

V3147

**1999 Dodge Intrepid
into a Flat Frontal Barrier
TRC Test Number: 990421-2**

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Table of Contents

<u>Section</u>	<u>Description</u>	<u>Page</u>
1.0	Purpose and Test Procedure	1-1
2.0	Frontal Barrier Impact Test Summary	2-1
3.0	FMVSS 208 Data	3-1
4.0	Vehicle, Occupant, and Camera Measurements	4-1
Appendix A	Photographs	A-1
Appendix B	Data Plots	B-1
Appendix C	Pre-Test Dummy Certification	C-1
Appendix D	Miscellaneous Test Information	D-1

List of Tables

<u>Number</u>	<u>Description</u>	<u>Page</u>
1	Crash Test Summary	2-4
2	Test Vehicle Information	2-6
3	Post-Impact Data	2-9
4	Vehicle Accelerometer Locations and Data Summary	2-13
5	Dummy Injury Criteria	3-2
6	Impacted Vehicle Measurements	4-3
7	Dummy Measurement Data for Front Seat Occupants	4-6
8	Motion Picture Camera Locations	4-9

List of Figures

<u>Number</u>	<u>Description</u>	<u>Page</u>
1	Impact Velocity Measurement System	2-10
2	Accident Investigation Division Data for 25 mph Frontal Barrier Impact	2-11
3	Vehicle Accelerometer Placement	2-12
4	Pre-test and Post-test Measurement Points	4-2
5	Vehicle Target Locations	4-4
6	Dummy Measurement Locations for Front Seat Occupants	4-5
7	Camera Positions	4-7

List of Photographs

<u>Description</u>	<u>Figure</u>
Pre-Test Front View	A-1
Post-Test Front View	A-2
Pre-Test Left Side View	A-3
Post-Test Left Side View	A-4
Pre-Test Rear View	A-5
Post-Test Rear View	A-6
Pre-Test Right Side View	A-7
Post-Test Right Side View	A-8
Pre-Test Overhead View	A-9
Post-Test Overhead View	A-10
Pre-Test Underbody - View 1	A-11
Post-Test Underbody - View 1	A-12
Pre-Test Underbody - View 2	A-13
Post-Test Underbody - View 2	A-14
Pre-Test Underbody - View 3	A-15
Post-Test Underbody - View 3	A-16
Pre-Test Underbody - View 4	A-17
Post-Test Underbody - View 4	A-18
Pre-Test Underbody - View 5	A-19
Post-Test Underbody - View 5	A-20
Post-Test Engine Compartment View	A-21
Pre-Test Windshield View	A-22
Post-Test Windshield View	A-23
Pre-Test Driver Dummy Windshield View	A-24
Post-Test Driver Dummy Windshield View	A-25
Pre-Test Passenger Dummy Windshield View	A-26
Post-Test Passenger Dummy Windshield View	A-27
Pre-Test Driver Dummy Position - View 1	A-28
Post-Test Driver Dummy Position - View 1	A-29

List of Photographs, Cont'd.

<u>Description</u>	<u>Figure</u>
Pre-Test Driver Dummy Position -View 2	A-30
Post-Test Driver Dummy Position - View 2	A-31
Pre-Test Driver Dummy Position -View 3	A-32
Post-Test Driver Dummy Position - View 3	A-33
Pre-Test Passenger Dummy Position - View 1	A-34
Post-Test Passenger Dummy Position - View 1	A-35
Pre-Test Passenger Dummy Position - View 2	A-36
Post-Test Passenger Dummy Position - View 2	A-37
Pre-Test Passenger Dummy Position - View 3	A-38
Post-Test Passenger Dummy Position - View 3	A-39
Post-Test Driver Dummy View	A-40
Post-Test Driver Dummy Head Contact - View 1	A-41
Post-Test Driver Dummy Head Contact - View 2	A-42
Post-Test Driver Dummy Head Contact - View 3	A-43
Post-Test Driver Dummy Head Contact - View 4	A-44
Post-Test Driver Dummy Knee Contact - View 1	A-45
Post-Test Driver Dummy Knee Contact - View 2	A-46
Post-Test Driver Footwell Deformation View	A-47
Post-Test Passenger Dummy View	A-48
Post-Test Passenger Dummy Head Contact - View 1	A-49
Post-Test Passenger Dummy Head Contact - View 2	A-50
Post-Test Passenger Dummy Head Contact - View 3	A-51
Post-Test Passenger Dummy Knee Contact - View 1	A-52
Post-Test Passenger Dummy Knee Contact - View 2	A-53
Post-Test Passenger Footwell Deformation View	A-54
Pre-Test Vehicle Certification Label View	A-55
Pre-Test Vehicle Tire Information Label View	A-56

Section 1.0

Purpose and Test Procedure

Purpose and Test Summary

This 25 mph flat frontal barrier impact test has 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 1999 Dodge Intrepid that impacted a flat frontal barrier. The test vehicle contained two instrumented Hybrid III 50th percentile adult male dummies.

Section 2.0

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 two (2) inductive pickup switches to measure the driver and passenger airbag fire times. The vehicle's specified impact velocity range was 39.4 to 41.0 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 (40) 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.

The crash event was recorded by one (1) real-time panning motion picture camera and fourteen (14) high-speed motion picture cameras. 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 pre-test dummy calibration information. Appendix D contains the miscellaneous test information.

Test Results Summary

This flat frontal barrier test was conducted at TRC on April 21, 1999.

The test vehicle, a 1999 Dodge Intrepid, was equipped with airbags at the driver's and right front passenger's seating positions. The vehicle's test weight was 1749.0 kilograms. The vehicle's impact speed was 40.0 kph. The vehicle's maximum static crush was 306 millimeters.

The driver's 15-millisecond HIC was 194 and its 36-millisecond HIC was 297. The driver's chest maximum resultant acceleration with three (3) milliseconds minimum duration was 40.1 g. The driver's chest deflection was 33.0 millimeters. The driver's left and right femur maximum compressive forces were 6530 N and 7824 N, respectively.

The right front passenger's 15-millisecond HIC was 83 and its 36-millisecond HIC 157. The right front passenger's chest maximum resultant acceleration with three (3) milliseconds minimum duration was 48.1 g. The passenger's chest deflection was 18.3 millimeters. The right front passenger's left and right femur maximum compressive forces were 9017 N and 7130 N, respectively.

Table 1 Crash Test Summary

Test type:	Frontal barrier impact
Test date:	04/21/99
Test time:	0050
Ambient temperature at impact area:	22° C
Vehicle year/make/ model/body style:	1999/Dodge/Intrepid/Sedan
Vehicle test weight:	1749.0 kg
Impact angle ¹ :	0°
Impact velocity ² :	
Primary:	40.0 kph
Secondary:	40.0 kph
Maximum static crush:	306 mm
Average rebound:	1339 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	Airbag, sun visor
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: 1999/Dodge/Intrepid/Sedan

Color: Cranberry

VIN: 2B3HD46R7XH510888

Engine data:

Placement: Transverse

Cylinders: 6

Displacement: 2.7 liters

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

Final drive: X fwd, ___ rwd, ___ 4wd

Date vehicle received: N/A

Odometer reading: 276 km

Dealer's name and address: Tom Ahl Chrysler-Plymouth Inc.
617 King Avenue
Lima, OH 45805-1793

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	N/A
Clock	Yes	Rear window defroster	Yes
Power door locks	Yes	Other:	None

Certification data from vehicle's label:

Vehicle manufactured by: Chrysler Corp.

Date of manufacture: 08/98

VIN: 2B3HD46R7XH510888

GVWR: 2065 kg

GAWR: Front: 1178 kg

Rear: 922 kg

Table 2 Test Vehicle Information, Cont'd.

Size of tires on vehicle: P225/60R16
Spare tire: Space saver
Type of front seats: Bucket

Tire & capacity data from vehicle's label:

Recommended tire size: P225/60R16
Recommended cold tire pressure:
Front: 220 kPa
Rear: 220 kPa
Designated Seating Capacity:
Front 2
Rear 3
Total 5
Vehicle Cargo Weight: 392 kg

Test vehicle attitudes:

Delivered attitude:	LF: 737 mm	RF: 746 mm	LR: 748 mm	RR: 756 mm
Fully loaded attitude:	LF: 719 mm	RF: 729 mm	LR: 714 mm	RR: 725 mm
Pre-test attitude:	LF: 711 mm	RF: 721 mm	LR: 708 mm	RR: 713 mm
Post-test attitude:	LF: N/A	RF: N/A	LR: N/A	RR: N/A

Table 2 Test Vehicle Information, Cont'd.

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

Right front	484.9 kg	Right rear	280.3 kg
Left front	502.6 kg	Left rear	283.0 kg
Total front weight	987.5 kg	(63.7% of total vehicle weight)	
Total rear weight	563.3 kg	(36.3% of total vehicle weight)	
Total delivered weight	1550.8 kg		

Calculation of test vehicle's target test weight:

RCLW = Rated Cargo and Luggage Weight

UDW = Unloaded Delivered Weight (1550.8 kg)

DSC¹ = Designated Seating Capacity (5)

RCLW² = 52 kg

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

Target test weight = 1550.8 + 52 + 151.4 = 1754 kg

Weight of test vehicle with required dummies:

Right front	551.1 kg	Right rear	326.6 kg
Left front	521.6 kg	Left rear	349.7 kg
Total front weight	1072.7 kg	(61.3% of total vehicle weight)	
Total rear weight	676.3 kg	(38.7% of total vehicle weight)	
Total test weight	1749.0 kg	(0.31% under target test weight)	

Weight of ballast secured in vehicle: N/A

Components removed to meet target test weight: Rear muffler

CG rearward of front wheel centerline: 1110 mm

Vehicle Wheelbase: 2870 mm

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

² From vehicle's tire label.

Table 3 Post-Impact Data

Test number: 990421-2
Test date: 04/21/99
Test time: 0050
Test type: Frontal barrier impact
Impact angle: 0°
Ambient temperature at impact area: 22° C
Temperature in occupant compartment: 21° C
Impact velocity:
 Primary: 40.0 kph
 Secondary: 40.0 kph
 Specified range: 39.4 to 41.0 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:

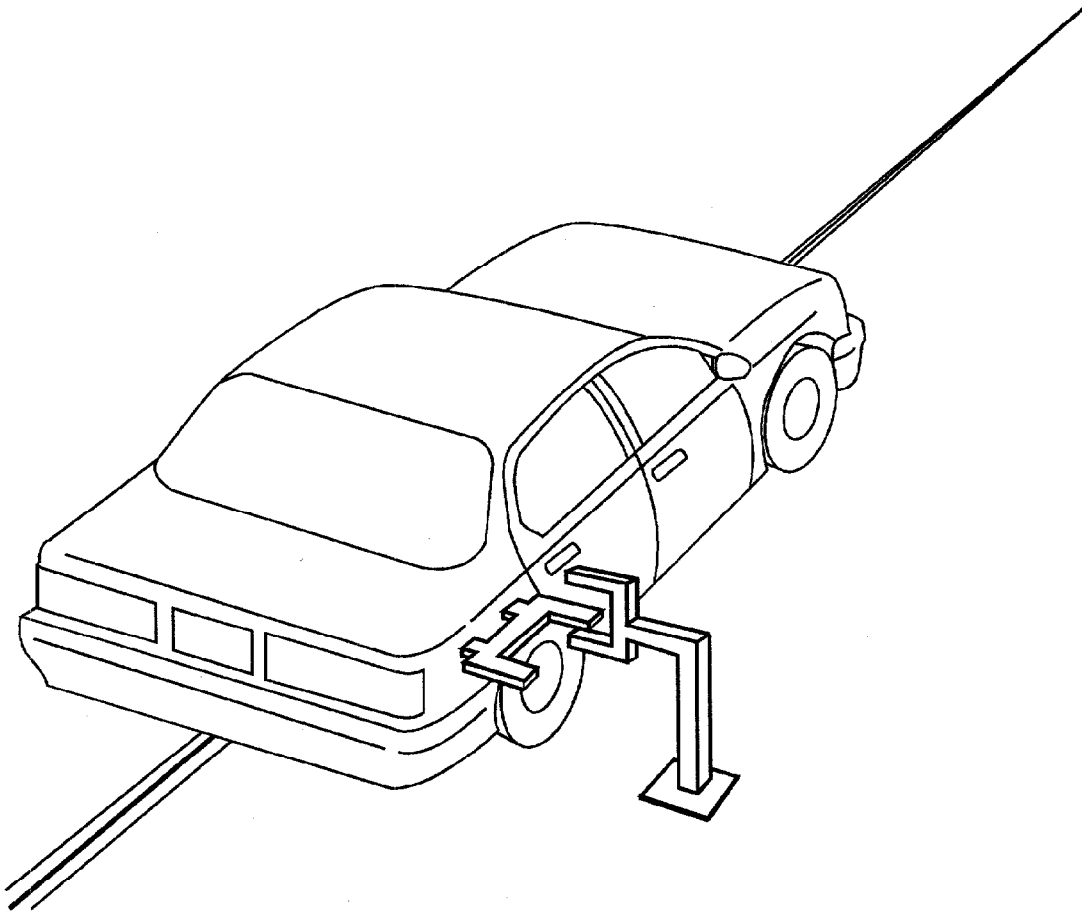
 Pre-test: L: 5050 mm C: 5261 mm R: 5050 mm
 Post-test: L: 4907 mm C: 4956 mm R: 4905 mm
 Total crush: L: 143 mm C: 305 mm R: 145 mm
 Average crush: 198 mm

Test vehicle rebound from flat barrier:

Distance from test vehicle to barrier:

 Post-test: L: 1397 mm C: 1247 mm R: 1374 mm
 Average rebound: 1339 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 25 mph Frontal Barrier Impact

Test date: 04/21/99
 Vehicle year/make/
 model/body style: 1999/Dodge/Intrepid/Sedan
 VIN: 2B3HD46R7XH510888
 Build date: 08/98
 Test weight: 1749.0 kg
 Vehicle wheelbase: 2870 mm
 Maximum width: 1904 mm
 Front overhang: 1071 mm

Collision Deformation
 Classification (CDC) Code: 12FDEW2

Crush depth
 measurements: C1: 143 mm
 C2: 229 mm
 C3: 306 mm
 C4: 306 mm
 C5: 235 mm
 C6: 145 mm

Midpoint of damage: D: Vehicle Longitudinal Centerline

Length of damaged
 region: L: 1525 mm

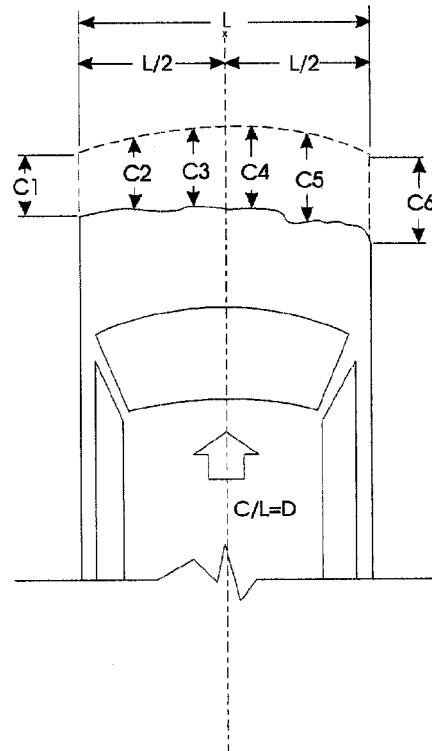
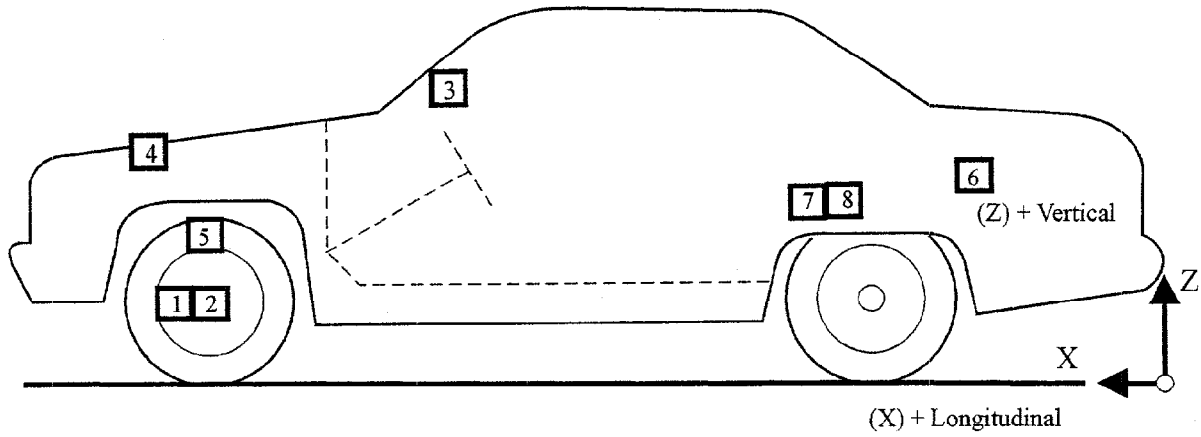
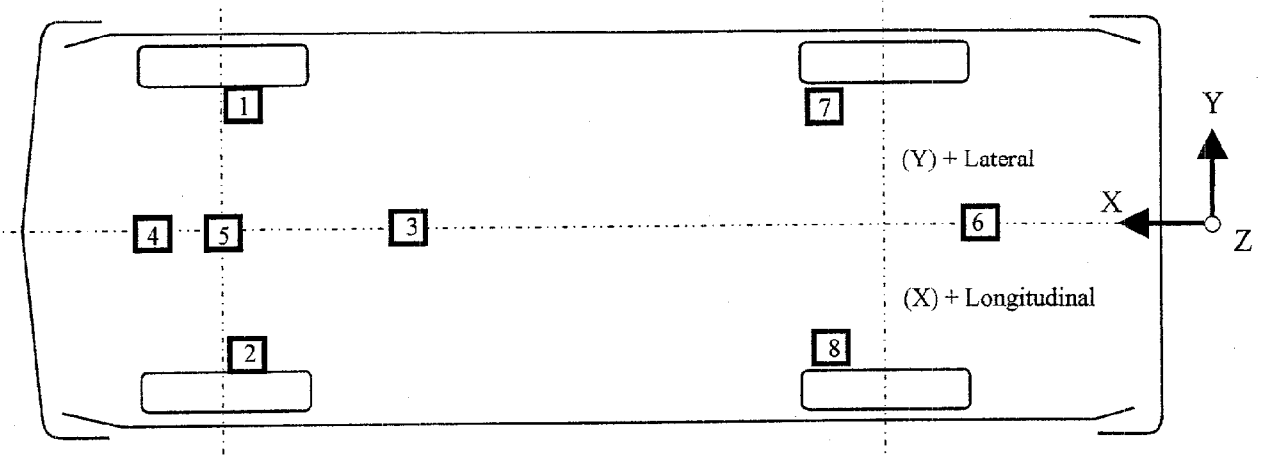


Figure 3 Vehicle Accelerometer Placement



Side View



Bottom View

Table 4 Vehicle Accelerometer Locations and Data Summary

TEST NUMBER: 990421-2	X	Y	Z	POSITIVE DIRECTION	NEGATIVE DIRECTION
No. LOCATION					
1 LEFT BRAKE CALIPER LONGITUDINAL	PRE 4285 mm	712 mm	186 mm		
	POST 4246 mm	723 mm	190 mm	4.3 g @ 119.8 ms	46.4 g @ 48.2 ms
2 RIGHT BRAKE CALIPER LONGITUDINAL	PRE 4285 mm	-712 mm	180 mm		
	POST 4246 mm	-733 mm	198 mm	22.1 g @ 75.7 ms	65.6 g @ 25.0 ms
3 INSTRUMENT PANEL CENTER LONGITUDINAL	PRE 3691 mm	32 mm	955 mm		
	POST 3700 mm	32 mm	955 mm	32.1 g @ 28.3 ms	57.2 g @ 31.8 ms
4 ENGINE TOP LONGITUDINAL	PRE 4730 mm	-166 mm	784 mm		
	POST 4611 mm	-166 mm	818 mm	32.1 g @ 52.6 ms	93.1 g @ 36.5 ms
5 ENGINE BOTTOM LONGITUDINAL	PRE 4620 mm	0 mm	184 mm		
	POST 4540 mm	10 mm	201 mm	24.5 g @ 49.8 ms	69.7 g @ 32.6 ms

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	-43.8 g	-11.7 g	-14.9 g	46.6 g	-39.4 g	2.5 g	11.4 g
Passenger	-29.5 g	-7.7 g	31.9 g	39.8 g	-47.6 g	4.4 g	17.7 g

	<u>Maximum Femur Compressive Force</u>	
	Left Femur	Right Femur
Driver	6530 N	7824 N
Passenger	9017 N	7130 N

	<u>15-millisecond Head Injury Criteria</u> ¹		
	HIC	Time t ₁	Time t ₂
Driver	194	89.0 ms	104.1 ms
Passenger	83	79.8 ms	94.9 ms

	<u>36-millisecond Head Injury Criteria</u> ¹		
	HIC	Time t ₁	Time t ₂
Driver	297	75.8 ms	111.8 ms
Passenger	157	74.3 ms	110.3 ms

	<u>Chest Maximum Resultant Acceleration</u> ²		
	Acceleration	Time t ₁	Time t ₂
Driver	40.1 g	79.5 ms	82.4 ms
Passenger	48.1 g	86.0 ms	89.0 ms

<u>Maximum Chest Deflection</u>	
Driver	33.0 mm
Passenger	18.3 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 rebounded backward into the seat, the back and top of the dummy's head contacted the sun visor. The dummy then came to rest seated upright in the driver's seat, leaning slightly forward.

Right Front Passenger Dummy

Upon impact, the passenger dummy translated forward on the seat impacting both knees into the instrument panel. The dummy's face and the top of the dummy's head grazed the sun visor, followed by the dummy's face and chest impacting the airbag. The dummy rebounded rearward into the seat. The dummy came to rest seated upright in the passenger's seat, leaning towards the driver's side of the automobile.

Section 4.0

Vehicle, Occupant, and Camera Measurements

Figure 4 Pre-test and Post-test Measurement Points

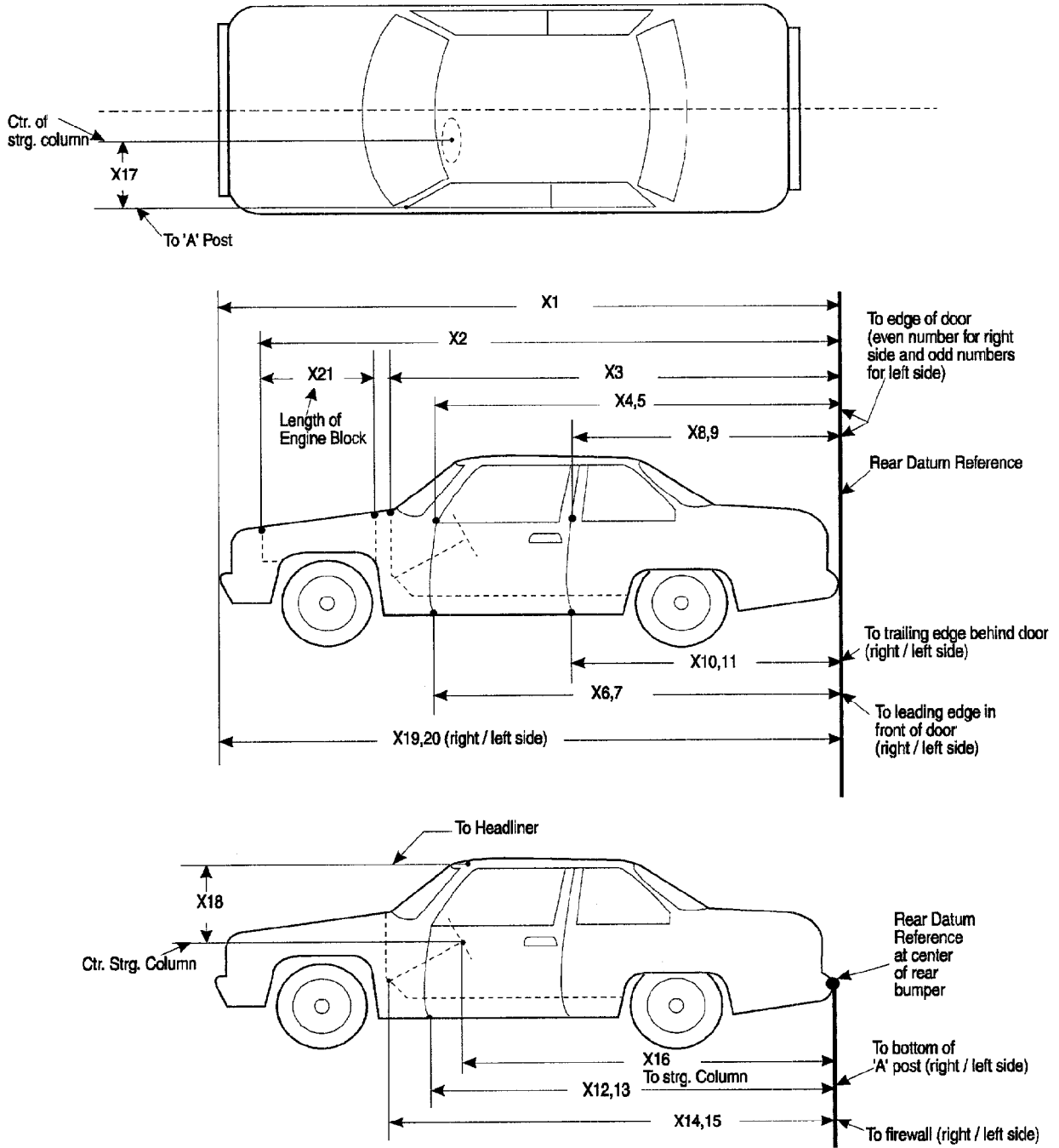


Table 6 Impacted Vehicle Measurements

Vehicle year/make/model/body style: 1999/Dodge/Intrepid/Sedan

Test Number: 990421-2

No.	Type of measurement	Pre-Test	Post-Test	Difference
X1	Total Length of Veh. at Centerline	5261	4956	305
X2	Rear Surface of Veh. to Front of Engine Block	4708	4586	122
X3	Rear Surface of Veh. to Firewall	4296	4289	7
X4	Rear Surface of Veh. to Upper Leading Edge of Right Door	3730	3735	-5
X5	Rear Surface of Veh. to Upper Leading Edge of Left Door	3736	3737	-1
X6	Rear Surface of Veh. to Lower Leading Edge of Right Door	3666	3705	-39
X7	Rear Surface of Veh. to Lower Leading Edge of Left Door	3667	3699	-32
X8	Rear Surface of Veh. to Upper Trailing Edge of Right Door	2638	2646	-8
X9	Rear Surface of Veh. to Upper Trailing Edge of Left Door	2642	2644	-2
X10	Rear Surface of Veh. to Lower Trailing Edge of Right Door	2634	2672	-38
X11	Rear Surface of Veh. to Lower Trailing Edge of Left Door	2637	2669	-32
X12	Rear Surface of Veh. to Bottom of " A " Post on Right Side	3655	3661	-6
X13	Rear Surface of Veh. to Bottom of " A " Post on Left Side	3680	3682	-2
X14	Rear Surface of Veh. to Firewall--Right Side	4084	4080	4
X15	Rear Surface of Vehicle to Firewall --Left Side	4106	4117	-11
X16	Rear Surface of Veh. to Steering Wheel Center	3205	3270	-65
X17	Center of Steering Column to " A " Post	290	340	-50
X18	Center of Steering Column to Headliner	380	350	30
X19	Rear Surface of Veh. to Right Side of Front Bumper	5050	4905	145
X20	Rear Surface of Veh. to Left Side of Front Bumper	5050	4907	143
X21	Length of Engine Block	400	400	0

Figure 5 Vehicle Target Locations

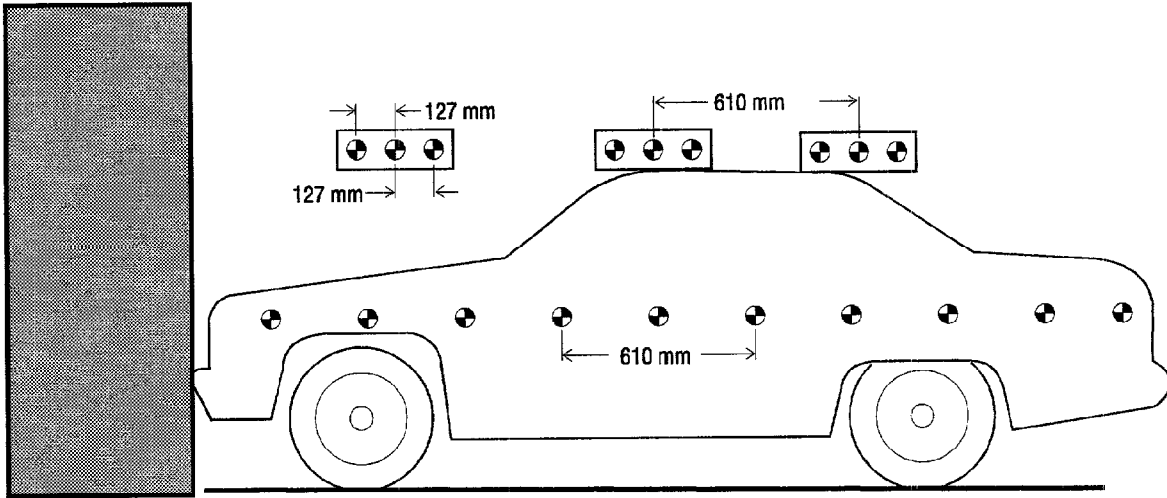


Figure 6 Dummy Measurement Locations for Front Seat Occupants

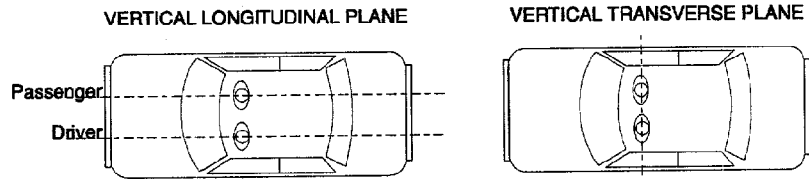
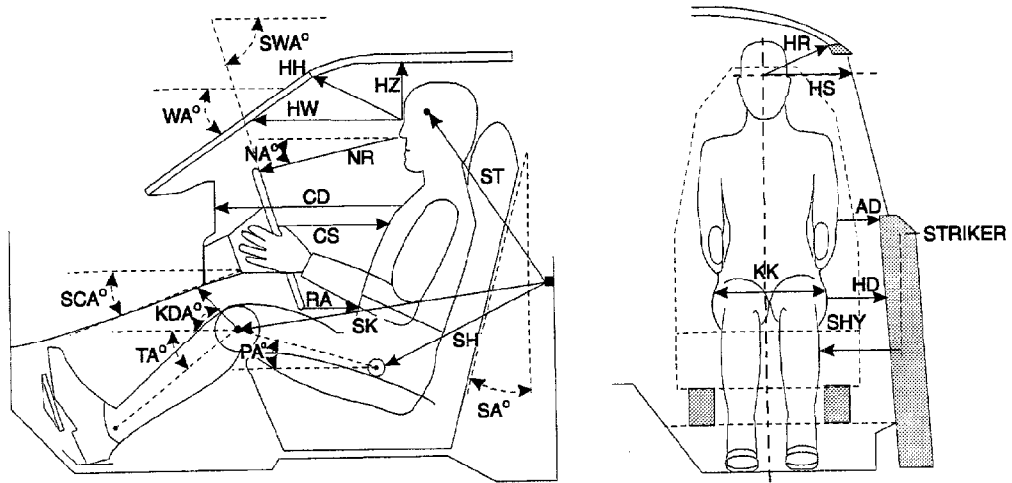


Table 7 Dummy Measurement Data For Front Seat Occupants

<u>Designation</u>	<u>Type of Measurement</u>	<u>Driver (Serial #168)</u>	<u>Passenger (Serial #169)</u>
WA	Windshield angle	14°	N/A
SWA	Steering wheel angle	66°	N/A
SCA	Steering column angle	24°	N/A
SA	Seat back angle	24°	24°
HZ	Head to roof	168 mm	173 mm
HH	Head to header	394 mm	361 mm
HW	Head to windshield	602 mm	607 mm
HR	Head to side header	180 mm	191 mm
NR	Nose to rim	424 mm	N/A
NA	Nose to rim angle	10°	N/A
CD	Chest to dash	523 mm	556 mm
CS	Steering wheel to chest	318 mm	N/A
RA	Rim to abdomen	188 mm	N/A
KDL	Left knee to dash	152 mm	188 mm
KDR	Right knee to dash	175 mm	175 mm
KDA	Outboard knee to dash angle	37°	26°
PA	Pelvic angle	24°	22°
TA	Tibial angle	41°	40°
KK	Knee to knee	269 mm	269 mm
ST ¹	Striker to head	526 mm	528 mm
	Striker to head angle	-89°	-84°
SK	Striker to knee	564 mm	533 mm
	Striker to knee angle	3°	0°
SH ¹	Striker to H-point	226 mm	206 mm
	Striker to H-point angle	34°	38°
SHY	Striker to H-point (Y dir.)	259 mm	272 mm
HS	Head to side window	295 mm	343 mm
HD	H-point to door	208 mm	213 mm
AD	Arm to door	122 mm	130 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

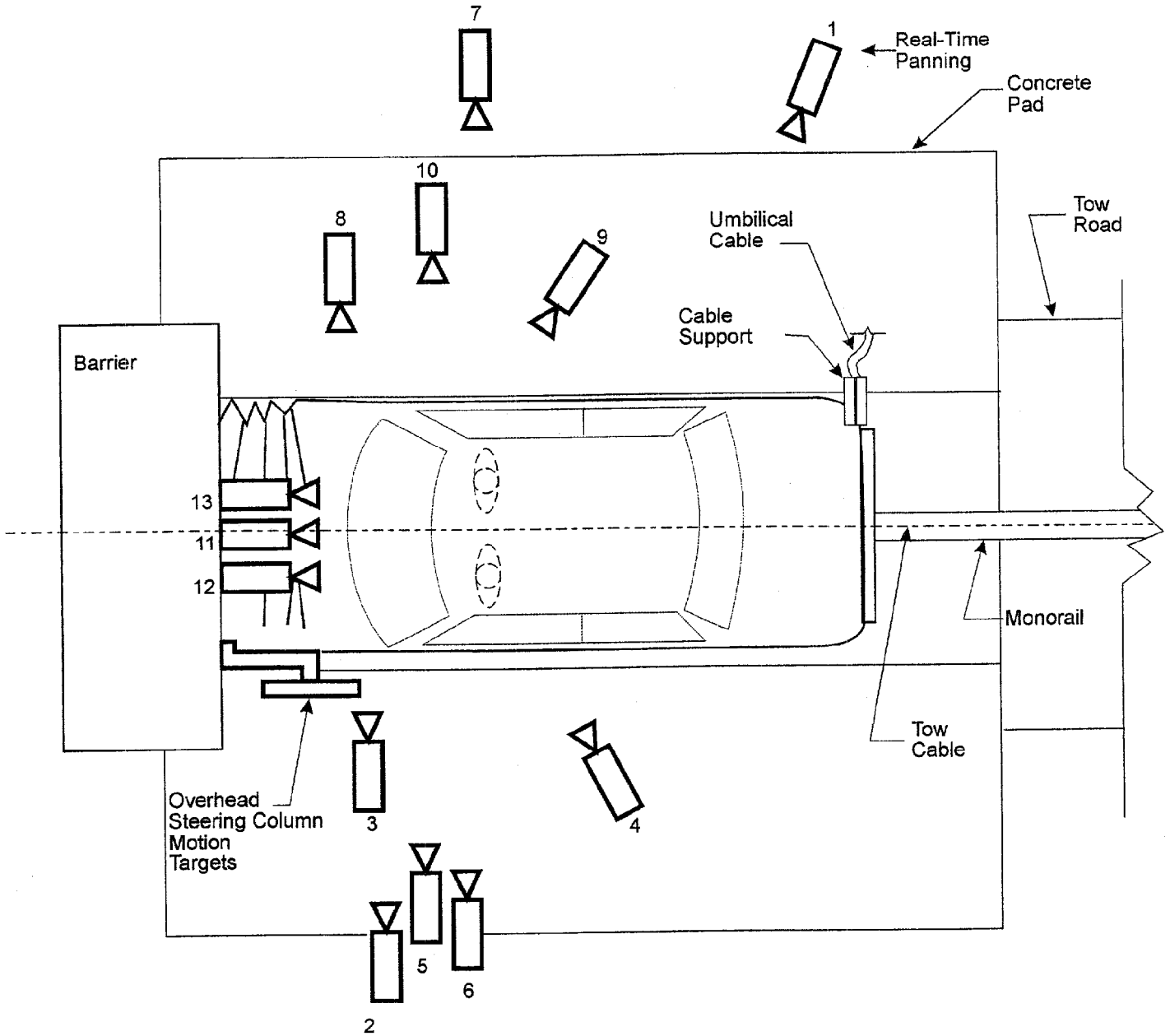


Figure 7 Camera Positions, Cont'd.

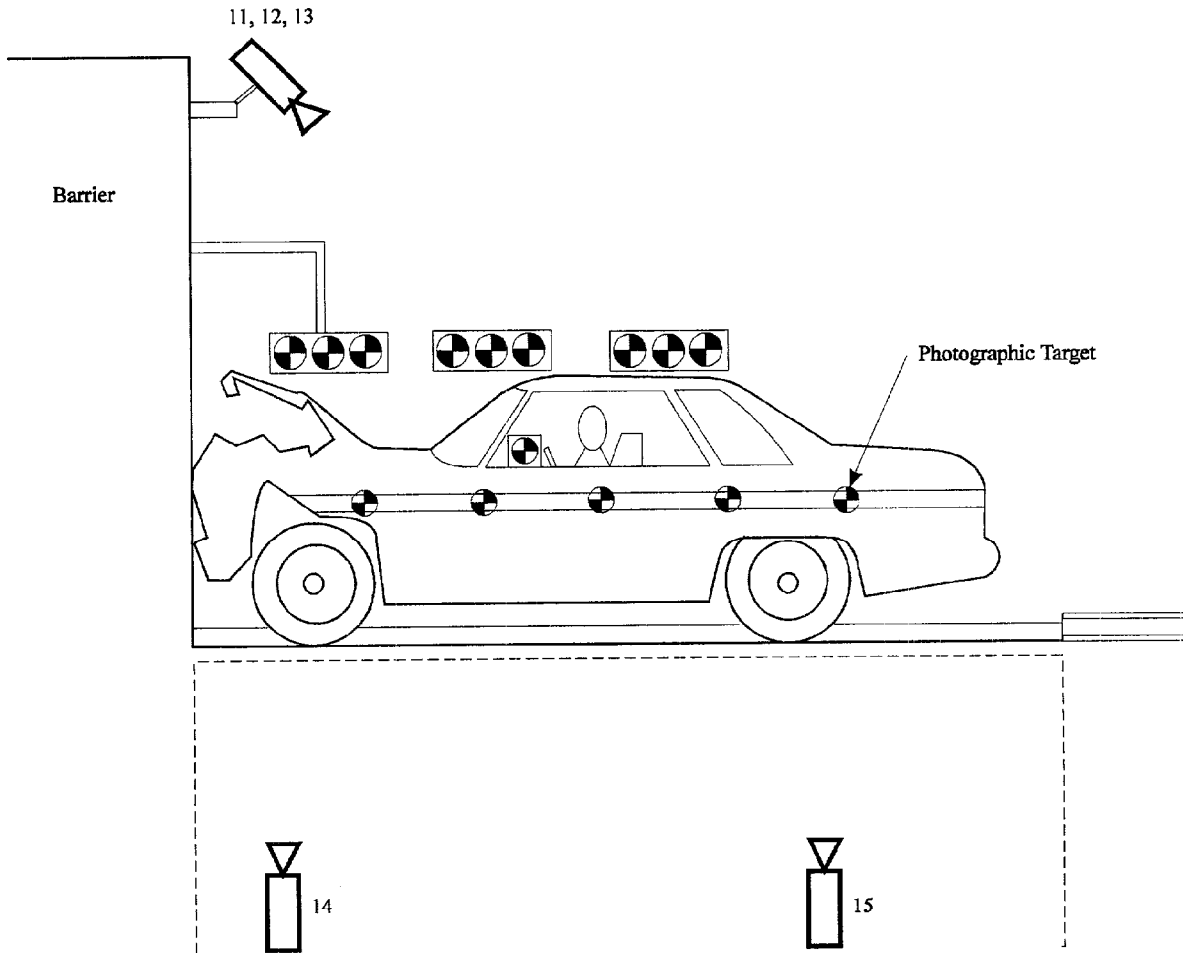


Table 8 Motion Picture Camera Locations

Vehicle year/make/model/body style: 1999/Dodge/Intrepid/Sedan

Test number: 990421-2

Camera Number	View	Camera Positions ^{1,3}			Camera Angle ^{2,3}	Film Plane to Head Target ³	Camera Lens	Film Speed
		X	Y	Z				
1	Real-time panning	NA	NA	NA	NA	NA	16 mm	24 frames/s
2	Left vehicle crush	NA	NA	NA	NA	NA	25 mm	983 frames/s
3	Left windshield intrusion	NA	NA	NA	NA	NA	50 mm	1005 frames/s
4	Driver kinematics	NA	NA	NA	NA	NA	25 mm	1000 frames/s
5	Steering column motion	NA	NA	NA	NA	NA	25 mm	1002 frames/s
6	Steering column motion	NA	NA	NA	NA	NA	25 mm	1000 frames/s
7	Right overall	NA	NA	NA	NA	NA	13 mm	1008 frames/s
8	Right windshield intrusion	NA	NA	NA	NA	NA	50 mm	1005 frames/s
9	Passenger kinematics	NA	NA	NA	NA	NA	25 mm	998 frames/s
10	Passenger kinematics	NA	NA	NA	NA	NA	25 mm	1005 frames/s
11	Windshield front view	NA	NA	NA	NA	NA	8.5 mm	1000 frames/s
12	Driver - front view	NA	NA	NA	NA	NA	17 mm	995 frames/s
13	Passenger - front view	NA	NA	NA	NA	NA	17 mm	960 frames/s
14	Pit - front position	NA	NA	NA	NA	NA	13 mm	1002 frames/s
15	Pit - rear position	NA	NA	NA	NA	NA	13 mm	1010 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 Camera location measurements were not recorded for this test.

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

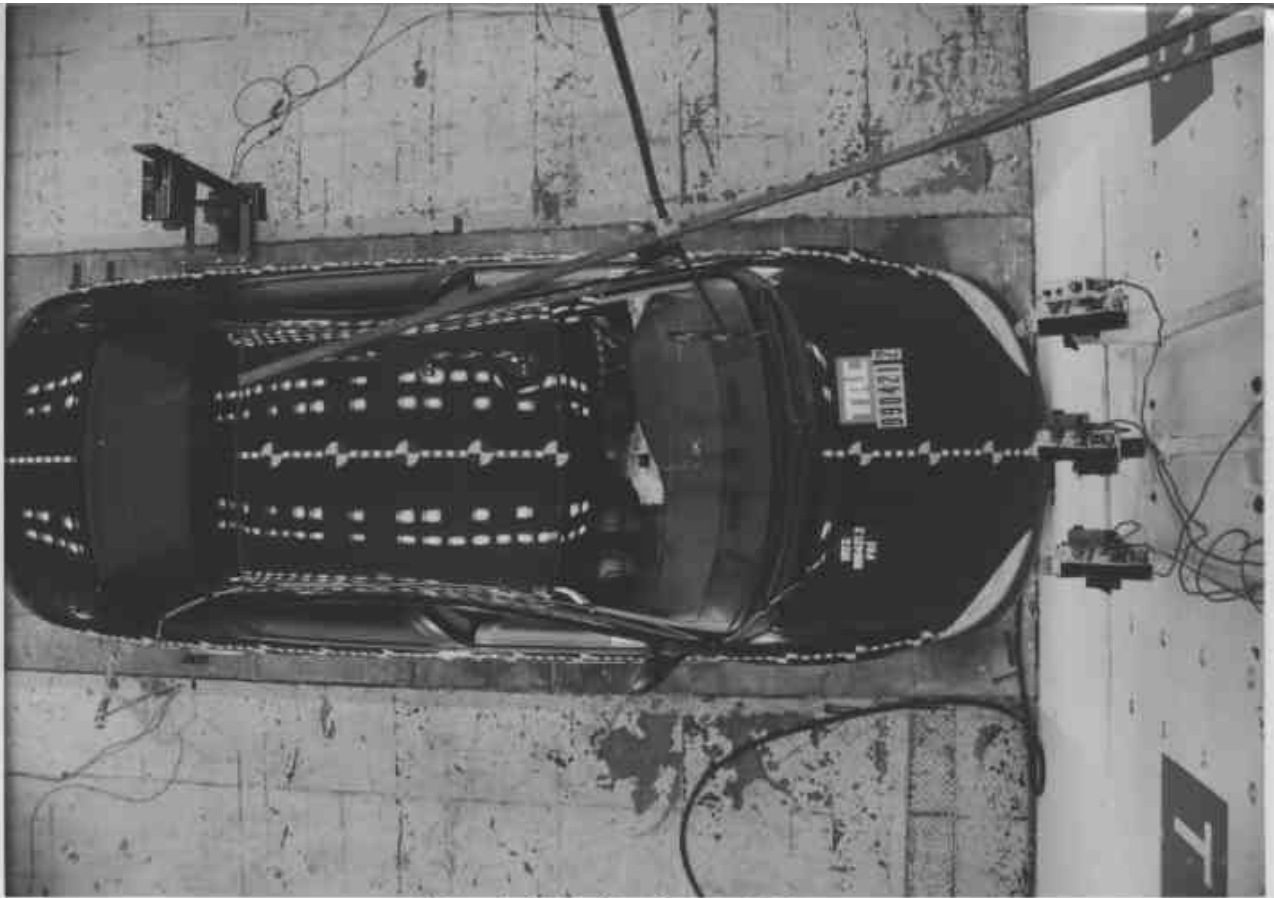


Figure A-9 Pre-Test Overhead View

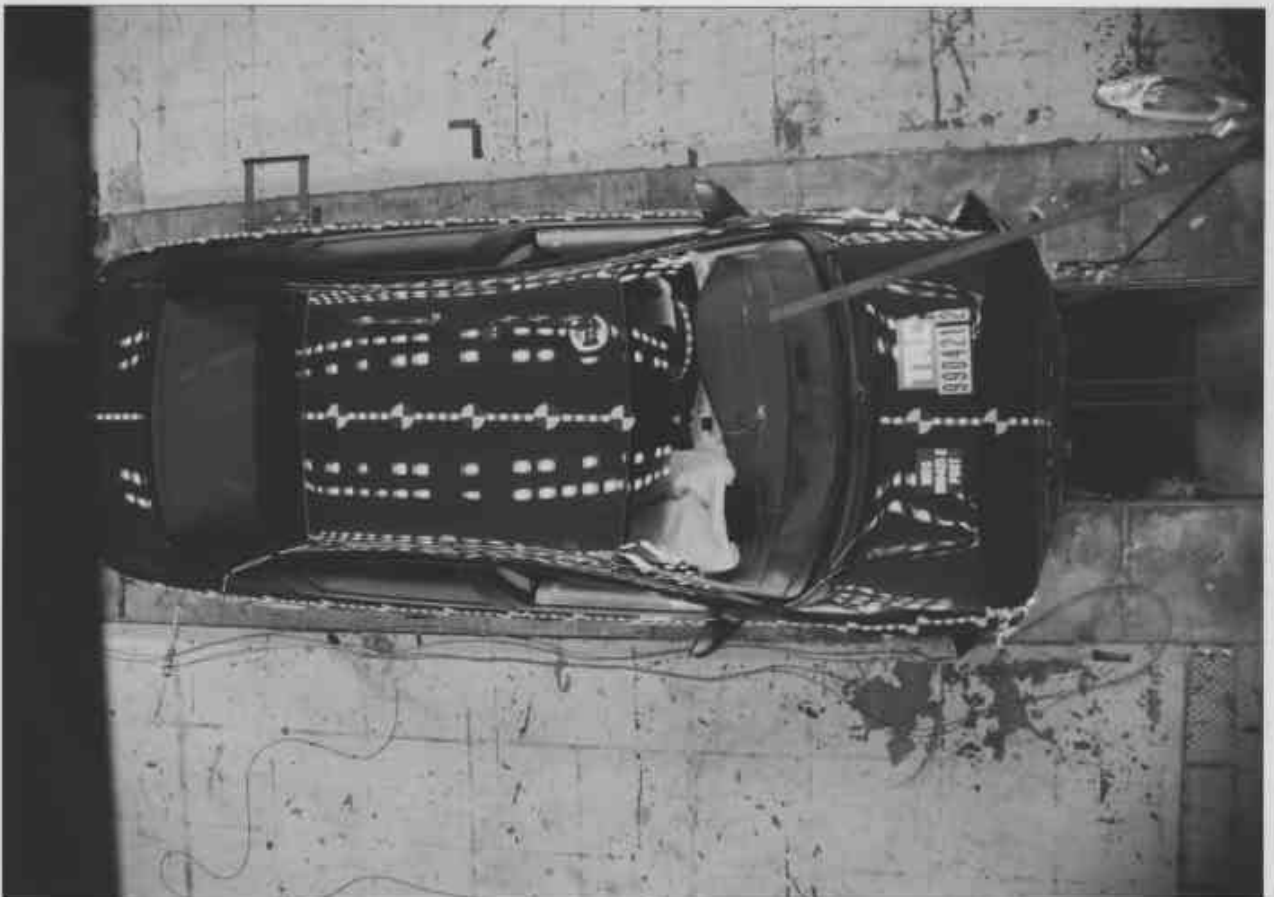


Figure A-10 Post-Test Overhead View

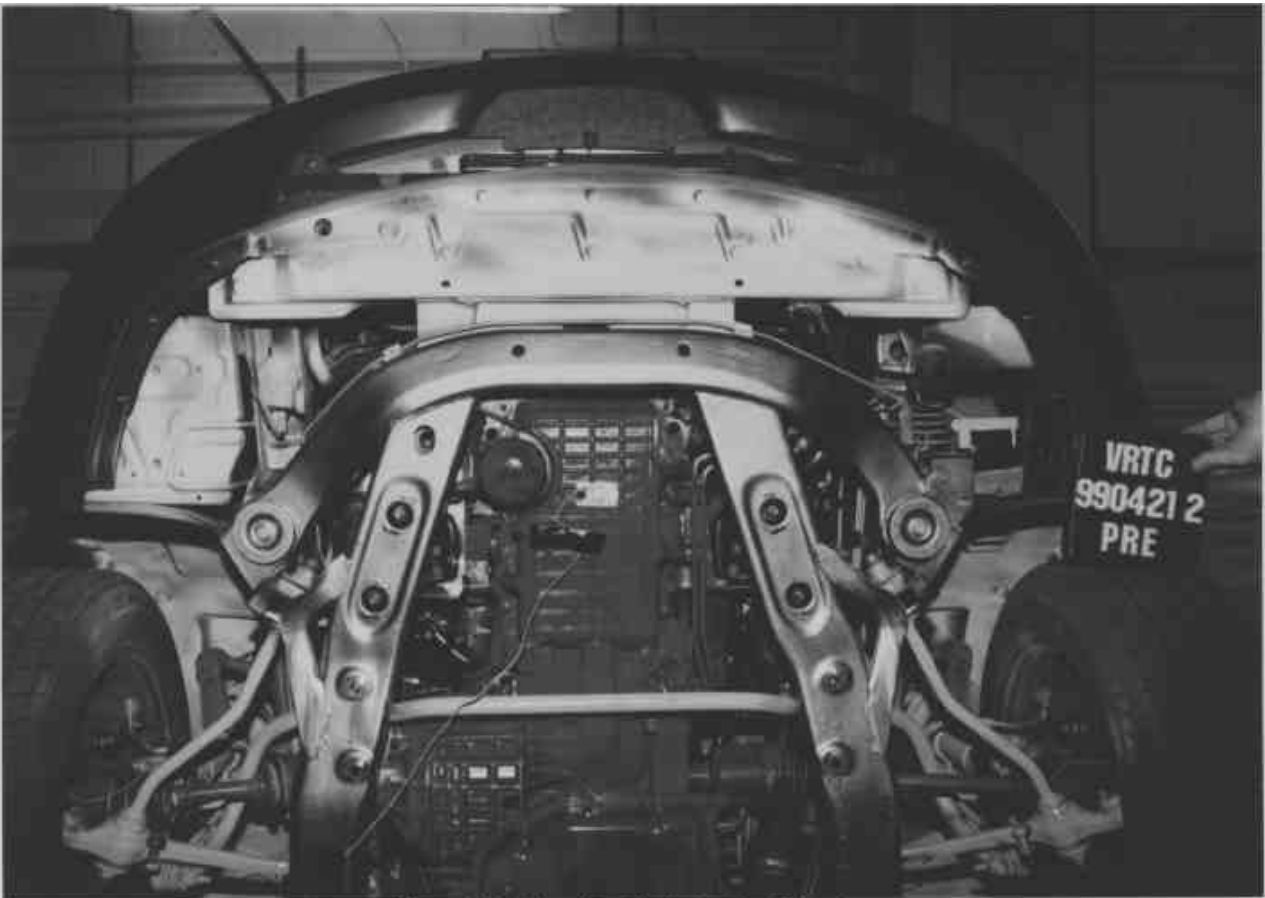


Figure A-11 Pre-Test Underbody - View 1



Figure A-12 Post-Test Underbody - View 1



Figure A-13 Pre-Test Underbody - View 2

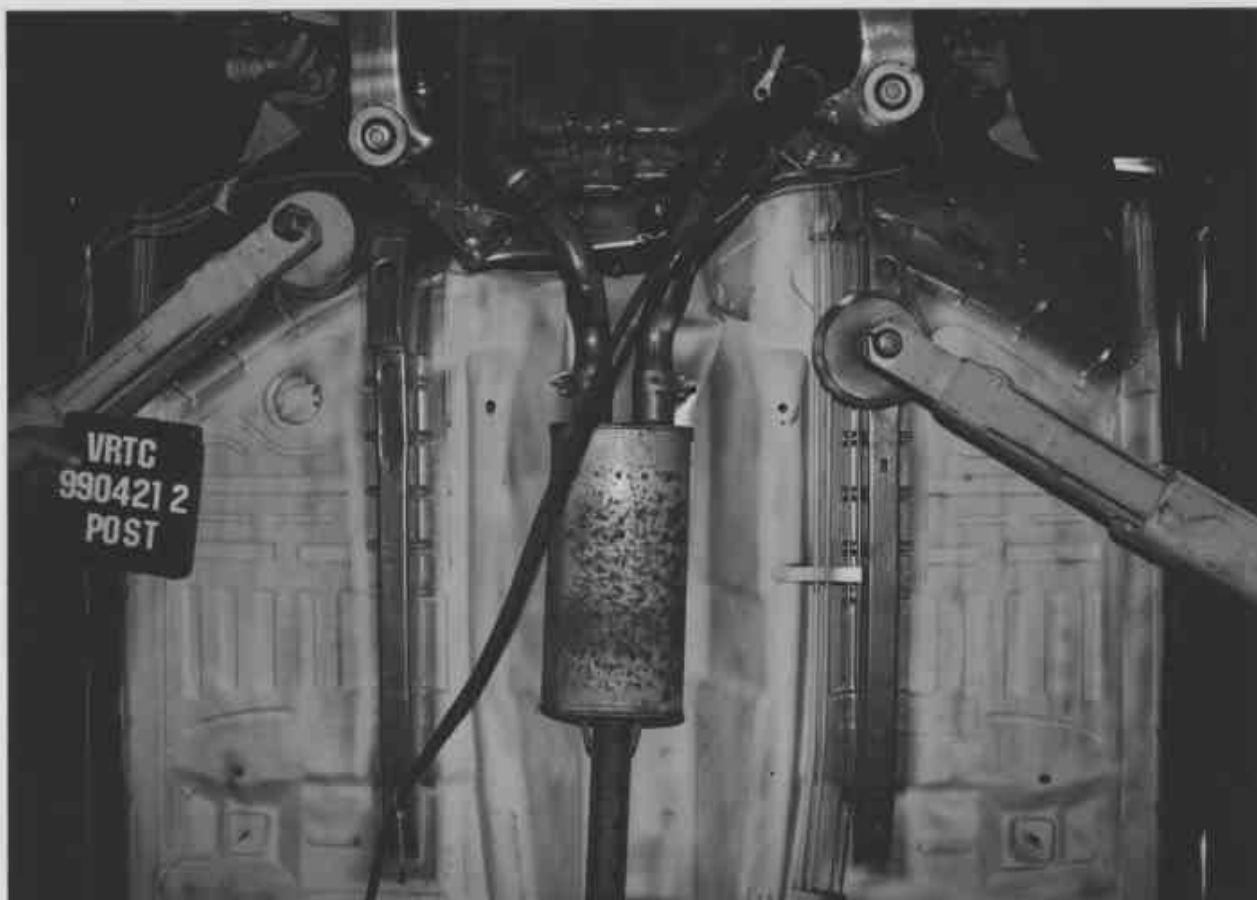
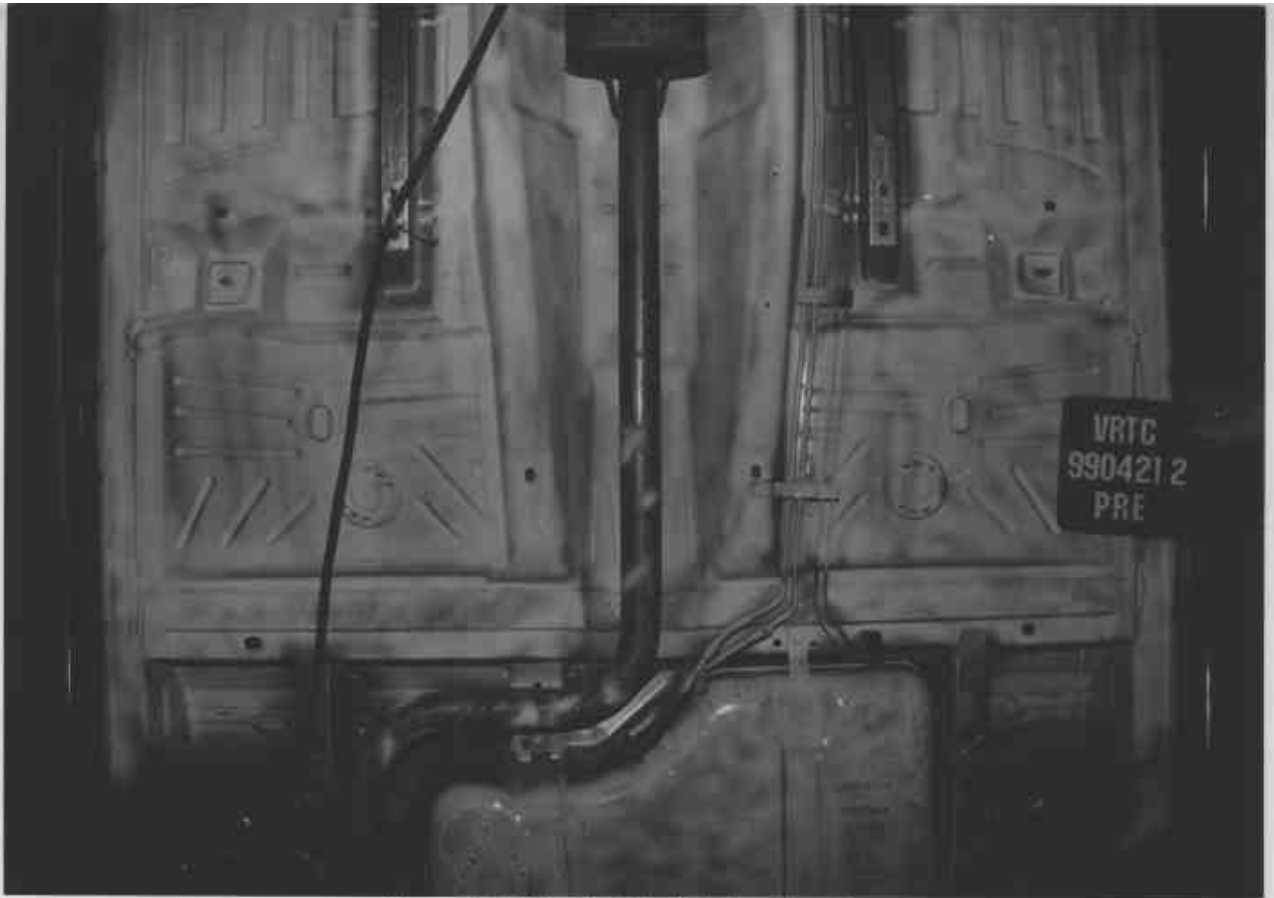


Figure A-14 Post-Test Underbody - View 2



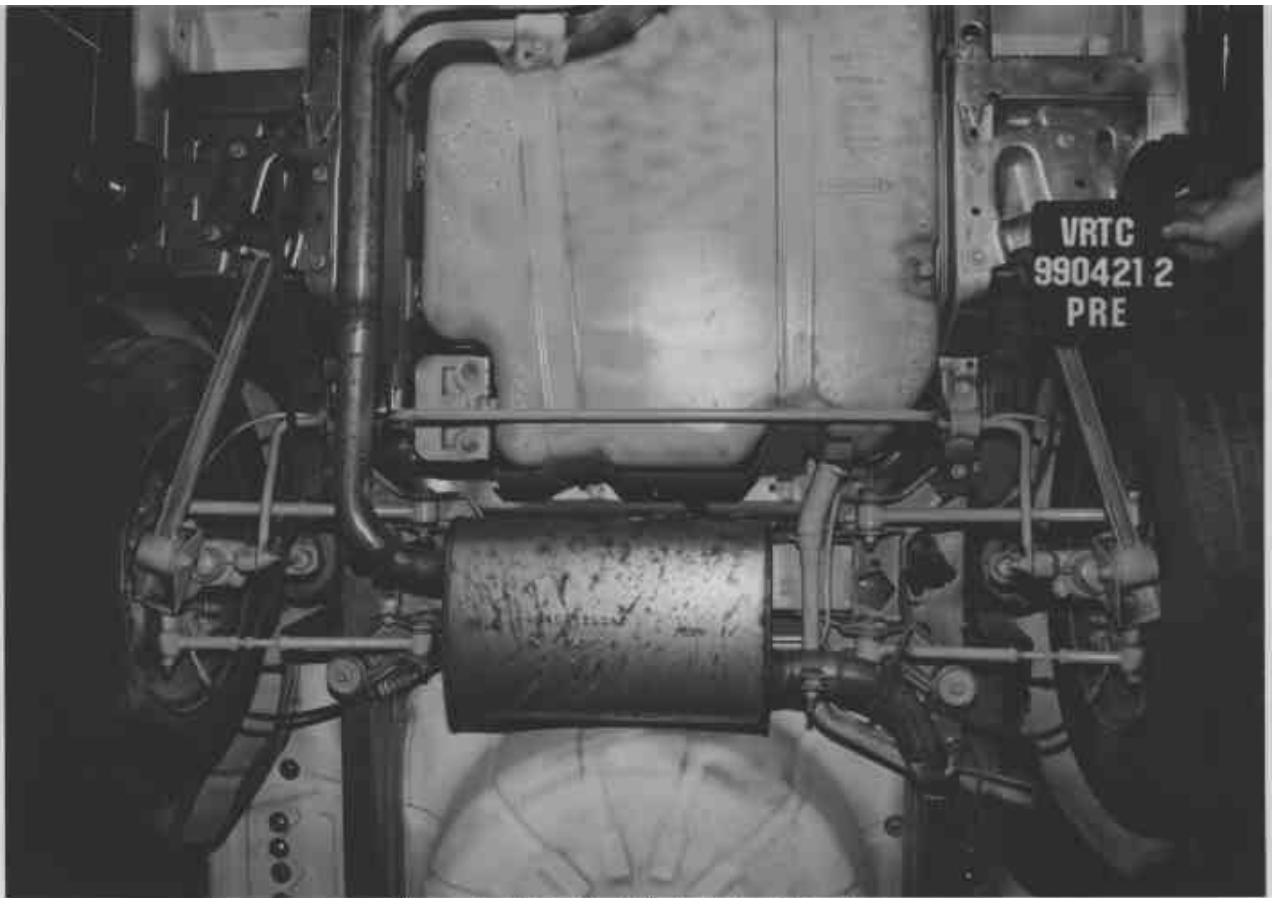
VRTC
990421 2
PRE

Figure A-15 Pre-Test Underbody - View 3



VRTC
990421 2
POST

Figure A-16 Post-Test Underbody - View 3



VRTC
990421 2
PRE

Figure A-17 Pre-Test Underbody - View 4



VRTC
90421 2
POST

Figure A-18 Post-Test Underbody - View 4

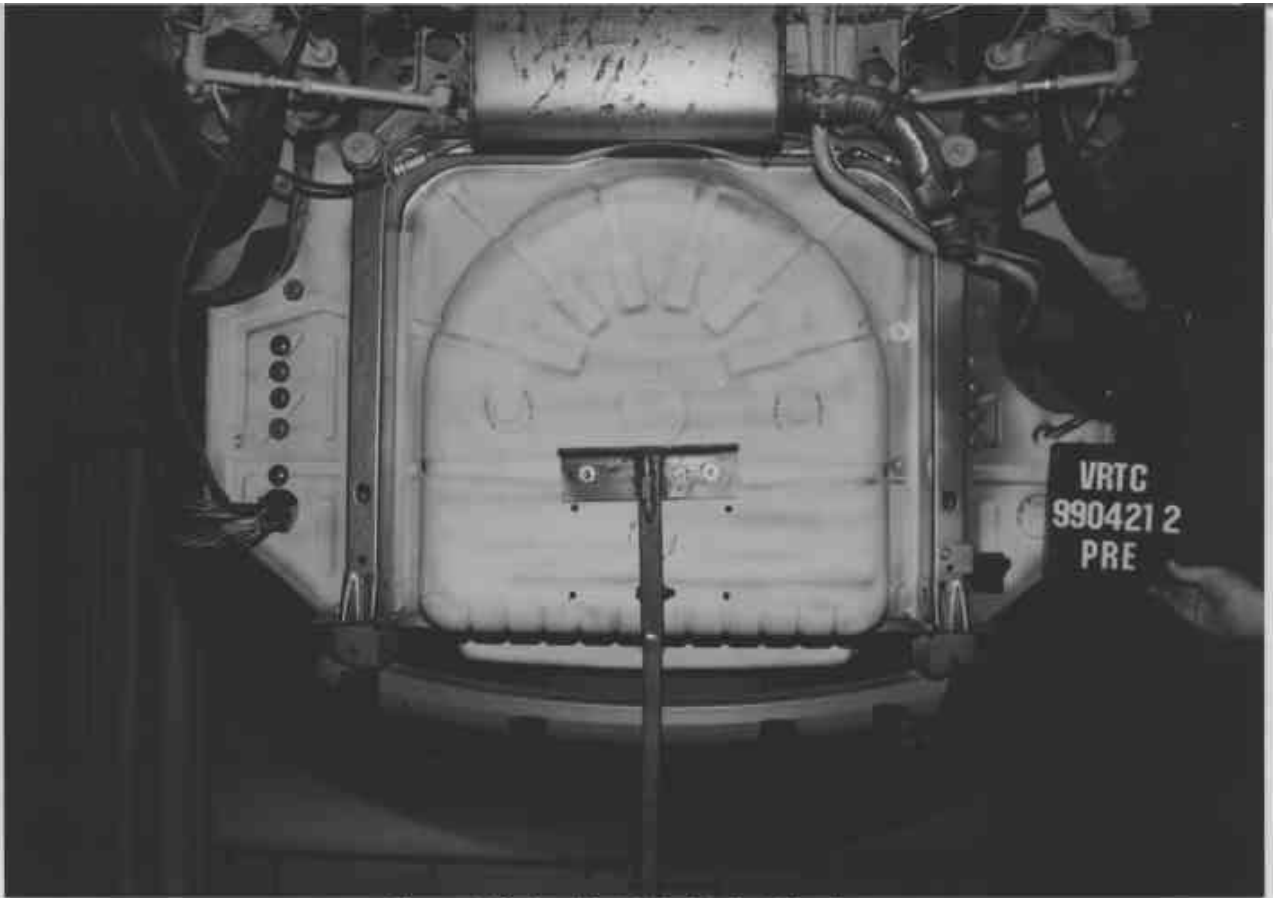


Figure A-19 Pre-Test Underbody - View 5



Figure A-20 Post-Test Underbody - View 5



Figure A-21 Post-Test Engine Compartment View

Intentionally Left Blank



Figure A-22 Pre-Test Windshield View



Figure A-23 Post-Test Windshield View



Figure A-24 Pre-Test Driver Dummy Windshield View



Figure A-25 Post-Test Driver Dummy Windshield View



Figure A-26 Pre-Test Passenger Dummy Windshield View



Figure A-27 Post-Test Passenger Dummy Windshield View



Figure A-28 Pre-Test Driver Dummy Position - View 1



Figure A-29 Post-Test Driver Dummy Position - View 1



Figure A-30 Pre-Test Driver Dummy Position -View 2



Figure A-31 Post-Test Driver Dummy Position - View 2



Figure A-32 Pre-Test Driver Dummy Position -View 3



Figure A-33 Post-Test Driver Dummy Position - View 3



Figure A-34 Pre-Test Passenger Dummy Position - View 1



Figure A-35 Post-Test Passenger Dummy Position - View 1



Figure A-36 Pre-Test Passenger Dummy Position - View 2



Figure A-37 Post-Test Passenger Dummy Position - View 2



Figure A-38 Pre-Test Passenger Dummy Position - View 3



Figure A-39 Post-Test Passenger Dummy Position - View 3



Figure A-40 Post-Test Driver Dummy View



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



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



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



Figure A-44 Post-Test Driver Dummy Head Contact - View 4



Figure A-45 Post-Test Driver Dummy Knee Contact - View 1



Figure A-46 Post-Test Driver Dummy Knee Contact - View 2



Figure A-47 Post-Test Driver Footwell Deformation View



Figure A-48 Post-Test Passenger Dummy View



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



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



Figure A-51 Post-Test Passenger Dummy Head Contact - View 3



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



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



Figure A-54 Post-Test Passenger Footwell Deformation View



Figure A-55 Pre-Test Vehicle Certification Label View



		VEHICLE CAPACITY OR LESS	
1ST SEAT	2 PASS		
2ND SEAT	3 PASS		
LOADING	155 LBS (70 KG)		
TOTAL	5 PASS		
TOTAL WEIGHT	403 LBS (182 KG)		
TIRE PRESSURE COLD	32 PSI		
	220 LBS		
	FRONT AND REAR		
*10/12/18 1148 0222			
P225/60R16 97T			
SEE OWNER MANUAL FOR ADDITIONAL DATA			
PRINTED IN USA 3032251AA			

Figure A-56 Pre-Test Vehicle Tire Information Label View

Appendix B

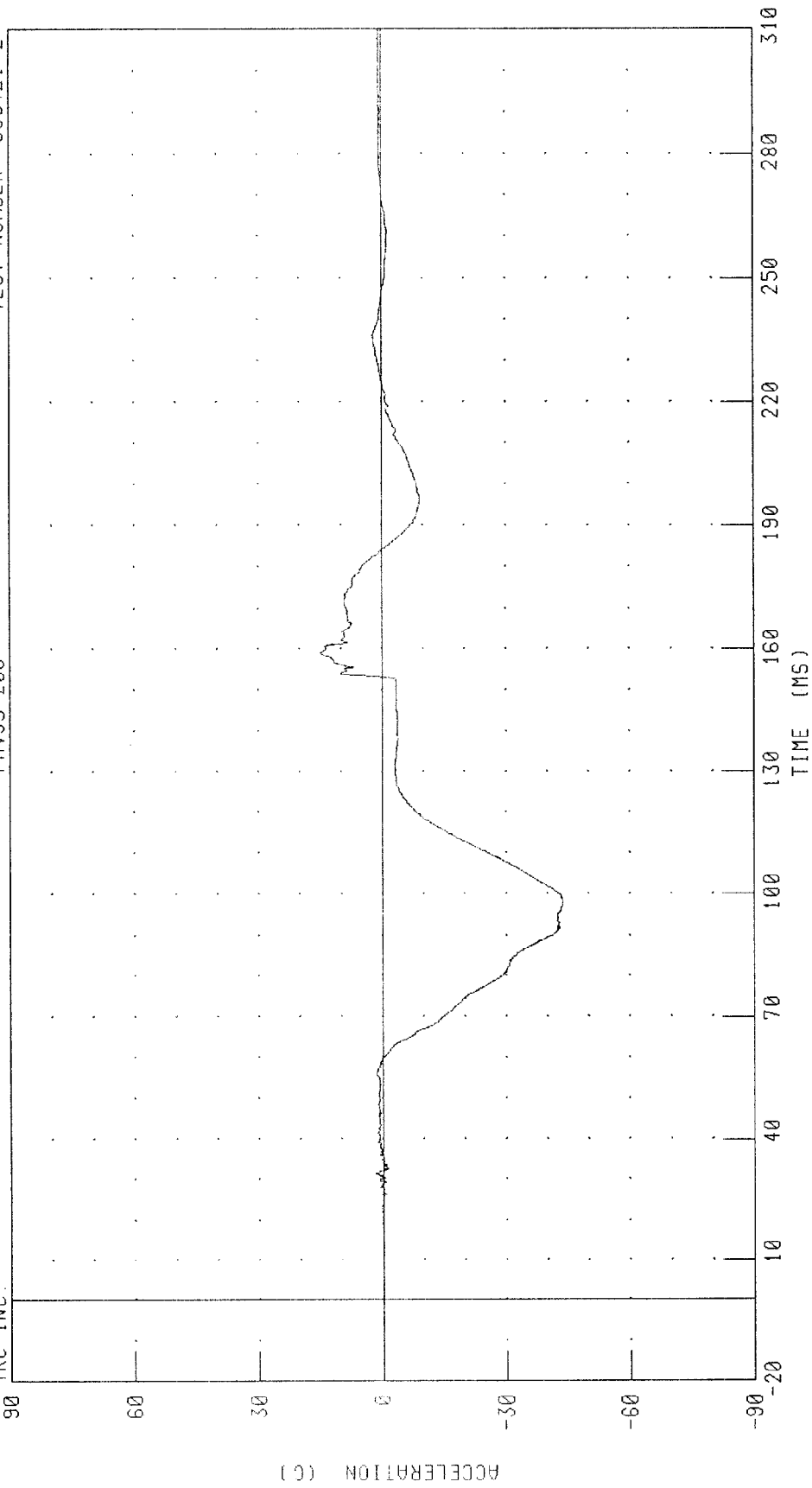
Data Plots

1999 DODGE INTREPID INTO A FLAT FRONTAL BARRIER AT 25 MPH
DRIVER HEAD X-AXIS ACCELERATION

TEST NUMBER: 990421-2

FMYSS_208

TRC INC.



CHANNEL: HEDXC1 FILTER: CH. CLASS 1000 PEAK DATA: 14.77 G @ 158.96 MS, -43.80 G @ 97.44 MS

1999 DODGE INTREPID INTO A FLAT FRONTAL BARRIER AT 25 MPH
DRIVER HEAD Y-AXIS ACCELERATION

TEST NUMBER: 990421-2

FMVSS 208

TRC INC.

90

60

30

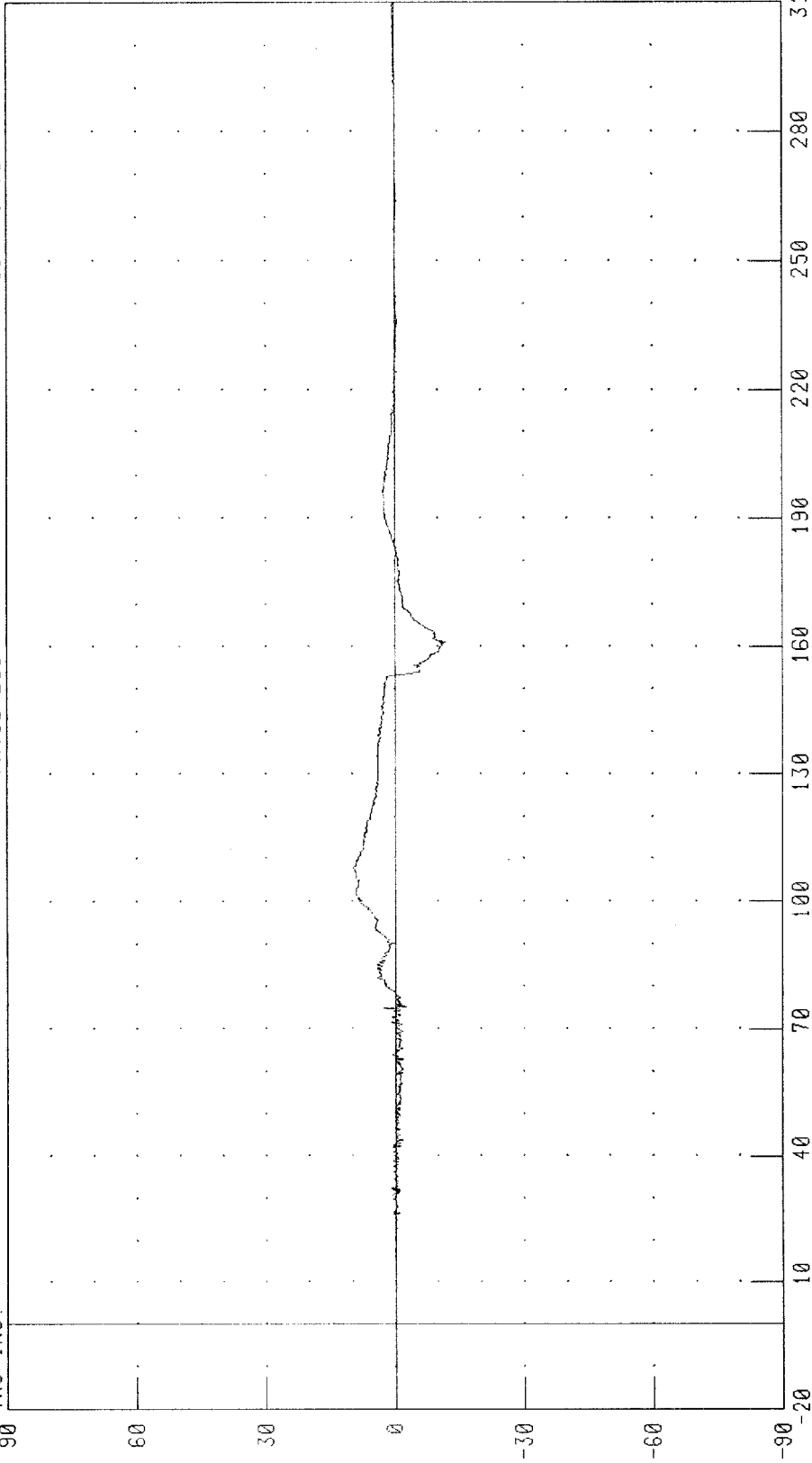
0

-30

-60

-90

ACCELERATION (G)



TIME (MS)

PEAK DATA: 9.72 G @ 107.84 MS; -11.72 G @ 160.96 MS

CHANNEL: HEDYG1 FILTER: CH. CLASS 1000

1999 DODGE INTREPID INTO A FLAT FRONTAL BARRIER AT 25 MPH
DRIVER HEAD Z-AXIS ACCELERATION

TEST NUMBER: 990421-2

FMVSS 208

TRC INC.

90

60

30

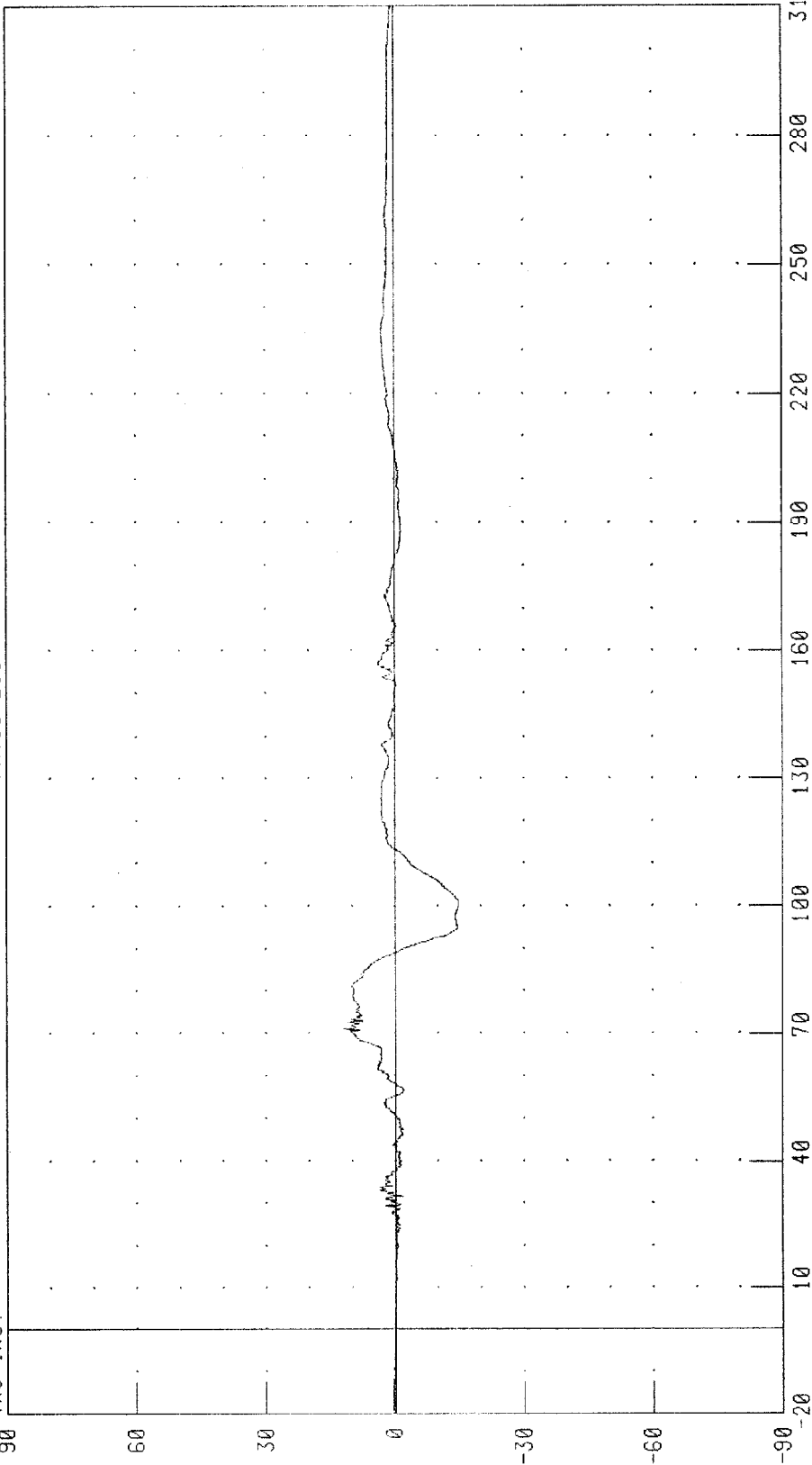
0

-30

-60

-90

ACCELERATION (G)



TIME (MS)

PEAK DATA: 12.09 G @ 71.12 MS; -14.94 G @ 100.32 MS

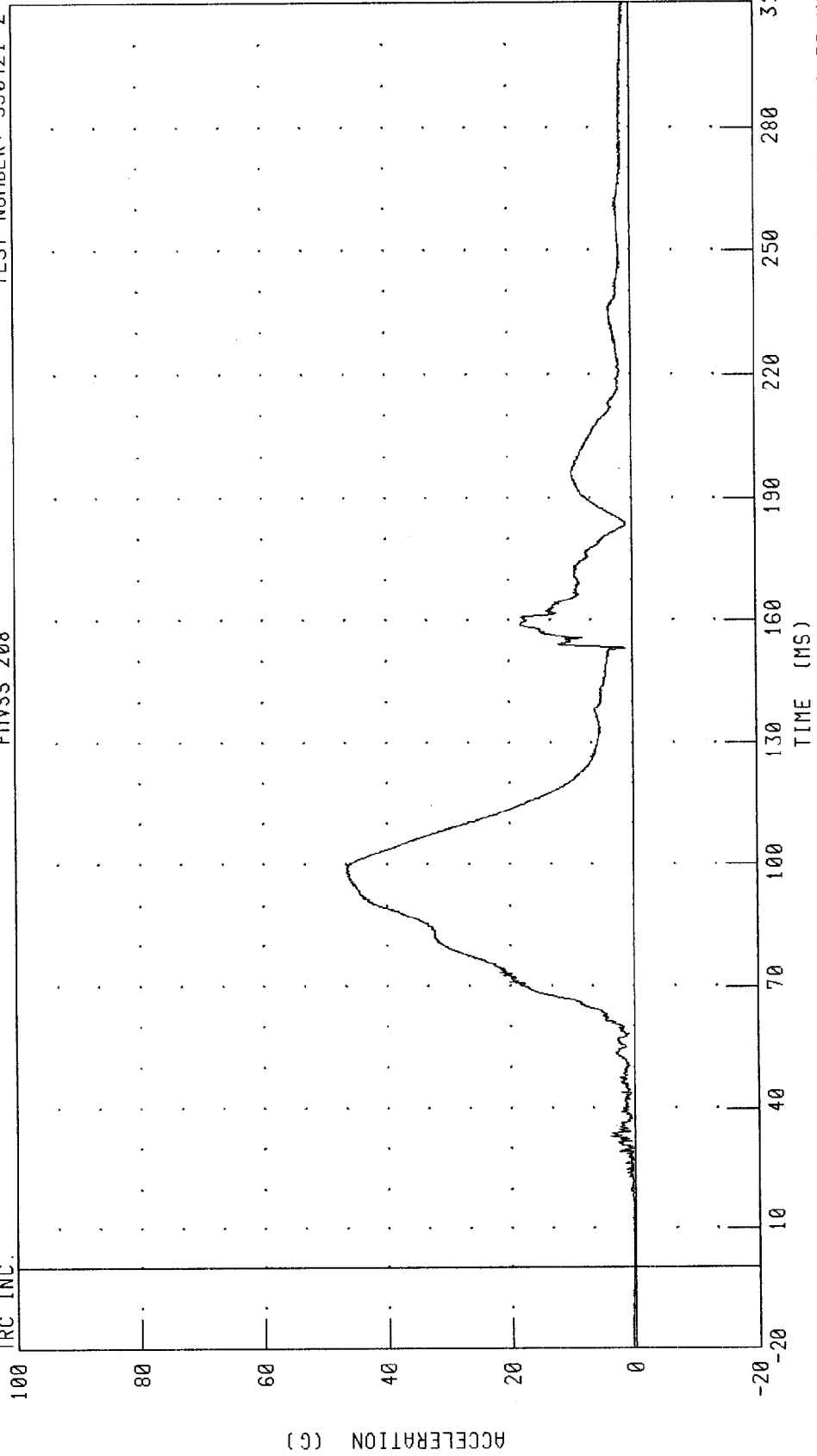
CHANNEL: HEDZG1 FILTER: CH. CLASS 1000

1999 DODGE INTREPID INTO A FLAT FRONTAL BARRIER AT 25 MPH
DRIVER HEAD RESULTANT ACCELERATION

TEST NUMBER: 990421-2

FMYSS 208

TRC INC.



CHANNEL: HEDR01 FILTER: CH. CLASS 1000 PEAK DATA: 46.56 G @ 99.28 MS; 0.06 G @ 0.32 MS

1999 DODGE INTREPID INTO A FLAT FRONTAL BARRIER AT 25 MPH
DRIVER NECK X-AXIS SHEAR FORCE

TEST NUMBER: 990421-2

FMVSS 208

TRC INC.

60

40

20

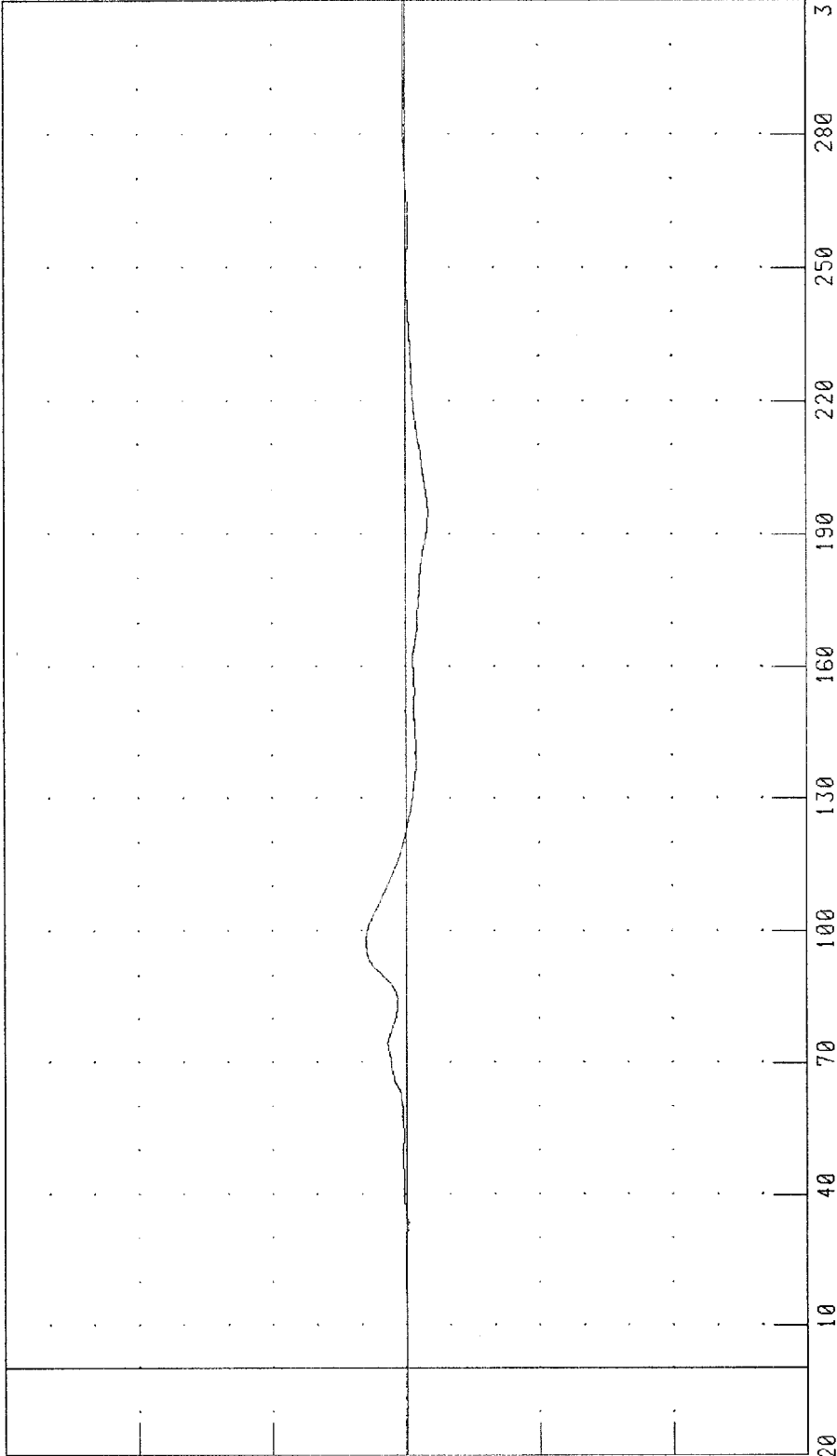
0

-20

-40

-60

FORCE (N x 10²)



TIME (MS)

PEAK DATA: 597.46 N @ 96.48 MS, -345.10 N @ 195.28 MS

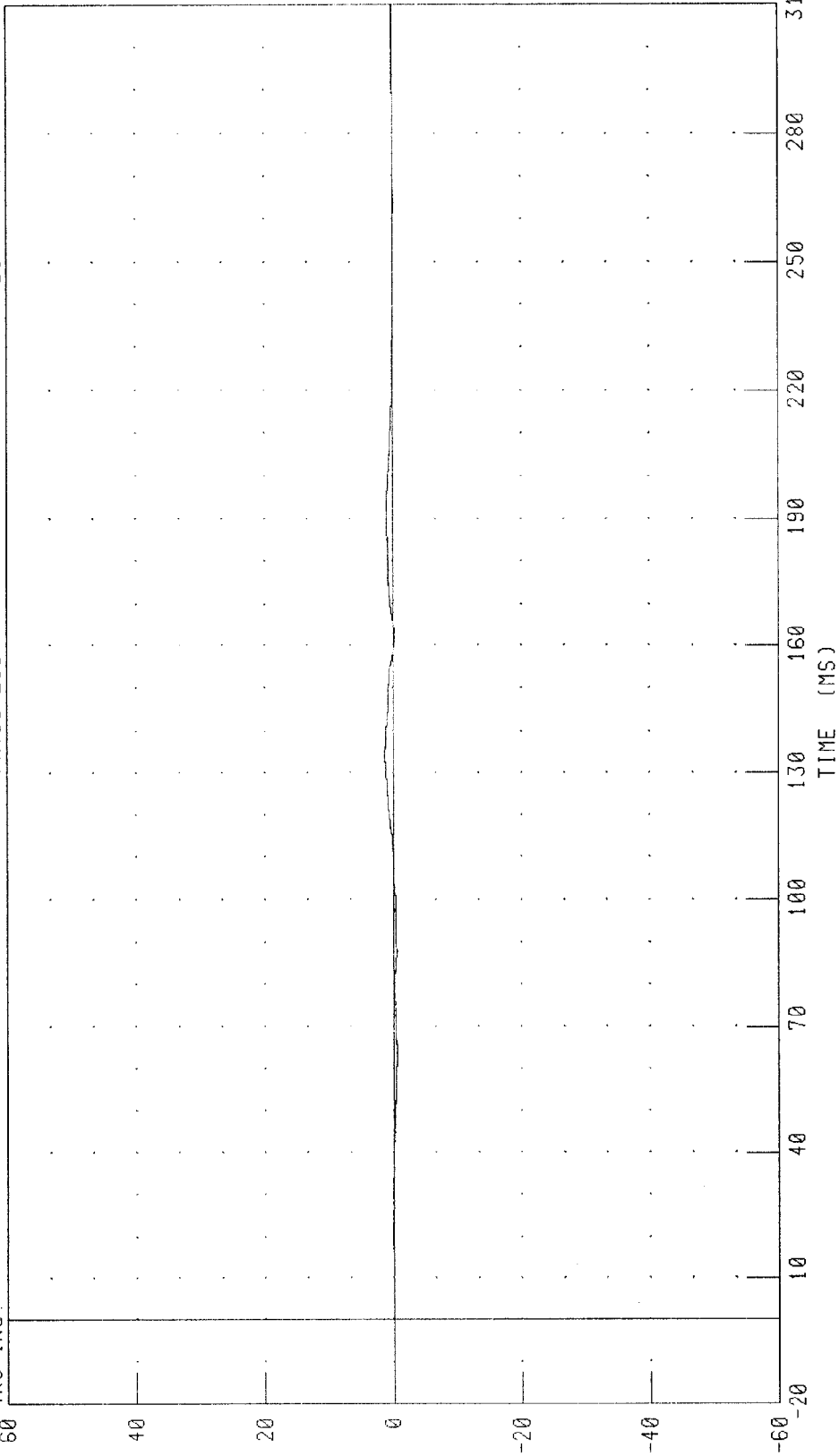
CHANNEL: NEKXF1 FILTER: CH CLASS 1000

1999 DODGE INTREPID INTO A FLAT FRONTAL BARRIER AT 25 MPH
DRIVER NECK Y-AXIS SHEAR FORCE

TEST NUMBER: 990421-2

FMVSS 208

TRC INC.



FORCE (N X 10²)

TIME (MS)

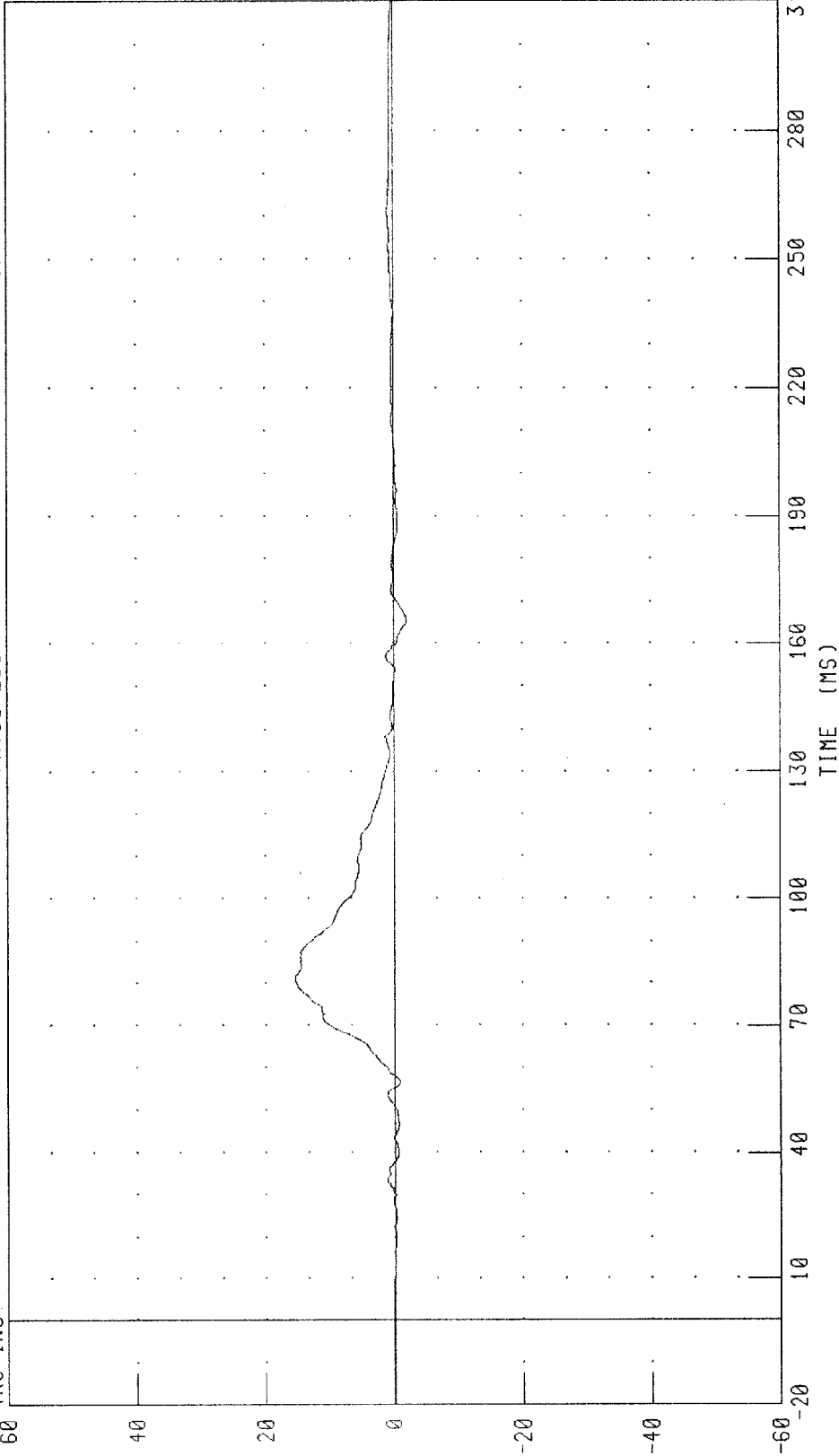
CHANNEL: NEKYF1 FILTER: CH. CLASS 1000 PEAK DATA: 125.12 N @ 133.20 MS; -66.12 N @ 64.56 MS

1999 DODGE INTREPID INTO A FLAT FRONTAL BARRIER AT 25 MPH
DRIVER NECK Z-AXIS AXIAL FORCE

TEST NUMBER: 990421-2

FMVSS 208

TRC INC



CHANNEL: NEKZF1 FILTER: CH CLASS 1000

PEAK DATA: 1544.94 N @ 81.28 MS; -194.00 N @ 165.36 MS

1999 DODGE INTREPID INTO A FLAT FRONTAL BARRIER AT 25 MPH
DRIVER NECK MOMENT ABOUT X AXIS

TEST NUMBER: 990421-2

FVSS 208

TRC INC.

180

120

60

0

-60

-120

-180

TORQUE (N·M)

310

280

250

220

190

160

130

100

70

40

10

-20

TIME (MS)

PEAK DATA: 16.31 N·M @ 128.80 MS; -2.05 N·M @ 69.76 MS

CHANNEL: NEKXMI FILTER: CH. CLASS 600

1999 DODGE INTREPID INTO A FLAT FRONTAL BARRIER AT 25 MPH
DRIVER NECK MOMENT ABOUT Y AXIS

TEST NUMBER: 990421-2

FMVSS_208

TRC INC.

180

120

60

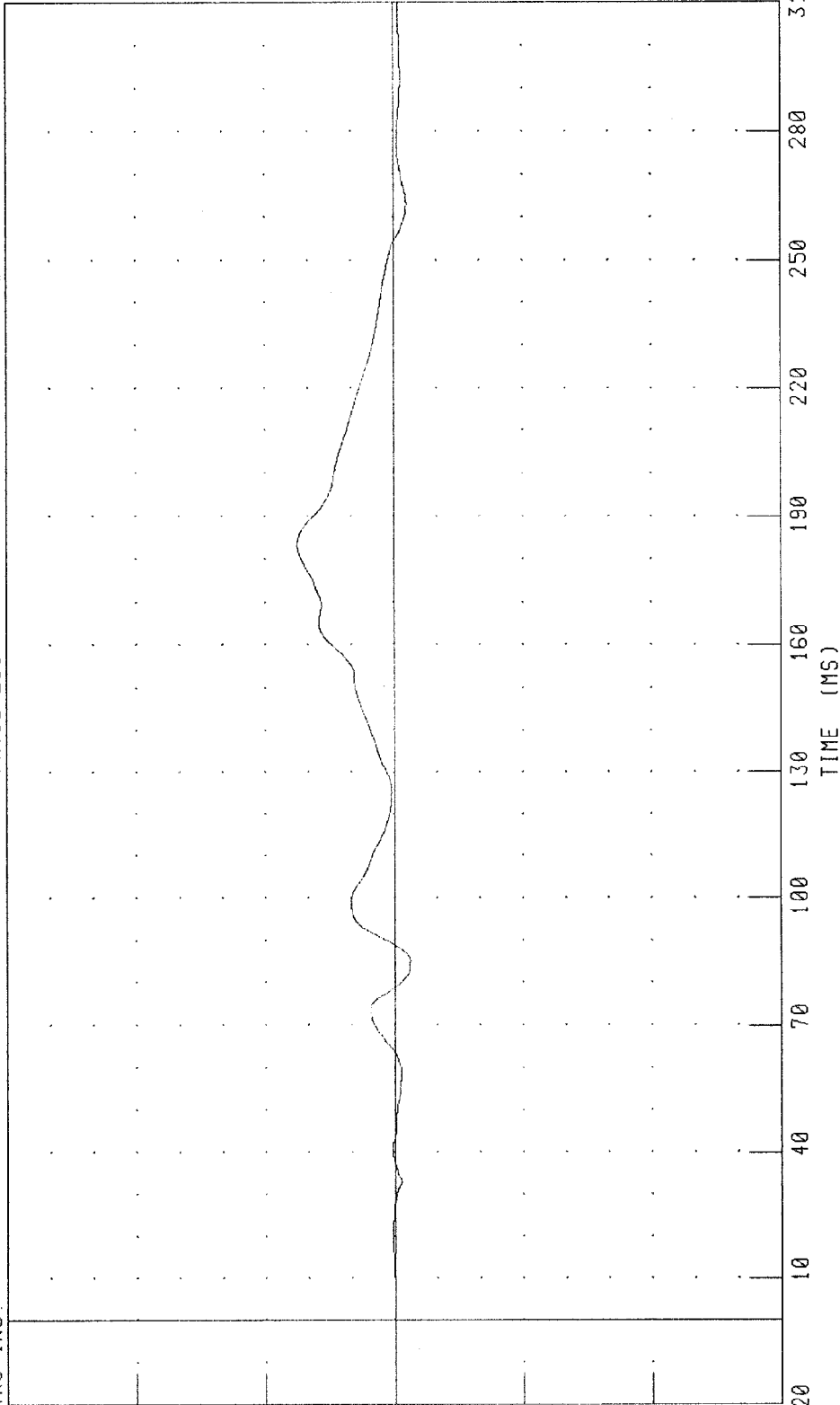
0

-60

-120

-180

TORQUE (N·M)



PEAK DATA: 44.80 N·M @ 183.04 MS, -7.60 N·M @ 85.12 MS

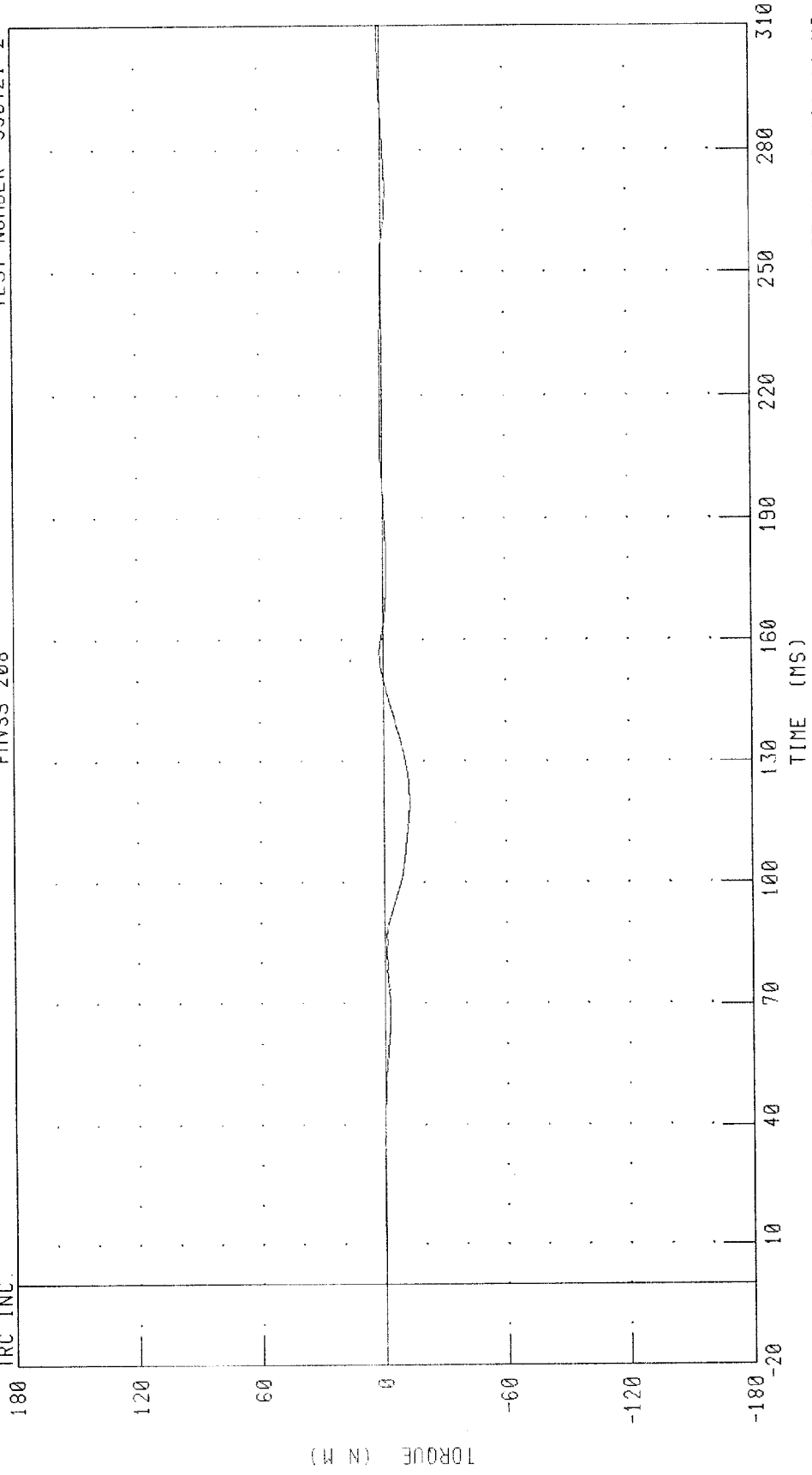
CHANNEL: NEKYM1 FILTER: CH. CLASS 600

1999 DODGE INTREPID INTO A FLAT FRONTAL BARRIER AT 25 MPH
DRIVER NECK MOMENT ABOUT Z AXIS

TEST NUMBER: 990421-2

FMVSS 208

TRC INC.



PEAK DATA: 1.73 N.M @ 157.36 MS; -12.75 N.M @ 121.44 MS

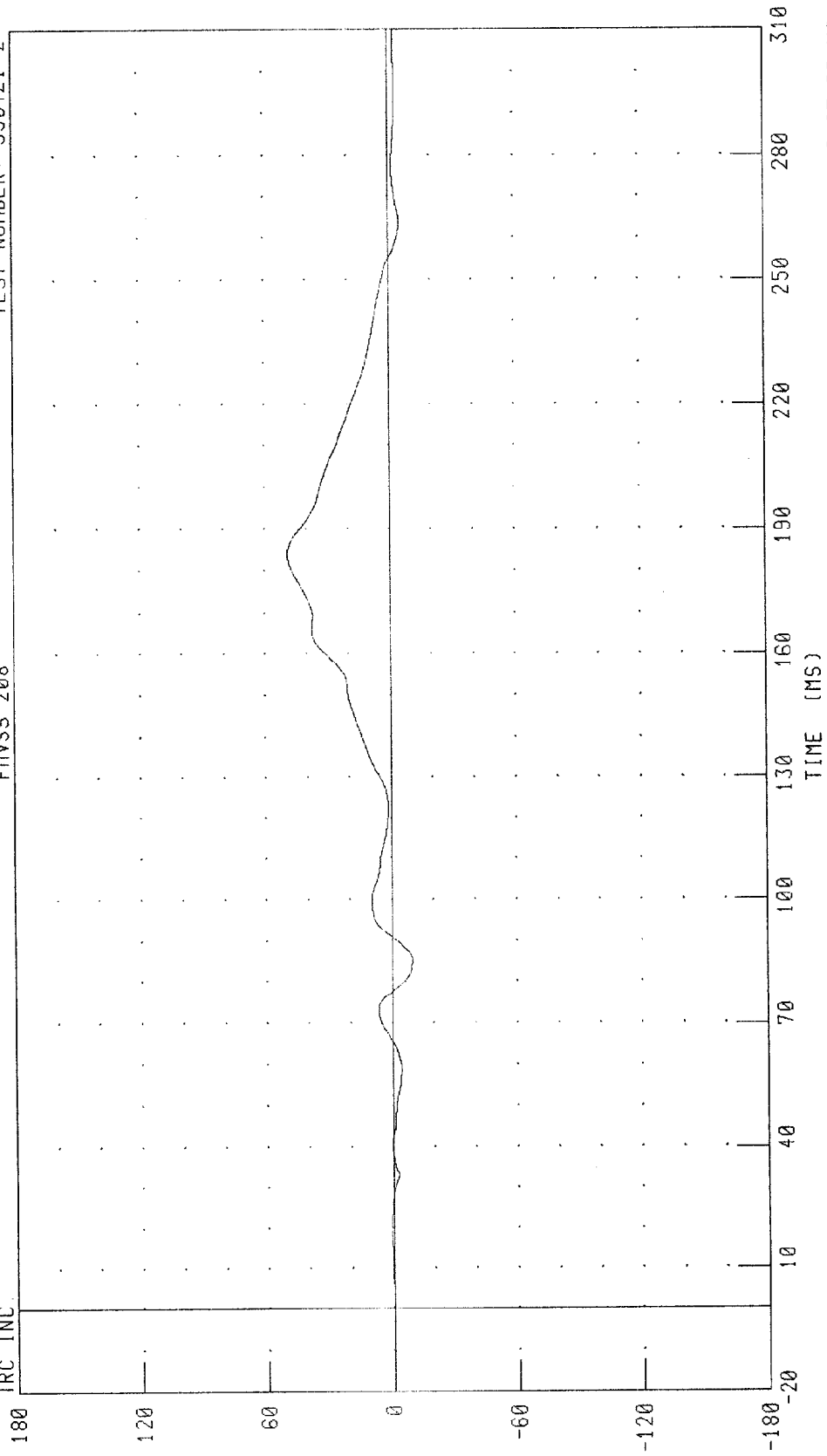
CHANNEL: NEKZM1 FILTER: CH. CLASS 600

1999 DODGE INTREPID INTO A FLAT FRONTAL BARRIER AT 25 MPH
DRIVER NECK OCCIPITAL CONDYLE

TEST NUMBER: 990421-2

FMVSS 208

TRC INC.



PEAK DATA: 49.03 N·M @ 184.08 MS; -9.94 N·M @ 85.28 MS

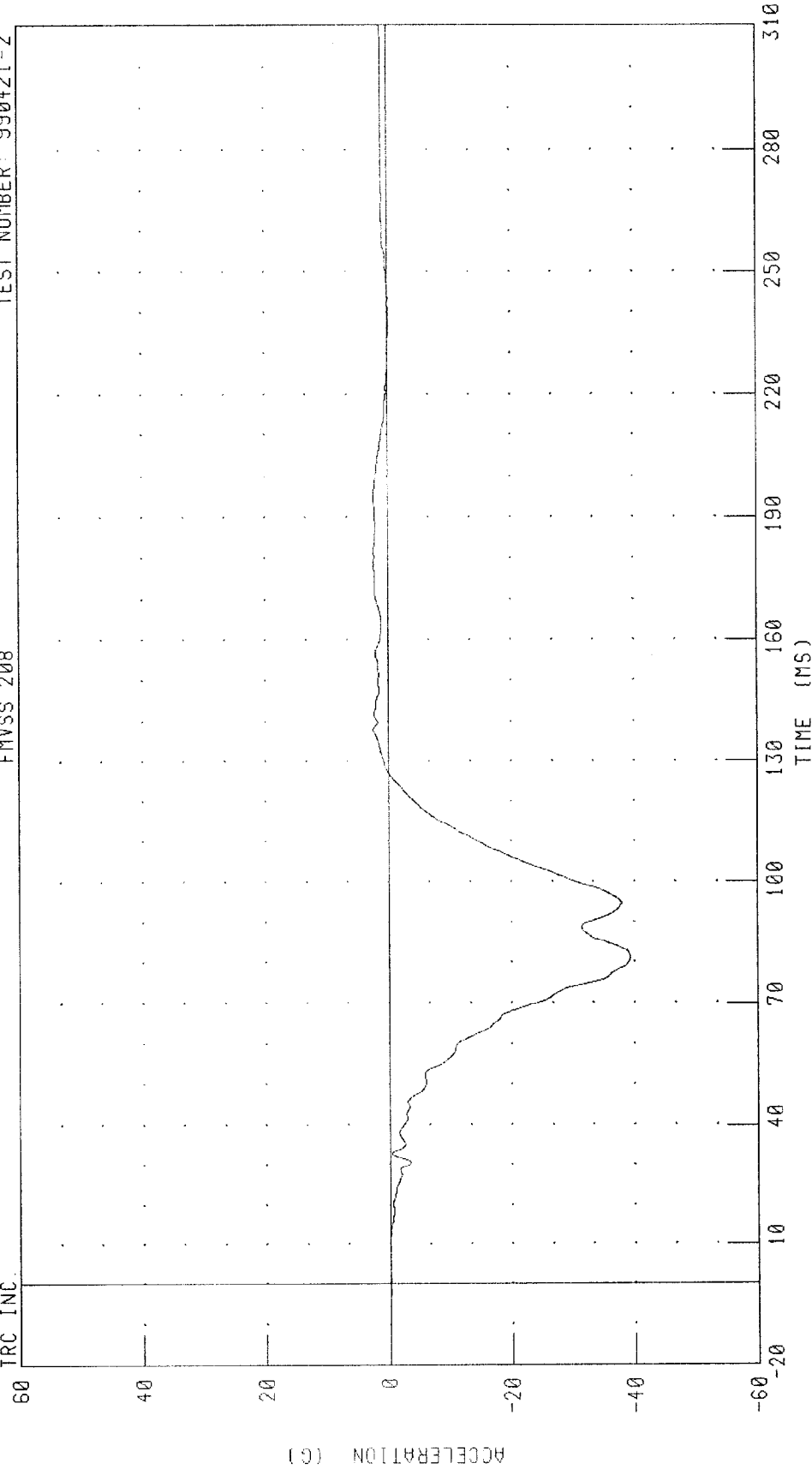
CHANNEL: NEKOM1 FILTER: CH. CLASS 600

1999 DODGE INTREPID INTO A FLAT FRONTAL BARRIER AT 25 MPH
DRIVER CHEST X-AXIS ACCELERATION

TEST NUMBER: 990421-2

FMVSS 208

TRC INC.



CHANNEL: CSTXG1 FILTER: CH CLASS 180

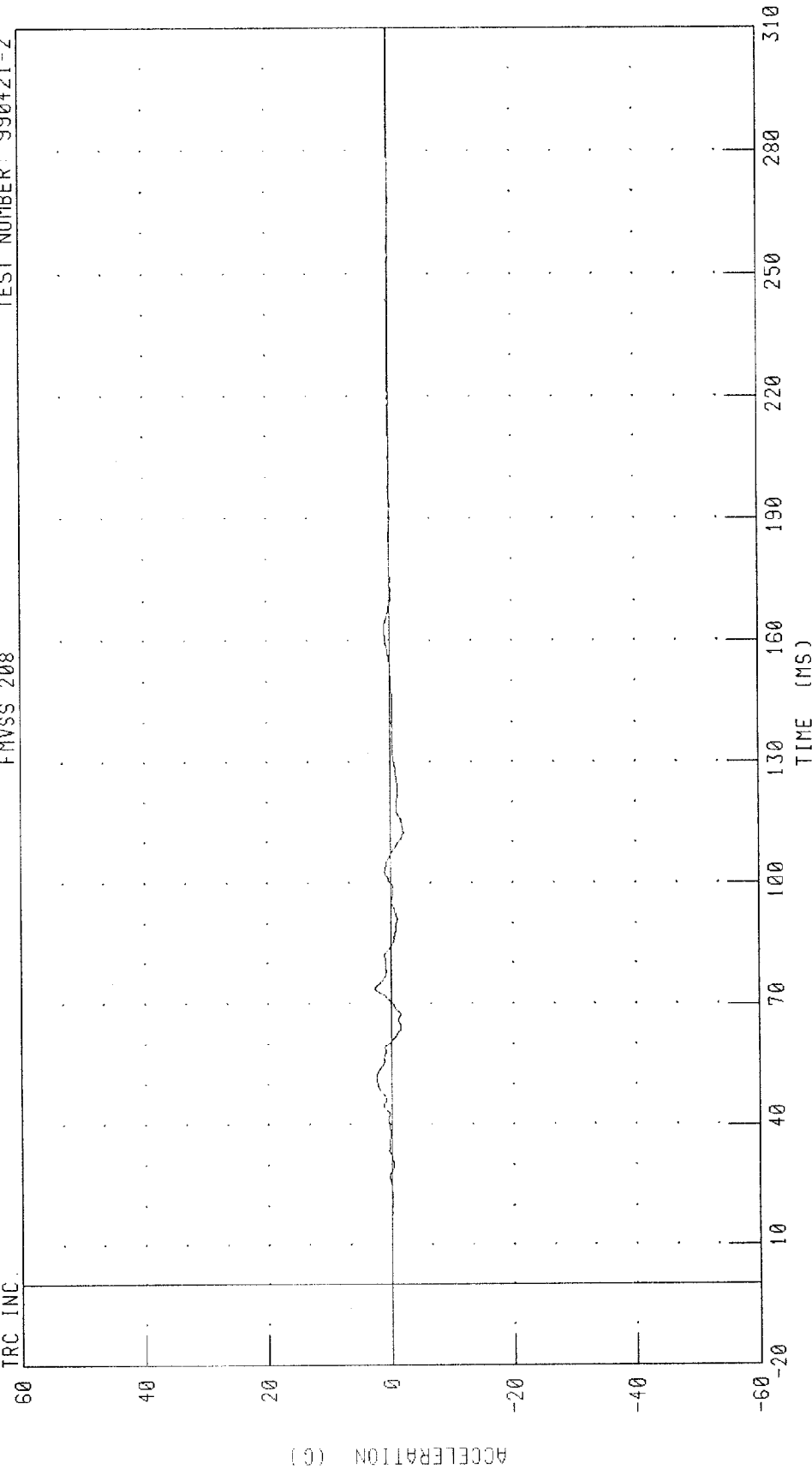
PEAK DATA: 2.54 G @ 138.00 MS, -39.37 G @ 81.04 MS

1999 DODGE INTREPID INTO A FLAT FRONTAL BARRIER AT 25 MPH
DRIVER CHEST Y-AXIS ACCELERATION

TEST NUMBER: 990421-2

FMVSS 208

TRC INC.



PEAK DATA: 2.55 G @ 73.76 MS, -2.22 G @ 112.56 MS

CHANNEL: CSTYG1 FILTER: CH CLASS 180

1999 DODGE INTREPID INTO A FLAT FRONTAL BARRIER AT 25 MPH
DRIVER CHEST Z-AXIS ACCELERATION

TEST NUMBER 990421-2

FMVSS 208

TRC INC

60

40

20

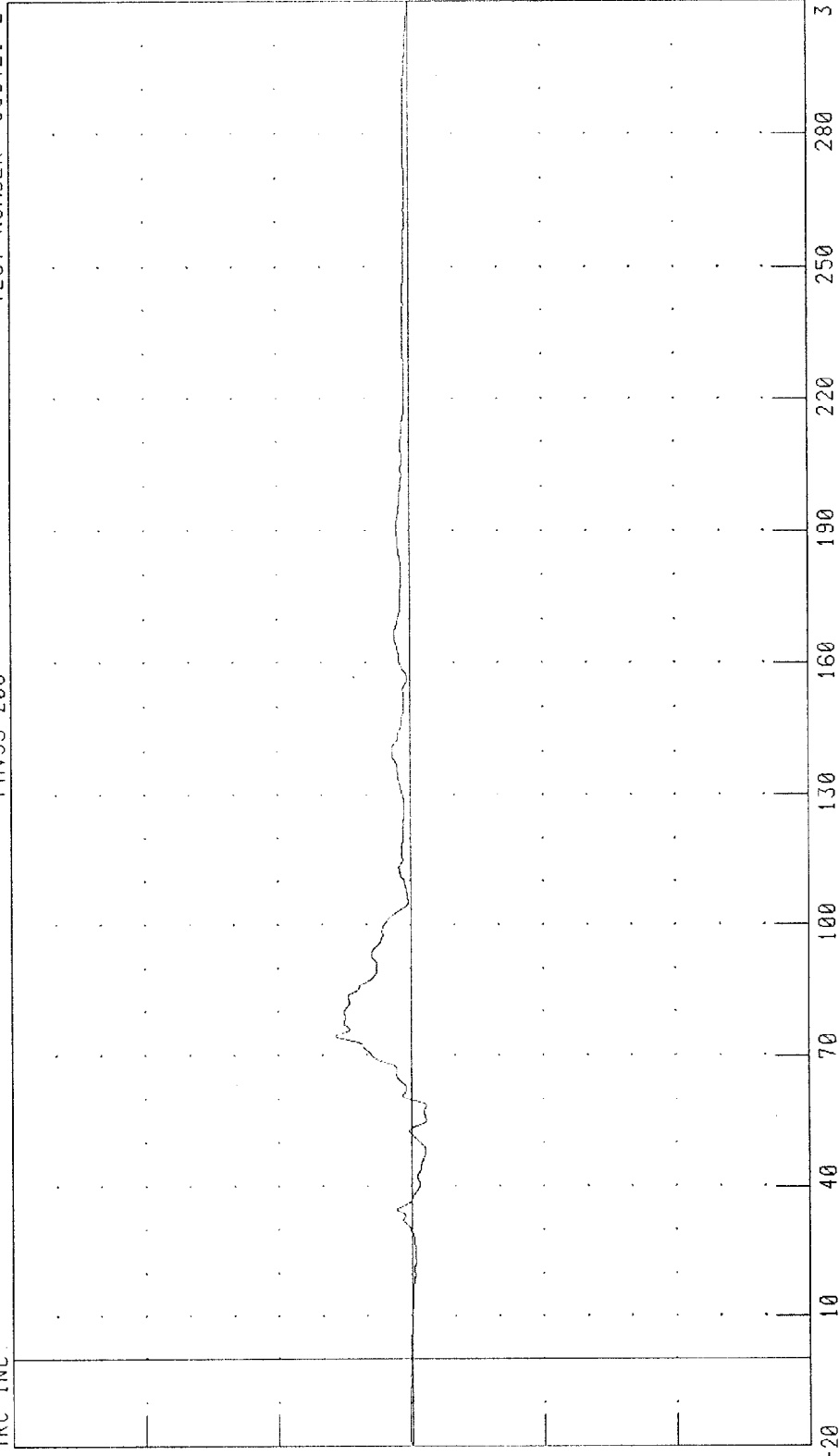
0

-20

-40

-60

ACCELERATION (G)



TIME (MS)

PEAK DATA: 11.38 G @ 74.48 MS; -2.29 G @ 58.56 MS

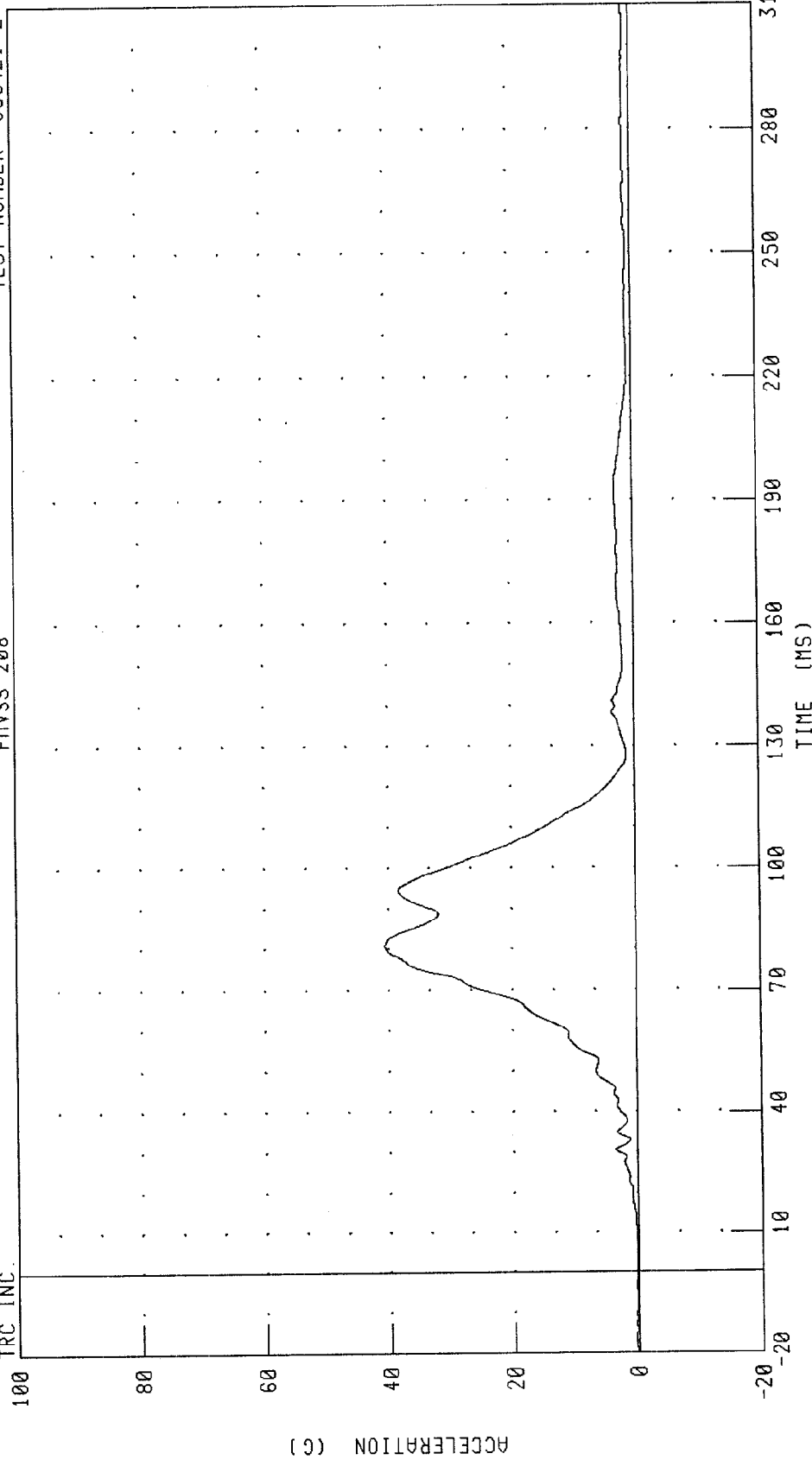
CHANNEL: CSTZG1 FILTER: CH. CLASS 180

1999 DODGE INTREPID INTO A FLAT FRONTAL BARRIER AT 25 MPH
DRIVER CHEST RESULTANT ACCELERATION

TEST NUMBER: 990421-2

FMYSS 208

TRC INC.



PEAK DATA: 40.55 G @ 80.80 MS; 0.01 G @ -20.00 MS

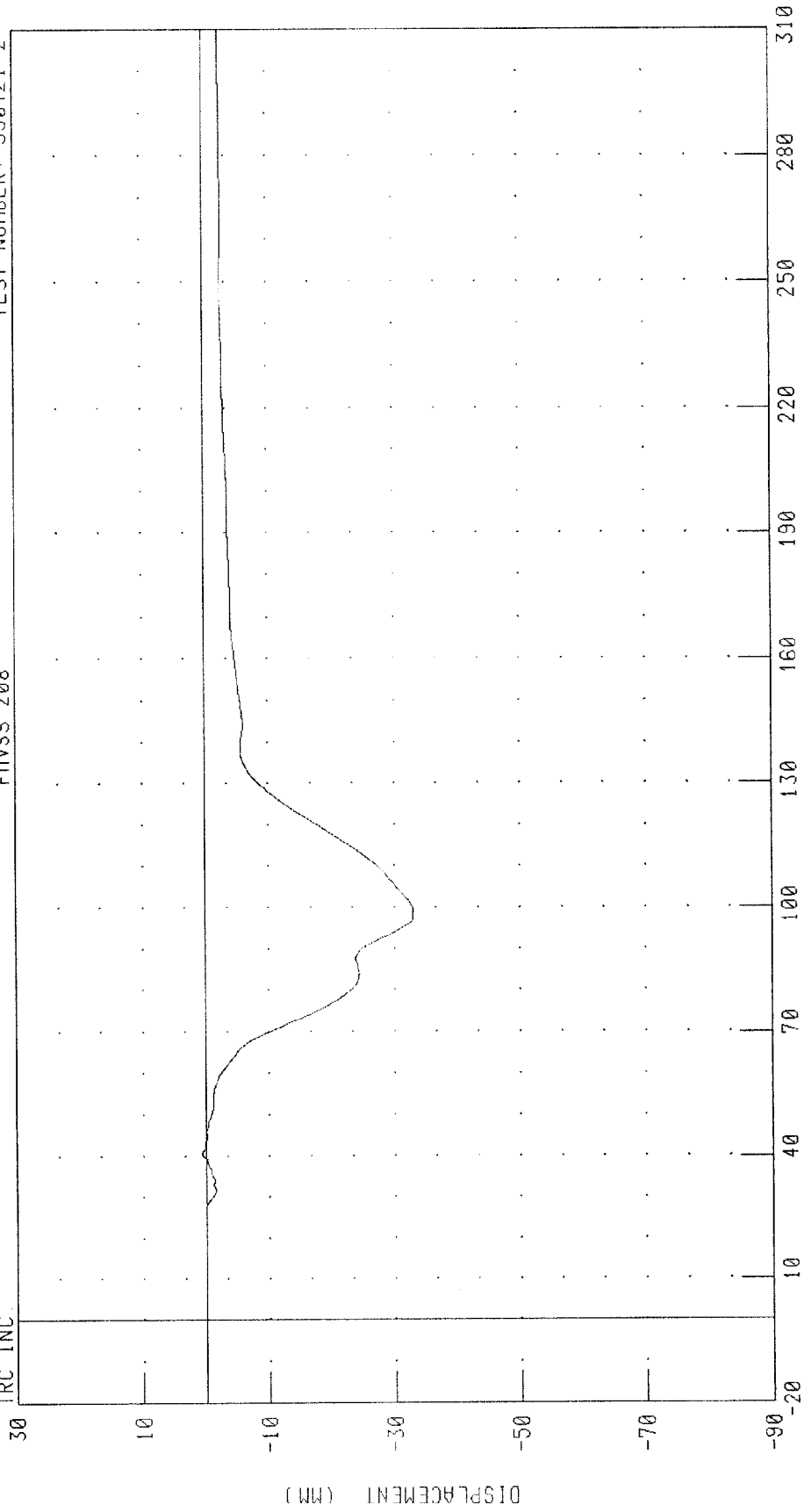
CHANNEL: CSTRG1 FILTER: CH. CLASS 180

1999 DODGE INTREPID INTO A FLAT FRONTAL BARRIER AT 25 MPH
DRIVER CHEST DEFLECTION

TEST NUMBER: 990421-2

FMVSS 208

TRC INC.



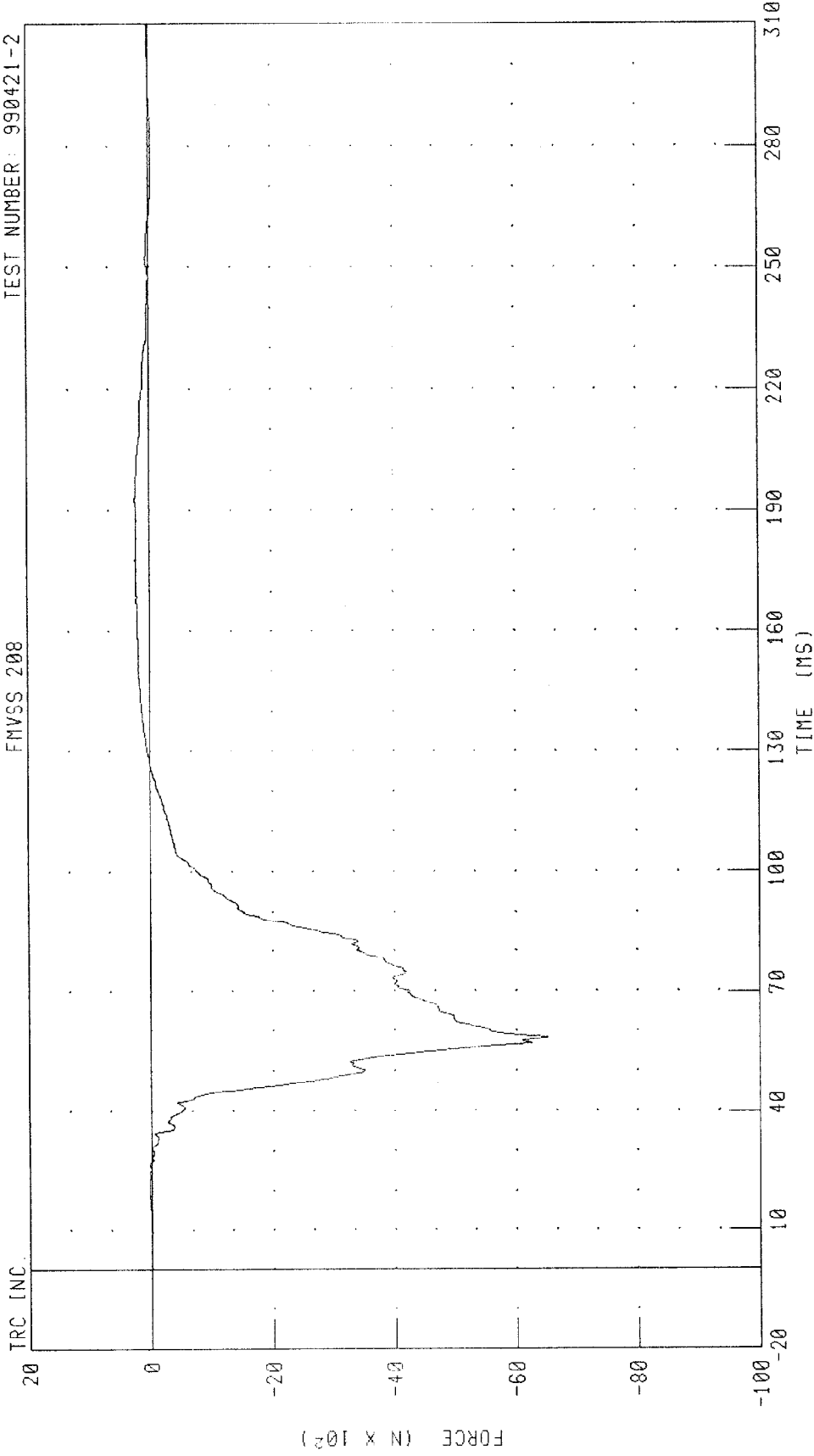
TIME (MS)

CHANNEL: CSTXD1 FILTER: CH. CLASS 180 PEAK DATA: 0.68 MM @ 40.80 MS; -33.04 MM @ 99.04 MS

1999 DODGE INTREPID INTO A FLAT FRONTAL BARRIER AT 25 MPH
DRIVER LEFT FEMUR FORCE

TEST NUMBER: 990421-2

FVSS 208

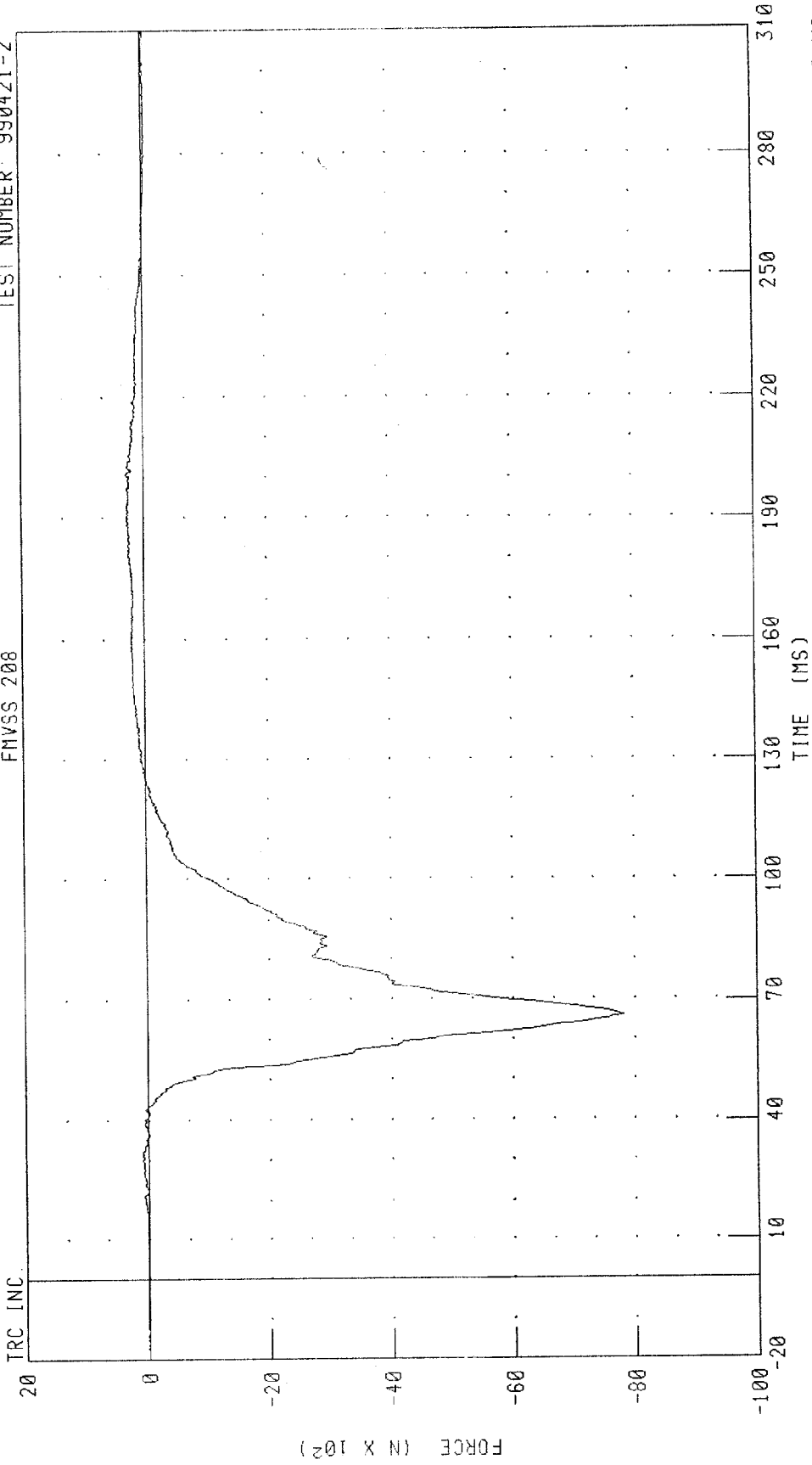


CHANNEL: LFMF1 FILTER: CH. CLASS 600

PEAK DATA: 235.71 N @ 192.64 MS, -6529.91 N @ 58.32 MS

1999 DODGE INTREPID INTO A FLAT FRONTAL BARRIER AT 25 MPH
DRIVER RIGHT FEMUR FORCE
FNVSS 208

TEST NUMBER: 990421-2



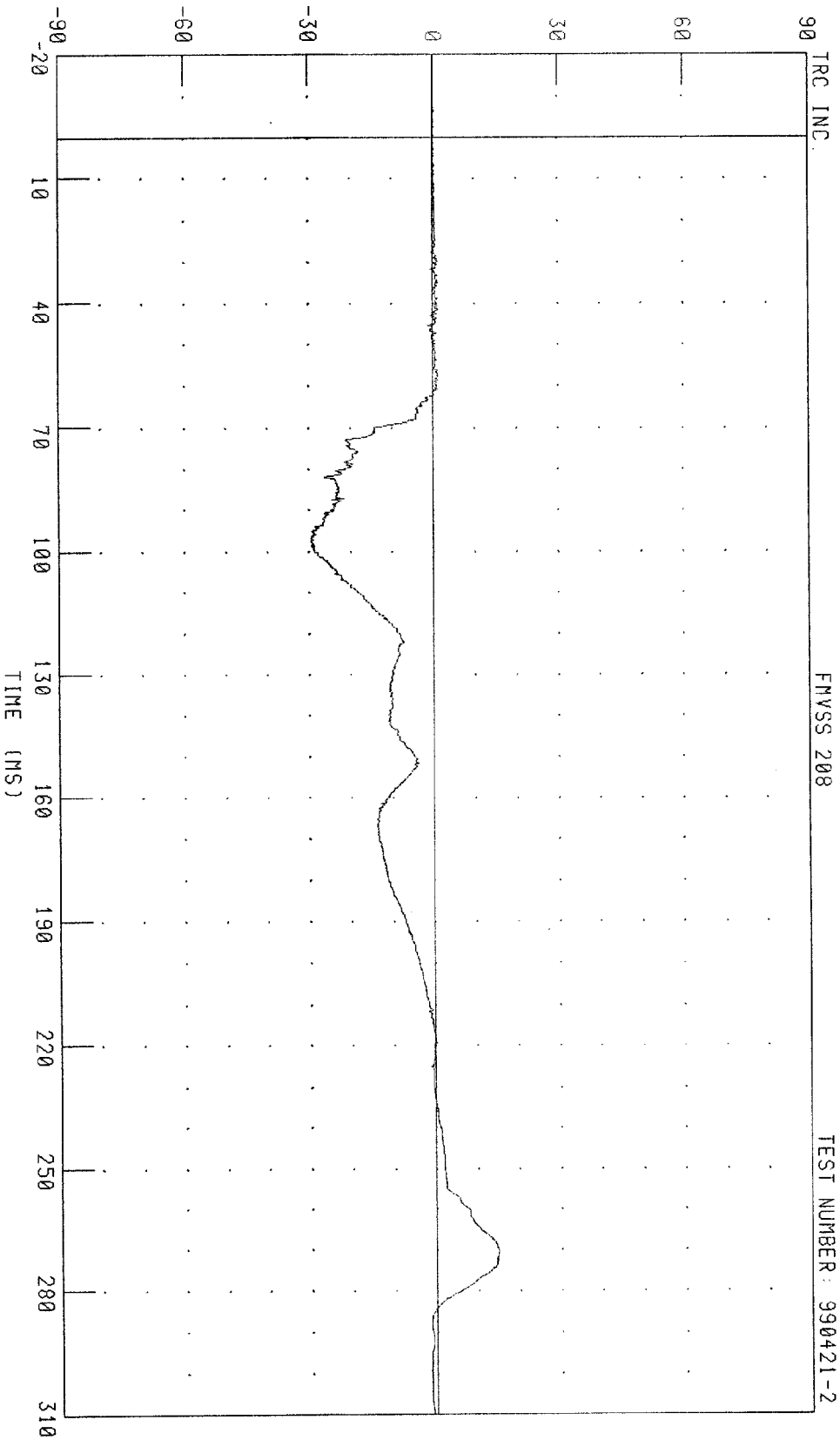
CHANNEL: RFMF1 FILTER: CH. CLASS 600 PEAK DATA: 290.25 N @ 200.72 MS; -7823.65 N @ 66.16 MS

1999 DODGE INTREPID INTO A FLAT FRONTAL BARRIER AT 25 MPH
RIGHT FRONT PASSENGER HEAD X-AXIS ACCELERATION

FMVSS 208

TEST NUMBER: 990421-2

ACCELERATION (G)



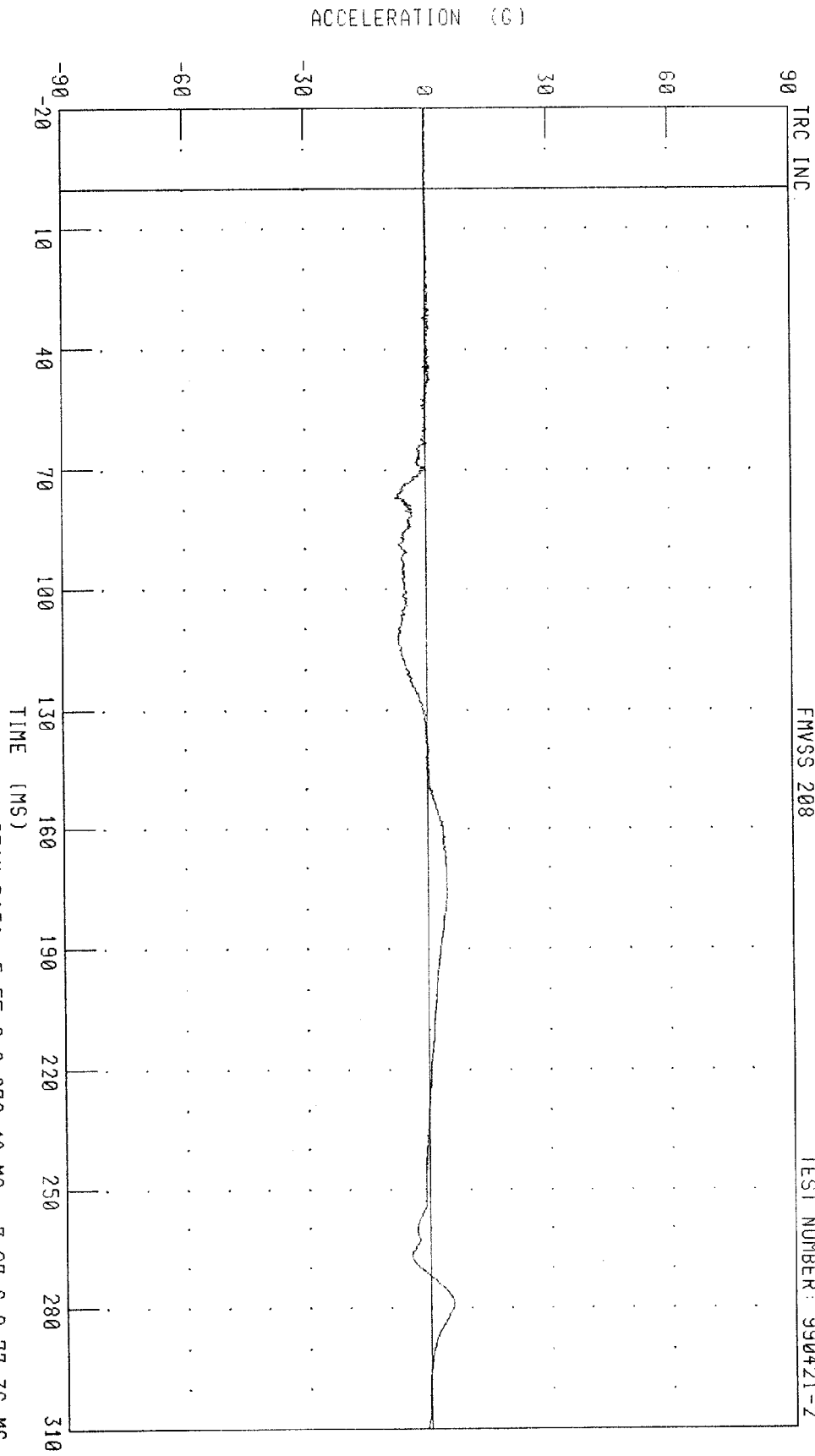
CHANNEL: HEDXG2 FILTER: CH. CLASS 1000 PEAK DATA: 14.77 G @ 270.40 MS, -29.48 G @ 96.96 MS

TRC INC.

1999 DODGE INTREPID INTO A FLAT FRONTAL BARRIER AT 25 MPH
RIGHT FRONT PASSENGER HEAD Y-AXIS ACCELERATION

FHWSS 208

TEST NUMBER: 990421-2



CHANNEL: HEDYC2 FILTER: CH. CLASS 1000 PEAK DATA: 5 55 G @ 278.48 MS, -7.67 G @ 77.36 MS

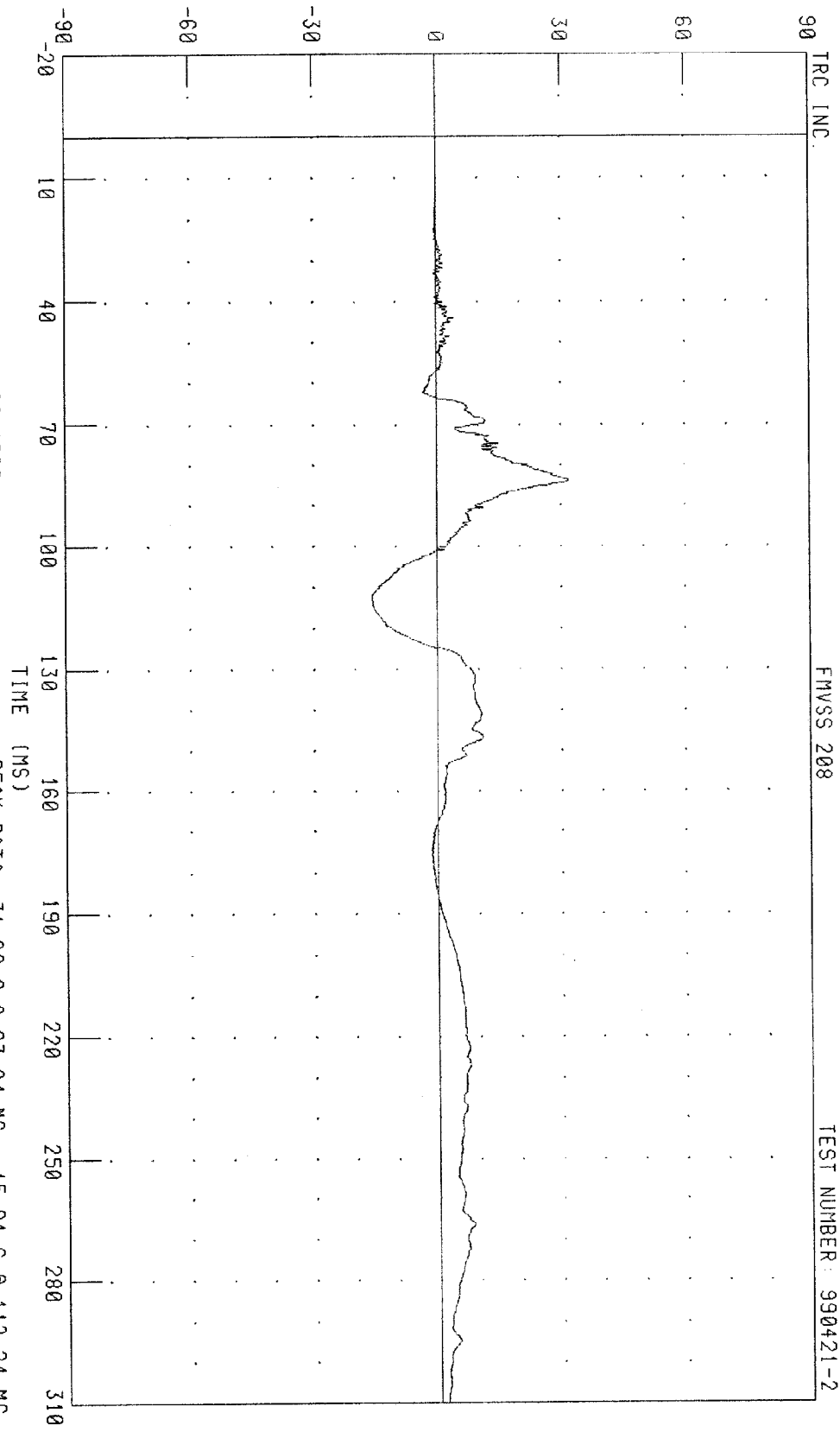
TRC INC.

1999 DODGE INTREPID INTO A FLAT FRONTAL BARRIER AT 25 MPH
RIGHT FRONT PASSENGER HEAD Z-AXIS ACCELERATION

FHWSS 208

TEST NUMBER: 990421-2

ACCELERATION (G)



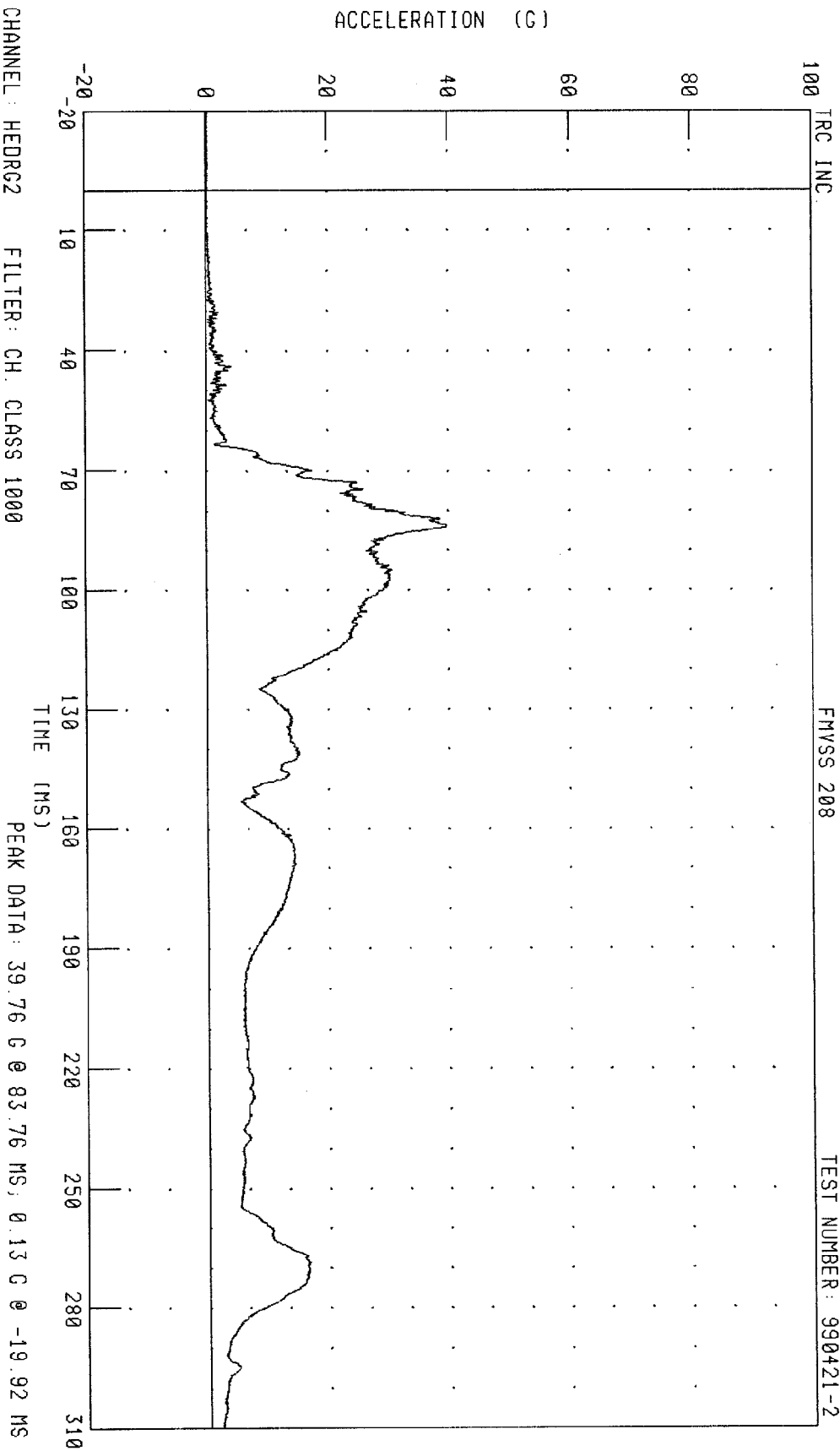
CHANNEL: HEDZG2 FILTER: CH. CLASS 1000 PEAK DATA: 51.89 G @ 83.84 MS, -15.94 G @ 112.24 MS

TRC INC.

1999 DODGE INTREPID INTO A FLAT FRONTAL BARRIER AT 25 MPH
RIGHT FRONT PASSENGER HEAD RESULTANT ACCELERATION

FMYSS 208

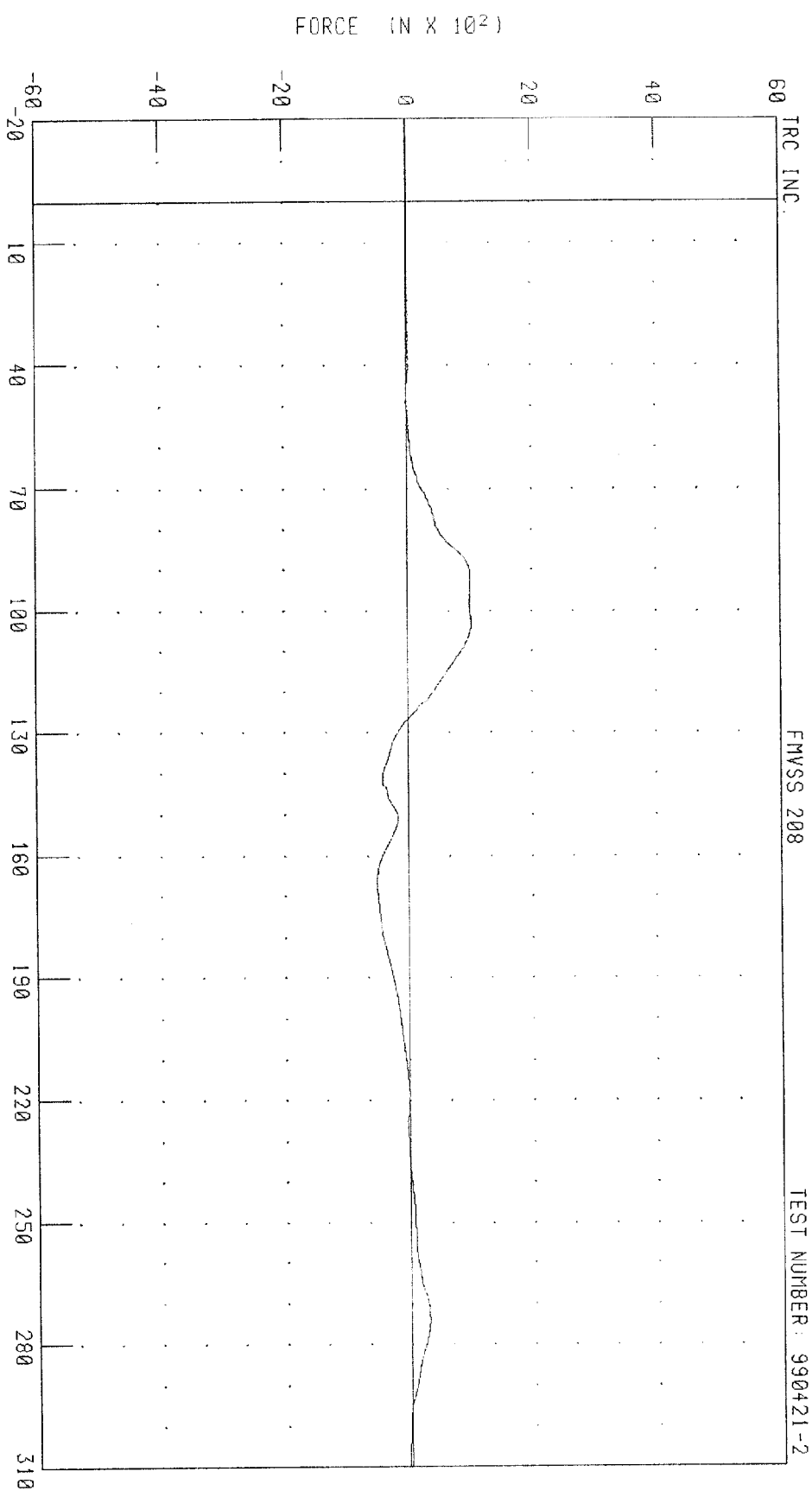
TEST NUMBER: 990421-2



1999 DODGE INTREPID INTO A FLAT FRONTAL BARRIER AT 25 MPH
RIGHT FRONT PASSENGER NECK X-AXIS SHEAR FORCE

FMVSS 208

TEST NUMBER: 990421-2



CHANNEL: NEKXF2 FILTER: CH. CLASS 1000

PEAK DATA: 1033 14 N @ 103.12 MS, -516.67 N @ 166.16 MS

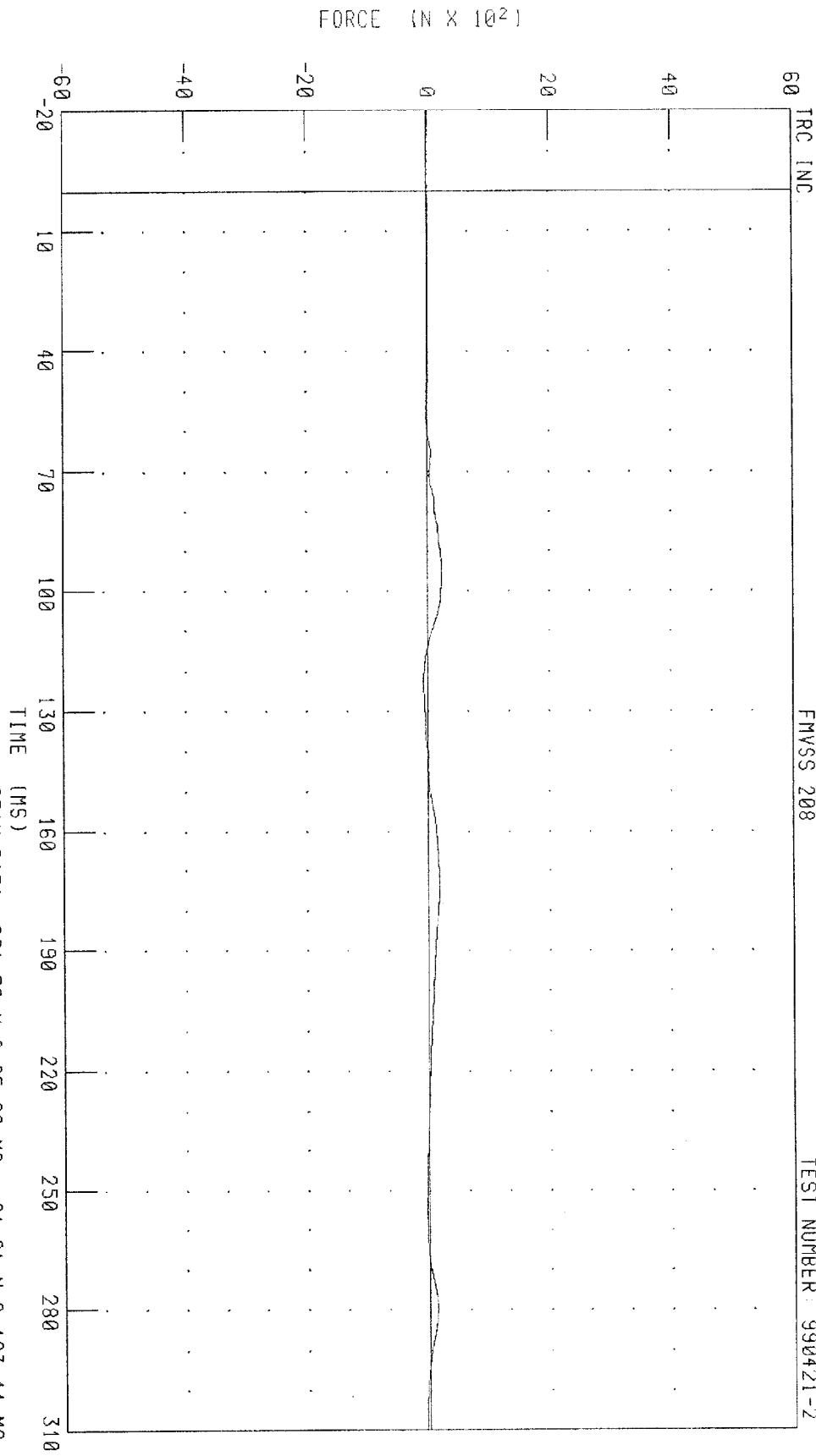
FORCE (N X 10²)

TRC INC.

1999 DODGE INTREPID INTO A FLAT FRONTAL BARRIER AT 25 MPH
RIGHT FRONT PASSENGER NECK Y-AXIS SHEAR FORCE

FMVSS 208

TEST NUMBER: 990421-2

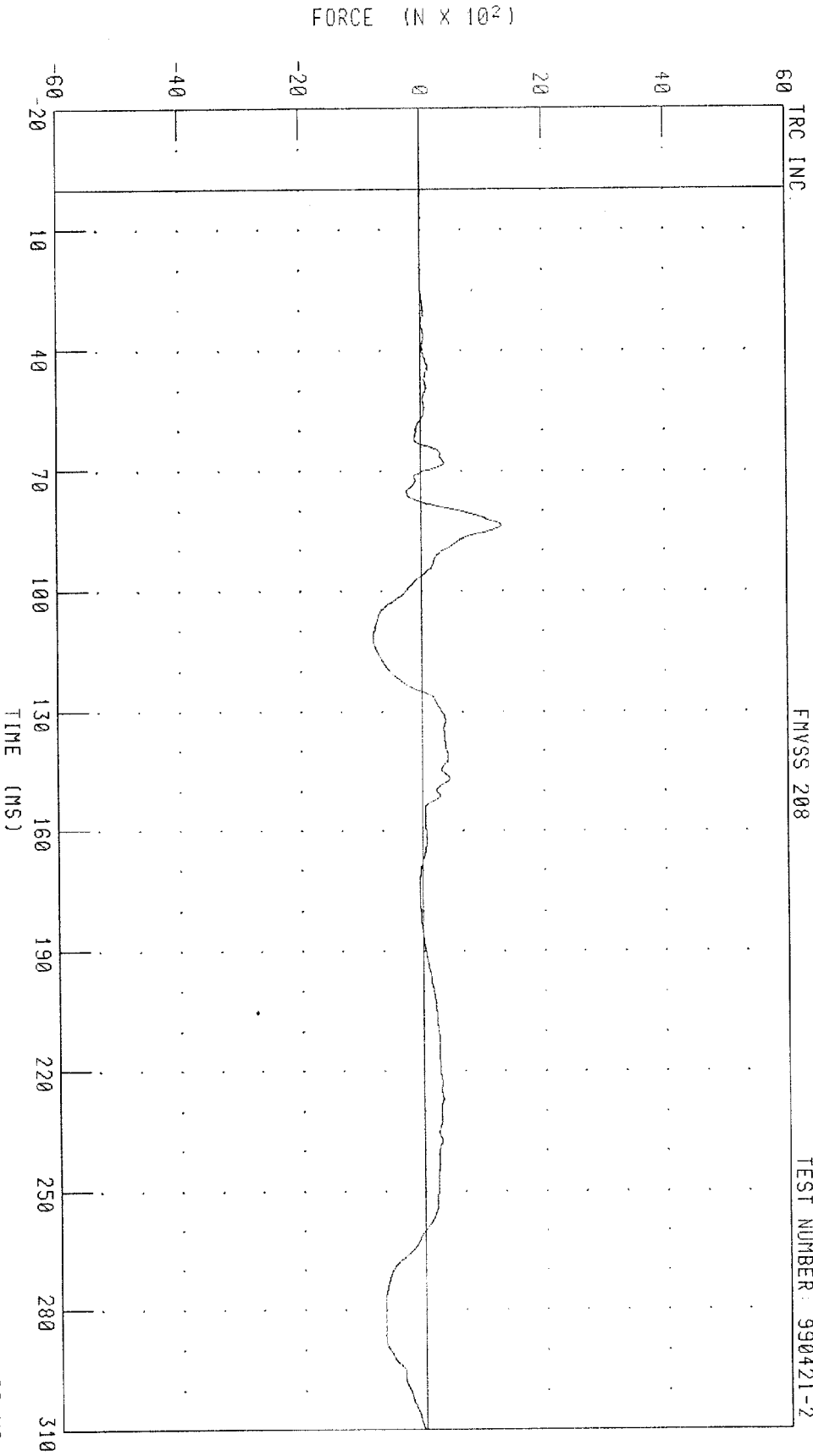


CHANNEL: NEKYF2 FILTER: CH. CLASS 1000 TIME (MS) PEAK DATA: 231.79 N @ 95.28 MS, -81.21 N @ 123.44 MS

1999 DODGE INTREPID INTO A FLAT FRONTAL BARRIER AT 25 MPH
RIGHT FRONT PASSENGER NECK Z-AXIS AXIAL FORCE

FMVSS 208

TEST NUMBER: 990421-2



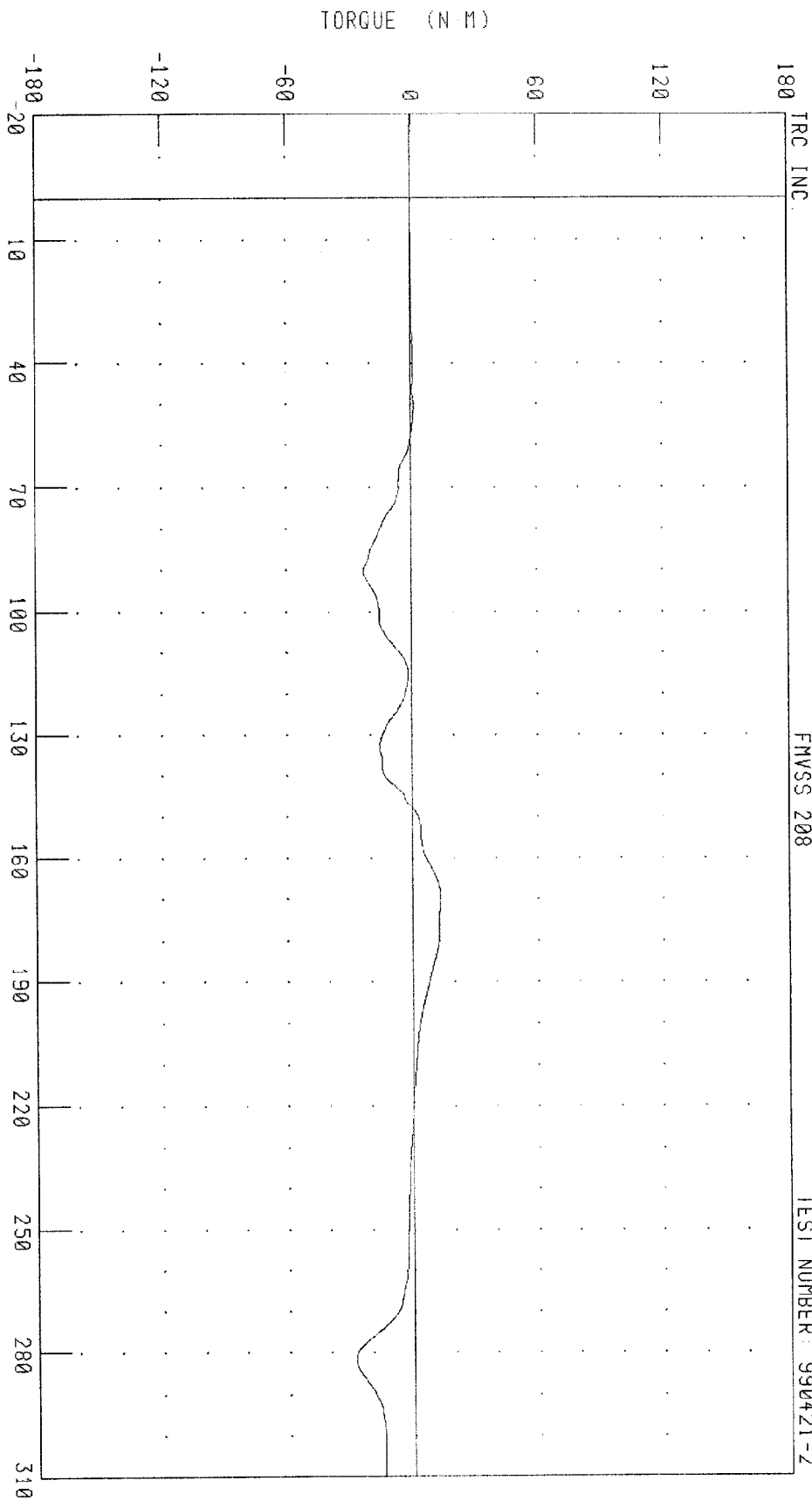
CHANNEL: NEKZF2 FILTER: CH CLASS 1000

PEAK DATA: 1321.78 N @ 83.76 MS, -809.37 N @ 111.60 MS

1999 DODGE INTREPID INTO A FLAT FRONTAL BARRIER AT 25 MPH
RIGHT FRONT PASSENGER NECK MOMENT ABOUT X AXIS

FMVSS 208

TEST NUMBER: 990421-2



CHANNEL: NEKXN2 FILTER: CH. CLASS 600 PEAK DATA: 13.19 N.M @ 169.44 MS, -28.34 N.M @ 282.08 MS

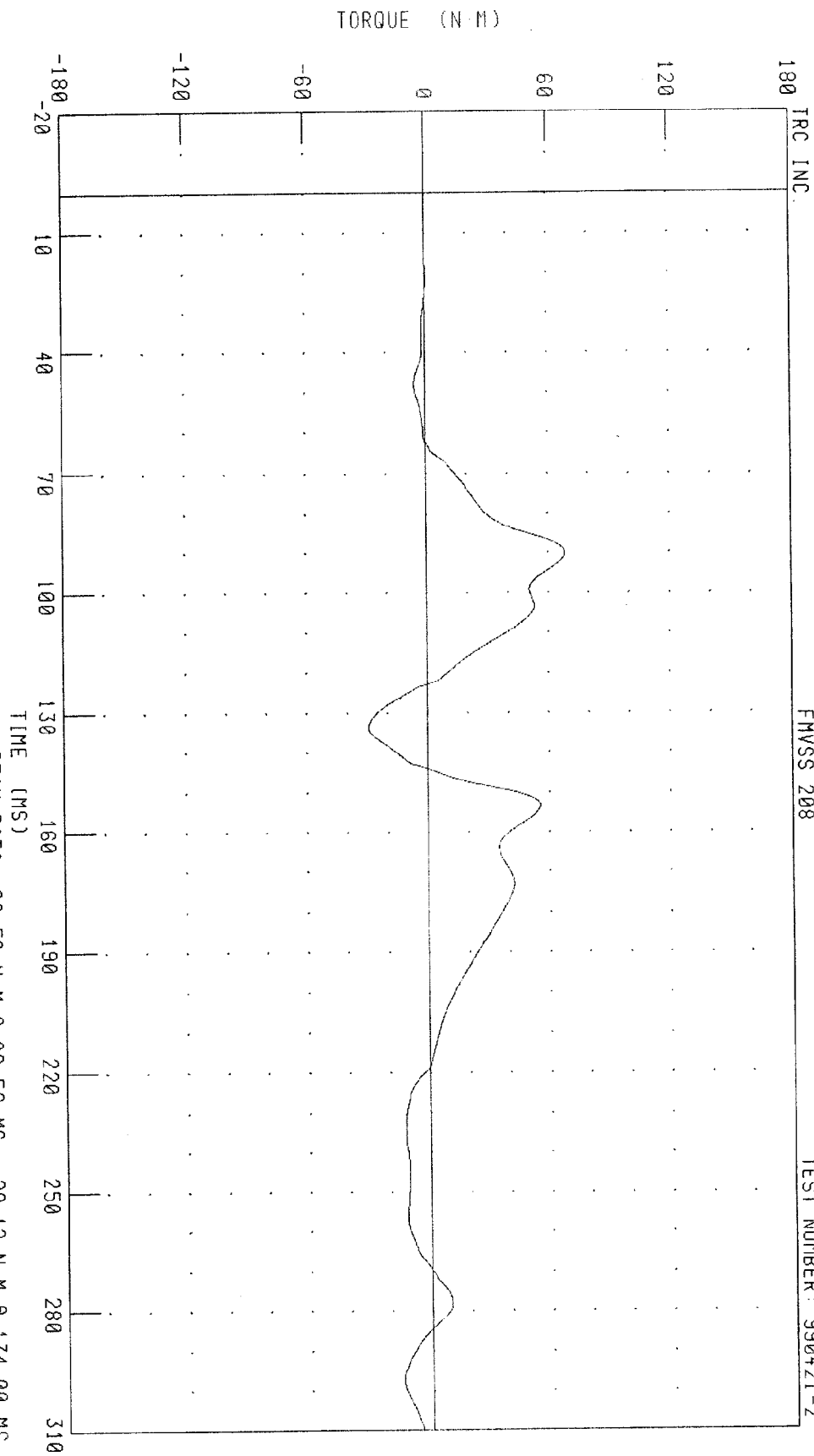
TORQUE (N.M)

TRC INC.

1999 DODGE INTREPID INTO A FLAT FRONTAL BARRIER AT 25 MPH
RIGHT FRONT PASSENGER NECK MOMENT ABOUT Y AXIS

FMVSS 208

TEST NUMBER: 990421-2



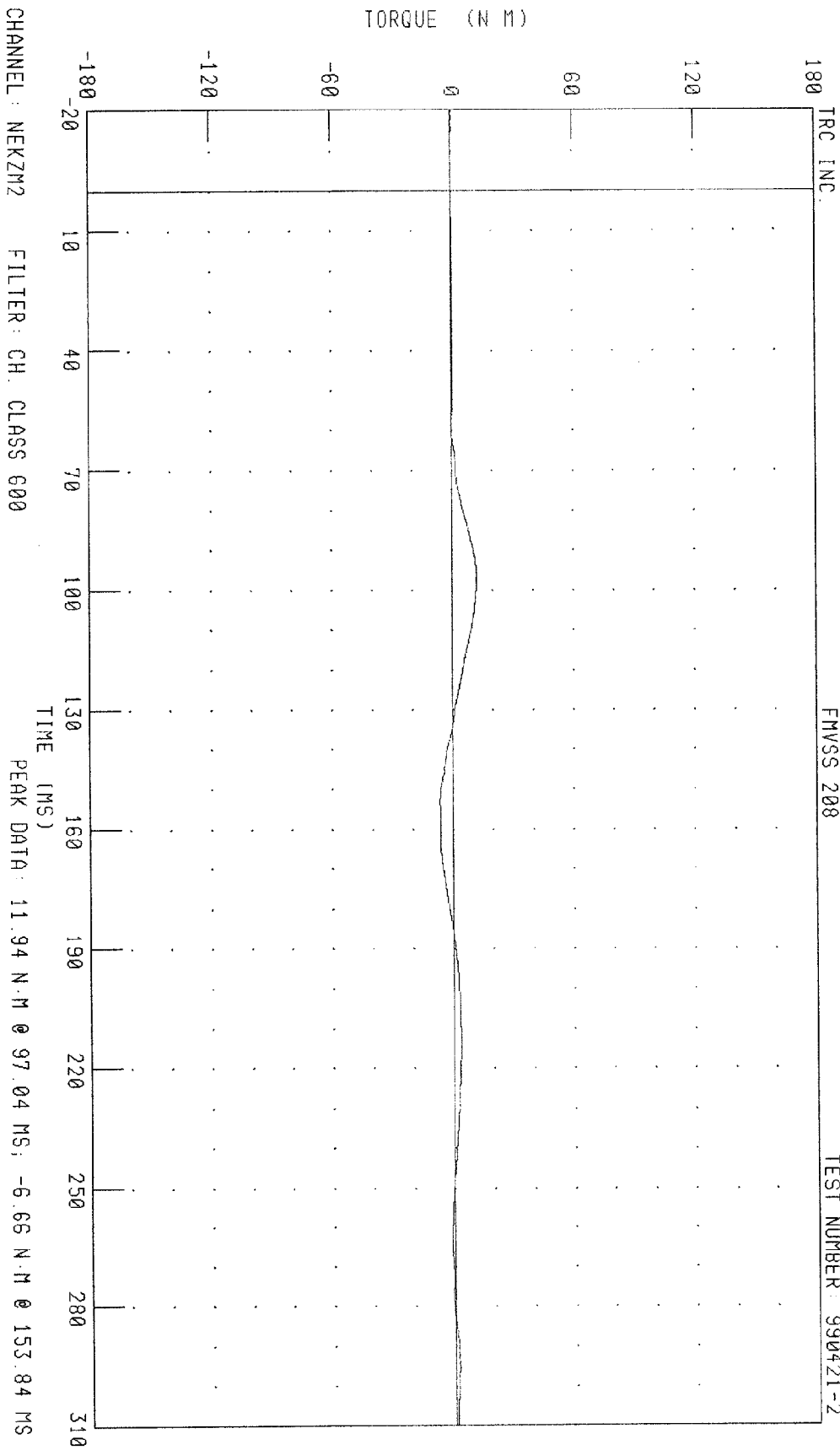
CHANNEL: NEKYM2 FILTER: CH. CLASS 600

PEAK DATA: 68.52 N.M @ 90.56 MS, -29.12 N.M @ 134.00 MS

1999 DODGE INTREPID INTO A FLAT FRONTAL BARRIER AT 25 MPH
RIGHT FRONT PASSENGER NECK MOMENT ABOUT Z AXIS

FMVSS 208

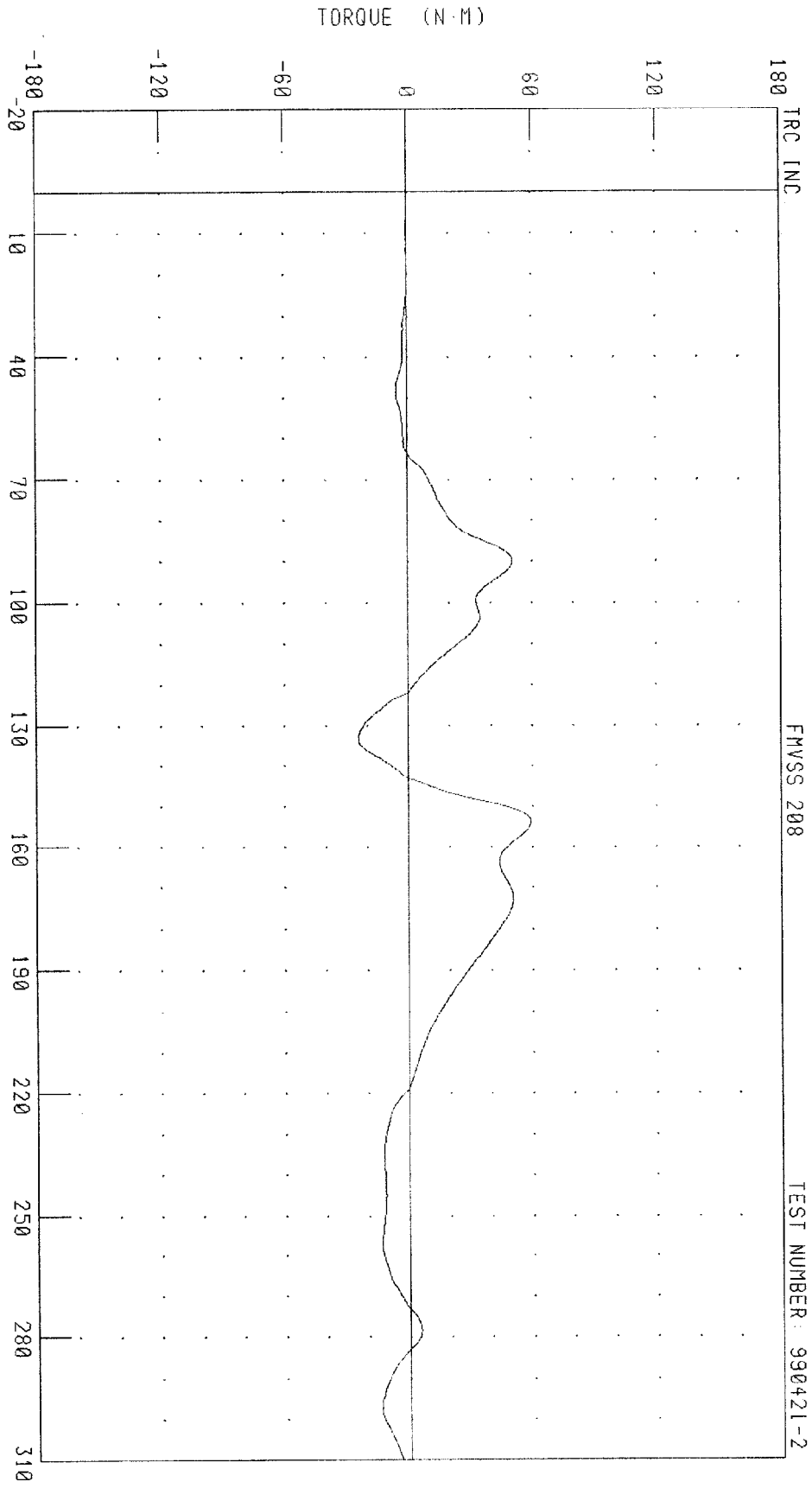
TEST NUMBER: 990421-2



1999 DODGE INTREPID INTO A FLAT FRONTAL BARRIER AT 25 MPH
RIGHT FRONT PASSENGER NECK OCCIPITAL CONDYLE

FHYS 208

TEST NUMBER: 990421-2



CHANNEL: NEKOM2 FILTER: CH. CLASS 600 PEAK DATA: 59.32 N·M @ 153.92 MS, -24.27 N·M @ 133.20 MS

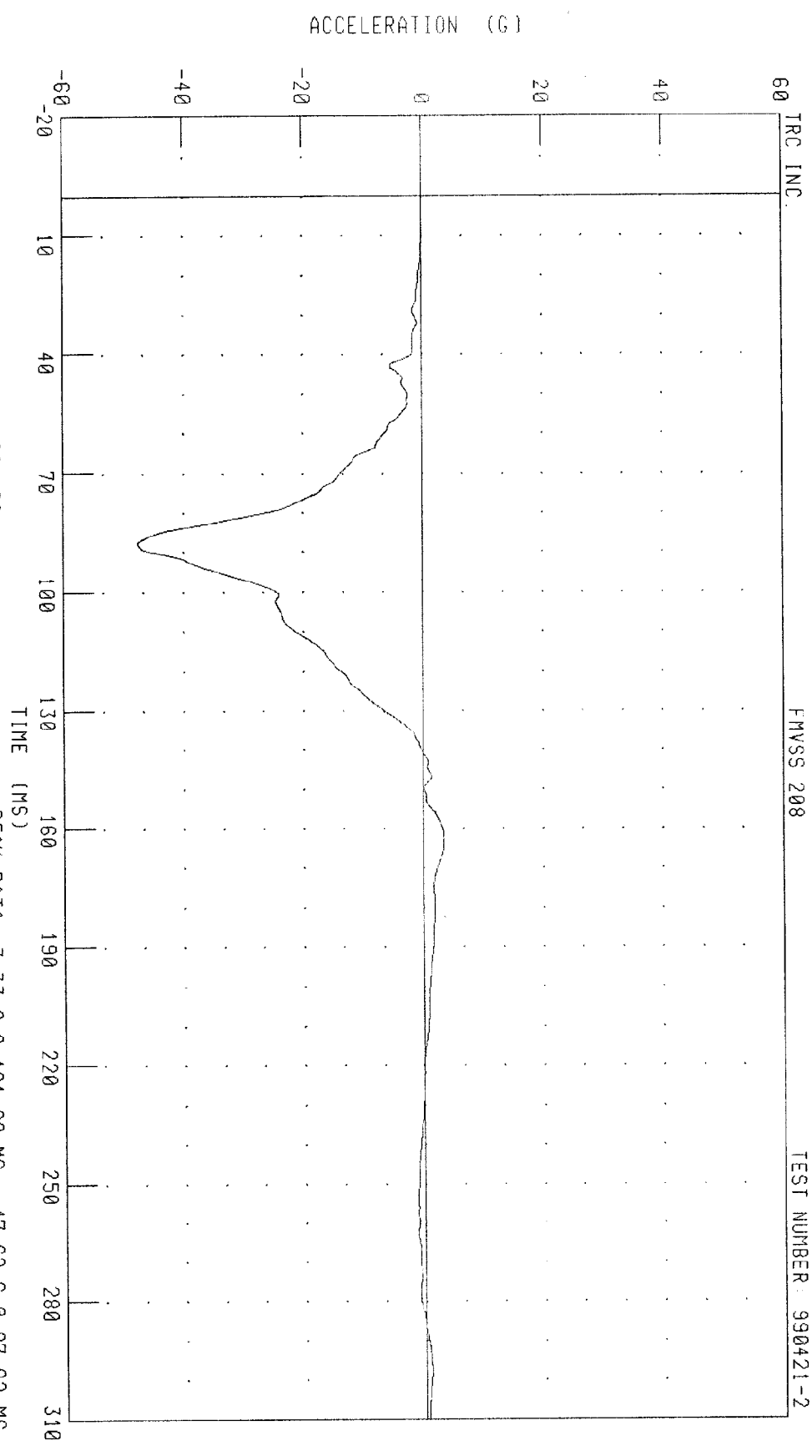
TORQUE (N·M)

TIME (MS)

1999 DODGE INTREPID INTO A FLAT FRONTAL BARRIER AT 25 MPH
RIGHT FRONT PASSENGER CHEST X-AXIS ACCELERATION

FHWSS 208

TEST NUMBER: 990421-2



CHANNEL: CSTXG2 FILTER: CH. CLASS 180 PEAK DATA: 3.33 G @ 161.68 MS, -47.62 G @ 87.92 MS

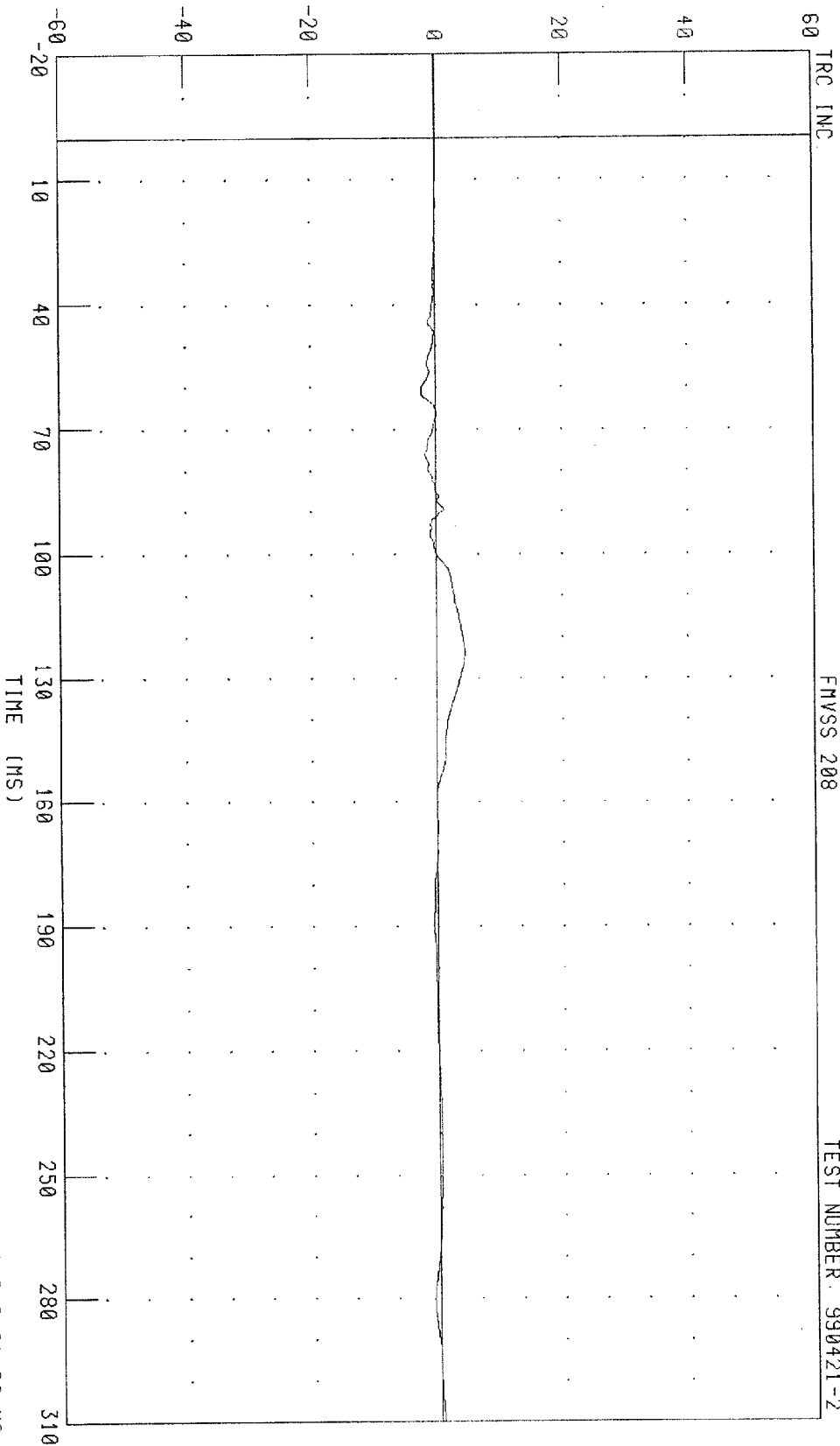
TRC INC.

1999 DODGE INTREPID INTO A FLAT FRONTAL BARRIER AT 25 MPH
RIGHT FRONT PASSENGER CHEST Y-AXIS ACCELERATION

FMVSS 208

TEST NUMBER: 990421-2

ACCELERATION (G)



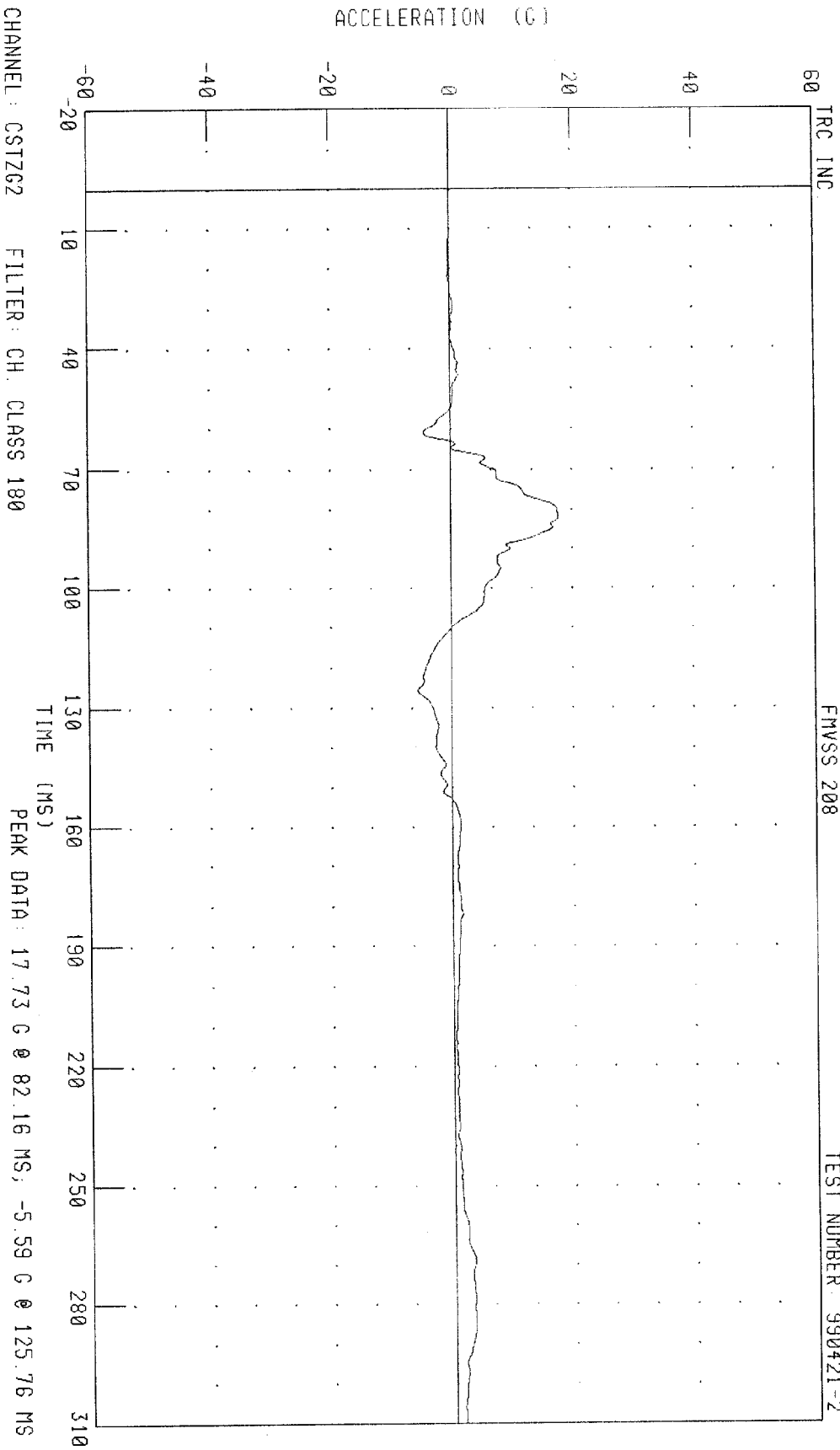
CHANNEL: CSTYG2 FILTER: CH. CLASS 180

PEAK DATA: 4.44 G @ 123.44 MS; -2.36 G @ 61.20 MS

1999 DODGE INTREPID INTO A FLAT FRONTAL BARRIER AT 25 MPH
RIGHT FRONT PASSENGER CHEST Z-AXIS ACCELERATION

FMVSS 208

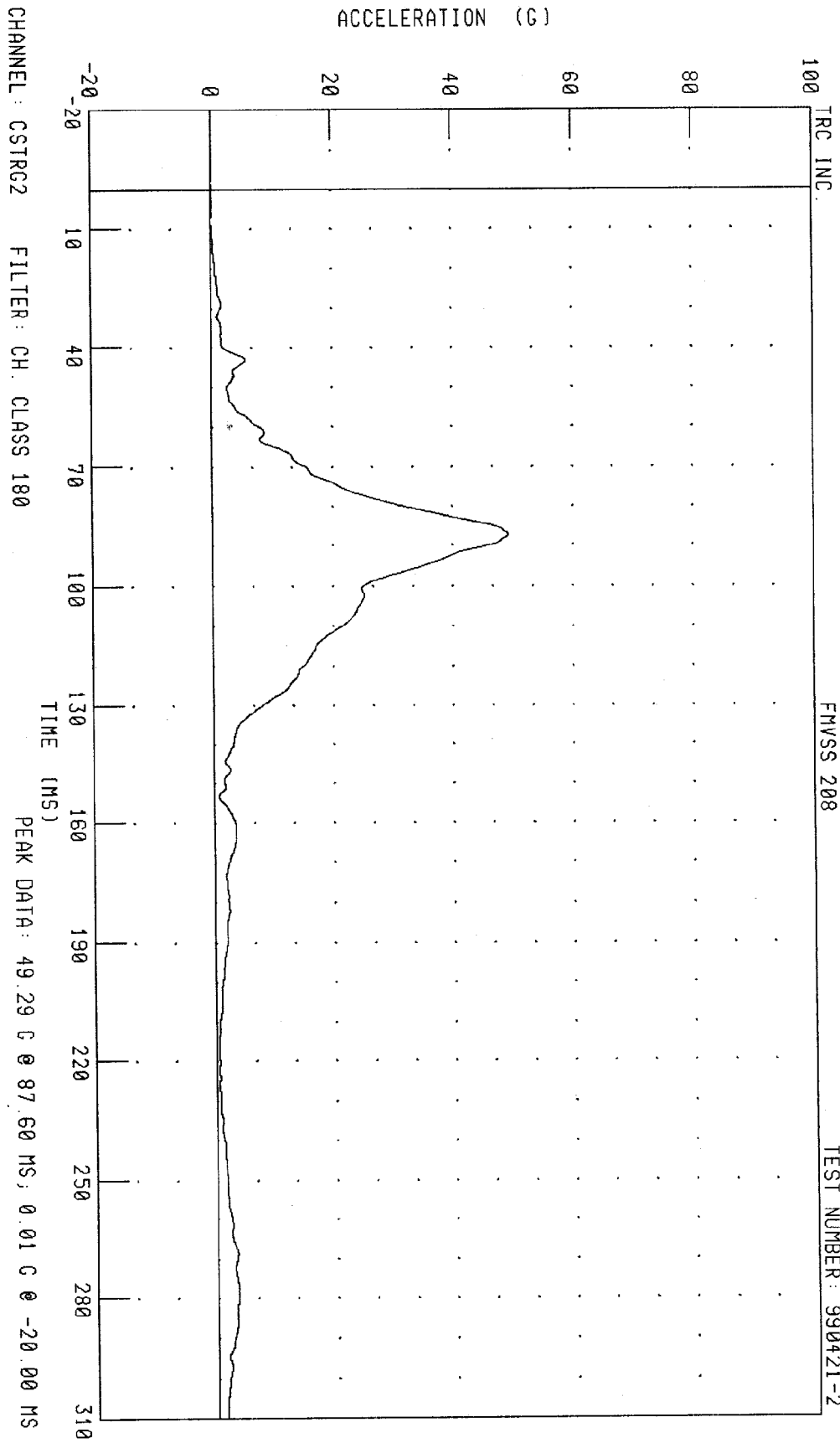
TEST NUMBER: 990421-2



1999 DODGE INTREPID INTO A FLAT FRONTAL BARRIER AT 25 MPH
RIGHT FRONT PASSENGER CHEST RESULTANT ACCELERATION

FMVSS 208

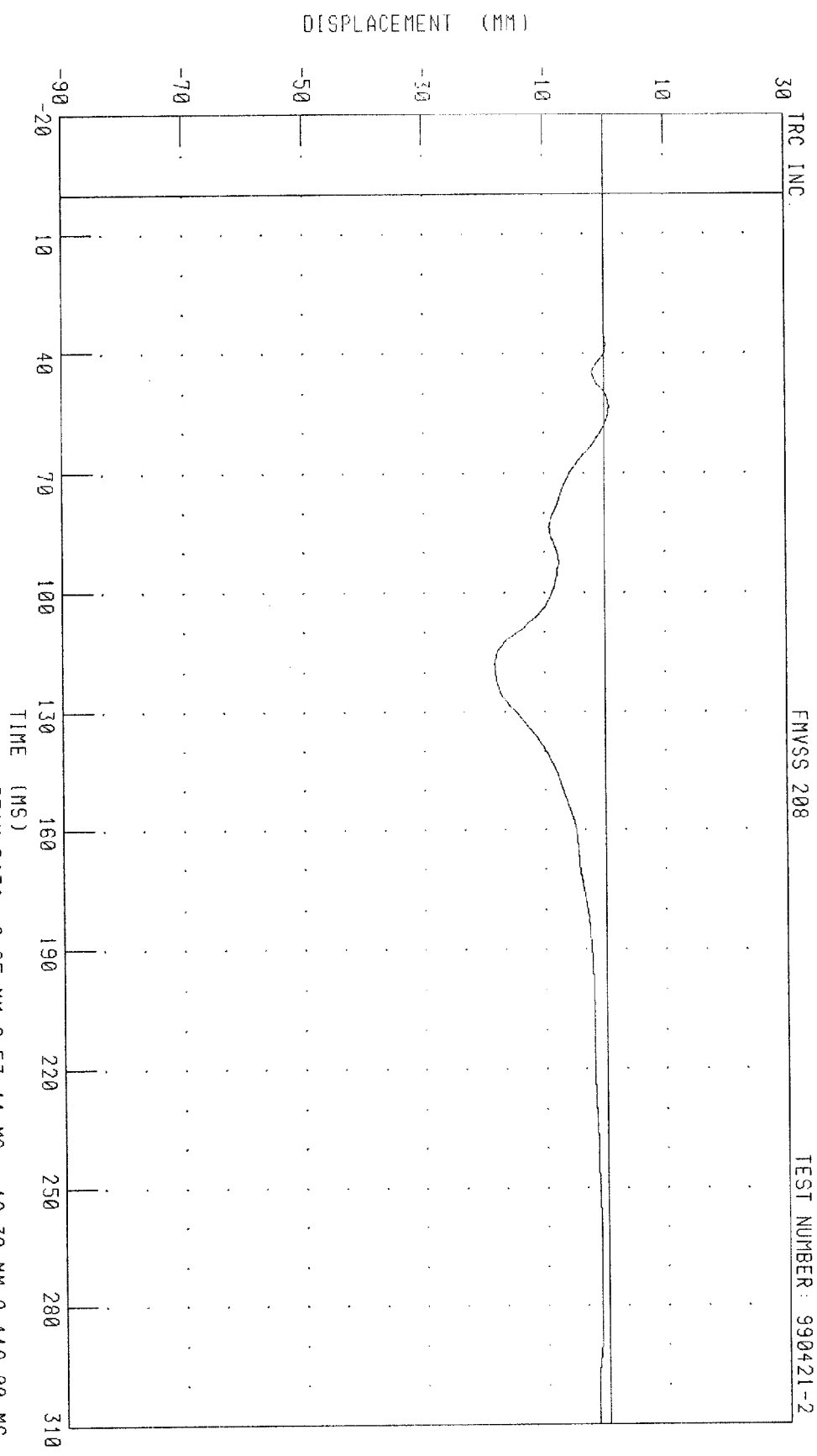
TEST NUMBER: 990421-2



1999 DODGE INTREPID INTO A FLAT FRONTAL BARRIER AT 25 MPH
RIGHT FRONT PASSENGER CHEST DEFLECTION

FMVSS 208

TEST NUMBER: 990421-2



CHANNEL: CSTXD2 FILTER: CH. CLASS 180 PEAK DATA: 0.85 MM @ 53.44 MS; -18.30 MM @ 118.00 MS

DISPLACEMENT (MM)

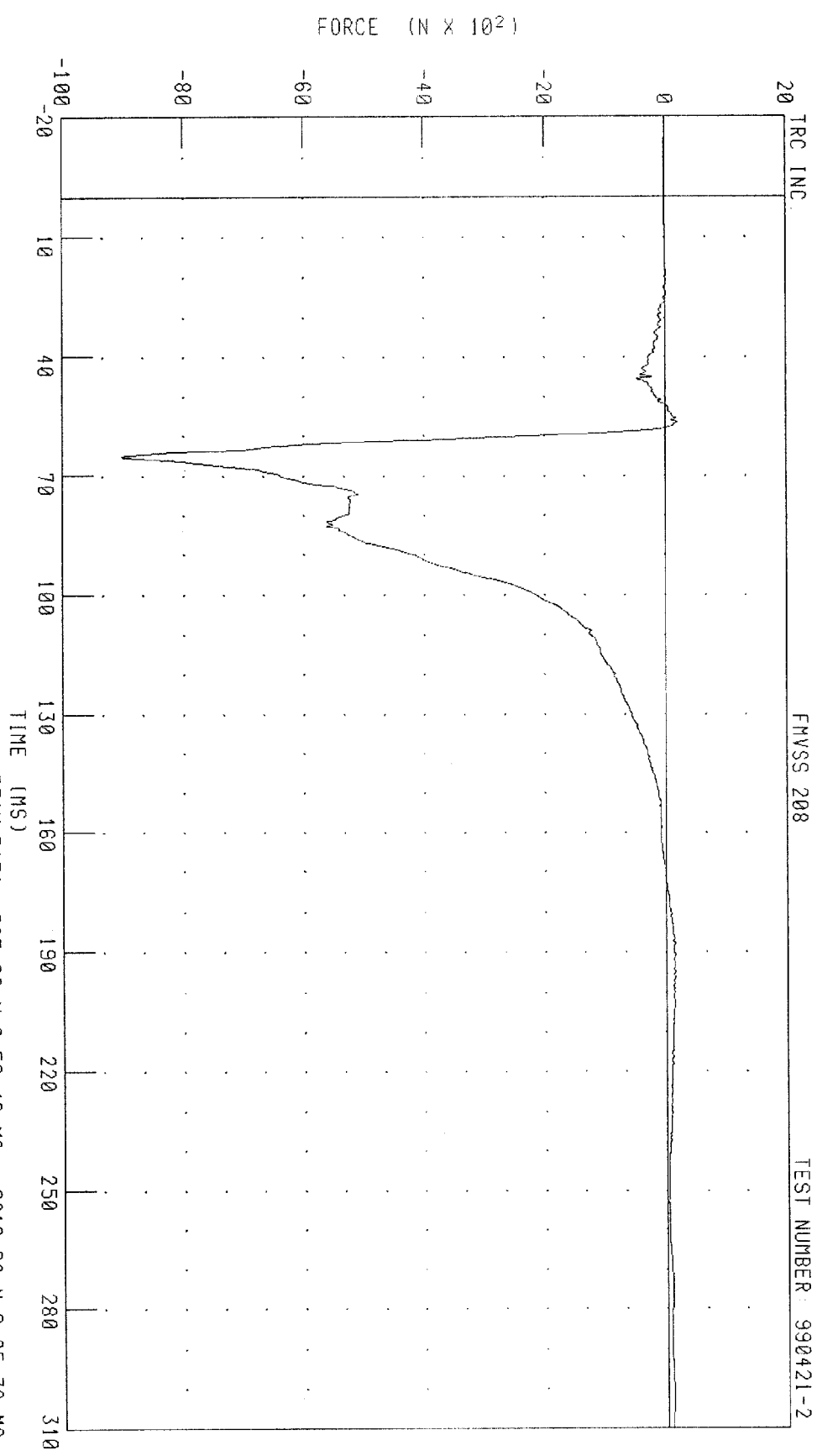
TIME (MS)

TRC INC.

1999 DODGE INTREPID INTO A FLAT FRONTAL BARRIER AT 25 MPH
RIGHT FRONT PASSENGER LEFT FEMUR FORCE

FHYSS 208

TEST NUMBER: 990421-2

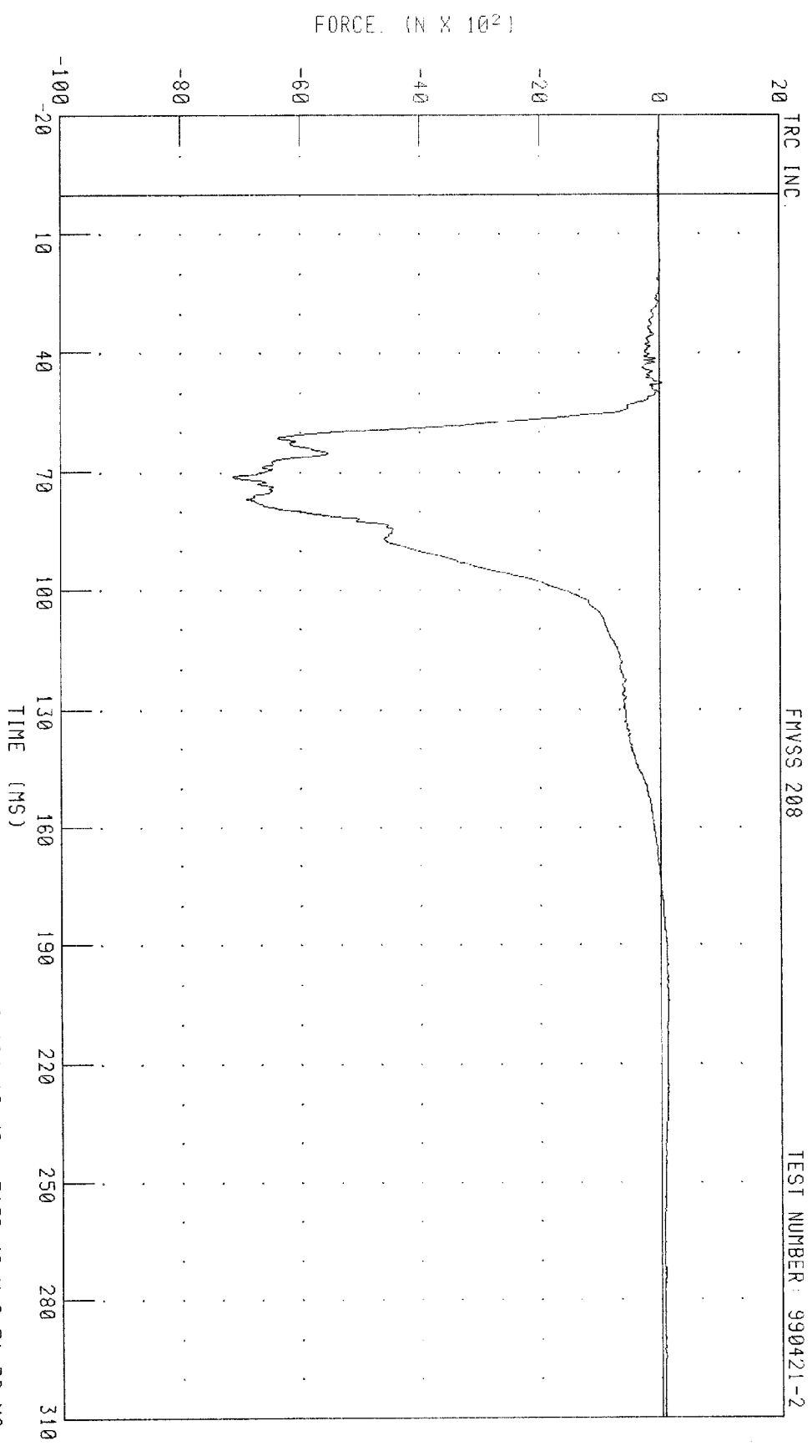


CHANNEL: LFMF2 FILTER: CH. CLASS 600 PEAK DATA: 205.89 N @ 56.48 MS, -9016.80 N @ 65.36 MS

1999 DODGE INTREPID INTO A FLAT FRONTAL BARRIER AT 25 MPH
RIGHT FRONT PASSENGER RIGHT FEMUR FORCE

FHYSS 208

TEST NUMBER: 990421-2



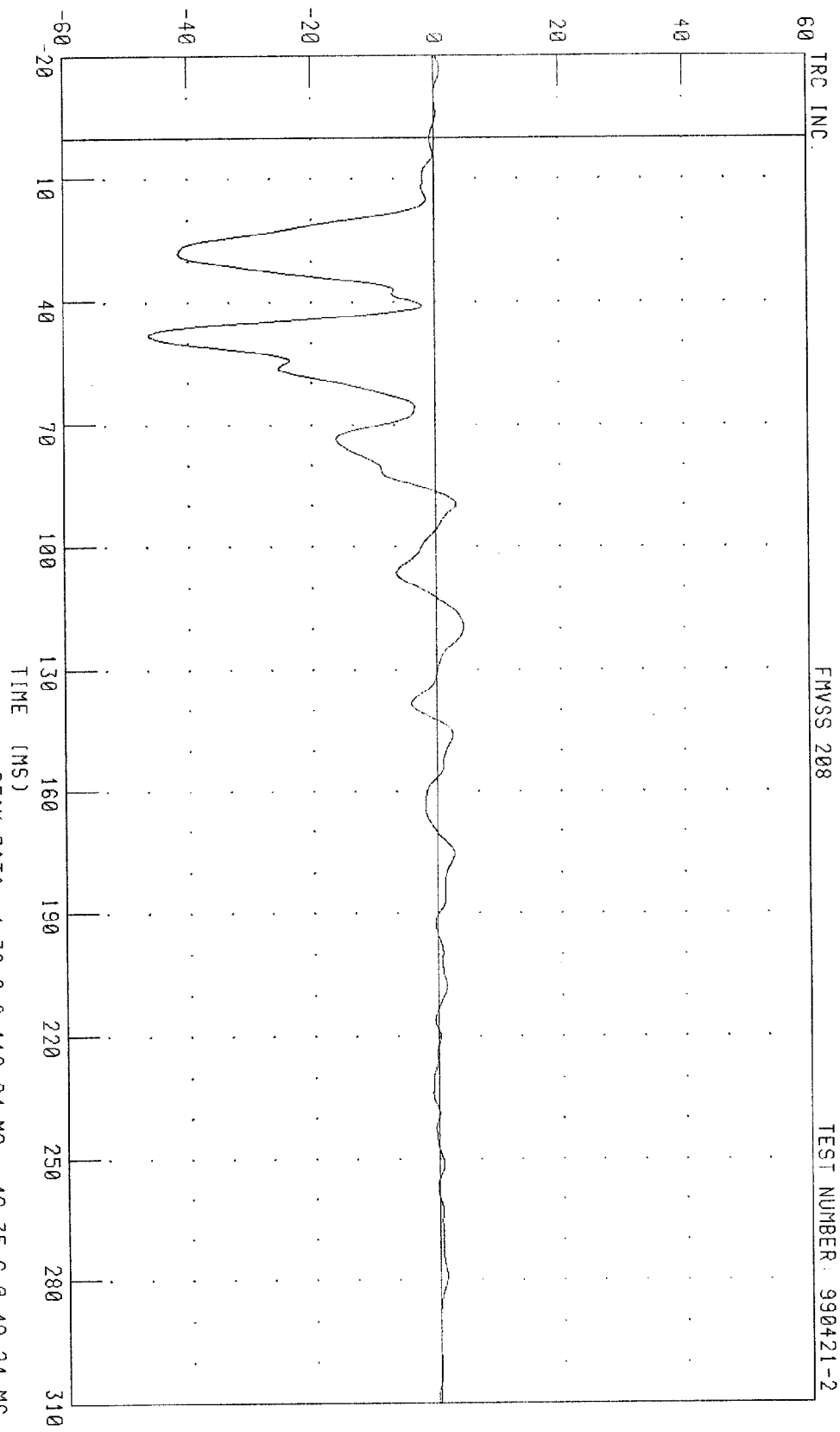
CHANNEL: RFMF2 FILTER: CH CLASS 600 PEAK DATA: 132.78 N @ 204.16 MS, -7130.48 N @ 71.36 MS

1999 DODGE INTREPID INTO A FLAT FRONTAL BARRIER AT 25 MPH
LEFT BRAKE CALIPER X-AXIS ACCELERATION

FMVSS 208

TEST NUMBER: 990421-2

ACCELERATION (G)



CHANNEL: BCLXG1 FILTER: CH. CLASS 60

PEAK DATA: 4.30 G @ 119.84 MS, -46.35 G @ 48.24 MS

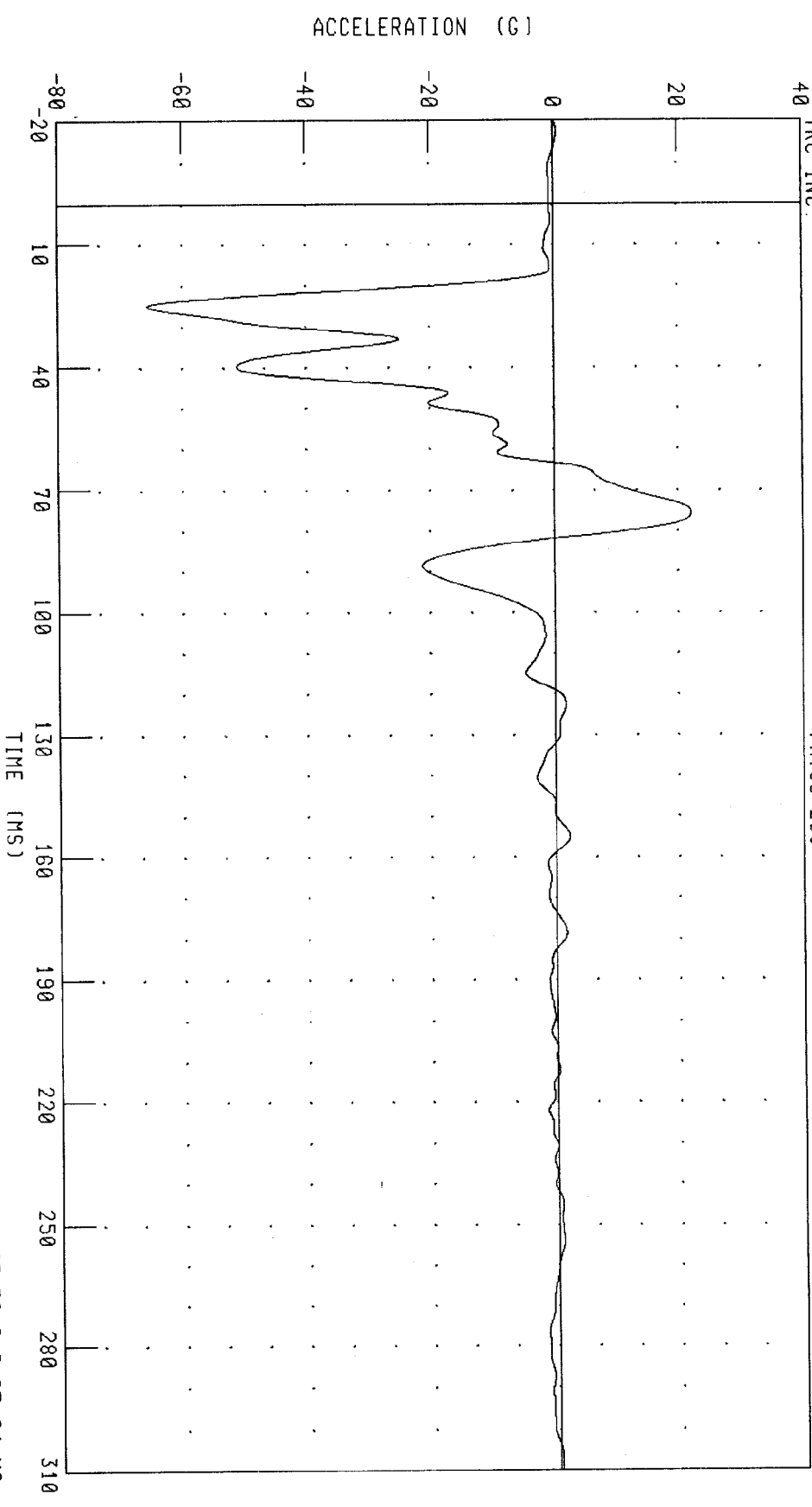
TRC INC.

TRC INC.

FVSS 208

TEST NUMBER: 990421-2

1999 DODGE INTREPID INTO A FLAT FRONTAL BARRIER AT 25 MPH
RIGHT BRAKE CALIPER X-AXIS ACCELERATION



CHANNEL: BCRXC1 FILTER: CH. CLASS 60
PEAK DATA: 22.10 G @ 75.68 MS, -65.56 G @ 25.04 MS

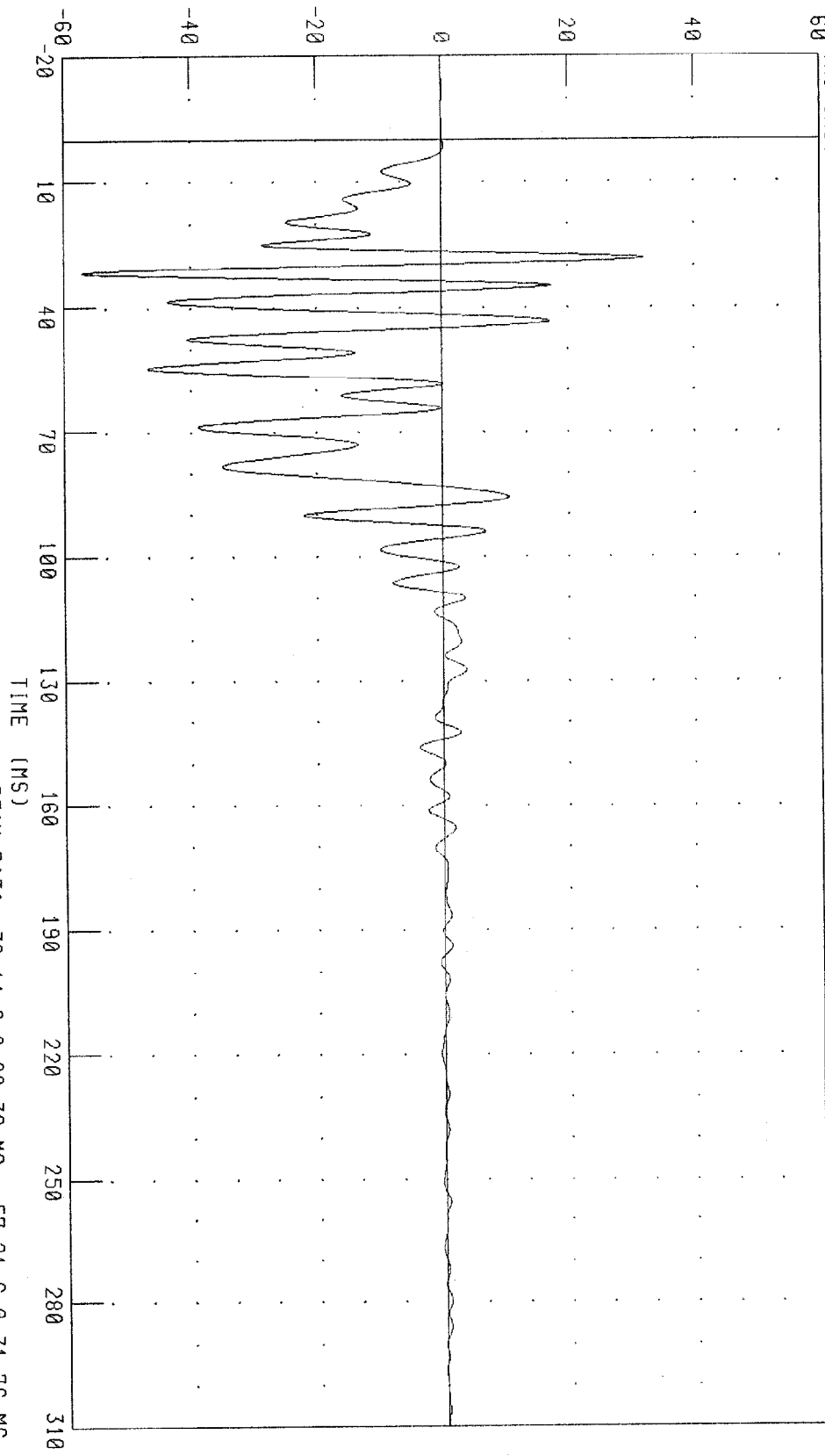
1999 DODGE INTREPID INTO A FLAT FRONTAL BARRIER AT 25 MPH
DASH PANEL CENTER X-AXIS ACCELERATION

FMVSS 208

TEST NUMBER: 990421-2

TRC, INC.

ACCELERATION (G)

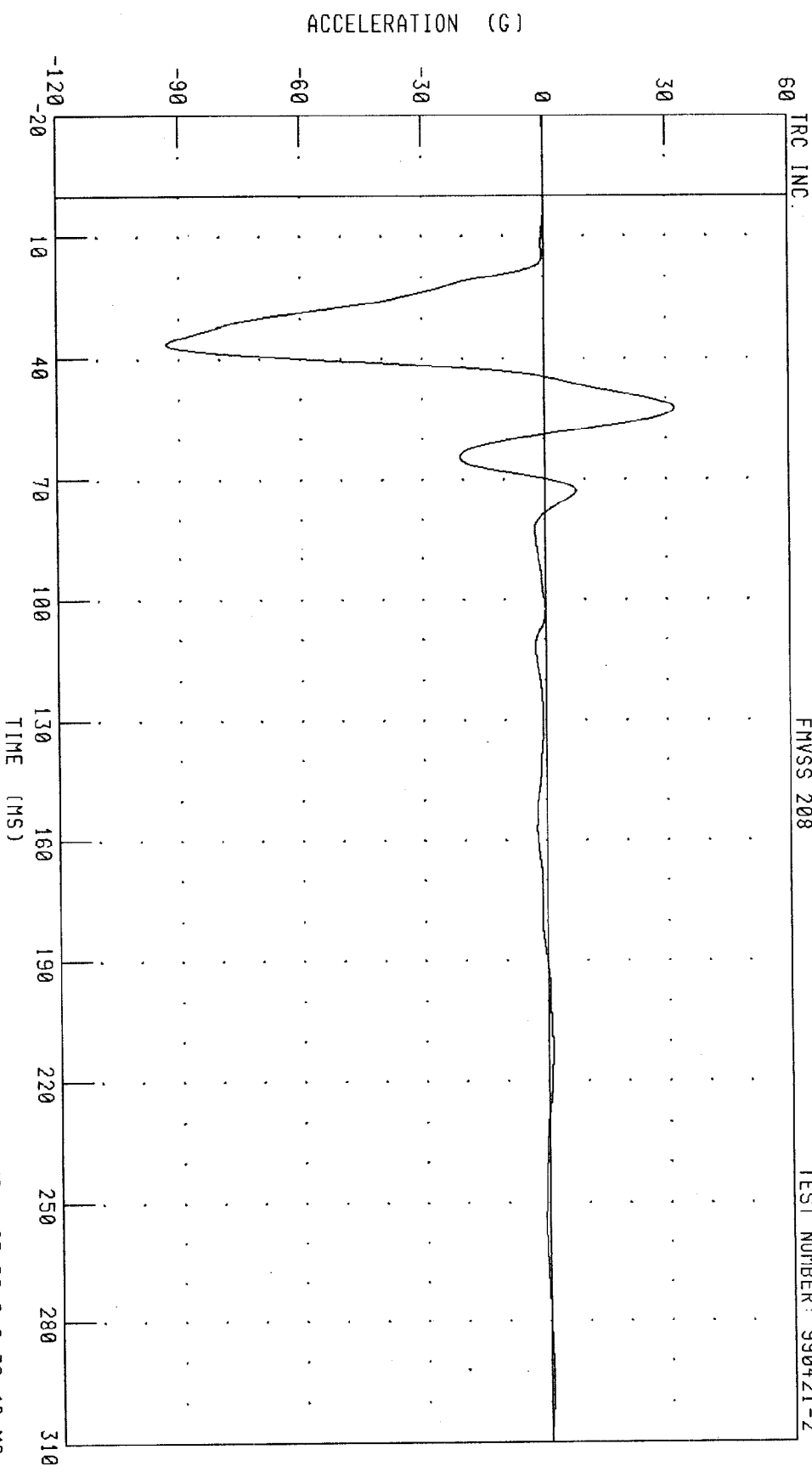


CHANNEL: DPCXG1 FILTER: CH. CLASS 60

PEAK DATA: 32.11 G @ 28.32 MS, -57.21 G @ 31.76 MS

TRC INC. TEST NUMBER: 990421-2

1999 DODGE INTREPID INTO A FLAT FRONTAL BARRIER AT 25 MPH
ENGINE TOP X-AXIS ACCELERATION
FMVSS 208

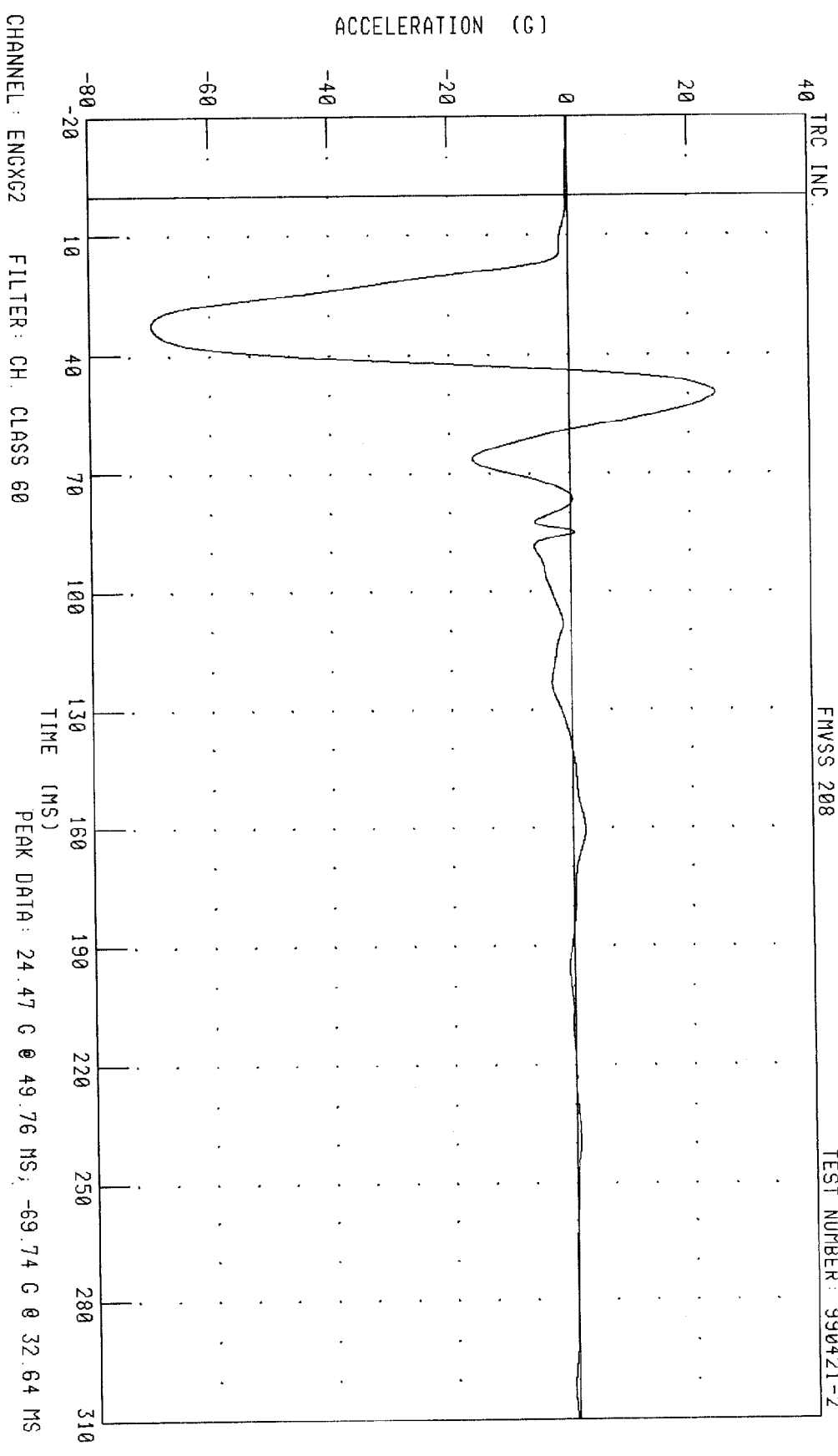


CHANNEL: ENGXC1 FILTER: CH. CLASS 60 PEAK DATA: 32.08 G @ 52.64 MS, -93.06 G @ 36.48 MS

1999 DODGE INTREPID INTO A FLAT FRONTAL BARRIER AT 25 MPH
ENGINE BOTTOM X-AXIS ACCELERATION

FHWSS 208

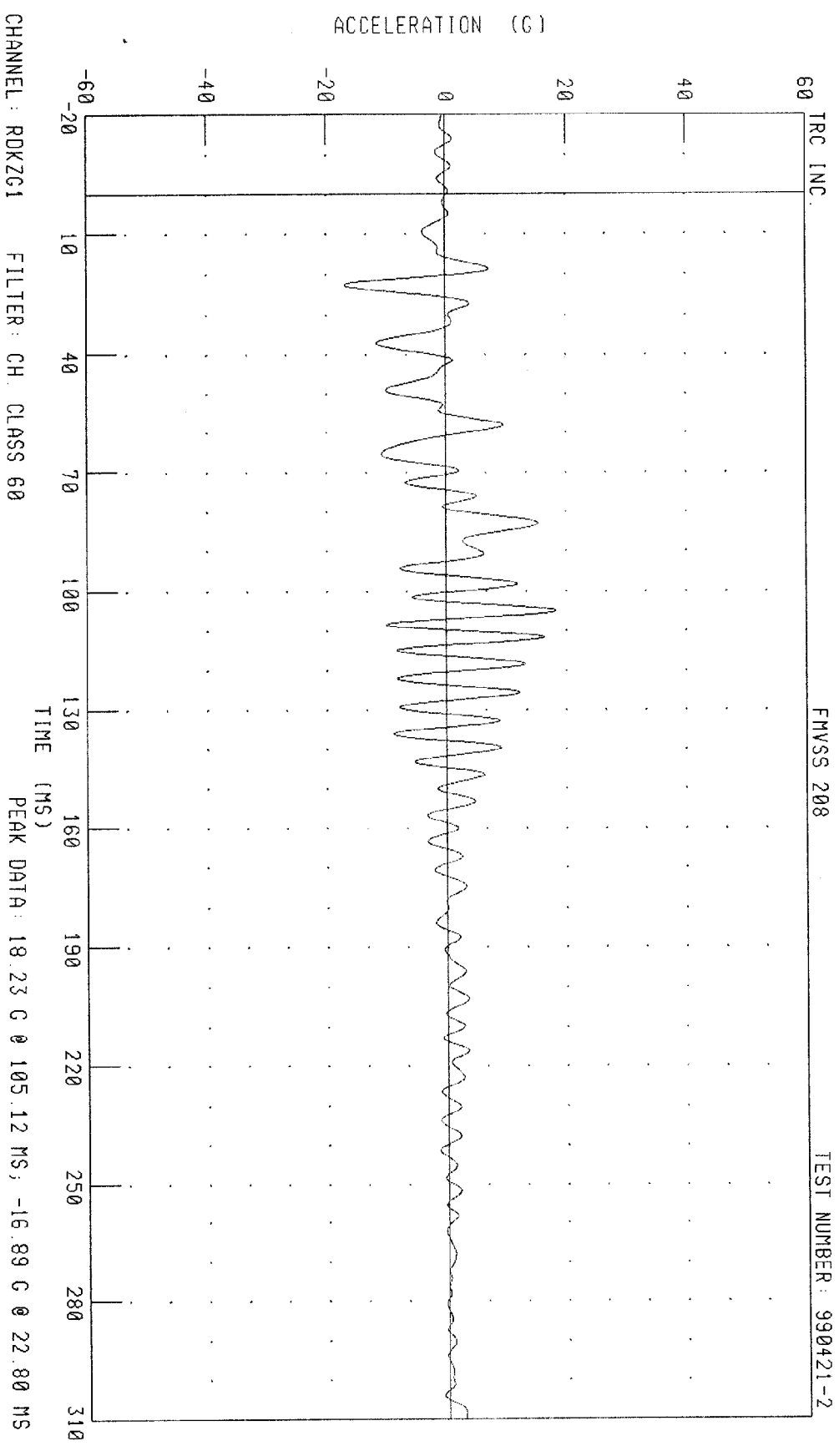
TEST NUMBER: 990421-2



1999 DODGE INTREPID INTO A FLAT FRONTAL BARRIER AT 25 MPH
VEHICLE REAR CENTER Z-AXIS ACCELERATION

FHWSS 208

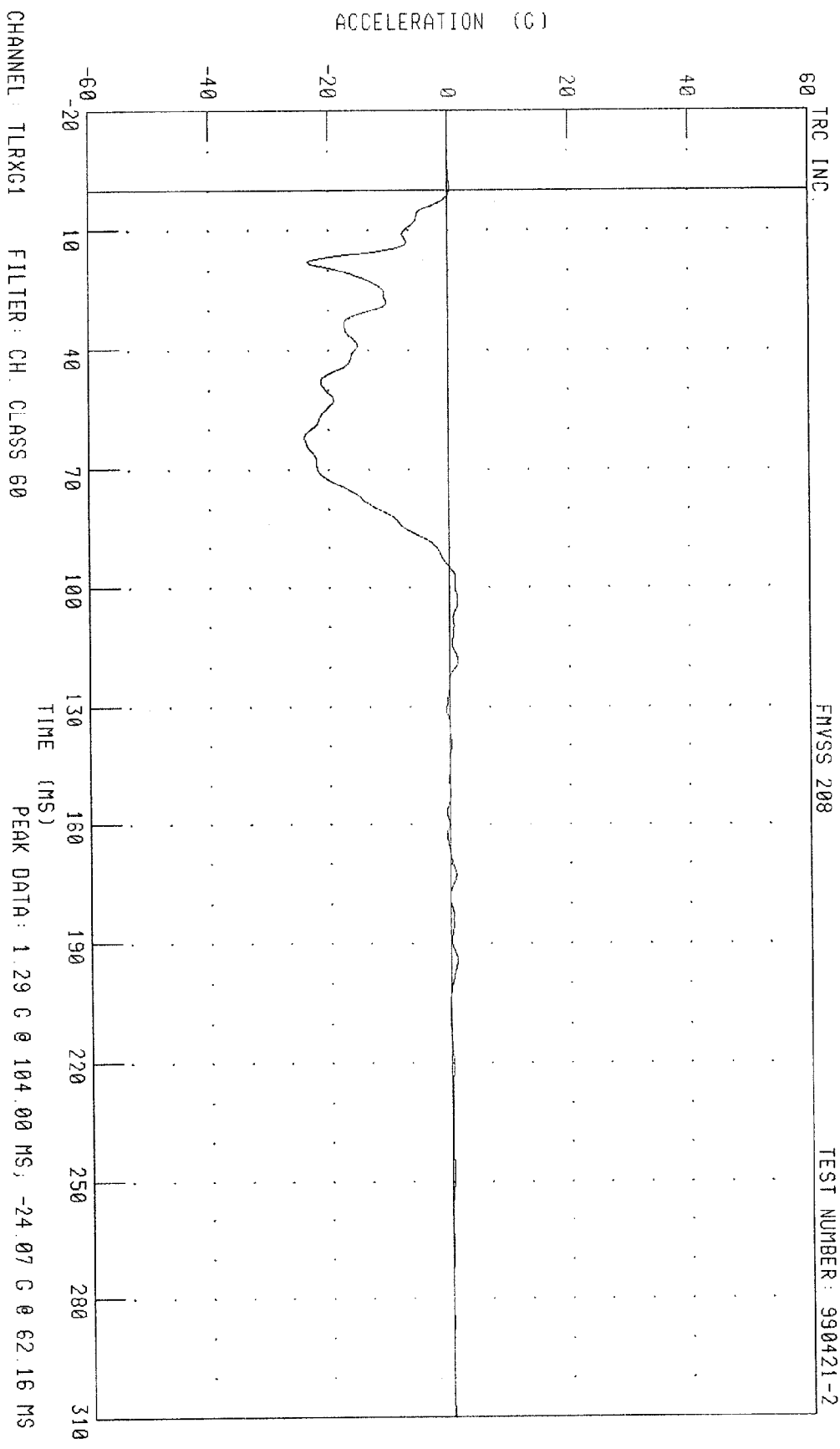
TEST NUMBER: 990421-2



1999 DODGE INTREPID INTO A FLAT FRONTAL BARRIER AT 25 MPH
LEFT REAR SEAT X-AXIS ACCELERATION

FMVSS 208

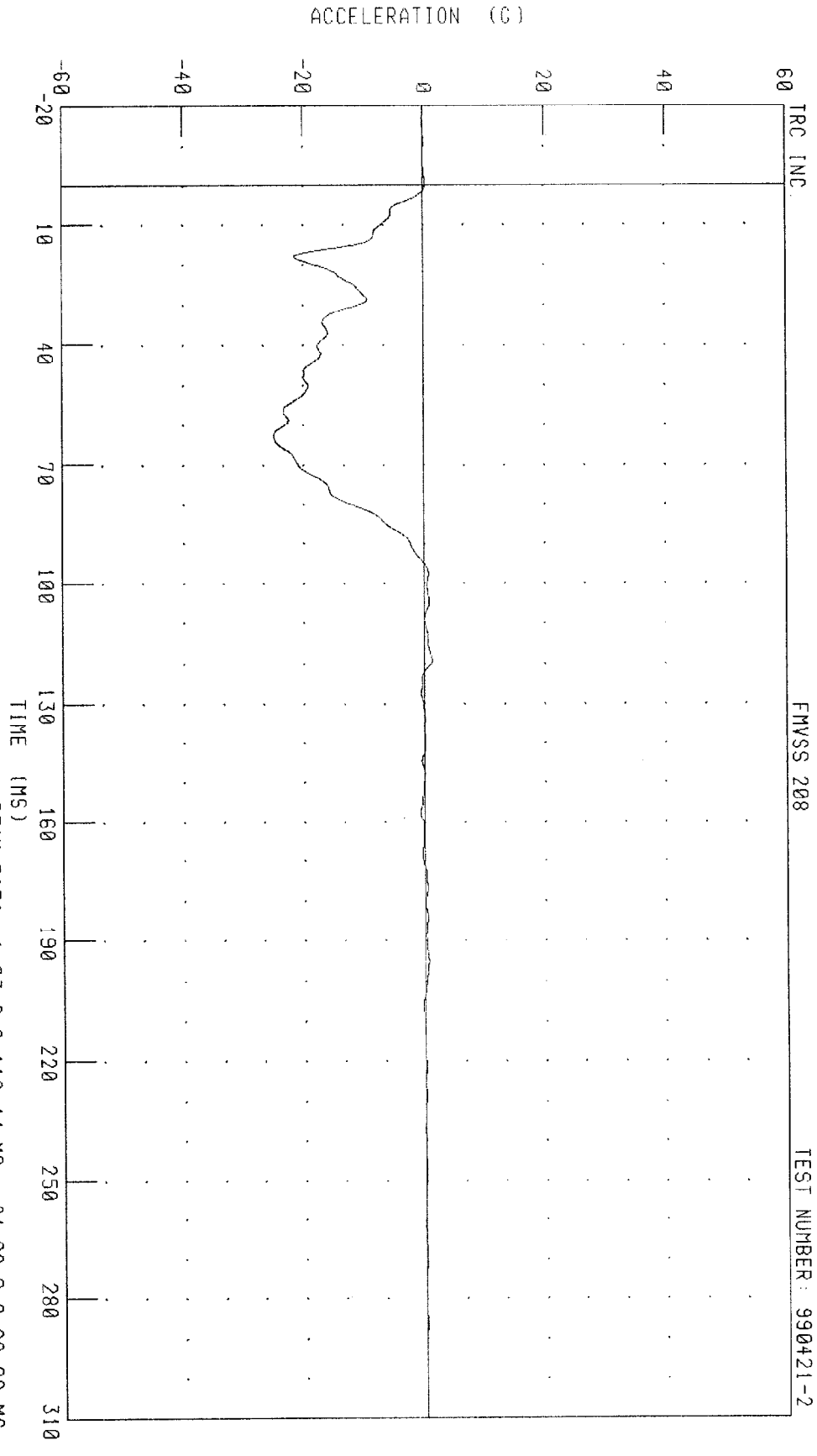
TEST NUMBER: 990421-2



1999 DODGE INTREPID INTO A FLAT FRONTAL BARRIER AT 25 MPH
RIGHT REAR SEAT X-AXIS ACCELERATION

FMVSS 208

TEST NUMBER: 990421-2



CHANNEL: TRRXG1 FILTER: CH. CLASS 60 PEAK DATA: 1.23 G @ 119.44 MS, -24.92 G @ 62.88 MS

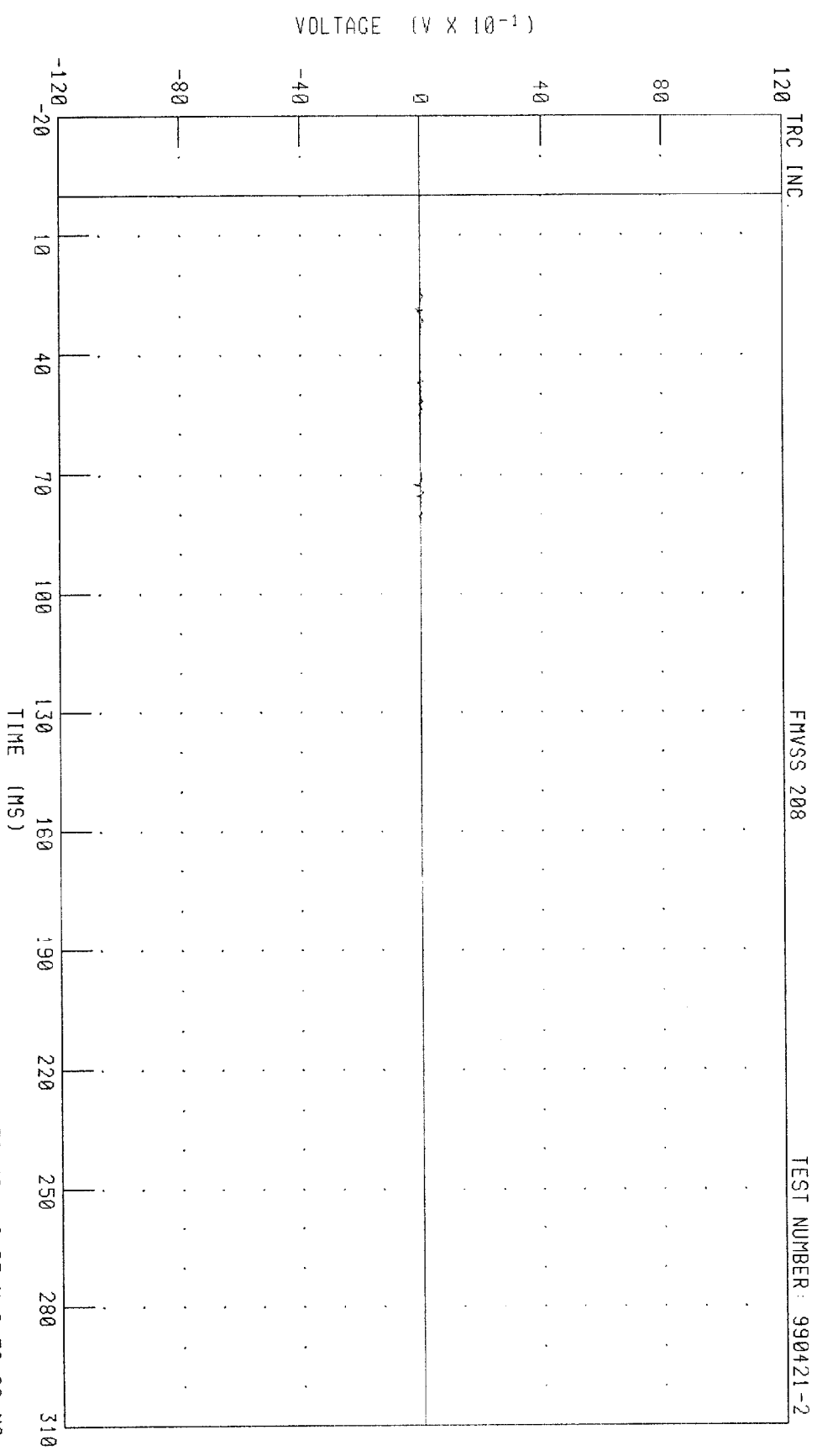
ACCELERATION (G)

TRC INC

1999 DODGE INTREPID INTO A FLAT FRONTAL BARRIER AT 25 MPH
DRIVER SIDE INDUCTIVE AIRBAG FIRE PICKUP

FMVSS 208

TEST NUMBER: 990421-2



CHANNEL: ABSQ1 FILTER: CH. CLASS 1000 PEAK DATA: 0.14 V @ 31.76 MS, -0.25 V @ 72.80 MS

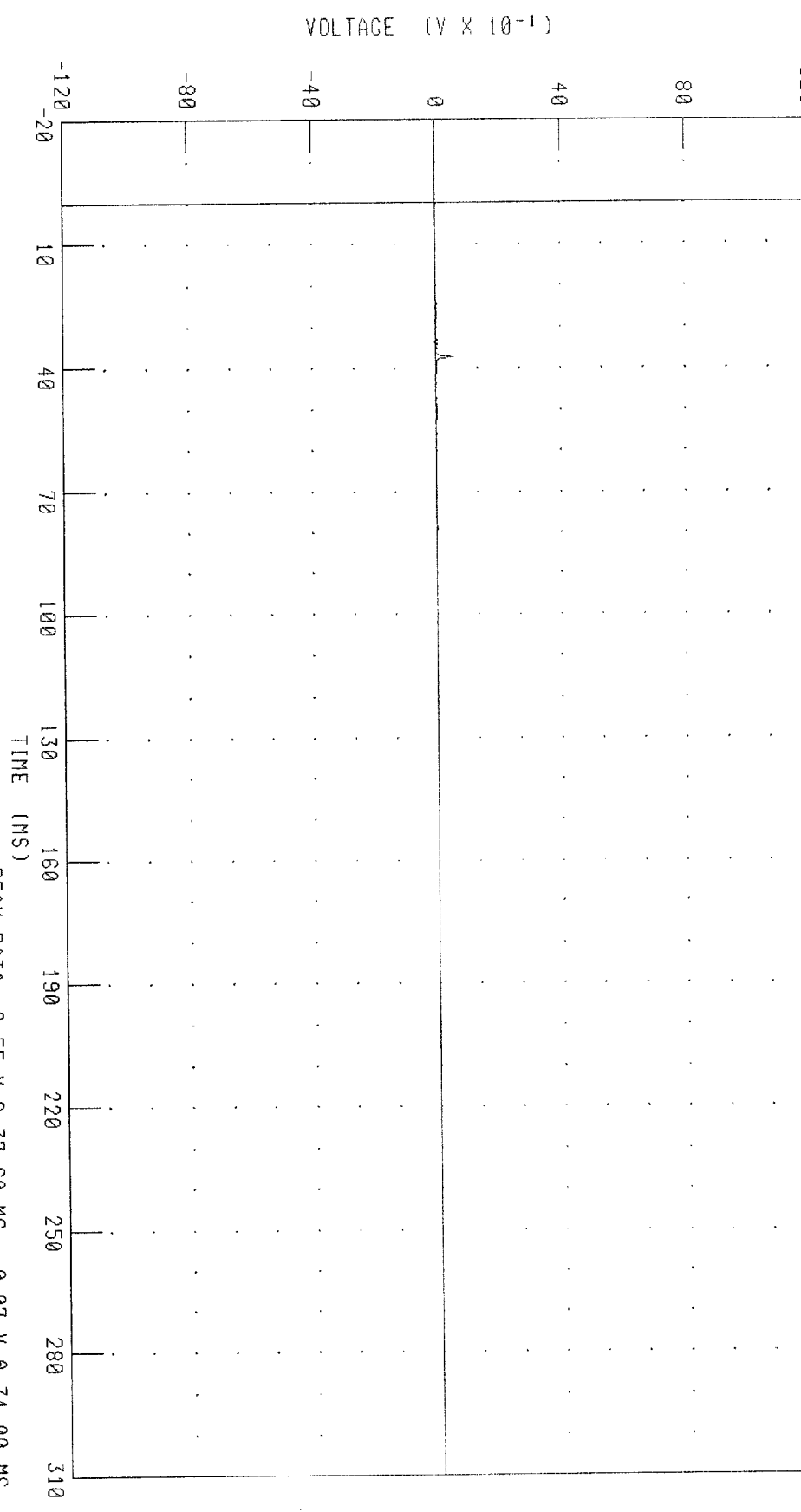
TRC INC.

1999 DODGE INTREPID INTO A FLAT FRONTAL BARRIER AT 25 MPH
PASSENGER SIDE INDUCTIVE AIRBAG FIRE PICKUP

FMVSS 208

TEST NUMBER: 990421-2

TRC, INC.



CHANNEL: ABS02 FILTER: CH. CLASS 1000

PEAK DATA: 0.55 V @ 37.60 MS, -0.07 V @ 34.00 MS

Appendix C

Pre-Test Dummy Certification

Pre-Test Dummy Certification

Driver Dummy S/N 168

TRANSPORTATION RESEARCH CENTER INC.

HEAD DROP TEST

HYBRID III 50th

07-APR-99

TRC INC.

TEST NO: 168C11HD1

572E SN168 HEAD DROP CAL 11

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	18.9-25.6 DEG. C	21.1 DEG. C
RELATIVE HUMIDITY	10 - 70 %	22.0 %
PEAK RESULTANT ACCELERATION	225 - 275 G	259.59 G
PEAK LATERAL ACCELERATION	15 G MAX	3.32 G
IS ACCELERATION CURVE UNIMODAL?	YES	YES

TEST MEETS SPECIFICATIONS

TECHNICIAN

John K. Clauje

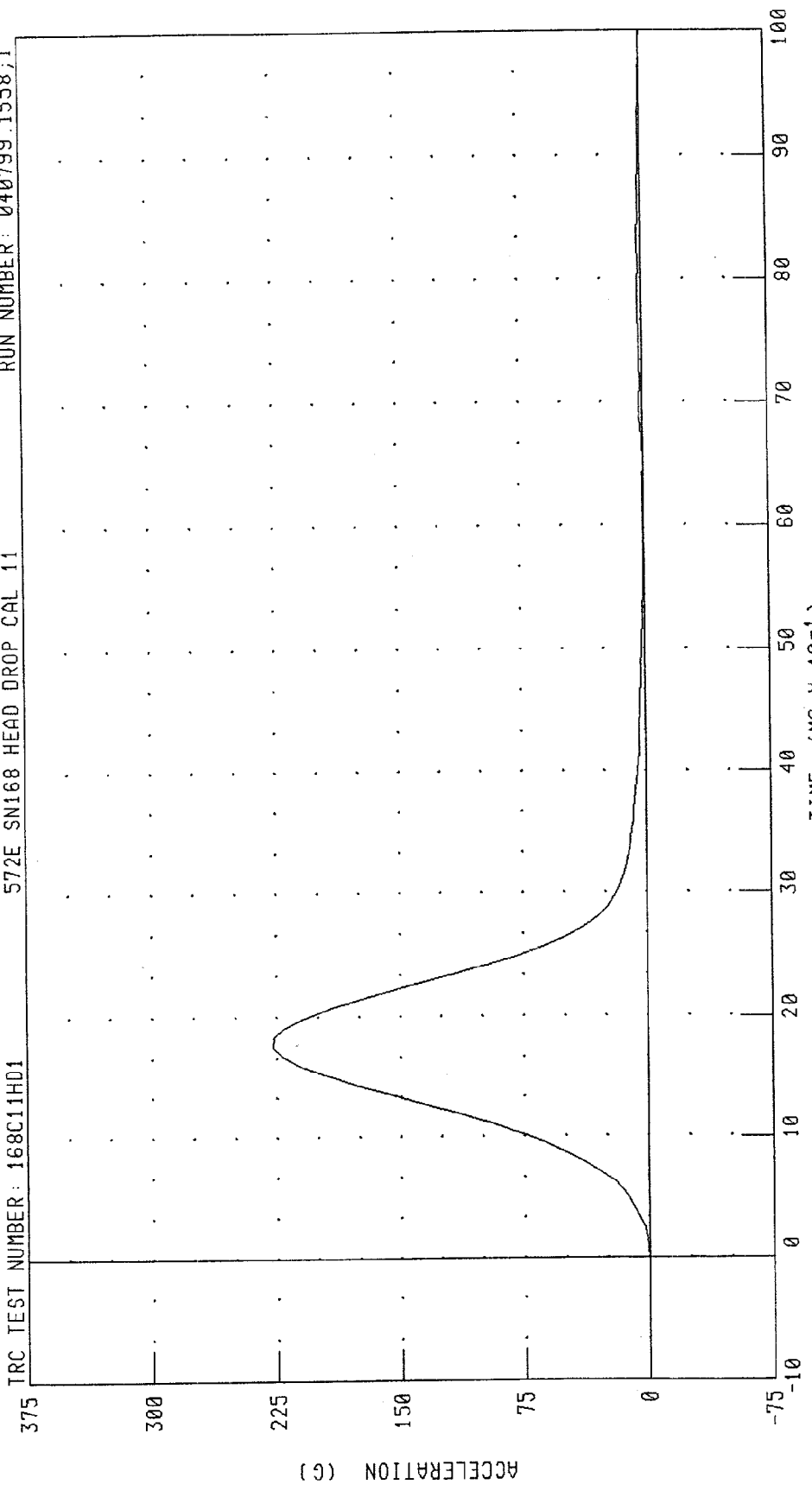
RUN NUMBER: 040799.1558;1

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

TRC TEST NUMBER: 168C11HD1

572E SN168 HEAD DROP CAL 11

RUN NUMBER: 040799.1558;1

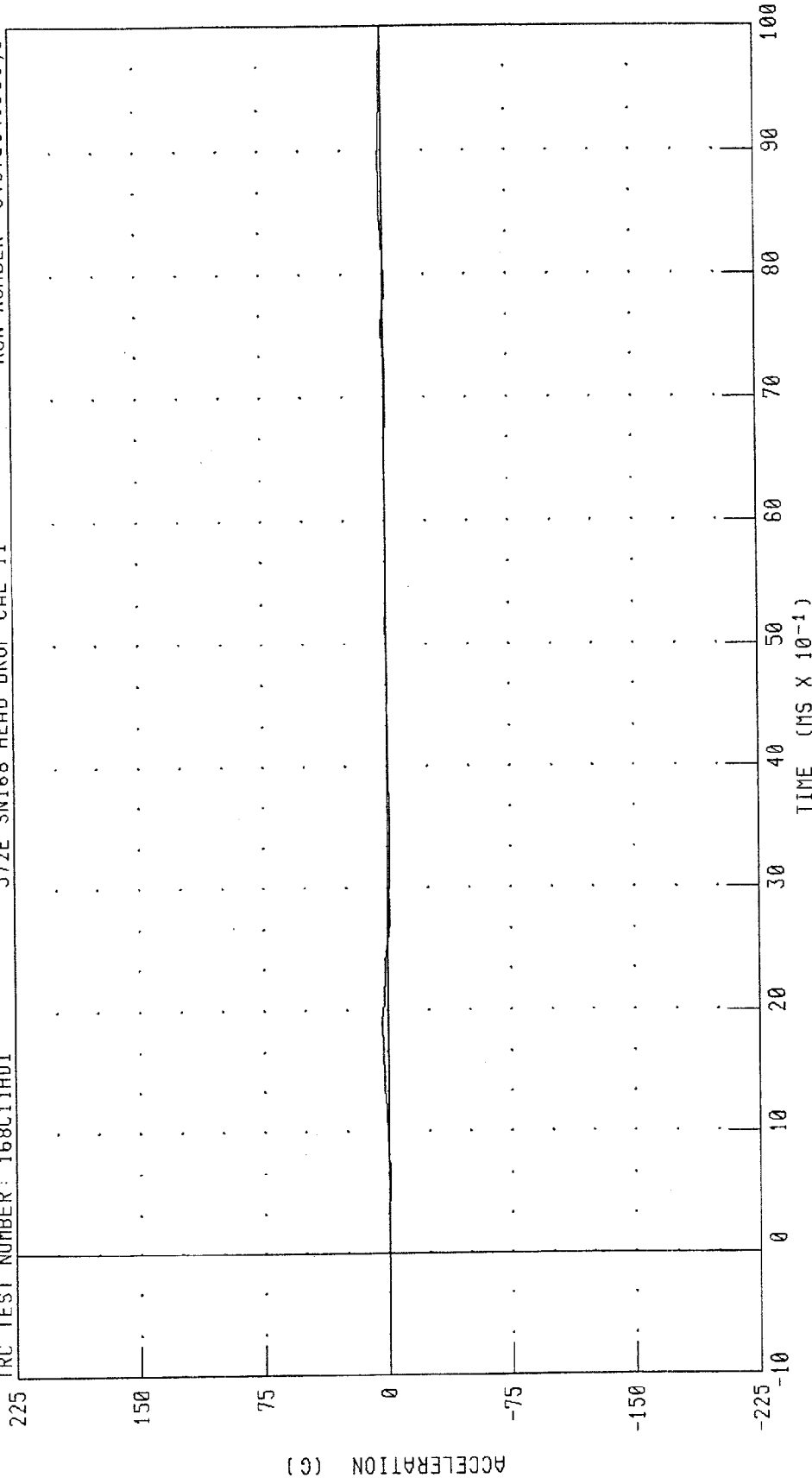


CHANNEL: HEDXG FILTER: CH. CLASS 1000 PEAK DATA: 226.95 G @ 1.76 MS; -0.52 G @ 10.00 MS

PART 572-E HYBRID III HEAD CALIBRATION
HEAD ACCELERATION Y AXIS
572E SN168 HEAD DROP CAL 11

TRC TEST NUMBER: 168C11HD1

RUN NUMBER: 040799.1558;1



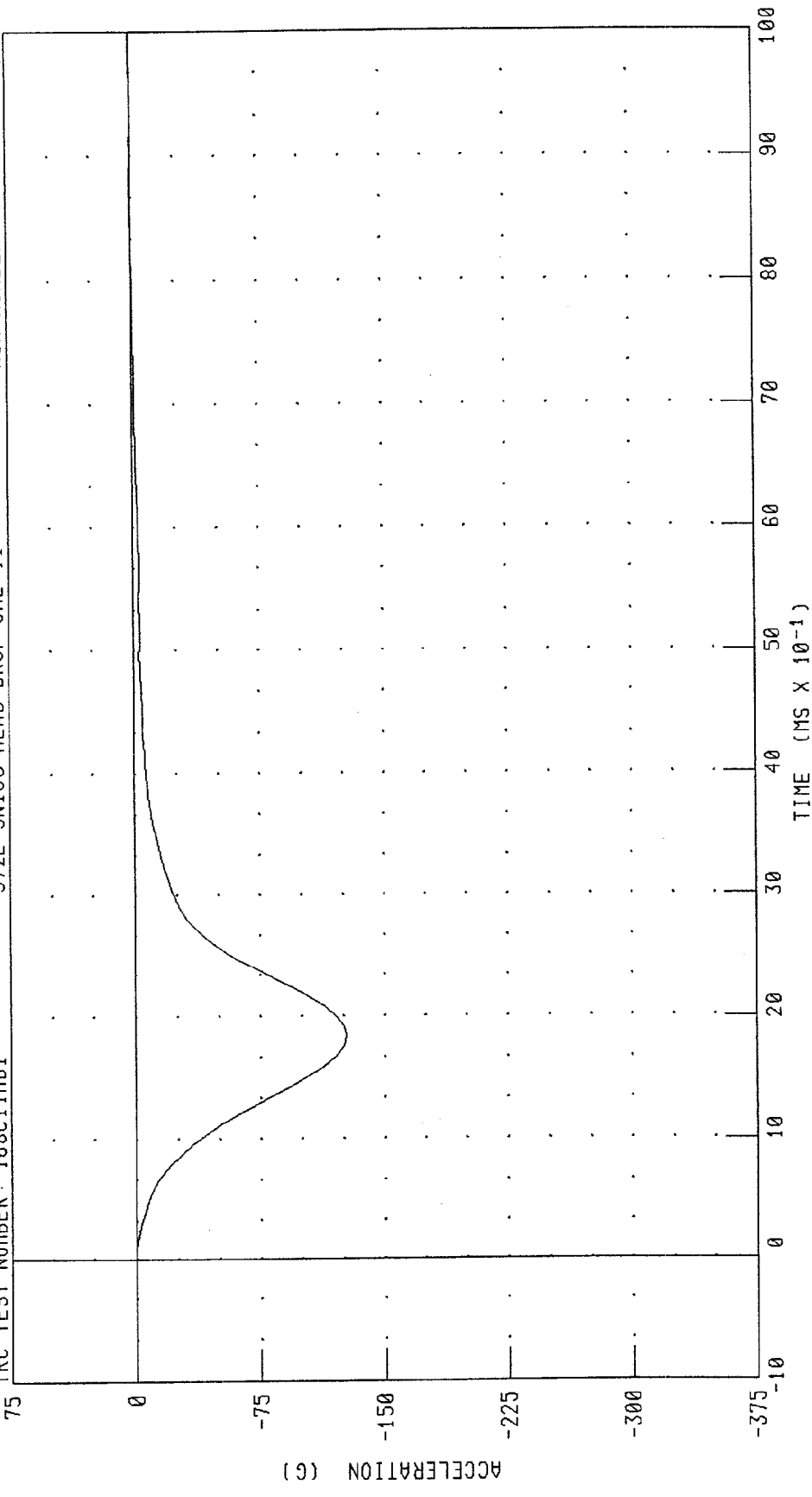
CHANNEL: HEDYC FILTER: CH. CLASS 1000

PEAK DATA: 3.32 G @ 1.84 MS; -1.76 G @ 3.44 MS

PART 572-E HYBRID III HEAD CALIBRATION
HEAD ACCELERATION Z AXIS
572E SN168 HEAD_DROP CAL 11

TRC TEST NUMBER: 168C11HD1

RUN NUMBER: 040799.1558;1



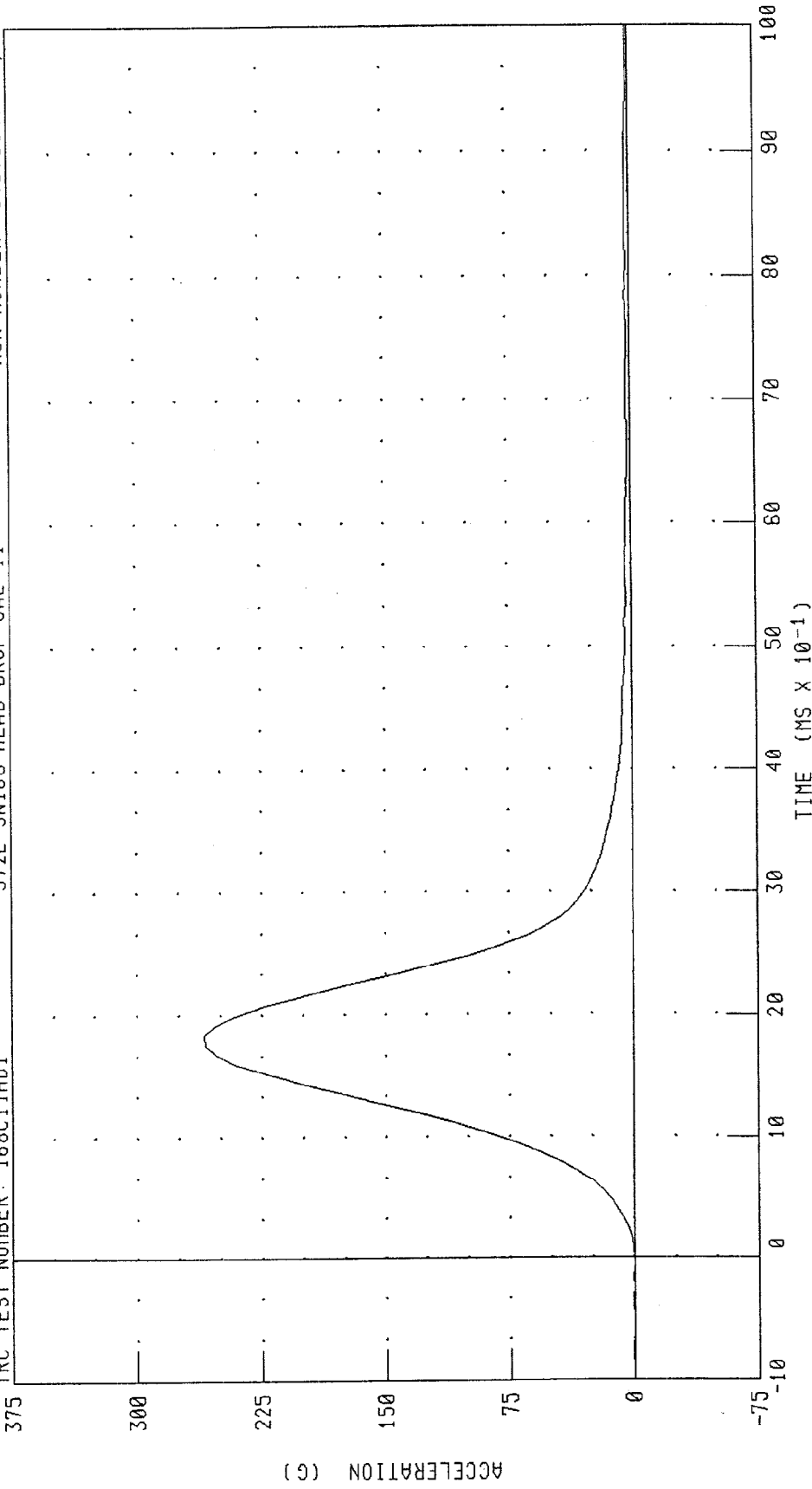
CHANNEL: HEDZG FILTER: CH. CLASS 1000

PEAK DATA: 0.97 G @ 9.84 MS; -126.67 G @ 1.84 MS

PART 572-E HYBRID III HEAD CALIBRATION
HEAD RESULTANT ACCELERATION
572E SN168 HEAD DROP CAL 11

RUN NUMBER: 040799.1558,1

TRC TEST NUMBER: 168C11HD1



PEAK DATA: 259.59 G @ 1.84 MS; 0.07 G @ -0.64 MS

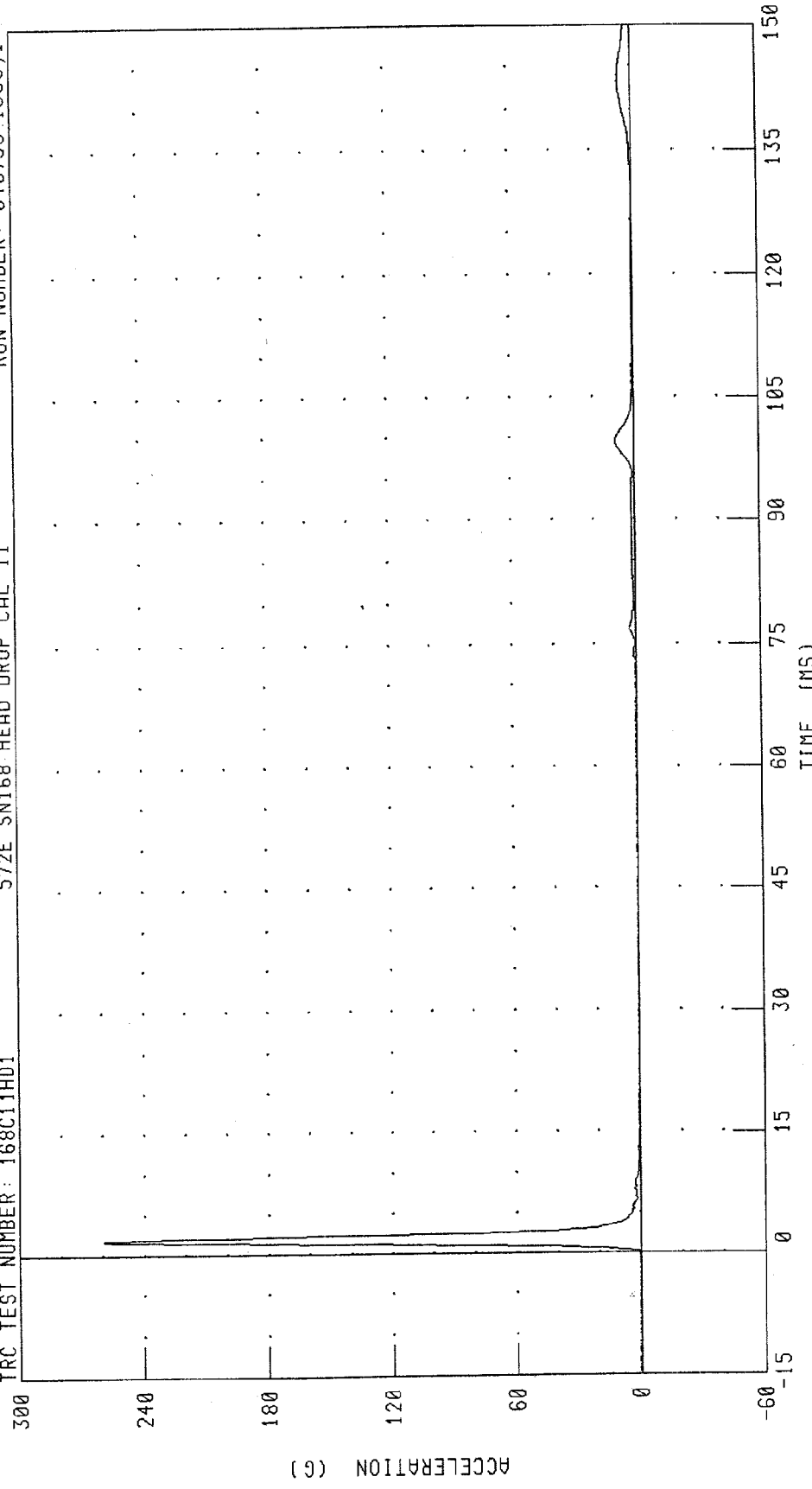
CHANNEL: HEDRC FILTER: CH. CLASS 1000

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

TRC TEST NUMBER: 168C11HD1

572E SN168 HEAD DROP CAL 11

RUN NUMBER: 040799.1558;1



CHANNEL: HEDRG FILTER: CH. CLASS 1000

PEAK DATA: 259.59 G @ 1.84 MS, 0.07 C @ -14.96 MS

TRANSPORTATION RESEARCH CENTER INC.

HYBRID III 50th

08-APR-99

NECK FLEXION TEST - 6 CHANNEL TRANSDUCER

TRC INC. TEST NO: 168C11NF1 572E SN168 NECK FLEXION CAL11

TEST PARAMETER		SPECIFICATION	TEST RESULTS
TEMPERATURE		20.6-22.2 DEG. C	21.1 DEG. C
RELATIVE HUMIDITY		10 - 70 %	22.0 %
IMPACT VELOCITY		6.89 - 7.13 M/S	6.93 M/S
PENDULUM DECELERATION	10 MS	22.50 - 27.50 G	23.73 G
	20 MS	17.60 - 22.60 G	20.03 G
	30 MS	12.50 - 18.50 G	14.98 G
MAX PENDULUM G		29 G MAX	24.51 G
MAX PENDULUM G ABOVE 30 MS		29 G MAX	14.93 G
DECELERATION-TIME CURVE DECAY TIME TO 5 G		34 - 42 MS	40.16 MS
D PLANE	MAX	64 - 78 DEG.	74.56 DEG.
ROTATION	TIME	57 - 64 MS	60.88 MS
MOMENT ABOUT OCCIPITAL CONDYLE	MAX	88.2 - 108.5 NM	92.15 NM
	TIME	47 - 58 MS	53.52 MS
ROTATION ANGLE-TIME CURVE DECAY TIME TO ZERO		113 - 128 MS	117.36 MS
POSITIVE MOMENT-TIME CURVE DECAY TIME TO ZERO		97 - 107 MS	104.16 MS

TEST MEETS SPECIFICATIONS

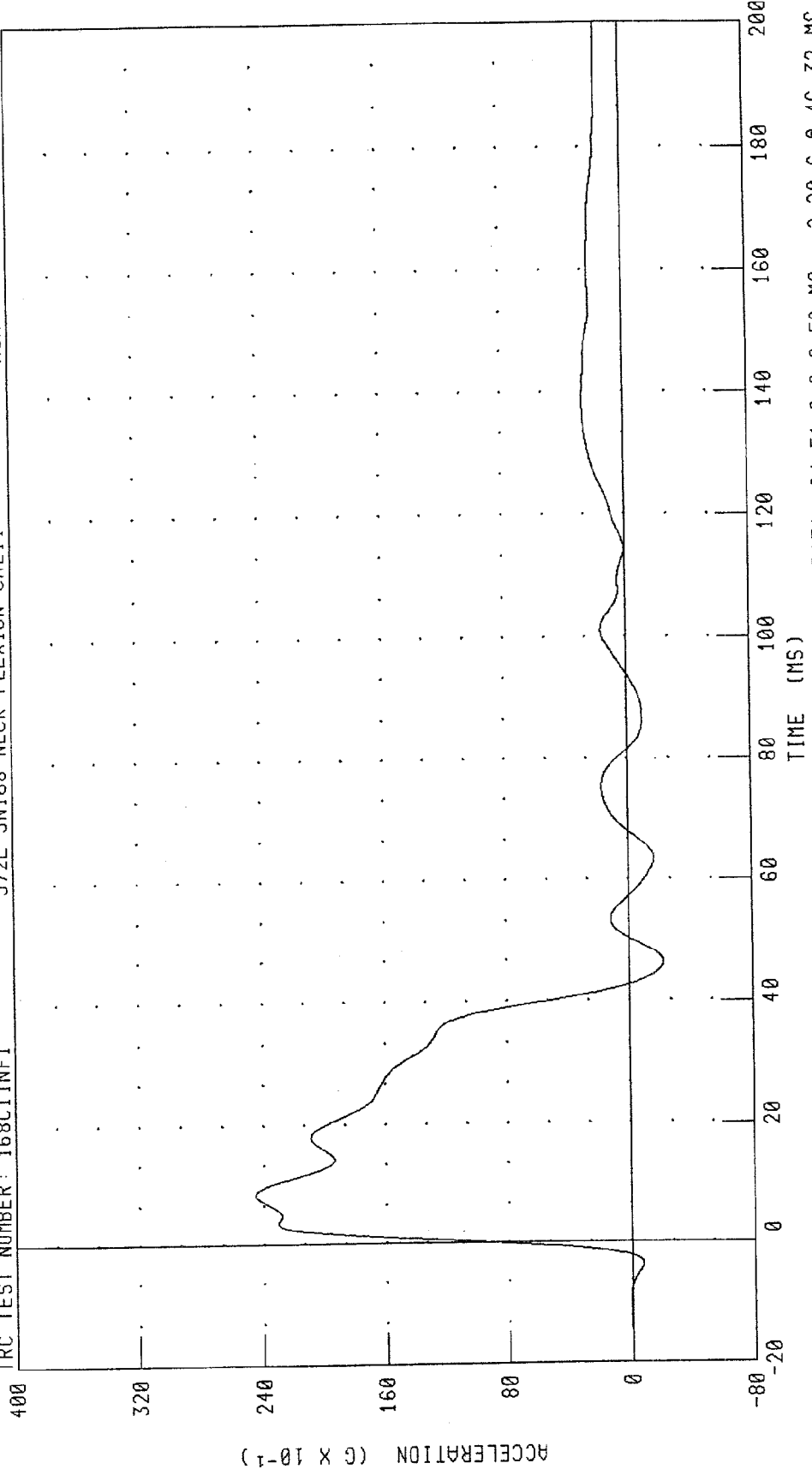
TECHNICIAN

John K. Clawise

RUN NUMBER: 040899.0808;2

PART 572-E HYBRID III NECK FLEXION CALIBRATION
PENDULUM DECELERATION

TRC TEST NUMBER: 168C11NF1 572E SN168 NECK FLEXION CAL11 RUN NUMBER: 040899 0809;2



CHANNEL: PENXC FILTER: CH. CLASS 60 PEAK DATA: 24.51 G @ 8.56 MS; -2.20 G @ 46.32 MS

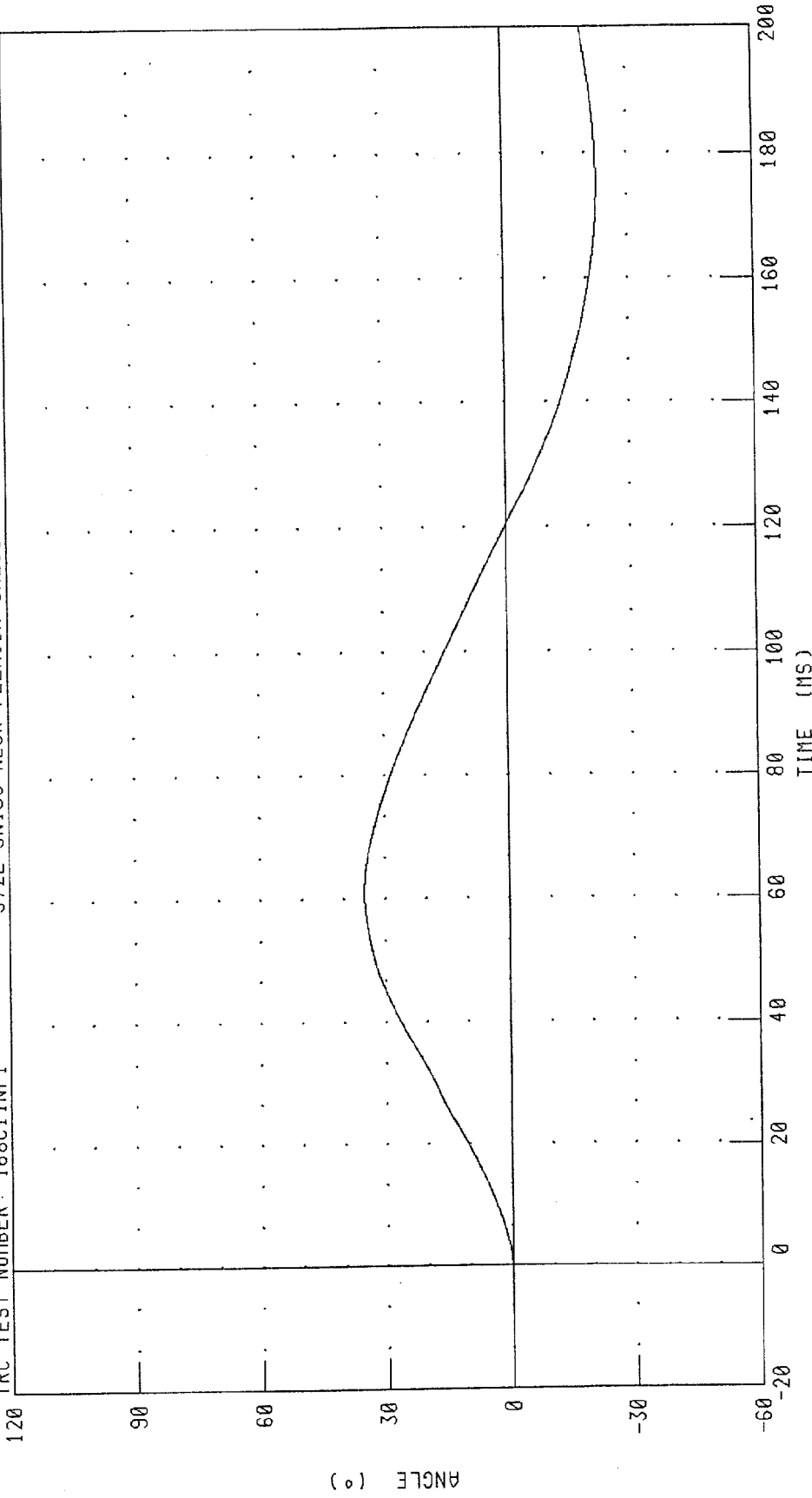
PART 572-E HYBRID III NECK FLEXION CALIBRATION

ROTATION ABOUT BASE OF NECK

572E SN168 NECK FLEXION CAL11

TRC TEST NUMBER: 168C11NF1

RUN NUMBER: 040899.0809;2



CHANNEL: BETA

FILTER: CH. CLASS 60

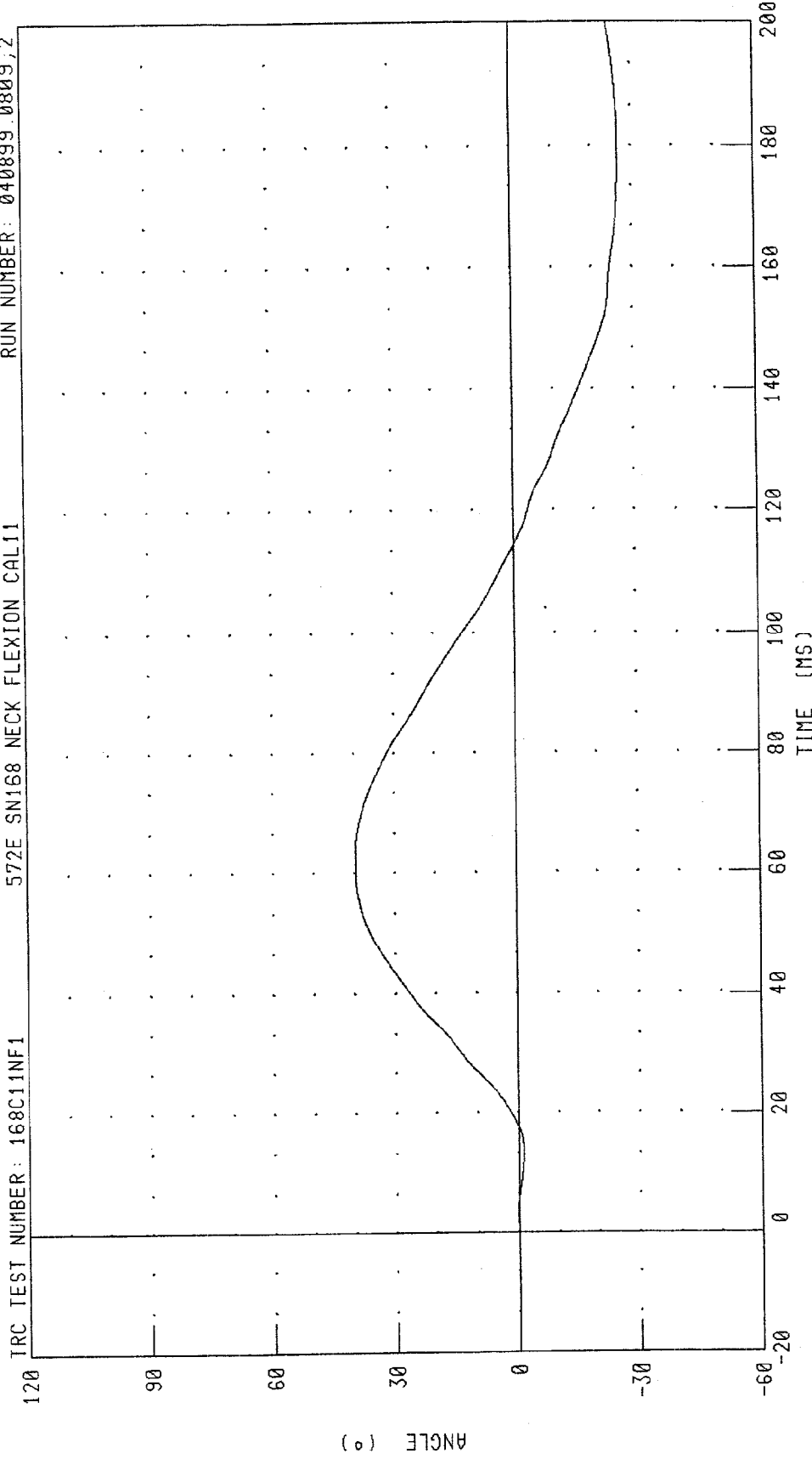
PEAK DATA: 34.91 ° @ 60.96 MS; -22.58 ° @ 175.20 MS

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

RUN NUMBER: 040899.0809;2

TRC TEST NUMBER: 168C11NF1

572E SN168 NECK FLEXION CAL11



CHANNEL: THETA FILTER: CH. CLASS 60

PEAK DATA: 39.66 ° @ 60.72 MS; -26.87 ° @ 180.56 MS

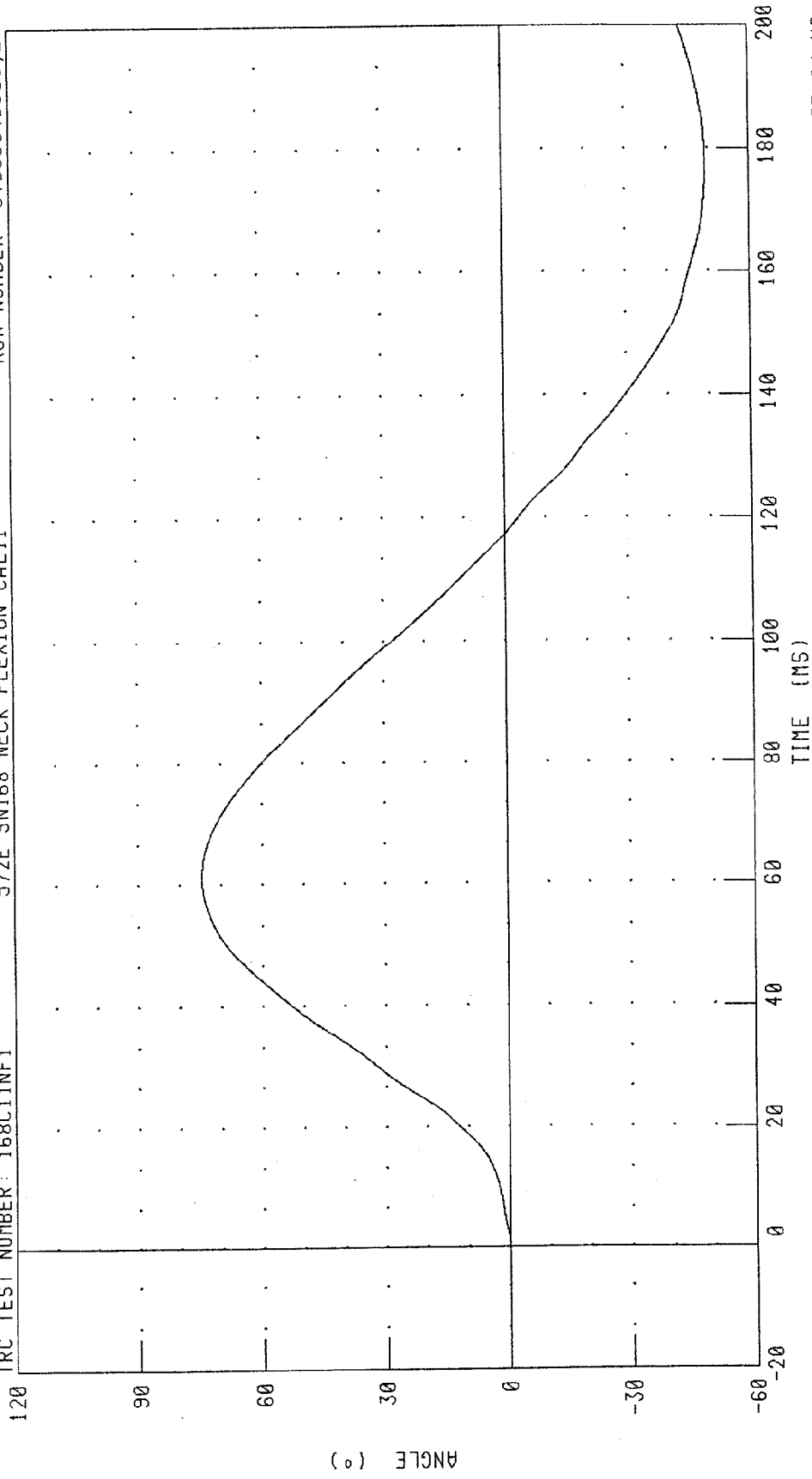
PART 572-E HYBRID III NECK FLEXION CALIBRATION

TOTAL ROTATION

RUN NUMBER: 040899.0809;2

TRC TEST NUMBER: 168C11NF1

572E SN168 NECK FLEXION CAL11



PEAK DATA: 74.57 ° @ 60.88 MS; -49.38 ° @ 177.84 MS

CHANNEL: TOTAN FILTER: CH. CLASS 60

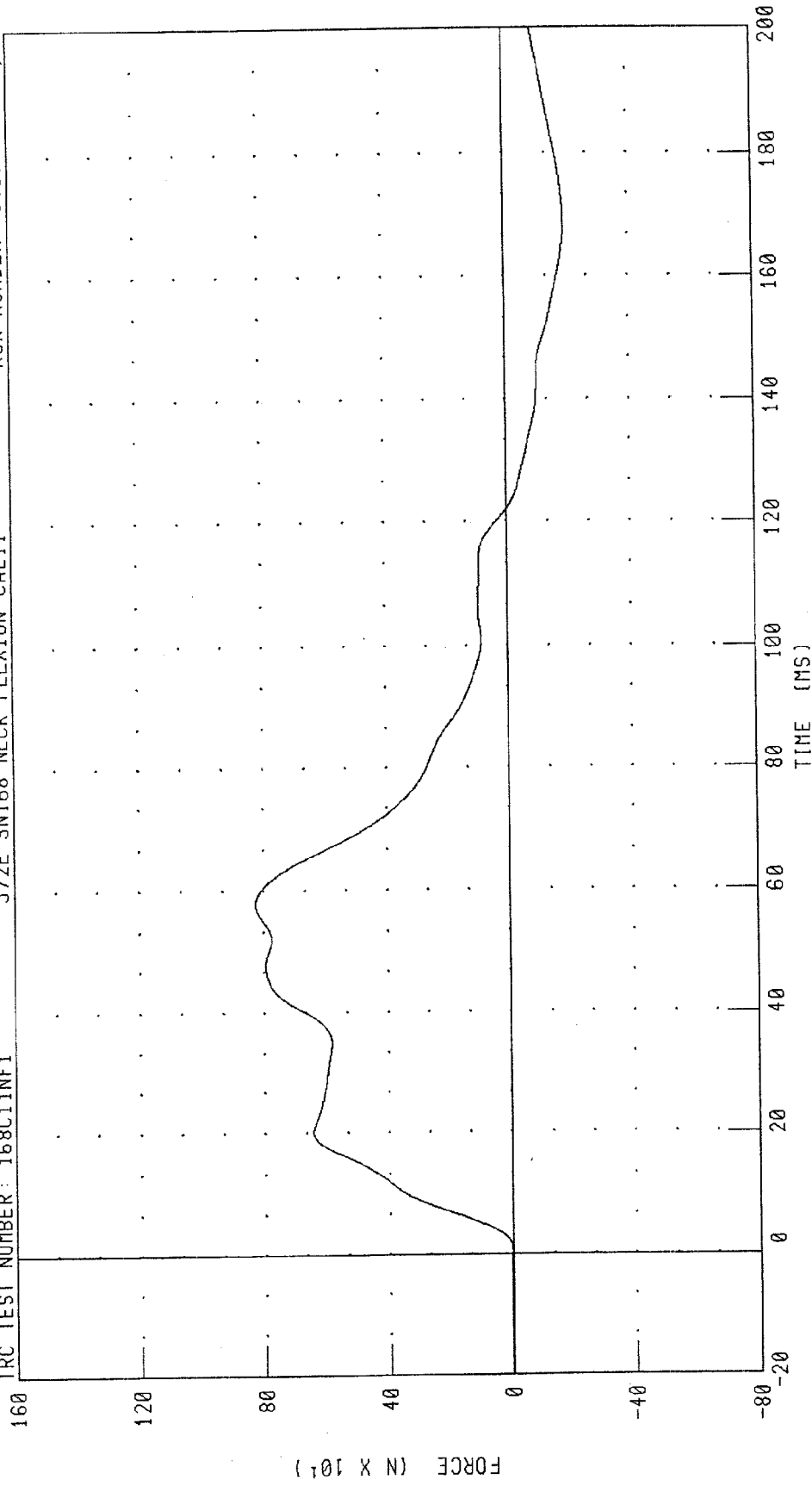
PART 572-E HYBRID III NECK FLEXION CALIBRATION

NECK FORCE X AXIS

RUN NUMBER: 040899.0809;2

TRC TEST NUMBER: 168C11NF1

572E SN168 NECK FLEXION CAL11



CHANNEL: NEKXF FILTER: CH. CLASS 60

PEAK DATA: 825.14 N @ 57.84 MS, -195.35 N @ 168.96 MS

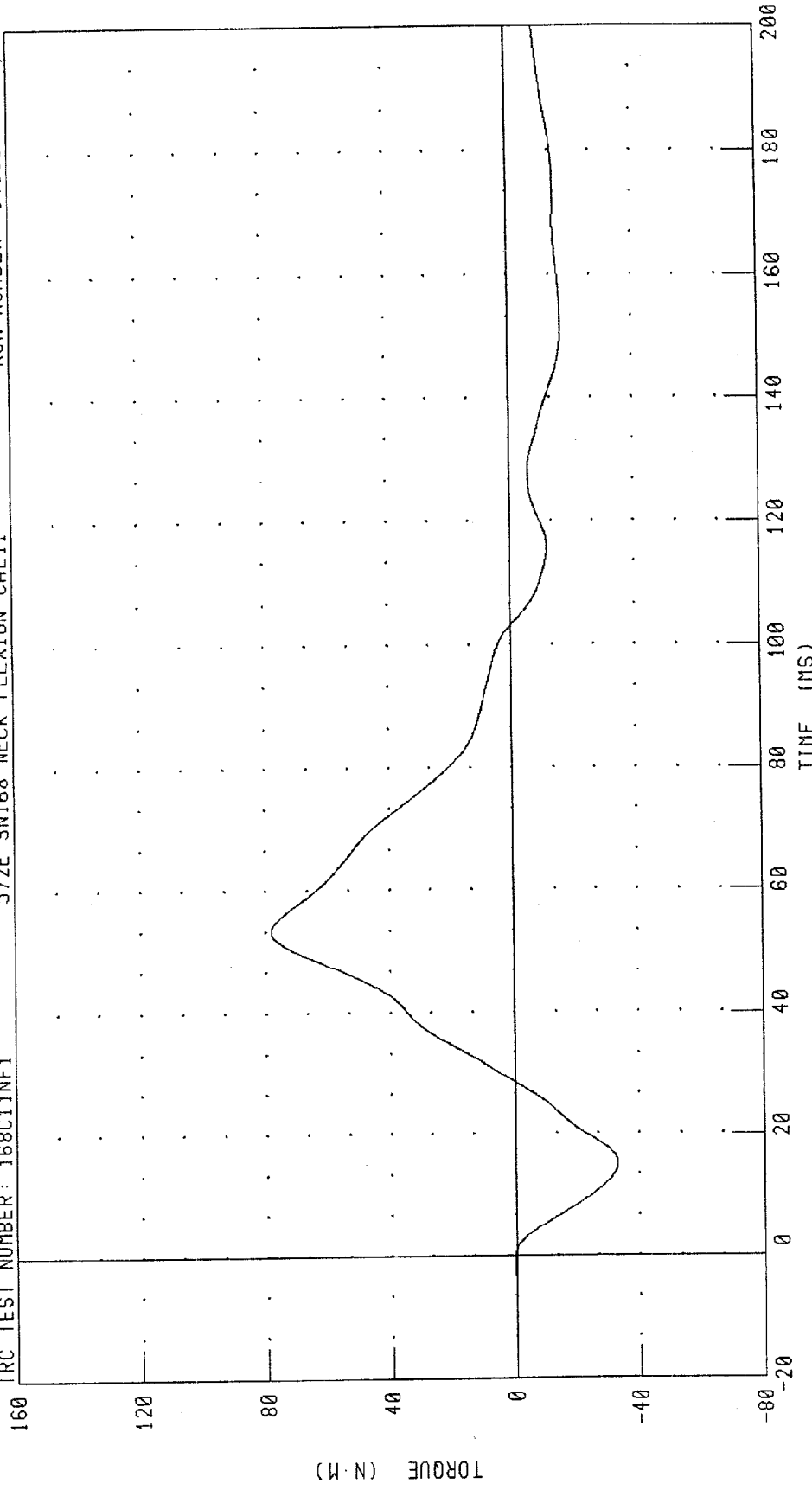
PART 572-E HYBRID III NECK FLEXION CALIBRATION

NECK MOMENT Y AXIS

RUN NUMBER: 040899.0809;2

572E SN168 NECK FLEXION CAL11

TRC TEST NUMBER: 168C11NF1



PEAK DATA: 78.25 N·M @ 53.44 MS, -33.09 N·M @ 15.12 MS

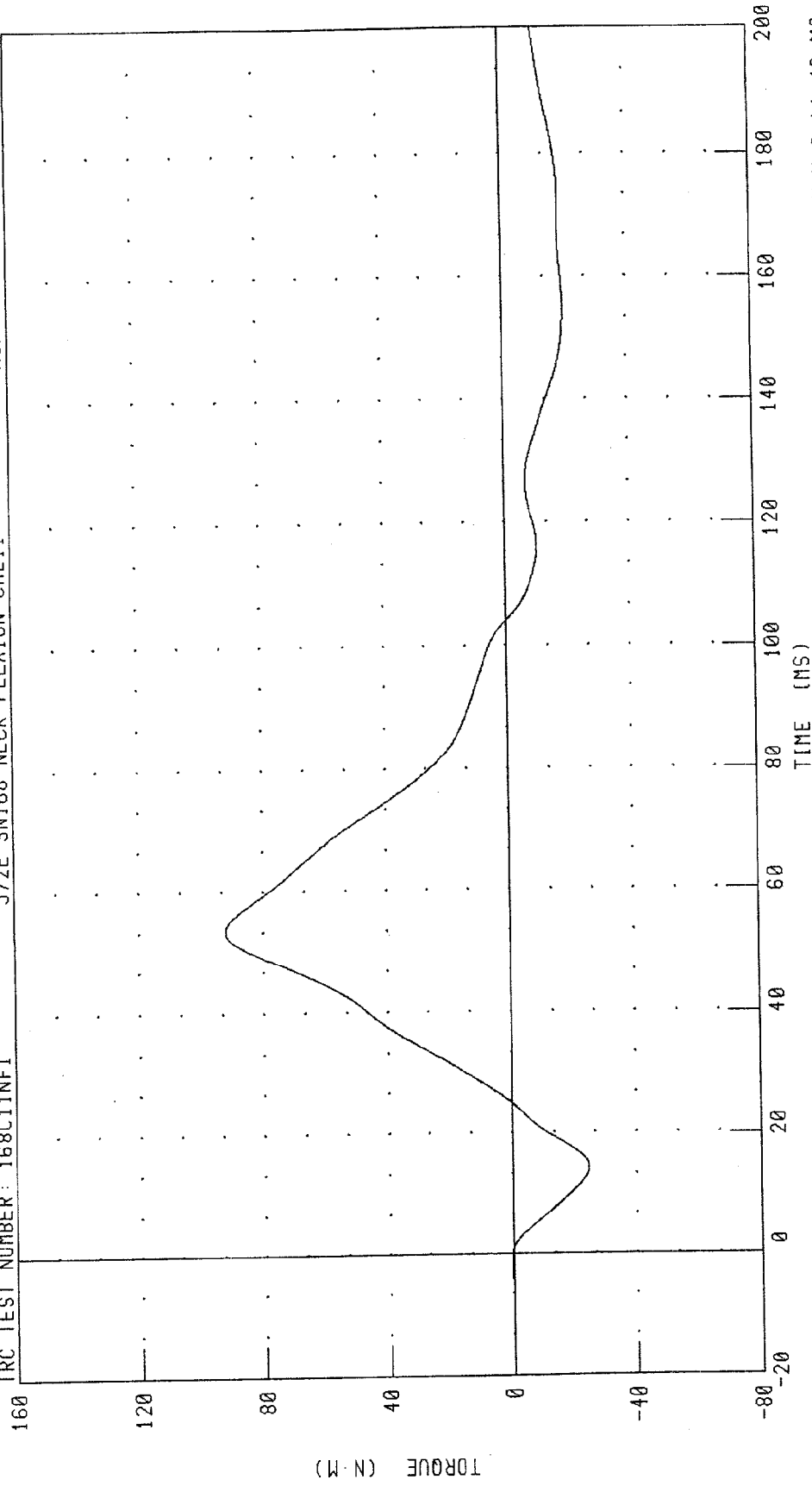
CHANNEL: NEKYM FILTER: CH. CLASS 60

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

RUN NUMBER: 040899.0809;2

TRC TEST NUMBER: 168C11NF1

572E SN168 NECK FLEXION CAL11



PEAK DATA: 92.15 N·M @ 53.52 MS; -24.59 N·M @ 14.40 MS

CHANNEL: NEKOM FILTER: CH. CLASS 60

TRANSPORTATION RESEARCH CENTER INC.

HYBRID III 50th

08-APR-99

NECK EXTENSION TEST - 6 CHANNEL TRANSDUCER

TRC INC. TEST NO: 168C11NE1 572E SN168 NECK EXT CAL11

TEST PARAMETER		SPECIFICATION	TEST RESULTS
TEMPERATURE		20.6 - 22.2 DEG. C	21.1 DEG. C
RELATIVE HUMIDITY		10 - 70 %	22.0 %
IMPACT VELOCITY		5.95 - 6.19 M/S	6.05 M/S
PENDULUM DECELERATION	10 MS	17.20 - 21.20 G	18.51 G
	20 MS	14.00 - 19.00 G	17.28 G
	30 MS	11.00 - 16.00 G	15.00 G
MAX PENDULUM G		22 G MAX	19.08 G
MAX PENDULUM G ABOVE 30 MS		22 G MAX	14.93 G
DECELERATION-TIME CURVE DECAY TIME TO 5 G		38 - 46 MS	40.56 MS
D PLANE	MAX	81 - 106 DEG.	97.10 DEG.
ROTATION	TIME	72 - 82 MS	77.04 MS
MOMENT ABOUT OCCIPITAL CONDYLE	MIN	-80.0/-52.9 NM	-66.09 NM
	TIME	65 - 79 MS	72.16 MS
ROTATION ANGLE-TIME CURVE DECAY TIME TO ZERO		147 - 174 MS	156.56 MS
NEGATIVE MOMENT-TIME CURVE DECAY TIME TO ZERO		120 - 148 MS	145.28 MS

TEST MEETS SPECIFICATIONS

TECHNICIAN

John K. Clauiger

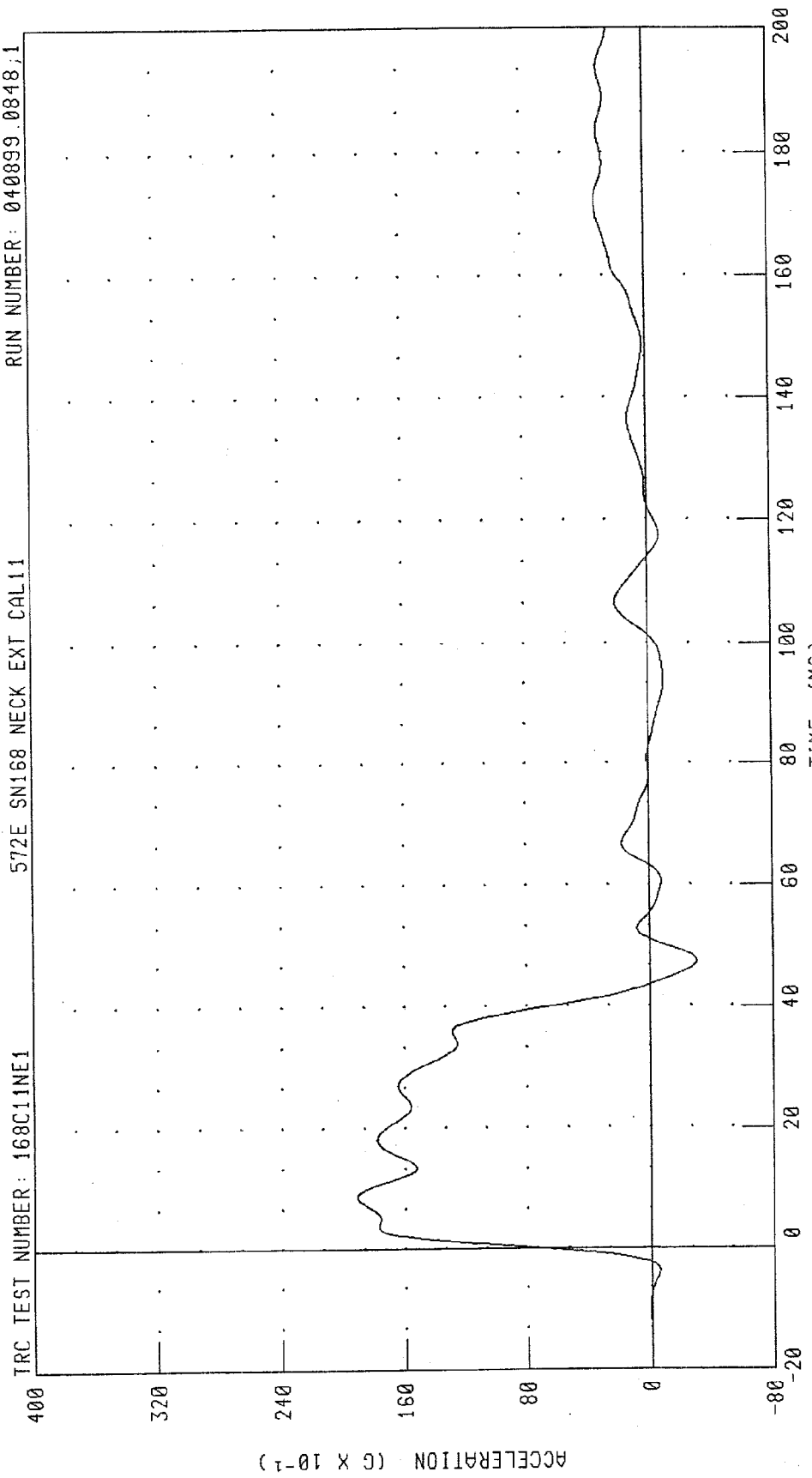
RUN NUMBER: 040899.0847;1

PART 572-E HYBRID III NECK EXTENSION CALIBRATION
PENDULUM DECELERATION

TRC TEST NUMBER: 168C11NE1

572E SN168 NECK EXT CAL11

RUN NUMBER: 040899.0848;1



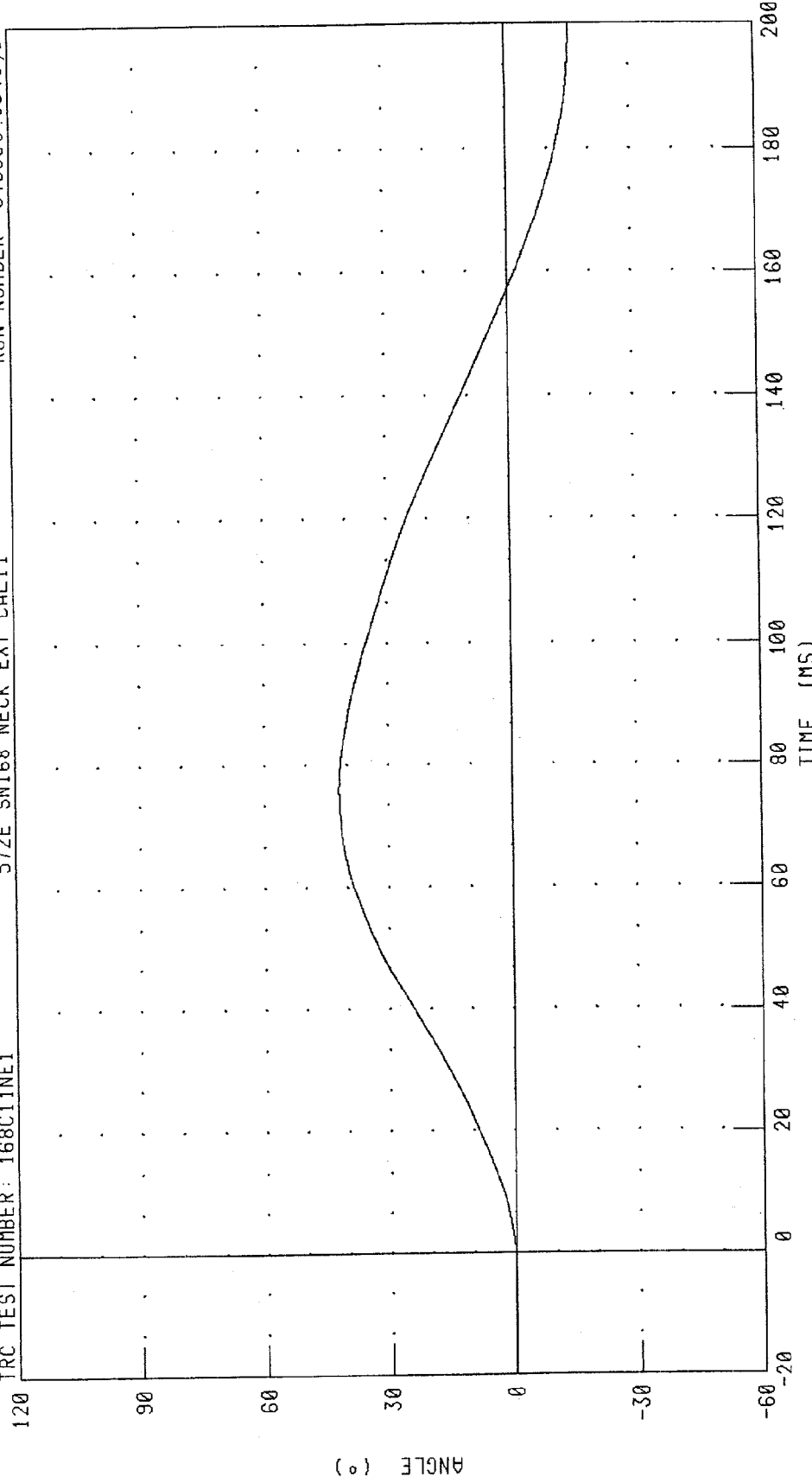
CHANNEL: PENXC FILTER: CH. CLASS 60 PEAK DATA: 19.09 G @ 8.72 MS; -3.11 G @ 47.52 MS

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

RUN NUMBER: 040899.0848;1

572E SN168 NECK EXT CAL11

TRC TEST NUMBER: 168C11NE1



PEAK DATA: 41.96 ° @ 76.00 MS; -15.52 ° @ 199.20 MS

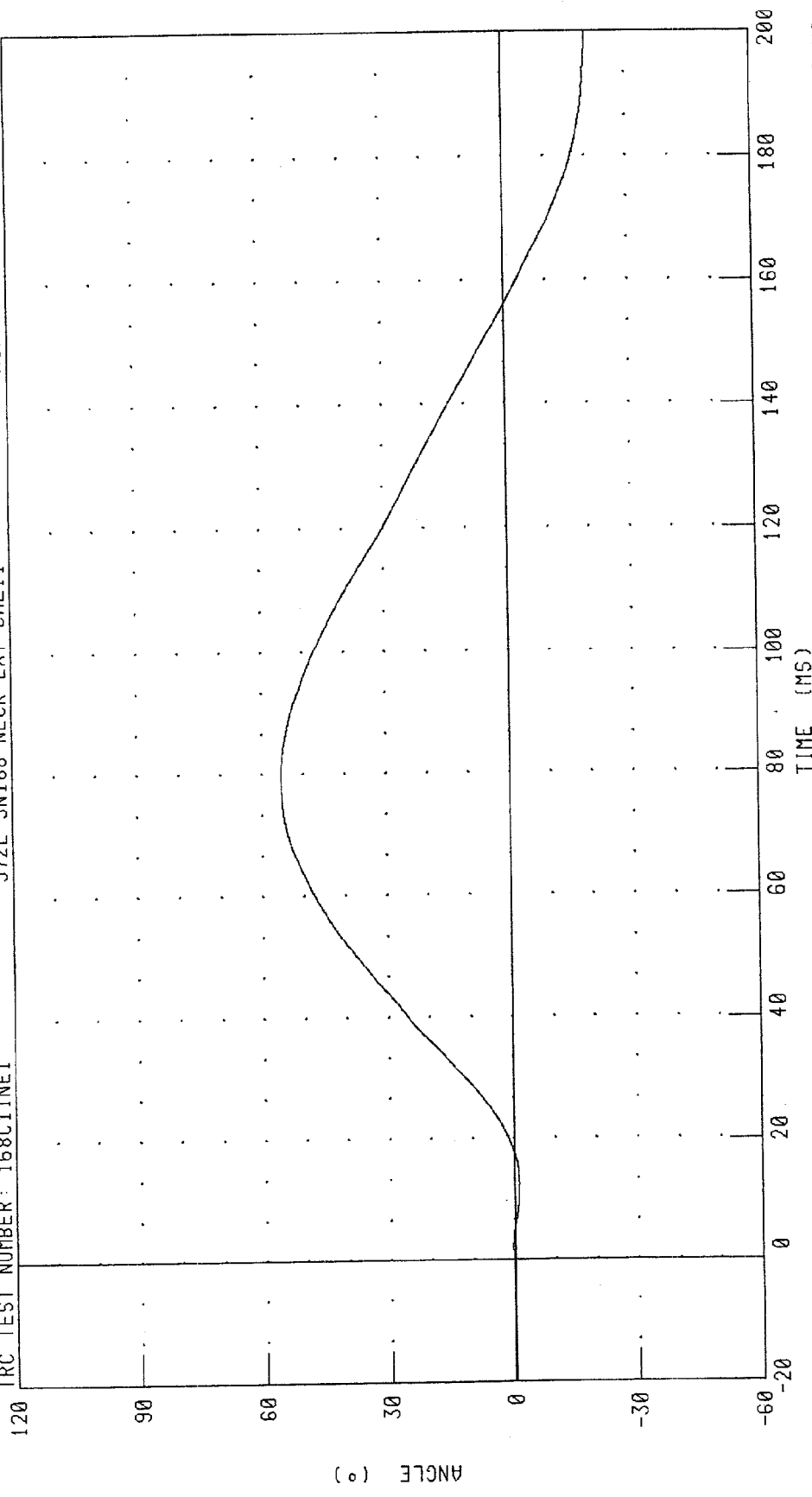
CHANNEL: BETA FILTER: CH. CLASS 60

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

TRC TEST NUMBER: 168C11NE1

572E SN168 NECK EXT CAL11

RUN NUMBER: 040899.0848;1



CHANNEL: THETA FILTER: CH. CLASS 60

PEAK DATA: 55.22 ° @ 79.44 MS; -20.40 ° @ 200.00 MS

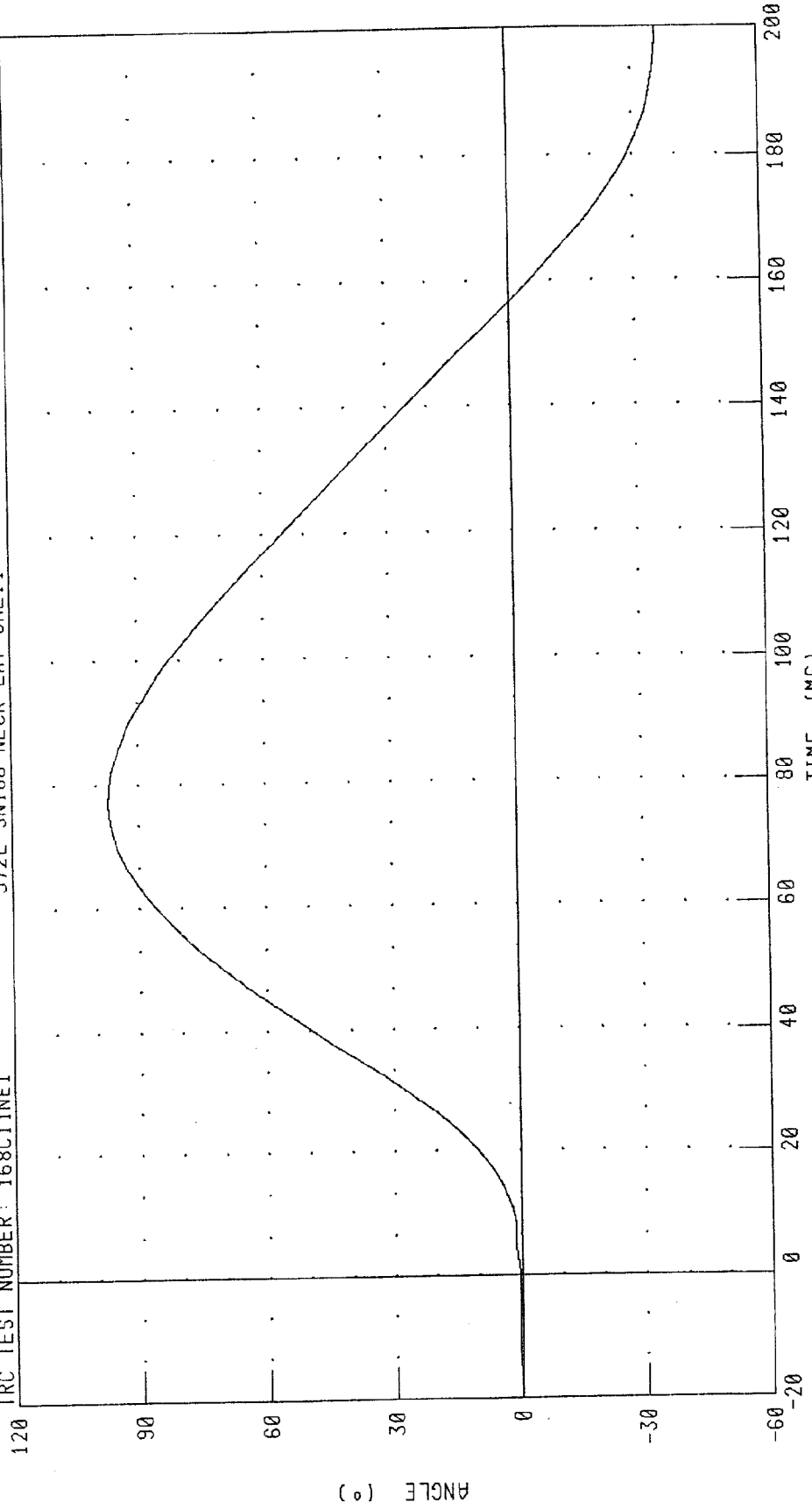
PART 572-E HYBRID III NECK EXTENSION CALIBRATION

TOTAL ROTATION

RUN NUMBER: 042899.0848;1

572E SN168 NECK EXT CAL11

TRC TEST NUMBER: 168C11NE1



PEAK DATA: 97.10 ° @ 77.04 MS; -35.92 ° @ 199.84 MS

CHANNEL: TOTAN FILTER: CH. CLASS 60

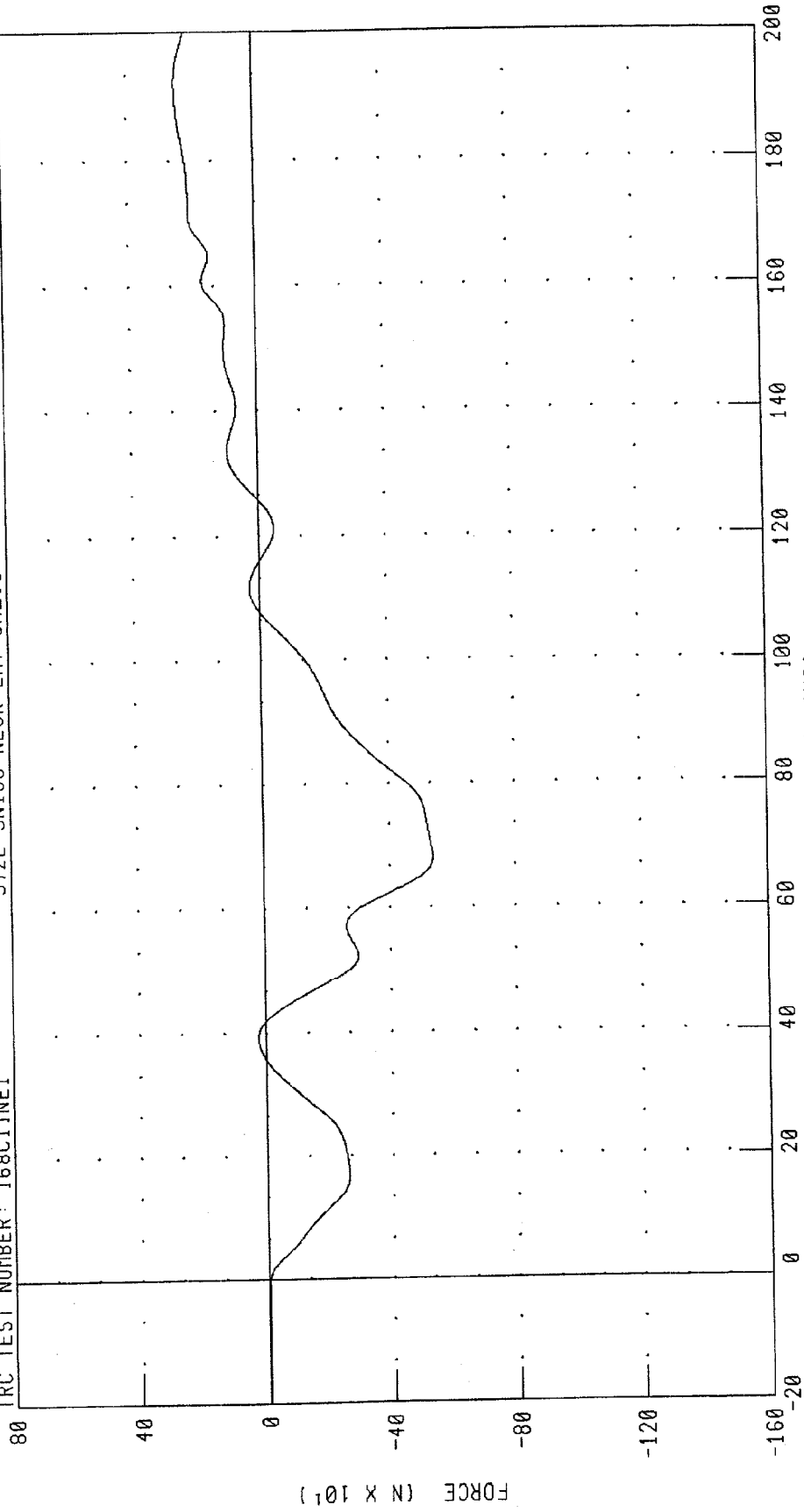
PART 572-E HYBRID III NECK EXTENSION CALIBRATION

NECK FORCE X AXIS

RUN NUMBER: 040899.0848;1

572E SNI68 NECK EXT CAL11

TRC TEST NUMBER: 168C11NE1



PEAK DATA: 247.31 N @ 192.24 MS; -539.87 N @ 68.08 MS

CHANNEL: NEKXF FILTER: CH. CLASS 60

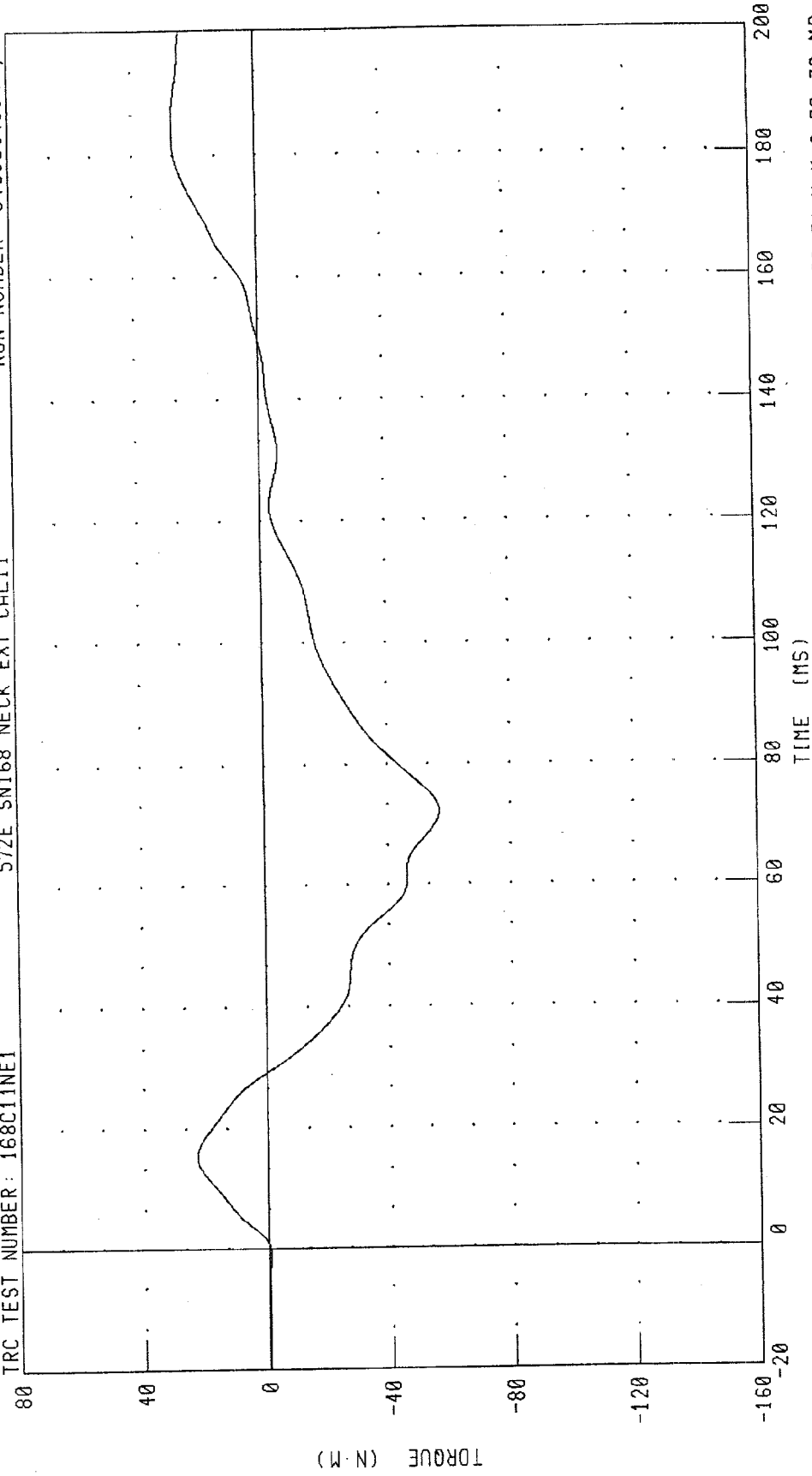
PART 572-E HYBRID III NECK EXTENSION CALIBRATION

NECK MOMENT Y AXIS

RUN NUMBER: 040899.0848,1

572E SN168 NECK EXT CAL11

TRC TEST NUMBER: 168C11NE1

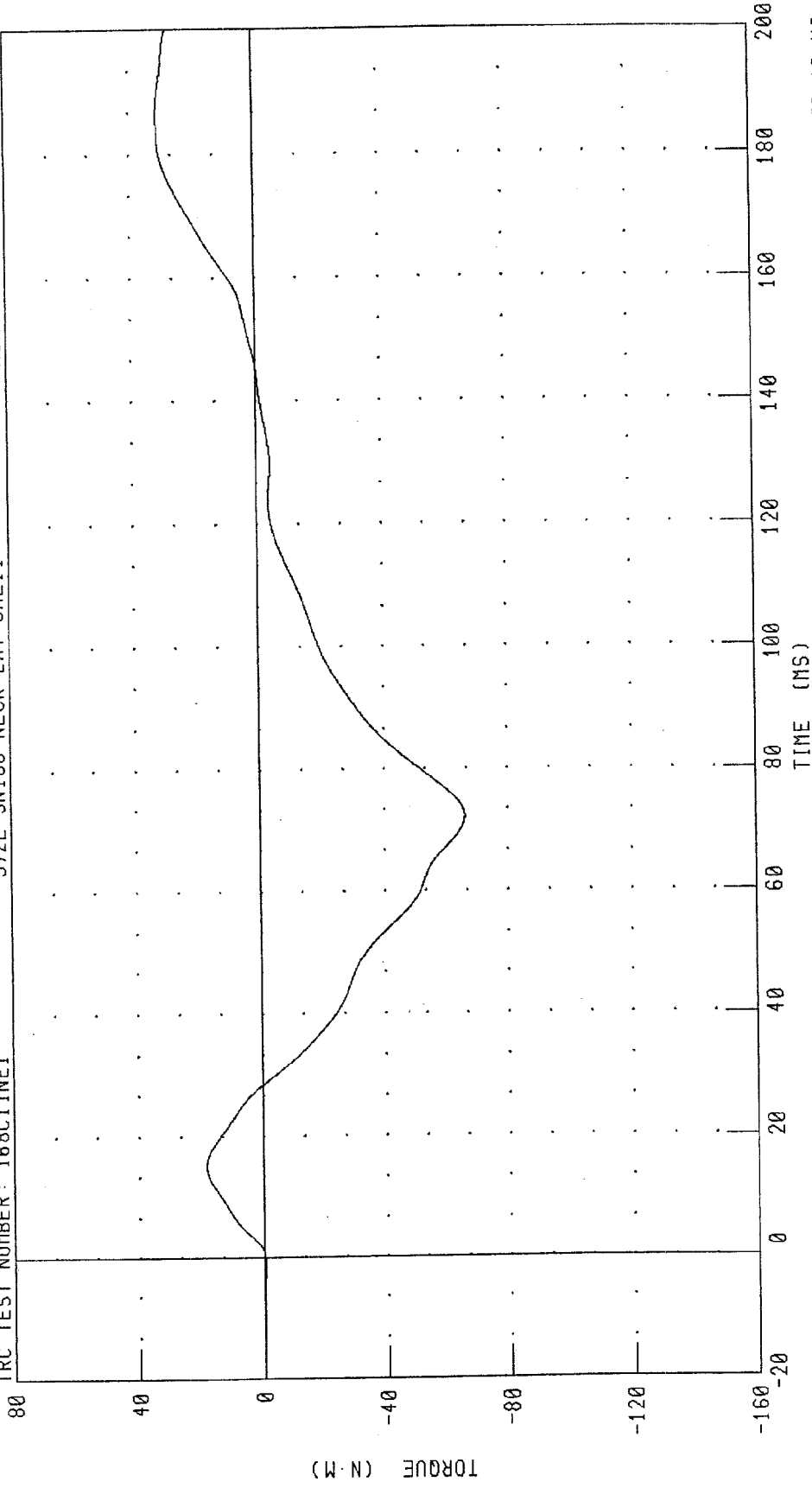


PEAK DATA: 26.99 N·M @ 183.76 MS, -56.74 N·M @ 72.32 MS

CHANNEL: NEKYM FILTER: CH. CLASS 60

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

TRC TEST NUMBER: 168C11NE1
572E SN168 NECK EXT CAL11
RUN NUMBER: 040899.0848,1



CHANNEL: NEKOM FILTER: CH. CLASS 60
PEAK DATA: 31.18 N·M @ 186.16 MS; -66.09 N·M @ 72.16 MS

TRANSPORTATION RESEARCH CENTER INC.

THORAX IMPACT TEST

HYBRID III 50th

08-APR-99

TRC INC.

TEST NO: 168C11TH1

572E SN168 H.S.THORAX CAL11

TEST PARAMETER	HIGH SPEED TEST	TEST RESULTS
	SPECIFICATION	
TEMPERATURE	20.6-22.2 DEG. C	21.1 DEG. C
RELATIVE HUMIDITY	10 - 70 %	22.0 %
PENDULUM VELOCITY	6.59 - 6.83 M/S	6.59 M/S
MAXIMUM DEFLECTION	63.5 - 72.6 MM	68.1 MM
MAXIMUM RESISTIVE FORCE	5159 - 5894 N	5736. N
INTERNAL HYSTERESIS	69% - 85%	69.8%

TEST MEETS SPECIFICATIONS

TECHNICIAN

John K. Clawges

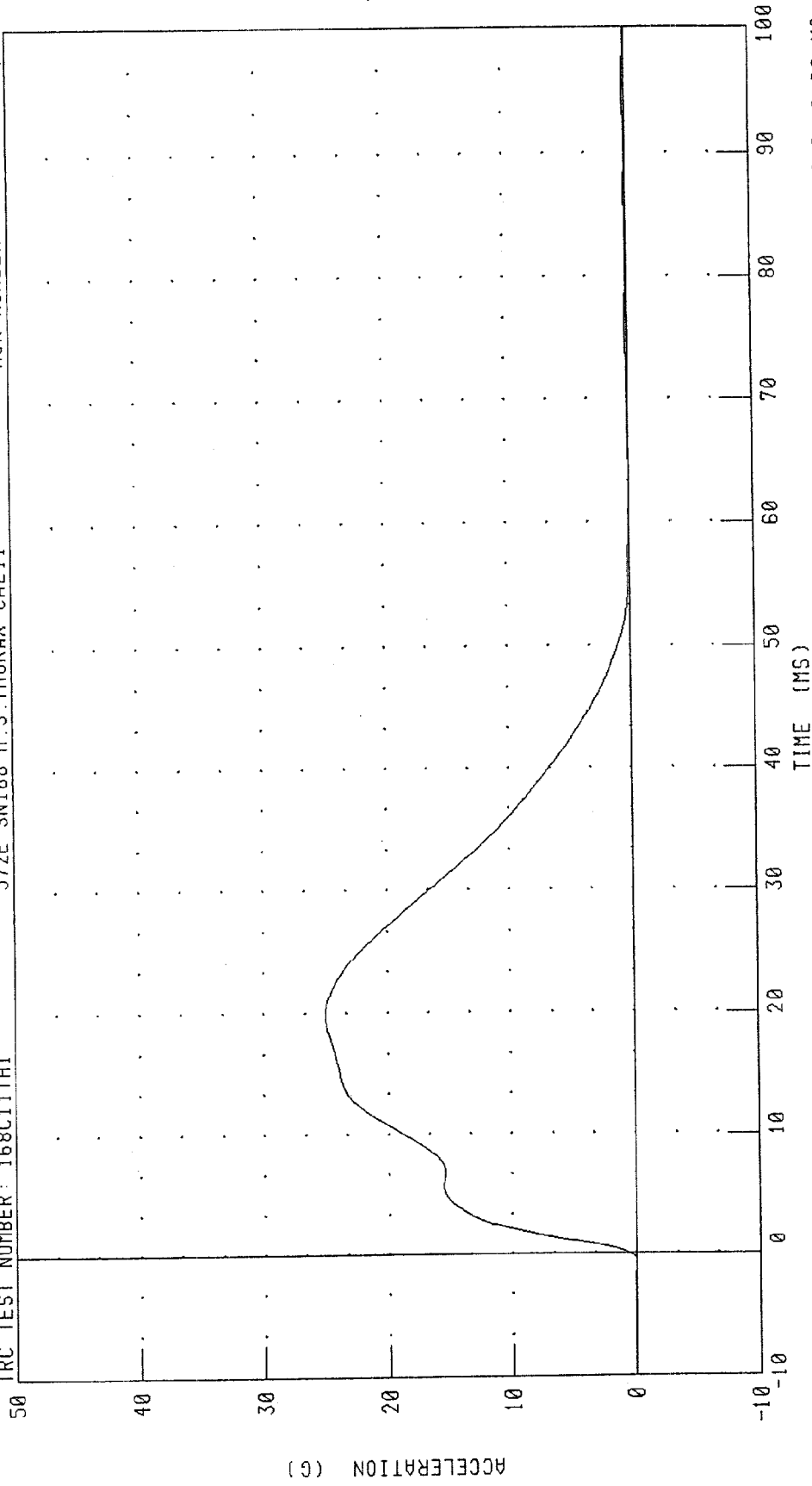
RUN NUMBER: 040899.1103;6

PART 572-E HYBRID III THORAX CALIBRATION
PENDULUM DECELERATION

TRC TEST NUMBER: 168C11TH1

572E SN168 H.S.THORAX CAL11

RUN NUMBER: 040899.1104;6



CHANNEL: PENXC FILTER: CH. CLASS 180

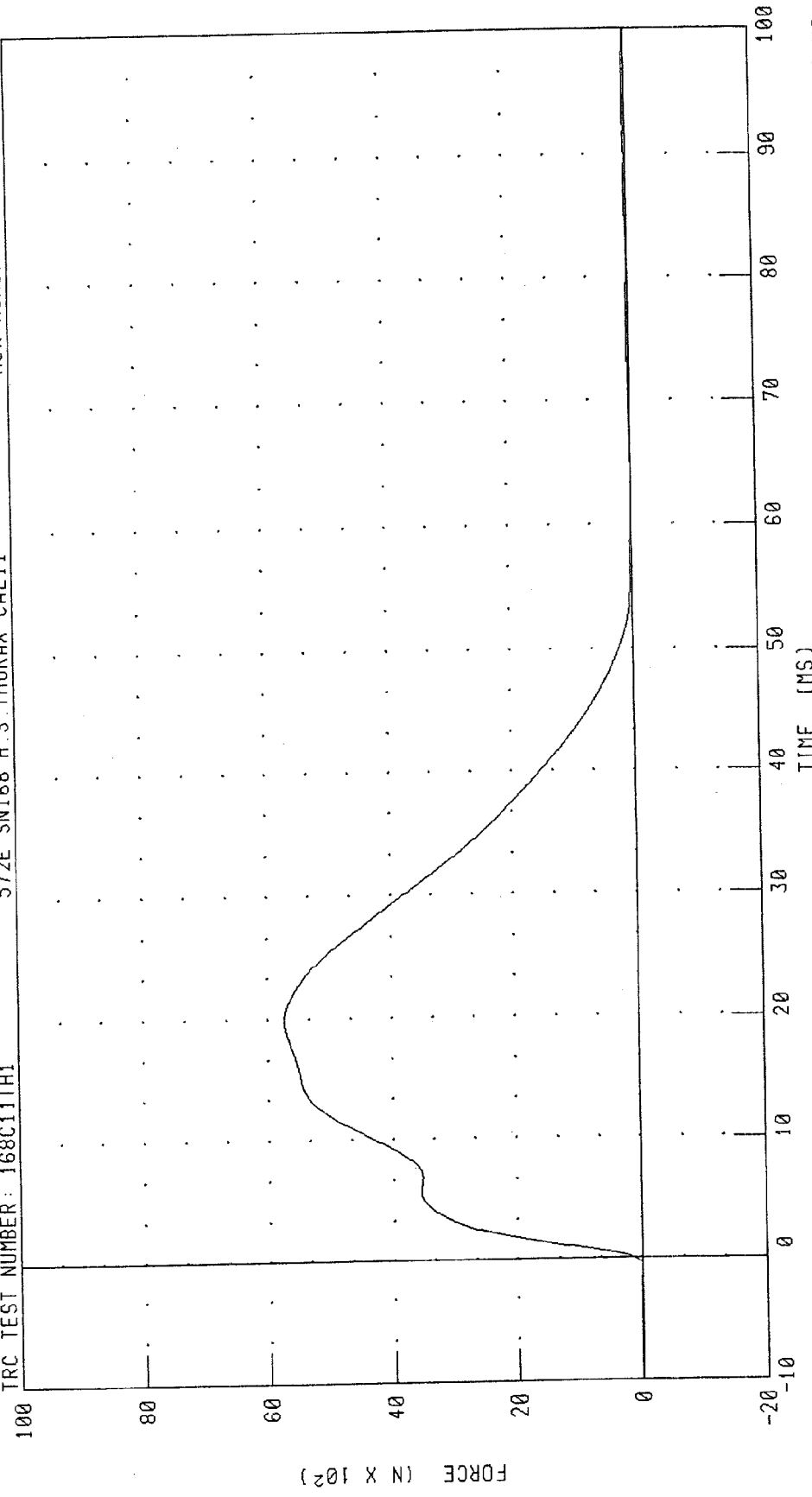
PEAK DATA: 25.04 G @ 19.92 MS; -0.05 G @ -0.80 MS

PART 572-E HYBRID III THORAX CALIBRATION
PENDULUM FORCE

TRC TEST NUMBER: 168C11TH1

572E SN168 H.S. THORAX CAL11

RUN NUMBER: 040899.1104.6



CHANNEL: PENXF FILTER: CH. CLASS 180

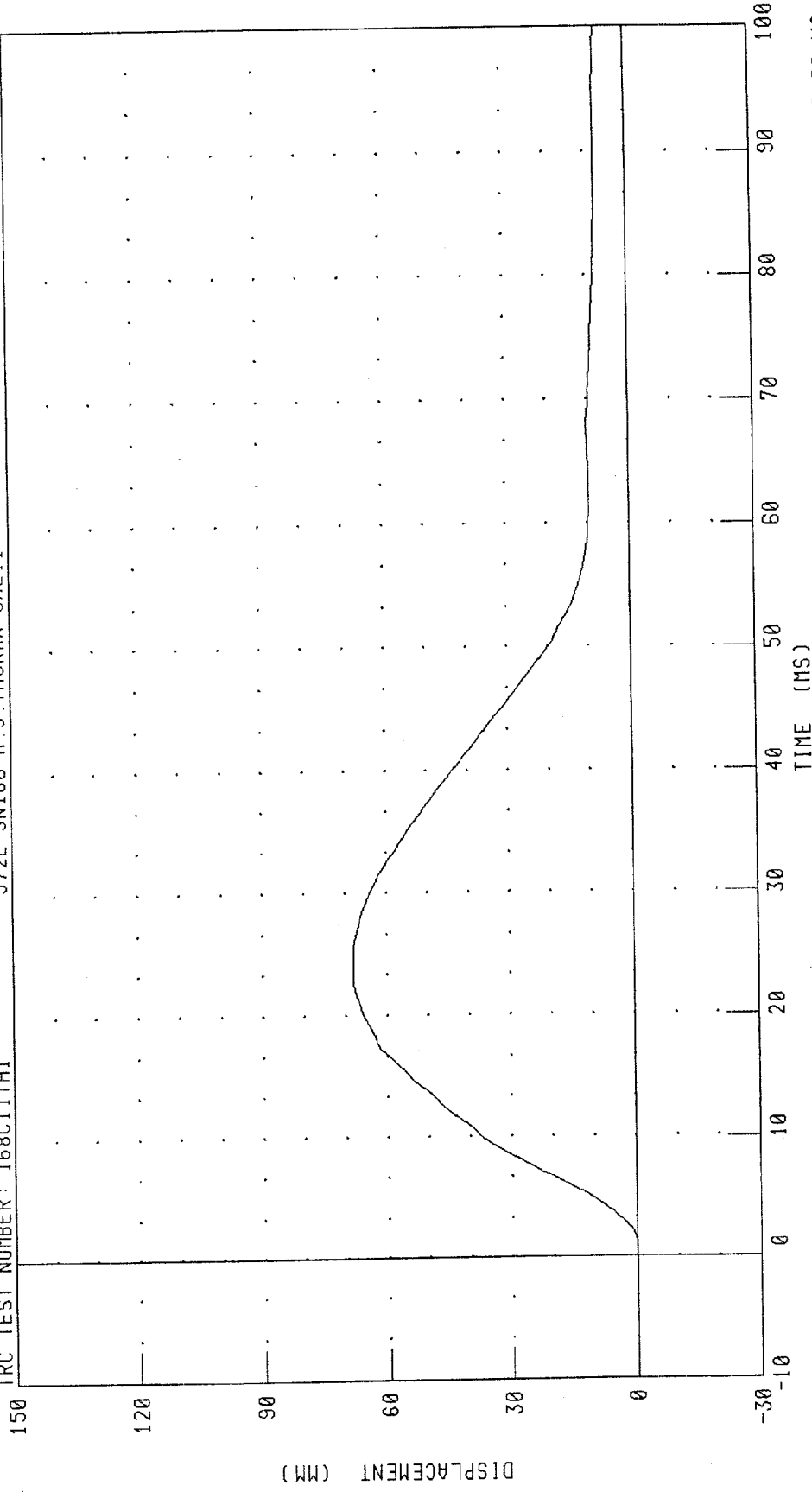
PEAK DATA: 5736.15 N @ 19.92 MS; -11.20 N @ -0.80 MS

PART 572-E HYBRID III THORAX CALIBRATION
STERNUM DISPLACEMENT

RUN NUMBER: 040899.1104,6

572E SNI68 H.S. THORAX CAL11

TRC TEST NUMBER: 168C11TH1



PEAK DATA: 68.14 MM @ 23.28 MS; -0.05 MM @ 0.80 MS

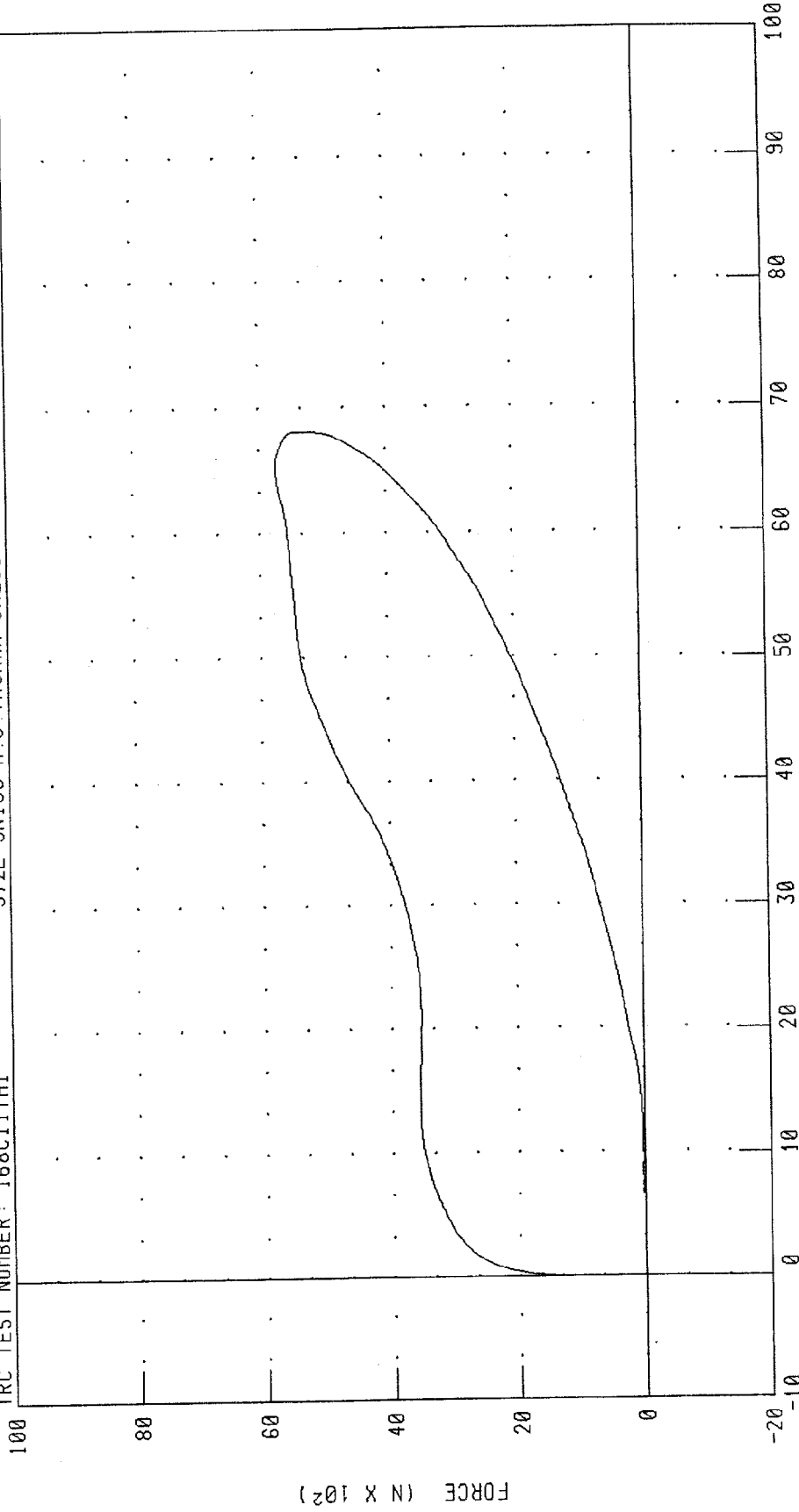
CHANNEL: CSTXD FILTER: CH. CLASS 180

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

RUN NUMBER: 040899.1104;6

572E SN168 H.S. THORAX CAL11

TRC TEST NUMBER: 168C11TH1



PEAK DATA: 68.14 MM @ 23.28 MS; -0.05 MM @ 0.80 MS
5736.15 N @ 19.92 MS; -11.20 N @ -0.80 MS

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

TRANSPORTATION RESEARCH CENTER INC.

RIGHT HIP JOINT FEMUR FLEXION TEST

HYBRID III PART 572E

07-APR-99

TRC INC.

TEST NO: 168C11HR1

572E SN 168 HIPFLEX CAL 11

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	18.9-25.6 DEG. C	21.1 DEG. C
RELATIVE HUMIDITY	10 - 70 %	22.0 %
ROTATION RATE	5 - 10 deg/sec	YES
TORQUE @ 30 deg ROTATION	<= 94.9 Nm	64.8 Nm
ROTATION @ 203.4 Nm TORQUE	40 - 50 deg.	47.1 deg.

TEST MEETS SPECIFICATIONS

TECHNICIAN

John K. Claidy

RUN NUMBER: 040799.1549;1

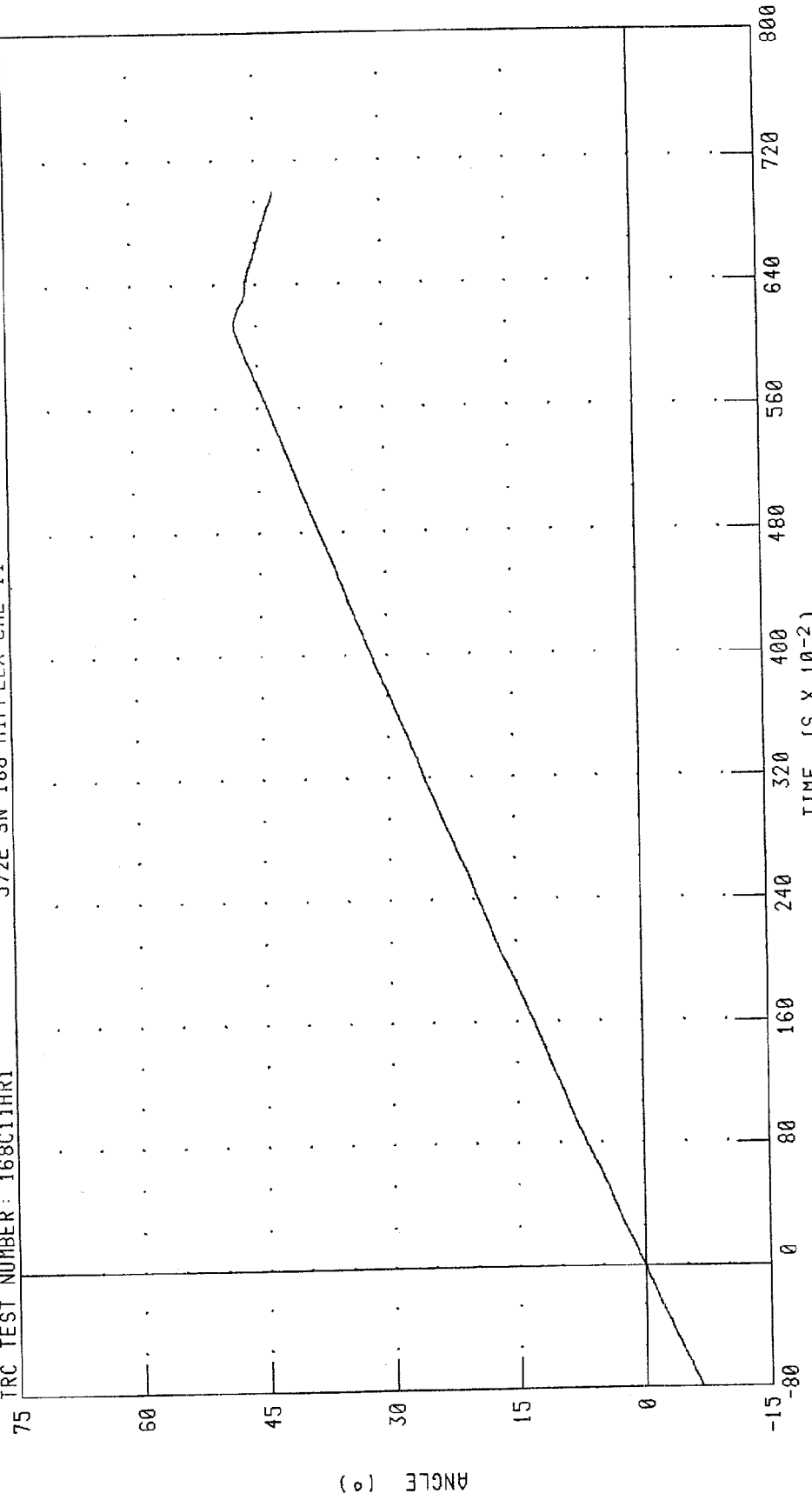
HYBRID III HIP FLEXION VERIFICATION - 0 DEGREES

RIGHT HIP FLEXION ROTATION

572E SN 168 HIPFLEX CAL 11

TRC TEST NUMBER: 168C11HR1

RUN NUMBER: 040799.1550,1



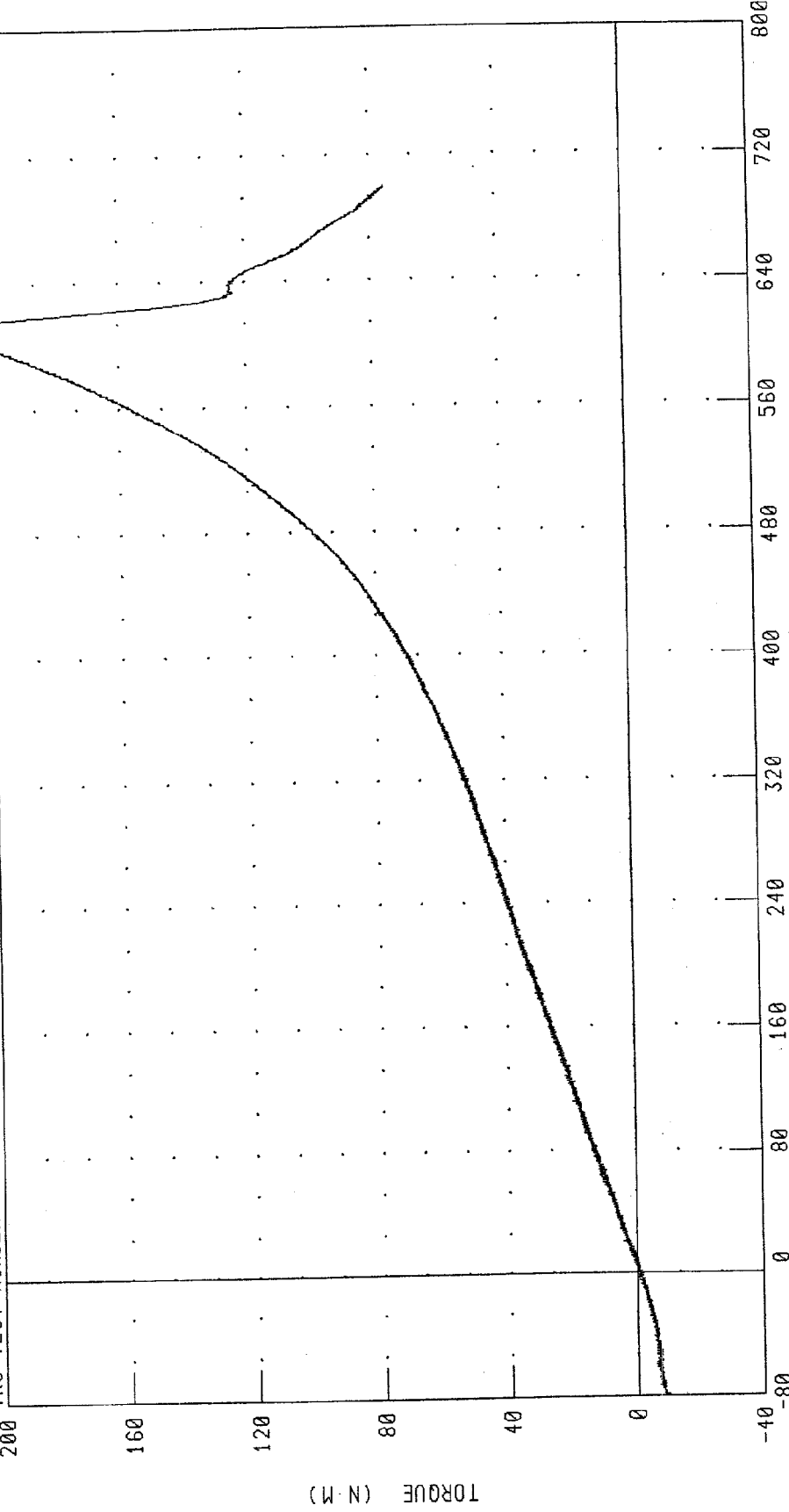
PEAK DATA: 47.73 ° @ 6.14 S; -9.78 ° @ -1.00 S

CHANNEL: RHPXD FILTER: CH. CLASS 60

HYBRID III HIP FLEXION VERIFICATION - 0 DEGREES
RIGHT HIP FLEXION MOMENT

TRC TEST NUMBER: 168C11HR1
572E SN 168 HIPFLEX CAL 11

RUN NUMBER: 040799.1550,1



PEAK DATA: 217.19 N·M @ 6.11 S; -13.36 N·M @ -1.00 S

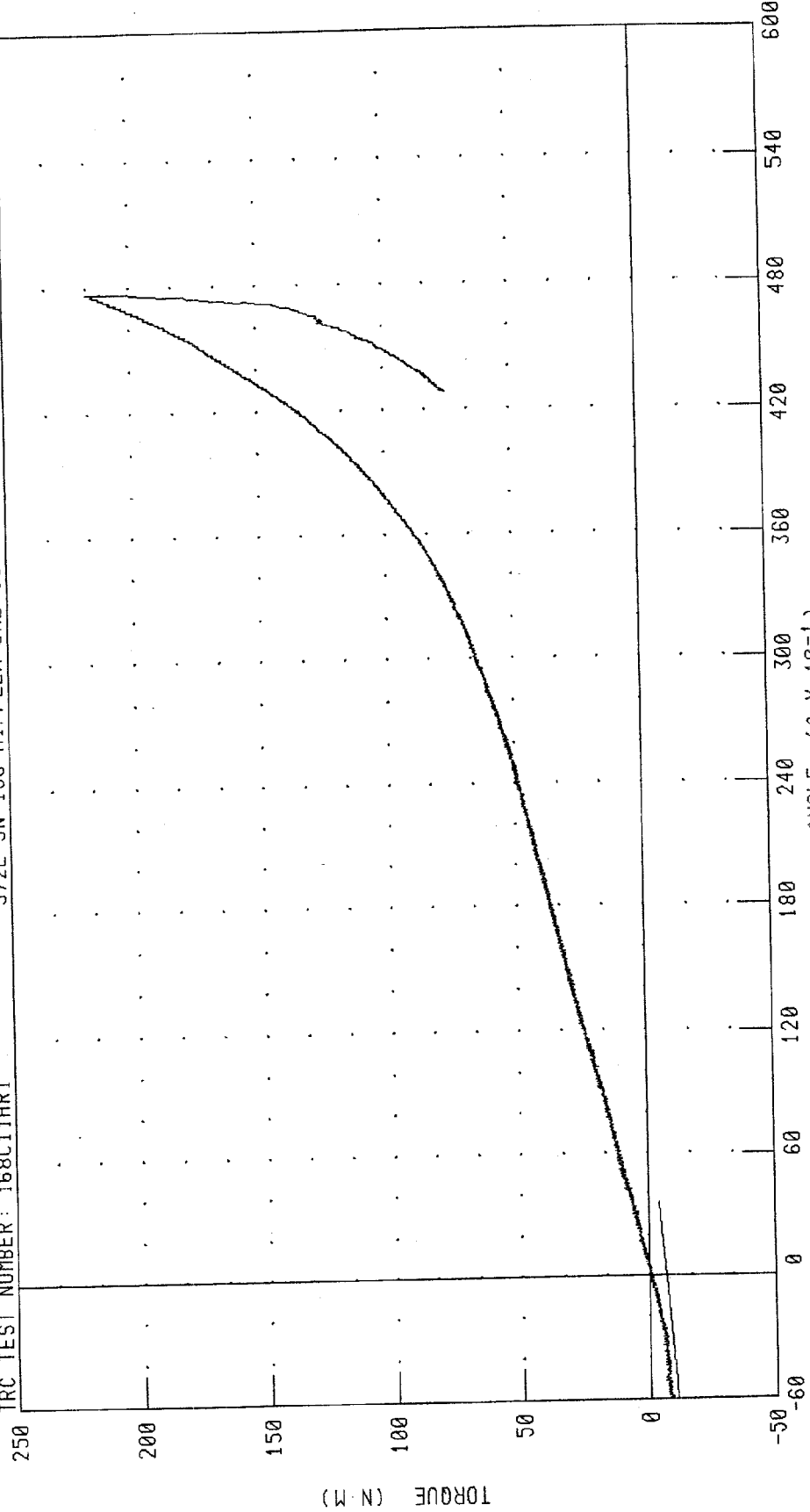
CHANNEL: RHPYM FILTER: CH. CLASS 60

HYBRID III HIP FLEXION VERIFICATION - 0 DEGREES
RIGHT HIP FLEXION MOMENT VS ROTATION ANGLE

RUN NUMBER: 040799.1550;1

572E SN 168 HIPFLEX CAL 11

TRC TEST NUMBER: 168C11HR1



PEAK DATA: 47.73 ° @ 6.14 S; -9.78 ° @ -1.00 S
217.19 N·M @ 6.11 S; -13.36 N·M @ -1.00 S

CHANNEL: RHPXD
RHPYM
FILTER: CH. CLASS 60
CH. CLASS 60

TRANSPORTATION RESEARCH CENTER INC.

LEFT HIP JOINT FEMUR FLEXION TEST

HYBRID III PART 572E

07-APR-99

TRC INC.

TEST NO: 168C11HL1

572E SN 168 HIPFLEX CAL 11

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	18.9-25.6 DEG. C	21.1 DEG. C
RELATIVE HUMIDITY	10 - 70 %	22.0 %
ROTATION RATE	5 - 10 deg/sec	YES
TORQUE @ 30 deg ROTATION	<= 94.9 Nm	64.1 Nm
ROTATION @ 203.4 Nm TORQUE	40 - 50 deg.	45.2 deg.

TEST MEETS SPECIFICATIONS

TECHNICIAN

John K. Clauide

RUN NUMBER: 040799.1551;1

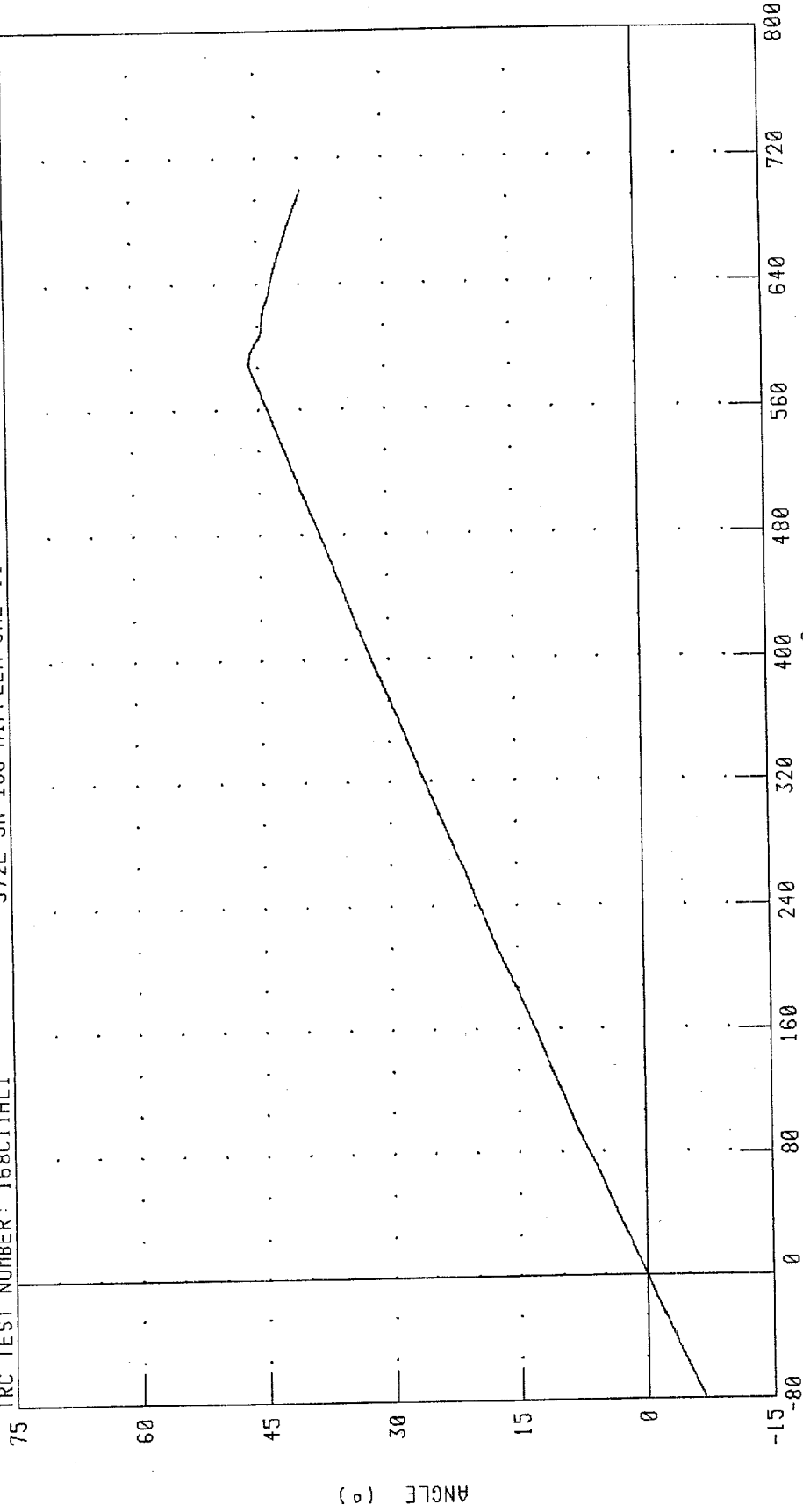
HYBRID III HIP FLEXION VERIFICATION - 0 DEGREES

LEFT HIP FLEXION ROTATION

572E SN 168 HIPFLEX CAL 11

RUN NUMBER: 040799.1551;1

TRC TEST NUMBER: 168C11HL1



PEAK DATA: 46.17 ° @ 5.89 S; -9.91 ° @ -1.00 S

CHANNEL: LHPXD FILTER: CH. CLASS 60

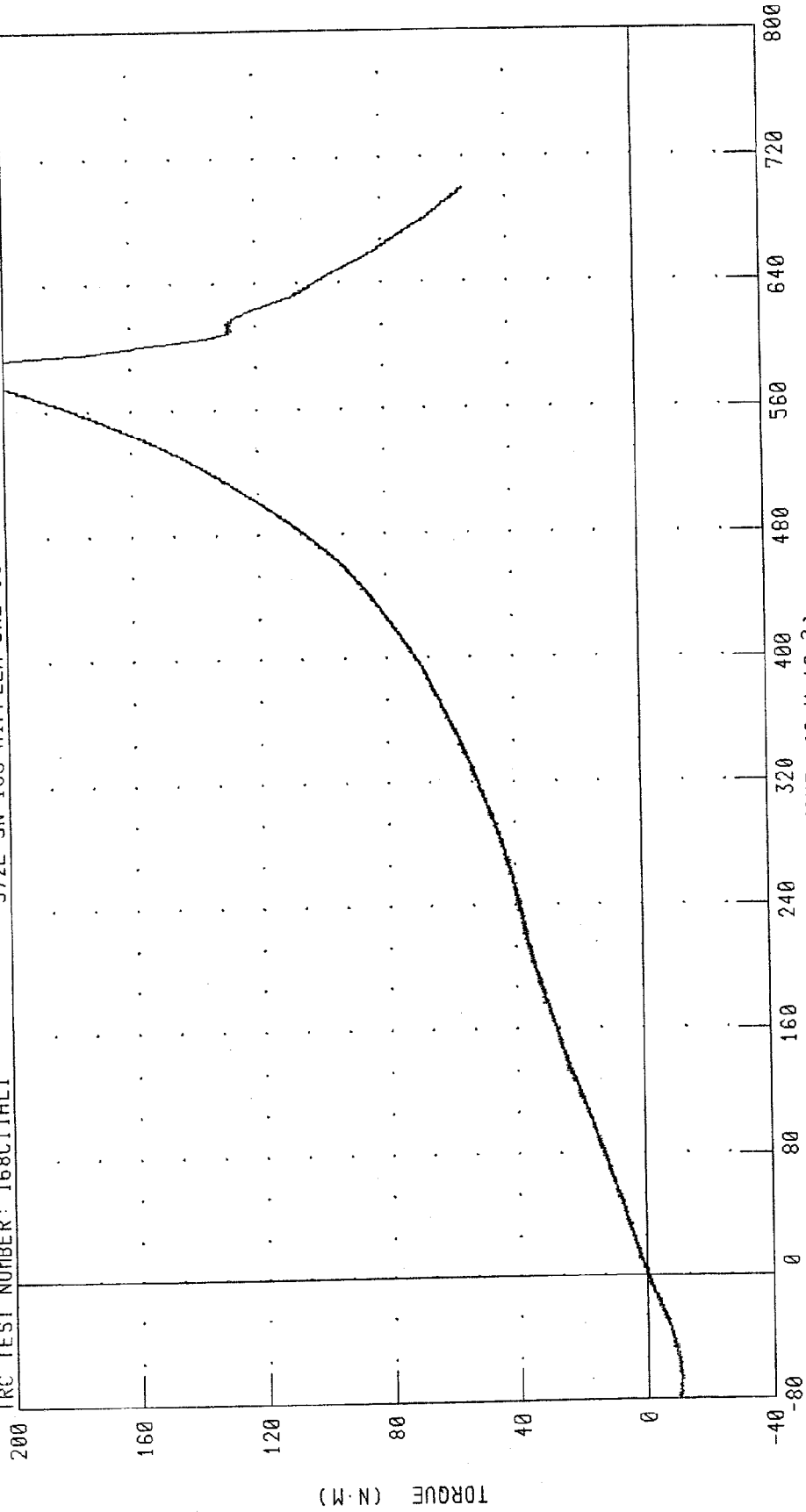
HYBRID III HIP FLEXION VERIFICATION - 0 DEGREES

LEFT HIP FLEXION MOMENT

572E SN 168 HIPFLEX CAL 11

TRC TEST NUMBER: 168C11HL1

RUN NUMBER: 040799.1551;1



TIME (S X 10⁻²)

PEAK DATA: 221.64 N·M @ 5.88 S; -11.43 N·M @ -1.00 S

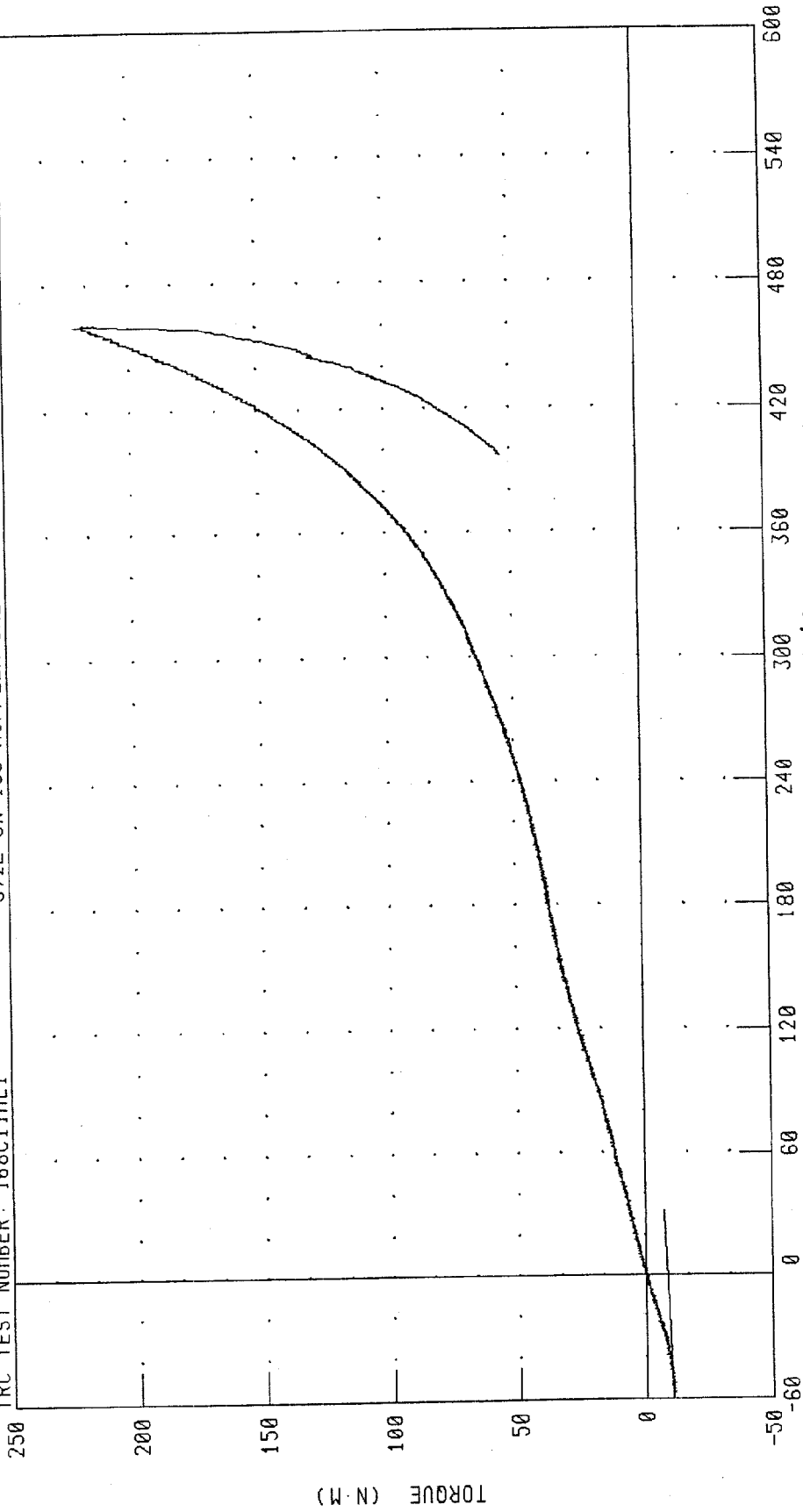
CHANNEL: LHPYM FILTER: CH. CLASS 60

HYBRID III HIP FLEXION VERIFICATION - 0 DEGREES
LEFT HIP FLEXION MOMENT VS ROTATION ANGLE

TRC TEST NUMBER: 168C11HL1

57ZE SN 168 HIPFLEX CAL 11

RUN NUMBER: 040799.1551;1



CHANNEL: LHPXD
LHPYM

FILTER: CH: CLASS 60
CH: CLASS 60

ANGLE (° X 10⁻¹)

PEAK DATA: 46.17 ° @ 5.89 S; -9.91 ° @ -1.00 S
221.64 N·M @ 5.88 S; -11.43 N·M @ -1.00 S

TRANSPORTATION RESEARCH CENTER INC.

RIGHT KNEE IMPACT TEST

HYBRID III 50th

07-APR-99

TRC INC.

TEST NO: 168C11RK1

572E SN168 RIGHT KNEE CAL 11

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	18.9-25.6 DEG. C	21.1 DEG. C
RELATIVE HUMIDITY	10 - 70 %	22.0 %
PROBE VELOCITY	2.07 - 2.13 M/S	2.13 M/S
PEAK KNEE IMPACT FORCE 5.0 KG PENDULUM	4715 - 5782 N	5563.9 N

TEST MEETS SPECIFICATIONS

TECHNICIAN

John K. Clauitz

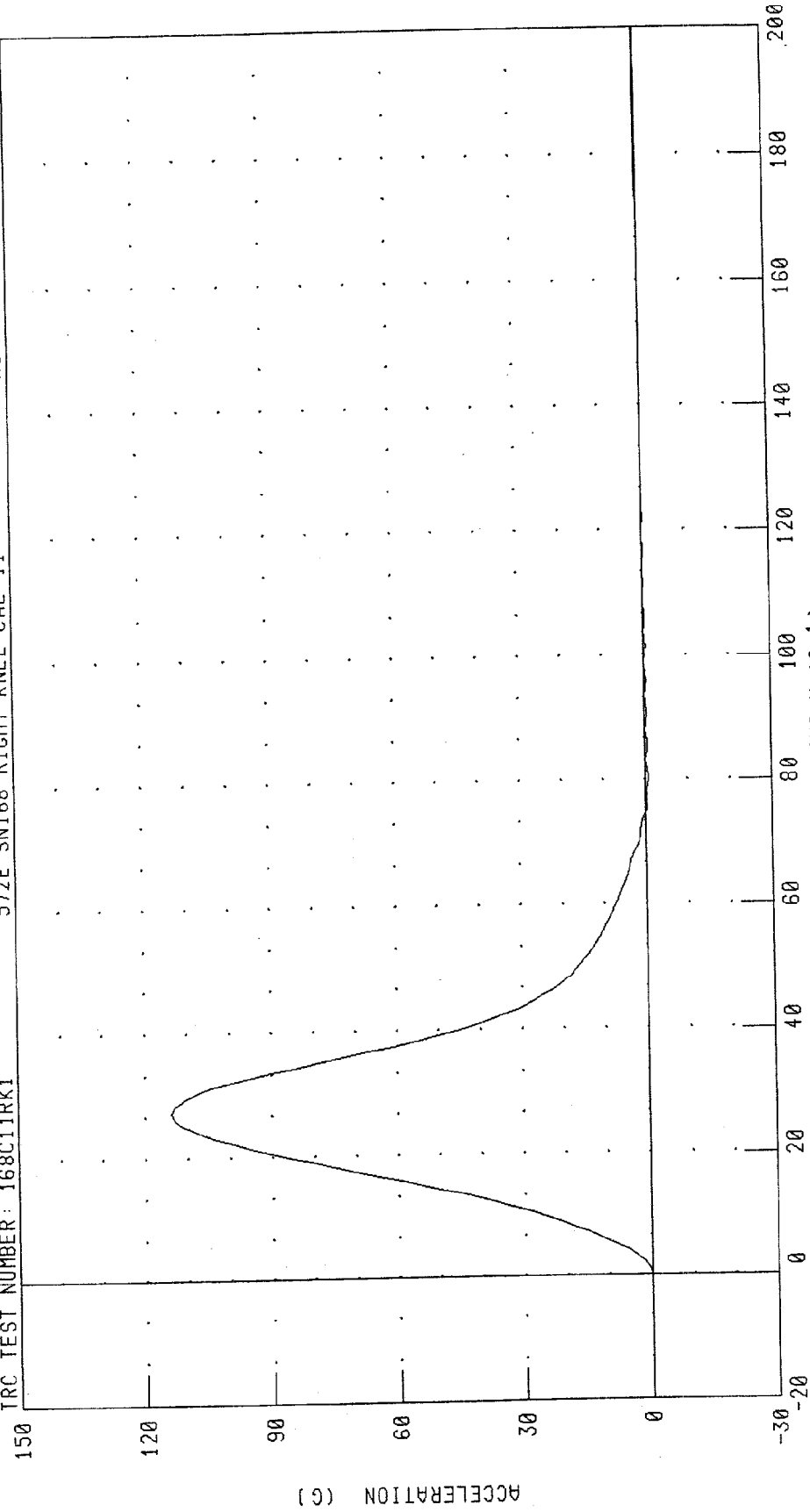
RUN NUMBER: 040799.1556;1

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

RUN NUMBER: 040799.1557;1

572E SN168 RIGHT KNEE CAL 11

TRC TEST NUMBER: 168C11RK1



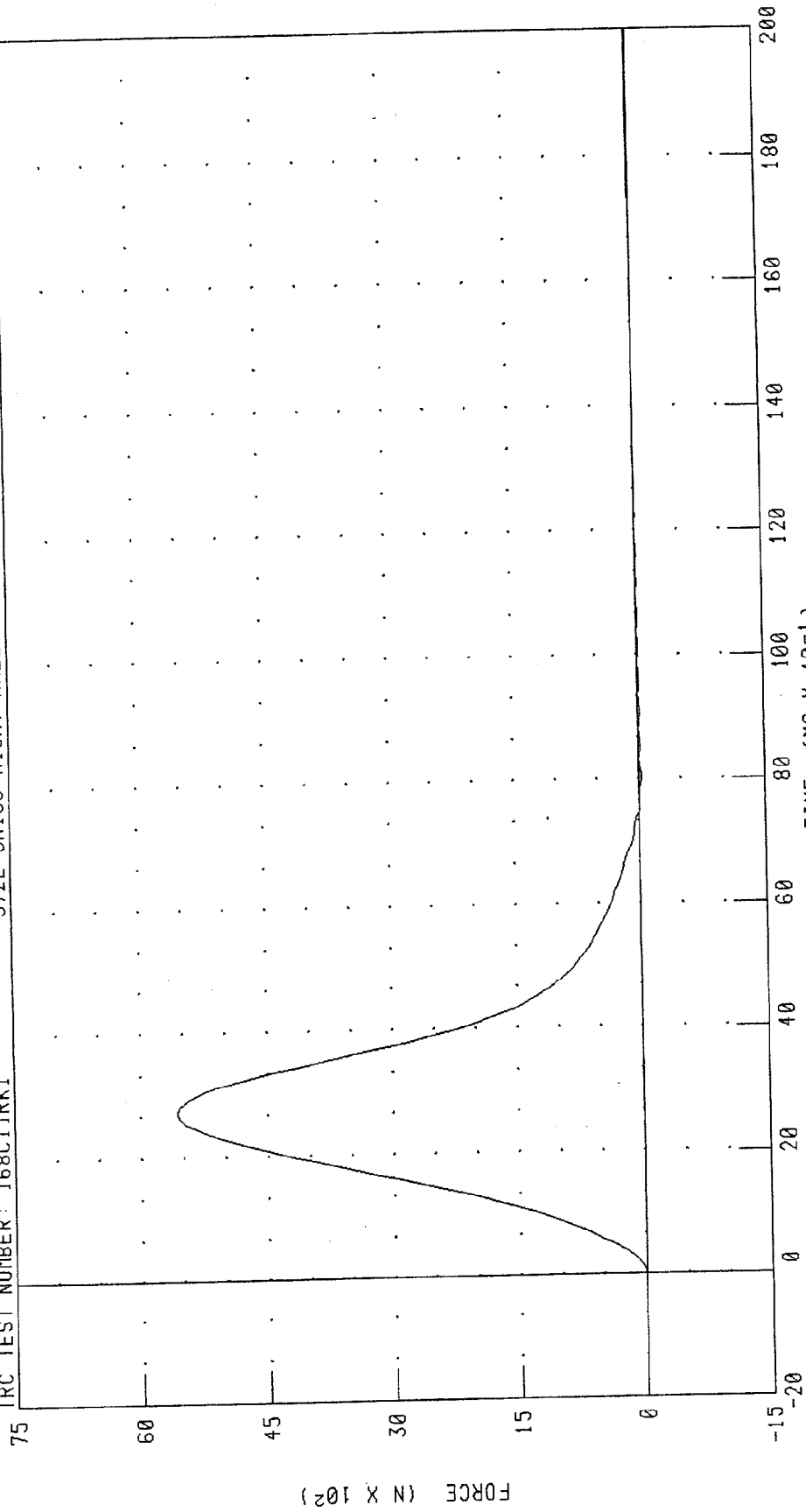
PEAK DATA: 113.72 G @ 2.72 MS; -0.78 G @ 8.00 MS

CHANNEL: PENXC FILTER: CH. CLASS 600

PART 572-E HYBRID III RIGHT KNEE CALIBRATION
PENDULUM FORCE (5 KG PEND.)
572E SN168 RIGHT KNEE CAL 11

RUN NUMBER: 040799.1557;1

TRC TEST NUMBER: 168C11RK1



PEAK DATA: 5563.97 N @ 2.72 MS; -38.18 N @ 8.00 MS

CHANNEL: PENXF FILTER: CH. CLASS 600

TRANSPORTATION RESEARCH CENTER INC.

LEFT KNEE IMPACT TEST

HYBRID III 50th

07-APR-99

TRC INC.

TEST NO: 168C11LK1

572E SN168 LEFT KNEE CAL 11

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	18.9-25.6 DEG. C	21.1 DEG. C
RELATIVE HUMIDITY	10 - 70 %	22.0 %
PROBE VELOCITY	2.07 - 2.13 M/S	2.12 M/S
PEAK KNEE IMPACT FORCE 5.0 KG PENDULUM	4715 - 5782 N	4974.4 N

TEST MEETS SPECIFICATIONS

TECHNICIAN

John K. Clancy

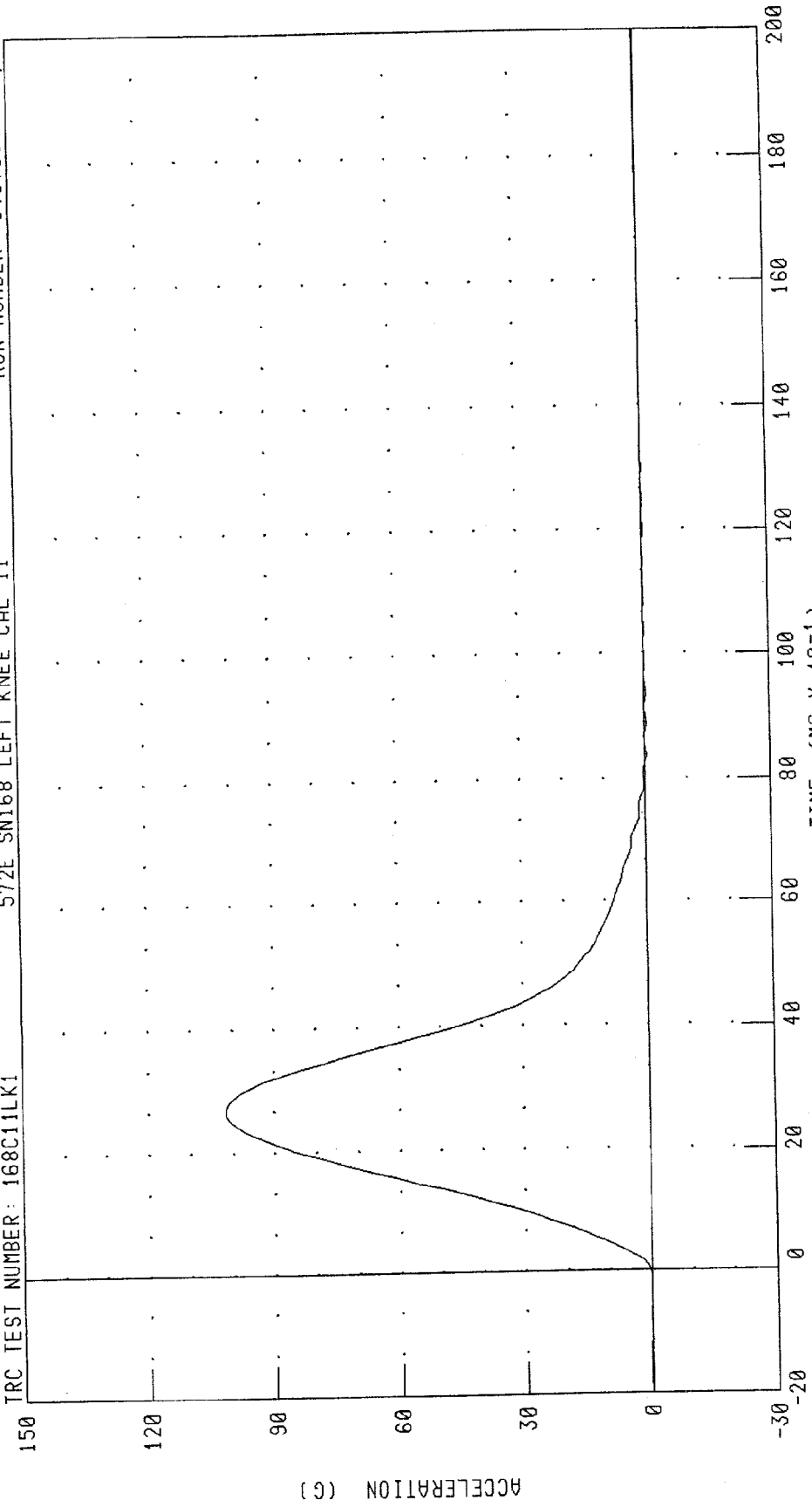
RUN NUMBER: 040799.1554;1

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

RUN NUMBER: 040799.1554;1

572E SN168 LEFT KNEE CAL 11

TRC TEST NUMBER: 168C11LK1



PEAK DATA: 101.67 G @ 2.64 MS; -0.61 G @ 8.88 MS

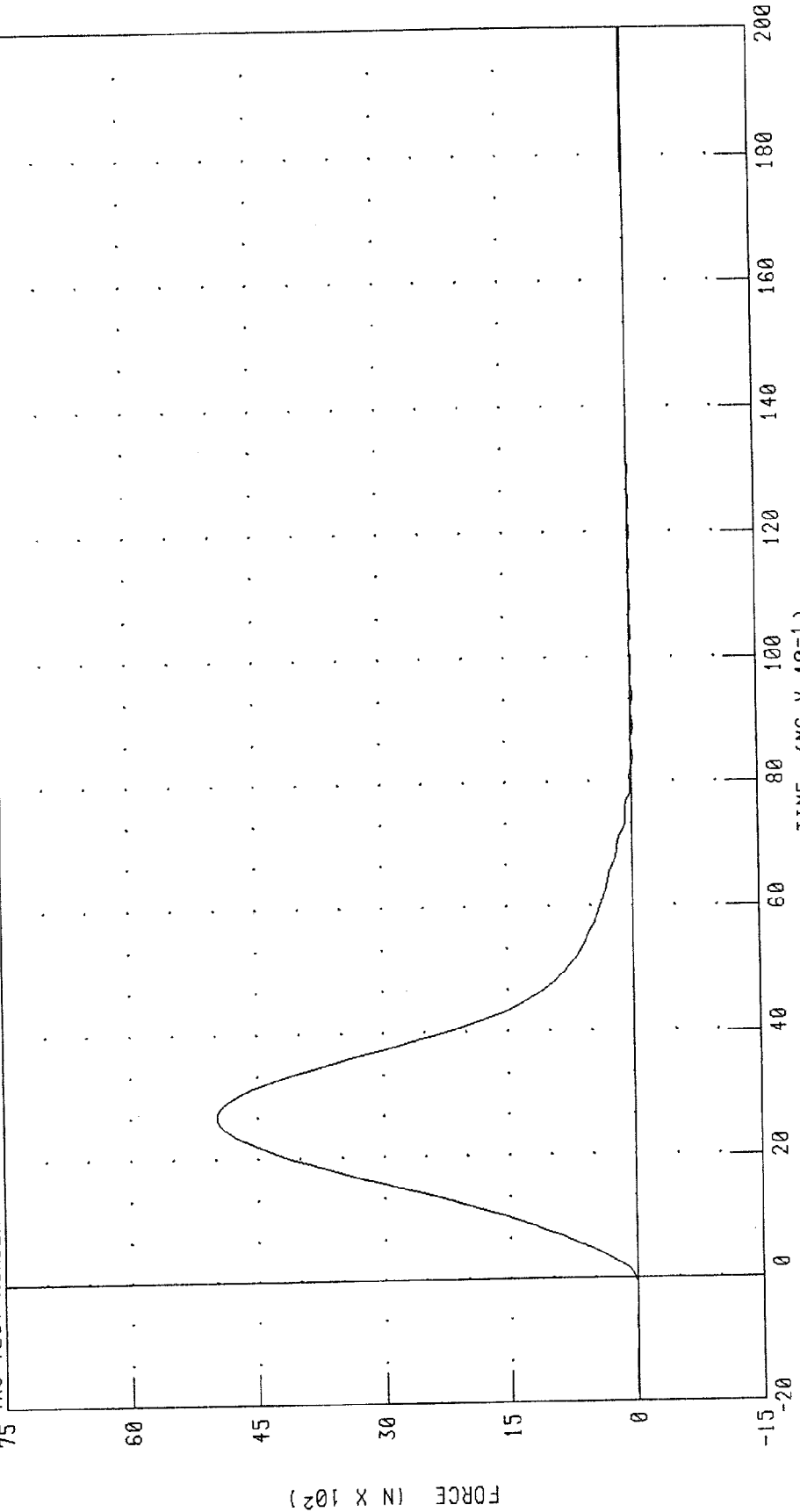
CHANNEL: PENXC FILTER: CH. CLASS 600

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

TRC TEST NUMBER: 168C11LK1

572E SN168 LEFT KNEE CAL 11

RUN NUMBER: 040799.1554,1



PEAK DATA: 4974.46 N @ 2.64 MS; -29.64 N @ 8.88 MS

CHANNEL: PENXF FILTER: CH. CLASS 600

Pre-Test Dummy Certification

Passenger Dummy S/N 169

TRANSPORTATION RESEARCH CENTER INC.

HEAD DROP TEST

HYBRID III 50th

14-APR-99

TRC INC.

TEST NO: 169C9HD1

572E SN169 HEAD DROP CAL 09

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	18.9-25.6 DEG. C	21.1 DEG. C
RELATIVE HUMIDITY	10 - 70 %	33.0 %
PEAK RESULTANT ACCELERATION	225 - 275 G	244.68 G
PEAK LATERAL ACCELERATION	15 G MAX	-5.48 G
IS ACCELERATION CURVE UNIMODAL?	YES	YES

TEST MEETS SPECIFICATIONS

TECHNICIAN *B. C. H.*

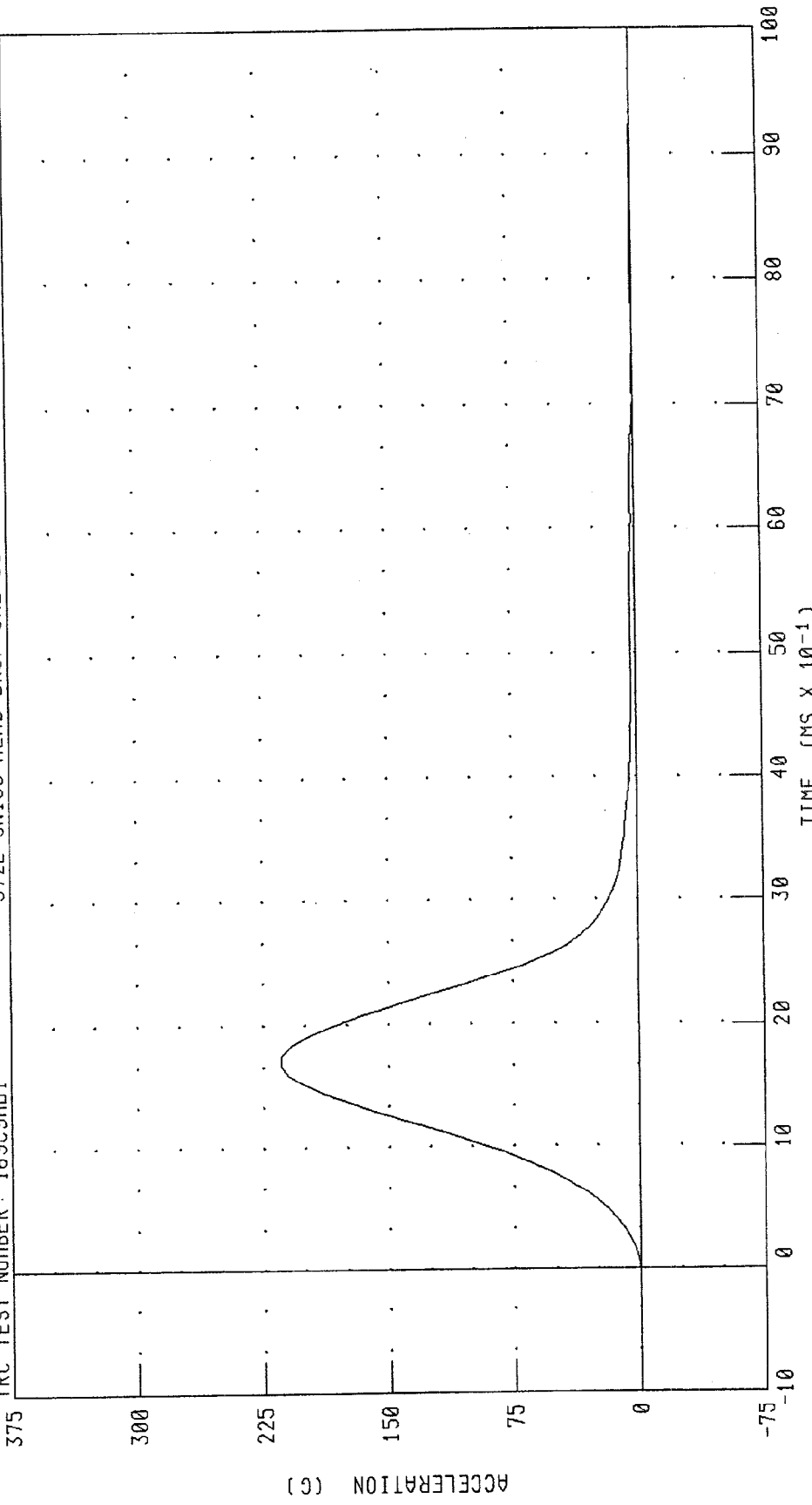
RUN NUMBER: 041499.0842;1

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

TRC TEST NUMBER: 169C9HD1

572E SN169 HEAD DROP CAL 09

RUN NUMBER: 041499.0843;1



CHANNEL: HEDXC FILTER: CH. CLASS 1000

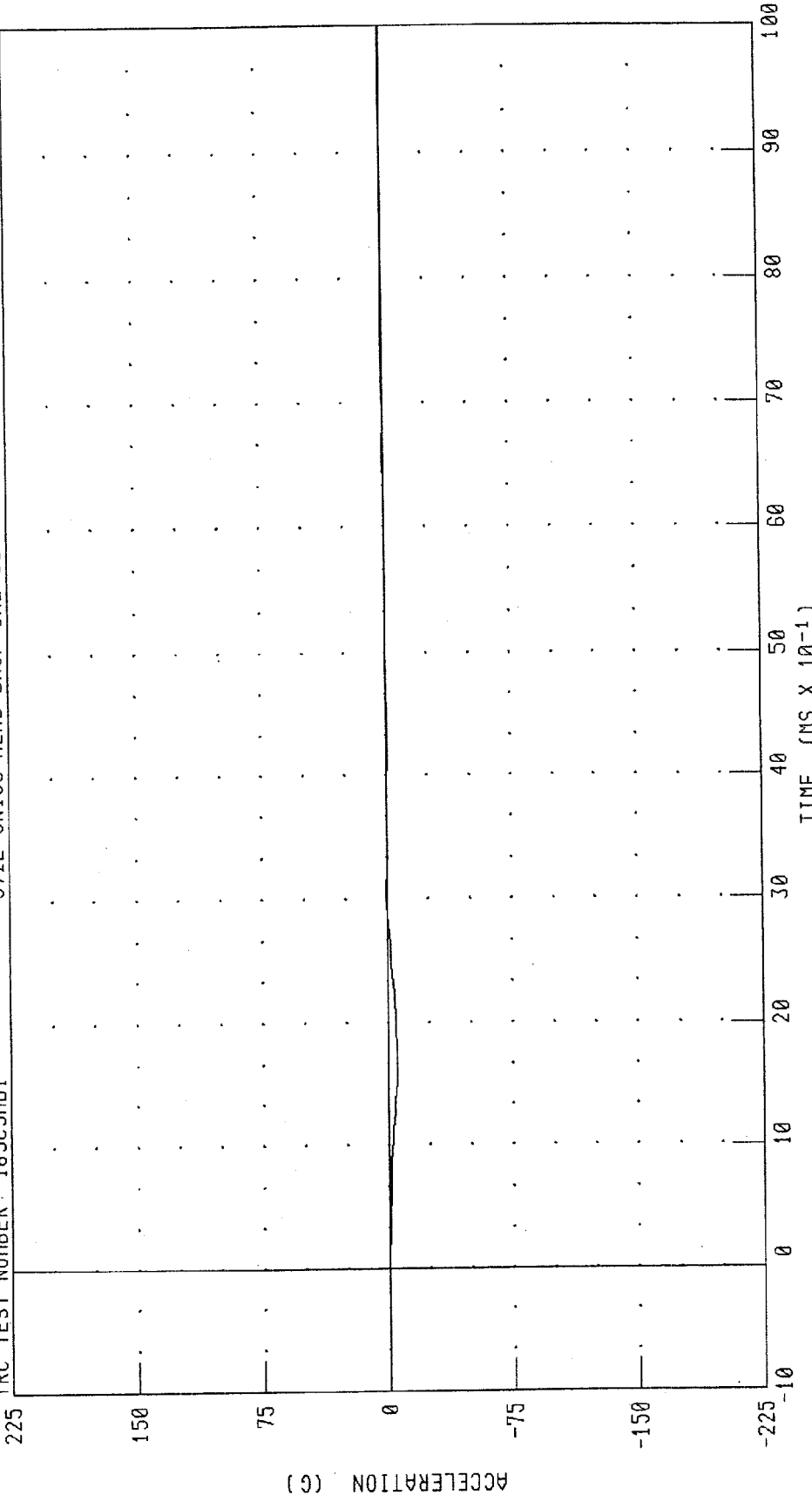
PEAK DATA: 214.75 G @ 1.68 MS; -0.41 G @ 9.84 MS

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

TRC TEST NUMBER: 169C9HD1

572E SN169 HEAD DROP CAL 09

RUN NUMBER: 041499.0843,1



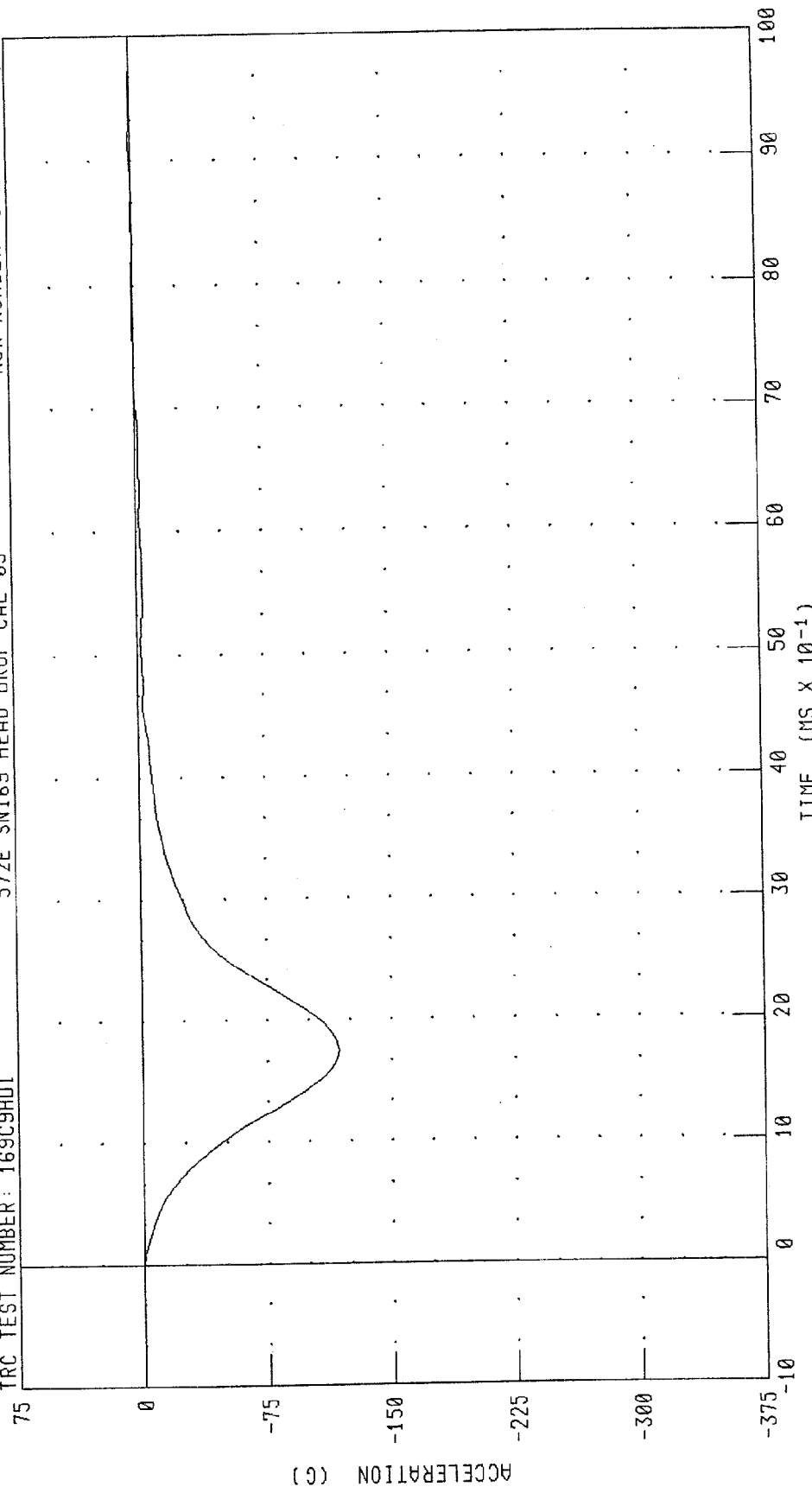
CHANNEL: HEDYC FILTER: CH. CLASS 1000
PEAK DATA: 0.59 C @ 8.64 MS, -5.48 C @ 1.60 MS
TIME (MS X 10⁻¹)

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

TRC TEST NUMBER: 169C9H01

572E SN169 HEAD DROP CAL 09

RUN NUMBER: 041499.0843,1

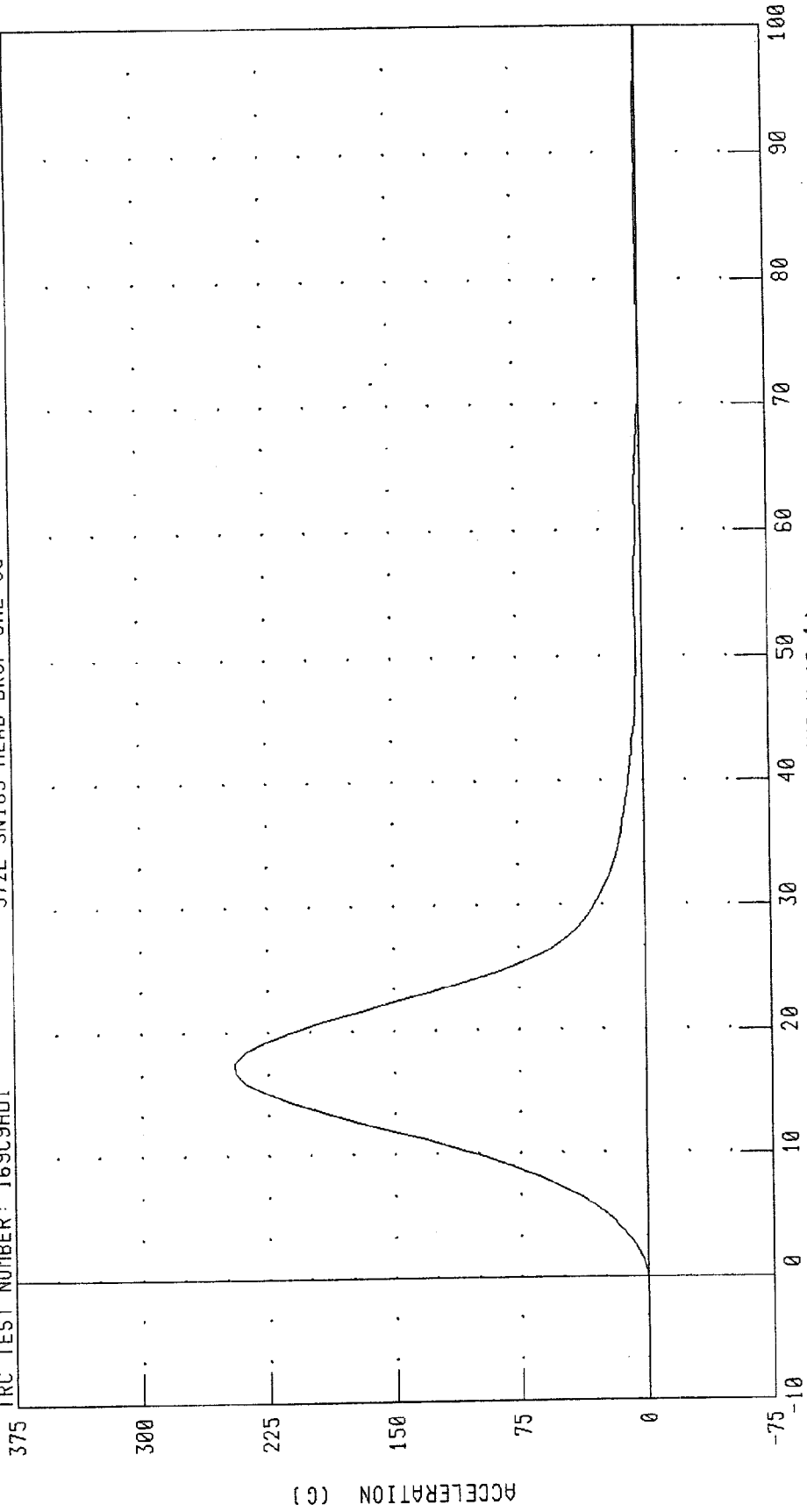


CHANNEL: HEDZG FILTER: CH. CLASS 1000
PEAK DATA: 1.18 G @ 9.12 MS; -118.21 G @ 1.76 MS

PART 572-E HYBRID III HEAD CALIBRATION
HEAD RESULTANT ACCELERATION
572E SN169 HEAD DROP CAL 09

RUN NUMBER: 041499.0843.1

TRC TEST NUMBER: 169C9HD1



PEAK DATA: 244.68 G @ 1.76 MS; 0.02 G @ -0.96 MS

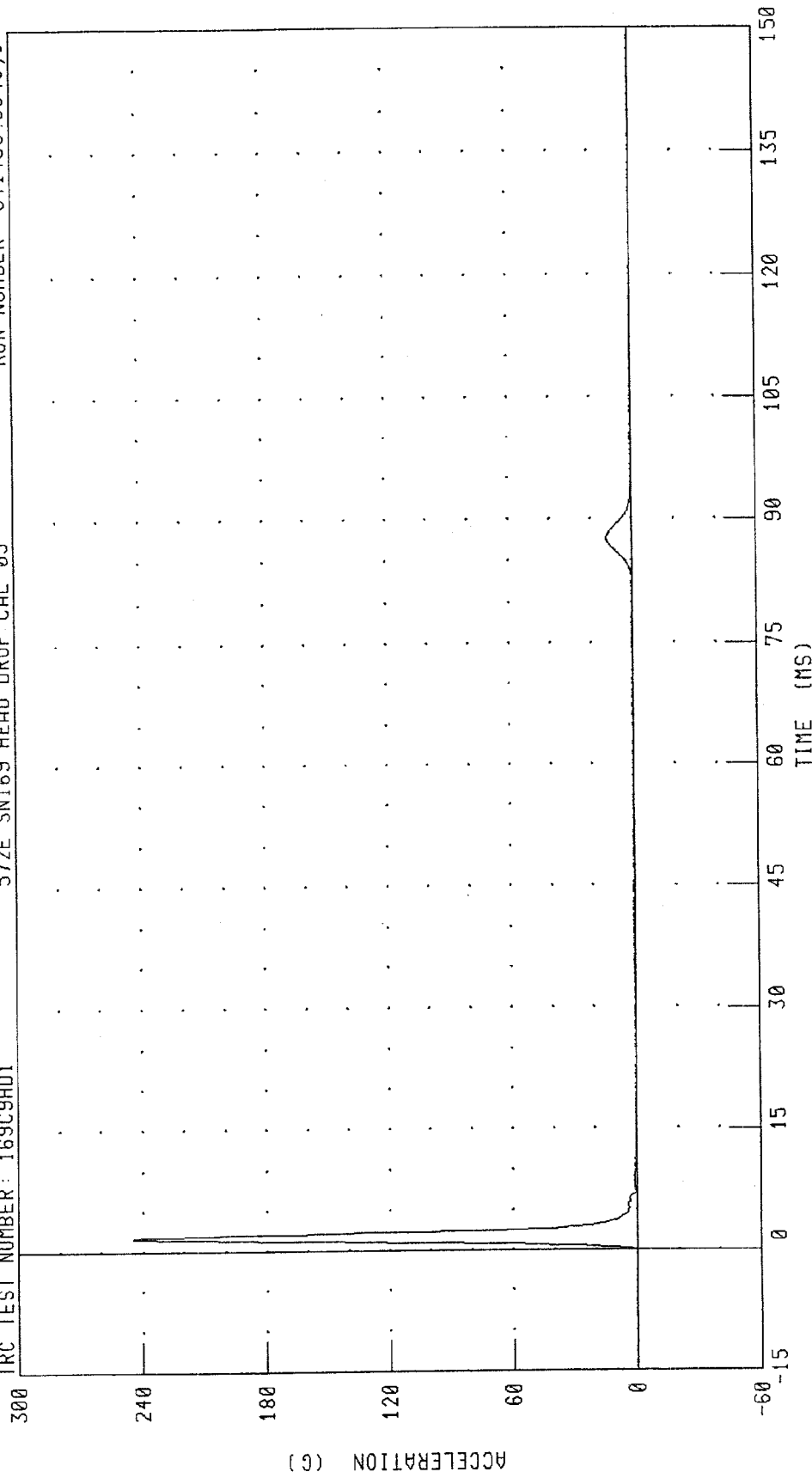
CHANNEL: HEDRG FILTER: CH. CLASS 1000

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

RUN NUMBER: 041499.0843,1

572E SN169 HEAD DROP CAL 09

TRC TEST NUMBER: 169C9HD1



PEAK DATA: 244.68 G @ 1.76 MS, 0.02 G @ -14.96 MS

CHANNEL: HEDRG FILTER: CH. CLASS 1000

TRANSPORTATION RESEARCH CENTER INC.

HYBRID III 50th

14-APR-99

NECK FLEXION TEST - 6 CHANNEL TRANSDUCER

TRC INC. TEST NO: 169C9NF1 572E SN169 NECK FLEXION CAL9

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	20.6-22.2 DEG. C	21.1 DEG. C
RELATIVE HUMIDITY	10 - 70 %	33.0 %
IMPACT VELOCITY	6.89 - 7.13 M/S	6.99 M/S
PENDULUM DECELERATION	10 MS 22.50 - 27.50 G	23.51 G
	20 MS 17.60 - 22.60 G	21.79 G
	30 MS 12.50 - 18.50 G	18.10 G
MAX PENDULUM G	29 G MAX	24.63 G
MAX PENDULUM G ABOVE 30 MS	29 G MAX	18.07 G
DECELERATION-TIME CURVE DECAY TIME TO 5 G	34 - 42 MS	37.28 MS
D PLANE	MAX 64 - 78 DEG.	70.20 DEG.
ROTATION	TIME 57 - 64 MS	60.56 MS
MOMENT ABOUT OCCIPITAL CONDYLE	MAX 88.2 - 108.5 NM	94.94 NM
	TIME 47 - 58 MS	49.92 MS
ROTATION ANGLE-TIME CURVE DECAY TIME TO ZERO	113 - 128 MS	116.56 MS
POSITIVE MOMENT-TIME CURVE DECAY TIME TO ZERO	97 - 107 MS	104.00 MS

TEST MEETS SPECIFICATIONS

TECHNICIAN By *cutt*

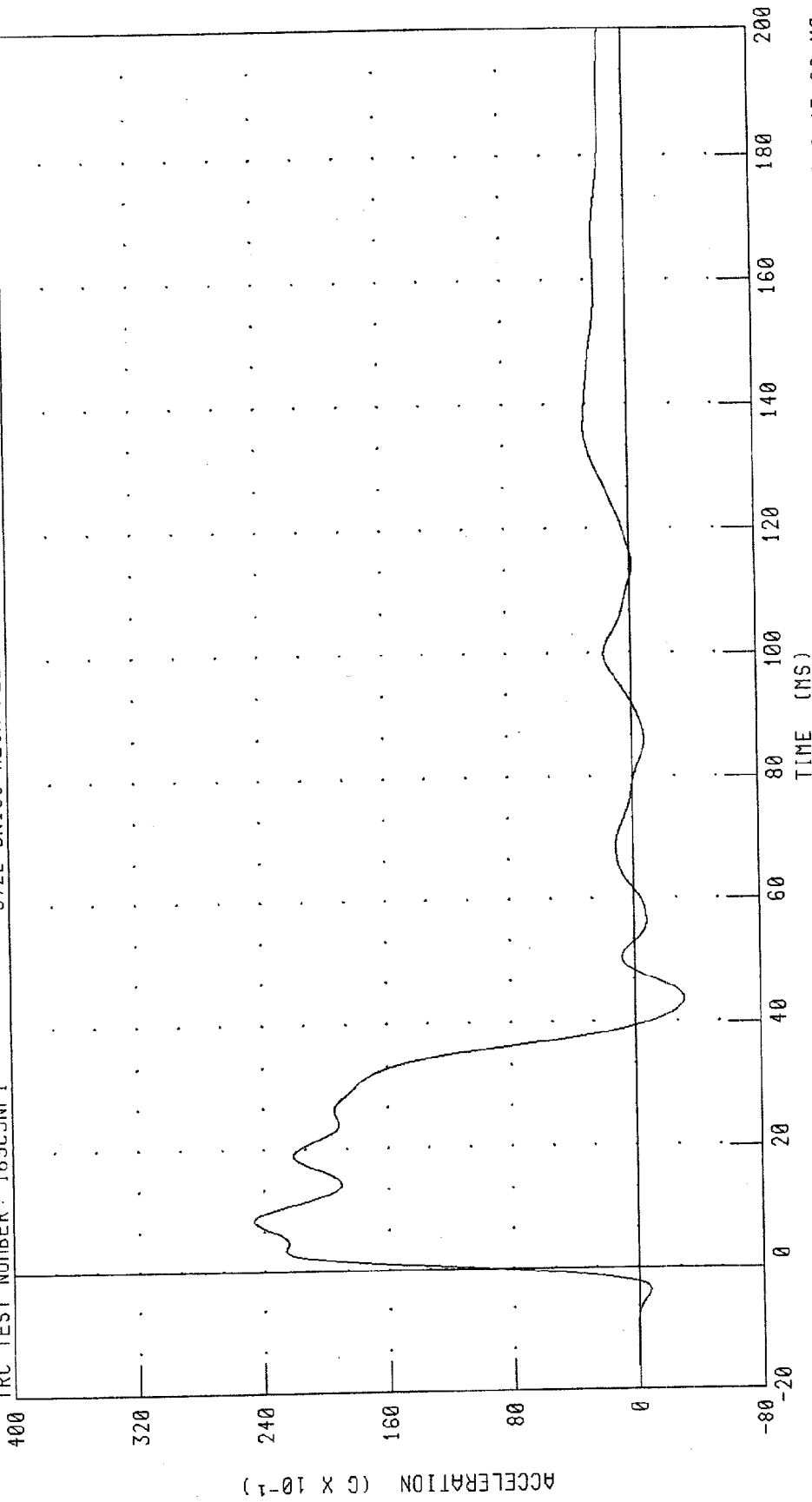
RUN NUMBER: 041499.1334;1

PART 572-E HYBRID III NECK FLEXION CALIBRATION
PENDULUM DECELERATION

TRC TEST NUMBER: 169C9NF1

572E SN169 NECK FLEXION CALS

RUN NUMBER: 041499.1335;1



CHANNEL: PENXC FILTER: CH. CLASS 60

PEAK DATA: 24.64 G @ 8.48 MS; -3.13 G @ 43.68 MS

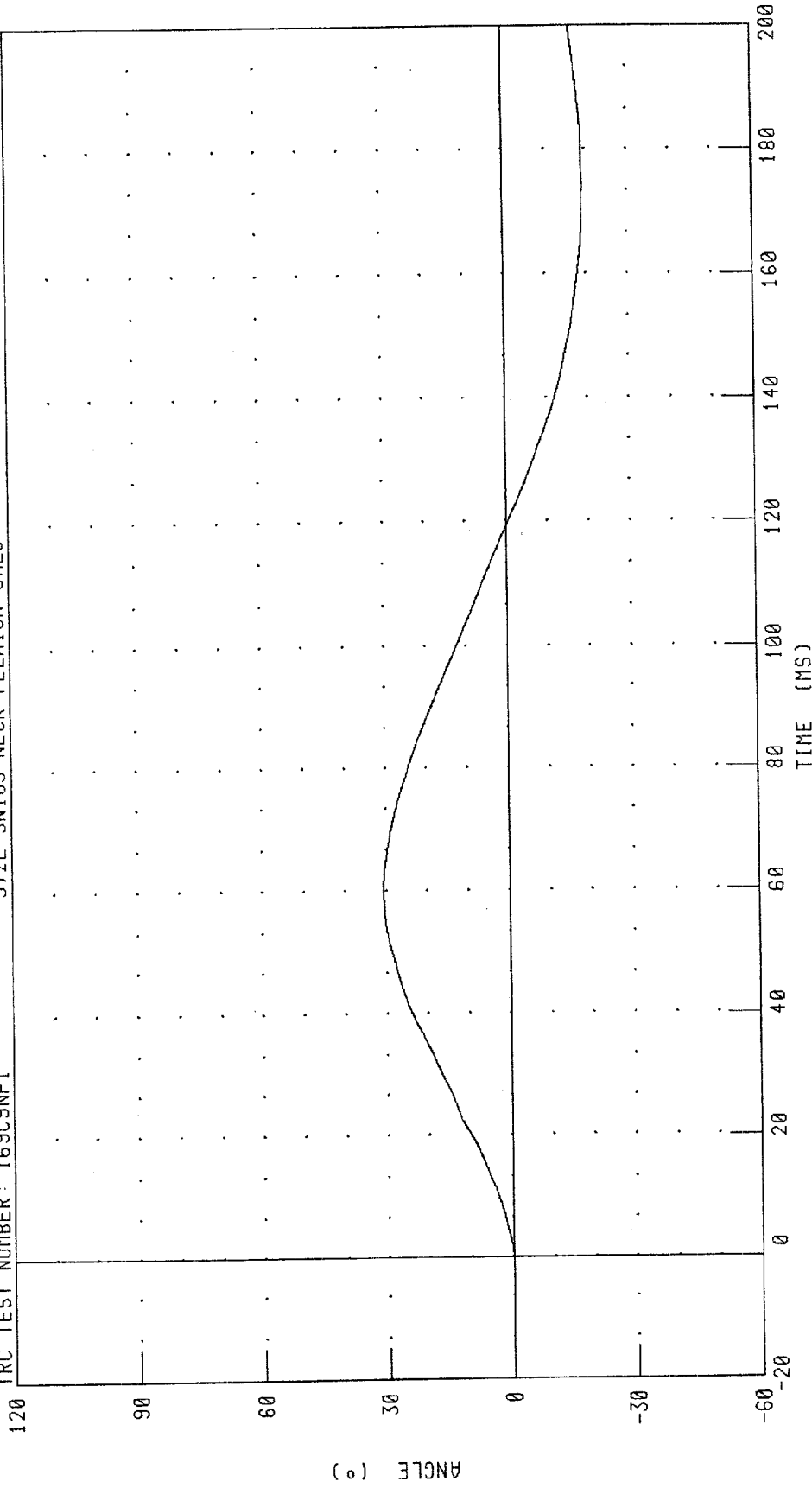
PART 572-E HYBRID [III] NECK FLEXION CALIBRATION

ROTATION ABOUT BASE OF NECK

572E SN169 NECK FLEXION CAL9

TRC TEST NUMBER: 169C9NF1

RUN NUMBER: 041499.1335.1

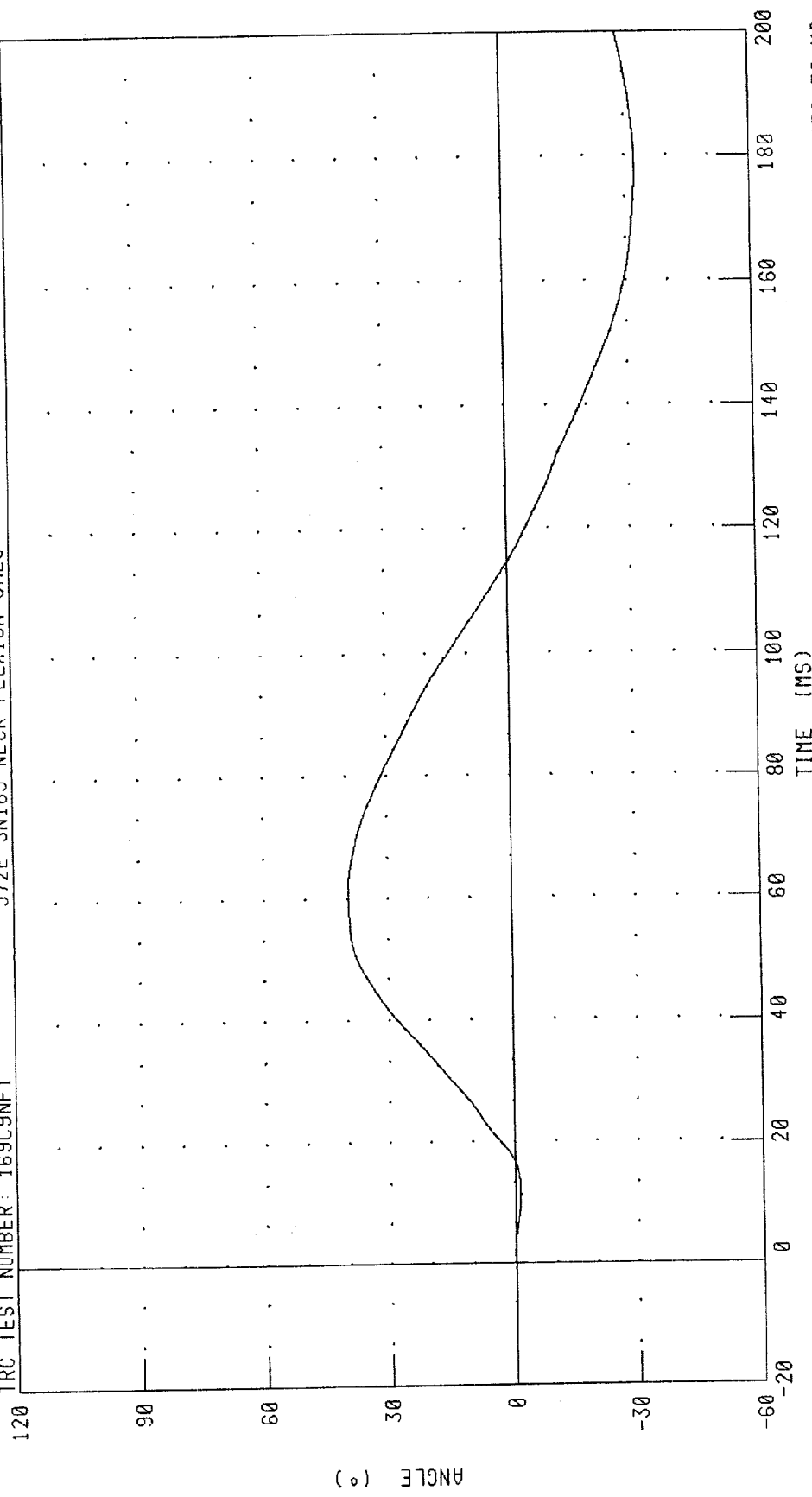


CHANNEL: BETA FILTER: CH. CLASS 60 PEAK DATA: 30.57 ° @ 60.32 MS; -19.27 ° @ 174.56 MS

PART 572-E HYBRID III NECK FLEXION CALIBRATION
ROTATION ABOUT OCCIPITAL CONDYLE
572E SN169 NECK FLEXION CAL9

RUN NUMBER: 041499.1335;1

TRC TEST NUMBER: 169C9NF1



PEAK DATA: 39.63 ° @ 60.80 MS; -32.35 ° @ 178.72 MS

CHANNEL: THETA FILTER: CH. CLASS 60

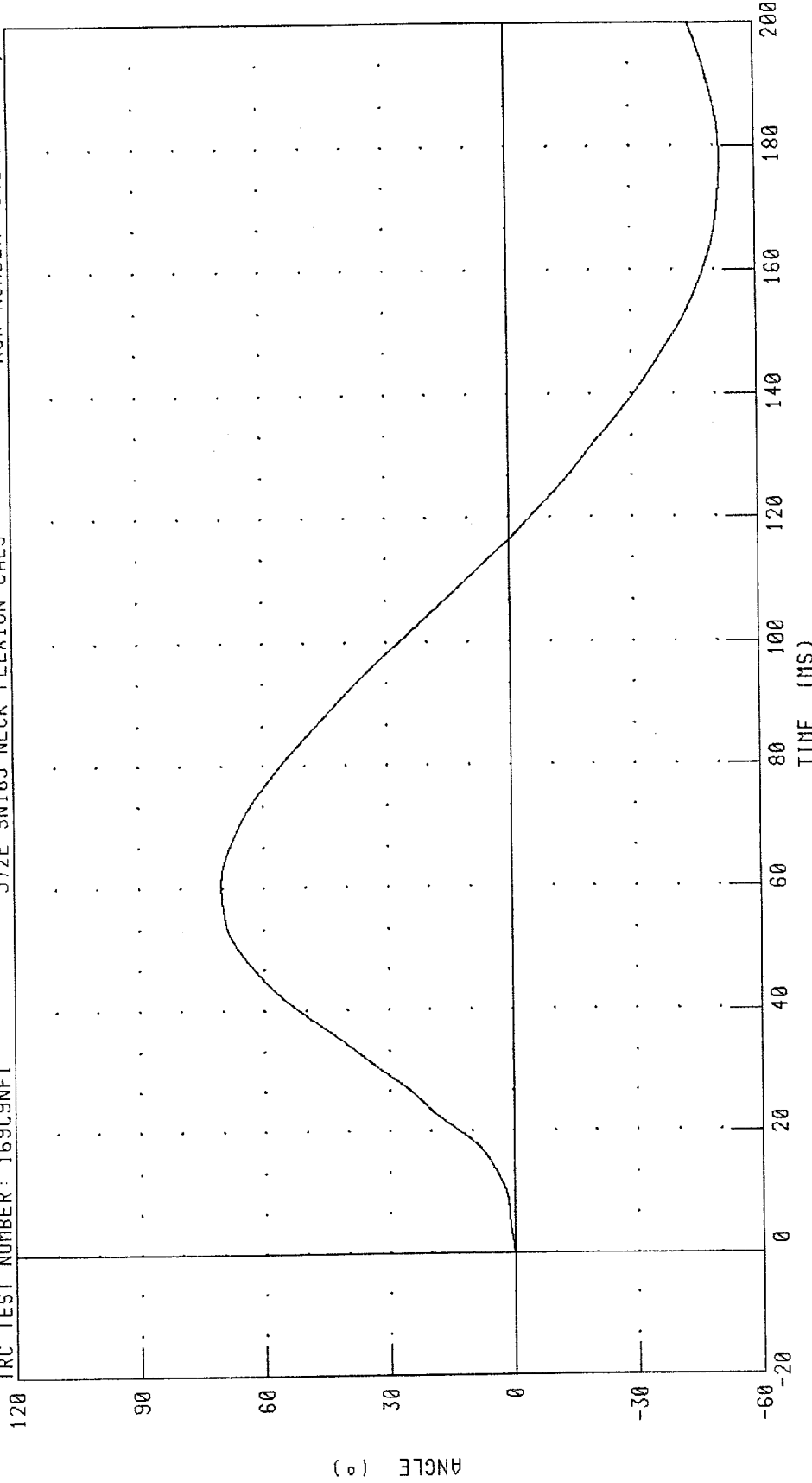
PART 572-E HYBRID III NECK FLEXION CALIBRATION

TOTAL ROTATION

RUN NUMBER: 041499.1335;1

572E SN169 NECK FLEXION CAL9

TRC TEST NUMBER: 169C9NF1



PEAK DATA: 70.20 ° @ 60.56 MS; -51.57 ° @ 177.68 MS

CHANNEL: TOTAN FILTER: CH. CLASS 60

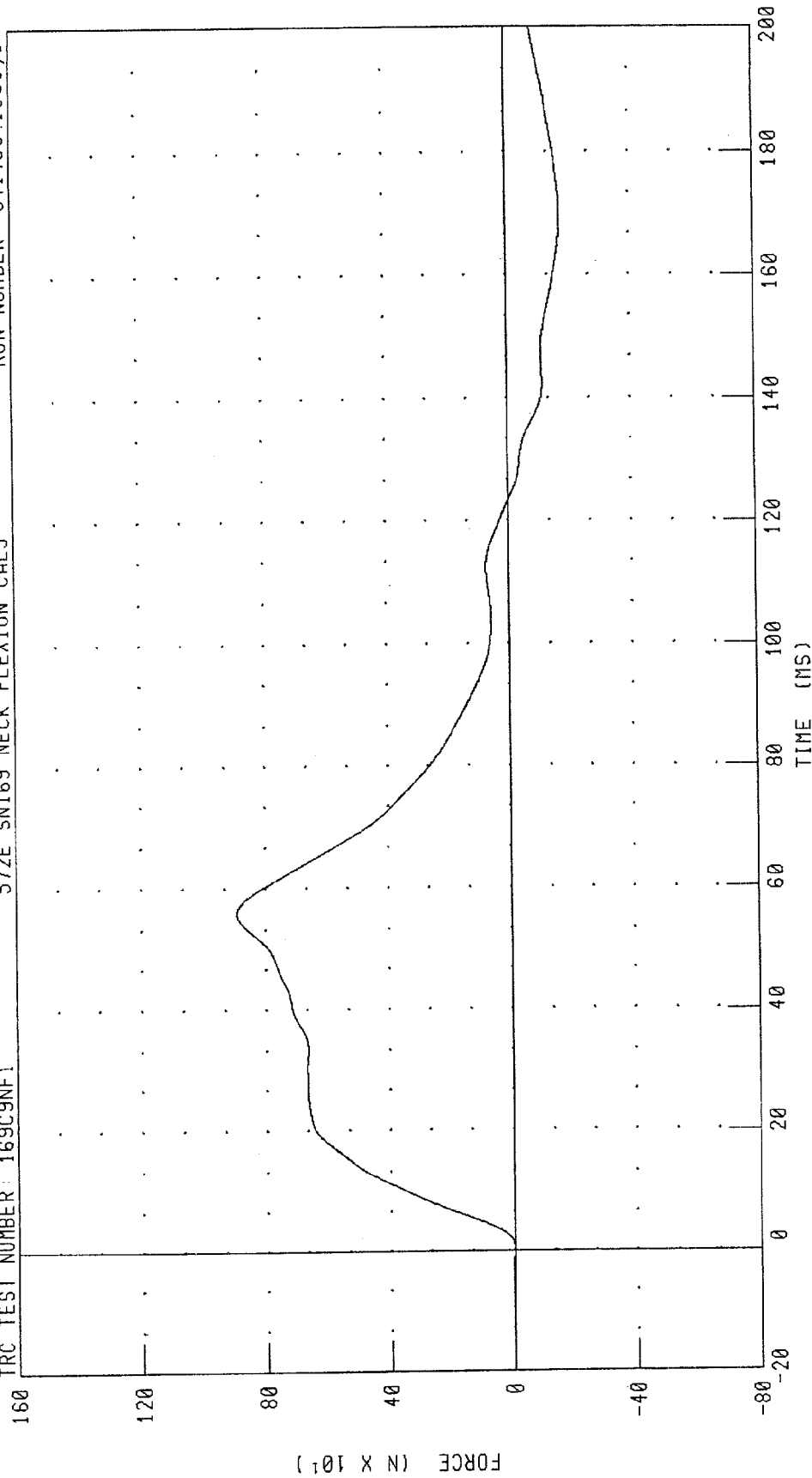
PART 572-E HYBRID III NECK FLEXION CALIBRATION

NECK FORCE X AXIS

RUN NUMBER: 041499.1335.7.1

TRC TEST NUMBER: 169C9NF1

572E SN169 NECK FLEXION CAL9



CHANNEL: NEKXF FILTER: CH. CLASS 60 PEAK DATA: 892.45 N @ 56.00 MS; -174.72 N @ 168.56 MS

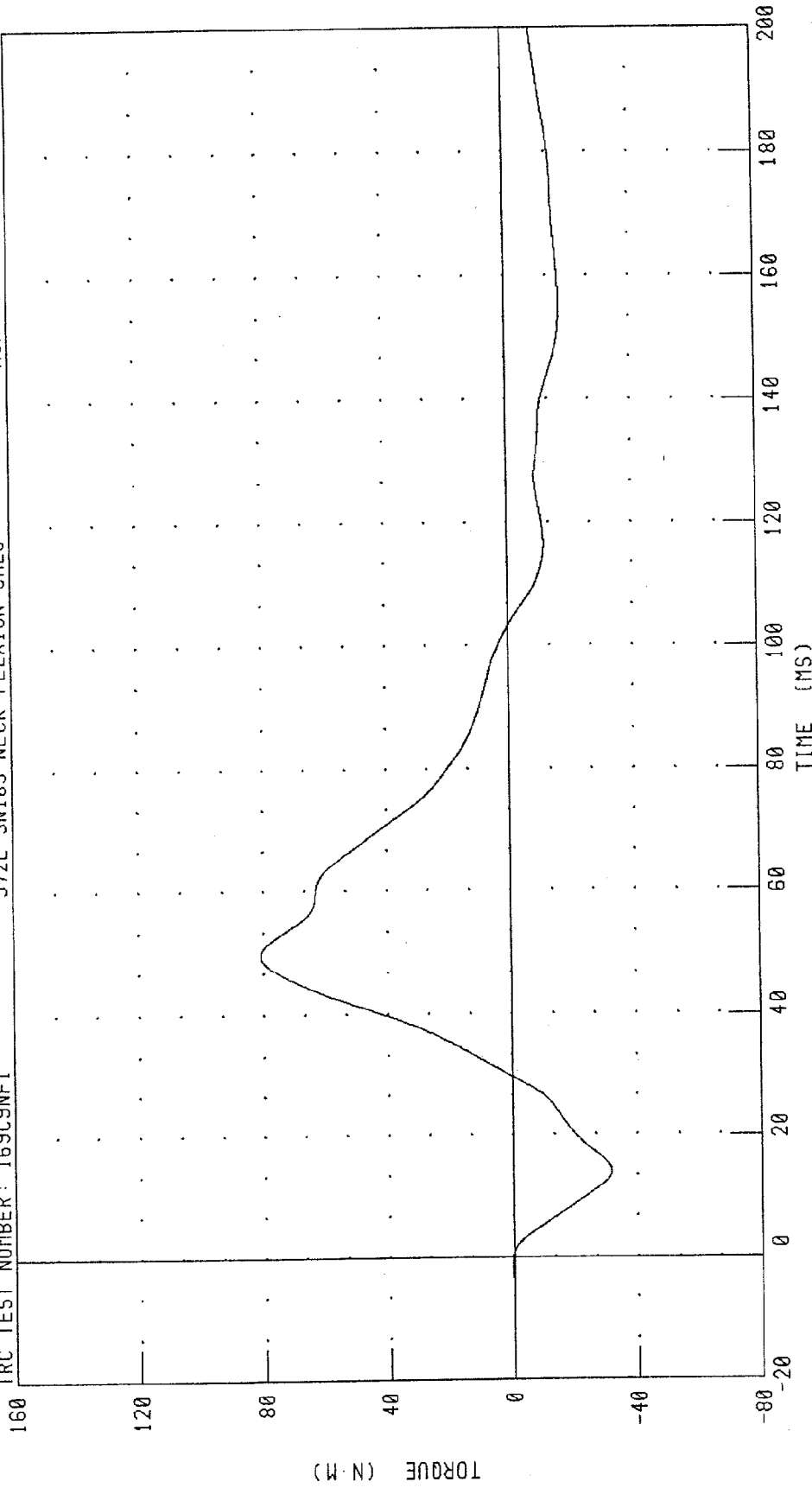
PART 572-E HYBRID III NECK FLEXION CALIBRATION

NECK MOMENT Y AXIS

RUN NUMBER: 041499.1335;1

TRC TEST NUMBER: 169C9NF1

572E SN169 NECK FLEXION CAL9



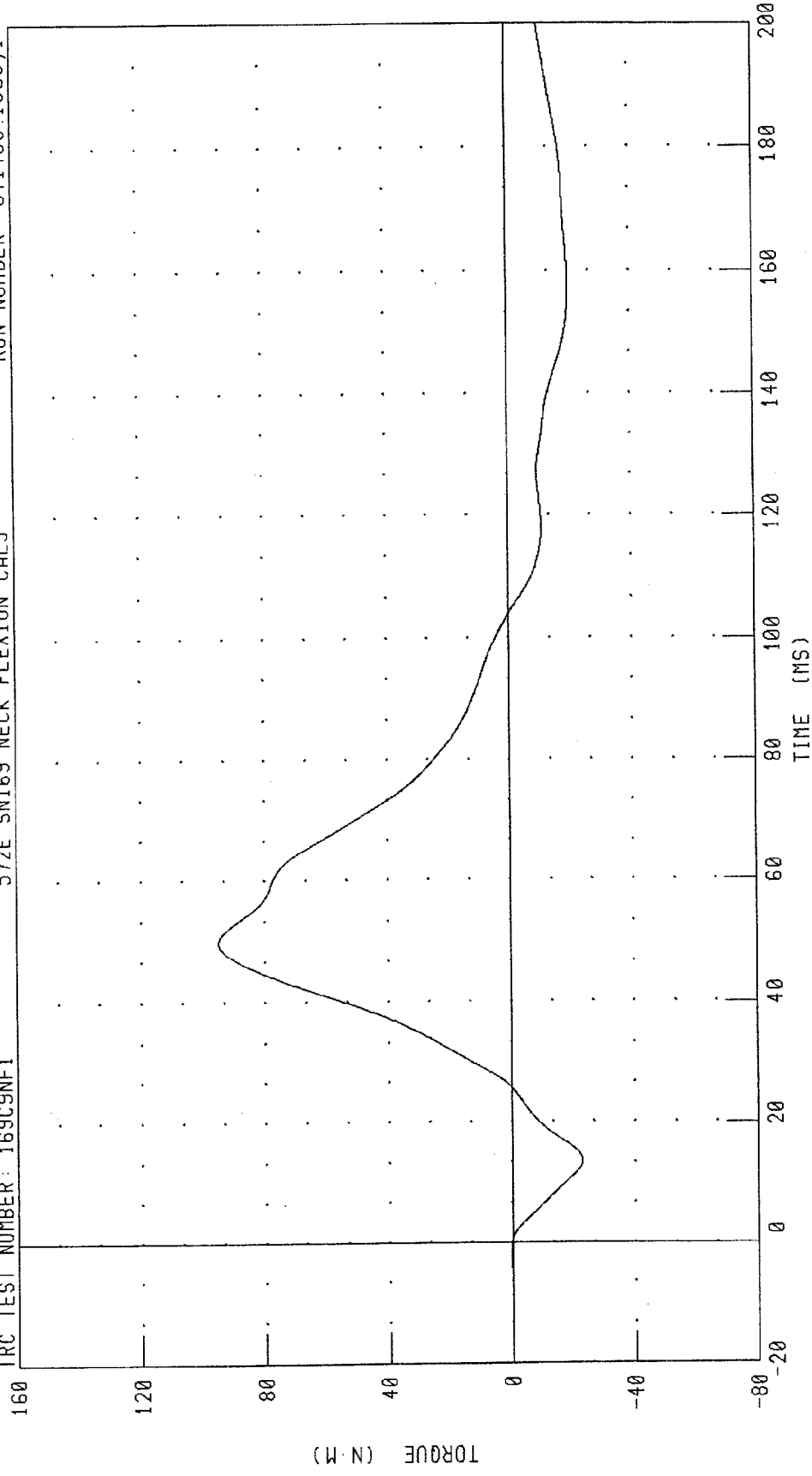
CHANNEL: NEKYM FILTER: CH. CLASS 60 PEAK DATA: 80.97 N·M @ 49.76 MS; -31.70 N·M @ 14.08 MS

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

TRC TEST NUMBER: 169C9NF1

572E SN169 NECK FLEXION CAL9

RUN NUMBER: 041499.1335,1



CHANNEL: NEKOM FILTER: CH. CLASS 60

PEAK DATA: 94.94 N·M @ 49.92 MS; -22.92 N·M @ 13.60 MS

TRANSPORTATION RESEARCH CENTER INC.

HYBRID III 50th

14-APR-99

NECK EXTENSION TEST - 6 CHANNEL TRANSDUCER

TRC INC. TEST NO: 169C9NE1 572E SN 169 NECK EXT CAL9

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	20.6 - 22.2 DEG. C	21.1 DEG. C
RELATIVE HUMIDITY	10 - 70 %	33.0 %
IMPACT VELOCITY	5.95 - 6.19 M/S	6.00 M/S
PENDULUM DECELERATION	10 MS 17.20 - 21.20 G	18.57 G
	20 MS 14.00 - 19.00 G	16.76 G
	30 MS 11.00 - 16.00 G	15.95 G
MAX PENDULUM G	22 G MAX	19.03 G
MAX PENDULUM G ABOVE 30 MS	22 G MAX	15.90 G
DECELERATION-TIME CURVE DECAY TIME TO 5 G	38 - 46 MS	39.52 MS
D PLANE	MAX 81 - 106 DEG.	97.01 DEG.
ROTATION	TIME 72 - 82 MS	76.56 MS
MOMENT ABOUT OCCIPITAL CONDYLE	MIN -80.0/-52.9 NM	-67.66 NM
	TIME 65 - 79 MS	71.36 MS
ROTATION ANGLE-TIME CURVE DECAY TIME TO ZERO	147 - 174 MS	156.00 MS
NEGATIVE MOMENT-TIME CURVE DECAY TIME TO ZERO	120 - 148 MS	145.76 MS

TEST MEETS SPECIFICATIONS

TECHNICIAN

Ray C. [Signature]

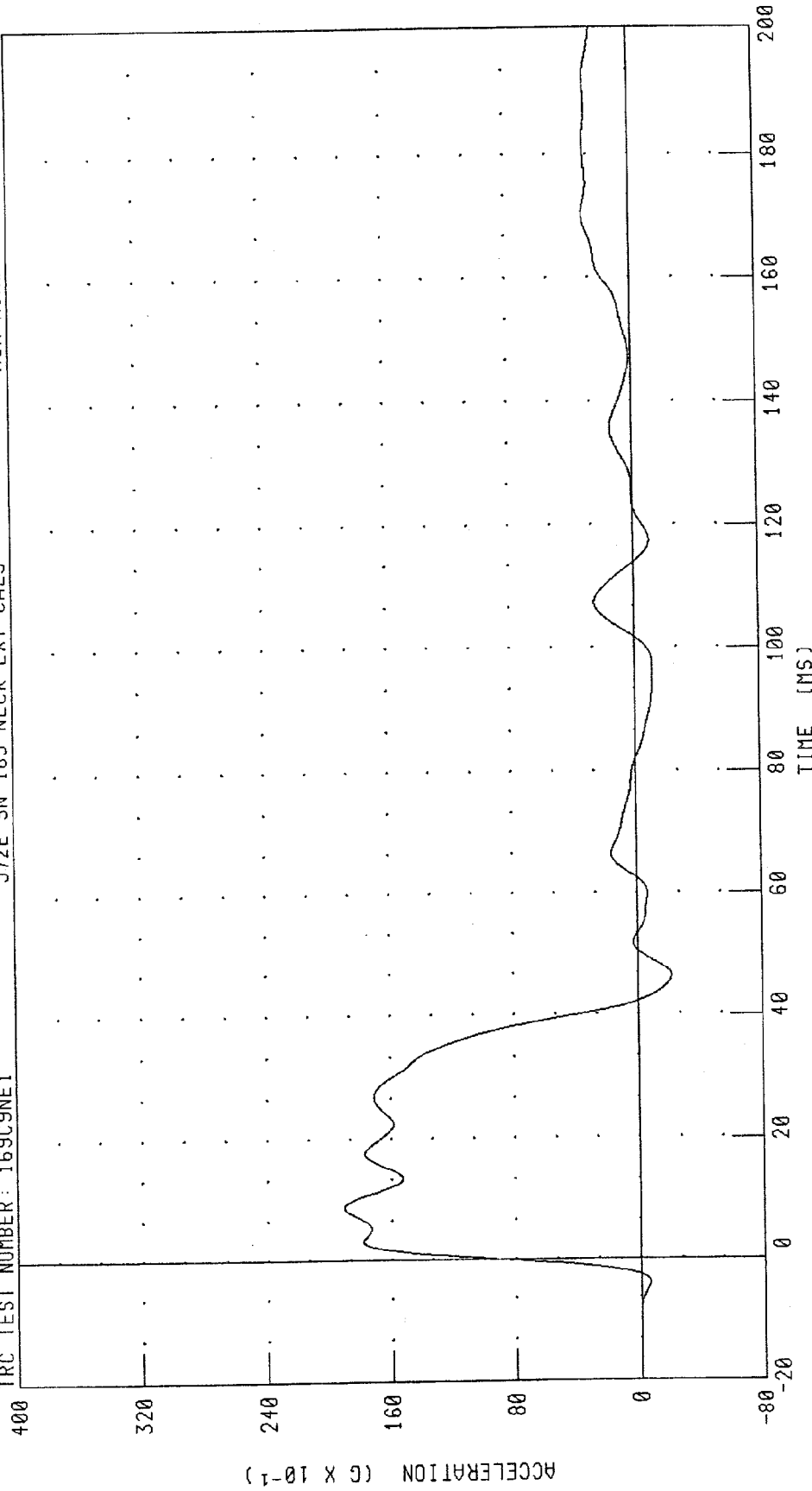
RUN NUMBER: 041499.1433;2

PART 572-E HYBRID III NECK EXTENSION CALIBRATION
PENDULUM DECELERATION

TRC TEST NUMBER: 169C9NE1

572E SN 169 NECK EXT CAL9

RUN NUMBER: 041499.1434;2



CHANNEL: PENXC FILTER: CH. CLASS 60 PEAK DATA: 19.03 G @ 8.96 MS; -2.16 G @ 46.24 MS

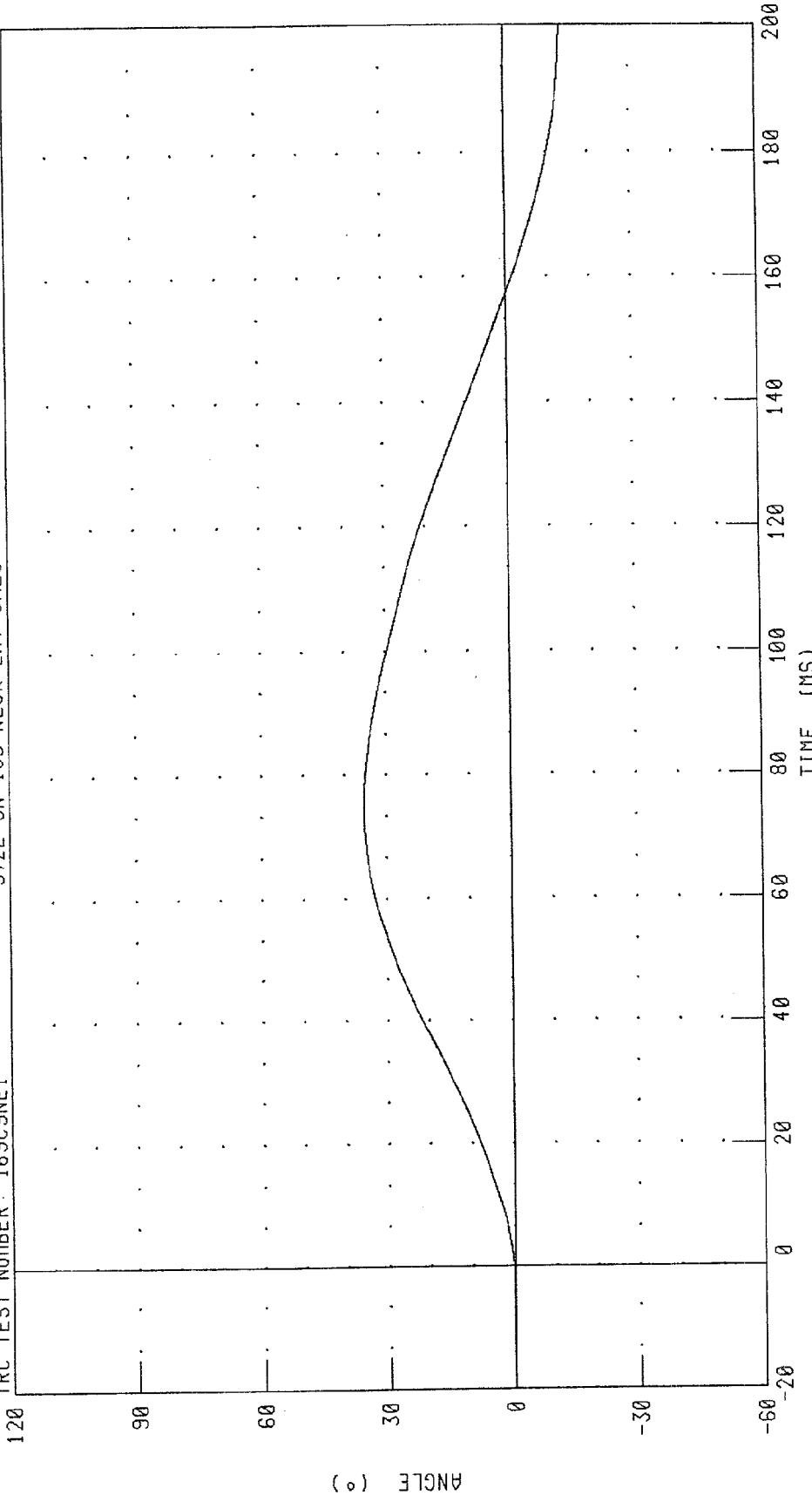
PART 572-E HYBRID III NECK EXTENSION CALIBRATION

ROTATION ABOUT BASE OF NECK

RUN NUMBER: 041499.1434;2

TRC TEST NUMBER: 169C9NE1

572E SN 169 NECK EXT CAL9



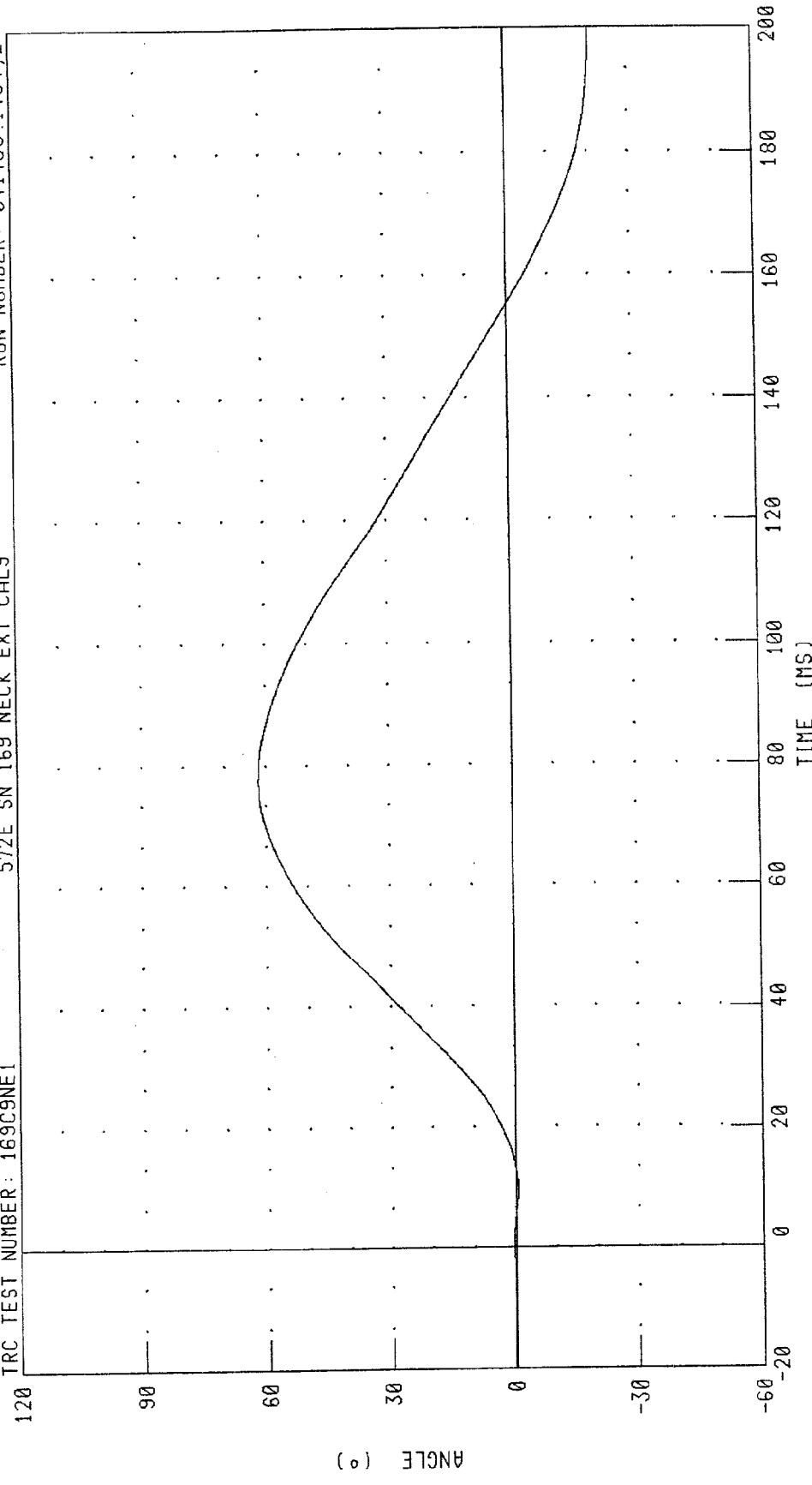
CHANNEL: BETA FILTER: CH. CLASS 60 PEAK DATA: 35.29 ° @ 74.80 MS, -13.43 ° @ 199.28 MS

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

TRC TEST NUMBER: 169C9NE1

572E SN 169 NECK EXT CAL9

RUN NUMBER: 041499.1434;2



CHANNEL: THETA FILTER: CH. CLASS 60 PEAK DATA: 61.77 ° @ 77.44 MS; -20.67 ° @ 198.24 MS

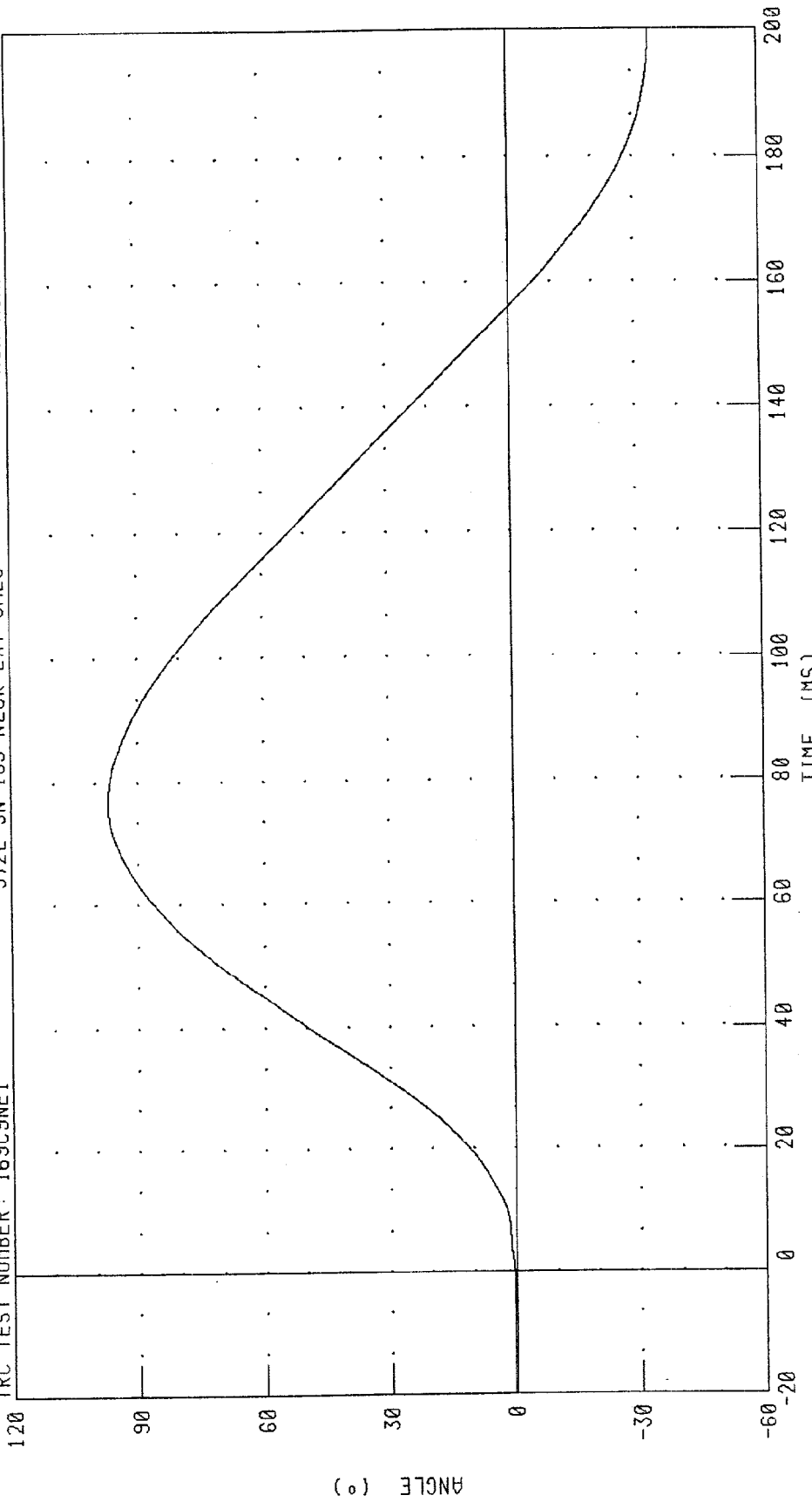
PART 572-E HYBRID III NECK EXTENSION CALIBRATION

TOTAL ROTATION

TRC TEST NUMBER: 169C9NE1

572E SN 169 NECK EXT CAL9

RUN NUMBER: 041499.1434;2



CHANNEL: TOTAN

FILTER: CH. CLASS 60

PEAK DATA: 97.01 ° @ 76.56 MS; -34.09 ° @ 198.72 MS

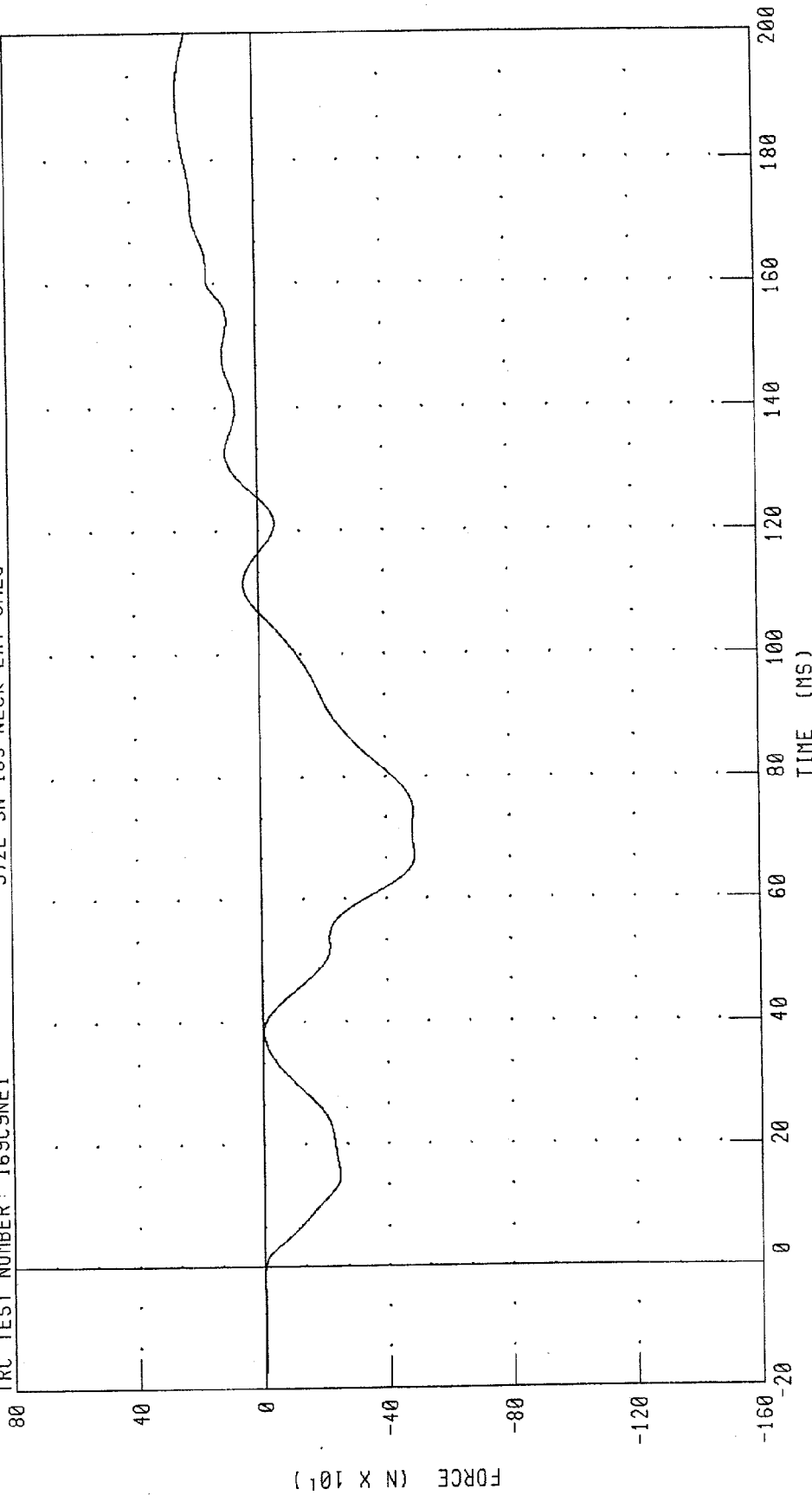
PART 572-E HYBRID III NECK EXTENSION CALIBRATION

NECK FORCE X AXIS

RUN NUMBER: 041499.1434;2

572E SN 169 NECK EXT CAL9

TRC TEST NUMBER: 169C9NE1



PEAK DATA: 249.15 N @ 190.56 MS; -492.89 N @ 67.12 MS

CHANNEL: NEKXF FILTER: CH. CLASS 60

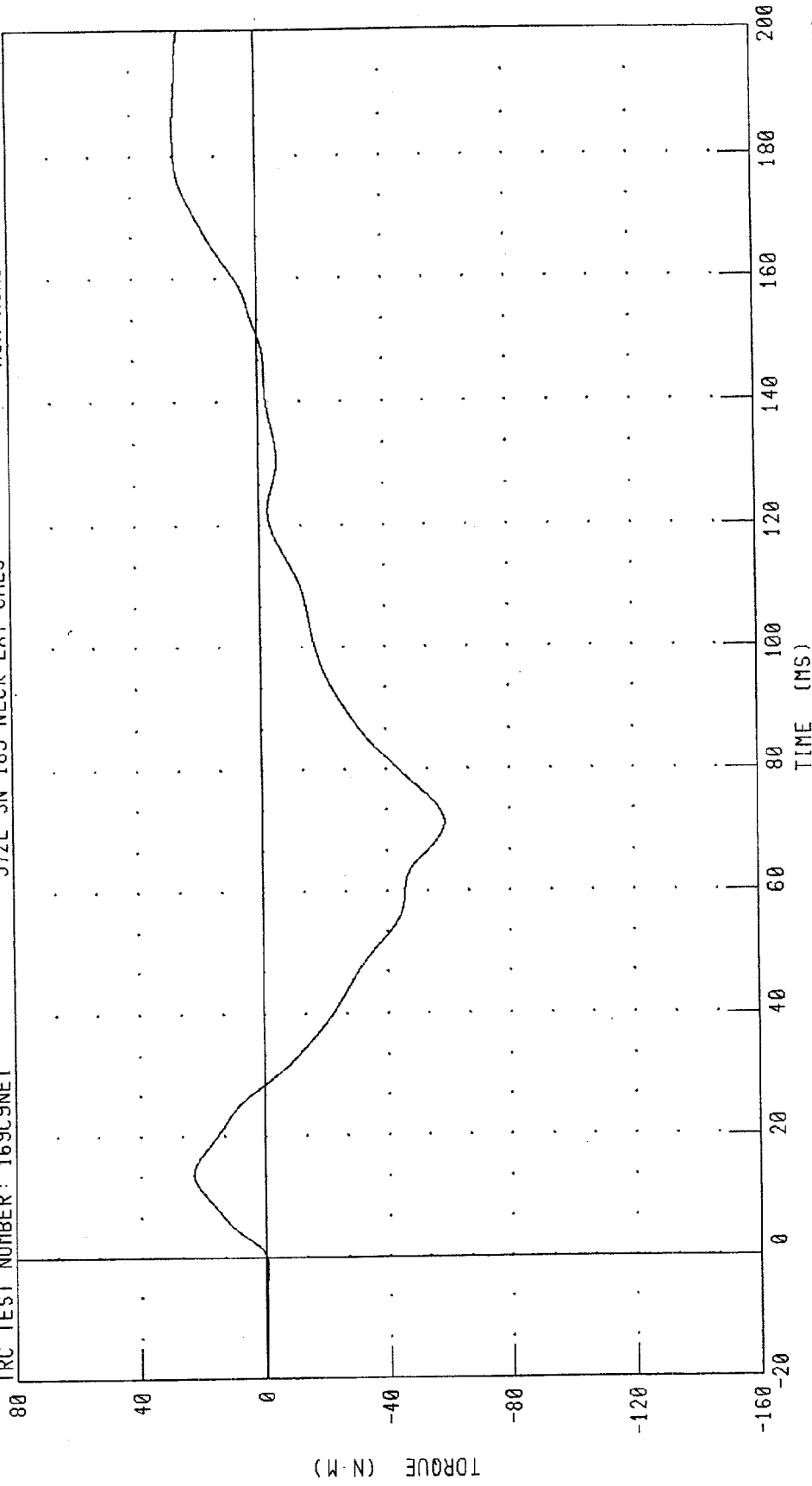
PART 572-E HYBRID III NECK EXTENSION CALIBRATION

NECK MOMENT Y AXIS

RUN NUMBER: 041499.1434;2

TRC TEST NUMBER: 169C9NE1

572E SN 169 NECK EXT CAL9

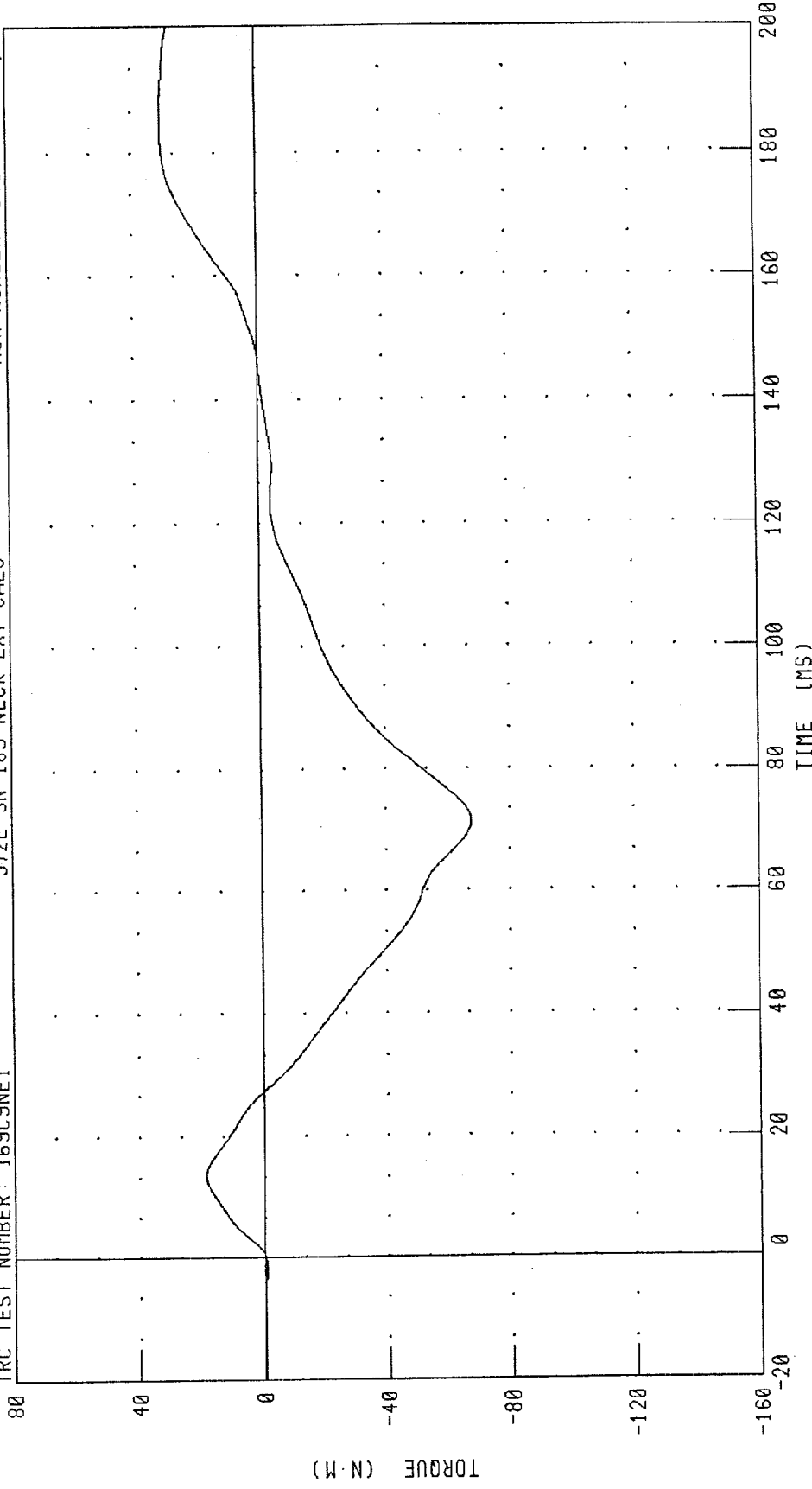


PEAK DATA: 26.48 N·M @ 184.24 MS; -59.04 N·M @ 71.36 MS

CHANNEL: NEKYM FILTER: CH. CLASS 60

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

TRC TEST NUMBER: 169C9NE1
572E SN 169 NECK EXT CAL9
RUN NUMBER: 041499.1434.2



CHANNEL: NEKOM FILTER: CH. CLASS 60
PEAK DATA: 30.77 N·M @ 185.44 MS; -67.66 N·M @ 71.36 MS

TRANSPORTATION RESEARCH CENTER INC.

THORAX IMPACT TEST

HYBRID III 50th

14-APR-99

TRC INC.

TEST NO: 169C9TH1

572E SN169 H.S.THORAX CAL09

TEST PARAMETER	HIGH SPEED TEST SPECIFICATION	TEST RESULTS
TEMPERATURE	20.6-22.2 DEG. C	21.1 DEG. C
RELATIVE HUMIDITY	10 - 70 %	33.0 %
PENDULUM VELOCITY	6.59 - 6.83 M/S	6.59 M/S
MAXIMUM DEFLECTION	63.5 - 72.6 MM	68.7 MM
MAXIMUM RESISTIVE FORCE	5159 - 5894 N	5489. N
INTERNAL HYSTERESIS	69% - 85%	72.5%

TEST MEETS SPECIFICATIONS

TECHNICIAN By *[Signature]*

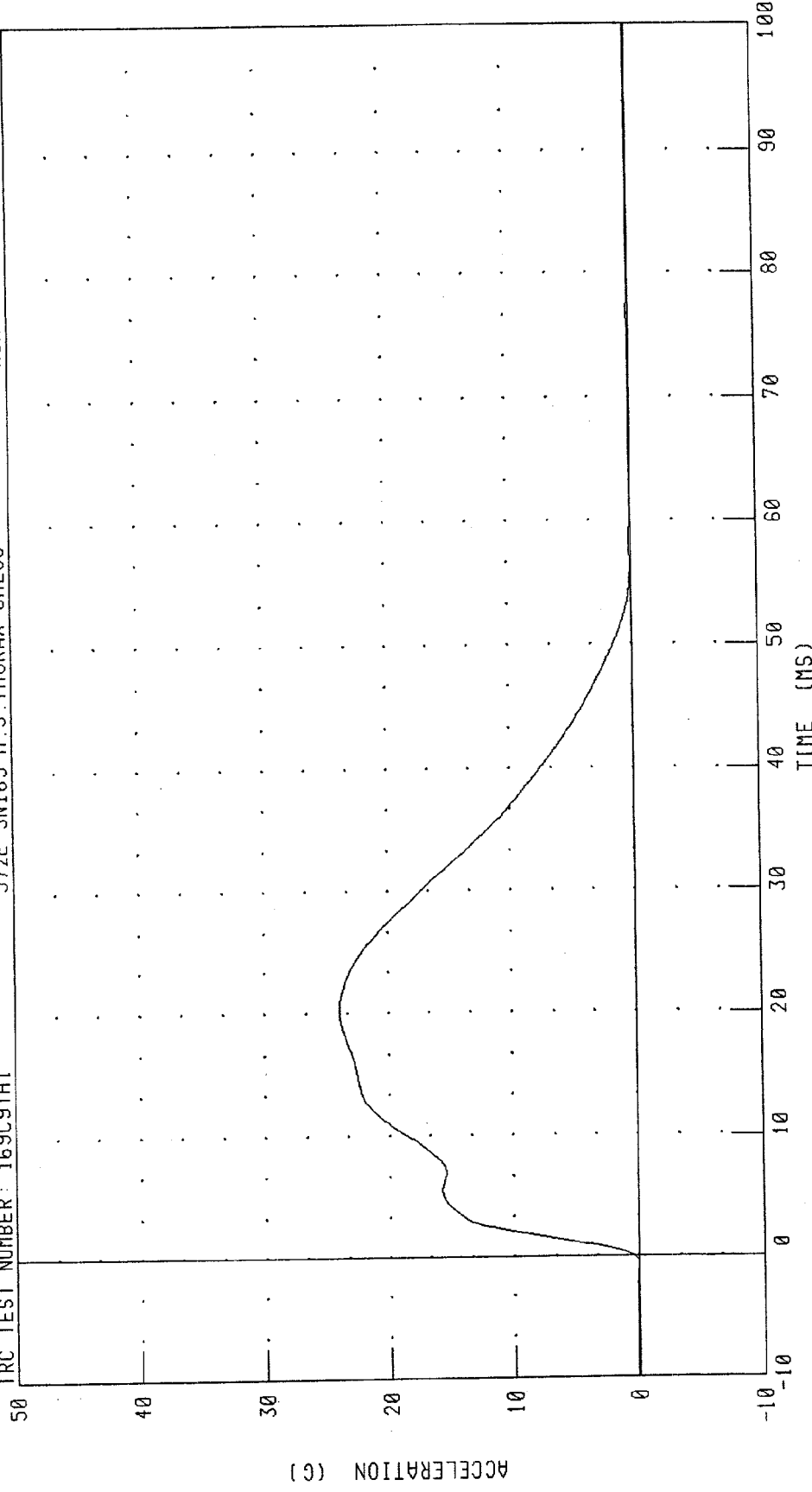
RUN NUMBER: 041499.1506;1

PART 572-E HYBRID III THORAX CALIBRATION
PENDULUM DECELERATION

RUN NUMBER: 041499.1506;1

572E SN169 H.S.THORAX CAL09

TRC TEST NUMBER: 169C9TH1



CHANNEL: PENXG FILTER: CH. CLASS 180

PEAK DATA: 23.96 G @ 20.32 MS; -0.01 G @ -0.80 MS

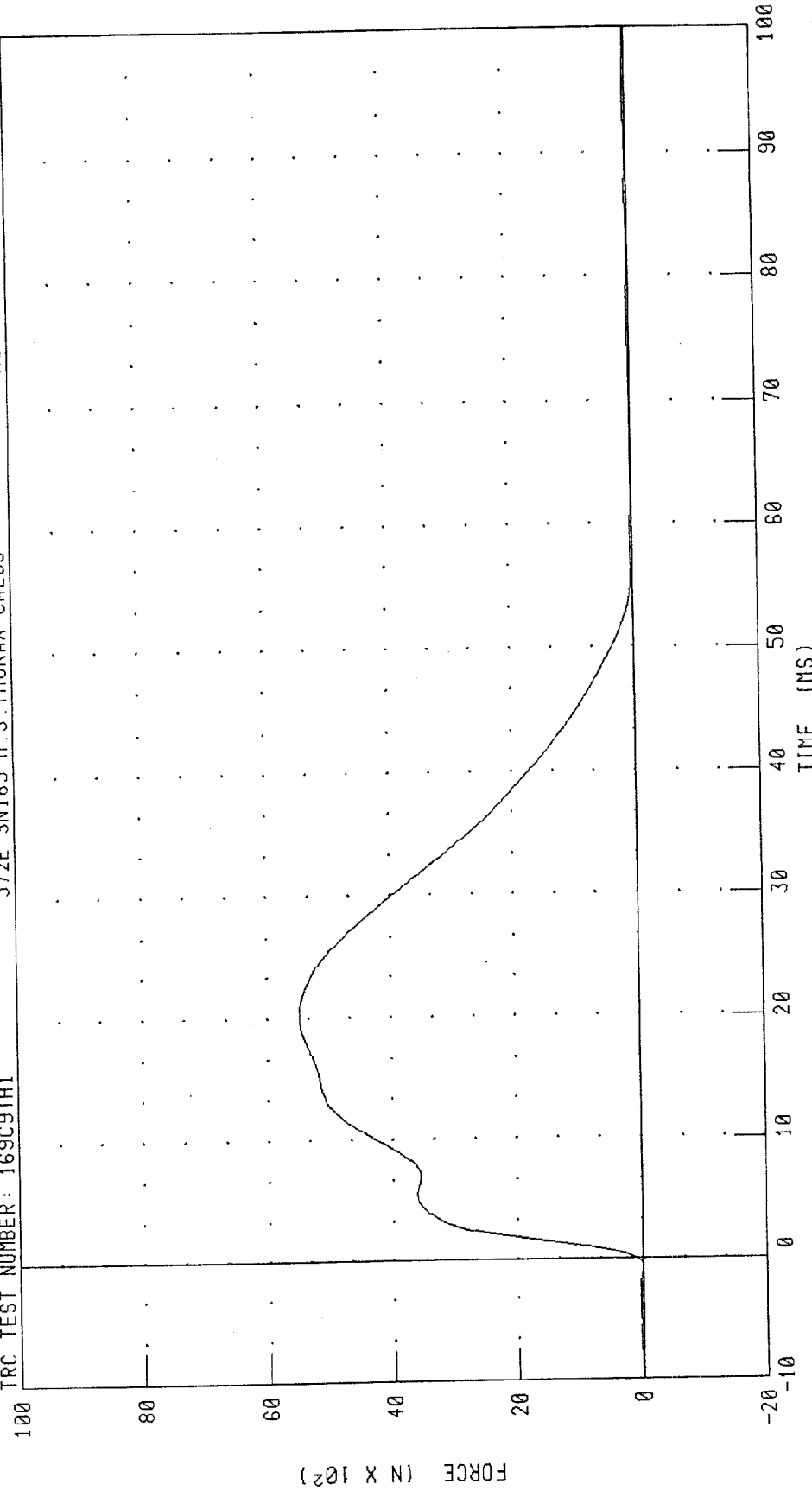
PART 572-E HYBRID III THORAX CALIBRATION

PENDULUM FORCE

RUN NUMBER: 041499.1506;1

572E SN169 H.S. THORAX CAL09

TRC TEST NUMBER: 169C9TH1



PEAK DATA: 5489.22 N @ 20.32 MS; -3.29 N @ -0.80 MS

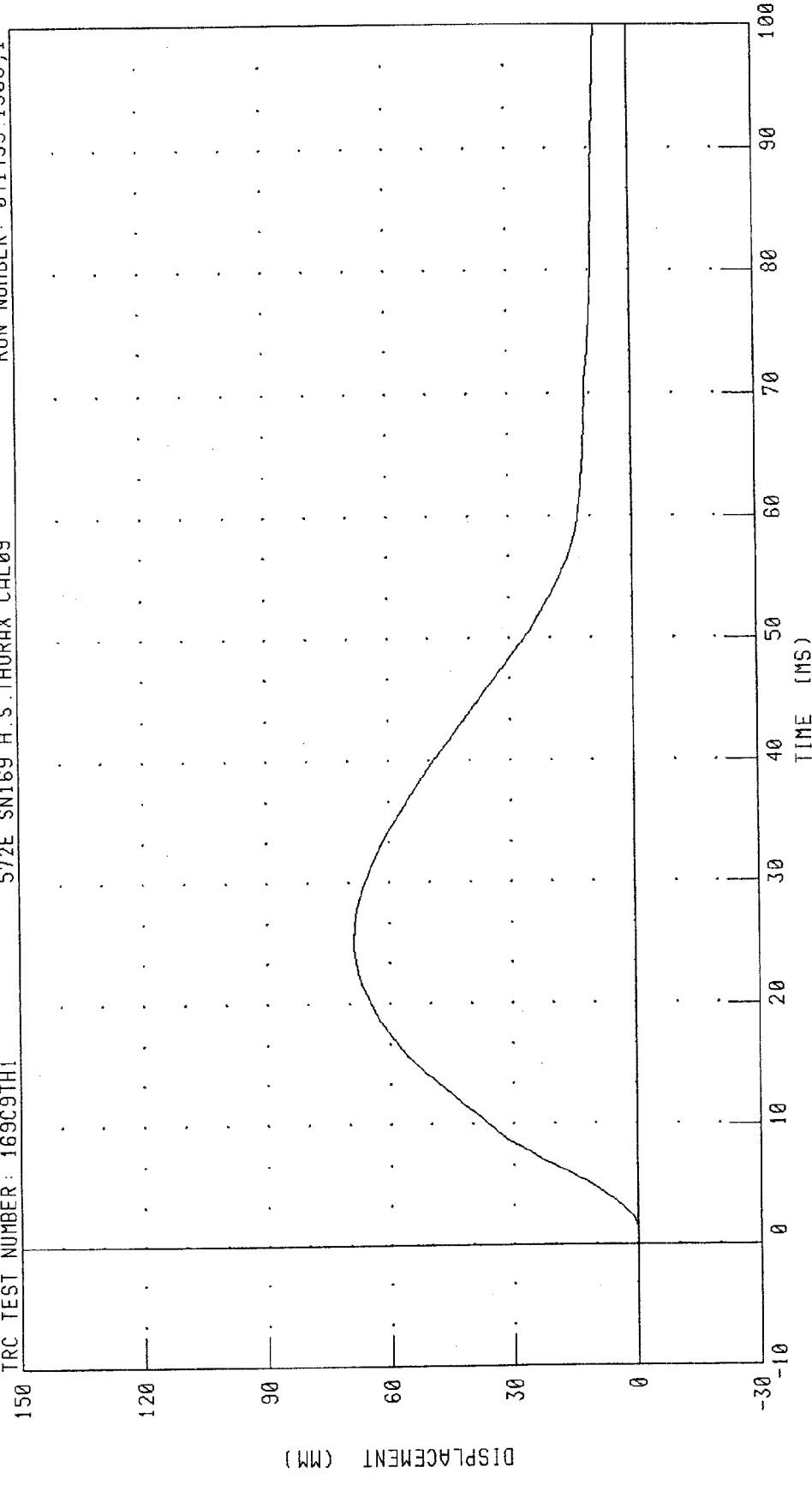
CHANNEL: PENXF FILTER: CH. CLASS 180

PART 572-E HYBRID III THORAX CALIBRATION
STERNUM DISPLACEMENT

TRC TEST NUMBER: 169C9TH1

572E SN169 H.S.THORAX CAL09

RUN NUMBER: 041499.1506,1



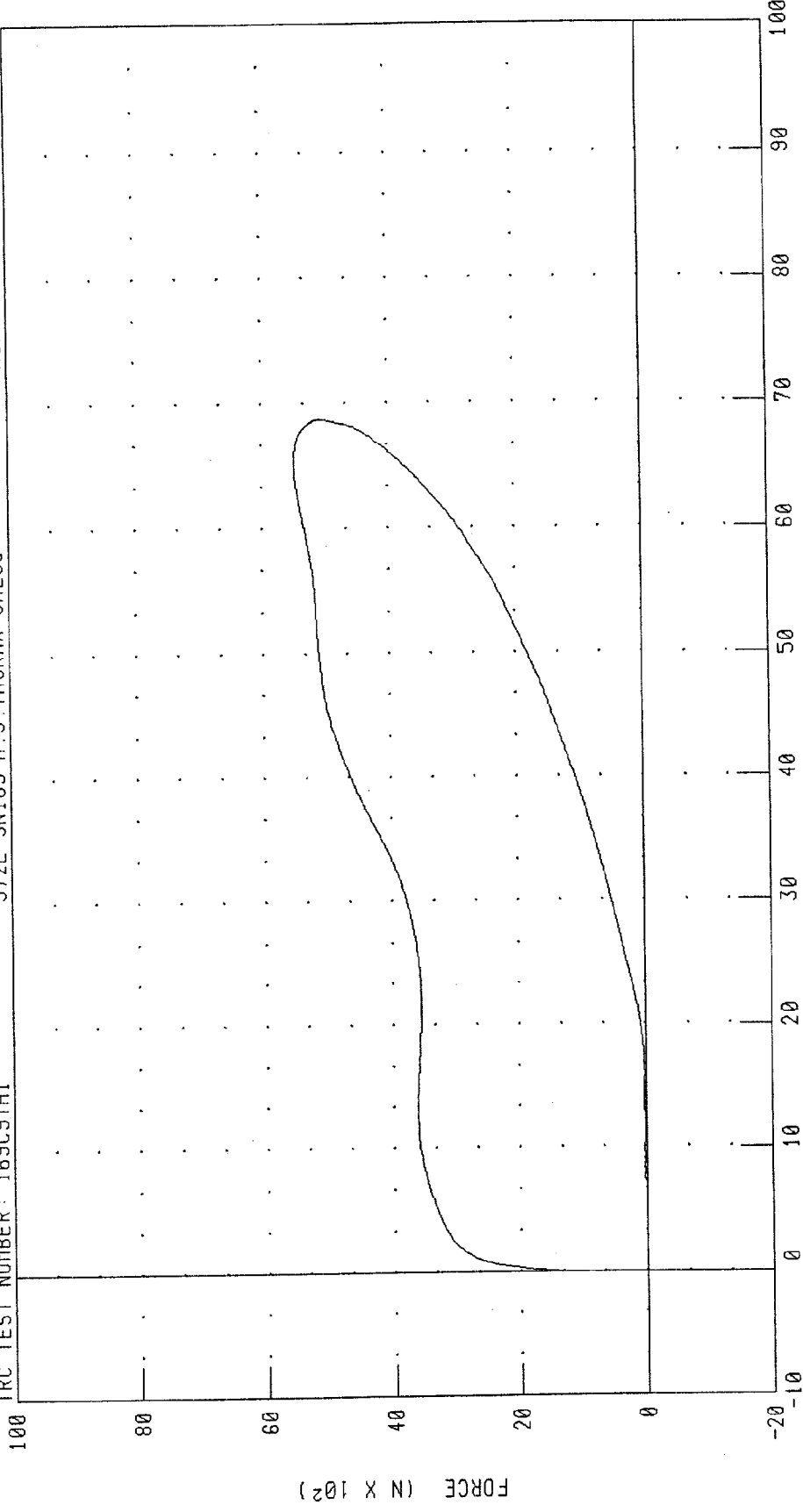
CHANNEL: CSTXD FILTER: CH. CLASS 100 PEAK DATA: 68.77 MM @ 25.04 MS; -0.04 MM @ 0.96 MS

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

RUN NUMBER: 041499.1506,1

TRC TEST NUMBER: 169C9TH1

572E SN169 H.S. THORAX CAL09



CHANNEL: CSTXD
PENXF

FILTER: CH. CLASS 180
CH. CLASS 180

DISPLACEMENT (MM)

PEAK DATA: 68.77 MM @ 25.04 MS; -0.04 MM @ 0.96 MS
5489.22 N @ 20.32 MS; -3.29 N @ -0.80 MS

TRANSPORTATION RESEARCH CENTER INC.

RIGHT HIP JOINT FEMUR FLEXION TEST

HYBRID III PART 572E

14-APR-99

TRC INC.

TEST NO: 169C9HR1

572E SN 169 HIPFLEX CAL 09

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	18.9-25.6 DEG. C	21.1 DEG. C
RELATIVE HUMIDITY	10 - 70 %	33.0 %
ROTATION RATE	5 - 10 deg/sec	YES
TORQUE @ 30 deg ROTATION	<= 94.9 Nm	65.9 Nm
ROTATION @ 203.4 Nm TORQUE	40 - 50 deg.	48.0 deg.

TEST MEETS SPECIFICATIONS

TECHNICIAN

Byr Cole

RUN NUMBER: 041499.1105;1

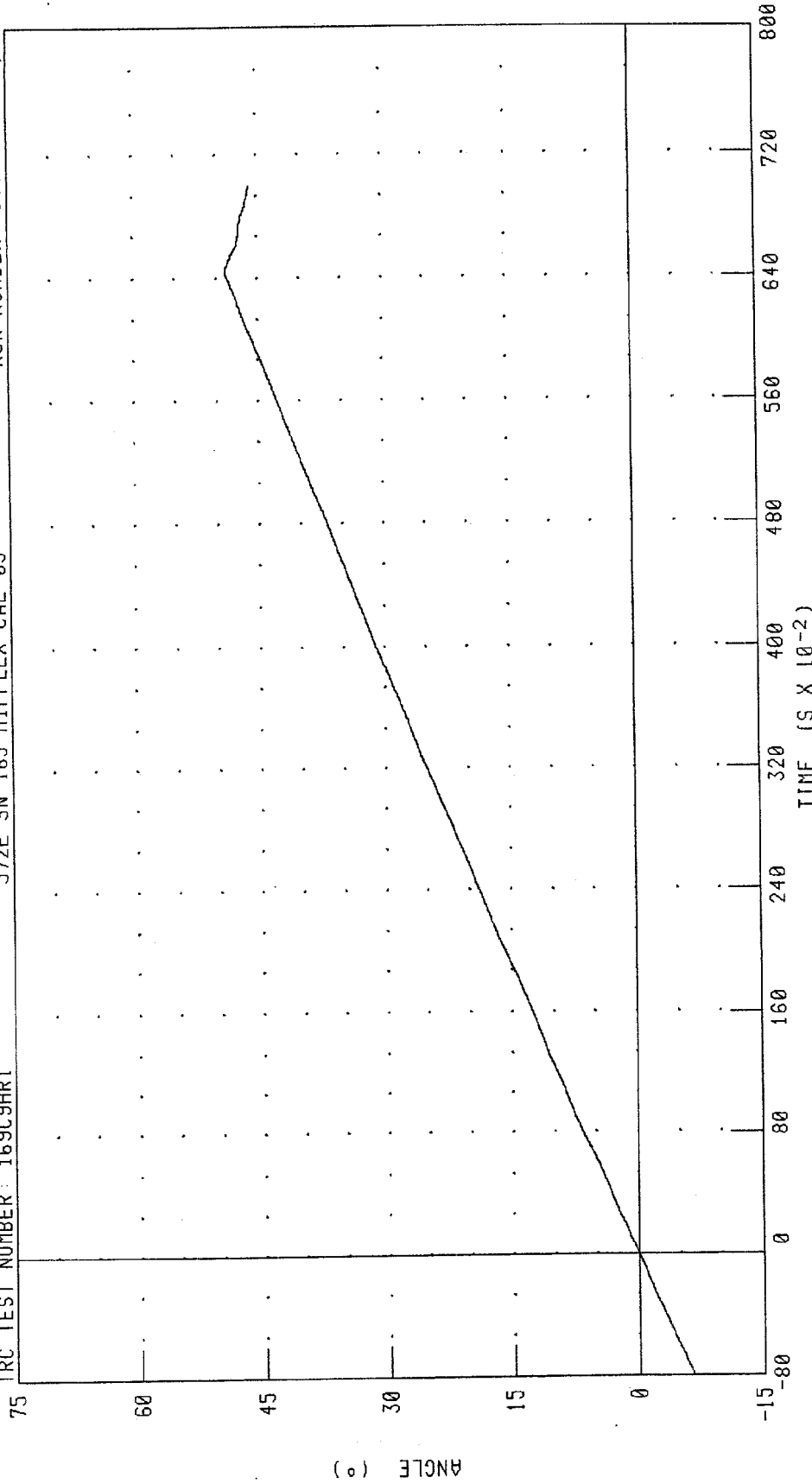
HYBRID III HIP FLEXION VERIFICATION - 0 DEGREES

RIGHT HIP FLEXION ROTATION

572E SN 163 HIPFLEX CAL 09

RUN NUMBER: 041499.1106;1

TRC TEST NUMBER: 169C9HR1



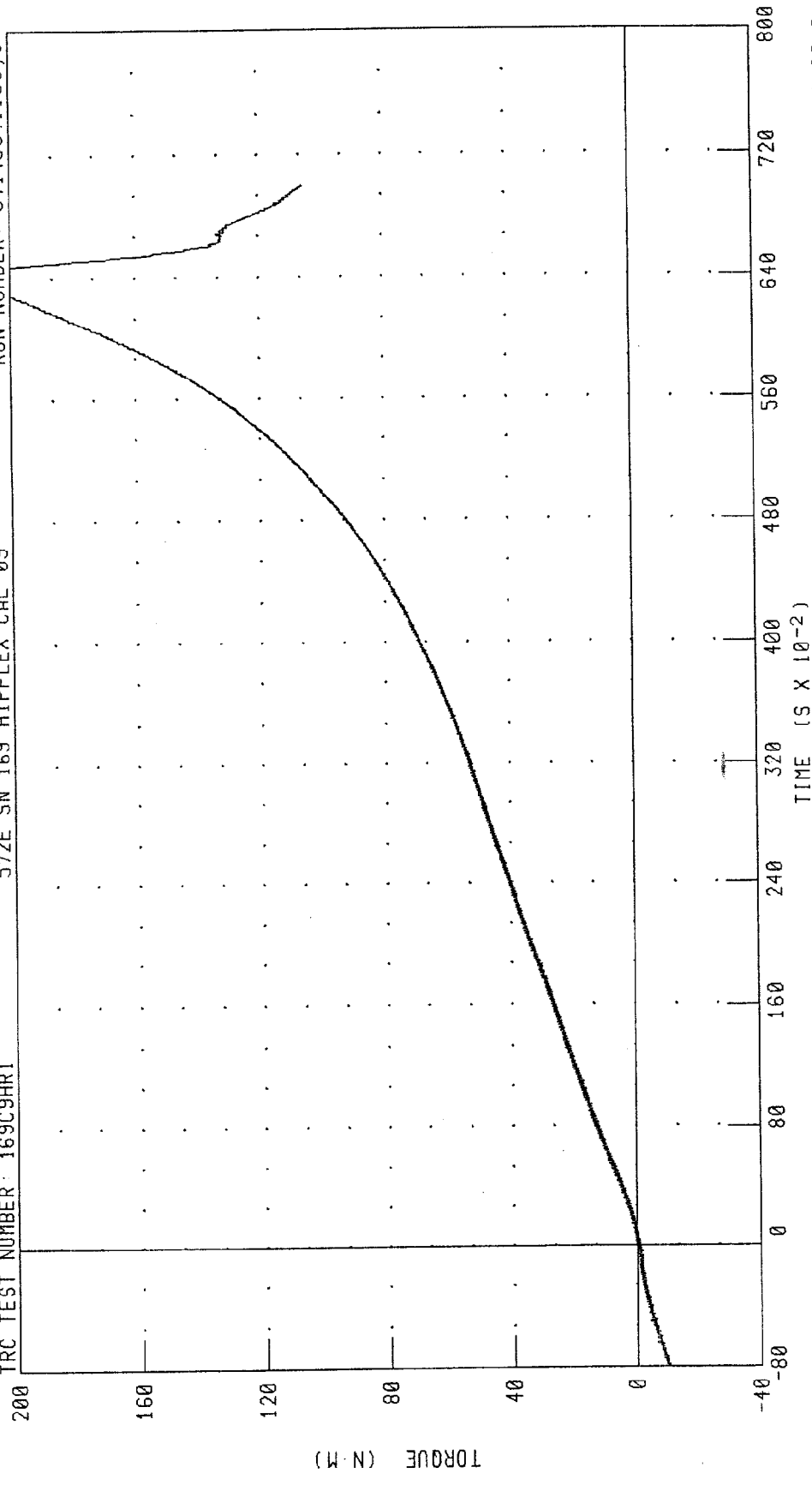
CHANNEL: RHPXD FILTER: CH. CLASS 60 PEAK DATA: 48.85 ° @ 6.47 S; -9.52 ° @ -1.00 S

HYBRID III HIP FLEXION VERIFICATION - 0 DEGREES
RIGHT HIP FLEXION MOMENT

TRC TEST NUMBER: 169C9HR1

572E SN 169 HIPFLEX CAL 09

RUN NUMBER: 041499.1106;1



PEAK DATA: 218.01 N·M @ 6.43 S; -14.01 N·M @ -1.00 S

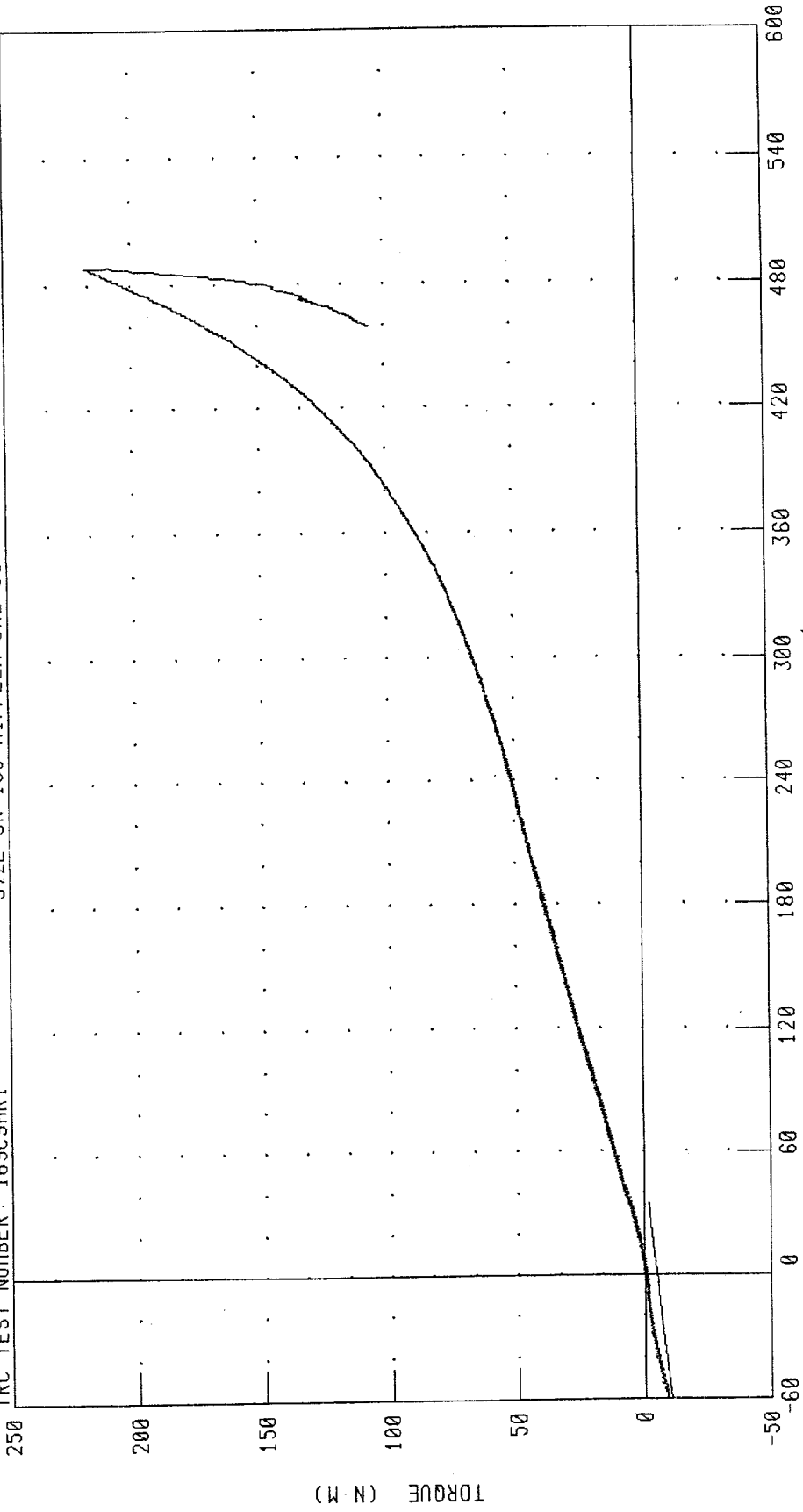
CHANNEL: RHPYM FILTER: CH. CLASS 60

HYBRID III HIP FLEXION VERIFICATION - 0 DEGREES
RIGHT HIP FLEXION MOMENT VS ROTATION ANGLE

TRC TEST NUMBER: 169C9HR1

572E SN 169 HIPFLEX CAL 09

RUN NUMBER: 041499.1106;1



CHANNEL: RHPXD
RHPYM

FILTER: CH: CLASS 60
CH: CLASS 60

PEAK DATA: 48.85 ° @ 6.47 S; -9.52 ° @ -1.00 S
218.01 N·M @ 6.43 S; -14.01 N·M @ -1.00 S

TRANSPORTATION RESEARCH CENTER INC.

LEFT HIP JOINT FEMUR FLEXION TEST

HYBRID III PART 572E

14-APR-99

TRC INC.

TEST NO: 169C9HL1

572E SN 169 HIPFLEX CAL 09

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	18.9-25.6 DEG. C	21.1 DEG. C
RELATIVE HUMIDITY	10 - 70 %	33.0 %
ROTATION RATE	5 - 10 deg/sec	YES
TORQUE @ 30 deg ROTATION	<= 94.9 Nm	63.0 Nm
ROTATION @ 203.4 Nm TORQUE	40 - 50 deg.	44.6 deg.

TEST MEETS SPECIFICATIONS

TECHNICIAN

Bj Whit

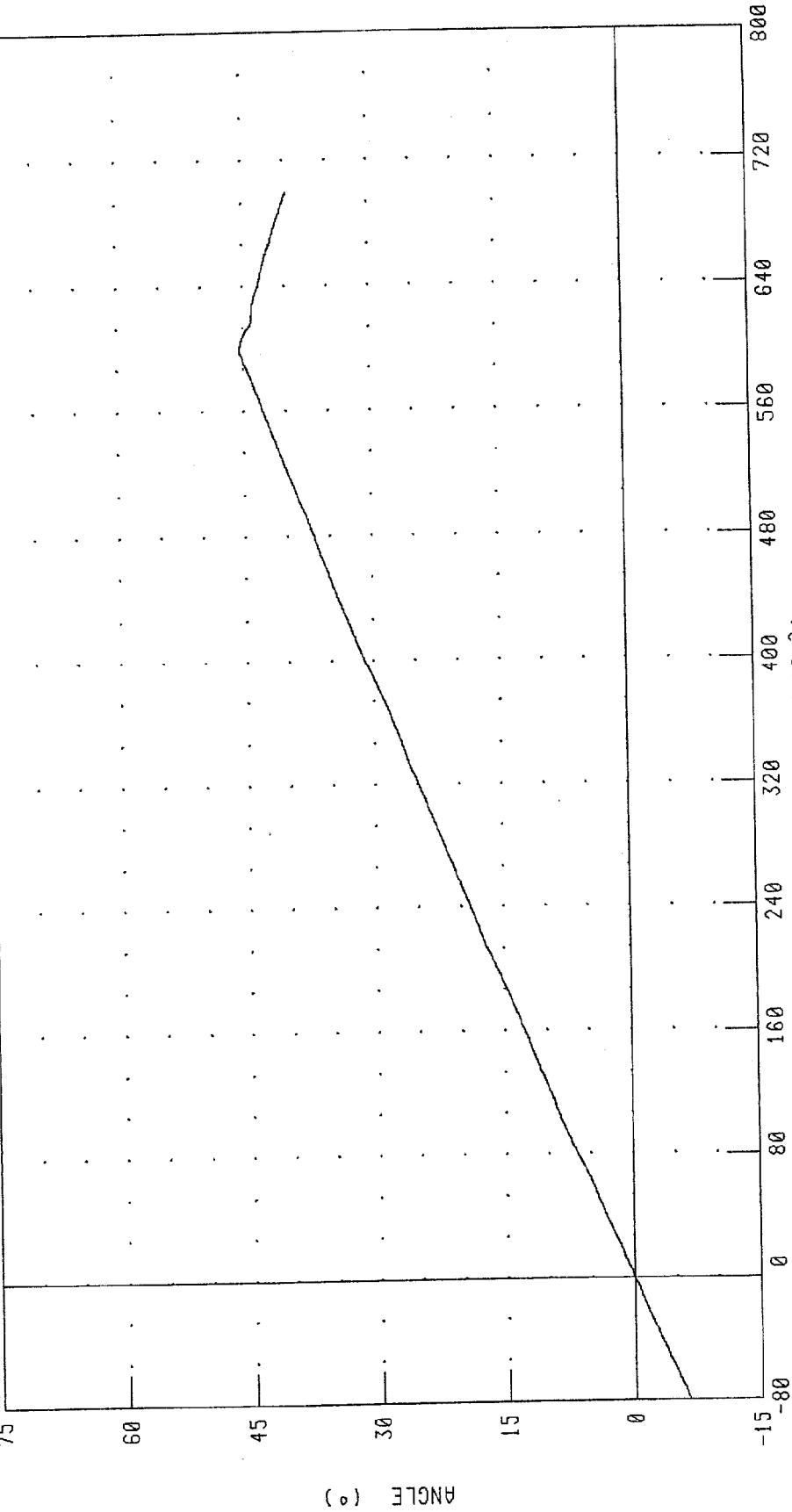
RUN NUMBER: 041499.1104;1

HYBRID III HIP FLEXION VERIFICATION - 0 DEGREES
LEFT HIP FLEXION ROTATION

RUN NUMBER: 041199.1104;1

TRC TEST NUMBER: 169C9HL1

572E SN 169 HIPFLEX CAL 09



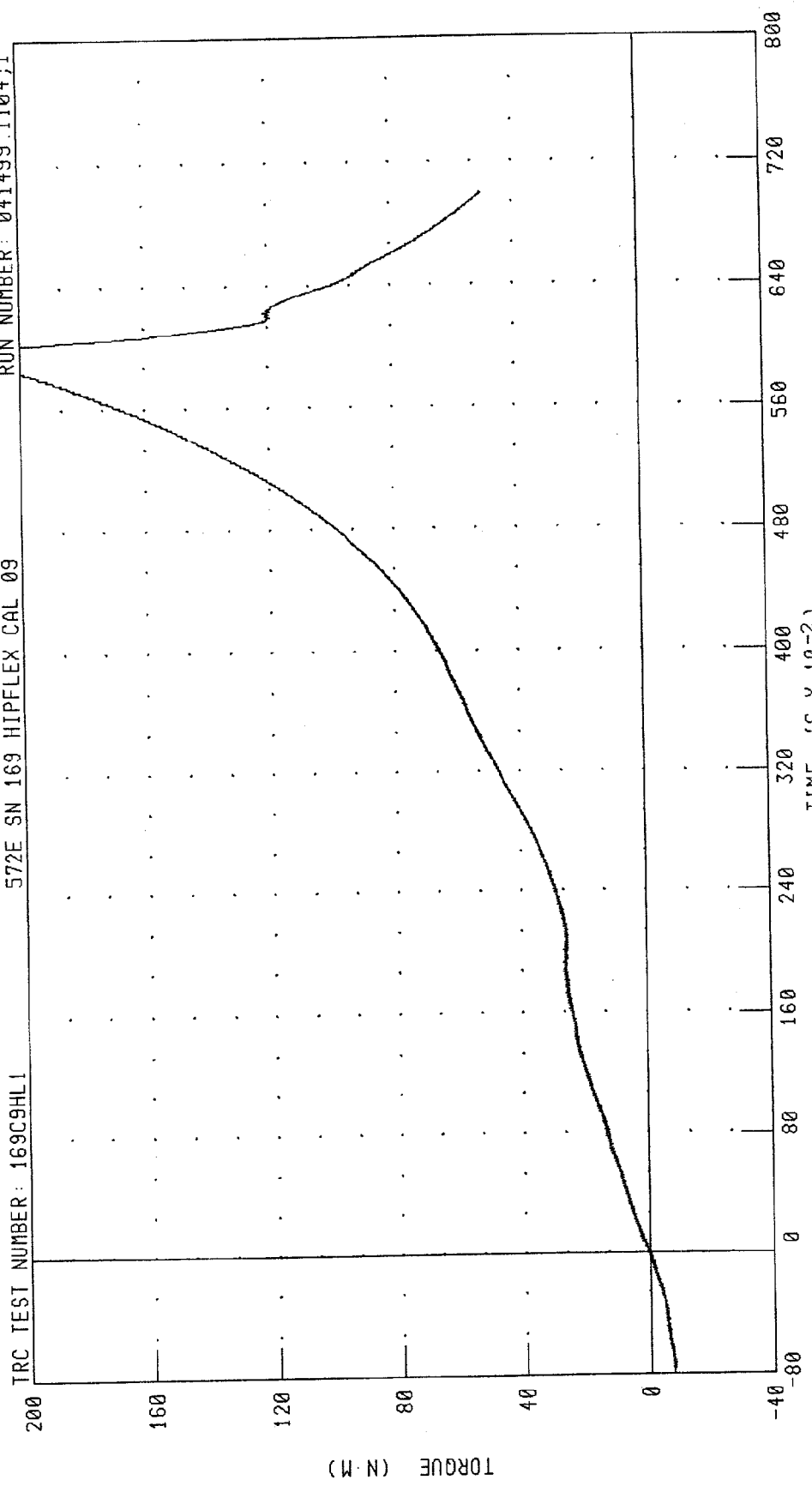
PEAK DATA: 45.50 ° @ 6.00 S; -9.44 ° @ -1.00 S

CHANNEL: LHPXD FILTER: CH. CLASS 60

HYBRID III HIP FLEXION VERIFICATION - 0 DEGREES
LEFT HIP FLEXION MOMENT
572E SN 169 HIPFLEX CAL 09

RUN NUMBER: 041499.1104;1

TRC TEST NUMBER: 169C9HL1



PEAK DATA: 221.63 N·M @ 5.97 S; -10.65 N·M @ -1.00 S

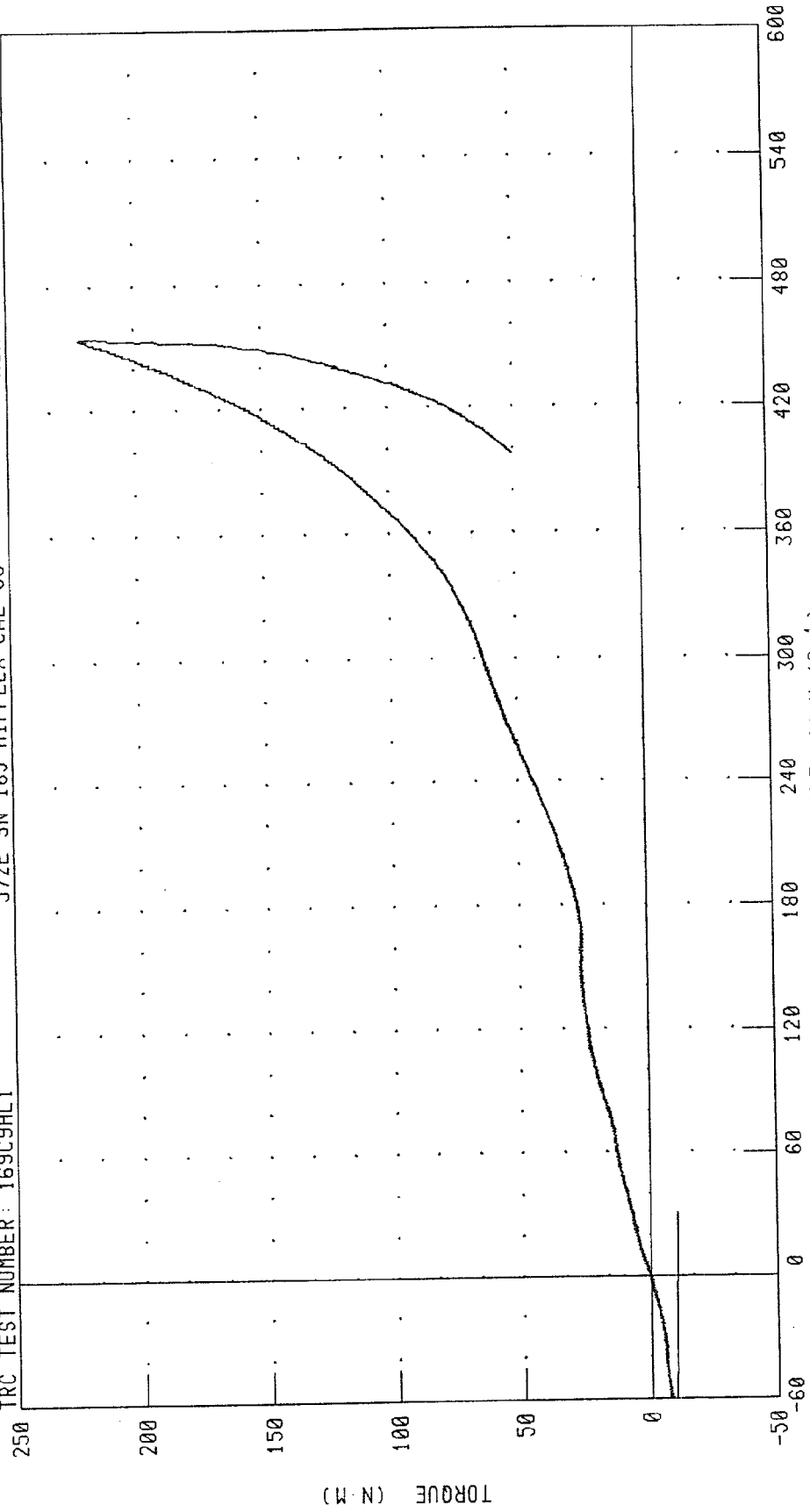
CHANNEL: LHPYM FILTER: CH. CLASS 60

HYBRID III HIP FLEXION VERIFICATION - 0 DEGREES
LEFT HIP FLEXION MOMENT VS ROTATION ANGLE

TRC TEST NUMBER: 169C9HL1

572E SN 169 HIPELEX CAL 09

RUN NUMBER: 041499.1104;1



CHANNEL: LHPXD
LHPYN

FILTER: CH: CLASS 60
CH: CLASS 60

PEAK DATA: 45.50 ° @ 6.00 S; -9.44 ° @ -1.00 S
221.63 N·M @ 5.97 S; -10.65 N·M @ -1.00 S

TRANSPORTATION RESEARCH CENTER INC.

RIGHT KNEE IMPACT TEST

HYBRID III 50th

14-APR-99

TRC INC.

TEST NO: 169C9RK1

572E SN169 RIGHT KNEE CAL 9

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	18.9-25.6 DEG. C	21.1 DEG. C
RELATIVE HUMIDITY	10 - 70 %	33.0 %
PROBE VELOCITY	2.07 - 2.13 M/S	2.10 M/S
PEAK KNEE IMPACT FORCE 5.0 KG PENDULUM	4715 - 5782 N	5314.5 N

TEST MEETS SPECIFICATIONS

TECHNICIAN Bjelt

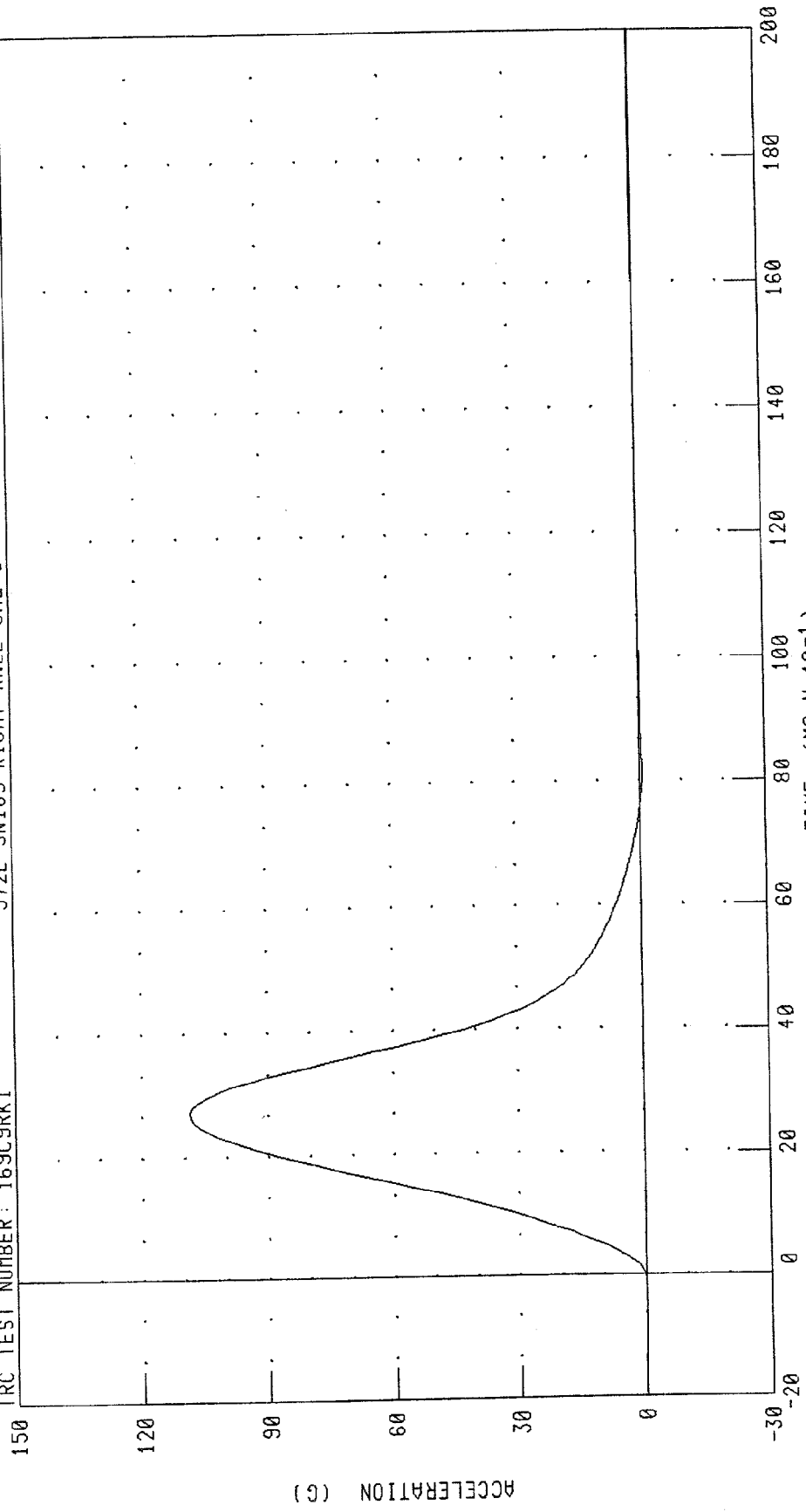
RUN NUMBER: 041499.1104;1

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

RUN NUMBER: 041499.1105,1

572E SN169 RIGHT KNEE CAL 9

TRC TEST NUMBER: 169C9RK1



PEAK DATA: 108.62 G @ 2.72 MS; -0.82 G @ 8.16 MS

CHANNEL: PENXC FILTER: CH. CLASS 600

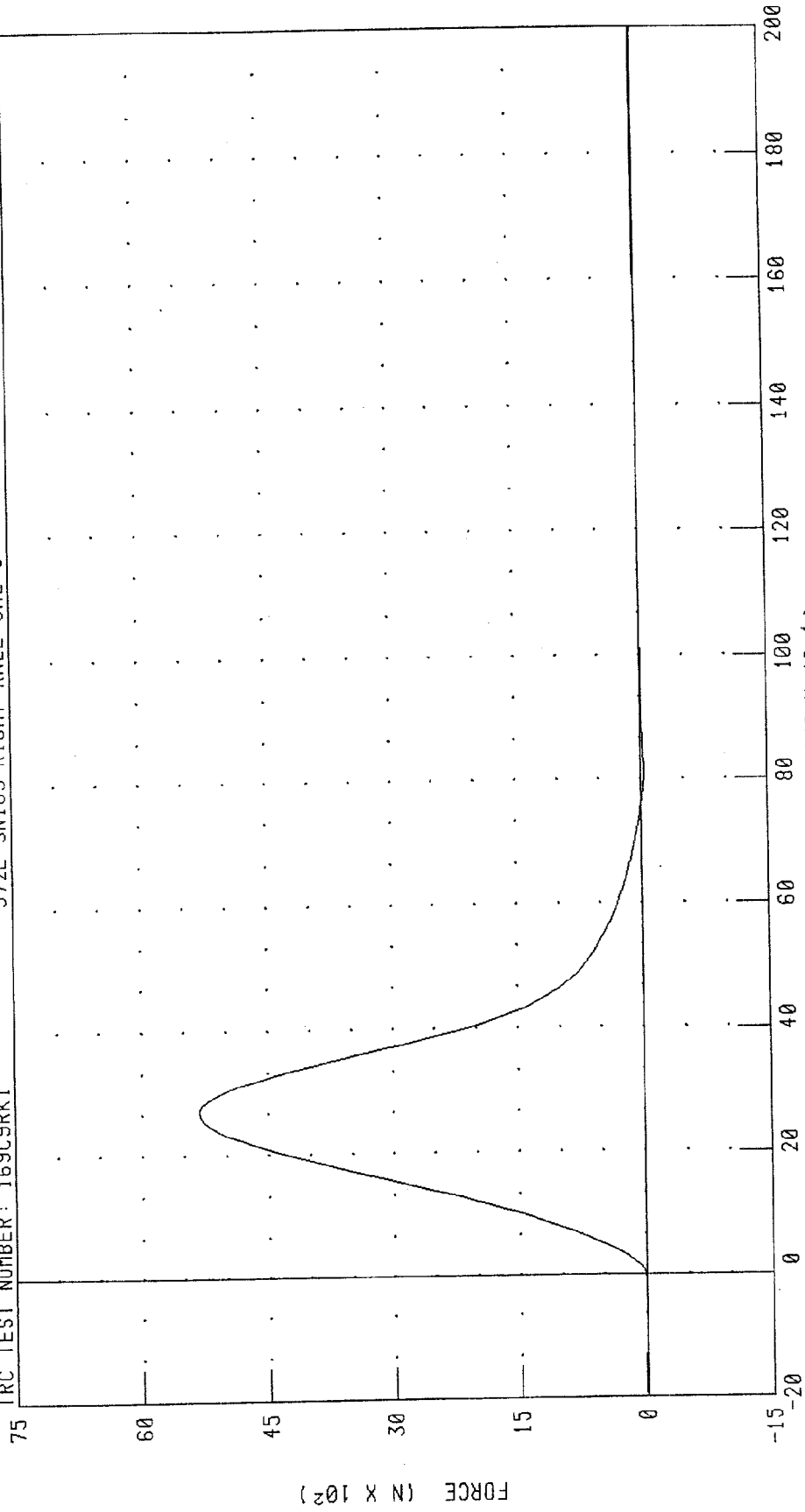
PART 572-E HYBRID III RIGHT KNEE CALIBRATION

PENDULUM FORCE (5 KG PEND.)

572E SN169 RIGHT KNEE CAL 9

RUN NUMBER: 041499.1105;1

TRC TEST NUMBER: 169C9RK1



PEAK DATA: 5314.58 N @ 2.72 MS; -40.15 N @ 8.16 MS

CHANNEL: PENXF FILTER: CH. CLASS 600

TRANSPORTATION RESEARCH CENTER INC.

LEFT KNEE IMPACT TEST

HYBRID III 50th

14-APR-99

TRC INC.

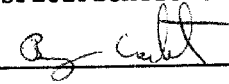
TEST NO: 169C9LK1

572E SN169 LEFT KNEE CAL 9

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	18.9-25.6 DEG. C	21.1 DEG. C
RELATIVE HUMIDITY	10 - 70 %	33.0 %
PROBE VELOCITY	2.07 - 2.13 M/S	2.10 M/S
PEAK KNEE IMPACT FORCE 5.0 KG PENDULUM	4715 - 5782 N	5531.9 N

TEST MEETS SPECIFICATIONS

TECHNICIAN



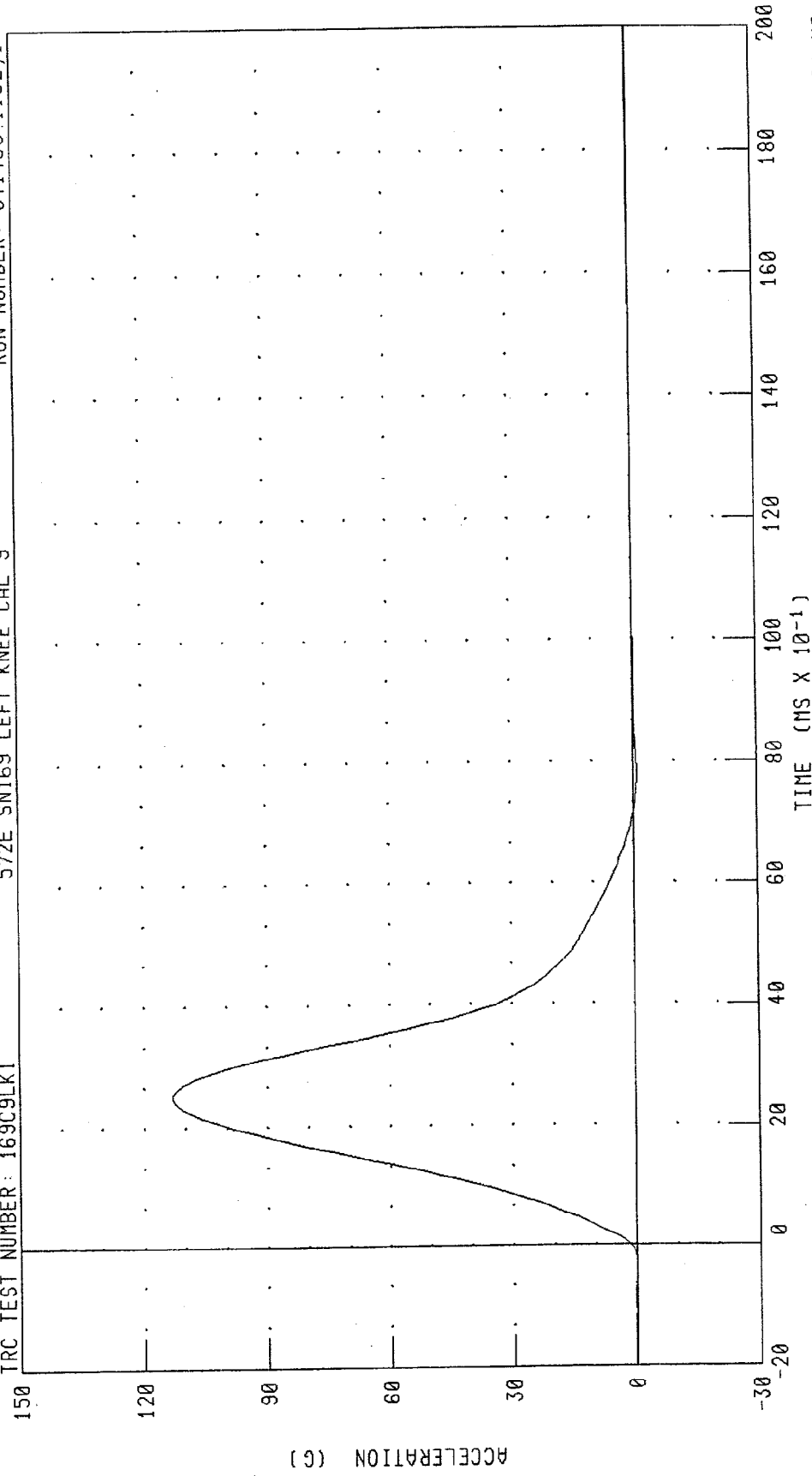
RUN NUMBER: 041499.1101;1

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

TRC TEST NUMBER: 169C9LK1

572E SN169 LEFT KNEE CAL 9

RUN NUMBER: 041499.1102;1



CHANNEL: PENXC FILTER: CH. CLASS 600 PEAK DATA: 113.06 G @ 2.48 MS; -1.01 G @ 7.84 MS

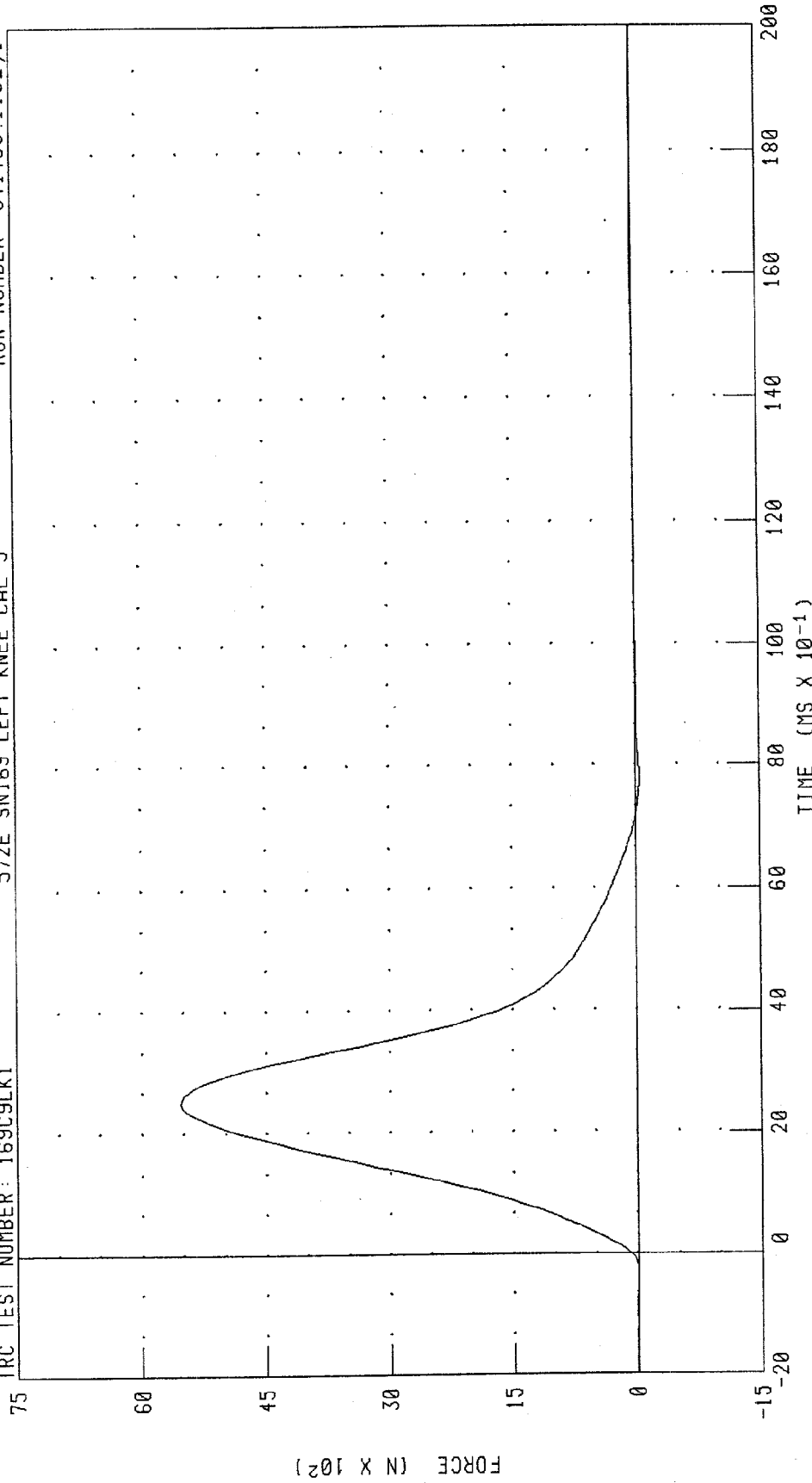
PART 572-E HYBRID III LEFT KNEE CALIBRATION

PENDULUM FORCE (5 KG PEND.)

RUN NUMBER: 041499.1102;1

TRC TEST NUMBER: 169C9LK1

572E SN169 LEFT KNEE CAL 9



PEAK DATA: 5531.93 N @ 2.48 MS; -49.35 N @ 7.84 MS

CHANNEL: PENXF FILTER: CH. CLASS 600

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

Test Number 990421-2

<u>Number</u>	<u>Location</u>	<u>Axis</u>	<u>Manufacturer</u>	<u>Model</u>	<u>S/N</u>	<u>Orientation (+ Sensing)</u>
1	Left Brake Caliper	X	Endevco	7264-2000T	J23899	Rearward
2	Right Brake Caliper	X	Endevco	7264-2000T	J26523	Forward
3	Instrument Panel Center	X	Endevco	7264-2000T	J27678	Forward
4	Engine Top	X	Endevco	7264-2000T	J27667	Forward
5	Engine Bottom	X	Endevco	7264-2000T	J22660	Forward
6	Vehicle Rear Center	Z	Endevco	7264-2000T	J27682	Up
7	Left Rear Seat Crossmember	X	Endevco	7264-2000T	J26887	Forward
8	Right Rear Seat Crossmember	X	Endevco	7264-2000T	J26952	Forward

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.: 097360 3010 _____ ENGINEER: PG _____ TEST DATE: 4-21-99 _____

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.: 097360 3010; ENGINEER: PG; TEST DATE: 4-21-99

MNEMONIC PARAMETER BEING MEASURED	TYPE OF TRANSDUCER	MODEL NO.	SERIAL NO.	MFR.	SENSITIVITY	CAL DUE DATE	FULL SCALE (ENGR. UNITS) DESIRED	FULL SCALE (ENGR. UNITS) 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			
LFMF 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

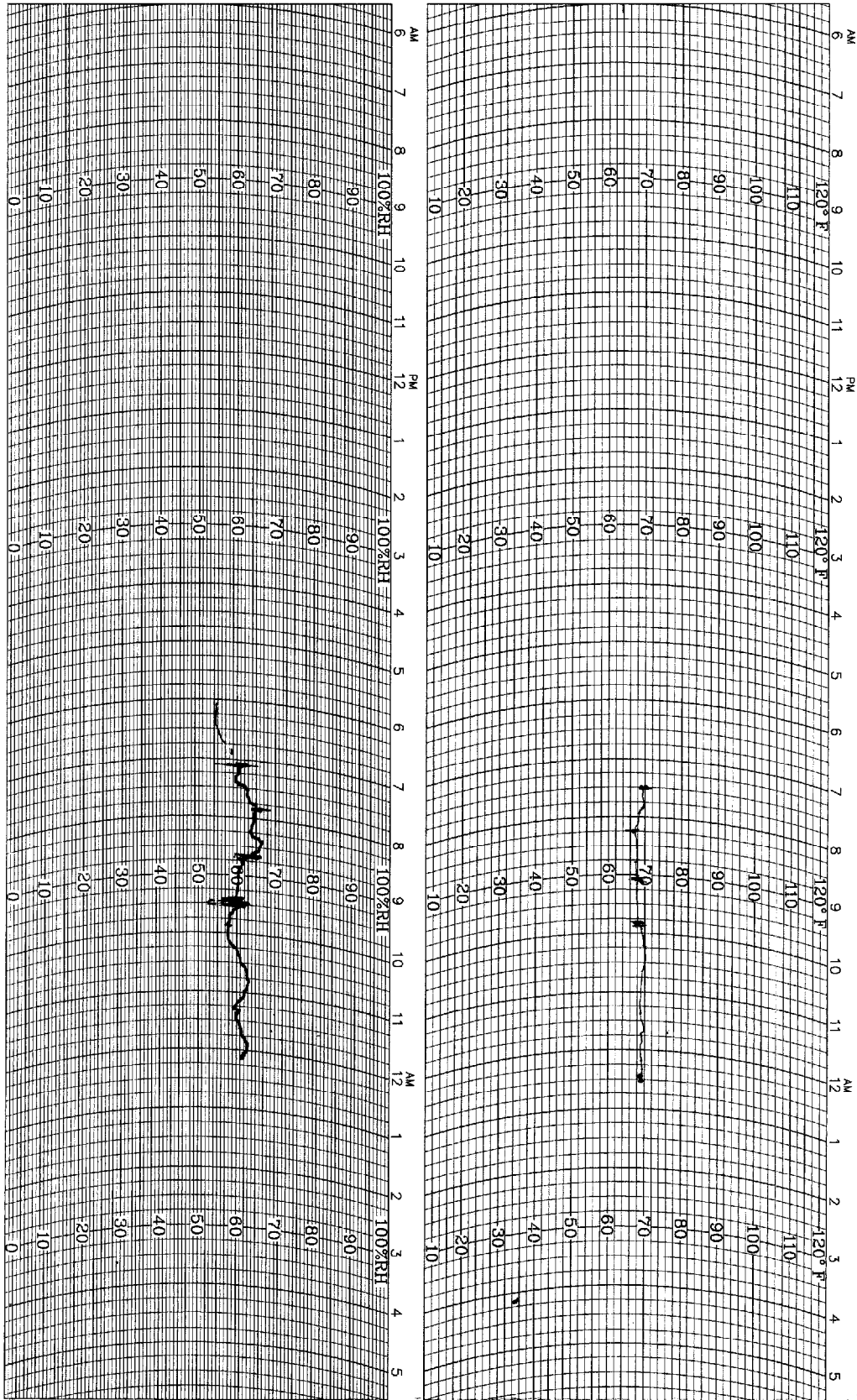
HYBRID III DUMMY SERIAL NO.: 169V ; MFR.: _____; SEATING POSITION: PASS _____
 PROJECT-SEGMENT NO.: 097360 3010 ; ENGINEER: PG _____; TEST DATE: 4-21-99 _____


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		
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 K-gm 200 ft.lbs 275 N-m			MX
NEKYM NMY*	NECK MOMENT ABOUT Y AXIS	"	"	"	1.6205 MV/V @2500 IN-LBS	"	30 K-gm 200 ft.lbs 275 N-m			MY
NEKZM NMZ*	NECK MOMENT ABOUT Z AXIS	"	"	"	2.2982 MV/V @2500 IN-LBS	"	30 K-gm 200 ft.lbs 275 N-m			MZ

TRANSDUCER INFORMATION

HYBRID III DUMMY SERIAL NO.: 169v ; MFR.: _____ ; SEATING POSITION: PASS
 PROJECT-SEGMENT NO.: 097360 3010 ; ENGINEER: PG ; TEST DATE: 4-21-99

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




Weather Measure
WEATHERtronics
 Division of QUALIMETRICS, Inc.

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

HYGROTHERMOGRAPH CHART NO. M699123
 1 DAY #2 test TC311-D-HF
 ECN 2717
 6-9-87

4-21-99 CR

STATION _____ DATE ON _____ DATE OFF _____