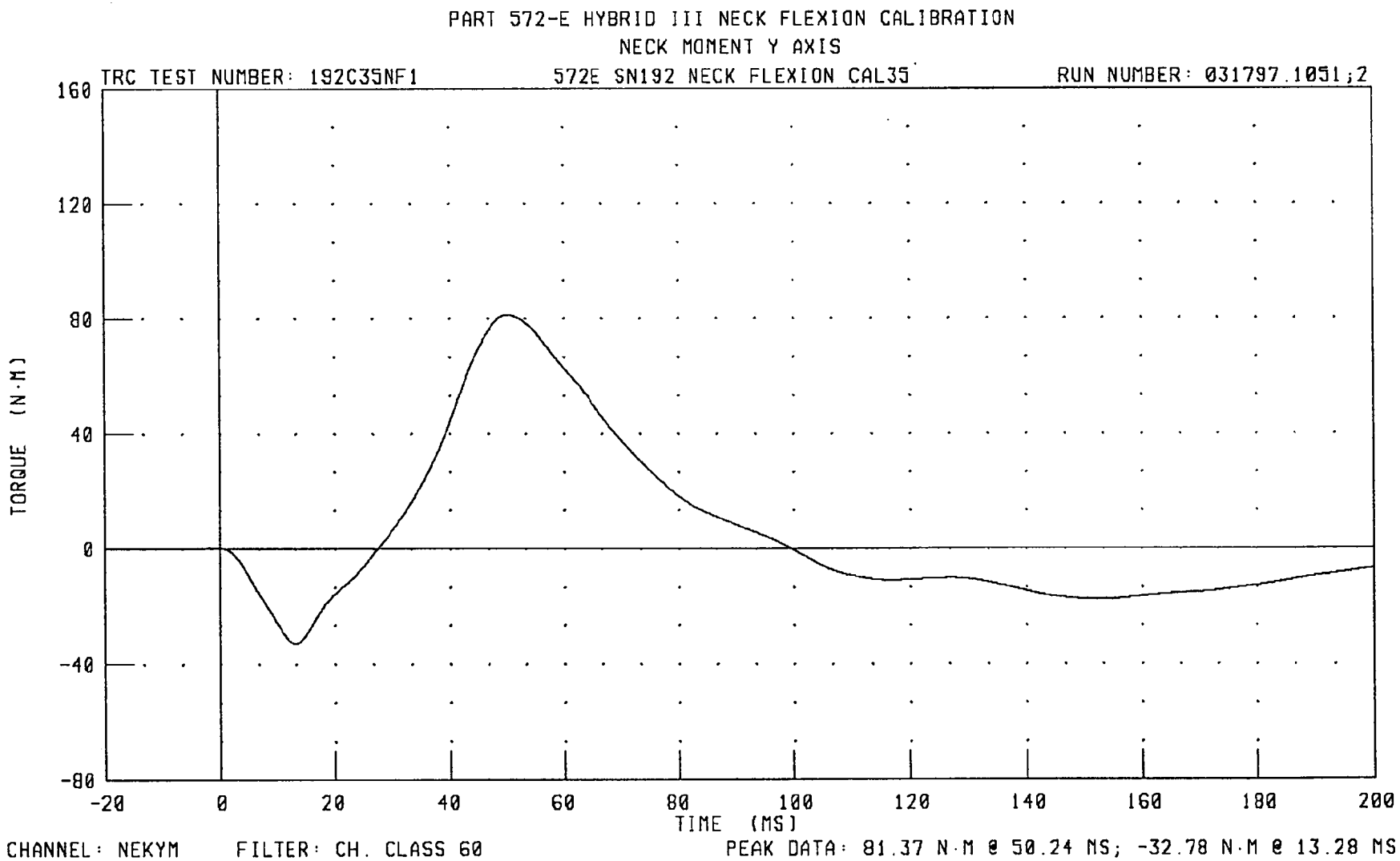
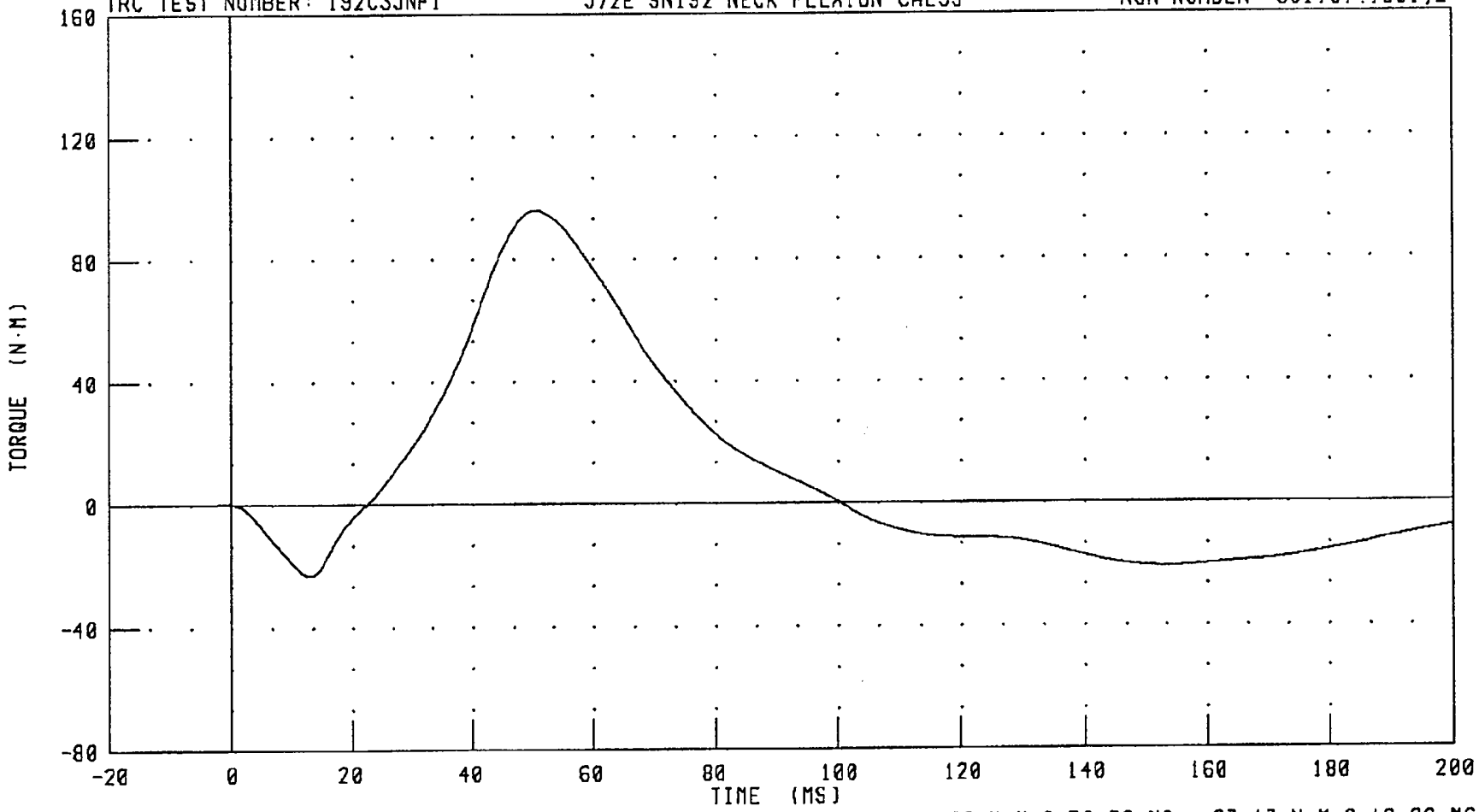

PART 572-E HYBRID III NECK FLEXION CALIBRATION
NECK MOMENT Y AXIS
TRC TEST NUMBER: 192C35NF1
572E SN192 NECK FLEXION CAL35
RUN NUMBER: 031797.1051;2
160
120
80
40
0
-40
-80
TORQUE (N·M)
-20
0
20
40
60
80
100
120
140
160
180
200
TIME (MS)
CHANNEL: NEKYM
FILTER: CH. CLASS 60
PEAK DATA: 81.37 N·M @ 50.24 MS; -32.78 N·M @ 13.28 MS

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

TRC TEST NUMBER: 192C35NF1 572E SN192 NECK FLEXION CAL35 RUN NUMBER: 031797.1051;2



CHANNEL: NEKOM FILTER: CH. CLASS 60 PEAK DATA: 96.03 N-M @ 50.32 MS; -23.13 N-M @ 12.88 MS

TRANSPORTATION RESEARCH CENTER INC.

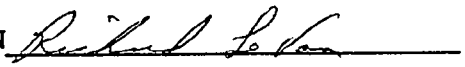
NECK EXTENSION TEST - 6 CHANNEL TRANSDUCER

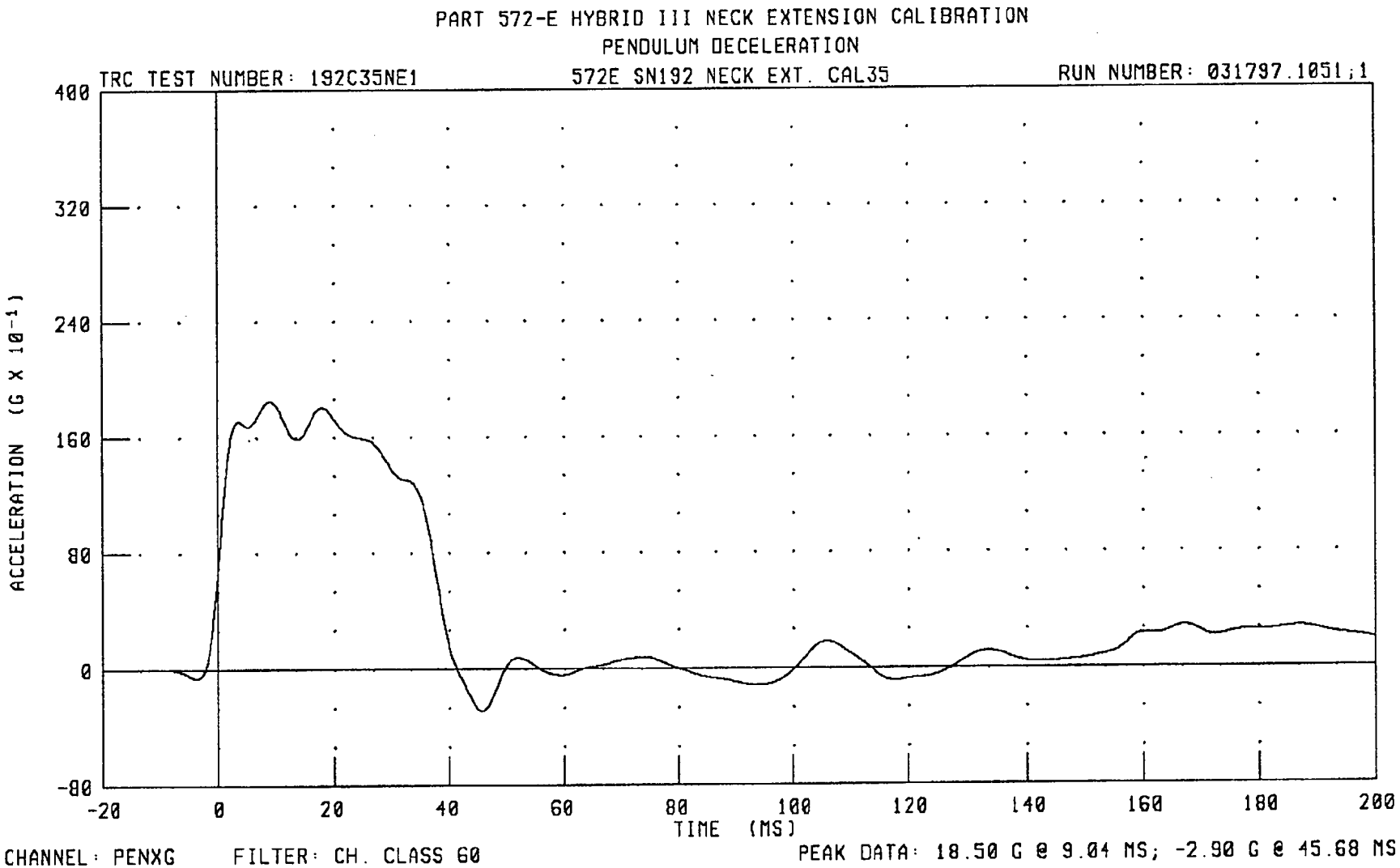
HYBRID III 15-JAN-97

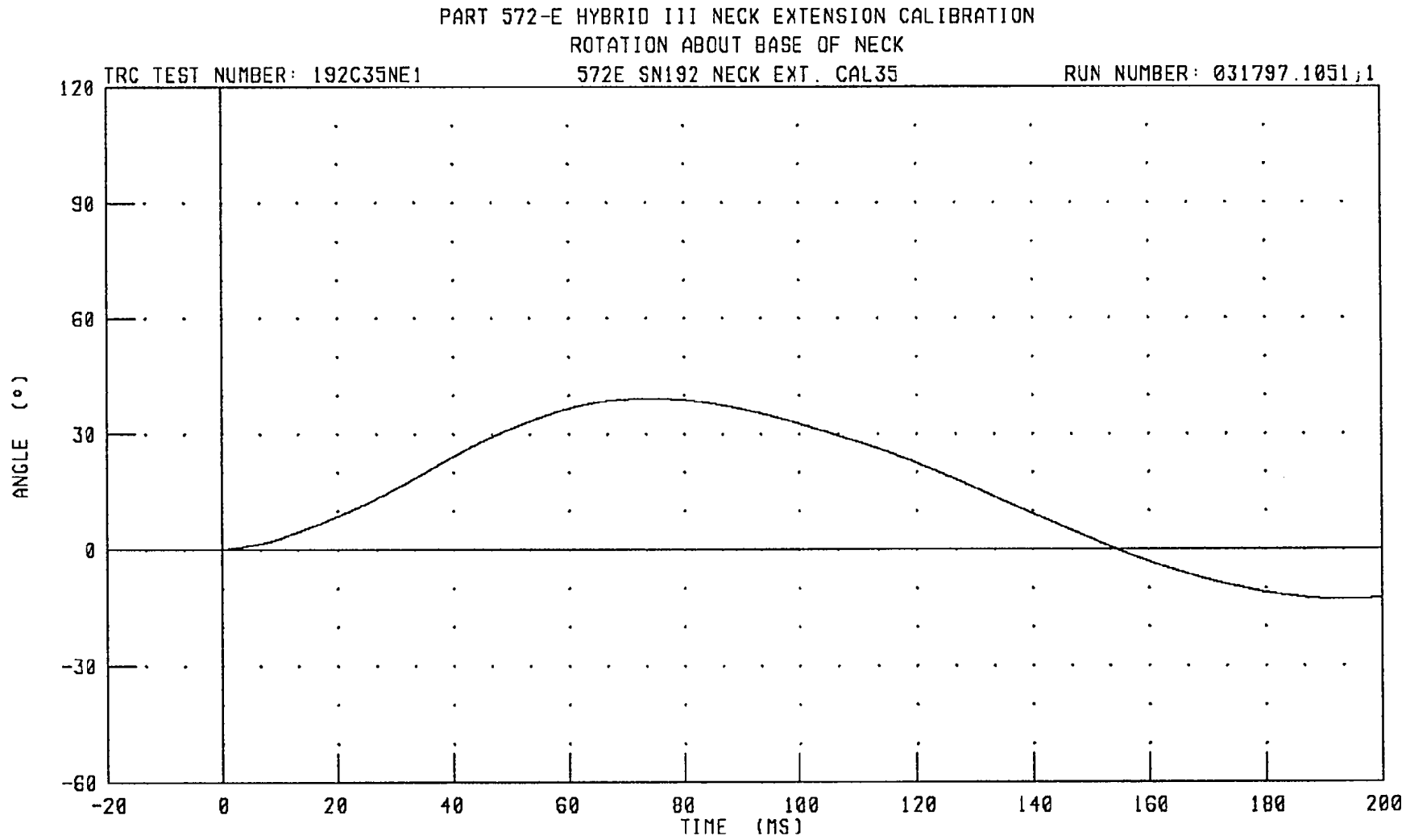
TRC INC. TEST NO: 192C35NE1 572E SN192 NECK EXT. CAL35

TEST PARAMETER		SPECIFICATION	TEST RESULTS
TEMPERATURE		20.6 - 22.2 DEG. C	21.1 DEG. C
RELATIVE HUMIDITY		10 - 70 %	17.0 %
IMPACT VELOCITY		5.95 - 6.19 M/S	6.00 M/S
PENDULUM DECELERATION	10 MS	17.20 - 21.20 G	18.19 G
	20 MS	14.00 - 19.00 G	17.26 G
	30 MS	11.00 - 16.00 G	13.70 G
MAX PENDULUM G		22 G MAX	18.49 G
MAX PENDULUM G ABOVE 30 MS		22 G MAX	13.65 G
DECELERATION-TIME CURVE DECAY TIME TO 5 G		38 - 46 MS	38.32 MS
D PLANE ROTATION	MAX	81 - 106 DEG.	94.87 DEG.
	TIME	72 - 82 MS	75.44 MS
MOMENT ABOUT OCCIPITAL CONDYLE	MIN	-80.0/-52.9 NM	-63.37 NM
	TIME	65 - 79 MS	70.24 MS
ROTATION ANGLE-TIME CURVE DECAY TIME TO ZERO		147 - 174 MS	154.64 MS
NEGATIVE MOMENT-TIME CURVE DECAY TIME TO ZERO		120 - 148 MS	138.32 MS

TEST MEETS SPECIFICATIONS

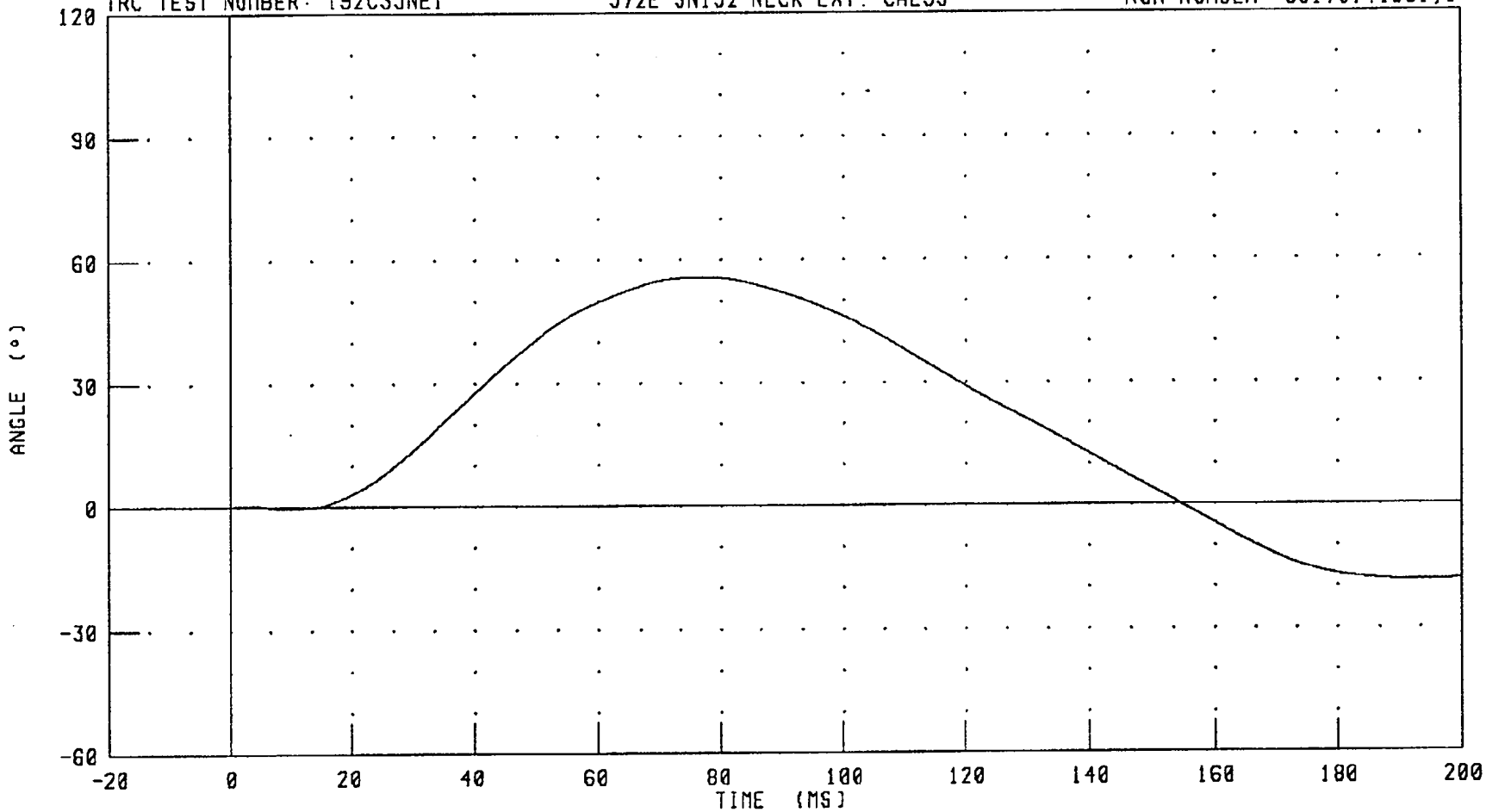
TECHNICIAN  RUN NUMBER: 011597.0825;1


PART 572-E HYBRID III NECK EXTENSION CALIBRATION
PENDULUM DECELERATION
TRC TEST NUMBER: 192C35NE1
572E SN192 NECK EXT. CAL35
RUN NUMBER: 031797.1051;1
400
320
240
160
80
0
-80
ACCELERATION (G X 10⁻¹)
-20
0
20
40
60
80
100
120
140
160
180
200
TIME (MS)
CHANNEL: PENXG
FILTER: CH. CLASS 60
PEAK DATA: 18.50 G @ 9.04 MS; -2.90 G @ 45.68 MS


PART 572-E HYBRID III NECK EXTENSION CALIBRATION
ROTATION ABOUT BASE OF NECK
TRC TEST NUMBER: 192C35NE1
572E SN192 NECK EXT. CAL35
RUN NUMBER: 031797.1051;1
120
90
60
30
0
-30
-60
ANGLE (°)
-20
0
20
40
60
80
100
120
140
160
180
200
TIME (MS)
CHANNEL: BETA
FILTER: CH. CLASS 60
PEAK DATA: 39.20 ° @ 74.00 MS; -12.97 ° @ 193.68 MS

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

TRC TEST NUMBER: I92C35NEI 572E SN192 NECK EXT. CAL35 RUN NUMBER: 031797.1051;1



CHANNEL: THETA FILTER: CH. CLASS 60 PEAK DATA: 55.72 ° @ 77.04 MS; -18.51 ° @ 193.60 MS

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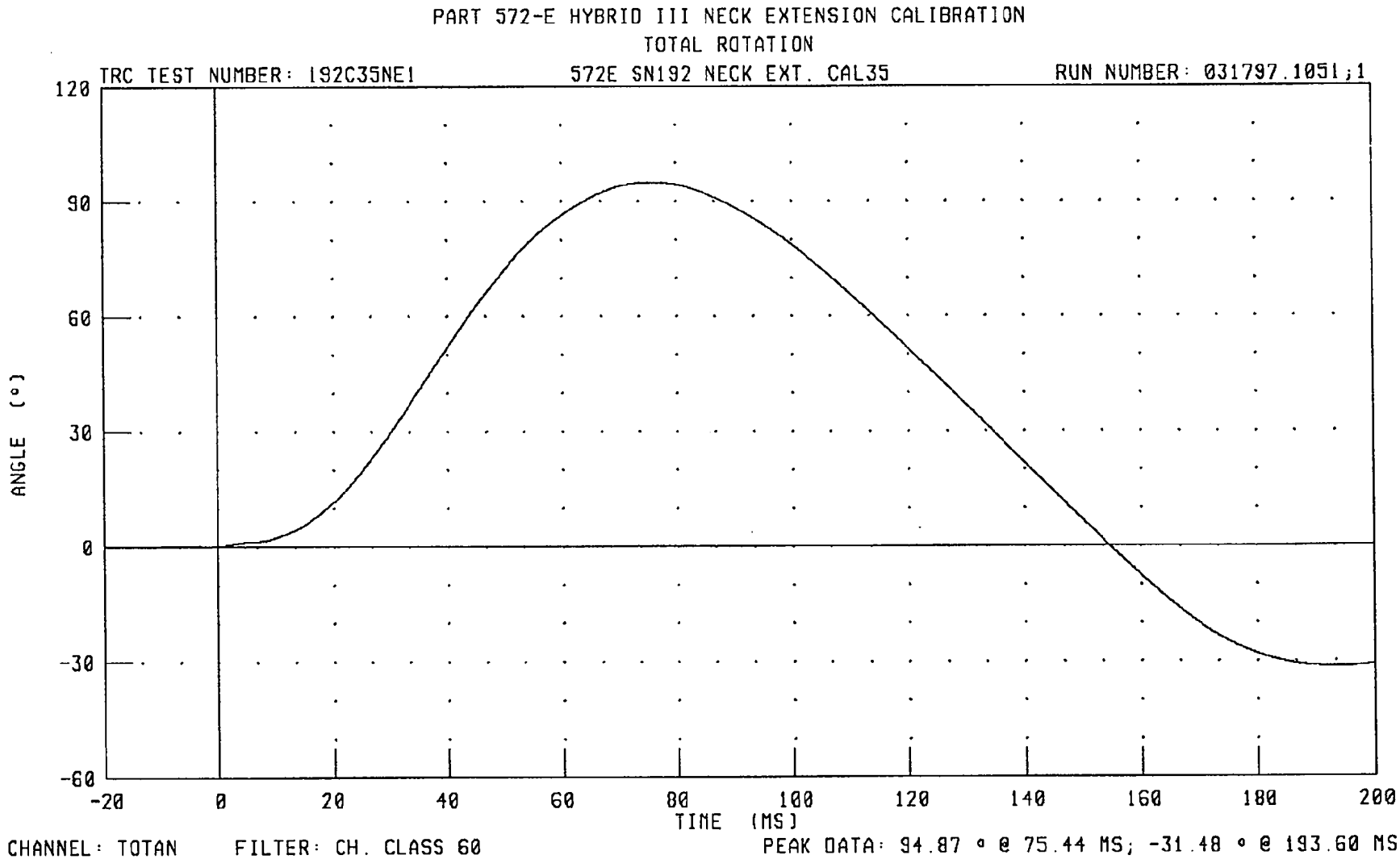
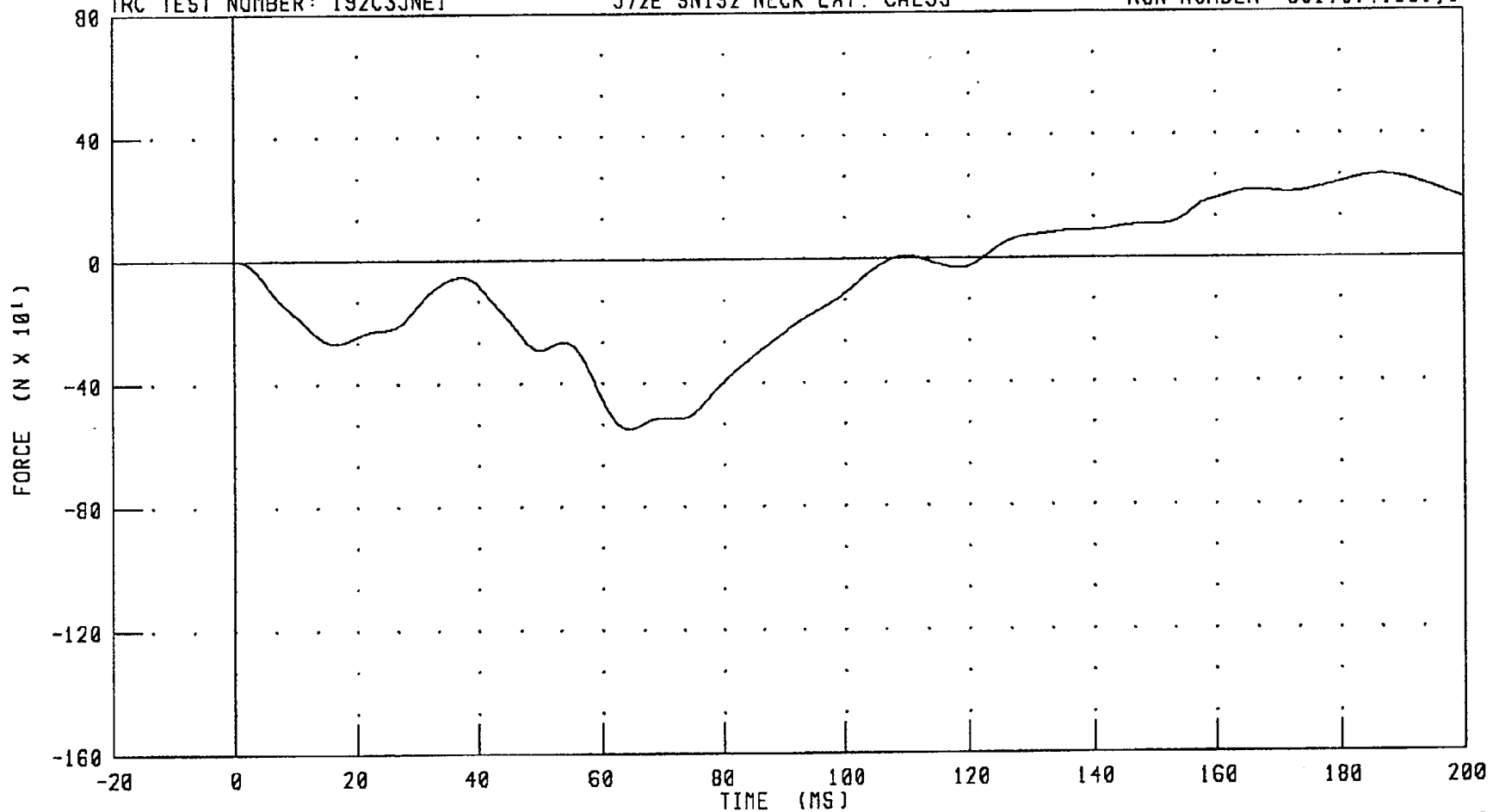

PART 572-E HYBRID III NECK EXTENSION CALIBRATION
TOTAL ROTATION
TRC TEST NUMBER: 192C35NE1
572E SN192 NECK EXT. CAL35
RUN NUMBER: 031797.1051;1
120
90
60
30
0
-30
-60
ANGLE (°)
-20
0
20
40
60
80
100
120
140
160
180
200
TIME (MS)
CHANNEL: TOTAN
FILTER: CH. CLASS 60
PEAK DATA: 94.87 ° @ 75.44 MS; -31.48 ° @ 193.60 MS

PART 572-E HYBRID III NECK EXTENSION CALIBRATION

NECK FORCE X AXIS

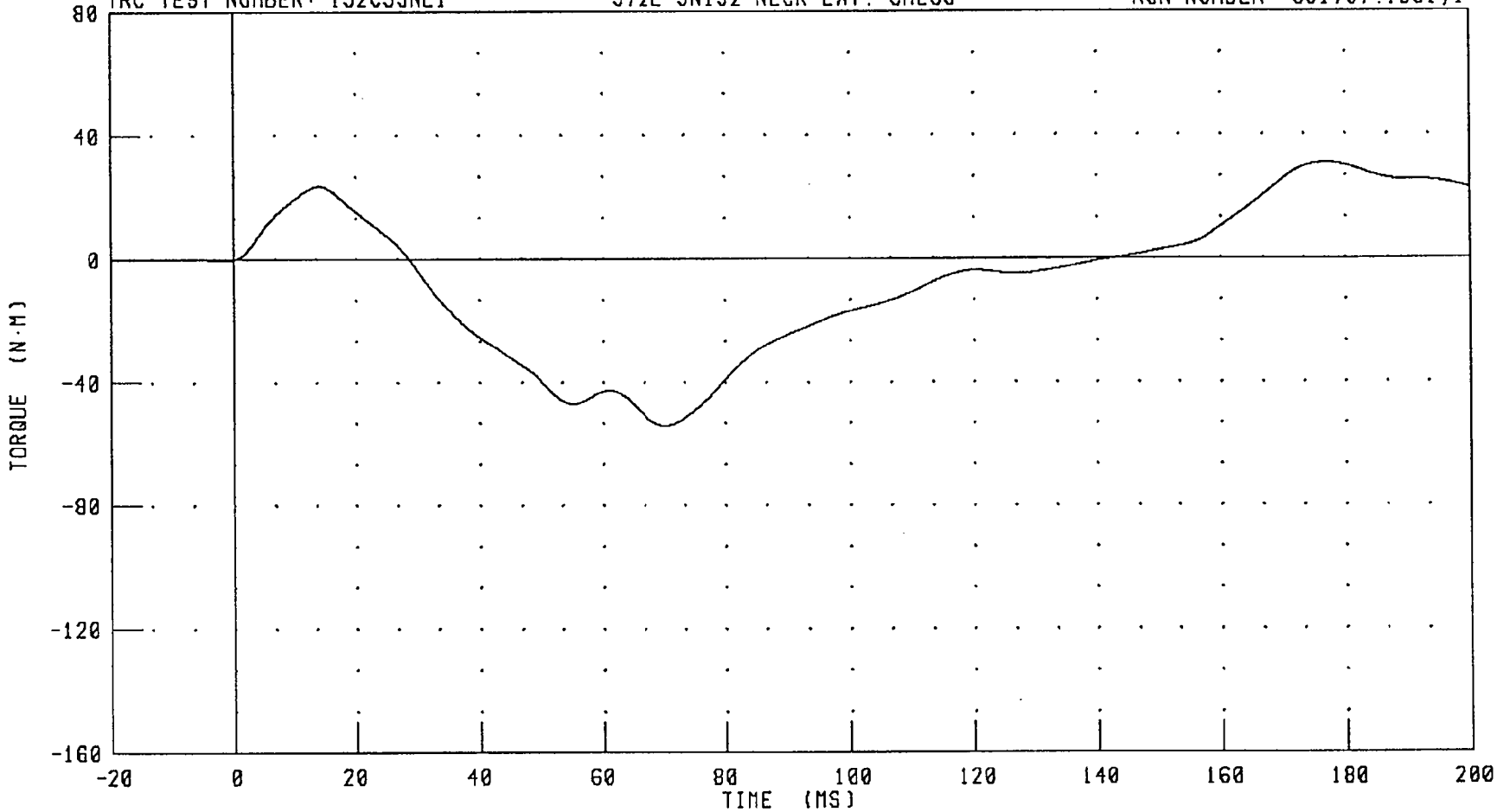
TRC TEST NUMBER: 192C35NE1 572E SN192 NECK EXT. CAL35 RUN NUMBER: 031797.1051;1



CHANNEL: NEKXF FILTER: CH. CLASS 60 PEAK DATA: 265.99 N @ 186.72 MS; -548.92 N @ 64.32 MS

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

TRC TEST NUMBER: 192C35NE1 572E SN192 NECK EXT. CAL35 RUN NUMBER: 031797.1051;1



CHANNEL: NEKYM FILTER: CH. CLASS 60 PEAK DATA: 30.76 N·M @ 176.96 MS; -54.24 N·M @ 70.24 MS

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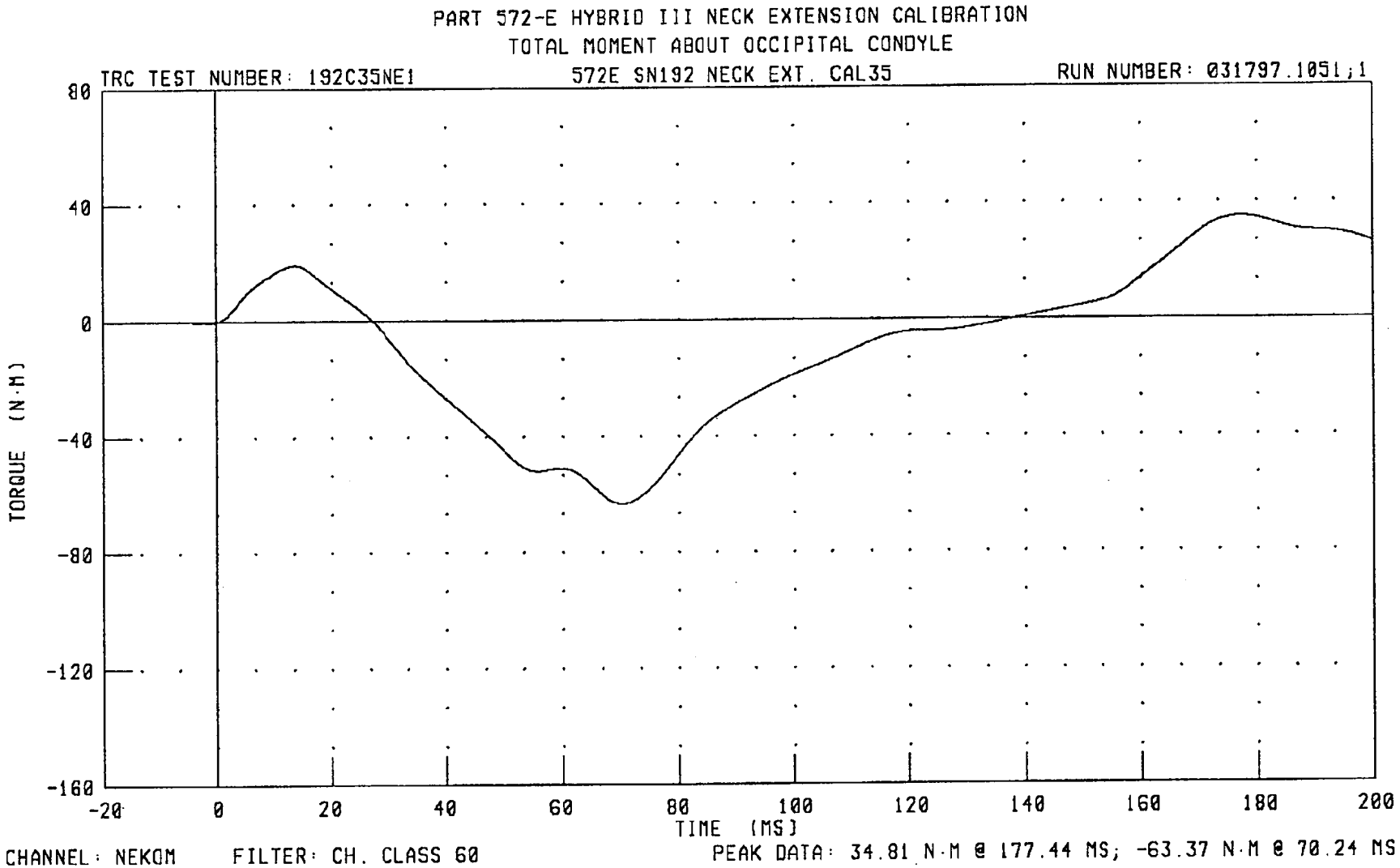

PART 572-E HYBRID III NECK EXTENSION CALIBRATION
TOTAL MOMENT ABOUT OCCIPITAL CONDYLE
TRC TEST NUMBER: 192C35NE1
572E SN192 NECK EXT. CAL35
RUN NUMBER: 031797.1051;1
80
40
0
-40
-80
-120
-160
TORQUE (N-M)
-20
0
20
40
60
80
100
120
140
160
180
200
TIME (MS)
CHANNEL: NEKOM
FILTER: CH. CLASS 60
PEAK DATA: 34.81 N-M @ 177.44 MS; -63.37 N-M @ 70.24 MS

TRANSPORTATION RESEARCH CENTER INC.

THORAX IMPACT TEST

HYBRID III 15-JAN-97

TRC INC. TEST NO: 192C35TH1 572E SN192 H.S.THORAX CAL 35

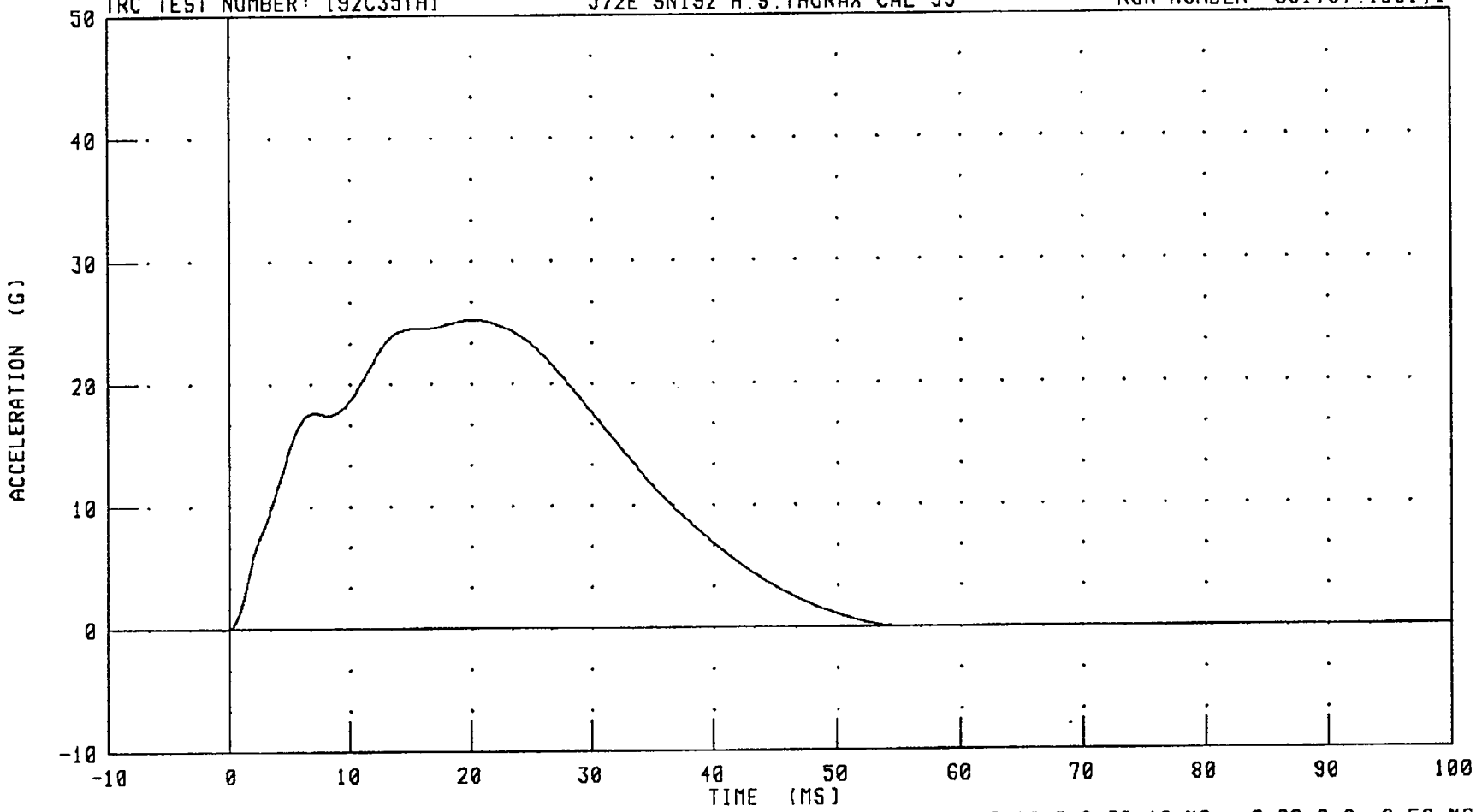
TEST PARAMETER	HIGH SPEED TEST SPECIFICATION	TEST RESULTS
TEMPERATURE	20.6-22.2 DEG. C	21.1 DEG. C
RELATIVE HUMIDITY	10 - 70 %	24.0 %
PENDULUM VELOCITY	6.59 - 6.83 M/S	6.68 M/S
MAXIMUM DEFLECTION	63.5 - 72.6 MM	67.7 MM
MAXIMUM RESISTIVE FORCE	5159 - 5894 N	5768. N
INTERNAL HYSTERESIS	69% - 85%	73.1%

TEST MEETS SPECIFICATIONS

TECHNICIAN _____ RUN NUMBER: 011597.1338;1

PART 572-E HYBRID III THORAX CALIBRATION
PENDULUM DECELERATION

TRC TEST NUMBER: I92C35TH1 572E SN192 H.S.THORAX CAL 35 RUN NUMBER: 031797.1051;1



CHANNEL: PENXG FILTER: CH. CLASS 180 PEAK DATA: 25.18 G @ 20.16 MS; -0.02 G @ -0.56 MS

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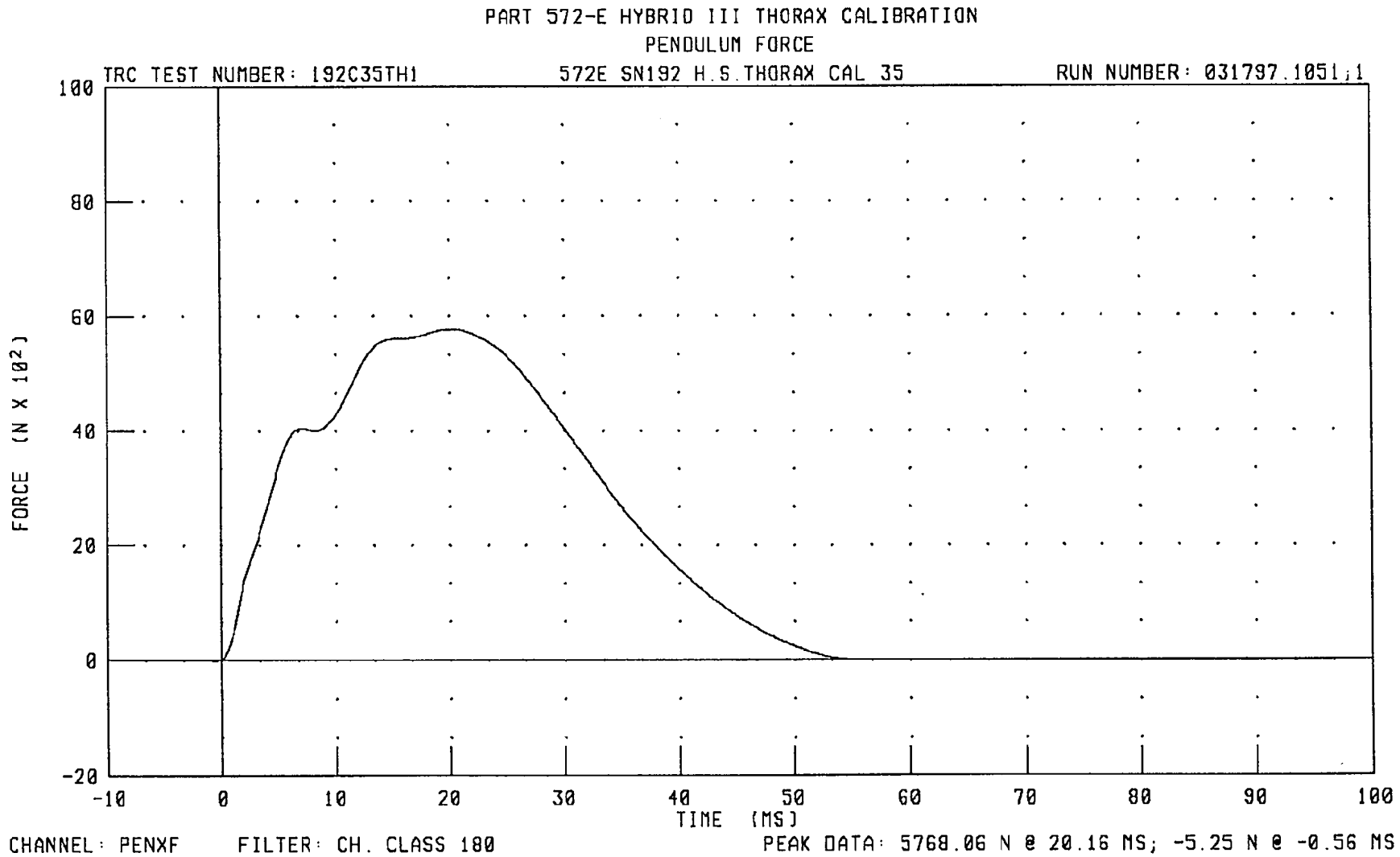
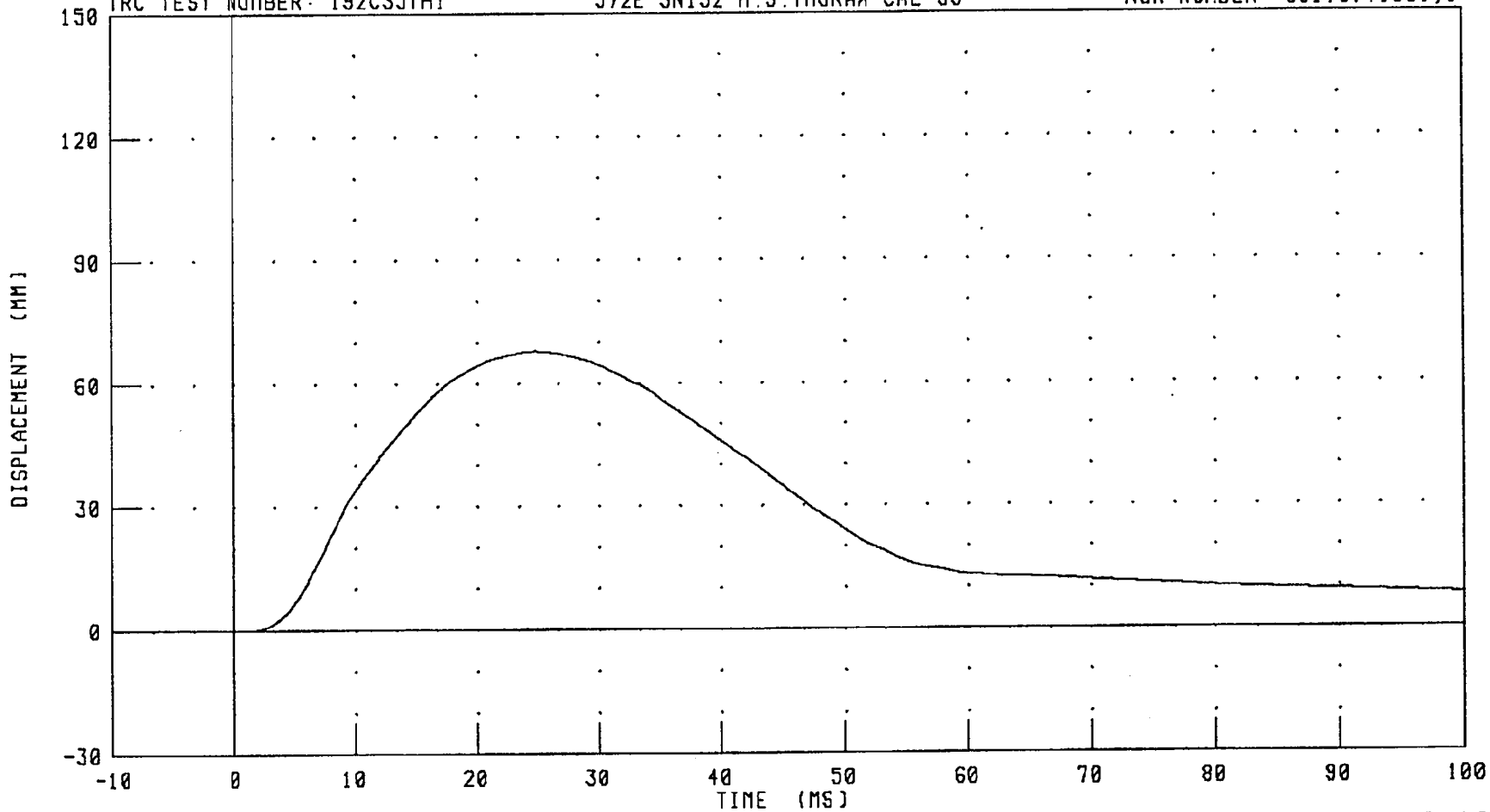

PART 572-E HYBRID III THORAX CALIBRATION
PENDULUM FORCE
TRC TEST NUMBER: 192C35TH1
572E SN192 H.S.THORAX CAL 35
RUN NUMBER: 031797.1051;1
100
80
60
40
20
0
-20
FORCE (N X 10²)
-10
0
10
20
30
40
50
60
70
80
90
100
TIME (MS)
CHANNEL: PENXF
FILTER: CH. CLASS 180
PEAK DATA: 5768.06 N @ 20.16 MS; -5.25 N @ -0.56 MS

PART 572-E HYBRID III THORAX CALIBRATION

STERNUM DISPLACEMENT

TRC TEST NUMBER: 192C35TH1 572E SN192 H.S.THORAX CAL 35 RUN NUMBER: 031797.1051;1



CHANNEL: CSTXD FILTER: CH. CLASS 180 PEAK DATA: 67.77 MM @ 24.64 MS; -0.02 MM @ 0.80 MS

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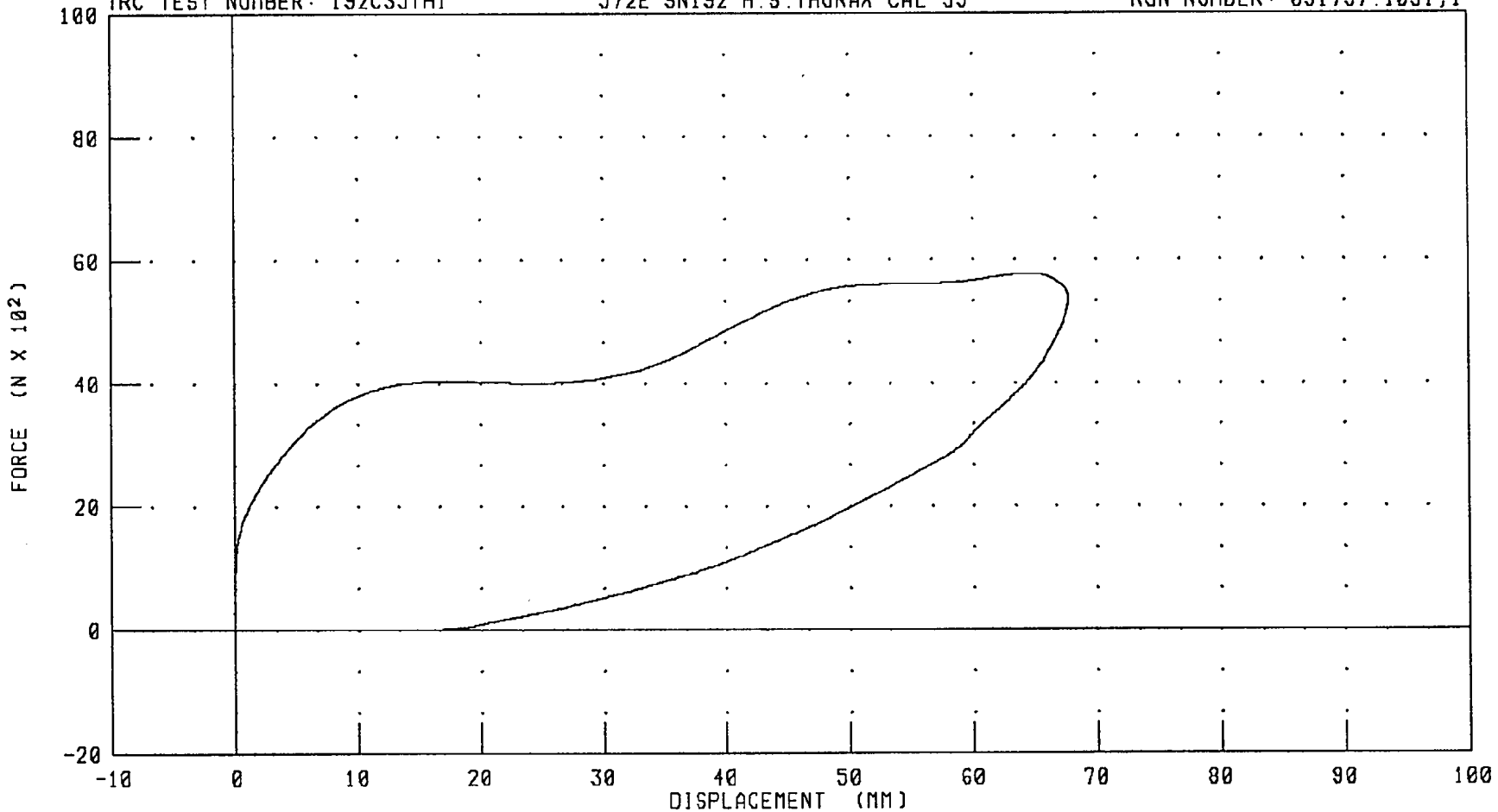
PART 572-E HYBRID III THORAX CALIBRATION
CHEST DISPLACEMENT VS PENDULUM FORCE

TRC TEST NUMBER: 192C35TH1 572E SN192 H.S.THORAX CAL 35 RUN NUMBER: 031797.1051;1



CHANNEL: CSTXD FILTER: CH. CLASS 180 PEAK DATA: 67.77 MM @ 24.64 MS; -0.02 MM @ 0.80 MS
PENXF CH. CLASS 180 5768.06 N @ 20.16 MS; -5.25 N @ -0.56 MS

970224

TRANSPORTATION RESEARCH CENTER INC.

RIGHT KNEE IMPACT TEST

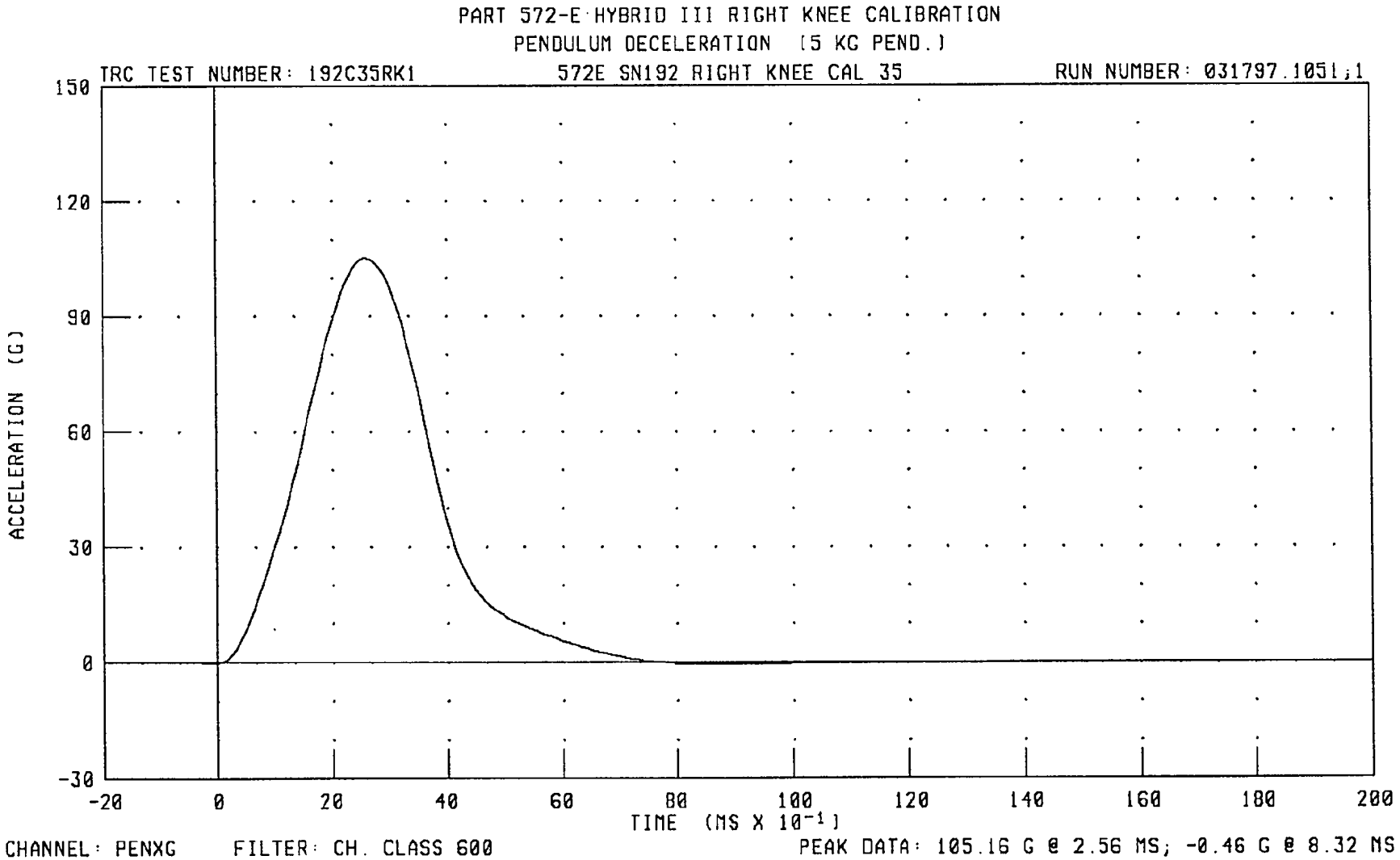
HYBRID III 14-JAN-97

TRC INC. TEST NO: 192C35RK1 572E SN192 RIGHT KNEE CAL 35

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	18.9-25.6 DEG. C	21.1 DEG. C
RELATIVE HUMIDITY	10 - 70 %	16.0 %
PROBE VELOCITY	2.07 - 2.13 M/S	2.12 M/S
PEAK KNEE IMPACT FORCE 5.0 KG PENDULUM	4715 - 5782 N	5145.2 N

TEST MEETS SPECIFICATIONS

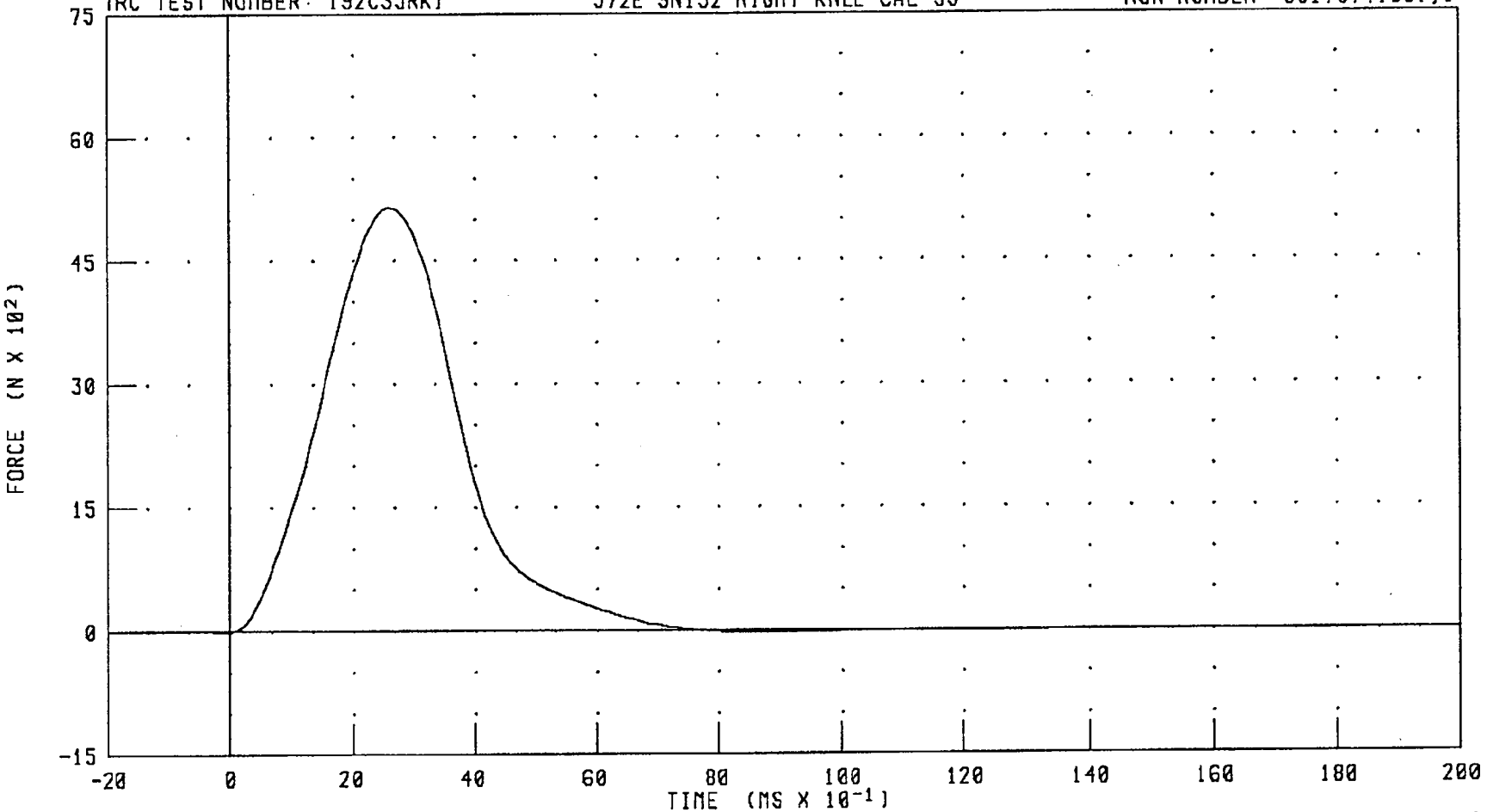
TECHNICIAN Richard Le Van RUN NUMBER: 011497.1516;1


PART 572-E HYBRID III RIGHT KNEE CALIBRATION
PENDULUM DECELERATION (5 KG PEND.)
TRC TEST NUMBER: 192C35RK1
572E SN192 RIGHT KNEE CAL 35
RUN NUMBER: 031797.1051;1
ACCELERATION (G)
150
120
90
60
30
0
-30
-20
0
20
40
60
80
100
120
140
160
180
200
TIME (MS X 10⁻¹)
CHANNEL: PENXG
FILTER: CH. CLASS 600
PEAK DATA: 105.16 G @ 2.56 MS; -0.46 G @ 8.32 MS

PART 572-E HYBRID III RIGHT KNEE CALIBRATION

PENDULUM FORCE (5 KG PEND.)

TRC TEST NUMBER: 192C35RK1 572E SN192 RIGHT KNEE CAL 35 RUN NUMBER: 031797.1051;1



CHANNEL: PENXF FILTER: CH. CLASS 600 PEAK DATA: 5145.23 N @ 2.56 MS; -22.36 N @ 8.32 MS

TRANSPORTATION RESEARCH CENTER INC.

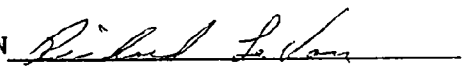
LEFT KNEE IMPACT TEST

HYBRID III 14-JAN-97

TRC INC. TEST NO: 192C35LK1 572E SN192 LEFT KNEE CAL 35

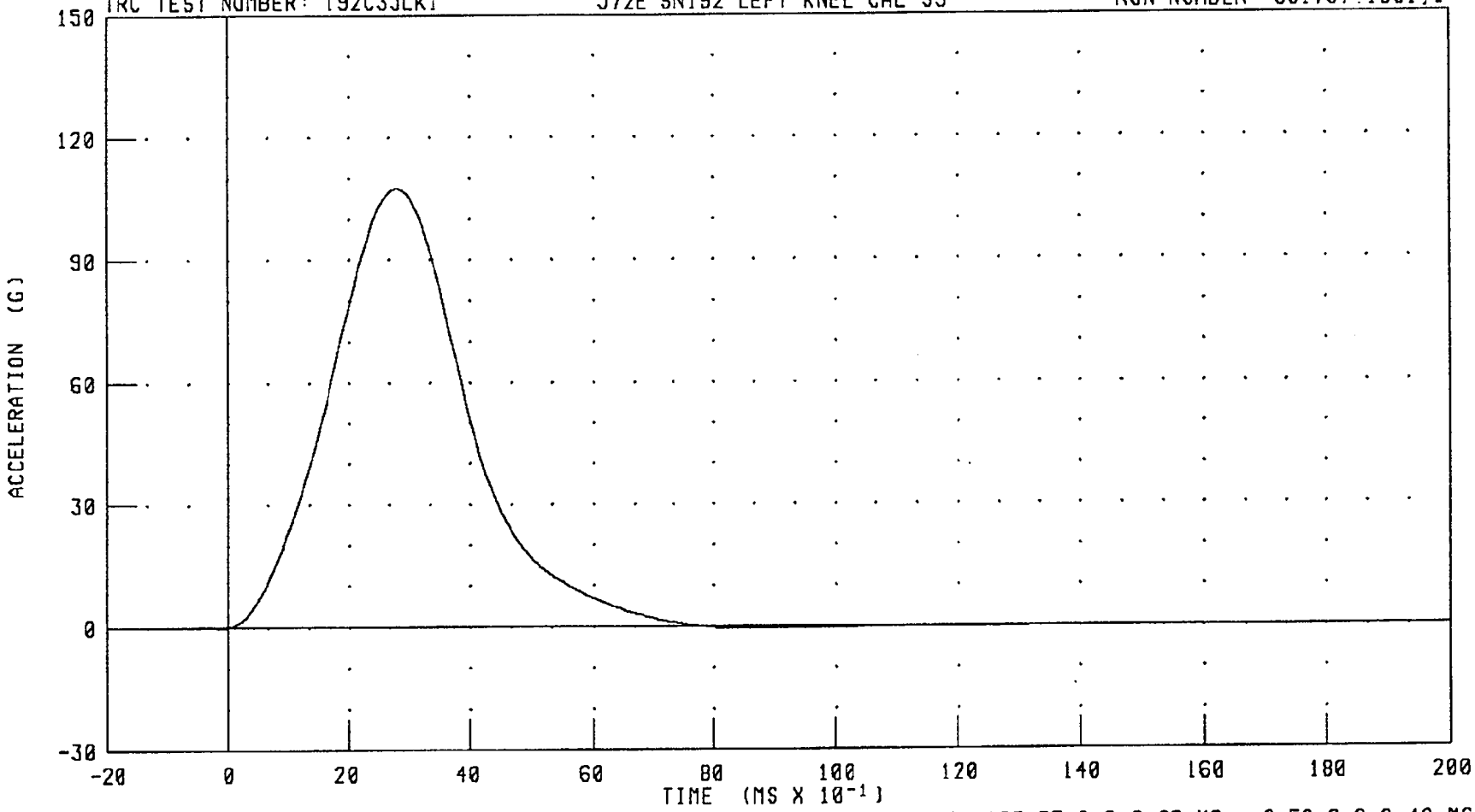
TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	18.9-25.6 DEG. C	21.1 DEG. C
RELATIVE HUMIDITY	10 - 70 %	16.0 %
PROBE VELOCITY	2.07 - 2.13 M/S	2.11 M/S
PEAK KNEE IMPACT FORCE 5.0 KG PENDULUM	4715 - 5782 N	5263.0 N

TEST MEETS SPECIFICATIONS

TECHNICIAN  RUN NUMBER: 011497.1512;1

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

TRC TEST NUMBER: I92C35LK1 572E SN192 LEFT KNEE CAL 35 RUN NUMBER: 031797.1051;1



CHANNEL: PENXG FILTER: CH. CLASS 600 PEAK DATA: 107.57 G @ 2.80 MS; -0.52 G @ 8.48 MS

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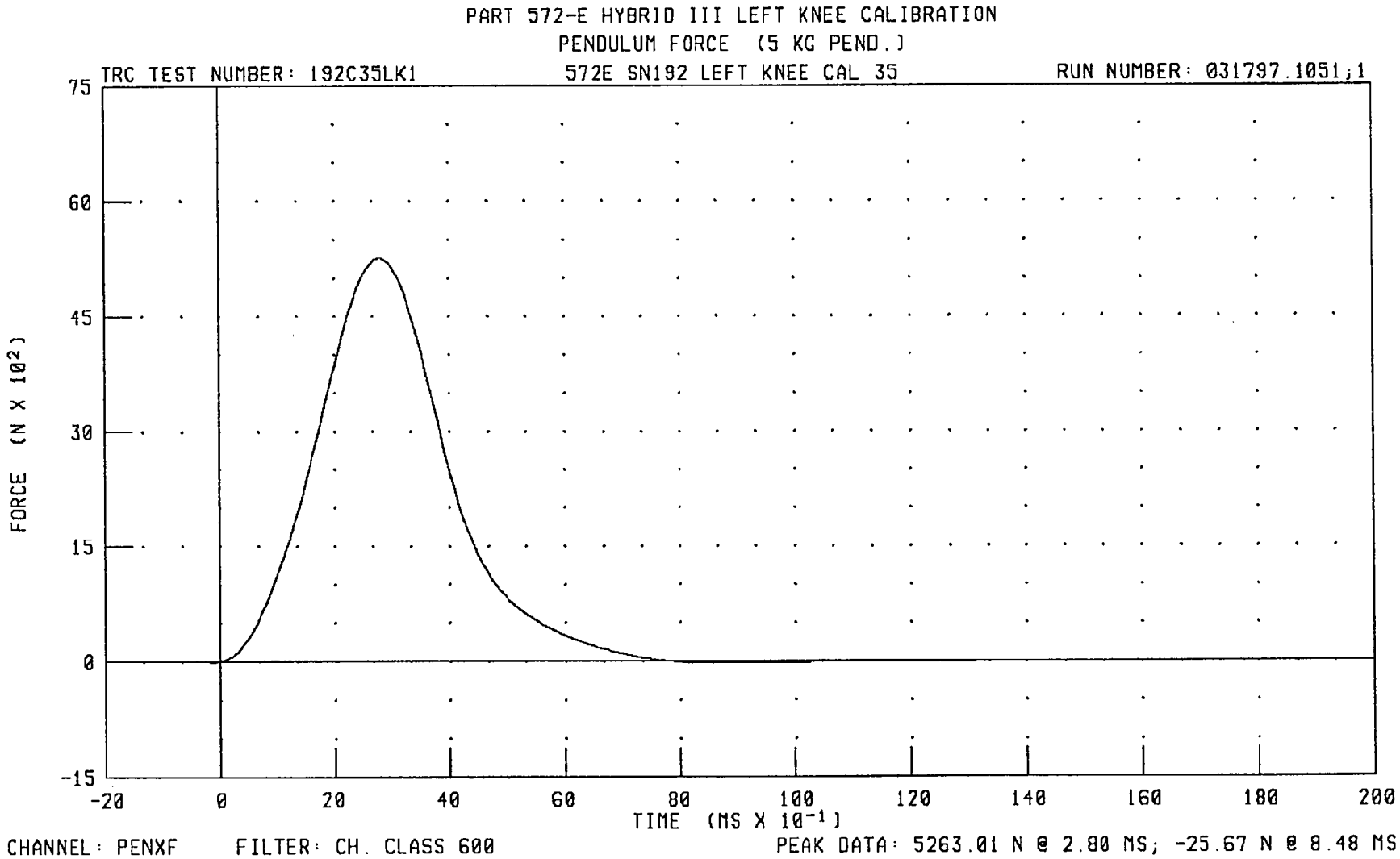

PART 572-E HYBRID III LEFT KNEE CALIBRATION
PENDULUM FORCE (5 KG PEND.)
TRC TEST NUMBER: 192C35LK1
572E SN192 LEFT KNEE CAL 35
RUN NUMBER: 031797.1051;1
FORCE (N X 10²)
75
60
45
30
15
0
-15
-20
0
20
40
60
80
100
120
140
160
180
200
TIME (MS X 10⁻¹)
CHANNEL: PENXF
FILTER: CH. CLASS 600
PEAK DATA: 5263.01 N @ 2.80 MS; -25.67 N @ 8.48 MS

Pre-test Certification Data

Passenger Dummy S/N: 142

TRANSPORTATION RESEARCH CENTER INC.
HYBRID III EXTERNAL DIMENSIONS
SN 142 HUMANOID 23-JAN-97

TRC INC. TEST NO: 142C36ED1 572E SN142 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	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 Lebow RUN NUMBER: 012397.0831

TRANSPORTATION RESEARCH CENTER INC.

HEAD DROP TEST

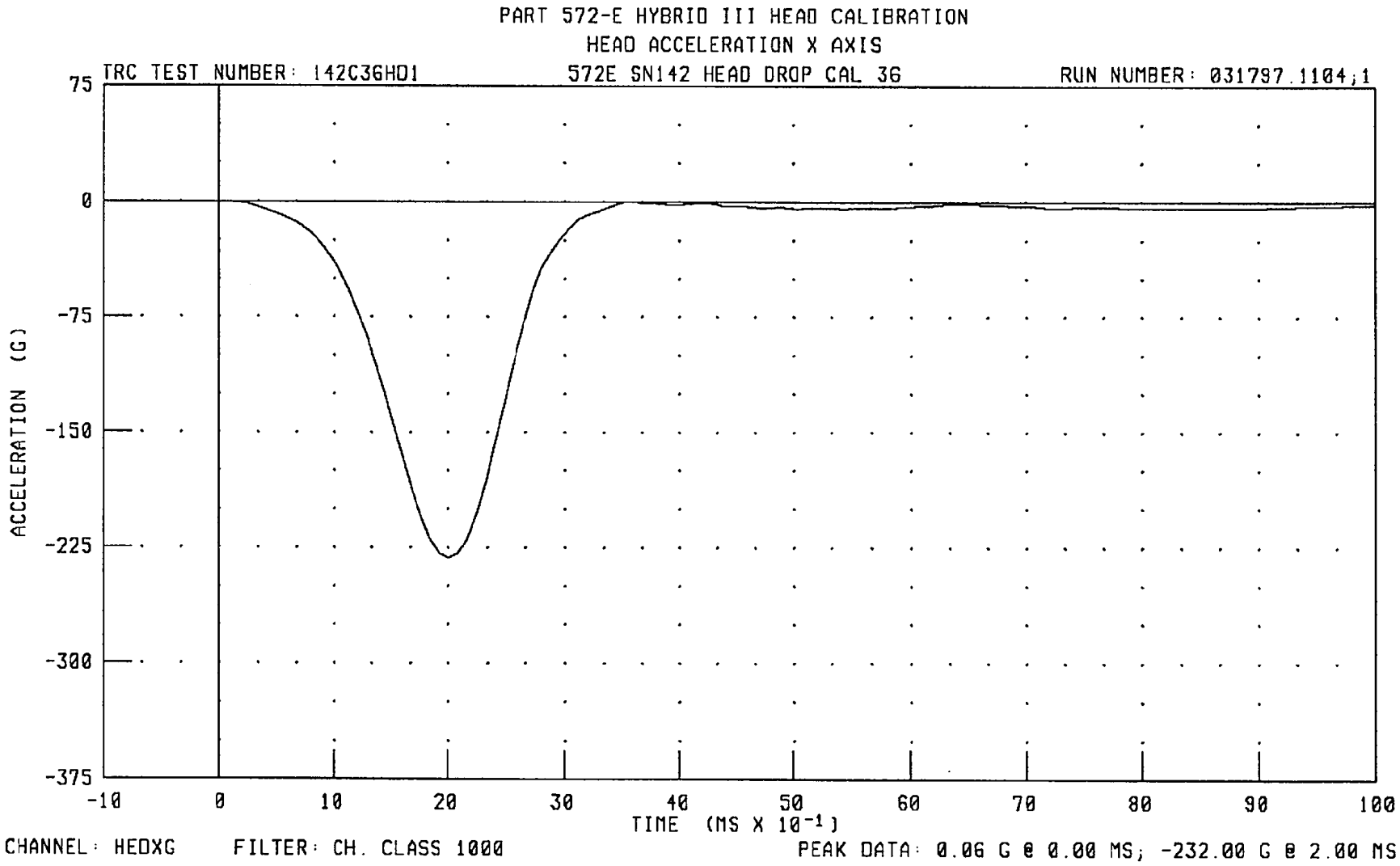
HYBRID III 23-JAN-97

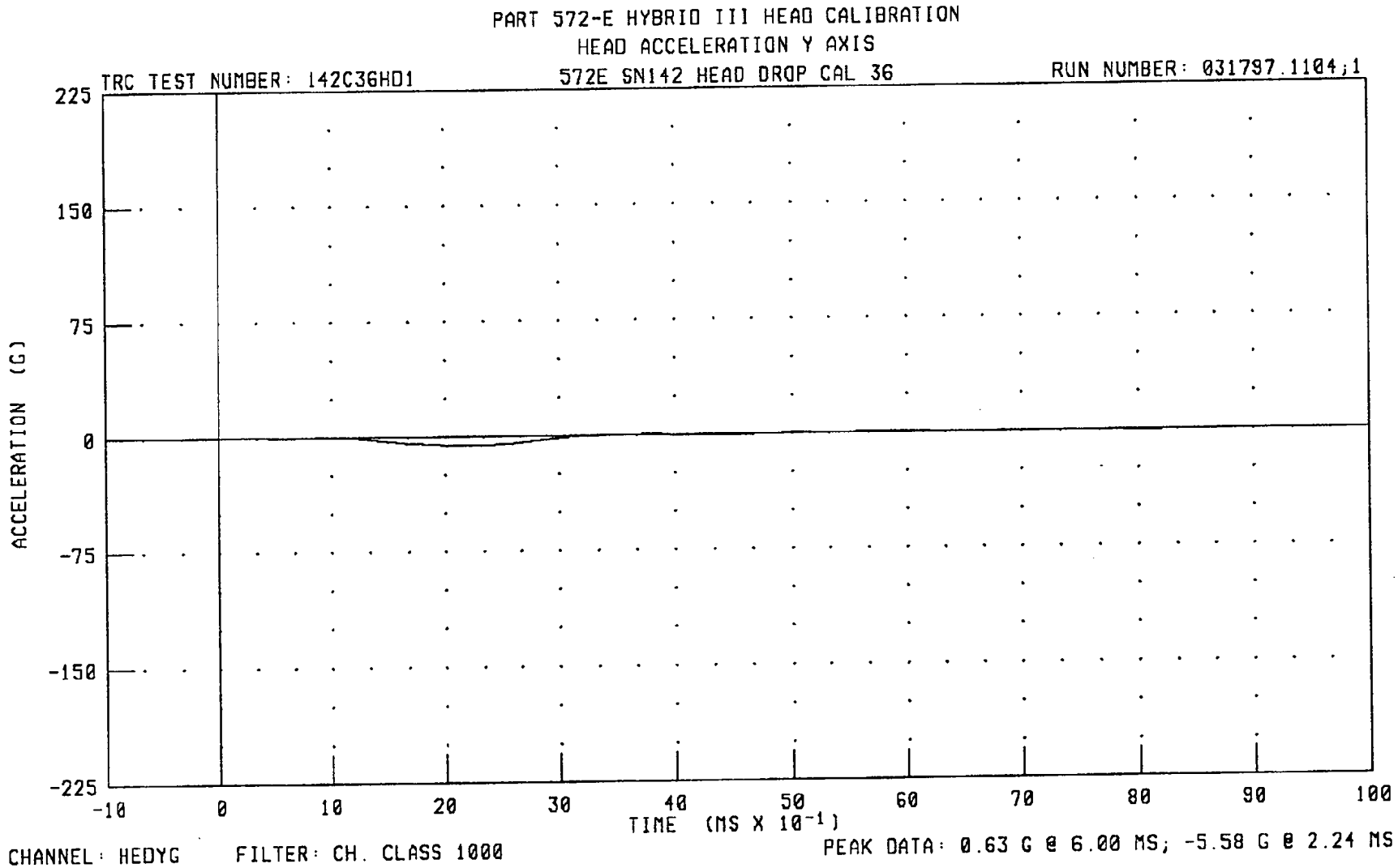
TRC INC. TEST NO: 142C36HD1 572E SN142 HEAD DROP CAL 36

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	18.9-25.6 DEG. C	21.1 DEG. C
RELATIVE HUMIDITY	10 - 70 %	29.0 %
PEAK RESULTANT ACCELERATION	225 - 275 G	266.55 G
PEAK LATERAL ACCELERATION	15 G MAX	-5.57 G
IS ACCELERATION CURVE UNIMODAL?	YES	YES

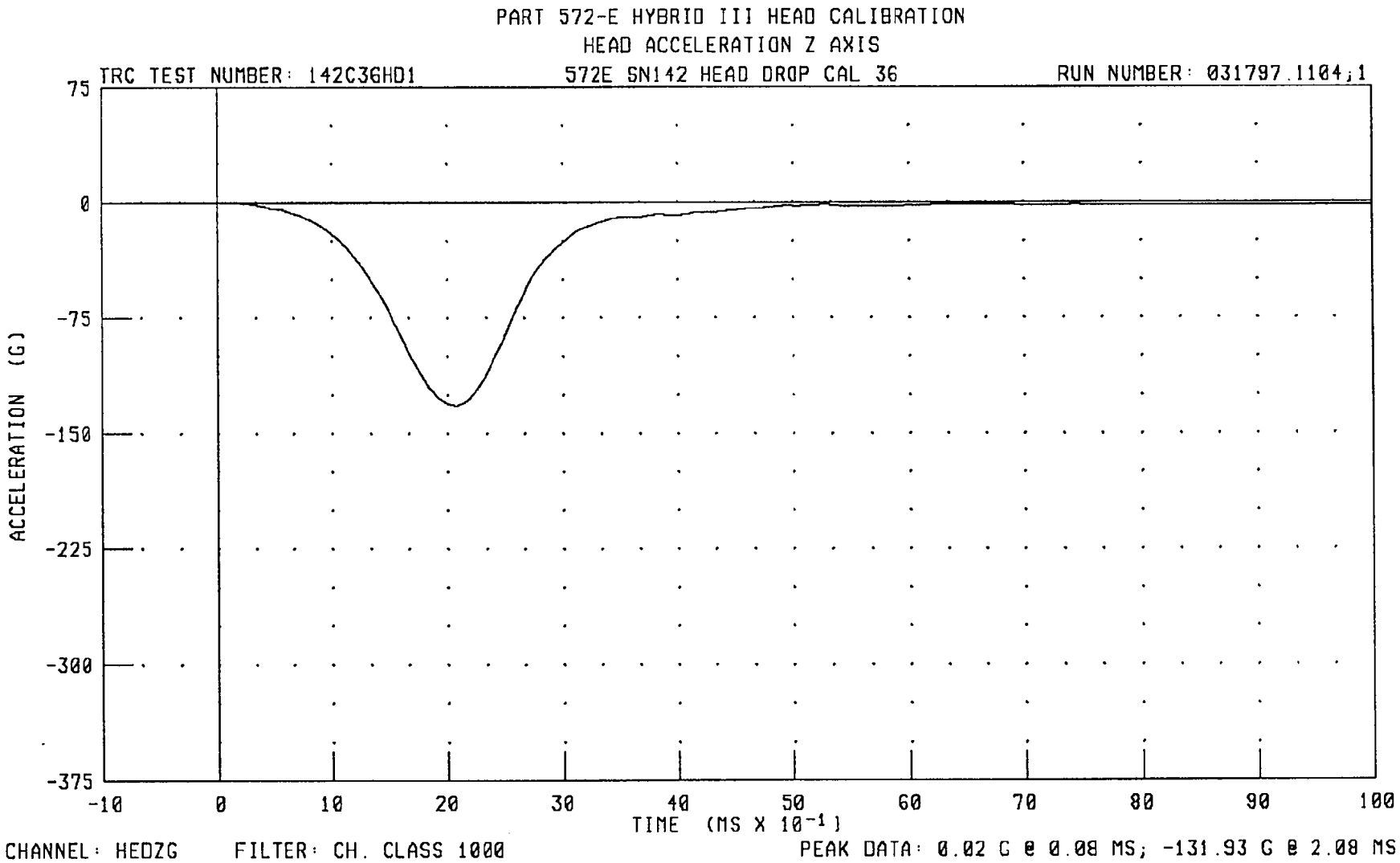
TEST MEETS SPECIFICATIONS

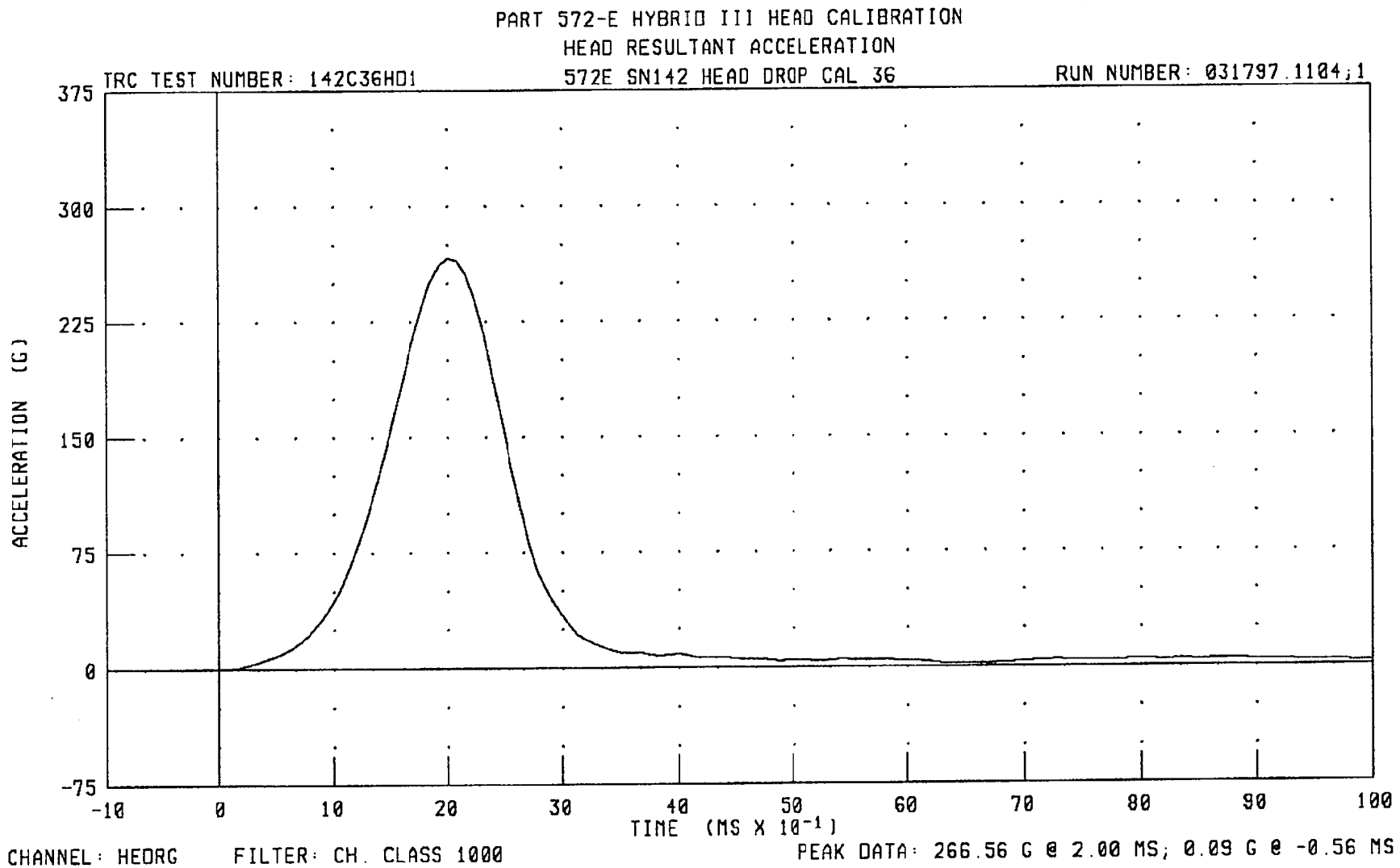
TECHNICIAN Richard LeVan RUN NUMBER: 012397.0933;1


PART 572-E HYBRID III HEAD CALIBRATION
HEAD ACCELERATION X AXIS
TRC TEST NUMBER: 142C36HD1
572E SN142 HEAD DROP CAL 36
RUN NUMBER: 031797.1104;1
75
0
-75
-150
-225
-300
-375
ACCELERATION (G)
-10
0
10
20
30
40
50
60
70
80
90
100
TIME (MS X 10-1)
CHANNEL: HEDXG
FILTER: CH. CLASS 1000
PEAK DATA: 0.06 G @ 0.00 MS; -232.00 G @ 2.00 MS


PART 572-E HYBRID III HEAD CALIBRATION
HEAD ACCELERATION Y AXIS
TRC TEST NUMBER: 142C36HD1
572E SN142 HEAD DROP CAL 36
RUN NUMBER: 031797.1104;1
225
150
75
0
-75
-150
-225
ACCELERATION (G)
-10
0
10
20
30
40
50
60
70
80
90
100
TIME (MS X 10-1)
CHANNEL: HEDYG
FILTER: CH. CLASS 1000
PEAK DATA: 0.63 G @ 6.00 MS; -5.58 G @ 2.24 MS

970224


PART 572-E HYBRID III HEAD CALIBRATION
HEAD ACCELERATION Z AXIS
TRC TEST NUMBER: 142C3GHD1
572E SN142 HEAD DROP CAL 36
RUN NUMBER: 031797.1104;1
75
0
-75
-150
-225
-300
-375
ACCELERATION (G)
-10
0
10
20
30
40
50
60
70
80
90
100
TIME (MS X 10-1)
CHANNEL: HEDZG
FILTER: CH. CLASS 1000
PEAK DATA: 0.02 G @ 0.08 MS; -131.93 G @ 2.08 MS


PART 572-E HYBRID III HEAD CALIBRATION
HEAD RESULTANT ACCELERATION
TRC TEST NUMBER: 142C36HD1
572E SN142 HEAD DROP CAL 36
RUN NUMBER: 031797.1104;1
ACCELERATION (G)
375
300
225
150
75
0
-75
-10
0
10
20
30
40
50
60
70
80
90
100
TIME (MS X 10-1)
CHANNEL: HEDRG
FILTER: CH. CLASS 1000
PEAK DATA: 266.56 G @ 2.00 MS; 0.09 G @ -0.56 MS

TRANSPORTATION RESEARCH CENTER INC.

NECK FLEXION TEST - 6 CHANNEL TRANSDUCER

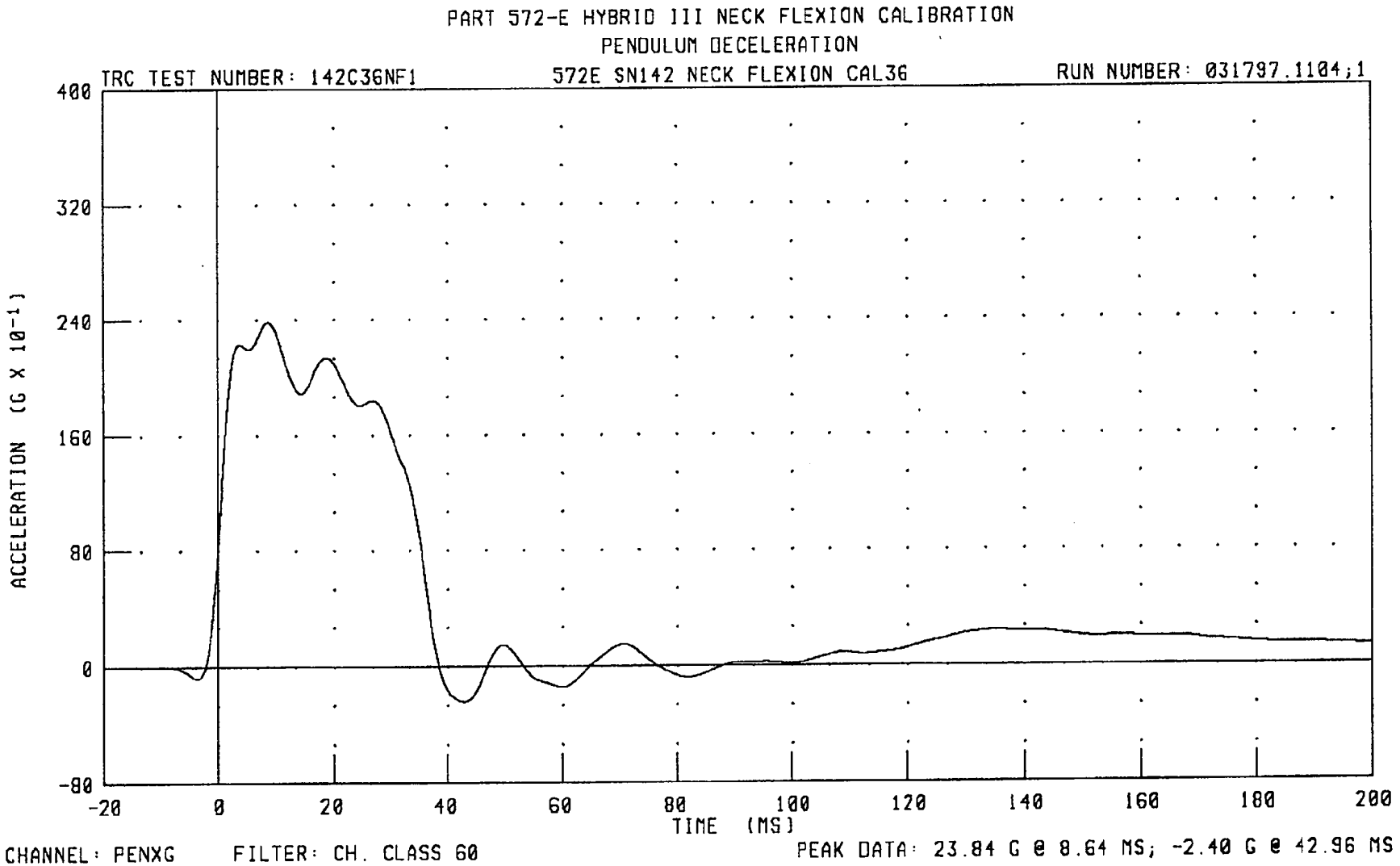
HYBRID III 23-JAN-97

TRC INC. TEST NO: 142C36NF1 572E SN142 NECK FLEXION CAL36

TEST PARAMETER		SPECIFICATION	TEST RESULTS
TEMPERATURE		20.6-22.2 DEG. C	21.1 DEG. C
RELATIVE HUMIDITY		10 - 70 %	29.0 %
IMPACT VELOCITY		6.89 - 7.13 M/S	6.93 M/S
PENDULUM DECELERATION	10 MS	22.50 - 27.50 G	23.07 G
	20 MS	17.60 - 22.60 G	20.97 G
	30 MS	12.50 - 18.50 G	15.98 G
MAX PENDULUM G		29 G MAX	23.84 G
MAX PENDULUM G ABOVE 30 MS		29 G MAX	15.88 G
DECELERATION-TIME CURVE DECAY TIME TO 5 G		34 - 42 MS	36.40 MS
D PLANE ROTATION	MAX	64 - 78 DEG.	74.39 DEG.
	TIME	57 - 64 MS	58.56 MS
MOMENT ABOUT OCCIPITAL CONDYLE	MAX	88.2 - 108.5 NM	97.12 NM
	TIME	47 - 58 MS	50.32 MS
ROTATION ANGLE-TIME CURVE DECAY TIME TO ZERO		113 - 128 MS	114.88 MS
POSITIVE MOMENT-TIME CURVE DECAY TIME TO ZERO		97 - 107 MS	99.52 MS

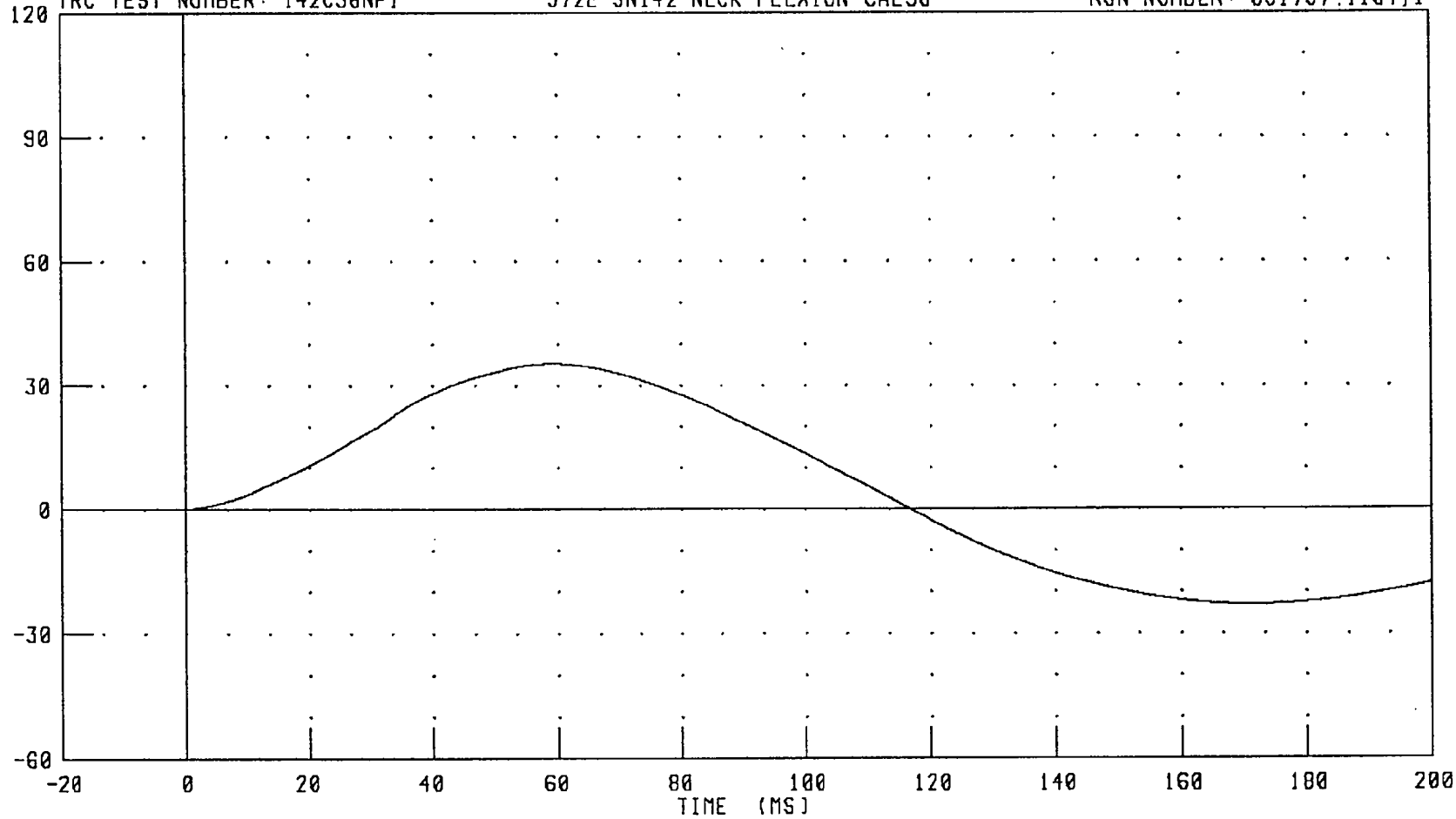
TEST MEETS SPECIFICATIONS

TECHNICIAN Richard Le Van RUN NUMBER: 012397.1048;1


PART 572-E HYBRID III NECK FLEXION CALIBRATION
PENDULUM DECELERATION
TRC TEST NUMBER: 142C36NF1
572E SN142 NECK FLEXION CAL36
RUN NUMBER: 031797.1104;1
ACCELERATION (G X 10⁻¹)
400
320
240
160
80
0
-80
-20
0
20
40
60
80
100
120
140
160
180
200
TIME (MS)
CHANNEL: PENXG
FILTER: CH. CLASS 60
PEAK DATA: 23.84 G @ 8.64 MS; -2.40 G @ 42.96 MS

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

TRC TEST NUMBER: 142C36NF1 572E SN142 NECK FLEXION CAL36 RUN NUMBER: 031797.1104;1

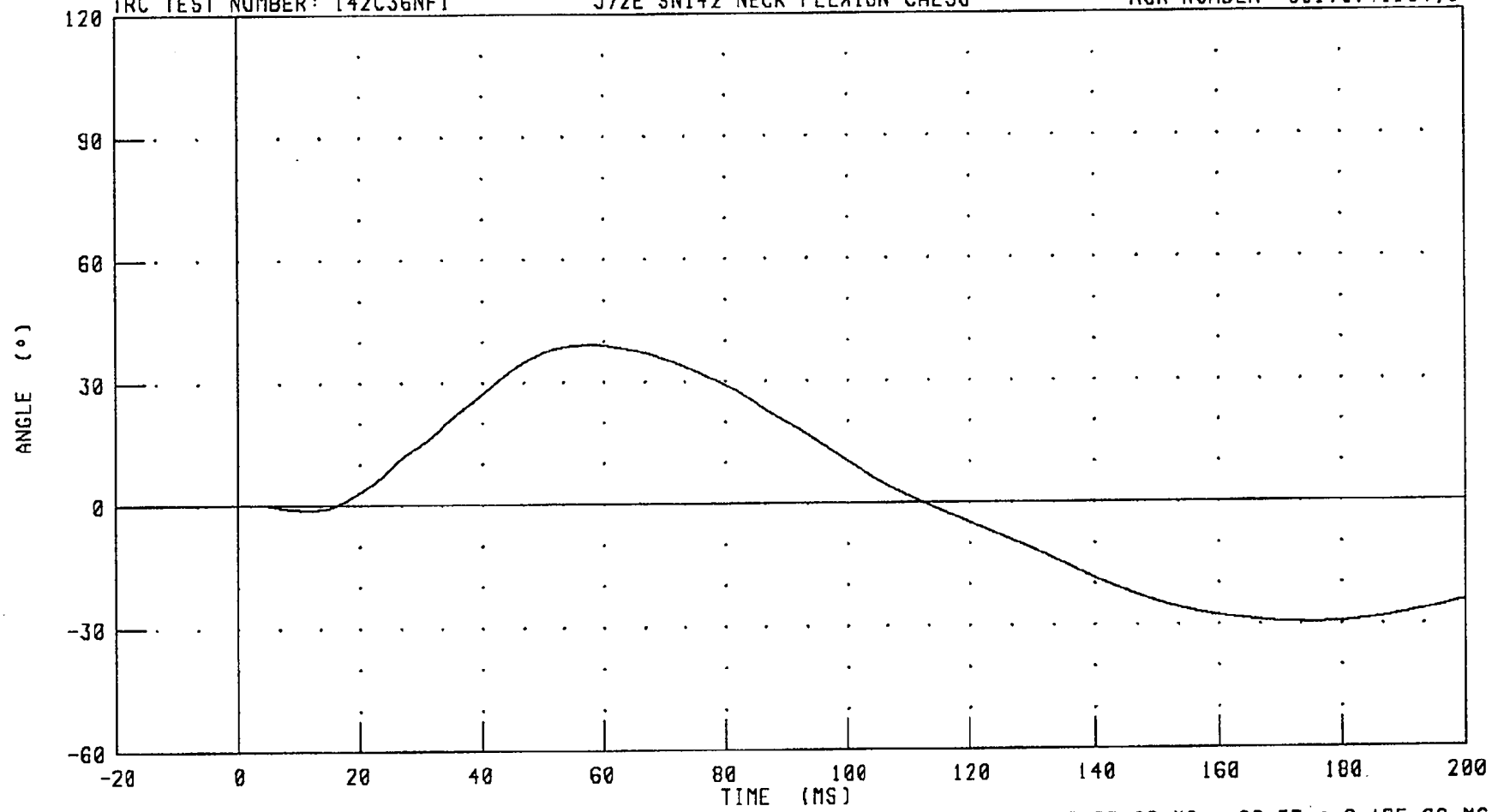


CHANNEL: BETA FILTER: CH. CLASS 60 PEAK DATA: 35.30 ° @ 59.20 MS; -23.05 ° @ 170.88 MS

970224

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

TRC TEST NUMBER: I42C36NF1 572E SN142 NECK FLEXION CAL36 RUN NUMBER: 031797.1104;1



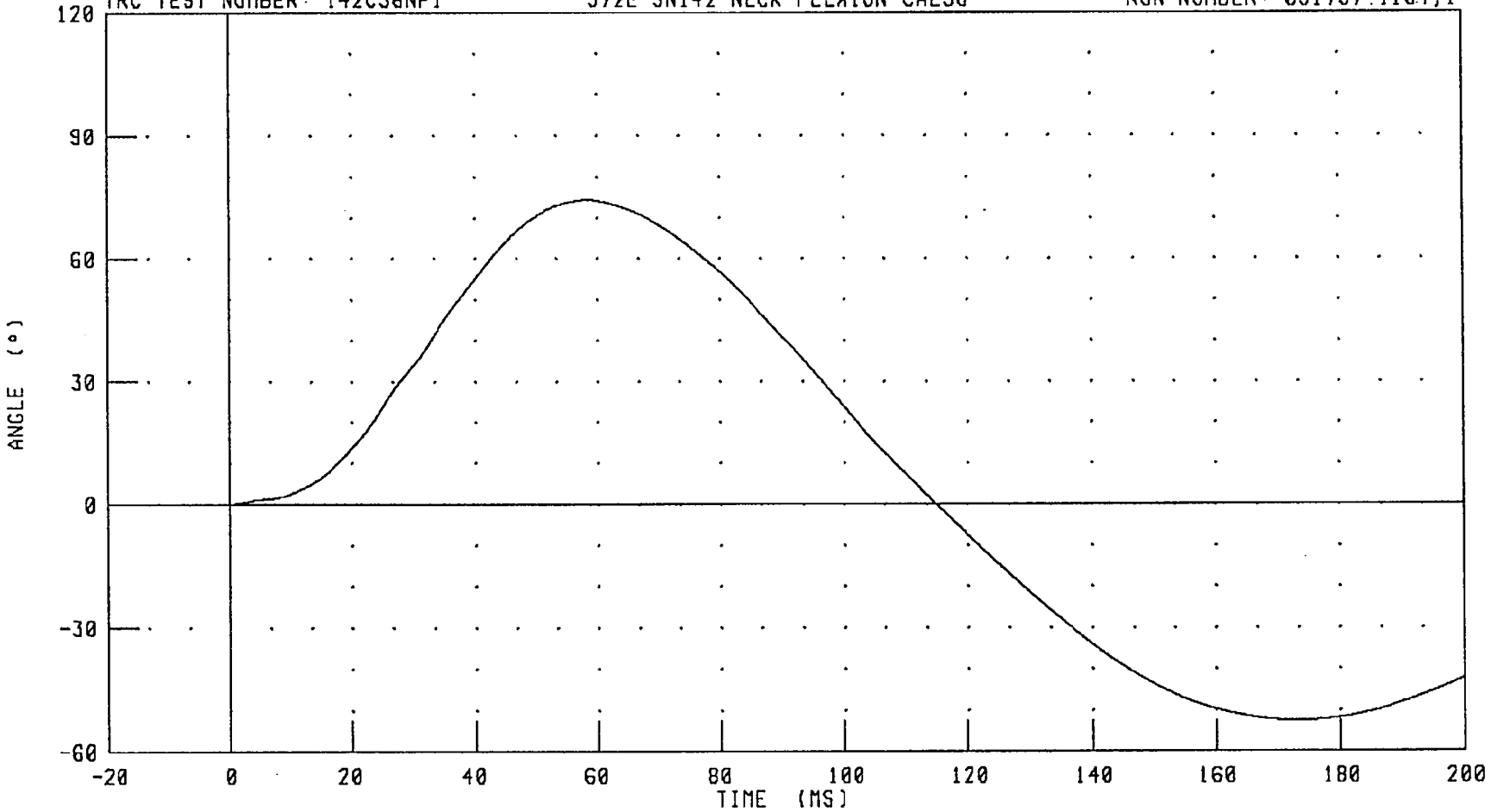
CHANNEL: THETA FILTER: CH. CLASS 60 PEAK DATA: 39.12 ° @ 58.00 MS; -29.57 ° @ 175.68 MS

970224

PART 572-E HYBRID III NECK FLEXION CALIBRATION

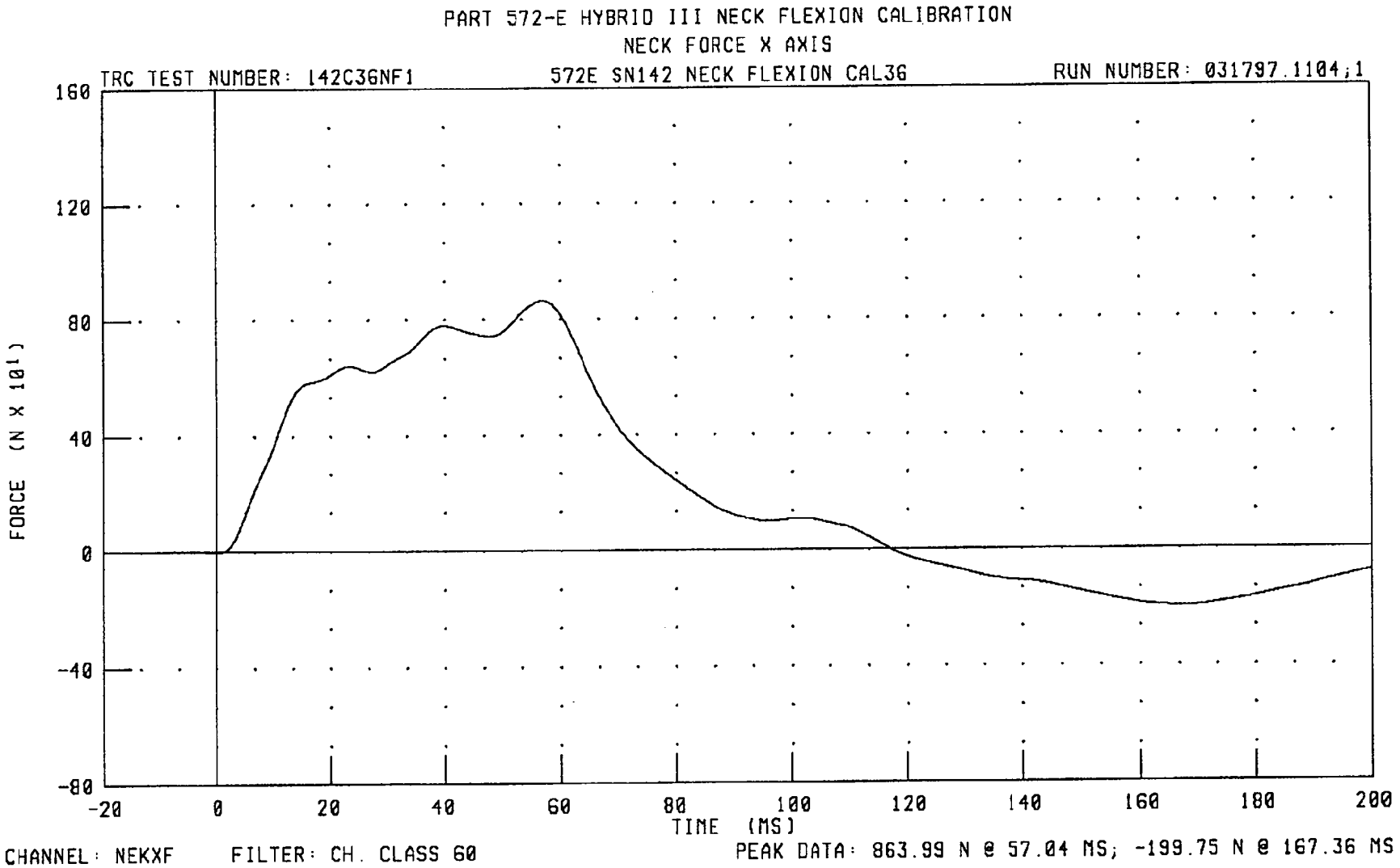
TOTAL ROTATION

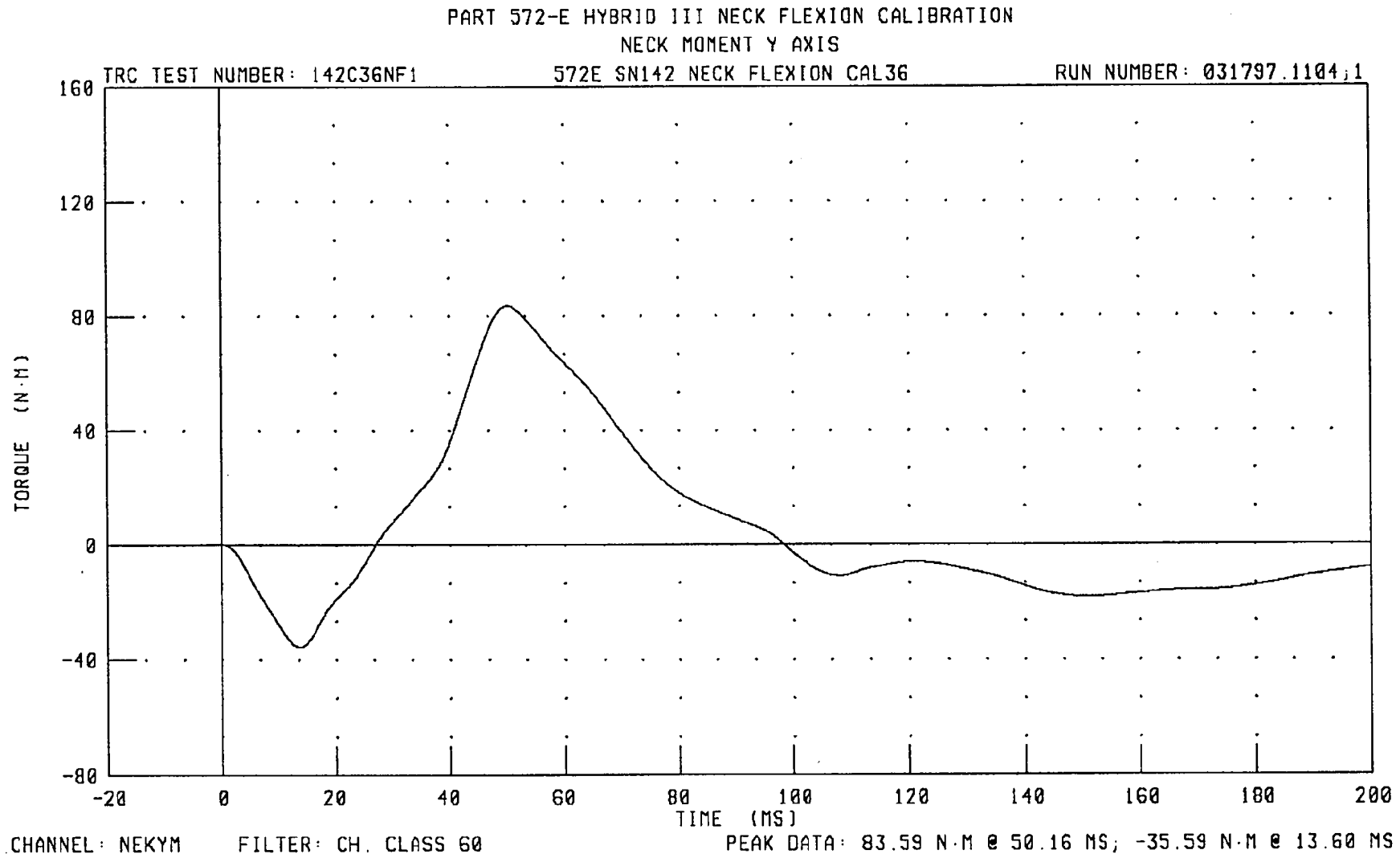
TRC TEST NUMBER: 142C3GNF1 572E SN142 NECK FLEXION CAL3G RUN NUMBER: 031797.1104;1

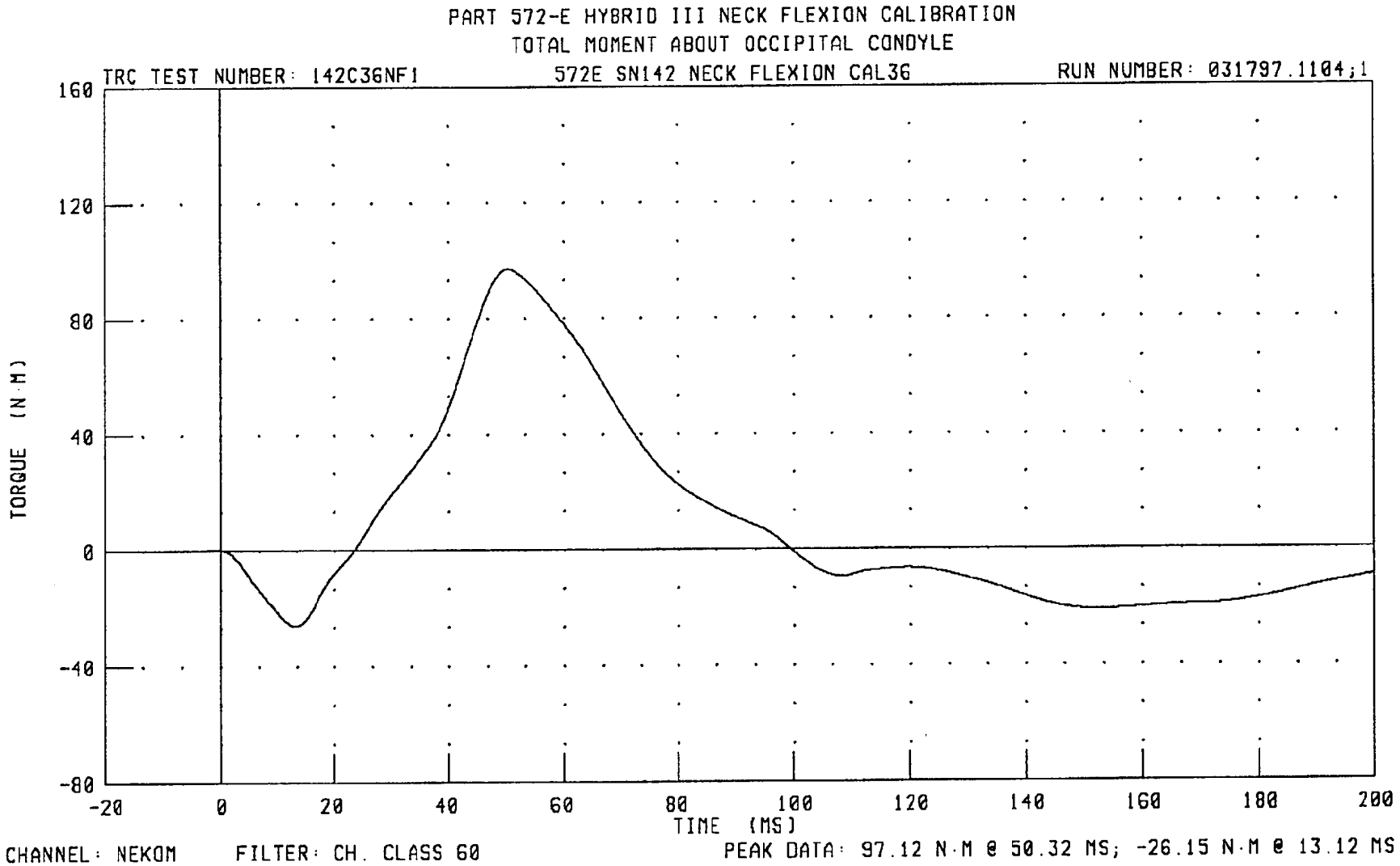


CHANNEL: TOTAN FILTER: CH. CLASS 60 PEAK DATA: 74.40 ° @ 58.56 MS; -52.53 ° @ 173.20 MS

970224


PART 572-E HYBRID III NECK FLEXION CALIBRATION
NECK FORCE X AXIS
TRC TEST NUMBER: 142C36NF1
572E SN142 NECK FLEXION CAL36
RUN NUMBER: 031797.1104;1
160
120
80
40
0
-40
-80
FORCE (N X 10¹)
-20
0
20
40
60
80
100
120
140
160
180
200
TIME (MS)
CHANNEL: NEKXF
FILTER: CH. CLASS 60
PEAK DATA: 863.99 N @ 57.04 MS; -199.75 N @ 167.36 MS


PART 572-E HYBRID III NECK FLEXION CALIBRATION
NECK MOMENT Y AXIS
TRC TEST NUMBER: 142C36NF1
572E SN142 NECK FLEXION CAL36
RUN NUMBER: 031797.1104;1
160
120
80
40
0
-40
-80
TORQUE (N-M)
-20
0
20
40
60
80
100
120
140
160
180
200
TIME (MS)
CHANNEL: NEKYM
FILTER: CH. CLASS 60
PEAK DATA: 83.59 N-M @ 50.16 MS; -35.59 N-M @ 13.60 MS


PART 572-E HYBRID III NECK FLEXION CALIBRATION
TOTAL MOMENT ABOUT OCCIPITAL CONDYLE
TRC TEST NUMBER: 142C36NF1
572E SN142 NECK FLEXION CAL36
RUN NUMBER: 031797.1104;1
160
120
80
40
0
-40
-80
TORQUE (N-M)
-20
0
20
40
60
80
100
120
140
160
180
200
TIME (MS)
CHANNEL: NEKOM
FILTER: CH. CLASS 60
PEAK DATA: 97.12 N-M @ 50.32 MS; -26.15 N-M @ 13.12 MS

TRANSPORTATION RESEARCH CENTER INC.

NECK EXTENSION TEST - 6 CHANNEL TRANSDUCER

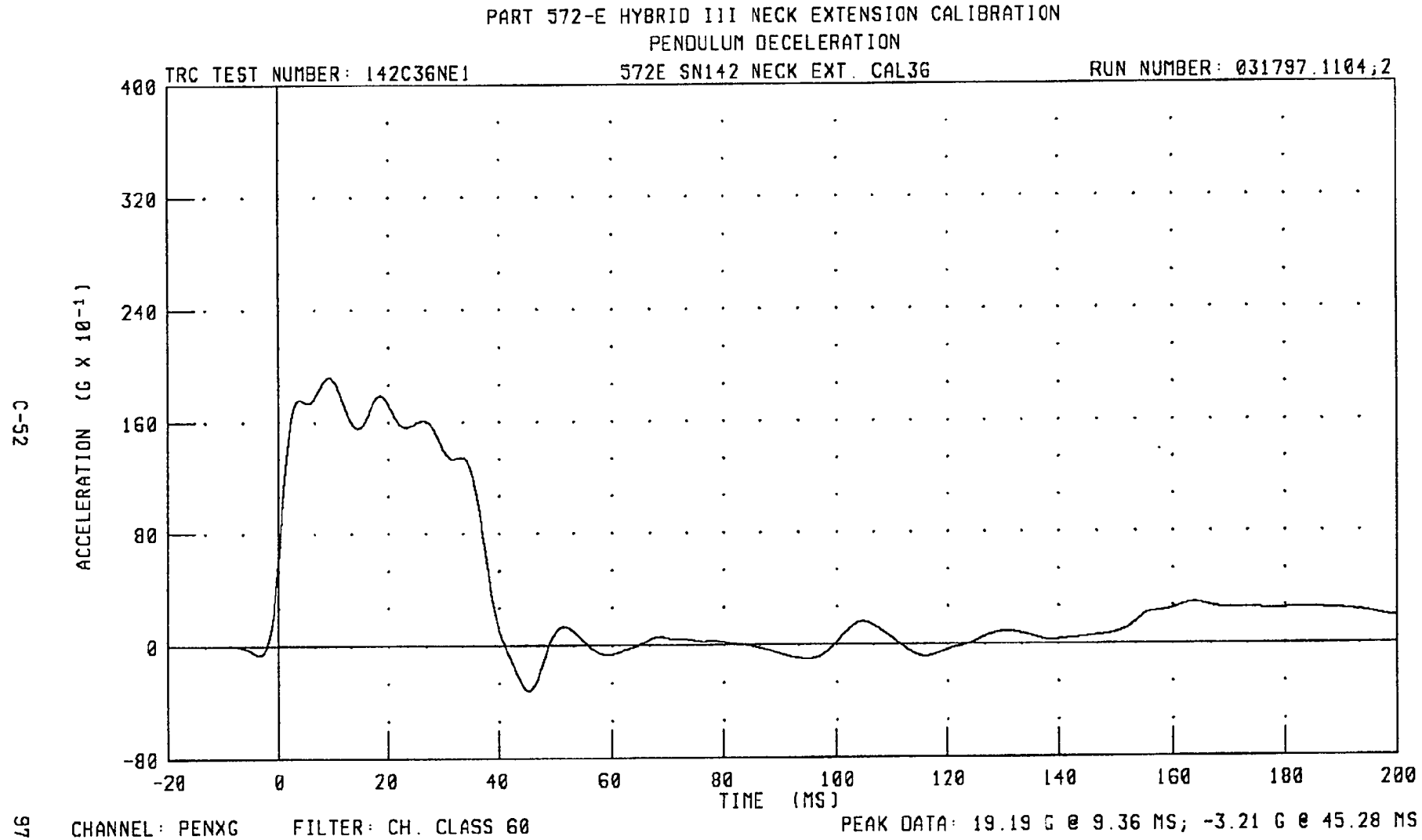
HYBRID III 23-JAN-97

TRC INC. TEST NO: 142C36NE1 572E SN142 NECK EXT. CAL36

TEST PARAMETER		SPECIFICATION	TEST RESULTS
TEMPERATURE		20.6 - 22.2 DEG. C	21.1 DEG. C
RELATIVE HUMIDITY		10 - 70 %	29.0 %
IMPACT VELOCITY		5.95 - 6.19 M/S	6.05 M/S
PENDULUM DECELERATION	10 MS	17.20 - 21.20 G	19.04 G
	20 MS	14.00 - 19.00 G	17.30 G
	30 MS	11.00 - 16.00 G	13.86 G
MAX PENDULUM G		22 G MAX	19.19 G
MAX PENDULUM G ABOVE 30 MS		22 G MAX	13.81 G
DECELERATION-TIME CURVE DECAY TIME TO 5 G		38 - 46 MS	38.08 MS
D PLANE ROTATION	MAX	81 - 106 DEG.	96.29 DEG.
	TIME	72 - 82 MS	73.44 MS
MOMENT ABOUT OCCIPITAL CONDYLE	MIN	-80.0/-52.9 NM	-76.75 NM
	TIME	65 - 79 MS	68.72 MS
ROTATION ANGLE-TIME CURVE DECAY TIME TO ZERO		147 - 174 MS	150.32 MS
NEGATIVE MOMENT-TIME CURVE DECAY TIME TO ZERO		120 - 148 MS	133.44 MS

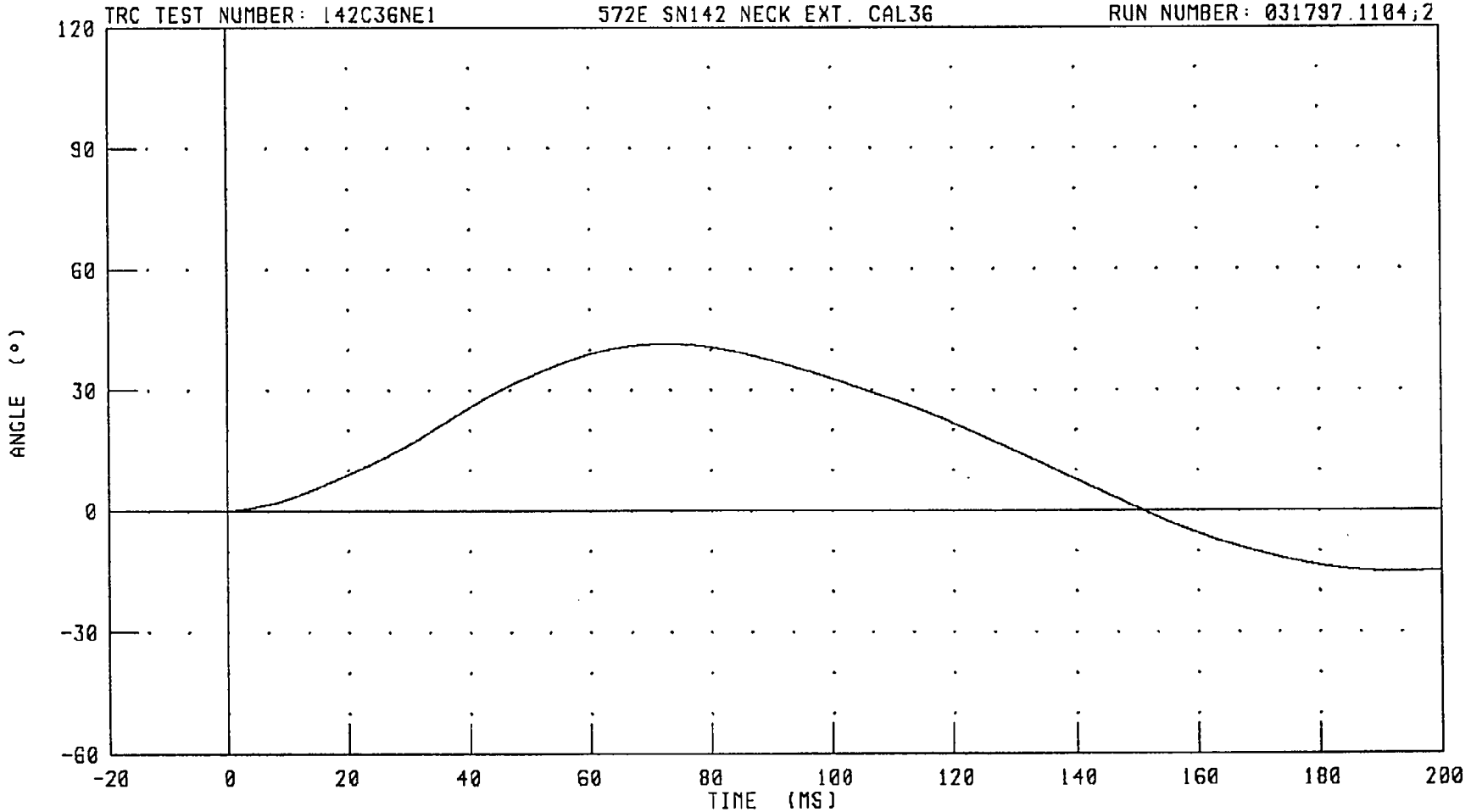
TEST MEETS SPECIFICATIONS

TECHNICIAN Richard LeCon RUN NUMBER: 012397.1121;2


PART 572-E HYBRID III NECK EXTENSION CALIBRATION
PENDULUM DECELERATION
TRC TEST NUMBER: 142C36NE1
572E SN142 NECK EXT. CAL36
RUN NUMBER: 031797.1104;2
ACCELERATION (G X 10⁻¹)
400
320
240
160
80
0
-80
-20
0
20
40
60
80
100
120
140
160
180
200
TIME (MS)
CHANNEL: PENXG
FILTER: CH. CLASS 60
PEAK DATA: 19.19 G @ 9.36 MS; -3.21 G @ 45.28 MS

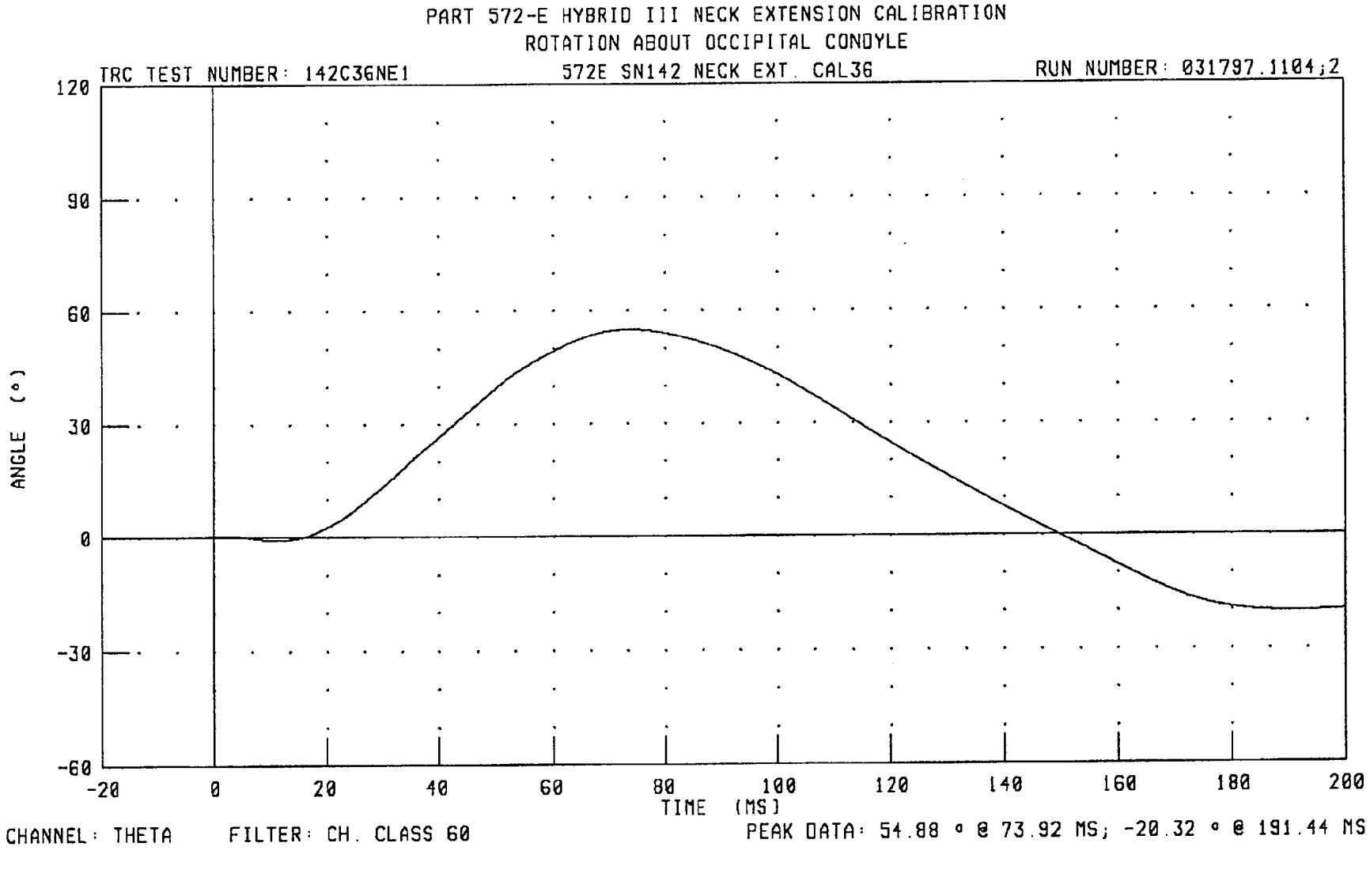
PART 572-E HYBRID III NECK EXTENSION CALIBRATION
ROTATION ABOUT BASE OF NECK

TRC TEST NUMBER: I42C36NE1 572E SN142 NECK EXT. CAL36 RUN NUMBER: 031797.1104;2

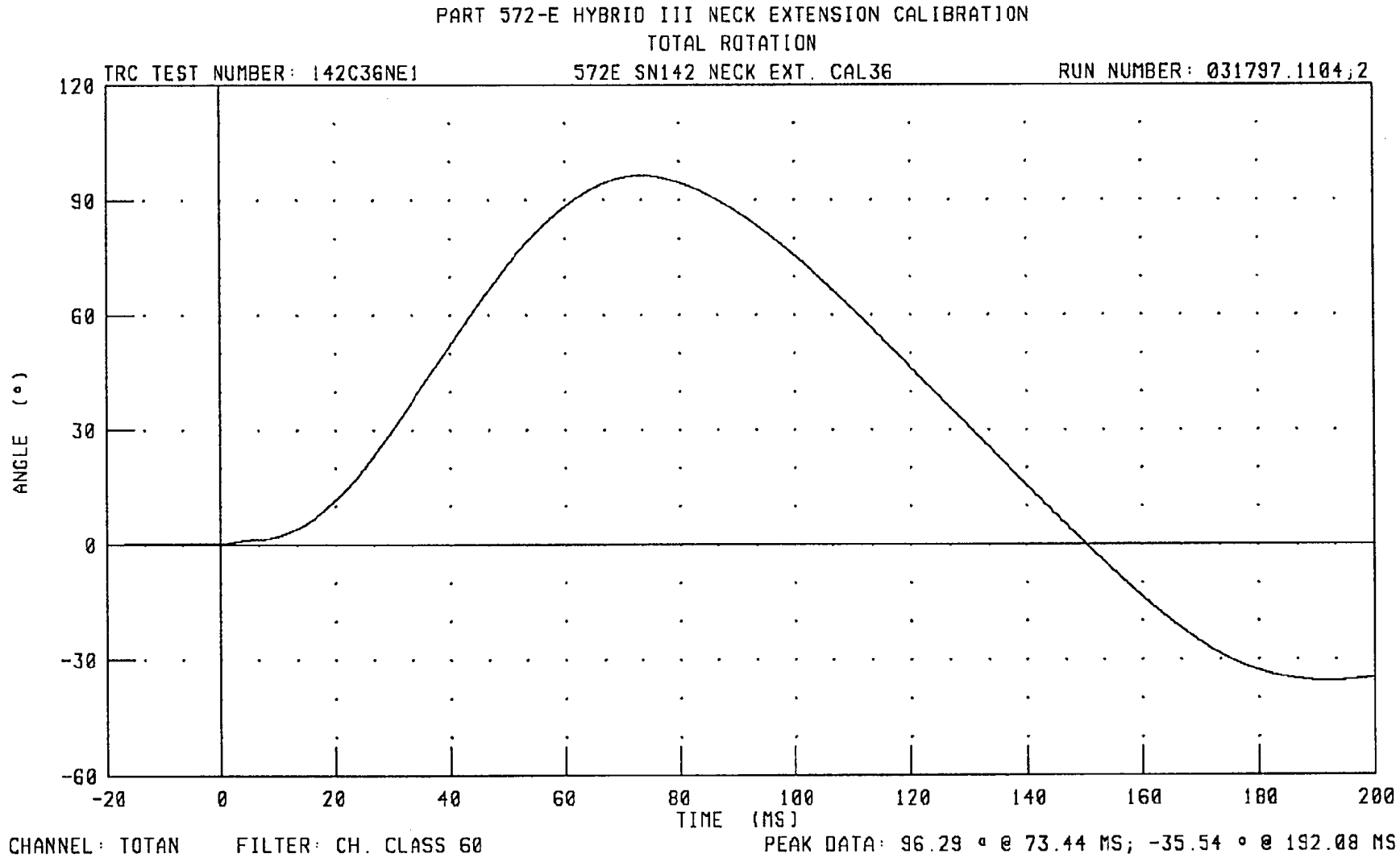


CHANNEL: BETA FILTER: CH. CLASS 60 PEAK DATA: 41.43 ° @ 72.64 MS; -15.23 ° @ 192.72 MS

970224


PART 572-E HYBRID III NECK EXTENSION CALIBRATION
ROTATION ABOUT OCCIPITAL CONDYLE
TRC TEST NUMBER: 142C36NE1
572E SN142 NECK EXT. CAL36
RUN NUMBER: 031797.1104;2
ANGLE (°)
120
90
60
30
0
-30
-60
-20
0
20
40
60
80
100
120
140
160
180
200
TIME (MS)
CHANNEL: THETA
FILTER: CH. CLASS 60
PEAK DATA: 54.88 ° @ 73.92 MS; -20.32 ° @ 191.44 MS

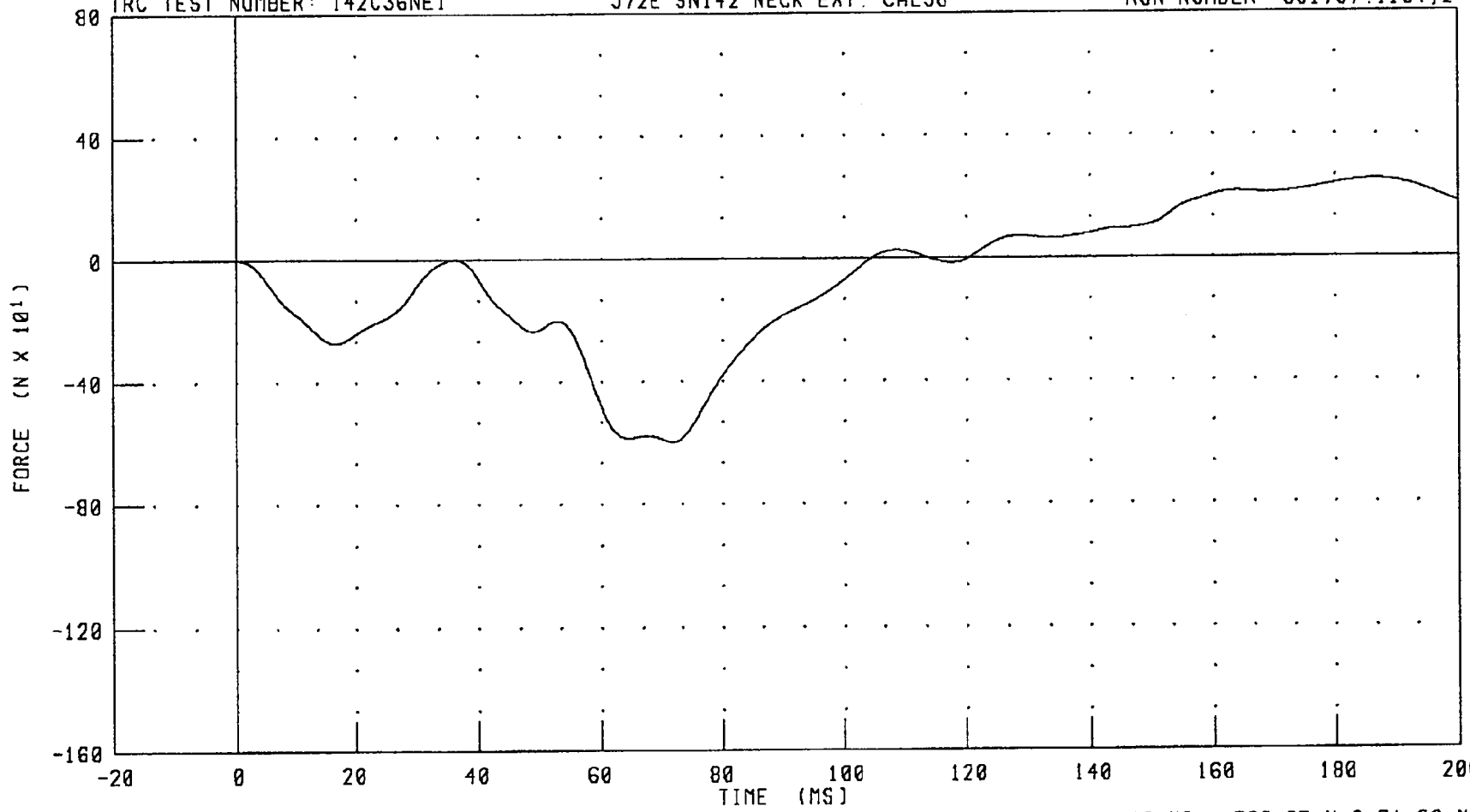
970224


PART 572-E HYBRID III NECK EXTENSION CALIBRATION
TOTAL ROTATION
TRC TEST NUMBER: 142C36NE1
572E SN142 NECK EXT. CAL36
RUN NUMBER: 031797.1104;2
ANGLE (°)
120
90
60
30
0
-30
-60
-20
0
20
40
60
80
100
120
140
160
180
200
TIME (MS)
CHANNEL: TOTAN
FILTER: CH. CLASS 60
PEAK DATA: 96.29 ° @ 73.44 MS; -35.54 ° @ 192.08 MS

PART 572-E HYBRID III NECK EXTENSION CALIBRATION

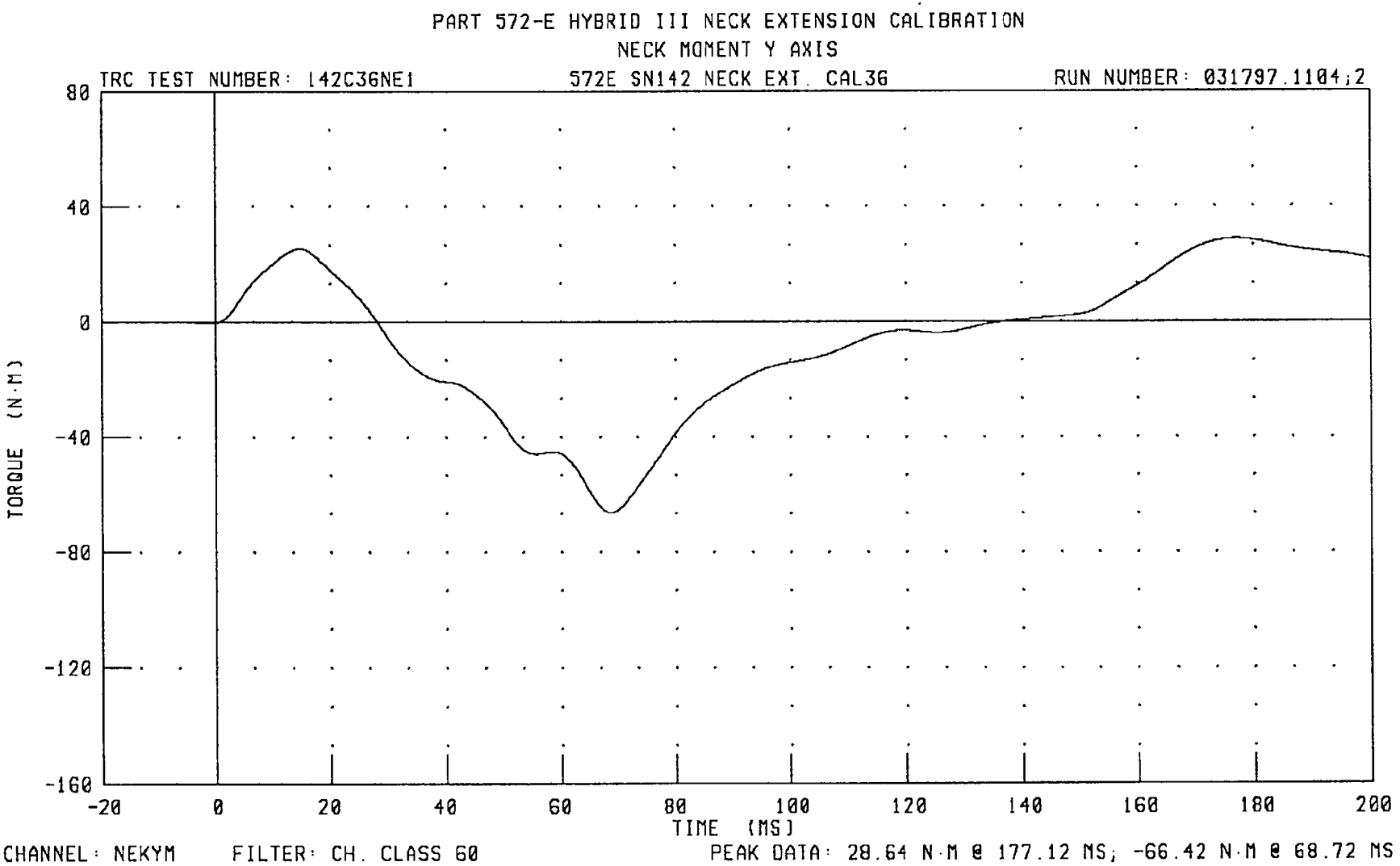
NECK FORCE X AXIS

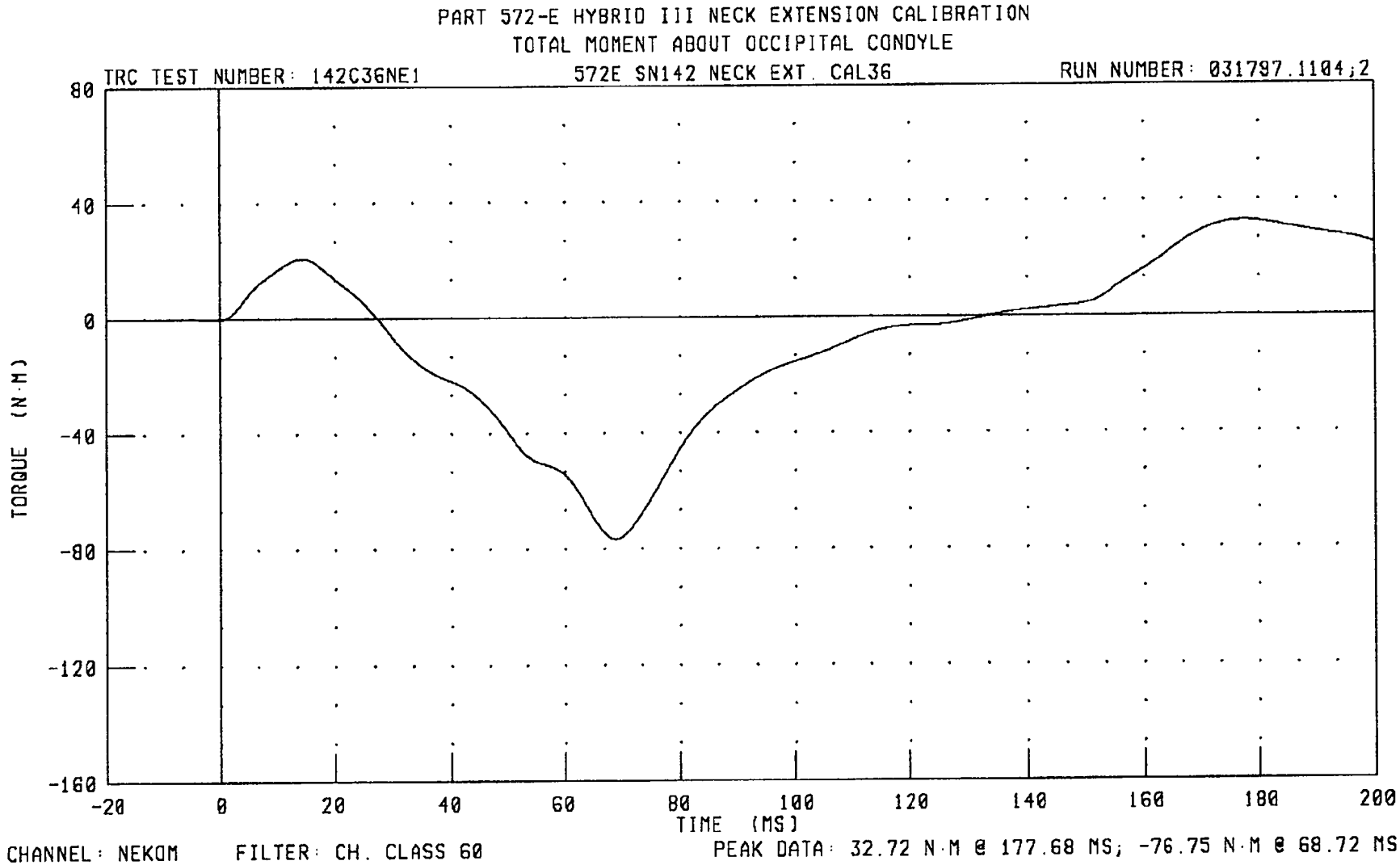
TRC TEST NUMBER: 142C36NE1 572E SN142 NECK EXT. CAL36 RUN NUMBER: 031797.1104;2



CHANNEL: NEKXF FILTER: CH. CLASS 60 PEAK DATA: 253.00 N @ 186.48 MS; -598.67 N @ 71.92 MS

970224


PART 572-E HYBRID III NECK EXTENSION CALIBRATION
NECK MOMENT Y AXIS
TRC TEST NUMBER: I42C36NE1
572E SN142 NECK EXT. CAL36
RUN NUMBER: 031797.1104;2
80
40
0
-40
-80
-120
-160
TORQUE (N-M)
-20
0
20
40
60
80
100
120
140
160
180
200
TIME (MS)
CHANNEL: NEKYM
FILTER: CH. CLASS 60
PEAK DATA: 28.64 N-M @ 177.12 MS; -66.42 N-M @ 68.72 MS


PART 572-E HYBRID III NECK EXTENSION CALIBRATION
TOTAL MOMENT ABOUT OCCIPITAL CONDYLE
TRC TEST NUMBER: 142C36NE1
572E SN142 NECK EXT. CAL36
RUN NUMBER: 031797.1104;2
TORQUE (N-M)
80
40
0
-40
-80
-120
-160
-20
0
20
40
60
80
100
120
140
160
180
200
TIME (MS)
CHANNEL: NEKOM
FILTER: CH. CLASS 60
PEAK DATA: 32.72 N-M @ 177.68 MS; -76.75 N-M @ 68.72 MS

970224

TRANSPORTATION RESEARCH CENTER INC.

THORAX IMPACT TEST

HYBRID III 23-JAN-97

TRC INC. TEST NO: 142C36TH2 572E SN 142 H.S.THORAX CAL 36

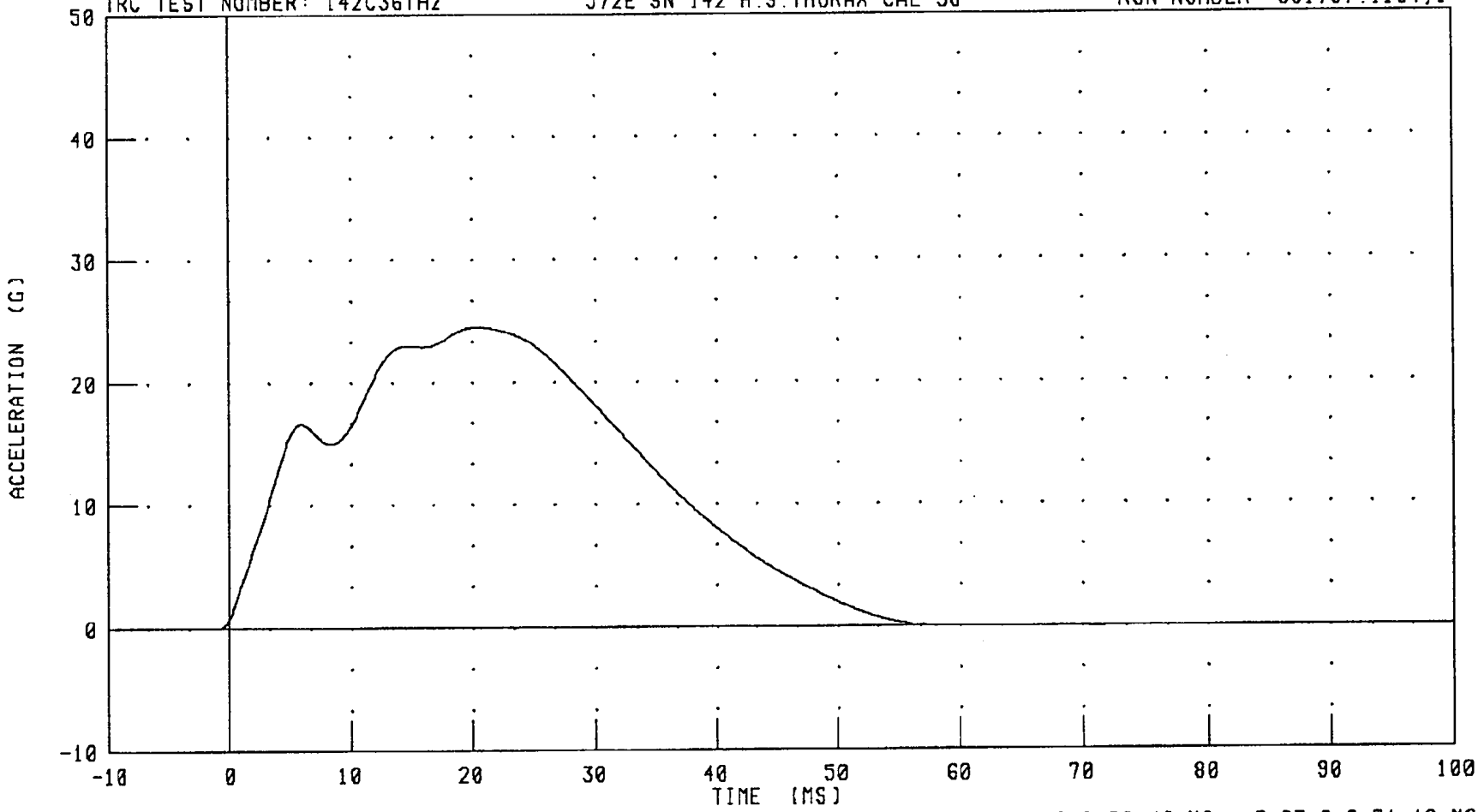
TEST PARAMETER	HIGH SPEED TEST SPECIFICATION	TEST RESULTS
TEMPERATURE	20.6-22.2 DEG. C	21.8 DEG. C
RELATIVE HUMIDITY	10 - 70 %	29.0 %
PENDULUM VELOCITY	6.59 - 6.83 M/S	6.62 M/S
MAXIMUM DEFLECTION	63.5 - 72.6 MM	71.6 MM
MAXIMUM RESISTIVE FORCE	5159 - 5894 N	5608. N
INTERNAL HYSTERESIS	69% - 85%	70.2%

TEST MEETS SPECIFICATIONS

TECHNICIAN Richard LeVan RUN NUMBER: 012397.1603;1

PART 572-E HYBRID III THORAX CALIBRATION
PENDULUM DECELERATION

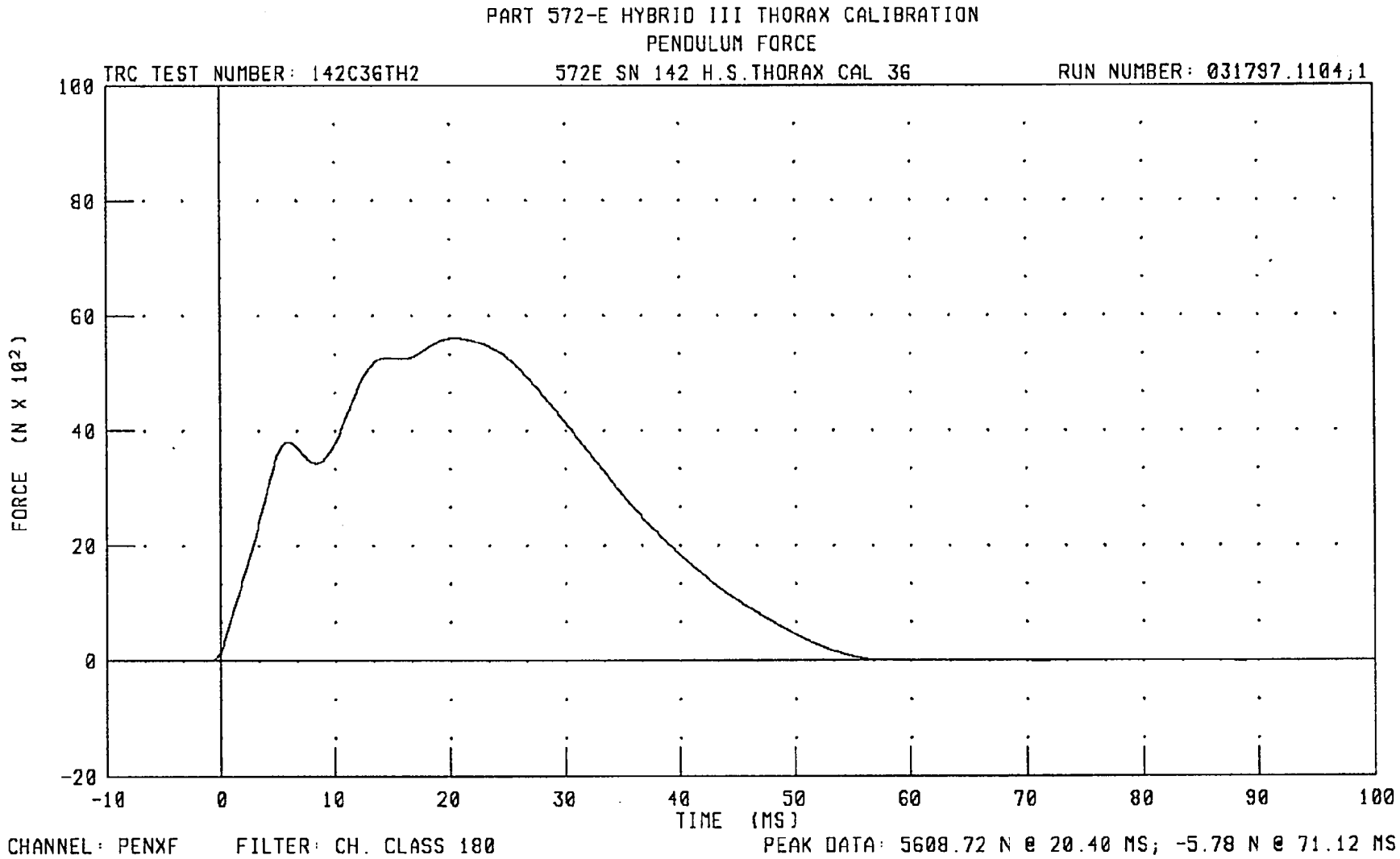
TRC TEST NUMBER: I42C36TH2 572E SN 142 H.S.THORAX CAL 36 RUN NUMBER: 031797.1104;1



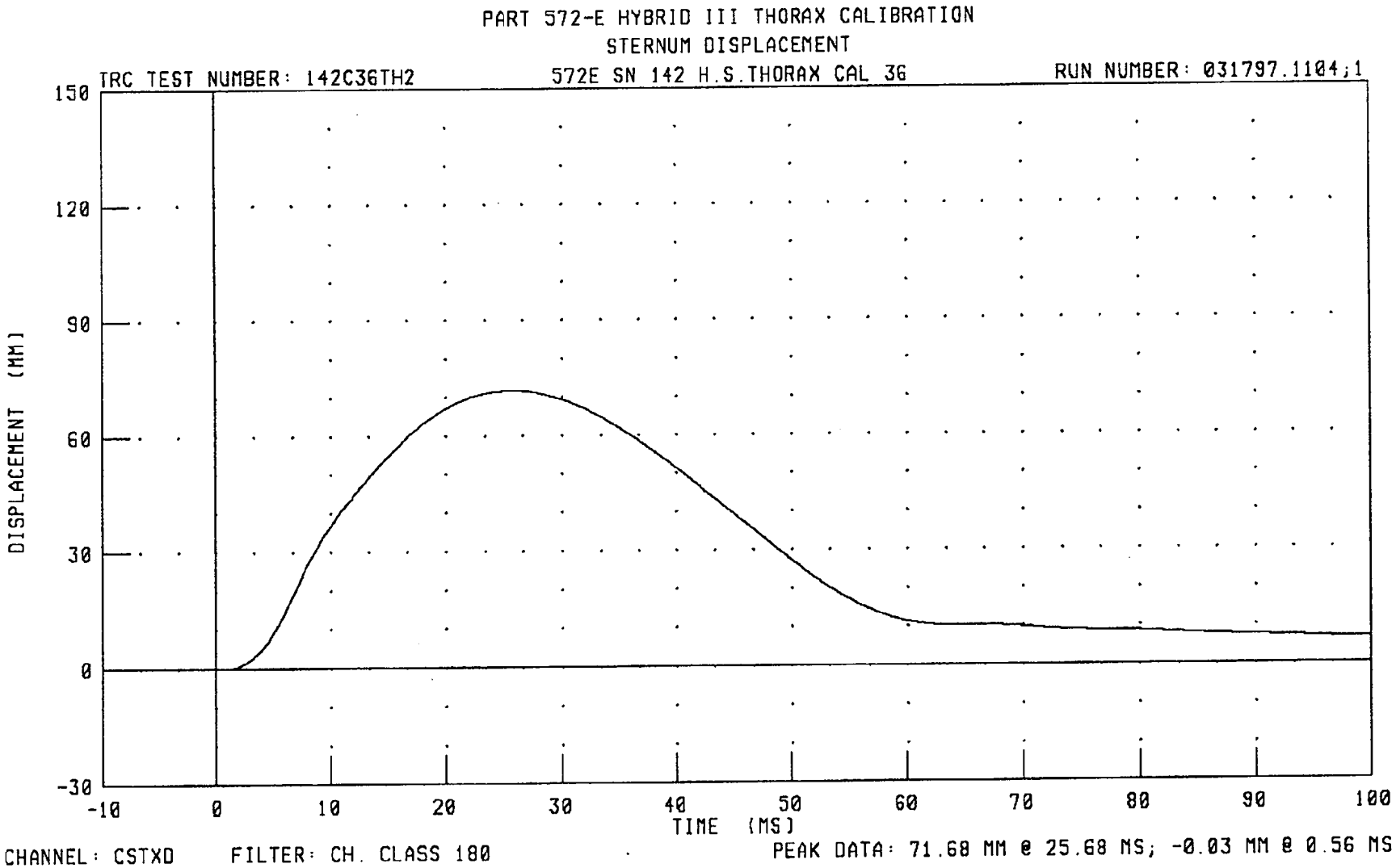
CHANNEL: PENXG FILTER: CH. CLASS 180 PEAK DATA: 24.48 G @ 20.40 MS; -0.03 G @ 71.12 MS

C-60

970224

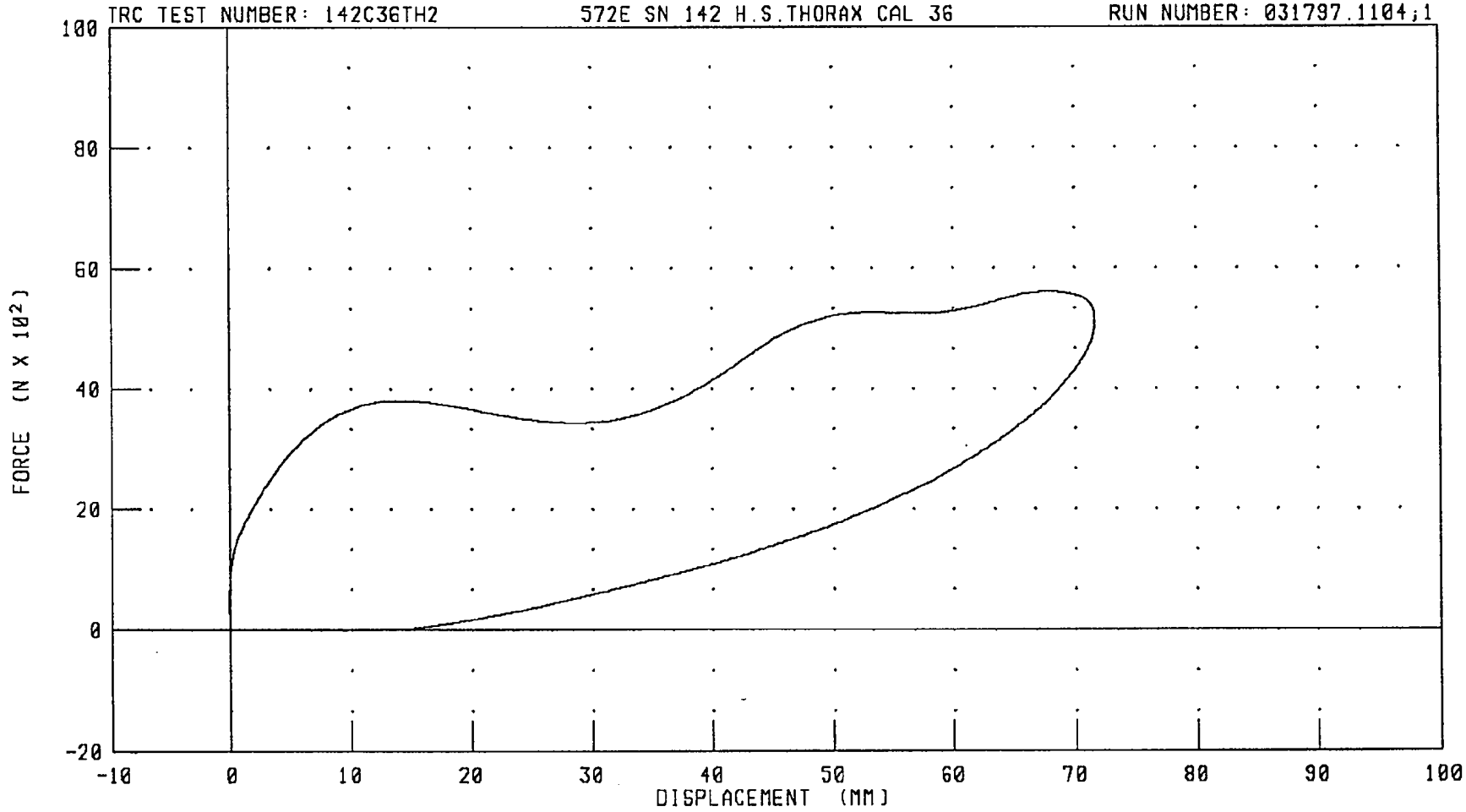

PART 572-E HYBRID III THORAX CALIBRATION
PENDULUM FORCE
TRC TEST NUMBER: 142C3GTH2
572E SN 142 H.S.THORAX CAL 3G
RUN NUMBER: 031797.1104;1
FORCE (N X 10²)
100
80
60
40
20
0
-20
-10
0
10
20
30
40
50
60
70
80
90
100
TIME (MS)
CHANNEL: PENXF
FILTER: CH. CLASS 180
PEAK DATA: 5608.72 N @ 20.40 MS; -5.78 N @ 71.12 MS

970224


PART 572-E HYBRID III THORAX CALIBRATION
STERNUM DISPLACEMENT
TRC TEST NUMBER: 142C36TH2
572E SN 142 H.S.THORAX CAL 36
RUN NUMBER: 031797.1104;1
DISPLACEMENT (MM)
150
120
90
60
30
0
-30
-10
0
10
20
30
40
50
60
70
80
90
100
TIME (MS)
CHANNEL: CSTXD
FILTER: CH. CLASS 180
PEAK DATA: 71.68 MM @ 25.68 MS; -0.03 MM @ 0.56 MS

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

TRC TEST NUMBER: 142C36TH2
572E SN 142 H.S.THORAX CAL 36
RUN NUMBER: 031797.1104;1



CHANNEL: CSTXD
PENXF

FILTER: CH. CLASS 180
CH. CLASS 180

PEAK DATA: 71.68 MM @ 25.68 MS; -0.03 MM @ 0.56 MS
5608.72 N @ 20.40 MS; -5.78 N @ 71.12 MS

970224

TRANSPORTATION RESEARCH CENTER INC.

RIGHT KNEE IMPACT TEST

HYBRID III 23-JAN-97

TRC INC. TEST NO: 142C36RK1 572E SN142 RIGHT KNEE CAL 36

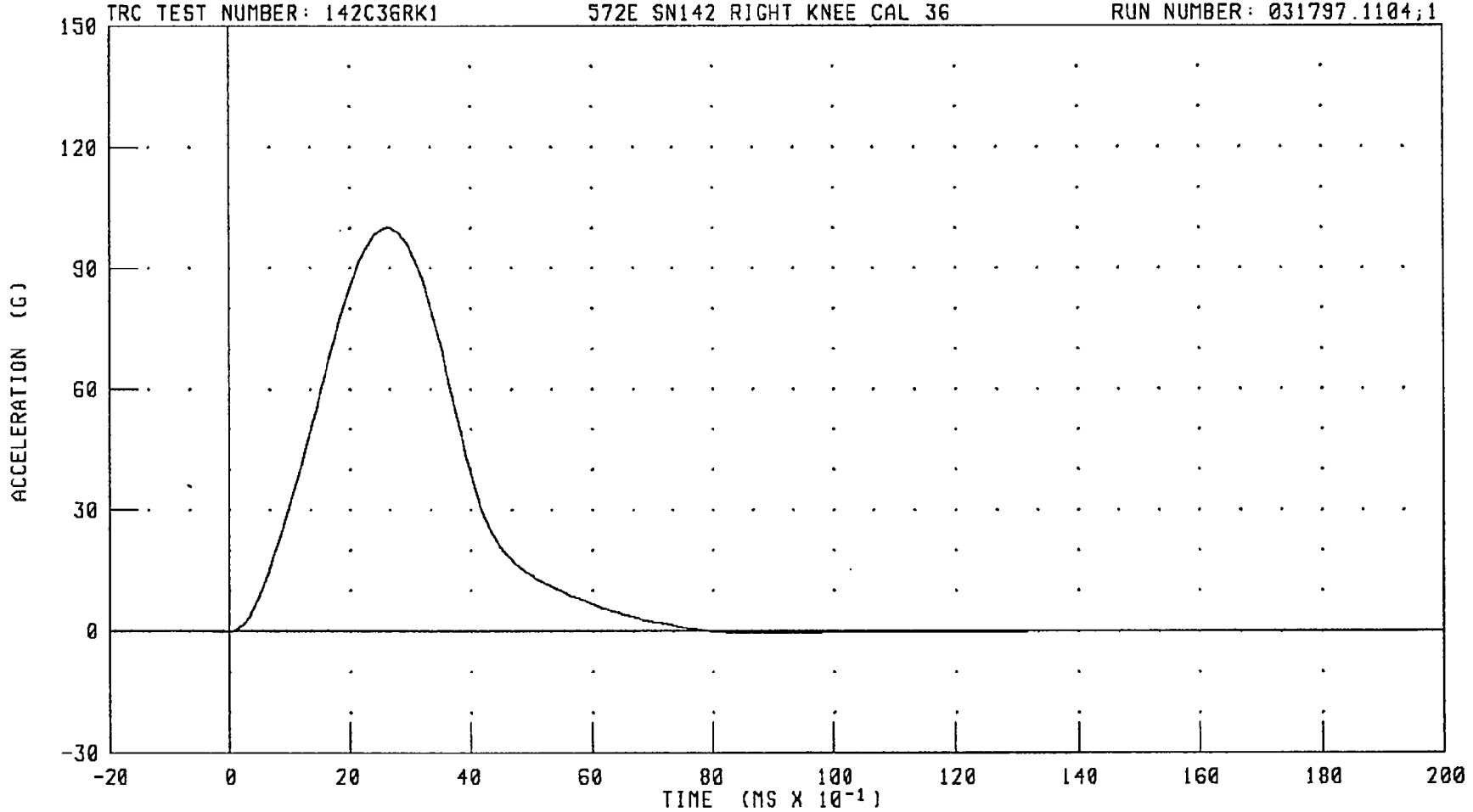
TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	18.9-25.6 DEG. C	21.1 DEG. C
RELATIVE HUMIDITY	10 - 70 %	29.0 %
PROBE VELOCITY	2.07 - 2.13 M/S	2.11 M/S
PEAK KNEE IMPACT FORCE 5.0 KG PENDULUM	4715 - 5782 N	4895.6 N

TEST MEETS SPECIFICATIONS

TECHNICIAN Richard LeVan RUN NUMBER: 012397.0908;1

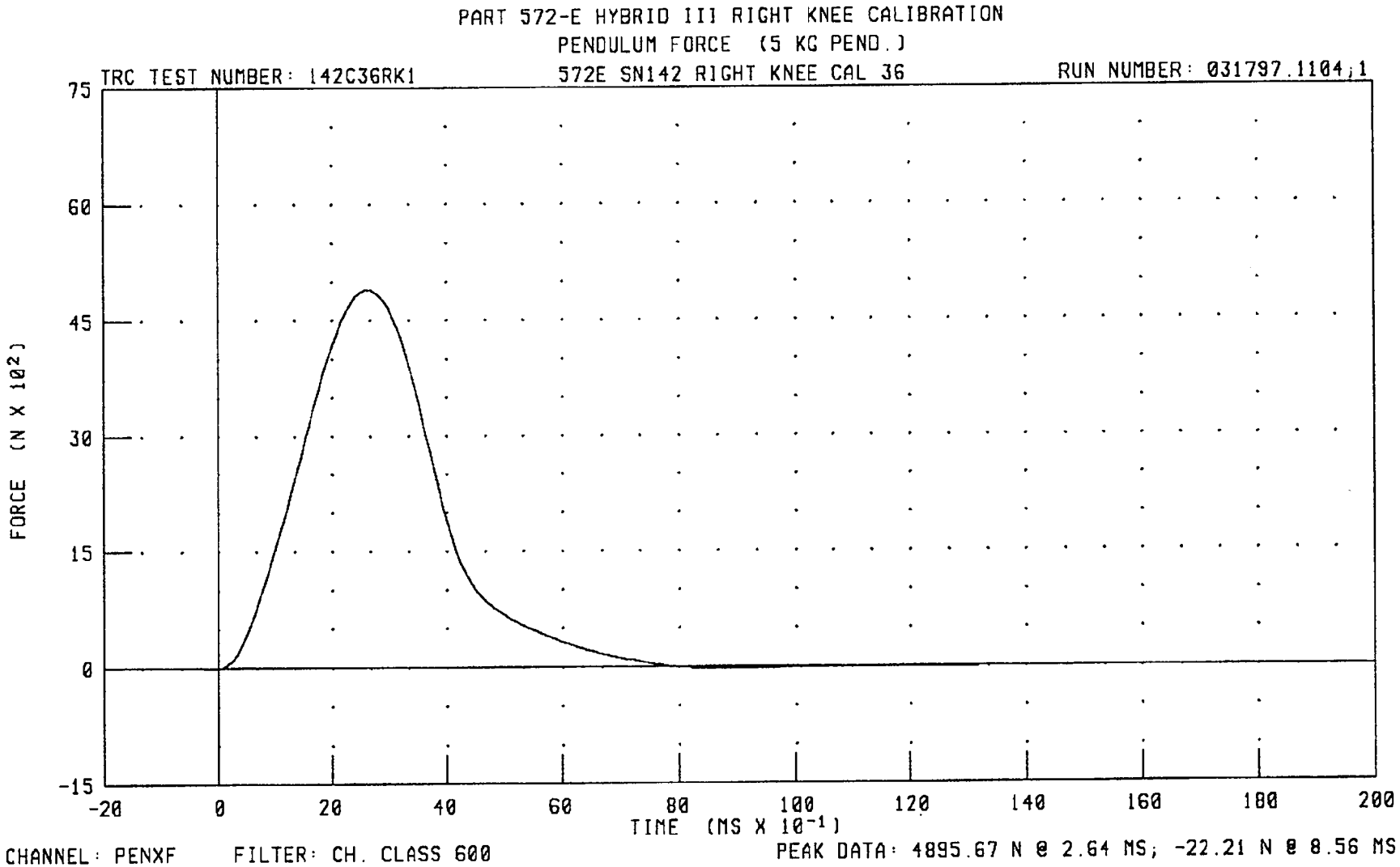
PART 572-E HYBRID III RIGHT KNEE CALIBRATION
PENDULUM DECELERATION (5 KG PEND.)

TRC TEST NUMBER: 142C36RK1 572E SN142 RIGHT KNEE CAL 36 RUN NUMBER: 031797.1104;1



CHANNEL: PENXG FILTER: CH. CLASS 600 PEAK DATA: 100.06 G @ 2.64 MS; -0.45 G @ 8.56 MS

970224


PART 572-E HYBRID III RIGHT KNEE CALIBRATION
PENDULUM FORCE (5 KG PEND.)
TRC TEST NUMBER: 142C36RK1
572E SN142 RIGHT KNEE CAL 36
RUN NUMBER: 031797.1104;1
75
60
45
30
15
0
-15
FORCE (N X 10²)
-20
0
20
40
60
80
100
120
140
160
180
200
TIME (MS X 10⁻¹)
CHANNEL: PENXF
FILTER: CH. CLASS 600
PEAK DATA: 4895.67 N @ 2.64 MS; -22.21 N @ 8.56 MS

TRANSPORTATION RESEARCH CENTER INC.

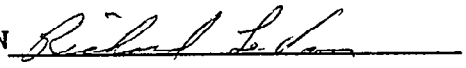
LEFT KNEE IMPACT TEST

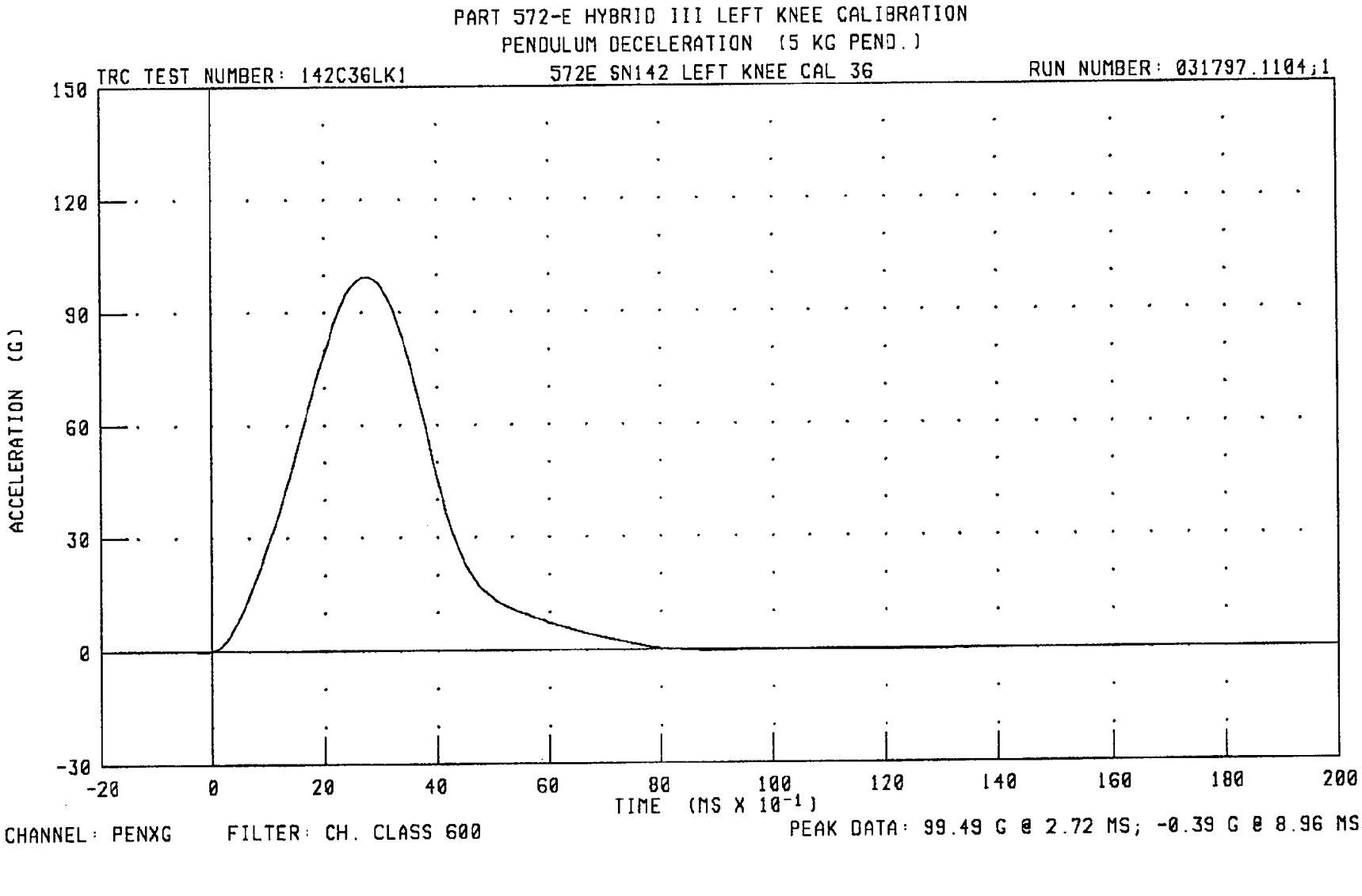
HYBRID III 23-JAN-97

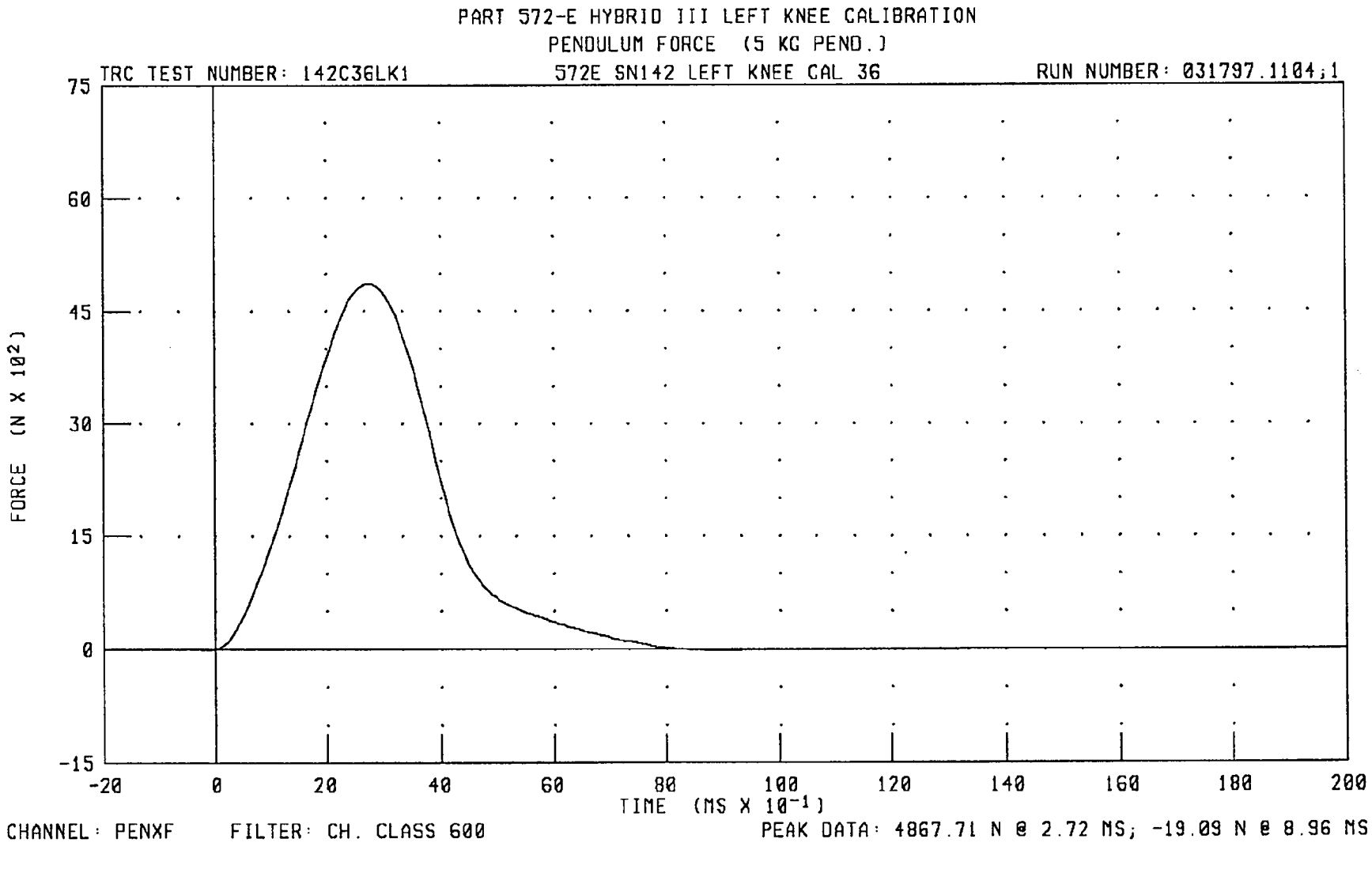
TRC INC. TEST NO: 142C36LK1 572E SN142 LEFT KNEE CAL 36

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	18.9-25.6 DEG. C	21.1 DEG. C
RELATIVE HUMIDITY	10 - 70 %	29.0 %
PROBE VELOCITY	2.07 - 2.13 M/S	2.11 M/S
PEAK KNEE IMPACT FORCE 5.0 KG PENDULUM	4715 - 5782 N	4867.7 N

TEST MEETS SPECIFICATIONS

TECHNICIAN  RUN NUMBER: 012397.0903;1


PART 572-E HYBRID III LEFT KNEE CALIBRATION
PENDULUM DECELERATION (5 KG PEND.)
TRC TEST NUMBER: 142C36LK1
572E SN142 LEFT KNEE CAL 36
RUN NUMBER: 031797.1104;1
ACCELERATION (G)
150
120
90
60
30
0
-30
-20
0
20
40
60
80
100
120
140
160
180
200
TIME (MS X 10-1)
CHANNEL: PENXG
FILTER: CH. CLASS 600
PEAK DATA: 99.49 G @ 2.72 MS; -0.39 G @ 8.96 MS


PART 572-E HYBRID III LEFT KNEE CALIBRATION
PENDULUM FORCE (5 KG PEND.)
TRC TEST NUMBER: 142C36LK1
572E SN142 LEFT KNEE CAL 36
RUN NUMBER: 031797.1104;1
FORCE (N X 10²)
75
60
45
30
15
0
-15
-20
0
20
40
60
80
100
120
140
160
180
200
TIME (MS X 10⁻¹)
CHANNEL: PENXF
FILTER: CH. CLASS 600
PEAK DATA: 4867.71 N @ 2.72 MS; -19.09 N @ 8.96 MS

970224

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[1]	445	1716	Denton	01/13/97	07/13/97
Neck Y-axis force load cell[1]	445	1716	Denton	01/13/97	07/13/97
Neck Z-axis force load cell[1]	445	1716	Denton	01/13/97	07/21/97
Neck Moment about X-axis load cell[1]	445	1716	Denton	01/13/97	07/13/97
Neck Moment about Y-axis load cell[1]	445	1716	Denton	01/13/97	07/13/97
Neck Moment about Z-axis load cell[1]	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	134	3419	Lebow	01/31/97	07/31/97
Shoulder belt force load cell	143	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.
Driver Dummy #192

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

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

	Serial Number	Model Number	Manufacturer	Calibration Date Last	Due
Head X-axis accelerometer	ACC63	7264	Endevco	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	234	3419	Lebow	01/31/97	07/31/97
Shoulder belt force load cell	590	3419	Lebow	01/31/97	07/31/97

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

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

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

Vehicle and Calibration Laboratory Instrument Calibrations

Vehicle Accelerometers

	Serial Number	Model Number	Manufacturer	Calibration Date Last	Due
Left rear seat crossmember X-axis	AH5T9	7264	Endevco	10/23/96	04/23/97
Left rear seat crossmember X-axis redundant	J15388	7264	Endevco	10/23/96	04/23/97
Right rear seat crossmember X-axis	J14167	7264	Endevco	01/21/97	07/21/97
Right rear seat crossmember X-axis redundant	J15474	7264	Endevco	10/23/96	04/23/97
Engine top X-axis	J15381	7264	Endevco	10/23/96	04/23/97
Engine bottom X-axis	DW48JC	7264	Endevco	09/25/96	03/25/97
Right brake caliper X-axis	J11342	7264	Endevco	01/23/97	07/23/97
Left brake caliper X-axis	J10789	7264	Endevco	11/13/96	05/13/97
Instrument panel center X-axis	J10458	7264	Endevco	09/25/96	03/25/97

Calibration Laboratory Instruments

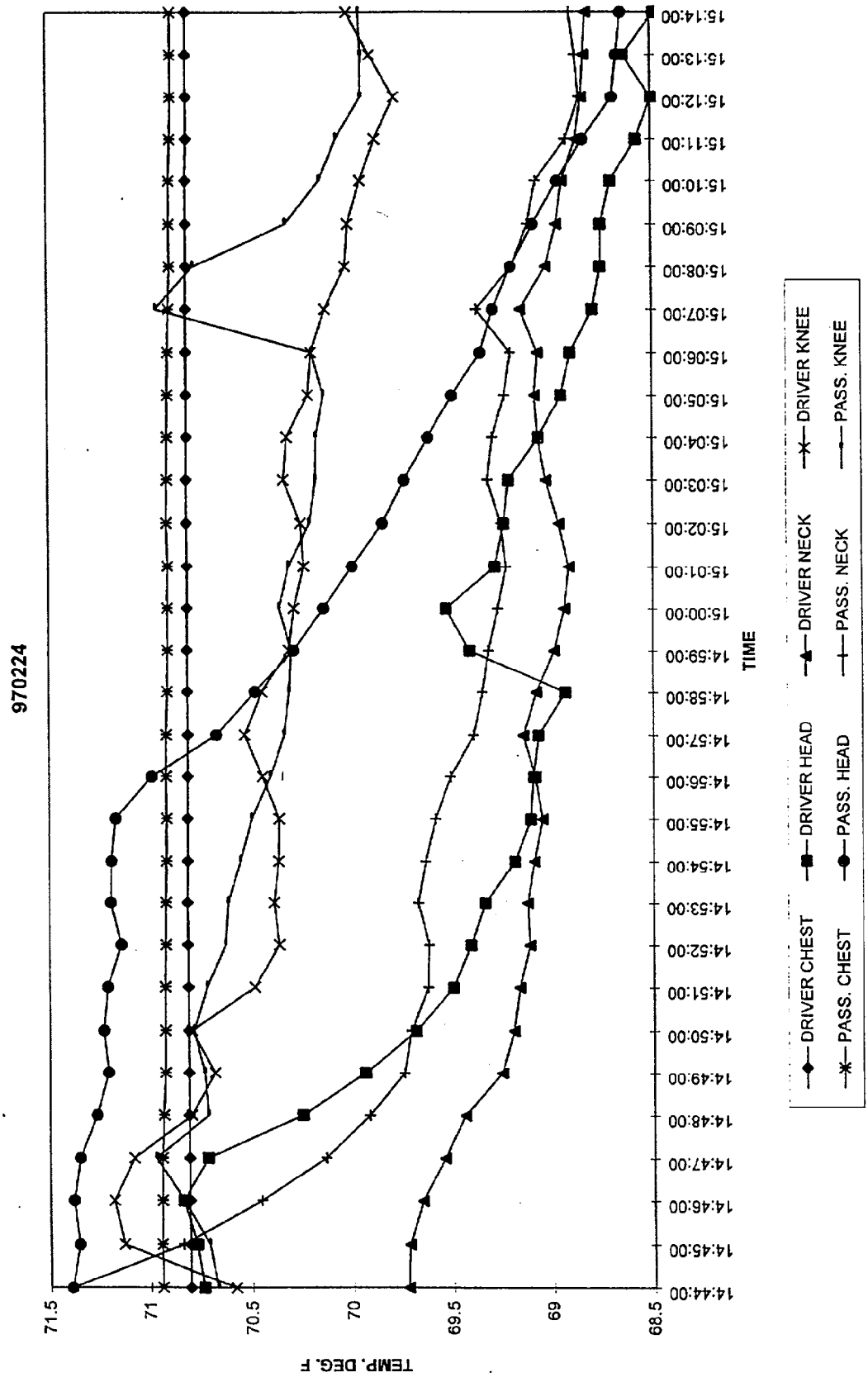
	Serial Number	Model Number	Manufacturer	Calibration Date Last	Due
Neck bending pendulum accelerometer	CB27	7232	Endevco	09/18/96	03/18/97
Neck bending rotary potentiometer (Beta)	NA	66575-1-102	Bournes	07/22/96	01/22/97
Neck bending linear potentiometer (Theta)	NA	66575-1-102	Bournes	07/22/96	01/22/97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

Accelerometers:	+X: Forward	
	+Y: Leftward	
	+Z: Upward	
Potentiometers:	+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)
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

Typical Test Measurements	Channel Class
Vehicle Structural Accelerations for use in:	
Total vehicle comparison	60
Collision simulation input	60
Component analysis	600
Integration for velocity or displacement	180
Barrier Face Forces	60
Belt Restraint System Loads	60
Anthropomorphic Test Device	
Head accelerations (linear and angular)	1000
Neck	
Forces	1000
Moments	600
Thorax	
Spine accelerations	180
Rib accelerations	1000
Sternum accelerations	1000
Deflections	180
Lumbar	
Forces	1000
Moments	1000
Pelvis	
Accelerations	1000
Forces	1000
Moments	1000
Femur/Knee/Tibia/Ankle	
Forces	600
Moments	600
Displacements	180
Sled Accelerations	60
Steering Column Loads	600
Head form Accelerations	1000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TEMP. DEG. F
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71
70.5
70
69.5
69
68.5
TIME
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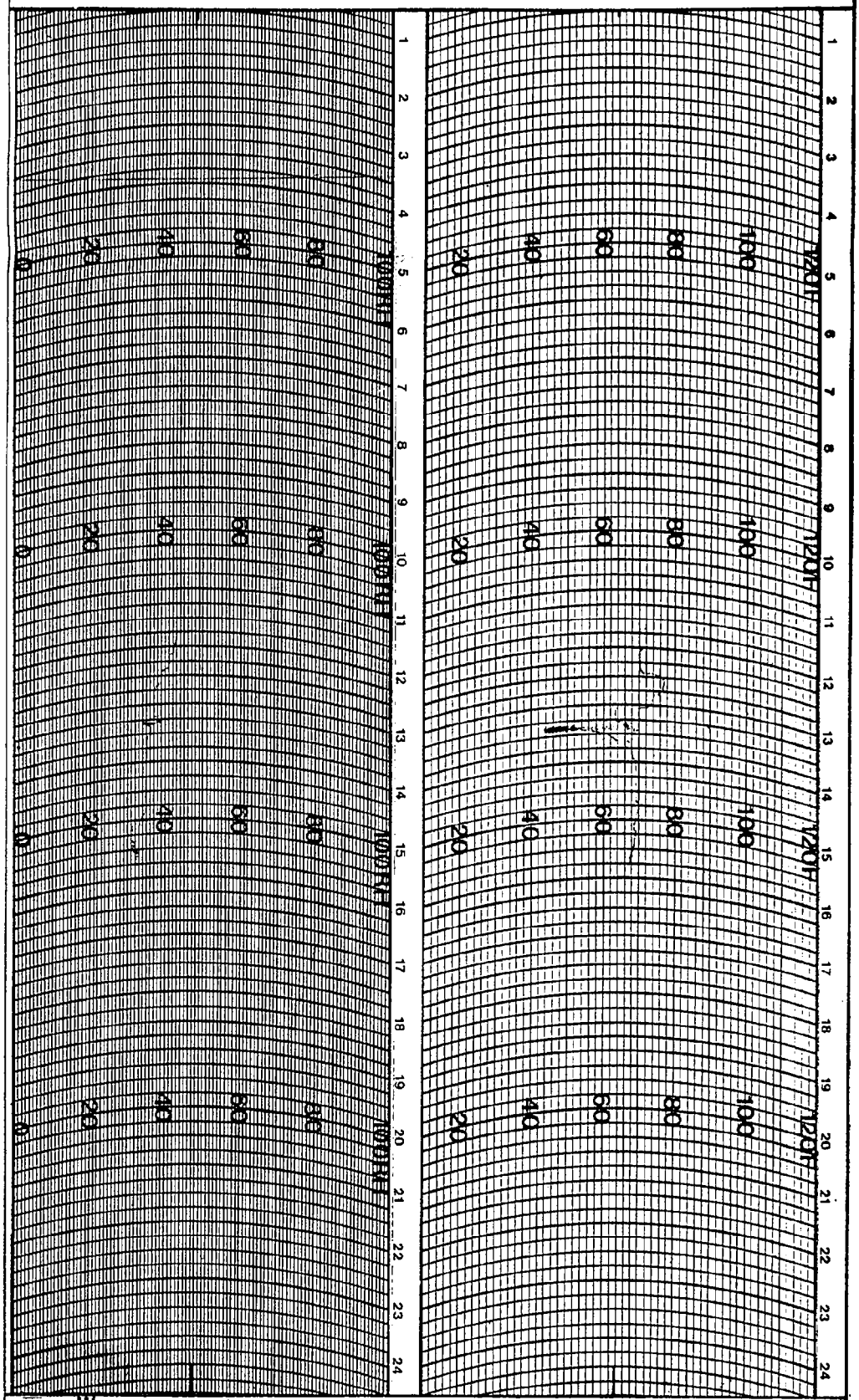
DRIVER CHEST
DRIVER HEAD
DRIVER NECK
DRIVER KNEE
PASS. CHEST
PASS. HEAD
PASS. NECK
PASS. KNEE



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 2-24 DATE OFF _____

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Appendix E

Restraint System Instructions from Owner's Manual

Part 1
OPERATION OF INSTRUMENTS AND CONTROLS—

Chapter 1–3
Seats, Seat belts, Steering wheel and Mirrors

- Seats
- Front seats
- Rear seats
- Head restraints
- Armrest
- Seat belts
- SRS airbag
- Child restraint
- Tilt steering wheel
- Outside rear view mirrors
- Anti-glare inside rear view mirror

Seats

While the vehicle is being driven, all vehicle occupants should have the seatback upright, sit well back in the seat and properly wear the seat belts provided.

⚠ CAUTION

- **Do not drive with the vehicle unless the occupants are not properly seated. Do not allow sitting on top of a folded-down seatback, or in the luggage compartment. Persons not properly seated and not properly restrained by seat belts can be severely injured in the event of emergency braking or a collision.**
- **During driving, do not allow passengers to stand up or move around between seats. Balance can be unsteady and severe injuries can occur in the event of emergency braking or a collision.**

Front seats—
—Seat adjustment precautions

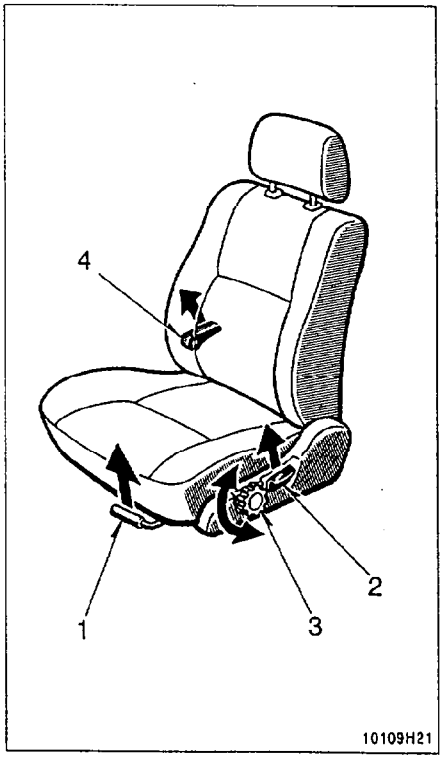
Adjust the driver's seat so that the foot pedals, steering wheel and instrument panel controls are within easy reach of the driver.

⚠ CAUTION

- **Adjustments should not be made while the vehicle is moving, as the seat may unexpectedly move and cause the driver to lose control of the vehicle.**
- **When adjusting the seat, be careful not to hit the seat against a passenger or luggage.**
- **After adjusting the seat position, try sliding it forward and backward to make sure it is locked in position.**
- **After adjusting the seatback, exert body pressure to make sure it is locked in position.**
- **Do not put objects under the seats as they may interfere with the seat-lock mechanism or unexpectedly push up the seat position adjusting lever; the seat may suddenly move, causing the driver to lose control of the vehicle.**

- **While adjusting the seat, do not put your hands under the seat or near the moving parts. You may catch and injure your hands or fingers.**

—Adjusting front seats



1. SEAT POSITION ADJUSTING LEVER
   Pull the lever up. Then slide the seat to the desired position with slight body pressure and release the lever.
2. SEATBACK ANGLE ADJUSTING LEVER (except bench seat)
   Lean forward and pull the lever up. Then lean back to the desired angle and release the lever.

⚠ CAUTION

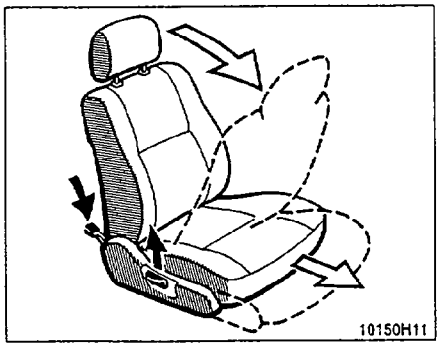
To reduce the risk of sliding under the lap belt during a collision, avoid reclining the seatback any more than needed. The seat belts provide maximum protection in a frontal or rear collision when the driver and the passenger are sitting up straight and well back in the seats. If you are reclined, the lap belt may slide past your hips and apply restraint forces directly to the abdomen. Therefore, in the event of a frontal collision, the risk of personal injury may increase with increasing recline of the seatback.

3. DRIVER'S SEAT CUSHION ANGLE ADJUSTING KNOB (on some models)
   Turn the knob either way.

4. DRIVER'S SEAT LUMBAR SUPPORT ADJUSTING LEVER (on some models)

Pull the lever forward or backward.

—Moving passenger's seat for rear seat entry (Xtra-cab models)



For easy access to the rear seat, do this.

1. Lift the seatback angle adjusting lever or press the pedal behind the seatback.

The seat will slide forward slightly.

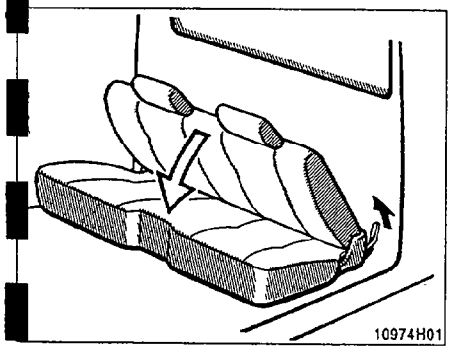
2. Move the seat to the front-most position.

After passengers are in, lift up the seatback and return the seat until it locks.

⚠ CAUTION

- **After putting back the seat, try pushing the seat forward and rearward to make sure it is secured in place.**
- **Never allow anyone to rest their foot on the press pedal while the vehicle is moving.**

—Folding seatback (bench seat)



Pull the seatback lock release lever and hold down the seatback.

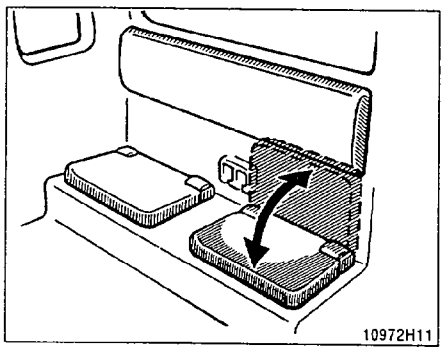
Hold the lever until you have swung the seatback forward slightly.

⚠ CAUTION

When returning the seatback to the upright position:

- **Make sure the seat belts are not twisted or caught in the seatback and are arranged in their proper position for ready use.**
- **Make sure the seatback is securely locked by pushing forward and rearward on the top of the seatback.**

Rear seats (jump seats)



To raise the bottom cushion, pull it up. To lower the bottom cushion, push it down.

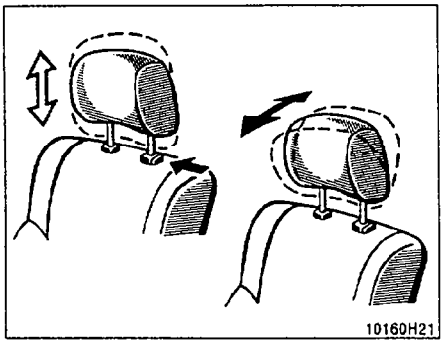
See "Luggage stowage precautions" in Part 2 for precautions to observe in loading luggage.

⚠ CAUTION

When returning the bottom cushion to its original position:

- **Make sure the seat belts are not twisted or caught under the bottom cushion and are arranged in their proper position for ready use.**
- **Make sure the bottom cushion is securely locked by trying to pull up the edge of the bottom cushion.**

Head restraints



For your safety, adjust the head restraint before driving.

To raise: Pull it up.
To lower: Push it down while pressing the lock release button.

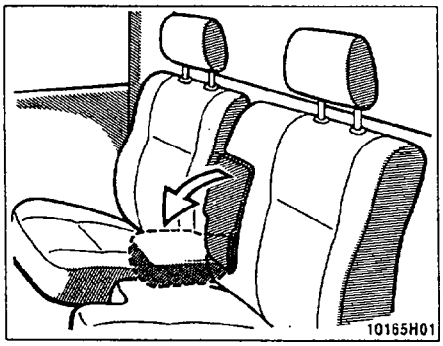
On some models, you can also move the head restraint forward or backward. If such adjustment is desired, pull or push the head restraint.

The head restraint is most effective when it is close to your head. Therefore, using a cushion on the seatback is not recommended.

⚠ CAUTION

- **Adjust the top of the head restraint so that it is closest to the top of your ears.**
- **After adjusting the head restraint, make sure it is locked in position.**
- **Do not drive with the head restraints removed.**

Armrest



To use the armrest, pull it out as shown above.

NOTICE

To prevent damage to the armrest, avoid putting heavy loads on it.

Seat belts—
—Seat belt precautions

Toyota strongly urges that the driver and passengers in the vehicle be properly restrained at all times with the seat belts provided. Failure to do so could increase the chance of injury and/or the severity of injury in accidents.

Child. Use a child restraint system appropriate for the child until the child becomes large enough to properly wear the vehicle's seat belts. See "Child restraint" for details.

NORMAL-CAB MODELS—
If a child is too large for a child restraint system, the child should sit in the seat and must be restrained using the vehicle's seat belt.

XTRA-CAB MODELS—
If a child is too large for a child restraint system, the child should sit in the rear seat and must be restrained using the vehicle's seat belt. According to accident statistics, the child is safer when properly restrained in the rear seat than in the front seat. If a child must sit in the front seat, the seat belts should be worn properly.

Do not allow the child to stand up or kneel on either rear or front seats. An unrestrained child could suffer serious injury during emergency braking or a collision. Also, do not let the child sit on you lap. It does not provid sufficient restraint.

If the shoulder belt falls across the child's neck or face, move the child to the center position and use the center lap belt.

Small-framed person or youth in a 3-point type seat belt. On models with a bench seat, have a small-framed person or youth sit slightly closer to the center of the vehicle (so the shoulder belt does not cross over the neck). On models with separate seats, move the seat fully backward.

Pregnant woman. Toyota recommends the use of a seat belt. Ask your doctor for specific recommendations. The lap belt should be worn securely and as low as possible over the hips and not on the waist.

Injured person. Toyota recommends the use of a seat belt. Depending on the injury, first check with your doctor for specific recommendations.

⚠ CAUTION

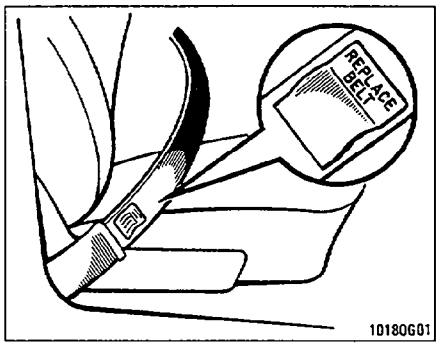
Persons should ride in their seats properly wearing their seat belts whenever the vehicle is moving. Otherwise, they are much more likely to suffer serious bodily injury in the event of sudden braking or a collision.

When using the seat belts, observe the following:

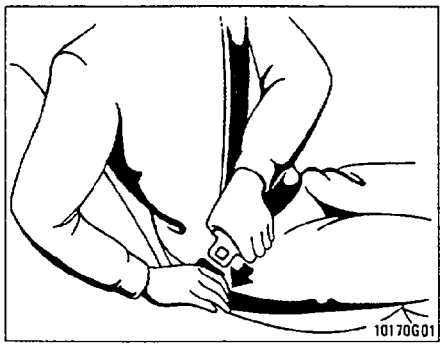
- **Use the belt for only one person at a time. Do not use a single belt for two or more people—even children.**
- **Avoid reclining the seatbacks too much. The seat belts provide maximum protection when the seatbacks are in the upright position. (Refer to the seat adjustment instructions.)**
- **Be careful not to damage the belt webbing or hardware. Take care that they do not get caught or pinched in the seat or side doors.**
- **Inspect the belt system periodically. Check for cuts, fraying, and loose parts. Damaged parts should be replaced. Do not disassemble or modify the system.**

—Front outside seat belts and rear seat belts

- **Keep the belts clean and dry. If they need cleaning, use a mild soap solution or lukewarm water. Never use bleach, dye, or abrasive cleaners–they may severely weaken the belts.**
- **Replace the belt assembly (including bolts) if it has been used in a severe impact. The entire assembly should be replaced even if damage is not obvious.**



- **Right passenger's seat (normal cab models) or right-front passenger's seat (Xtra-cab models) only–Replace the belt if the warning label under the sleeve can be seen. The warning label, "REPLACE BELT", will appear if the belt receives a severe impact or other force.**



Adjust the seat as needed (front seats only) and sit up straight and well back in the seat. To fasten your belt, pull it out of the retractor and insert the tab into the buckle.

You will hear a click when the tab locks into the buckle.

The seat belt length automatically adjusts to your size and the seat position.

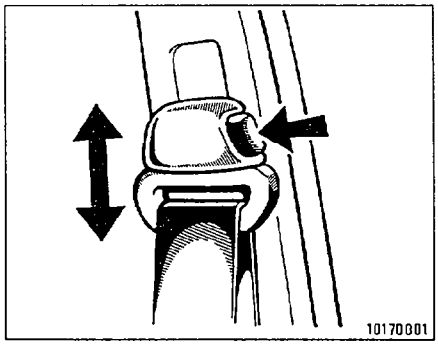
The retractor will lock the belt during a sudden stop or on impact. It also may lock if you lean forward too quickly. A slow, easy motion will allow the belt to extend, and you can move around freely.

the seat belt cannot be pulled out of the retractor, firmly pull the belt and release it. You will then be able to smoothly pull the belt out of the retractor.

When a passenger's shoulder belt is completely extended and is then retracted even slightly, the belt is locked in that position and cannot be extended. This feature is used to hold the child restraint system securely. (For details, see "Child restraint" in this chapter.) To free the belt again, fully retract the belt and then pull the belt out once more.

⚠ CAUTION

- **After inserting the tab, make sure the tab and buckle are locked and that the belt is not twisted.**
- **Do not insert coins, clips, etc. in the buckle as this may prevent you from properly latching the tab and buckle.**
- **If the seat belt does not function normally, immediately contact your Toyota dealer. Do not use the seat until the seat belt is fixed. It cannot protect an adult occupant or your child from injury.**



Seat belts with an adjustable shoulder anchor—

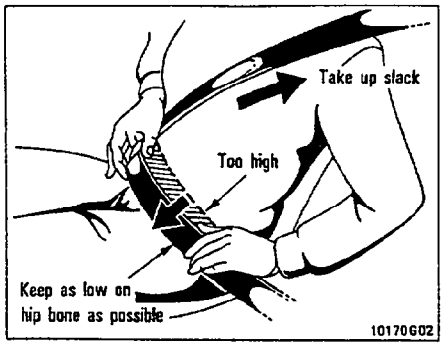
Adjust the shoulder anchor position to your size.

To raise: Slide the anchor up.
To lower: Push in the lock release button and slide the anchor down.

After adjustment, make sure the anchor is locked in position.

⚠ CAUTION

Always make sure the shoulder belt is positioned across the center of your shoulder. The belt should be kept away from your neck, but not falling off your shoulder. Failure to do so could reduce the amount of protection in an accident and cause severe injuries in a collision.

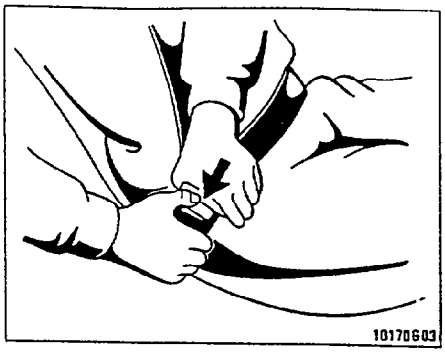


Adjust the position of the lap and shoulder belts.

Position the lap belt as low as possible on your hips—not on your waist, then adjust it to a snug fit by pulling the shoulder portion upward through the latch plate.

⚠ CAUTION

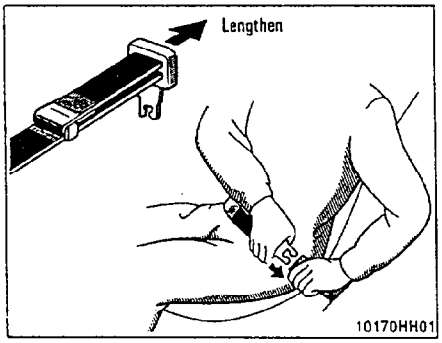
- **High-positioned lap belts and loose-fitting belts both could cause severe injuries due to sliding under the lap belt during a collision. Keep the lap belt positioned as low on hips as possible.**
- **For your safety, do not place the shoulder belt under your arm.**



To release the belt, press the buckle-release button and allow the belt to retract.

If the belt does not retract smoothly, pull it out and check for kinks or twists. Then make sure it remains untwisted as it retracts.

—Front center seat belt



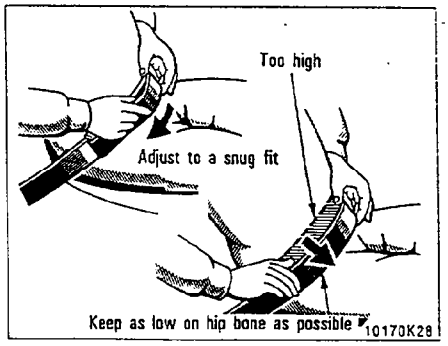
Sit up straight and well back in the seat. To fasten your belt, insert the tab into the buckle.

You will hear a click when the tab locks into the buckle.

If the belt is not long enough for you, hold the tab at a right angle to the belt and pull on the tab.

⚠ CAUTION

- **After inserting the tab, make sure the tab and buckle are locked and that the belt is not twisted.**
- **Do not insert coins, clips, etc. in the buckle as this may prevent you from properly latching the tab and buckle.**
- **If the seat belt does not function normally, immediately contact your Toyota dealer. Do not use the seat until the seat belt is fixed. It cannot protect an adult occupant or your child from injury.**



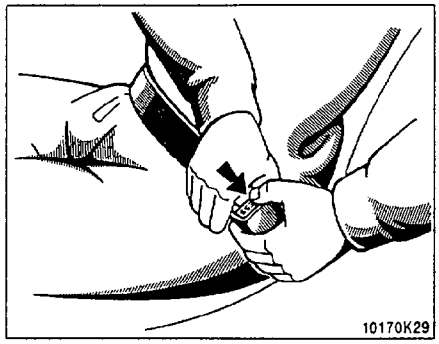
Remove excess length of the belt and adjust the belt position.

To shorten the belt, pull the free end of the belt.

Position the lap belt as low as possible on your hips—not on your waist, then adjust it to a snug fit.

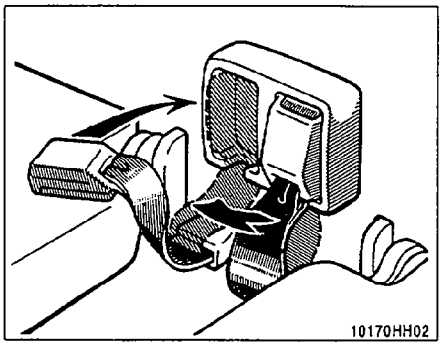
⚠ CAUTION

High-positioned and loose-fitting lap belts could cause severe injuries due to sliding under the lap belt during a collision. Keep the lap belt positioned as low on hips as possible.



To release the belt, press the buckle-release button.

—Stowing the rear seat buckles



The buckles can be fixed when not in use.

When taking out the buckle from the holder, pull on the belt webbing to remove the buckle from the lower portion.

—Seat belt extender

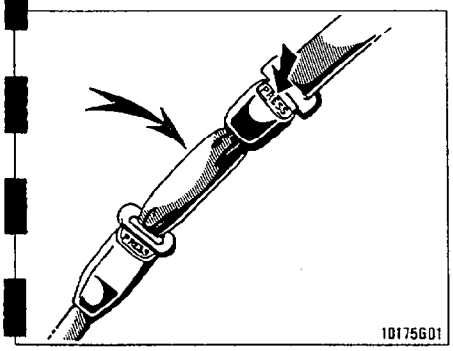
If your seat belt cannot be fastened securely because it is not long enough, a personalized seat belt extender is available from your Toyota dealer free of charge.

Please contact your local Toyota dealer so that the dealer can order the proper required length for the extender. Bring the heaviest coat you expect to wear for proper measurement and selection of length. Additional ordering information is available at your Toyota dealer.

⚠ CAUTION

When using the seat belt extender, observe the following. Failure to follow these instructions could result in less effectiveness of the seat belt restraint system in case of vehicle accident, increasing the chance of personal injury.

- **Never use the seat belt extender if you can fasten the seat belt without it.**
- **Remember that the extender provided for you may not be safe when used on a different vehicle, or for another person or at a different seating position than the one originally intended for.**



To connect the extender to the seat belt, insert the tab into the seat belt buckle so that the "PRESS" signs on the buckle-release buttons of the extender and the seat belt are both facing outward as shown.

You will hear a click when the tab locks into the buckle.

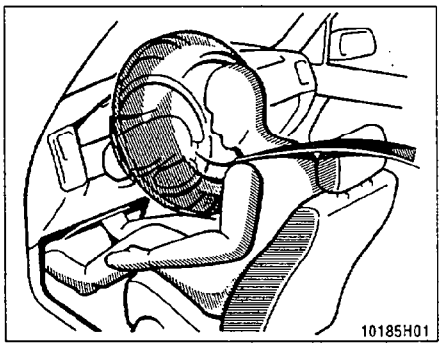
When releasing the seat belt, press on the buckle-release button on the extender, not on the seat belt. This helps prevent damage to the vehicle interior and extender itself.

When not in use, remove the extender and store in the vehicle for future use.

⚠ CAUTION

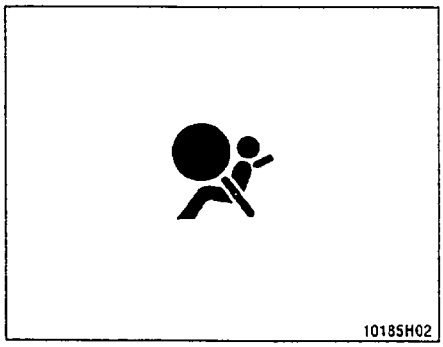
- **After inserting the tab, make sure the tab and buckle are locked and that the seat belt extender is not twisted.**
- **Do not insert coins, clips, etc. in the buckle as this may prevent you from properly latching the tab and buckle.**
- **If the seat belt does not function normally, immediately contact your Toyota dealer. Do not use the seat until the seat belt is fixed. It cannot protect an adult occupant or your child from injury.**

SRS airbag



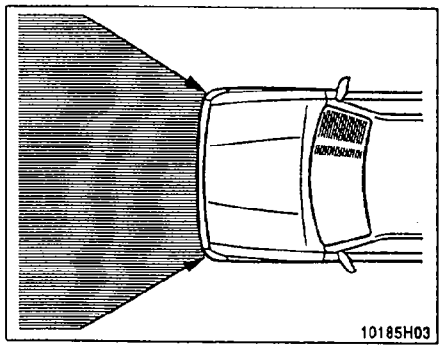
The SRS (Supplemental Restraint System) airbag is designed to provide further protection to the driver when added to the primary protection provided by the seat belt.

In response to a severe frontal impact, the SRS airbag works together with the seat belt to help preventing or reduce injury by inflating, in order to decrease the likelihood of the driver's head or chest directly hitting the steering wheel.



This indicator comes on when the ignition key is turned to the "ACC" or "ON" position. It goes off after about 6 seconds. This means the SRS airbag is operating properly.

The SRS airbag warning light system monitors the airbag sensor assembly, inflator, warning light, interconnecting wiring and power sources.



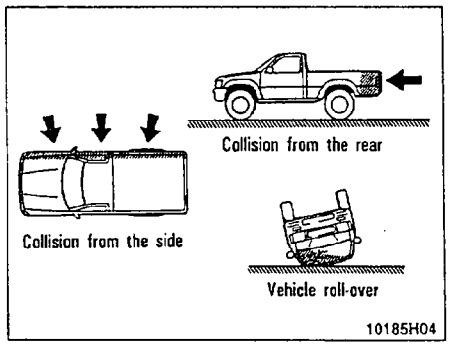
The SRS airbag system is designed to activate in response to a severe frontal impact within the shaded area between the arrows in the illustration.

The SRS airbag will deploy if the severity of the impact is above the designed threshold level, comparable to an approximate 20 km/h (14 mph) collision when impacting straight into a fixed barrier that does not move or deform.

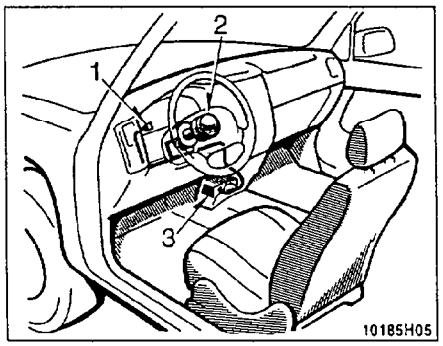
If the severity of the impact is below the above threshold level, the SRS airbag may not deploy.

However, this threshold velocity will be considerably higher if the vehicle strikes an object, such as a parked vehicle or sign pole, which can move or deform on impact, or if it is involved in an underride collision (e.g. a collision in which the nose of the vehicle "underrides", or goes under, the bed of a truck).

For your safety, be sure to always wear your seat belt.



The SRS airbag is not designed to inflate if the vehicle is subjected to a side or rear impact, if it rolls over, or if it is involved in a low-speed frontal collision.



The SRS airbag system mainly consists of the following components and their locations are shown in the illustration.

1 SRS airbag warning light
2 Steering wheel pad (airbag and inflator)
3 Airbag sensor assembly

The airbag sensor assembly consists of a safing sensor and airbag sensor.

In a severe frontal impact, the sensor detects deceleration and the system triggers the airbag inflator. Then a chemical reaction in the inflator momentarily fills the airbag with non-toxic nitrogen gas to help restrain the forward motion of the driver.

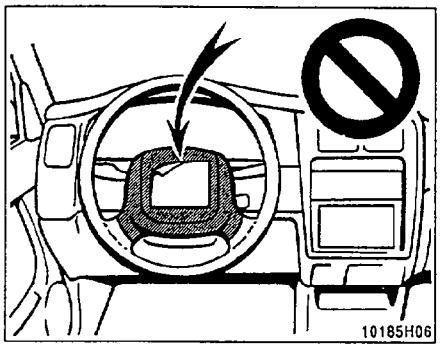
When the airbag inflates, it produces a fairly loud noise and releases some smoke along with the nitrogen gas. This is not harmful and does not indicate a fire. Be sure to wash off any residue as soon as possible to prevent minor skin irritation.

Deployment of the airbag happens in a fraction of a second, so the airbag must inflate with considerable force. While the system is designed to reduce serious injuries, it may also cause minor burns or abrasions and swellings.

The steering wheel hub may be hot for several minutes, but the airbag itself will not be hot. The airbag is designed to inflate only once.

⚠ CAUTION

The SRS airbag system is designed only as a supplement to the primary protection of the seat belt system of the driver. The driver is particularly susceptible to injury if he/she does not wear his/her seat belt; when sudden braking or a collision occurs, he/she may be thrown forward. To obtain maximum protection in an accident, the driver and all passengers in the vehicle should always wear their seat belts when driving because serious injuries can result to unrestrained occupants. For instructions and precautions concerning the seat belt system, see "Seat belts" in this chapter.



⚠ CAUTION

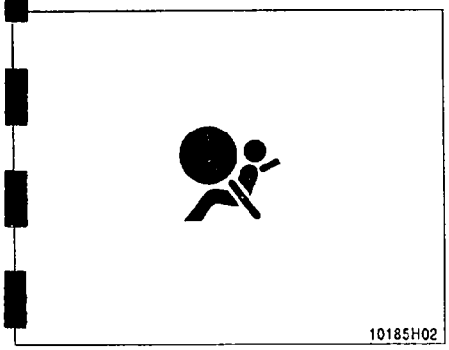
- **Do not put objects on the steering wheel pad. They might restrict inflation or cause personal injury as they are projected rearward.**
- **Do not modify, remove or open any component or wiring, such as the steering wheel, column cover, airbag sensor assembly. Doing any of these may cause sudden SRS airbag inflation or disable the system, which could result in personal injury.**

Failure to follow these instructions can result in severe injuries.

NOTICE

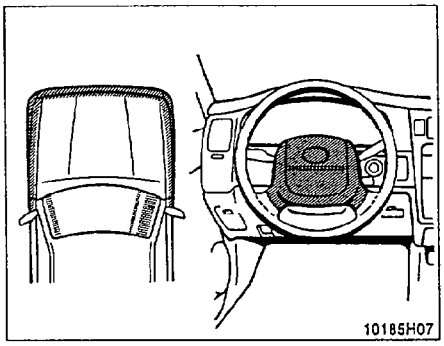
Do not perform any of the following changes without consulting your Toyota dealer. Such changes can interfere with proper operation of the SRS airbag system in some cases.

- ***Installation of electronic items such as a mobile two-way radio, cassette tape player or compact disc player***
- ***Modification of the suspension system***
- ***Modification of the front end structure***
- ***Attachment of a grille guard (bull bar, kangaroo bar, etc.), snowplow, winches or any other equipment to the front end***
- ***Repairs made on or near the front end structure, console, steering column or steering wheel***



This SRS airbag system has a service reminder indicator to inform the driver of operating problems. If either of the following conditions occurs, this indicates a malfunction of the airbag. Contact your Toyota dealer as soon as possible to service the vehicle.

- The light does not come on when the ignition key is turned to the "ACC" or "ON" position, or remains on.
- The light comes on while driving.



In the following cases, contact your Toyota dealer as soon as possible:

- The SRS airbag has been inflated.
- The front part of the vehicle (shaded in the illustration) was involved in an accident not of the extent to cause the SRS airbag to inflate.
- The pad section of the steering wheel (shaded in the illustration) is scratched, cracked, or otherwise damaged.

Child restraint—
—Child restraint precautions

Toyota strongly urges the use of child restraint systems for children small enough to use it.

The laws of all fifty states in the U.S.A. and Canada now require the use of a child restraint system.

Your vehicle conforms to SAEJ1819.

If a child is too large for a child restraint system, the child should sit in the seat and must be restrained using the vehicle's seat belt. See "Seat belts" for details.

⚠ CAUTION

For effective protection in automobile accidents and sudden stops, children must be properly restrained using a seat belt or child restraint system depending on the age and size of the child. Holding a child in your arms is not a substitute for a child restraint system. In an accident, the child can be crushed against the windshield, or between you and the vehicle's interior.

- **NORMAL-CAB MODELS—**
  Toyota strongly urges use of a proper child restraint system that conforms to the size of the child on the seat.
- **XTRA-CAB MODELS—**
  Toyota strongly urges use of a proper child restraint system that conforms to the size of the child on the rear seat. According to accident statistics, the child is safer when properly restrained in the rear seat than in the front seat.
- **Make sure that you have complied with all installation instructions provided by the child restraint manufacturer and that the system is properly secured.**

—Child restraint system

A child restraint system for a small child or baby must itself be properly restrained on the seat with either the lap belt or the lap portion of the lap/shoulder belt. You must carefully consult the manufacturer's instructions which accompany by your child restraint system.

To provide proper restraint, use a child restraint system following the manufacturer's instructions about the appropriate age and size of the child for the child restraint system.

Install the child restraint system correctly following the instructions provided by its manufacturer of the system. General directions are also provided under the following illustrations.

The child restraint system should be installed on the rear seat if your vehicle is equipped with rear seats. According to accident statistics, the child is safer when properly restrained in the rear seat than in the front seat.

⚠ CAUTION

After installing the child restraint system, make sure it is secured in place following the manufacturer's instructions. If it is not restrained securely, it can cause injury to the child in the event of a sudden stop or accident.

When not using the child restraint system, keep it secured with the seat belt. This will prevent it injuring passengers in the event of a sudden stop or accident.

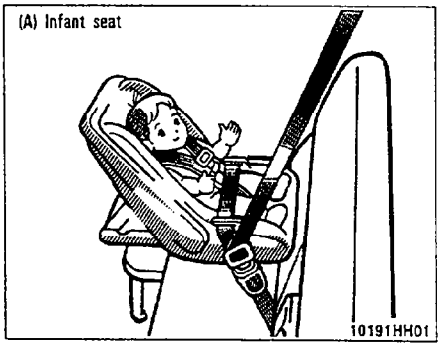
35

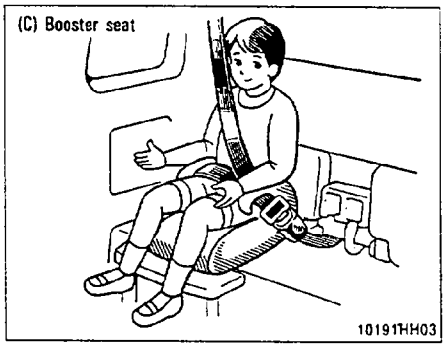
—Types of child restraint system

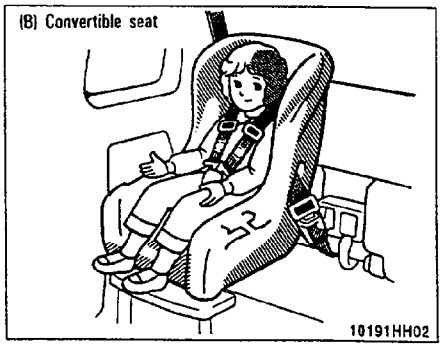
Child restraint systems are classified into the following 3 types depending on the child's age and size.

(A) Infant seat
(B) Convertible seat
(C) Booster seat

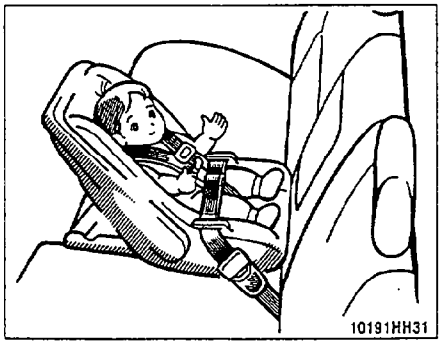
Install the child restraint system following the instructions provided by its manufacturer.







—Installation with 2-point type seat belt



(A) INFANT SEAT INSTALLATION

An infant seat is used in rear-facing only.

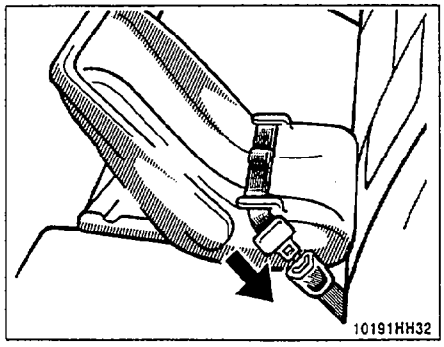
With the child restraint system installed, check that your driving position is satisfactory and that the child restraint system does not interfere with your driving.

If your driving position is not satisfactory, or the child restraint system interferes with your driving, install it at another position.

Split bench seat—
Adjust the passenger seat travel and seatback position so that the child restraint system is securely restrained.

⚠ CAUTION

Ignoring the above instructions may result in a serious injury in case of an accident.

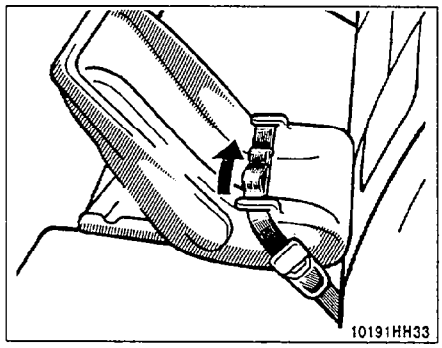


1. Run the center lap belt through or around the infant seat following the instructions provided by its manufacturer and insert the tab into the buckle taking care not to twist the lap belt.

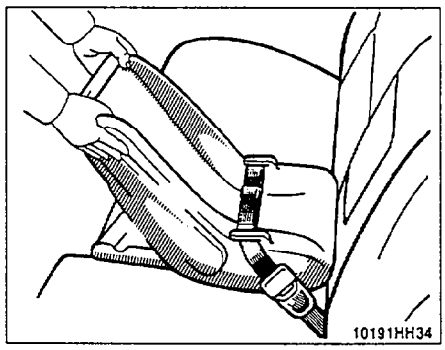
37

⚠ CAUTION

- **After inserting the tab, make sure the tab and buckle are locked and that the lap belt is not twisted.**
- **Do not insert coins, clips, etc. in the buckle as this may prevent you from properly latching the tab and buckle.**
- **If the seat belt does not function normally, it cannot protect your child from injury. Contact your Toyota dealer immediately. Do not use the seat until the seat belt is fixed.**

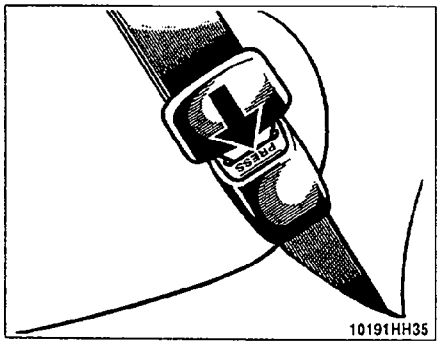


2. While pressing the infant seat firmly against the seat cushion and seatback, tighten the lap belt by pulling its free end to hold the infant seat securely.

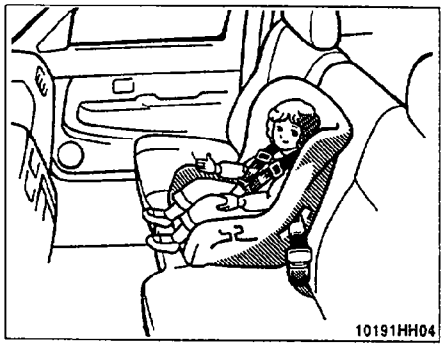


⚠ CAUTION

Push and pull the child restraint system in different directions to be sure it is secure. Follow all the installation instructions provided by its manufacturer.



3. To remove the infant seat, press the buckle–release button.



(B) CONVERTIBLE SEAT INSTALLATION

A convertible seat is used in forward–facing and rear–facing depending on the child's age and size. When installing, follow the manufacturer's instructions about the applicable child's age and size as well as direction of a child restraint system.

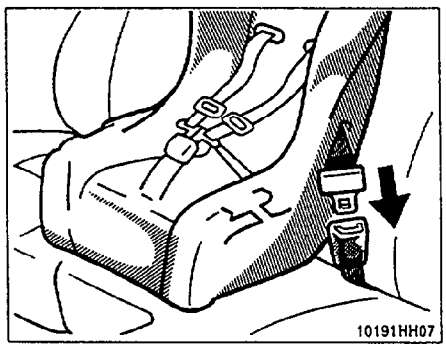
With the child restraint system installed, check that your driving position is satisfactory and that the child restraint system does not interfere with your driving.

If your driving position is not satisfactory, or the child restraint system interferes with your driving, install it at another position.

Split bench seat—
Adjust the passenger seat travel and seatback position so that the child restraint system is securely restrained.

⚠ CAUTION

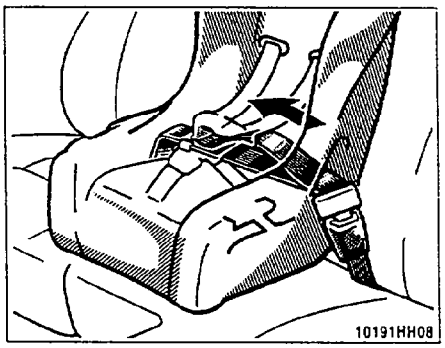
Ignoring the above instructions may result in a serious injury in case of an accident.



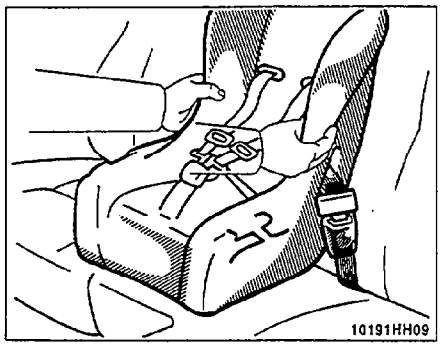
1. Run the center lap belt through or around the convertible seat following the instructions provided by its manufacturer and insert the tab into the buckle taking care not to twist the lap belt.

⚠ CAUTION

- **After inserting the tab, make sure the tab and buckle are locked and that the lap belt is not twisted.**
- **Do not insert coins, clips, etc. in the buckle as this may prevent you from properly latching the tab and buckle.**
- **If the seat belt does not function normally, it cannot protect your child from injury. Contact your Toyota dealer immediately. Do not use the seat until the seat belt is fixed.**

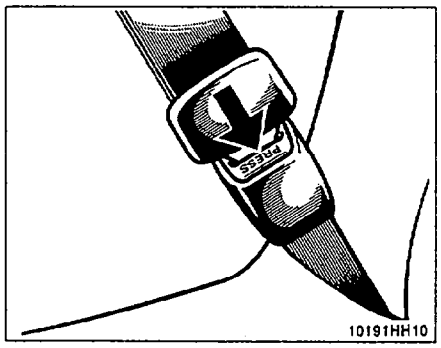


2. While pressing the convertible seat firmly against the seat cushion and seatback, tighten the lap belt by pulling its free end to hold the convertible seat securely.



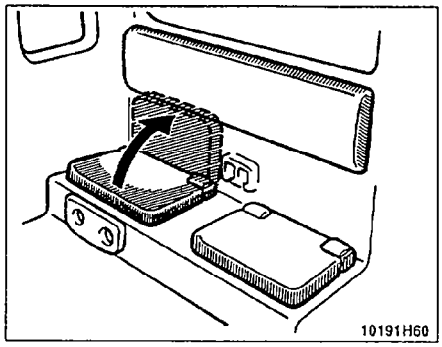
⚠ CAUTION

Push and pull the child restraint system in different directions to be sure it is secure. Follow all the installation instructions provided by its manufacturer.



3. To remove the convertible seat, press the buckle–release button.

—Installation with 3–point type seat belt

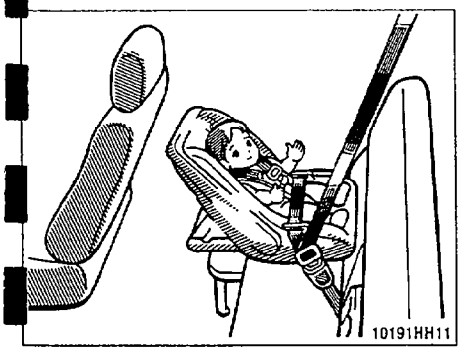


WHEN INSTALLING ON THE REAR SEAT (Xtra-cab models):

Raise the bottom cushion before installing the child restraint system.

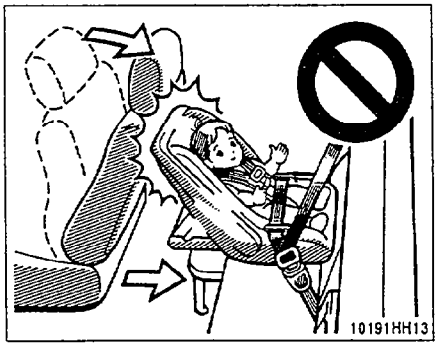
If your child restraint system is too large, you can use the folding table as an auxiliary support. For instructions about how to stand the table, see "Cup holder (Xtra-cab models)" in Chapter 1–8.

41



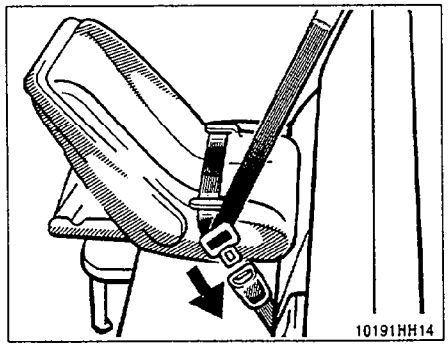
A) INFANT SEAT INSTALLATION

An infant seat is used in rear–facing only.



⚠ CAUTION

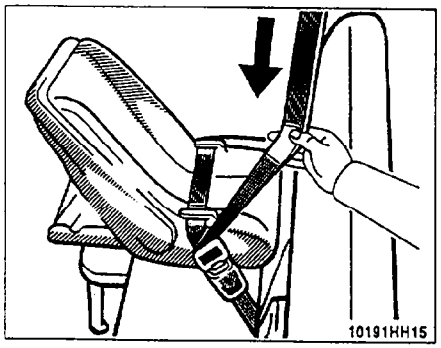
- **Do not use a rear-facing child restraint system in the rear seat if the child restraint system interferes with the front seat lock mechanism or with your proper driving position. This can cause severe injury to the child and front passenger in case of sudden braking or a collision.**
- **If your driving position is not satisfactory, install the child restraint system at another position.**



1. Run the lap and shoulder belt through or around the infant seat following the instructions provided by its manufacturer and insert the tab into the buckle taking care not to twist the belt. Keep the lap portion of the belt tight.

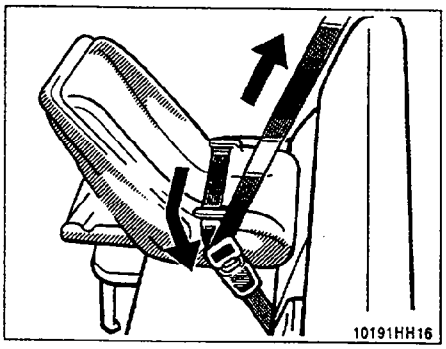
⚠ CAUTION

- **After inserting the tab, make sure the tab and buckle are locked and that the lap and shoulder portions of the belt is not twisted.**
- **Do not insert coins, clips, etc. in the buckle as this may prevent you from properly latching the tab and buckle.**
- **If the seat belt does not function normally, it cannot protect your child from injury. Contact your Toyota dealer immediately. Do not use the seat until the seat belt is fixed.**

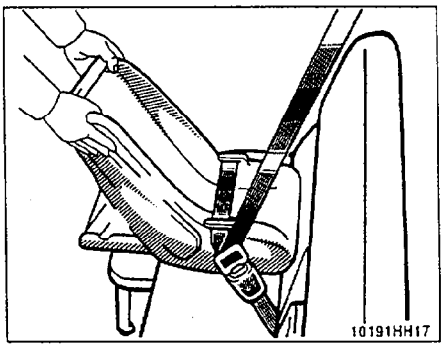


2. Fully extend the shoulder belt to put it in the lock mode. When the belt is then retracted even slightly, it cannot be extended.

To hold the infant seat securely, make sure the belt is in the lock mode before letting the belt to retract.

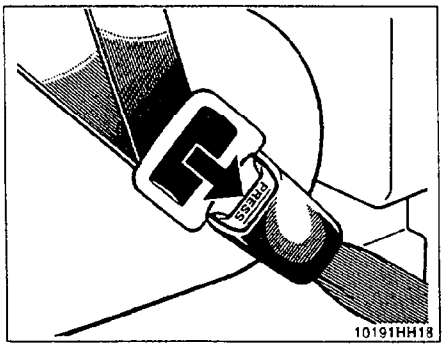


3. While pressing the infant seat firmly against the seat cushion and seatback, let the shoulder belt retract as far as it will go to hold the infant seat securely.

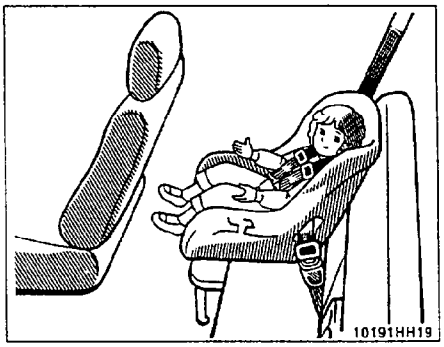


⚠ CAUTION

Make sure the seat belt is securely locked. Also make sure the child restraint system is secure by pushing and pulling it in different directions. Follow all the installation instructions provided by its manufacturer.

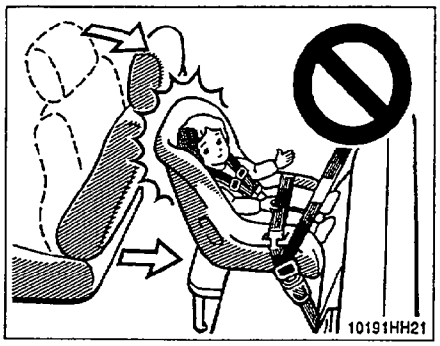


4. To remove the infant seat, press the buckle–release button and allow the belt to retract completely. The belt will move freely again and be ready to work for an adult or older child passenger.



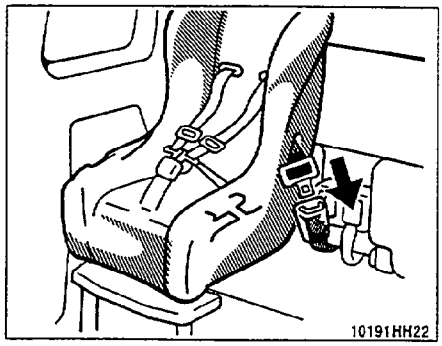
(B) CONVERTIBLE SEAT INSTALLATION

A convertible seat is used in forward–facing and rear–facing depending on the child's age and size. When installing, follow the manufacturer's instruction about the applicable child's age and size.



⚠ CAUTION

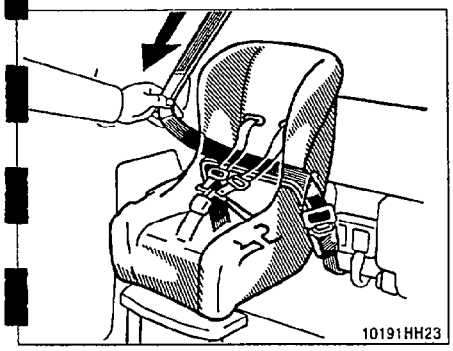
- **Do not use a rear-facing child restraint system in the rear seat if the child restraint system interferes with the front seat lock mechanism or with your proper driving position. This can cause severe injury to the child and front passenger in case of sudden braking or a collision.**
- **If your driving position is not satisfactory, install the child restraint system at another position.**



1. Run the lap and shoulder belt through or around the convertible seat following the instructions provided by its manufacturer and insert the tab into the buckle taking care not to twist the belt. Keep the lap portion of the belt tight.

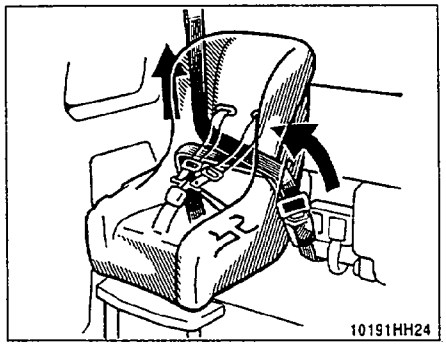
⚠ CAUTION

- **After inserting the tab, make sure the tab and buckle are locked and that the lap and shoulder portions of the belt is not twisted.**
- **Do not insert coins, clips, etc. in the buckle as this may prevent you from properly latching the tab and buckle.**
- **If the seat belt does not function normally, it cannot protect your child from injury. Contact your Toyota dealer immediately. Do not use the seat until the seat belt is fixed.**

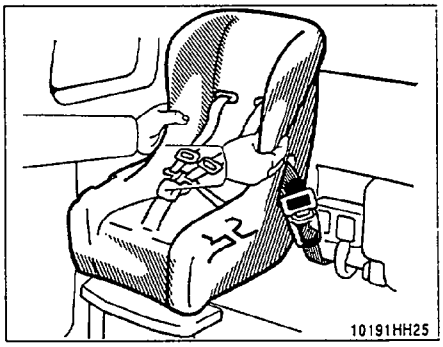


. Fully extend the shoulder belt to put it in the lock mode. When the belt is then retracted slightly, it cannot be extended.

o hold the convertible seat securely, ake sure the belt is in the lock mode before letting the belt to retract.

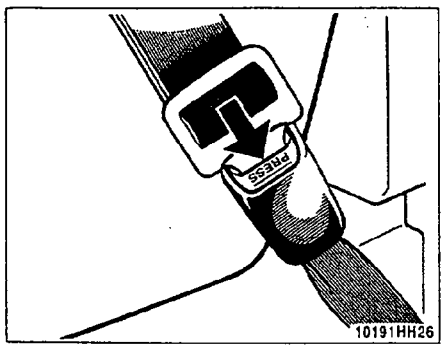


3. While pressing the convertible seat firmly against the seat cushion and seatback, let the shoulder belt retract as far as it will go to hold the convertible seat securely.

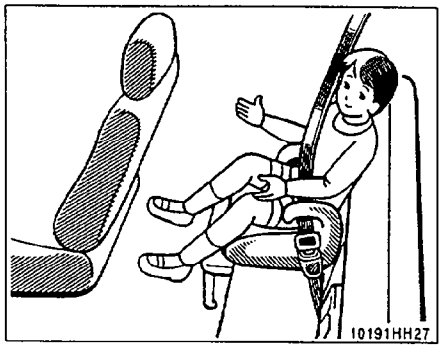


⚠ CAUTION

Make sure the seat belt is securely locked. Also make sure the child restraint system is secure by pushing and pulling it in different directions. Follow all the installation instructions provided by its manufacturer.

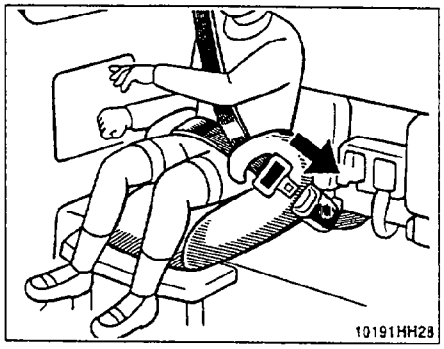


4. To remove the convertible seat, press the buckle–release button and allow the belt to retract completely. The belt will move freely again and be ready to work for an adult or older child passenger.



(C) BOOSTER SEAT INSTALLATION

A booster seat is used in forward–facing only.



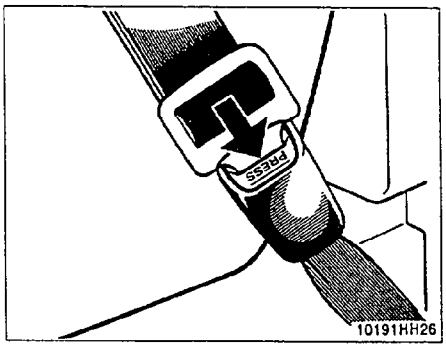
1. Sit the child on a booster seat. Run the lap and shoulder belt through or around the booster seat and child following the instructions provided by its manufacturer and insert the tab into the buckle taking care not to twist the belt.

Make sure the shoulder belt is correctly across the child's shoulder and that the lap belt is positioned as low as possible on child's hips. See "Seat belts" for details.

⚠ CAUTION

- **Always make sure the shoulder belt is positioned across the center of child's shoulder. The belt should be kept away from child's neck, but not falling off child's shoulder. Failure to do so could reduce the amount of protection in an accident and increase the chance of injury.**
- **High–positioned lap belts and loose–fitting belts both could increase the chance of injury due to sliding under the lap belt during an accident. Keep the lap belt as low on your hip bone as possible.**
- **For child's safety, do not place the shoulder belt under child's arm.**
- **After inserting the tab, make sure the tab and buckle are locked and that the lap and shoulder portions of the belt is not twisted.**
- **Do not insert coins, clips, etc. in the buckle as this may prevent you from properly latching the tab and buckle.**

- **If the seat belt does not function normally, it cannot protect your child from injury. Contact your Toyota dealer immediately. Do not use the seat until the seat belt is fixed.**



2. To remove the child restraint system, press the buckle–release button and allow the belt to retract.