

3150
V3150

**2000 Ford Taurus
into a Flat Frontal Barrier
TRC Test Number: 990628-2**

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Section 1.0

Purpose and Test Procedure

Purpose and Test Summary

This 30 mph flat frontal barrier impact test has as the main objective to investigate both vehicle and occupant dynamics during a flat frontal barrier test. A secondary objective is to gather information on depowered airbags.

This test was conducted with a 2000 Ford Taurus that impacted a flat frontal barrier. The test vehicle contained two instrumented Hybrid III 50th percentile adult male dummies.

Section 2.0

Flat Frontal Barrier Impact Test Summary

Test Procedure

This test was conducted per VRTC personnel's instructions. Data was obtained relative to FMVSS 208, "Occupant Crash Protection," performance.

The test vehicle was instrumented with eight (8) accelerometers to measure longitudinal, lateral, and vertical axis accelerations and four (4) inductive pickup switches to measure the driver and passenger airbag fire times (both airbags were dual stage airbags). The vehicle's specified impact velocity range was 47.5 to 49.1 kph. The vehicle impacted a flat frontal barrier.

The test vehicle contained two (2) Hybrid III 50th percentile adult male anthropomorphic test devices (dummies). The dummies were positioned in the front outboard designated seating positions according to the FMVSS 208 laboratory seating procedure.

Both dummies were instrumented with head and chest accelerometers to measure longitudinal, lateral, and vertical accelerations; chest deflection potentiometers; left and right femur load cells to measure axial forces; and upper neck load cells to measure forces and moments.

The forty-two (42) data channels were digitally sampled at 12,500 samples per second and processed per Sections 11.13 through 11.15 of the Laboratory Test Procedure.

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

The vehicle and occupant data are summarized in Section 2.0. The FMVSS 208 data are presented in Section 3.0. The vehicle, occupant, and camera measurements are presented in Section 4.0. Appendix A contains the still photographic prints. Appendix B contains the dummy and vehicle data plots. Appendix C contains the post-test dummy certification. Appendix D contains the miscellaneous test information.

Test Results Summary

This flat frontal barrier test was conducted at TRC on June 28, 1999.

The test vehicle, a 2000 Ford Taurus, was equipped with airbags at the driver's and right front passenger's seating positions (both airbags were dual stage airbags). The vehicle's test weight was 1726.8 kilograms. The vehicle's impact speed was 48.1 kph. The vehicle's maximum static crush was 337 millimeters.

The driver's 15-millisecond HIC was 160 and its 36-millisecond HIC was 327. The driver's chest maximum resultant acceleration with three (3) milliseconds minimum duration was 61.8 g. The driver's chest deflection was 58.3 millimeters. The driver's left and right femur maximum compressive forces were 6020 N and 10491 N, respectively.

The right front passenger's 15-millisecond HIC was 269 and its 36-millisecond HIC was 462. The right front passenger's chest maximum resultant acceleration with three (3) milliseconds minimum duration was 52.6 g. The passenger's chest deflection was 6.9 millimeters. The right front passenger's left and right femur maximum compressive forces were 6174 N and 7279 N, respectively.

Data Acquisition Explanations

The primary passenger airbag fire inductive pickup, channel ABSQ1, recorded questionable data after 60 milliseconds.

The secondary passenger airbag fire inductive pickup, channel ABSQ2, recorded questionable data after 35 milliseconds.

The primary driver airbag fire inductive pickup, channel ABSQ3, recorded no data throughout the event.

The secondary driver airbag fire inductive pickup, channel ABSQ4, recorded no data throughout the event.

Table 1 Crash Test Summary

Test type:	Flat frontal barrier impact
Test date:	June 28, 1999
Test time:	1706
Ambient temperature at impact area:	21° C
Vehicle year/make/ model/body style:	2000/Ford/Taurus/Sedan
Vehicle test weight:	1726.8 kg
Impact angle ¹ :	0°
Impact velocity ² :	
Primary:	48.1 kph
Secondary:	48.0 kph
Maximum static crush:	337 mm
Average rebound:	293 mm
Number of cameras:	
Real-time:	1
High-speed:	14
Door opening data:	
Left-front:	Easy
Right-front:	Easy

¹ With respect to tow track centerline.

² Speed trap measurement ($\pm$.08 km/h accuracy)

Table 1 Crash Test Summary, Cont'd.

Dummies:	<u>Driver #168</u>	<u>Passenger #169</u>
Type:	Hybrid III 50 th percentile adult male	Hybrid III 50 th percentile adult male
Location:	Left front	Right front
Restraint:	Airbag	Airbag
Number of data channels:	15	15
Front seat data:		
Seat track failure:	None	None
Seat back failure:	None	None
Visible dummy contact points:		
Head:	Airbag, Sun visor, Headrest	Airbag, Sun visor Headrest
Chest:	Airbag	Airbag
Abdomen:	None	None
Left knee:	Instrument panel	Instrument panel
Right knee:	Instrument panel	Instrument panel

Table 2 Test Vehicle Information

Vehicle year/make/
model/body style: 2000/Ford/Taurus/Sedan

Color: White

VIN: 1FAFP53U8YG100048

Engine data:

Placement: Transverse

Cylinders: 6

Displacement: 3.0 liters

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

Final drive: X fwd, rwd, 4wd

Date vehicle received: N/A

Odometer reading: N/A

Dealer's name and address: N/A

Accessories:

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

Certification data from vehicle's label¹:

Vehicle manufactured by: N/A

Date of manufacture: N/A

VIN: 1FAFP53U8YG100048

GVWR: N/A

GAWR: Front: N/A

Rear: N/A

¹ Vehicle did not contain vehicle certification label

Table 2 Test Vehicle Information. Cont'd.

Size of tires on vehicle:	P205/65R15
Spare tire:	Space saver
Type of front seats:	Bucket

Tire & capacity data from vehicle's label: ¹

Recommended tire size:	N/A
Recommended cold tire pressure:	
Front:	N/A
Rear:	N/A
Designated Seating Capacity: ²	
Front	2
Rear	3
Total	5
Vehicle Cargo Weight: ³	950 lbs.

Test vehicle attitudes:

Delivered attitude:	LF: 716 mm	RF: 727 mm	LR: 694 mm	RR: 705 mm
Fully loaded attitude:	LF: 700 mm	RF: 707 mm	LR: 645 mm	RR: 655 mm
Pre-test attitude:	LF: 697 mm	RF: 708 mm	LR: 643 mm	RR: 652 mm
Post-test attitude:	LF: 715 mm	RF: N/A	LR: 640 mm	RR: N/A

¹ Vehicle did not contain vehicle tire information label

² Designated seating capacity is determined by counting the number of seat belts installed in the vehicle.

³ Information furnished by the manufacturer

Table 2 Test Vehicle Information, Cont'd.

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

Right front	473.6 kg	Right rear	263.5 kg
Left front	482.6 kg	Left rear	271.7 kg
Total front weight	956.2 kg	(64.1% of total vehicle weight)	
Total rear weight	535.2 kg	(35.9% of total vehicle weight)	
Total delivered weight	1491.4 kg		

Calculation of test vehicle's target test weight:

RCLW = Rated Cargo and Luggage Weight

UDW = Unloaded Delivered Weight (1491.4 kg)

DSC¹ = 5

RCLW² = 90.7 kg

Target test weight = UDW + RCLW + (number of Hybrid III Dummies x 75.7 kg per dummy)

Target test weight = 1491.4 + 90.7 + 151.4 = 1733.5 kg

Weight of test vehicle with required dummies and 31.8 kg of cargo weight:

Right front	515.7 kg	Right rear	351.1 kg
Left front	513.9 kg	Left rear	346.1 kg
Total front weight	1029.6 kg	(59.6% of total vehicle weight)	
Total rear weight	697.2 kg	(40.4% of total vehicle weight)	
Total test weight	1726.8 kg	(0.39% under target test weight)	

Weight of ballast secured in vehicle: 31.8 kg plate in rear seat

Components removed to meet target test weight: Rear seat

CG rearward of front wheel centerline: 1111 mm

Vehicle Wheelbase: 2751 mm

¹ Designated seating capacity is determined by counting the number of seat belts installed in the vehicle.

² Information furnished by the manufacturer

Table 3 Post-Impact Data

Test number: 990628-2
Test date: June 28, 1999
Test time: 1706
Test type: Flat frontal barrier impact
Impact angle: 0°
Ambient temperature
at impact area: 22° C
Temperature in
occupant compartment: 21° C
Impact velocity:
Primary: 48.1 kph
Secondary: 48.0 kph
Specified range: 47.5 to 49.1 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:

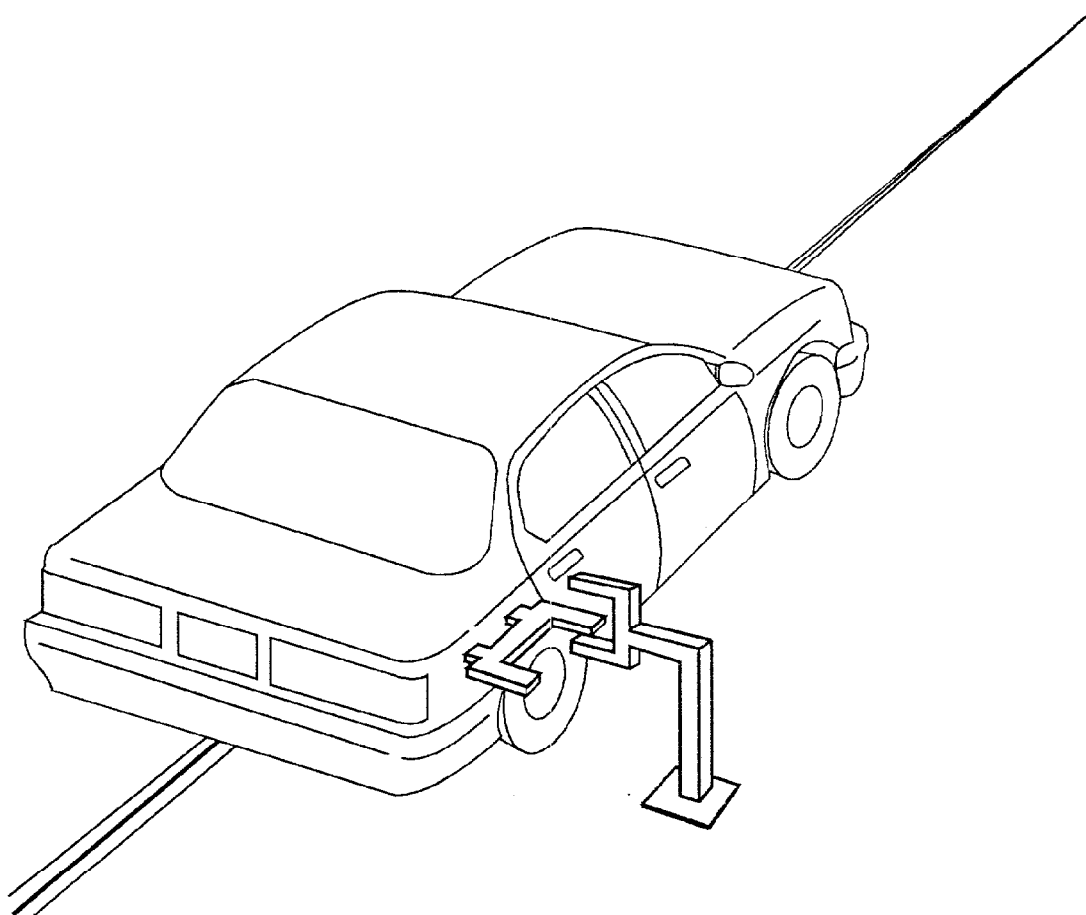
Pre-test:	L: 4896 mm	C: 5103 mm	R: 4899 mm
Post-test:	L: 4684 mm	C: 4768 mm	R: 4638 mm
Total crush:	L: 212 mm	C: 335 mm	R: 261 mm
Average crush:	269 mm		

Test vehicle rebound from flat frontal barrier:

Distance from test vehicle to barrier:

Post-test:	L: 340 mm	C: 200 mm	R: 340 mm
Average rebound:	293 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 30 mph Flat Frontal Barrier Impact

Test date: June 28, 1999
 Vehicle year/make/
 model/body style: 2000/Ford/Taurus/Sedan
 VIN: 1FAFP53U8YG100048
 Build date: N/A
 Test weight: 1726.8 kg
 Vehicle wheelbase: 2751 mm
 Maximum width: 1857 mm
 Front overhang: 1048 mm

Collision Deformation
 Classification (CDC) Code: 12FDEW2

Crush depth
 measurements:

C1:	212 mm
C2:	337 mm
C3:	310 mm
C4:	331 mm
C5:	326 mm
C6:	261 mm

Midpoint of damage: D: Vehicle Longitudinal Centerline

Length of damaged
 region: L: 1525 mm

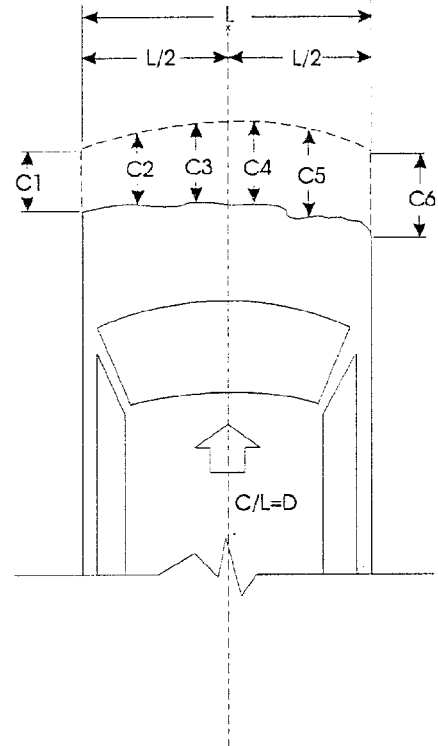
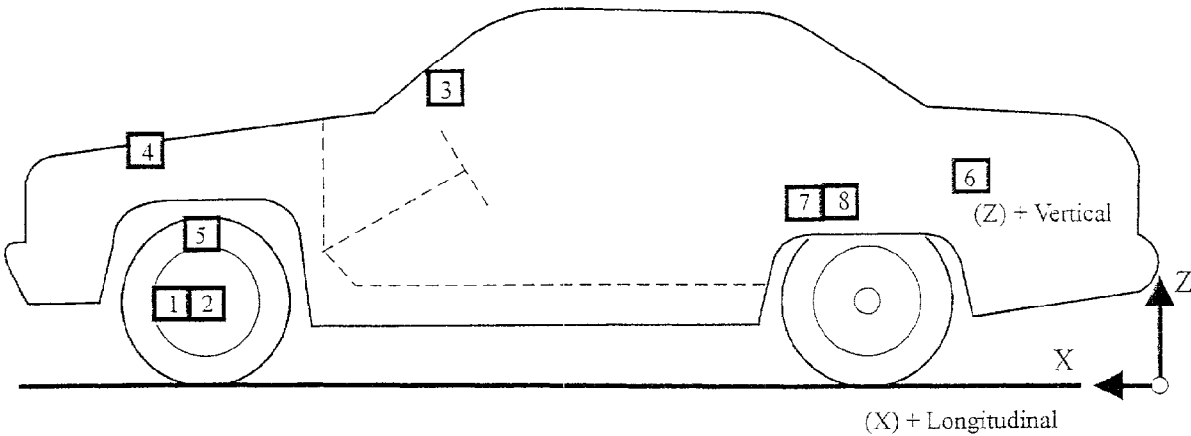
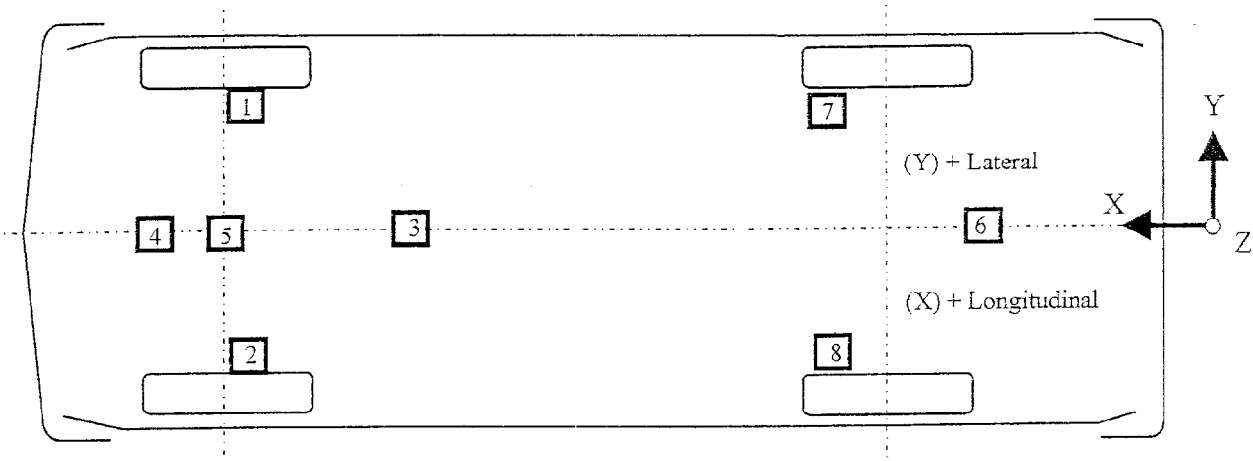


Figure 3 Vehicle Accelerometer Placement



Side View



Bottom View

Table 4 Vehicle Accelerometer Locations and Data Summary

TEST NUMBER: 990628-2	X		Y	Z	POSITIVE DIRECTION	NEGATIVE DIRECTION
No. LOCATION						
1 LEFT BRAKE CALIPER	PRE	4050 mm	680 mm	291 mm		
	POST	4029 mm	675 mm	286 mm		
	LONGITUDINAL				13.7 g @ 73.5 ms	64.1 g @ 35.8 ms
2 RIGHT BRAKE CALIPER	PRE	4050 mm	-680 mm	291 mm		
	POST	4035 mm	-672 mm	286 mm		
	LONGITUDINAL				9.3 g @ 64.8 ms	70.1 g @ 36.8 ms
3 INSTRUMENT PANEL CENTER	PRE	3428 mm	0 mm	976 mm		
	POST	3435 mm	0 mm	985 mm		
	LONGITUDINAL				12.7 g @ 25.5 ms	50.1 g @ 77.5 ms
4 ENGINE TOP	PRE	4158 mm	-113 mm	861 mm		
	POST	3978 mm	-100 mm	804 mm		
	LONGITUDINAL				23.8 g @ 56.8 ms	91.8 g @ 29.5 ms
5 ENGINE BOTTOM	PRE	4210 mm	0 mm	180 mm		
	POST	4160 mm	0 mm	178 mm		
	LONGITUDINAL				14.2 g @ 52.9 ms	70.5 g @ 37.8 ms

Table 4 Vehicle Accelerometer Locations and Data Summary, Cont'd.

TEST NUMBER: 990628-2						POSITIVE			NEGATIVE
No. LOCATION	X	Y	Z	DIRECTION		DIRECTION			
6 REAR VEHICLE CENTERLINE VERTICAL	PRE 395 mm	0 mm	449 mm						
	POST 380 mm	0 mm	460 mm						
				9.6 g	@ 92.1 ms	18.6 g	@ 46.5 ms		
7 LEFT REAR SEAT LONGITUDINAL	PRE 2090 mm	585 mm	347 mm						
	POST 2090 mm	585 mm	335 mm						
				1.4 g	@ 147.4 ms	31.3 g	@ 49.4 ms		
8 RIGHT REAR SEAT LONGITUDINAL	PRE 2090 mm	-585 mm	347 mm						
	POST 2090 mm	-585 mm	344 mm						
				1.3 g	@ 148.2 ms	31.5 g	@ 50.6 ms		

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

Section 3.0

FMVSS 208 Data

Table 5 Dummy Injury Criteria

	<u>Maximum Acceleration</u>						
	Head				Chest		
	X	Y	Z	R	X	Y	Z
Driver	-45.1 g	18.7 g	25.9 g	46.6 g	-62.6 g	9.2 g	17.2 g
Passenger	-45.6 g	-14.8 g	-61.2 g	68.9 g	-47.5 g	-5.8 g	25.0 g

<u>Maximum Femur Compressive Force</u>		
	Left Femur	Right Femur
Driver	6020 N	10491 N
Passenger	6174 N	7279 N

<u>15-millisecond Head Injury Criteria¹</u>			
	HIC	Time t_1	Time t_2
Driver	160	90.6 ms	105.7 ms
Passenger	269	88.6 ms	103.7 ms

<u>36-millisecond Head Injury Criteria¹</u>			
	HIC	Time t_1	Time t_2
Driver	327	70.2 ms	106.2 ms
Passenger	462	72.3 ms	108.3 ms

<u>Chest Maximum Resultant Acceleration²</u>			
	Acceleration	Time t_1	Time t_2
Driver	61.8 g	84.6 ms	87.7 ms
Passenger	52.6 g	81.2 ms	84.2 ms

<u>Maximum Chest Deflection</u>	
Driver	58.3 mm
Passenger	6.9 mm

¹ As defined in FMVSS No. 208

² Defined as equal to or exceeding 0.003 sec. duration

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 impacted the airbag. As the dummy translated forward, the dummy contacted the top of its head against the sunvisor. As the dummy rebounded rearward into the seat, the dummy hit the back of its head against the headrest. The dummy came to rest seated upright and leaning forward in the driver's seat.

Right Front Passenger Dummy

Upon impact, the passenger dummy translated forward on the seat impacting both knees into the instrument panel. The dummy's head and chest impacted the airbag. As the dummy rebounded rearward into the seat, the dummy hit the top of its head on the sunvisor and then hit the back of its head on the headrest. The dummy came to rest seated upright leaning forward in the passenger's seat.

Section 4.0

Vehicle, Occupant, and Camera Measurements

Figure 4 Pre-test and Post-test Measurement Points

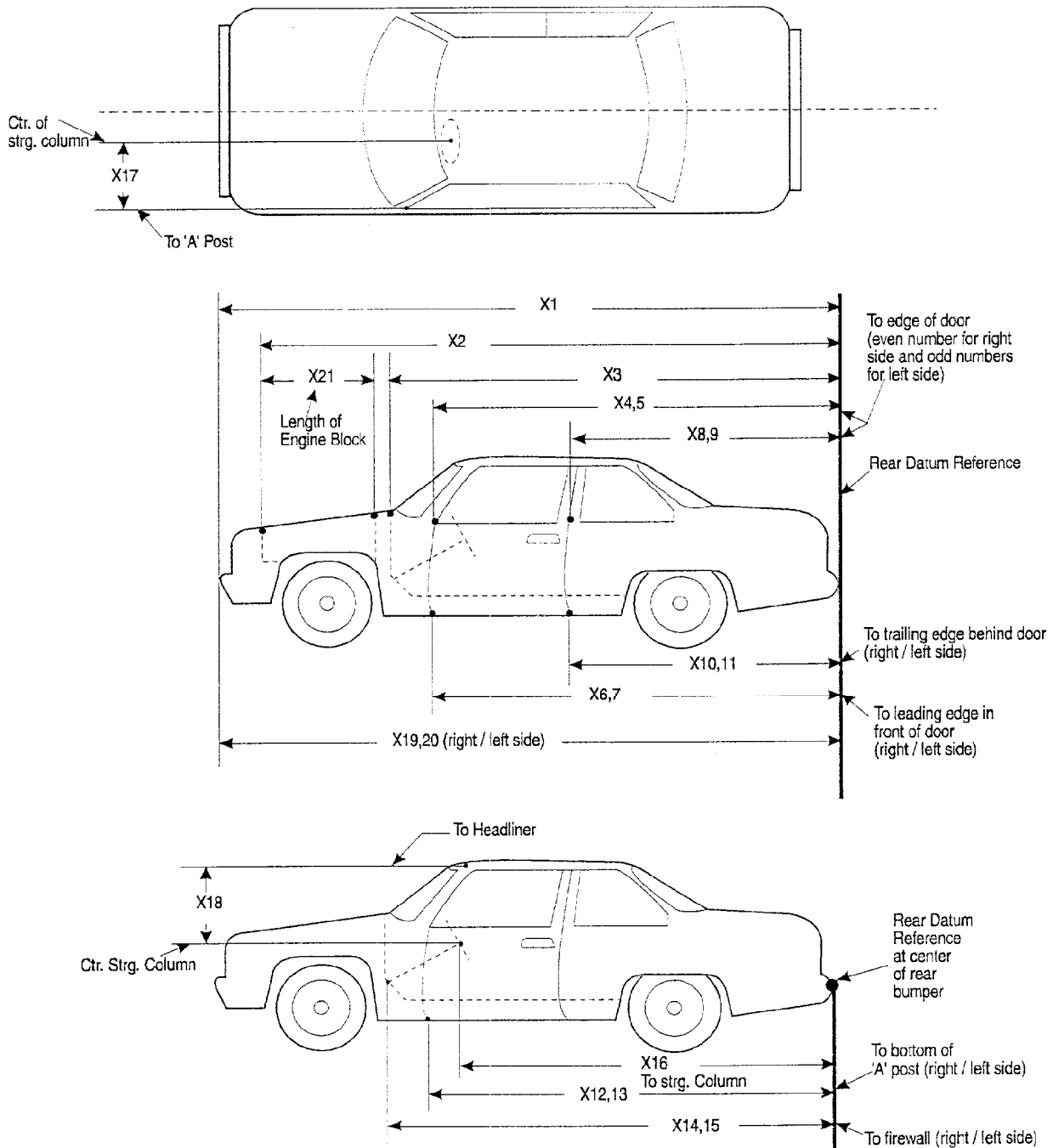


Table 6 Impacted Vehicle Measurements

Vehicle year/make/model/body style: 2000/Ford/Taurus/Sedan

Test Number: 990628-2

No.	Type of measurement	Pre-Test	Post-Test	Difference
X1	Total Length of Veh. at Centerline	5103	4768	335
X2	Rear Surface of Veh. to Front of Engine Block	4285	4134	151
X3	Rear Surface of Veh. to Firewall	3974	3974	0
X4	Rear Surface of Veh. to Upper Leading Edge of Right Door	3525	3510	15
X5	Rear Surface of Veh. to Upper Leading Edge of Left Door	3522	3516	6
X6	Rear Surface of Veh. to Lower Leading Edge of Right Door	3494	3475	19
X7	Rear Surface of Veh. to Lower Leading Edge of Left Door	3500	3499	1
X8	Rear Surface of Veh. to Upper Trailing Edge of Right Door	2499	2484	15
X9	Rear Surface of Veh. to Upper Trailing Edge of Left Door	2501	2496	5
X10	Rear Surface of Veh. to Lower Trailing Edge of Right Door	2471	2455	16
X11	Rear Surface of Veh. to Lower Trailing Edge of Left Door	2478	2475	3
X12	Rear Surface of Veh. to Bottom of " A " Post on Right Side	3500	3507	-7
X13	Rear Surface of Veh. to Bottom of " A " Post on Left Side	3500	3505	-5
X14	Rear Surface of Veh. to Firewall--Right Side	4134	4055	79
X15	Rear Surface of Vehicle to Firewall --Left Side	4118	4094	24
X16	Rear Surface of Veh. to Steering Wheel Center	3065	3110	-45
X17	Center of Steering Column to " A " Post	297	327	-30
X18	Center of Steering Column to Headliner	440	428	12
X19	Rear Surface of Veh. to Right Side of Front Bumper	4899	4638	261
X20	Rear Surface of Veh. to Left Side of Front Bumper	4896	4684	212
X21	Length of Engine Block	500	500	0

Figure 5 Vehicle Target Locations

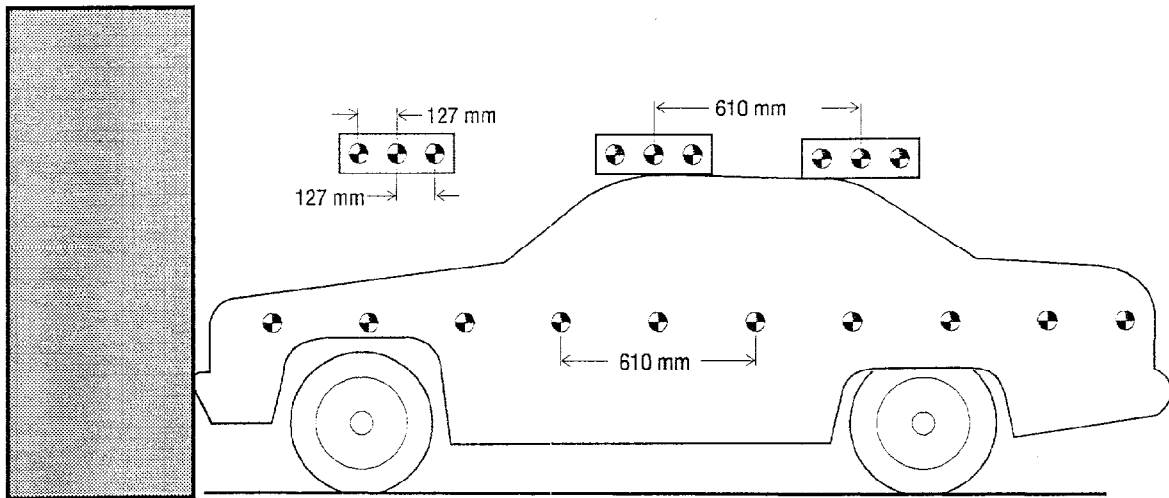


Figure 6 Dummy Measurement Locations for Front Seat Occupants

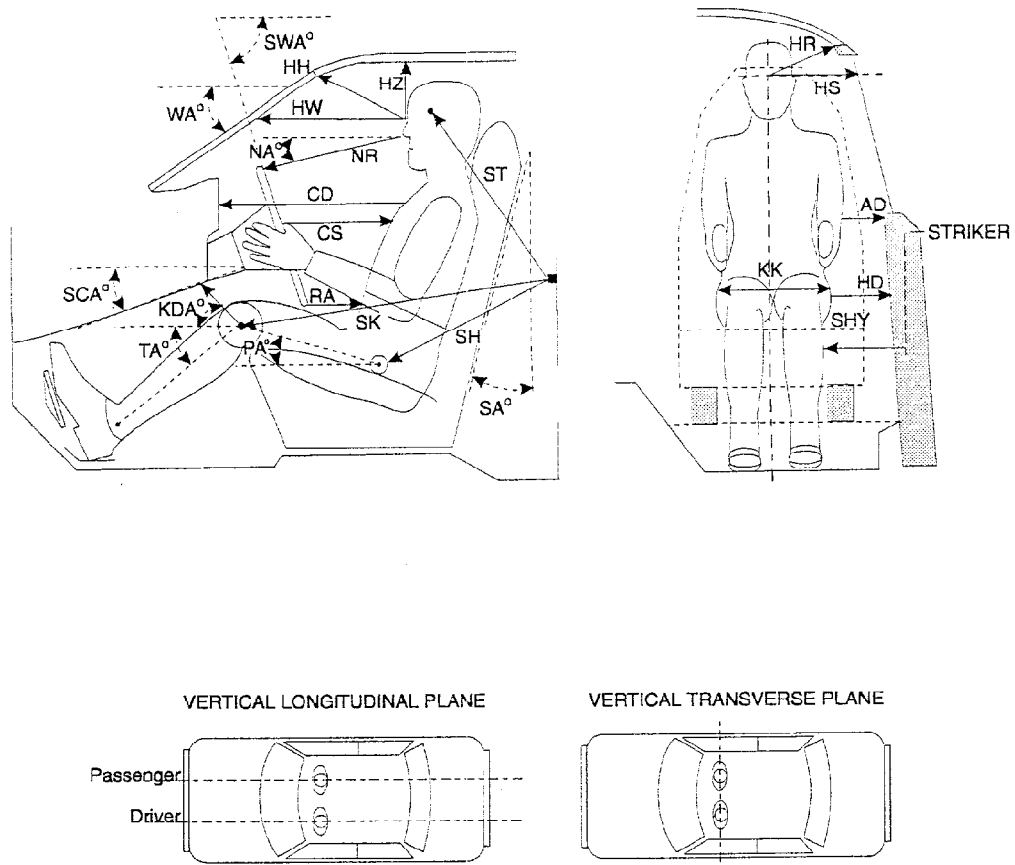


Table 7 Dummy Measurement Data For Front Seat Occupants

Designation	Type of Measurement	Driver (Serial #168)	Passenger (Serial #169)
WA	Windshield angle	25.1°	25.1°
SWA	Steering wheel angle	67.8°	N/A
SCA	Steering column angle	21.2°	N/A
SA	Seat back angle	27.1°	28.3°
HZ	Head to roof	157 mm	172 mm
HH	Head to header	307 mm	301 mm
HW	Head to windshield	601 mm	526 mm
HR	Head to side header	190 mm	187 mm
NR	Nose to rim	391 mm	N/A
NA	Nose to rim angle	13.0°	N/A
CD	Chest to dash	520 mm	459 mm
CS	Steering wheel to chest	297 mm	N/A
RA	Rim to abdomen	184 mm	N/A
KDL	Left knee to dash	151 mm	135 mm
KDR	Right knee to dash	156 mm	138 mm
KDA	Outboard knee to dash angle	32.0°	30.0°
PA	Pelvic angle	23.4°	24.5°
TA	Tibial angle	49.8°	45.8°
KK	Knee to knee	328 mm	270 mm
ST ¹	Striker to head	548 mm	535 mm
	Striker to head angle	-81.7°	-82.4°
SK ¹	Striker to knee	576 mm	607 mm
	Striker to knee angle	-3.2°	-2.4°
SH ¹	Striker to H-point	240 mm	247 mm
	Striker to H-point angle	28.0°	27.2°
SHY	Striker to H-point (Y dir.)	234 mm	284 mm
HS	Head to side window	328 mm	307 mm
HD	H-point to door	159 mm	170 mm
AD	Arm to door	105 mm	117 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 7 Camera Positions

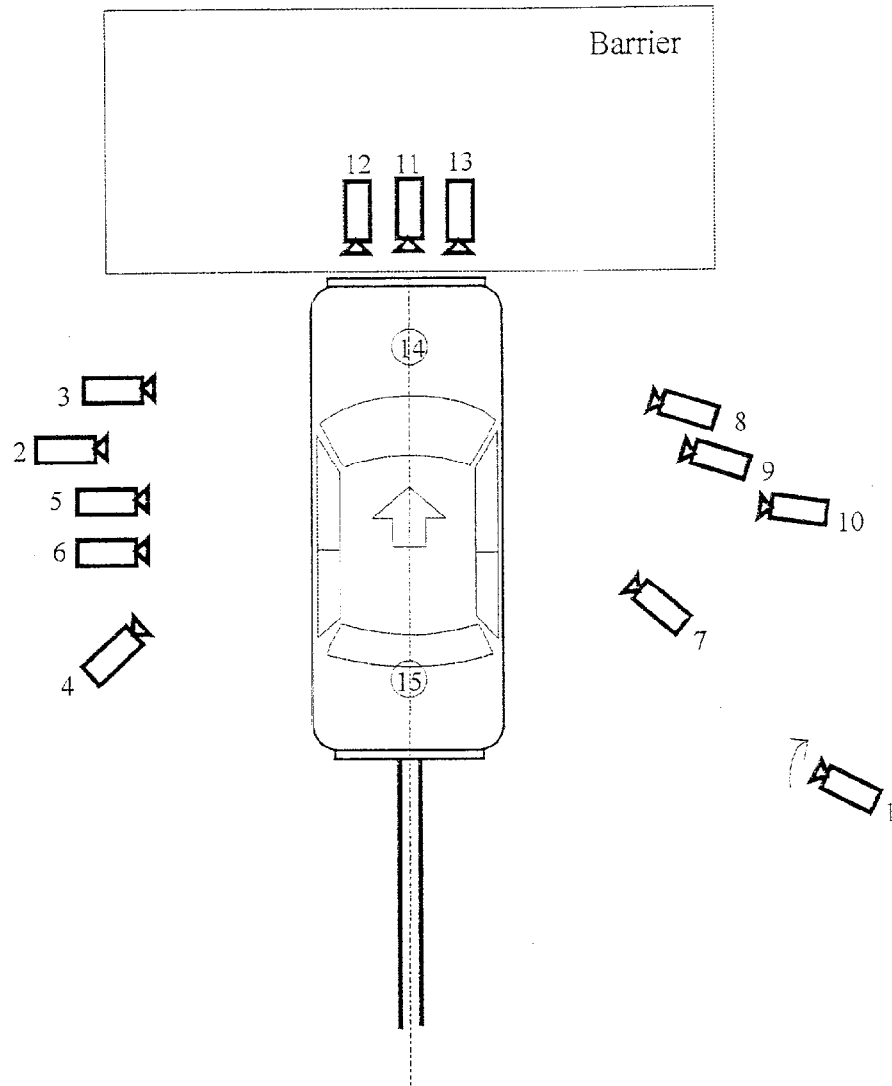


Figure 7 Camera Positions, Cont'd.

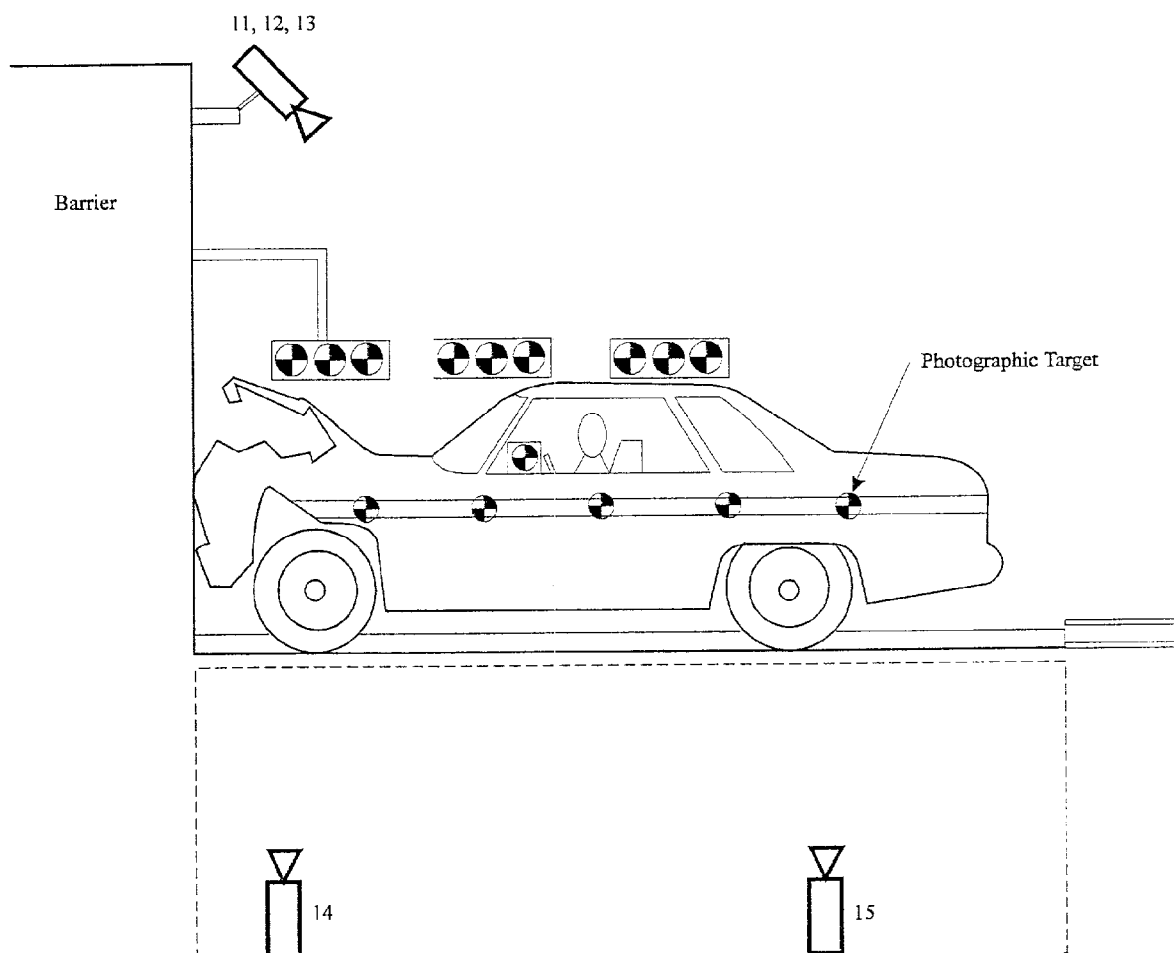


Table 8 Motion Picture Camera Locations

Vehicle year/make/model/body style: 2000/Ford/Taurus/Sedan

Test number: 990628-2

Camera Number	View	X	Y	Z	Camera Angle ²	Film Plane to Head Target	Camera Lens	Film Speed
1	Real-time panning	NA	NA	NA	NA	NA	16 mm	24 frames/s
2	Left vehicle crush	1499 mm	7925 mm	1003 mm	0°	8738 mm	25 mm	1015 frames/s
3	Left windshield intrusion	1041 mm	5639 mm	1130 mm	0°	7137 mm	50 mm	1010 frames/s
4	Driver kinematics	3886 mm	1753 mm	2007 mm	-17°	2870 mm	25 mm	980 frames/s
5	Steering column motion	2692 mm	5283 mm	2921 mm	-16°	6934 mm	25 mm	1000 frames/s
6	Steering column motion	2692 mm	5410 mm	1905 mm	-8°	6858 mm	25 mm	1005 frames/s
7	Right overall	2794 mm	-6706 mm	813 mm	0°	7468 mm	25 mm	1025 frames/s
8	Right windshield intrusion	940 mm	-6579 mm	1118 mm	0°	7417 mm	50 mm	N/A ³
9	Passenger kinematics	2667 mm	-5537 mm	1473 mm	-4°	6299 mm	25 mm	1012 frames/s
10	Passenger kinematics	3861 mm	-1600 mm	2032 mm	-20°	2845 mm	25 mm	995 frames/s
11	Windshield front view	381 mm	0 mm	2413 mm	-59°	2362 mm	13 mm	1000 frames/s
12	Driver - front view	381 mm	305 mm	2413 mm	-48°	2362 mm	17 mm	992 frames/s
13	Passenger - front view	381 mm	-305 mm	2413 mm	-49°	2362 mm	17 mm	1005 frames/s
14	Pit - front position	3048 mm	0 mm	3048 mm	90°	NA	13 mm	1010 frames/s
15	Pit - rear position	2946 mm	0 mm	2946 mm	90°	NA	13 mm	1005 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

³ The camera did not run during the impact event.

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 Left Rear Three-Quarter View

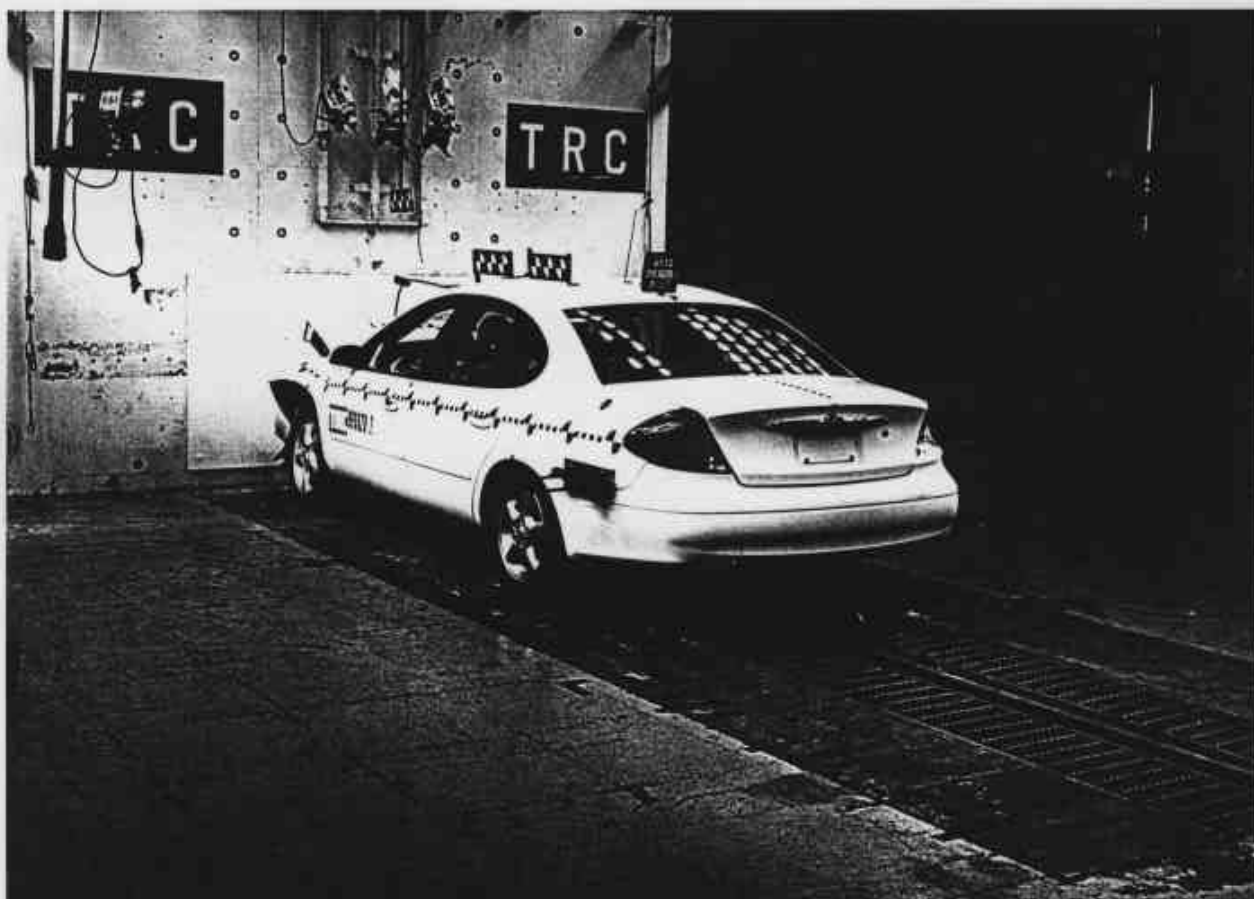


Figure A-6 Post-Test Left Rear Three-Quarter View



Figure A-7 Pre-Test Rear View



Figure A-8 Post-Test Rear View



Figure A-9 Pre-Test Right Side View



Figure A-10 Post-Test Right Side View



Figure A-11 Pre-Test Right Front Three-Quarter View



Figure A-12 Post-Test Right Front Three-Quarter View

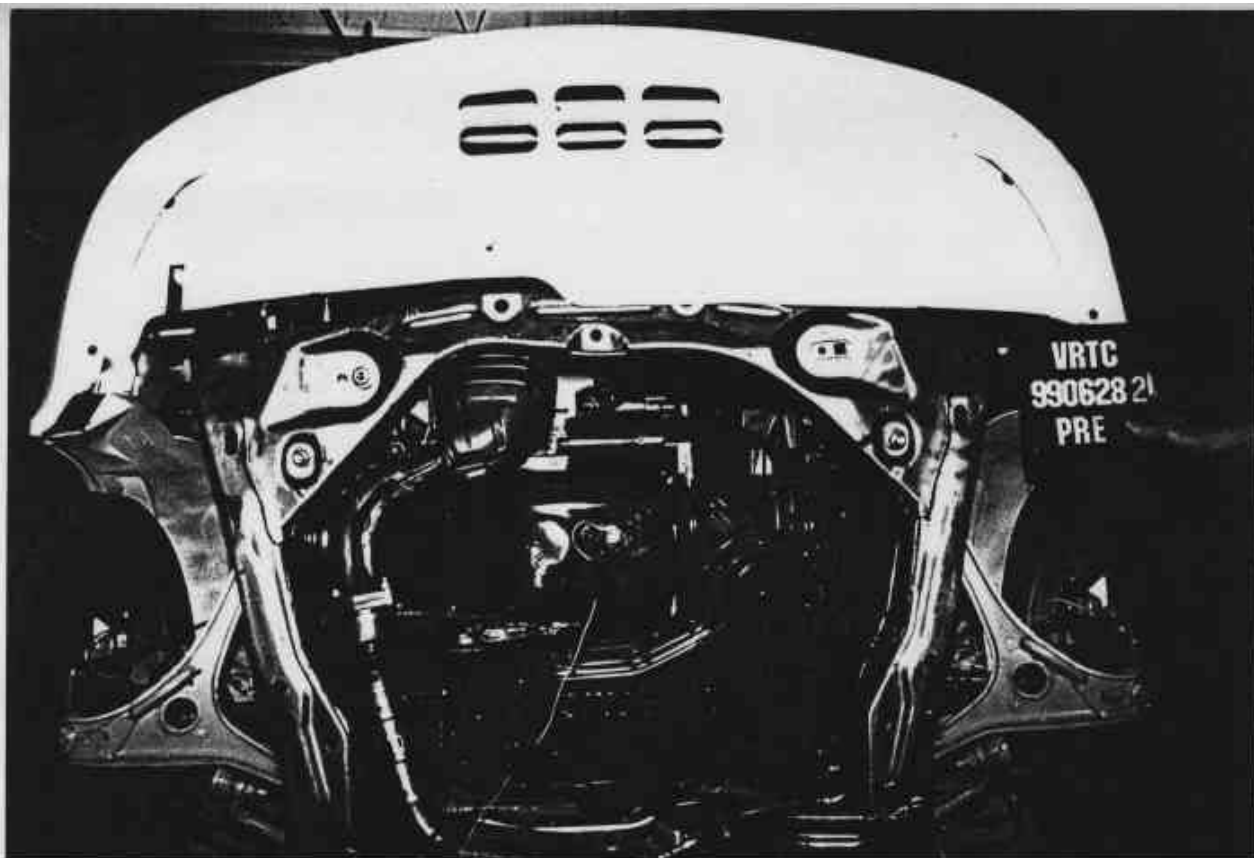


Figure A-13 Pre-Test Underbody - View 1

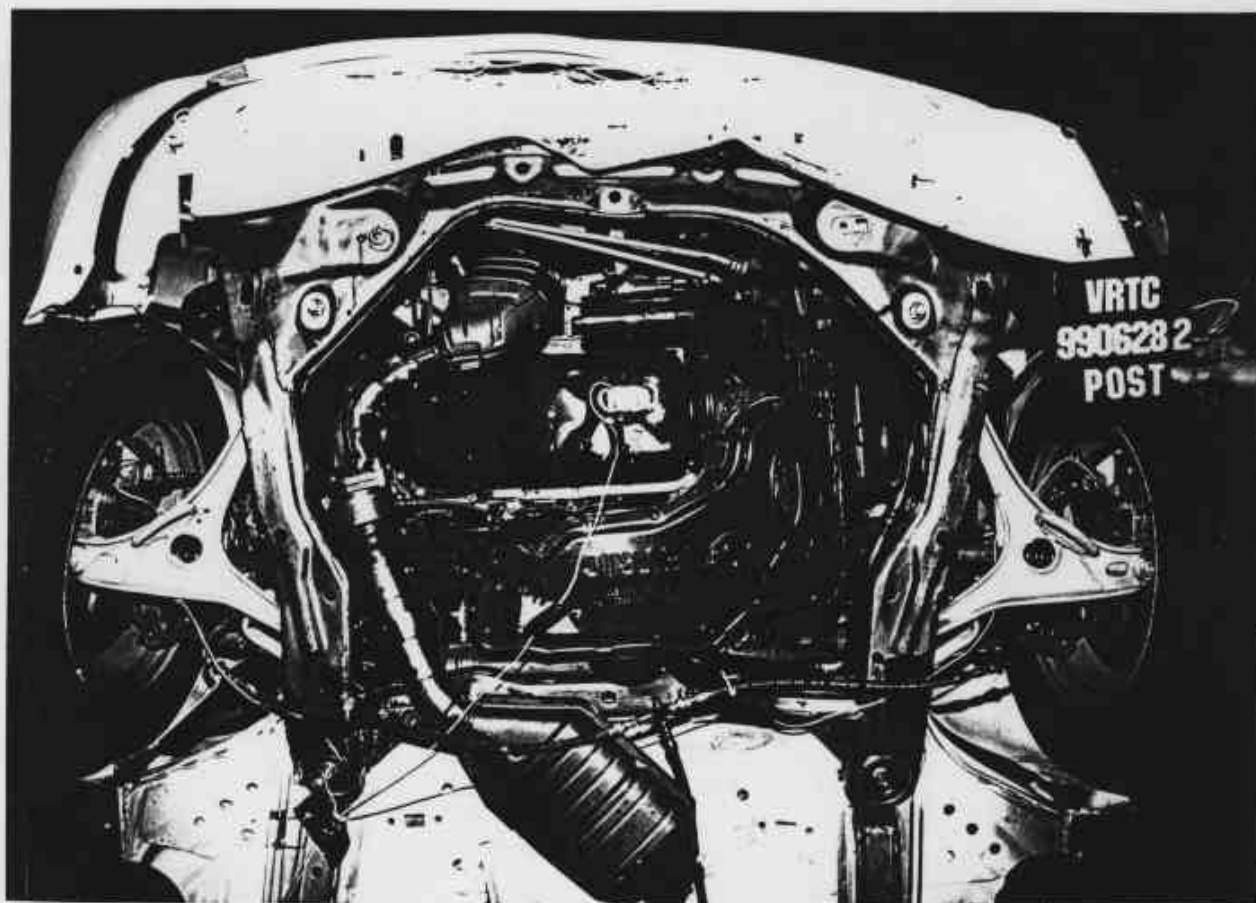


Figure A-14 Post-Test Underbody - View 1

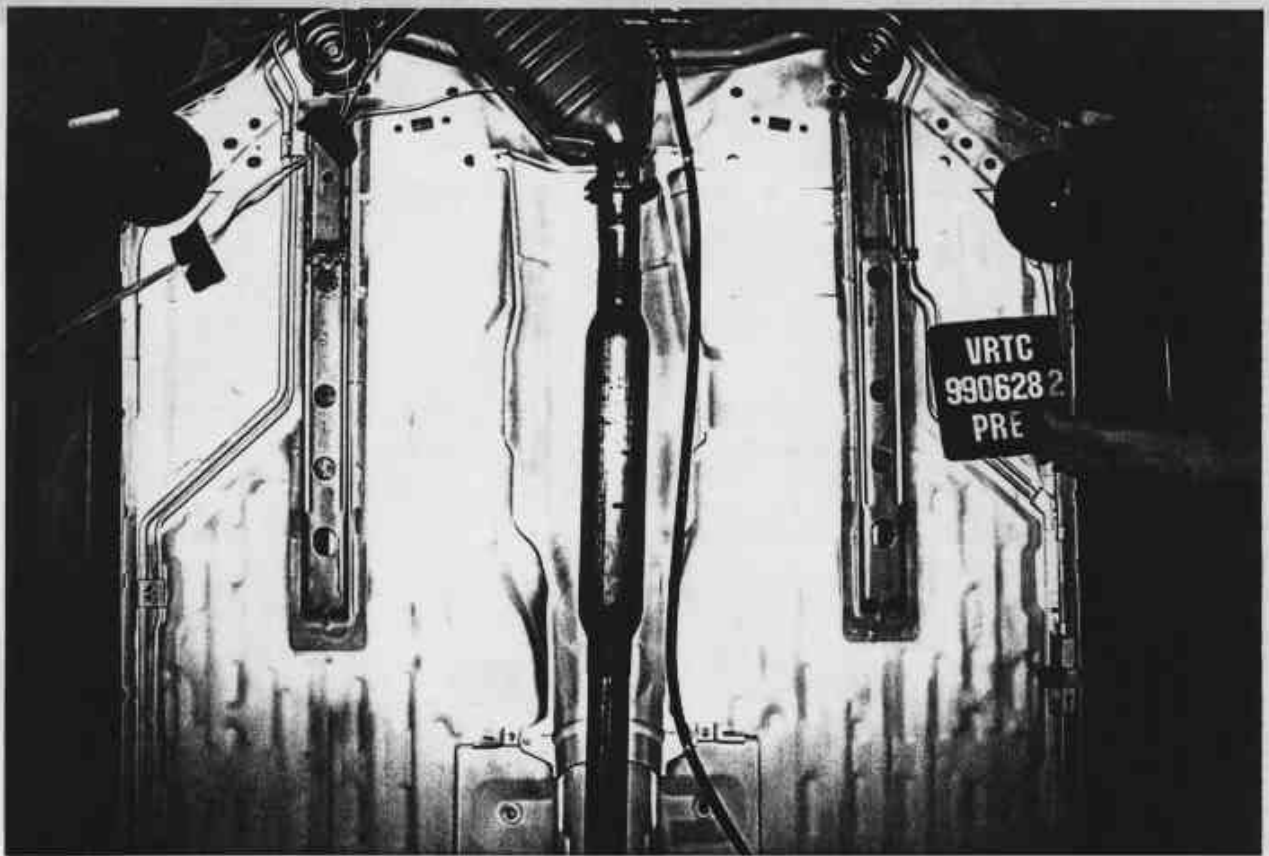


Figure A-15 Pre-Test Underbody - View 2



Figure A-16 Post-Test Underbody - View 2

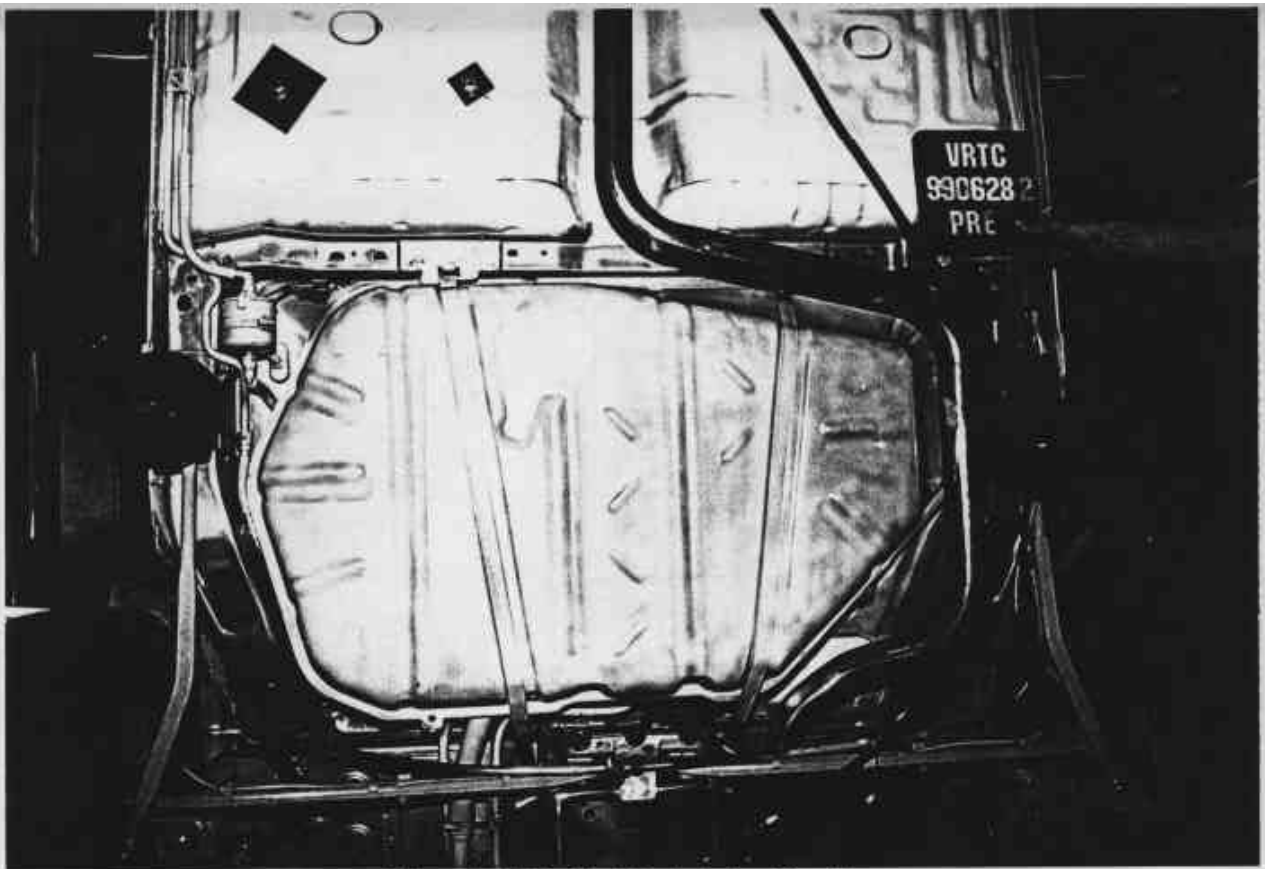


Figure A-17 Pre-Test Underbody - View 3

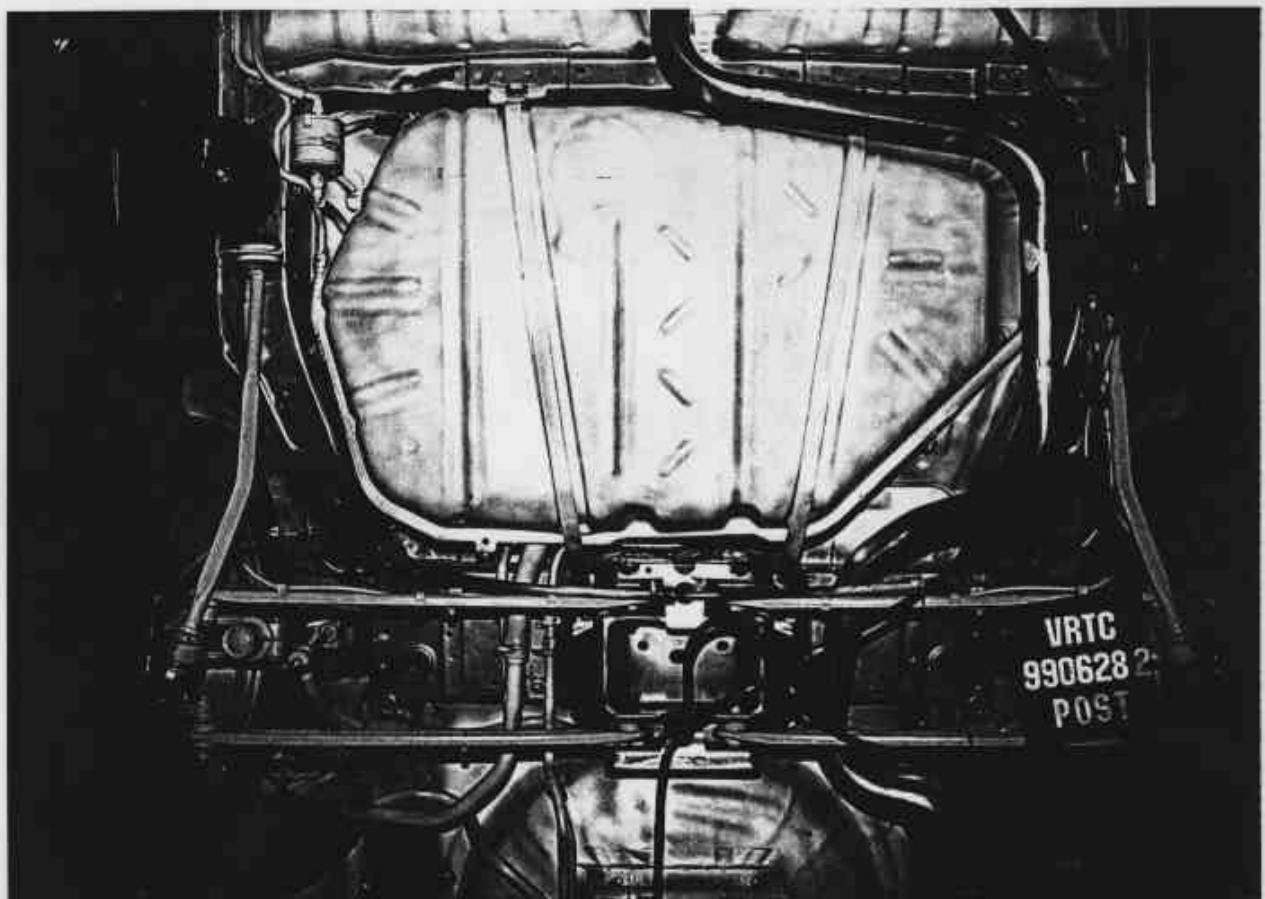


Figure A-18 Post-Test Underbody - View 3

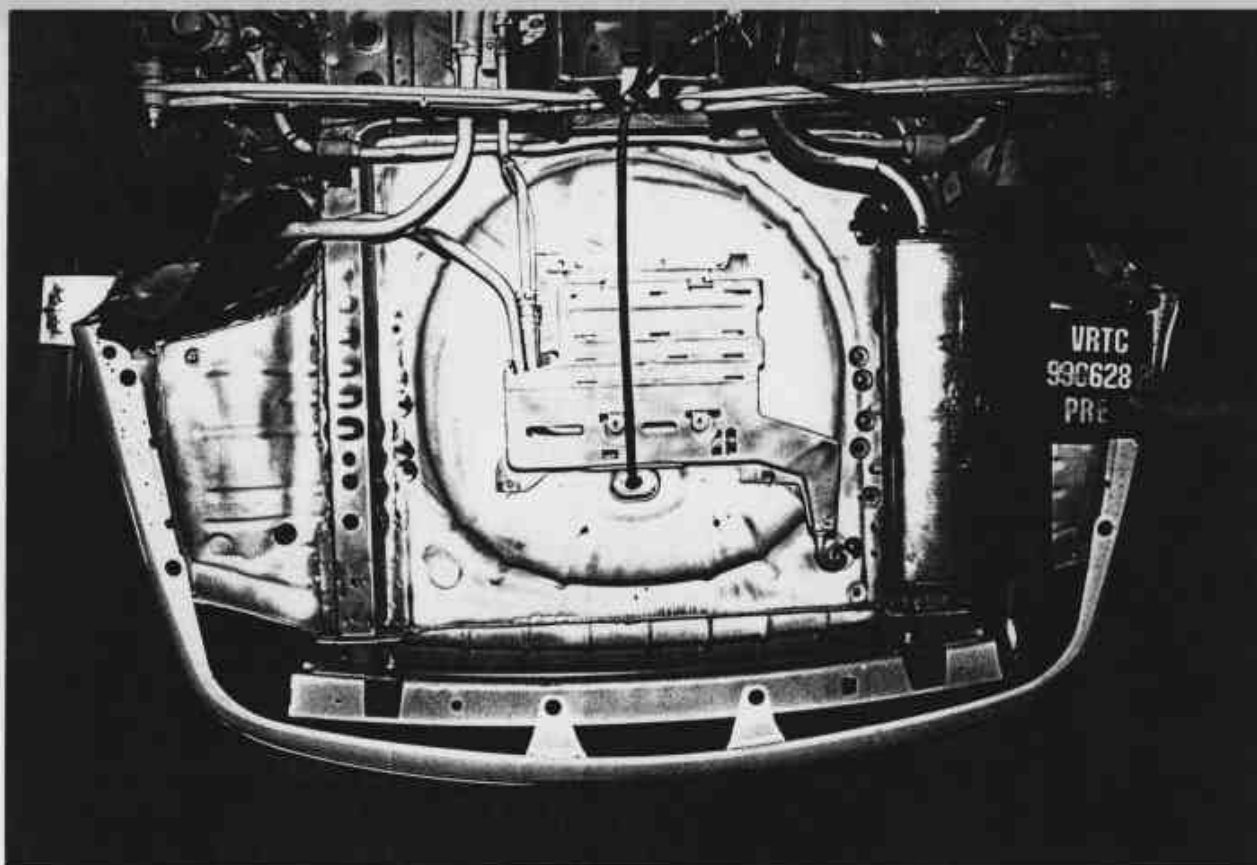


Figure A-19 Pre-Test Underbody - View 4

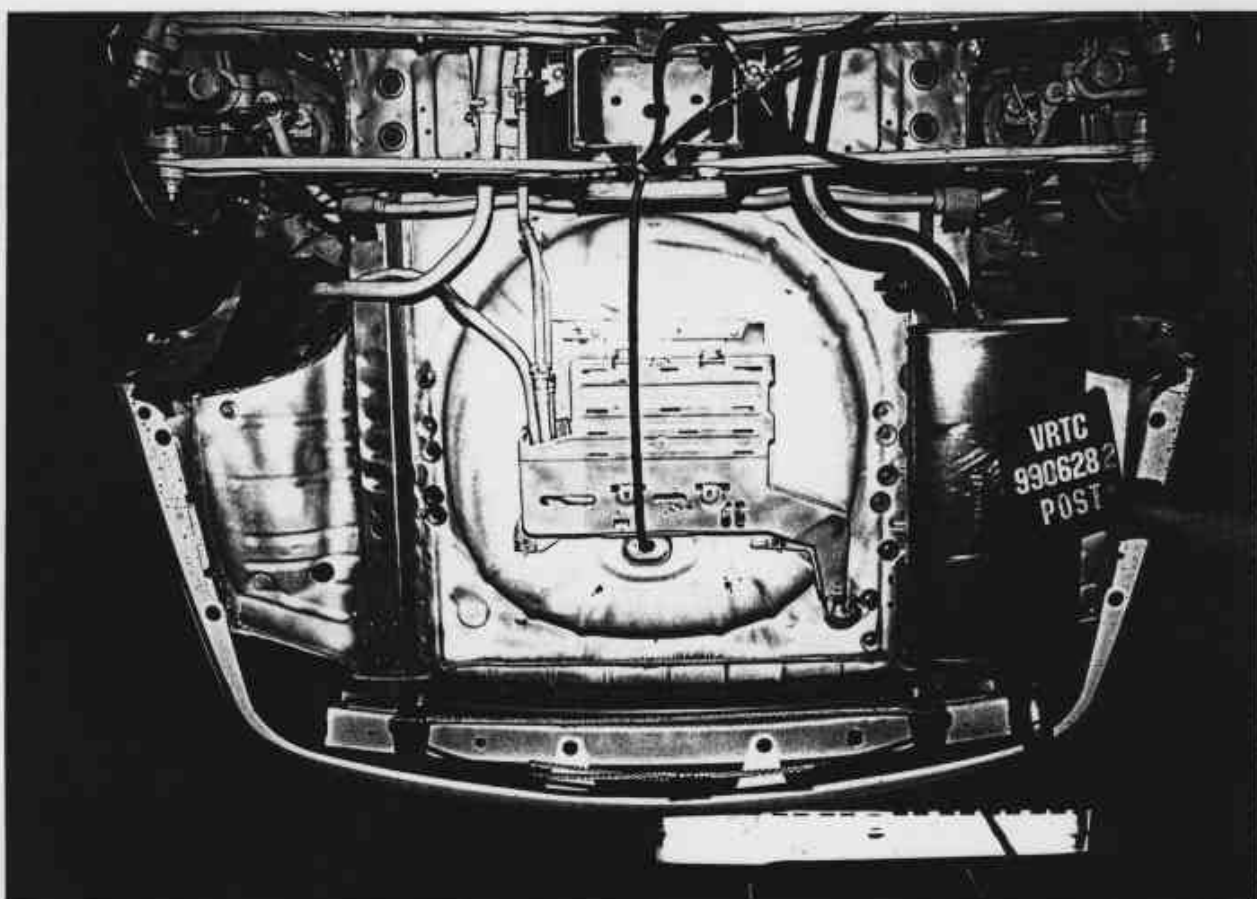


Figure A-20 Post-Test Underbody - View 4

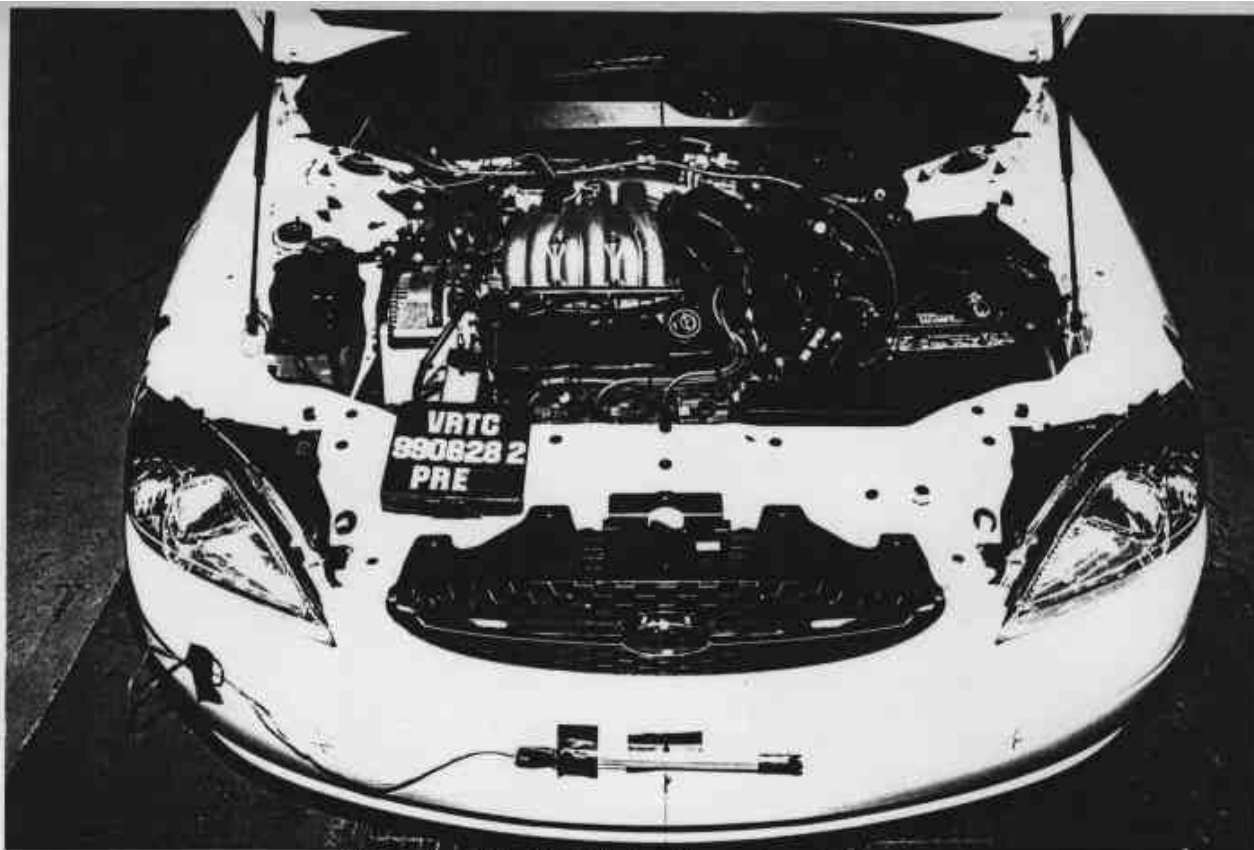


Figure A-21 Pre-Test Engine Compartment View



Figure A-22 Post-Test Engine Compartment View



Figure A-23 Pre-Test Windshield - View 1



Figure A-24 Post-Test Windshield - View 1



Figure A-25 Pre-Test Windshield - View 2



Figure A-26 Post-Test Windshield - View 2

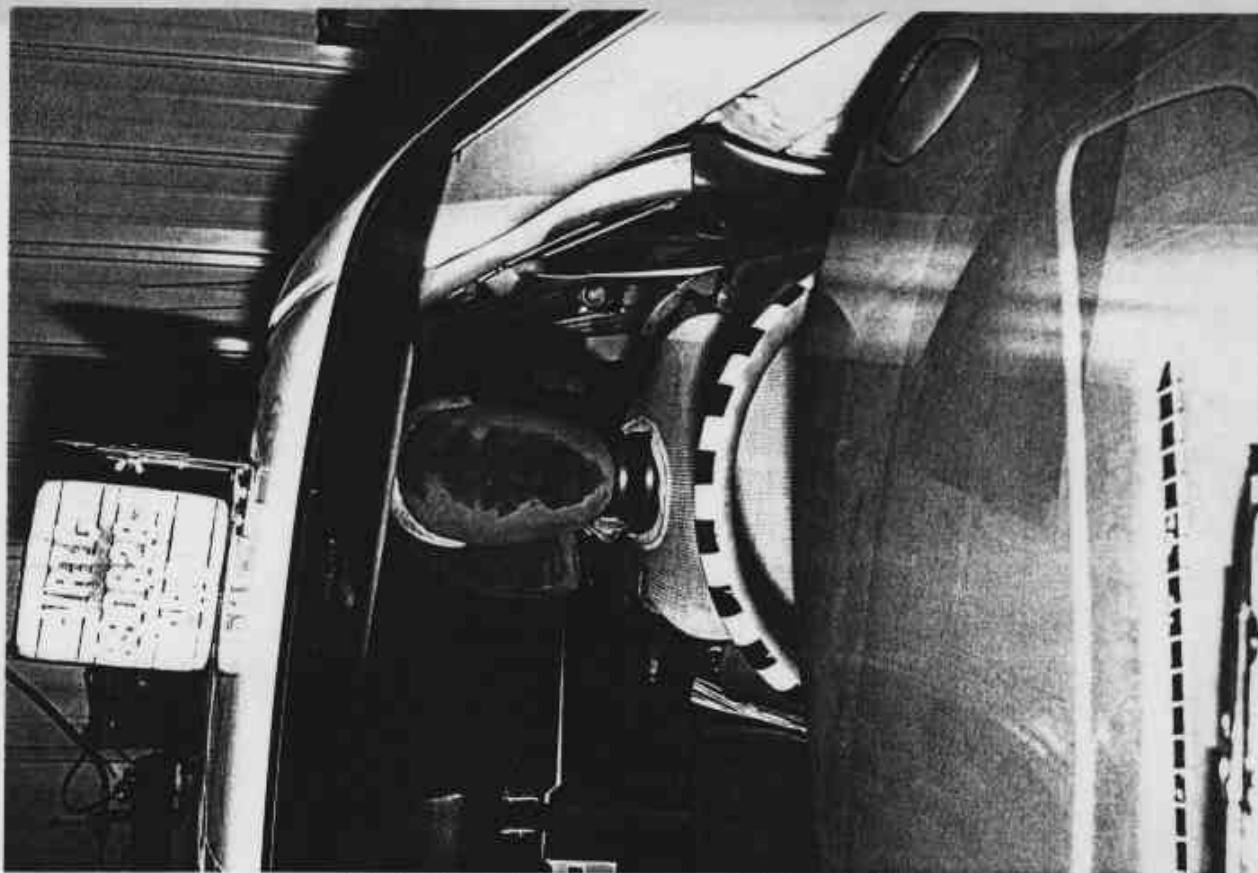


Figure A-27 Pre-Test Driver Dummy Windshield View

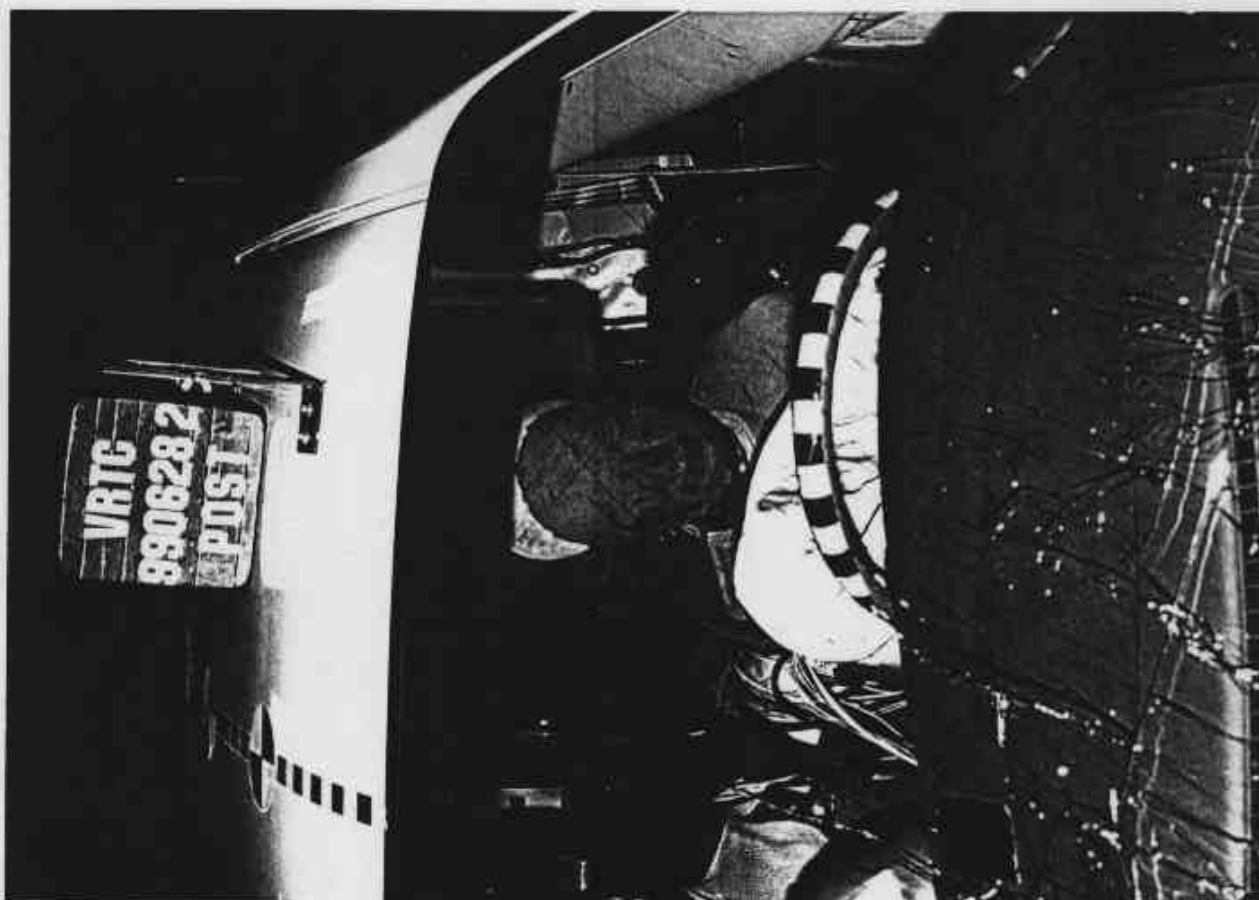


Figure A-28 Post-Test Driver Dummy Windshield View

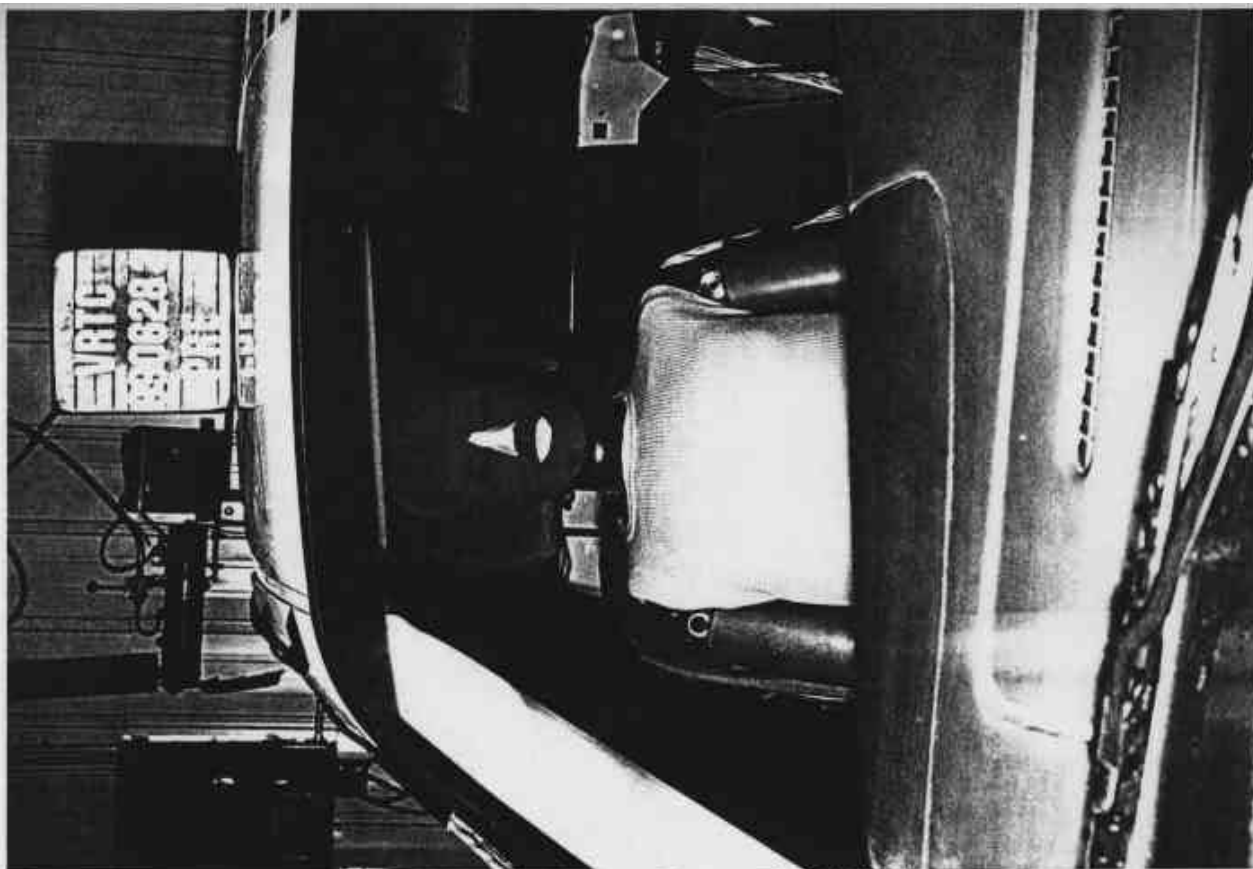


Figure A-29 Pre-Test Passenger Dummy Windshield View

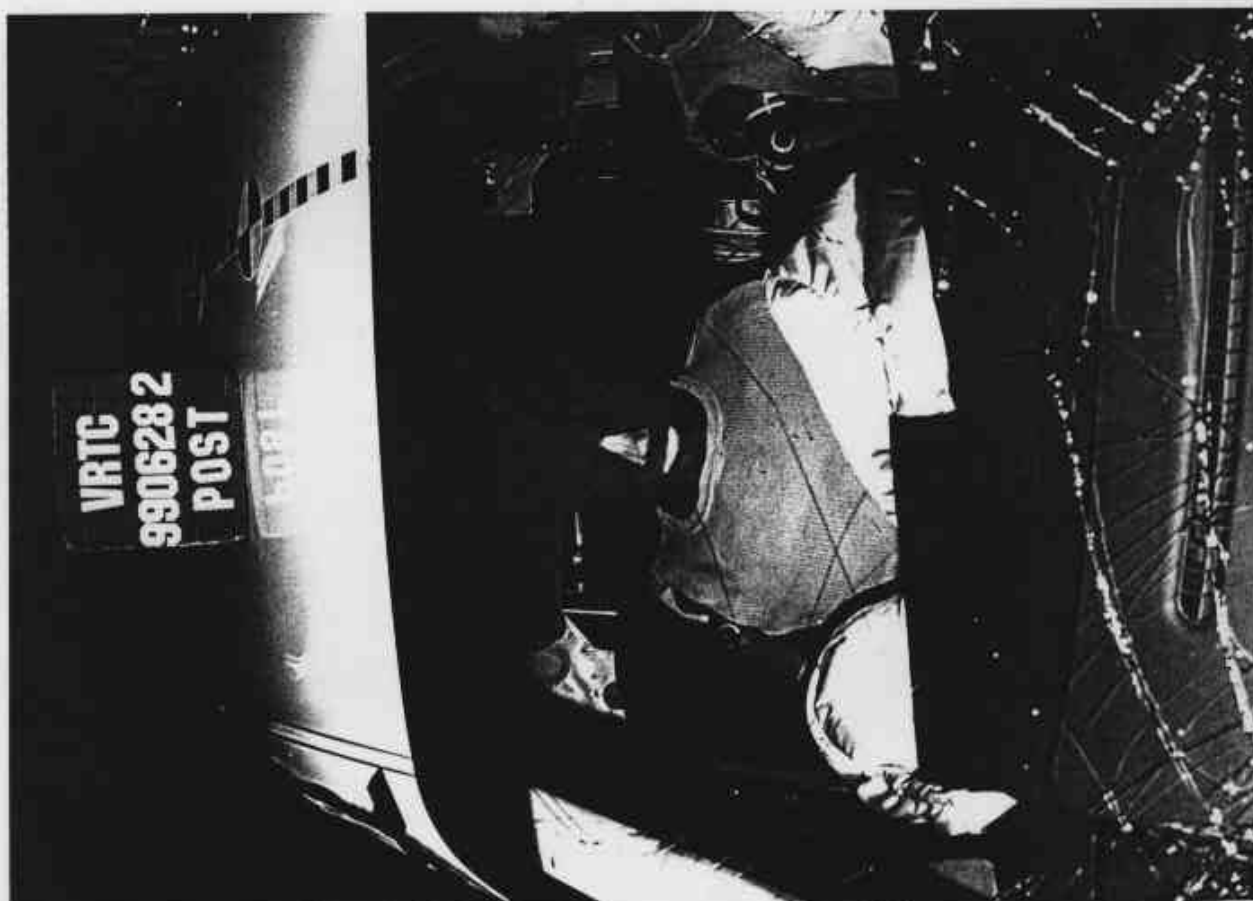


Figure A-30 Post-Test Passenger Dummy Windshield View



Figure A-31 Pre-Test Driver Dummy Position - View 1



Figure A-32 Post-Test Driver Dummy Position - View 1



Figure A-33 Pre-Test Driver Dummy Position -View 2



Figure A-34 Post-Test Driver Dummy Position - View 2



Figure A-35 Pre-Test Driver Dummy Position -View 3



Figure A-36 Post-Test Driver Dummy Position - View 3



Figure A-37 Pre-Test Passenger Dummy Position - View 1



Figure A-38 Post-Test Passenger Dummy Position - View 1



Figure A-39 Pre-Test Passenger Dummy Position - View 2



Figure A-40 Post-Test Passenger Dummy Position - View 2



Figure A-41 Pre-Test Passenger Dummy Position - View 3



Figure A-42 Post-Test Passenger Dummy Position - View 3



Figure A-43 Post-Test Driver Dummy View



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



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



Figure A-46 Post-Test Driver Dummy Head Contact - View 3



Figure A-47 Post-Test Driver Dummy Head Contact - View 4

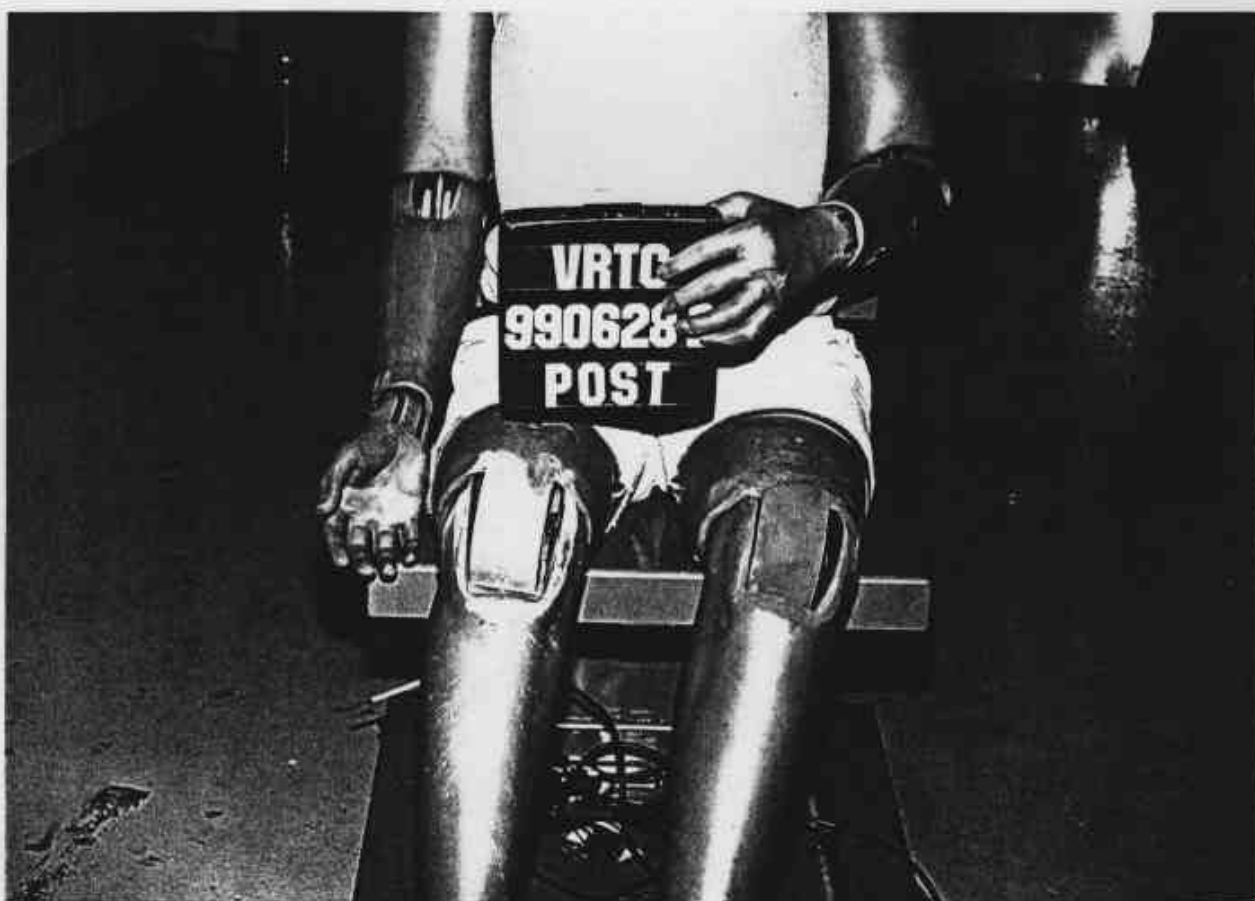


Figure A-48 Post-Test Driver Dummy Knee Contact - View 1



Figure A-49 Post-Test Driver Dummy Knee Contact - View 2



Figure A-50 Post-Test Driver Footwell Deformation View

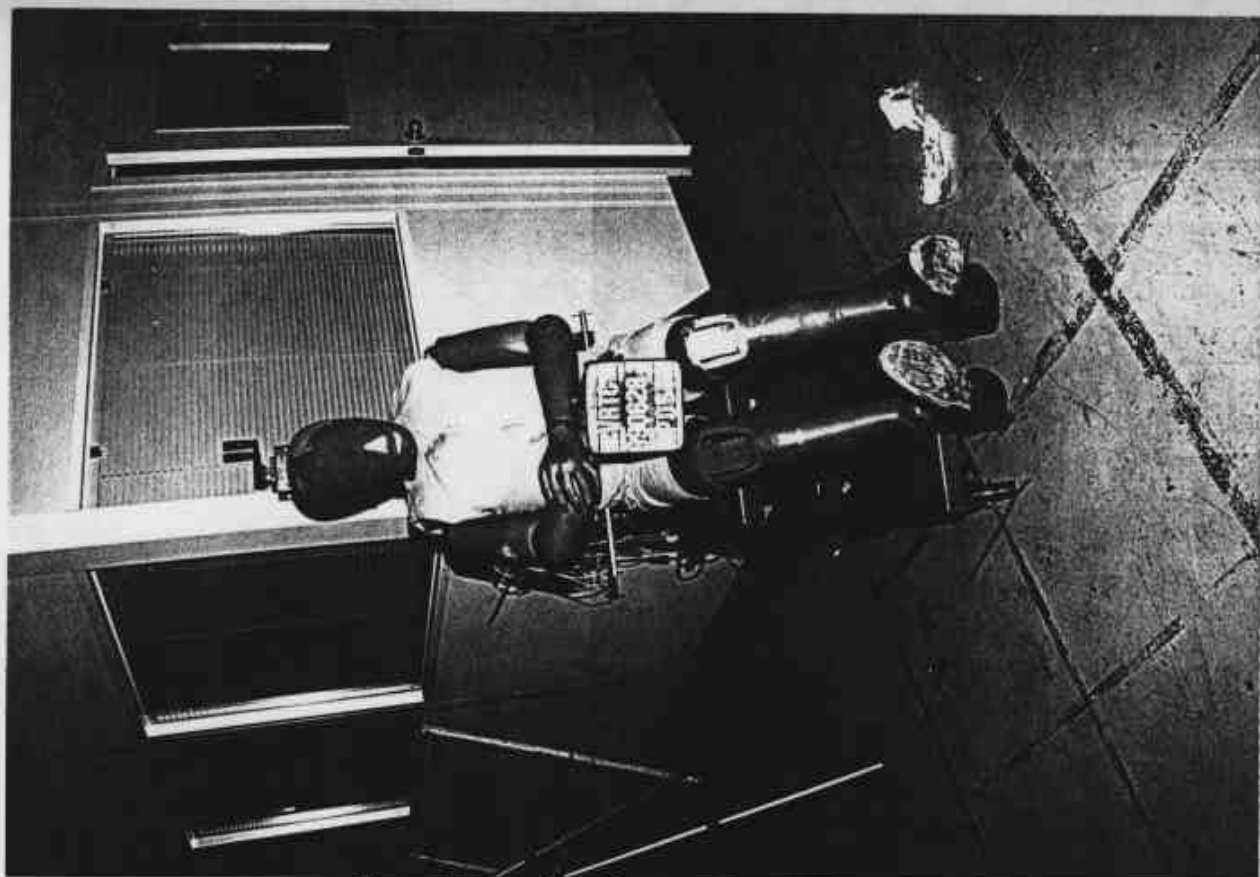


Figure A-51 Post-Test Passenger Dummy View



Figure A-52 Post-Test Passenger Dummy Head Contact - View 1



Figure A-53 Post-Test Passenger Dummy Head Contact - View 2



Figure A-54 Post-Test Passenger Dummy Head Contact - View 3



Figure A-55 Post-Test Passenger Dummy Head Contact - View 4

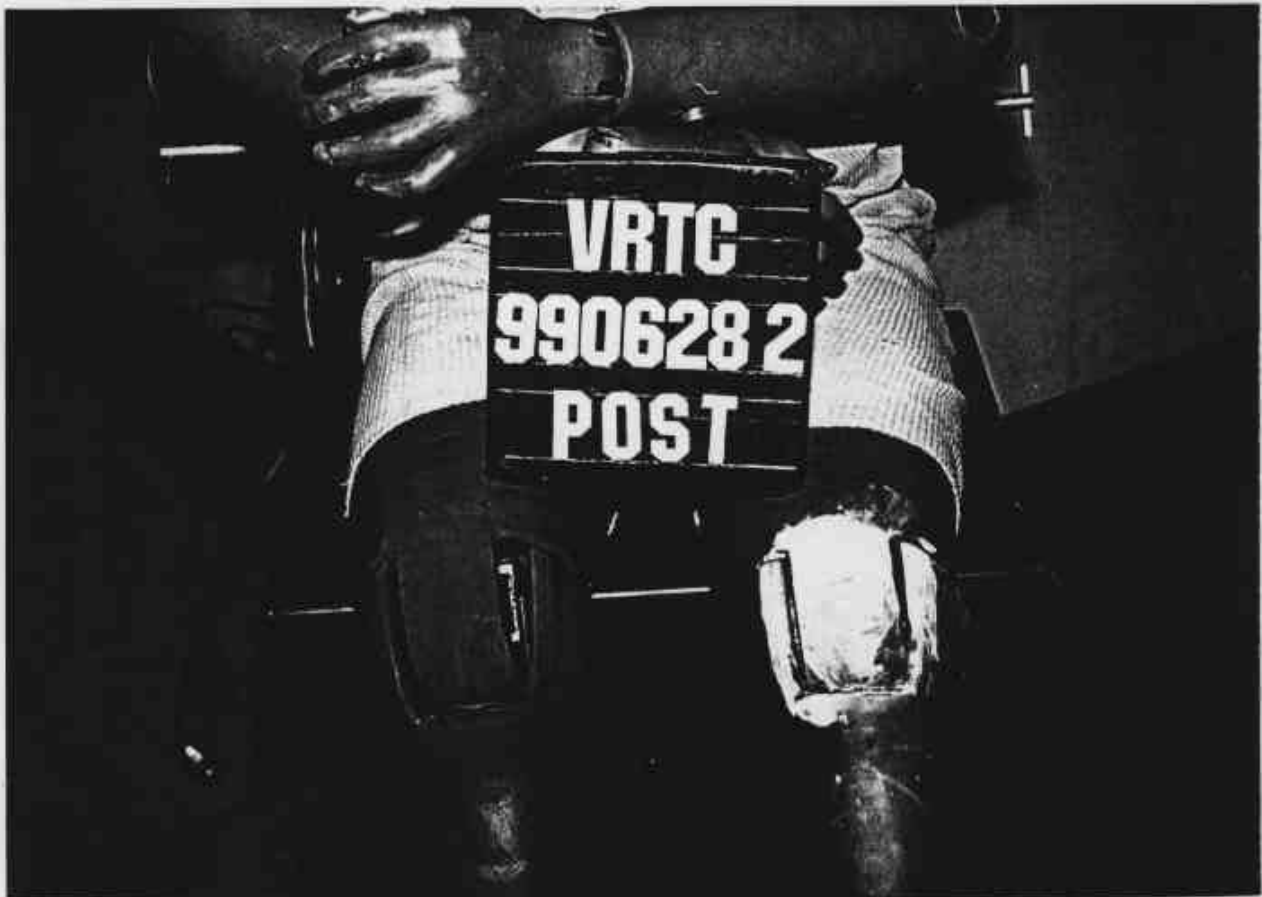


Figure A-56 Post-Test Passenger Dummy Knee Contact - View 1



Figure A-57 Post-Test Passenger Dummy Knee Contact - View 2



Figure A-58 Post-Test Passenger Footwell Deformation View



Figure A-59 Pre-Test Vehicle Exemption Label View



Figure A-60 Impact Event

Appendix B

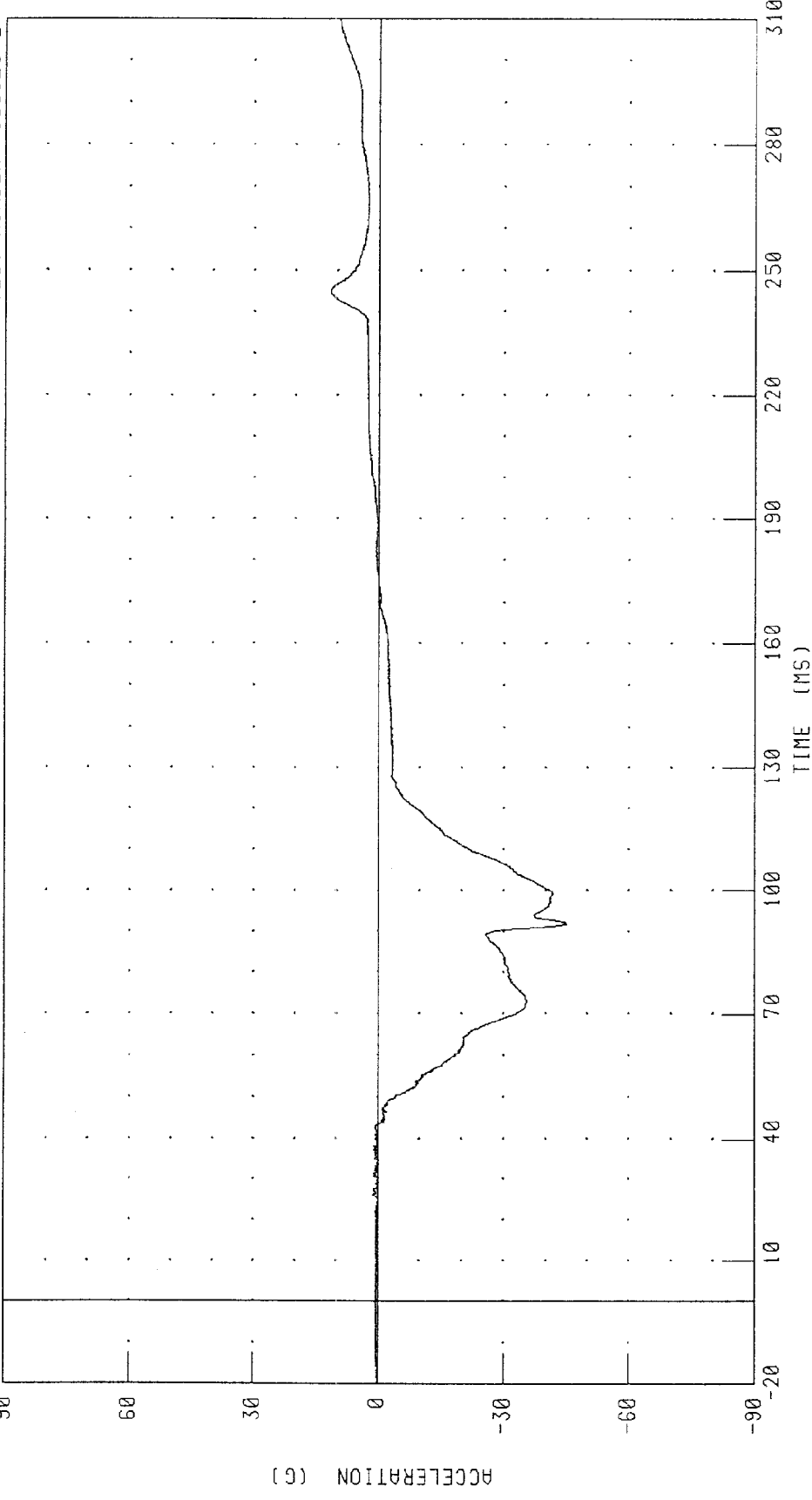
Data Plots

2000 FORD TAURUS INTO A FLAT FRONTAL BARRIER AT 30 MPH
DRIVER HEAD X-AXIS ACCELERATION

TEST NUMBER: 990628-2

FMVSS 208

IRC INC.



CHANNEL: HEDXC1 FILTER: CH. CLASS 1000

PEAK DATA: 11.69 G @ 245.44 MS, -45.13 G @ 91.84 MS

2000 FORD TAURUS INTO A FLAT FRONTAL BARRIER AT 30 MPH
DRIVER HEAD Y-AXIS ACCELERATION

TEST NUMBER: 990628-2

FMVSS 208

TRC INC.

90

60

30

0

-30

-60

-90

ACCELERATION (G)

TIME (MS)

310

280

250

220

190

160

130

100

70

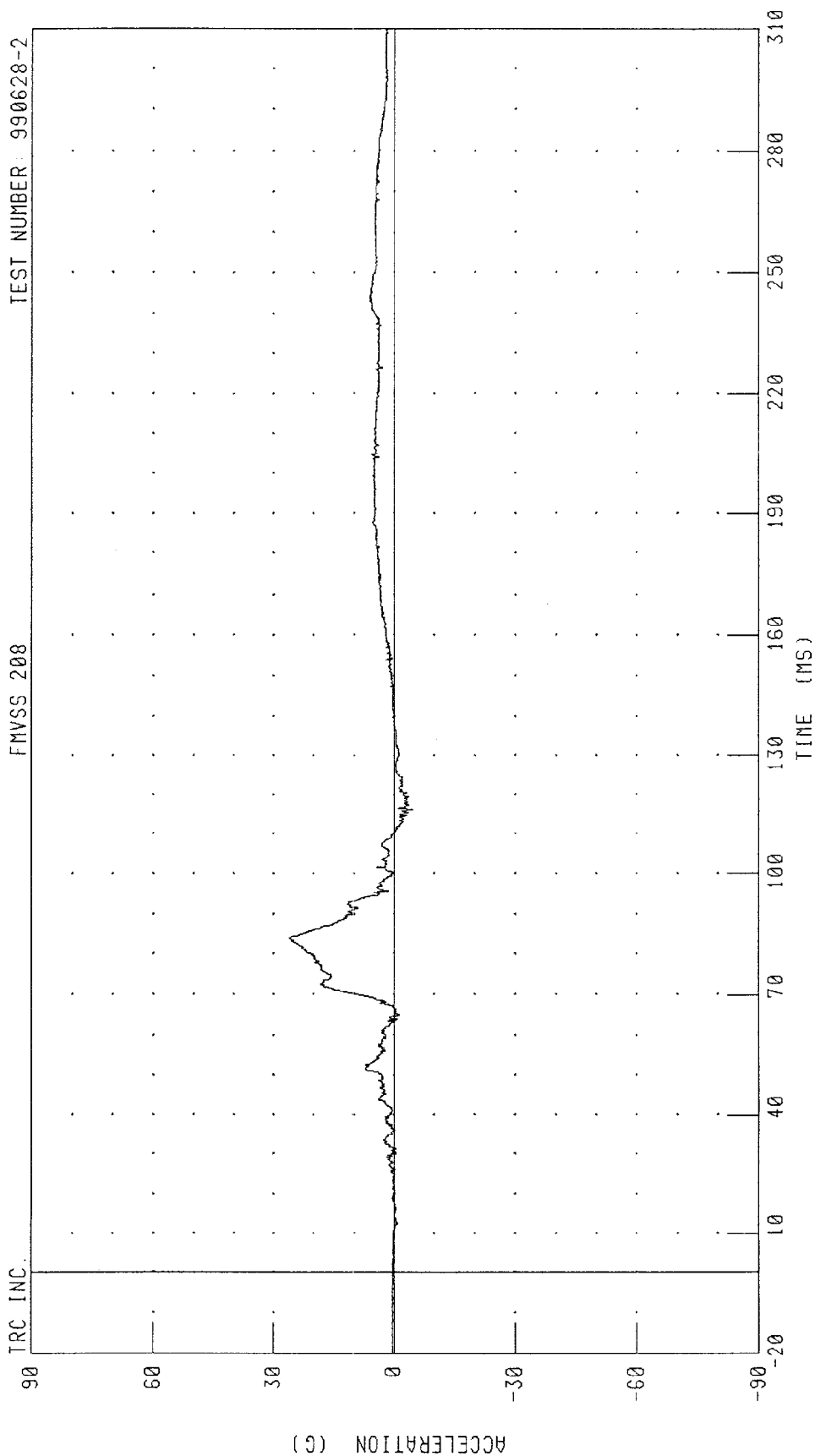
40

10

CHANNEL: HEDYC1 FILTER: CH. CLASS 1000

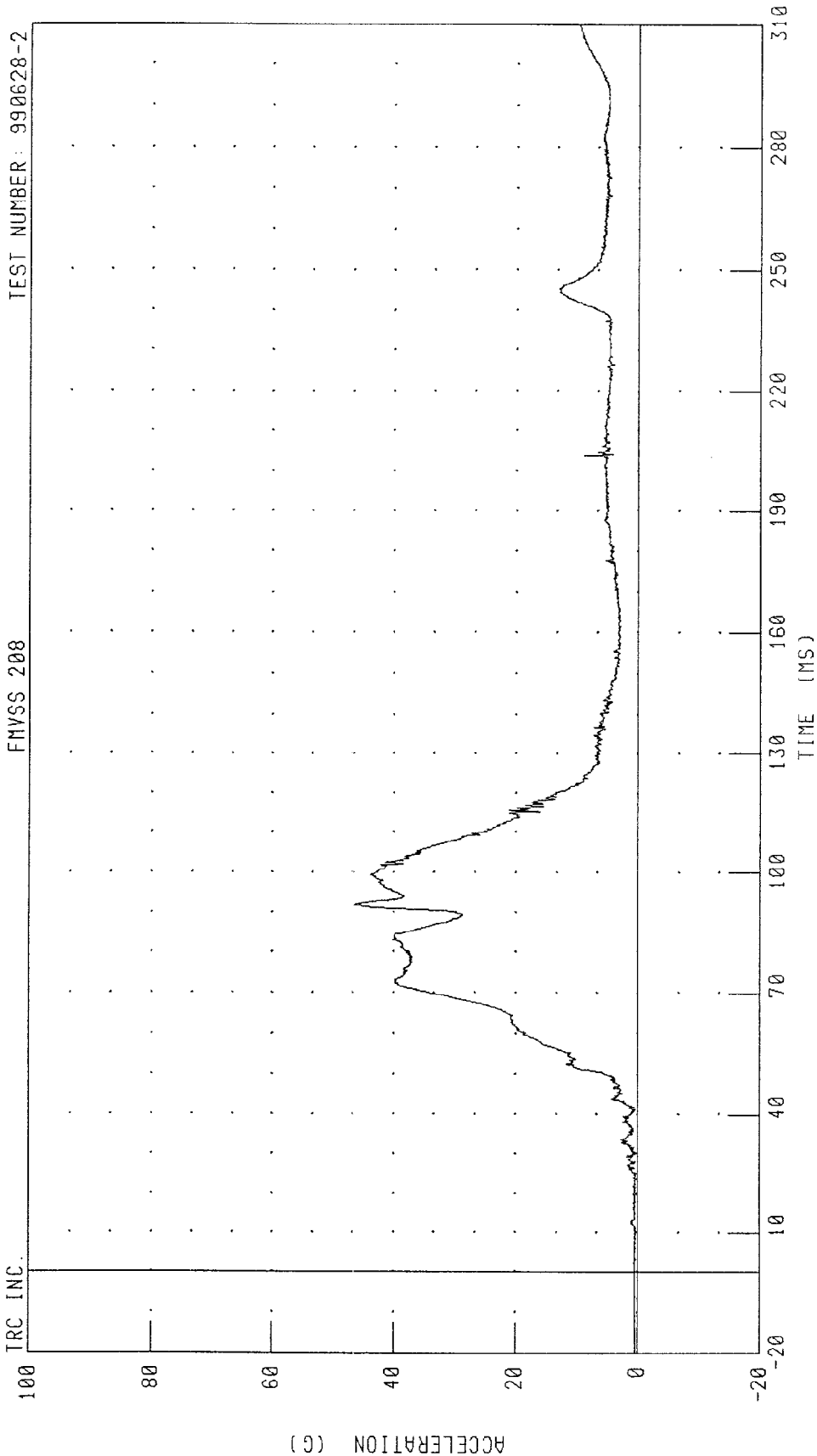
PEAK DATA: 18.71 G @ 101.84 MS, -7.41 G @ 203.92 MS

2000 FORD TAURUS INTO A FLAT FRONTAL BARRIER AT 30 MPH
DRIVER HEAD Z-AXIS ACCELERATION



CHANNEL: HEDZG1 FILTER: CH. CLASS 1000 PEAK DATA: 25.94 G @ 83.76 MS; -4.62 G @ 116.32 MS

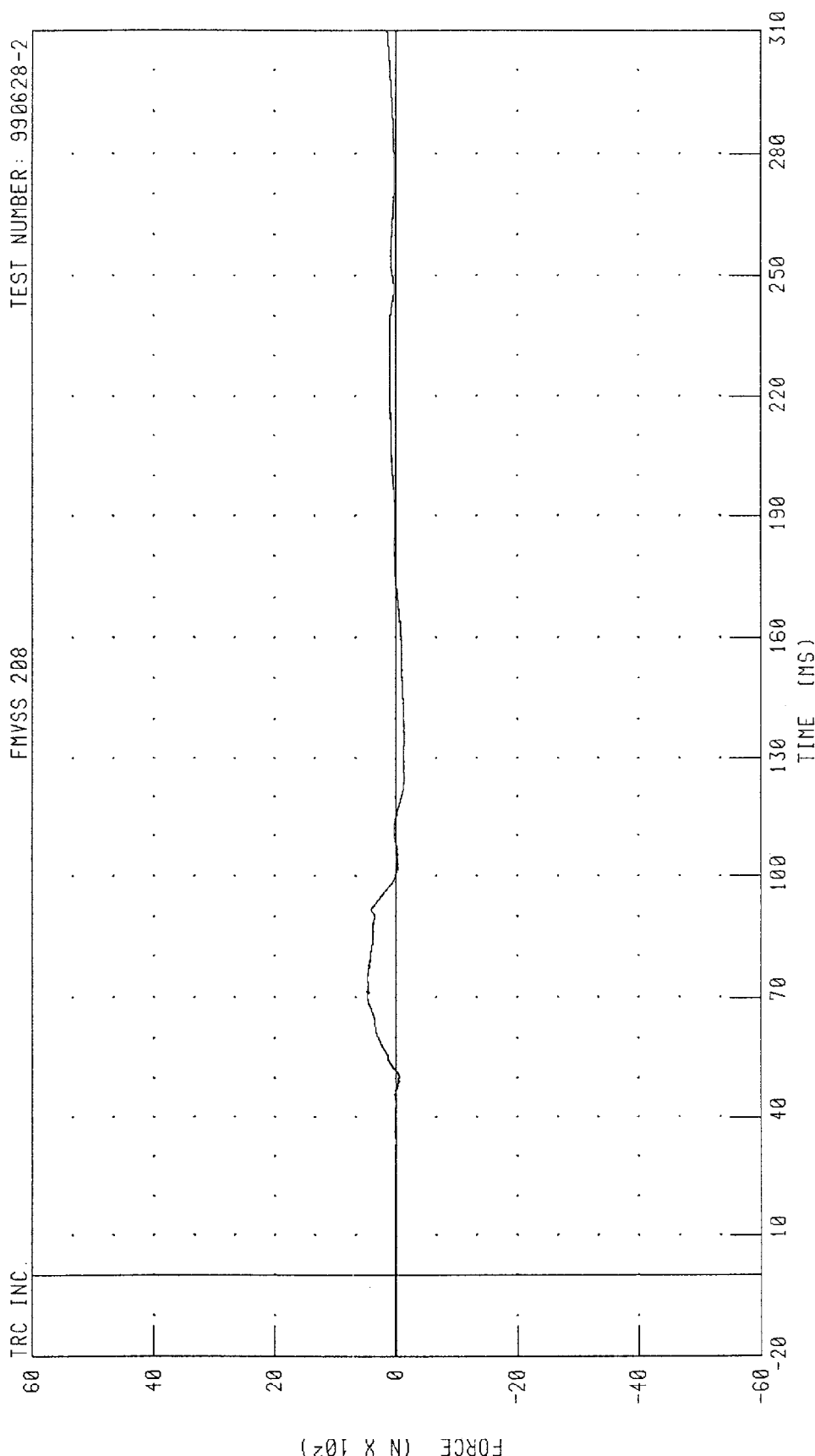
2000 FORD TAURUS INTO A FLAT FRONTAL BARRIER AT 30 MPH
DRIVER HEAD RESULTANT ACCELERATION



CHANNEL: HEDRG1 FILTER: CH. CLASS 1000

PEAK DATA: 45.60 G @ 91.84 MS; 0.08 G @ 23.84 MS

2000 FORD TAURUS INTO A FLAT FRONTAL BARRIER AT 30 MPH
DRIVER NECK X-AXIS SHEAR FORCE



CHANNEL: NEKXF1 FILTER: CH. CLASS 1000

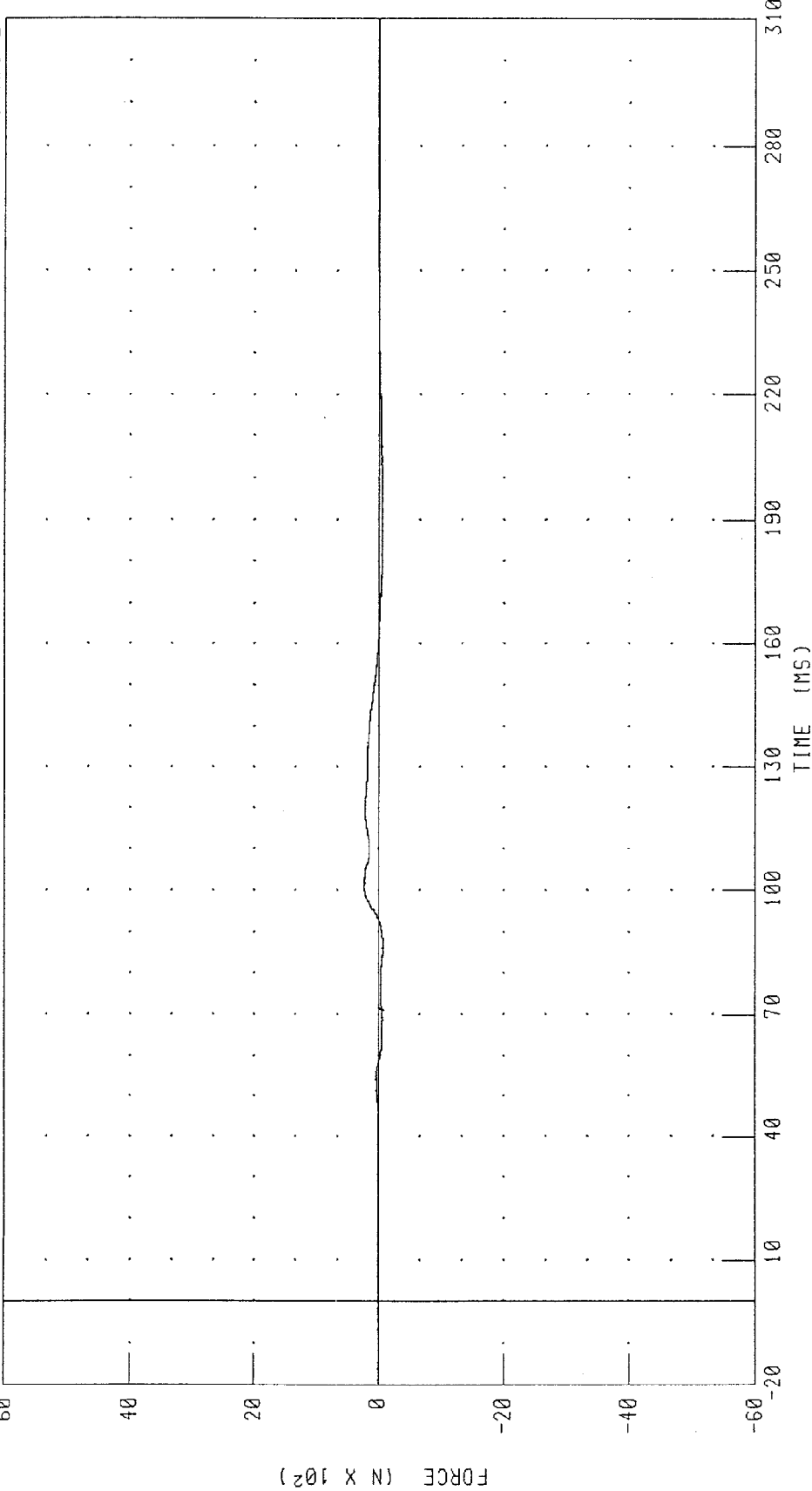
PEAK DATA: 490.52 N @ 71.60 MS; -139.30 N @ 124.08 MS

2000 FORD TAURUS INTO A FLAT FRONTAL BARRIER AT 30 MPH
 DRIVER NECK Y-AXIS SHEAR FORCE

TEST NUMBER: 990628-2

FMVSS 208

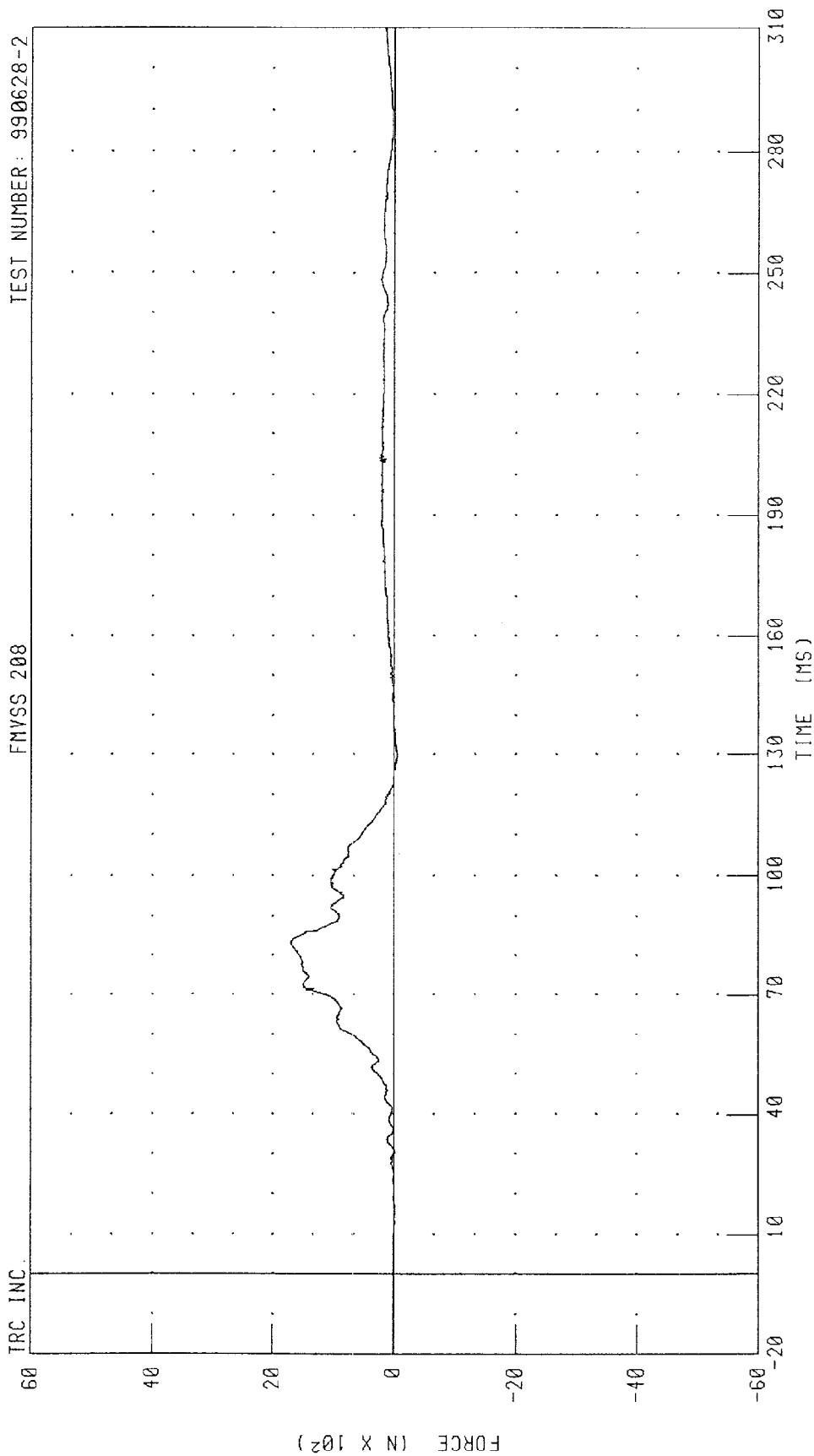
TRC INC.



CHANNEL: NEKYF1 FILTER: CH. CLASS 1000

PEAK DATA: 234.10 N @ 100.96 MS, -91.89 N @ 71.28 MS

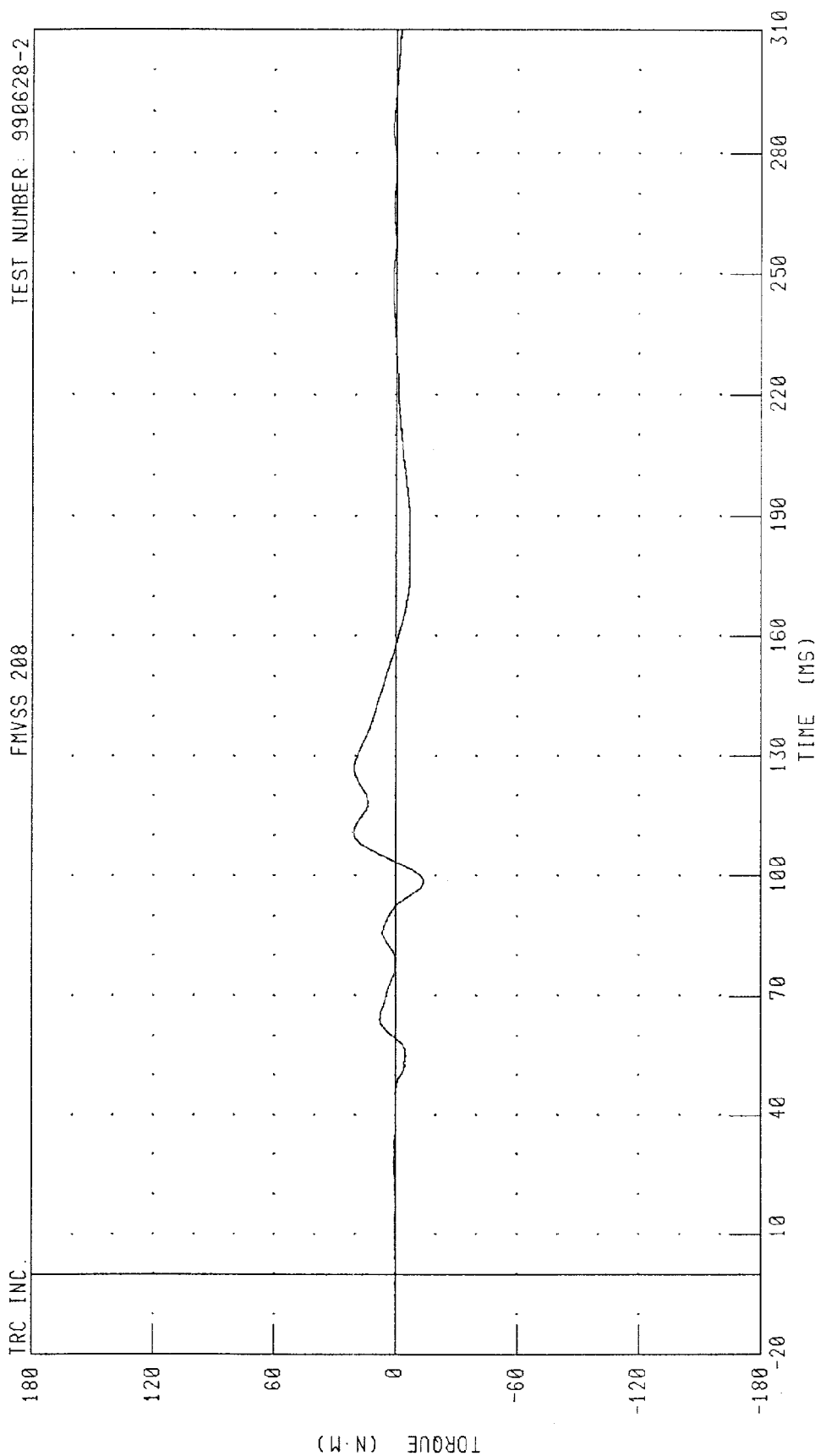
2000 FORD TAURUS INTO A FLAT FRONTAL BARRIER AT 30 MPH
 DRIVER NECK Z-AXIS AXIAL FORCE



CHANNEL: NEKZF1 FILTER: CH. CLASS 1000

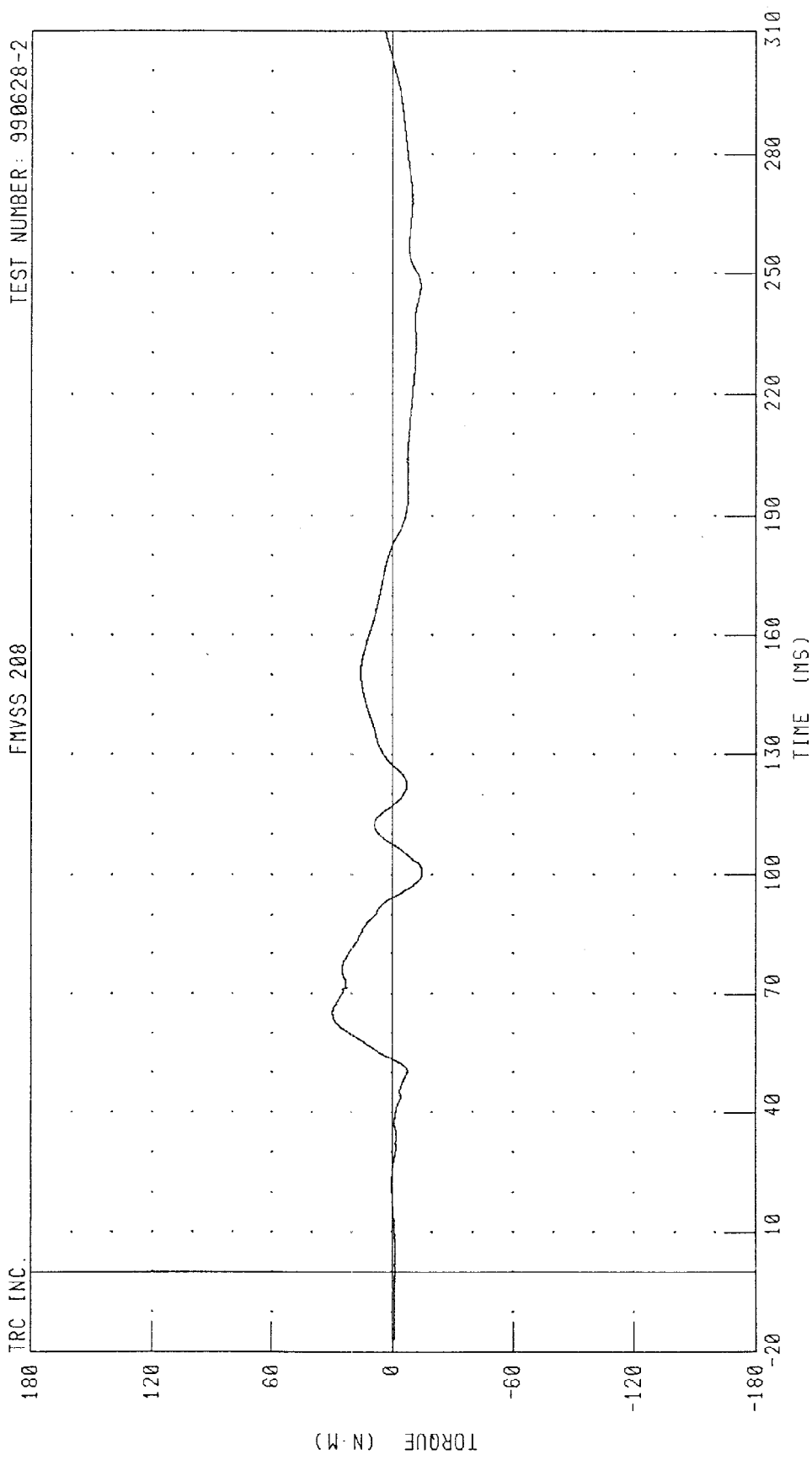
PEAK DATA: 1701.46 N @ 82.80 MS; -57.03 N @ 129.52 MS

2000 FORD TAURUS INTO A FLAT FRONTAL BARRIER AT 30 MPH
DRIVER NECK MOMENT ABOUT X AXIS



CHANNEL: NEKX01 FILTER: CH. CLASS 600

2000 FORD TAURUS INTO A FLAT FRONTAL BARRIER AT 30 MPH
DRIVER NECK MOMENT ABOUT Y AXIS



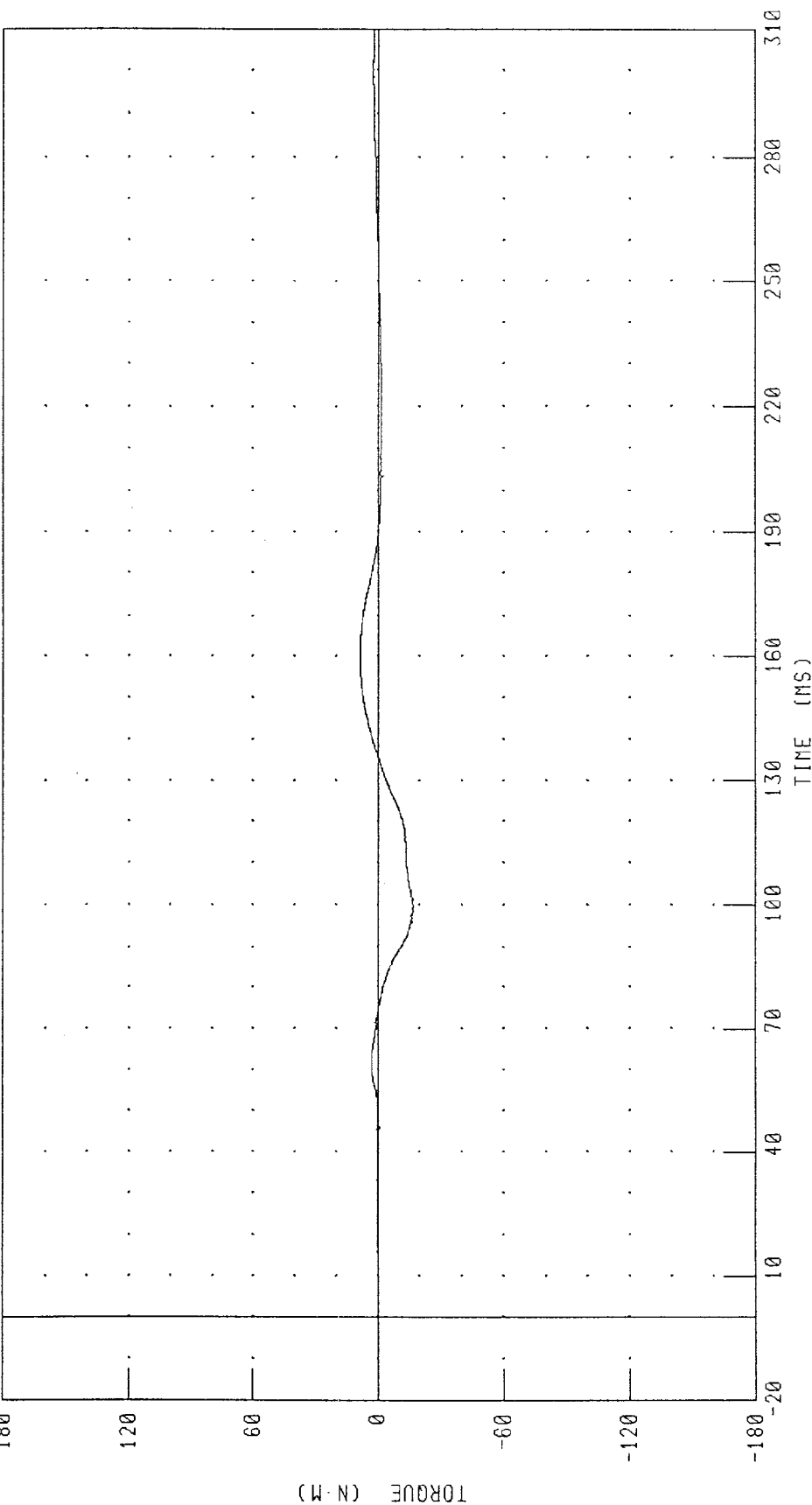
CHANNEL: NEKYM1 FILTER: CH. CLASS 600 PEAK DATA: 29.53 N·m @ 65.44 ms, -15.15 N·m @ 101.28 ms

2000 FORD TAURUS INTO A FLAT FRONTAL BARRIER AT 30 MPH
DRIVER NECK MOMENT ABOUT Z AXIS

TRC INC.

FMVSS 208

TEST NUMBER: 990628-2



CHANNEL: NEKZM1 FILTER: CH. CLASS 600

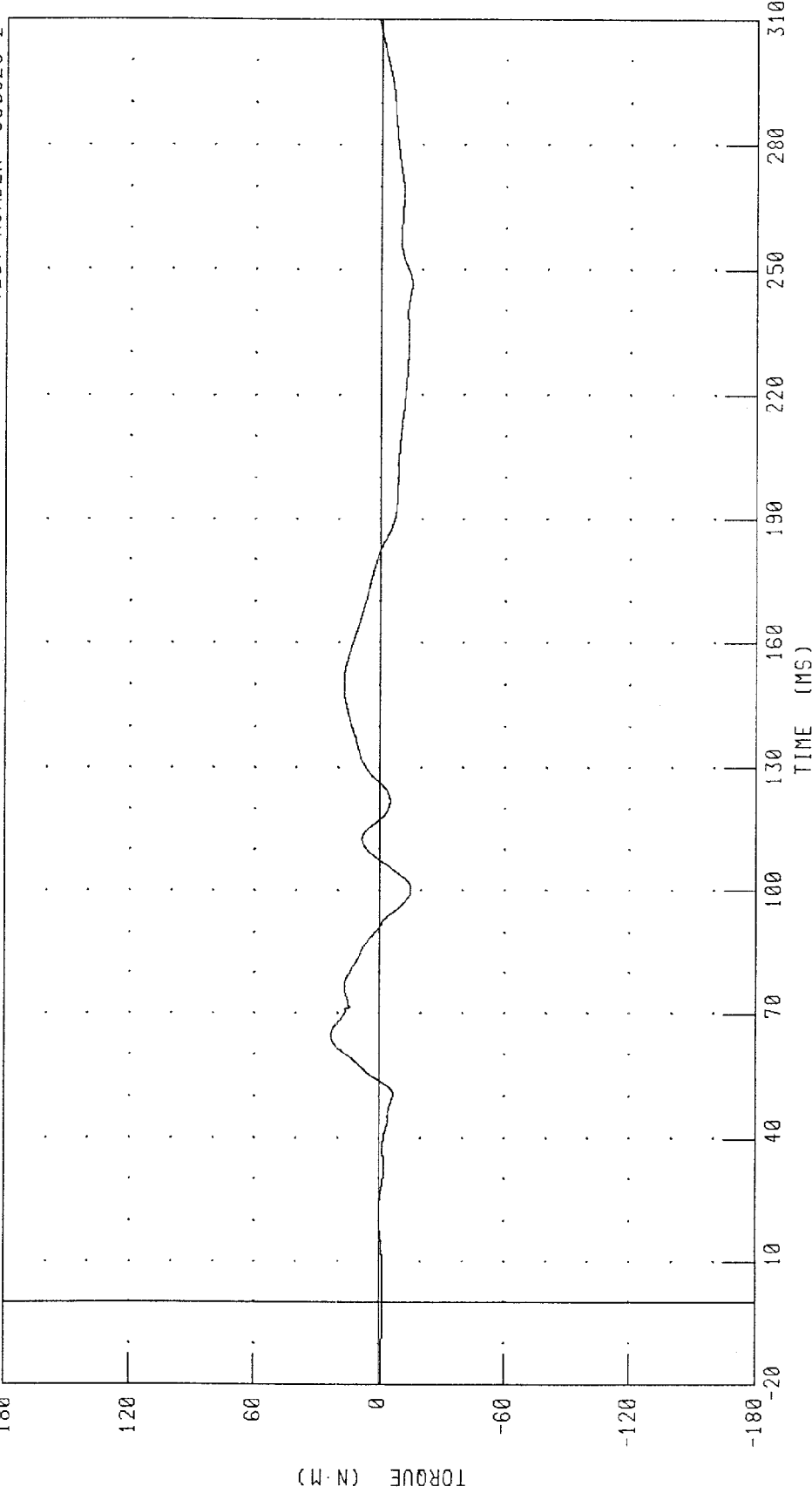
PEAK DATA: 8.59 N·M @ 160.48 MS; -17.10 N·M @ 98.48 MS

2000 FORD TAURUS INTO A FLAT FRONTAL BARRIER AT 30 MPH
DRIVER NECK OCCIPITAL CONDYLE

TEST NUMBER: 990628-2

FMVSS 208

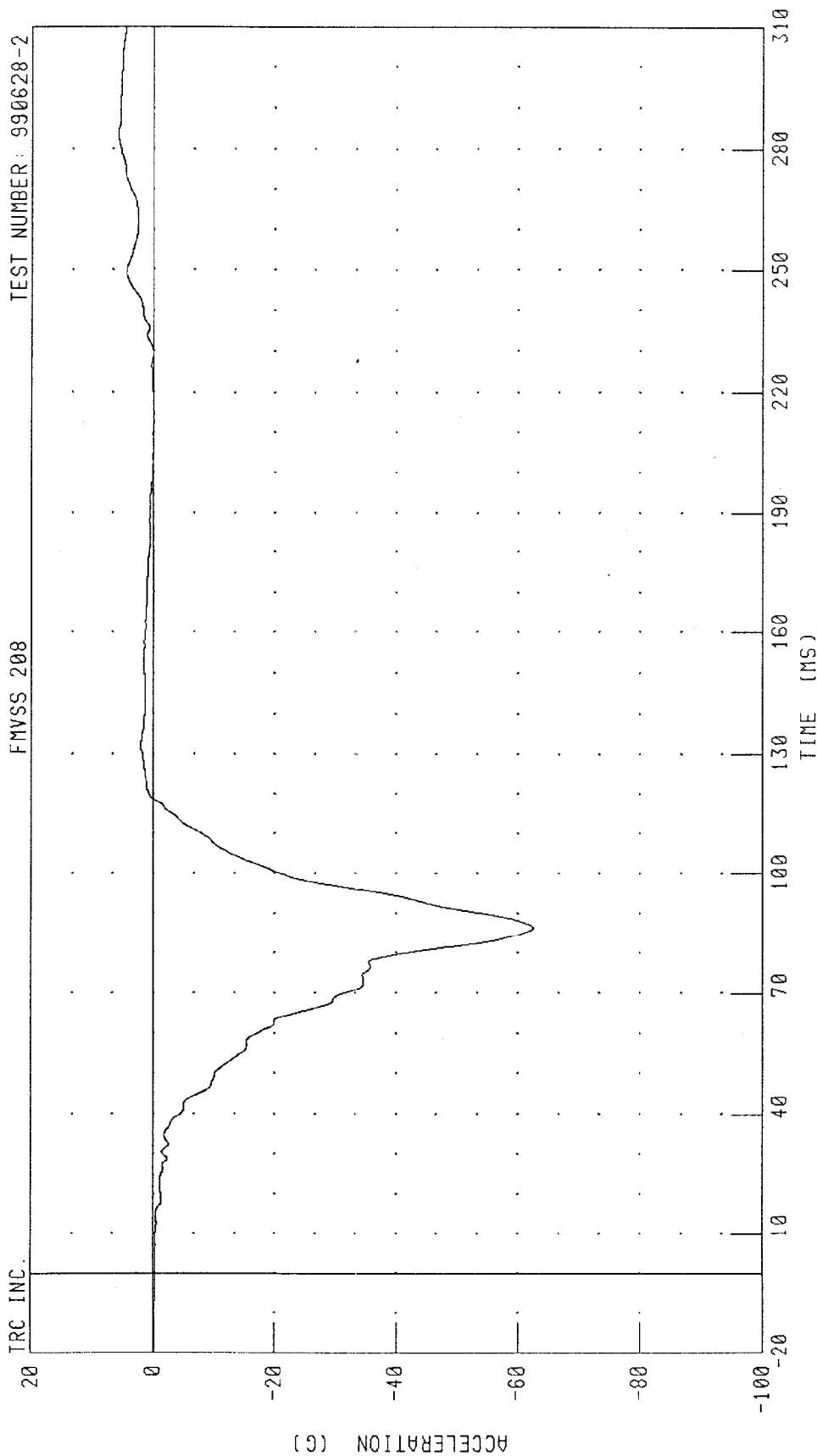
IRC INC.



CHANNEL: NEKOM1 FILTER: CH. CLASS 600

PEAK DATA: 23.18 N·M @ 64.72 MS; -15.19 N·M @ 100.24 MS

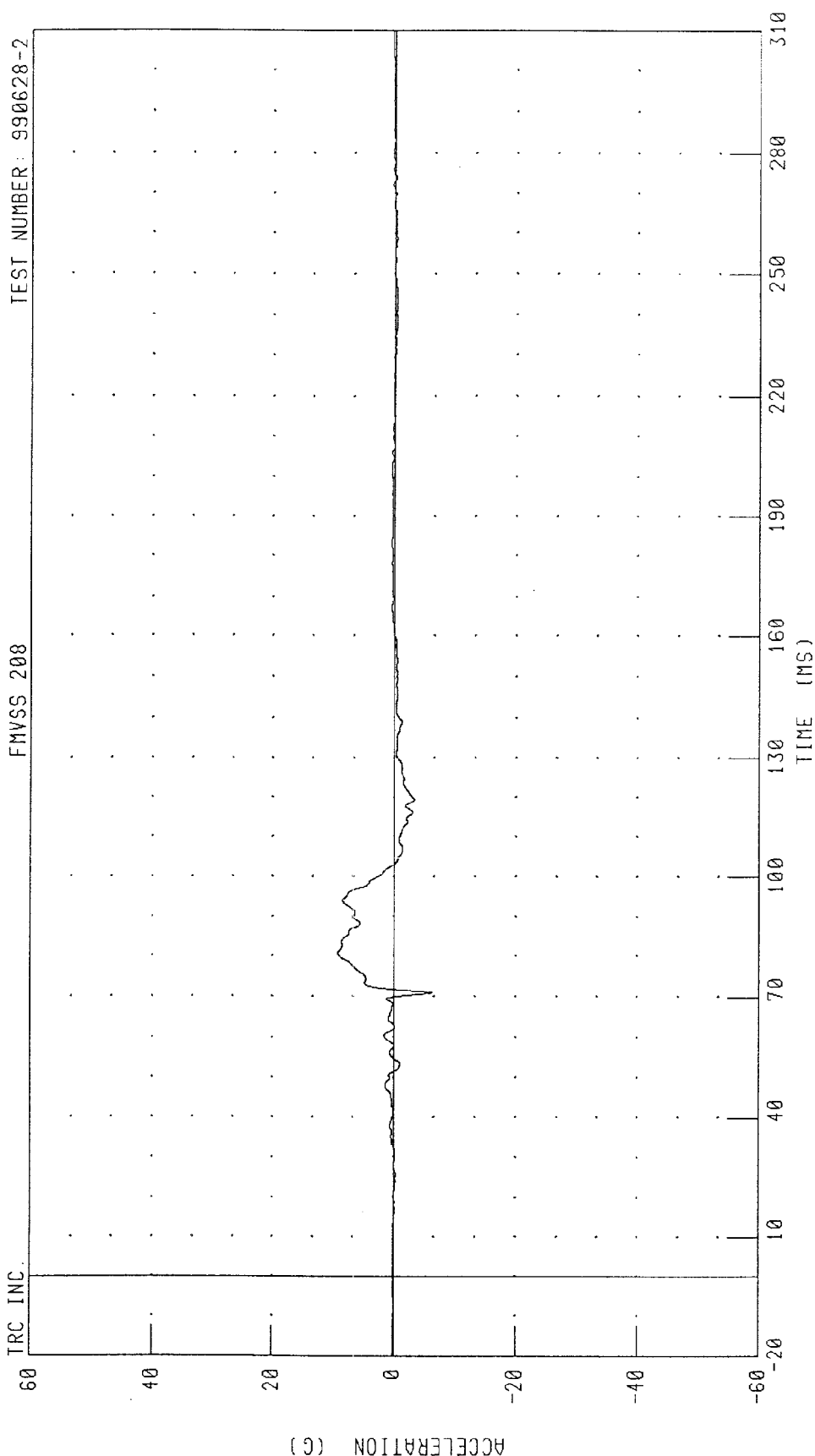
2000 FORD TAURUS INTO A FLAT FRONTAL BARRIER AT 30 MPH
DRIVER CHEST X-AXIS ACCELERATION



CHANNEL: CSTXG1 FILTER: CH. CLASS 180

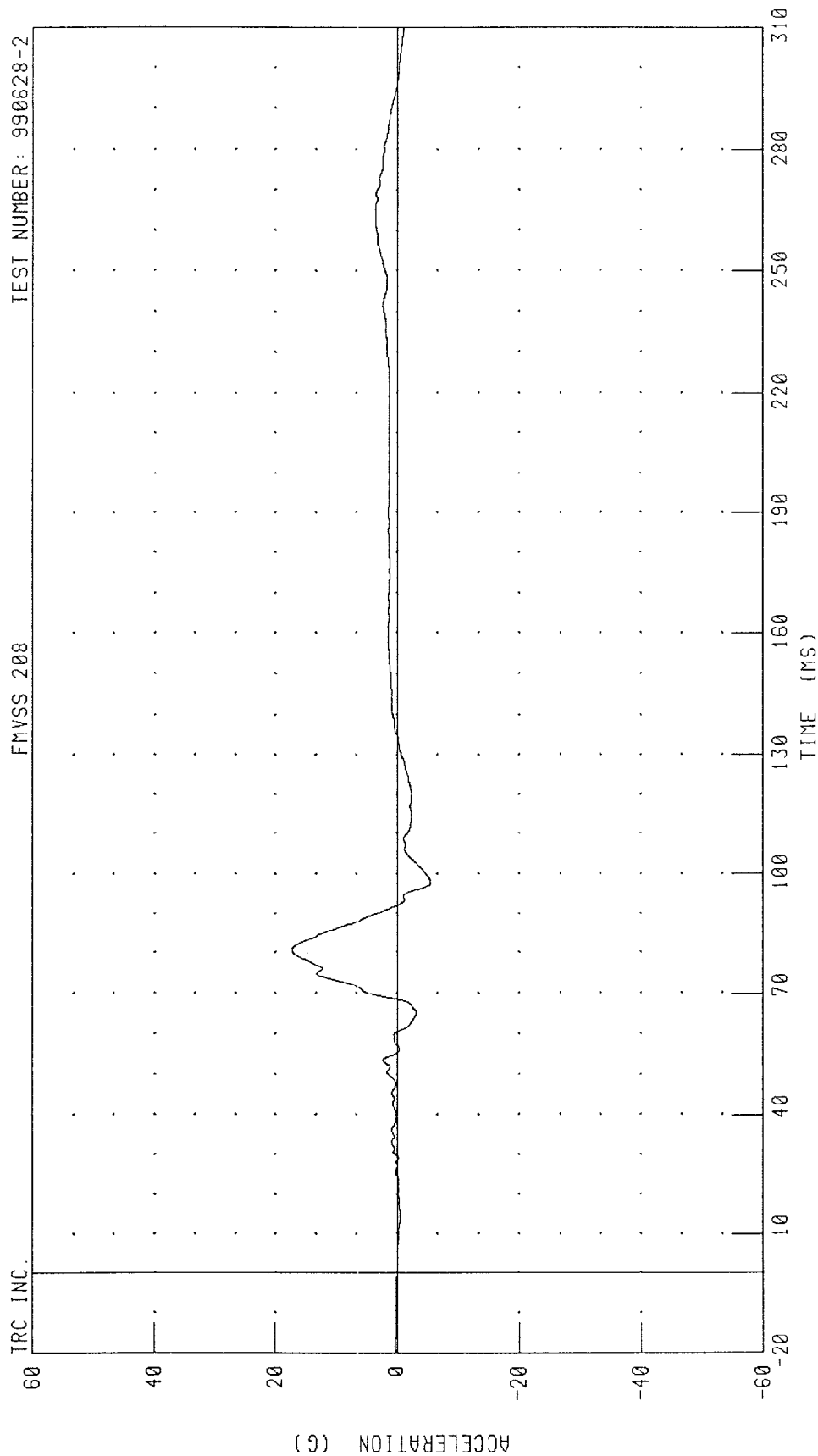
PEAK DATA: 5.87 G @ 283.68 MS, -62.60 G @ 86.32 MS

2000 FORD TAURUS INTO A FLAT FRONTAL BARRIER AT 30 MPH
DRIVER CHEST Y-AXIS ACCELERATION



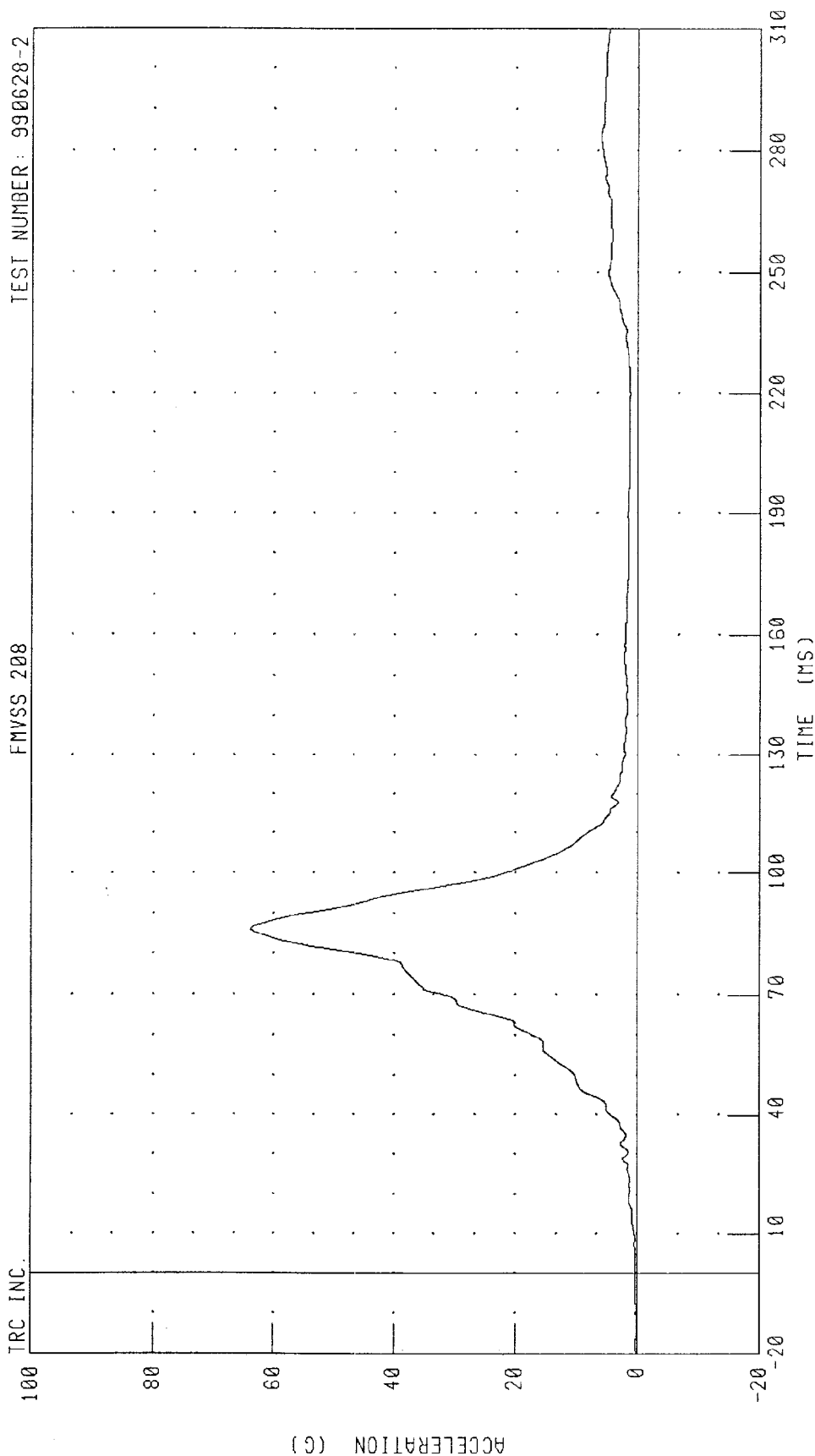
CHANNEL: CSTYG1 FILTER: CH. CLASS 180 PEAK DATA: 9.18 G @ 80.88 MS; -6.33 G @ 71.04 MS

2000 FORD TAURUS INTO A FLAT FRONTAL BARRIER AT 30 MPH
DRIVER CHEST Z-AXIS ACCELERATION



CHANNEL: CSTZG1 FILTER: CH. CLASS 180 PEAK DATA: 17.23 G @ 80.40 MS, -5.51 G @ 97.76 MS

2000 FORD TAURUS INTO A FLAT FRONTAL BARRIER AT 30 MPH
DRIVER CHEST RESULTANT ACCELERATION



CHANNEL: CSTRG1 FILTER: CH. CLASS 180

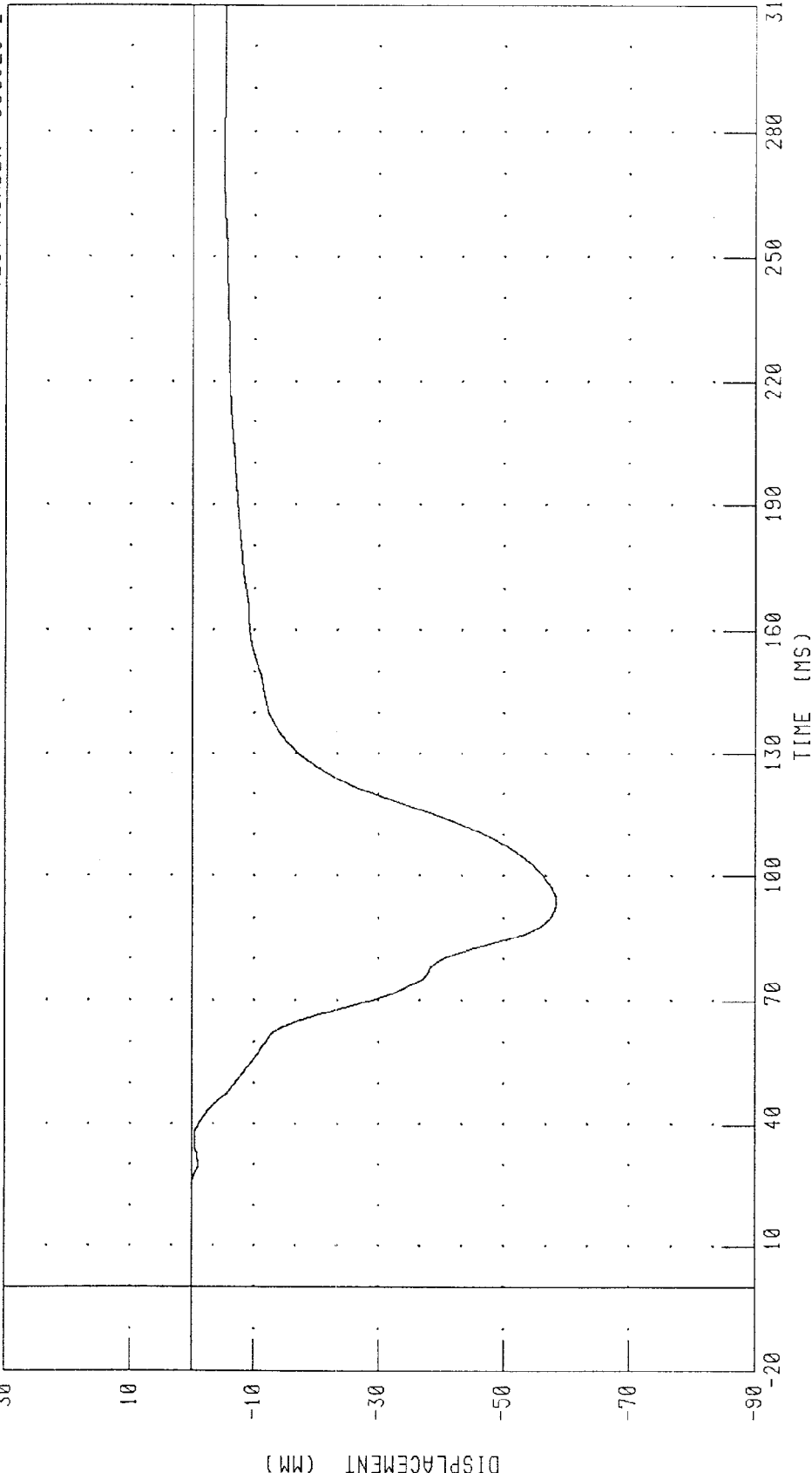
PEAK DATA: 63.82 G @ 86.24 MS; 0.02 G @ -20.00 MS

2000 FORD TAURUS INTO A FLAT FRONTAL BARRIER AT 30 MPH
DRIVER CHEST DEFLECTION

TEST NUMBER: 990628-2

FMVSS 208

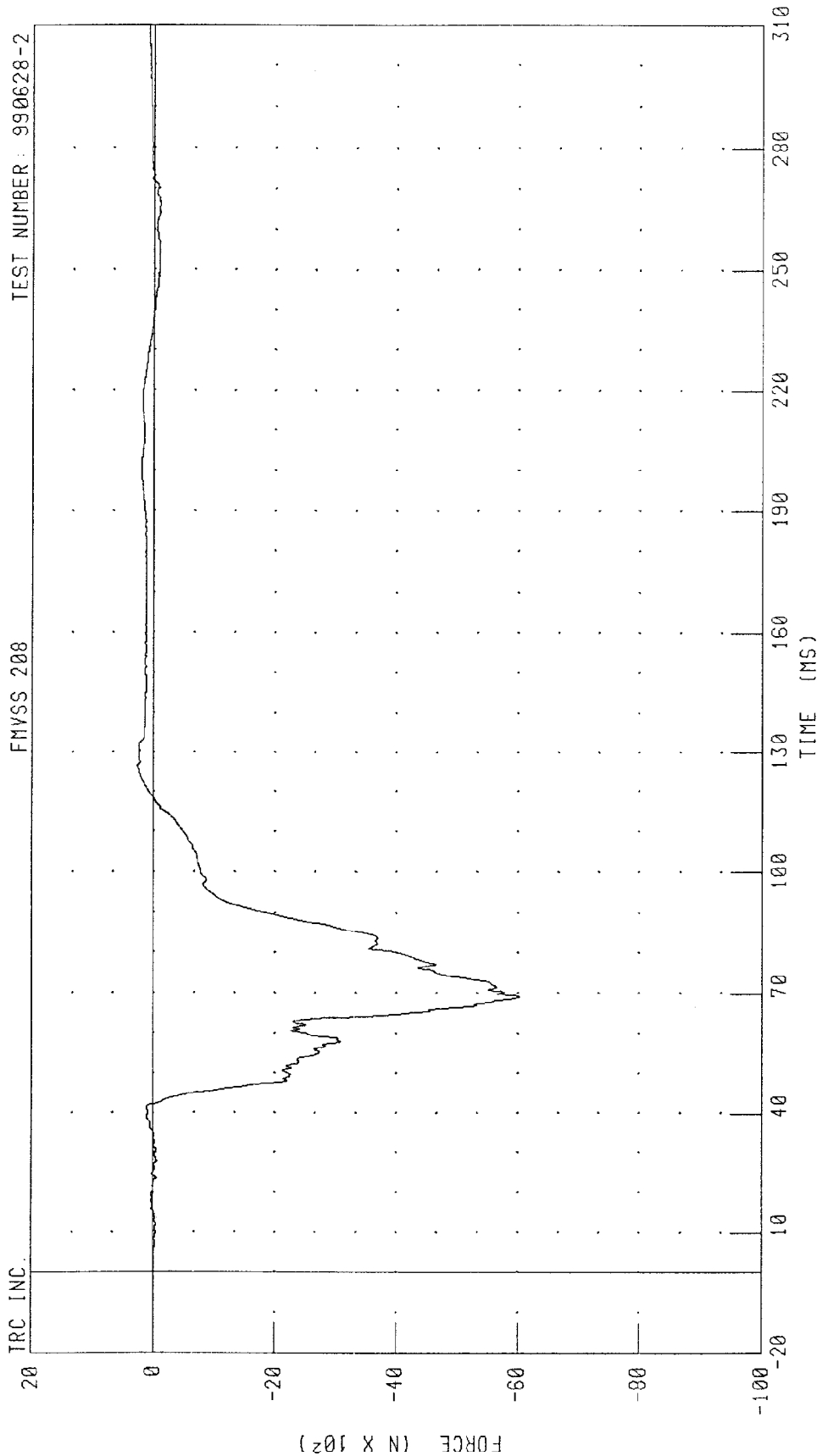
TRC INC.



CHANNEL: CSTXD1 FILTER: CH. CLASS 180

PEAK DATA: 0.08 MM @ 24.08 MS, -58.34 MM @ 94.56 MS

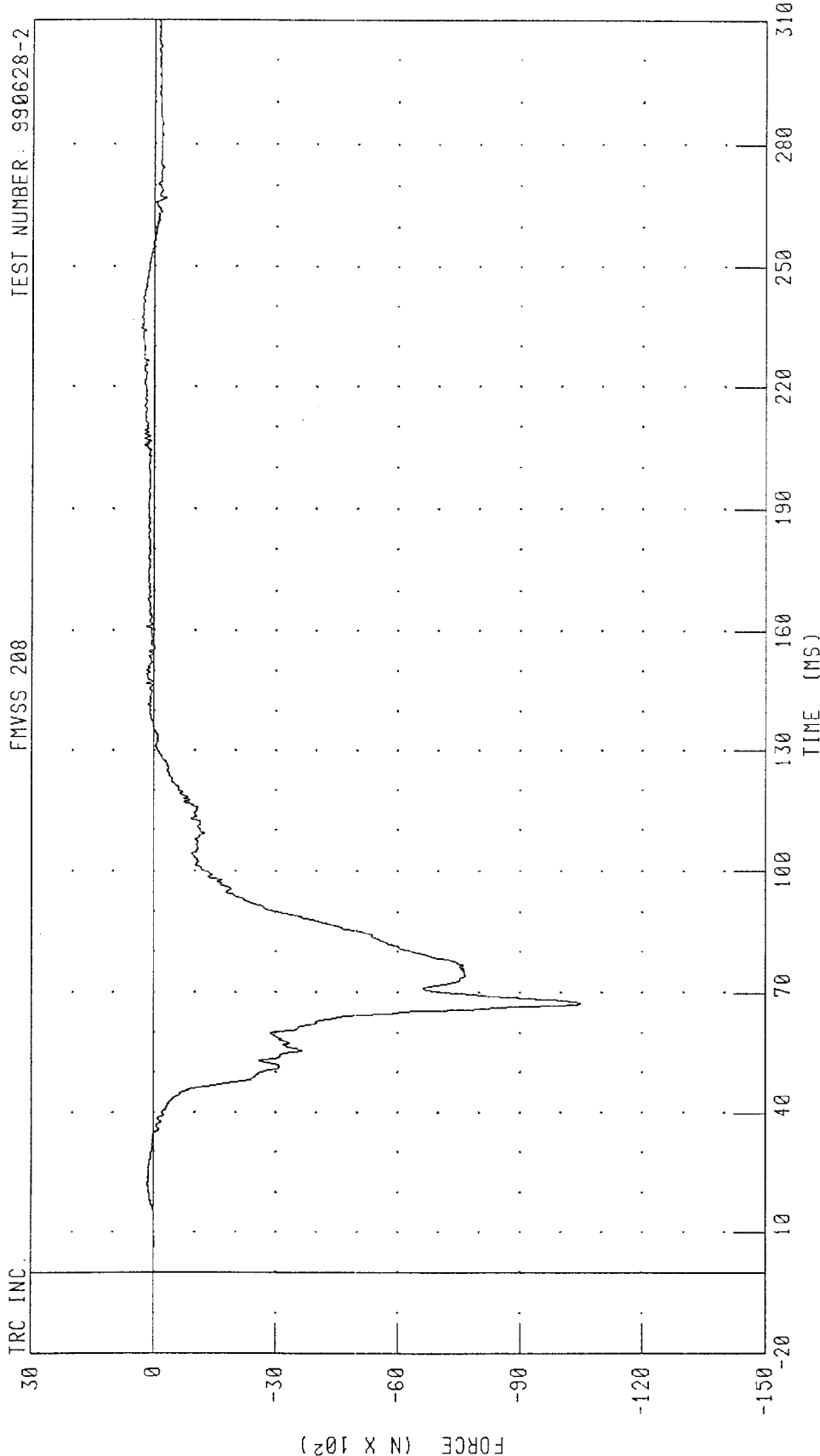
2000 FORD TAURUS INTO A FLAT FRONTAL BARRIER AT 30 MPH
DRIVER LEFT FEMUR FORCE



CHANNEL: LFMF1 FILTER: CH. CLASS 600

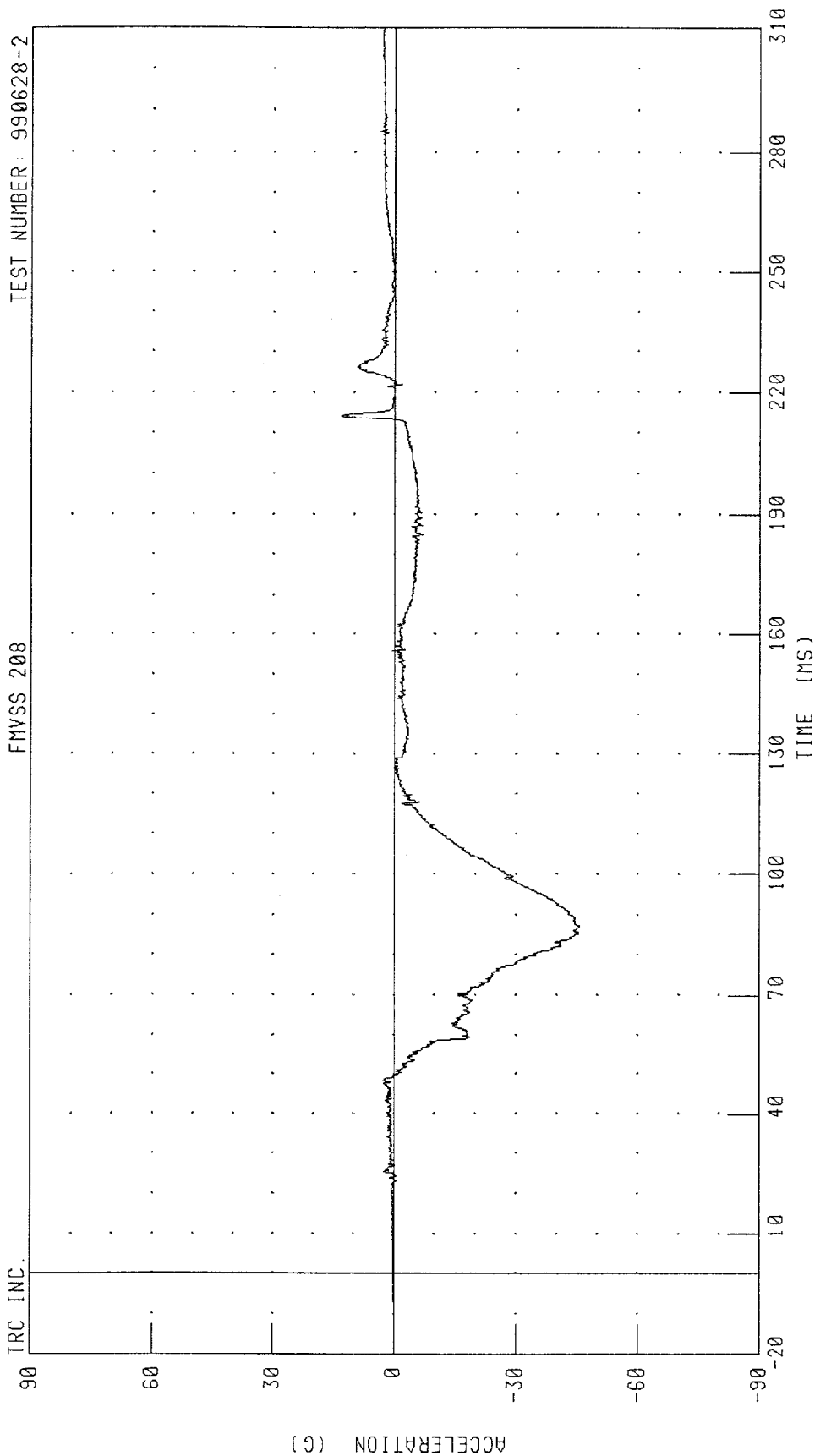
PEAK DATA: 269.16 N @ 126.72 MS, -6020.43 N @ 69.28 MS

2000 FORD TAURUS INTO A FLAT FRONTAL BARRIER AT 30 MPH
 DRIVER RIGHT FEMUR FORCE



CHANNEL: RFMF1 FILTER: CH. CLASS 600 PEAK DATA: 329.54 N @ 234.56 MS, -10491.47 N @ 67.52 MS

2000 FORD TAURUS INTO A FLAT FRONTAL BARRIER AT 30 MPH
RIGHT FRONT PASSENGER HEAD X-AXIS ACCELERATION

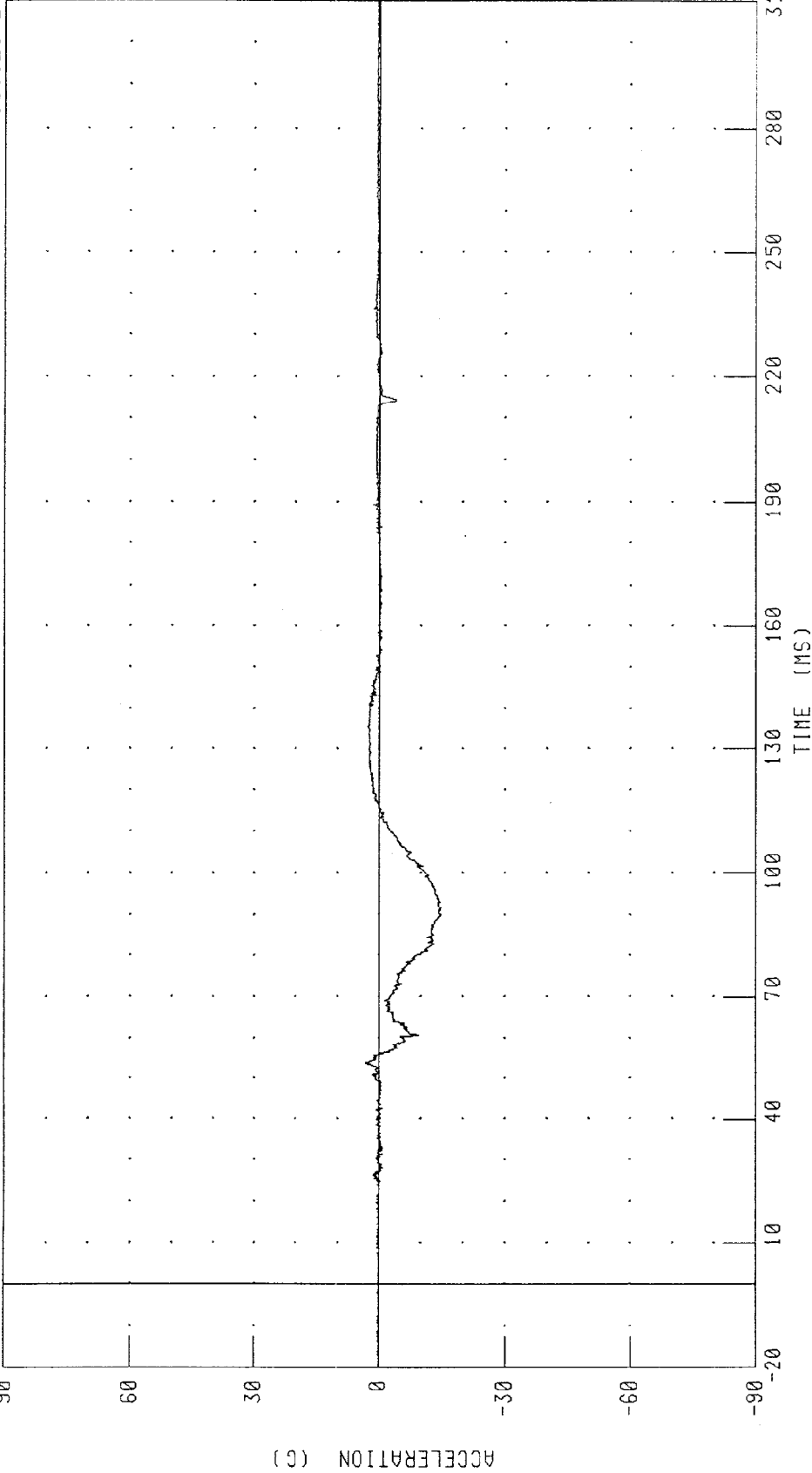


2000 FORD TAURUS INTO A FLAT FRONTAL BARRIER AT 30 MPH
RIGHT FRONT PASSENGER HEAD Y-AXIS ACCELERATION

TEST NUMBER: 990628-2

FMYSS 208

IRC INC.



CHANNEL: HEDYC2 FILTER: CH. CLASS 1000

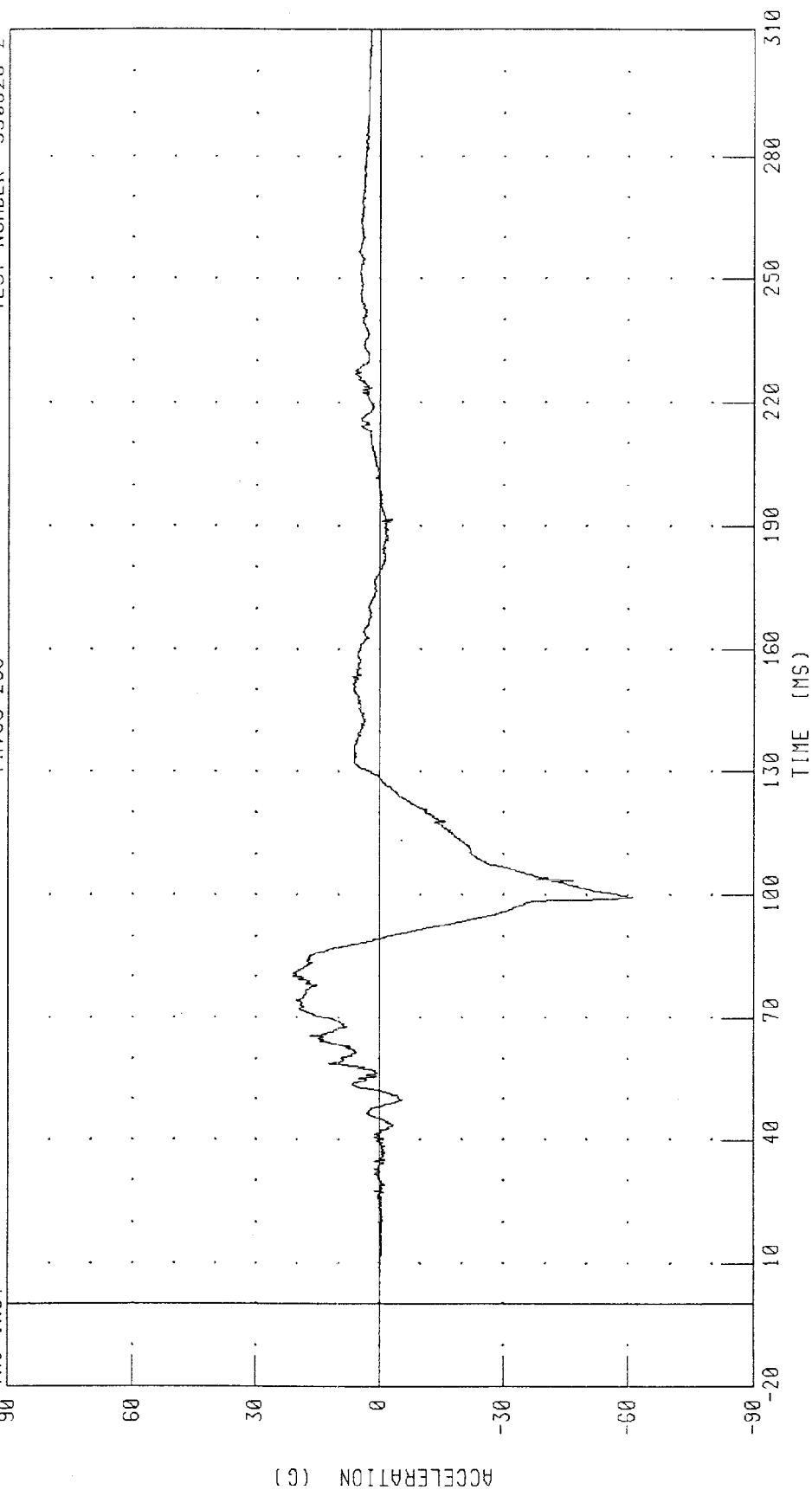
PEAK DATA: 3.27 G @ 53.60 MS, -14.81 G @ 89.84 MS

2000 FORD TAURUS INTO A FLAT FRONTAL BARRIER AT 30 MPH
RIGHT FRONT PASSENGER HEAD Z-AXIS ACCELERATION

TEST NUMBER: 990628-2

FMVSS 208

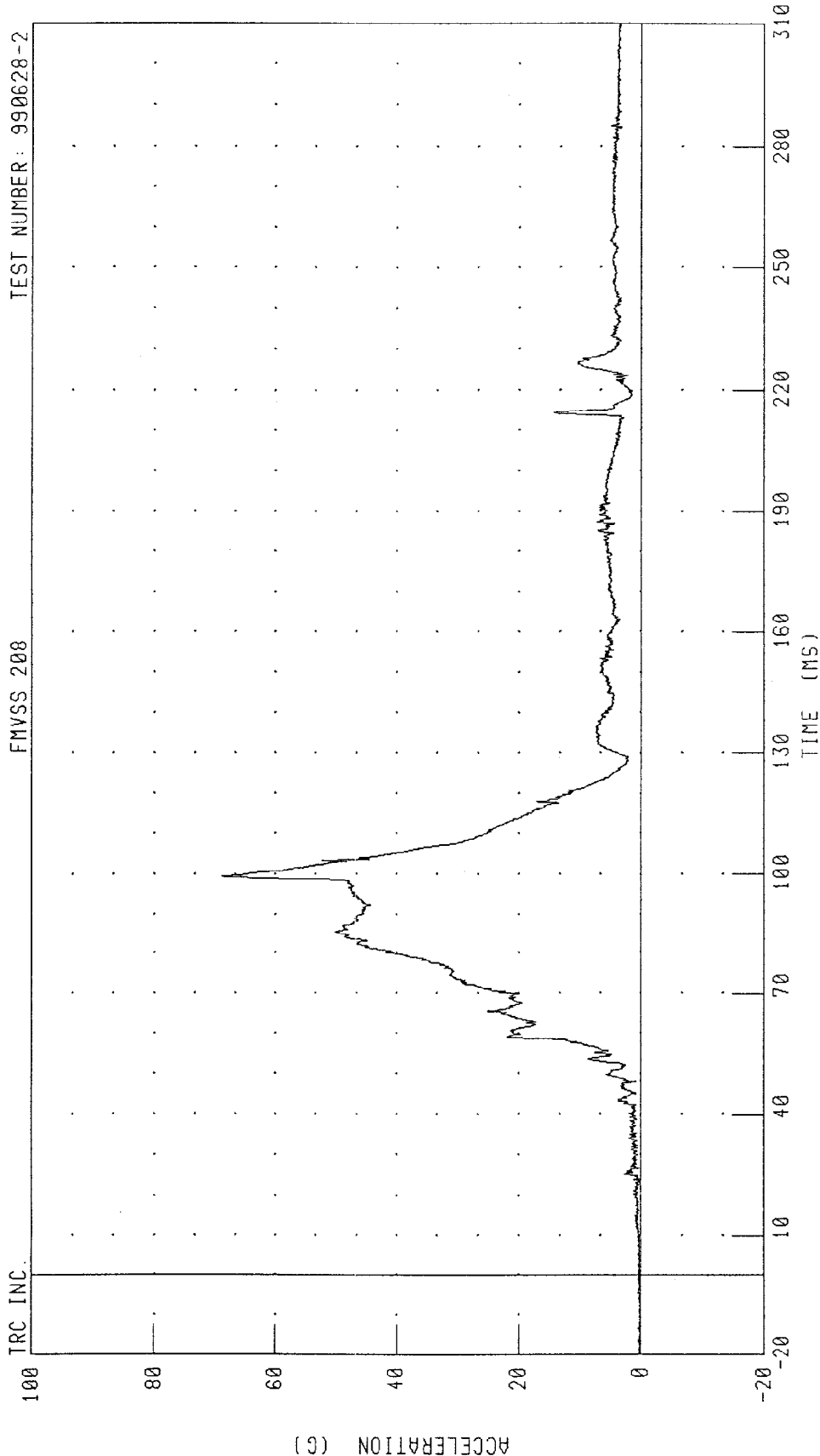
TRC INC.



CHANNEL: HEDZC2 FILTER: CH. CLASS 1000

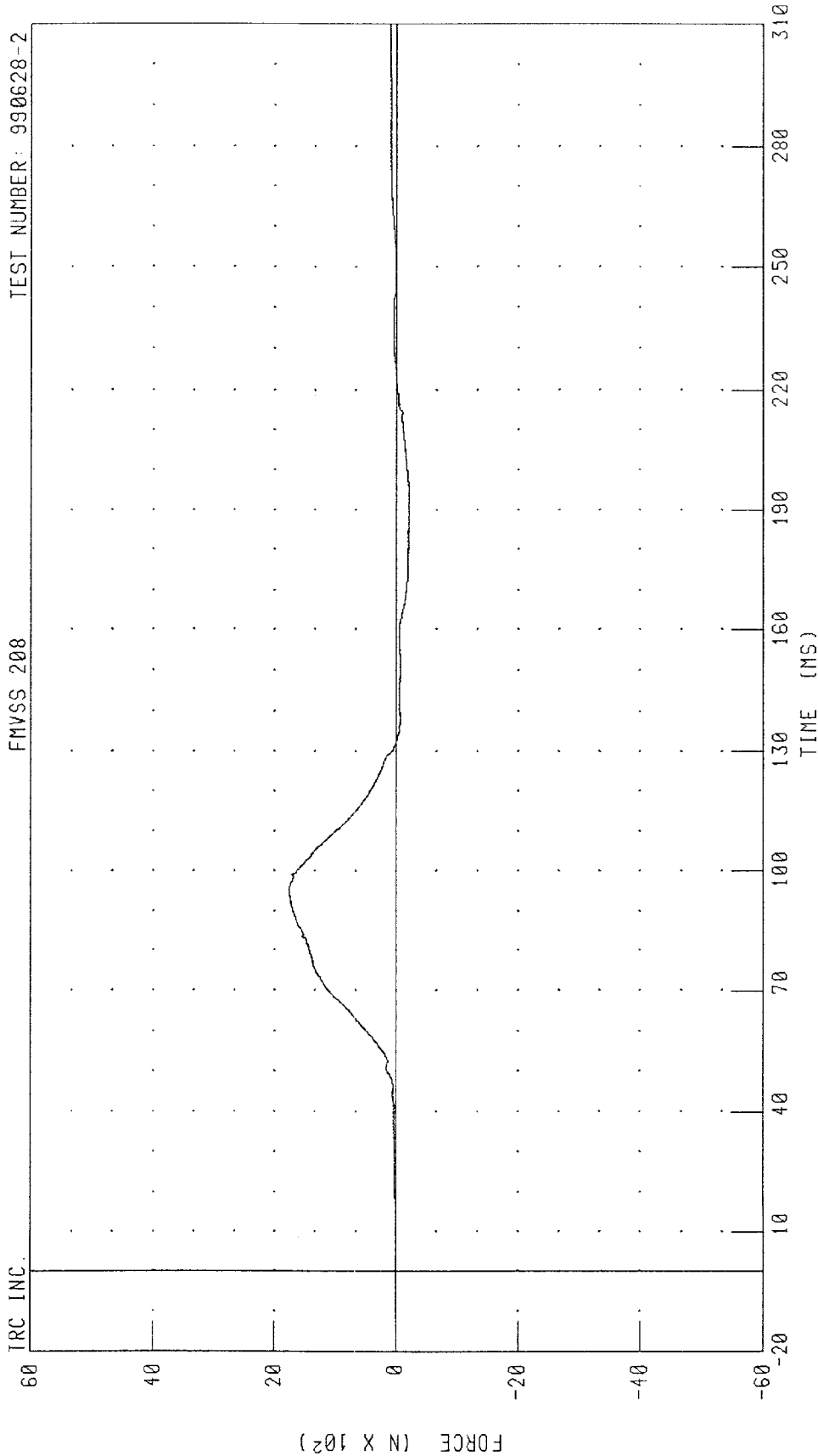
PEAK DATA: 21.06 G @ 80.16 MS, -61.18 G @ 99.52 MS

2000 FORD TAURUS INTO A FLAT FRONTAL BARRIER AT 30 MPH
RIGHT FRONT PASSENGER HEAD RESULTANT ACCELERATION



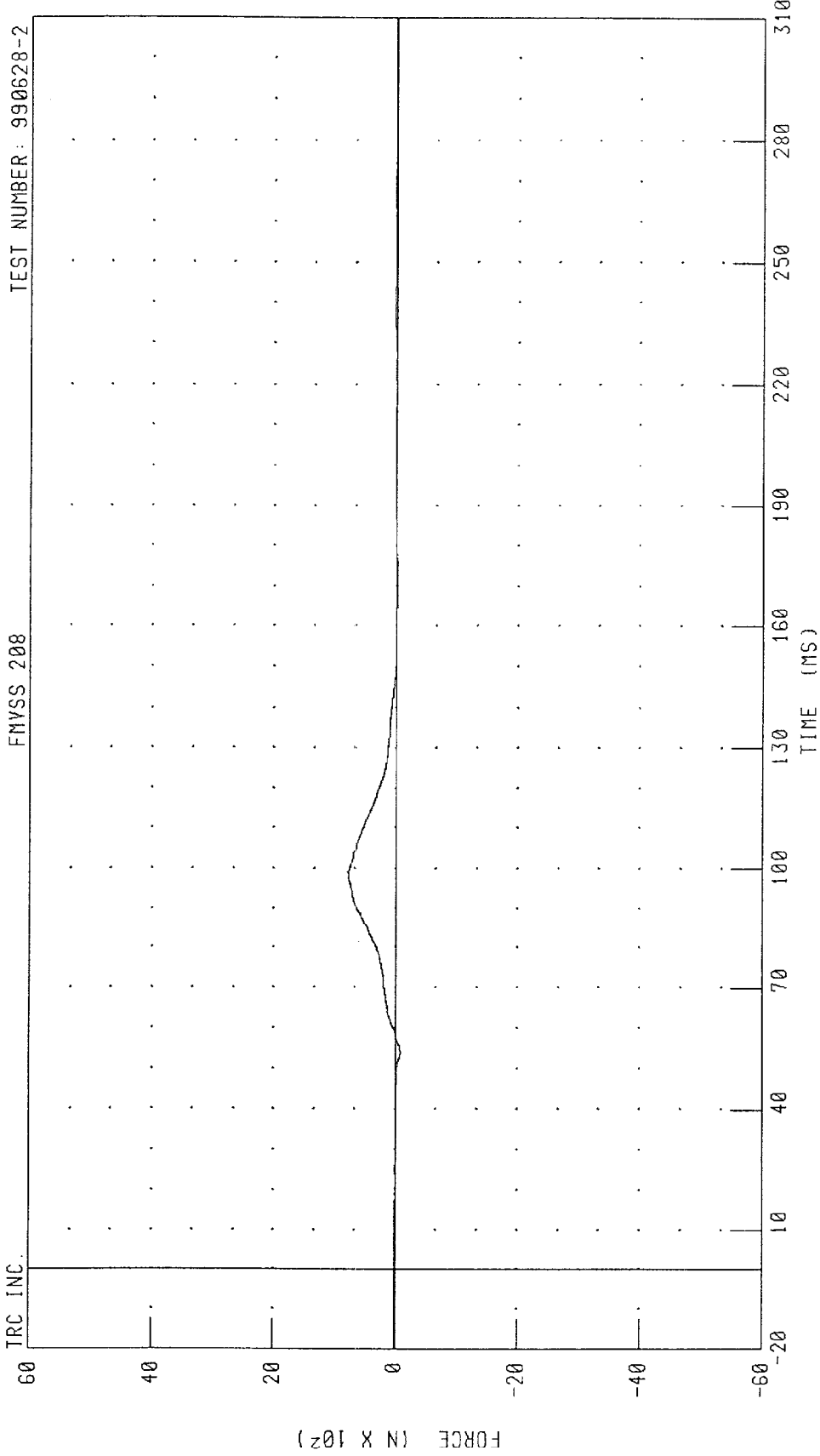
CHANNEL: HEDRC2 FILTER: CH. CLASS 1000 PEAK DATA: 68.90 G @ 99.52 MS, 0.07 G @ 23.60 MS

2000 FORD TAURUS INTO A FLAT FRONTAL BARRIER AT 30 MPH
 RIGHT FRONT PASSENGER NECK X-AXIS SHEAR FORCE



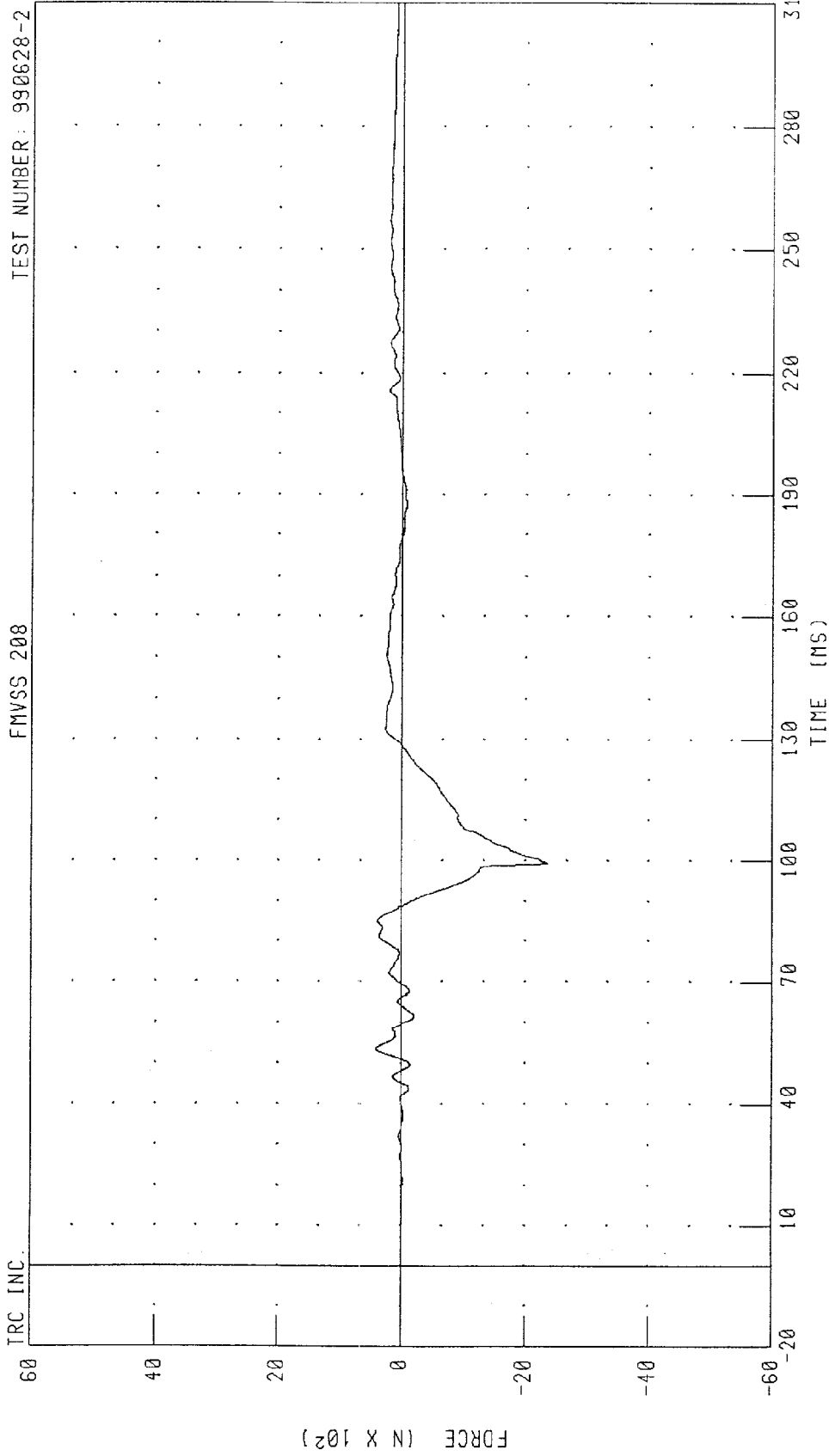
CHANNEL: NEKXF2 FILTER: CH. CLASS 1000 PEAK DATA: 1756.15 N @ 94.96 MS; -214.75 N @ 188.08 MS

2000 FORD TAURUS INTO A FLAT FRONTAL BARRIER AT 30 MPH
RIGHT FRONT PASSENGER NECK Y-AXIS SHEAR FORCE



CHANNEL: NEKYF2 FILTER: CH. CLASS 1000 PEAK DATA: 785.09 N @ 99.12 MS, -93.04 N @ 53.76 MS

2000 FORD TAURUS INTO A FLAT FRONTAL BARRIER AT 30 MPH
RIGHT FRONT PASSENGER NECK Z-AXIS AXIAL FORCE



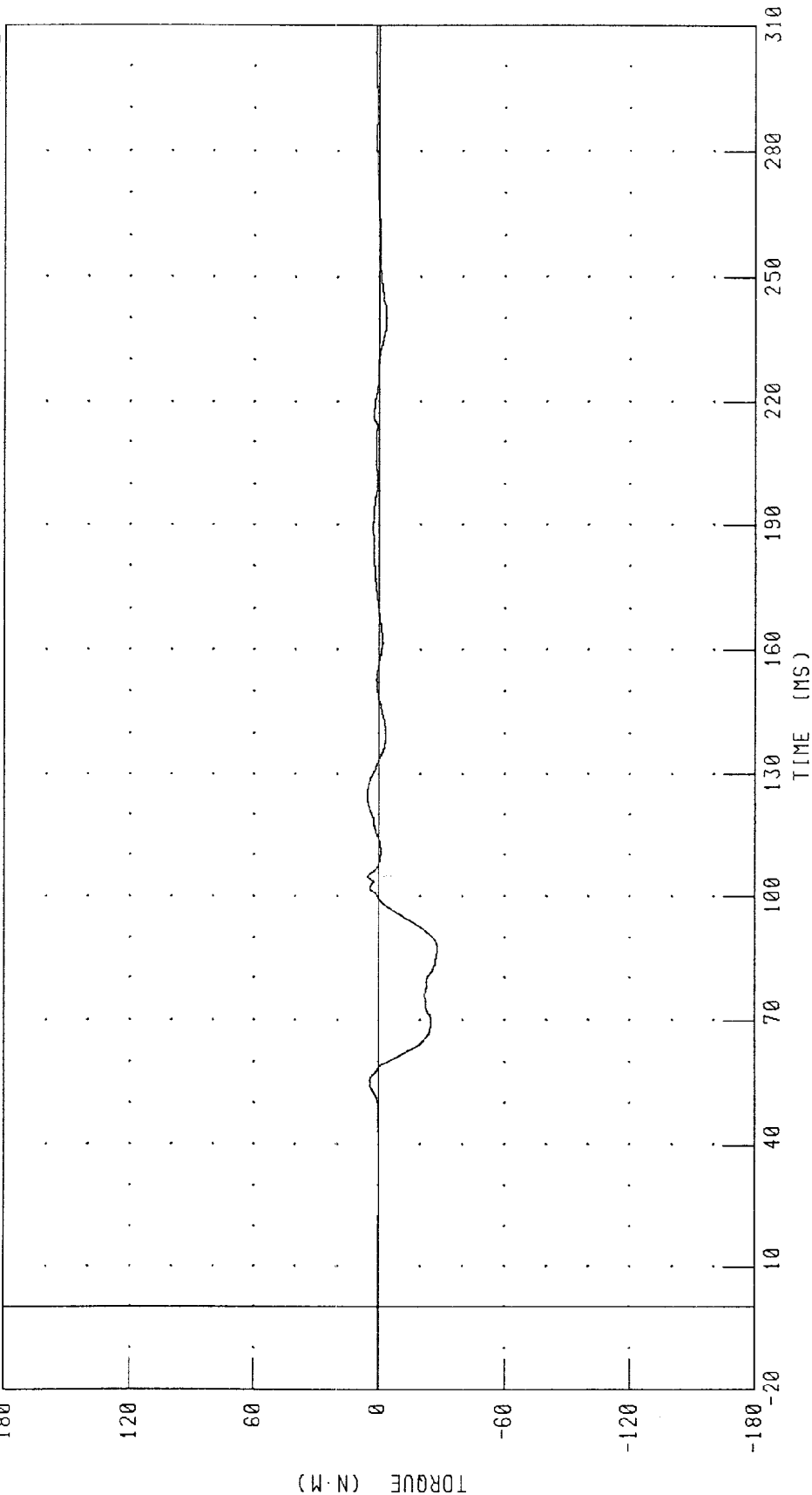
CHANNEL: NEKZF2 FILTER: CH. CLASS 1000 PEAK DATA: 400.16 N @ 53.28 MS; -2356.65 N @ 99.44 MS

2000 FORD TAURUS INTO A FLAT FRONTAL BARRIER AT 30 MPH
RIGHT FRONT PASSENGER NECK MOMENT ABOUT X AXIS

TEST NUMBER: 990628-2

FMVSS 208

TRC INC.



CHANNEL: NEKX12 FILTER: CH. CLASS 600

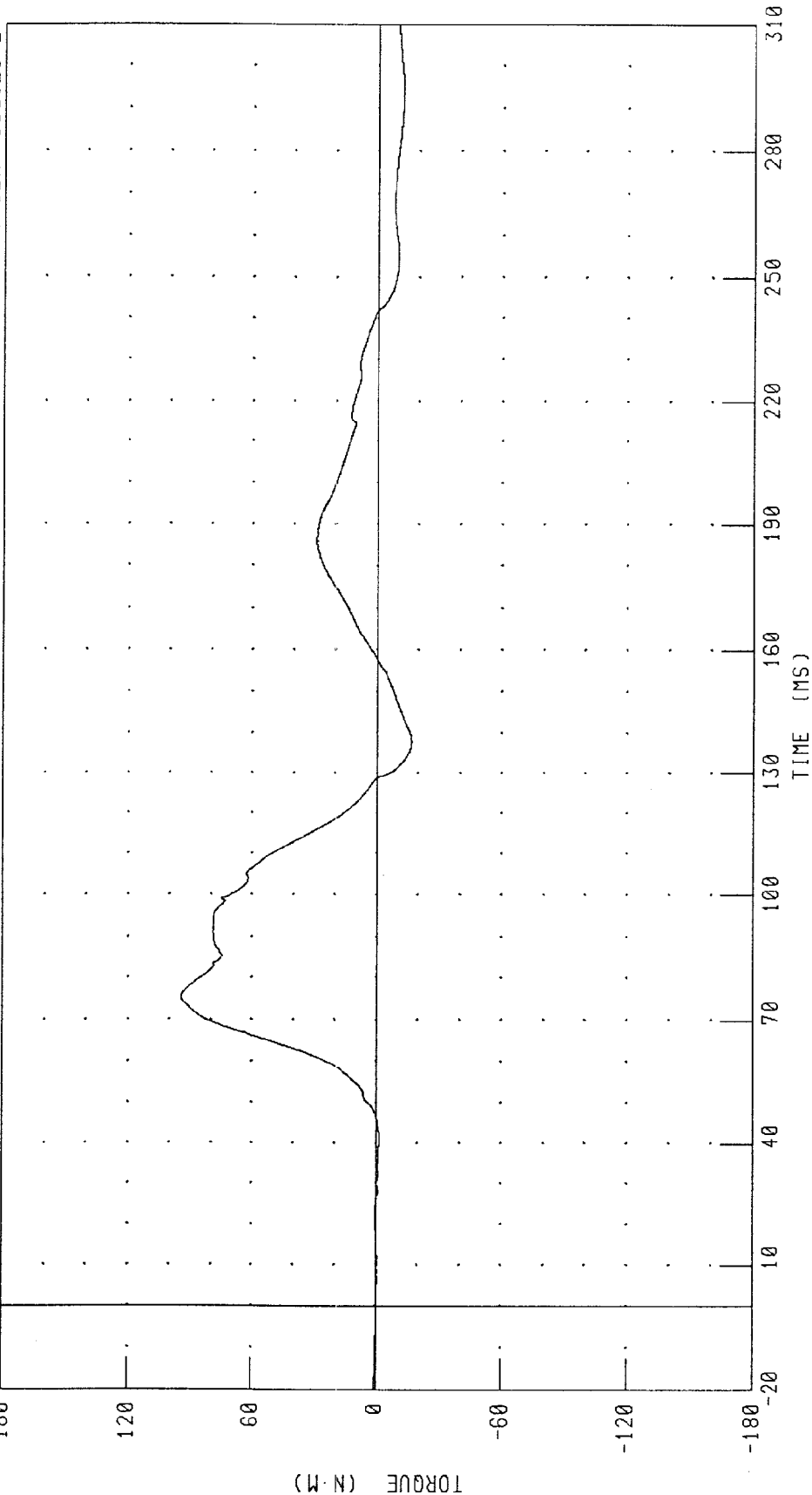
PEAK DATA: 5.46 N·M @ 125.04 MS; -28.15 N·M @ 87.68 MS

2000 FORD TAURUS INTO A FLAT FRONTAL BARRIER AT 30 MPH
RIGHT FRONT PASSENGER NECK MOMENT ABOUT Y AXIS

TEST NUMBER: 990628-2

FMVSS 208

TRC INC.



CHANNEL: NEKYM2 FILTER: CH. CLASS 600

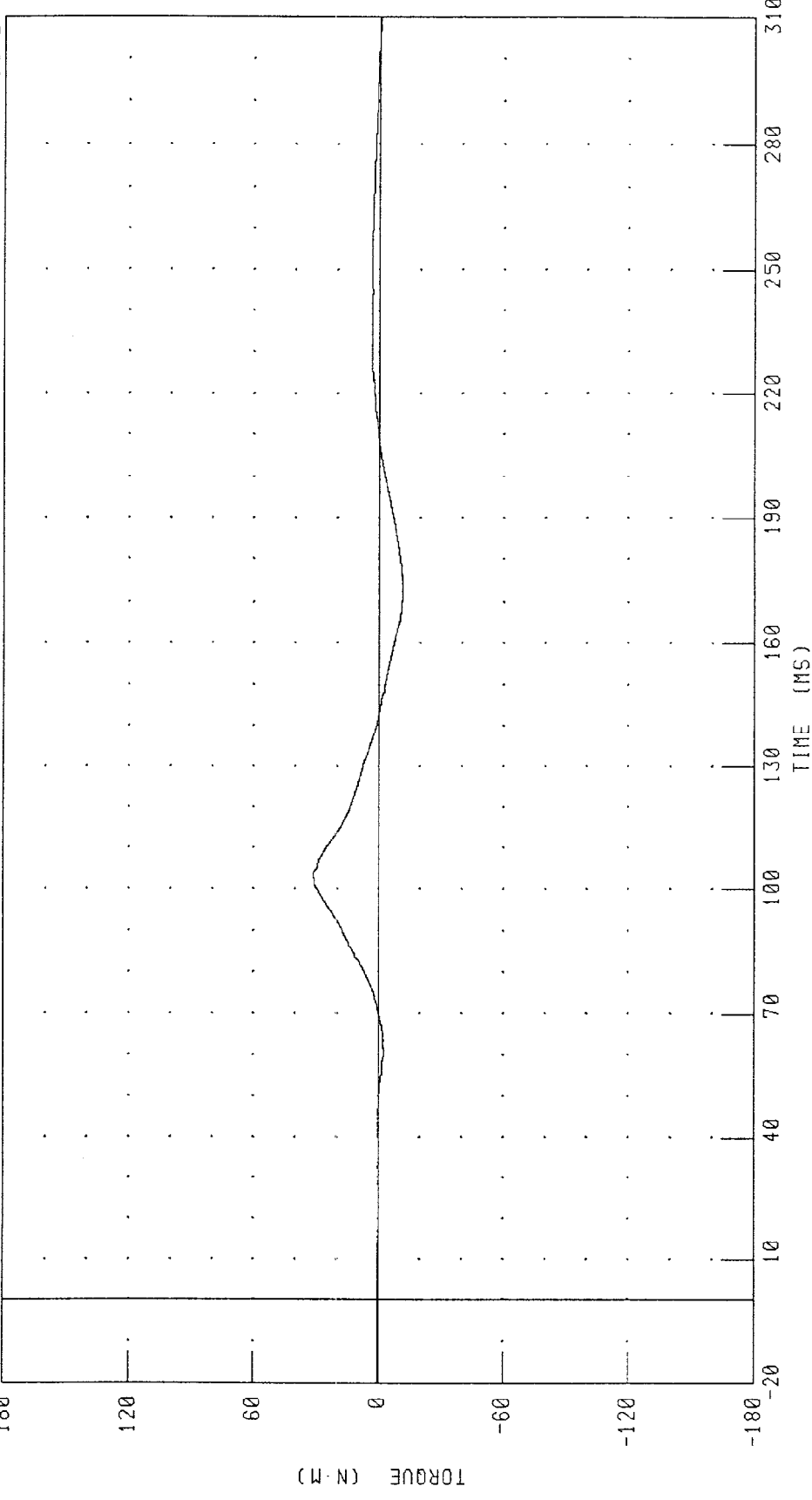
PEAK DATA: 94.25 N·M @ 75.36 ms; -16.75 N·M @ 137.68 ms

2000 FORD TAURUS INTO A FLAT FRONTAL BARRIER AT 30 MPH
RIGHT FRONT PASSENGER NECK MOMENT ABOUT Z AXIS

TEST NUMBER: 990628-2

FMVSS 208

TRC INC.



CHANNEL: NEKZM2 FILTER: CH. CLASS 600

TIME (MS)

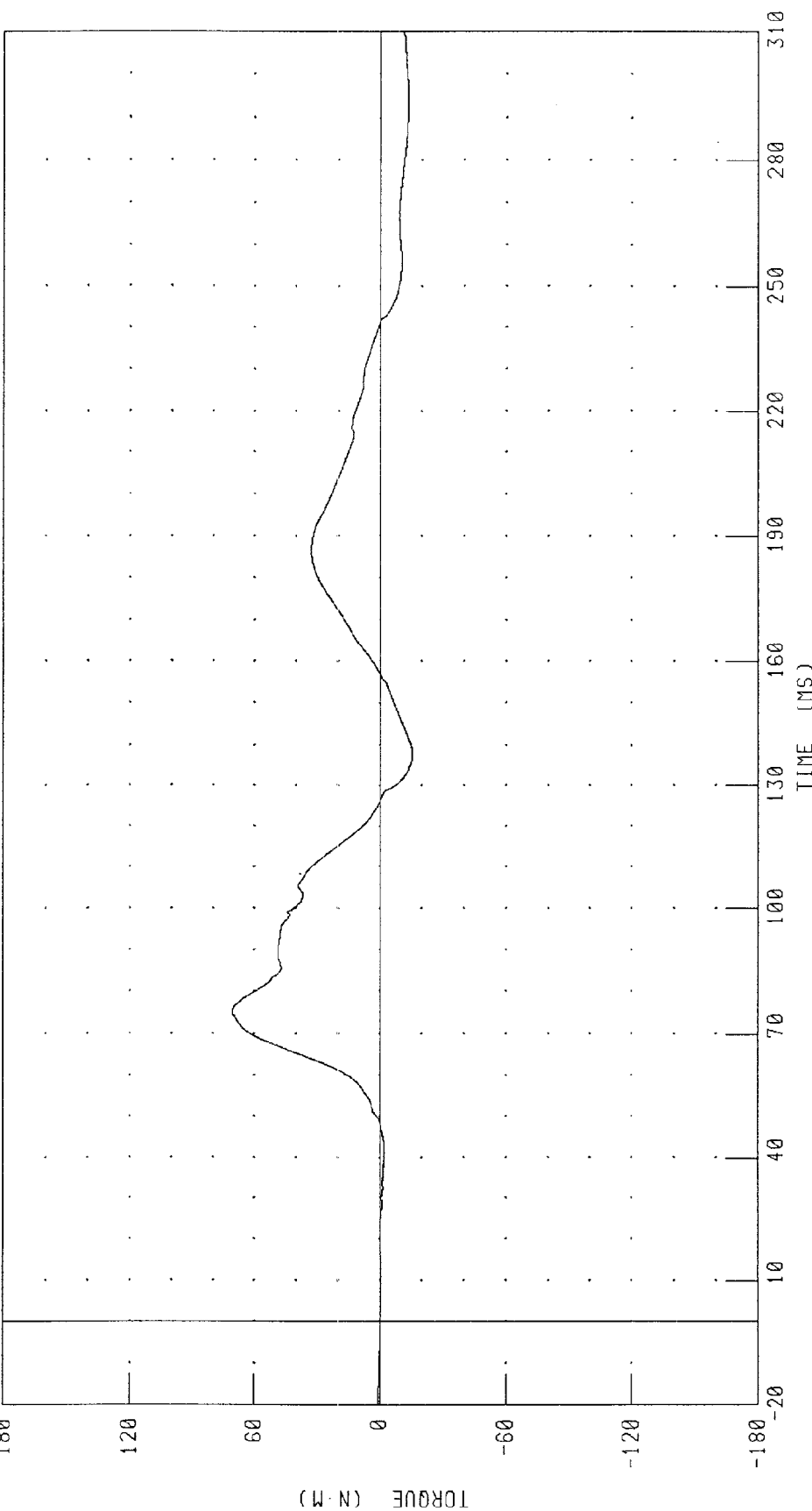
PEAK DATA: 31.29 N·m @ 103.20 ms; -11.37 N·m @ 172.96 ms

2000 FORD TAURUS INTO A FLAT FRONTAL BARRIER AT 30 MPH
RIGHT FRONT PASSENGER NECK OCCIPITAL CONDYLE

TRC INC.

FMVSS 208

TEST NUMBER: 990628-2



CHANNEL: NEKOM2 FILTER: CH. CLASS 600

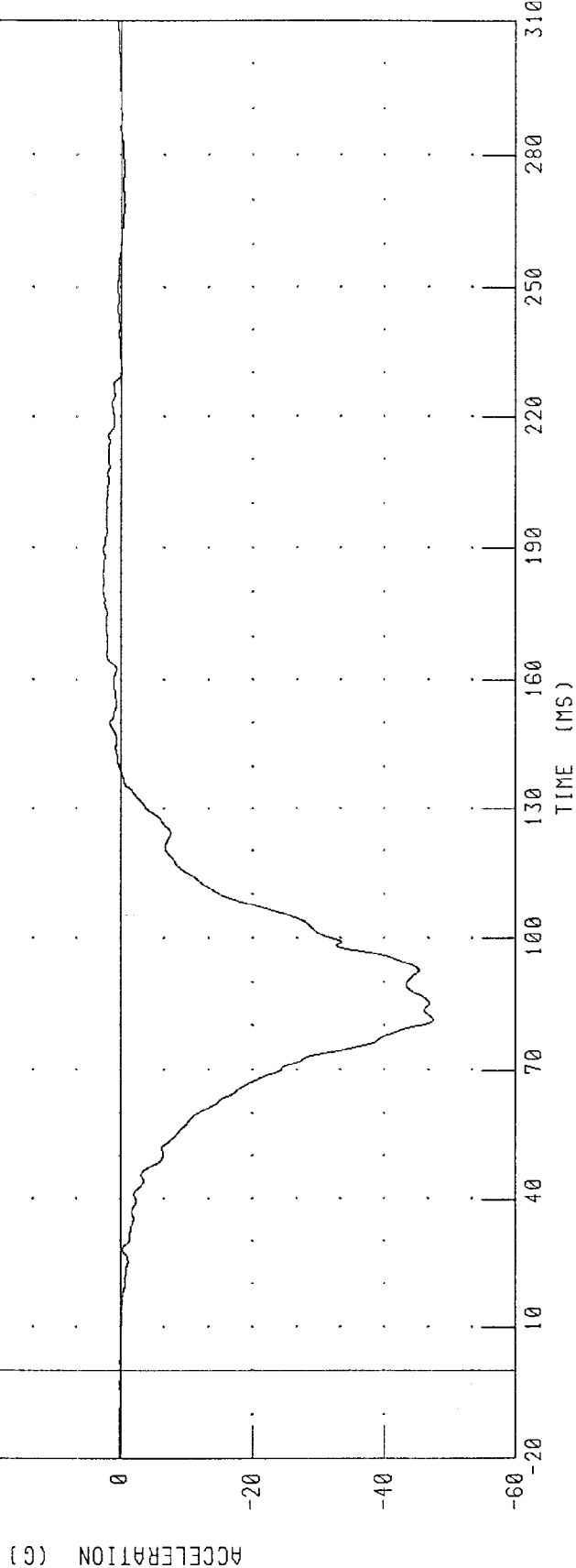
PEAK DATA: 70.53 N·M @ 75.20 ms; -15.56 N·M @ 137.60 ms

2000 FORD TAURUS INTO A FLAT FRONTAL BARRIER AT 30 MPH
RIGHT FRONT PASSENGER CHEST X-AXIS ACCELERATION

TRC INC.

FMVSS 208

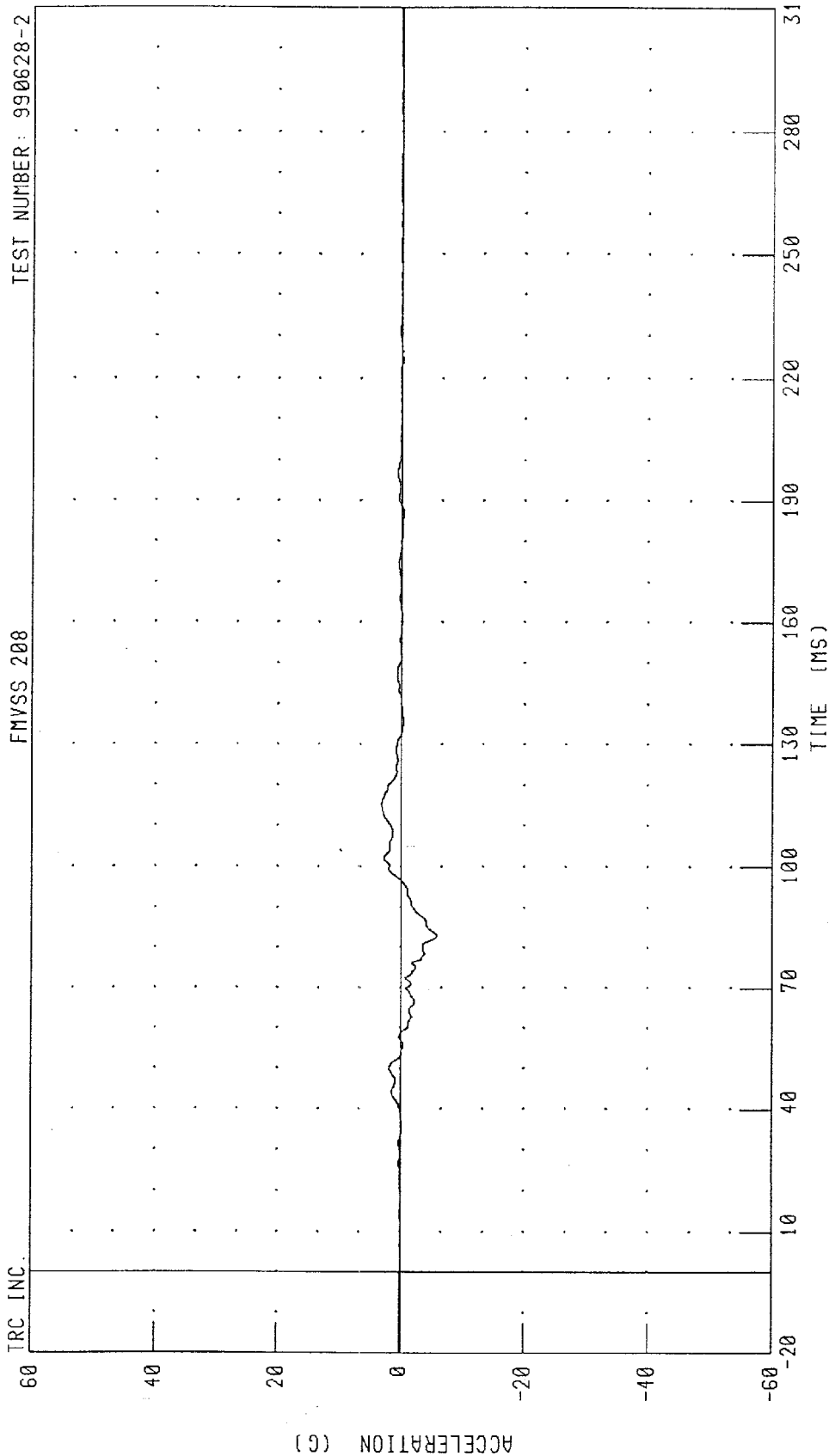
TEST NUMBER: 990628-2



CHANNEL: CSTXC2 FILTER: CH. CLASS 180

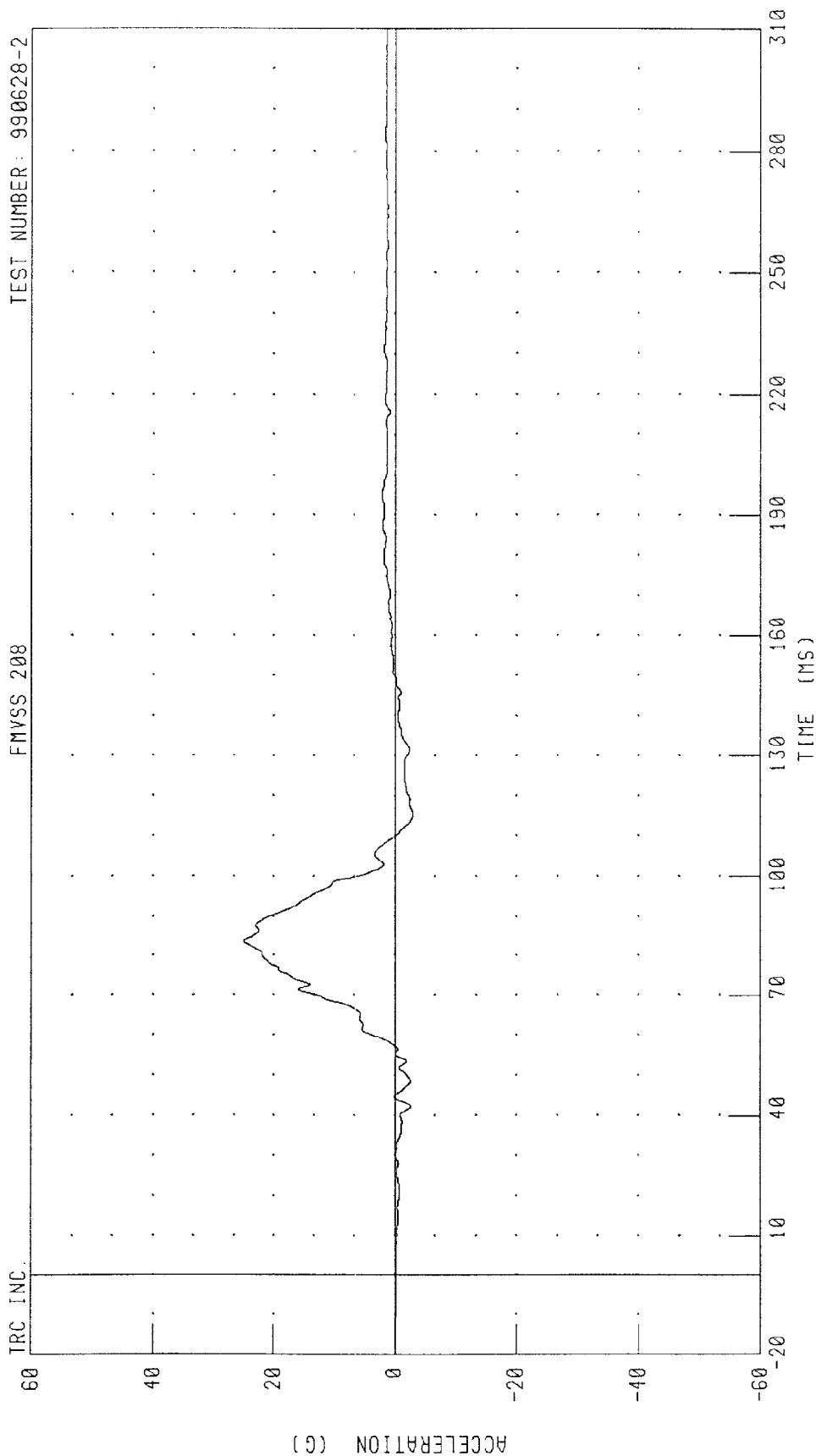
PEAK DATA: 2.65 G @ 184.00 MS; -47.51 G @ 81.44 MS

2000 FORD TAURUS INTO A FLAT FRONTAL BARRIER AT 30 MPH
RIGHT FRONT PASSENGER CHEST Y-AXIS ACCELERATION



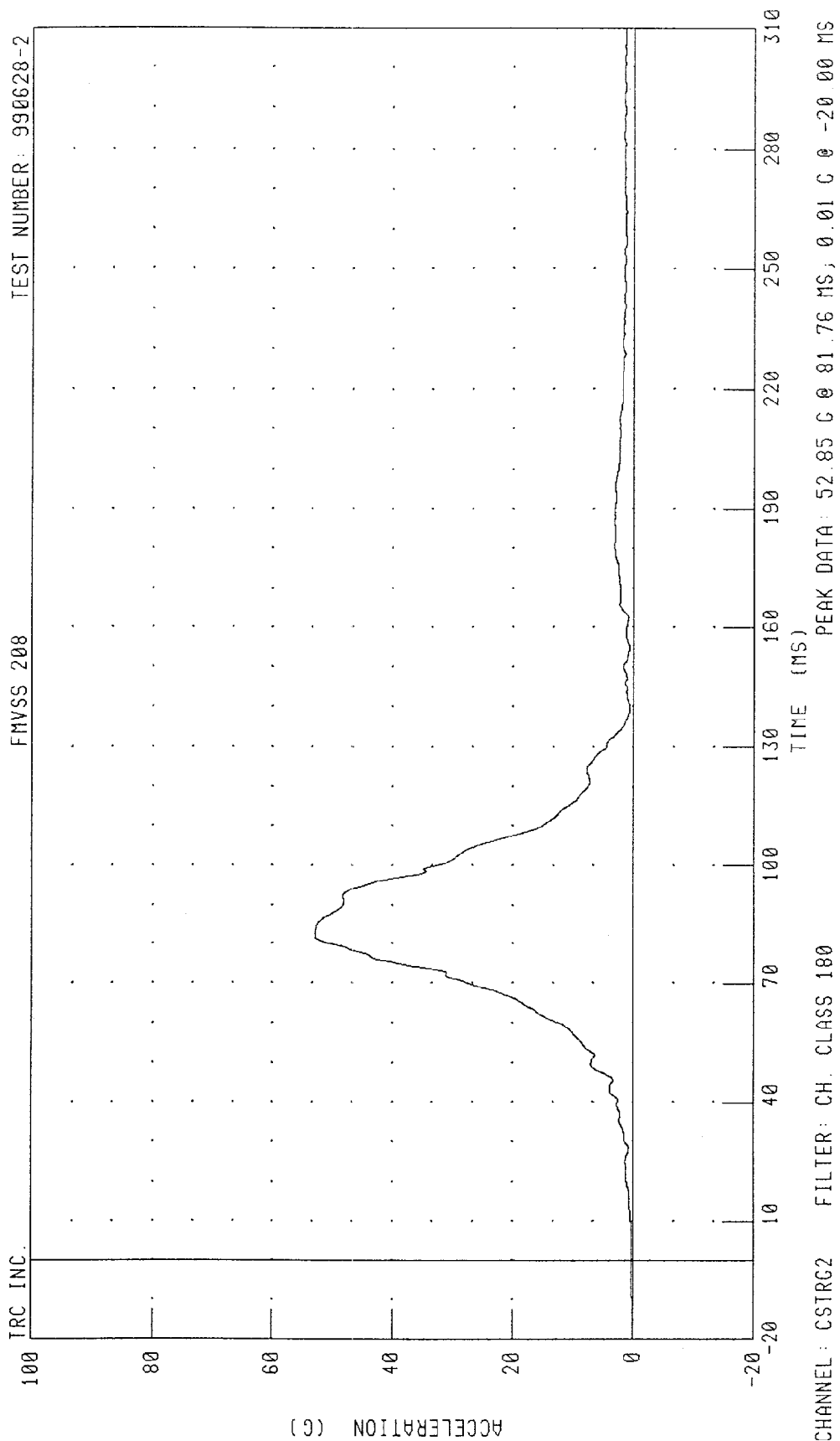
CHANNEL: CSTYG2 FILTER: CH. CLASS 180

2000 FORD TAURUS INTO A FLAT FRONTAL BARRIER AT 30 MPH
RIGHT FRONT PASSENGER CHEST Z-AXIS ACCELERATION

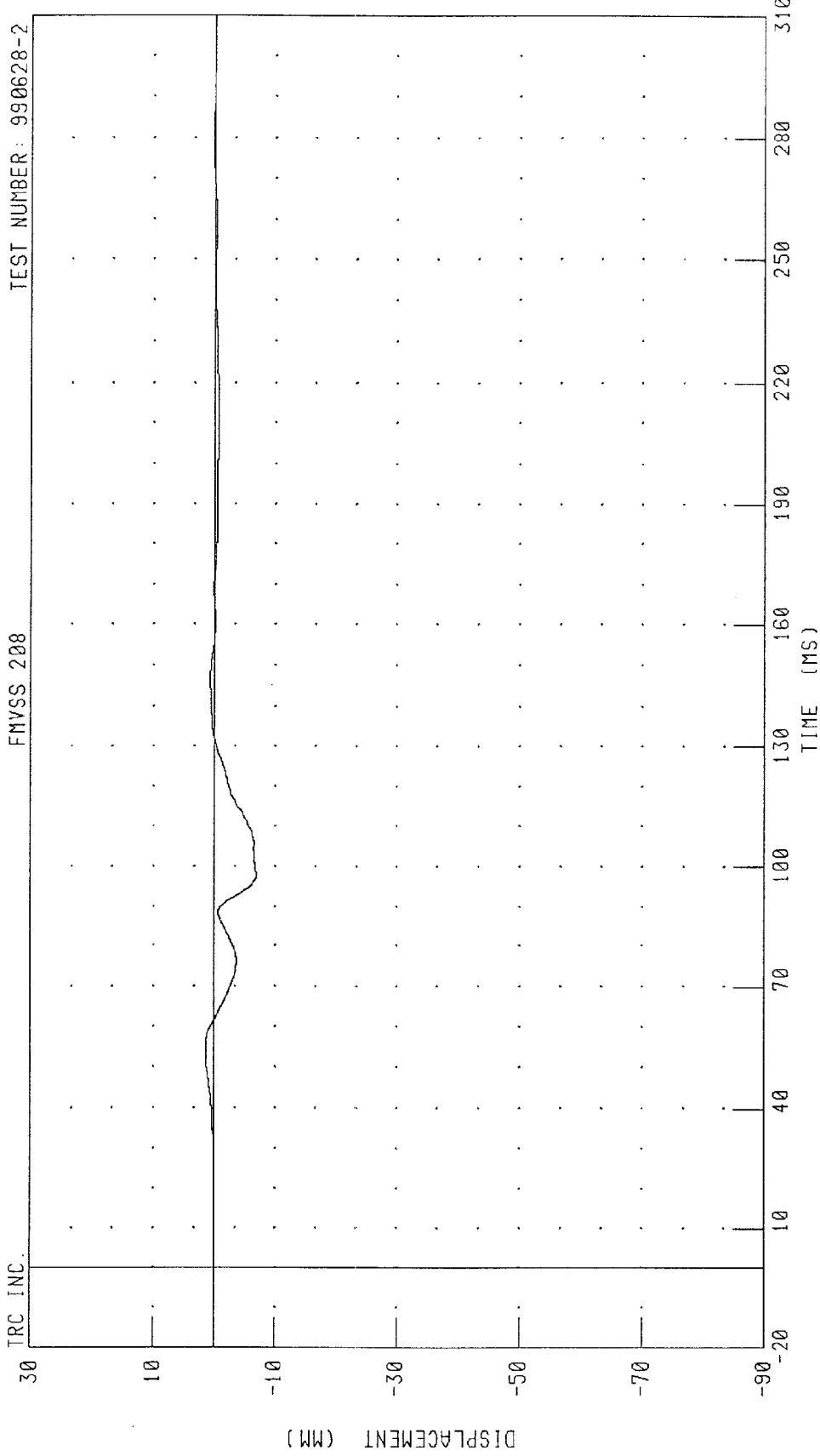


CHANNEL: CSTZG2 FILTER: CH. CLASS 180 PEAK DATA: 24.97 G @ 83.52 MS; -2.96 G @ 115.68 MS

2000 FORD TAURUS INTO A FLAT FRONTAL BARRIER AT 30 MPH
RIGHT FRONT PASSENGER CHEST RESULTANT ACCELERATION



2000 FORD TAURUS INTO A FLAT FRONTAL BARRIER AT 30 MPH
RIGHT FRONT PASSENGER CHEST DEFLECTION



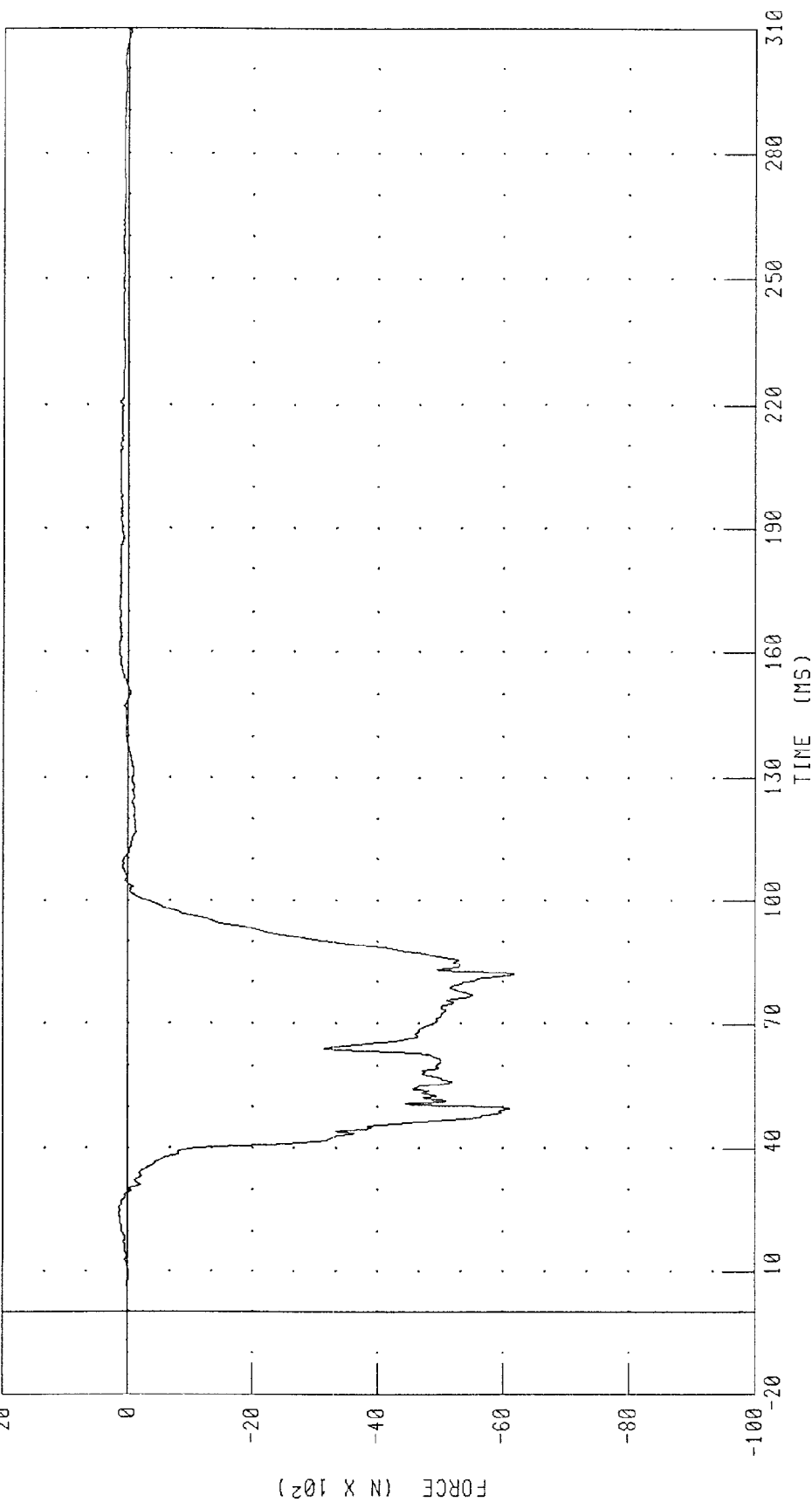
CHANNEL: CSTXD2 FILTER: CH. CLASS 180 PEAK DATA: 1.48 MM @ 54.56 MS, -6.93 MM @ 97.76 MS

2000 FORD TAURUS INTO A FLAT FRONTAL BARRIER AT 30 MPH
RIGHT FRONT PASSENGER LEFT FEMUR FORCE

TRC INC.

FMVSS 208

TEST NUMBER: 990628-2



CHANNEL: LFMF2 FILTER: CH. CLASS 600

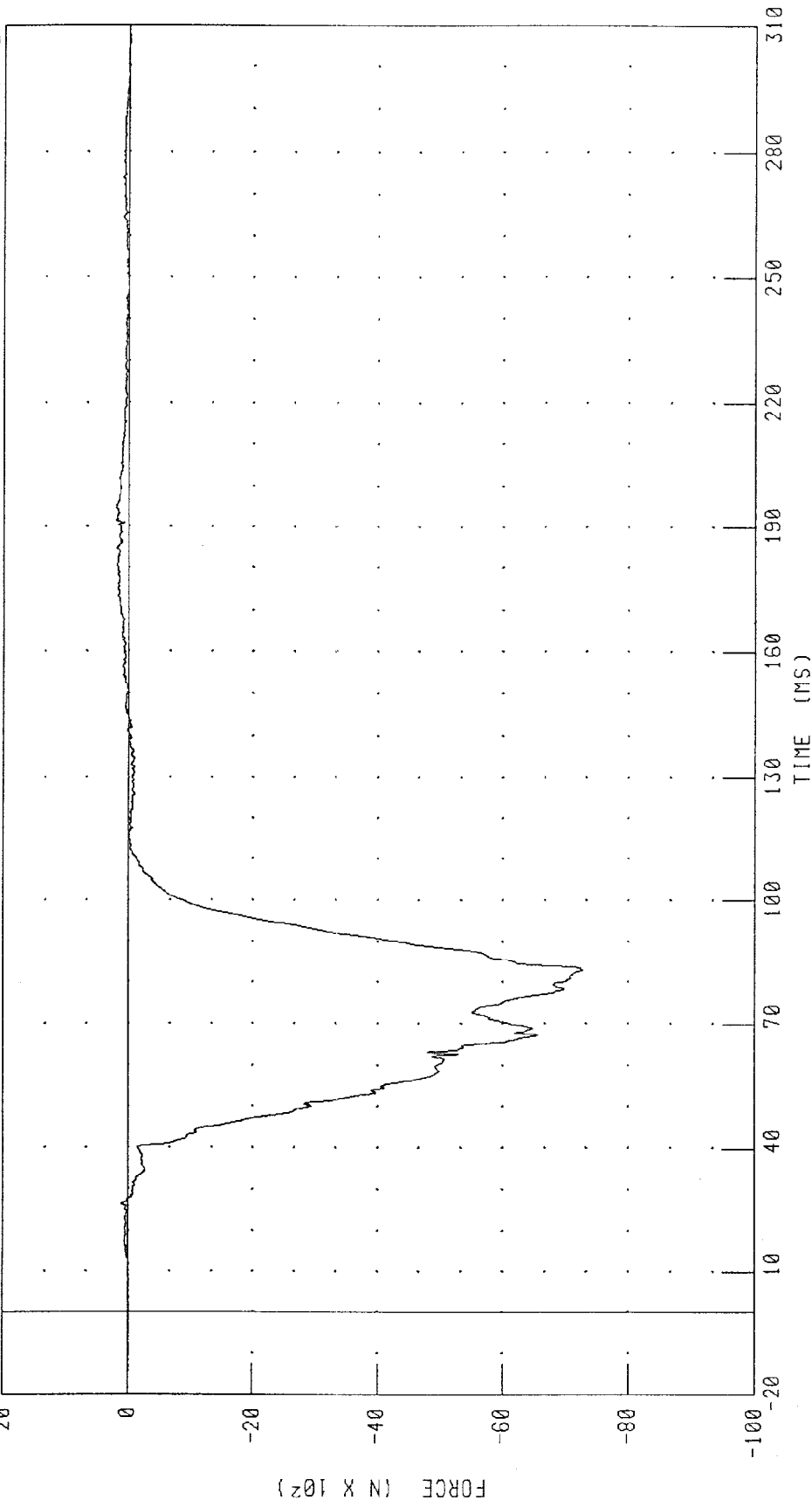
PEAK DATA: 148.12 N @ 220.72 MS, -6174.17 N @ 81.92 MS

2000 FORD TAURUS INTO A FLAT FRONTAL BARRIER AT 30 MPH
RIGHT FRONT PASSENGER RIGHT FEMUR FORCE

TEST NUMBER: 990628-2

FMVSS 208

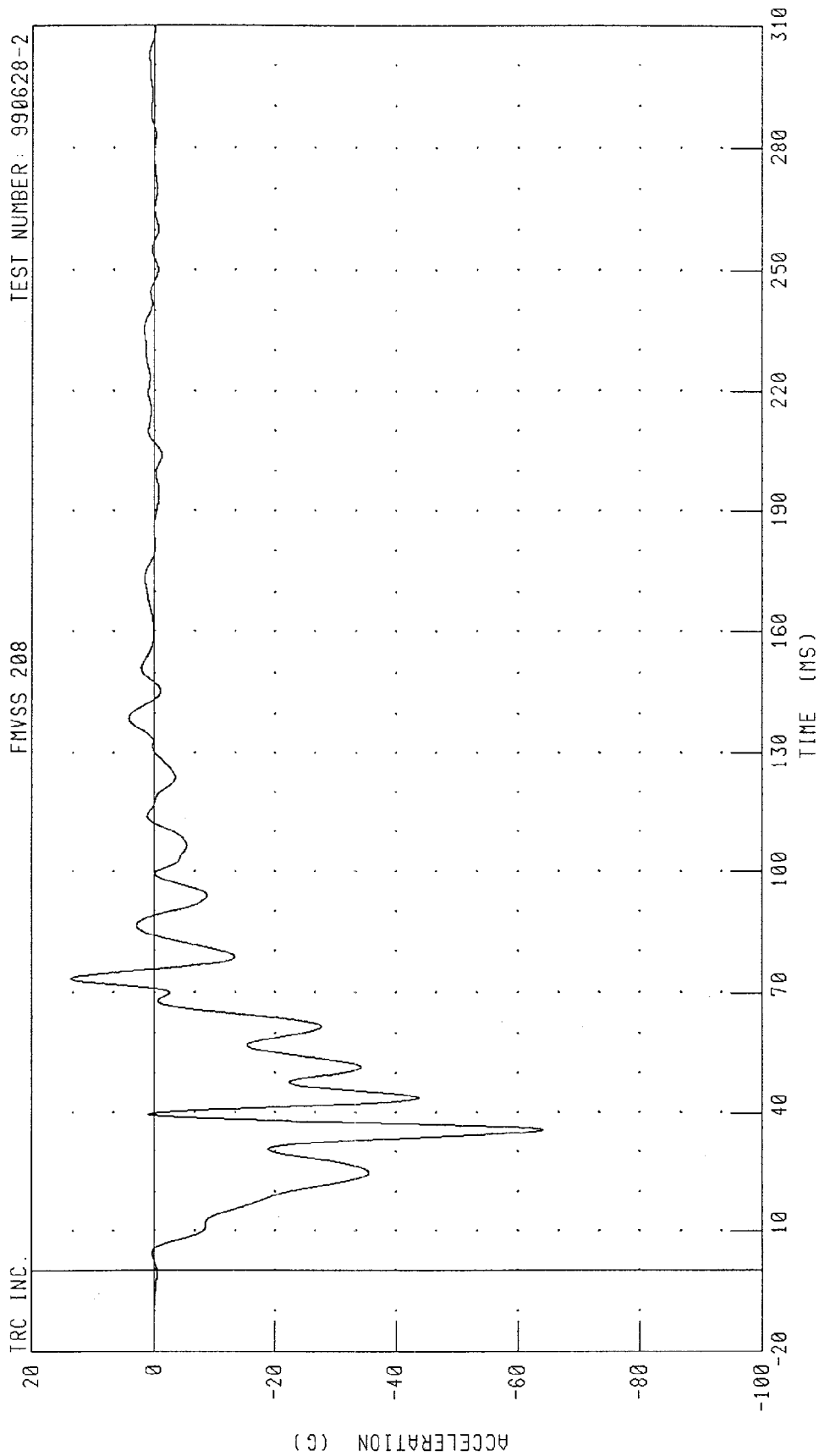
TRC INC.



CHANNEL: RFMF2 FILTER: CH. CLASS 600

PEAK DATA: 211.02 N @ 191.52 MS, -7278.55 N @ 82.96 MS

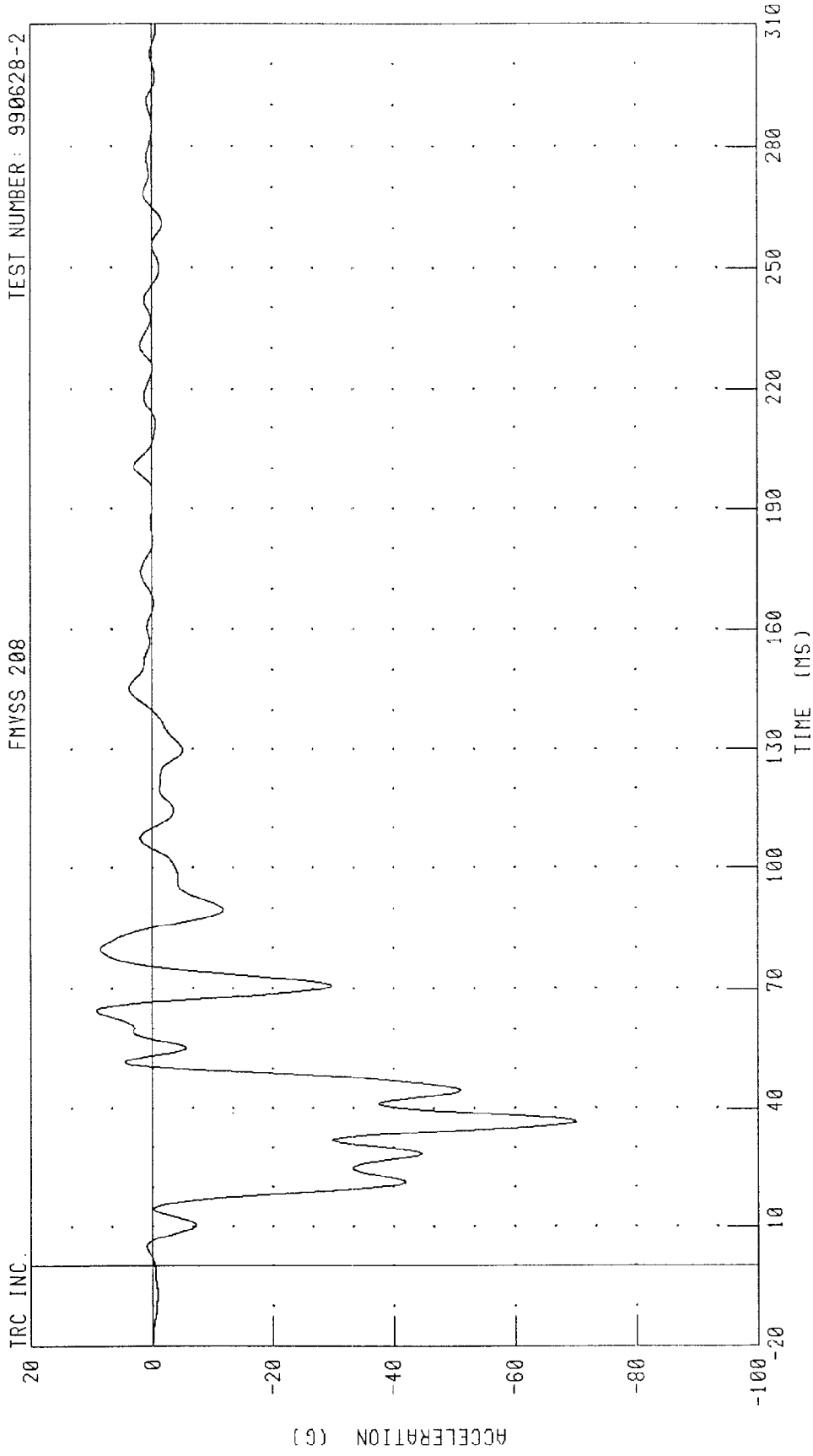
2000 FORD TAURUS INTO A FLAT FRONTAL BARRIER AT 30 MPH
LEFT BRAKE CALIPER X-AXIS ACCELERATION



CHANNEL: BCLXG1 FILTER: CH. CLASS 60

PEAK DATA: 13.70 G @ 73.52 MS, -64.10 G @ 35.84 MS

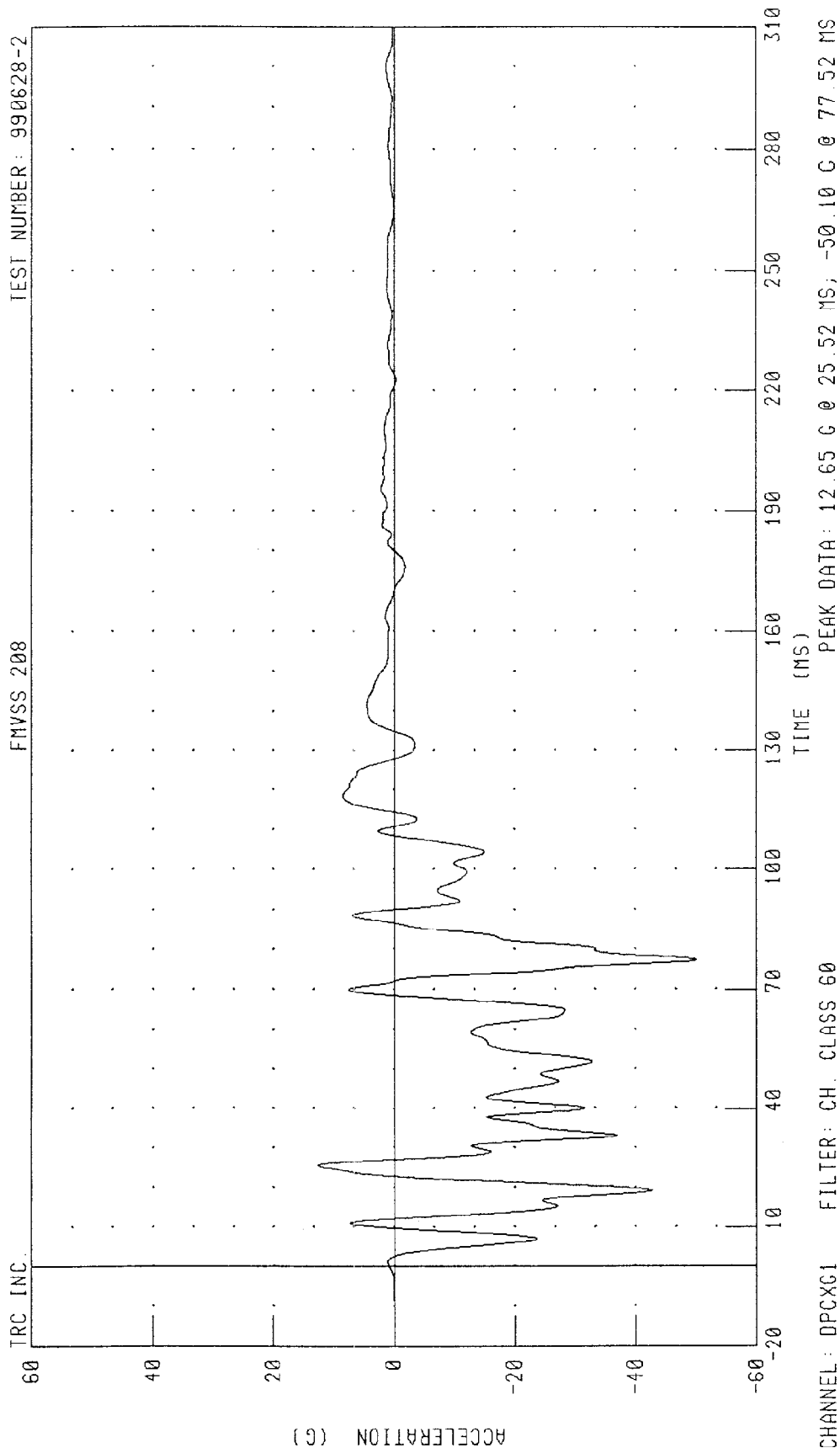
2000 FORD TAURUS INTO A FLAT FRONTAL BARRIER AT 30 MPH
RIGHT BRAKE CALIPER X-AXIS ACCELERATION



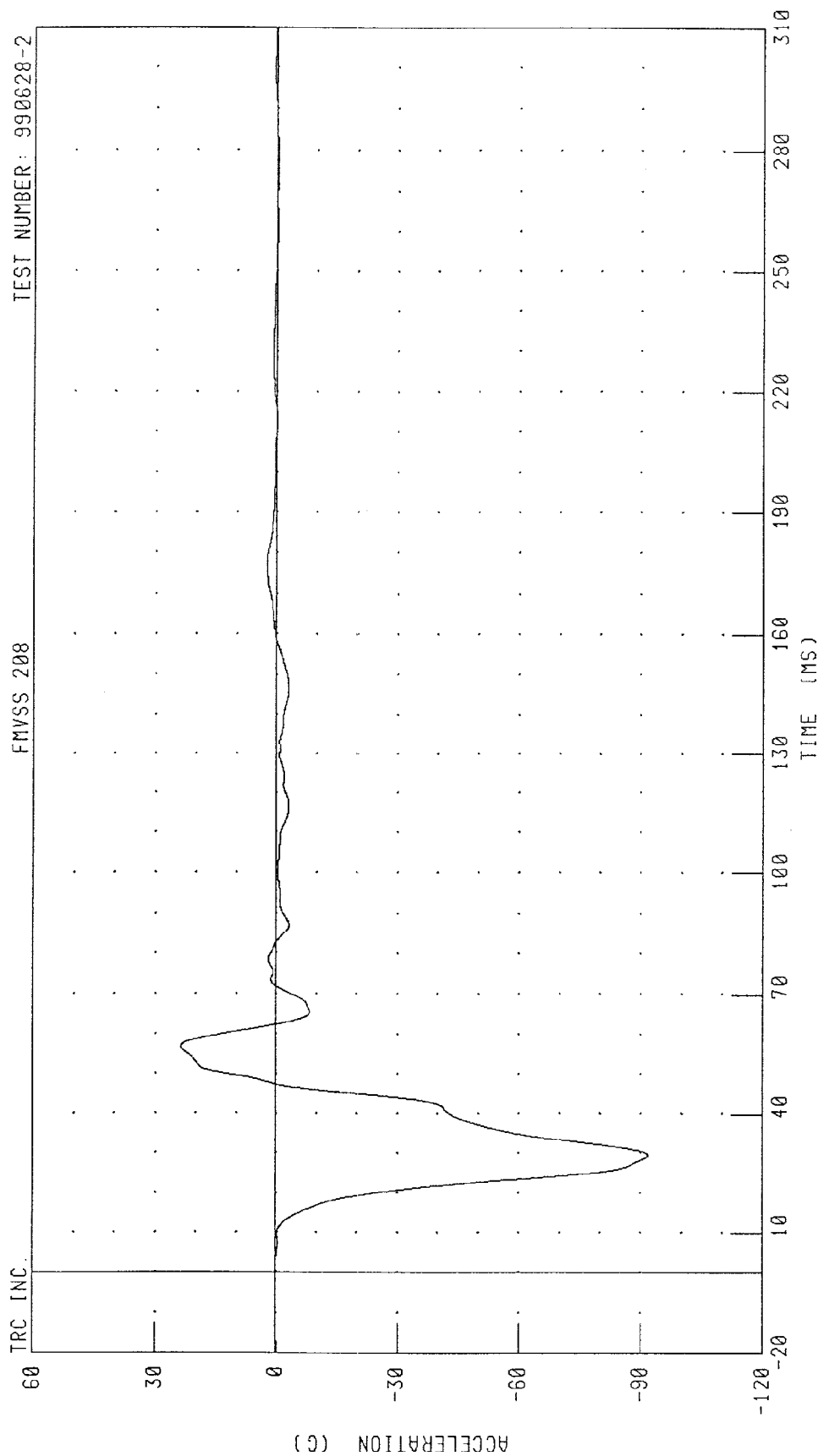
CHANNEL: BCRXG1 FILTER: CH. CLASS 60

PEAK DATA: 9.28 G @ 64.80 MS; -70.09 G @ 36.80 MS

2000 FORD TAURUS INTO A FLAT FRONTAL BARRIER AT 30 MPH
DASH PANEL CENTER X-AXIS ACCELERATION



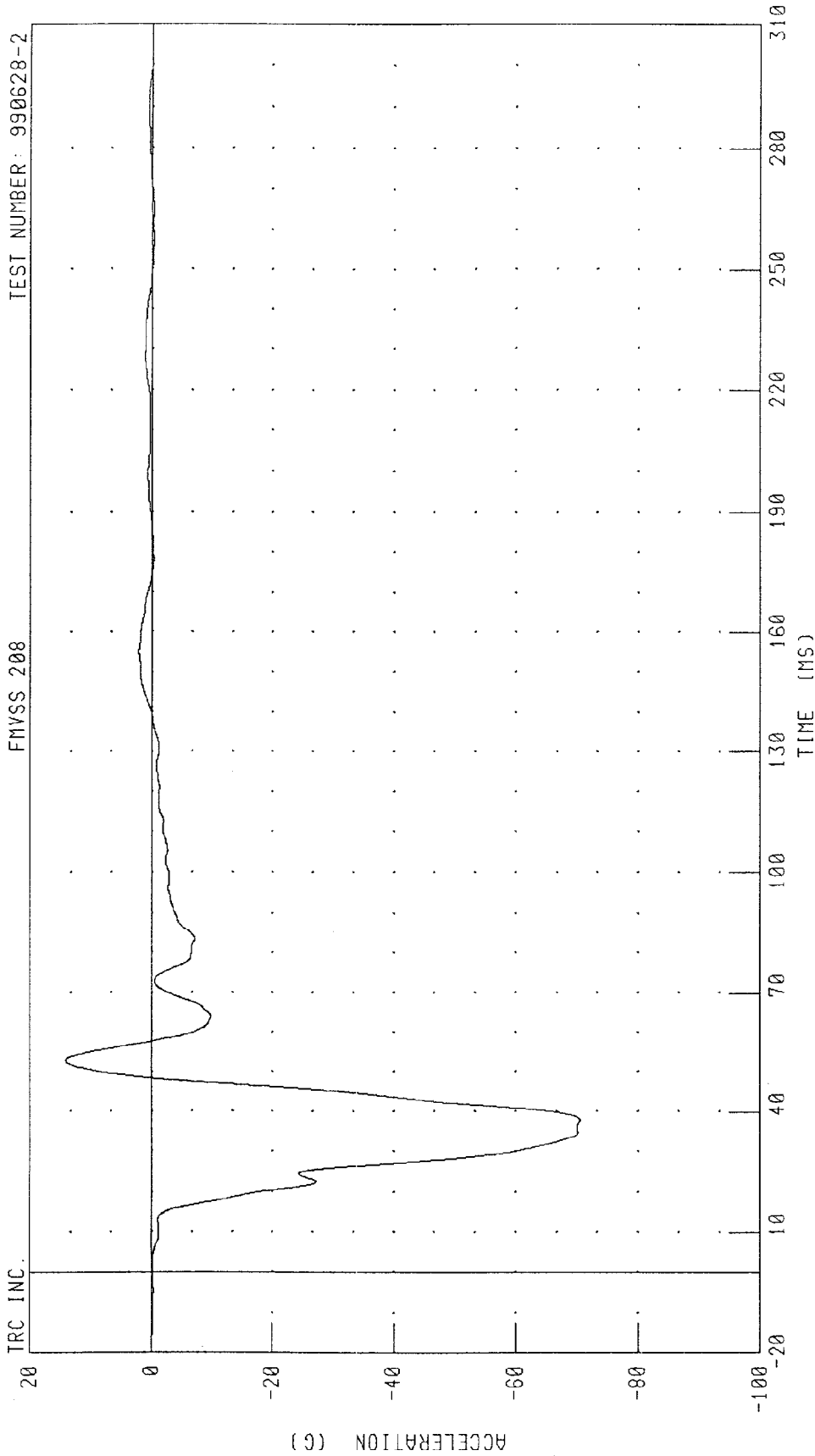
2000 FORD TAURUS INTO A FLAT FRONTAL BARRIER AT 30 MPH
ENGINE TOP X-AXIS ACCELERATION



CHANNEL: ENXC01 FILTER: CH. CLASS 60

PEAK DATA: 23.81 G @ 56.80 MS, -91.80 G @ 29.52 MS

2000 FORD TAURUS INTO A FLAT FRONTAL BARRIER AT 30 MPH
ENGINE BOTTOM X-AXIS ACCELERATION



CHANNEL: ENXC62 FILTER: CH. CLASS 60

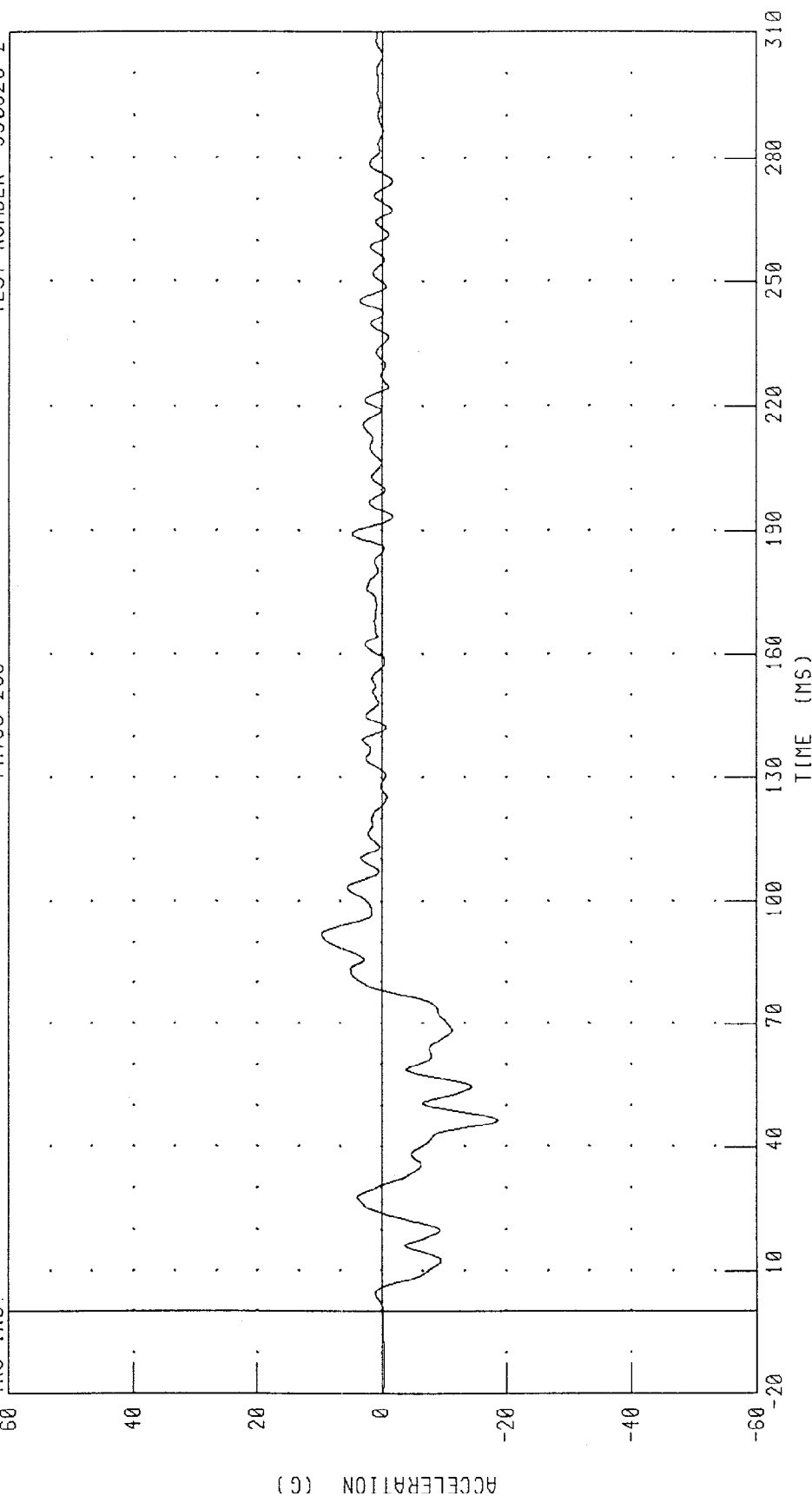
PEAK DATA: 14.21 G @ 52.88 MS; -70.50 G @ 37.84 MS

2000 FORD TAURUS INTO A FLAT FRONTAL BARRIER AT 30 MPH
VEHICLE REAR CENTER Z-AXIS ACCELERATION

TRC INC.

FMVSS 208

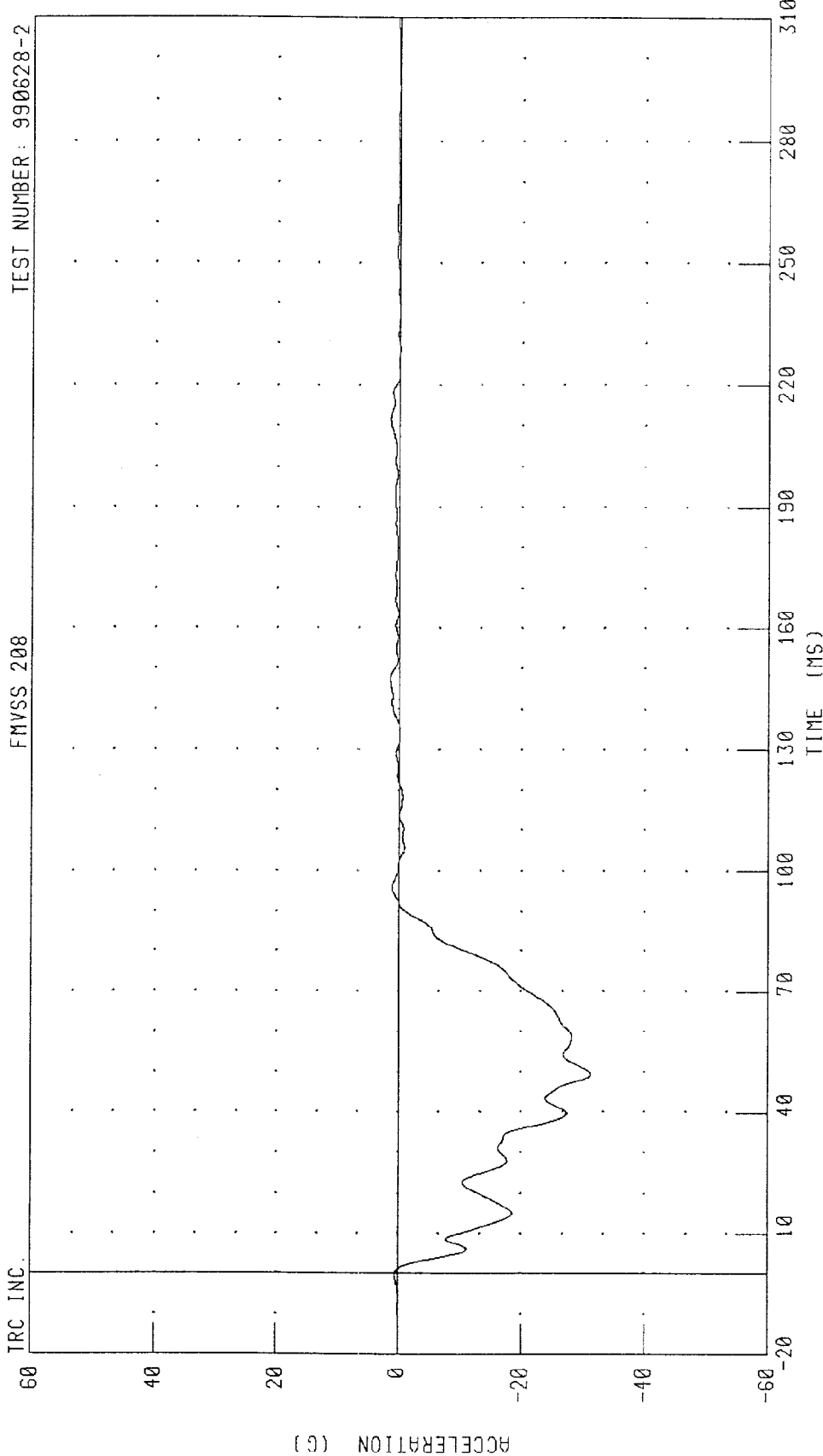
TEST NUMBER: 990628-2



CHANNEL: RDXZG1 FILTER: CH. CLASS 60

PEAK DATA: 9.61 G @ 92.08 MS; -18.62 G @ 46.48 MS

2000 FORD TAURUS INTO A FLAT FRONTAL BARRIER AT 30 MPH
LEFT REAR SEAT X-AXIS ACCELERATION



CHANNEL: TLRXC1 FILTER: CH. CLASS 60 PEAK DATA: 1.38 G @ 147.44 MS, -31.30 G @ 49.44 MS

2000 FORD TAURUS INTO A FLAT FRONTAL BARRIER AT 30 MPH
RIGHT REAR SEAT X-AXIS ACCELERATION

TEST NUMBER: 990628-2

FMVSS 208

TRC INC.

60

40

20

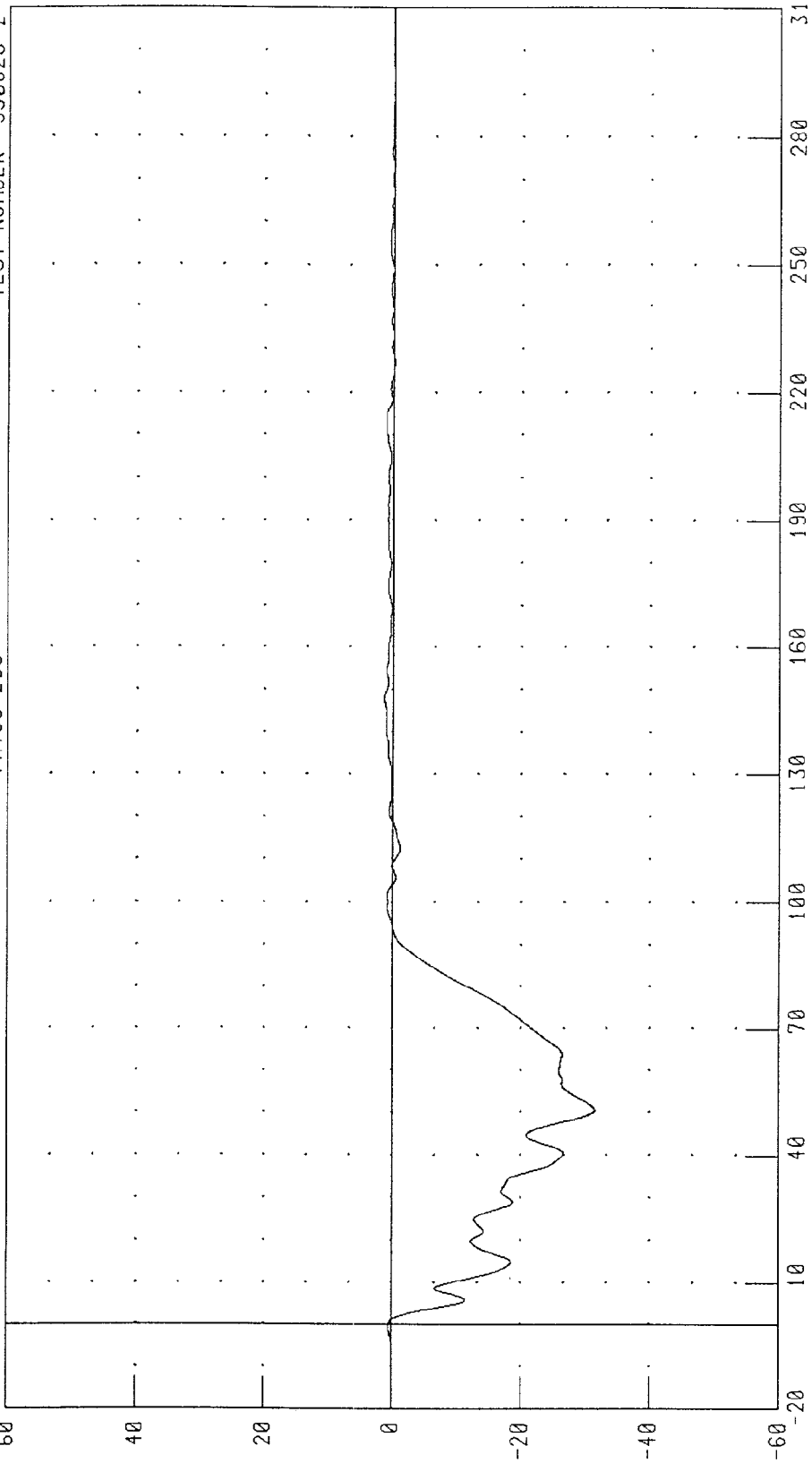
0

-20

-40

-60

ACCELERATION (G)



TIME (MS)

CHANNEL: TRRXG1 FILTER: CH. CLASS 60

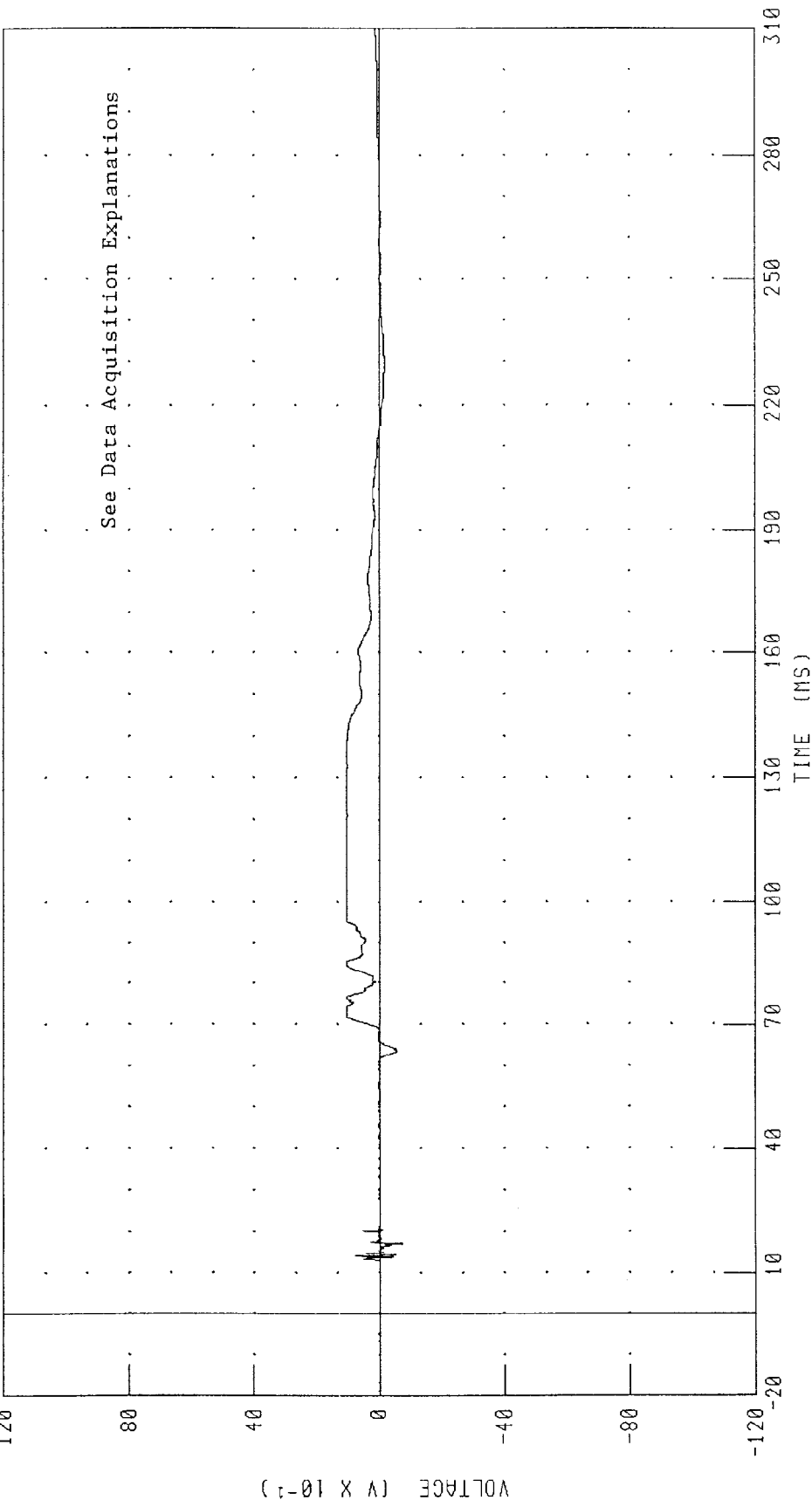
PEAK DATA: 1.28 G @ 148.16 MS, -31.50 G @ 50.56 MS

2000 FORD TAURUS INTO A FLAT FRONTAL BARRIER AT 30 MPH
PASSENGER SIDE INDUCTIVE AIRBAG FIRE PICKUP - PRIMARY

TEST NUMBER: 990628-2

FMVSS 208

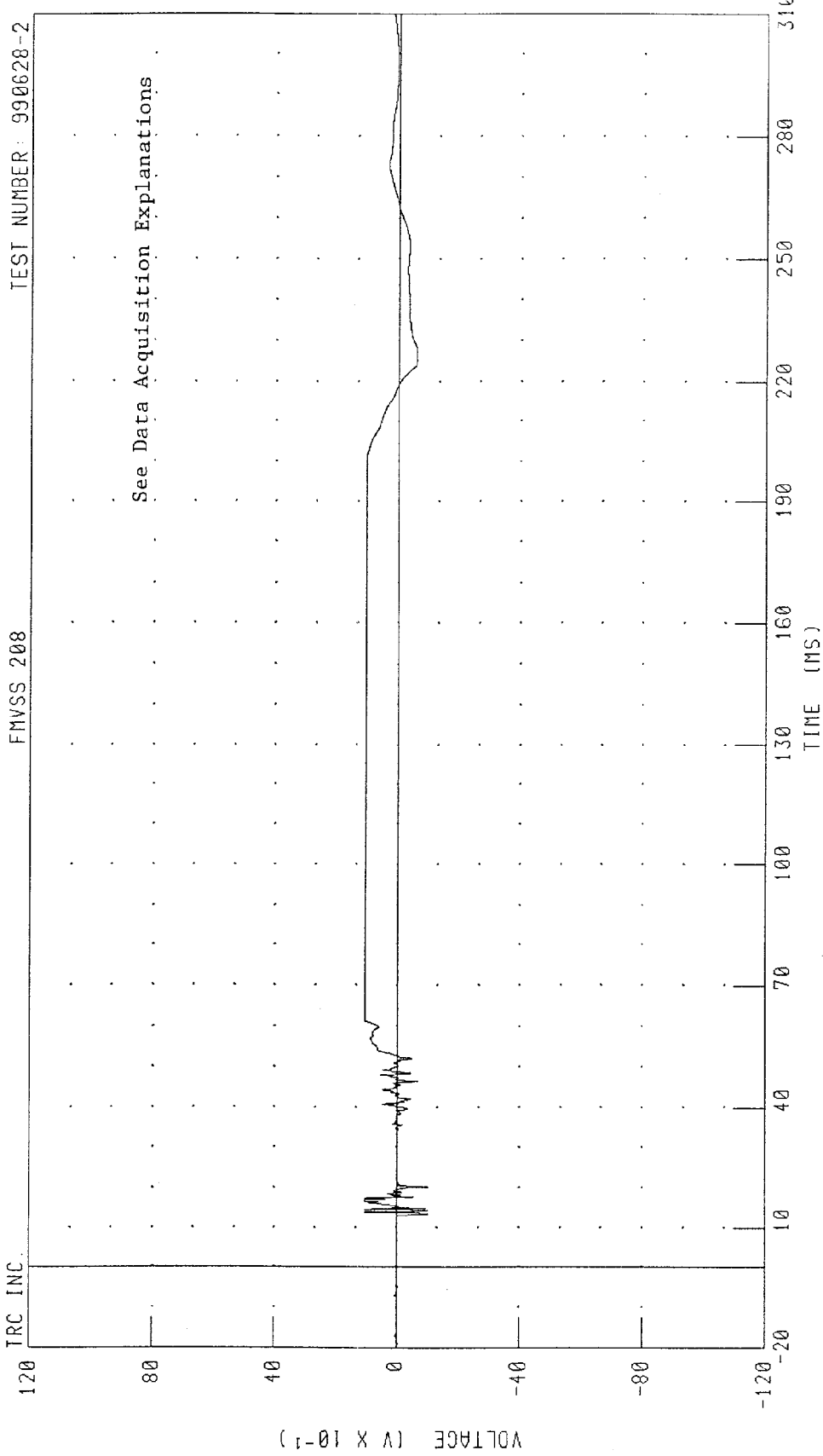
TRC INC.



CHANNEL: ABSQ1 FILTER: CH. CLASS 1000

PEAK DATA: 1.02 V @ 71.84 MS; -0.72 V @ 17.20 MS

2000 FORD TAURUS INTO A FLAT FRONTAL BARRIER AT 30 MPH
PASSENGER SIDE INDUCTIVE AIRBAG FIRE PICKUP - SECONDARY



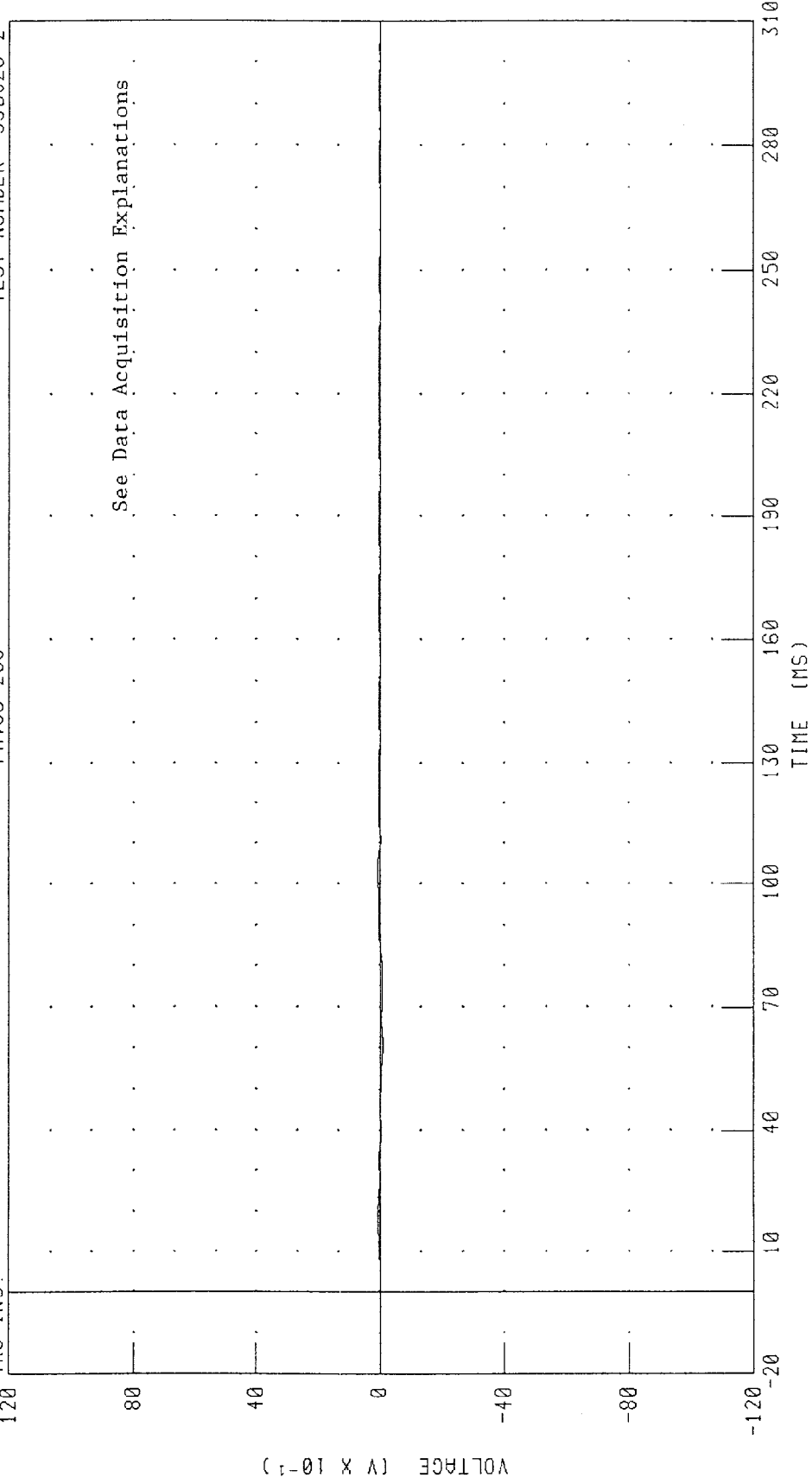
CHANNEL: ABSQ2 FILTER: CH CLASS 1000

2000 FORD TAURUS INTO A FLAT FRONTAL BARRIER AT 30 MPH
 DRIVER SIDE INDUCTIVE AIRBAG FIRE PICKUP - PRIMARY

TEST NUMBER: 990628-2

FMVSS 208

TRC INC.



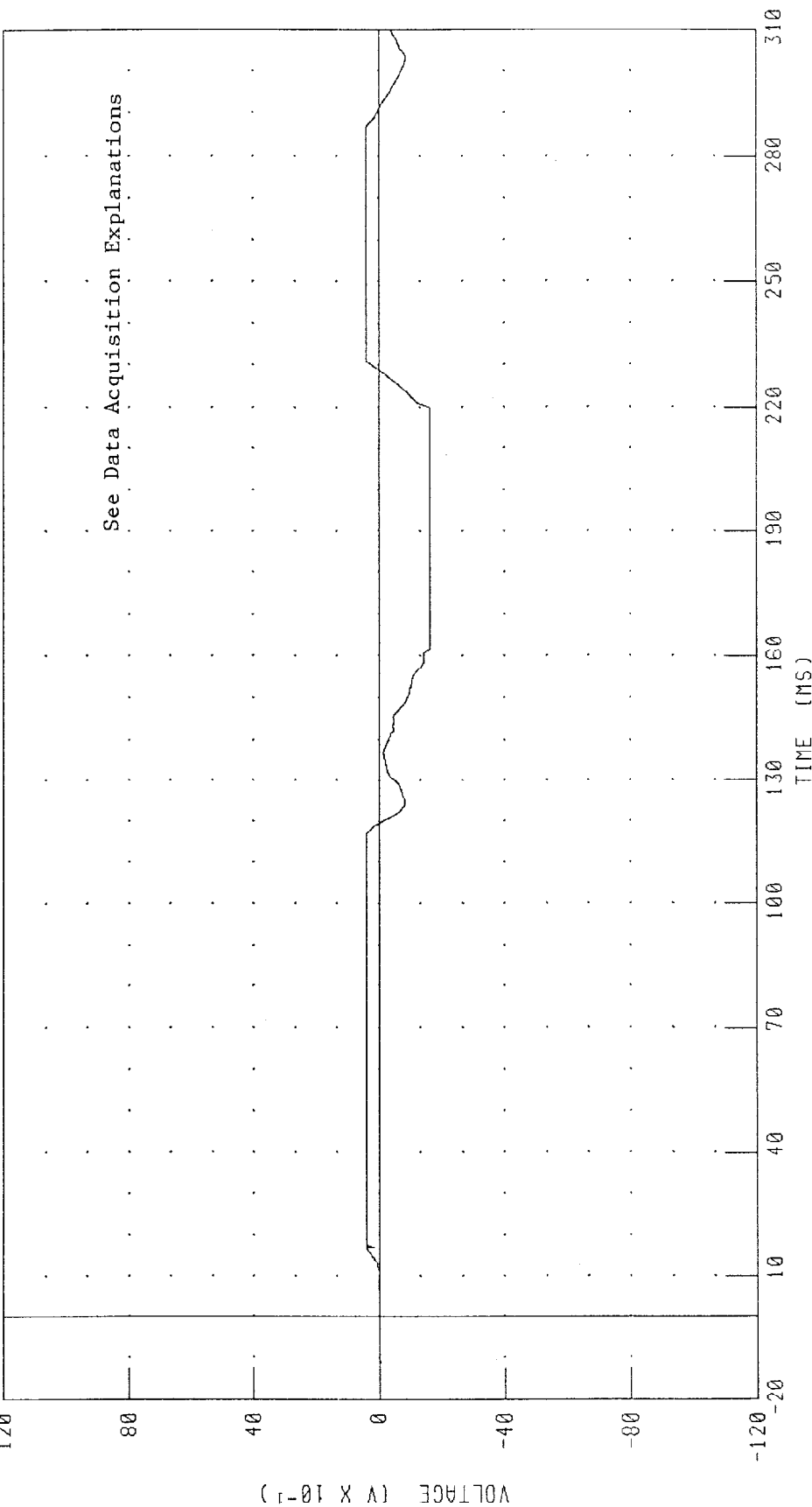
CHANNEL: ABSQ3 FILTER: CH. CLASS 1000 PEAK DATA: 0 07 V @ 102.64 MS, -0.12 V @ 60.64 MS

2000 FORD TAURUS INTO A FLAT FRONTAL BARRIER AT 30 MPH
DRIVER SIDE INDUCTIVE AIRBAG FIRE PICKUP - SECONDARY

IRC INC.

ENVSS 208

TEST NUMBER: 990628-2



CHANNEL: ABS04

FILTER: CH. CLASS 1000

TIME (ms)

PEAK DATA: 0.40 V @ 16.56 MS, -1.65 V @ 161.68 MS

Appendix C

Dummy Certification

Post-Test Dummy Certification

Driver Dummy S/N 168

TRANSPORTATION RESEARCH CENTER INC.

HYBRID III EXTERNAL DIMENSIONS

SN168

09-JUL-99

TRC INC. TEST NO: 168C14ED1 572E SN168 EXT.DIMENSION CAL14

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	851. MM
CHEST DEPTH	(O)	213 - 229 MM	221. MM
H-POINT HEIGHT	(C)	84 - 89 MM	86. 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	881. MM
THIGH CLEARANCE	(F)	140 - 155 MM	152. MM
BUTTOCK KNEE LENGTH	(K)	579 - 605 MM	599. MM
BUTTOCK POPLITEAL LENGTH	(N)	452 - 478 MM	462. MM
POPLITEAL HEIGHT	(L)	429 - 455 MM	439. MM
KNEE PIVOT HEIGHT	(M)	485 - 500 MM	495. 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	89. MM
SHOULDER BREADTH	(V)	422 - 437 MM	427. MM
SHOULDER PIVOT HEIGHT	(B)	506 - 521 MM	518. MM
ELBOW REST HEIGHT	(J)	191 - 211 MM	201. MM
SHOULDER-ELBOW LENGTH	(I)	330 - 345 MM	343. MM
BACK OF ELBOW TO WRIST PIVOT	(G)	290 - 305 MM	292. MM

DUMMY MEETS SPECIFICATIONS

TECHNICIAN Kevin Cuthbert

RUN NUMBER: 072099.1441

TRANSPORTATION RESEARCH CENTER INC.

HEAD DROP TEST

HYBRID III 50th

09-JUL-99

TRC INC.

TEST NO: 168C14HD1

572E SN168 HEAD DROP CAL 14

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	18.9-25.6 DEG. C	21.7 DEG. C
RELATIVE HUMIDITY	10 - 70 %	44.0 %
PEAK RESULTANT ACCELERATION	225 - 275 G	261.71 G
PEAK LATERAL ACCELERATION	15 G MAX	-2.81 G
IS ACCELERATION CURVE UNIMODAL?	YES	YES

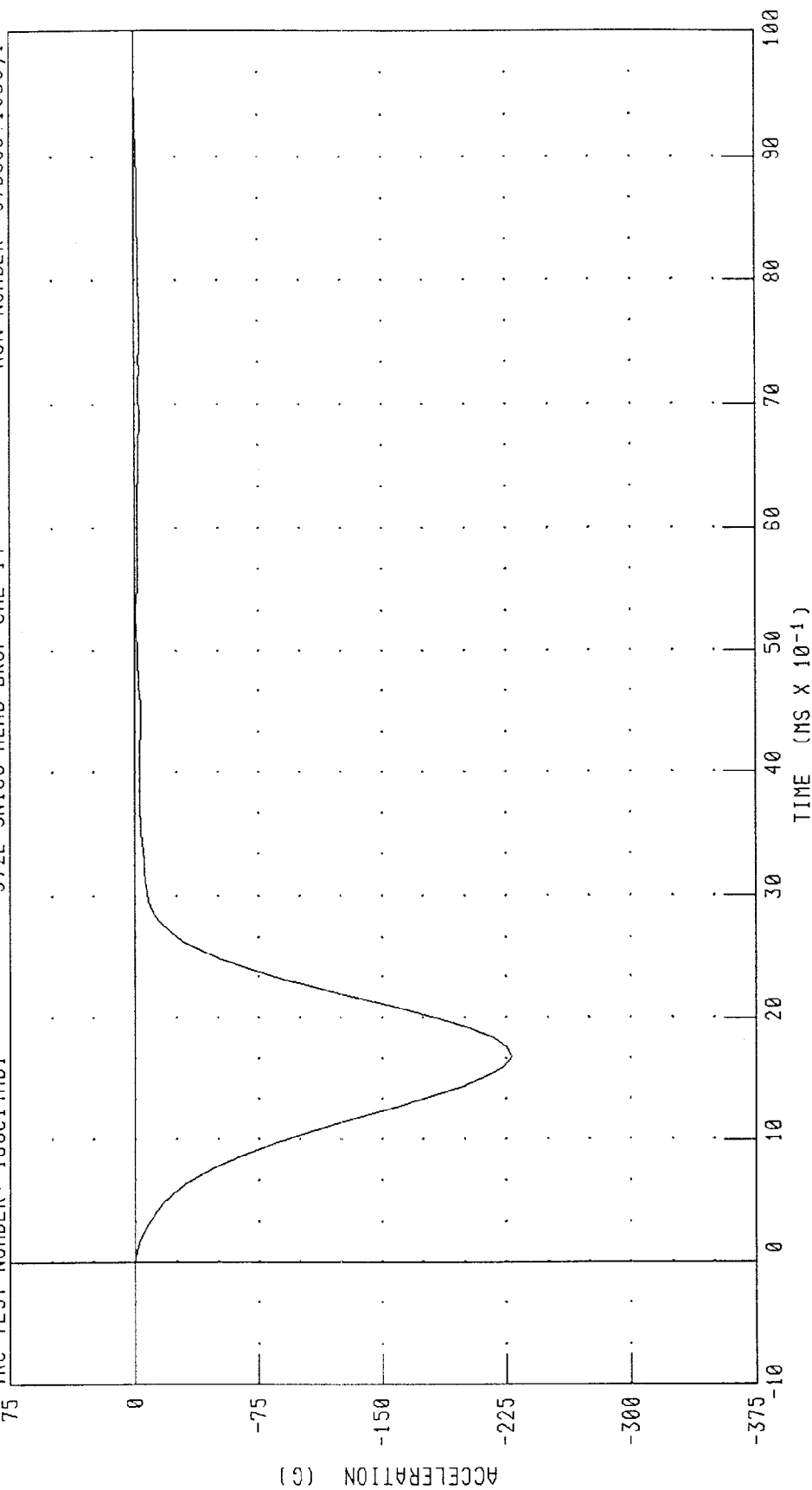
TEST MEETS SPECIFICATIONS

TECHNICIAN Chad Rife

RUN NUMBER: 070999.1002;1

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

IRC TEST NUMBER: 168C14HD1 572E SN168 HEAD DROP CAL 14 RUN NUMBER: 070999.1003;1

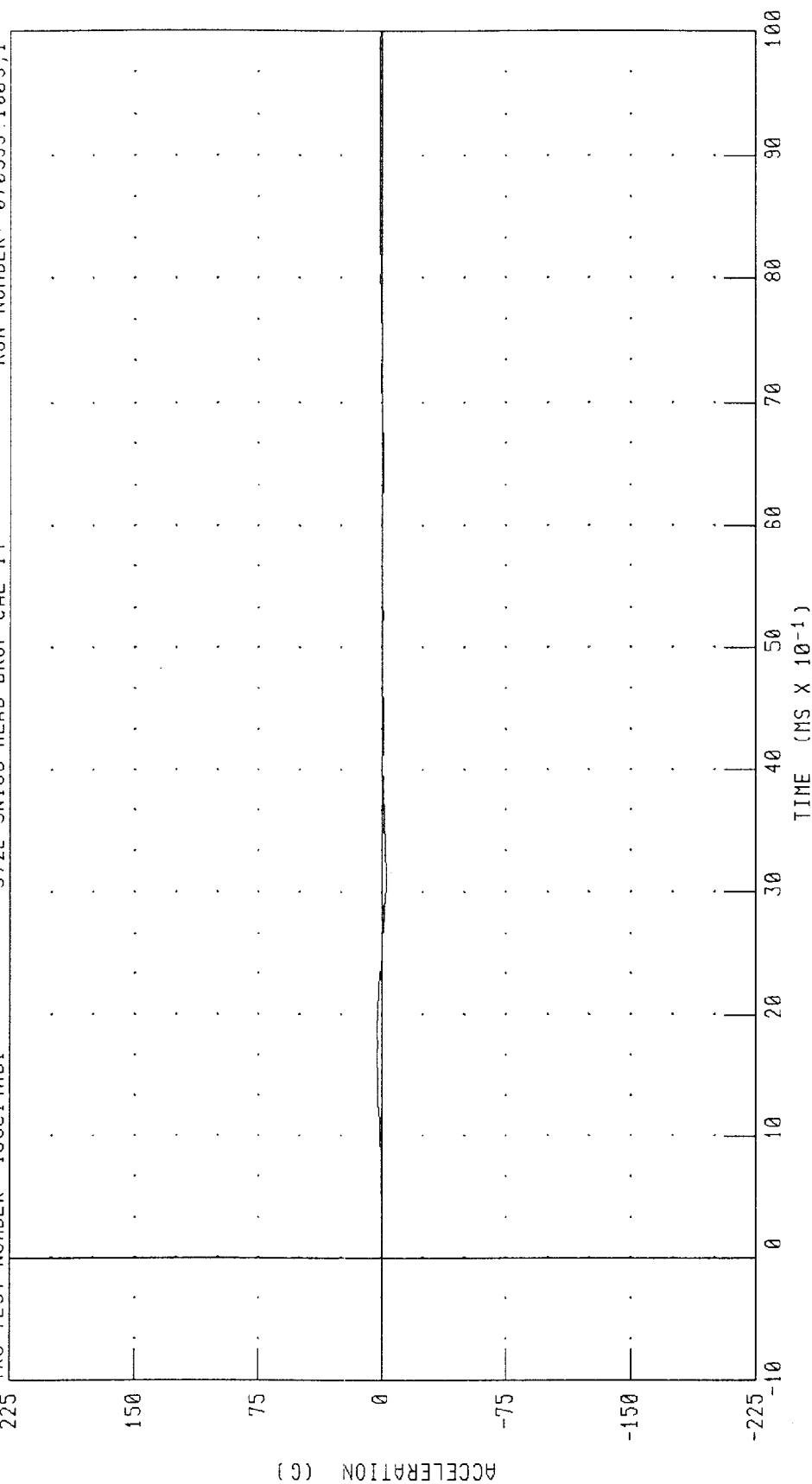


CHANNEL: HEDXC FILTER: CH. CLASS 1000

PEAK DATA: 0.53 G @ 10.00 MS; -228.07 G @ 1.68 MS

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

TRC TEST NUMBER: 168C14HD1 572E SN168 HEAD DROP CAL 14 RUN NUMBER: 070999 1003;1



CHANNEL: HEDYC FILTER: CH. CLASS 1000 PEAK DATA: 2.62 G @ 1.60 MS; -2.82 G @ 3.04 MS

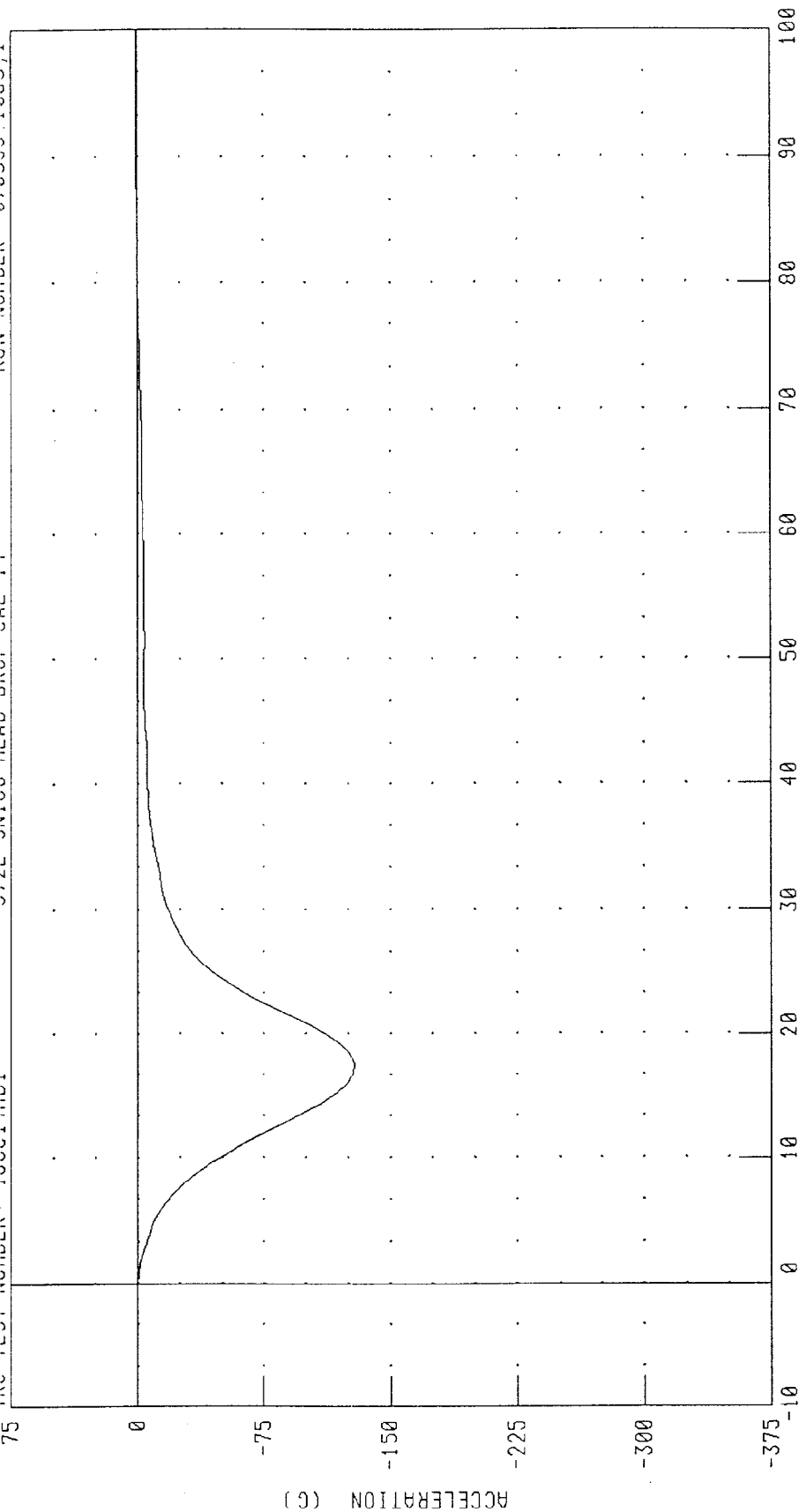
PART 572-E HYBRID III HEAD CALIBRATION
HEAD ACCELERATION Z AXIS

TRC TEST NUMBER: 168C14HD1

572E SN168 HEAD DROP CAL 14

RUN NUMBER: 070999.1003;1

75



PEAK DATA: 0.92 G @ 10.00 MS; -128.74 G @ 1.76 MS

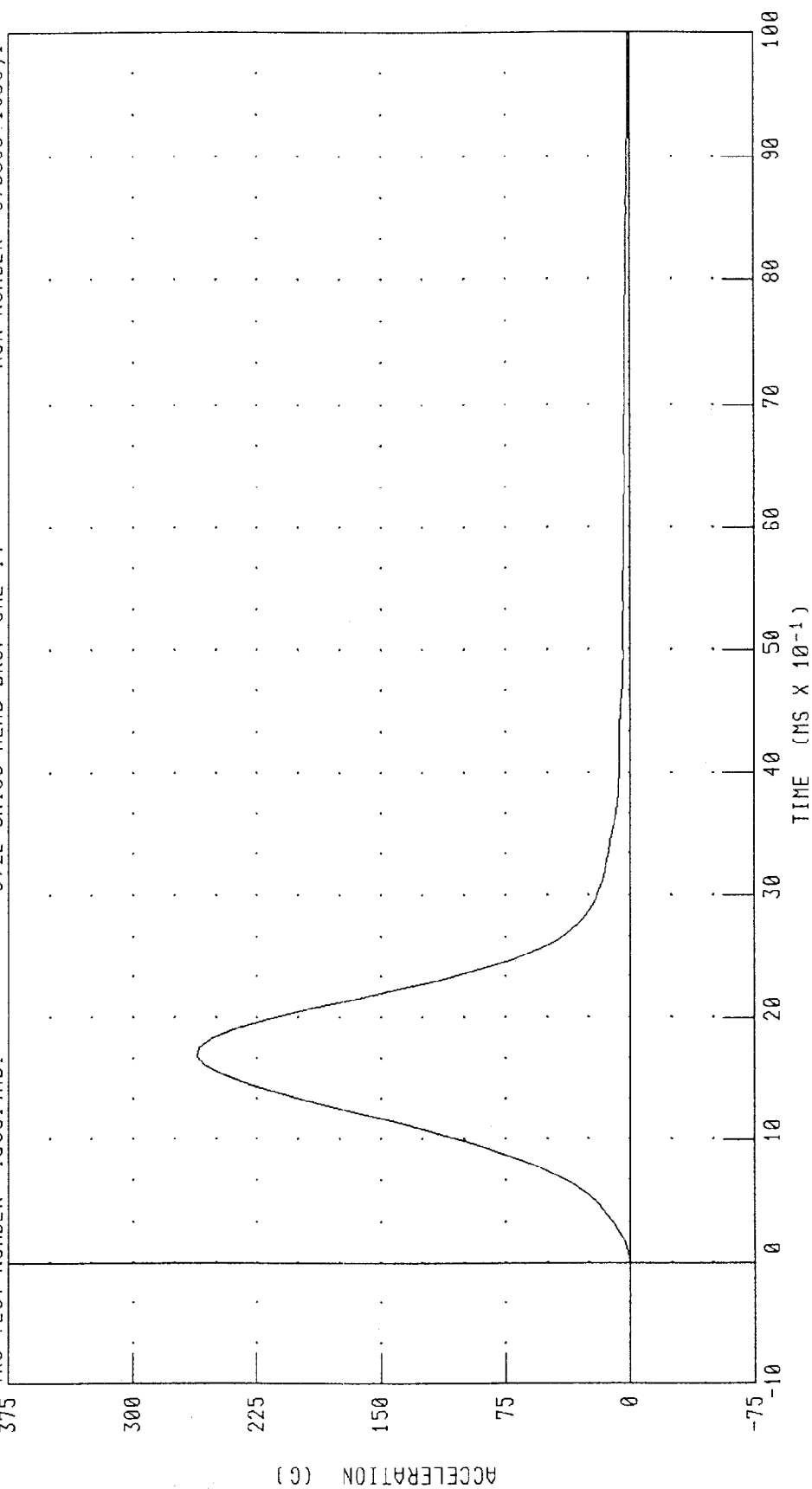
CHANNEL: HEDZG FILTER: CH. CLASS 1000

PART 572-E HYBRID III HEAD CALIBRATION
HEAD RESULTANT ACCELERATION

TRC TEST NUMBER: 168C14HD1

572E SN168 HEAD DROP CAL 14

RUN NUMBER: 070999.1003,1



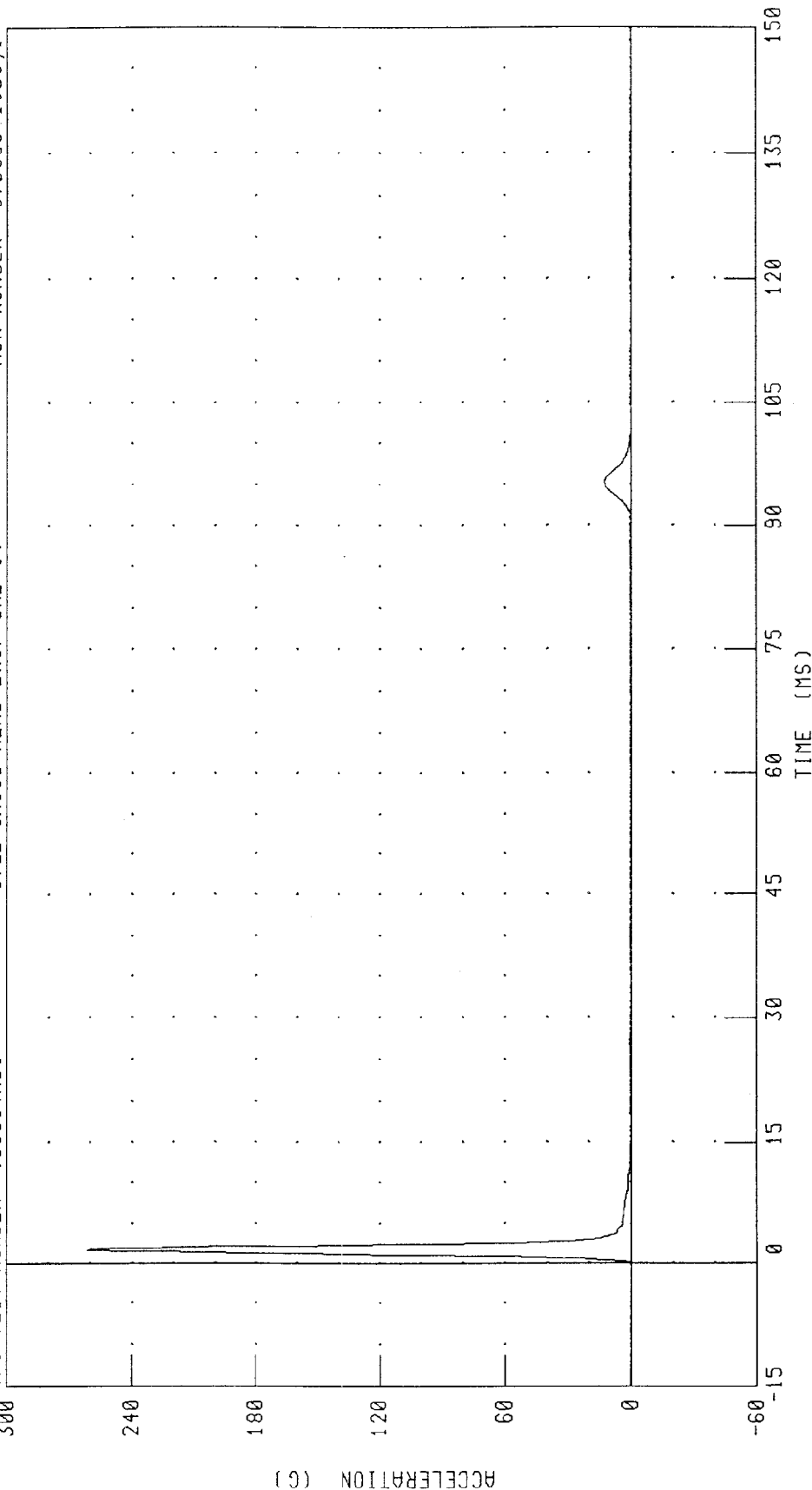
CHANNEL: HEORC FILTER: CH. CLASS 1000

PEAK DATA: 261.71 G @ 1.68 MS; 0.10 G @ -0.96 MS

PART 572-E HYBRID III HEAD CALIBRATION
 CHECK PLOT - HEAD RESULTANT ACCELERATION

572E SN168 HEAD DROP CAL 14 RUN NUMBER: 070999 1003,1

IRC TEST NUMBER: 168C14HD1



PEAK DATA: 261.71 G @ 1.68 MS; 0.10 G @ -10.88 MS

FILTER: CH. CLASS 1000

CHANNEL: HEDRG

TRANSPORTATION RESEARCH CENTER INC.

HYBRID III 50th

09-JUL-99

NECK FLEXION TEST - 6 CHANNEL TRANSDUCER

TRC INC. TEST NO: 168C14NF1 572E SN168 NECK FLEXION CAL14

TEST PARAMETER		SPECIFICATION	TEST RESULTS
TEMPERATURE		20.6-22.2 DEG. C	21.7 DEG. C
RELATIVE HUMIDITY		10 - 70 %	44.0 %
IMPACT VELOCITY		6.89 - 7.13 M/S	6.93 M/S
PENDULUM DECELERATION	10 MS	22.50 - 27.50 G	22.50 G
	20 MS	17.60 - 22.60 G	19.83 G
	30 MS	12.50 - 18.50 G	16.60 G
MAX PENDULUM G		29 G MAX	23.43 G
MAX PENDULUM G ABOVE 30 MS		29 G MAX	16.56 G
DECELERATION-TIME CURVE DECAY TIME TO 5 G		34 - 42 MS	39.04 MS
D PLANE	MAX	64 - 78 DEG.	72.05 DEG.
ROTATION	TIME	57 - 64 MS	60.24 MS
MOMENT ABOUT OCCIPITAL	MAX	88.2 - 108.5 NM	93.17 NM
CONDYLE	TIME	47 - 58 MS	51.76 MS
ROTATION ANGLE-TIME CURVE DECAY TIME TO ZERO		113 - 128 MS	115.60 MS
POSITIVE MOMENT-TIME CURVE DECAY TIME TO ZERO		97 - 107 MS	103.76 MS

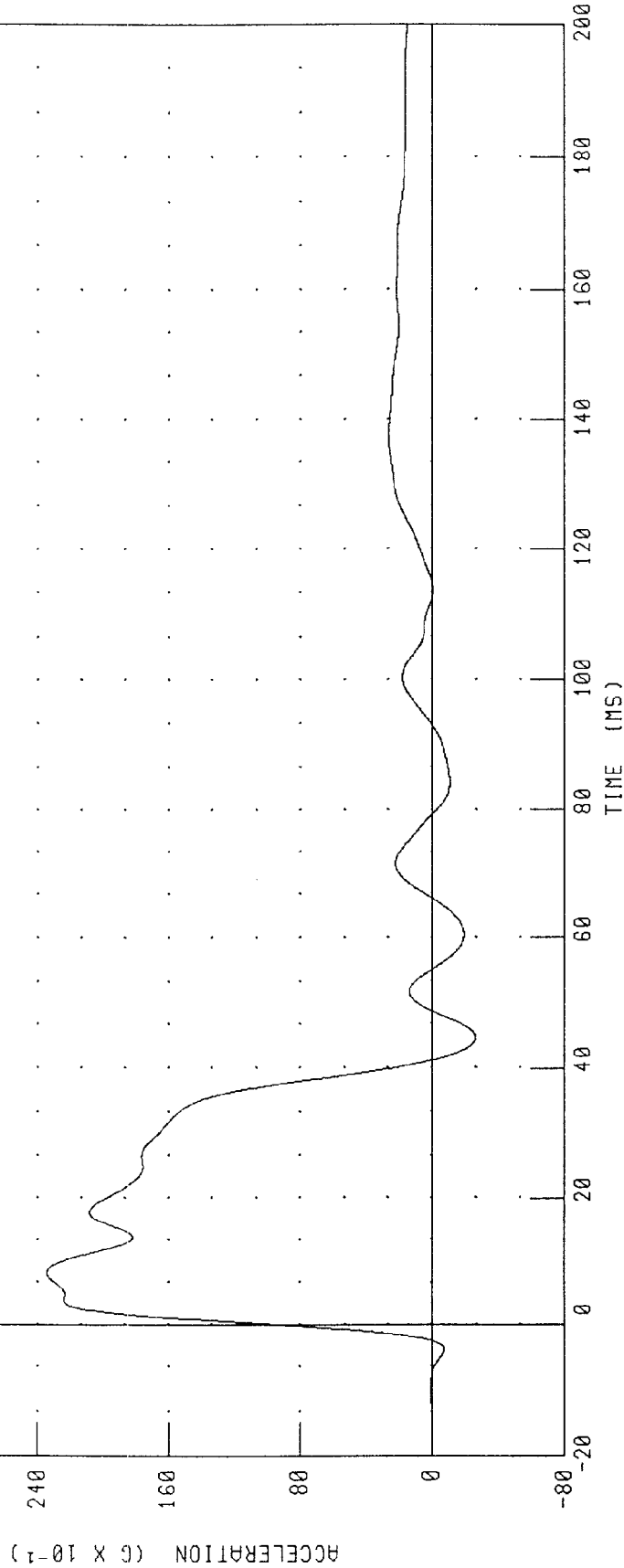
TEST MEETS SPECIFICATIONS

TECHNICIAN Chad Rife

RUN NUMBER: 070999.1038;1

PART 572-E HYBRID III NECK FLEXION CALIBRATION
 PENDULUM DECELERATION

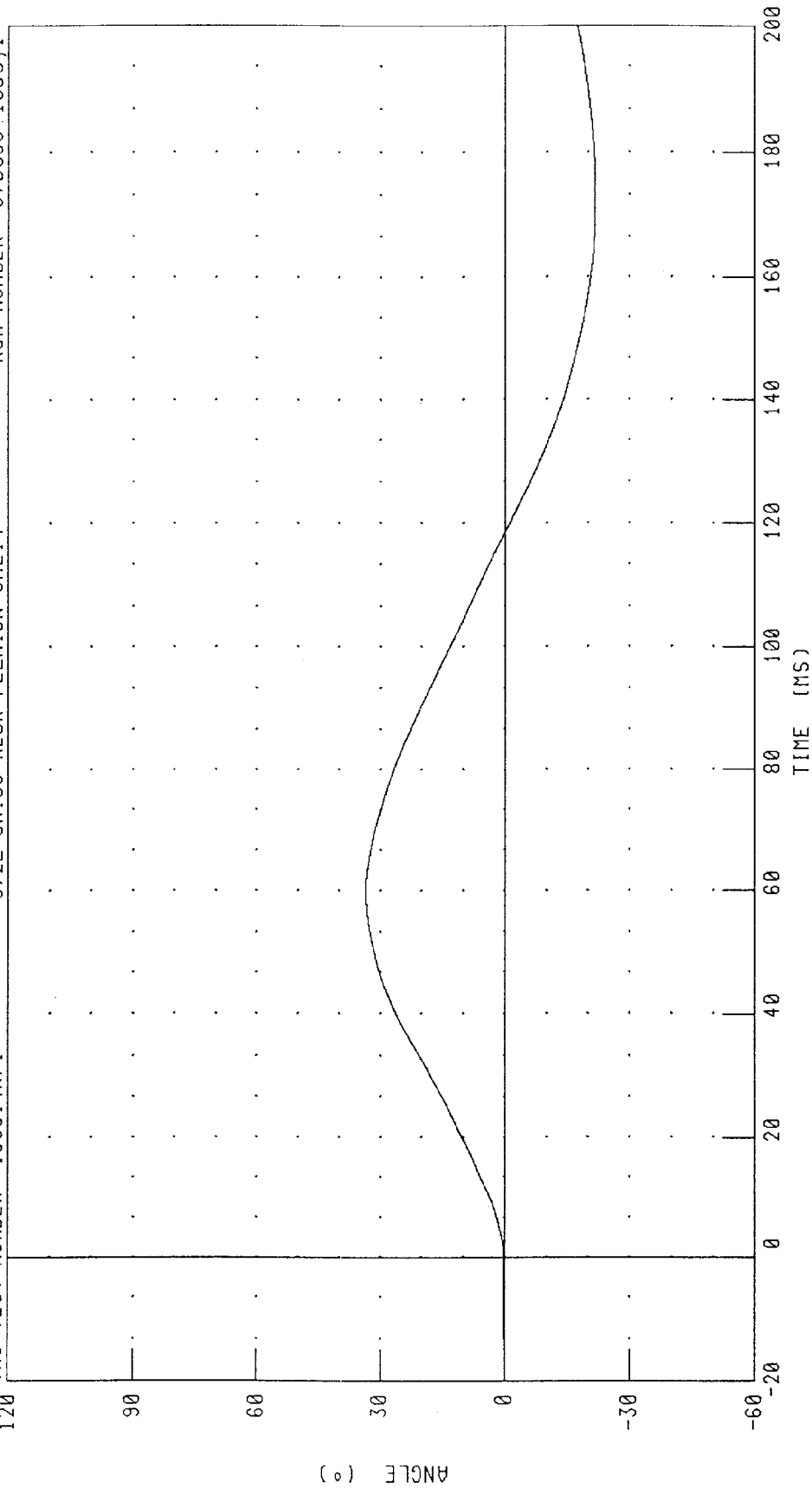
TRC TEST NUMBER: 168C14NF1 572E SN168 NECK FLEXION CAL14 RUN NUMBER: 070999 1038;1



CHANNEL: PENXC FILTER: CH. CLASS 60 PEAK DATA: 23.43 G @ 8.16 MS, -2.66 G @ 44.72 MS

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

IRC TEST NUMBER: 168C14NF1 572E SN168 NECK FLEXION CAL14 RUN NUMBER: 070999 1038,1



CHANNEL: BETA

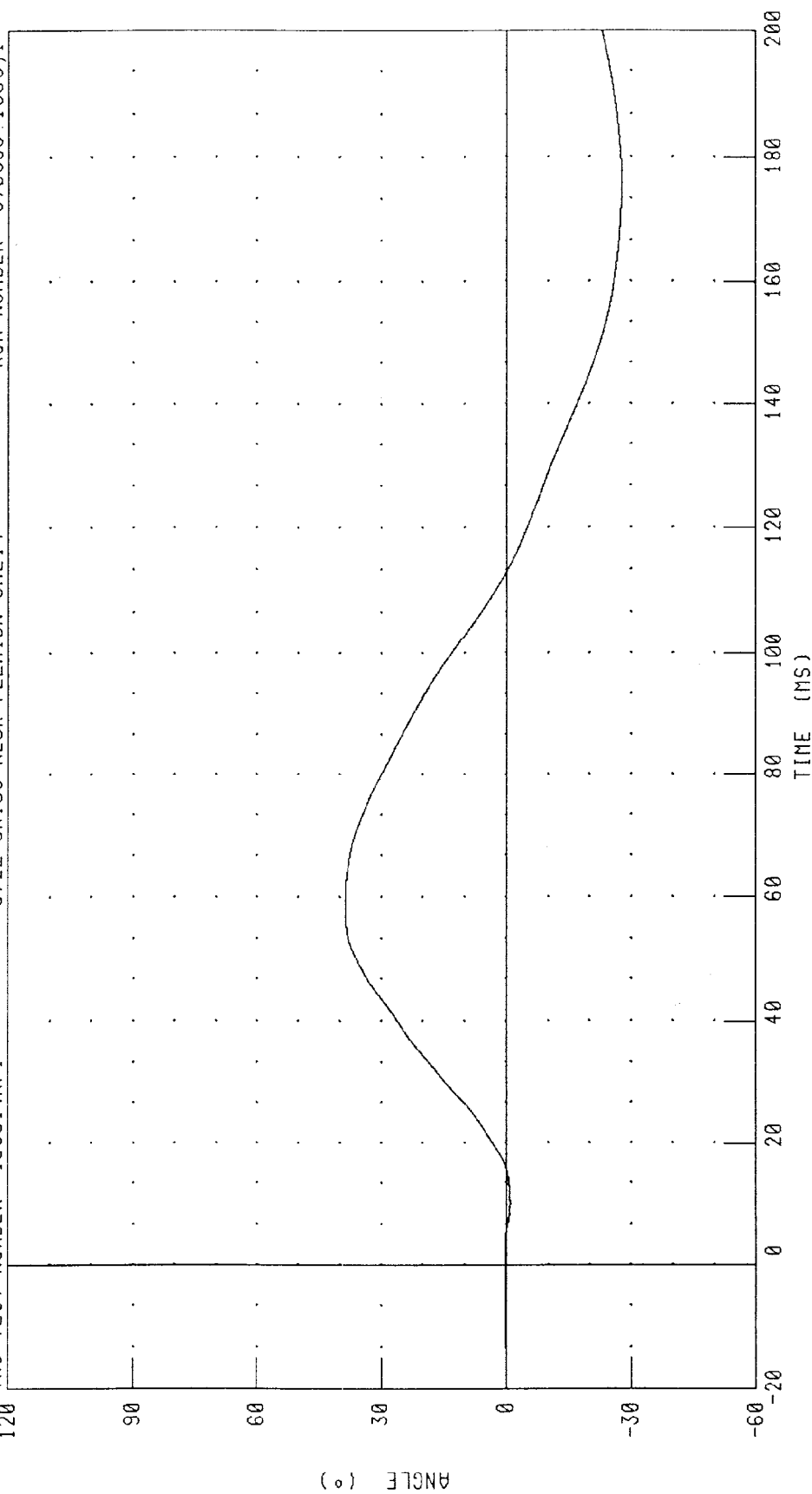
FILTER: CH. CLASS 60

TIME (MS)

PEAK DATA: 33.46 ° @ 60.16 MS; -21.78 ° @ 171.92 MS

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

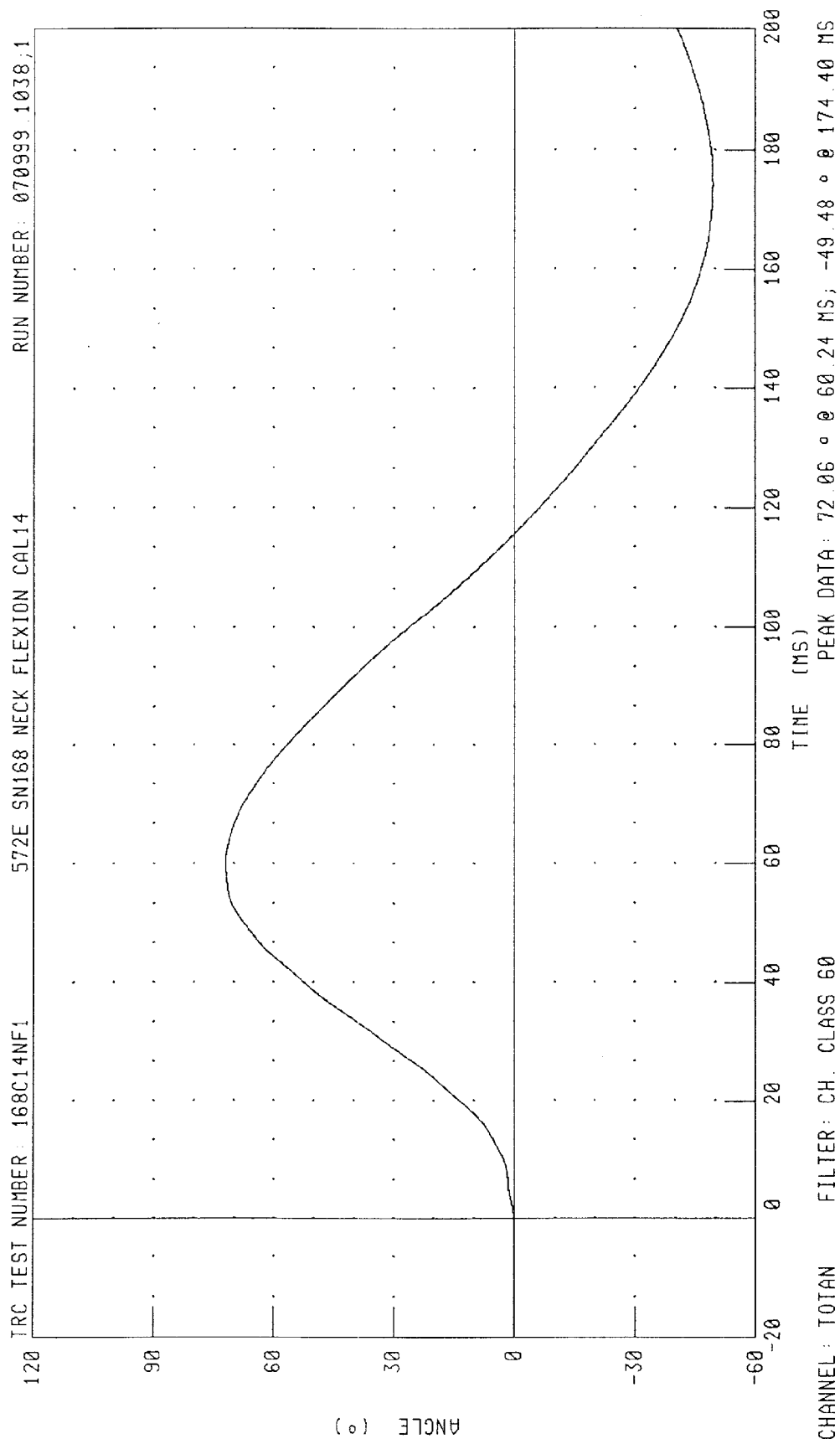
TRC TEST NUMBER: 168C14NF1 572E SN168 NECK FLEXION CAL14 RUN NUMBER: 070999.1038,1



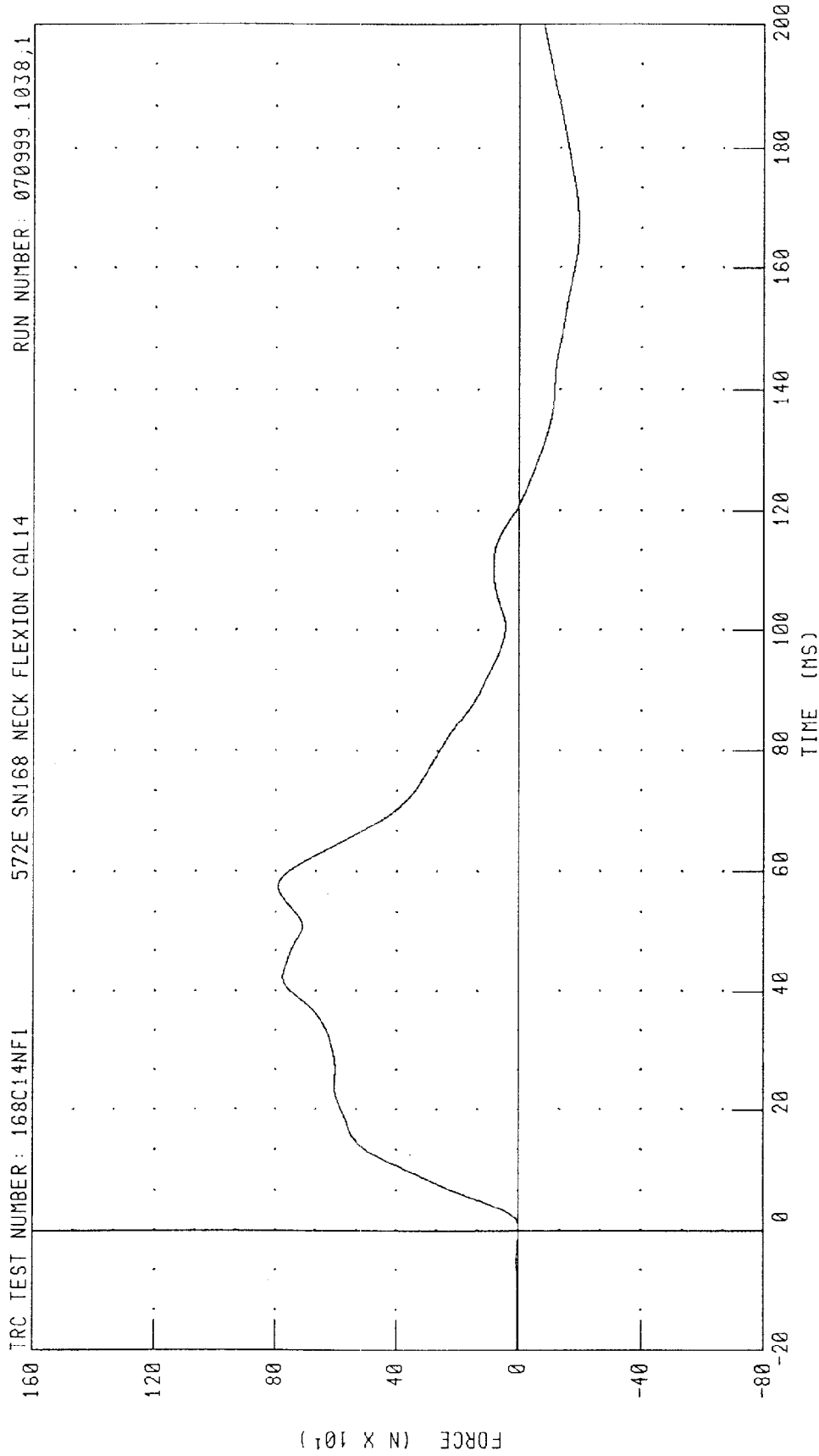
CHANNEL: THETA FILTER: CH. CLASS 60

PEAK DATA: 38.60 ° @ 60.40 MS; -27.77 ° @ 176.48 MS

PART 572-E HYBRID III NECK FLEXION CALIBRATION
TOTAL ROTATION



PART 572-E HYBRID III NECK FLEXION CALIBRATION
NECK FORCE X AXIS

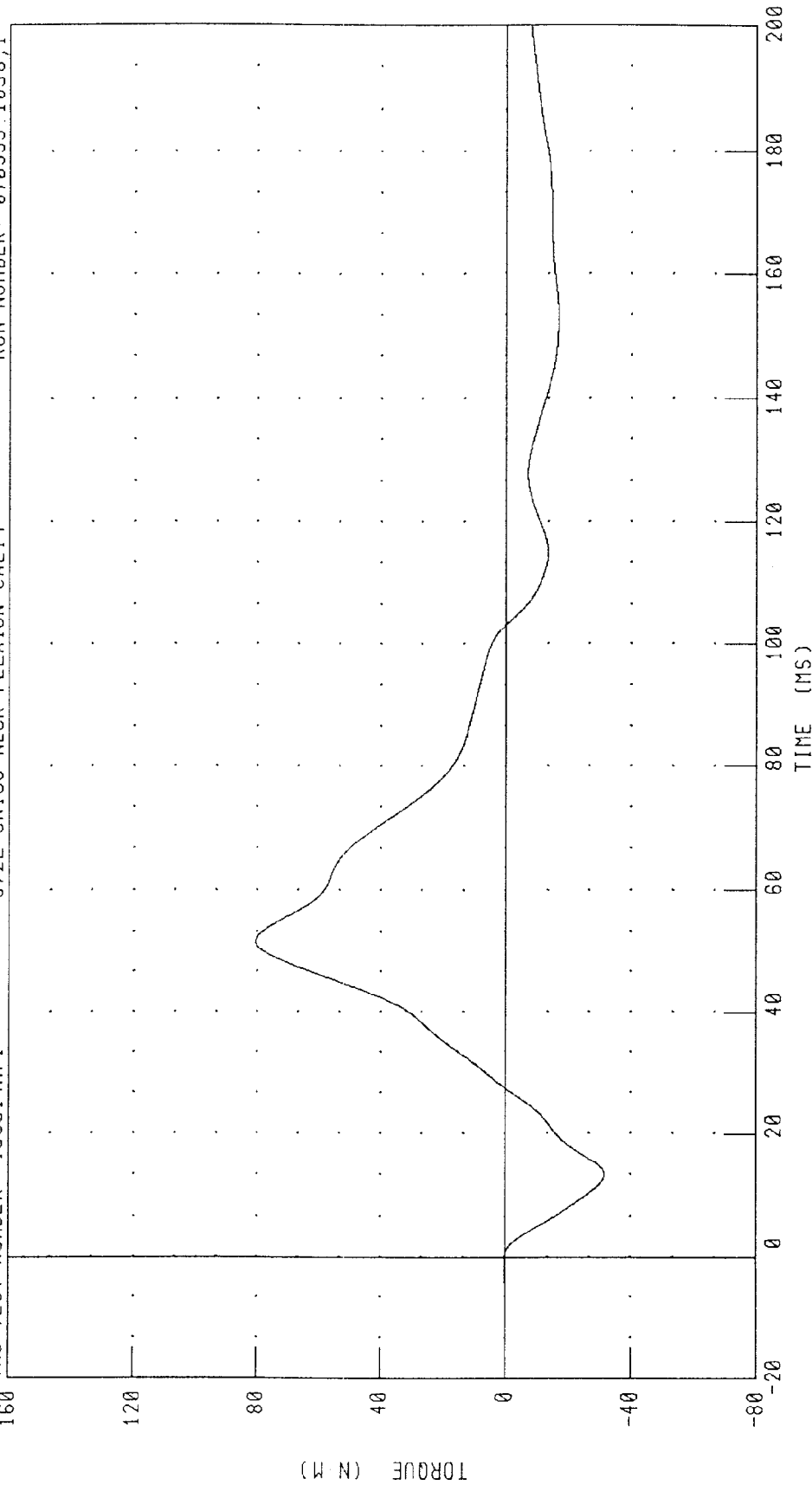


CHANNEL: NEKXF FILTER: CH. CLASS 60

PEAK DATA: 791.30 N @ 57.52 MS; -193.65 N @ 166.64 MS

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

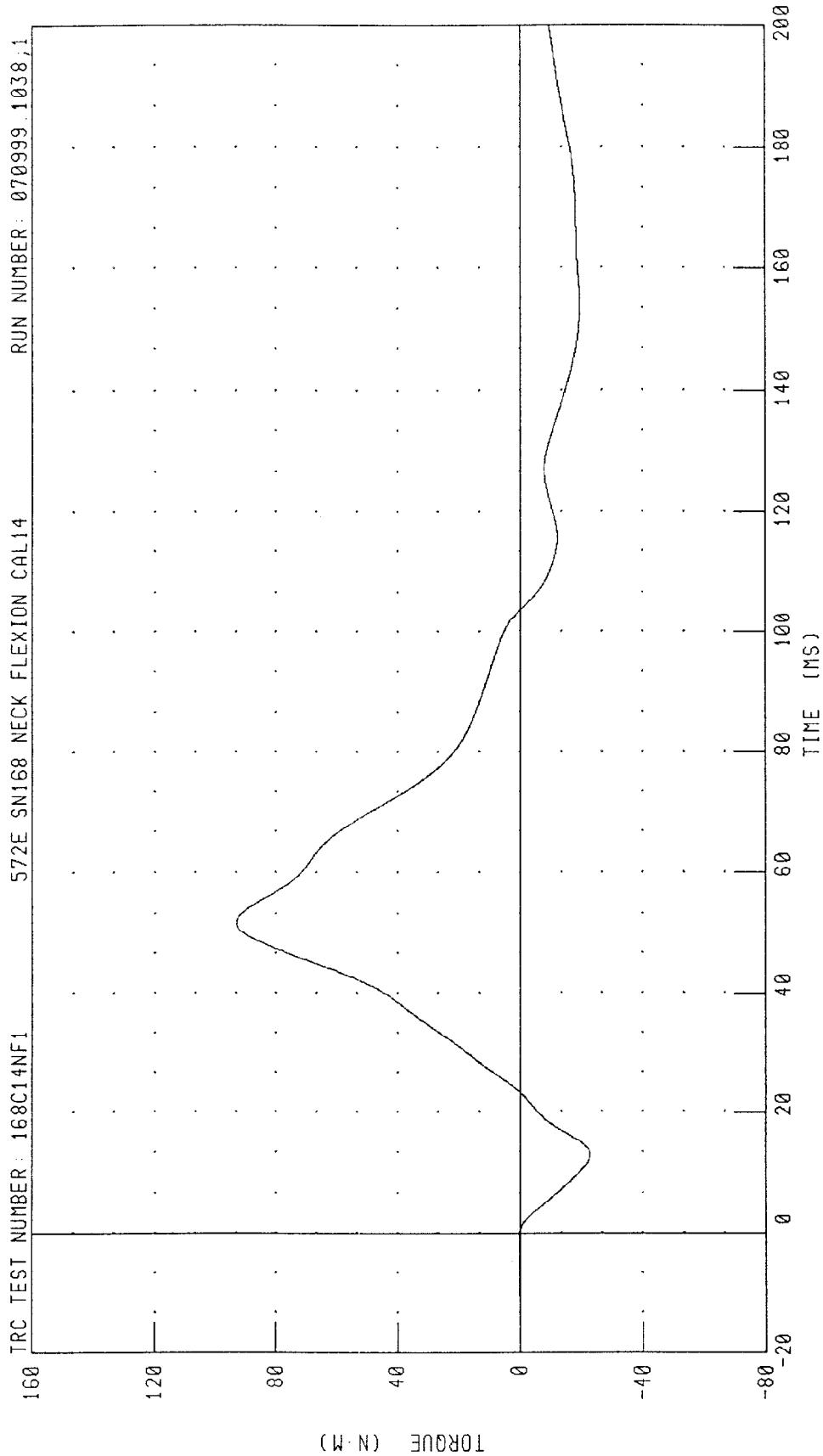
TRC TEST NUMBER: 168C14NF1 572E SN168 NECK FLEXION CAL14 RUN NUMBER: 070999 1038,1



PEAK DATA: 80.46 N.M @ 51.68 MS; -31.56 N.M @ 13.28 MS

CHANNEL: NEKYM FILTER: CH. CLASS 60

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



CHANNEL: NEKOM FILTER: CH. CLASS 60 PEAK DATA: 93.17 N·M @ 51.76 MS; -22.76 N·M @ 12.88 MS

TRANSPORTATION RESEARCH CENTER INC.

HYBRID III 50th

09-JUL-99

NECK EXTENSION TEST - 6 CHANNEL TRANSDUCER

TRC INC. TEST NO: 168C14NE1 572E SN168 NECK EXT CAL14

TEST PARAMETER		SPECIFICATION	TEST RESULTS
TEMPERATURE		20.6 - 22.2 DEG. C	21.7 DEG. C
RELATIVE HUMIDITY		10 - 70 %	44.0 %
IMPACT VELOCITY		5.95 - 6.19 M/S	6.05 M/S
PENDULUM DECELERATION	10 MS	17.20 - 21.20 G	18.63 G
	20 MS	14.00 - 19.00 G	16.45 G
	30 MS	11.00 - 16.00 G	14.28 G
MAX PENDULUM G		22 G MAX	19.12 G
MAX PENDULUM G ABOVE 30 MS		22 G MAX	14.21 G
DECELERATION-TIME CURVE DECAY TIME TO 5 G		38 - 46 MS	41.60 MS
D PLANE	MAX	81 - 106 DEG.	97.44 DEG.
ROTATION	TIME	72 - 82 MS	77.04 MS
MOMENT ABOUT OCCIPITAL CONDYLE	MIN	-80.0/-52.9 NM	-63.64 NM
	TIME	65 - 79 MS	71.60 MS
ROTATION ANGLE-TIME CURVE DECAY TIME TO ZERO		147 - 174 MS	156.24 MS
NEGATIVE MOMENT-TIME CURVE DECAY TIME TO ZERO		120 - 148 MS	144.00 MS

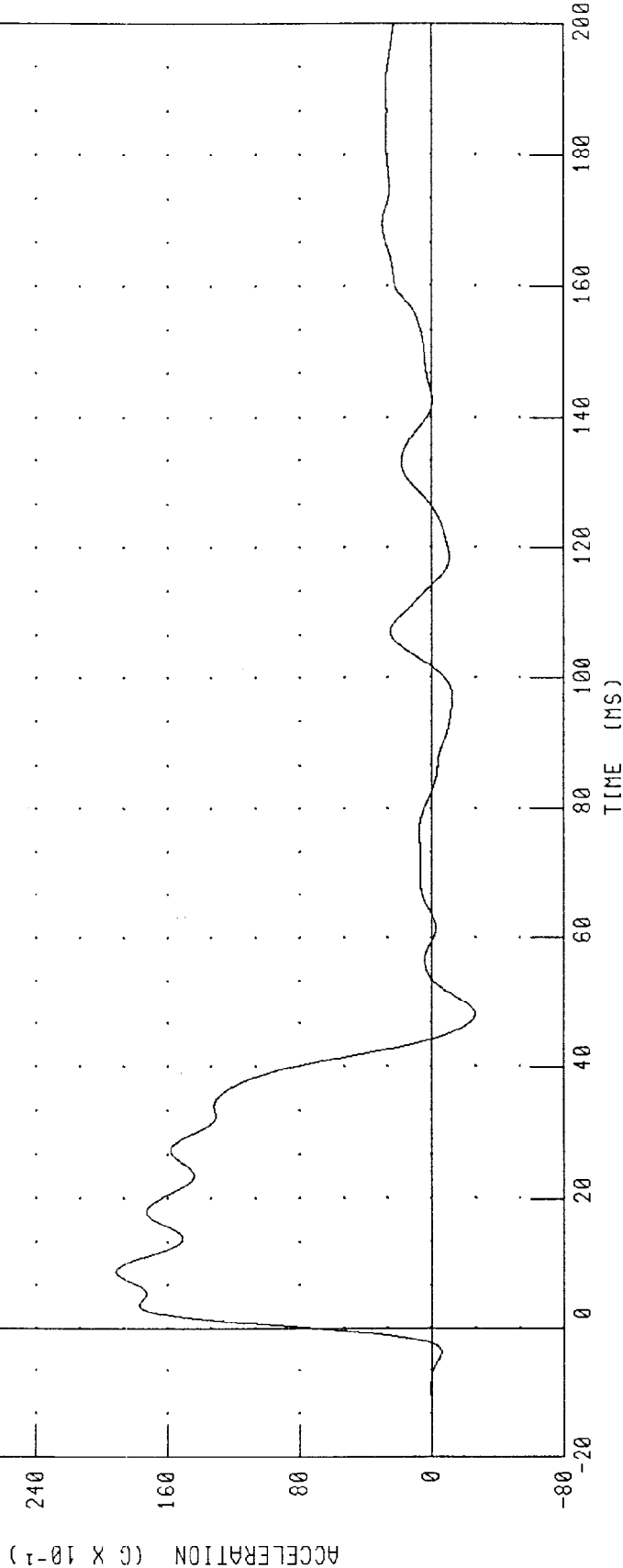
TEST MEETS SPECIFICATIONS

TECHNICIAN Chad Rife

RUN NUMBER: 070999.1110;1

PART 572-E HYBRID III NECK EXTENSION CALIBRATION
PENDULUM DECELERATION

TRC TEST NUMBER: 168C14NE1 572E SN168 NECK EXT CAL14 RUN NUMBER: 070999 1111,1



CHANNEL: PENXC FILTER: CH. CLASS 60 PEAK DATA: 19.13 G @ 8.88 MS; -2.65 G @ 48.08 MS

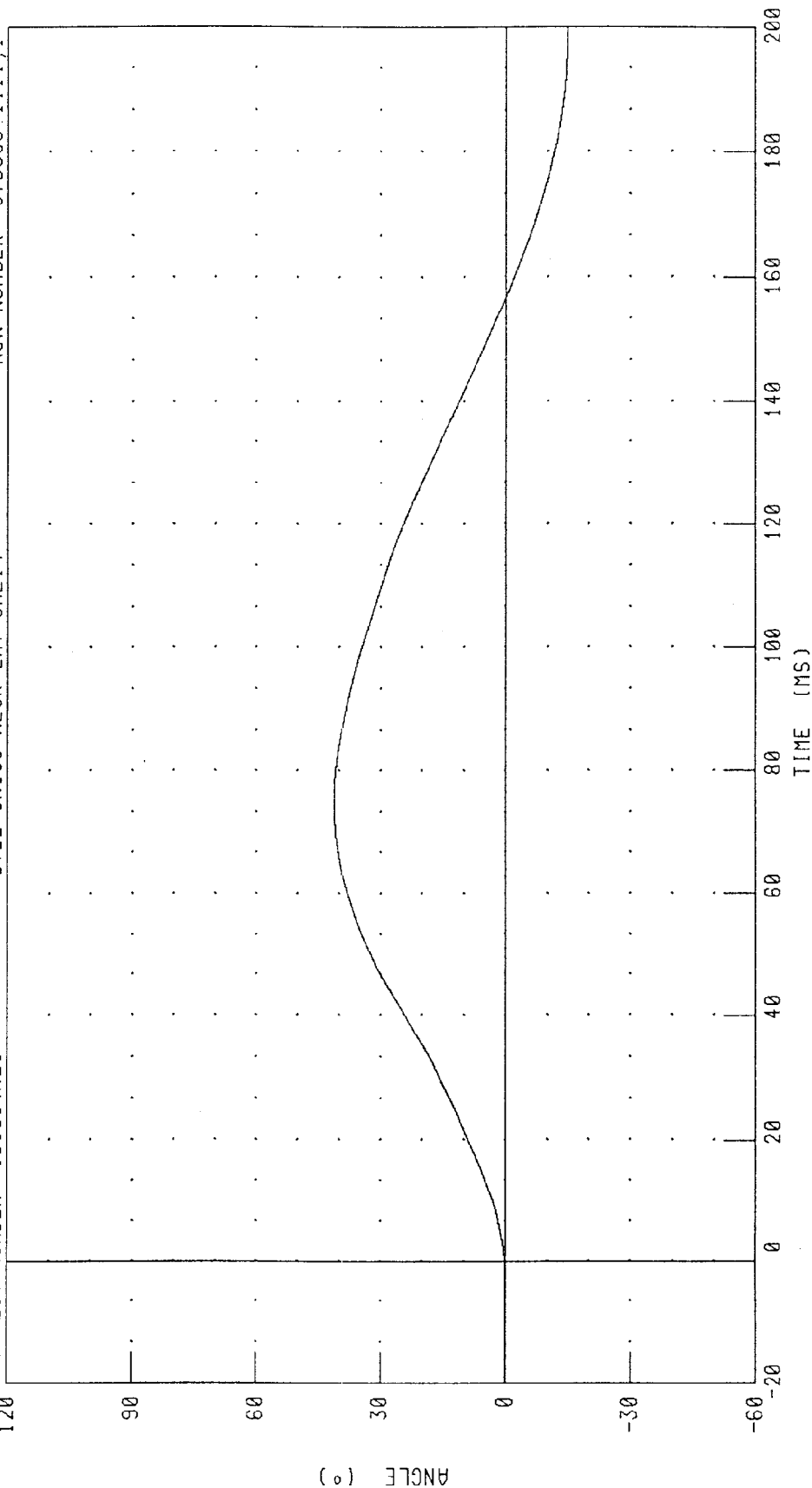
PART 572-E HYBRID III NECK EXTENSION CALIBRATION

ROTATION ABOUT BASE OF NECK

TRC TEST NUMBER: 168C14NE1

572E SN168 NECK EXT CAL14

RUN NUMBER: 070999.1111,1



CHANNEL: BETA

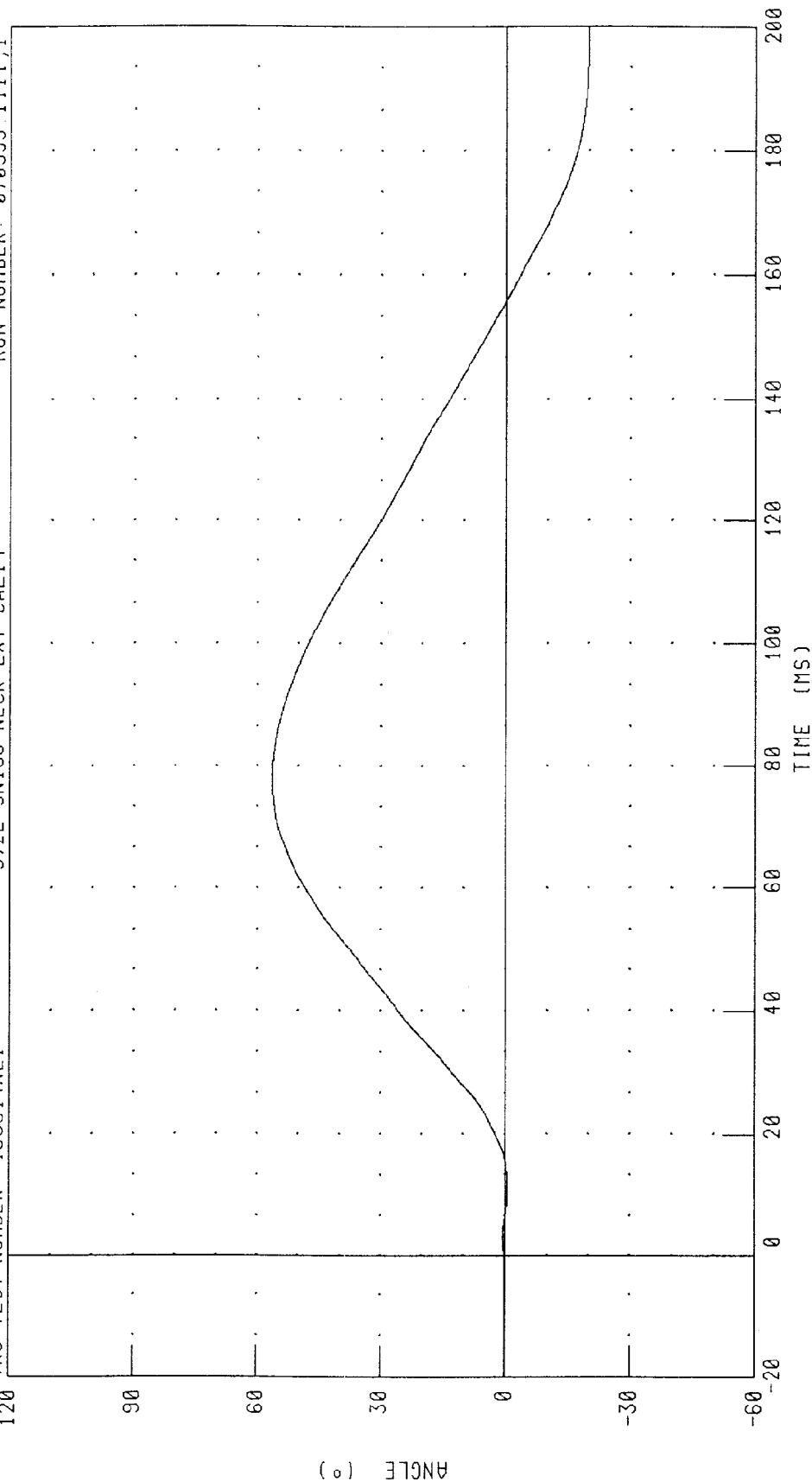
FILTER: CH. CLASS 60

TIME (MS)

PEAK DATA: 41.14 ° @ 75.52 MS; -14.77 ° @ 197.52 MS

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

TRC TEST NUMBER: 168C14NE1 572E SN168 NECK EXT CAL14 RUN NUMBER: 070999 1111,1



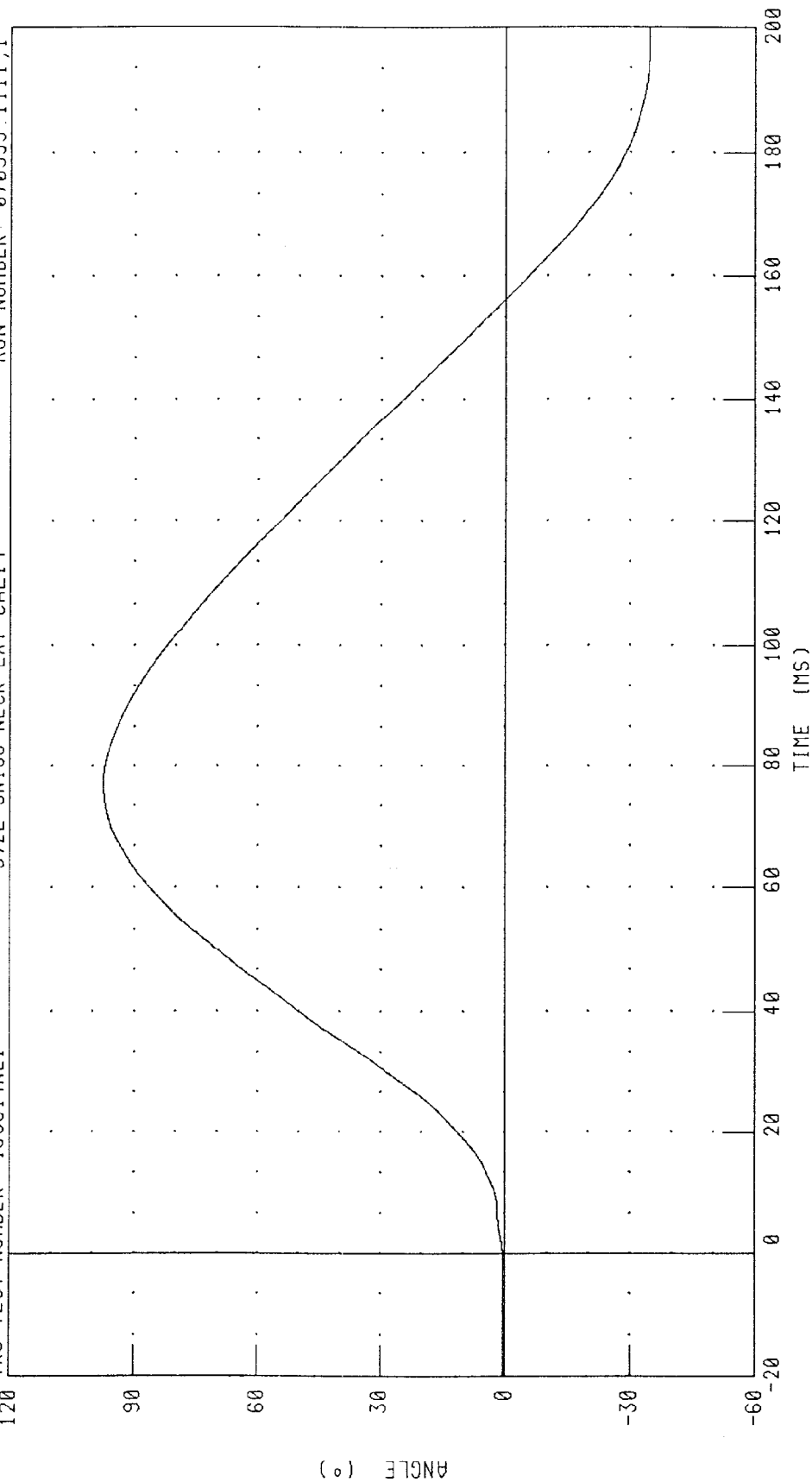
PEAK DATA: 56.38 ° @ 78.08 MS; -19.86 ° @ 197.28 MS

CHANNEL: THETA FILTER: CH. CLASS 60

PART 572-E HYBRID III NECK EXTENSION CALIBRATION

TOTAL ROTATION

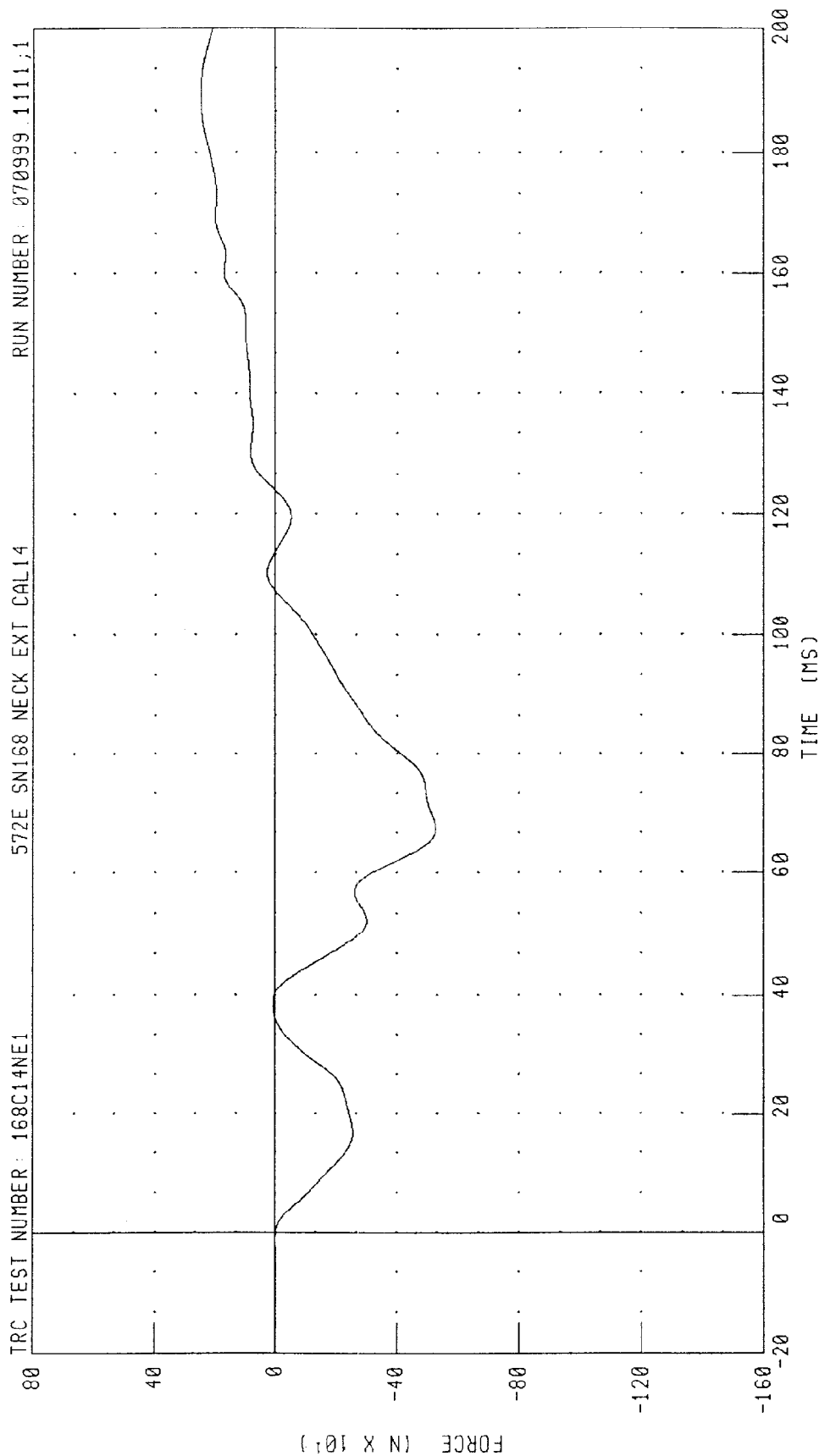
IRC TEST NUMBER: 168C14NE1 572E SN168 NECK EXT CAL14 RUN NUMBER: 070999.1111,1



CHANNEL: TOTAL FILTER: CH. CLASS 60

PEAK DATA: 97.45 ° @ 77.04 MS; -34.64 ° @ 197.36 MS

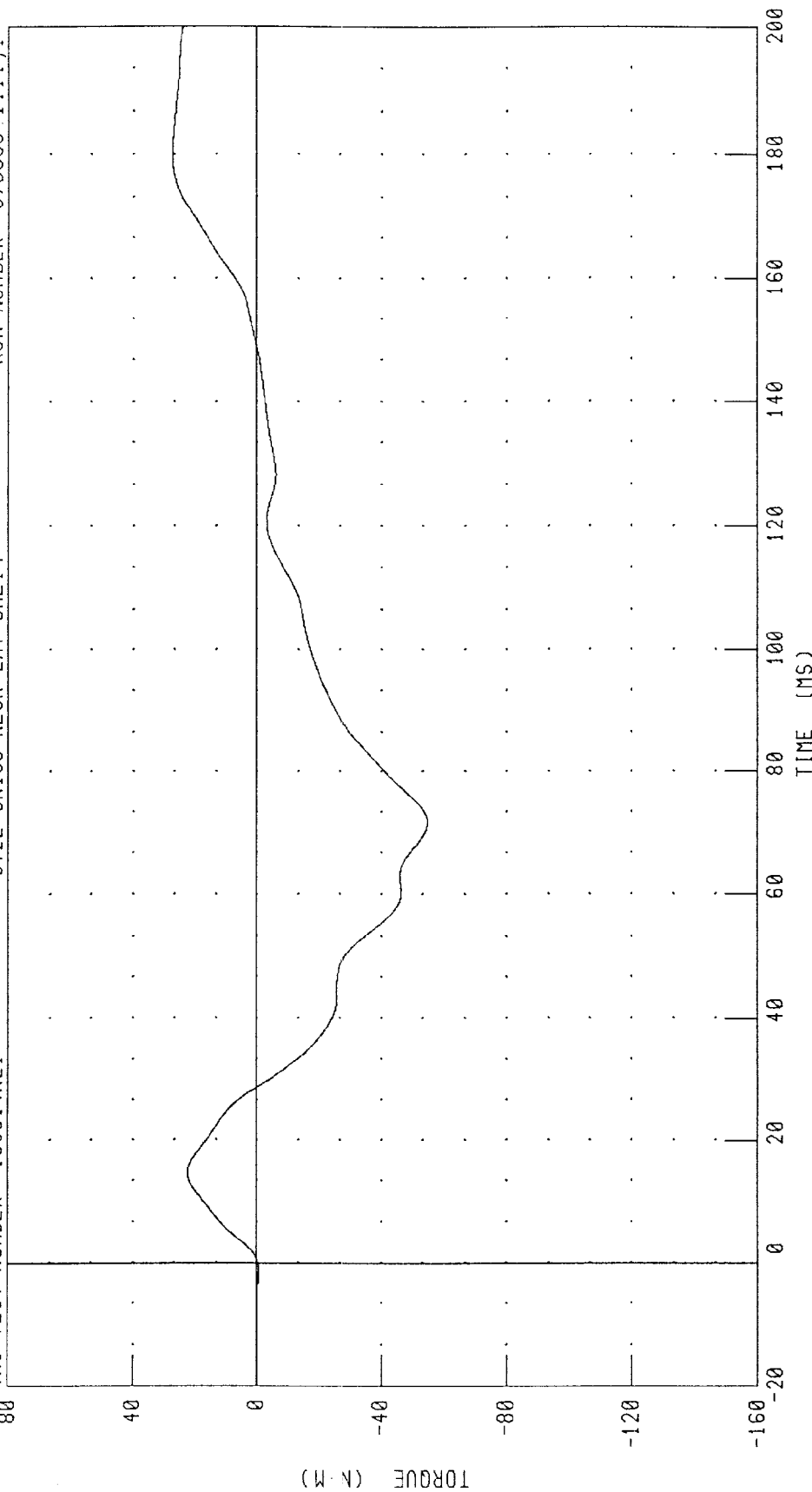
PART 572-E HYBRID III NECK EXTENSION CALIBRATION
NECK FORCE X AXIS



CHANNEL: NEKXF FILTER: CH. CLASS 60 PEAK DATA: 249.57 N @ 188.88 MS, -528.31 N @ 67.44 MS

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

TRC TEST NUMBER: 168C14NE1 572E SN168 NECK EXT CAL14 RUN NUMBER: 070999 1111,1



PEAK DATA: 27.36 N·M @ 180.16 MS; -54.70 N·M @ 71.68 MS

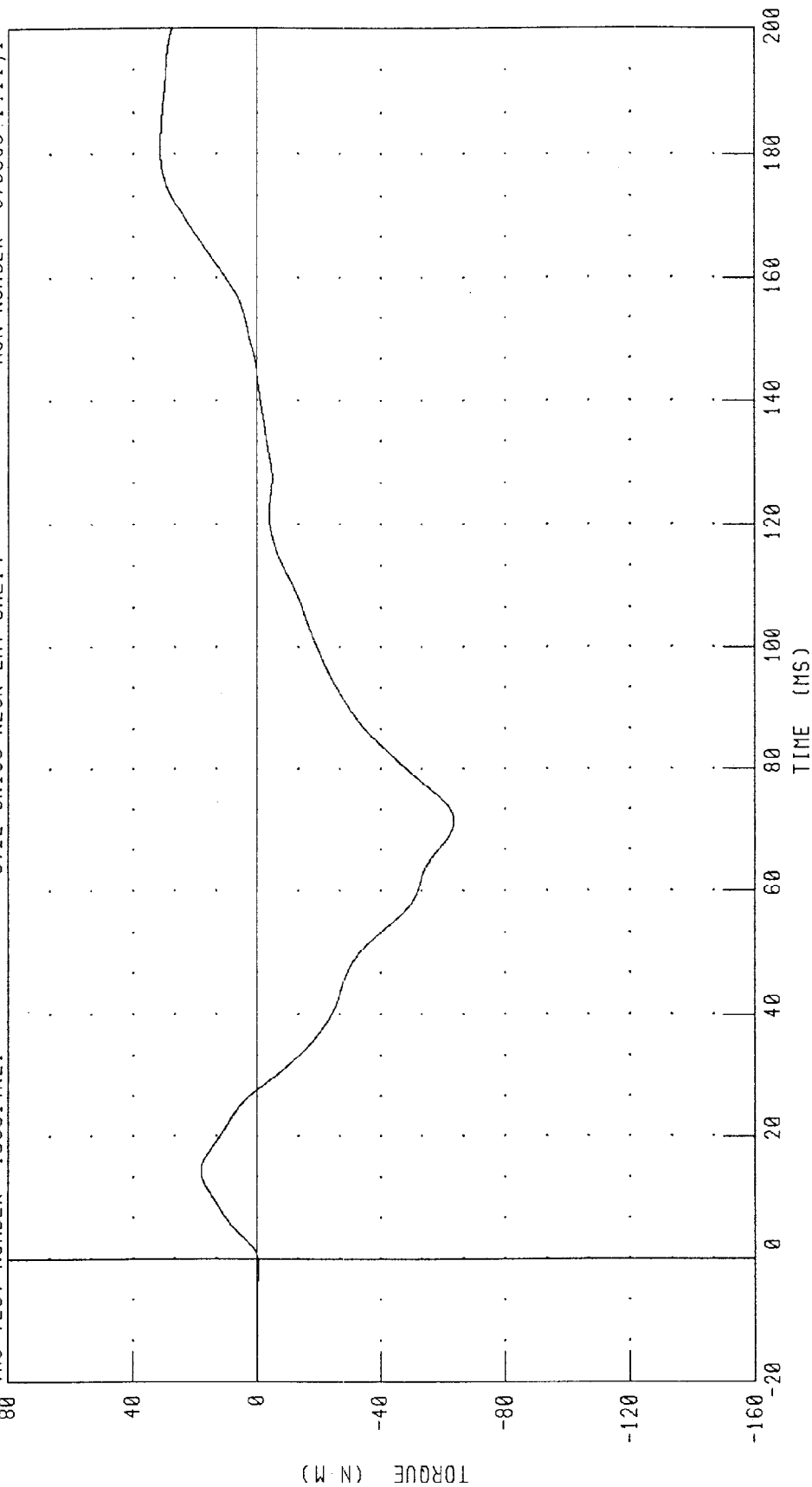
CHANNEL: NEKYM FILTER: CH. CLASS 60

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

IRC TEST NUMBER: 168C14NE1

572E SN168 NECK EXT CAL14

RUN NUMBER: 070999.1111,1



PEAK DATA: 31.34 N-M @ 181.12 MS; -63.64 N-M @ 71.60 MS

FILTER: CH. CLASS 60

CHANNEL: NEKOM

TRANSPORTATION RESEARCH CENTER INC.

THORAX IMPACT TEST

HYBRID III 50th

09-JUL-99

TRC INC.

TEST NO: 168C14TH3

572E SN168 H.S.THORAX CAL14

TEST PARAMETER	HIGH SPEED TEST	TEST RESULTS
	SPECIFICATION	
TEMPERATURE	20.6-22.2 DEG. C	21.7 DEG. C
RELATIVE HUMIDITY	10 - 70 %	44.0 %
PENDULUM VELOCITY	6.59 - 6.83 M/S	6.65 M/S
MAXIMUM DEFLECTION	63.5 - 72.6 MM	67.8 MM
MAXIMUM RESISTIVE FORCE	5159 - 5894 N	5693. N
INTERNAL HYSTERESIS	69% - 85%	72.4%

TEST MEETS SPECIFICATIONS

TECHNICIAN Chad Rife

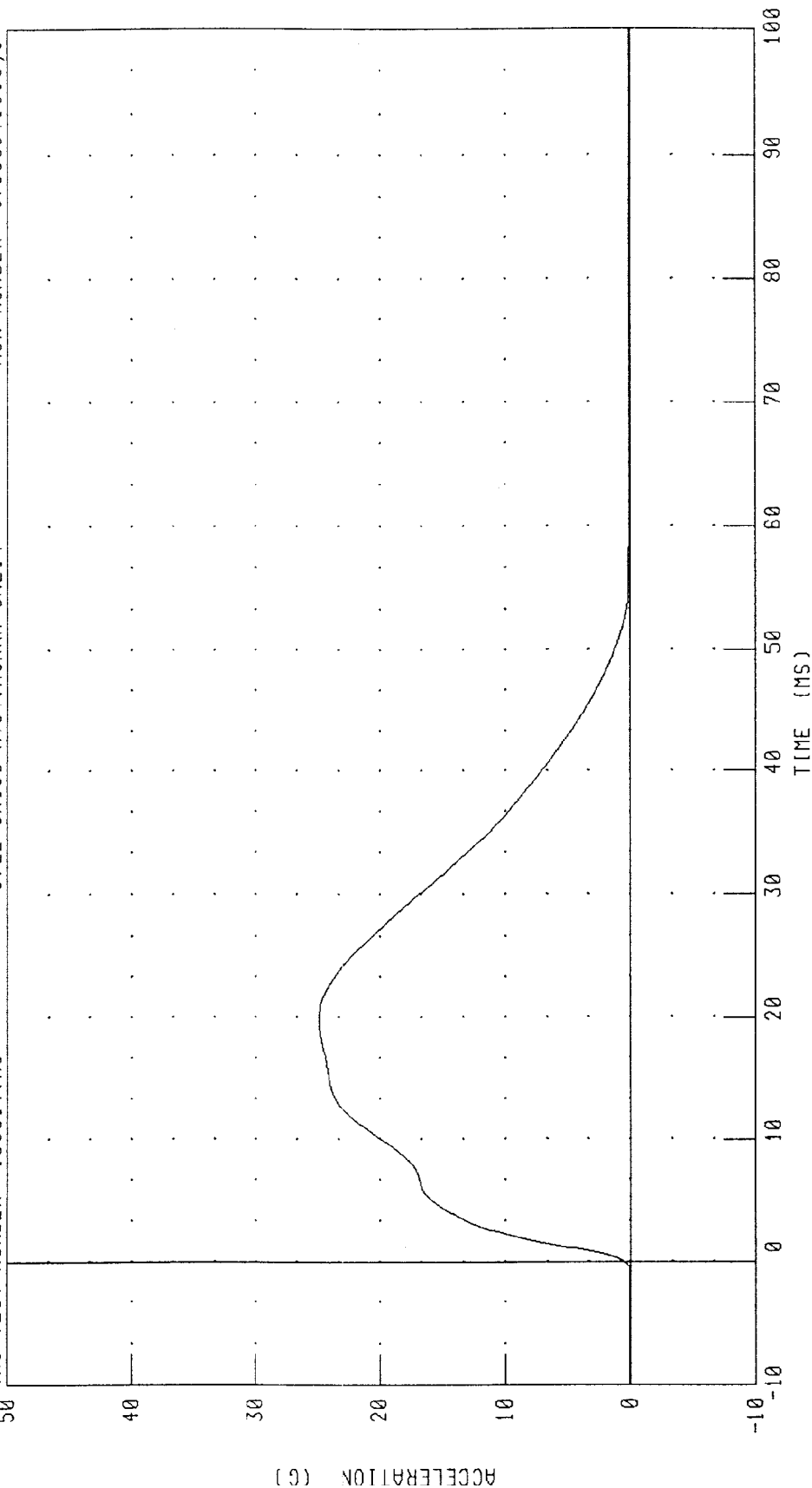
RUN NUMBER: 070999.1518;1

PART 572-E HYBRID III THORAX CALIBRATION
PENDULUM DECELERATION

TRC TEST NUMBER: 168C14TH3

572E SN168 H.S THORAX CAL14

RUN NUMBER: 070999.1518;1

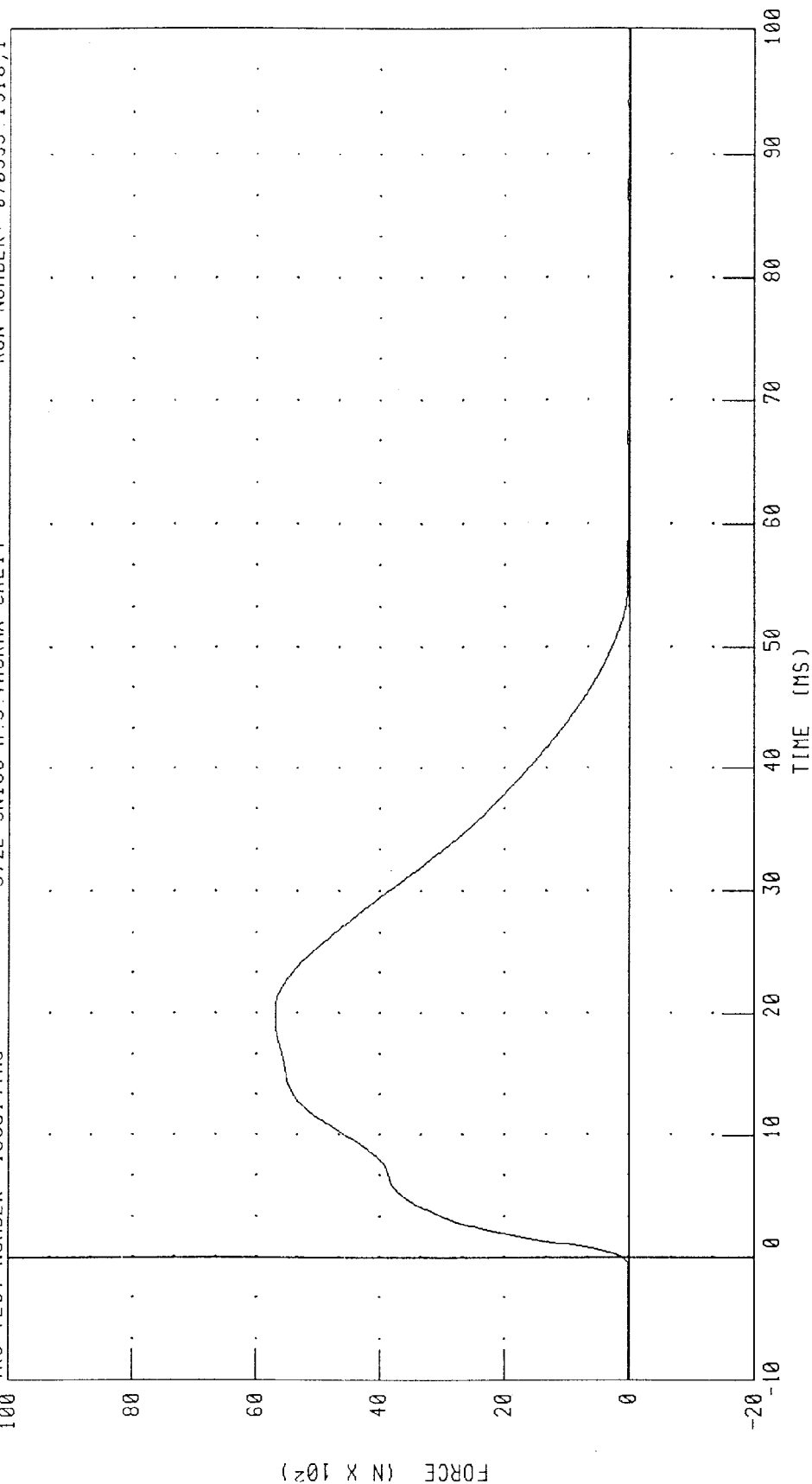


CHANNEL: PENXG FILTER: CH. CLASS 180

PEAK DATA: 24.85 G @ 19.60 MS, 0.03 G @ -0.80 MS

PART 572-E HYBRID III THORAX CALIBRATION
PENDULUM FORCE

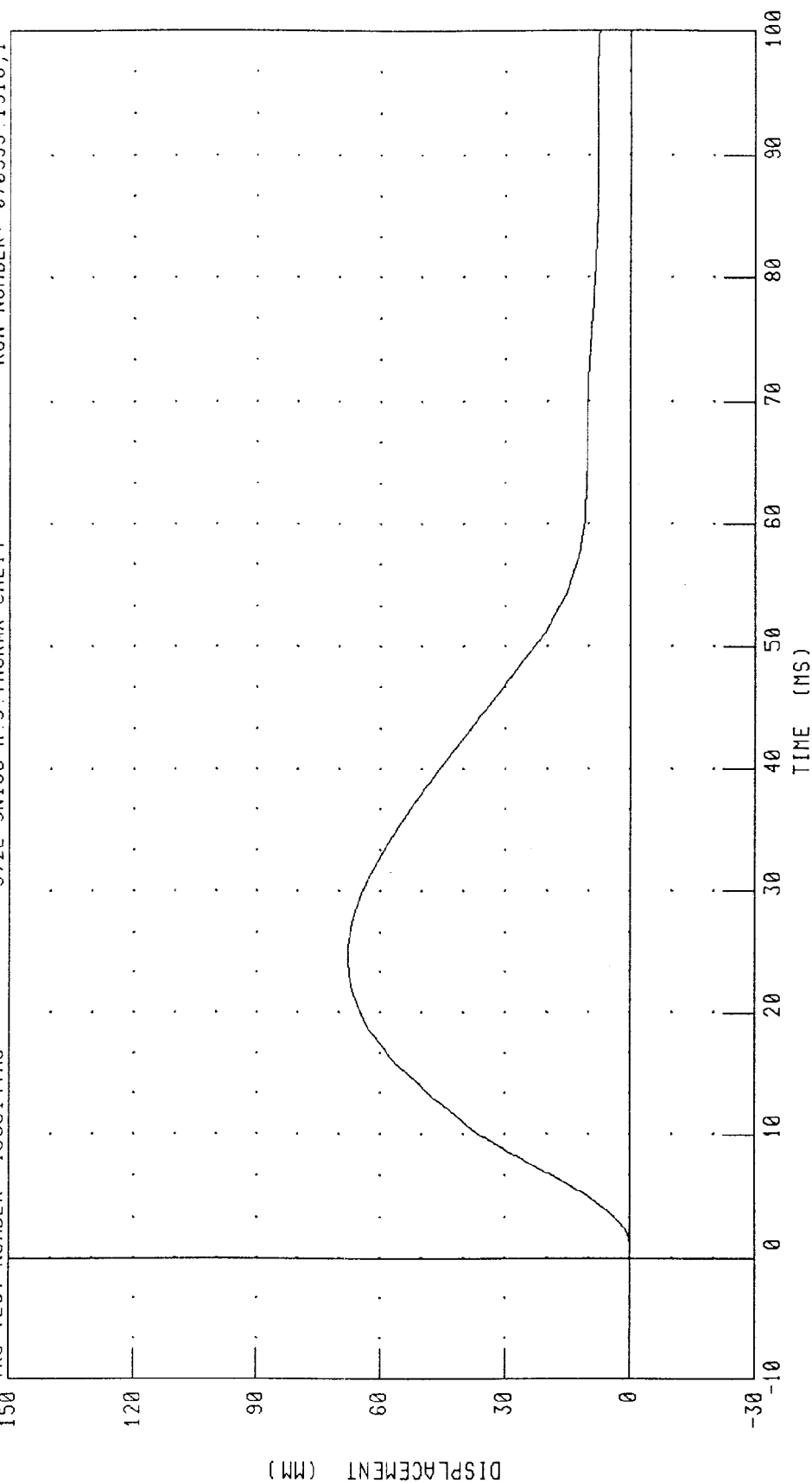
IRC TEST NUMBER: 168C14TH3 572E SN168 H.S.THORAX CAL14 RUN NUMBER: 070999 1518;1



CHANNEL: PENXF FILTER: CH. CLASS 180 PEAK DATA: 5693.01 N @ 19.60 MS; 6.09 N @ -0.80 MS

PART 572-E HYBRID III THORAX CALIBRATION
STERNUM DISPLACEMENT

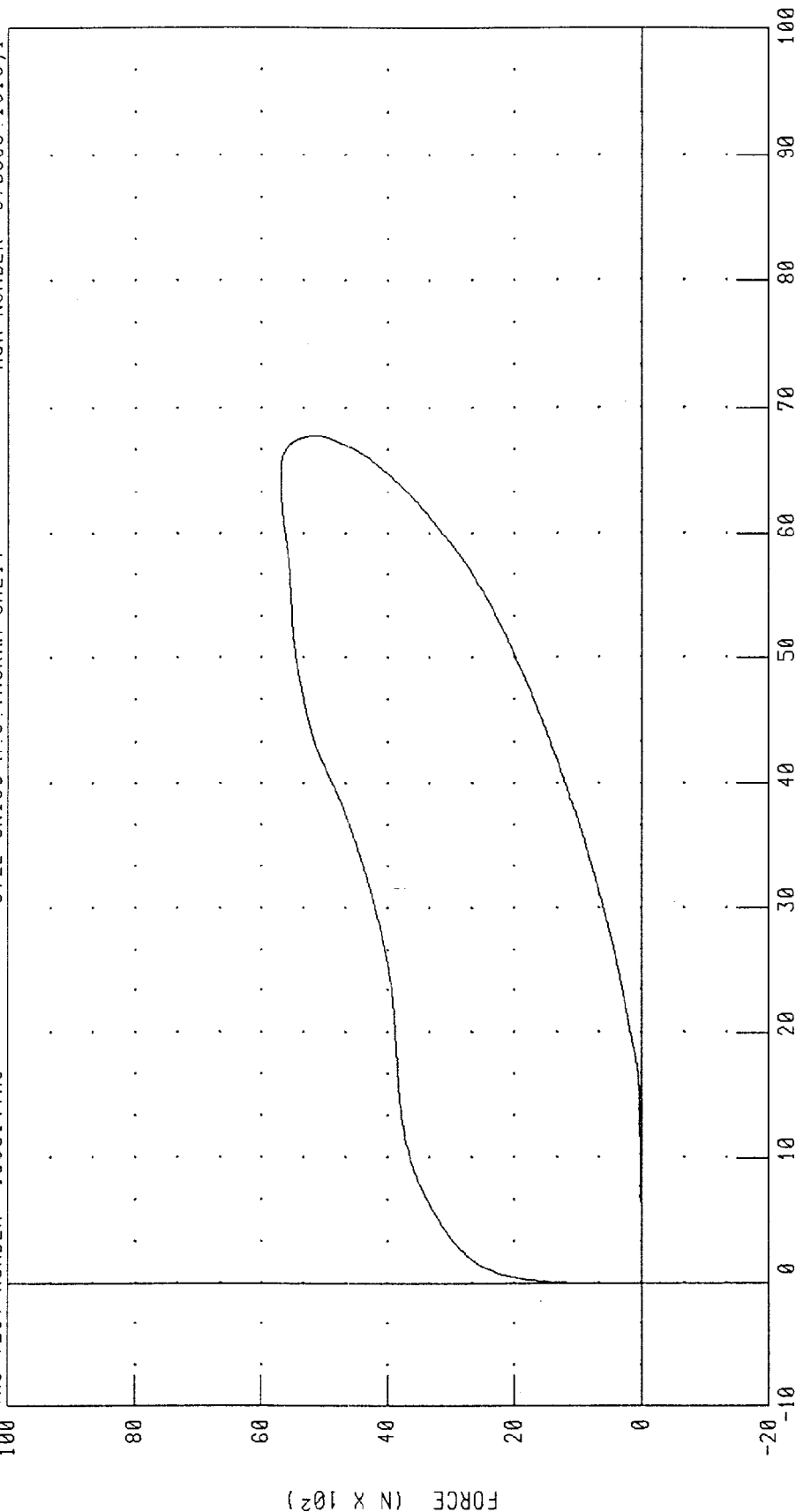
IRC TEST NUMBER: 168C14TH3 572E SN168 H.S. THORAX CAL14 RUN NUMBER: 070999.1518,1



CHANNEL: CSTXD FILTER: CH. CLASS 180 PEAK DATA: 67.81 MM @ 24.80 MS; -0.03 MM @ 0.64 MS

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

TRC TEST NUMBER: 168C14TH3 572E SN168 H.S. THORAX CAL14 RUN NUMBER 070999 1518;1



CHANNEL: CSTXD FILTER: CH. CLASS 180
PENXF CH. CLASS 180
PEAK DATA: 67.81 MM @ 24.80 MS; -0.03 MM @ 0.64 MS
5693.01 N @ 19.60 MS; 6.09 N @ -0.80 MS

TRANSPORTATION RESEARCH CENTER INC.

RIGHT KNEE IMPACT TEST

HYBRID III 50th

09-JUL-99

TRC INC.

TEST NO: 168C14RK2

572E SN168 RIGHT KNEE CAL 14

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	18.9-25.6 DEG. C	21.7 DEG. C
RELATIVE HUMIDITY	10 - 70 %	44.0 %
PROBE VELOCITY	2.07 - 2.13 M/S	2.12 M/S
PEAK KNEE IMPACT FORCE 5.0 KG PENDULUM	4715 - 5782 N	5026.1 N

TEST MEETS SPECIFICATIONS

TECHNICIAN Chad Rife

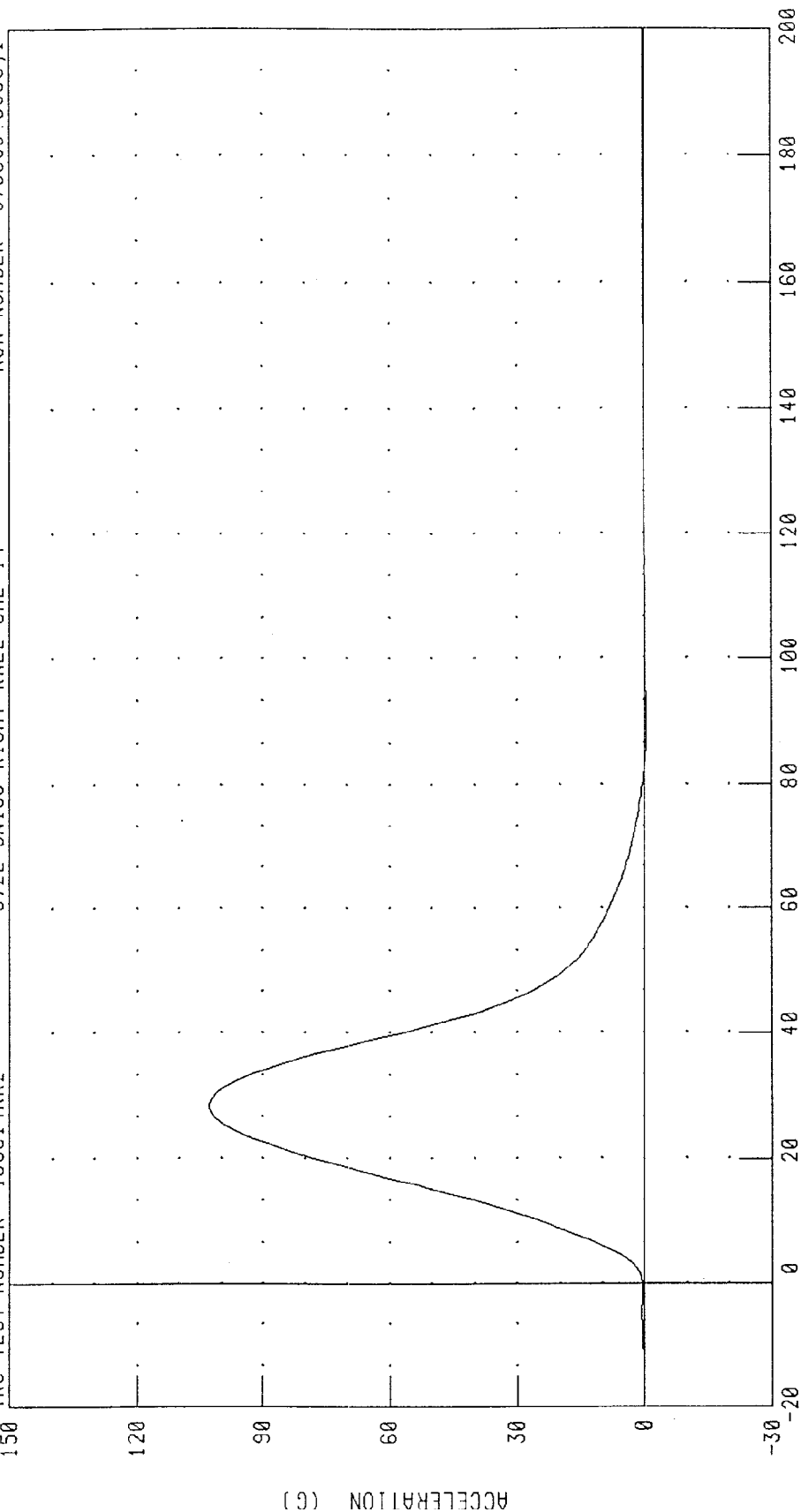
RUN NUMBER: 070999.0854;1

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

TRC TEST NUMBER: 168C14RK2

572E SN168 RIGHT KNEE CAL 14

RUN NUMBER: 070999.0855,1



CHANNEL: PENXC

FILTER: CH. CLASS 600

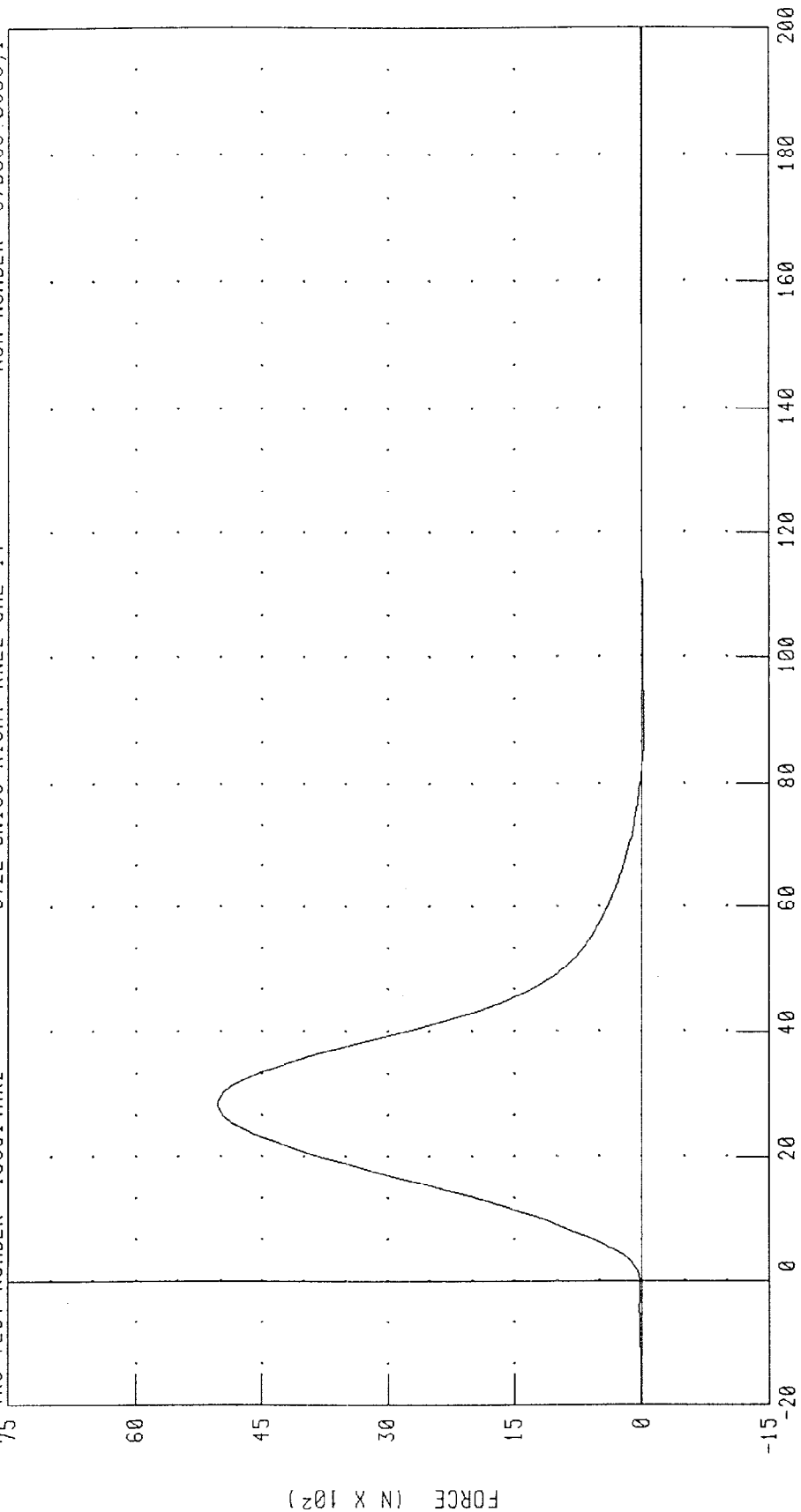
PEAK DATA: 102.73 G @ 2.80 MS, -0.64 G @ 8.96 MS

PART 572-E HYBRID III RIGHT KNEE CALIBRATION

PENDULUM FORCE (5 KG PEND.)

572E SN168 RIGHT KNEE CAL 14 RUN NUMBER: 070999.0855,1

TRC TEST NUMBER: 168C14RK2



CHANNEL: PENXF

FILTER: CH. CLASS 600

TIME (MS X 10⁻¹)

PEAK DATA: 5026.14 N @ 2.80 MS; -31.16 N @ 8.96 MS

TRANSPORTATION RESEARCH CENTER INC.

LEFT KNEE IMPACT TEST

HYBRID III 50th

09-JUL-99

TRC INC.

TEST NO: 168C14LK1

572E SN168 LEFT KNEE CAL 14

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	18.9-25.6 DEG. C	21.7 DEG. C
RELATIVE HUMIDITY	10 - 70 %	44.0 %
PROBE VELOCITY	2.07 - 2.13 M/S	2.13 M/S
PEAK KNEE IMPACT FORCE 5.0 KG PENDULUM	4715 - 5782 N	5488.4 N

TEST MEETS SPECIFICATIONS

TECHNICIAN Chad Rife

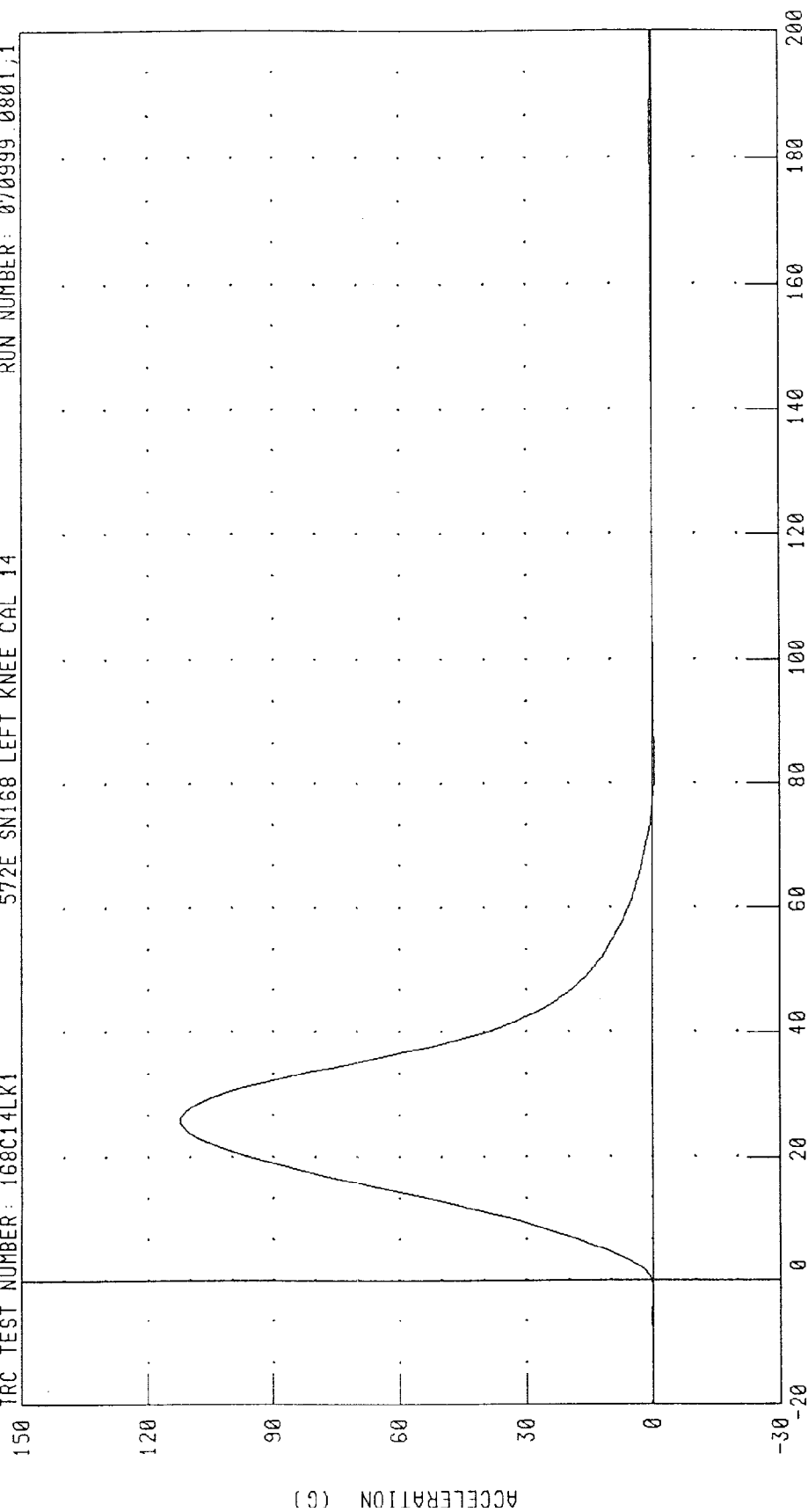
RUN NUMBER: 070999.0800;1

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

TRC TEST NUMBER: 168C14LK1

572E SN168 LEFT KNEE CAL 14

RUN NUMBER: 070999 0801,1



CHANNEL: PENXC

FILTER: CH. CLASS 600

TIME (MS X 10⁻¹)

PEAK DATA: 112.17 G @ 2.56 MS; -0.63 G @ 8.32 MS

PART 572-E HYBRID III LEFT KNEE CALIBRATION

PENDULUM FORCE (5 KG PEND.)

572E SN168 LEFT KNEE CAL 14

TRC TEST NUMBER: 168C14LK1

75

60

45

30

15

0

-15

-20

0

20

40

60

80

100

120

140

160

180

200

TIME (MS X 10⁻¹)

PEAK DATA: 5488.44 N @ 2.56 MS; -30.84 N @ 8.32 MS

CHANNEL: PENXF

FILTER: CH. CLASS 600

RUN NUMBER: 070999.0801;1

75

60

45

30

15

0

-15

-20

0

20

40

60

80

100

120

140

160

180

200

TIME (MS X 10⁻¹)

PEAK DATA: 5488.44 N @ 2.56 MS; -30.84 N @ 8.32 MS

CHANNEL: PENXF

FILTER: CH. CLASS 600

RUN NUMBER: 070999.0801;1

75

60

45

30

15

0

-15

-20

0

20

40

60

80

100

120

140

160

180

200

TIME (MS X 10⁻¹)

PEAK DATA: 5488.44 N @ 2.56 MS; -30.84 N @ 8.32 MS

CHANNEL: PENXF

FILTER: CH. CLASS 600

RUN NUMBER: 070999.0801;1

75

60

45

30

15

0

-15

-20

0

20

40

60

80

100

120

140

160

180

200

TIME (MS X 10⁻¹)

PEAK DATA: 5488.44 N @ 2.56 MS; -30.84 N @ 8.32 MS

CHANNEL: PENXF

FILTER: CH. CLASS 600

RUN NUMBER: 070999.0801;1

75

60

45

30

15

0

-15

-20

0

20

40

60

80

100

120

140

160

180

200

TIME (MS X 10⁻¹)

PEAK DATA: 5488.44 N @ 2.56 MS; -30.84 N @ 8.32 MS

CHANNEL: PENXF

FILTER: CH. CLASS 600

RUN NUMBER: 070999.0801;1

75

60

45

30

15

0

-15

-20

0

20

40

60

80

100

120

140

160

180

200

TIME (MS X 10⁻¹)

PEAK DATA: 5488.44 N @ 2.56 MS; -30.84 N @ 8.32 MS

CHANNEL: PENXF

FILTER: CH. CLASS 600

RUN NUMBER: 070999.0801;1

75

60

45

30

15

0

-15

-20

0

20

40

60

80

100

120

140

160

180

200

TIME (MS X 10⁻¹)

PEAK DATA: 5488.44 N @ 2.56 MS; -30.84 N @ 8.32 MS

CHANNEL: PENXF

FILTER: CH. CLASS 600

RUN NUMBER: 070999.0801;1

75

60

45

30

15

0

-15

-20

0

20

40

60

80

100

120

140

160

180

200

TIME (MS X 10⁻¹)

PEAK DATA: 5488.44 N @ 2.56 MS; -30.84 N @ 8.32 MS

CHANNEL: PENXF

FILTER: CH. CLASS 600

RUN NUMBER: 070999.0801;1

75

60

45

30

15

0

-15

-20

0

20

40

60

80

100

120

140

160

180

200

TIME (MS X 10⁻¹)

PEAK DATA: 5488.44 N @ 2.56 MS; -30.84 N @ 8.32 MS

CHANNEL: PENXF

FILTER: CH. CLASS 600

RUN NUMBER: 070999.0801;1

75

60

45

30

15

0

-15

-20

0

20

40

60

80

100

120

140

160

180

200

TIME (MS X 10⁻¹)

PEAK DATA: 5488.44 N @ 2.56 MS; -30.84 N @ 8.32 MS

CHANNEL: PENXF

FILTER: CH. CLASS 600

RUN NUMBER: 070999.0801;1

75

60

45

30

15

0

-15

-20

0

20

40

60

80

100

120

140

160

180

200

TIME (MS X 10⁻¹)

PEAK DATA: 5488.44 N @ 2.56 MS; -30.84 N @ 8.32 MS

CHANNEL: PENXF

FILTER: CH. CLASS 600

RUN NUMBER: 070999.0801;1

75

60

45

30

15

0

-15

-20

0

20

40

60

80

100

120

140

160

180

200

TIME (MS X 10⁻¹)

PEAK DATA: 5488.44 N @ 2.56 MS; -30.84 N @ 8.32 MS

CHANNEL: PENXF

FILTER: CH. CLASS 600

RUN NUMBER: 070999.0801;1

75

60

45

30

15

0

-15

-20

0

20

40

60

80

100

120

140

160

180

200

TIME (MS X 10⁻¹)

PEAK DATA: 5488.44 N @ 2.56 MS; -30.84 N @ 8.32 MS

CHANNEL: PENXF

FILTER: CH. CLASS 600

RUN NUMBER: 070999.0801;1

75

60

45

30

15

0

-15

-20

0

Post-Test Dummy Certification

Passenger Dummy S/N 169

TRANSPORTATION RESEARCH CENTER INC.
HYBRID III EXTERNAL DIMENSIONS

SN169

09-JUL-99

TRC INC. TEST NO: 169C12ED1 572E SN169 EXT.DIMENSION CAL12

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	851. MM
CHEST DEPTH	(O)	213 - 229 MM	221. MM
H-POINT HEIGHT	(C)	84 - 89 MM	86. 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	886. MM
THIGH CLEARANCE	(F)	140 - 155 MM	152. MM
BUTTOCK KNEE LENGTH	(K)	579 - 605 MM	602. MM
BUTTOCK POPLITEAL LENGTH	(N)	452 - 478 MM	462. MM
POPLITEAL HEIGHT	(L)	429 - 455 MM	445. MM
KNEE PIVOT HEIGHT	(M)	485 - 500 MM	495. MM
FOOT LENGTH	(P)	252 - 267 MM	254. MM
FOOT BREADTH	(W)	91 - 107 MM	102. MM
SHOULDER PIVOT FROM BACKLINE	(E)	84 - 94 MM	86. MM
SHOULDER BREADTH	(V)	422 - 437 MM	427. 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	343. MM
BACK OF ELBOW TO WRIST PIVOT	(G)	290 - 305 MM	292. MM

DUMMY MEETS SPECIFICATIONS

TECHNICIAN Kevin Watkins

RUN NUMBER: 072099.1453

TRANSPORTATION RESEARCH CENTER INC.

HEAD DROP TEST

HYBRID III 50th

09-JUL-99

TRC INC.

TEST NO: 169C12HD1

572E SN169 HEAD DROP CAL 12

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	18.9-25.6 DEG. C	21.7 DEG. C
RELATIVE HUMIDITY	10 - 70 %	44.0 %
PEAK RESULTANT ACCELERATION	225 - 275 G	260.55 G
PEAK LATERAL ACCELERATION	15 G MAX	-2.81 G
IS ACCELERATION CURVE UNIMODAL?	YES	YES

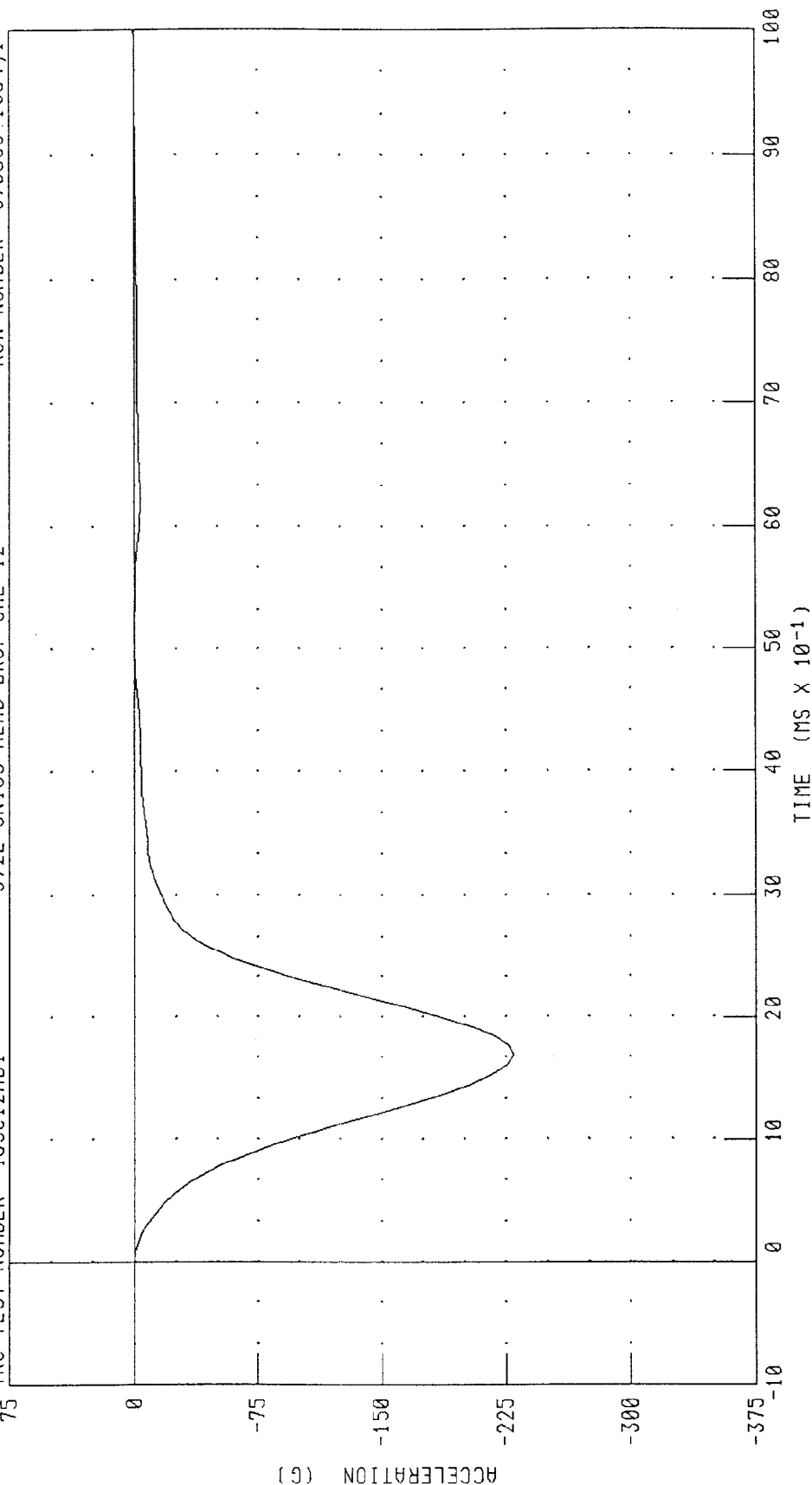
TEST MEETS SPECIFICATIONS

TECHNICIAN Chad Rife

RUN NUMBER: 070999.1034;1

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

TRC TEST NUMBER: 169C12HD1 572E SN169 HEAD DROP CAL 12 RUN NUMBER: 070999 1034;1



CHANNEL: HEDXC FILTER: CH. CLASS 1000

PEAK DATA: 0.71 G @ 10.00 MS; -229.45 G @ 1.68 MS

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

TRC TEST NUMBER: 169C12HD1

572E SN169 HEAD DROP CAL 12

RUN NUMBER: 070999.1034;1

225

150

75

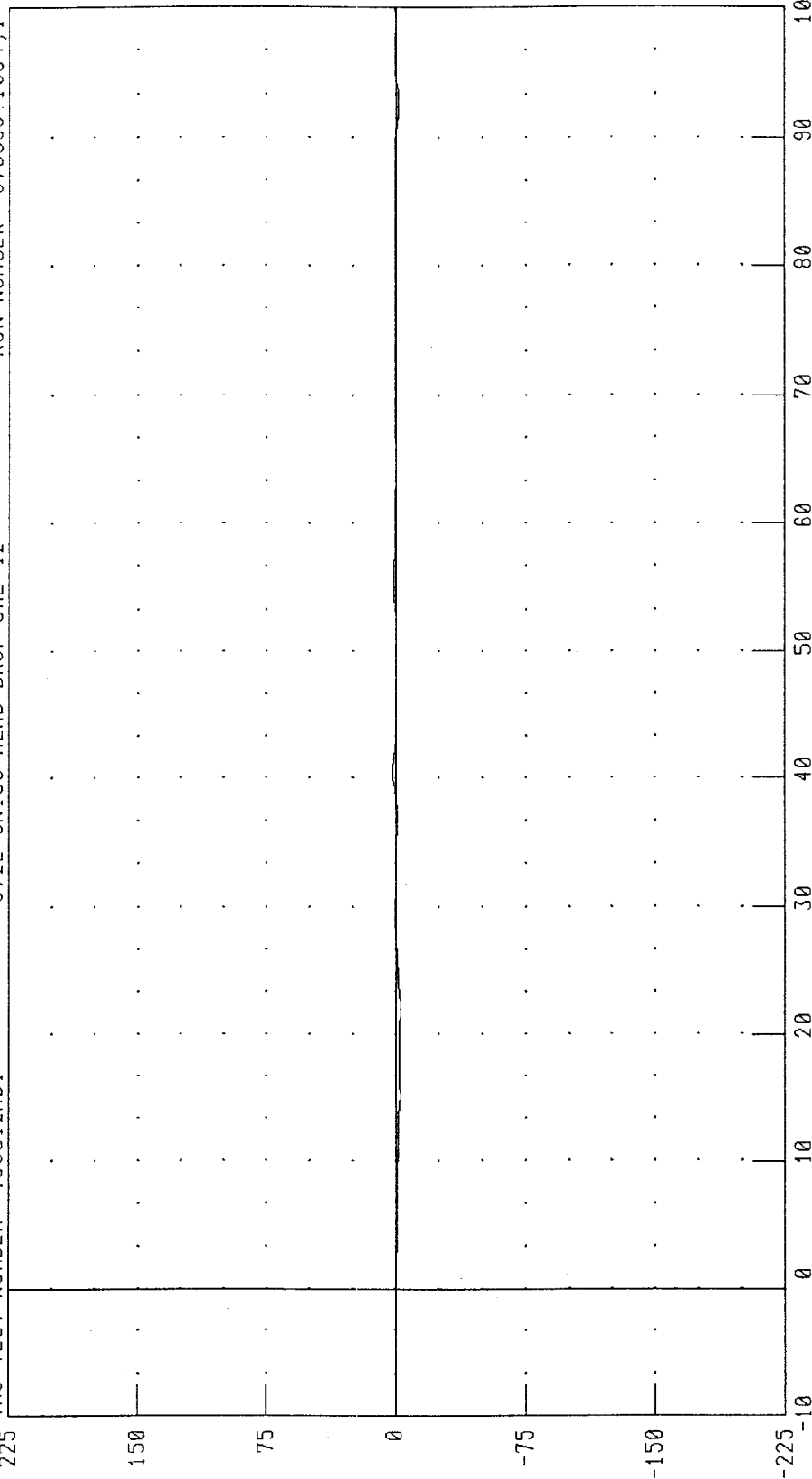
0

-75

-150

-225

ACCELERATION (G)



TIME (MS X 10⁻¹)

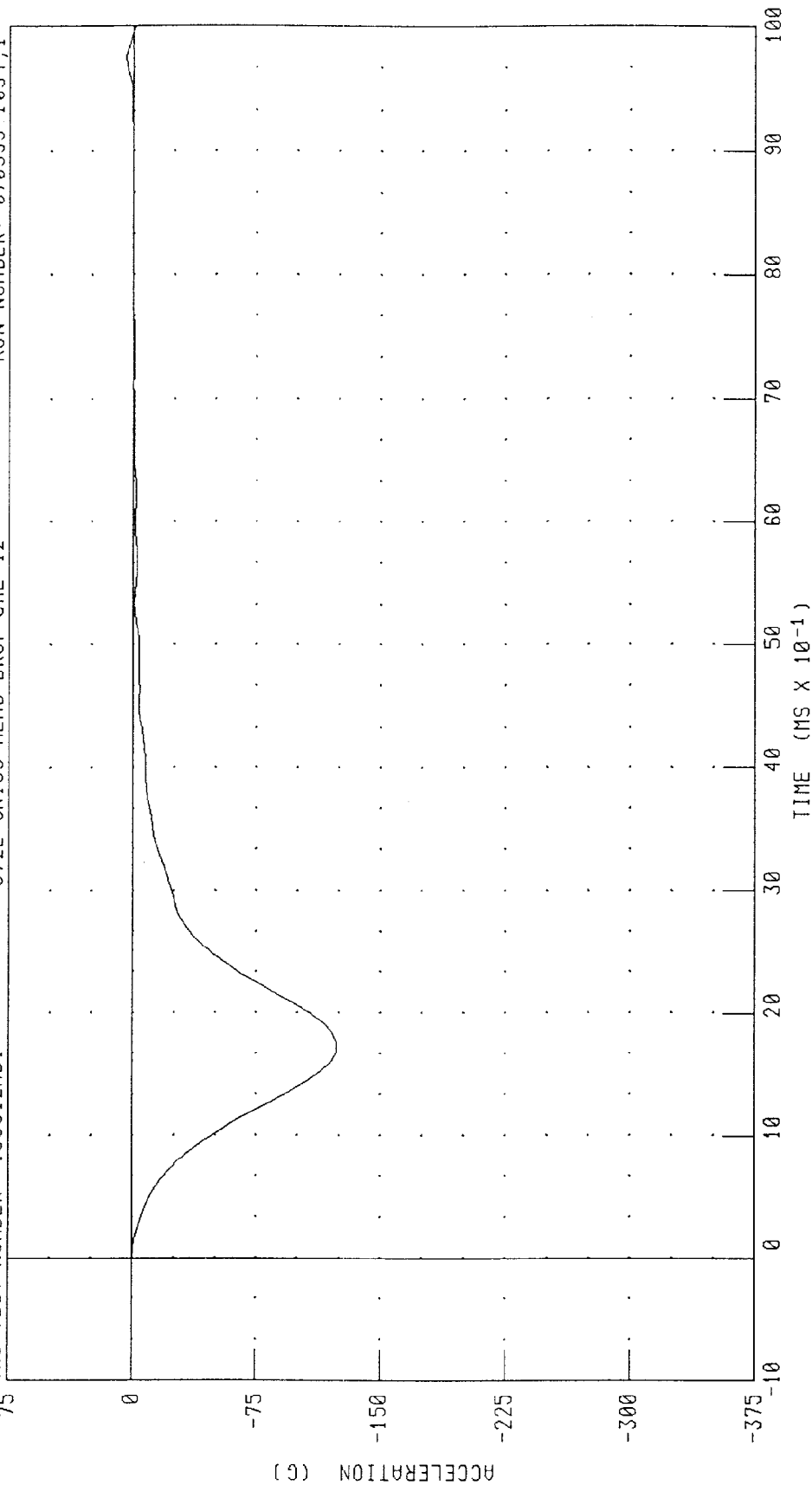
PEAK DATA: 1.61 G @ 4.08 MS; -2.82 G @ 2.16 MS

FILTER: CH. CLASS 1000

CHANNEL: HEDYG

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

TRC TEST NUMBER: 169C12HD1 572E SN169 HEAD DROP CAL 12 RUN NUMBER: 070999 1034,1



CHANNEL: HEDZG FILTER: CH. CLASS 1000

PEAK DATA: 4.41 G @ 9.76 MS; -123.64 G @ 1.76 MS

PART 572-E HYBRID III HEAD CALIBRATION
HEAD RESULTANT ACCELERATION
572E SN169 HEAD DROP CAL 12

RUN NUMBER: 070999.1034;1

TRC TEST NUMBER: 169C12HD1

375

300

ACCELERATION (G)

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

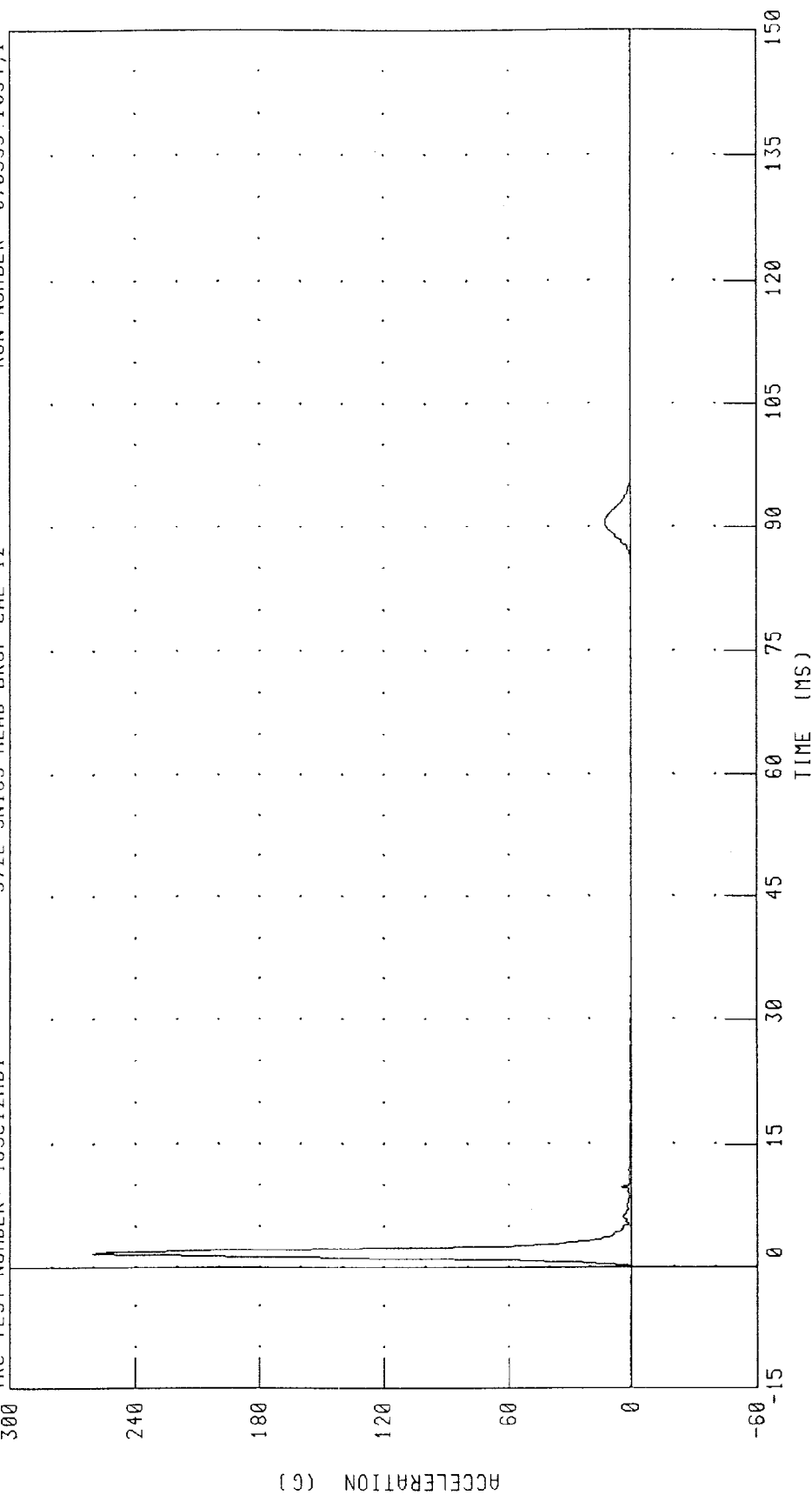
PEAK DATA: 260.56 G @ 1.68 MS; 0.09 G @ -0.80 MS

PART 572-E HYBRID III HEAD CALIBRATION
CHECK PLOT - HEAD RESULTANT ACCELERATION

TRC TEST NUMBER: 169C12HD1

572E SN169 HEAD DROP CAL 12

RUN NUMBER: 070999.1034;1



CHANNEL: HEDRG FILTER: CH. CLASS 1000

PEAK DATA: 260.56 G @ 1.68 MS, 0.09 G @ -14.24 MS

TRANSPORTATION RESEARCH CENTER INC.

HYBRID III 50th

09-JUL-99

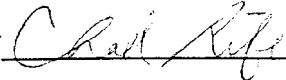
NECK FLEXION TEST - 6 CHANNEL TRANSDUCER

TRC INC. TEST NO: 169C12NF1 572E SN169 NECK FLEXION CAL12

TEST PARAMETER		SPECIFICATION	TEST RESULTS
TEMPERATURE		20.6-22.2 DEG. C	21.7 DEG. C
RELATIVE HUMIDITY		10 - 70 %	44.0 %
IMPACT VELOCITY		6.89 - 7.13 M/S	6.93 M/S
PENDULUM DECELERATION	10 MS	22.50 - 27.50 G	23.76 G
	20 MS	17.60 - 22.60 G	21.67 G
	30 MS	12.50 - 18.50 G	18.15 G
MAX PENDULUM G		29 G MAX	24.24 G
MAX PENDULUM G ABOVE 30 MS		29 G MAX	18.13 G
DECELERATION-TIME CURVE DECAY TIME TO 5 G		34 - 42 MS	36.96 MS
D PLANE	MAX	64 - 78 DEG.	73.22 DEG.
ROTATION	TIME	57 - 64 MS	60.40 MS
MOMENT ABOUT OCCIPITAL CONDYLE	MAX	88.2 - 108.5 NM	94.21 NM
	TIME	47 - 58 MS	49.76 MS
ROTATION ANGLE-TIME CURVE DECAY TIME TO ZERO		113 - 128 MS	117.12 MS
POSITIVE MOMENT-TIME CURVE DECAY TIME TO ZERO		97 - 107 MS	103.84 MS

TEST MEETS SPECIFICATIONS

TECHNICIAN



RUN NUMBER: 070999.1224;1

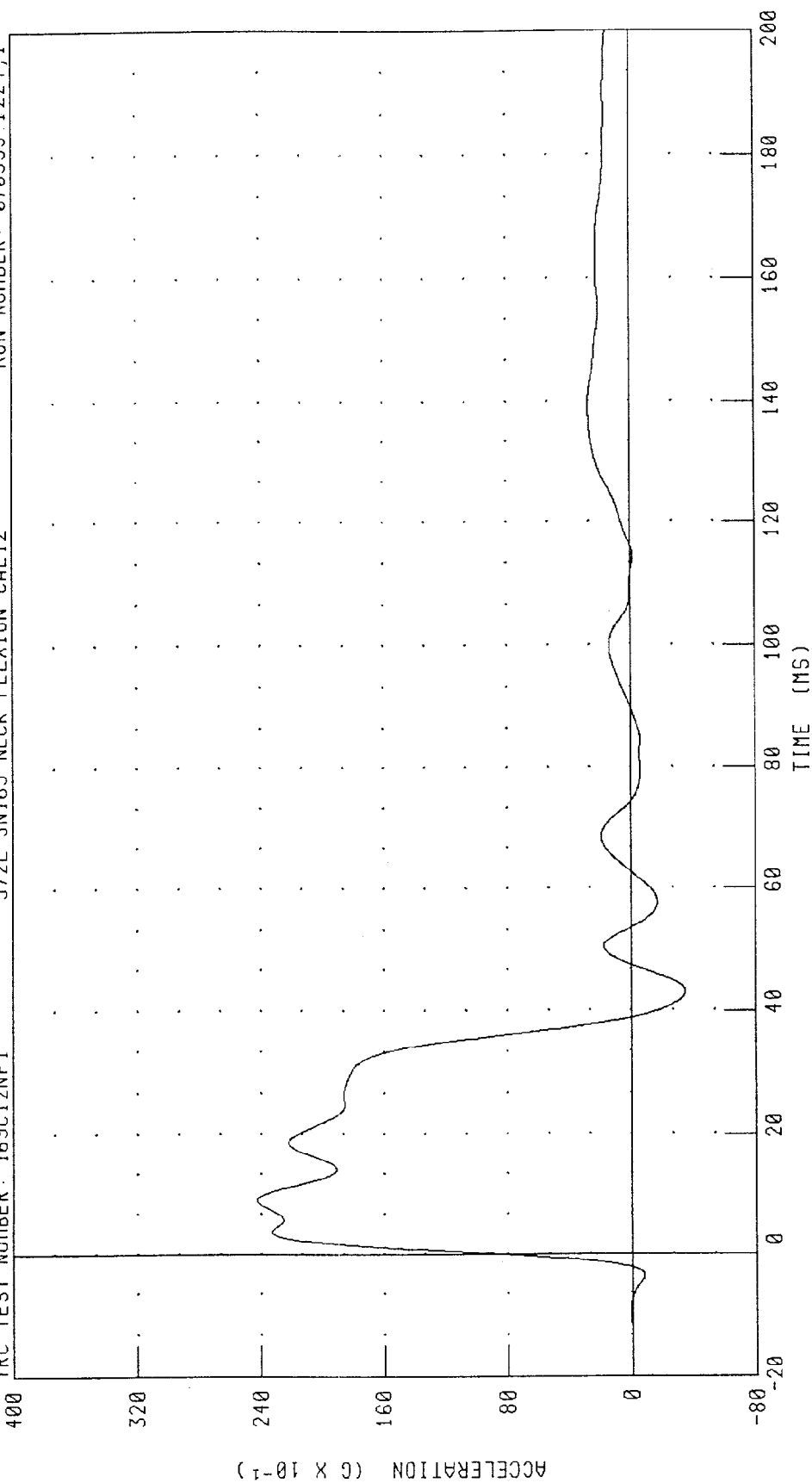
PART 572-E HYBRID III NECK FLEXION CALIBRATION

PENDULUM DECELERATION

TRC TEST NUMBER: 169C12NF1

572E SN169 NECK FLEXION CAL12

RUN NUMBER: 070999.1224,1



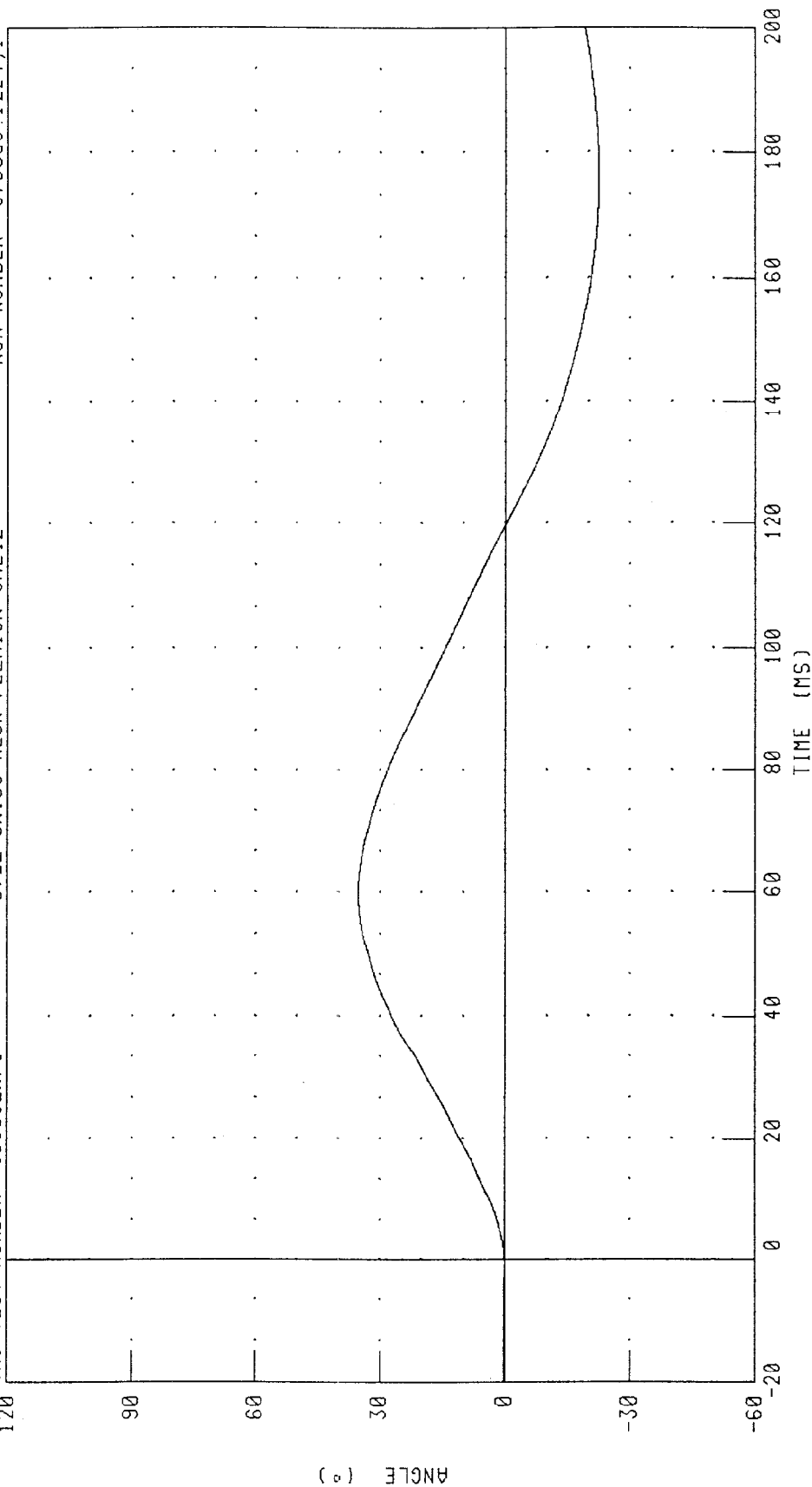
PEAK DATA: 24.24 G @ 9.04 MS; -3.47 G @ 43.04 MS

CHANNEL: PENXG FILTER: CH. CLASS 60

PART 572-E HYBRID III NECK FLEXION CALIBRATION

ROTATION ABOUT BASE OF NECK

TRC TEST NUMBER: 169C12NF1 572E SN169 NECK FLEXION CAL12 RUN NUMBER: 070999.1224,1

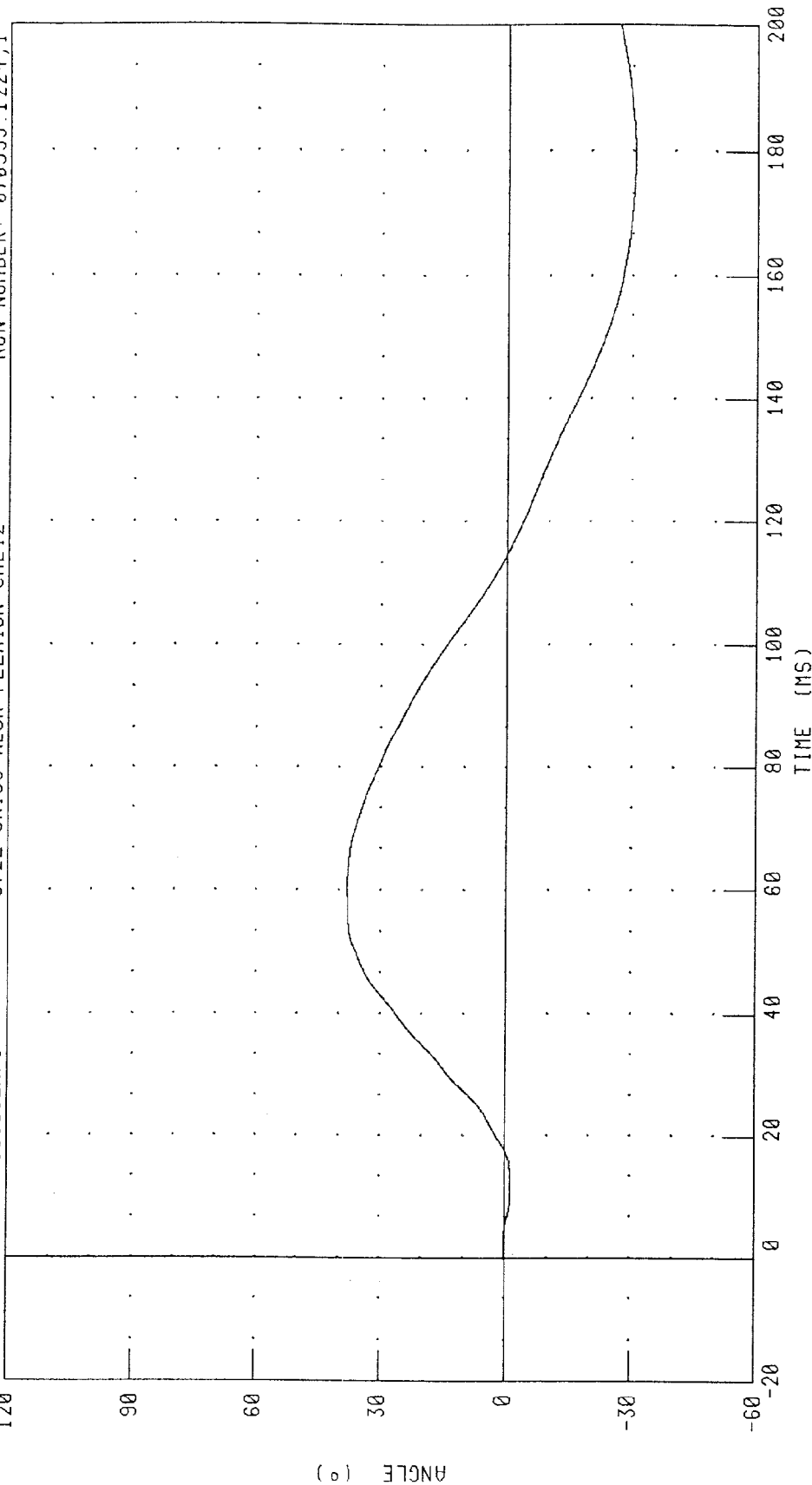


CHANNEL: BETA FILTER: CH. CLASS 60

PEAK DATA: 35.23 ° @ 60.08 MS, -22.46 ° @ 175.60 MS

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

IRC TEST NUMBER: 169C12NF1 572E SN169 NECK FLEXION CAL12 RUN NUMBER: 070999.1224;1



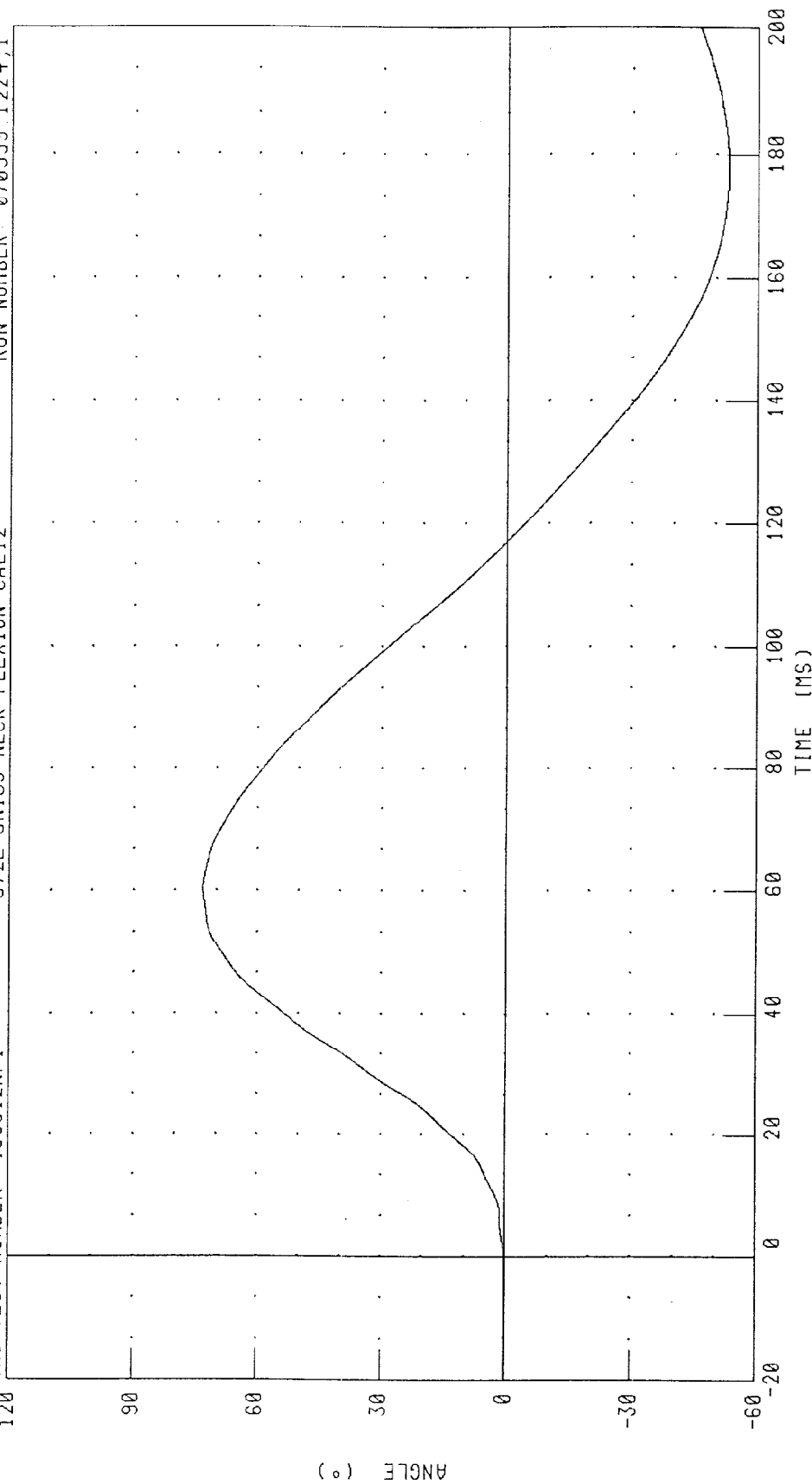
CHANNEL: THETA FILTER: CH. CLASS 60

PEAK DATA: 38.01 ° @ 60.64 MS, -30.49 ° @ 179.28 MS

PART 572-E HYBRID III NECK FLEXION CALIBRATION

TOTAL ROTATION

IRC TEST NUMBER: 169C12NF1 572E SN169 NECK FLEXION CAL12 RUN NUMBER: 070999.1224.1



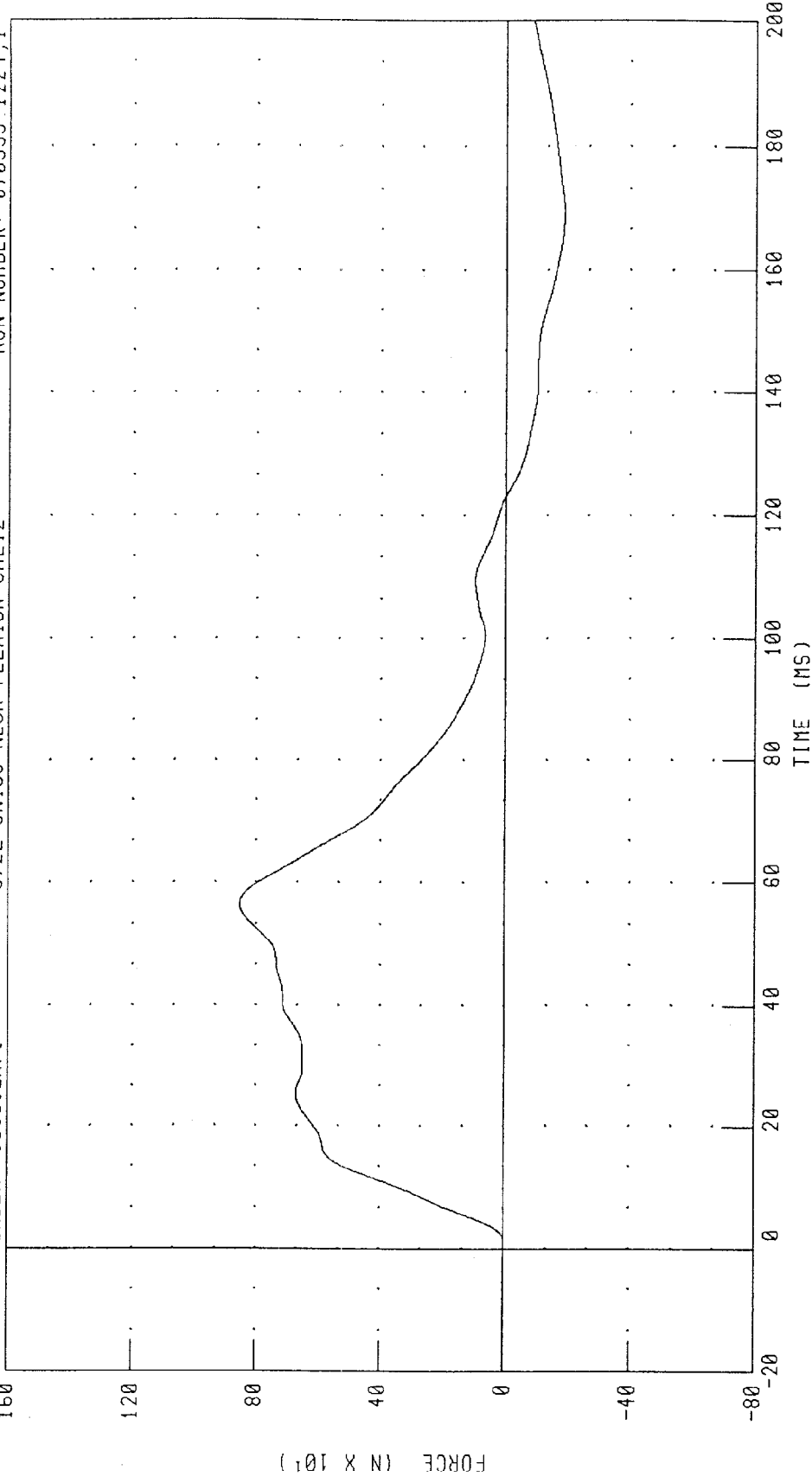
CHANNEL: TOTAL FILTER: CH. CLASS 60

PEAK DATA: 73.23 ° @ 60.40 MS, -52.91 ° @ 177.60 MS

PART 572-E HYBRID III NECK FLEXION CALIBRATION

NECK FORCE X AXIS

TRC TEST NUMBER: 169C12NF1 572E SN169 NECK FLEXION CAL12 RUN NUMBER: 070999 1224,1

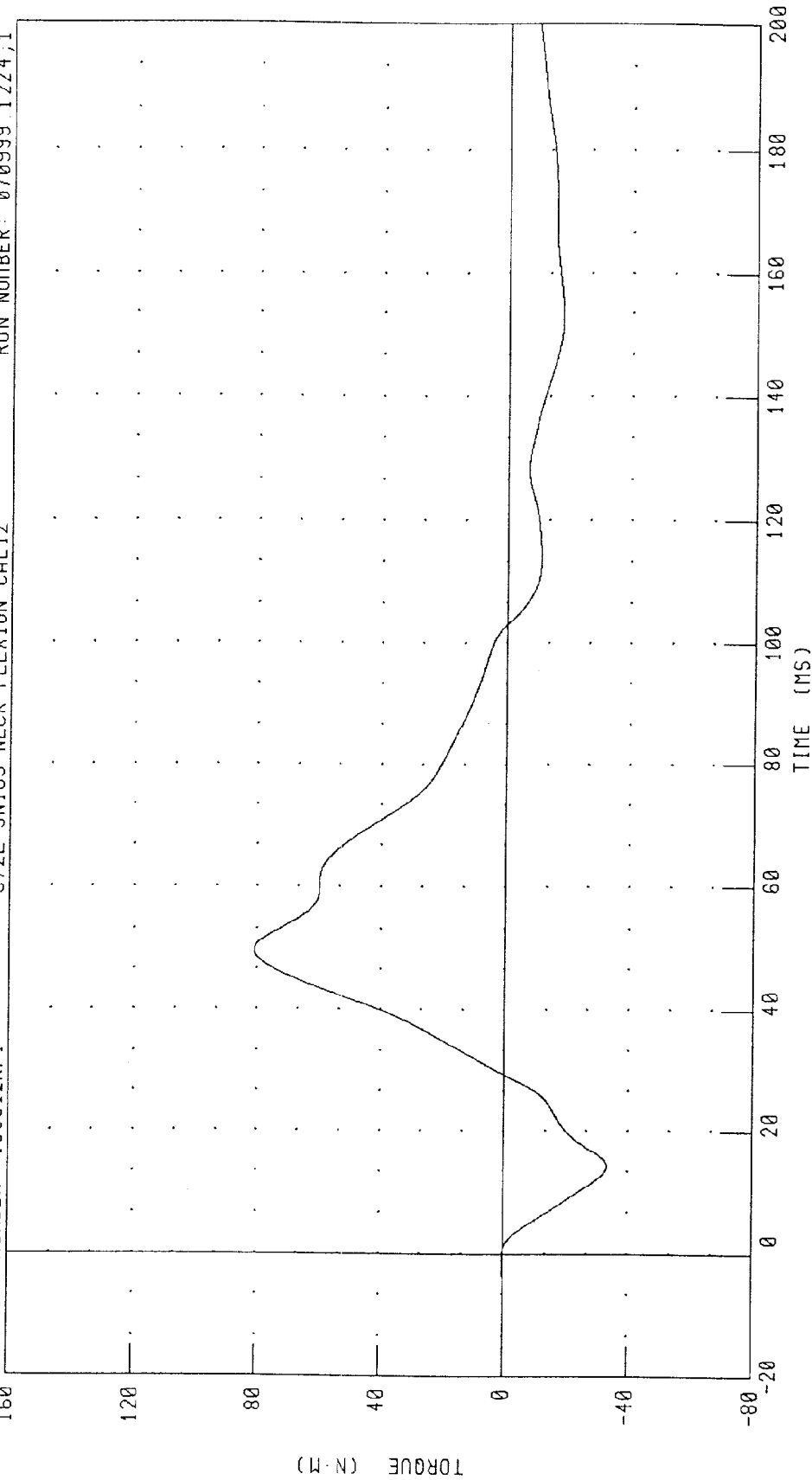


CHANNEL: NEKXF FILTER: CH. CLASS 60 PEAK DATA: 853.60 N @ 56.48 MS, -187.16 N @ 169.44 MS

PART 572-E HYBRID III NECK FLEXION CALIBRATION

NECK MOMENT Y AXIS

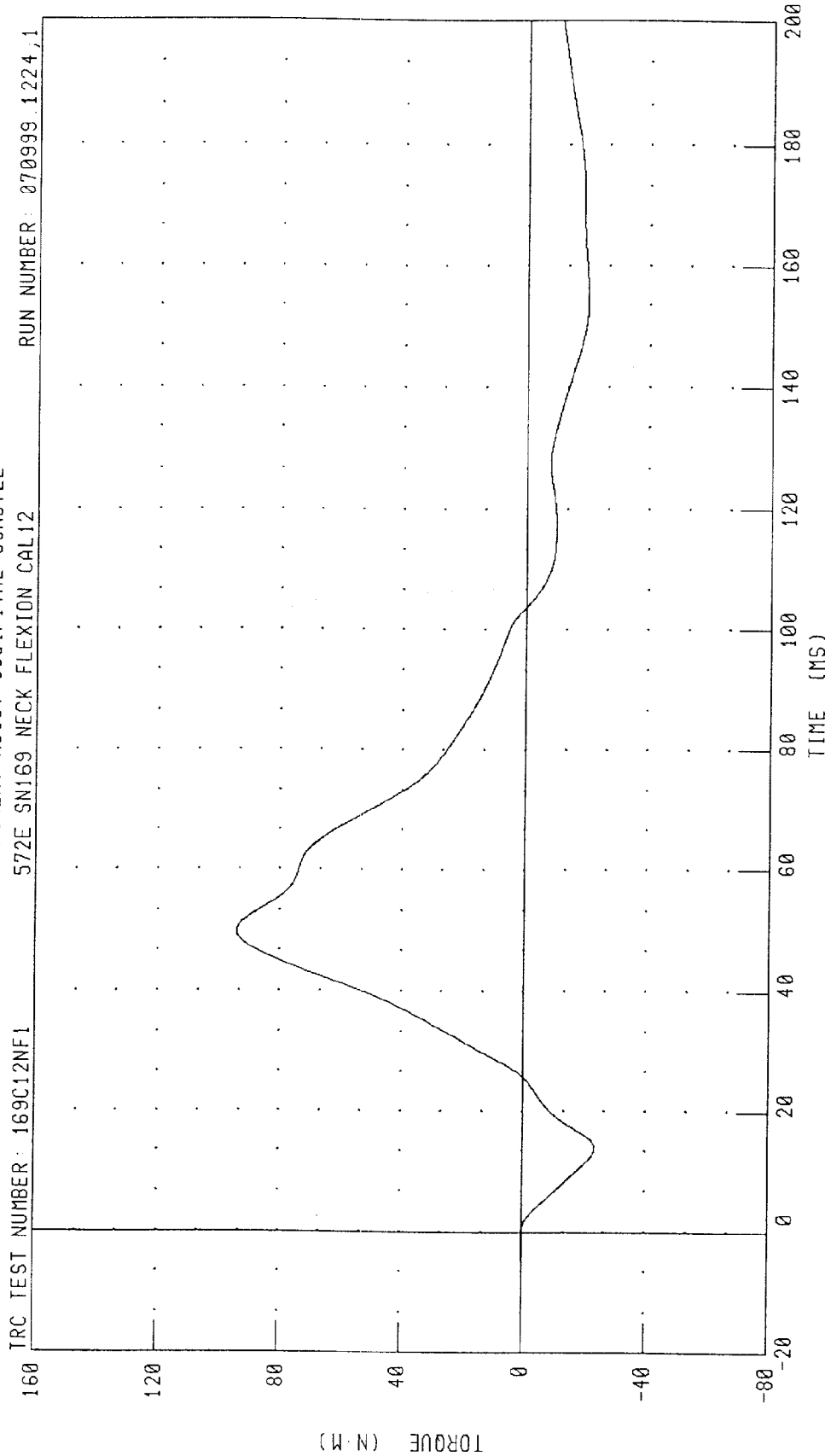
TRC TEST NUMBER: 169C12NF1 572E SN169 NECK FLEXION CAL12 RUN NUMBER: 070999 1224,1



CHANNEL: NEKYM FILTER: CH. CLASS 60

PEAK DATA: 80.93 N-M @ 49.68 MS, -33.23 N-M @ 14.16 MS

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



CHANNEL: NEKOM FILTER: CH. CLASS 60 PEAK DATA: 94.21 N-M @ 49.76 MS, -23.57 N-M @ 13.76 MS

TRANSPORTATION RESEARCH CENTER INC.

HYBRID III 50th

09-JUL-99

NECK EXTENSION TEST - 6 CHANNEL TRANSDUCER

TRC INC. TEST NO: 169C12NE2 572E SN 169 NECK EXT CAL12

TEST PARAMETER		SPECIFICATION	TEST RESULTS
TEMPERATURE		20.6 - 22.2 DEG. C	21.7 DEG. C
RELATIVE HUMIDITY		10 - 70 %	44.0 %
IMPACT VELOCITY		5.95 - 6.19 M/S	6.05 M/S
PENDULUM DECELERATION	10 MS	17.20 - 21.20 G	19.22 G
	20 MS	14.00 - 19.00 G	16.76 G
	30 MS	11.00 - 16.00 G	14.76 G
MAX PENDULUM G		22 G MAX	20.06 G
MAX PENDULUM G ABOVE 30 MS		22 G MAX	14.76 G
DECELERATION-TIME CURVE DECAY TIME TO 5 G		38 - 46 MS	39.68 MS
D PLANE	MAX	81 - 106 DEG.	100.03 DEG.
ROTATION	TIME	72 - 82 MS	76.00 MS
MOMENT ABOUT OCCIPITAL CONDYLE	MIN	-80.0/-52.9 NM	-70.11 NM
	TIME	65 - 79 MS	70.88 MS
ROTATION ANGLE-TIME CURVE DECAY TIME TO ZERO		147 - 174 MS	155.84 MS
NEGATIVE MOMENT-TIME CURVE DECAY TIME TO ZERO		120 - 148 MS	147.12 MS

TEST MEETS SPECIFICATIONS

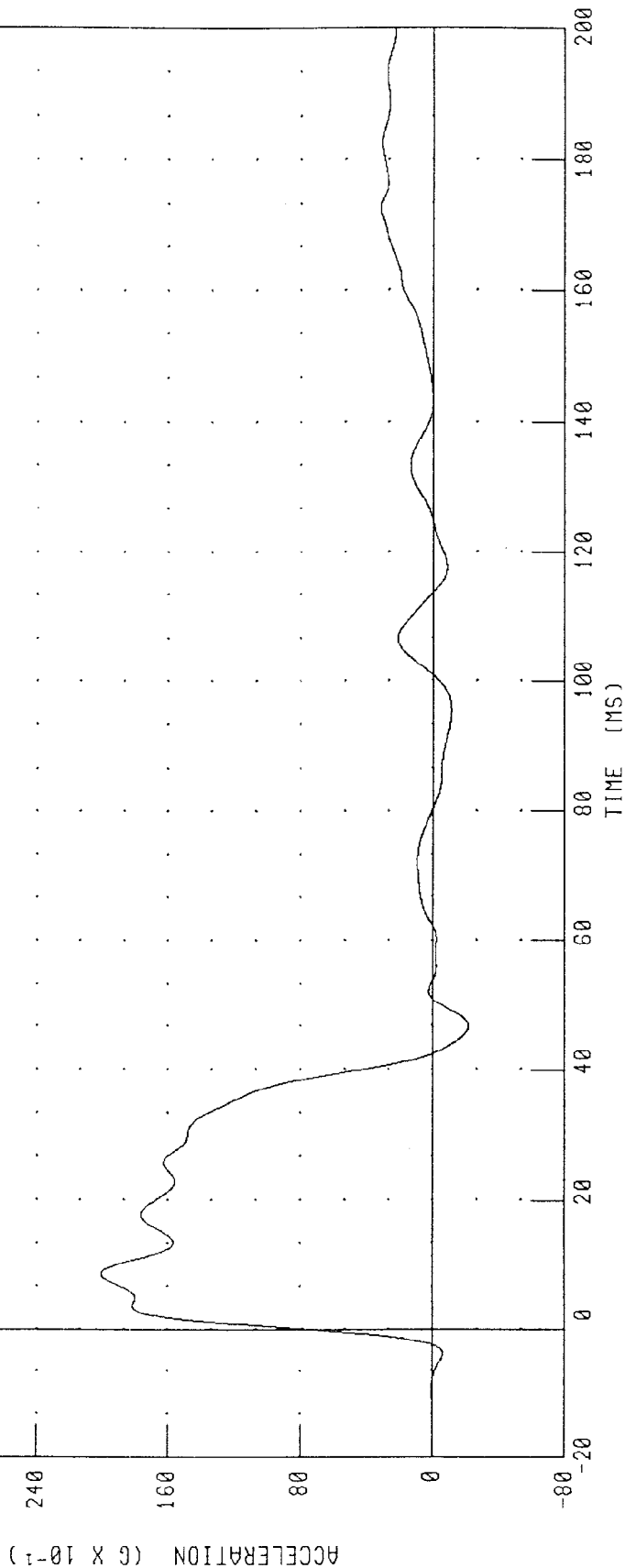
TECHNICIAN

Chad Telford

RUN NUMBER: 070999.1327;1

PART 572-E HYBRID III NECK EXTENSION CALIBRATION
PENDULUM DECELERATION

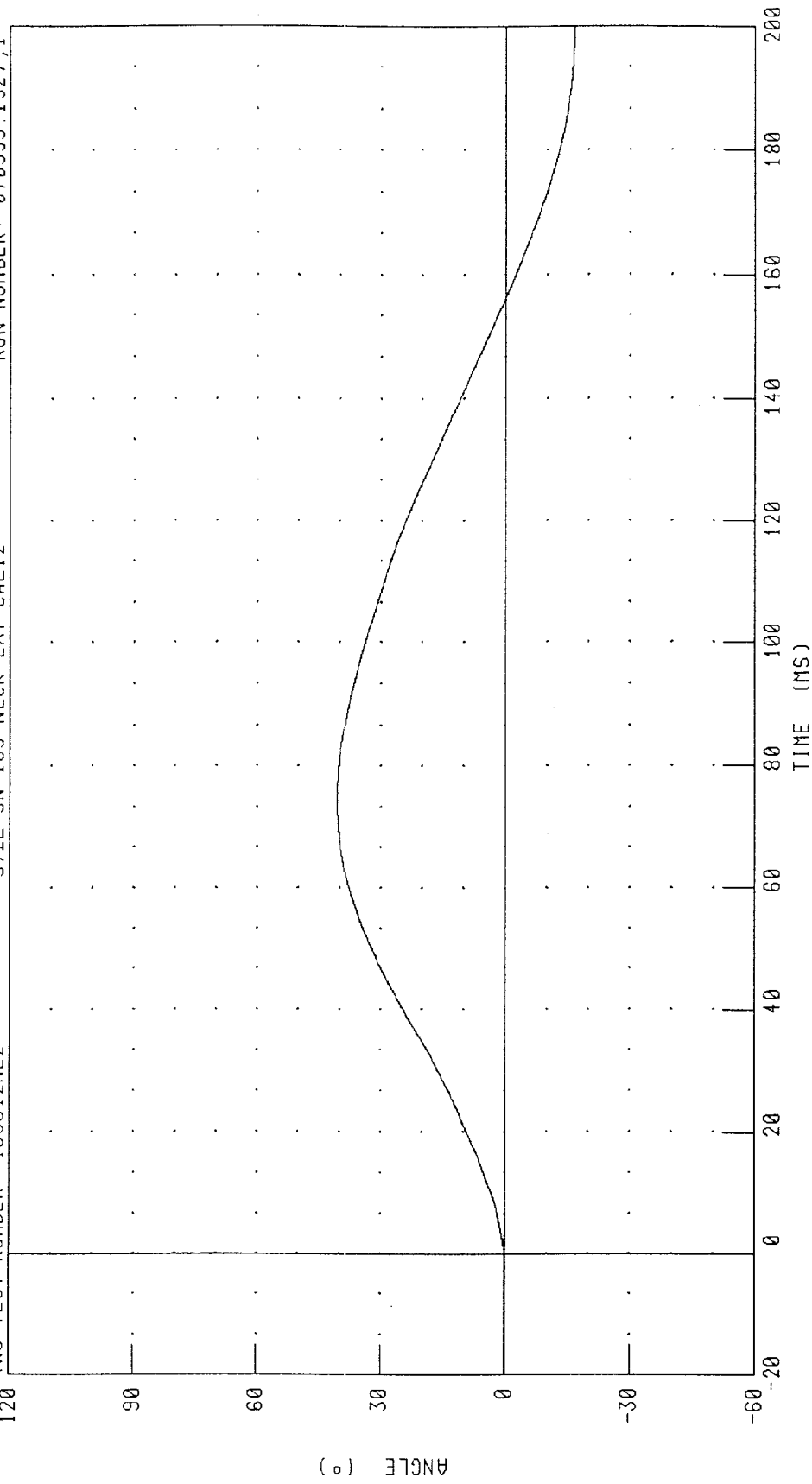
TRC TEST NUMBER: 169C12NE2 572E SN 169 NECK EXT CAL12 RUN NUMBER: 070999 1327,1



CHANNEL: PENXC FILTER: CH. CLASS 60 PEAK DATA: 20.07 G @ 8.64 MS; -2.18 G @ 46.64 MS

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

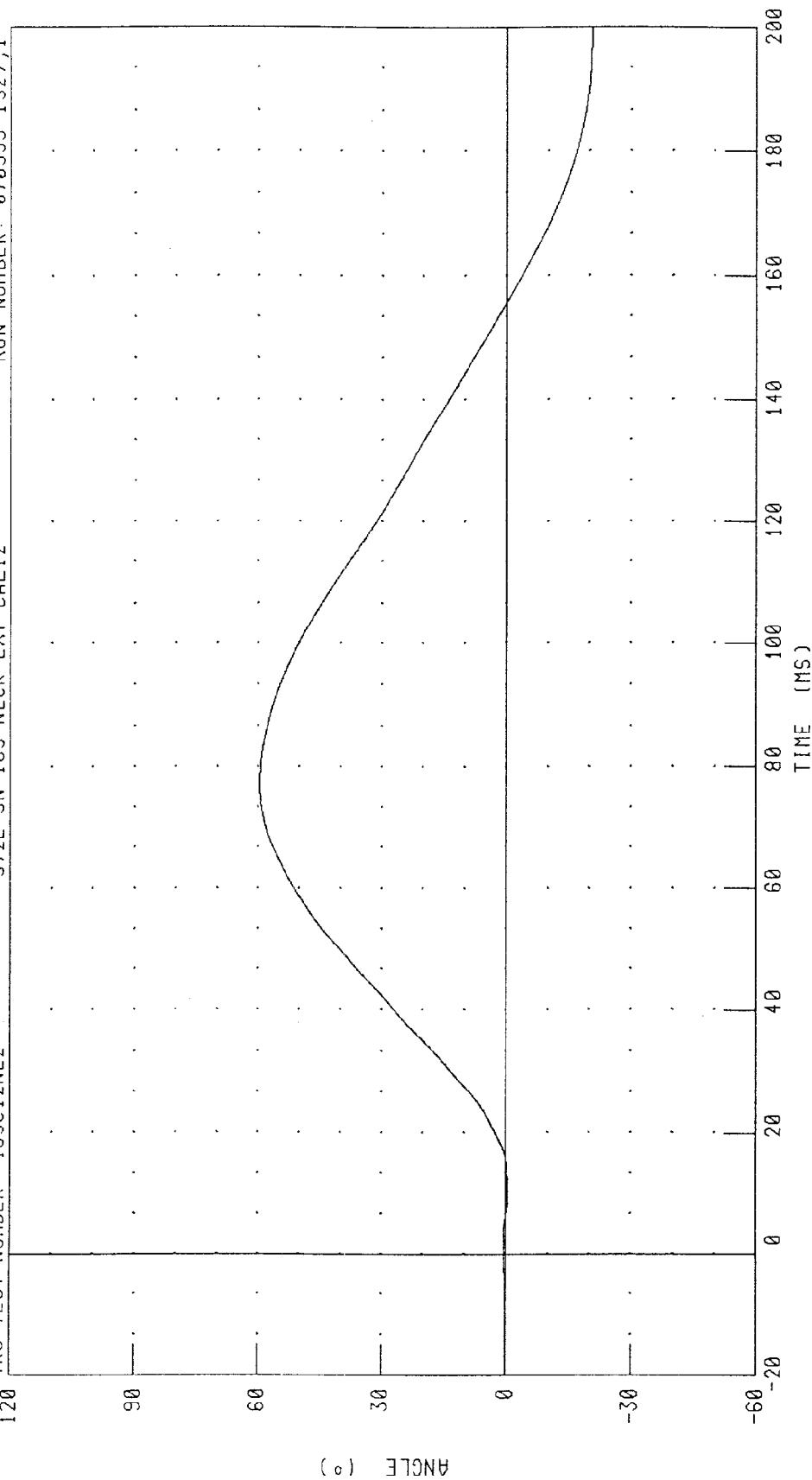
IRC TEST NUMBER: 169C12NE2 572E SN 169 NECK EXT CAL12 RUN NUMBER: 070999.1327,1



CHANNEL: BETA FILTER: CH. CLASS 60 PEAK DATA: 40.56 ° @ 74.72 MS; -16.60 ° @ 199.68 MS

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

TRC TEST NUMBER: 169C12NE2 572E SN 169 NECK EXT CAL12 RUN NUMBER: 070999 1327,1

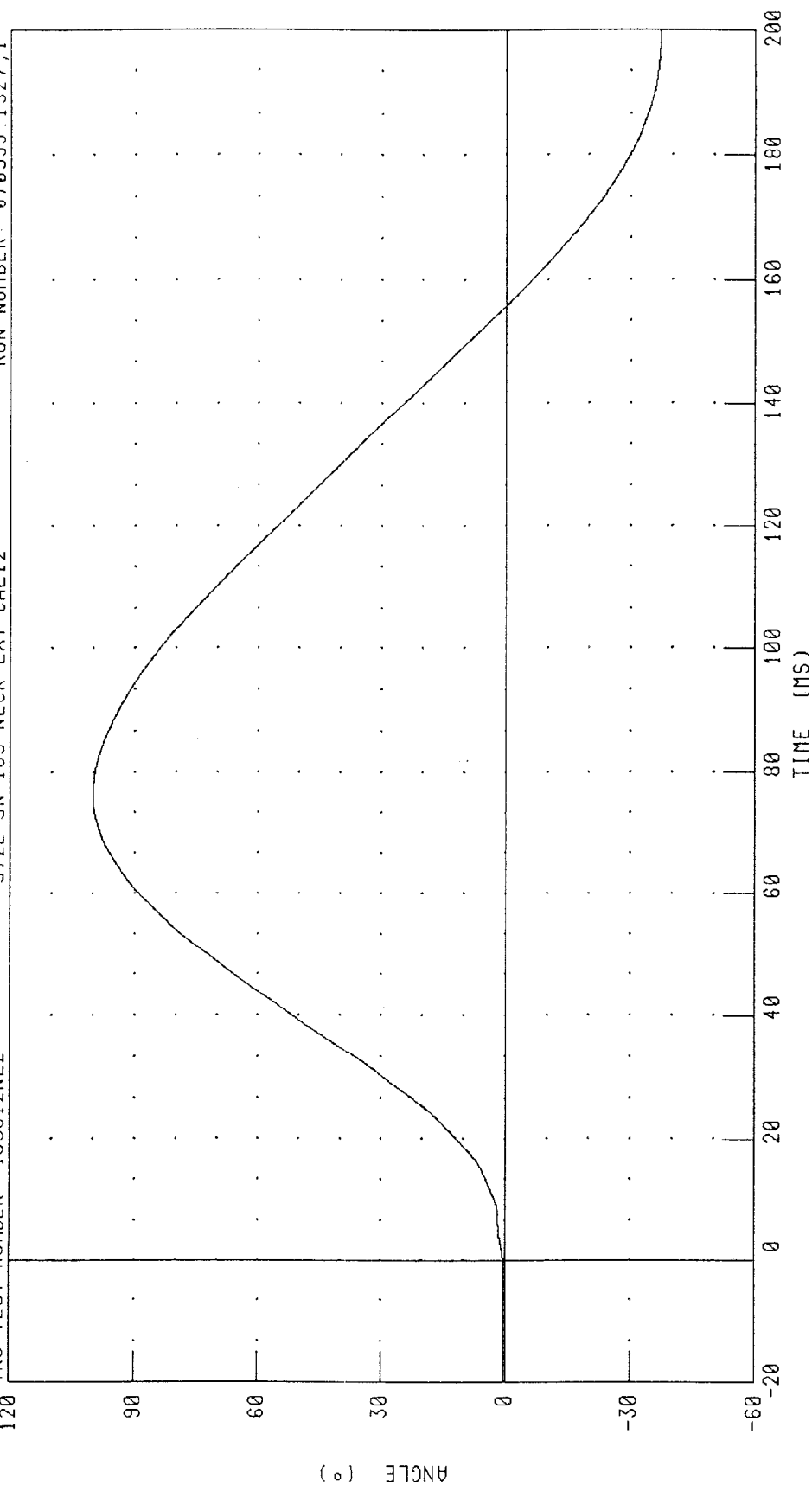


PEAK DATA: 59.53 ° @ 77.12 MS, -20.65 ° @ 199.36 MS

CHANNEL: THETA FILTER: CH. CLASS 60

PART 572-E HYBRID III NECK EXTENSION CALIBRATION
TOTAL ROTATION

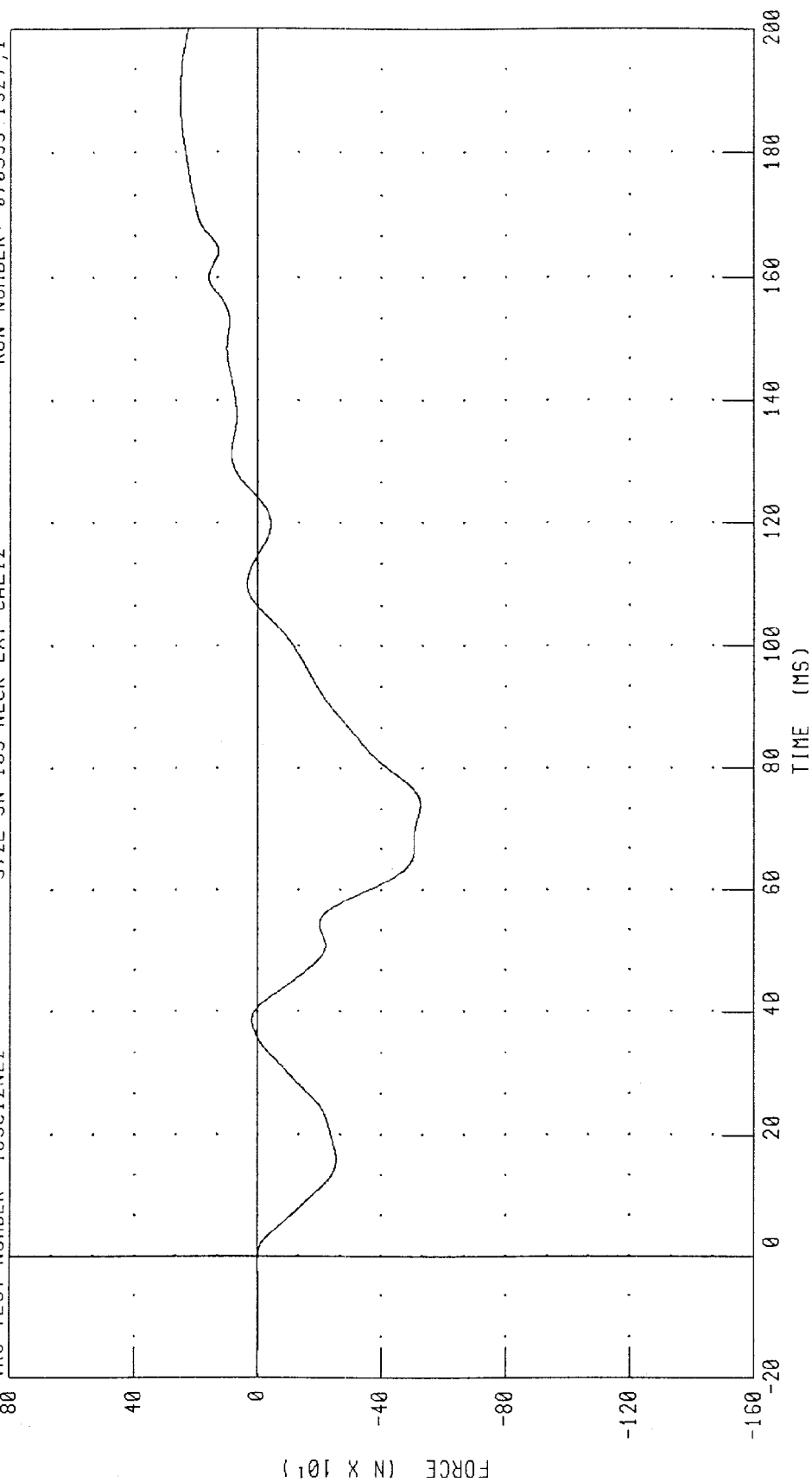
TRC TEST NUMBER: 169C12NE2 572E SN 169 NECK EXT CAL12 RUN NUMBER: 070999.1327,1



CHANNEL: TOTAN FILTER: CH. CLASS 60 PEAK DATA: 100.04 ° @ 76.00 MS; -37.24 ° @ 199.52 MS

PART 572-E HYBRID III NECK EXTENSION CALIBRATION
NECK FORCE X AXIS

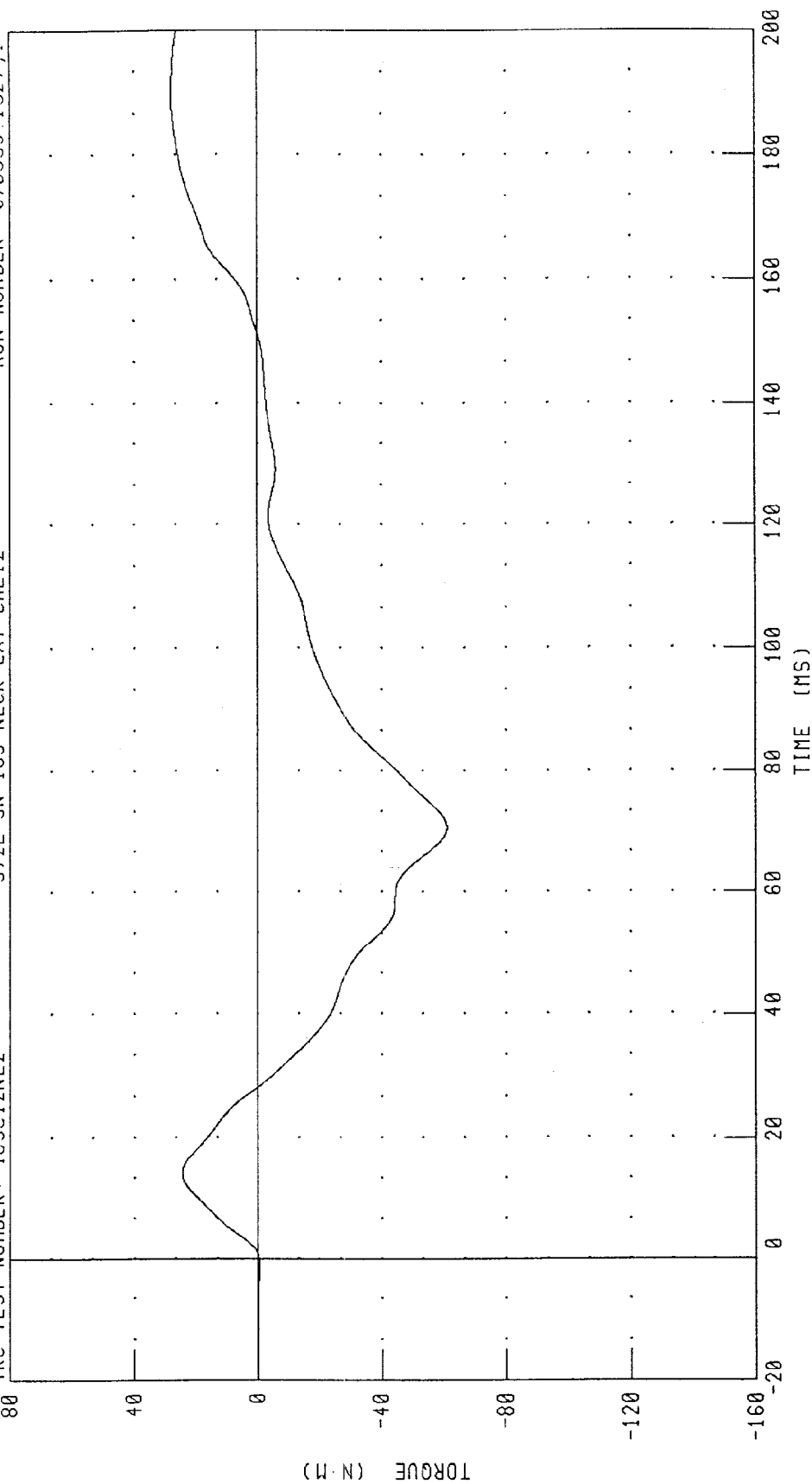
IRC TEST NUMBER: 169C12NE2 572E SN 169 NECK EXT CAL12 RUN NUMBER: 070999 1327,1



CHANNEL: NEKXF FILTER: CH. CLASS 60 PEAK DATA: 251.69 N @ 187.68 MS, -525.79 N @ 74.16 MS

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

TRC TEST NUMBER: 169C12NE2 572E SN 169 NECK EXT CAL12 RUN NUMBER: 070999.1327.1



PEAK DATA: 27.99 N-M @ 189.76 MS; -61.01 N-M @ 70.72 MS

CHANNEL: NEKYM FILTER: CH. CLASS 60

TRANSPORTATION RESEARCH CENTER INC.

THORAX IMPACT TEST

HYBRID III 50th

09-JUL-99

TRC INC.

TEST NO: 169C12TH1

572E SN169 H.S.THORAX CAL12

TEST PARAMETER	HIGH SPEED TEST	TEST RESULTS
	SPECIFICATION	
TEMPERATURE	20.6-22.2 DEG. C	21.7 DEG. C
RELATIVE HUMIDITY	10 - 70 %	44.0 %
PENDULUM VELOCITY	6.59 - 6.83 M/S	6.59 M/S
MAXIMUM DEFLECTION	63.5 - 72.6 MM	71.1 MM
MAXIMUM RESISTIVE FORCE	5159 - 5894 N	5505. N
INTERNAL HYSTERESIS	69% - 85%	71.8%

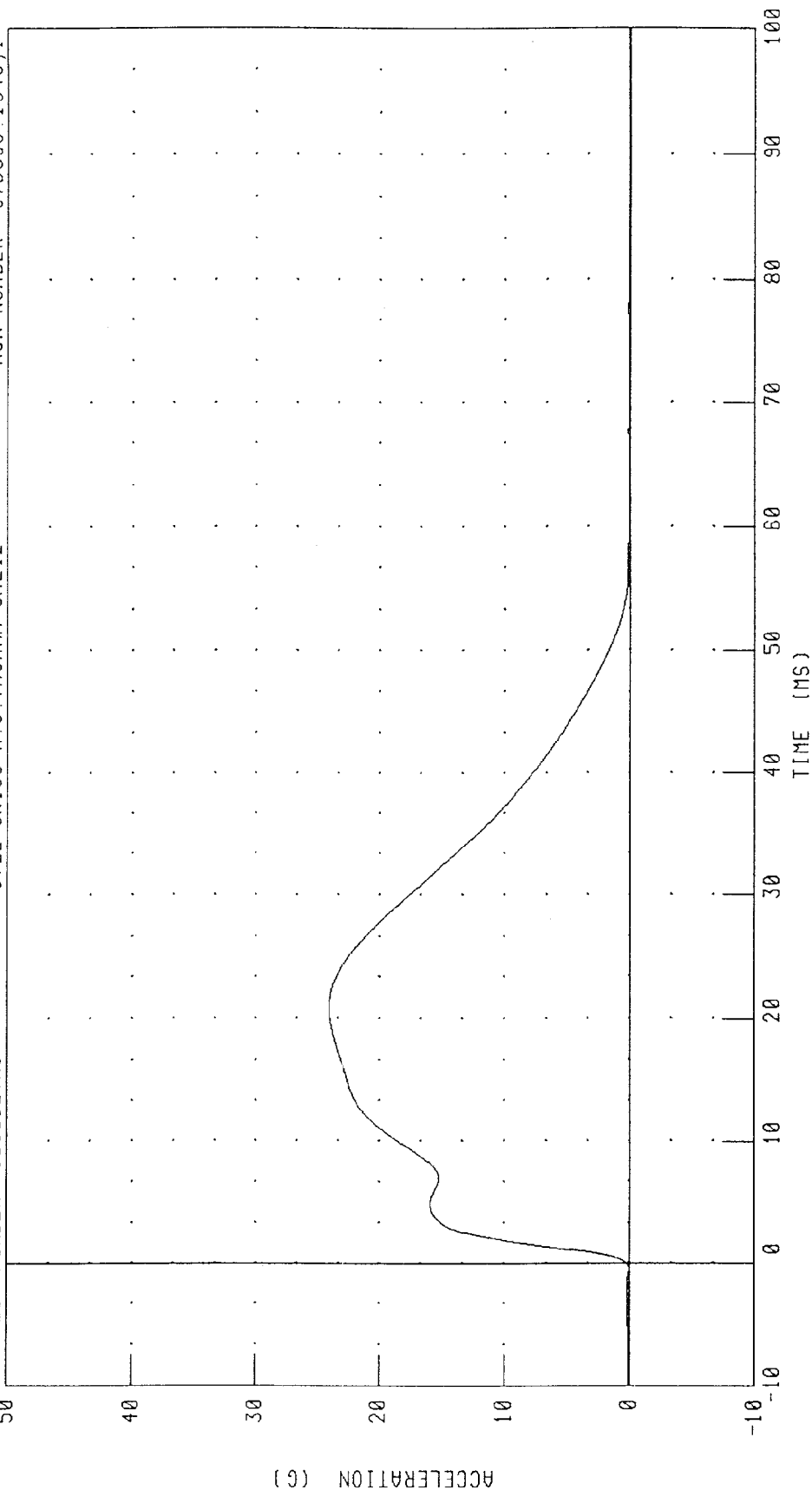
TEST MEETS SPECIFICATIONS

TECHNICIAN Chad Rife

RUN NUMBER: 070999.1540;1

PART 572-E HYBRID III THORAX CALIBRATION
PENDULUM DECELERATION

TRC TEST NUMBER: 169C12TH1 572E SN169 H.S.THORAX CAL12 RUN NUMBER: 070999 1540,1

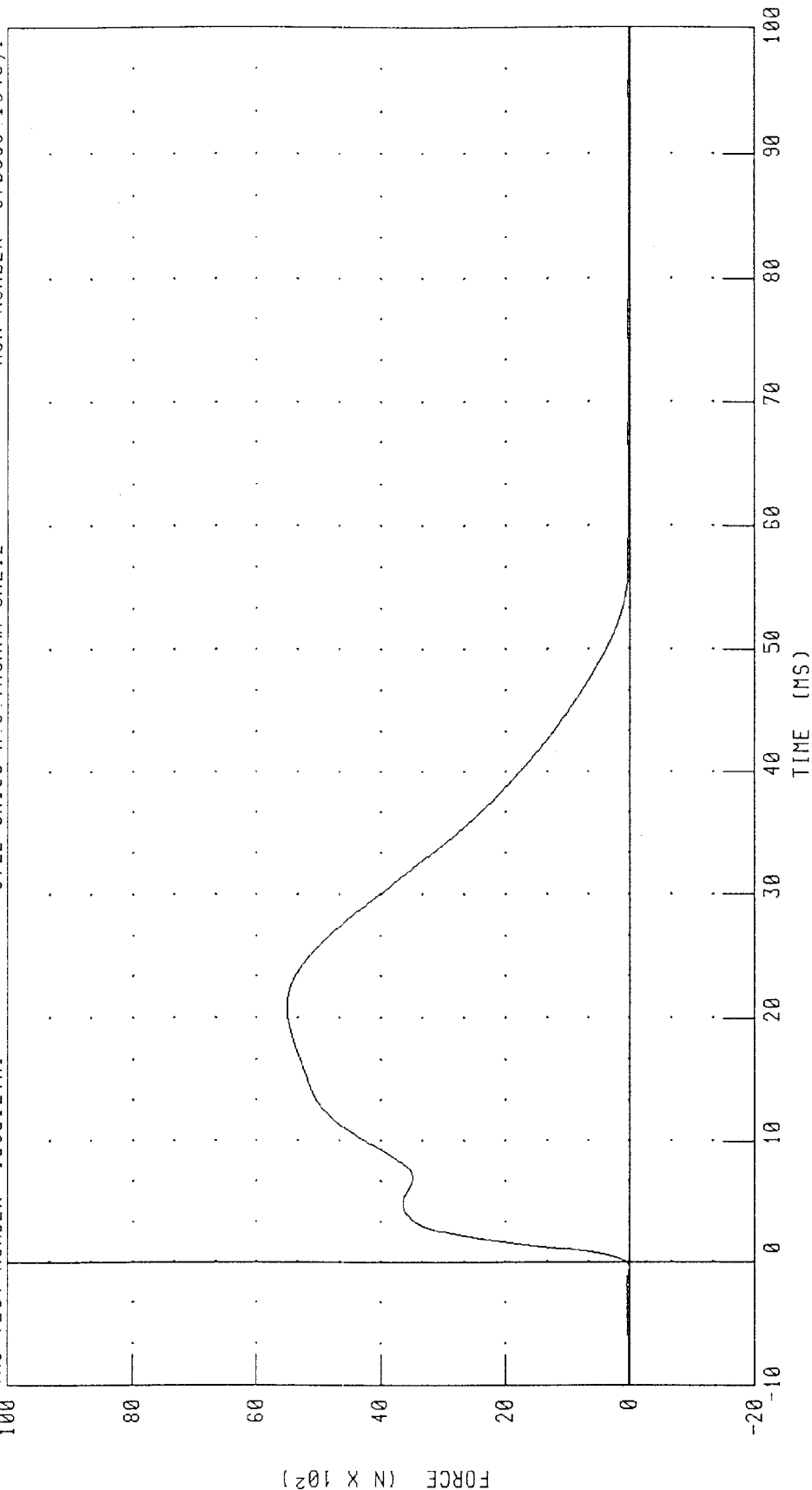


CHANNEL: PENXC FILTER: CH. CLASS 180

PEAK DATA: 24.03 G @ 20.88 MS; 0.00 G @ -0.48 MS

PART 572-E HYBRID III THORAX CALIBRATION
PENDULUM FORCE

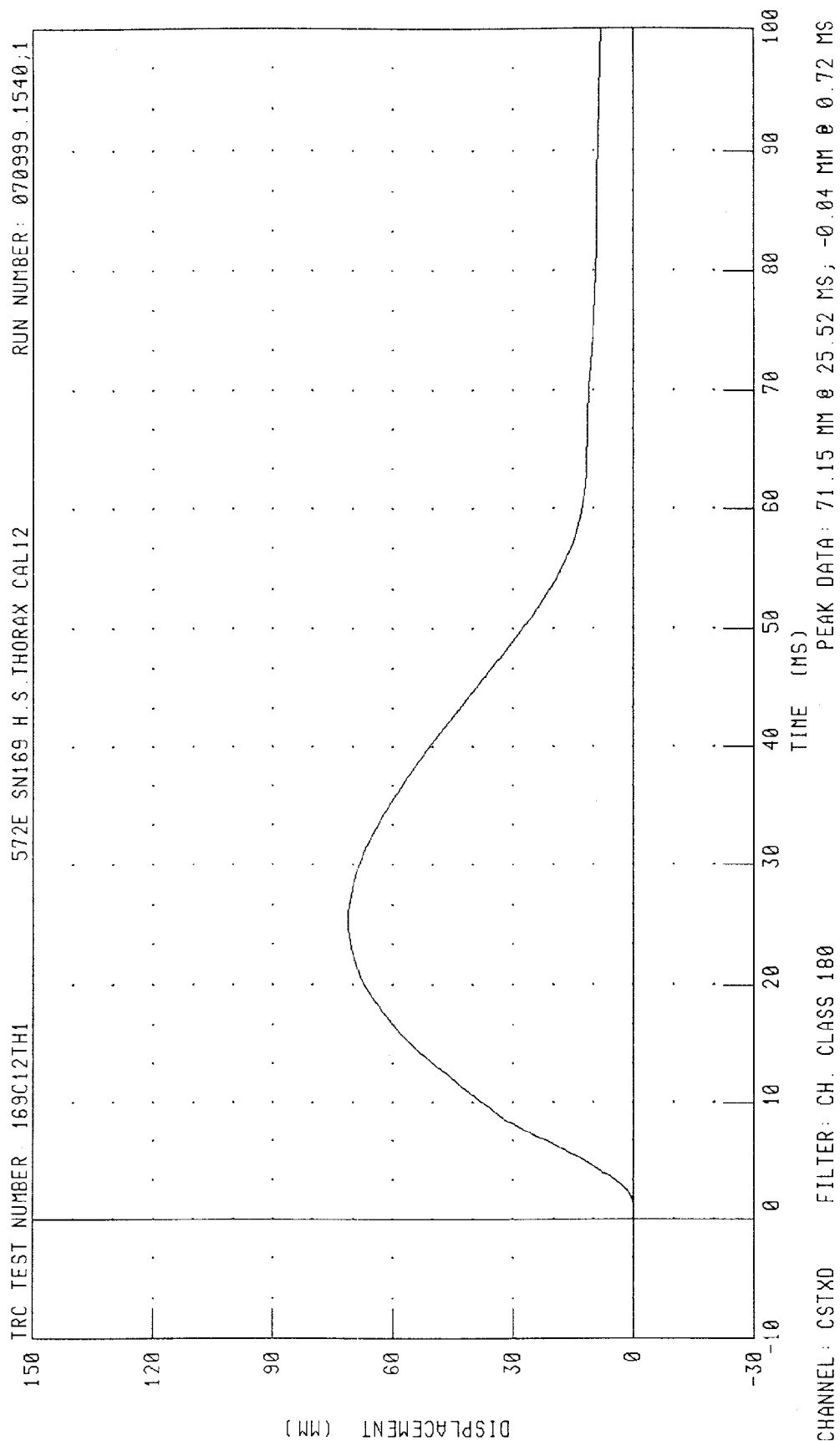
TRC TEST NUMBER: 169C12TH1 572E SN169 H.S. THORAX CAL12 RUN NUMBER: 070999 1540,1



CHANNEL: PENXF FILTER: CH. CLASS 180

PEAK DATA: 5505.32 N @ 20.88 MS; -0.24 N @ -0.48 MS

PART 572-E HYBRID III THORAX CALIBRATION
STERNUM DISPLACEMENT



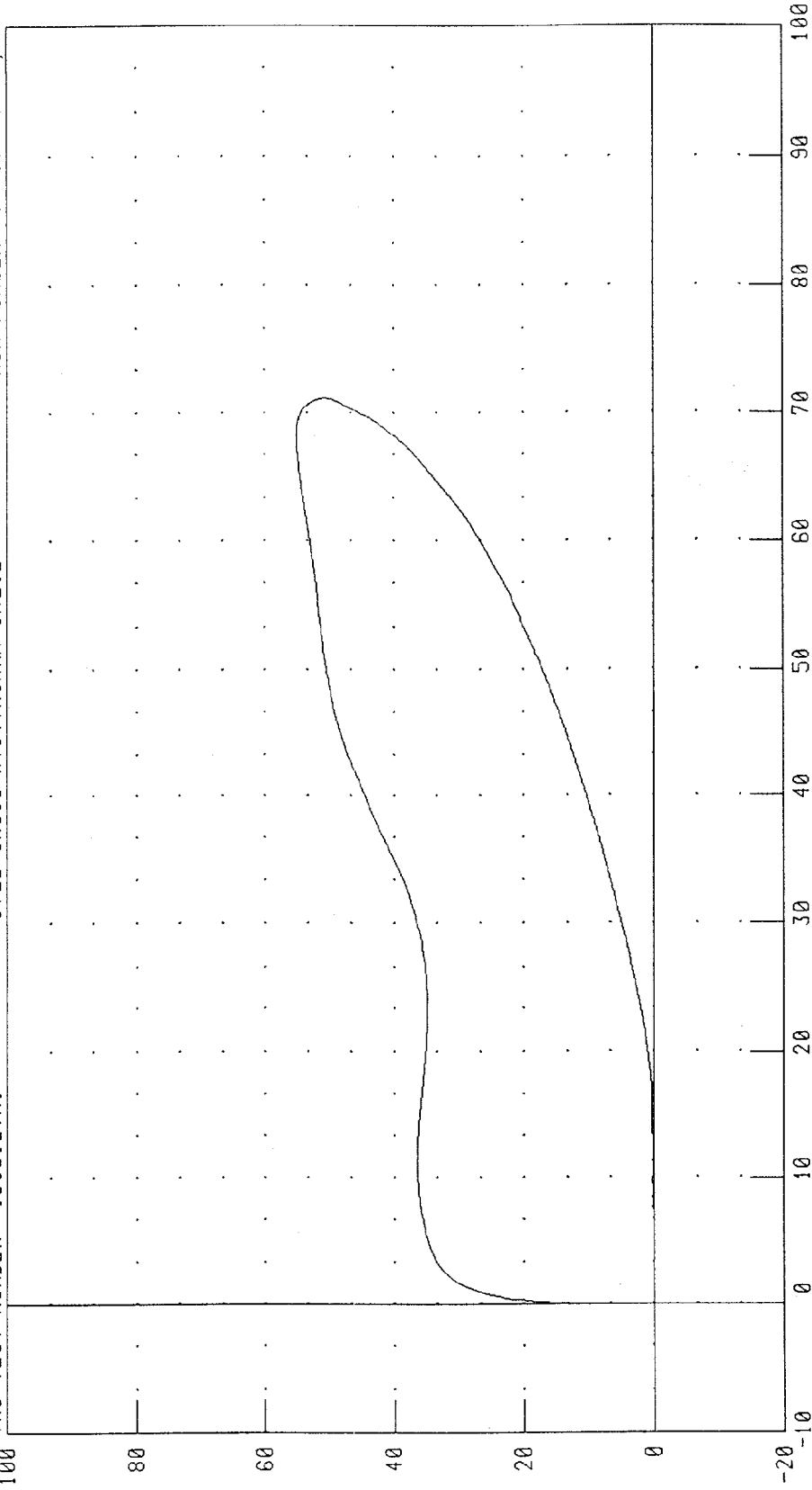
PART 572-E HYBRID III THORAX CALIBRATION
CHEST DISPLACEMENT VS PENDULUM FORCE

TRC TEST NUMBER: 169C12TH1

572E SN169 H.S.THORAX CAL12

RUN NUMBER: 070999.1540.1

100



FORCE (N X 10²)

DISPLACEMENT (MM)

PEAK DATA: 71.15 MM @ 25.52 MS; -0.04 MM @ 0.72 MS
5505.32 N @ 20.88 MS; -0.24 N @ -0.48 MS

FILTER: CH. CLASS 180
CH. CLASS 180

CHANNEL: CSTXD
PENXF

TRANSPORTATION RESEARCH CENTER INC.

RIGHT KNEE IMPACT TEST

HYBRID III 50th

09-JUL-99

TRC INC.

TEST NO: 169C12RK1

572E SN169 RIGHT KNEE CAL 12

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	18.9-25.6 DEG. C	21.7 DEG. C
RELATIVE HUMIDITY	10 - 70 %	44.0 %
PROBE VELOCITY	2.07 - 2.13 M/S	2.12 M/S
PEAK KNEE IMPACT FORCE 5.0 KG PENDULUM	4715 - 5782 N	5546.7 N

TEST MEETS SPECIFICATIONS

TECHNICIAN Cal Rife

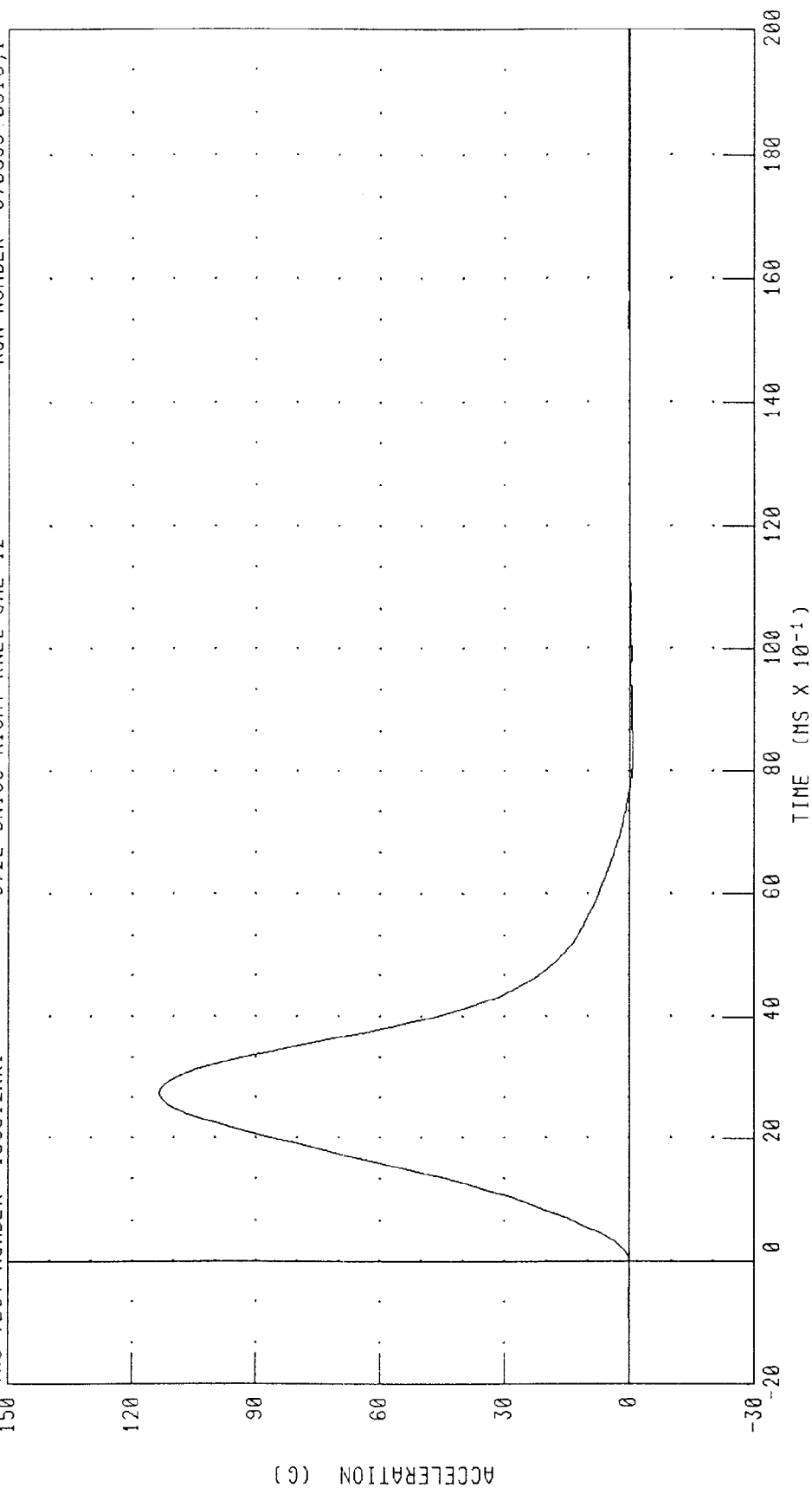
RUN NUMBER: 070999.0817;1

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

TRC TEST NUMBER: 169C12RK1

572E SN169 RIGHT KNEE CAL 12

RUN NUMBER: 070999 0818,1



CHANNEL: PENXC FILTER: CH. CLASS 600

PEAK DATA: 113.37 G @ 2.72 MS; -0.92 G @ 8.32 MS

PART 572-E HYBRID III RIGHT KNEE CALIBRATION

PENDULUM FORCE (5 KG PEND.)

572E SN169 RIGHT KNEE CAL 12

TRC TEST NUMBER: 169C12RK1

75

60

45

30

15

0

-15

-20

0

20

40

60

80

100

120

140

160

180

200

TIME (MS X 10⁻¹)

PEAK DATA: 5546.78 N @ 2.72 MS; -45.21 N @ 8.32 MS

CHANNEL: PENXF

FILTER: CH. CLASS 600

RUN NUMBER: 070999 0818;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)

PEAK DATA: 5546.78 N @ 2.72 MS; -45.21 N @ 8.32 MS

CHANNEL: PENXF

FILTER: CH. CLASS 600

RUN NUMBER: 070999 0818;1

FORCE (N X 10²)

TRANSPORTATION RESEARCH CENTER INC.

LEFT KNEE IMPACT TEST

HYBRID III 50th

09-JUL-99

TRC INC.

TEST NO: 169C12LK2

572E SN169 LEFT KNEE CAL 12

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	18.9-25.6 DEG. C	21.7 DEG. C
RELATIVE HUMIDITY	10 - 70 %	44.0 %
PROBE VELOCITY	2.07 - 2.13 M/S	2.12 M/S
PEAK KNEE IMPACT FORCE 5.0 KG PENDULUM	4715 - 5782 N	5263.6 N

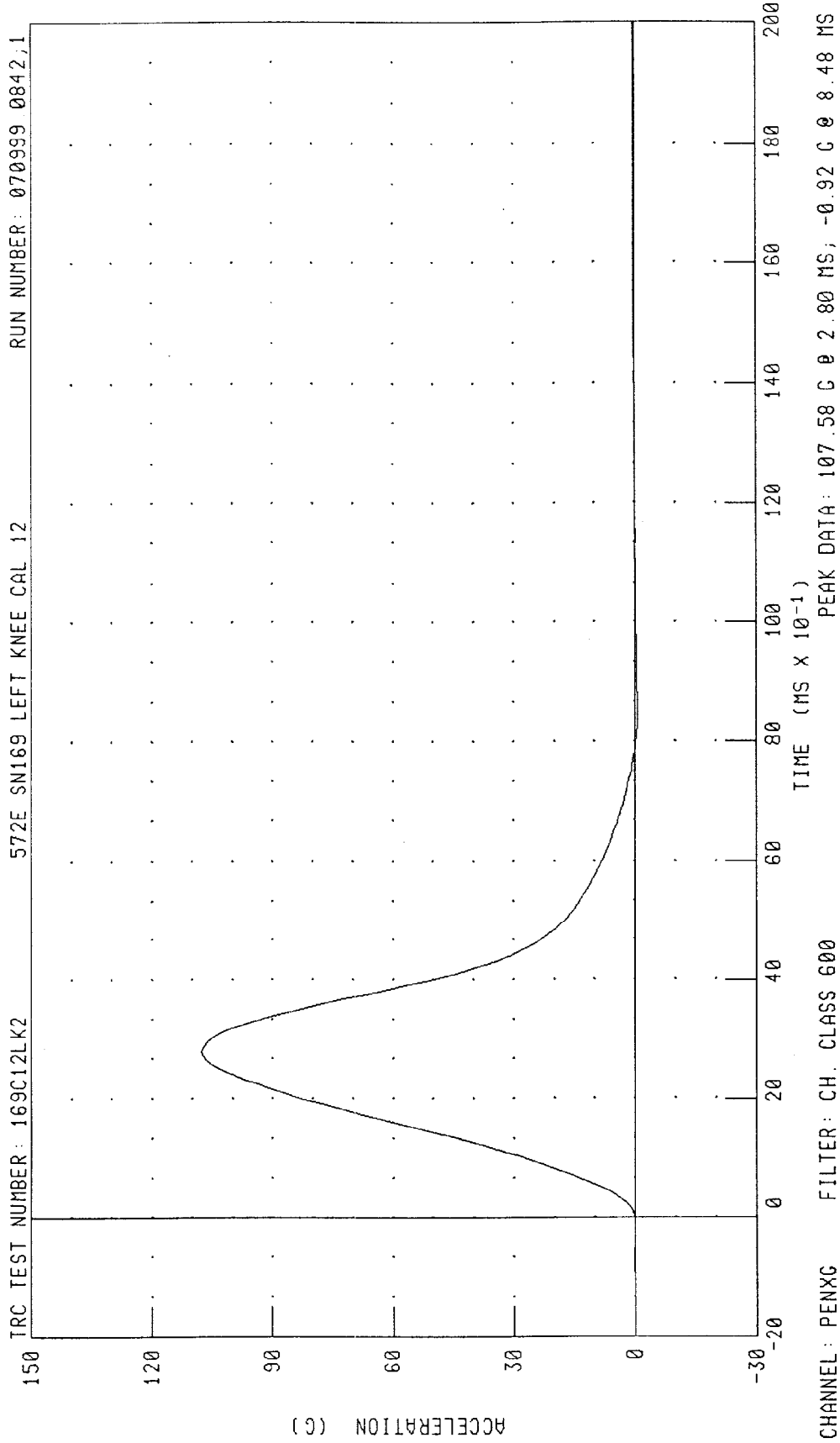
TEST MEETS SPECIFICATIONS

TECHNICIAN

Chad Rife

RUN NUMBER: 070999.0842;1

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

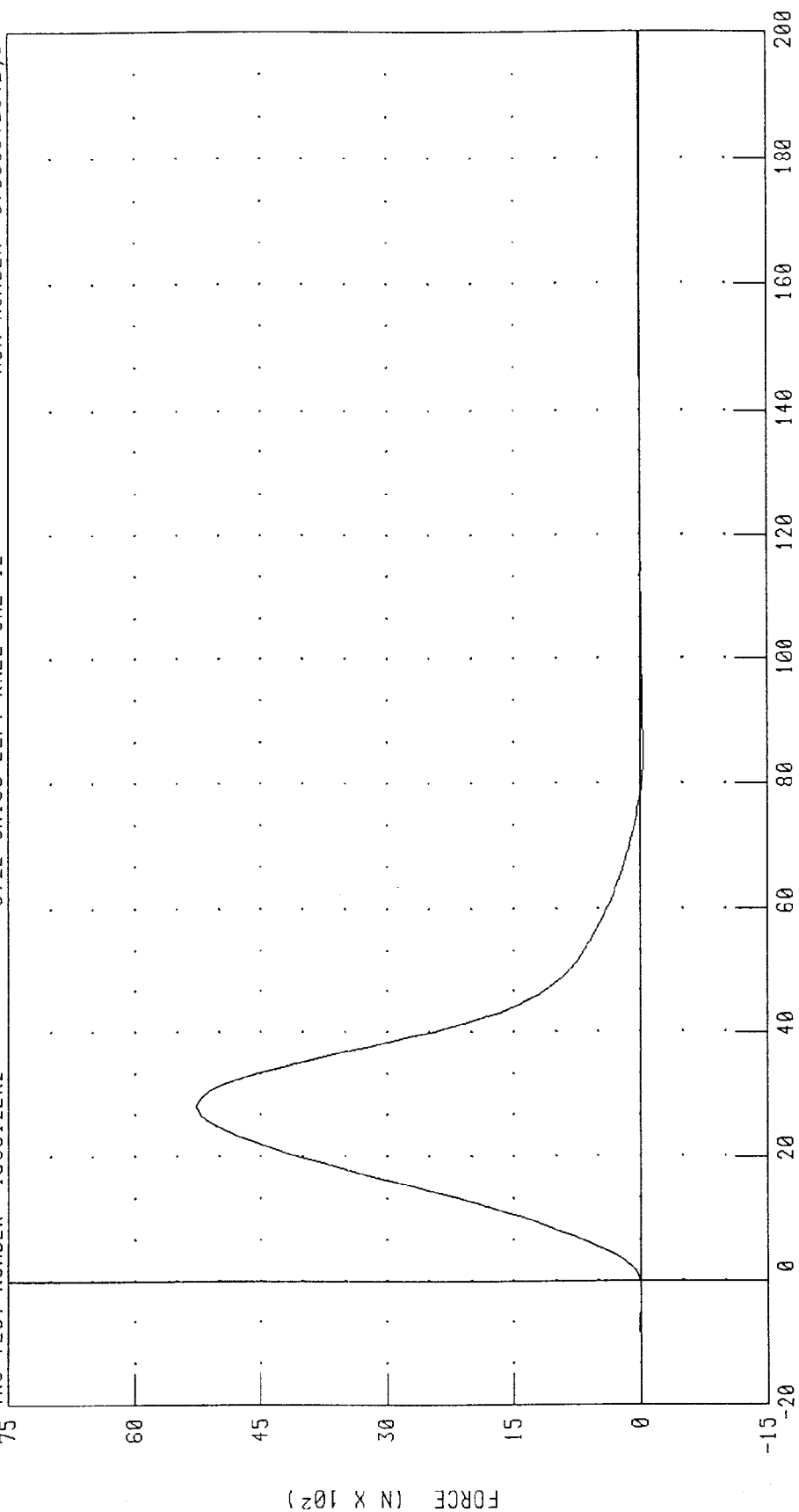


PART 572-E HYBRID III LEFT KNEE CALIBRATION
 PENDULUM FORCE (5 KG PEND.)

TRC TEST NUMBER: 169C12LK2

572E SN169 LEFT KNEE CAL 12

RUN NUMBER: 070999 0842;1



CHANNEL: PENXF

FILTER: CH. CLASS 600

TIME ($ms \times 10^{-1}$)

PEAK DATA: 5263.65 N @ 2.80 MS; -44.84 N @ 8.48 MS

Appendix D

Miscellaneous Test Information

Dummy Sign Convention

Accelerometers:

+X: Forward
+Y: Rightward
+Z: Downward

Potentiometers:

+Chest longitudinal deflection: Outward

Load cells:

+Femur force: Tension

Neck load cells:

+X force: Head rearward
+Y force: Head leftward
+Z force: Head upward (tension on neck)
+X moment: Left ear rotating toward left shoulder
+Y moment: Chin rotating toward chest
+Z moment: Chin rotating toward left shoulder

Filtering Data

J211 MAR95

Load Cell Barrier Forces Class 60

Vehicle Structural Accelerations Class 60

Occupant

Head Accelerometer Class 1000

Neck Class 60

Chest Accelerometer Class 180

Chest Deflection Class 180

Femur Force Class 600

Sternum Accelerometer Class 180

Lower Leg Class 600

Vehicle Instrumentation Placement

Vehicle year/make/model/body style: 2000/Ford/Taurus/Sedan

Test number: 990628-2

Number	Location	Axis	Manufacturer	Model	S/N	Orientation (+ Sensing)
1	Left Brake Caliper	X	Endevco	7264-2000T	J27846	Rearward
2	Right Brake Caliper	X	Endevco	7264-2000T	J27864	Forward
3	Instrument Panel Center	X	Endevco	7264-2000T	J21532	Forward
4	Engine Top	X	Endevco	7264-2000T	J25018	Forward
5	Engine Bottom	X	Endevco	7264-2000T	J27917	Forward
6	Vehicle Rear Center	Z	Endevco	7264-2000T	J19577	Up
7	Left Rear Seat Crossmember	X	Endevco	7264-2000T	J28466	Forward
8	Right Rear Seat Crossmember	X	Endevco	7264-2000T	J27907	Forward
9	Passenger Airbag Primary	N/A	Fluke	Y8101A	IP1	N/A
10	Passenger Airbag Secondary	N/A	Fluke	Y8101A	IP2	N/A
11	Driver Airbag Primary	N/A	Fluke	Y8101A	IP3	N/A
12	Driver Airbag Secondary	N/A	Fluke	Y8101A	IP4	N/A

Description Of Timing Marks On TRC High-Speed Film

All TRC high-speed cameras are equipped with red leds which put timing marks on the right edge of the film. TRC uses a single timing generator to generate the timing for all cameras. This allows the timing marks to be common to all cameras. The timing marks can be used to measure camera speed (frames per second) or to locate a point in time before or after the time-zero event.

The timing marks appear on the film as small red marks on the right edge of the film. Round marks are left by the Photo-Sonics and Stalex cameras while horizontal bars are left by the Hycam, Locam, and Fastax II cameras.

The timing generator puts out a pulse for every millisecond plus it generates additional pulses for hundredths and tenths of seconds. To explain this further, we can use an example of a camera running at 1000 frames per second.

1. Every frame will have **one** led appear in it. This indicates a *millisecond* pulse.
2. Every ten frames will have **two** leds appear in it. These indicate a *millisecond* pulse plus a *hundredth of a second* pulse.
3. Every one hundred frames will have **three** leds appear in it. These indicate a *millisecond* pulse, a *hundredth of a second* pulse, and a *tenth of a second* pulse.

TRANSDUCER INFORMATION

HYBRID III DUMMY SERIAL NO.: 168V; MFR.: _____; SEATING POSITION: DR _____
 PROJECT-SEGMENT NO.: 096017 1411; ENGINEER: PG _____; TEST DATE: 6-28-99

MNEMONIC PARAMETER BEING MEASURED	TYPE OF TRANSDUCER	MODEL NO.	SERIAL NO.	MFR.	SENSITIVITY	CAL DUE DATE	FULL SCALE (ENGR. UNITS) DESIRED ACTUAL	DIRECTION OF POSITIVE POLARITY	CABLE NO.
HEDXG HAP	HEAD X-AXIS ACCEL.	7264	J19535	End.	.2649 mv/g at 10 volts	8-3- 1999	400 g	Rear	J19535
HEDYG HLR	HEAD Y-AXIS ACCEL.	"	J19548	"	.2192 mv/g at 10 volts	"	400 g	Left	J19548
HEDZG HIS	HEAD Z-AXIS ACCEL.	"	J27913	"	.2527 mv/g at 10 volts	9-5-99	400 g	Up	J27913
NEKXF NFX*	NECK X-AXIS SHEAR FORCE	1716A	0853	Dento n.	1.7387 MV/V @ 2000 LBS	8-3- 1999	900 Kg 2,000 lbs. 9,000 N		FX
NEKYF NFY*	NECK Y-AXIS SHEAR FORCE	"	"	"	1.6587 MV/V @2000 LBS	"	900 Kg 2,000 lbs. 9,000 N		FY
NEKZF NFZ*	NECK Z-AXIS AXIAL FORCE	"	"	"	1.2806 MV/V @3000 LBS	"	1300 Kg 3,000 lbs. 13,500 N		FZ
NEKXM NMX*	NECK MOMENT ABOUT X AXIS	"	"	"	1.6595 MV/V @2500 IN- LBS	"	30 Kgm 200 ft-lbs 275 N-m		MX
NEKYM NMY*	NECK MOMENT ABOUT Y AXIS	"	"	"	1.6596 MV/V @2500 IN-LBS	"	30 Kgm 200 ft-lbs 275 N-m		MY
NEKZM NMZ*	NECK MOMENT ABOUT Z AXIS	"	"	"	2.3663 MV/V @2500 IN-LBS	"	30 Kgm 200 ft-lbs 275 N-m		MZ

TRANSDUCER INFORMATION

HYBRID III DUMMY SERIAL NO.: 168v ; MFR.: ; SEATING POSITION: DR

PROJECT-SEGMENT NO.: 096017 1411 ; ENGINEER: PG ; TEST DATE: 6-28-99

MNEMONIC PARAMETER BEING MEASURED	TYPE OF TRANSDUCER	MODEL NO.	SERIAL NO.	MFR.	SENSITIVITY	CAL DUE DATE	FULL SCALE (ENGR. UNITS) DESIRED ACTUAL	DIRECTION OF POSITIVE POLARITY	CABLE NO.
CSTXG CAP	CHEST X-AXIS ACCEL.	7264	J20011	End.	.2324 mv/g at 10 volts	8-3- 1999	400 g	Forward	J20011
CSTYG CLR	CHEST Y-AXIS ACCEL.	"	J20001	"	.2709 mv/g at 10 volts	"	400 g	Left	J20001
CSTZG CIS	CHEST Z-AXIS ACCEL.	"	J20438	"	.2313 mv/g at 10 volts	"	400 g	Up	J20438
CSTXD CAPD	CHEST DEFLECTION	14CB1- 2847	168	SERV	27.89 mv/v /in	8-3- 1999	6 inch 150 mm		168
PEVXG PAP	PELVIS X-AXIS ACCEL.						400 g		
PEVYG PLR	PELVIS Y-AXIS ACCEL.						400 g		
PEVZG PIS	PELVIS Z-AXIS ACCEL.						400 g		
LEMF LF	LEFT FEMUR FORCE	2430	726	DENT	0.9495 mv/v at 3000 lbs.	8-3- 1999	1300 Kg 3,000 lbs. 13,500 N		726
RFMF RF	RIGHT FEMUR FORCE	"	741	"	0.9030 mv/v at 3000 lbs.	"	1300 Kg 3,000 lbs. 13,500 N		741

TRANSDUCER INFORMATION

HYBRID III DUMMY SERIAL NO.: 169v ; MFR.: ; SEATING POSITION: PASS
 PROJECT-SEGMENT NO.: 096017 1411 ; ENGINEER: PG ; TEST DATE: 6-28-99

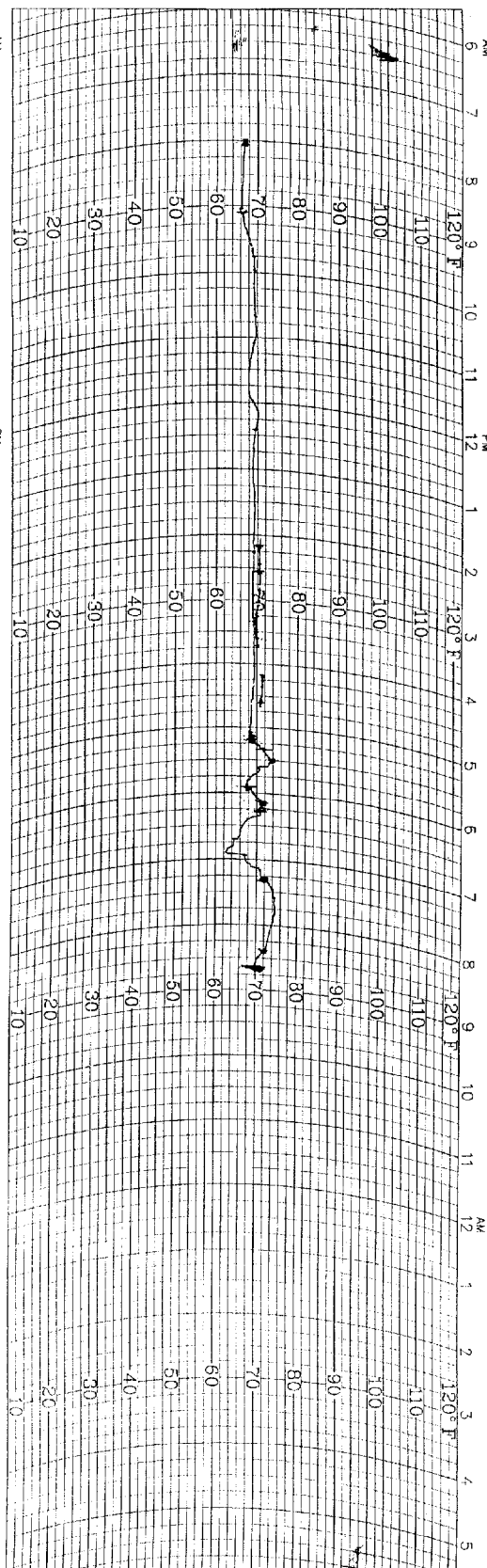
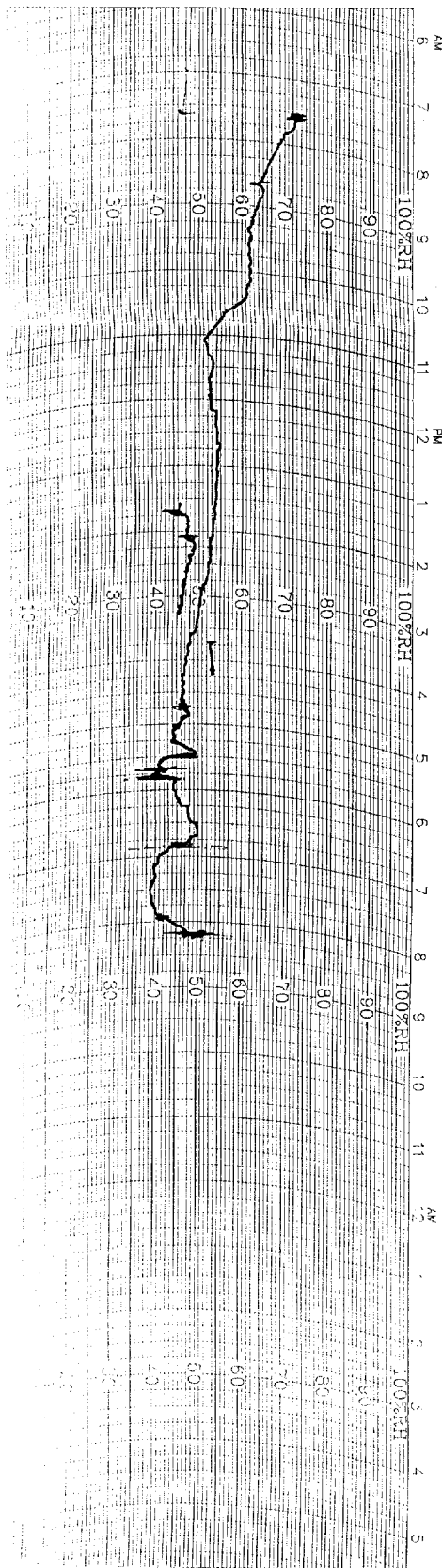
MNEMONIC PARAMETER BEING MEASURED	TYPE OF TRANSDUCER	MODEL NO.	SERIAL NO.	MFR.	SENSITIVITY	CAL DUE DATE	FULL SCALE (ENGR. UNITS) DESIRED ACTUAL	DIRECTION OF POSITIVE POLARITY	CABLE NO.
HEDXG HAP	HEAD X-AXIS ACCEL.	7264	J21935	End.	.2409 mv/g at 10 volts	8-3- 1999	400 g	Rear	J21935
HEDYG HLR	HEAD Y-AXIS ACCEL.	"	J23912	"	.2827 mv/g at 10 volts	"	400 g	Left	J23912
HEDZG HIS	HEAD Z-AXIS ACCEL.	"	J23810	"	.2826 mv/g at 10 volts	"	400 g	Up	J23810
NEKXF NFX*	NECK X-AXIS SHEAR FORCE	1716	0106	Dento n.	1.7167 MV/V @ 2000 LBS	8-3- 1999	900 Kg 2,000 lbs. 9,000 N		FX
NEKYF NFY*	NECK Y-AXIS SHEAR FORCE	"	"	"	1.6802 MV/V @2000 LBS	"	900 Kg 2,000 lbs. 9,000 N		FY
NEKZF NFZ*	NECK Z-AXIS AXIAL FORCE	"	"	"	1.2943 MV/V @3000 LBS	"	1300 Kg 3,000 lbs. 13,500 N		FZ
NEKXM NMX*	NECK MOMENT ABOUT X AXIS	"	"	"	1.6148 MV/V @2500 IN- LBS	"	30 Kgm 200 ft-lbs 275 N-m		MX
NEKYM NMY*	NECK MOMENT ABOUT Y AXIS	"	"	"	1.6205 MV/V @2500 IN-LBS	"	30 Kgm 200 ft-lbs 275 N-m		MY
NEKZM NMZ*	NECK MOMENT ABOUT Z AXIS	"	"	"	2.2982 MV/V @2500 IN-LBS	"	30 Kgm 200 ft-lbs 275 N-m		MZ

TRANSDUCER INFORMATION

HYBRID III DUMMY SERIAL NO.: 169v ; MFR.: ; SEATING POSITION: PASS

PROJECT-SEGMENT NO.: 096017 1411 ; ENGINEER: PG ; TEST DATE: 6-28-99

MNEMONIC PARAMETER BEING MEASURED	TYPE OF TRANSDUCER	MODEL NO.	SERIAL NO.	MFR.	SENSITIVITY	CAL DUE DATE	FULL SCALE (ENGR. UNITS)		DIRECTION OF POSITIVE POLARITY	CABLE NO.
							DESIRED	ACTUAL		
CSTXG CAP	CHEST X-AXIS ACCEL.	7264	J23914	End.	.2528 mv/g at 10 volts	8-3- 1999	400 g		Forward	J23914
CSTYG CLR	CHEST Y-AXIS ACCEL.	"	J23808	"	.2843 mv/g at 10 volts	"	400 g		Left	J23808
CSTZG CIS	CHEST Z-AXIS ACCEL.	"	J23774	"	.2405 mv/g at 10 volts	"	400 g		Up	J23774
CSTXD CAPD	CHEST DEFLECTION	14CB1- 2847	169	SERV	28.26 mv/v /in	8-3- 1999	6 inch 150 mm			169
PEVXG PAP	PELVIS X-AXIS ACCEL.						400 g			
PEVYG PLR	PELVIS Y-AXIS ACCEL.						400 g			
PEVZG PIS	PELVIS Z-AXIS ACCEL.						400 g			
LFMF LF	LEFT FEMUR FORCE	2430	96661	GSE	0.8816 mv/v at 3000 lbs.	8-3- 1999	1300 Kg 3,000 lbs. 13,500 N			D105
RFMF RF	RIGHT FEMUR FORCE	"	96662	"	0.8605 mv/v at 3000 lbs.	"	1300 Kg 3,000 lbs. 13,500 N			709



WeatherMeasure
WEATHERtronics

P.O. BOX 41039
SACRAMENTO, CA 95841
PHONE: (916) 923-0055

HYGROTHERMOGRAPH
1 DAY

CHART NO. M699123
C311-D-HF
ECN 2717
6-9-87

VRTO FORD

STATION _____ DATE ON 6/20 DATE OFF _____