

TRC TEST NUMBER: 010130

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V3608

V 36005

**Vehicle Research and Test Center**

**Moving Deformable Barrier into Moving 1996 Plymouth Neon at 35 mph**

**Centerline to Centerline**

**TRC Test Number 010130**

**Prepared by:**

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Section 1.0

Purpose and Test Procedure

## Purpose

This 56 km/h centerline to centerline moving deformable barrier-to-vehicle impact test was conducted for National Highway Transportation and Safety Administration (NHTSA) and Vehicle Research and Test Center (VRTC) by Transportation Research Center Inc. (TRC Inc.). This test is a moving deformable barrier impacting a moving 1996 Plymouth Neon.

The purpose of this test was to determine the response of the subject vehicle impacting another vehicle, simulated by a moving deformable barrier with a new contour compared to a baseline test. Each vehicle was traveling at 56 km/h, impacting centerline to centerline.

## Test Procedure

This test was conducted per NHTSA and VRTC instructions. Data was obtained relative to FMVSS 208, "Occupant Protection."

The subject vehicle, a 1996 Plymouth Neon, was instrumented with seven (7) longitudinal axis accelerometers, three (3) lateral axis accelerometers, four (4) vertical axis accelerometers, and its specified impact velocity range was 55.5 to 57.1 km/h.

The bullet vehicle, a moving deformable barrier, was instrumented with two (2) accelerometers to measure longitudinal axis accelerations, three (3) accelerometers to measure lateral accelerations, two (2) accelerometers to measure vertical axis acceleration, two (2) rate gyros to measure pitch and yaw, and forty-four (44) triaxial load cells to measure barrier face forces. Its specified impact velocity range was 55.5 to 57.1 km/h.

The bullet vehicle's centerline was aligned with the subject vehicle's centerline. This test represented a full frontal car to car moving test. The moving deformable barrier had a similar mass, but a new face contour, compared to the baseline test performed June 6, 2000.

One (1) 50th percentile adult male Hybrid III dummy and one (1) 5th percentile adult female dummy were placed in the subject vehicle's left front and right front designated seating positions, respectively. Each dummy had accelerometers in the head, chest, and pelvis to measure longitudinal, lateral, and vertical accelerations; 6-axis upper neck load cells to measure forces and moments in the neck; uniaxial femur load cells in the left and right femurs to measure axial forces; and a potentiometer in the chest to measure chest deflection. The driver dummy was also instrumented with upper and lower tibia force and moment load cells. Each dummy was restrained with a 3-point unibelt.

The one hundred-ninety-nine (199) data channels were digitally sampled and recorded at 12,500 samples per second and processed per SAE J211 March 1995, except for the barrier load cell sign convention (see Report Sign Convention in Appendix D).

The crash event was recorded by one (1) real-time panning motion picture camera and ten (10) high-speed motion picture cameras.

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

Section 2.0

Moving Deformable Barrier into Car Centerline to Centerline Test Summary

### Test Results Summary

This 56 kph full frontal centerline to centerline moving deformable barrier-to-vehicle impact test was conducted by TRC Inc. on January 30, 2001.

The subject test vehicle, a 1996 Plymouth Neon, was equipped with a 4-cylinder, transverse engine, automatic transmission, power steering, and power brakes. The subject vehicle's test weight was 1382.4 kg and its impact speed was 57.1 km/h. The bullet vehicle, a moving deformable barrier with new face contour, was to represent a Plymouth Neon. The bullet vehicle's test weight was 2050.4 kg and its impact speed was 58.0 kph. The subject vehicle's maximum static crush was 812 millimeters. The bullet vehicle's barrier face was measured with TRC's Faro arm.

The subject vehicle driver dummy's 36 ms Head Injury Criteria (HIC) was 1846. The subject vehicle driver dummy's 15 ms HIC was 1560. The subject vehicle driver dummy's chest maximum resultant acceleration with three (3) milliseconds minimum duration was 100.0 g. The subject vehicle driver dummy's chest deflection was 38 mm. The subject vehicle's driver dummy's left and right femur forces were 8800 N and 11805 N, respectively. The driver dummy's neck injury calculations were as follows: NTF, 0.63; NTE, 0.20; NCF, 0.23; NCE, 0.40. The driver dummy's tibia indexes were as follows: left upper, 1.71; right upper, 2.34 (see Data Acquisition Explanations); left lower 1.78; and right lower, 2.66 (see Data Acquisition Explanations).

The subject vehicle right front passenger dummy's 36 ms HIC and 15 ms HIC was 6784 (see Data Acquisition Explanations). The passenger's HIC was recalculated from 0 to 105 milliseconds to exclude the anomalous spike and resulted in a 36 ms HIC of 1047 and a 15 ms HIC of 767. The subject vehicle right front passenger dummy's chest maximum resultant acceleration with three (3) milliseconds minimum duration was 67.5 g. The subject vehicle right front passenger dummy's chest deflection was 29 mm. The subject vehicle's right front passenger dummy's left and right femur forces were 9781 N and 7031 N, respectively. The passenger dummy's neck injury calculations were as follows: NTF, 0.50; NTE, 1.07; NCF, 0.22; NCE, 1.08.

### Data Acquisition Explanation

The motion picture film impact event strobes fired 12 ms after the impact's first contact.

The driver's right lower tibia moment about Y-axis load cell, ANRYM1, exceeded the data channel's full scale from approximately 43 to 55 ms. This affected the driver's right lower tibia index calculation.

The driver's right lower tibia Z-axis force load cell, ANRZF1, exceeded the data channel's full scale from approximately 40 to 42 ms. This affected the driver's right upper and lower tibia index calculations.

The right front passenger's head X-axis accelerometer, HEDXG2, exceeded the data channel's full scale at approximately 108 ms. This affected the right front passenger's head resultant acceleration and HIC calculations.

The right front passenger's neck Z-axis force load cell, NEKZF2, had a questionable data spike at approximately 145 milliseconds (the time of the negative peak).

The engine bottom X-axis accelerometer, ENGXG2, lost data after approximately 70 ms.

The following moving deformable barrier force load cells did not return to zero after impact:

A1 X-axis force, BA1XF

A1 Y-axis force, BA1YF

A1 Z-axis force, BA1ZF

D2 X-axis force, BD2XF

D4 X-axis force, BD4XF

D4 Y-axis force, BD4YF

D4 Z-axis force, BD4ZF

H1 X-axis force, BH1XF

H2 X-axis force, BH2XF

I1 X-axis force, BI1XF

K1 X-axis force, BK1XF

K1 Y-axis force, K1YF

K1 Z-axis force, BK1ZF

The moving deformable barrier G3 Y-axis force load cell, BG3YF, lost data after approximately 155 ms.

The moving deformable barrier YAW gyroscope, VCGZV1, recorded intermittent data spikes that exceeded the data channel's full scale.

Table 1 Crash Test Summary

Test type:	Full Front Centerline to Centerline	
Test date:	01/30/01	
Test time:	1330	
Ambient temperature:	6° C	
Target vehicle:	1996 Dodge Neon	
Target vehicle test weight:	1382.4 kg	
Bullet vehicle:	Moving Deformable Barrier	
Bullet vehicle test weight:	2050.4 kg	
Impact angle: <sup>1</sup>	0°	
Impact velocity: <sup>2</sup>	Target vehicle = 57.1 kph Bullet vehicle = 58.0 kph	
Target vehicle's maximum static crush:	812 mm	
Target vehicle dummies:	Driver #090	Passenger #416
Type:	572E (50% male)	572O (5% female)
Location:	Left front	Right front
Restraint:	3-point unbelt/airbag	3-point unbelt/airbag
Total number of data channels:	27	18
Number of cameras:		
High-speed	10	
Real-time	1	

<sup>1</sup> With respect to tow track centerline.

<sup>2</sup> Speed trap measurement ( $\pm$  .08 kph accuracy)

Table 2 Target Test Vehicle Information

Vehicle manufacturer: Chrysler Corporation  
 Make/model: Plymouth/Neon  
 VIN: 3P3ES47C9TT207033  
 Model year: 1996  
 Body style: 4-door  
 Color: Green  
 Engine data:  
   Type: Transverse  
   Cylinders: 4  
   Displacement: 2.0 liters  
 Transmission data: 3 Speed,   Manual,   Automatic,  
  X FWD,   RWD,   4WD  
 Date vehicle received: 1/22/01  
 Odometer reading: 125927  
 Dealer's name and address: N/A

Accessories:

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

Certification data from vehicle's label:

Vehicle manufactured by: Chrysler Corporation  
 Date of manufacture: 09/95  
 VIN: 3P3ES47C9TT207033  
 GVWR: 3490 lbs. (1584 kg.)  
 GAWR: Front: 1954 lbs. ( 887 kg.)  
       Rear: 1611 lbs. ( 731 kg.)

Table 2 Target Test Vehicle Information, Cont'd.

Tires on vehicle (mfr., line, size): R. F. Michelin, X Radial/Plus, Front;  
Goodyear Eagle GA, Rear  
P185/65R14

Tire pressure with maximum capacity vehicle load: Front: 35 psi (240 kPa)  
Rear: 44 psi (303 kPa)

Spare tire (mfr., line, size): No spare

Type of seats: Front: Bucket  
Middle: Bucket  
Rear: Bench

Type of front seat backs: Manually adjustable

Maximum width: 1722 mm

Wheelbase: 2640 mm

Location of "Recommended Tire Pressure" label:

The label was located on the driver door.

Data from vehicle's "Recommended Tire Pressure" label:

Recommended tire size: P165/80R13

Recommended cold tire pressure: Front: 32 psi  
Rear: 32 psi

Seating capacity: Front: 2  
Middle: 0  
Rear: 3  
Total: 5

Vehicle capacity weight: 865 lbs. (392 kg)  
Luggage weight: 115 lbs. (53 kg)

Test vehicle attitude:

Delivered attitude: LF 658 mm; RF 662 mm; LR 680 mm; RR 678 mm  
Pre-test attitude: LF 633 mm; RF 638 mm; LR 621 mm; RR 638 mm  
Post-test attitude: LF 709 mm; RF 780 mm; LR 618 mm; RR 635 mm

Table 2 Target Test Vehicle Information, Cont'd.

Delivered Weight:

Right Front:	366.0 kg	Right Rear:	201.0 kg
Left Front:	383.0 kg	Left Rear:	204.0 kg
Total Front Weight:	749.0 kg	(64.9% of total vehicle weight)	
Total Rear Weight:	405.0 kg	(35.1% of total vehicle weight)	
Total Delivered Weight:	1154.0 kg		

Target test weight:<sup>1</sup>

Front: 810.5 kg.

Rear: 571.0 kg.

Total: 1381.5 kg.

Weight of test vehicle with required dummies and 105.0 kg cargo weight:

Right front	399.6 kg	Right rear	275.4 kg
Left front	416.4 kg	Left rear	291.0 kg
Total front weight	816.0 kg	(59.0% of total vehicle weight)	
Total rear weight	566.4 kg	(41.0% of total vehicle weight)	
Total test weight	1382.4 kg		

Weight of ballast secured in cargo area: 0 kg

Components removed to meet target test weight: Bumper skin, muffler, rear door glass and skin, taillights, trunk seal, 5.5 gallons of water from tank

CG rearward of front wheel centerline: 1082 mm

<sup>1</sup>Provided by VRTC to match a previous test.

Table 3 Moving Deformable Barrier Information

Target test weight = 2050.5 kg (Based on the test weight of the Plymouth Neon)

Weight of test vehicle

Right front	620.6 kg	Right rear	413.8 kg
Left front	509.8 kg	Left rear	506.2 kg
Total front weight	1130.4 kg	(55.1% of total vehicle weight)	
Total rear weight	920.0 kg	(44.9% of total vehicle weight)	
Total test weight	2050.4 kg		

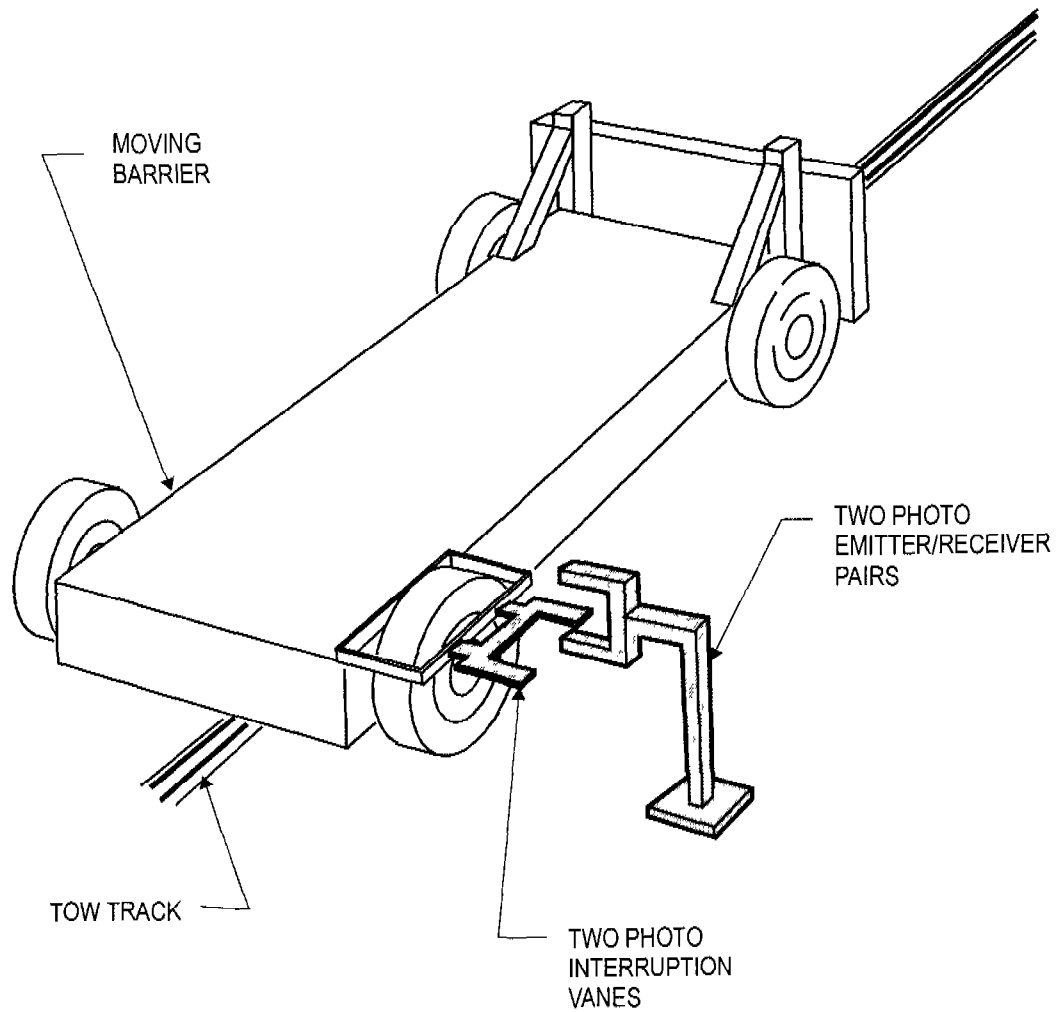
CG rearward of front wheel centerline: 1163 mm

Table 4 Post-Impact Data

Test number:	010130
Date of test:	01/30/01
Time of test:	1330
Type of test:	Full Frontal Centerline to Centerline
Impact angle:	0°
Ambient temperature at impact area:	6° C
Impact velocity:	
Target vehicle:	57.1 kph
Moving barrier:	58.0 kph (Specified range = 55.5 to 57.1 kph)
Distance from vehicle to vehicle:	
Entering trap	660 mm
Exiting trap	51 mm
Intended impact point:	Centerline to centerline (0 mm offset)
Actual impact point:	-38 mm left offset <sup>1</sup>

<sup>1</sup> Approximate from film analysis.

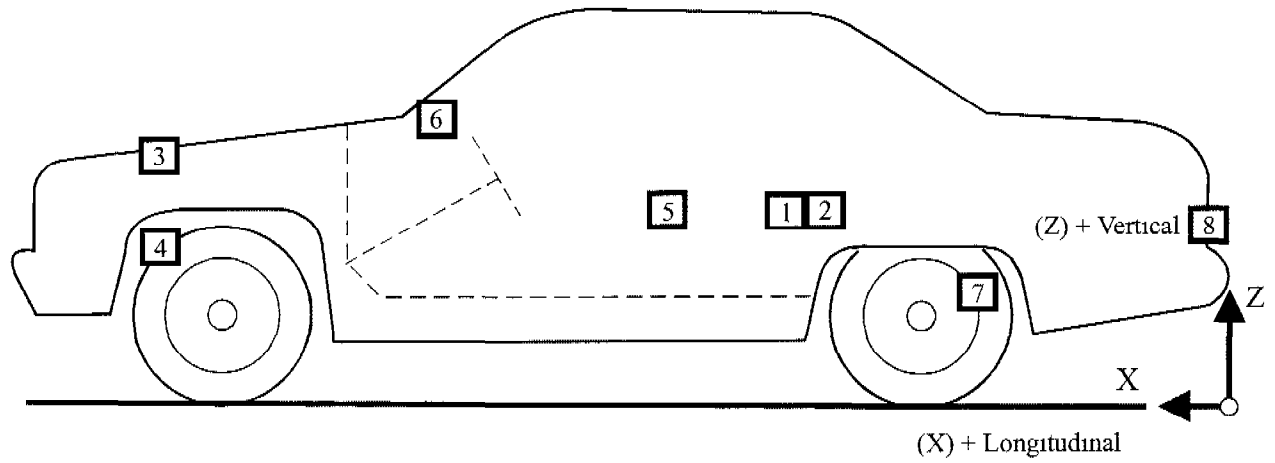
Figure 1 Impact Velocity Measurement System



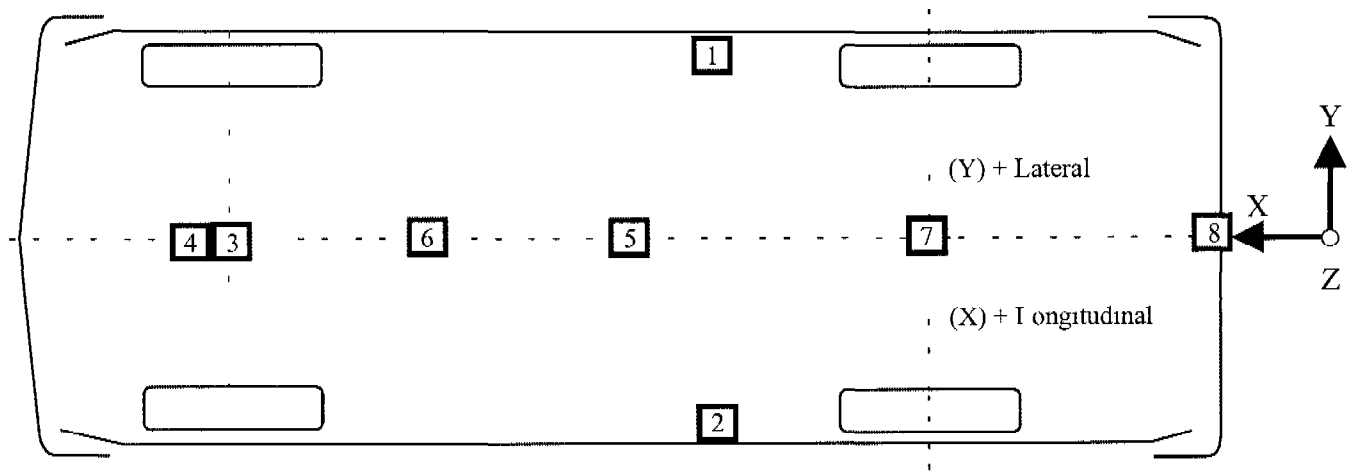
The final vane clears the final emitter/receiver pair 51 millimeters before impact.

The vanes have 610-millimeter spacing

Figure 2 Target Vehicle Accelerometer Placement



Side View



Bottom View

Table 5 Target Vehicle Accelerometer Locations and Data Summary

TEST NUMBER: 010130 No. LOCATION	X	Y	Z	POSITIVE DIRECTION	NEGATIVE DIRECTION
1 LEFT REAR SEAT CROSSMEMBER LONGITUDINAL LATERAL VERTICAL RESULTANT	1815 mm	333 mm	378 mm	4.7 g @ 129.4 ms 10.0 g @ 67.2 ms 21.1 g @ 81.2 ms 49.7 g @ 43.0 ms	47.2 g @ 42.9 ms 11.8 g @ 81.7 ms 29.7 g @ 52.2 ms
2 RIGHT REAR SEAT CROSSMEMBER LONGITUDINAL LATERAL VERTICAL RESULTANT	1815 mm	-333 mm	372 mm	4.7 g 13.3 g 9.0 g 50.1 g	48.6 g @ 132.8 ms 9.0 g @ 67.5 ms 24.4 g @ 56.6 ms 42.9 ms @ 42.9 ms
3 ENGINE TOP LONGITUDINAL	3840 mm	-221 mm	760 mm	88.5 g	207.9 g @ 41.8 ms @ 31.4 ms
4 ENGINE BOTTOM LONGITUDINAL <sup>1</sup>	3750 mm	-131 mm	135 mm	---	---
5 VEHICLE CENTER OF GRAVITY LONGITUDINAL LATERAL VERTICAL RESULTANT	2575 mm	0 mm	305 mm	5.7 g 7.7 g 28.2 g 66.5 g	66.4 g @ 77.4 ms 43.3 g @ 53.1 ms 24.8 g @ 43.4 ms 54.5 ms @ 54.5 ms

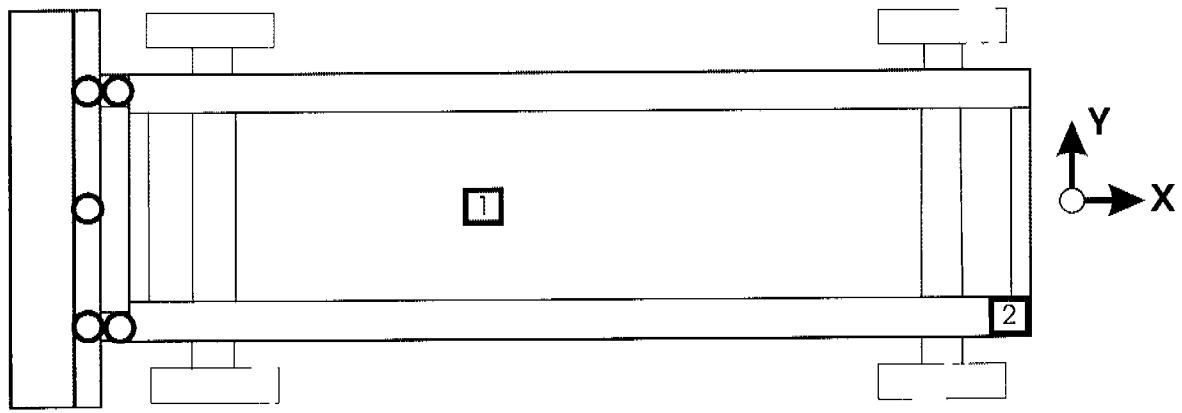
Table 5 Target Vehicle Accelerometer Locations and Data Summary, Cont'd.

TEST NUMBER: 010130 No. LOCATION	X	Y	Z	POSITIVE DIRECTION	NEGATIVE DIRECTION
6 INSTRUMENT PANEL LONGITUDINAL	3140 mm	0 mm	890 mm	38.6 g @ 91.0 ms	139.7 g @ 54.0 ms
7 REAR AXLE LONGITUDINAL	815 mm	12 mm	225 mm	5.8 g @ 119.5 ms	50.0 g @ 44.4 ms
8 VEHICLE REAR CENTER VERTICAL	470 mm	0 mm	4849 mm	18.5 g @ 51.3 ms	34.2 g @ 45.4 ms

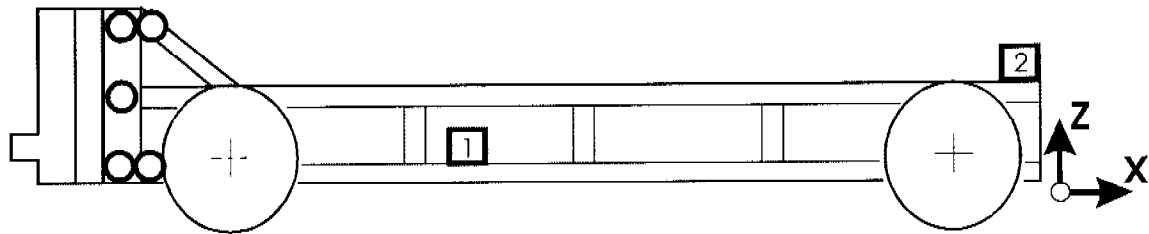
REFERENCE: X: + FORWARD FROM REAR BUMPER  
 Y: + LEFTWARD FROM VEHICLE CENTERLINE  
 Z: + UPWARD FROM GROUND LEVEL

<sup>1</sup>See DATA ACQUISITION EXPLANATIONS

Figure 3 Moving Deformable Barrier Accelerometer Placement



TOP VIEW



SIDE VIEW

Table 6 Moving Deformable Barrier Accelerometer Locations and Data Summary

TEST NUMBER: 010130	X			Y	Z	POSITIVE DIRECTION	NEGATIVE DIRECTION
No. LOCATION	X	Y	Z				
1 BARRIER CENTER OF GRAVITY	2460 mm	0 mm	318 mm				
LONGITUDINAL				0.6 g	@ 309.9 ms	47.8 g	@ 33.6 ms
LATERAL				8.5 g	@ 31.4 ms	10.2 g	@ 39.0 ms
VERTICAL				31.0 g	@ 50.1 ms	28.5 g	@ 70.1 ms
RESULTANT				48.8 g	@ 33.7 ms		
2 LEFT REAR FRAME	190 mm	610 mm	550 mm				
LONGITUDINAL				1.3 g	@ 196.6 ms	44.5 g	@ 33.9 ms
LATERAL				7.3 g	@ 44.9 ms	7.8 g	@ 54.1 ms
3 BARRIER CENTER OF GRAVITY VELOCITY	2320 mm	0 mm	358 mm				
LATERAL				115.3 deg/s	@ 50.2 ms	138.9 deg/s	@ 54.1 ms
VERTICAL <sup>1</sup>				---	---	---	---

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

<sup>1</sup>See DATA ACQUISITION EXPLANATIONS

Section 3.0

Summary of FMVSS 208 Data

Table 7 Target Vehicle Dummy Injury Criteria

	<u>Maximum Acceleration</u>						
	Head				Chest		
	X	Y	Z	R	X	Y	Z
Driver	-135.4 g	-37.2 g	47.7 g	142.1 g	-104.6 g	-16.4 g	29.1 g
Passenger	-802.8 g <sup>1</sup>	-18.1 g	34.2 g	802.8 g <sup>1</sup>	-81.8 g	16.4 g	-25.1 g

Maximum Femur Compressive Force

	Left Femur	Right Femur
Driver	8800 N	11805 N
Passenger	9781 N	7031 N

Head Injury Criteria<sup>2</sup>

	36 ms HIC	Time t <sub>1</sub>	Time t <sub>2</sub>
Driver	1846	51.9 ms	76.6 ms
Passenger <sup>1,4</sup>	6784	108.4 ms	109.0 ms
	15 ms HIC	Time t <sub>1</sub>	Time t <sub>2</sub>
Driver	1560	59.0 ms	74.0 ms
Passenger <sup>1,4</sup>	6784	108.4 ms	109.0 ms

Chest Maximum Resultant Acceleration<sup>3</sup>

	Acceleration	Time t <sub>1</sub>	Time t <sub>2</sub>
Driver	100.0 g	64.2 ms	67.2 ms
Passenger	67.5 g	58.7 ms	61.8 ms

Maximum Chest Deflection

Driver	38 mm
Passenger	29 mm

<sup>1</sup> See Data Acquisition Explanations

<sup>2</sup> As defined in FMVSS No. 208

<sup>3</sup> Defined as equal to or exceeding 0.003 sec. duration

<sup>4</sup> Passenger HIC recalculated from 0 to 105 ms to exclude anomaly, results in a 36 ms HIC of 1047 and a 15 ms HIC of 767.

Table 7 Target Vehicle Dummy Injury Criteria, Cont'd.

Neck Injury Calculations (NIJ)<sup>2</sup>

	NTF	NTE	NCF	NCE
Driver	0.63	0.20	0.23	0.40
Passenger	0.50	1.07	0.22	1.08

Neck Load Cell Maximums<sup>5</sup>

	<u>Forces</u>					
	+X	-X	+Y	-Y	+Z	-Z
Driver	1213.9 N	-218.6 N	213.3 N	-316.6 N	3761.0 N	-929.6 N
Passenger	642.6 N	-495.1 N	233.8 N	-170.0 N	2450.0 N	-1525.0 N

	<u>Moments<sup>5</sup></u>					
	+X	-X	+Y	-Y	+Z	-Z
Driver	26.8 Nm	-32.2 Nm	73.2 Nm	-41.2 Nm	26.7 Nm	-1.8 Nm
Passenger	3.9 Nm	-12.8 Nm	35.1 Nm	-54.8 Nm	11.4 Nm	-12.8 Nm

Calculated Neck Y-Axis Moment Occipital Condyle<sup>5</sup>

	+Y	-Y
Driver	55.1 Nm	-37.4 Nm
Passenger	27.2 Nm	-61.9 Nm

	<u>Tibia Index</u>			
	Upper left	Lower left	Upper right	Lower right
Driver	1.71	1.78	2.34 <sup>1</sup>	2.66 <sup>1</sup>

<sup>1</sup> See Data Acquisition Explanations

<sup>2</sup> As defined in FMVSS No. 208

<sup>5</sup> See Report Sign Convention in Appendix D

Table 8 Target Vehicle Post-Impact Dummy/Vehicle Data

Visible Dummy Contact Points:

	<u>Driver</u>	<u>Passenger</u>
Head	Airbag/headrest	Airbag/headrest
Chest	Airbag	Airbag
Abdomen	No	No
Left knee	Instrument panel	Instrument panel
Right knee	Instrument panel	Instrument panel

Door opening:

	<u>Left</u>	<u>Right</u>
Front	Tools required	Tools required
Rear	Tools required	Tools required

Seat movement:

	<u>Seat back failure</u>	<u>Seat shift</u>
Front	None	None
Rear	None	None

Glazing damage: The entire windshield was cracked

Other notable impact effects: None

Section 4.0

Vehicle, Occupant, and Camera Measurements

## Target Vehicle Dummy Kinematic Summary

### Driver Dummy

Upon impact, the driver dummy translated forward on the seat impacting both knees into the instrument panel as the dummy's torso was restrained by the seat belt. The dummy's head rotated forward into the airbag as the dummy's head and chest impacted the airbag. The dummy's head and upper torso rotated rearward as the dummy rebounded into the seat back and the dummy's head rebounded into the head restraint posts. The driver dummy came to rest seated 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 as the dummy's torso was restrained by the seat belt. The dummy's head and chest impacted the airbag. The dummy's head and upper torso rotated rearward as the dummy rebounded into the seat back. The dummy's head contacted the head restraint. The passenger dummy came to rest seated in the passenger's seat.

Figure 4 Target Vehicle Dummy Measurement Locations for Front Seat Occupants

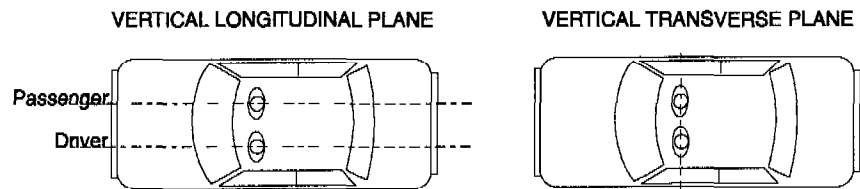
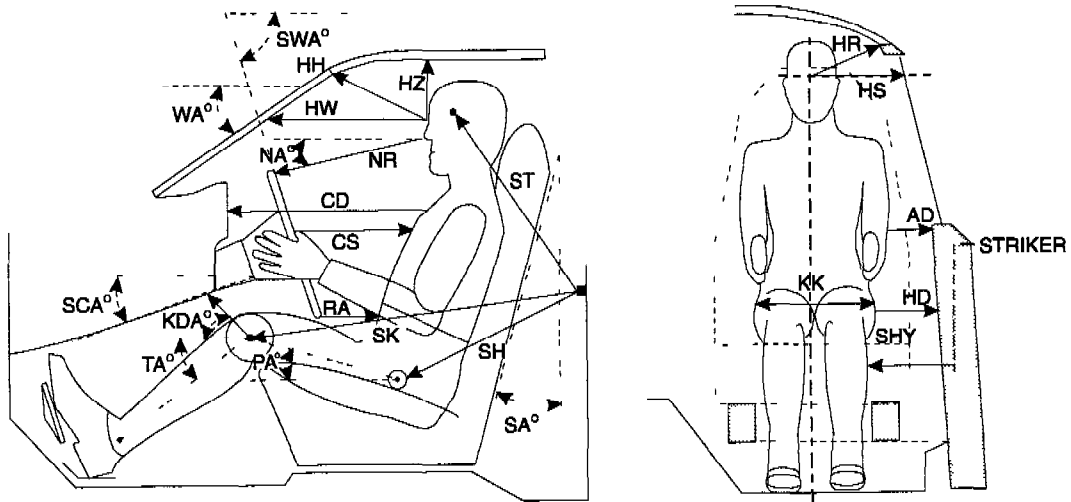


Table 9 Target Vehicle Dummy Measurement Data for Front Seat Occupants

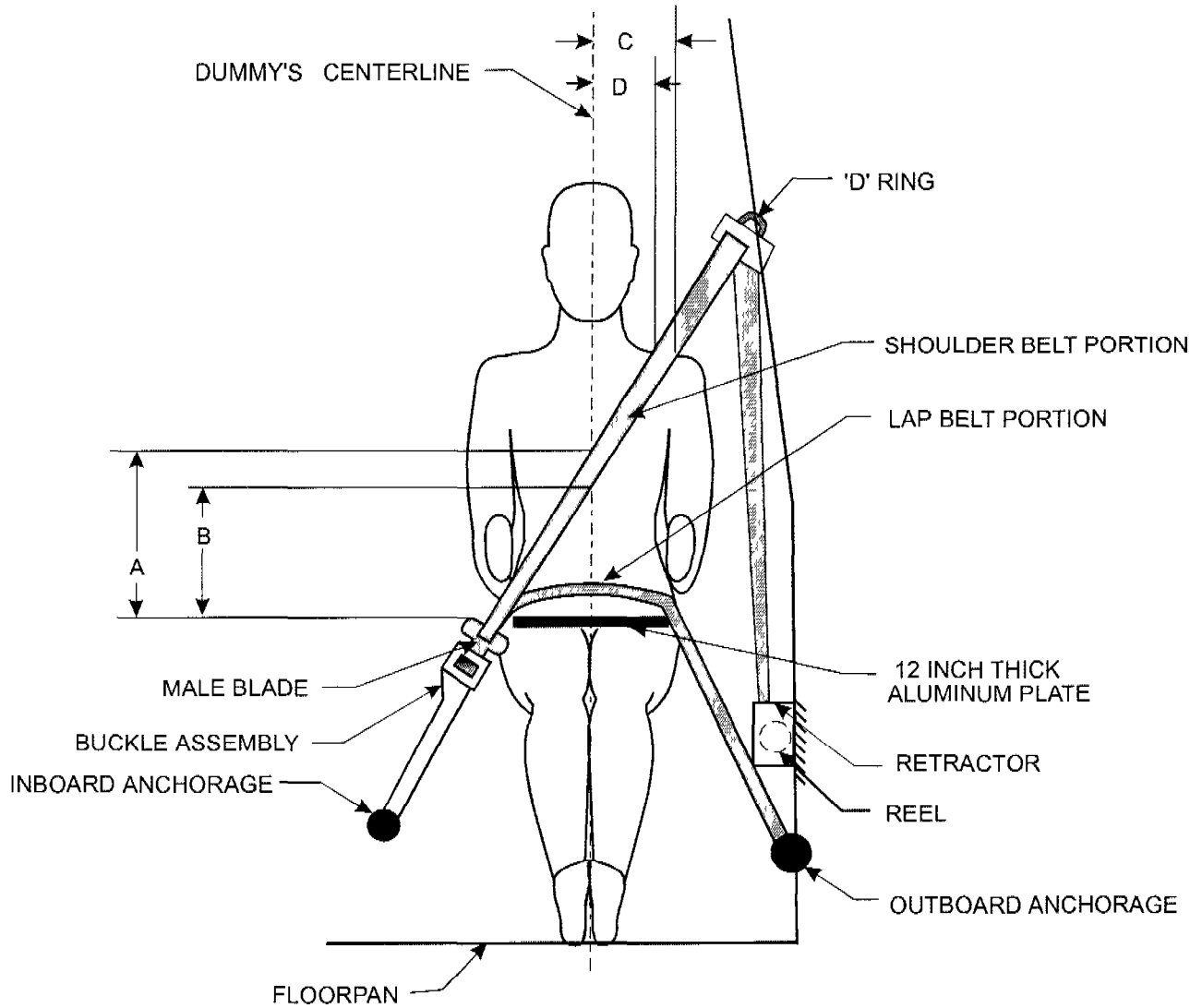
<u>Designation</u>	<u>Type of Measurement</u>	<u>Driver (Serial #090)</u>	<u>Passenger (Serial #416)</u>
WA	Windshield angle	27.3°	N/A
SWA	Steering wheel angle	67.4°	NA
SCA	Steering column angle	22.6°	NA
SA	Seat back angle	20.9°	17.9°
HZ <sup>2</sup>	Head to roof	207 mm	230 mm
HH	Head to header	334 mm	283 mm
HW	Head to windshield	587 mm	597 mm
HR	Head to side header	227 mm	262 mm
NR	Nose to rim	354 mm	NA
NA	Nose to rim angle	13.5°	NA
CD	Chest to dash	516 mm	340 mm
CS	Steering wheel to chest	283 mm	NA
RA	Rim to abdomen	165 mm	NA
KDL	Left knee to dash	142 mm	95 mm
KDR	Right knee to dash	120 mm	97 mm
KDA	Outboard knee to dash angle	29.0°	32.9°
PA	Pelvic angle	25.0°	20.1°
TA	Tibial angle	42.9°	58.6°
KK	Knee to knee	320 mm	240 mm
ST <sup>1</sup>	Striker to head	510 mm	504 mm
	Striker to head angle	-85.4°	-67.1°
SK	Striker to knee	556 mm	641 mm
	Striker to knee angle	-3.2°	-2.0°
SH	Striker to H-point	227 mm	333 mm
	Striker to H-point angle	28.2°	15.3°
SHY	Striker to H-point (Y dir.)	212 mm	255
HS	Head to side window	294 mm	332 mm
HD	H-point to door	112 mm	148 mm
AD	Arm to door	99 mm	80 mm

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

<sup>1</sup> A negative angle indicates the measurement point was above the striker.

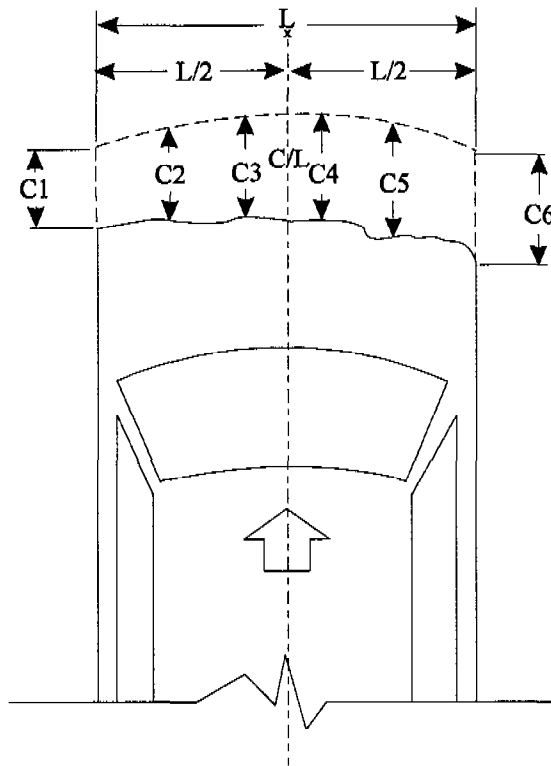
<sup>2</sup> Passenger's measurement was taken to the visor.

Figure 5 Target Vehicle Seat Belt Positioning Data



	Driver Dummy	Passenger Dummy
A - Top surface of aluminum plate to belt upper edge	347 mm	235 mm
B - Top surface of aluminum plate to belt lower edge	265 mm	161 mm
C - Dummy centerline to outer edge of belt at chest flesh top	80 mm	120 mm
D - Dummy centerline to inner edge of belt at chest flesh top	20 mm	65 mm
E - Dummy centerline to intersection of upper torso belt and lap belt, mm	235 mm	193 mm

Figure 6 Target Vehicle Crush with Bumper

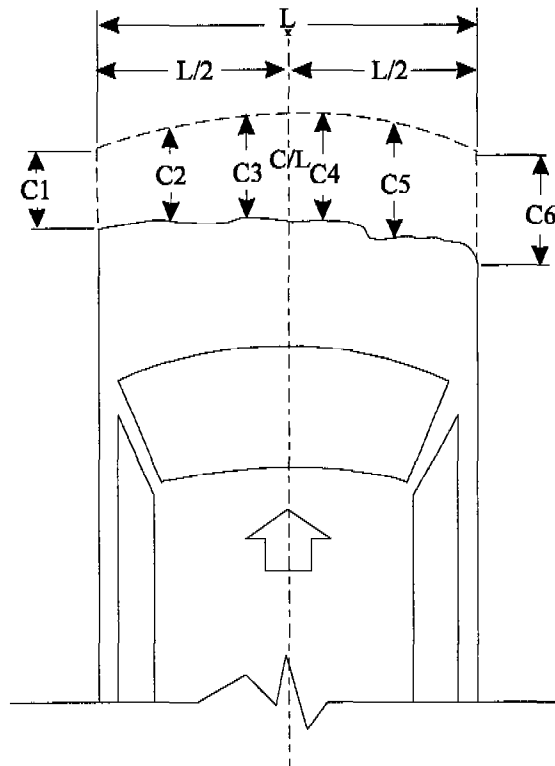


NOTES: L is pre-test length of contact surface.  
 C1 through C6 are spaced equally apart.  
 CL is vehicle centerline.

Vehicle: 1996 Plymouth Neon

	Pre-test	Post-test	Crush
L	1524 mm		
C1	4346 mm	3750 mm	596 mm
C2	4500 mm	3735 mm	765 mm
C3	4570 mm	3745 mm	825 mm
C4	4570 mm	3787 mm	783 mm
C5	4495 mm	3778 mm	717 mm
C6	4347 mm	3723 mm	624 mm
CL	4560 mm	3748 mm	812 mm

Figure 7 Target Vehicle Crush without Bumper



NOTES: L is pre-test length of contact surface.  
 C1 through C6 are spaced equally apart.  
 CL is vehicle centerline.

Vehicle: 1996 Plymouth Neon

	Pre-test*	Post-test*	Crush*
L	1524 mm		
C1	4253 mm	3690 mm	563 mm
C2	4407 mm	3698 mm	709 mm
C3	4460 mm	3700 mm	760 mm
C4	4460 mm	3735 mm	725 mm
C5	4402 mm	3722 mm	680 mm
C6	4254 mm	3733 mm	521 mm
CL	4450 mm	3695 mm	755 mm

\* Measurements were taken from the bumper beam.

Figure 8 Target Vehicle Pre-test and Post-test Measurement Points

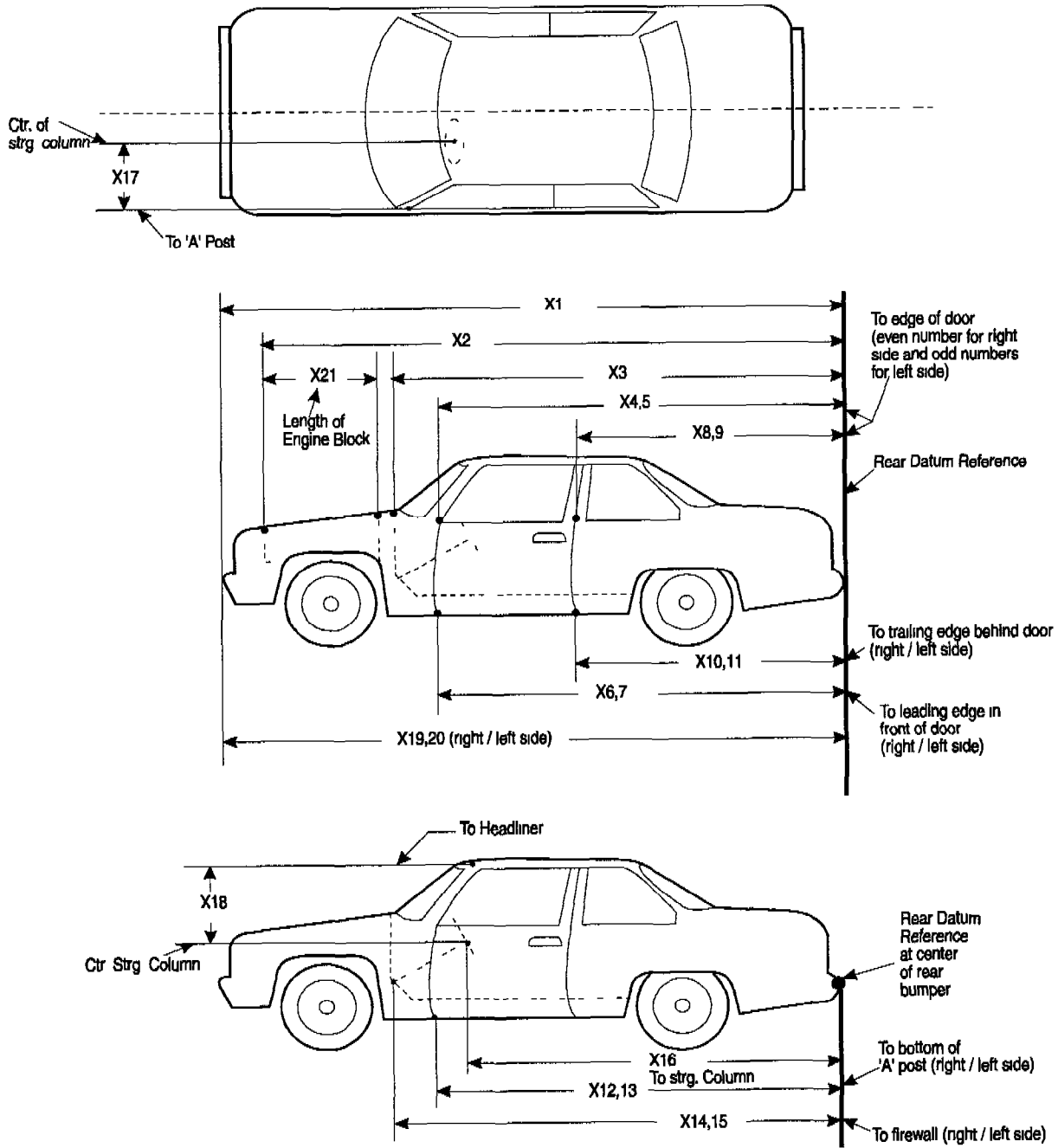


Table 10 Target Vehicle Measurements

Vehicle Make/Model: Plymouth Neon

Test Number: 010130

No.	Type of measurement	Pre-test	Post-test	Difference
X1	Total length of vehicle at centerline	4560 mm	3748 mm	812 mm
X2	Rear surface of vehicle to front of engine block	4140 mm	3585 mm	555 mm
X3	Rear surface of vehicle to firewall	3650 mm	3140 mm	510 mm
X4	Rear surface of vehicle to upper leading edge of right door	3154 mm	3105 mm	49 mm
X5	Rear surface of vehicle to upper leading edge of left door	3155 mm	3035 mm	120 mm
X6	Rear surface of vehicle to lower leading edge of right door	3206 mm	3154 mm	52 mm
X7	Rear surface of vehicle to lower leading edge of left door	3214 mm	3090 mm	124 mm
X8	Rear surface of vehicle to upper trailing edge of right door	2182 mm	2212 mm	-30 mm
X9	Rear surface of vehicle to upper trailing edge of left door	2186 mm	2075 mm	111 mm
X10	Rear surface of vehicle to lower trailing edge of right door	2181 mm	2156 mm	25 mm
X11	Rear surface of vehicle to lower trailing edge of left door	2195 mm	2070 mm	125 mm
X12	Rear surface of vehicle to bottom of "A" post on right side	3195 mm	3085 mm	110 mm
X13	Rear surface of vehicle to bottom of "A" post on left side	3205 mm	3030 mm	175 mm
X14	Rear surface of vehicle to firewall - right side	3492 mm	3295 mm	197 mm
X15	Rear surface of vehicle to firewall - left side	3486 mm	3202 mm	284 mm
X16	Rear surface of vehicle to steering wheel center	2747 mm	2583 mm	164 mm
X17	Center of steering column to "A" post	295 mm	230 mm	65 mm
X18	Center of steering column to headliner	421 mm	480 mm	-59 mm
X19	Rear surface of vehicle to right side of front bumper	4347 mm	3723 mm	624 mm
X20	Rear surface of vehicle to left side of front bumper	4346 mm	3750 mm	596 mm
X21	Length of engine block	450 mm	450 mm	0 mm

Table 11 Target Vehicle Toe Pan Intrusion Measurements

Intrusion of toe pan at five locations for each front seat position.<sup>1</sup>

**Left Side**

	Pre-Test			Post-Test			Intrusion		
	X (mm)	Y (mm)	Z (mm)	X (mm)	Y (mm)	Z (mm)	X (mm)	Y (mm)	Z (mm)
Point 1	825	N/A	200	748	N/A	160	77	N/A	40
Point 2	1374	N/A	210	1300	N/A	152	74	N/A	58
Point 3	855	N/A	210	841	N/A	160	14	N/A	50
Point 4	1381	N/A	210	1065	N/A	150	316	N/A	60
Point 5	1155	N/A	202	1070	N/A	150	85	N/A	52

**Right Side**

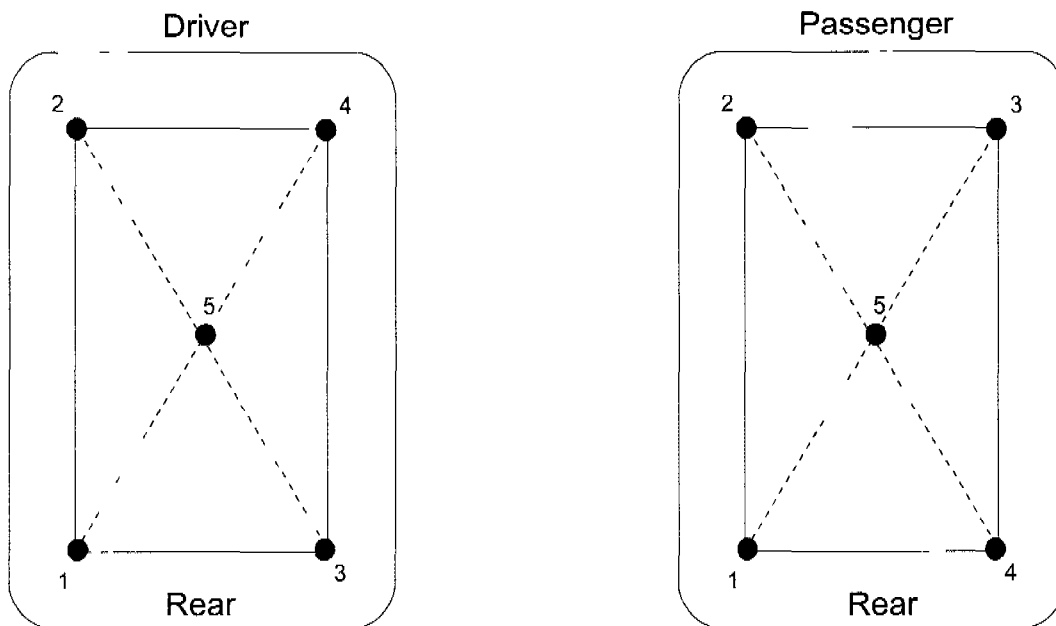
	Pre-Test			Post-Test			Intrusion		
	X (mm)	Y (mm)	Z (mm)	X (mm)	Y (mm)	Z (mm)	X (mm)	Y (mm)	Z (mm)
Point 1	835	N/A	224	835	N/A	188	0	N/A	36
Point 2	1383	N/A	226	1250	N/A	260	133	N/A	-34
Point 3	1372	N/A	205	1290	N/A	205	82	N/A	0
Point 4	840	N/A	160	835	N/A	145	5	N/A	15
Point 5	1140	N/A	198	1112	N/A	105	28	N/A	93

+X: Forward of reference point behind the driver and passenger seats.

+Y Left from vehicle longitudinal centerline.

+Z: Up from ground.

Toeboard Measurements<sup>1</sup>



<sup>1</sup> The numbering order of the 5 points on each side is similar to the baseline test report (06/06/00)

Figure 9 Moving Deformable Barrier Face Profile Measurements

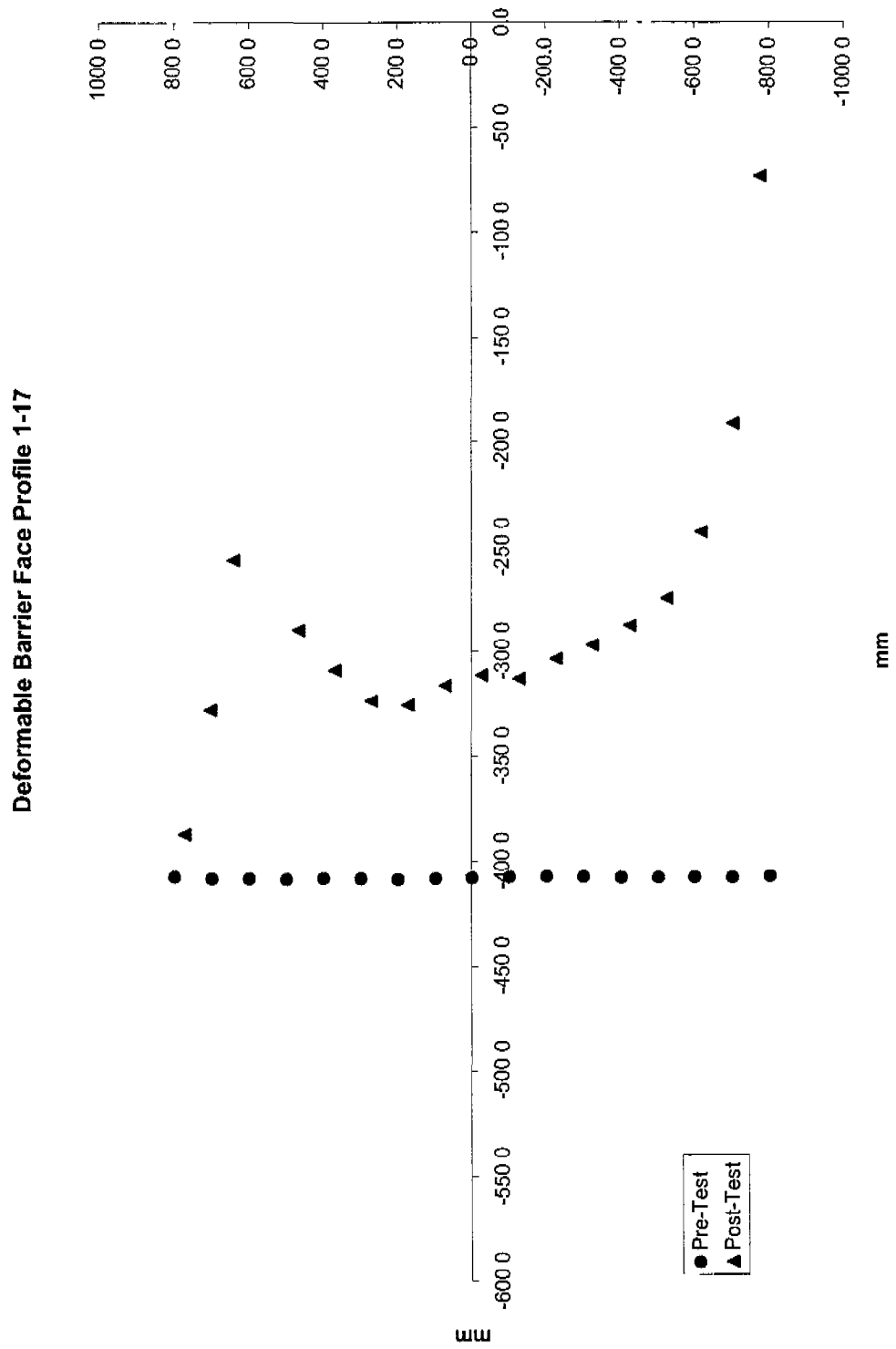


Figure 9 Moving Deformable Barrier Face Profile Measurements Cont'd

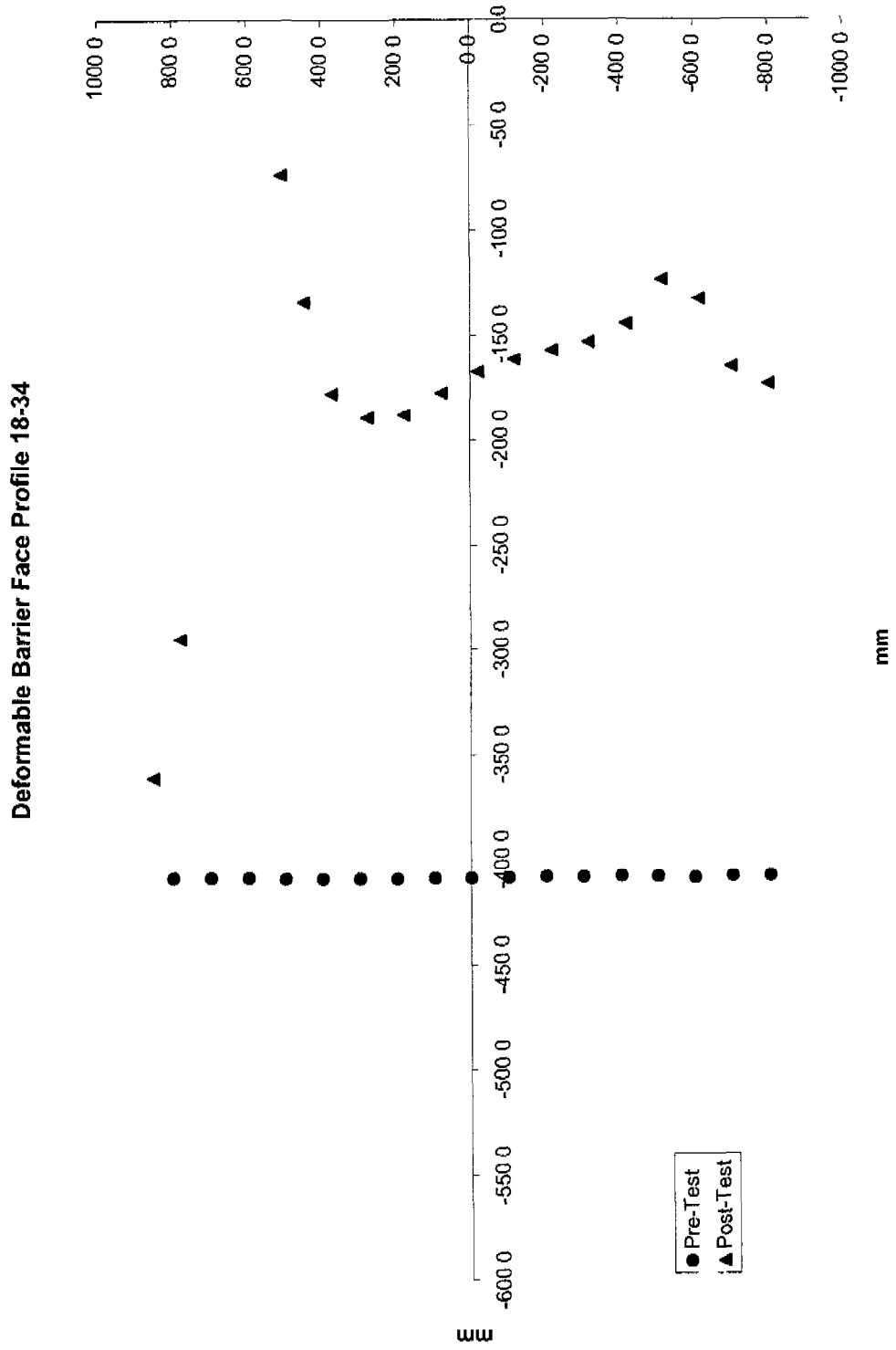


Figure 9 Moving Deformable Barrier Face Profile Measurements Cont'd

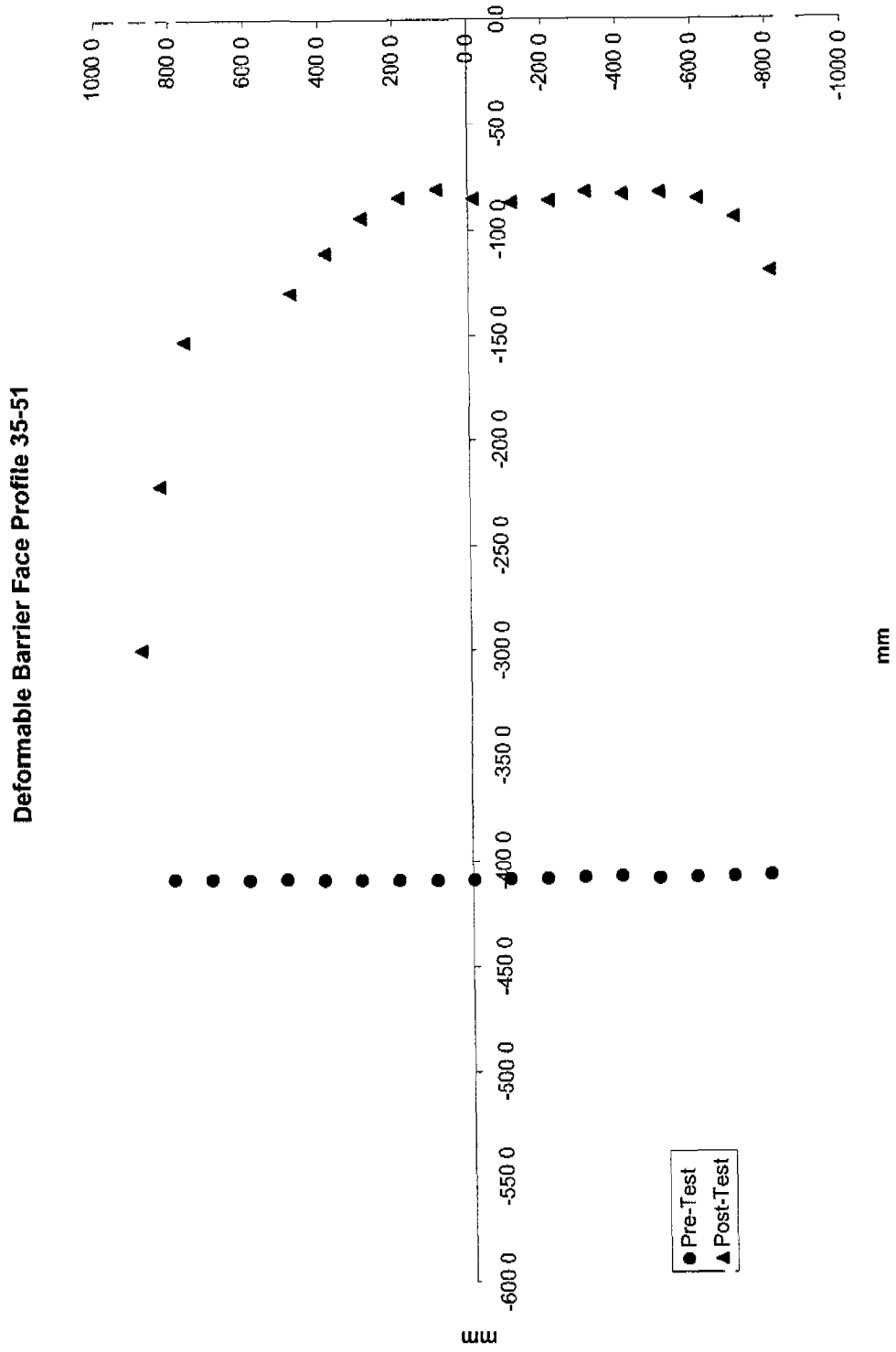


Table 12 Moving Deformable Barrier Face Profile Measurements

Deformable Barrier Face Profile

Pre-Test				Post-Test				Difference			
Index	Xmm	Ymm	Zmm	Index	Xmm	Ymm	Zmm	Index	Xmm	Ymm	Zmm
1	-407.2	796.1	-72.2	1	-387.1	770.3	-52.9	1	-20.1	25.8	-19.3
2	-408.2	697.2	-73.9	2	-328.2	703.2	-74.0	2	-80.0	-5.9	0.1
3	-408.1	597.9	-75.1	3	-256.3	641.1	-97.1	3	-151.9	-43.2	22.0
4	-408.6	497.3	-74.7	4	-289.7	465.4	-81.1	4	-118.9	31.9	6.4
5	-407.9	397.6	-74.9	5	-309.2	369.2	-90.4	5	-98.8	28.5	15.5
6	-408.2	298.1	-76.5	6	-323.8	272.1	-99.4	6	-84.5	26.0	22.9
7	-408.6	197.6	-78.1	7	-325.9	172.6	-103.1	7	-82.8	25.0	25.0
8	-408.2	96.7	-78.5	8	-316.4	71.8	-101.7	8	-91.8	24.9	23.2
9	-407.9	-2.7	-79.8	9	-311.6	-27.2	-101.6	9	-96.3	24.6	21.8
10	-407.6	-103.8	-80.8	10	-313.2	-127.4	-105.4	10	-94.4	23.7	24.7
11	-407.2	-203.3	-82.3	11	-303.9	-226.6	-105.3	11	-103.3	23.3	23.0
12	-407.6	-302.1	-81.1	12	-297.5	-325.2	-103.1	12	-110.1	23.1	22.0
13	-407.9	-403.9	-83.4	13	-287.9	-426.0	-103.6	13	-120.0	22.2	20.2
14	-407.7	-503.8	-83.5	14	-274.7	-525.1	-102.3	14	-133.0	21.2	18.8
15	-407.6	-601.5	-83.9	15	-243.3	-617.6	-100.2	15	-164.4	16.2	16.4
16	-407.7	-702.9	-86.1	16	-192.0	-704.3	-103.2	16	-215.8	1.4	17.1
17	-407.2	-803.7	-87.1	17	-73.4	-775.8	-134.5	17	-333.8	-27.9	47.5
18	-408.2	797.7	-327.8	18	-360.8	850.6	-481.0	18	-47.4	-52.9	153.3
19	-408.1	697.1	-329.7	19	-294.9	779.9	-466.1	19	-113.2	-82.8	136.5
20	-407.9	595.2	-330.7	20	-73.6	506.9	-316.5	20	-334.3	88.3	-14.2
21	-408.5	496.4	-330.8	21	-134.4	447.3	-295.5	21	-274.1	49.1	-35.4
22	-408.5	396.2	-331.7	22	-178.2	373.0	-300.1	22	-230.4	23.2	-31.6
23	-408.5	296.9	-332.8	23	-189.5	275.0	-309.1	23	-219.0	21.9	-23.7
24	-408.7	197.4	-333.2	24	-188.5	177.6	-311.5	24	-220.3	19.9	-21.7
25	-408.6	96.5	-333.7	25	-177.9	78.3	-305.8	25	-230.8	18.2	-27.9
26	-408.6	-2.2	-333.8	26	-167.8	-20.9	-302.9	26	-240.8	18.7	-30.9
27	-408.6	-102.9	-334.4	27	-162.1	-119.1	-304.9	27	-246.6	16.3	-29.5
28	-408.0	-203.6	-336.1	28	-157.5	-219.4	-306.8	28	-250.6	15.8	-29.3

Table 12 Moving Deformable Barrier Face Profile Measurements Cont'd

Deformable Barrier Face Profile Cont'd

Index	Pre-Test			Post-Test			Difference		
	Xmm	Ymm	Zmm	Xmm	Ymm	Zmm	Xmm	Ymm	Zmm
29	-408.2	-302.4	-337.3	-153.5	-317.7	-310.3	-254.7	15.3	-27.0
30	-408.0	-404.5	-338.0	-145.0	-418.8	-308.1	-263.1	14.3	-29.9
31	-407.9	-502.3	-338.7	-123.9	-513.8	-296.3	-284.1	11.6	-42.4
32	-408.6	-602.1	-339.7	-133.0	-612.5	-305.8	-275.6	10.5	-33.9
33	-407.8	-703.6	-340.4	-165.5	-701.8	-328.7	-242.3	-1.9	-11.8
34	-407.6	-804.6	-342.4	-173.7	-798.2	-331.1	-233.9	-6.3	-11.3
35	-407.7	798.0	-456.3	-299.0	883.8	-588.0	-108.7	-85.8	131.7
36	-407.8	696.4	-457.5	-221.1	830.3	-553.1	-186.7	-133.9	95.6
37	-408.3	597.8	-457.9	-152.2	764.8	-530.9	-256.2	-167.0	73.1
38	-408.1	497.6	-458.4	-129.6	479.6	-409.1	-278.5	18.0	-49.3
39	-408.3	397.1	-459.5	-110.5	386.1	-385.0	-297.8	11.0	-74.5
40	-408.5	297.3	-459.7	-94.1	288.0	-375.5	-314.4	9.3	-84.2
41	-408.7	196.7	-460.6	-85.1	187.5	-378.0	-323.6	9.2	-82.6
42	-408.9	95.4	-460.0	-81.4	85.9	-384.4	-327.5	9.4	-75.6
43	-408.9	-4.3	-462.3	-85.8	-12.4	-397.2	-323.2	8.2	-65.1
44	-408.5	-101.3	-462.5	-87.5	-116.0	-403.5	-321.1	14.8	-59.0
45	-408.6	-201.7	-462.9	-86.5	-215.8	-405.5	-322.1	14.1	-57.4
46	-408.2	-301.7	-464.5	-82.7	-313.5	-408.7	-325.5	11.8	-55.8
47	-407.8	-401.4	-465.2	-83.8	-412.9	-411.7	-324.0	11.5	-53.5
48	-408.5	-502.4	-466.7	-83.1	-513.4	-415.5	-325.5	11.1	-51.2
49	-408.1	-602.0	-467.0	-85.9	-613.2	-420.0	-322.2	11.2	-47.0
50	-407.8	-701.7	-468.3	-94.3	-712.6	-427.0	-313.5	10.9	-41.3
51	-407.4	-801.4	-468.5	-119.7	-806.8	-436.3	-287.7	5.4	-32.2

Figure 10 Camera Positions

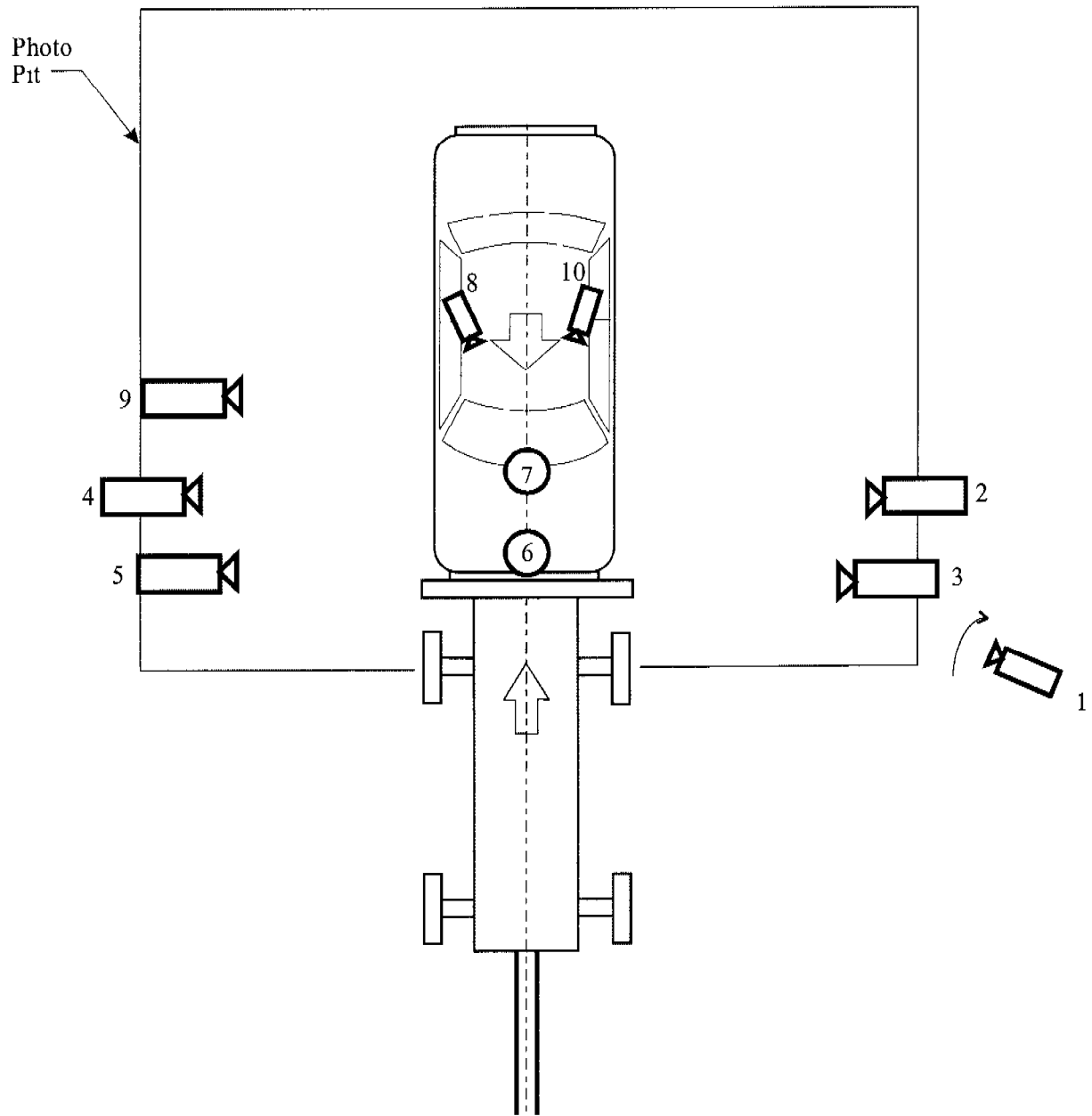


Table 13 Camera Information

Camera Number	Location	Type	Lens (mm)	Speed (fps)	Purpose of camera data
1	Panning	Bolex	16	24	Vehicle dynamics
2	Right wide	Photosonic	13	NA <sup>1</sup>	Dummy kinematics
3	Impact tight right	Photosonic	25	1015	Dummy kinematics
4	Left wide	Photosonic	13	1020	Dummy kinematics
5	Impact tight left	Photosonic	25	1020	Dummy kinematics
6	Overhead wide	Photosonic	8.5	987	Vehicle crush
7	Overhead tight	Photosonic	25	1022	Impact point
8	Driver medium tight	Photosonic	25	997	Dummy kinematics
9	Onboard driver	Photosonic	8	NA <sup>2</sup>	Dummy kinematics
10	Passenger medium tight	Photosonic	25	995	Dummy kinematics
11	Onboard passenger	Photosonic	8	NA <sup>2</sup>	Dummy kinematics

<sup>1</sup> Film was lost during processing as a result of a processor machine breakdown.

<sup>2</sup> Unable to measure speed due to no timing marks being recorded.

### 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 Photosonic 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.

Appendix A

Photographs



Figure A-1 Pre-Test Target Vehicle Front View



Figure A-2 Post-Test Target Vehicle Front View

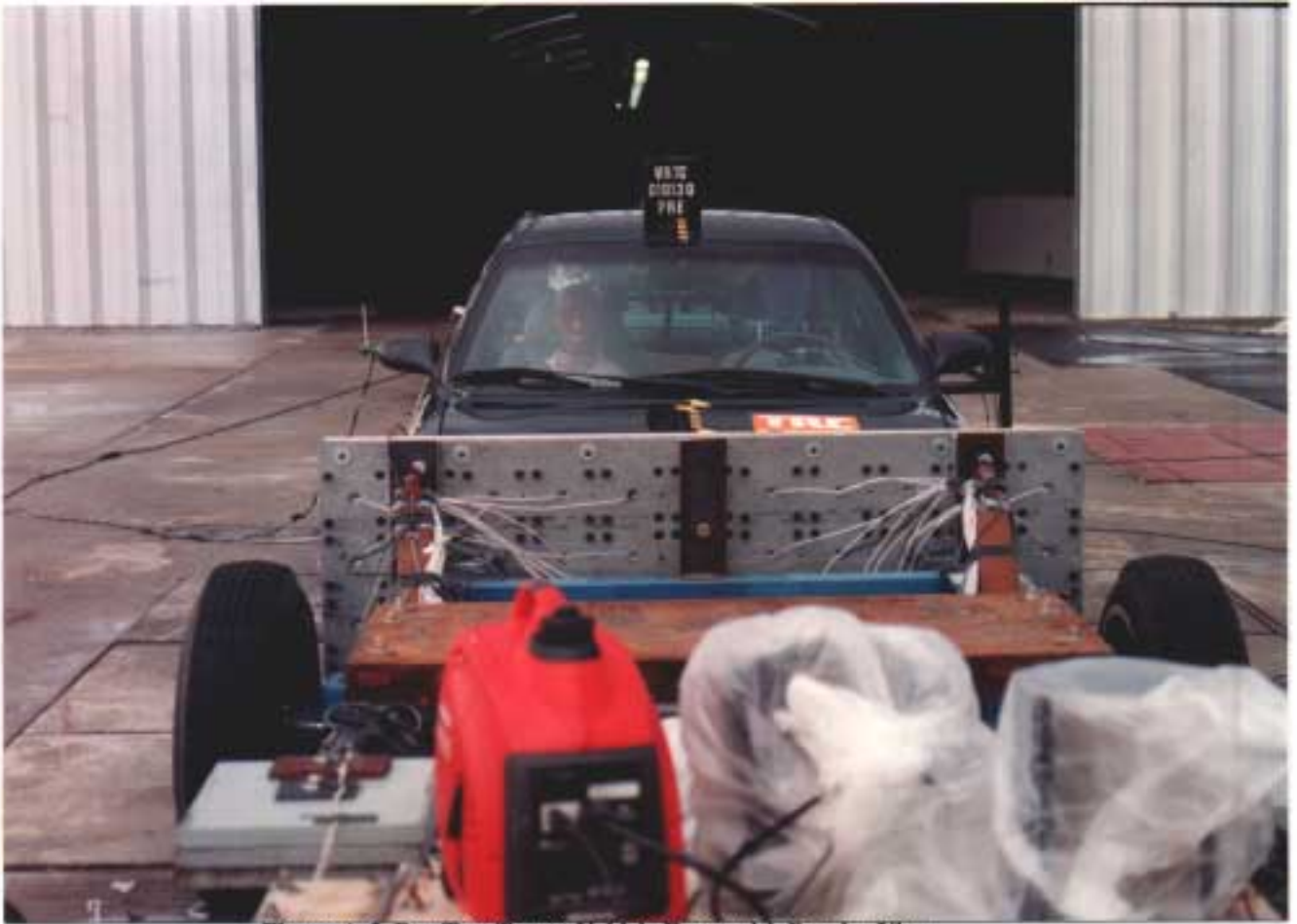


Figure A-3 Pre-Test Target Vehicle Front with Barrier View



Figure A-4 Post-Test Target Vehicle Front with Barrier View



Figure A-5 Pre-Test Target Vehicle Left Front Three-Quarter with Barrier View



Figure A-6 Post-Test Target Vehicle Left Front Three-Quarter with Barrier View



Figure A-7 Post-Test Target Vehicle Left Front Three-Quarter View

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Figure A-8 Pre-Test Target Vehicle Left Side with Barrier View



Figure A-9 Post-Test Target Vehicle Left Side with Barrier View



Figure A-10 Pre-Test Target Vehicle Left Rear Three-Quarter View



Figure A-11 Post-Test Target Vehicle Left Rear Three-Quarter View



Figure A-12 Pre-Test Target Vehicle Rear View



Figure A-13 Post-Test Target Vehicle Rear View



Figure A-14 Pre-Test Target Vehicle Right Rear Three-Quarter View



Figure A-15 Post-Test Target Vehicle Right Rear Three-Quarter View



Figure A-16 Pre-Test Target Vehicle Right Side with Barrier View



Figure A-17 Post-Test Target Vehicle Right Side with Barrier - View 1



Figure A-18 Post-Test Target Vehicle Right Side with Barrier - View 2

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Figure A-19 Pre-Test Target Vehicle Right Front Three-Quarter with Barrier View



Figure A-20 Post-Test Target Vehicle Right Front Three-Quarter with Barrier View



Figure A-21 Post-Test Target Vehicle Right Front Three-Quarter View

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Figure A-22 Pre-Test Overhead Alignment - View 1

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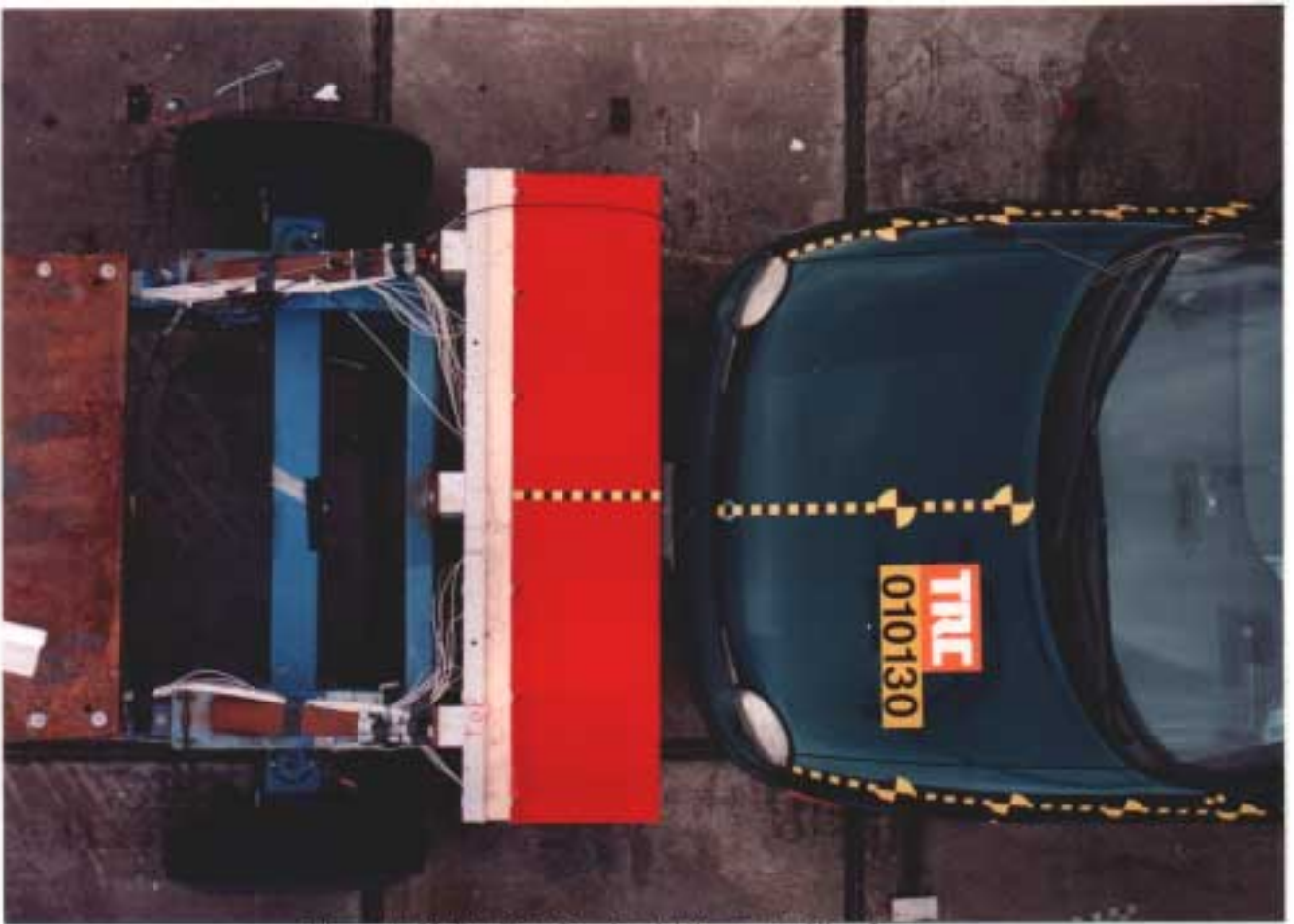


Figure A-23 Pre-Test Overhead Alignment - View 2

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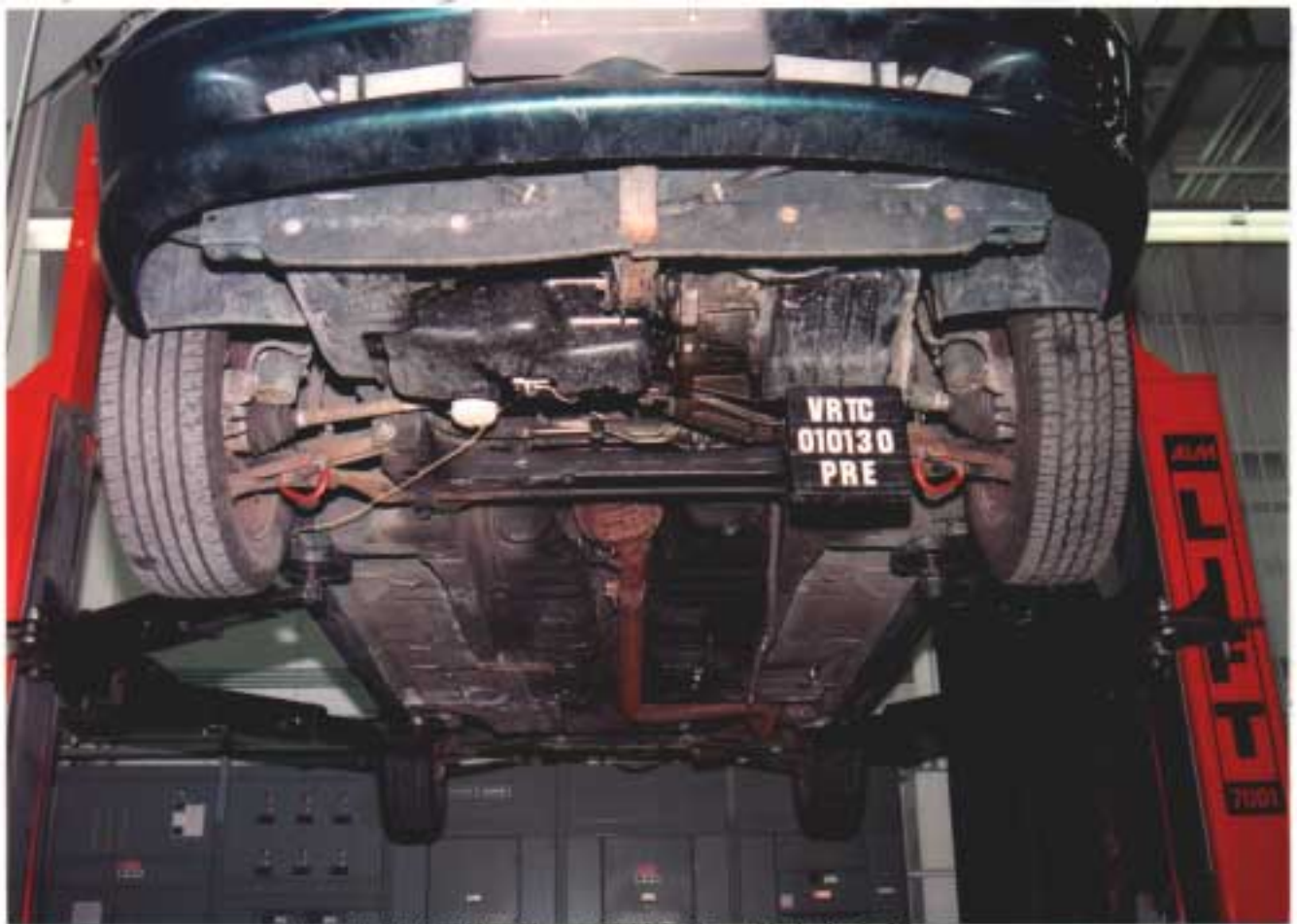


Figure A-24 Pre-Test Target Vehicle Front Underbody View



Figure A-25 Post-Test Target Vehicle Front Underbody View



Figure A-26 Pre-Test Target Vehicle Rear Underbody View

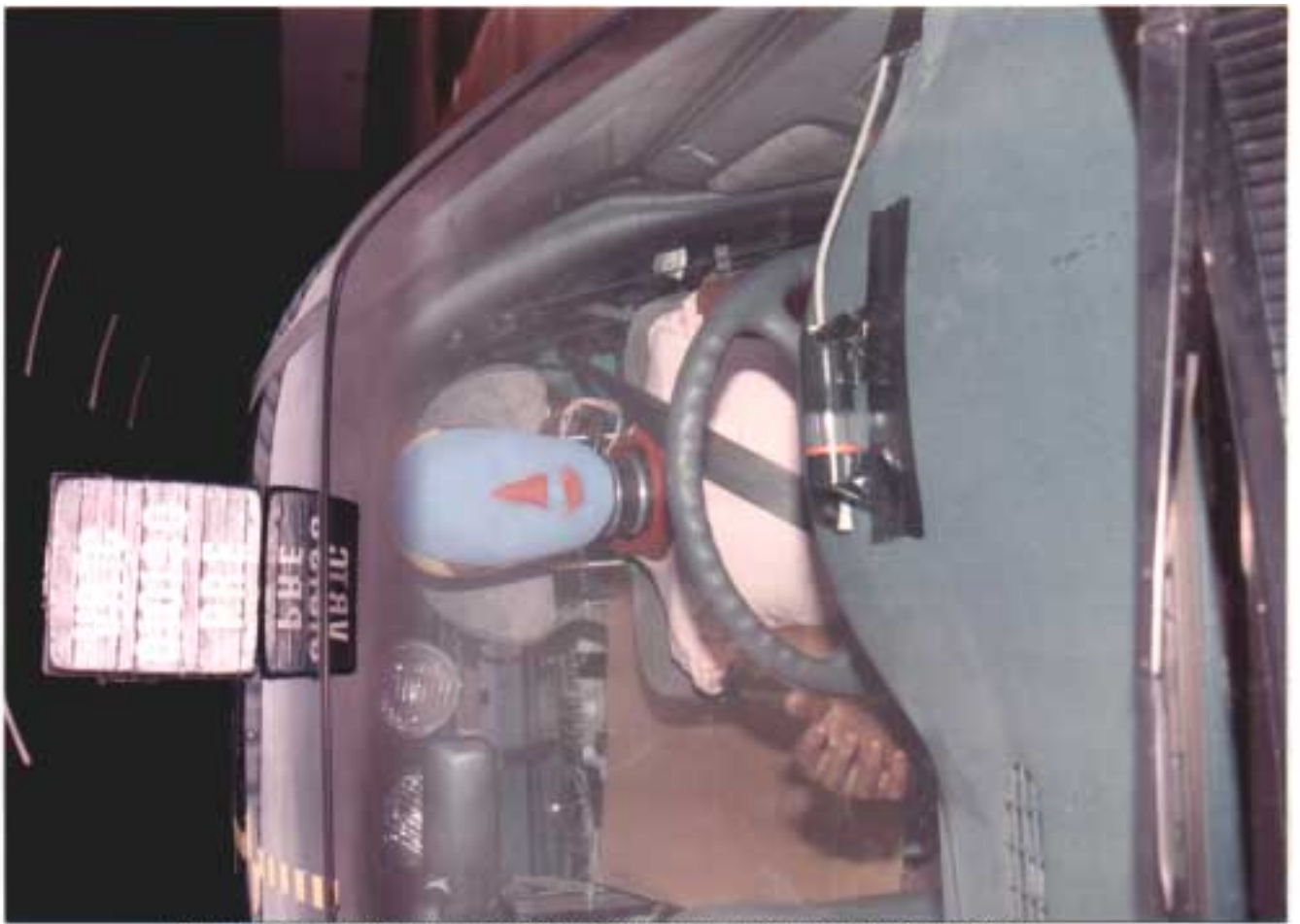


Figure A-27 Post-Test Target Vehicle Rear Underbody View



Figure A-28 Pre-Test Target Vehicle Windshield View - Driver and Passenger Dummies

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**Figure A-29 Pre-Test Target Vehicle Driver Dummy through Windshield View**

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**Figure A-30 Pre-Test Target Vehicle Passenger Dummy through Windshield View**

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Figure A-31 Pre-Test Moving Deformable Barrier Front View



Figure A-32 Post-Test Moving Deformable Barrier Front View

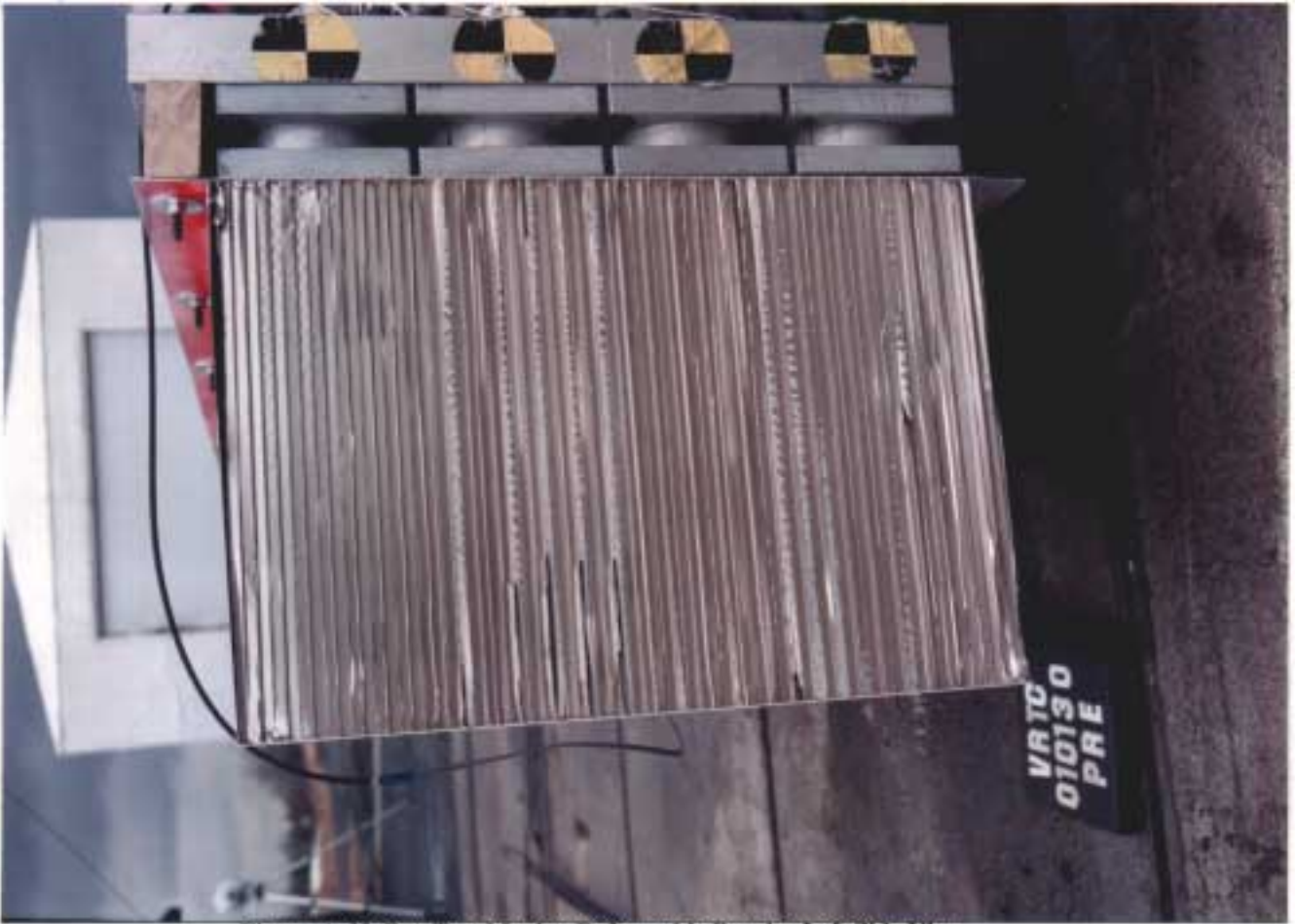


Figure A-33 Pre-Test Moving Deformable Barrier Left Side View



Figure A-34 Post-Test Moving Deformable Barrier Left Side View



Figure A-35 Pre-Test Moving Deformable Barrier Right Side View



Figure A-36 Post-Test Moving Deformable Barrier Right Side View



Figure A-37 Pre-Test Target Vehicle Driver Dummy - View 1



Figure A-38 Post-Test Target Vehicle Driver Dummy - View 1



Figure A-39 Pre-Test Target Vehicle Driver Dummy - View 2



Figure A-40 Post-Test Target Vehicle Driver Dummy - View 2



Figure A-41 Pre-Test Target Vehicle Driver Dummy - View 3



Figure A-42 Post-Test Target Vehicle Driver Dummy - View 3



Figure A-43 Post-Test Target Vehicle Driver Dummy Overall View



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



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



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



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

Intentionally Left Blank



Figure A-48 Pre-Test Target Vehicle Passenger Dummy - View 1



Figure A-49 Post-Test Target Vehicle Passenger Dummy - View 1



Figure A-50 Pre-Test Target Vehicle Passenger Dummy - View 2



Figure A-51 Post-Test Target Vehicle Passenger Dummy - View 2



Figure A-52 Pre-Test Target Vehicle Passenger Dummy - View 3



Figure A-53 Post-Test Target Vehicle Passenger Dummy - View 3



Figure A-54 Post-Test Target Vehicle Passenger Dummy Overall View



Figure A-55 Post-Test Target Vehicle Passenger Dummy Head Contact - View 1



Figure A-56 Post-Test Target Vehicle Passenger Dummy Head Contact - View 2



Figure A-57 Post-Test Target Vehicle Passenger Dummy Head Contact - View 3



Figure A-58 Post-Test Target Vehicle Passenger Dummy Knee Contact View



Figure A-59 Target Vehicle Certification Label View

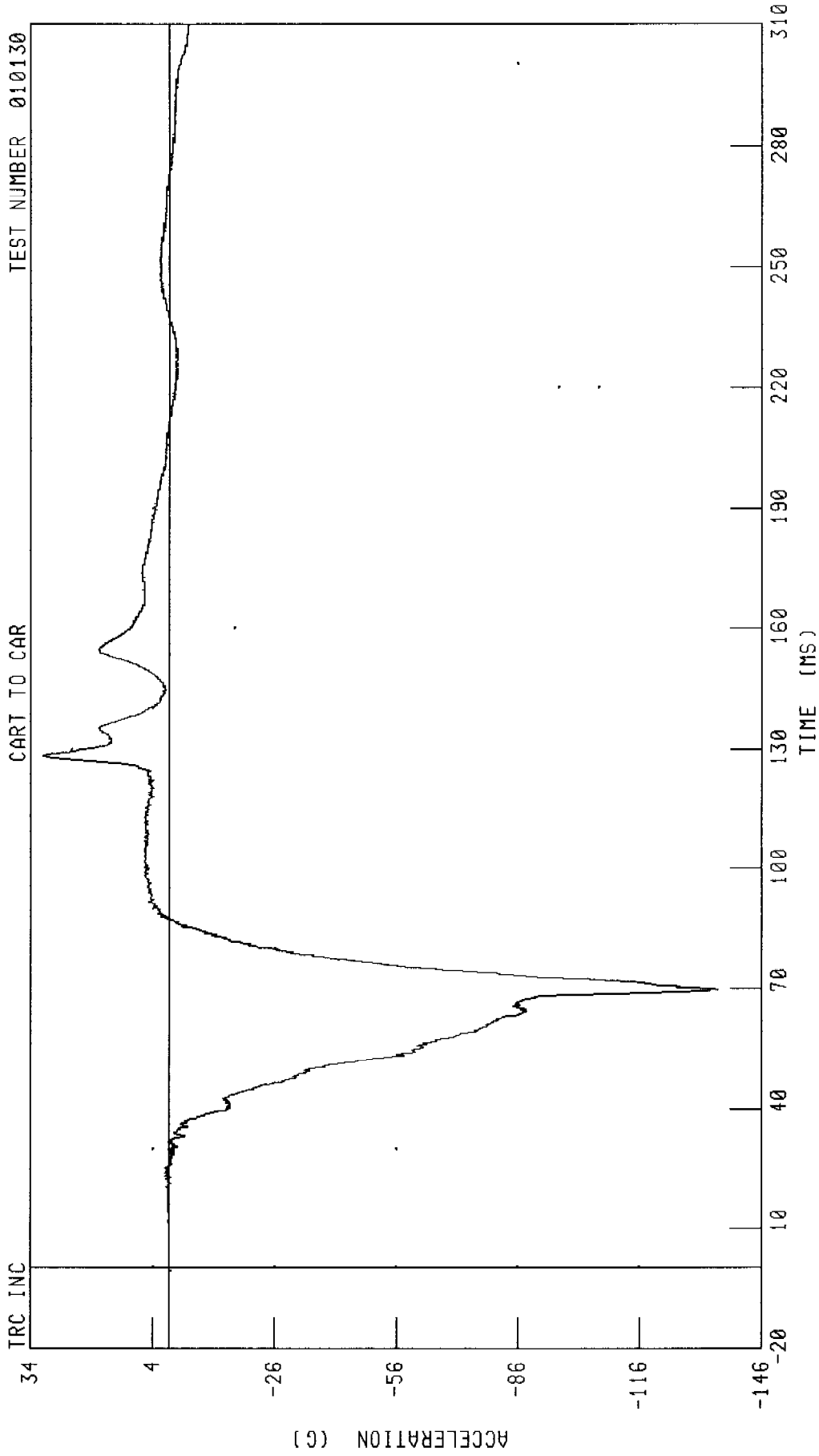


Figure A-60 Target Vehicle Tire Pressure Label View

Appendix B

Data Plots

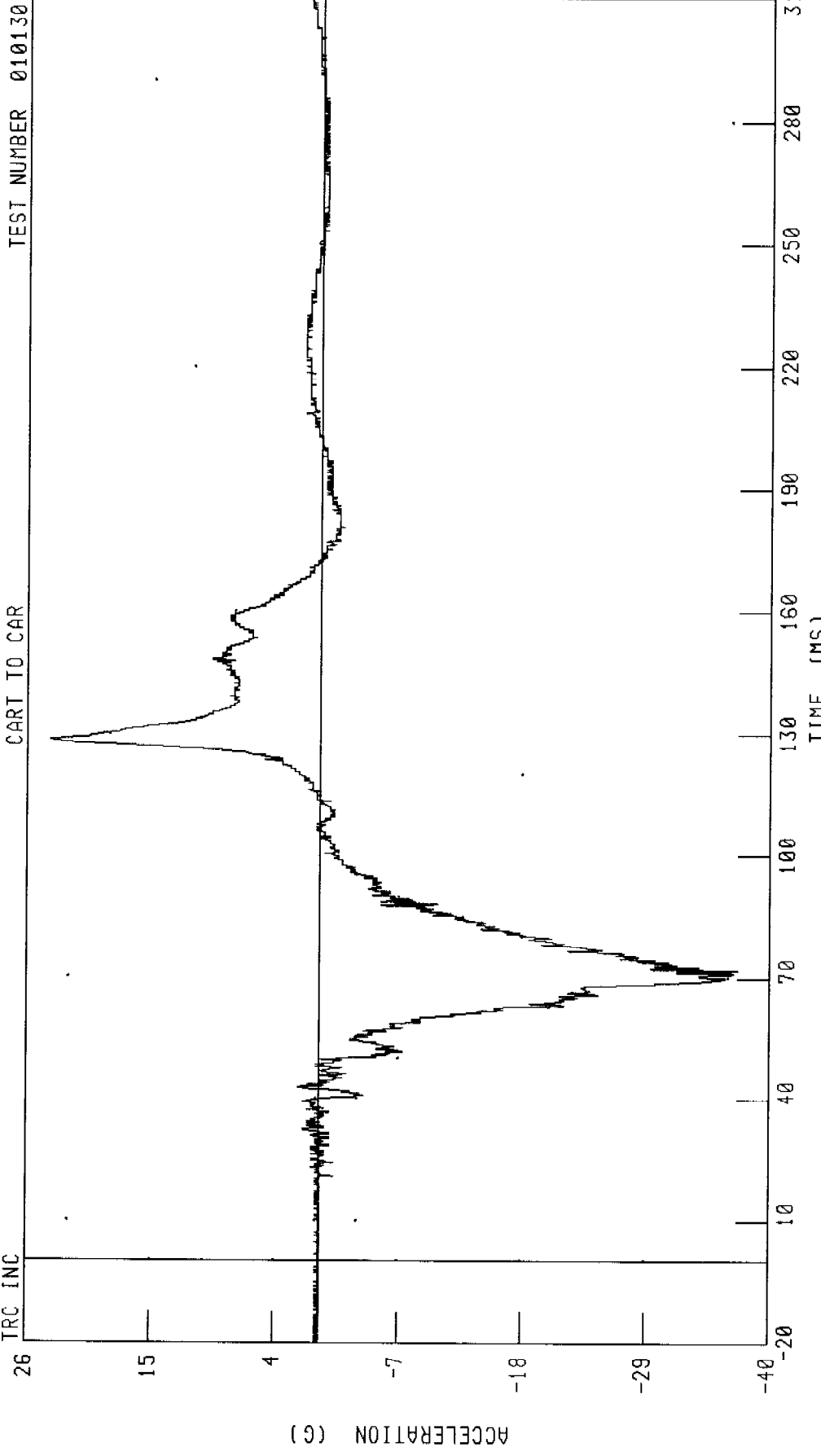
MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
DRIVER HEAD X-AXIS ACCELERATION  
CART TO CAR



CHANNEL HEDXG1 FILTER CH CLASS 1000

PEAK DATA 30 95 G @ 128 40 MS, -135 38 G @ 69 60 MS

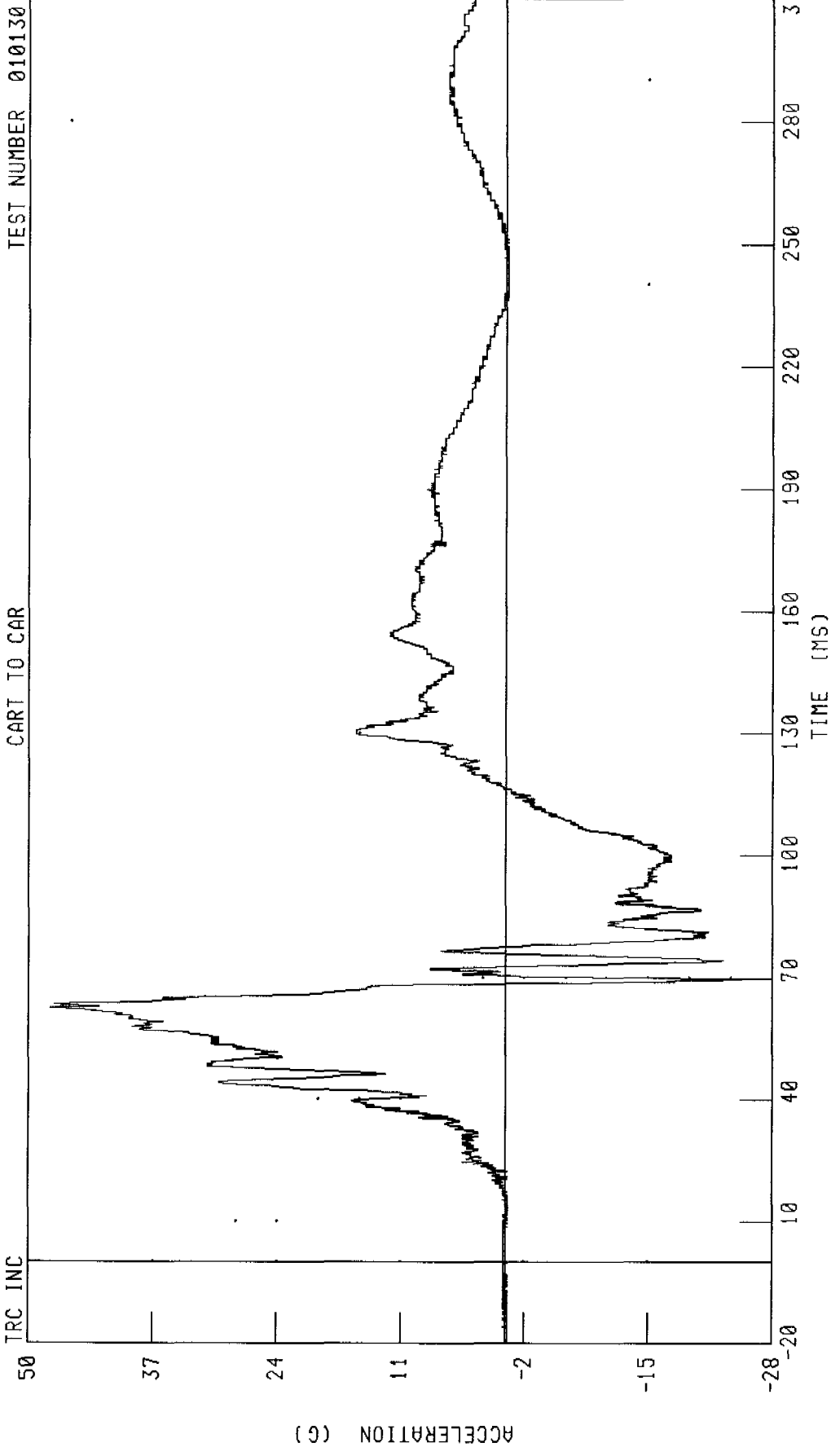
MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
DRIVER HEAD Y-AXIS ACCELERATION



CHANNEL HEDYG1 FILTER CH CLASS 1000

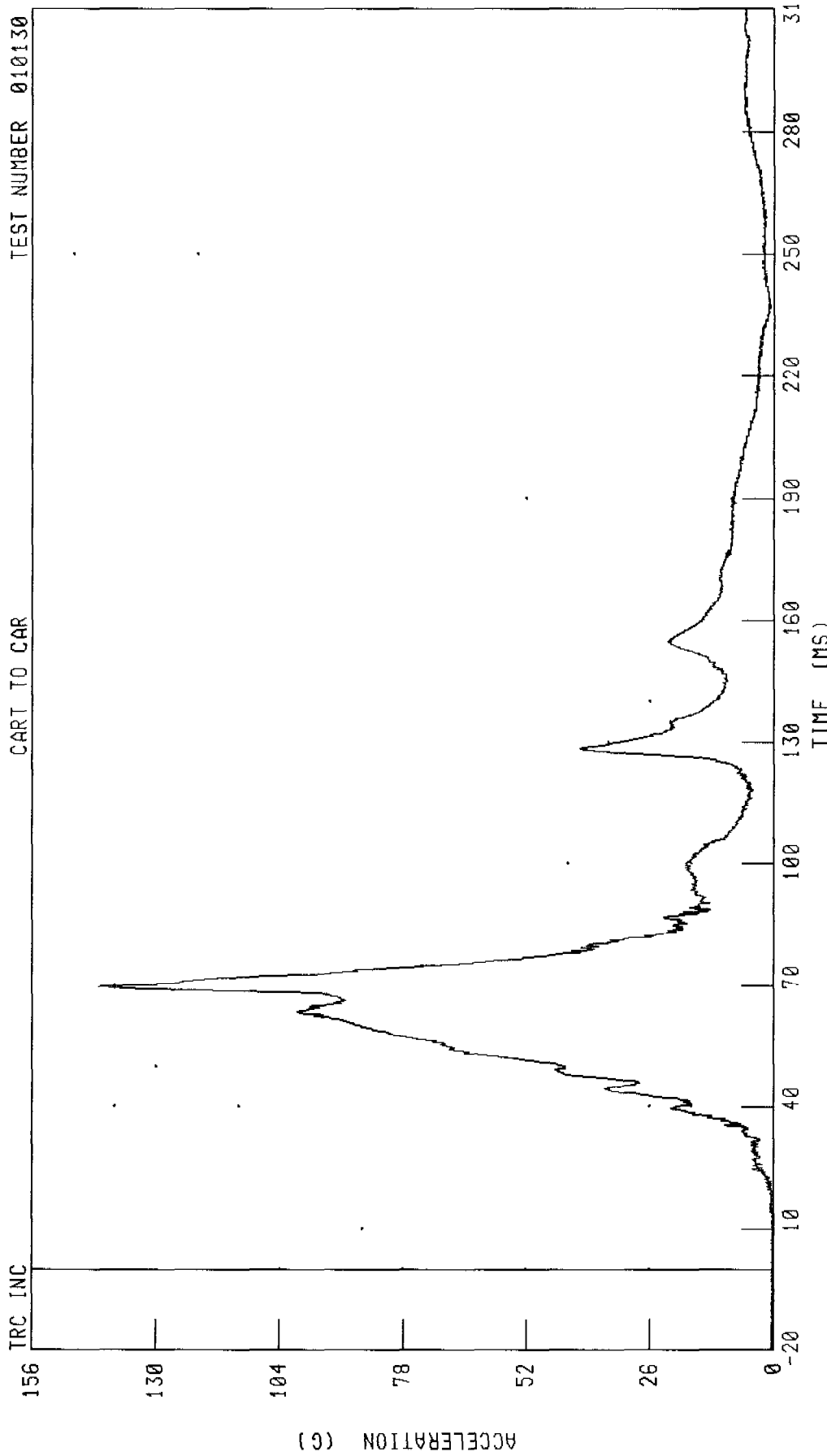
PEAK DATA 23 93 G @ 128 48 MS, -37 25 G @ 71 84 MS

MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
DRIVER HEAD Z-AXIS ACCELERATION  
CART TO CAR



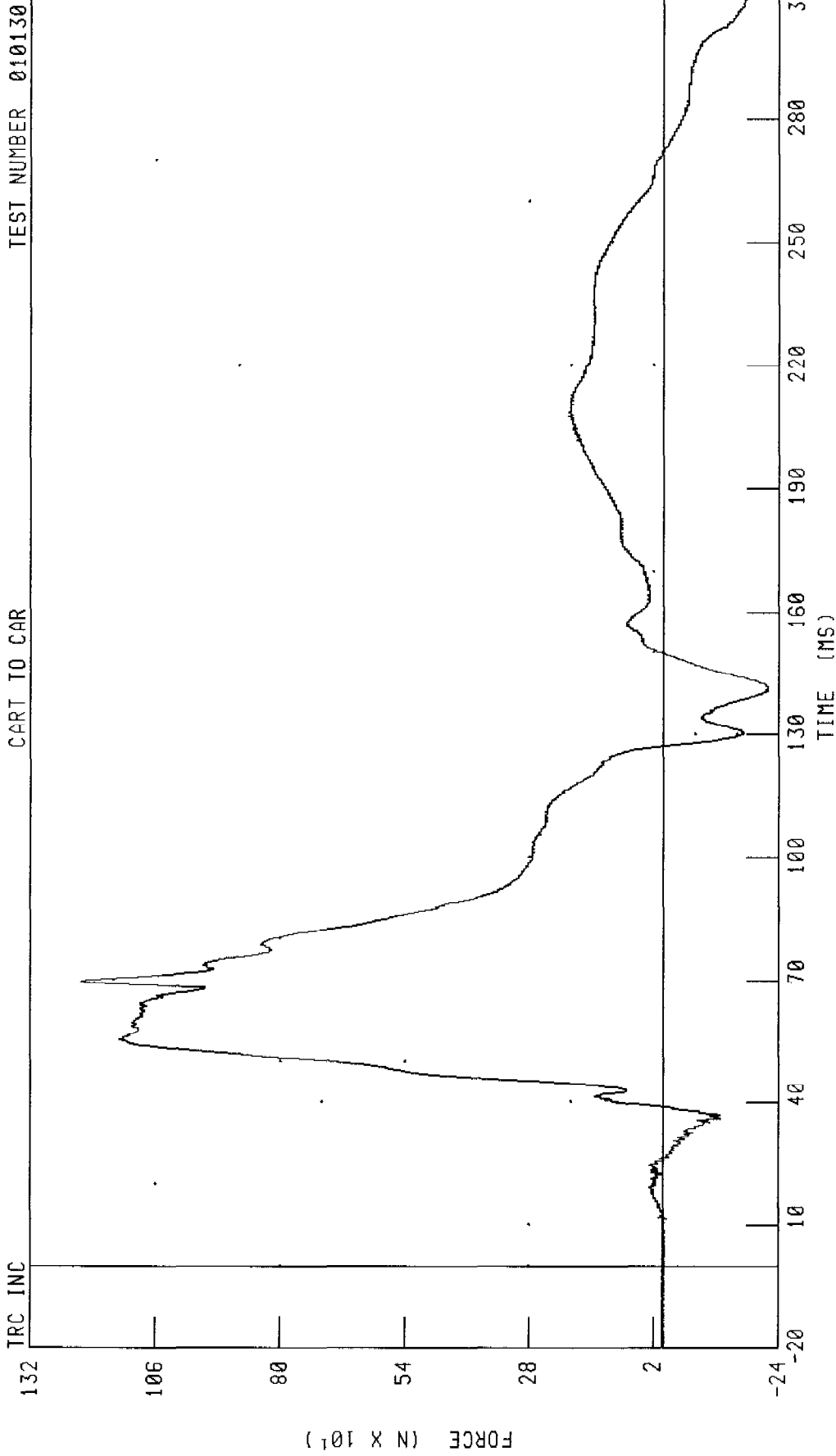
CHANNEL HEDZG1 FILTER CH CLASS 1000 PEAK DATA 47 67 G @ 62 56 MS, -25 99 C @ 69 84 MS

MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
DRIVER HEAD RESULTANT ACCELERATION

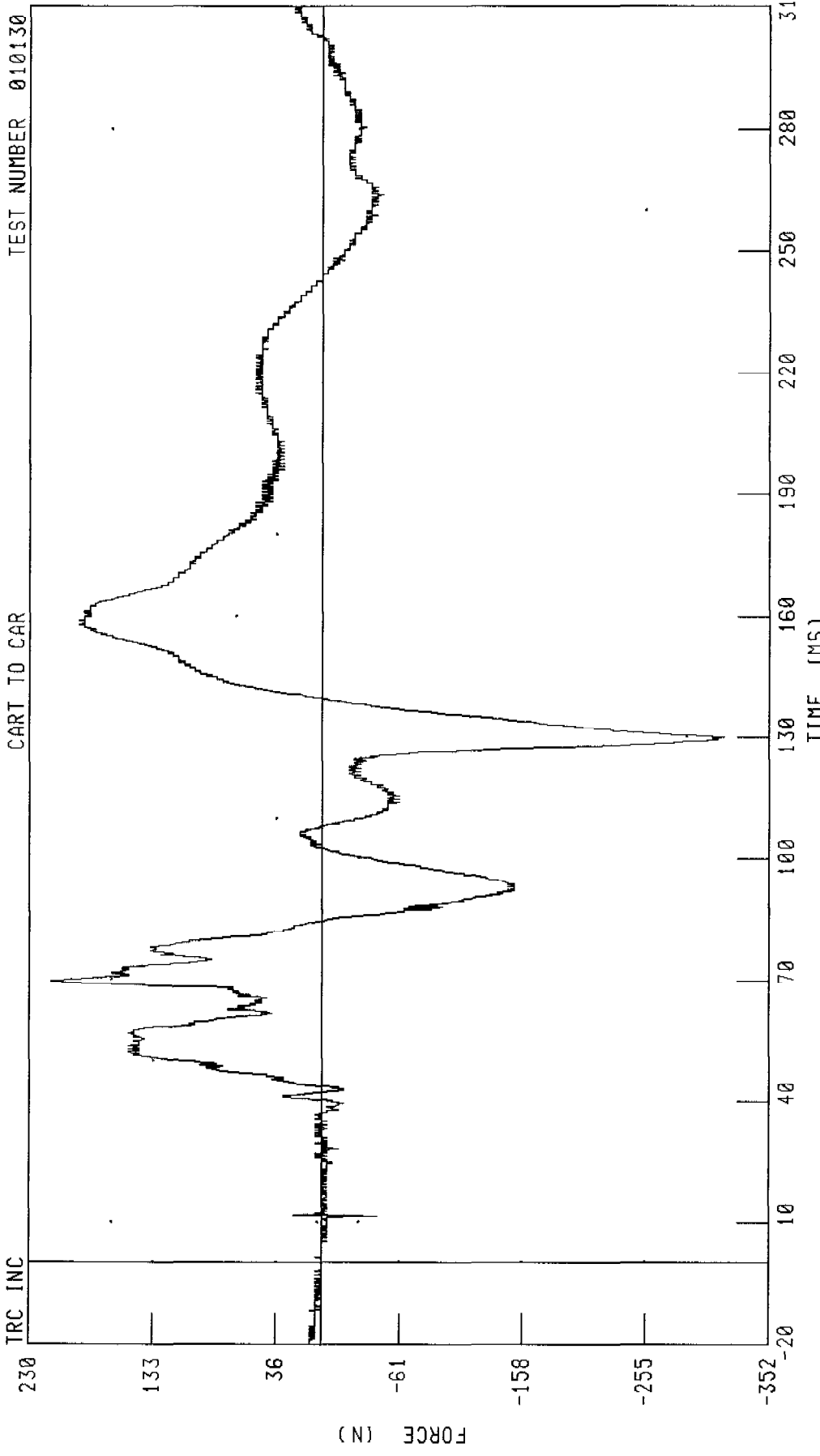


CHANNEL HEDG1 FILTER CH CLASS 1000 PEAK DATA 142 06 G @ 69 68 MS, 0 14 G @ -15 92 MS

MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
DRIVER NECK X-AXIS SHEAR FORCE  
CART TO CAR



MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
DRIVER NECK Y-AXIS SHEAR FORCE



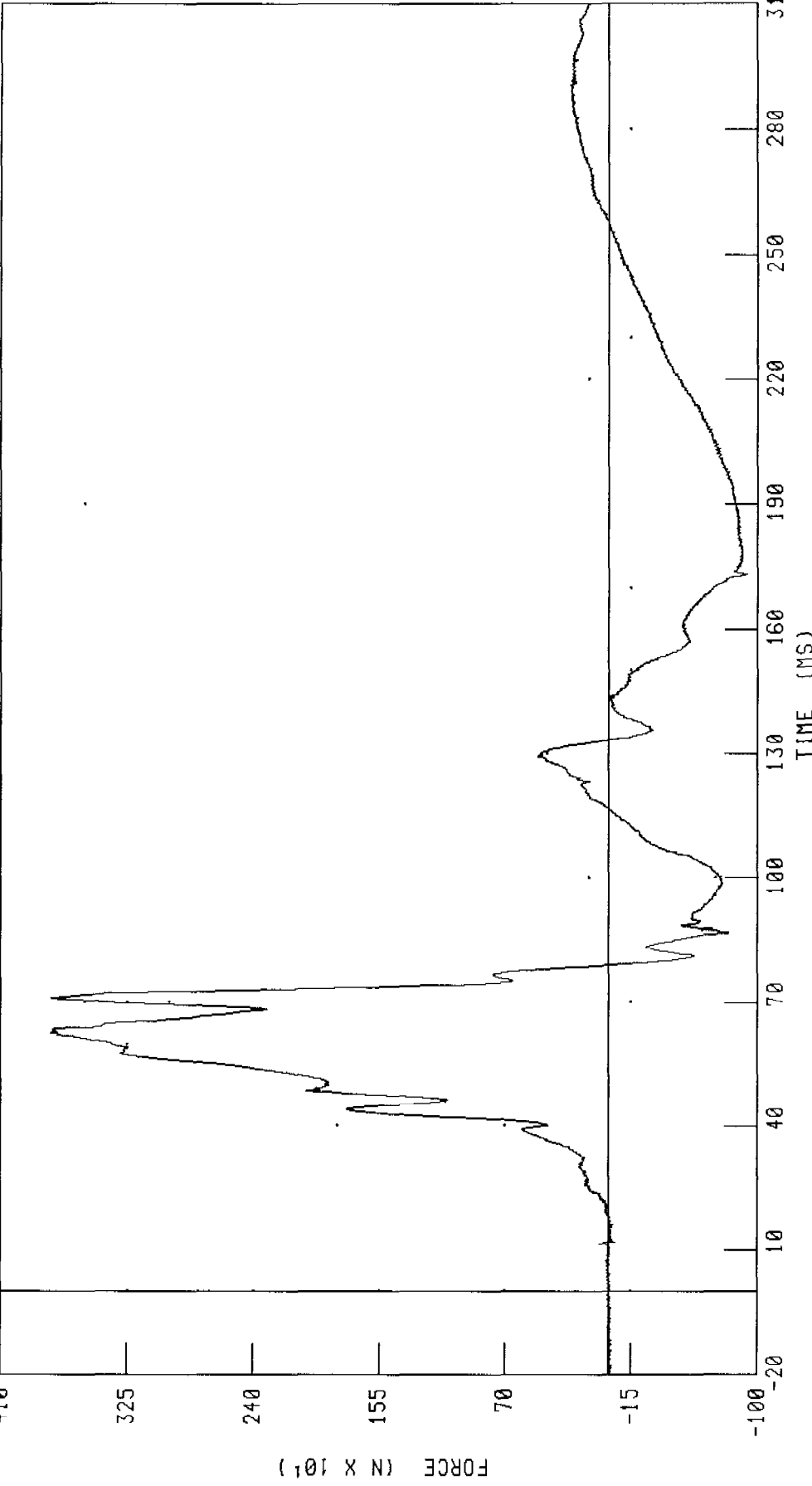
CHANNEL NEKYF1 FILTER CH CLASS 1000 PEAK DATA 213 31 N @ 69 68 MS, -316 57 N @ 130 00 MS

MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
DRIVER NECK Z-AXIS AXIAL FORCE

TRC INC

CART TO CAR

TEST NUMBER 010130

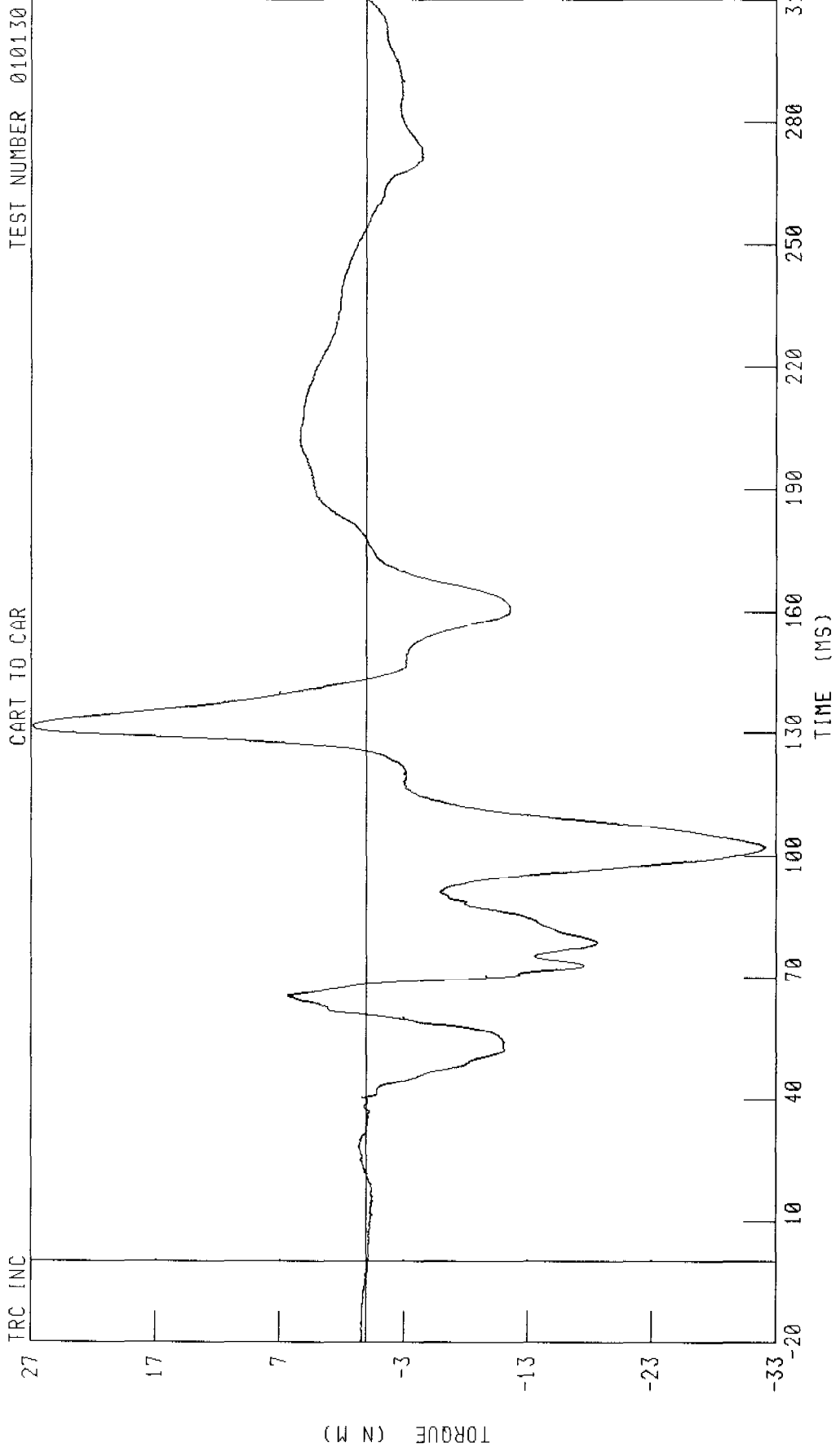


TIME (MS)

CHANNEL NEKZF1 FILTER CH CLASS 1000

PEAK DATA 3760 95 N @ 62 80 MS, -929 61 N @ 173 52 MS

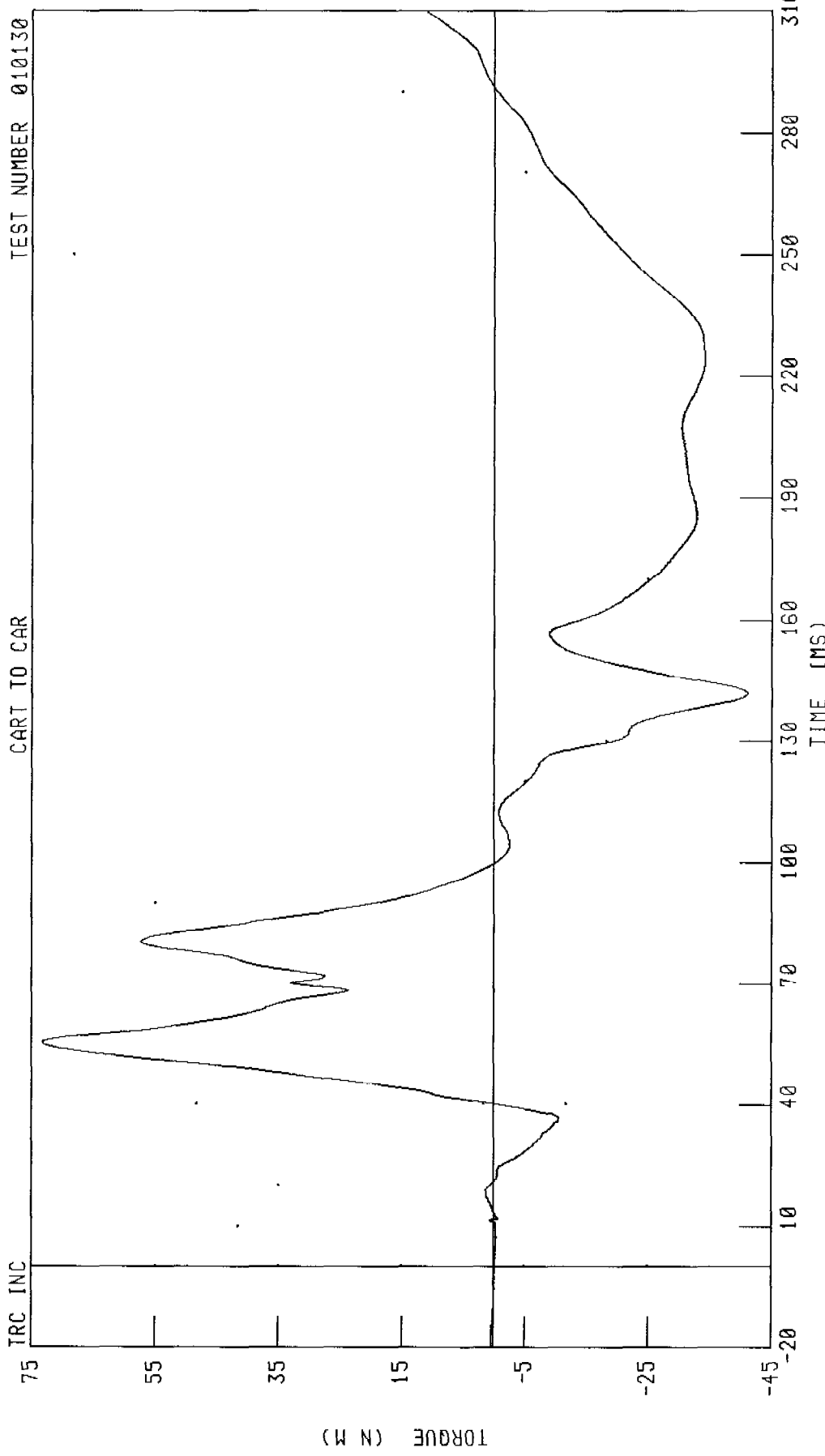
MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
DRIVER NECK MOMENT ABOUT X-AXIS



CHANNEL NEKX1 FILTER CH CLASS 600

PEAK DATA 26 84 N M @ 131 60 MS, -32 17 N M @ 102 16 MS

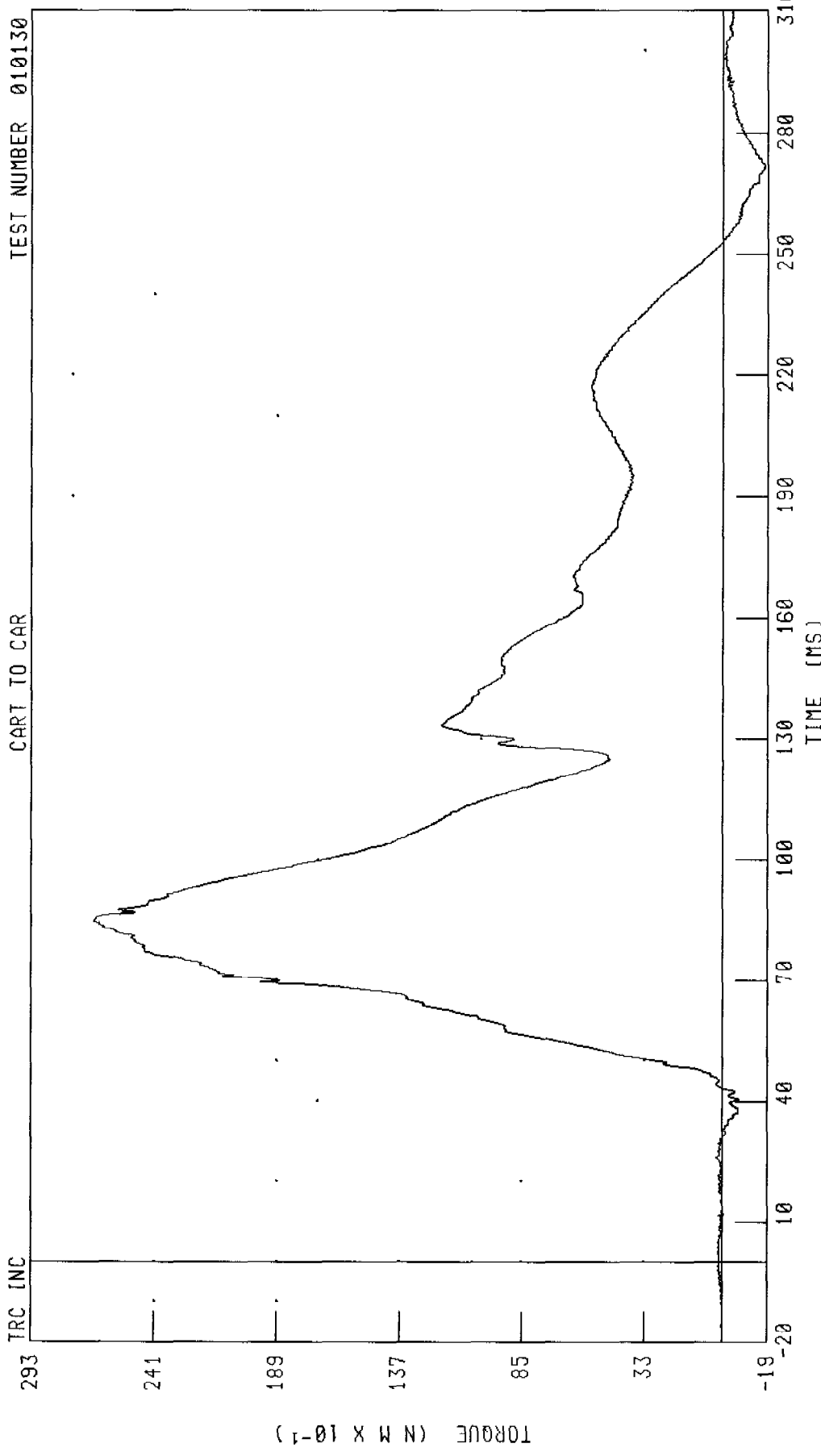
MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
DRIVER NECK MOMENT ABOUT Y-AXIS



CHANNEL NEKYM1 FILTER CH CLASS 600

PEAK DATA 73 19 N M @ 55 52 MS, -41 17 N M @ 141 92 MS

MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
DRIVER NECK MOMENT ABOUT Z-AXIS



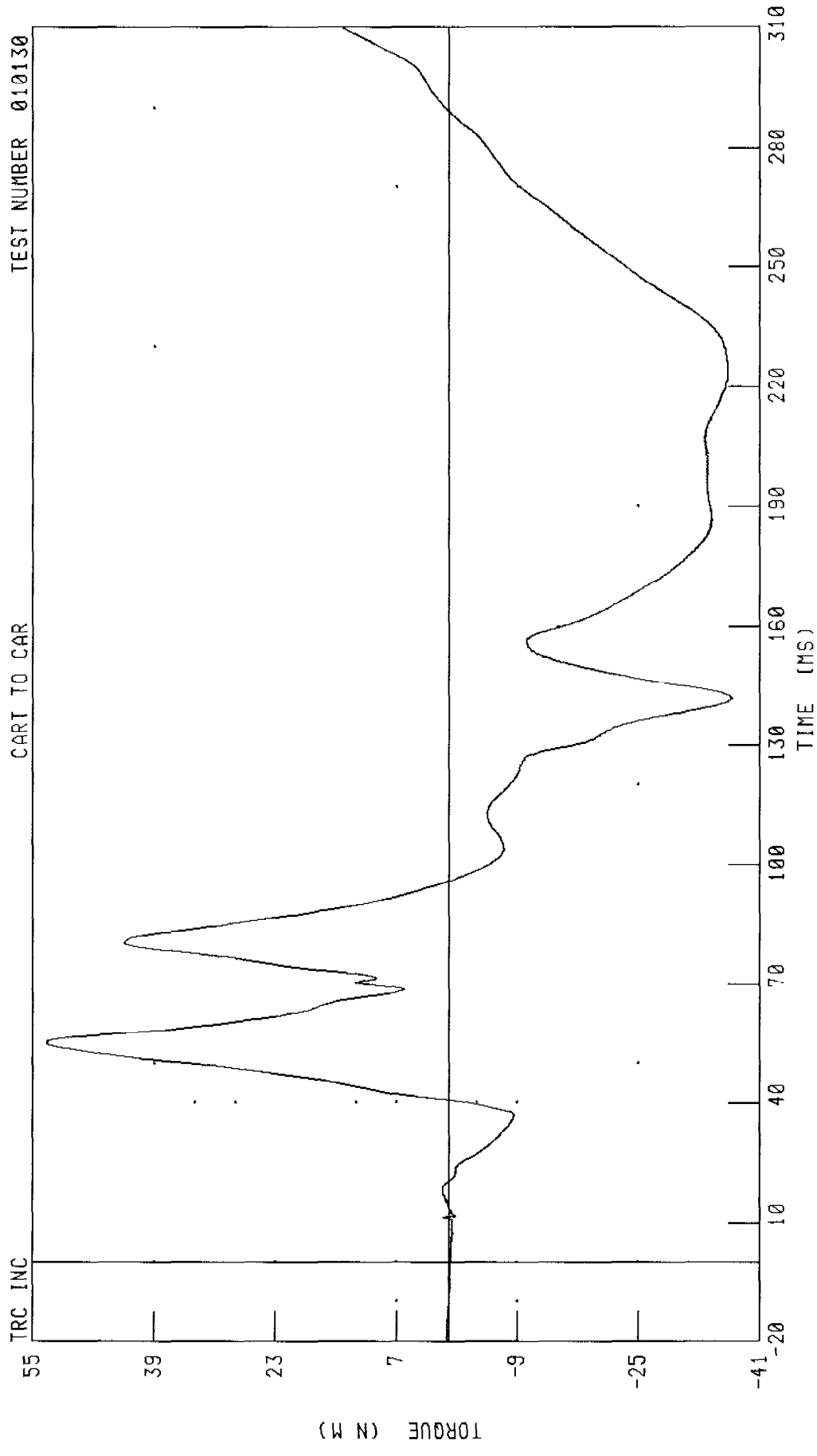
CHANNEL NEKZM1 FILTER CH CLASS 600 PEAK DATA 26 67 N M @ 85 04 MS, -1 79 N M @ 271 84 MS

MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
DRIVER NECK MOMENT OCCIPITAL CONDYLE ABOUT Y-AXIS

TRC INC

CART TO CAR

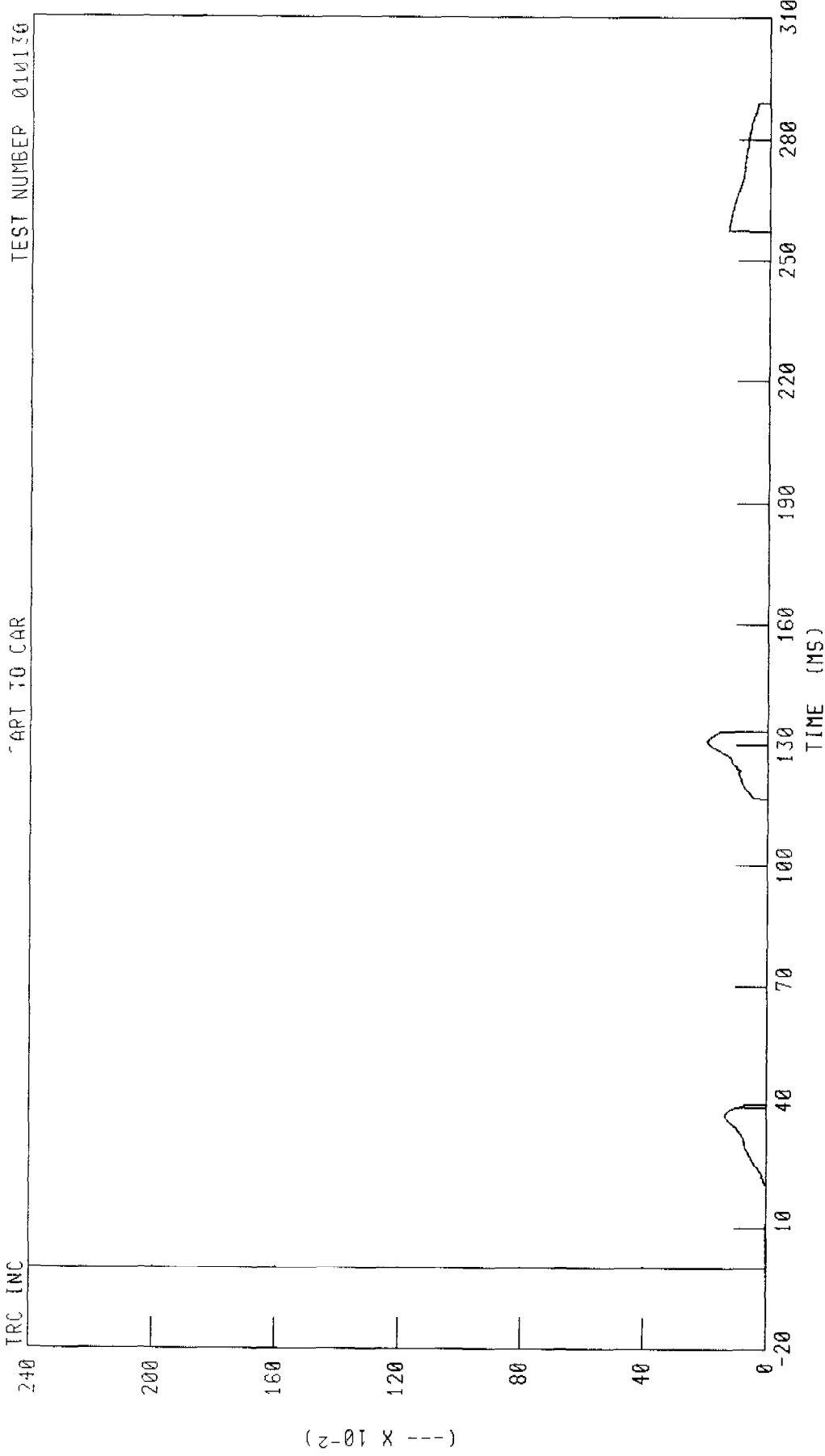
TEST NUMBER 010130



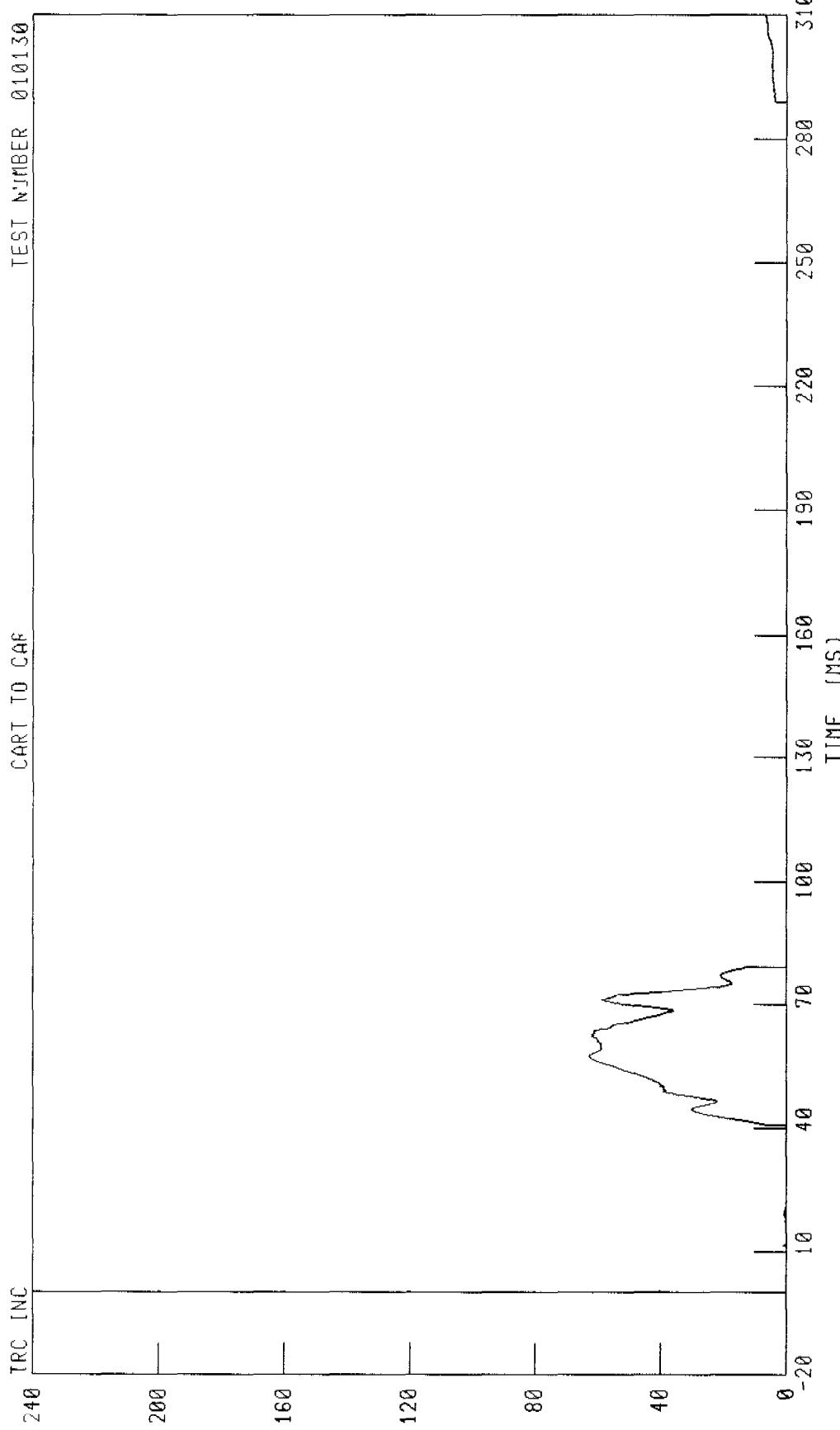
TIME (MS)

CHANNEL NEKOM1 FILTER CH CLASS 600 PEAK DATA 53 13 N M @ 55 04 MS, -37 35 N M @ 141 92 MS

MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
DRIVER NECK TENSION/EXTENSION



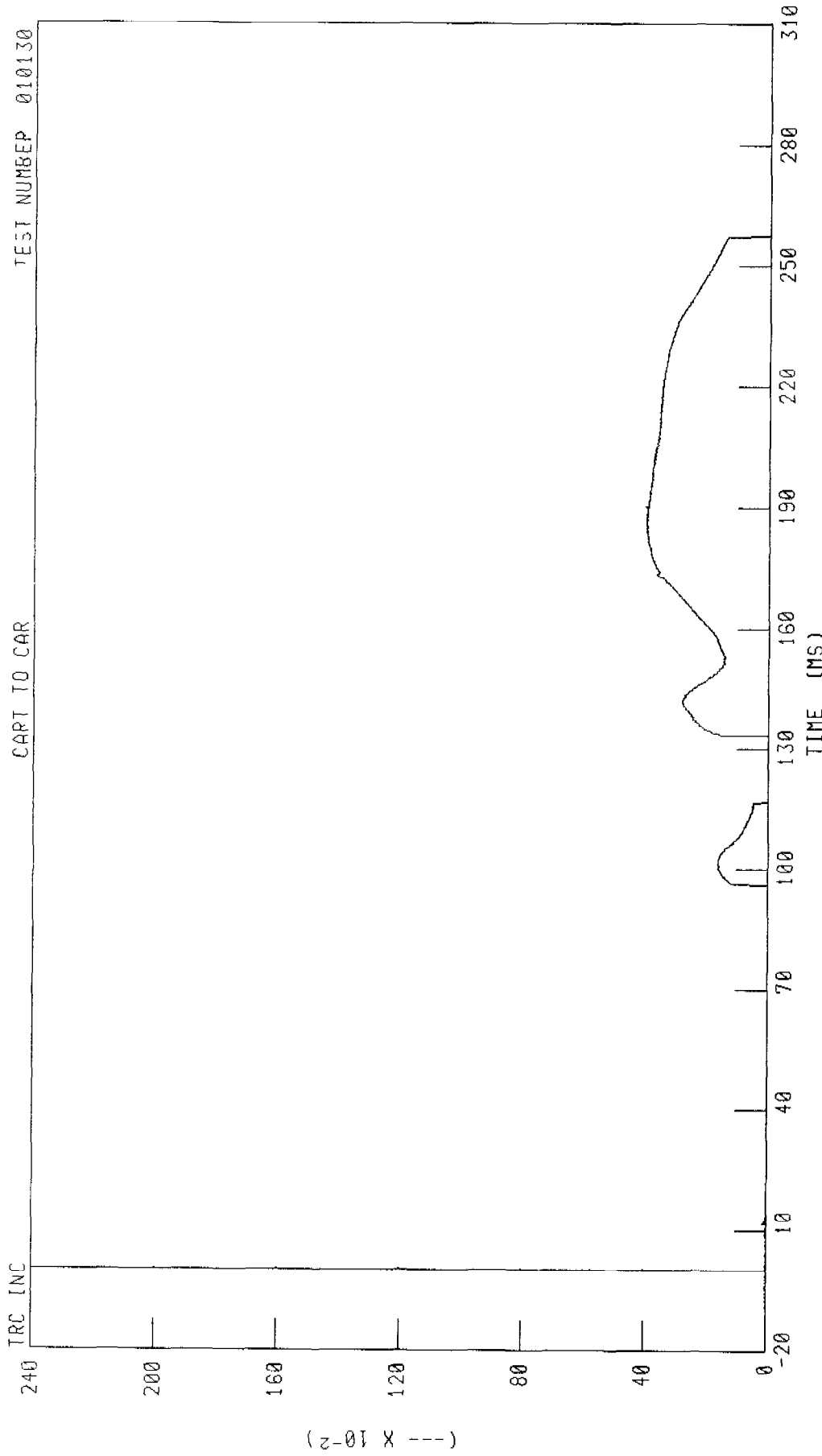
MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
DRIVER NECK TENSION/FLEXION



(--- X 10<sup>-2</sup>)

CHANNEL NTF1 FILTER CH CLASS 600 PEAK DATA 0 63 --- 0 57 52 MS, 0 00 --- 0 -20 00 MS

MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
DRIVER NECK COMPRESSION/EXTENSION



CHANNEL NCE1 FILTER CH CLASS 600

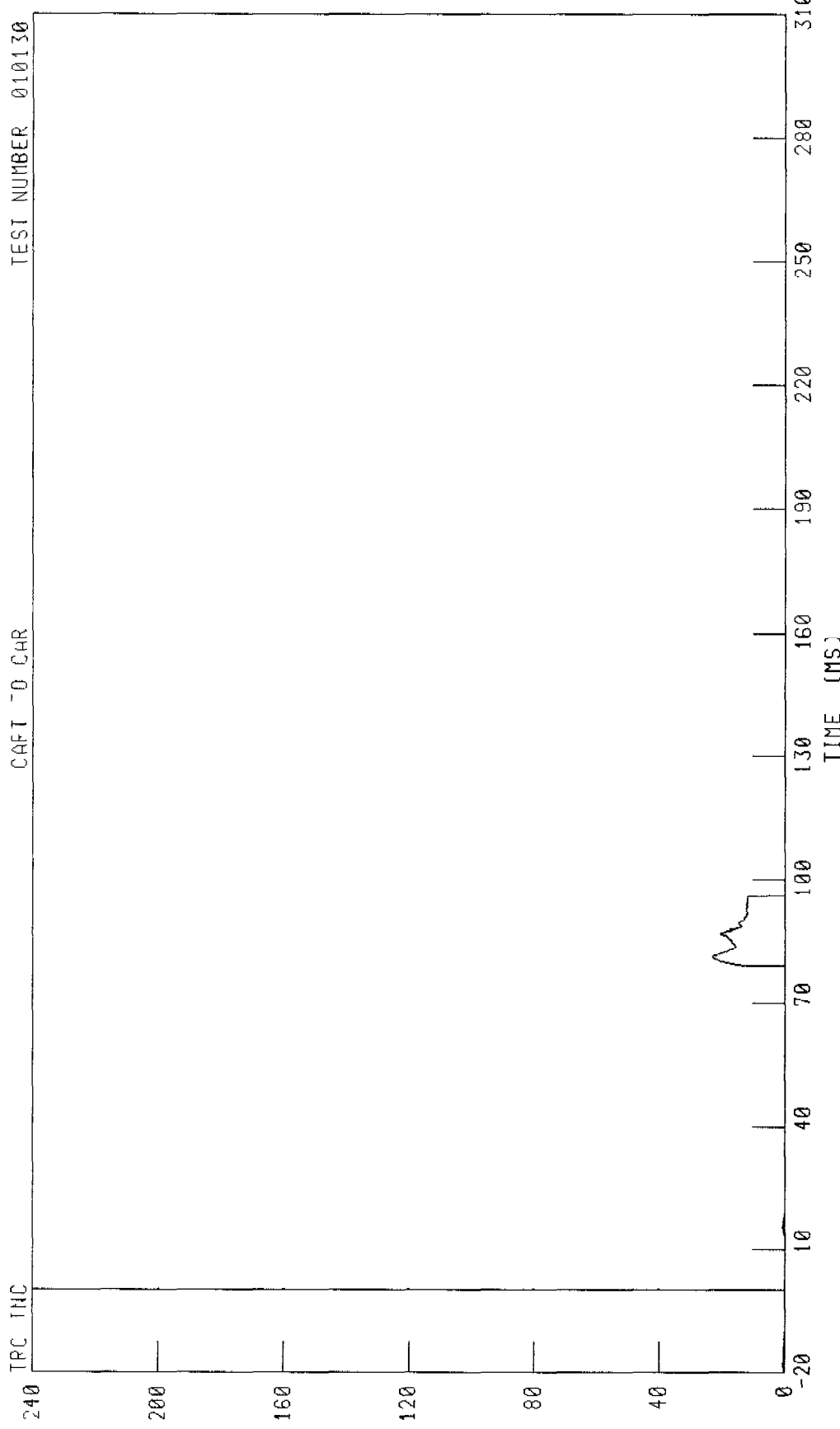
PEAK DATA 0 40 --- 0 184 72 MS, 0 00 --- 0 -20 00 MS

MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
DRIVER NECK COMPRESSION/FLEXION

TEST NUMBER 010130

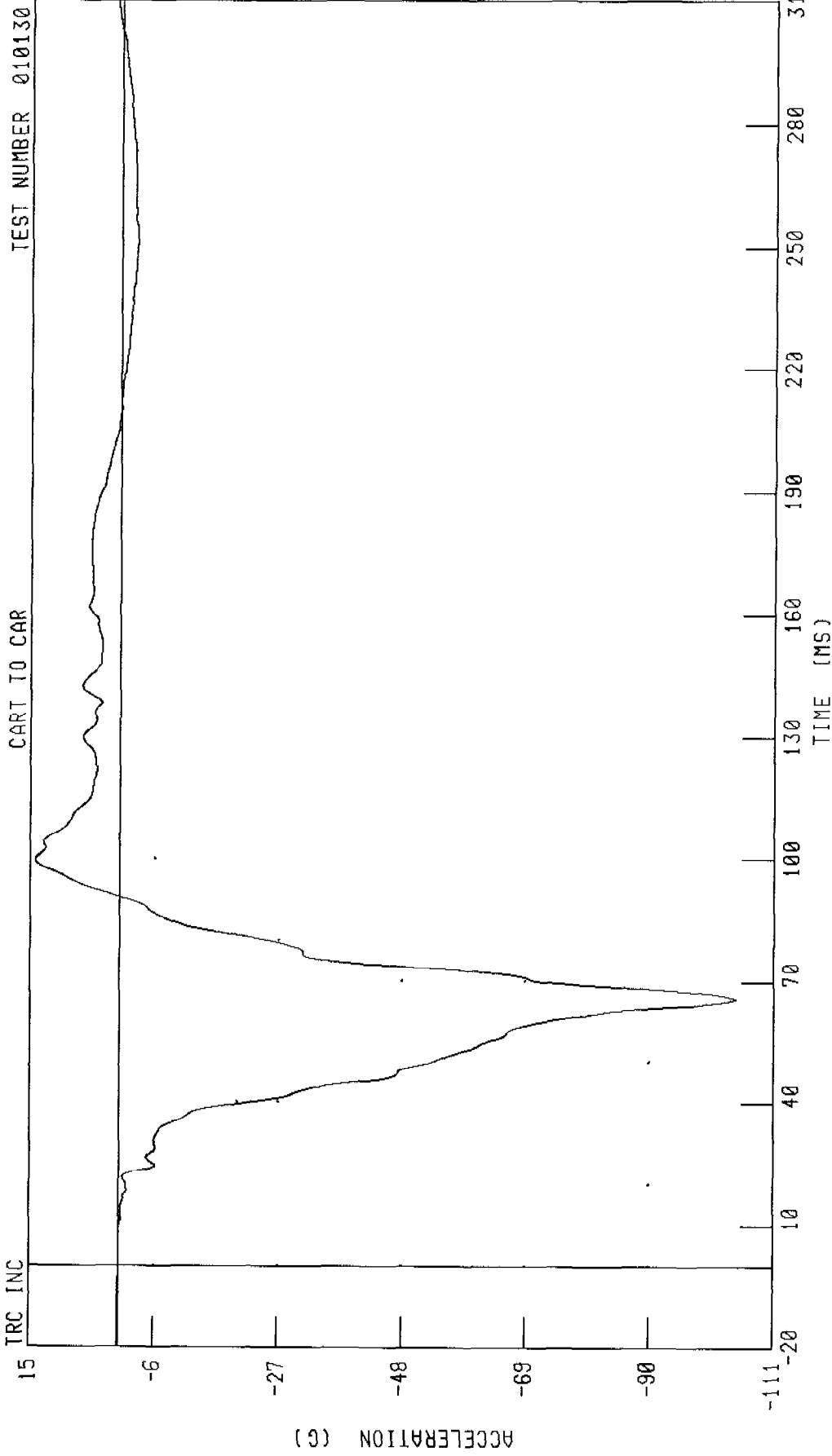
CAFT TO CAR

TPC INC

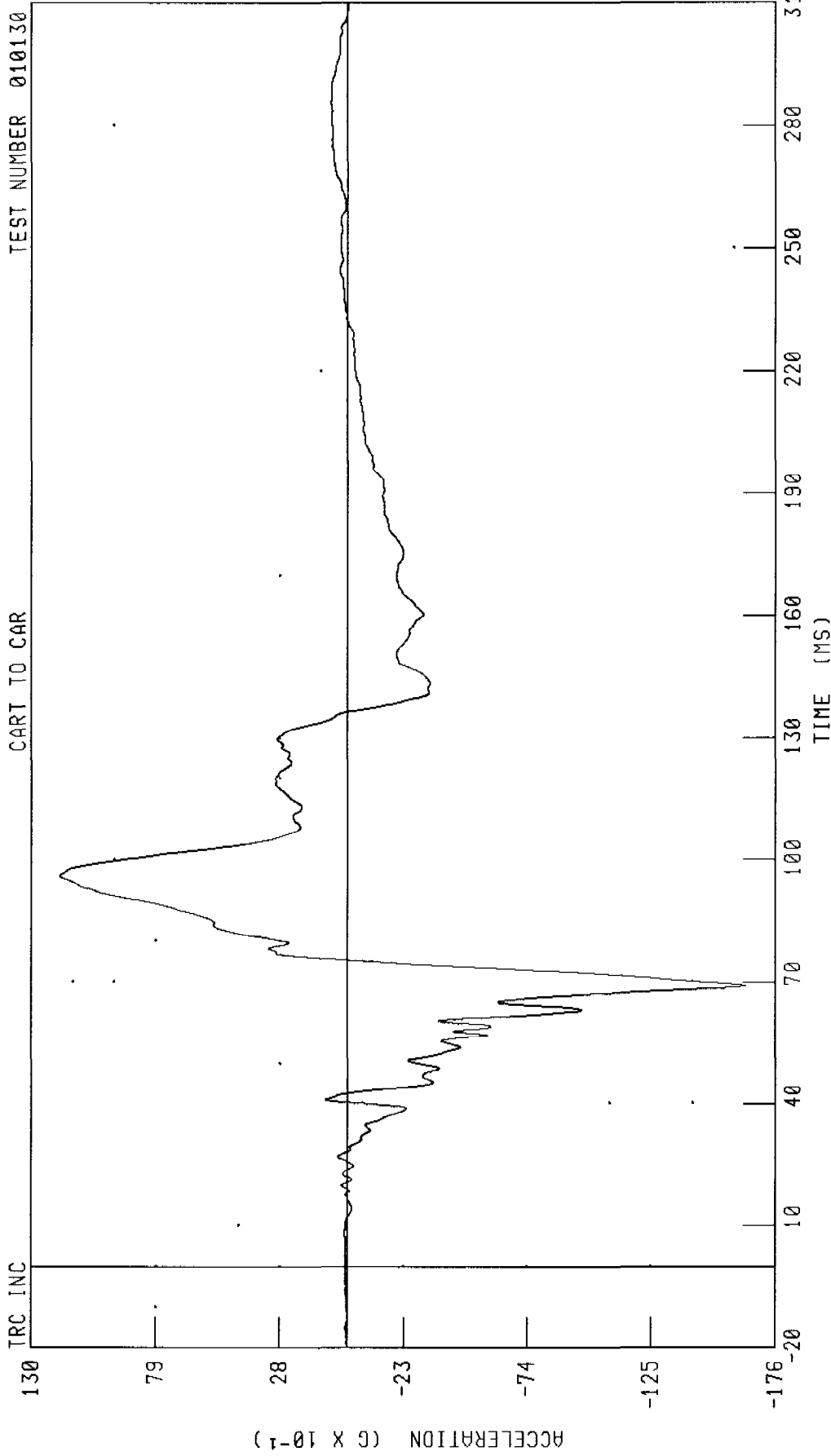


CHANNEL NCF1 FILTER CH CLASS 600  
TIME (MS) PEAK DATA 0 23 --- 0 81 12 MS, 0 00 --- 0 -14 08 MS

MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
DRIVER CHEST X-AXIS ACCELERATION

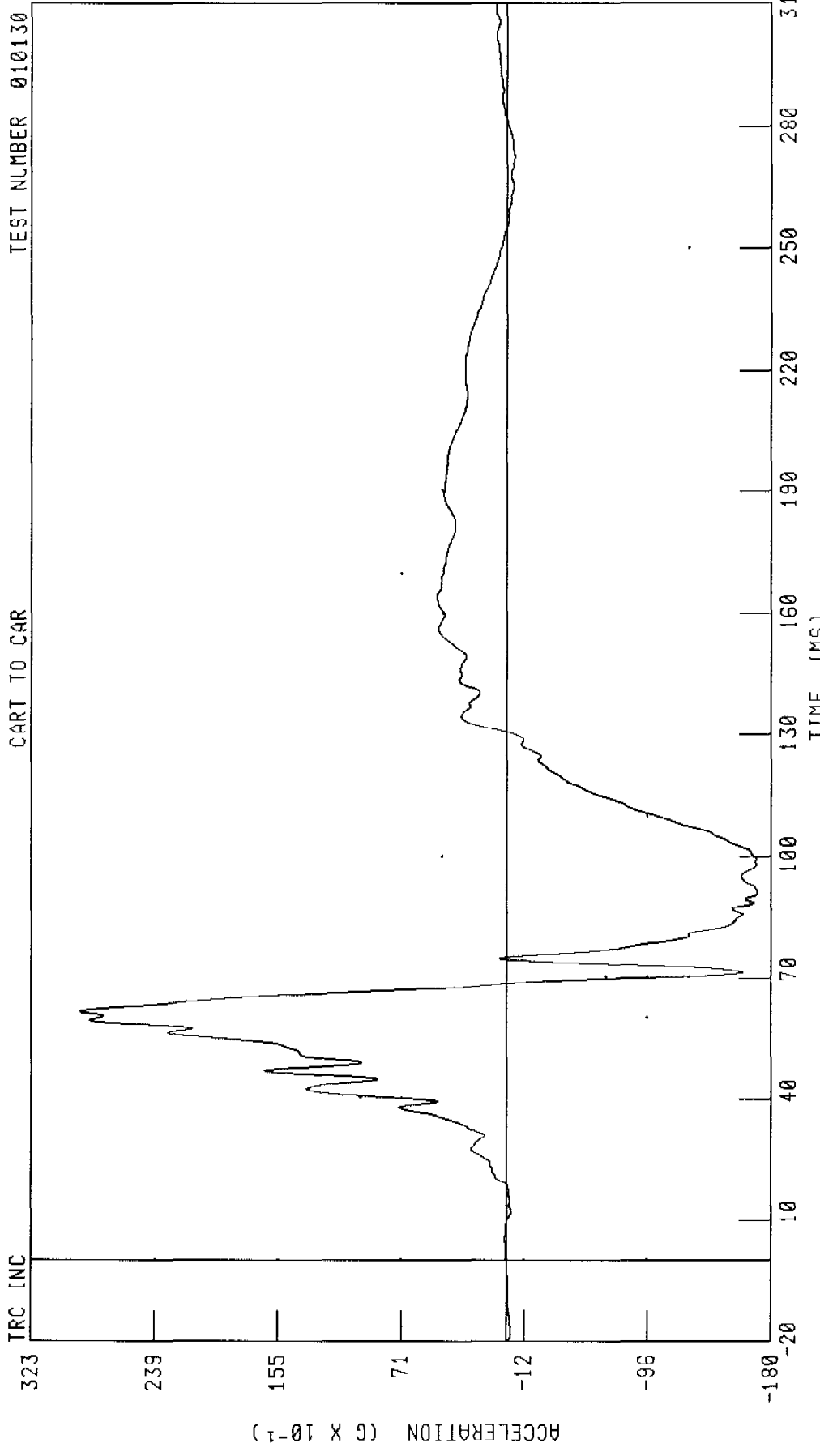


MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
DRIVER CHEST Y-AXIS ACCELERATION  
CART TO CAR



CHANNEL CSTYG1 FILTER CH CLASS 180 PEAK DATA 11 86 G @ 96 08 MS, -16 39 G @ 69 04 MS

MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
DRIVER CHEST Z-AXIS ACCELERATION



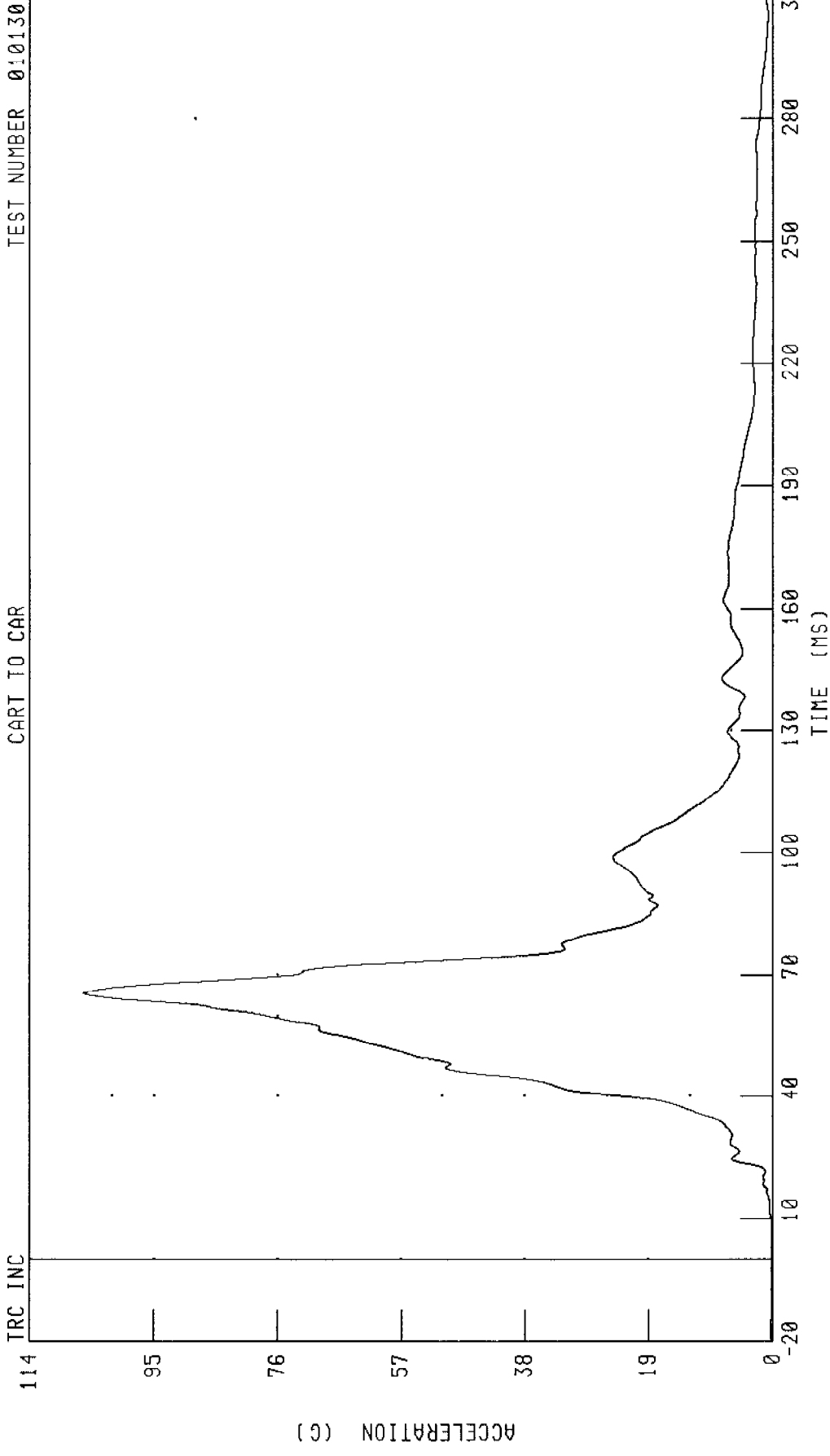
TRC INC

CART TO CAR

TEST NUMBER 010130

CHANNEL CSTZG1 FILTER CH CLASS 180 PEAK DATA 29 10 G @ 61 52 MS, -17 09 G @ 91 04 MS

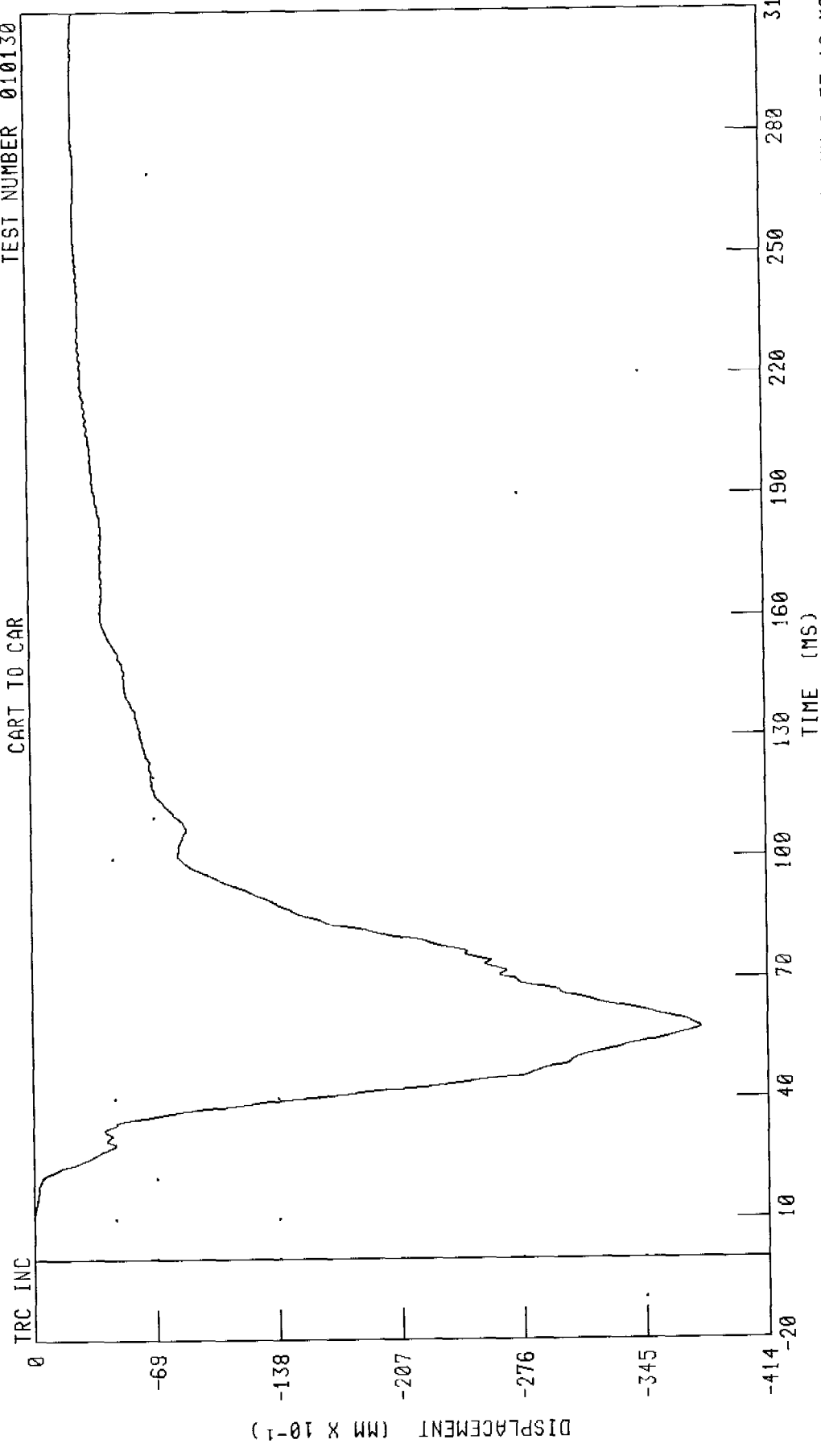
MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
DRIVER CHEST RESULTANT ACCELERATION



CHANNEL CSTRG1 FILTER CH CLASS 180 PEAK DATA 105 78 G @ 65 60 MS, 0 02 G @ -20 00 MS

MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
DRIVER CHEST DEFLECTION  
CART TO CAR

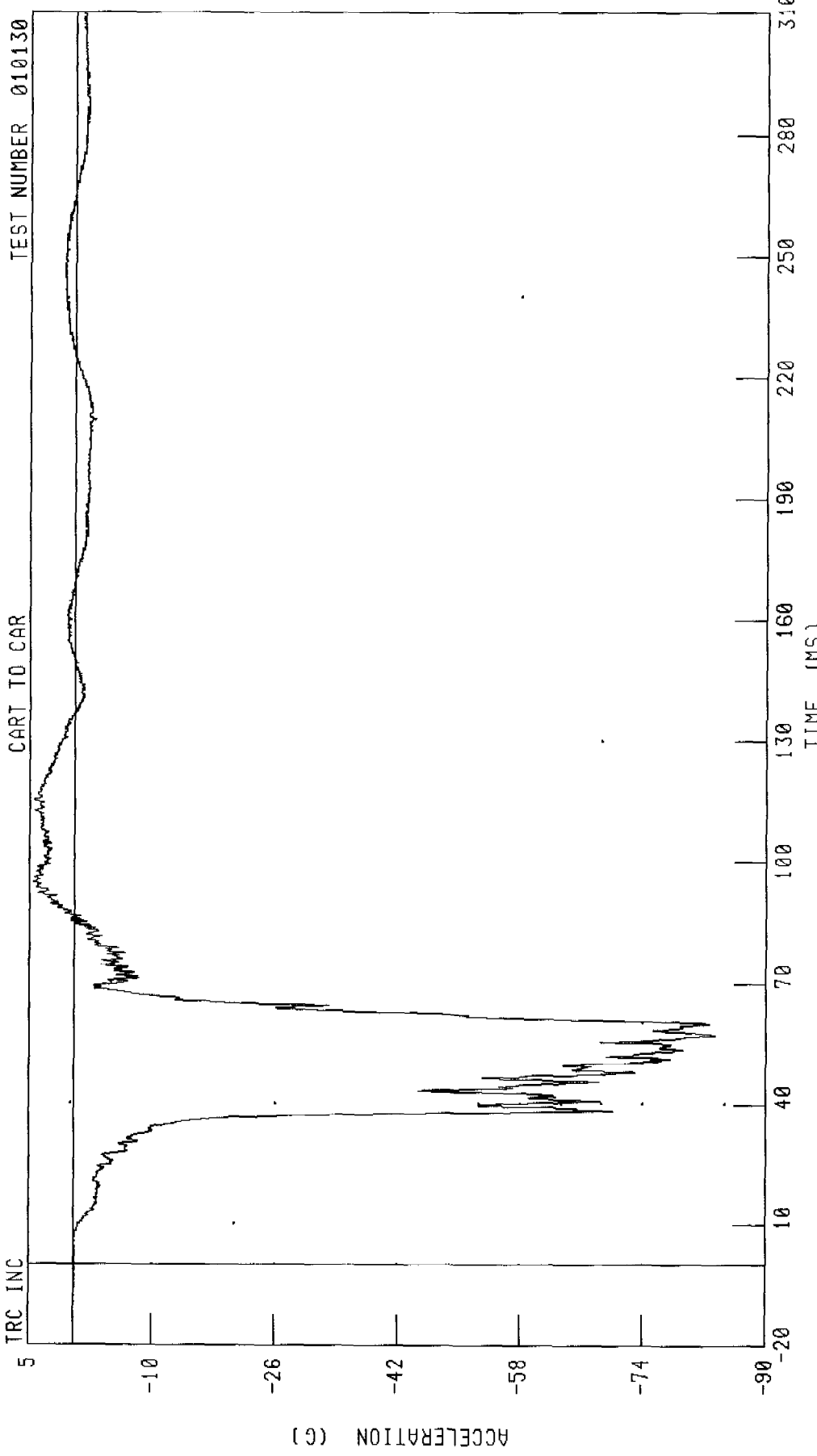
TEST NUMBER 010130



CHANNEL CSTXD1 FILTER CH CLASS 600

PEAK DATA 0 02 MM @ -11 44 MS, -37 67 MM @ 57 12 MS

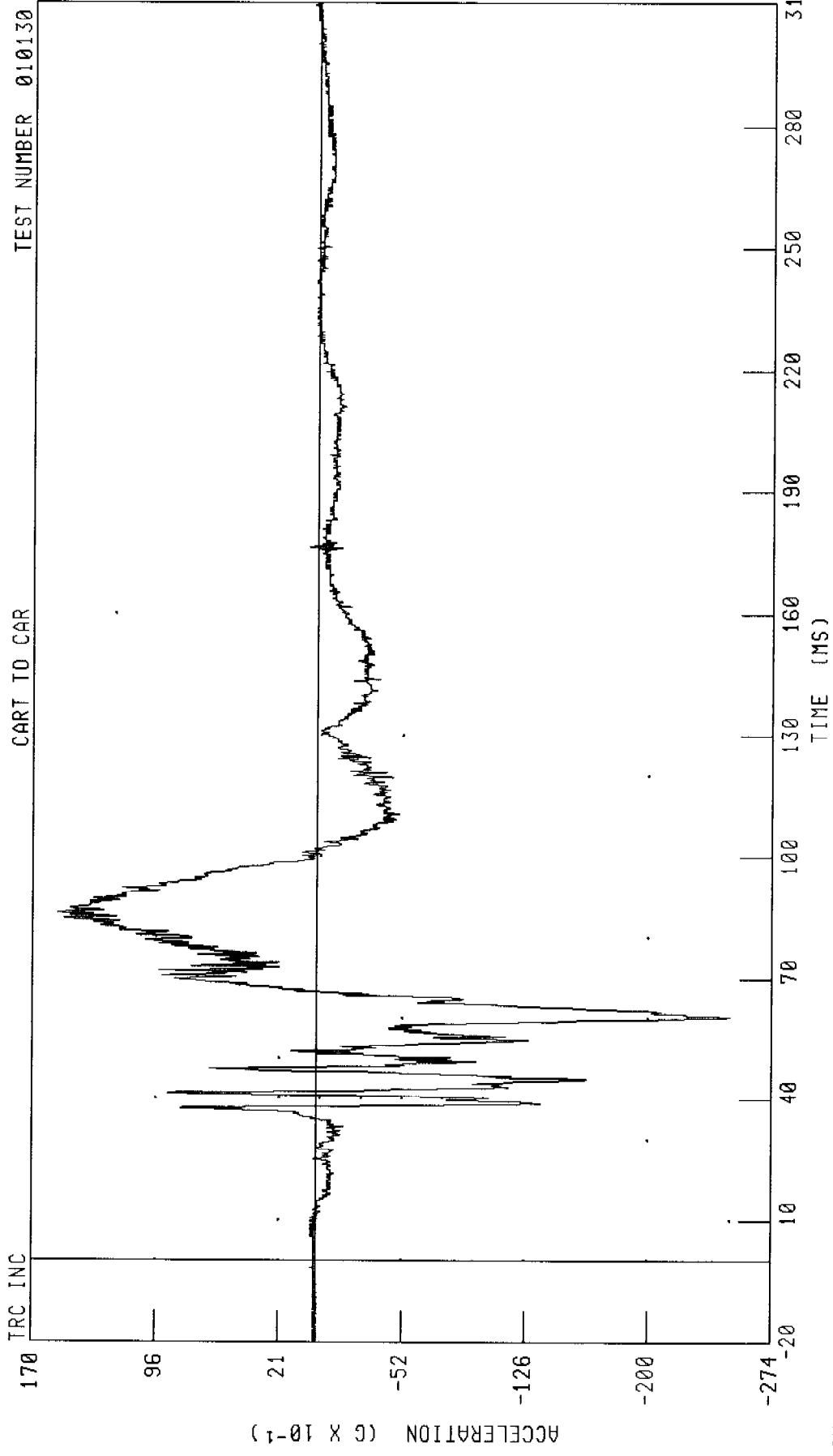
MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
DRIVER PELVIS X-AXIS ACCELERATION



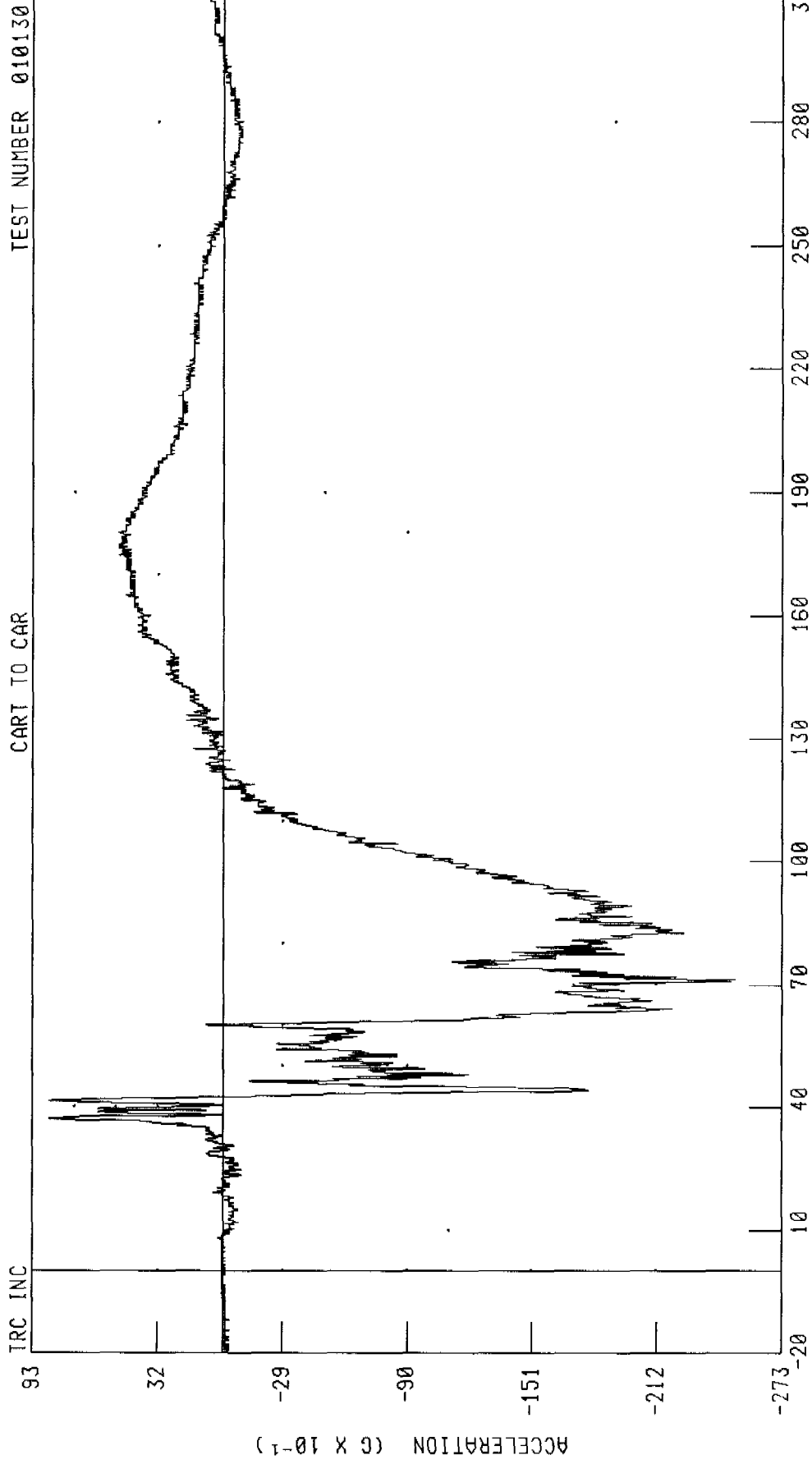
CHANNEL PEVXG1 FILTER CH CLASS 1000

PEAK DATA 5 32 G @ 94 88 MS, -83 63 G @ 57 04 MS

MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
DRIVER PELVIS Y-AXIS ACCELERATION



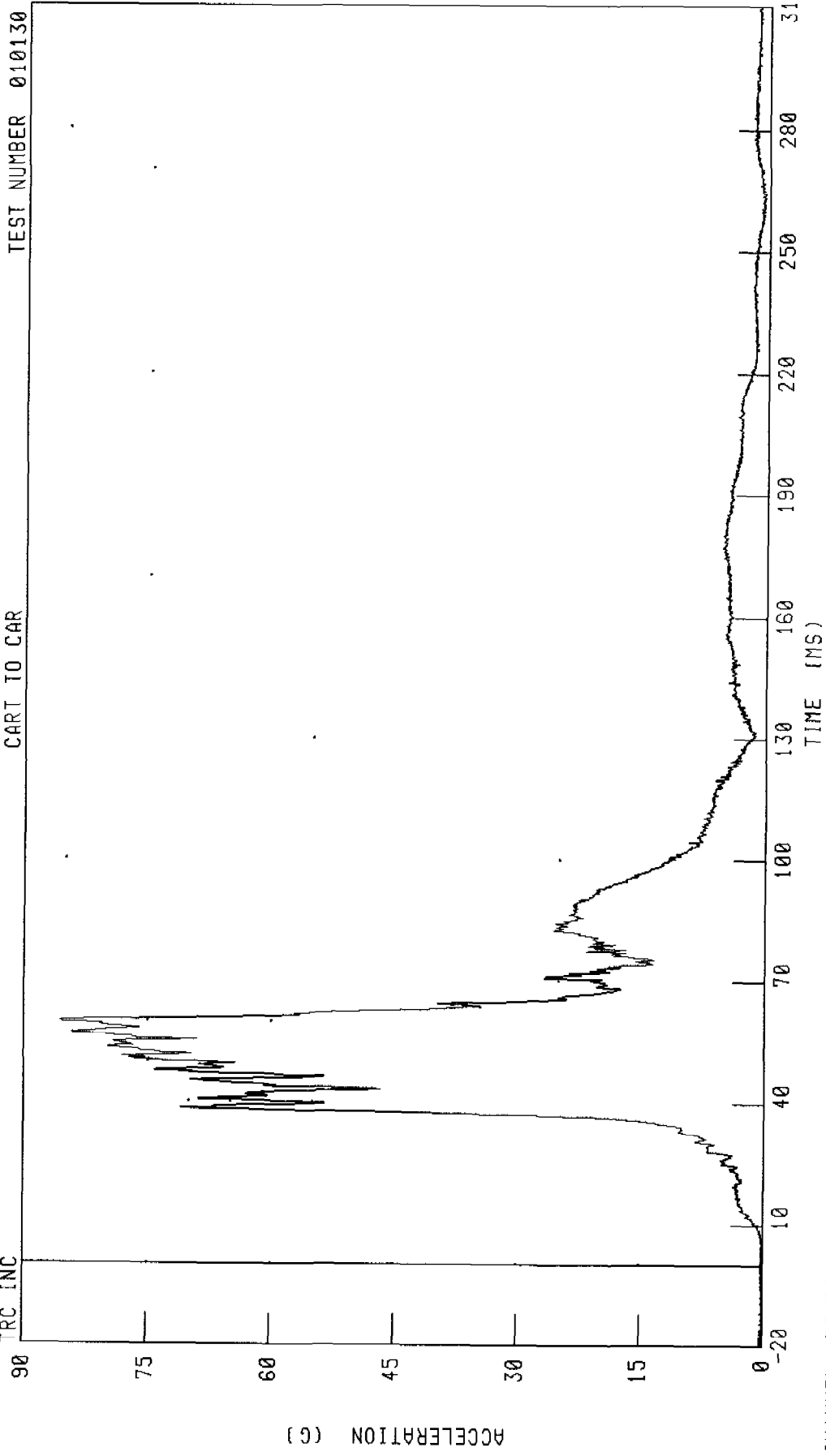
MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
DRIVER PELVIS Z-AXIS ACCELERATION



CHANNEL PEVZG1 FILTER CH CLASS 1000

PEAK DATA 8 46 G @ 37 20 MS, -25 04 G @ 71 36 MS

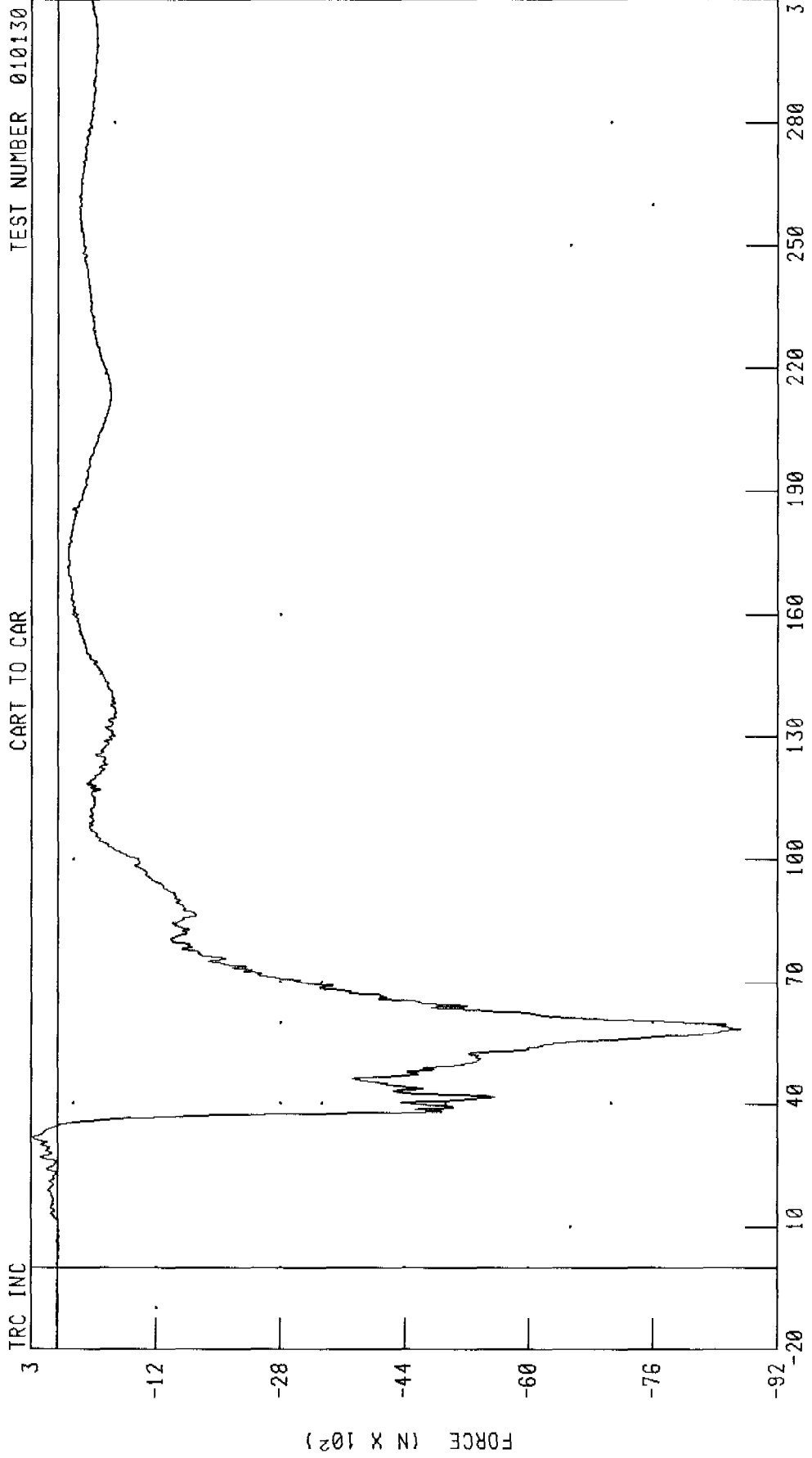
MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
DRIVER PELVIS RESULTANT ACCELERATION



TRC INC  
CART TO CAR  
TEST NUMBER 010130

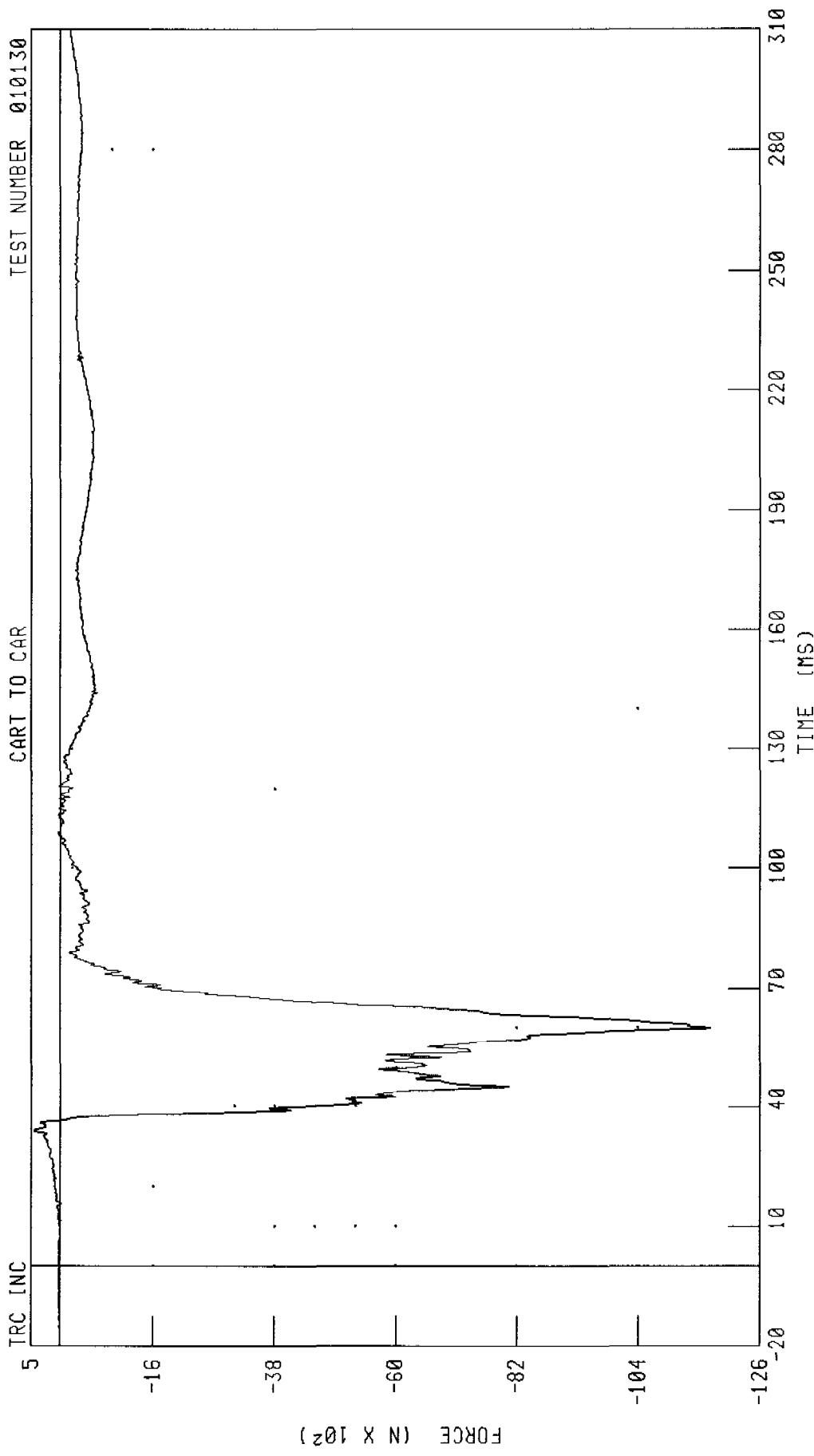
CHANNEL PEVRG1 FILTER CH CLASS 1000  
PEAK DATA 85 56 G @ 60 00 MS, 0 13 G @ -6 64 MS

MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
DRIVER LEFT FEMUR FORCE  
CART TO CAR



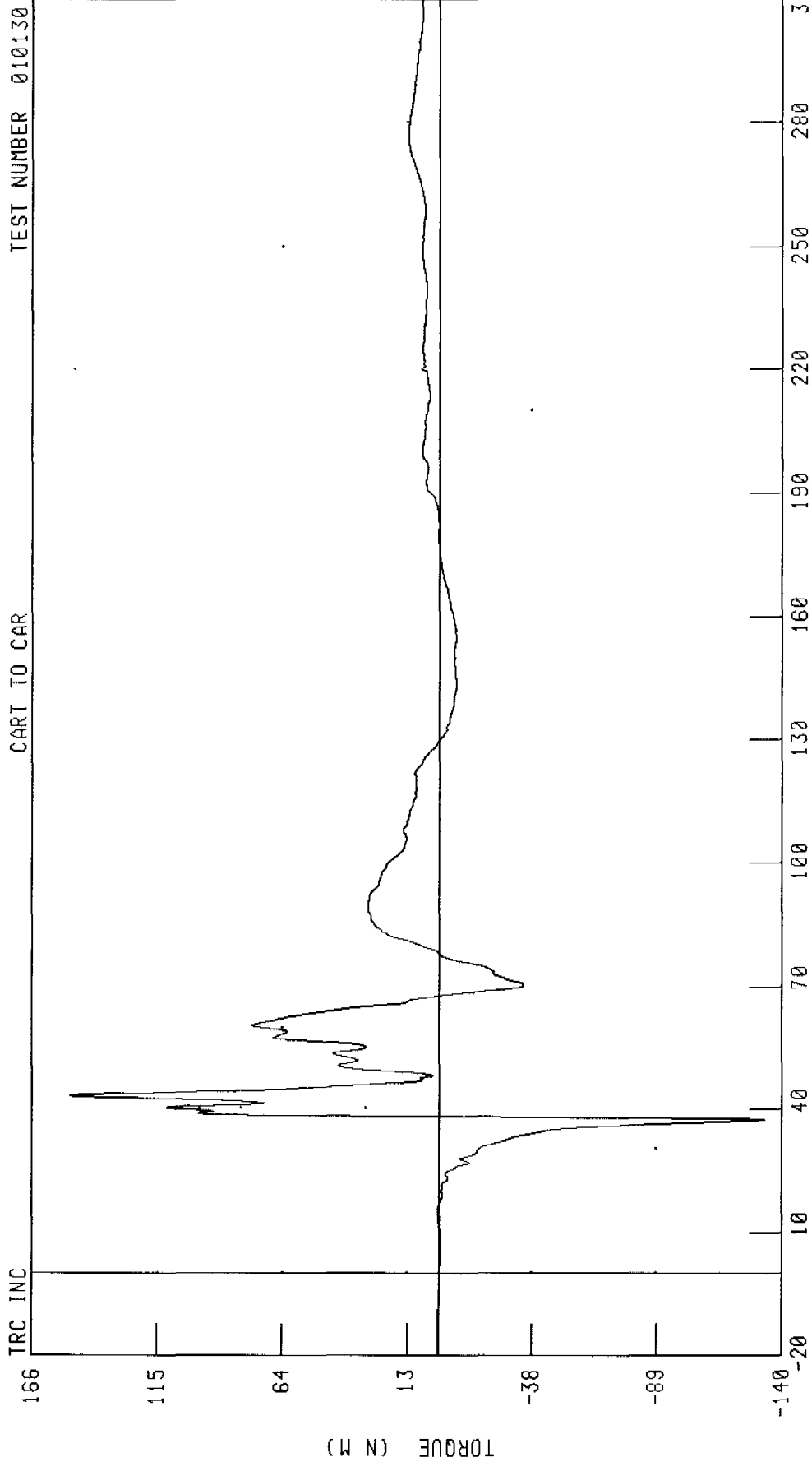
CHANNEL LFMZF1 FILTER CH CLASS 600 PEAK DATA 303 44 N @ 31 92 MS, -8800 15 N @ 58 32 MS

MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
DRIVER RIGHT FEMUR FORCE



CHANNEL RFMZF1 FILTER CH CLASS 600 PEAK DATA 463 83 N @ 34 08 MS, -11904 86 N @ 60 00 MS

MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
DRIVER LEFT UPPER TIBIA MOMENT ABOUT X-AXIS



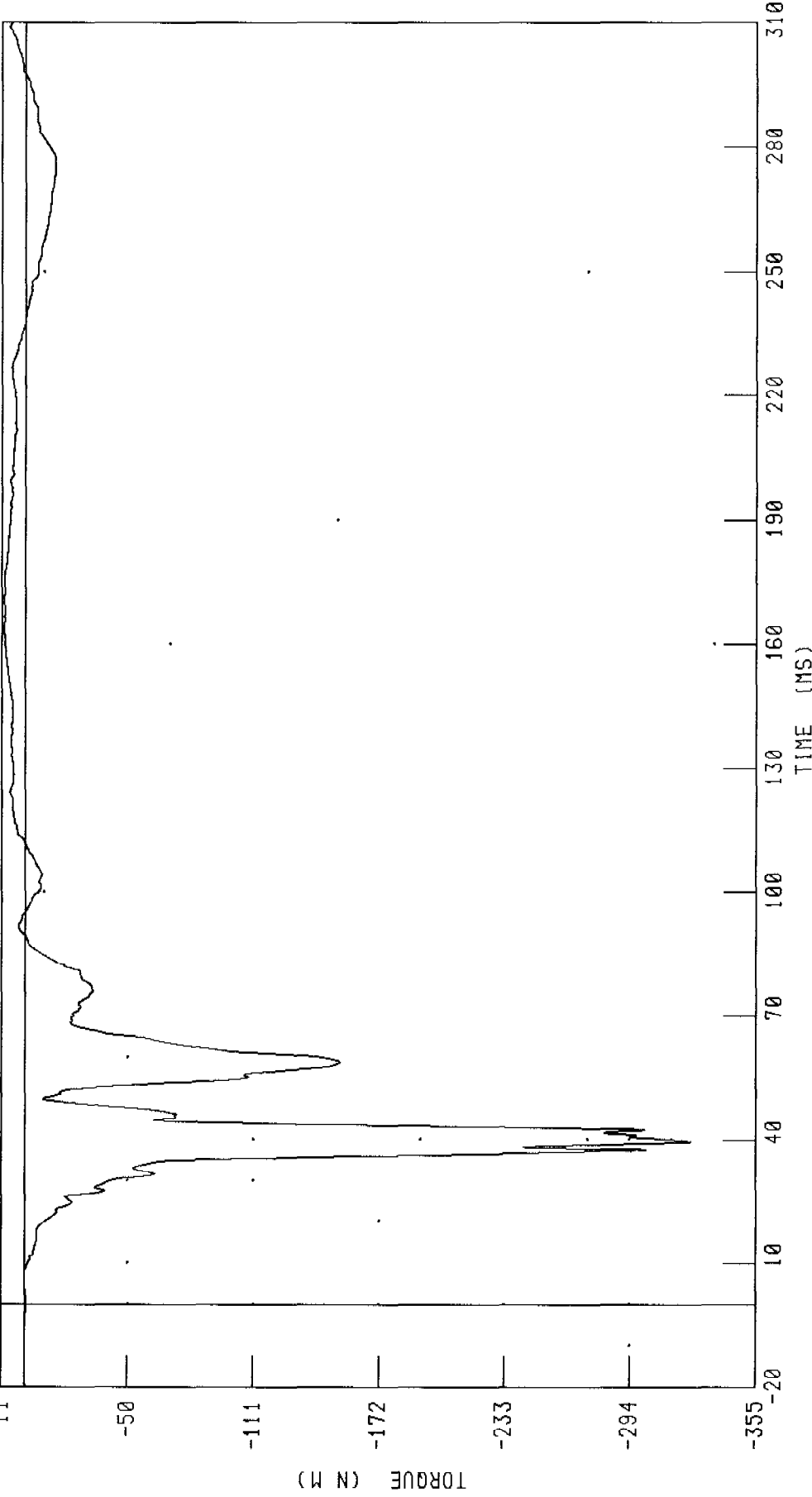
CHANNEL TBLXM1 FILTER CH CLASS 600 PEAK DATA 150 41 N M @ 43 12 MS, -132 99 N M @ 37 36 MS

MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
DRIVER LEFT UPPER TIBIA MOMENT ABOUT Y-AXIS

TRC INC

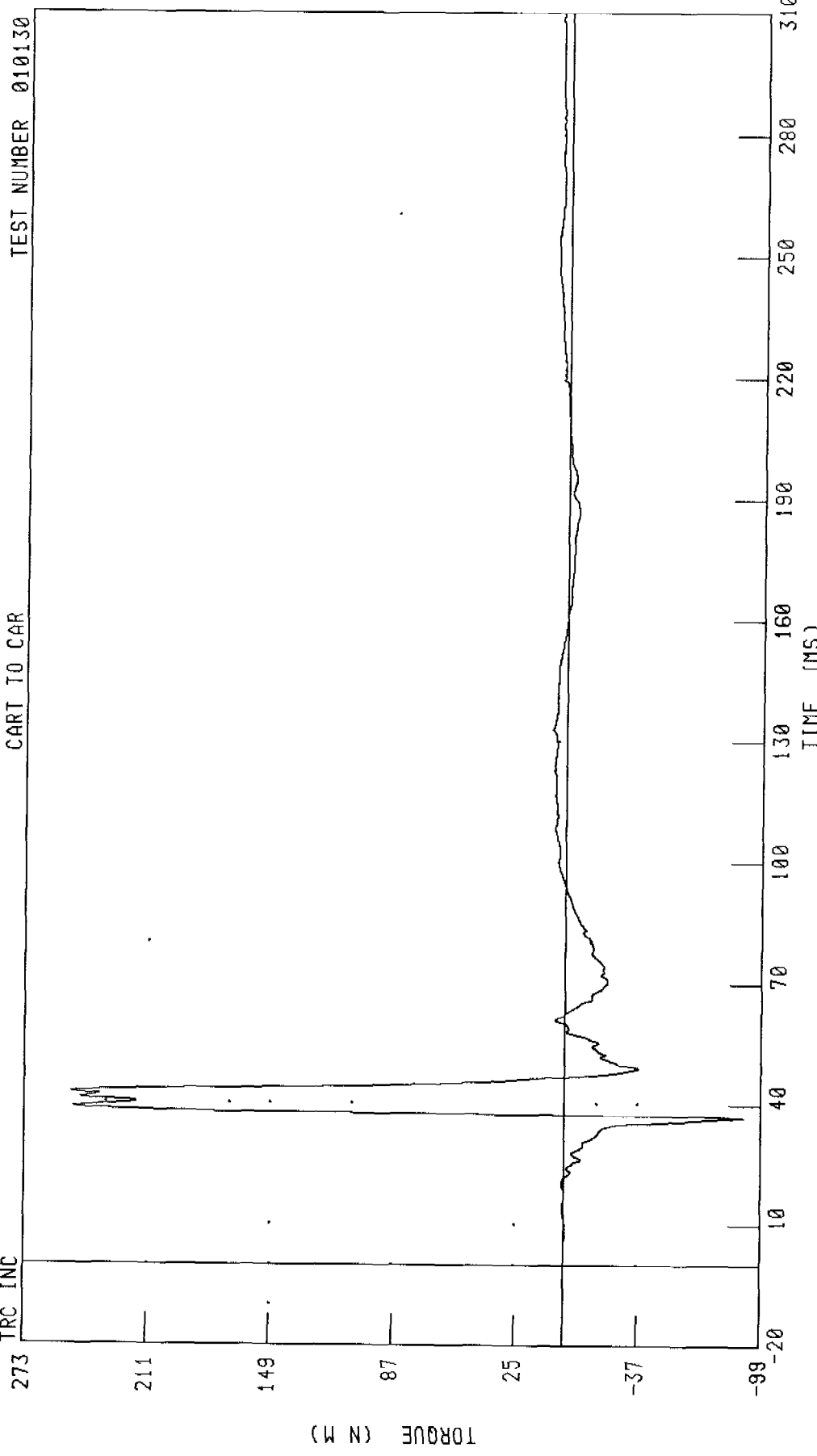
CART TO CAR

TEST NUMBER 010130



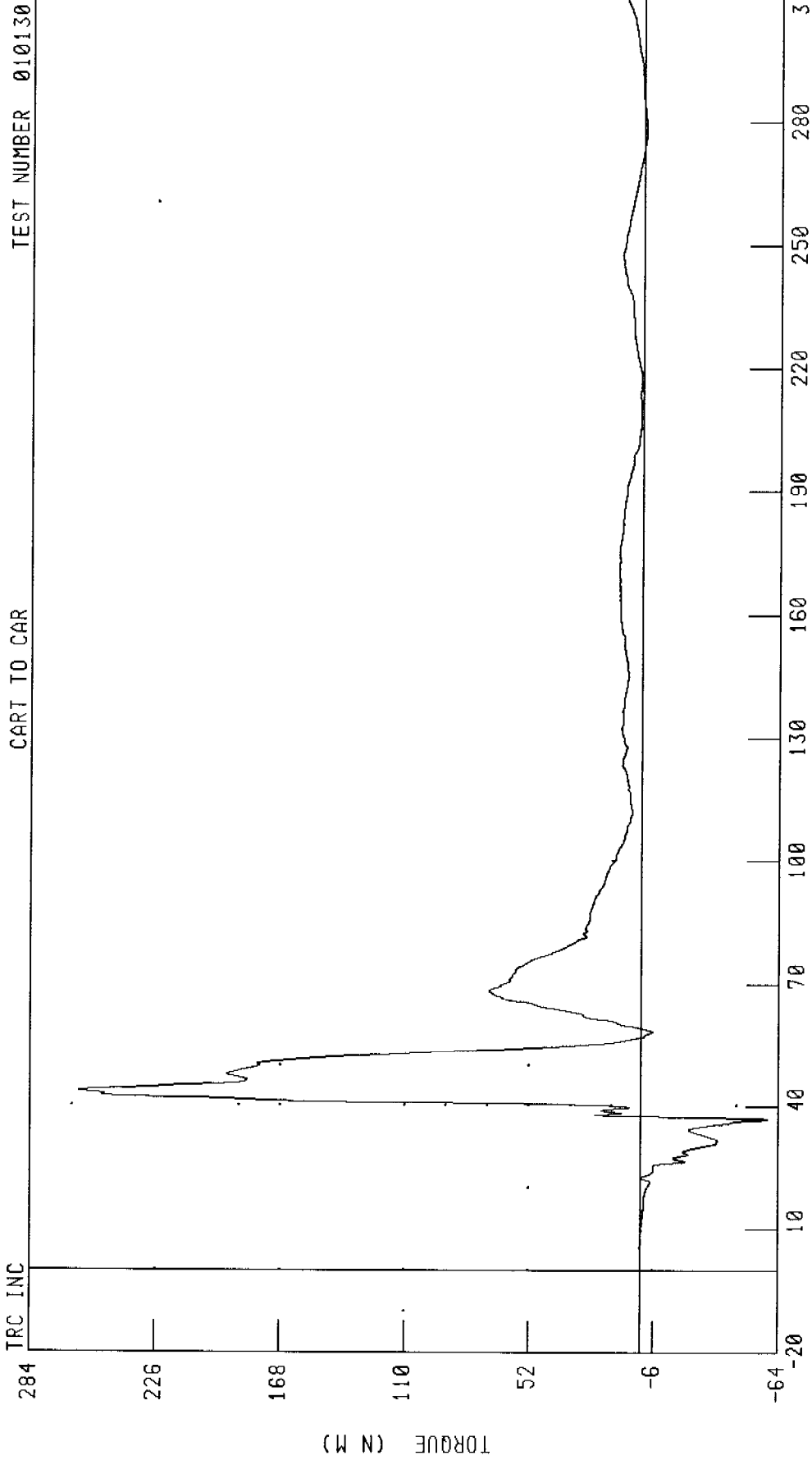
CHANNEL TBLYM1 FILTER CH CLASS 600  
PEAK DATA 10 22 N M @ 164 00 MS, -323 38 N M @ 39 68 MS

MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
DRIVER LEFT LOWER TIBIA MOMENT ABOUT X-AXIS



CHANNEL ANLXM1 FILTER CH CLASS 600 PEAK DATA 249 56 N M @ 42 72 MS, -90 61 N M @ 36 72 MS

MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
DRIVER LEFT LOWER TIBIA MOMENT ABOUT Y-AXIS  
CART TO CAR



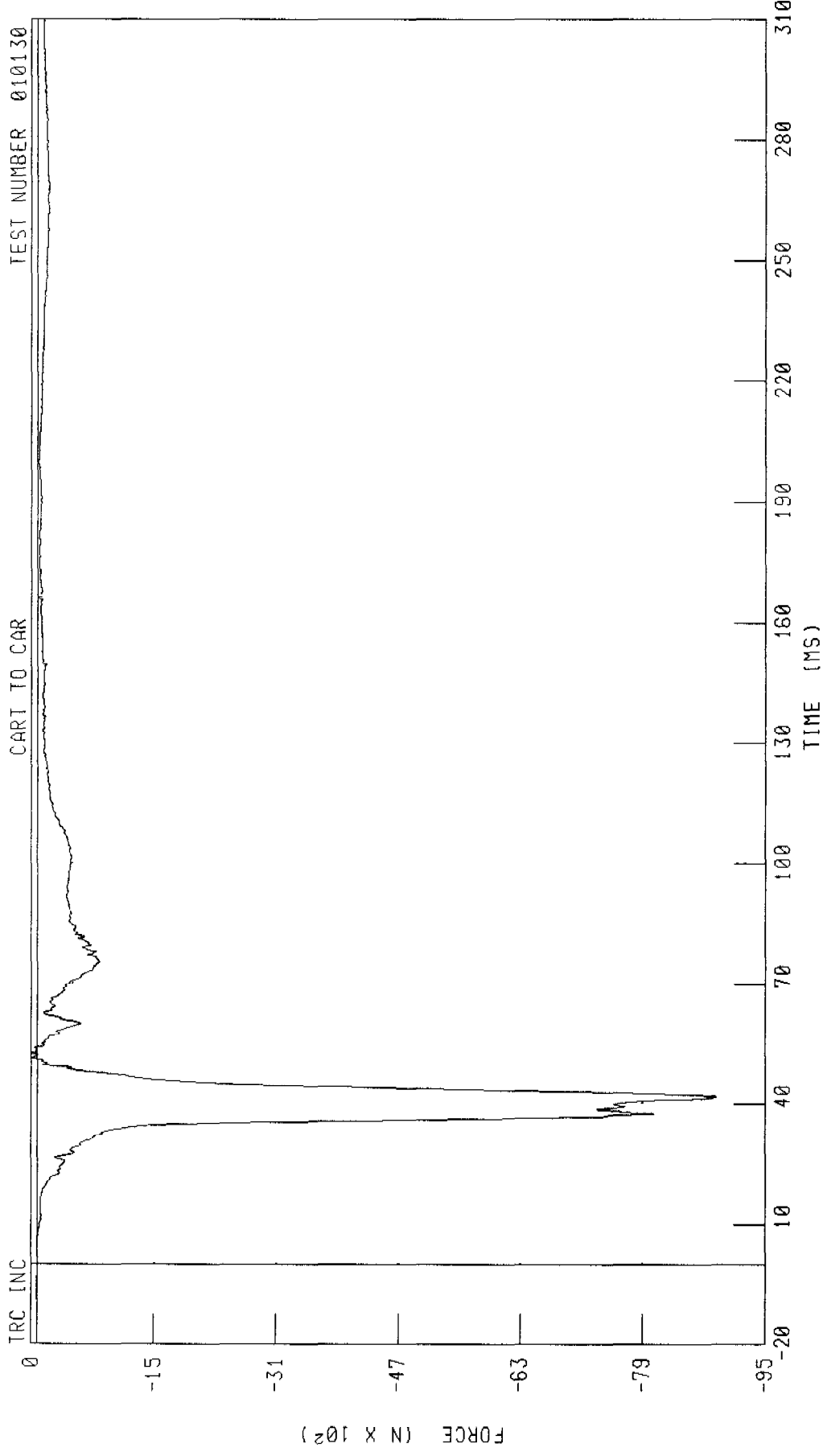
CHANNEL ANLYM1 FILTER CH CLASS 600 PEAK DATA 261 43 N M @ 43 84 MS, -58 93 N M @ 36 88 MS

MOVING DEFORMABLE BARRIER INTJ 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
DRIVER LEFT LOWER TIBIA Z-AXIS FORCE

TRC INC

CART TO CAR

TEST NUMBER 010130



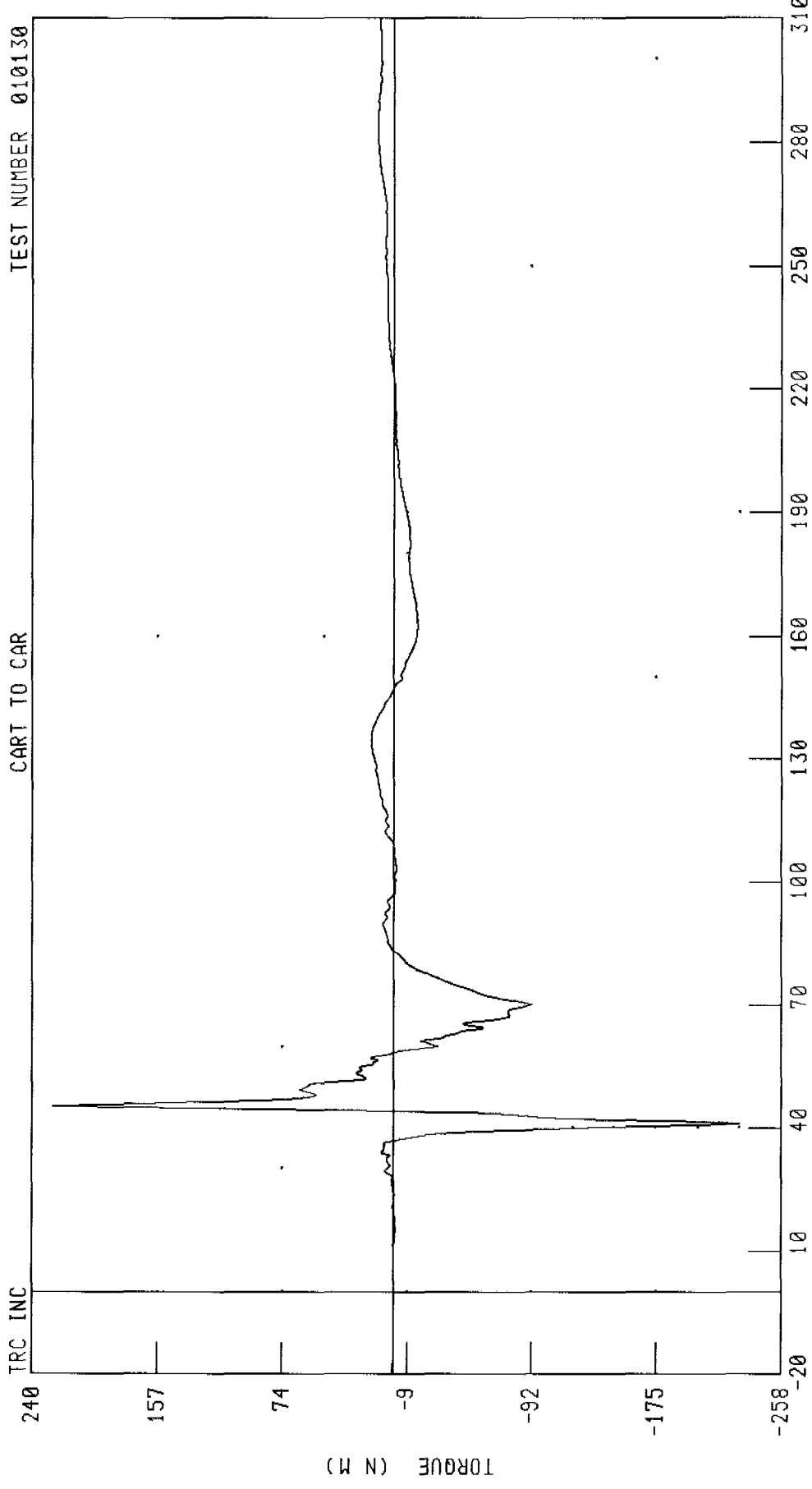
CHANNEL ANLZF1 FILTER CH CLASS 600

PEAK DATA 67 46 N @ 51 20 MS, -8883 88 N @ 41 76 MS

MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
DRIVER RIGHT UPPER TIBIA MOMENT ABOUT X-AXIS

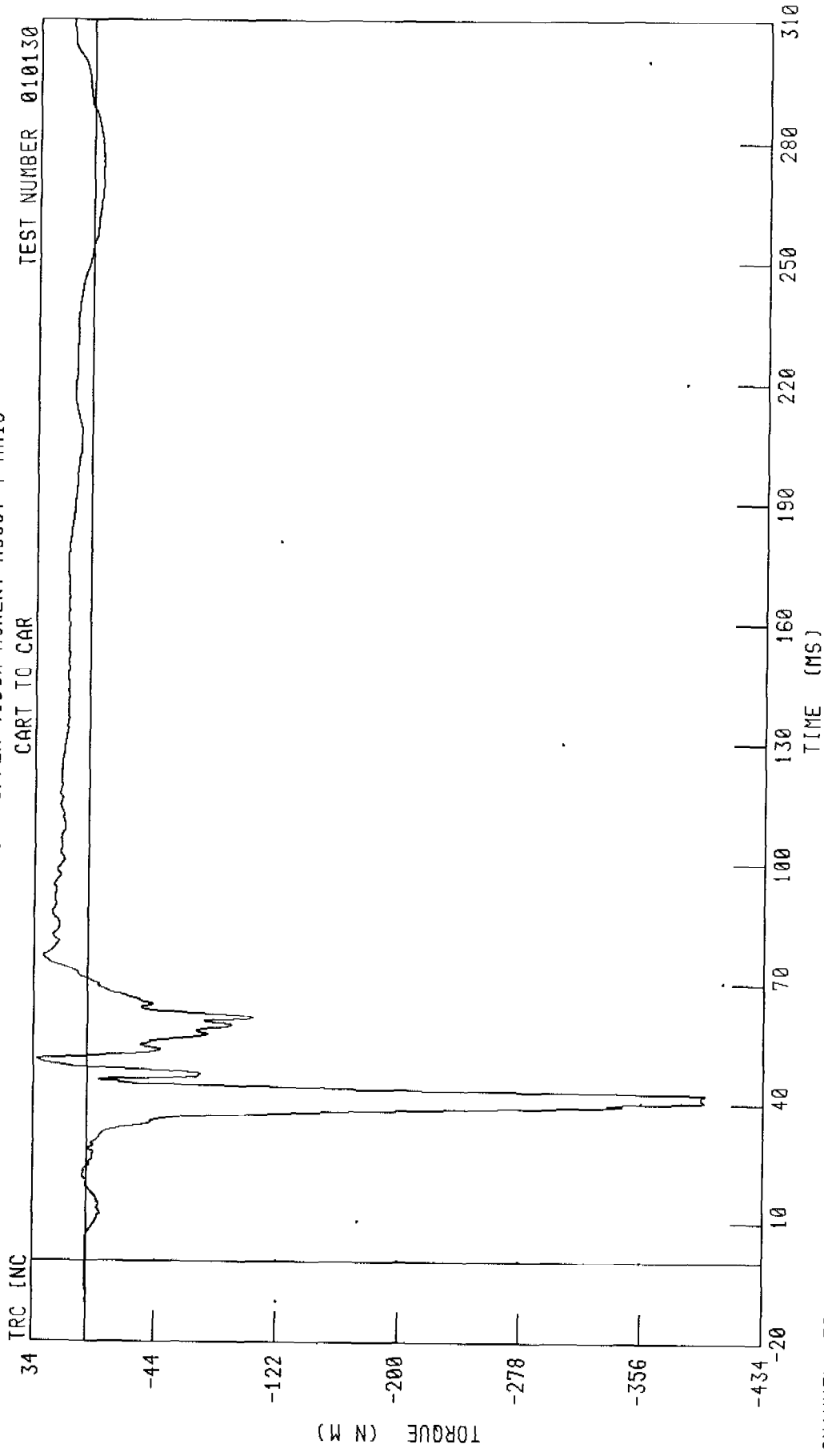
TEST NUMBER 010130

CART TO CAR



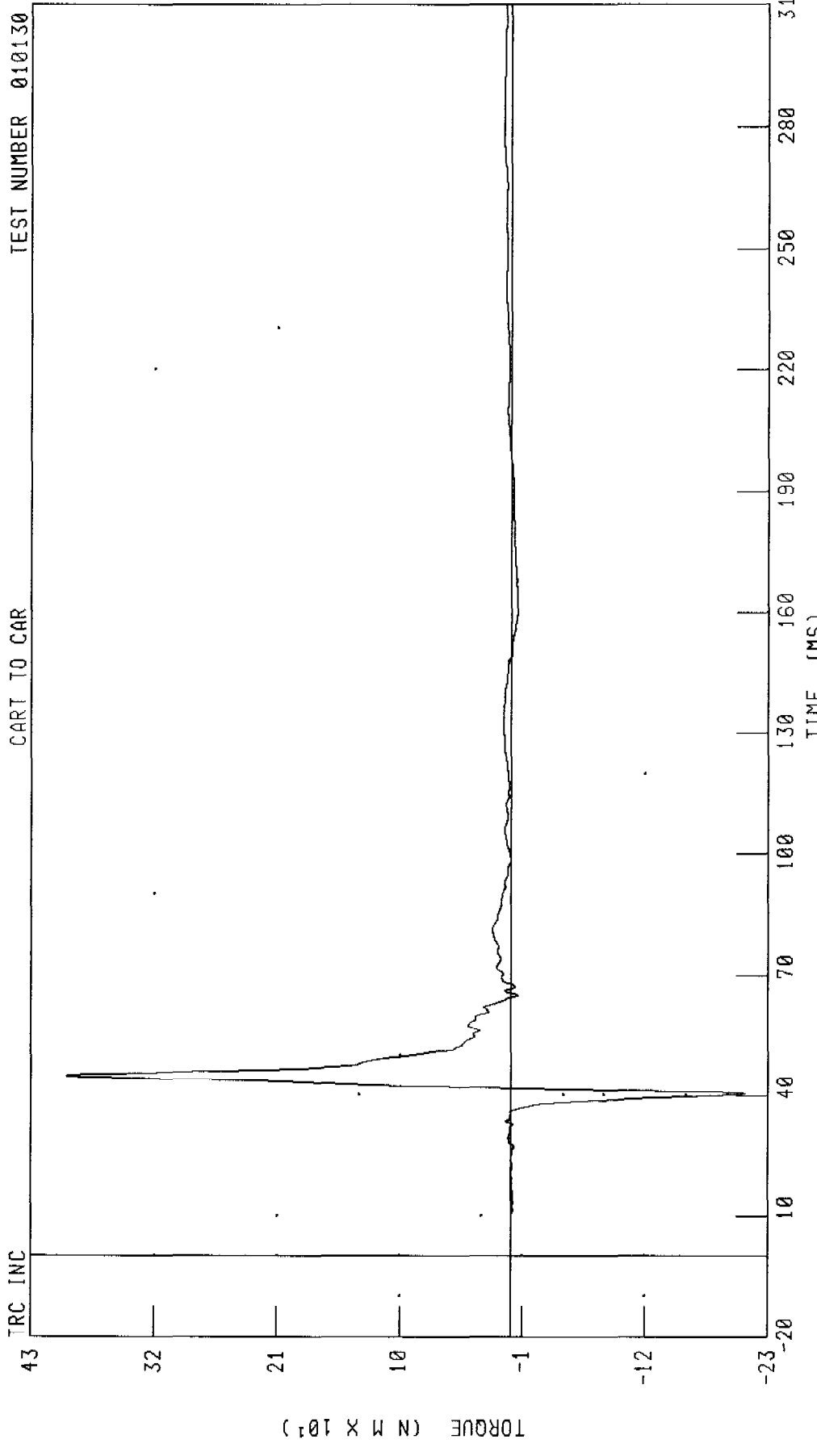
CHANNEL TBRXM1 FILTER CH CLASS 600  
PEAK DATA 226 10 N M @ 45 36 MS, -230 62 N M @ 41 12 MS

MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
DRIVER RIGHT UPPER TIBIA MOMENT ABOUT Y-AXIS



CHANNEL TBRYM1 FILTER CH CLASS 600  
TIME (MS) PEAK DATA 31 52 N M @ 50 64 MS, -397 42 N M @ 42 16 MS

MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
DRIVER RIGHT LOWER TIBIA MOMENT ABOUT X-AXIS



CHANNEL ANR XM1 FILTER CH CLASS 600

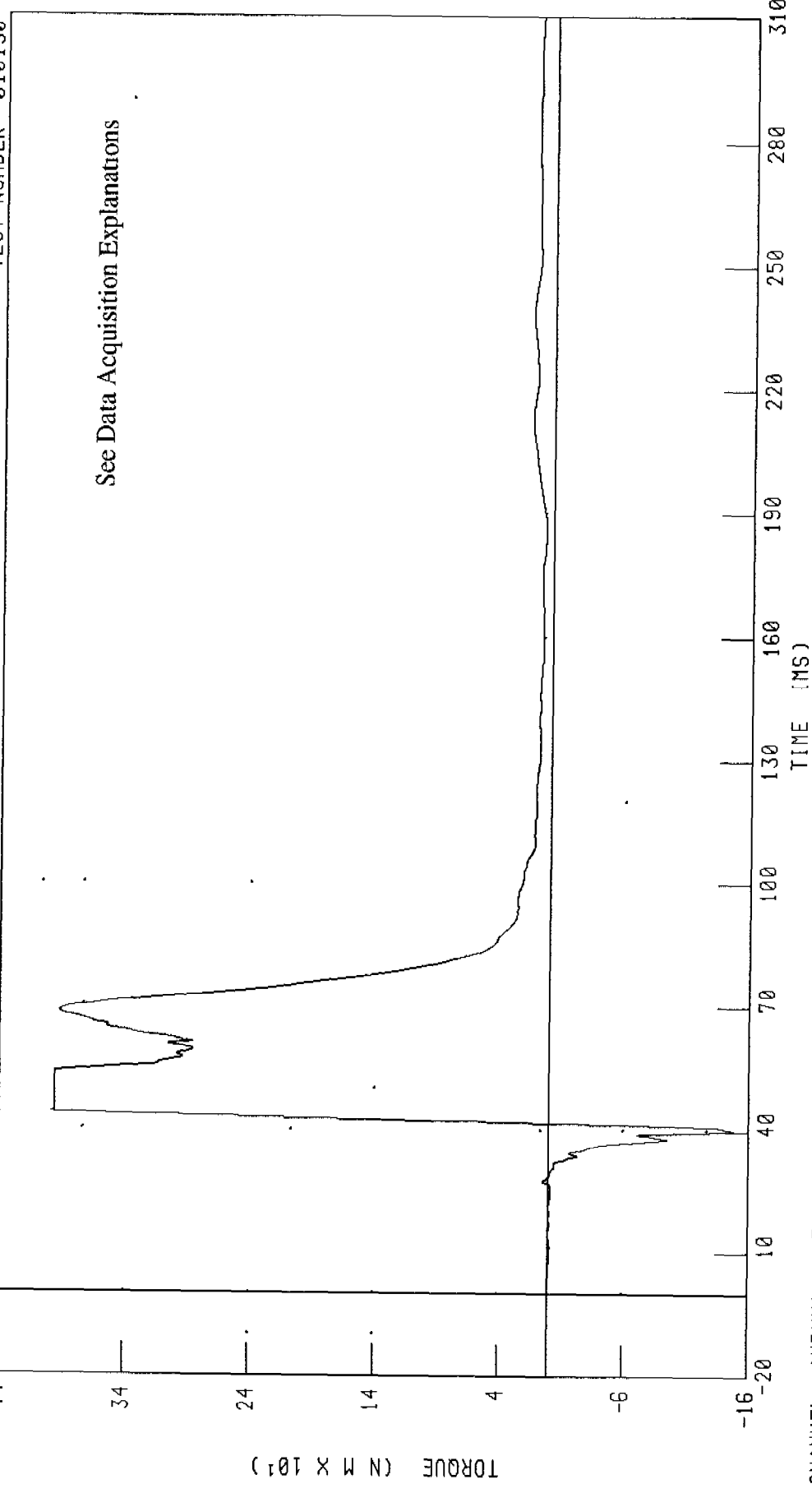
PEAK DATA 398 39 N M @ 44 80 MS, -209 48 N M @ 40 48 MS

MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
DRIVER RIGHT LOWER TIBIA MOMENT ABOUT Y-AXIS

TRC INC

CART TO CAR

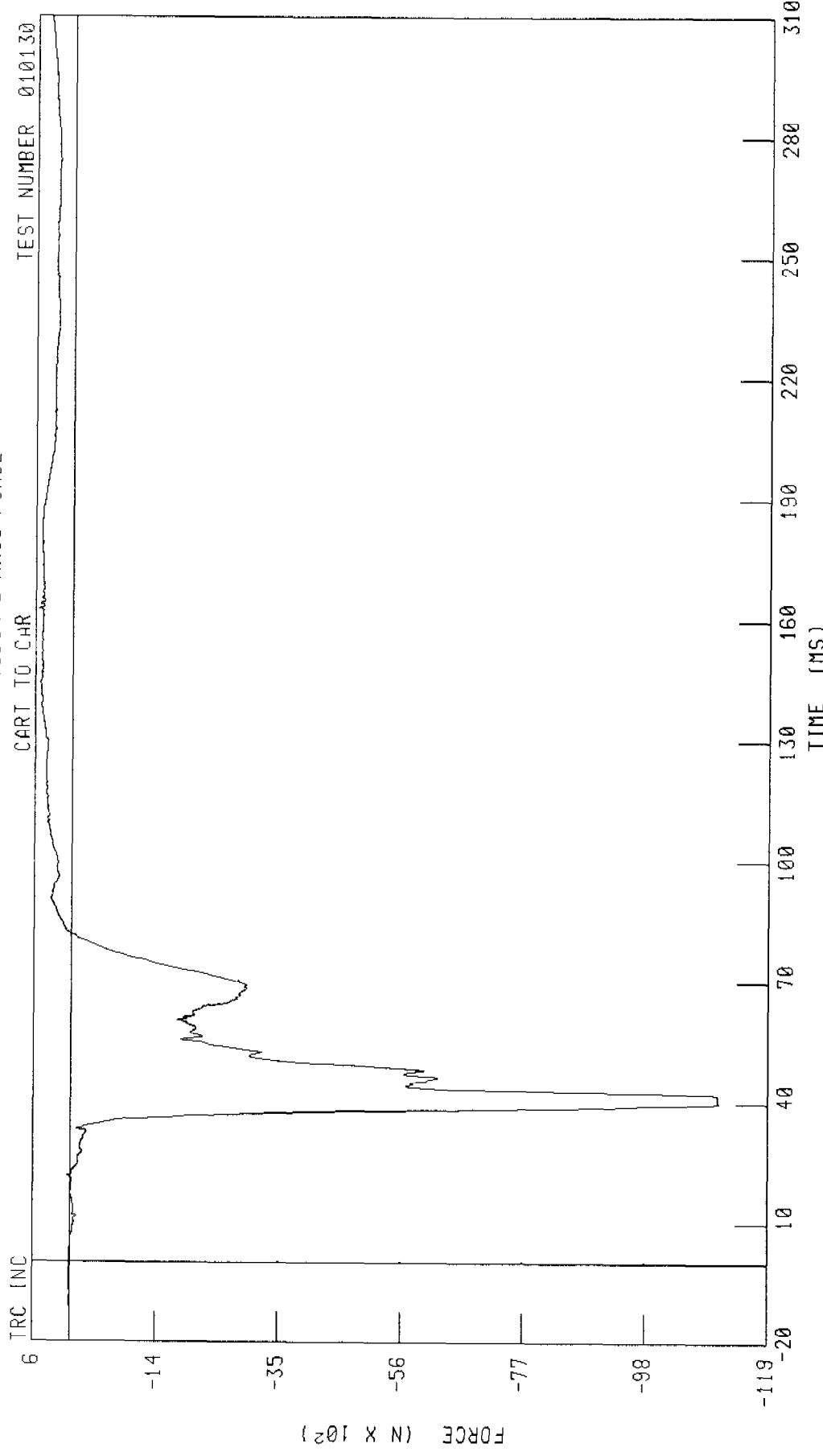
TEST NUMBER 010130



CHANNEL ANRYM1 FILTER CH CLASS 600

PEAK DATA 398 51 N M @ 44 00 MS, -148 52 N M @ 40 16 MS

MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
DRIVER PIGHT LOWER TIBIA Z-AXIS FORCE

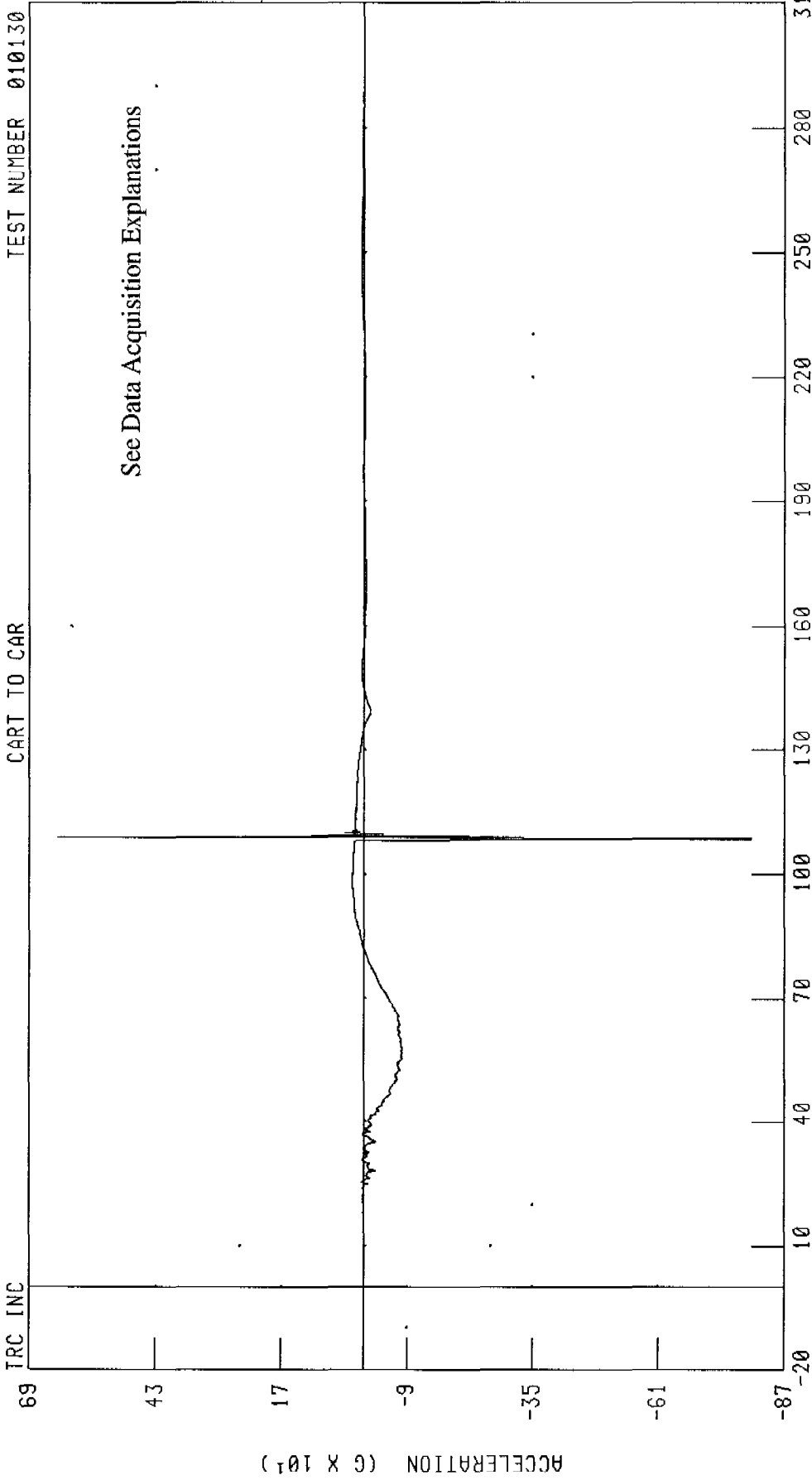


CHANNEL ANRZF1 FILTER CH CLASS 600 PEAK DATA 573 00 N @ 162 88 MS, -11144 58 N @ 40 00 MS

MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
PASSENGER HEAD X-AXIS ACCELERATION  
CART TO CAR

TRC INC

TEST NUMBER 010130

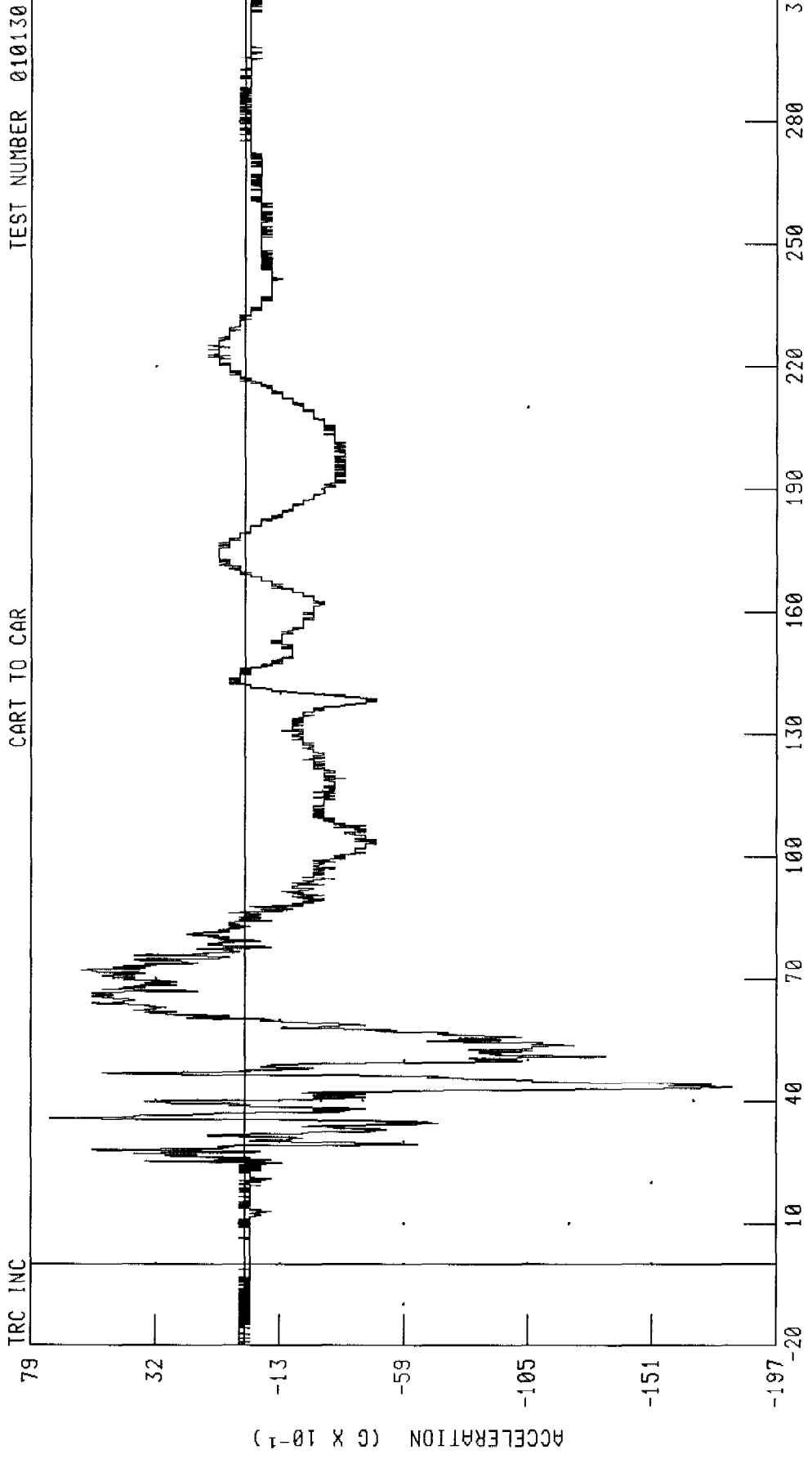


ACCELERATION (G X 10<sup>1</sup>)

TIME (MS)

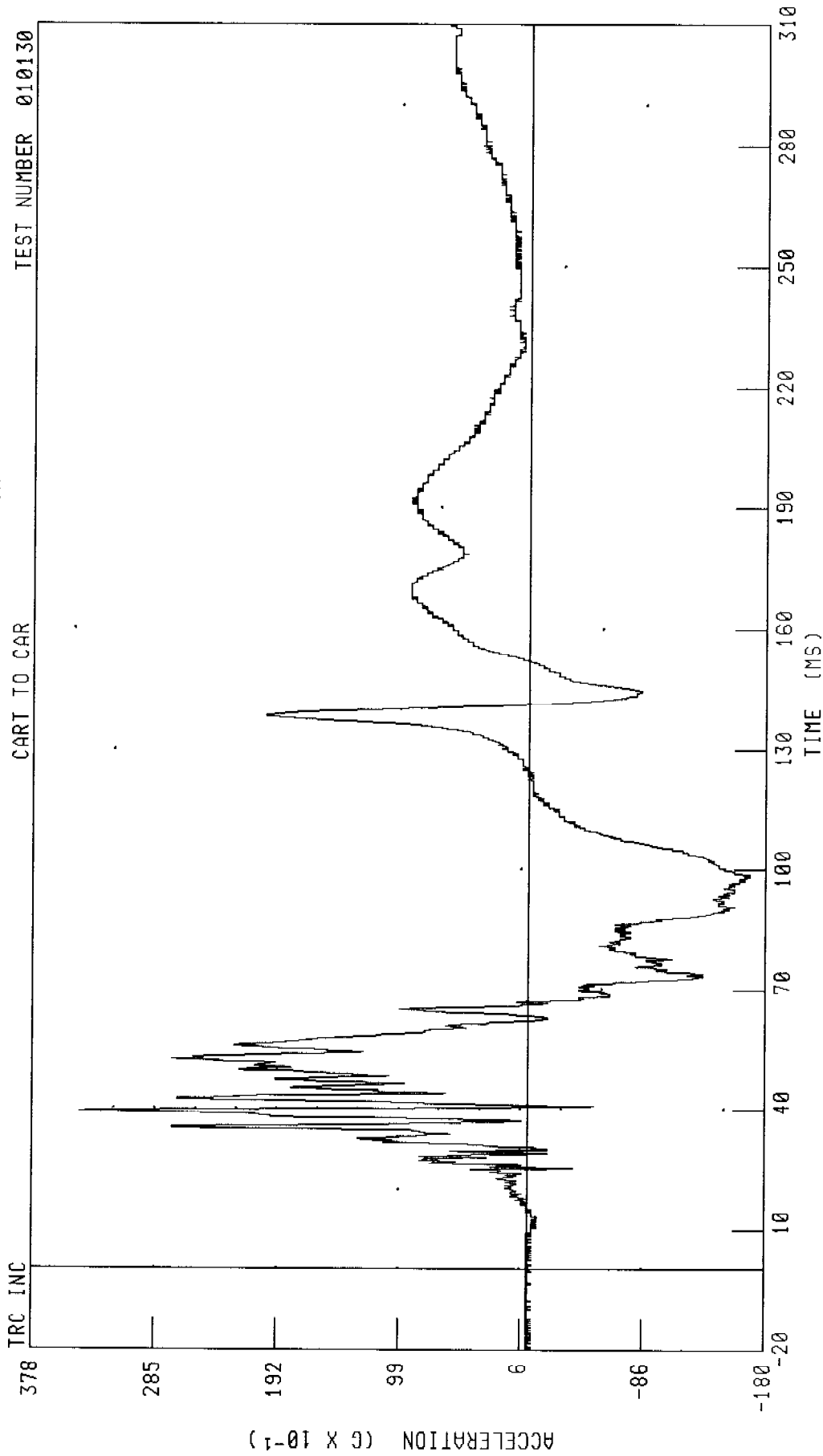
CHANNEL HEDXG2 FILTER CH CLASS 1000 PEAK DATA 630 24 G @ 108 96 MS, -802 81 G @ 108 48 MS

MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
PASSENGER HEAD Y-AXIS ACCELERATION  
CART TO CAR



CHANNEL HEDY62 FILTER CH CLASS 1000 PEAK DATA 7 20 G @ 35 84 MS, -18 07 G @ 43 44 MS

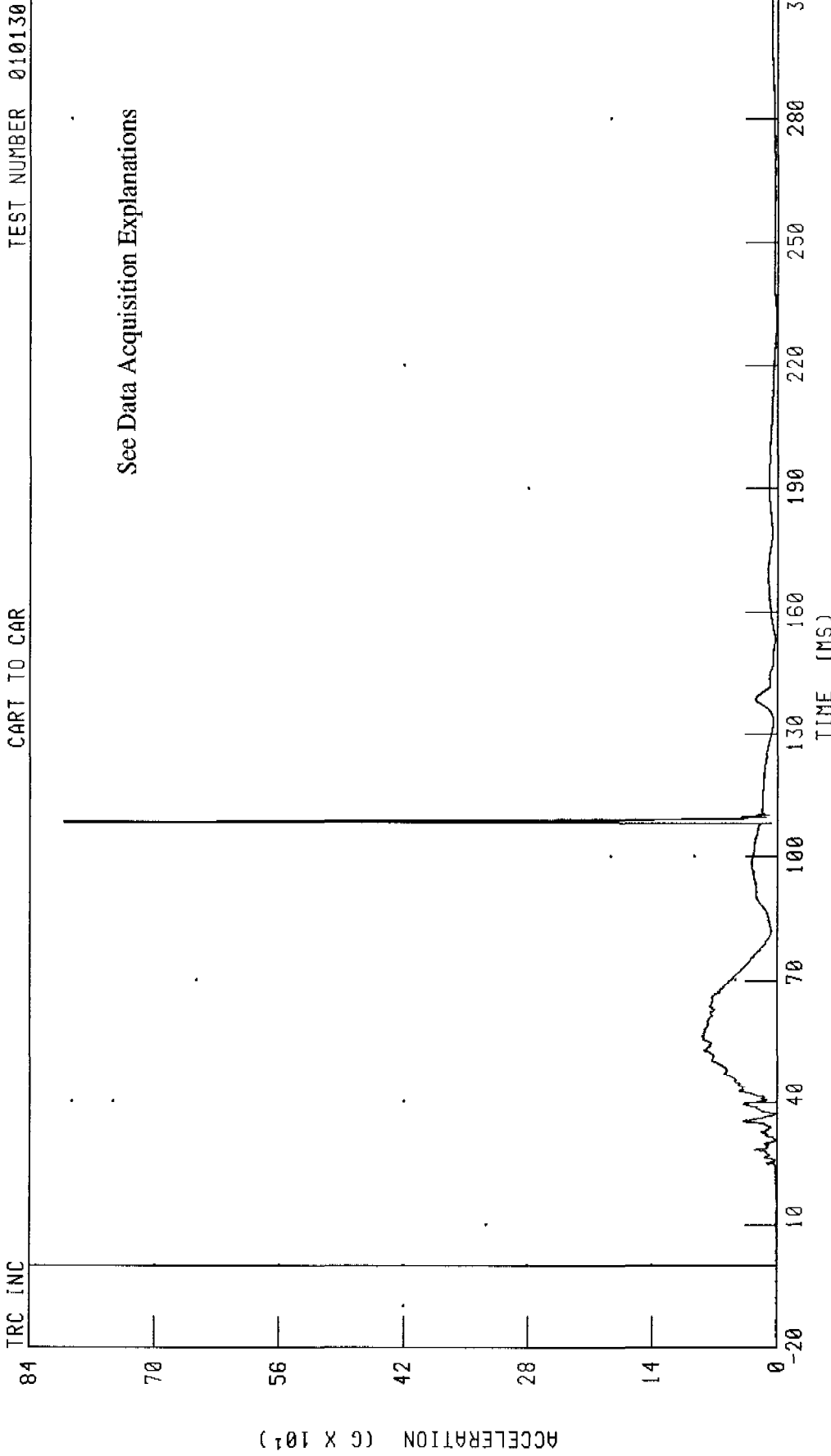
MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
PASSENGER HEAD Z-AXIS ACCELERATION



CHANNEL HEDZG2 FILTER CH CLASS 1000

PEAK DATA 34 22 G @ 39 52 MS, -16 81 G @ 98 24 MS

MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
PASSENGER HEAD RESULTANT ACCELERATION



TRC INC

CART TO CAR

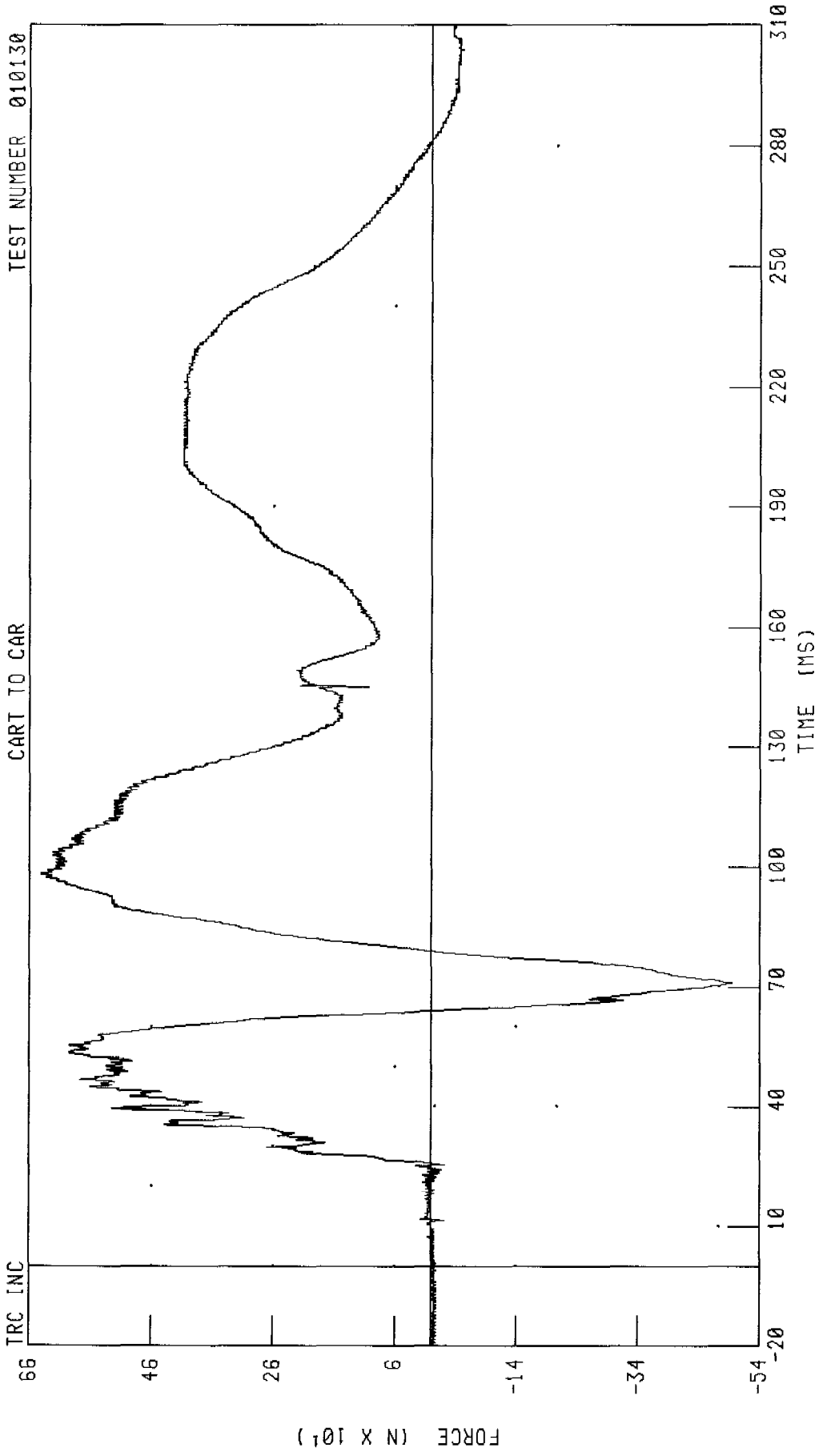
TEST NUMBER 010130

See Data Acquisition Explanations

CHANNEL HEDG2 FILTER CH CLASS 1000

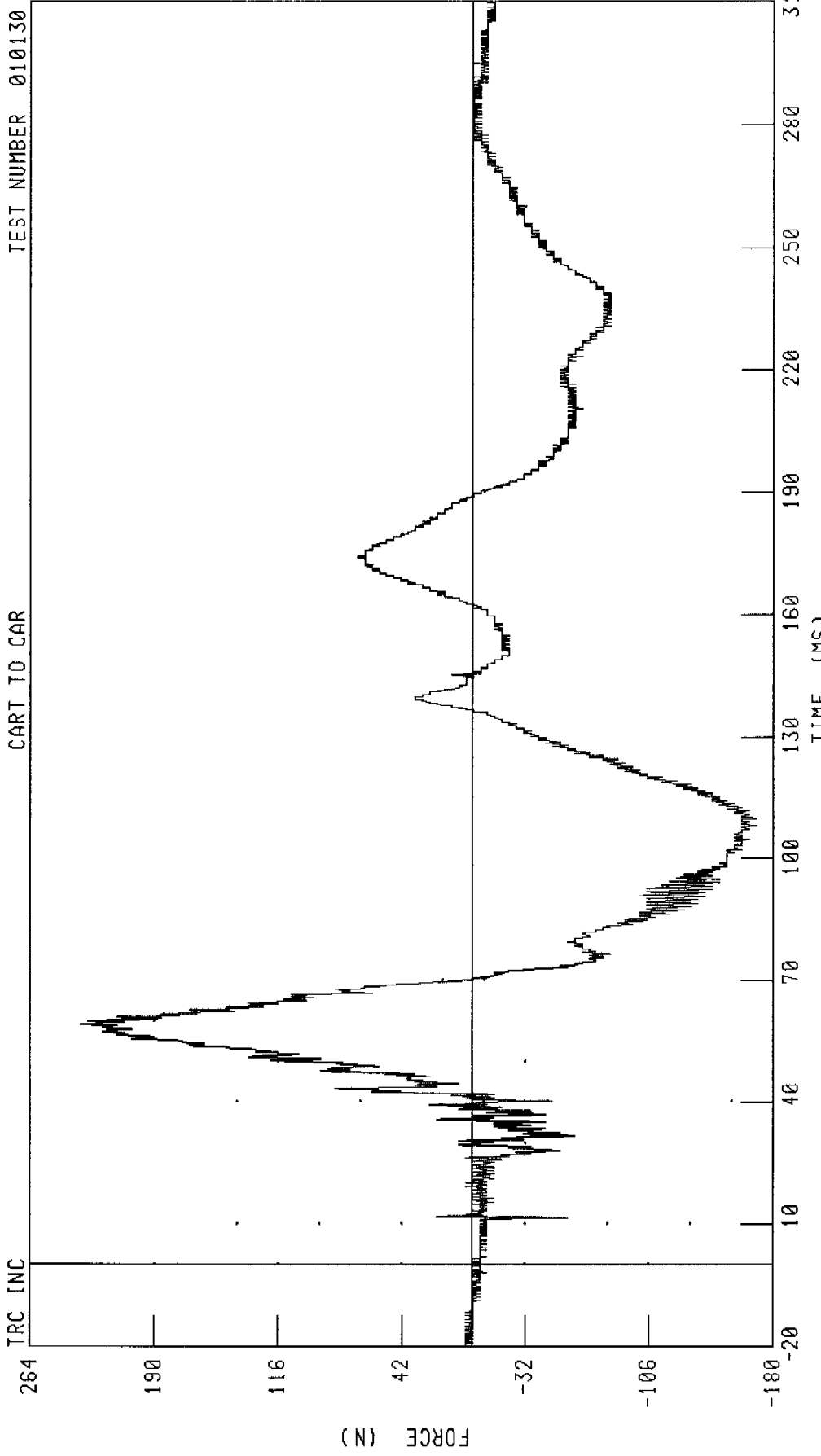
PEAK DATA 802 84 G @ 108 48 MS, 0 20 G @ -19 36 MS

MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
RIGHT FRONT PASSENGER NECK X-AXIS SHEAR FORCE



CHANNEL NEKXF2 FILTER CH CLASS 1000 PEAK DATA 642 56 N @ 98 40 MS, -495 12 N @ 70 96 MS

MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
RIGHT FRONT PASSENGER NECK Y-AXIS SHEAR FORCE



TRC INC

CART TO CAR

TEST NUMBER 010130

CHANNEL NEKYF2 FILTER CH CLASS 1000 PEAK DATA 233 84 N @ 59 12 MS, -169 99 N @ 108 24 MS

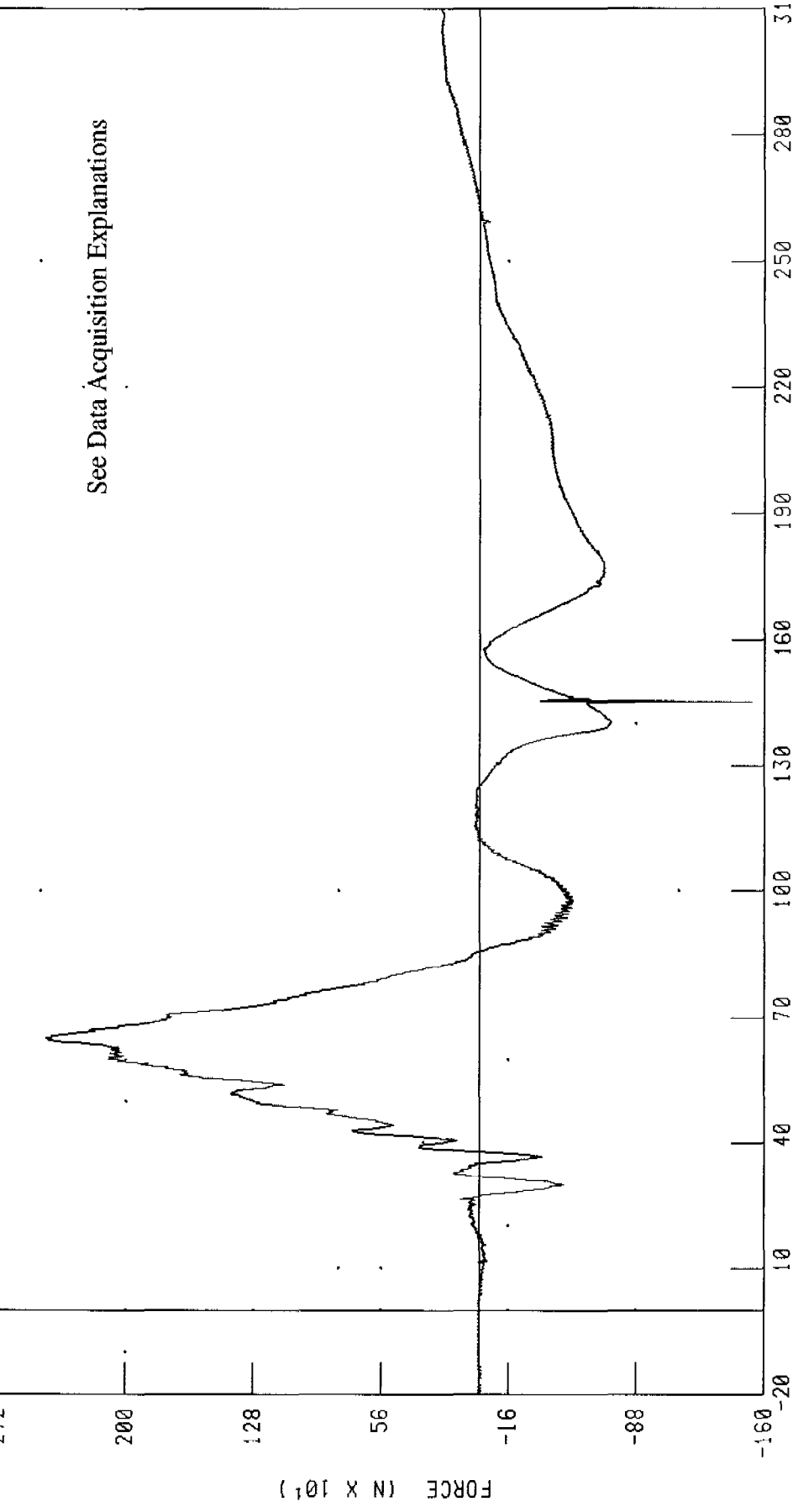
MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
RIGHT FRONT PASSENGER NECK Z-AXIS AXIAL FORCE

TRC INC

TEST NUMBER 010130

CART TO CAR

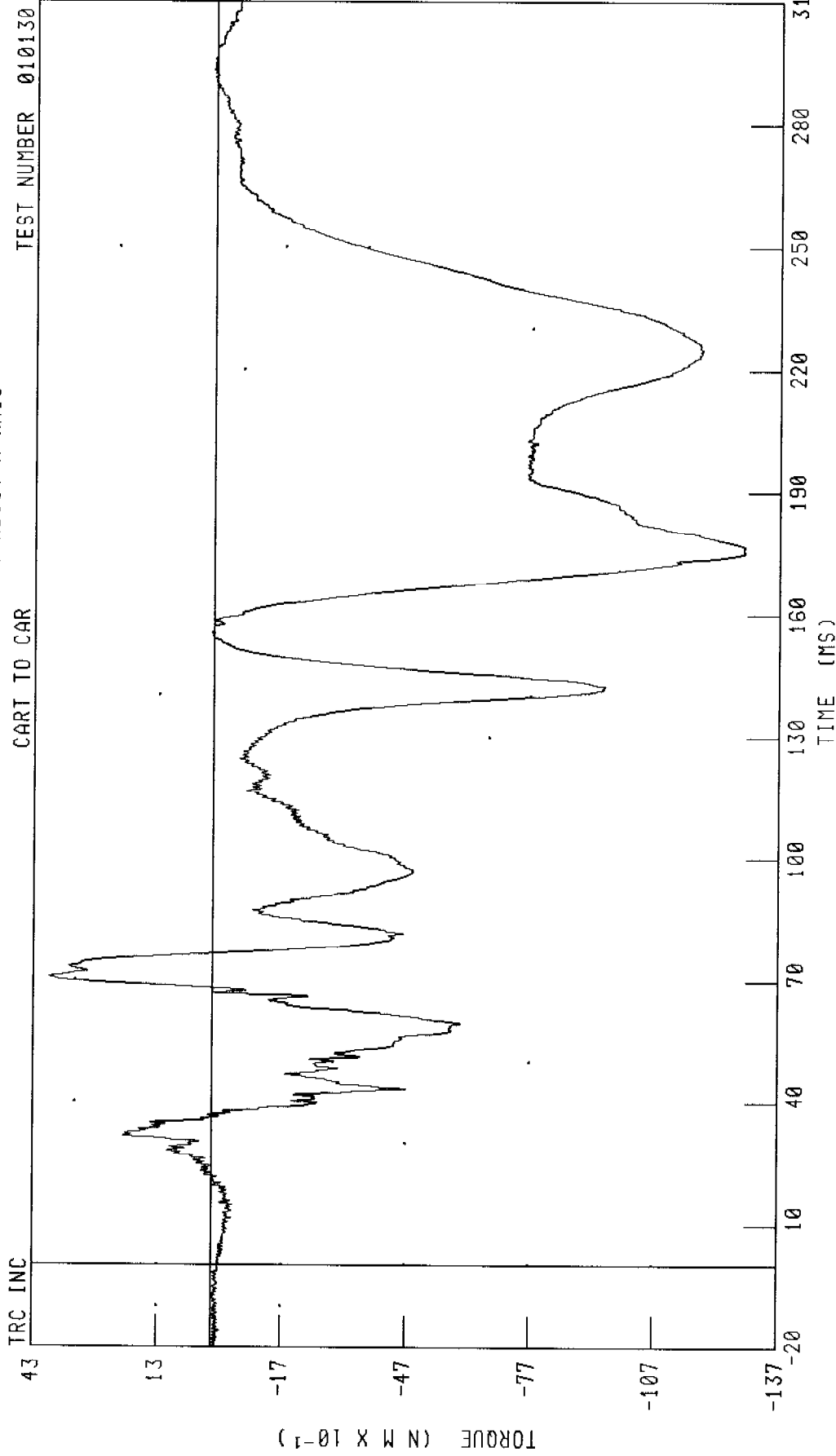
See Data Acquisition Explanations



PEAK DATA 2449 99 N @ 64 88 MS, -1524 98 N @ 145 36 MS

CHANNEL NEKZF2 FILTER CH CLASS 1000

MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
RIGHT FRONT PASSENGER NECK MOMENT ABOUT X-AXIS



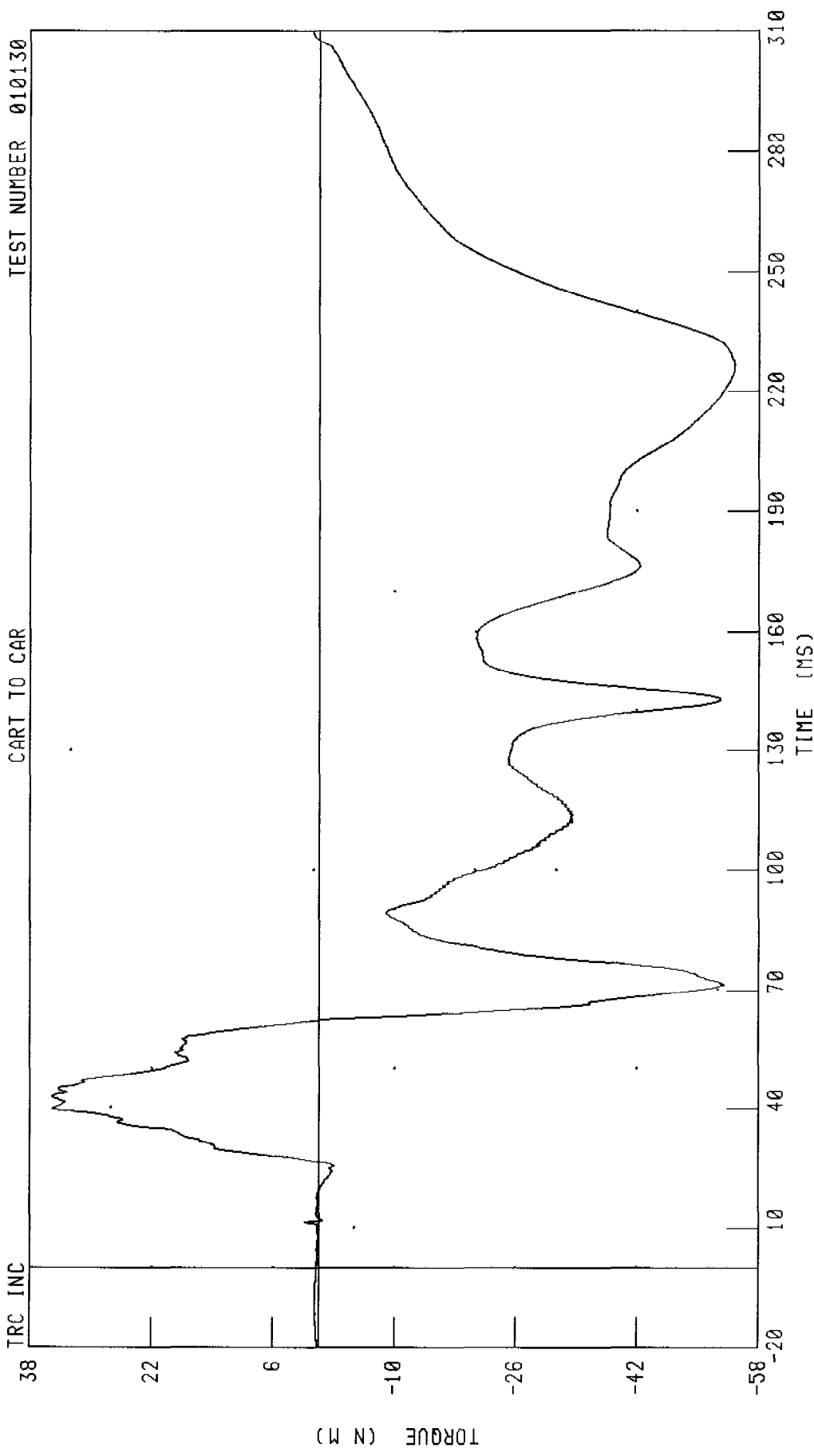
CHANNEL NEKXM2 FILTER CH CLASS 600 PEAK DATA 3 92 N M @ 70 88 MS, -12 85 N M @ 175 36 MS

MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
RIGHT FRONT PASSENGER NECK MOMENT ABOUT Y-AXIS

TRC INC

TEST NUMBER 010130

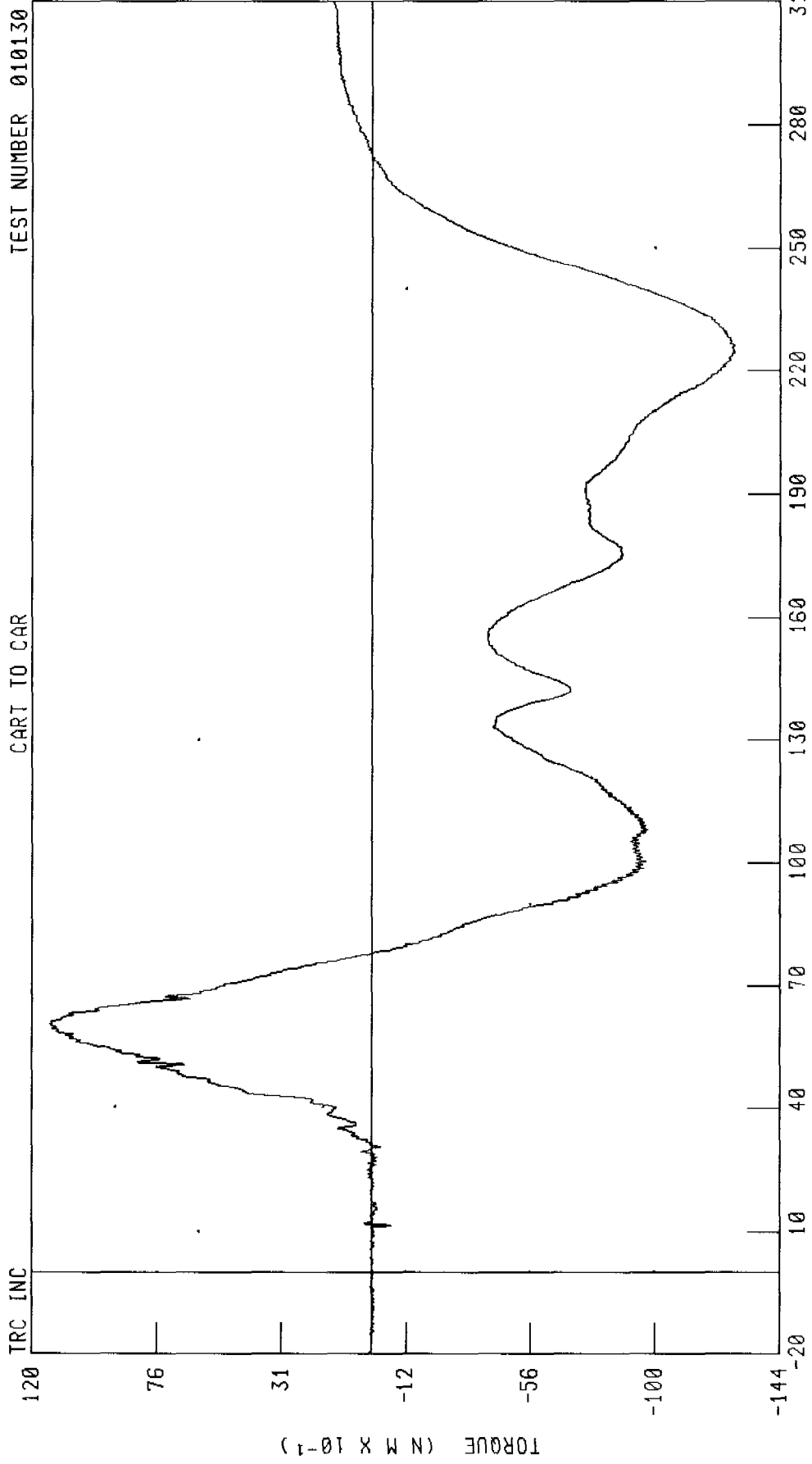
CART TO CAR



TIME (MS)

CHANNEL NEKYM2 FILTER CH CLASS 600 PEAK DATA 35 12 N M @ 42 88 MS, -54 85 N M @ 226 64 MS

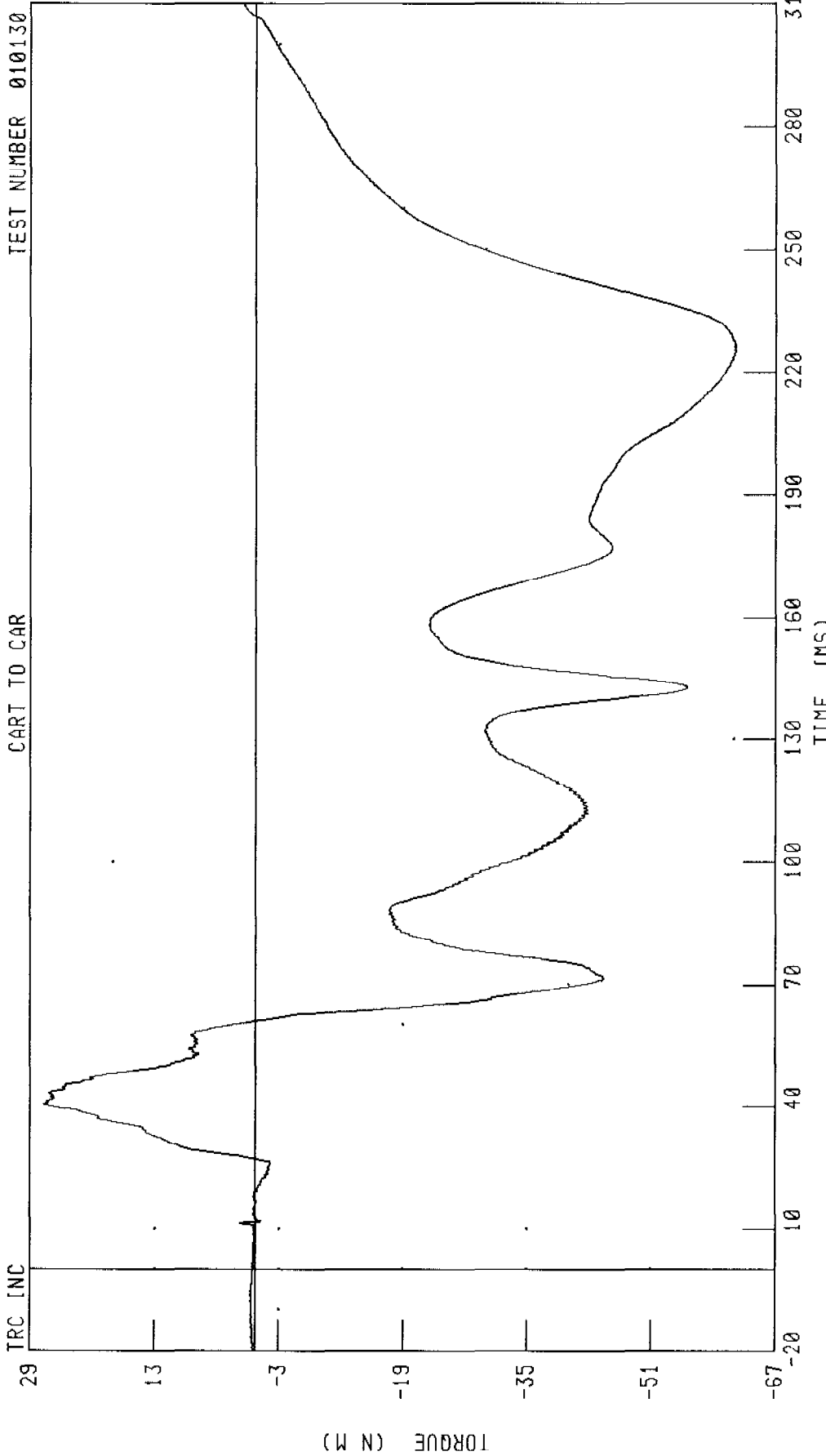
MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
RIGHT FRONT PASSENGER NECK MOMENT ABOUT Z-AXIS



CHANNEL NEKZM2 FILTER CH CLASS 600

PEAK DATA 11 37 N M @ 60 64 MS, -12 80 N M @ 224 56 MS

MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
RIGHT FRONT PASSENGER NECK MOMENT OCCIPITAL CONDYLE ABOUT Y-AXIS

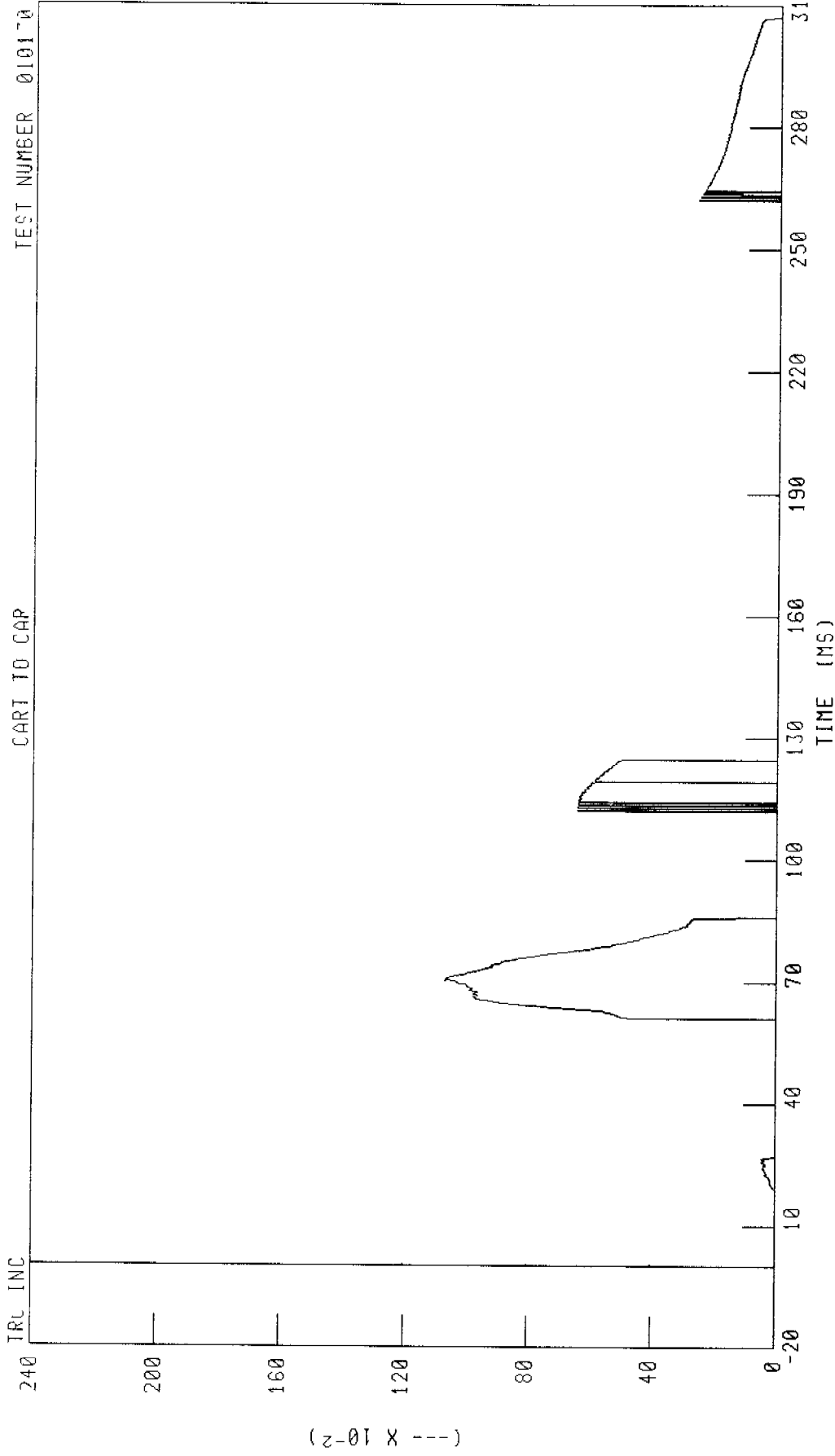


TEST NUMBER 010130

CART TO CAR

CHANNEL NEKOM2 FILTER CH CLASS 600 PEAK DATA 27 24 N M @ 40 32 MS, -61 87 N M @ 224 96 MS

MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
PASSENCER NECK TENSION/EXTENSION



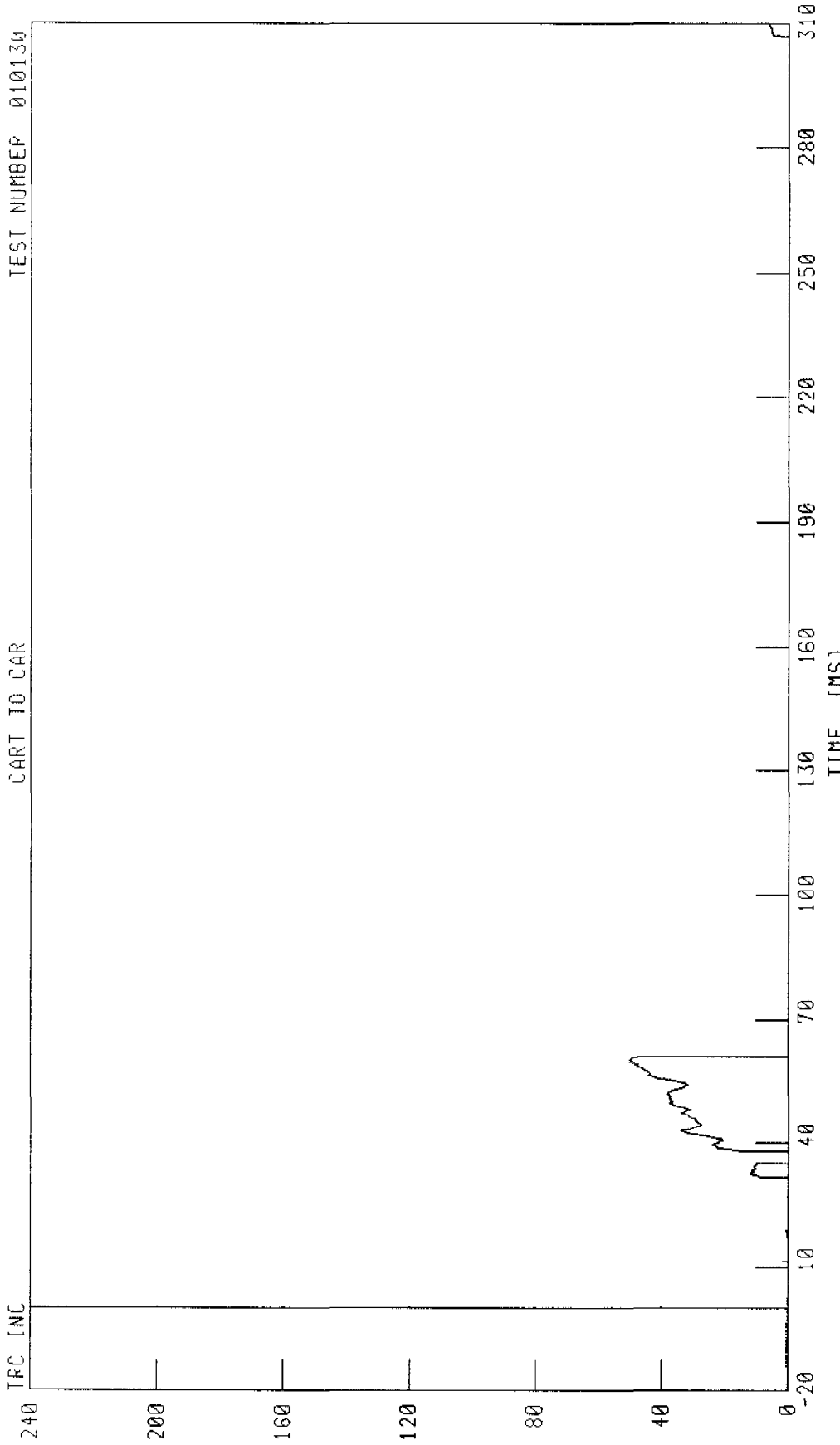
CHANNEL NTE2 FILTER CH CLASS 600 PEAK DATA 1 07 --- @ 70 64 MS, 0 00 --- @ -20 00 MS

MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
PASSENGER NECK TENSION/FLEXION

TRC INC

CART TO CAR

TEST NUMBER 010130

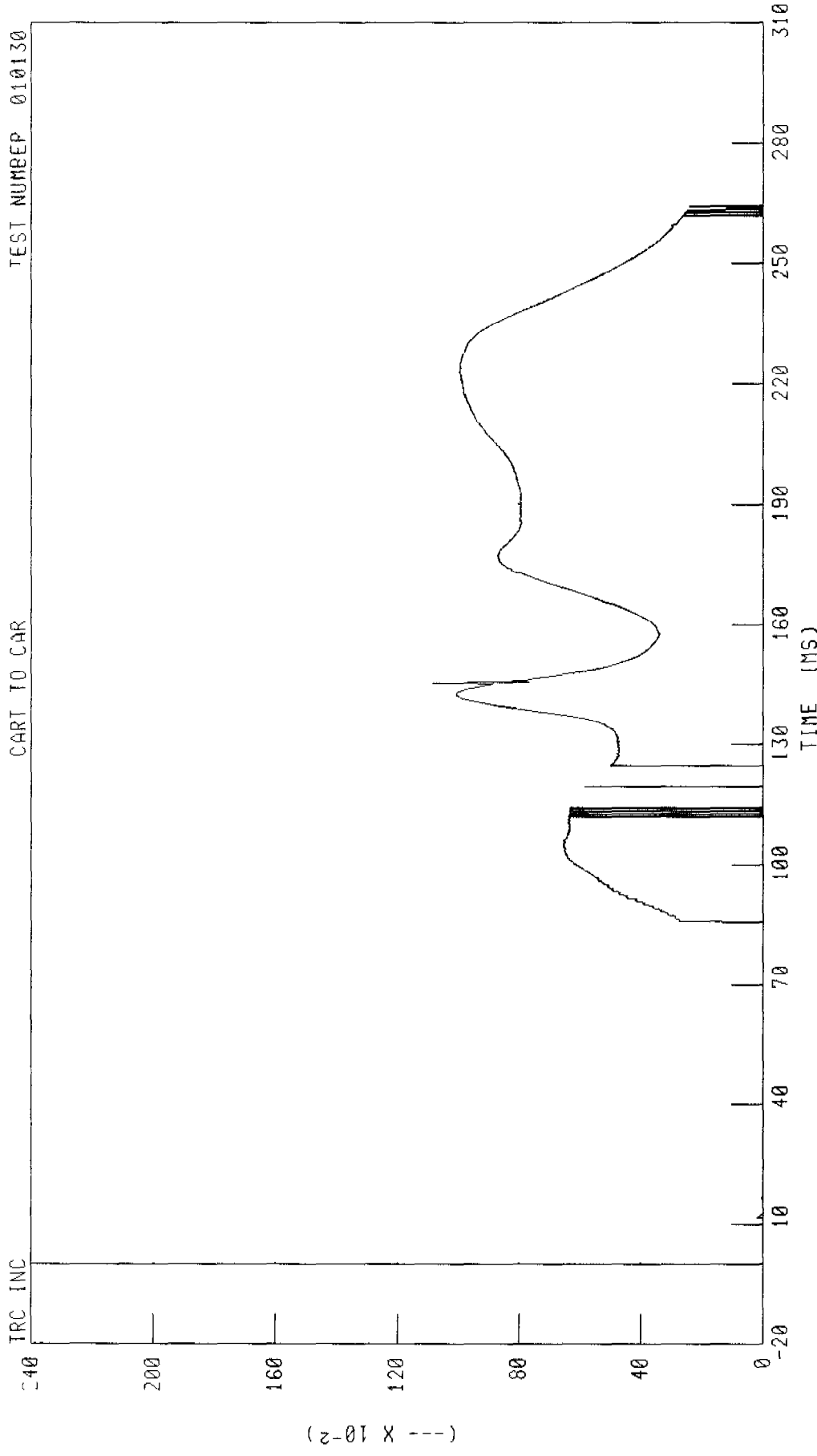


(--- X 10<sup>-2</sup>)

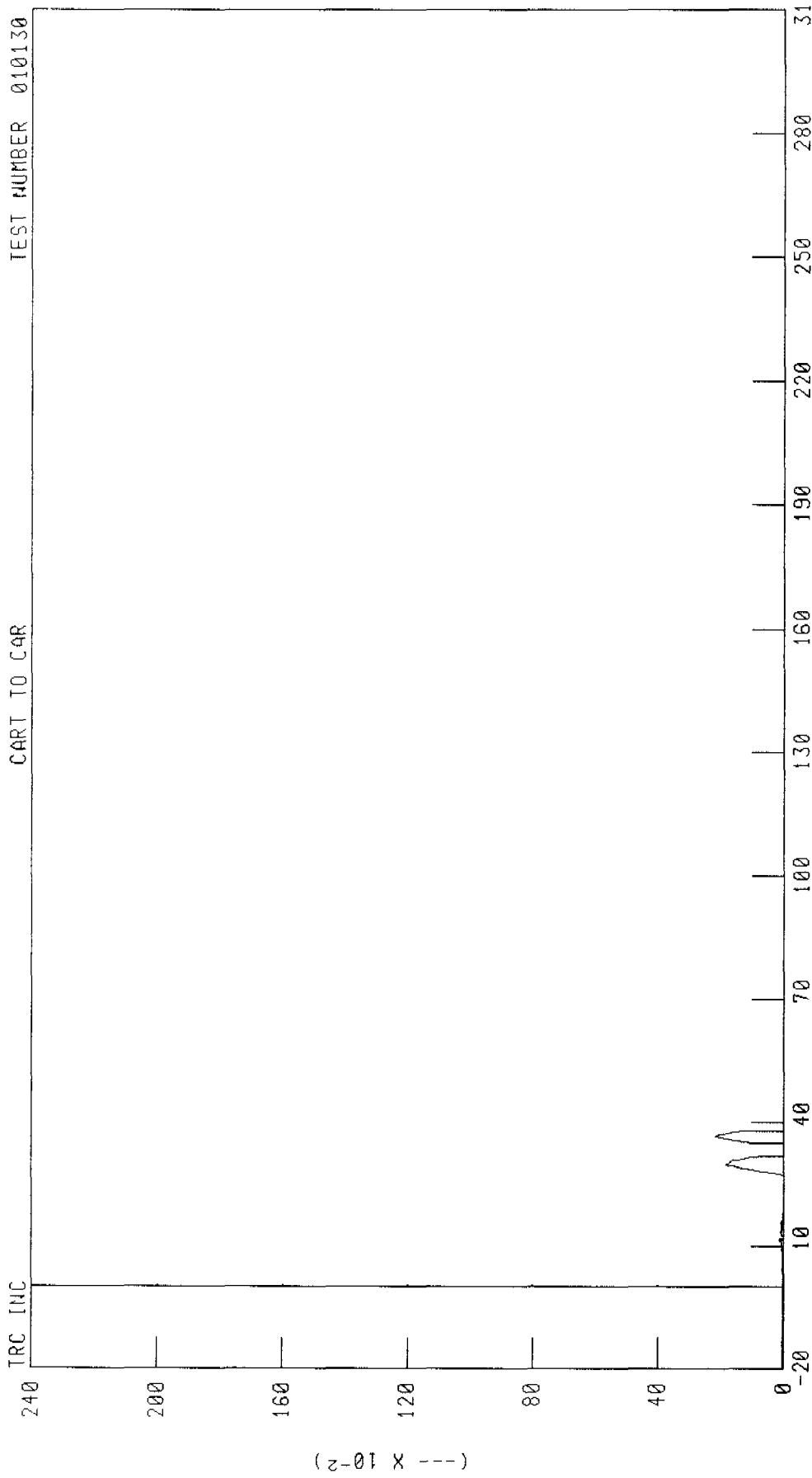
TIME (MS)

CHANNEL NTF2 FILTER CH CLASS 600 PEAK DATA 0 50 --- 0 60 24 MS, 0 00 --- 0 -20 00 MS

MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
PASSENGER NECK COMPRESSION/EXTENSION



MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
PASSENGER NECK COMPRESSION/FLEXION



TEST NUMBER 010130

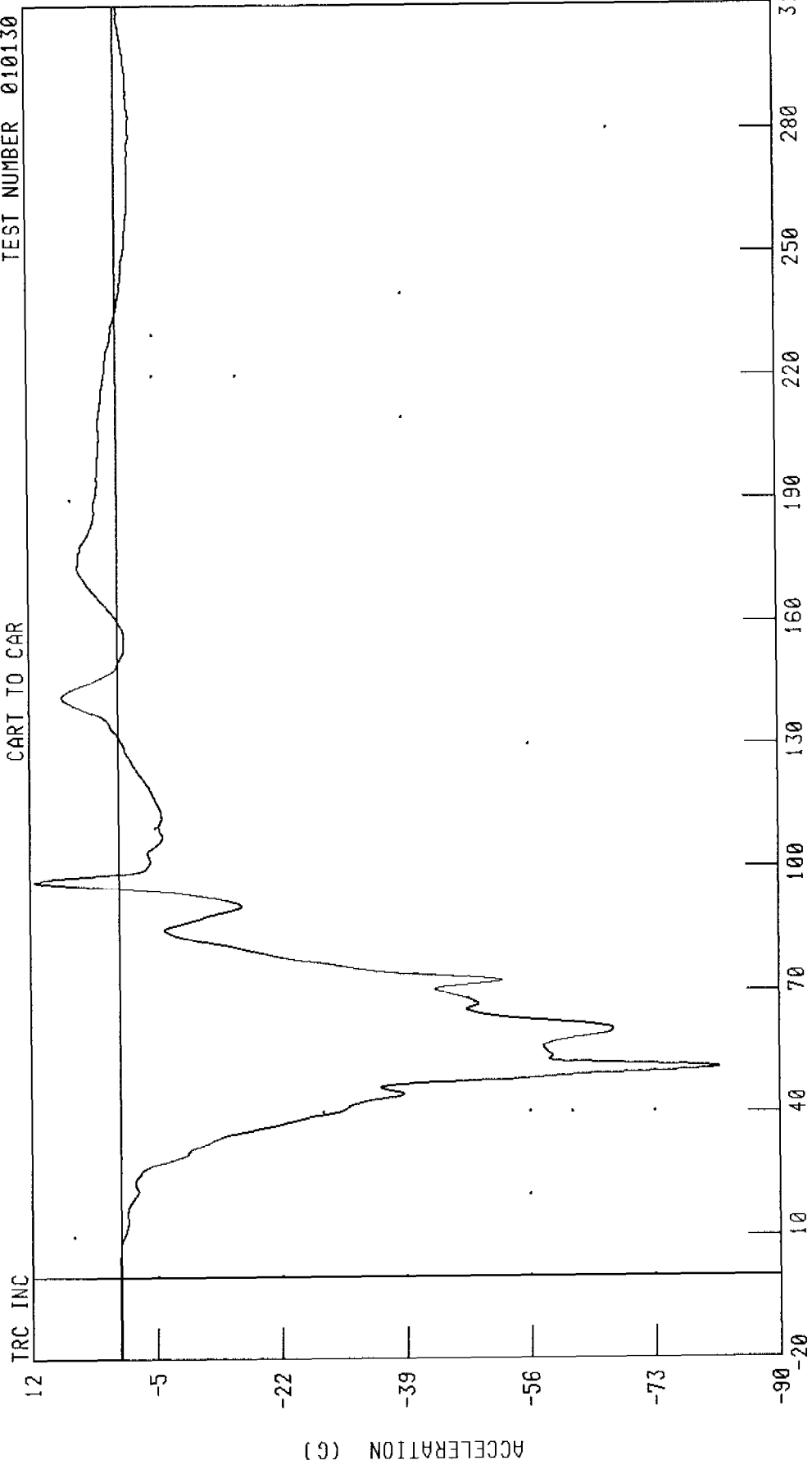
CART TO CAR

CHANNEL NCF2 FILTER CH CLASS 600 PEAK DATA 0 22 --- 0 36 64 MS, 0 00 --- 0 -19 84 MS

MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
RIGHT FRONT PASSENGER CHEST X-AXIS ACCELERATION

TEST NUMBER 010130

CART TO CAR



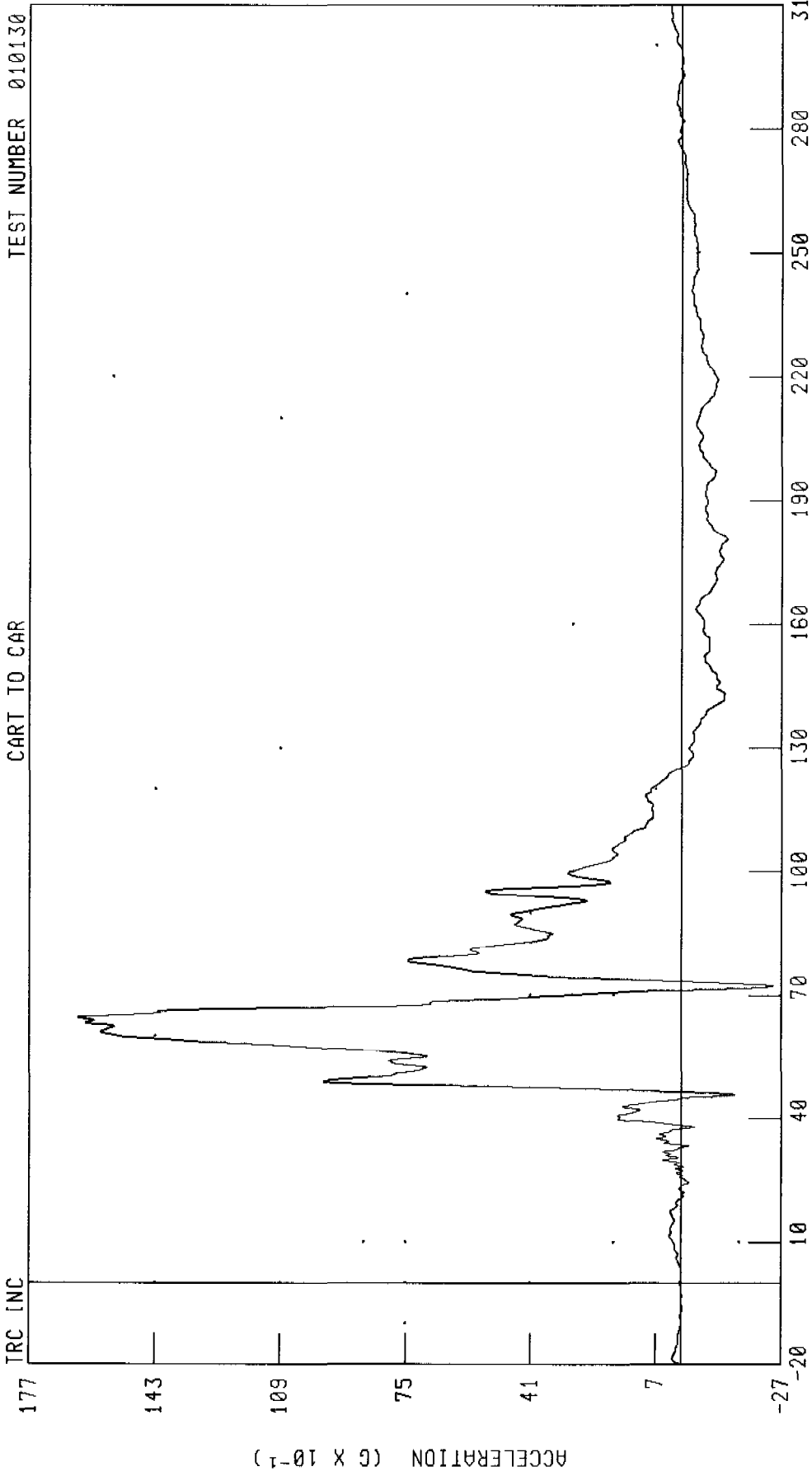
CHANNEL CSTXG2 FILTER CH CLASS 180  
PEAK DATA 11 41 G @ 97 04 MS, -81 81 G @ 50 96 MS  
TIME (MS)

MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
RIGHT FRONT PASSENGER CHEST Y-AXIS ACCELERATION

TRC [NC

TEST NUMBER 010130

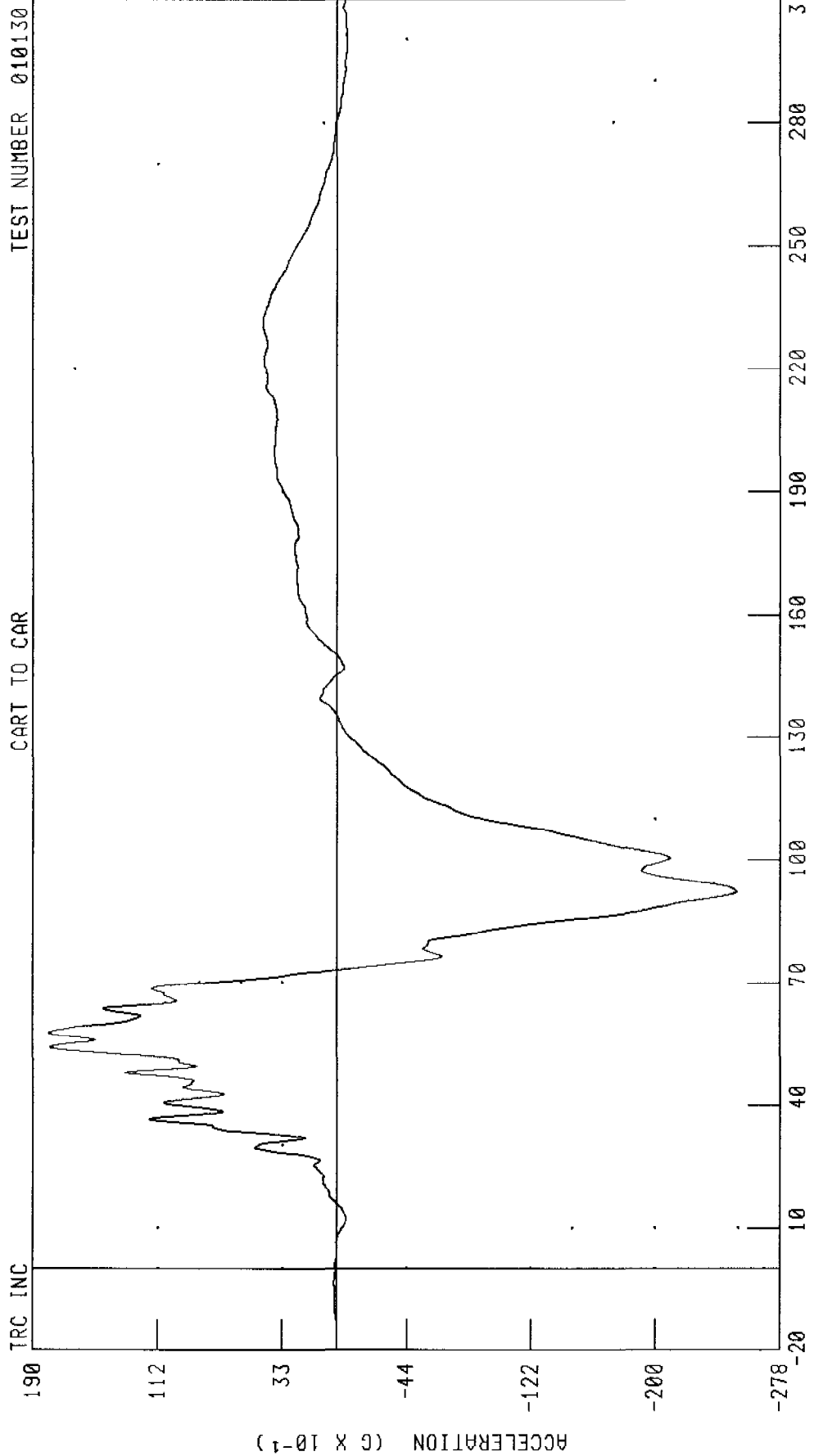
CART TO CAR



PEAK DATA 16 38 G @ 64 40 MS, -2 48 G @ 72 24 MS

CHANNEL CSTYG2 FILTER CH CLASS 180

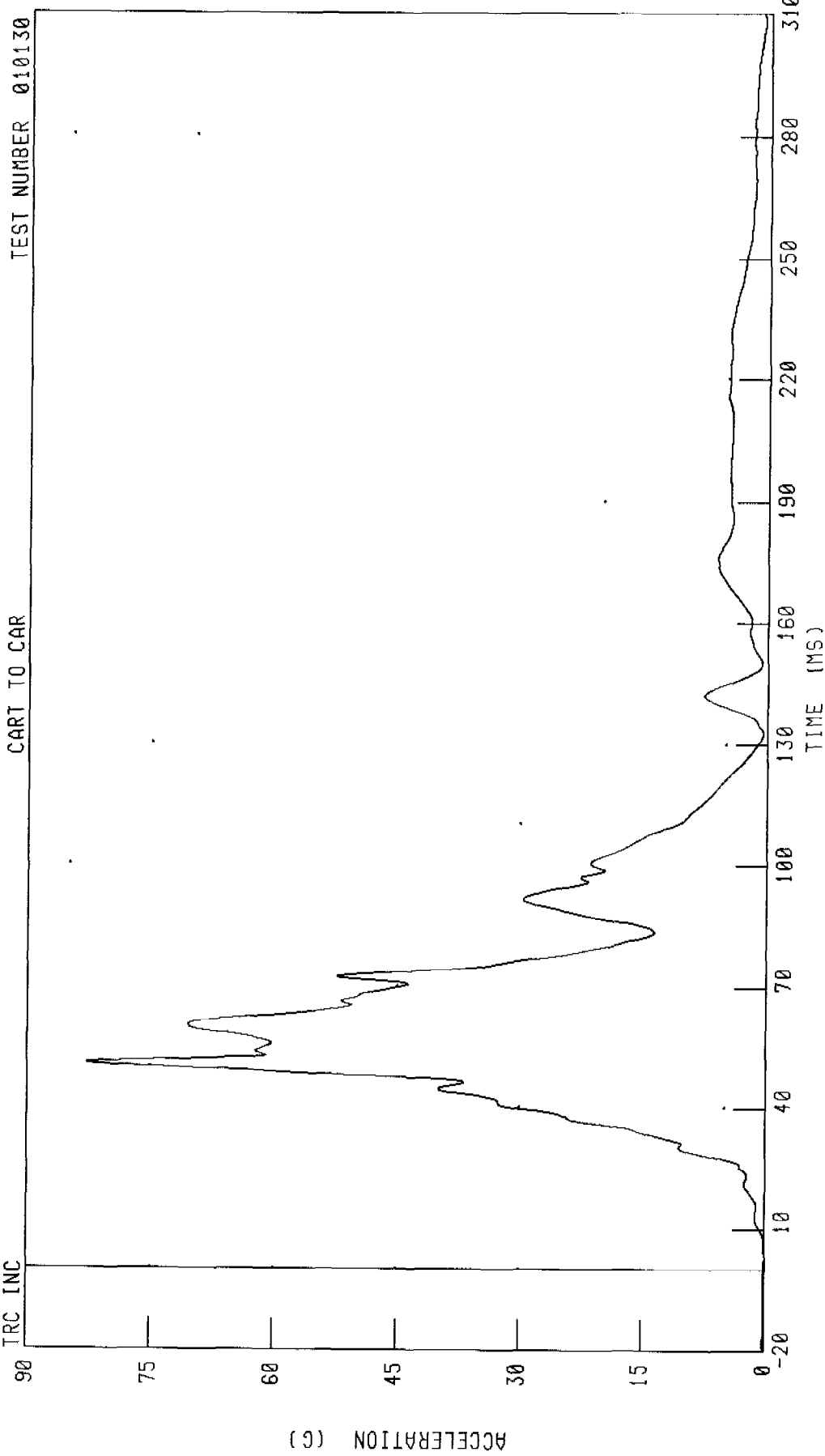
MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
RIGHT FRONT PASSENGER CHEST Z-AXIS ACCELERATION



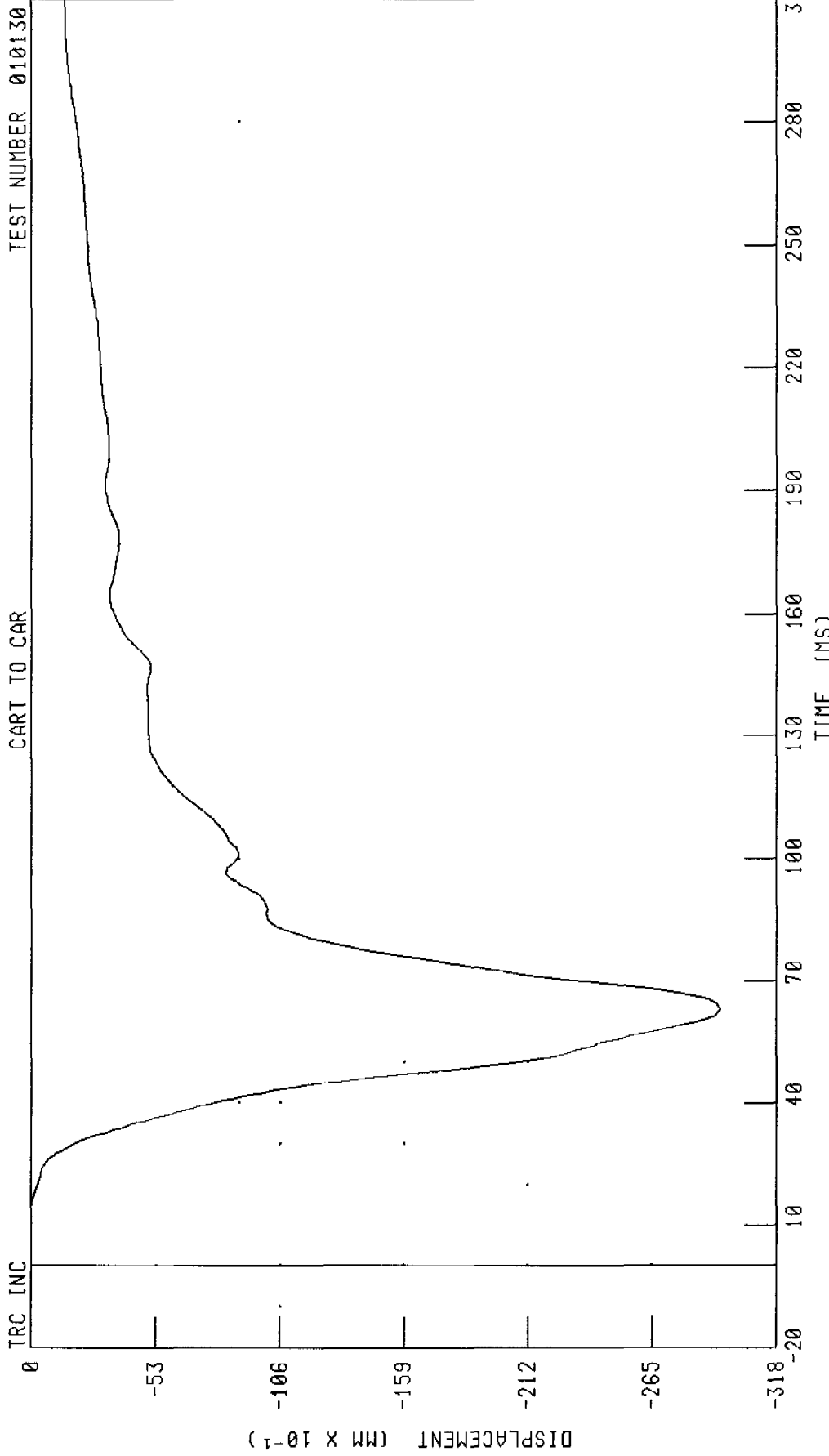
CART TO CAR

CHANNEL CSTZG2 FILTER CH CLASS 180 PEAK DATA 18 01 G @ 57 76 MS, -25 07 G @ 92 40 MS

MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
RIGHT FRONT PASSENGER CHEST RESULTANT ACCELERATION



MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
RIGHT FRONT PASSENGER CHEST DEFLECTION

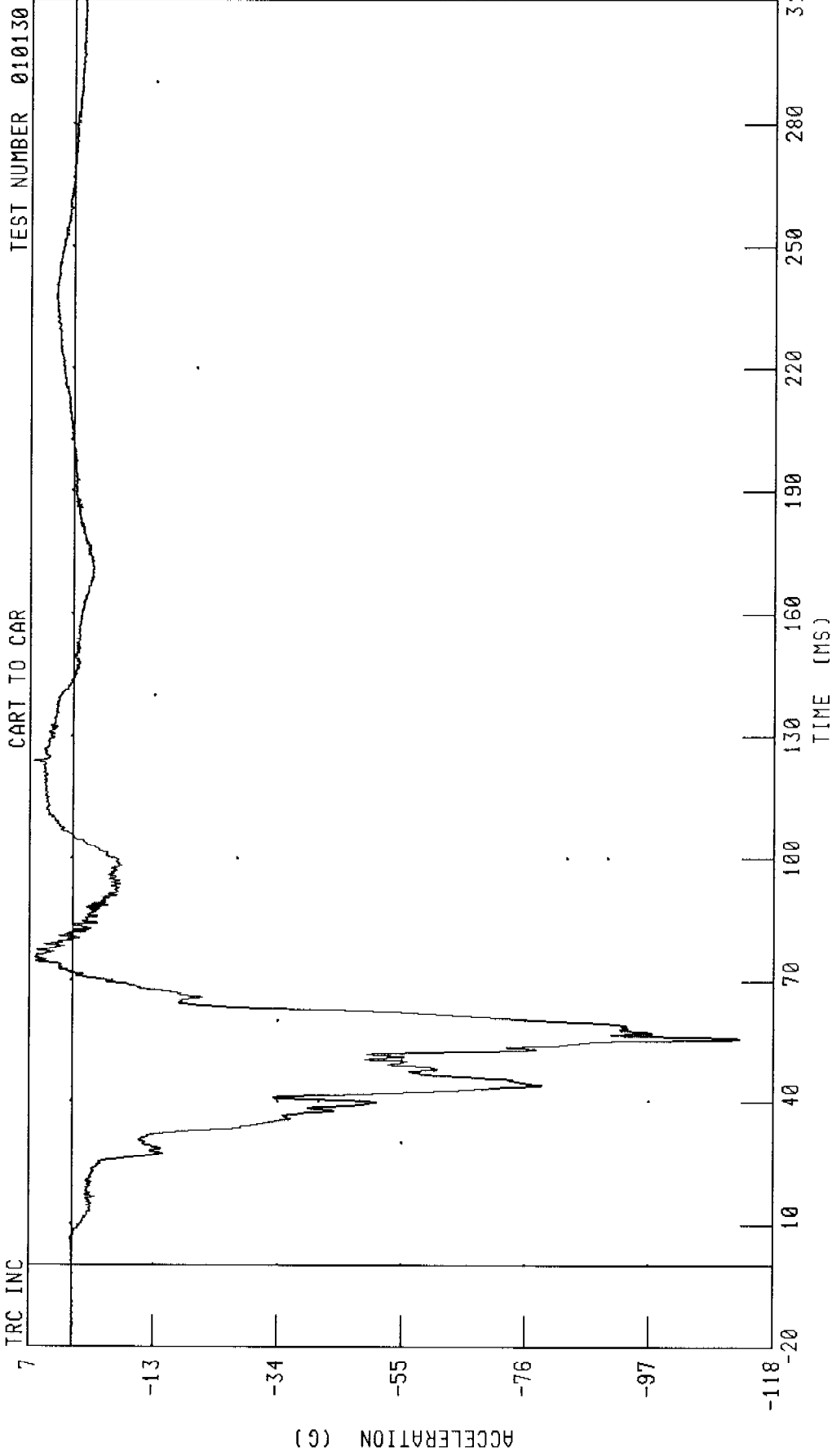


TEST NUMBER 010130

CART TO CAR

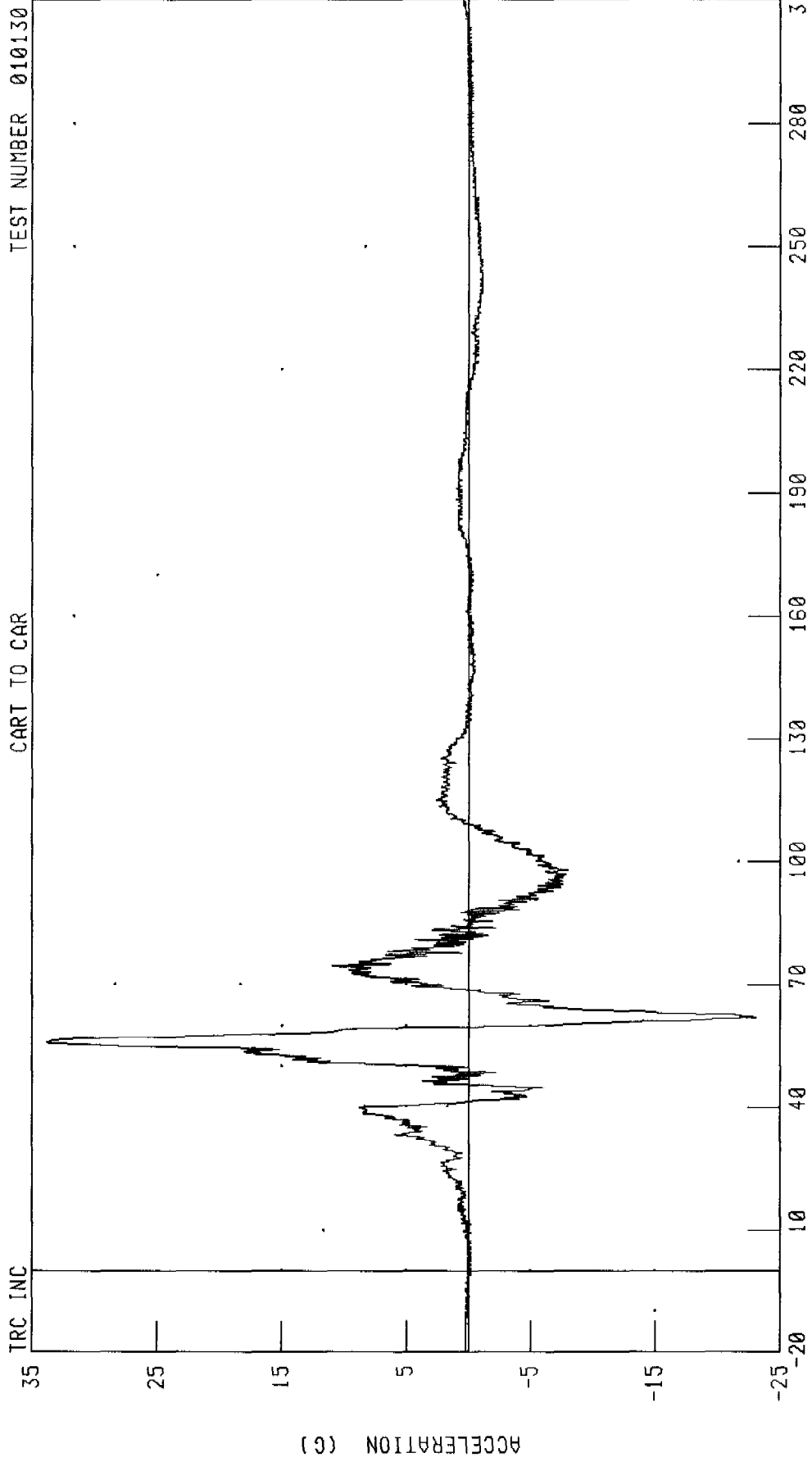
CHANNEL CSTXD2 FILTER CH CLASS 600 PEAK DATA 0 02 MM @ 5 20 MS, -29 41 MM @ 62 96 MS

MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
RIGHT FRONT PASSENGER PELVIS X-AXIS ACCELERATION



CHANNEL PEVXC2 FILTER CH CLASS 1000 PEAK DATA 6 65 G @ 123 84 MS, -113 12 G @ 55 76 MS

MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
RIGHT FRONT PASSENGER PELVIS Y-AXIS ACCELERATION



TRC INC

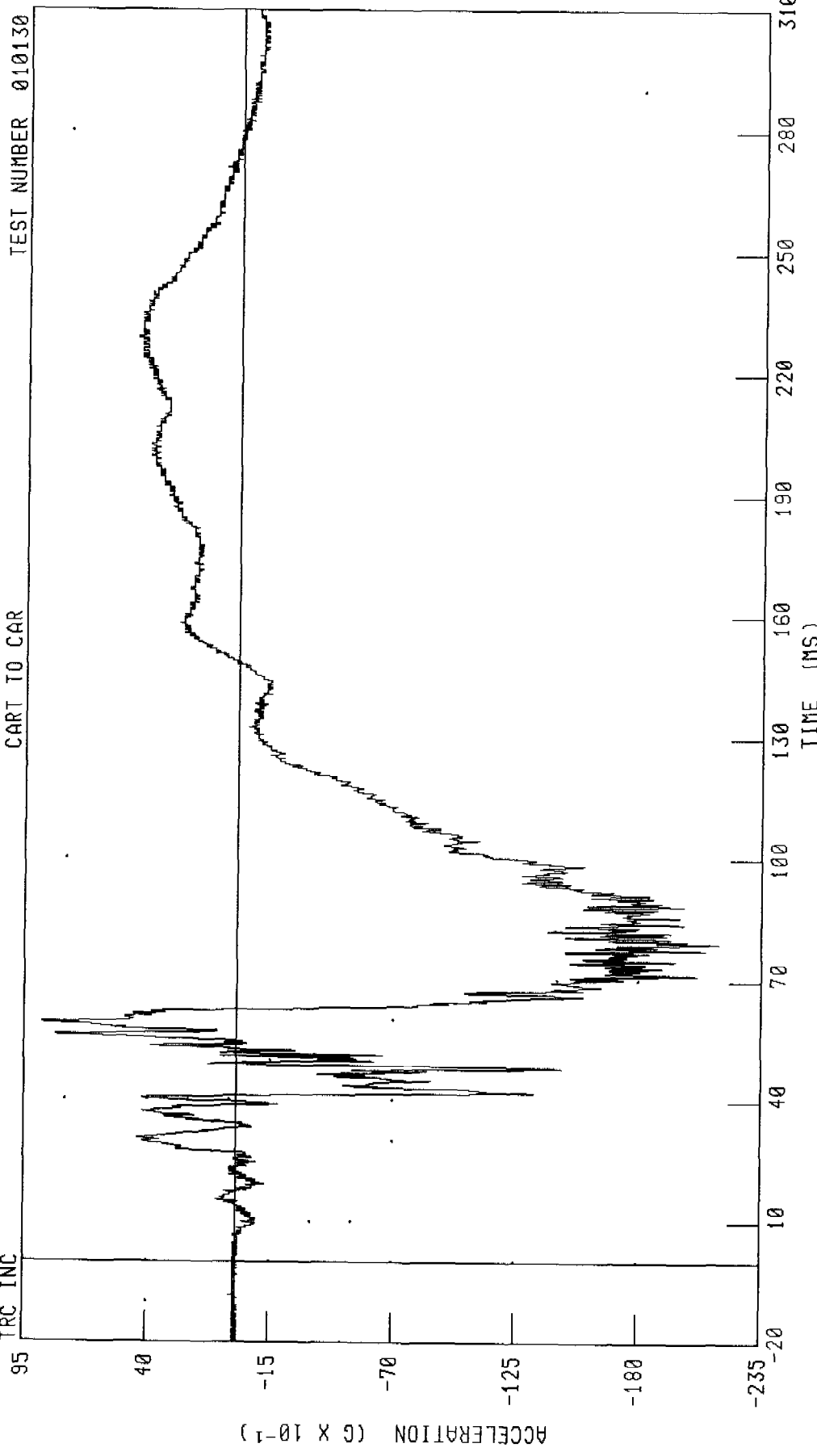
CART TO CAR

TEST NUMBER 010130

PEAK DATA 33 79 G @ 55 84 MS, -23 02 G @ 62 08 MS

CHANNEL PEVYG2 FILTER CH CLASS 1000

MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
RIGHT FRONT PASSENGER PELVIS Z-AXIS ACCELERATION



CHANNEL PEVZG2 FILTER CH CLASS 1000

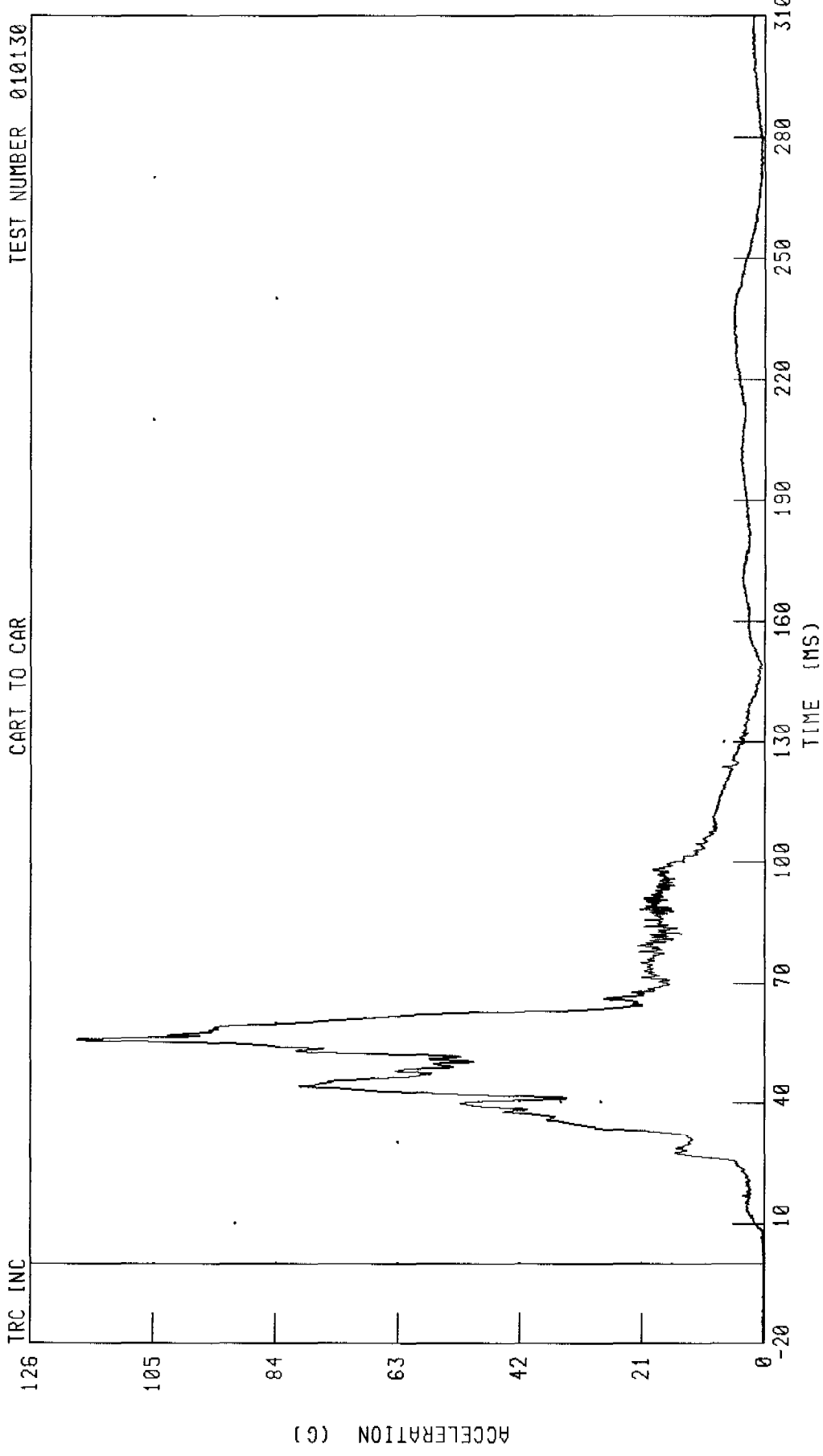
PEAK DATA 8 72 C 0 59 36 MS, -21 59 G 0 79 36 MS

MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
RIGHT FRONT PASSENGER PELVIS RESULTANT ACCELERATION

TRC INC

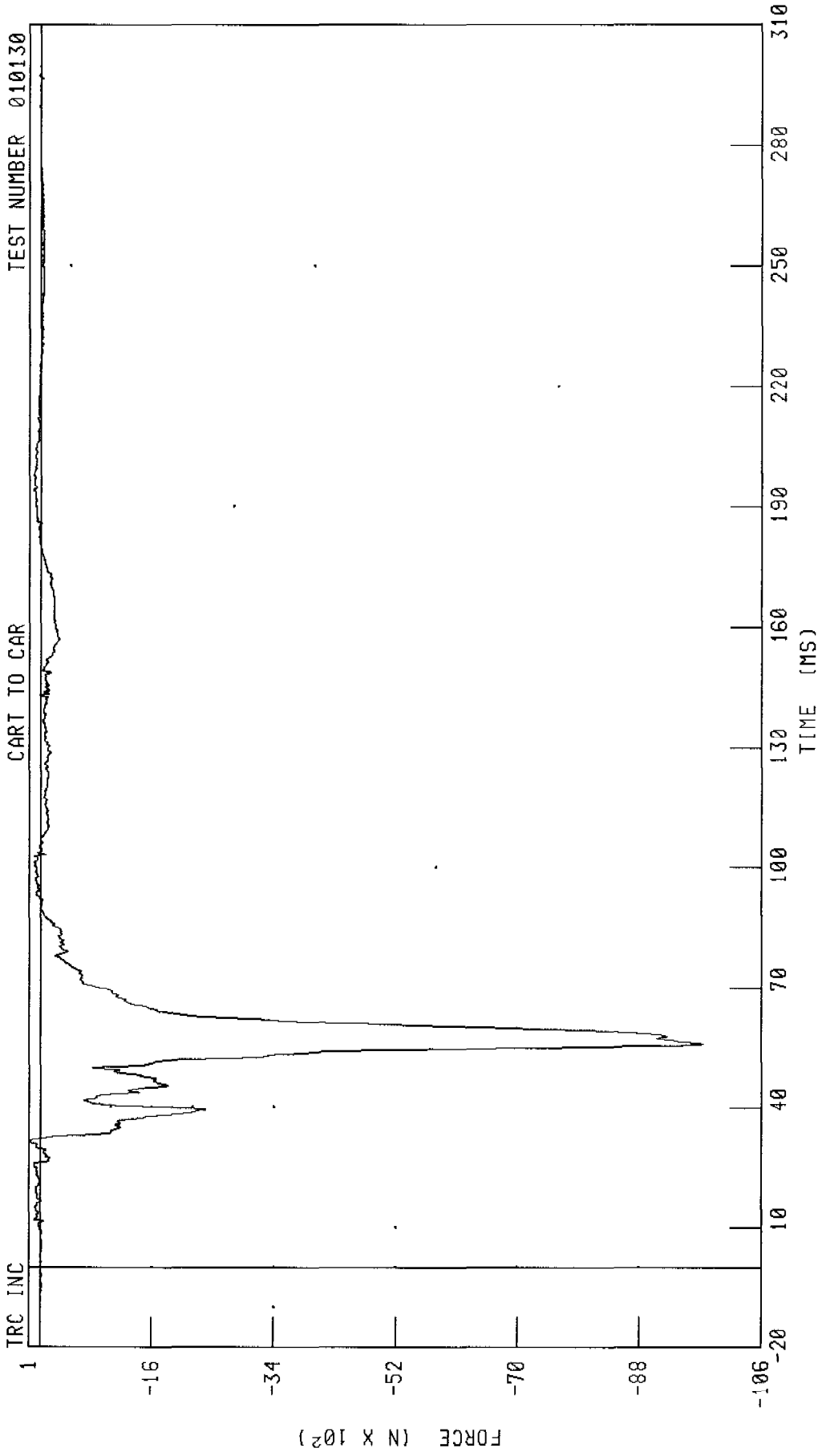
TEST NUMBER 010130

CART TO CAR

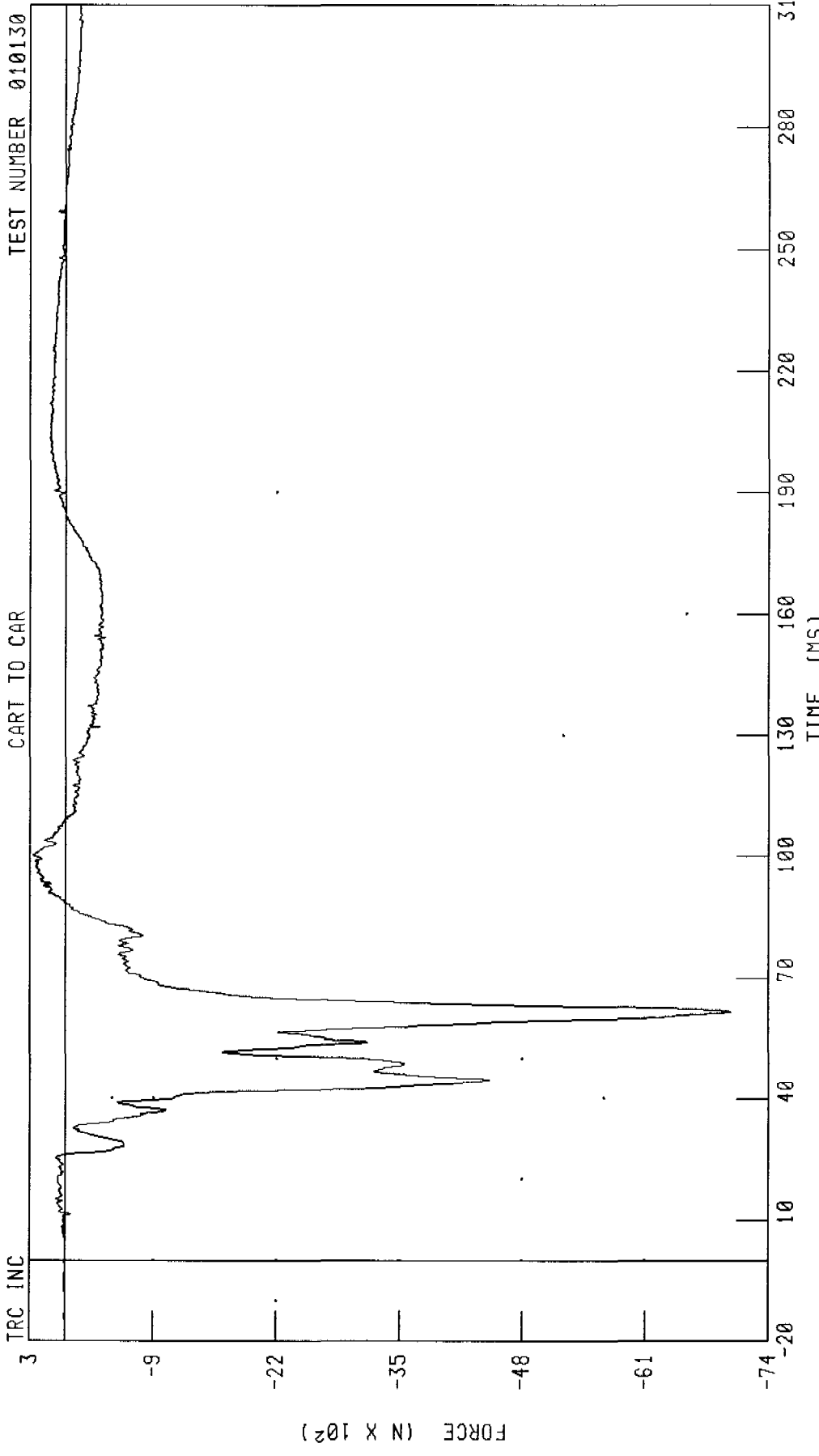


CHANNEL PEVRG2 FILTER CH CLASS 1000 PEAK DATA 118 10 G @ 55 76 MS, 0 09 G @ -12 96 MS

MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
RIGHT FRONT PASSENGER LEFT FEMUR FORCE



MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
RIGHT FRONT PASSENGER RIGHT FEMUR FORCE

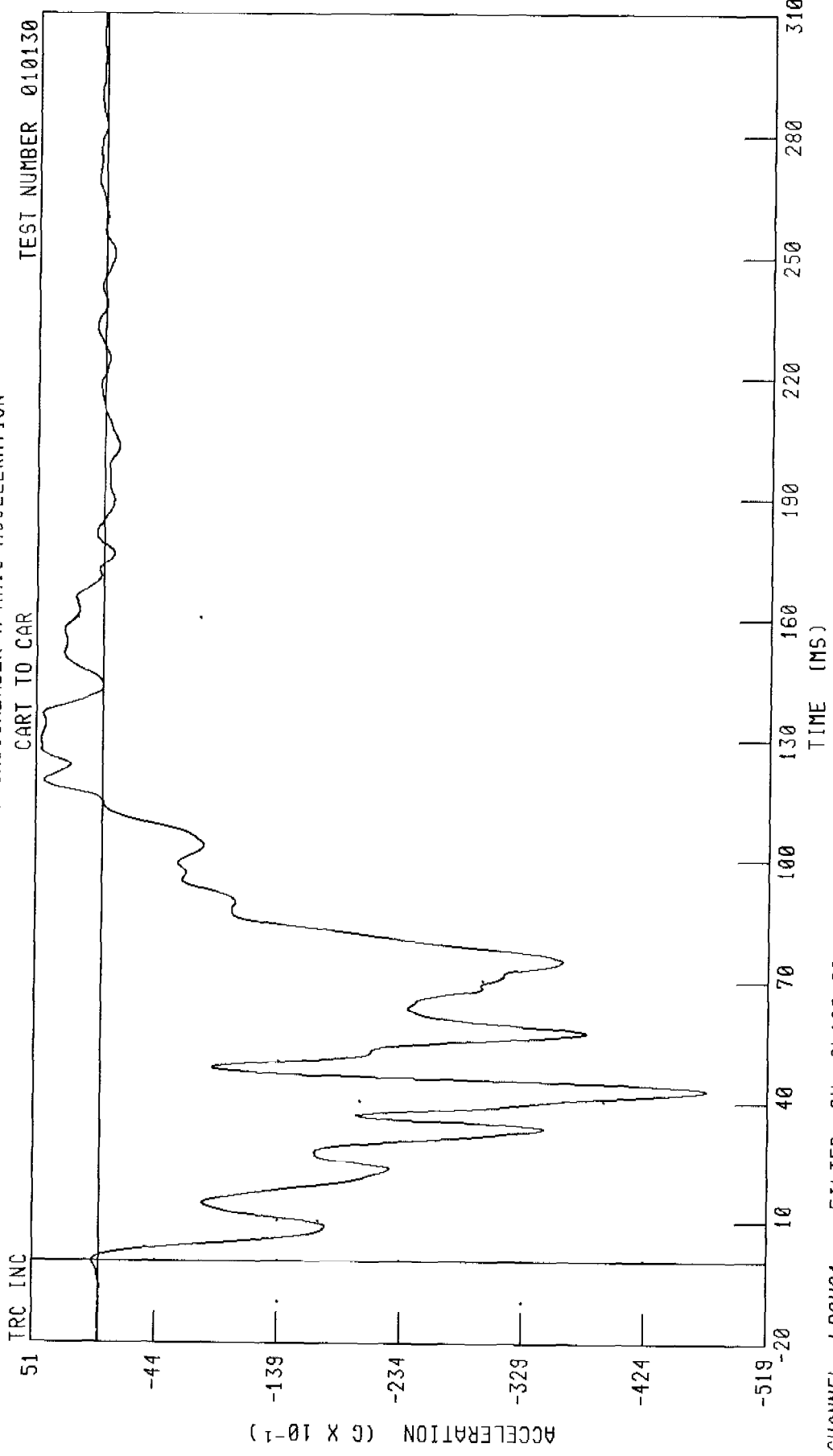


TEST NUMBER 010130

CART TO CAR

CHANNEL RFMZF2 FILTER CH CLASS 600 PEAK DATA 340 56 N @ 100 40 MS, -7030 82 N @ 61 60 MS

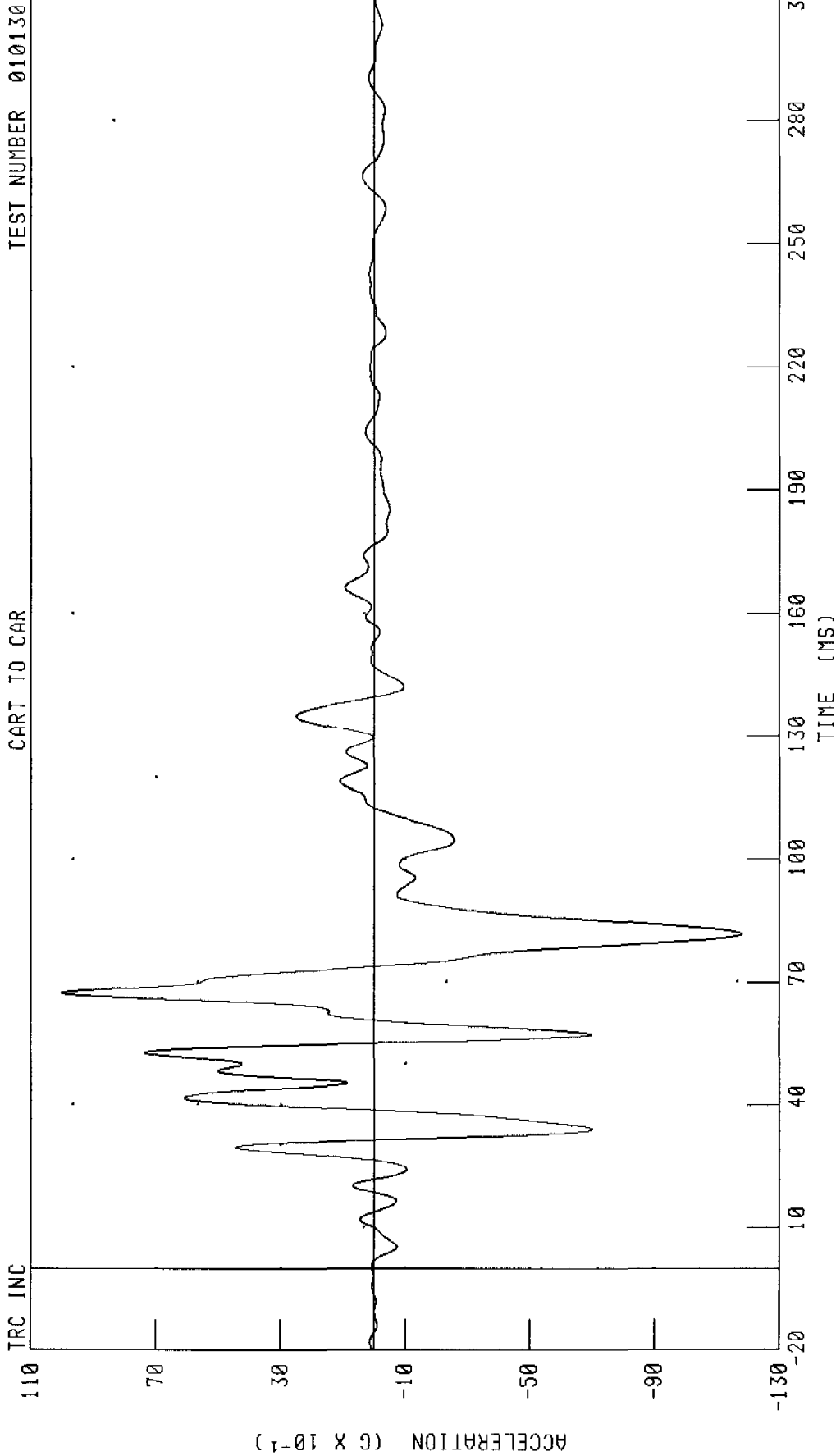
MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
LEFT REAR SEAT CROSSMEMBER X-AXIS ACCELERATION



CHANNEL LRSXC1 FILTER CH CLASS 60

PEAK DATA 4 72 G @ 129 44 MS, -47 17 G @ 42 88 MS

MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
LEFT REAR SEAT CROSSMEMBER Y-AXIS ACCELERATION  
CART TO CAR



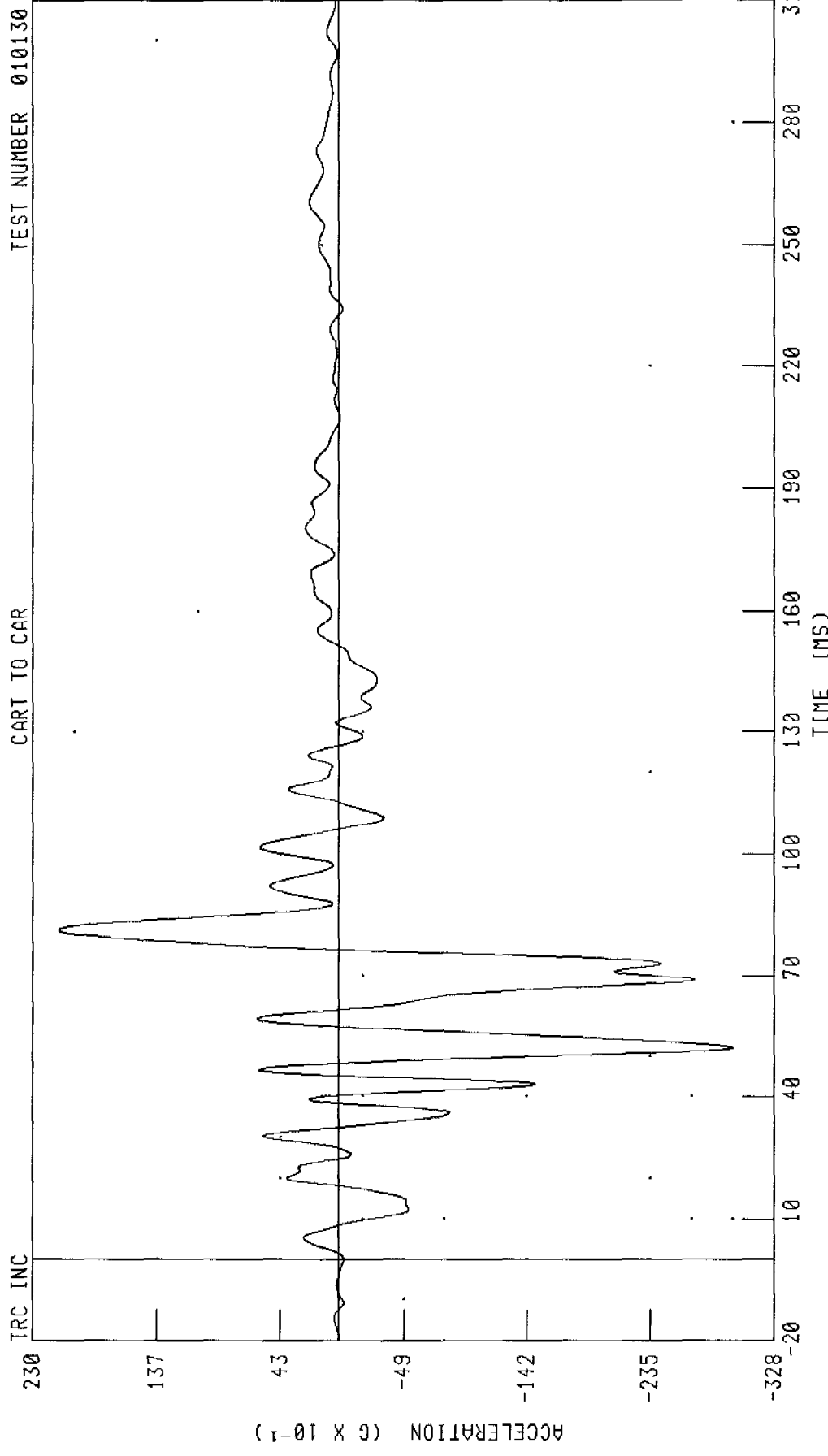
CHANNEL LRSYG1 FILTER CH CLASS 60 PEAK DATA 10 03 G @ 67 20 MS, -11 82 G @ 81 68 MS

MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
LEFT REAR SEAT CROSSMEMBER Z-AXIS ACCELERATION

TEST NUMBER 010130

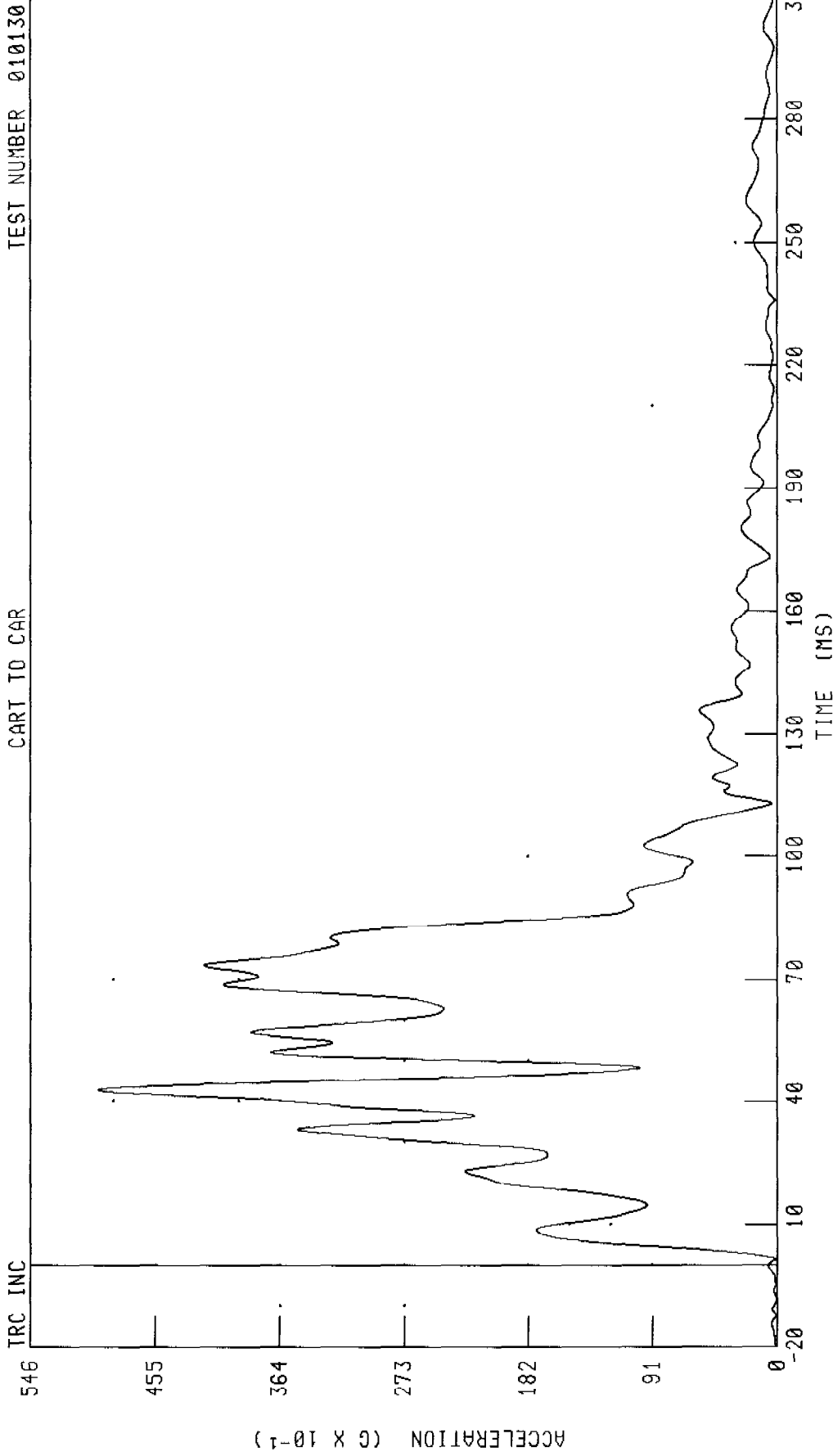
CART TO CAR

TRC INC



CHANNEL LRSZG1 FILTER CH CLASS 60 PEAK DATA 21 07 G @ 81 20 MS, -29 70 G @ 52 16 MS

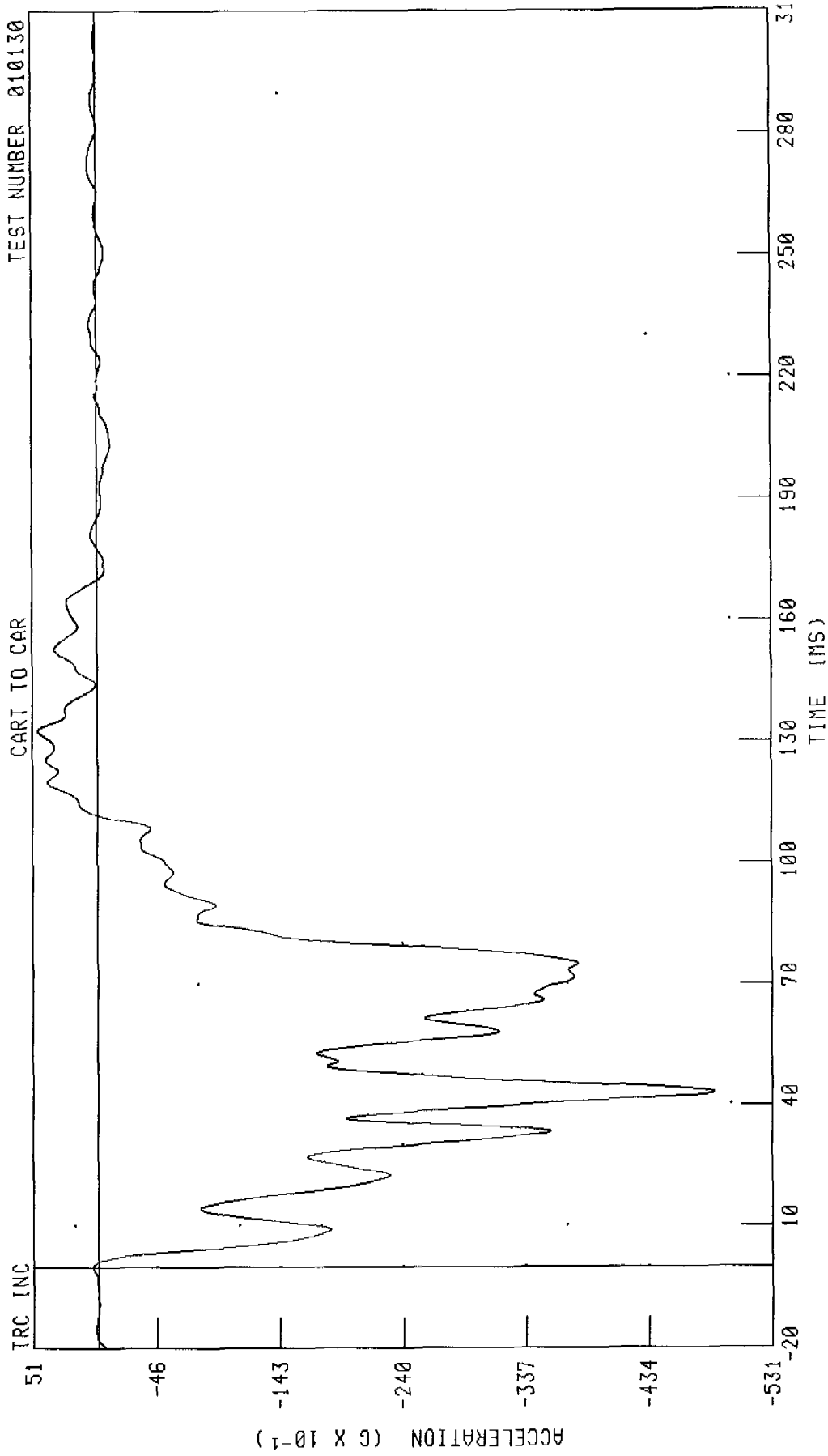
MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
LEFT REAR SEAT CROSSMEMBER RESULTANT ACCELERATION  
CART TO CAR



MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
RIGHT REAR SEAT CROSSMEMBER X-AXIS ACCELERATION

TEST NUMBER 010130

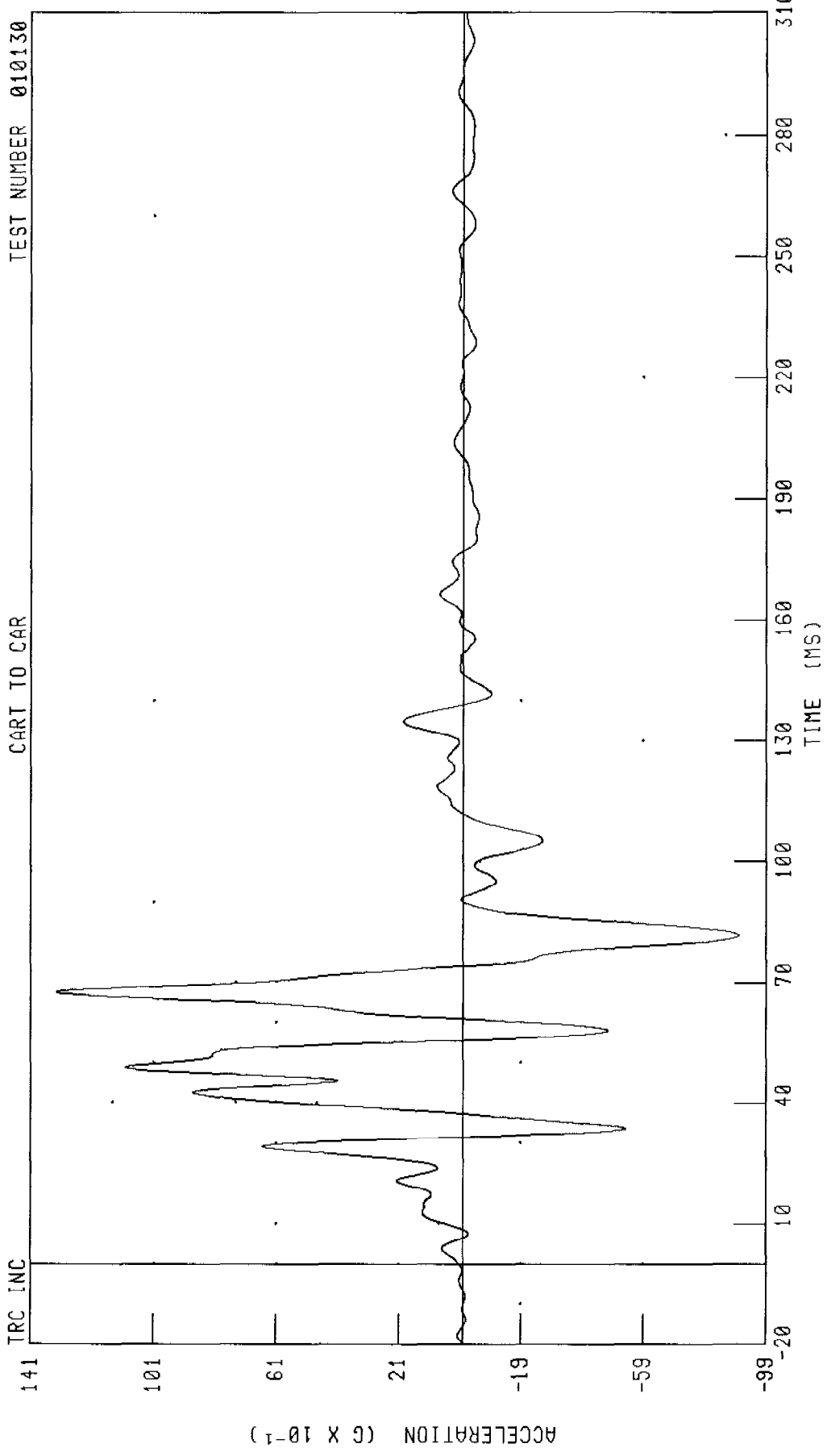
CART TO CAR



CHANNEL RRSXG1 FILTER CH CLASS 60 PEAK DATA 4 68 G @ 132 80 MS, -48 59 G @ 43 04 MS

MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
RIGHT REAR SEAT CROSSMEMBER Y-AXIS ACCELERATION

TRC INC  
CART TO CAR  
TEST NUMBER 010130



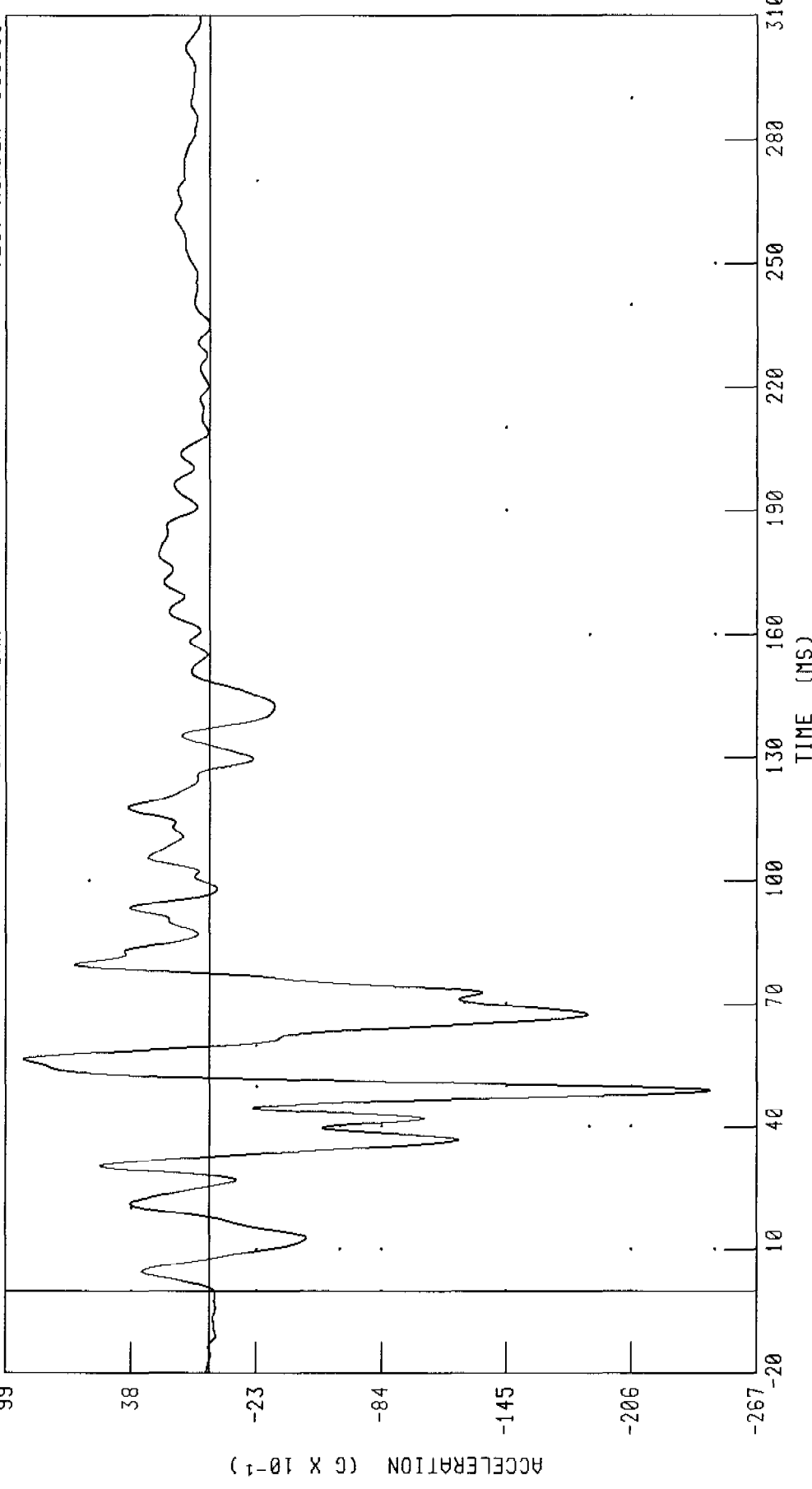
CHANNEL RRSYG1 FILTER CH CLASS 60  
PEAK DATA 13 27 G @ 67 52 MS, -9 03 G @ 81 76 MS

MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
RIGHT REAR SEAT CROSSMEMBER Z-AXIS ACCELERATION

TRC INC

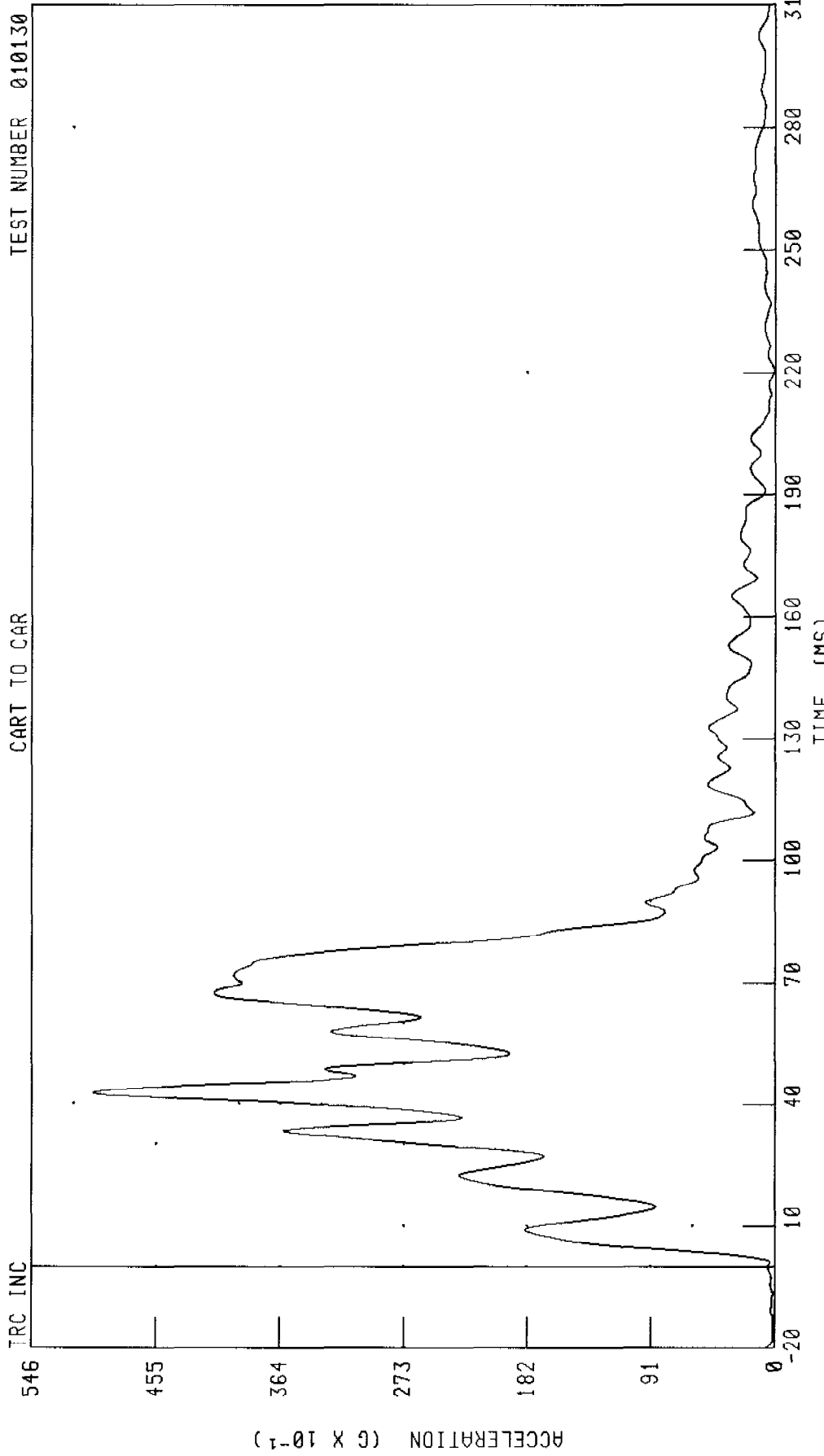
CART TO CAR

TEST NUMBER 010130



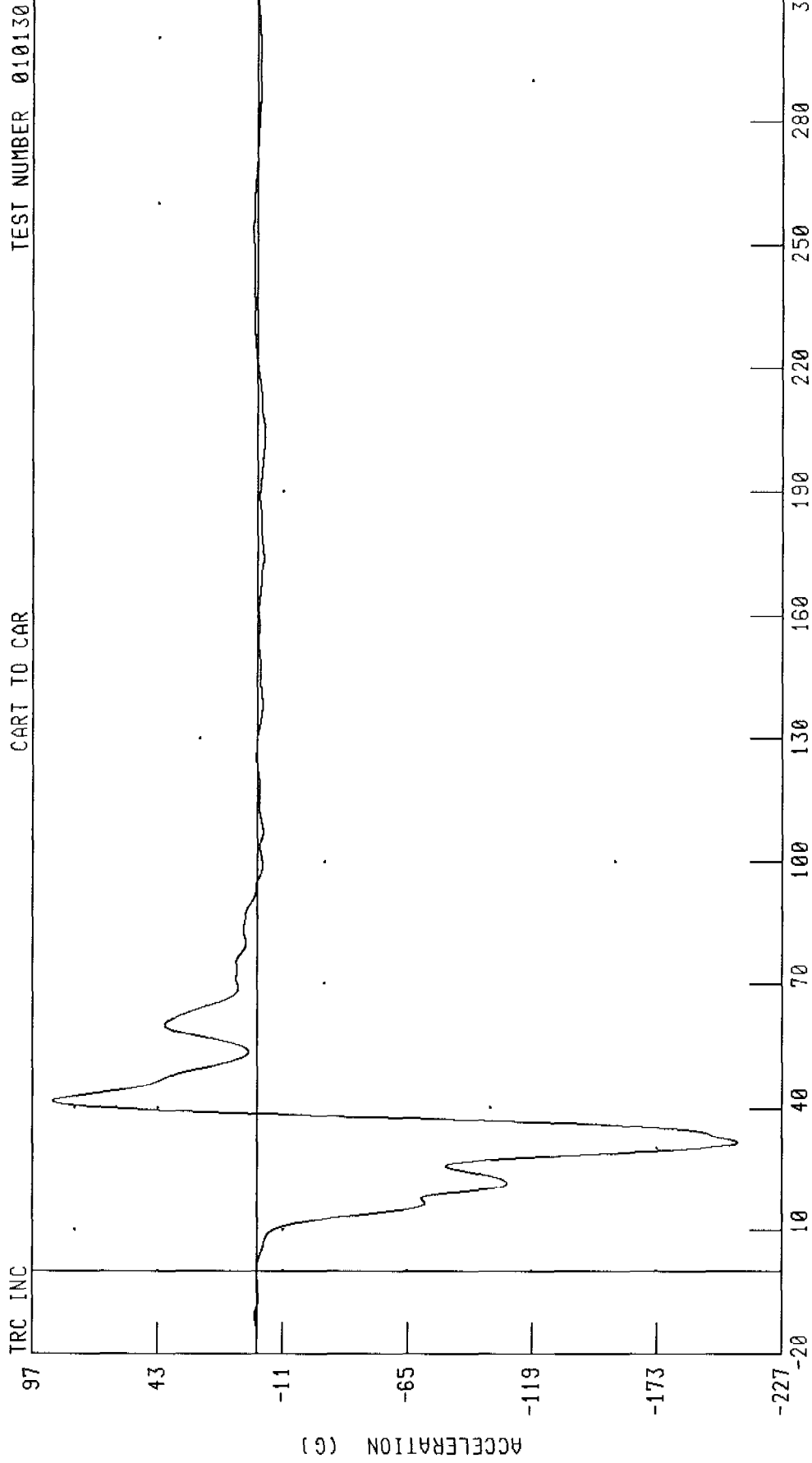
CHANNEL RRSZG1 FILTER CH CLASS 60 PEAK DATA 9 04 G @ 56 64 MS, -24 42 G @ 49 12 MS

MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE  
RIGHT REAR SEAT CROSSMEMBER RESULTANT ACCELERATION



CHANNEL RRSRG1 FILTER CH CLASS 60 PEAK DATA 50 13 G @ 42 88 MS, 0 07 C @ 220 40 MS

MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
ENGINE TOP X-AXIS ACCELERATION  
CART TO CAR

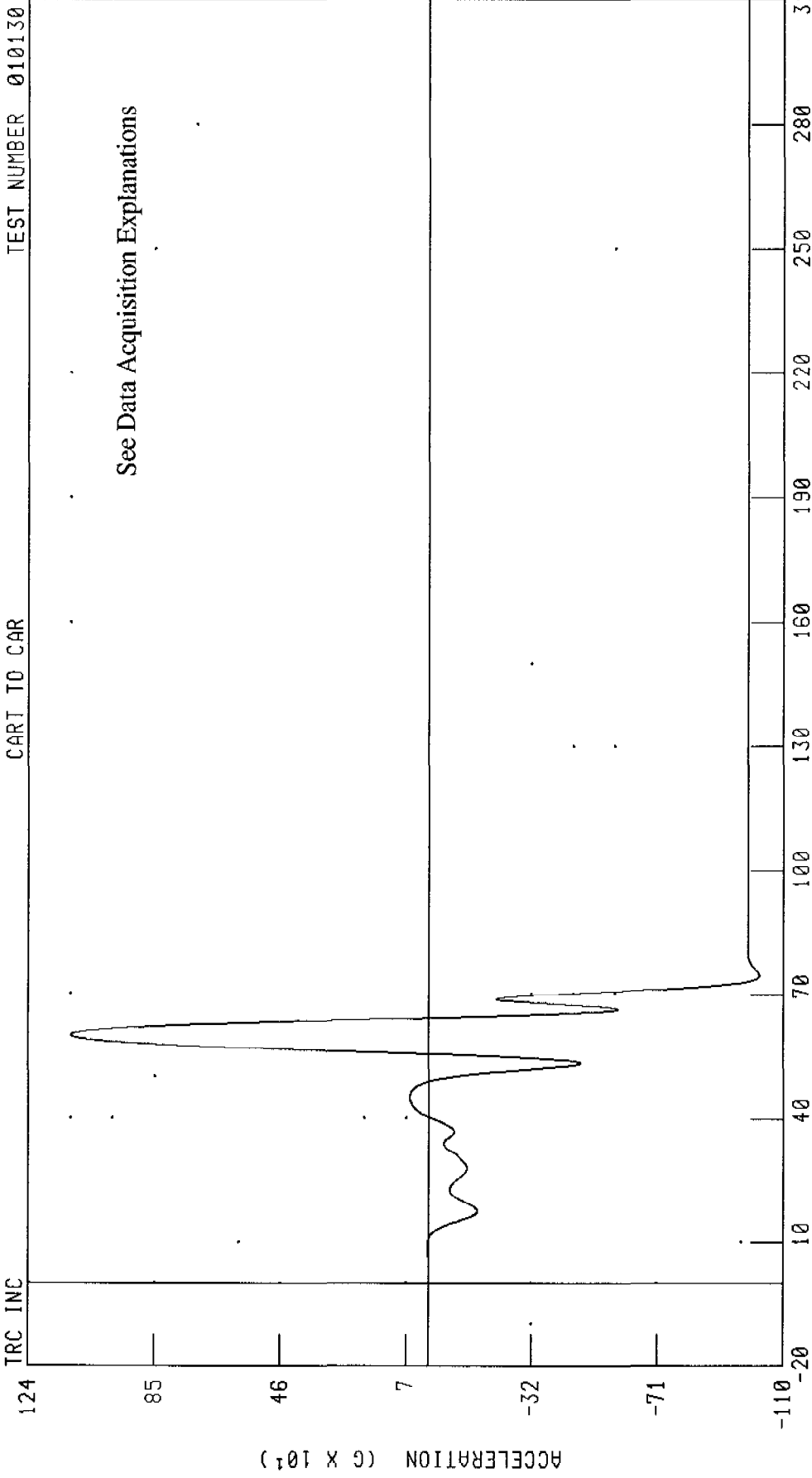


CHANNEL ENGXG1 FILTER CH CLASS 60 PEAK DATA 88 47 C @ 41 76 MS, -207 89 G @ 31 44 MS

MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
ENGINE BOTTOM X-AXIS ACCELERATION  
CART TO CAR

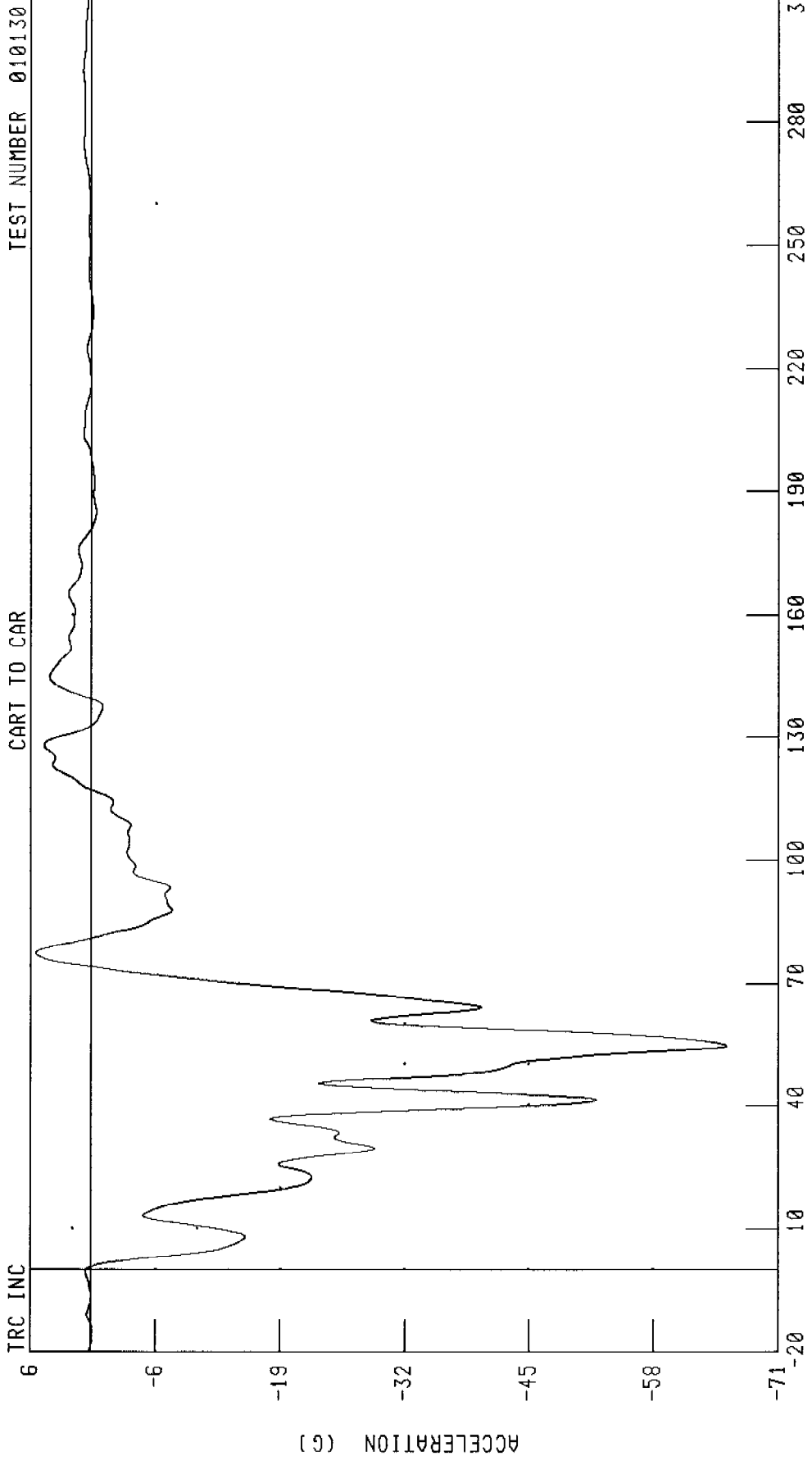
TEST NUMBER 010130

TRC INC



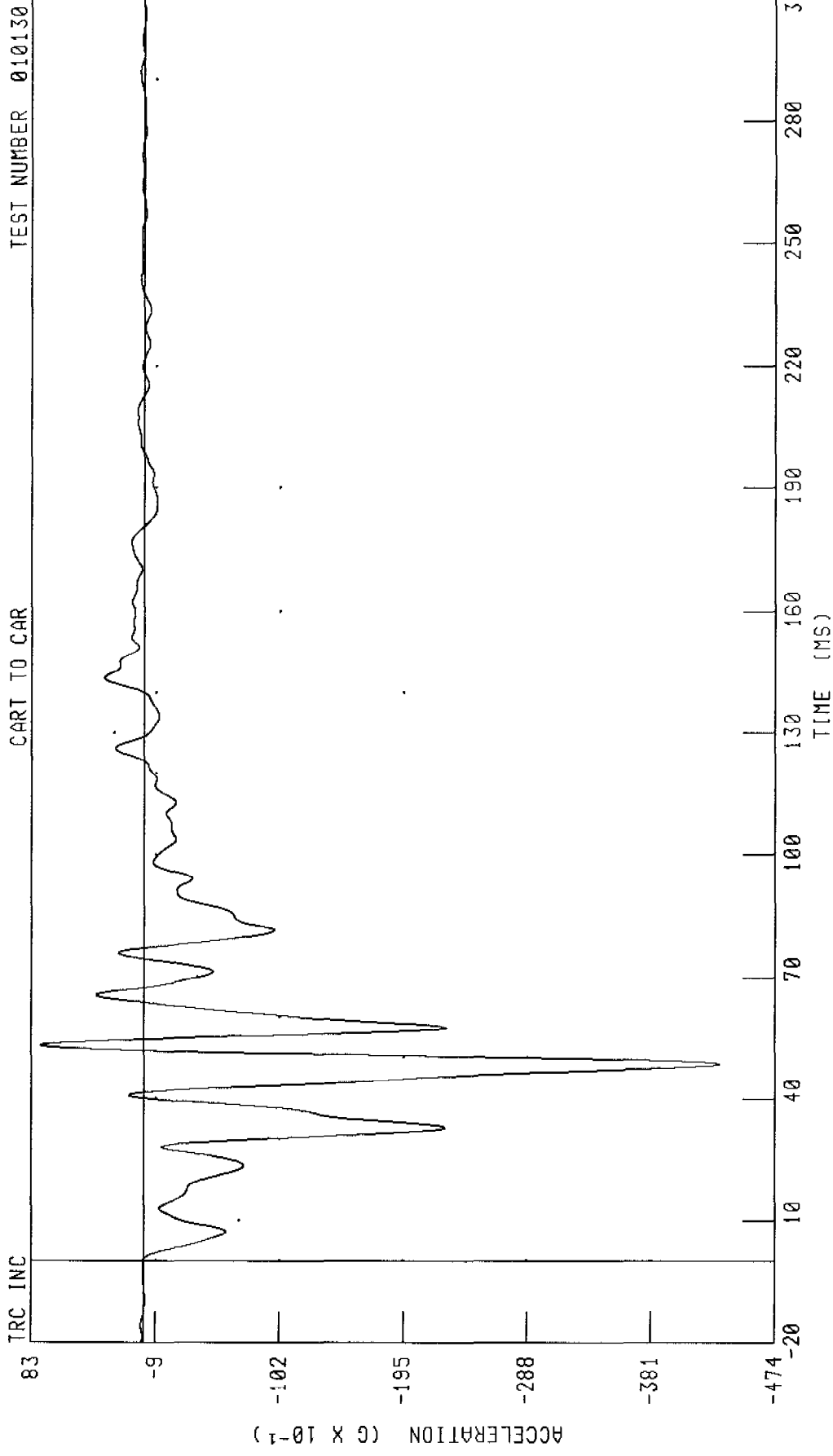
CHANNEL ENCXC2 FILTER CH CLASS 60  
PEAK DATA 1108 51 G @ 60 08 MS, -1026 48 G @ 74 64 MS

MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
VEHICLE CENTER OF GRAVITY X-AXIS ACCELERATION



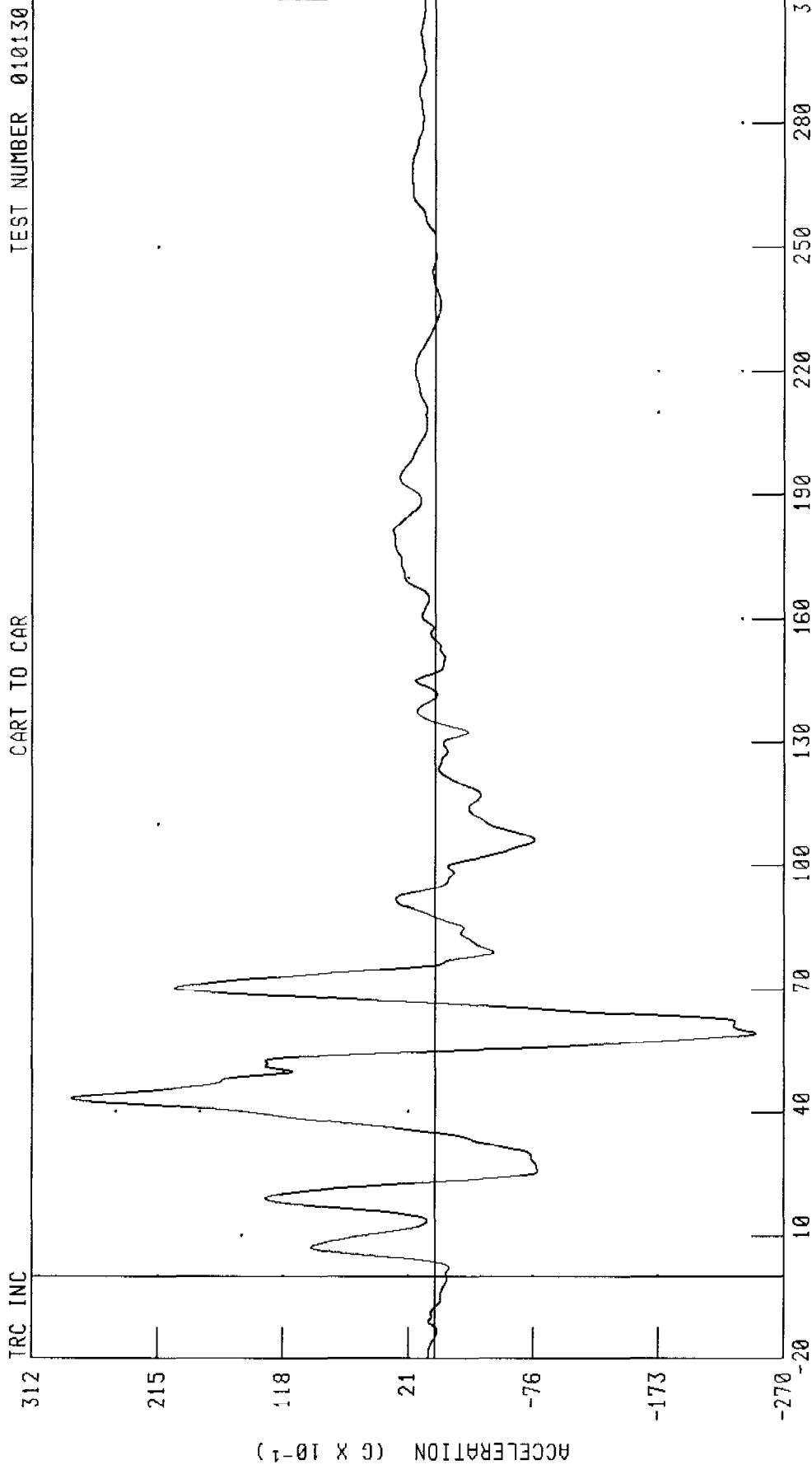
CHANNEL VCGXG1 FILTER CH CLASS 60 PEAK DATA 5 68 G @ 77 44 MS, -66 42 G @ 54 56 MS

MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
VEHICLE CENTER OF GRAVITY Y-AXIS ACCELERATION



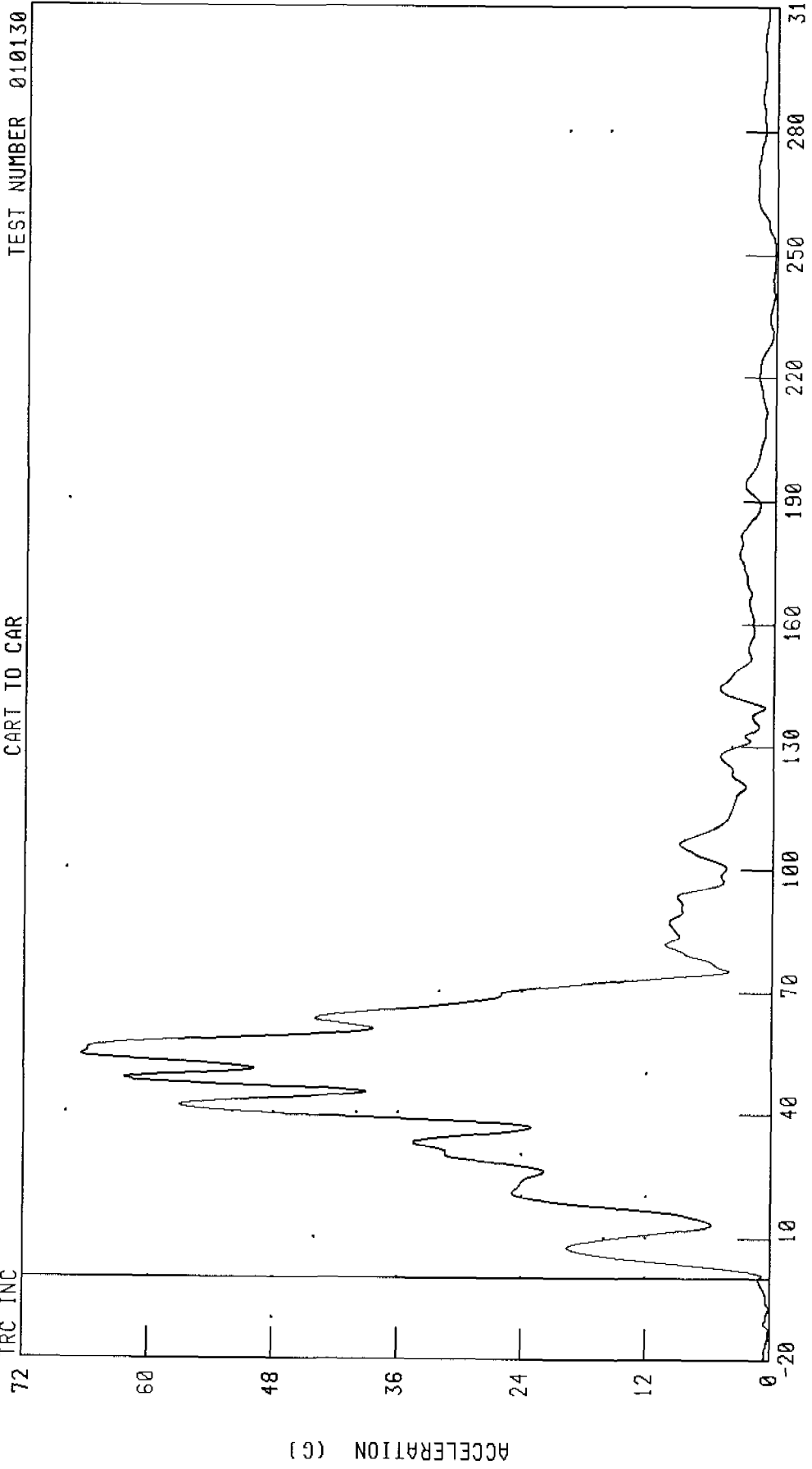
CHANNEL VCCYG1 FILTER CH CLASS 60 PEAK DATA 7 69 C 0 53 12 MS, -43 27 G 0 48 48 MS

MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
VEHICLE CENTER OF GRAVITY Z-AXIS ACCELERATION



CHANNEL VCGZG1 FILTER CH CLASS 60 PEAK DATA 28 18 G @ 43 36 MS, -24 84 G @ 59 28 MS

MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
VEHICLE CENTER OF GRAVITY RESULTANT ACCELERATION



CHANNEL VCGRG1 FILTER CH CLASS 60 PEAK DATA 66 49 G @ 54 48 MS, 0 07 G @ -7 28 MS

MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
INSTRUMENT PANEL X-AXIS ACCELERATION

TRC INC

CART TO CAR

TEST NUMBER 010130

42

10

-22

-54

-86

-118

-150

ACCELERATION (G)

70

100

130

160

190

220

250

280

310

TIME (MS)

PEAK DATA 38 62 G @ 91 04 MS, -139 67 G @ 54 00 MS

CHANNEL DPCXC1 FILTER CH CLASS 60

CHASSIS TO CAR

TEST NUMBER 010130

TRC INC

42

10

-22

-54

-86

-118

-150

ACCELERATION (G)

70

100

130

160

190

220

250

280

310

TIME (MS)

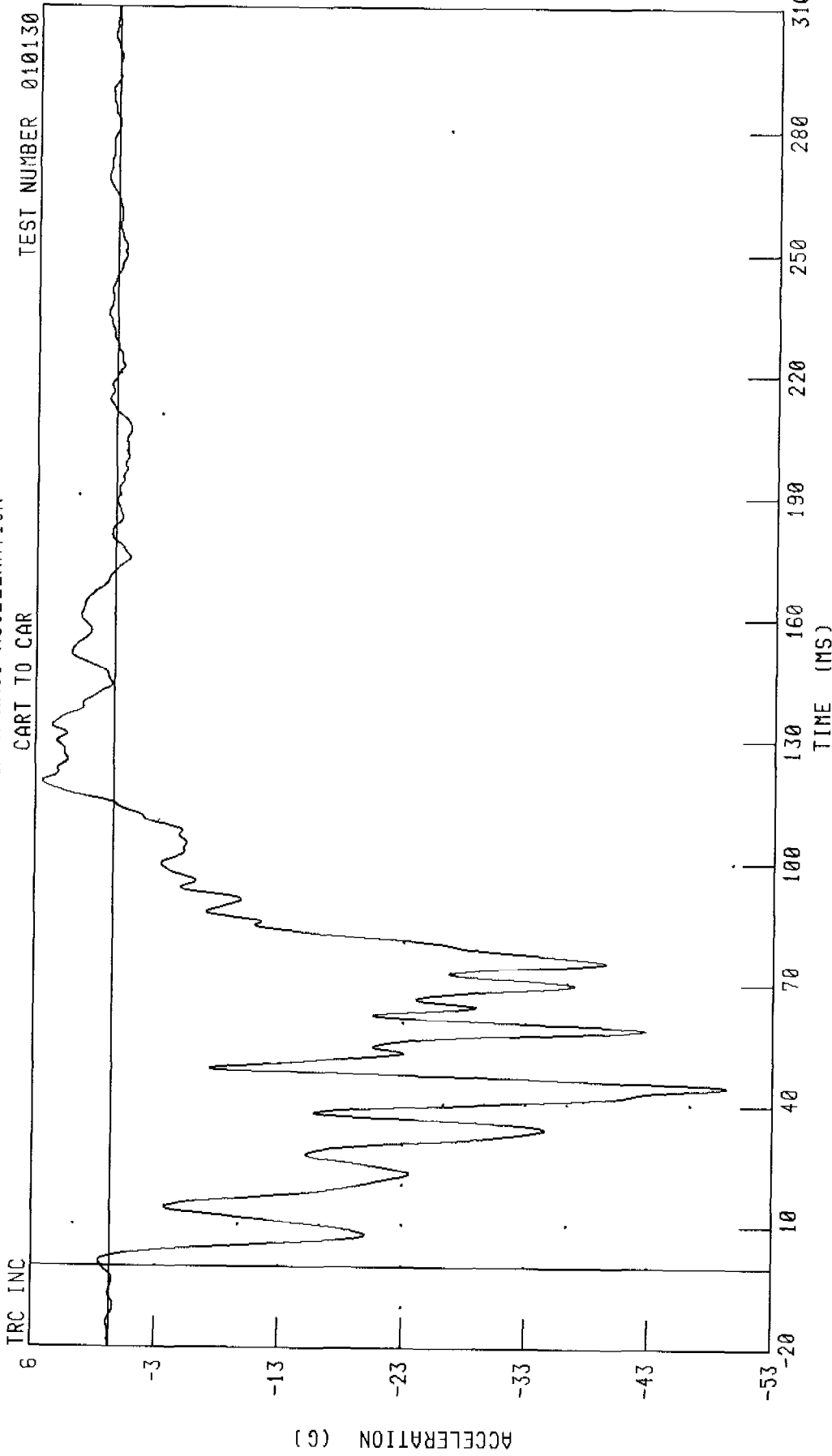
PEAK DATA 38 62 G @ 91 04 MS, -139 67 G @ 54 00 MS

CHANNEL DPCXC1 FILTER CH CLASS 60

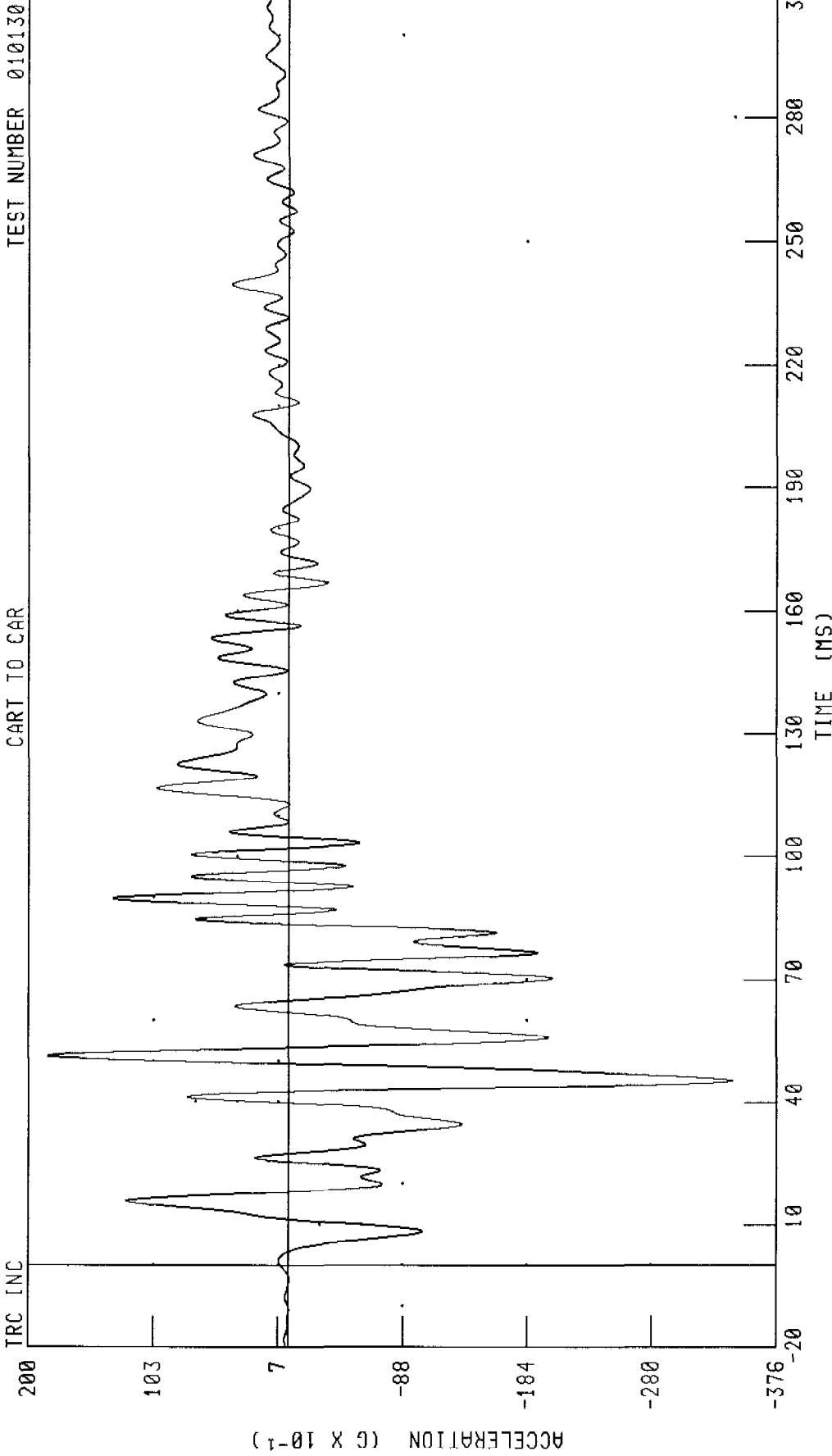
CHASSIS TO CAR

TEST NUMBER 010130

MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
REAR AXLE X-AXIS ACCELERATION



MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
VEHICLE REAR CENTER Z-AXIS ACCELERATION  
CART TO CAR



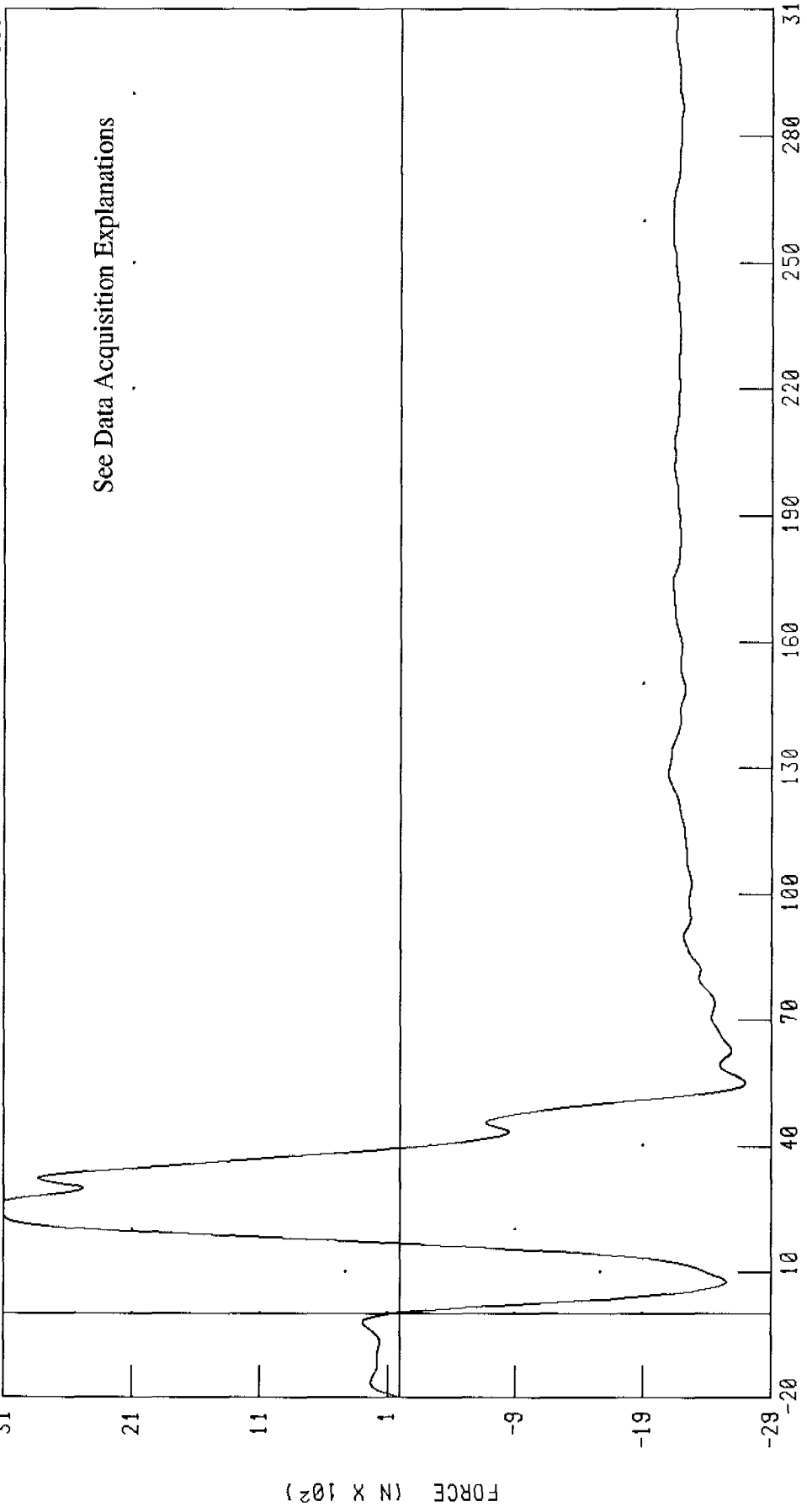
CHANNEL TFCZG1 FILTER CH CLASS 60 PEAK DATA 18 50 G @ 51 28 MS, -34 23 G @ 45 36 MS

MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
MOVING BARRIER LOAD CELL A1 X-AXIS FORCE

TEST NUMBER 010130

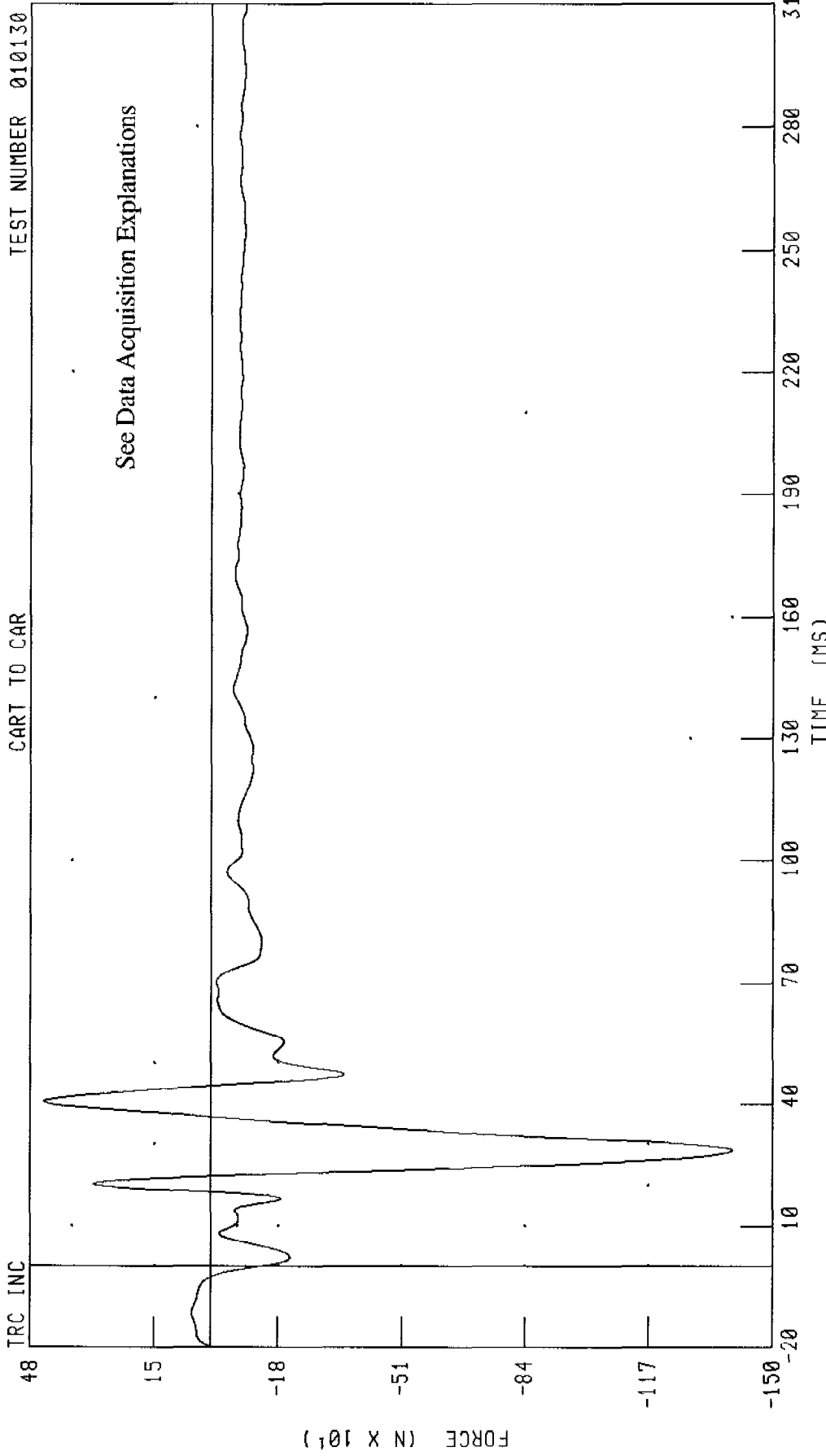
CART TO CAR

TRC INC



CHANNEL BA1XF FILTER CH CLASS 60  
PEAK DATA 3176 34 N @ 25 60 MS, -2701 70 N @ 54 96 MS

MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
MOVING BARRIER LOAD CELL A1 Y-AXIS FORCE

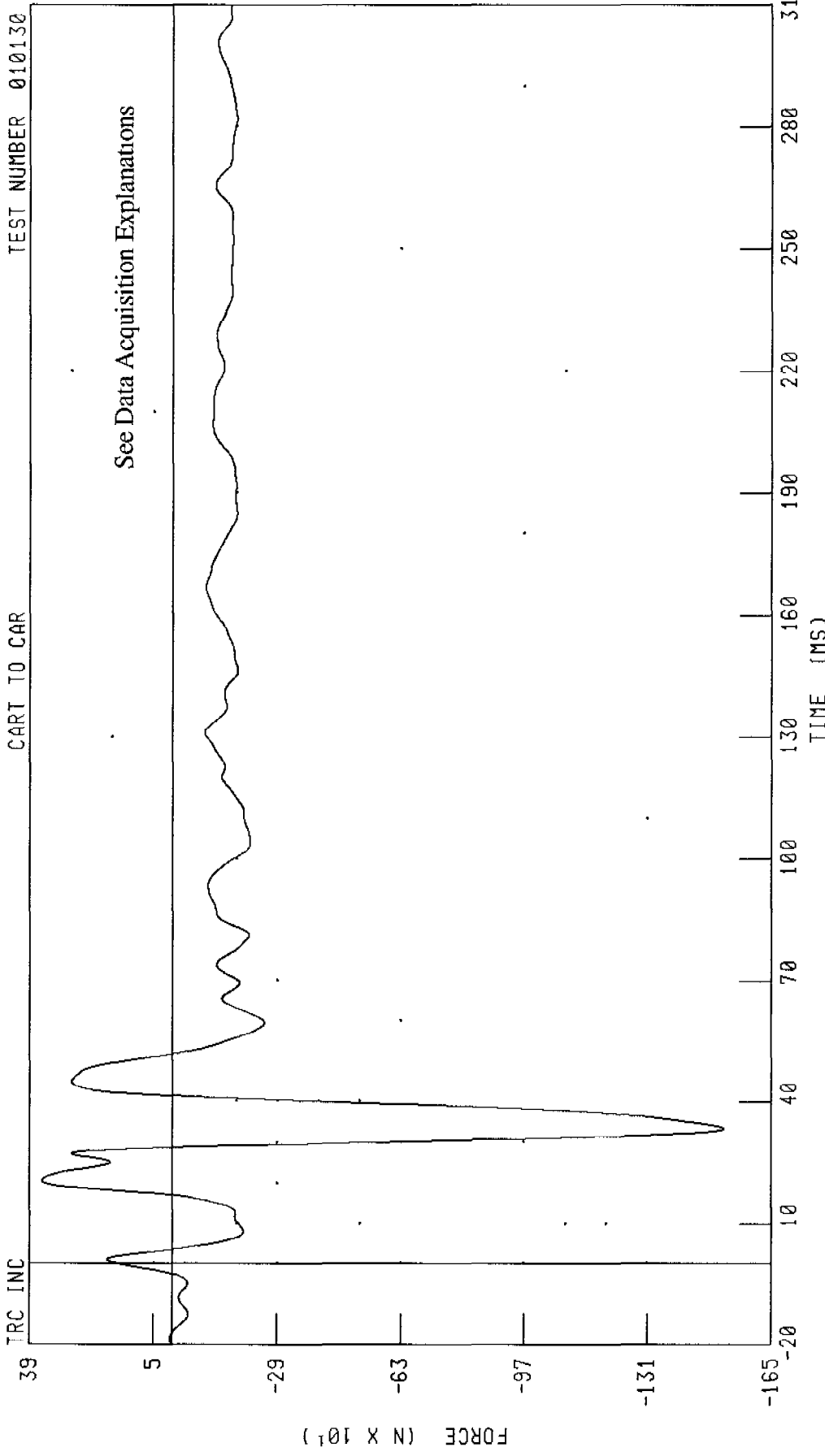


TEST NUMBER 010130

CHANNEL BA1YF FILTER CH CLASS 60 PEAK DATA 443 77 N @ 40 48 MS, -1393 23 N @ 28 56 MS

MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
MOVING BARRIER LOAD CELL A1 Z-AXIS FORCE

TRC INC  
CART TO CAR  
TEST NUMBER 010130

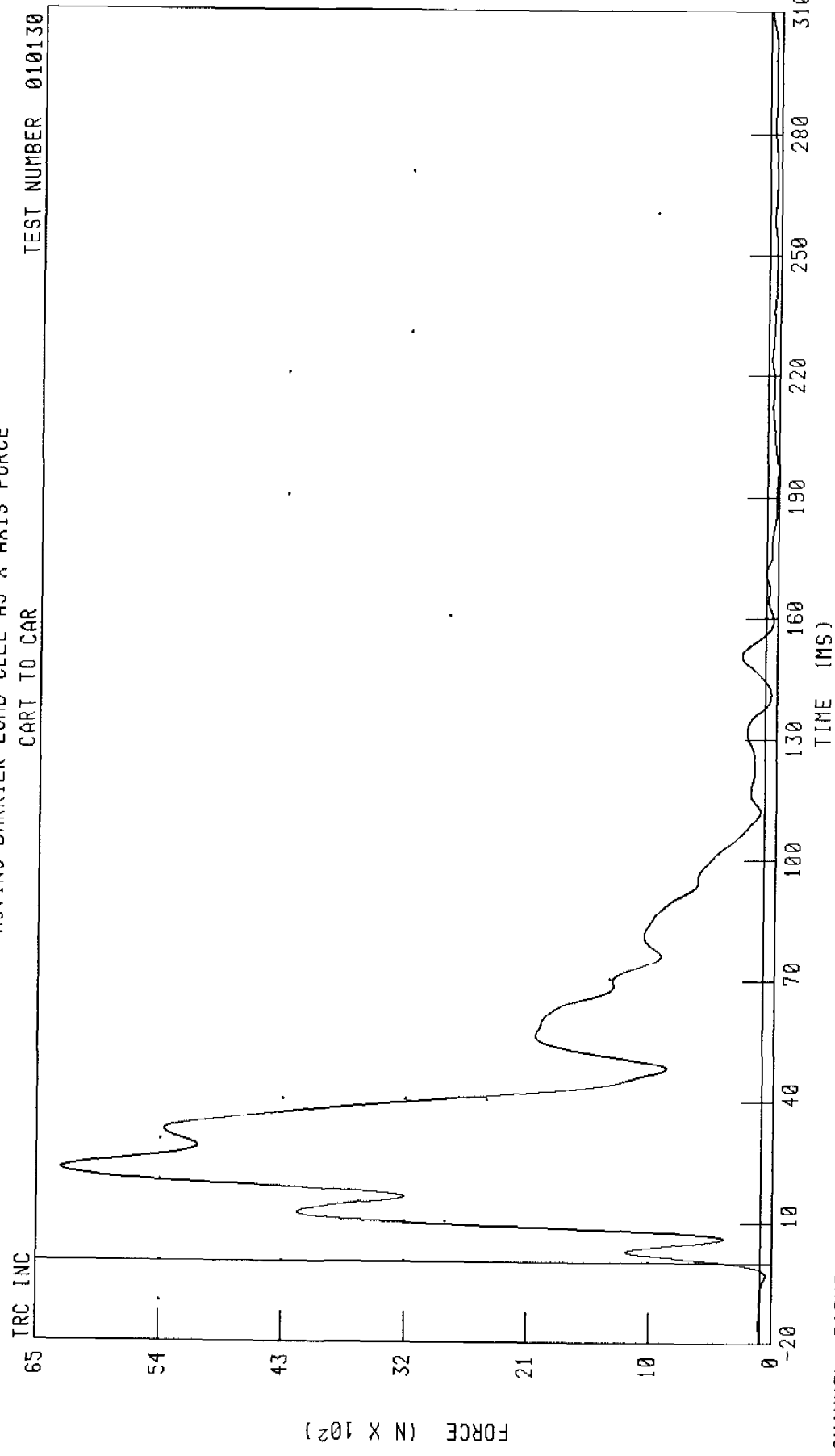


CHANNEL BA1ZF FILTER CH CLASS 60 PEAK DATA 355 50 N @ 20 64 MS, -1521 35 N @ 33 44 MS

MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
MOVING BARRIER LOAD CELL A3 X-AXIS FORCE

TEST NUMBER 010130

CART TO CAR



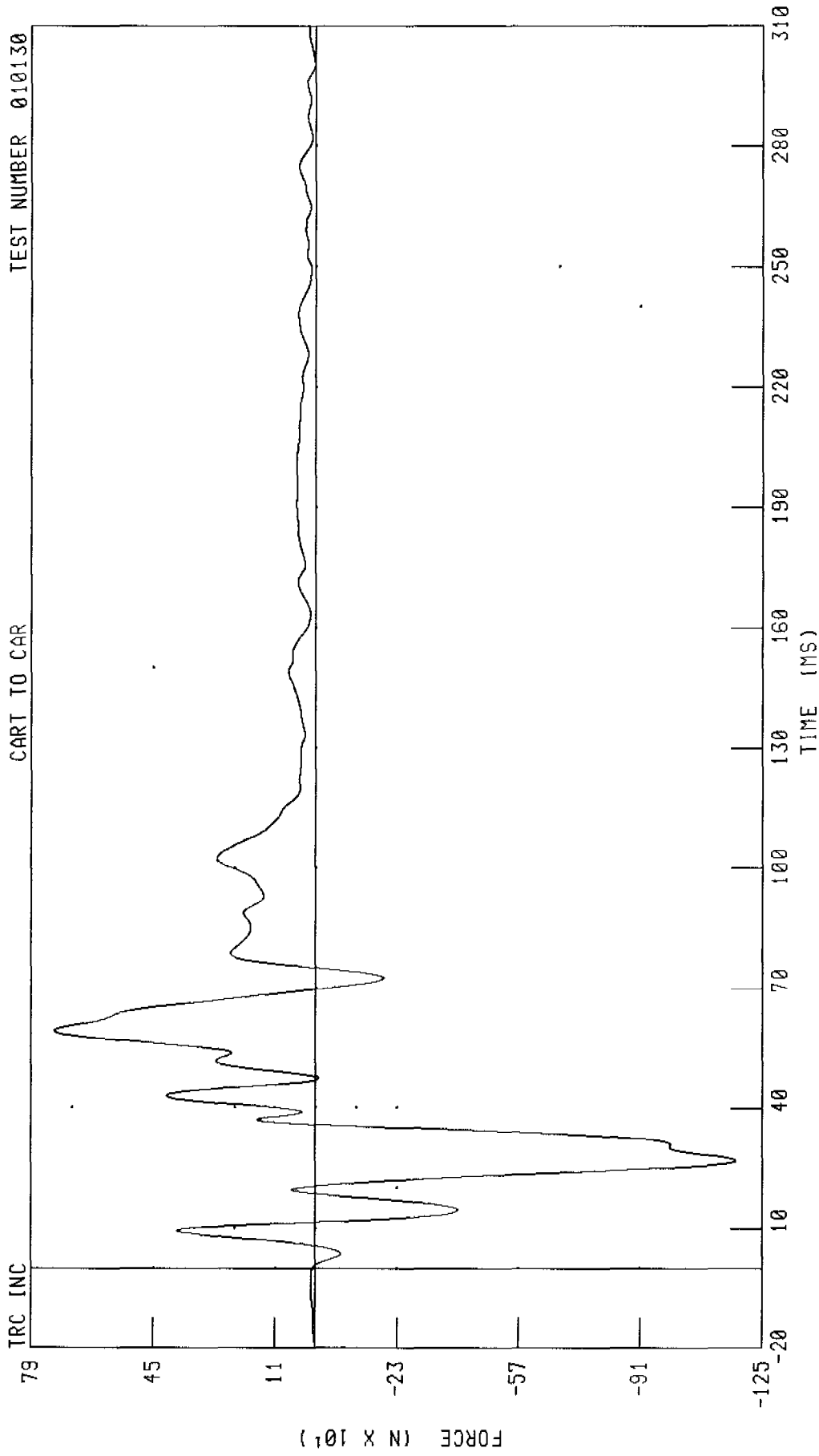
CHANNEL BA3XF FILTER CH CLASS 60 PEAK DATA 6288 99 N @ 22 88 MS, -90 26 N @ 196 64 MS

MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
MOVING BARRIER LOAD CELL A3 Y-AXIS FORCE

TRC INC

TEST NUMBER 010130

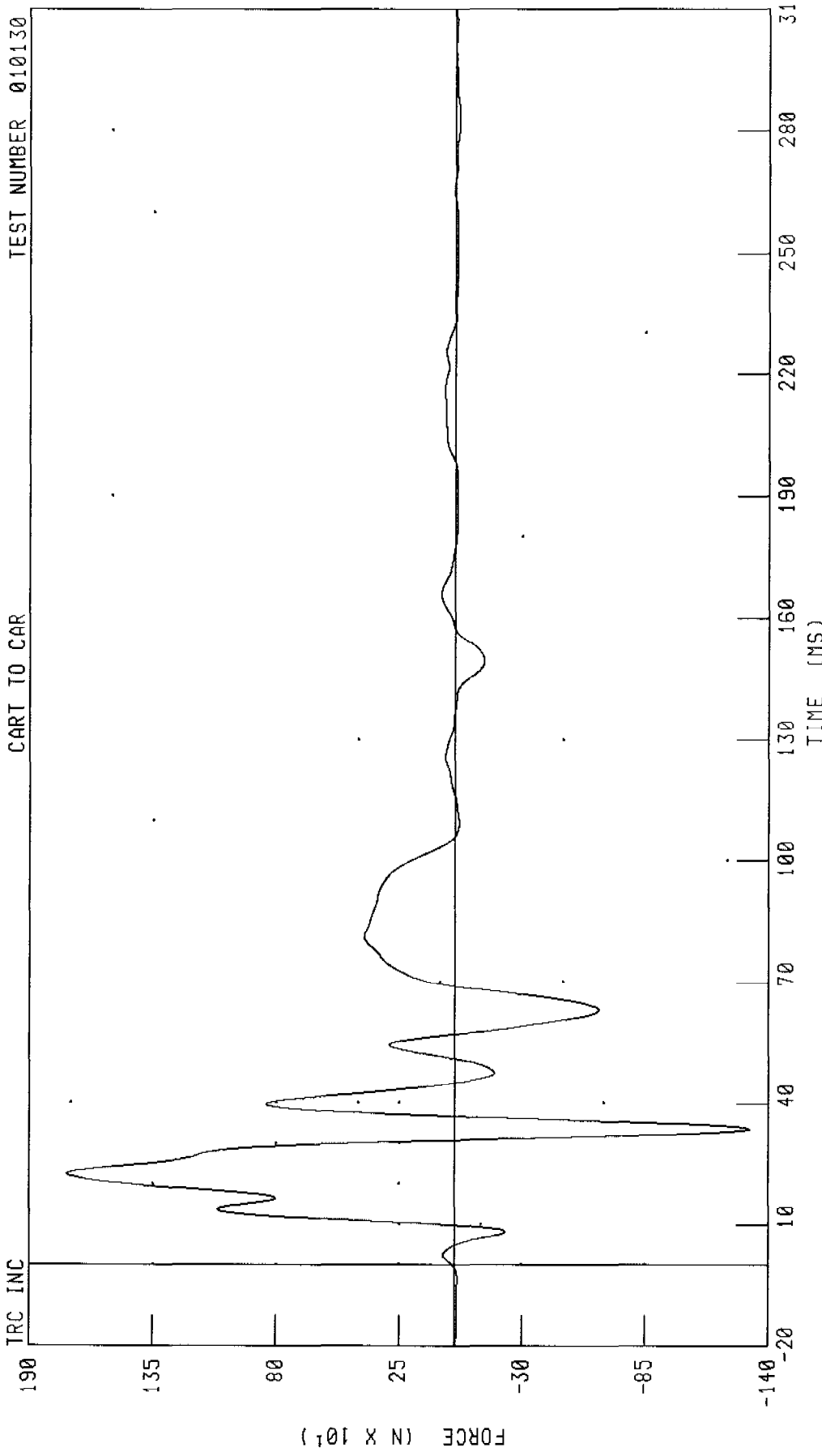
CART TO CAR



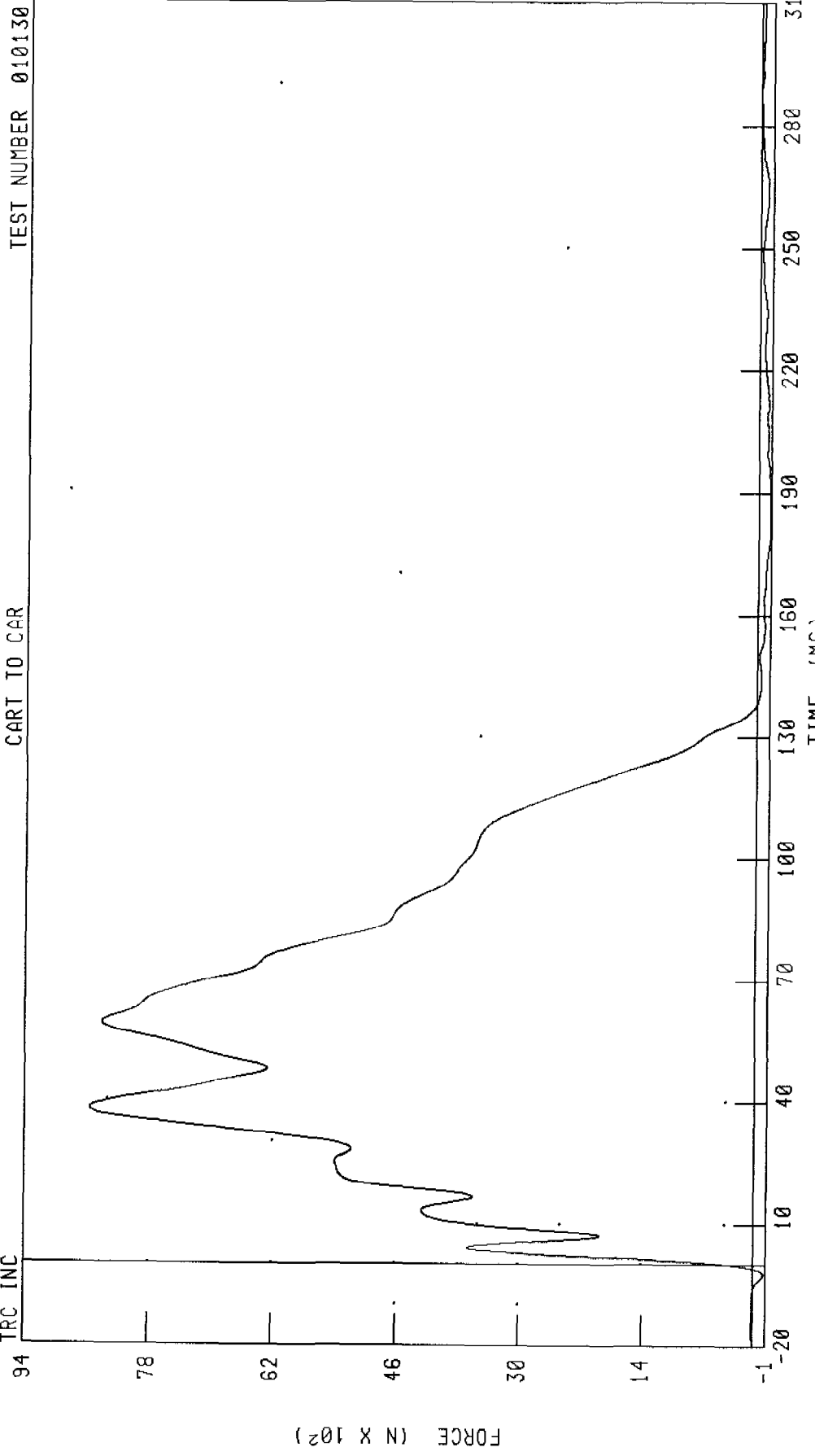
CHANNEL BA3YF FILTER CH CLASS 60

PEAK DATA 726 04 N @ 59 44 MS, -1176 71 N @ 26 72 MS

MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
MOVING BARRIER LOAD CELL A3 Z-AXIS FORCE



MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
MOVING BARRIER LOAD CELL A4 X-AXIS FORCE  
CART TO CAR

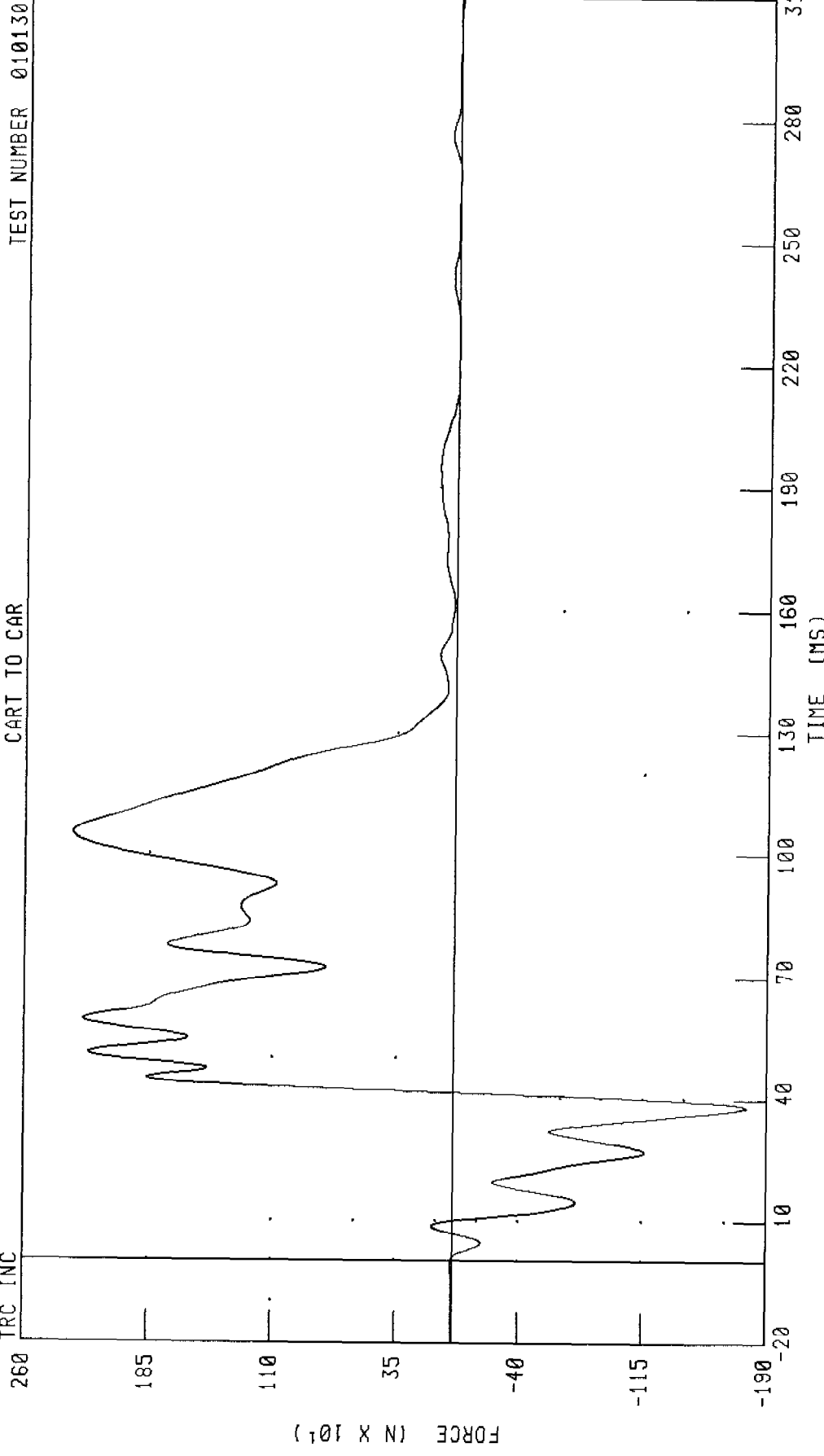


TRC INC

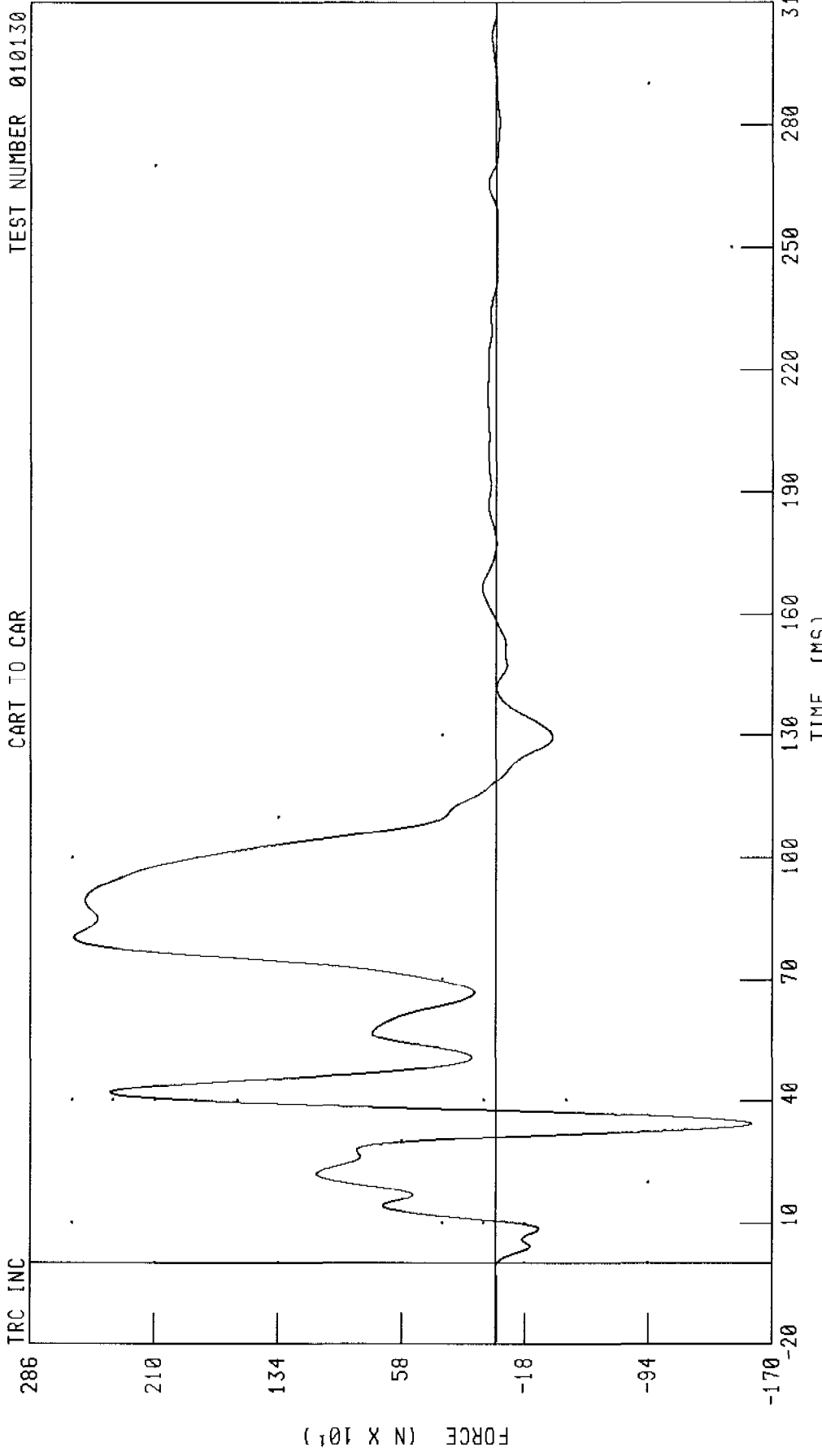
TEST NUMBER 010130

CHANNEL BA4XF FILTER CH CLASS 60  
PEAK DATA 8609 14 N @ 38 00 MS, -153 55 N @ 180 24 MS

MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
MOVING BARRIER LOAD CELL A4 Y-AXIS FORCE



MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
MOVING BARRIER LOAD CELL A4 Z-AXIS FORCE



MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
MOVING BARRIER LOAD CELL B2 X-AXIS FORCE

TEST NUMBER 010130

CART TO CAR

TRC INC

458

381

304

227

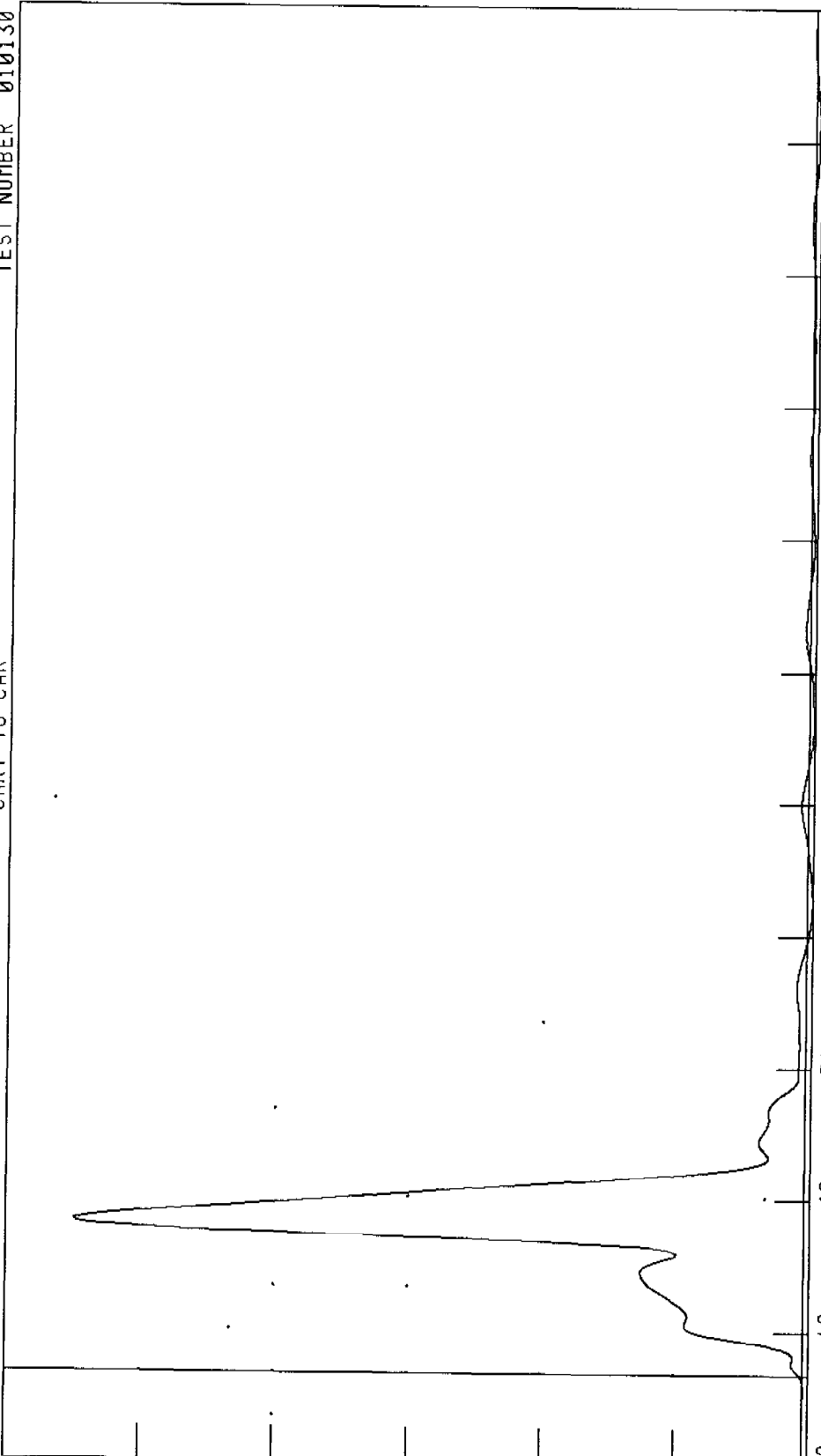
150

73

-3

-20

FORCE (N X 10<sup>2</sup>)

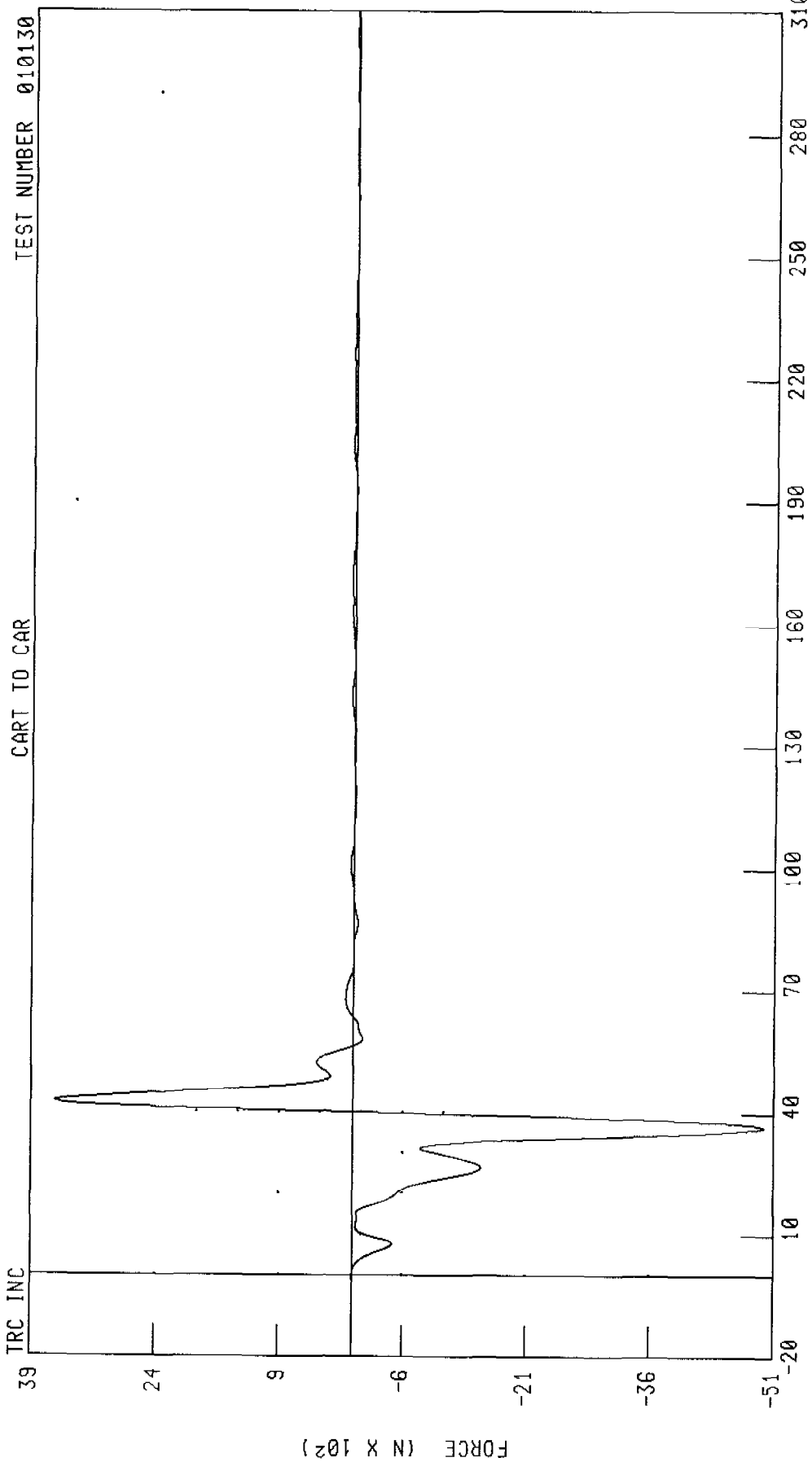


TIME (MS)

CHANNEL BB2XF FILTER CH CLASS 60

PEAK DATA 41977 81 N @ 34 64 MS, -308 04 N @ 107 68 MS

MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
MOVING BARRIER LOAD CELL B2 Y-AXIS FORCE



CHANNEL BB2YF FILTER CH CLASS 60

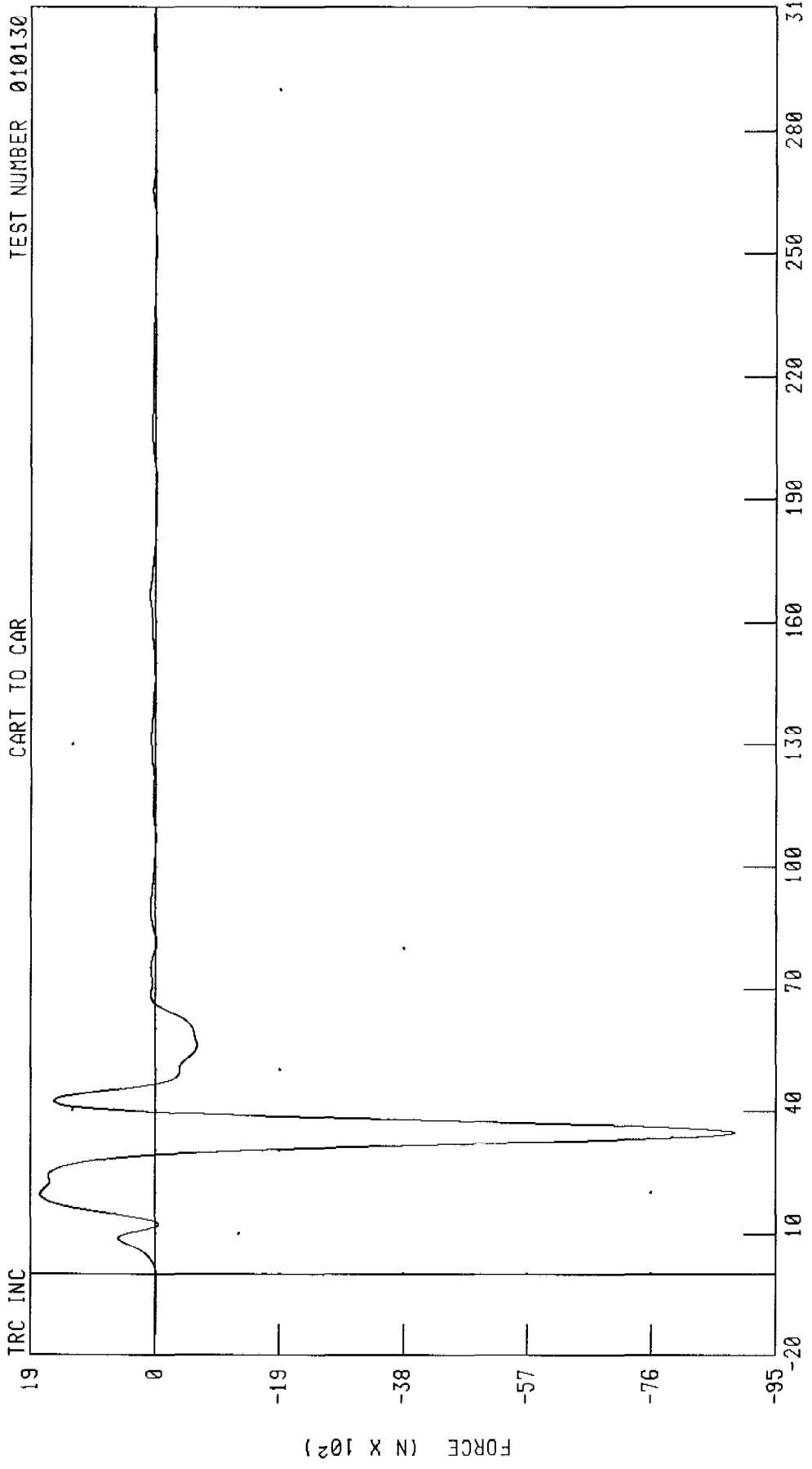
PEAK DATA 3619 72 N 0 42 72 MS, -4980 88 N 0 36 72 MS

MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
MOVING BARRIER LOAD CELL B2 Z-AXIS FORCE

TRC INC

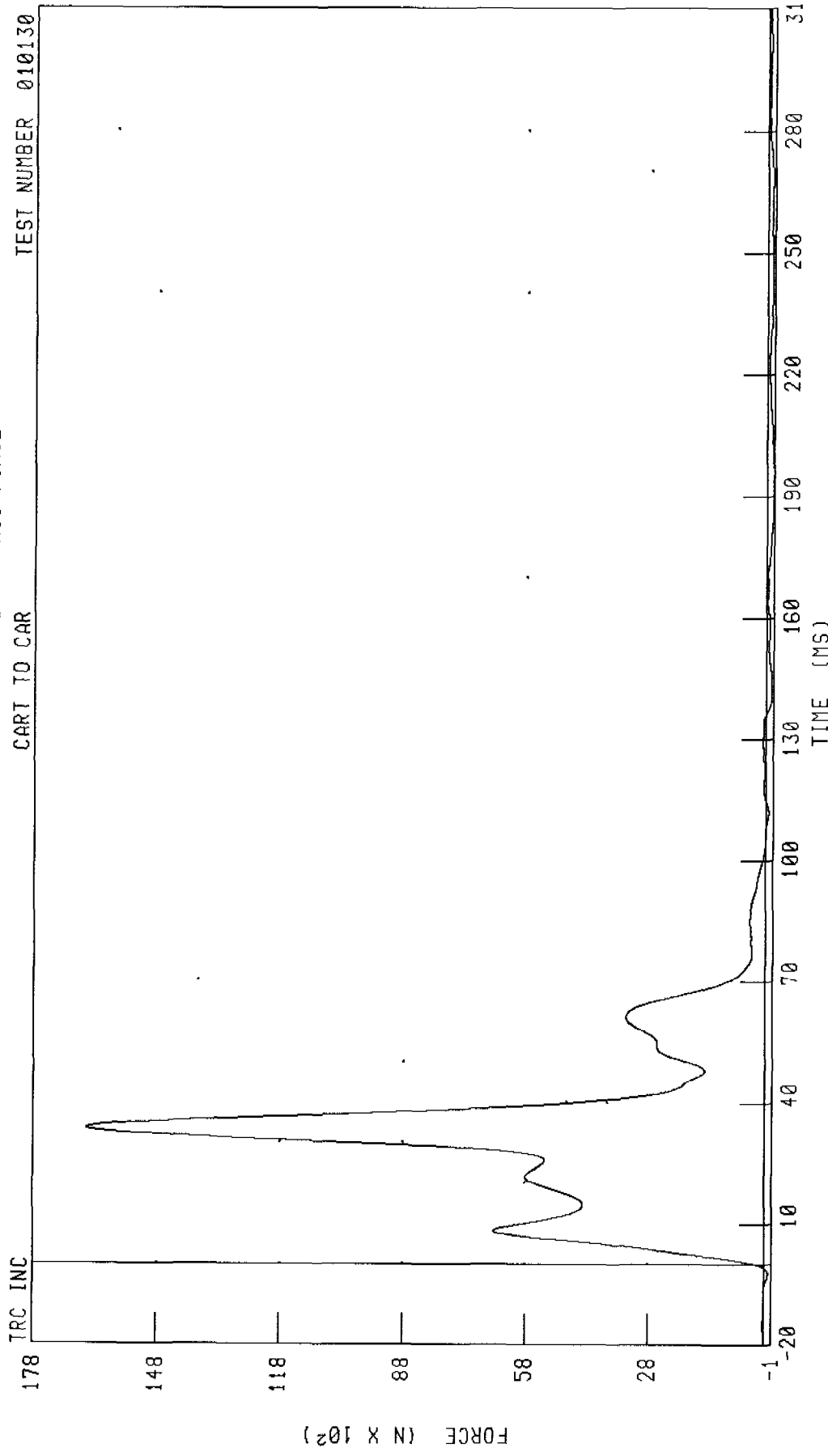
TEST NUMBER 010130

CART TO CAR



CHANNEL BB2ZF FILTER CH CLASS 60 PEAK DATA 1755 41 N @ 19 52 MS, -8867 78 N @ 34 64 MS

MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
MOVING BARRIER LOAD CELL B3 X-AXIS FORCE  
CART TO CAR



TRC INC

TEST NUMBER 010130

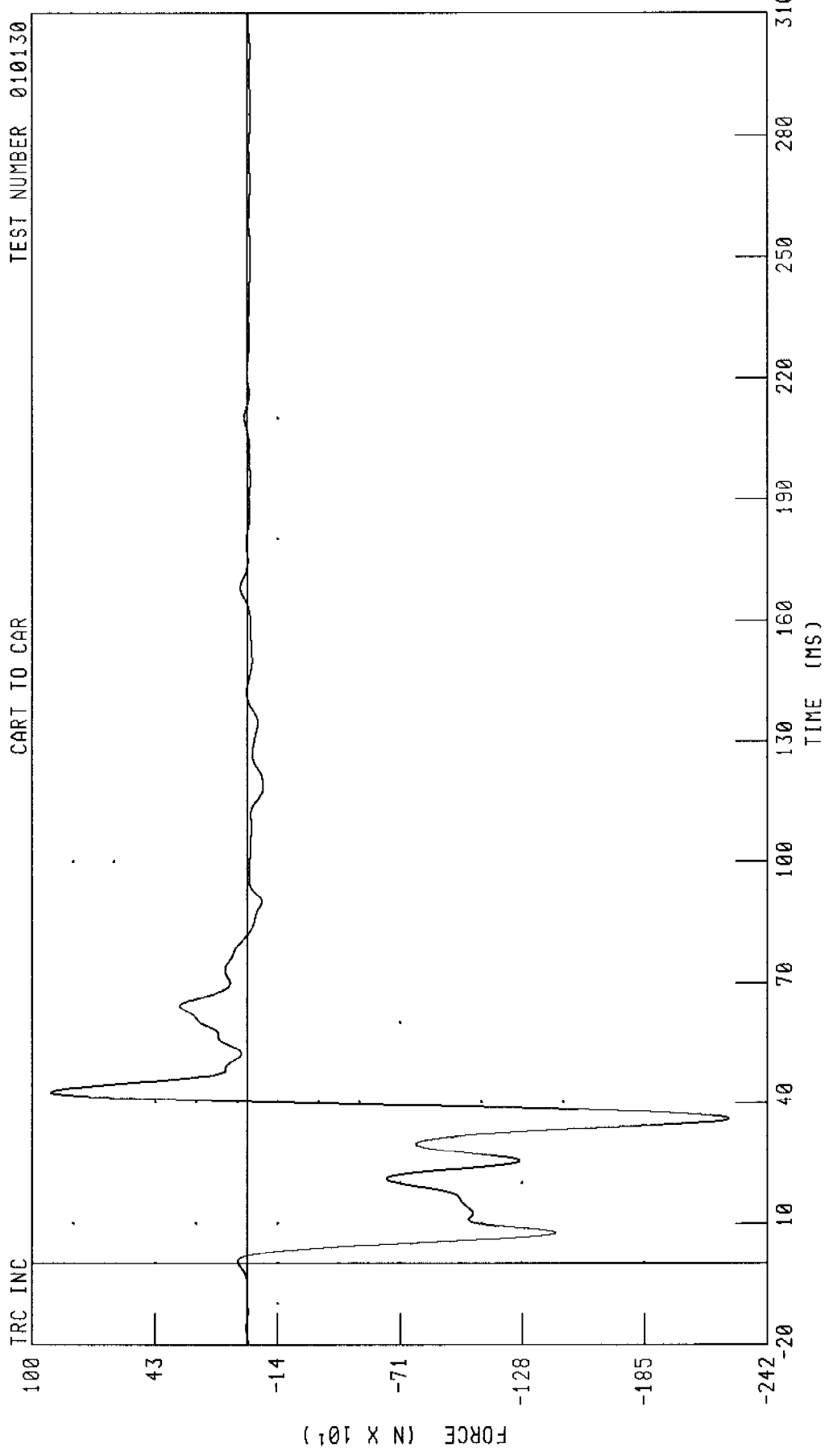
CHANNEL BB3XF

FILTER CH CLASS 60

PEAK DATA 16544 90 N @ 33 76 MS, -160 91 N @ 196 08 MS

MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
MOVING BARRIER LOAD CELL B3 Y-AXIS FORCE

TRC INC  
CART TO CAR  
TEST NUMBER 010130

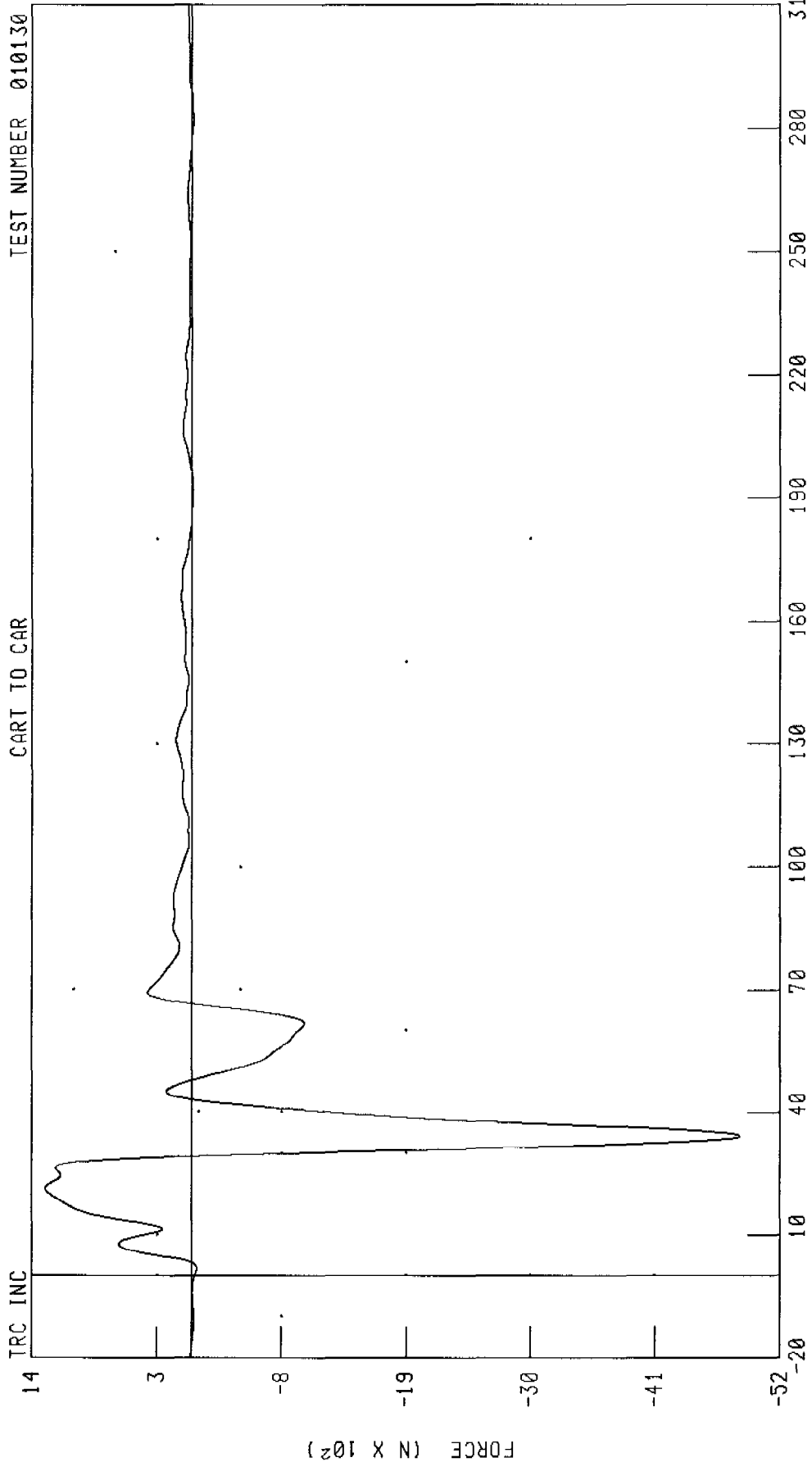


CHANNEL BB3YF FILTER CH CLASS 60 PEAK DATA 912 92 N @ 42 64 MS, -2241 99 N @ 35 92 MS

MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
MOVING BARRIER LOAD CELL B3 Z-AXIS FORCE

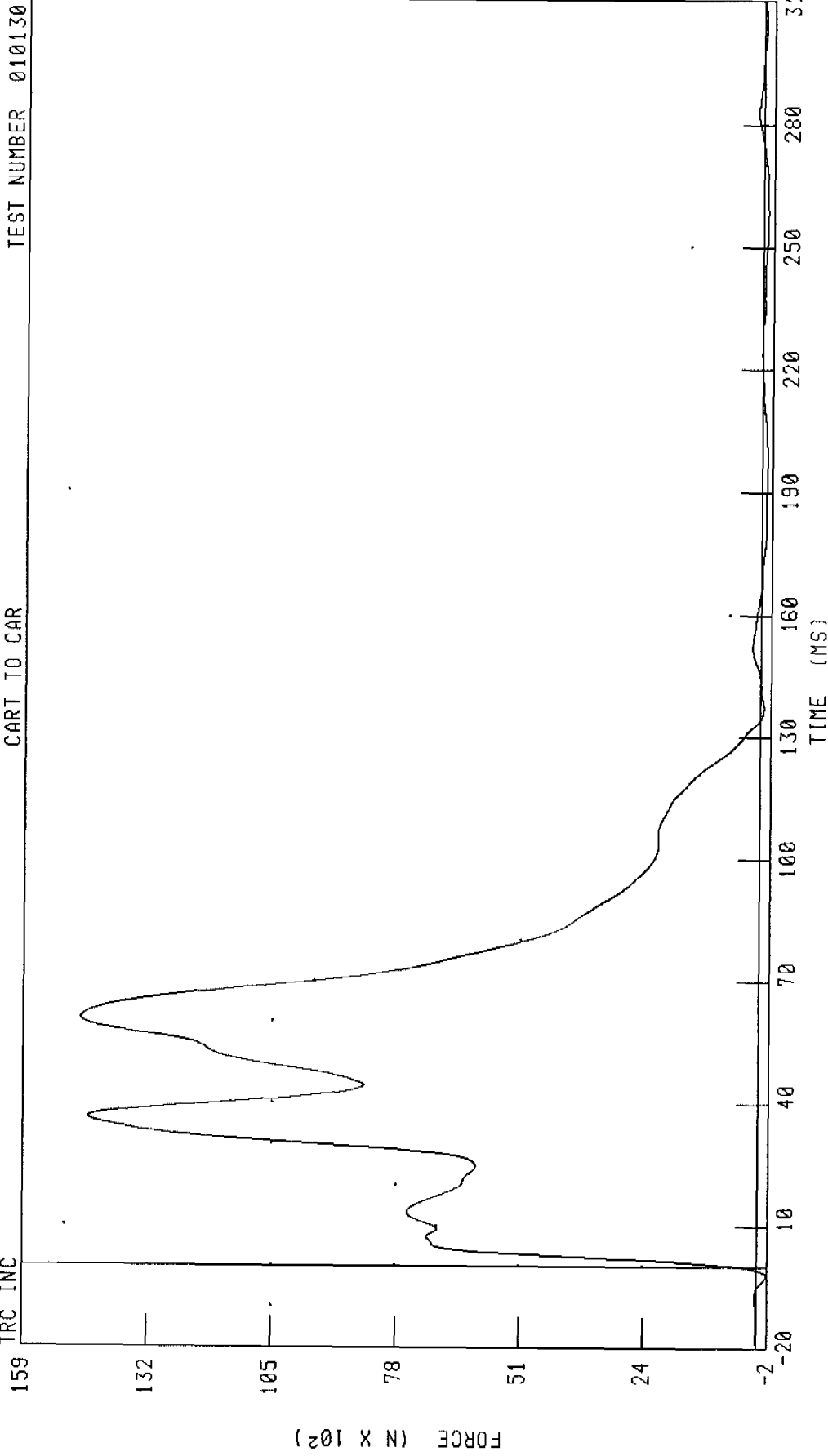
TEST NUMBER 010130

CART TO CAR



CHANNEL BB3ZF FILTER CH CLASS 60 PEAK DATA 1280 08 N @ 21 44 MS, -4848 95 N @ 34 24 MS

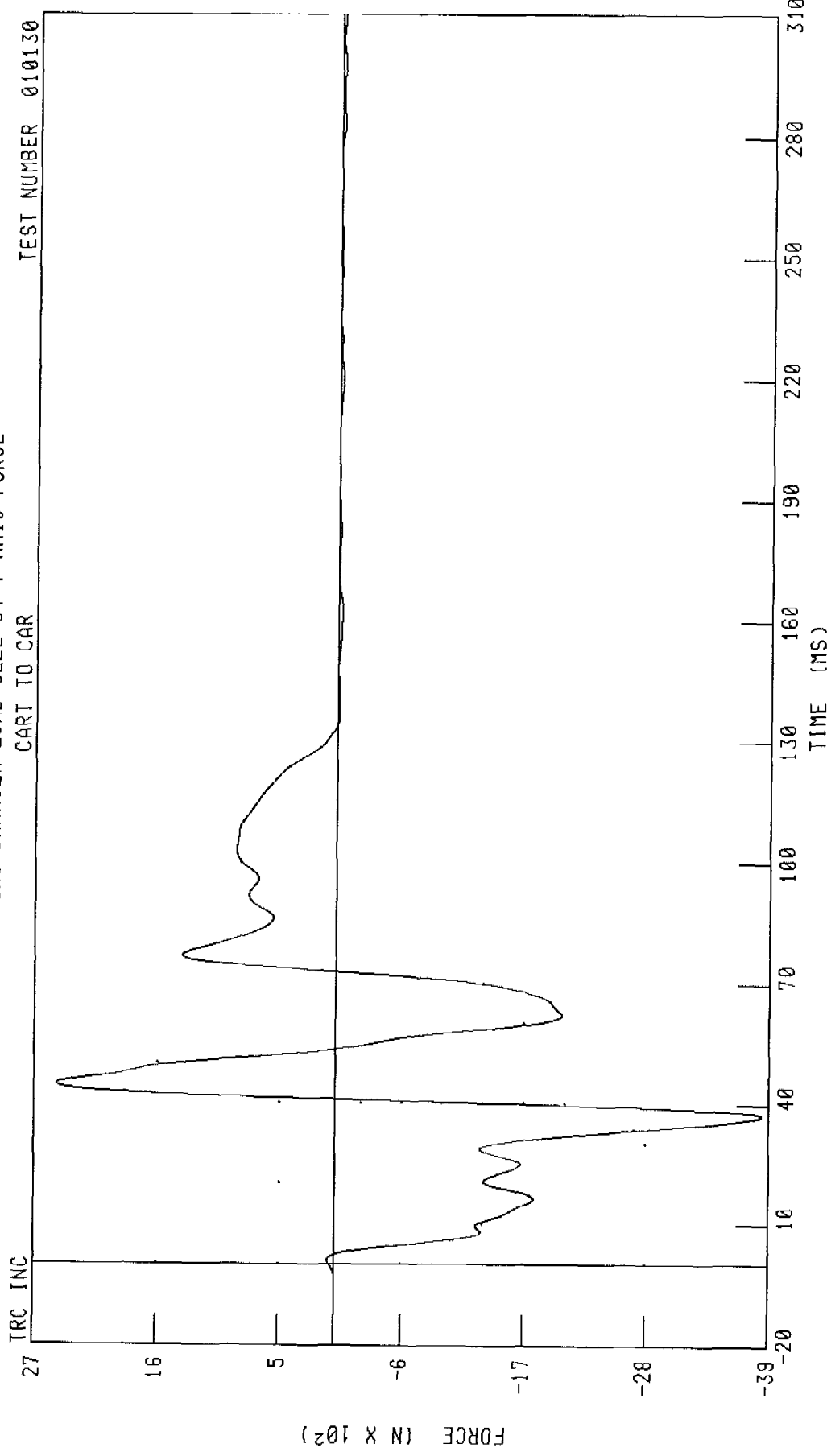
MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
MOVING BARRIER LOAD CELL B4 X-AXIS FORCE



CHANNEL BB4XF FILTER CH CLASS 60

PEAK DATA 14732 63 N @ 60 72 MS, -216 34 N @ -2 08 MS

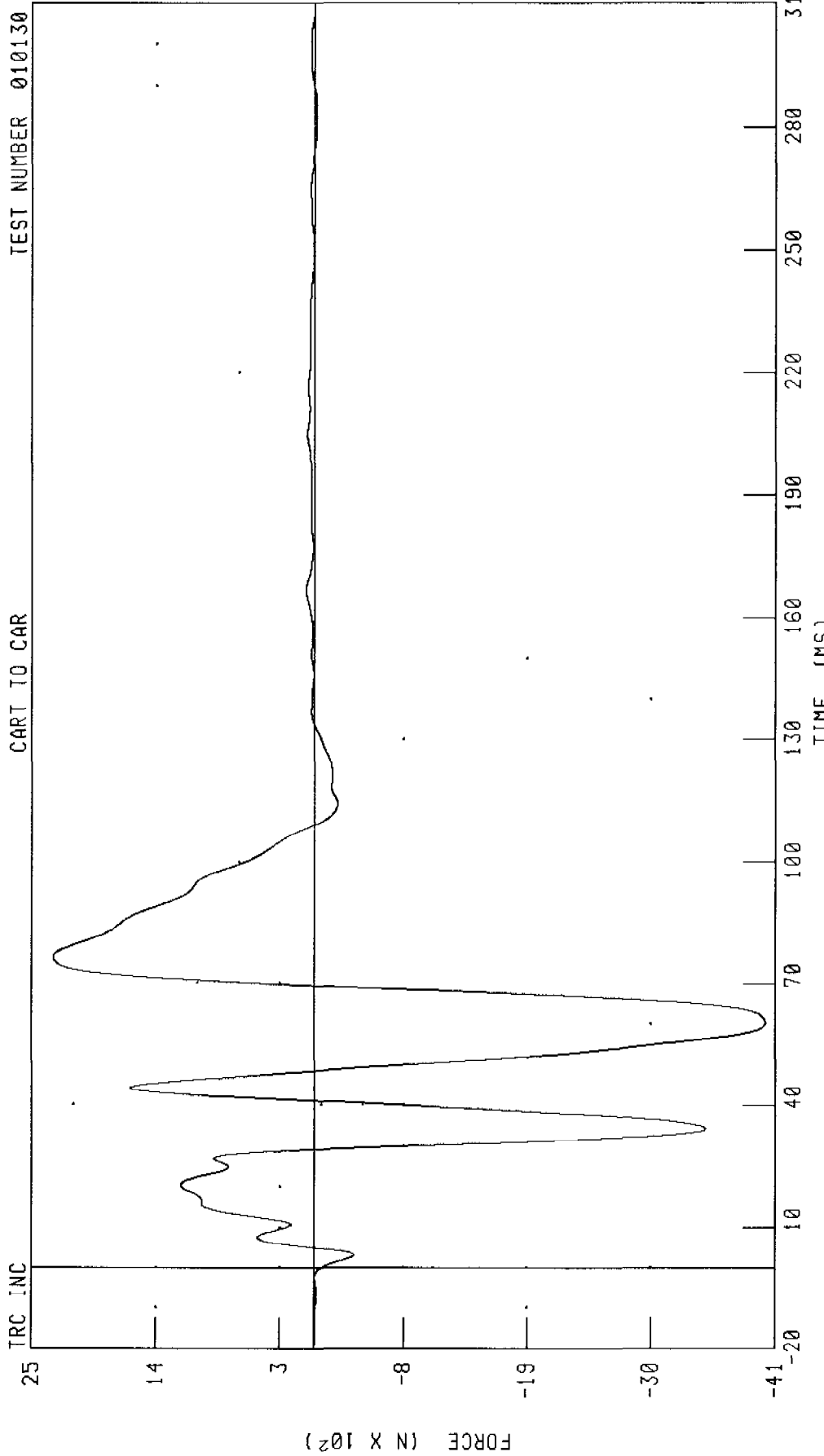
MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
MOVING BARRIER LOAD CELL B4 Y-AXIS FORCE



CHANNEL BB4YF FILTER CH CLASS 60

PEAK DATA 2499 58 N @ 44 56 MS, -3837 64 N @ 37 12 MS

MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
MOVING BARRIER LOAD CELL B4 Z-AXIS FORCE



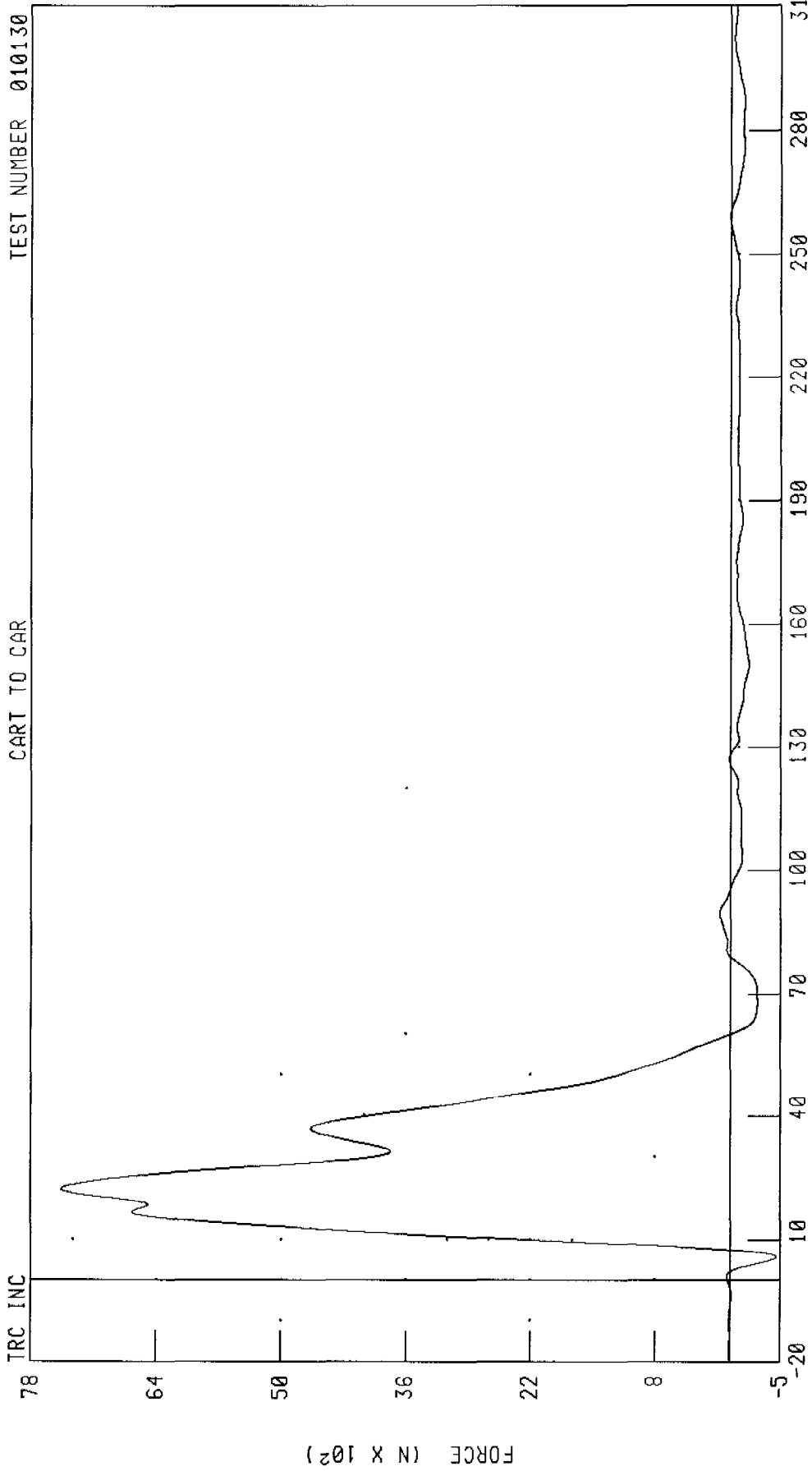
CHANNEL BB4ZF FILTER CH CLASS 60 PEAK DATA 2311 09 N @ 76 48 MS, -4013 74 N @ 60 24 MS

MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
MOVING BARRIER LOAD CELL C1 X-AXIS FORCE

TRC INC

TEST NUMBER 010130

CART TO CAR

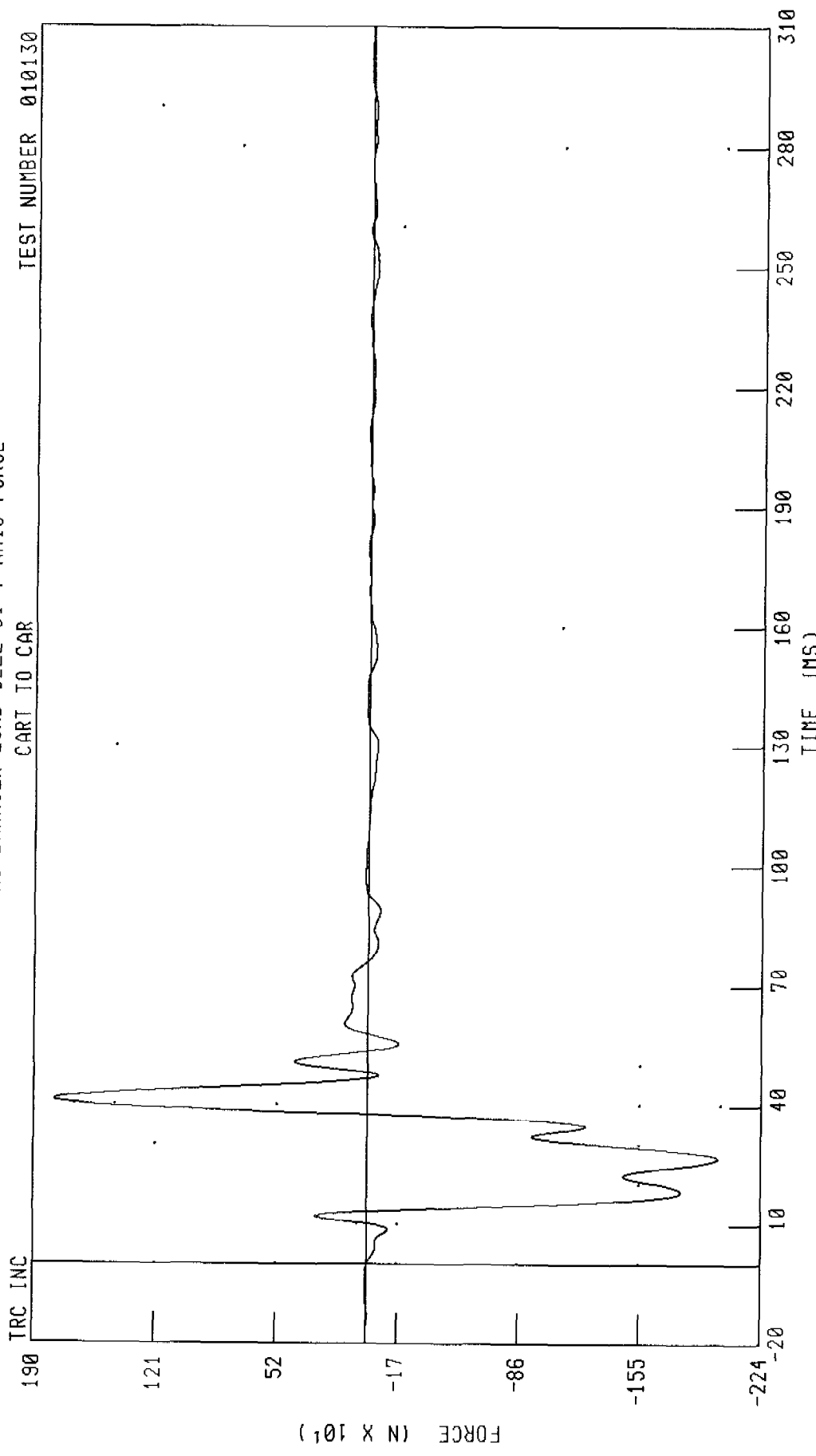


TIME (MS)

PEAK DATA 7496 85 N @ 22 40 MS, -516 50 N @ 5 68 MS

CHANNEL BC1XF FILTER CH CLASS 60

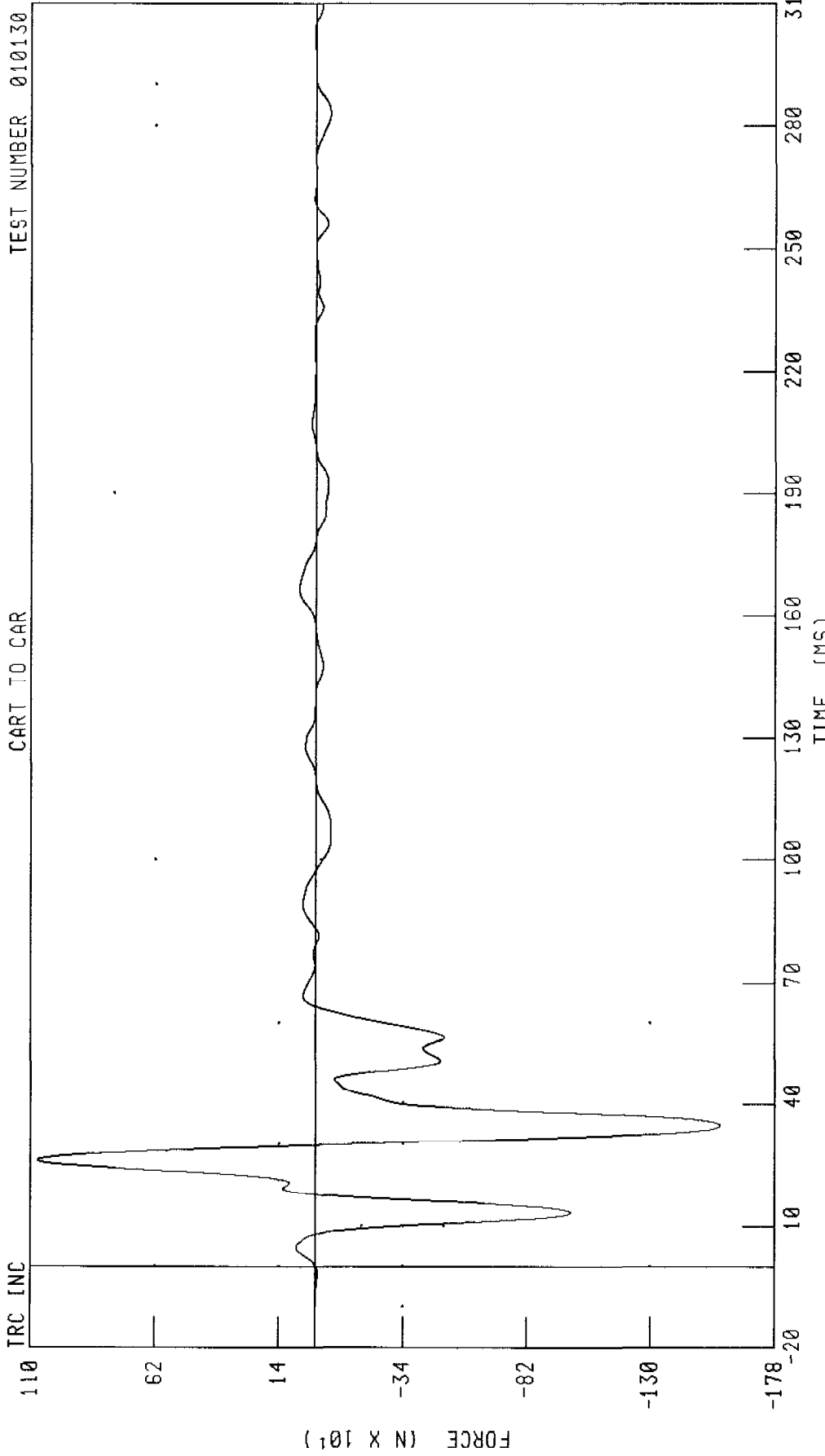
MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
MOVING BARRIER LOAD CELL C1 Y-AXIS FORCE



CHANNEL BC1YF FILTER CH CLASS 60

PEAK DATA 1785 42 N @ 41 28 MS, -1998 36 N @ 26 80 MS

MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
MOVING BARRIER LOAD CELL C1 Z-AXIS FORCE



TRC INC

CART TO CAR

TEST NUMBER 010130

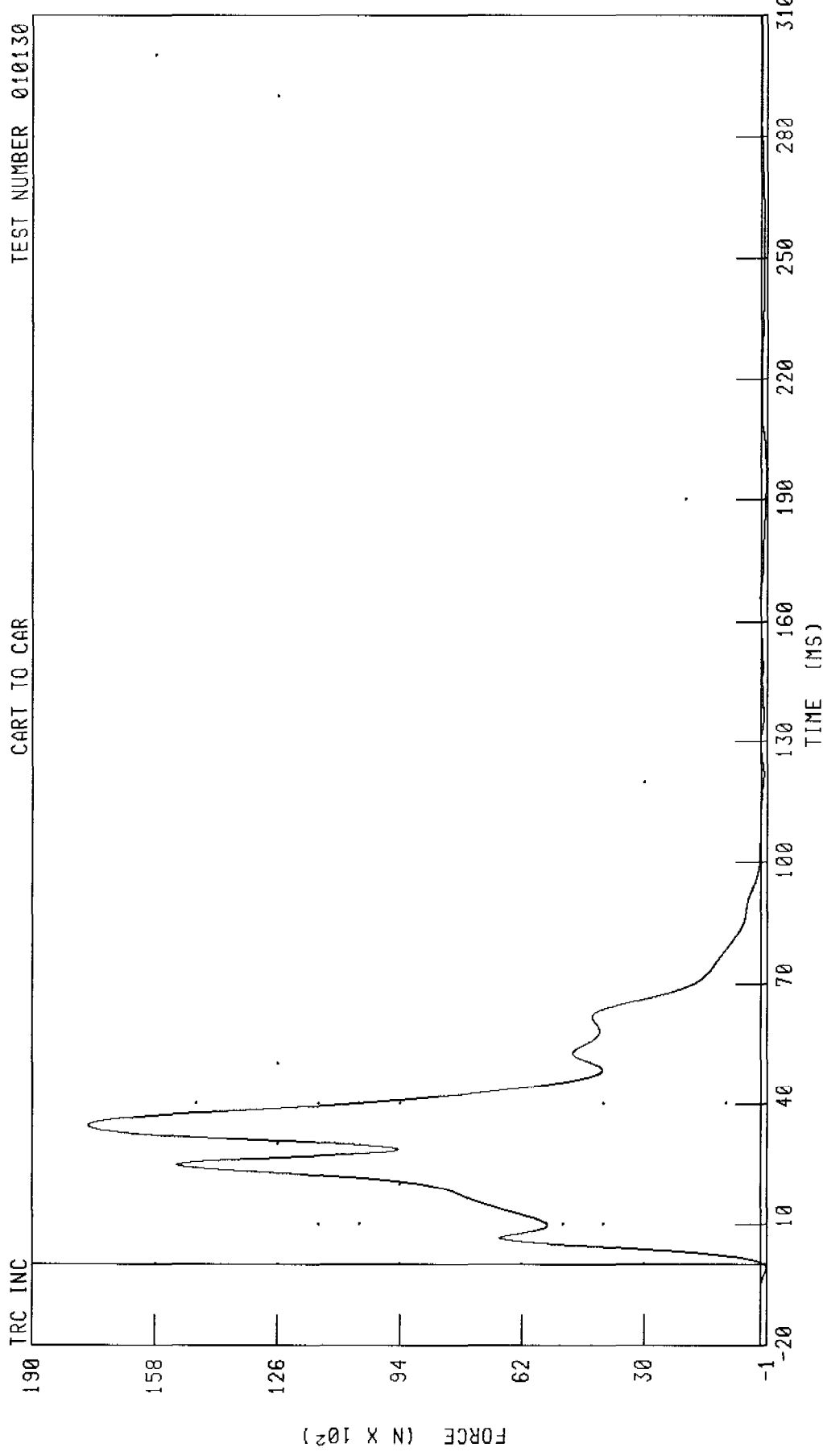
TIME (MS)

CHANNEL BC1ZF FILTER CH CLASS 60 PEAK DATA 1073 06 N @ 26 08 MS, -1569 99 N @ 34 72 MS

MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
MOVING BARRIER LOAD CELL C3 X-AXIS FORCE

TEST NUMBER 010130

CART TO CAR



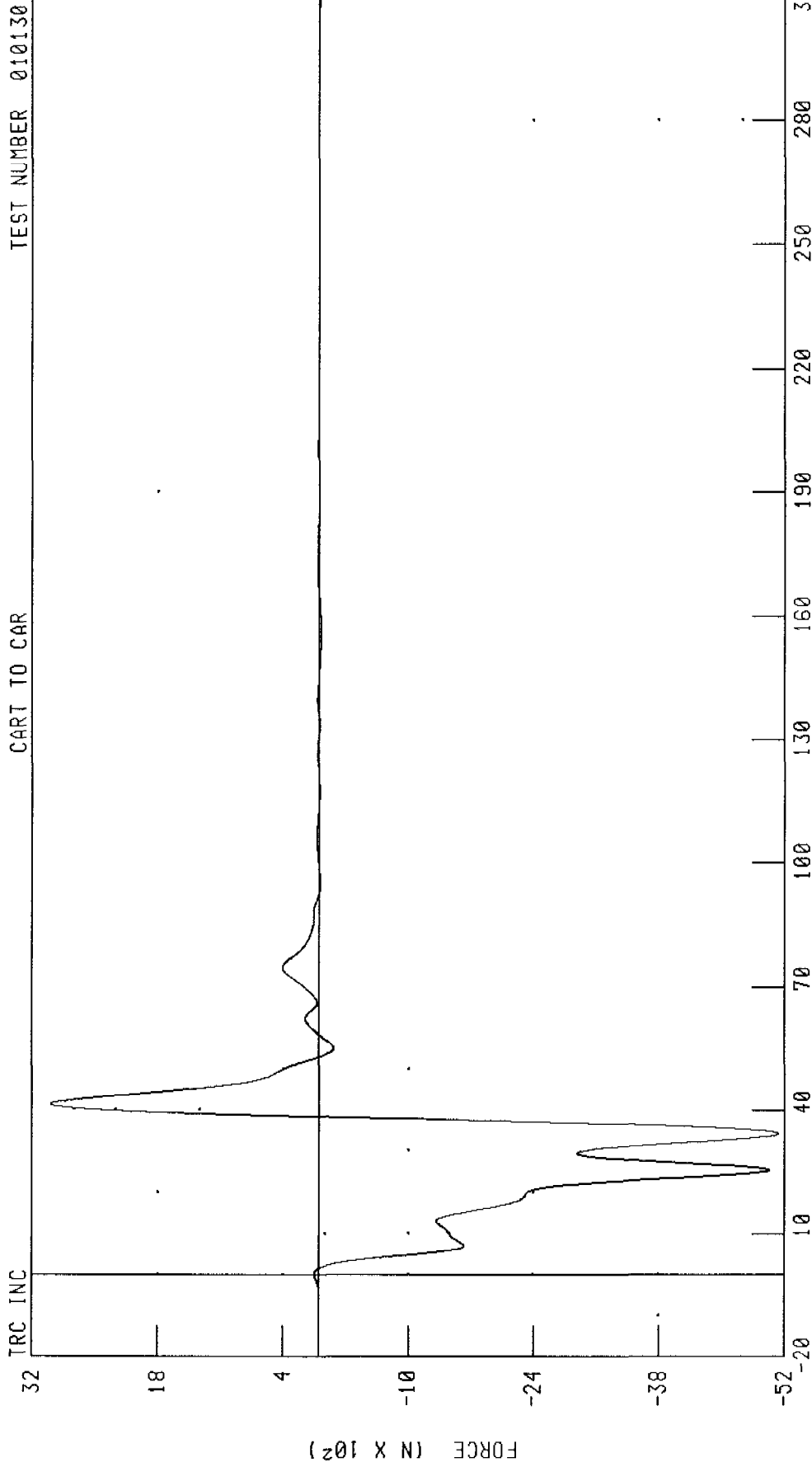
CHANNEL BC3XF FILTER CH CLASS 60 PEAK DATA 17601 84 N @ 34 80 MS, -141 38 N @ -0 96 MS

MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
MOVING BARRIER LOAD CELL C3 Y-AXIS FORCE

TEST NUMBER 010130

CART TO CAR

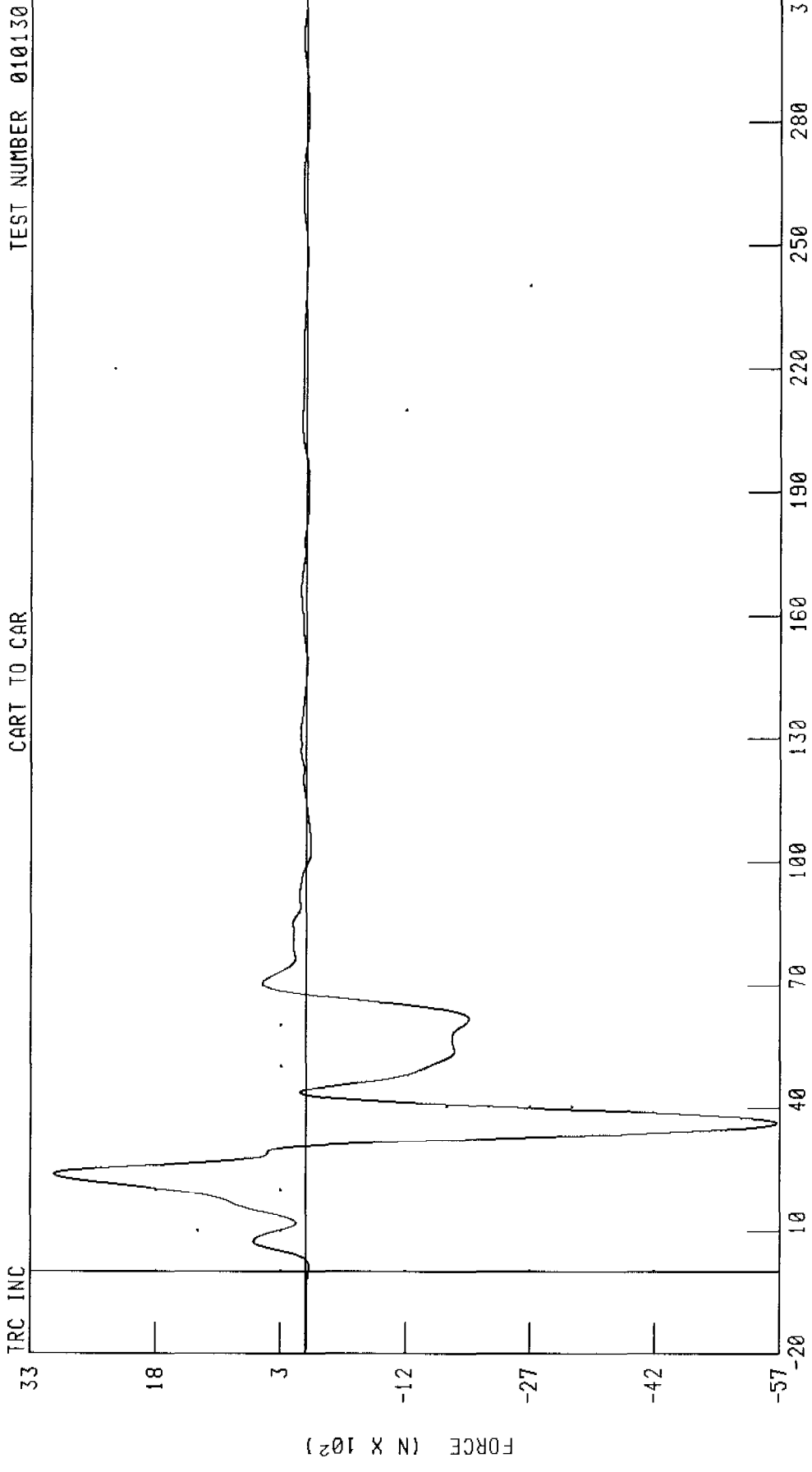
TRC INC



CHANNEL BC3YF FILTER CH CLASS 60

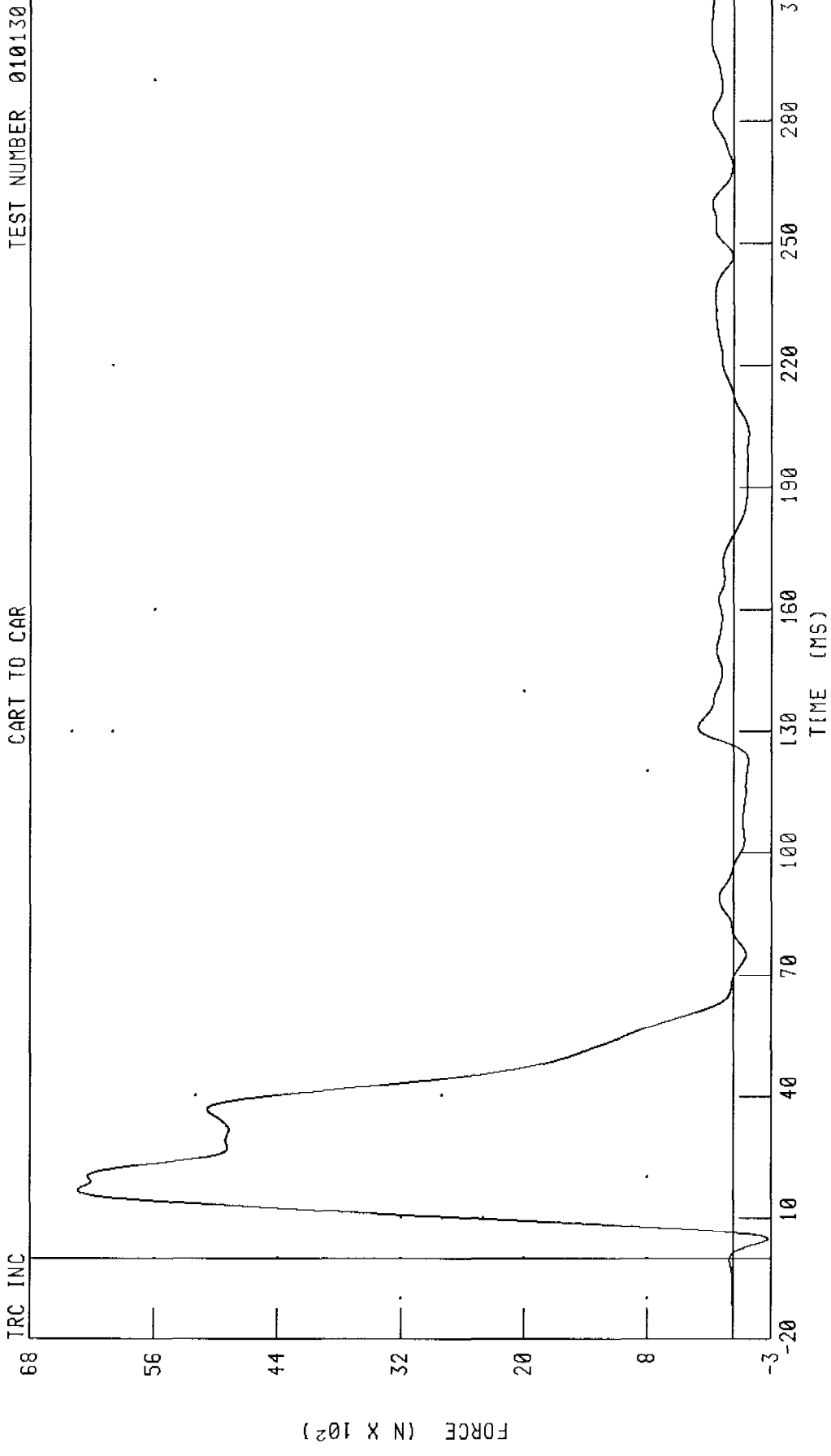
PEAK DATA 2994 70 N @ 41 44 MS, -5132 21 N @ 34 24 MS

MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
MOVING BARRIER LOAD CELL C3 Z-AXIS FORCE



CHANNEL BC3ZF FILTER CH CLASS 60 PEAK DATA 3019 66 N @ 23 92 MS, -5667 16 N @ 36 48 MS

MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
MOVING BARRIER LOAD CELL D1 X-AXIS FORCE



CHANNEL BD1XF FILTER CH CLASS 60 PEAK DATA 6378 05 N @ 16 64 MS, -328 13 N @ 4 80 MS

MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
MOVING BARRIER LOAD CELL D1 Y-AXIS FORCE

TEST NUMBER 010130

CART TO CAR

TRC INC

232

160

88

16

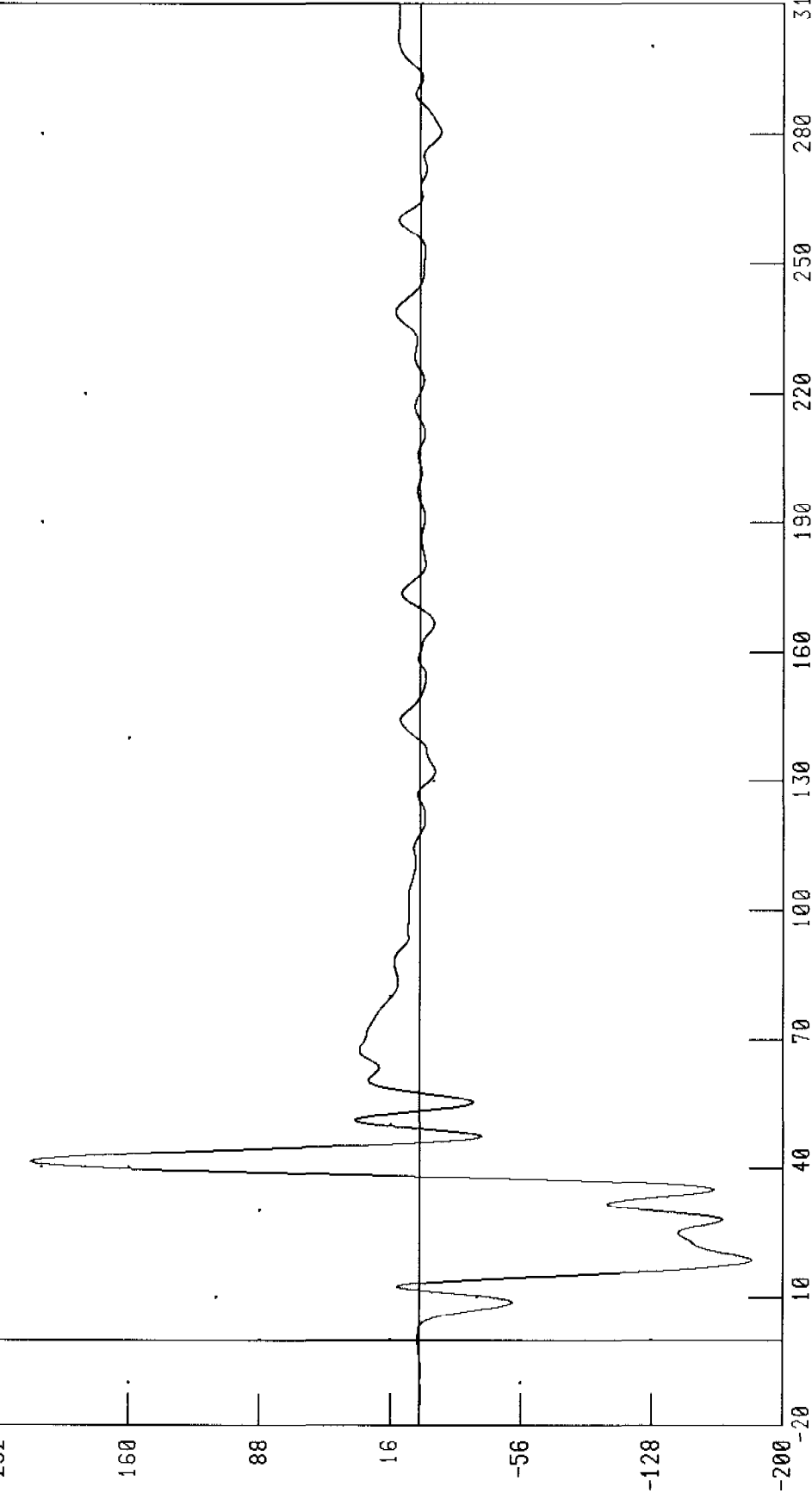
-56

-128

-200

-20

FORCE (N X 10<sup>4</sup>)



TIME (MS)

310

280

250

220

190

160

130

100

70

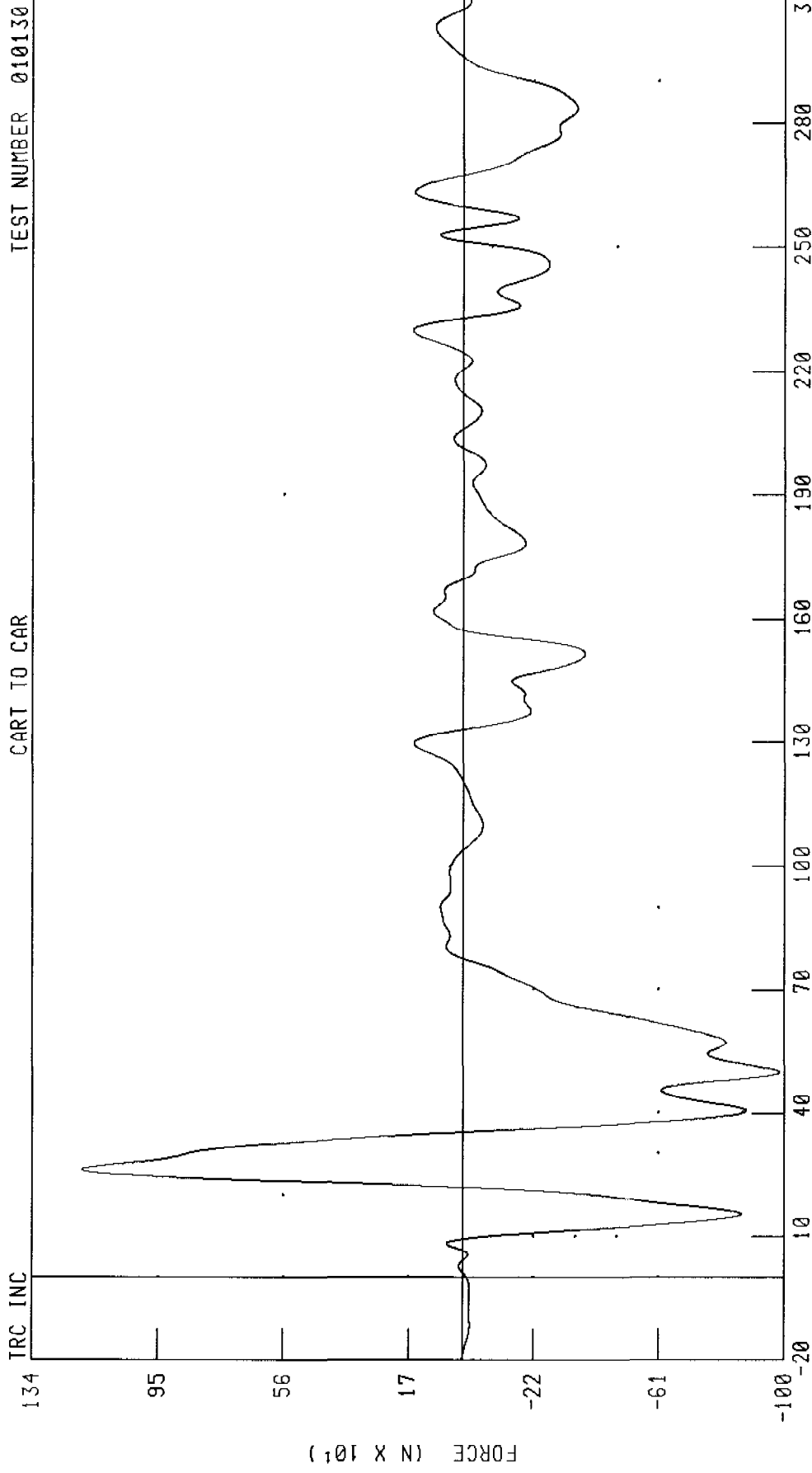
40

10

-20

CHANNEL BD1YF FILTER CH CLASS 60 PEAK DATA 2136 22 N @ 41 52 MS, -1831 13 N @ 18 72 MS

MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
MOVING BARRIER LOAD CELL D1 Z-AXIS FORCE



CHANNEL B01ZF FILTER CH CLASS 60 PEAK DATA 1186 54 N @ 26 08 MS, -985 45 N @ 50 00 MS

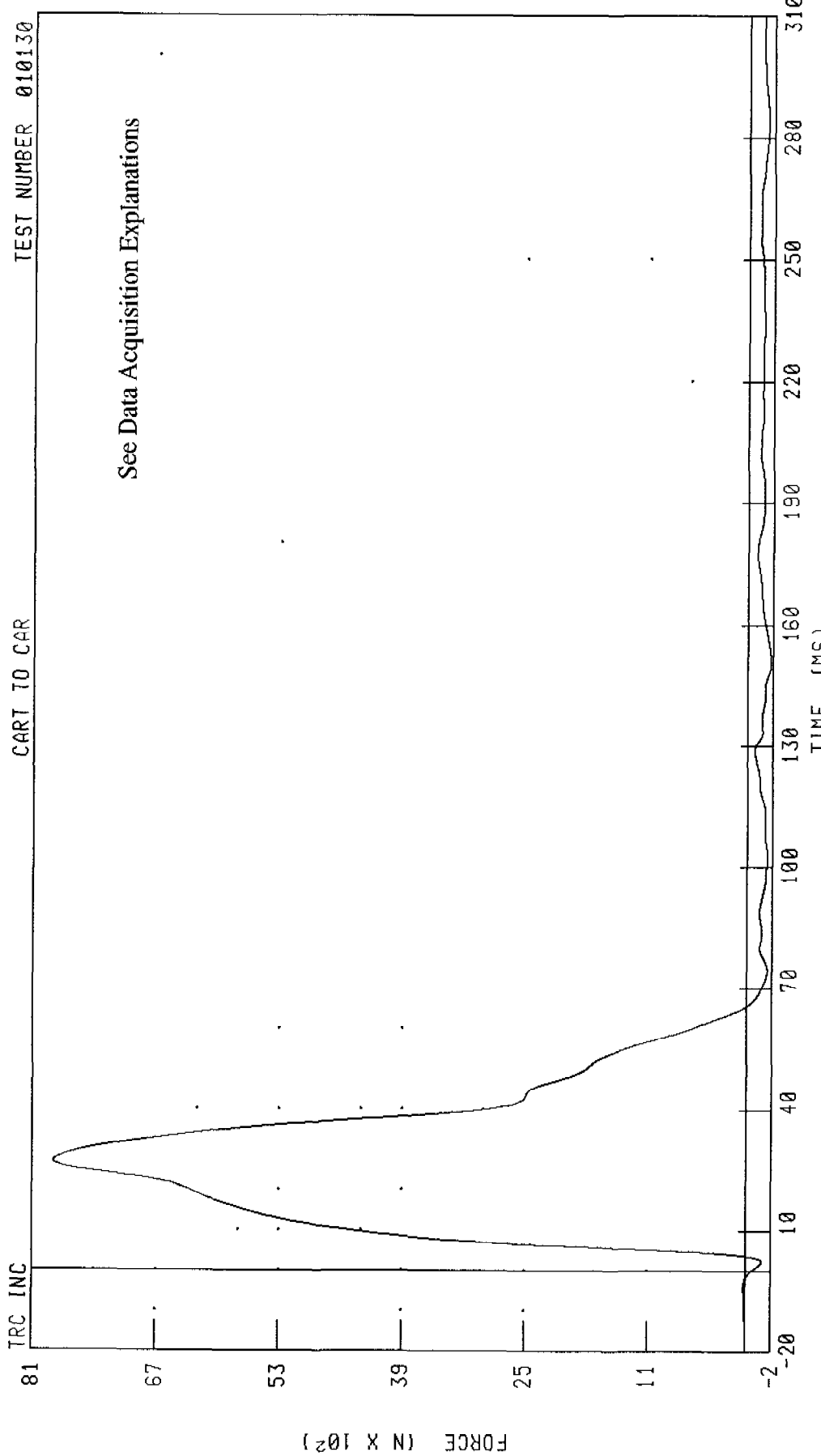
MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
MOVING BARRIER LOAD CELL D2 X-AXIS FORCE

TRC INC

CART TO CAR

TEST NUMBER 010130

See Data Acquisition Explanations



CHANNEL 8D2XF FILTER CH CLASS 60

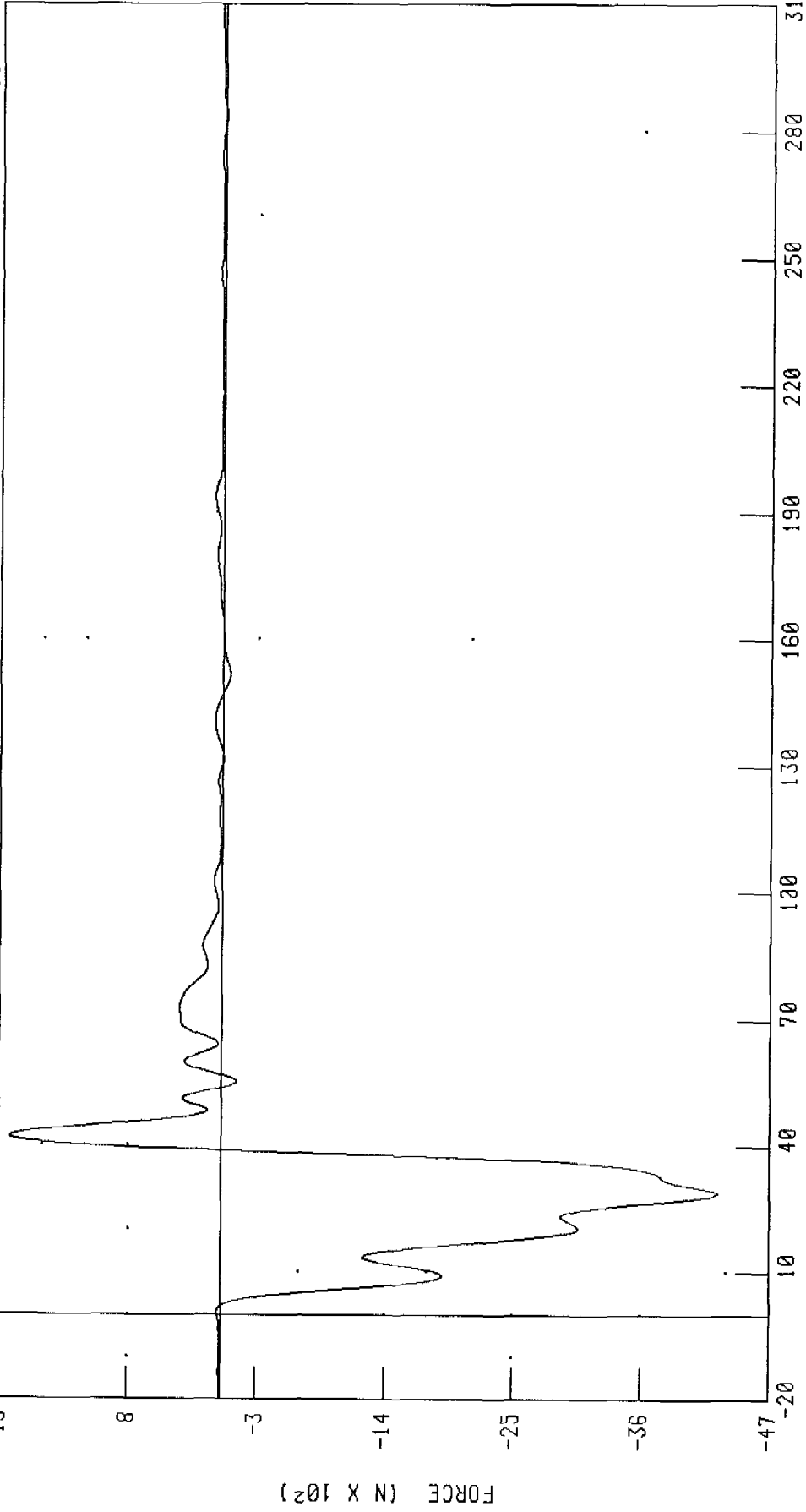
PEAK DATA 7885 65 N @ 26 96 MS, -262 83 N @ 150 64 MS

MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
MOVING BARRIER LOAD CELL D2 Y-AXIS FORCE

TEST NUMBER 010130

CART TO CAR

TRC\_INC



CHANNEL B02YF FILTER CH CLASS 60

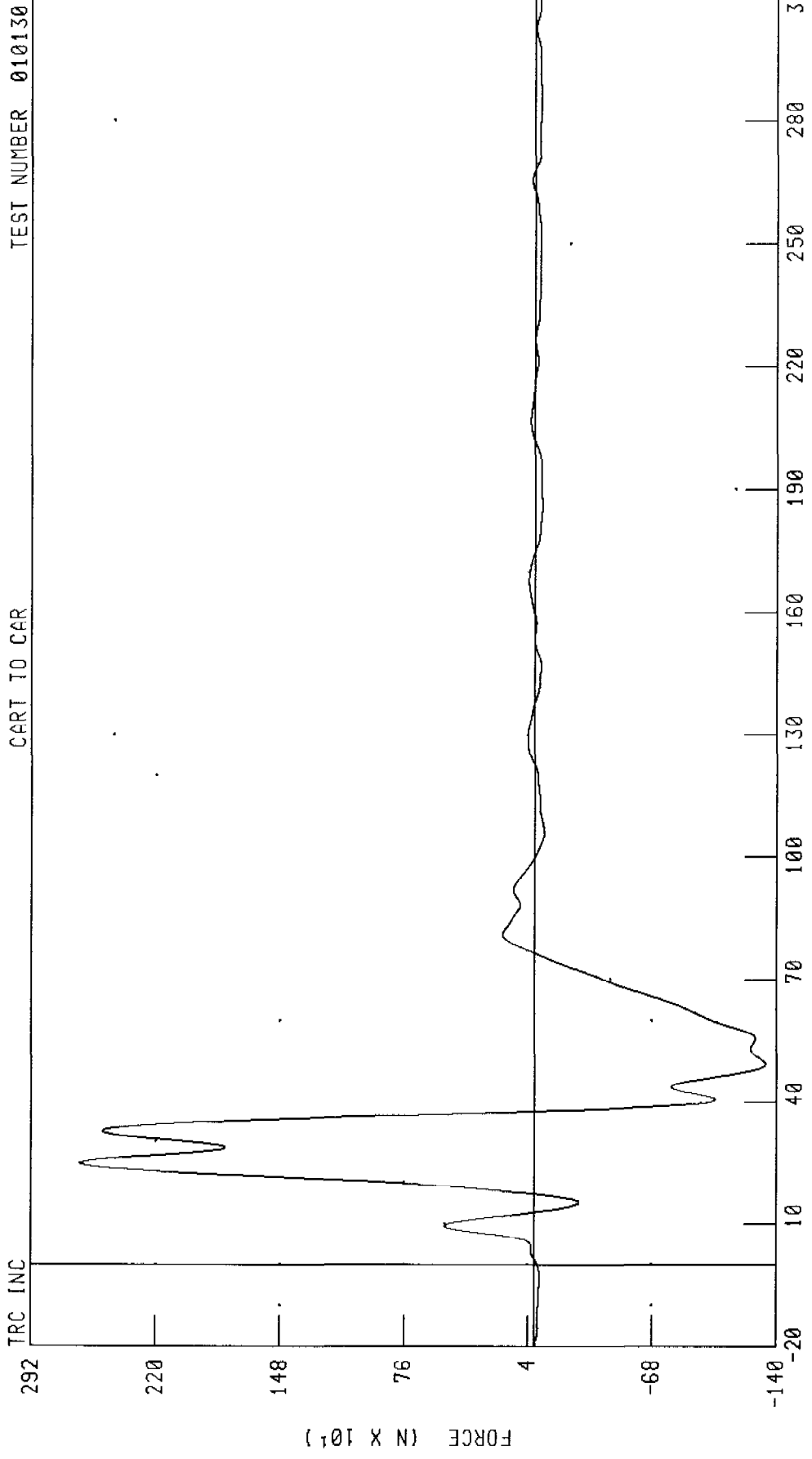
PEAK DATA 1812 12 N 0 42 08 MS, -4262 20 N 0 28 88 MS

MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
MOVING BARRIER LOAD CELL D2 Z-AXIS FORCE

TEST NUMBER 010130

CART TO CAR

TRC INC



TIME (MS) PEAK DATA 2639 93 N @ 24 72 MS, -1337 32 N @ 49 36 MS

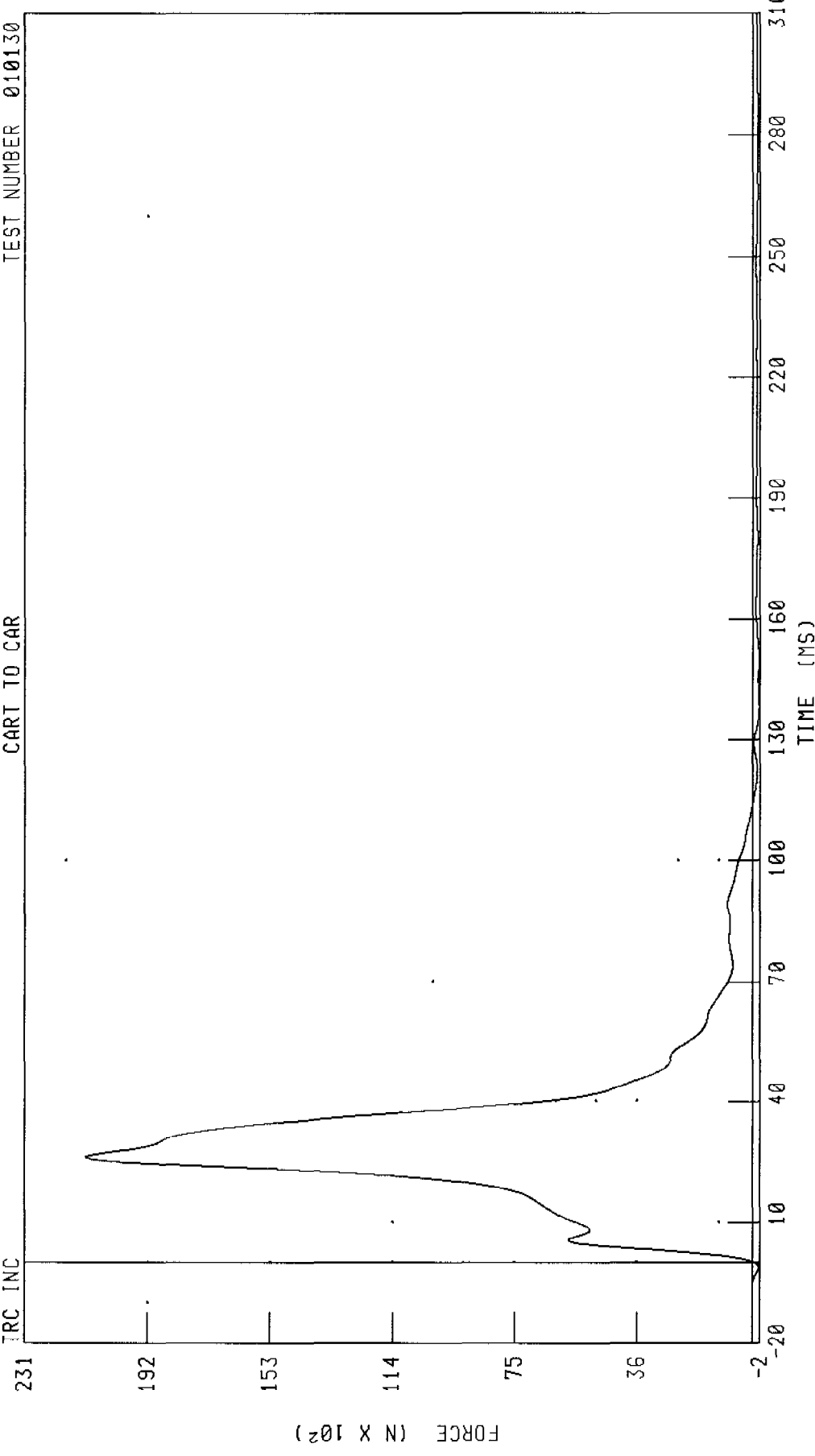
CHANNEL BD2ZF FILTER CH CLASS 60

MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
MOVING BARRIER LOAD CELL D3 X-AXIS FORCE

TEST NUMBER 010130

CART TO CAR

TRC INC



TIME (MS)

PEAK DATA 21227 57 N @ 26 24 MS, -206 75 N @ 138 00 MS

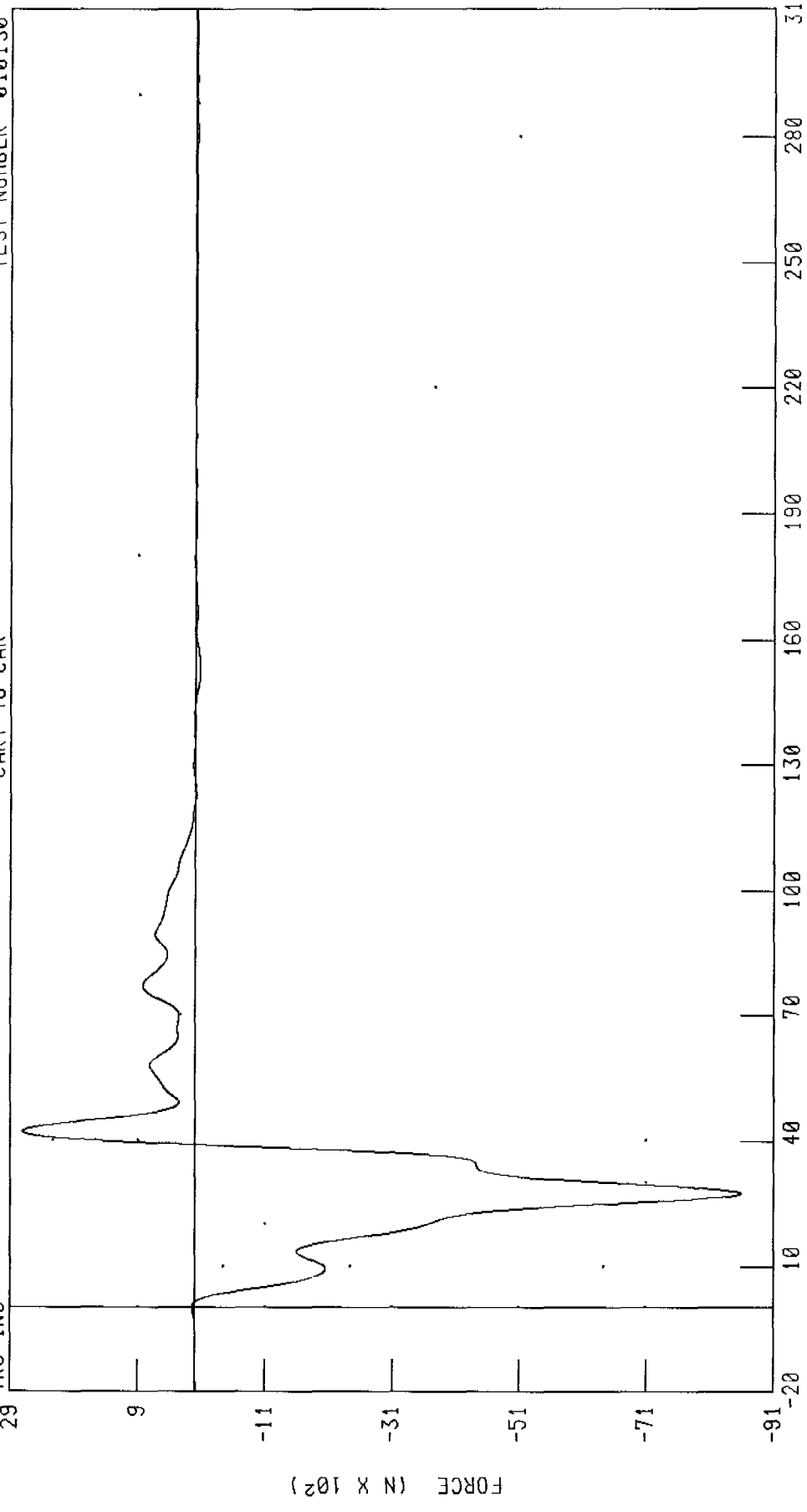
CHANNEL BD3XF FILTER CH CLASS 60

MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
MOVING BARRIER LOAD CELL D3 Y-AXIS FORCE

TEST NUMBER 010130

CART TO CAR

TRC INC

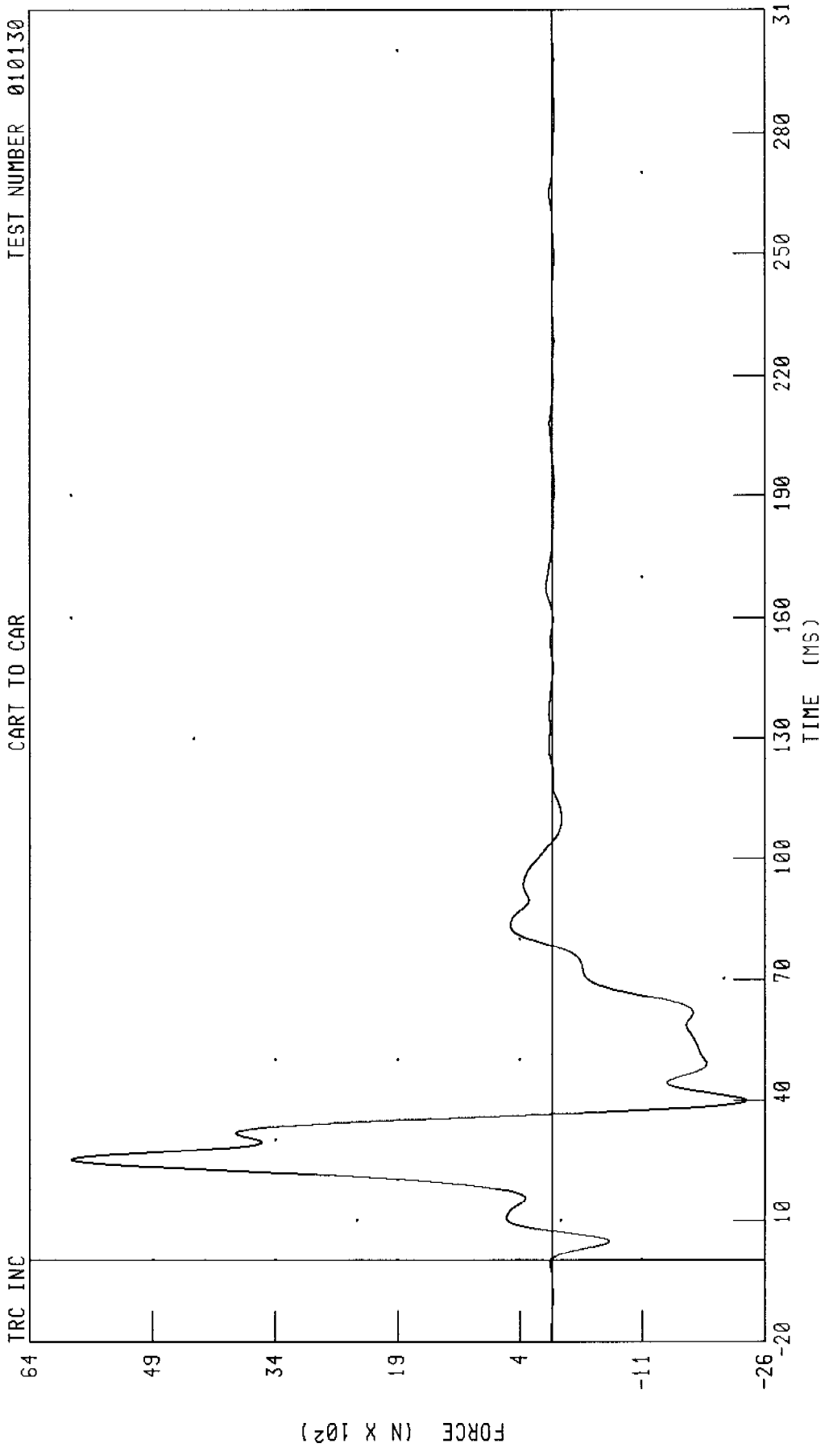


TIME (MS)

CHANNEL B03YF FILTER CH CLASS 60 PEAK DATA 2713 89 N @ 42 16 MS, -8590 49 N @ 27 44 MS

MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
MOVING BARRIER LOAD CELL D3 Z-AXIS FORCE

TRC INC  
CART TO CAR  
TEST NUMBER 010130

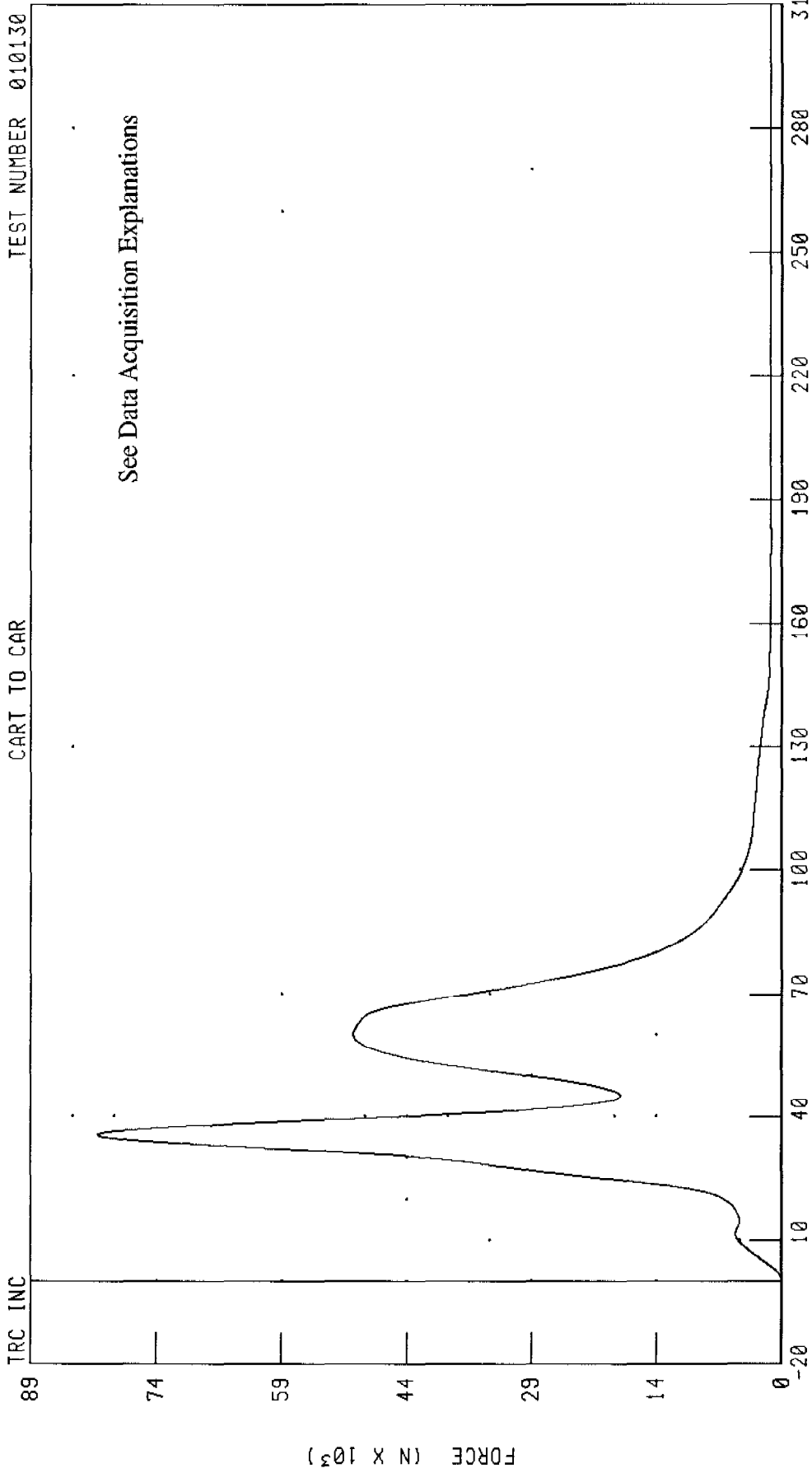


CHANNEL B03ZF FILTER CH CLASS 60 PEAK DATA 5892 48 N @ 25 12 MS, -2380 23 N @ 39 84 MS

MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
MOVING BARRIER LOAD CELL D4 X-AXIS FORCE  
CART TO CAR

TEST NUMBER 010130

TRC INC



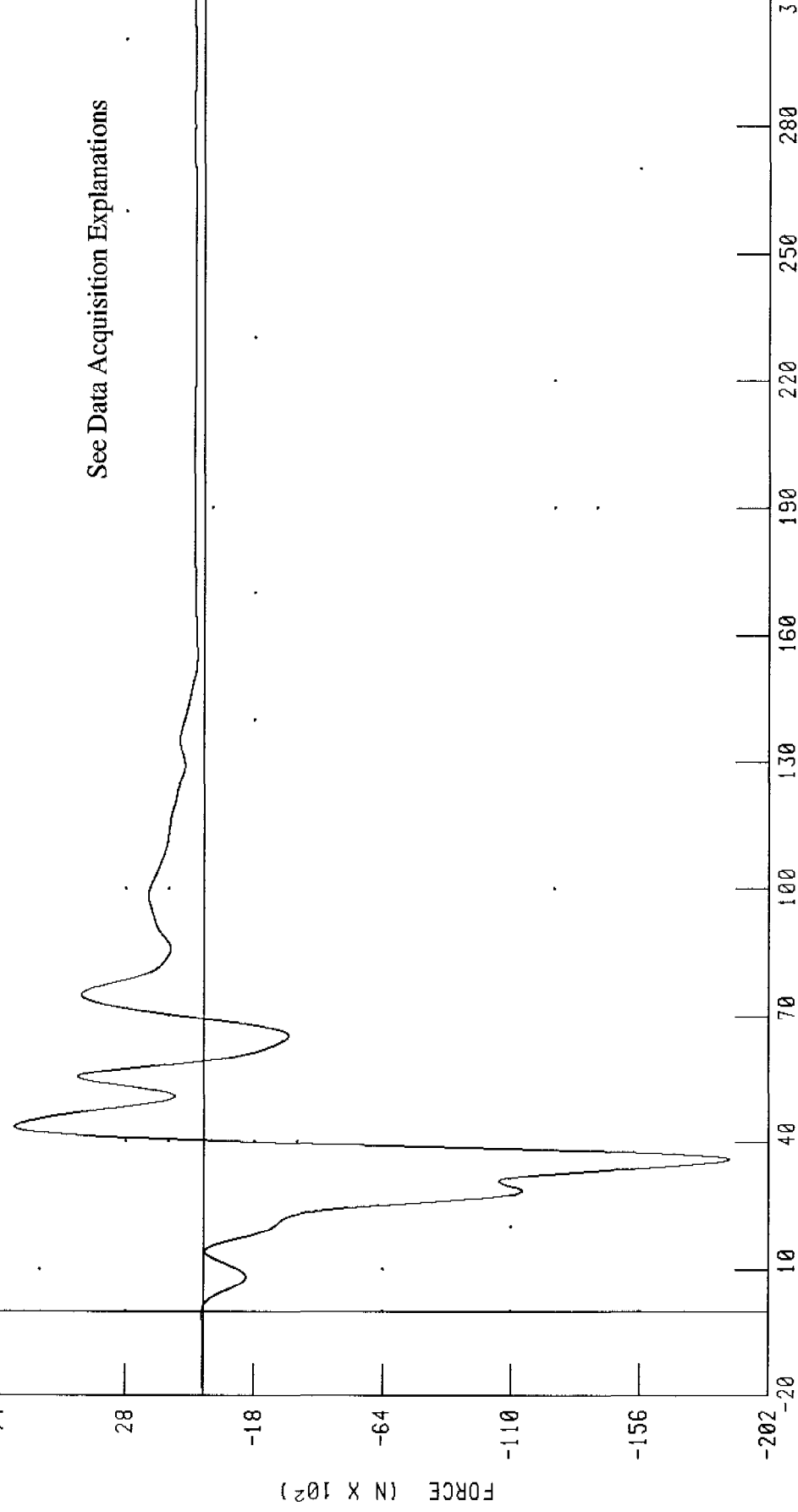
CHANNEL BD4XF FILTER CH CLASS 60 PEAK DATA 81961 13 N @ 35 68 MS, -58 53 N @ -0 96 MS

MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
MOVING BARRIER LOAD CELL D4 Y-AXIS FORCE

TEST NUMBER 010130

CART TO CAR

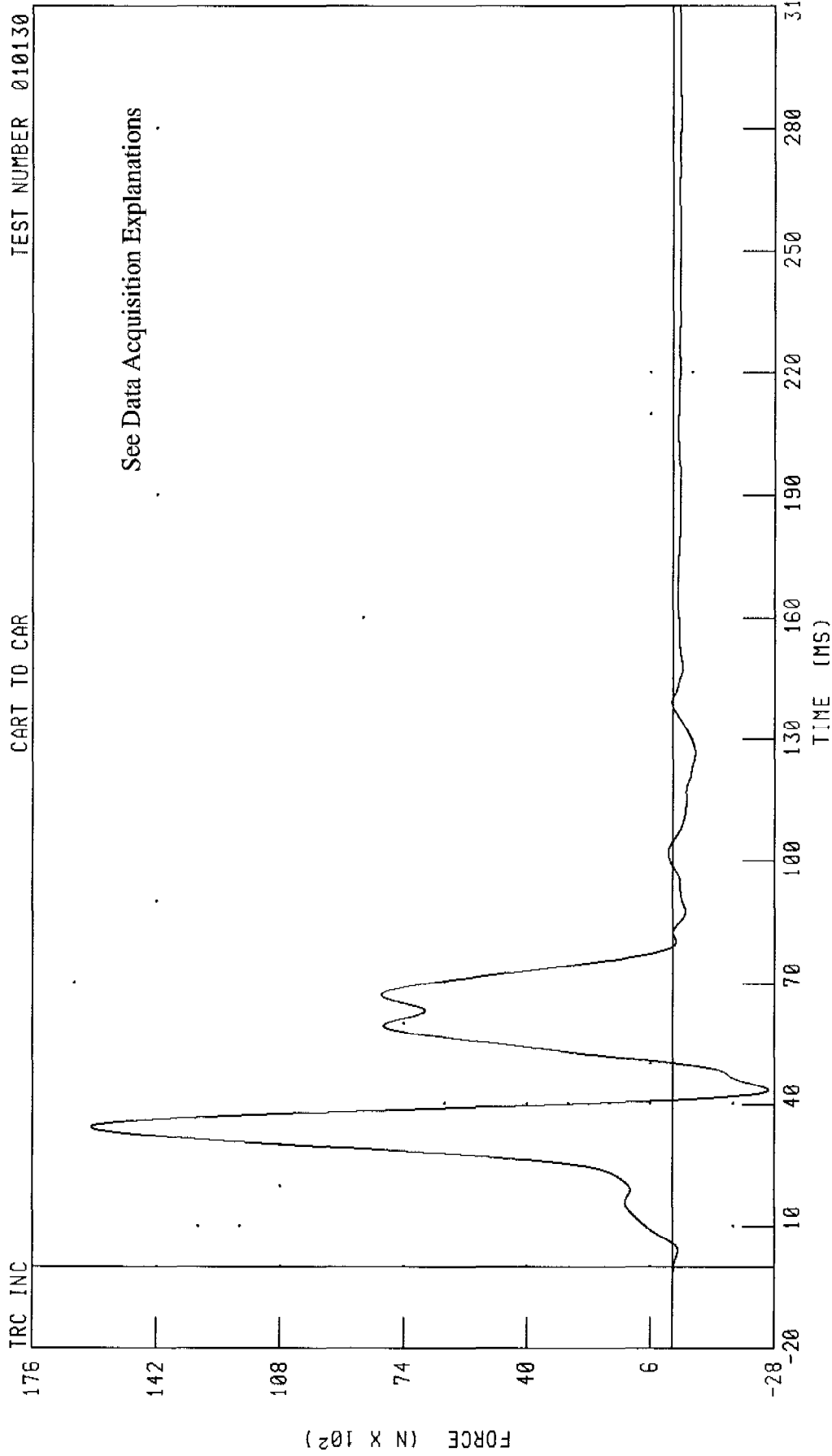
TRC INC



CHANNEL BD4YF FILTER CH CLASS 60 PEAK DATA 6788 01 N @ 43 60 MS, -18813 06 N @ 35 92 MS

MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
MOVING BARRIER LOAD CELL D4 Z-AXIS FORCE  
CART TO CAR

TEST NUMBER 010130



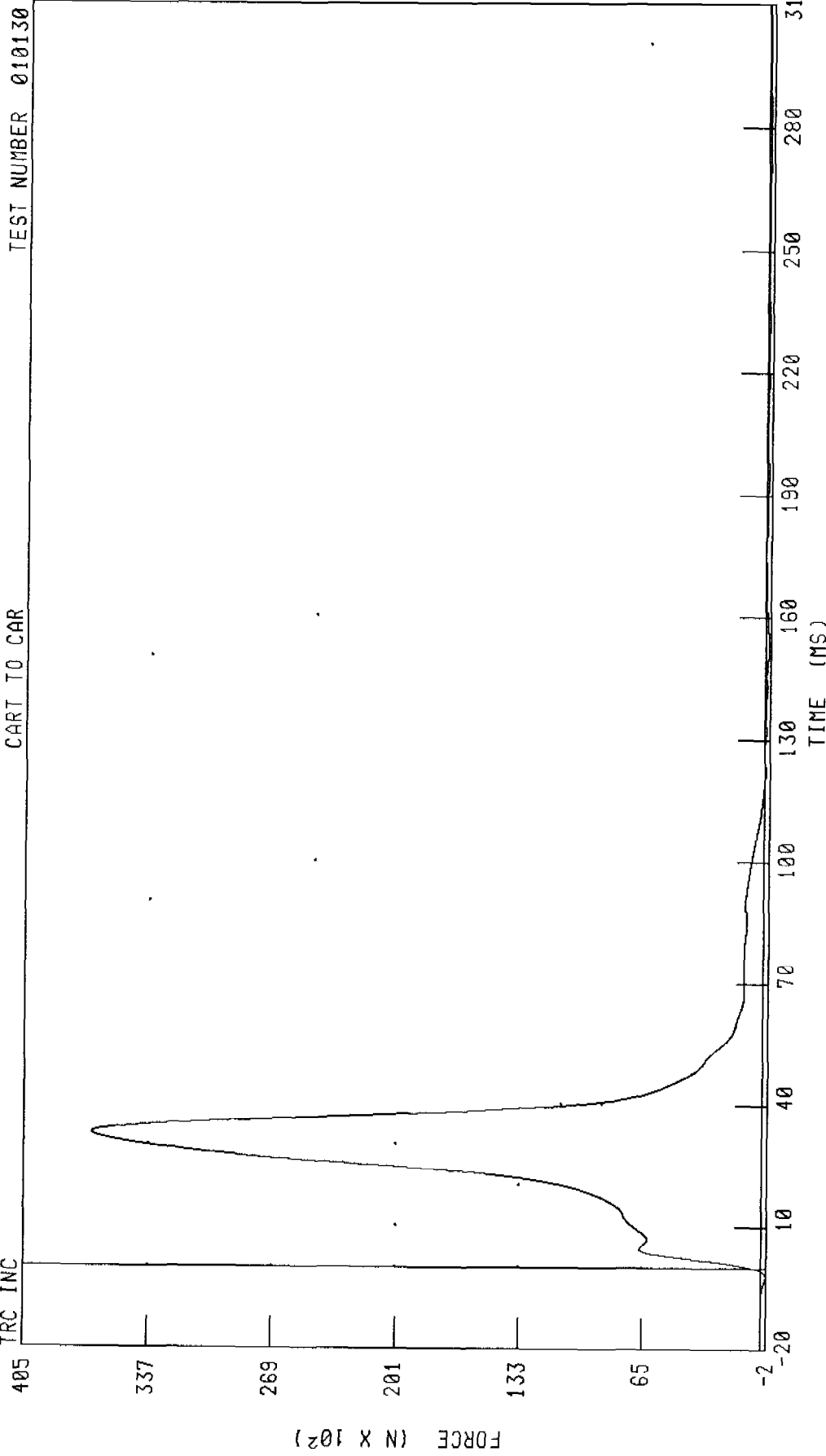
CHANNEL BD4ZF FILTER CH CLASS 60 PEAK DATA 16005 52 N @ 34 40 MS, -2625 64 N @ 43 44 MS

MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
MOVING BARRIER LOAD CELL E3 X-AXIS FORCE

TEST NUMBER 010130

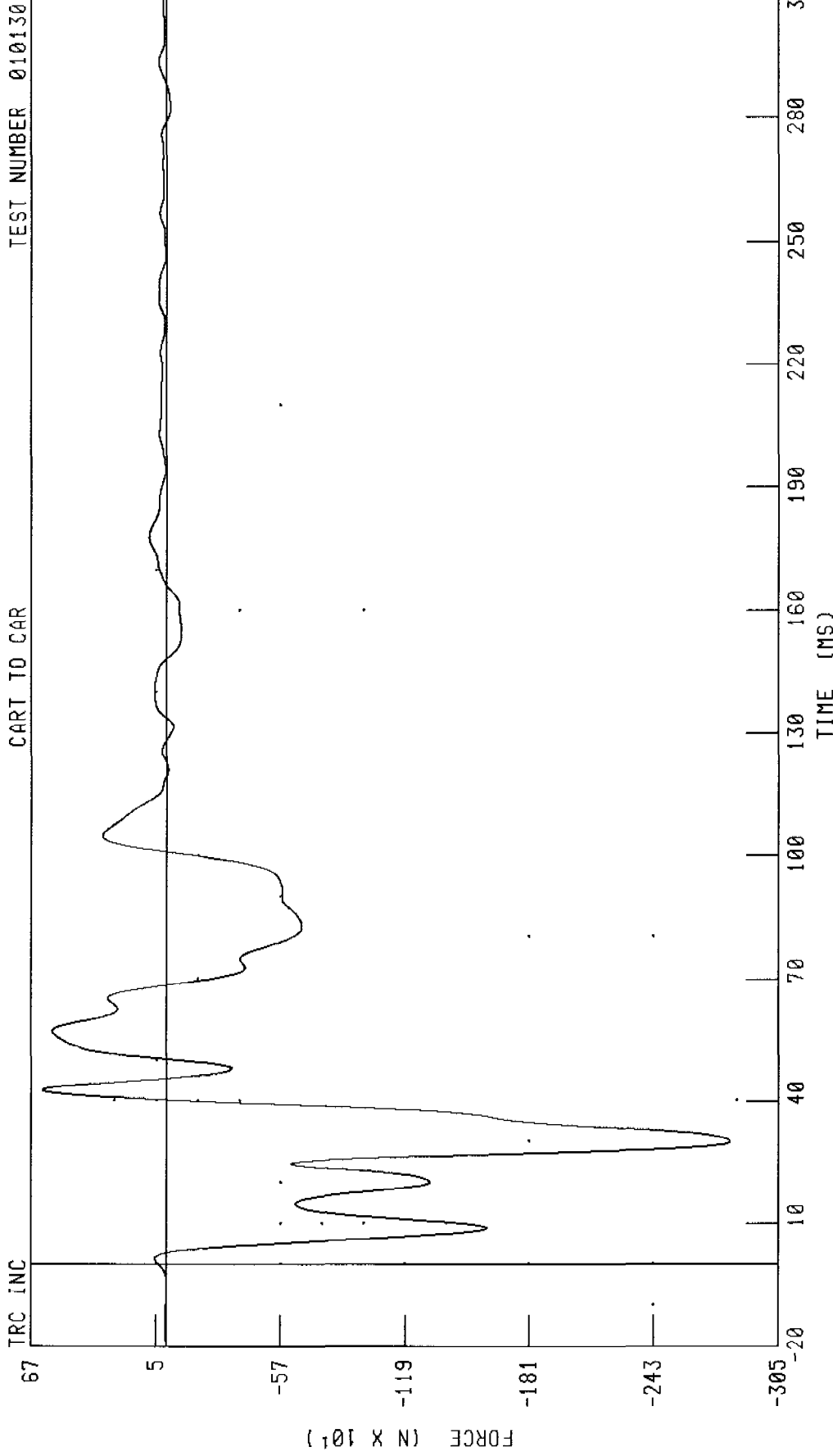
CART TO CAR

TRC INC



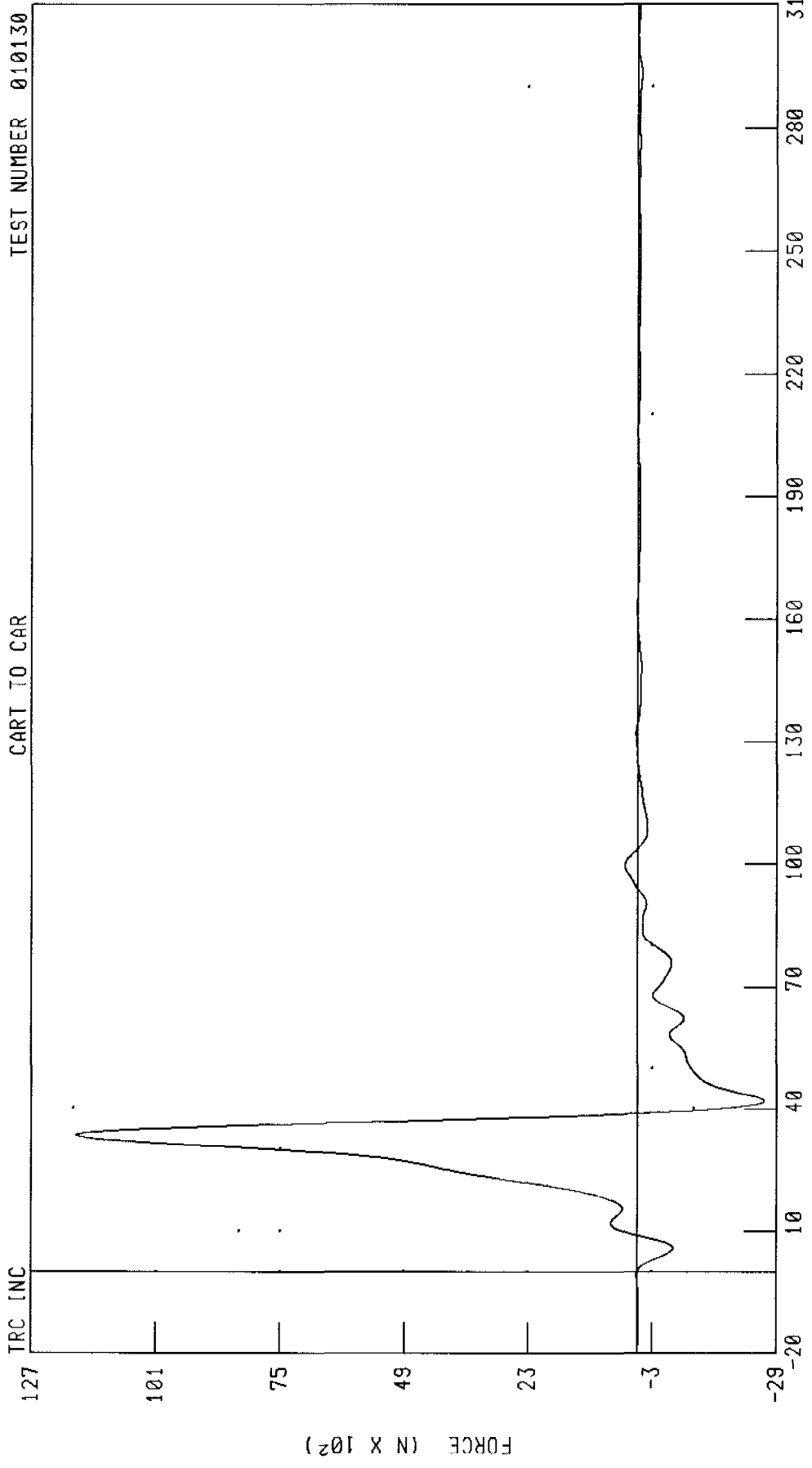
CHANNEL BE3XF FILTER CH CLASS 60 PEAK DATA 36847 70 N @ 32 64 MS, -250 79 N @ -2 16 MS

MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
MOVING BARRIER LOAD CELL E3 Y-AXIS FORCE  
CART TO CAR



CHANNEL BE3YF FILTER CH CLASS 60 PEAK DATA 614 15 N @ 42 64 MS, -2811 00 N @ 30 00 MS

MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
MOVING BARRIER LOAD CELL E3 Z-AXIS FORCE



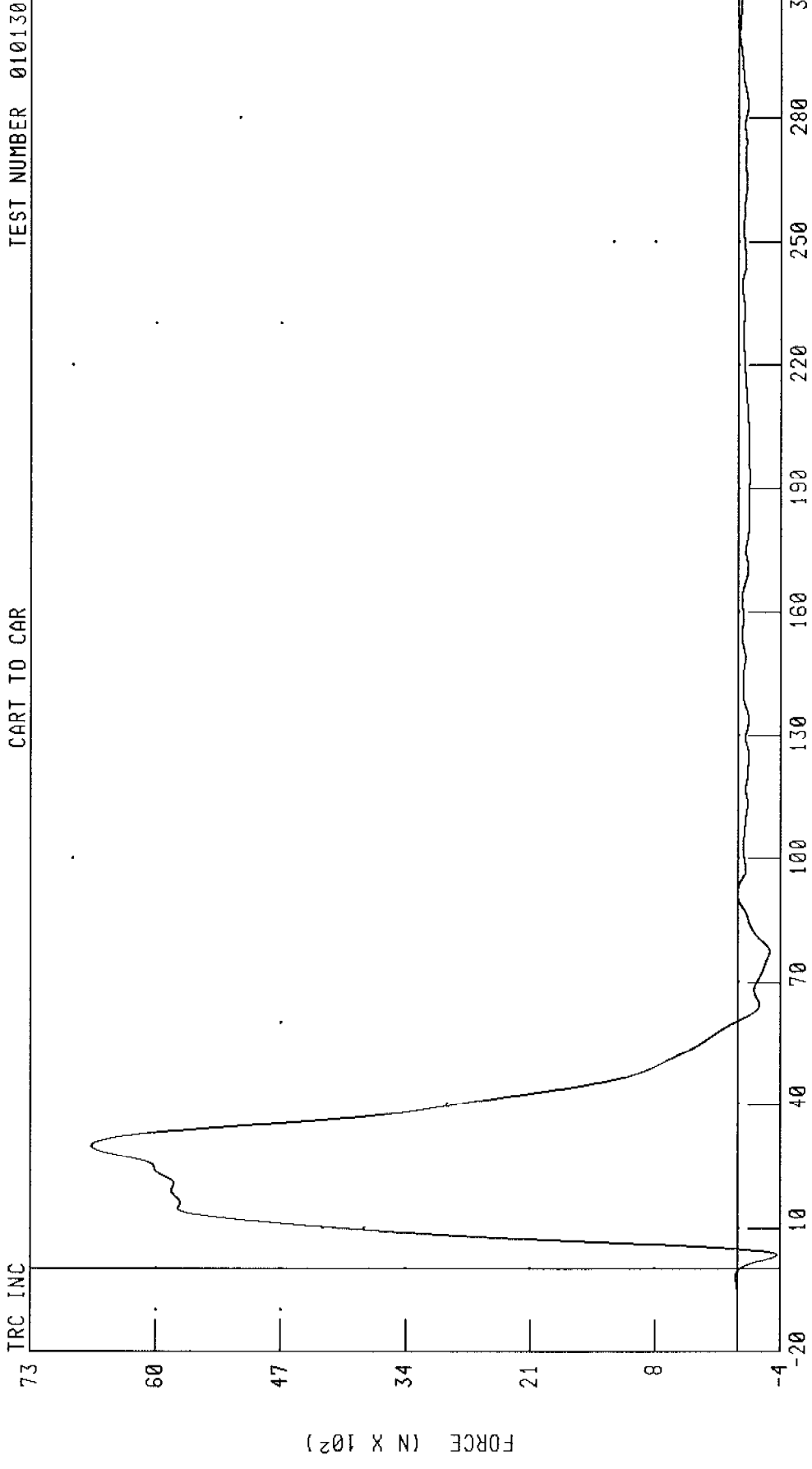
CHANNEL BE3ZF FILTER CH CLASS 60 PEAK DATA 11772 69 N @ 33 52 MS, -2649 33 N @ 41 92 MS

MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
MOVING BARRIER LOAD CELL F1 X-AXIS FORCE

TEST NUMBER 010130

CART TO CAR

TRC INC

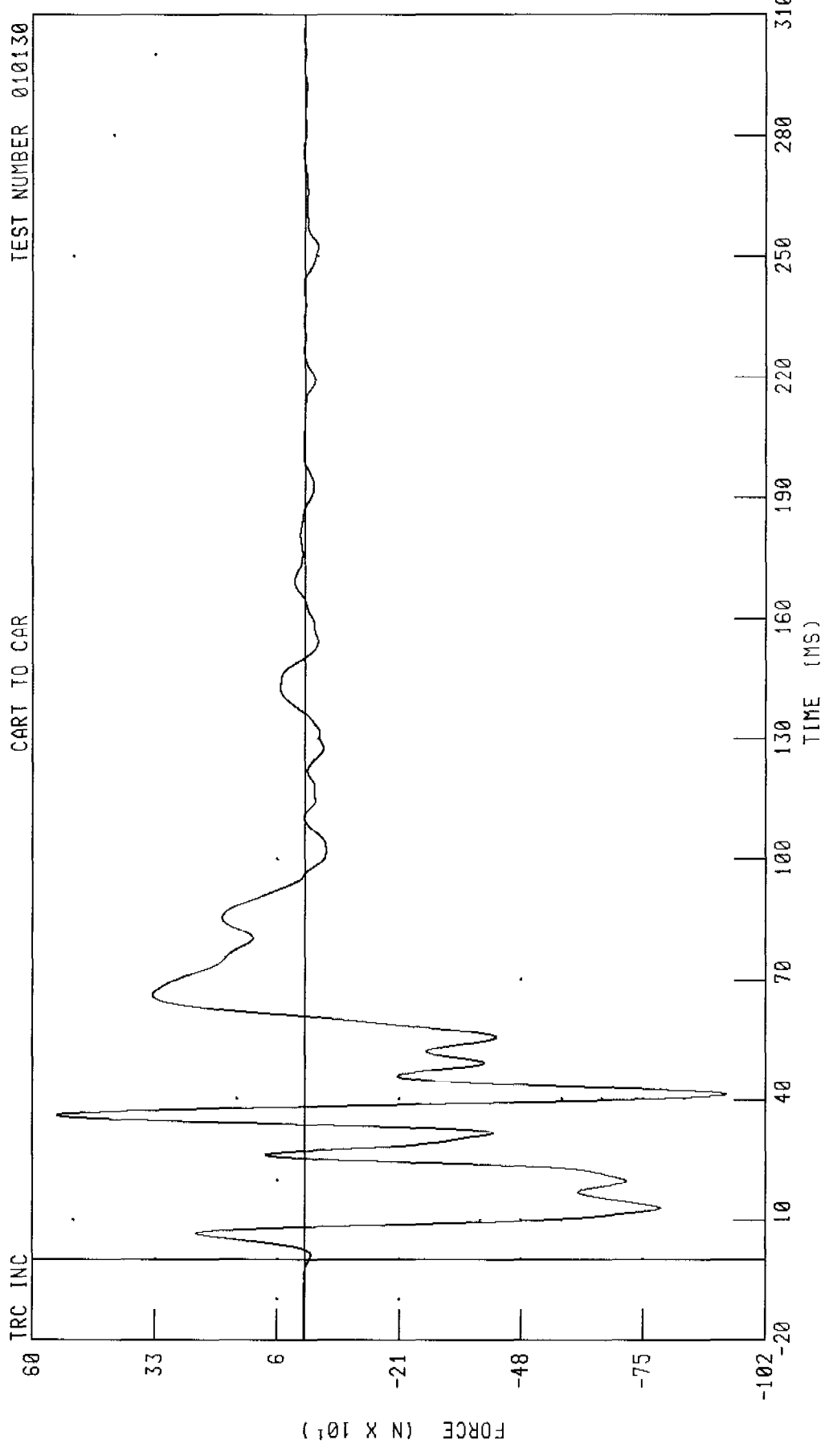


CHANNEL BF1XF FILTER CH CLASS 60

PEAK DATA 6730 04 N @ 29 84 MS, -406 98 N @ 3 52 MS

MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
MOVING BARRIER LOAD CELL F1 Y-AXIS FORCE

TRC INC  
CART TO CAR  
TEST NUMBER 010130



CHANNEL BF1YF FILTER CH CLASS 60 PEAK DATA 546 14 N @ 36 16 MS, -934 01 N @ 41 28 MS

MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
MOVING BARRIER LOAD CELL F1 Z-AXIS FORCE

TRC INC

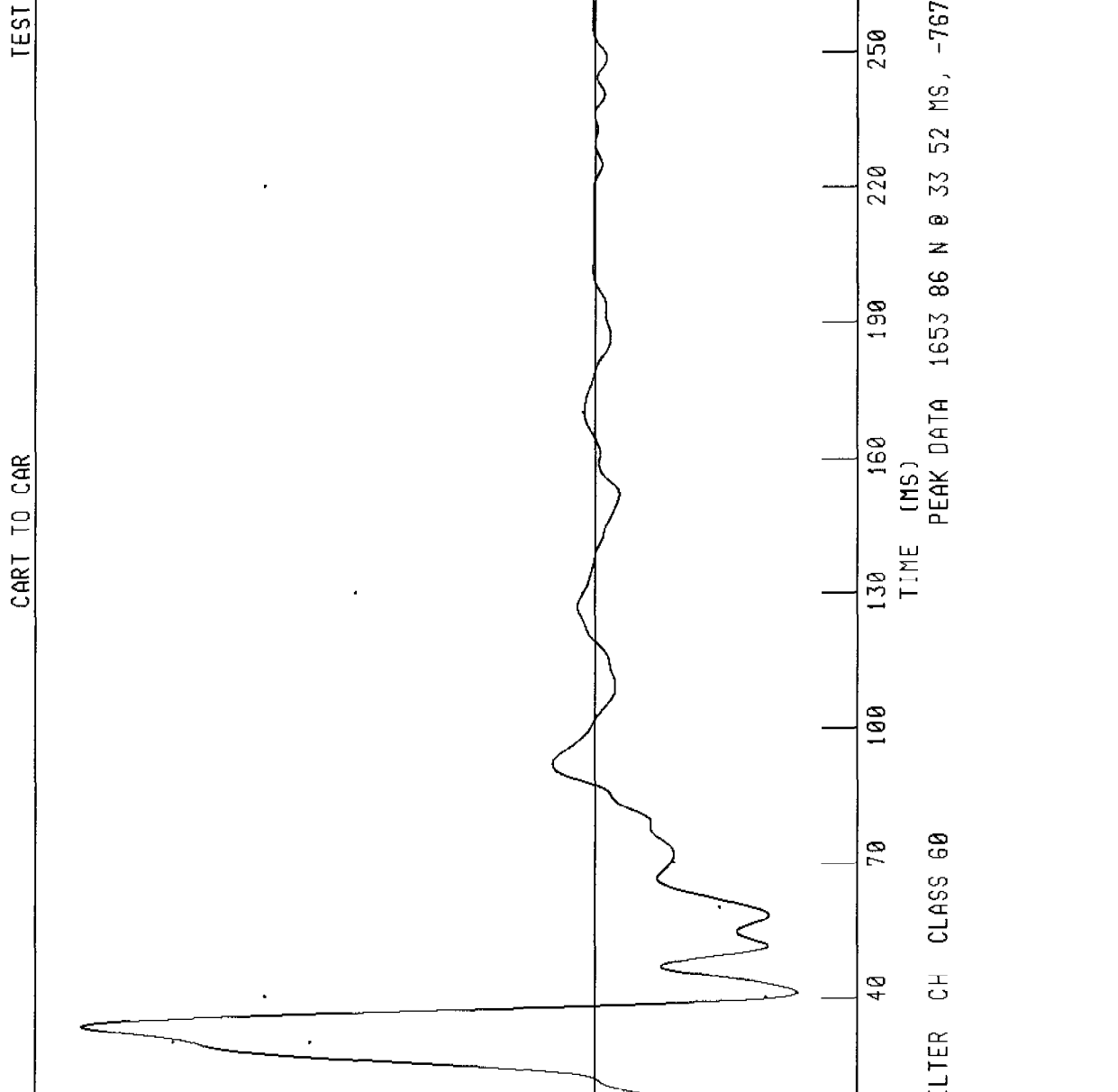
CART TO CAR

TEST NUMBER 010130

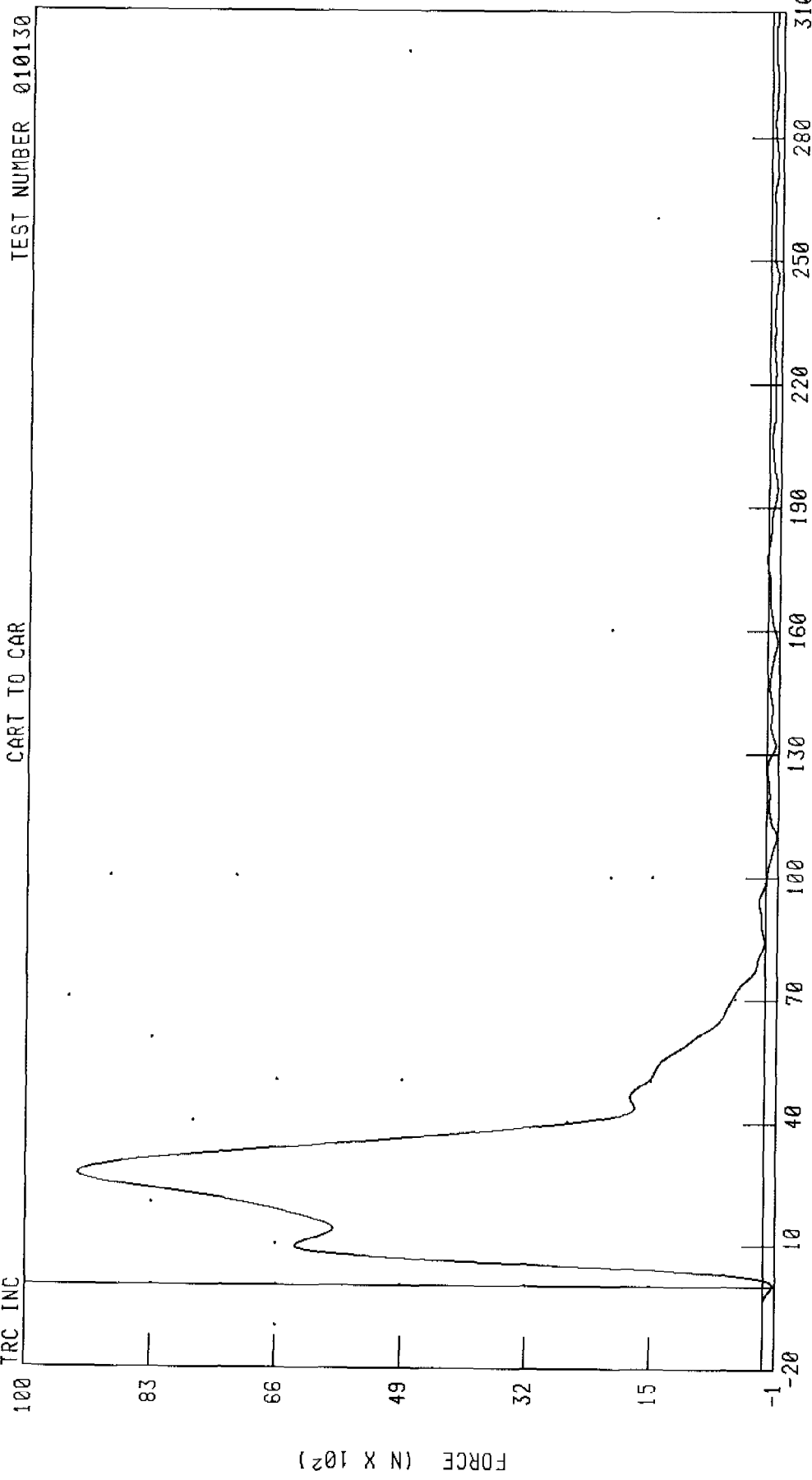
CHANNEL BF1ZF FILTER CH CLASS 60

TIME (MS)

PEAK DATA 1653 86 N @ 33 52 MS, -767 32 N @ 14 32 MS

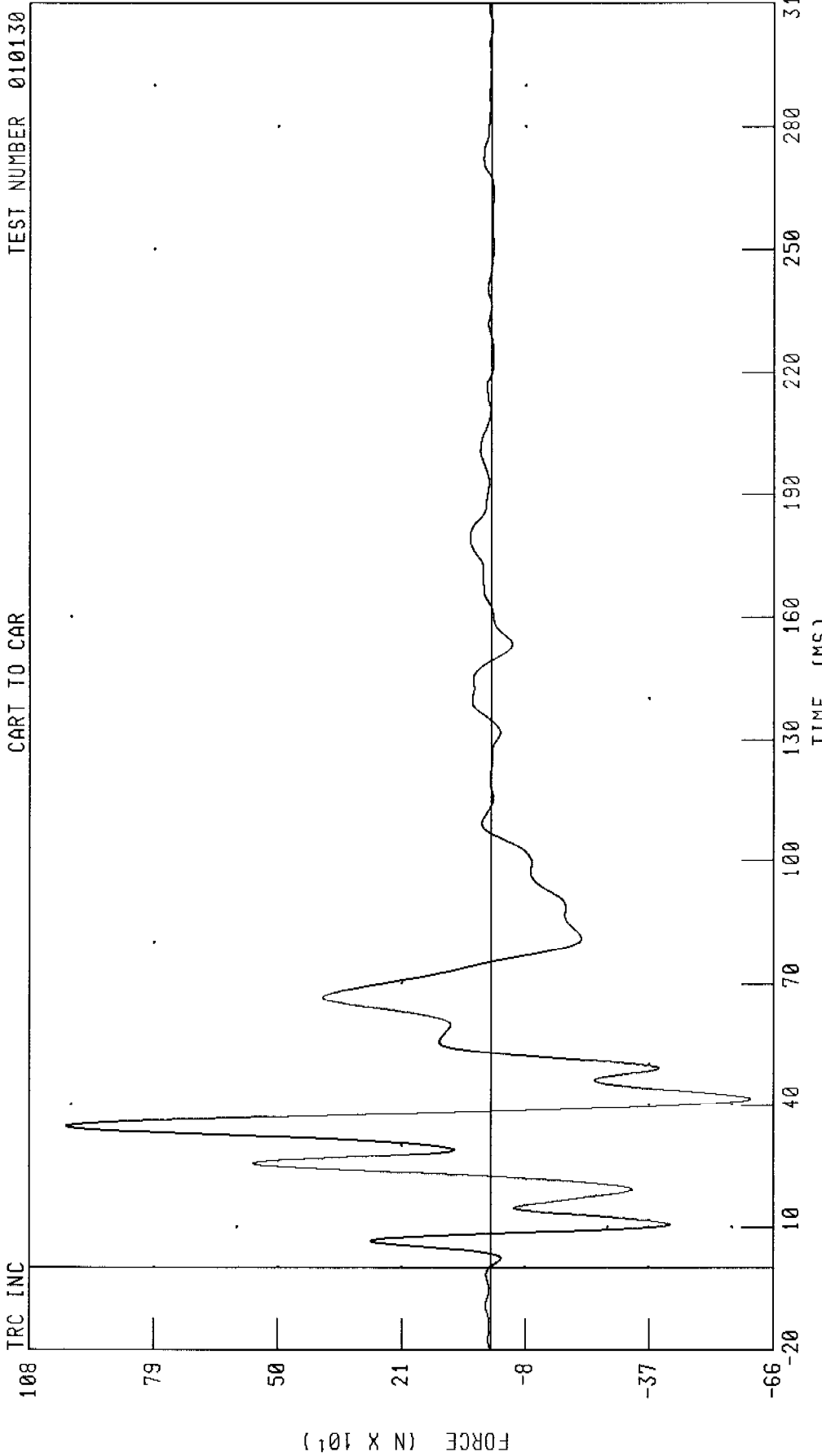


MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
MOVING BARRIER LOAD CELL F2 X-AXIS FORCE



CART TO CAR

MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
MOVING BARRIER LOAD CELL F2 Y-AXIS FORCE



TRC INC

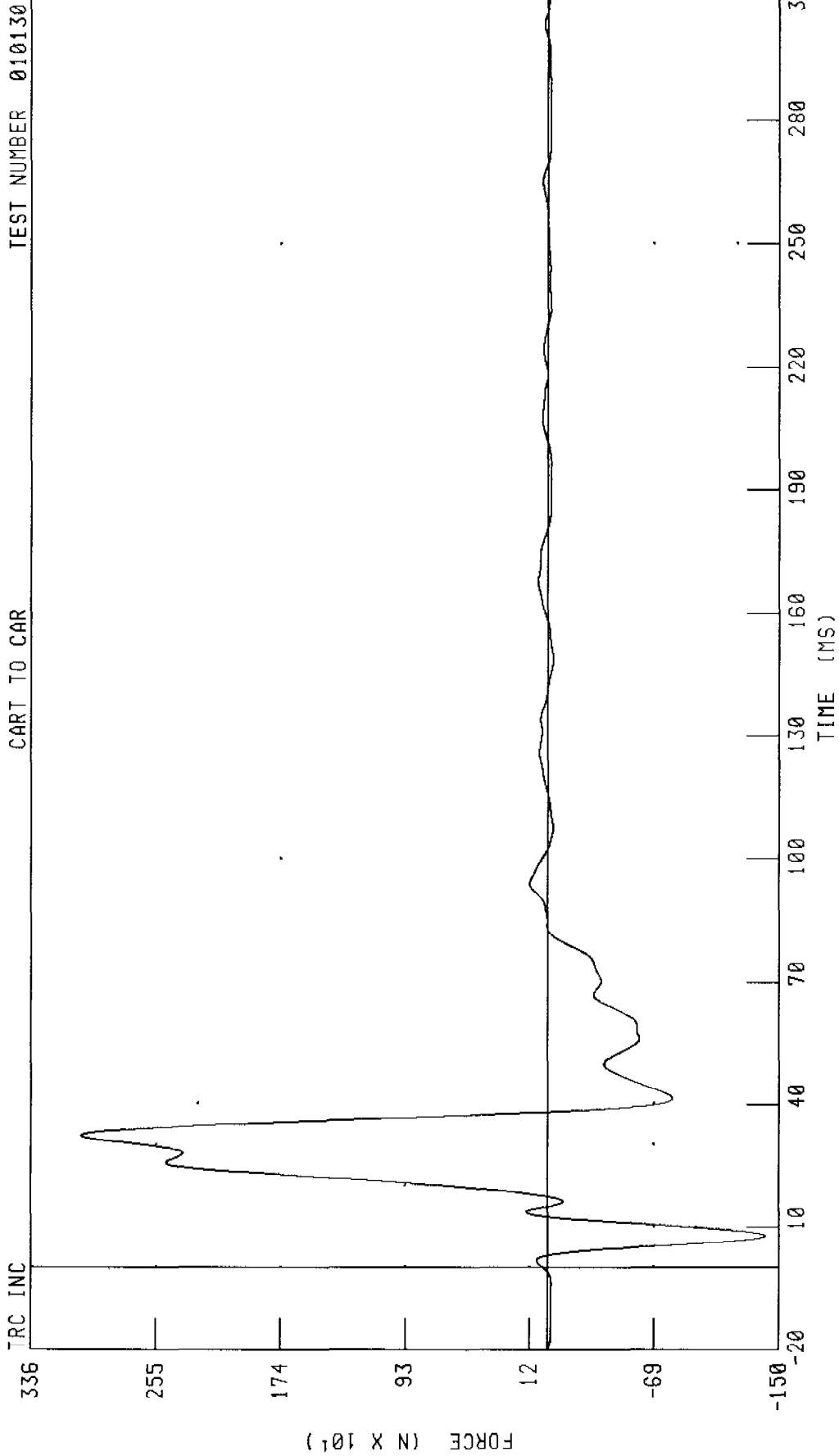
CART TO CAR

TEST NUMBER 010130

TIME (MS)

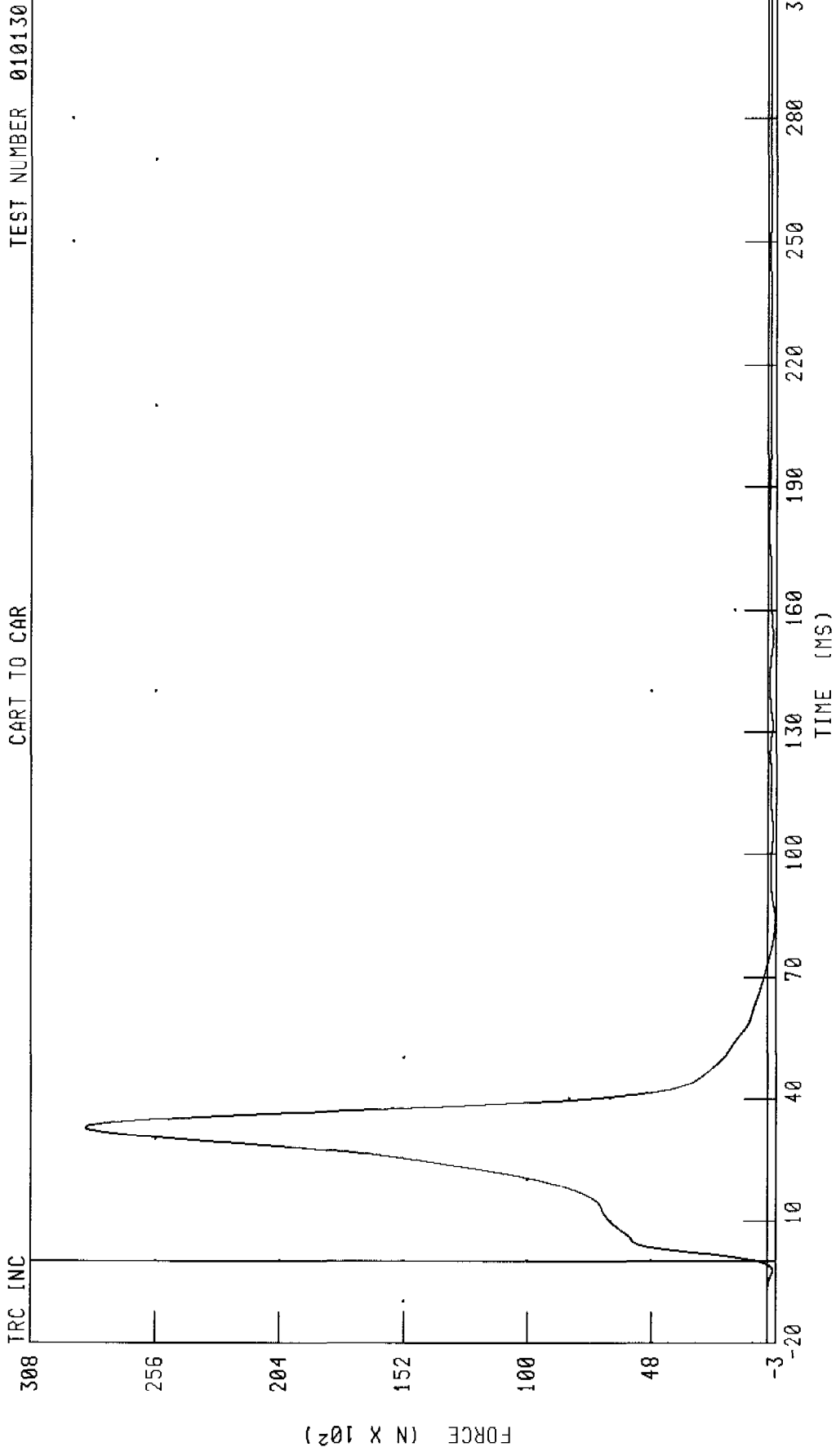
CHANNEL BF2YF FILTER CH CLASS 60 PEAK DATA 995 28 N @ 34 88 MS, -606 38 N @ 41 60 MS

MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
MOVING BARRIER LOAD CELL F2 Z-AXIS FORCE  
CART TO CAR



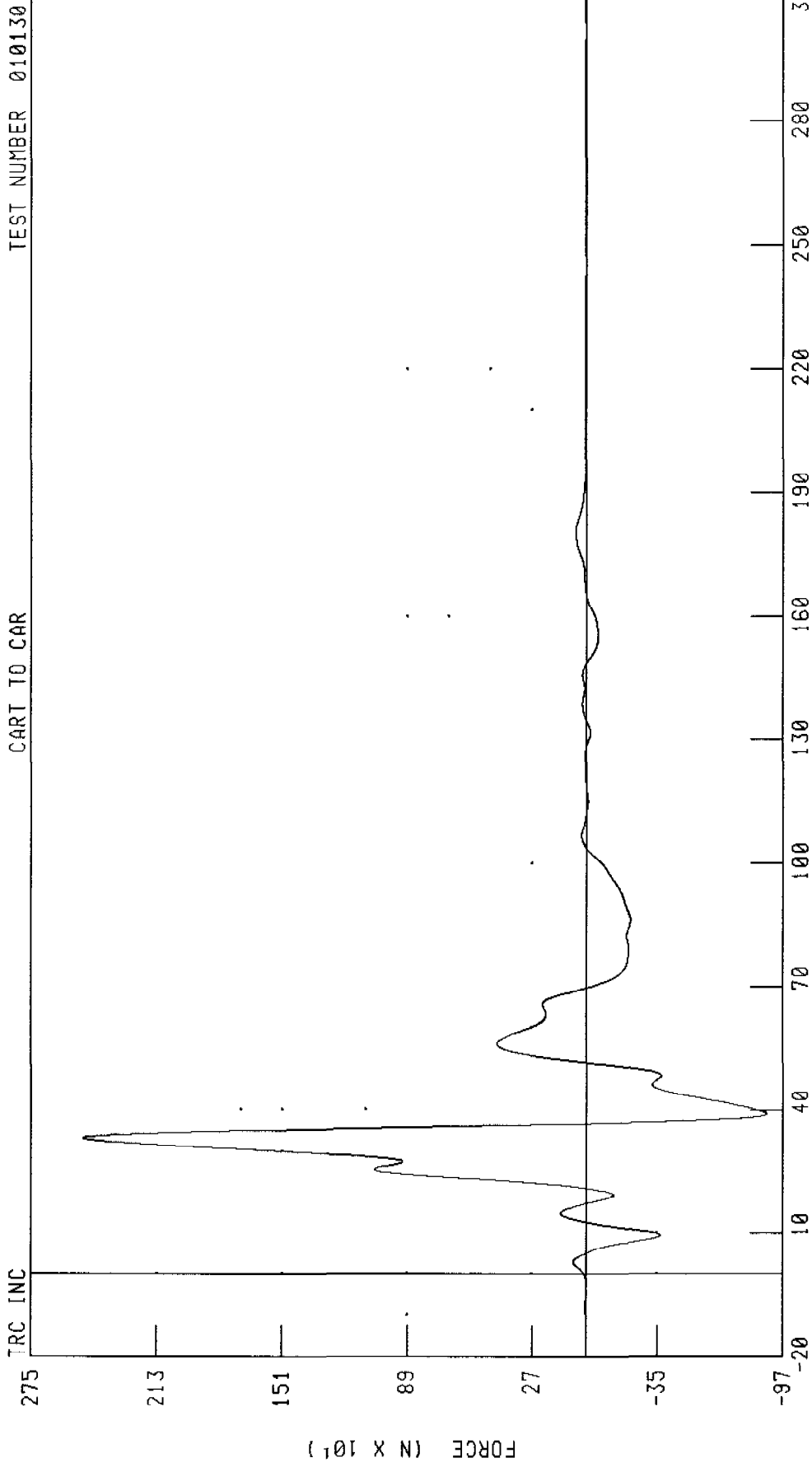
CHANNEL BF2ZF FILTER CH CLASS 60 PEAK DATA 3037 90 N @ 32 32 MS, -1413 77 N @ 7 76 MS

MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
MOVING BARRIER LOAD CELL F3 X-AXIS FORCE  
CART TO CAR

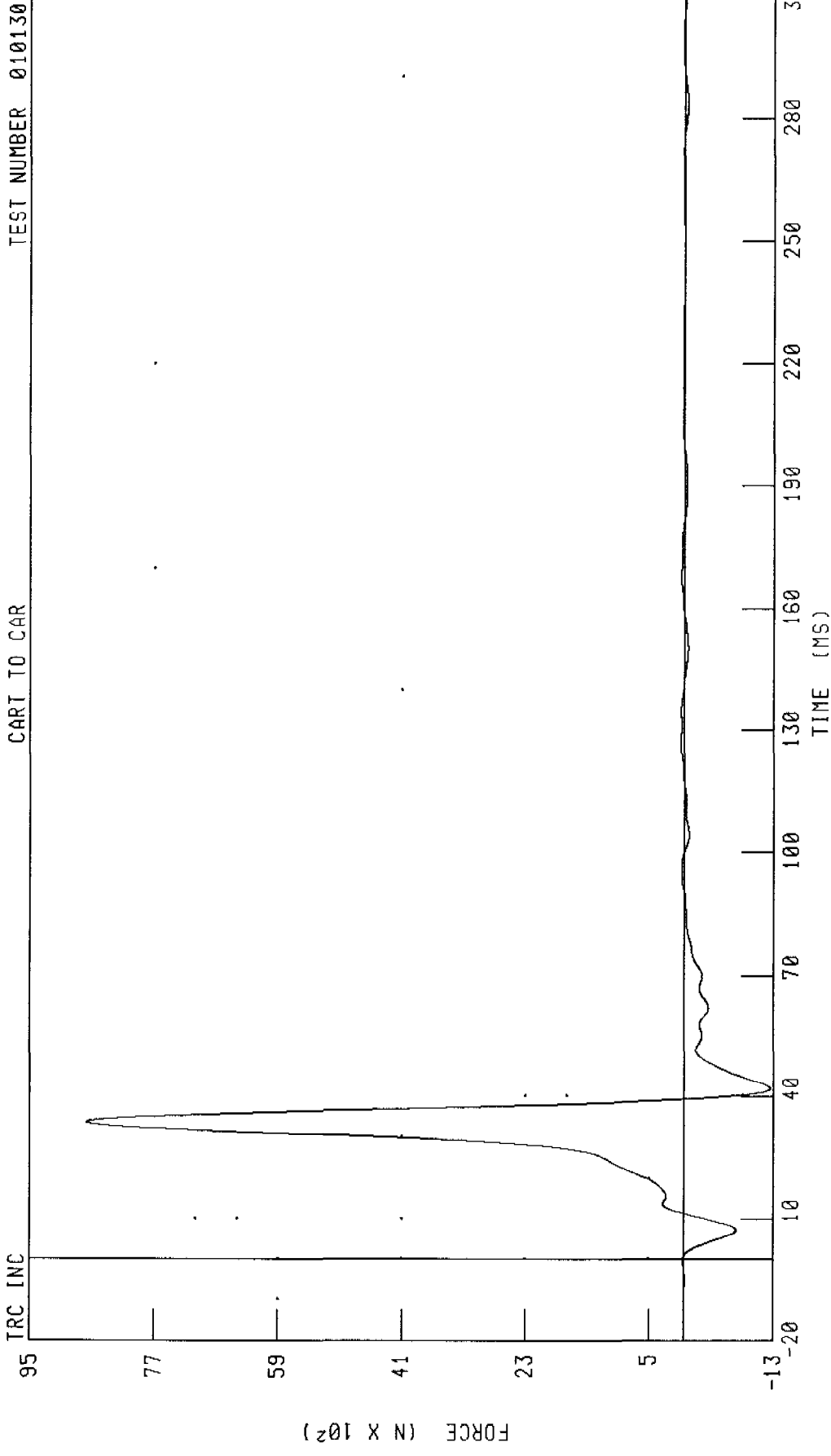


TEST NUMBER 010130  
CHANNEL BF3XF FILTER CH CLASS 60  
PEAK DATA 28590 22 N @ 32 96 MS, -314 57 N @ 83 36 MS

MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
MOVING BARRIER LOAD CELL F3 Y-AXIS FORCE



MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
MOVING BARRIER LOAD CELL F3 Z-AXIS FORCE



TRC INC

CART TO CAR

TEST NUMBER 010130

TIME (MS)

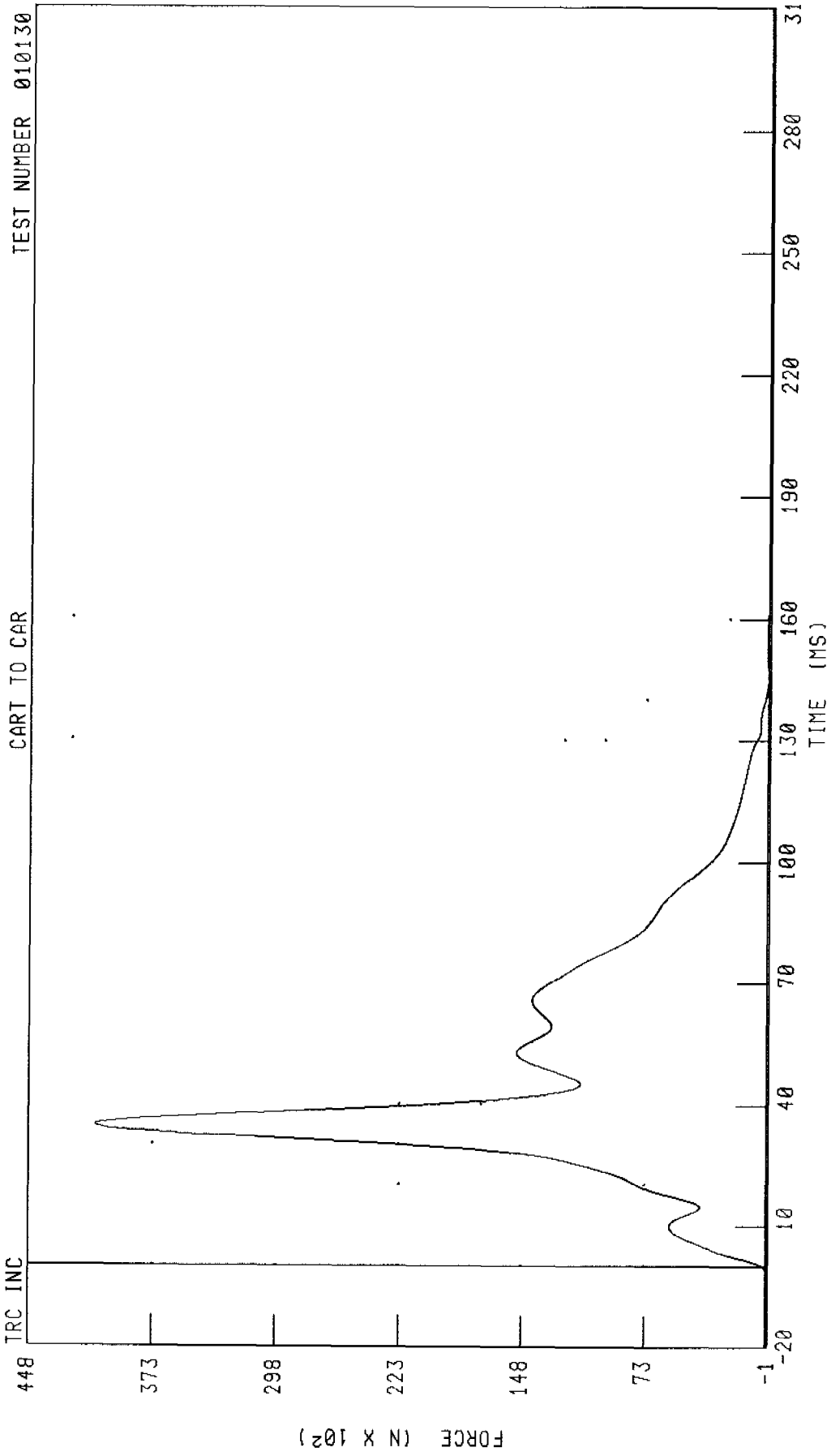
CHANNEL BF3ZF FILTER CH CLASS 60 PEAK DATA 8676 82 N @ 33 76 MS, -1259 38 N @ 41 92 MS

MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
MOVING BARRIER LOAD CELL F4 X-AXIS FORCE

TRC INC

CART TO CAR

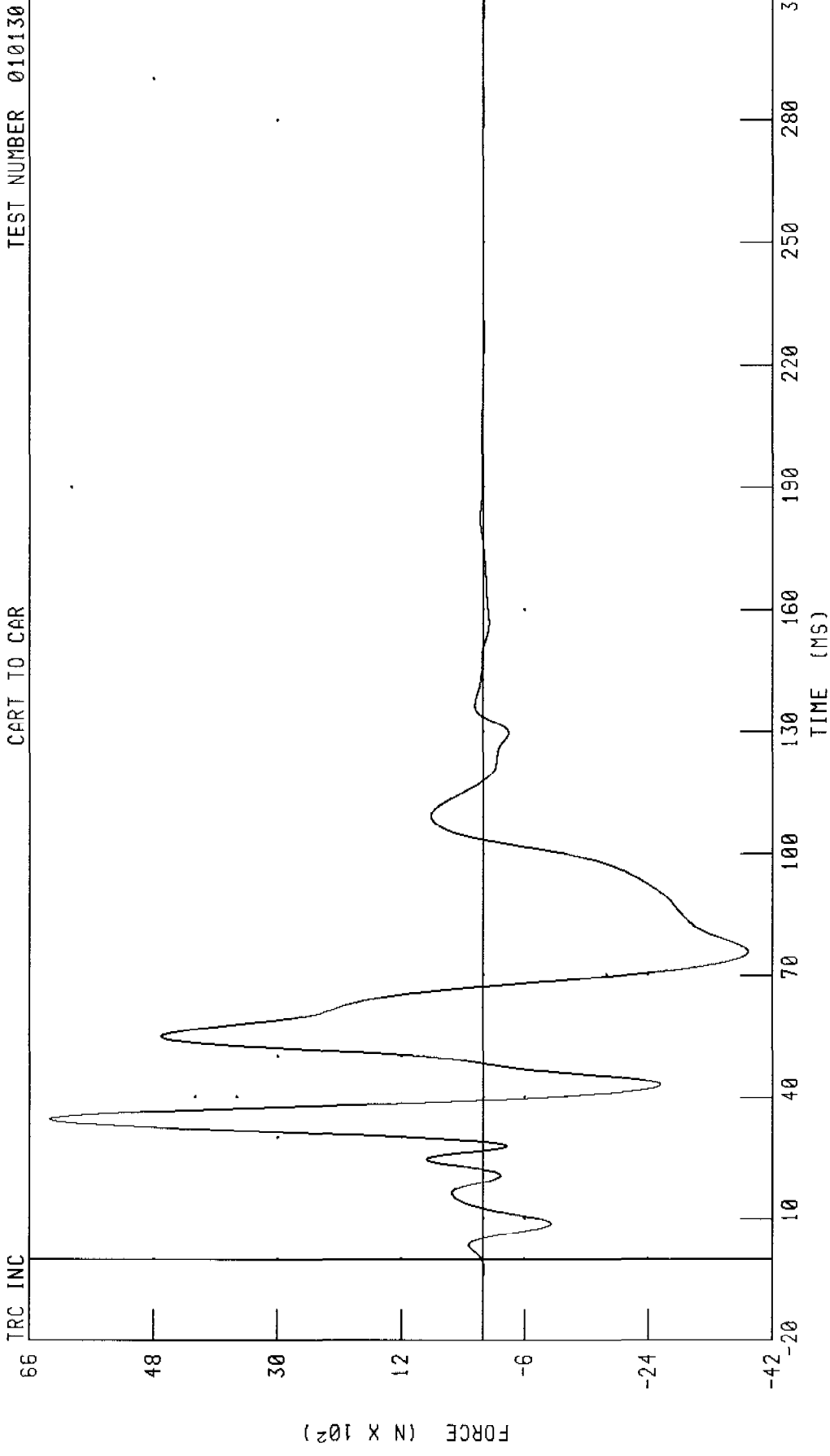
TEST NUMBER 010130



CHANNEL BF4XF FILTER CH CLASS 60

PEAK DATA 40871 15 N @ 34 96 MS, -104 54 N @ -2 16 MS

MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
MOVING BARRIER LOAD CELL F4 Y-AXIS FORCE  
CART TO CAR



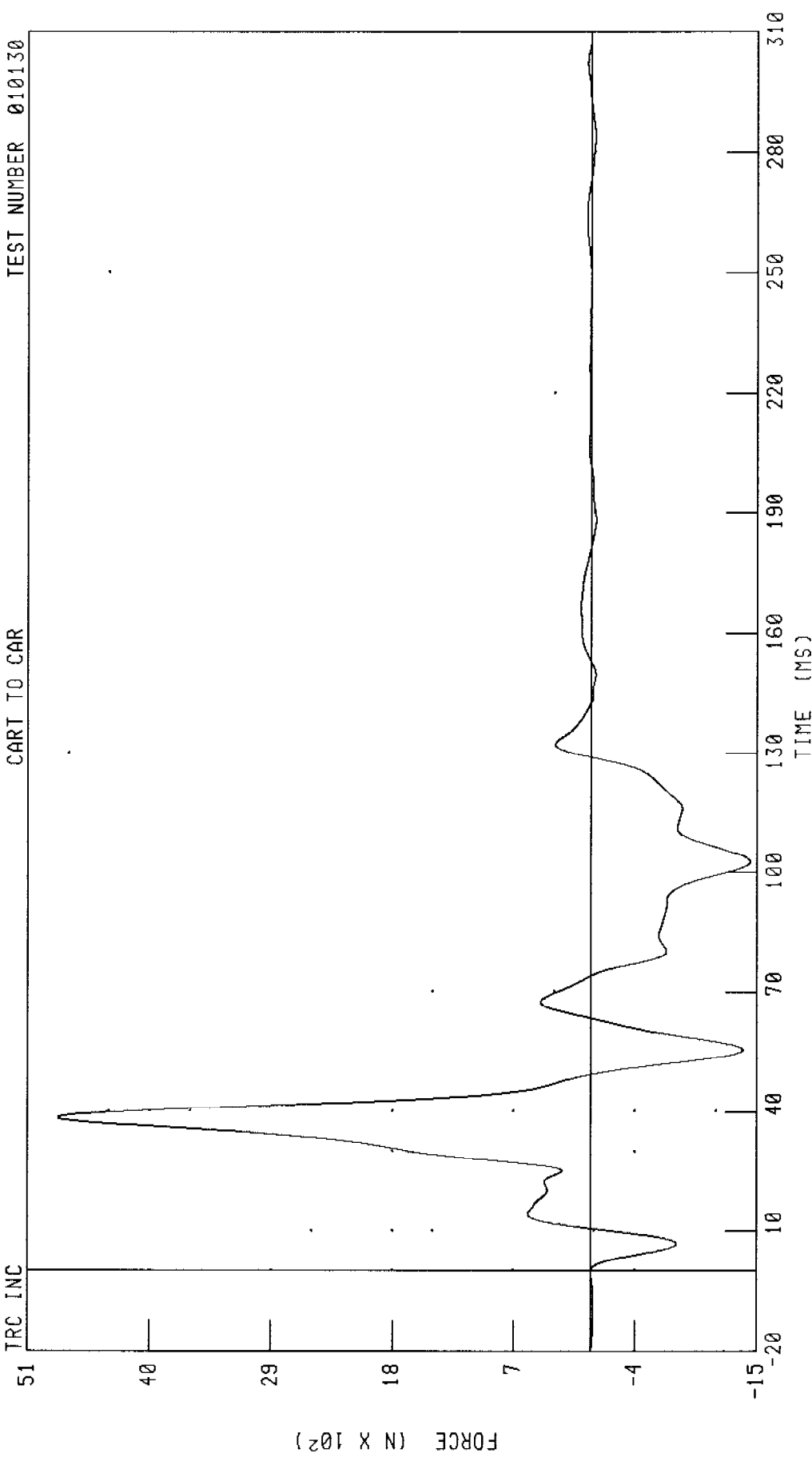
CHANNEL BF4YF FILTER CH CLASS 60

PEAK DATA 6307 42 N @ 34 72 MS, -3852 55 N @ 75 76 MS

MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
MOVING BARRIER LOAD CELL F4 Z-AXIS FORCE  
CART TO CAR

TRC INC

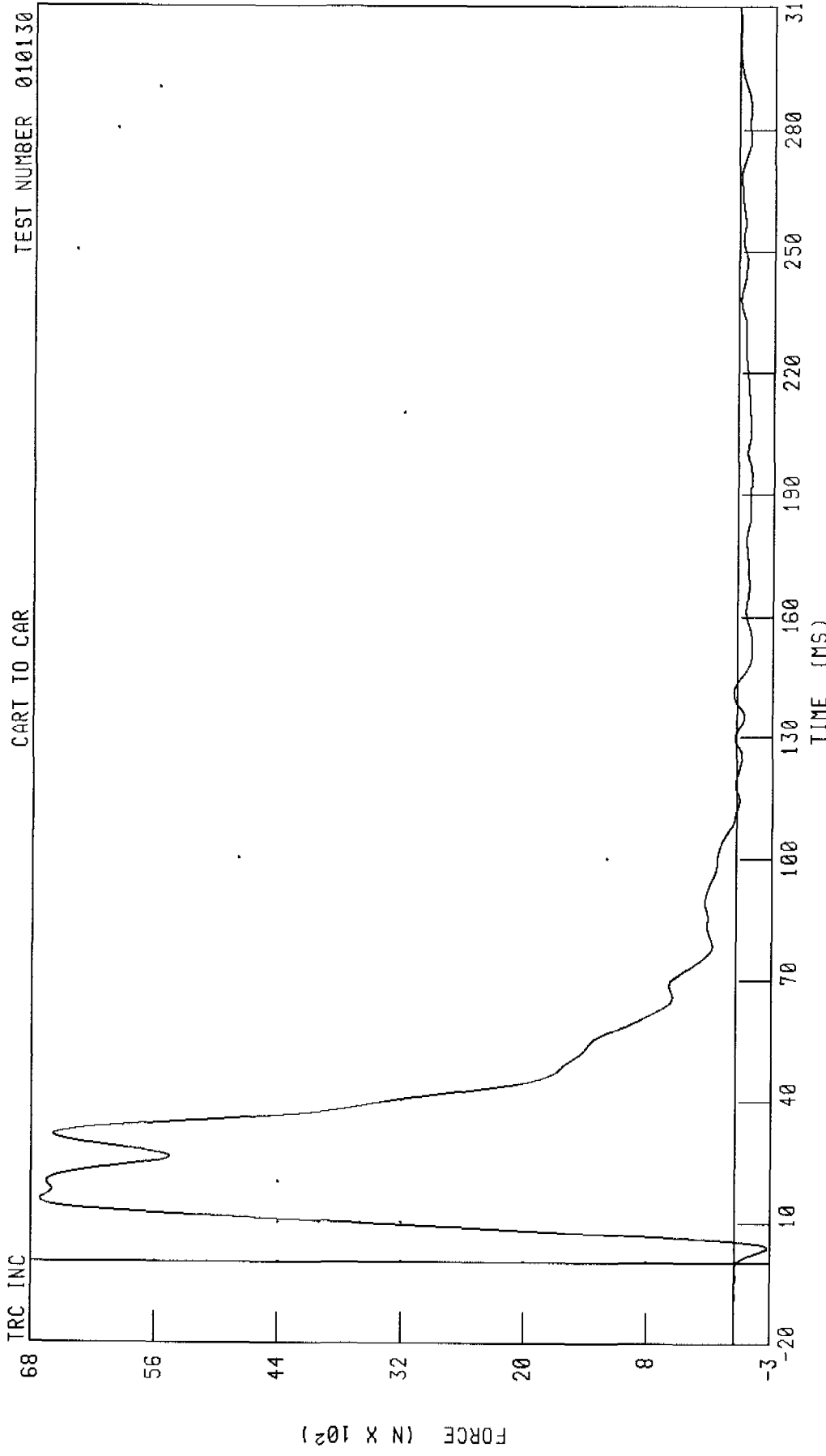
TEST NUMBER 010130



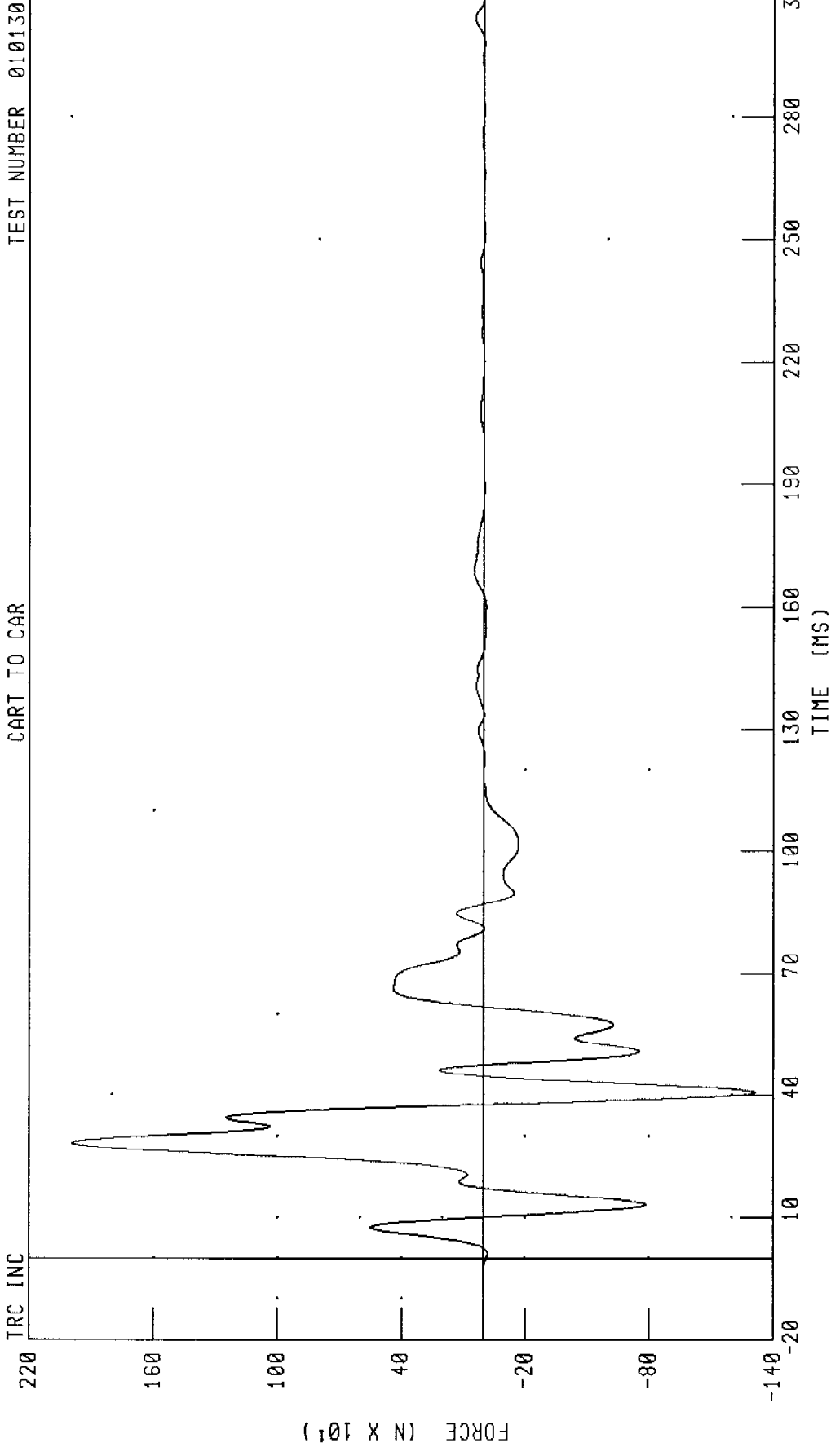
TIME (MS)

CHANNEL BF4ZF FILTER CH CLASS 60 PEAK DATA 4826 08 N @ 38 40 MS, -1441 85 N @ 102 64 MS

MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
MOVING BARRIER LOAD CELL G1 X-AXIS FORCE



MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
MOVING BARRIER LOAD CELL G1 Y-AXIS FORCE  
CART TO CAR

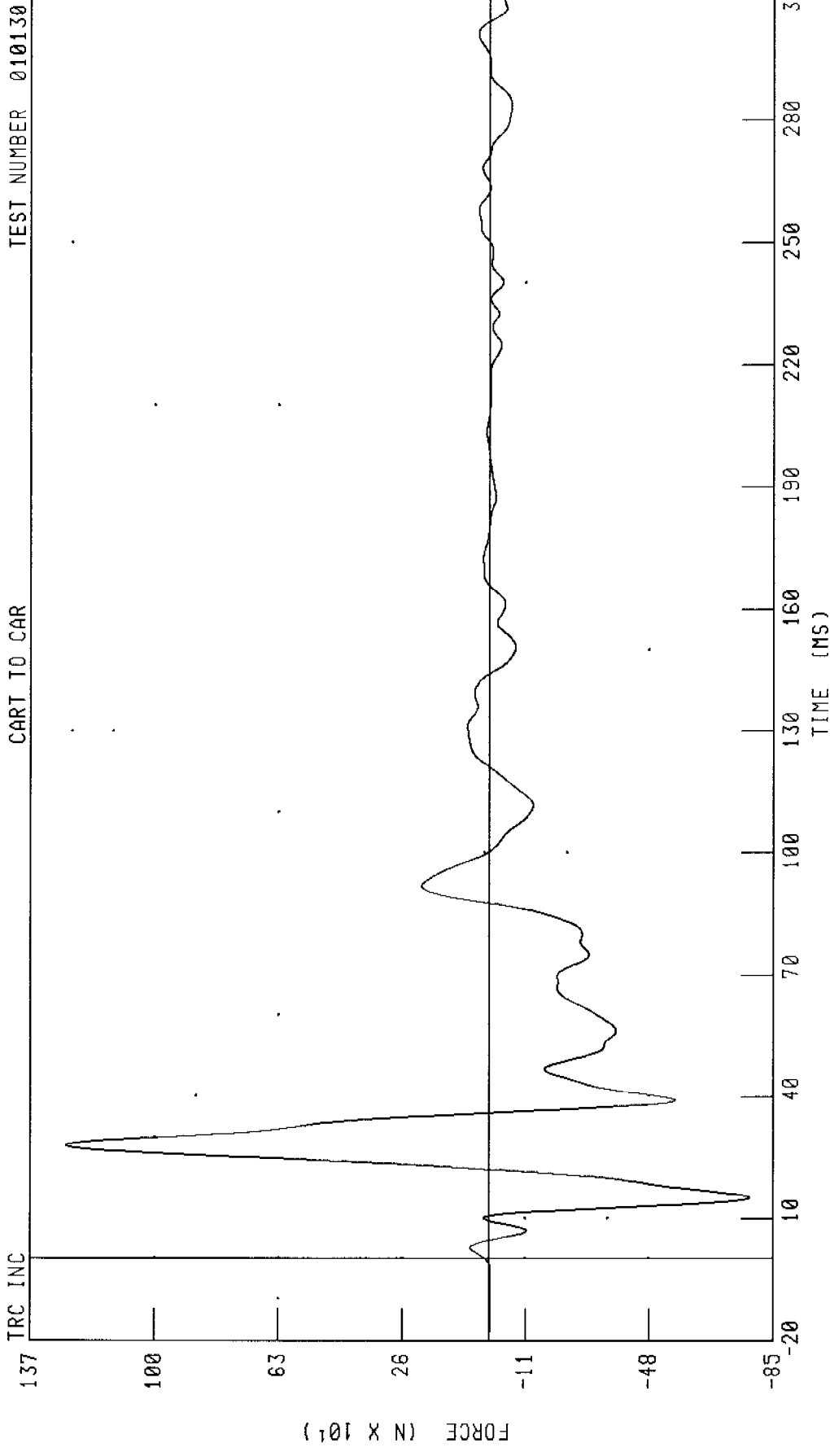


TRC INC

TEST NUMBER 010130

CHANNEL BC1YF FILTER CH CLASS 60 PEAK DATA 1994 57 N @ 28 32 MS, -1313 37 N @ 40 64 MS

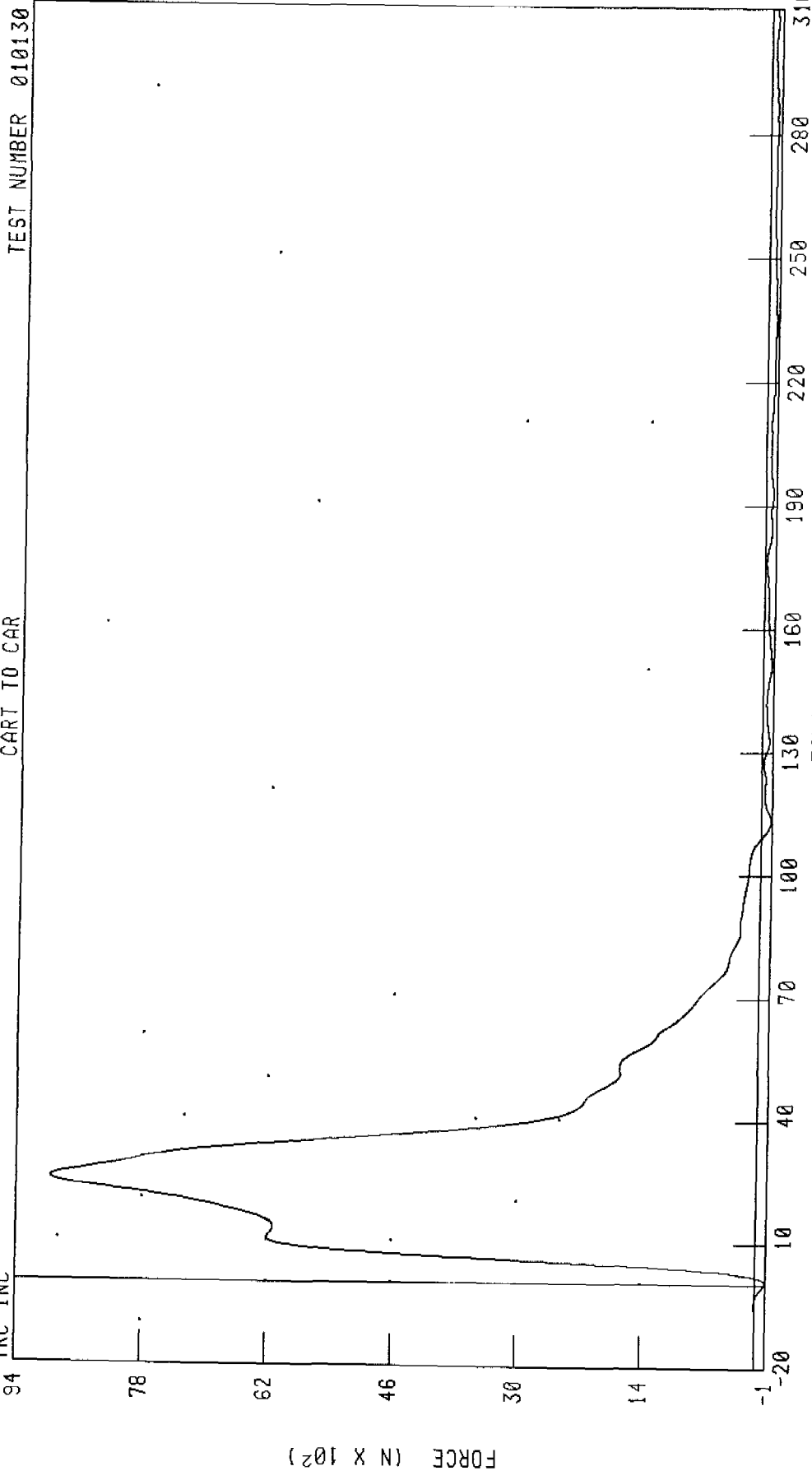
MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
MOVING BARRIER LOAD CELL G1 Z-AXIS FORCE



CART TO CAR

CHANNEL BC1ZF FILTER CH CLASS 60 PEAK DATA 1265 12 N @ 27 84 MS, -781 09 N @ 15 04 MS

MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
MOVING BARRIER LOAD CELL G2 X-AXIS FORCE  
CART TO CAR



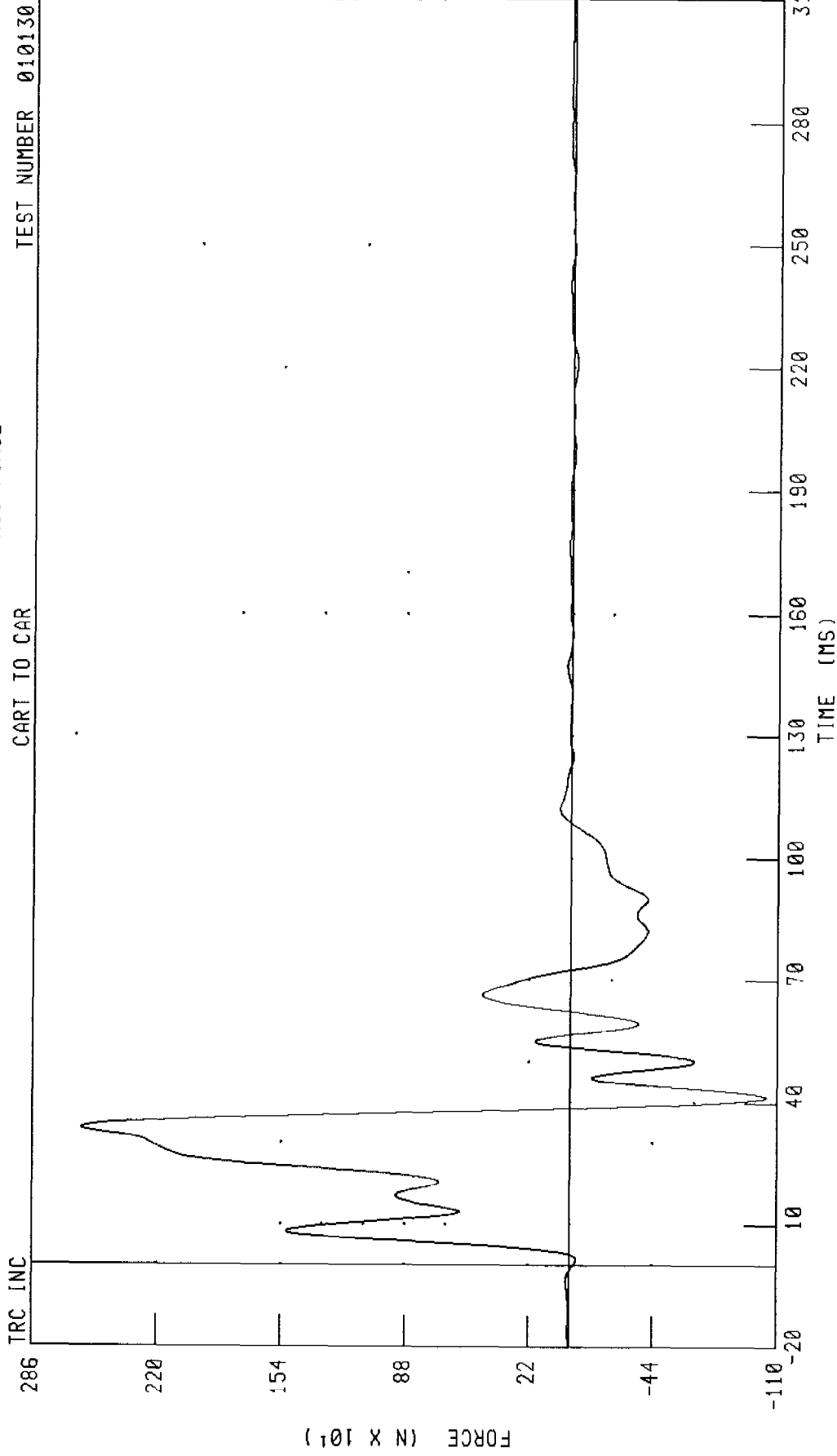
TRC INC

TEST NUMBER 010130

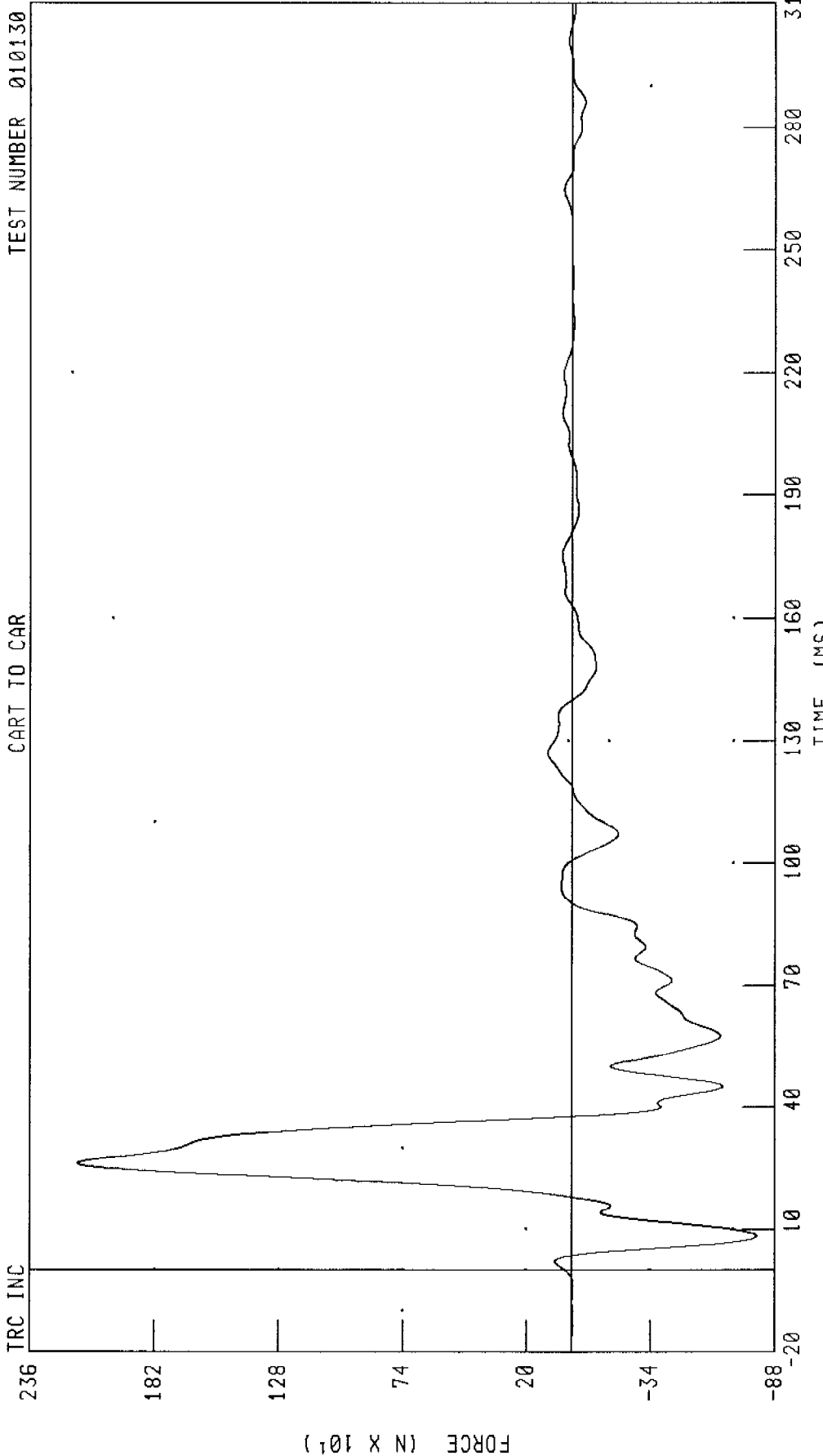
CHANNEL BG2XF FILTER CH CLASS 60

PEAK DATA 9043 20 N @ 25 20 MS, -120 27 N @ 113 52 MS

MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
MOVING BARRIER LOAD CELL G2 Y-AXIS FORCE  
CART TO CAR

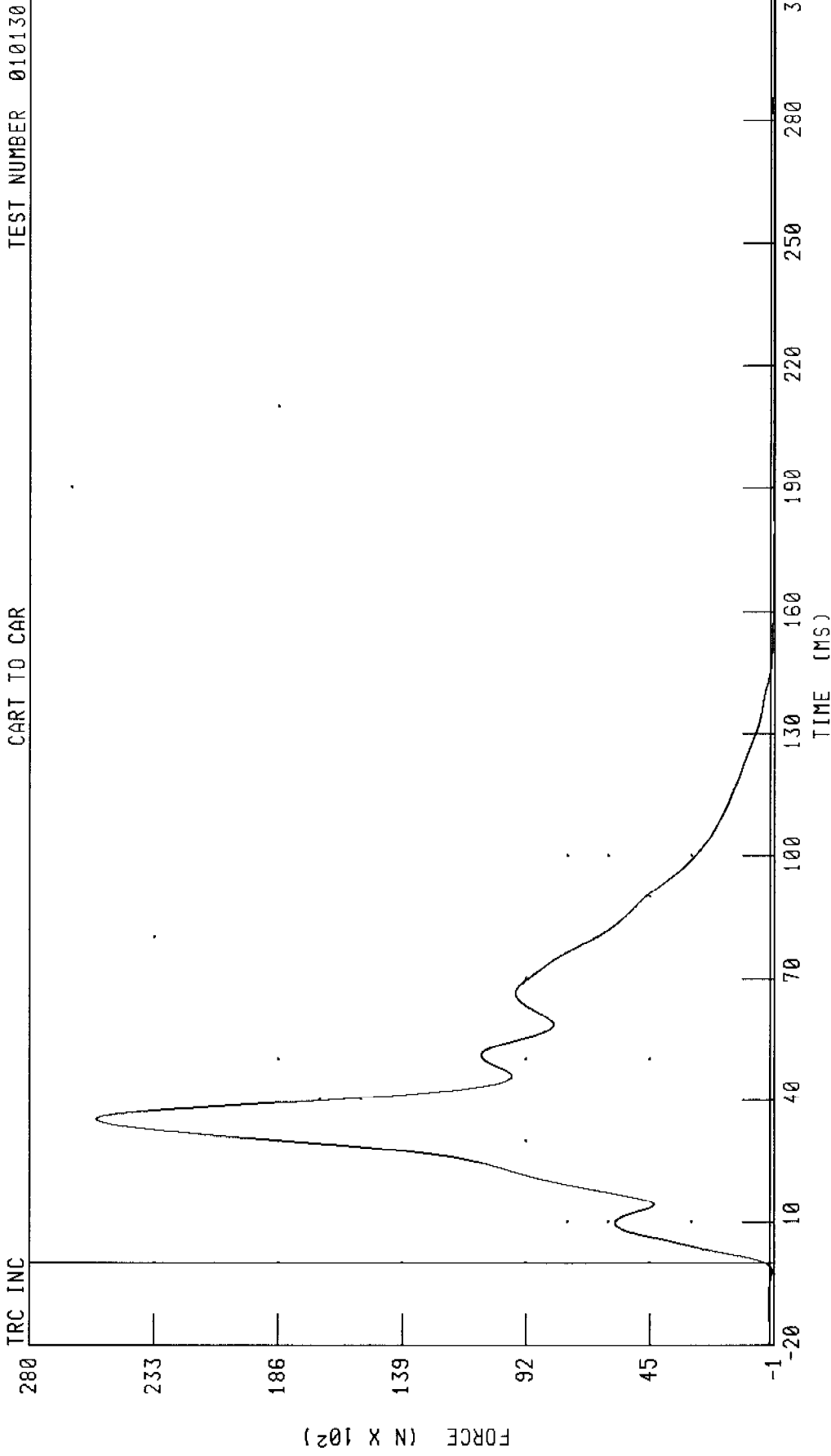


MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
MOVING BARRIER LOAD CELL G2 Z-AXIS FORCE



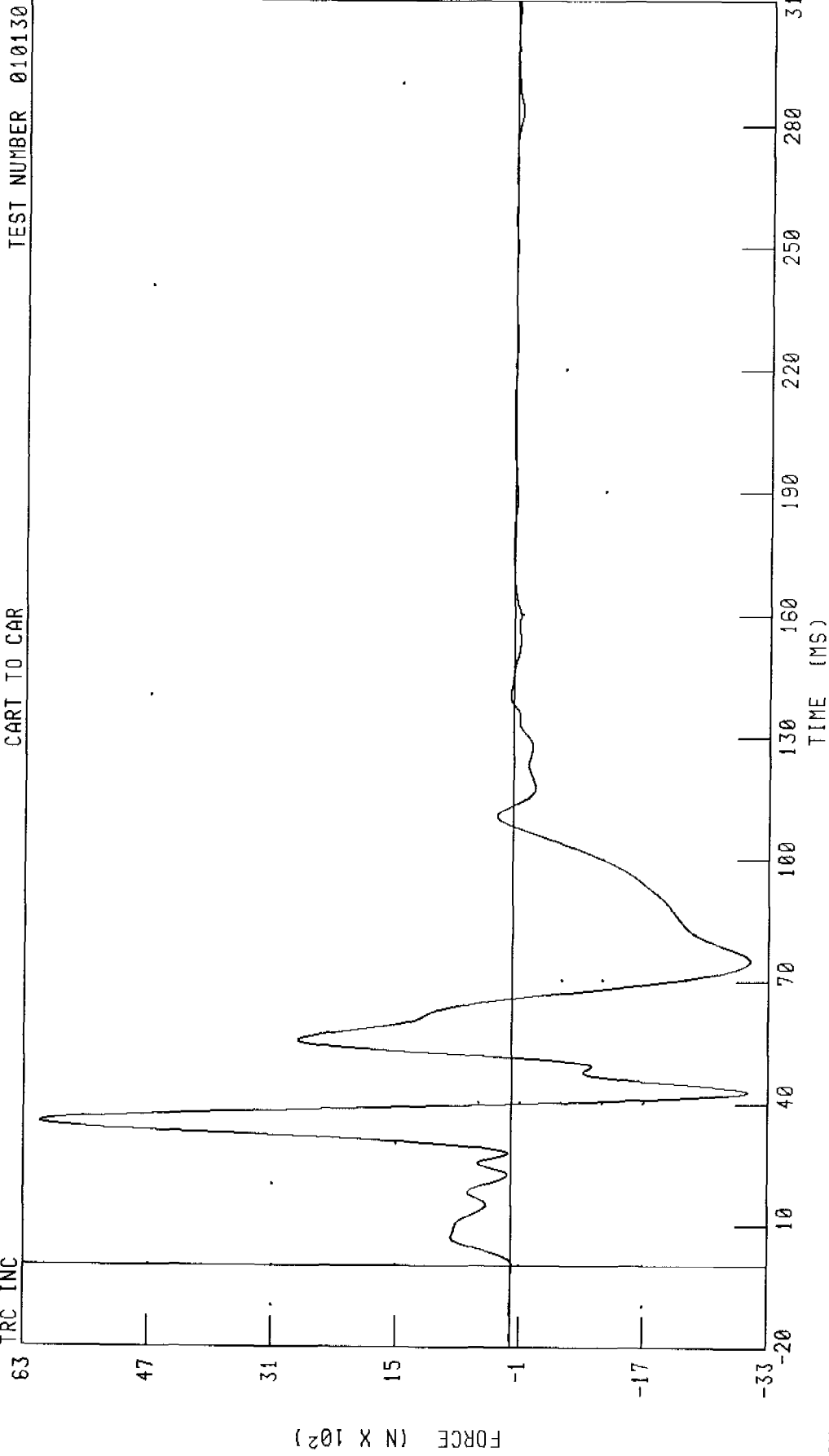
CHANNEL BC2ZF FILTER CH CLASS 60 PEAK DATA 2155 24 N @ 26 16 MS, -801 73 N @ 8 32 MS

MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
MOVING BARRIER LOAD CELL G4 X-AXIS FORCE  
CART TO CAR



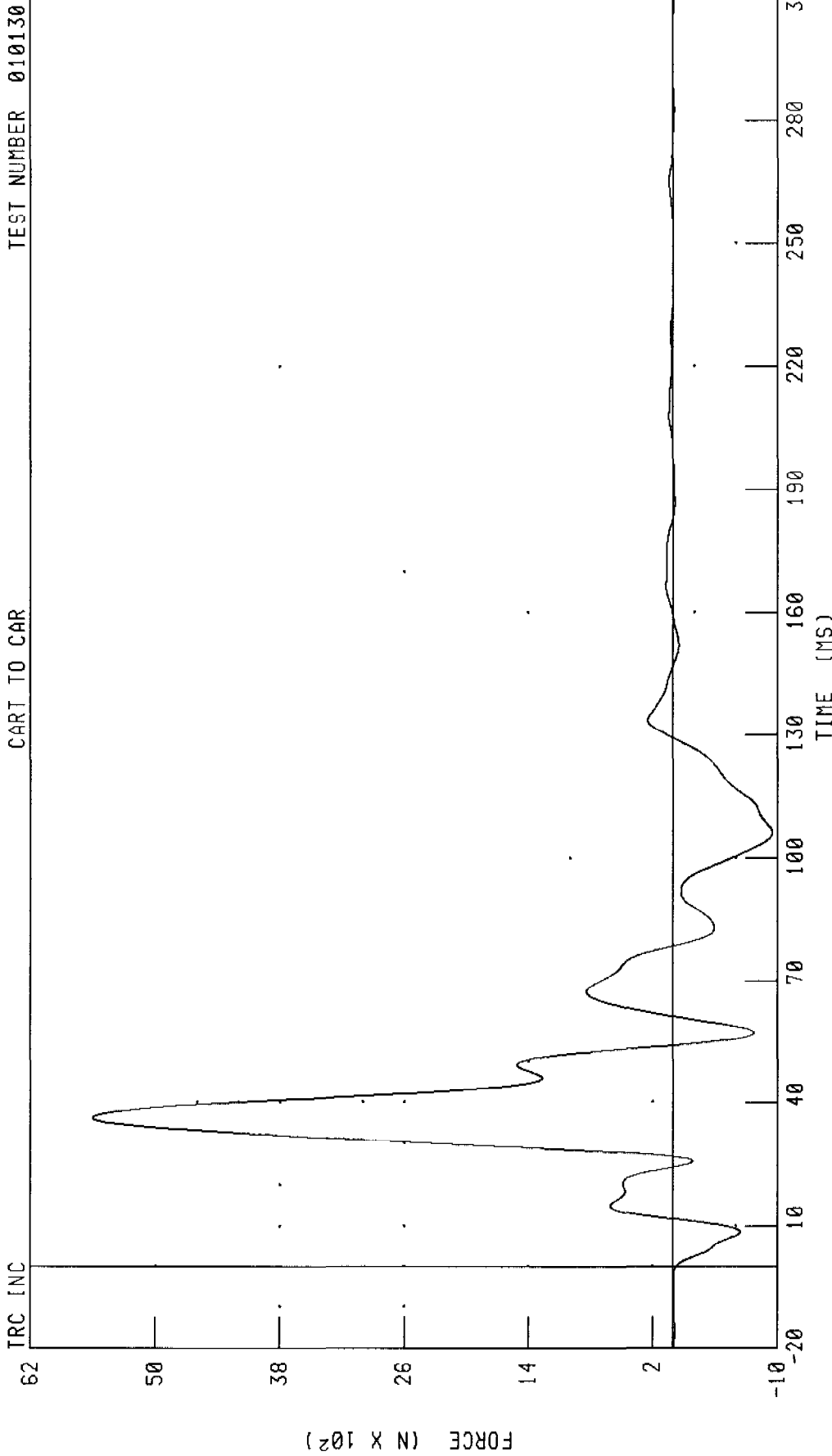
CHANNEL BG4XF FILTER CH CLASS 60 PEAK DATA 25526 22 N @ 35 20 MS, -156 15 N @ 180 40 MS

MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
MOVING BARRIER LOAD CELL G4 Y-AXIS FORCE  
CART TO CAR



CHANNEL BC4YF FILTER CH CLASS 60 PEAK DATA 6086 62 N @ 35 28 MS, -3070 02 N @ 75 04 MS

MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
MOVING BARRIER LOAD CELL G4 Z-AXIS FORCE  
CART TO CAR



TRC INC

TEST NUMBER 010130

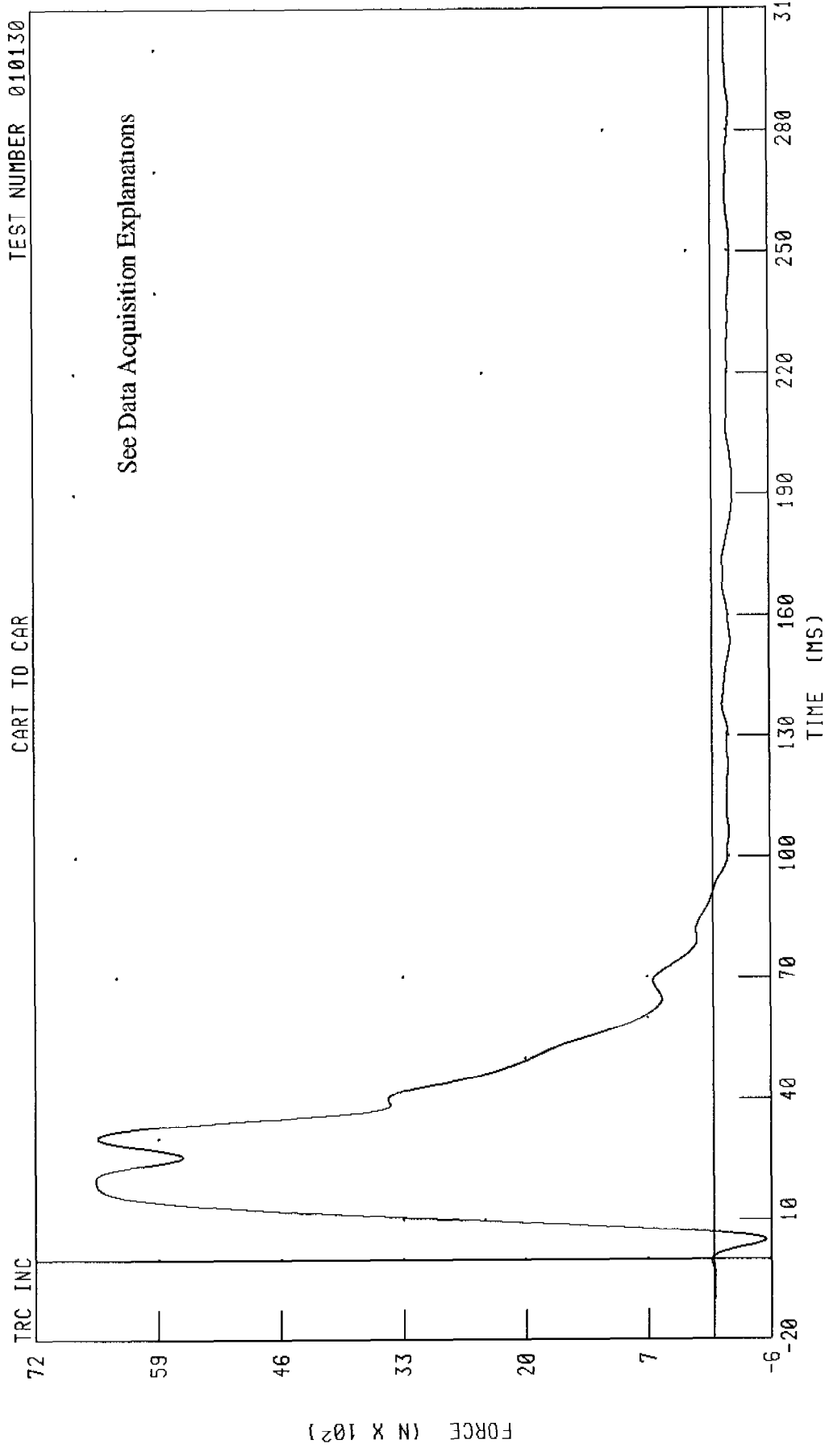
CHANNEL BG4ZF

FILTER CH CLASS 60

PEAK DATA 5605 62 N @ 36 32 MS, -953 45 N @ 106 16 MS

MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
MOVING BARRIER LOAD CELL H1 X-AXIS FORCE  
CART TO CAR

TEST NUMBER 010130



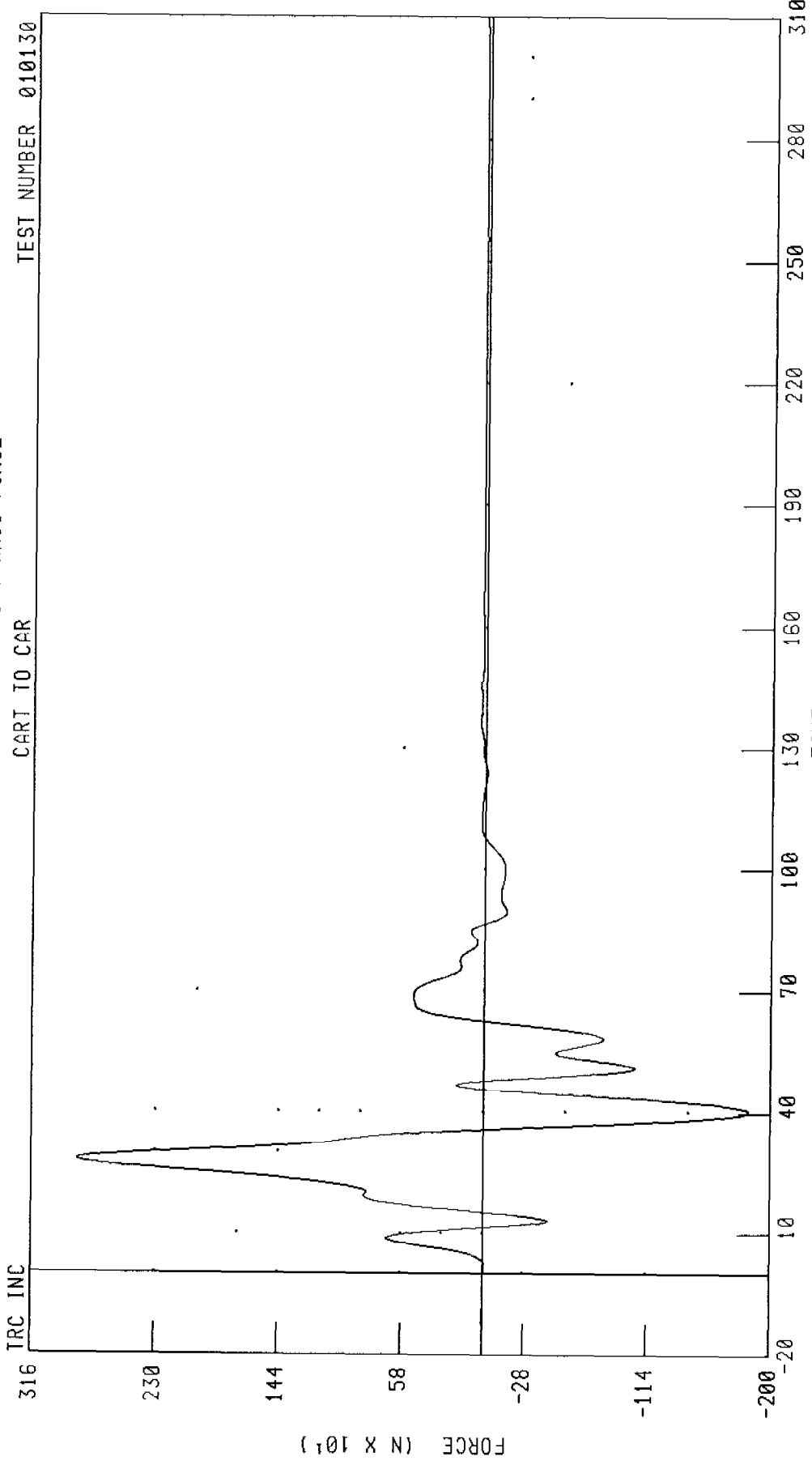
CHANNEL BH1XF FILTER CH CLASS 60 PEAK DATA 6566 81 N @ 19 76 MS, -546 88 N @ 4 80 MS

MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
MOVING BARRIER LOAD CELL H1 Y-AXIS FORCE

TRC INC

CART TO CAR

TEST NUMBER 010130



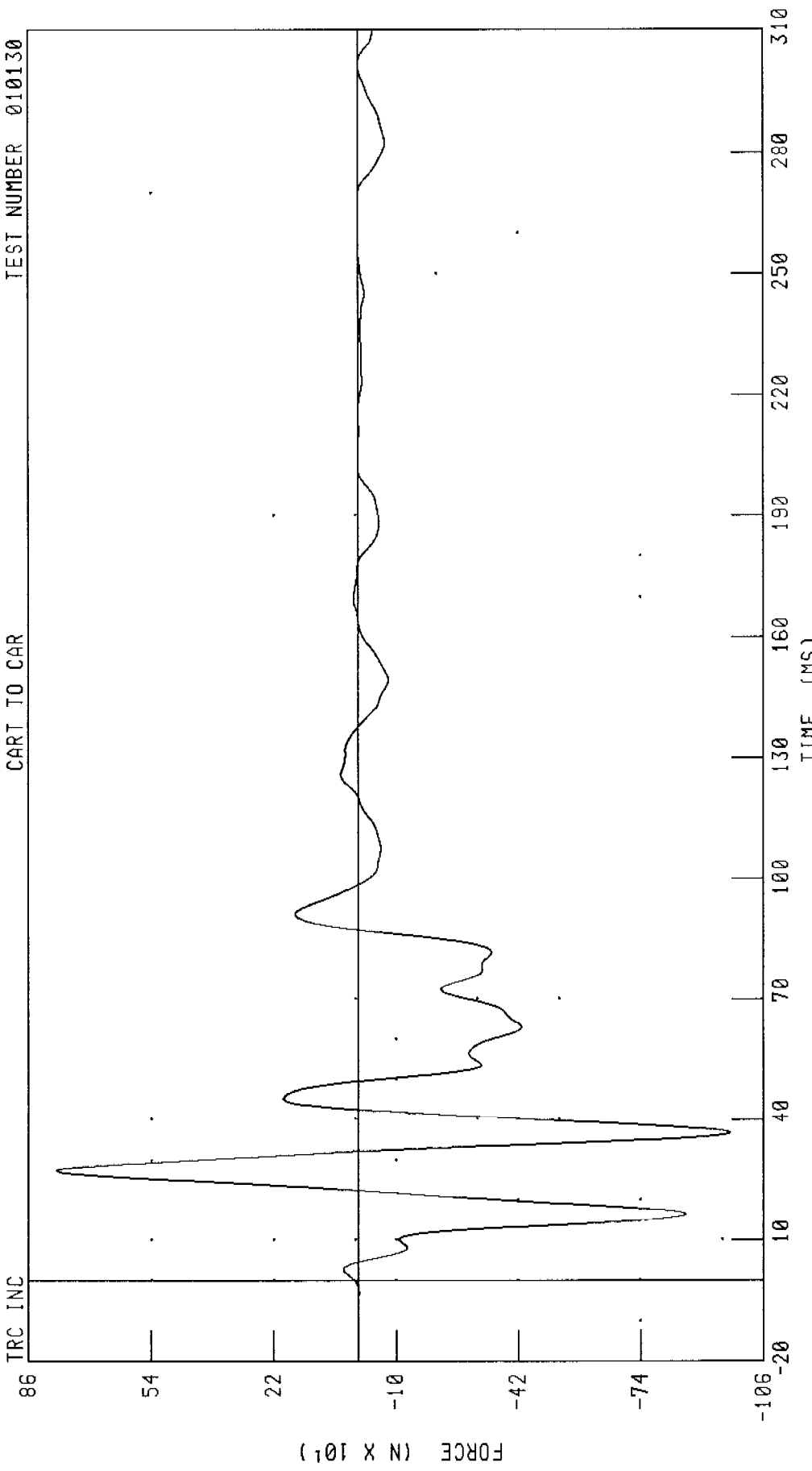
CHANNEL BH1YF FILTER CH CLASS 60 PEAK DATA 2843 83 N @ 28 08 MS, -1848 52 N @ 40 32 MS

MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
MOVING BARRIER LOAD CELL H1 Z-AXIS FORCE

TRC INC  
86

CART TO CAR

TEST NUMBER 010130



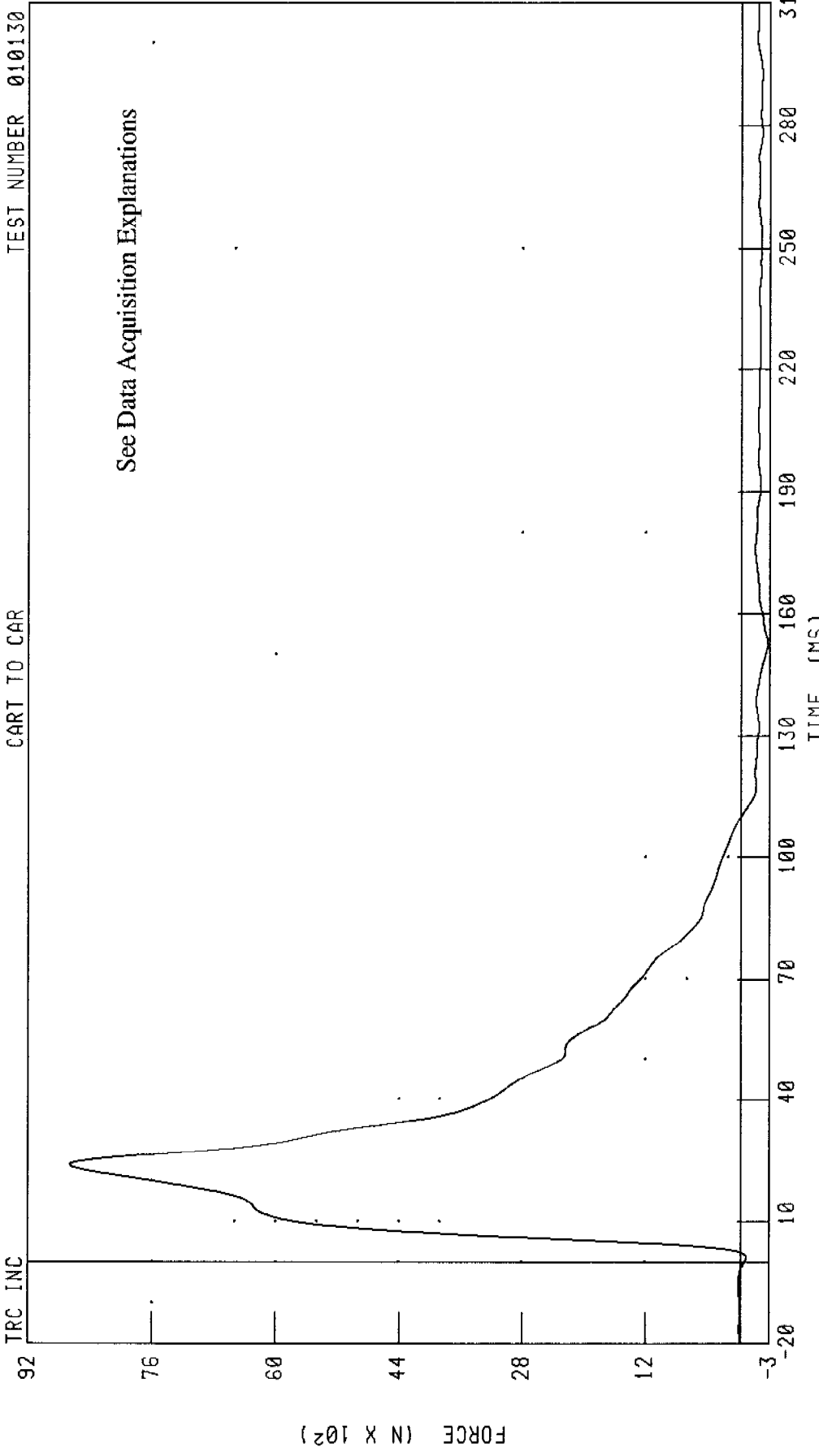
CHANNEL BH1ZF FILTER CH CLASS 60

PEAK DATA 786 19 N @ 27 36 MS, -972 78 N @ 36 80 MS

MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
MOVING BARRIER LOAD CELL H2 X-AXIS FORCE  
CART TO CAR

TRC INC

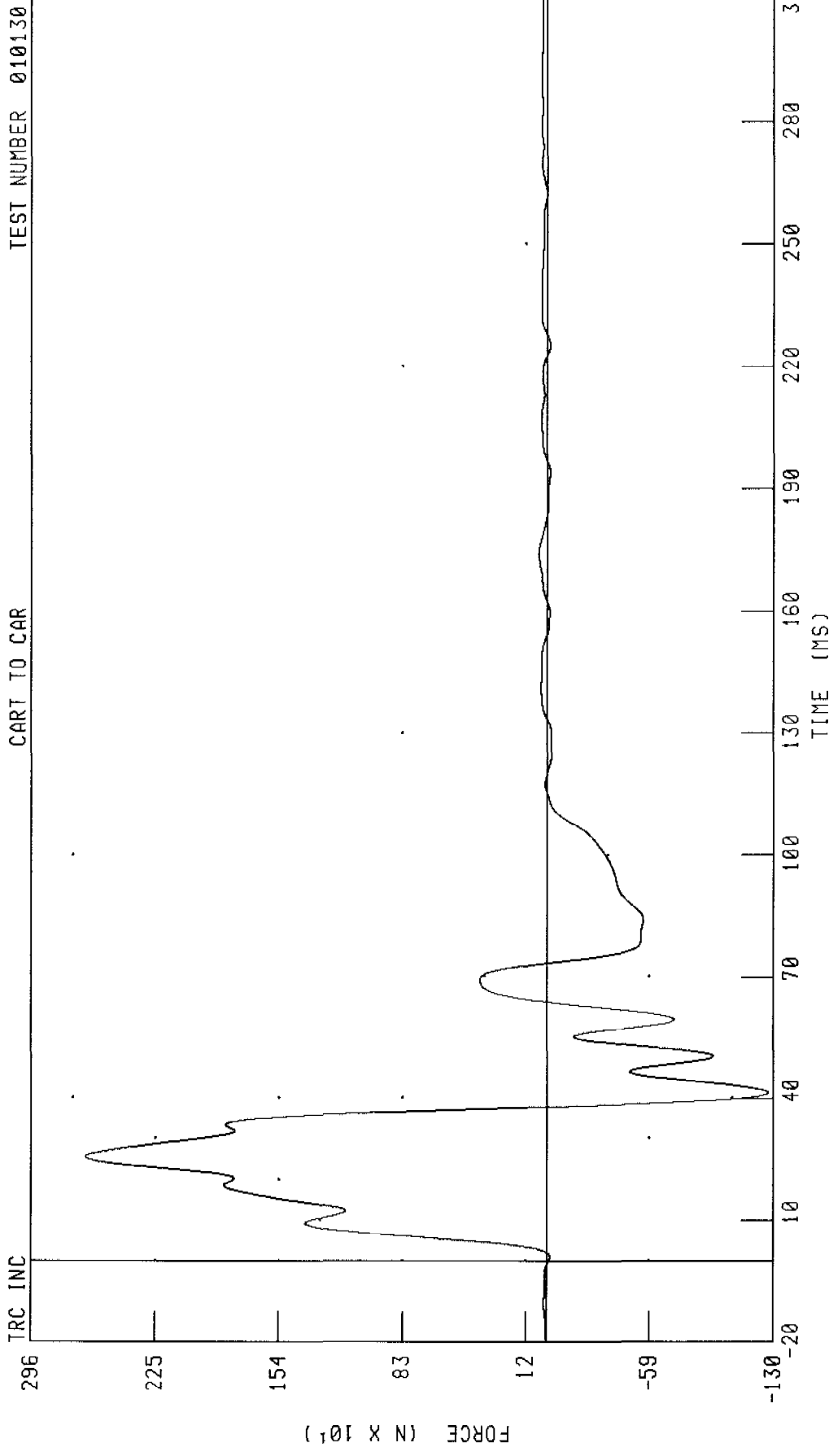
TEST NUMBER 010130



TIME (MS)

CHANNEL BH2XF FILTER CH CLASS 60 PEAK DATA 8691 35 N @ 24 00 MS, -344 53 N @ 152 64 MS

MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
MOVING BARRIER LOAD CELL H2 Y-AXIS FORCE



CART TO CAR

CHANNEL BH2YF FILTER CH CLASS 60

PEAK DATA 2649 80 N @ 25 52 MS, -1272 55 N @ 41 36 MS

MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
MOVING BARRIER LOAD CELL H2 Z-AXIS FORCE

TRC INC

CART TO CAR

TEST NUMBER 010130

CHANNEL BH2ZF FILTER CH CLASS 60

PEAK DATA 1514 16 N 24 96 MS, -783 53 N 0 56 08 MS

TIME (MS)

FORCE (N X 10<sup>4</sup>)

166

124

82

40

-2

-44

-86

10

40

70

100

130

160

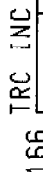
190

220

250

280

310

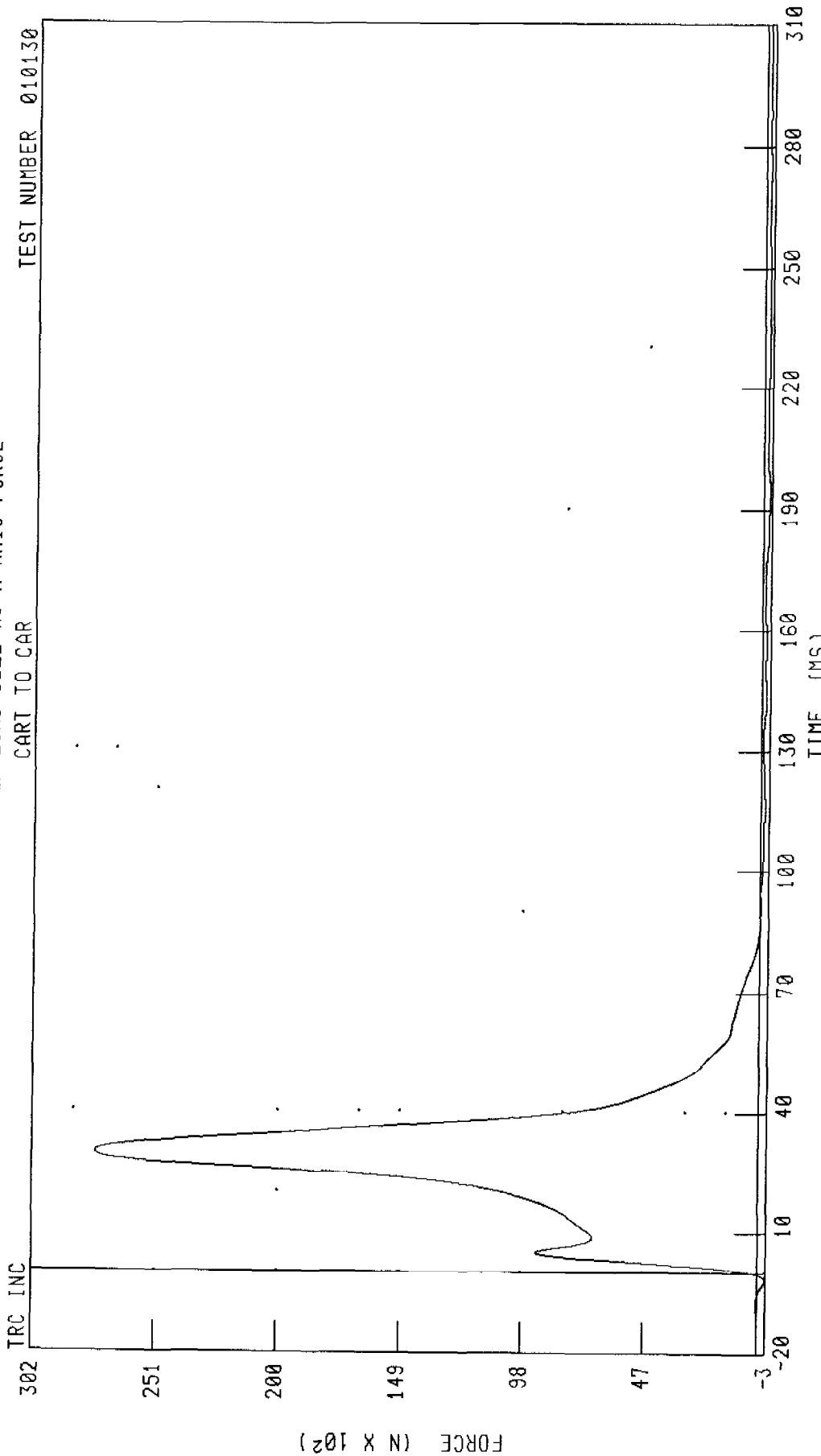


MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
MOVING BARRIER LOAD CELL H3 X-AXIS FORCE

TRC INC

TEST NUMBER 010130

CART TO CAR



CHANNEL BH3XF FILTER CH CLASS 60 PEAK DATA 27632 97 N @ 29 76 MS, -331 30 N @ -1 76 MS

MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
MOVING BARRIER LOAD CELL H3 Y-AXIS FORCE

TRC INC

CART TO CAR

TEST NUMBER 010130

CHANNEL BH3YF FILTER CH CLASS 60

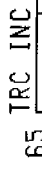
PEAK DATA 6262 90 N @ 33 44 MS, -2348 43 N @ 41 60 MS

TIME (MS)

FORCE (N X 10<sup>2</sup>)

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

65 50 35 20 5 -10 -25

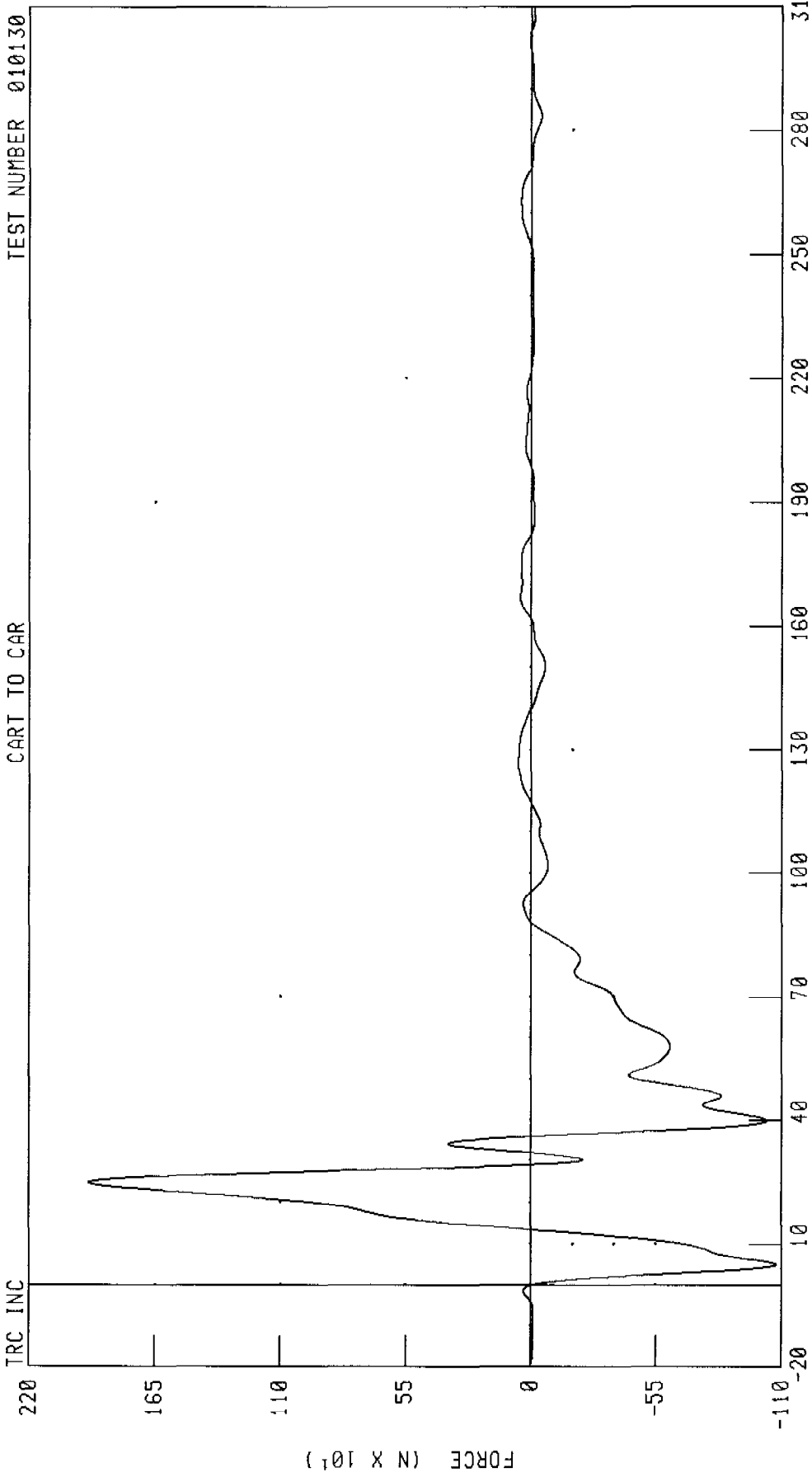


MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
MOVING BARRIER LOAD CELL H3 Z-AXIS FORCE

TRC INC

TEST NUMBER 010130

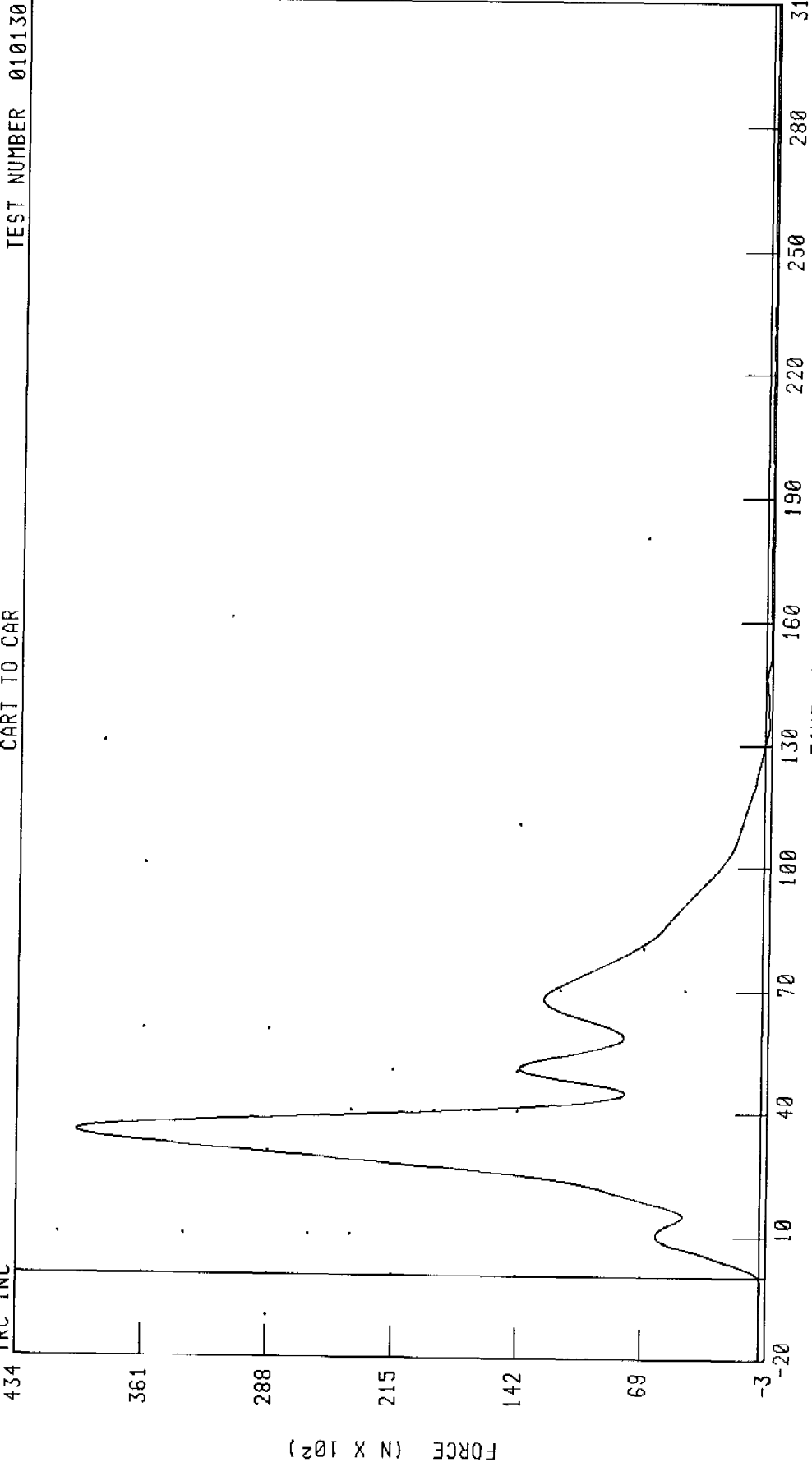
CART TO CAR



TIME (MS)

CHANNEL BH3ZF FILTER CH CLASS 60 PEAK DATA 1940 59 N @ 24 80 MS, -1076 28 N @ 4 96 MS

MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
MOVING BARRIER LOAD CELL H4 X-AXIS FORCE  
CART TO CAR



CHANNEL BH4XF FILTER CH CLASS 60  
PEAK DATA 39991 41 N @ 34 88 MS, -334 30 N @ 153 36 MS

MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
MOVING BARRIER LOAD CELL H4 Y-AXIS FORCE

TRC INC

CART TO CAR

TEST NUMBER 010130

195

155

115

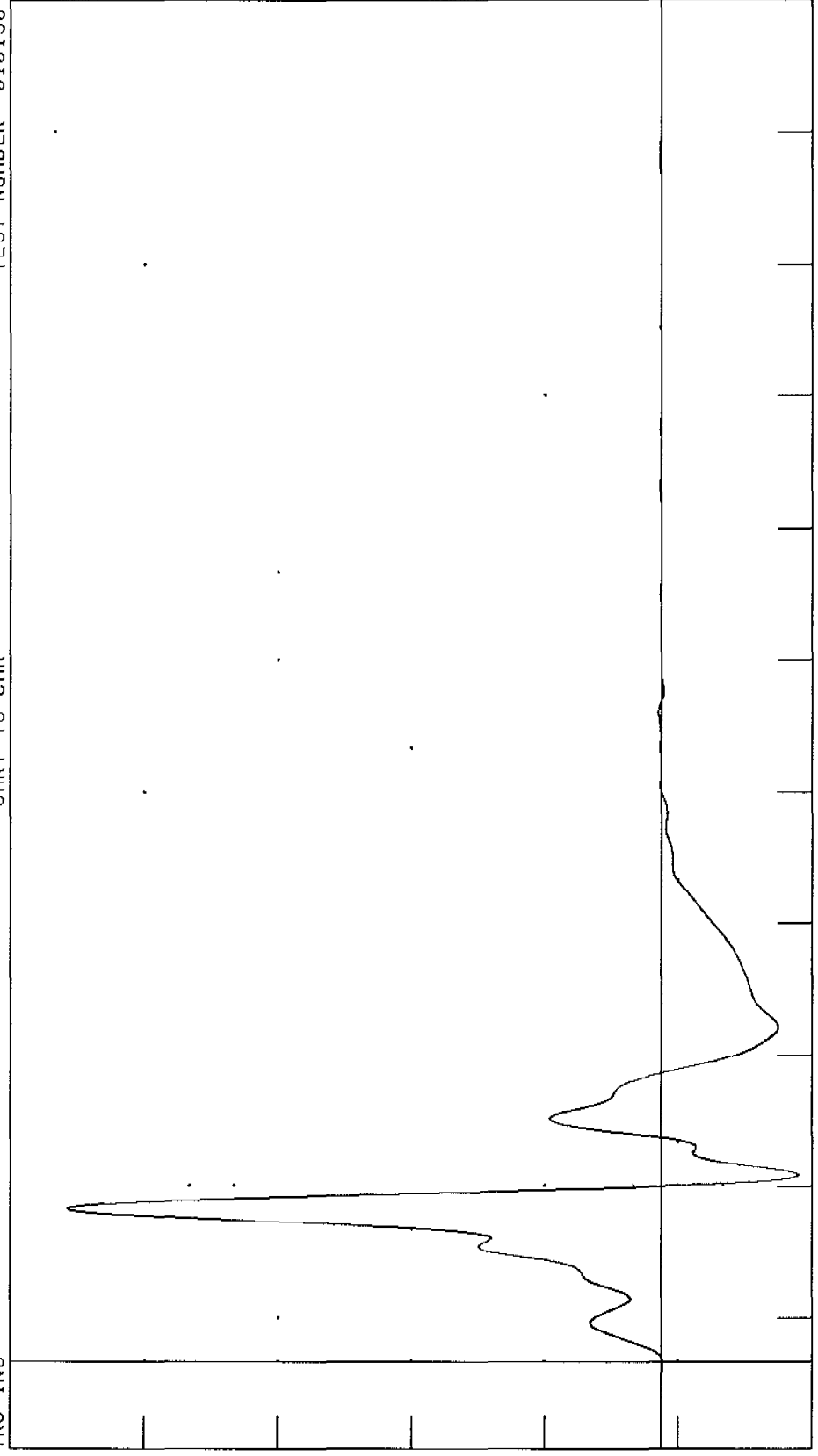
75

35

-5

-45

FORCE (N X 10<sup>2</sup>)



TIME (MS)

310

280

250

220

190

160

130

100

70

40

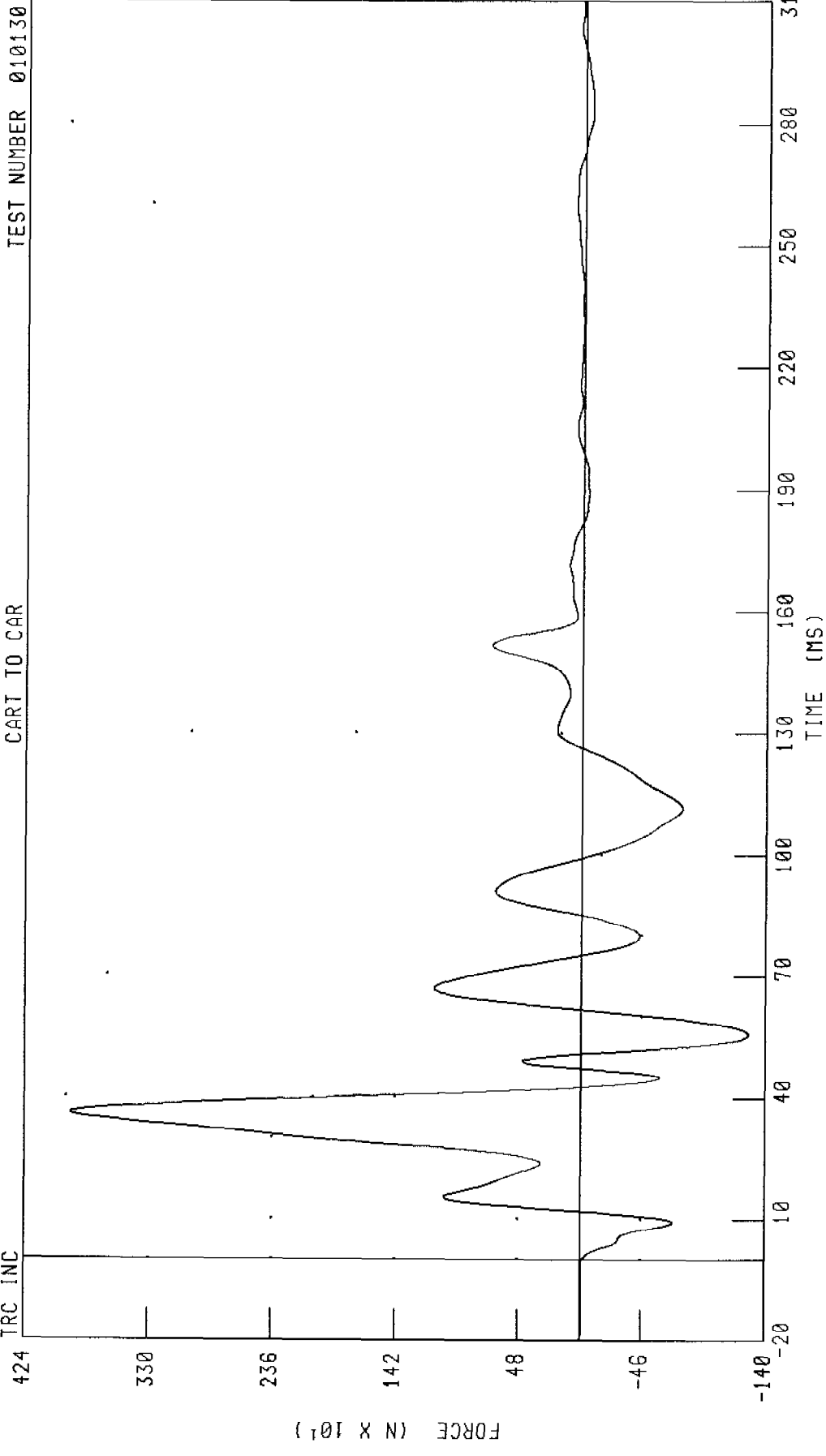
10

-20

CHANNEL BH4YF FILTER CH CLASS 60

PEAK DATA 17800 41 N @ 34 96 MS, -4092 72 N @ 42 48 MS

MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
MOVING BARRIER LOAD CELL H4 Z-AXIS FORCE  
CART TO CAR



TEST NUMBER 010130

CHANNEL BH4ZF FILTER CH CLASS 60 PEAK DATA 3892 88 N @ 36 24 MS, -1272 91 N @ 55 68 MS

MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
MOVING BARRIER LOAD CELL I1 X-AXIS FORCE  
CART TO CAR

TEST NUMBER 010130

TRC INC

79

65

51

37

23

9

-4

-20

FORCE (N X 10<sup>2</sup>)

See Data Acquisition Explanations

TIME (MS)

310

280

250

220

190

160

130

100

70

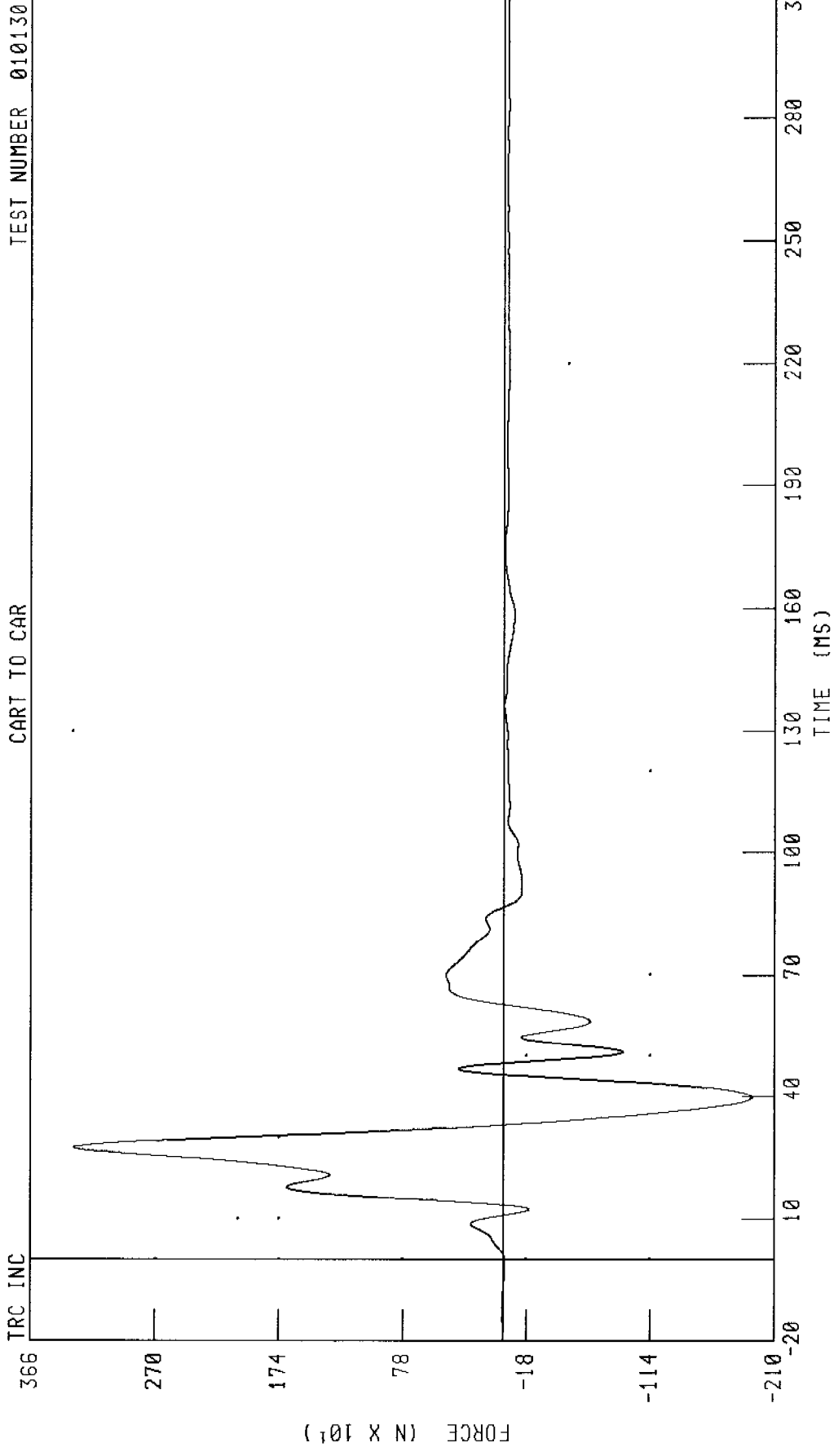
40

10

PEAK DATA 7265 82 N @ 27 76 MS, -437 94 N @ 5 52 MS

CHANNEL B11XF FILTER CH CLASS 60

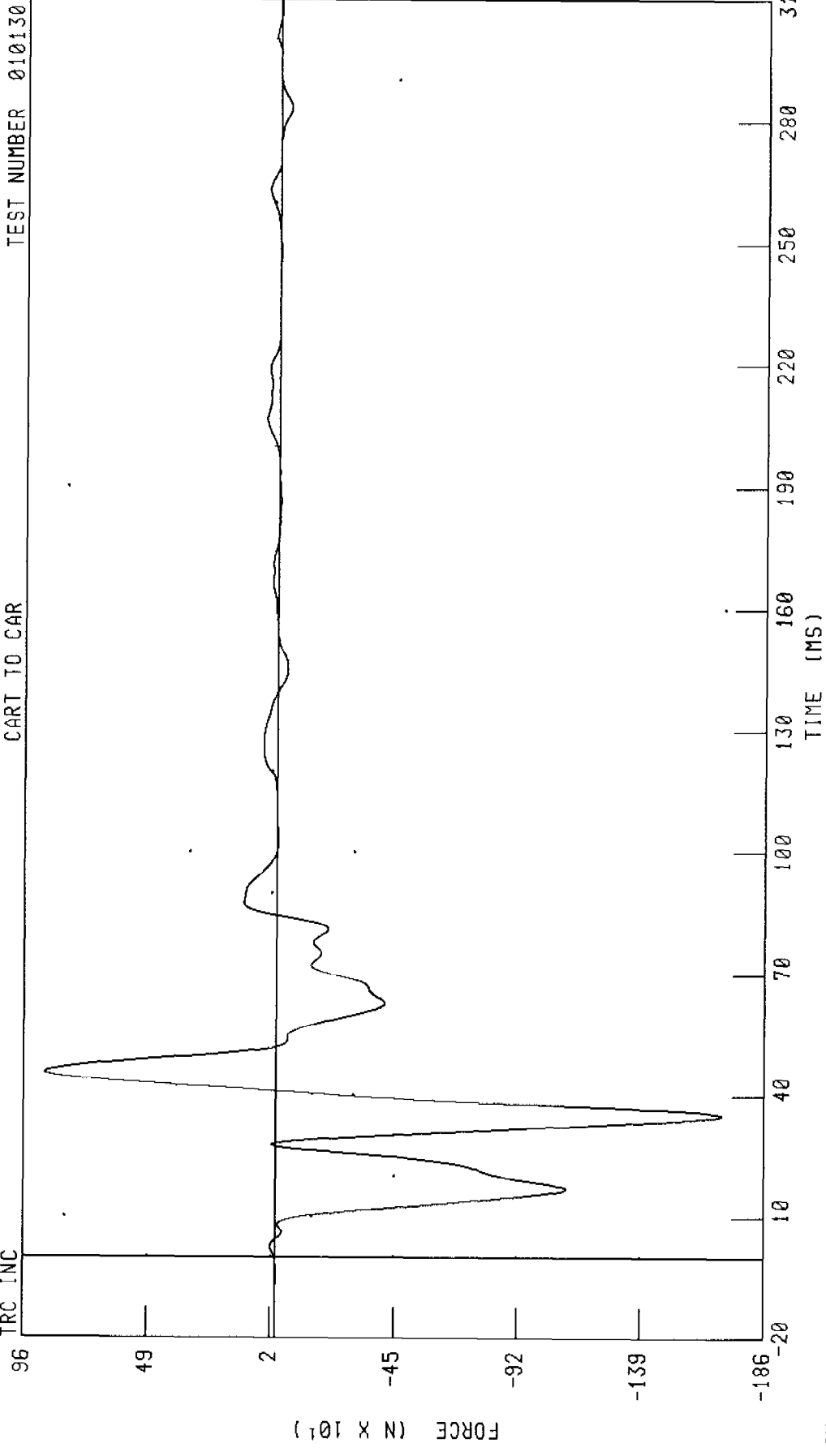
MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
MOVING BARRIER LOAD CELL I1 Y-AXIS FORCE  
CART TO CAR



TEST NUMBER 010130

CHANNEL B11YF FILTER CH CLASS 60 PEAK DATA 3331 87 N @ 27 52 MS, -1927 80 N @ 39 68 MS

MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
MOVING BARRIER LOAD CELL I1 Z-AXIS FORCE

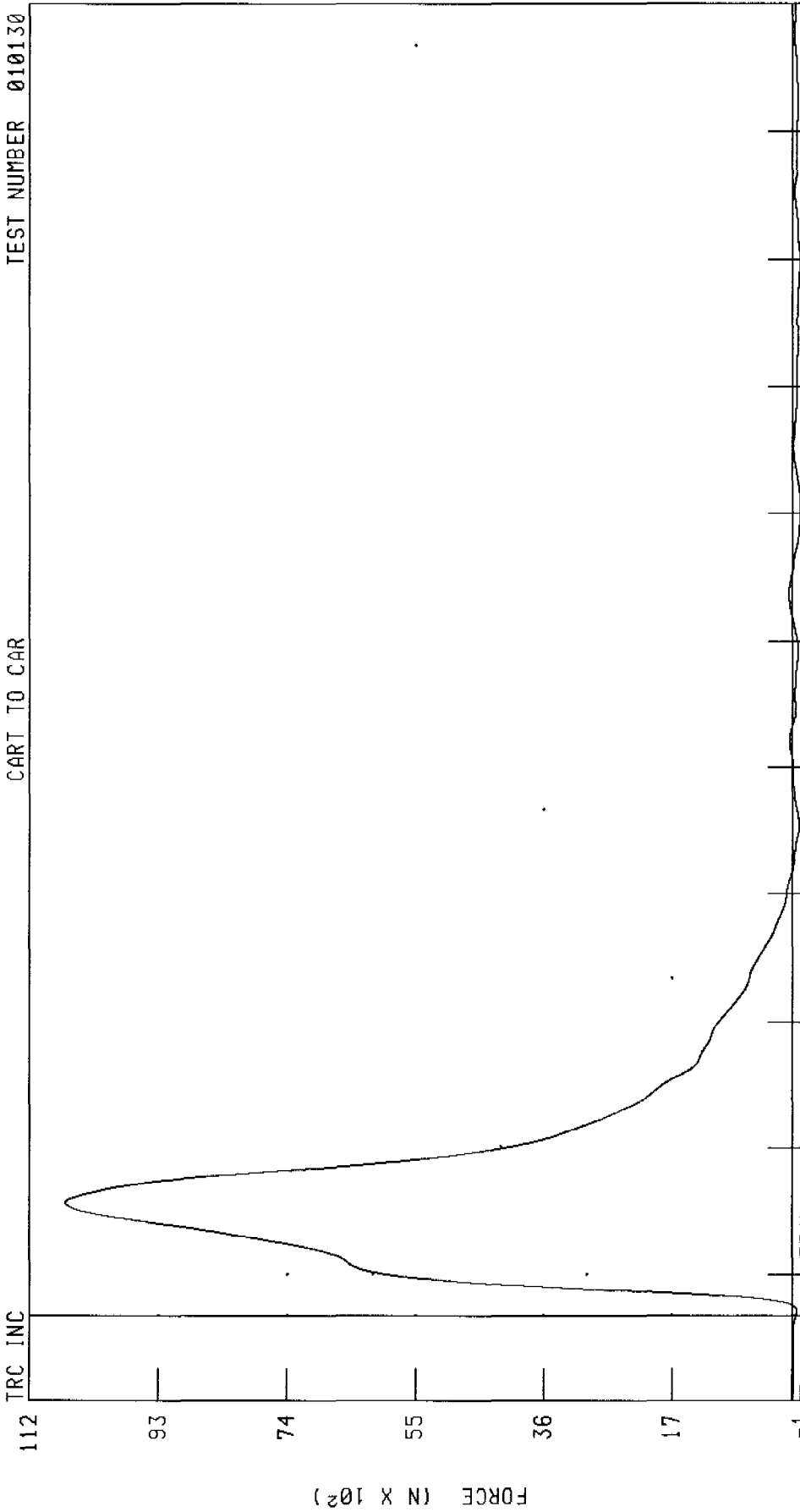


CHANNEL BI1ZF FILTER CH CLASS 60 PEAK DATA 880 60 N @ 45 68 MS, -1702 44 N @ 35 12 MS

MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
MOVING BARRIER LOAD CELL I2 X-AXIS FORCE  
CART TO CAR

TRC INC

TEST NUMBER 010130

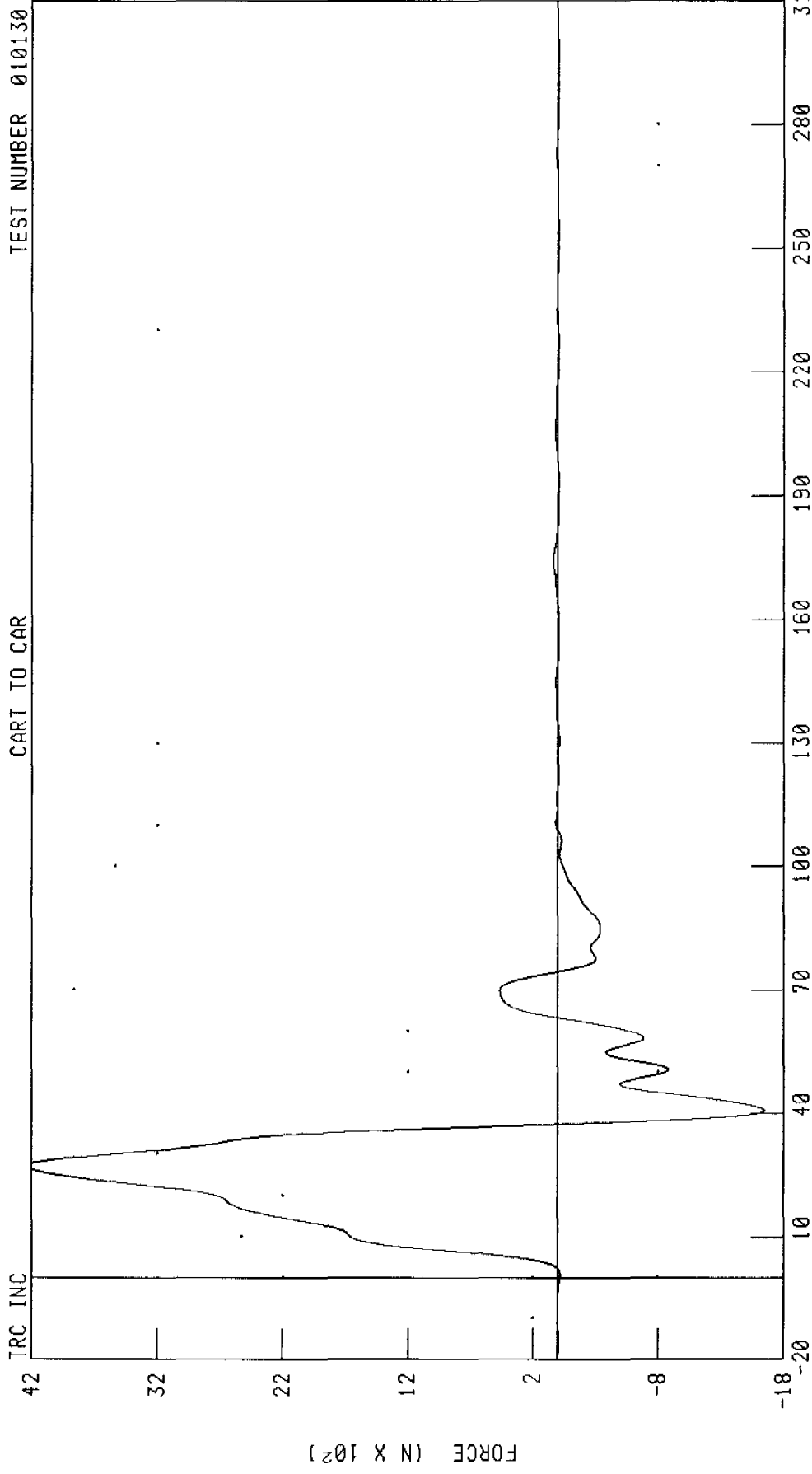


TIME (MS)

PEAK DATA 10750 81 N @ 26 88 MS, -110 48 N @ 249 60 MS

CHANNEL B12XF FILTER CH CLASS 60

MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
MOVING BARRIER LOAD CELL 12 Y-AXIS FORCE



TRC INC

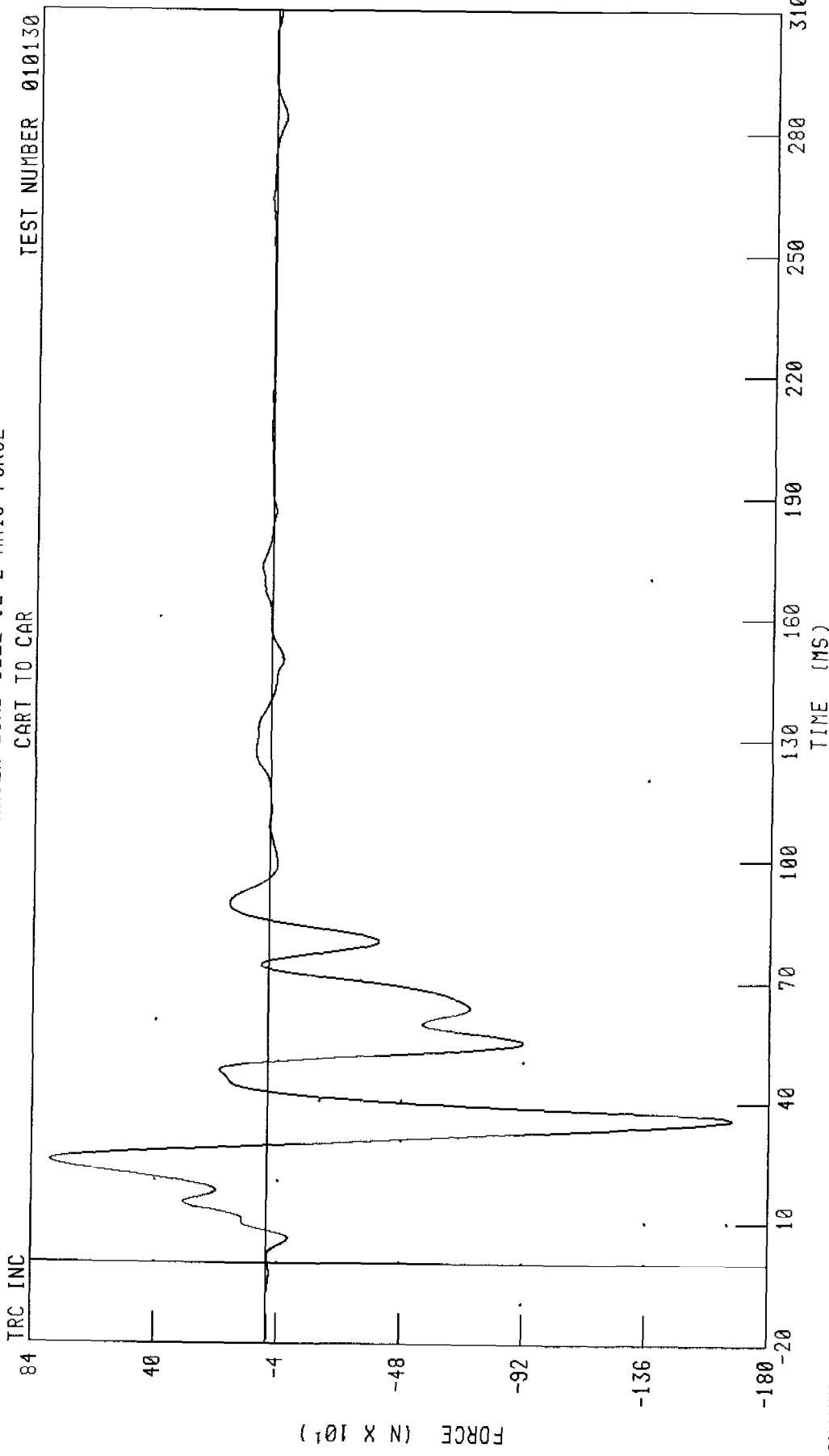
CART TO CAR

TEST NUMBER 010130

TIME (MS)

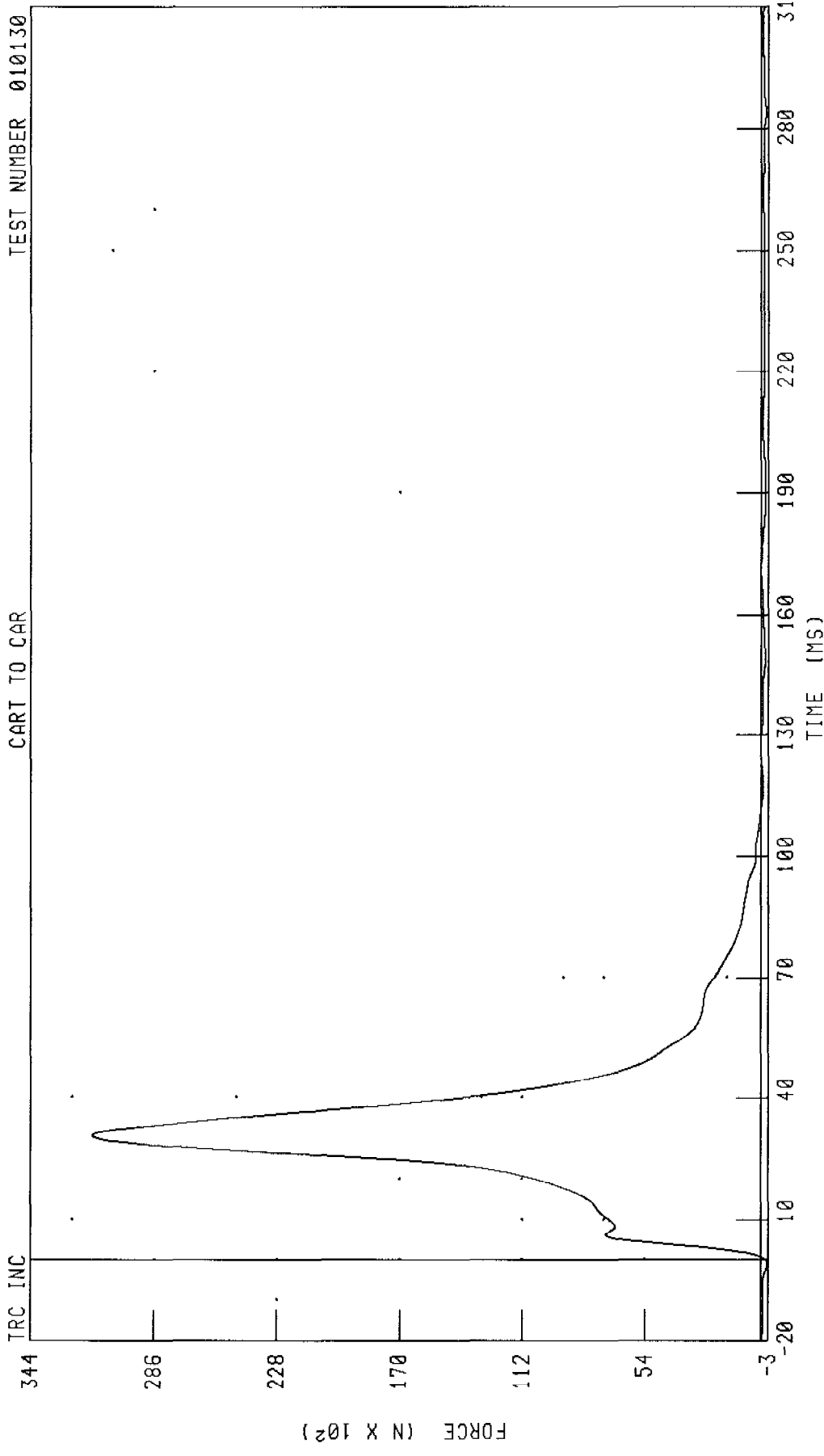
CHANNEL B12YF FILTER CH CLASS 60 PEAK DATA 4241 70 N @ 27 04 MS, -1645 92 N @ 40 56 MS

MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
MOVING BARRIER LOAD CELL I2 Z-AXIS FORCE



MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
MOVING BARRIER LOAD CELL I3 X-AXIS FORCE

TRC INC  
CART TO CAR  
TEST NUMBER 010130



CHANNEL B13XF FILTER CH CLASS 60  
PEAK DATA 31594 70 N @ 30 64 MS, -296 59 N @ -0 96 MS

MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
MOVING BARRIER LOAD CELL I3 Y-AXIS FORCE

TEST NUMBER 010130

CART TO CAR

TRC INC

132

102

72

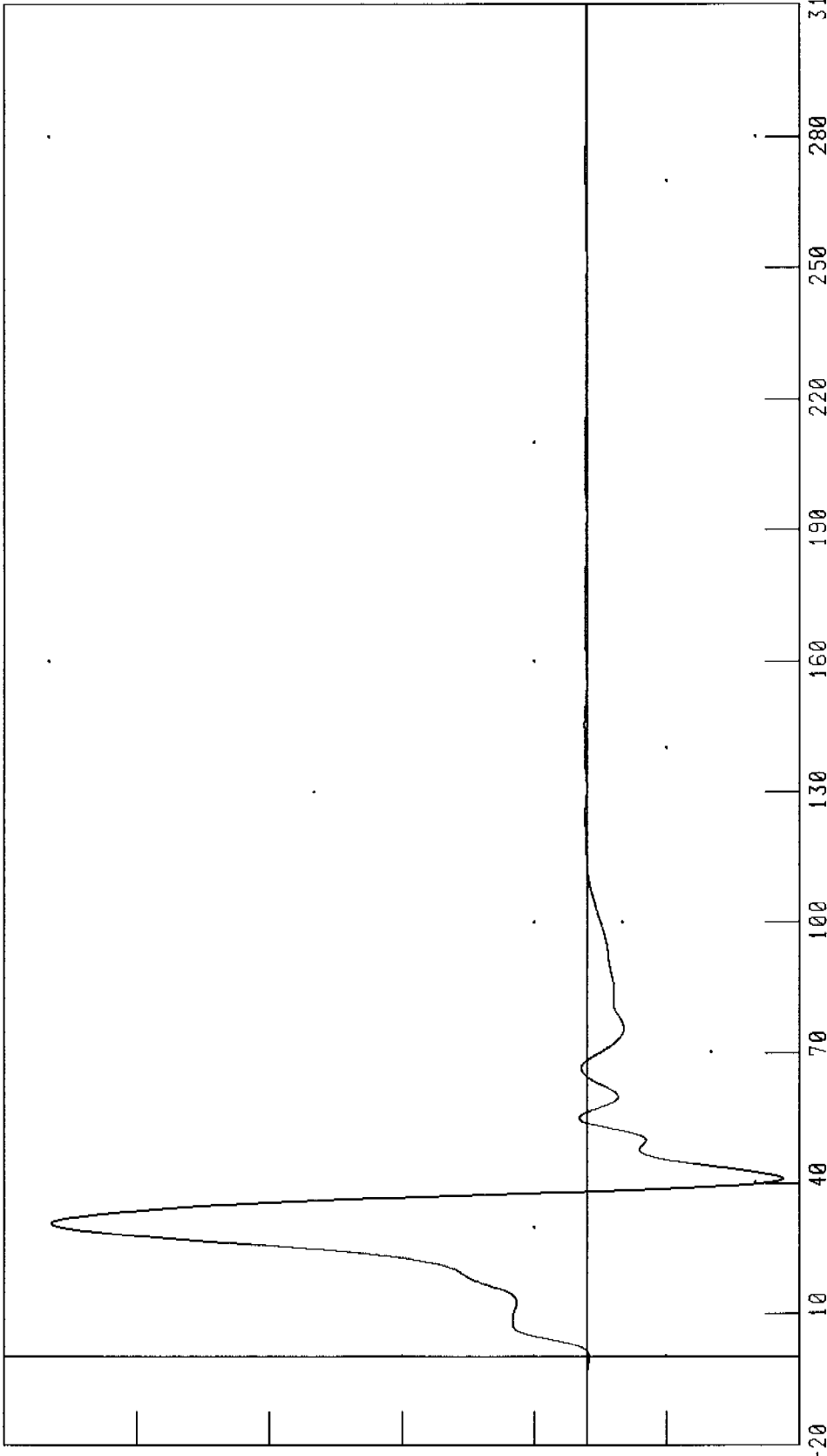
42

12

-18

-48

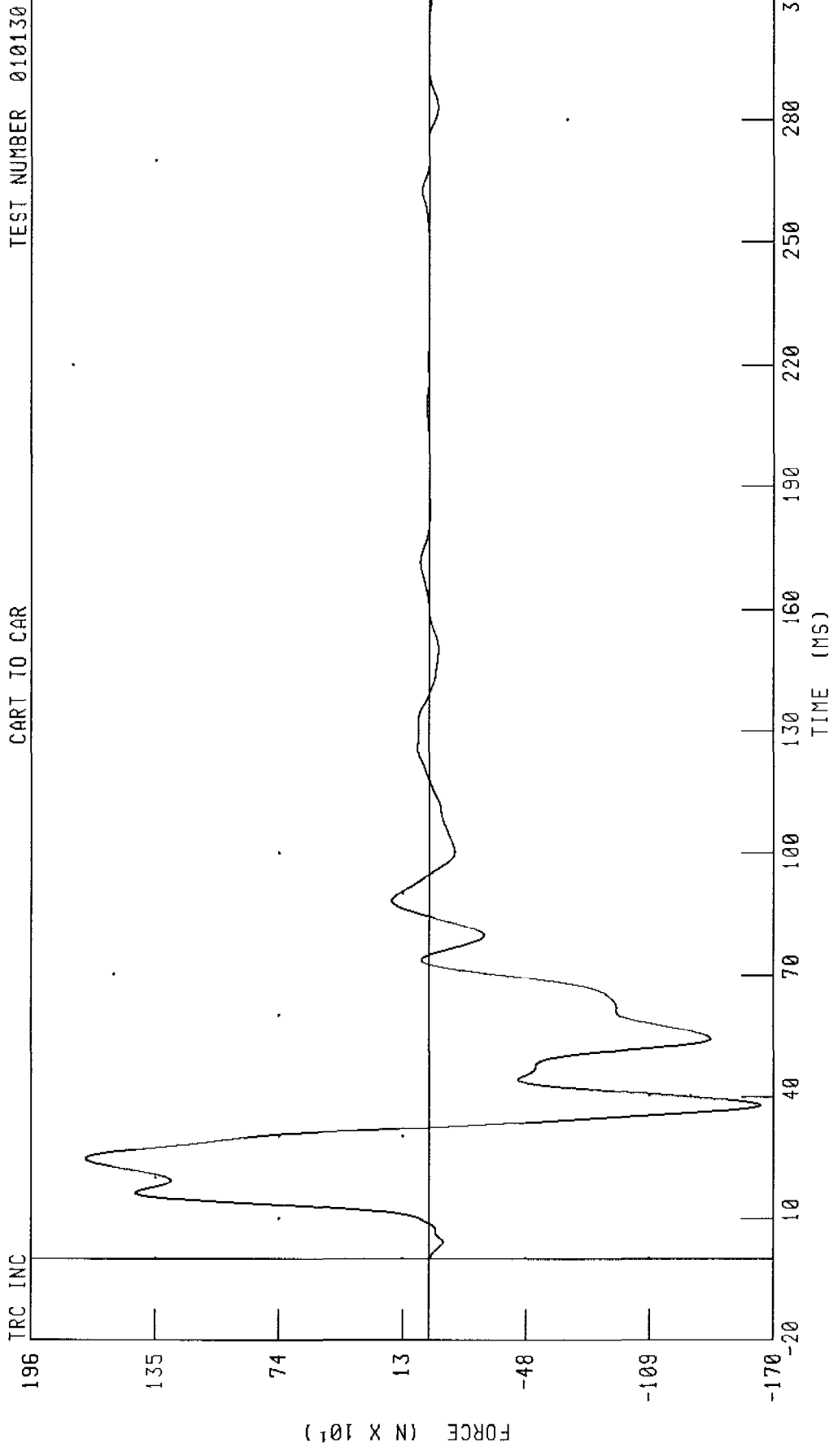
FORCE (N X 10<sup>2</sup>)



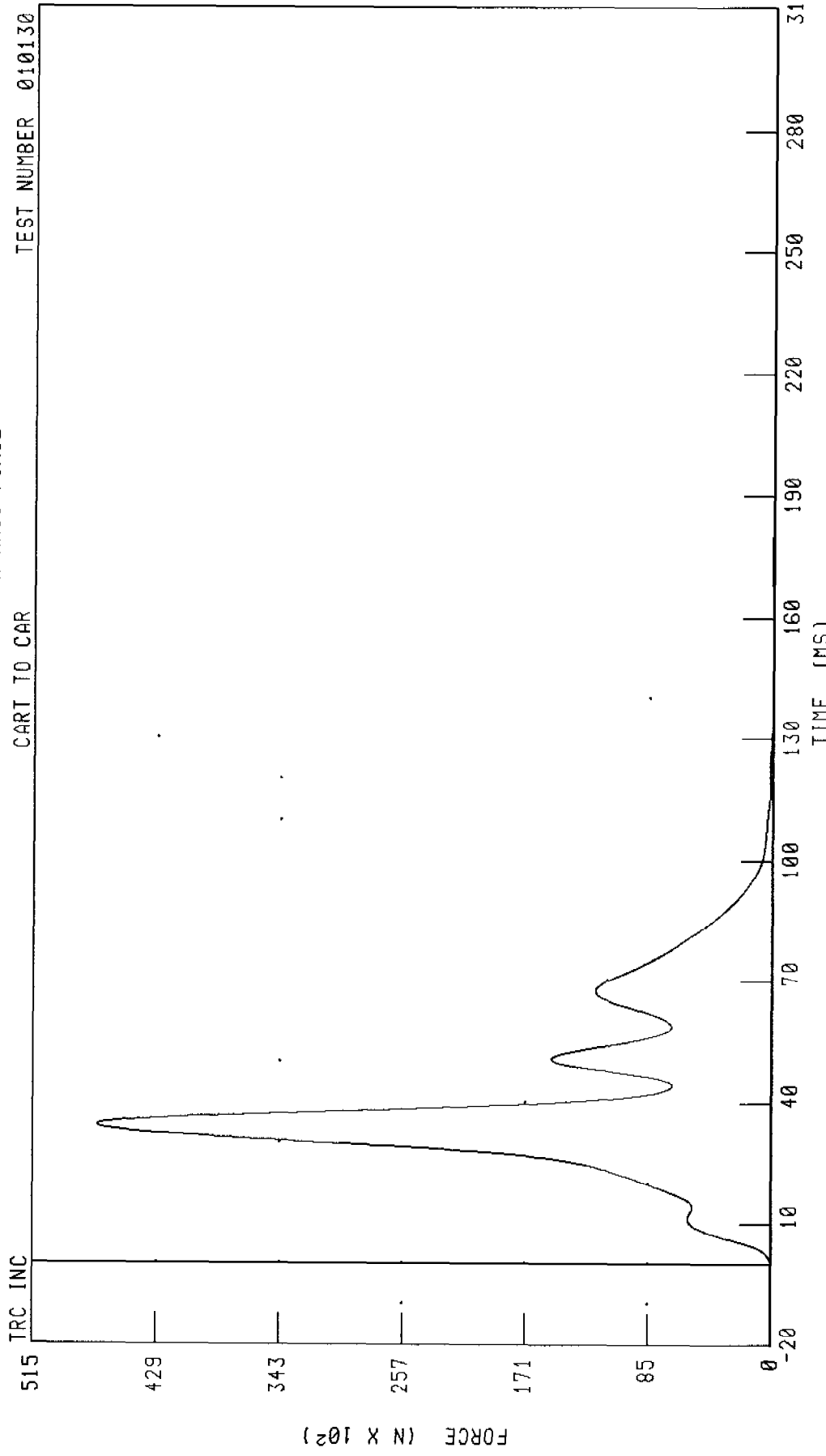
TIME (MS)

CHANNEL B13YF FILTER CH CLASS 60 PEAK DATA 12149 54 N @ 30 96 MS, -4447 04 N @ 41 12 MS

MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
MOVING BARRIER LOAD CELL I3 Z-AXIS FORCE



MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
MOVING BARRIER LOAD CELL I4 X-AXIS FORCE



CHANNEL BI4XF FILTER CH CLASS 60

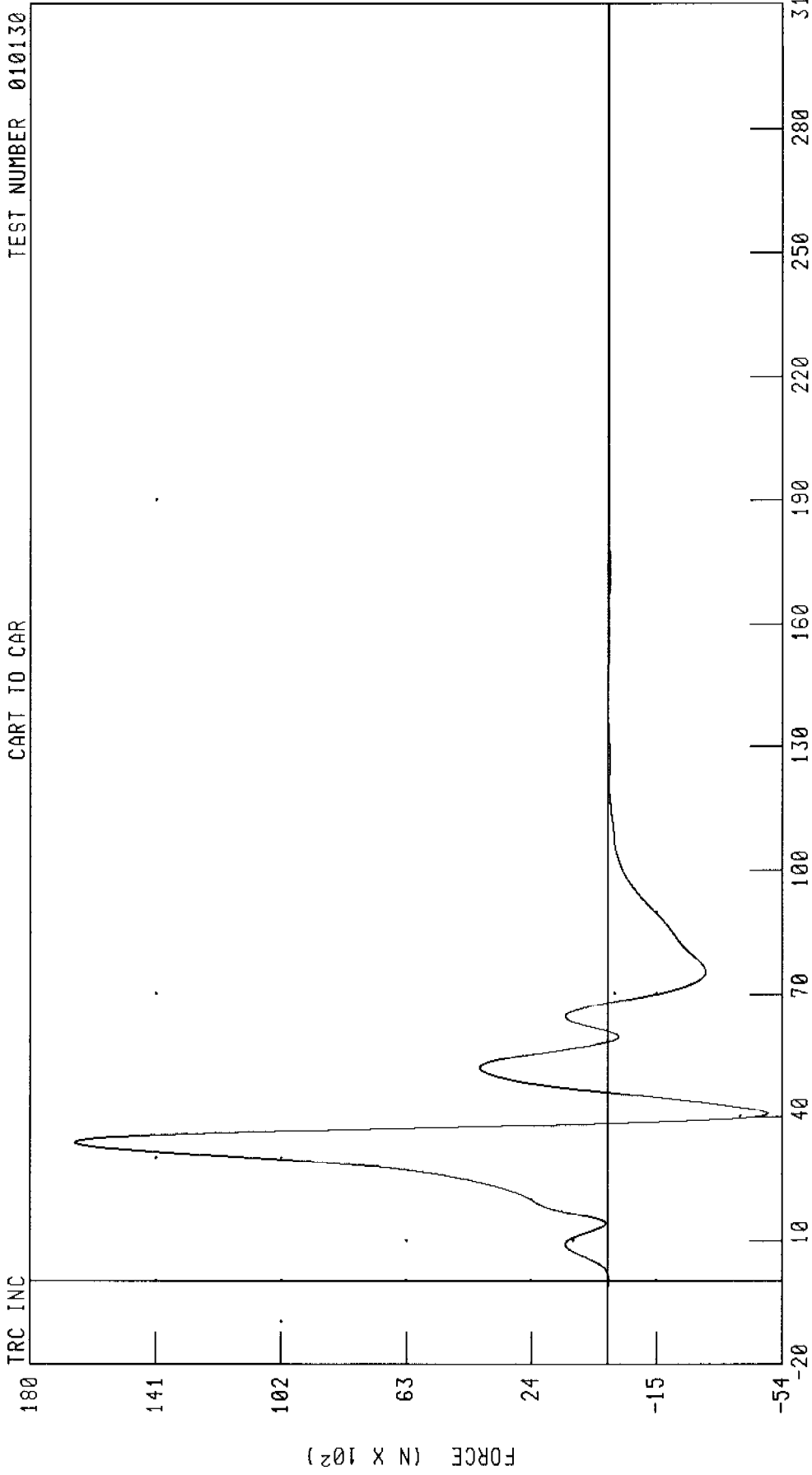
PEAK DATA 47016 49 N @ 34 40 MS, -80 67 N @ 189 52 MS

MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
MOVING BARRIER LOAD CELL I4 Y-AXIS FORCE

TRC INC

TEST NUMBER 010130

CART TO CAR

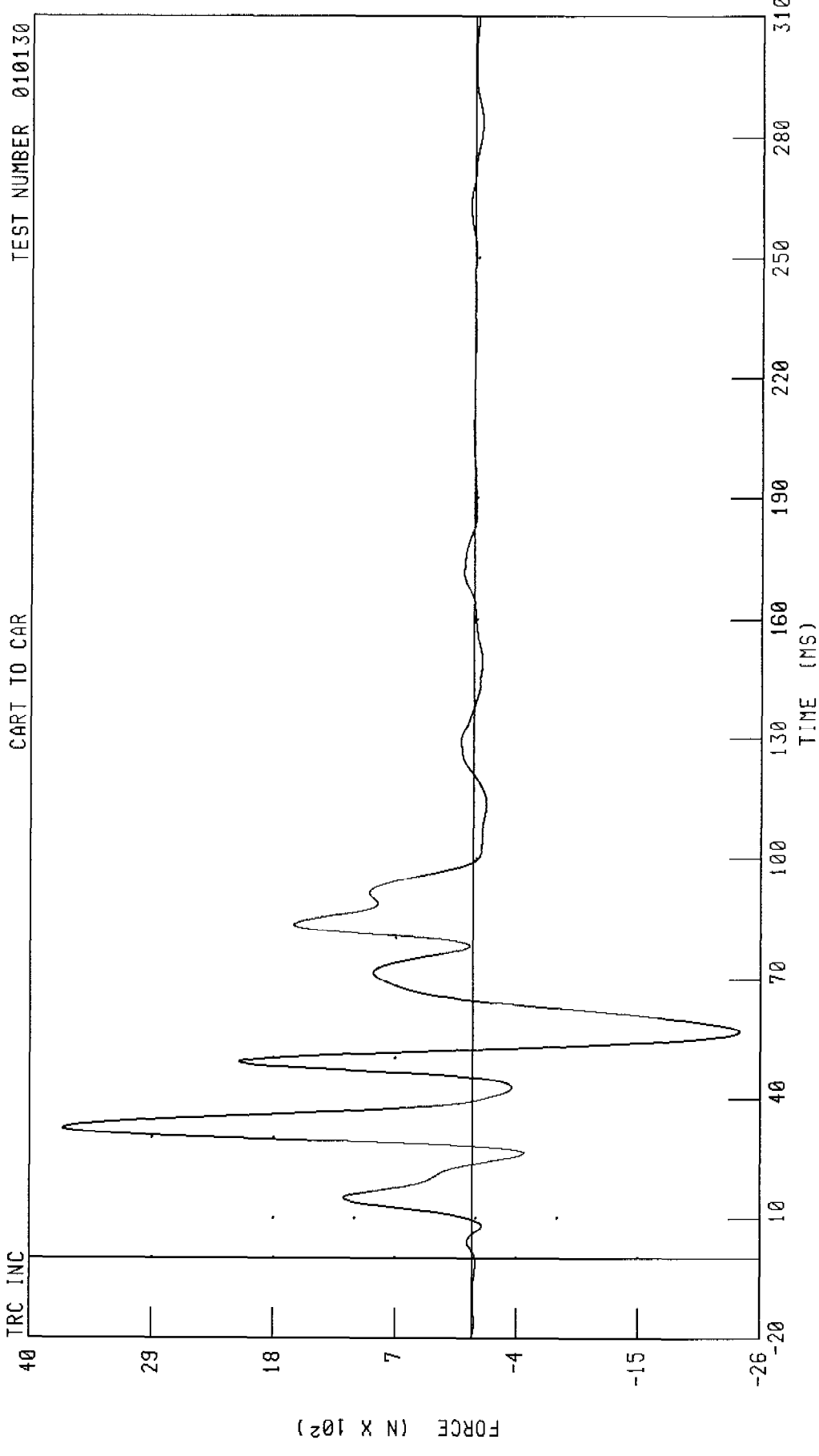


TIME (MS)

CHANNEL BI4YF FILTER CH CLASS 60 PEAK DATA 16622 89 N @ 33 76 MS, -4959 42 N @ 40 80 MS

MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
MOVING BARRIER LOAD CELL I4 Z-AXIS FORCE

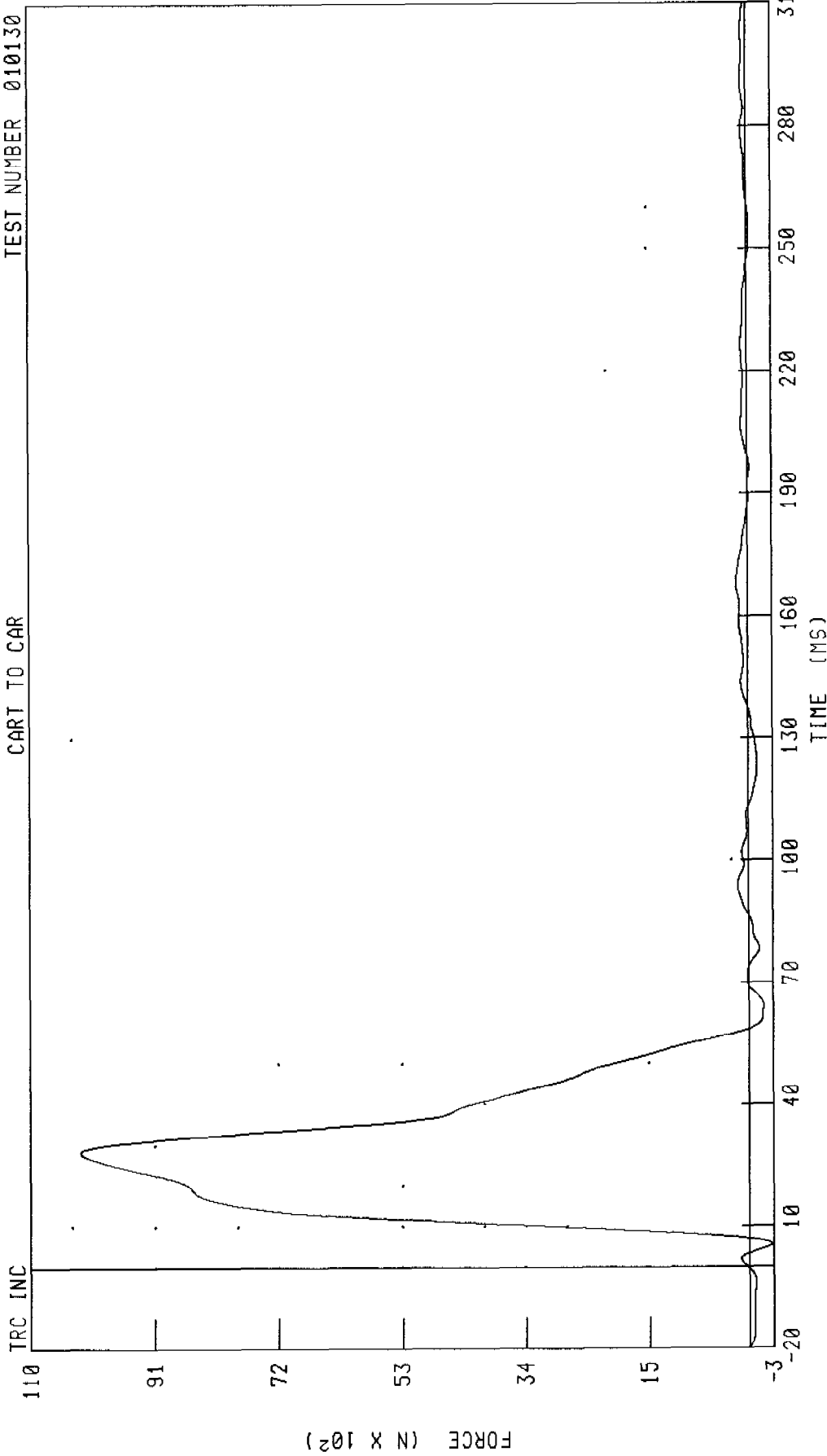
TRC INC  
CART TO CAR  
TEST NUMBER 010130



CHANNEL BI4ZF FILTER CH CLASS 60  
PEAK DATA 3704 57 N @ 32 56 MS, -2415 21 N @ 56 72 MS

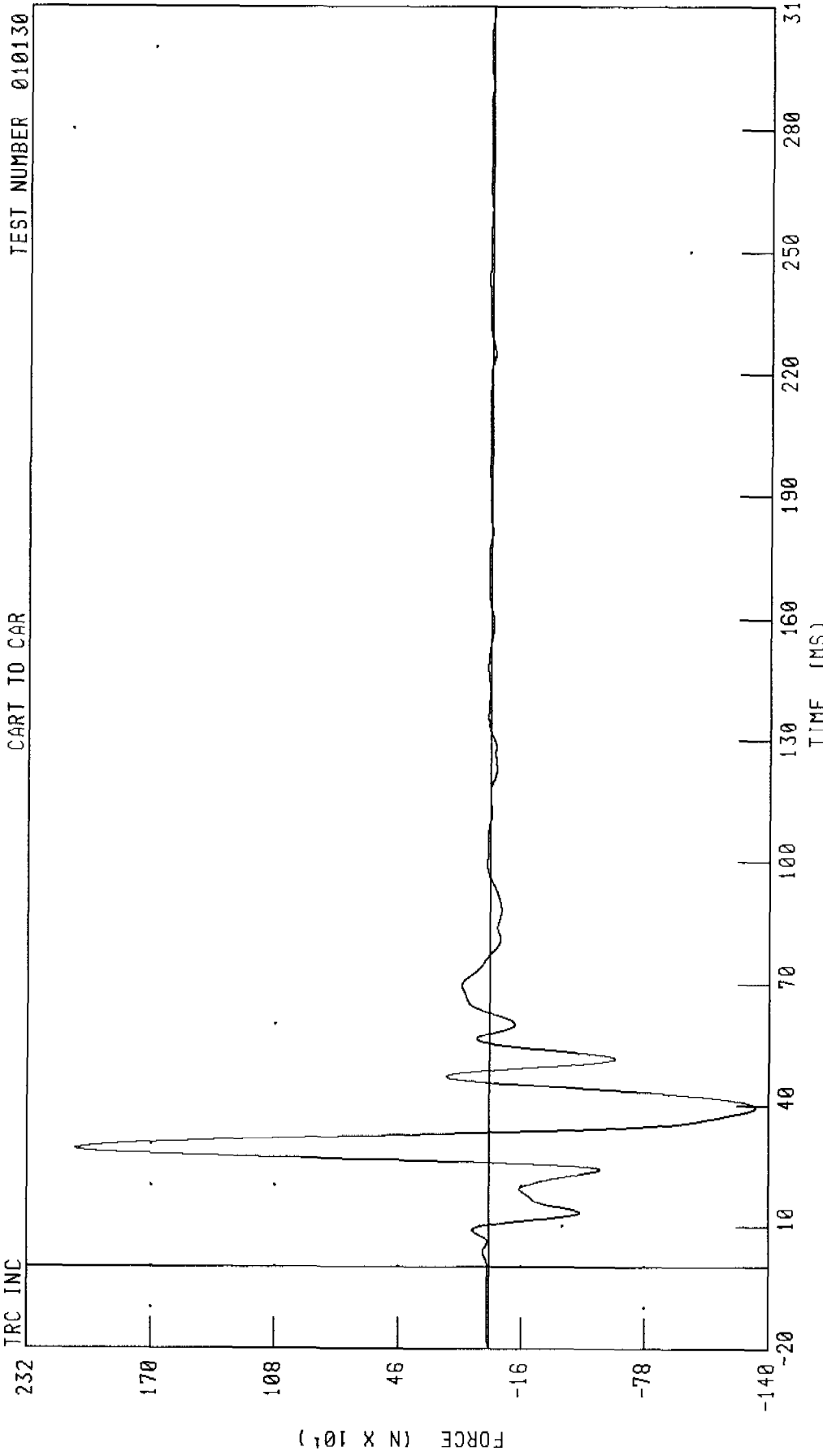
MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
MOVING BARRIER LOAD CELL J1 X-AXIS FORCE  
CART TO CAR

TEST NUMBER 010130



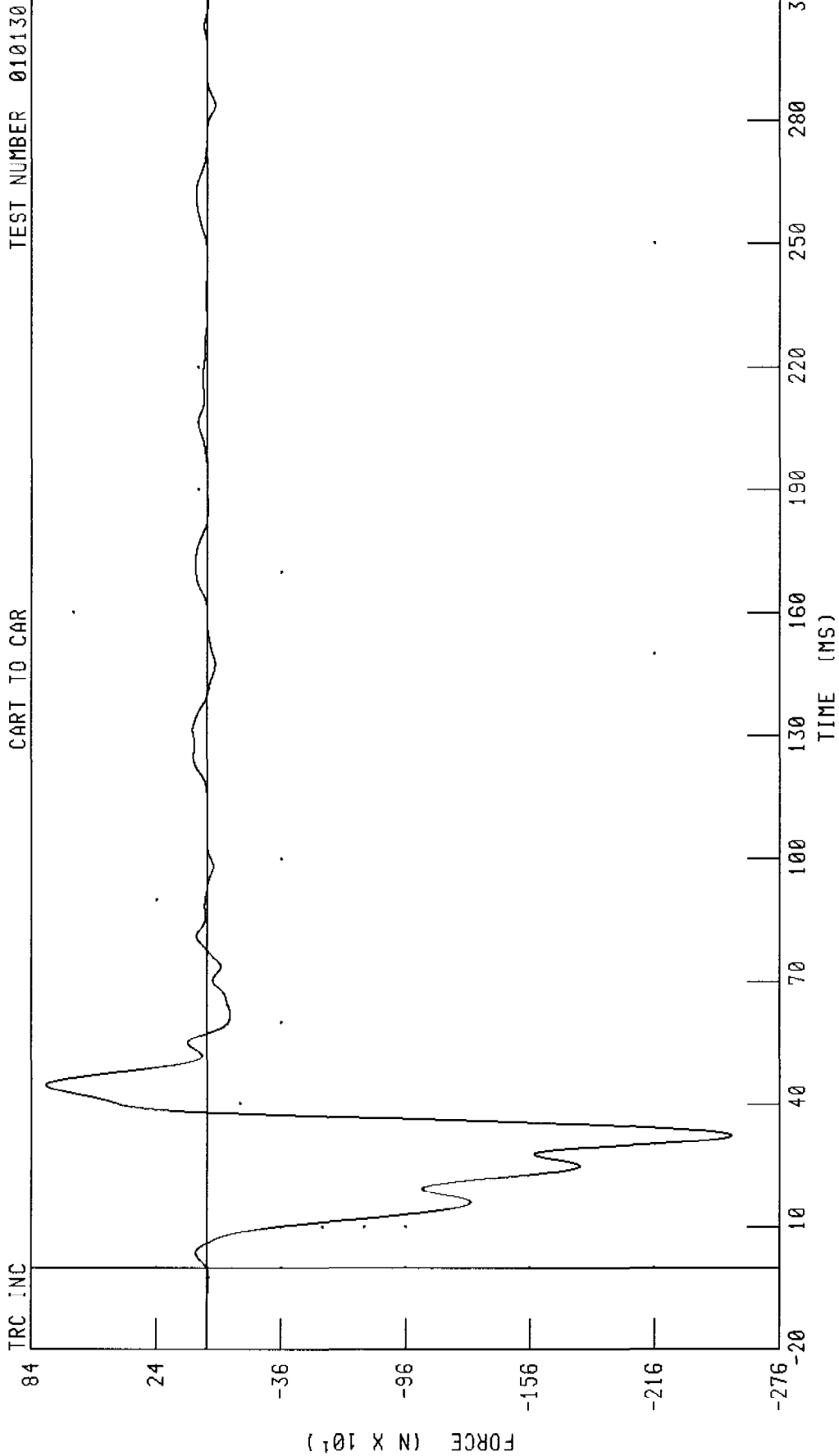
CHANNEL BJ1XF FILTER CH CLASS 60 PEAK DATA 10265 33 N @ 28 40 MS, -341 31 N @ 5 44 MS

MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
MOVING BARRIER LOAD CELL J1 Y-AXIS FORCE



CHANNEL BJ1YF FILTER CH CLASS 60 PEAK DATA 2080 15 N @ 29 04 MS, -1337 77 N @ 39 52 MS

MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
MOVING BARRIER LOAD CELL J1 Z-AXIS FORCE  
CART TO CAR



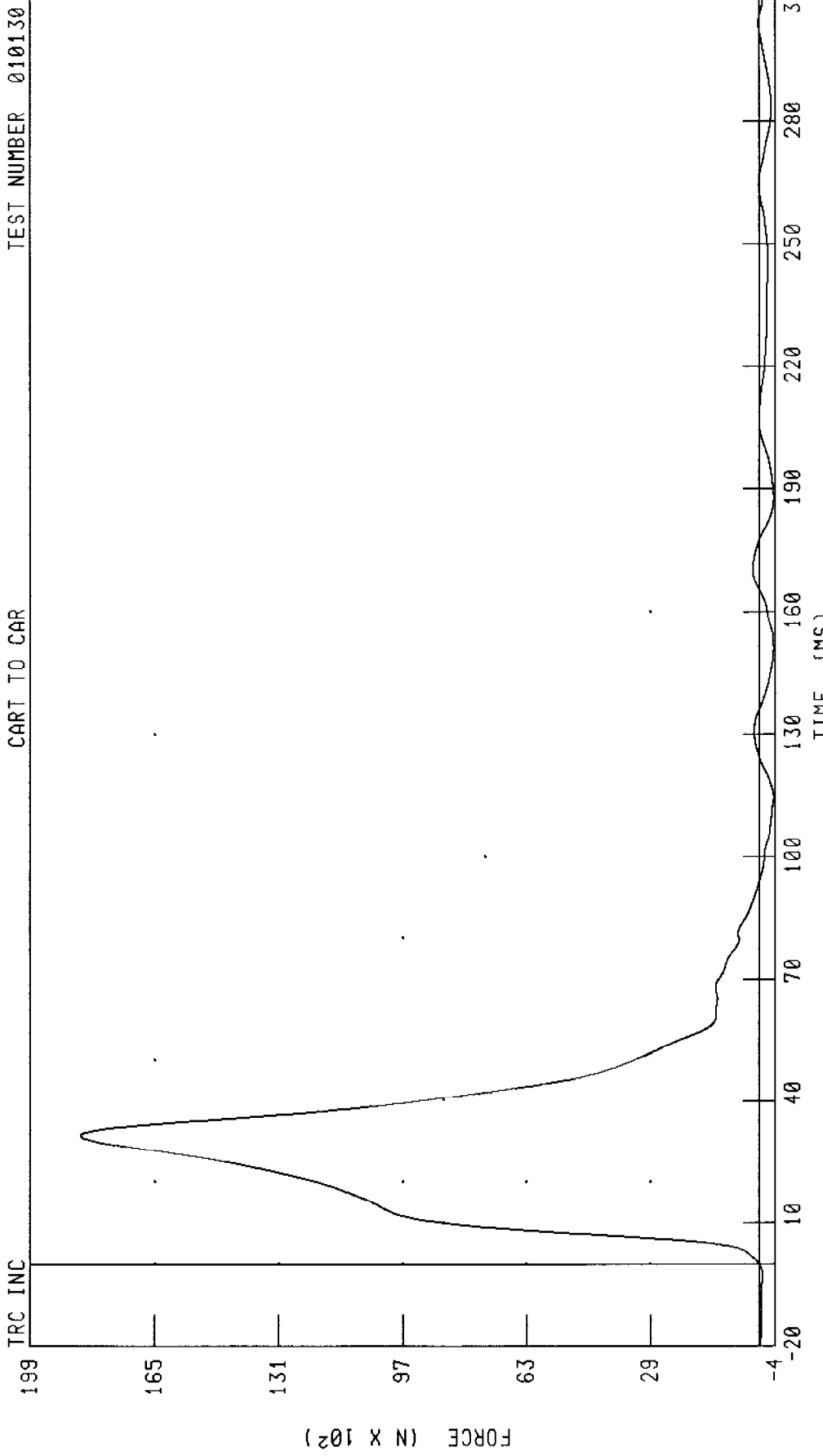
CHANNEL BJ1ZF FILTER CH CLASS 60 PEAK DATA 770 04 N @ 44 80 MS, -2531 72 N @ 32 24 MS

MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
MOVING BARRIER LOAD CELL J2 X-AXIS FORCE

TRC INC

CART TO CAR

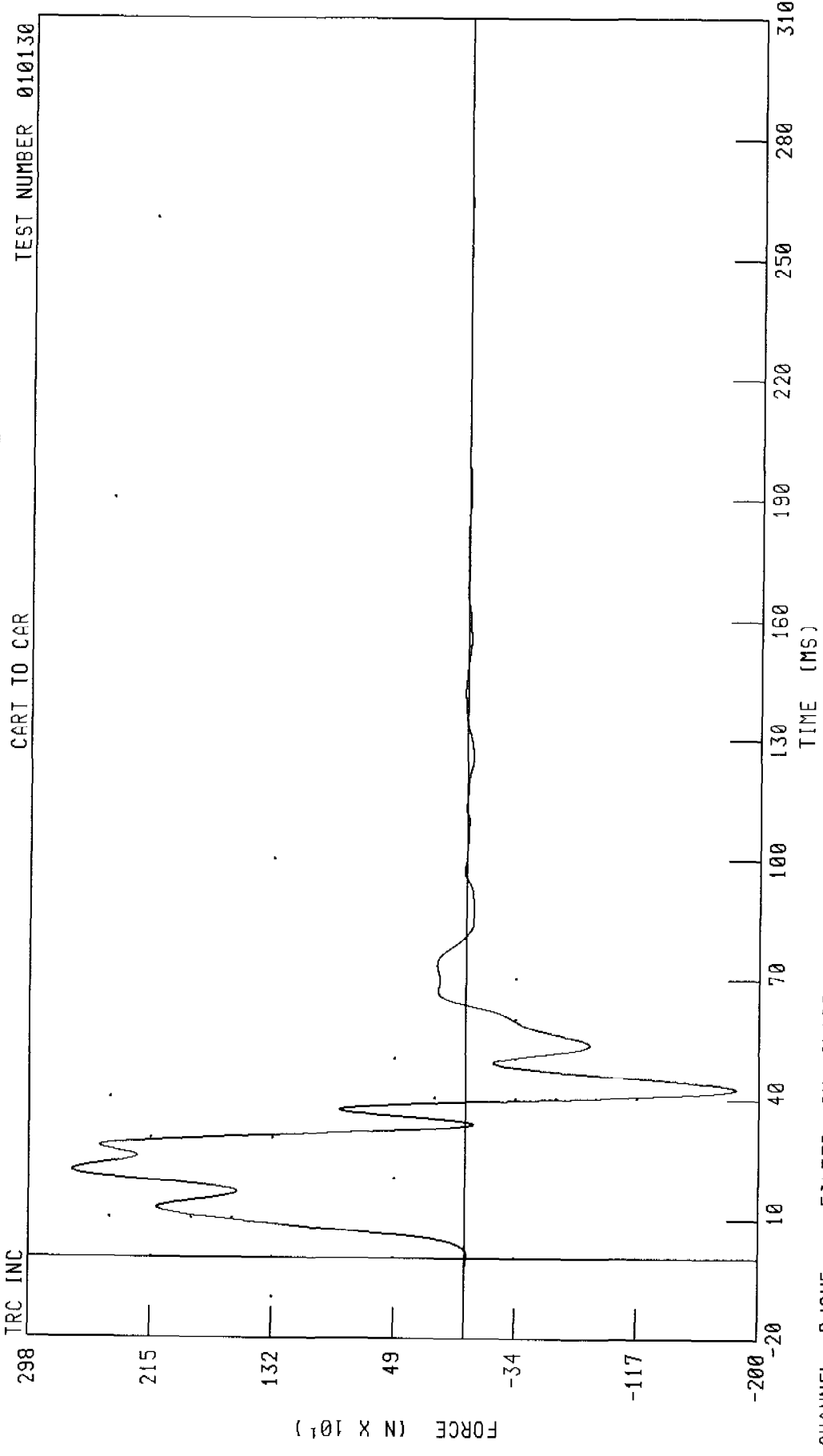
TEST NUMBER 010130



CHANNEL BJ2XF FILTER CH CLASS 60  
PEAK DATA 18602 86 N @ 31 52 MS, -383 48 N @ 187 76 MS  
TIME (MS)

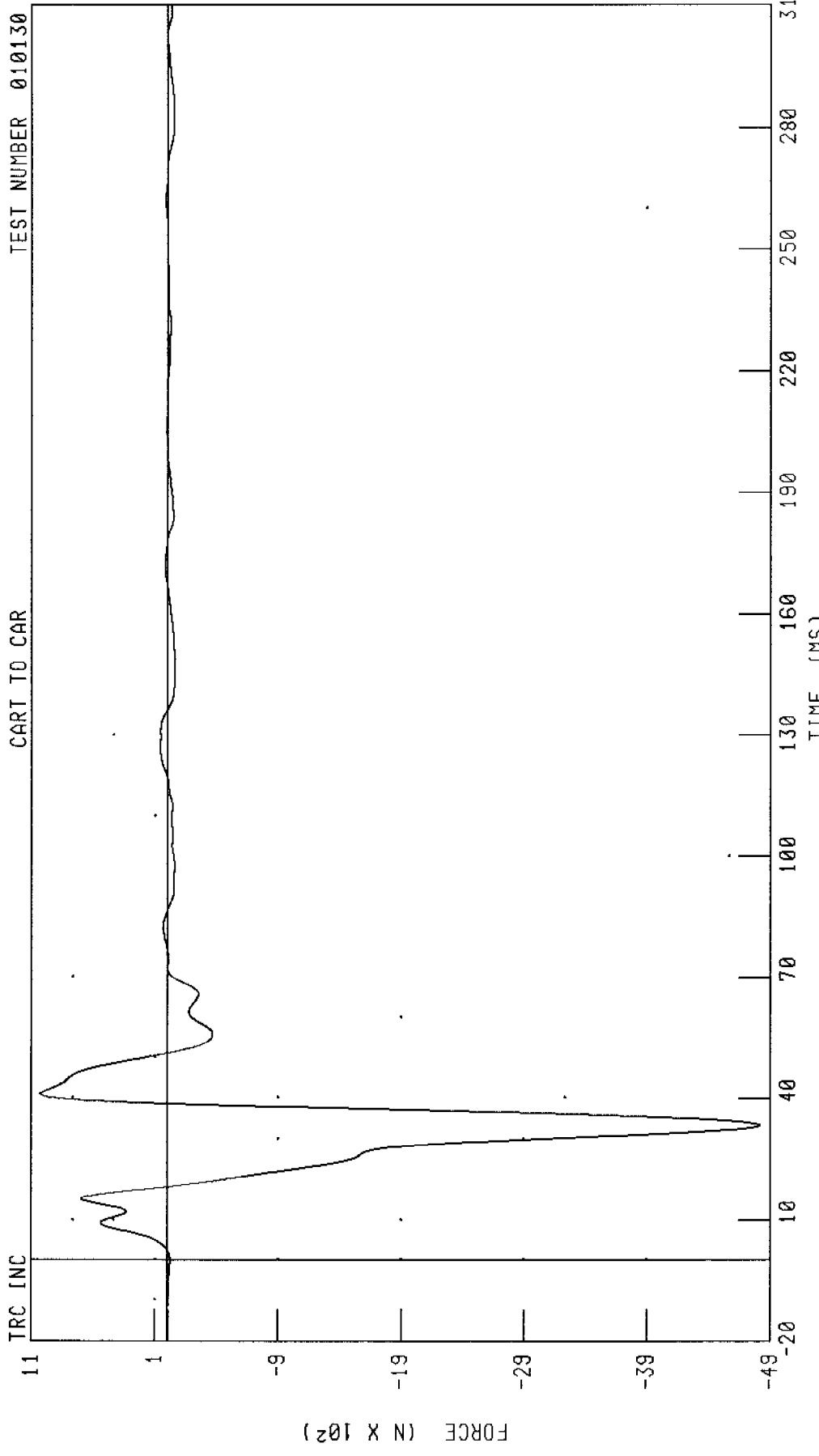
MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
MOVING BARRIER LOAD CELL J2 Y-AXIS FORCE

TRC INC  
CART TO CAR  
TEST NUMBER 010130



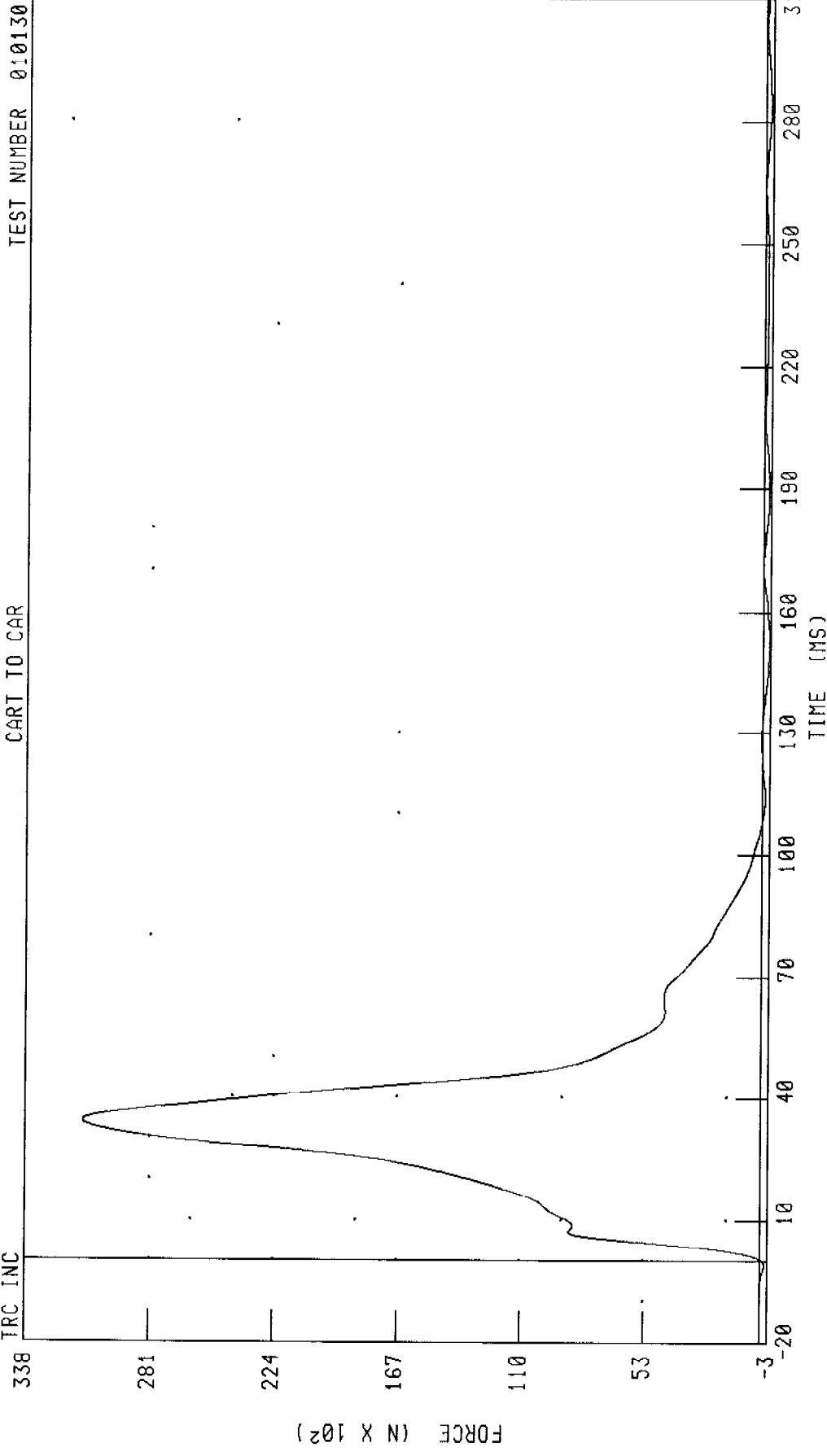
CHANNEL BJ2YF FILTER CH CLASS 60  
PEAK DATA 2686 01 N @ 22 00 MS, -1844 67 N @ 42 48 MS

MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
MOVING BARRIER LOAD CELL J2 Z-AXIS FORCE



CHANNEL BJZF FILTER CH CLASS 60 PEAK DATA 1031 29 N @ 41 04 MS, -4812 80 N @ 33 44 MS

MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
MOVING BARRIER LOAD CELL J3 X-AXIS FORCE  
CART TO CAR



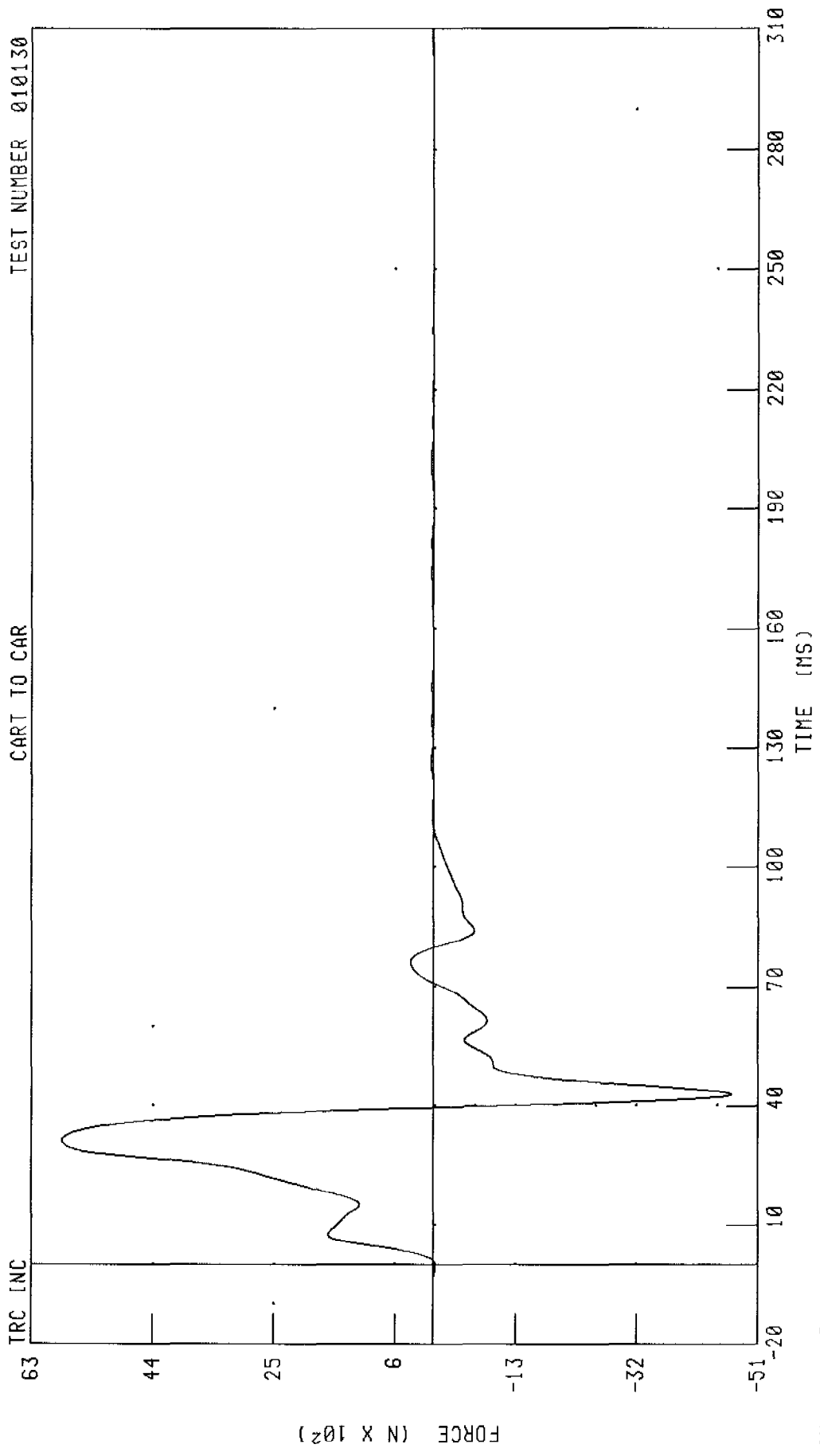
TEST NUMBER 010130

TIME (MS)

CHANNEL BJ3XF FILTER CH CLASS 60 PEAK DATA 31238 79 N @ 34 24 MS, -316 71 N @ 151 84 MS

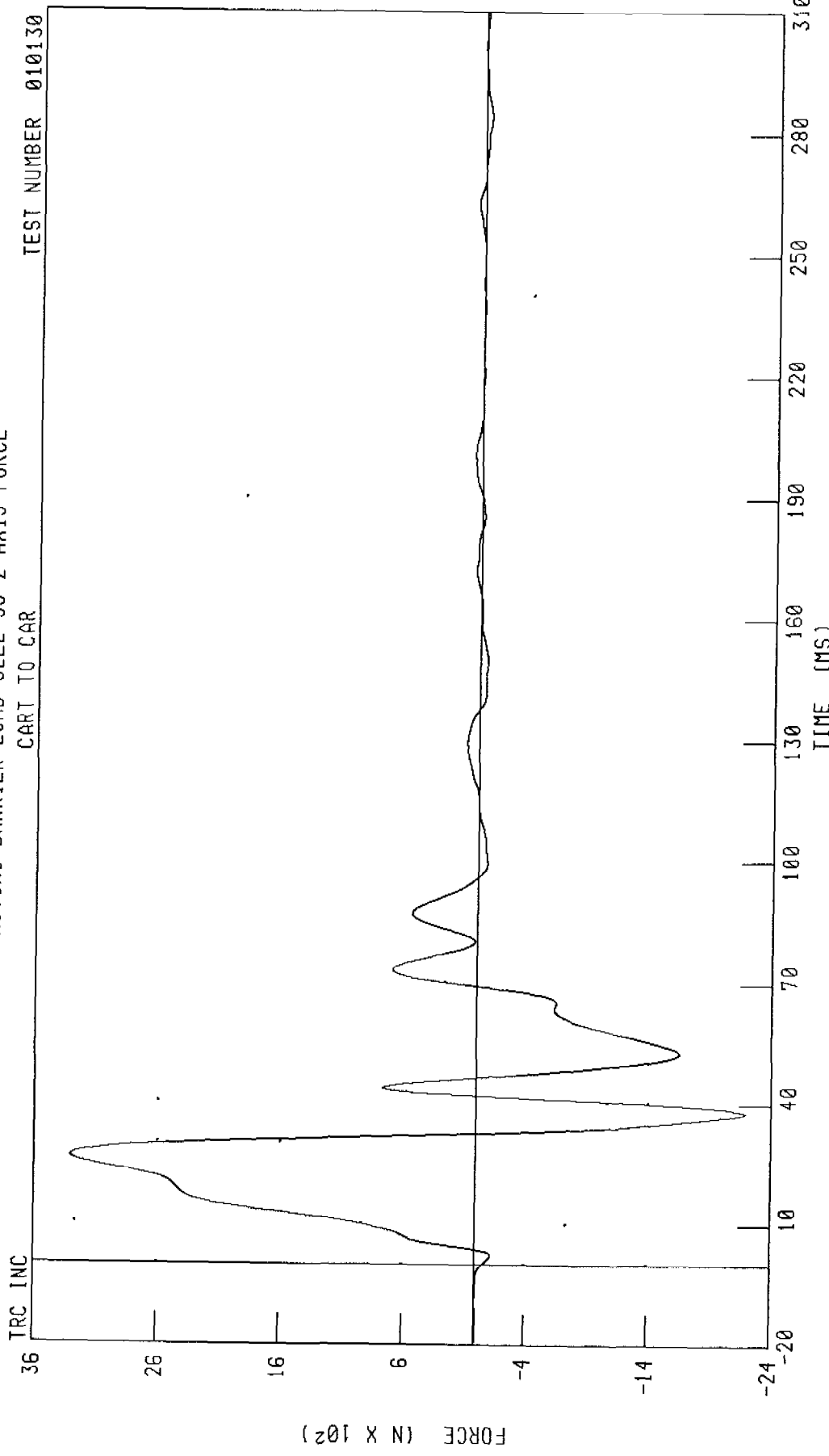
MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
MOVING BARRIER LOAD CELL J3 Y-AXIS FORCE

TRC INC  
CART TO CAR  
TEST NUMBER 010130



CHANNEL BJ3YF FILTER CH CLASS 60  
PEAK DATA 5827 63 N @ 31 28 MS, -4679 43 N @ 42 88 MS

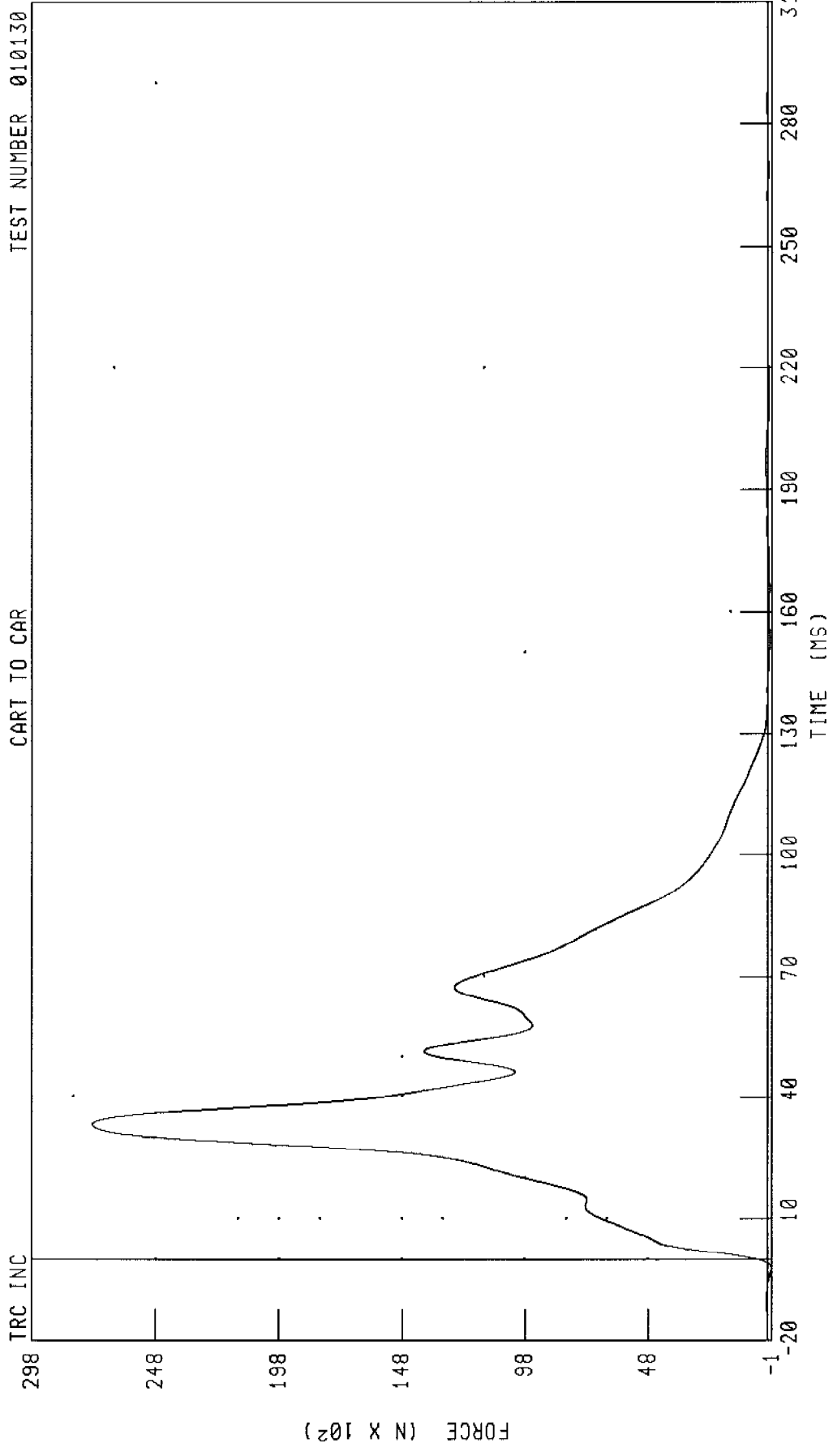
MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
MOVING BARRIER LOAD CELL J3 Z-AXIS FORCE



TRC INC  
CART TO CAR  
TEST NUMBER 010130

CHANNEL BJ3ZF FILTER CH CLASS 60  
PEAK DATA 3310 70 N @ 26 48 MS, -2185 94 N @ 37 76 MS

MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
MOVING BARRIER LOAD CELL J4 X-AXIS FORCE  
CART TO CAR



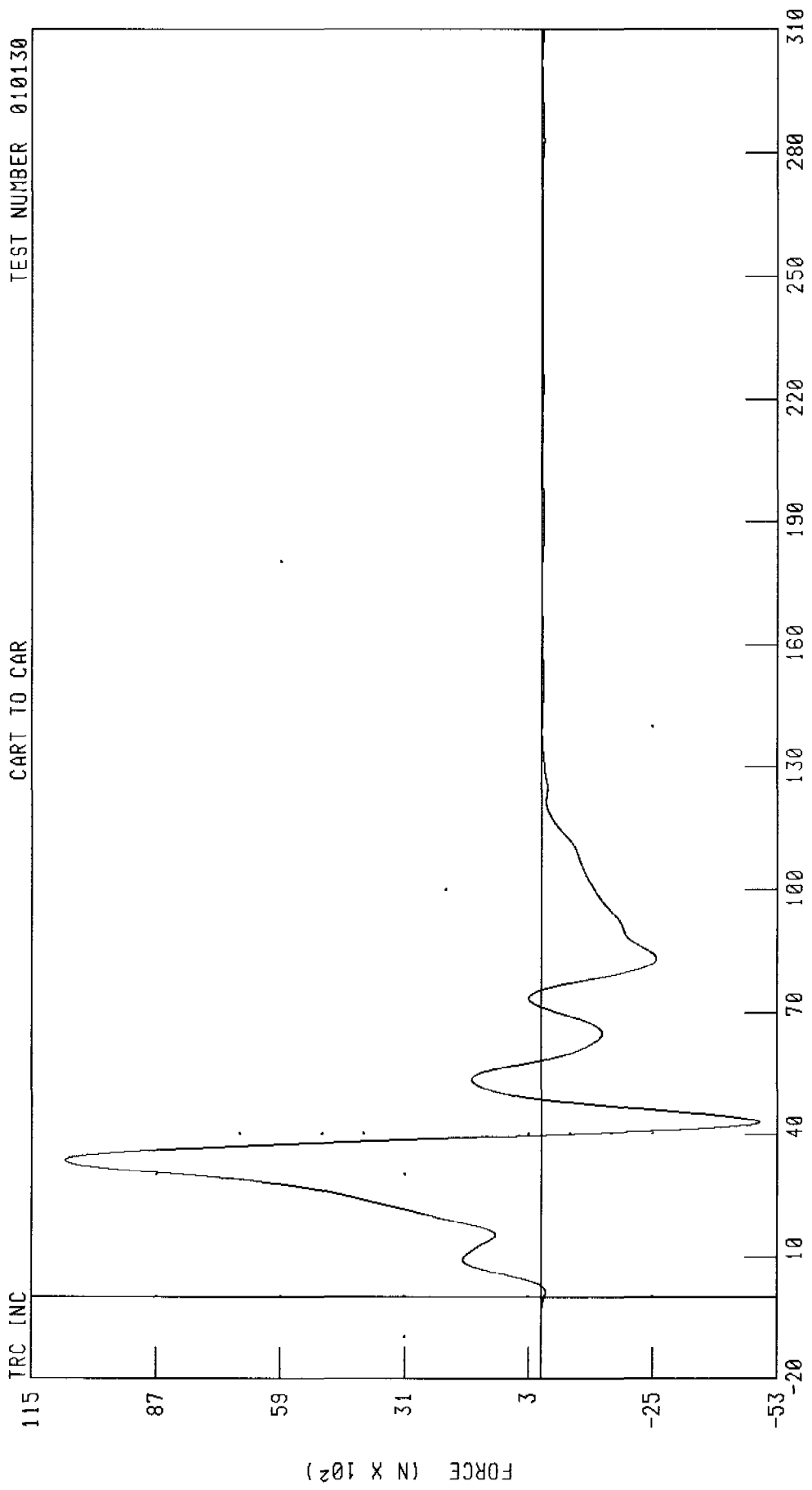
TEST NUMBER 010130

CHANNEL BJ4XF FILTER CH CLASS 60 PEAK DATA 27385 80 N @ 33 20 MS, -160 92 N @ -2 32 MS

MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
MOVING BARRIER LOAD CELL J4 Y-AXIS FORCE

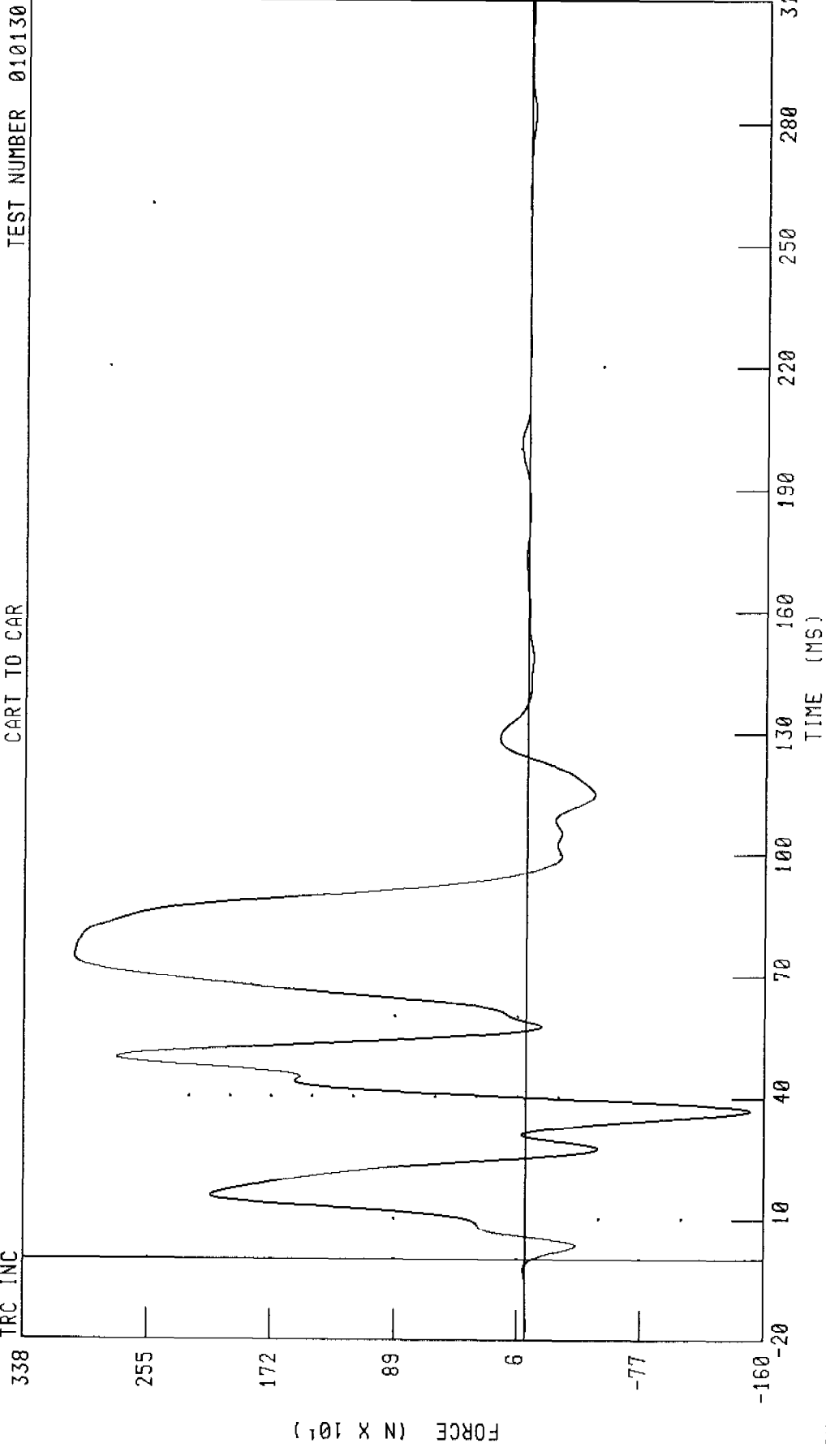
TEST NUMBER 010130

CART TO CAR



CHANNEL BJ4YF FILTER CH CLASS 60  
PEAK DATA 10757 59 N @ 33 68 MS, -4900 75 N @ 43 04 MS

MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
MOVING BARRIER LOAD CELL J4 Z-AXIS FORCE  
CART TO CAR



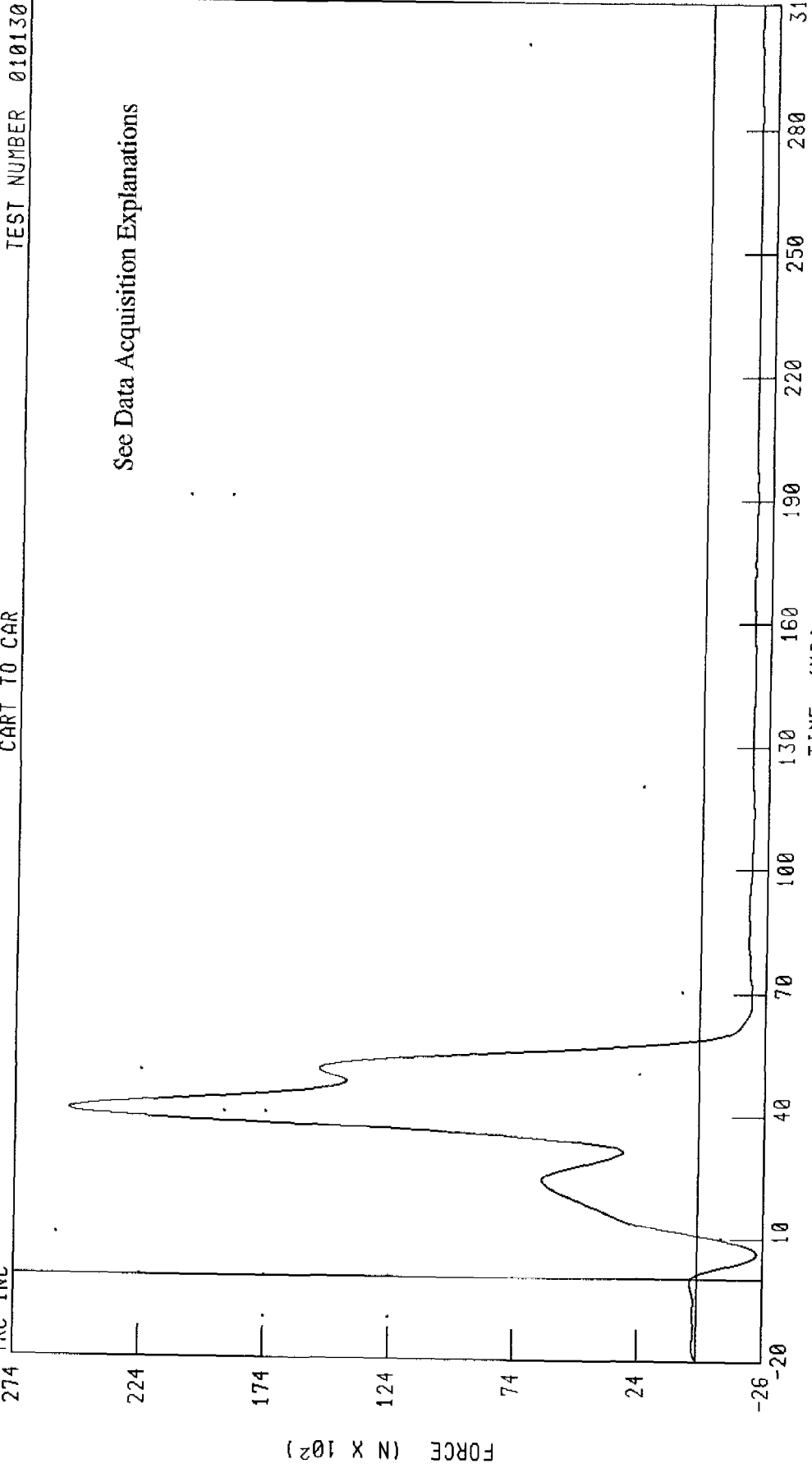
TRC INC

TEST NUMBER 010130

CHANNEL BJ4ZF FILTER CH CLASS 60

PEAK DATA 3045 15 N @ 74 80 MS, -1505 64 N @ 36 96 MS

MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
MOVING BARRIER LOAD CELL K1 X-AXIS FORCE  
CART TO CAR

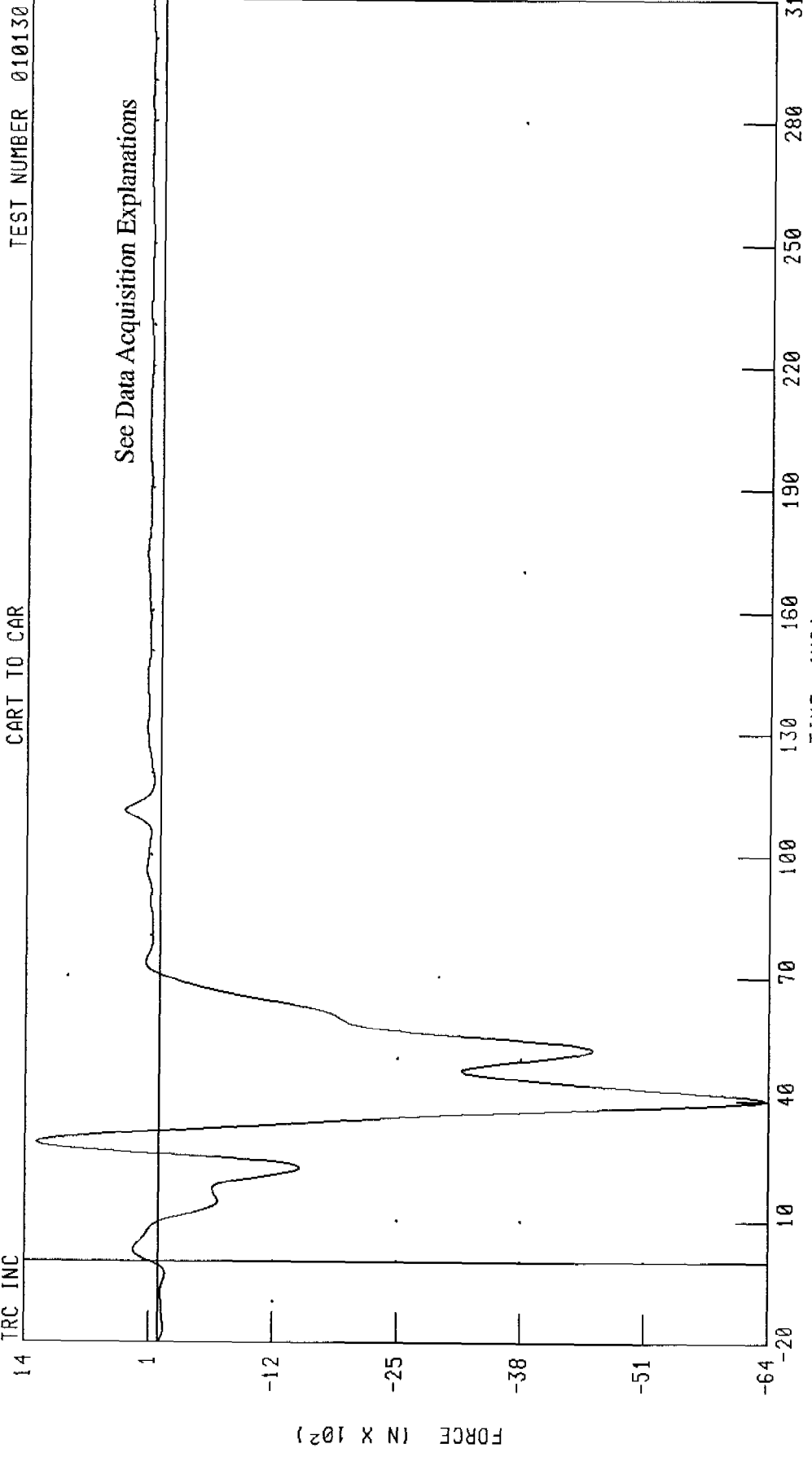


TEST NUMBER 010130

CHANNEL BK1XF FILTER CH CLASS 60

PEAK DATA 25254 42 N @ 40 56 MS, -2373 38 N @ 6 32 MS

MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
MOVING BARRIER LOAD CELL K1 Y-AXIS FORCE  
CART TO CAR



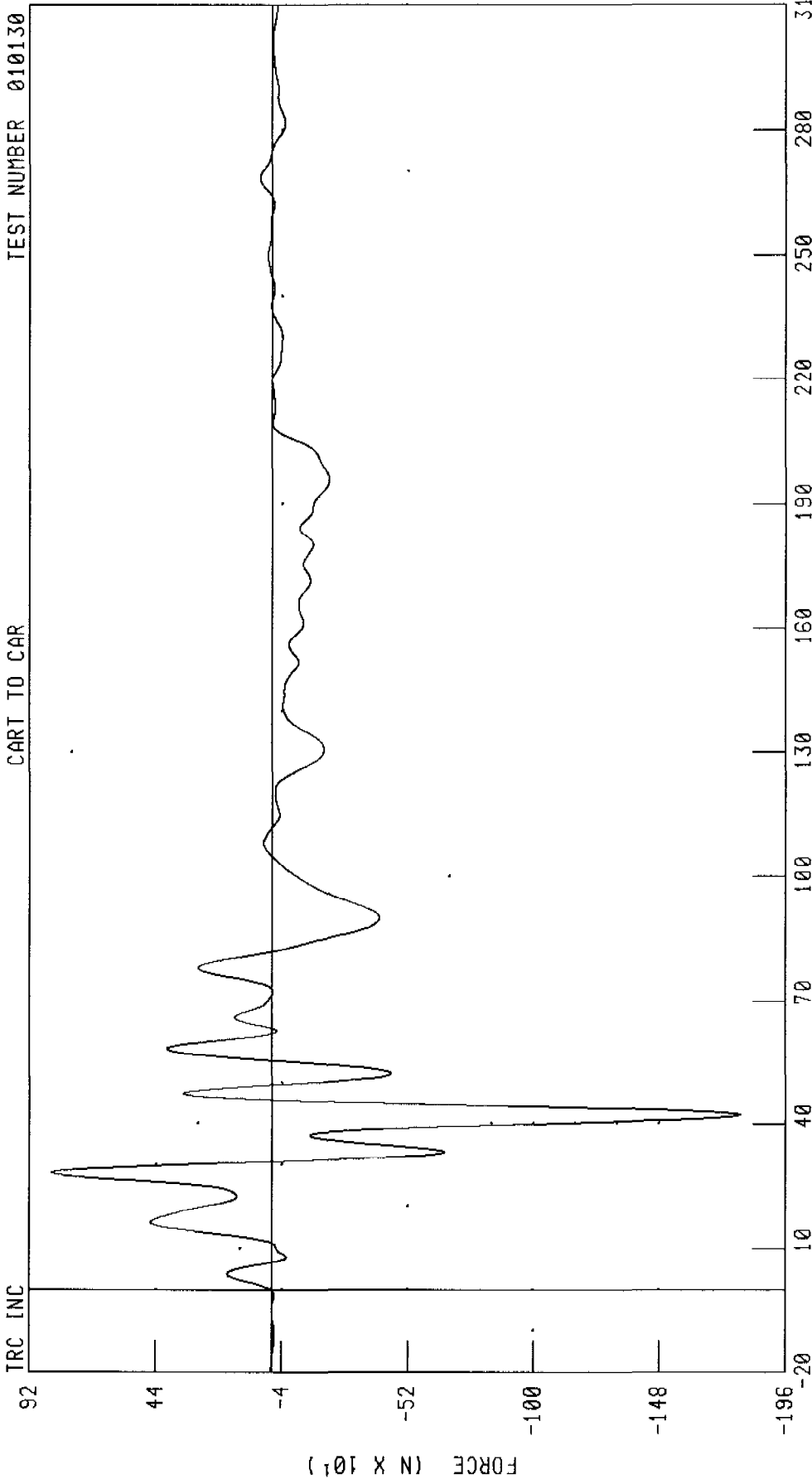
TEST NUMBER 010130

CHANNEL BK1YF FILTER CH CLASS 60  
PEAK DATA 1280 11 N 0 29 20 MS, -6353 72 N 0 40 08 MS

MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
MOVING BARRIER LOAD CELL K3 Y-AXIS FORCE  
CART TO CAR

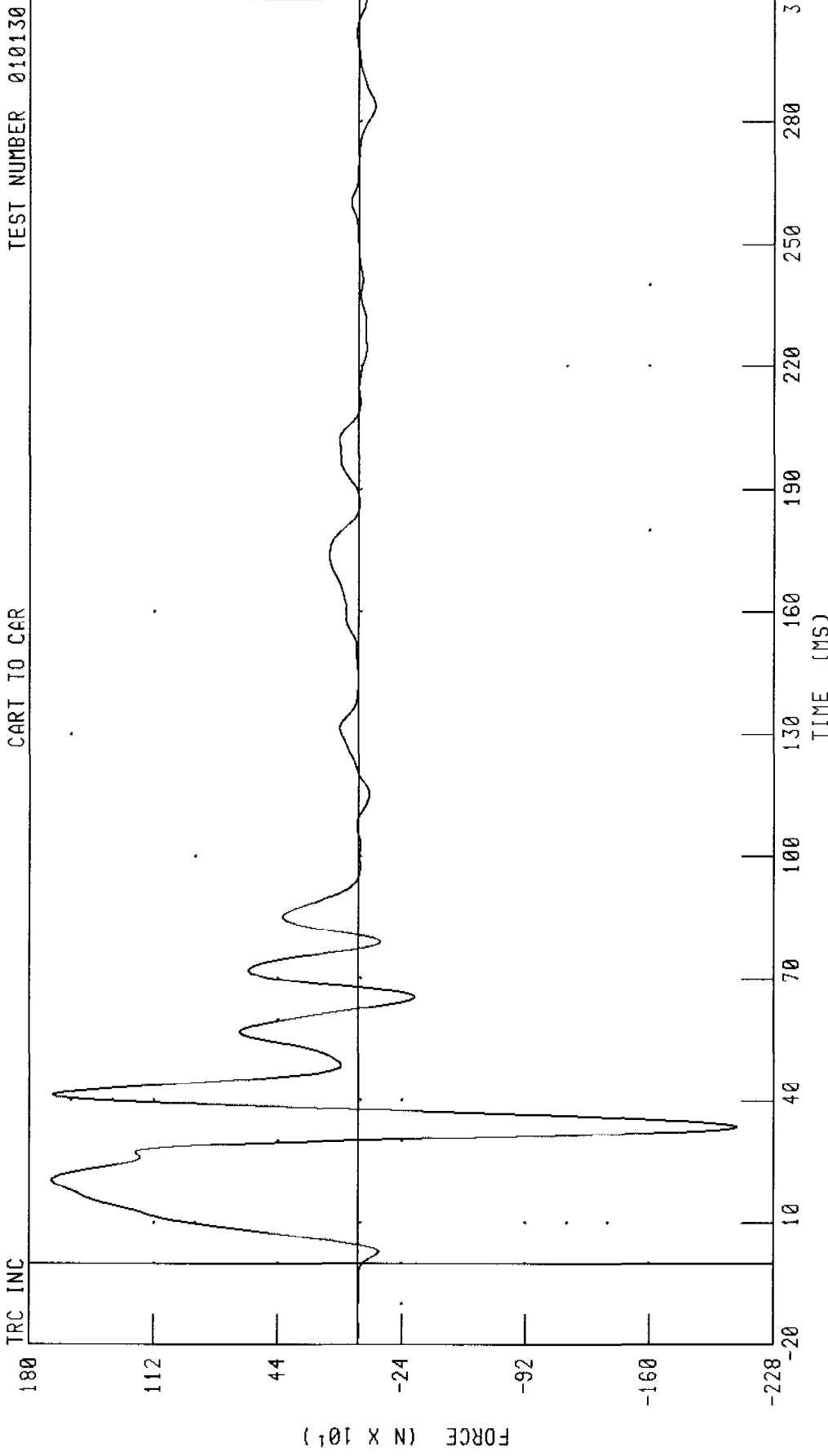
TEST NUMBER 010130

TRC INC



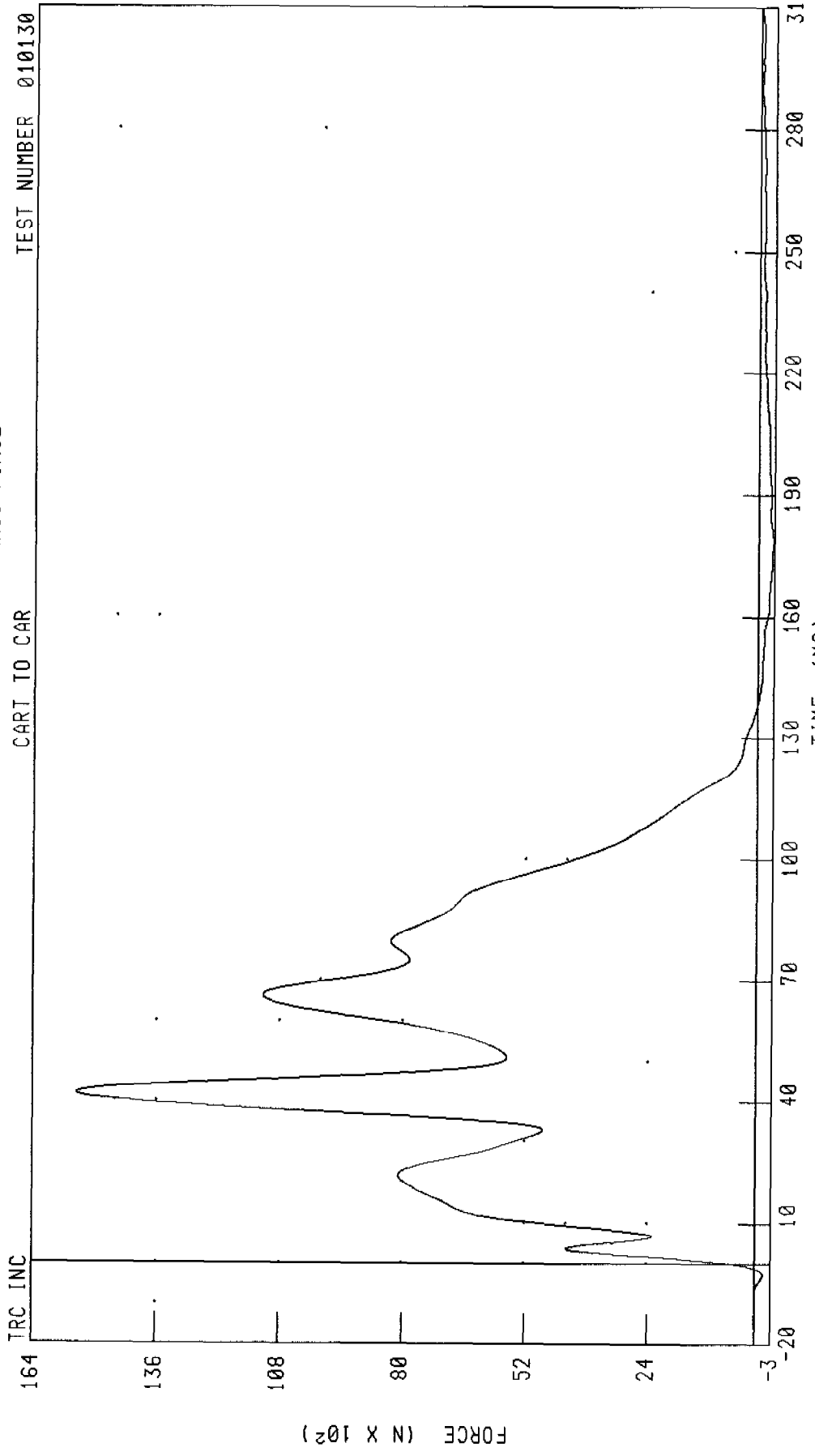
CHANNEL BK3YF FILTER CH CLASS 60 PEAK DATA 836 63 N @ 28 08 MS, -1788 10 N @ 42 16 MS

MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
MOVING BARRIER LOAD CELL K3 Z-AXIS FORCE



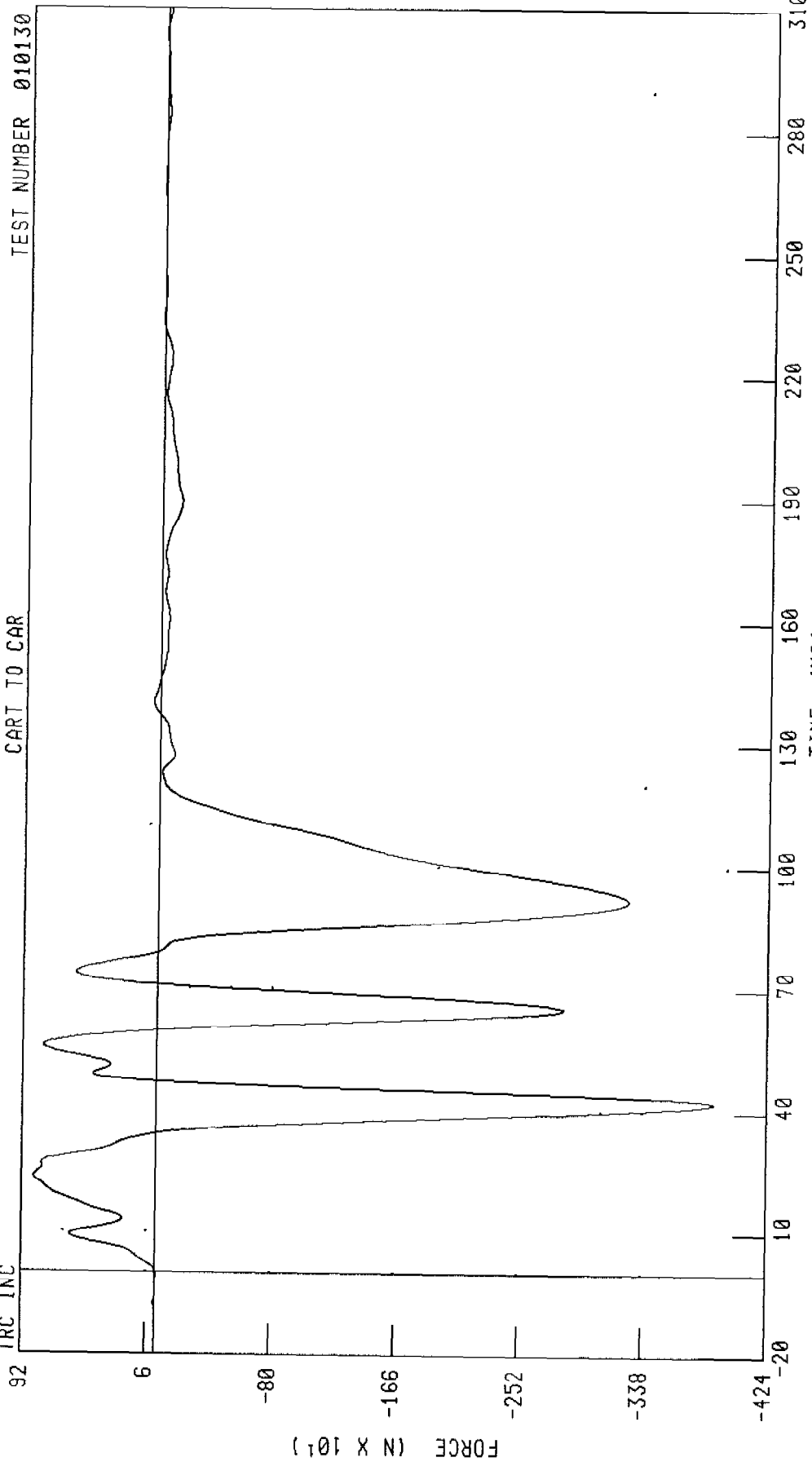
CHANNEL BK3ZF FILTER CH CLASS 60 PEAK DATA 1679 20 N @ 20 32 MS, -2080 63 N @ 33 60 MS

MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
MOVING BARRIER LOAD CELL K4 X-AXIS FORCE



CHANNEL BK4XF FILTER CH CLASS 60 PEAK DATA 15455 66 N @ 42 08 MS, -330 28 N @ 178 08 MS

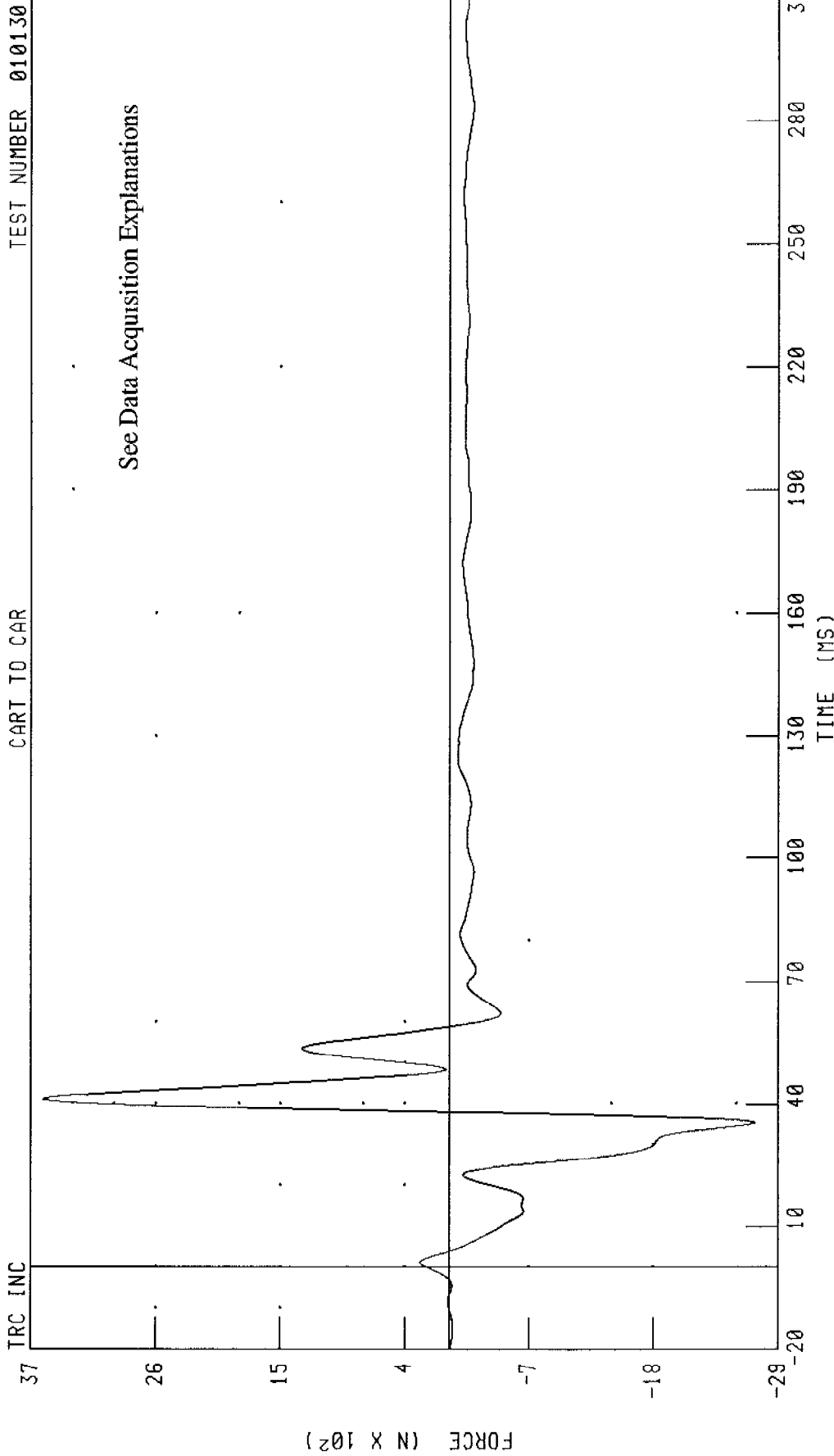
MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
MOVING BARRIER LOAD CELL K4 Y-AXIS FORCE



CHANNEL BK4YF FILTER CH CLASS 60

PEAK DATA 839 05 N @ 23 44 MS, -3877 77 N @ 42 24 MS

MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
MOVING BARRIER LOAD CELL K1 Z-AXIS FORCE  
CART TO CAR



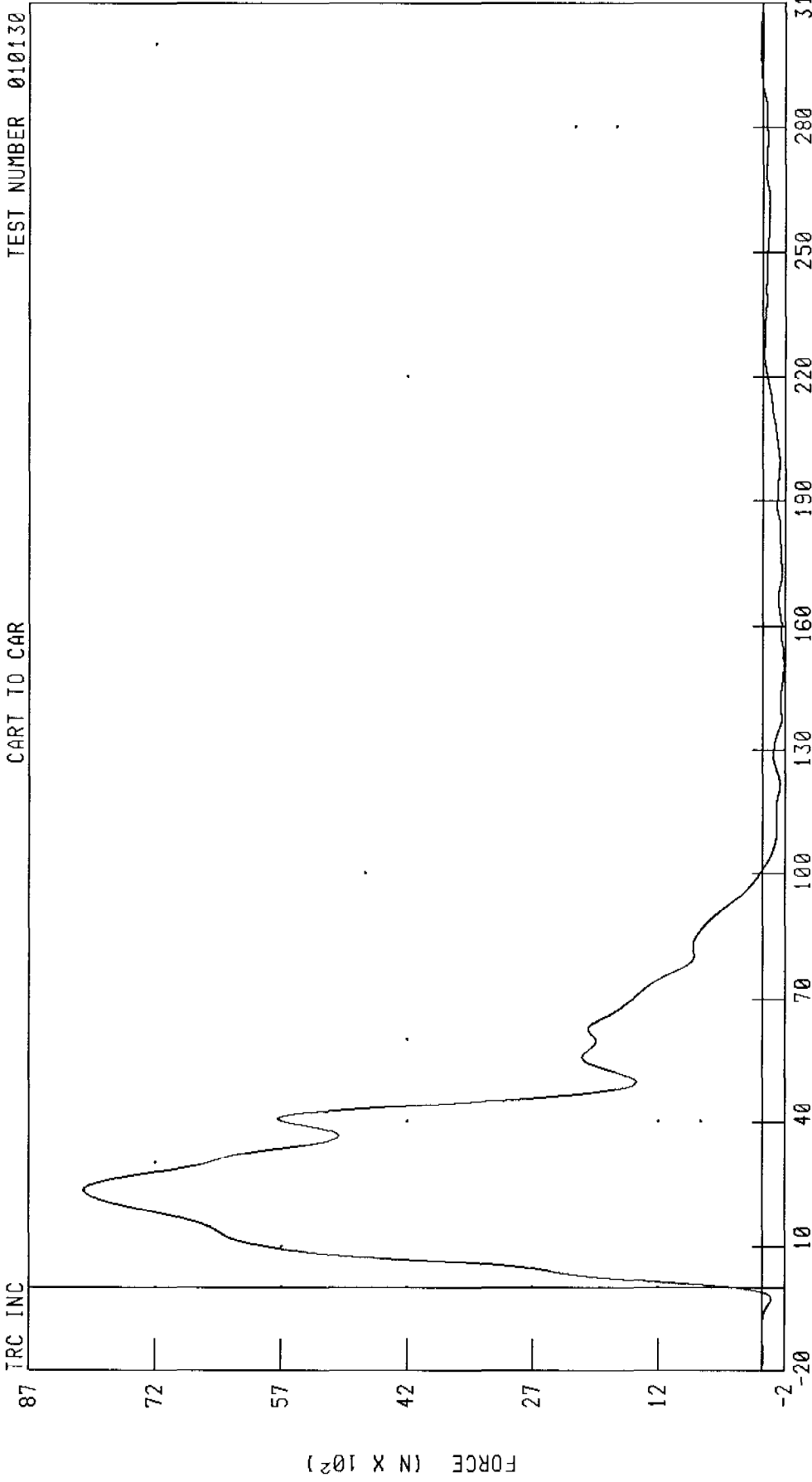
CHANNEL BK1ZF FILTER CH CLASS 60

PEAK DATA 3593 38 N @ 41 12 MS, -2698 66 N @ 35 36 MS

MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
MOVING BARRIER LOAD CELL K3 X-AXIS FORCE  
CART TO CAR

TEST NUMBER 010130

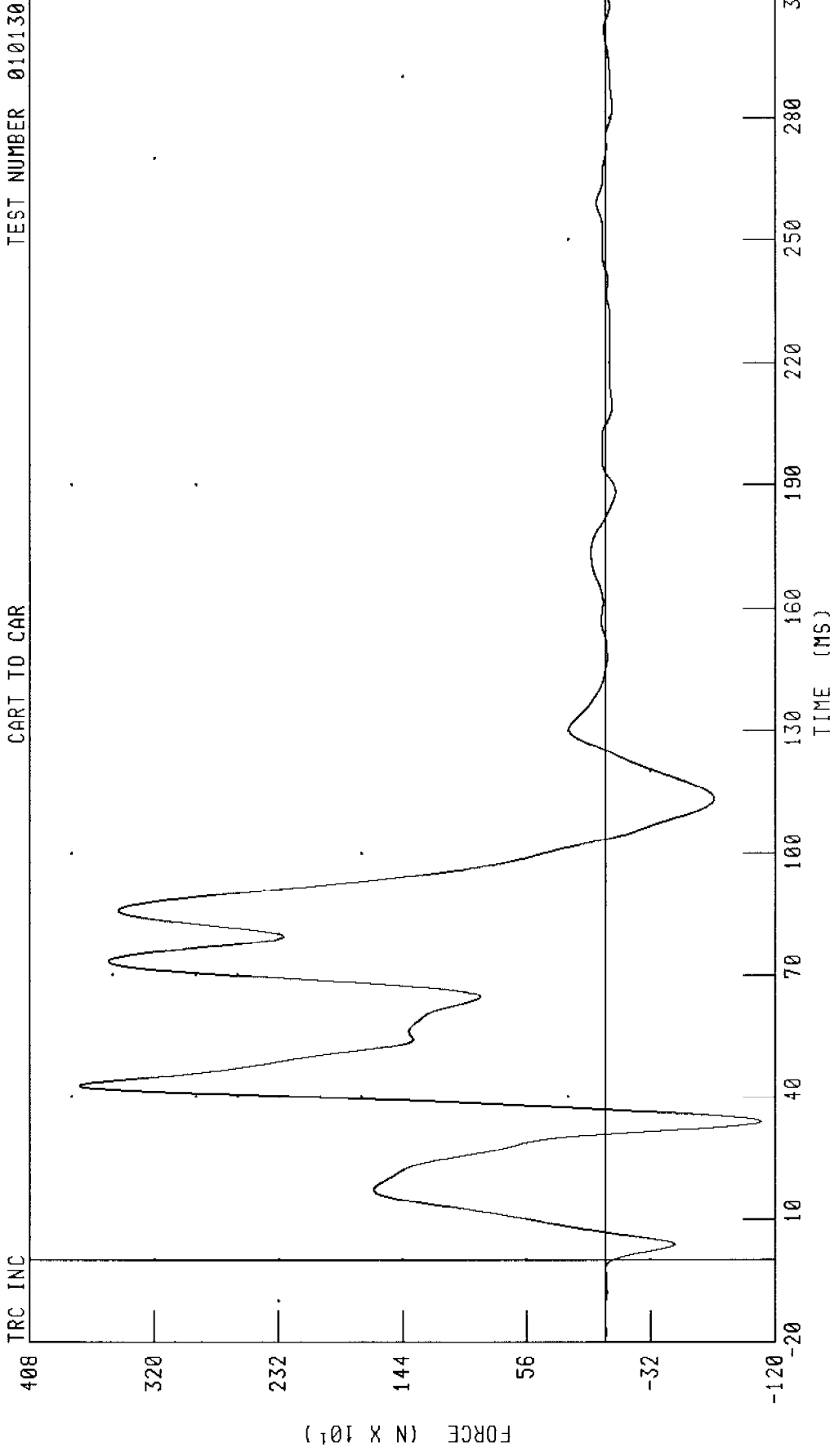
IRC INC



TIME (MS)

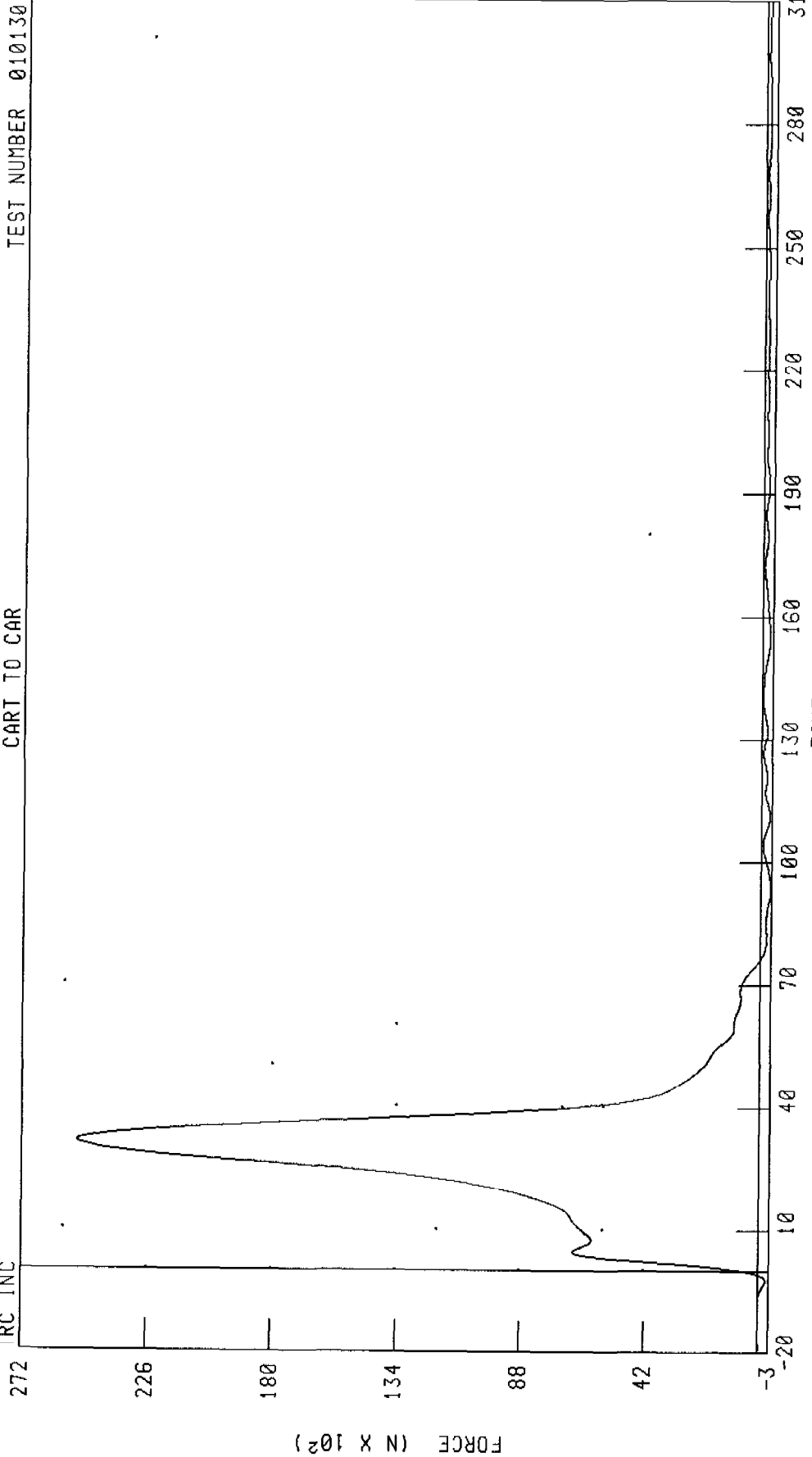
CHANNEL BK3XF FILTER CH CLASS 60 PEAK DATA 8089 61 N @ 23 60 MS, -243 48 N @ 150 08 MS

MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
MOVING BARRIER LOAD CELL K4 Z-AXIS FORCE



CHANNEL BK4ZF FILTER CH CLASS 60 PEAK DATA 3729 87 N @ 42 88 MS, -1100 20 N @ 34 16 MS

MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
MOVING BARRIER LOAD CELL G3 X-AXIS FORCE  
CART TO CAR

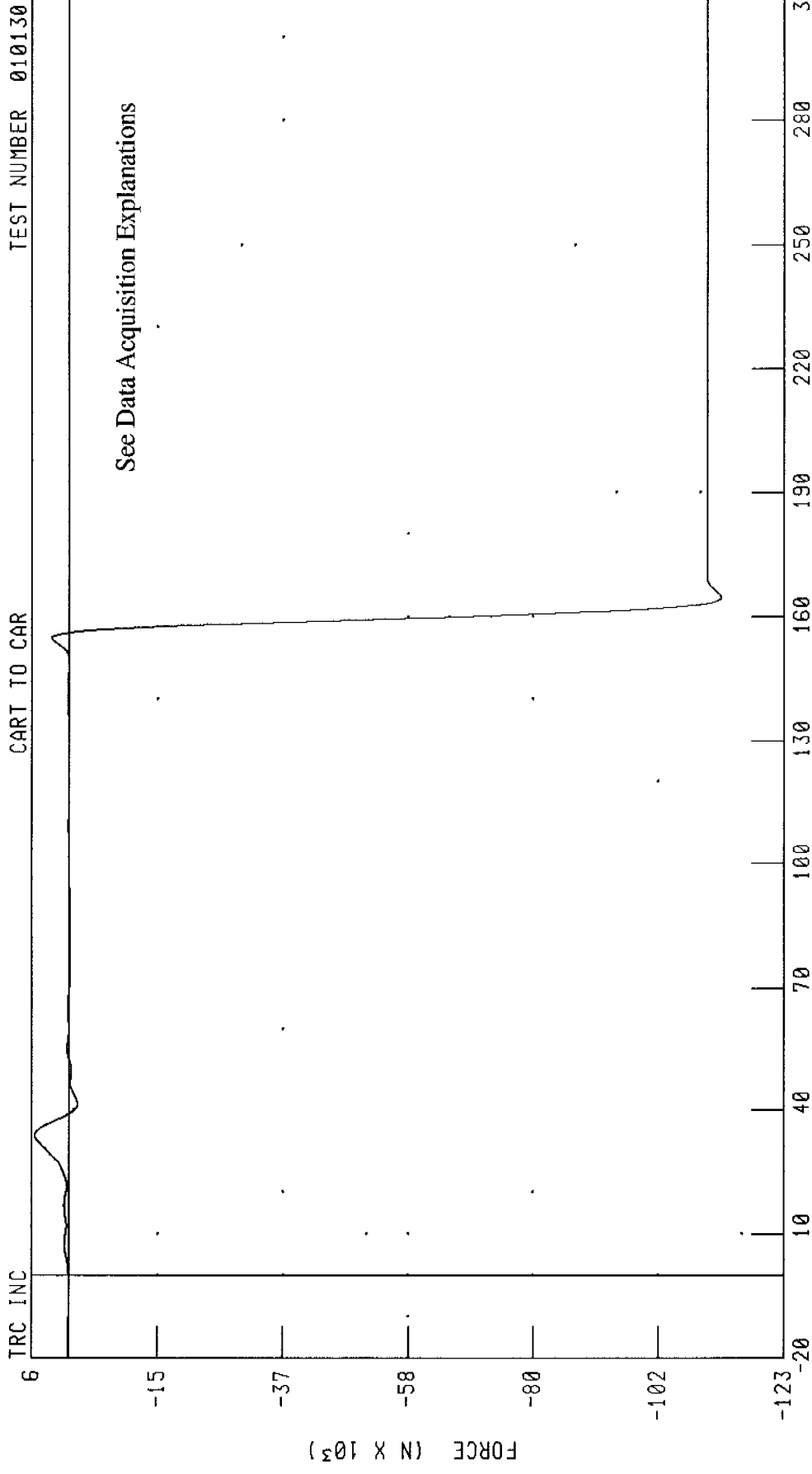


TRC INC

TEST NUMBER 010130

CHANNEL BC3XF FILTER CH CLASS 60  
TIME (MS)  
PEAK DATA 25202 81 N @ 31 44 MS, -342 72 N @ 93 20 MS

MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
MOVING BARRIER LOAD CELL G3 Y-AXIS FORCE

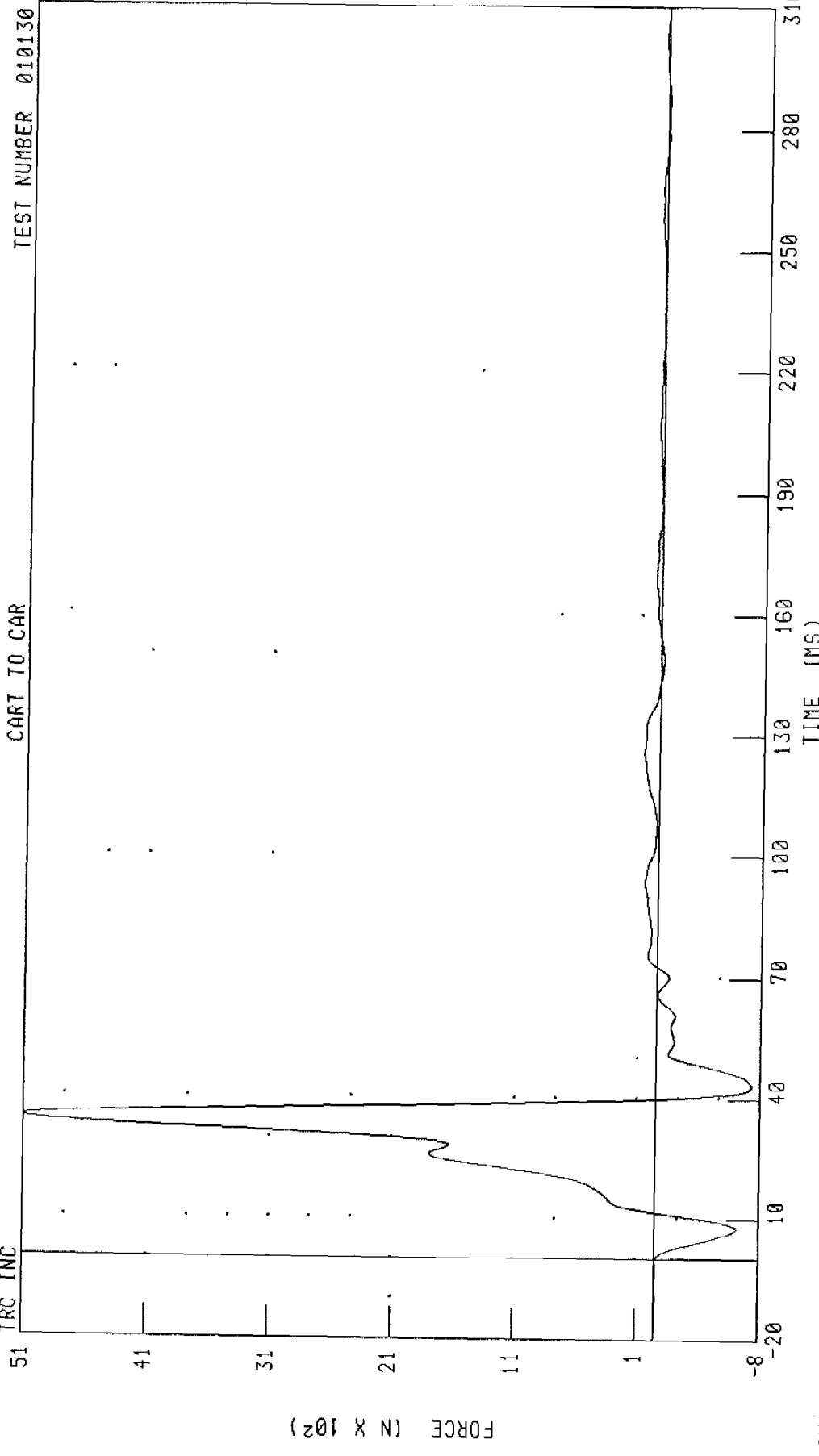


TEST NUMBER 010130

CART TO CAR

CHANNEL BG3YF FILTER CH CLASS 60 PEAK DATA 5766 91 N @ 33 84 MS, -113105 20 N @ 164 72 MS

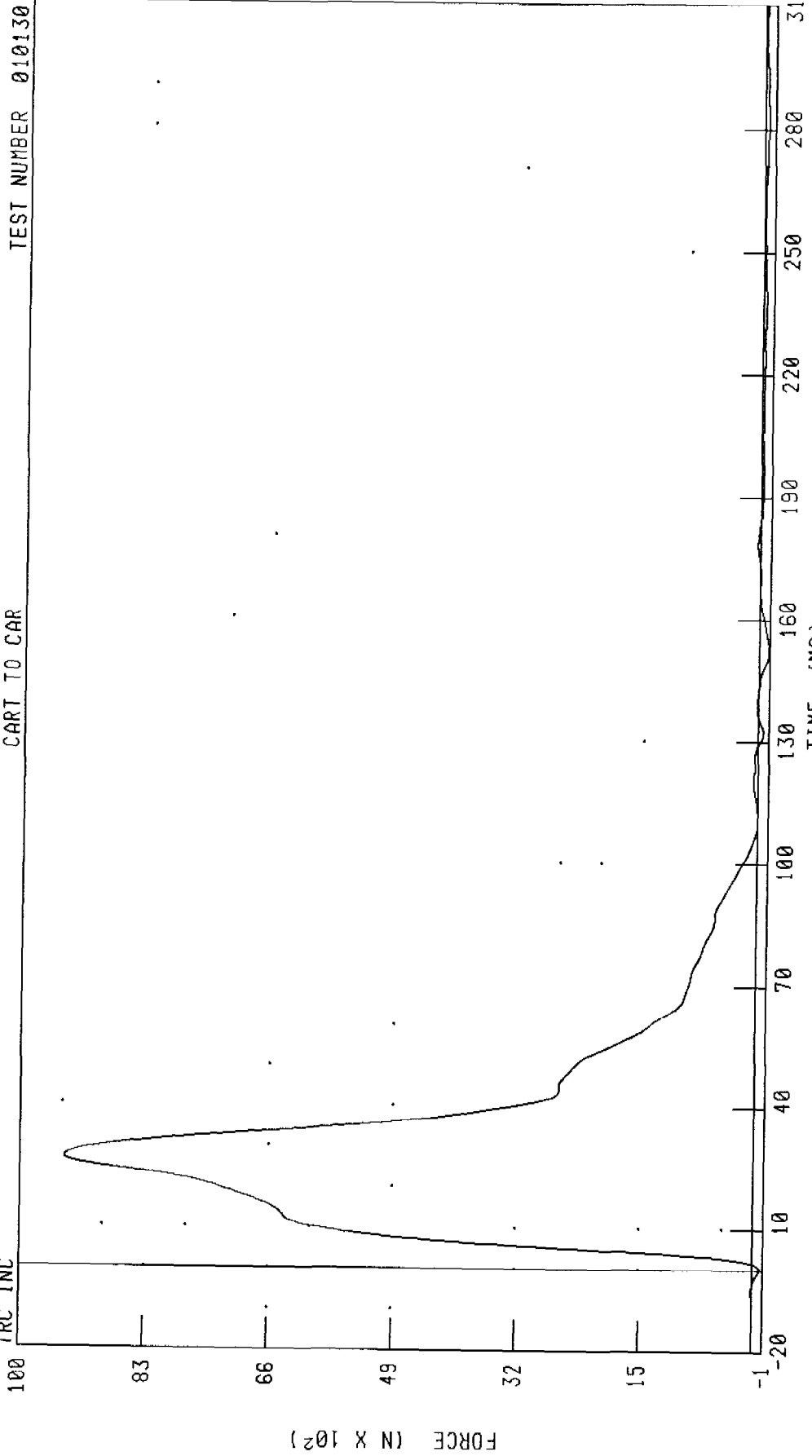
MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
MOVING BARRIER LOAD CELL G3 Z-AXIS FORCE



CHANNEL BC3ZF FILTER CH CLASS 60

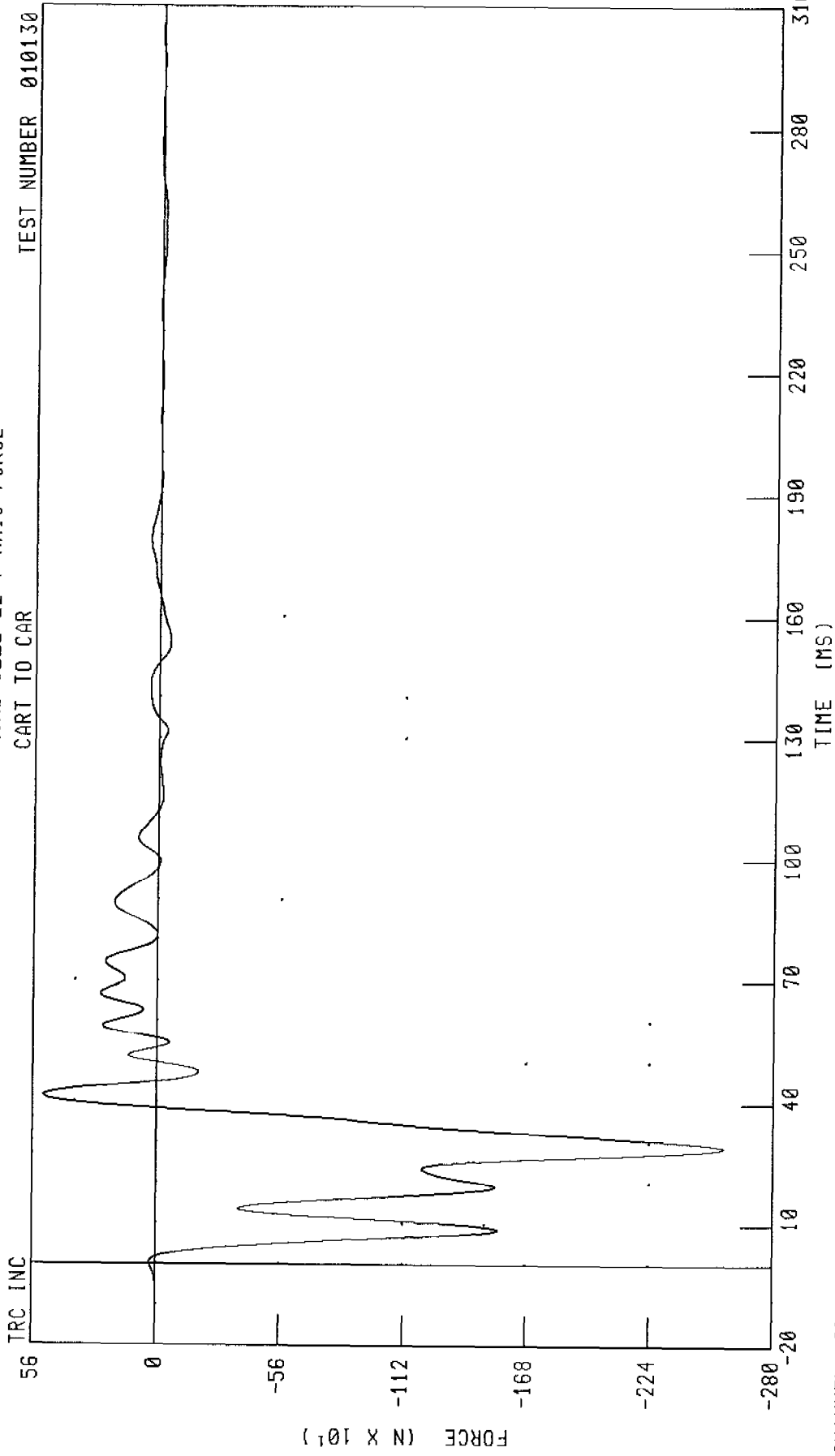
PEAK DATA 5163 63 N @ 34 56 MS, -781 42 N @ 43 04 MS

MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
MOVING BARRIER LOAD CELL E2 X-AXIS FORCE



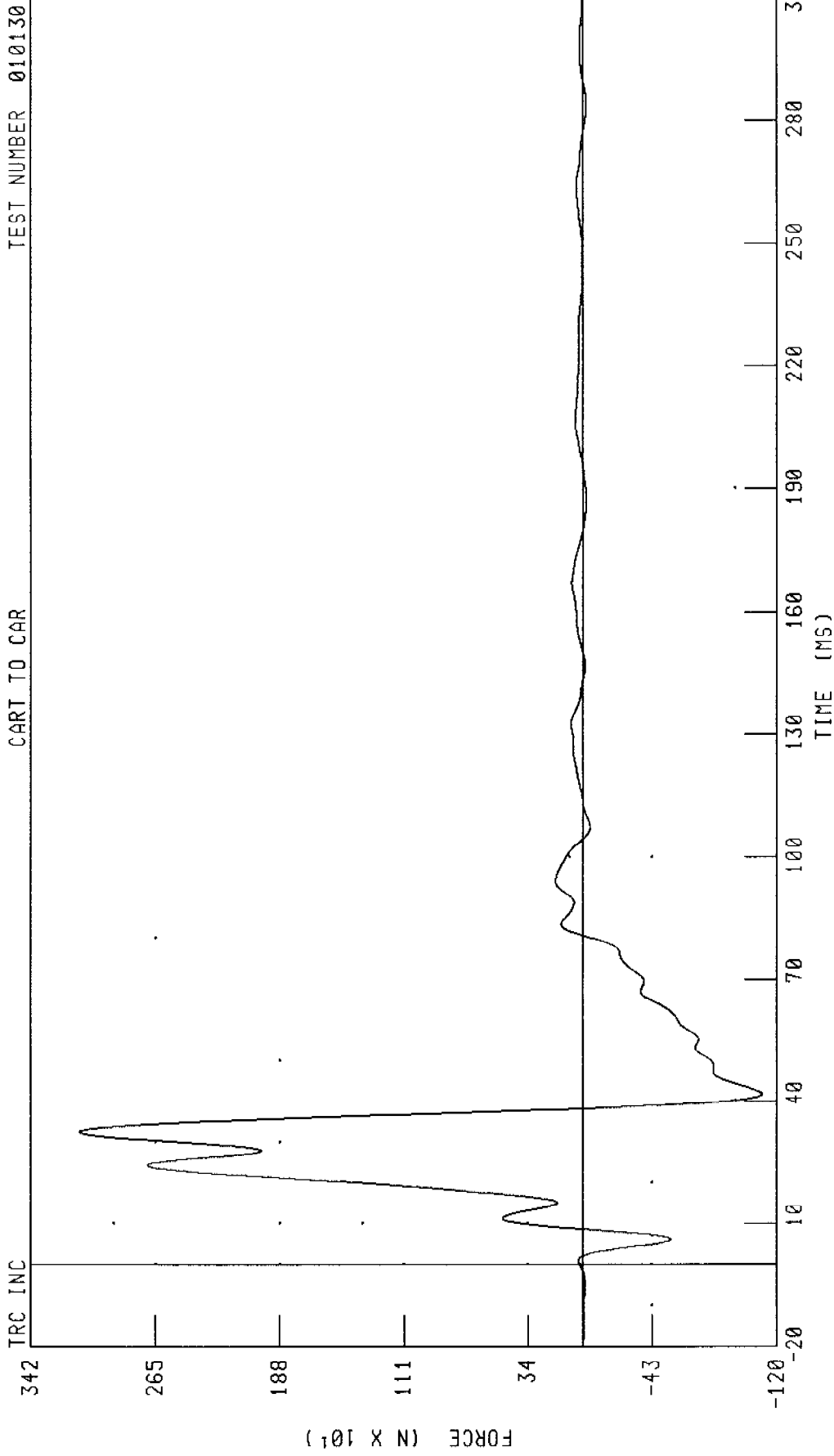
CHANNEL BE2XF FILTER CH CLASS 60 PEAK DATA 9463 18 N @ 26 88 MS, -133 59 N @ 152 40 MS

MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
MOVING BARRIER LOAD CELL E2 Y-AXIS FORCE



CHANNEL BE2YF FILTER CH CLASS 60  
PEAK DATA 511 42 N @ 41 76 MS, -2577 12 N @ 28 96 MS

MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
MOVING BARRIER LOAD CELL E2 Z-AXIS FORCE  
CART TO CAR

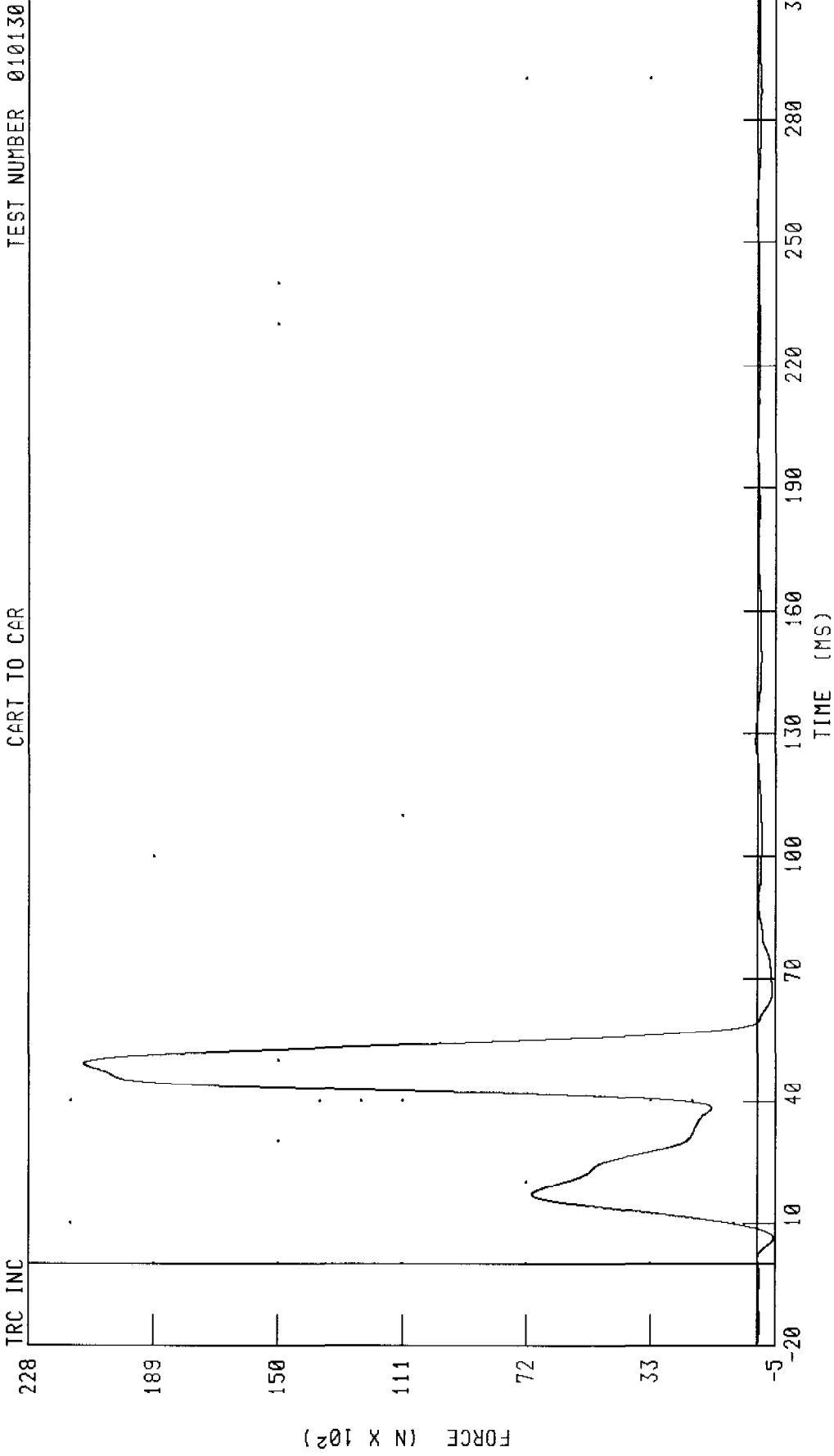


CHANNEL BE2ZF FILTER CH CLASS 60 PEAK DATA 3120 13 N @ 32 48 MS, -1108 41 N @ 41 68 MS

MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
MOVING BARRIER LOAD CELL B1 X-AXIS FORCE  
CART TO CAR

TEST NUMBER 010130

TRC INC



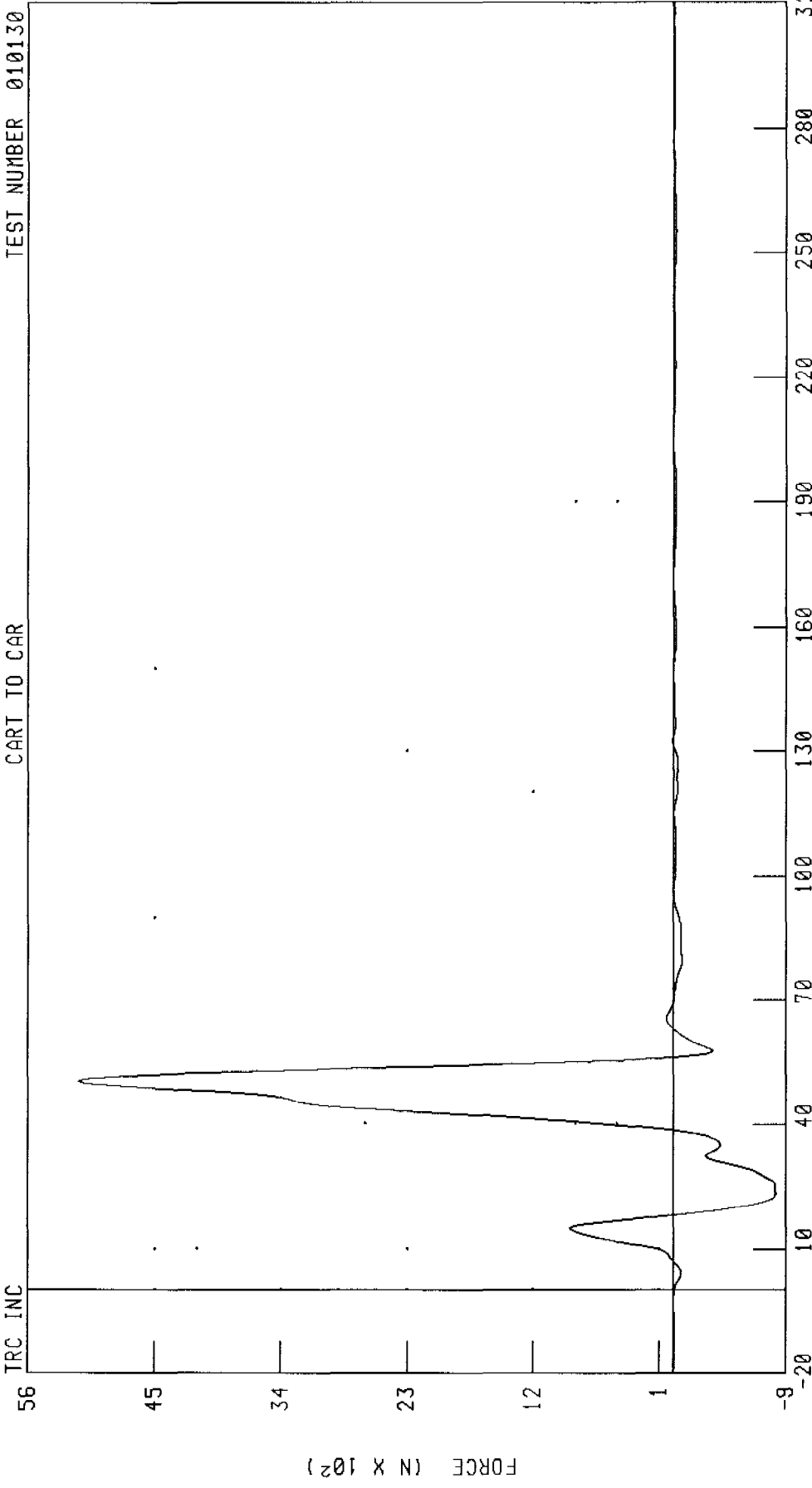
TIME (MS)

CHANNEL BB1XF FILTER CH CLASS 60 PEAK DATA 21131 81 N @ 49 28 MS, -517 47 N @ 6 32 MS

MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
MOVING BARRIER LOAD CELL B1 Y-AXIS FORCE  
CART TO CAR

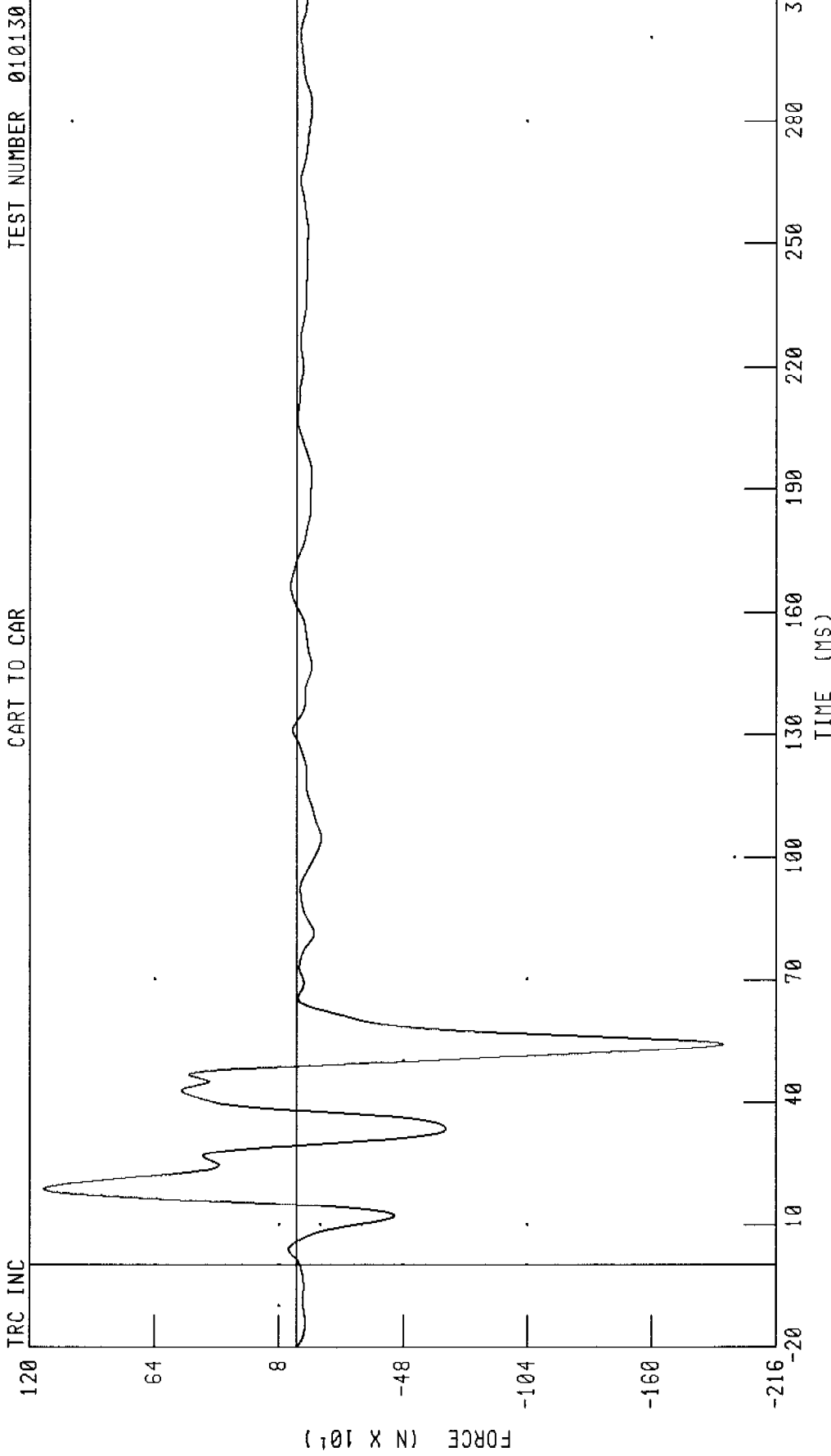
TEST NUMBER 010130

TRC INC



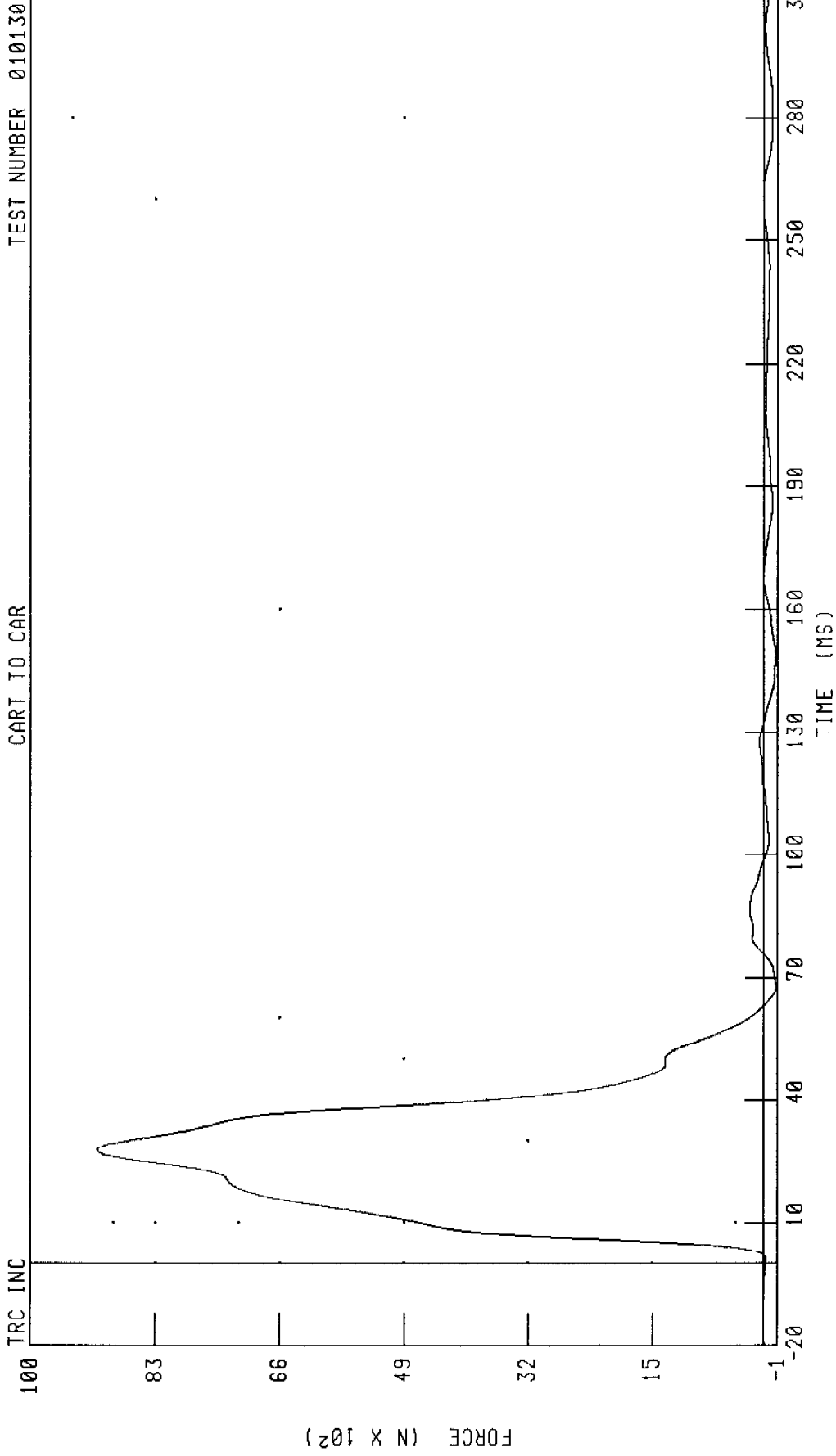
CHANNEL BB1YF FILTER CH CLASS 60  
PEAK DATA 5181 10 N 0 50 40 MS, -892 80 N 0 23 28 MS  
TIME (MS)

MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
MOVING BARRIER LOAD CELL B1 Z-AXIS FORCE  
CART TO CAR

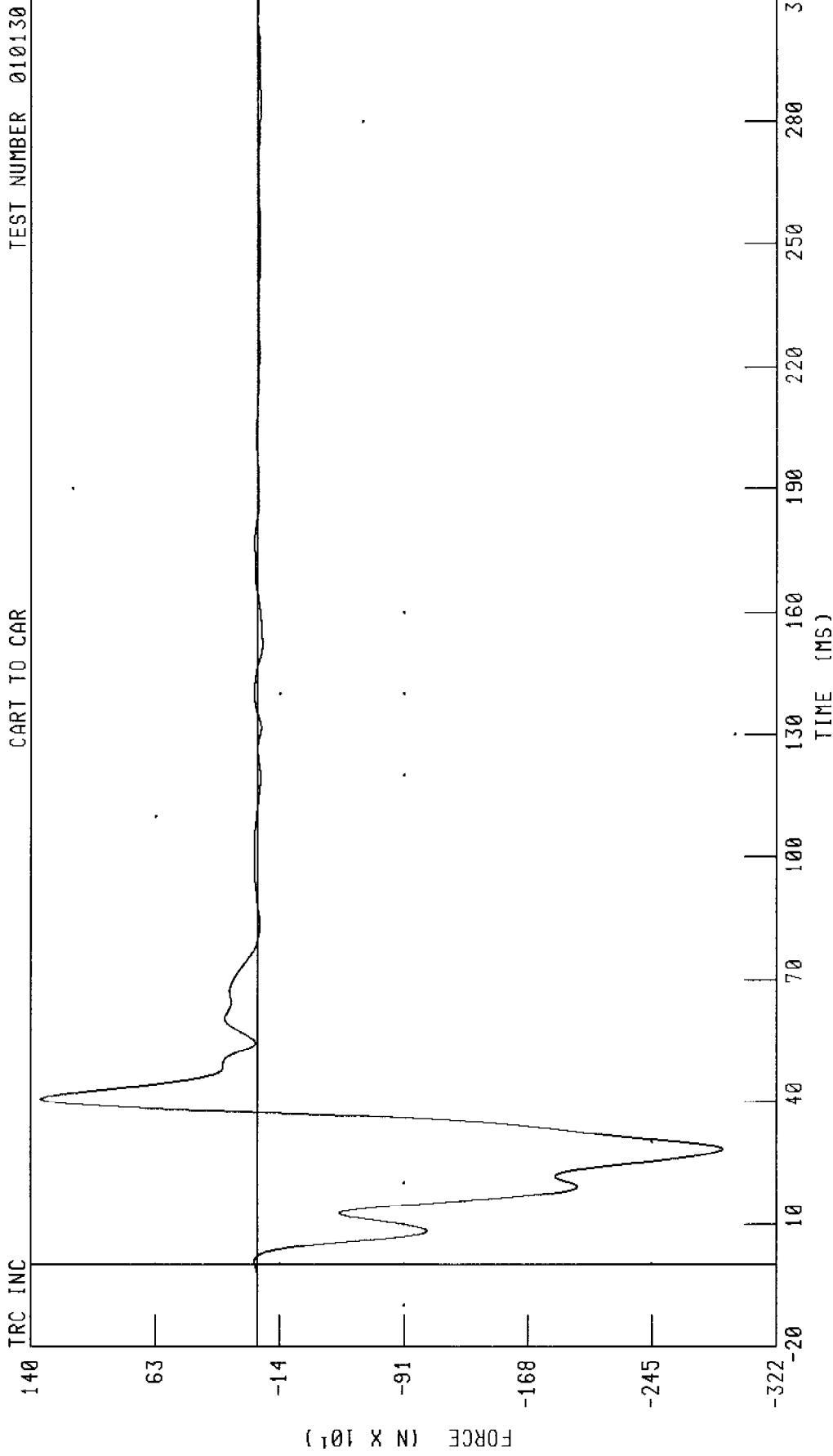


CHANNEL BB1ZF FILTER CH CLASS 60 PEAK DATA 1139 44 N @ 18 88 MS, -1923 49 N @ 54 16 MS

MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
MOVING BARRIER LOAD CELL C2 X-AXIS FORCE  
CART TO CAR

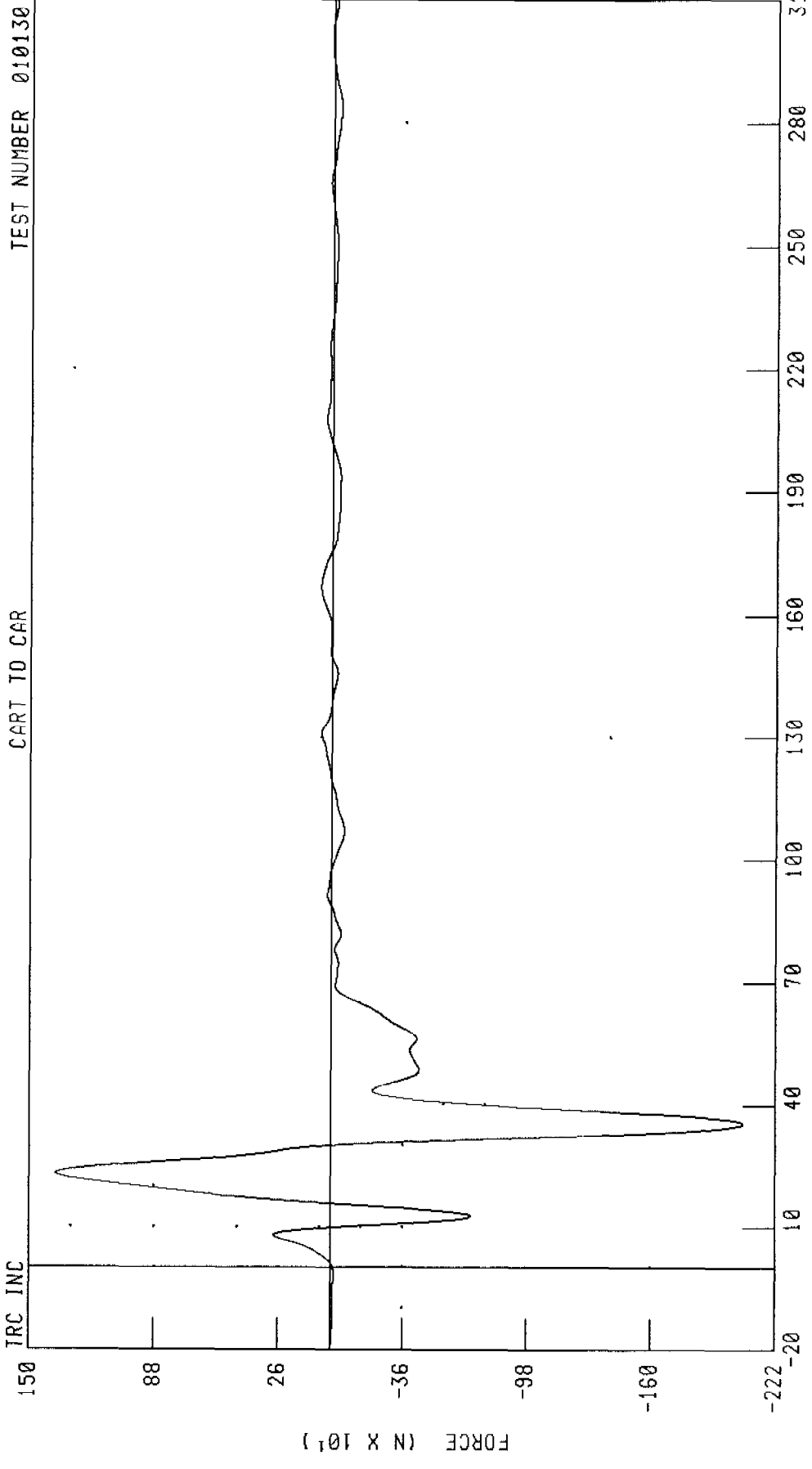


MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
MOVING BARRIER LOAD CELL C2 Y-AXIS FORCE  
CART TO CAR



CHANNEL BC2YF FILTER CH CLASS 60 PEAK DATA 1340 22 N @ 40 64 MS, -2890 19 N @ 28 32 MS

MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
MOVING BARRIER LOAD CELL C2 Z-AXIS FORCE  
CART TO CAR

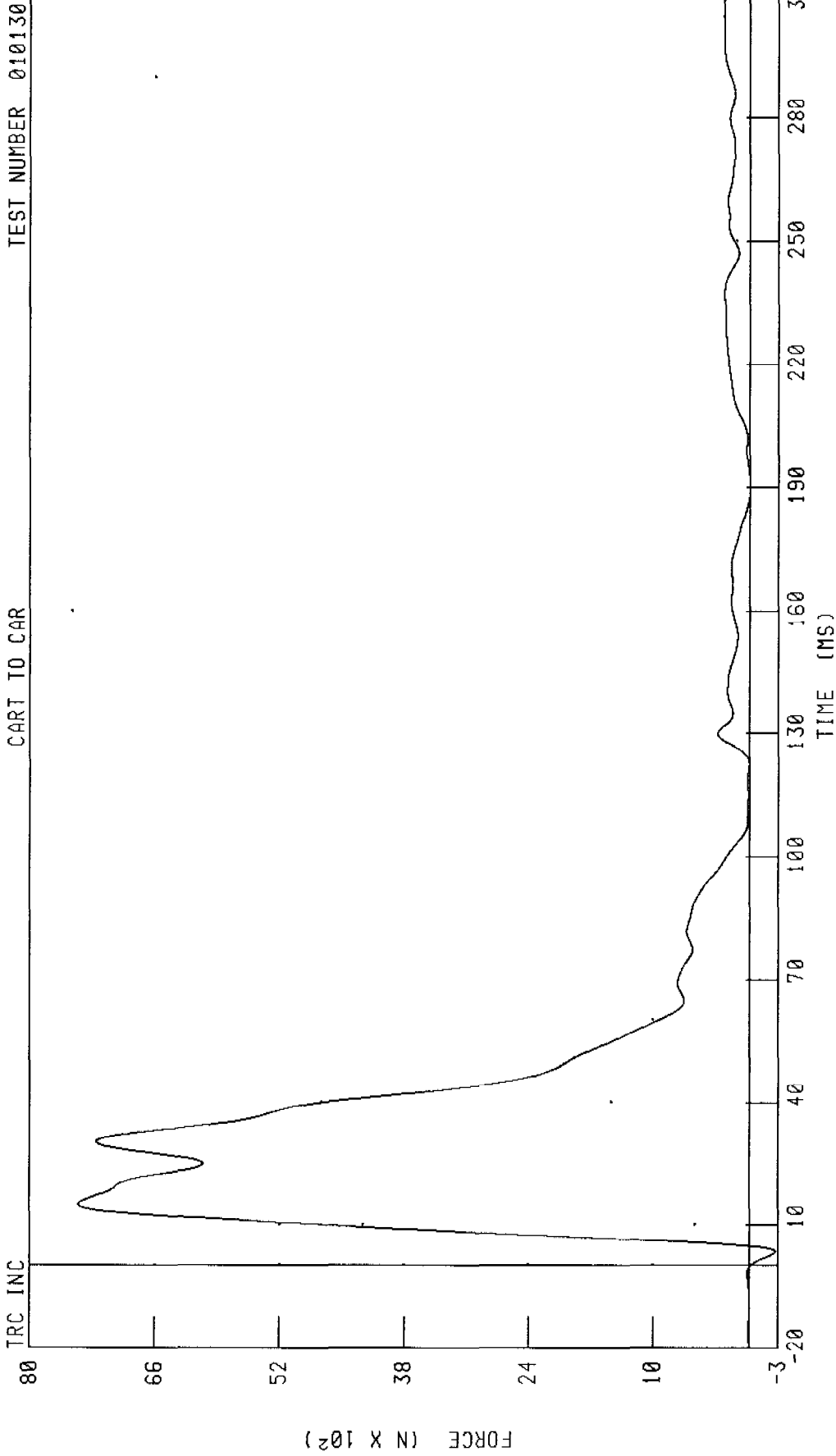


TRC INC

TEST NUMBER 010130

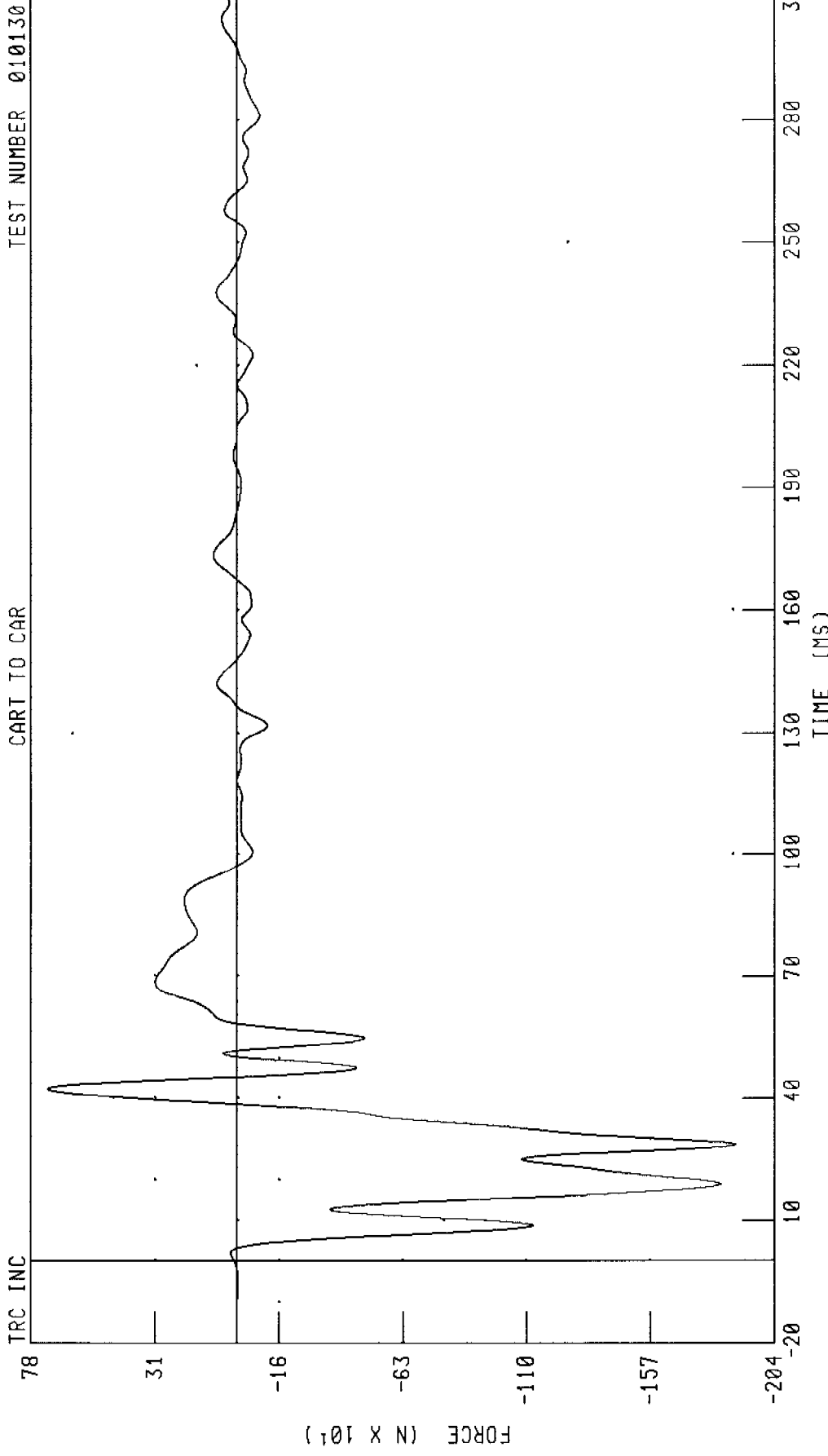
CHANNEL BC2ZF FILTER CH CLASS 60  
PEAK DATA 1368 85 N @ 23 12 MS, -2058 36 N @ 35 60 MS  
TIME (MS)

MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
MOVING BARRIER LOAD CELL E1 X-AXIS FORCE  
CART TO CAR



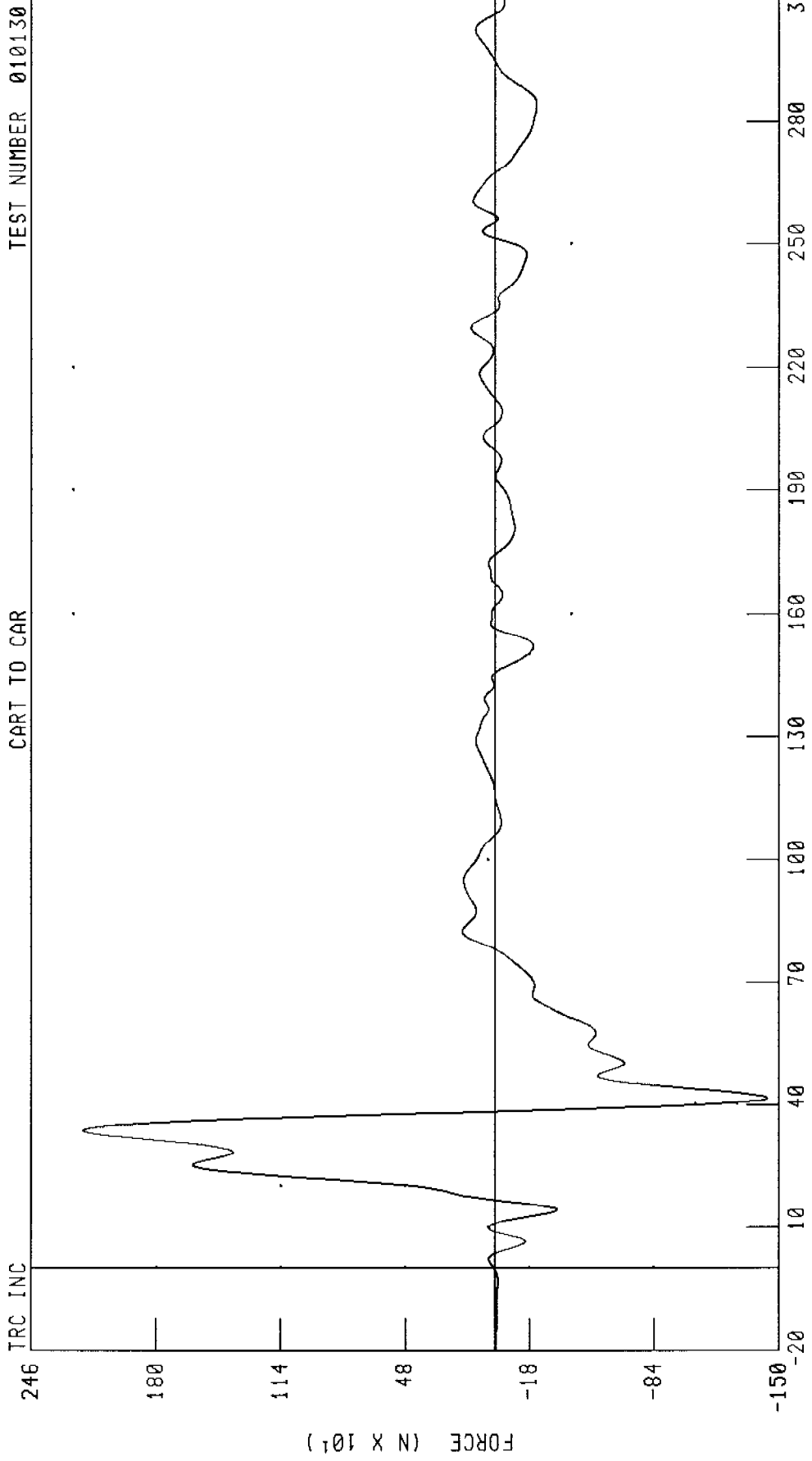
CHANNEL BE1XF FILTER CH CLASS 60 PEAK DATA 7535 53 N @ 14 96 MS, -292 22 N @ 3 36 MS

MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
MOVING BARRIER LOAD CELL E1 Y-AXIS FORCE

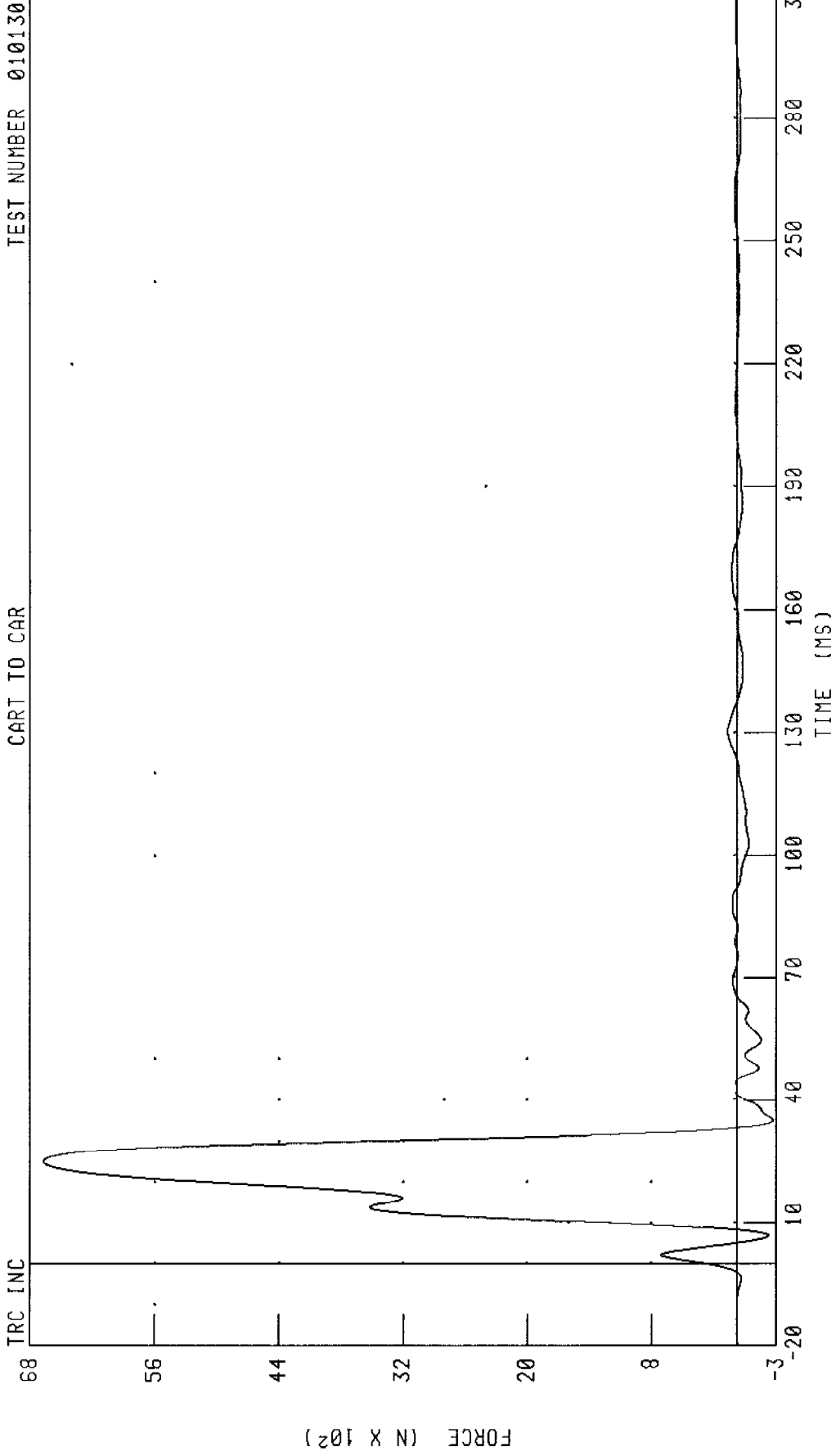


CHANNEL BE1YF FILTER CH CLASS 60 PEAK DATA 716 99 N @ 42 48 MS, -1892 35 N @ 28 56 MS

MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
MOVING BARRIER LOAD CELL E1 Z-AXIS FORCE



MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
MOVING BARRIER LOAD CELL A2 X-AXIS FORCE  
CART TO CAR



TRC INC

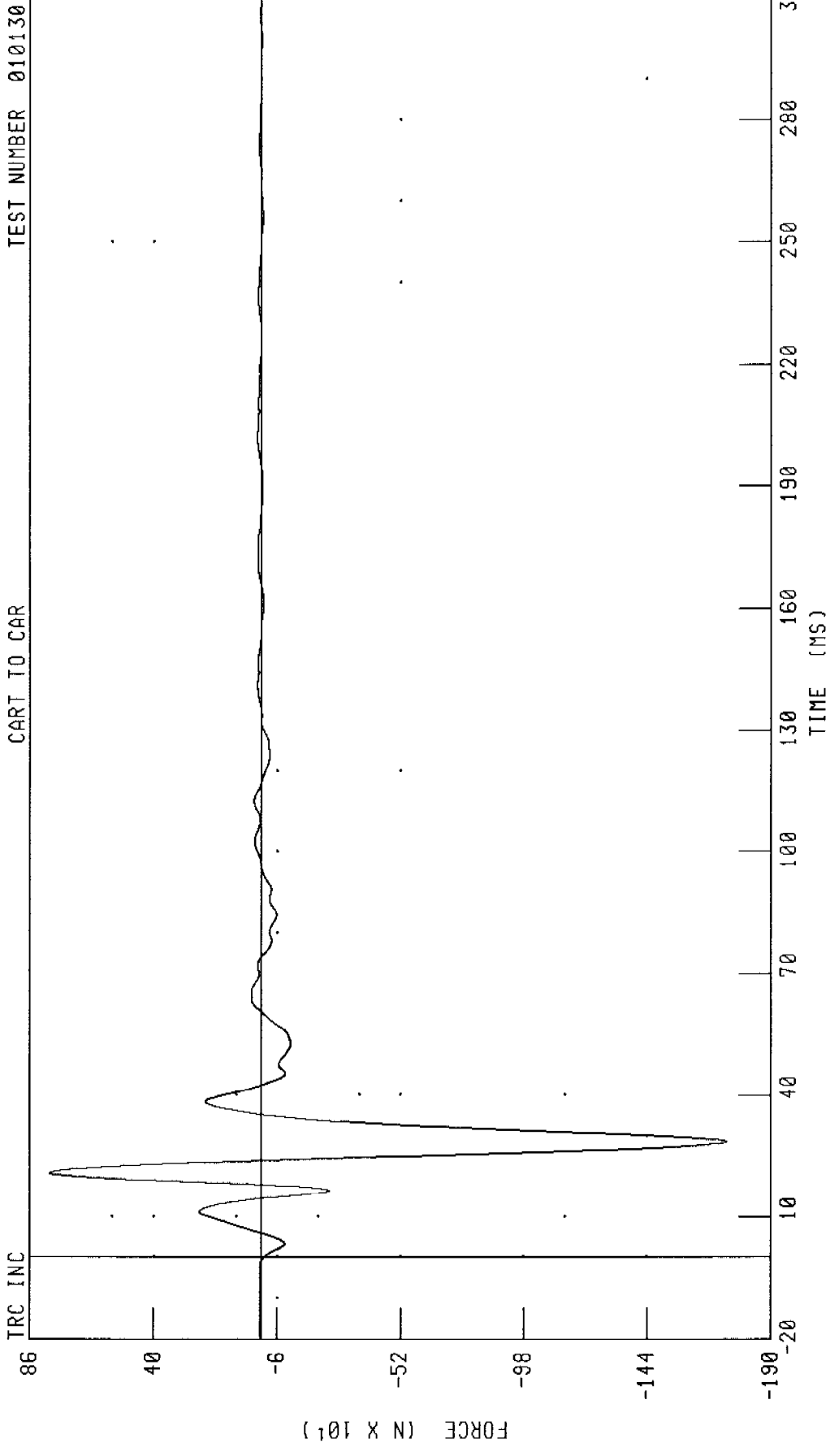
CART TO CAR

TEST NUMBER 010130

CHANNEL BA2XF FILTER CH CLASS 60

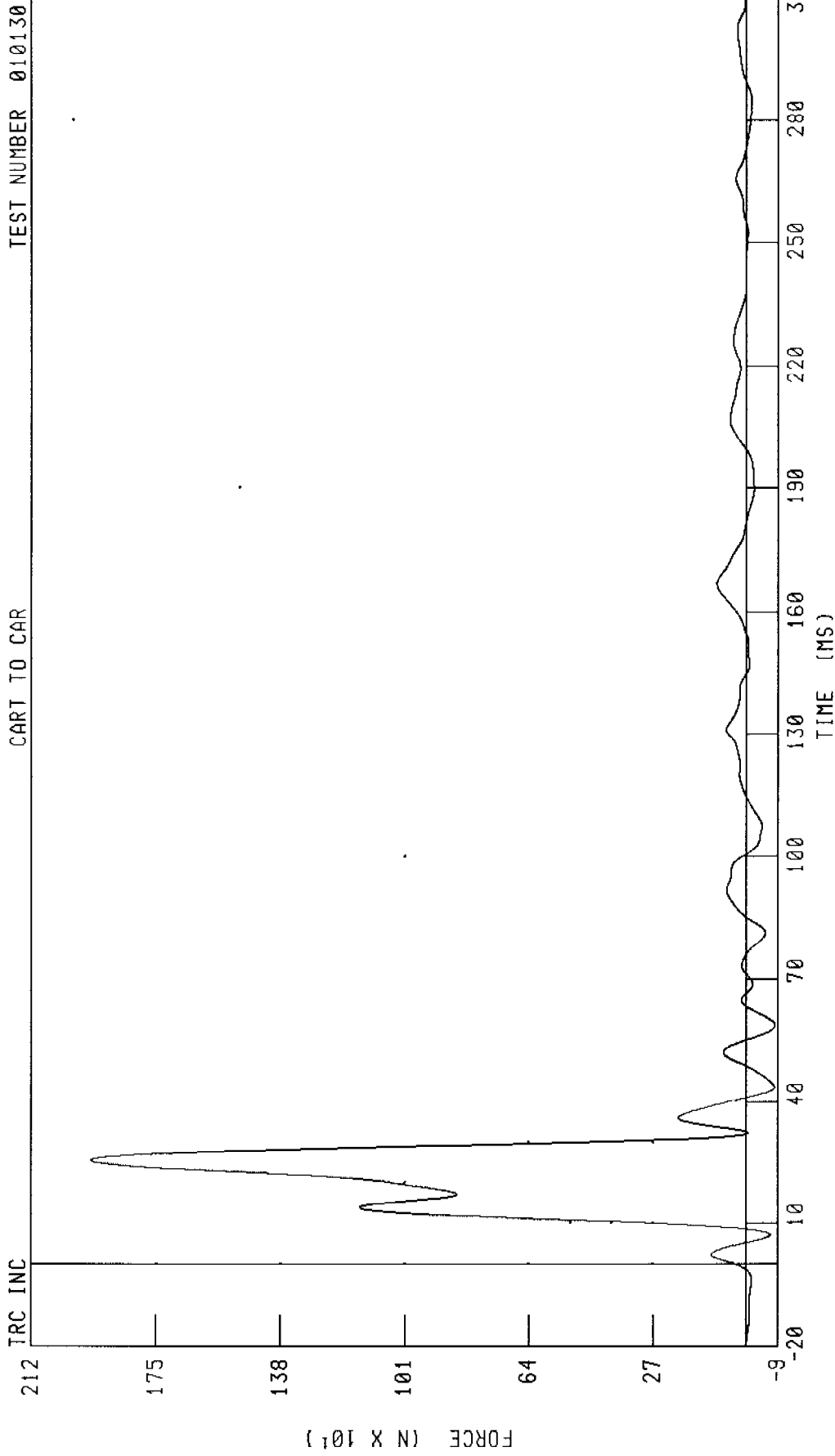
PEAK DATA 6700 04 N @ 25 04 MS, -342 20 N @ 35 12 MS

MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
MOVING BARRIER LOAD CELL A2 Y-AXIS FORCE  
CART TO CAR



CHANNEL BA2YF FILTER CH CLASS 60 PEAK DATA 788 45 N @ 20 80 MS, -1737 28 N @ 28 56 MS

MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
MOVING BARRIER LOAD CELL A2 Z-AXIS FORCE  
CART TO CAR



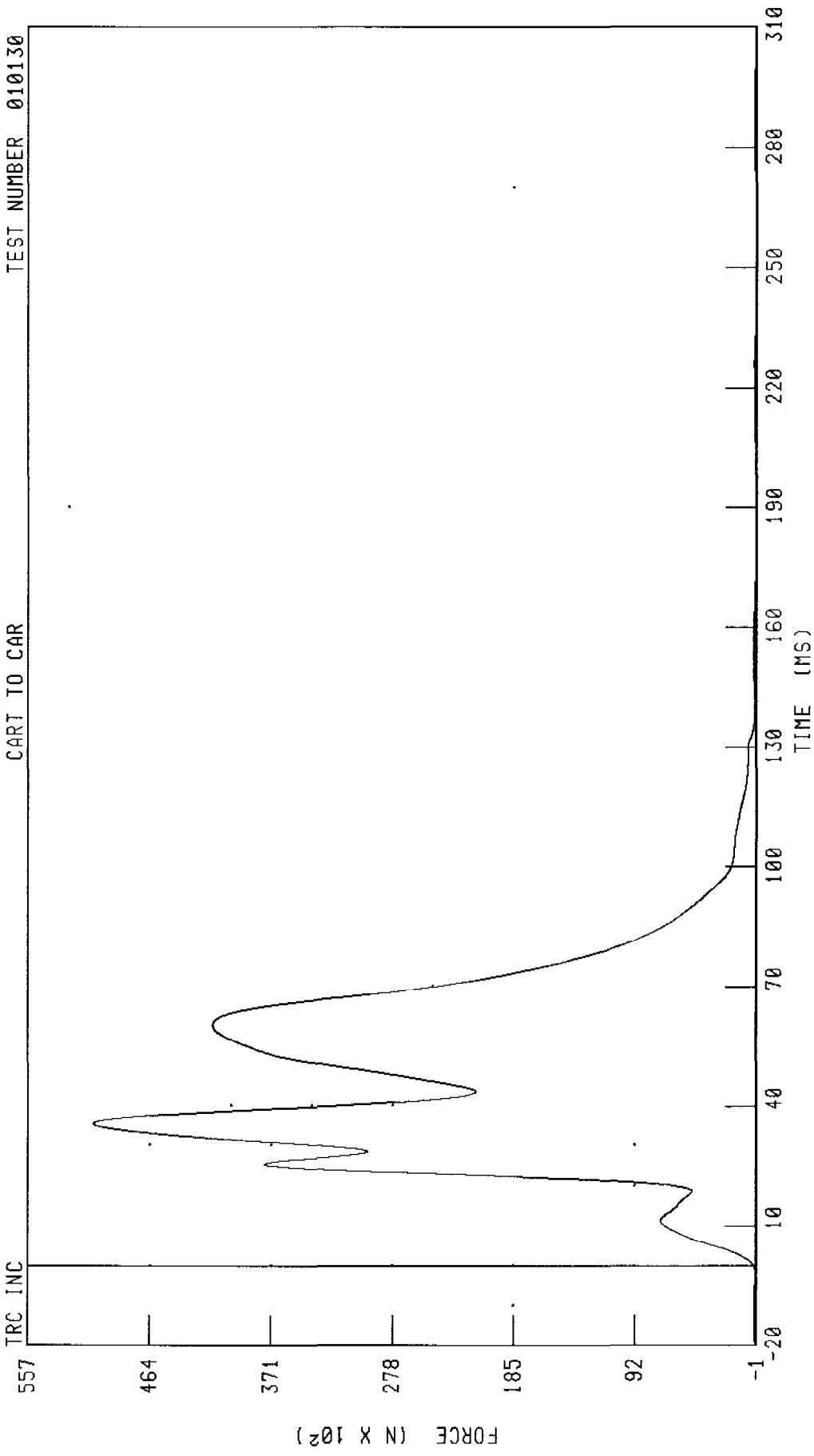
TEST NUMBER 010130

CHANNEL BAZZF FILTER CH CLASS 60  
PEAK DATA 1947 77 N @ 25 52 MS, -86 49 N @ 58 56 MS

MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
MOVING BARRIER LOAD CELL C4 X-AXIS FORCE  
CART TO CAR

TRC INC

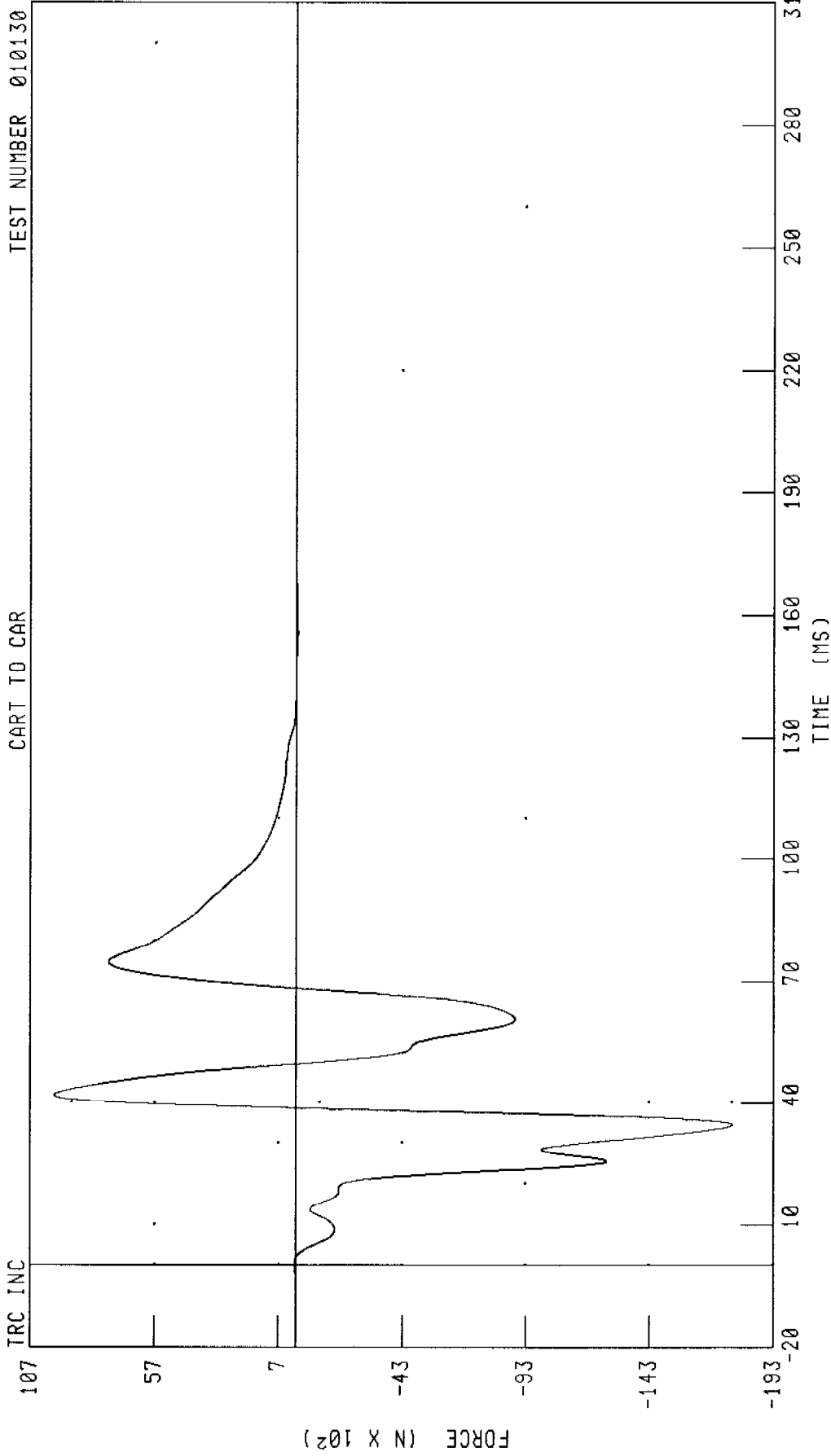
TEST NUMBER 010130



TIME (MS)

CHANNEL BC4XF FILTER CH CLASS 60 PEAK DATA 50729 14 N @ 35 60 MS, -92 76 N @ 259 68 MS

MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
MOVING BARRIER LOAD CELL C4 Y-AXIS FORCE  
CART TO CAR

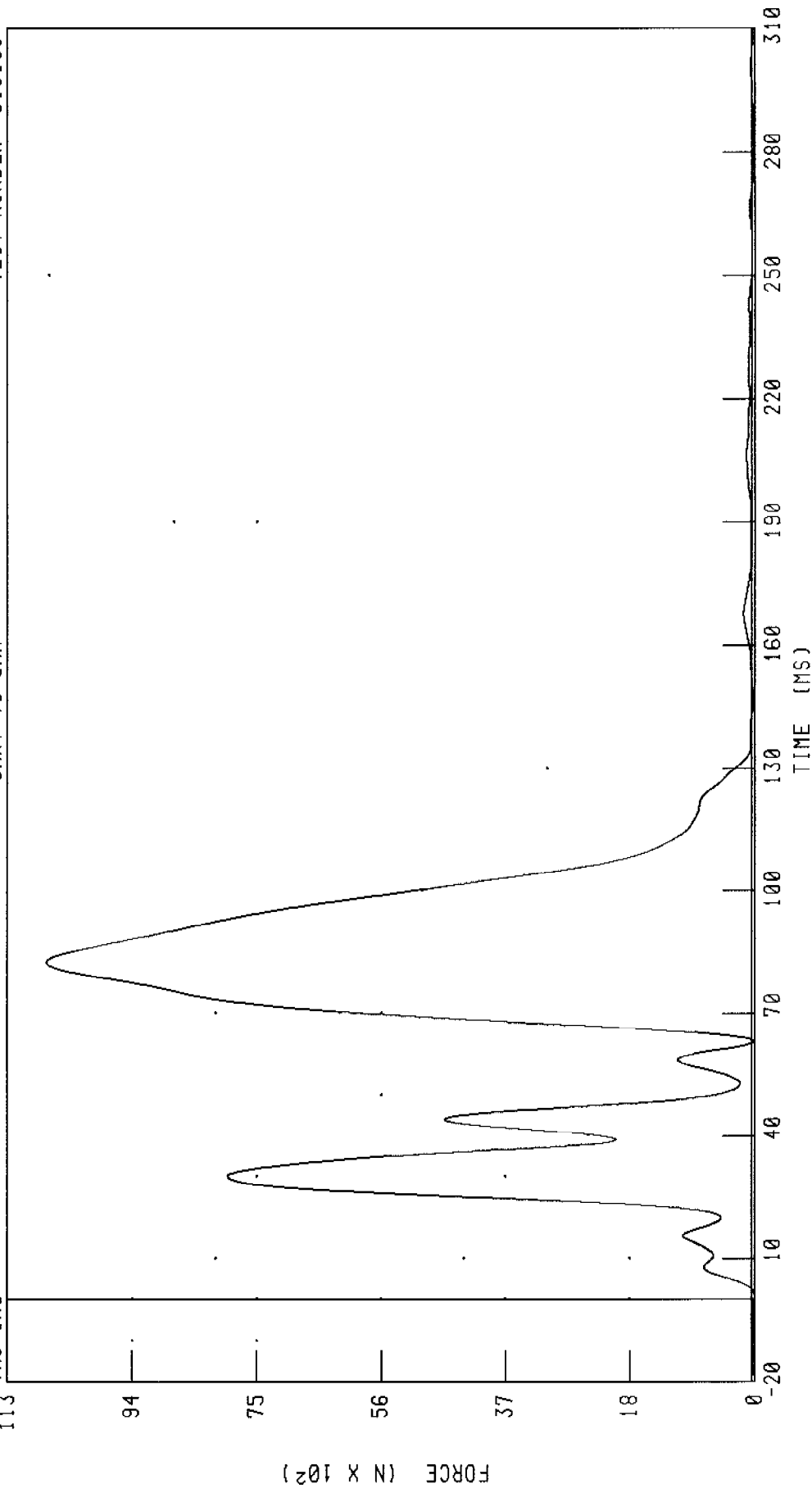


CHANNEL BC4YF FILTER CH CLASS 60 PEAK DATA 9742 42 N @ 41 92 MS, -17652 95 N @ 34 56 MS

MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
MOVING BARRIER LOAD CELL C4 Z-AXIS FORCE  
CART TO CAR

113 TRC INC

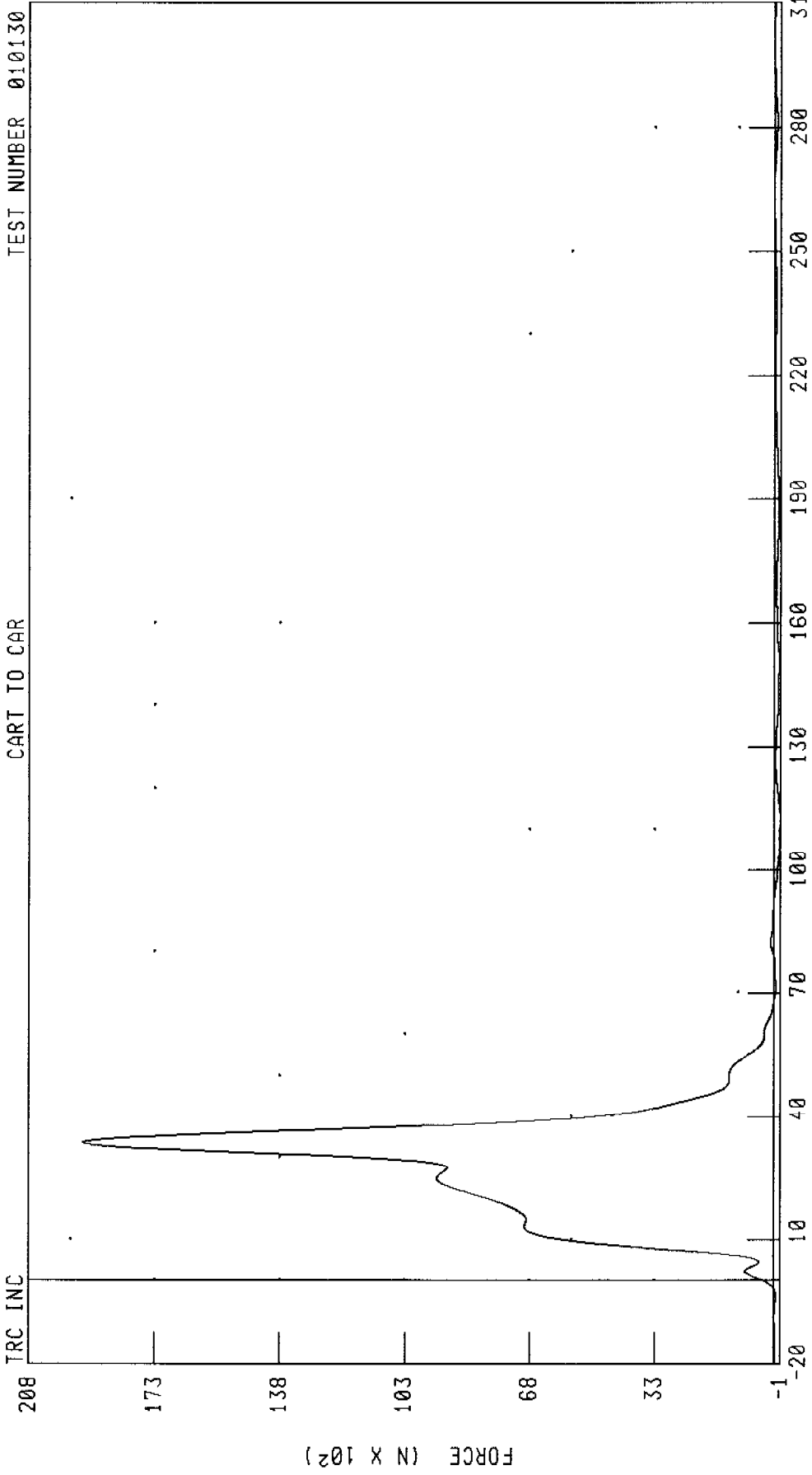
TEST NUMBER 0110130



TIME (MS)

CHANNEL BC4ZF FILTER CH CLASS 60 PEAK DATA 10760 12 N @ 82 48 MS, -39 15 N @ 0 72 MS

MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
MOVING BARRIER LOAD CELL K2 X-AXIS FORCE  
CART TO CAR



TRC INC

CART TO CAR

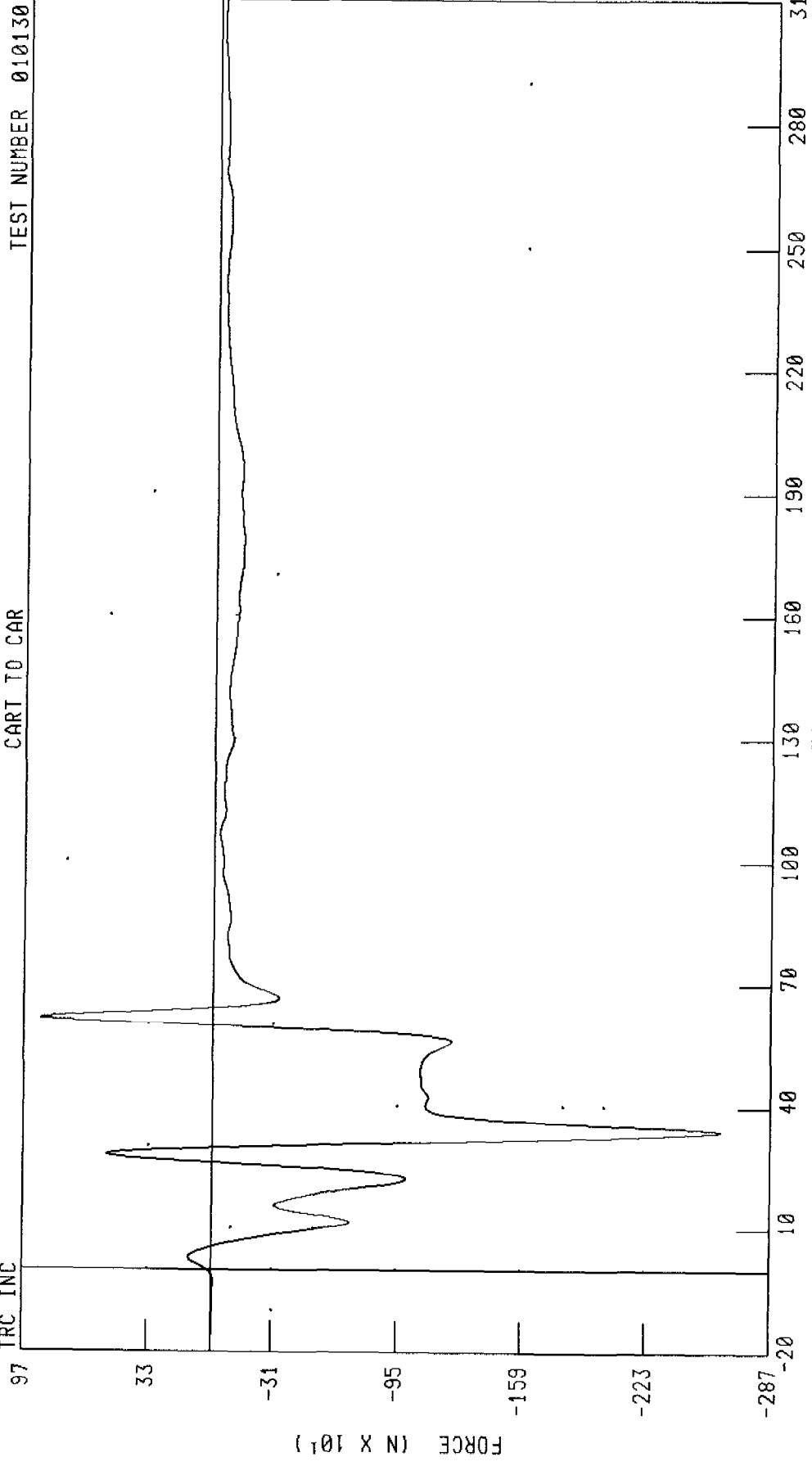
TEST NUMBER 010130

CHANNEL BK2XF

FILTER CH CLASS 60

PEAK DATA 19349 13 N @ 33 68 MS, -151 02 N @ 113 36 MS

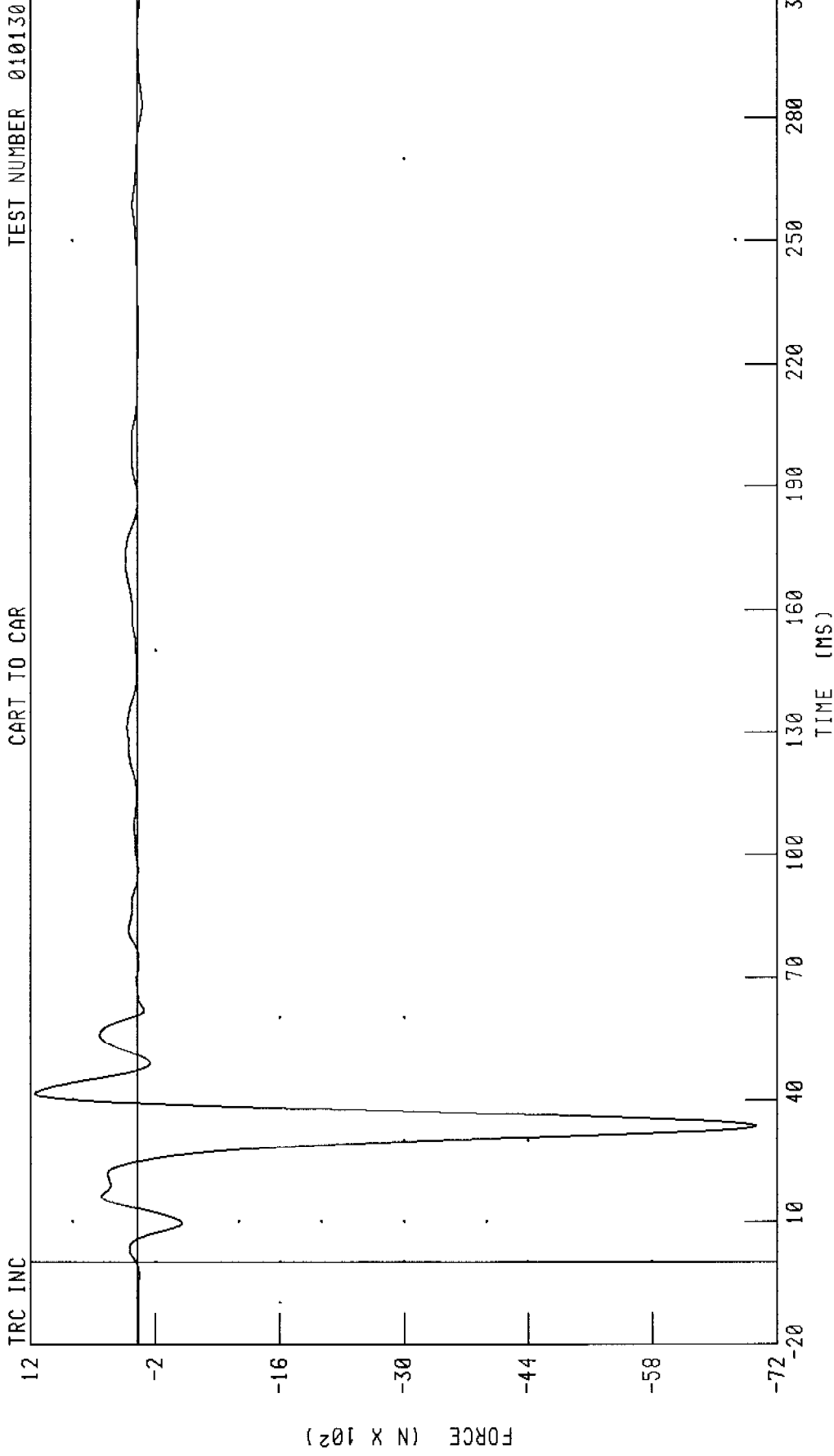
MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
MOVING BARRIER LOAD CELL K2 Y-AXIS FORCE



CHANNEL BK2YF FILTER CH CLASS 60

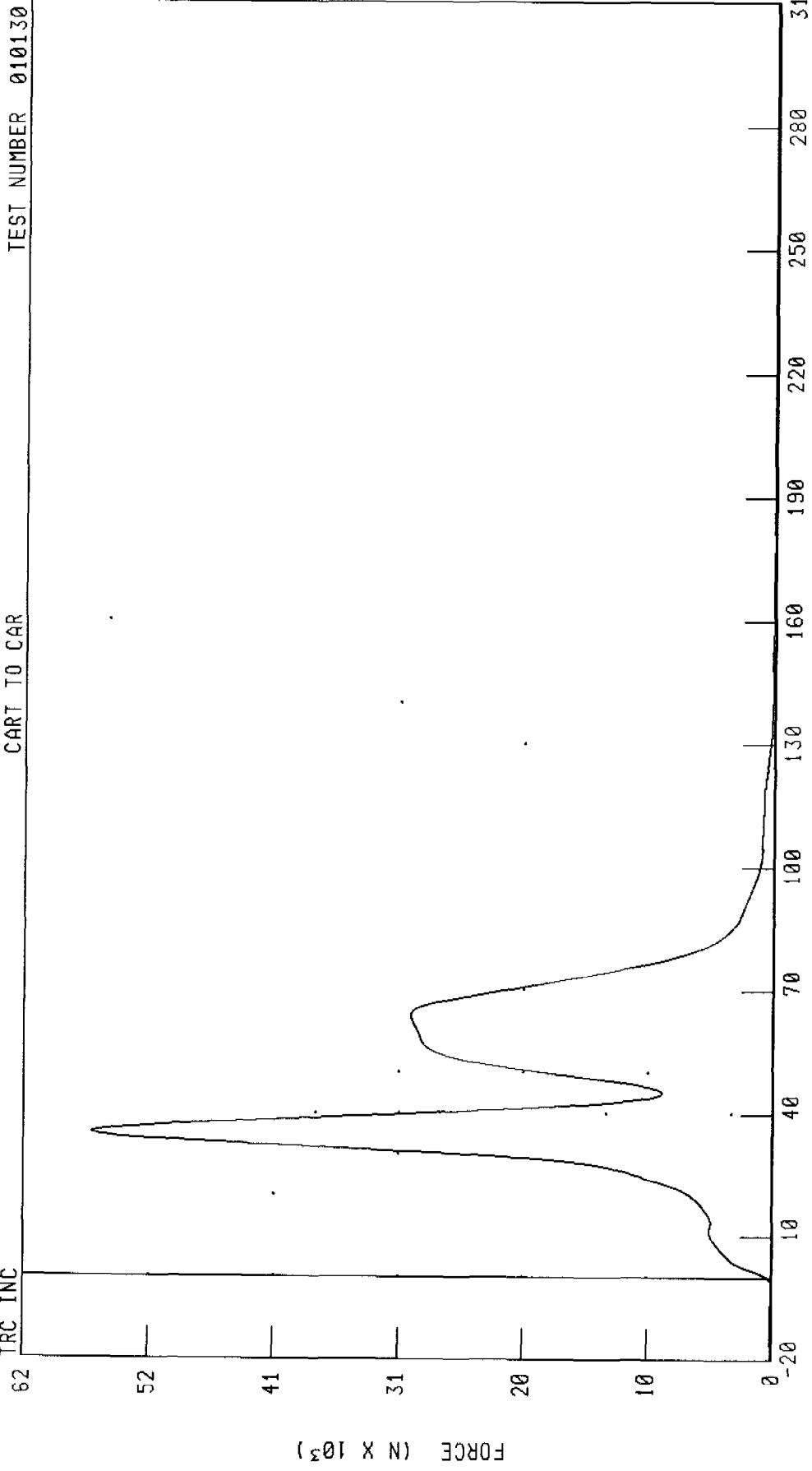
PEAK DATA 886 38 N @ 61 44 MS, -2617 14 N @ 33 92 MS

MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
MOVING BARRIER LOAD CELL K2 Z-AXIS FORCE  
CART TO CAR



CHANNEL BK2ZF FILTER CH CLASS 60 PEAK DATA 1153 62 N @ 41 76 MS, -6962 45 N @ 33 68 MS

MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
MOVING BARRIER LOAD CELL E4 X-AXIS FORCE  
CART TO CAR



TRC INC

TEST NUMBER 010130

CHANNEL BE4XF FILTER CH CLASS 60

TIME (MS)

PEAK DATA 57213 99 N @ 35 28 MS, -106 62 N @ -2 24 MS

MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
MOVING BARRIER LOAD CELL E4 Y-AXIS FORCE

TRC INC

CART TO CAR

TEST NUMBER 010130

CHANNEL BE4YF FILTER CH CLASS 60

PEAK DATA 9360 86 N @ 55 52 MS, -3337 74 N @ 40 88 MS

TIME (MS)

FORCE (N X 10<sup>2</sup>)

102

79

56

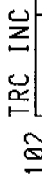
33

10

-13

-36

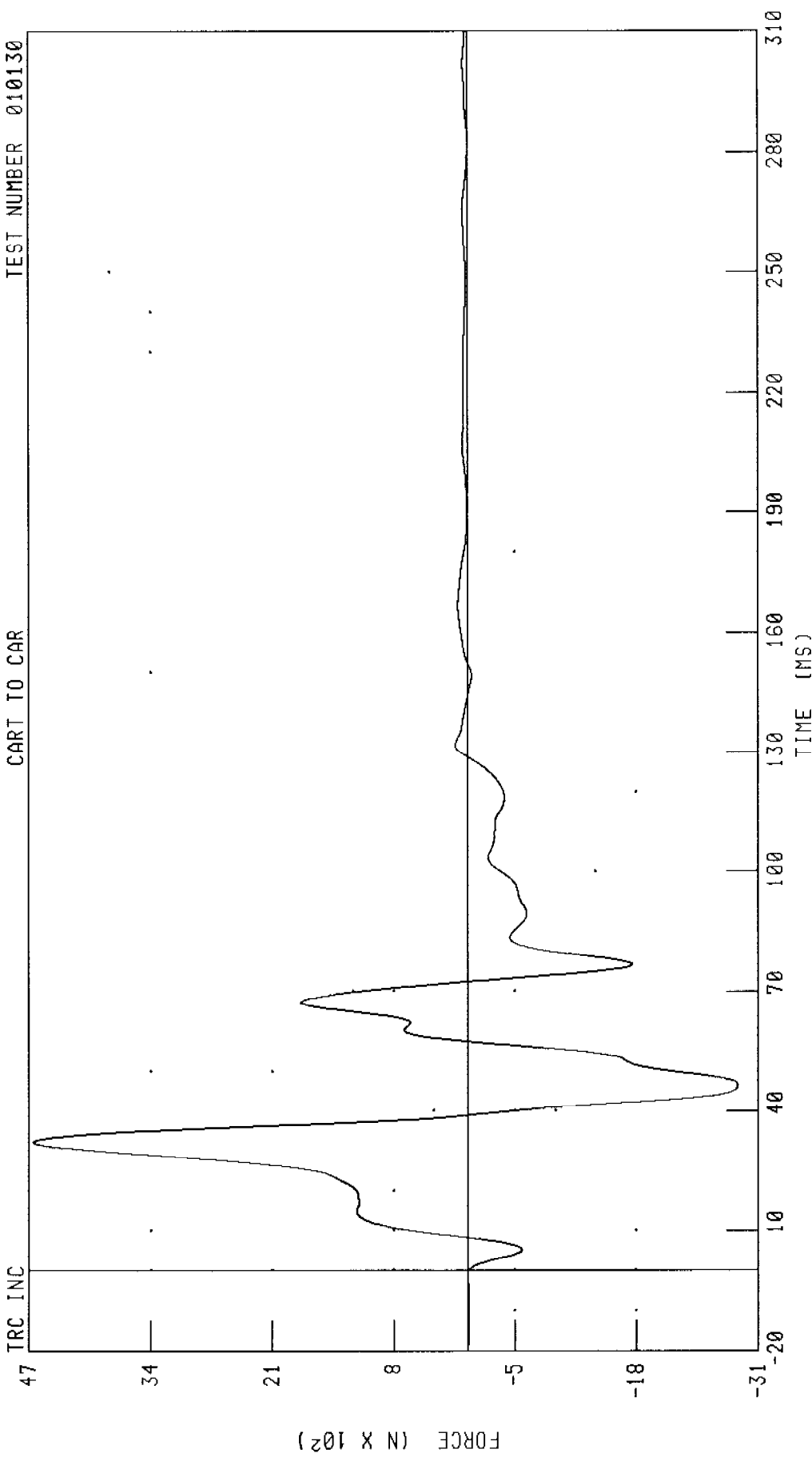
10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160 170 180 190 200 210 220 230 240 250 260 270 280 290 300 310



MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
MOVING BARRIER LOAD CELL E4 Z-AXIS FORCE

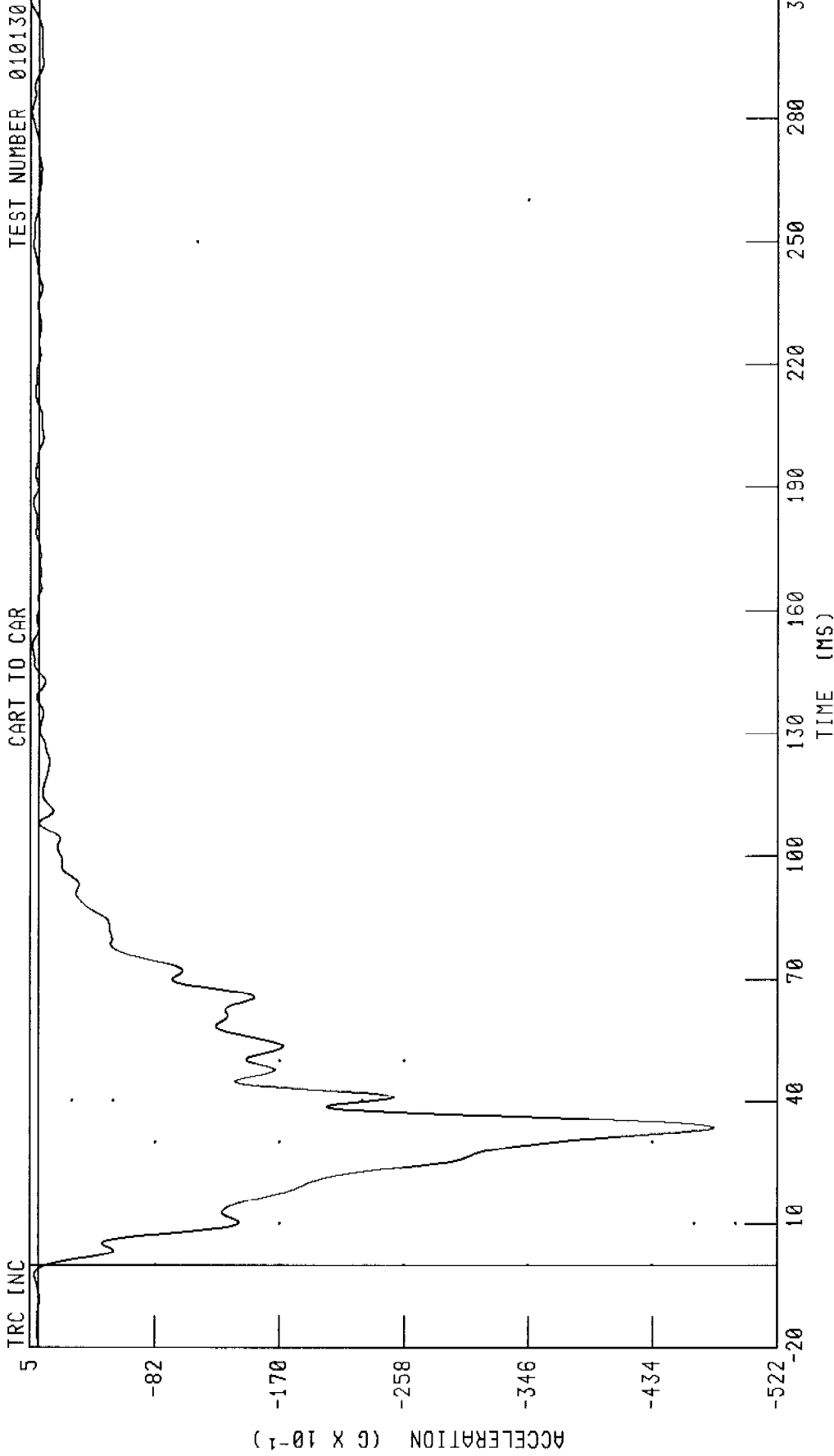
CART TO CAR TEST NUMBER 010130

TRC INC



CHANNEL BE4ZF FILTER CH CLASS 60 PEAK DATA 4653 52 N @ 32 24 MS, -2886 70 N @ 46 56 MS

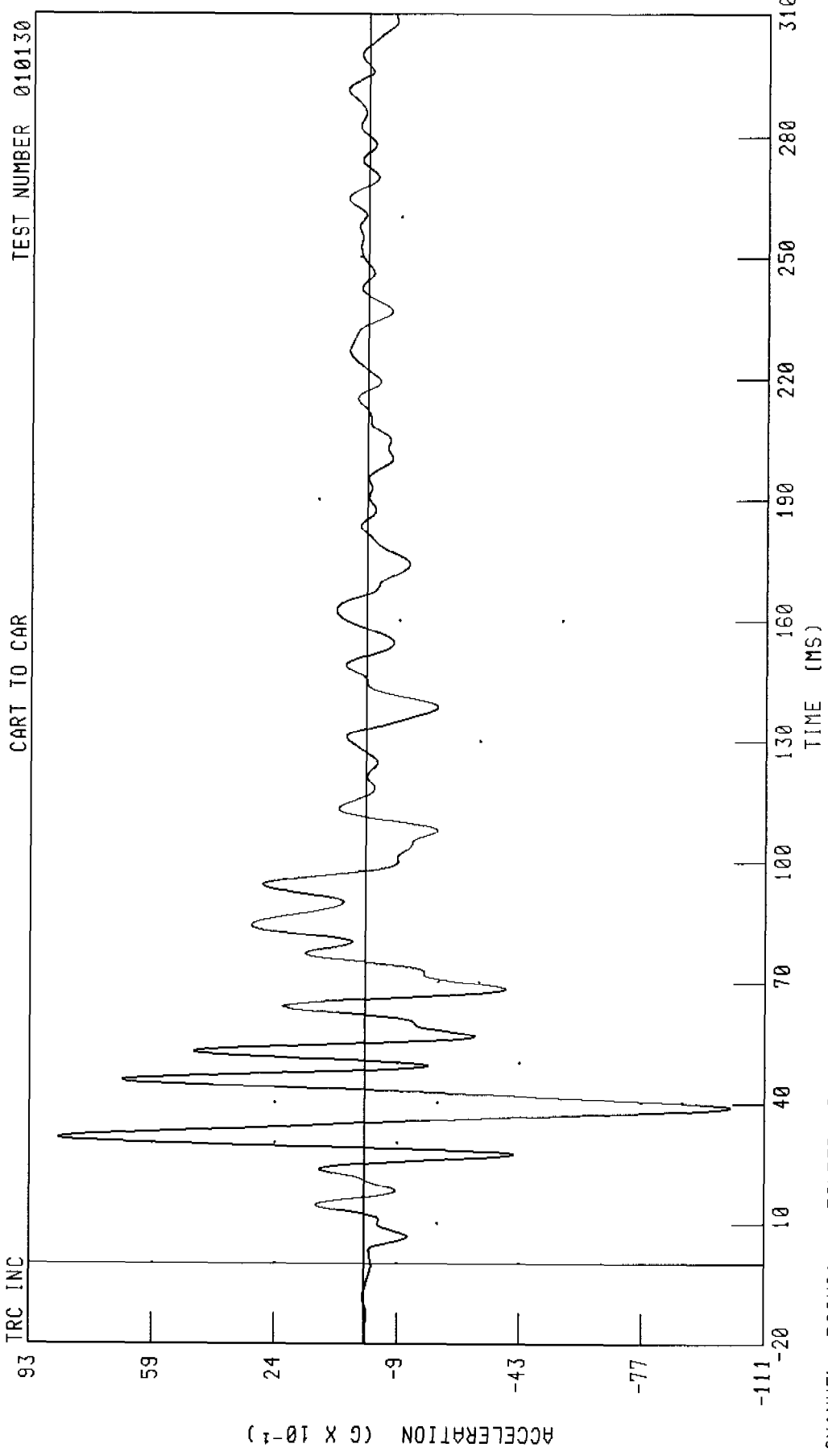
MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
MOVING BARRIER CENTER OF GRAVITY X-AXIS ACCELERATION



CHANNEL BCCXG1 FILTER CH CLASS 60

MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
MOVING BARRIER CENTER OF GRAVITY Y-AXIS ACCELERATION

TRC INC  
CART TO CAR  
TEST NUMBER 010130

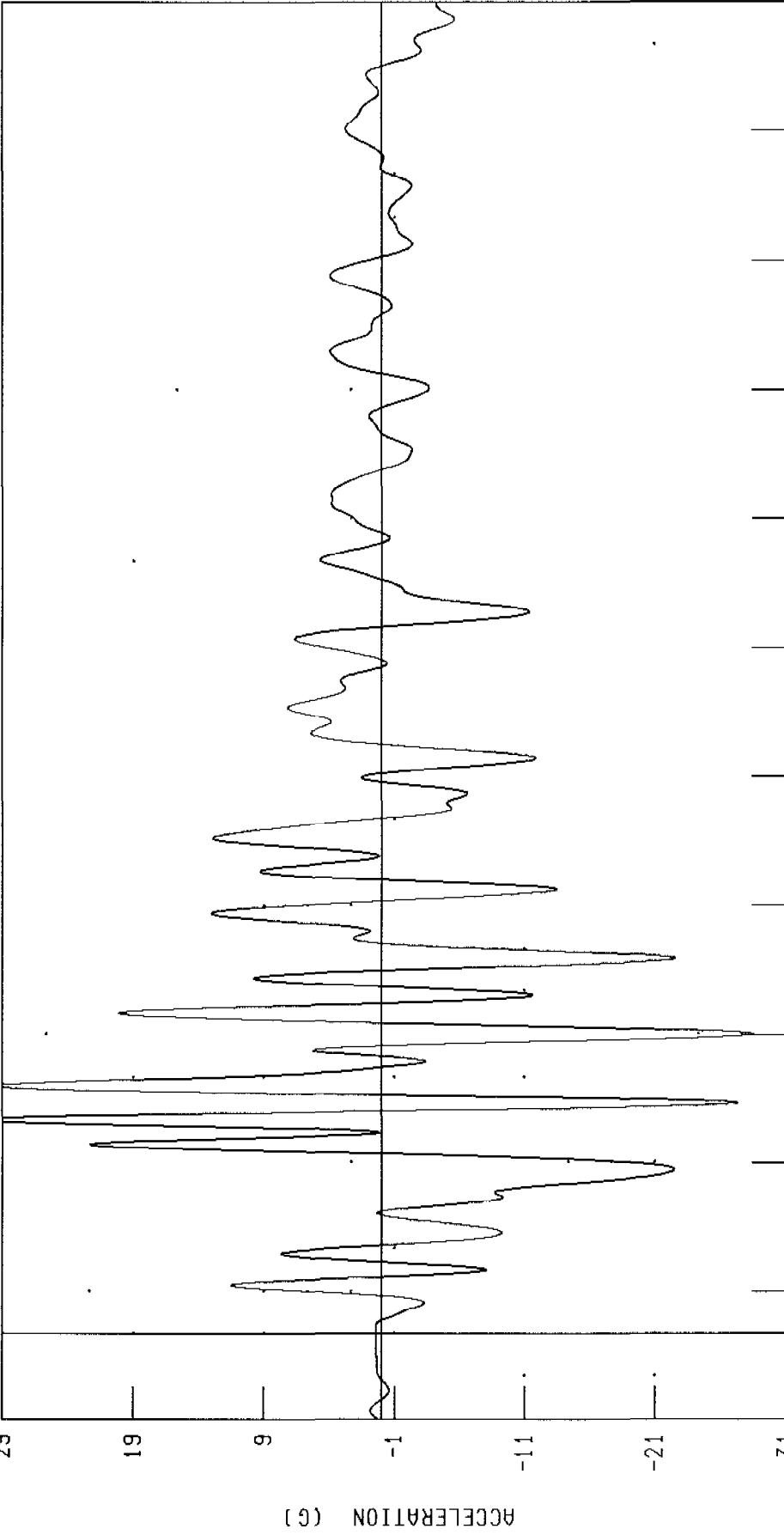


CHANNEL BCCYC1 FILTER CH CLASS 60 PEAK DATA 8 50 C @ 31 44 MS, -10 16 C @ 38 96 MS

MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
MOVING BARRIER CENTER OF GRAVITY Z-AXIS ACCELERATION  
CART TO CAR

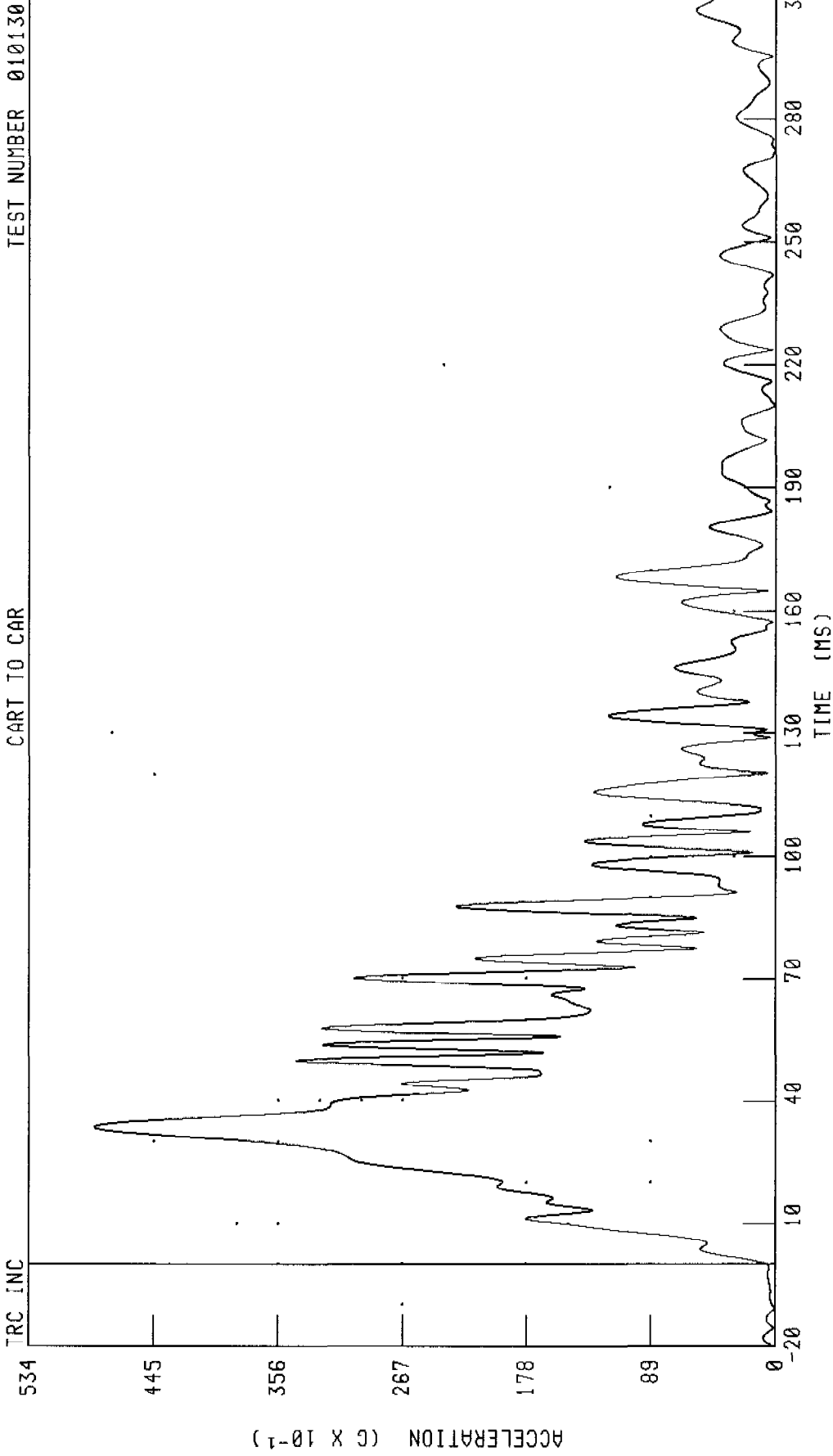
TEST NUMBER 010130

TRC INC



CHANNEL BCGZG1 FILTER CH CLASS 60  
PEAK DATA 31 04 G @ 50 08 MS, -28 53 G @ 70 08 MS

MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
MOVING BARRIER CENTER OF GRAVITY RESULTANT  
CART TO CAR



TEST NUMBER 010130

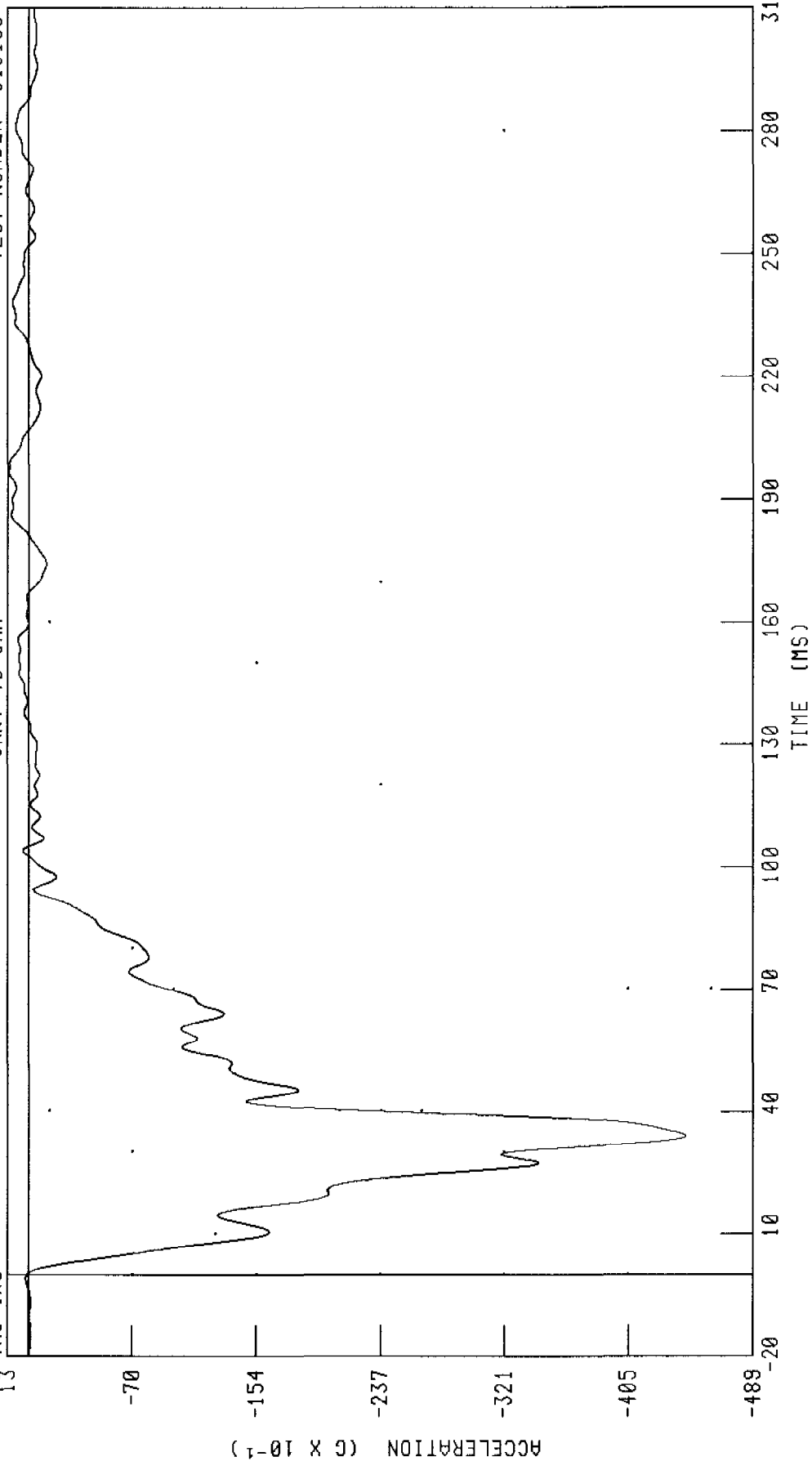
CHANNEL BCCRG1 FILTER CH CLASS 60 PEAK DATA 48 78 G @ 33 68 MS, 0 01 G @ 272 32 MS

MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
MOVING BARRIER LEFT REAR FRAME X-AXIS ACCELERATION

TRC INC  
13

CART TO CAR

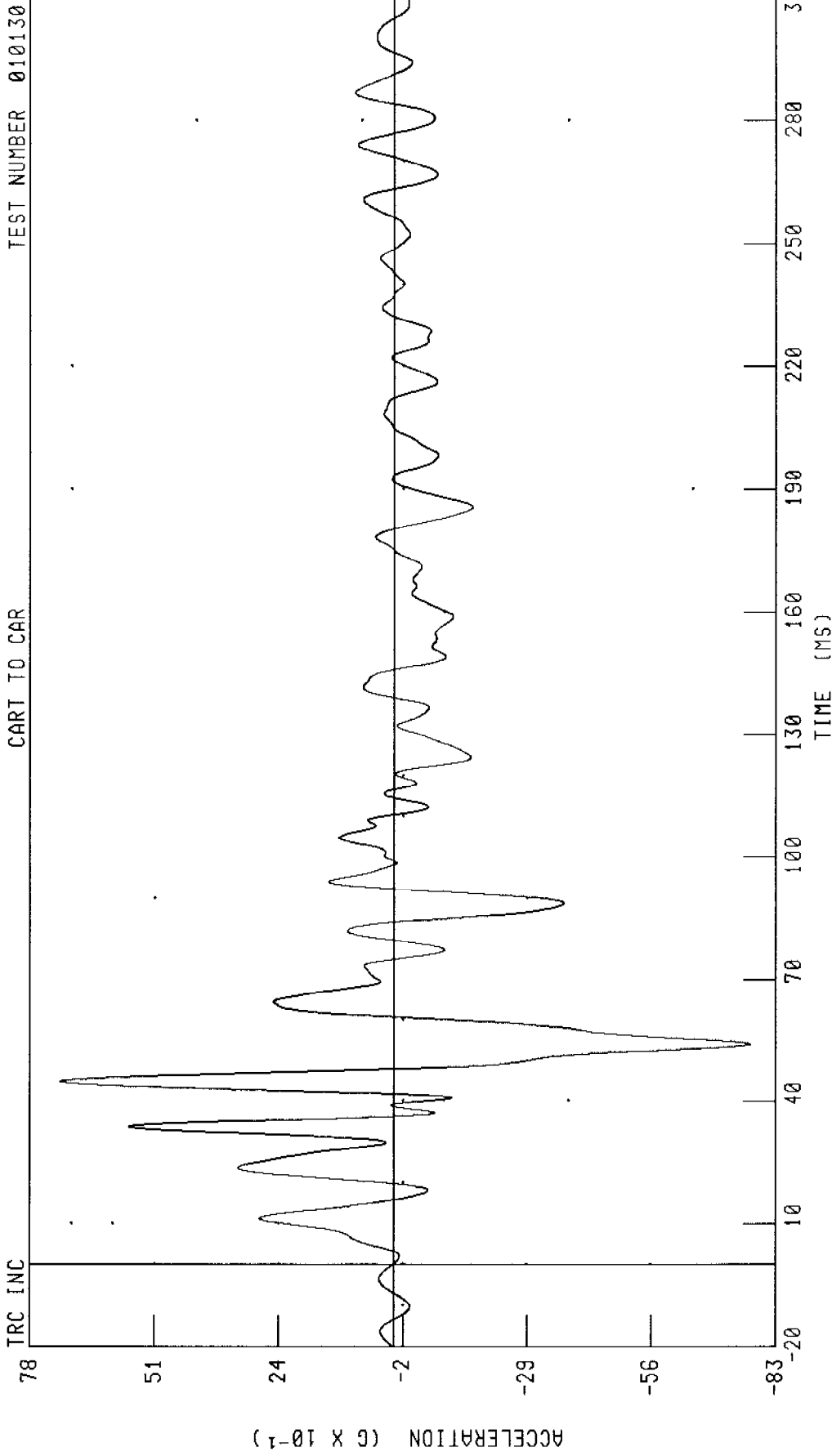
TEST NUMBER 010130



CHANNEL BLRXG1 FILTER CH CLASS 60

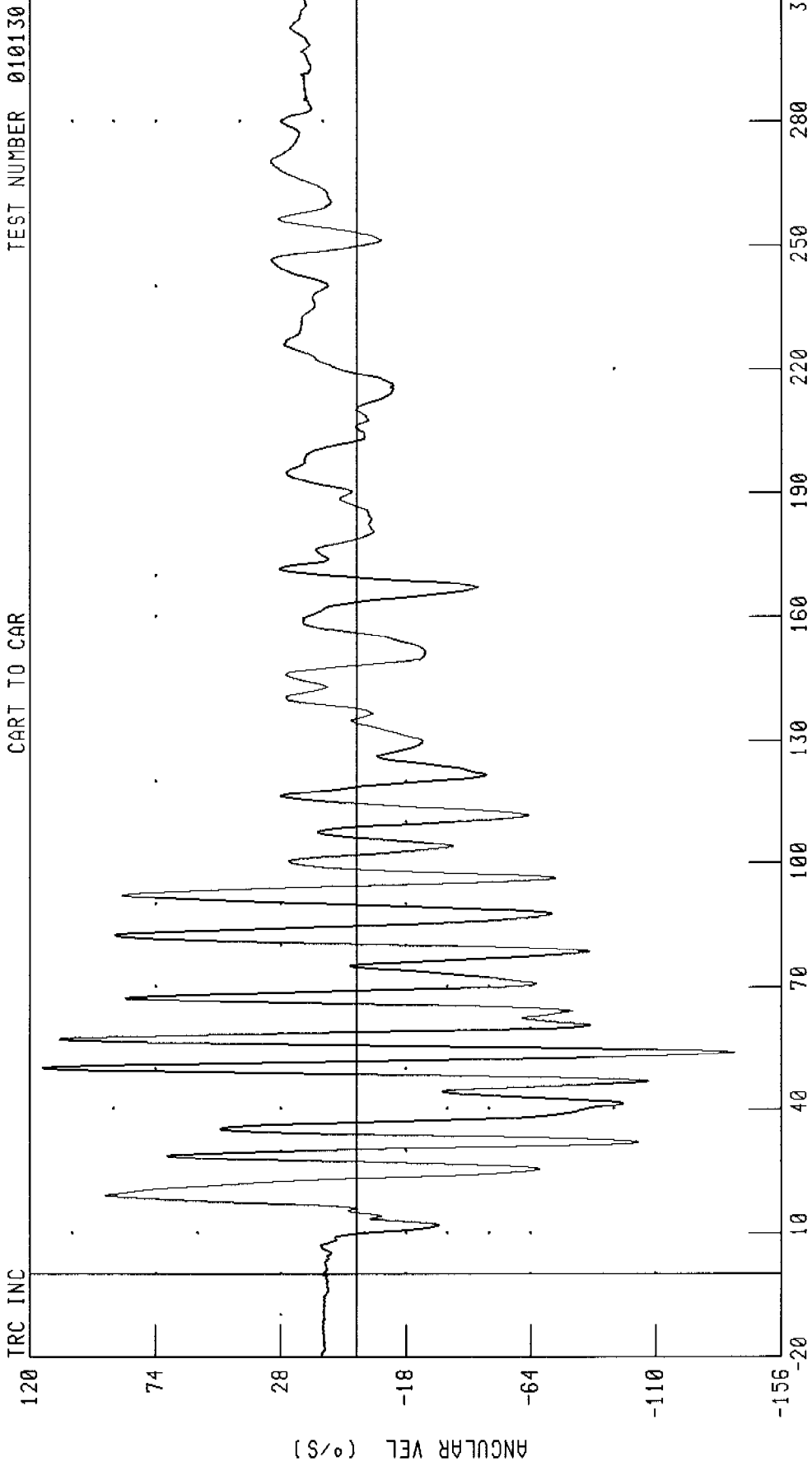
PEAK DATA 1 35 G @ 196 64 MS, -44 48 G @ 33 92 MS

MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
MOVING BARRIER LEFT REAR FRAME Y-AXIS ACCELERATION  
CART TO CAR



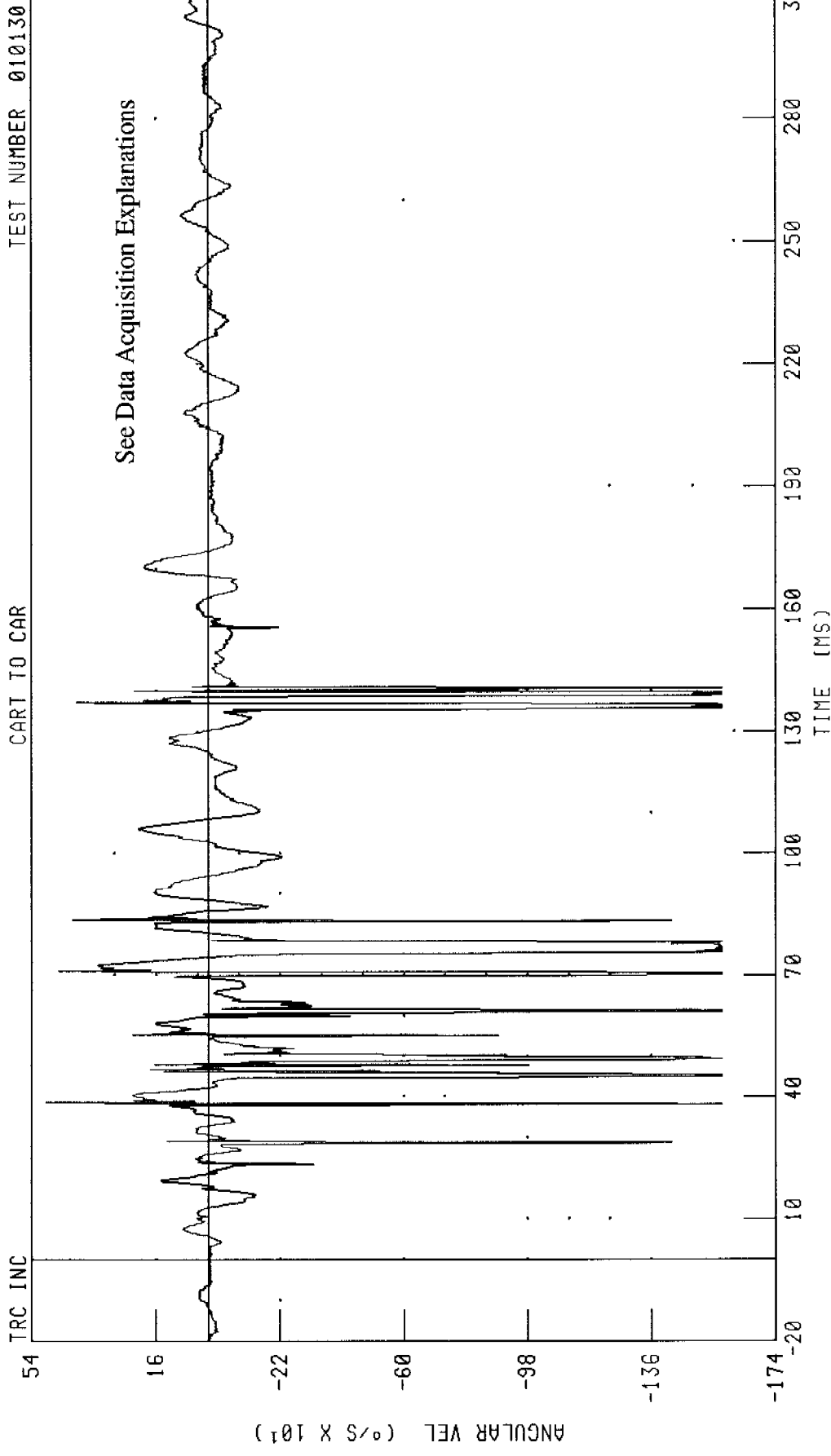
CHANNEL BLYG1 FILTER CH CLASS 60 PEAK DATA 7 25 G @ 44 88 MS, -7 76 G @ 54 08 MS

MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
MOVING BARRIER PITCH  
CART TO CAR



CHANNEL VCGYV1 FILTER CH CLASS 1000 PEAK DATA 115 25 °/S @ 50 24 MS, -138 91 °/S @ 54 08 MS

MOVING DEFORMABLE BARRIER INTO 1996 PLYMOUTH NEON AT 35 MPH CENTERLINE TO CENTERLINE  
MOVING BARRIER YAW  
CART TO CAR



TEST NUMBER 010130

CHANNEL VCCZV1 FILTER CH CLASS 1000 PEAK DATA 496 26 °/S @ 38 56 MS, -1576 59 °/S @ 38 24 MS

Appendix C

Dummy Certification Data

Pre-Test Calibration

Target Vehicle Driver Dummy S/N 045

TRANSPORTATION RESEARCH CENTER INC.  
 HYBRID III EXTERNAL DIMENSIONS  
 SN090

25-JAN-01

TRC INC. TEST NO: 090C32ED1 572E SN090 EXT.DIMENSION CAL32

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	988. MM
WAIST CIRCUMFERENCE (Z)	836 - 866 MM	853. 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	150. MM
BUTTOCK KNEE LENGTH (K)	579 - 605 MM	597. MM
BUTTOCK POPLITEAL LENGTH (N)	452 - 478 MM	462. MM
POPLITEAL HEIGHT (L)	429 - 455 MM	437. MM
KNEE PIVOT HEIGHT (M)	485 - 500 MM	495. MM
FOOT LENGTH (P)	252 - 267 MM	259. MM
FOOT BREADTH (W)	91 - 107 MM	99. 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	516. MM
ELBOW REST HEIGHT (J)	191 - 211 MM	206. MM
SHOULDER-ELBOW LENGTH (I)	330 - 345 MM	343. MM
BACK OF ELBOW TO WRIST PIVOT (G)	290 - 305 MM	300. MM

572E SN090 EXT.DIMENSION CAL32

DUMMY MEETS SPECIFICATIONS

TECHNICIAN Dustin Walker

RUN NUMBER: 012501.0954

TRANSPORTATION RESEARCH CENTER INC.

HEAD DROP TEST

HYBRID III 50th

24-JAN-01

TRC INC.

TEST NO: 090C32HD1

572E SN090 HEAD DROP CAL 32

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	18.9-25.6 DEG. C	21.7 DEG. C
RELATIVE HUMIDITY	10 - 70 %	23.0 %
PEAK RESULTANT ACCELERATION	225 - 275 G	260.22 G
PEAK LATERAL ACCELERATION	15 G MAX	1.80 G
IS ACCELERATION CURVE UNIMODAL?	YES	YES

TEST MEETS SPECIFICATIONS

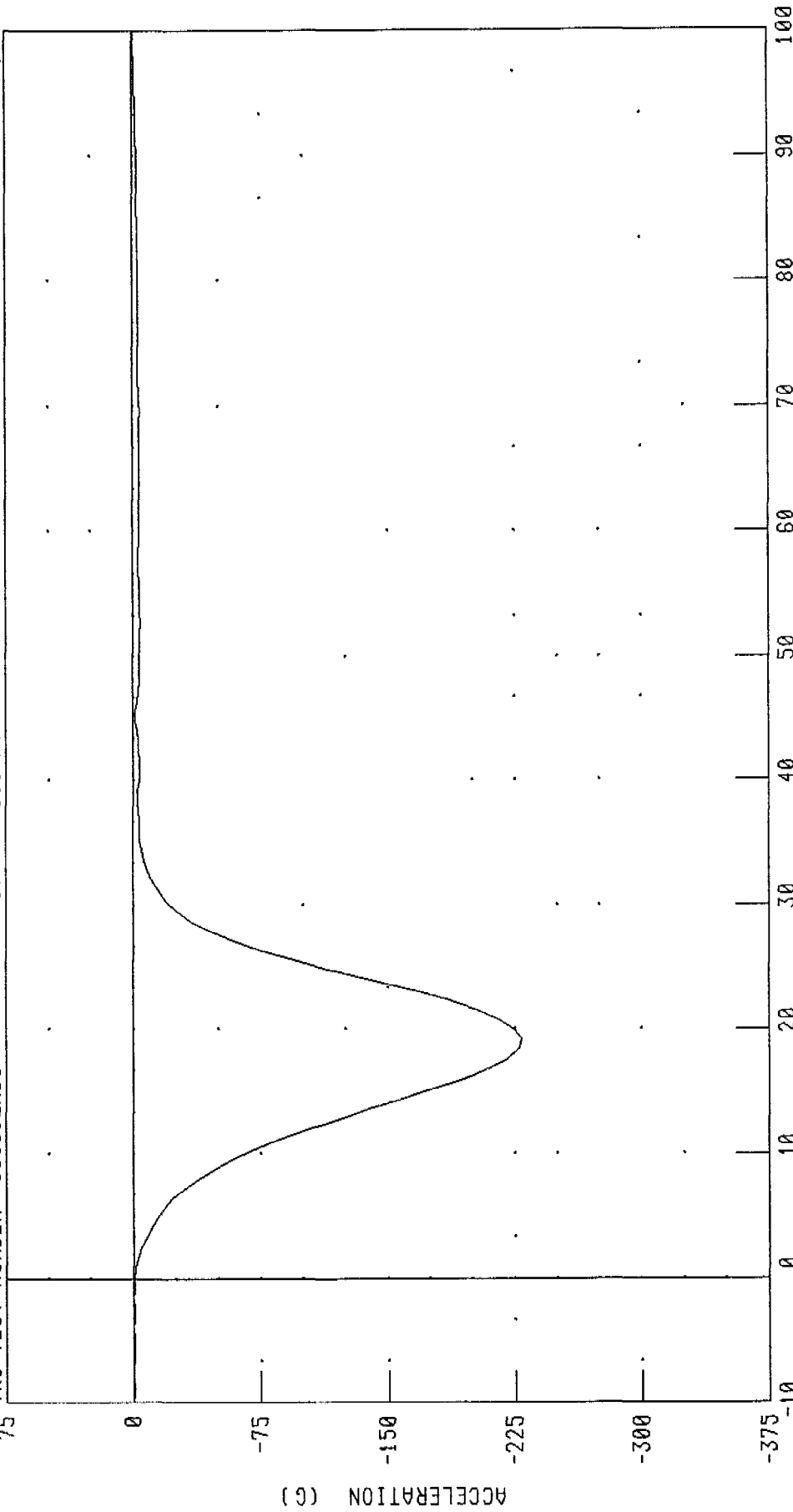
TECHNICIAN

*Dwight Walker*

RUN NUMBER: 012401.1729;1

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

TRC TEST NUMBER 090C32HD1      RUN NUMBER 012401 1729,1  
572E SN090 HEAD DROP CAL 32



CHANNEL HEDXC      FILTER CH CLASS 1000      PEAK DATA 0 05 G @ -0 80 MS, -228 91 G @ 1 92 MS

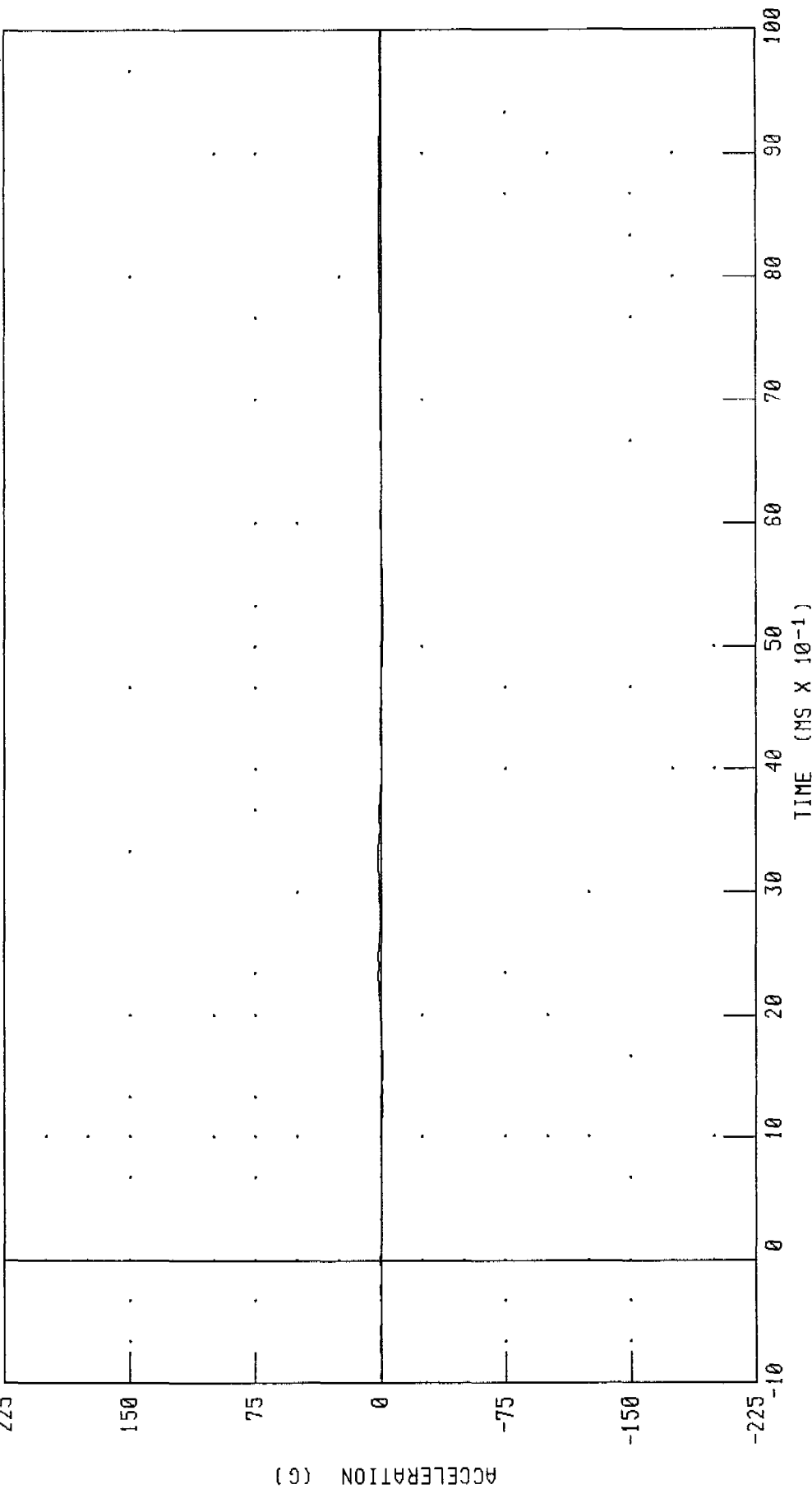
PART 572-E HYBRID III HEAD CALIBRATION

HEAD ACCELERATION Y AXIS

TRC TEST NUMBER 090C32HD1

572E SN090 HEAD DROP CAL 32

RUN NUMBER 012401 1729,1



CHANNEL HEDYG FILTER CH CLASS 1000

PEAK DATA 1 80 G @ 3 28 MS, -1 12 G @ 5 12 MS

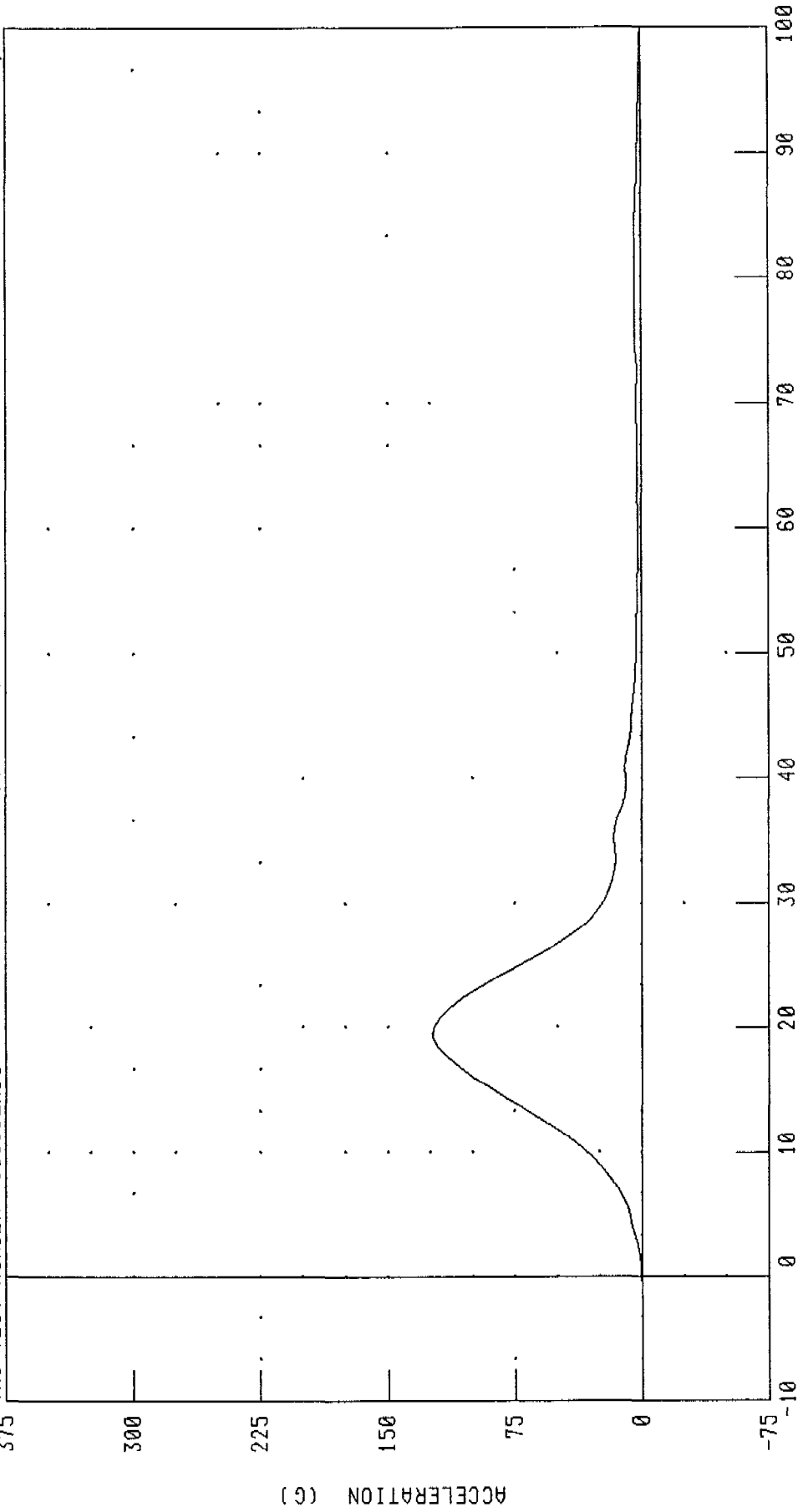
PART 572-E HYBRID III HEAD CALIBRATION

HEAD ACCELERATION Z AXIS

TRC TEST NUMBER 090C32HD1

572E SN090 HEAD DROP CAL 32

RUN NUMBER 012401 1729,1



PEAK DATA 123 75 G 1 92 MS, -0 13 G 0 -0 80 MS

CHANNEL HEDZG FILTER CH CLASS 1000

PART 572-E HYBRID III HEAD CALIBRATION

HEAD RESULTANT ACCELERATION

572E SN090 HEAD DROP CAL 32 RUN NUMBER 012401 1729,1

TRC TEST NUMBER 090C32HD1

375

300

225

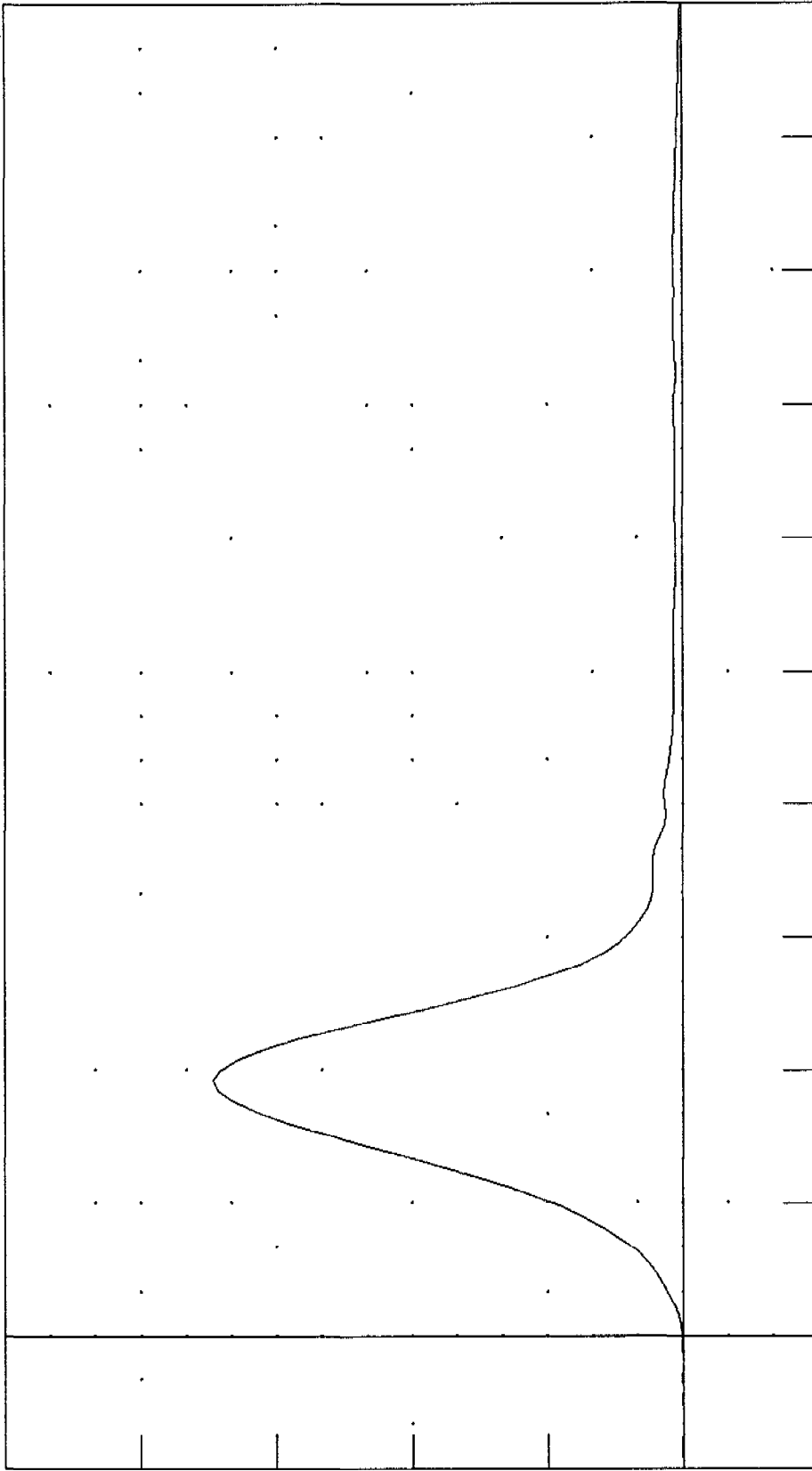
150

75

0

-75

ACCELERATION (G)



TIME (MS X 10<sup>-1</sup>)

CHANNEL HEDRG FILTER CH CLASS 1000

PEAK DATA 260 22 G @ 1 92 MS, 0 10 G @ -0 72 MS

TRANSPORTATION RESEARCH CENTER INC.

HYBRID III 50th

24-JAN-01

NECK EXTENSION TEST - 6 CHANNEL TRANSDUCER

TRC INC. TEST NO: 090C32NE1 572E SN090 NECK EXT CAL32

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	20.6 - 22.2 DEG. C	21.7 DEG. C
RELATIVE HUMIDITY	10 - 70 %	23.0 %
IMPACT VELOCITY	5.95 - 6.19 M/S	6.05 M/S
PENDULUM DECELERATION	10 MS   17.20 - 21.20 G	18.65 G
	20 MS   14.00 - 19.00 G	15.86 G
	30 MS   11.00 - 16.00 G	13.99 G
MAX PENDULUM G	22 G MAX	19.02 G
MAX PENDULUM G ABOVE 30 MS	22 G MAX	13.96 G
DECELERATION-TIME CURVE DECAY TIME TO 5 G	38 - 46 MS	41.84 MS
D PLANE	MAX   81 - 106 DEG.	101.49 DEG.
ROTATION	TIME   72 - 82 MS	81.04 MS
MOMENT ABOUT OCCIPITAL CONDYLE	MIN   -80.0/-52.9 NM	-70.66 NM
	TIME   65 - 79 MS	75.44 MS
ROTATION ANGLE-TIME CURVE DECAY TIME TO ZERO	147 - 174 MS	163.52 MS
NEGATIVE MOMENT-TIME CURVE DECAY TIME TO ZERO	120 - 148 MS	147.92 MS

TEST MEETS SPECIFICATIONS

TECHNICIAN

*Dust Walker*

RUN NUMBER: 012401.1804;1

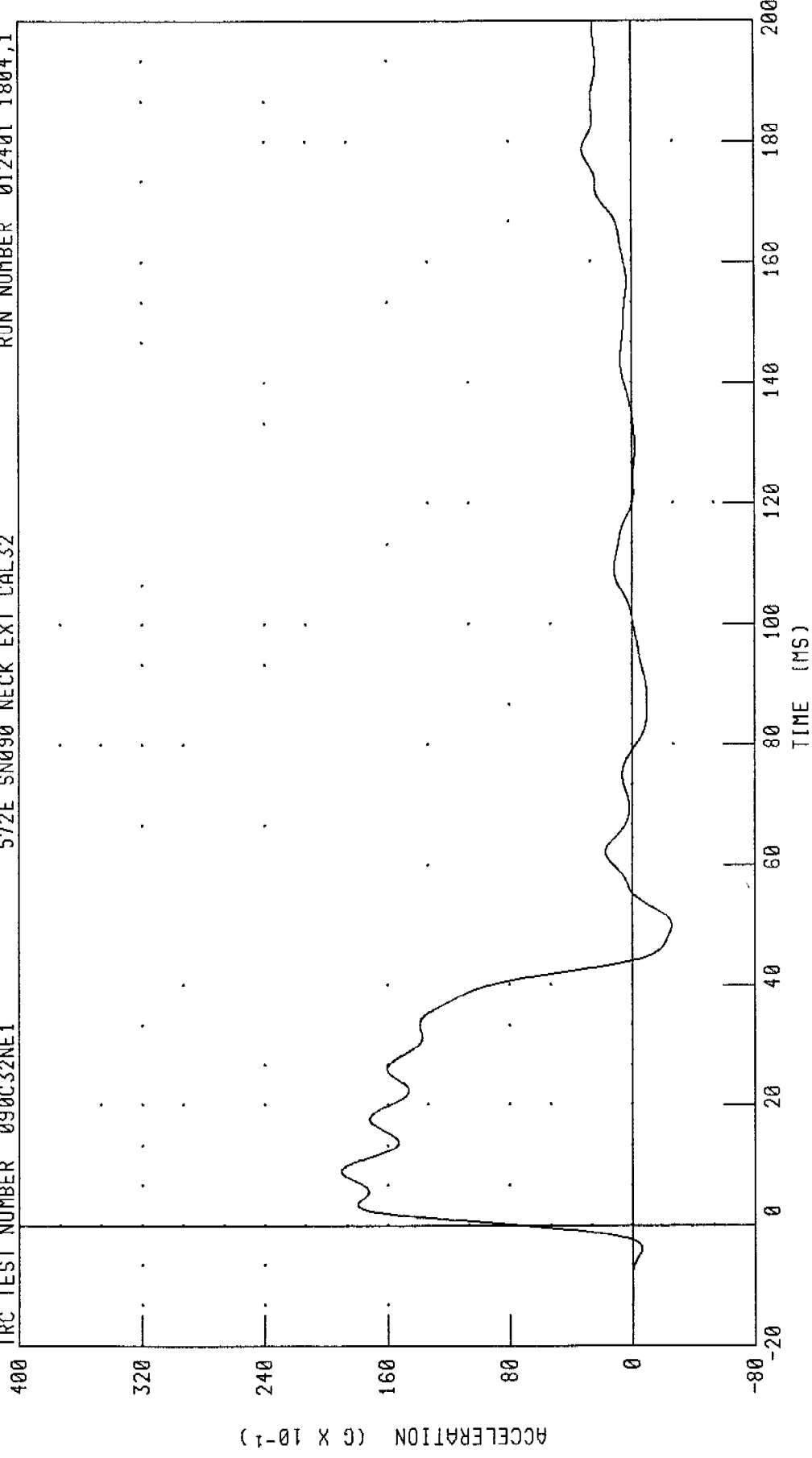
PART 572-E HYBRID III NECK EXTENSION CALIBRATION

PENDULUM DECELERATION

TRC TEST NUMBER 090C32NE1

572E SN090 NECK EXT CAL32

RUN NUMBER 012401 1804,1



CHANNEL PENXC FILTER CH CLASS 60

PEAK DATA 19 02 G 0 9 04 MS, -2 57 G 0 49 84 MS

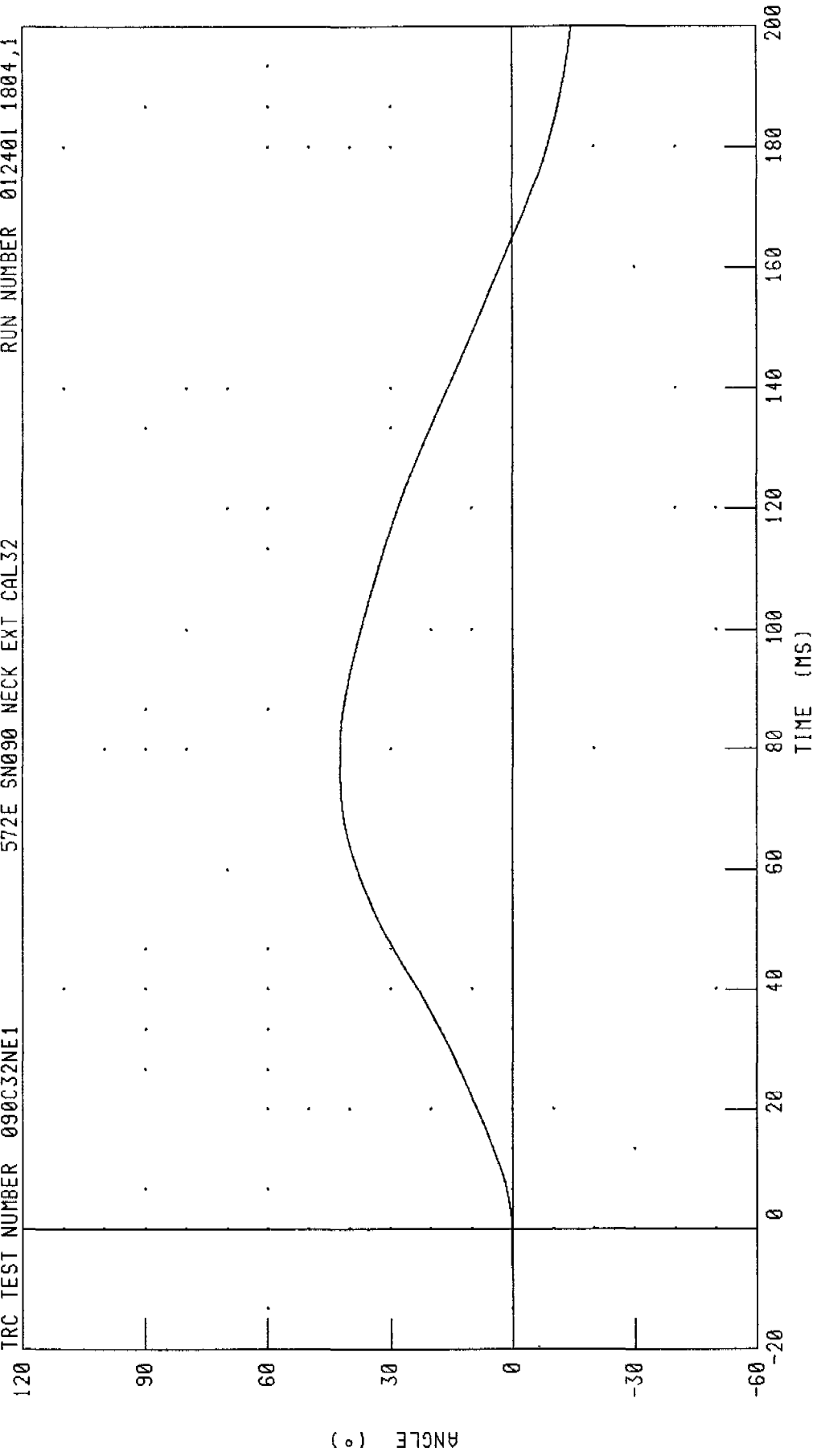
PART 572-E HYBRID III NECK EXTENSION CALIBRATION

ROTATION ABOUT BASE OF NECK

TRC TEST NUMBER 090C32NE1

572E SN090 NECK EXT CAL32

RUN NUMBER 012401 1804,1



CHANNEL BETA FILTER CH CLASS 60

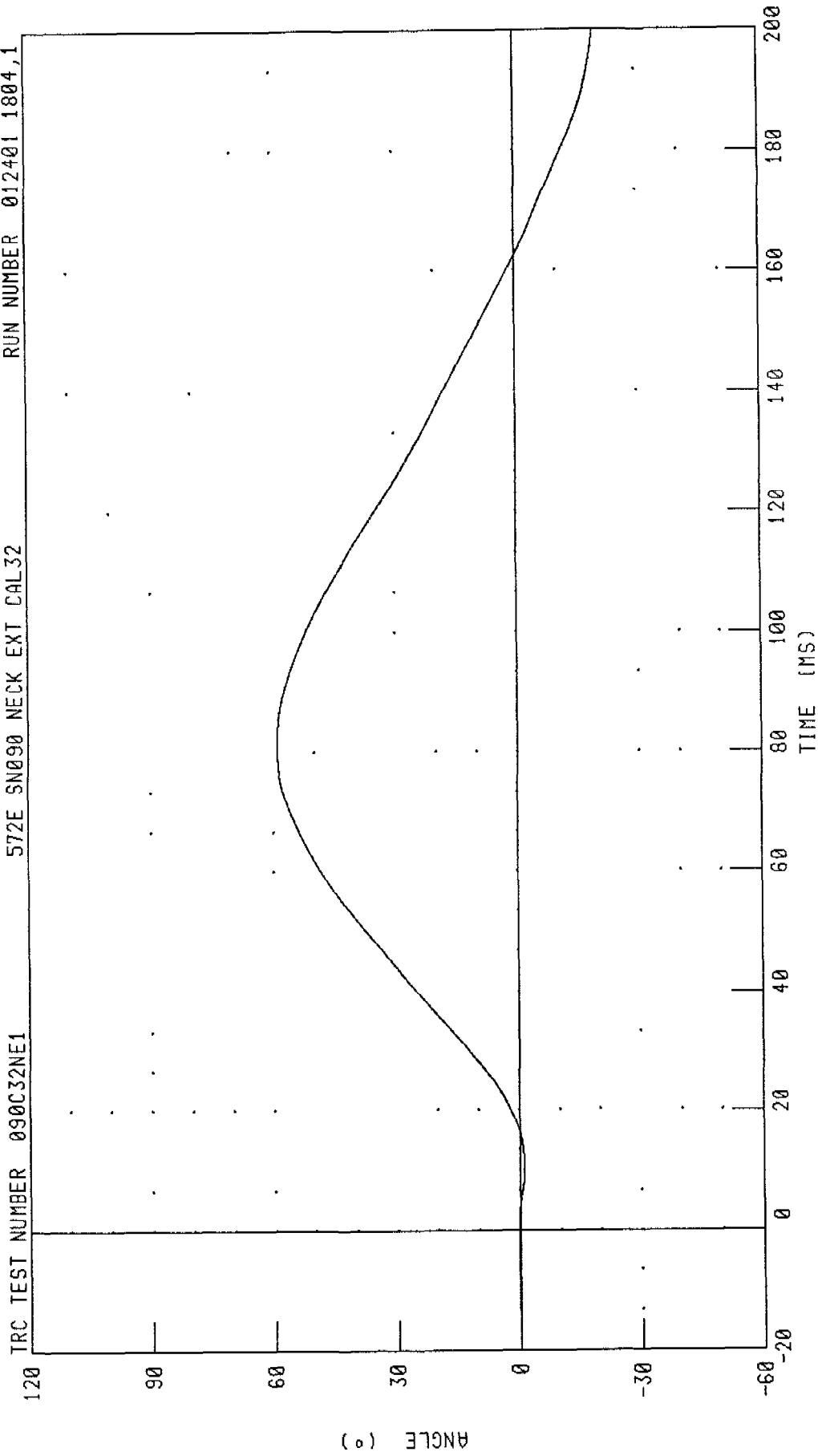
PEAK DATA 42 38 ° @ 79 68 MS, -14 60 ° @ 200 00 MS

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

TRC TEST NUMBER 090C32NE1

572E SN090 NECK EXT CAL32

RUN NUMBER 012401 1804,1



CHANNEL THETA FILTER CH CLASS 60 PEAK DATA 59 16 ° @ 81 76 MS, -19 72 ° @ 200 00 MS

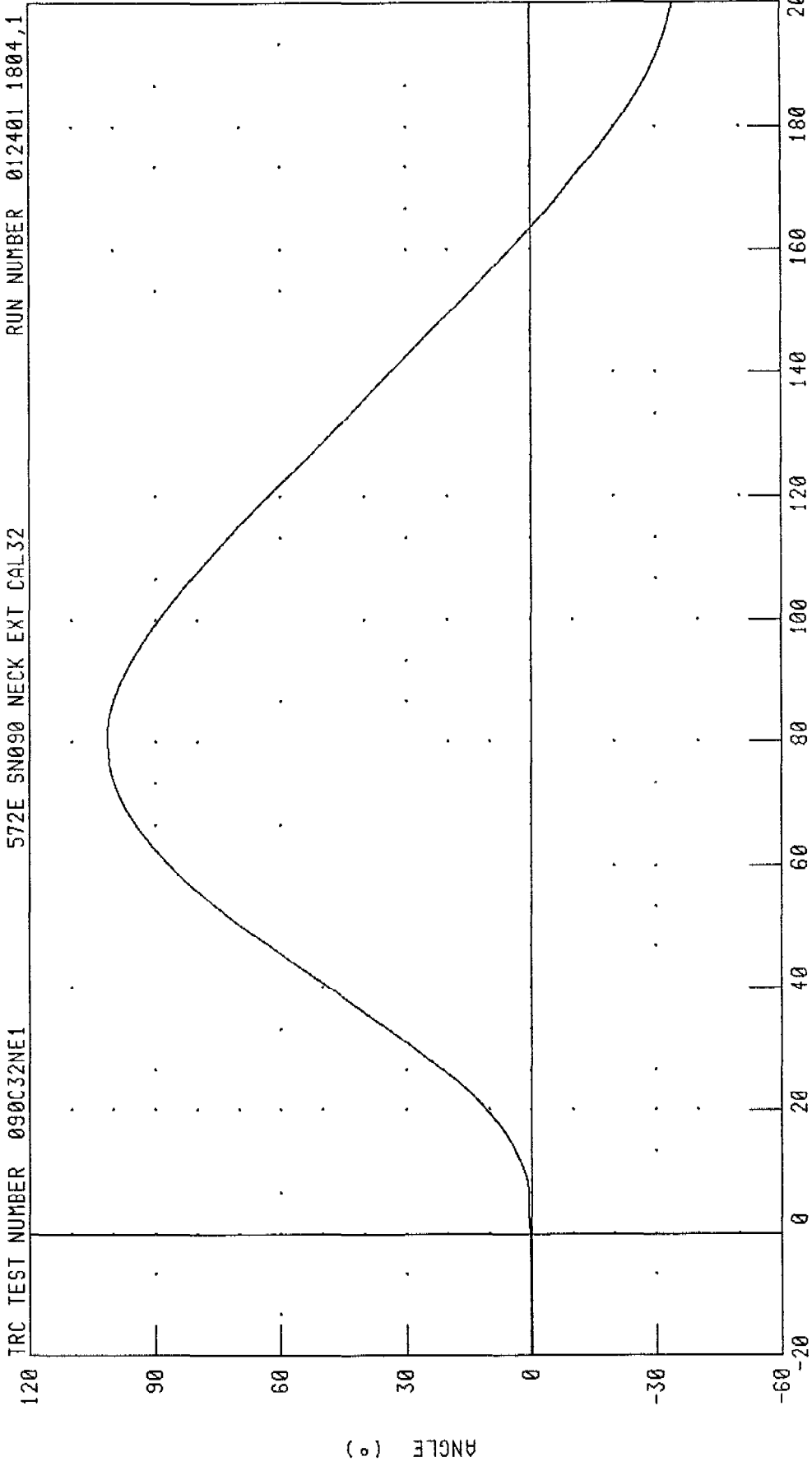
PART 572-E HYBRID III NECK EXTENSION CALIBRATION

TOTAL ROTATION

TRC TEST NUMBER 090C32NE1

572E SN090 NECK EXT CAL32

RUN NUMBER 012401 1804,1

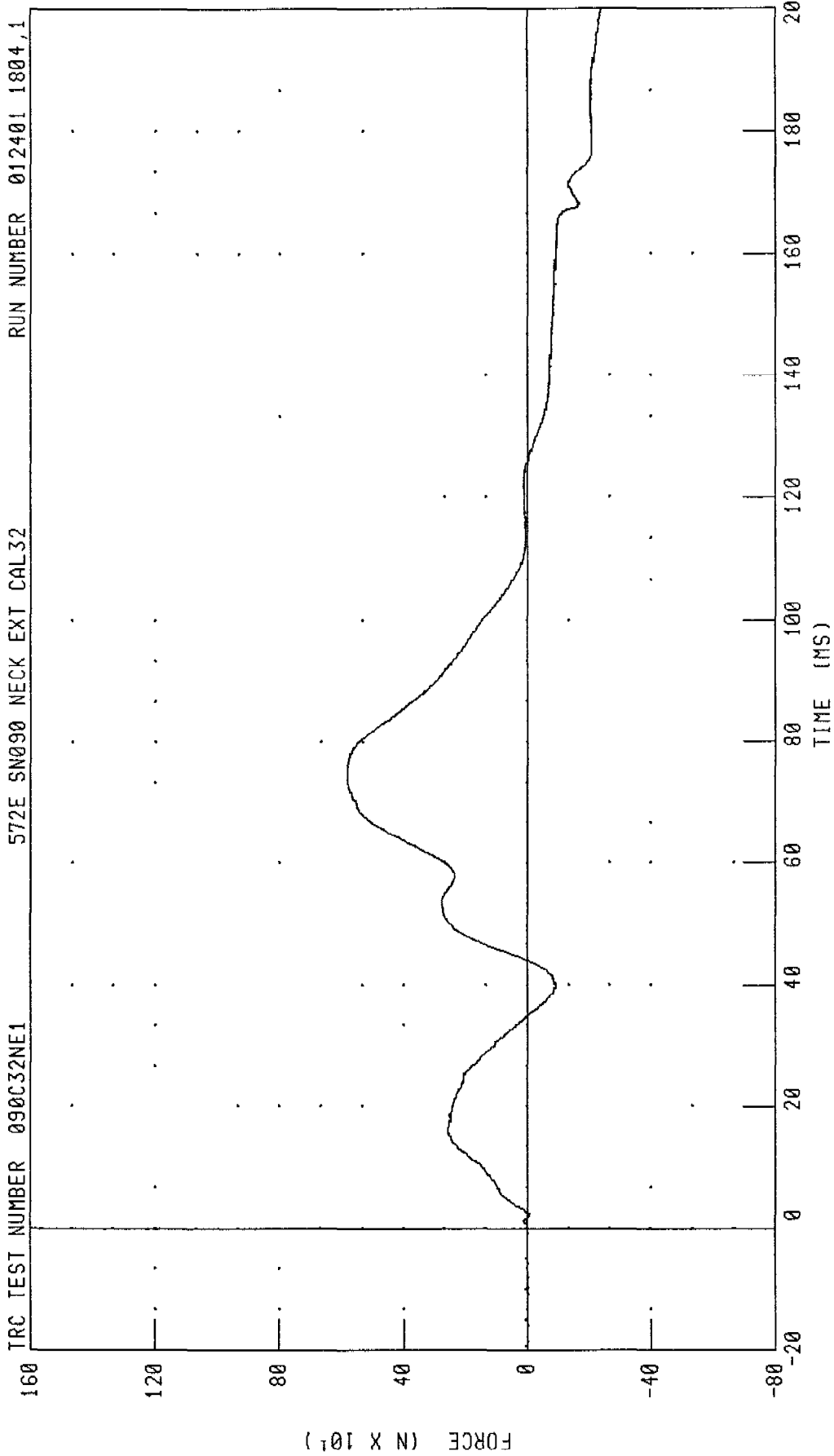


CHANNEL TOTAL FILTER CH CLASS 60 PEAK DATA 101 50 ° @ 81 04 MS, -34 32 ° @ 200 00 MS

PART 572-E HYBRID III NECK EXTENSION CALIBRATION

NECK FORCE X AXIS

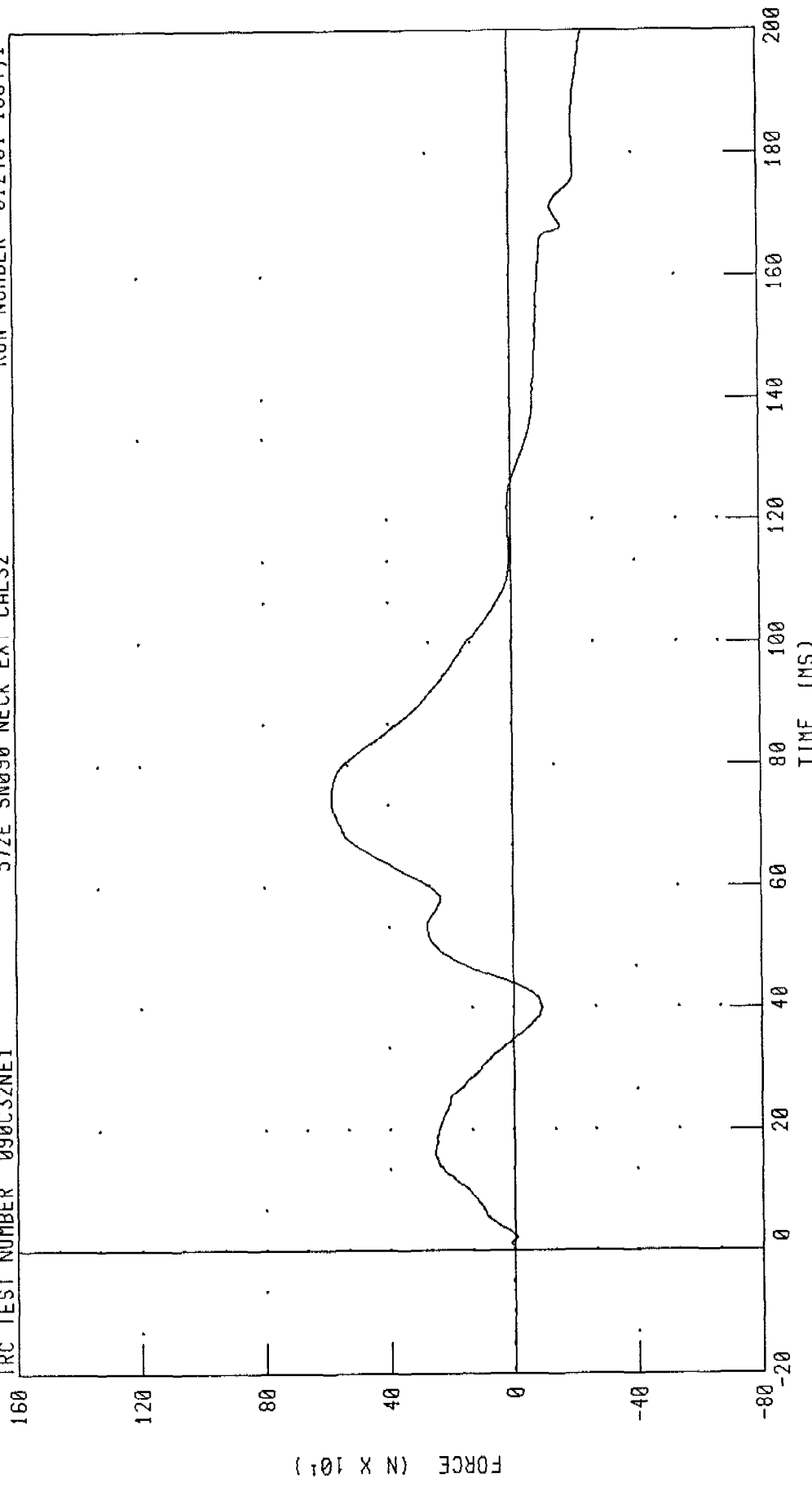
TRC TEST NUMBER 090032NE1 572E SN090 NECK EXT CAL32 RUN NUMBER 012401 1804,1



CHANNEL NEKXF FILTER CH CLASS 1000 PEAK DATA 581 82 N @ 73 04 MS, -238 64 N @ 199 20 MS

PART 572-E HYBRID III NECK EXTENSION CALIBRATION  
NECK FORCE X AXIS FILTERED FOR USE IN OCCIPITAL MOMENT CALCULATION

TRC TEST NUMBER 090C32NE1 572E SN090 NECK EXT CAL32 RUN NUMBER 012401 1804,1



CHANNEL NEKXFC FILTER CH CLASS 600 PEAK DATA 581 97 N @ 73 44 MS, -238 74 N @ 199 68 MS

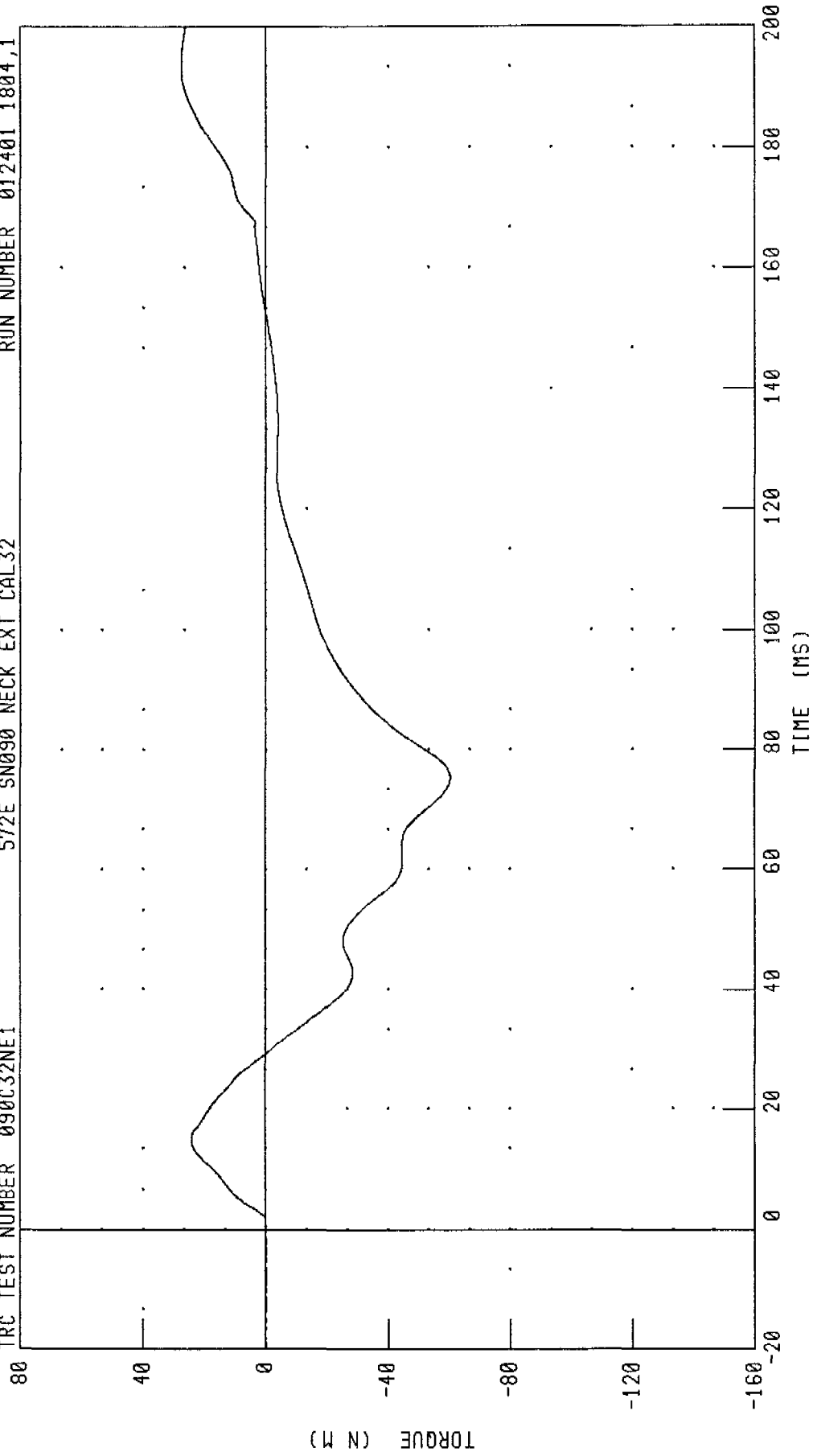
PART 572-E HYBRID III NECK EXTENSION CALIBRATION

NECK MOMENT Y AXIS

TRC TEST NUMBER 090C32NE1

572E SN090 NECK EXT CAL32

RUN NUMBER 012401 1804,1



CHANNEL NEKYM FILTER CH CLASS 600

PEAK DATA 27 71 N M @ 192 32 MS, -60 31 N M @ 75 44 MS

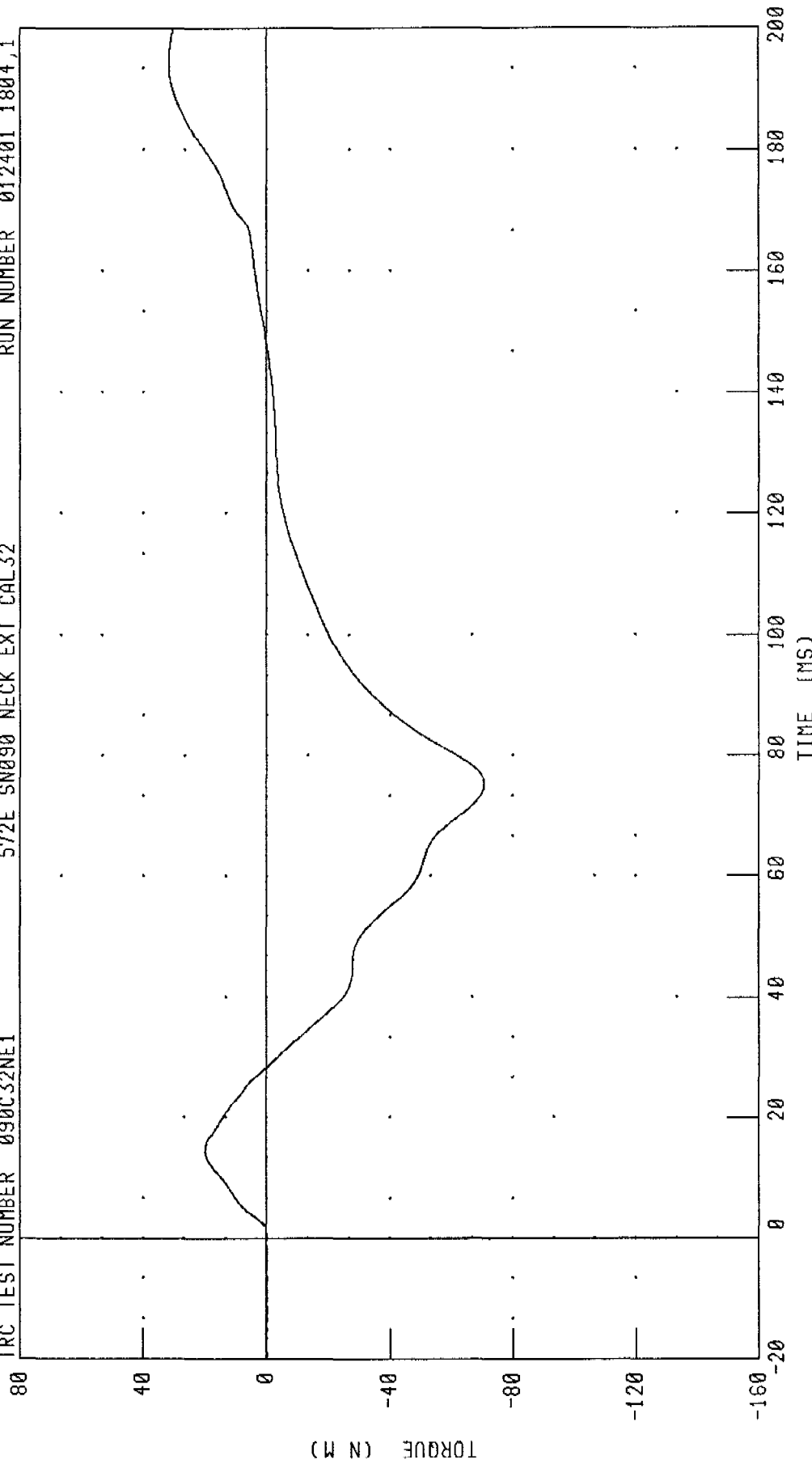
PART 572-E HYBRID III NECK EXTENSION CALIBRATION

TOTAL MOMENT ABOUT OCCIPITAL CONDYLE

TRC TEST NUMBER 090032NE1

572E SN090 NECK EXT CAL32

RUN NUMBER 012401 1804,1



CHANNEL NEKOM FILTER CH CLASS 600

PEAK DATA 31 72 N M @ 194 96 MS, -70 66 N M @ 75 44 MS

TRANSPORTATION RESEARCH CENTER INC.

HYBRID III 50th

24-JAN-01

NECK FLEXION TEST - 6 CHANNEL TRANSDUCER

TRC INC. TEST NO: 090C32NF1 572E SN090 NECK FLEXION CAL32

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	20.6-22.2 DEG. C	21.7 DEG. C
RELATIVE HUMIDITY	10 - 70 %	23.0 %
IMPACT VELOCITY	6.89 - 7.13 M/S	6.99 M/S
PENDULUM DECELERATION	10 MS   22.50 - 27.50 G	24.69 G
	20 MS   17.60 - 22.60 G	19.75 G
	30 MS   12.50 - 18.50 G	16.16 G
MAX PENDULUM G	29 G MAX	25.11 G
MAX PENDULUM G ABOVE 30 MS	29 G MAX	16.12 G
DECELERATION-TIME CURVE DECAY TIME TO 5 G	34 - 42 MS	38.48 MS
D PLANE	MAX   64 - 78 DEG.	73.03 DEG.
ROTATION	TIME   57 - 64 MS	62.96 MS
MOMENT ABOUT OCCIPITAL CONDYLE	MAX   88.2 - 108.5 NM	93.43 NM
	TIME   47 - 58 MS	52.00 MS
ROTATION ANGLE-TIME CURVE DECAY TIME TO ZERO	113 - 128 MS	120.08 MS
POSITIVE MOMENT-TIME CURVE DECAY TIME TO ZERO	97 - 107 MS	100.96 MS

TEST MEETS SPECIFICATIONS

TECHNICIAN

*Dustin Walker*

RUN NUMBER: 012401.1743;1

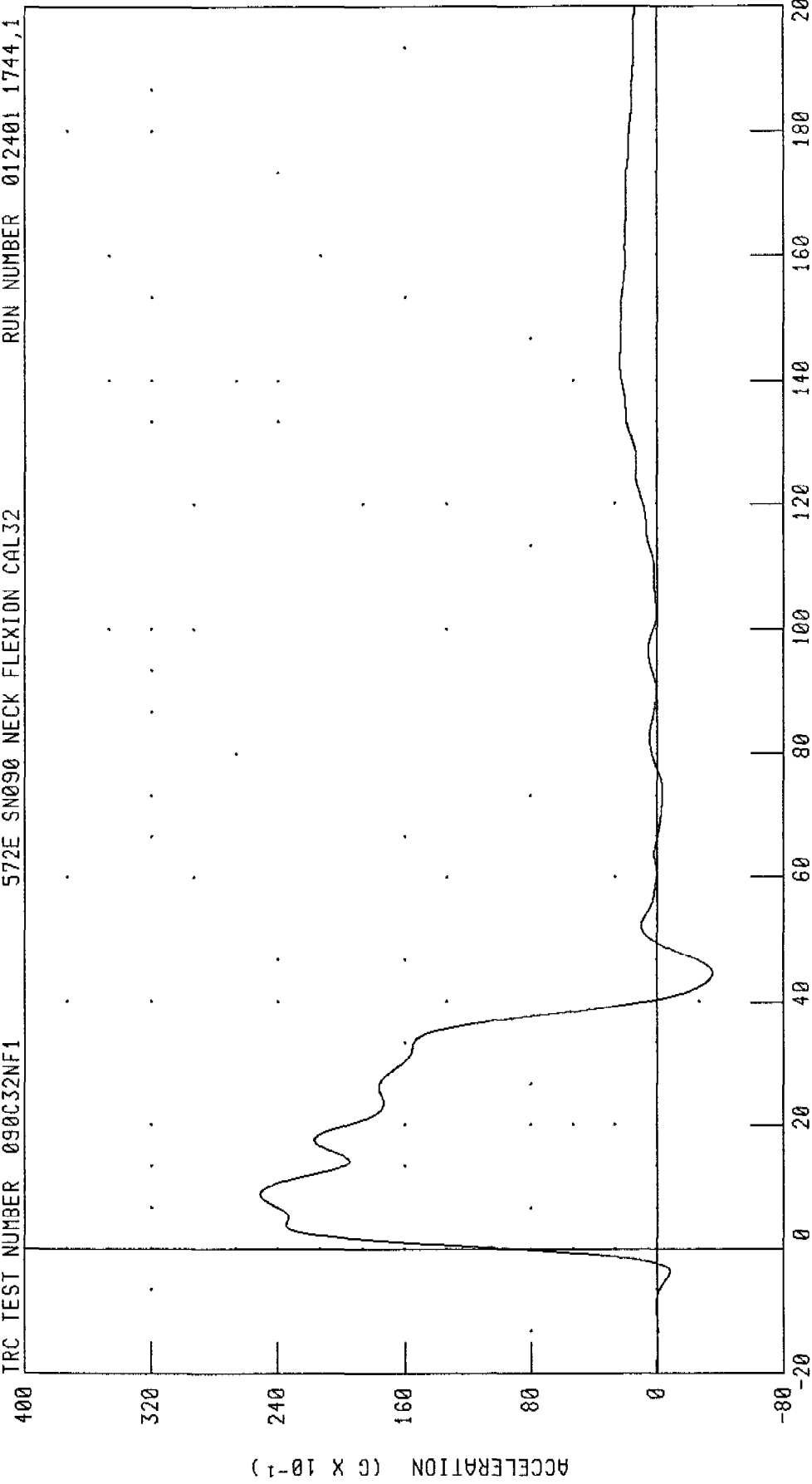
PART 572-E HYBRID III NECK FLEXION CALIBRATION

PENDULUM DECELERATION

TRC TEST NUMBER 090C32NF1

572E SN090 NECK FLEXION CAL32

RUN NUMBER 012401 1744,1



CHANNEL PENXG FILTER CH CLASS 60 PEAK DATA 25 11 G 0 8 96 MS, -3 53 G 0 44 56 MS

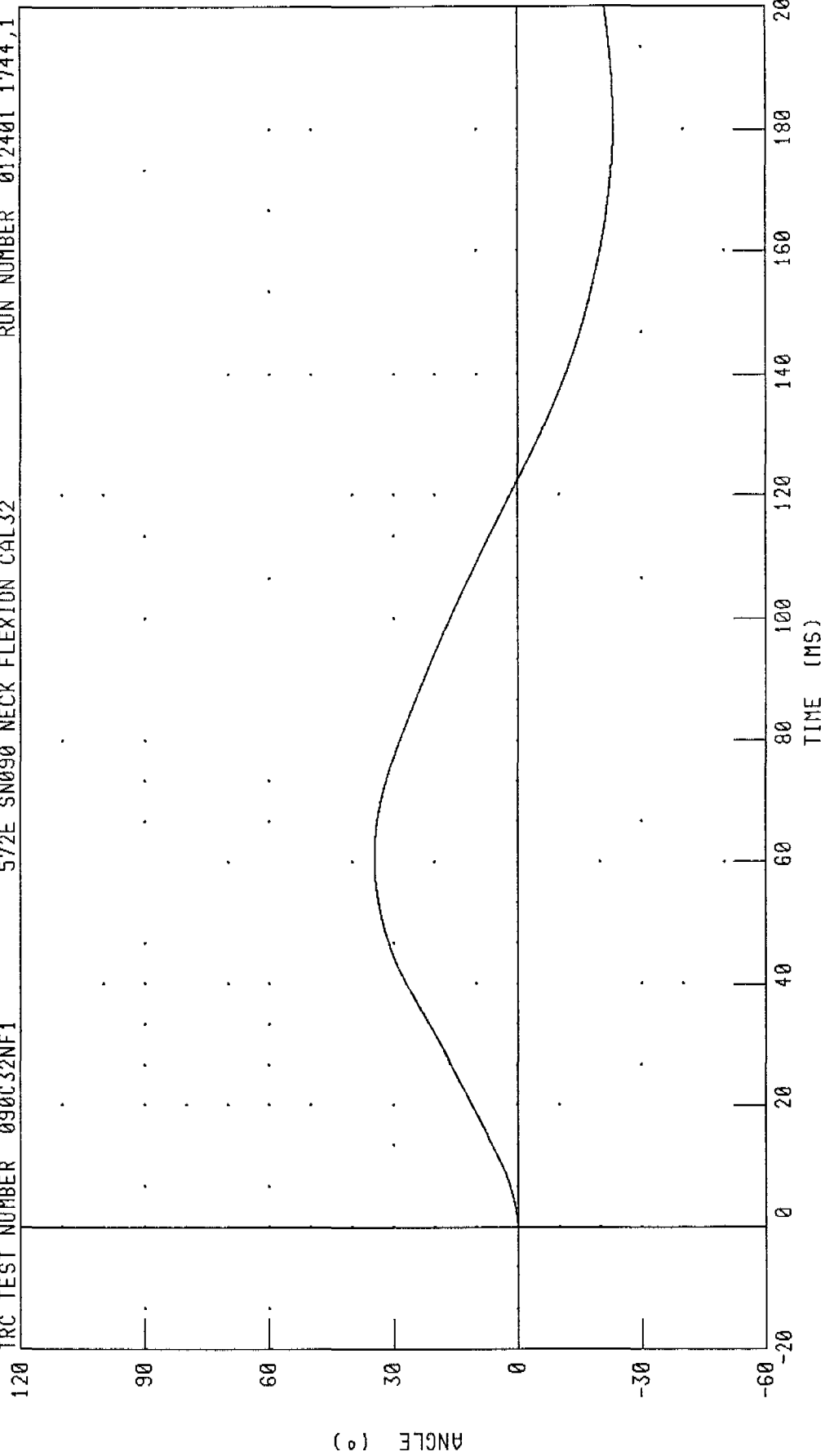
PART 572-E HYBRID III NECK FLEXION CALIBRATION

ROTATION ABOUT BASE OF NECK

TRC TEST NUMBER 090C32NF1

572E SN090 NECK FLEXION CAL32

RUN NUMBER 012401 1744,1



CHANNEL BETA FILTER CH CLASS 60

PEAK DATA 34 52 ° @ 60 08 MS, -23 16 ° @ 181 12 MS

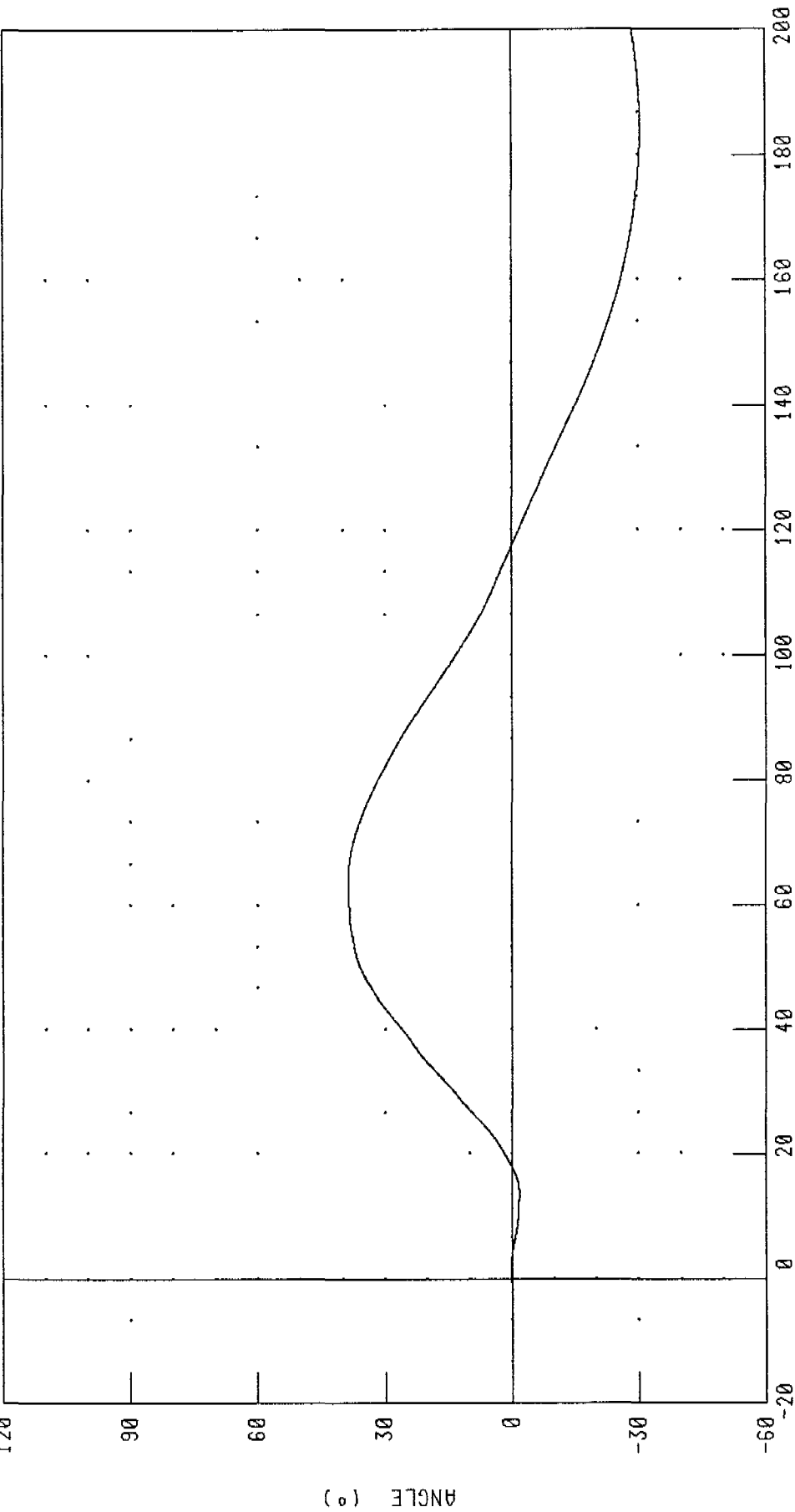
PART 572-E HYBRID III NECK FLEXION CALIBRATION

ROTATION ABOUT OCCIPITAL CONDYLE

TRC TEST NUMBER 090C32NF1

572E SN090 NECK FLEXION CAL32

RUN NUMBER 012401 1744,1



CHANNEL THETA FILTER CH CLASS 60

TIME (MS)

PEAK DATA 38 64 ° @ 64 00 MS, -30 56 ° @ 184 80 MS

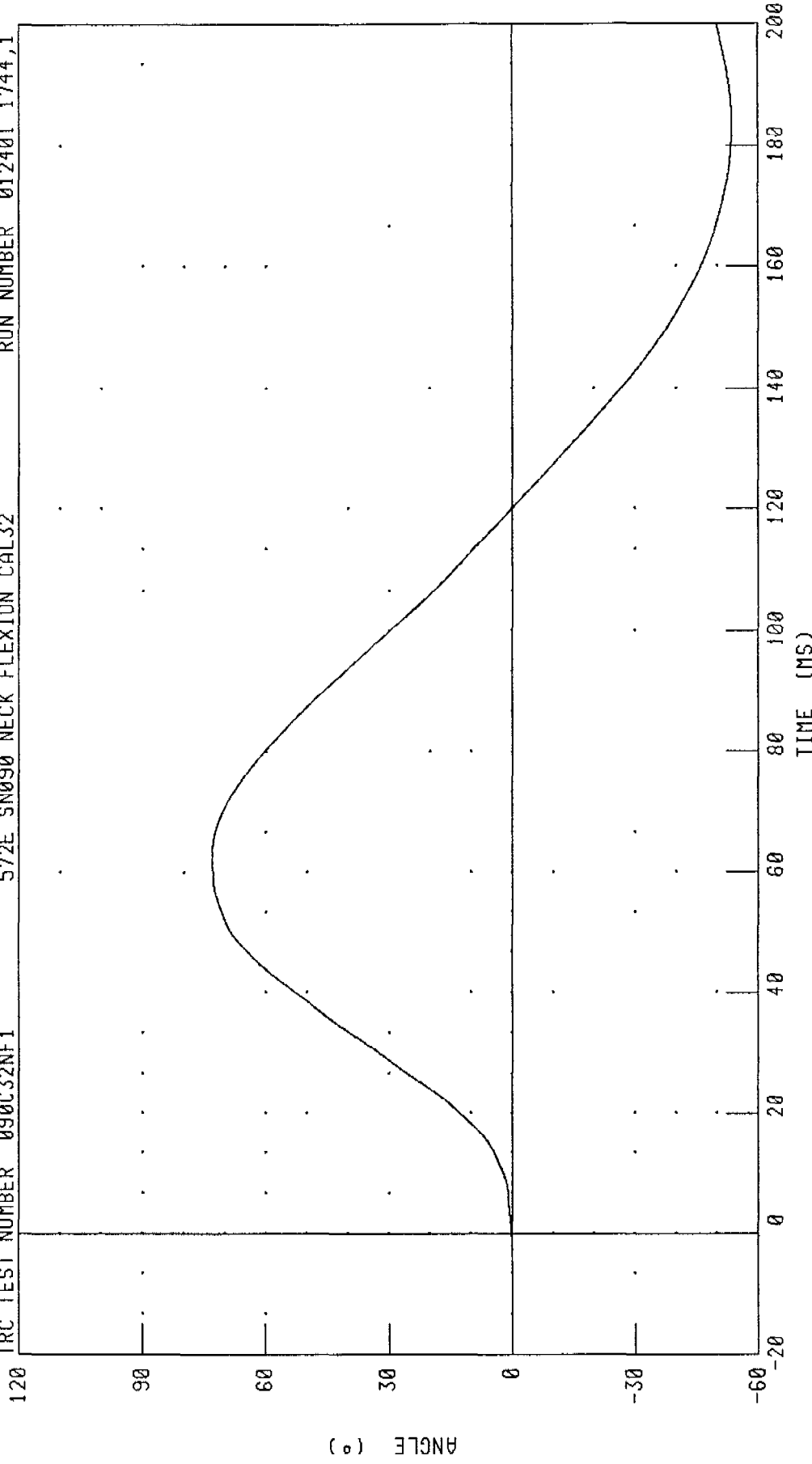
PART 572-E HYBRID III NECK FLEXION CALIBRATION

TOTAL ROTATION

TRC TEST NUMBER 090C32NF1

572E SN090 NECK FLEXION CAL32

RUN NUMBER 012401 1744,1



CHANNEL TOTAN FILTER CH CLASS 60

PEAK DATA 73 04 ° @ 62 96 MS, -53 67 ° @ 183 52 MS

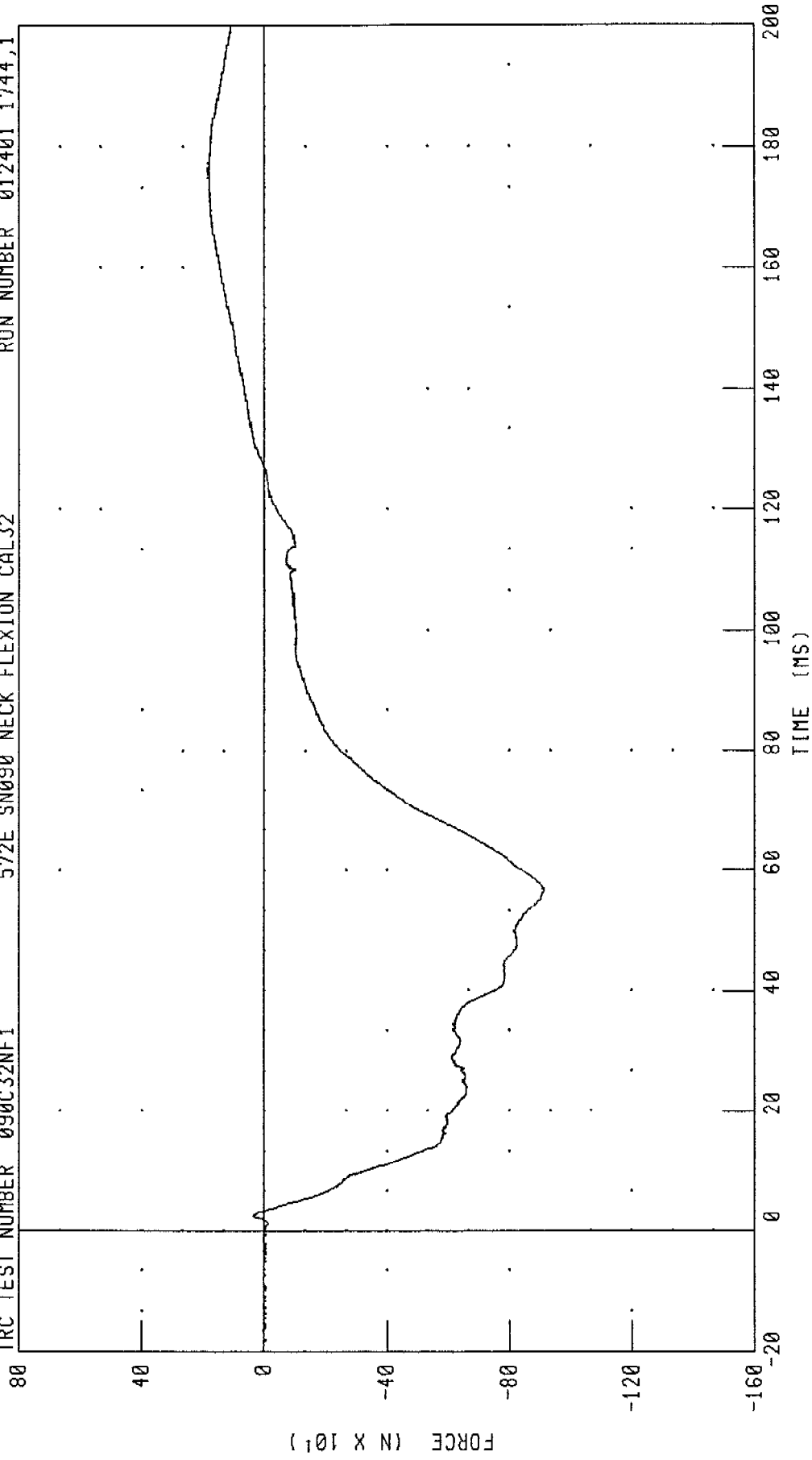
PART 572-E HYBRID III NECK FLEXION CALIBRATION

NECK FORCE X AXIS

TRC TEST NUMBER 090C32NF1

572E SN090 NECK FLEXION CAL32

RUN NUMBER 012401 1744,1



CHANNEL NEKXF FILTER CH CLASS 1000

PEAK DATA 187 01 N @ 175 12 MS, -911 27 N @ 56 48 MS

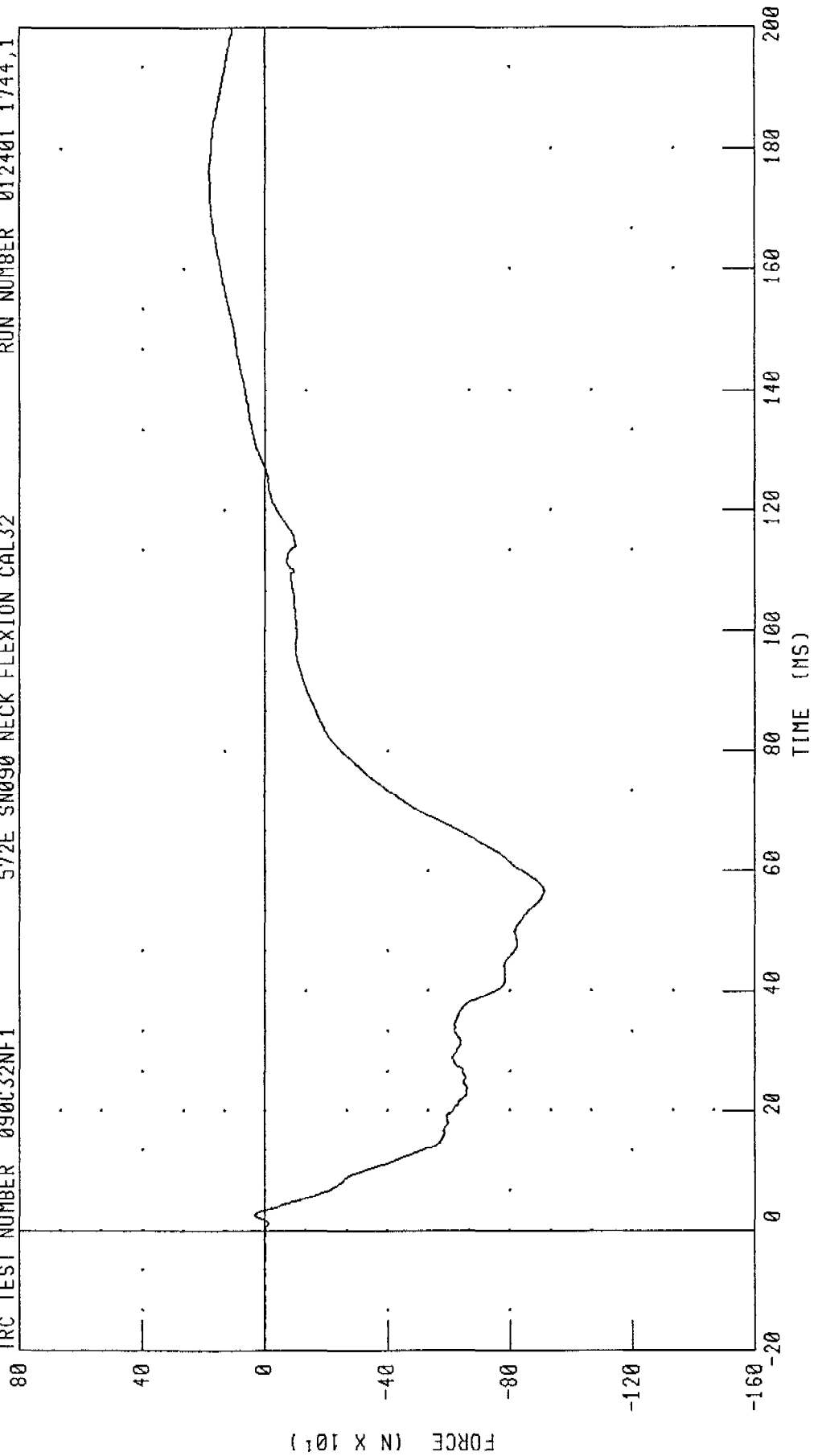
PART 572-E HYBRID III NECK FLEXION CALIBRATION

NECK FORCE X AXIS FILTERED FOR USE IN OCCIPITAL MOMENT CALCULATION

TRC TEST NUMBER 090C32NF1

572E SN090 NECK FLEXION CAL32

RUN NUMBER 012401 1744,1



CHANNEL NEKXFC FILTER CH CLASS 600

PEAK DATA 186 35 N @ 176 24 MS, -911 26 N @ 56 72 MS

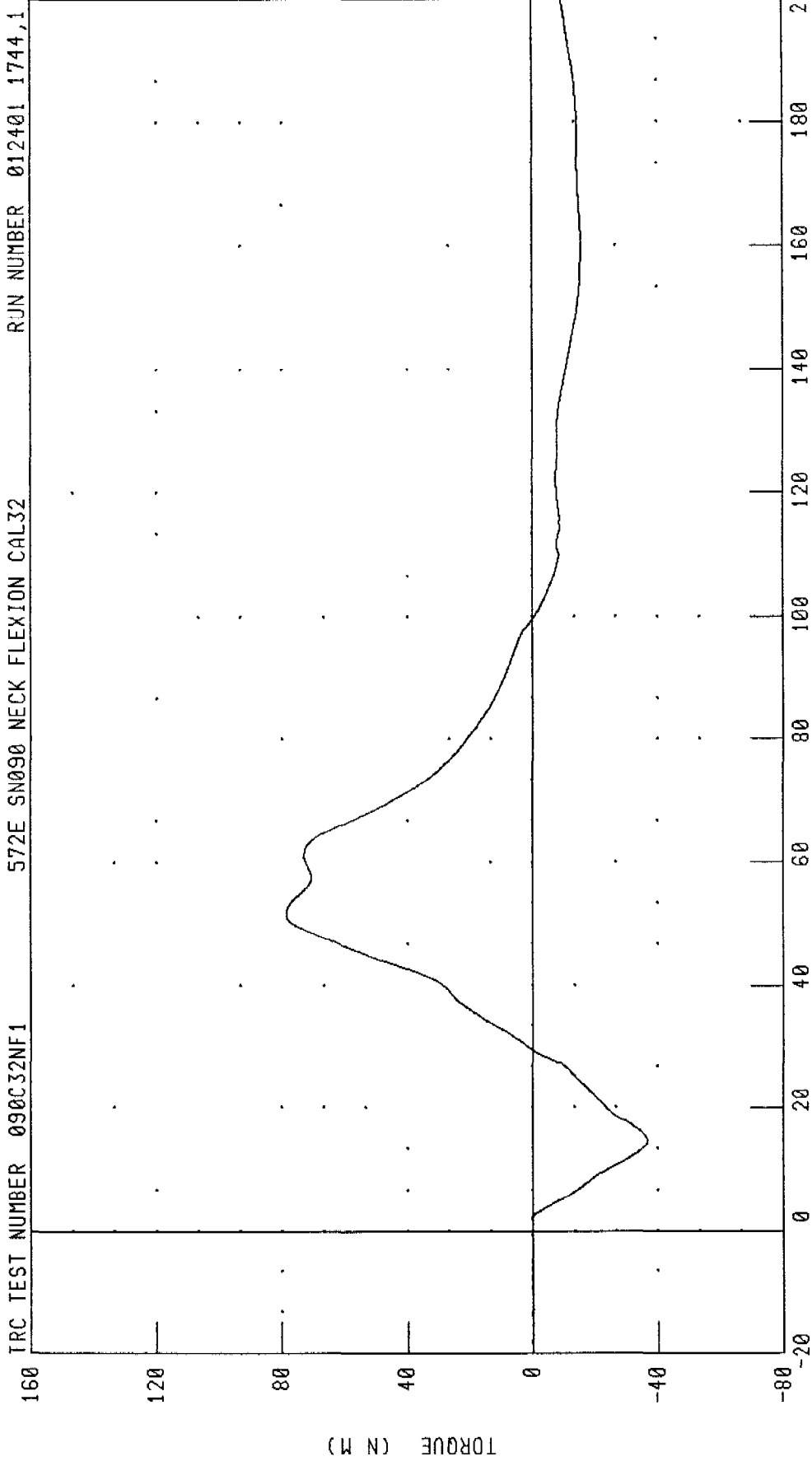
PART 572-E HYBRID III NECK FLEXION CALIBRATION

NECK MOMENT Y AXIS

RUN NUMBER 012401 1744,1

572E SN090 NECK FLEXION CAL32

TRC TEST NUMBER 090C32NF1



TIME (MS)

PEAK DATA 78 55 N M @ 51 68 MS, -36 70 N M @ 14 72 MS

CHANNEL NEKYM FILTER CH CLASS 600

TORQUE (N.M)

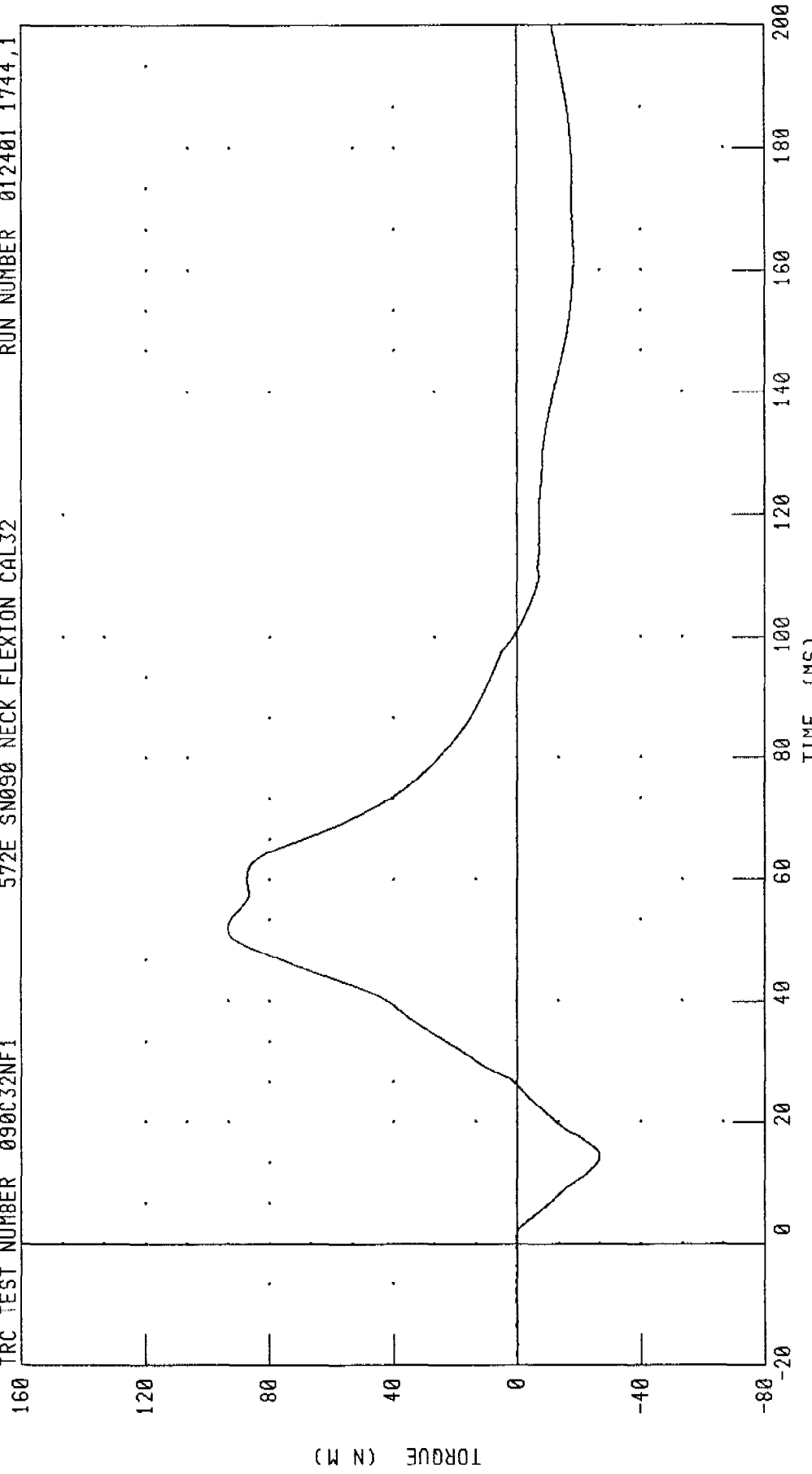
PART 572-E HYBRID III NECK FLEXION CALIBRATION

TOTAL MOMENT ABOUT OCCIPITAL CONDYLE

TRC TEST NUMBER 090C32NF1

572E SN090 NECK FLEXION CAL32

RUN NUMBER 012401 1744,1



CHANNEL NEKOM FILTER CH CLASS 600 PEAK DATA 93 43 N M @ 52 00 MS, -26 64 N M @ 14 40 MS

TRANSPORTATION RESEARCH CENTER INC.

THORAX IMPACT TEST

HYBRID III 50th

24-JAN-01

TRC INC.

TEST NO: 090C32TH1

572E SN090 H.S.THORAX CAL32

TEST PARAMETER	HIGH SPEED TEST	TEST RESULTS
	SPECIFICATION	
TEMPERATURE	20.6-22.2 DEG. C	21.7 DEG. C
RELATIVE HUMIDITY	10 - 70 %	23.0 %
PENDULUM VELOCITY	6.59 - 6.83 M/S	6.59 M/S
MAXIMUM DEFLECTION	63.5 - 72.6 MM	68.5 MM
MAXIMUM RESISTIVE FORCE	5159 - 5894 N	5875. N
INTERNAL HYSTERESIS	69% - 85%	72.4%

TEST MEETS SPECIFICATIONS

TECHNICIAN

*Dustin Walker*

RUN NUMBER: 012401.1630;1

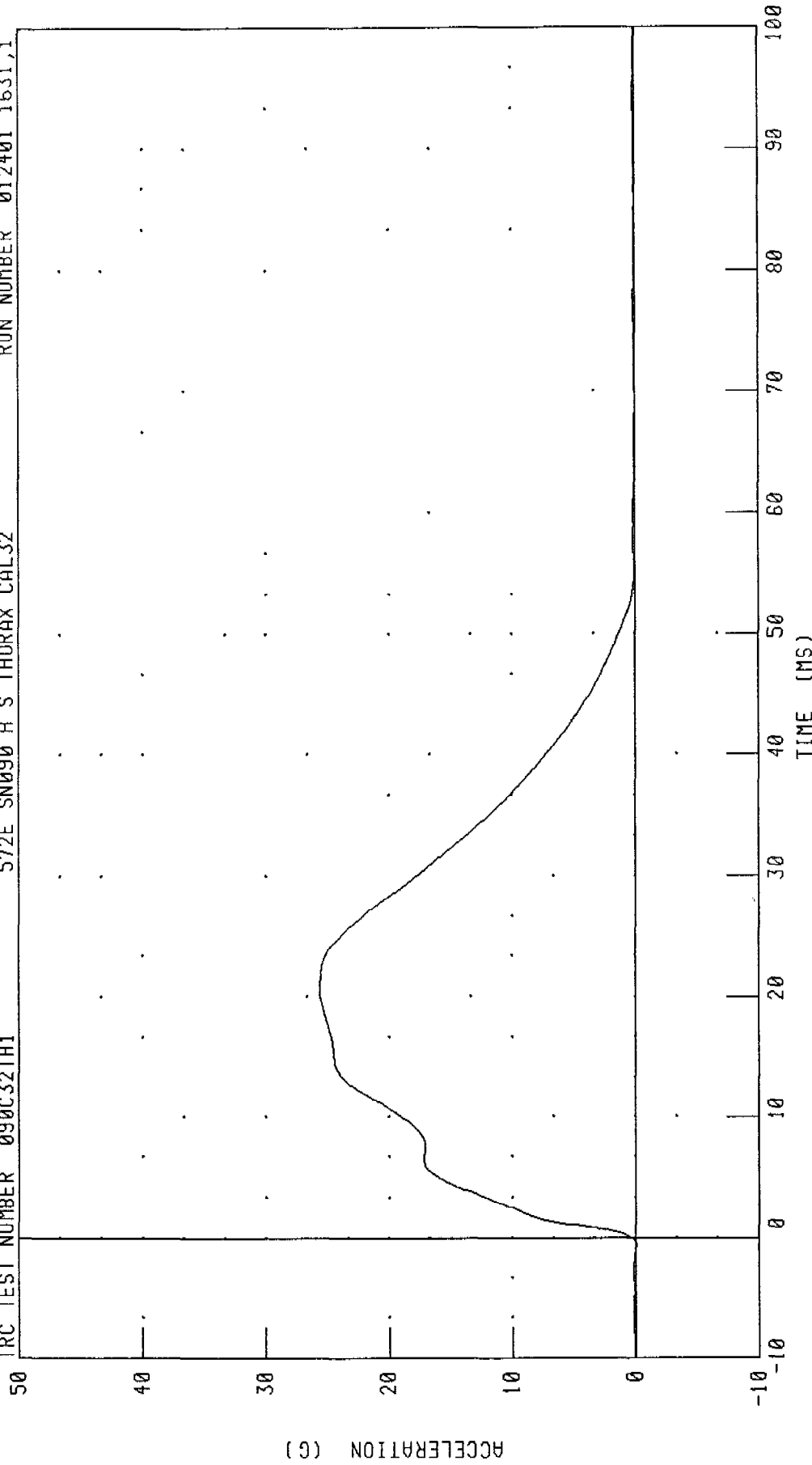
PART 572-E HYBRID III THORAX CALIBRATION

PENDULUM DECELERATION

TRC TEST NUMBER 090C32TH1

572E SN090 H S THORAX CAL32

RUN NUMBER 012401 1631,1

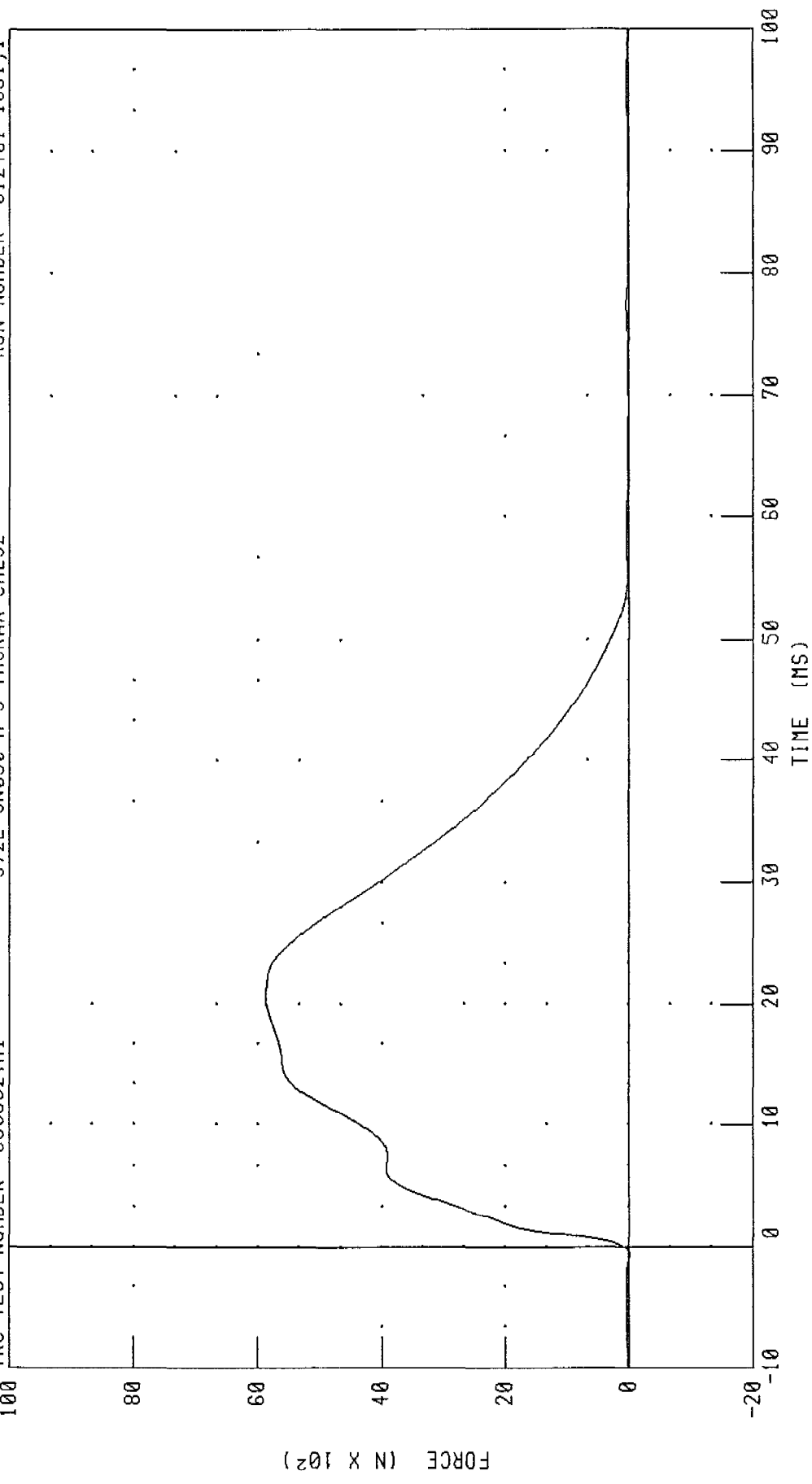


CHANNEL PENXC FILTER CH CLASS 180

PEAK DATA 25 65 G 20 56 MS, -0 08 G 0 -0 64 MS

PART 572-E HYBRID III THORAX CALIBRATION  
PENDULUM FORCE

TRC TEST NUMBER 090C32TH1 572E SN090 H S THORAX CAL32 RUN NUMBER 012401 1631,1



CHANNEL PENXF FILTER CH CLASS 180 PEAK DATA 5875 77 N @ 20 56 MS, -17 49 N @ -0 64 MS

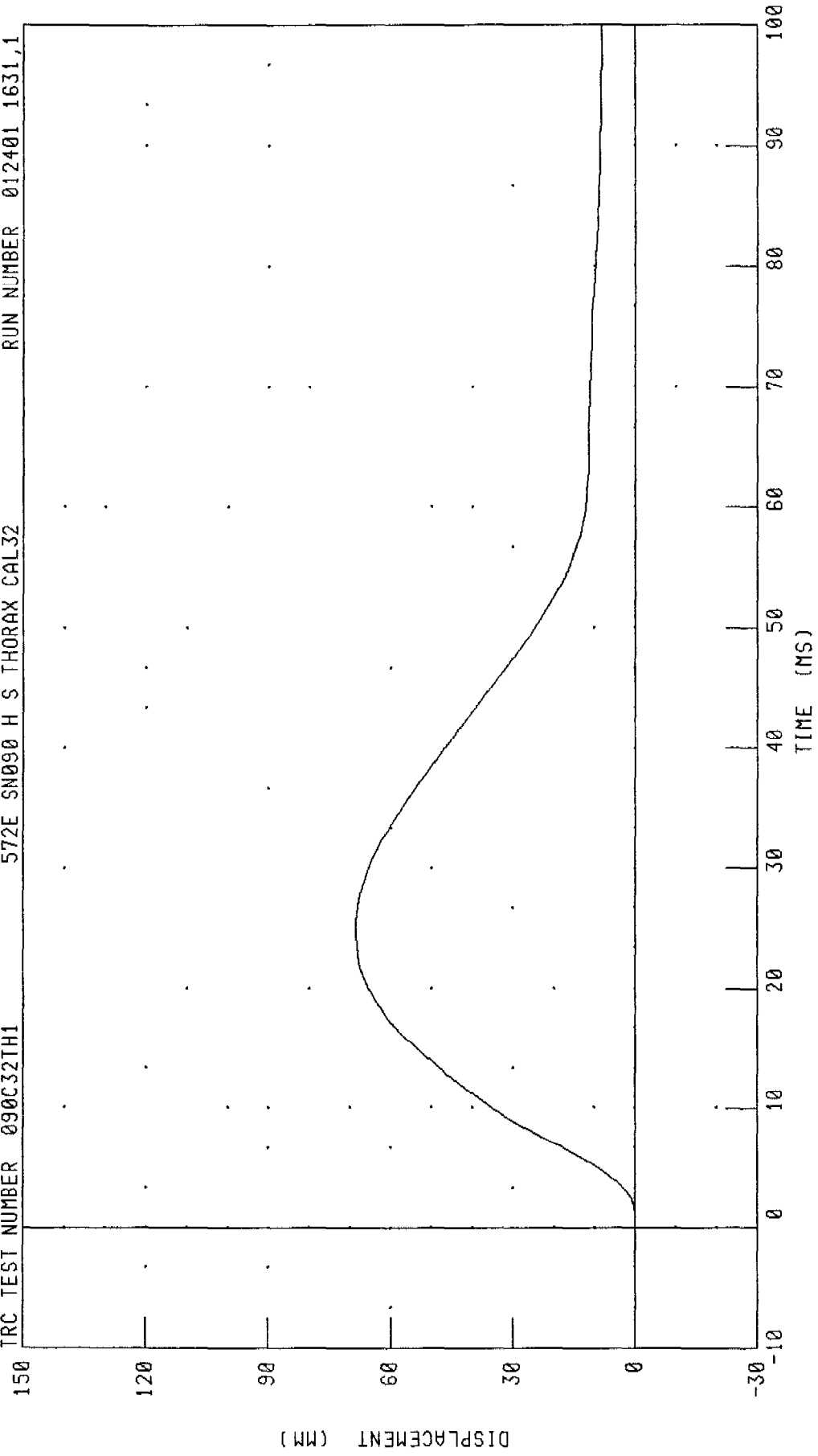
PART 572-E HYBRID III THORAX CALIBRATION

STERNUM DISPLACEMENT

TRC TEST NUMBER 090C32TH1

572E SN090 H S THORAX CAL32

RUN NUMBER 012401 1631,1

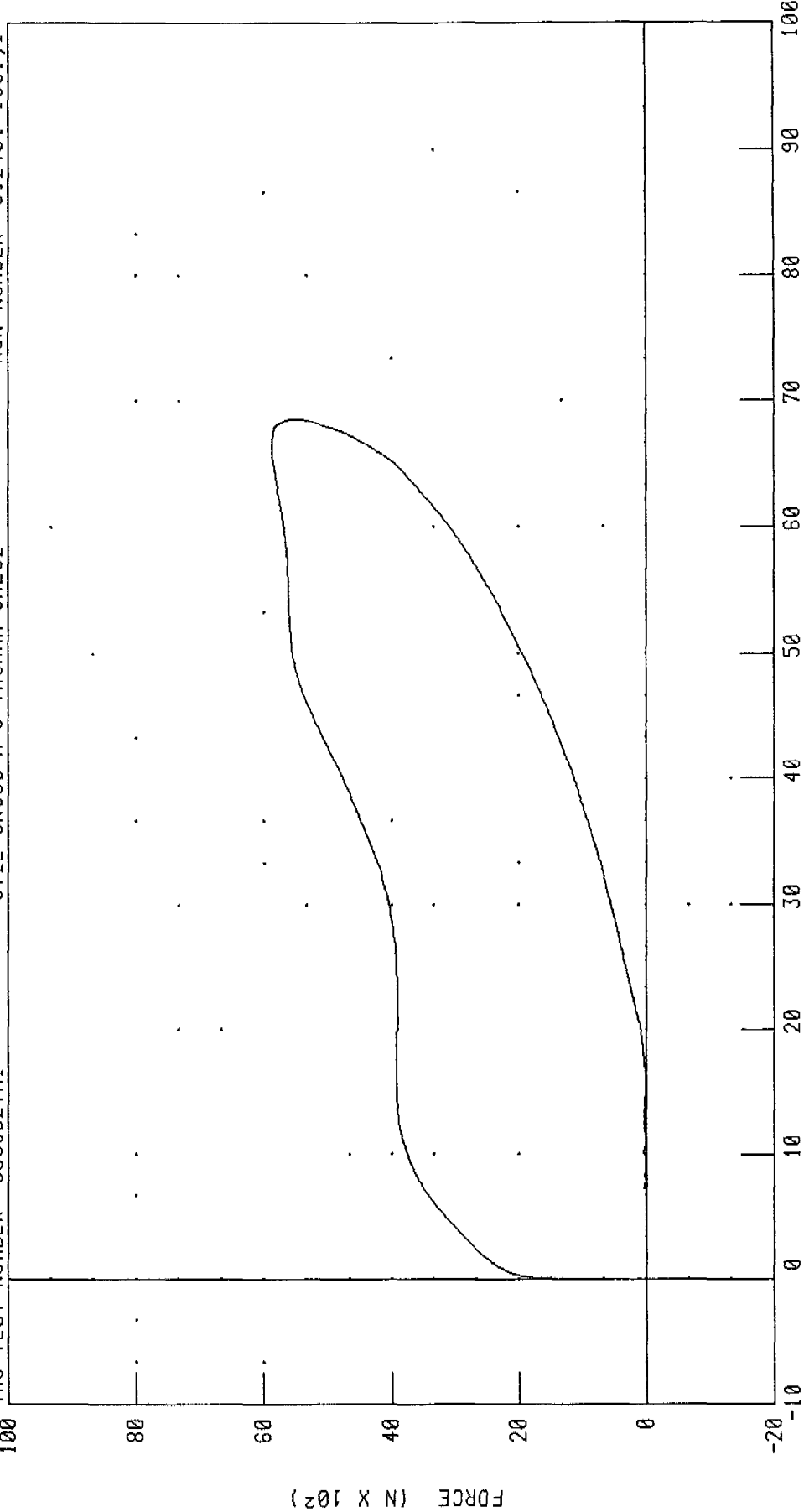


CHANNEL CSTXD FILTER CH CLASS 180

PEAK DATA 68 59 MM @ 24 88 MS, -0 02 MM @ 0 64 MS

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

TRC TEST NUMBER 090C32TH1      572E SN090 H S THORAX CAL32      RUN NUMBER 012401 1631,1



CHANNEL CSTXD      FILTER CH      CLASS 180      DISPLACEMENT (MM)      PEAK DATA      68 59 MM @ 24 88 MS,      -0 02 MM @ 0 64 MS  
PENXF      CH      CLASS 180      5875 77 N @ 20 56 MS,      -17 49 N @ -0 64 MS

# Transportation Research Center Inc

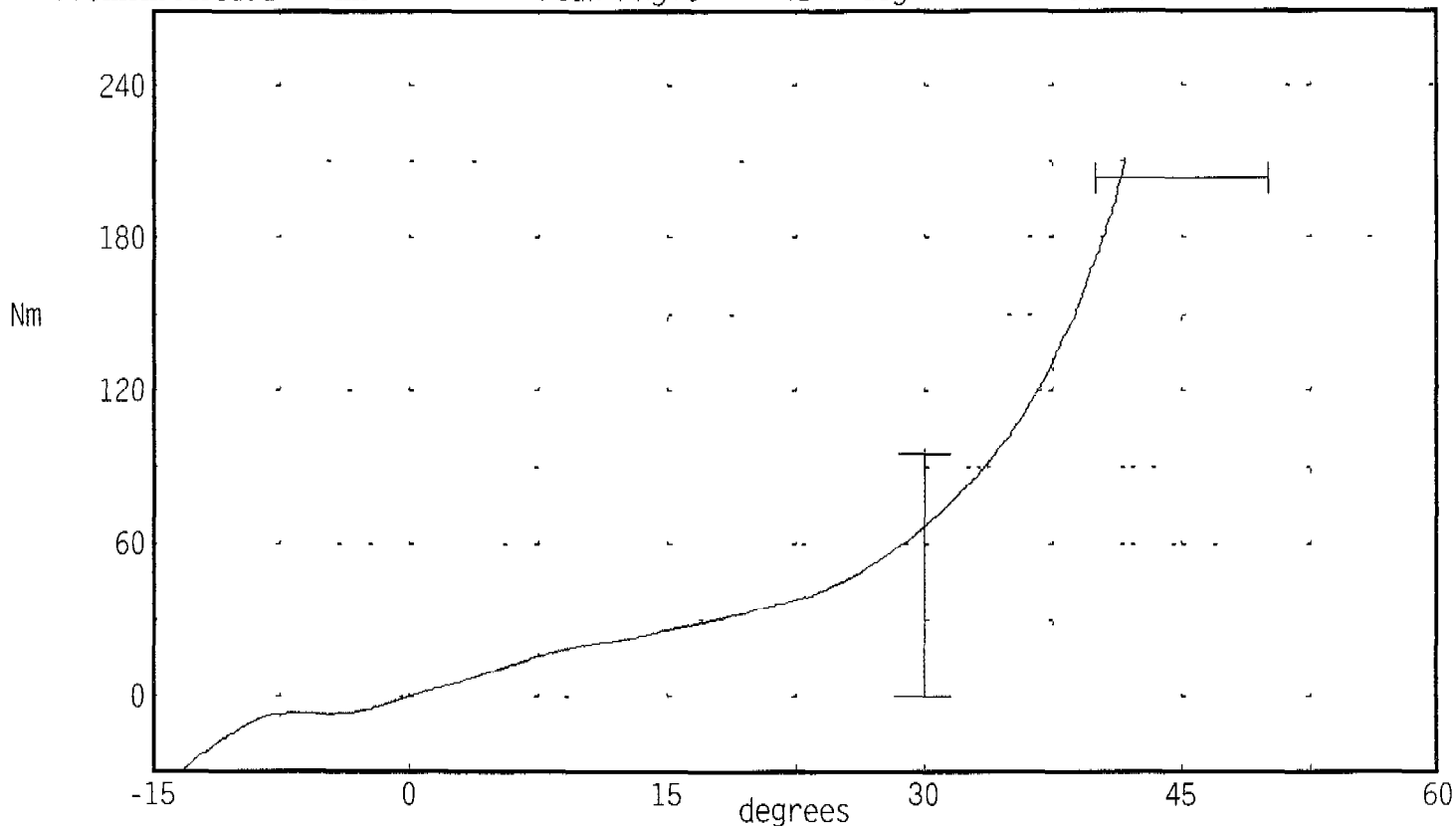
Hybrid III Hip Range of Motion

Serial Number: 090L  
Test Number: 090C32  
Comments

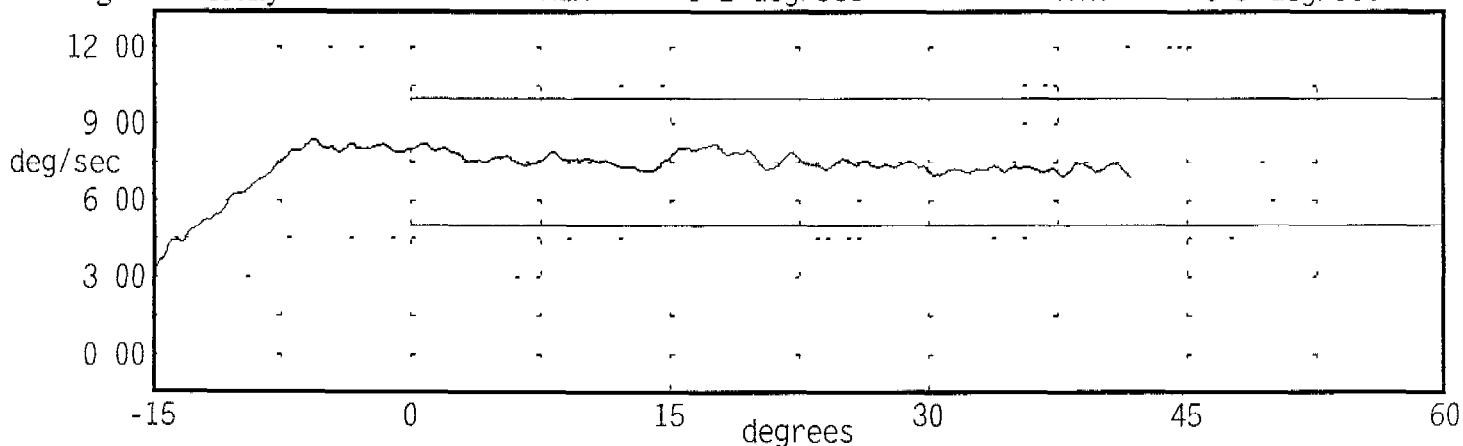
Date: 01/25/2001  
Time: 07:19

TEST PARAMETER	SPECIFICATION	TEST RESULTS	
Temperature	18.9 - 25.6	21.5 °C	Pass
Humidity	10 - 70	15 %	Pass
Moment at 30 deg	<= 94.9	67.0 Nm	Pass
Angle at 203 Nm	40.0 - 50.0	41.5 deg	Pass
Average Velocity	5.0 - 10.0	7.5 deg/sec	Pass

Moment About H-Point  
Peak Moment 211.0 Nm at 41.7 deg  
Peak Angle 41.7 deg at 211.0 Nm



Angular Velocity Max 8.2 deg/sec Min 6.9 deg/sec



# Transportation Research Center Inc

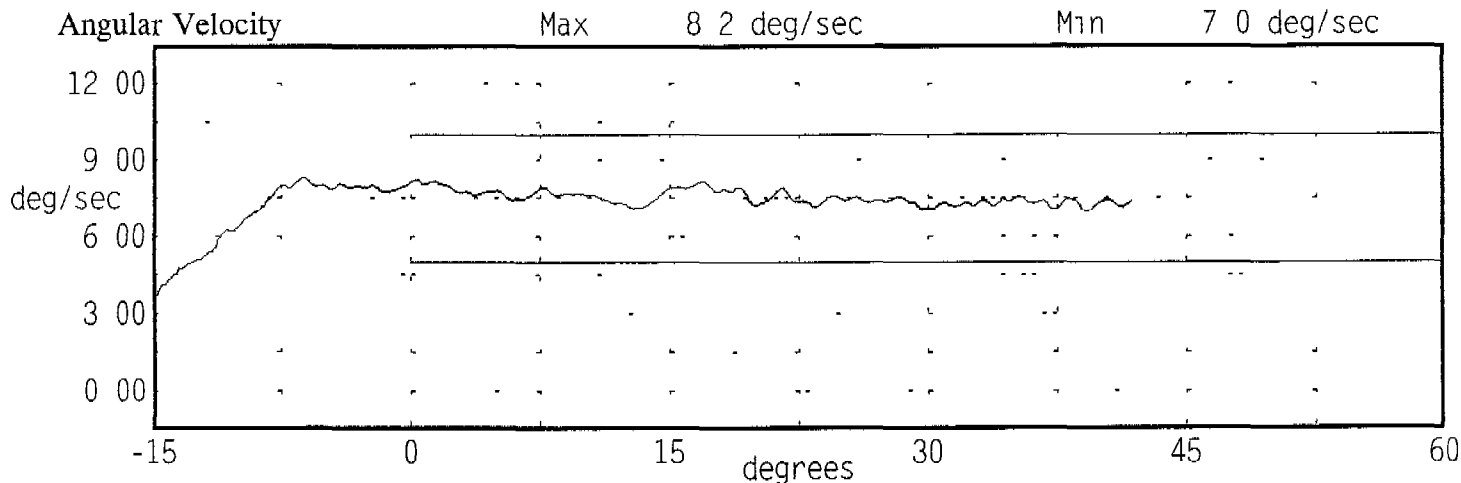
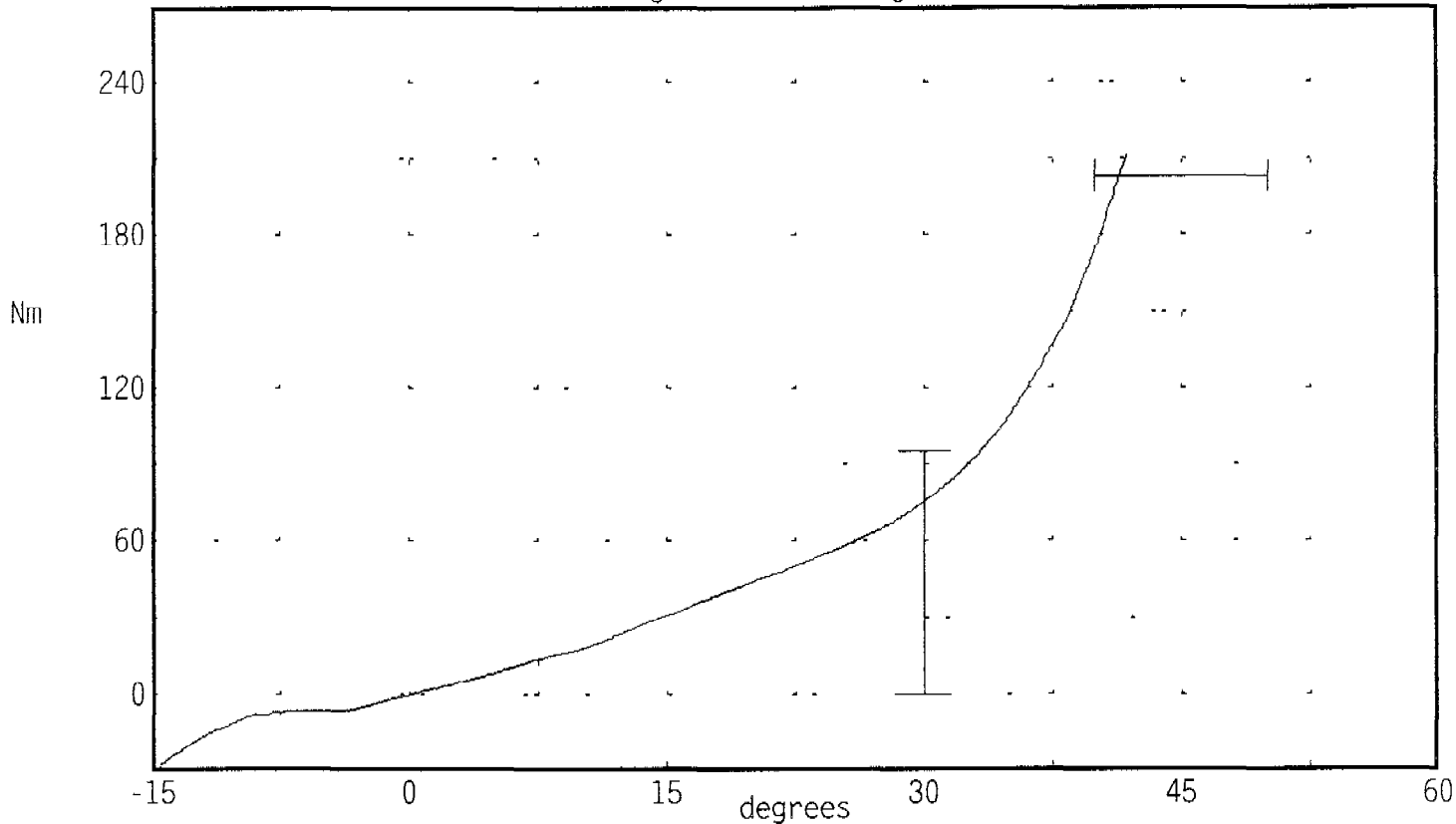
Hybrid III Hip Range of Motion

Serial Number: 090R  
Test Number: 090C32  
Comments:

Date: 01/25/2001  
Time: 07 23

TEST PARAMETER	SPECIFICATION	TEST RESULTS	
Temperature	18.9 - 25.6	21.5 °C	Pass
Humidity	10 - 70	15 %	Pass
Moment at 30 deg	<= 94.9	75.5 Nm	Pass
Angle at 203 Nm	40.0 - 50.0	41.4 deg	Pass
Average Velocity	5.0 - 10.0	7.5 deg/sec	Pass

Moment About H-Point  
Peak Moment 211.0 Nm at 41.8 deg  
Peak Angle 41.8 deg at 211.0 Nm



TRANSPORTATION RESEARCH CENTER INC.

LEFT KNEE IMPACT TEST

HYBRID III 50th

25-JAN-01

TRC INC.

TEST NO: 090C32LK1

572E SN090 LEFT KNEE CAL 32

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	18.9-25.6 DEG. C	21.7 DEG. C
RELATIVE HUMIDITY	10 - 70 %	15.0 %
PROBE VELOCITY	2.07 - 2.13 M/S	2.10 M/S
PEAK KNEE IMPACT FORCE 5.0 KG PENDULUM	4715 - 5782 N	5672.0 N

TEST MEETS SPECIFICATIONS

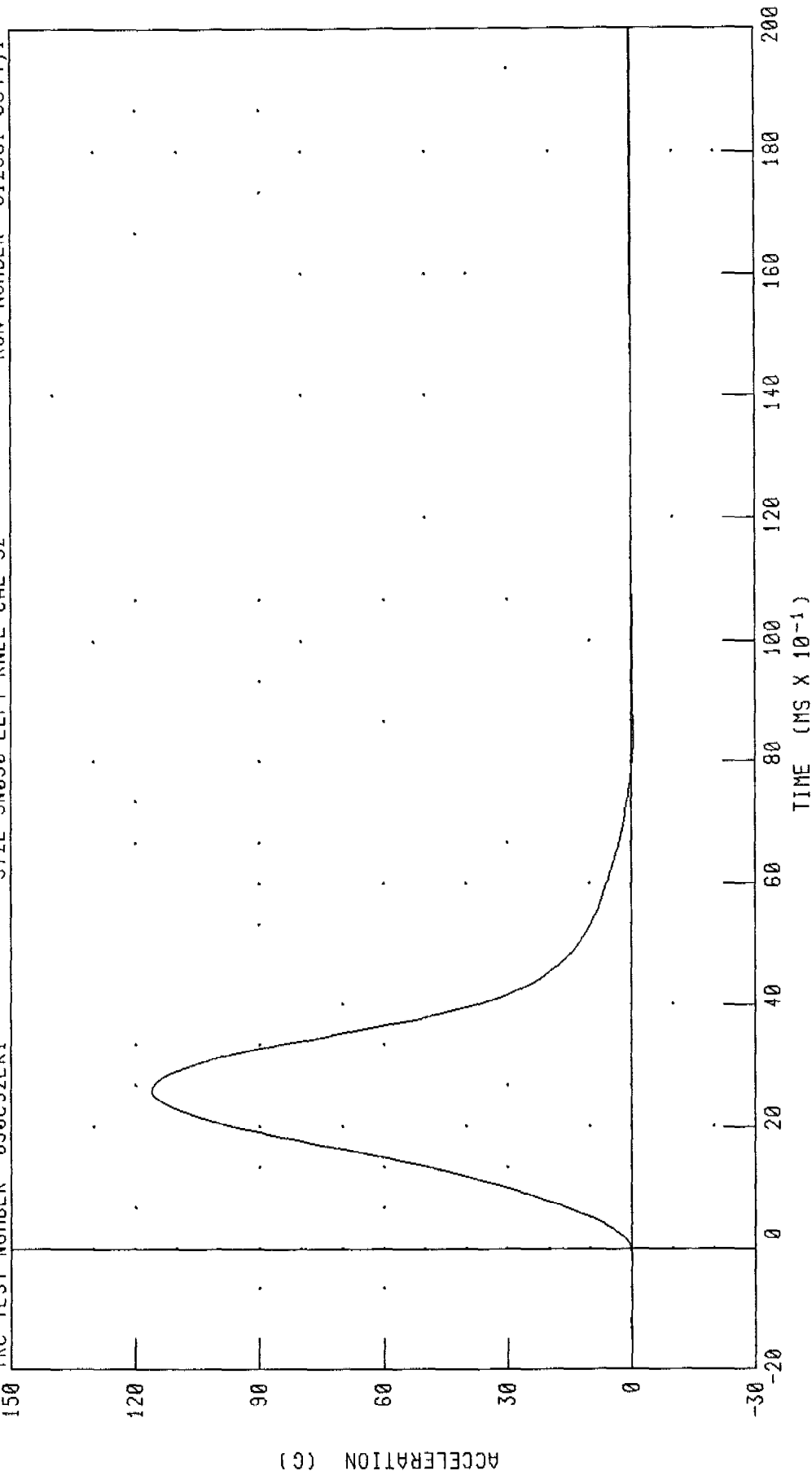
TECHNICIAN

*Dustin Walker*

RUN NUMBER: 012501.0944;1

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

TRC TEST NUMBER 090C32LK1  
572E SN090 LEFT KNEE CAL 32  
RUN NUMBER 012501 0944,1



CHANNEL PENXG FILTER CH CLASS 600

PEAK DATA 115 93 C 0 2 56 MS, -0 47 C 0 8 56 MS

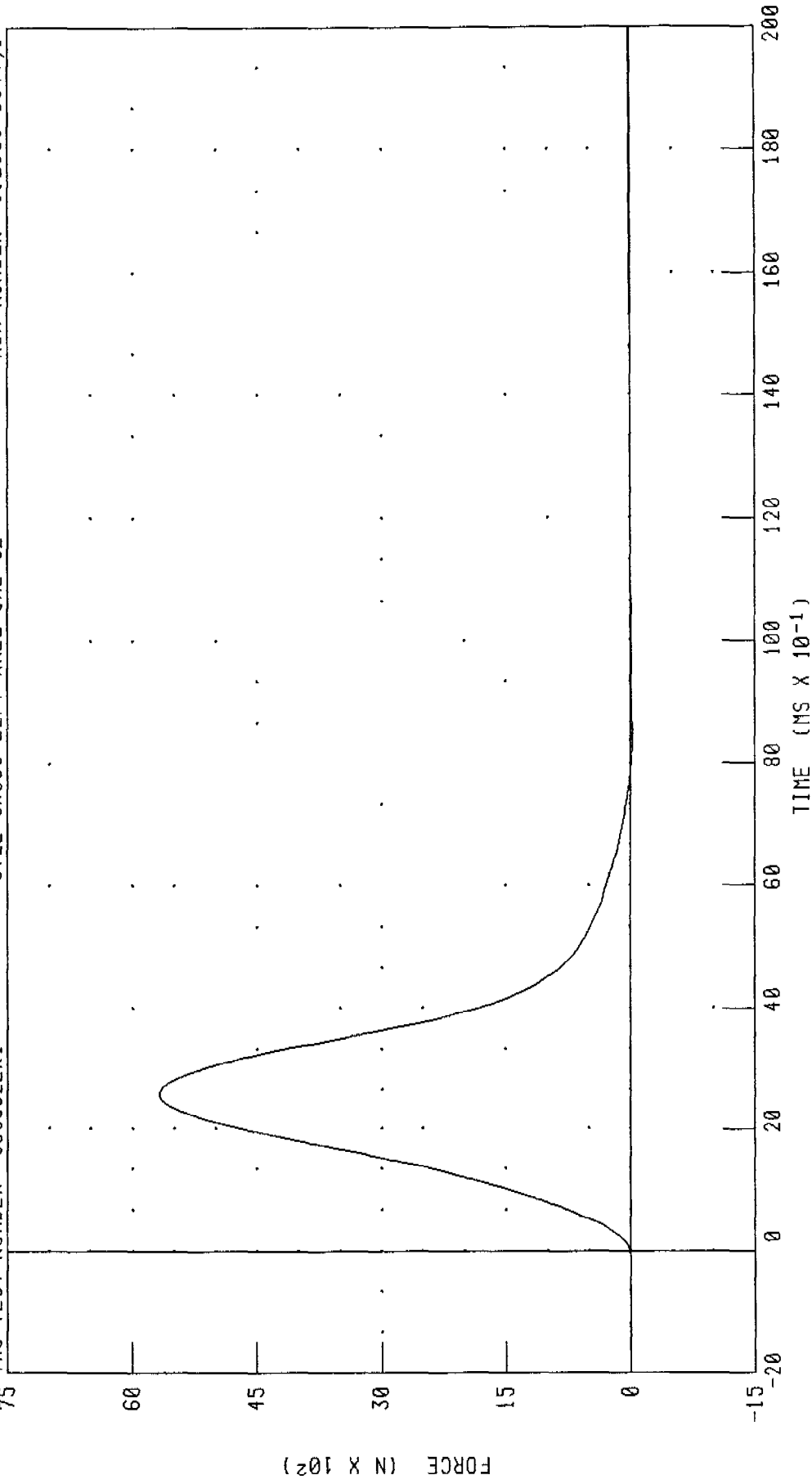
PART 572-E HYBRID III LEFT KNEE CALIBRATION

PENDULUM FORCE (5 KG PEND )

TRC TEST NUMBER 090C32LK1

572E SN090 LEFT KNEE CAL 32

RUN NUMBER 012501 0944,1



CHANNEL PENXF FILTER CH CLASS 600

PEAK DATA 5672 03 N 0 2 56 MS, -23 22 N 0 8 56 MS

TRANSPORTATION RESEARCH CENTER INC.

RIGHT KNEE IMPACT TEST

HYBRID III 50th

25-JAN-01

TRC INC.

TEST NO: 090C32RK1

572E SN090 RIGHT KNEE CAL 32

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	18.9-25.6 DEG. C	21.7 DEG. C
RELATIVE HUMIDITY	10 - 70 %	15.0 %
PROBE VELOCITY	2.07 - 2.13 M/S	2.09 M/S
PEAK KNEE IMPACT FORCE 5.0 KG PENDULUM	4715 - 5782 N	5695.3 N

TEST MEETS SPECIFICATIONS

TECHNICIAN

*Dustin Walker*

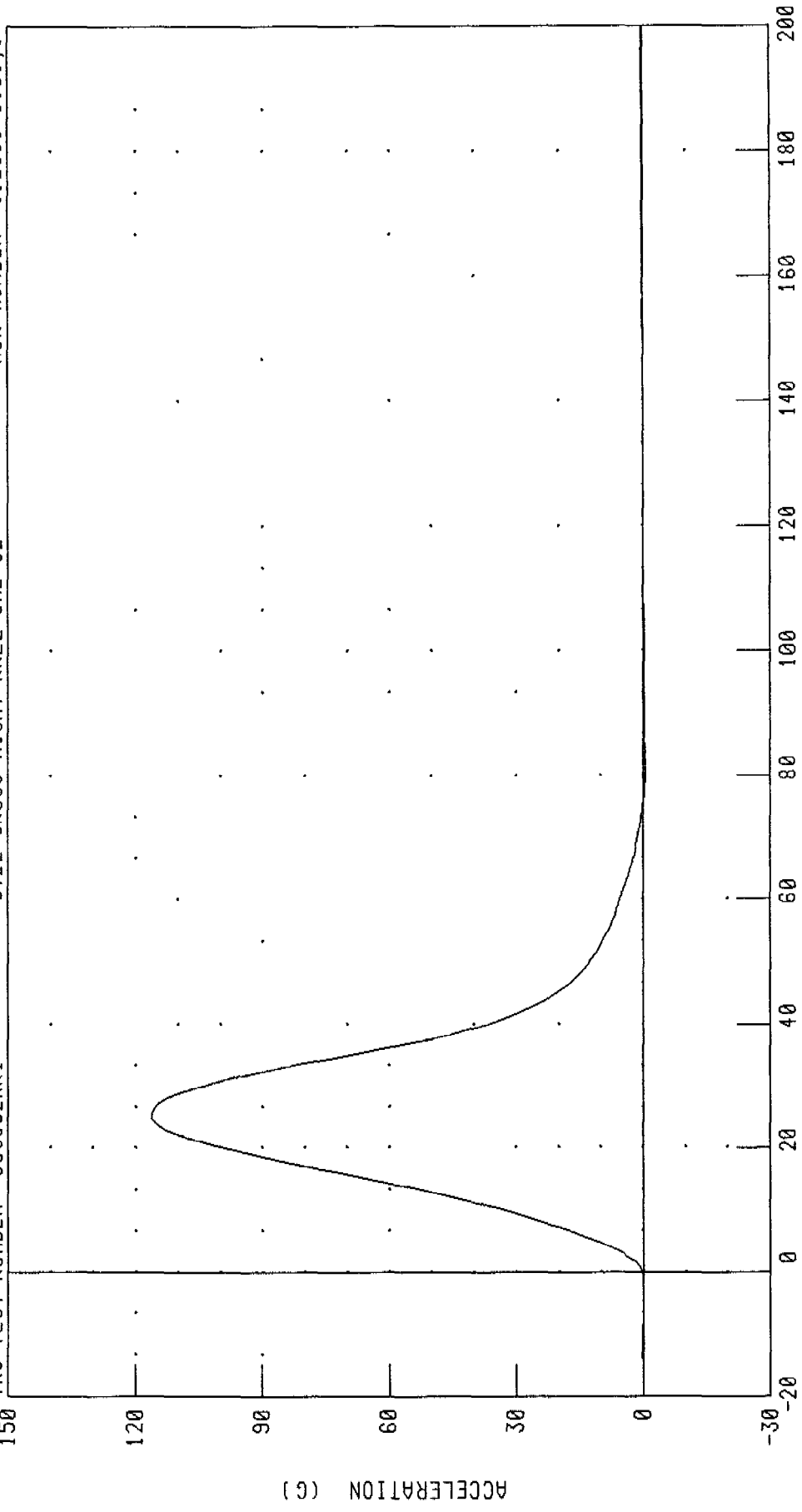
RUN NUMBER: 012501.0951;1

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

TRC TEST NUMBER 090C32RK1

572E SN090 RIGHT KNEE CAL 32

RUN NUMBER 012501 0951,1



PEAK DATA 116 40 G @ 2 56 MS, -0 63 C @ 8 16 MS

CHANNEL PENXC FILTER CH CLASS 600

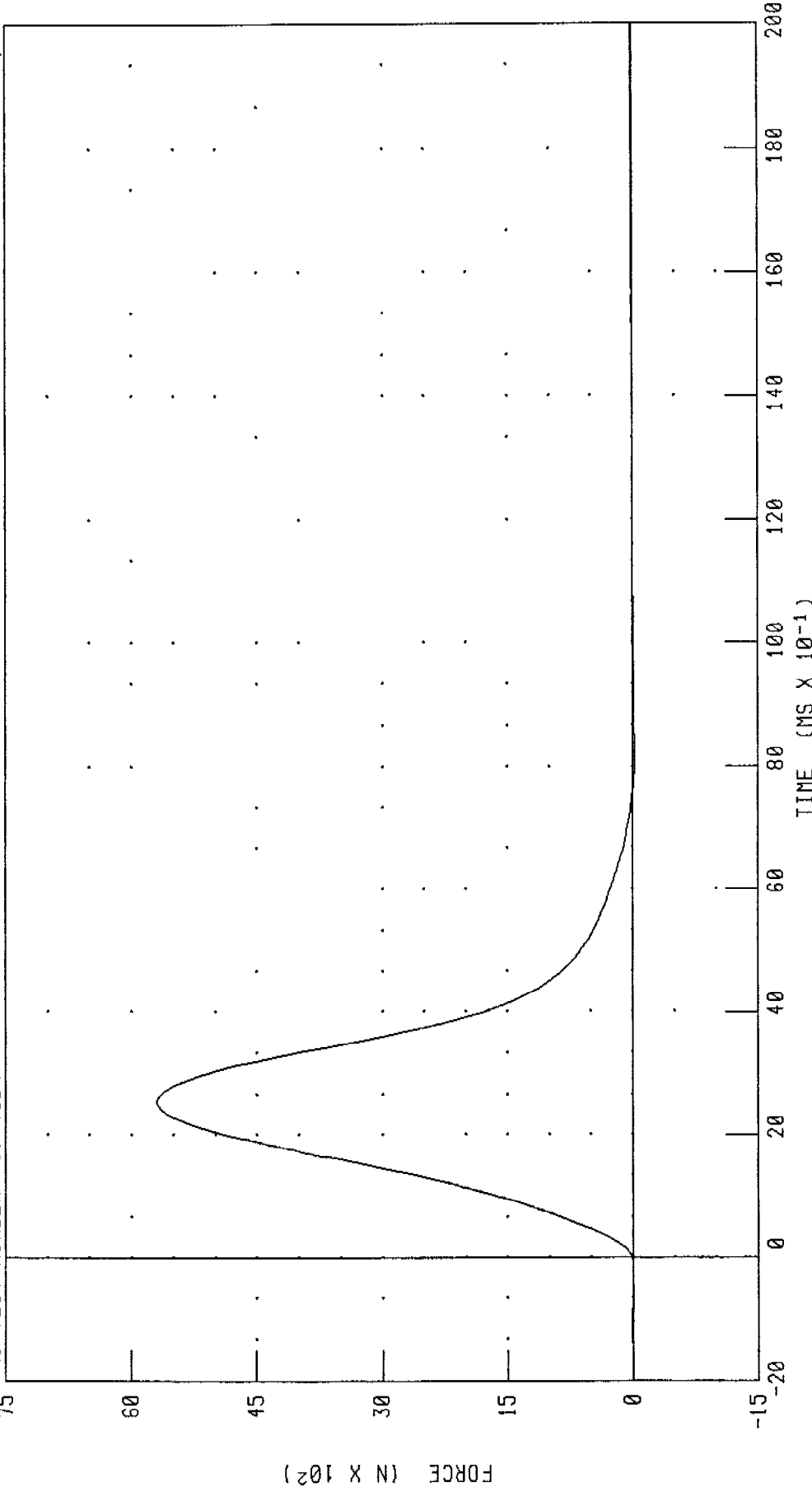
PART 572-E HYBRID III RIGHT KNEE CALIBRATION

PENDULUM FORCE (5 KG PEND )

TRC TEST NUMBER 090C32RK1

572E SN090 RIGHT KNEE CAL 32

RUN NUMBER 012501 0951,1



CHANNEL PENXF FILTER CH CLASS 600 PEAK DATA 5695 30 N @ 2 56 MS, -30 97 N @ 8 16 MS

Pre-Test Calibration

Target Vehicle Passenger Dummy S/N 416

**TRANSPORTATION RESEARCH CENTER INC.  
HYBRID III SMALL FEMALE EXTERNAL DIMENSIONS  
SN: 416 MFG:FTSS**

DATE: 26-Jan-01

TRC INC. TEST NO: 416C8ED

5720 SN416EXT. DIMENSION CAL08

TEST PARAMETER	DIMEN.	SPECIFICATION	TEST RESULTS
Total Sitting Height	A	774 7 - 800 1 MM	789.94 MM
Shoulder Pivot Height	B	431 8 - 457 2 MM	444 5 MM
Hip Pivot Height	C	81 3 - 86 3 MM	83.82 MM
Hip Pivot from Backline	D	144 8 - 149 8 MM	144.78 MM
Shoulder Pivot from Backline	E	68 6 - 83 8 MM	73.66 MM
Thigh Clearance	F	119 4 - 134 6 MM	129 54 MM
Back of Elbow to Wrist Pivot	G	243 9 - 259 1 MM	248 92 MM
Head Back from Backline	H	40 7 - 45 7 MM	43.18 MM
Shoulder to Elbow Length	I	276 8 - 297 2 MM	287 02 MM
Elbow Rest Height	J	182 8 - 203 2 MM	193.04 MM
Buttock to Knee Length	K	520 7 - 546 1 MM	530.86 MM
Popliteal Height	L	355 6 - 376 MM	373 38 MM
Knee to Floor Height	M	393 7 - 419 1 MM	403 86 MM
Buttock Popliteal Length	N	414 - 439 4 MM	434.34 MM
Chest Depth	O	175 3 - 190 5 MM	182 88 MM
Foot Length	P	218 5 - 233 7 MM	228 6 MM
Buttock to Knee Pivot Length	R	457 2 - 482 6 MM	474 98 MM
Head Breadth	S	137 1 - 147 3 MM	142.24 MM
Head Depth	T	177 8 - 188 MM	185 42 MM
Hip Breadth	U	299 7 - 314 9 MM	302.26 MM
Shoulder Breadth	V	350 5 - 365 7 MM	358.14 MM
Foot Breadth	W	78 8 - 94 MM	88 9 MM
Head Circumference	X	528 3 - 548 7 MM	535 94 MM
Chest Circumference with Jacket	Y	850 9 - 881 3 MM	868.68 MM
Waist Circumference	Z	759 5 - 789 9 MM	779.78 MM
Ref Location for Chest Circumference	AA	299 7 - 309 9 MM	302 26 MM
Ref Location for Waist Circumference	BB	160 - 170 2 MM	167.64 MM

**DUMMY MEETS SPECIFICATION**

TECHNICIAN:



TRANSPORTATION RESEARCH CENTER INC.

HEAD DROP TEST

HYBRID III SMALL FEMALE

25-JAN-01

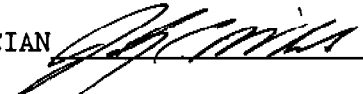
TRC INC.

TEST NO: 416C8HD2

572 0 SN416 HEAD DROP CAL 08

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	18.9-25.6 DEG. C	21.7 DEG. C
RELATIVE HUMIDITY	10 - 70 %	15.0 %
PEAK RESULTANT ACCELERATION	250 - 300 G	280.74 G
PEAK LATERAL ACCELERATION	15 G MAX	-8.45 G
IS ACCELERATION CURVE UNIMODAL?	YES	YES

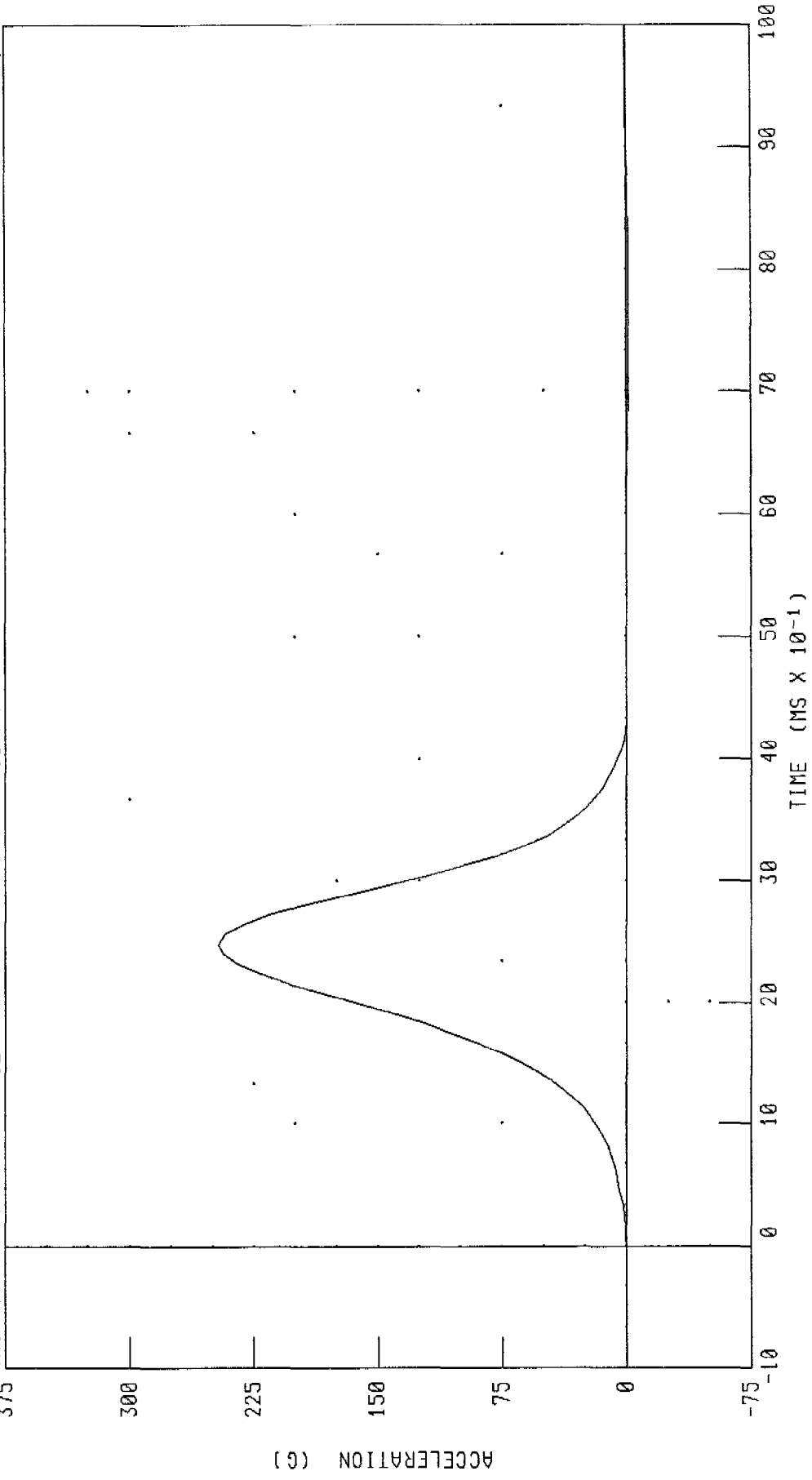
TEST MEETS SPECIFICATIONS

TECHNICIAN  \_\_\_\_\_

RUN NUMBER: 012501.1133;1

PART 572-0 HYBRID III SMALL FEMALE - HEAD CALIBRATION  
HEAD ACCELERATION X AXIS

TRC TEST NUMBER 416C8HD2 572 0 SN416 HEAD DROP CAL 08 RUN NUMBER 021501 0927,1



CHANNEL HEDXC FILTER CH CLASS 1000

PEAK DATA 246 07 G @ 2 48 MS, -1 38 G @ 6 96 MS

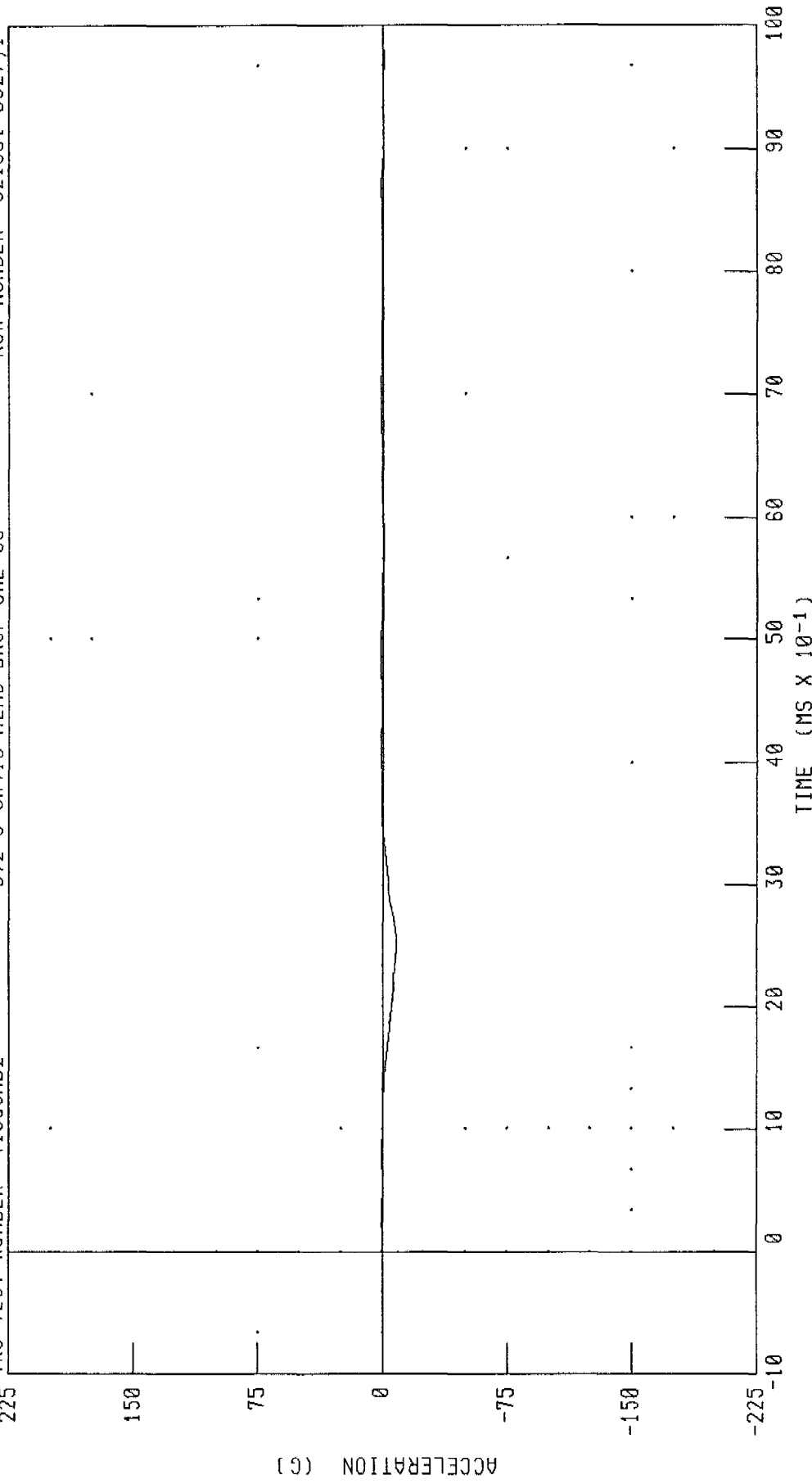
PART 572-0 HYBRID III SMALL FEMALE - HEAD CALIBRATION

HEAD ACCELERATION Y AXIS

TRC TEST NUMBER 416C8HD2

572 0 SN416 HEAD DROP CAL 08

RUN NUMBER 021501 0927,1

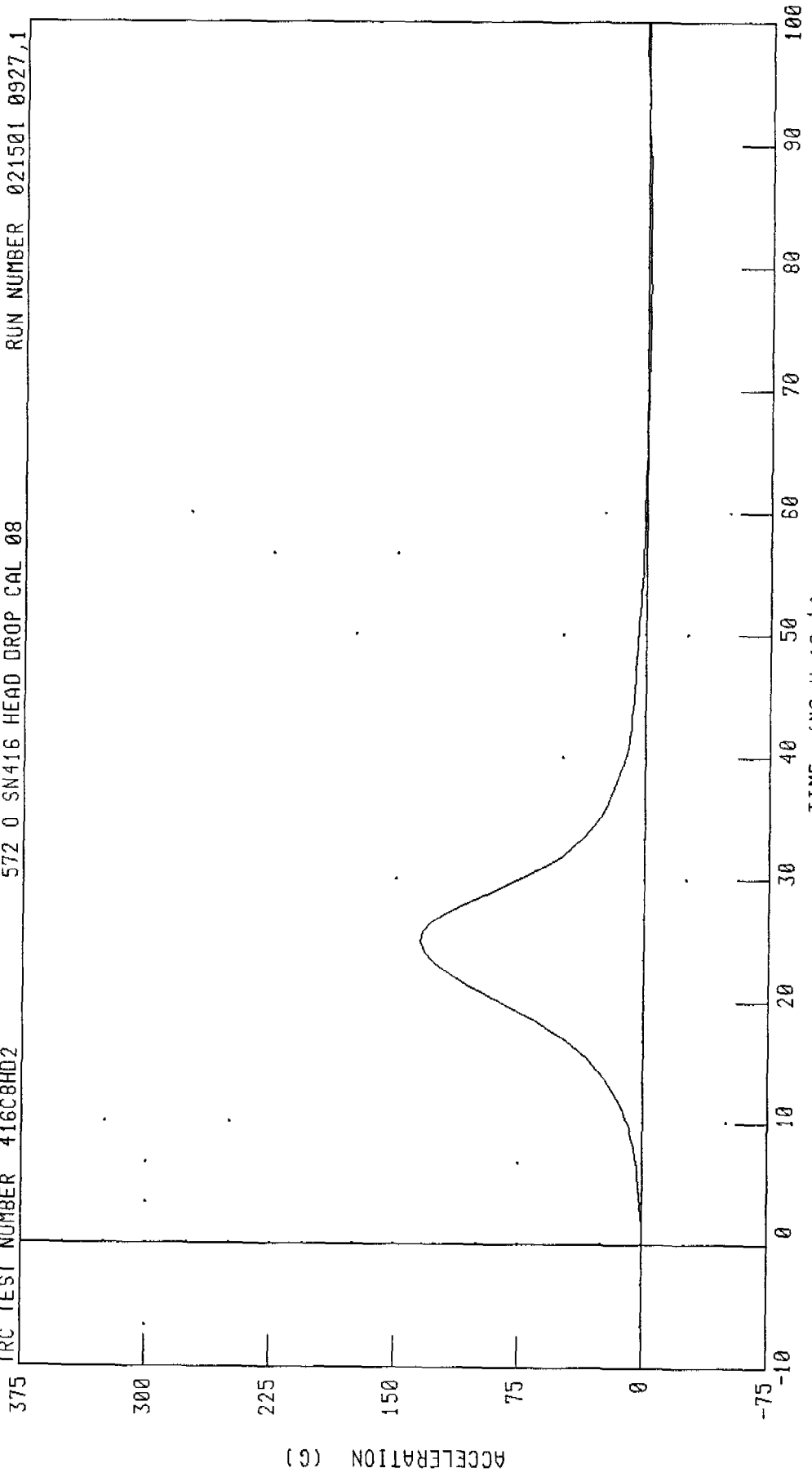


CHANNEL HEDYG FILTER CH CLASS 1000

PEAK DATA 0 89 C @ 4 08 MS, -8 46 C @ 2 48 MS

PART 572-0 HYBRID III SMALL FEMALE - HEAD CALIBRATION  
HEAD ACCELERATION Z AXIS

TRC TEST NUMBER 416C8HD2      572 0 SN416 HEAD DROP CAL 08      RUN NUMBER 021501 0927,1



CHANNEL HEDZG      FILTER CH CLASS 1000

PEAK DATA 134 88 G @ 2 48 MS, -1 75 G @ 7 84 MS

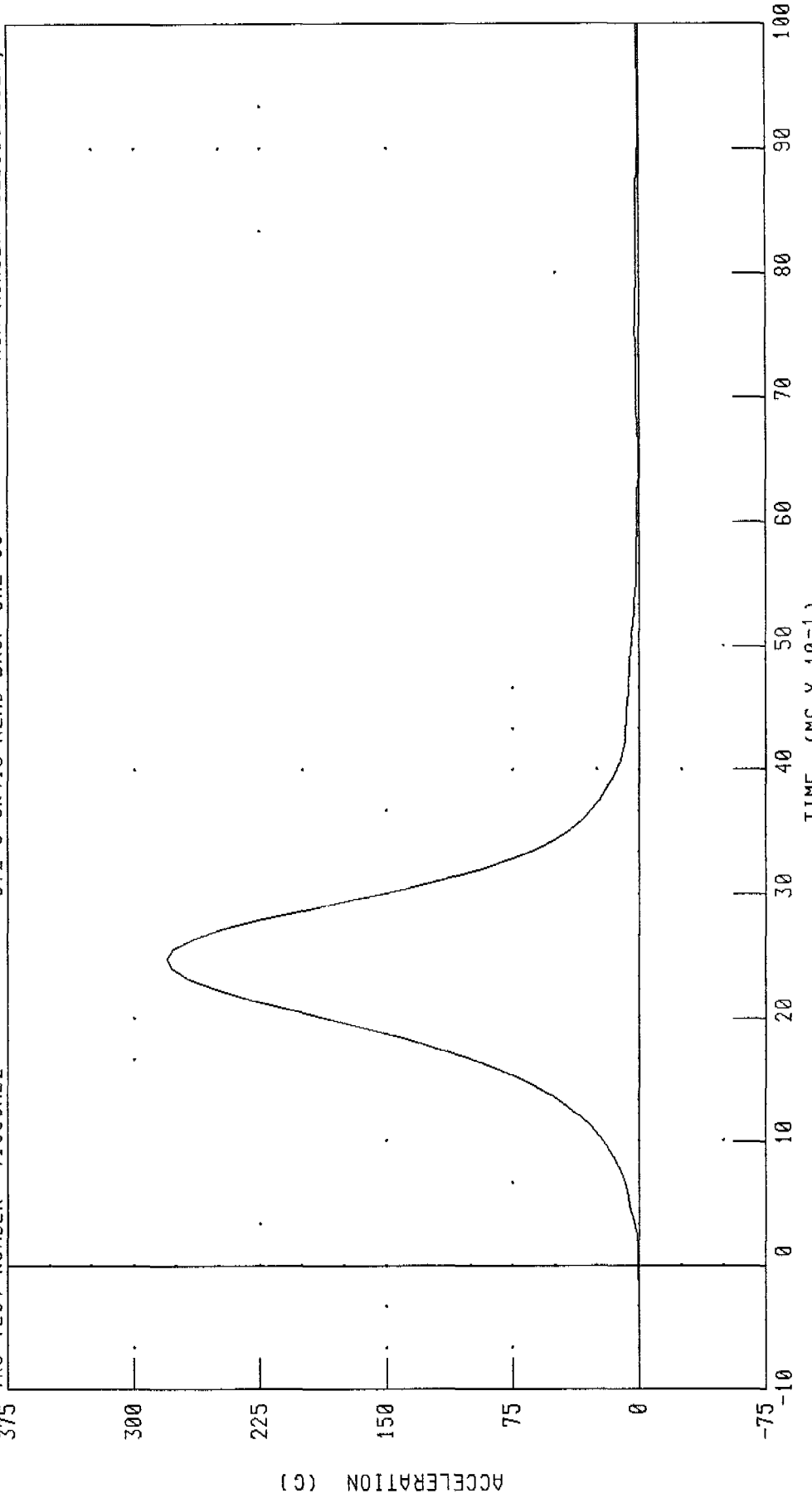
PART 572-0 HYBRID III SMALL FEMALE - HEAD CALIBRATION

HEAD RESULTANT ACCELERATION

572 0 SN416 HEAD DROP CAL 08

TRC TEST NUMBER 416C8HD2

RUN NUMBER 021501 0927,1



CHANNEL HEDRC FILTER CH CLASS 1000

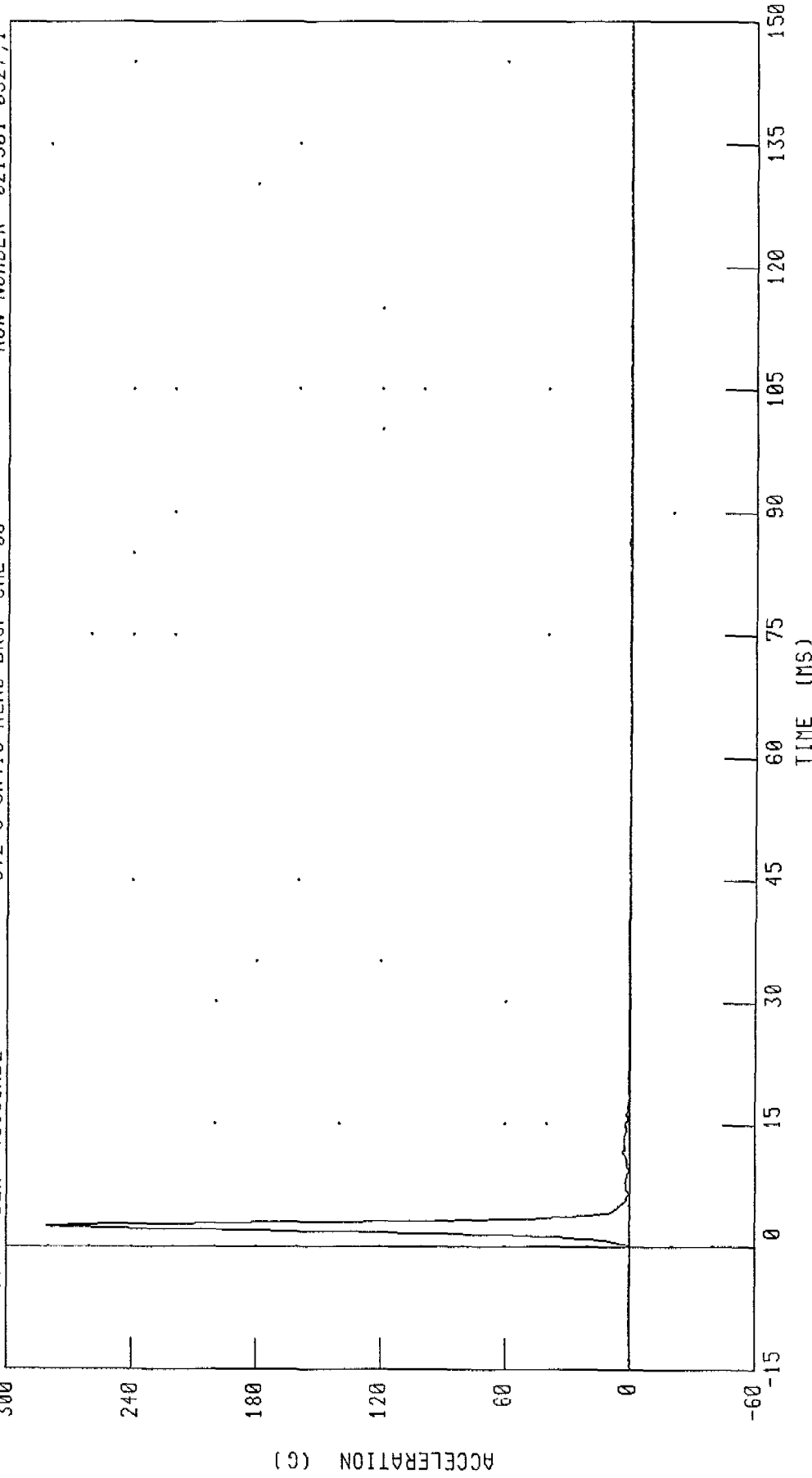
PEAK DATA 280 74 G @ 2 48 MS, 0 08 G @ -0 96 MS

PART 572-0 HYBRID III SMALL FEMALE - HEAD CALIBRATION  
CHECK PLOT - HEAD RESULTANT ACCELERATION

TRC TEST NUMBER 416C8HD2

572 0 SN416 HEAD DROP CAL 08

RUN NUMBER 021501 0927,1



CHANNEL HEDRG FILTER CH CLASS 1000

PEAK DATA 280 74 C 2 48 MS, 0 08 C 0 -14 96 MS

TRANSPORTATION RESEARCH CENTER INC.

HYBRID III SMALL FEMALE

25-JAN-01

NECK EXTENSION TEST - 6 CHANNEL TRANSDUCER

TRC INC. TEST NO: 416C8NE1 572 0 SN416 NECK EXT. CAL 08

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	20.6 - 22.2 DEG. C	21.7 DEG. C
RELATIVE HUMIDITY	10 - 70 %	15.0 %
IMPACT VELOCITY	5.95 - 6.19 M/S	6.19 M/S
INTEGRATED PENDULUM VELOCITY	10 MS   1.5 - 1.9 M/S	1.79 M/S
	20 MS   3.1 - 3.9 M/S	3.60 M/S
	30 MS   4.6 - 5.6 M/S	5.16 M/S
PEAK D-PLANE ROTATION	99 - 114 DEG.	106.29 DEG.
PEAK MOMENT DURING ROTATION INTERVAL	-53 / -65 NM	-55.69 NM
NEGATIVE MOMENT DECAY TIME TO -10 NM LEVEL	94 - 114 MS	104.00 MS

TEST MEETS SPECIFICATIONS

TECHNICIAN

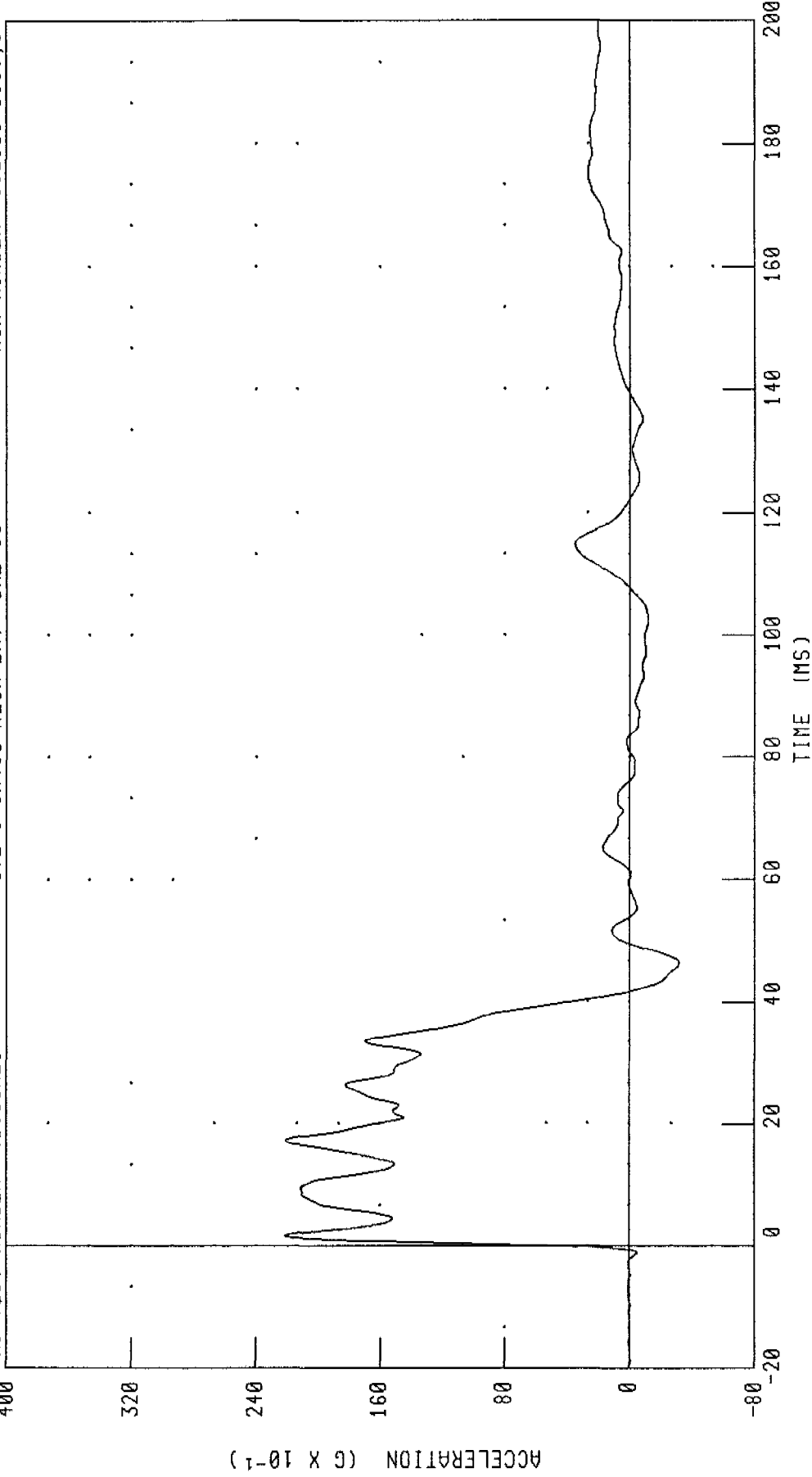
*[Handwritten Signature]*

RUN NUMBER: 012501.1059;1

PART 572-0 HYBRID III SMALL FEMALE - NECK EXTENSION CALIBRATION

PENDULUM DECELERATION

TRC TEST NUMBER 416C8NE1 572 0 SN416 NECK EXT CAL 08 RUN NUMBER 012501 1106,1

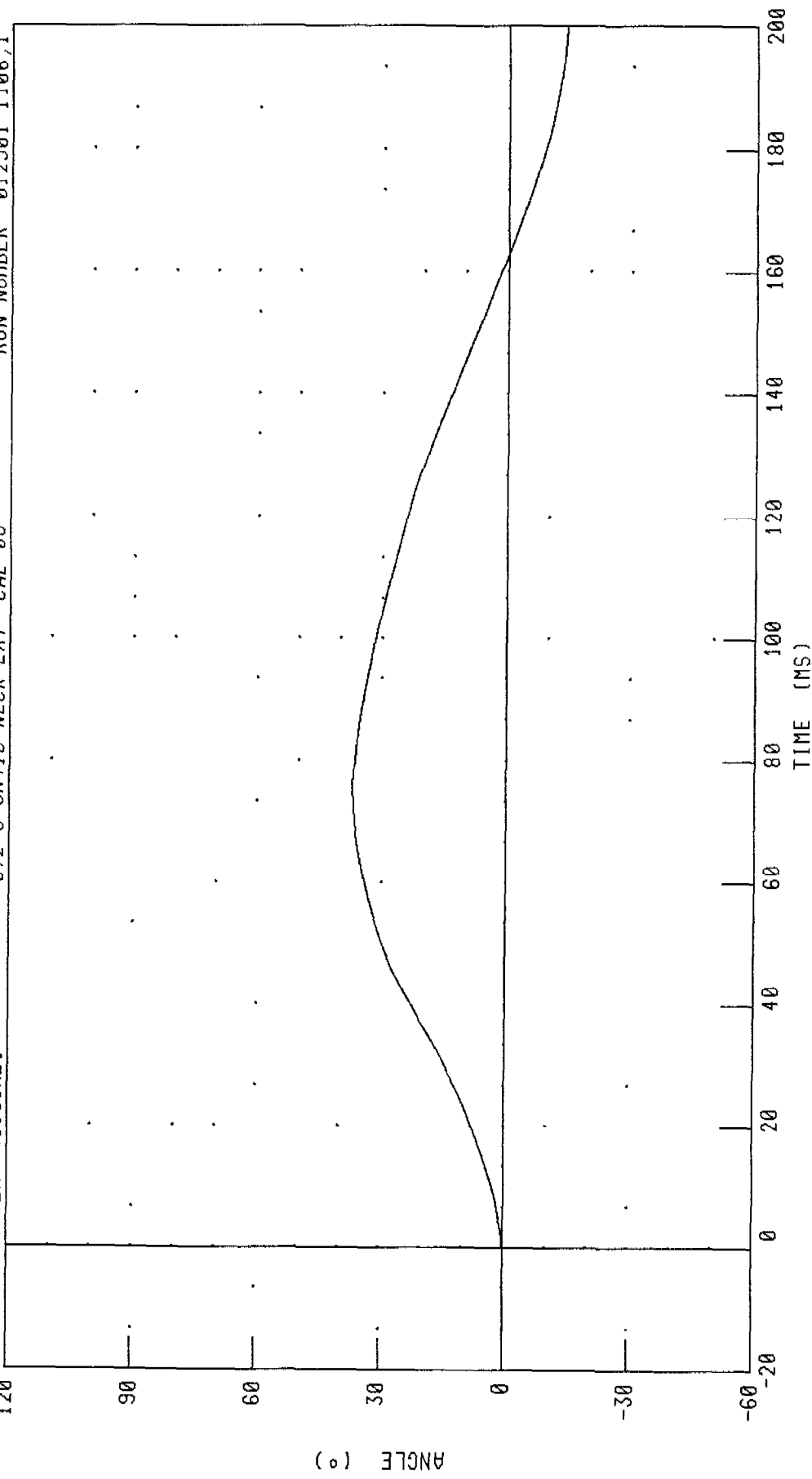


CHANNEL PENXC FILTER CH CLASS 180

PEAK DATA 22 13 C @ 1 68 MS, -3 17 C @ 46 48 MS

PART 572-0 HYBRID III SMALL FEMALE - NECK EXTENSION CALIBRATION  
ROTATION ABOUT BASE OF NECK

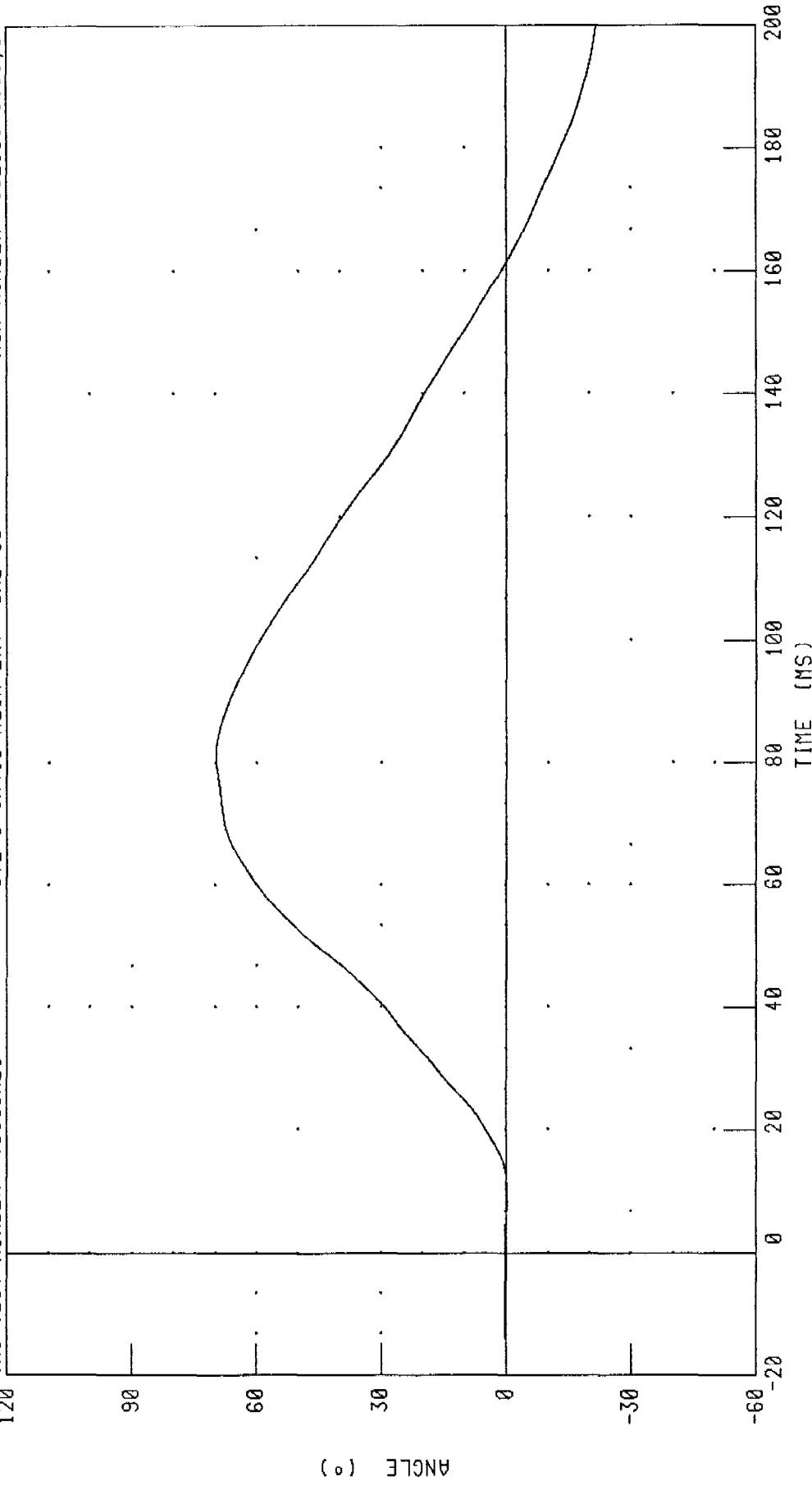
TRC TEST NUMBER 416C8NE1      572 0 SN416 NECK EXT CAL 08      RUN NUMBER 012501 1106,1



CHANNEL BETA      FILTER CH CLASS 60      PEAK DATA 36 90 ° @ 75 52 MS, -14 13 ° @ 200 00 MS

PART 572-0 HYBRID III SMALL FEMALE - NECK EXTENSION CALIBRATION  
ROTATION ABOUT OCCIPITAL CONDYLE

TRC TEST NUMBER 416C8NE1      572 0 SN416 NECK EXT CAL 08      RUN NUMBER 012501 1106.1

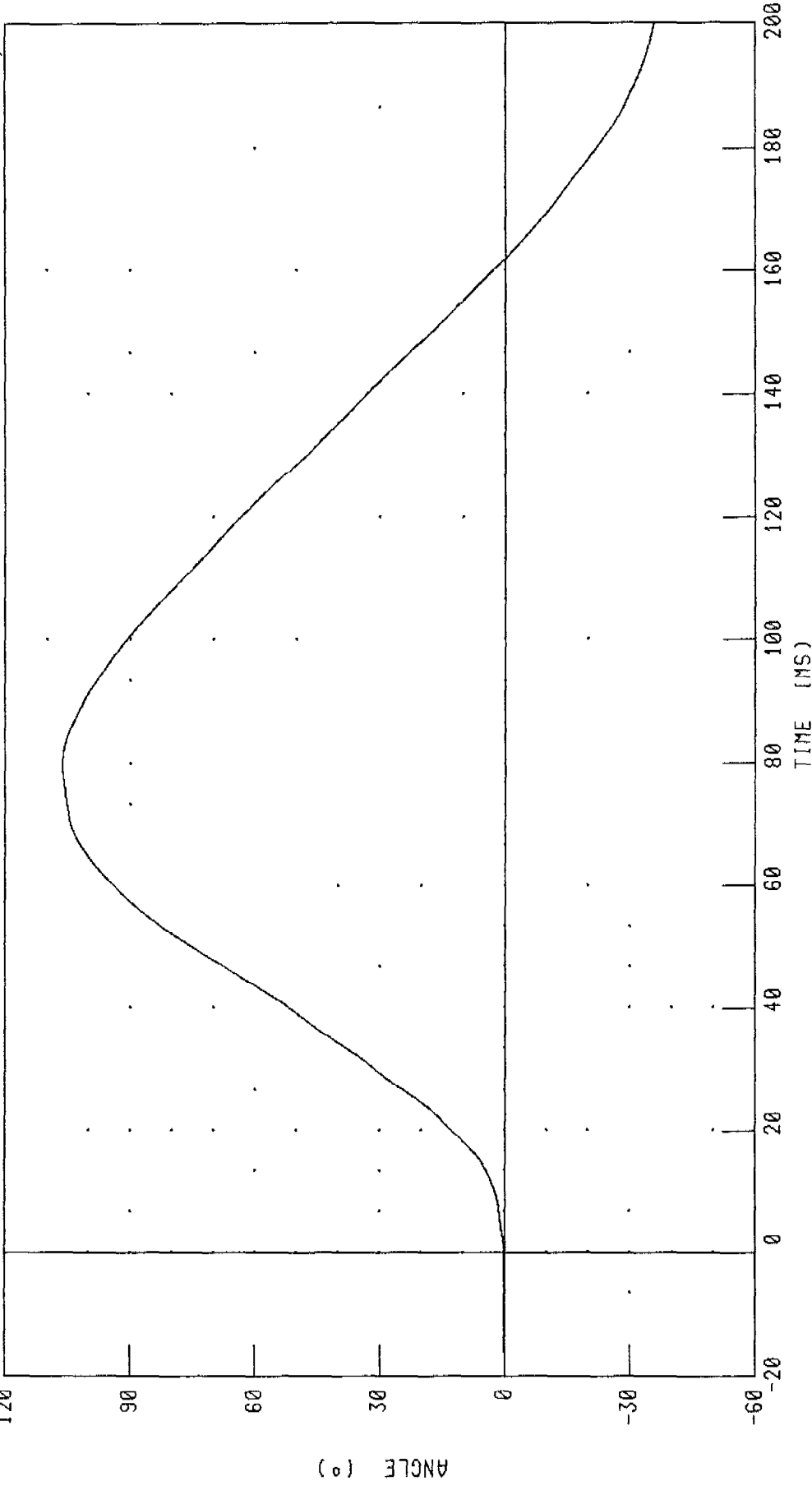


CHANNEL THETA      FILTER CH CLASS 60      PEAK DATA 69 84 ° @ 81 04 MS, -21 72 ° @ 200 00 MS

PART 572-0 HYBRID III SMALL FEMALE - NECK EXTENSION CALIBRATION

TOTAL ROTATION

TRC TEST NUMBER 416CBNE1 572 0 SN416 NECK EXT CAL 08 RUN NUMBER 012501 1106,1

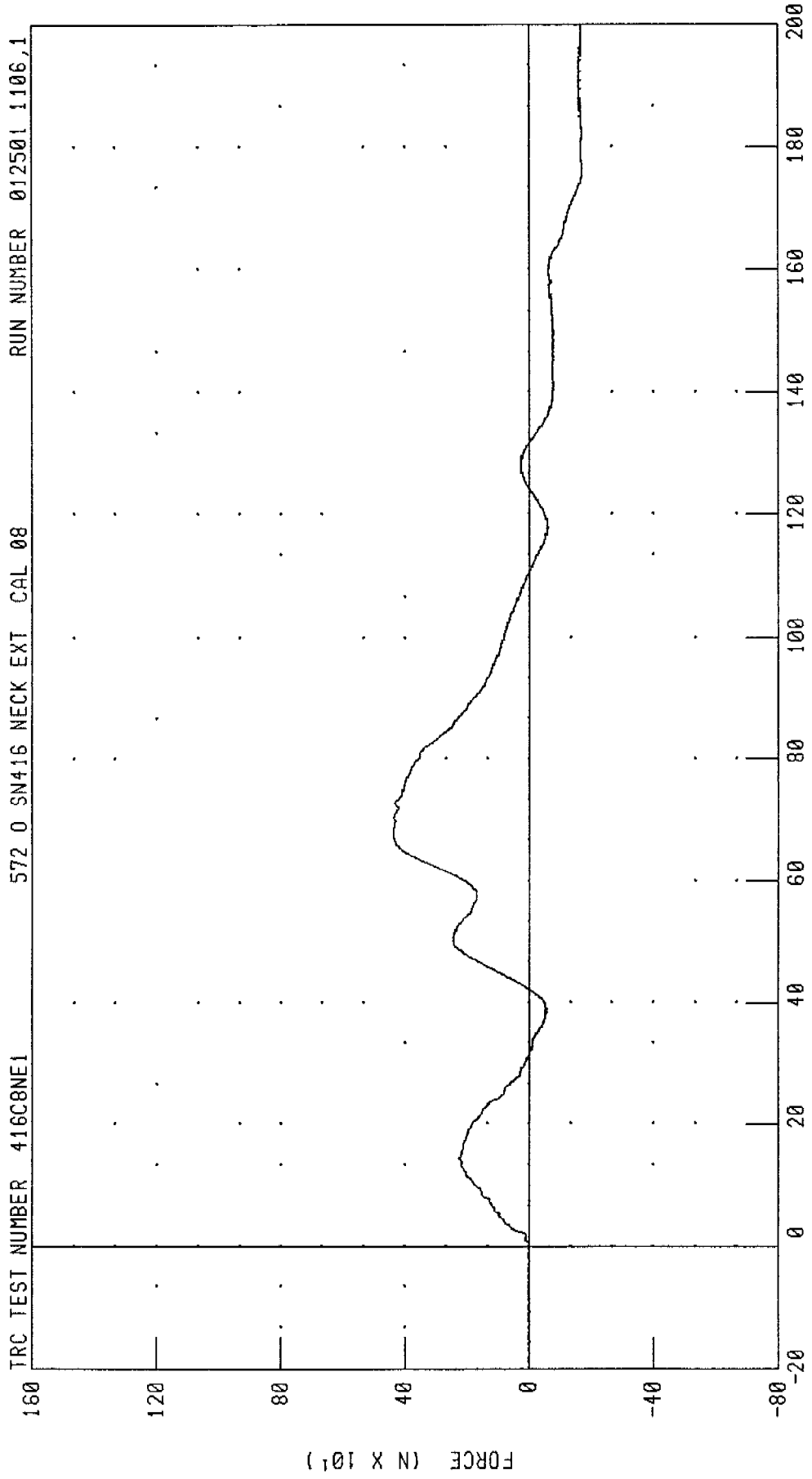


CHANNEL TOTAL FILTER CH CLASS 60 PEAK DATA 106 29 ° @ 79 76 MS, -35 86 ° @ 200 00 MS

PART 572-0 HYBRID III SMALL FEMALE - NECK EXTENSION CALIBRATION

NECK FORCE X AXIS

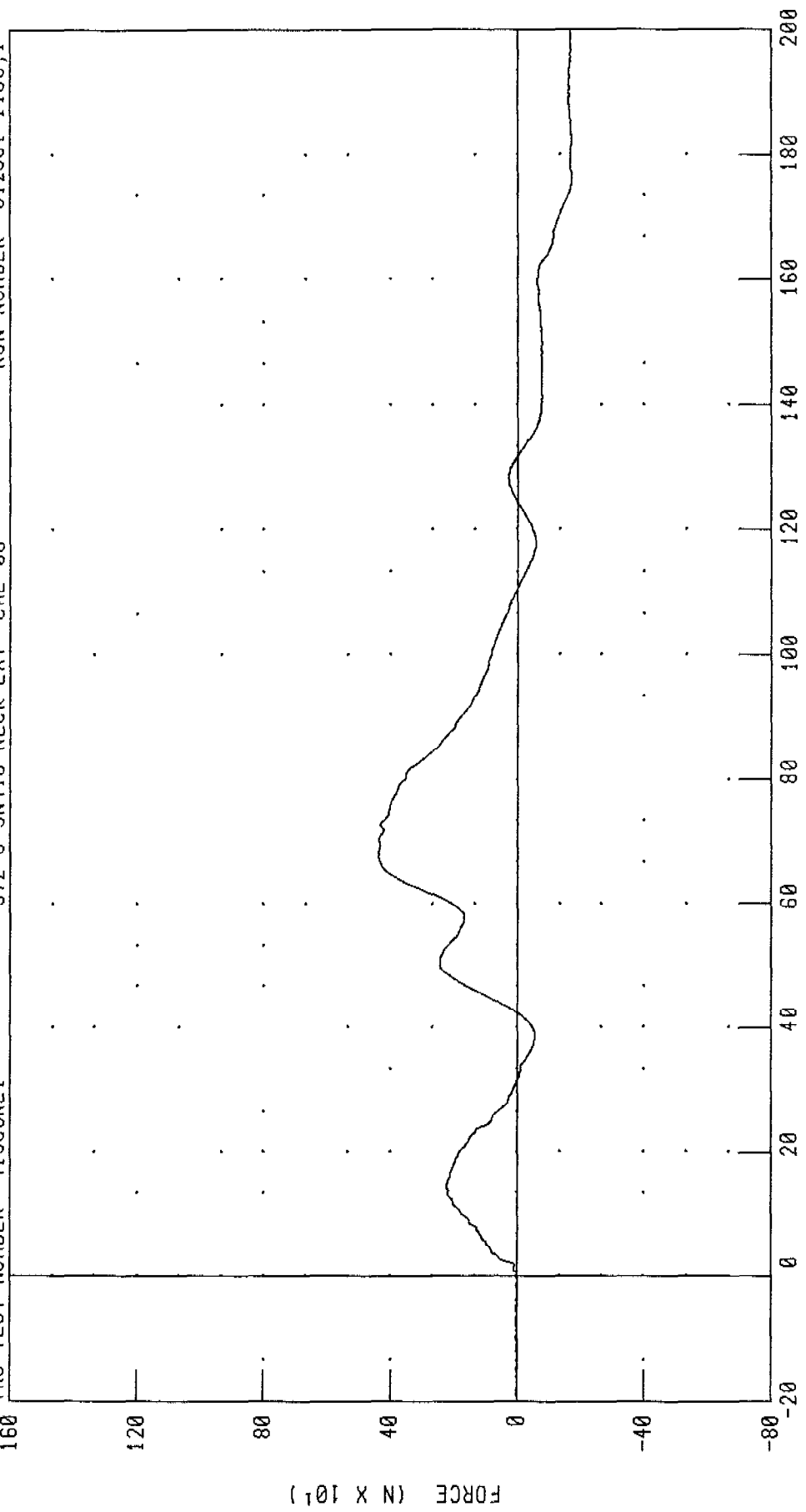
TRC TEST NUMBER 416C8NE1 572 0 SN416 NECK EXT CAL 08 RUN NUMBER 012501 1106,1



CHANNEL NEKXF FILTER CH CLASS 1000 PEAK DATA 437 49 N @ 66 96 MS, -170 43 N @ 174 88 MS

PART 572-0 HYBRID III SMALL FEMALE - NECK EXTENSION CALIBRATION  
NECK FORCE X AXIS FILTERED FOR USE IN OCCIPITAL MOMENT CALCULATION

TRC TEST NUMBER 416C8NE1 572 0 SN416 NECK EXT CAL 08 RUN NUMBER 012501 1106,1

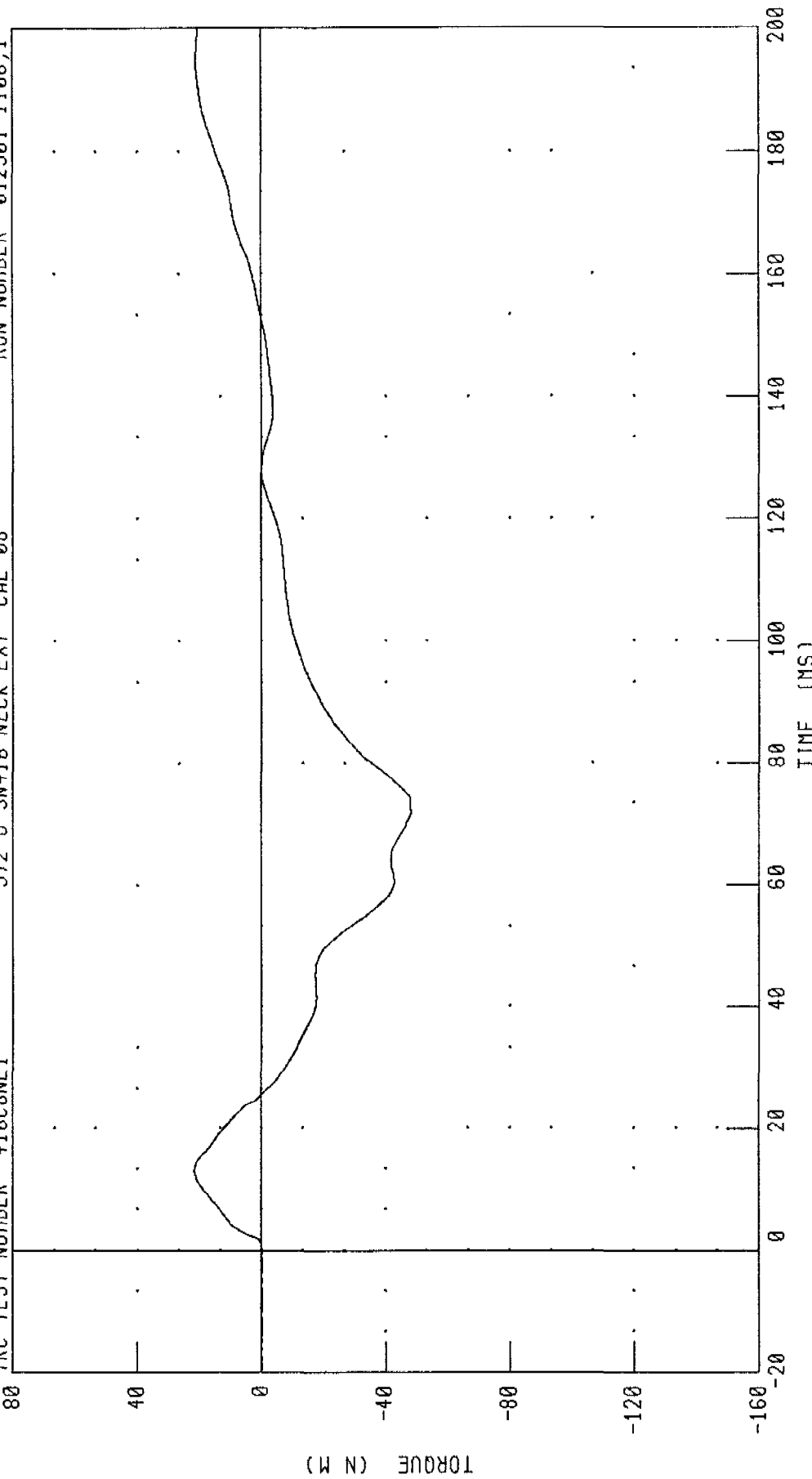


CHANNEL NEXXFC FILTER CH CLASS 600 PEAK DATA 437 65 N @ 68 32 MS, -170 57 N @ 177 04 MS

PART 572-0 HYBRID III SMALL FEMALE - NECK EXTENSION CALIBRATION

NECK MOMENT Y AXIS

TRC TEST NUMBER 416C8NE1 572 0 SN416 NECK EXT CAL 08 RUN NUMBER 012501 1106,1

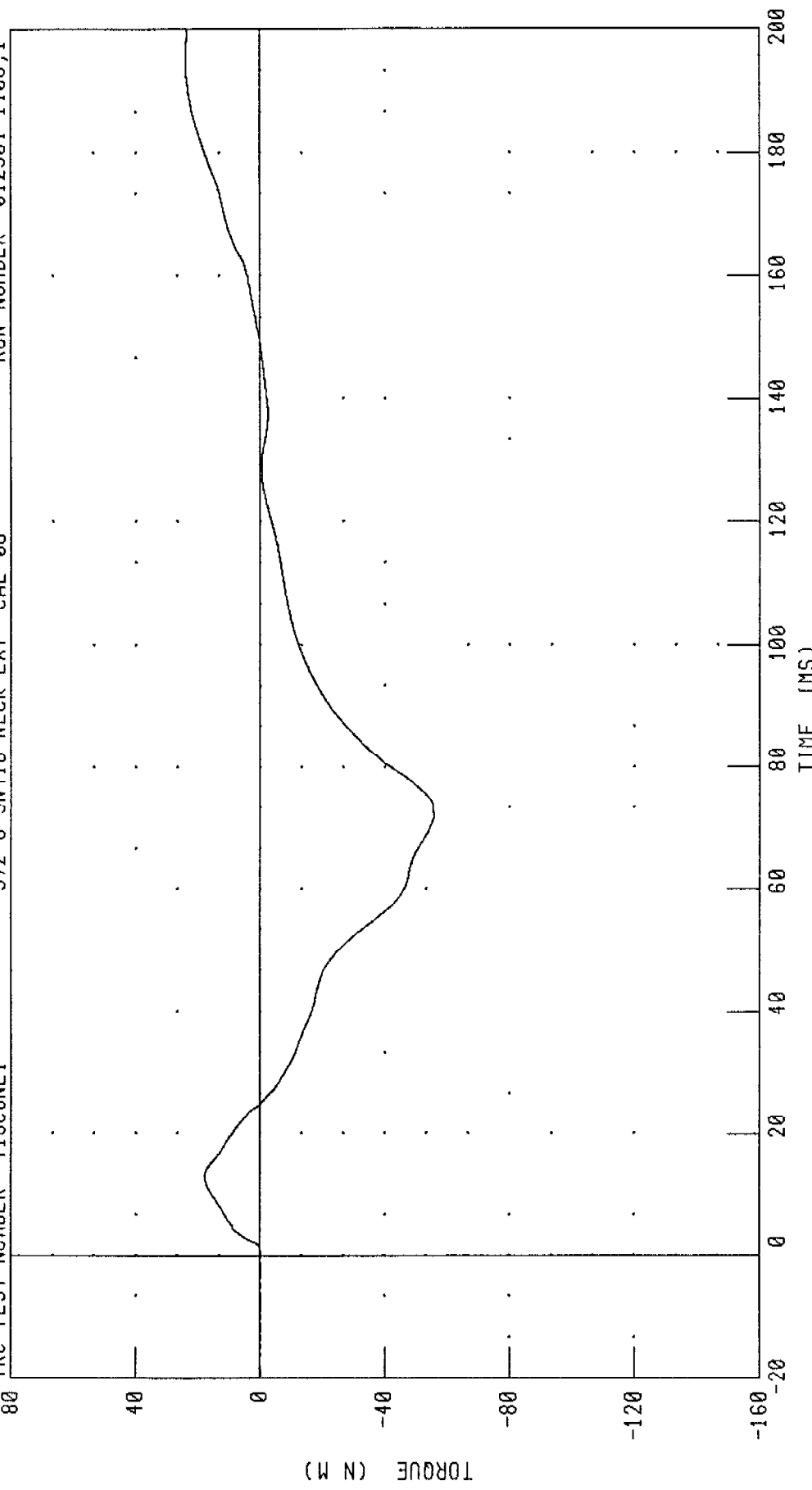


CHANNEL NEKYH FILTER CH CLASS 600 PEAK DATA 21 72 N M @ 13 04 MS, -48 21 N M @ 71 92 MS

PART 572-0 HYBRID III SMALL FEMALE - NECK EXTENSION CALIBRATION

TOTAL MOMENT ABOUT OCCIPITAL CONDYLE

TRC TEST NUMBER 416C8NE1 572 0 SN416 NECK EXT CAL 08 RUN NUMBER 012501 1106,1



CHANNEL NEKOM FILTER CH CLASS 600 PEAK DATA 23 99 N M @ 195 68 MS, -55 69 N M @ 72 08 MS

TRANSPORTATION RESEARCH CENTER INC.

HYBRID III SMALL FEMALE

25-JAN-01

NECK FLEXION TEST - 6 CHANNEL TRANSDUCER

TRC INC. TEST NO: 416C8NF1 572 0 SN416 NECK FLEX. CAL08

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	20.6-22.2 DEG. C	21.7 DEG. C
RELATIVE HUMIDITY	10 - 70 %	15.0 %
IMPACT VELOCITY	6.89 - 7.13 M/S	7.13 M/S
INTEGRATED PENDULUM VELOCITY	10 MS   2.0 - 2.5 M/S	2.47 M/S
	20 MS   4.0 - 5.0 M/S	4.87 M/S
	30 MS   5.8 - 7.0 M/S	6.84 M/S
PEAK D-PLANE ROTATION	77 - 91 DEG.	79.71 DEG.
PEAK MOMENT DURING ROTATIONAL INTERVAL	69 - 83 NM	78.99 NM
POSITIVE MOMENT DECAY TIME TO 10 NM	80 - 100 MS	86.00 MS

TEST MEETS SPECIFICATIONS

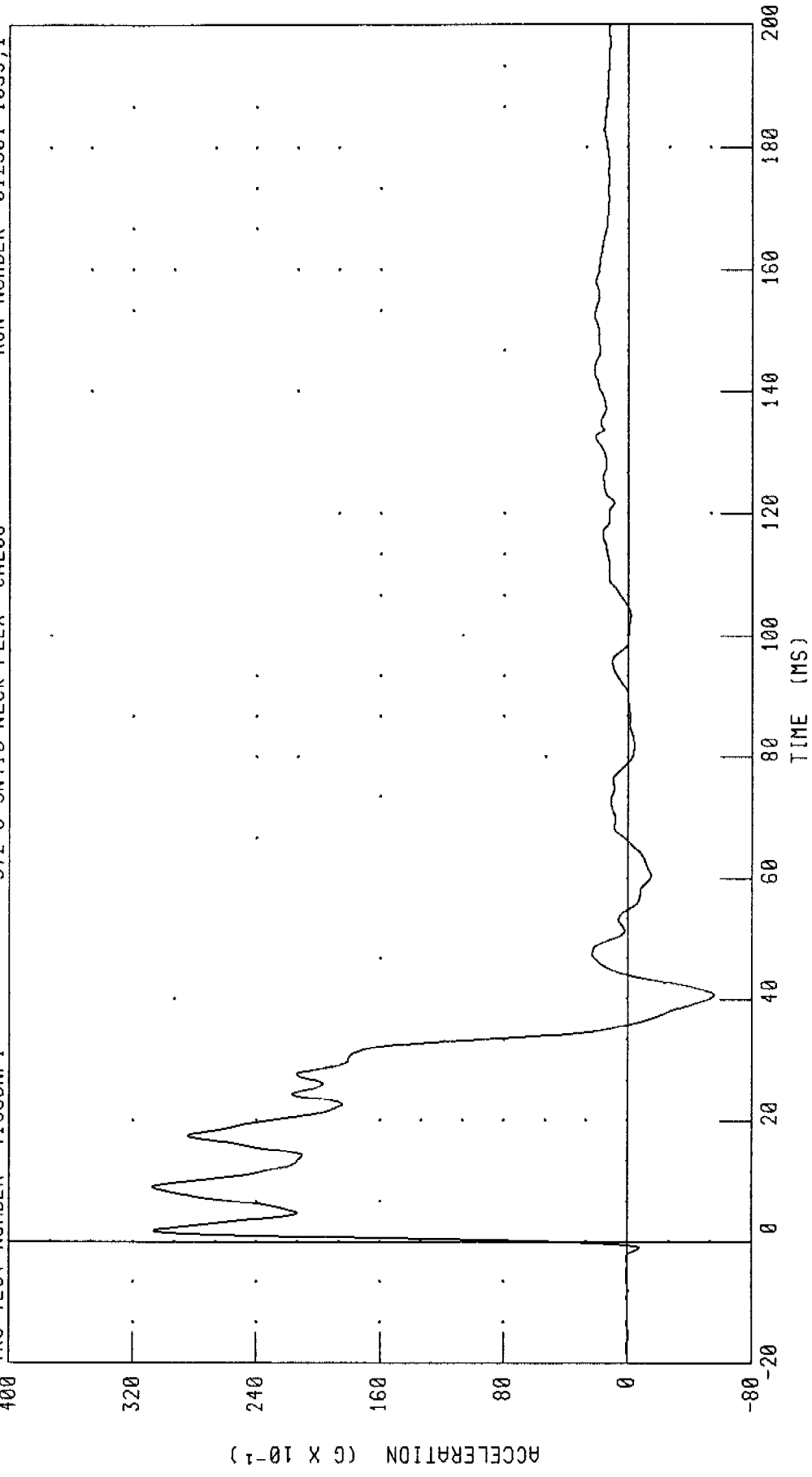
TECHNICIAN 

RUN NUMBER: 012501.1024;1

PART 572-0 HYBRID III SMALL FEMALE - NECK FLEXION CALIBRATION

PENDULUM DECELERATION

TRC TEST NUMBER 416C8NF1 572 0 SN416 NECK FLEX CAL08 RUN NUMBER 012501 1033,1



CHANNEL PENXC FILTER CH CLASS 180 PEAK DATA 30 72 G @ 9 12 MS, -5 57 G @ 40 72 MS

PART 572-0 HYBRID III SMALL FEMALE - NECK FLEXION CALIBRATION

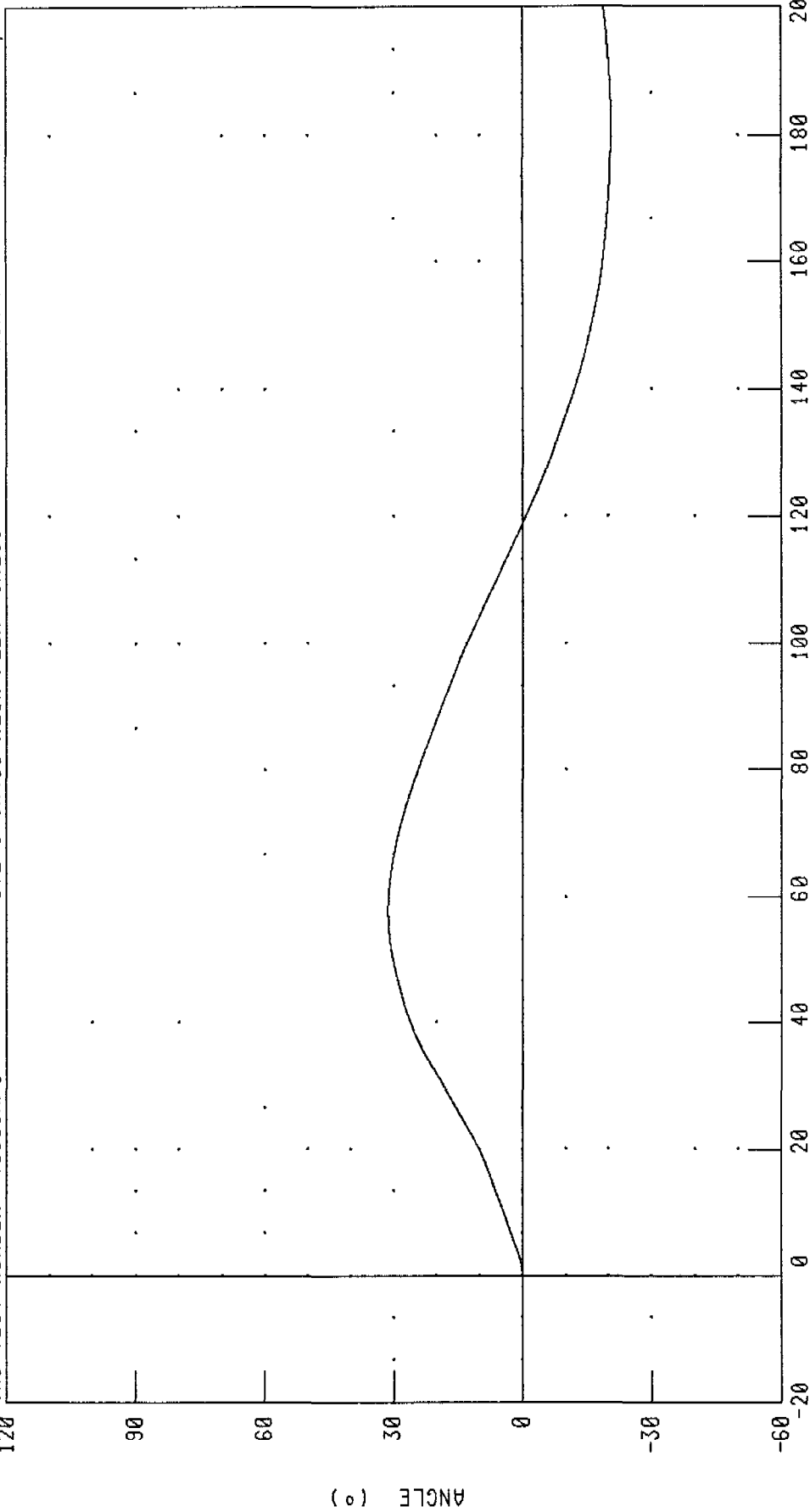
ROTATION ABOUT BASE OF NECK

TRC TEST NUMBER 416C8NF1

572 0 SN416 NECK FLEX CAL08

RUN NUMBER 012501 1033,1

120



TIME (MS)

PEAK DATA 31 31 ° @ 57 92 MS, -20 64 ° @ 182 08 MS

CHANNEL BETA FILTER CH CLASS 60

200

180

160

140

120

100

80

60

40

20

0

-20

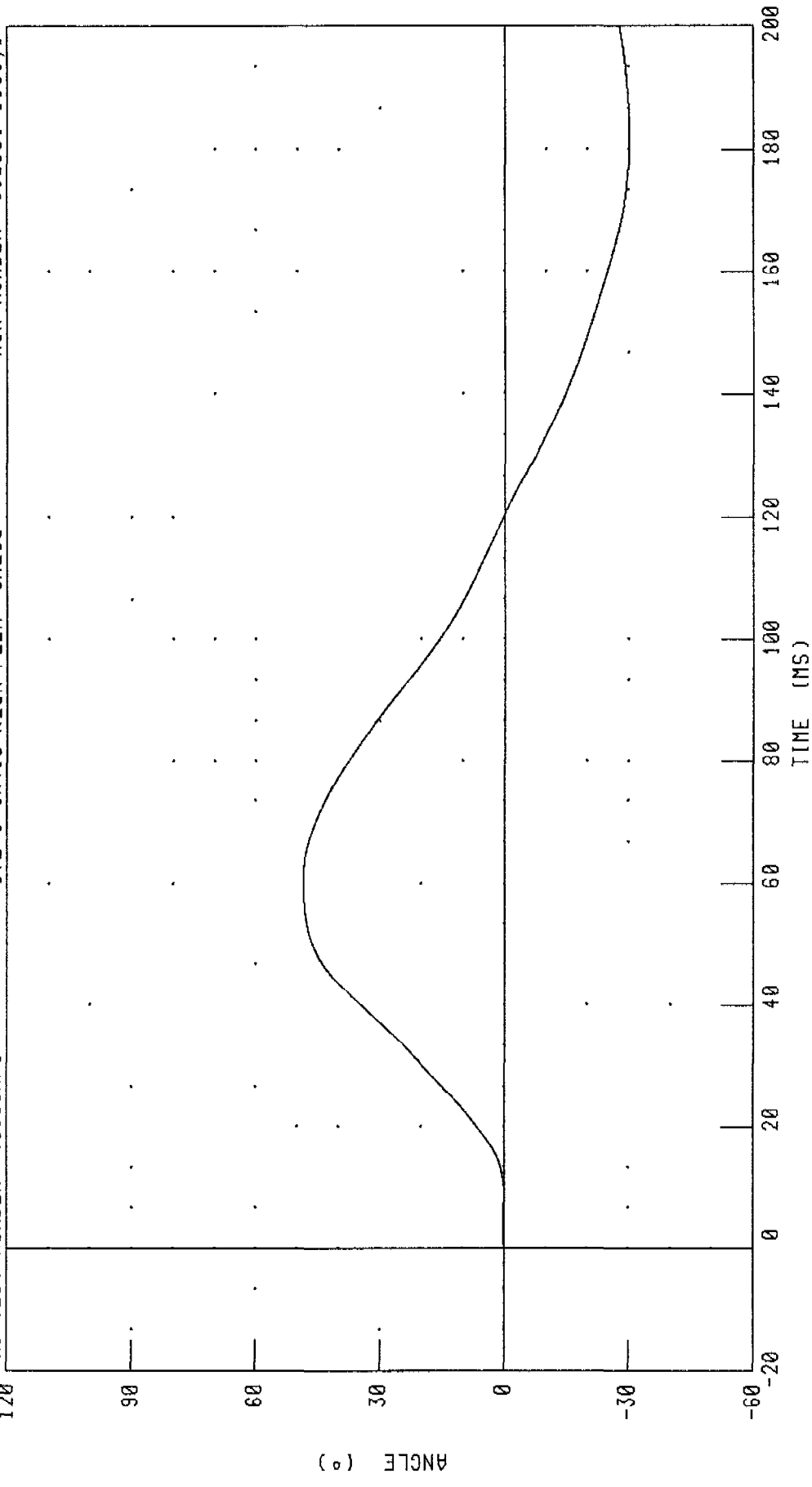
-60

ANGLE (°)

PART 572-0 HYBRID III SMALL FEMALE - NECK FLEXION CALIBRATION

ROTATION ABOUT OCCIPITAL CONDYLE

TRC TEST NUMBER 416C8NF1 572 0 SM416 NECK FLEX CAL08 RUN NUMBER 012501 1033,1

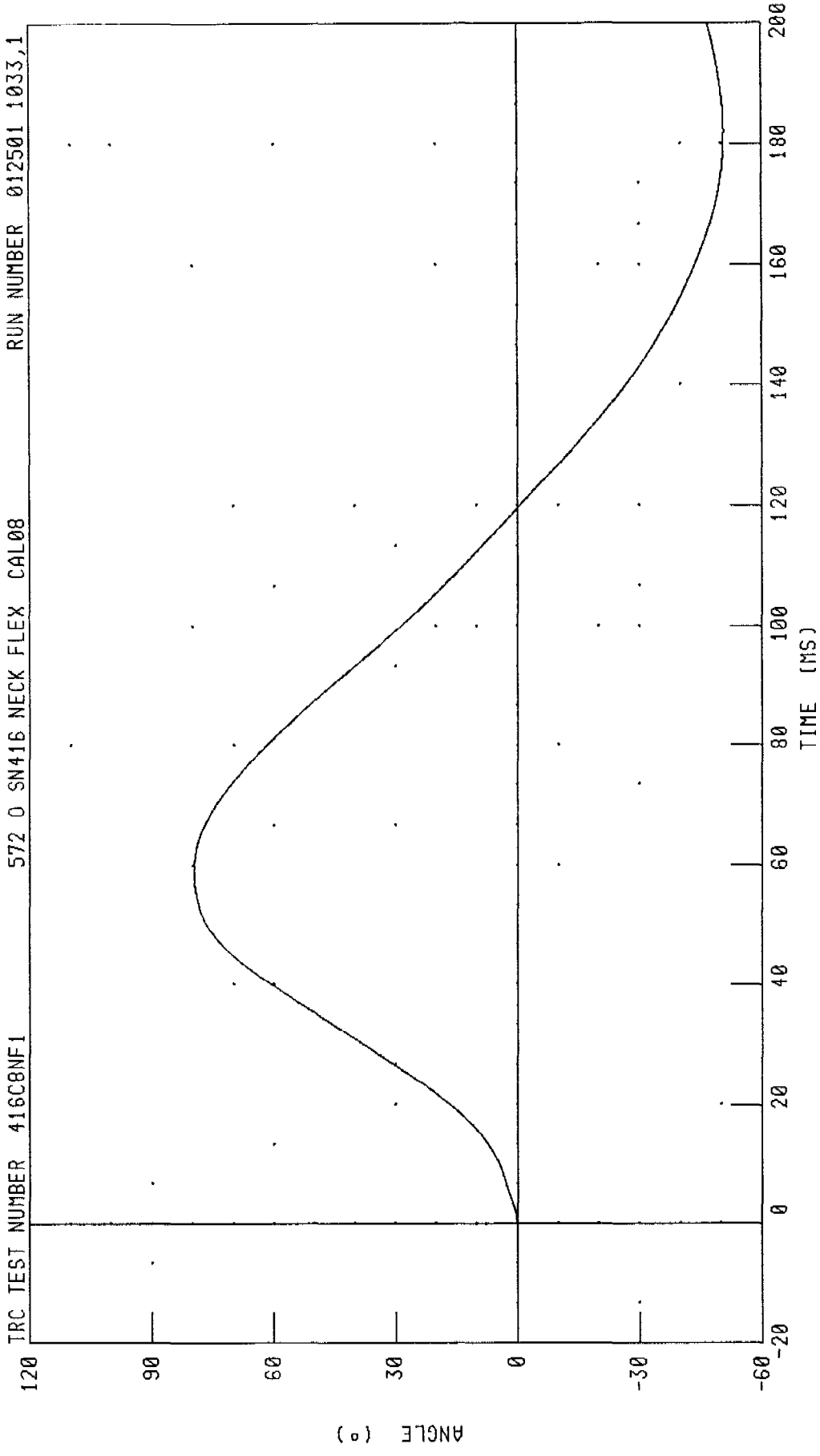


CHANNEL THEIA FILTER CH CLASS 60 PEAK DATA 48 44 ° @ 60 24 MS, -30 12 ° @ 182 00 MS

PART 572-0 HYBRID III SMALL FEMALE - NECK FLEXION CALIBRATION

TOTAL ROTATION

TRC TEST NUMBER 416C8NF1 572 0 SN416 NECK FLEX CAL08 RUN NUMBER 012501 1033,1

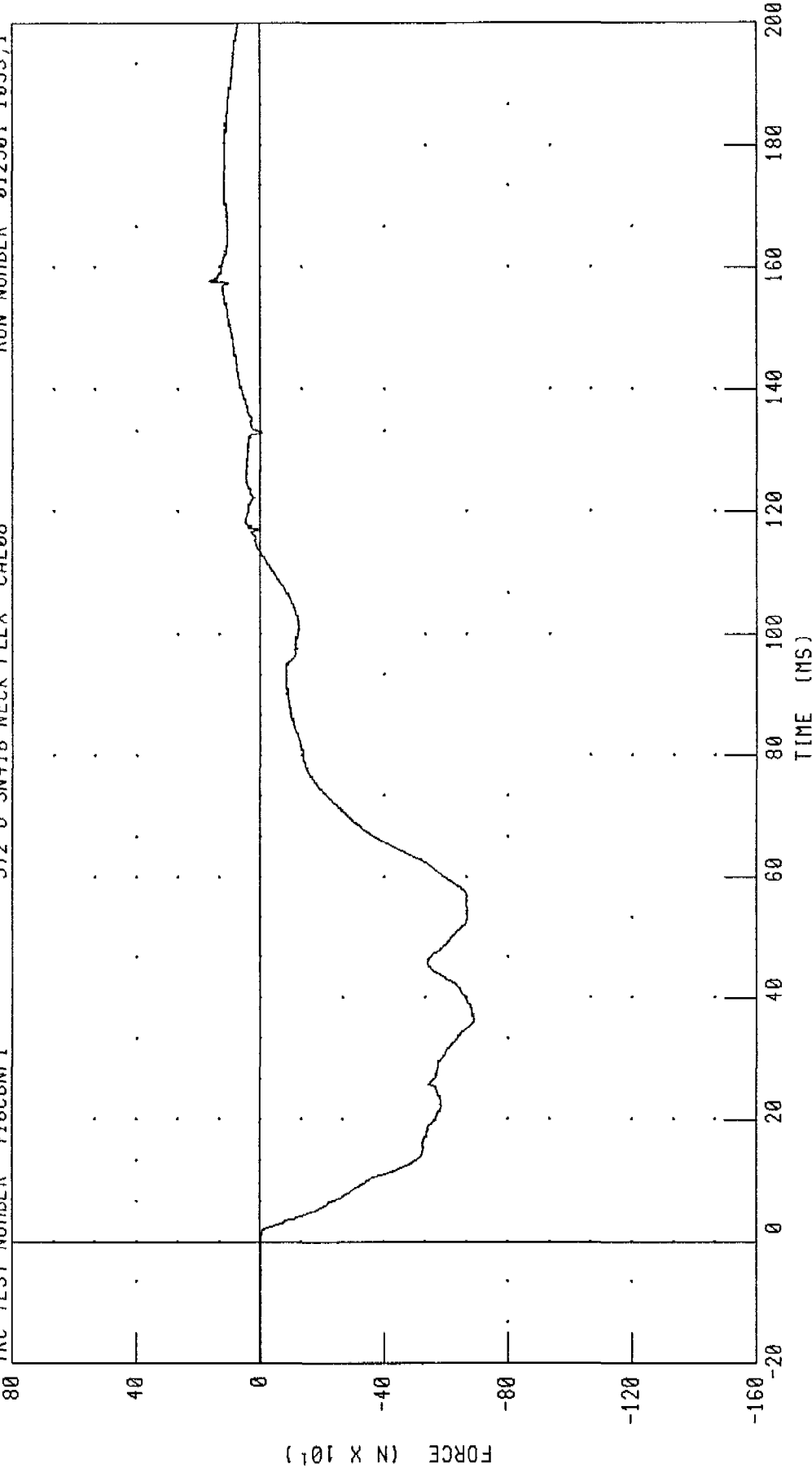


CHANNEL TOTAN FILTER CH CLASS 60 PEAK DATA 79 71 ° @ 58 64 MS, -50 75 ° @ 182 08 MS

PART 572-0 HYBRID III SMALL FEMALE - NECK FLEXION CALIBRATION

NECK FORCE X AXIS

TRC TEST NUMBER 416C8NF1 572 0 SN416 NECK FLEX CAL08 RUN NUMBER 012501 1033,1

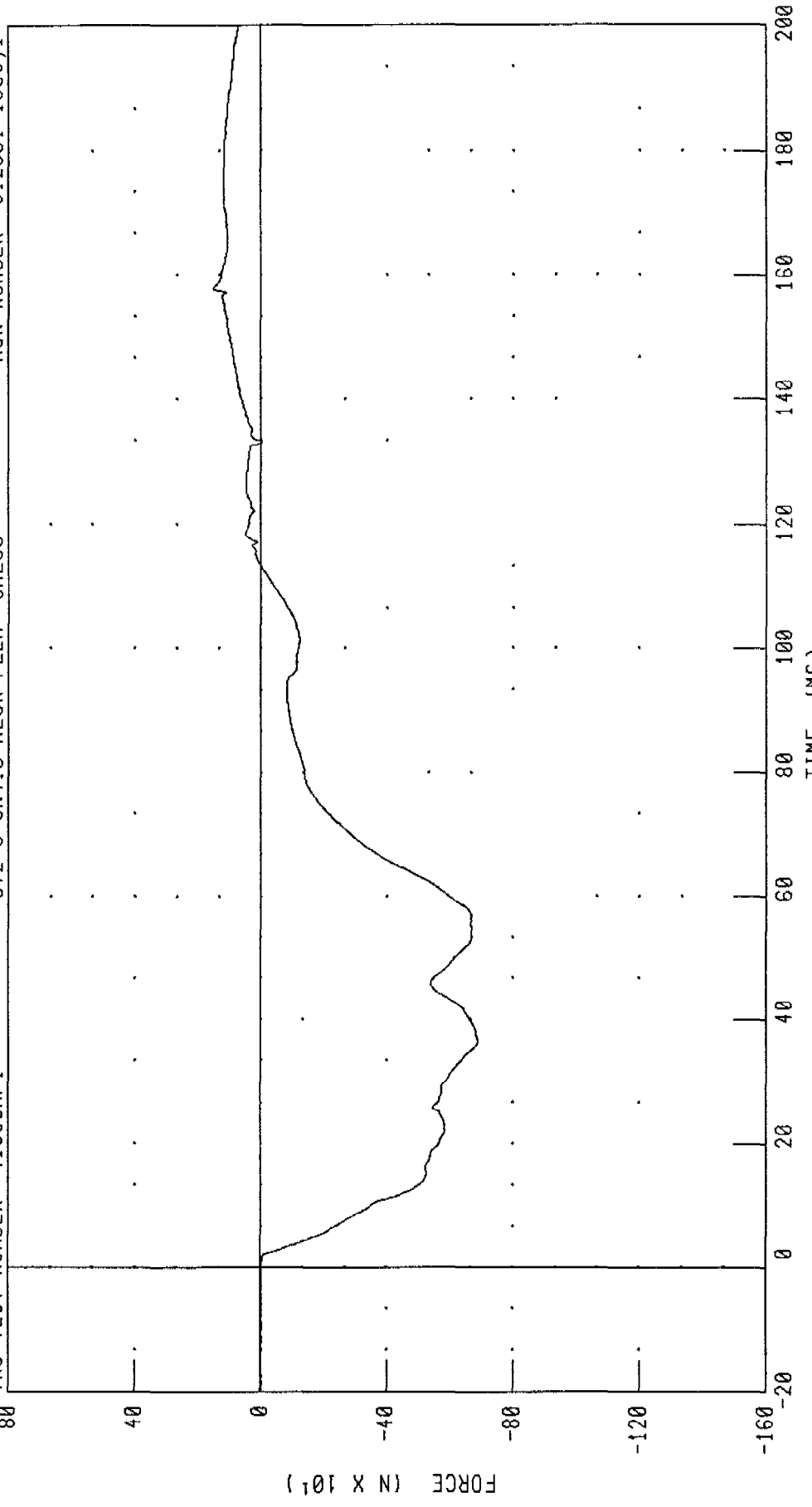


CHANNEL NEKXF FILTER CH CLASS 1000

PEAK DATA 163 13 N @ 157 52 MS, -692 30 N @ 36 48 MS

PART 572-0 HYBRID III SMALL FEMALE - NECK FLEXION CALIBRATION  
NECK FORCE X AXIS FILTERED FOR USE IN OCCIPITAL MOMENT CALCULATION

TRC TEST NUMBER 416C8NF1 572 0 SN416 NECK FLEX CAL08 RUN NUMBER 012501 1033,1

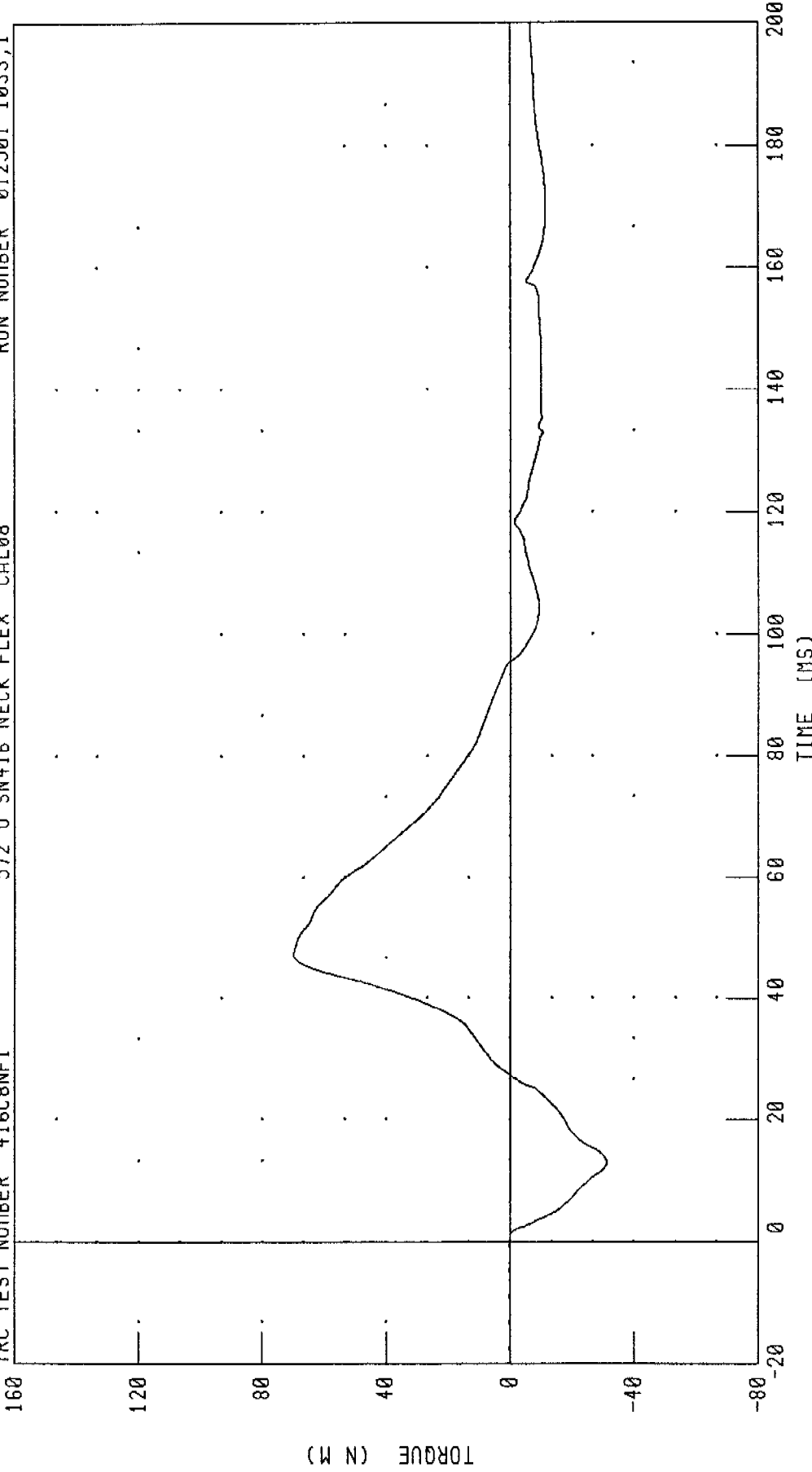


CHANNEL NEKXFC FILTER CH CLASS 600 PEAK DATA 151 90 N @ 157 68 MS, -689 07 N @ 36 48 MS

PART 572-0 HYBRID III SMALL FEMALE - NECK FLEXION CALIBRATION

NECK MOMENT Y AXIS

TRC TEST NUMBER 416C8NF1 572 0 SN416 NECK FLEX CAL08 RUN NUMBER 012501 1033,1



CHANNEL NEKYM FILTER CH CLASS 600 PEAK DATA 69 96 N M @ 47 28 MS, -31 19 N M @ 13 04 MS

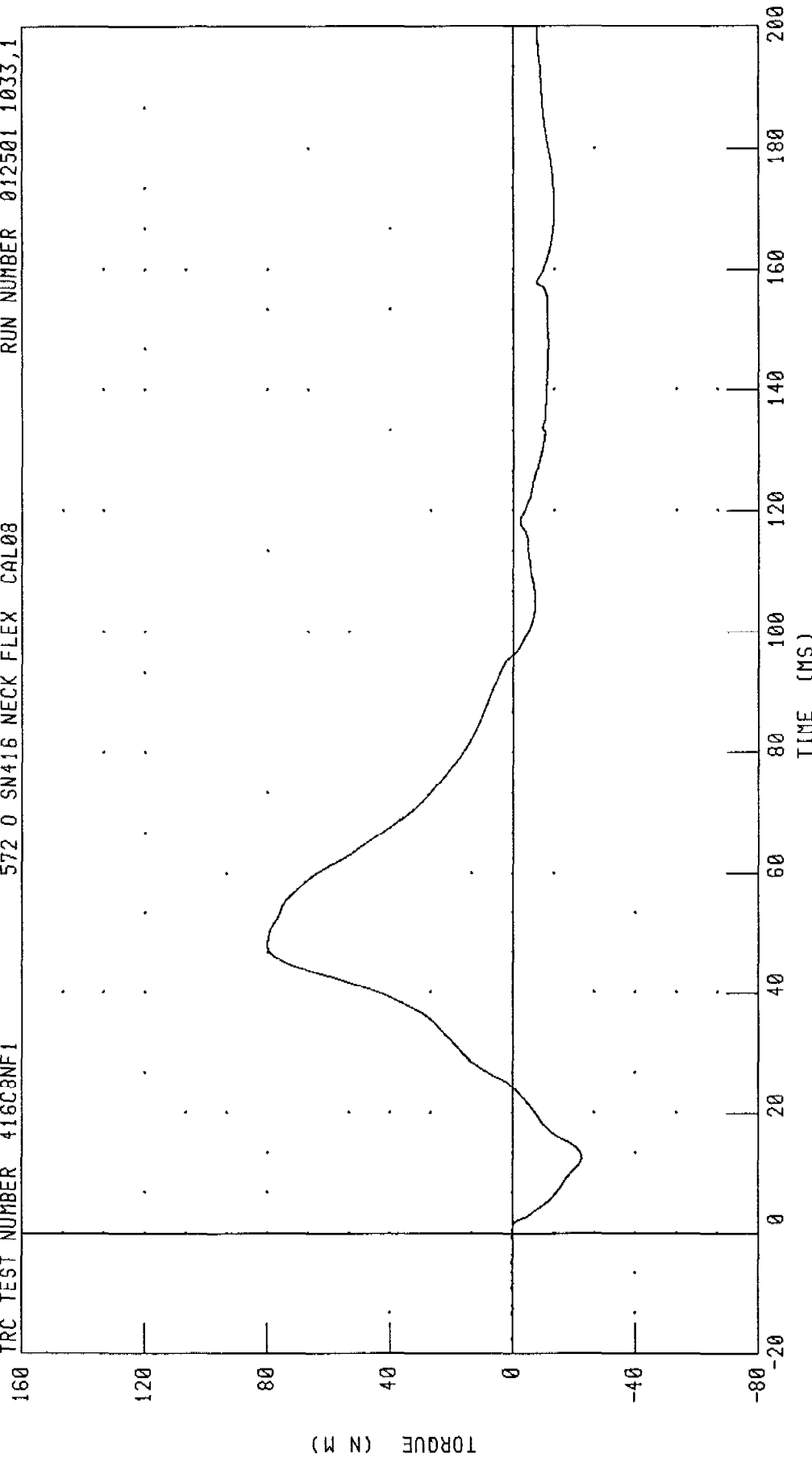
PART 572-0 HYBRID III SMALL FEMALE - NECK FLEXION CALIBRATION

TOTAL MOMENT ABOUT OCCIPITAL CONDYLE

TRC TEST NUMBER 416C3NF1

572 0 SN416 NECK FLEX CAL08

RUN NUMBER 012501 1033,1



CHANNEL NEKOM FILTER CH CLASS 600

PEAK DATA 80 07 N M @ 48 16 MS, -22 64 N M @ 12 48 MS

TRANSPORTATION RESEARCH CENTER INC.

THORAX IMPACT TEST

HYBRID III SMALL FEMALE

26-JAN-01

TRC INC.

TEST NO: 416C8TH6

572 0 SN416 THORAX CAL08

TEST PARAMETER	HIGH SPEED TEST SPECIFICATION	TEST RESULTS
TEMPERATURE	20.6-22.2 DEG. C	21.7 DEG. C
RELATIVE HUMIDITY	10 - 70 %	14.0 %
PENDULUM VELOCITY	6.59 - 6.83 M/S	6.59 M/S
MAXIMUM DEFLECTION	50 - 58 MM	53.4 MM
PEAK RESISTIVE FORCE DURING DEFLECTION INTERVAL	3900 - 4400 N	4343. N
PEAK FORCE DURING 18 MM TO 50 MM DEFLECTION	<= 105%	104 %
INTERNAL HYSTERESIS	69% - 85%	73.1%

TEST MEETS SPECIFICATIONS

TECHNICIAN

*J.C. Mills*

RUN NUMBER: 012601.1518;2

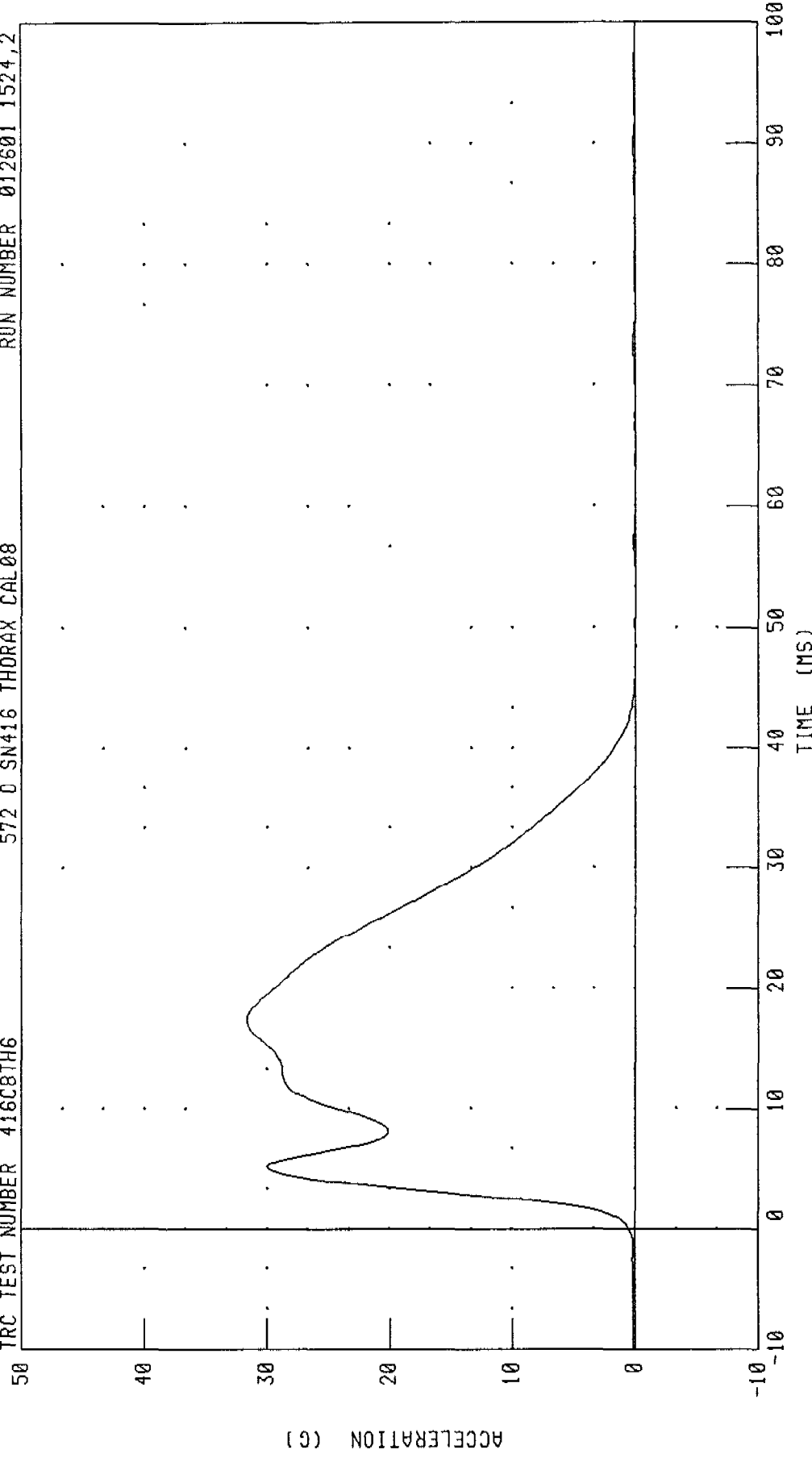
PART 572-0 HYBRID III SMALL FEMALE - THORAX CALIBRATION

PENDULUM DECELERATION

TRC TEST NUMBER 416C8TH6

572 0 SN#16 THORAX CAL08

RUN NUMBER 012601 1524,2



CHANNEL PENXC FILTER CH CLASS 180 PEAK DATA 31 65 G @ 17 52 MS, -0 07 G @ 48 48 MS

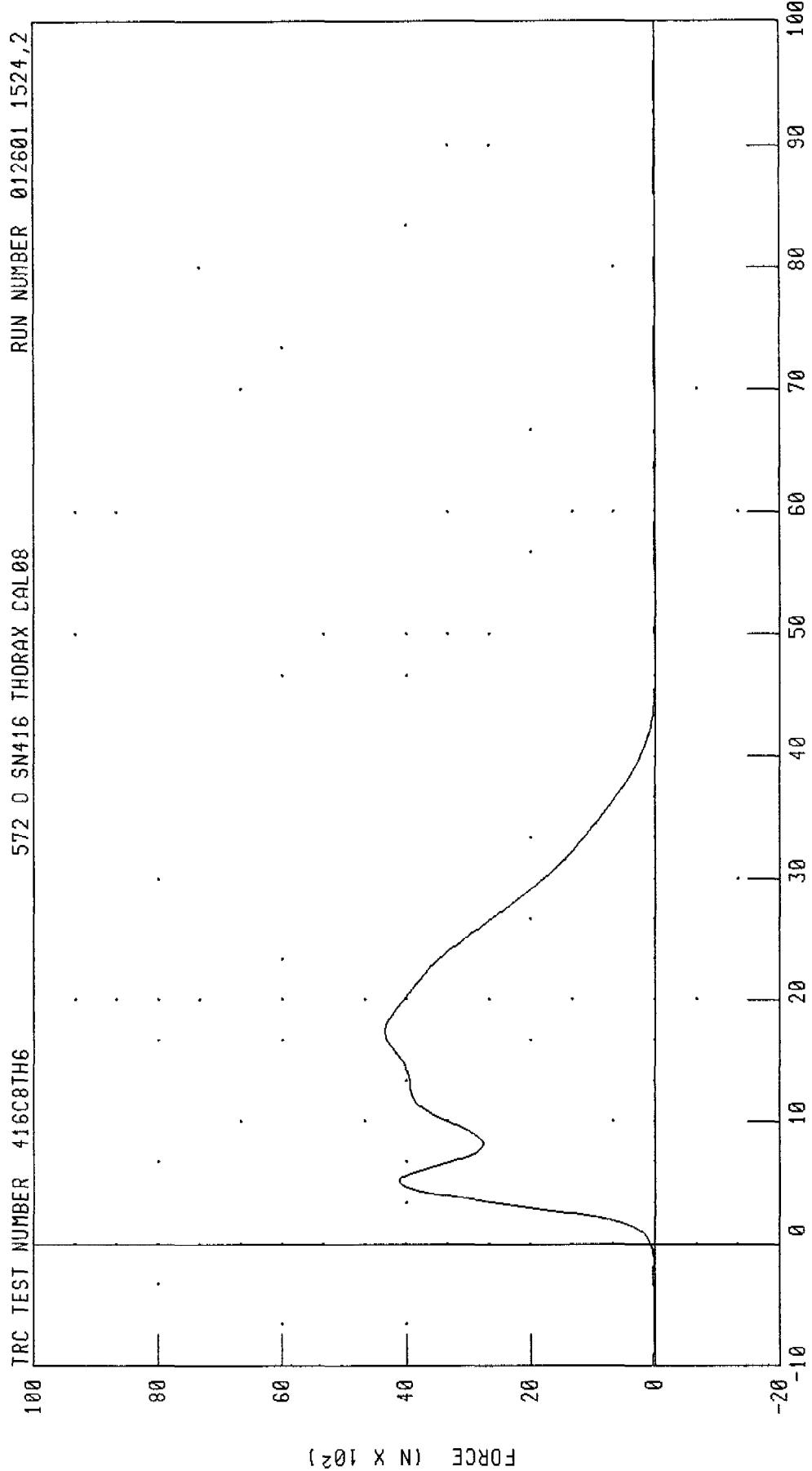
PART 572-0 HYBRID III SMALL FEMALE - THORAX CALIBRATION

PENDULUM FORCE

TRC TEST NUMBER 416C8TH6

572 0 SN416 THORAX CAL08

RUN NUMBER 012601 1524,2



CHANNEL PENXF FILTER CH CLASS 180 PEAK DATA 4343 77 N @ 17 52 MS, -8 93 N @ 48 48 MS

PART 572-0 HYBRID III SMALL FEMALE - THORAX CALIBRATION

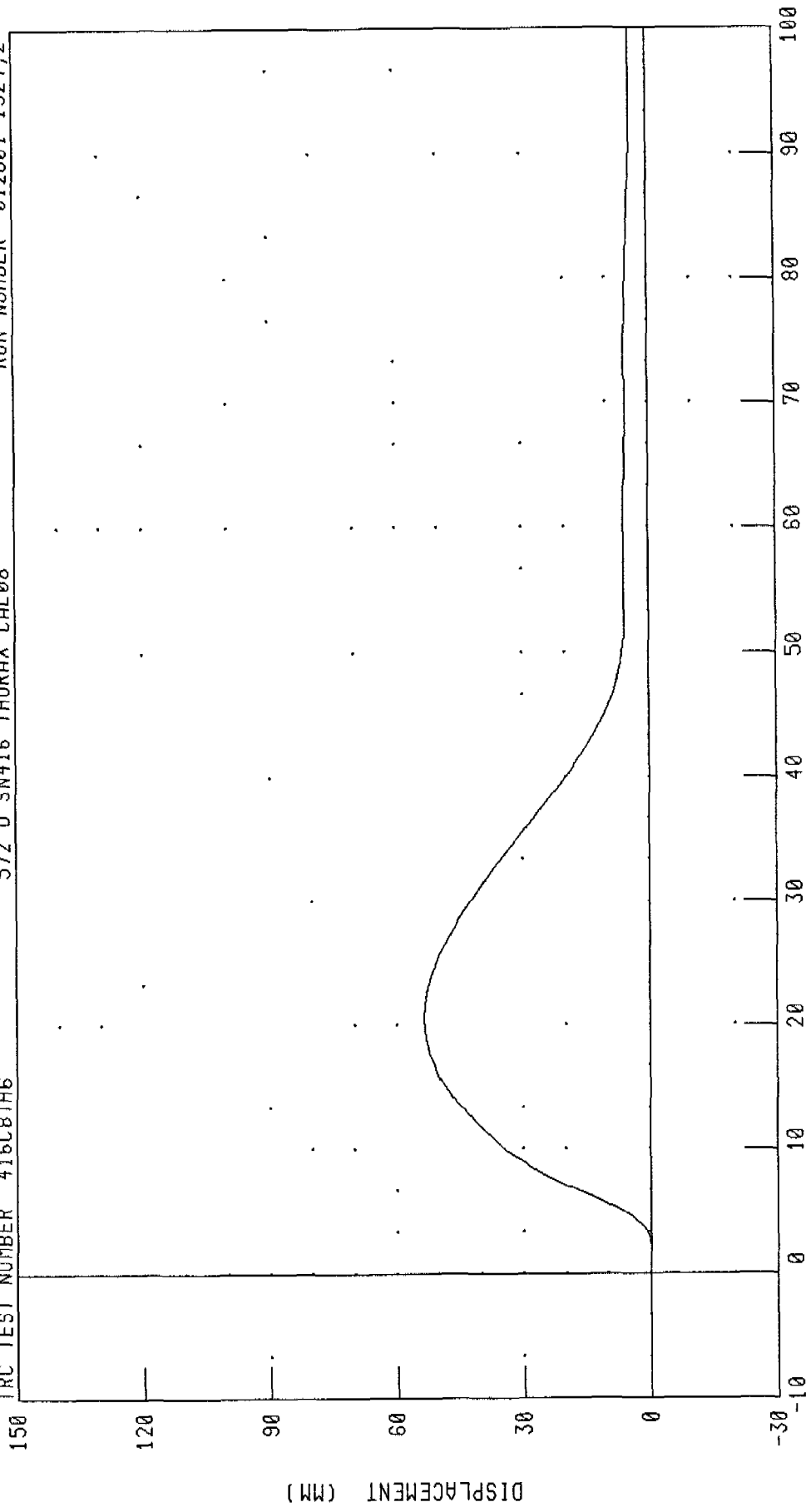
STERNUM DISPLACEMENT

TRC TEST NUMBER 416CBTHG

572 0 SN416 THORAX CAL08

RUN NUMBER 012601

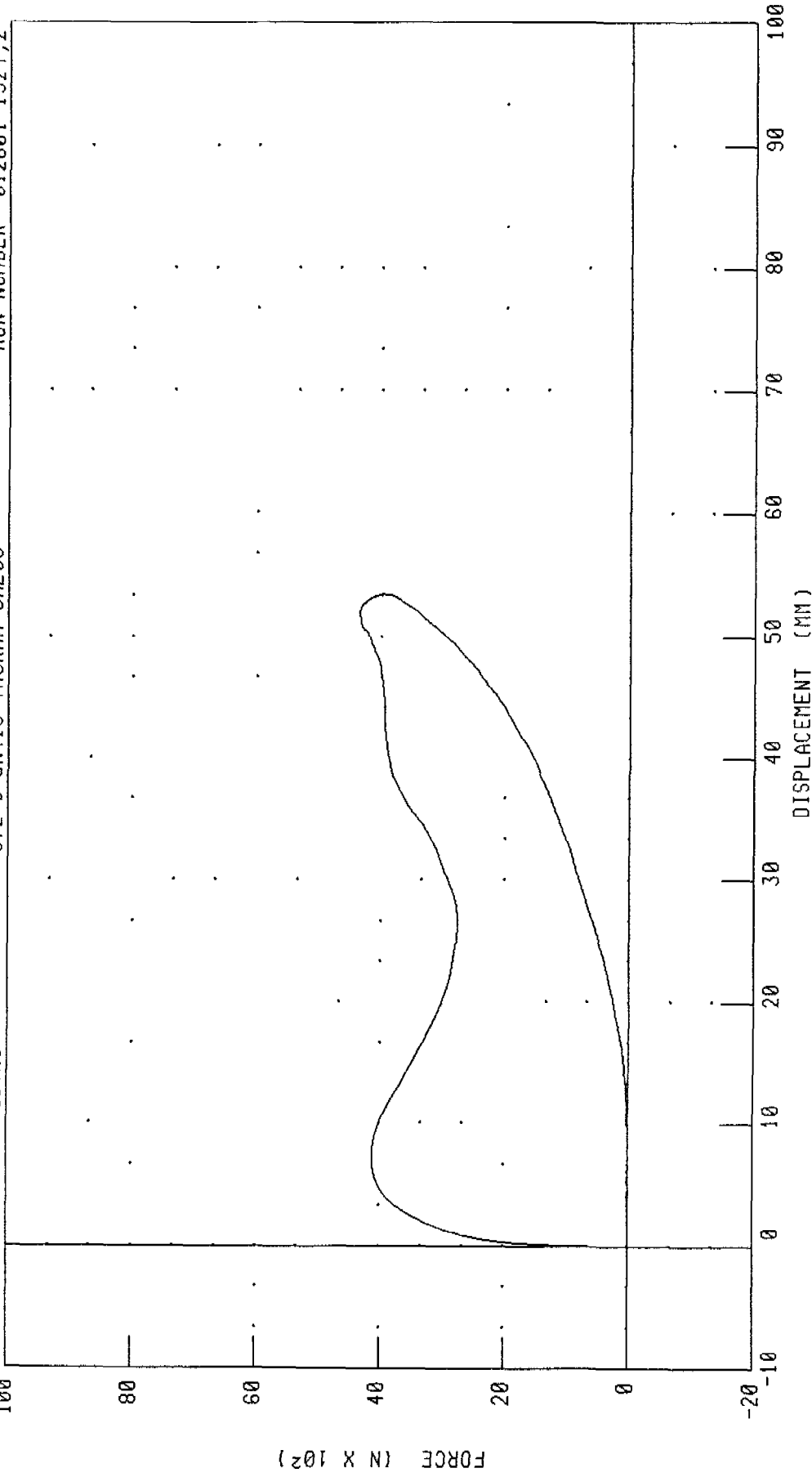
1524,2



CHANNEL CSTXD FILTER CH CLASS 600 PEAK DATA 53 45 MM @ 20 48 MS, -0 01 MM @ -5 52 MS

PART 572-0 HYBRID III SMALL FEMALE - THORAX CALIBRATION  
CHEST DISPLACEMENT VS PENDULUM FORCE

TRC TEST NUMBER 416C8TH6 572 D SN416 THORAX CAL08 RUN NUMBER 012601 1524,2



CHANNEL CSTXD CH CLASS 600 FILTER CH CH CLASS 180  
PENXF CH CLASS 180  
DISPLACEMENT (MM) PEAK DATA 53 45 MM @ 20 48 MS; -0 01 MM @ -5 52 MS  
4343 77 N @ 17 52 MS; -8 93 N @ 48 48 MS

TRANSPORTATION RESEARCH CENTER INC.

TORSO FLEXION TEST

HYBRID III SMALL FEMALE

CAL DATE: 25-JAN-01

TRC, INC. TEST NO: 416C8TF1 572 O SN416 TORSO FLEX CAL 08

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	18.9 – 25.6 DEG C	21.7 DEG C
RELATIVE HUMIDITY	10 – 70 %	15 %
INITIAL ANGLE OF UNSUPPORTTED DUMMY	<= 20 DEG REFERENCED TO VERTICAL	3 DEG
MAXIMUM FORCE AT 45 DEG DURING 10 SECOND PERIOD	320 – 390 N	347 N
RETURN ANGLE	+/- 8 DEG OF INITIAL ANGLE	9 DEG

TEST MEETS SPECIFICATIONS

TECHNICIAN Dustin Walker

TRANSPORTATION RESEARCH CENTER INC.

LEFT KNEE IMPACT TEST

HYBRID III SMALL FEMALE

25-JAN-01

TRC INC.

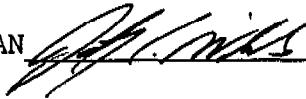
TEST NO: 416C8LK1

572 0 SN416 LEFT KNEE CAL8

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	18.9-25.6 DEG. C	21.7 DEG. C
RELATIVE HUMIDITY	10 - 70 %	15.0 %
PROBE VELOCITY	2.07 - 2.13 M/S	2.08 M/S
PEAK KNEE IMPACT FORCE 3.0 KG PENDULUM	3450 - 4060 N	3708.9 N

TEST MEETS SPECIFICATIONS

TECHNICIAN



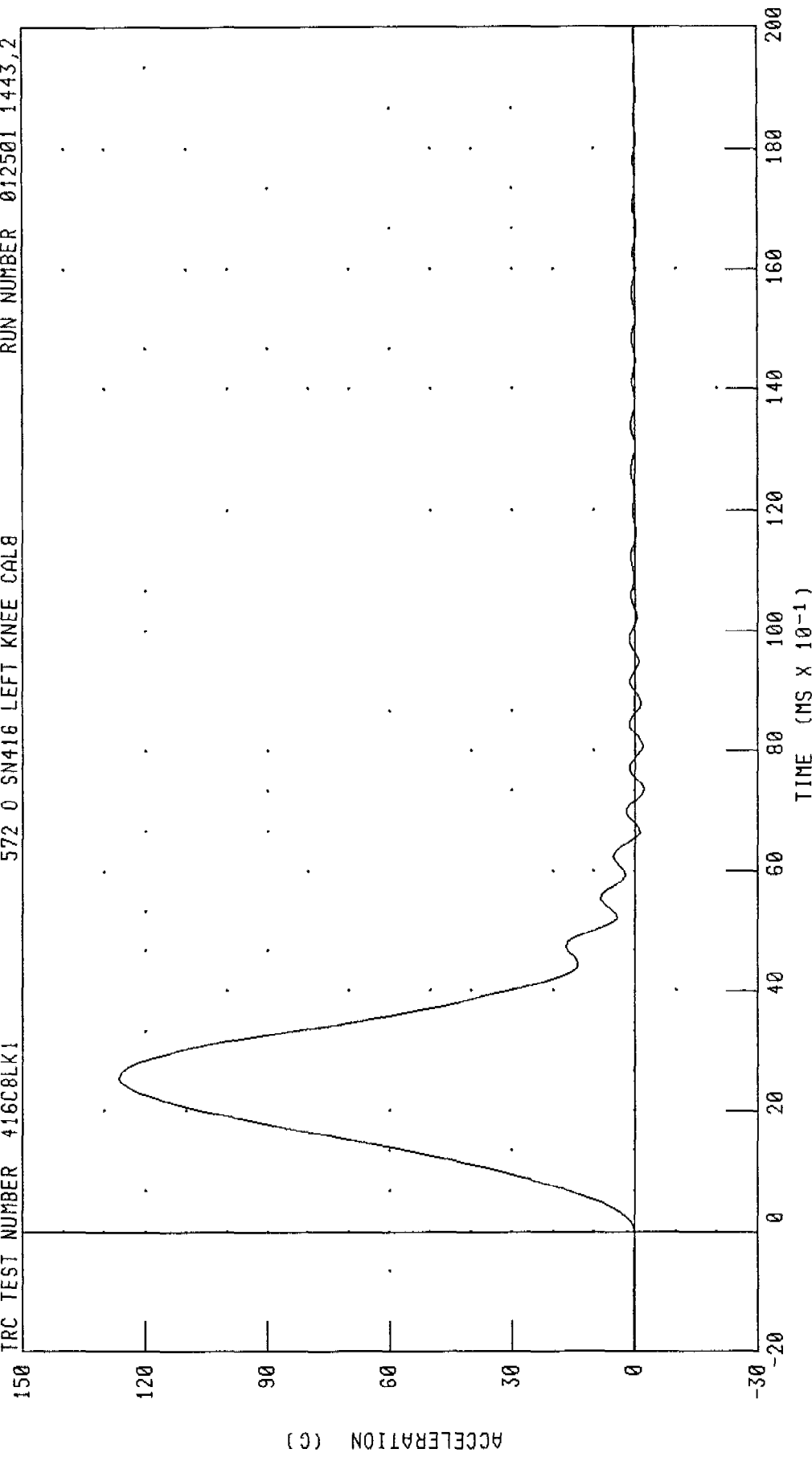
RUN NUMBER: 012501.1442;2

PART 572-0 HYBRID III SMALL FEMALE - LEFT KNEE CALIBRATION  
PENDULUM DECELERATION (5 KG PEND )

TRC TEST NUMBER 416C8LK1

572 0 SN416 LEFT KNEE CAL8

RUN NUMBER 012501 1443,2



CHANNEL PENXC FILTER CH CLASS 600 PEAK DATA 126 34 G @ 2 56 MS, -2 24 G @ 7 36 MS

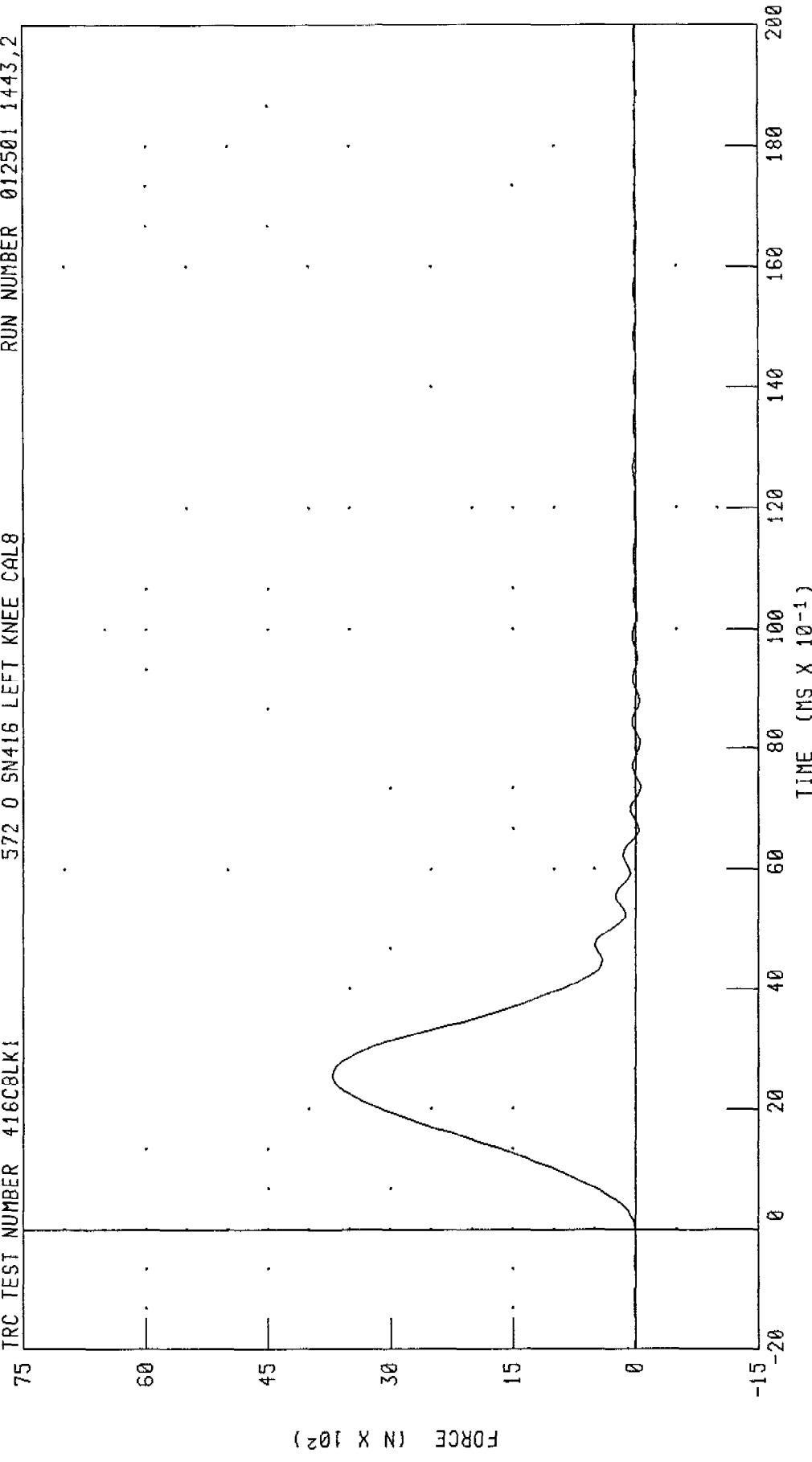
PART 572-0 HYBRID III SMALL FEMALE - LEFT KNEE CALIBRATION

PENDULUM FORCE (5 KG PEND )

572 0 SN416 LEFT KNEE CAL8

TRC TEST NUMBER 416CBLK1

RUN NUMBER 012501 1443,2



CHANNEL PENXF FILTER CH CLASS 600

PEAK DATA 3708 93 N @ 2 56 MS, -65 65 N @ 7 36 MS

TRANSPORTATION RESEARCH CENTER INC.

RIGHT KNEE IMPACT TEST

HYBRID III SMALL FEMALE

25-JAN-01

TRC INC.

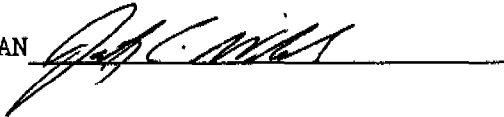
TEST NO: 416C8RK1

572 0 SN416 R.KNEE CAL8

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	18.9-25.6 DEG. C	21.7 DEG. C
RELATIVE HUMIDITY	10 - 70 %	15.0 %
PROBE VELOCITY	2.07 - 2.13 M/S	2.07 M/S
PEAK KNEE IMPACT FORCE 3.0 KG PENDULUM	3450 - 4060 N	3562.4 N

TEST MEETS SPECIFICATIONS

TECHNICIAN



RUN NUMBER: 012501.1400;1

PART 572-0 HYBRID III SMALL FEMALE - RIGHT KNEE CALIBRATION

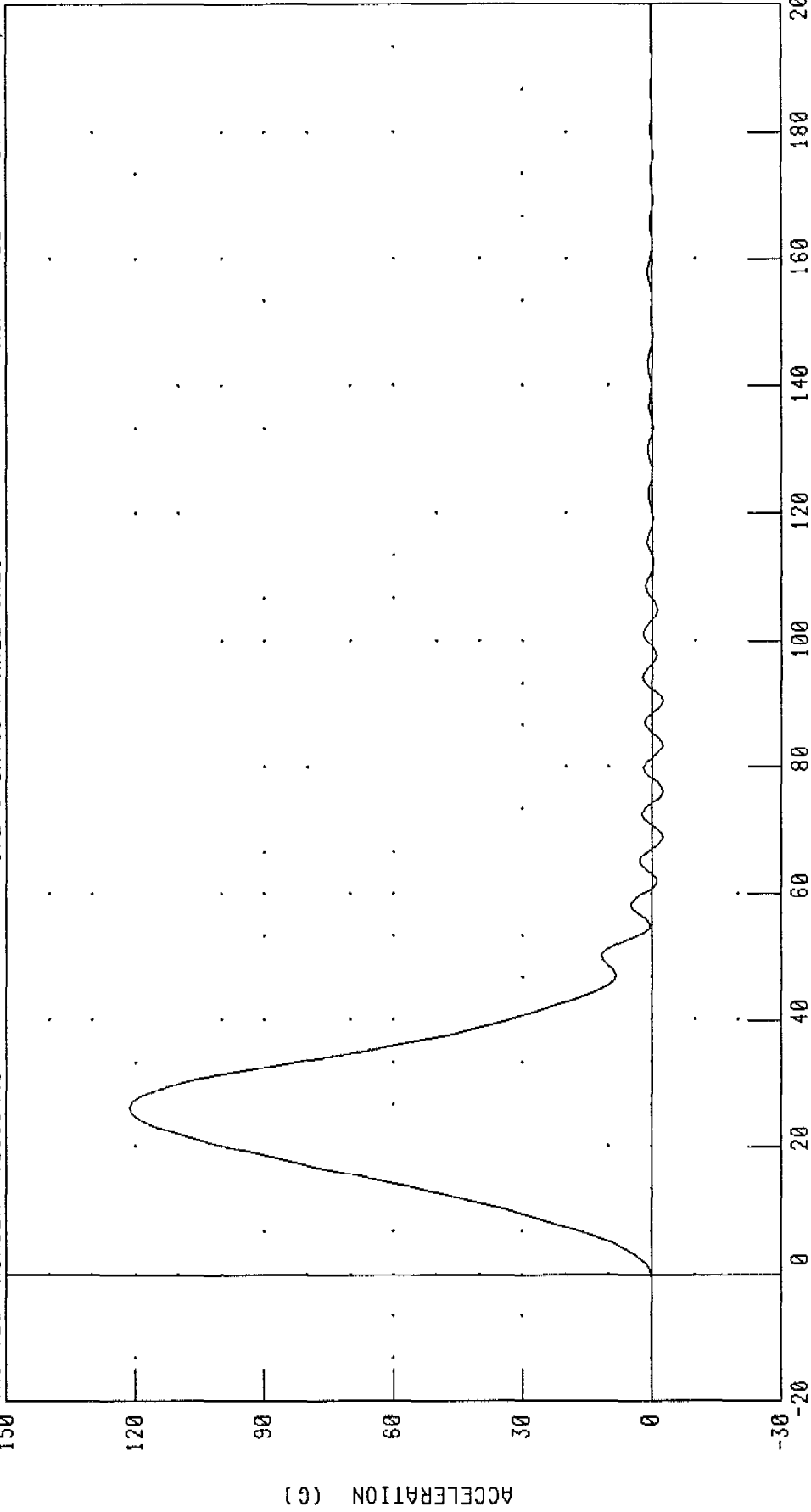
PENDULUM DECELERATION (5 KG PEND )

TRC TEST NUMBER 416CBRK1

572 0 SN416 R KNEE CAL8

RUN NUMBER 012501 1401,1

150



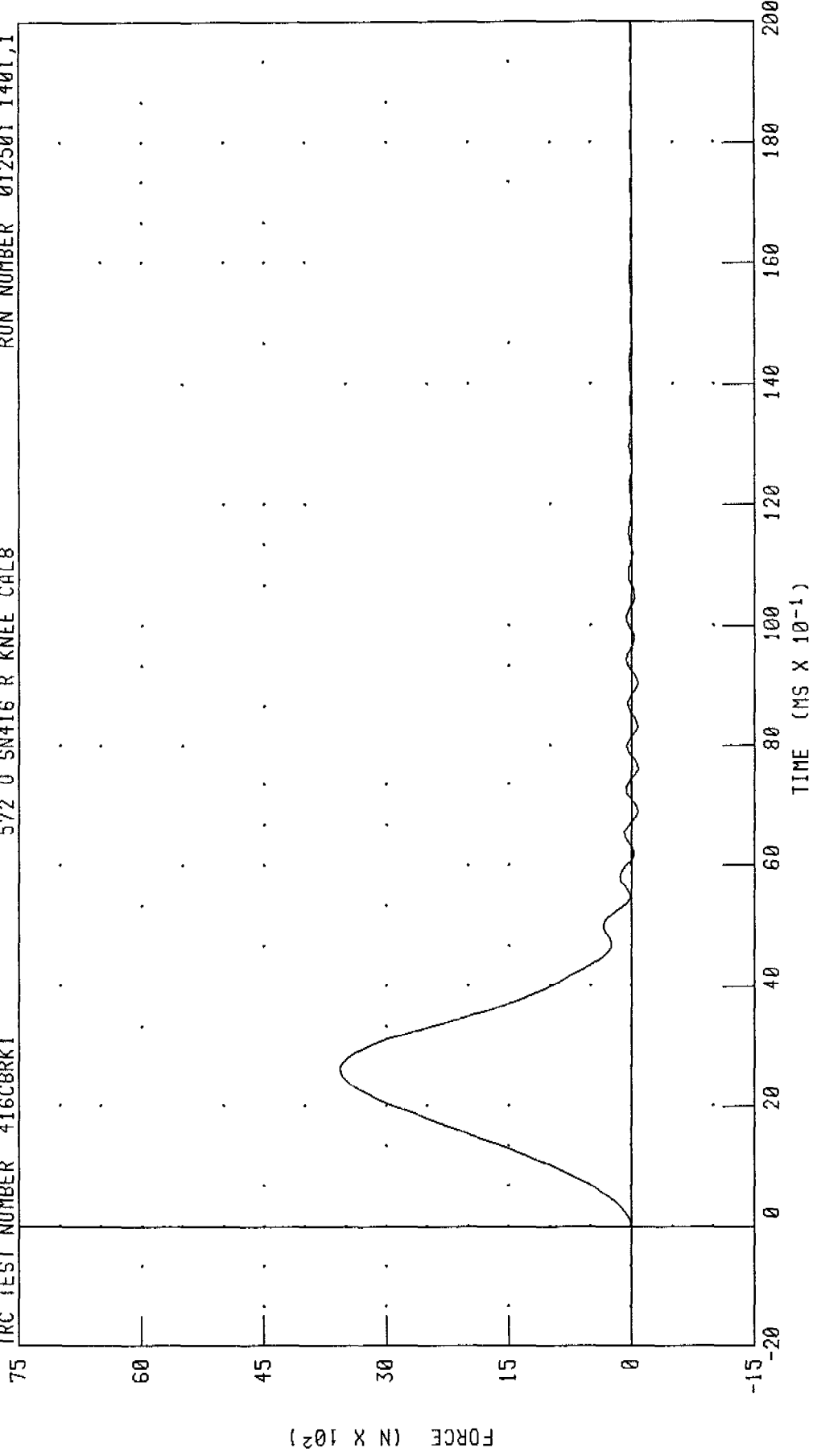
CHANNEL PENXC

FILTER CH CLASS 600

PEAK DATA 121 35 G @ 2 64 MS, -2 67 G @ 7 60 MS

PART 572-0 HYBRID III SMALL FEMALE - RIGHT KNEE CALIBRATION  
PENDULUM FORCE (5 KG PEND )

TRC TEST NUMBER 416C8RK1 572 0 SN416 R KNEE CAL8 RUN NUMBER 012501 1401,1



CHANNEL PENXF FILTER CH CLASS 600

PEAK DATA 3562 42 N @ 2 64 MS, -78 25 N @ 7 60 MS

Appendix D

Miscellaneous Test Information

## Report Sign Convention

J211 MAR95<sup>1</sup>

### Vehicle

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

### Rate Gyro angular velocity:

+Y (Pitch): Nose up  
+Z (Yaw): Nose right

### Moving barrier face load cells (referenced to cart)<sup>1</sup>:

+X force: Rearward (compression)  
+Y force: Left  
+Z force: Up

### Dummy

Potentiometers: +Chest longitudinal deflection: Outward  
+ Chest lateral deflection: Rightward

Femur Load cells: +Z force: Tension

Neck load cells: +X force: Head rearward, chest forward  
+Y force: Head leftward, chest rightward  
+Z force: Head upward (tension on neck), chest downward  
+X moment: Left ear rotating toward left shoulder  
+Y moment: Chin rotating toward chest  
+Z moment: Chin rotating toward left shoulder

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

<sup>1</sup> Barrier face load cell sign convention does not match J211 sign convention: the sign convention used in the baseline report 06/19/00 was repeated, so that X, Y, and Z forces are all opposite of J211.

Report Sign Convention, Cont'd.

J211 MAR95

Tibia Load Cells

Upper tibia loads: +X moment: Ankle leftward, hold knee in place  
+Y moment: Ankle forward, bottom of knee clevis rearward

Lower tibia loads: +Z force: Ankle downward, knee upward  
+X moment: Ankle leftward, hold knee in place  
+Y moment: Ankle forward, bottom of knee clevis rearward

Filtering Data

J211 MAR95

Load Cell Barrier Forces Class 60

Vehicle Structural Accelerations Class 60

Hybrid III Occupant

Head Accelerometer Class 1000

Neck Load Cell Force Class 1000

Neck Load Cell Moment Class 600

Chest Accelerometer Class 180

Chest Deflection Class 600

Femur Force Class 600

Sternum Accelerometer Class 180

Lower Leg Class 600

Hybrid III SID Occupant

Head Accelerometer Class 1000

Neck Load Cell Force Class 1000

Neck Load Cell Moment Class 600

Rib Accelerometer FIR100<sup>1</sup>

Spine Accelerometer FIR100<sup>1</sup>

Pelvis Accelerometer FIR100<sup>1</sup>

Chest Deflection Class 600

<sup>1</sup> The FIR100 filter procedure is defined in 49 CFR 571.214 (S6.13.5) and 49 CFR 572.44 (d).

## Target Vehicle Dummy Instrumentation Placement

Dummy Manufacturer and S/N: Alderson/090

Seating position: Driver

Mnemonic	Location	Axis	Manufacturer	Model	S/N	Orientation <sup>1</sup> (+ Sensing)
HEDXG1	Head	X	Endevco	7264	J23802	Rearward
HEDYG1	Head	Y	Endevco	7264	J34696	Leftward
HEDZG1	Head	Z	Endevco	7264	J23942	Upward
NEKXF1	Neck	X	First Tech	IF-205	197-FX	Head forward
NEKYF1	Neck	Y	First Tech	IF-205	197-FY	Head leftward
NEKZF1	Neck	Z	First Tech	IF-205	197-FZ	Head upward (tension)
NEKXM1	Neck	X	First Tech	IF-205	197-MX	Right ear to right shoulder
NEKYM1	Neck	Y	First Tech	IF-205	197-MY	Chin to chest
NEKZM1	Neck	Z	First Tech	IF-205	197-MZ	Chin to left
CSTXG1	Chest	X	Endevco	7264	J24017	Forward
CSTYG1	Chest	Y	Endevco	7264	J23759	Leftward
CSTZG1	Chest	Z	Endevco	7264	J18664	Upward
PEVXG1	Pelvis	X	Endevco	7264	J36418	Rearward
PEVYG1	Pelvis	Y	Endevco	7264	J23913	Leftward
PEVZG1	Pelvis	Z	Endevco	7264	J21963	Upward
CSTXD1	Chest	X	Servo	14CBI-2897	83672-14	outward
LFMF1	Femur	Z	GSE	2430	739	Tension
RFMF1	Femur	Z	GSE	2430	760	Tension
TBLXM1	Tibia	X	Denton	1583	0614-MX	Tibia left
TBLYM1	Tibia	Y	Denton	1583	0614-MY	Tibia rearward
ANLXM1	Tibia	X	Denton	3093	119-MX	Ankle right
ANLYM1	Tibia	Y	Denton	3093	119-MY	Ankle forward
ANLZF1	Tibia	Z	Denton	3093	119-FZ	Ankle down
TBRXM1	Tibia	X	Denton	1583	0615-MX	Tibia left
TBRYM1	Tibia	Y	Denton	1583	0615-MY	Tibia rearward

Target Vehicle Dummy Instrumentation Placement, Cont'd.

Dummy Manufacturer and S/N: Alderson/090

Seating position: Driver

<u>Mnemonic</u>	<u>Location</u>	<u>Axis</u>	<u>Manufacturer</u>	<u>Model</u>	<u>S/N</u>	<u>Orientation<sup>1</sup> (+ Sensing)</u>
ANRXM1	Tibia	X	Denton	3093	120-MX	Ankle right
ANRYM1	Tibia	Y	Denton	3093	120-MY	Ankle forward
ANRZF1	Tibia	Z	Denton	3093	120-FZ	Ankle down

<sup>1</sup> This column describes transducer output as mounted and wired in the test location. See Report Sign Convention sheet for description of data output as presented in the report: channels were adjusted in post-acquisition data processing to conform to customer sign convention.

Target Vehicle Dummy Instrumentation Placement

Dummy Manufacturer and S/N: First Technologies/416

Seating position: Passenger

Mnemonic	Location	Axis	Manufacturer	Model	S/N	Orientation <sup>1</sup> (+ Sensing)
HEDXG2	Head	X	Endevco	7264	AAKC3	Rearward
HEDYG2	Head	Y	Endevco	7264	J35560	Leftward
HEDZG2	Head	Z	Endevco	7264	AAMF2	Upward
NEKXF2	Neck	X	First Tech	IF-205	199-FX	Head forward
NEKYF2	Neck	Y	First Tech	IF-205	199-FY	Head leftward
NEKZF2	Neck	Z	First Tech	IF-205	199-FZ	Head upward (tension)
NEKXM2	Neck	X	First Tech	IF-205	199-MX	Right ear to right shoulder
NEKYM2	Neck	Y	First Tech	IF-205	199-MY	Chin to chest
NEKZM2	Neck	Z	First Tech	IF-205	199-MZ	Chin to left
CSTXG2	Chest	X	Entran	EGE-73BQE0	98H12-F07	Forward
CSTYG2	Chest	Y	Entran	EGE-73BQE0	98H12-F08	Leftward
CSTZG2	Chest	Z	Entran	EGE-73BQE0	98H12-F15	Upward
CSTXD2	Chest	X	Servo	14CB1-2897	416	Outward
PEVXG2	Pelvis	X	Endevco	7264	J34843	Rearward
PEVYG2	Pelvis	Y	Entran	EGE-73BQE0	98H12-F30	Leftward
PEVZG2	Pelvis	Z	Entran	EGE-73BQE0	98H12-F06	Upward
LFMF2	Left femur	Z	GSE	2430	717	Tension
RFMF2	Right femur	Z	GSE	2430	729	Tension

<sup>1</sup> This column describes transducer output as mounted and wired in the test location. See Report Sign Convention sheet for description of data output as presented in the report: channels were adjusted in post-acquisition data processing to conform to customer sign convention.

Target Vehicle Instrumentation Placement

Number	Location	Axis	Manufacturer	Model	S/N	Orientation <sup>1</sup> (+ Sensing)
1	Left rear seat crossmember	X	Endevco	7264	J30467	Forward
		Y	Endevco	7264	J27868	Leftward
		Z	Endevco	7264	J35551	Upward
2	Right rear seat crossmember	X	Endevco	7264	J34490	Forward
		Y	Endevco	7264	J20218	Leftward
		Z	Endevco	7264	J34525	Upward
3	Engine top	X	Endevco	7264	J30471	Forward
4	Engine bottom	X	Endevco	7264	J35051	Forward
5	Vehicle center of gravity	X	Endevco	7264	J36280	Forward
		Y	Endevco	7264	J36221	Leftward
		Z	Endevco	7264	J36236	Upward
6	Instrument panel center	X	Endevco	7264	AN9D1	Forward
7	Rear Axle	X	Endevco	7264	J35750	Rearward
8	Vehicle rear center	Z	Endevco	7264	J36318	Upward

<sup>1</sup> This column describes transducer output as mounted and wired in the test location. See Report Sign Convention sheet for description of data output as presented in the report: channels were adjusted in post-acquisition data processing to conform to customer sign convention.

Moving Deformable Barrier Instrumentation Placement

Number	Location	Axis	Manufacturer	Model	S/N	Orientation <sup>1</sup> (+ Sensing)
1	Vehicle center of gravity	X	Endevco	7264	J31064	Forward
		Y	Endevco	7264	J30380	Rightward
		Z	Endevco	7264	J32272	Upward
2	Vehicle left rear frame	X	Endevco	7264	J35049	Rearward
		Y	Endevco	7264	A20FJ	Leftward
3	Vehicle pitch	Y	Humphrey	RG28	H19	
4	Vehicle yaw	Z	Humphrey	RG28	H16	

<sup>1</sup> This column describes transducer output as mounted and wired in the test location. See Report Sign Convention sheet for description of data output as presented in the report: channels were adjusted in post-acquisition data processing to conform to customer sign convention.

Barrier Face Load Cell Placement

**FRONT VIEW**

A1	B1	C1	D1	E1	F1	G1	H1	I1	J1	K1
A2	B2	C2	D2	E2	F2	G2	H2	I2	J2	K2
A3	B3	C3	D3	E3	F3	G3	H3	I3	J3	K3
A4	B4	C4	D4	E4	F4	G4	H4	I4	J4	K4

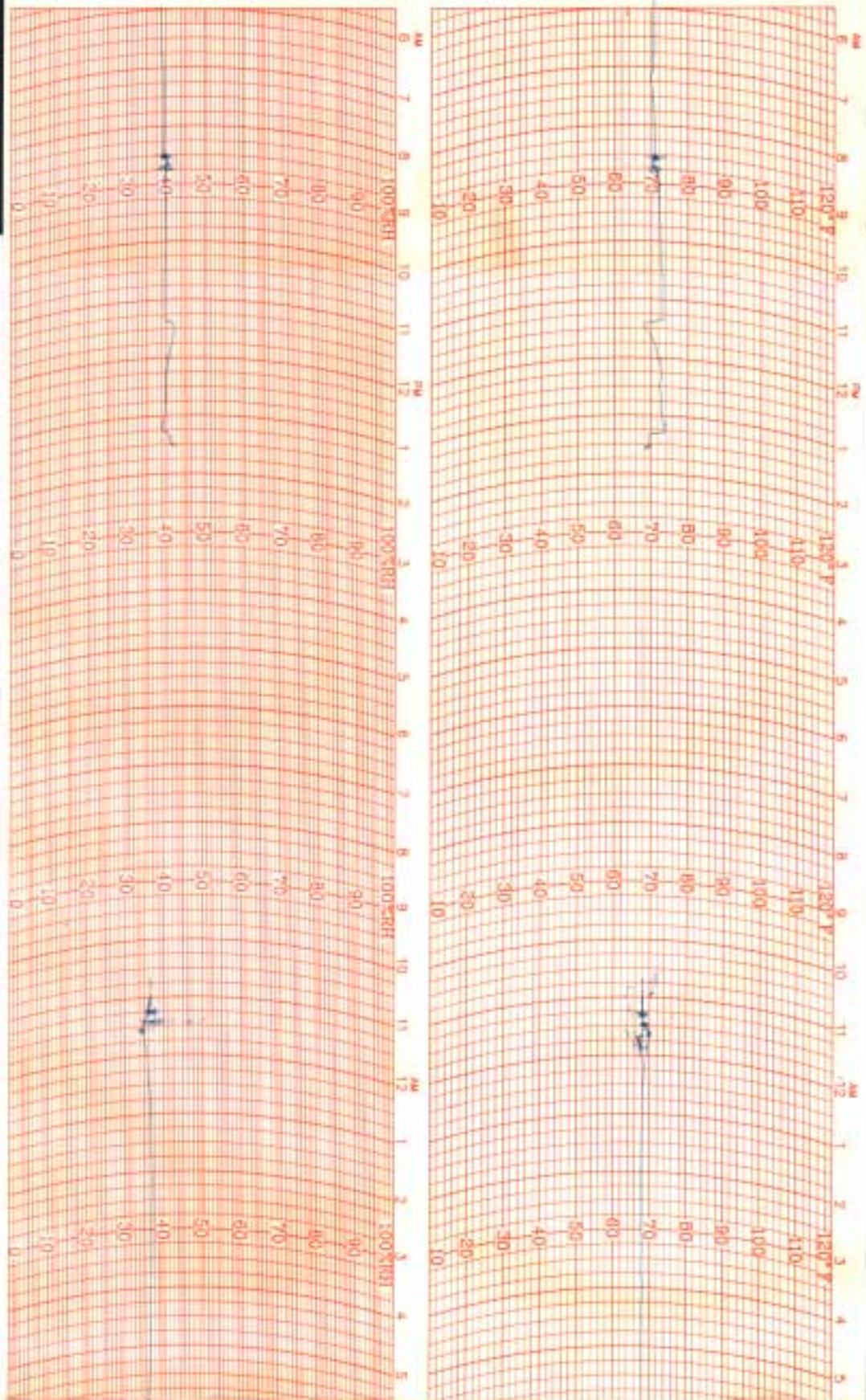
Track C/L


44 LOAD CELLS  
4 ROWS  
11 COLUMNS

Barrier Face Load Cell Description

Location	Cable Label	Manufacturer	Model	Orientation <sup>1</sup> (+ Sensing)
All Barrier Face X-axis	-ZF	Key Transducers	6244-02	Rearward (compression)
All Barrier Face Y-axis	-XF	Key Transducers	6244-02	Right
All Barrier Face Z-axis	-YF	Key Transducers	6244-02	Up

<sup>1</sup> This column describes transducer output as mounted and wired in the test location. See Sign Convention sheet for description of data output as presented in the report.




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