

V2372

Report Number TRC-96-N09

New Car Assessment Program (NCAP)

Frontal Barrier Impact Test

Mitsubishi Motors Corporation

1996 Mitsubishi Mirage

2-door coupe

NHTSA Number: MT5600

TRC Test Number: 960117

Prepared By:

Transportation Research Center Inc.

10820 State Route 347

East Liberty, OH 43319



February 16, 1996

Final Report

Prepared For:

U. S. Department of Transportation

National Highway Traffic Safety Administration

Office of Market Incentives

Room No. 5313 (NRM-22)

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Washington, DC 20590

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| 16. Abstract<br><br>A 56 kph (35 mph) frontal load cell barrier impact test was conducted on a 1996 Mitsubishi Mirage 2-door coupe, NHTSA No. MT5600, at Transportation Research Center Inc. on January 17, 1996. This test was conducted to obtain new car assessment and research data indicant of FMVSS 208, 212, 219 (partial), and 301 performance. The barrier impact velocity was 56.5 kph. The vehicle's maximum static crush was 495 millimeters. The ambient temperature was 23° C.<br><br>The driver's Head Injury Criteria (HIC) was 516. The driver's chest maximum resultant acceleration with three (3) milliseconds minimum duration was 58.1 g. The driver's maximum chest deflection was 61 mm. The driver's left and right femur maximum axial forces were 4603 N and 4440 N, respectively.<br><br>The passenger's HIC was 997. The passenger's chest maximum resultant acceleration with three (3) milliseconds minimum duration was 54.0 g. The passenger's maximum chest deflection was 40 mm. The passenger's left and right femur maximum axial forces were 3950 N and 4238 N, respectively. |                                                      |                                                                                                                                                                                                                                     |           |
| 17. Key Words<br>56 kph (35 mph) Frontal Barrier Impact Test:<br>New Car Assessment Program (NCAP)<br>FMVSS 208, "Occupant Crash Protection"<br>FMVSS 212, "Windshield Retention"<br>FMVSS 219, "Windshield Zone Intrusion"<br>FMVSS 301, "Fuel System Integrity"                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                      | 18. Distribution Statement<br>Copies of this report are available from:<br>National Highway Traffic Safety Admin.<br>Technical Reference Division<br>Nassif Building, Room 5108<br>400 Seventh Street, S.W.<br>Washington, DC 20590 |           |
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# METRIC CONVERSION FACTORS

## Approximate Conversions to Metric Measures

When You Know      Multiply by      To Find      Symbol

### LENGTH

|        |      |             |    |
|--------|------|-------------|----|
| inches | 2.54 | centimeters | cm |
| feet   | 30   | centimeters | cm |
| yards  | 0.9  | meters      | m  |
| miles  | 1.6  | kilometers  | km |

### AREA

|               |      |                    |                 |
|---------------|------|--------------------|-----------------|
| square inches | 6.5  | square centimeters | cm <sup>2</sup> |
| square feet   | 0.09 | square meters      | m <sup>2</sup>  |
| square yards  | 0.8  | square meters      | m <sup>2</sup>  |
| square miles  | 2.6  | square kilometers  | km <sup>2</sup> |
| acres         | 0.4  | hectares           | ha              |

### MASS (weight)

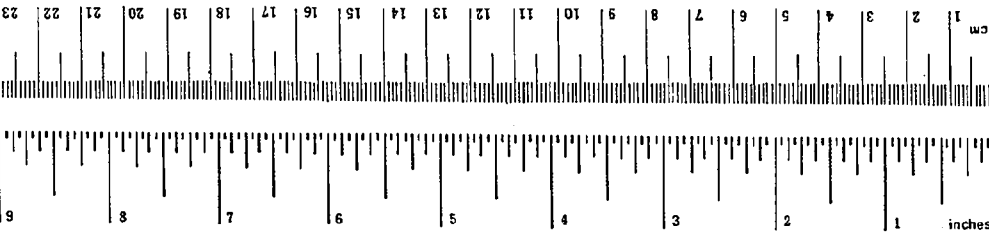
|                      |      |           |    |
|----------------------|------|-----------|----|
| ounces               | 28   | grams     | g  |
| pounds               | 0.45 | kilograms | kg |
| short tons (2000 lb) | 0.9  | tonnes    | t  |

### VOLUME

|              |      |              |                |
|--------------|------|--------------|----------------|
| teaspoons    | 5    | milliliters  | ml             |
| tablespoons  | 15   | milliliters  | ml             |
| fluid ounces | 30   | milliliters  | ml             |
| cups         | 0.24 | liters       | l              |
| pints        | 0.47 | liters       | l              |
| quarts       | 0.95 | liters       | l              |
| gallons      | 3.8  | liters       | l              |
| cubic feet   | 0.03 | cubic meters | m <sup>3</sup> |
| cubic yards  | 0.76 | cubic meters | m <sup>3</sup> |

### TEMPERATURE (exact)

|    |                        |                            |                     |    |
|----|------------------------|----------------------------|---------------------|----|
| °F | Fahrenheit temperature | 5/9 (after subtracting 32) | Celsius temperature | °C |
|----|------------------------|----------------------------|---------------------|----|



## Approximate Conversions from Metric Measures

When You Know      Multiply by      To Find      Symbol

### LENGTH

|             |      |        |    |
|-------------|------|--------|----|
| millimeters | 0.04 | inches | in |
| centimeters | 0.4  | inches | in |
| meters      | 3.3  | feet   | ft |
| kilometers  | 1.1  | yards  | yd |
|             | 0.6  | miles  | mi |

### AREA

|                                   |      |               |                 |
|-----------------------------------|------|---------------|-----------------|
| square centimeters                | 0.16 | square inches | in <sup>2</sup> |
| square meters                     | 1.2  | square yards  | yd <sup>2</sup> |
| square kilometers                 | 0.4  | square miles  | mi <sup>2</sup> |
| hectares (10,000 m <sup>2</sup> ) | 2.5  | acres         |                 |

### MASS (weight)

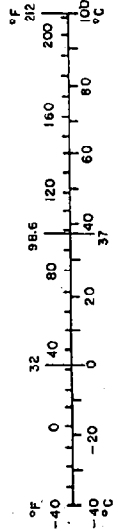
|                  |       |            |    |
|------------------|-------|------------|----|
| grams            | 0.035 | ounces     | oz |
| kilograms        | 2.2   | pounds     | lb |
| tonnes (1000 kg) | 1.1   | short tons |    |

### VOLUME

|              |      |              |                 |
|--------------|------|--------------|-----------------|
| milliliters  | 0.03 | fluid ounces | fl oz           |
| liters       | 2.1  | pints        | pt              |
| liters       | 1.06 | quarts       | qt              |
| liters       | 0.26 | gallons      | gal             |
| cubic meters | 35   | cubic feet   | ft <sup>3</sup> |
| cubic meters | 1.3  | cubic yards  | yd <sup>3</sup> |

### TEMPERATURE (exact)

|    |                     |                   |                        |    |
|----|---------------------|-------------------|------------------------|----|
| °C | Celsius temperature | 9/5 (then add 32) | Fahrenheit temperature | °F |
|----|---------------------|-------------------|------------------------|----|



\*1 in. = 2.54 (exactly). For other exact conversions and more detailed tables, see NBS Misc. Publ. 289, Units of Weights and Measures, Price \$2.25, SO Catalog No. C-1310286.

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Section 1.0

**Purpose and Test Procedure**

### Purpose

This 56 kph (35 mph) frontal barrier impact test is part of the New Car Assessment Program (NCAP) conducted for the National Highway Traffic Safety Administration's (NHTSA) Office of Market Incentives by Transportation Research Center Inc. (TRC) under Contract Number DTNH22-90-D-22121.

The purpose of this test was to obtain new car assessment and research data for vehicle crashworthiness and occupant restraint system performance for the subject vehicle, a 1996 Mitsubishi Mirage 2-door coupe, NHTSA Number MT5600, at an impact speed in excess of the current 48 kph (30 mph) FMVSS 208 requirements.

### Test Procedure

This test was conducted in accordance with NHTSA's Laboratory Indicant Test Procedure, New Car Assessment Program, dated January 1, 1990. Data was obtained indicant of FMVSS 208, "Occupant Crash Protection"; FMVSS 212, "Windshield Retention"; FMVSS 219, "Windshield Zone Intrusion"; and FMVSS 301, "Fuel System Integrity," performance.

The test vehicle was instrumented with nine (9) accelerometers to measure longitudinal axis accelerations. The driver's and passenger's restraint systems were instrumented with load cells to measure lap and shoulder belt forces and potentiometers to measure shoulder belt stretch and spoolout. The vehicle impacted a frontal load cell barrier instrumented with thirty-six (36) barrier face load cells. The vehicle's specified impact velocity range was 55.5 to 57.1 kph.

The test vehicle contained two (2) Part 572E 50th percentile adult male anthropomorphic test devices (dummies). The dummies were positioned in the front outboard designated seating positions according to the dummy placement procedures specified in Appendices VII and VIII of the Laboratory Indicant Test Procedure. This test was the first use of the driver dummy and the passenger dummy.

Both dummies were instrumented with primary and redundant head and chest accelerometers to measure longitudinal, lateral, and vertical accelerations, and with left and right femur load cells to measure axial forces. The dummies were also instrumented with neck moment and force load cells, chest deflection potentiometers, and foot accelerometers to measure longitudinal and vertical axis accelerations. In addition, the driver dummy's lower legs were instrumented with upper and lower tibia load cells to measure forces and moments.

The one-hundred-twenty-three (123) data channels were digitally sampled and recorded at 12,500 samples per second and processed per section IP11 of the Laboratory Indicant Test Procedure.

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

The vehicle, occupant, and load cell barrier data are presented in Section 2.0. The occupant, camera, and vehicle measurements are presented in Section 3.0. Appendix A contains the still photographic prints. Appendix B contains the dummy, vehicle, and load cell barrier data plots. Appendix C contains the dummy certification data. Appendix D contains miscellaneous test information. Appendix E contains the restraint system instructions from the owner's manual.

Section 2.0

**Frontal Barrier Impact Test Summary**

### Test Results Summary

This frontal load cell barrier test was conducted at TRC on January 17, 1996.

The test vehicle, a 1996 Mitsubishi Mirage 2-door coupe, NHTSA Number MT5600, was equipped with a 1.5-liter transverse engine, automatic transmission, power steering, and power brakes. The vehicle's test weight was 1185 kg. The vehicle's impact speed was 56.5 kph. The vehicle sustained 495 mm of static crush during the impact.

The driver's Head Injury Criteria (HIC) was 516. The driver's chest maximum resultant acceleration with three (3) milliseconds minimum duration was 58.1 g. The driver's maximum chest deflection was 61 mm. The driver's left and right femur maximum axial forces were 4603 N and 4440 N, respectively.

The right front passenger's HIC was 997. The passenger's chest maximum resultant acceleration with three (3) milliseconds minimum duration was 54.0 g. The passenger's maximum chest deflection was 40 mm. The passenger's left and right femur maximum axial forces were 3950 N and 4238 N, respectively.

There was loss of windshield periphery retention along the lower edge from 510 to 740 millimeters as measured from the lower left corner.

There was no penetration through the windshield.

Following the impact, no fluid spilled from the vehicle's fuel system prior to the static rollover test or during any portion of the static rollover test.

### Data Acquisition Explanations

The driver's right lower tibia moment about Y-axis load cell, ANRYM1, exceeded the data channel's full scale limit at 54 milliseconds.

The passenger's neck X-axis shear force load cell, NEKXF2, recorded multiple data spikes during the crash event.

The passenger's seat belt extension potentiometer, SBFD2, did not function during the test.

Table 1 Crash Test Summary

|                                         |                                                |                              |
|-----------------------------------------|------------------------------------------------|------------------------------|
| NHTSA number:                           | MT5600                                         |                              |
| Test type:                              | Frontal Load Cell Barrier                      |                              |
| Test date:                              | 01/17/96                                       |                              |
| Test time:                              | 1427                                           |                              |
| Ambient temperature:                    | 23° C                                          |                              |
| Vehicle year/make/<br>model/body style: | 1996/Mitsubishi/Mirage/2-door coupe            |                              |
| Vehicle test weight:                    | 1185 kg                                        |                              |
| Impact angle <sup>1</sup> :             | 0°                                             |                              |
| Impact velocity <sup>2</sup> :          | Primary     = 56.5 kph<br>Secondary = 56.5 kph |                              |
| Maximum static crush:                   | 495 mm                                         |                              |
| Average rebound:                        | 465 mm                                         |                              |
| Dummies:                                | Driver #142                                    | Passenger #192               |
| Type:                                   | Part 572 E                                     | Part 572 E                   |
| Location:                               | Left front                                     | Right front                  |
| Restraint:                              | Airbag and<br>3-point unbelt                   | Airbag and<br>3-point unbelt |
| Number of data channels:                | 110                                            |                              |
| Number of cameras:                      | High-speed    14<br>Real-time       2          |                              |

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

<sup>2</sup> Speed trap measurement (± .08 kph accuracy)

Table 2 Test Vehicle Information

|                                         |                                                                                                             |                            |     |
|-----------------------------------------|-------------------------------------------------------------------------------------------------------------|----------------------------|-----|
| Vehicle year/make/<br>model/body style: | 1996/Mitsubishi/Mirage/2-door coupe                                                                         |                            |     |
| Color:                                  | White                                                                                                       |                            |     |
| VIN:                                    | JA3AA11A2TU003055                                                                                           |                            |     |
| NHTSA number:                           | MT5600                                                                                                      |                            |     |
| Engine data:                            |                                                                                                             |                            |     |
| Placement:                              | Transverse                                                                                                  |                            |     |
| Cylinders:                              | 4                                                                                                           |                            |     |
| Displacement                            | 1.5 liters                                                                                                  |                            |     |
| Transmission data:                      | <u>3</u> speed,      __manual, <u>X</u> automatic,      __overdrive<br><u>X</u> FWD,      __RWD,      __4WD |                            |     |
| Date vehicle received:                  | 12/18/95                                                                                                    |                            |     |
| Odometer reading:                       | 127                                                                                                         |                            |     |
| Dealer's name<br>and address:           | Ricart Mitsubishi<br>4255 South Hamilton Rd.<br>Groveport, OH 43227                                         |                            |     |
| <u>Accessories:</u>                     |                                                                                                             |                            |     |
| 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            | No  |
| Clock                                   | Yes                                                                                                         | Rear window defroster      | Yes |
| Other                                   | None                                                                                                        |                            |     |

Certification data from vehicle's label:

|                          |                            |
|--------------------------|----------------------------|
| Vehicle manufactured by: | General Motors Corporation |
| Date of manufacture:     | 06/95                      |
| VIN:                     | JA3AA11A2TU003055          |
| GVWR:                    | 1450 kg                    |
| GAWR: Front:             | 830 kg                     |
| Rear:                    | 790 kg                     |

Table 2 Test Vehicle Information, Cont'd.

Size of tires: P155/80R13

Tire pressure with maximum  
capacity vehicle load:

Front: 240 kPa

Rear: 240 kPa

Spare tire: T105/70D14

Type of front seats: Bucket

Tire & capacity data from vehicle's label:

Recommended tire size: P155/80R13

Recommended cold tire pressure:

Front: 210 kPa

Rear: 210 kPa

Designated seating capacity:

Front 2

Rear 3

Total 5

Vehicle capacity weight: 375 kg

Test vehicle attitude:

Delivered attitude: LF 661 mm; RF 660 mm; LR 632 mm; RR 635 mm

Pre-test attitude: LF 642 mm; RF 640 mm; LR 602 mm; RR 600 mm

Post-test attitude: LF 724 mm; RF 738 mm; LR 605 mm; RR 579 mm

Table 2 Test Vehicle Information Cont'd

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

|                        |        |                                 |        |
|------------------------|--------|---------------------------------|--------|
| Right front            | 309 kg | Right rear                      | 186 kg |
| Left front             | 313 kg | Left rear                       | 188 kg |
| Total front weight     | 622 kg | (62.4% of total vehicle weight) |        |
| Total rear weight      | 374 kg | (37.6% of total vehicle weight) |        |
| Total delivered weight | 996 kg |                                 |        |

Calculation of test vehicle's target test weight:

RCLW = Rated cargo and luggage weight

UDW = Unloaded delivered weight (996 kg)

VCW<sup>1</sup> = Vehicle capacity weight (375 kg)

DSC<sup>1</sup> = Designated seating capacity (5)

RCLW = VCW - 68 (DSC) = 375 - 68 (5) = 35 kg

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

Target test weight = 996 + 152 + 35

Target test weight = 1183 kg

Weight of test vehicle with required dummies and 37 kg of cargo weight:

|                    |         |                                 |        |
|--------------------|---------|---------------------------------|--------|
| Right front        | 350 kg  | Right rear                      | 243 kg |
| Left front         | 353 kg  | Left rear                       | 239 kg |
| Total front weight | 703 kg  | (59.3% of total vehicle weight) |        |
| Total rear weight  | 482 kg  | (40.7% of total vehicle weight) |        |
| Total test weight  | 1185 kg | (0.2% over target test weight)  |        |

Weight of ballast secured in vehicle: None

Components removed to meet target test weight: Trunk lid, rear bumper, tail lights,  
muffler, rear seat belts

CG rearward of front wheel centerline: 995 mm

Vehicle wheelbase: 2445 mm

<sup>1</sup> From vehicle's tire load label.

Table 3 Post-Impact Data

Test number: 960117  
NHTSA number: MT5600  
Test date: 01/17/96  
Test time: 1427  
Test type: Frontal load cell barrier  
Impact angle: 0°  
Ambient temperature  
at impact area: 23° C  
Temperature in  
occupant compartment: 21° C  
Impact velocity:  
    Primary 56.5 kph  
    Secondary 56.5 kph  
    Specified range 55.5 to 57.1 kph

Distance from vehicle to barrier:

    Entering velocity trap 356 mm  
    Exiting velocity trap 51 mm

Test vehicle static crush:

Overall length of test vehicle:

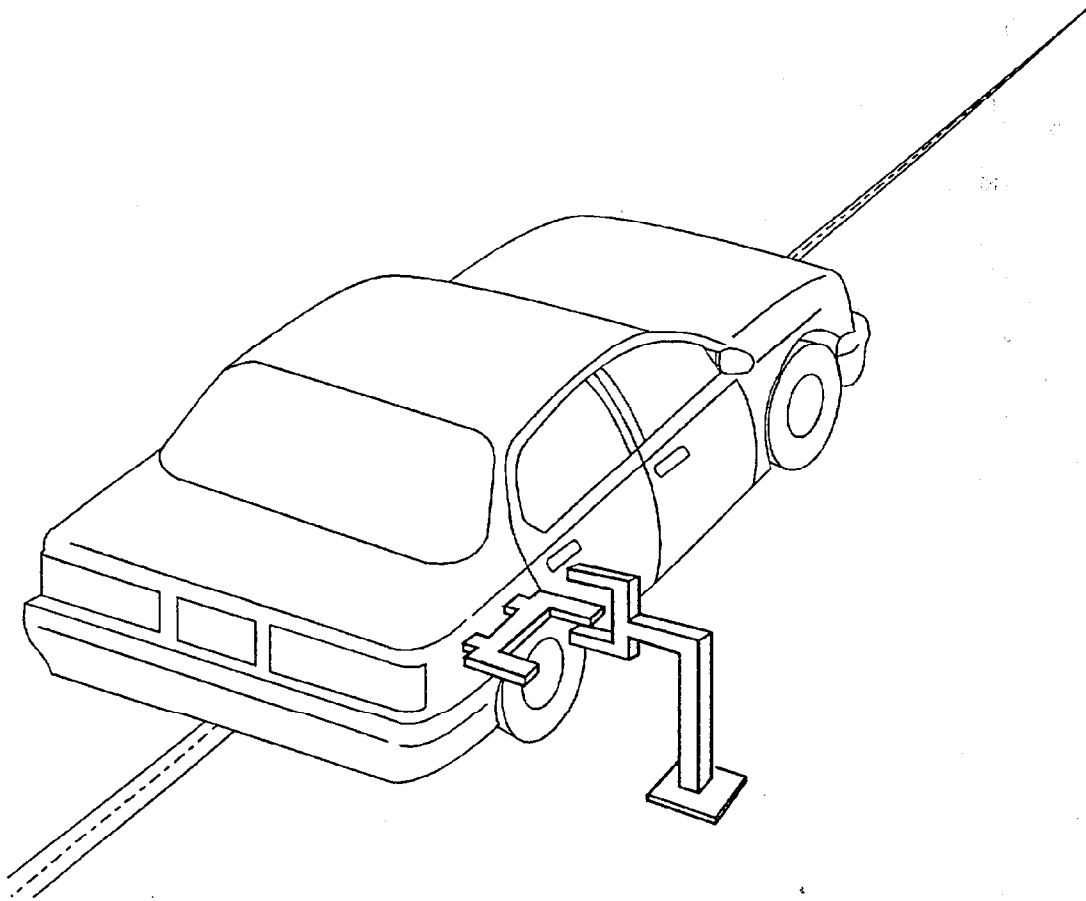
Pre-test:           L     4232 mm;     C   4321 mm;     R   4229 mm  
Post-test:          L     3808 mm;     C   3827 mm;     R   3809 mm  
Total crush:        L     424 mm;     C   494 mm;     R   420 mm  
Average crush:      463 mm

Test vehicle rebound from flat barrier:

Distance from test vehicle to barrier:

Post-test:           L     476 mm;     C   446 mm;     R   474 mm  
Average rebound     465 mm

Figure 1 Impact Velocity Measurement System



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

The vanes have 305-millimeter spacing.

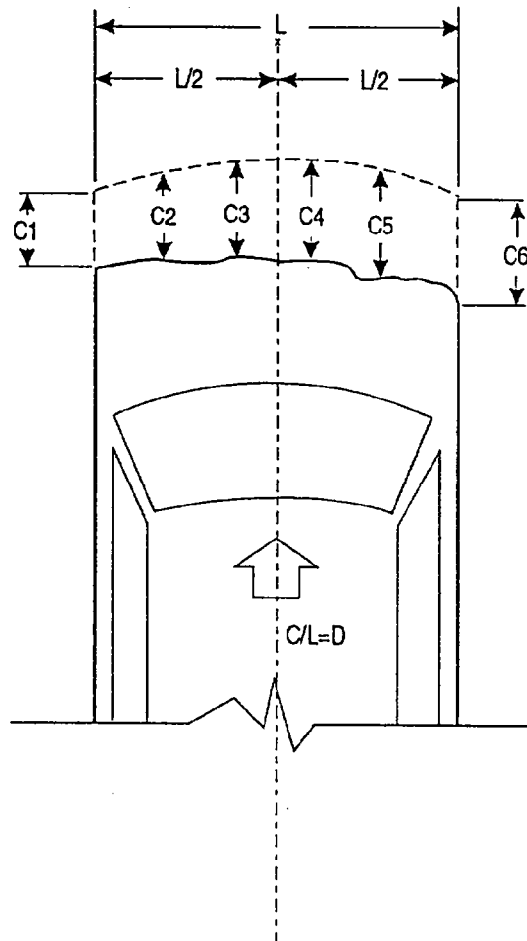
**Figure 2 Accident Investigation Division Data  
for 56 kph (35 mph) Frontal Barrier Impact**

NHTSA number: MT5600  
 Test date: 01/17/96  
 Vehicle year/make/  
 model/body style: 1996/Mitsubishi/Mirage/2-door coupe  
 Vehicle size category: Subcompact  
 VIN: JA3AA11A2TU003055  
 Build date: 06/95  
 Test weight: 1185 kg  
 Vehicle wheelbase: 2445 mm  
 Maximum width: 1670 mm  
 Front overhang: 834 mm

Collision Deformation  
 Classification (CDC) code: 12FDEW3

Crush depth  
 measurements:

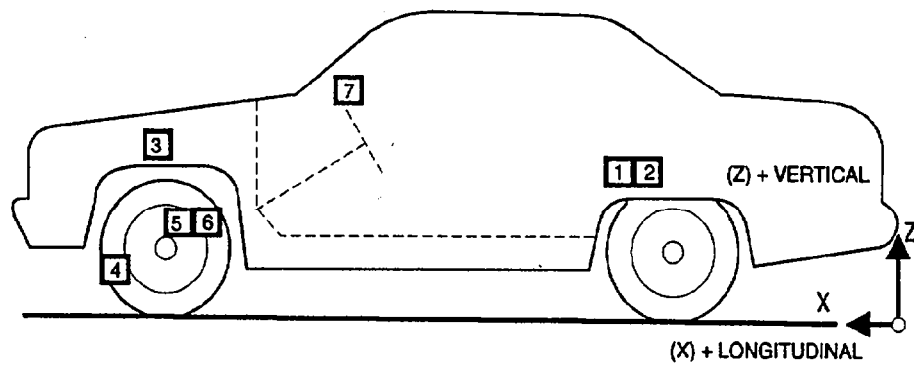
|    |   |        |
|----|---|--------|
| C1 | = | 424 mm |
| C2 | = | 462 mm |
| C3 | = | 495 mm |
| C4 | = | 489 mm |
| C5 | = | 464 mm |
| C6 | = | 420 mm |



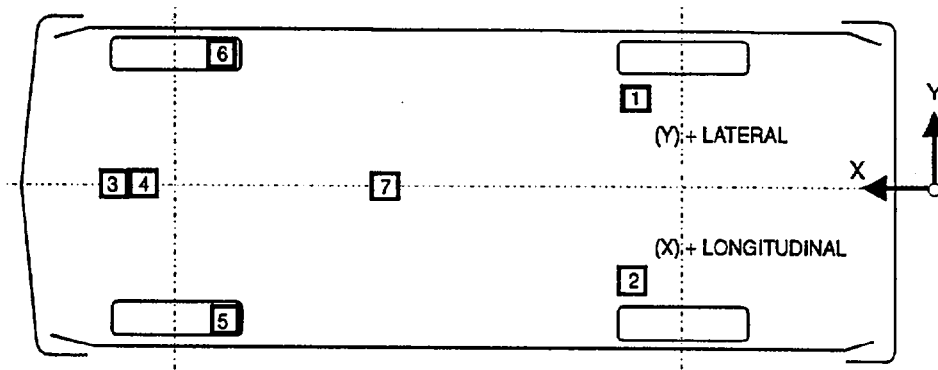
Midpoint of damage: D: Vehicle Longitudinal Centerline

Length of damaged region: L: 1276 mm

Figure 3 Vehicle Accelerometer Placement



SIDE VIEW



BOTTOM VIEW

Table 4 Vehicle Accelerometer Locations and Data Summary

| TEST NUMBER: 960117<br>No. LOCATION                           | X       | Y       | Z      | POSITIVE<br>DIRECTION                | NEGATIVE<br>DIRECTION                |
|---------------------------------------------------------------|---------|---------|--------|--------------------------------------|--------------------------------------|
| 1 LEFT REAR SEAT<br>CROSSMEMBER<br>LONGITUDINAL<br>REDUNDANT  | 2565 mm | 347 mm  | 378 mm | 4.1 g @ 131.3 ms<br>4.0 g @ 131.3 ms | 39.6 g @ 58.9 ms<br>38.7 g @ 58.8 ms |
| 2 RIGHT REAR SEAT<br>CROSSMEMBER<br>LONGITUDINAL<br>REDUNDANT | 2565 mm | -345 mm | 385 mm | 4.5 g @ 131.4 ms<br>4.5 g @ 131.6 ms | 37.5 g @ 37.0 ms<br>37.7 g @ 36.8 ms |
| 3 ENGINE TOP<br>LONGITUDINAL                                  | 536 mm  | 170 mm  | 738 mm | 58.0 g @ 41.3 ms                     | 144.9 g @ 30.7 ms                    |
| 4 ENGINE BOTTOM<br>LONGITUDINAL                               | 564 mm  | 26 mm   | 249 mm | 30.8 g @ 39.2 ms                     | 127.7 g @ 30.0 ms                    |
| 5 RIGHT BRAKE CALIPER<br>LONGITUDINAL                         | 682 mm  | -643 mm | 258 mm | 39.8 g @ 63.3 ms                     | 123.9 g @ 40.8 ms                    |
| 6 LEFT BRAKE CALIPER<br>LONGITUDINAL                          | 669 mm  | 643 mm  | 258 mm | 51.3 g @ 64.2 ms                     | 95.8 g @ 42.0 ms                     |
| 7 INSTRUMENT PANEL<br>CENTER<br>LONGITUDINAL                  | 1234 mm | 0 mm    | 898 mm | 22.2 g @ 34.5 ms                     | 57.8 g @ 28.6 ms                     |

\* ALL MEASUREMENTS OF ACCELEROMETER LOCATIONS ARE IN MILLIMETERS. X-AXIS  
LOCATIONS ARE MEASURED REARWARD FROM THE FRONT BUMPER.

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

Table 5 Post-Impact Dummy/Vehicle Data

Visible Dummy Contact Points:

|            | <u>Driver #142</u>    | <u>Passenger #192</u> |
|------------|-----------------------|-----------------------|
| Head       | Airbag/head restraint | Airbag/head restraint |
| Chest      | Airbag                | Airbag                |
| Abdomen    | None                  | None                  |
| Left knee  | Instrument panel      | Instrument panel      |
| Right knee | Instrument panel      | Instrument panel      |

Door Opening:

|       | <u>Left</u> | <u>Right</u> |
|-------|-------------|--------------|
| Front | Easy        | Easy         |
| Rear  | NA          | NA           |

Seat Movement:

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

Glazing Damage:

The entire windshield cracked on impact.

Other Notable Impact Effects:

None

Table 6 FMVSS 208 Data Summary

Vehicle year/make/  
model/body style: 1996/Mitsubishi/Mirage/2-door coupe  
Vehicle NHTSA number: MT5600  
Test date: 01/17/96

|                                                                 | Driver<br>Dummy #142 |     | Passenger<br>Dummy #192 |     |
|-----------------------------------------------------------------|----------------------|-----|-------------------------|-----|
| <u>Maximum Accelerations:</u>                                   |                      |     |                         |     |
| Head X-axis                                                     | -61.3                | g   | -73.0                   | g   |
| Head Y-axis                                                     | 9.2                  | g   | 26.0                    | g   |
| Head Z-axis                                                     | -11.6                | g   | -38.9                   | g   |
| Head resultant                                                  | 61.8                 | g   | 84.5                    | g   |
|                                                                 |                      |     |                         |     |
| Chest X-axis                                                    | -58.9                | g   | -55.9                   | g   |
| Chest Y-axis                                                    | 5.1                  | g   | 7.5                     | g   |
| Chest Z-axis                                                    | 9.9                  | g   | 13.2                    | g   |
| Chest resultant <sup>1</sup>                                    | 58.1                 | g   | 54.0                    | g   |
| Chest resultant time interval <sup>1</sup>                      | .003                 | sec | .003                    | sec |
| <u>Head Injury Criteria (HIC) Values:</u>                       |                      |     |                         |     |
| HIC <sup>2</sup>                                                | 516                  |     | 997                     |     |
| HIC starting time                                               | .054                 | sec | .057                    | sec |
| HIC ending time                                                 | .090                 | sec | .086                    | sec |
| Average head resultant acceleration<br>during HIC time interval | 46.0                 | g   | 65.1                    | g   |
| <u>Maximum Chest Deflections:</u>                               |                      |     |                         |     |
| Chest X-axis                                                    | 61                   | mm  | 40                      | mm  |
| Maximum chest deflection time                                   | .075                 | sec | .077                    | sec |
| <u>Maximum Compressive Femur Forces:</u>                        |                      |     |                         |     |
| Left femur                                                      | 4603                 | N   | 3950                    | N   |
| Right femur                                                     | 4440                 | N   | 4238                    | N   |
| <u>Maximum Seat Belt Forces:</u>                                |                      |     |                         |     |
| Lap belt                                                        | 3776                 | N   | 2304                    | N   |
| Shoulder belt                                                   | 7075                 | N   | 7034                    | N   |

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

<sup>1</sup> 0.003 Sec. Minimum duration.

<sup>2</sup> The maximum HIC time interval is 36 milliseconds.

Table 7 Hybrid III Data Summary

Vehicle year/make/  
model/body style: 1996/Mitsubishi/Mirage/2-door coupe  
Vehicle NHTSA number: MT5600  
Test date: 01/17/96

|                                       | Driver<br>Dummy #142 | Passenger<br>Dummy #192 |
|---------------------------------------|----------------------|-------------------------|
| <hr/>                                 |                      |                         |
| <u>Maximum Forces</u>                 |                      |                         |
| Neck X-axis shear force <sup>1</sup>  | 864 N                | 8907 N                  |
| Neck Y-axis shear force               | -234 N               | 236 N                   |
| Neck Z-axis axial force               | 2471 N               | -1625 N                 |
| <br><u>Maximum Moments</u>            |                      |                         |
| Neck moment about X-axis              | 20 N·m               | -35 N·m                 |
| Neck moment about Y-axis              | -54 N·m              | 115 N·m                 |
| Neck moment about Z-axis <sup>1</sup> | 11 N·m               | 18 N·m                  |
| <br><u>Maximum Accelerations:</u>     |                      |                         |
| Pelvis X-axis                         | -49.9 g              | -46.8 g                 |
| Pelvis Y-axis                         | -10.2 g              | 15.1 g                  |
| Pelvis Z-axis                         | 22.3 g               | 20.1 g                  |
| Pelvis resultant                      | 54.4 g               | 51.3 g                  |

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

Table 7 Hybrid III Data Summary, Cont'd.

Vehicle year/make/  
model/body style: 1996/Mitsubishi/Mirage/2-door coupe  
Vehicle NHTSA number: MT5600  
Test date: 01/17/96

|                                                    | Driver<br>Dummy #142 | Passenger<br>Dummy #192 |
|----------------------------------------------------|----------------------|-------------------------|
| Left upper tibia moment about X-axis               | 34 N·m               | NA                      |
| Left upper tibia moment about Y-axis               | 59 N·m               | NA                      |
| Right upper tibia moment about X-axis              | -176 N·m             | NA                      |
| Right upper tibia moment about Y-axis              | 183 N·m              | NA                      |
| Left lower tibia X-axis force                      | -492 N               | NA                      |
| Left lower tibia Z-axis force                      | -1370 N              | NA                      |
| Left lower tibia moment about Y-axis               | -106 N·m             | NA                      |
| Right lower tibia X-axis force                     | -2268 N              | NA                      |
| Right lower tibia Z-axis force                     | -4996 N              | NA                      |
| Right lower tibia moment about Y-axis <sup>1</sup> | -397 N·m             | NA                      |
| Left foot X-axis acceleration                      | -85.7 g              | -167.4 g                |
| Left foot Z-axis acceleration at heel              | -92.1 g              | 254.5 g                 |
| Left foot Z-axis acceleration at toe               | -136.5 g             | -272.2 g                |
| Right foot X-axis acceleration                     | -258.1 g             | -116.6 g                |
| Right foot Z-axis acceleration at heel             | -258.6 g             | 134.5 g                 |
| Right foot Z-axis acceleration at toe              | 358.7 g              | -195.1 g                |

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

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

## Dummy Kinematic Summary

### Driver Dummy

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

### Right Front Passenger Dummy

Upon impact, the right front passenger dummy translated forward on the seat impacting both knees into the instrument panel. The dummy's head and chest impacted the airbag. The dummy was restrained by the passenger's airbag and three-point unbelt. The dummy rebounded rearward into the seat back with the dummy's head contacting the head restraint and the seat back. The dummy then came to rest in the right front passenger's seat, restrained by the three-point unbelt.

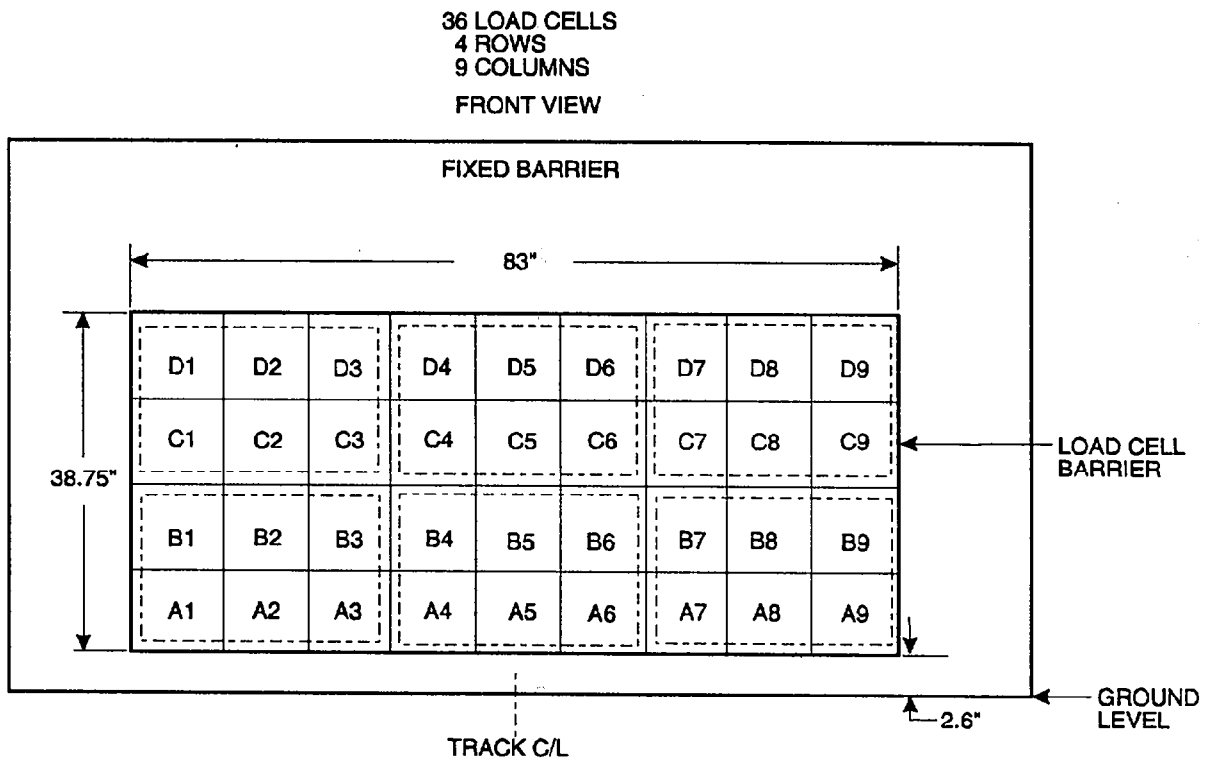
Table 8 Seat Belt Performance Assessment Test Data

|                                                                                            | Driver  | Passenger |
|--------------------------------------------------------------------------------------------|---------|-----------|
| <u>Belt length data:</u>                                                                   |         |           |
| Belt length from trim panel exit to bolt hole anchor point for continuous webbing systems. | 2710 mm | 2660 mm   |
| Shoulder belt length as measured on Part 572 dummy.                                        | 950 mm  | 940 mm    |
| Lap belt length as measured on Part 572 dummy.                                             | 810 mm  | 800 mm    |
| <u>Shoulder belt spool-off length:</u>                                                     |         |           |
| As determined by film analysis <sup>1</sup>                                                | NA      | NA        |
| As determined mechanically <sup>2</sup>                                                    | 162 mm  | 128 mm    |
| As determined electronically <sup>2</sup>                                                  | 234 mm  | 119 mm    |
| <u>Belt stretch length:</u>                                                                |         |           |
| As measured mechanically                                                                   | 0 mm/m  | 0 mm/m    |
| As measured electronically                                                                 | 12 mm/m | 0 mm/m    |
| <u>Retractor lock-up time:</u>                                                             |         |           |
| As determined by shoulder belt spool-off <sup>1</sup>                                      | NA      | NA        |

<sup>1</sup> No onboard cameras.

<sup>2</sup> The B-post trim panel moved causing the mechanical indicator string and the string from the string potentiometer to displace more than the belt actually spooled out.

Figure 4 Load Cell Barrier Configuration



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

Table 9 Load Cell Barrier Data Summary

| Location              | Positive<br>direction | Negative<br>direction |
|-----------------------|-----------------------|-----------------------|
| Total group 1         | 1.1 kN @ 4.4 ms       | 58.9 kN @ 17.6 ms     |
| Total group 2         | 0.1 kN @ 292.4 ms     | 260.0 kN @ 30.9 ms    |
| Total group 3         | 0.9 kN @ 3.7 ms       | 93.7 kN @ 19.0 ms     |
| Total group 4         | 0.2 kN @ 5.5 ms       | 54.6 kN @ 39.0 ms     |
| Total group 5         | 0.5 kN @ 5.0 ms       | 30.5 kN @ 27.9 ms     |
| Total group 6         | 0.1 kN @ 2.6 ms       | 37.3 kN @ 41.0 ms     |
| Total load cell force | 0.3 kN @ 2.6 ms       | 435.5 kN @ 29.8 ms    |

Tension is positive  
Compression is negative

Section 3.0

FMVSS 212, 219 (partial), and 301 Data

Figure 5 FMVSS 212 Test Data

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

Plastic trim around outer perimeter, adhesive around inner perimeter.

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

Windshield periphery measurements:

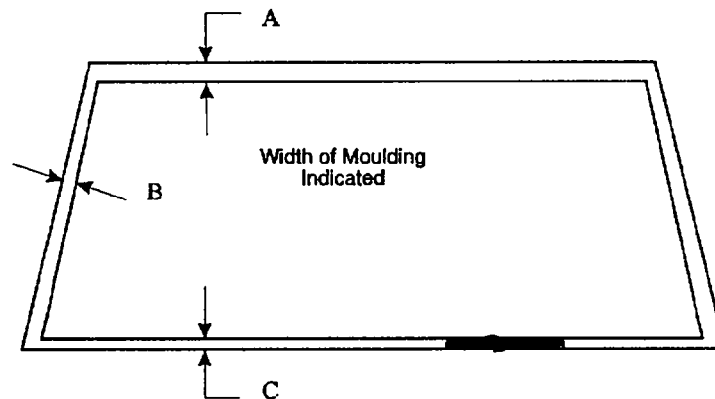
|            | <u>Pre-test</u> | <u>Post-test</u> | <u>Percent retention</u> |
|------------|-----------------|------------------|--------------------------|
| Right side | 2025 mm         | 2025 mm          | 100.0                    |
| Left side  | 2025 mm         | 1795 mm          | 88.6                     |
| Total      | 4050 mm         | 3820 mm          | 94.3                     |

Pre-test windshield mounting material temperature: 21° C

A = 15 mm

B = 23 mm

C = 8 mm



Front view of windshield<sup>1</sup>

Loss of windshield retention lengths:

Retention was lost along the lower perimeter from 510 to 740 millimeters as measured across the bottom edge from the lower left corner.

<sup>1</sup> Indicate areas of loss of retention, if any, on windshield diagram.

Figure 6 FMVSS 219 Test Data

Protected zone lower edge requirement:

The lower edge of the protected zone is determined by placing a 165-millimeter diameter rigid sphere weighing 6.8 kg in a position such that it simultaneously contacts the inner surface of the windshield and the top surface of the instrument panel including padding. Draw the locus of points on the inner surface of the windshield contactable by the sphere across the width of the instrument panel. From the outermost contactable points, extend the locus line horizontally to the edges of the windshield, and then draw a line on the inner surface of the windshield below and 13 millimeters from the locus line. The lower edge of the protected zone is the longitudinal projection onto the outer surface of the windshield of this line.

Windshield measurements:

A = 1070 mm

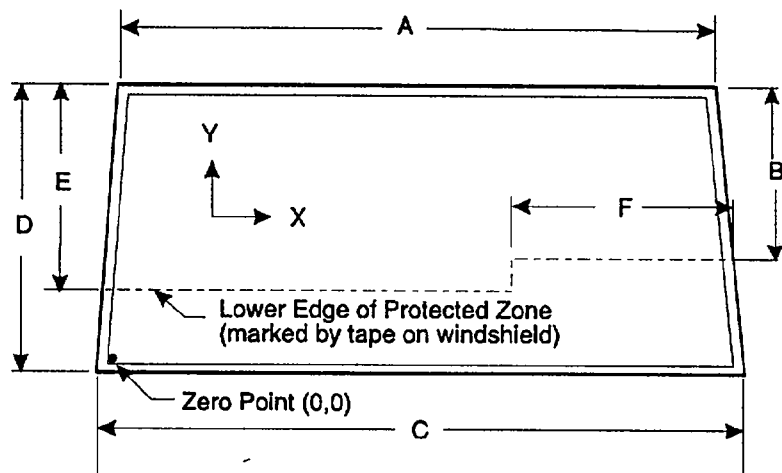
B = 460 mm

C = 1518 mm

D = 767 mm

E = 525 mm

F = 724 mm



FRONT VIEW

Method of adhering protected zone template to windshield: NA

Areas of windshield template penetration greater than 6 mm: NA

Coordinates

X Y

1.

2.

3.

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

1.

2.

3.

Table 10 Fuel System Data

|                                                                                                 |                                                                                                                                                                     |
|-------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Vehicle year/make/<br>model/body style:                                                         | 1996/Mitsubishi/Mirage/2-door coupe                                                                                                                                 |
| NHTSA number:                                                                                   | MT5600                                                                                                                                                              |
| Fuel system capacity:                                                                           | 50.0 liters (from owner's manual)                                                                                                                                   |
| Usable capacity:                                                                                | 50.0 liters (furnished by COTR)                                                                                                                                     |
| Test volume range:                                                                              | 46.0 liters to 47.0 liters (92-94% of usable)                                                                                                                       |
| Actual test volume:                                                                             | 46.5 liters (with entire fuel system filled)                                                                                                                        |
| Test fluid type:                                                                                | Stoddard solvent                                                                                                                                                    |
| Specific gravity:                                                                               | 0.764                                                                                                                                                               |
| Kinematic viscosity:                                                                            | 0.99 centistoke                                                                                                                                                     |
| Test fluid color:                                                                               | Purple                                                                                                                                                              |
| Did electric fuel pump<br>operate with ignition<br>switch "on" and the<br>engine not operating. | No                                                                                                                                                                  |
| Details of fuel system:                                                                         | The fuel tank was located in front of the rear axle.<br>The fuel filler neck was located on the right side<br>The fuel lines ran along the right side to the front. |

Table 11 FMVSS 301 Post-Impact Test Data

NHTSA number: MT5600  
Test date: 01/17/96  
Vehicle year/make/  
model/body style: 1996/Mitsubishi/Mirage/2-door coupe

Test requirements:

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

Test vehicle impact type:

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

Fuel system fluid spillage measurements:

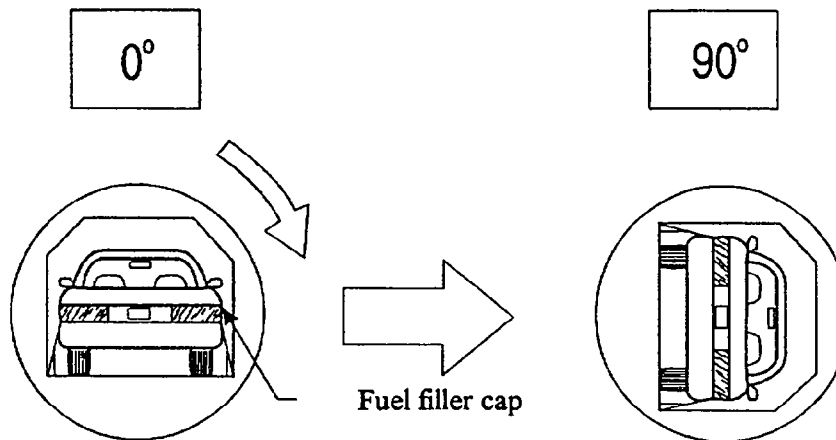
|                                                      | Test<br>Results | Maximum<br>Allowable |
|------------------------------------------------------|-----------------|----------------------|
| 1. From impact until vehicle motion ceases .....     | 0 g             | 28 g                 |
| 2. 5-minute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

Fuel system fluid spillage location(s): None

**Figure 7 FMVSS 301 Static Rollover Test Data**

NHTSA number: MT5600

Test phase



Static rollover machine rotation time information: (specified range is 1-3 minutes)

Time required for machine to rotate 90° = 2 minutes, 0 seconds

FMVSS 301 position hold time = 5 minutes, 0 seconds

Total = 7 minutes, 0 seconds

Next whole minute interval = 7 minutes

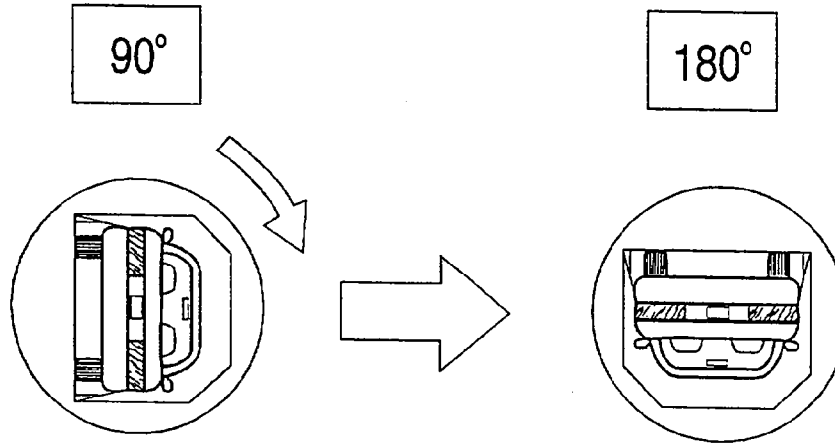
Fuel system fluid spillage measurements:

|                                                  | Test Results | Maximum Allowable |
|--------------------------------------------------|--------------|-------------------|
| <u>0° to 90° rotation (fuel filler cap down)</u> |              |                   |
| 1. First five minutes from onset of rotation     | 0 g          | 142 g             |
| 2. Sixth minute from onset of rotation           | 0 g          | 28 g              |
| 3. Seventh minute from onset of rotation         | 0 g          | 28 g              |

Fuel system fluid spillage location(s): None

Figure 7 FMVSS 301 Static Rollover Test Data, Cont'd.

Test phase



Static rollover machine rotation time information: (specified range is 1-3 minutes)

Time required for machine to rotate 90° = 2 minutes, 0 seconds  
 FMVSS 301 position hold time = 5 minutes, 0 seconds  
 Total = 7 minutes, 0 seconds  
 Next whole minute interval = 14 minutes

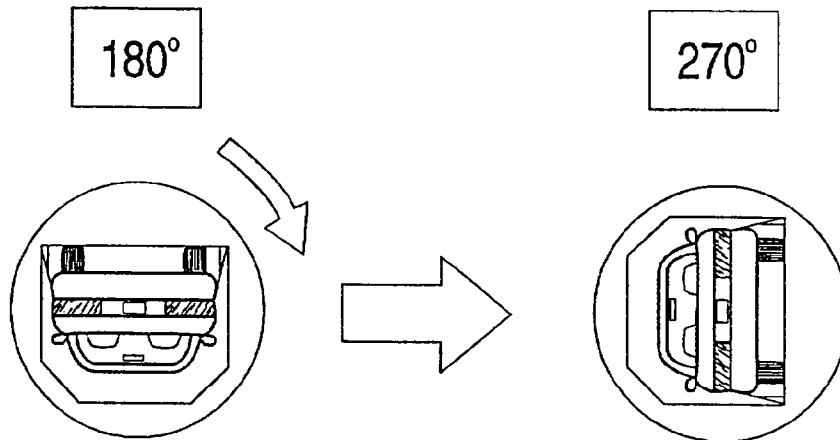
Fuel system fluid spillage measurements:

| 90° to 180° rotation                         | Test Results | Maximum Allowable |
|----------------------------------------------|--------------|-------------------|
| 1. First five minutes from onset of rotation | 0 g          | 142 g             |
| 2. Sixth minute from onset of rotation       | 0 g          | 28 g              |
| 3. Seventh minute from onset of rotation     | 0 g          | 28 g              |

Fuel system fluid spillage location(s): None

**Figure 7 FMVSS 301 Static Rollover Test Data, Cont'd.**

Test phase



Static rollover machine rotation time information: (specified range is 1-3 minutes)

Time required for machine to rotate 90° = 2 minutes, 0 seconds  
 FMVSS 301 position hold time = 5 minutes, 0 seconds  
 Total = 7 minutes, 0 seconds  
 Next whole minute interval = 21 minutes

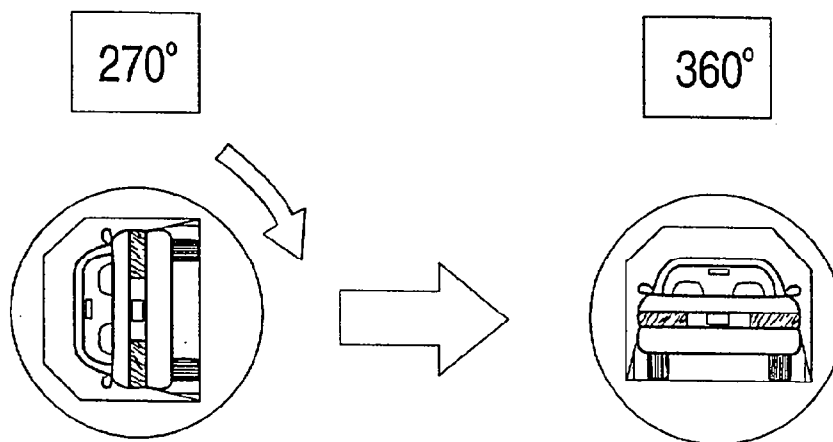
Fuel system fluid spillage measurements:

| <u>180° to 270° rotation</u>                 | <u>Test Results</u> | <u>Maximum Allowable</u> |
|----------------------------------------------|---------------------|--------------------------|
| 1. First five minutes from onset of rotation | 0 g                 | 142 g                    |
| 2. Sixth minute from onset of rotation       | 0 g                 | 28 g                     |
| 3. Seventh minute from onset of rotation     | 0 g                 | 28 g                     |

Fuel system fluid spillage location(s): None

Figure 7 FMVSS 301 Static Rollover Test Data, Cont'd.

Test phase



Static rollover machine rotation time information: (specified range is 1-3 minutes)

Time required for machine to rotate 90° = 2 minutes, 0 seconds

FMVSS 301 position hold time = 5 minutes, 0 seconds

Total = 7 minutes, 0 seconds

Next whole minute interval = 28 minutes

Fuel system fluid spillage measurements:

| <u>270° to 360° rotation</u> |                                           | Test Results | Maximum Allowable |
|------------------------------|-------------------------------------------|--------------|-------------------|
| 1.                           | First five minutes from onset of rotation | 0 g          | 142 g             |
| 2.                           | Sixth minute from onset of rotation       | 0 g          | 28 g              |
| 3.                           | Seventh minute from onset of rotation     | 0 g          | 28 g              |

Fuel system fluid spillage location(s): None

Section 4.0

Occupant, Camera, and Vehicle Information

Figure 8 Dummy Measurement Locations for Front Seat Occupants

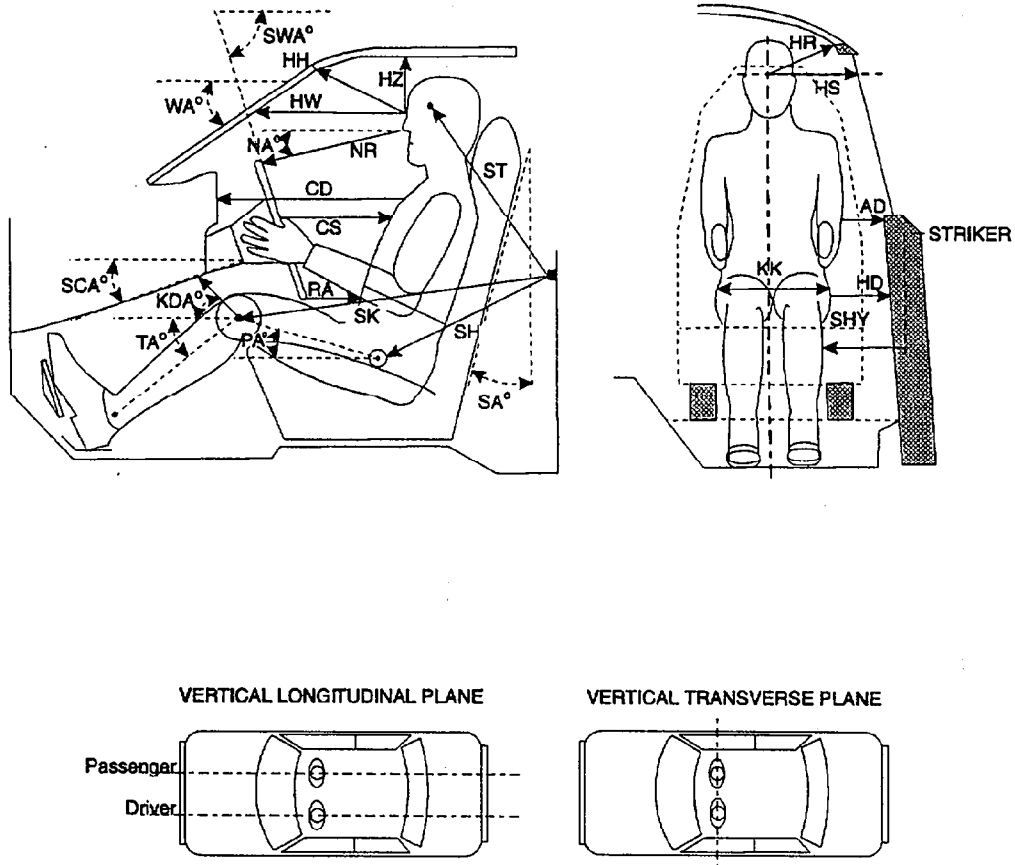


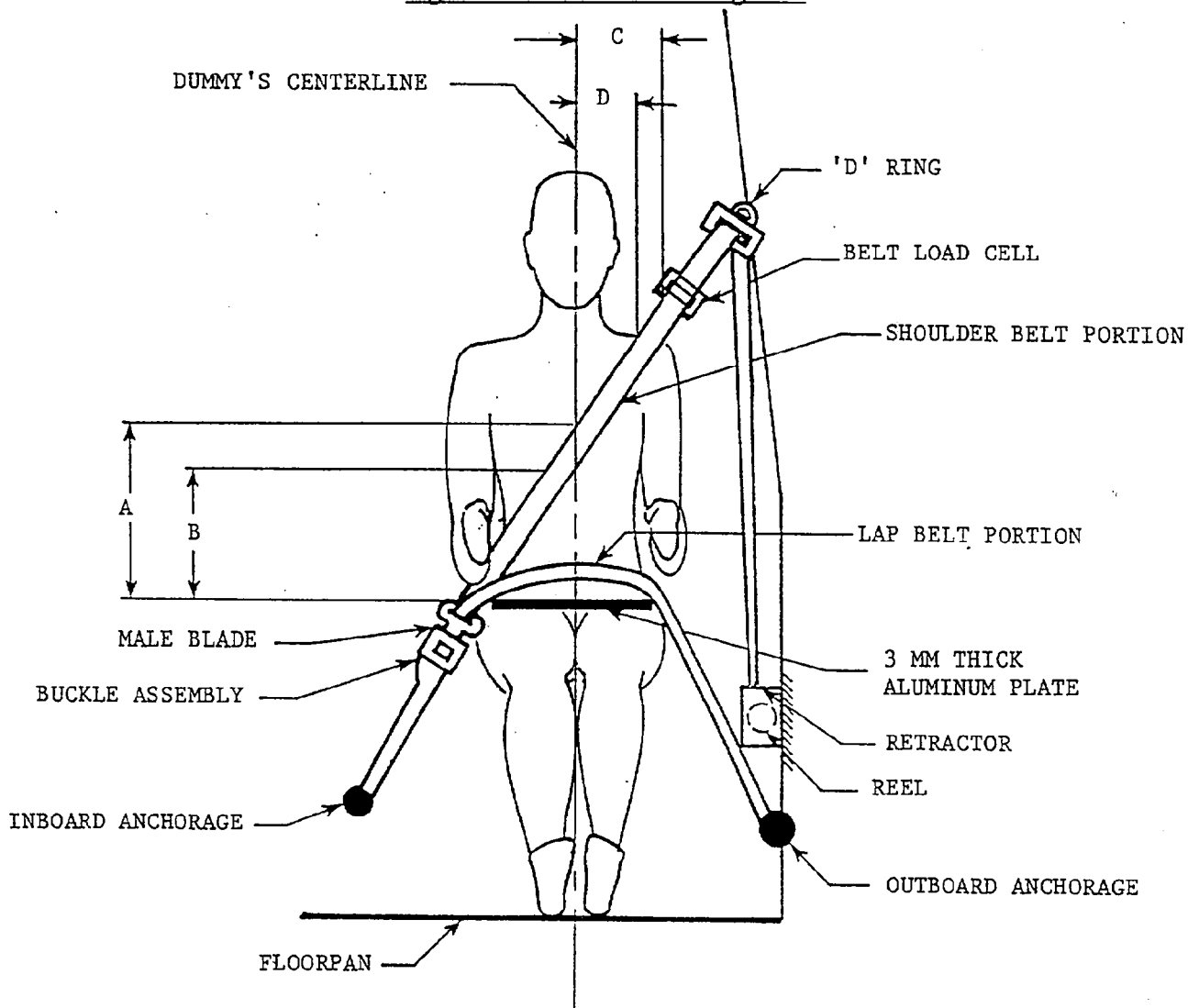
Table 12 Dummy Measurement Data For Front Seat Occupants

| <u>Designation</u> | <u>Type of Measurement</u>  | <u>Driver<br/>(Serial #142)</u> | <u>Passenger<br/>(Serial #192)</u> |
|--------------------|-----------------------------|---------------------------------|------------------------------------|
| WA                 | Windshield angle            | 28°                             | NA                                 |
| SWA                | Steering wheel angle        | 66°                             | NA                                 |
| SCA                | Steering column angle       | 24°                             | NA                                 |
| SA                 | Seat back angle             | 23°                             | 23°                                |
| HZ                 | Head to roof                | 169 mm                          | 153 mm                             |
| HH                 | Head to header              | 308 mm                          | 292 mm                             |
| HW                 | Head to windshield          | 525 mm                          | 502 mm                             |
| HR                 | Head to side header         | 211 mm                          | 203 mm                             |
| NR                 | Nose to rim                 | 396 mm                          | NA                                 |
| NA                 | Nose to rim angle           | 13°                             | NA                                 |
| CD                 | Chest to dash               | 529 mm                          | 551 mm                             |
| CS                 | Steering wheel to chest     | 322 mm                          | NA                                 |
| RA                 | Rim to abdomen              | 196 mm                          | NA                                 |
| KDL                | Left knee to dash           | 181 mm                          | 179 mm                             |
| KDR                | Right knee to dash          | 174 mm                          | 189 mm                             |
| KDA                | Outboard knee to dash angle | 29°                             | 31°                                |
| PA                 | Pelvic angle                | 23°                             | 23°                                |
| TA                 | Tibial angle                | 42°                             | 39°                                |
| KK                 | Knee to knee                | 369 mm                          | 280 mm                             |
| ST <sup>1</sup>    | Striker to head             | 563 mm                          | 573 mm                             |
|                    | Striker to head angle       | -60°                            | -60°                               |
| SK <sup>1</sup>    | Striker to knee             | 769 mm                          | 790 mm                             |
|                    | Striker to knee angle       | 1°                              | 3°                                 |
| SH <sup>1</sup>    | Striker to H-point          | 442 mm                          | 436 mm                             |
|                    | Striker to H-point angle    | 22°                             | 22°                                |
| SHY                | Striker to H-point (Y dir.) | 206 mm                          | 190 mm                             |
| HS                 | Head to side window         | 318 mm                          | 308 mm                             |
| HD                 | H-point to door             | 131 mm                          | 131 mm                             |
| AD                 | Arm to door                 | 108 mm                          | 103 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.

**Figure 9 Seat Belt Positioning Data**



|                                                               | Driver      | Passenger   |
|---------------------------------------------------------------|-------------|-------------|
| A - Top surface of aluminum plate to belt upper edge          | 345 mm      | 358 mm      |
| B - Top surface of aluminum plate to belt lower edge          | 258 mm      | 248 mm      |
| C - Dummy centerline to outer edge of belt at chest flesh top | 104 mm      | 111 mm      |
| D - Dummy centerline to inner edge of belt at chest flesh top | 47 mm       | 56 mm       |
| Lap belt tension                                              | 13 N        | 13 N        |
| Shoulder belt tension                                         | 18 N        | 18 N        |
| Position of adjustable belt anchorage                         | 3rd of five | 3rd of five |

**Figure 10 Camera Positions**

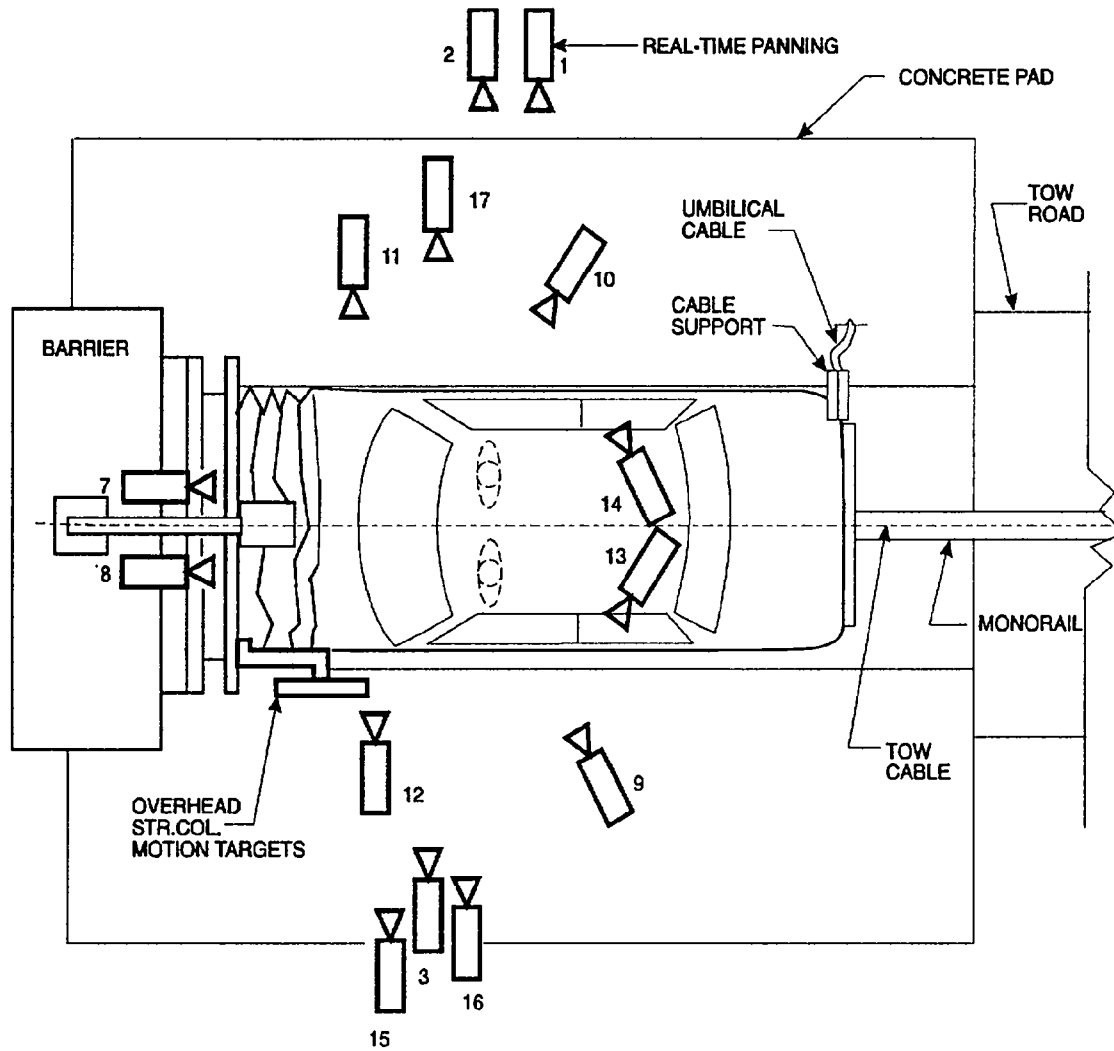


Figure 10 Camera Positions, Cont'd.

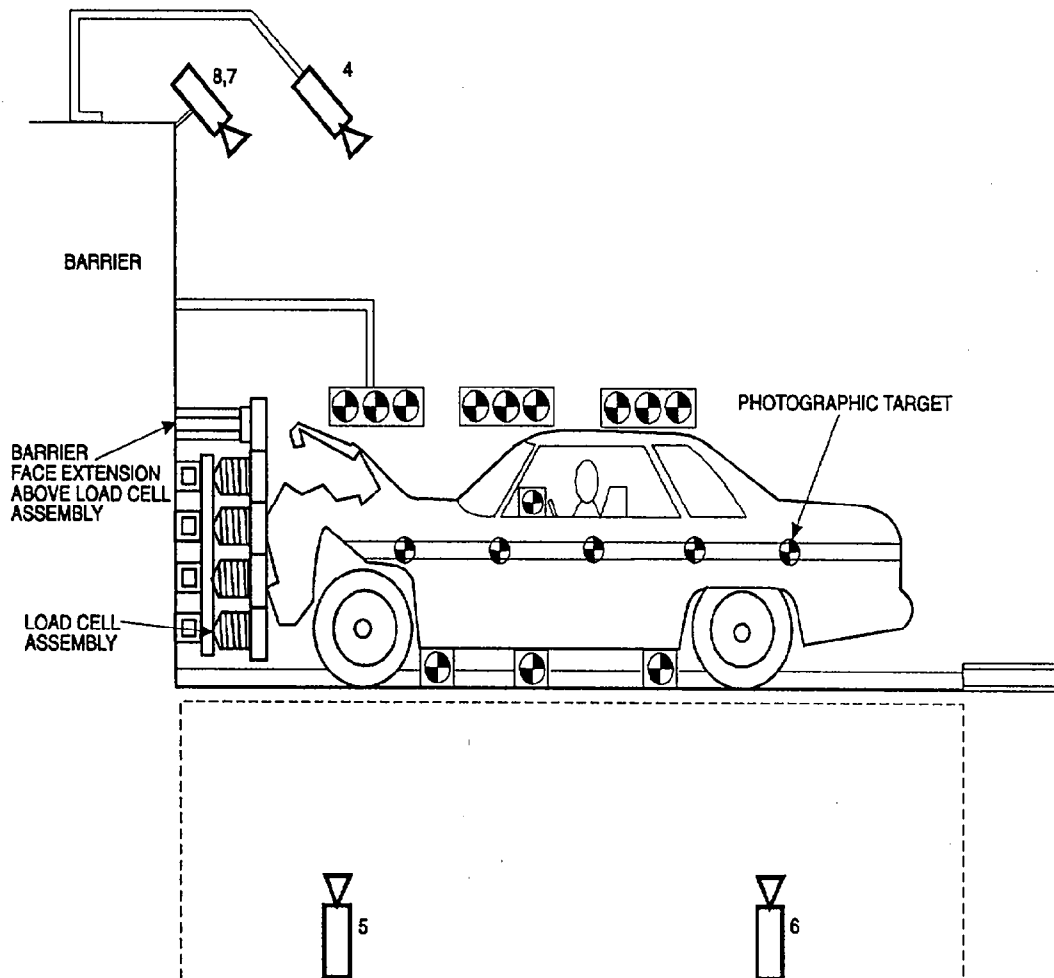


Table 13 Motion Picture Camera Locations

Test Number: 960117

Vehicle year/make/model/body style: 1996/Mitsubishi/Mirage/2-door coupe

| Camera Number | View                                      | Camera Positions <sup>1</sup> |          |          | Angle <sup>2</sup> | Film Plane to Head Target | Lens  | Film Speed    |
|---------------|-------------------------------------------|-------------------------------|----------|----------|--------------------|---------------------------|-------|---------------|
|               |                                           | X                             | Y        | Z        |                    |                           |       |               |
| 1             | Real-time panning                         | -3607 mm                      | -2802 mm | 1549 mm  | NA                 | NA mm                     | 16 mm | 24 frames/s   |
| 2             | Vehicle crush                             | -2065 mm                      | -6767 mm | 942 mm   | -2°                | NA mm                     | 13 mm | 498 frames/s  |
| 3             | Dummy kinematics                          | -1054 mm                      | 7493 mm  | 1118 mm  | -12°               | 5385 mm                   | 25 mm | 992 frames/s  |
| 4             | Windshield damage                         | -925 mm                       | 0 mm     | 2489 mm  | -40°               | NA mm                     | 13 mm | 498 frames/s  |
| 5             | Crush & fluid spillage                    | -1283 mm                      | 0 mm     | -2347 mm | 90°                | NA mm                     | 13 mm | 1005 frames/s |
| 6             | Fluid spillage                            | -2522 mm                      | 0 mm     | -2515 mm | 90°                | NA mm                     | 13 mm | 992 frames/s  |
| 7             | Passenger kinematics                      | -114 mm                       | -351 mm  | 2159 mm  | -40°               | NA mm                     | 17 mm | 498 frames/s  |
| 8             | Driver kinematics                         | -173 mm                       | 368 mm   | 2159 mm  | -41°               | NA mm                     | 17 mm | 515 frames/s  |
| 9             | Driver kinematics                         | -4572 mm                      | 1854 mm  | 2591 mm  | -27°               | 2083 mm                   | 25 mm | 490 frames/s  |
| 10            | Passenger kinematics                      | -4674 mm                      | -1880 mm | 2540 mm  | -26°               | 2108 mm                   | 25 mm | 490 frames/s  |
| 11            | Windshield intrusion                      | -968 mm                       | -7775 mm | 1118 mm  | 0°                 | NA mm                     | 50 mm | 502 frames/s  |
| 12            | Windshield intrusion                      | -1346 mm                      | 7859 mm  | 1074 mm  | 0°                 | NA mm                     | 50 mm | 502 frames/s  |
| 13            | Driver seat belt movement <sup>3</sup>    | NA                            | NA       | NA       | NA                 | NA                        | NA    | NA            |
| 14            | Passenger seat belt movement <sup>3</sup> | NA                            | NA       | NA       | NA                 | NA mm                     | NA mm | NA            |
| 15            | Column movement                           | -3048 mm                      | 7264 mm  | 2616 mm  | -14°               | NA mm                     | 25 mm | 498 frames/s  |
| 16            | Column movement                           | -3048 mm                      | 7264 mm  | 1908 mm  | -9°                | NA mm                     | 25 mm | 492 frames/s  |
| 17            | Passenger kinematics                      | -986 mm                       | -5354 mm | 1151 mm  | 7°                 | 5461 mm                   | 25 mm | 1000 frames/s |

<sup>1</sup> +X = Film plane forward of barrier face

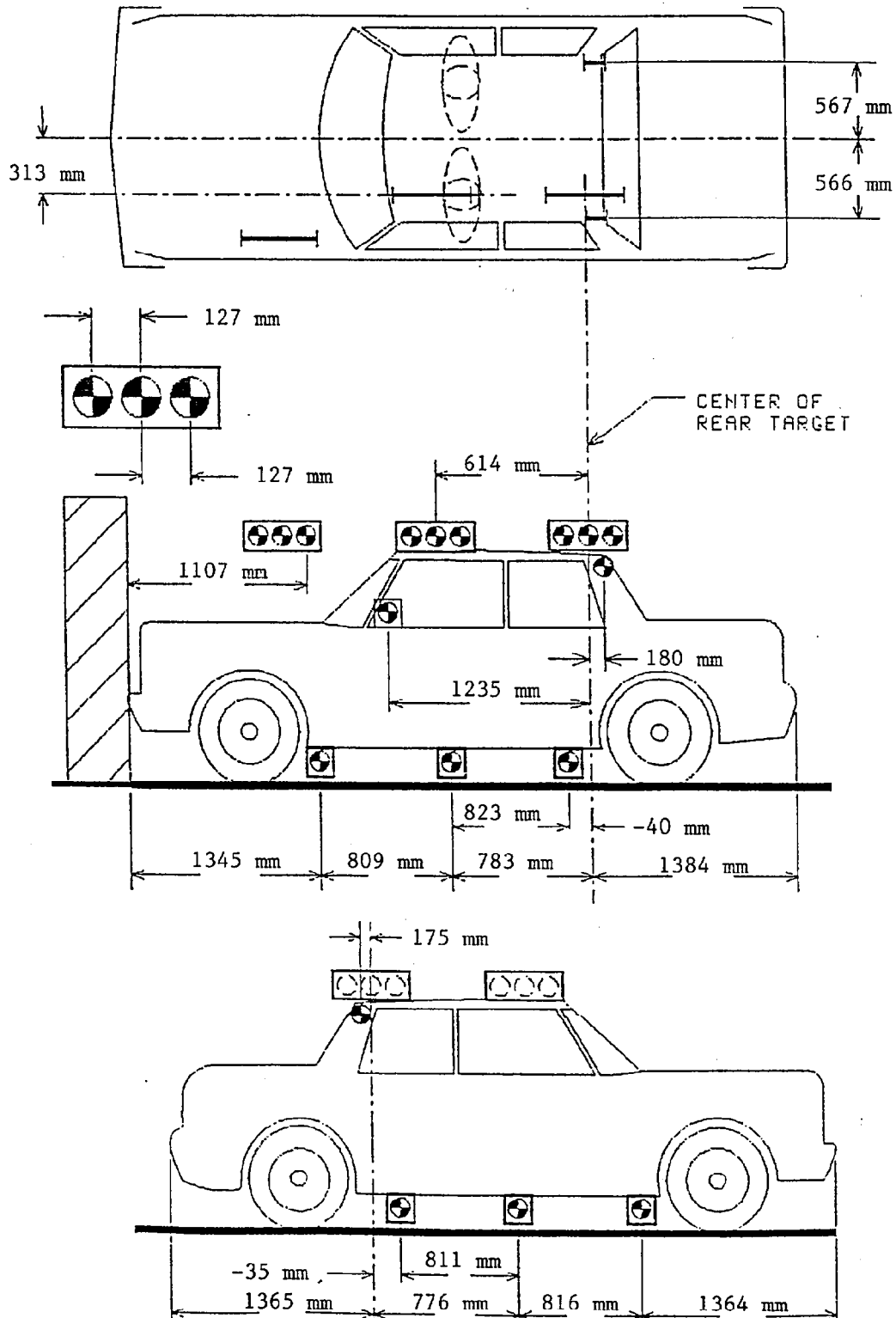
+Y = Film plane to left of monorail centerline

+Z = Film plane above ground level

<sup>2</sup> +Angle = Film plane angled upward from horizontal plane

<sup>3</sup> No onboard cameras were used.

**Figure 11 Vehicle Target Locations**



**Figure 12 Pre-Test And Post-Test Measurement Points**

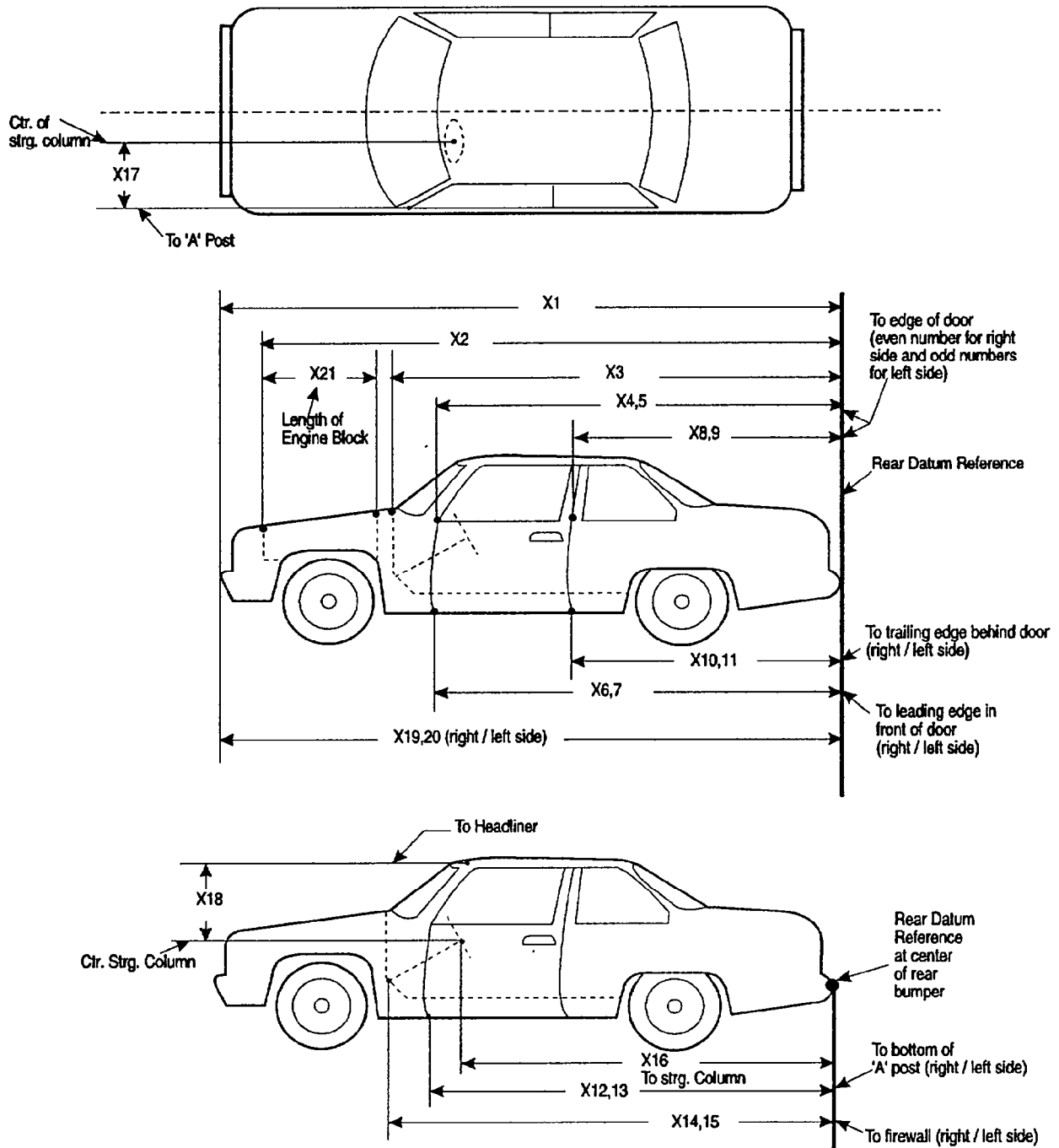


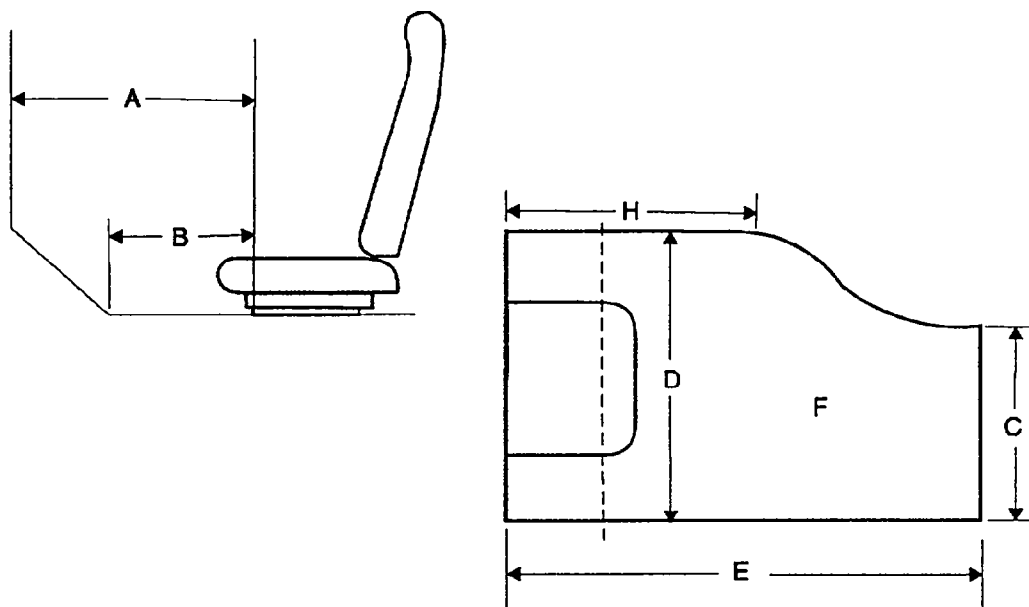
Table 14 Impacted Vehicle Measurements

Vehicle Make/Model: Mitsubishi/Mirage

Test Number: 960117

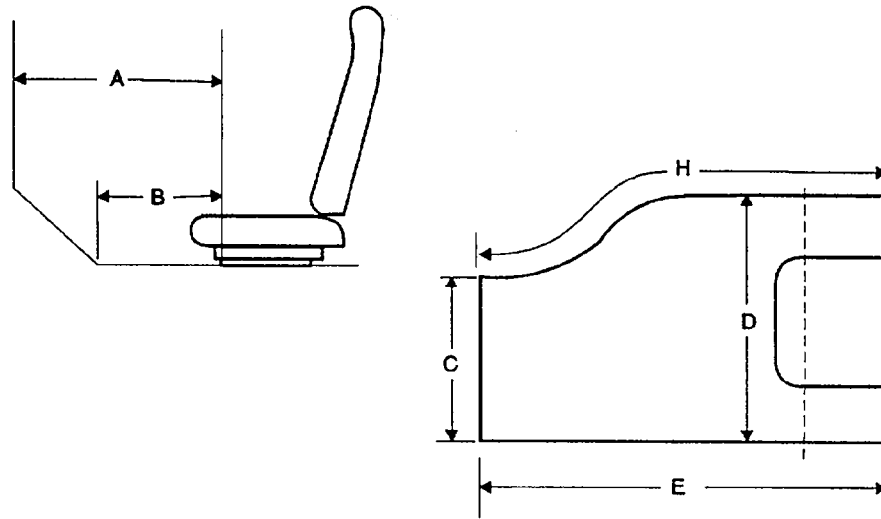
| No. | Type of measurement                                          | Pre-test | Post-test | Diff.  |
|-----|--------------------------------------------------------------|----------|-----------|--------|
| X1  | Total length of vehicle at centerline                        | 4321 mm  | 3827 mm   | 494 mm |
| X2  | Rear surface of vehicle to front of engine block             | 3721 mm  | 3500 mm   | 221 mm |
| X3  | Rear surface of vehicle to firewall                          | 3204 mm  | 3192 mm   | 12 mm  |
| X4  | Rear surface of vehicle to upper leading edge of right door  | 3004 mm  | 3017 mm   | -13 mm |
| X5  | Rear surface of vehicle to upper leading edge of left door   | 3002 mm  | 3009 mm   | -7 mm  |
| X6  | Rear surface of vehicle to lower leading edge of right door  | 3009 mm  | 2988 mm   | 21 mm  |
| X7  | Rear surface of vehicle to lower leading edge of left door   | 3008 mm  | 3000 mm   | 8 mm   |
| X8  | Rear surface of vehicle to upper trailing edge of right door | 1745 mm  | 1776 mm   | -31 mm |
| X9  | Rear surface of vehicle to upper trailing edge of left door  | 1742 mm  | 1764 mm   | -22 mm |
| X10 | Rear surface of vehicle to lower trailing edge of right door | 1814 mm  | 1795 mm   | 19 mm  |
| X11 | Rear surface of vehicle to lower trailing edge of left door  | 1816 mm  | 1814 mm   | 2 mm   |
| X12 | Rear surface of vehicle to bottom of "A" post on right side  | 2996 mm  | 2998 mm   | -2 mm  |
| X13 | Rear surface of vehicle to bottom of "A" post on left side   | 2986 mm  | 2988 mm   | -2 mm  |
| X14 | Rear surface of vehicle to firewall - right side             | 3225 mm  | 3231 mm   | -6 mm  |
| X15 | Rear surface of vehicle to firewall - left side              | 3235 mm  | 3250 mm   | -15 mm |
| X16 | Rear surface of vehicle to steering wheel center             | 2548 mm  | 2562 mm   | -14 mm |
| X17 | Center of steering column to "A" post                        | 284 mm   | 306 mm    | -22 mm |
| X18 | Center of steering column to headliner                       | 436 mm   | 449 mm    | -13 mm |
| X19 | Rear surface of vehicle to right side of front bumper        | 4229 mm  | 3809 mm   | 420 mm |
| X20 | Rear surface of vehicle to left side of front bumper         | 4232 mm  | 3808 mm   | 424 mm |
| X21 | Length of engine block                                       | 398 mm   | 398 mm    | 0 mm   |

**Figure 13 Static Footwell Deformation**  
(Driver's Side)



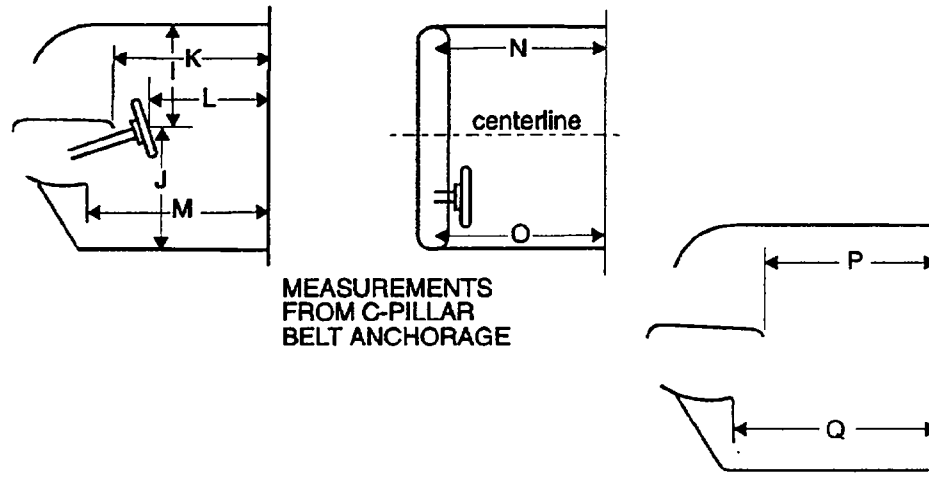
| Measurement | Pre-Test | Post-Test | Difference |
|-------------|----------|-----------|------------|
| A           | 687 mm   | 575 mm    | 112 mm     |
| B           | 582 mm   | 505 mm    | 77 mm      |
| C           | 427 mm   | 330 mm    | 97 mm      |
| D           | 410 mm   | 403 mm    | 7 mm       |
| E           | 945 mm   | 947 mm    | -2 mm      |
| H           | 866 mm   | 890 mm    | -24 mm     |

**Figure 14 Static Footwell Deformation**  
(Passenger's Side)



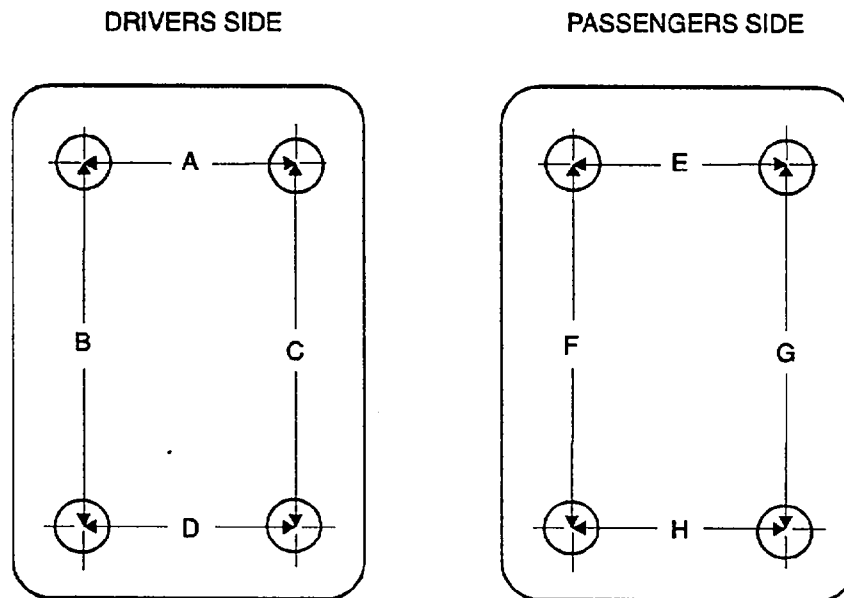
| Measurement | Pre-Test | Post-Test | Difference |
|-------------|----------|-----------|------------|
| A           | 693 mm   | 573 mm    | 120 mm     |
| B           | 553 mm   | 532 mm    | 21 mm      |
| C           | 394 mm   | 305 mm    | 89 mm      |
| D           | 456 mm   | 456 mm    | 0 mm       |
| E           | 913 mm   | 902 mm    | 11 mm      |
| H           | 850 mm   | 805 mm    | 45 mm      |

**Figure 15 Static Passenger Compartment Intrusion**



| Measurement | Pre-Test | Post-Test | Difference |
|-------------|----------|-----------|------------|
| I           | 445 mm   | 385 mm    | 60 mm      |
| J           | 560 mm   | 621 mm    | -61 mm     |
| K           | 1744 mm  | 1725 mm   | 19 mm      |
| L           | 1531 mm  | 1559 mm   | -28 mm     |
| M           | 1797 mm  | 1772 mm   | 25 mm      |
| N           | 1739 mm  | 1724 mm   | 15 mm      |
| O           | 1745 mm  | 1750 mm   | -5 mm      |
| P           | 1757 mm  | 1746 mm   | 11 mm      |
| Q           | 1781 mm  | 1751 mm   | 30 mm      |

**Figure 16 Underbody Floorboard Deformation**



| Measurement | Pre-Test | Post-Test | Difference |
|-------------|----------|-----------|------------|
| A           | 392 mm   | 380 mm    | 12 mm      |
| B           | 623 mm   | 608 mm    | 15 mm      |
| C           | 608 mm   | 620 mm    | -12 mm     |
| D           | 375 mm   | 370 mm    | 5 mm       |
| E           | 407 mm   | 400 mm    | 7 mm       |
| F           | 606 mm   | 605 mm    | 1 mm       |
| G           | 630 mm   | 573 mm    | 57 mm      |
| H           | 409 mm   | 420 mm    | -11 mm     |

Appendix A

Photographs

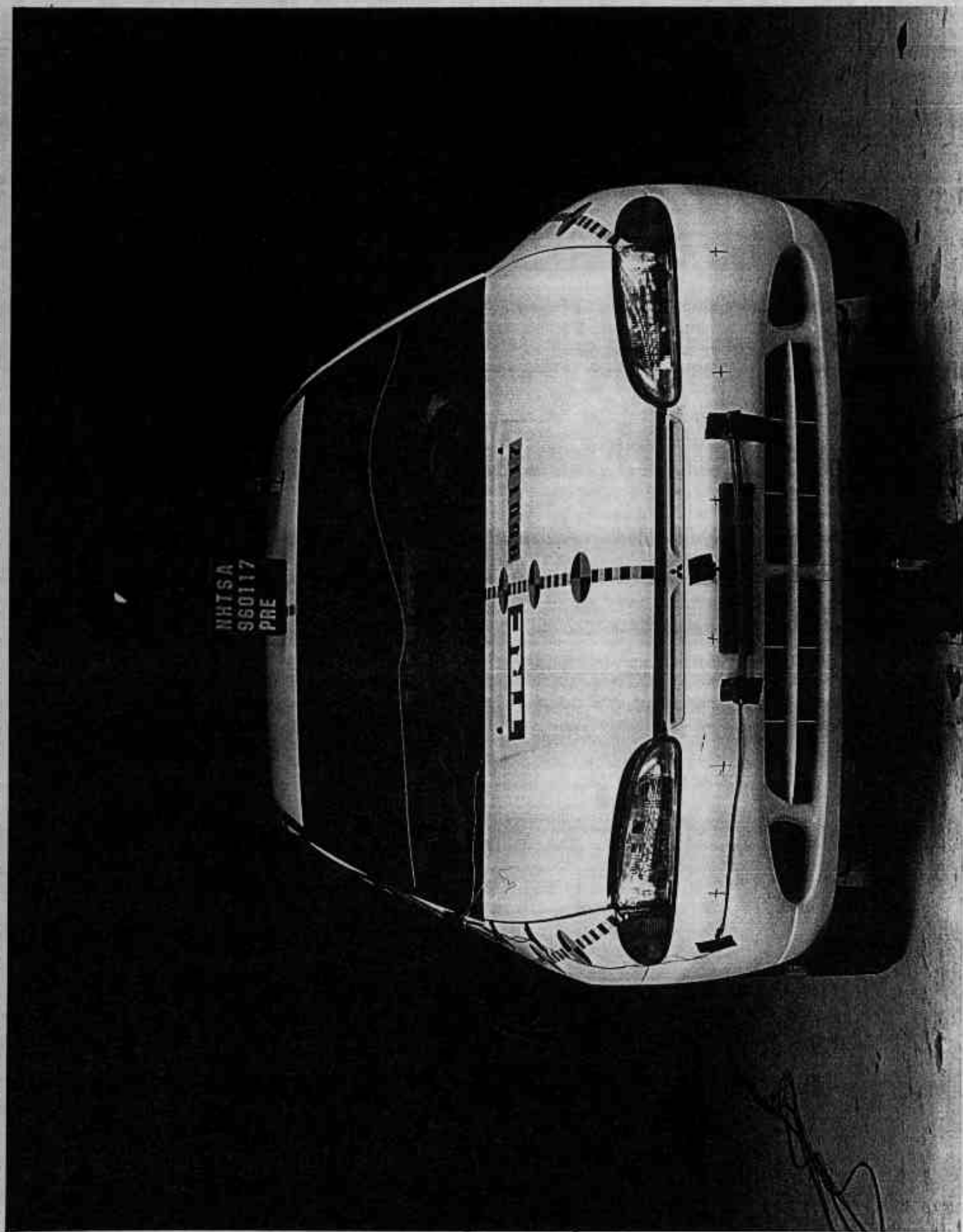


Figure A-1. Pre-Test Front View

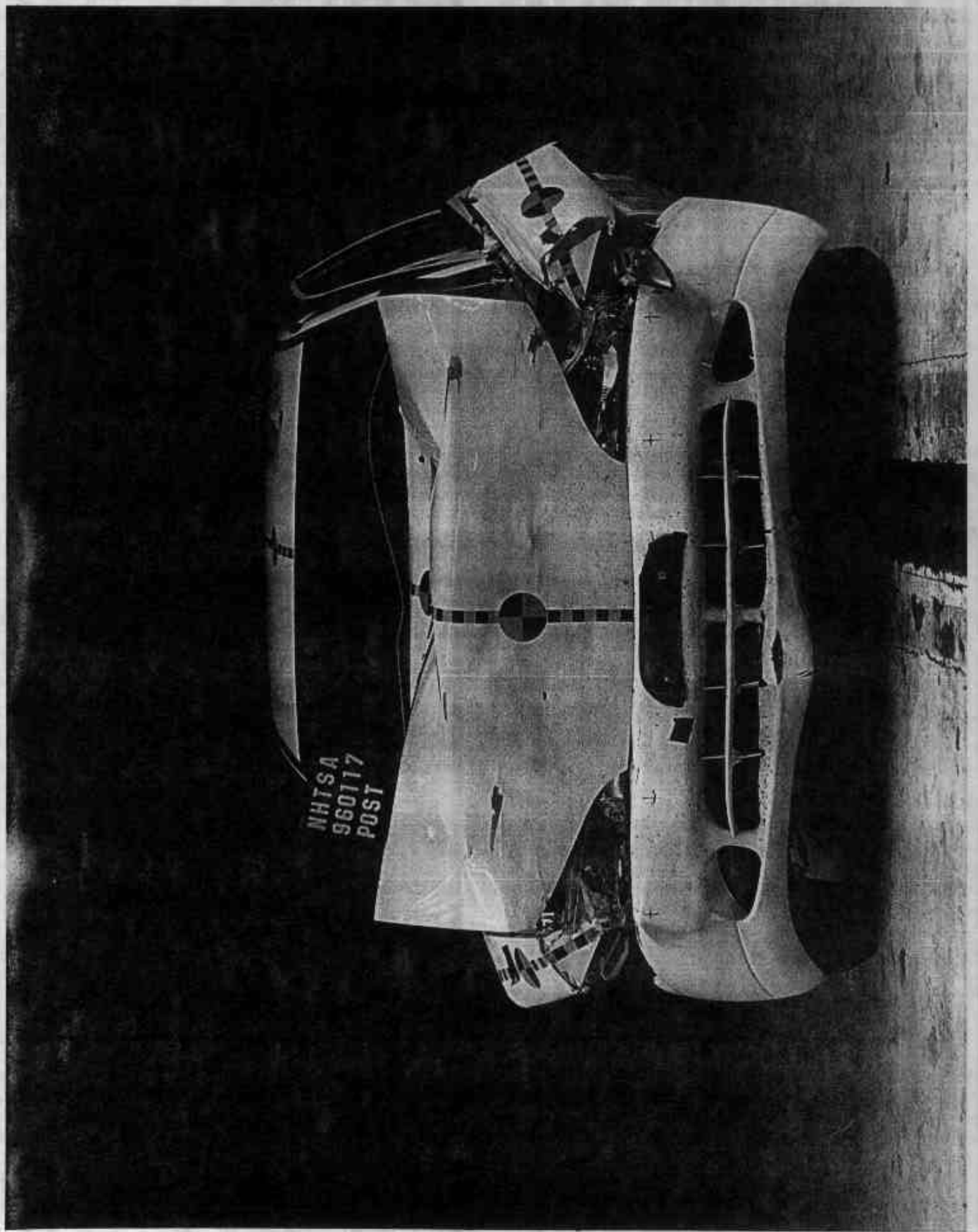


Figure A-2. Post-Test Front View

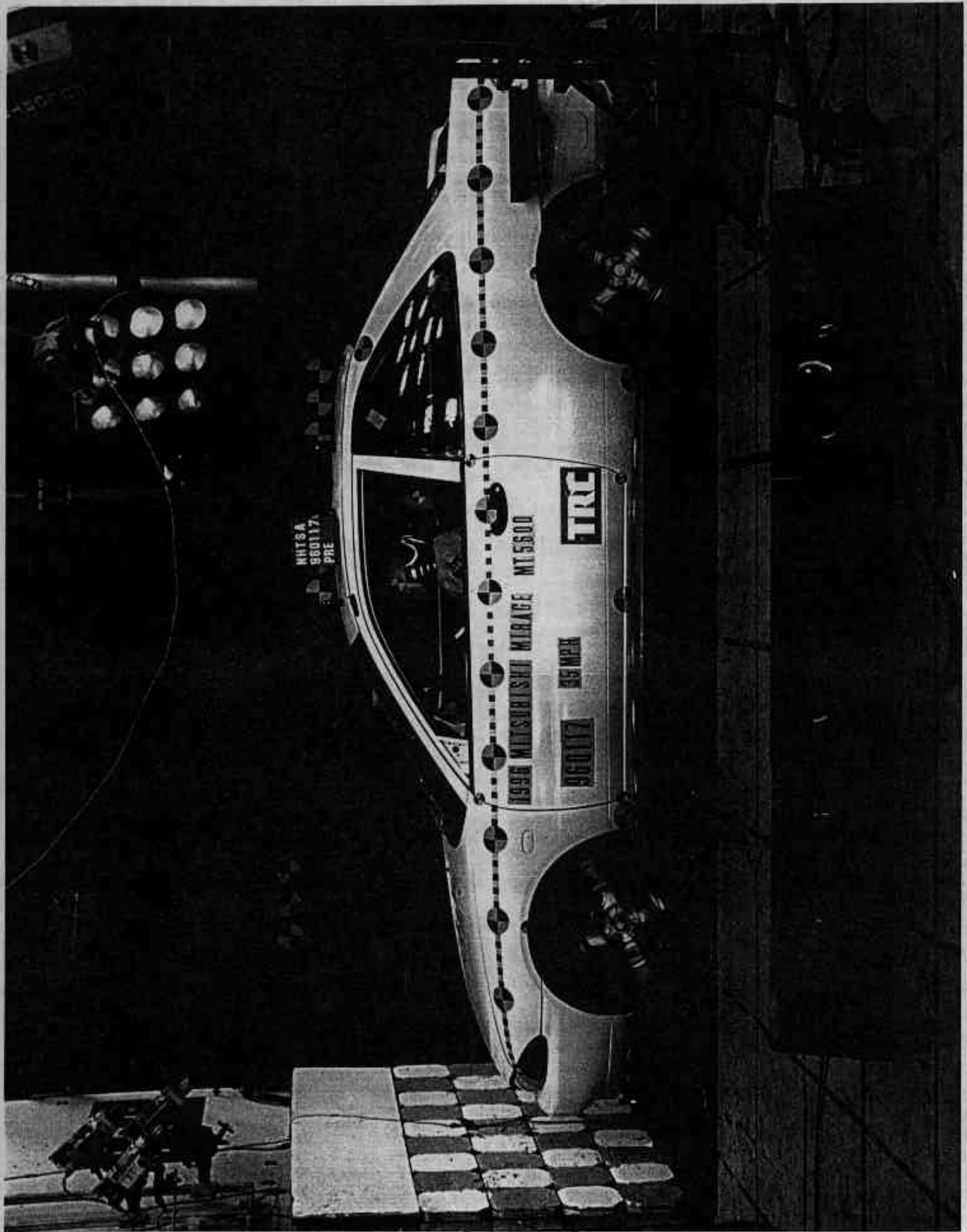


Figure A-3. Pre-Test Left Side View



Figure A-4. Post-Test Left Side View

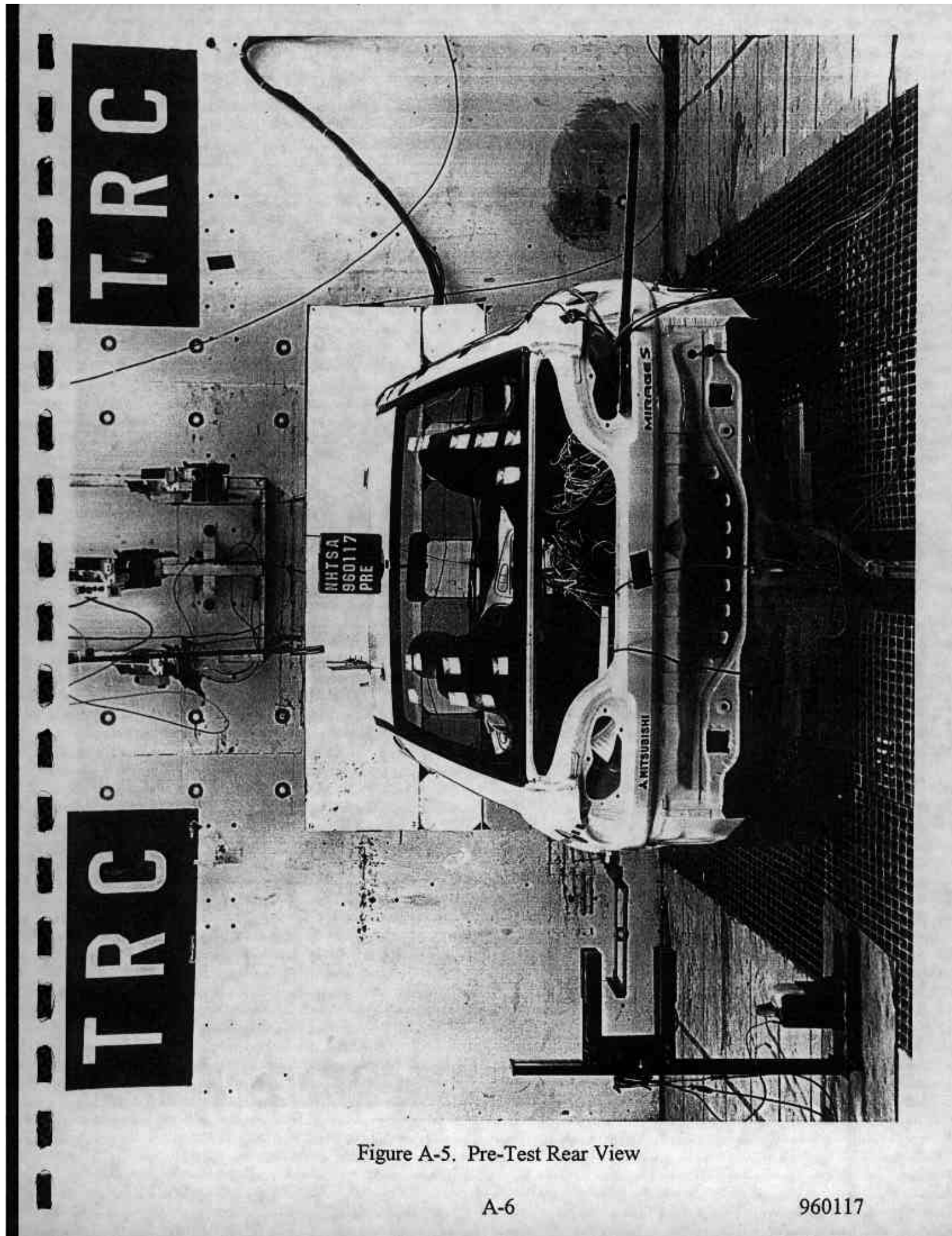


Figure A-5. Pre-Test Rear View

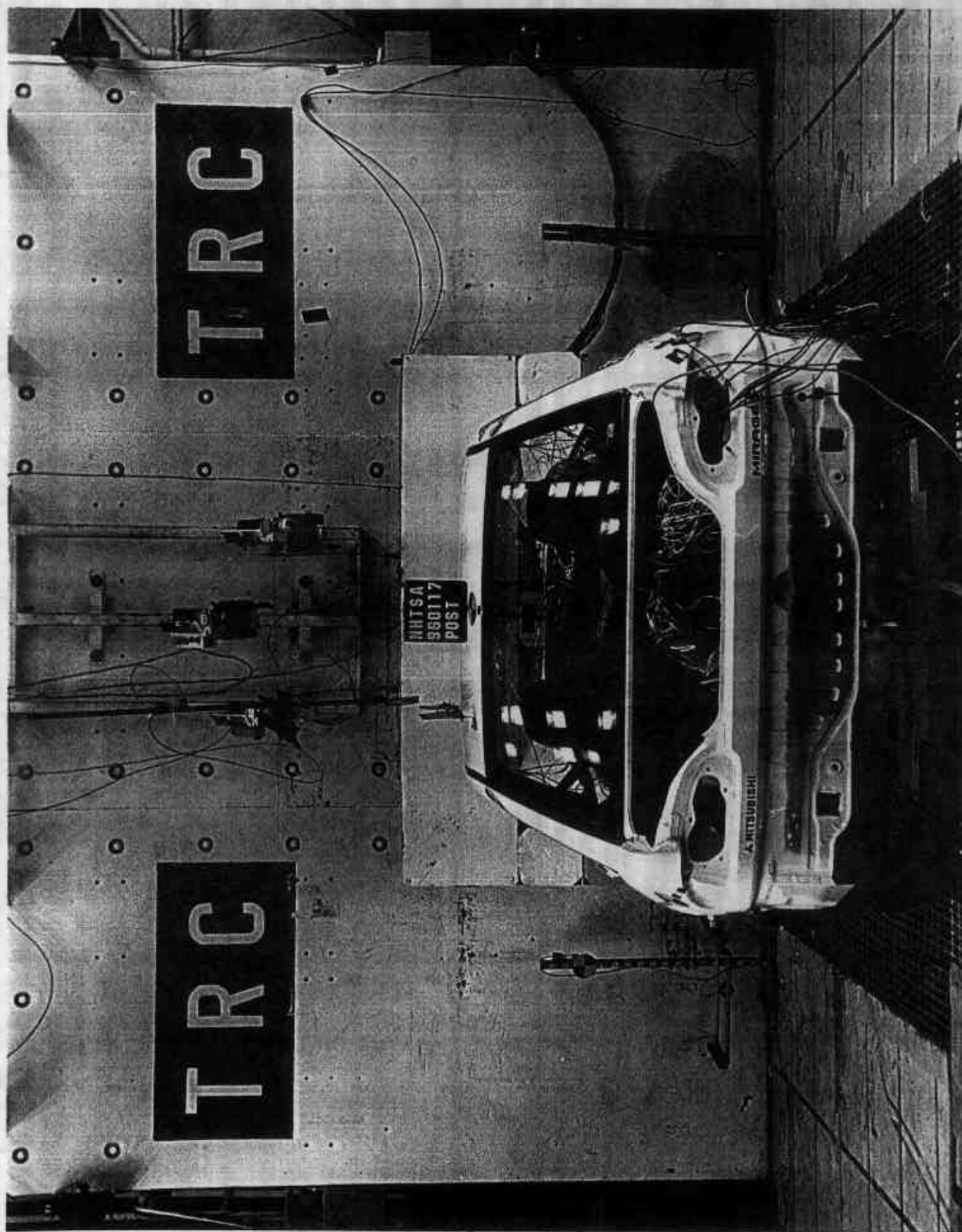


Figure A-6. Post-Test Rear View

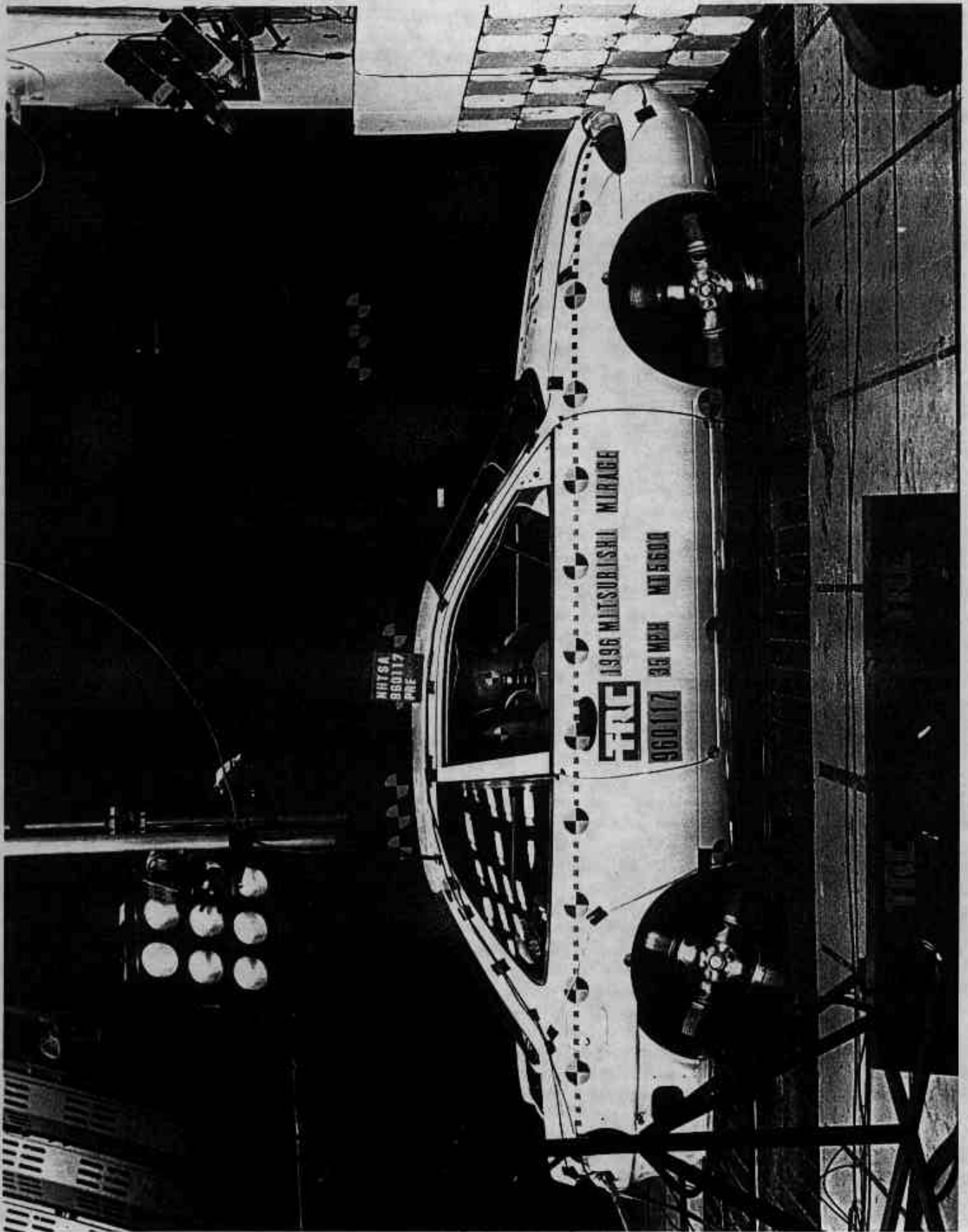


Figure A-7. Pre-Test Right Side View

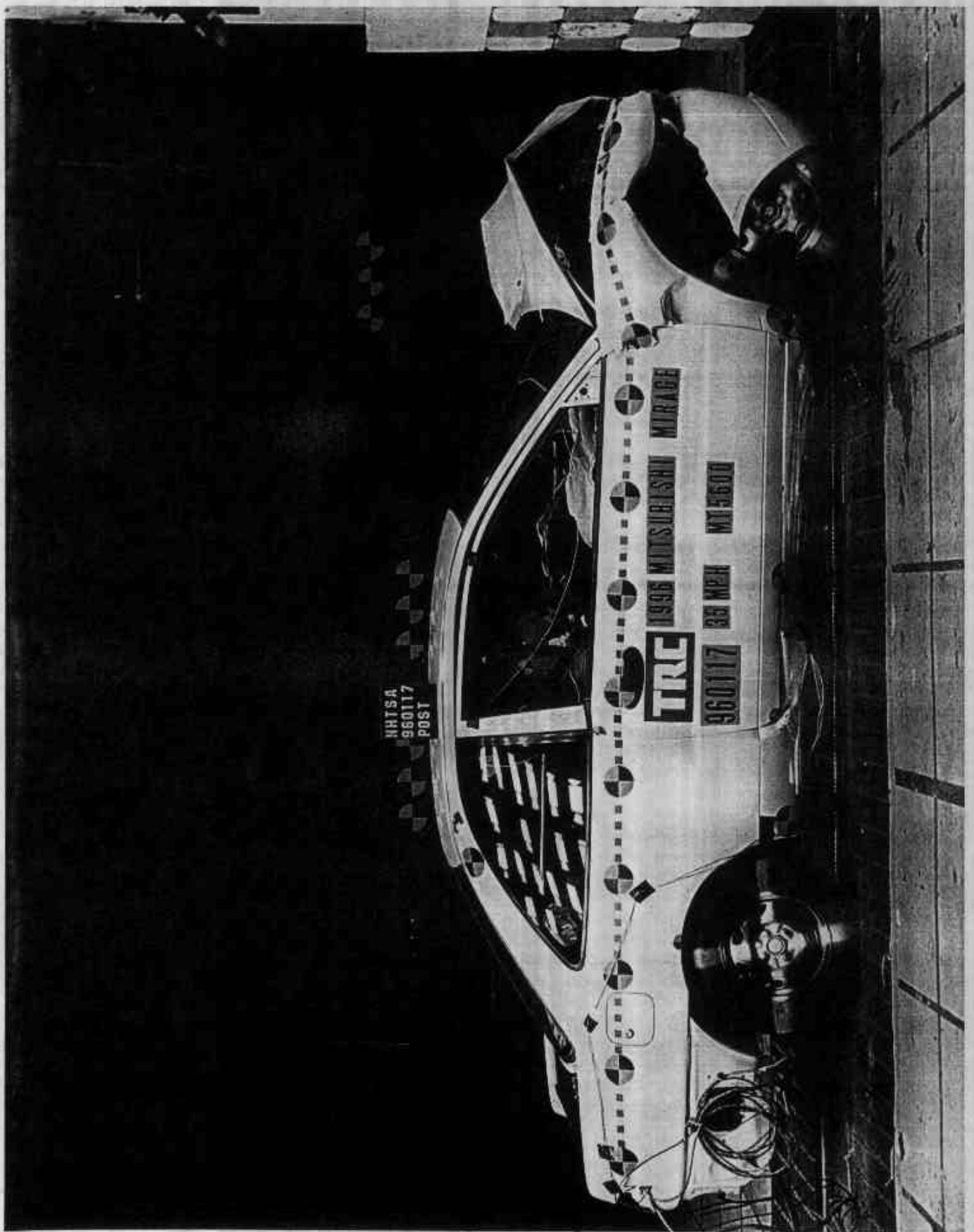


Figure A-8. Post-Test Right Side View



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

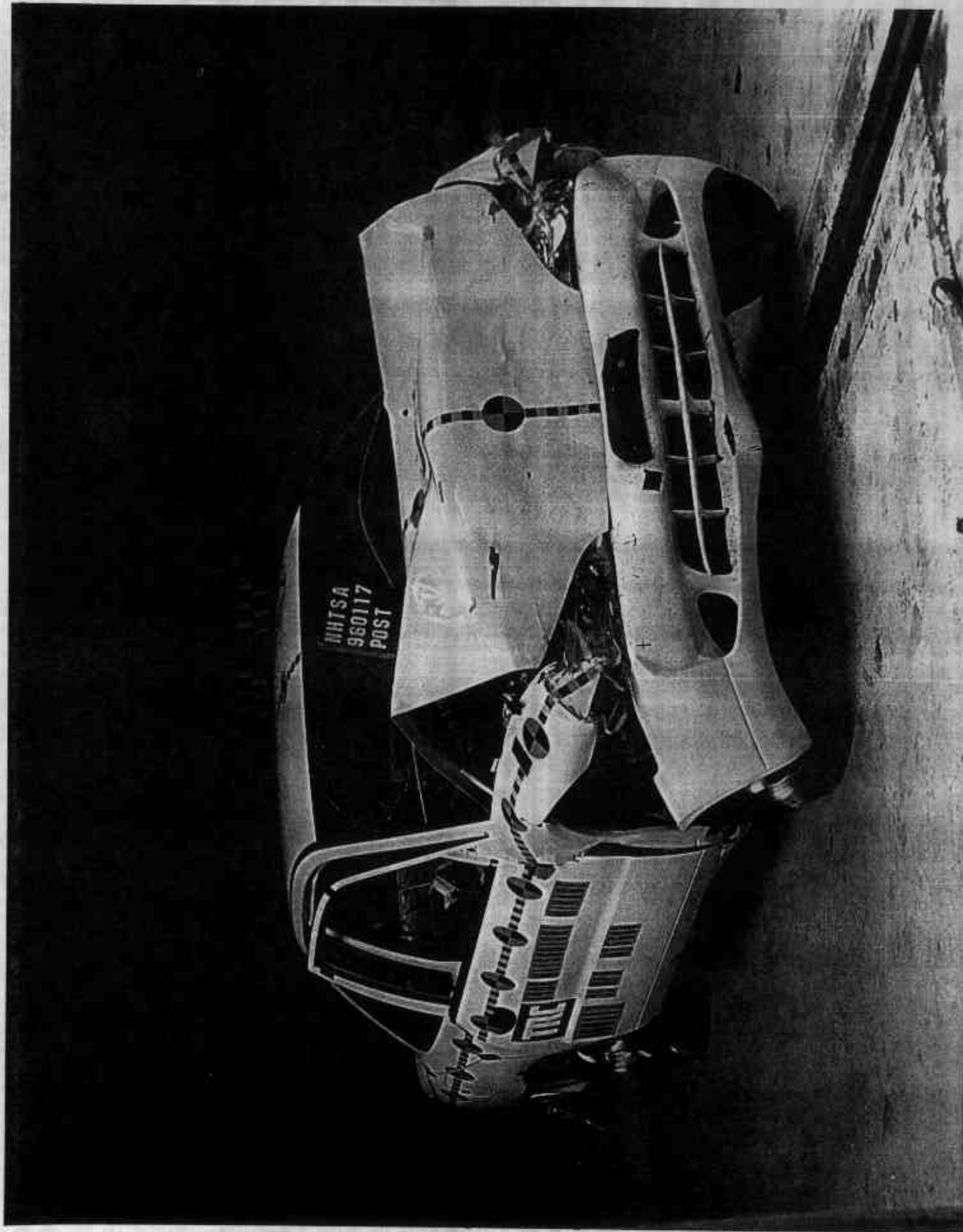


Figure A-10. Post-Test Right Front Three-Quarter View

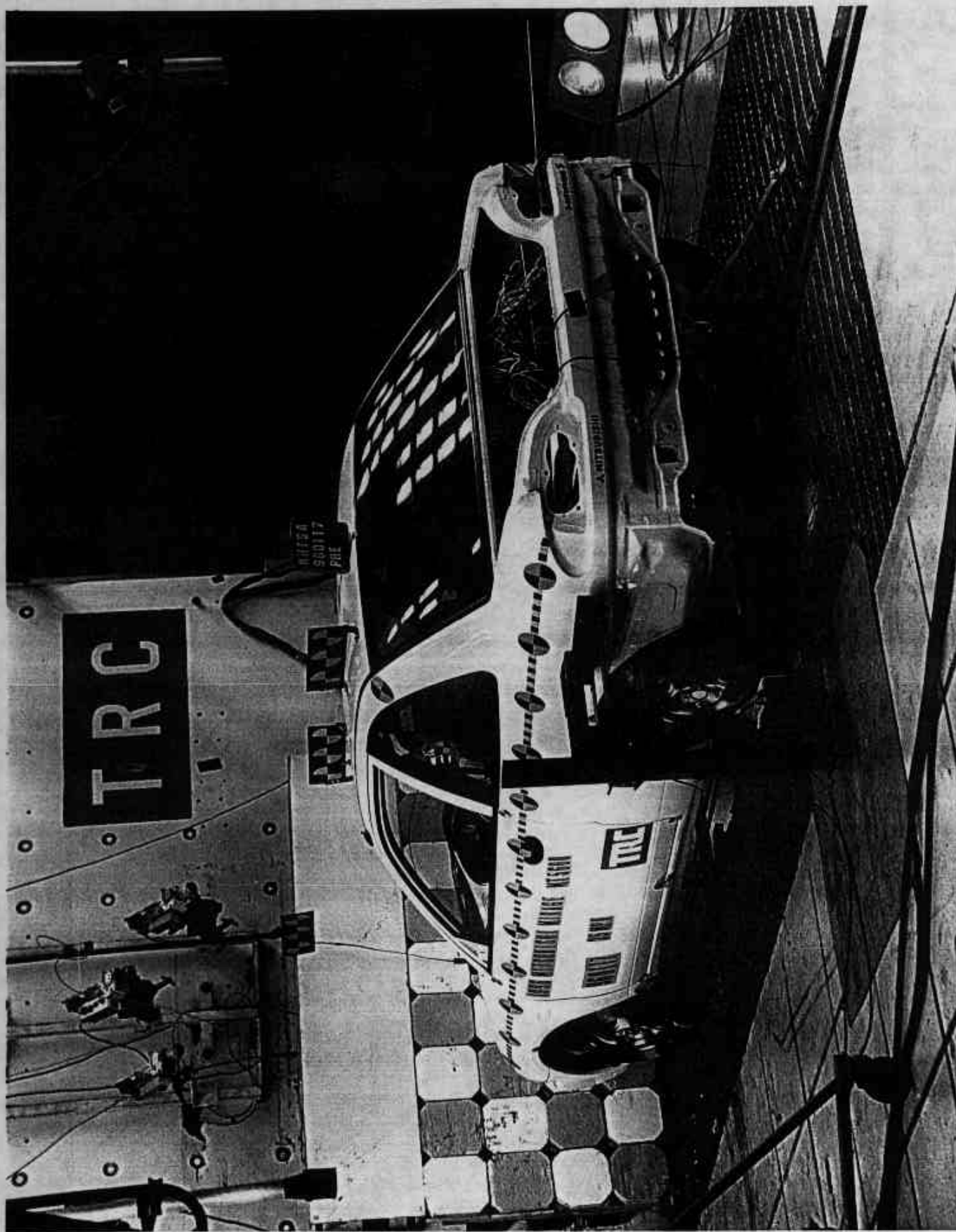


Figure A-11. Pre-Test Left Rear Three-Quarter View

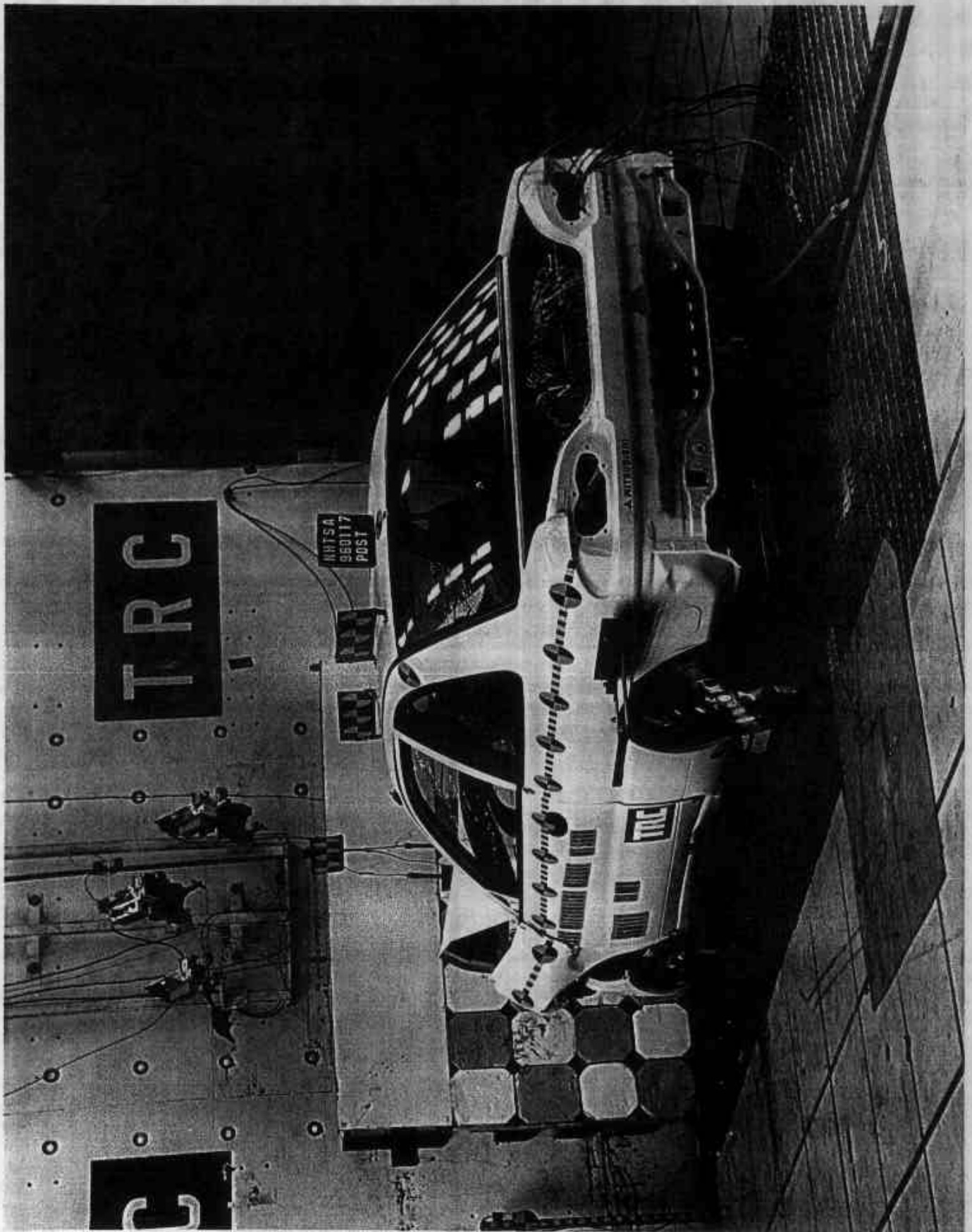


Figure A-12. Post-Test Left Rear Three-Quarter View

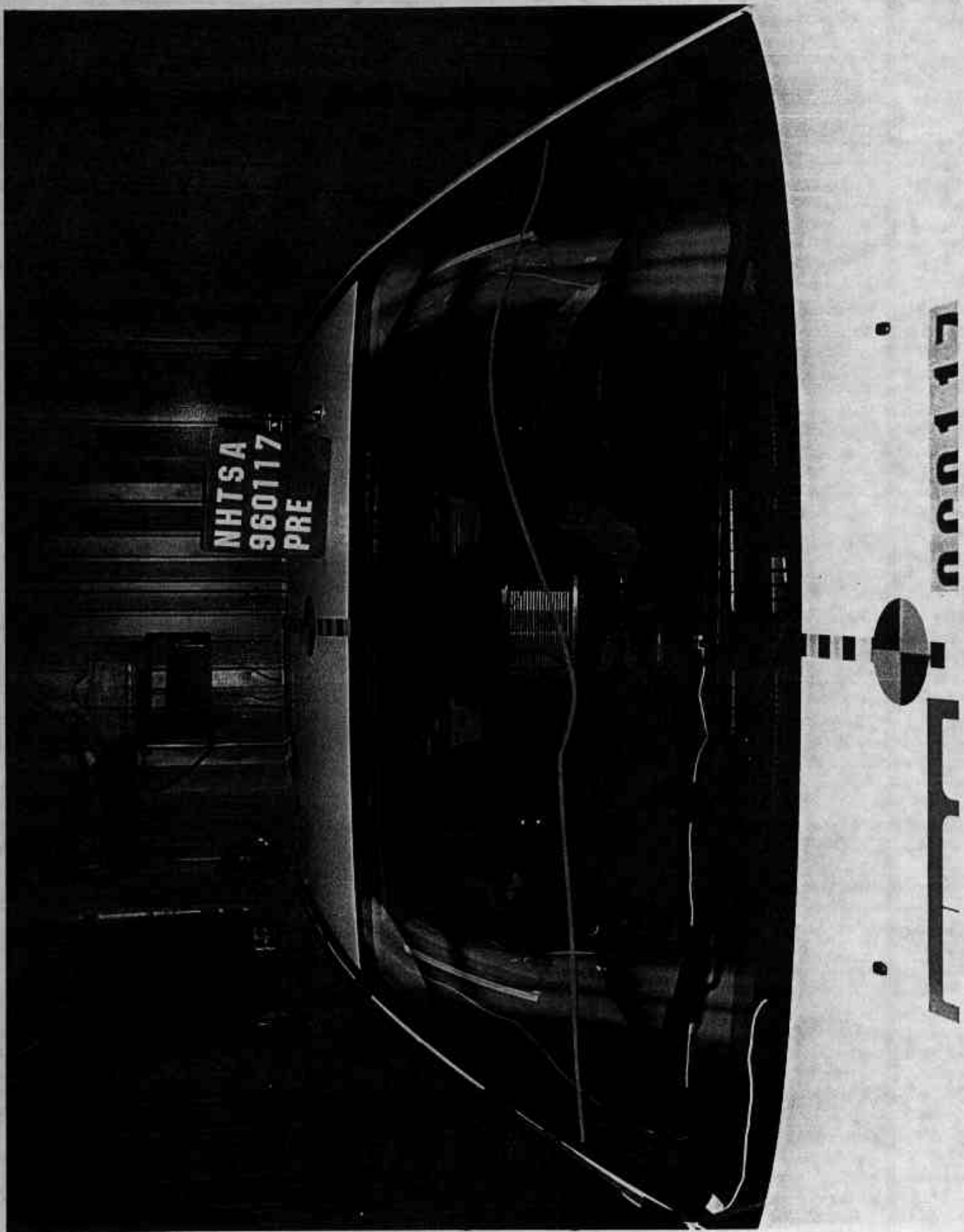


Figure A-13. Pre-Test Windshield View

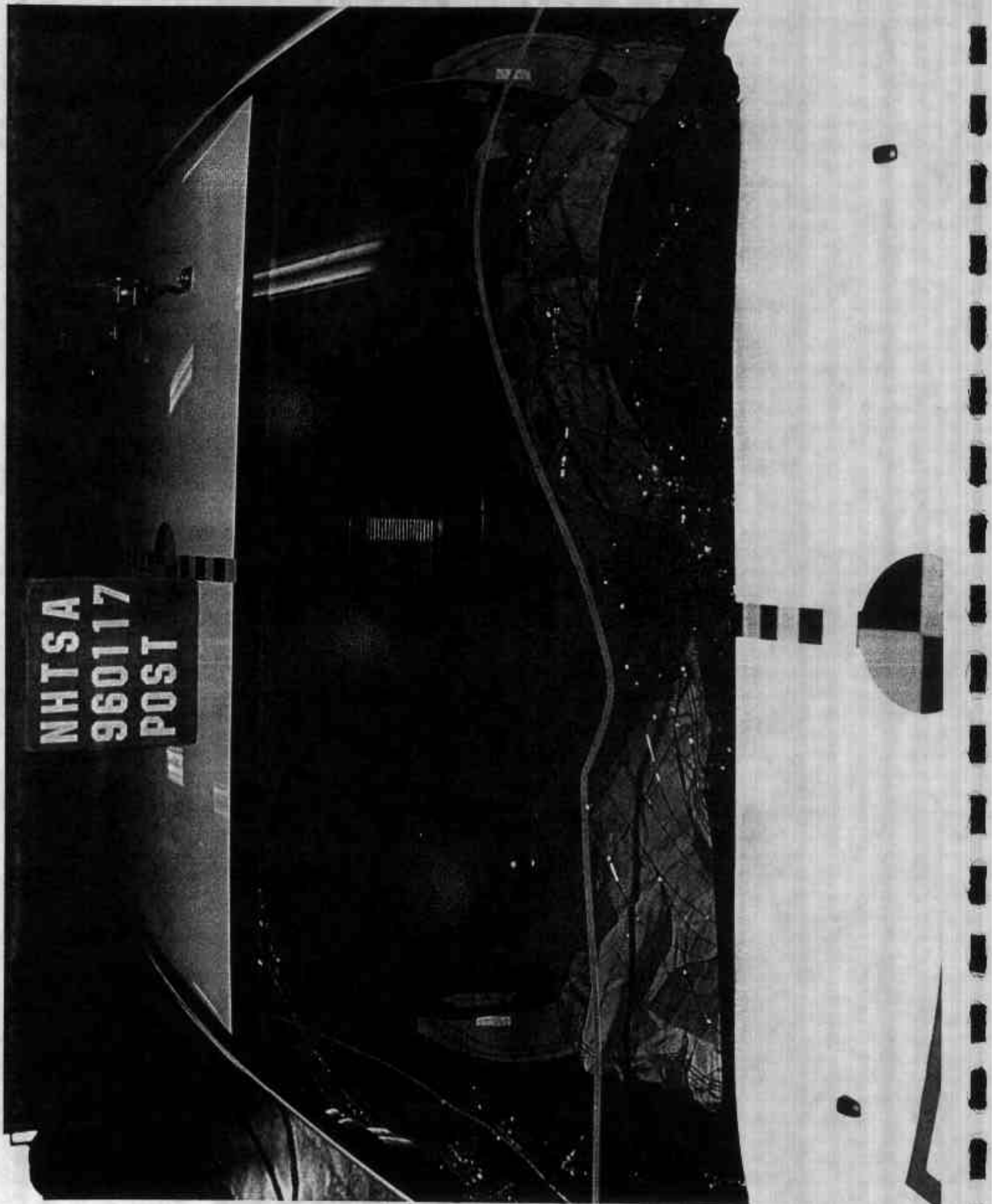


Figure A-14. Post-Test Windshield View

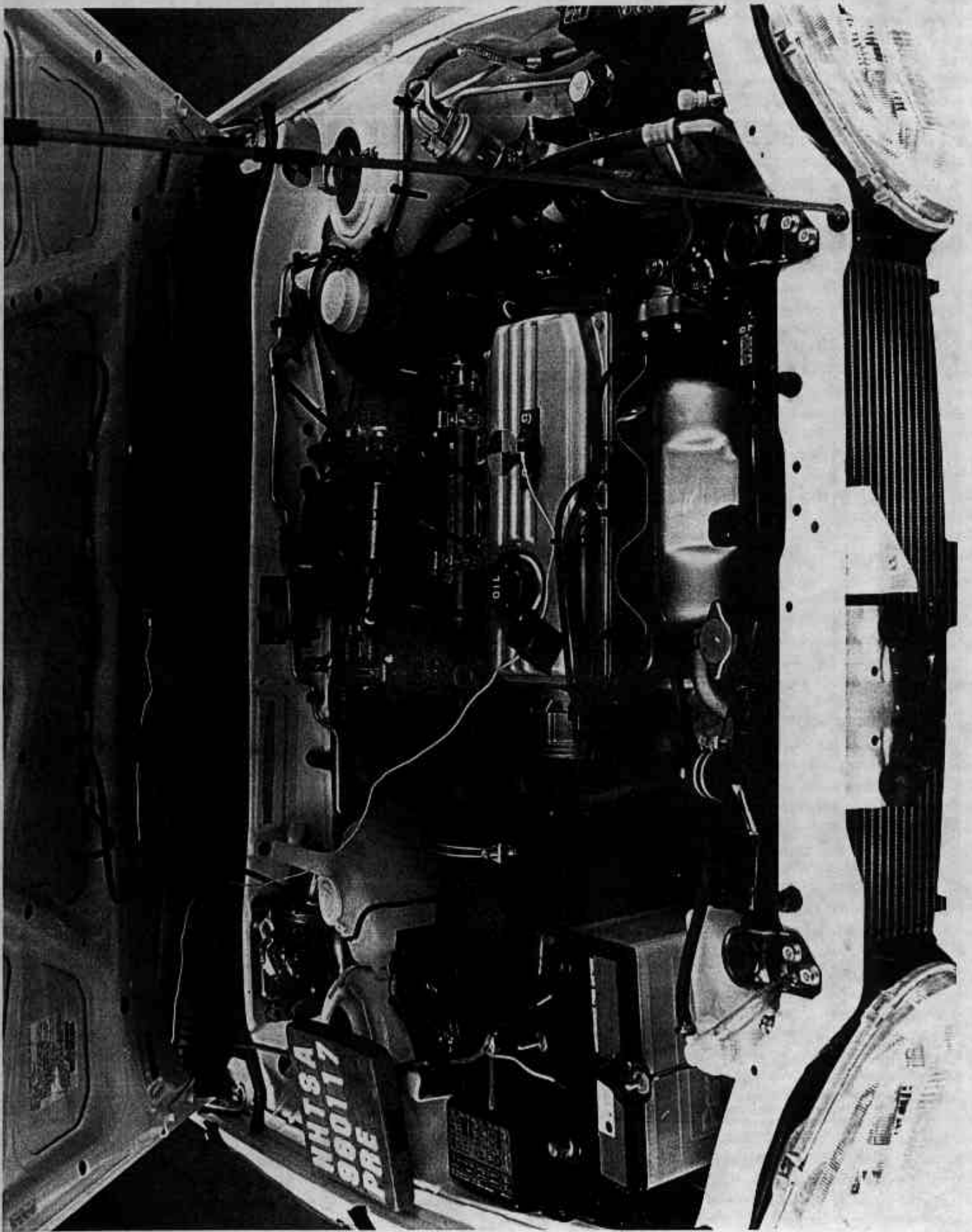


Figure A-15. Pre-Test Engine Compartment View

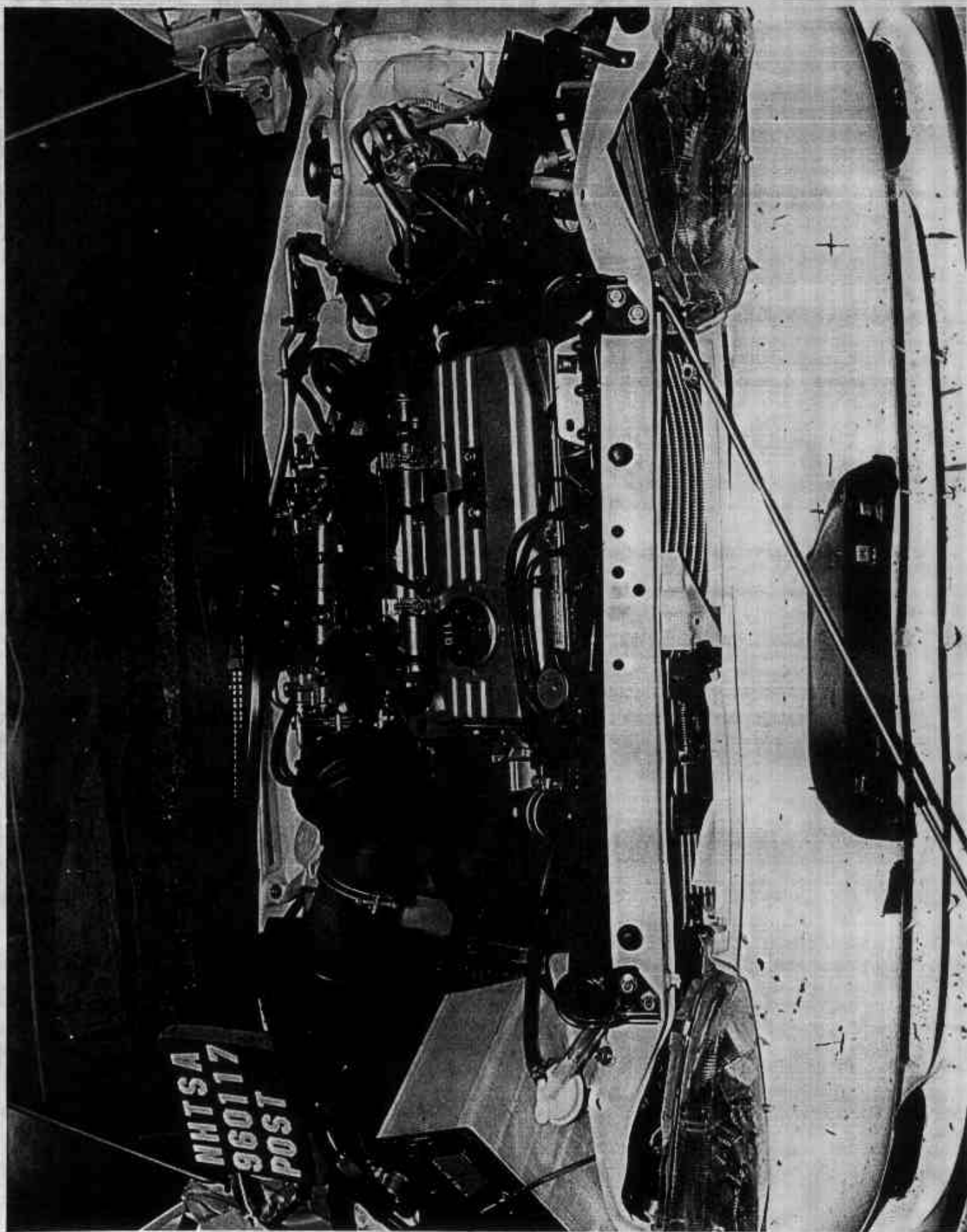


Figure A-16. Post-Test Engine Compartment View



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

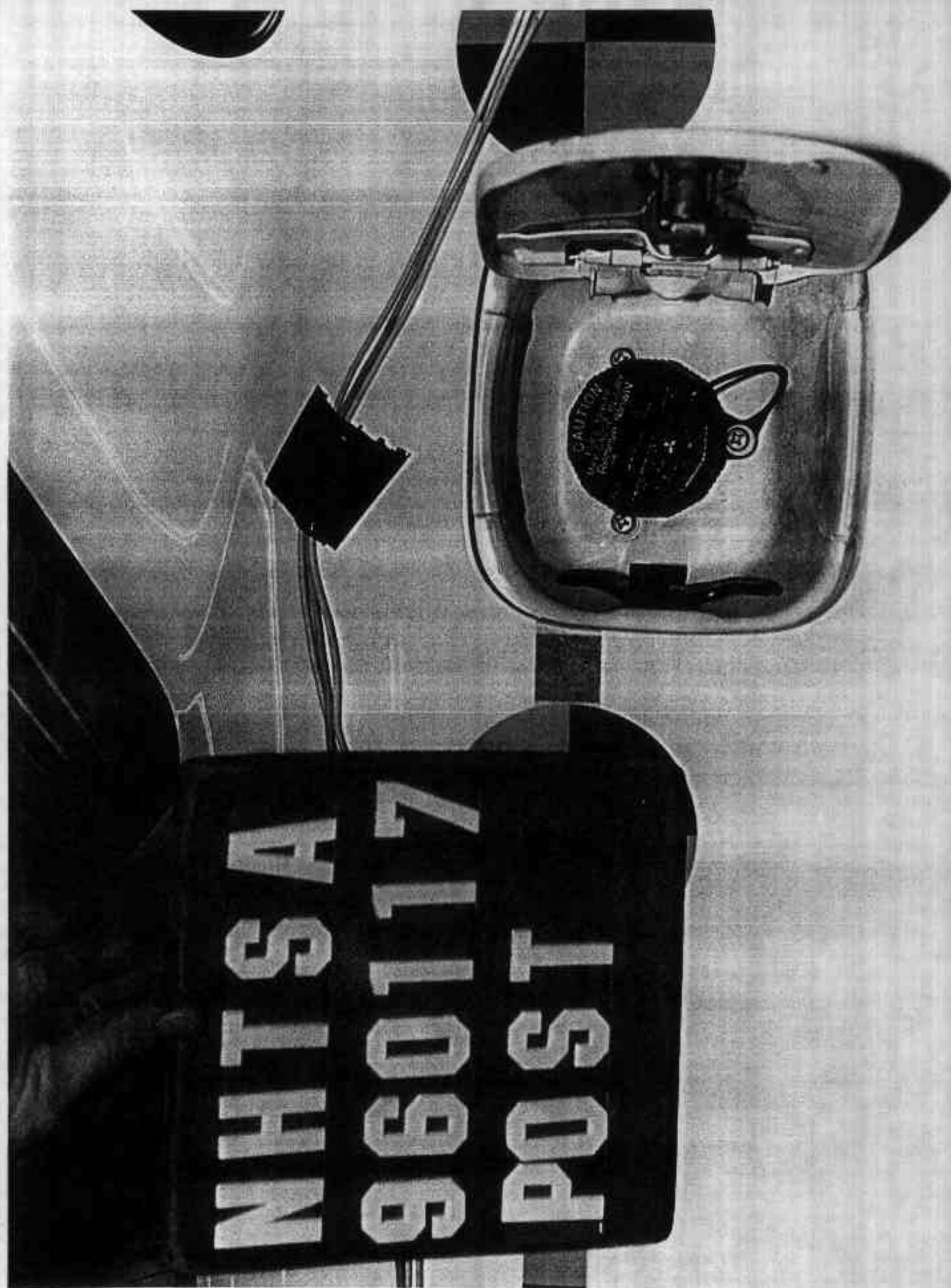


Figure A-18. Post-Test Fuel Filler Cap View



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

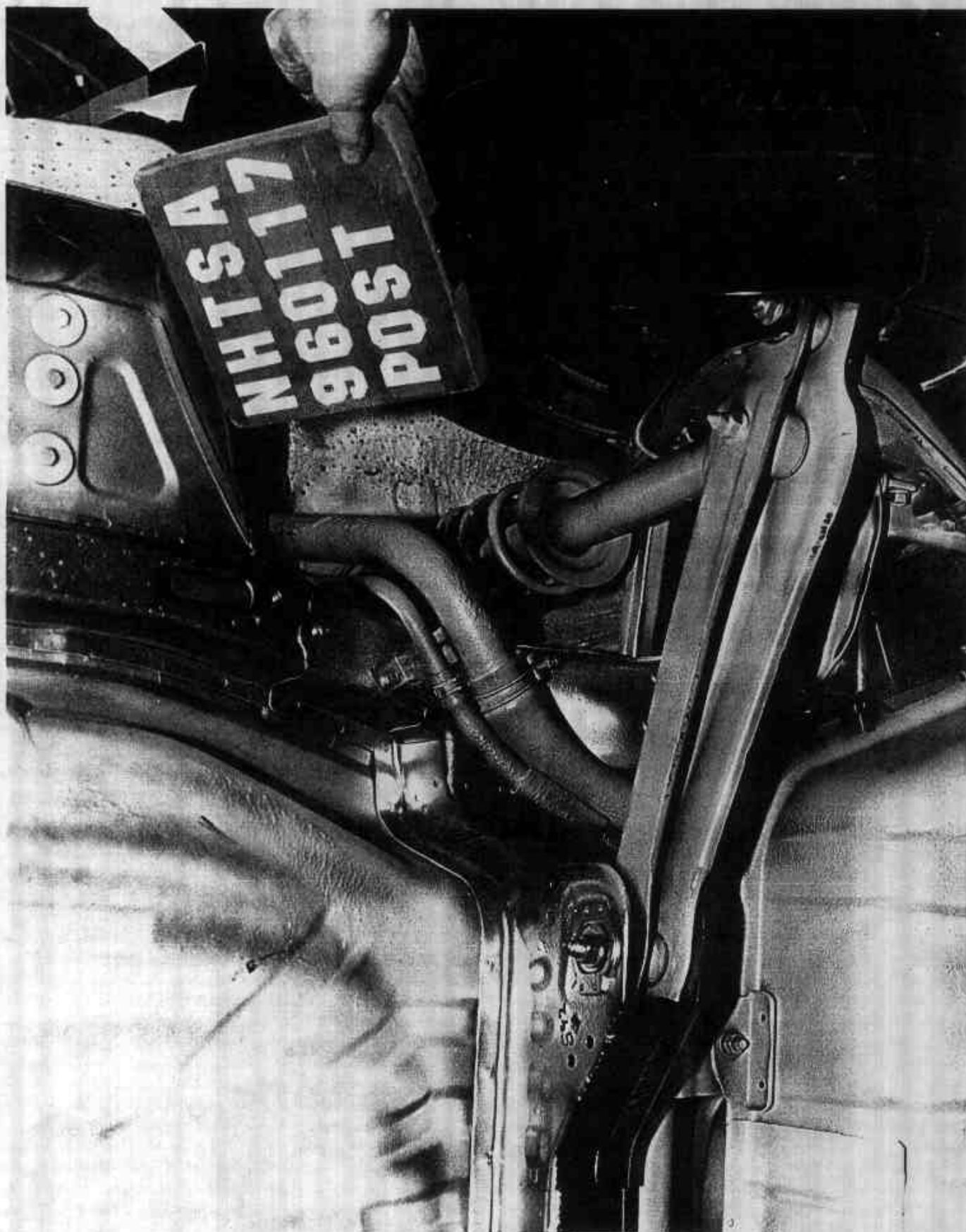


Figure A-20. Post-Test Fuel Filler Neck View

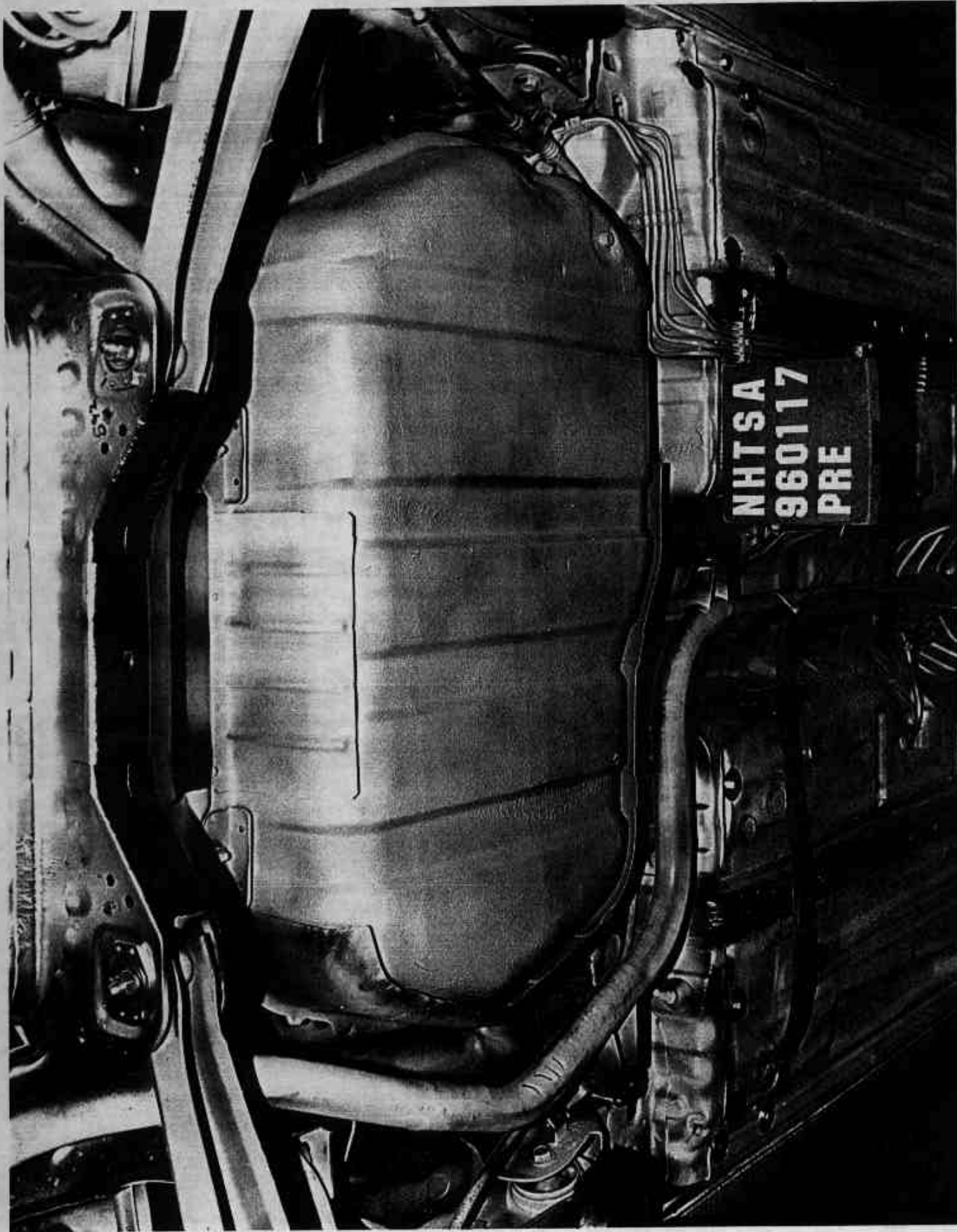


Figure A-21. Pre-Test Fuel Tank View

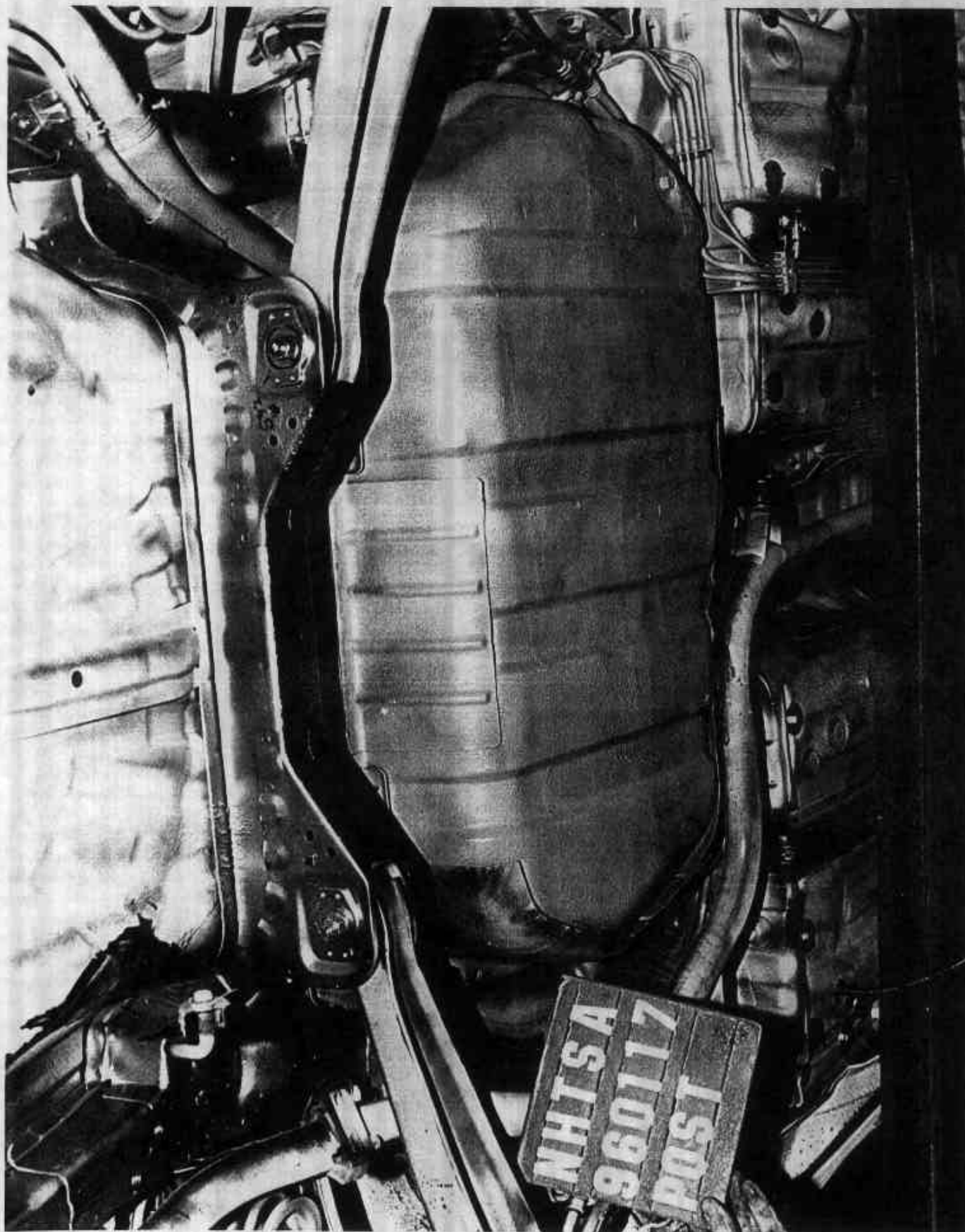


Figure A-22. Post-Test Fuel Tank View

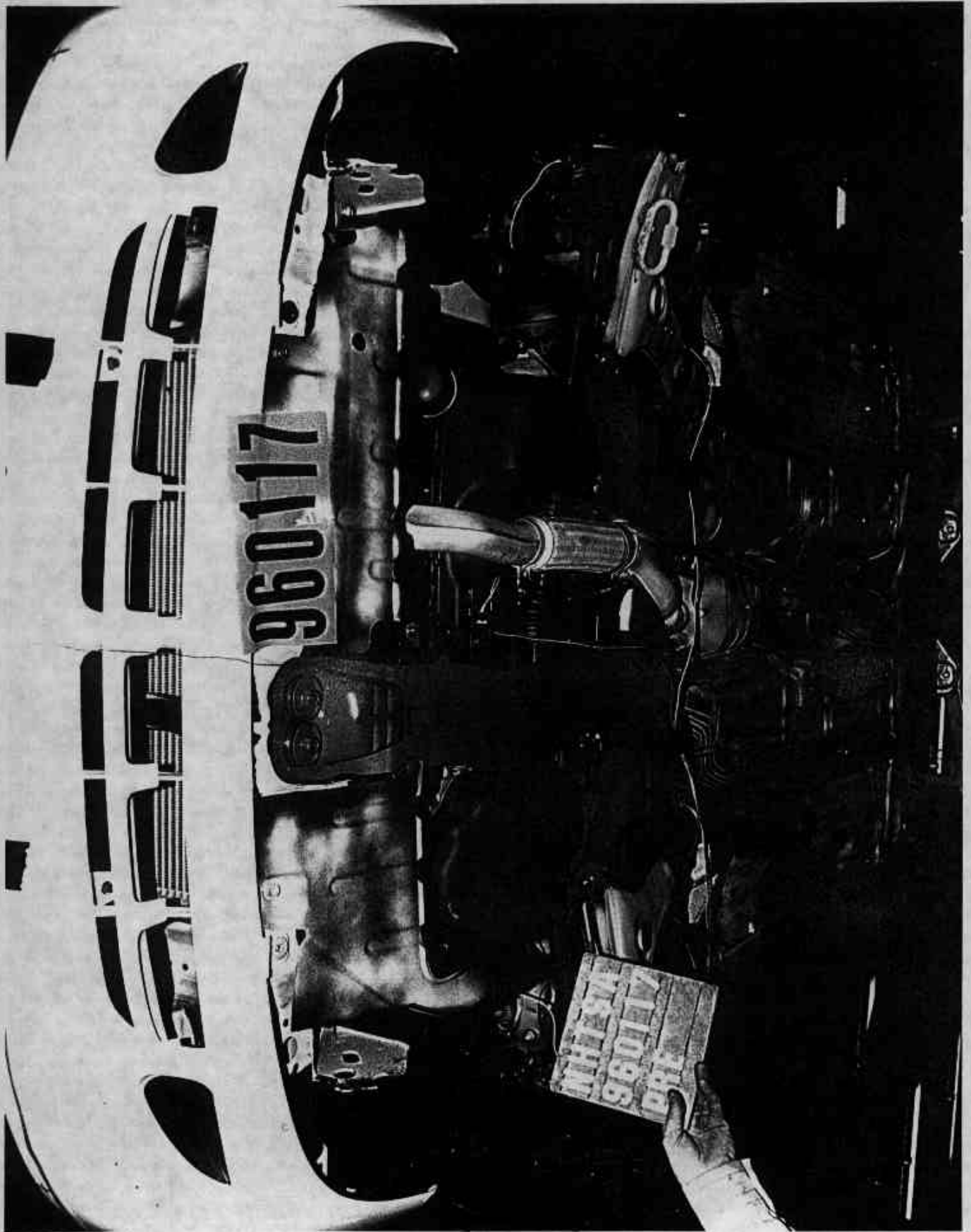


Figure A-23. Pre-Test Front Underbody View



Figure A-24. Post-Test Front Underbody View

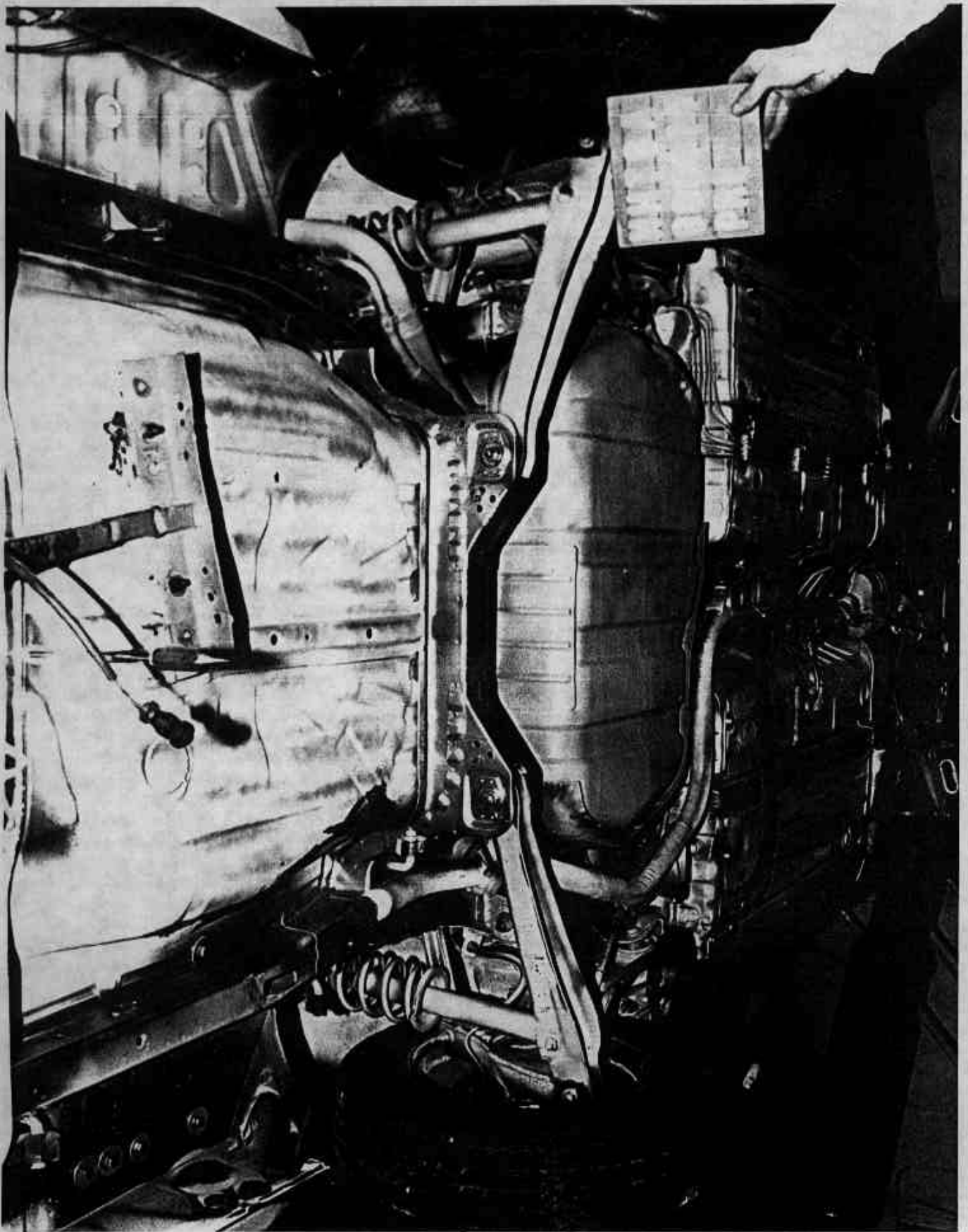


Figure A-25. Pre-Test Rear Underbody View

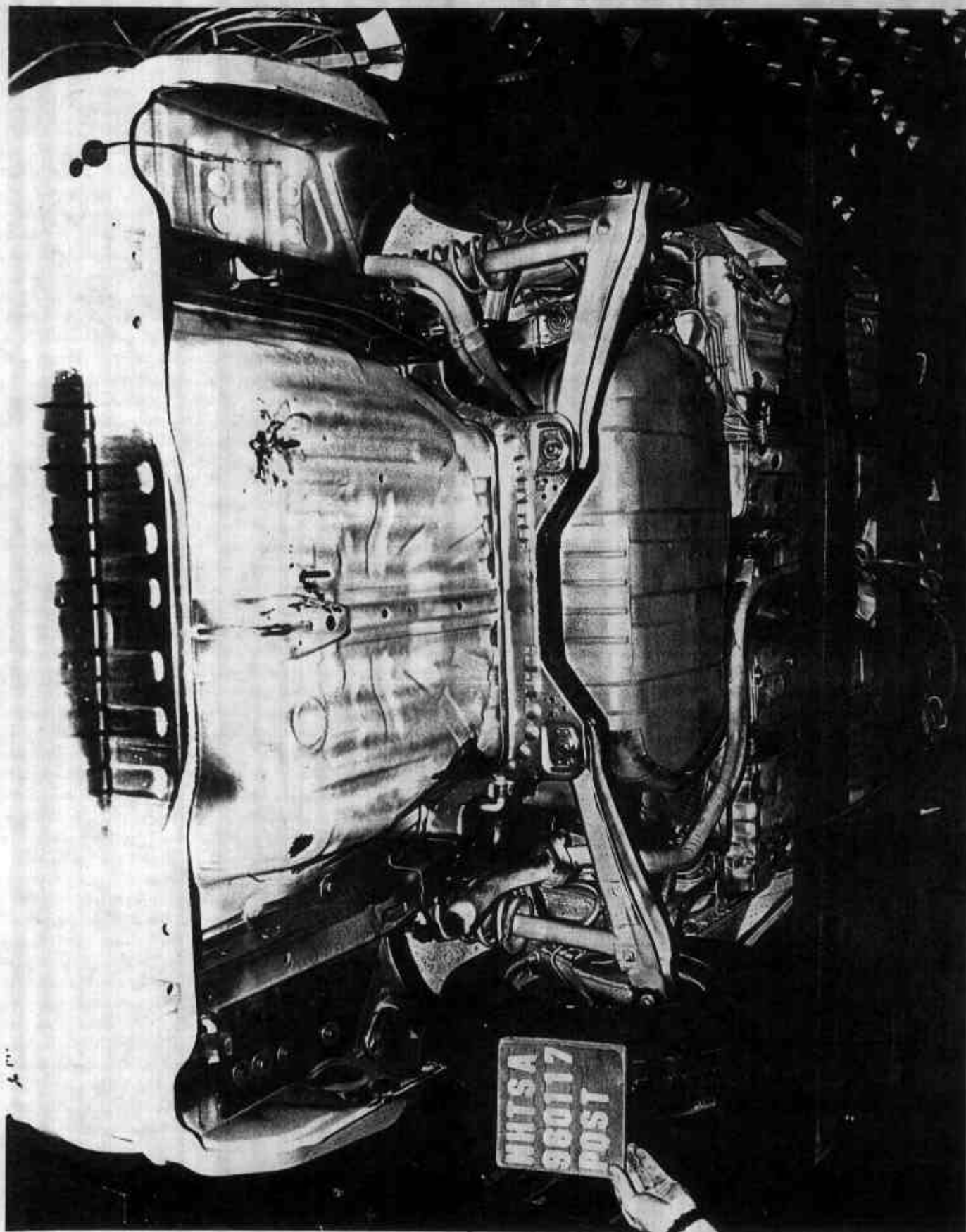


Figure A-26. Post-Test Rear Underbody View

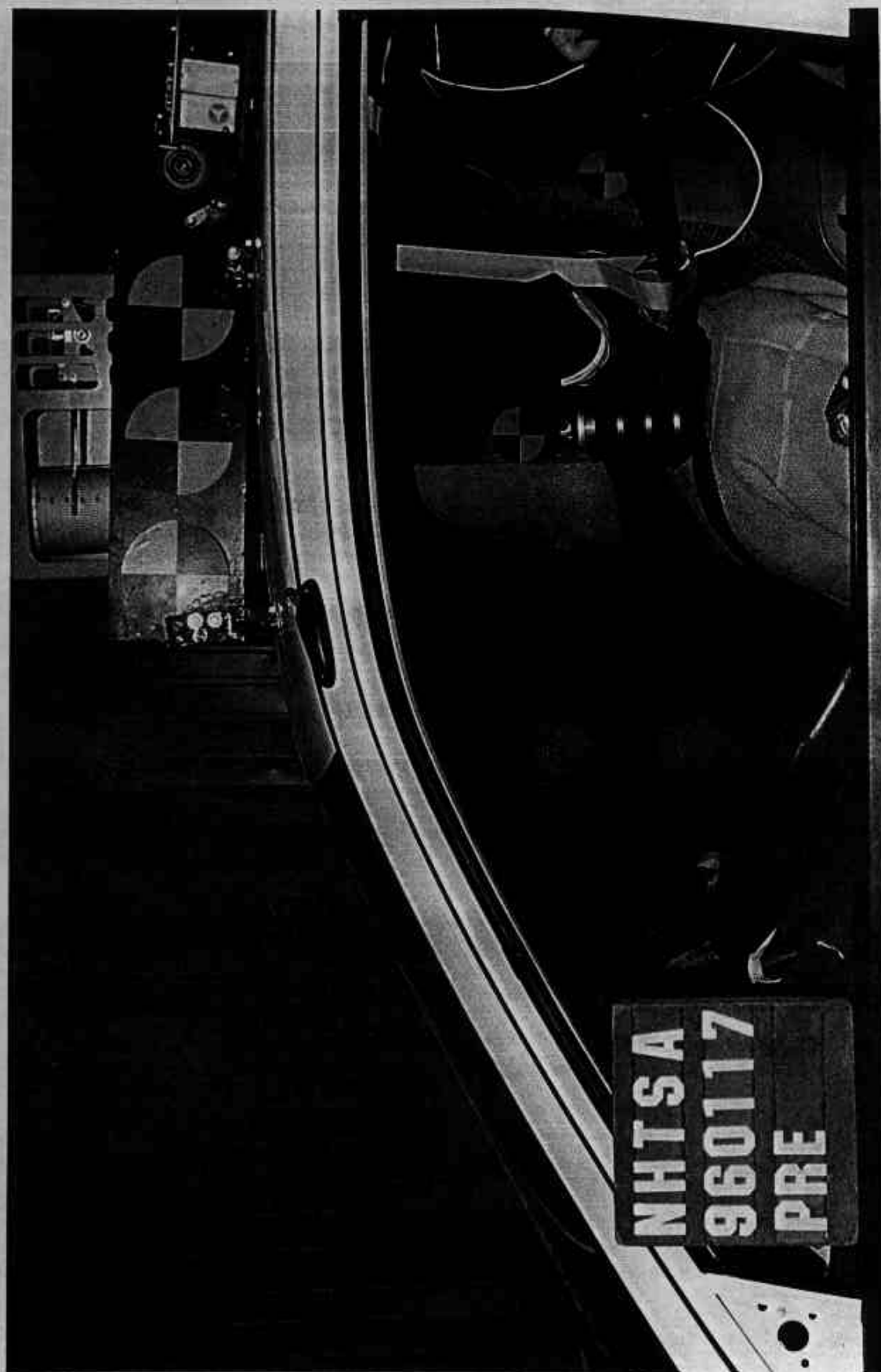


Figure A-27. Pre-Test Driver Dummy Position View

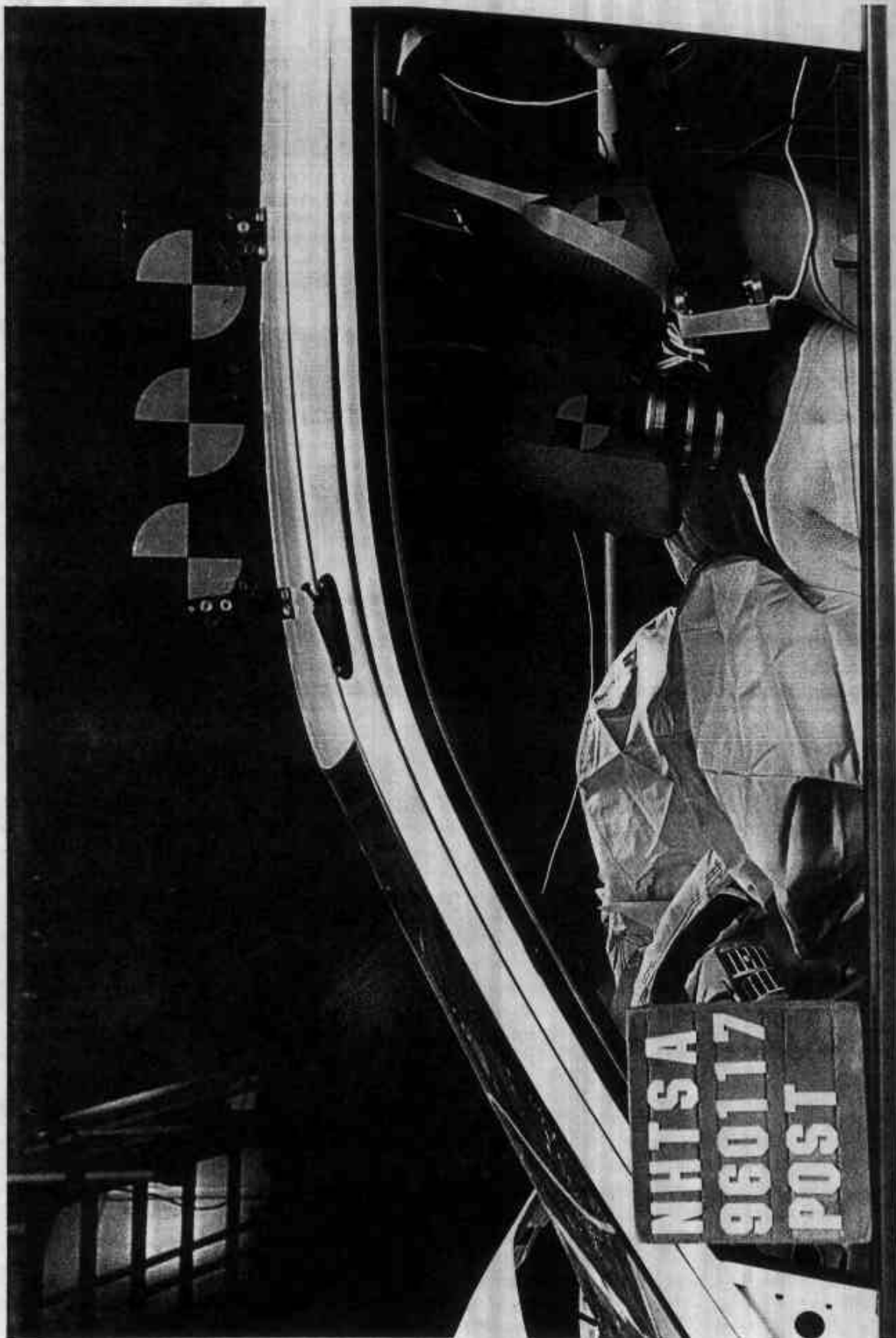


Figure A-28. Post-Test Driver Dummy Position View

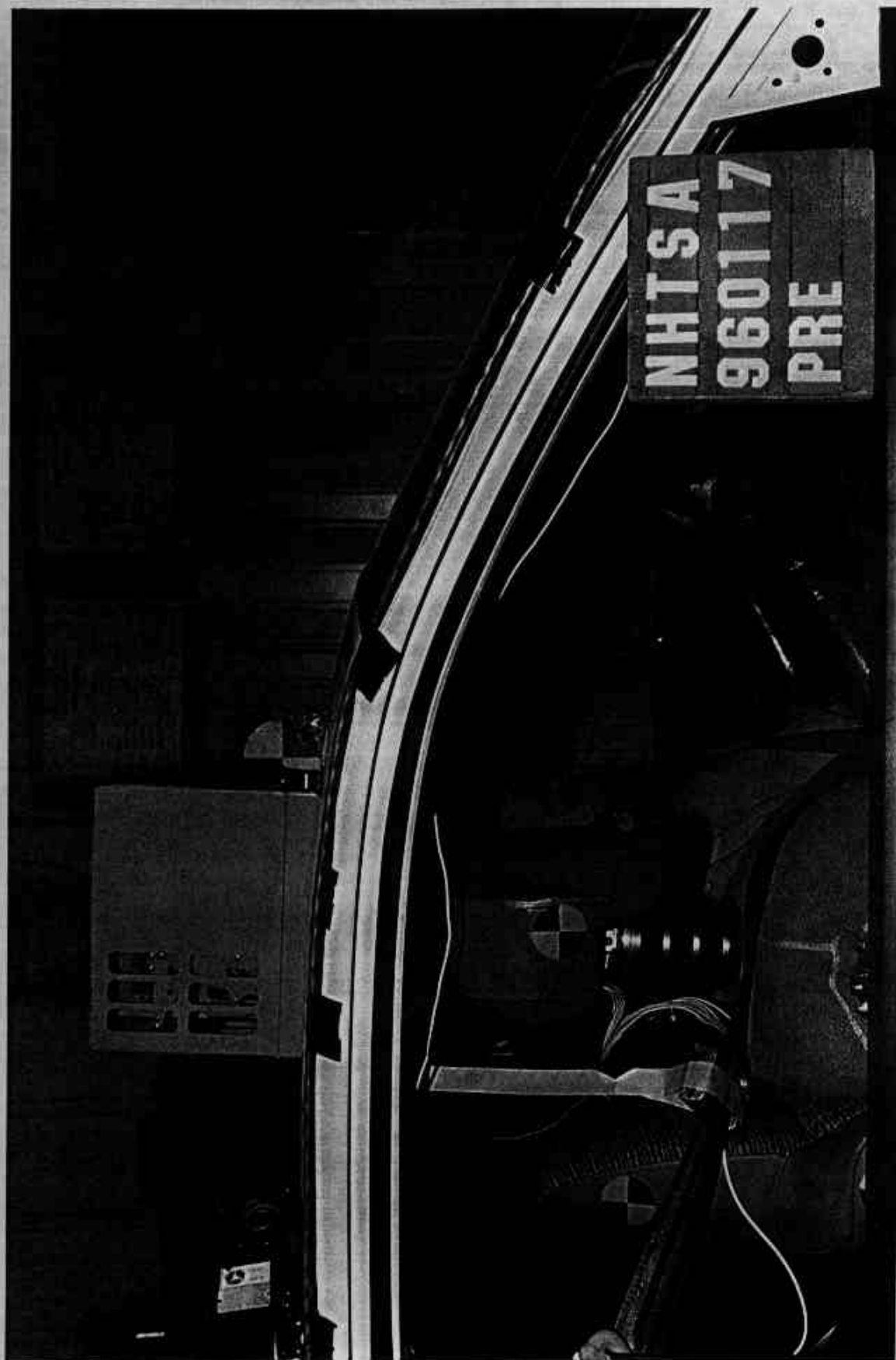


Figure A-29. Pre-Test Passenger Dummy Position View

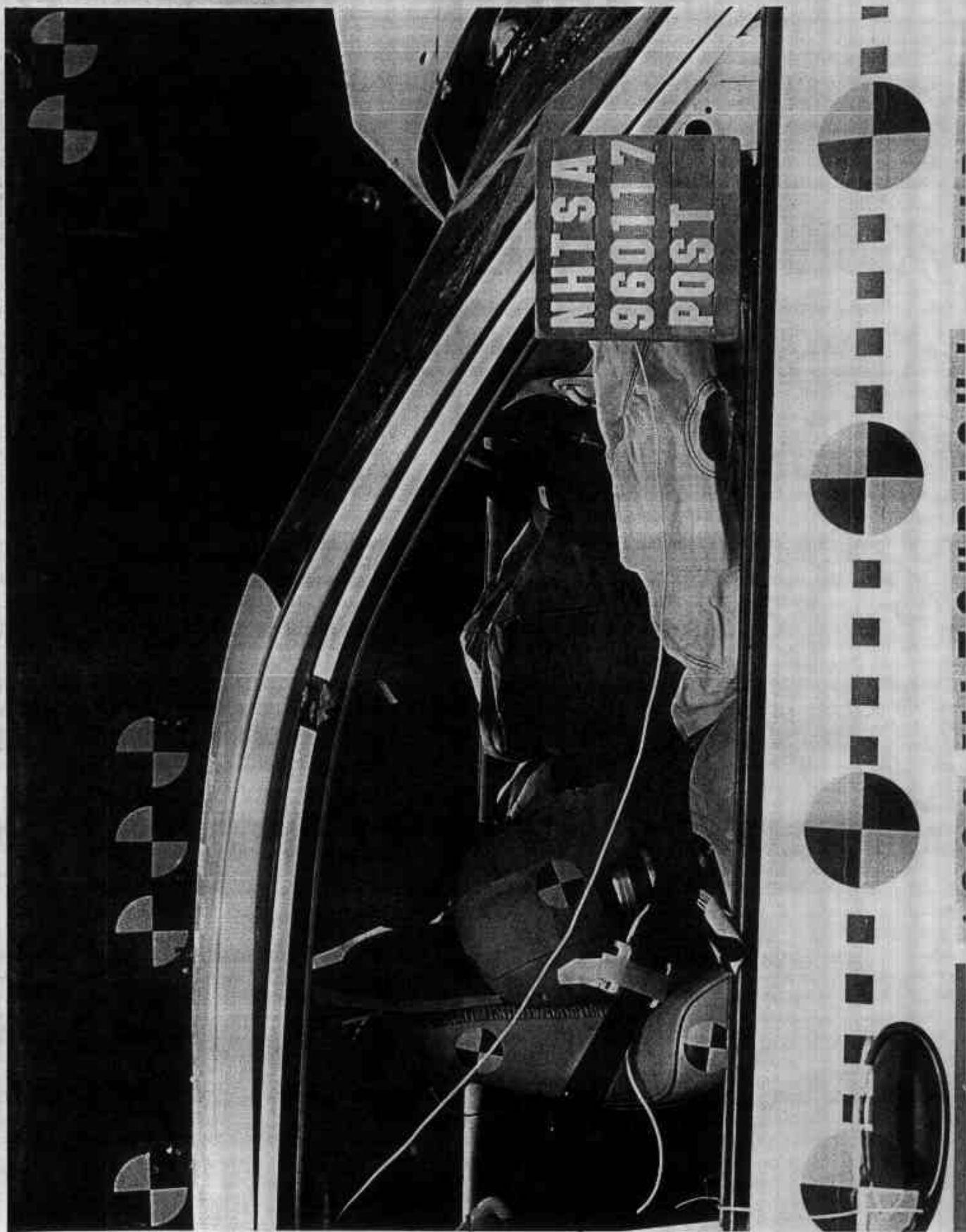


Figure A-30. Post-Test Passenger Dummy Position View



Figure A-31. Pre-Test Driver Dummy & Vehicle Interior - View 1



Figure A-32. Post-Test Driver Dummy & Vehicle Interior - View 1



Figure A-33. Pre-Test Driver Dummy & Vehicle Interior - View 2

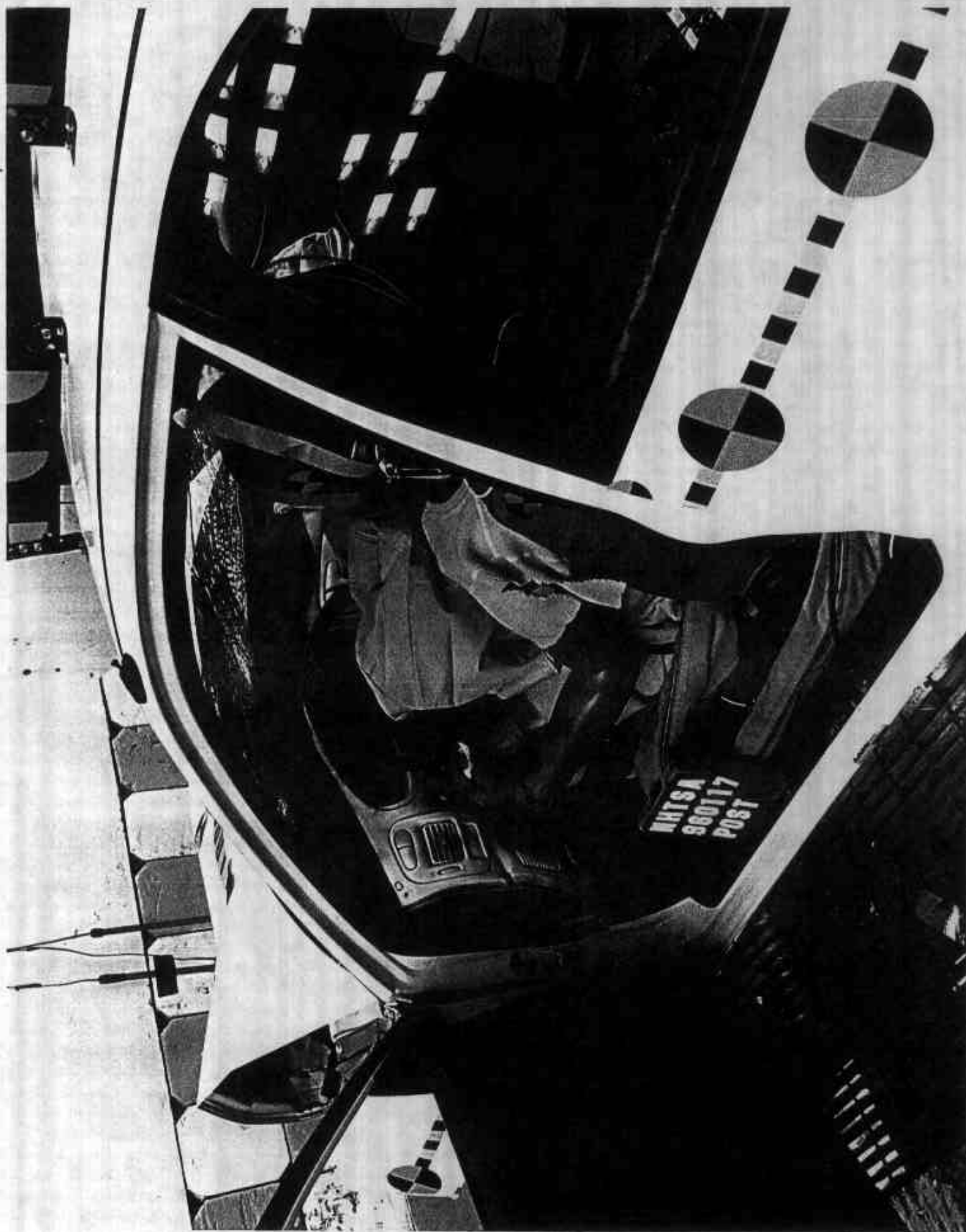


Figure A-34. Post-Test Driver Dummy & Vehicle Interior - View 2

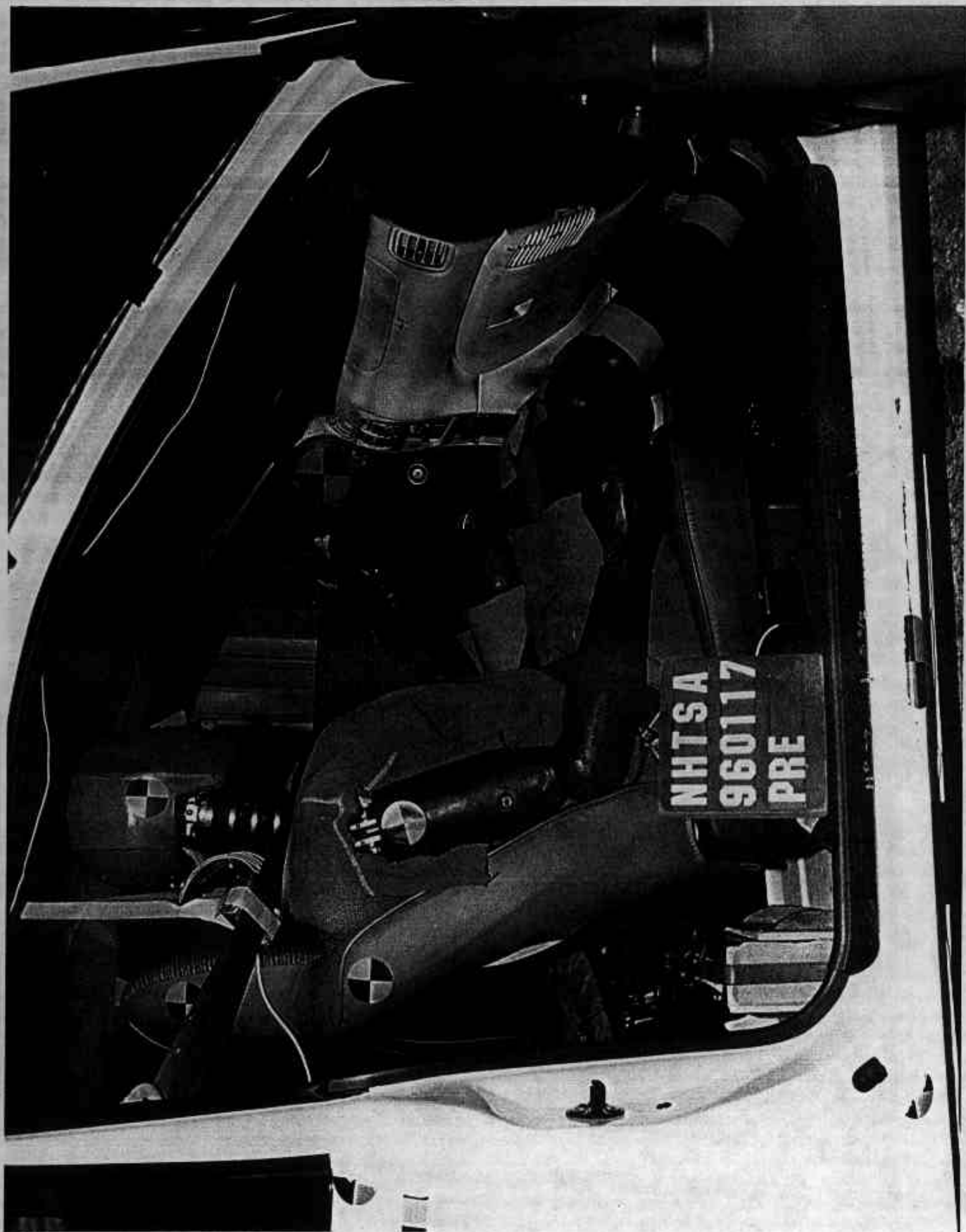


Figure A-35. Pre-Test Passenger Dummy & Vehicle Interior - View 1



Figure A-36. Post-Test Passenger Dummy & Vehicle Interior - View 1

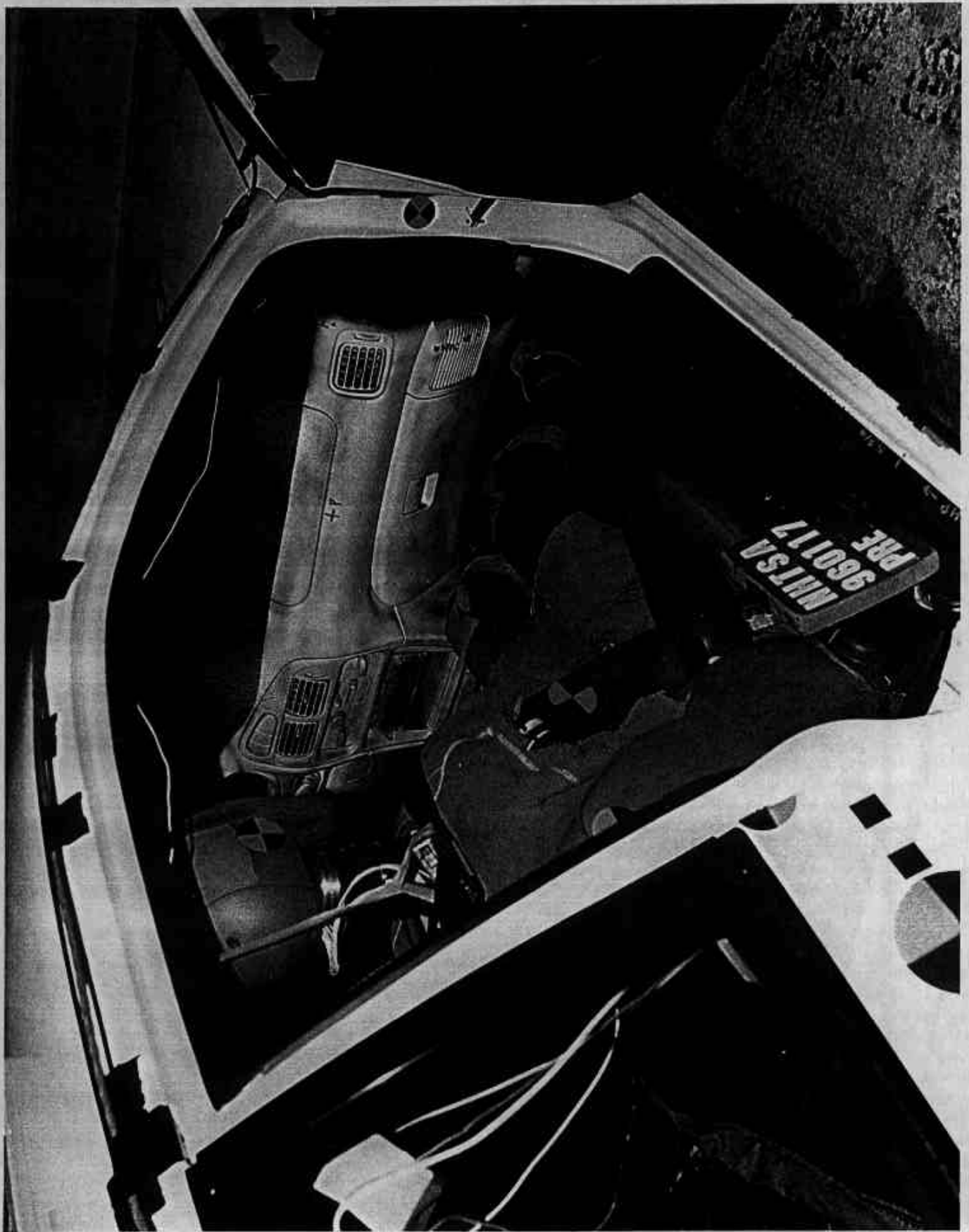


Figure A-37. Pre-Test Passenger Dummy & Vehicle Interior - View 2



Figure A-38. Post-Test Passenger Dummy & Vehicle Interior - View 2

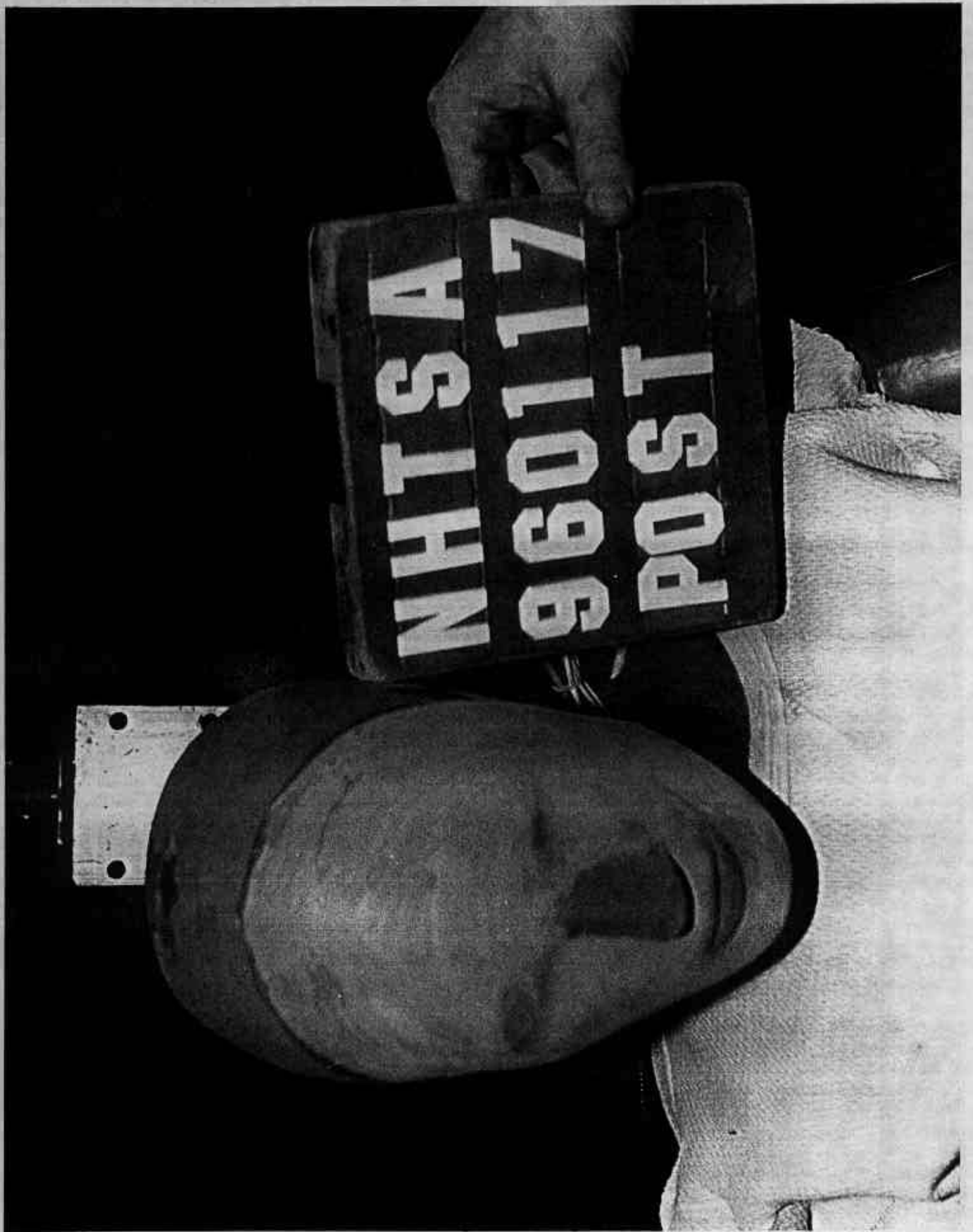


Figure A-39. Post-Test Driver Dummy Head Contact - View 1



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

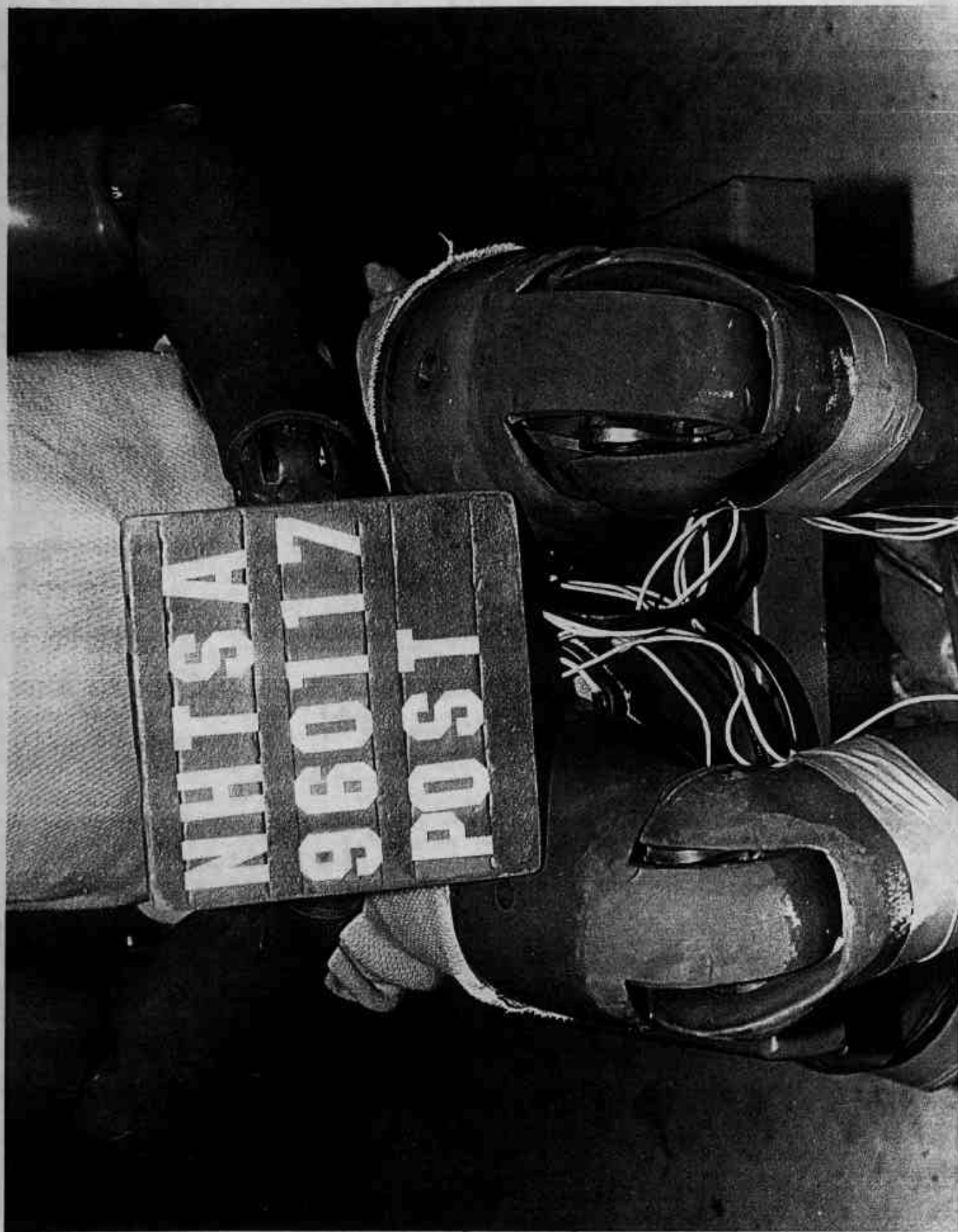


Figure A-41. Post-Test Driver Dummy Knee Contact - View 1



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

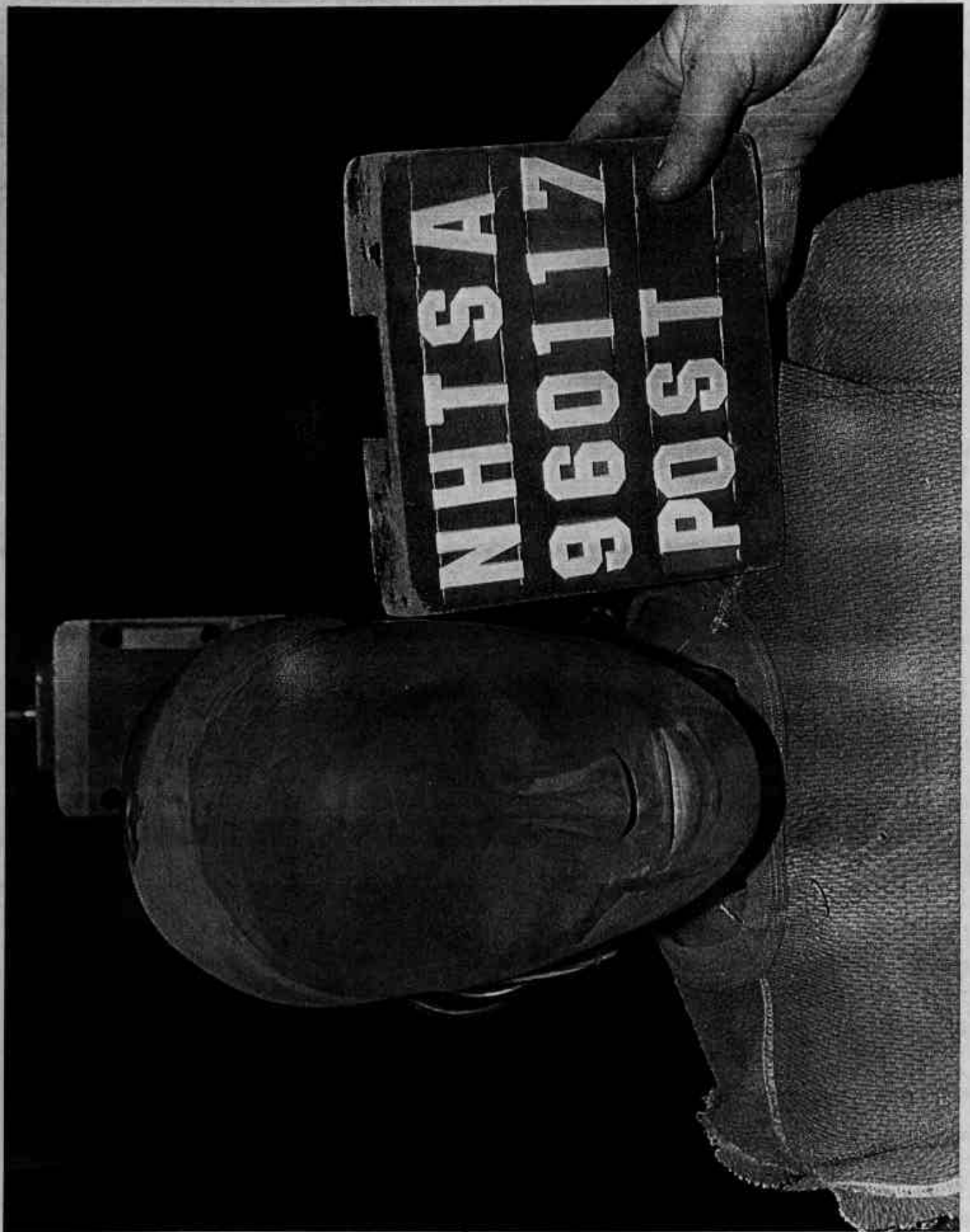


Figure A-43. Post-Test Passenger Dummy Head Contact - View 1

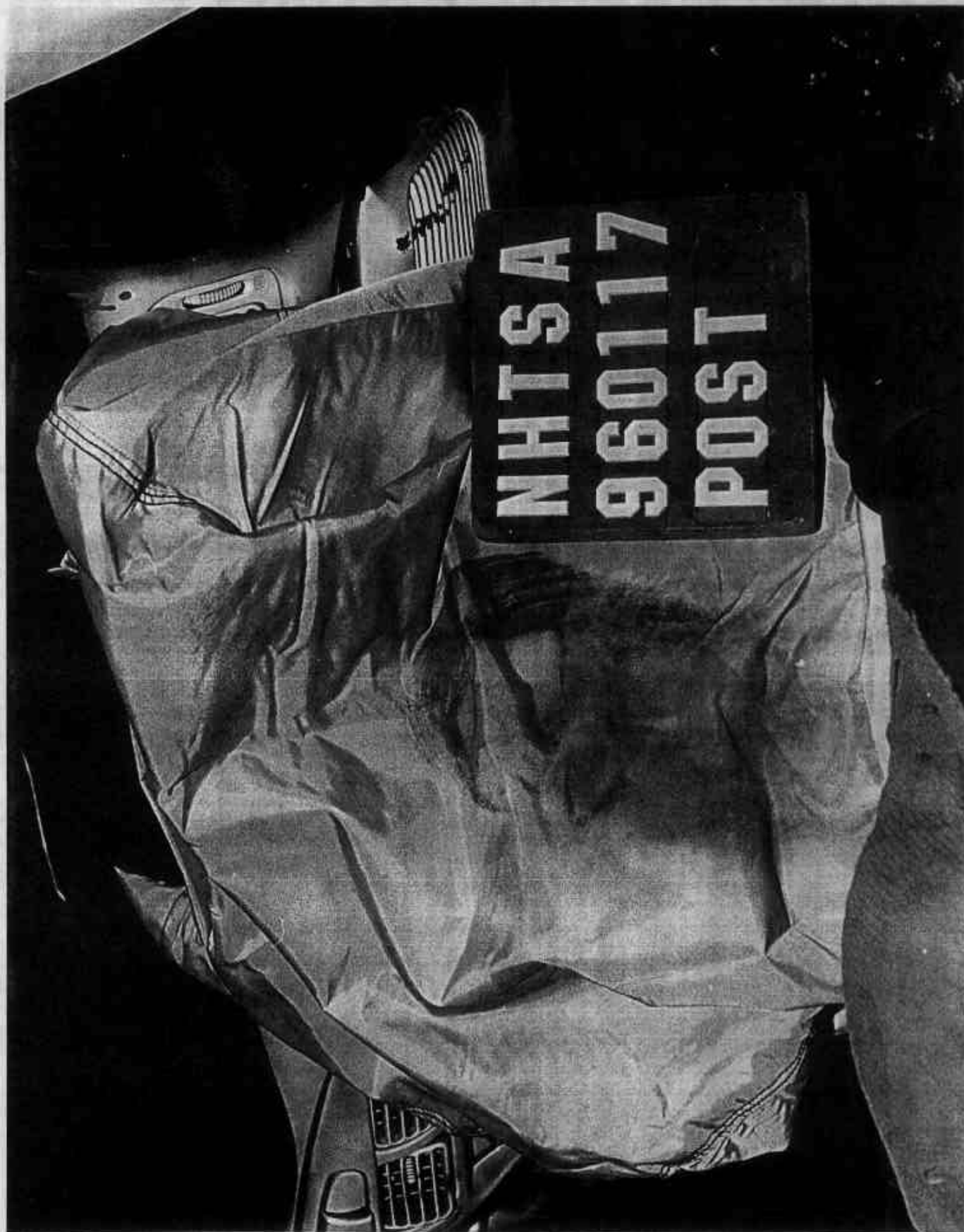


Figure A-44. Post-Test Passenger Dummy Head Contact - View 2

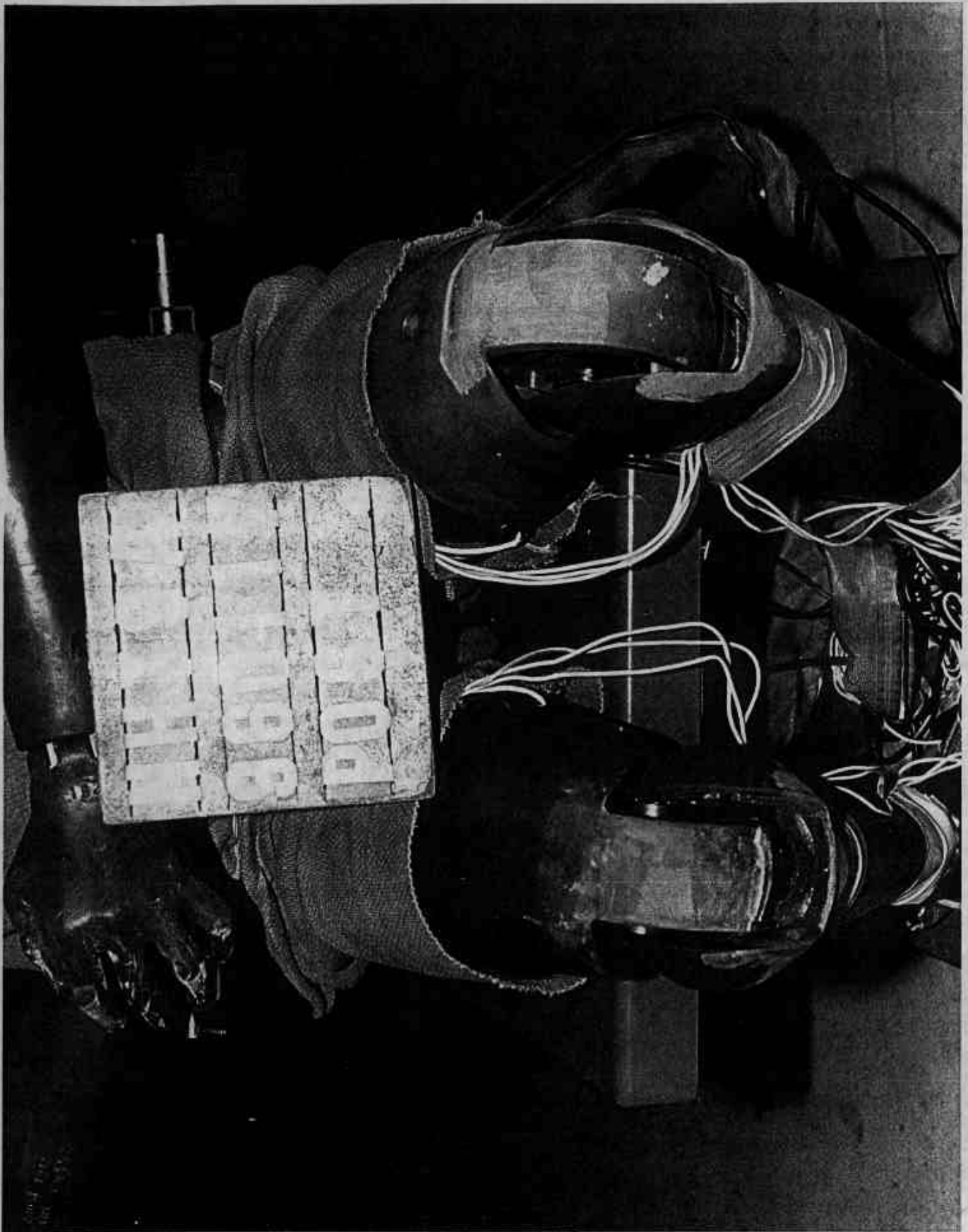


Figure A-45. Post-Test Passenger Dummy Knee Contact - View 1

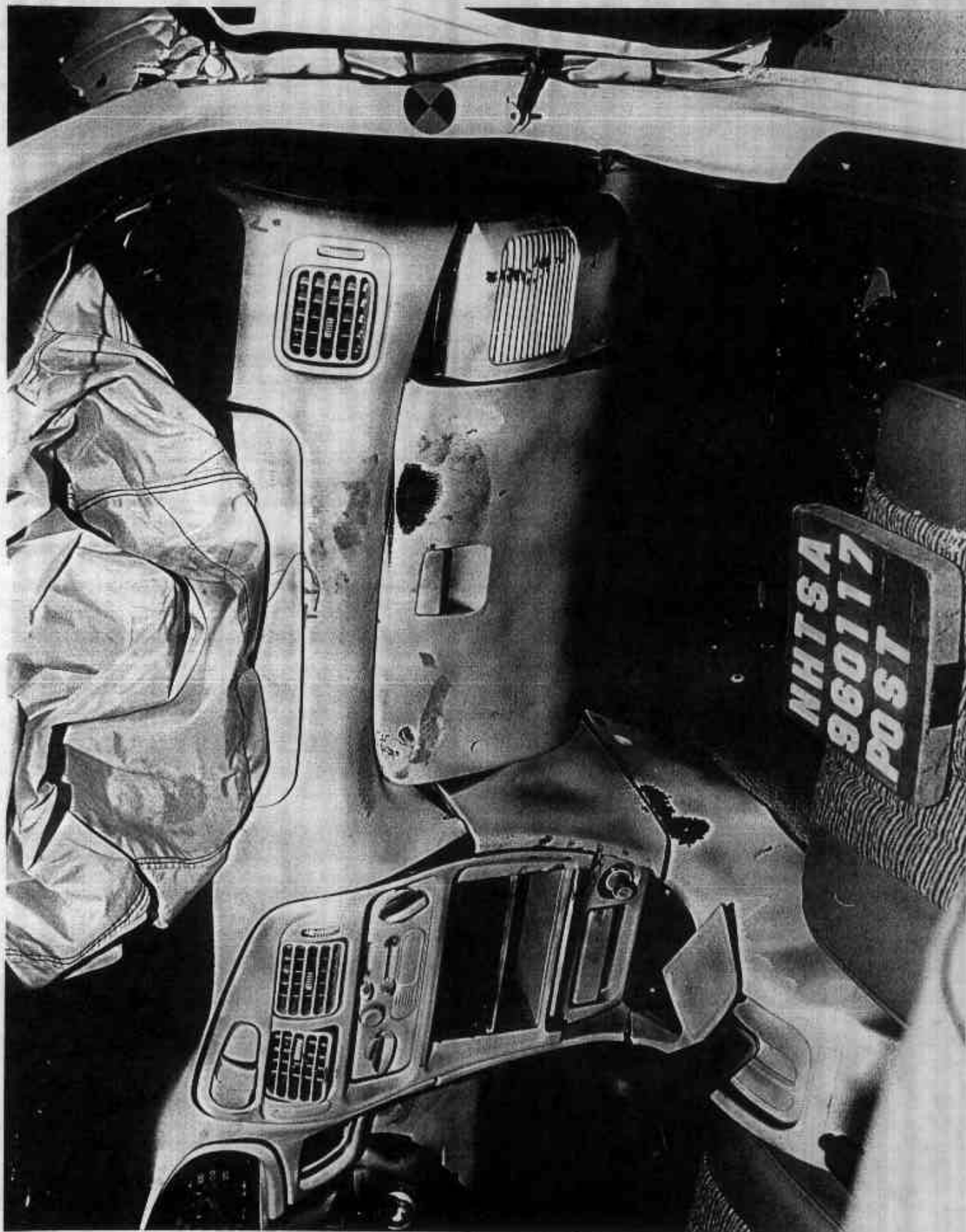


Figure A-46. Post-Test Passenger Dummy Knee Contact - View 2

MFD. BY MITSUBISHI MOTORS CORPORATION, JAPAN  
JUN 1995  
GWR 3197LBS/ 1450KG GAWR RR 1742LBS/ 790KG  
GAWR FR 1830LBS/ 830KG  
THIS VEHICLE CONFORMS TO ALL APPLICABLE  
FEDERAL MOTOR VEHICLE SAFETY, BUMPER, AND  
THEFT PREVENTION STANDARDS IN EFFECT ON  
THE DATE OF MANUFACTURE SHOWN ABOVE.



J3AA11A2TU003055  
VEHICLE TYPE: PASSENGER CAR MJ900 148

Figure A-47. Pre-Test Vehicle Certification Label View

**TIRE INFLATION PRESSURE  
(CHECK WITH TIRE COOL)**

**STANDARD INFLATION PRESSURE  
FOR ALL LOAD.**

**1ST SEAT : 2 PASSENGERS**

**2ND SEAT : 3 PASSENGERS**

**TOTAL : 5 PASSENGERS**

**LUGGAGE : 35kg( 77lbs)**

**TOTAL WEIGHT : 375kg (827lbs)**

| <b>TIRE SIZE</b> | <b>FRONT&amp;REAR</b> |
|------------------|-----------------------|
|------------------|-----------------------|

|                   |                            |
|-------------------|----------------------------|
| <b>P155/80R13</b> | <b>31 PSI<br/>(210kPa)</b> |
|-------------------|----------------------------|

**TEMPORARY TIRE SIZE**

**T105/70D14**

**60PSI (420kPa)**

**MR103098 A**

Figure A-48. Pre-Test Recommended Tire Pressure Label View

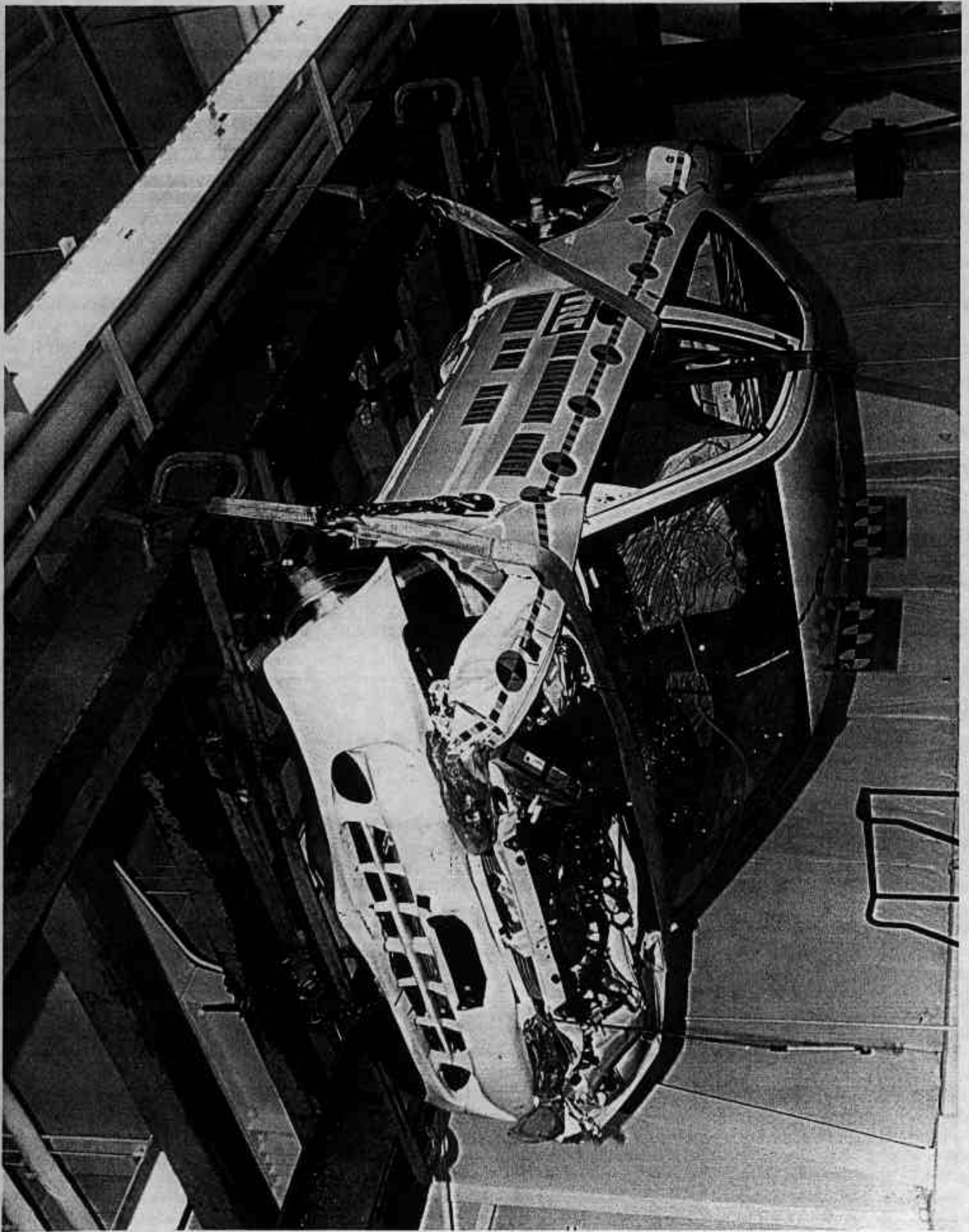


Figure A-49. Post-Test Vehicle on Static Rollover Machine View

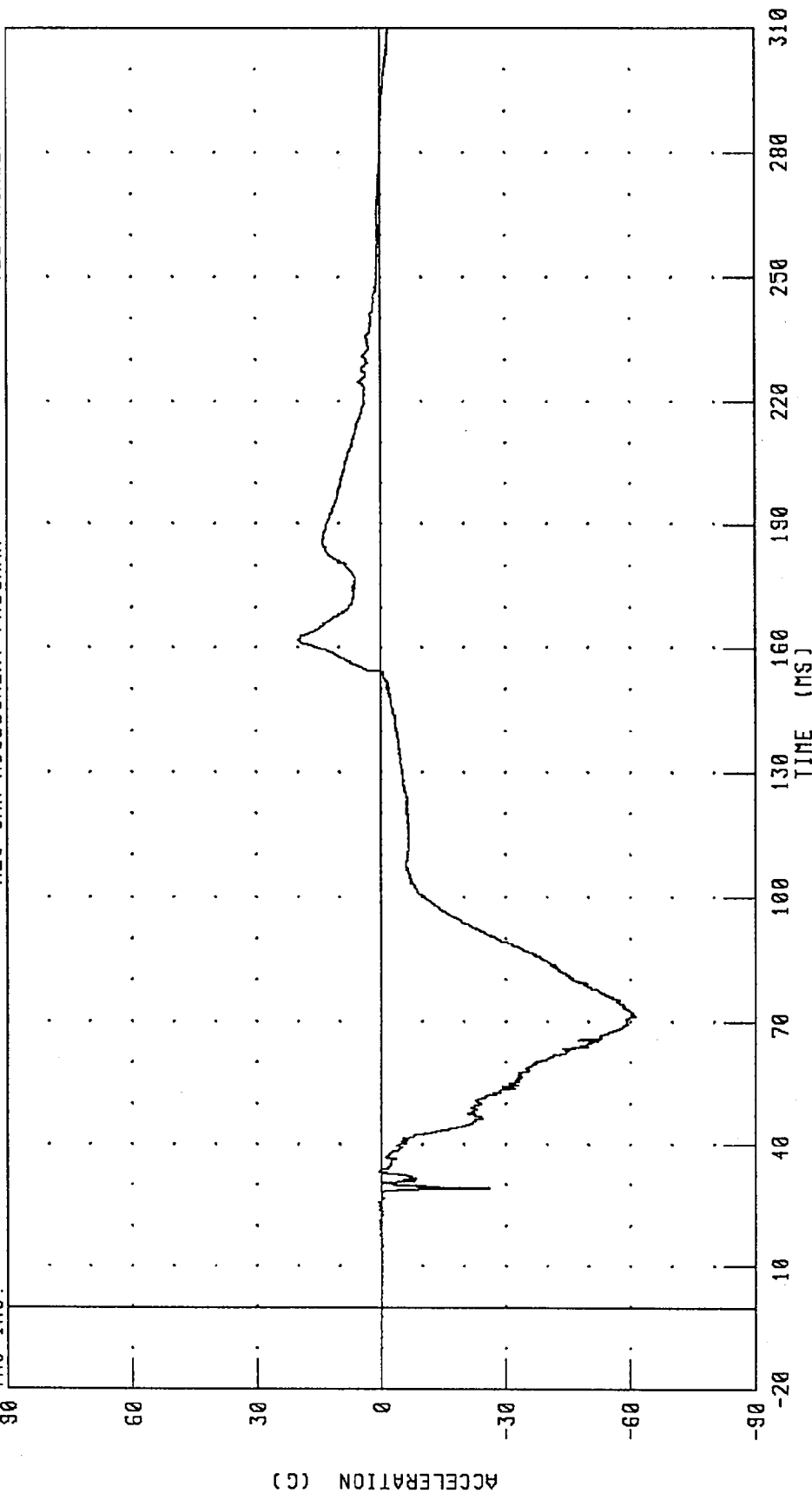
Appendix B

Data Plots

1996 MITSUBISHI MIRAGE INTO FRONTAL LOAD CELL BARRIER  
 DRIVER HEAD X-AXIS ACCELERATION  
 NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 960117

TRC INC.



PEAK DATA: 19.98 G @ 161.92 MS; -61.25 G @ 71.36 MS

CHANNEL: HEDXG1 FILTER: CH. CLASS 1000

1996 MITSUBISHI MIRAGE INTO FRONTAL LOAD CELL BARRIER  
 DRIVER HEAD Y-AXIS ACCELERATION  
 NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 960117

TRC INC.

90

60

30

0

-30

-60

-90

ACCELERATION (G)

10

40

70

100

130

160

190

220

250

280

310

TIME (MS)

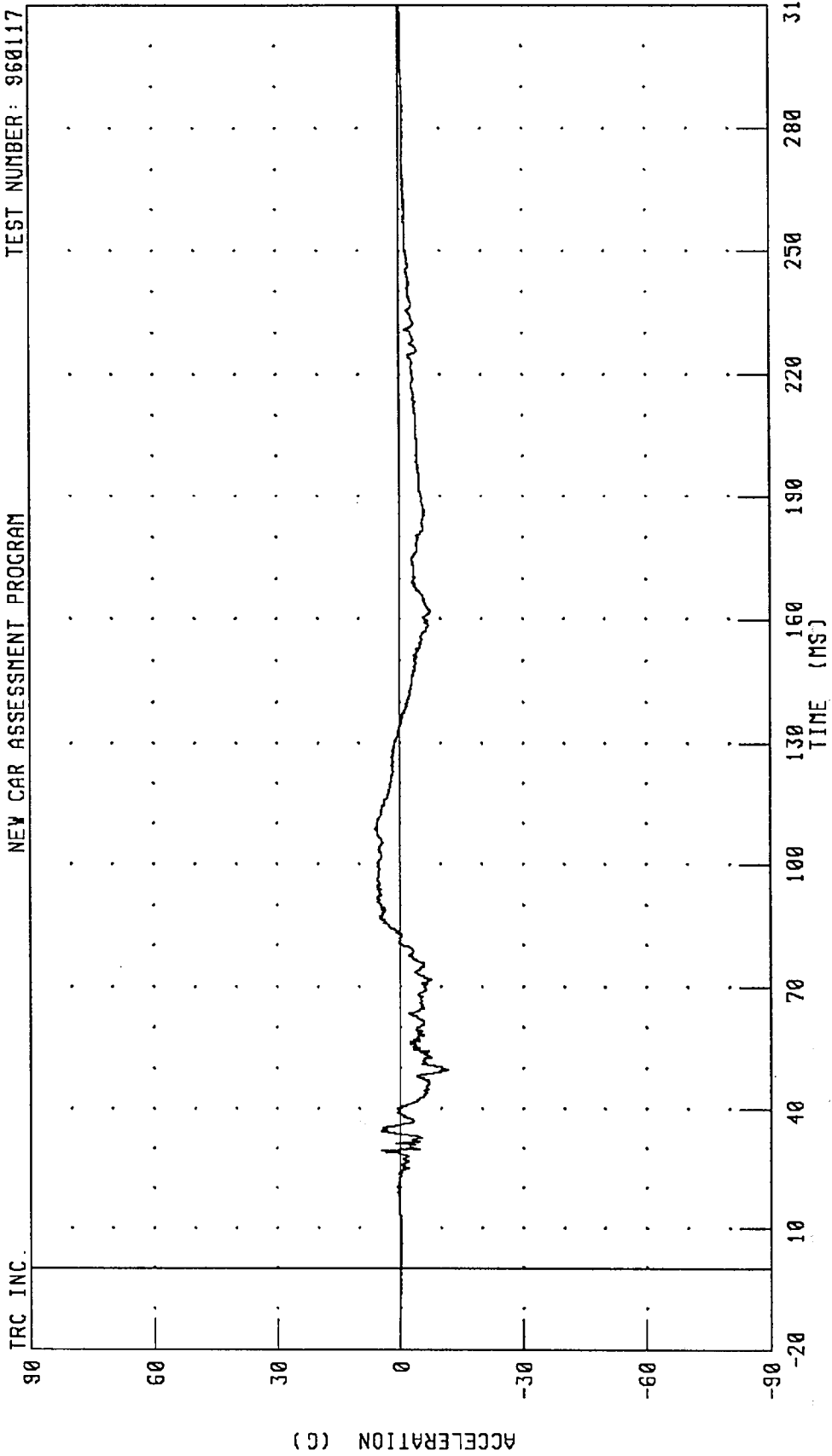
PEAK DATA: 9.15 G @ 89.12 MS; -3.66 G @ 29.92 MS

CHANNEL: HEDYG1

FILTER: CH. CLASS 1000

1996 MITSUBISHI MIRAGE INTO FRONTAL LOAD CELL BARRIER  
 DRIVER HEAD Z-AXIS ACCELERATION  
 NEW CAR ASSESSMENT PROGRAM

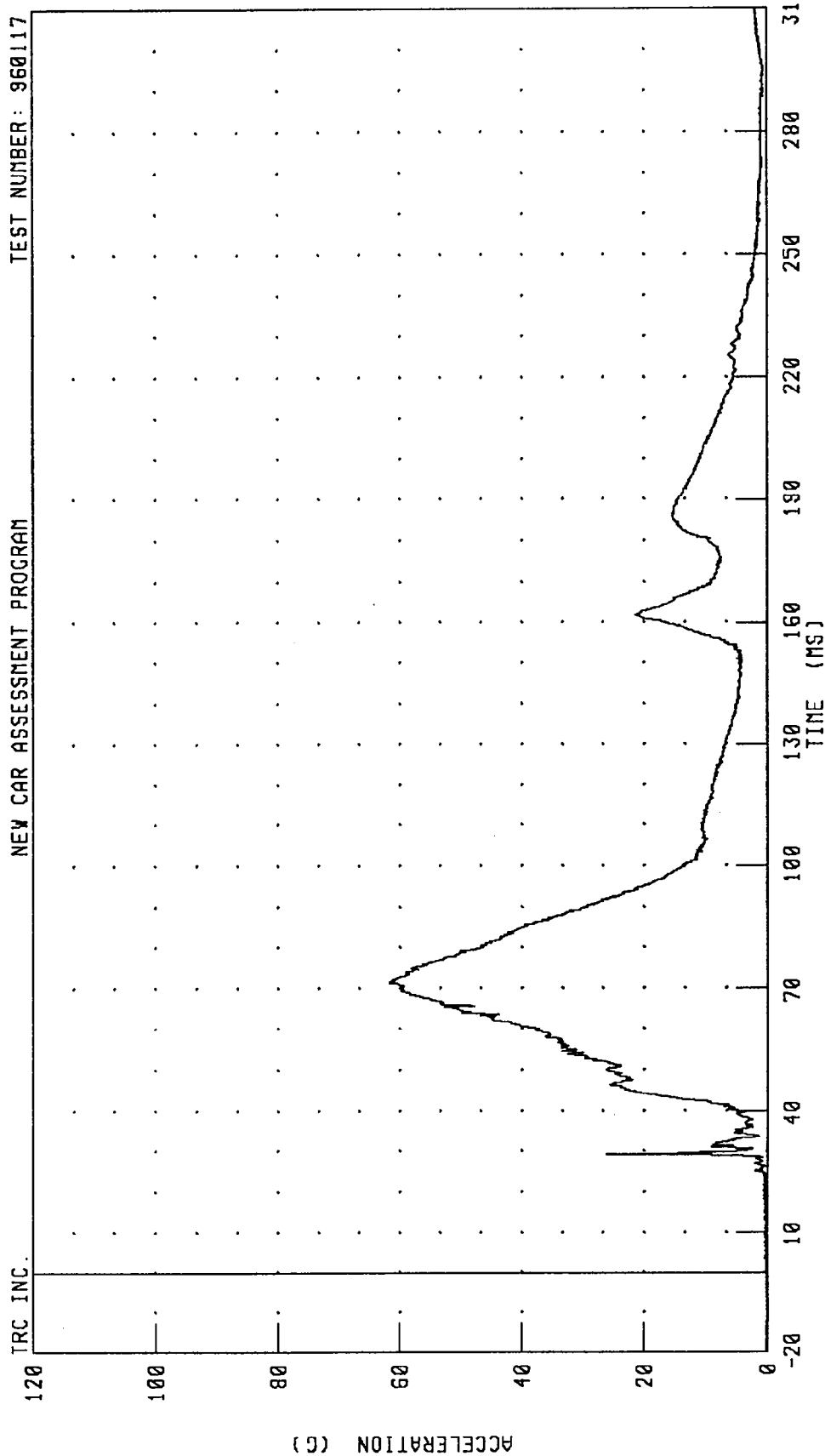
TEST NUMBER: 960117



CHANNEL: HEDZG1 FILTER: CH. CLASS 1000 PEAK DATA: 6.09 G @ 108.72 MS; -11.63 G @ 49.60 MS

1996 NISSAN MIRAGE INTO FRONTAL LOAD CELL BARRIER  
 DRIVER HEAD RESULTANT ACCELERATION  
 NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 960117



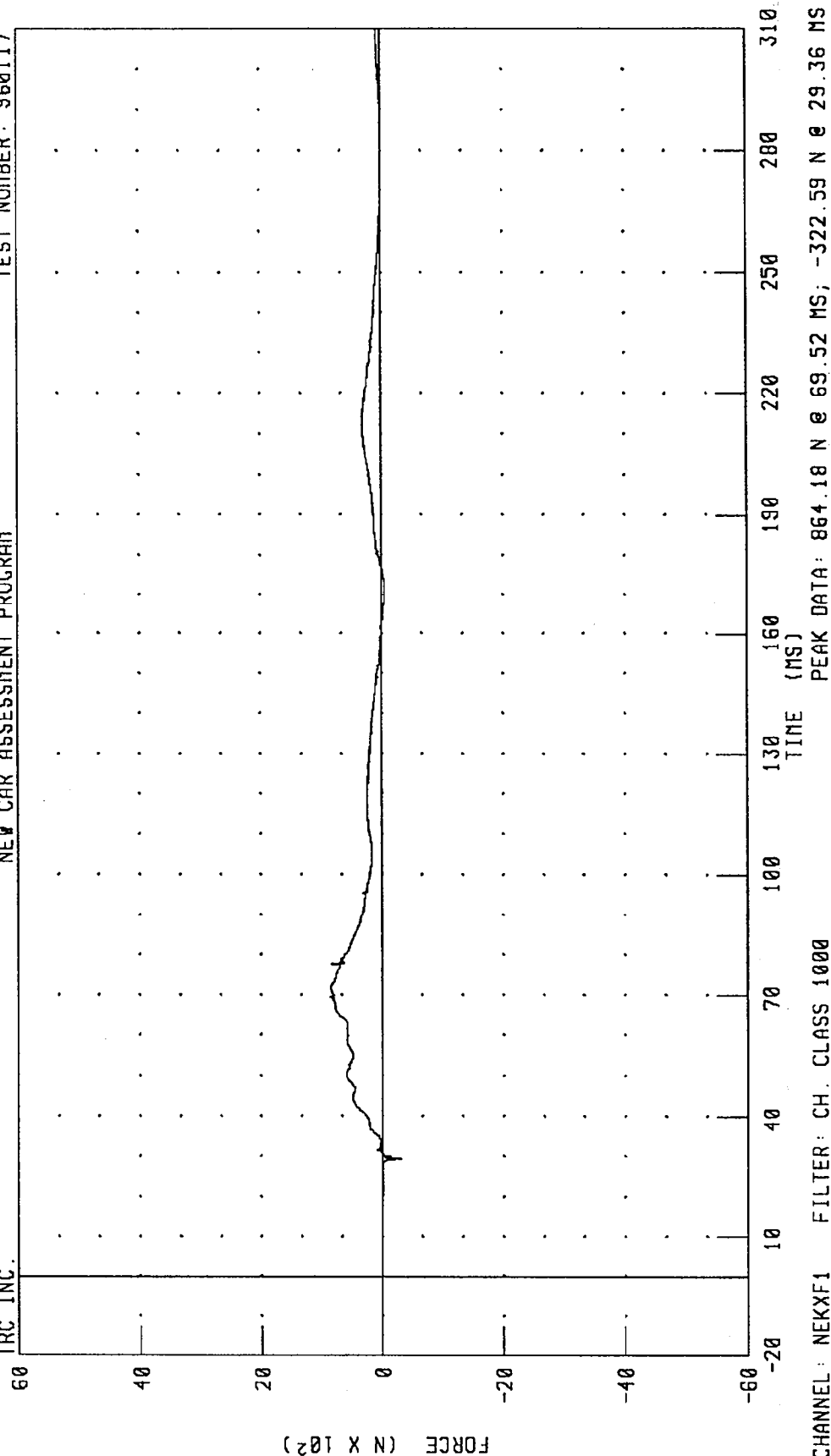
CHANNEL: HEDRG1 FILTER: CH. CLASS 1000

PEAK DATA: 61.77 G @ 71.36 MS; 0.12 G @ -12.88 MS

1996 MITSUBISHI MIRAGE INTO FRONTAL LOAD CELL BARRIER  
 DRIVER NECK X-AXIS SHEAR FORCE  
 NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 960117

TRC INC.

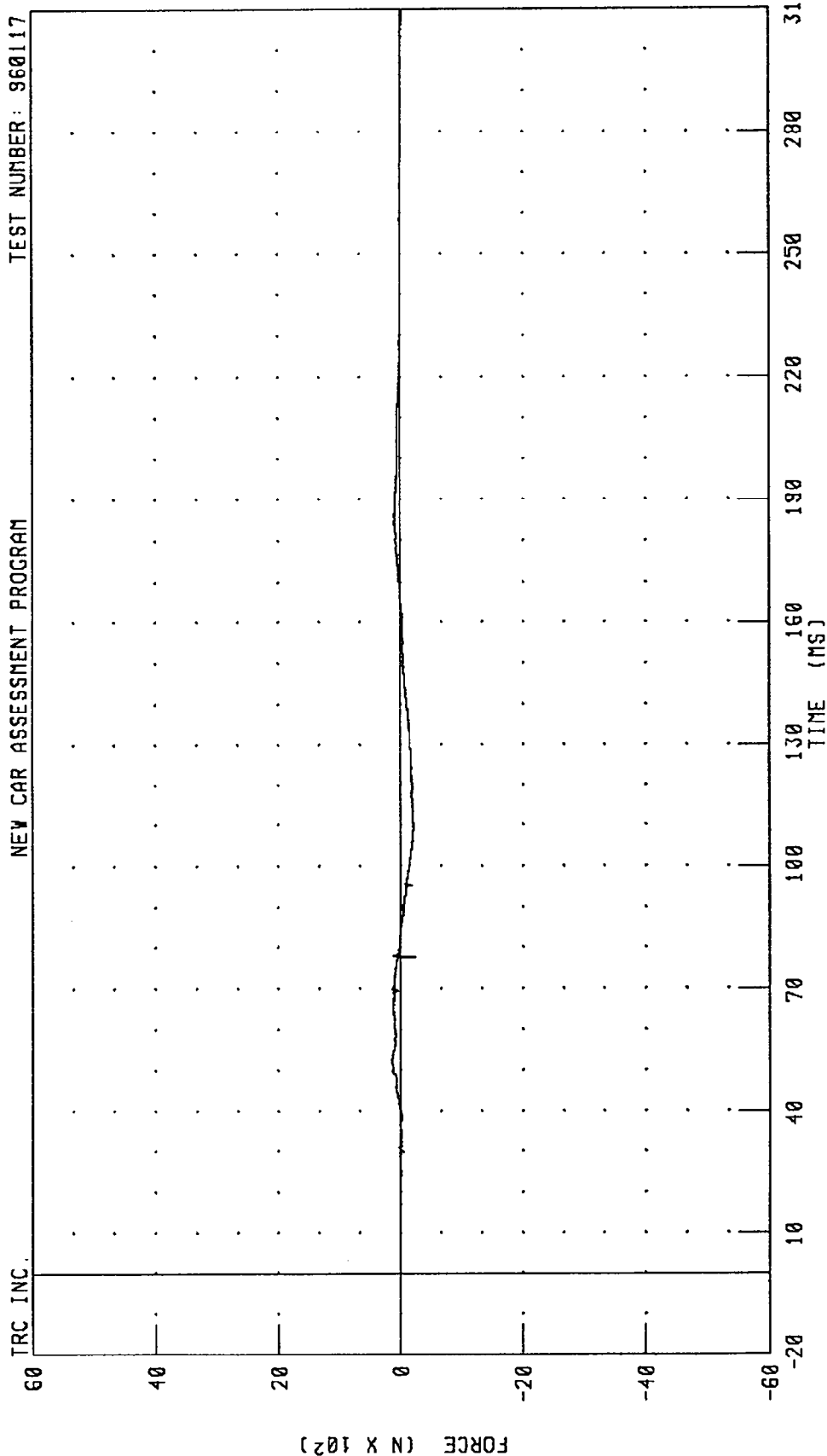


PEAK DATA: 864.18 N @ 89.52 MS; -322.59 N @ 29.36 MS

CHANNEL: NEKXF1 FILTER: CH. CLASS 1000

1996 MITSUBISHI MIRAGE INTO FRONTAL LOAD CELL BARRIER  
 DRIVER NECK Y-AXIS SHEAR FORCE  
 NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 960117

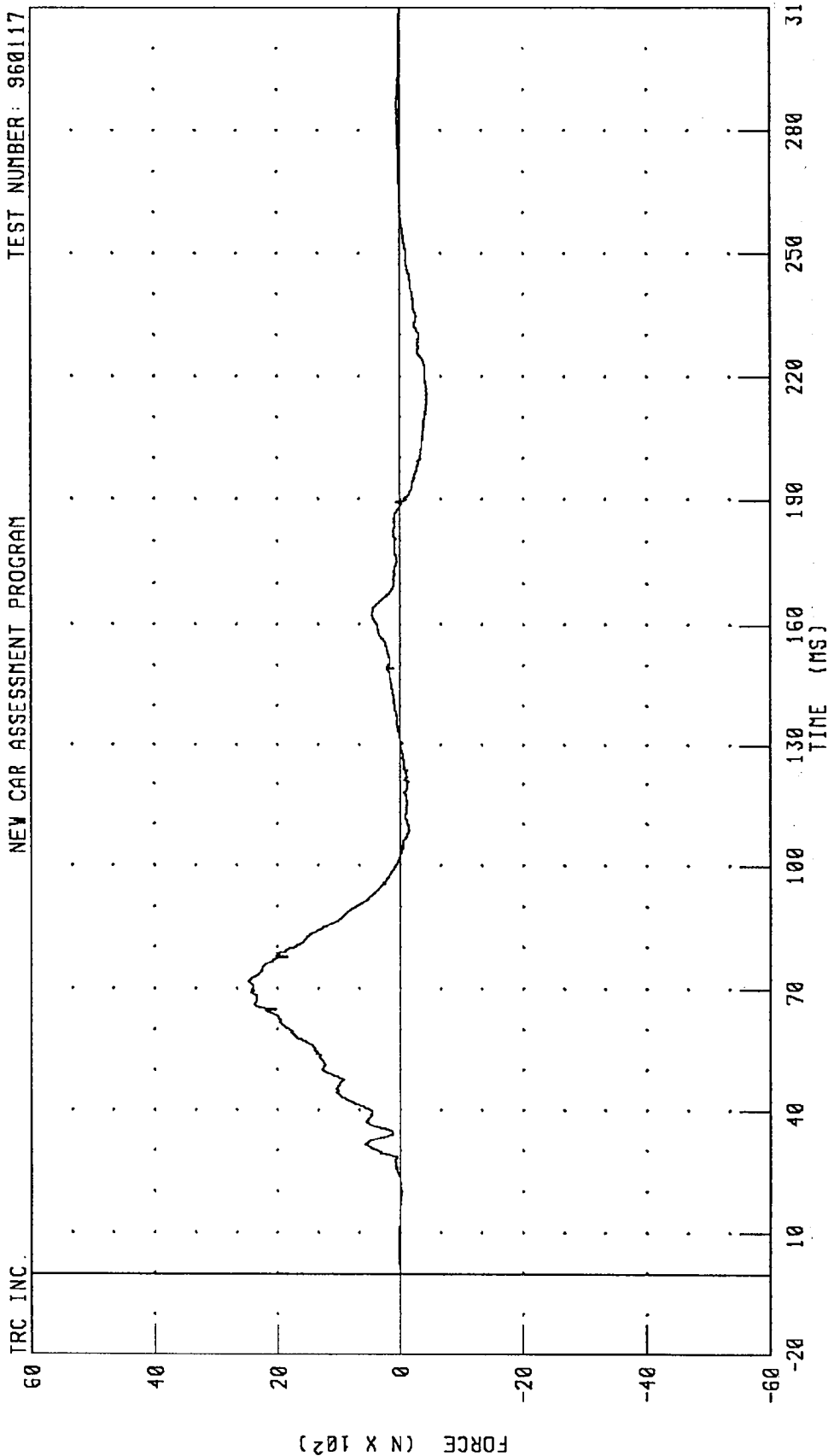


PEAK DATA: 144.42 N @ 52.64 MS; -234.02 N @ 77.68 MS

CHANNEL: NEKYF1 FILTER: CH. CLASS 1000

1996 MITSUBISHI MIRAGE INTO FRONTAL LOAD CELL BARRIER  
 DRIVER NECK Z-AXIS AXIAL FORCE  
 NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 960117



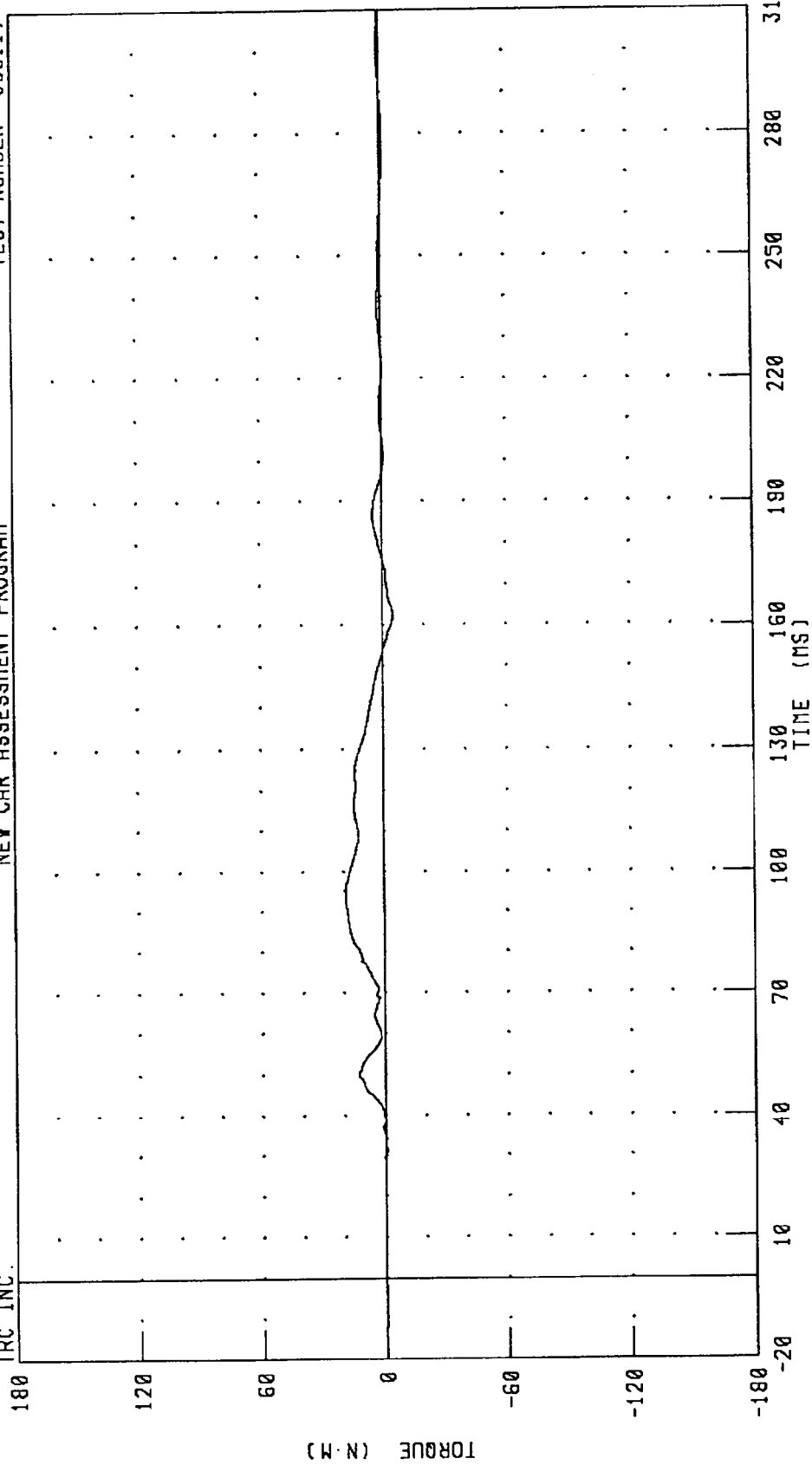
CHANNEL: NEKZF1 FILTER: CH. CLASS 1000

1996 MITSUBISHI MIRAGE INTO FRONTAL LOAD CELL BARRIER  
DRIVER NECK MOMENT ABOUT X AXIS

TEST NUMBER: 960117

NEW CAR ASSESSMENT PROGRAM

TRC INC.



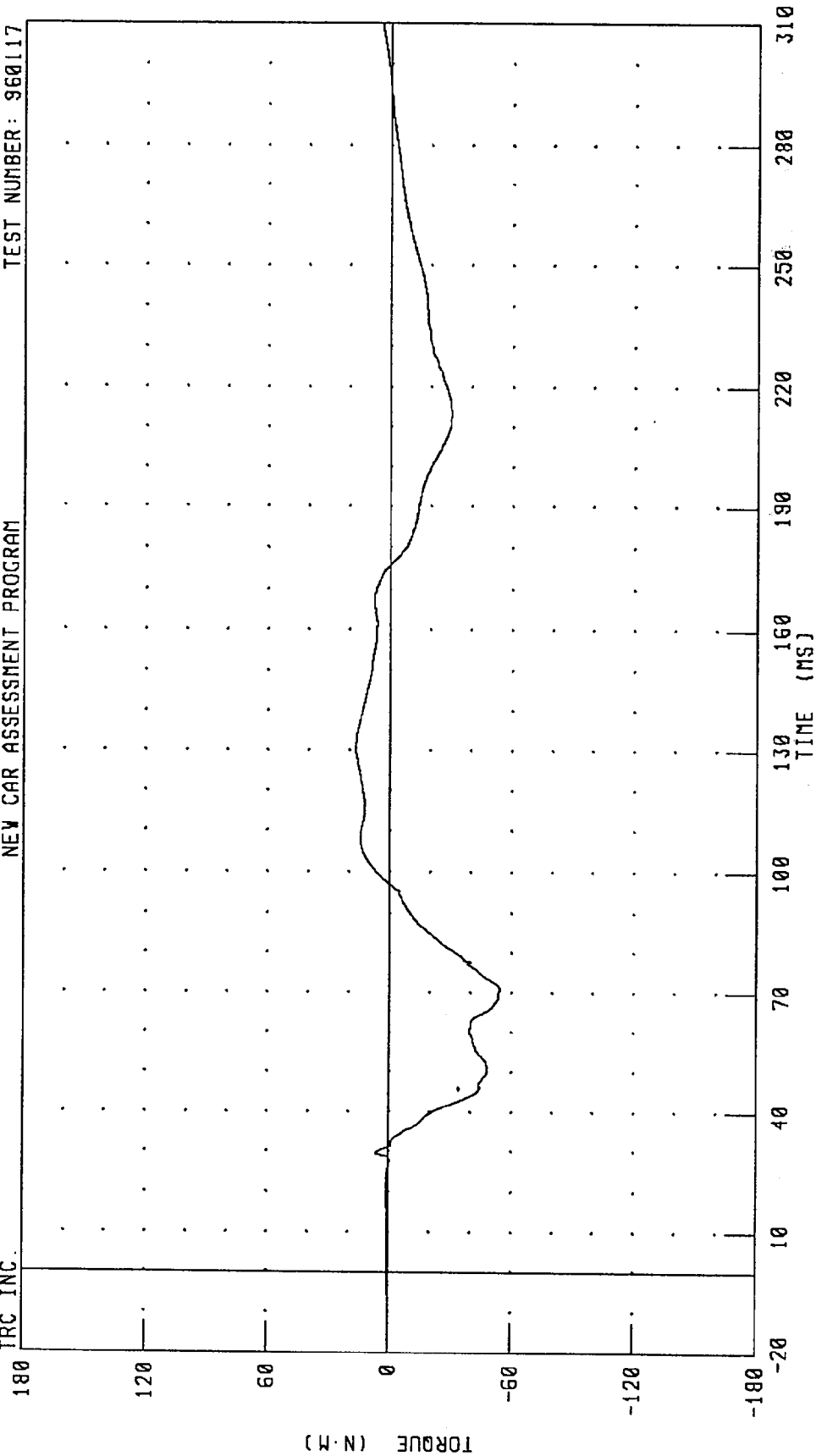
PEAK DATA: 19.63 N·M @ 95.36 MS; -5.01 N·M @ 162.80 MS

CHANNEL: NEKXM1 FILTER: CH. CLASS 600

1996 MITSUBISHI MIRAGE INTO FRONTAL LOAD CELL BARRIER  
 DRIVER NECK MOMENT ABOUT Y AXIS

TEST NUMBER: 960117

TRC INC.  
 NEW CAR ASSESSMENT PROGRAM



CHANNEL: NEKYM1 FILTER: CH. CLASS 600

PEAK DATA: 16.74 N.M @ 130.56 MS; -54.35 N.M @ 280.72 MS

1996 MITSUBISHI MIRAGE INTO FRONTAL LOAD CELL BARRIER  
 DRIVER NECK MOMENT ABOUT Z AXIS  
 NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 960117

TRC INC.

180

120

60

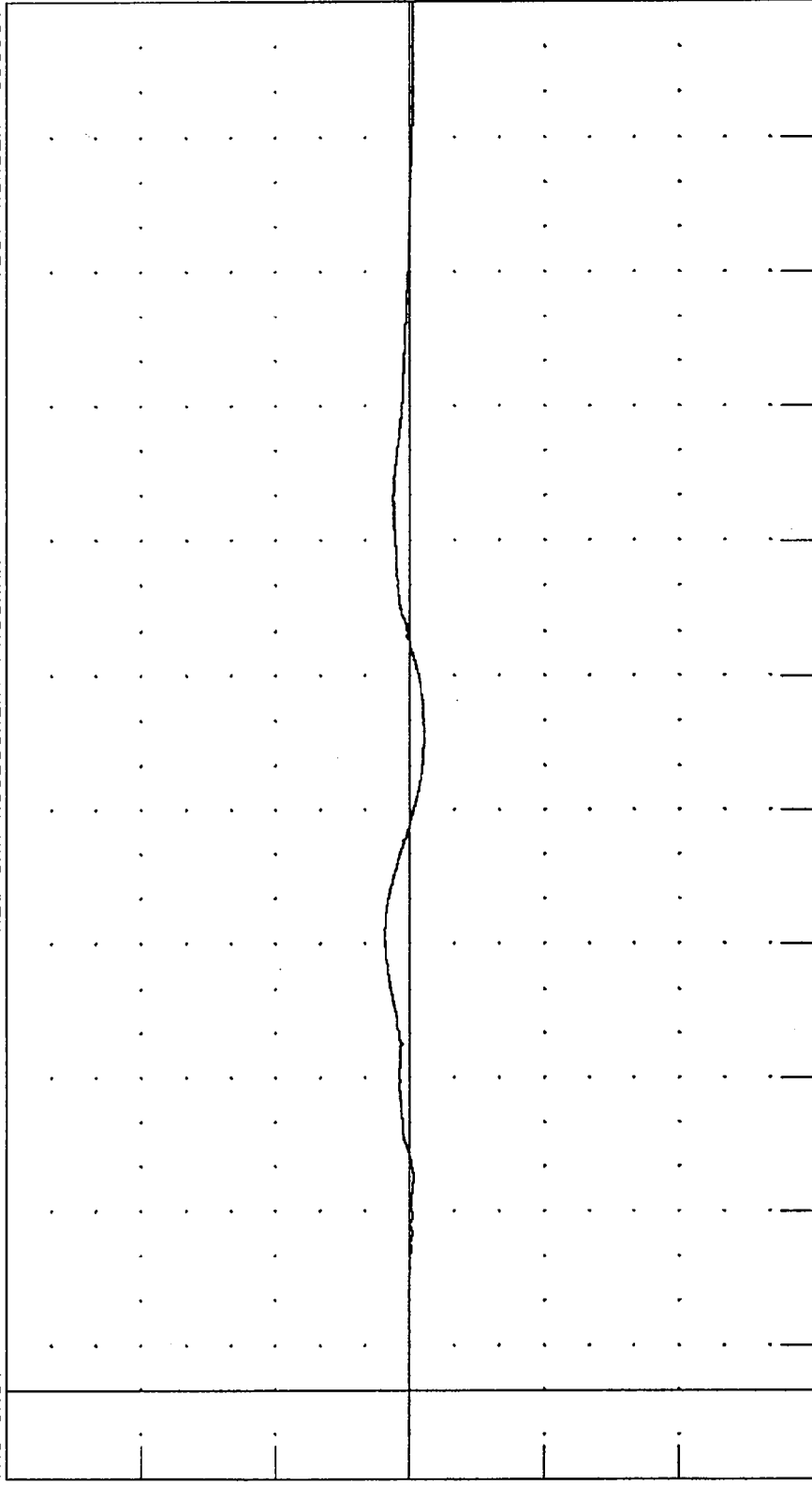
0

-60

-120

-180

TORQUE (N·M)



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

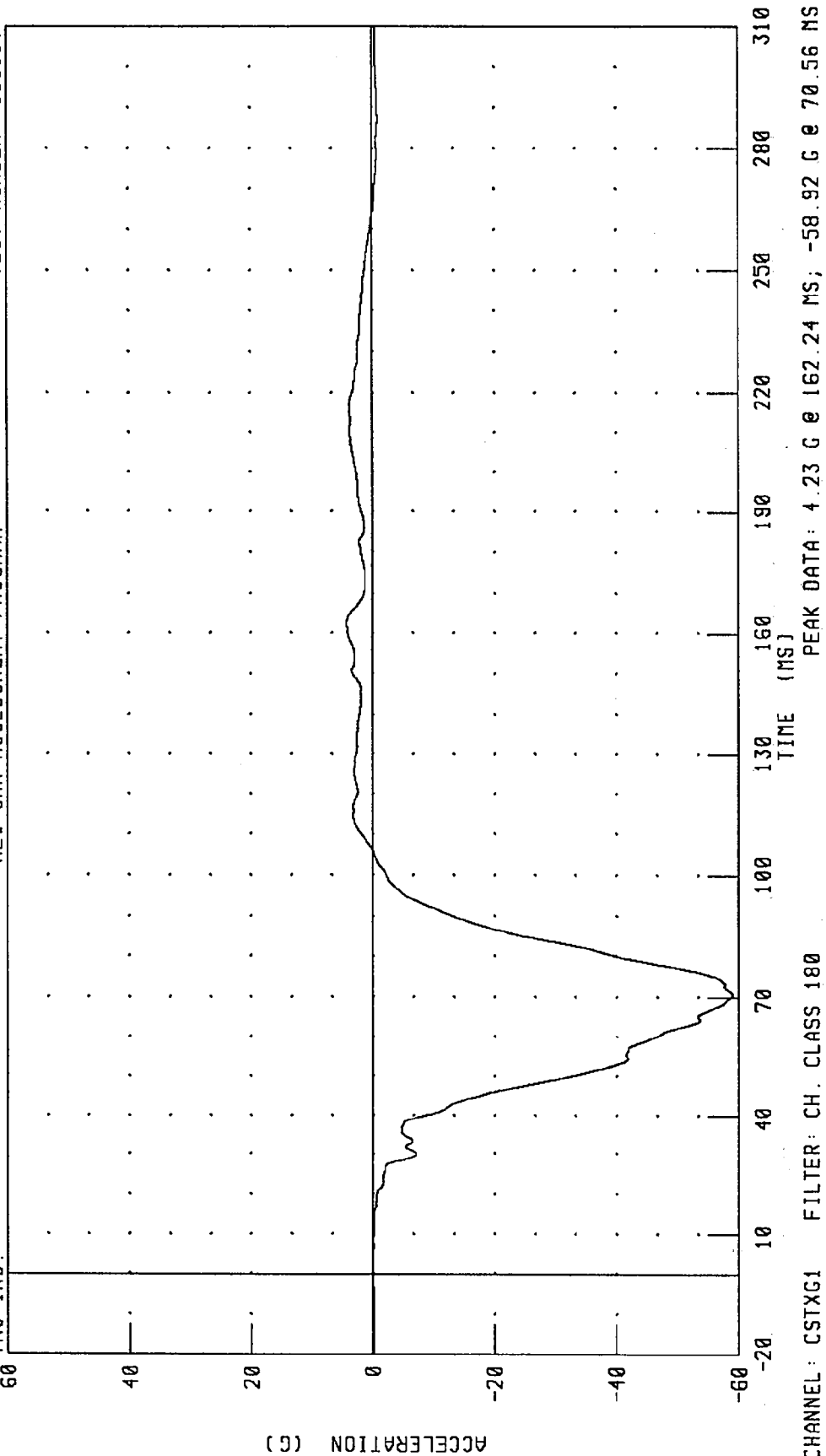
CHANNEL: NEKZM1 FILTER: CH. CLASS 600

PEAK DATA: 11.15 N·M @ 101.20 MS; -6.47 N·M @ 148.88 MS

1996 MITSUBISHI MIRAGE INTO FRONTAL LOAD CELL BARRIER  
 DRIVER CHEST X-AXIS ACCELERATION  
 NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 960117

TRC INC.



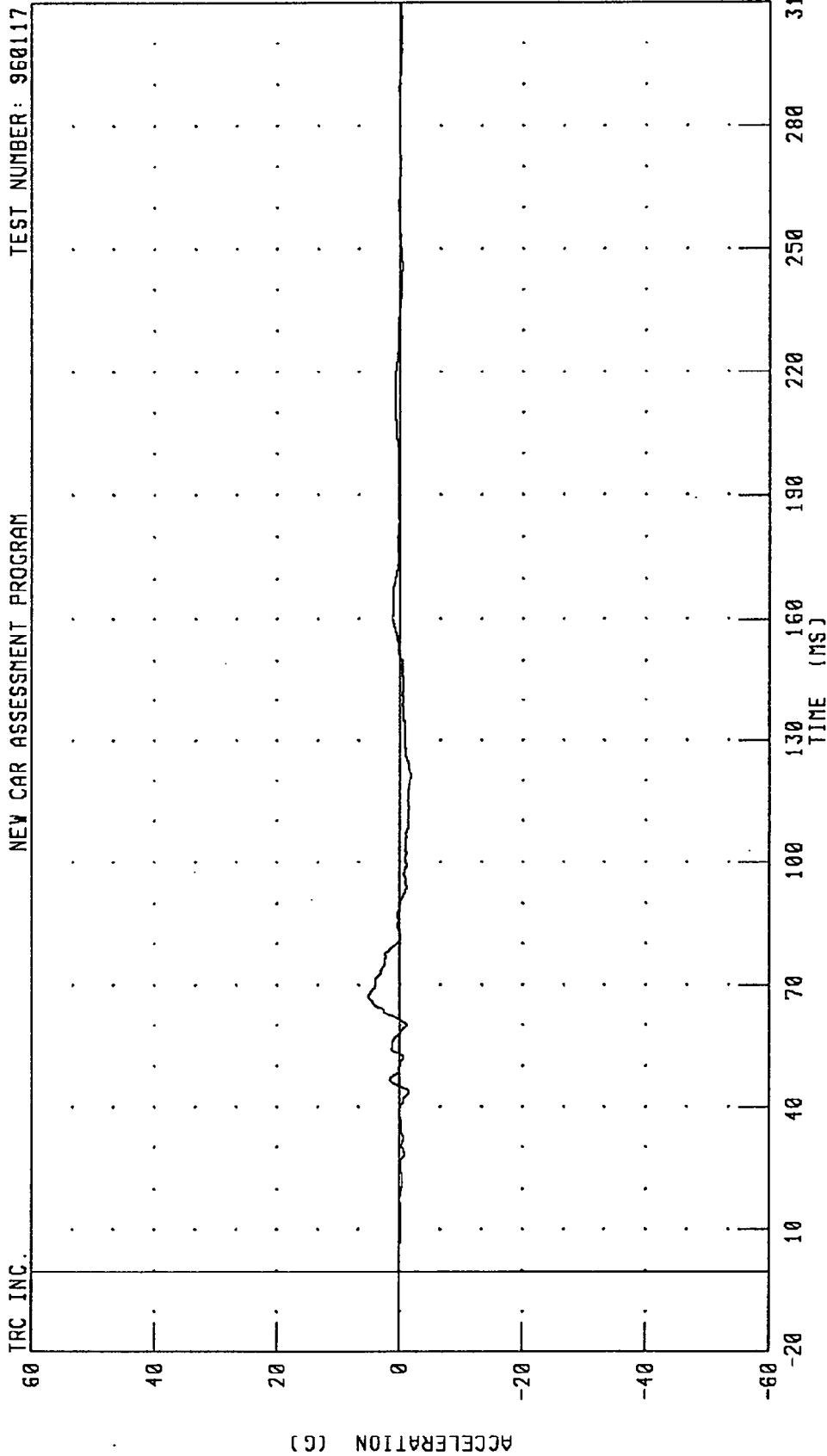
CHANNEL: CSTXG1 FILTER: CH. CLASS 180

PEAK DATA: 4.23 G @ 162.24 MS; -58.92 G @ 70.56 MS

1996 MITSUBISHI MIRAGE INTO FRONTAL LOAD CELL BARRIER  
 DRIVER CHEST Y-AXIS ACCELERATION  
 NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 960117

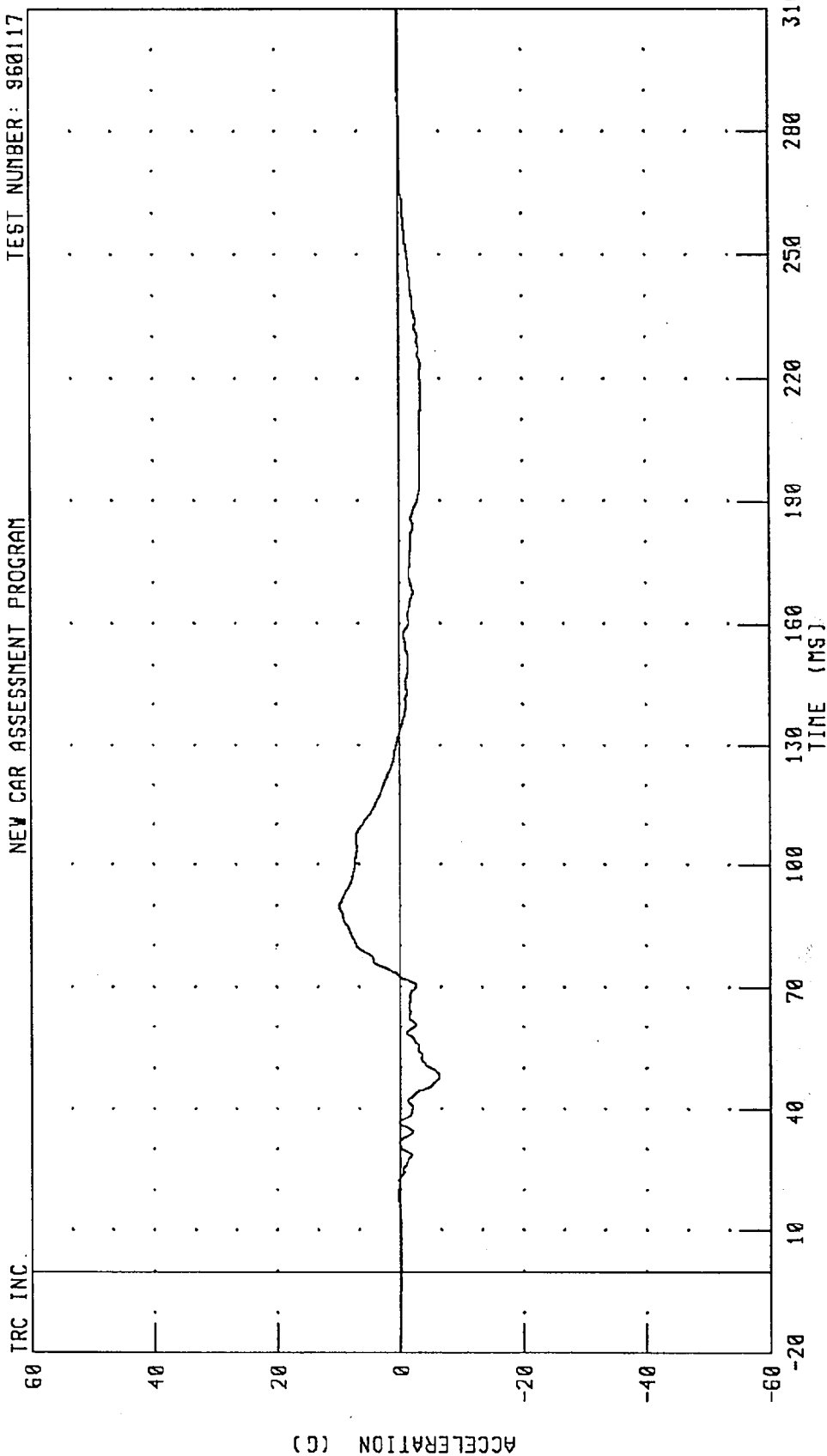
TRC INC.



CHANNEL: CSTYGI FILTER: CH. CLASS 180

1986 MITSUBISHI MIRAGE INTO FRONTAL LOAD CELL BARRIER  
 DRIVER CHEST Z-AXIS ACCELERATION  
 NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 960117

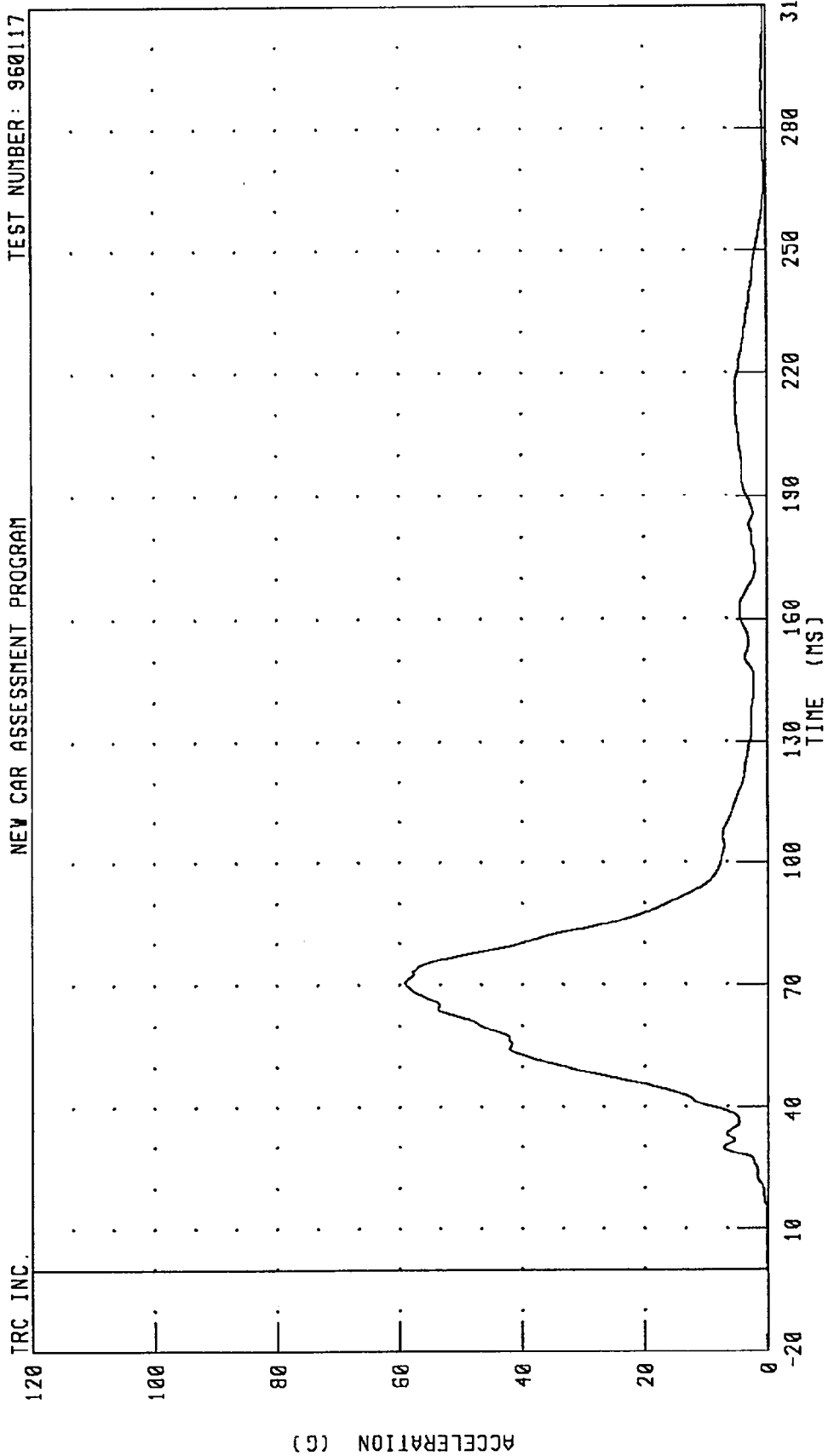


PEAK DATA: 9.86 G @ 89.76 MS; -6.28 G @ 47.68 MS

CHANNEL: CSTZG1 FILTER: CH. CLASS 180

1996 MITSUBISHI MIRAGE INTO FRONTAL LOAD CELL BARRIER  
 DRIVER CHEST RESULTANT ACCELERATION  
 NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 960117



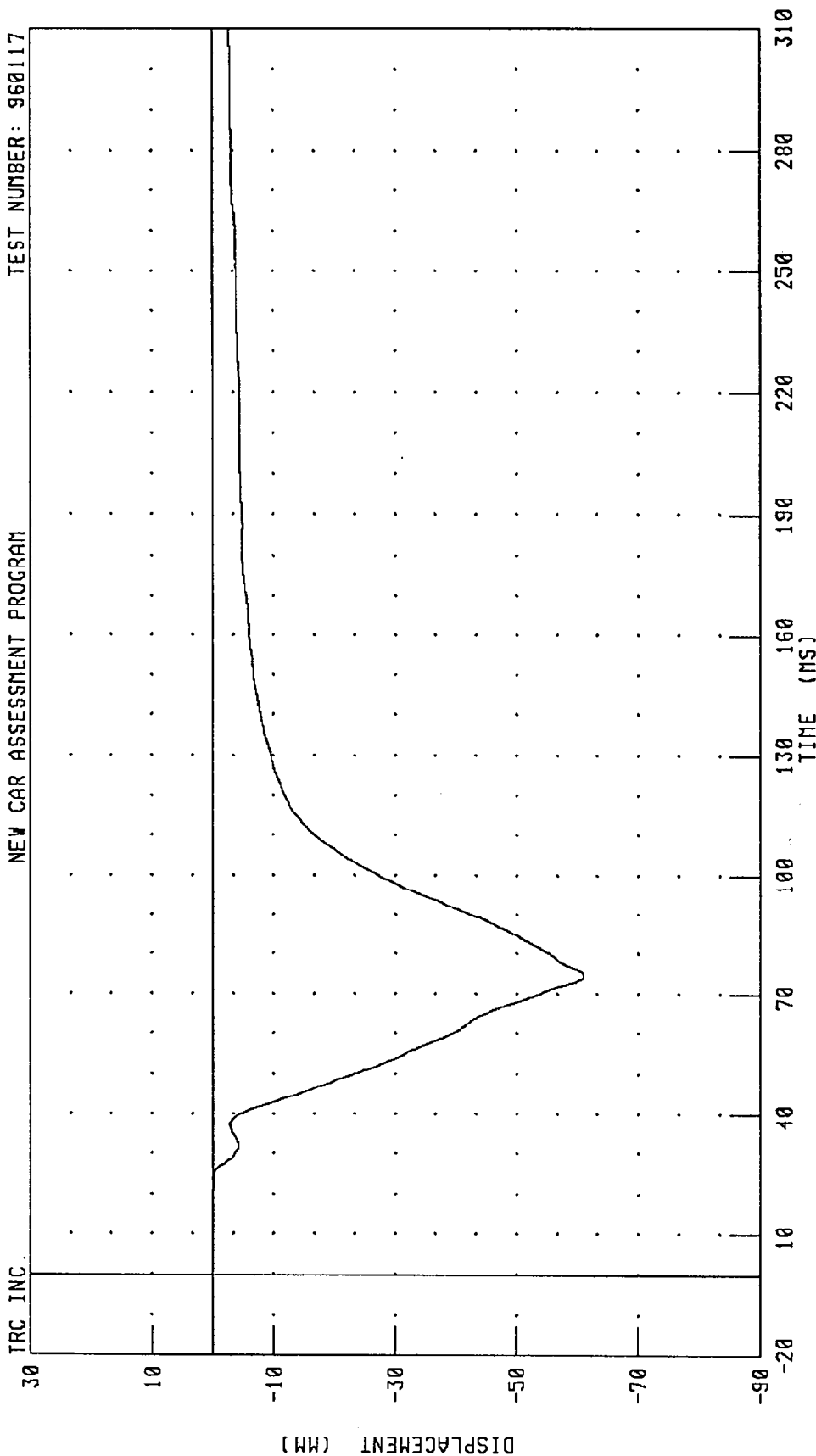
PEAK DATA: 59.10 G @ 70.56 MS; 0.02 G @ -20.00 MS

CHANNEL: CSTRG1 FILTER: CH. CLASS 180

1996 MITSUBISHI MIRAGE INTO FRONTAL LOAD CELL BARRIER  
 DRIVER CHEST DEFLECTION  
 NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 960117

TRC INC.

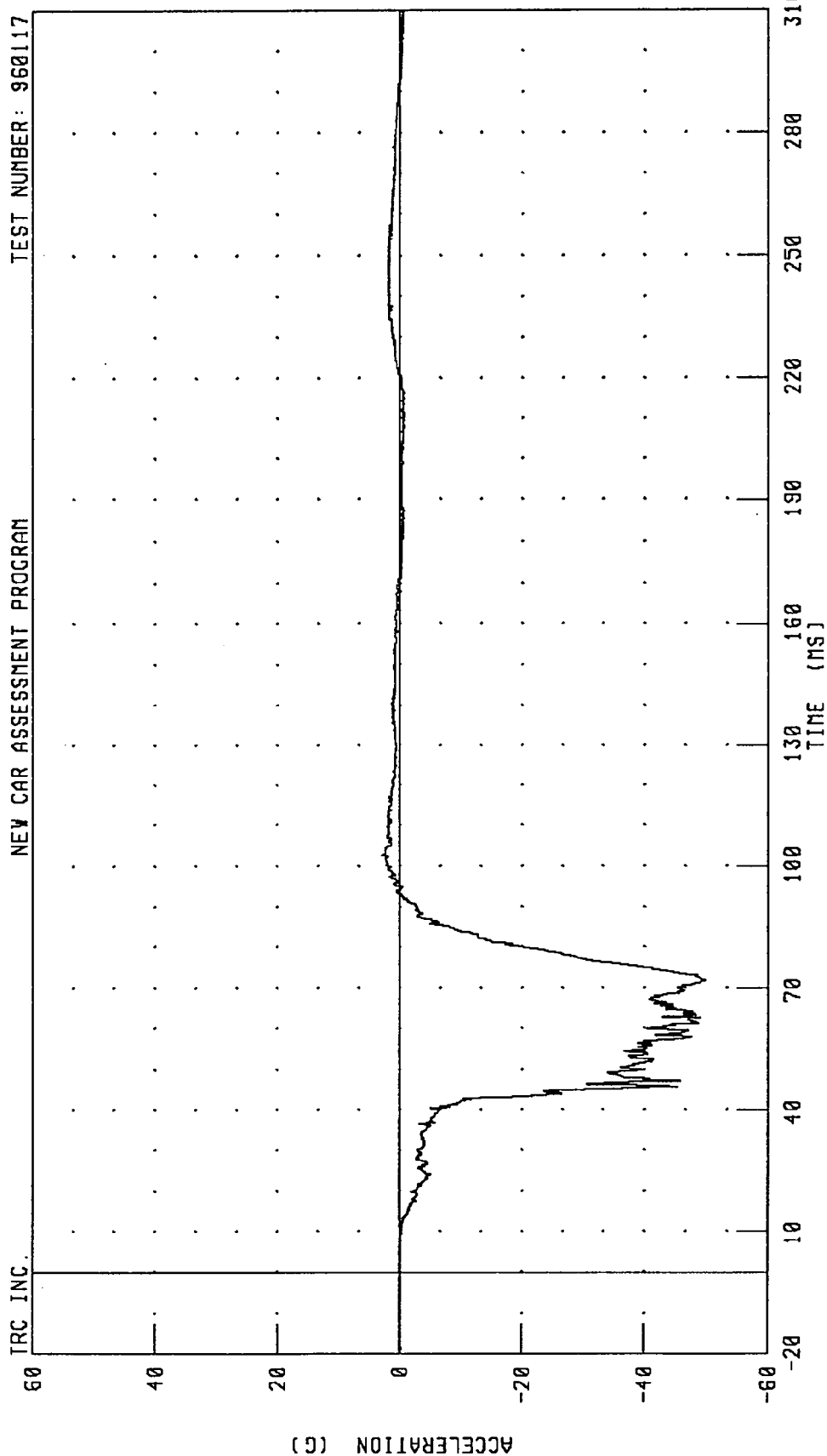


PEAK DATA: 0.02 MN @ -4.88 MS; -61.06 MM @ 74.64 MS

CHANNEL: CSTXD1 FILTER: CH. CLASS 180

1996 MITSUBISHI MIRAGE INTO FRONTAL LOAD CELL BARRIER  
 DRIVER PELVIS X-AXIS ACCELERATION  
 NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 960117

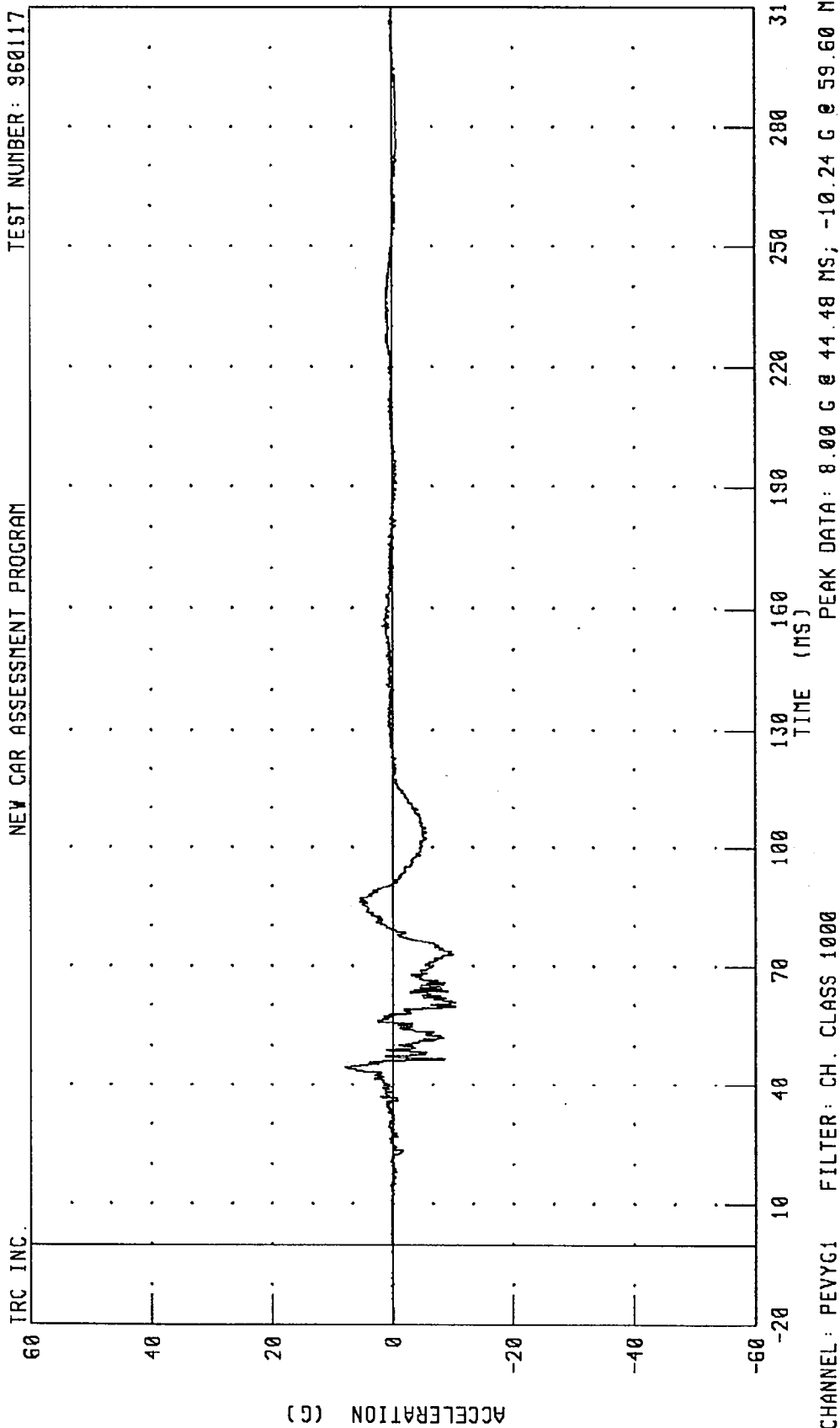


PEAK DATA: 2.81 G @ 102.80 MS; -49.93 G @ 71.84 MS

CHANNEL: PEVXG1 FILTER: CH. CLASS 1000

1996 MITSUBISHI MIRAGE INTO FRONTAL LOAD CELL BARRIER  
 DRIVER PELVIS Y-AXIS ACCELERATION  
 NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 960117



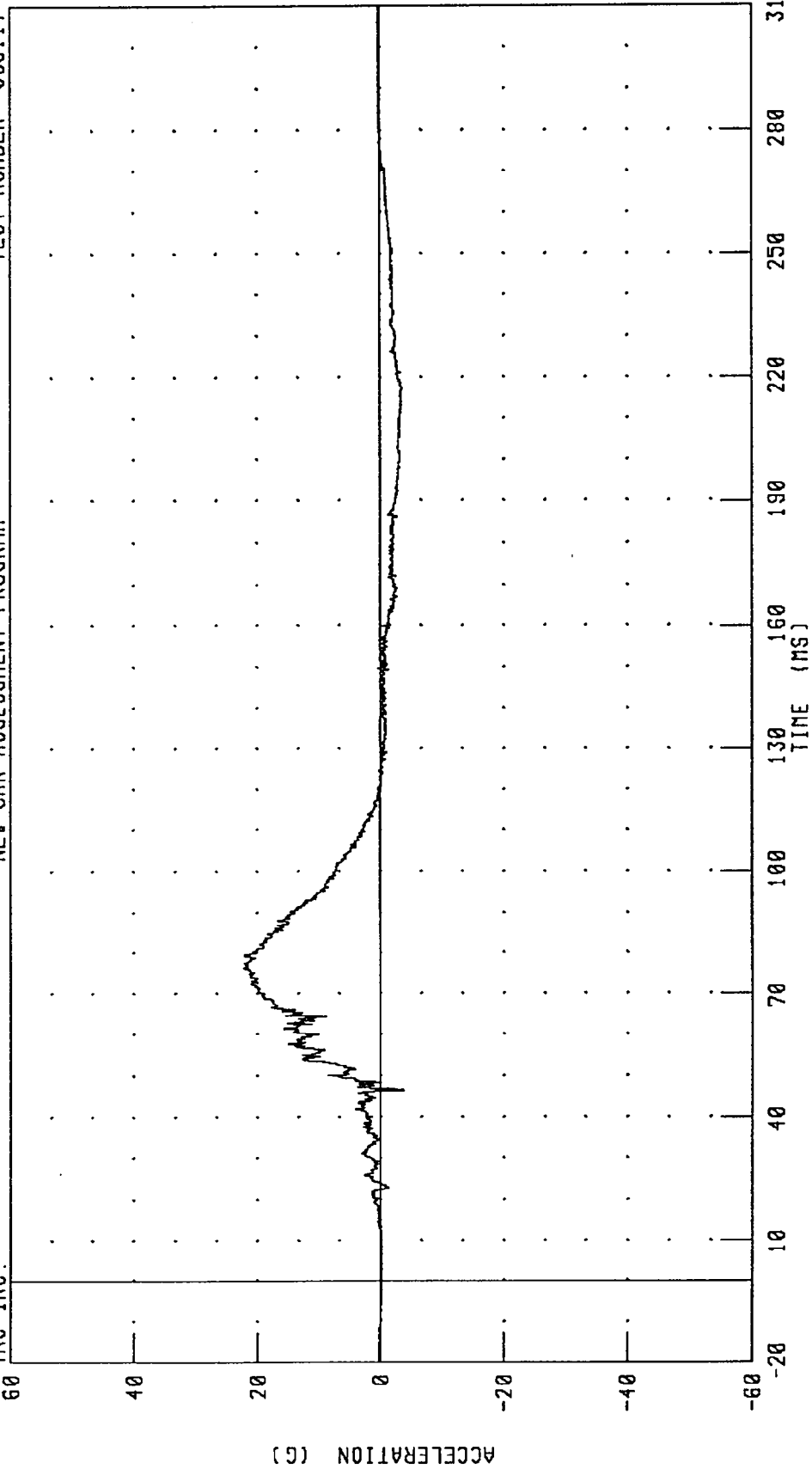
CHANNEL: PEVYG1 FILTER: CH. CLASS 1000

1986 MITSUBISHI MIRAGE INTO FRONTAL LOAD CELL BARRIER  
DRIVER PELVIS Z-AXIS ACCELERATION

TEST NUMBER: 960117

NEW CAR ASSESSMENT PROGRAM

TRC INC.

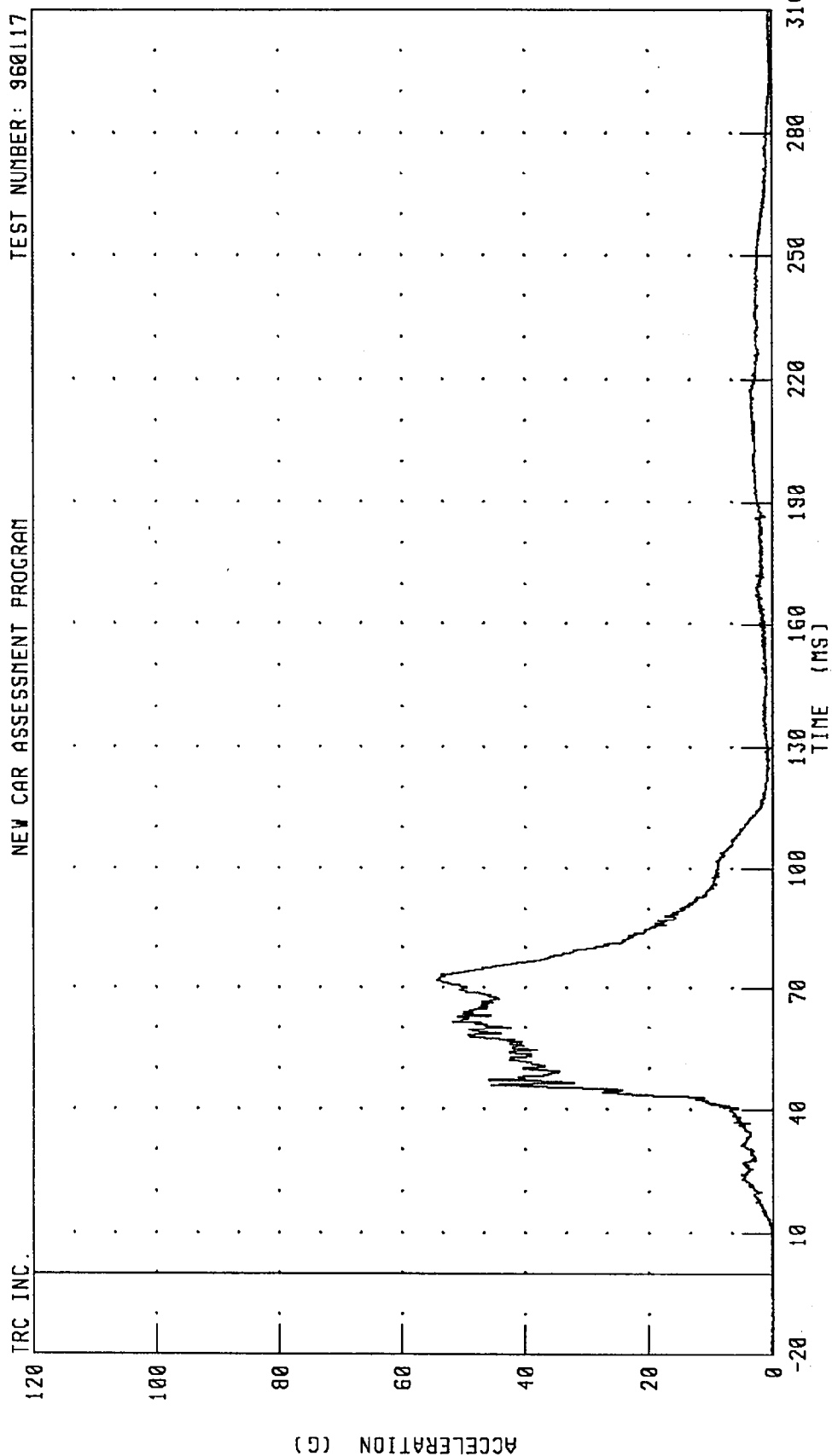


CHANNEL: PEVZG1 FILTER: CH. CLASS 1000

PEAK DATA: 22.34 G @ 76.32 MS; -3.72 G @ 46.48 MS

1996 MITSUBISHI MIRAGE INTO FRONTAL LOAD CELL BARRIER  
DRIVER PELVIS RESULTANT ACCELERATION  
NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 960117



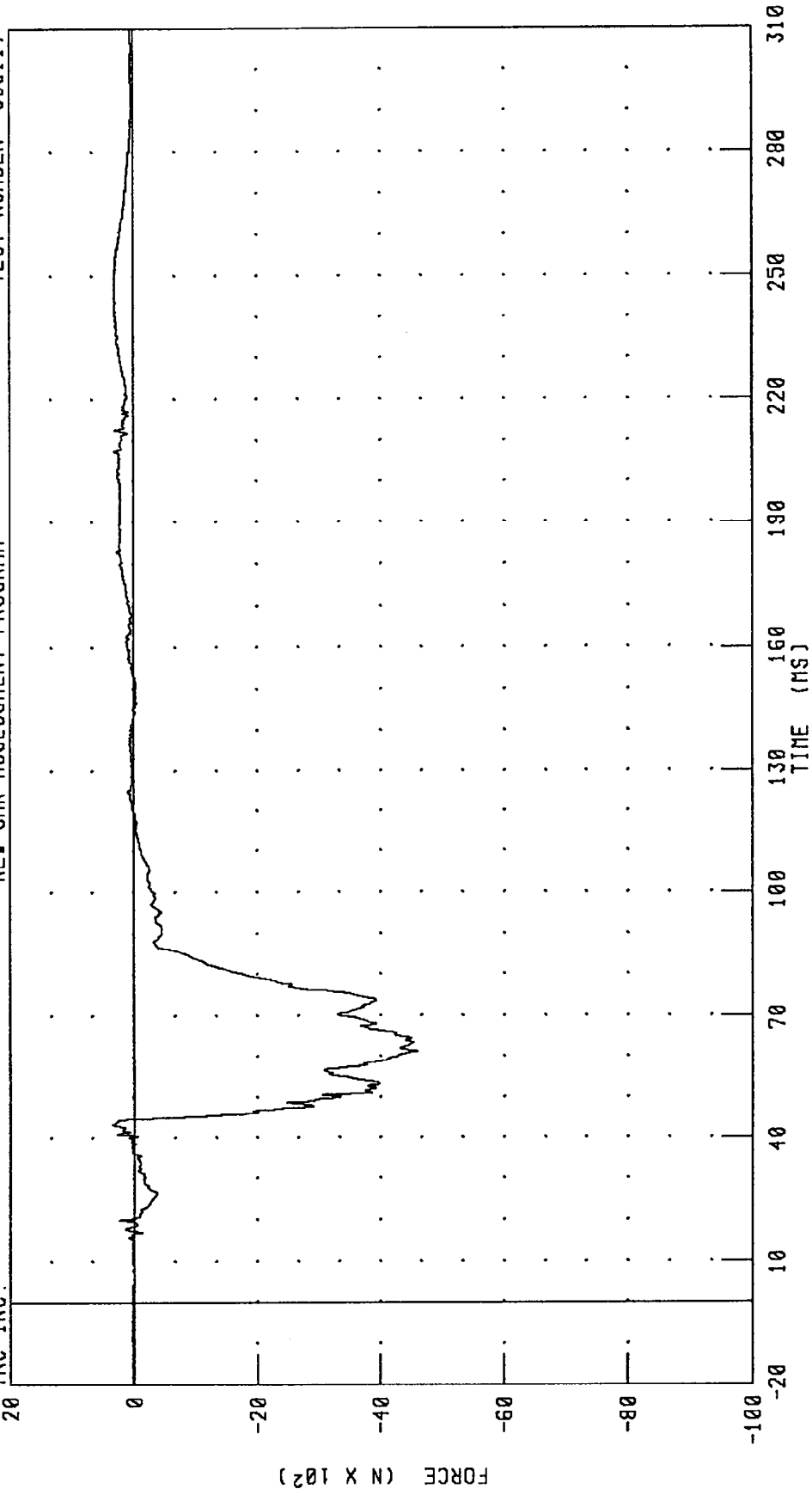
CHANNEL: PEVRG1 FILTER: CH. CLASS 1000

PEAK DATA: 54.45 G @ 71.84 MS; 0.08 G @ -12.40 MS

1996 MITSUBISHI MIRAGE INTO FRONTAL LOAD CELL BARRIER  
 DRIVER LEFT FEMUR FORCE  
 NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 960117

TRC INC.



CHANNEL: LFMF1 FILTER: CH. CLASS 600

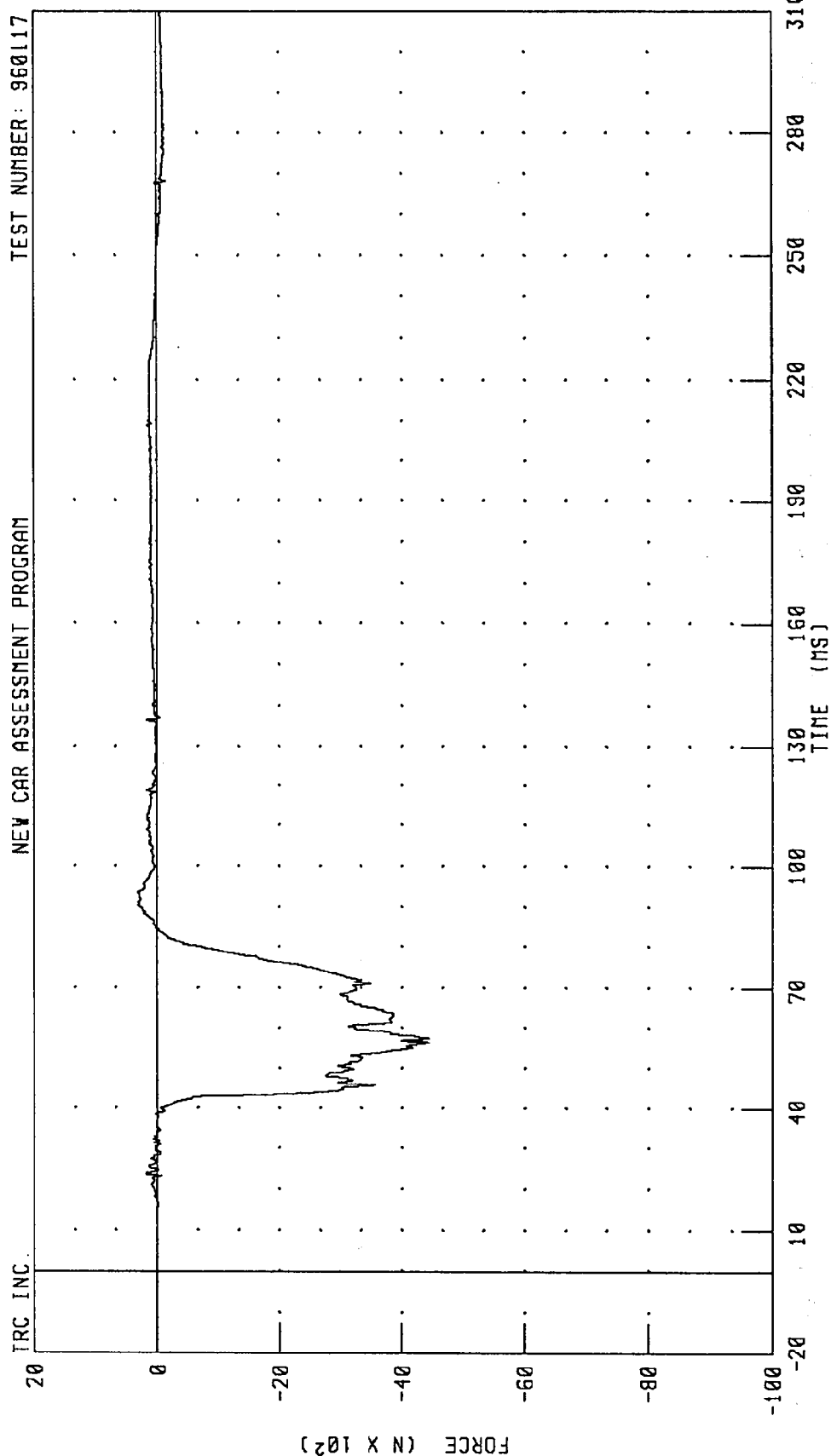
PEAK DATA: 330.32 N @ 43.44 MS; -4603.00 N @ 61.28 MS

# 1996 MITSUBISHI MIRAGE INTO FRONTAL LOAD CELL BARRIER

DRIVER RIGHT FEMUR FORCE

NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 960117



PEAK DATA: 309.26 N @ 93.60 MS, -4439.95 N @ 57.28 MS

CHANNEL: RFMFI FILTER: CH. CLASS: 600

1996 MITSUBISHI MIRAGE INTO FRONTAL LOAD CELL BARRIER  
DRIVER HEAD X-AXIS ACCELERATION - REDUNDANT

TEST NUMBER: 960117

NEW CAR ASSESSMENT PROGRAM

TRC INC.

90

60

30

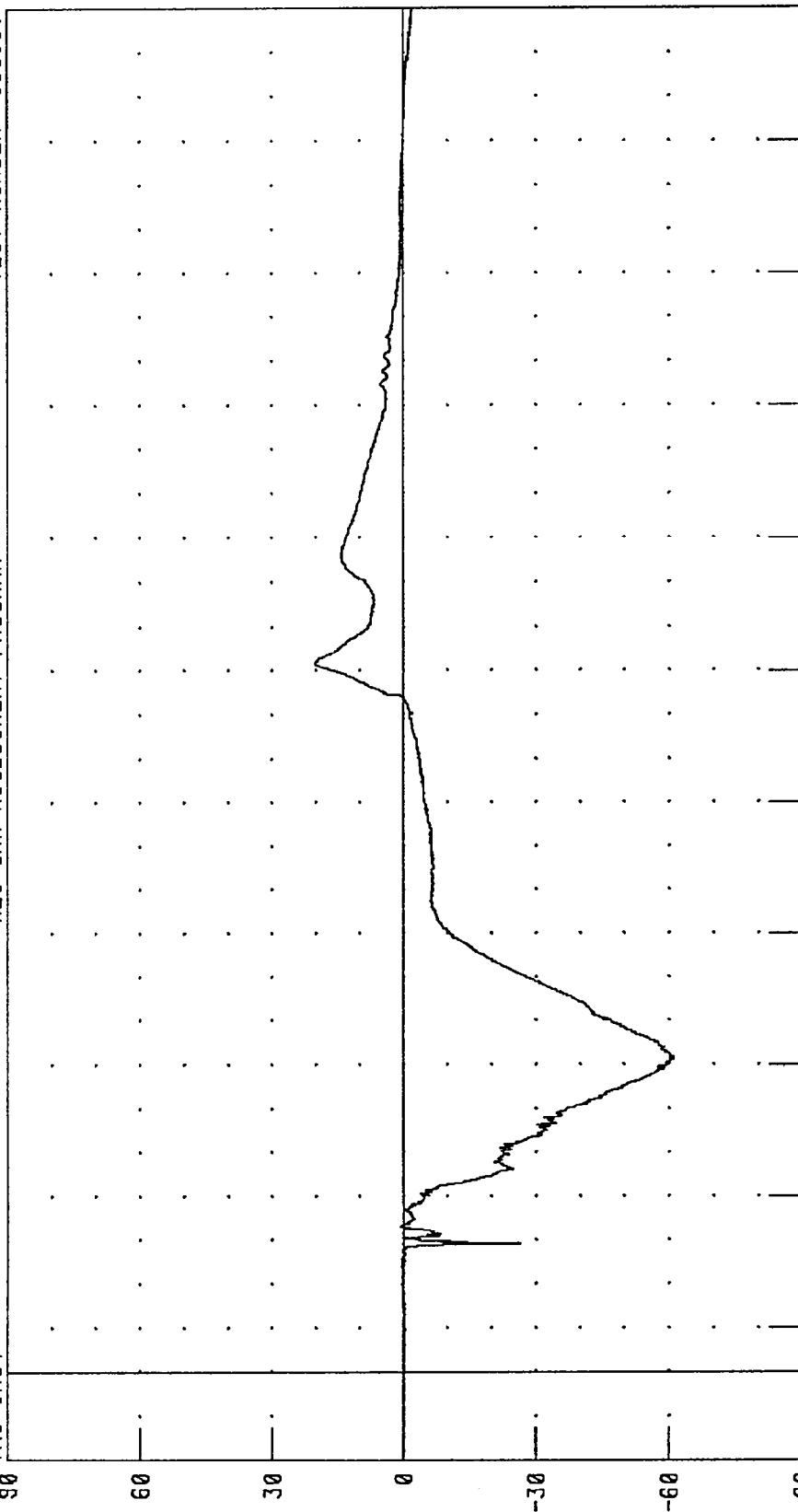
0

-30

-60

-90

ACCELERATION (G)



TIME (MS)

310

280

250

220

190

160

130

100

70

40

10

-20

-30

-60

-90

CHANNEL: HEDXR1 FILTER: CH. CLASS 1000

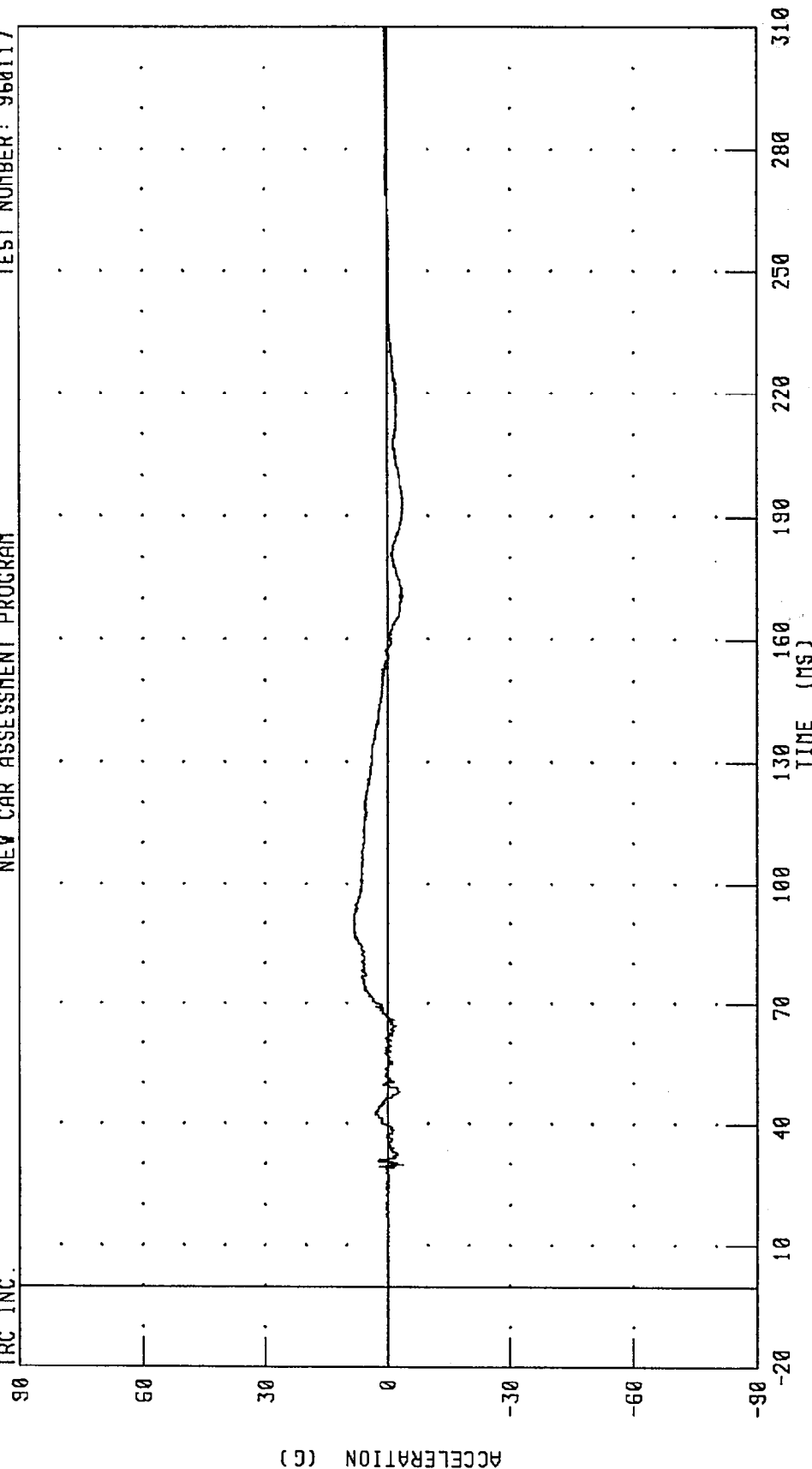
PEAK DATA: 20.38 G @ 161.68 MS; -60.87 G @ 71.36 MS

1996 MITSUBISHI MIRAGE INTO FRONTAL LOAD CELL BARRIER  
DRIVER HEAD Y-AXIS ACCELERATION - REDUNDANT

TEST NUMBER: 960117

NEW CAR ASSESSMENT PROGRAM

TRC INC.



PEAK DATA: 8.43 G @ 88.24 MS; -3.88 G @ 29.92 MS

CHANNEL: HEDYR1 FILTER: CH. CLASS 1000

1986 MITSUBISHI MIRAGE INTO FRONTAL LOAD CELL BARRIER  
DRIVER HEAD Z-AXIS ACCELERATION - REDUNDANT

TEST NUMBER: 960117

NEW CAR ASSESSMENT PROGRAM

TRC INC.

90

60

30

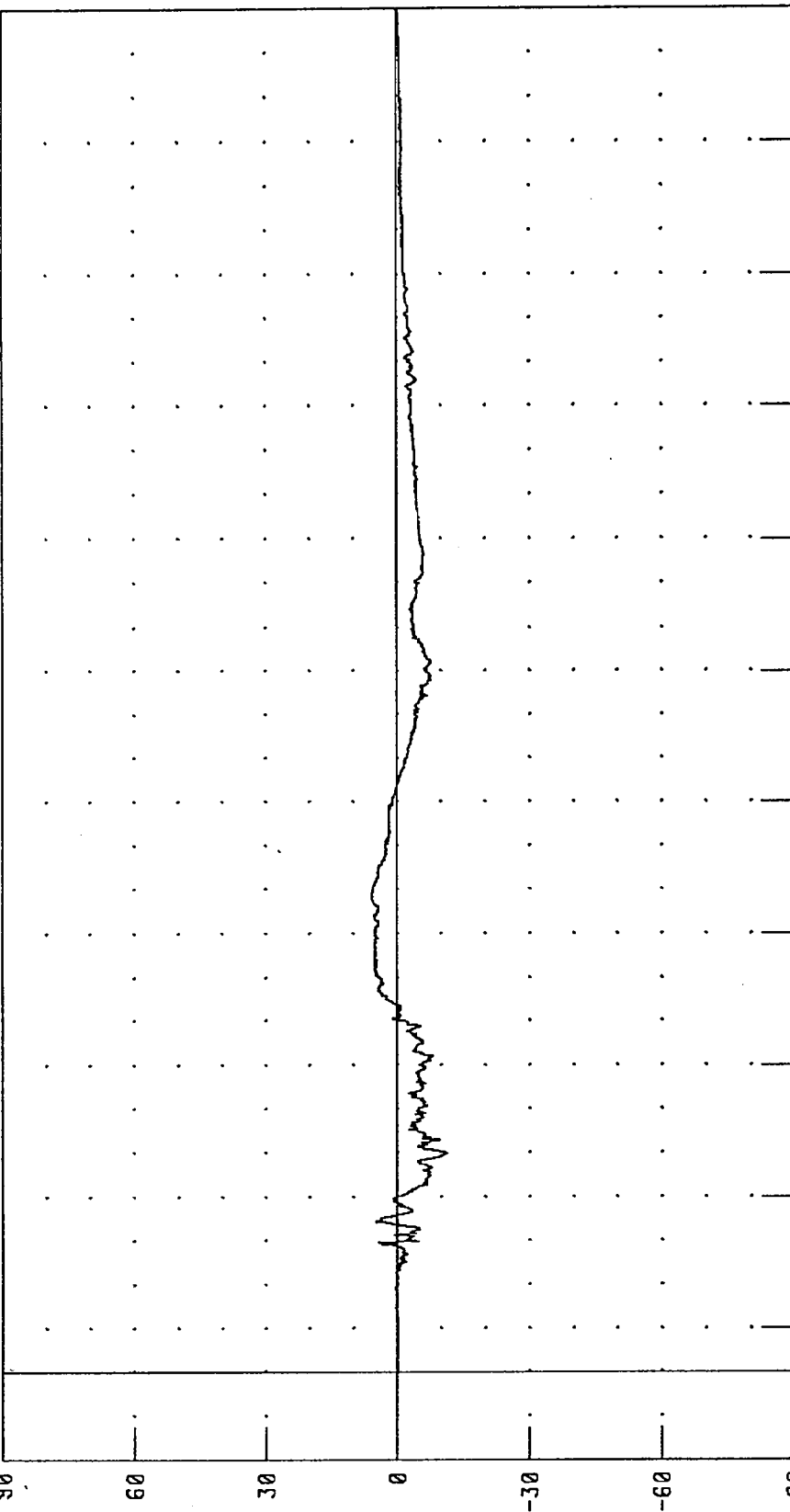
0

-30

-60

-90

ACCELERATION (G)



TIME (MS) 310 280 250 220 190 160 130 100 70 40 10 -20

CHANNEL: HEDZR1 FILTER: CH. CLASS 1000

PEAK DATA: 5.81 G @ 107.84 MS; -11.41 G @ 49.84 MS

1996 MITSUBISHI MIRAGE INTO FRONTAL LOAD CELL BARRIER  
DRIVER HEAD RESULTANT ACCELERATION - REDUNDANT

TEST NUMBER: 960117

NEW CAR ASSESSMENT PROGRAM

IRC INC.

120

100

80

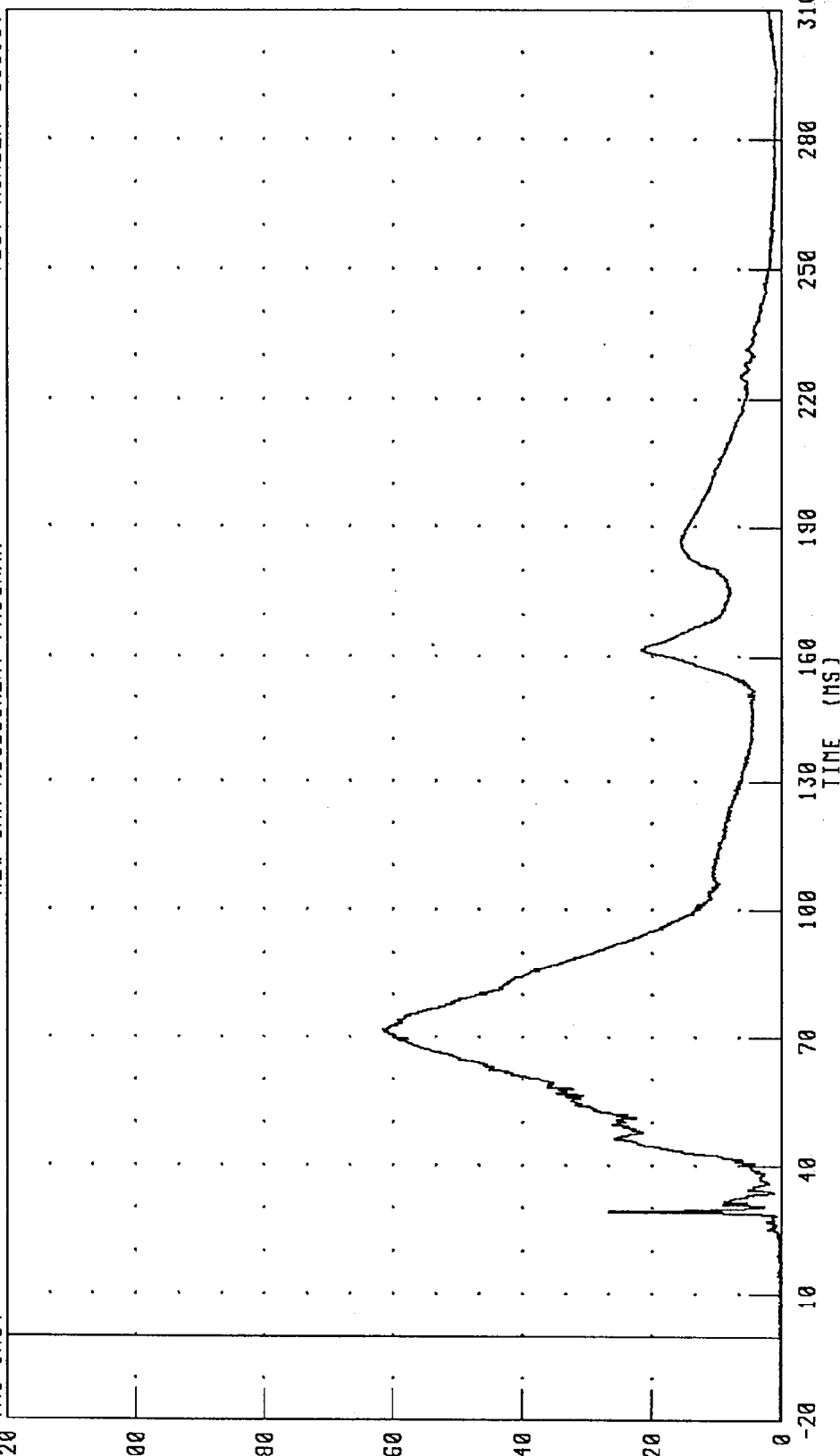
60

40

20

0

ACCELERATION (G)



TIME (MS)

310

280

250

220

190

160

130

100

70

40

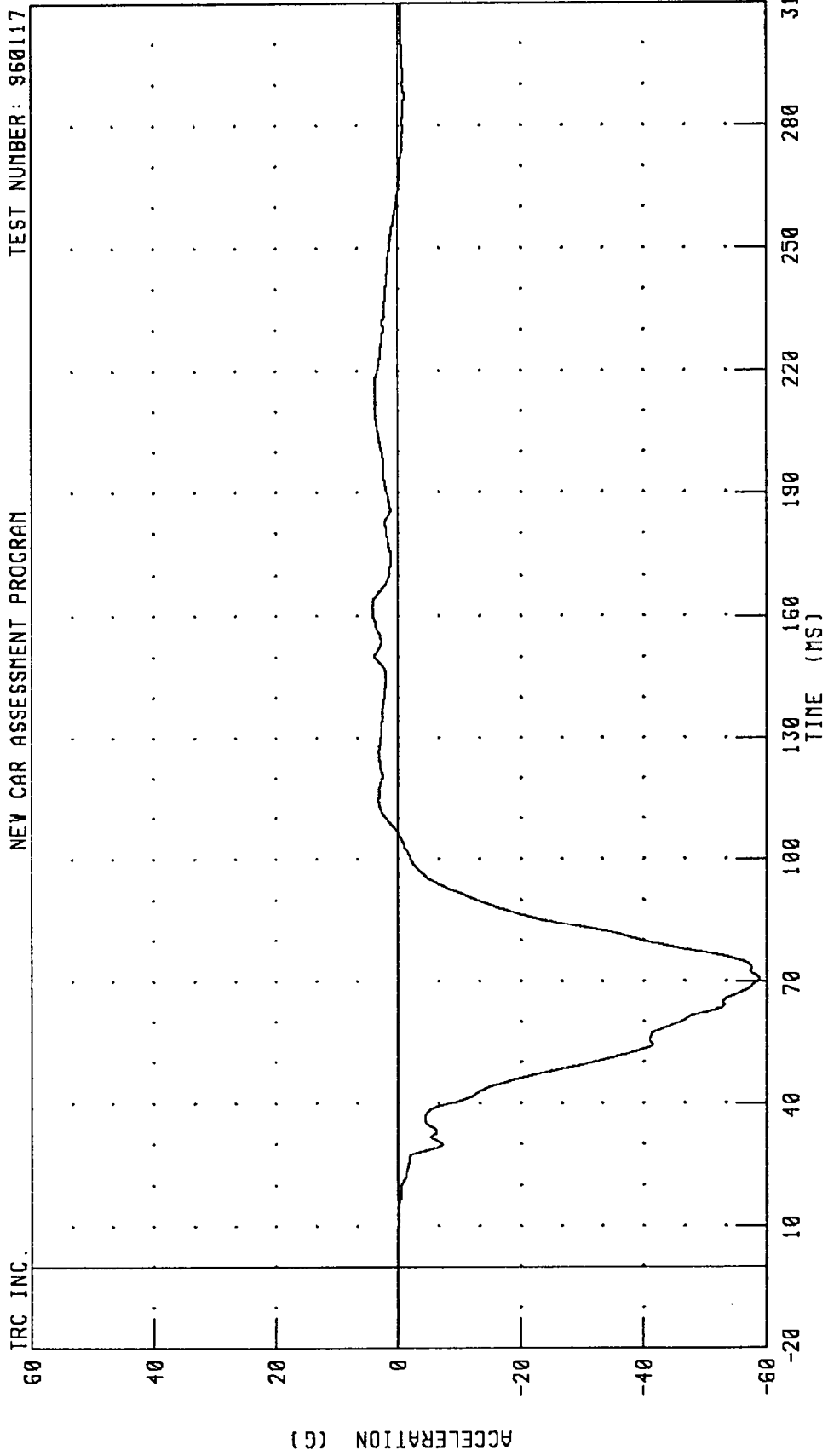
10

CHANNEL: HEDRR1 FILTER: CH. CLASS 1000

PEAK DATA: 61.54 G @ 71.84 MS; 0.07 G @ -17.12 MS

1996 MITSUBISHI MIRAGE INTO FRONTAL LOAD CELL BARRIER  
 DRIVER CHEST X-AXIS ACCELERATION - REDUNDANT  
 NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 960117



CHANNEL: CSTXR1 FILTER: CH. CLASS 180

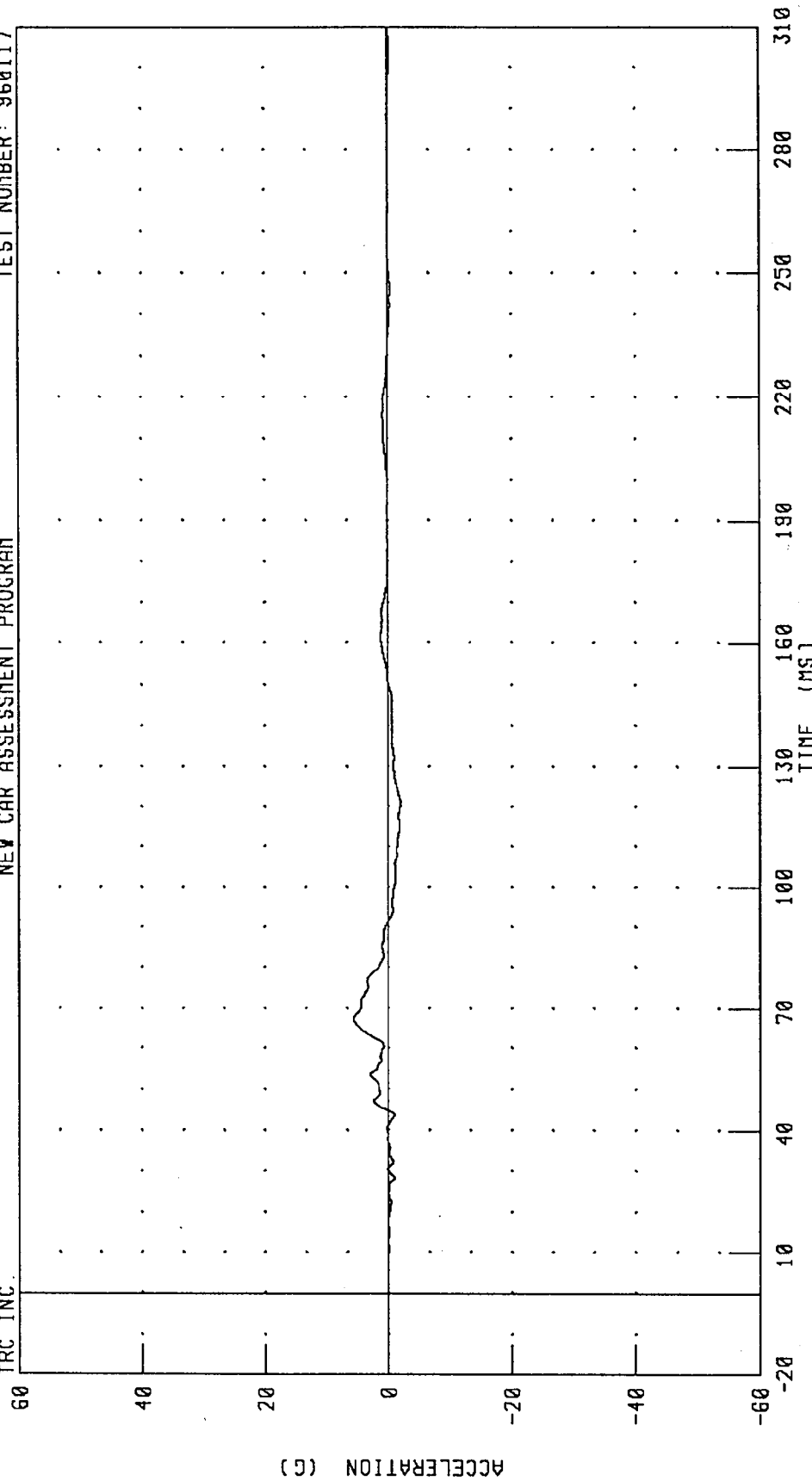
PEAK DATA: 4.18 G @ 162.32 MS; -58.72 G @ 70.48 MS

1996 MITSUBISHI MIRAGE INTO FRONTAL LOAD CELL BARRIER  
 DRIVER CHEST Y-AXIS ACCELERATION - REDUNDANT

TEST NUMBER: 960117

NEW CAR ASSESSMENT PROGRAM

TRC INC.



PEAK DATA: 5.62 G @ 67.28 MS; -2.00 G @ 120.88 MS

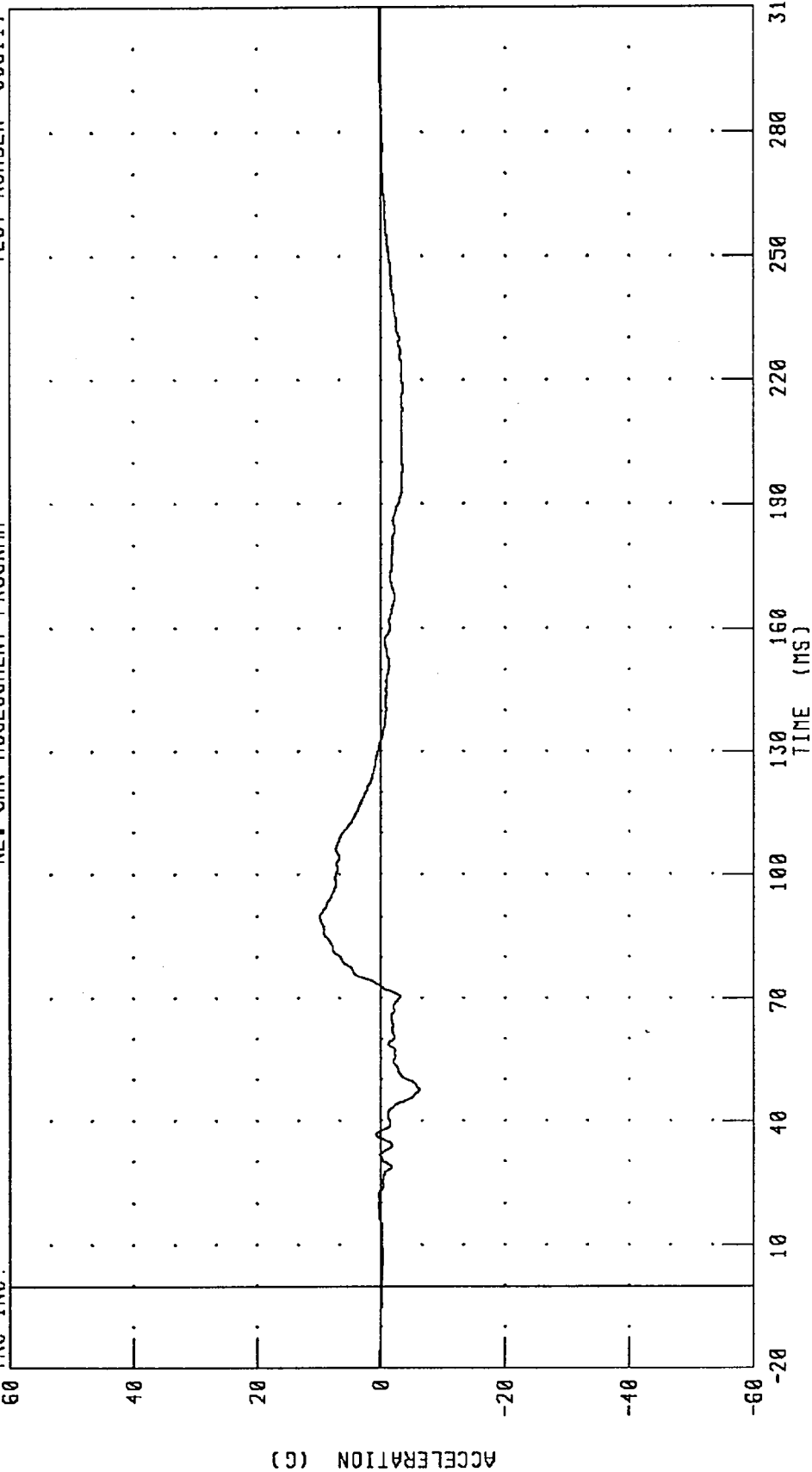
CHANNEL: CSTYR1 FILTER: CH. CLASS 180

1996 MITSUBISHI MIRAGE INTO FRONTAL LOAD CELL BARRIER  
DRIVER CHEST Z-AXIS ACCELERATION - REDUNDANT

TEST NUMBER: 960117

NEW CAR ASSESSMENT PROGRAM

TRC INC.



CHANNEL: CSTZR1 FILTER: CH. CLASS 180

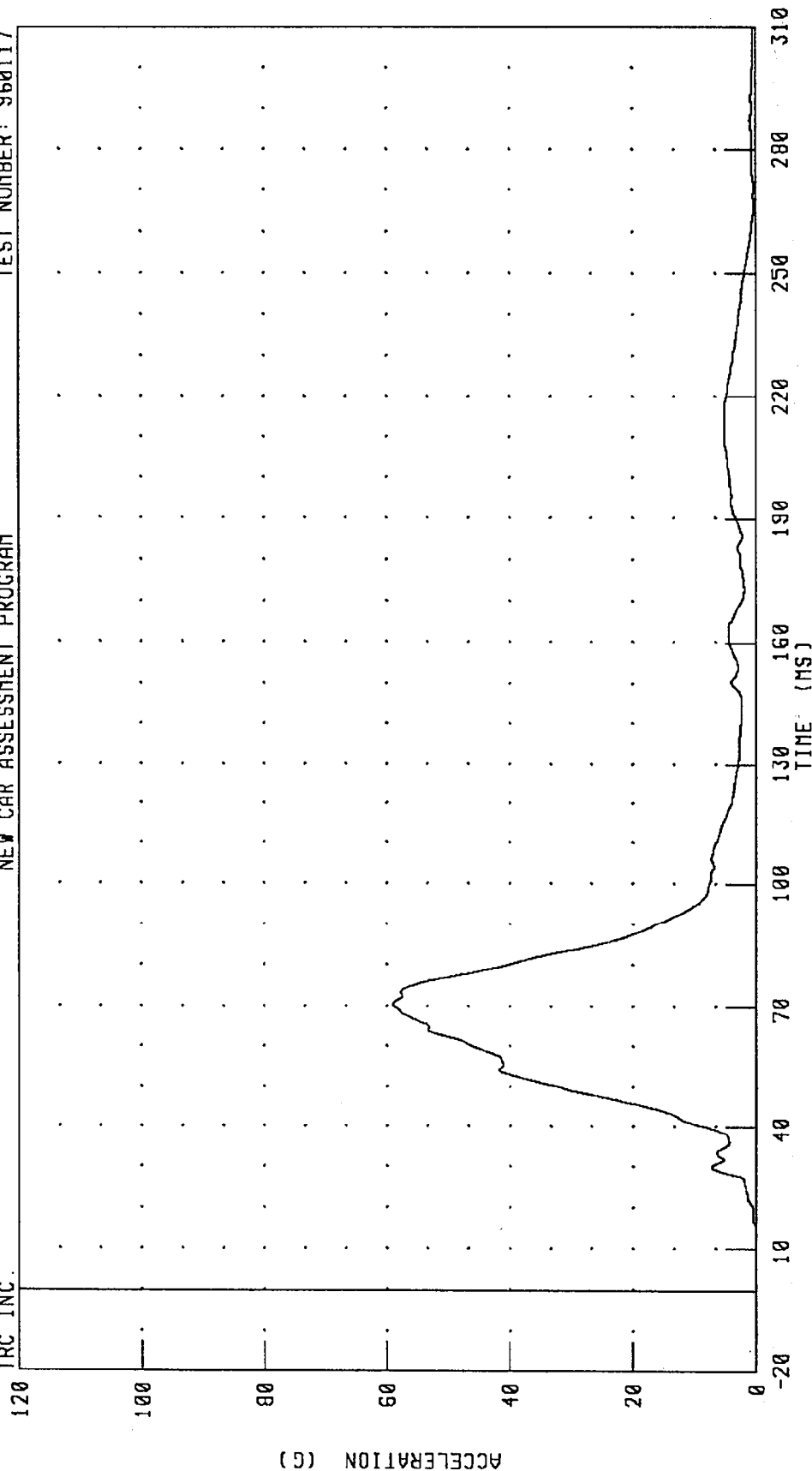
PEAK DATA: 9.86 G @ 90.00 MS; -6.25 G @ 47.52 MS

1996 MITSUBISHI MIRAGE INTO FRONTAL LOAD CELL BARRIER  
 DRIVER CHEST RESULTANT ACCELERATION - REDUNDANT

TEST NUMBER: 960117

NEW CAR ASSESSMENT PROGRAM

TRC INC.



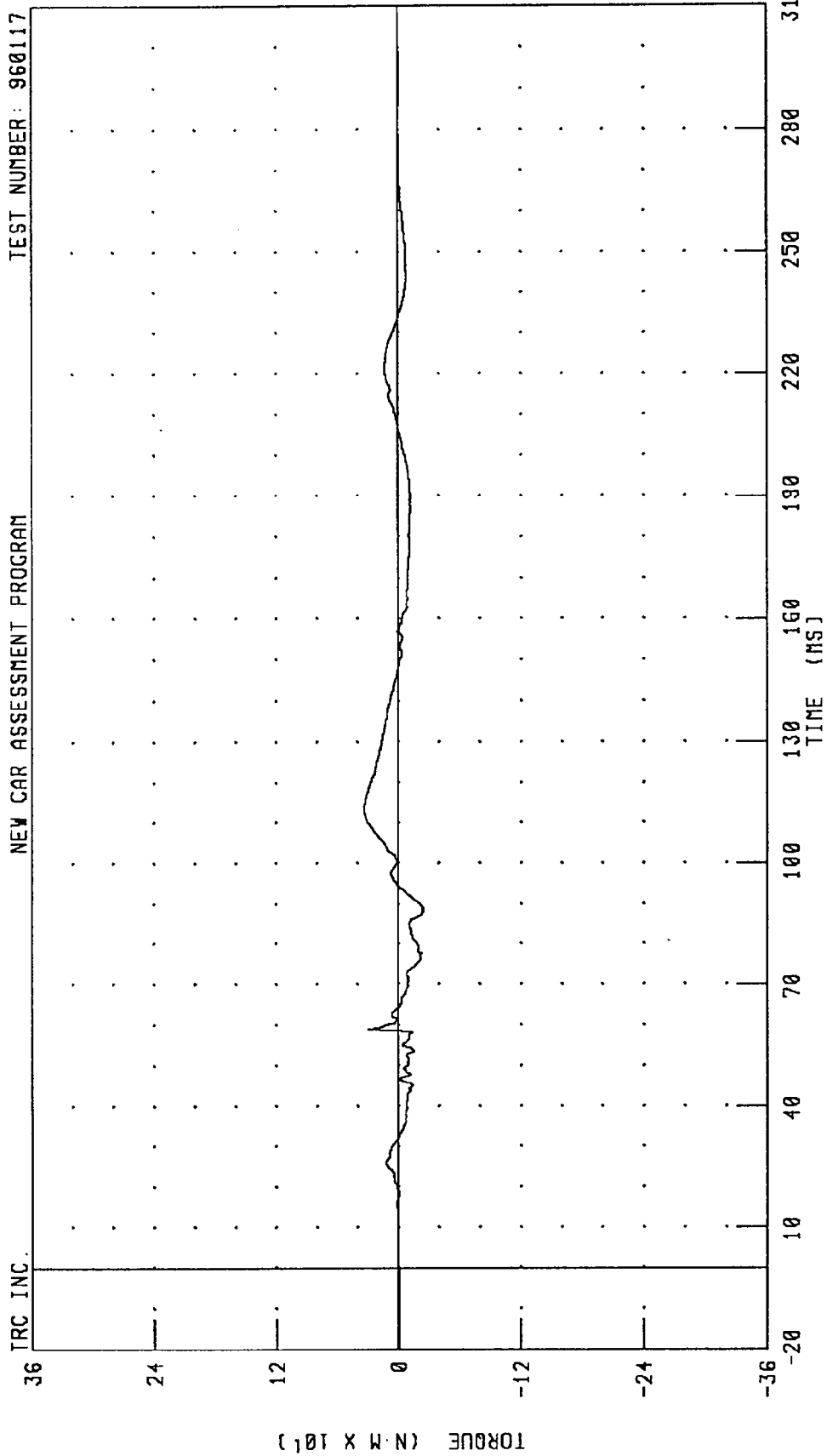
PEAK DATA: 58.97 G @ 70.48 MS; 0.01 G @ -20.00 MS

CHANNEL: CSTR1 FILTER: CH. CLASS 180

1996 MITSUBISHI MIRAGE INTO FRONTAL LOAD CELL BARRIER  
DRIVER LEFT UPPER TIBIA MOMENT ABOUT X AXIS

TEST NUMBER: 960117

NEW CAR ASSESSMENT PROGRAM



PEAK DATA: 33.69 N-M @ 113.60 MS; -24.15 N-M @ 88.24 MS

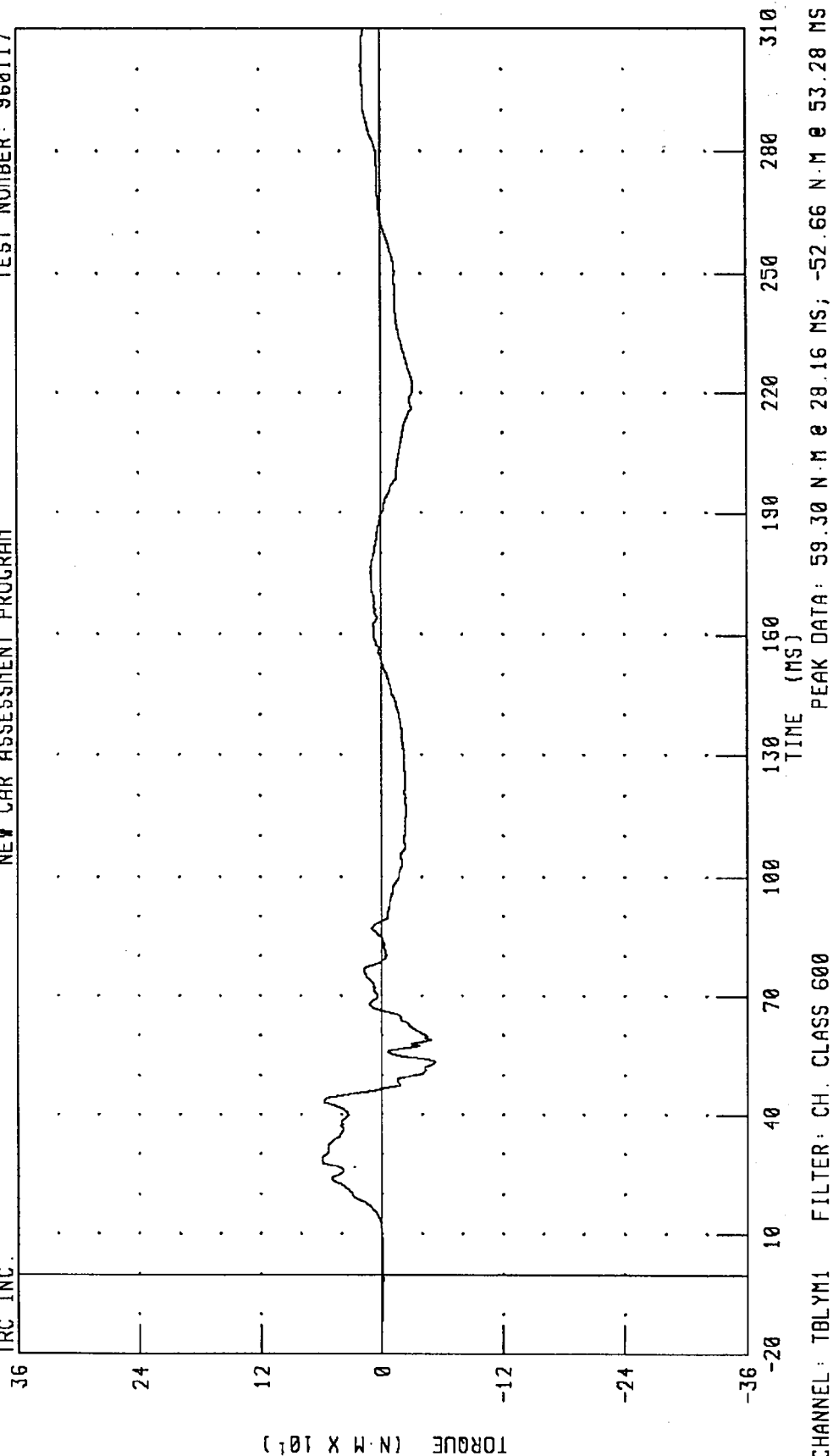
CHANNEL: TBLXM1 FILTER: CH. CLASS 600

1996 MITSUBISHI MIRAGE INTO FRONTAL LOAD CELL BARRIER  
DRIVER LEFT UPPER TIBIA MOMENT ABOUT Y AXIS

TEST NUMBER: 960117

NEW CAR ASSESSMENT PROGRAM

TRC INC.



CHANNEL: TBLM1 FILTER: CH. CLASS 600

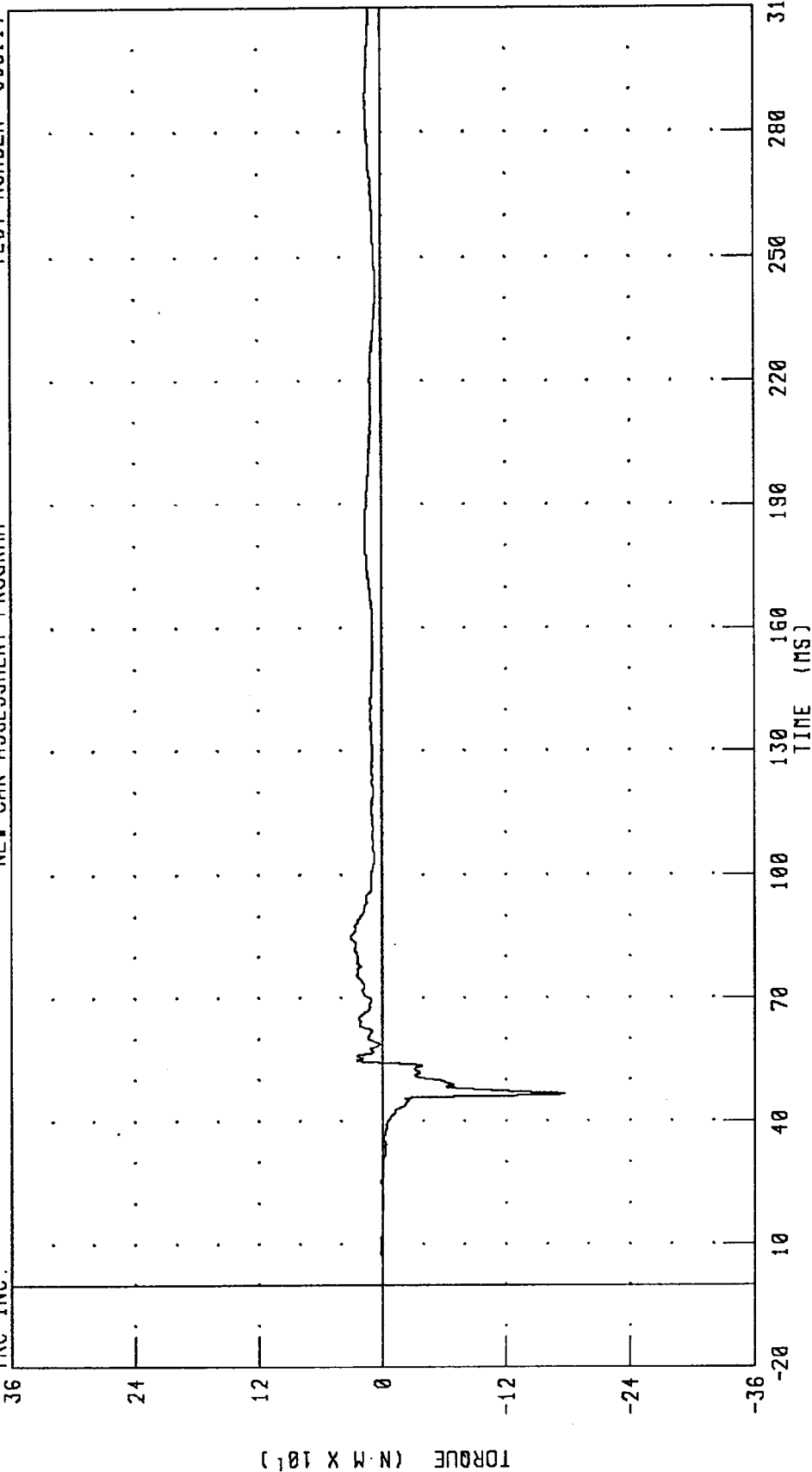
PEAK DATA: 59.30 N-M @ 28.16 MS; -52.66 N-M @ 53.28 MS

1996 MITSUBISHI MIRAGE INTO FRONTAL LOAD CELL BARRIER  
 DRIVER RIGHT UPPER TIBIA MOMENT ABOUT X AXIS

TEST NUMBER: 960117

NEW CAR ASSESSMENT PROGRAM

TRC INC.



CHANNEL: TBRXM1 FILTER: CH. CLASS 600

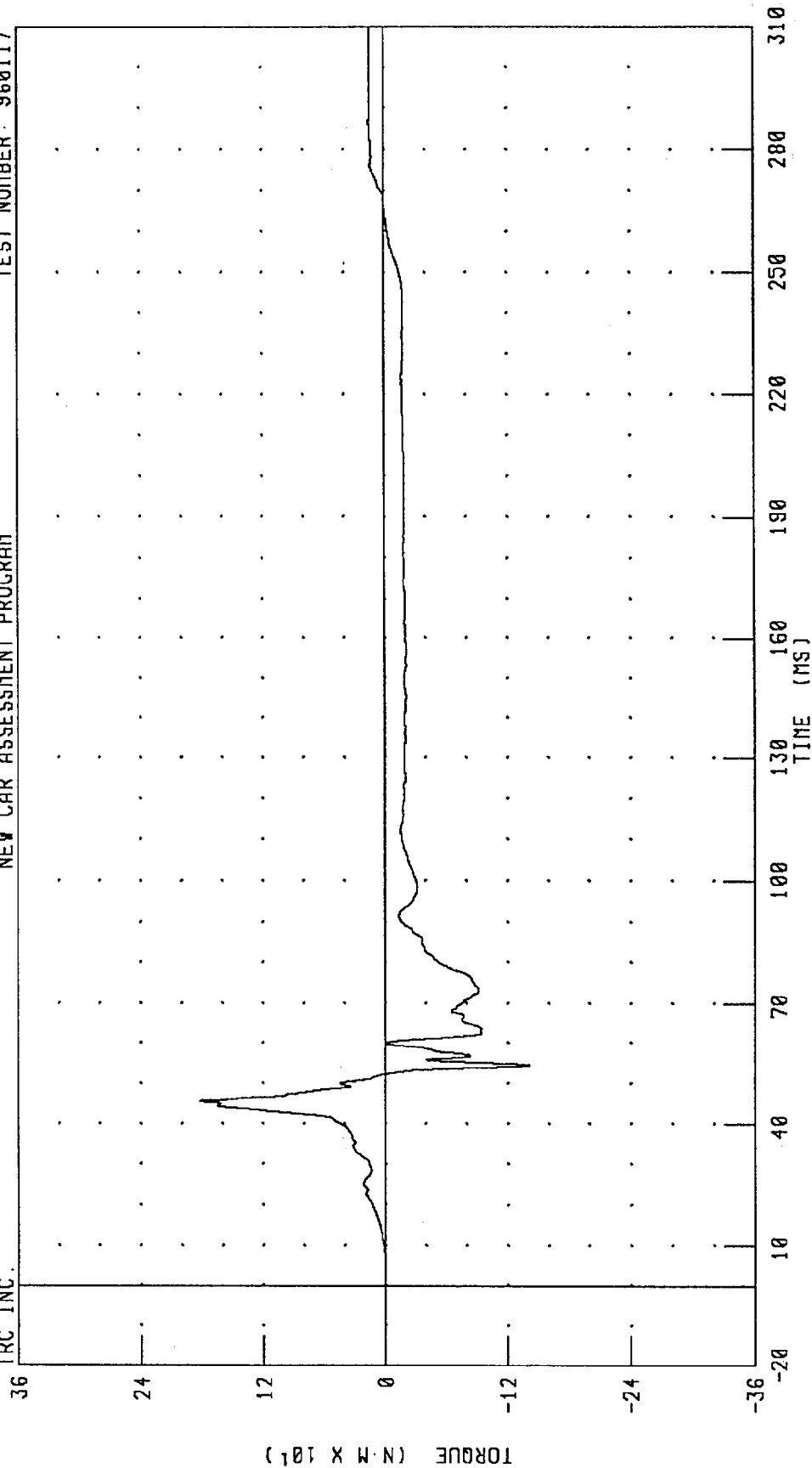
PEAK DATA: 30.94 N·m @ 85.04 ms; -176.33 N·m @ 46.56 ms

1996 MITSUBISHI MIRAGE INTO FRONTAL LOAD CELL BARRIER  
 DRIVER RIGHT UPPER TIBIA MOMENT ABOUT Y AXIS

TEST NUMBER: 960117

NEW CAR ASSESSMENT PROGRAM

TRC INC.



CHANNEL: TBRYM1 FILTER: CH. CLASS 600

PEAK DATA: 182.96 N·m @ 45.60 ms; -141.63 N·m @ 54.32 ms

1996 MITSUBISHI MIRAGE INTO FRONTAL LOAD CELL BARRIER  
 DRIVER LEFT LOWER TIBIA X-AXIS FORCE  
 NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 960117

TRC INC.

36

24

12

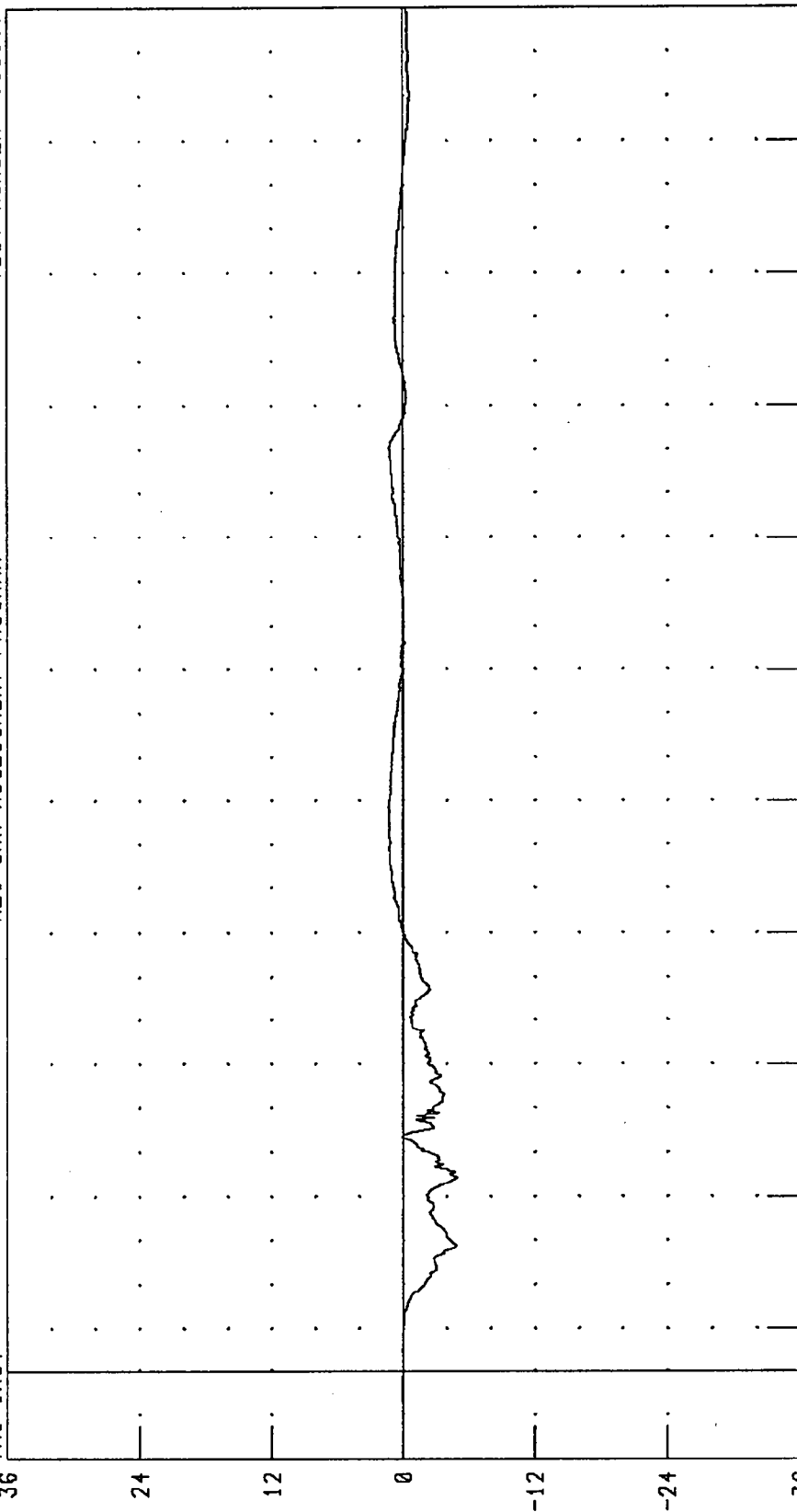
0

-12

-24

-36

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



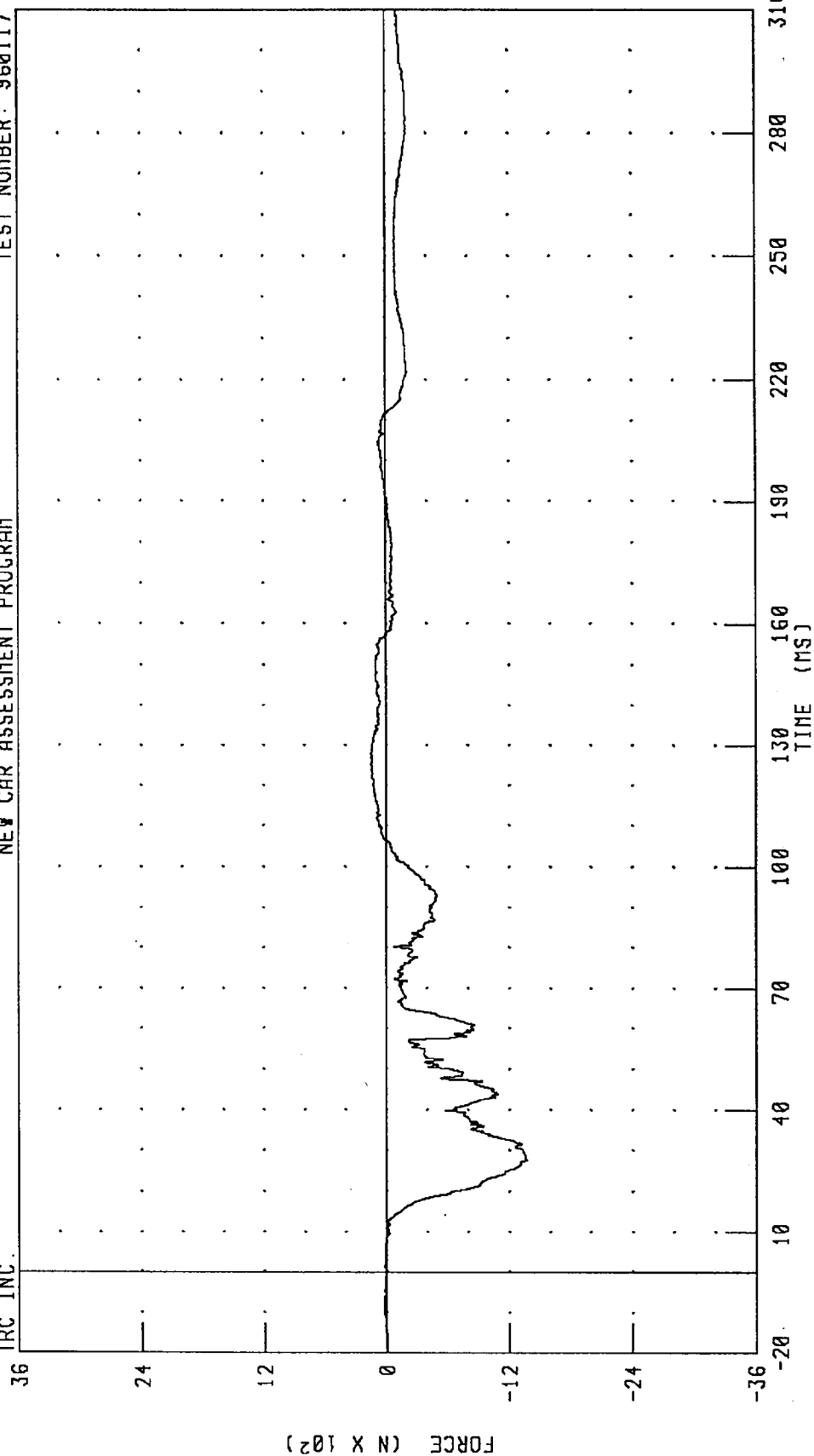
PEAK DATA: 137.36 N @ 122.24 MS; -492.27 N @ 44.24 MS

CHANNEL: ANLXF1 FILTER: CH. CLASS 600

1996 MITSUBISHI MIRAGE INTO FRONTAL LOAD CELL BARRIER  
 DRIVER LEFT LOWER TIBIA Z-AXIS FORCE  
 NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 960117

TRC INC.



PEAK DATA: 151.58 N @ 127.92 MS; -1370.22 N @ 27.60 MS

CHANNEL: ANLZF1 FILTER: CH. CLASS 600

1996 MITSUBISHI MIRAGE INTO FRONTAL LOAD CELL BARRIER  
 DRIVER LEFT LOWER TIBIA MOMENT ABOUT Y AXIS

TEST NUMBER: 960117

NEW CAR ASSESSMENT PROGRAM

TRC INC.

36

24

12

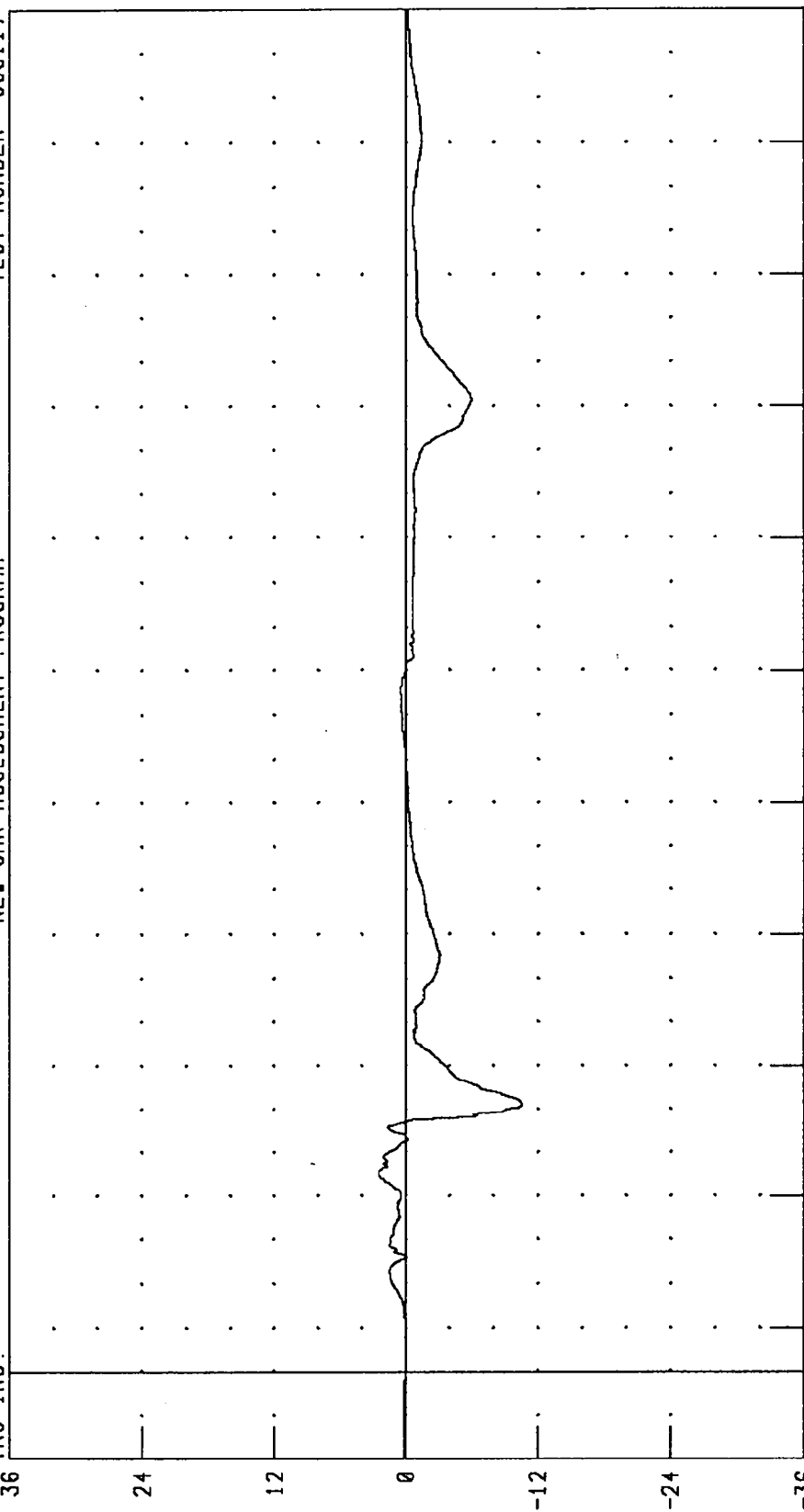
0

-12

-24

-36

TORQUE (N·M X 10<sup>1</sup>)



TIME (MS)

310

280

250

220

190

160

130

100

70

40

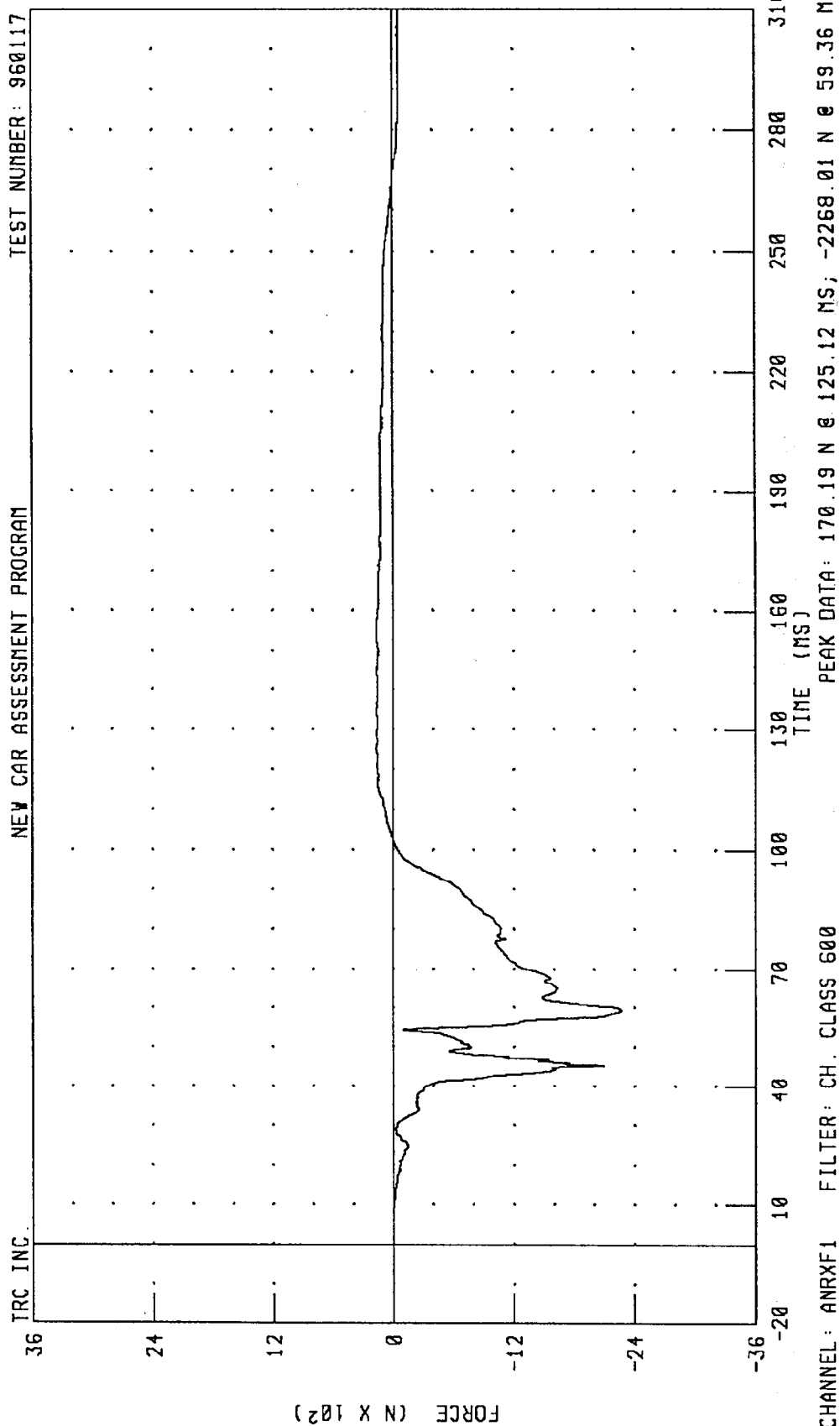
10

CHANNEL: ANLYM1 FILTER: CH. CLASS 600

PEAK DATA: 24.94 N·M @ 45.36 MS; -105.86 N·M @ 61.36 MS

1996 MITSUBISHI MIRAGE INTO FRONTAL LOAD CELL BARRIER  
 DRIVER RIGHT LOWER TIBIA X-AXIS FORCE  
 NEW CAR ASSESSMENT PROGRAM

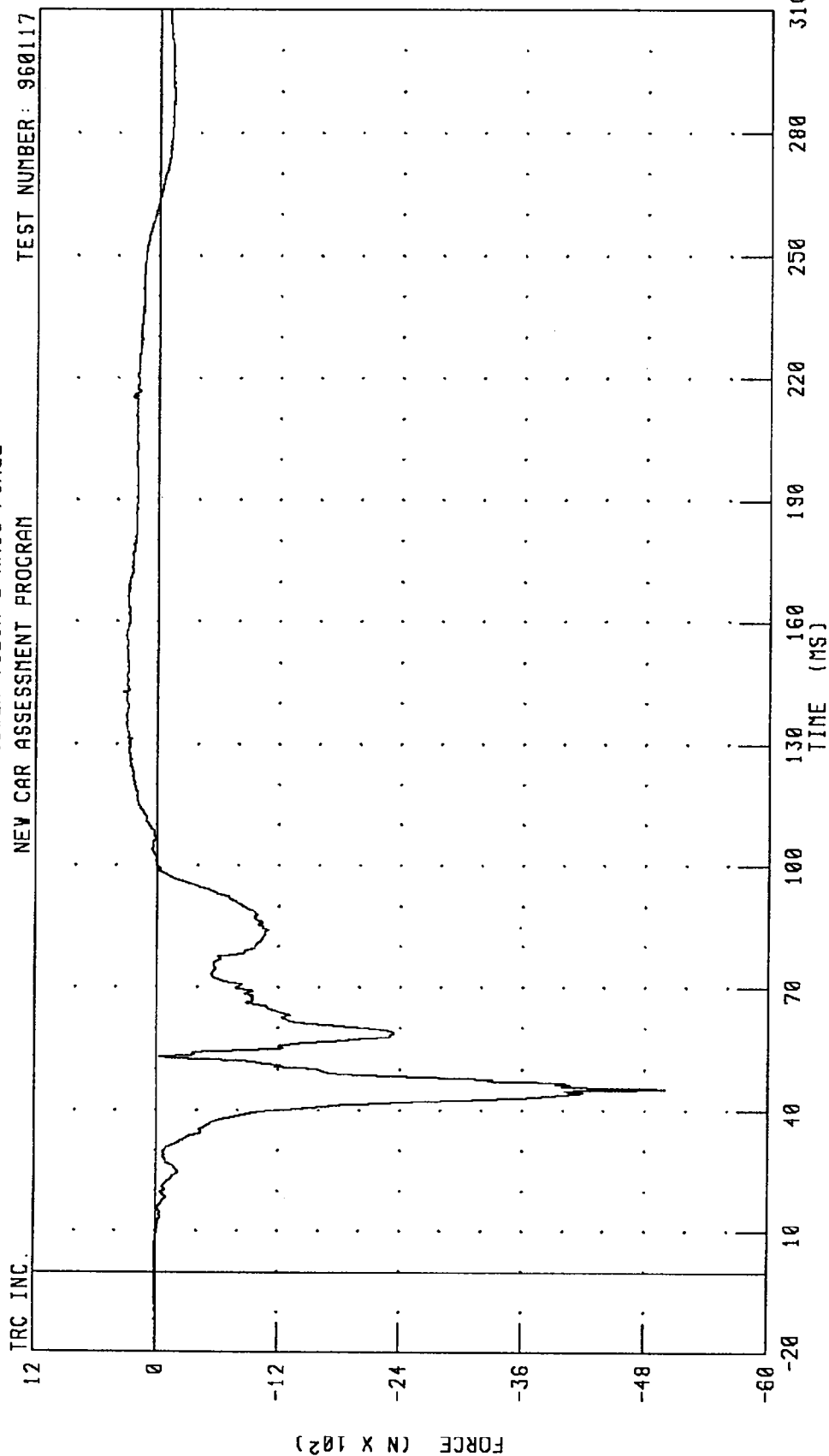
TEST NUMBER: 960117



CHANNEL: ANRXF1 FILTER: CH. CLASS 600

1996 MITSUBISHI MIRAGE INTO FRONTAL LOAD CELL BARRIER  
 DRIVER RIGHT LOWER TIBIA Z-AXIS FORCE  
 NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 960117



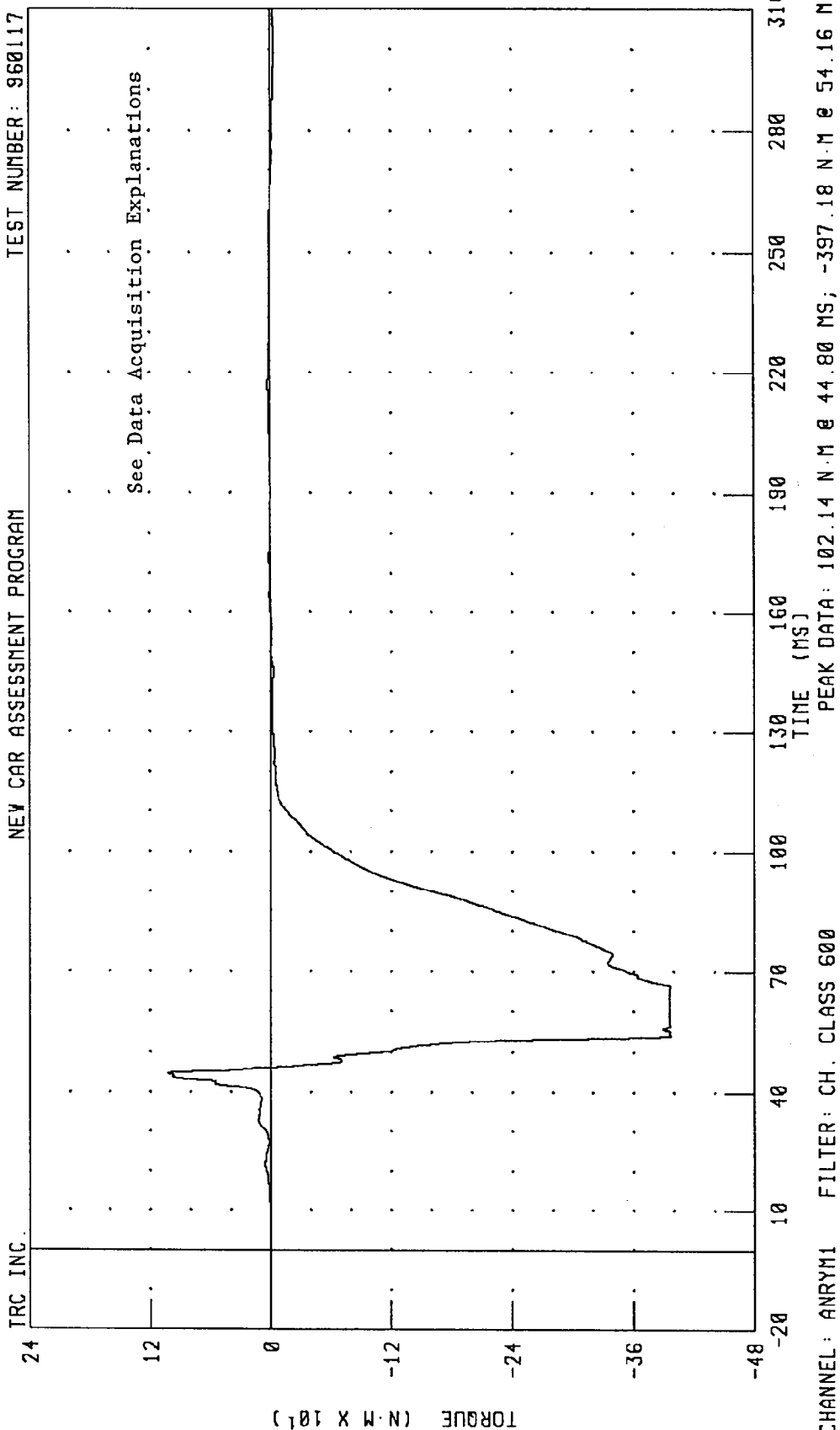
CHANNEL: ANRZF1 FILTER: CH. CLASS 600

PEAK DATA: 330.90 N @ 143.04 MS; -4995.60 N @ 45.36 MS

1996 MITSUBISHI MIRAGE INTO FRONTAL LOAD CELL BARRIER  
 DRIVER RIGHT LOWER TIBIA MOMENT ABOUT Y AXIS

TEST NUMBER: 960117

NEW CAR ASSESSMENT PROGRAM



See Data Acquisition Explanations

CHANNEL: ANRYM1 FILTER: CH. CLASS 600

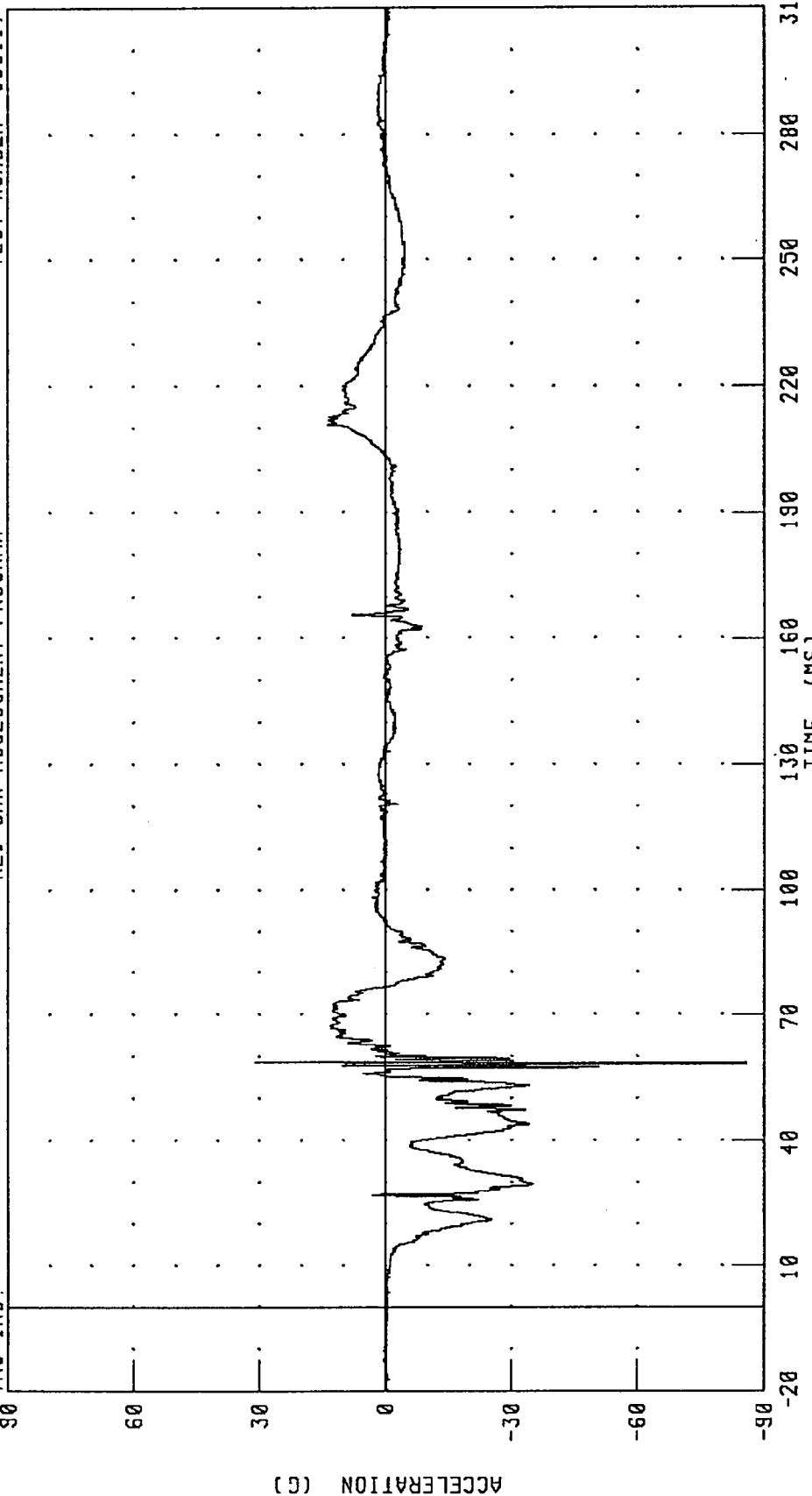
PEAK DATA: 102.14 N·m @ 44.80 MS; -397.18 N·m @ 54.16 MS

1996 MITSUBISHI MIRAGE INTO FRONTAL LOAD CELL BARRIER  
DRIVER LEFT FOOT X-AXIS ACCELERATION

TEST NUMBER: 960117

NEW CAR ASSESSMENT PROGRAM

TRC INC.

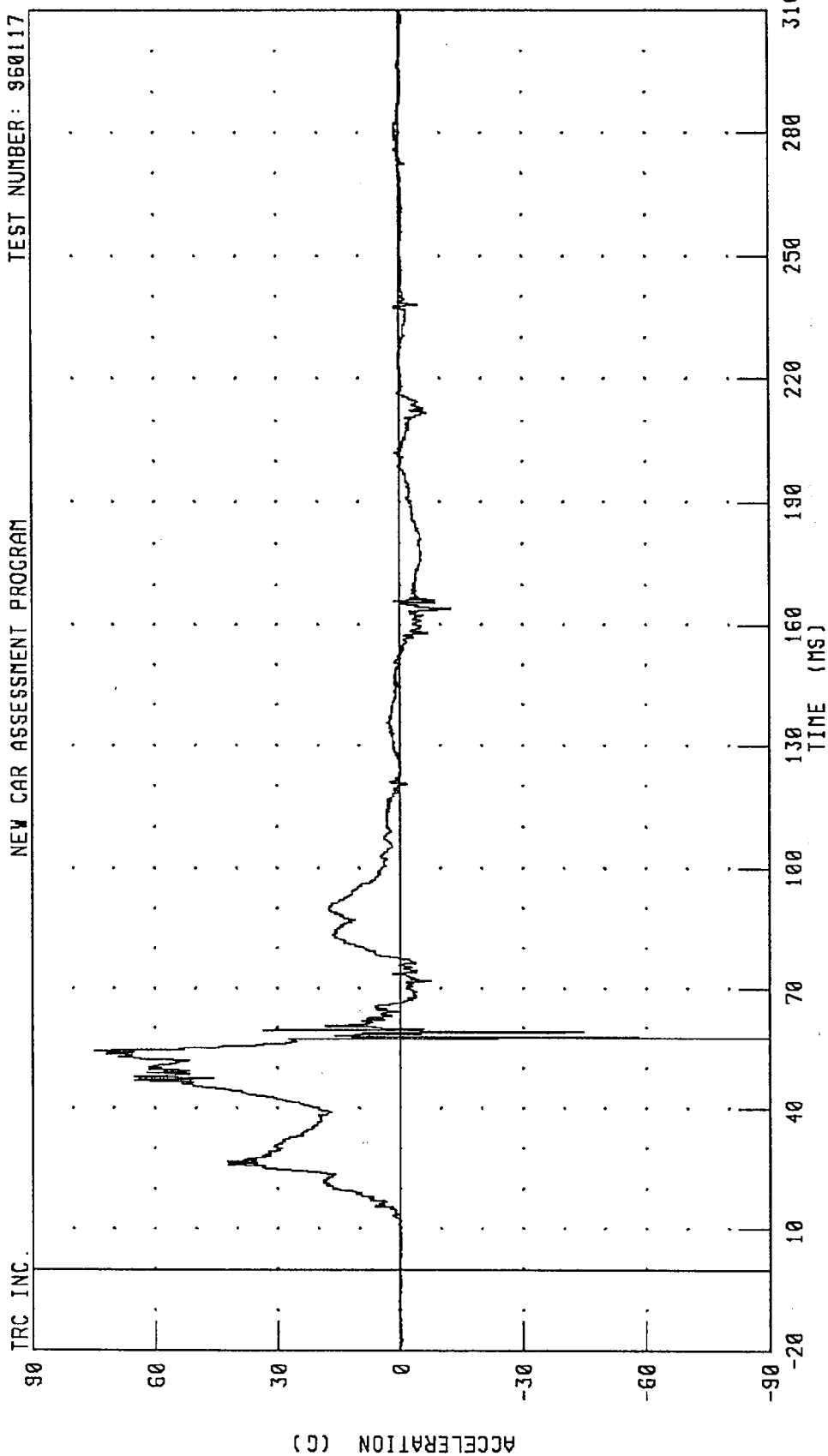


CHANNEL: FTLXG1 FILTER: CH. CLASS 1000

PEAK DATA: 30.89 G @ 58.72 MS; -85.72 G @ 58.40 MS

1996 MITSUBISHI MIRAGE INTO FRONTAL LOAD CELL BARRIER  
 DRIVER LEFT FOOT Z-AXIS ACCELERATION AT HEEL  
 NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 960117



CHANNEL: FTLZH1 FILTER: CH. CLASS 1000

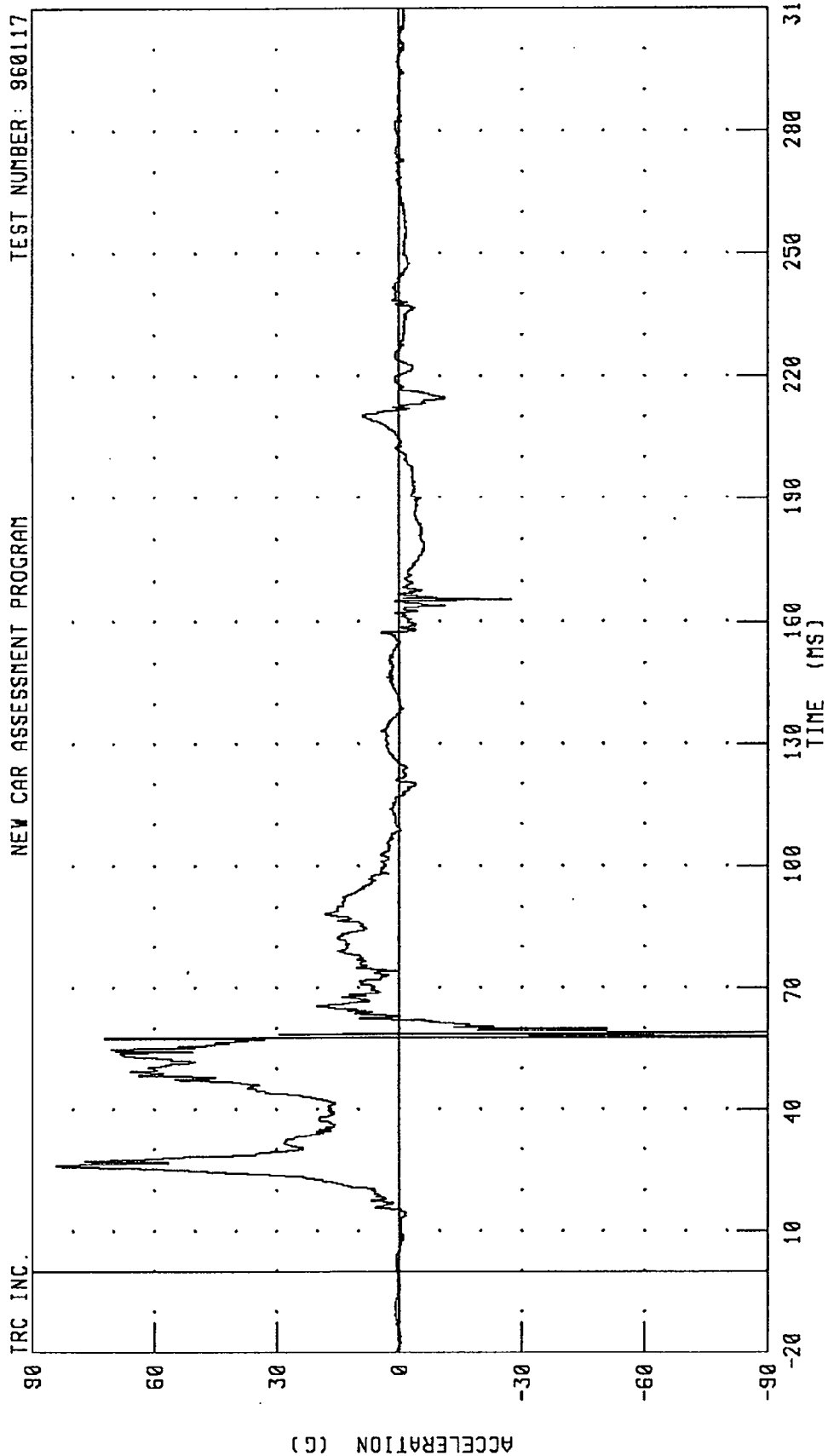
PEAK DATA: 74.64 G @ 54.16 MS; -92.09 G @ 74.64 MS

1996 MITSUBISHI MIRAGE INTO FRONTAL LOAD CELL BARRIER  
DRIVER LEFT FOOT Z-AXIS ACCELERATION AT TOE

TEST NUMBER: 960117

NEW CAR ASSESSMENT PROGRAM

TRC INC.



PEAK DATA: 84.05 G @ 26.08 MS, -136.49 G @ 57.68 MS

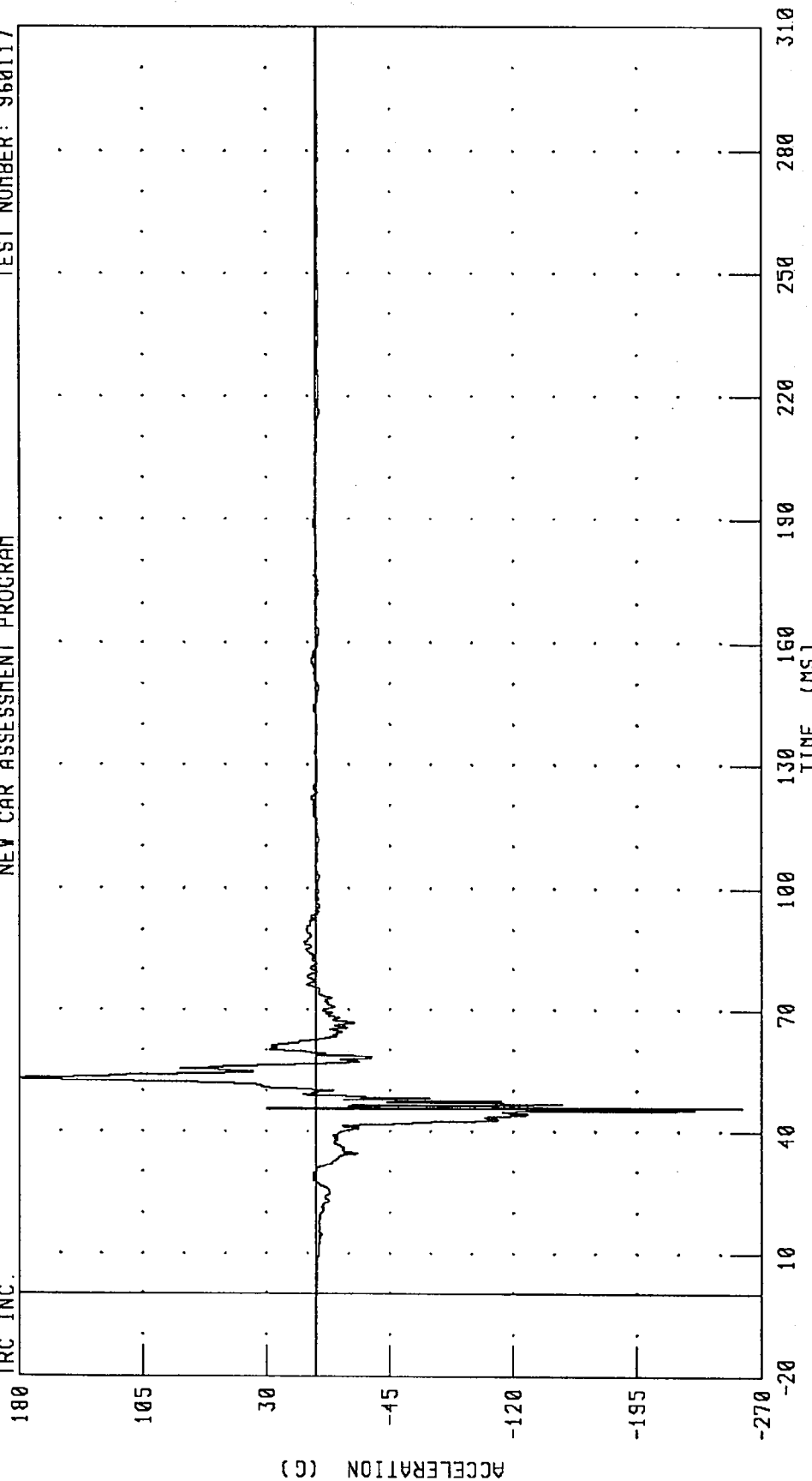
CHANNEL: FTLZT1 FILTER: CH. CLASS 1000

1996 MITSUBISHI MIRAGE INTO FRONTAL LOAD CELL BARRIER  
DRIVER RIGHT FOOT X-AXIS ACCELERATION

TEST NUMBER: 960117

NEW CAR ASSESSMENT PROGRAM

TRC INC.



CHANNEL: FTRXG1 FILTER: CH. CLASS 1000

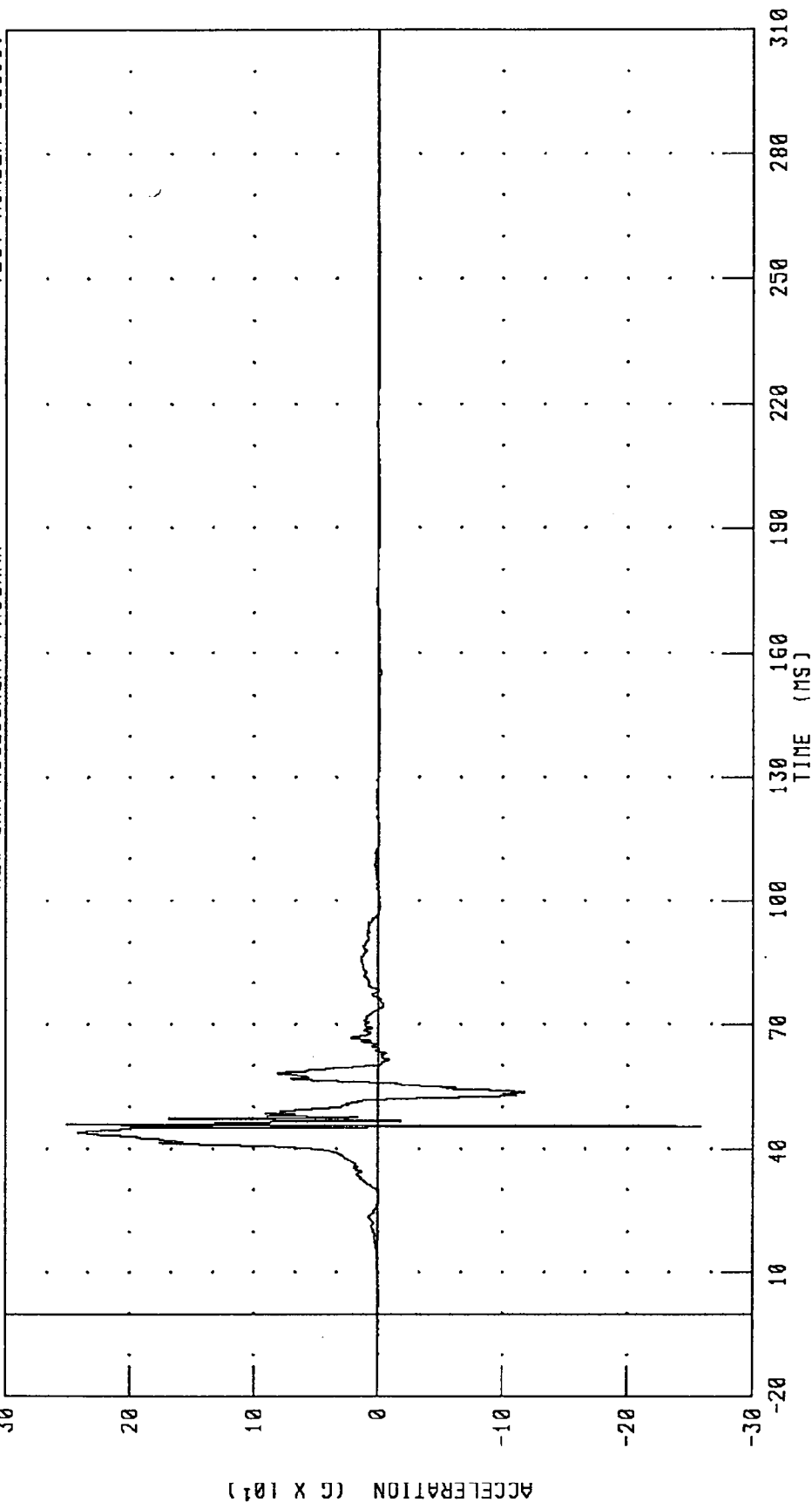
PEAK DATA: 179.40 G @ 52.88 MS; -258.10 G @ 46.00 MS

1996 MITSUBISHI MIRAGE INTO FRONTAL LOAD CELL BARRIER  
 DRIVER RIGHT FOOT Z-AXIS ACCELERATION AT HEEL

TEST NUMBER: 960117

NEW CAR ASSESSMENT PROGRAM

TRC INC.

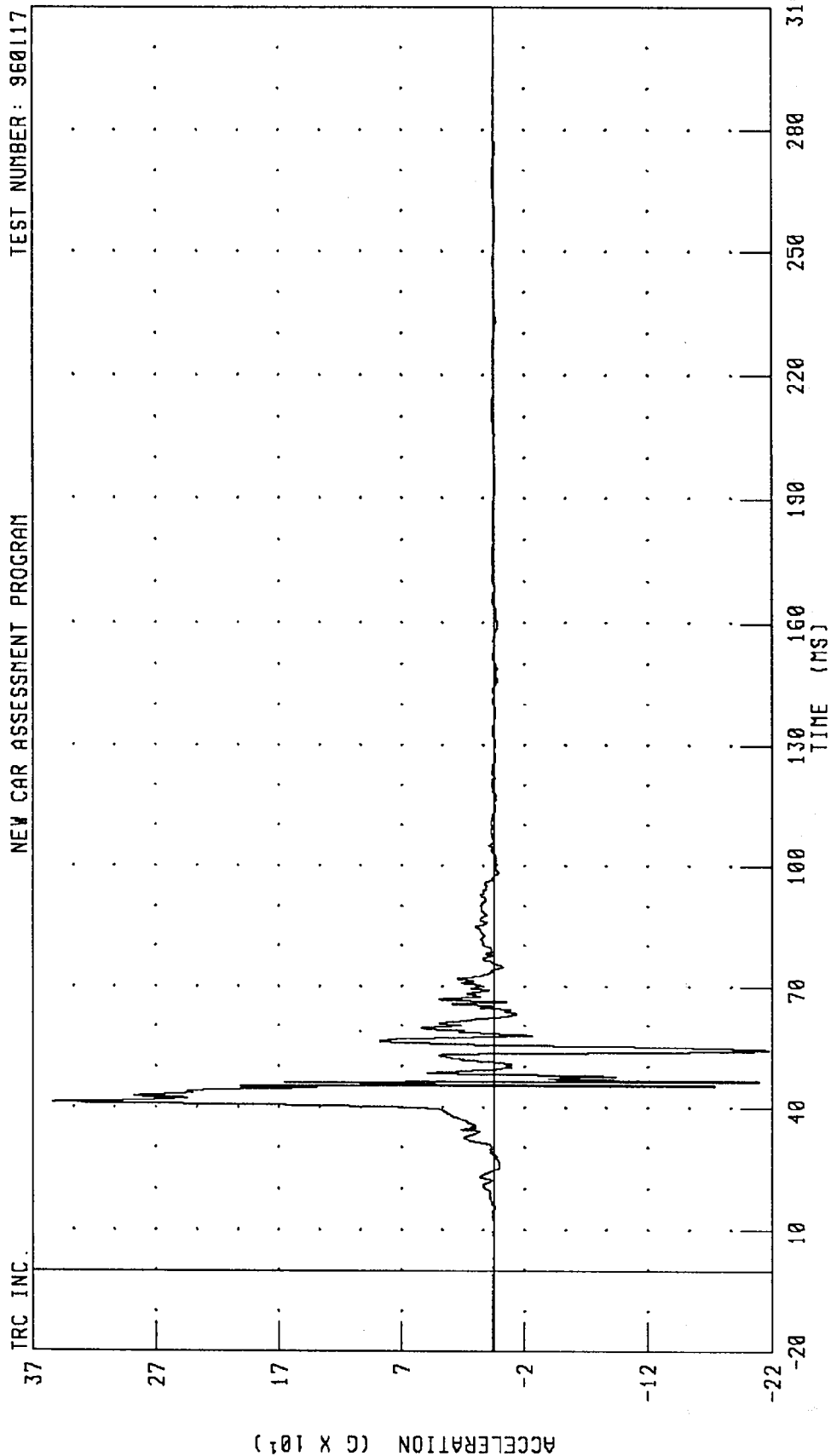


PEAK DATA: 250.57 G @ 45.76 MS; -258.55 G @ 45.36 MS

CHANNEL: FTRZH1 FILTER: CH. CLASS 1000

1996 MITSUBISHI MIRAGE INTO FRONTAL LOAD CELL BARRIER  
 DRIVER RIGHT FOOT Z-AXIS ACCELERATION AT TOE  
 NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 960117

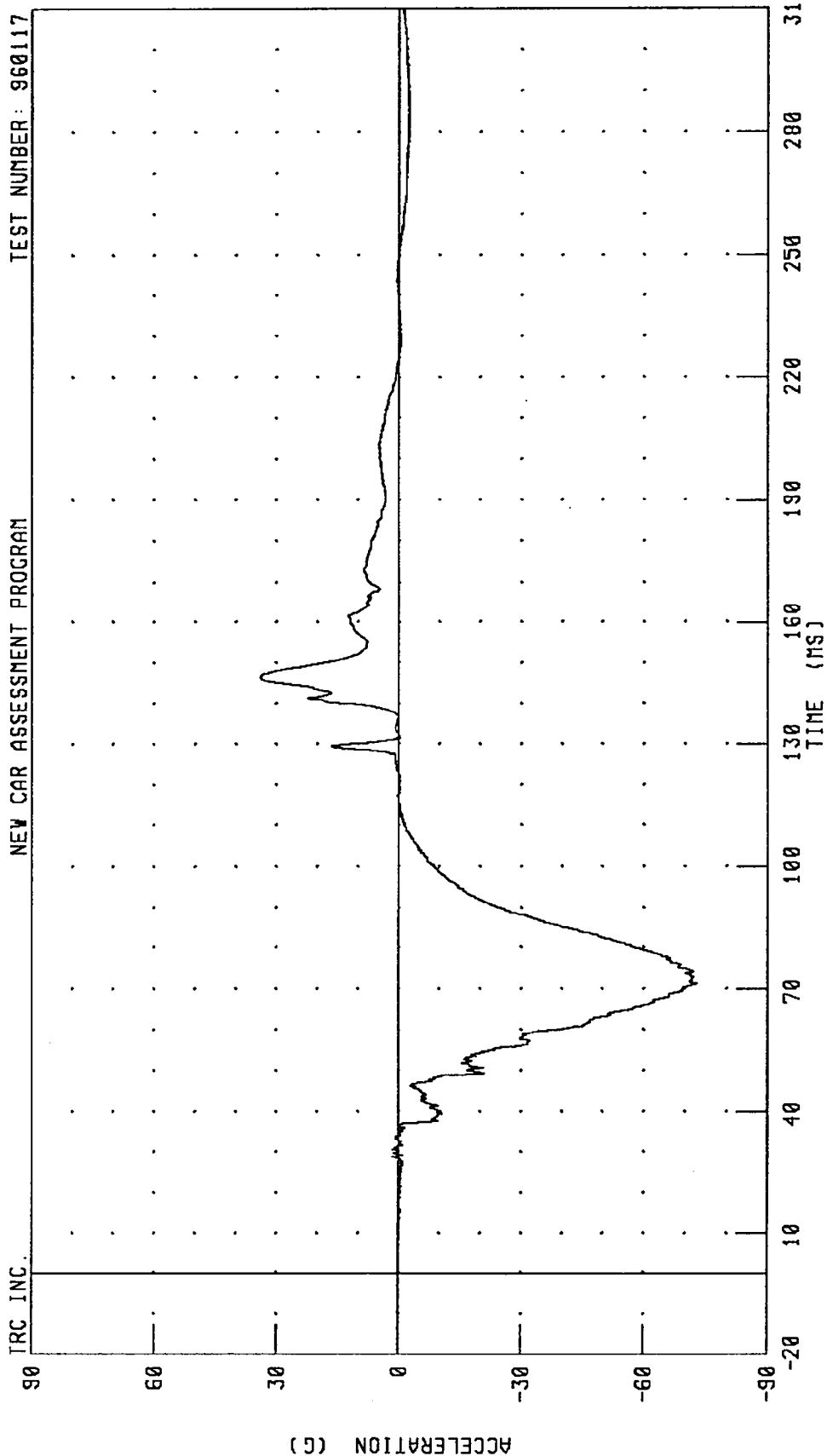


PEAK DATA: 358.72 G @ 41.28 MS; -222.36 G @ 54.00 MS

CHANNEL: FTRZT1 FILTER: CH. CLASS 1000

1996 MITSUBISHI MIRAGE INTO FRONTAL LOAD CELL BARRIER  
PASSENGER HEAD X-AXIS ACCELERATION  
NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 960117

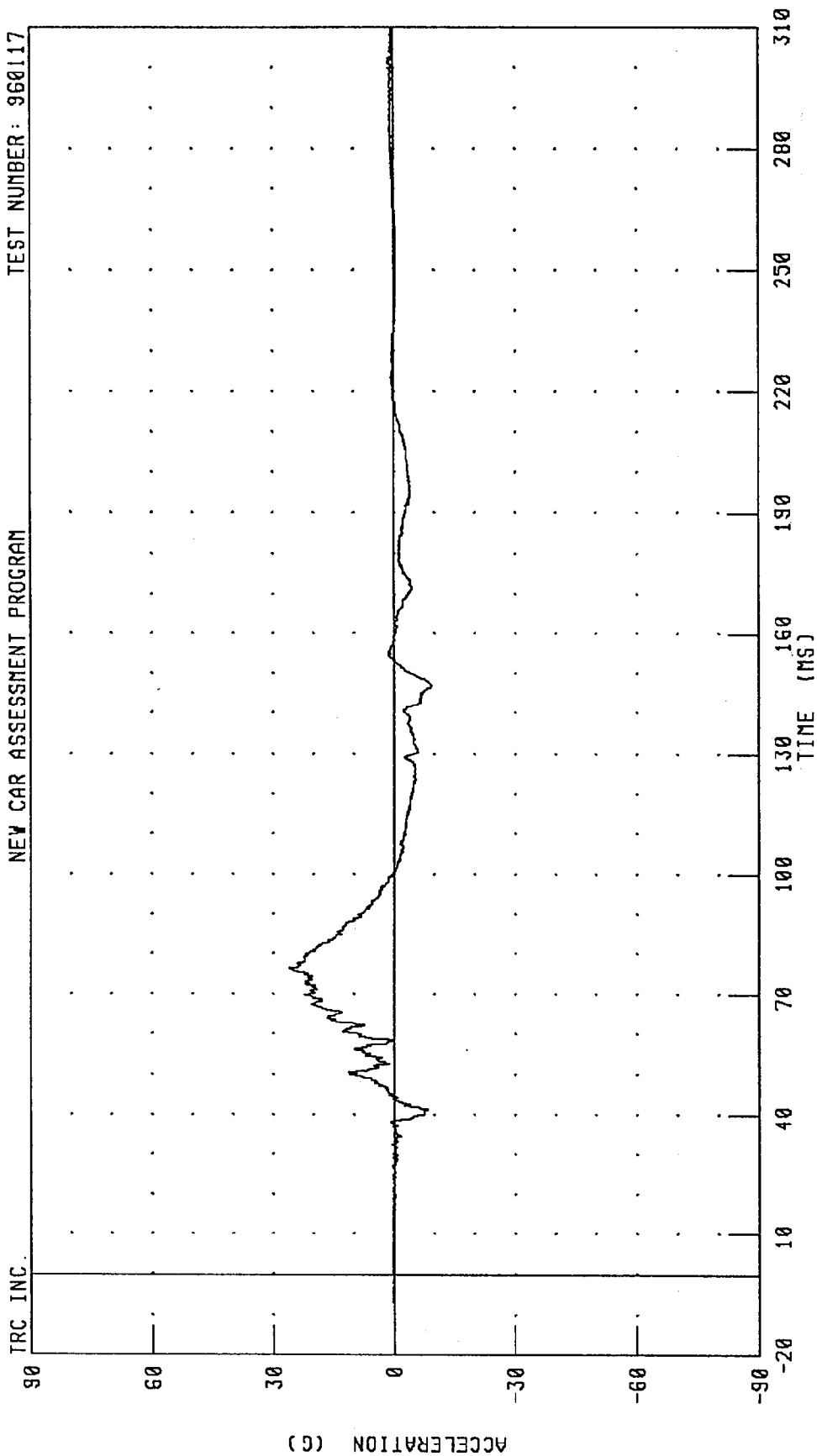


CHANNEL: HEDXG2 FILTER: CH. CLASS 1000

PEAK DATA: 34.07 G @ 146.48 MS; -73.00 G @ 71.28 MS

1996 MITSUBISHI MIRAGE INTO FRONTAL LOAD CELL BARRIER  
PASSENGER HEAD Y-AXIS ACCELERATION  
NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 960117



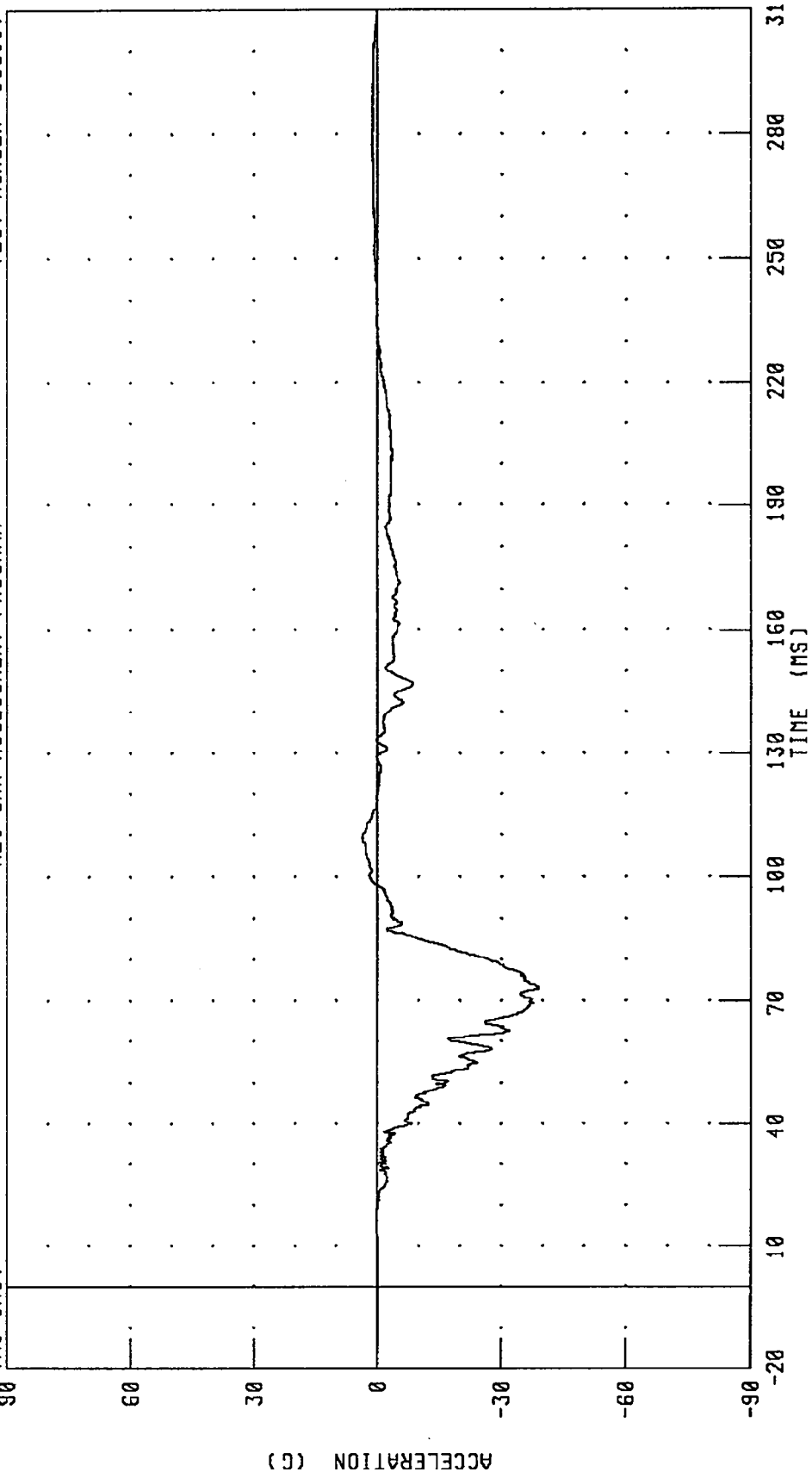
CHANNEL: HEDYG2 FILTER: CH. CLASS 1000

PEAK DATA: 26.00 G @ 76.40 MS; -9.27 G @ 146.96 MS

1996 MITSUBISHI MIRAGE INTO FRONTAL LOAD CELL BARRIER  
PASSENGER HEAD Z-AXIS ACCELERATION  
NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 960117

TRC INC.

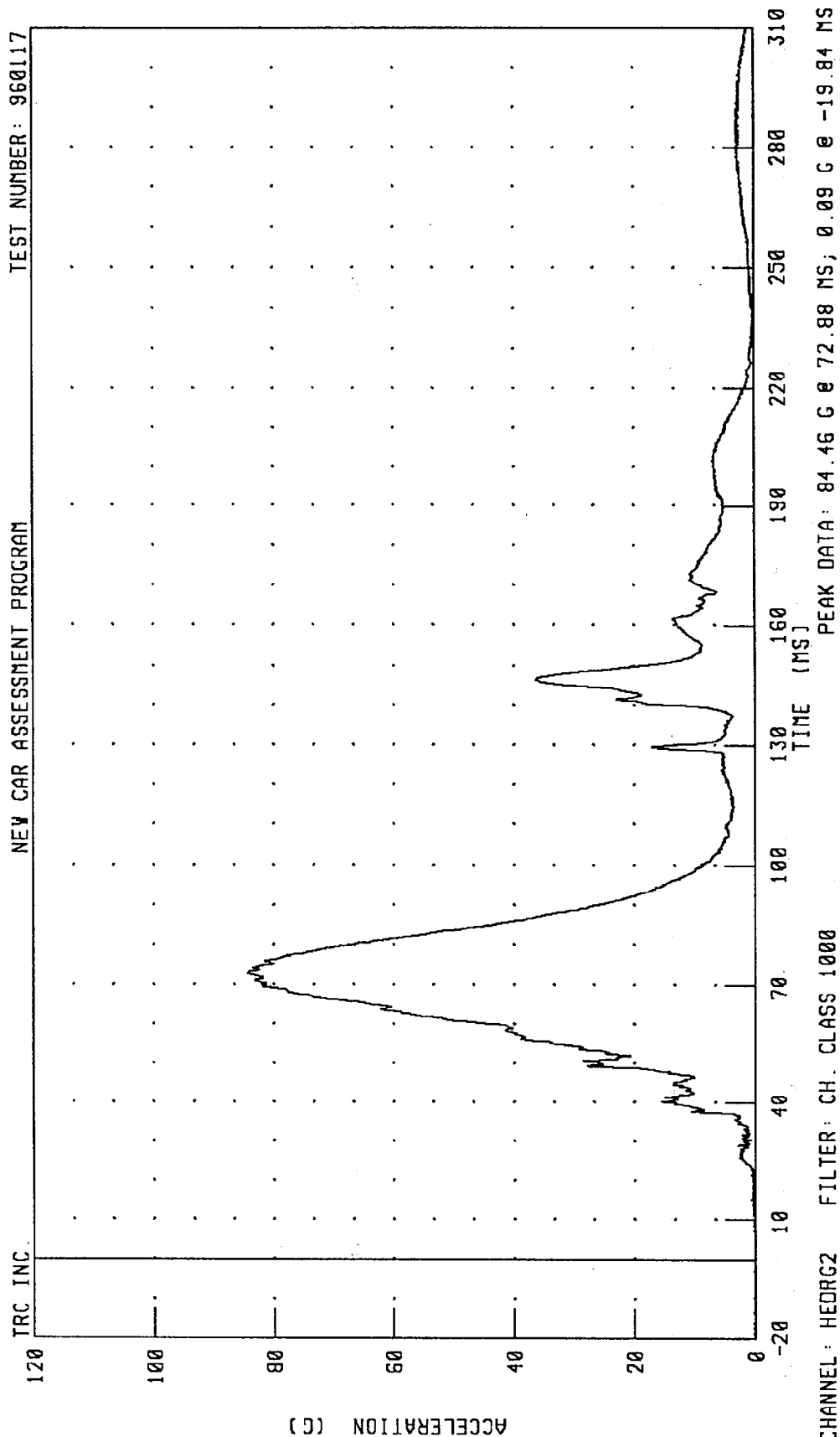


PEAK DATA: 3.87 G @ 109.36 MS; -38.94 G @ 73.12 MS

CHANNEL: HEDZG2 FILTER: CH. CLASS 1000

1996 MITSUBISHI MIRAGE INTO FRONTAL LOAD CELL BARRIER  
PASSENGER HEAD RESULTANT ACCELERATION  
NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 960117



TRC INC

CHANNEL: HEDRG2 FILTER: CH. CLASS 1000

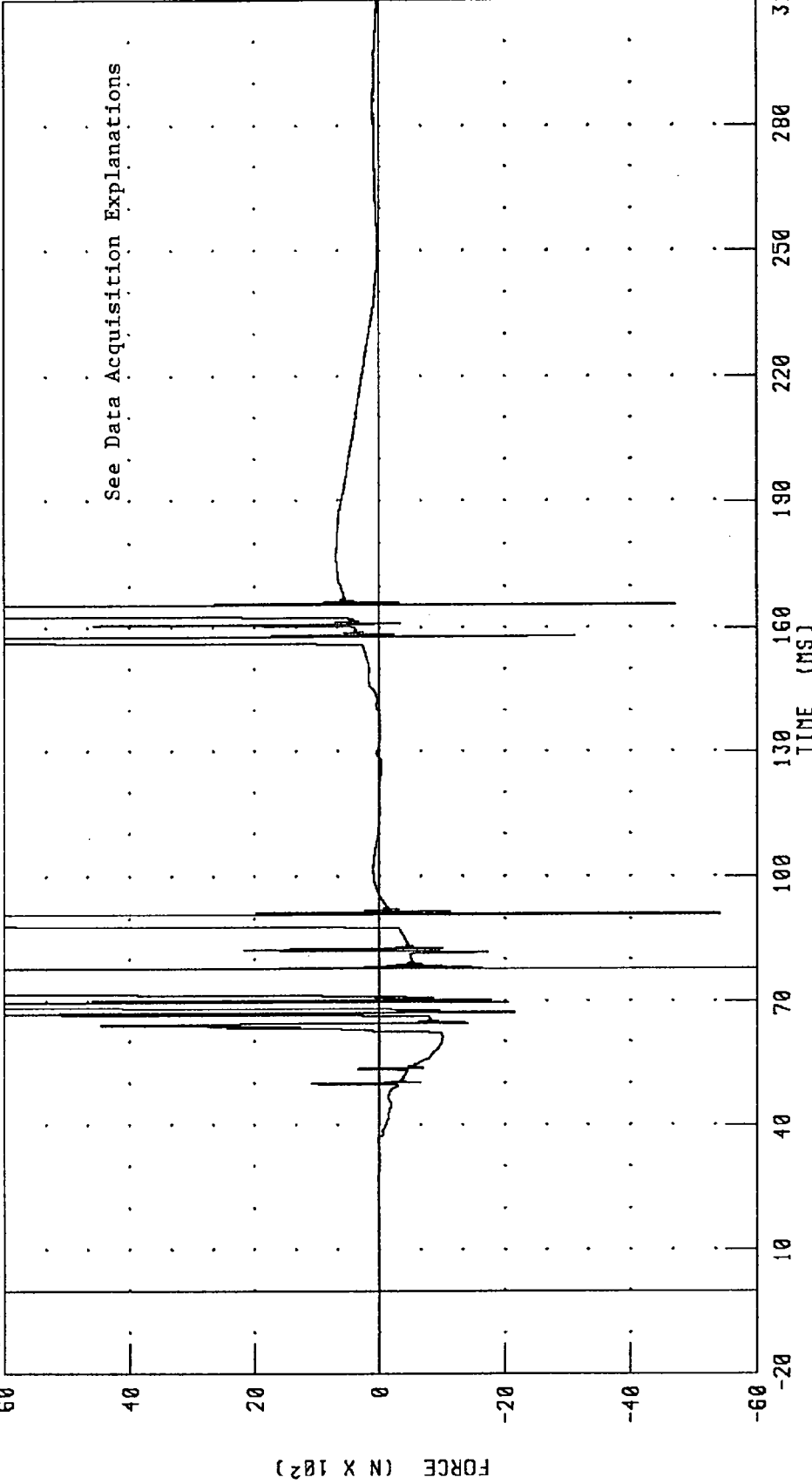
PEAK DATA: 84.46 G @ 72.88 MS; 0.09 G @ 19.84 MS

1996 MITSUBISHI MIRAGE INTO FRONTAL LOAD CELL BARRIER  
PASSENGER NECK X-AXIS SHEAR FORCE

TEST NUMBER: 960117

NEW CAR ASSESSMENT PROGRAM

TRC INC.



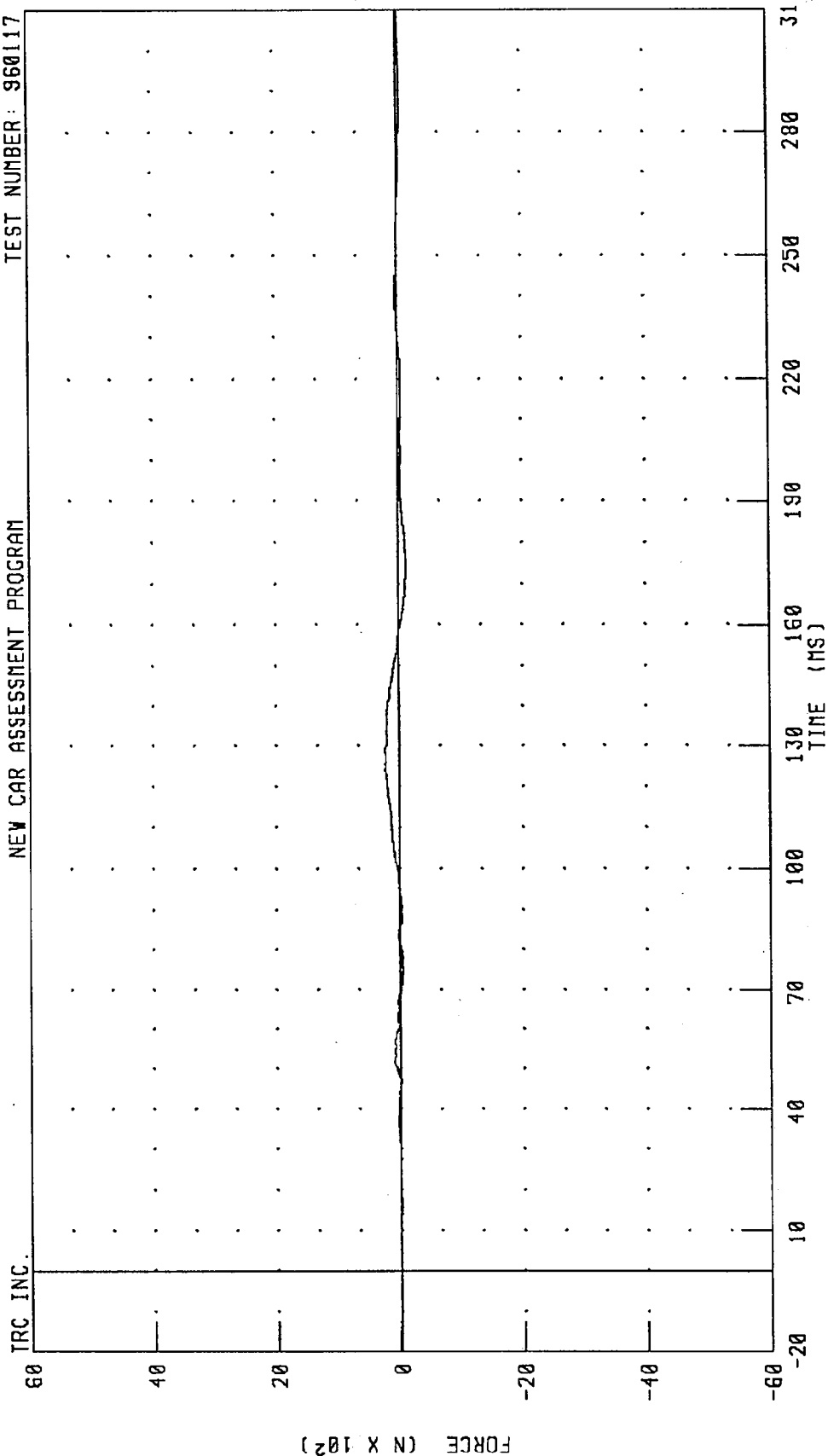
See Data Acquisition Explanations

CHANNEL: NEKXF2 FILTER: CH. CLASS 1000

PEAK DATA: 8907.10 N @ 68.56 MS; -6095.35 N @ 77.84 MS

1996 MITSUBISHI MIRAGE INTO FRONTAL LOAD CELL BARRIER  
PASSENGER NECK Y-AXIS SHEAR FORCE  
NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 960117



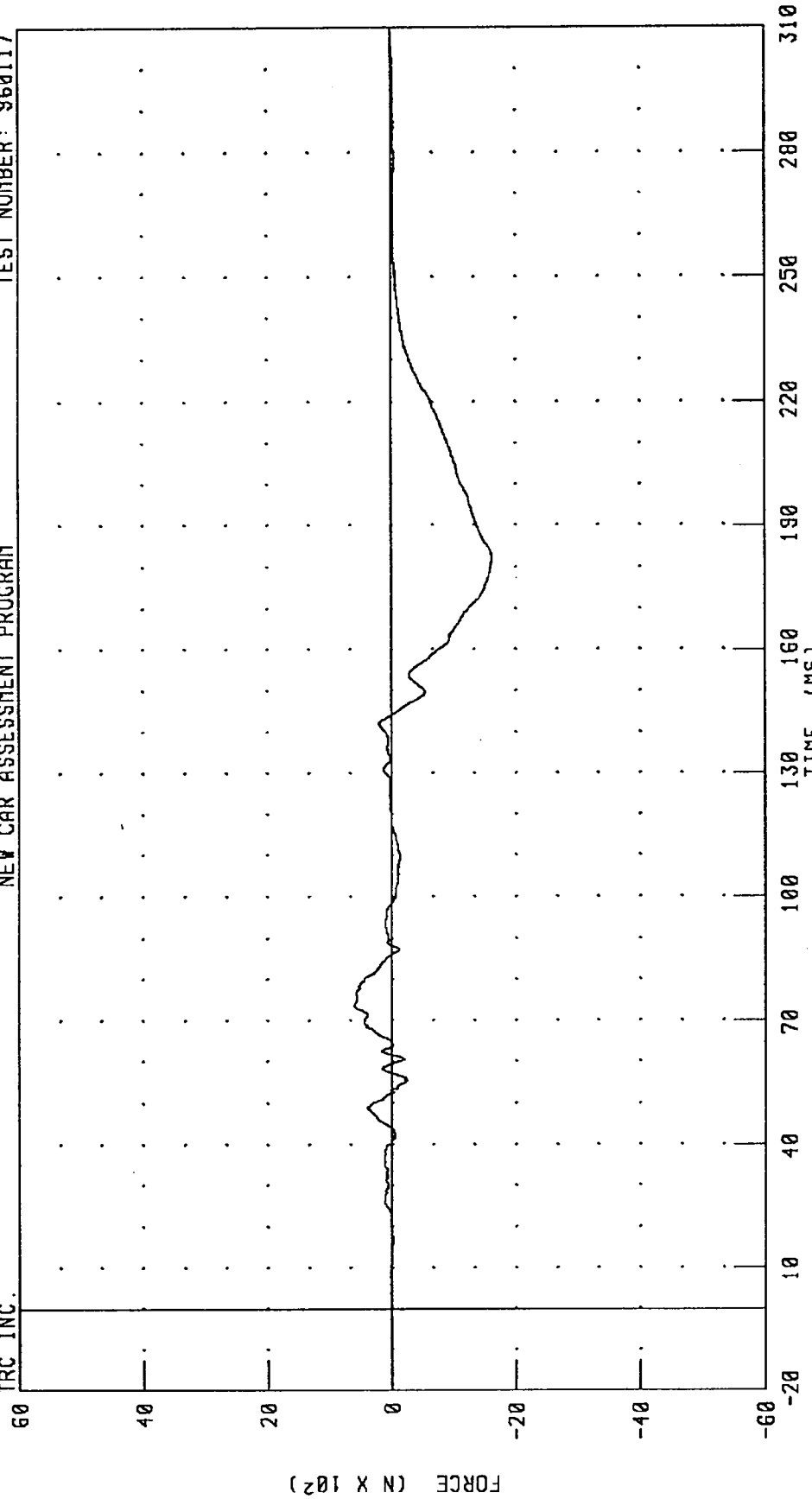
CHANNEL: NEKYF2 FILTER: CH. CLASS 1000

1996 MITSUBISHI MIRAGE INTO FRONTAL LOAD CELL BARRIER  
PASSENGER NECK Z-AXIS AXIAL FORCE

TEST NUMBER: 960117

NEW CAR ASSESSMENT PROGRAM

TRC INC.



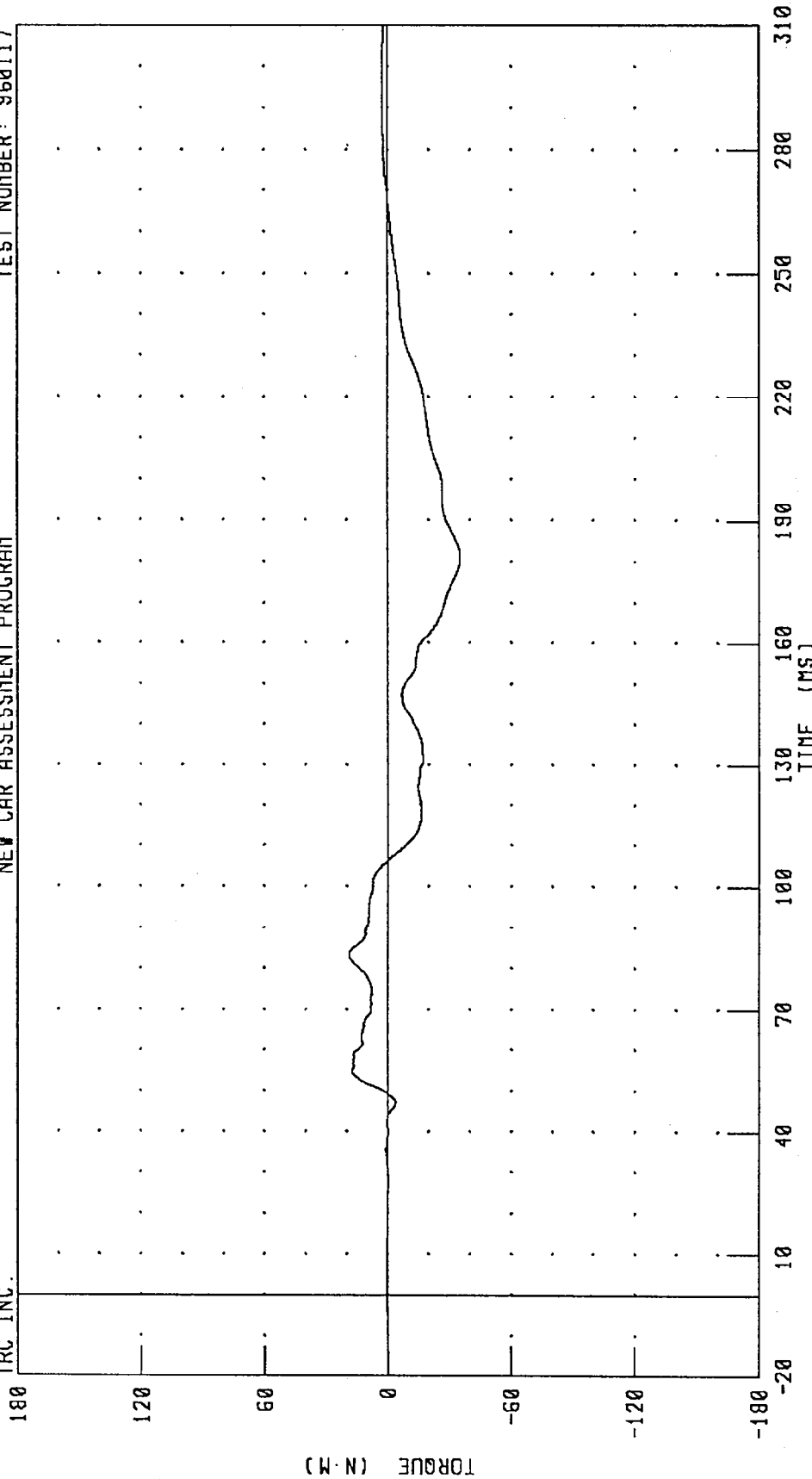
PEAK DATA: 605.81 N @ 73.68 MS; -1624.80 N @ 182.80 MS

CHANNEL: NEKZF2 FILTER: CH. CLASS 1000

1996 MITSUBISHI MIRAGE INTO FRONTAL LOAD CELL BARRIER  
PASSENGER NECK MOMENT ABOUT X AXIS  
NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 960117

TRC INC.



CHANNEL: NEKX2 FILTER: CH. CLASS 600

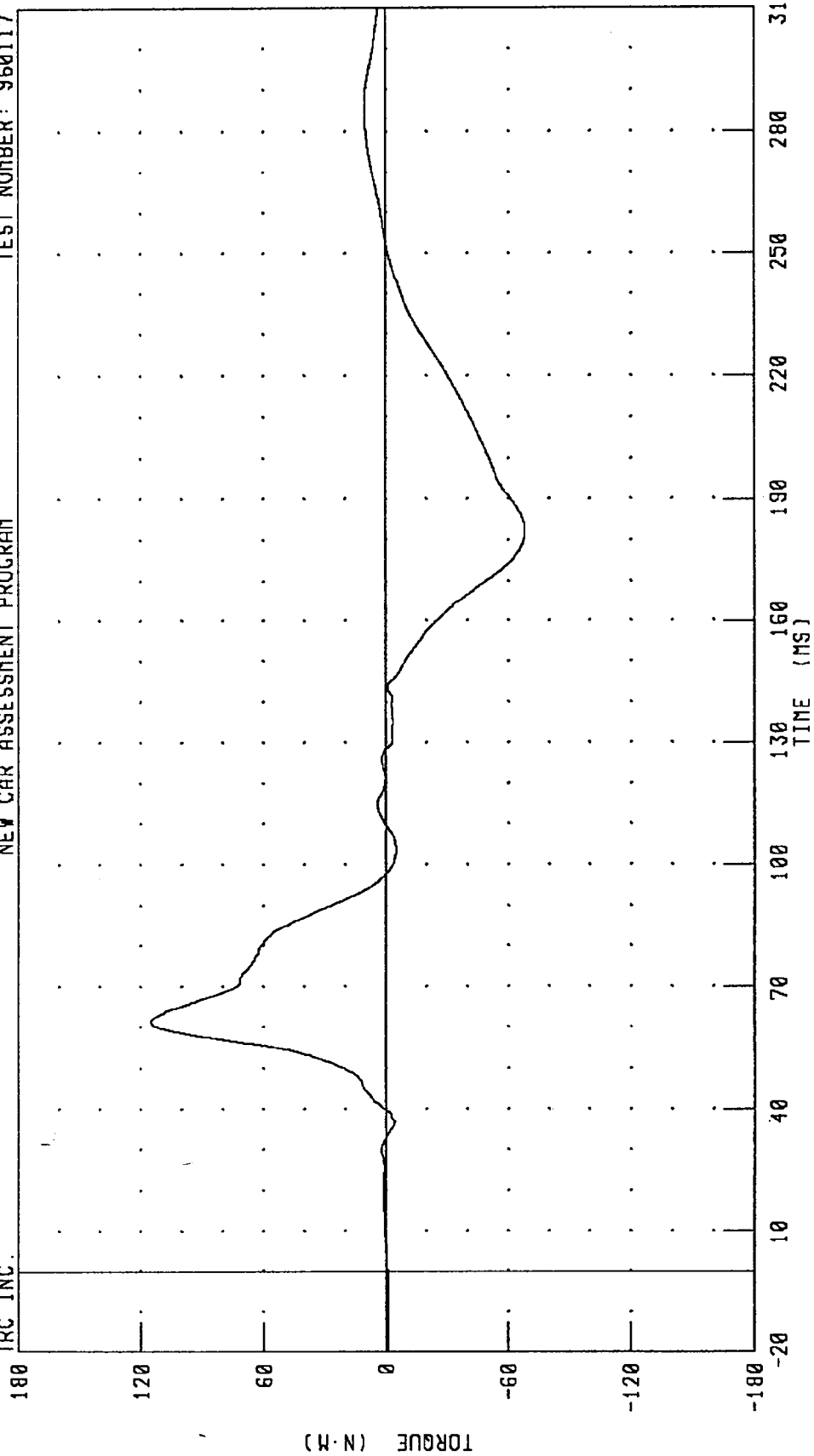
PEAK DATA: 19.03 N-M @ 83.36 MS; -35.14 N-M @ 180.96 MS

1996 MITSUBISHI MIRAGE INTO FRONTAL LOAD CELL BARRIER  
PASSENGER NECK MOMENT ABOUT Y AXIS

TEST NUMBER: 960117

NEW CAR ASSESSMENT PROGRAM

TRC INC.

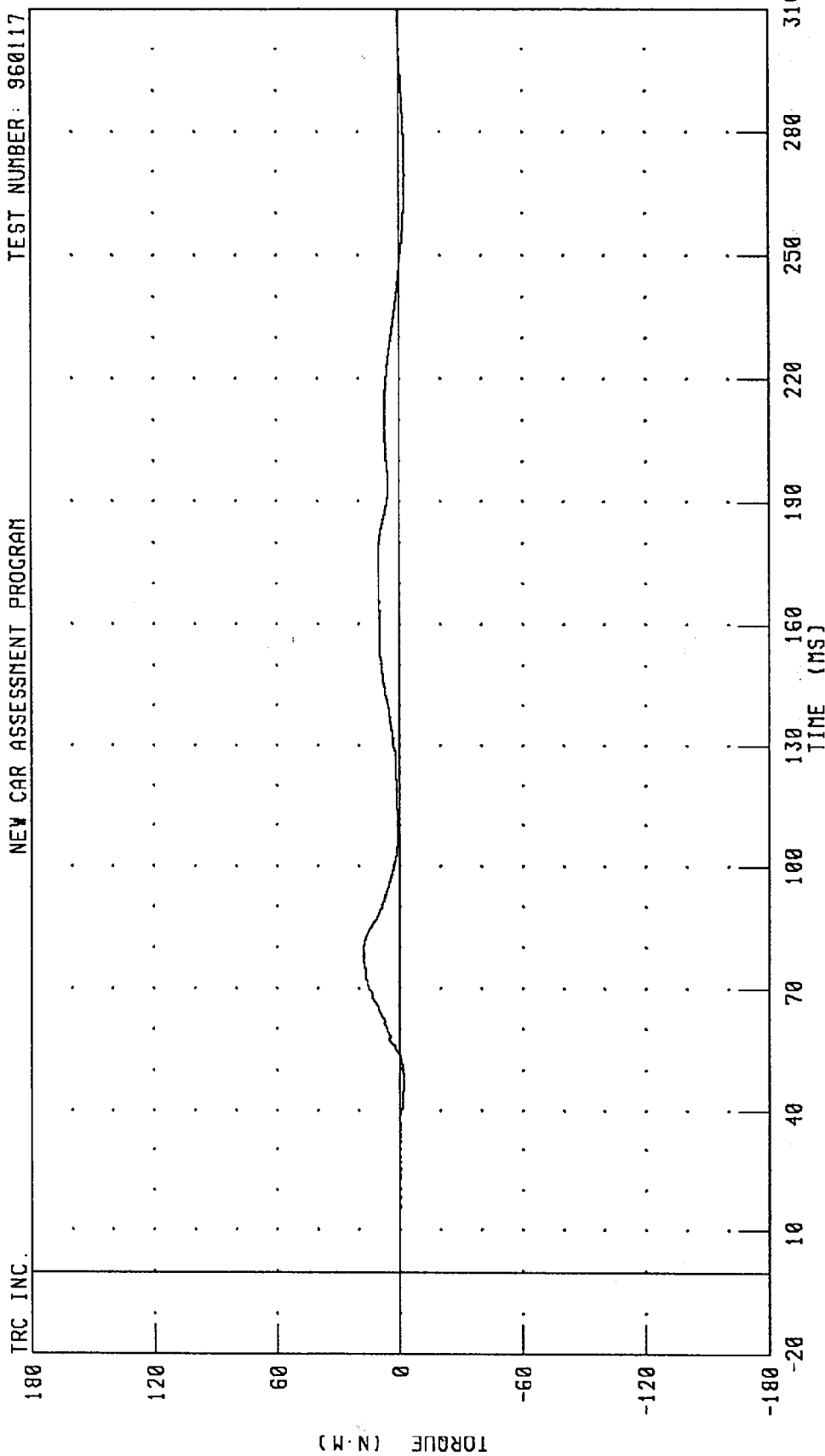


PEAK DATA: 114.85 N·m @ 61.44 ms; -68.22 N·m @ 182.80 ms

CHANNEL: NEKYM2 FILTER: CH. CLASS 600

1996 MITSUBISHI MIRAGE INTO FRONTAL LOAD CELL BARRIER  
PASSENGER NECK MOMENT ABOUT Z AXIS  
NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 960117



PEAK DATA: 17.94 N·M @ 79.68 MS; -2.78 N·M @ 269.20 MS

CHANNEL: NEKZM2 FILTER: CH. CLASS 600

TRC INC.

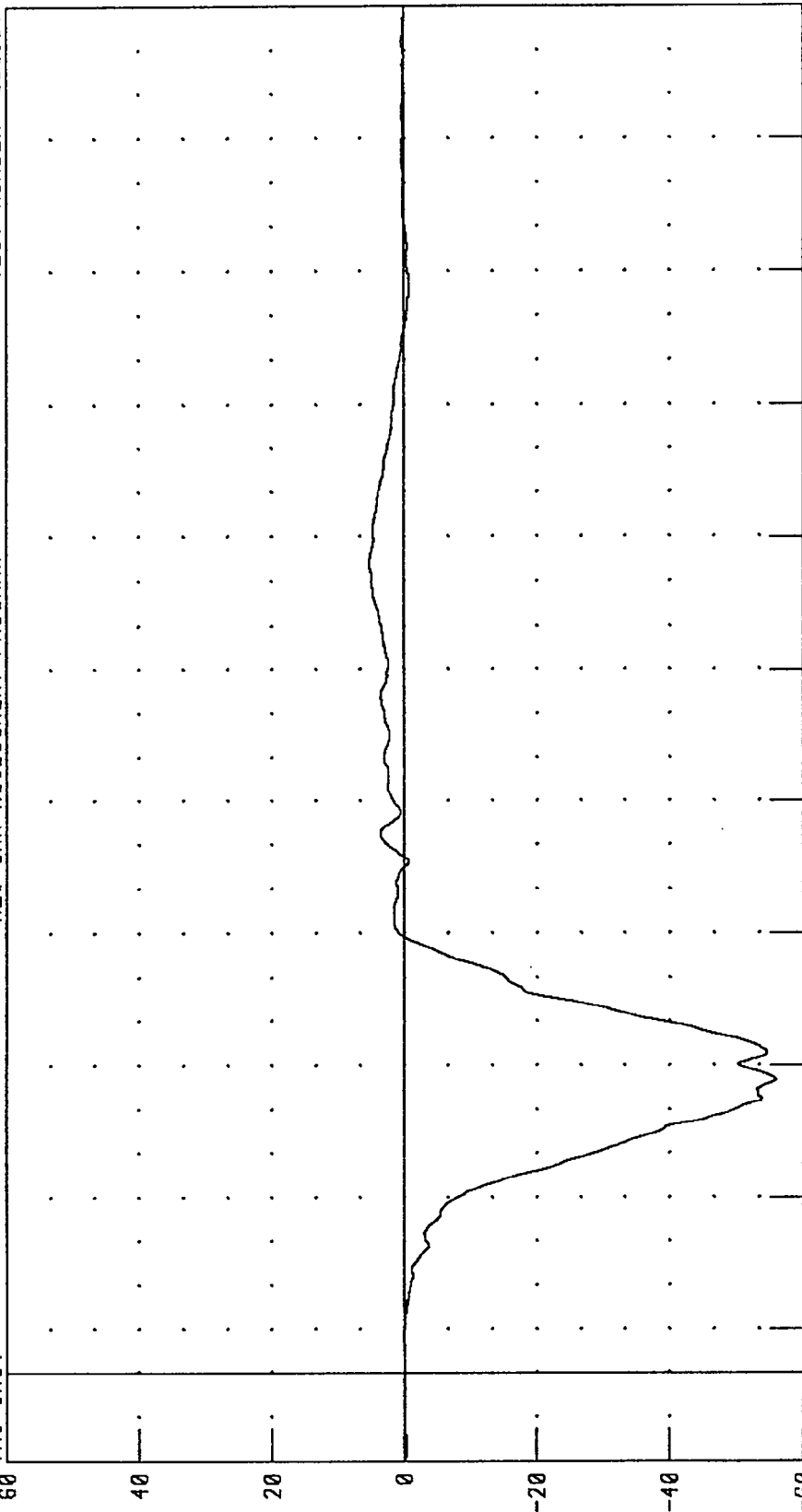
1996 MITSUBISHI MIRAGE INTO FRONTAL LOAD CELL BARRIER  
PASSENGER CHEST X-AXIS ACCELERATION

TEST NUMBER: 960117

NEW CAR ASSESSMENT PROGRAM

TRC INC.

60



TIME (MS)

PEAK DATA: 5.23 G @ 183.28 MS; -55.85 G @ 66.72 MS

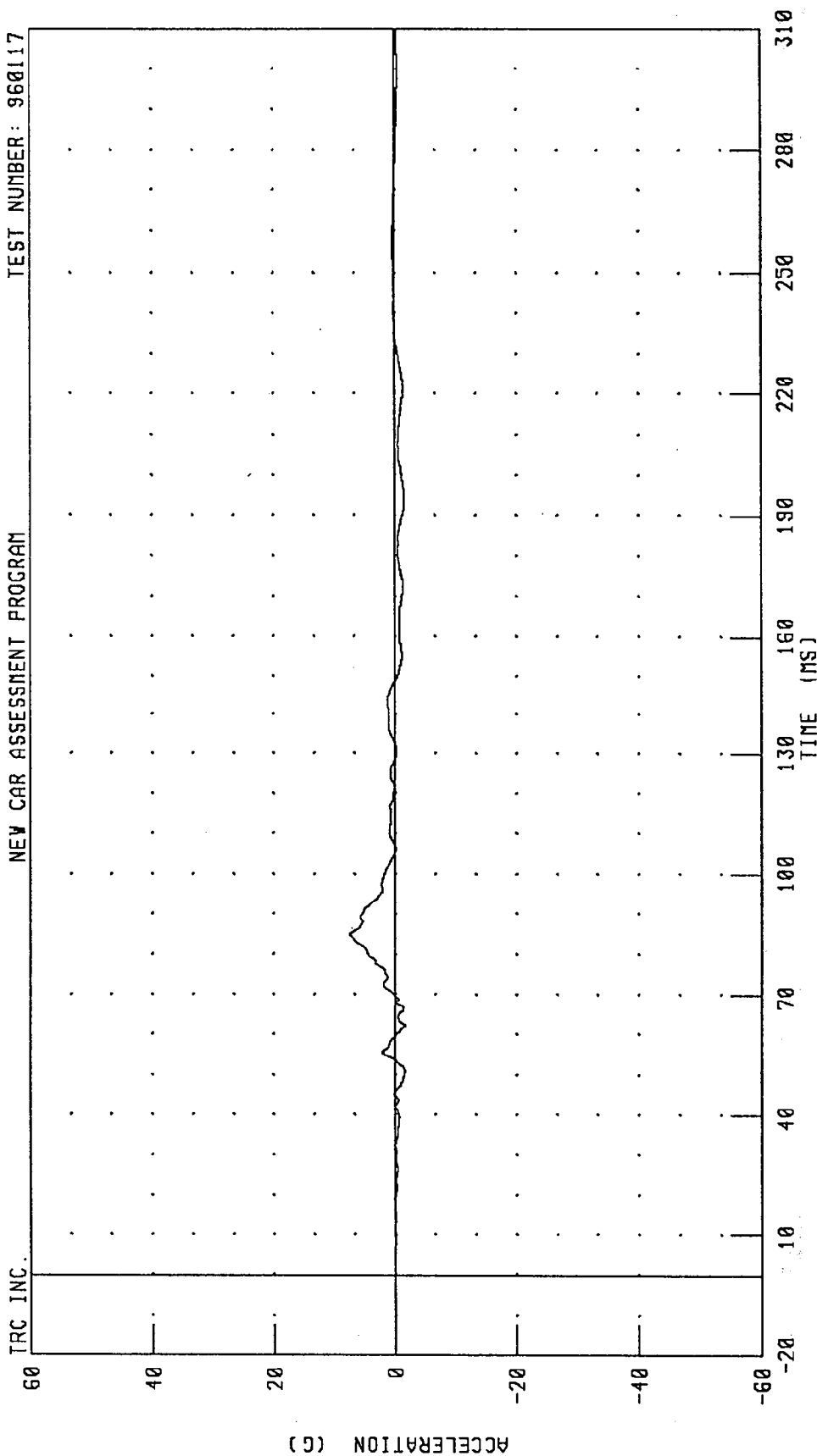
CHANNEL: CSTXG2 FILTER: CH. CLASS 180

1996 MITSUBISHI MIRAGE INTO FRONTAL LOAD CELL BARRIER  
PASSENGER CHEST Y-AXIS ACCELERATION

TEST NUMBER: 960117

NEW CAR ASSESSMENT PROGRAM

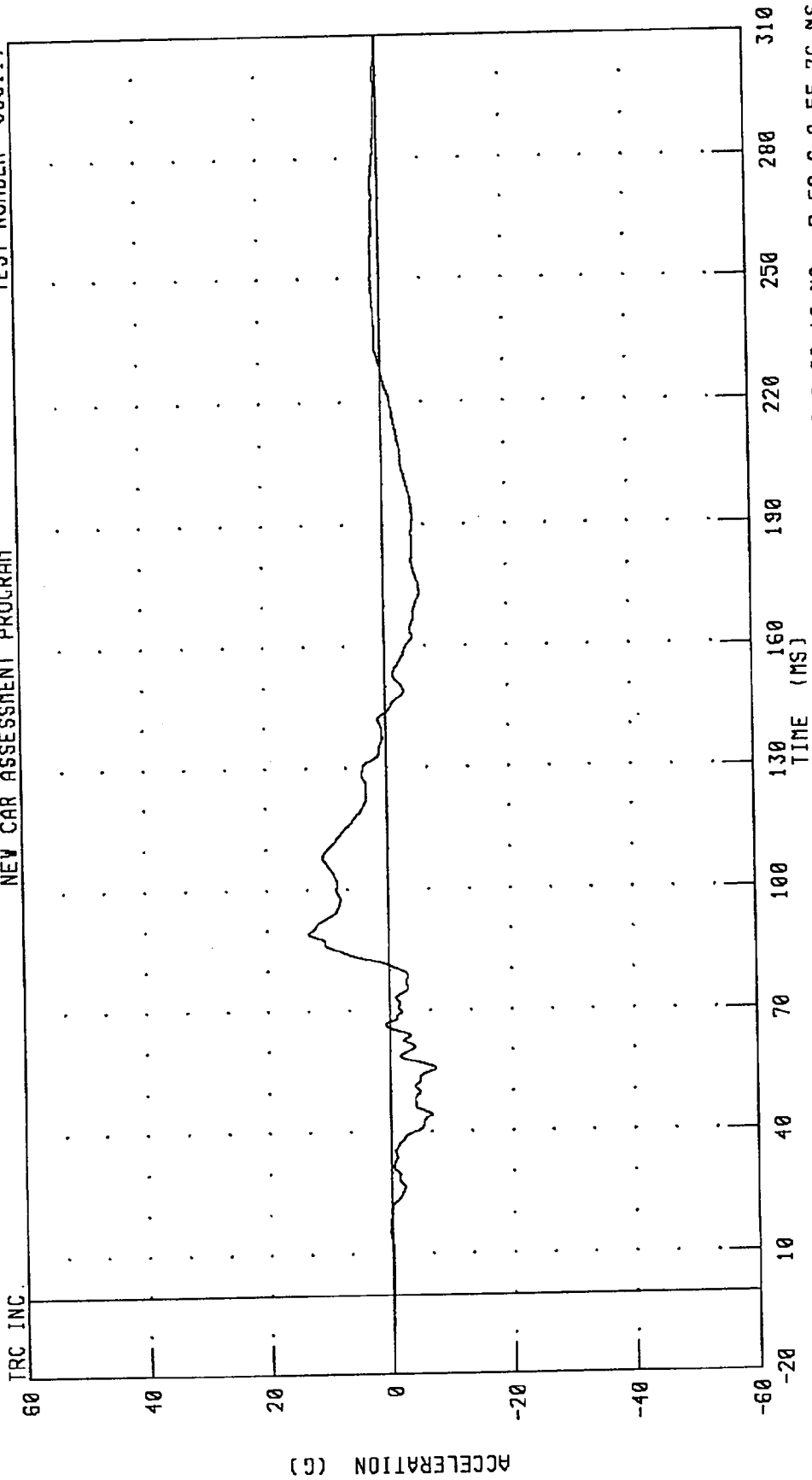
TRC INC.



CHANNEL: CSTYG2 FILTER: CH. CLASS 180

1996 MITSUBISHI MIRAGE INTO FRONTAL LOAD CELL BARRIER  
PASSENGER CHEST Z-AXIS ACCELERATION  
NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 960117



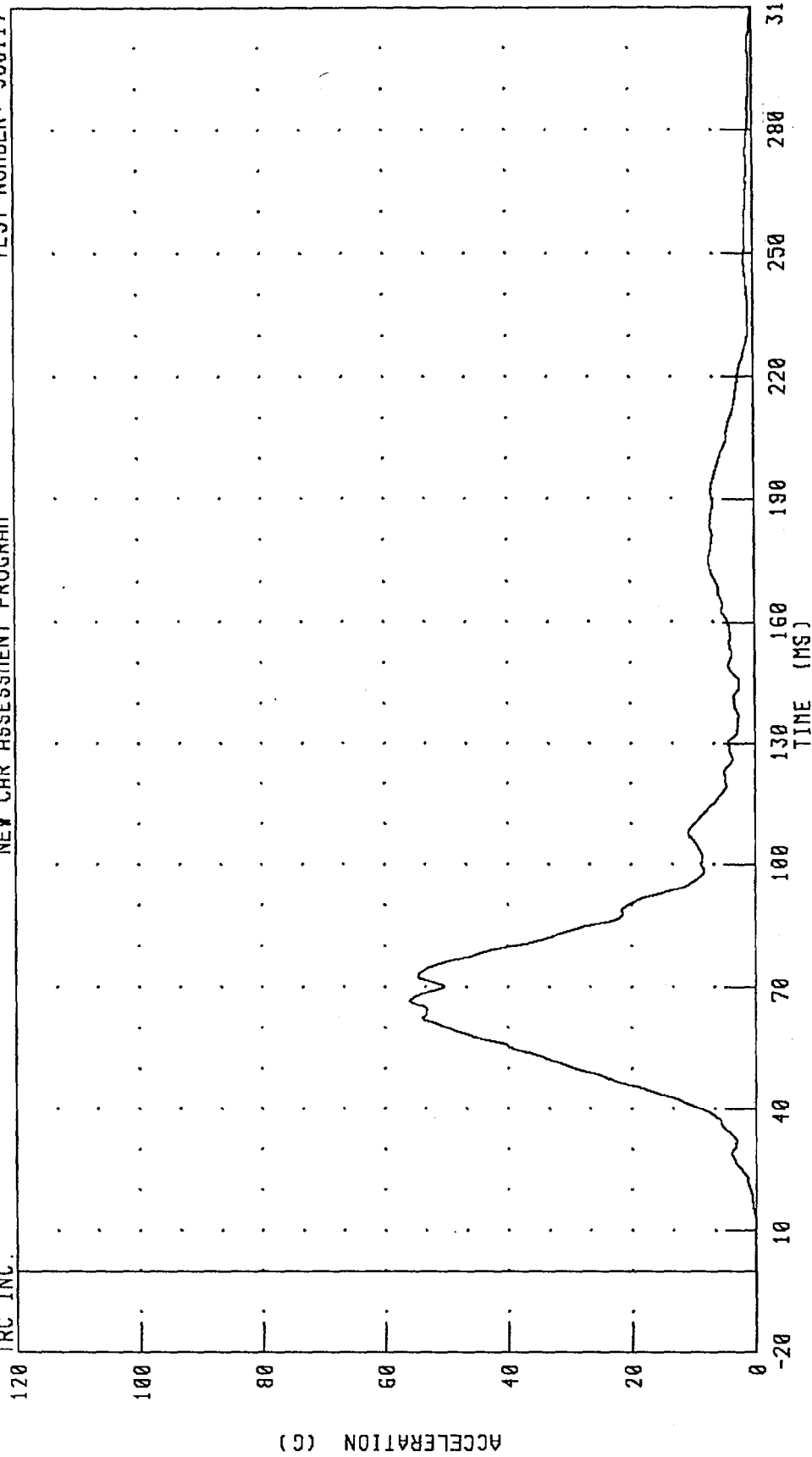
CHANNEL: CSTZG2 FILTER: CH. CLASS 180

1996 MITSUBISHI MIRAGE INTO FRONTAL LOAD CELL BARRIER  
PASSENGER CHEST RESULTANT ACCELERATION

TEST NUMBER: 960117

NEW CAR ASSESSMENT PROGRAM

TRC INC.



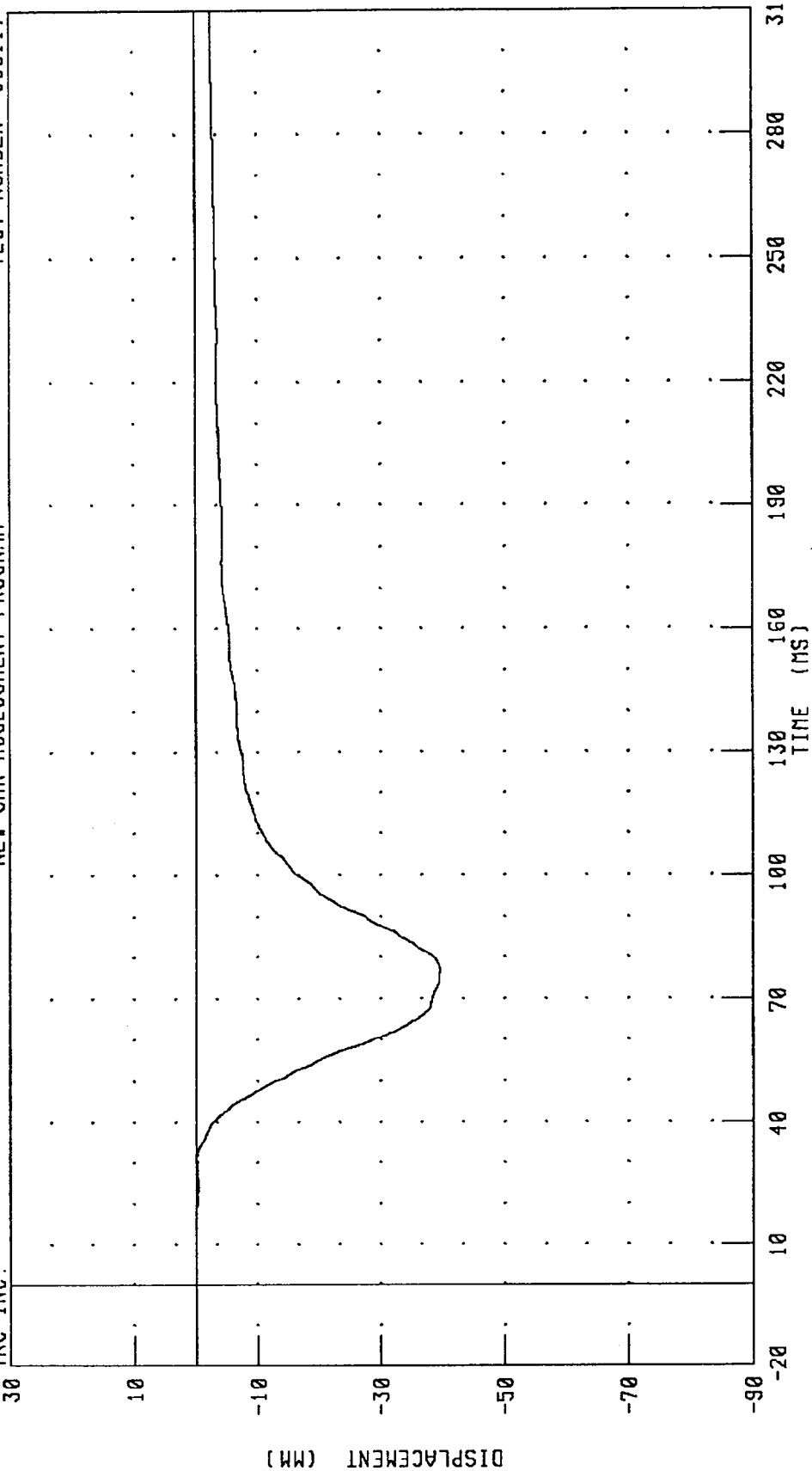
CHANNEL: CSTRG2 FILTER: CH. CLASS 180

PEAK DATA: 55.87 G @ 55.87 MS; 0.02 G @ -20.00 MS

1996 MITSUBISHI MIRAGE INTO FRONTAL LOAD CELL BARRIER  
PASSENGER CHEST DEFLECTION  
NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 960117

TRC INC.

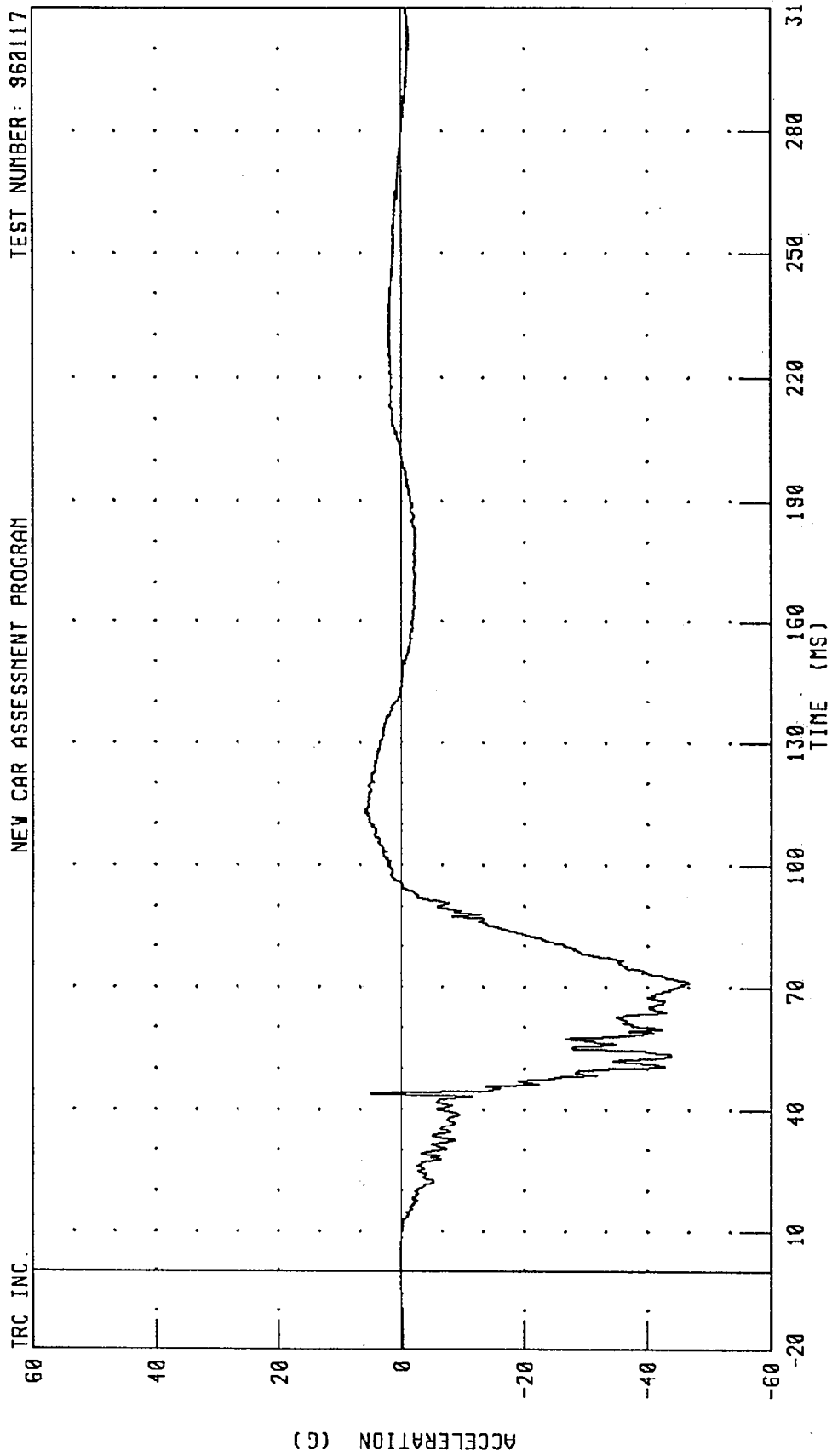


PEAK DATA: 0.02 NM @ -18.80 MS; -39.58 NM @ 76.88 MS

CHANNEL: CSTXD2 FILTER: CH. CLASS 180

1996 MITSUBISHI MIRAGE INTO FRONTAL LOAD CELL BARRIER  
PASSENGER PELVIS X-AXIS ACCELERATION  
NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 960117



CHANNEL: PEVXG2 FILTER: CH. CLASS 1000

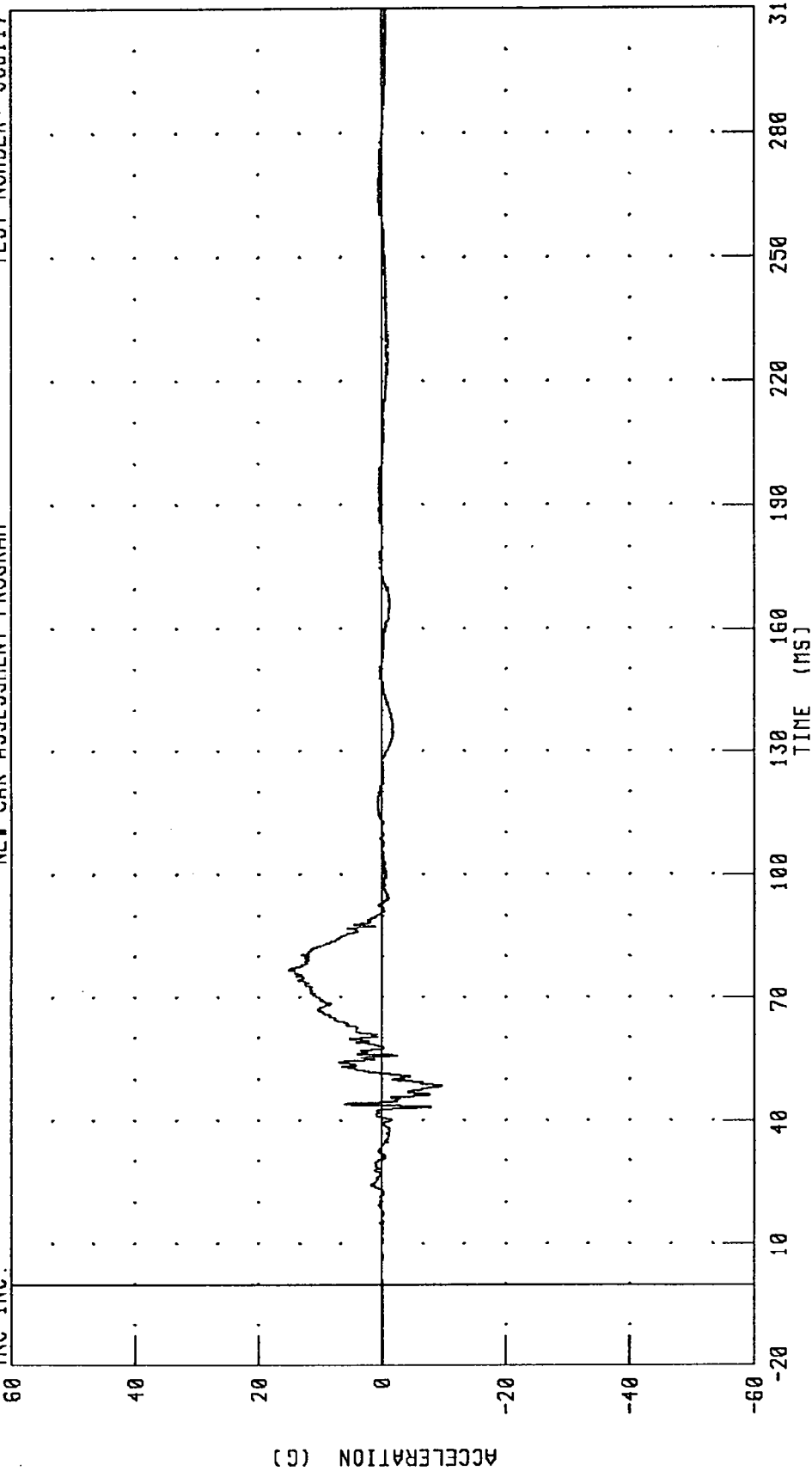
PEAK DATA: 5.86 G @ 112.72 MS, -46.78 G @ 71.04 MS

1996 MITSUBISHI MIRAGE INTO FRONTAL LOAD CELL BARRIER  
PASSENGER PELVIS Y-AXIS ACCELERATION

TEST NUMBER: 960117

NEW CAR ASSESSMENT PROGRAM

TRC INC.

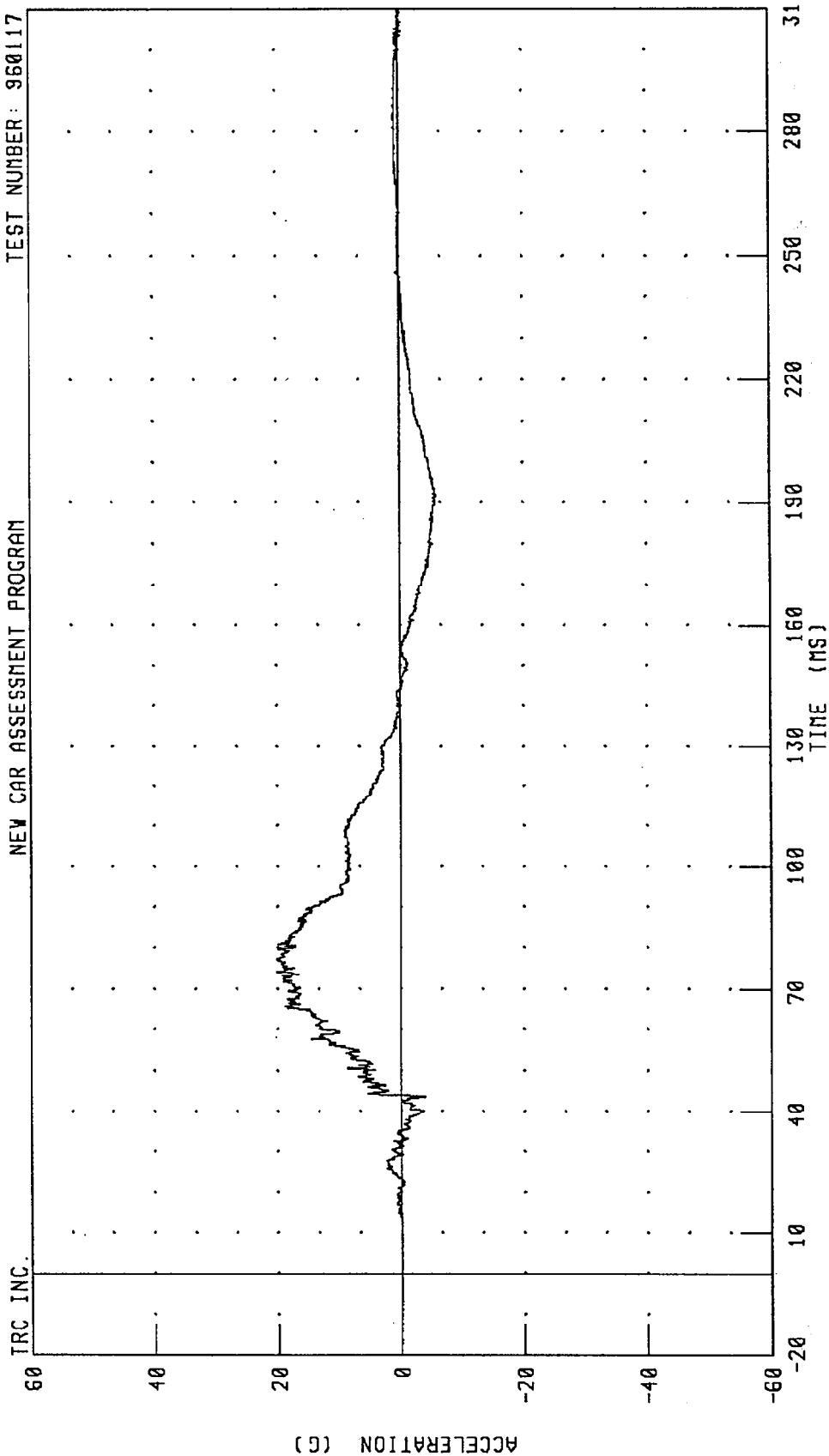


CHANNEL: PEVYG2 FILTER: CH. CLASS 1000

PEAK DATA: 15.08 G @ 76.72 MS; -9.61 G @ 48.40 MS

1996 MITSUBISHI MIRAGE INTO FRONTAL LOAD CELL BARRIER  
PASSENGER PELVIS Z-AXIS ACCELERATION  
NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 960117



PEAK DATA: 20.12 G @ 74.16 MS; -5.87 G @ 191.44 MS

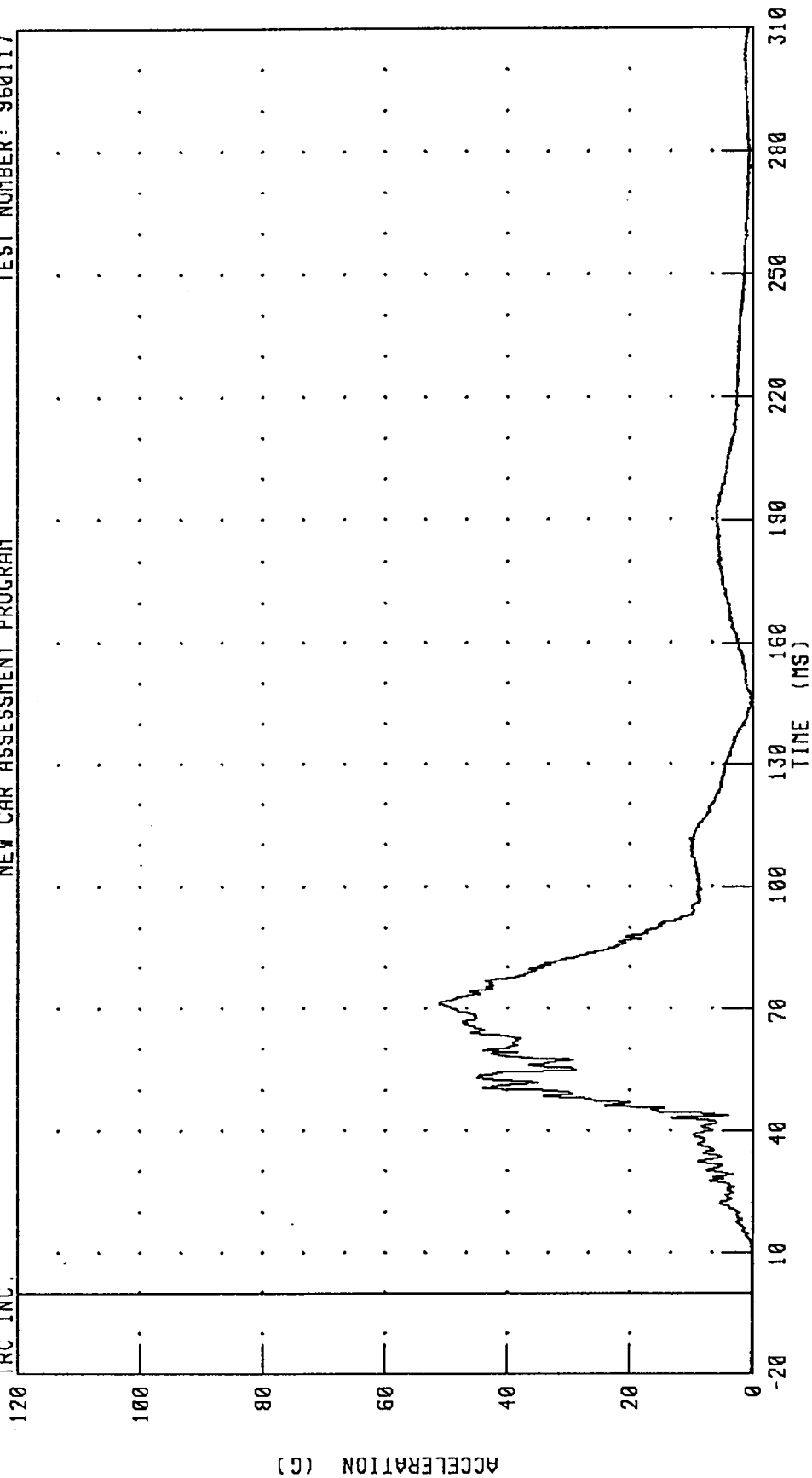
CHANNEL: PEVZG2 FILTER: CH. CLASS 1000

1996 MITSUBISHI MIRAGE INTO FRONTAL LOAD CELL BARRIER  
PASSENGER PELVIS RESULTANT ACCELERATION

TEST NUMBER: 960117

NEW CAR ASSESSMENT PROGRAM

TRC INC.

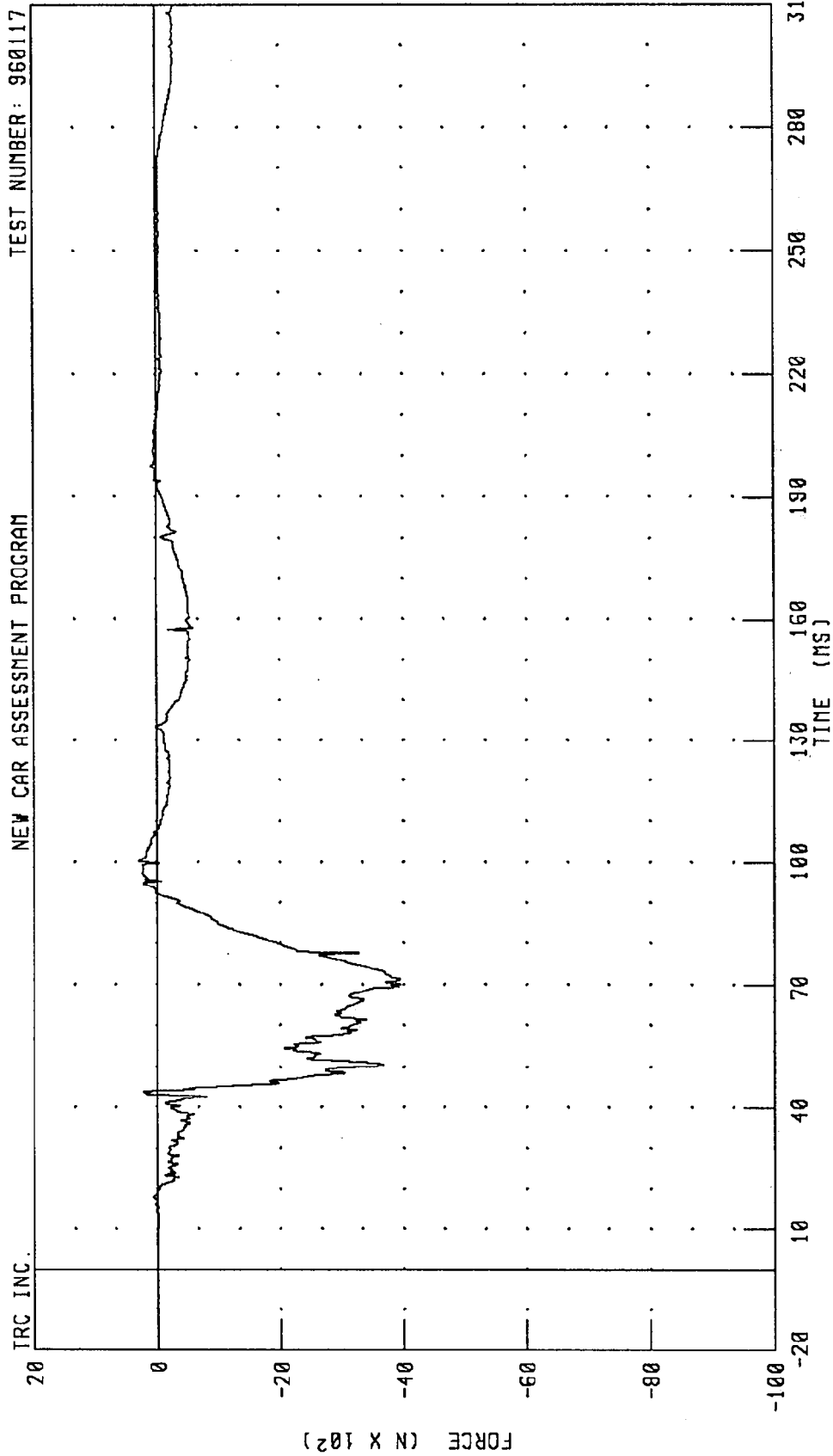


CHANNEL: PEVRC2 FILTER: CH. CLASS 1000

PEAK DATA: 51.28 G @ 71.04 MS; 0.08 G @ -10.72 MS

1996 MITSUBISHI MIRAGE INTO FRONTAL LOAD CELL BARRIER  
PASSENGER LEFT FEMUR FORCE  
NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 960117



PEAK DATA: 280.78 N @ 100.32 MS; -3949.61 N @ 70.08 MS

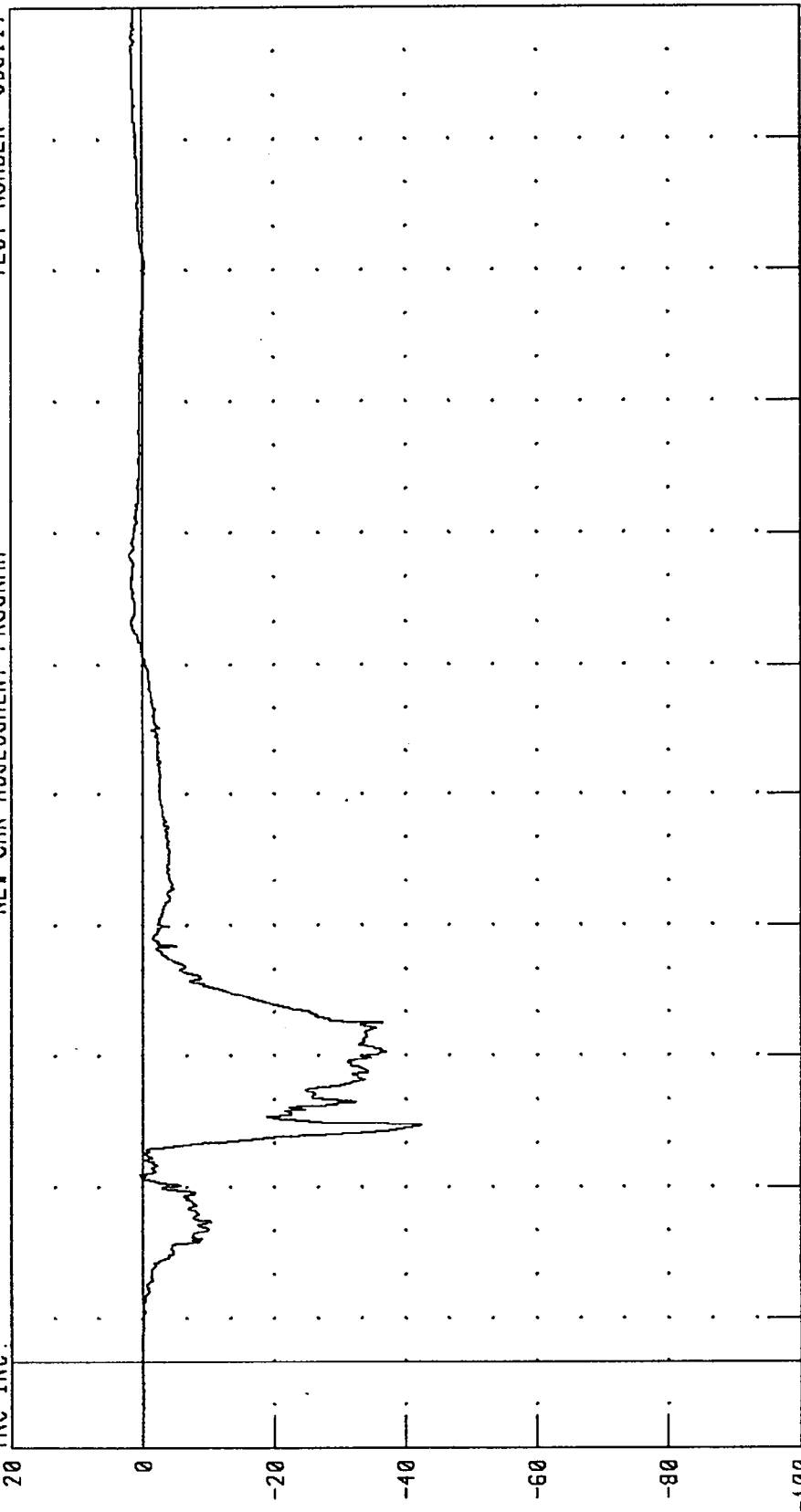
CHANNEL: LFMF2 FILTER: CH. CLASS 600

1996 MITSUBISHI MIRAGE INTO FRONTAL LOAD CELL BARRIER  
PASSENGER RIGHT FEMUR FORCE  
NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 950117

TRC INC.

20



PEAK DATA: 199.61 N @ 184.80 MS; -4237.53 N @ 54.00 MS

CHANNEL: RPF2 FILTER: CH. CLASS 600

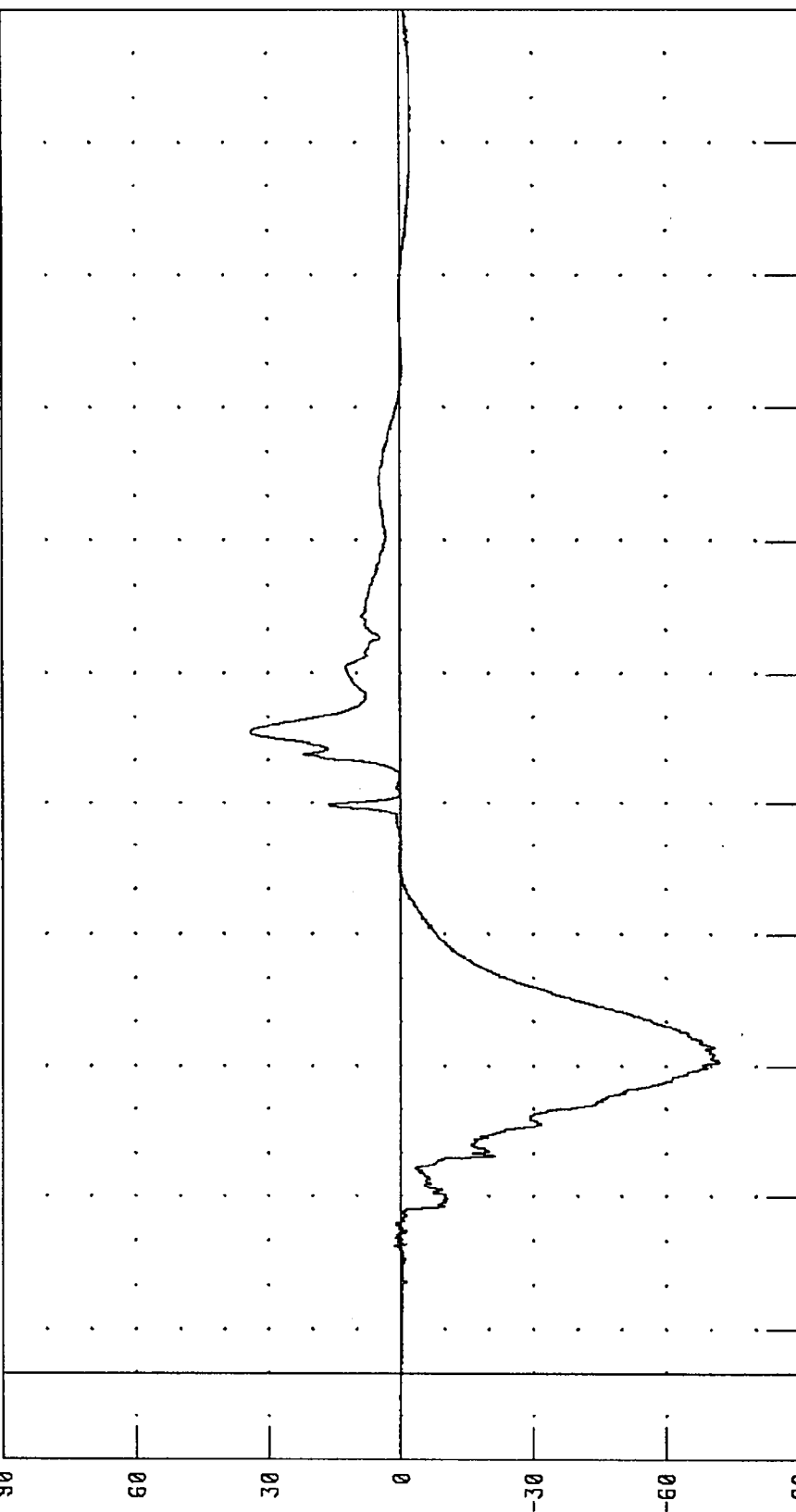
1996 MITSUBISHI MIRAGE INTO FRONTAL LOAD CELL BARRIER  
PASSENGER HEAD X-AXIS ACCELERATION - REDUNDANT

TEST NUMBER: 960117

NEW CAR ASSESSMENT PROGRAM

TRC INC.

90



310

280

250

220

190

160

130

100

70

40

10

-20

-50

-80

TIME (MS)

PEAK DATA: 33.98 G @ 146.24 MS; -71.87 G @ 70.96 MS

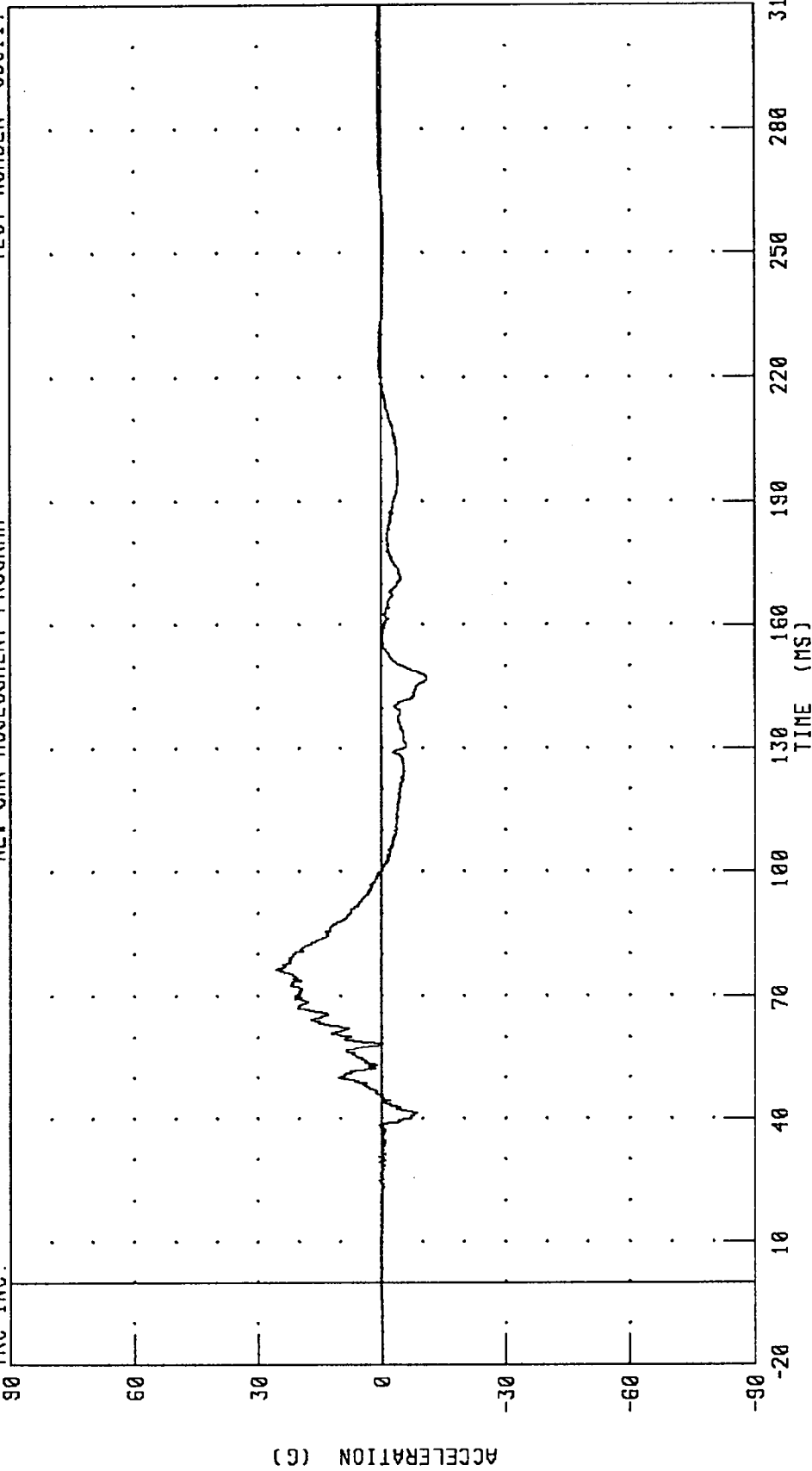
CHANNEL: HEDXR2 FILTER: CH. CLASS 1000

1986 MITSUBISHI MIRAGE INTO FRONTAL LOAD CELL BARRIER  
PASSENGER HEAD Y-AXIS ACCELERATION - REDUNDANT

TEST NUMBER: 960117

NEW CAR ASSESSMENT PROGRAM

TRC INC.

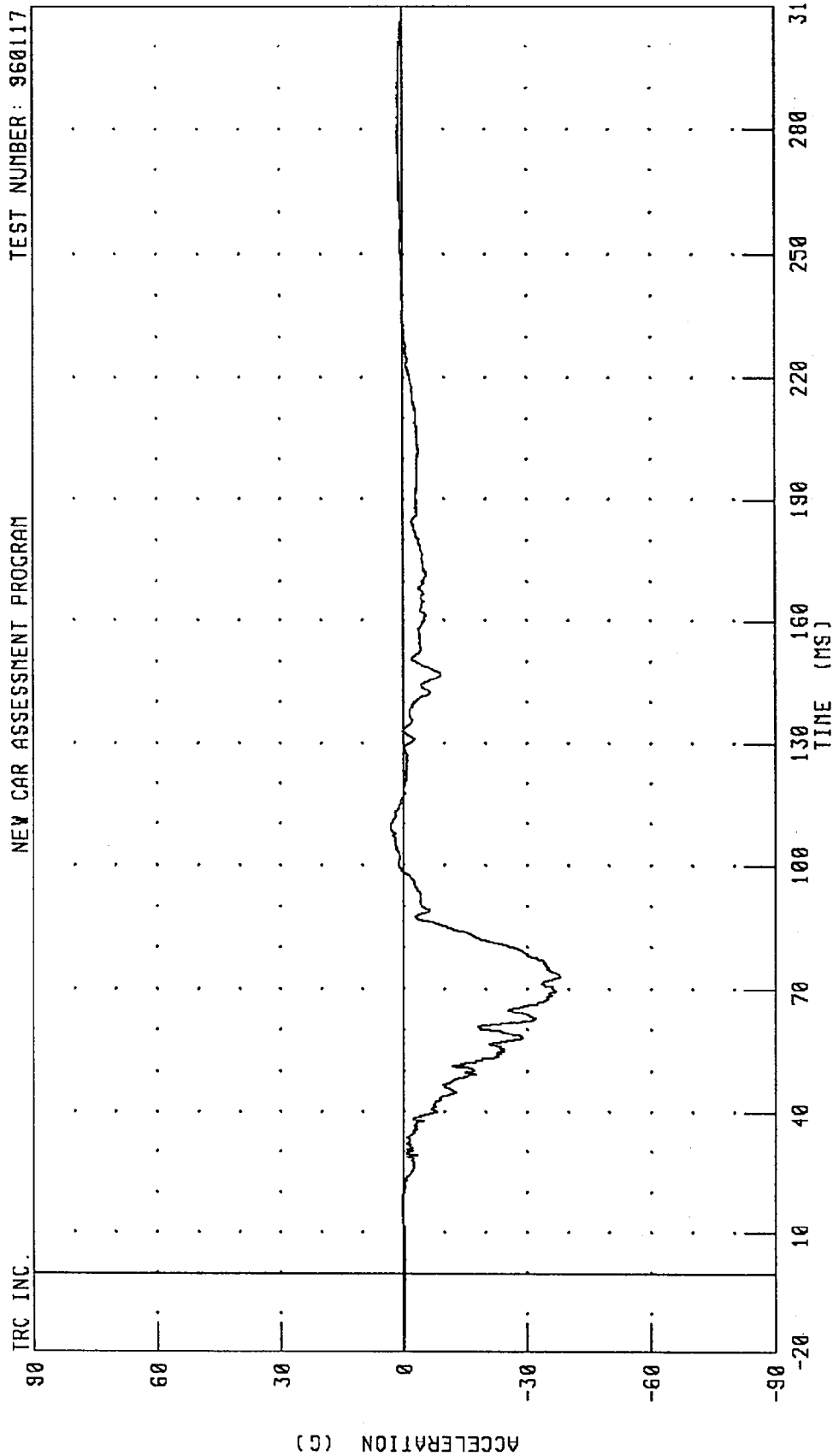


CHANNEL: HEDYR2 FILTER: CH. CLASS 1000

PEAK DATA: 25.64 G @ 76.32 MS; -10.89 G @ 146.80 MS

1996 MITSUBISHI MIRAGE INTO FRONTAL LOAD CELL BARRIER  
PASSENGER HEAD Z-AXIS ACCELERATION - REDUNDANT  
NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 960117

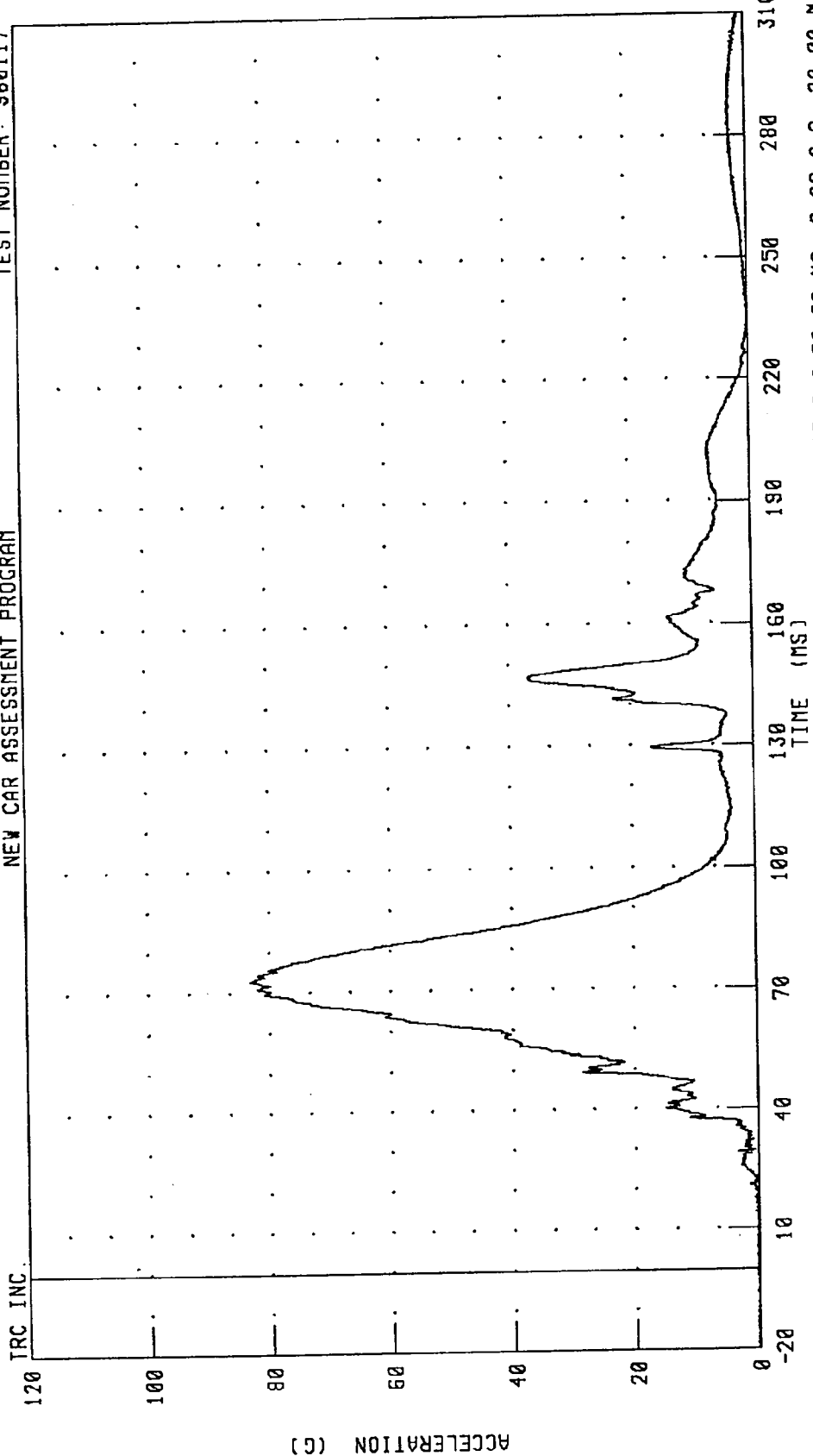


CHANNEL: HEDZR2 FILTER: CH. CLASS 1000

PEAK DATA: 3.13 G @ 109.44 MS, -38.14 G @ 72.96 MS

1996 MITSUBISHI MIRAGE INTO FRONTAL LOAD CELL BARRIER  
PASSENGER HEAD RESULTANT ACCELERATION - REDUNDANT  
NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 960117



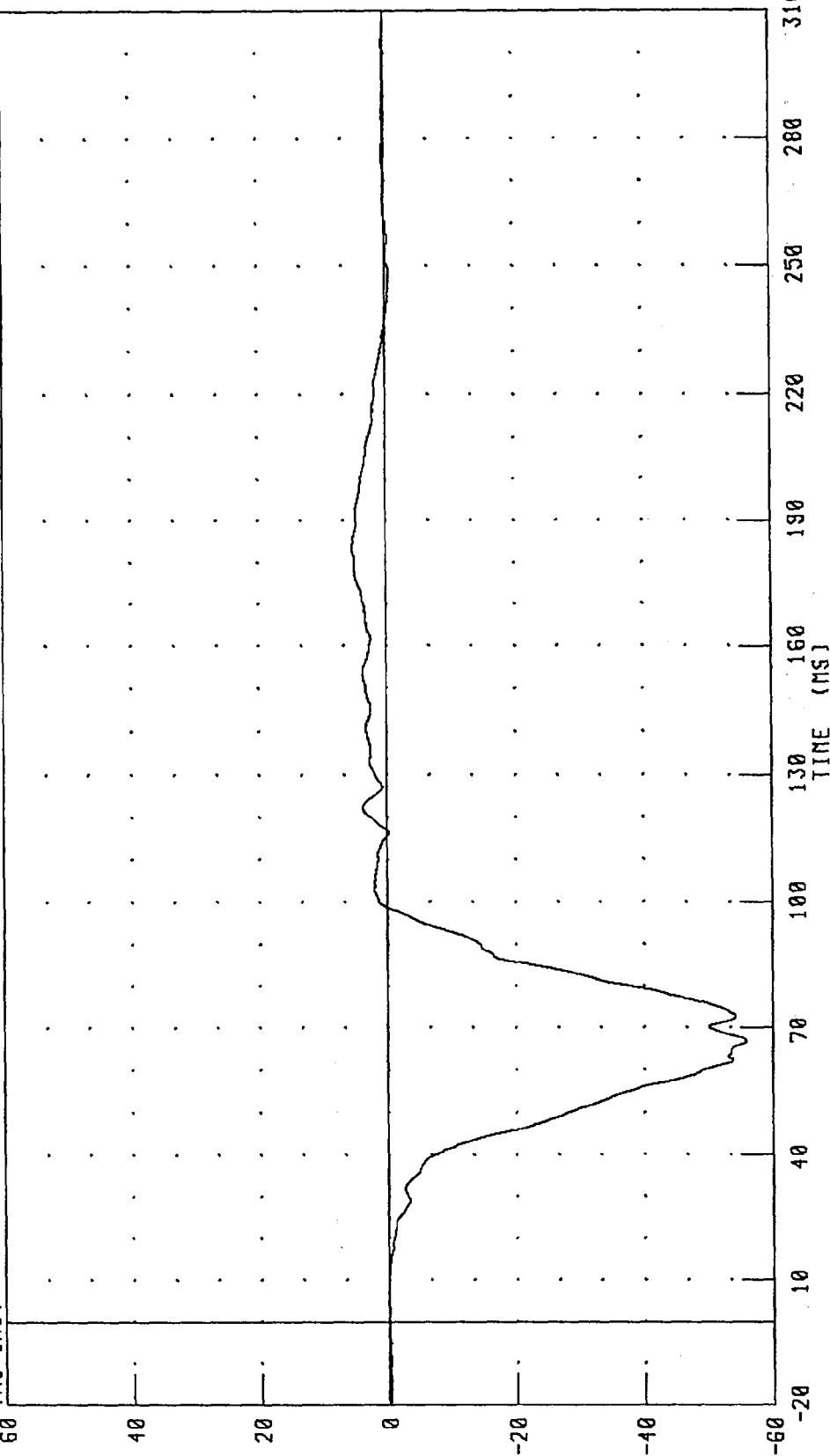
CHANNEL: HEDRR2 FILTER: CH. CLASS 1000

1996 MITSUBISHI MIRAGE INTO FRONTAL LOAD CELL BARRIER  
PASSENGER CHEST X-AXIS ACCELERATION - REDUNDANT

TEST NUMBER: 960117

NEW CAR ASSESSMENT PROGRAM

TRC INC.



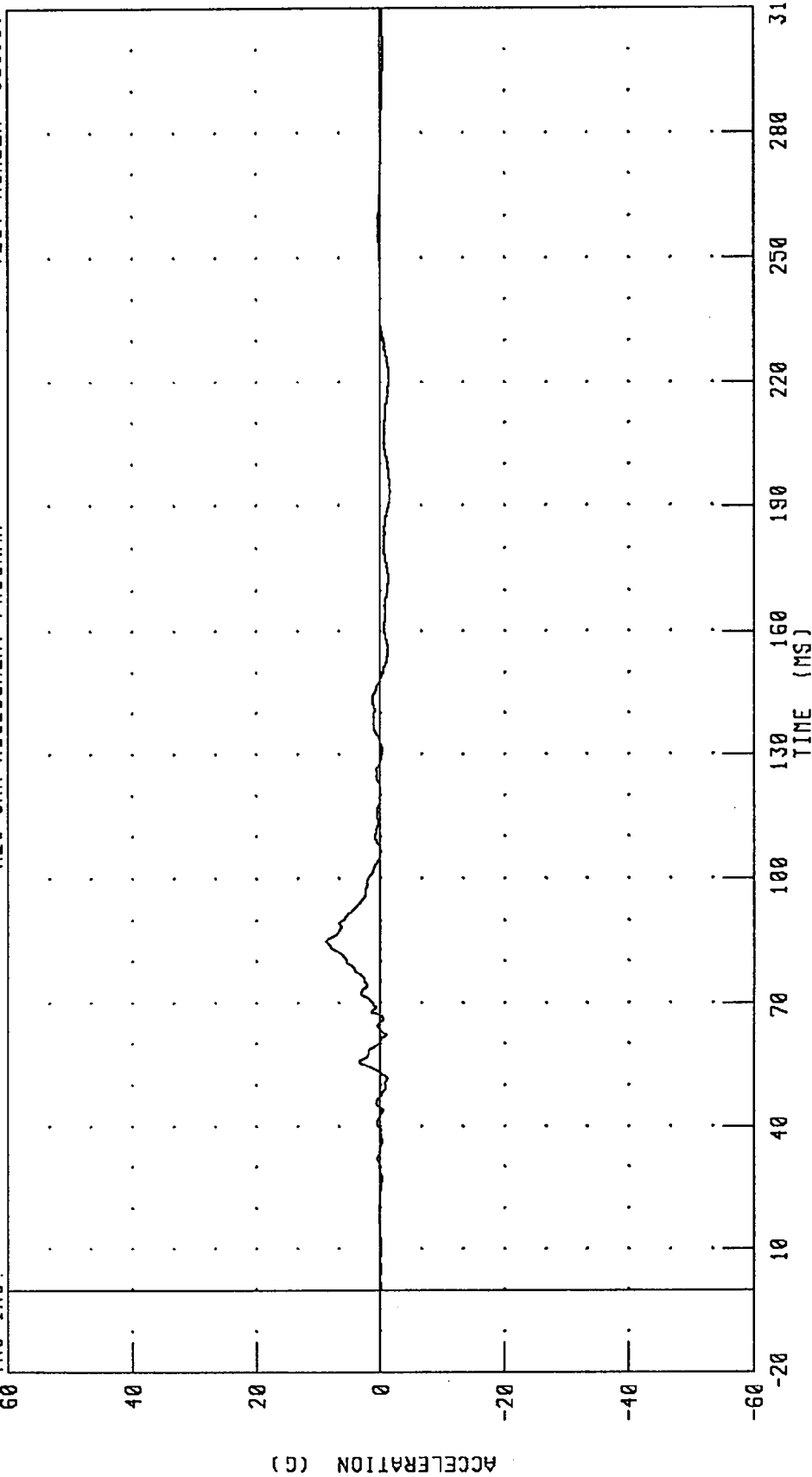
CHANNEL: CSTXR2 FILTER: CH. CLASS 180

PEAK DATA: 5.26 G @ 183.20 MS; -55.89 G @ 66.80 MS

1996 MITSUBISHI MIRAGE INTO FRONTAL LOAD CELL BARRIER  
PASSENGER CHEST Y-AXIS ACCELERATION - REDUNDANT  
NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 960117

TRC INC.



CHANNEL: CSTYR2 FILTER: CH. CLASS 180

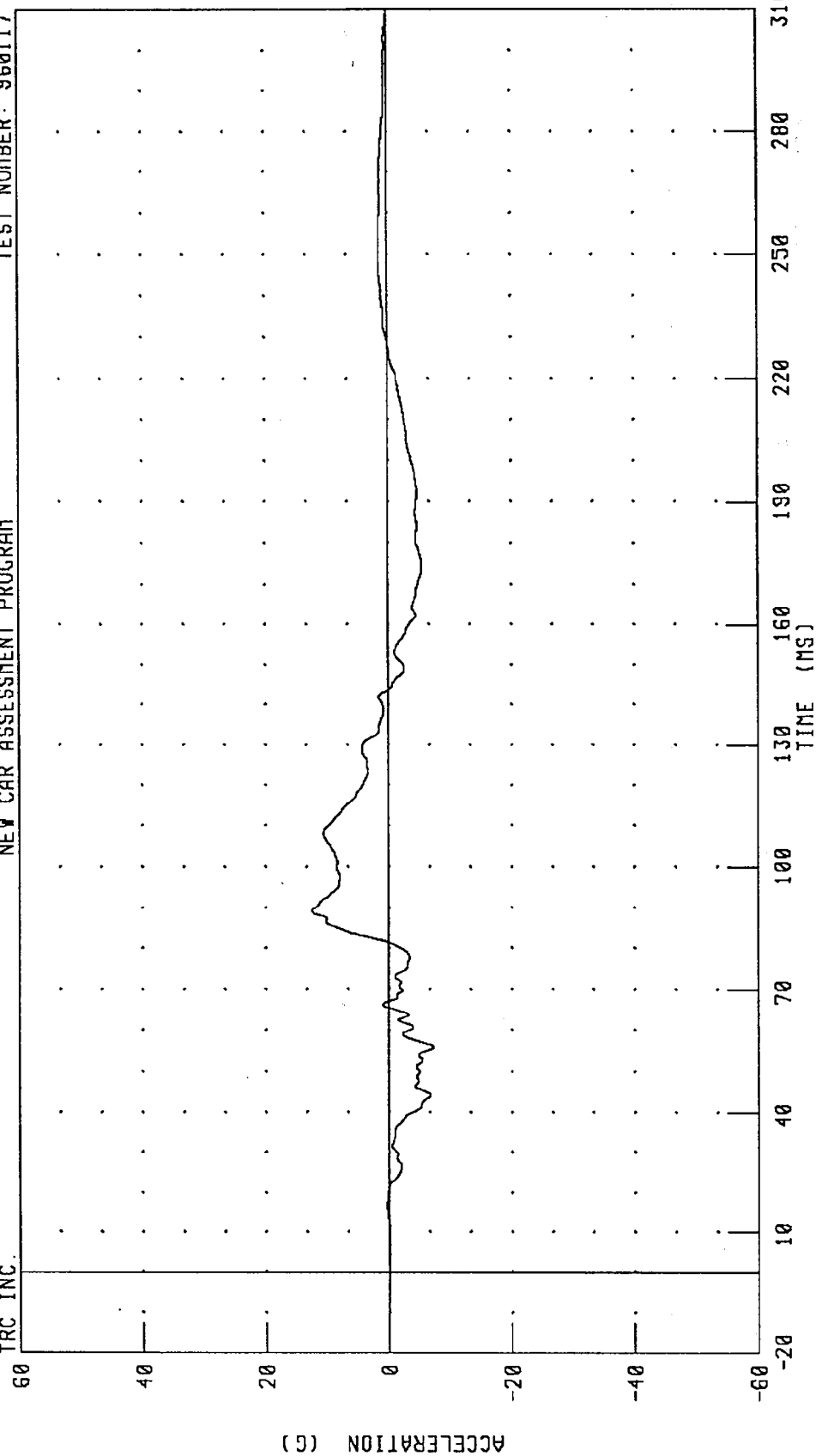
PEAK DATA: 8.74 G @ 84.88 MS; -1.62 G @ 193.52 MS

1996 MITSUBISHI MIRAGE INTO FRONTAL LOAD CELL BARRIER  
PASSENGER CHEST Z-AXIS ACCELERATION - REDUNDANT

TEST NUMBER: 960117

NEW CAR ASSESSMENT PROGRAM

TRC INC.



CHANNEL: CSTZR2 FILTER: CH. CLASS 180

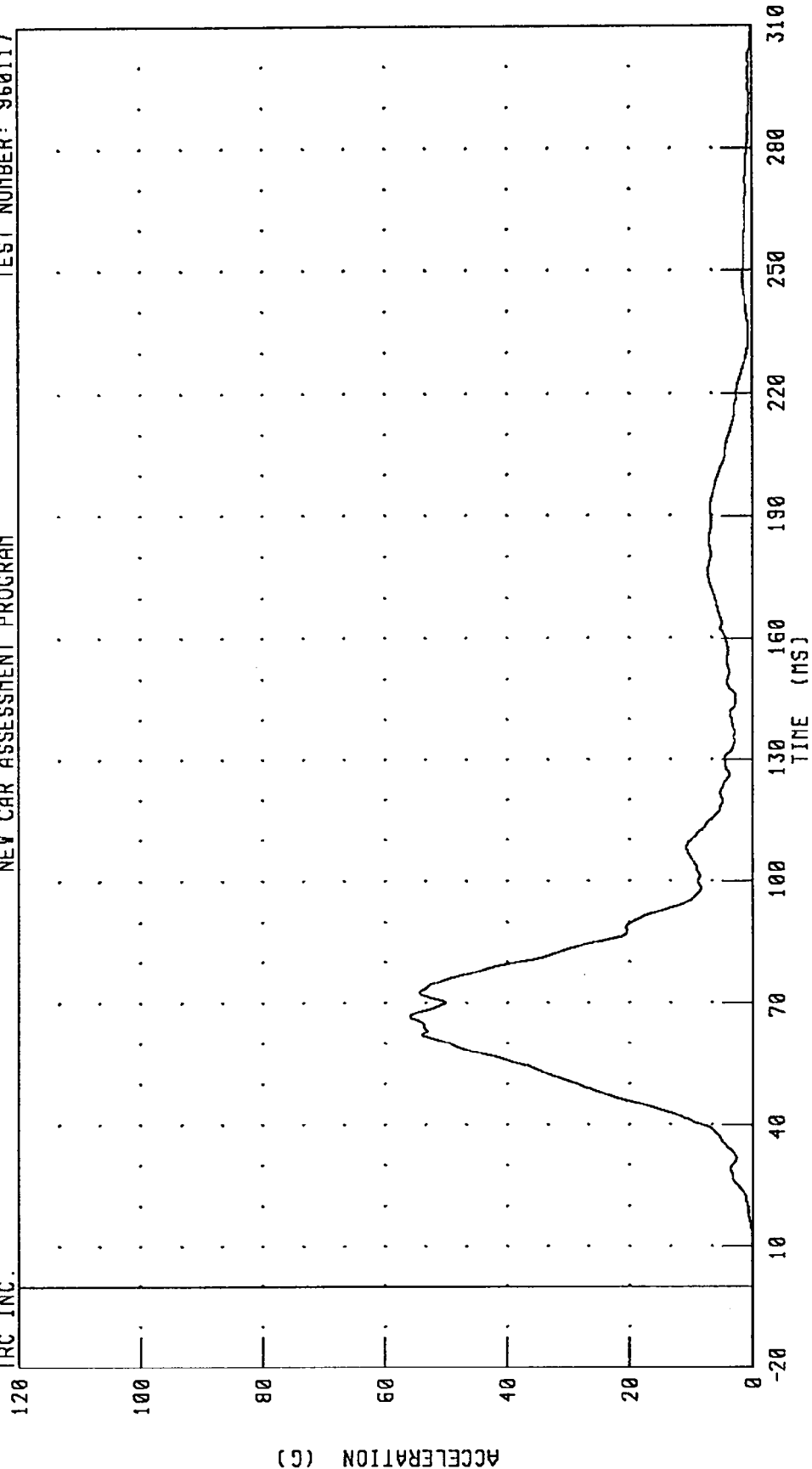
PEAK DATA: 12.58 G @ 89.20 MS; -7.31 G @ 55.84 MS

1996 MITSUBISHI MIRAGE INTO FRONTAL LOAD CELL BARRIER  
PASSENGER CHEST RESULTANT ACCELERATION - REDUNDANT

TEST NUMBER: 960117

NEW CAR ASSESSMENT PROGRAM

TRC INC.



CHANNEL: CSTR2 FILTER: CH. CLASS 180

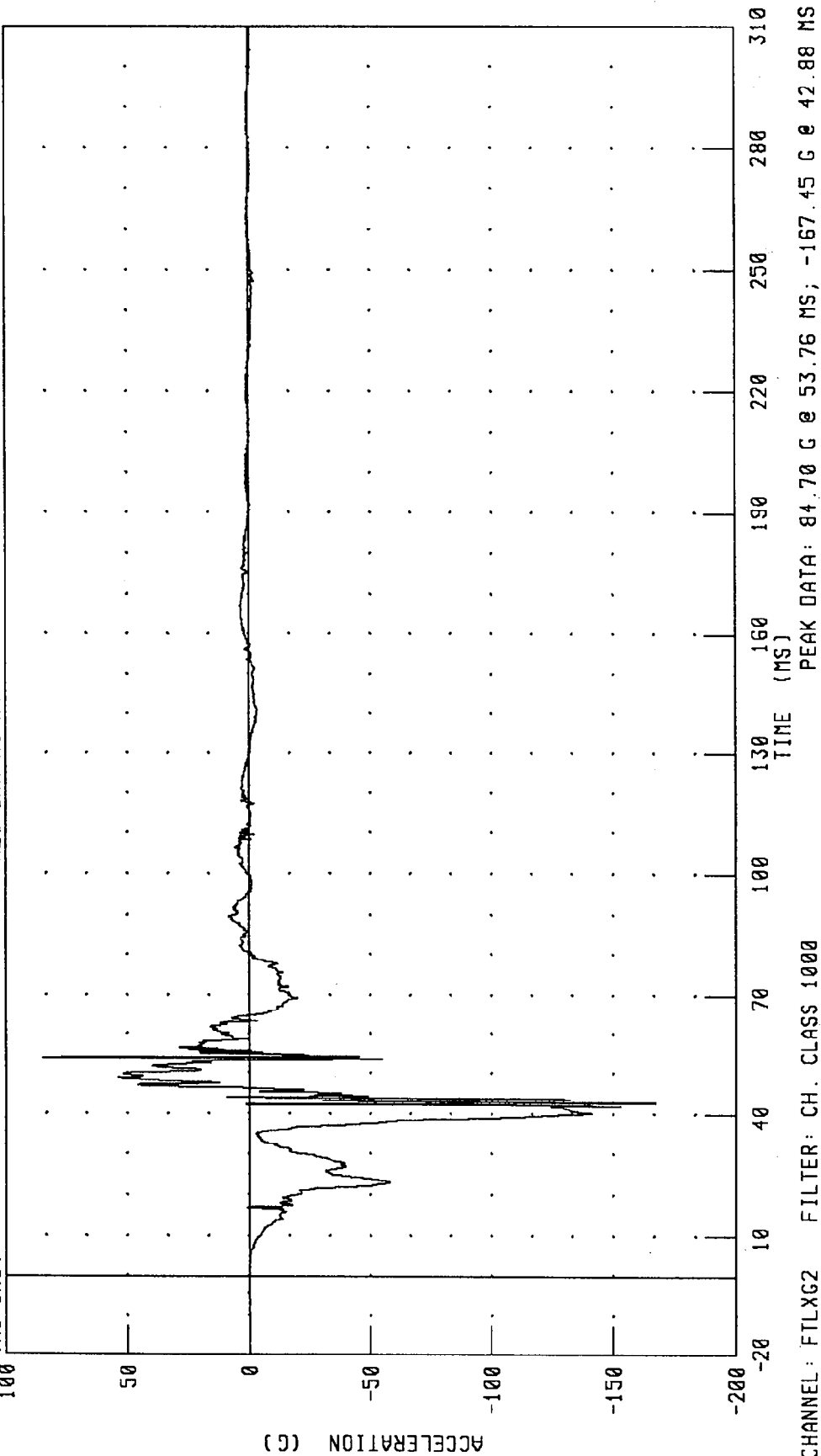
PEAK DATA: 55.89 G @ 66.80 MS; 0.02 G @ -20.00 MS

1996 MITSUBISHI MIRAGE INTO FRONTAL LOAD CELL BARRIER  
PASSENGER LEFT FOOT X-AXIS ACCELERATION

TEST NUMBER: 960117

NEW CAR ASSESSMENT PROGRAM

TRC INC.



CHANNEL: FTLXG2 FILTER: CH. CLASS 1000

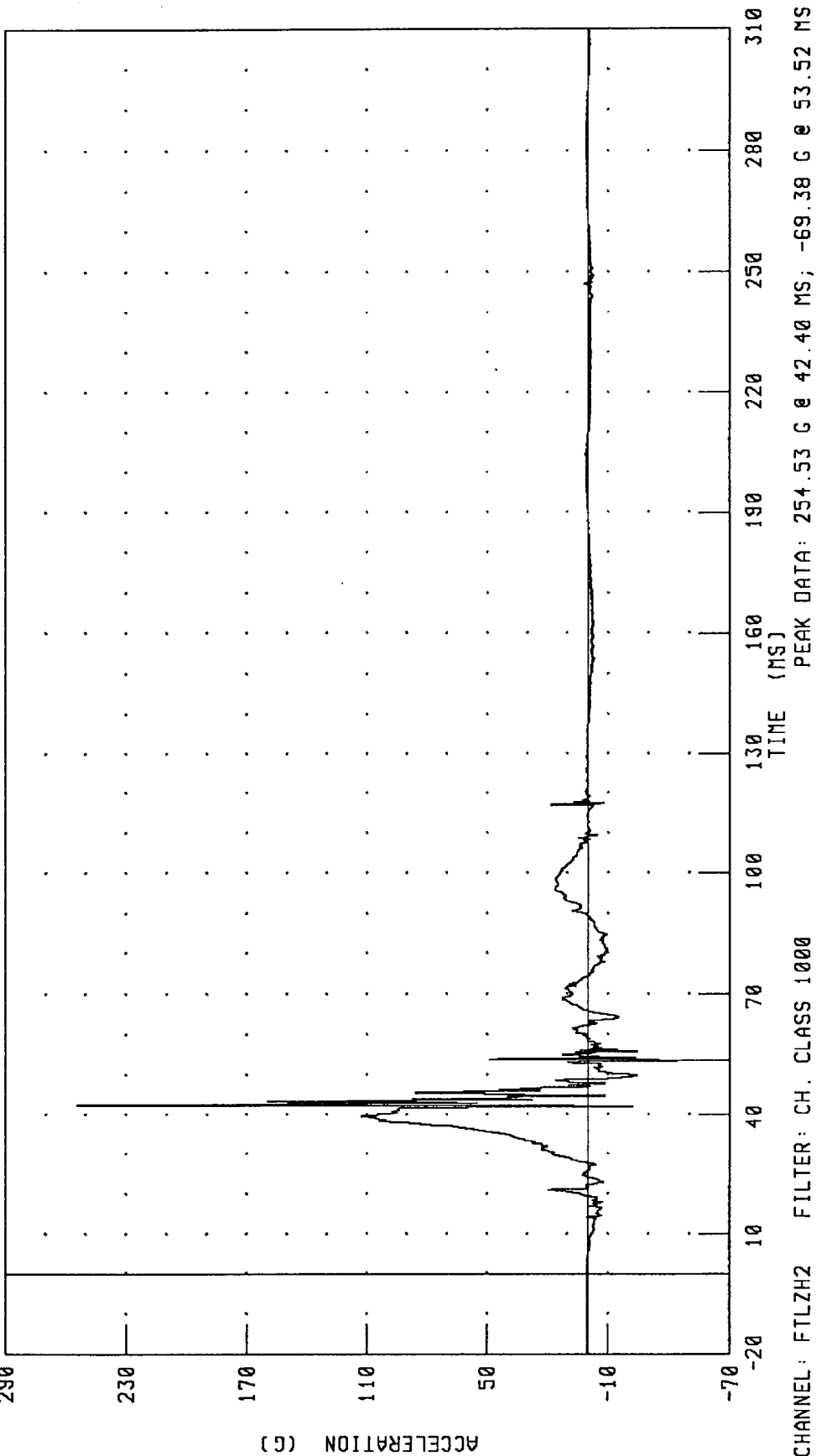
PEAK DATA: 84.70 G @ 53.76 MS; -167.45 G @ 42.88 MS

1996 MITSUBISHI MIRAGE INTO FRONTAL LOAD CELL BARRIER  
PASSENGER LEFT FOOT Z-AXIS ACCELERATION AT HEEL

TEST NUMBER: 960117

NEW CAR ASSESSMENT PROGRAM

TRC INC.

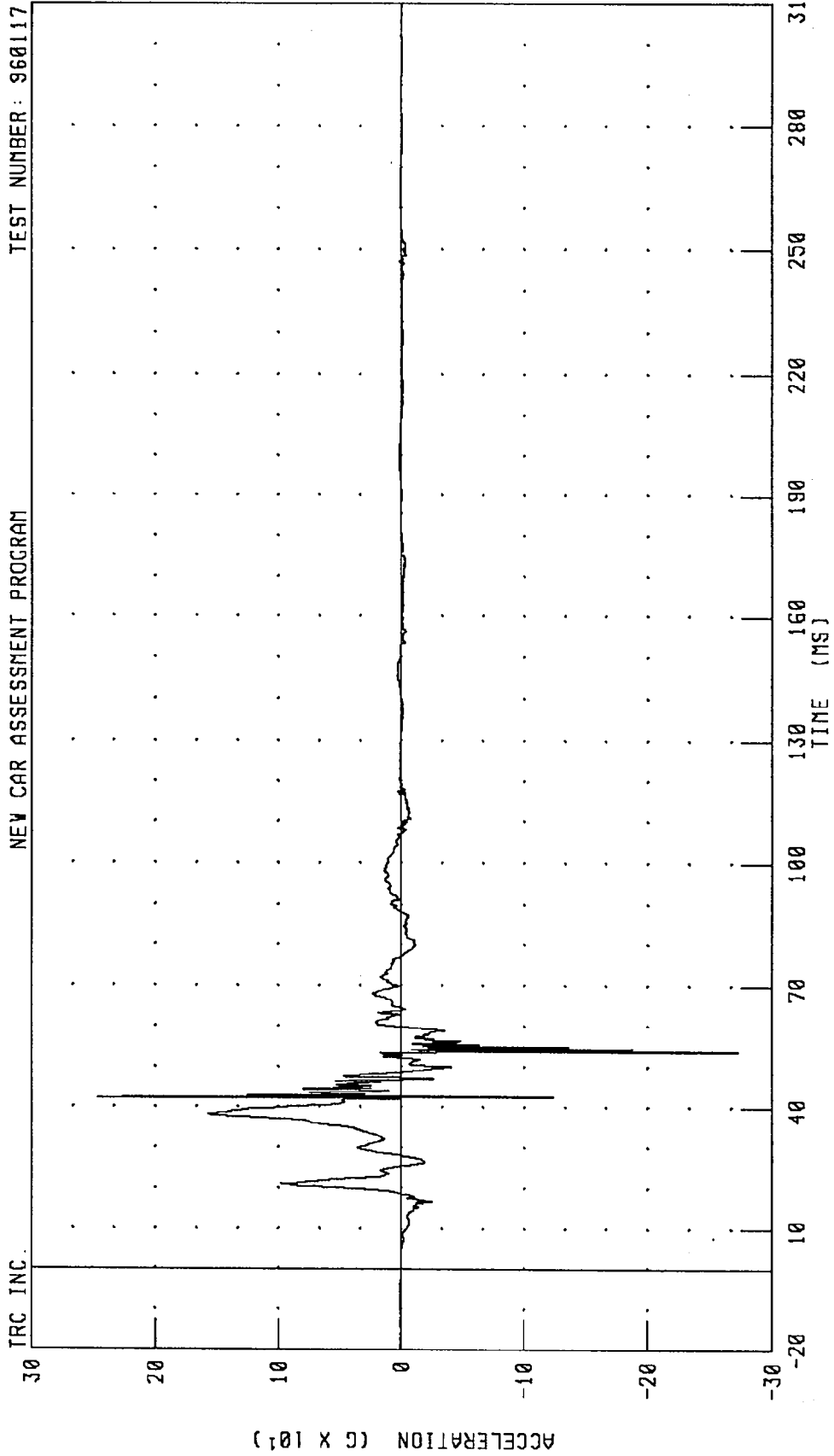


CHANNEL: FTLZH2 FILTER: CH. CLASS 1000

1996 MITSUBISHI MIRAGE INTO FRONTAL LOAD CELL BARRIER  
PASSENGER LEFT FOOT Z-AXIS ACCELERATION AT TOE

NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 960117



CHANNEL: FTLZT2 FILTER: CH. CLASS 1000

PEAK DATA: 246.56 G @ 42.32 MS; -272.17 G @ 53.84 MS

1996 MITSUBISHI MIRAGE INTO FRONTAL LOAD CELL BARRIER  
PASSENGER RIGHT FOOT X-AXIS ACCELERATION  
NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 960117

TRC INC.

120

80

40

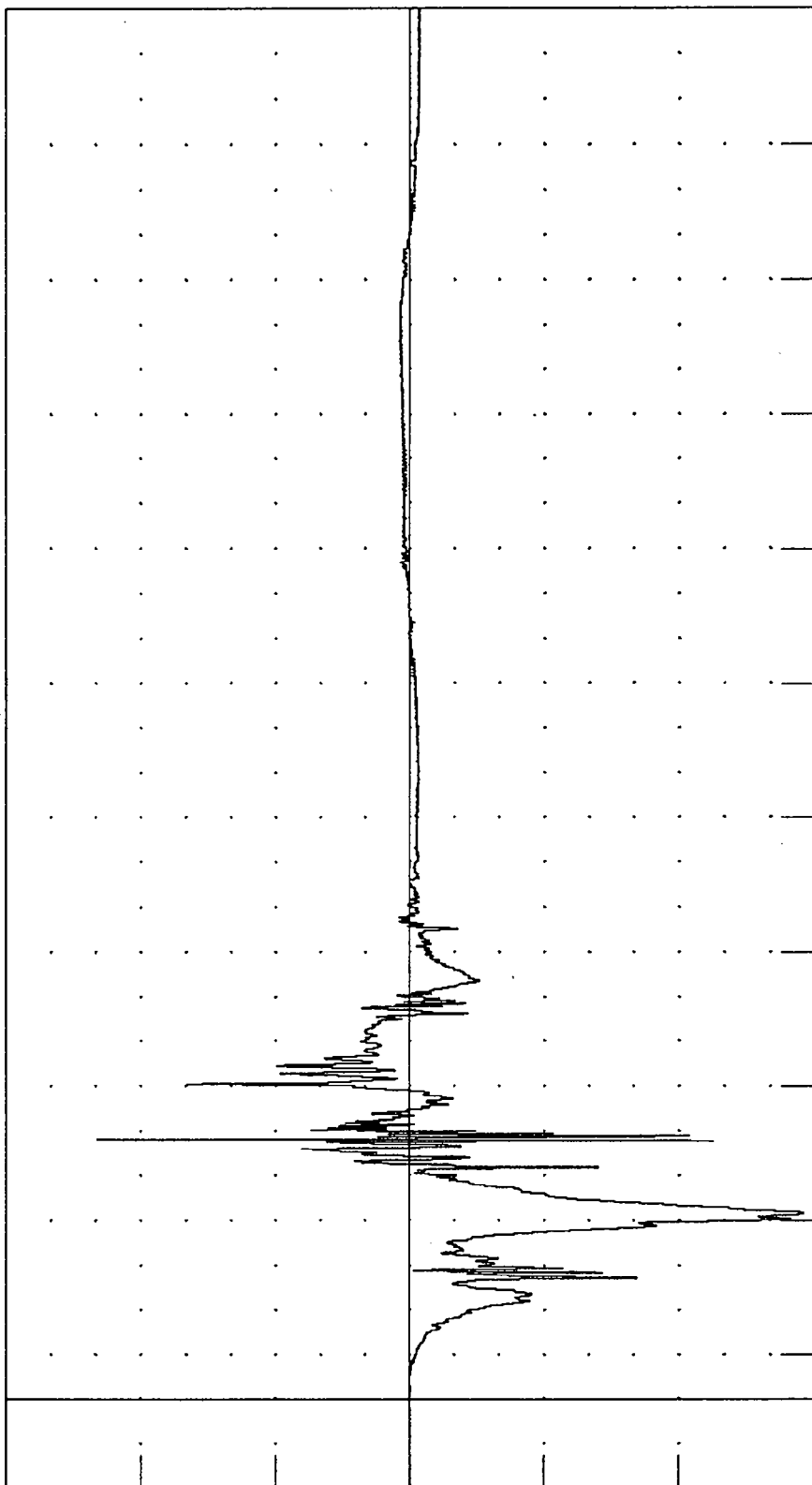
0

-40

-80

-120

ACCELERATION (G)



TIME (MS)

310

280

250

220

190

160

130

100

70

40

10

-20

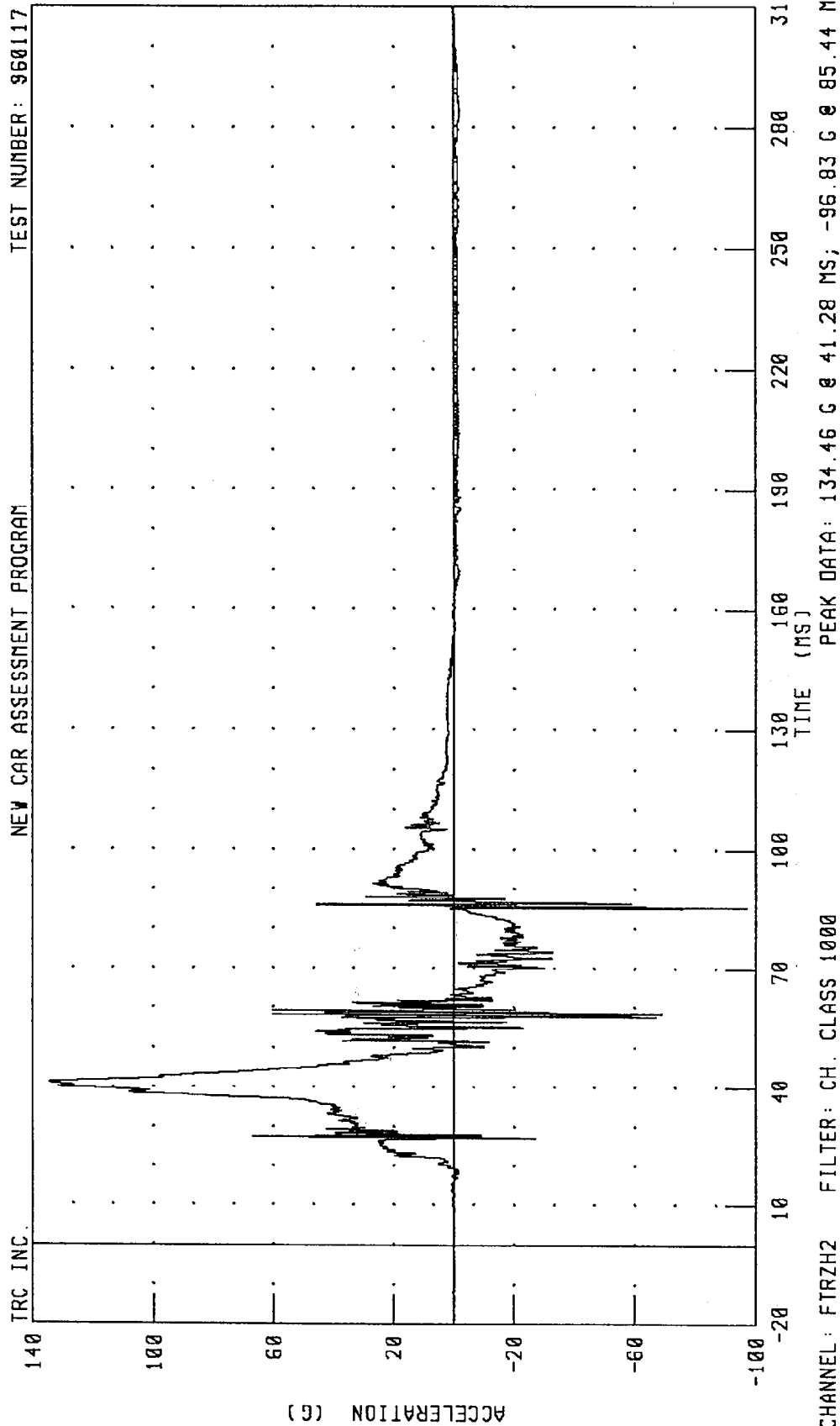
CHANNEL: FTRXC2 FILTER: CH. CLASS 1000

PEAK DATA: 92.77 G @ 58.24 MS; -116.65 G @ 41.68 MS

1996 MITSUBISHI MIRAGE INTO FRONTAL LOAD CELL BARRIER  
PASSENGER RIGHT FOOT Z-AXIS ACCELERATION AT HEEL

TEST NUMBER: 960117

NEW CAR ASSESSMENT PROGRAM



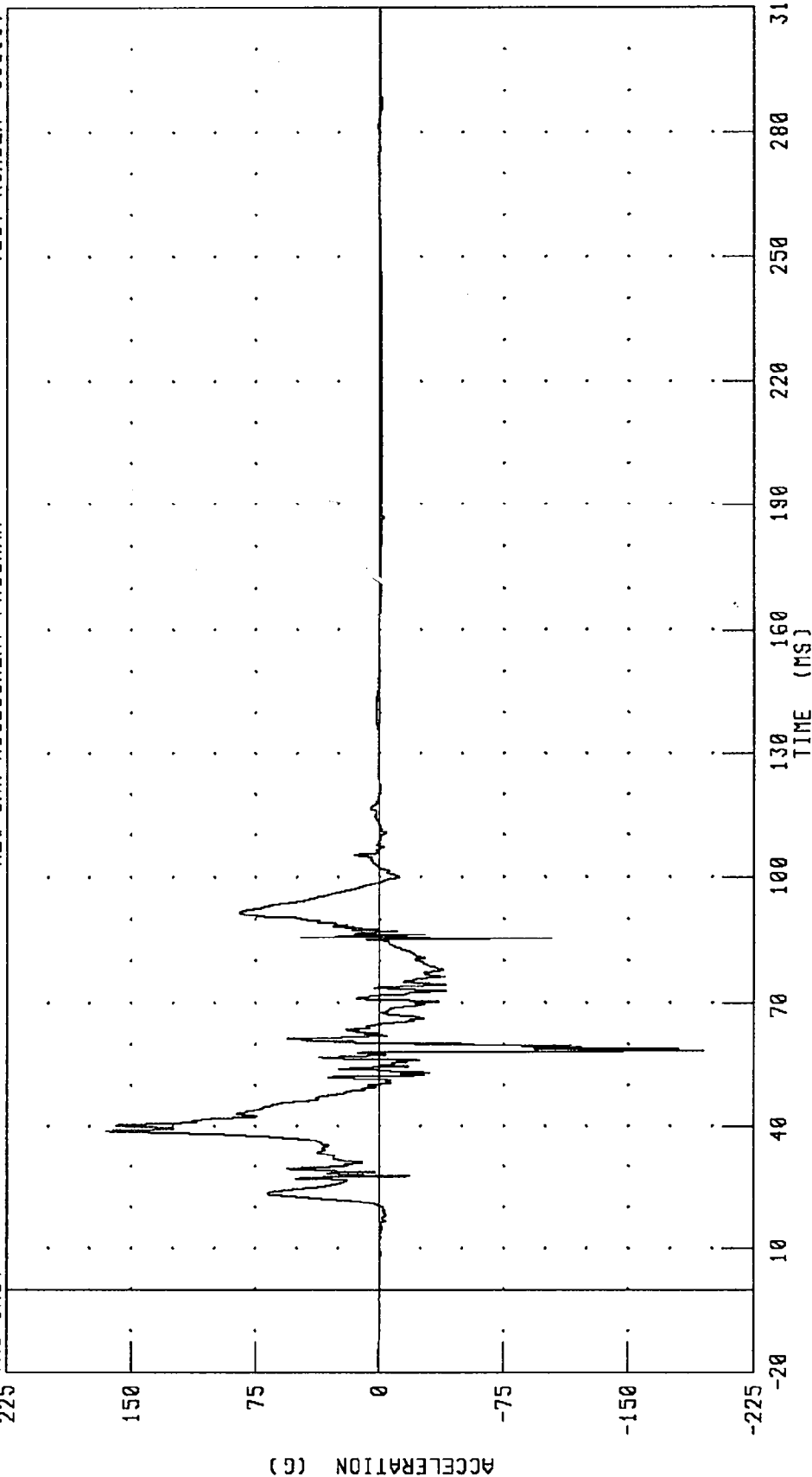
CHANNEL: FTRZH2 FILTER: CH. CLASS 1000

1996 MITSUBISHI MIRAGE INTO FRONTAL LOAD CELL BARRIER  
PASSENGER RIGHT FOOT Z-AXIS ACCELERATION AT TOE

TEST NUMBER: 960117

NEW CAR ASSESSMENT PROGRAM

IRC INC.

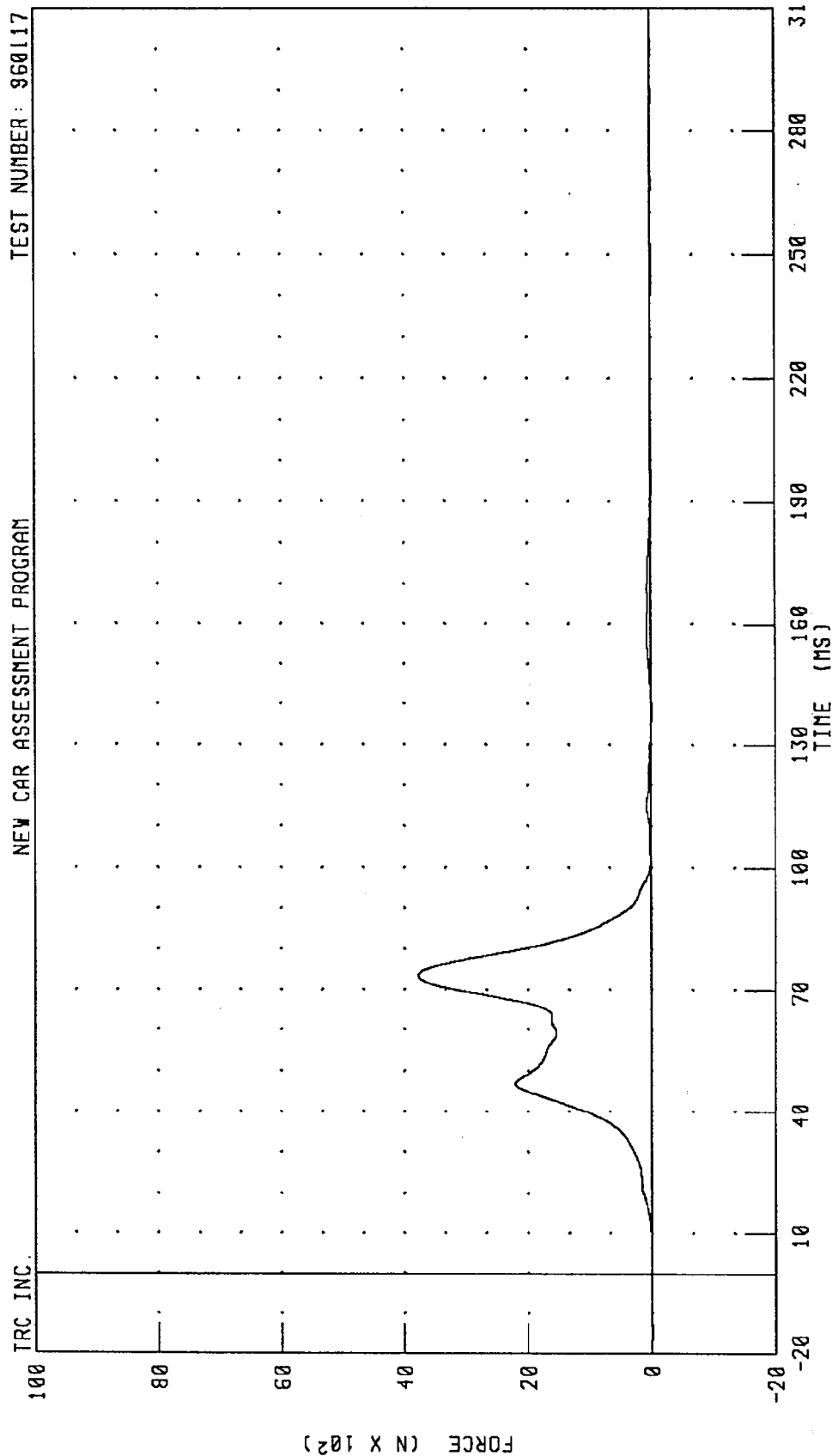


PEAK DATA: 164.88 G @ 38.96 MS; -195.12 G @ 58.24 MS

CHANNEL: FTRZT2 FILTER: CH. CLASS 1000

1996 MITSUBISHI MIRAGE INTO FRONTAL LOAD CELL BARRIER  
 DRIVER LAP BELT OUTBOARD FORCE  
 NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 960117

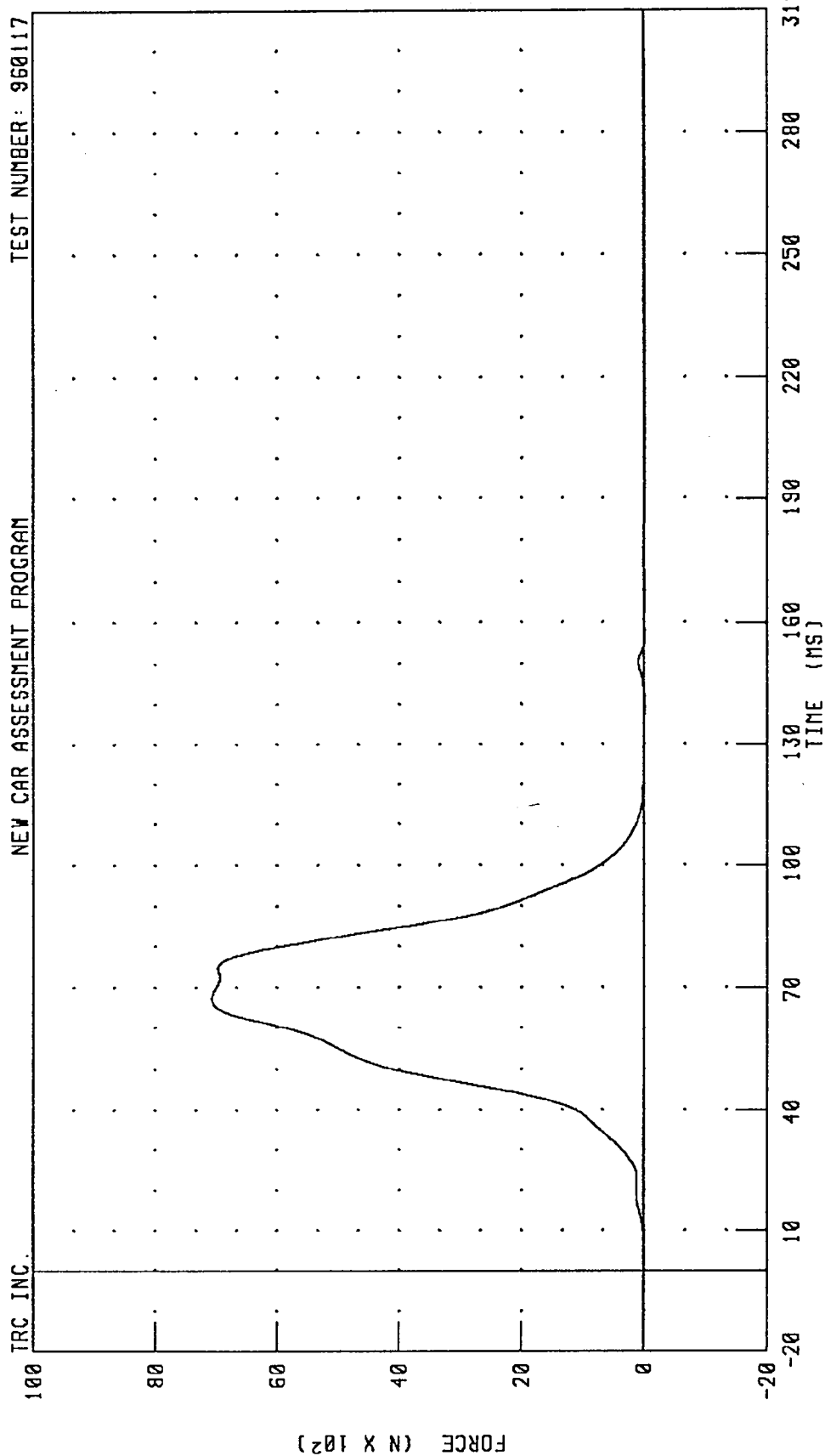


PEAK DATA: 3776.10 N @ 73.44 MS; -9.59 N @ 138.16 MS

CHANNEL: LBOFI FILTER: CH. CLASS 60

1996 MITSUBISHI MIRAGE INTO FRONTAL LOAD CELL BARRIER  
 DRIVER SHOULDER BELT FORCE  
 NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 960117

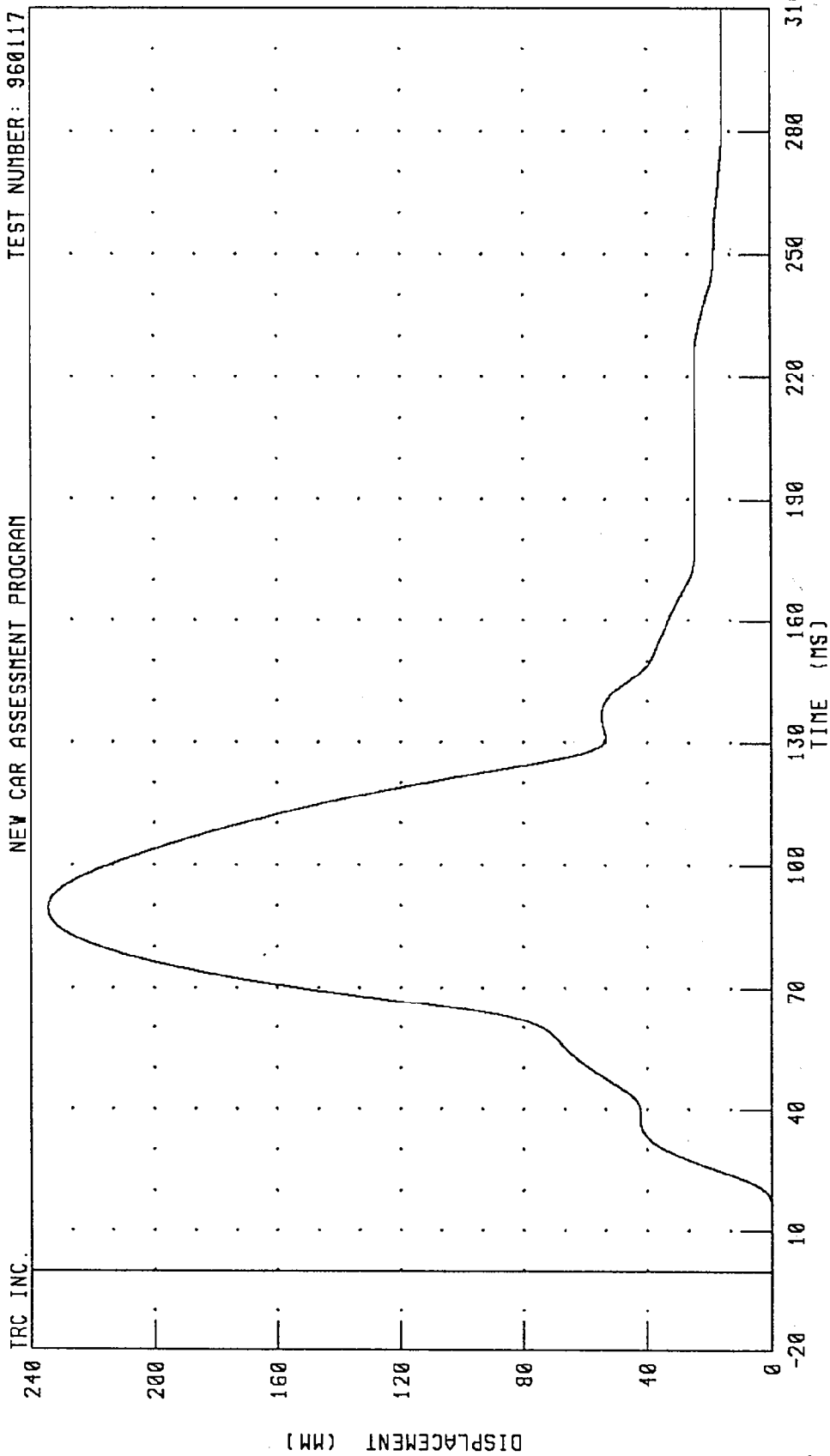


PEAK DATA: 7074.83 N @ 67.36 MS; -19.97 N @ 258.40 MS

CHANNEL: SHBF1 FILTER: CH. CLASS 60

1996 MITSUBISHI MIRAGE INTO FRONTAL LOAD CELL BARRIER  
 DRIVER SHOULDER BELT DISPLACEMENT  
 NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 960117

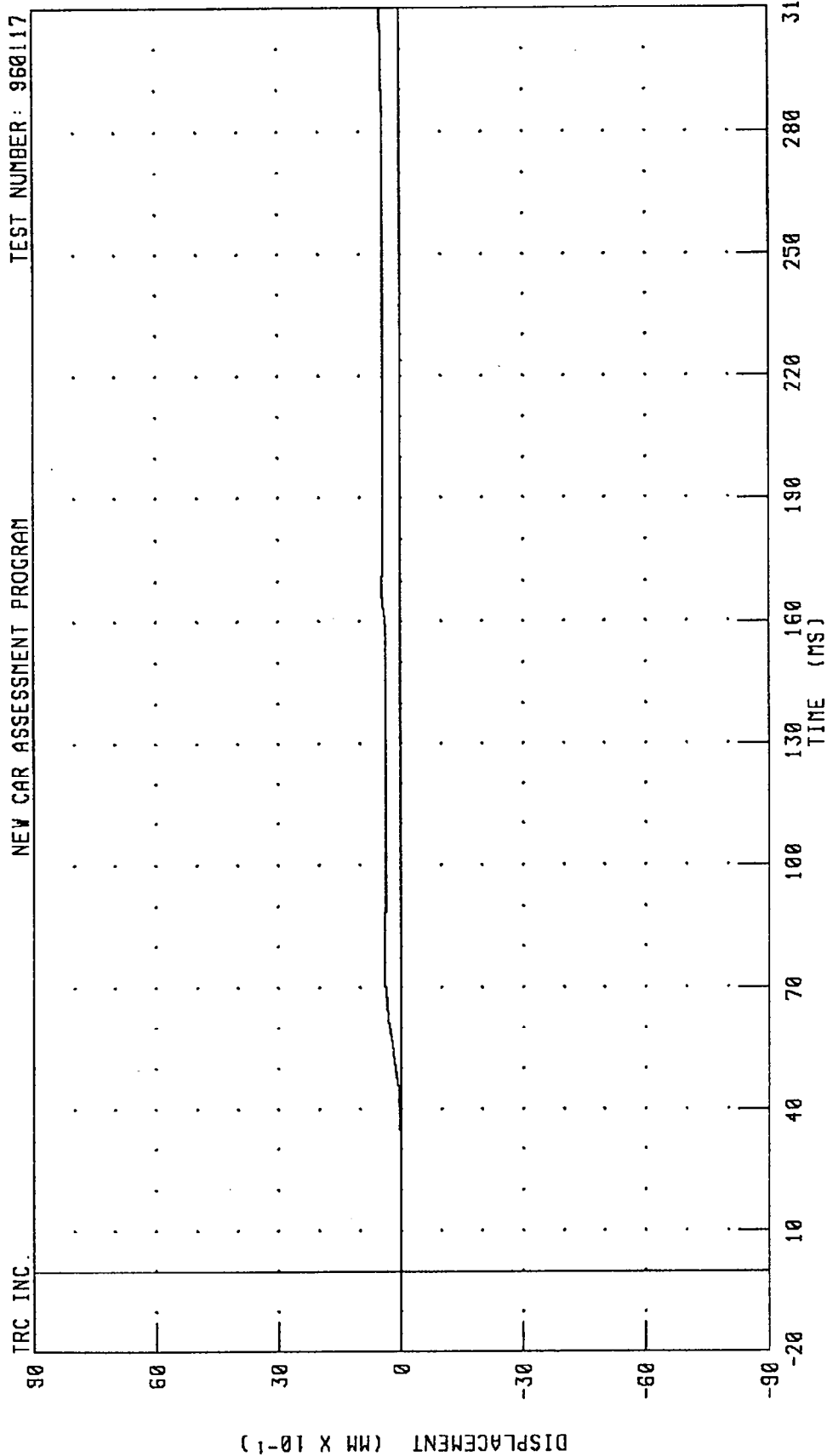


PEAK DATA: 234.34 MM @ 89.52 MS; -0.05 MM @ 15.60 MS

CHANNEL: SHBD1 FILTER: CH. CLASS 60

1996 MITSUBISHI MIRAGE INTO FRONTAL LOAD CELL BARRIER  
 DRIVER SEAT BELT EXTENSION  
 NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 960117



CHANNEL: SBED1 FILTER: CH. CLASS 60

1996 MITSUBISHI MIRAGE INTO FRONTAL LOAD CELL BARRIER  
PASSENGER LAP BELT OUTBOARD FORCE  
NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 960117

TRC INC.

100

80

60

40

20

0

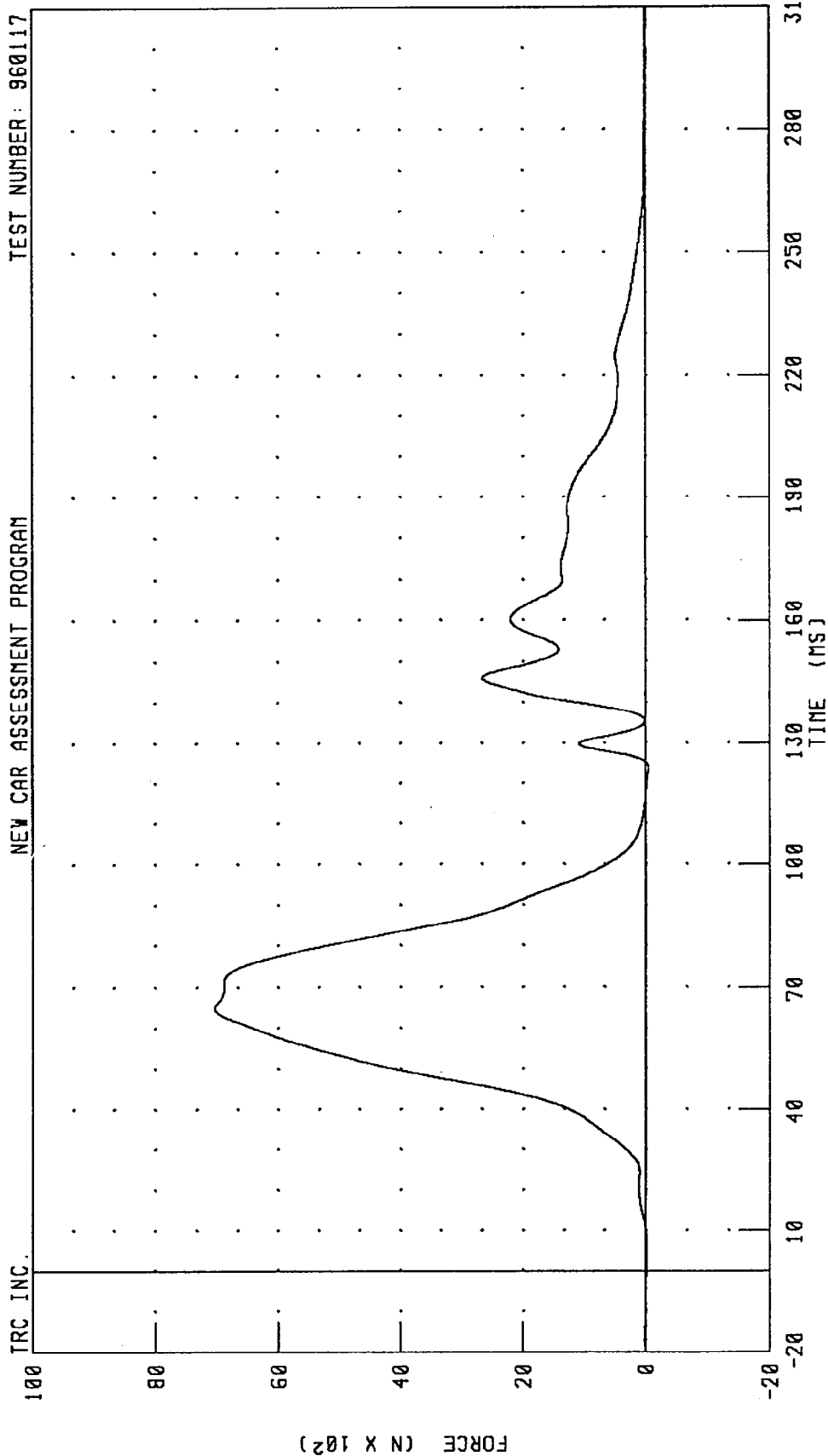
-20

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

CHANNEL: LBOF2 FILTER: CH. CLASS 60  
TIME (MS) 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  
PEAK DATA: 2303.51 N @ 48.40 MS; -50.64 N @ 119.76 MS

1996 MITSUBISHI MIRAGE INTO FRONTAL LOAD CELL BARRIER  
PASSENGER SHOULDER BELT FORCE  
NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 960117

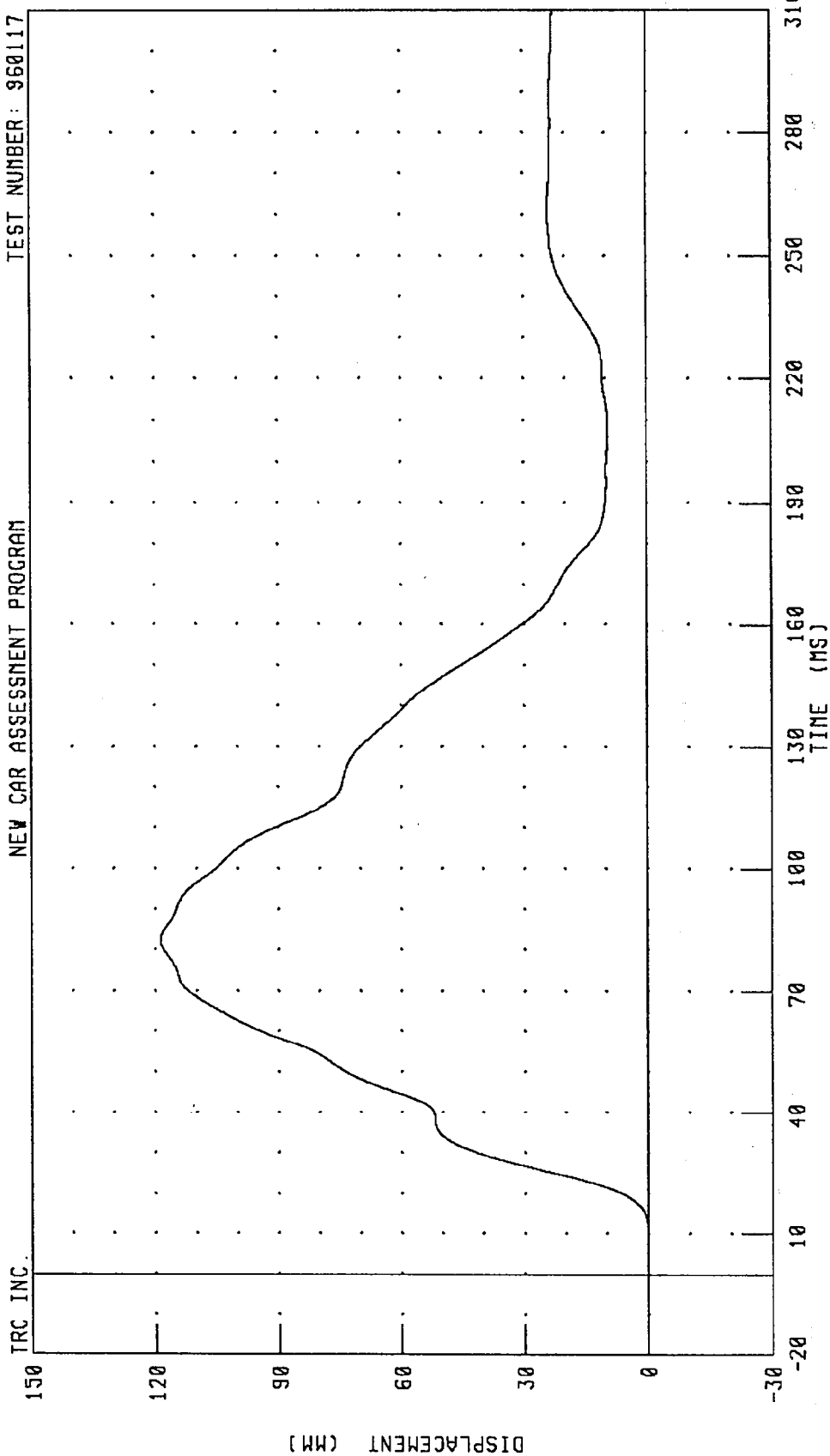


PEAK DATA: 7034.48 N @ 64.96 MS; -52.28 N @ 123.76 MS

CHANNEL: SHBF2 FILTER: CH. CLASS 60

1996 MITSUBISHI MIRAGE INTO FRONTAL LOAD CELL BARRIER  
PASSENGER SHOULDER BELT DISPLACEMENT  
NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 960117

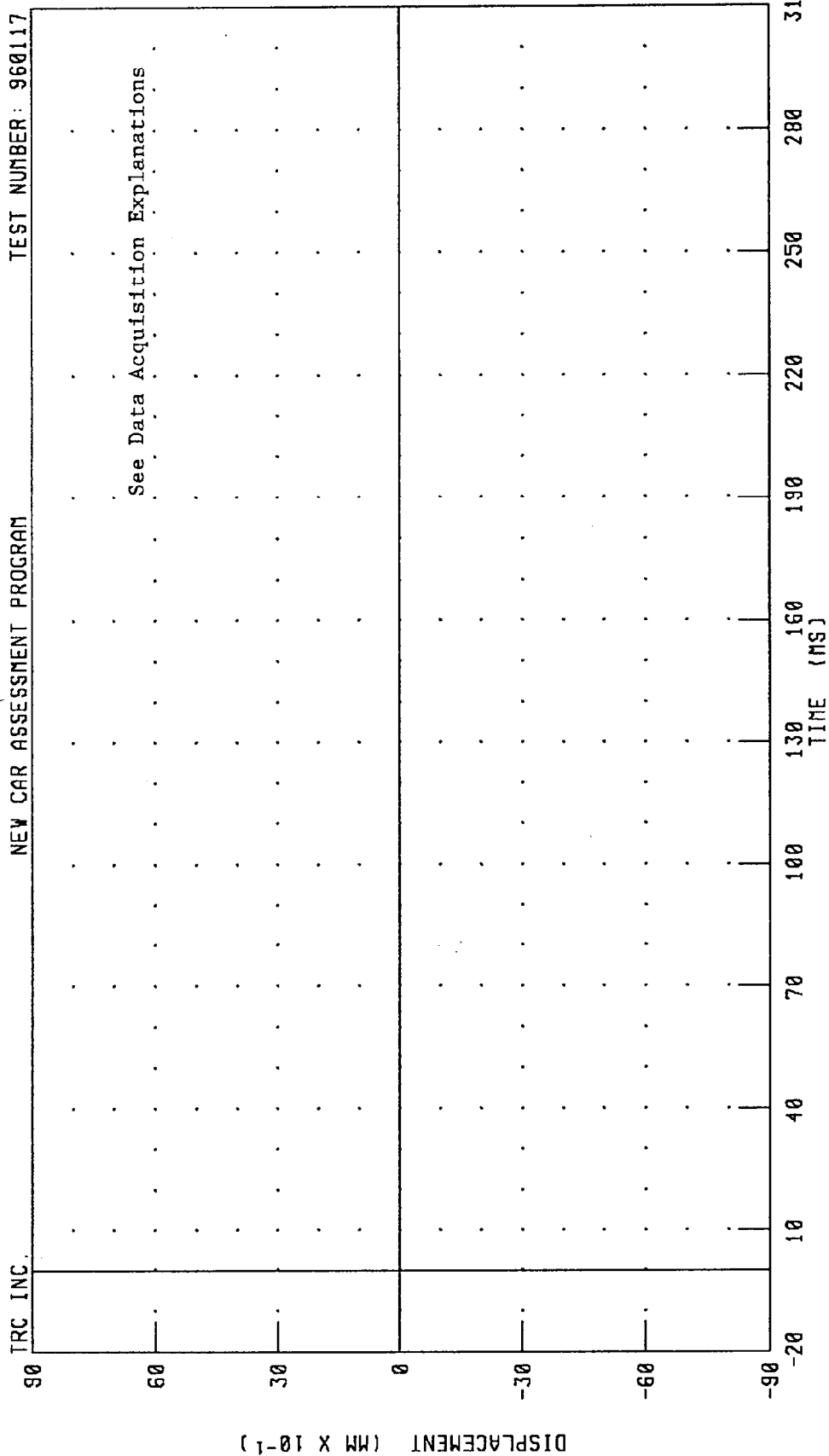


PEAK DATA: 118.76 MM @ 82.40 MS; 0.00 MM @ -20.00 MS

CHANNEL: SH002 FILTER: CH. CLASS 60

1996 MITSUBISHI MIRAGE INTO FRONTAL LOAD CELL BARRIER  
PASSENGER SEAT BELT EXTENSION  
NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 960117



PEAK DATA: 0.00 MM @ 71.76 MS; 0.00 MM @ 175.52 MS

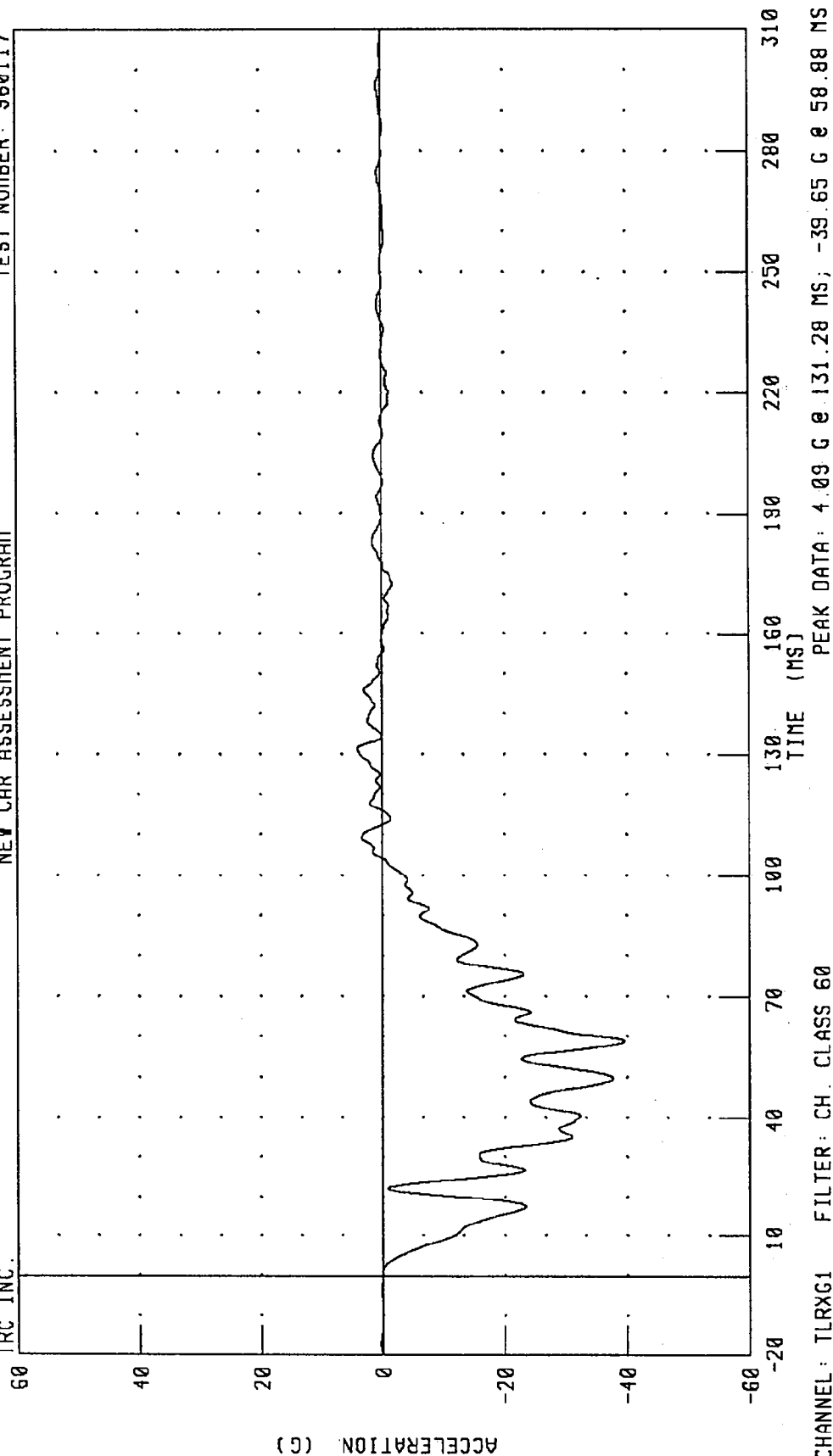
CHANNEL: SBED2 FILTER: CH. CLASS 60

1996 MITSUBISHI MIRAGE INTO FRONTAL LOAD CELL BARRIER  
LEFT REAR SEAT X-AXIS ACCELERATION

TEST NUMBER: 960117

NEW CAR ASSESSMENT PROGRAM

TRC INC.



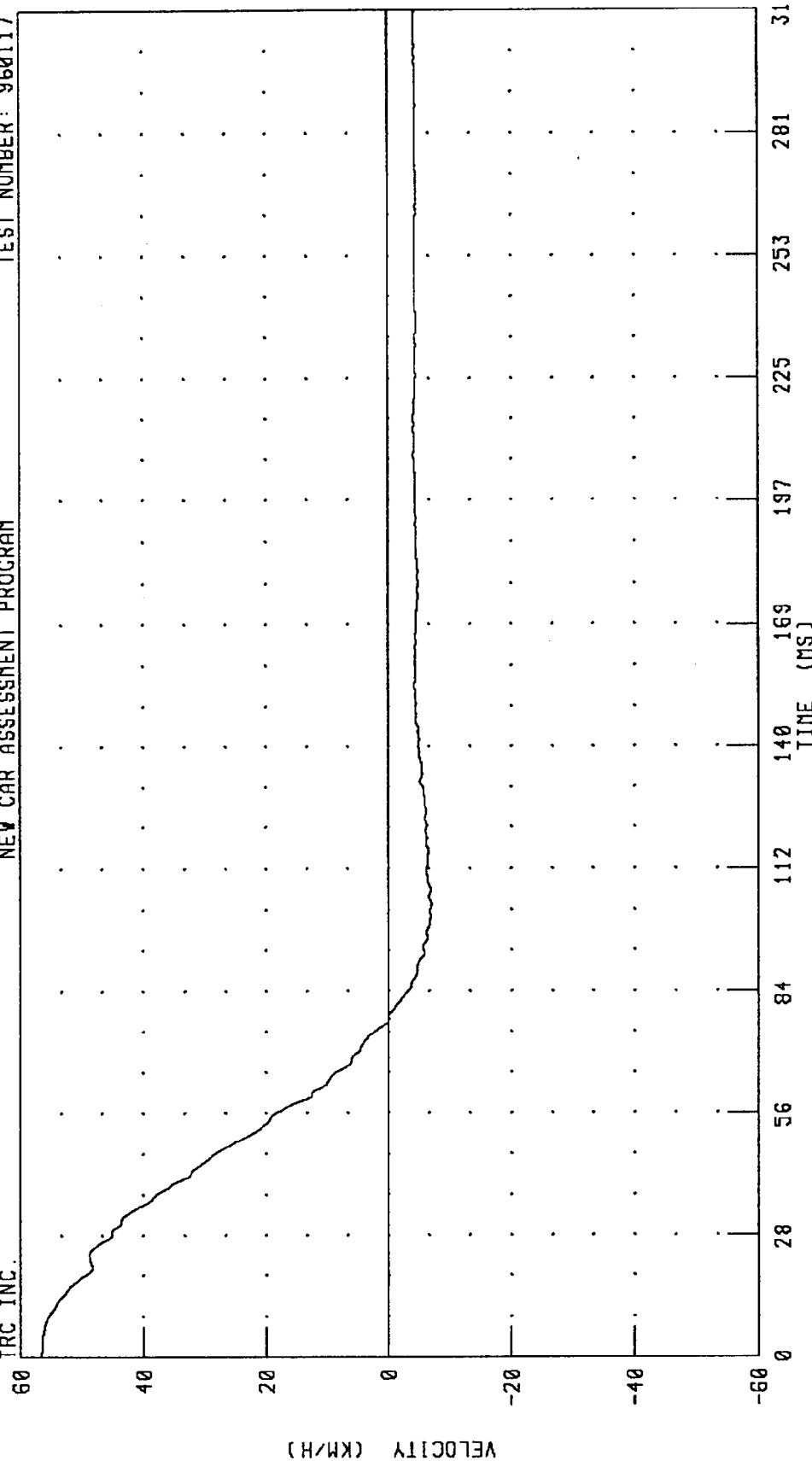
CHANNEL: TLRXG1 FILTER: CH. CLASS 60

1996 MITSUBISHI MIRAGE INTO FRONTAL LOAD CELL BARRIER  
LEFT REAR SEAT X-AXIS VELOCITY

TEST NUMBER: 960117

NEW CAR ASSESSMENT PROGRAM

TRC INC.



CHANNEL: TLRXV1 FILTER: CH. CLASS 180

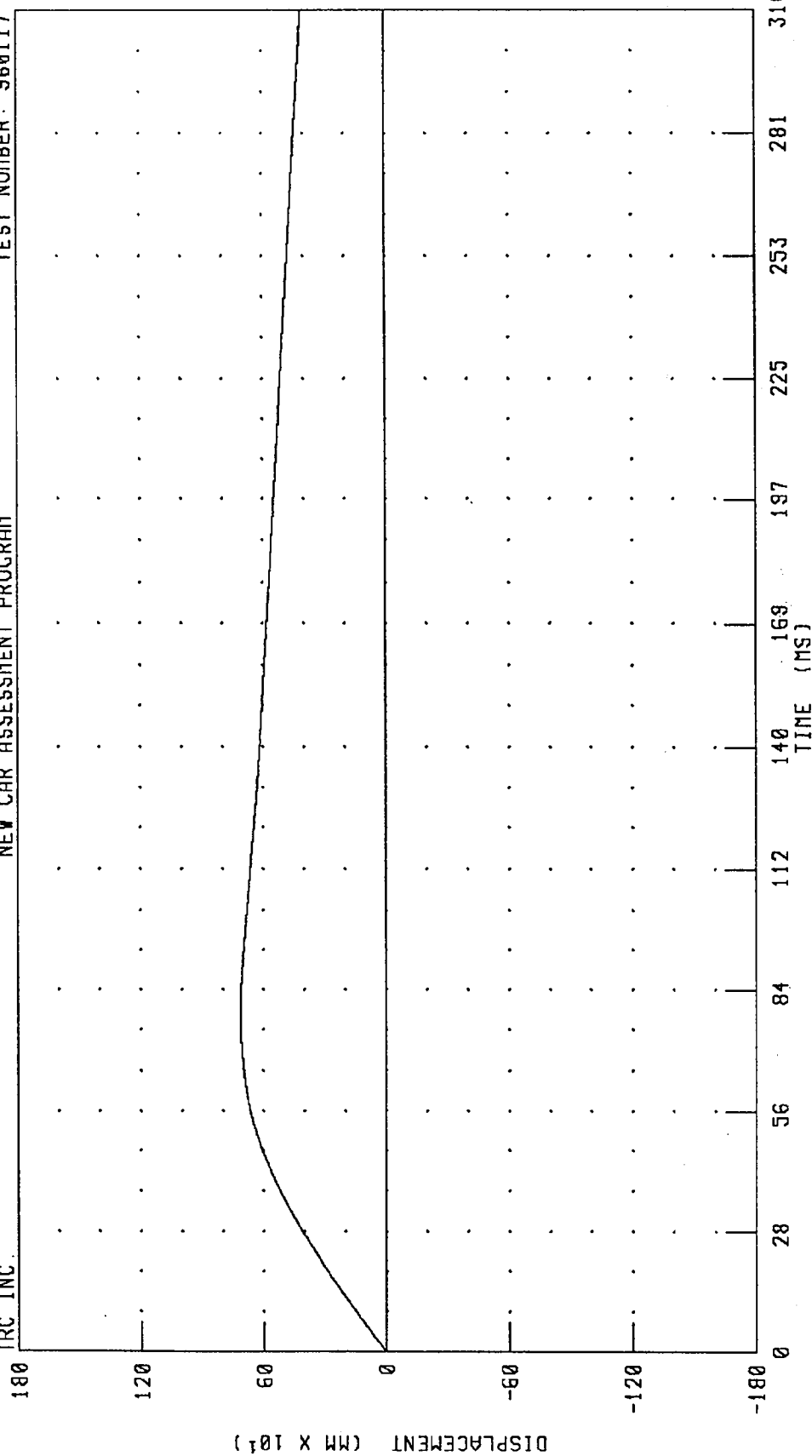
PEAK DATA: 56.50 KM/H @ 0.00 MS; -7.08 KM/H @ 104.64 MS

1996 MITSUBISHI MIRAGE INTO FRONTAL LOAD CELL BARRIER  
LEFT REAR SEAT X-AXIS DISPLACEMENT

TEST NUMBER: 960117

NEW CAR ASSESSMENT PROGRAM

TRC INC.



PEAK DATA: 712.69 MM @ 77.60 MS; 0.00 MM @ 0.00 MS

CHANNEL: TLRX01 FILTER: CH. CLASS 180

1996 MITSUBISHI MIRAGE INTO FRONTAL LOAD CELL BARRIER  
 RIGHT REAR SEAT X-AXIS ACCELERATION

TEST NUMBER: 960117

NEW CAR ASSESSMENT PROGRAM

TRC INC.

60

40

20

ACCELERATION (G)

-20

-40

-60

310

280

250

220

190

160

130

100

70

40

10

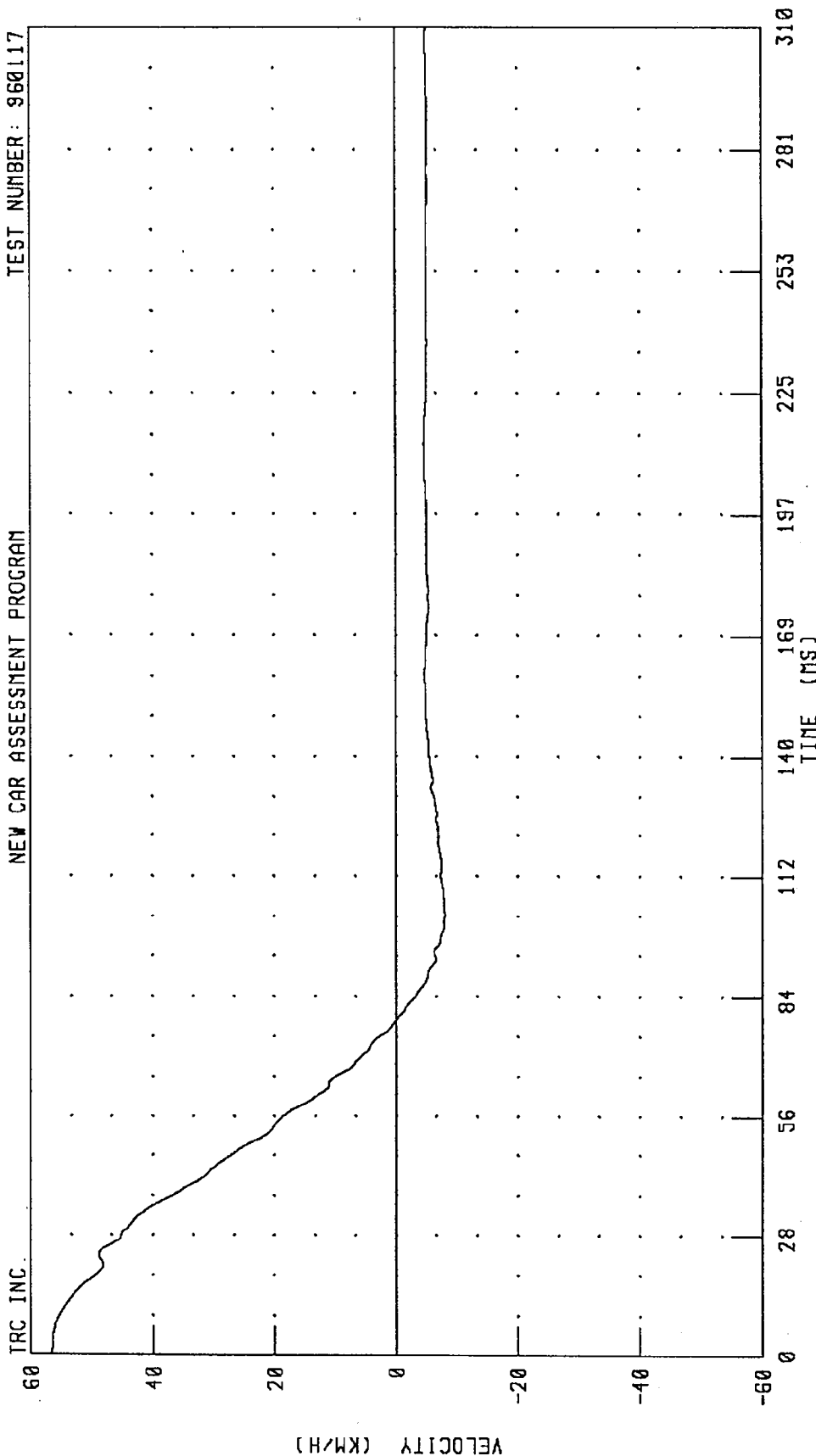
TIME (MS)

CHANNEL: TRRXG1 FILTER: CH. CLASS 60

PEAK DATA: 4.49 G @ 131.44 MS; -37.51 G @ 37.04 MS

1996 MITSUBISHI MIRAGE INTO FRONTAL LOAD CELL BARRIER  
 RIGHT REAR SEAT X-AXIS VELOCITY  
 NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 960117



PEAK DATA: 56.50 KM/H @ 0.00 MS; -8.09 KM/H @ 103.76 MS

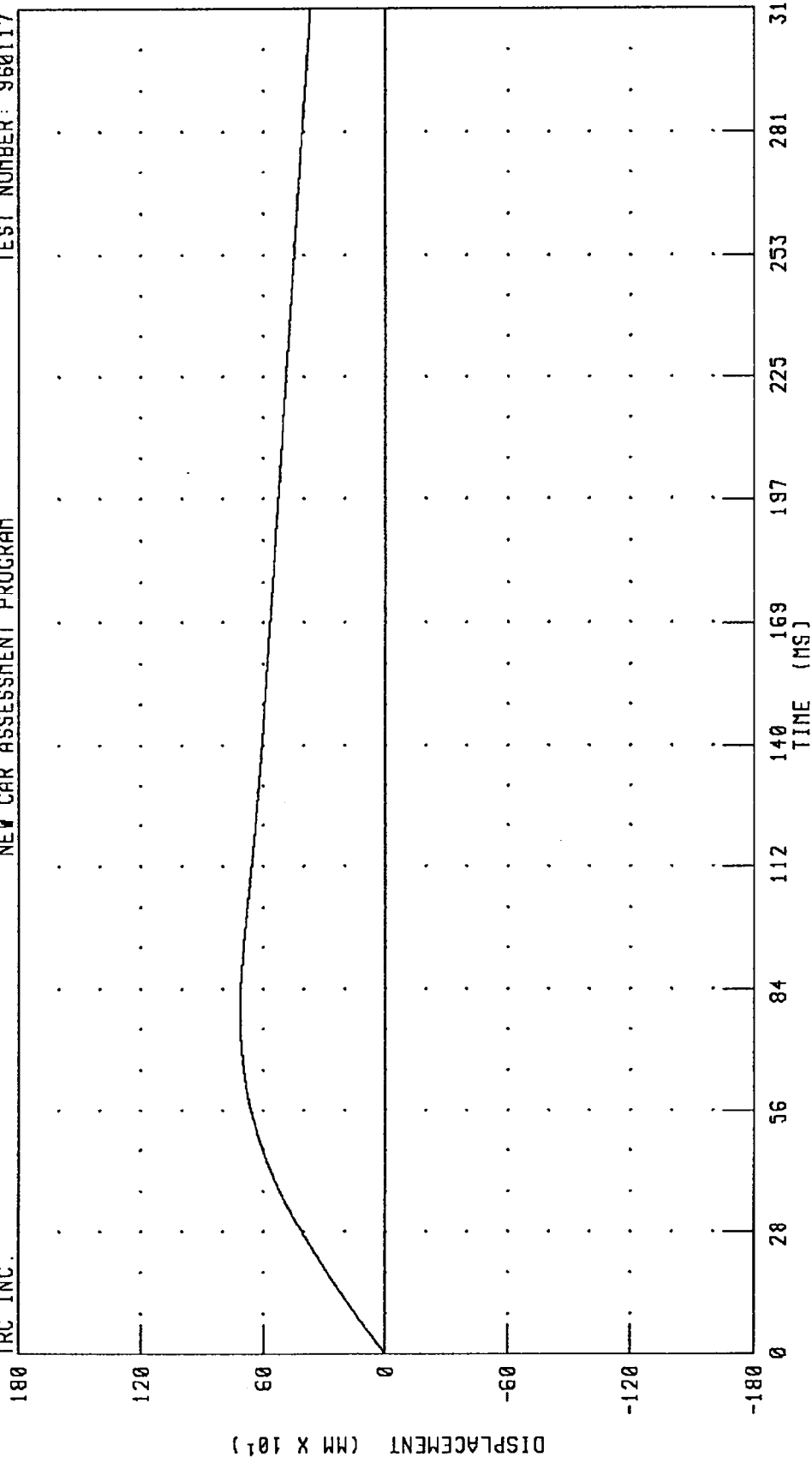
CHANNEL: TRRXV1 FILTER: CH. CLASS 180

1996 MITSUBISHI MIRAGE INTO FRONTAL LOAD CELL BARRIER  
RIGHT REAR SEAT X-AXIS DISPLACEMENT

TEST NUMBER: 960117

NEW CAR ASSESSMENT PROGRAM

TRC INC.



PEAK DATA: 712.88 MM @ 79.12 MS; 0.00 MM @ 0.00 MS

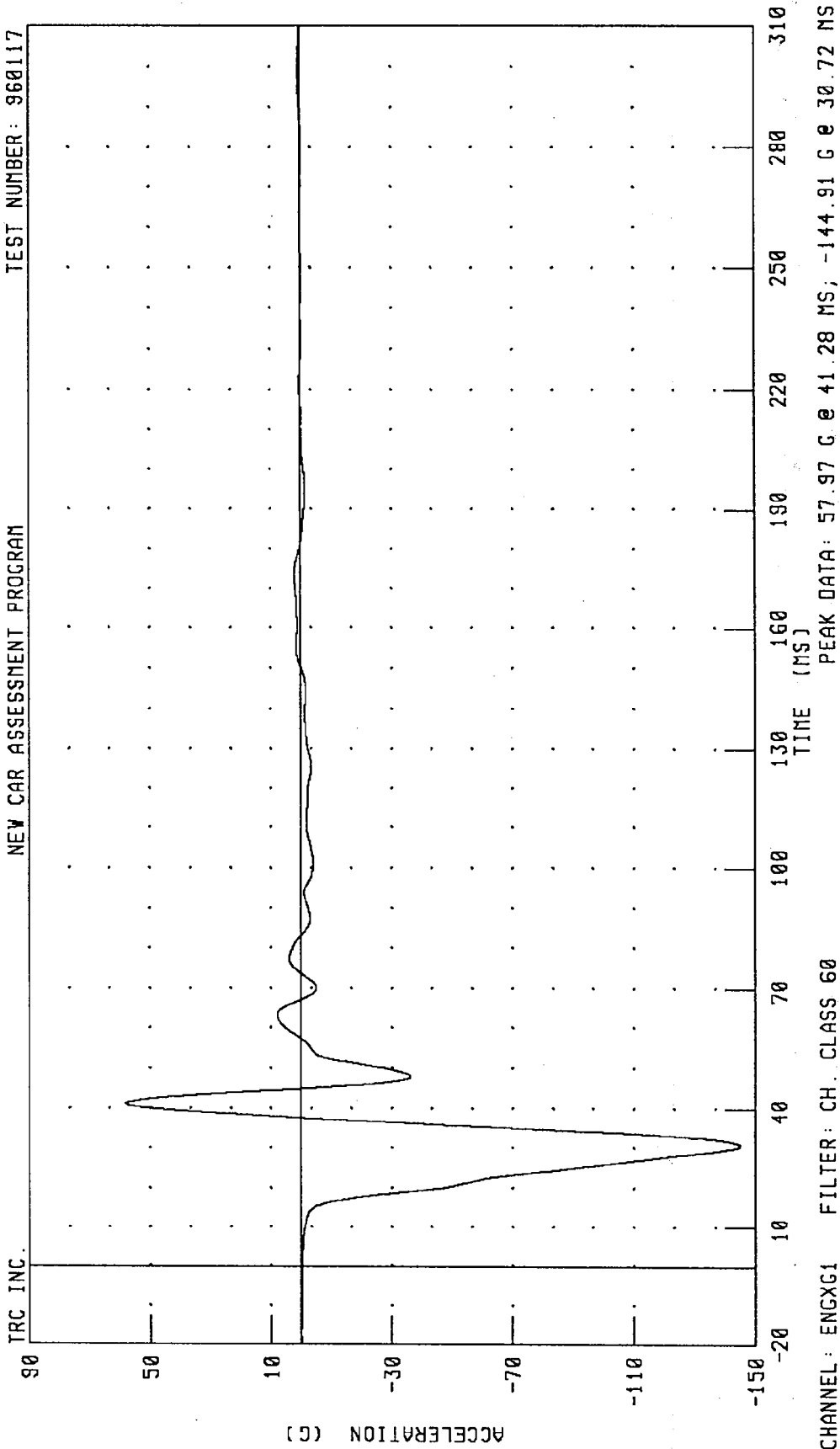
CHANNEL: TRRXD1 FILTER: CH. CLASS 180

1996 MITSUBISHI MIRAGE INTO FRONTAL LOAD CELL BARRIER

ENGINE TOP X-AXIS ACCELERATION

NEW CAR ASSESSMENT PROGRAM

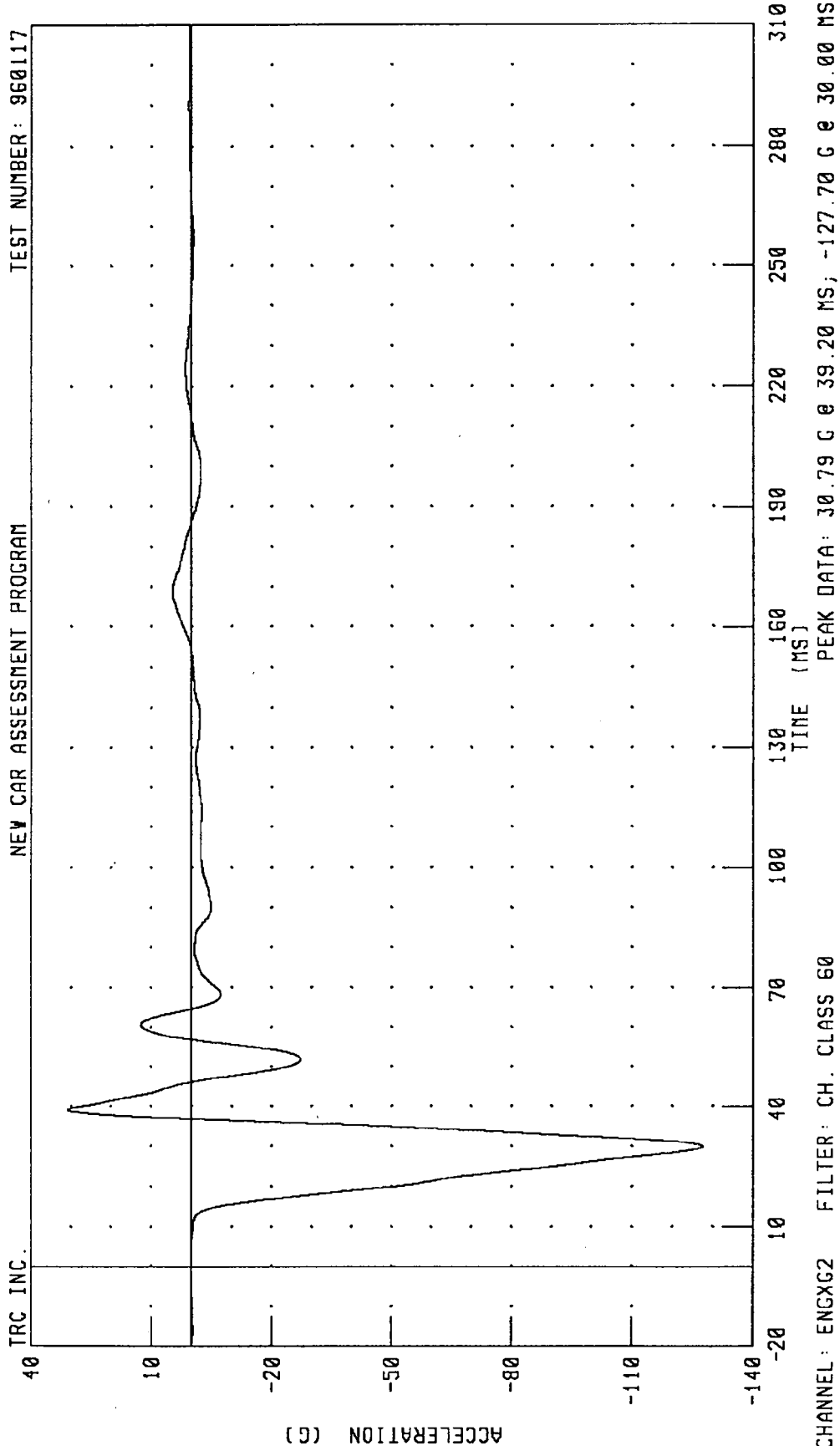
TEST NUMBER: 960117



1996 MITSUBISHI MIRAGE INTO FRONTAL LOAD CELL BARRIER  
ENGINE BOTTOM X-AXIS ACCELERATION  
NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 960117

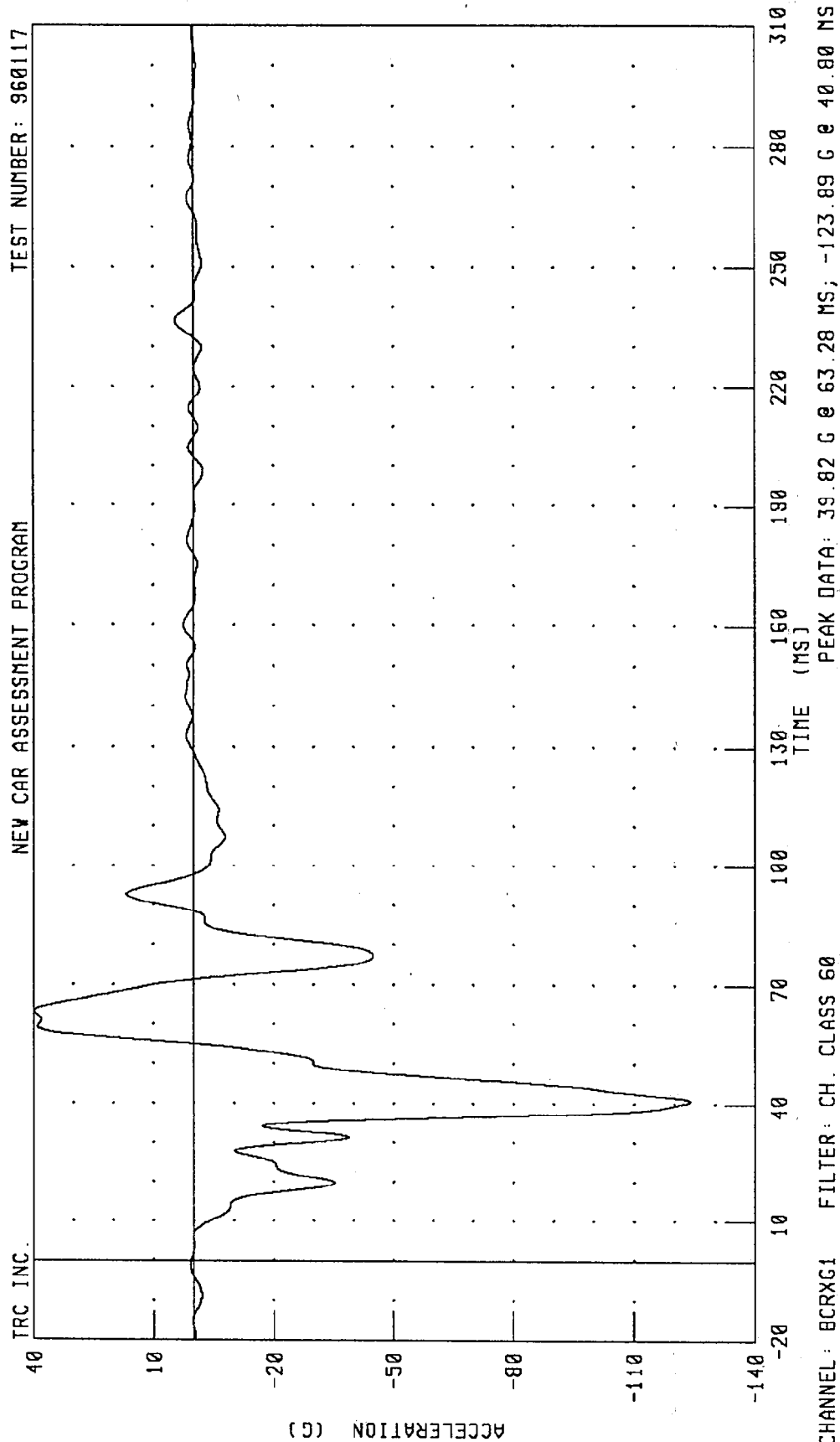
TRC INC.



CHANNEL: ENGXC2 FILTER: CH. CLASS 60

1996 MITSUBISHI MIRAGE INTO FRONTAL LOAD CELL BARRIER  
RIGHT BRAKE CALIPER X-AXIS ACCELERATION  
NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 960117



PEAK DATA: 39.82 G @ 63.28 MS; -123.89 G @ 40.80 MS

CHANNEL: BCRXG1 FILTER: CH. CLASS 60

1996 MITSUBISHI MIRAGE INTO FRONTAL LOAD CELL BARRIER  
LEFT BRAKE CALIPER X-AXIS ACCELERATION

TEST NUMBER: 960117

NEW CAR ASSESSMENT PROGRAM

TRC INC.

60

30

ACCELERATION (G)

0

-30

-60

-90

-120

-20

10

40

70

100

130

160

190

220

250

280

310

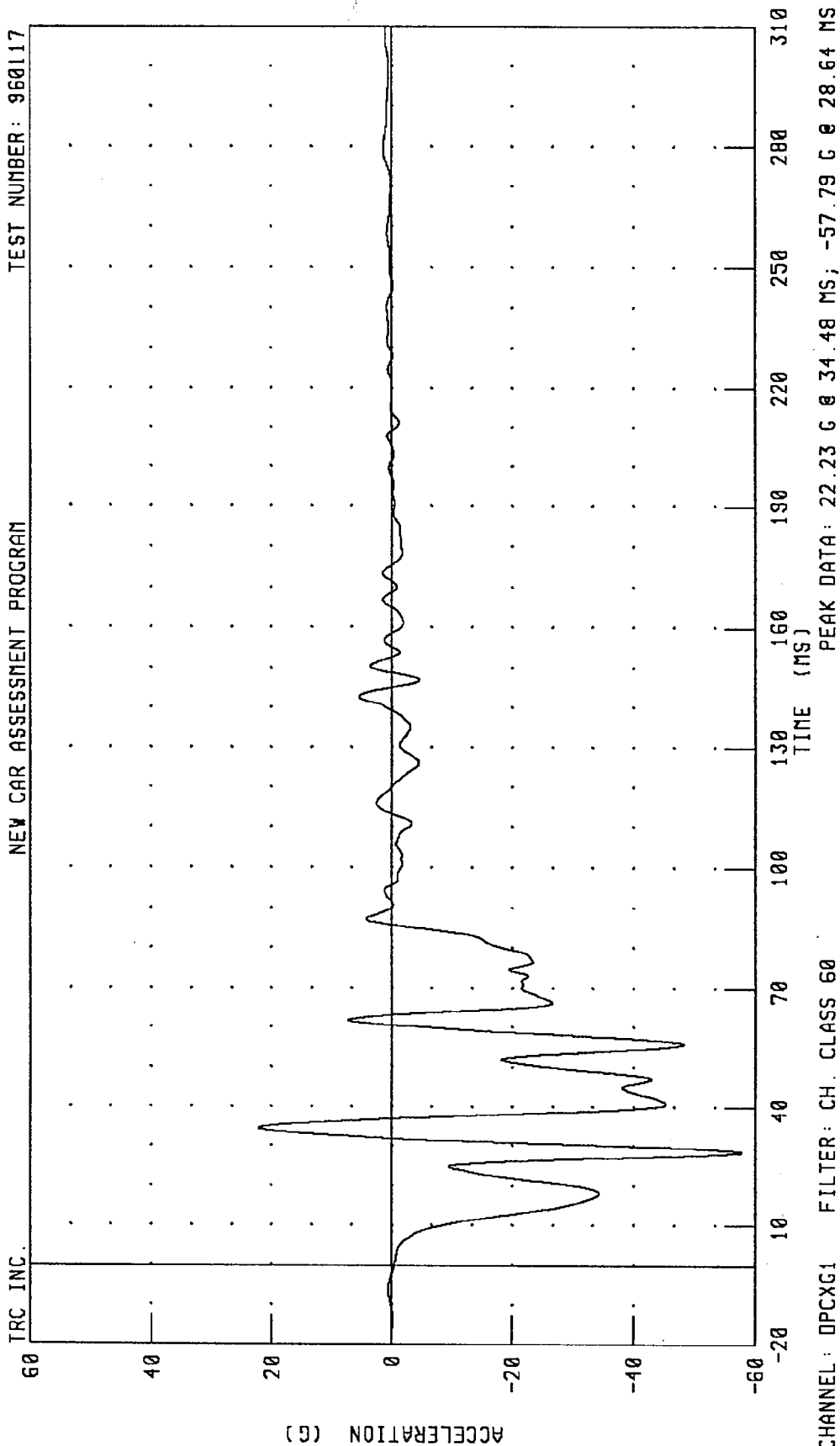
TIME (MS)

CHANNEL: BCLXG1 FILTER: CH. CLASS 60

PEAK DATA: 51.35 G @ 64.24 MS; -95.82 G @ 42.00 MS

1996 MITSUBISHI MIRAGE INTO FRONTAL LOAD CELL BARRIER  
INSTRUMENT PANEL CENTER X-AXIS ACCELERATION

NEW CAR ASSESSMENT PROGRAM TEST NUMBER: 960117

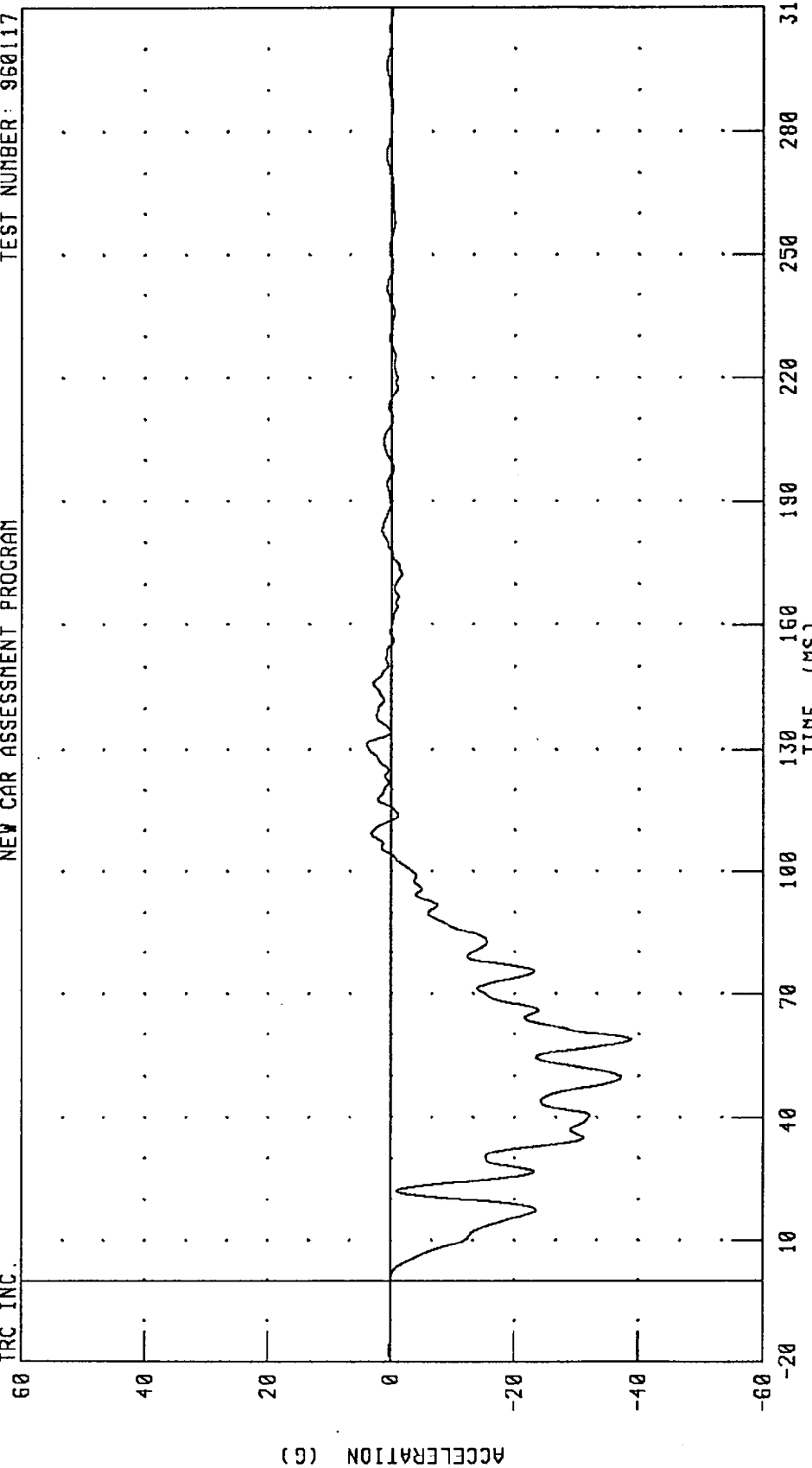


1996 MITSUBISHI MIRAGE INTO FRONTAL LOAD CELL BARRIER  
LEFT REAR SEAT REDUNDANT X-AXIS ACCELERATION

TEST NUMBER: 960117

NEW CAR ASSESSMENT PROGRAM

TRC INC.



CHANNEL: TLRXGA FILTER: CH. CLASS 60

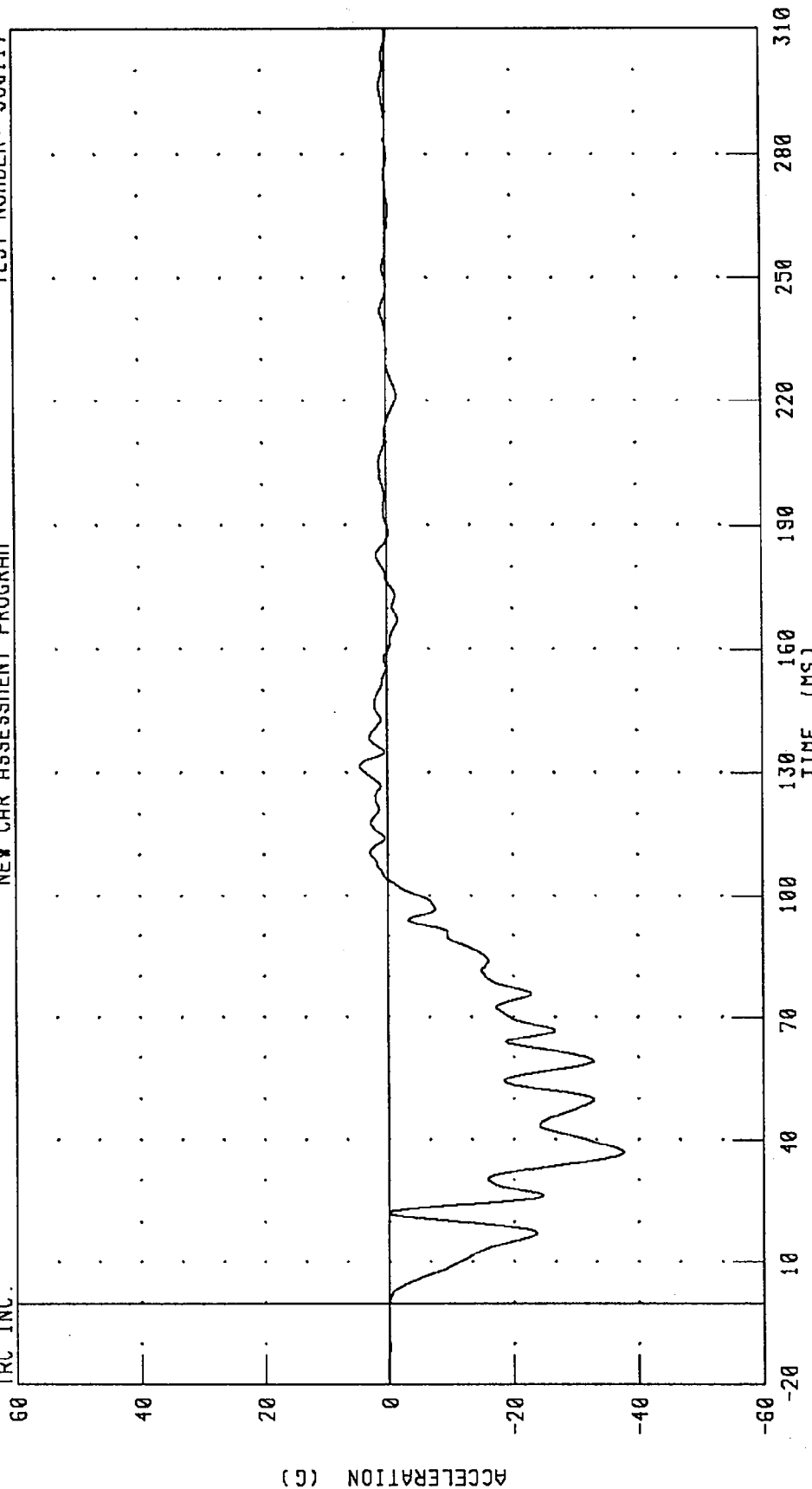
PEAK DATA: 3.96 G @ 131.28 MS; -38.74 G @ 58.80 MS

1996 MITSUBISHI MIRAGE INTO FRONTAL LOAD CELL BARRIER  
RIGHT REAR SEAT REDUNDANT X-AXIS ACCELERATION

TEST NUMBER: 960117

NEW CAR ASSESSMENT PROGRAM

TRC INC.



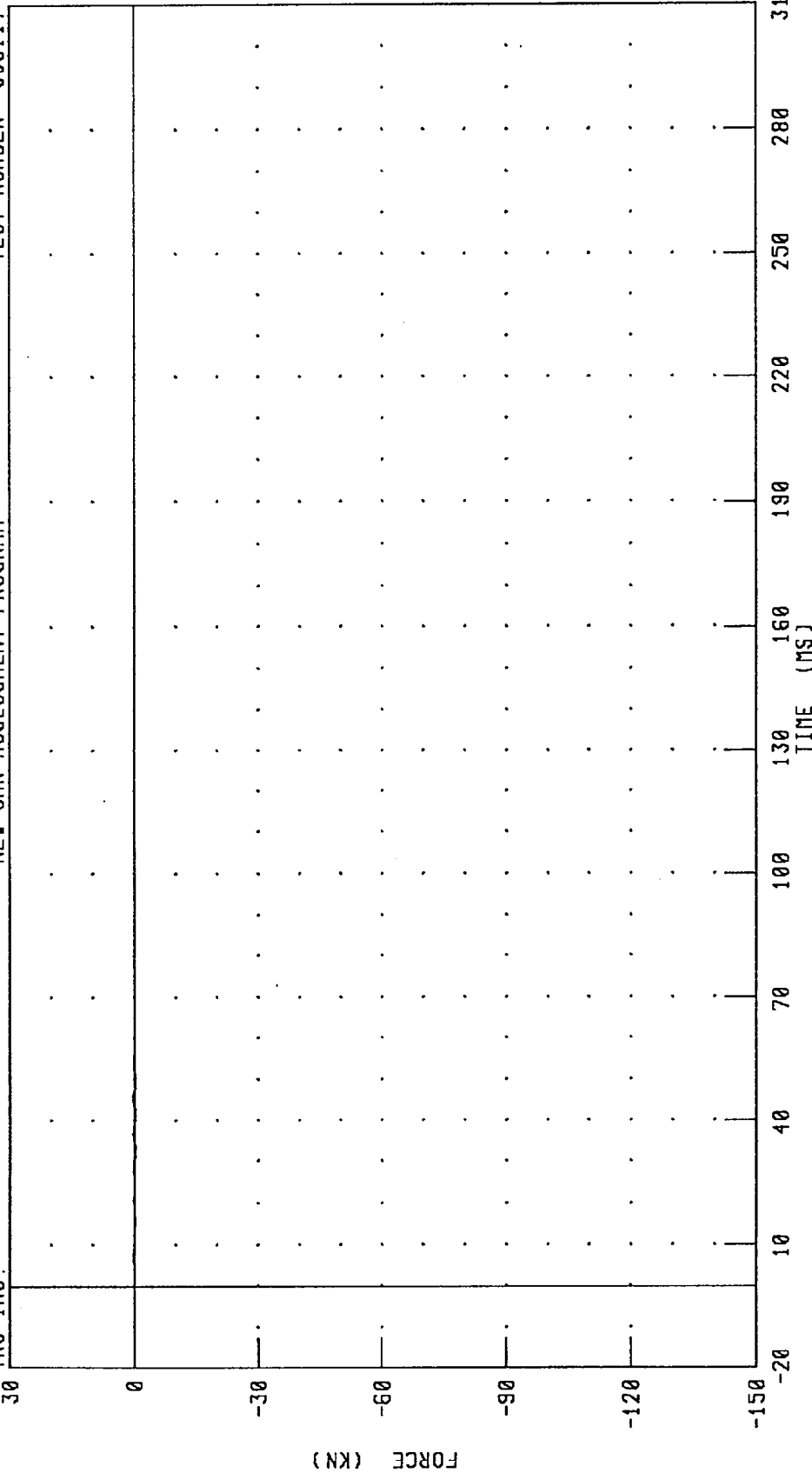
CHANNEL: TRRXGA FILTER: CH. CLASS 60

1996 MITSUBISHI MIRAGE INTO FRONTAL LOAD CELL BARRIER  
LOAD CELL BARRIER POSITION A1 FORCE

TEST NUMBER: 960117

NEW CAR ASSESSMENT PROGRAM

TRC INC.



CHANNEL: BA1F FILTER: CH. CLASS 60

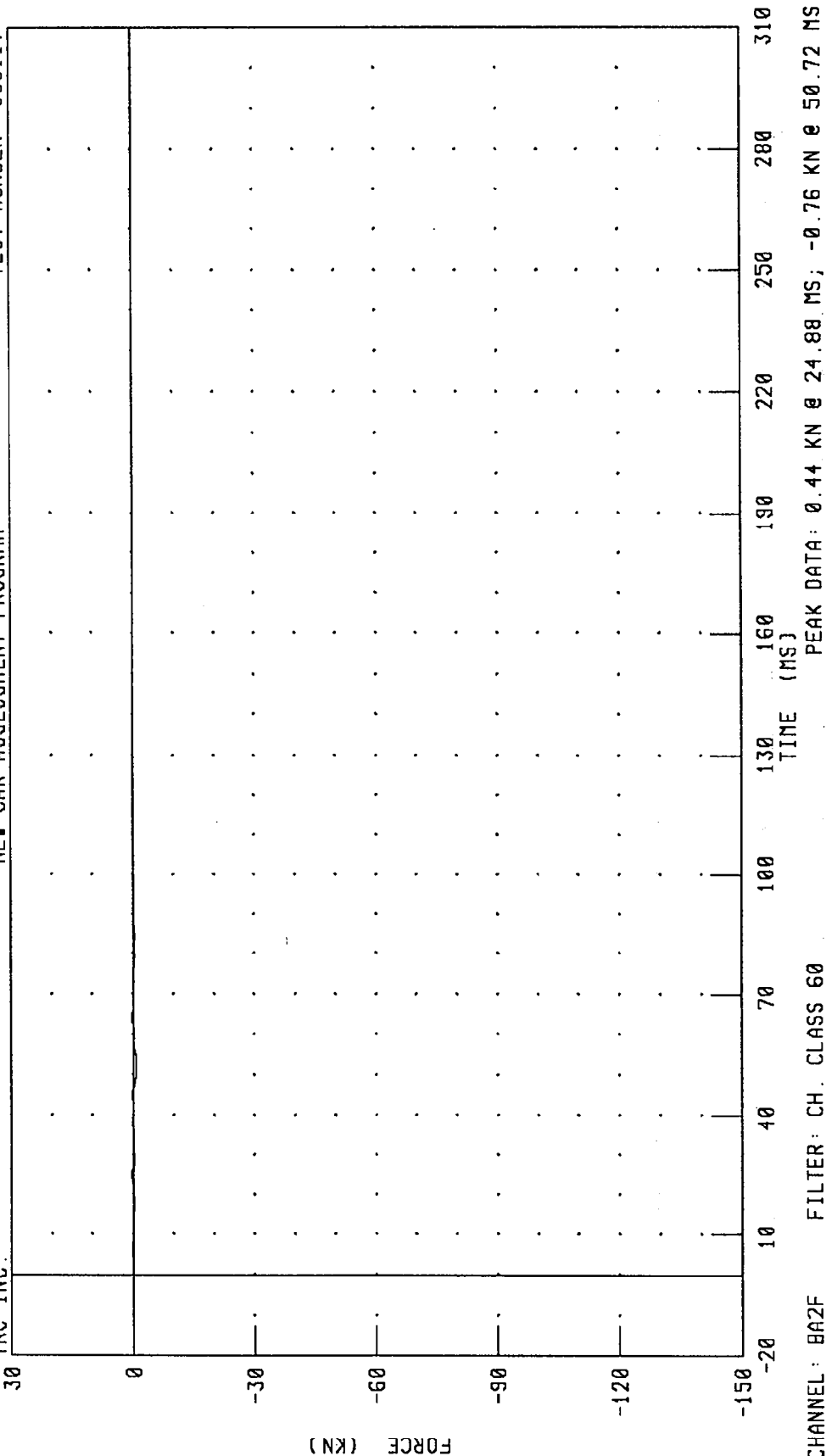
PEAK DATA: 0.46 KN @ 45.44 MS; -0.41 KN @ 41.68 MS

1996 MITSUBISHI MIRAGE INTO FRONTAL LOAD CELL BARRIER  
LOAD CELL BARRIER POSITION A2 FORCE

TEST NUMBER: 960117

NEW CAR ASSESSMENT PROGRAM

TRC INC.

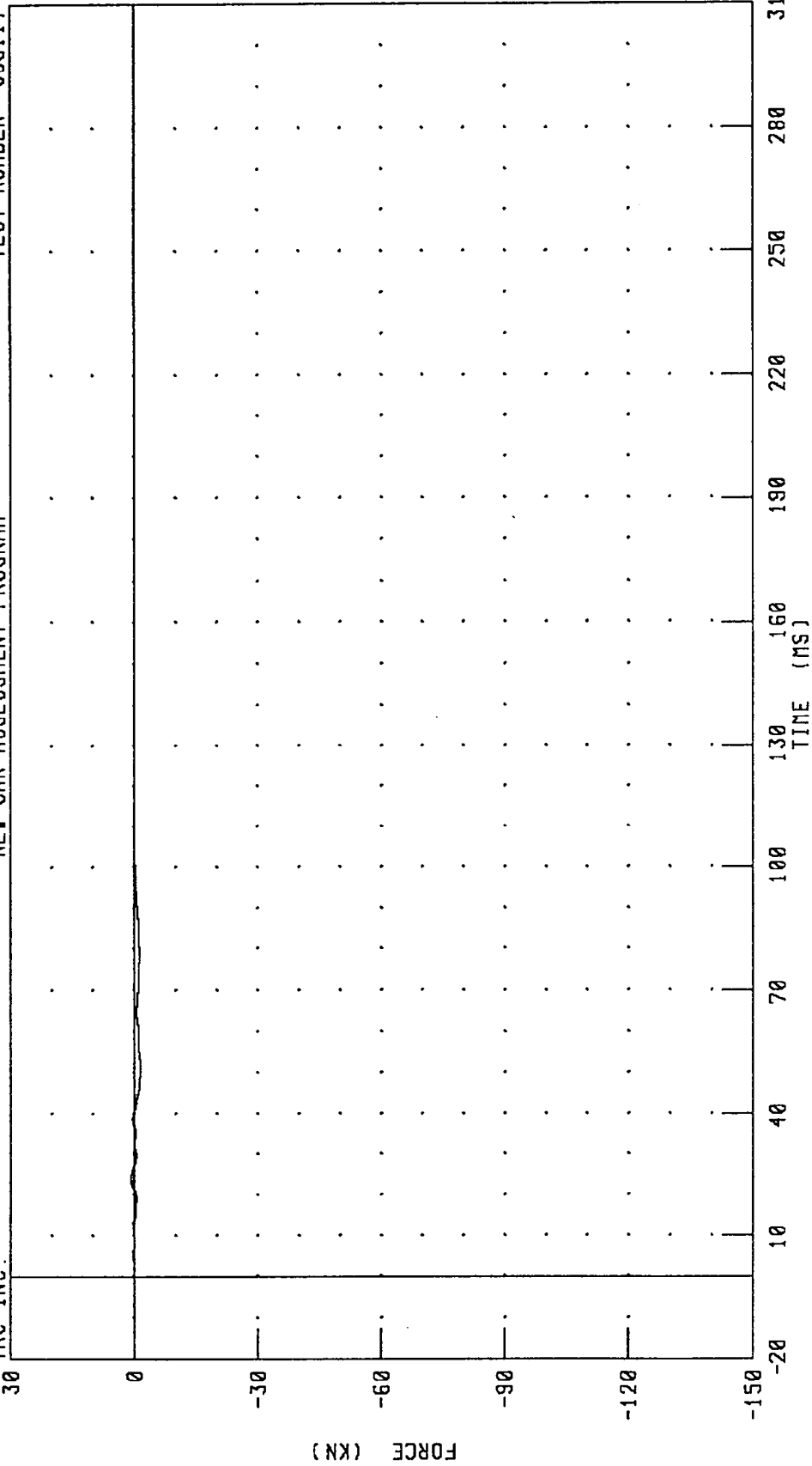


1996 MITSUBISHI MIRAGE INTO FRONTAL LOAD CELL BARRIER  
LOAD CELL BARRIER POSITION A3 FORCE

TEST NUMBER: 960117

NEW CAR ASSESSMENT PROGRAM

TRC INC.



PEAK DATA: 0.73 KN @ 23.92 MS; -1.53 KN @ 51.52 MS

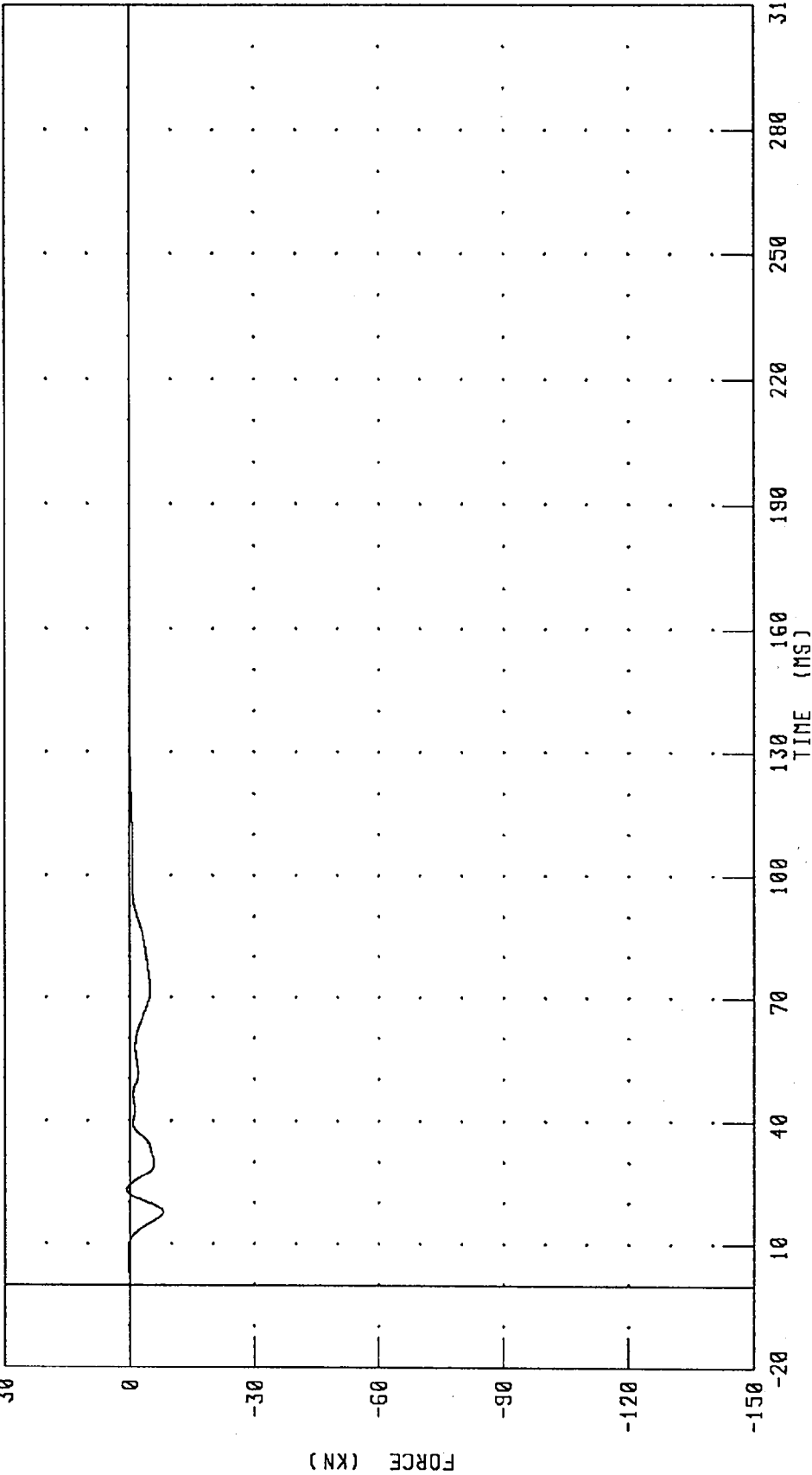
FILTER: CH. CLASS 60

CHANNEL: BA3F

1996 MITSUBISHI MIRAGE INTO FRONTAL LOAD CELL BARRIER  
 LOAD CELL BARRIER POSITION A4 FORCE  
 NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 960117

TRC INC.



PEAK DATA: 0.68 KN @ 23.12 MS; -8.09 KN @ 17.76 MS

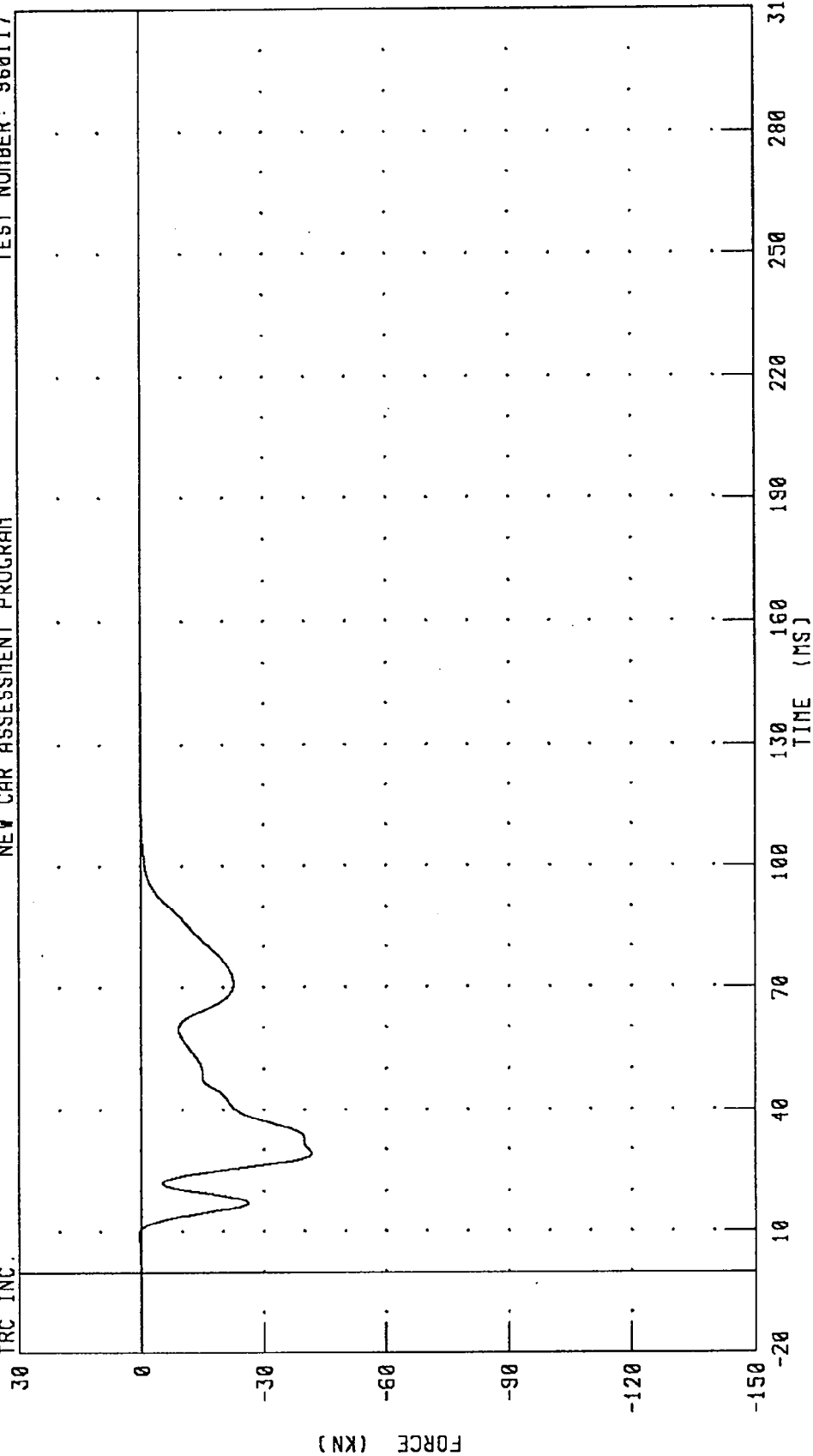
CHANNEL: BA4F FILTER: CH. CLASS 60

1996 MITSUBISHI MIRAGE INTO FRONTAL LOAD CELL BARRIER  
LOAD CELL BARRIER POSITION A5 FORCE

TEST NUMBER: 960117

NEW CAR ASSESSMENT PROGRAM

TRC INC.



CHANNEL: BASF

FILTER: CH. CLASS 60

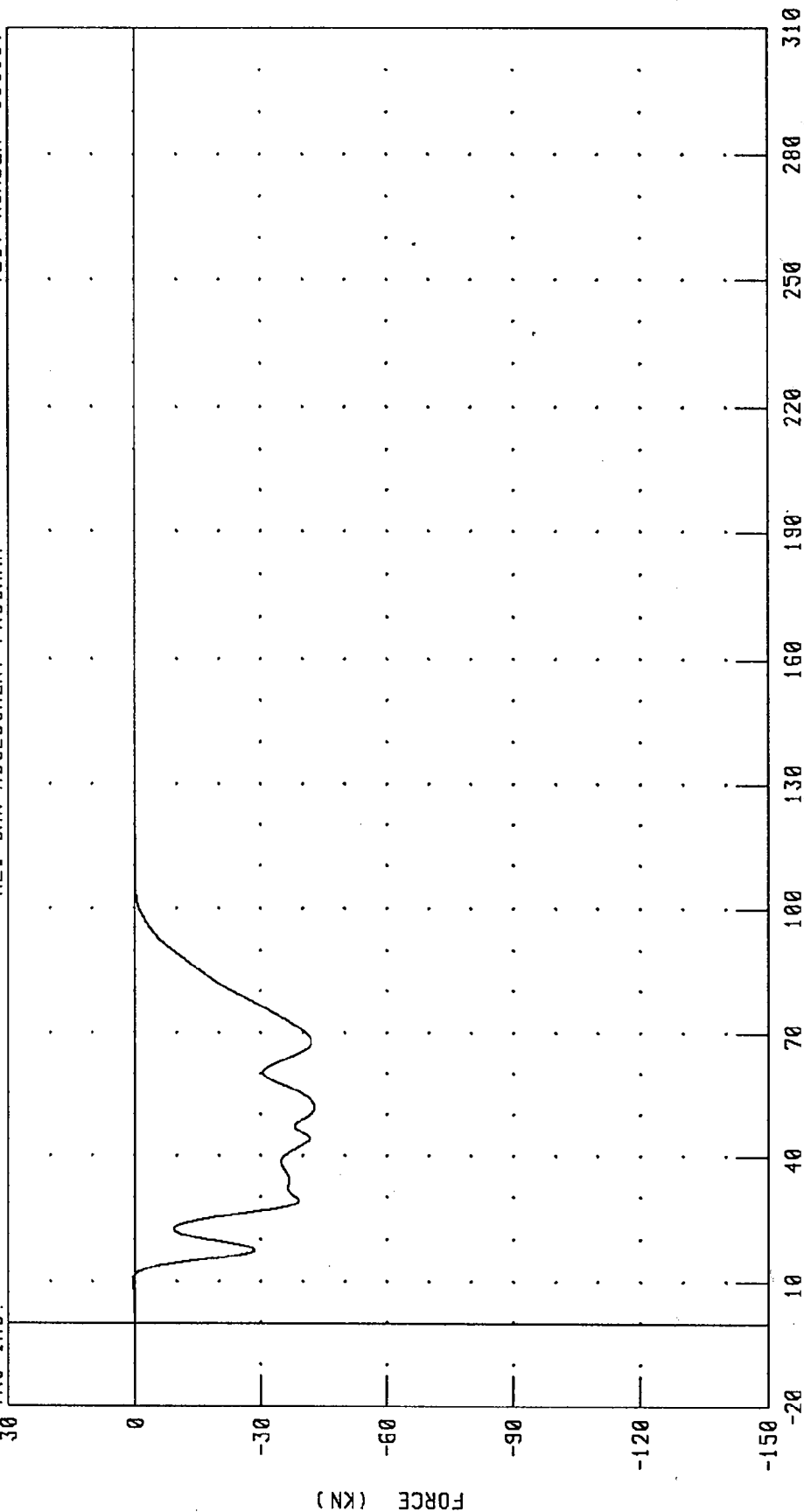
PEAK DATA: 0.54 KN @ 9.12 MS; -41.69 KN @ 29.12 MS

1996 MITSUBISHI MIRAGE INTO FRONTAL LOAD CELL BARRIER  
LOAD CELL BARRIER POSITION A6 FORCE

TEST NUMBER: 960117

NEW CAR ASSESSMENT PROGRAM

TRC INC.



PEAK DATA: 0.59 KN @ 10.32 MS, -42.75 KN @ 51.68 MS

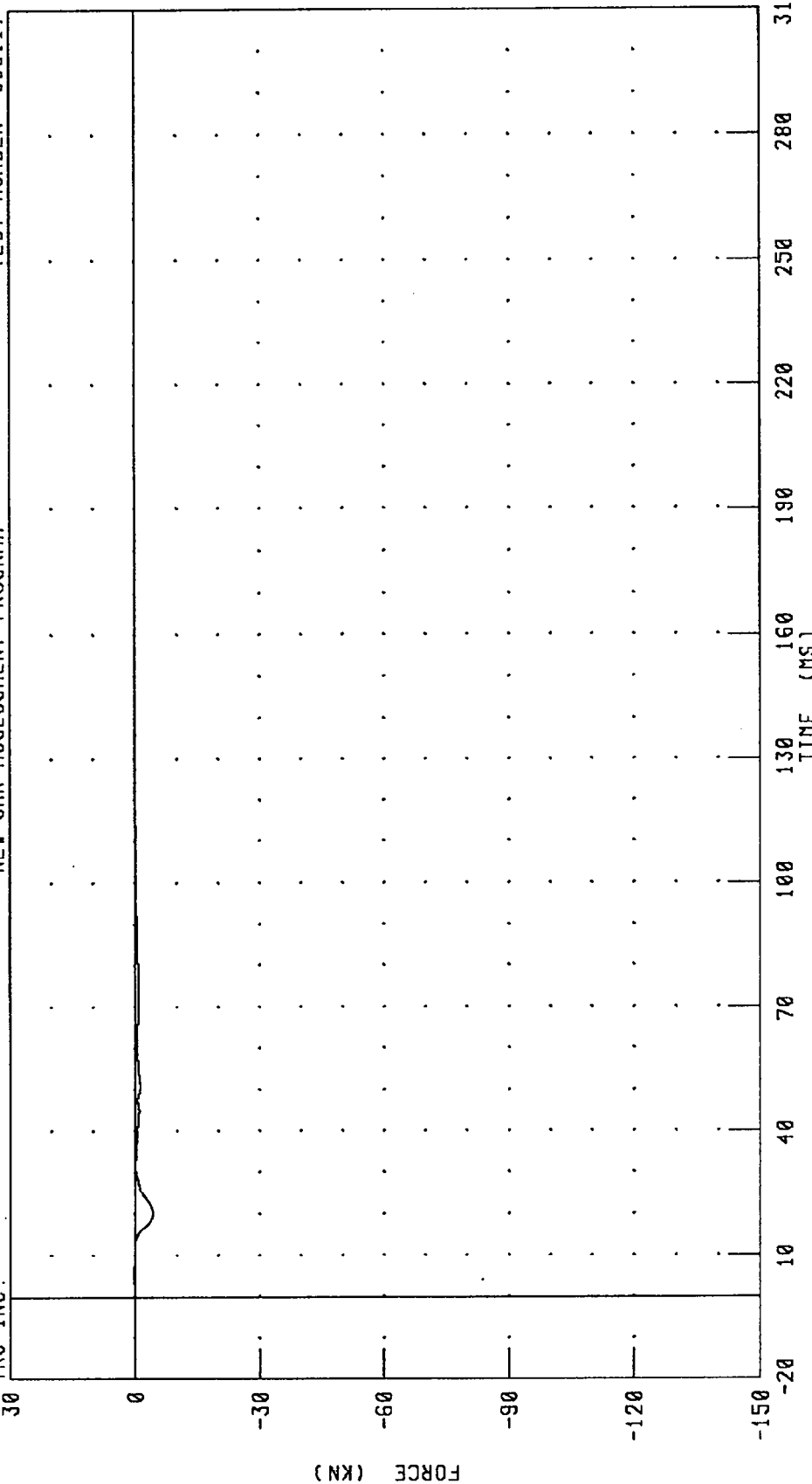
CHANNEL: BA6F FILTER: CH. CLASS 60

1996 MITSUBISHI MIRAGE INTO FRONTAL LOAD CELL BARRIER  
LOAD CELL BARRIER POSITION A7 FORCE

TEST NUMBER: 960117

NEW CAR ASSESSMENT PROGRAM

TRC INC.



PEAK DATA: 0.14 KN @ 5.36 MS; -4.31 KN @ 20.24 MS

FILTER: CH. CLASS 60

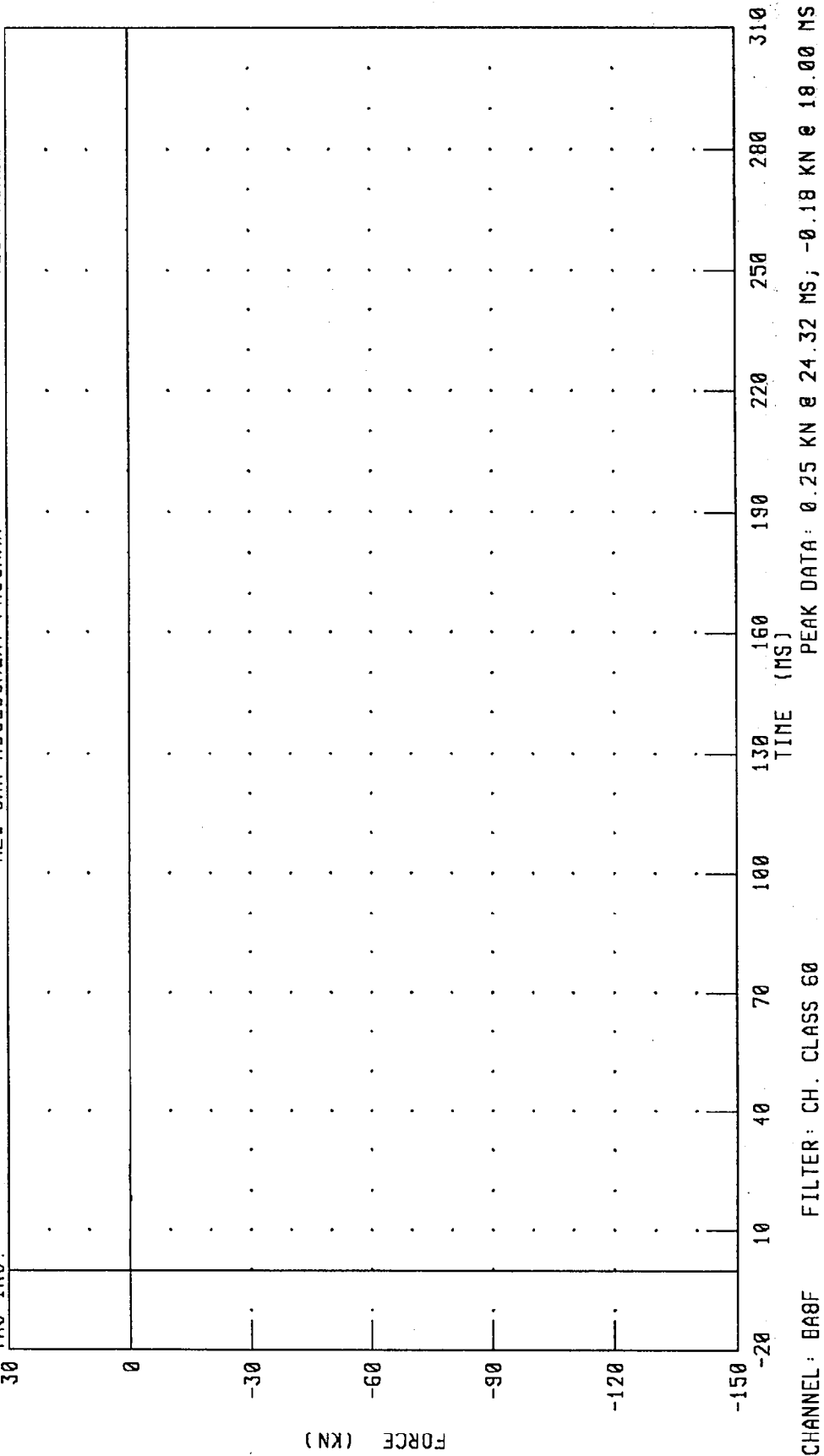
CHANNEL: BA7F

1996 MITSUBISHI MIRAGE INTO FRONTAL LOAD CELL BARRIER  
LOAD CELL BARRIER POSITION A8 FORCE

TEST NUMBER: 960117

NEW CAR ASSESSMENT PROGRAM

TRC INC.

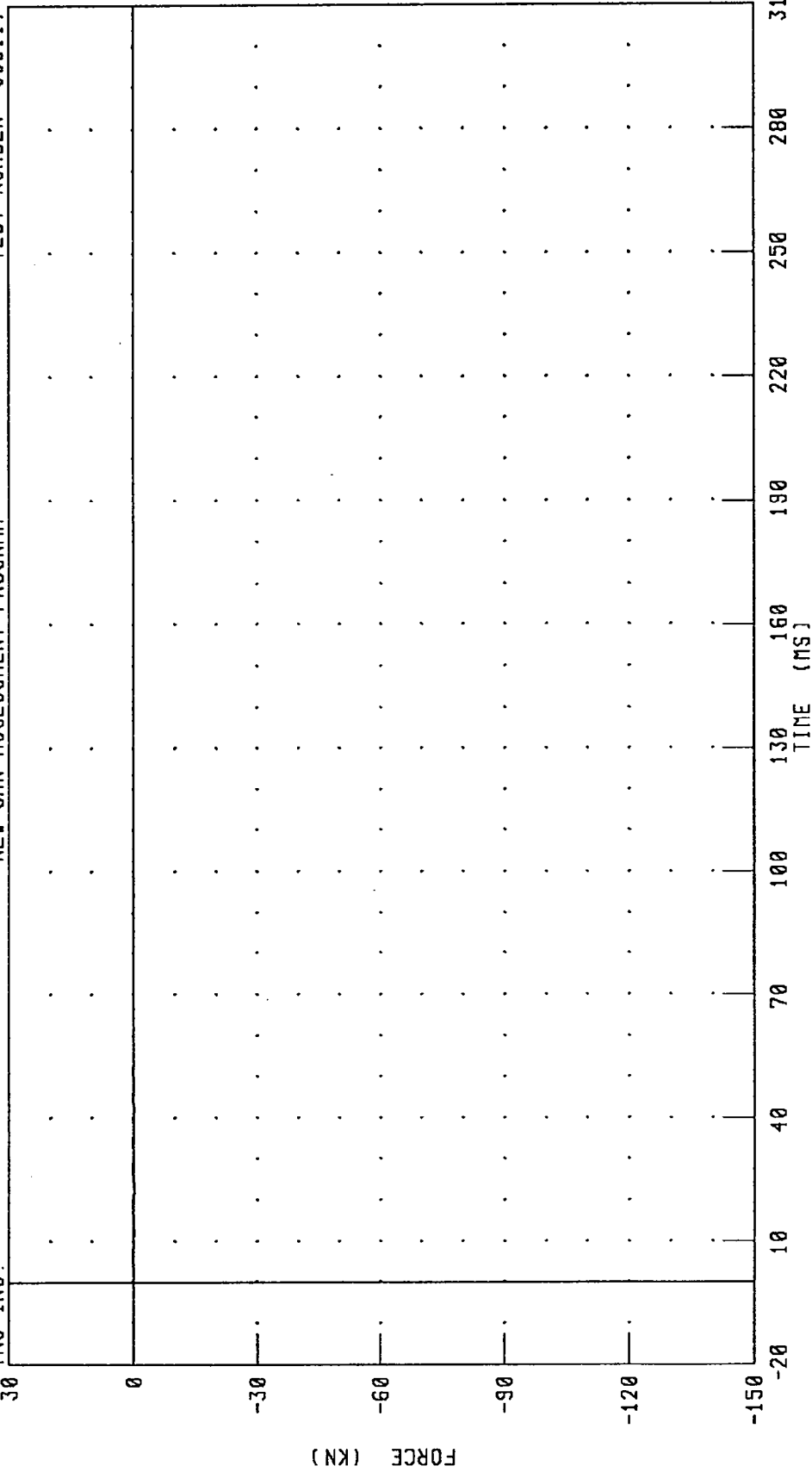


1996 MITSUBISHI MIRAGE INTO FRONTAL LOAD CELL BARRIER  
LOAD CELL BARRIER POSITION AS FORCE

TEST NUMBER: 960117

NEW CAR ASSESSMENT PROGRAM

TRC INC.



PEAK DATA: 0.23 KN @ 34.24 MS, -0.21 KN @ 22.96 MS

FILTER: CH. CLASS 60

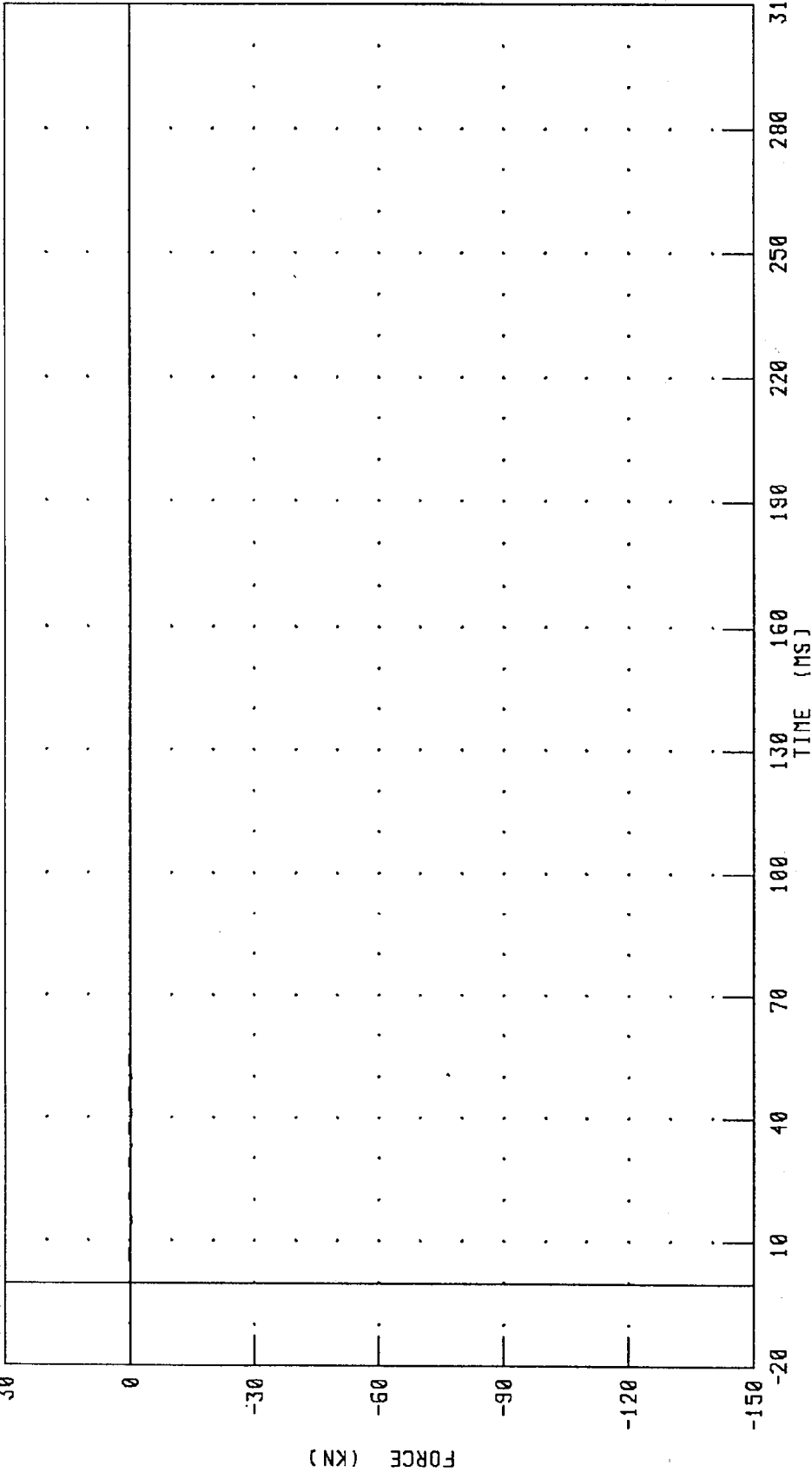
CHANNEL: BASF

1996 MITSUBISHI MIRAGE INTO FRONTAL LOAD CELL BARRIER  
LOAD CELL BARRIER POSITION B1 FORCE

TEST NUMBER: 960117

NEW CAR ASSESSMENT PROGRAM

TRC INC.



PEAK DATA: 0.25 KN @ 37.12 MS; -0.25 KN @ 14.96 MS

FILTER: CH. CLASS 60

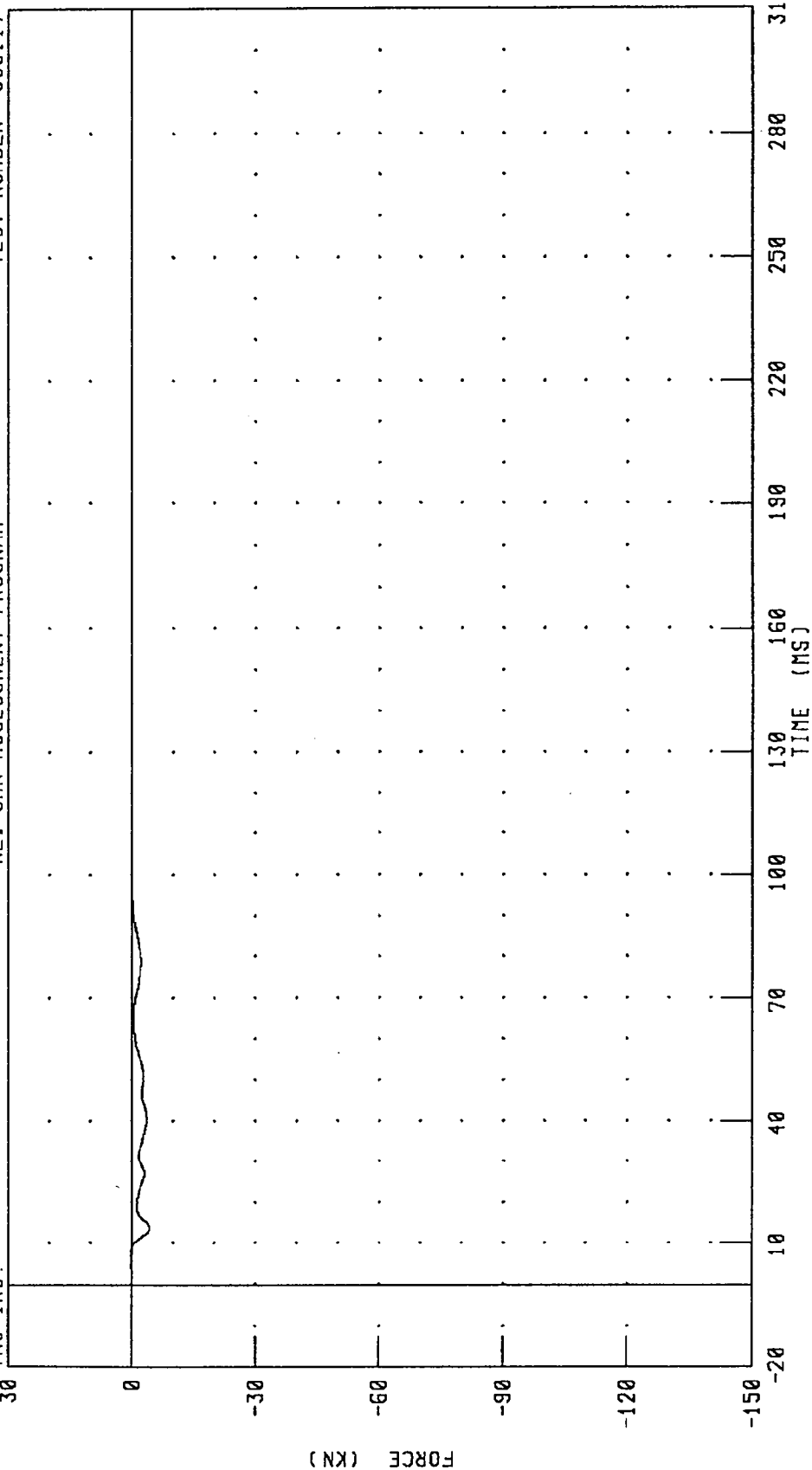
CHANNEL: BB1F

1996 MITSUBISHI MIRAGE INTO FRONTAL LOAD CELL BARRIER  
LOAD CELL BARRIER POSITION B2 FORCE

TEST NUMBER: 960117

NEW CAR ASSESSMENT PROGRAM

TRC INC.



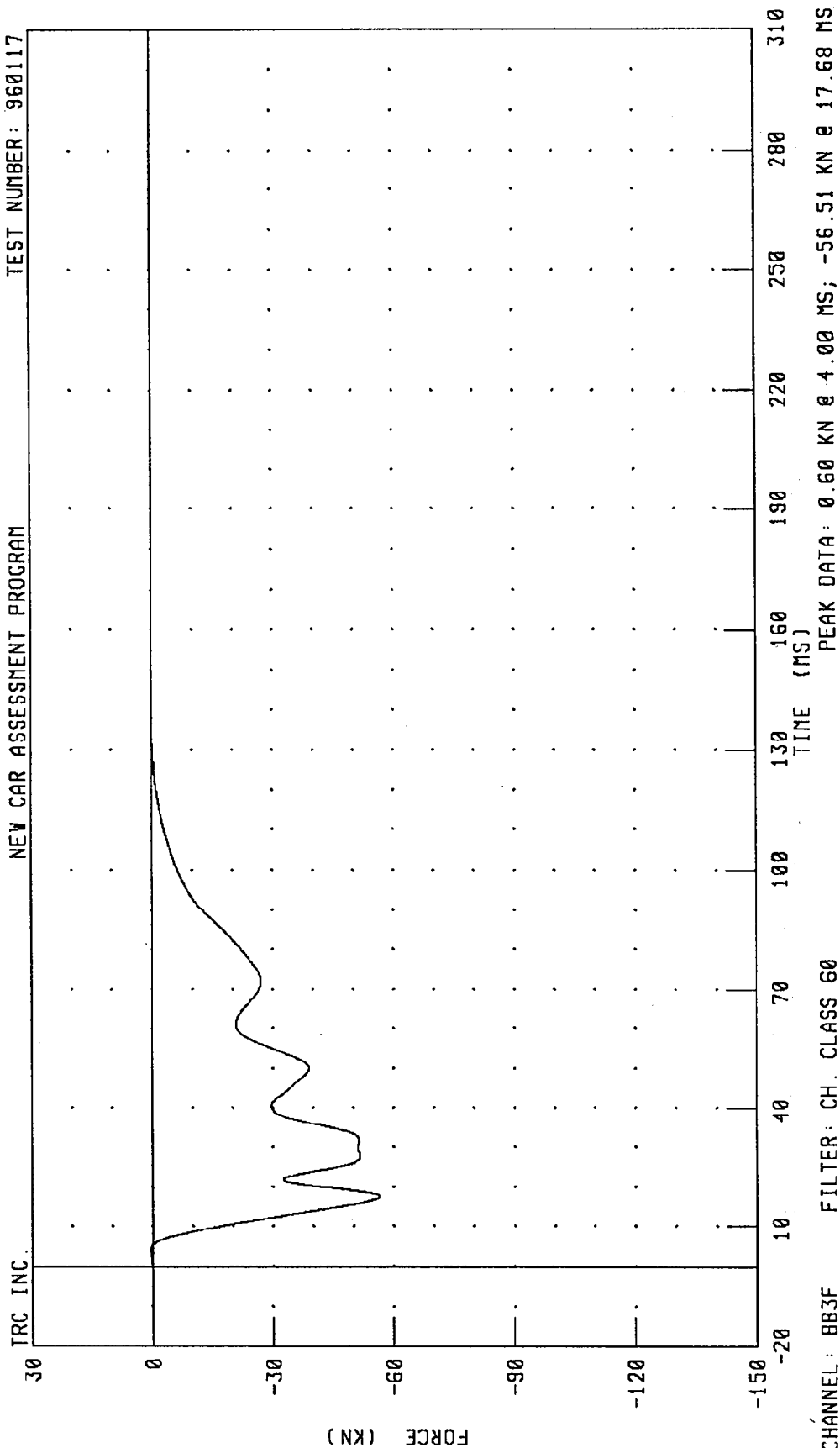
CHANNEL: BB2F

FILTER: CH. CLASS 60

PEAK DATA: 0.25 KN @ 7.04 MS; -4.40 KN @ 13.76 MS

1996 MITSUBISHI MIRAGE INTO FRONTAL LOAD CELL BARRIER  
 LOAD CELL BARRIER POSITION B3 FORCE  
 NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 960117



PEAK DATA: 0.60 KN @ 4.00 MS; -56.51 KN @ 17.68 MS

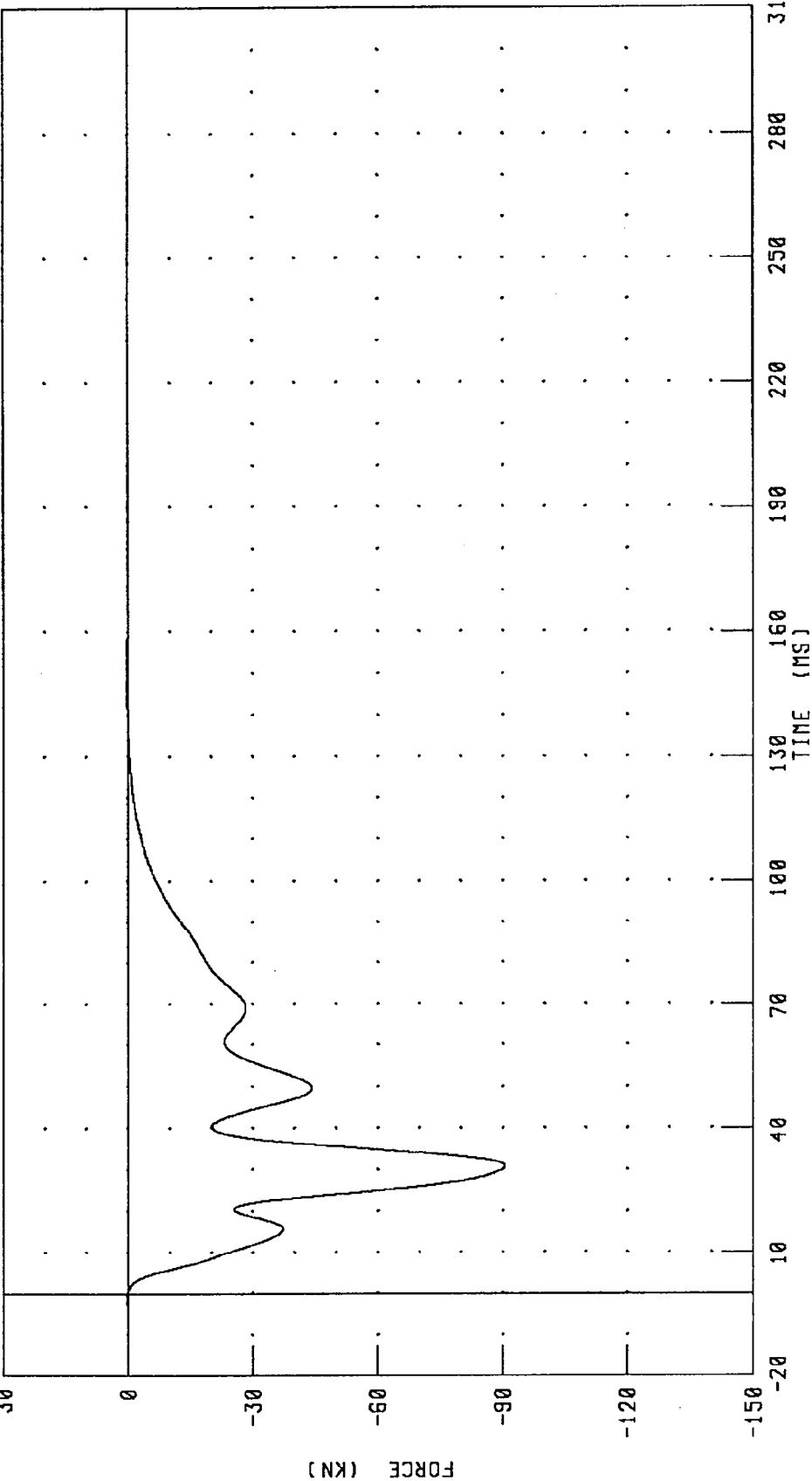
CHANNEL: BB3F FILTER: CH. CLASS 60

1996 MITSUBISHI MIRAGE INTO FRONTAL LOAD CELL BARRIER  
LOAD CELL BARRIER POSITION B4 FORCE

TEST NUMBER: 960117

NEW CAR ASSESSMENT PROGRAM

TRC INC.



PEAK DATA: 0.15 KN @ -1.12 MS; -90.55 KN @ 30.88 MS

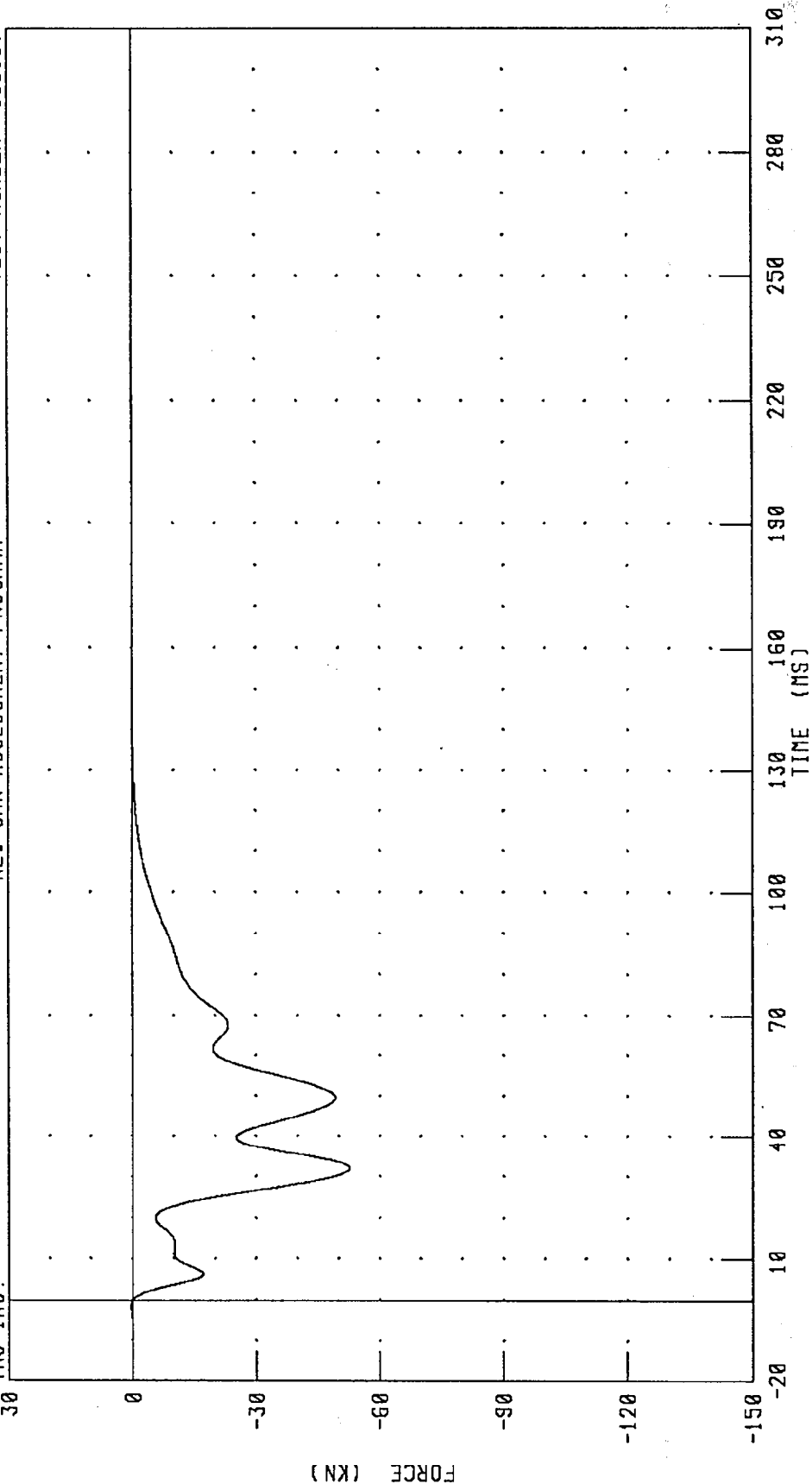
FILTER: CH. CLASS 60

CHANNEL: BB4F

1996 MITSUBISHI MIRAGE INTO FRONTAL LOAD CELL BARRIER  
 LOAD CELL BARRIER POSITION B5 FORCE  
 NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 960117

TRC INC.



PEAK DATA: 0.41 KN @ -1.44 MS; -52.71 KN @ 32.08 MS

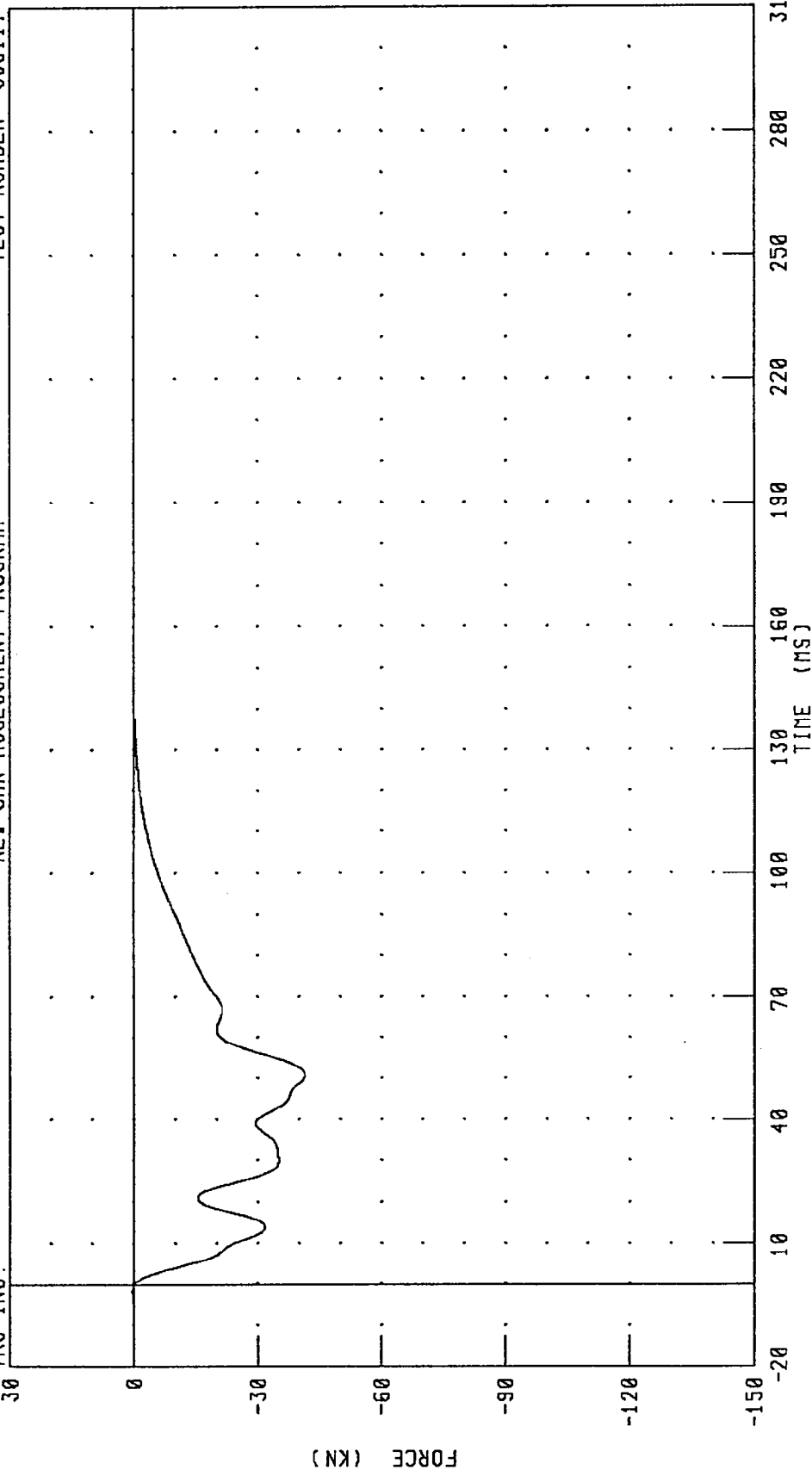
CHANNEL: BB5F FILTER: CH. CLASS 60

1996 MITSUBISHI MIRAGE INTO FRONTAL LOAD CELL BARRIER  
LOAD CELL BARRIER POSITION B6 FORCE

TEST NUMBER: 960117

NEW CAR ASSESSMENT PROGRAM

TRC INC.



PEAK DATA: 0.35 KN @ -1.68 MS; -41.37 KN @ 50.64 MS

FILTER: CH. CLASS 60

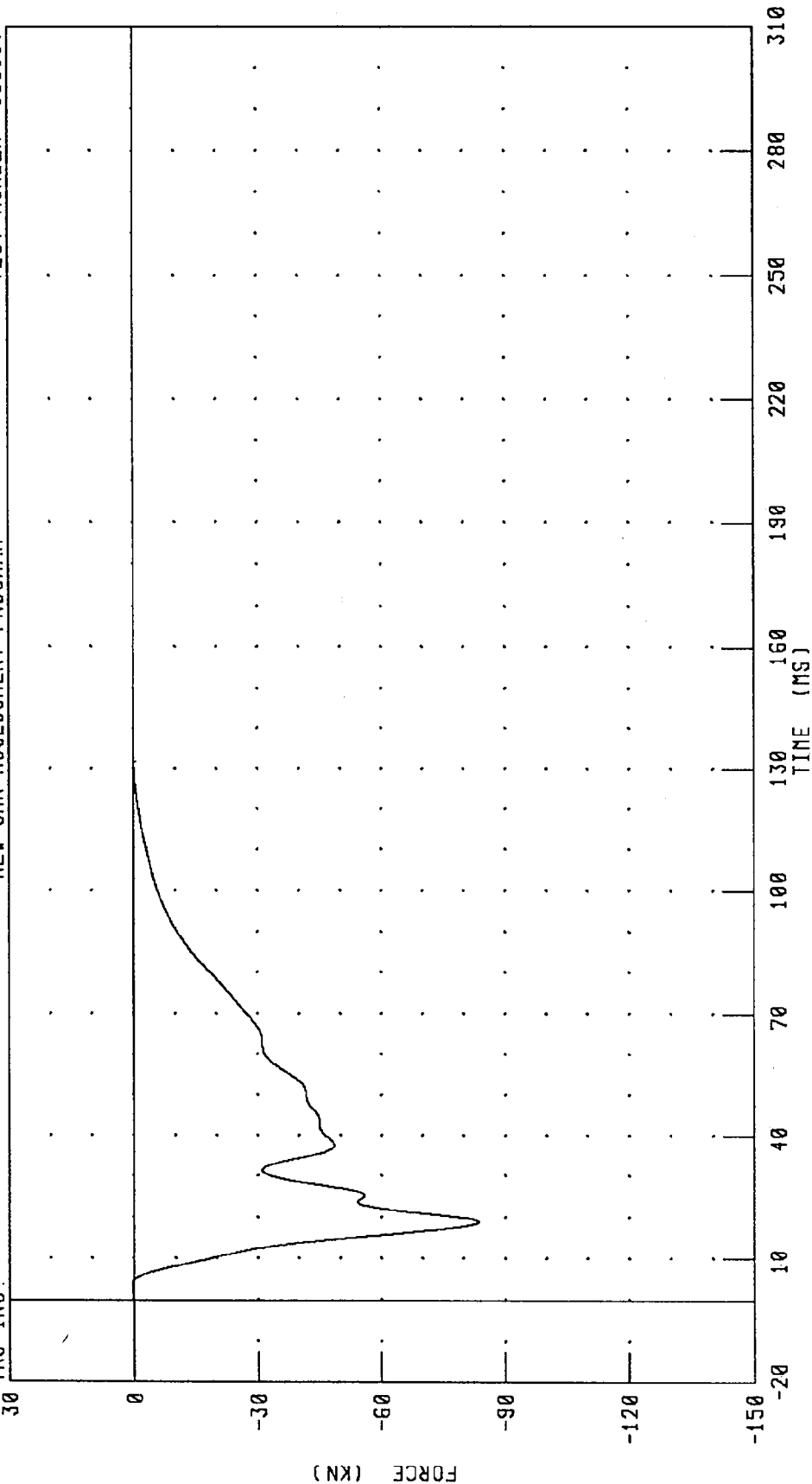
CHANNEL: BB6F

1996 MITSUBISHI MIRAGE INTO FRONTAL LOAD CELL BARRIER  
LOAD CELL BARRIER POSITION B7 FORCE

TEST NUMBER: 960117

NEW CAR ASSESSMENT PROGRAM

TRC INC.



CHANNEL: BB7F

FILTER: CH. CLASS 60

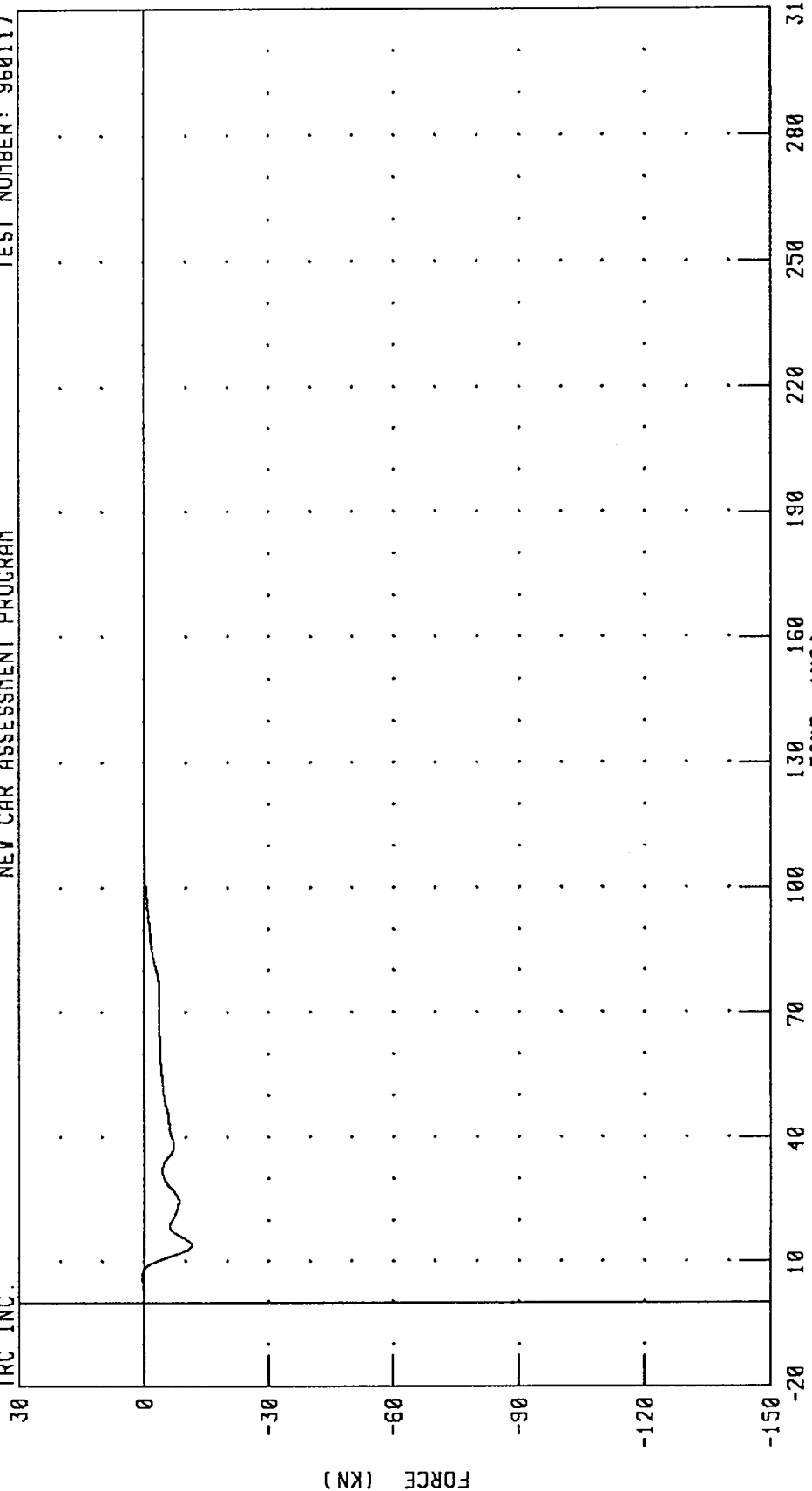
PEAK DATA: 0.54 KN @ 3.20 MS; -83.66 KN @ 18.96 MS

1986 MITSUBISHI MIRAGE INTO FRONTAL LOAD CELL BARRIER  
LOAD CELL BARRIER POSITION B8 FORCE

TEST NUMBER: 960117

NEW CAR ASSESSMENT PROGRAM

TRC INC.



PEAK DATA: 0.44 KN @ 6.48 MS; -11.46 KN @ 13.84 MS

FILTER: CH. CLASS 60

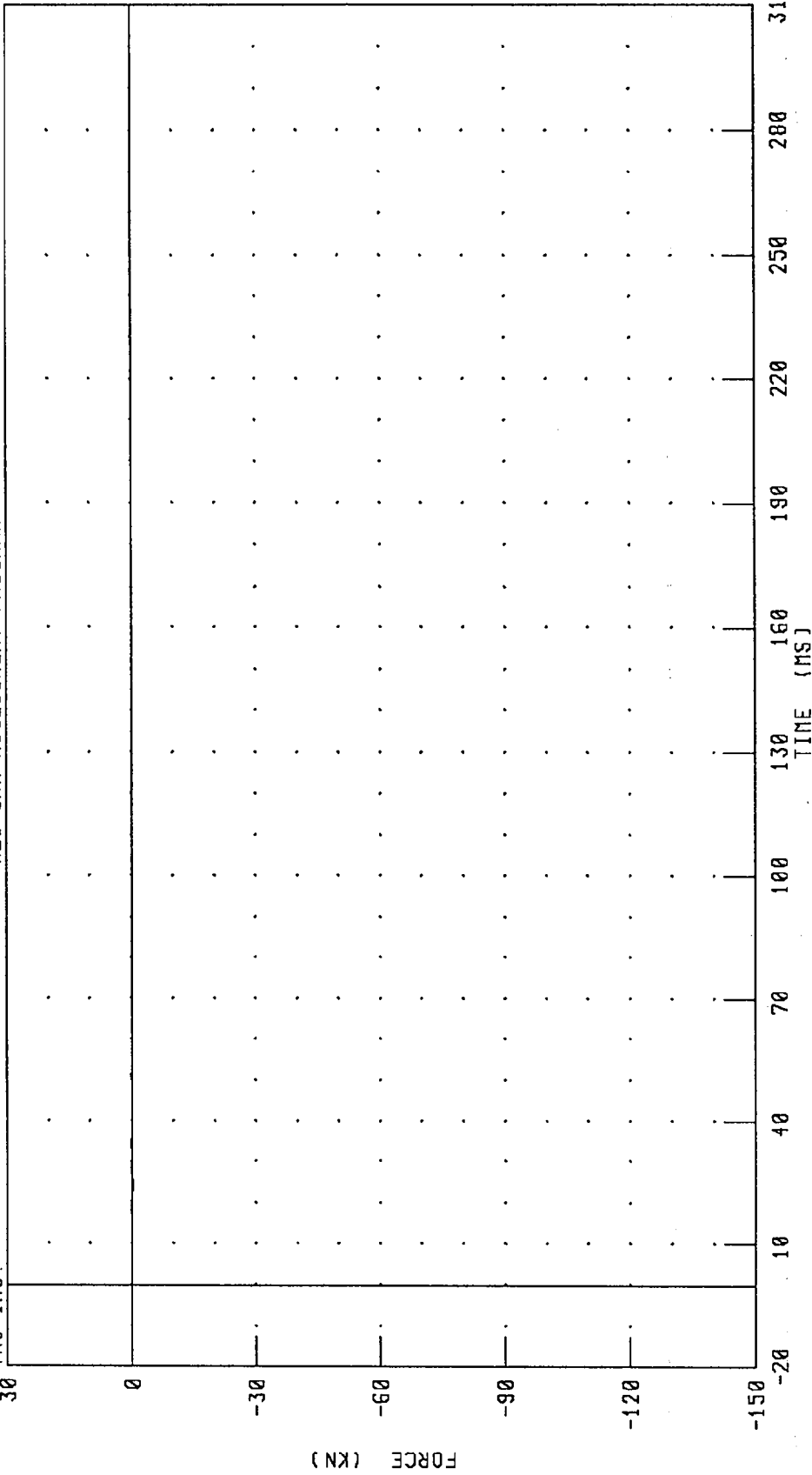
CHANNEL: 888F

1996 MITSUBISHI MIRAGE INTO FRONTAL LOAD CELL BARRIER  
LOAD CELL BARRIER POSITION B9 FORCE

TEST NUMBER: 960117

NEW CAR ASSESSMENT PROGRAM

TRC INC.



CHANNEL: BB9F

FILTER: CH. CLASS 60

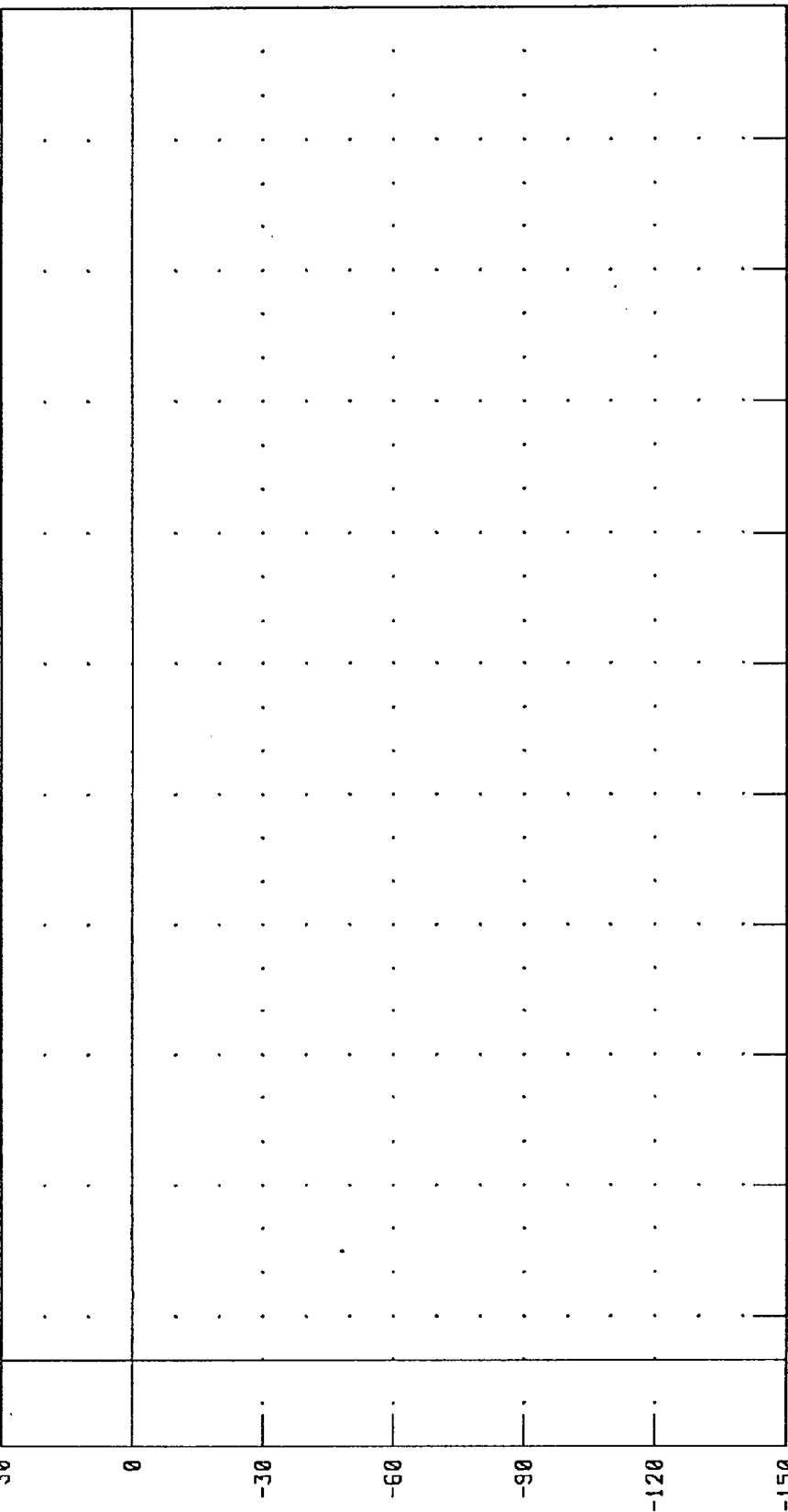
PEAK DATA: 0.23 KN @ 28.48 MS; -0.24 KN @ 24.40 MS

1996 MITSUBISHI MIRAGE INTO FRONTAL LOAD CELL BARRIER  
LOAD CELL BARRIER POSITION C1 FORCE

TEST NUMBER: 960117

NEW CAR ASSESSMENT PROGRAM

TRC INC.



PEAK DATA: 0.14 KN @ 36.96 MS; -0.21 KN @ 15.04 MS

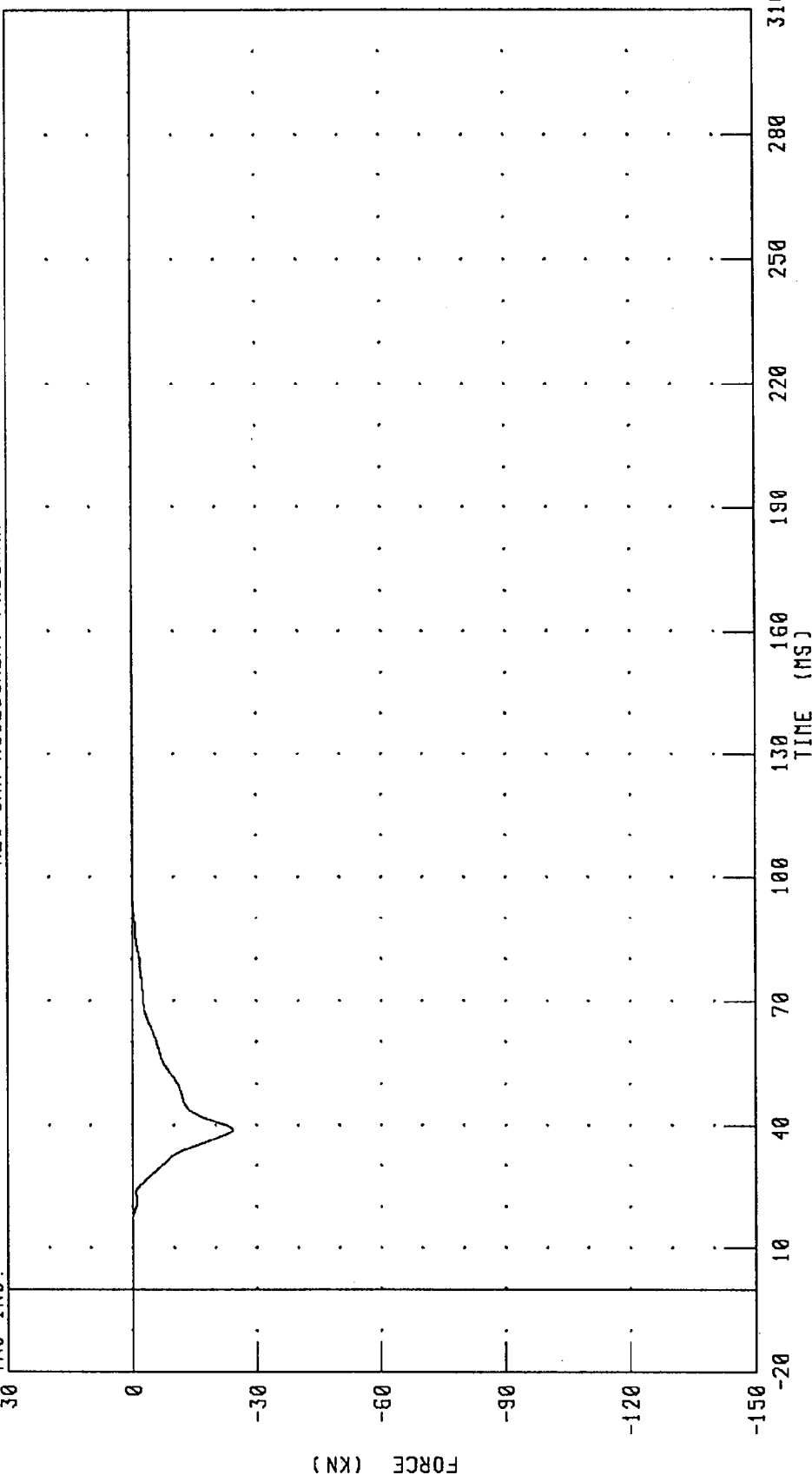
CHANNEL: BC1F FILTER: CH. CLASS 60

1996 MITSUBISHI MIRAGE INTO FRONTAL LOAD CELL BARRIER  
LOAD CELL BARRIER POSITION C2 FORCE

TEST NUMBER: 960117

NEW CAR ASSESSMENT PROGRAM

TRC INC.



PEAK DATA: 0.06 KN @ 11.28 MS; -24.22 KN @ 38.88 MS

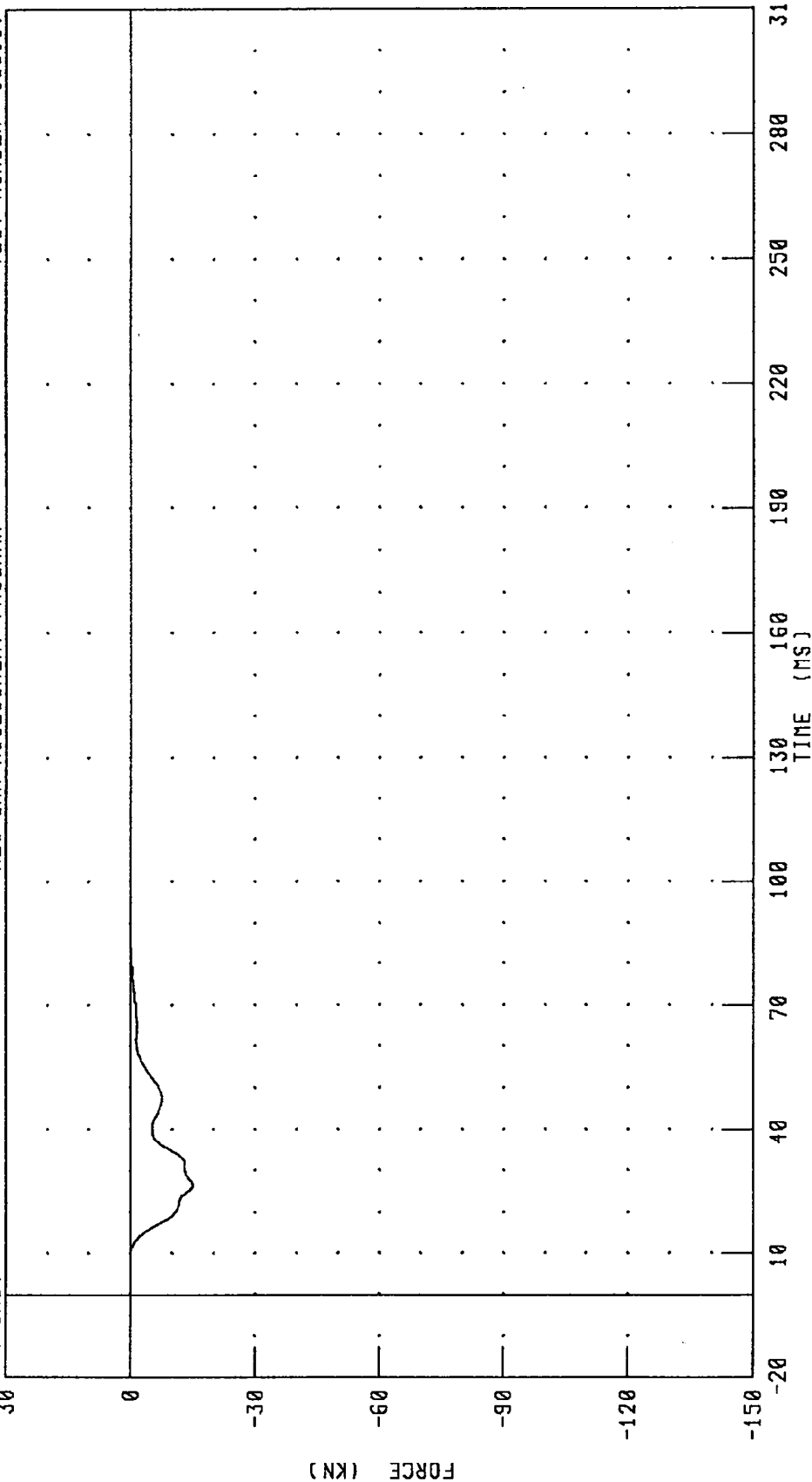
CHANNEL: BC2F FILTER: CH. CLASS 60

1996 MITSUBISHI MIRAGE INTO FRONTAL LOAD CELL BARRIER  
LOAD CELL BARRIER POSITION C3 FORCE

TEST NUMBER: 960117

NEW CAR ASSESSMENT PROGRAM

TRC INC.



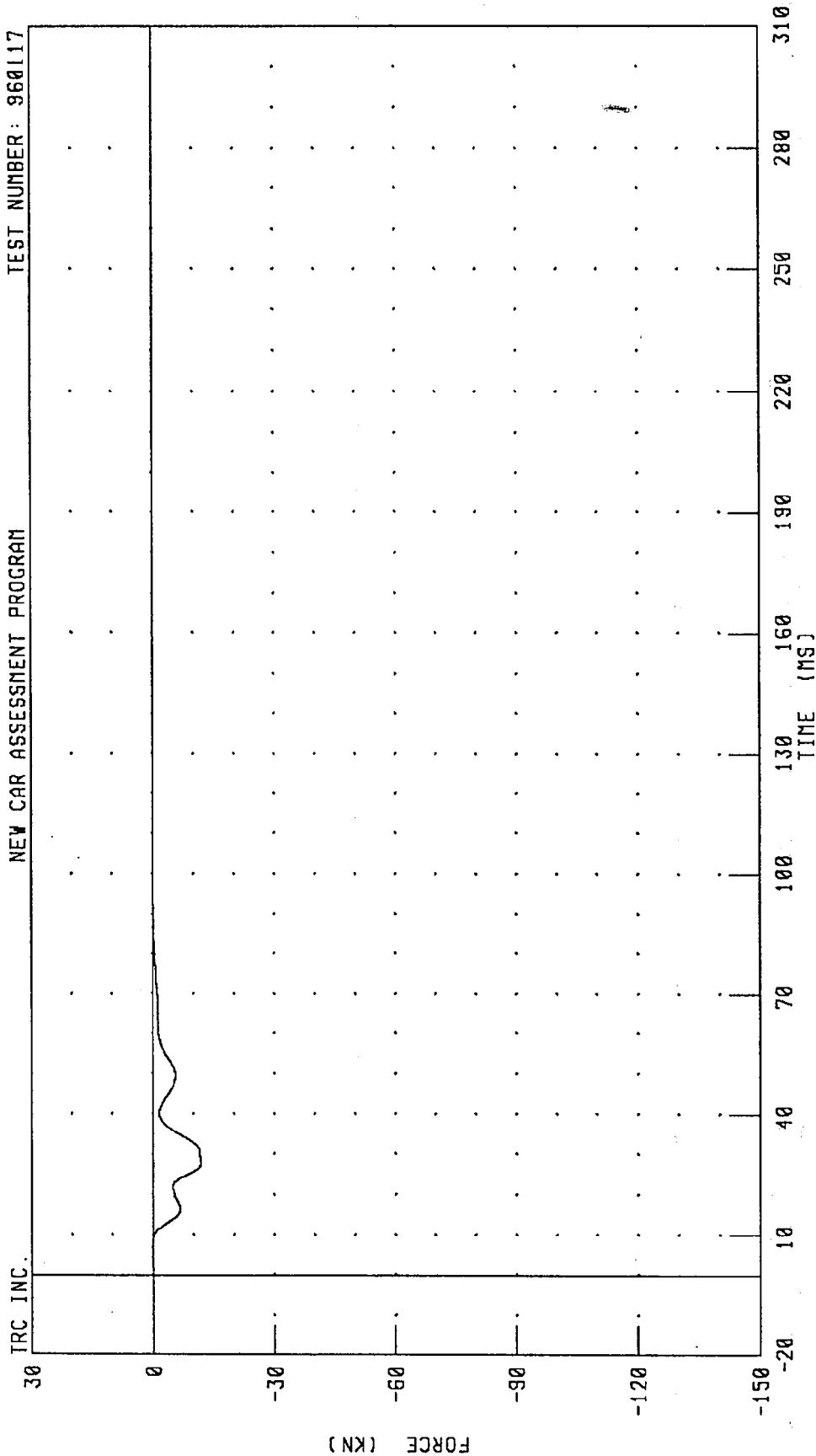
PEAK DATA: 0.08 KN @ 5.92 MS; -15.02 KN @ 26.64 MS

FILTER: CH. CLASS 60

CHANNEL: BC3F

1996 MITSUBISHI MIRAGE INTO FRONTAL LOAD CELL BARRIER  
 LOAD CELL BARRIER POSITION C4 FORCE  
 NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 960117

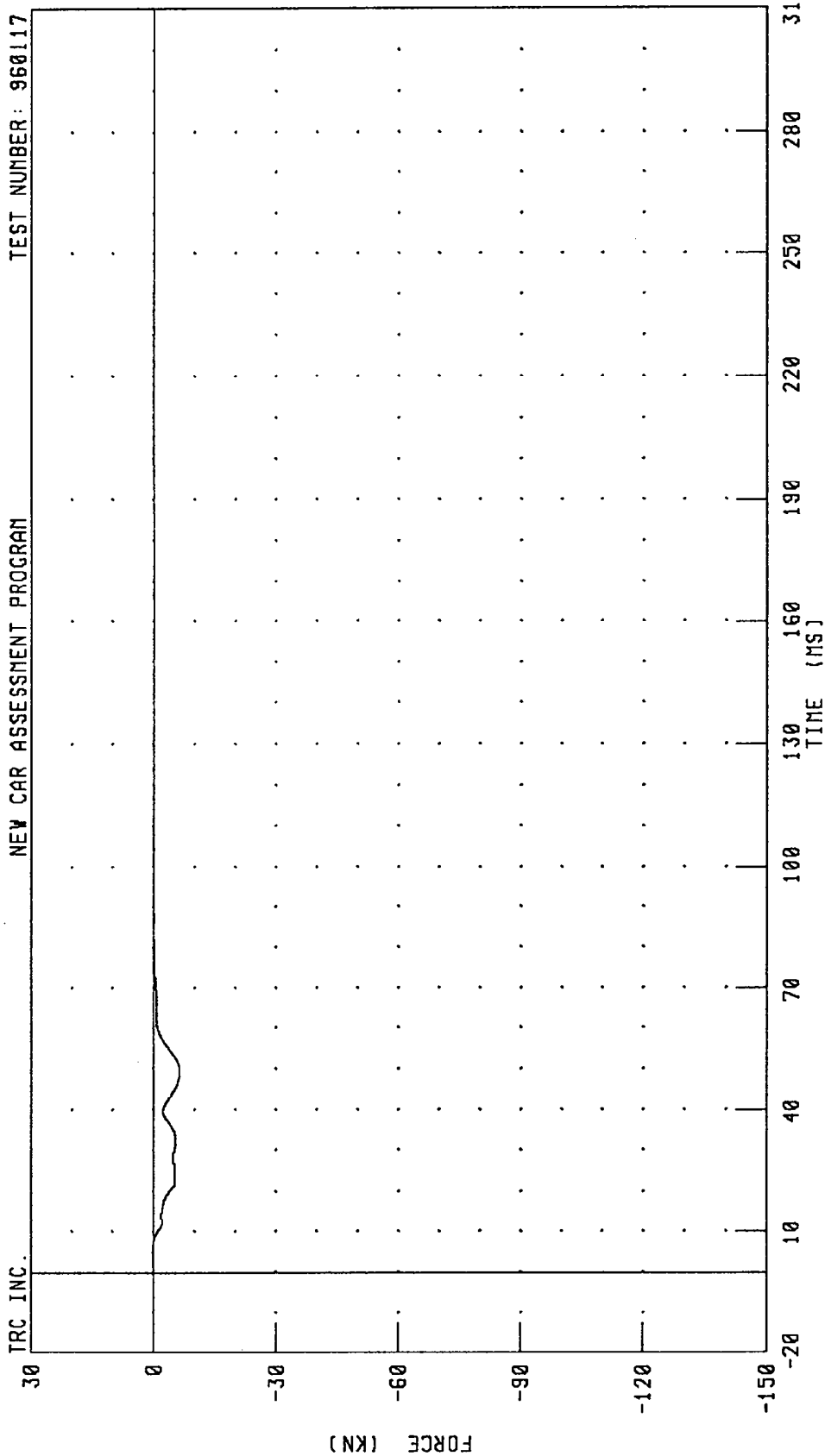


CHANNEL: BC4F FILTER: CH. CLASS 60

PEAK DATA: 0.15 KN @ 6.32 MS; -11.74 KN @ 27.84 MS

1996 MITSUBISHI MIRAGE INTO FRONTAL LOAD CELL BARRIER  
 LOAD CELL BARRIER POSITION C5 FORCE  
 NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 960117



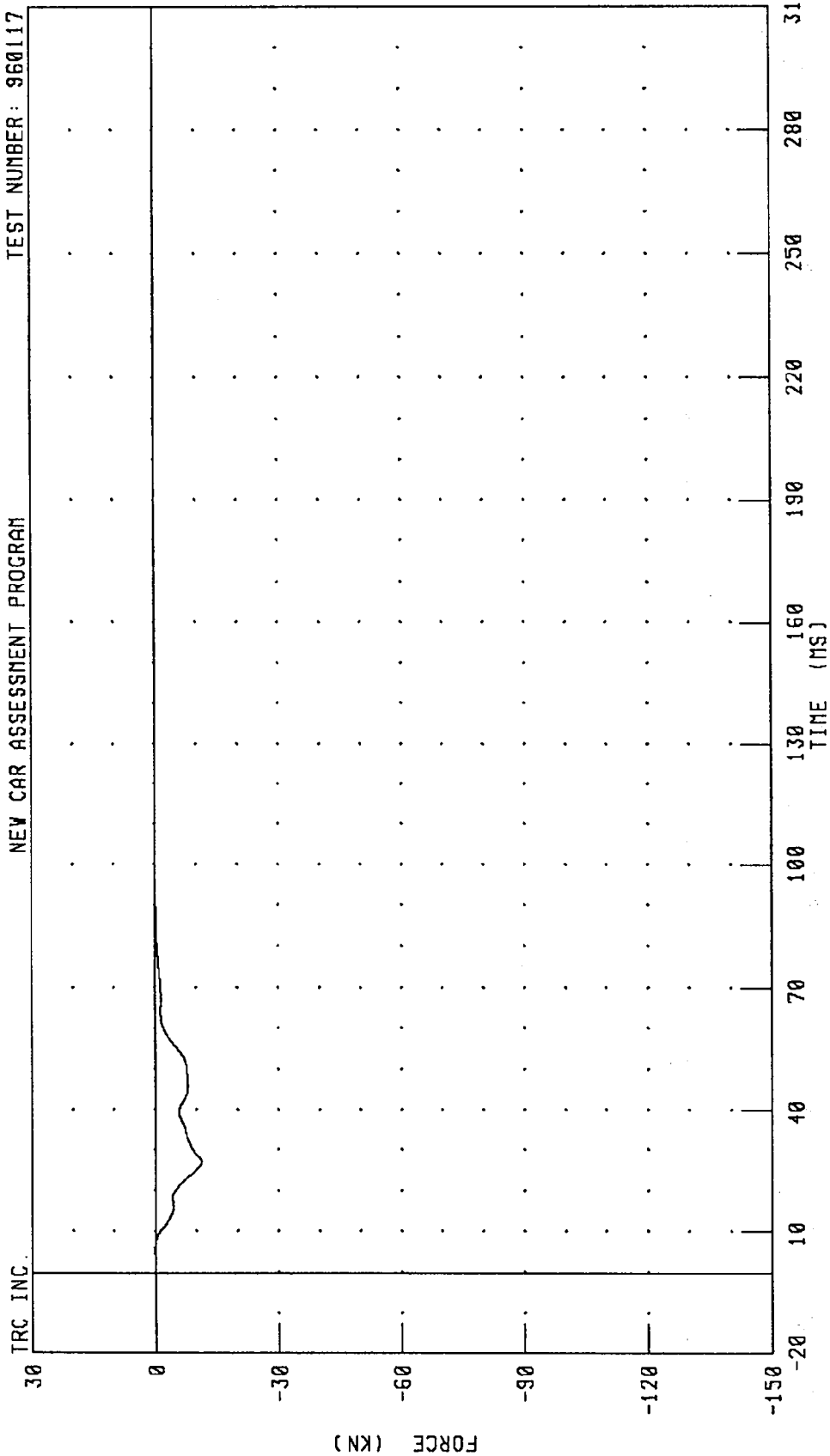
PEAK DATA: 0.16 KN @ 5.20 MS; -6.45 KN @ 49.52 MS

FILTER: CH. CLASS 60

CHANNEL: BC5F

1996 MITSUBISHI MIRAGE INTO FRONTAL LOAD CELL BARRIER  
 LOAD CELL BARRIER POSITION C6 FORCE  
 NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 960117



PEAK DATA: 0.10 KN @ 5.52 MS, -11.18 KN @ 27.04 MS

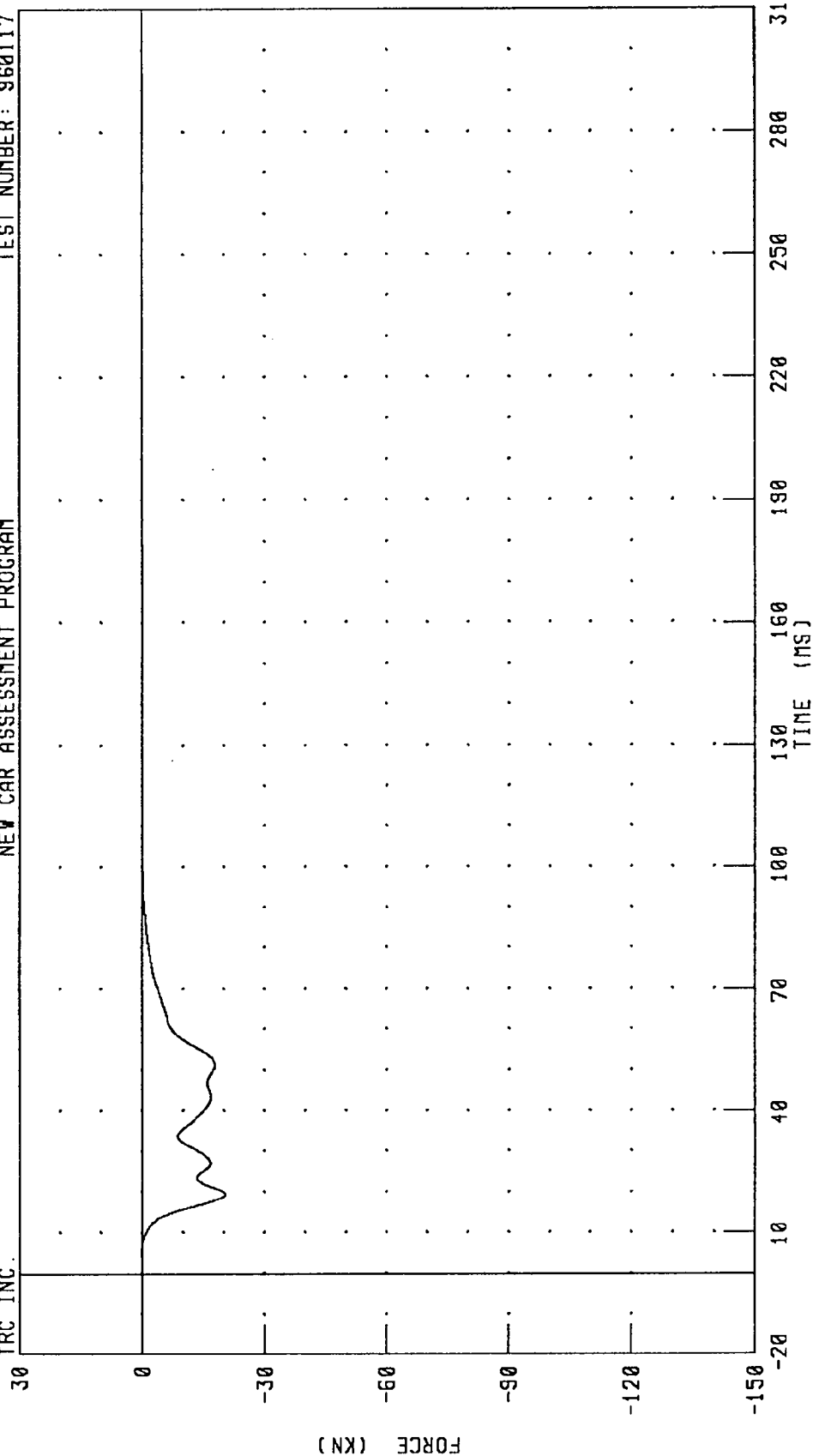
CHANNEL: BC6F FILTER: CH. CLASS 60

1996 MITSUBISHI MIRAGE INTO FRONTAL LOAD CELL BARRIER  
LOAD CELL BARRIER POSITION C7 FORCE

TEST NUMBER: 960117

NEW CAR ASSESSMENT PROGRAM

TRC INC.



CHANNEL: BC7F

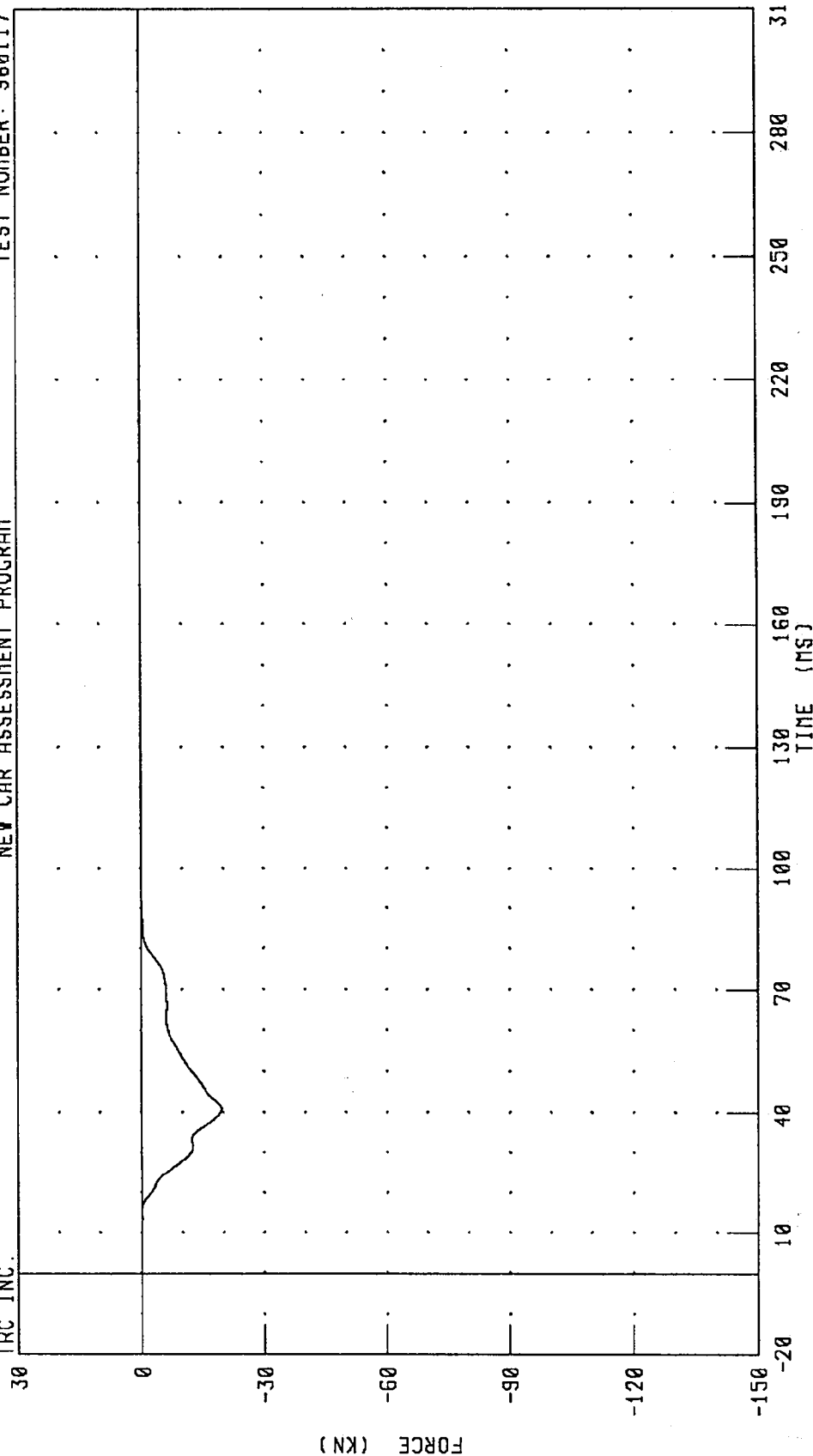
FILTER: CH. CLASS 60

PEAK DATA: 0.10 KN @ 5.36 MS; -20.29 KN @ 19.44 MS

1996 MITSUBISHI MIRAGE INTO FRONTAL LOAD CELL BARRIER  
 LOAD CELL BARRIER POSITION C8 FORCE  
 NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 960117

TRC INC.



PEAK DATA: 0.06 KN @ 5.76 MS; -19.54 KN @ 40.96 MS

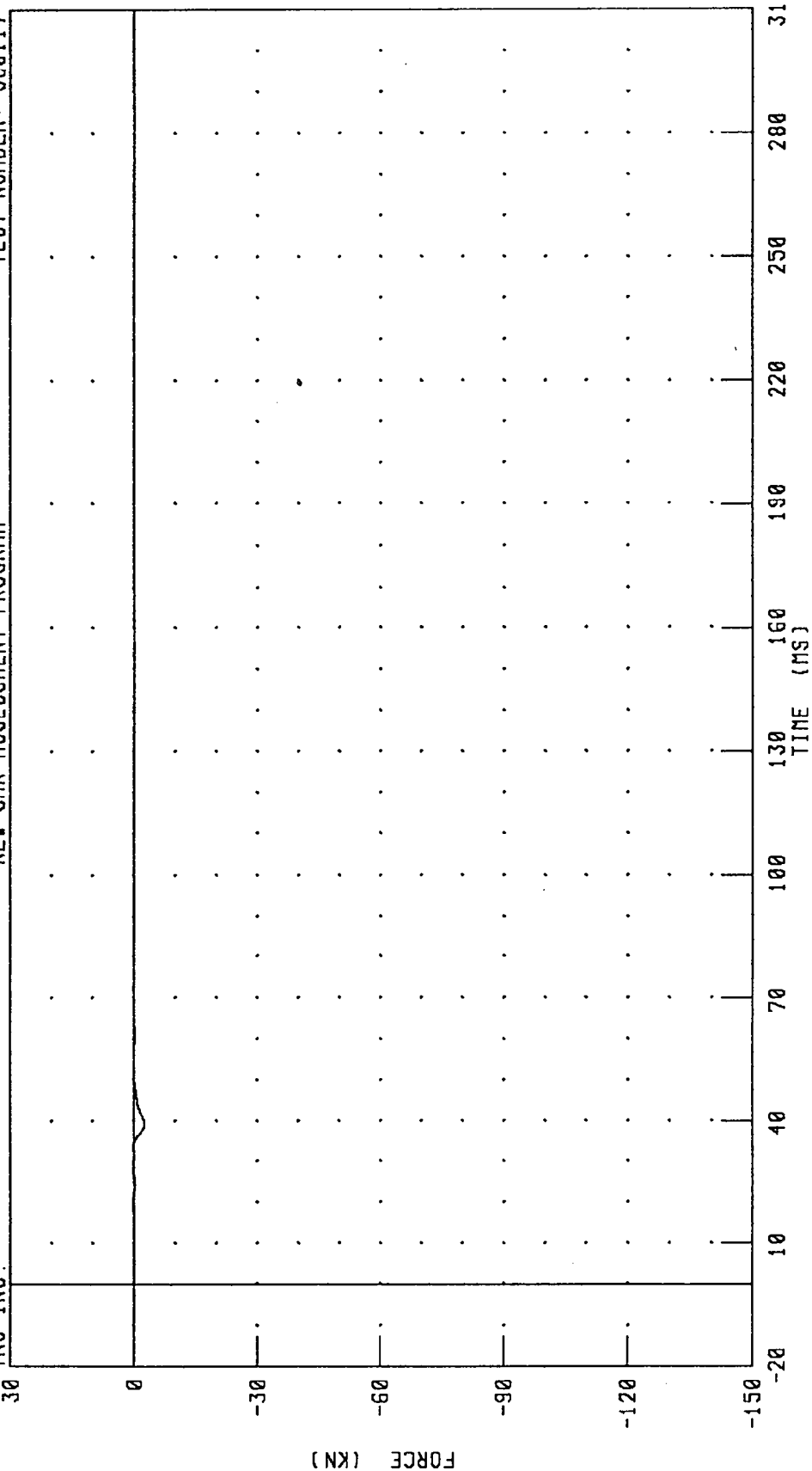
CHANNEL: BC8F FILTER: CH. CLASS 60

1996 MITSUBISHI MIRAGE INTO FRONTAL LOAD CELL BARRIER  
LOAD CELL BARRIER POSITION C9 FORCE

TEST NUMBER: 960117

NEW CAR ASSESSMENT PROGRAM

TRC INC.

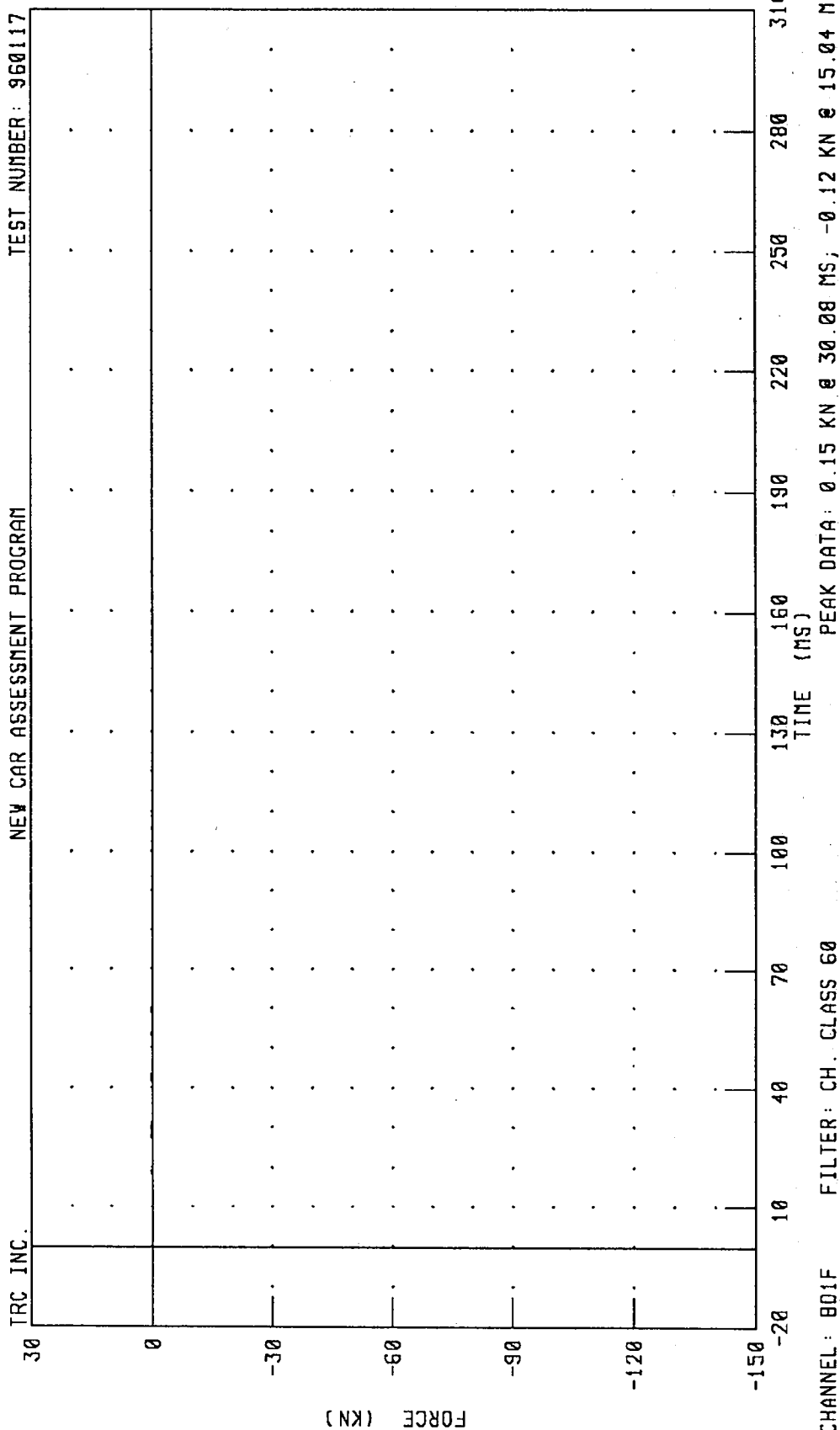


CHANNEL: BC9F FILTER: CH. CLASS 60

PEAK DATA: 0.26 KN @ 28.40 MS; -2.62 KN @ 39.20 MS

1996 MITSUBISHI MIRAGE INTO FRONTAL LOAD CELL BARRIER  
 LOAD CELL BARRIER POSITION D1 FORCE  
 NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 960117

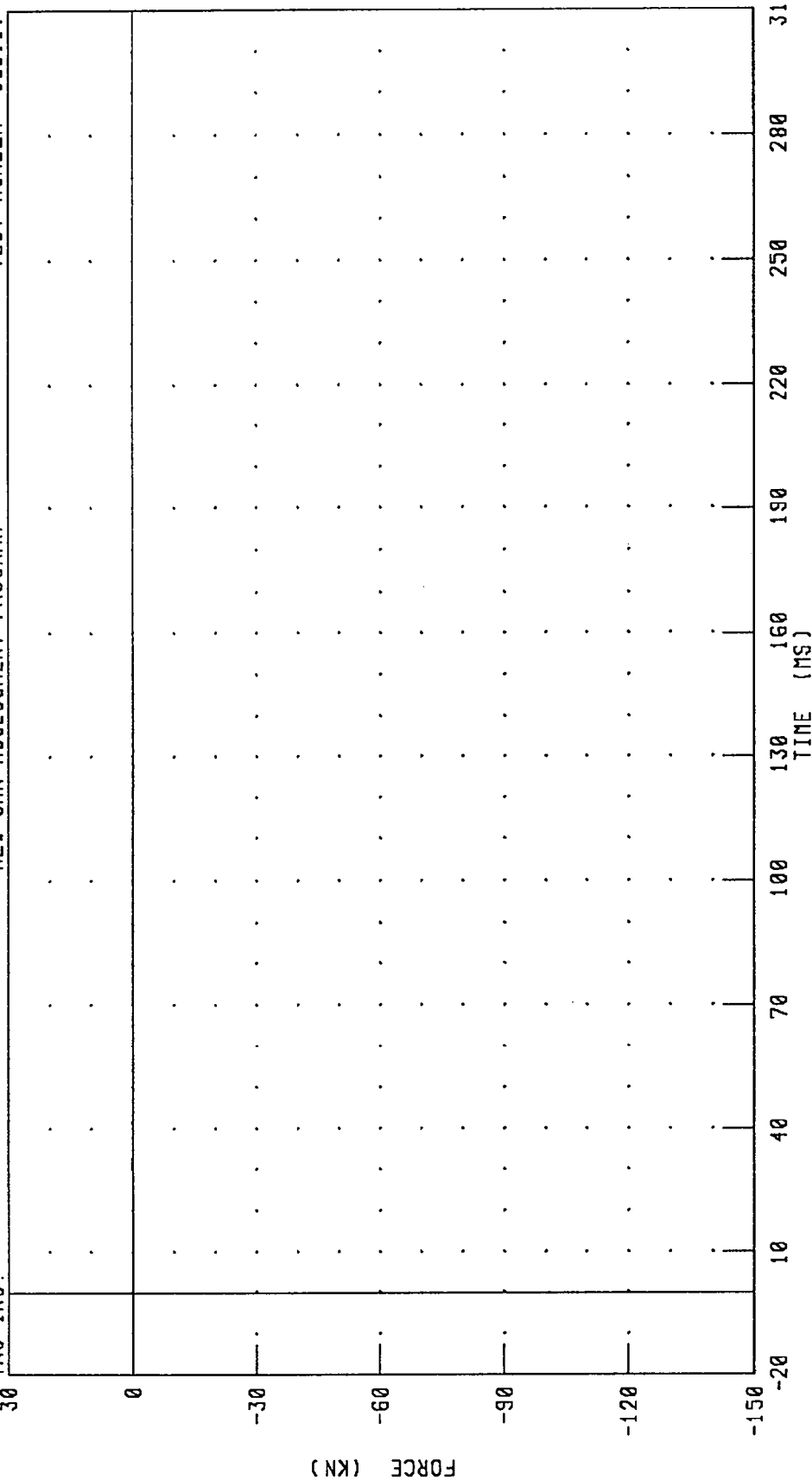


1996 MITSUBISHI MIRAGE INTO FRONTAL LOAD CELL BARRIER  
LOAD CELL BARRIER POSITION D2 FORCE

TEST NUMBER: 960117

NEW CAR ASSESSMENT PROGRAM

TRC INC.



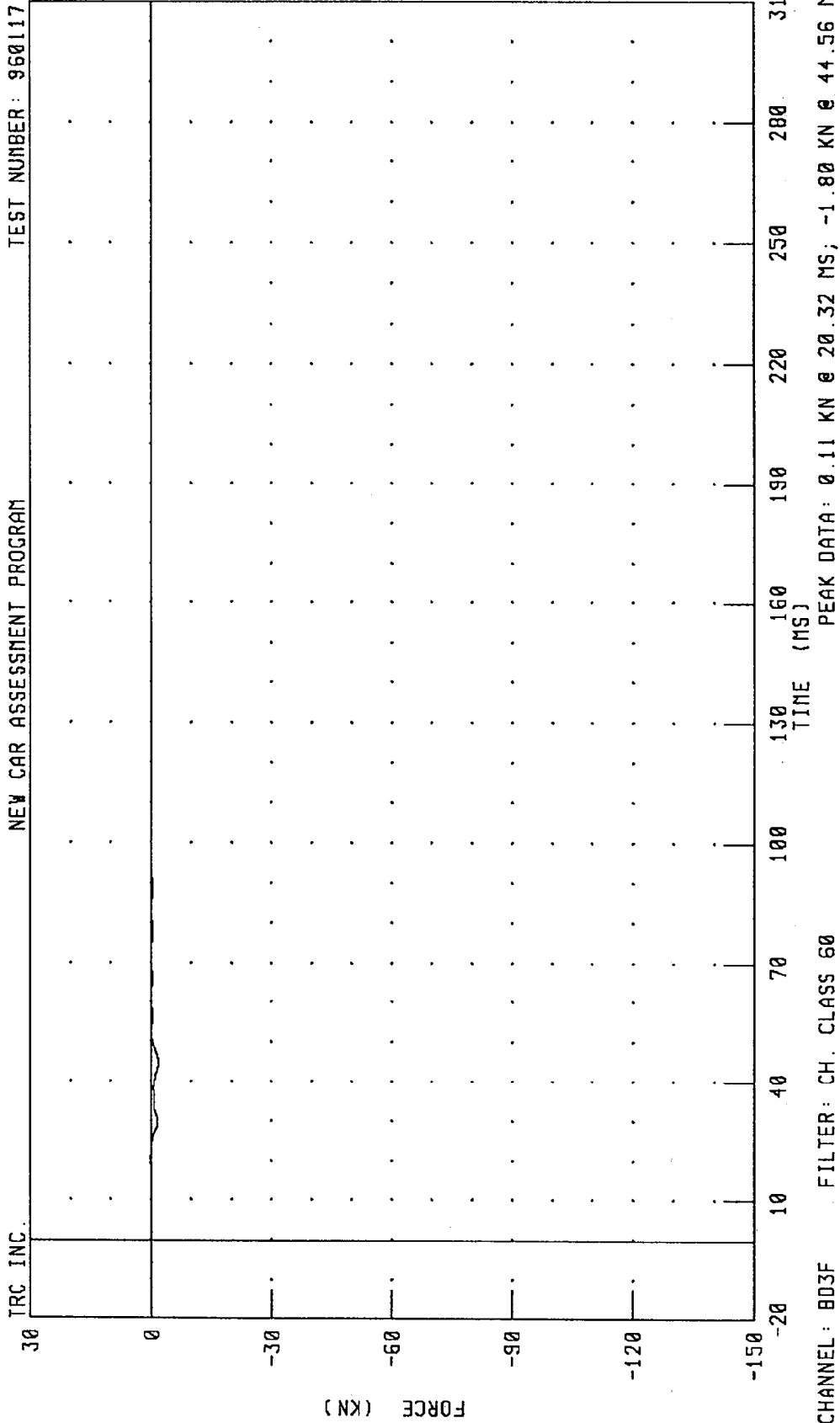
PEAK DATA: 0.22 KN @ 31.44 MS; -0.14 KN @ 34.96 MS

FILTER: CH. CLASS 60

CHANNEL: BD2F

1996 MITSUBISHI MIRAGE INTO FRONTAL LOAD CELL BARRIER  
 LOAD CELL BARRIER POSITION D3 FORCE  
 NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 960117

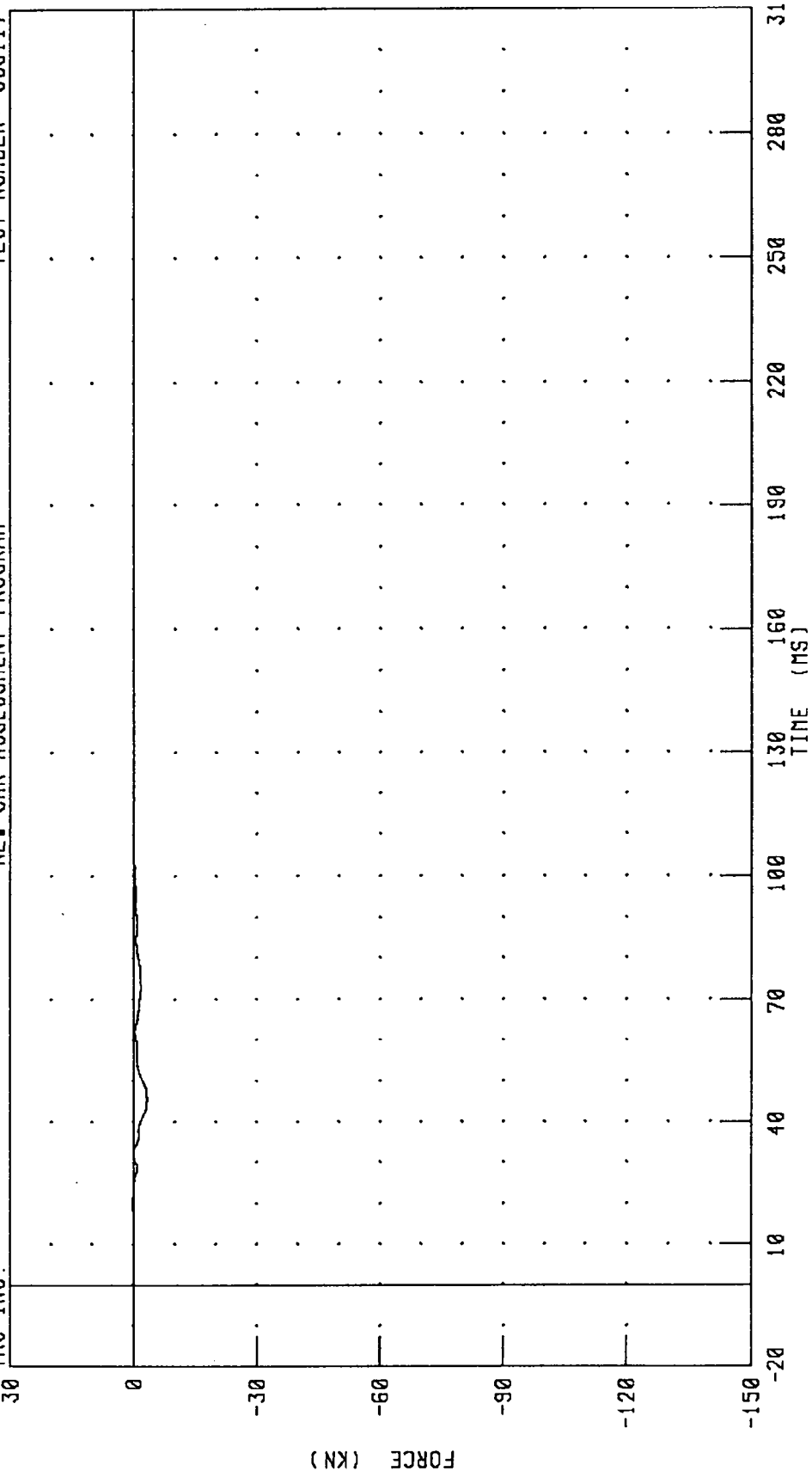


1996 MITSUBISHI MIRAGE INTO FRONTAL LOAD CELL BARRIER  
LOAD CELL BARRIER POSITION D4 FORCE

TEST NUMBER: 960117

NEW CAR ASSESSMENT PROGRAM

TRC INC.

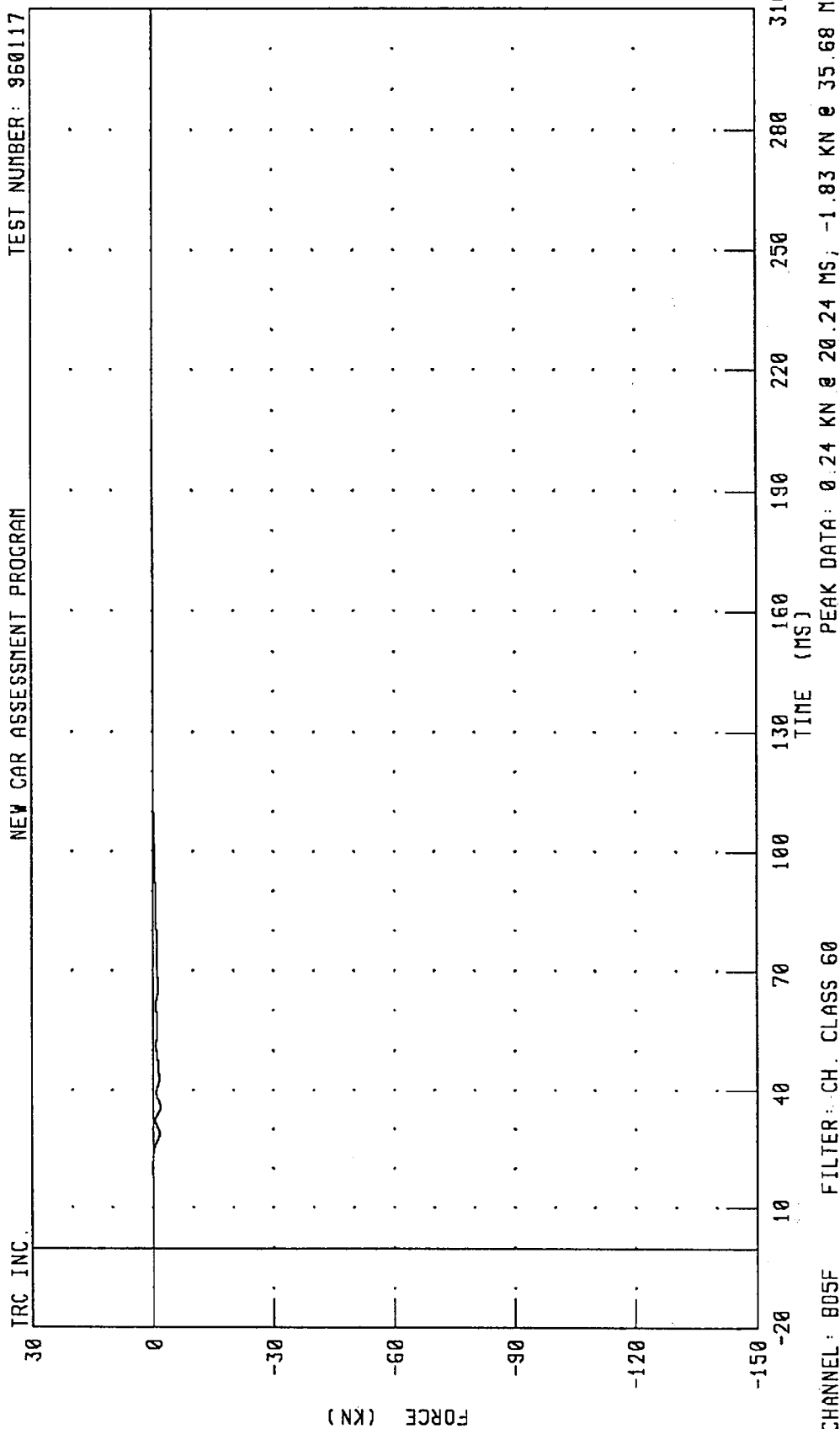


PEAK DATA: 0.15 KN @ 20.24 MS; -3.22 KN @ 45.60 MS

CHANNEL: BD4F FILTER: CH. CLASS 60

1996 MITSUBISHI MIRAGE INTO FRONTAL LOAD CELL BARRIER  
 LOAD CELL BARRIER POSITION D5 FORCE  
 NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 960117

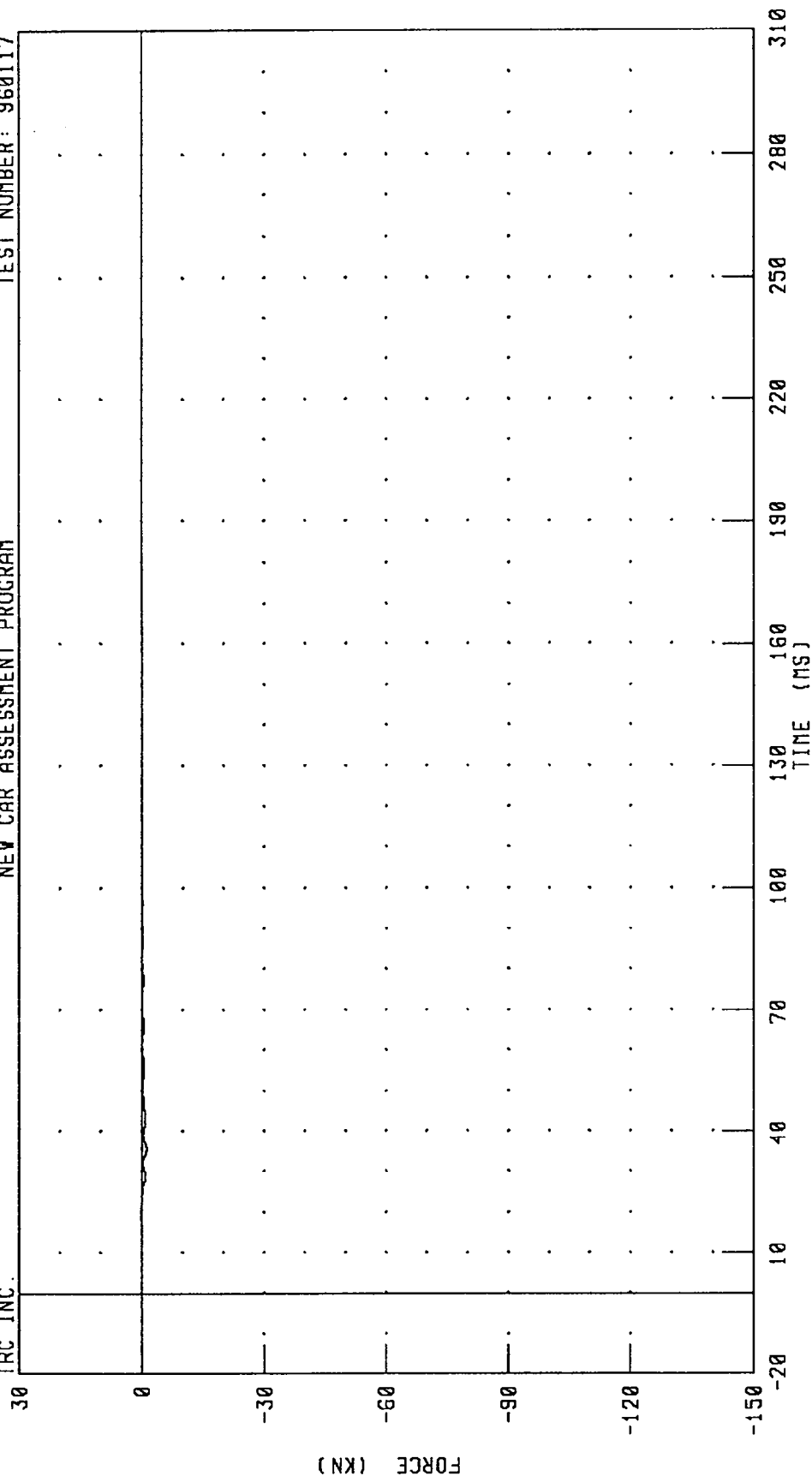


1996 MITSUBISHI MIRAGE INTO FRONTAL LOAD CELL BARRIER  
LOAD CELL BARRIER POSITION D6 FORCE

TEST NUMBER: 960117

NEW CAR ASSESSMENT PROGRAM

TRC INC.



CHANNEL: BD6F

FILTER: CH. CLASS 60

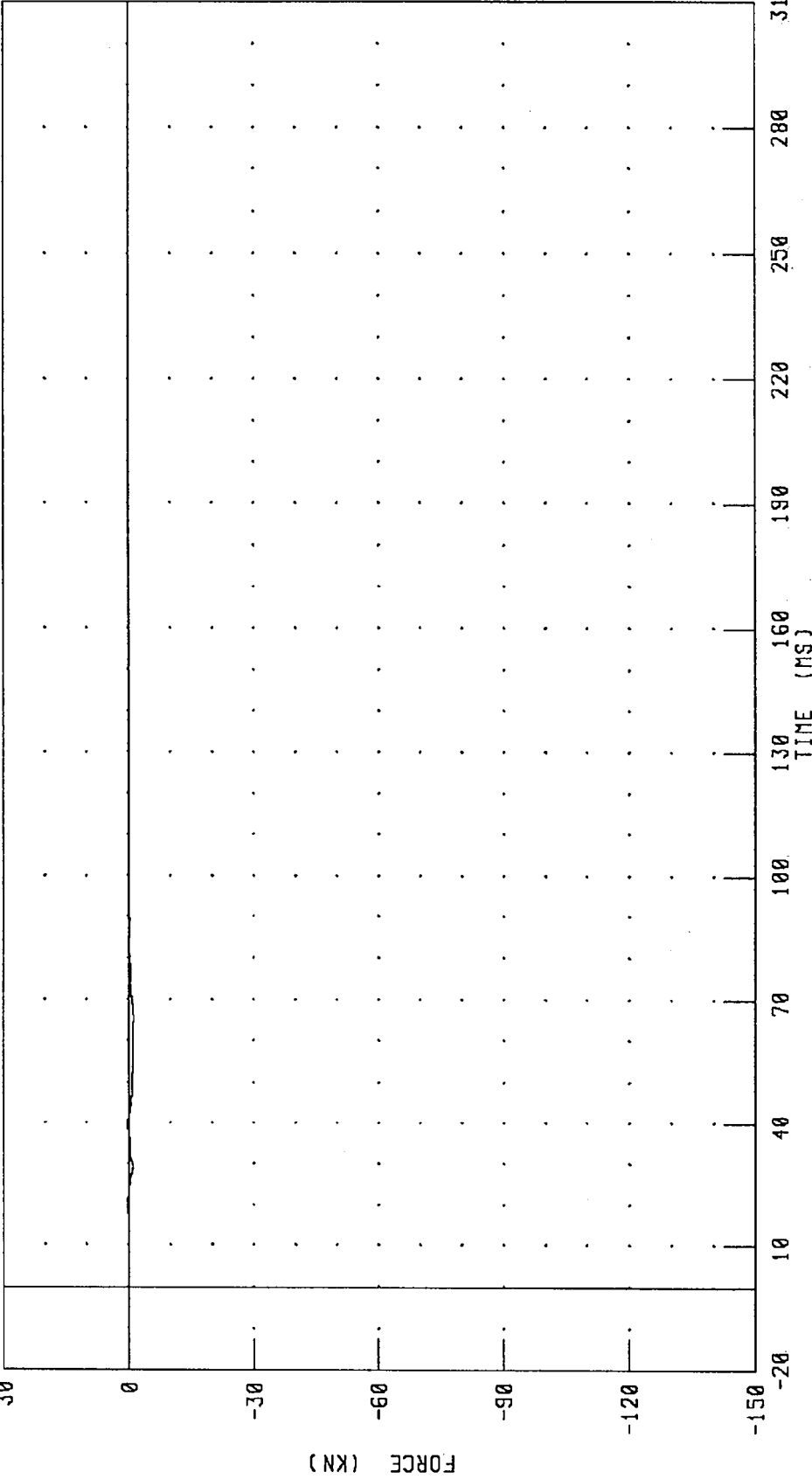
PEAK DATA: 0.22 KN @ 19.92 MS; -1.23 KN @ 35.52 MS

1996 MITSUBISHI MIRAGE INTO FRONTAL LOAD CELL BARRIER  
LOAD CELL BARRIER POSITION D7 FORCE

TEST NUMBER: 960117

NEW CAR ASSESSMENT PROGRAM

TRC INC.



CHANNEL: B07F

FILTER: CH CLASS 60

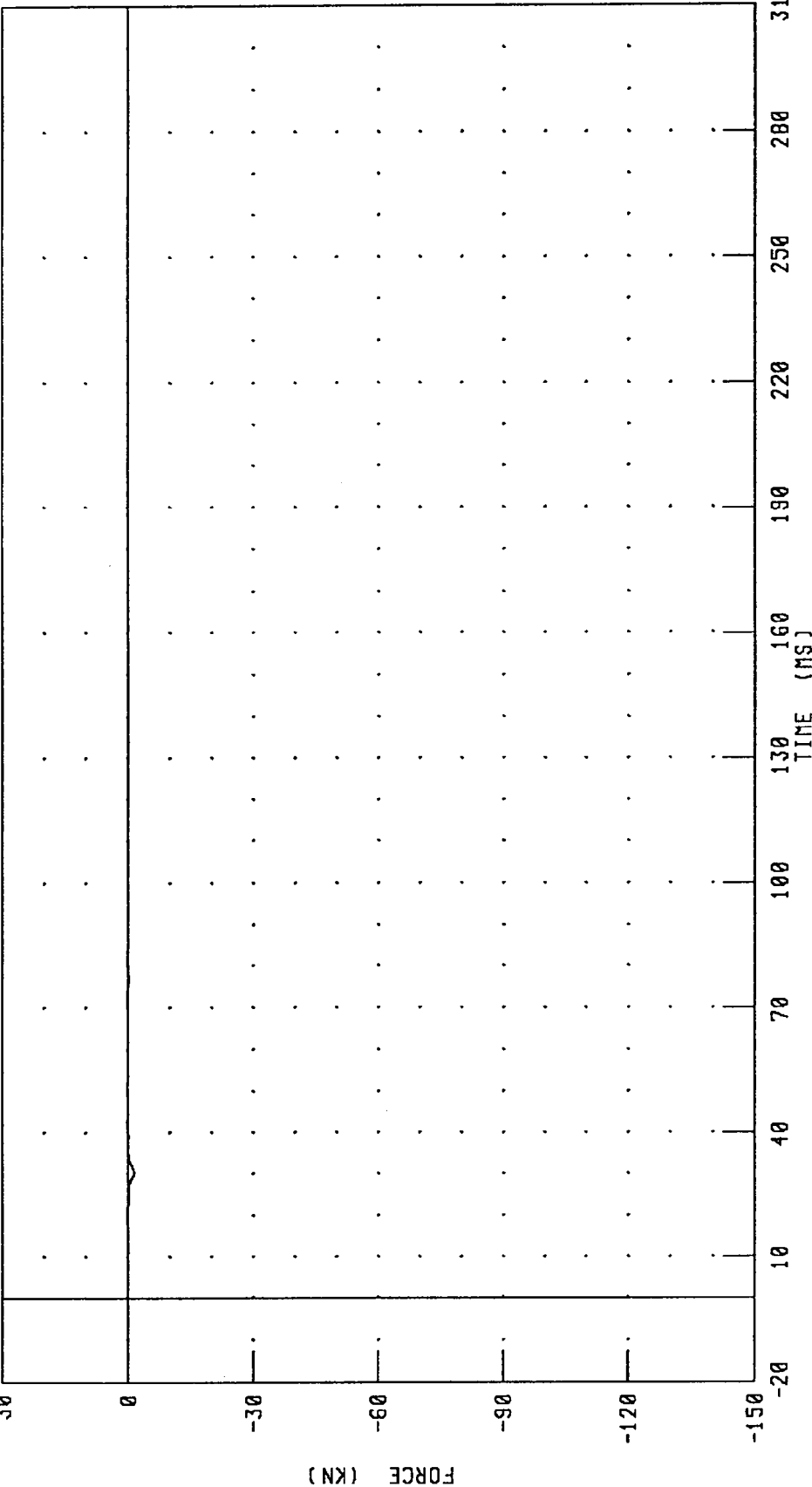
PEAK DATA: 0.28 KN @ 20.00 MS, -1.22 KN @ 65.28 MS

1996 MITSUBISHI MIRAGE INTO FRONTAL LOAD CELL BARRIER  
LOAD CELL BARRIER POSITION D8 FORCE

TEST NUMBER: 960117

NEW CAR ASSESSMENT PROGRAM

TRC INC.



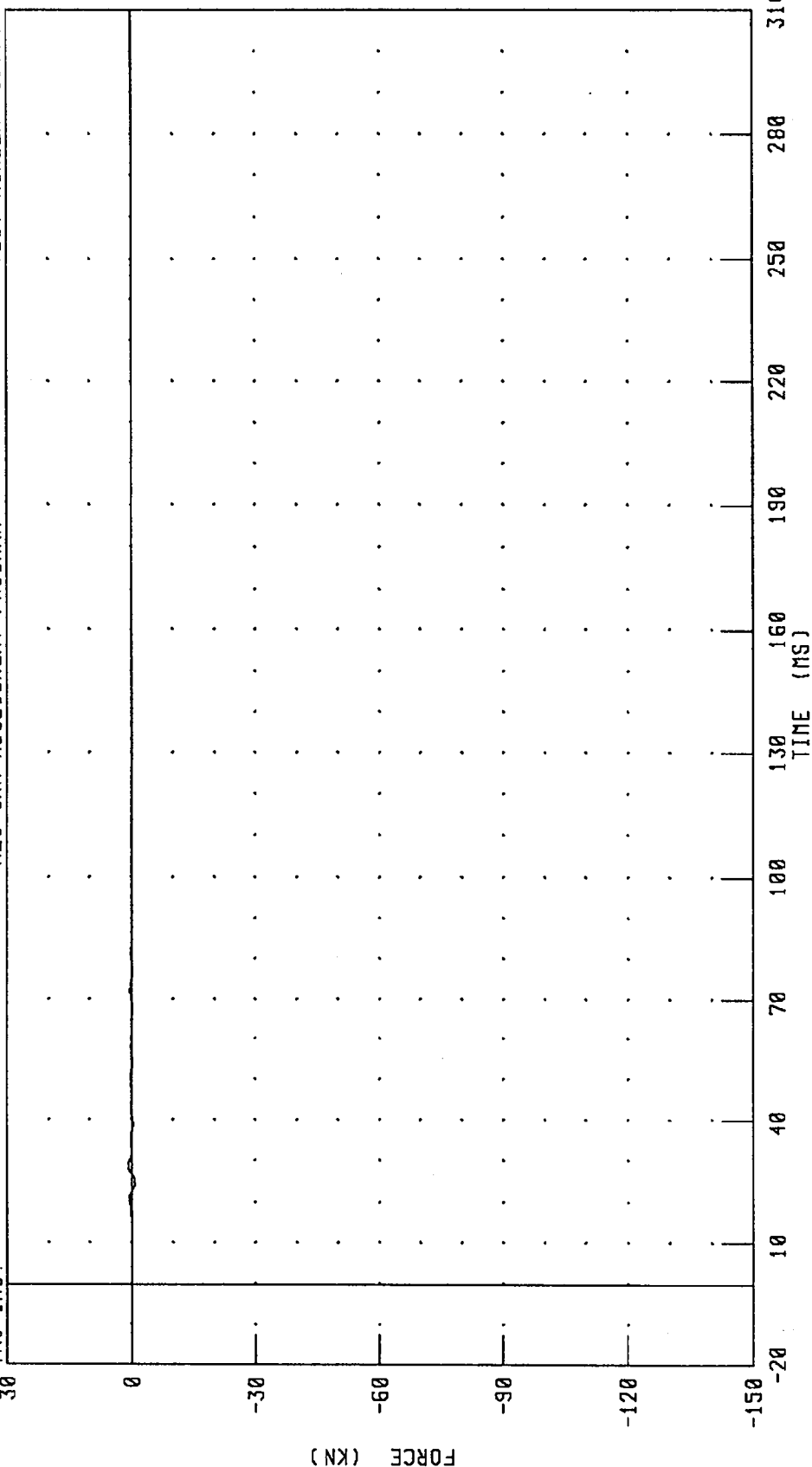
PEAK DATA: 0.34 KN @ 20.24 MS; -1.45 KN @ 30.48 MS

CHANNEL: BD8F FILTER: CH. CLASS 60

1996 MITSUBISHI MIRAGE INTO FRONTAL LOAD CELL BARRIER  
 LOAD CELL BARRIER POSITION 09 FORCE  
 NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 960117

IRC INC.



PEAK DATA: 0.80 KN @ 28.72 MS; -0.92 KN @ 24.72 MS

FILTER: CH. CLASS 60

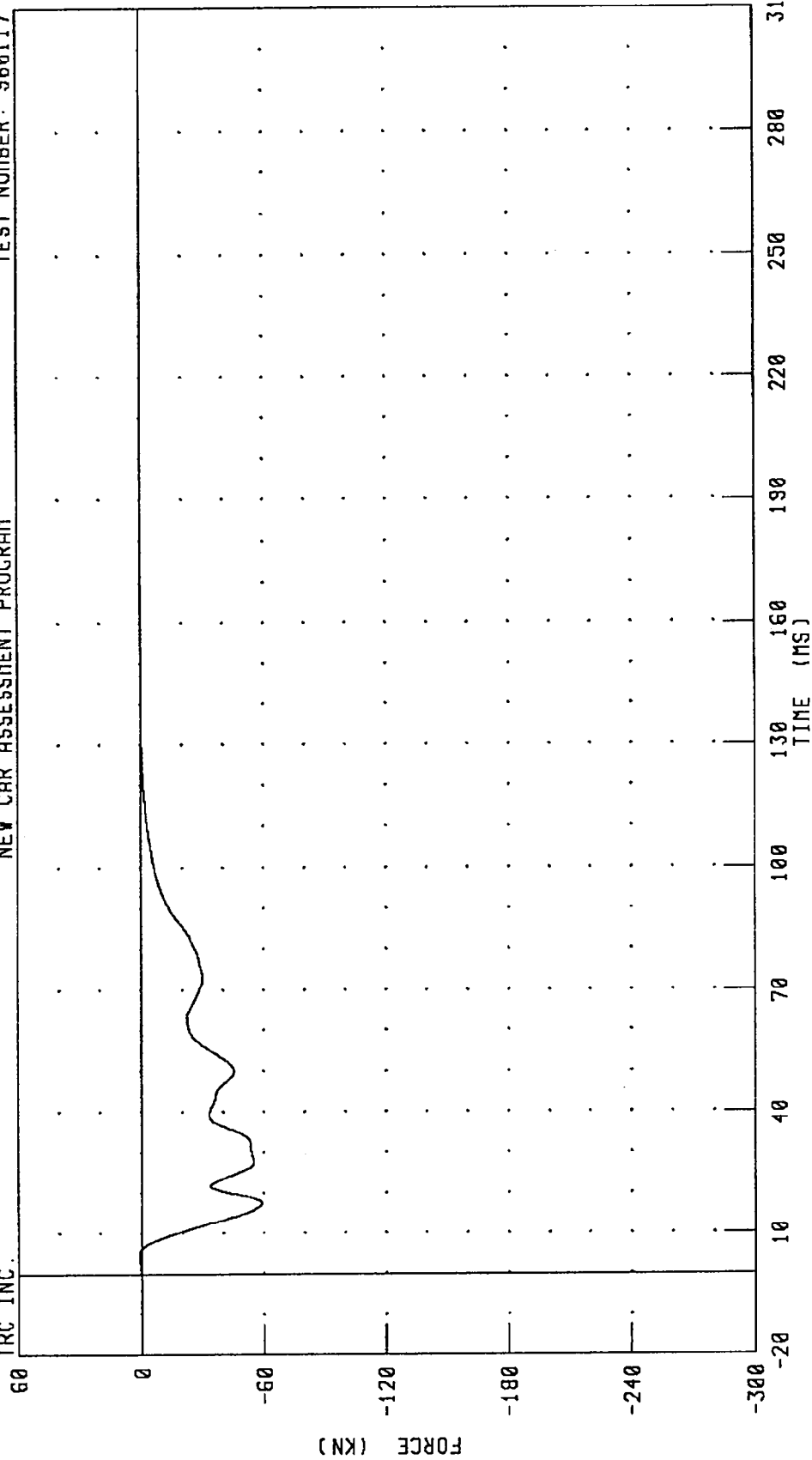
CHANNEL: BD9F

1996 MITSUBISHI MIRAGE INTO FRONTAL LOAD CELL BARRIER  
LOAD CELL BARRIER GROUP # 1 FORCE TOTAL

TEST NUMBER: 960117

NEW CAR ASSESSMENT PROGRAM

TRC INC.



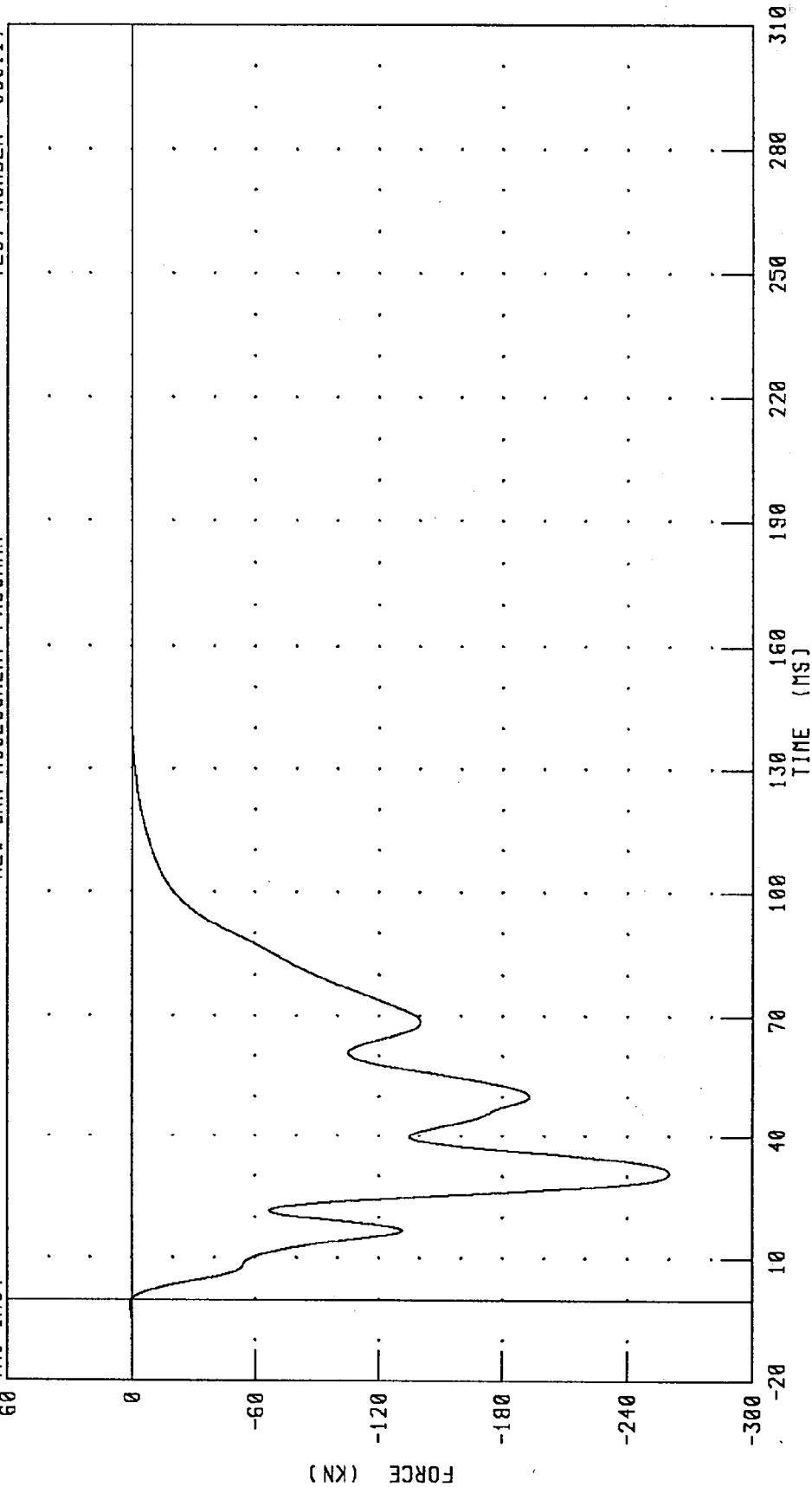
CHANNEL: LCBGIF FILTER: CH. CLASS 60

PEAK DATA: 1.07 KN @ 4.40 MS, -58.91 KN @ 17.60 MS

1996 MITSUBISHI MIRAGE INTO FRONTAL LOAD CELL BARRIER  
 LOAD CELL BARRIER GROUP # 2 FORCE TOTAL  
 NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 960117

TRC INC.



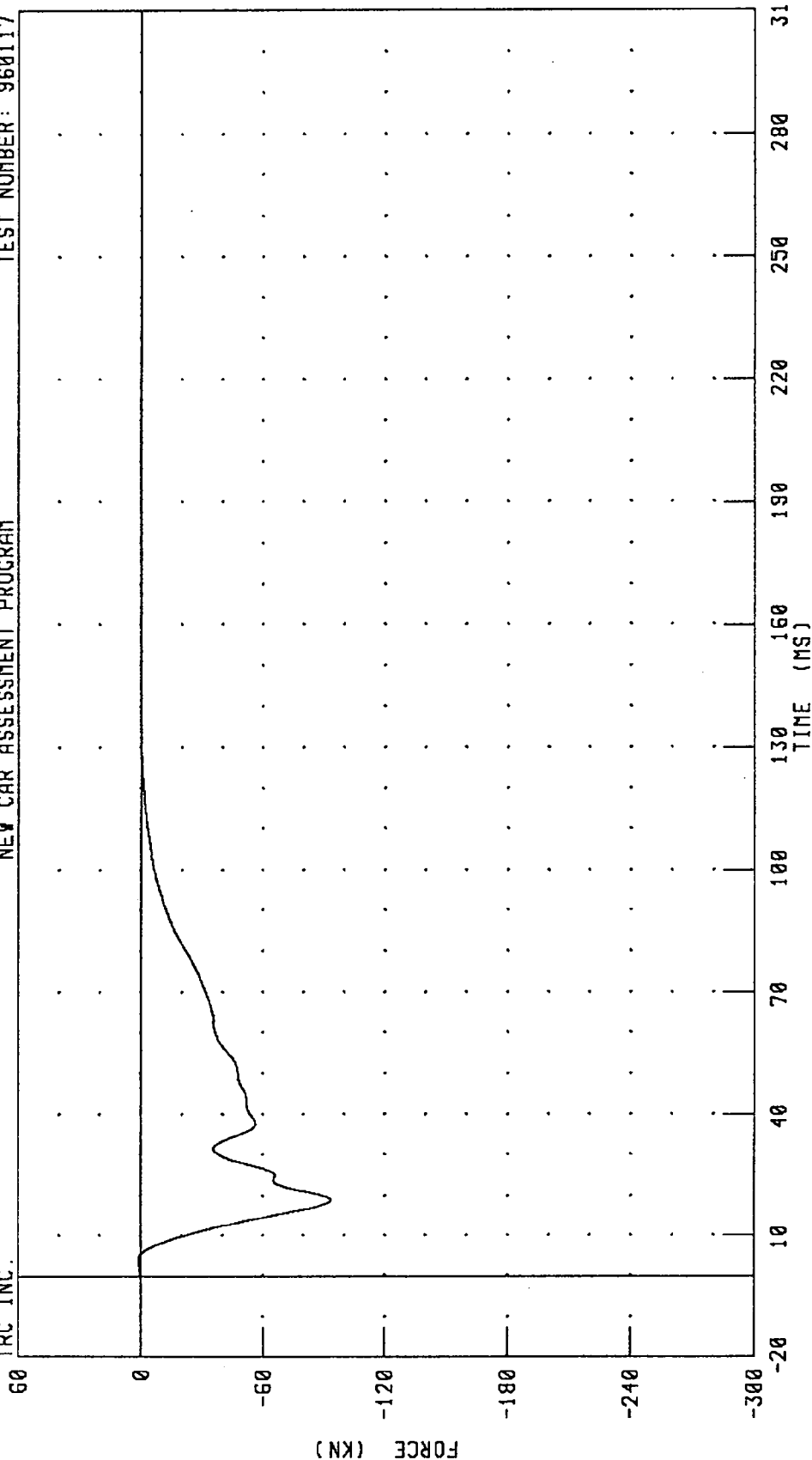
CHANNEL: LCBG2F FILTER: CH. CLASS 60

1896 MITSUBISHI MIRAGE INTO FRONTAL LOAD CELL BARRIER  
LOAD CELL BARRIER GROUP # 3 FORCE TOTAL

TEST NUMBER: 960117

NEW CAR ASSESSMENT PROGRAM

TRC INC.



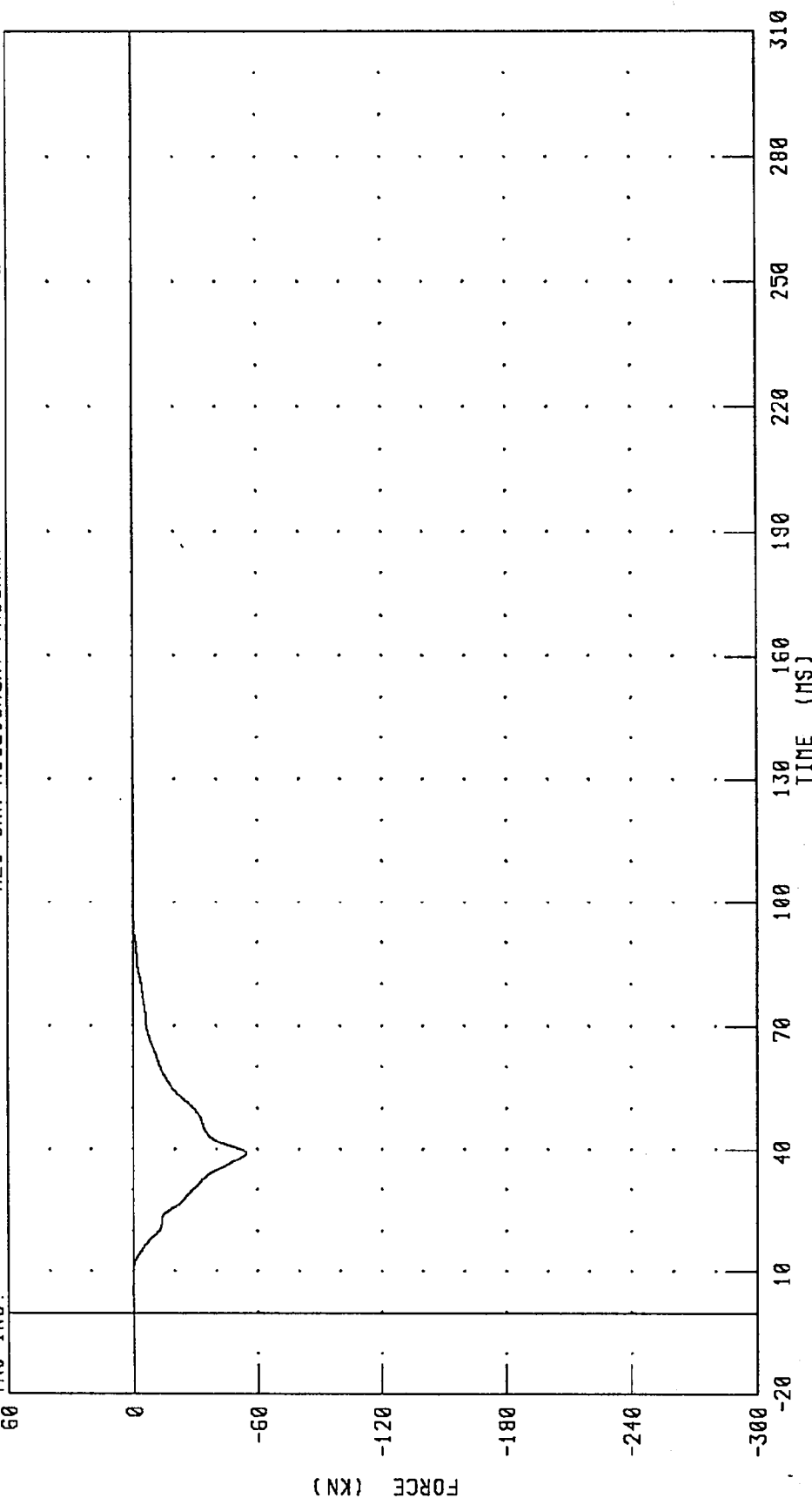
CHANNEL: LCBG3F FILTER: CH. CLASS 60

PEAK DATA: 0.94 KN @ 3.68 MS; -93.65 KN @ 19.04 MS

1996 MITSUBISHI MIRAGE INTO FRONTAL LOAD CELL BARRIER  
 LOAD CELL BARRIER GROUP # 4 FORCE TOTAL  
 NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 960117

TRC INC.



PEAK DATA: 0.20 KN @ 5.52 MS; -54.62 KN @ 38.96 MS

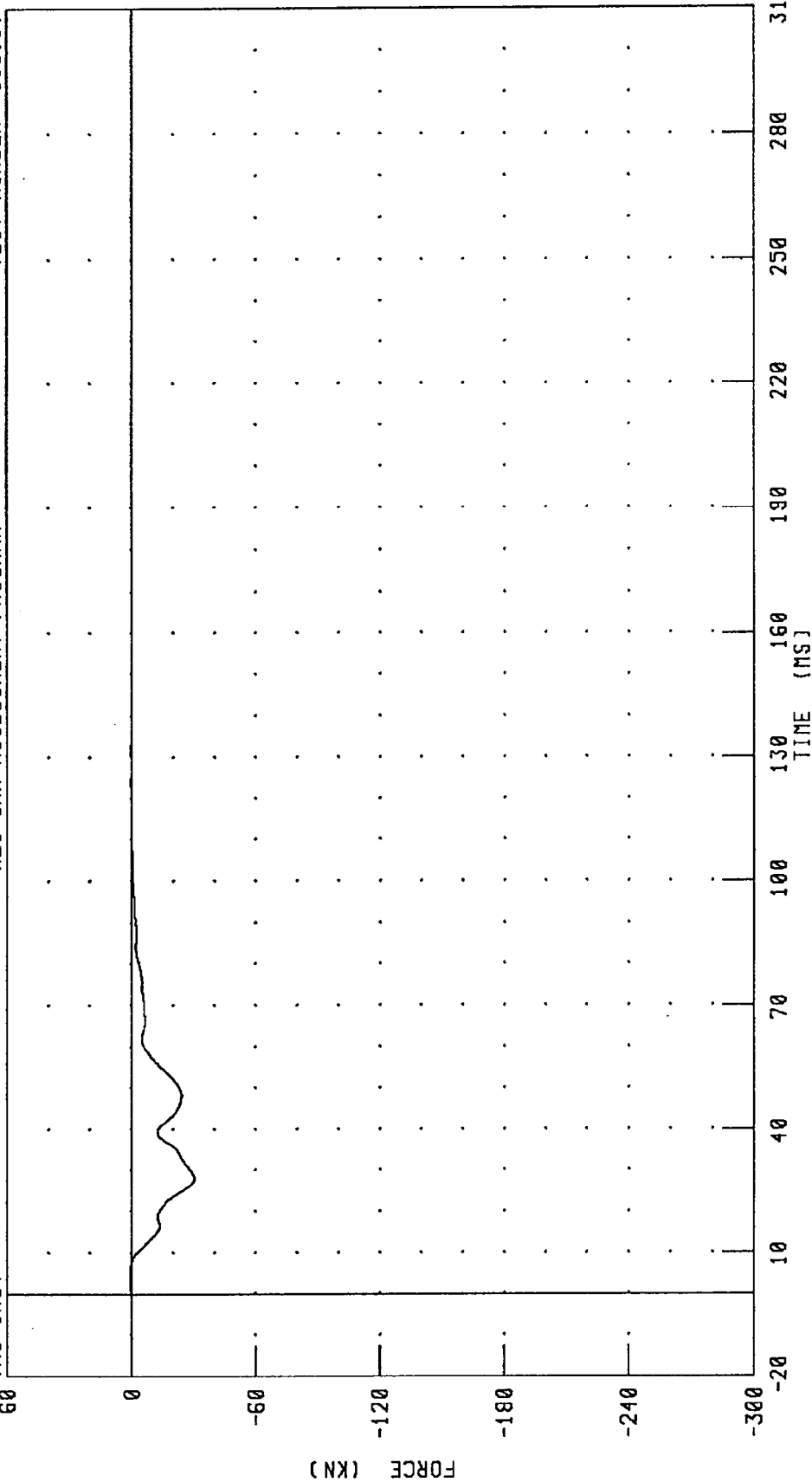
CHANNEL: LCBG4F FILTER: CH. CLASS 60

1996 MITSUBISHI MIRAGE INTO FRONTAL LOAD CELL BARRIER  
LOAD CELL BARRIER GROUP # 5 FORCE TOTAL

TEST NUMBER: 960117

NEW CAR ASSESSMENT PROGRAM

TRC INC.



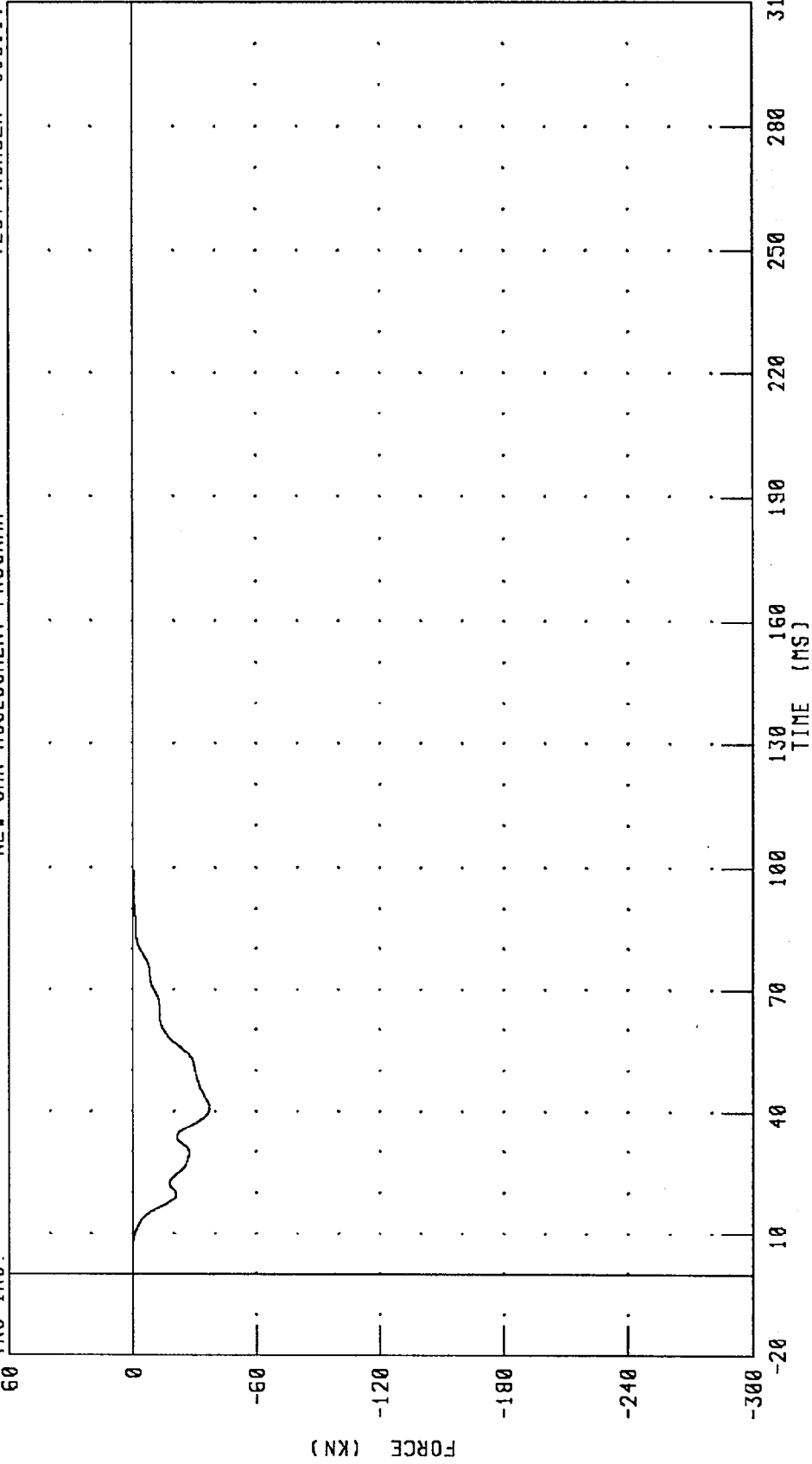
CHANNEL: LCBG5F FILTER: CH. CLASS 60

PEAK DATA: 0.46 KN @ 4.96 MS; -30.50 KN @ 27.92 MS

1996 MITSUBISHI MIRAGE INTO FRONTAL LOAD CELL BARRIER  
 LOAD CELL BARRIER GROUP # 6 FORCE TOTAL  
 NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 960117

TRC INC.

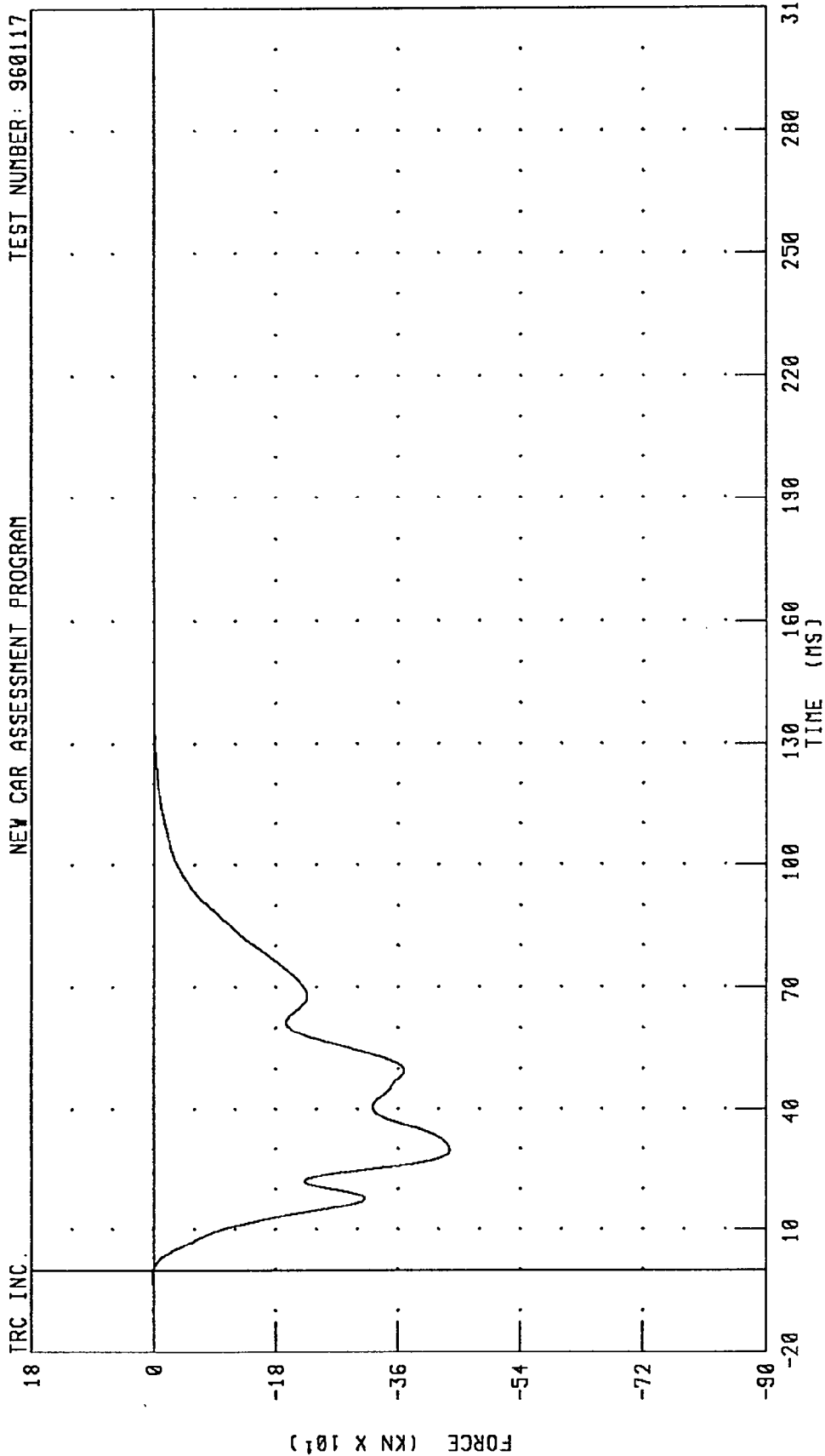


PEAK DATA: 0.10 KN @ 2.64 MS; -37.31 KN @ 40.96 MS

CHANNEL: LCBG6F FILTER: CH. CLASS 60

1996 MITSUBISHI MIRAGE INTO FRONTAL LOAD CELL BARRIER  
 TOTAL LOAD CELL BARRIER FORCE  
 NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 960117



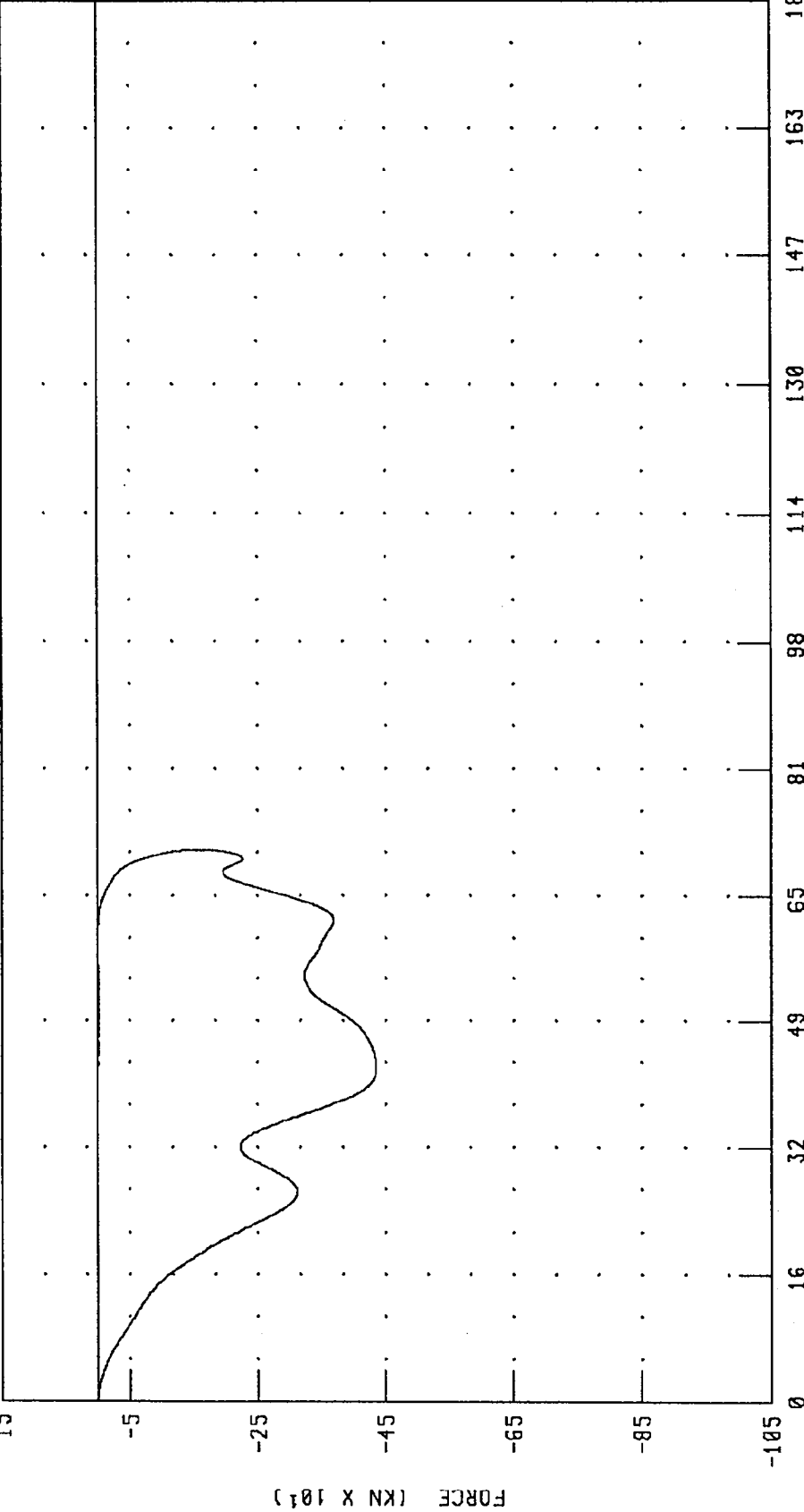
CHANNEL: LCBGT FILTER: CH. CLASS 60

PEAK DATA: 1.02 KN @ -1.36 MS; -435.47 KN @ 29.76 MS

1996 MITSUBISHI MIRAGE INTO FRONTAL LOAD CELL BARRIER  
 TOTAL LOAD CELL BARRIER FORCE VS AVERAGE VEHICLE X-AXIS DISPLACEMENT  
 NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 960117

TRC INC.



DISPLACEMENT (MM X 10<sup>1</sup>)

CHANNEL: QTHXD  
 LCBGT

FILTER: CH. CLASS 180  
 CH. CLASS 60

PEAK DATA: 712.77 MM @ 78.96 MS;  
 0.30 KN @ 0.00 MS;  
 -435.47 KN @ 29.76 MS

Appendix C

Dummy Certification Data

Pre-test Certification Data

Driver Dummy S/N: 142

TRANSPORTATION RESEARCH CENTER INC.  
HYBRID III EXTERNAL DIMENSIONS  
SN 142 HUMANOID

15-JAN-96

TRC INC. TEST NO: 142C31ED1 572E SN142 EXT.DIMENSION CAL31

| TEST PARAMETER                        | (DIMEN.) | SPECIFICATION | TEST RESULTS |
|---------------------------------------|----------|---------------|--------------|
| LOCATION FOR CHEST CIRCUMFERENCE (AA) |          | 429 - 434 MM  | 432. MM      |
| LOCATION FOR WAIST CIRCUMFERENCE (BB) |          | 226 - 231 MM  | 229. MM      |
| CHEST CIRCUMFERENCE (Y)               |          | 970 -1001 MM  | 986. MM      |
| WAIST CIRCUMFERENCE (Z)               |          | 836 - 866 MM  | 848. MM      |
| CHEST DEPTH (O)                       |          | 213 - 229 MM  | 221. MM      |
| H-POINT HEIGHT (C)                    |          | 84 - 89 MM    | 84. MM       |
| H-POINT FROM SEATBACK (D)             |          | 135 - 140 MM  | 137. MM      |
| SKULL CAP TO BACKLINE (H)             |          | 41 - 46 MM    | 43. MM       |
| TOTAL SITTING HEIGHT (A)              |          | 879 - 889 MM  | 879. MM      |
| THIGH CLEARANCE (F)                   |          | 140 - 155 MM  | 145. MM      |
| BUTTOCK KNEE LENGTH (K)               |          | 579 - 605 MM  | 602. MM      |
| BUTTOCK POPLITEAL LENGTH (N)          |          | 452 - 478 MM  | 470. MM      |
| POPLITEAL HEIGHT (L)                  |          | 429 - 455 MM  | 445. MM      |
| KNEE PIVOT HEIGHT (M)                 |          | 485 - 500 MM  | 488. MM      |
| FOOT LENGTH (P)                       |          | 252 - 267 MM  | 257. MM      |
| FOOT BREADTH (W)                      |          | 91 - 107 MM   | 97. MM       |
| SHOULDER PIVOT FROM BACKLINE (E)      |          | 84 - 94 MM    | 91. MM       |
| SHOULDER BREADTH (V)                  |          | 422 - 437 MM  | 429. MM      |
| SHOULDER PIVOT HEIGHT (B)             |          | 506 - 521 MM  | 508. MM      |
| ELBOW REST HEIGHT (J)                 |          | 191 - 211 MM  | 203. MM      |
| SHOULDER-ELBOW LENGTH (I)             |          | 330 - 345 MM  | 345. MM      |
| BACK OF ELBOW TO WRIST PIVOT (G)      |          | 290 - 305 MM  | 292. MM      |

DUMMY MEETS SPECIFICATIONS  
TECHNICIAN Chris Malt

RUN NUMBER: 011596.1250

TRANSPORTATION RESEARCH CENTER INC.

HEAD DROP TEST

HYBRID III

15-JAN-96

TRC INC.

TEST NO: 142C31HD1

572E SN142 HEAD DROP CAL 31

| TEST PARAMETER                  | SPECIFICATION    | TEST RESULTS |
|---------------------------------|------------------|--------------|
| TEMPERATURE                     | 18.9-25.6 DEG. C | 21.1 DEG. C  |
| RELATIVE HUMIDITY               | 10 - 70 %        | 30.0 %       |
| PEAK RESULTANT ACCELERATION     | 225 - 275 G      | 261.30 G     |
| PEAK LATERAL ACCELERATION       | 15 G MAX         | 1.77 G       |
| IS ACCELERATION CURVE UNIMODAL? | YES              | YES          |

TEST MEETS SPECIFICATIONS

TECHNICIAN Chas. M. Hill

RUN NUMBER: 011696.0725;2

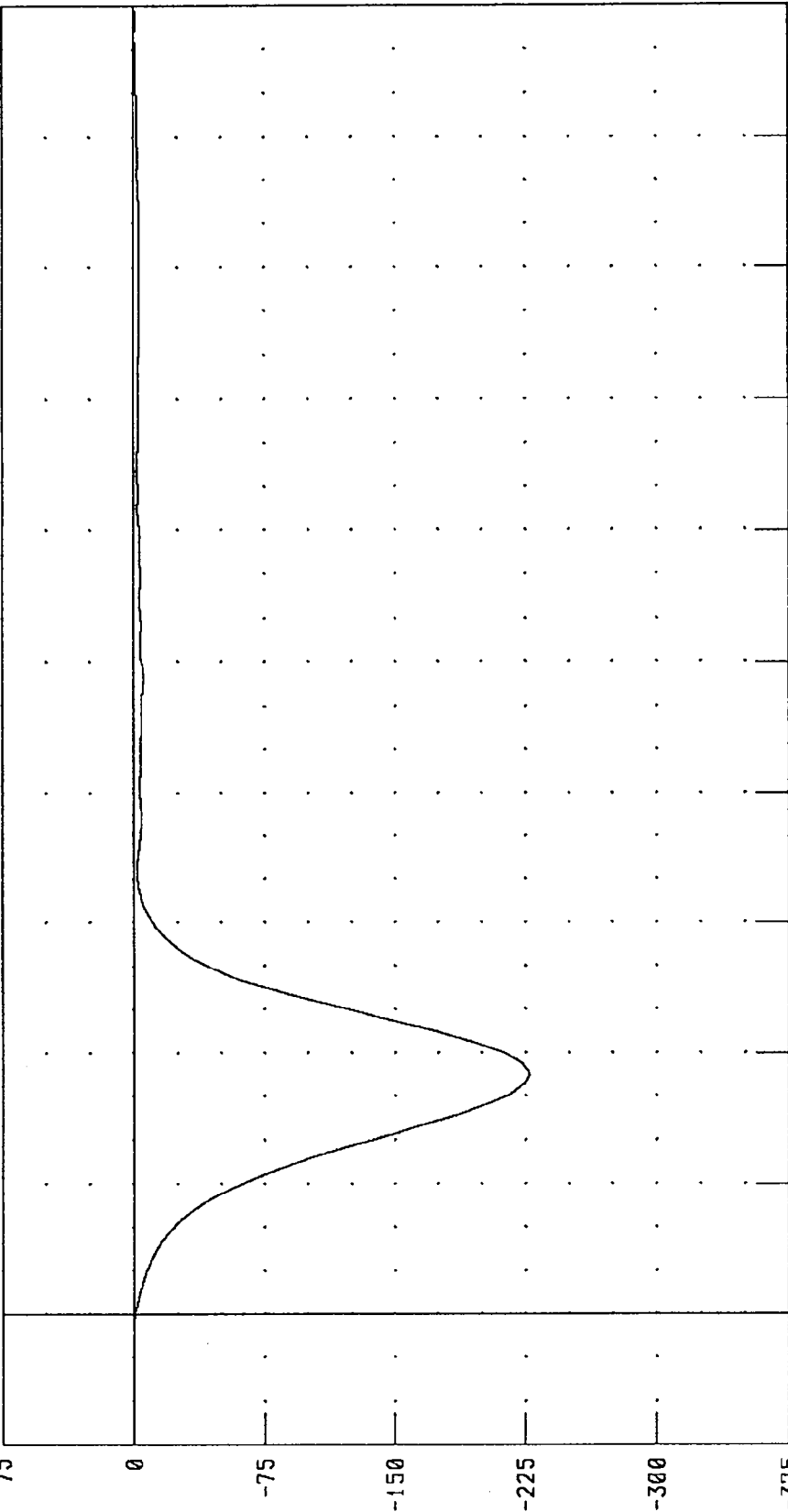
PART 572-E HYBRID III HEAD CALIBRATION  
HEAD ACCELERATION X AXIS

TRC TEST NUMBER: 142C31HD1

572E SN142 HEAD DROP CAL 31

RUN NUMBER: 021296.1040;2

75



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

CHANNEL: HEDXC FILTER: CH. CLASS 1000

PEAK DATA: 0.08 G @ -0.16 MS; -227.35 G @ 1.84 MS

# PART 572-E HYBRID III HEAD CALIBRATION

HEAD ACCELERATION Y AXIS

572E SN142 HEAD DROP CAL 31

TRC TEST NUMBER: 142C31HD1

225

150

75

0

-75

RUN NUMBER: 021296.1040;2

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

30

20

10

0

-10

-225

-150

-75

0

75

150

225

30

20

10

0

30

20

10

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-75

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0

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

TRC TEST NUMBER: 142C31HD1

572E SN142 HEAD DROP CAL 31

RUN NUMBER: 021296.1040;2

75

0

-75

-150

-225

-300

-375

ACCELERATION (G)

-10

0

10

20

30

40

50

60

70

80

90

100

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

PEAK DATA: 0.04 G @ -0.08 MS; -128.80 G @ 1.84 MS

FILTER: CH. CLASS 1000

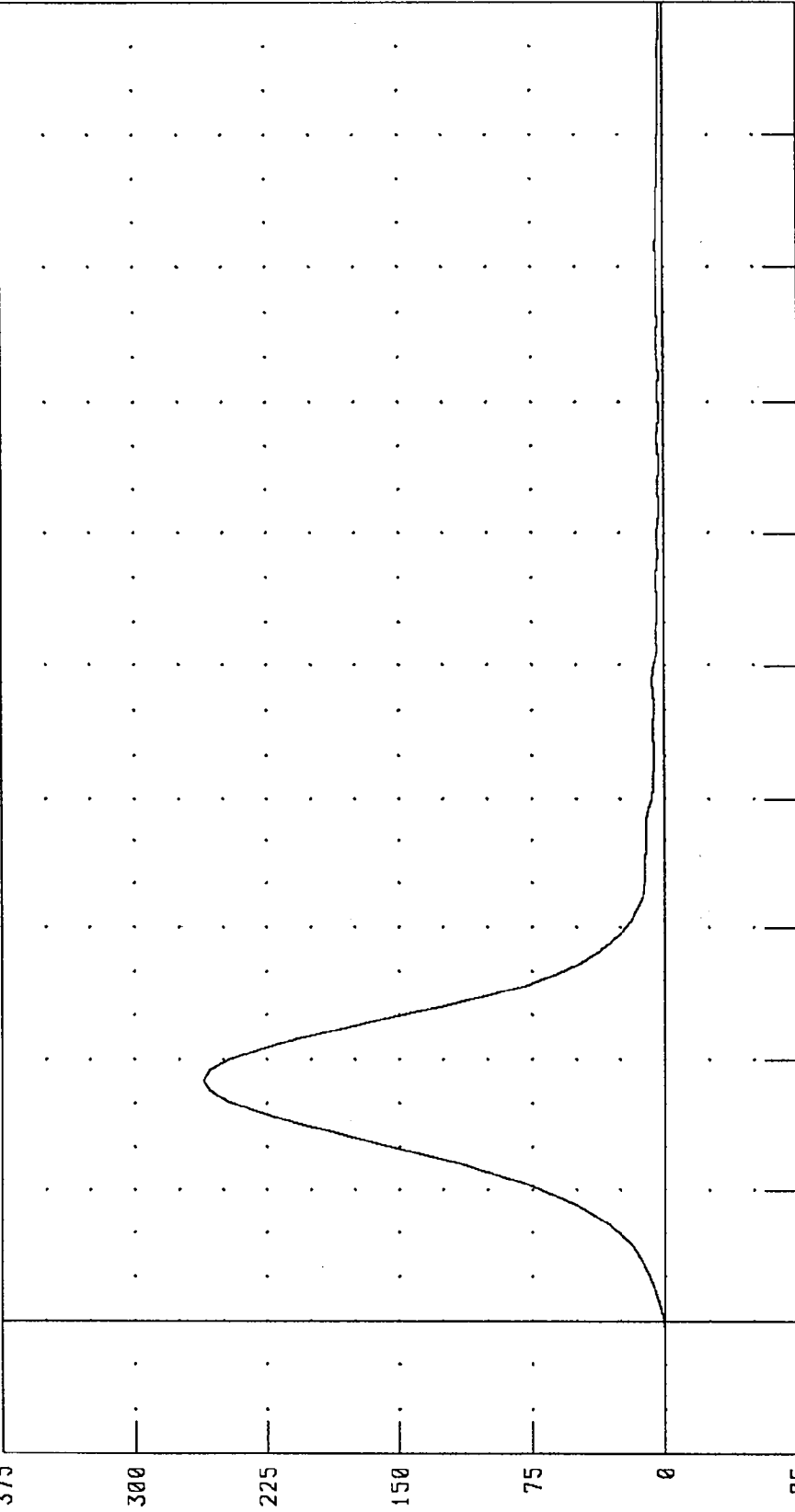
CHANNEL: HEDZG

PART 572-E HYBRID III HEAD CALIBRATION  
HEAD RESULTANT ACCELERATION

IRC TEST NUMBER: 142C31HD1 RUN NUMBER: 021296.1040;2

572E SN142 HEAD DROP CAL 31

375



ACCELERATION (G)

-75

0

75

150

225

300

375

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

0

10

20

30

40

50

60

70

80

90

100

CHANNEL: HEDRG

FILTER: CH. CLASS 1000

PEAK DATA: 261.31 G @ 1.84 MS; 0.01 G @ -0.40 MS

950117

## TRANSPORTATION RESEARCH CENTER INC.

## NECK FLEXION TEST - 6 CHANNEL TRANSDUCER

HYBRID III

16-JAN-96

TRC INC. TEST NO: 142C31NF1 572E SN142 NECK FLEXION CAL31

| TEST PARAMETER                                   |       | SPECIFICATION    | TEST RESULTS |
|--------------------------------------------------|-------|------------------|--------------|
| TEMPERATURE                                      |       | 20.6-22.2 DEG. C | 21.1 DEG. C  |
| RELATIVE HUMIDITY                                |       | 10 - 70 %        | 23.0 %       |
| IMPACT VELOCITY                                  |       | 6.89 - 7.13 M/S  | 7.06 M/S     |
| PENDULUM<br>DECELERATION                         | 10 MS | 22.50 - 27.50 G  | 22.57 G      |
|                                                  | 20 MS | 17.60 - 22.60 G  | 20.72 G      |
|                                                  | 30 MS | 12.50 - 18.50 G  | 17.79 G      |
| MAX PENDULUM G                                   |       | 29 G MAX         | 23.38 G      |
| MAX PENDULUM G ABOVE 30 MS                       |       | 29 G MAX         | 17.72 G      |
| DECELERATION-TIME CURVE<br>DECAY TIME TO 5 G     |       | 34 - 42 MS       | 36.88 MS     |
| D PLANE                                          | MAX   | 64 - 78 DEG.     | 75.21 DEG.   |
| ROTATION                                         | TIME  | 57 - 64 MS       | 59.52 MS     |
| MOMENT ABOUT<br>OCCIPITAL<br>CONDYLE             | MAX   | 88.2 - 108.5 NM  | 99.74 NM     |
|                                                  | TIME  | 47 - 58 MS       | 50.56 MS     |
| ROTATION ANGLE-TIME CURVE<br>DECAY TIME TO ZERO  |       | 113 - 128 MS     | 115.44 MS    |
| POSITIVE MOMENT-TIME CURVE<br>DECAY TIME TO ZERO |       | 97 - 107 MS      | 102.80 MS    |

TEST MEETS SPECIFICATIONS

TECHNICIAN

Ch. M. Hill

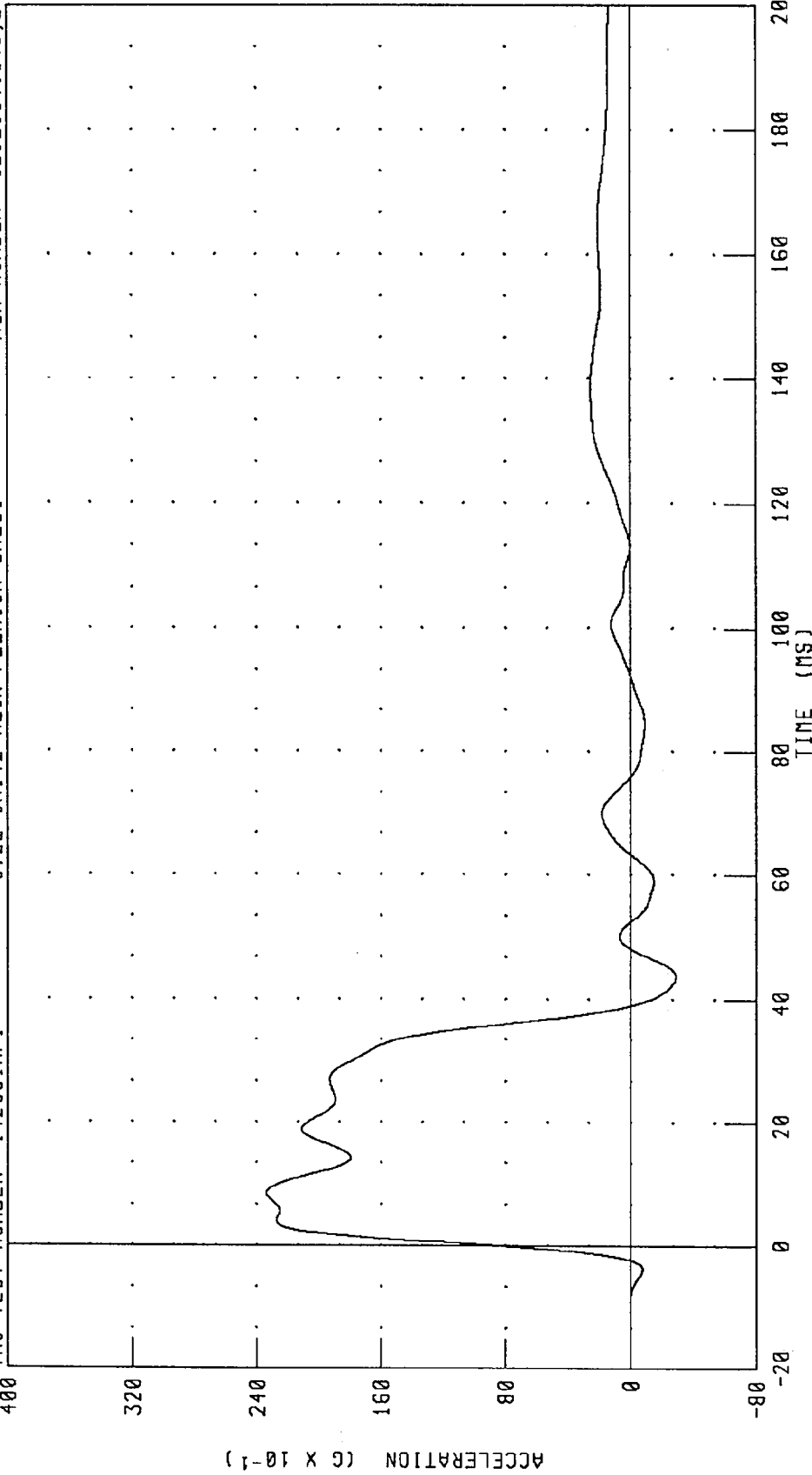
RUN NUMBER: 011696.0900;2

PART 572-E HYBRID III NECK FLEXION CALIBRATION  
PENDULUM DECELERATION

IRC TEST NUMBER: 142C31NF1

572E SN142 NECK FLEXION CAL31

RUN NUMBER: 021296.1040;2



PEAK DATA: 23.38 G @ 8.40 MS; -2.88 G @ 43.68 MS

CHANNEL: PENXC FILTER: CH. CLASS 60

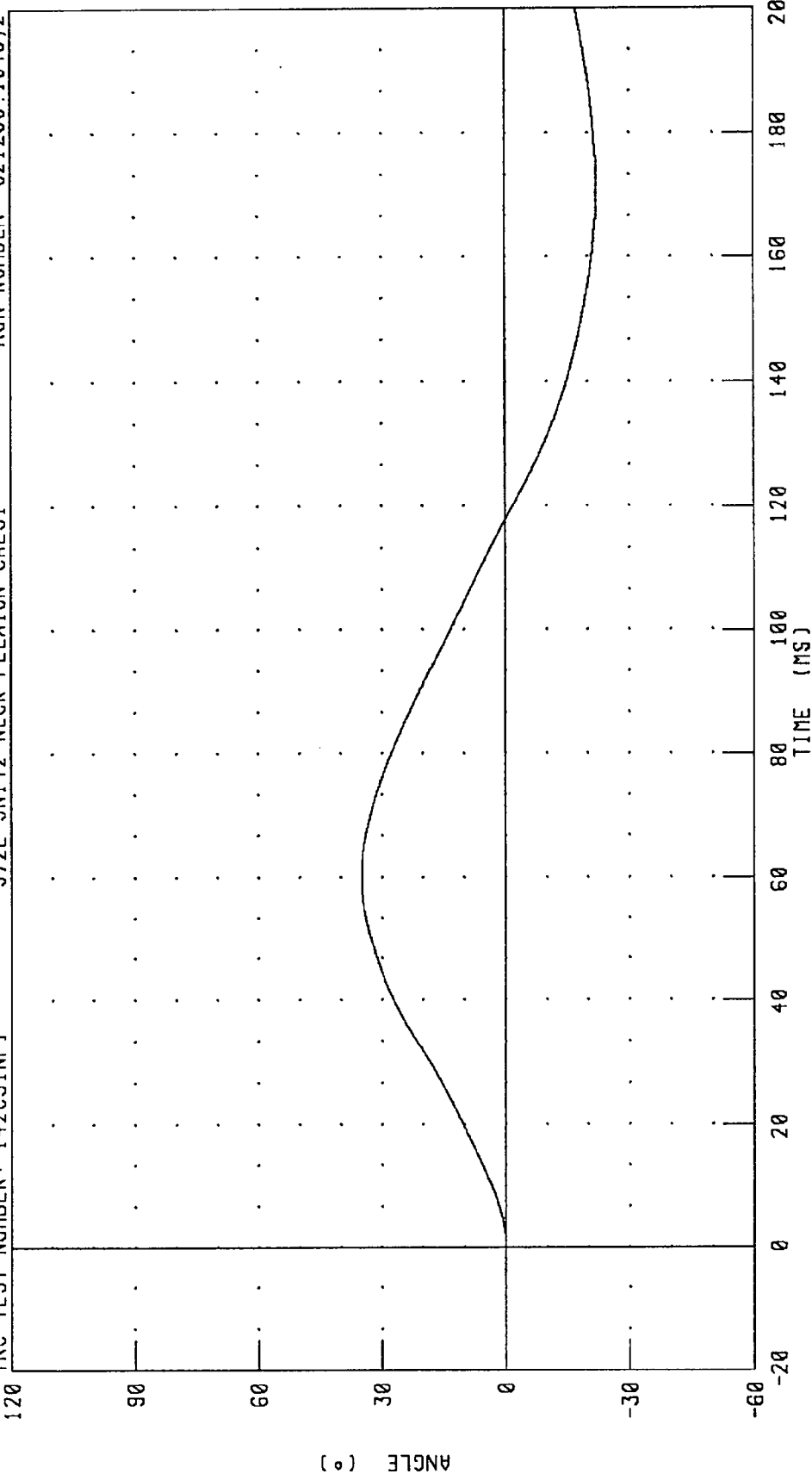
# PART 572-E HYBRID III NECK FLEXION CALIBRATION

ROTATION ABOUT BASE OF NECK

572E SN142 NECK FLEXION CAL31

TRC TEST NUMBER: 142C31NF1

RUN NUMBER: 021296.1040;2



CHANNEL: BETA

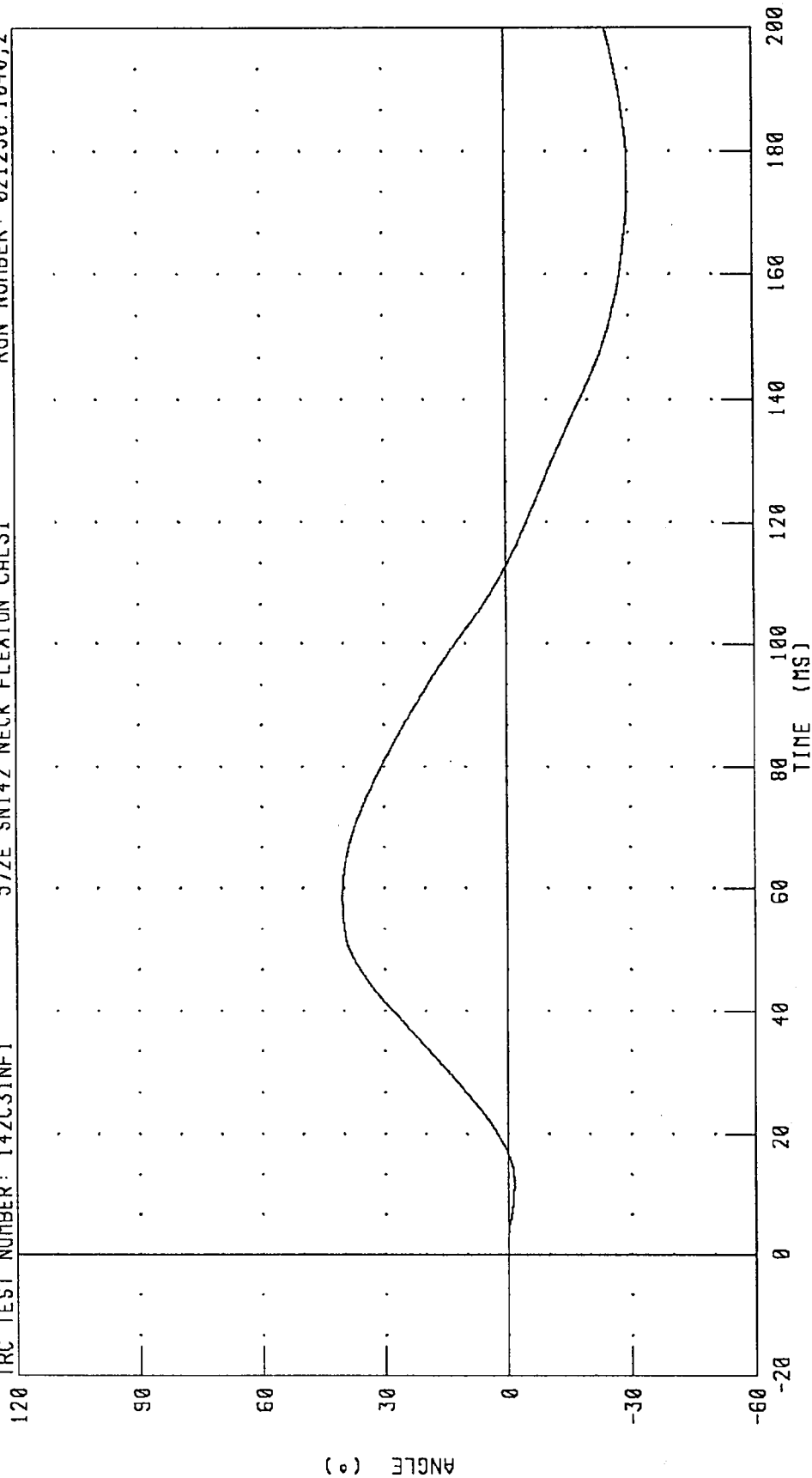
FILTER: CH. CLASS 60

PEAK DATA: 34.92 ° @ 59.92 MS; -22.04 ° @ 168.72 MS

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

TRC TEST NUMBER: 142C31NF1 RUN NUMBER: 021296.1040J2

572E SN142 NECK FLEXION CAL31

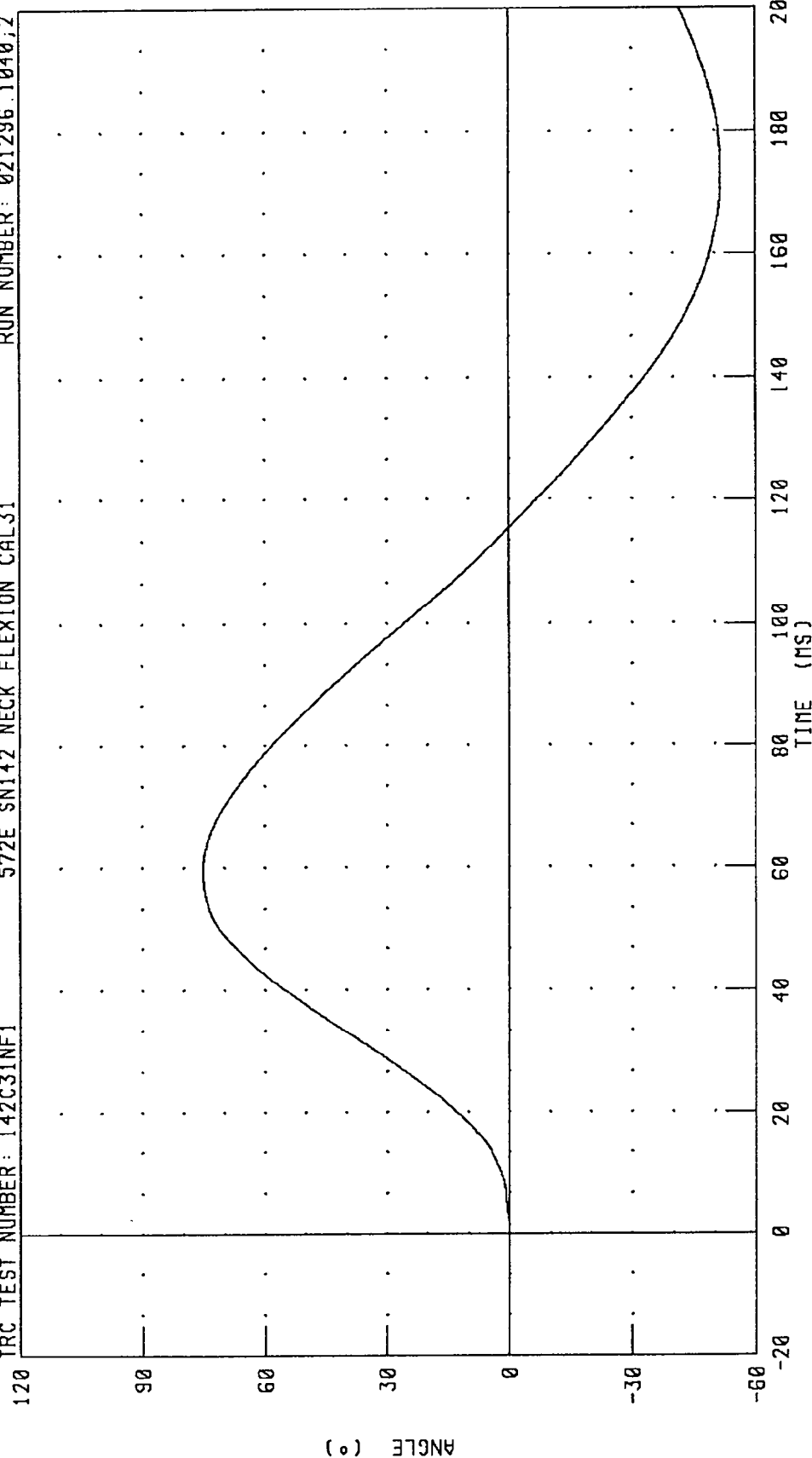


CHANNEL: THETA FILTER: CH. CLASS 60 PEAK DATA: 40.31 ° @ 58.64 MS, -29.61 ° @ 178.40 MS

# PART 572-E HYBRID III NECK FLEXION CALIBRATION

TOTAL ROTATION

TRC TEST NUMBER: 142C31NF1 572E SN142 NECK FLEXION CAL31 RUN NUMBER: 021296.1040,2



CHANNEL: TOTAL FILTER: CH. CLASS 60 PEAK DATA: 75.22 ° @ 59.52 MS, -51.64 ° @ 172.96 MS

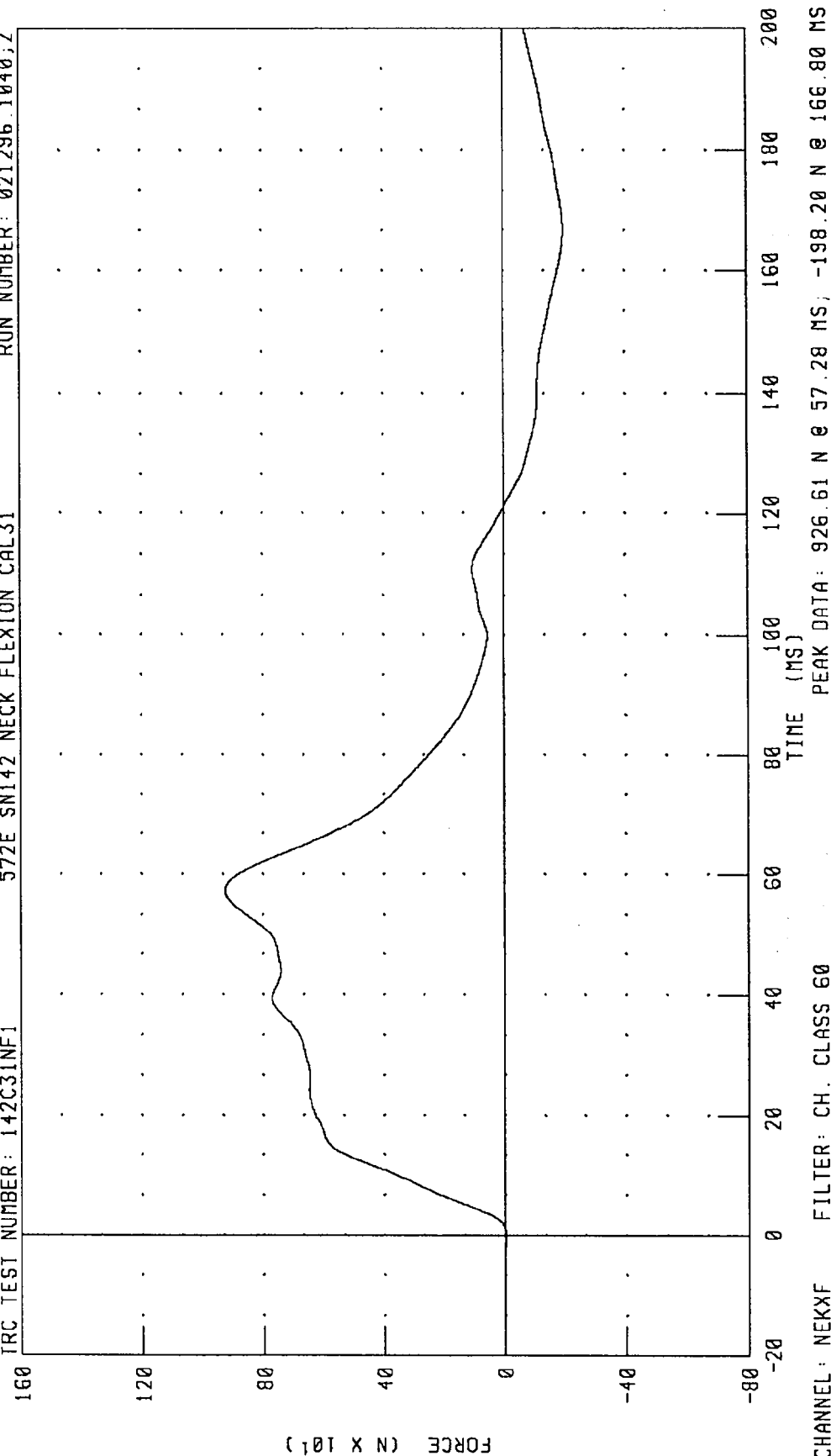
# PART 572-E HYBRID III NECK FLEXION CALIBRATION

NECK FORCE X AXIS

IRC TEST NUMBER: 142C31NF1

572E SN142 NECK FLEXION CAL31

RUN NUMBER: 021296.1040.2



CHANNEL: NEKXF FILTER: CH. CLASS 60

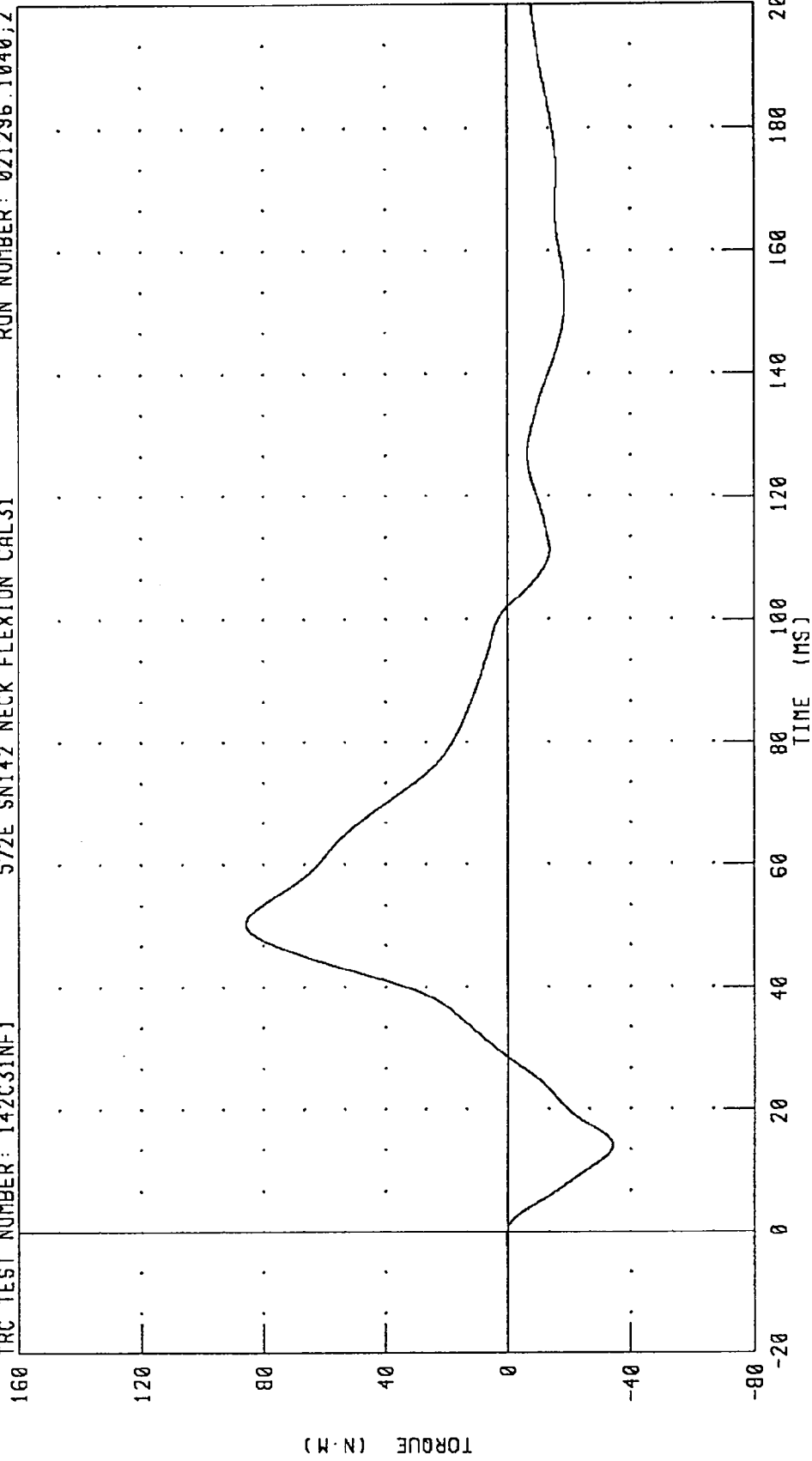
# PART 572-E HYBRID III NECK FLEXION CALIBRATION

NECK MOMENT Y AXIS

TRC TEST NUMBER: 142C31NF1

572E SN142 NECK FLEXION CAL31

RUN NUMBER: 021296.1040;2



PEAK DATA: 85.81 N.M @ 50.32 MS; -34.19 N.M @ 14.00 MS

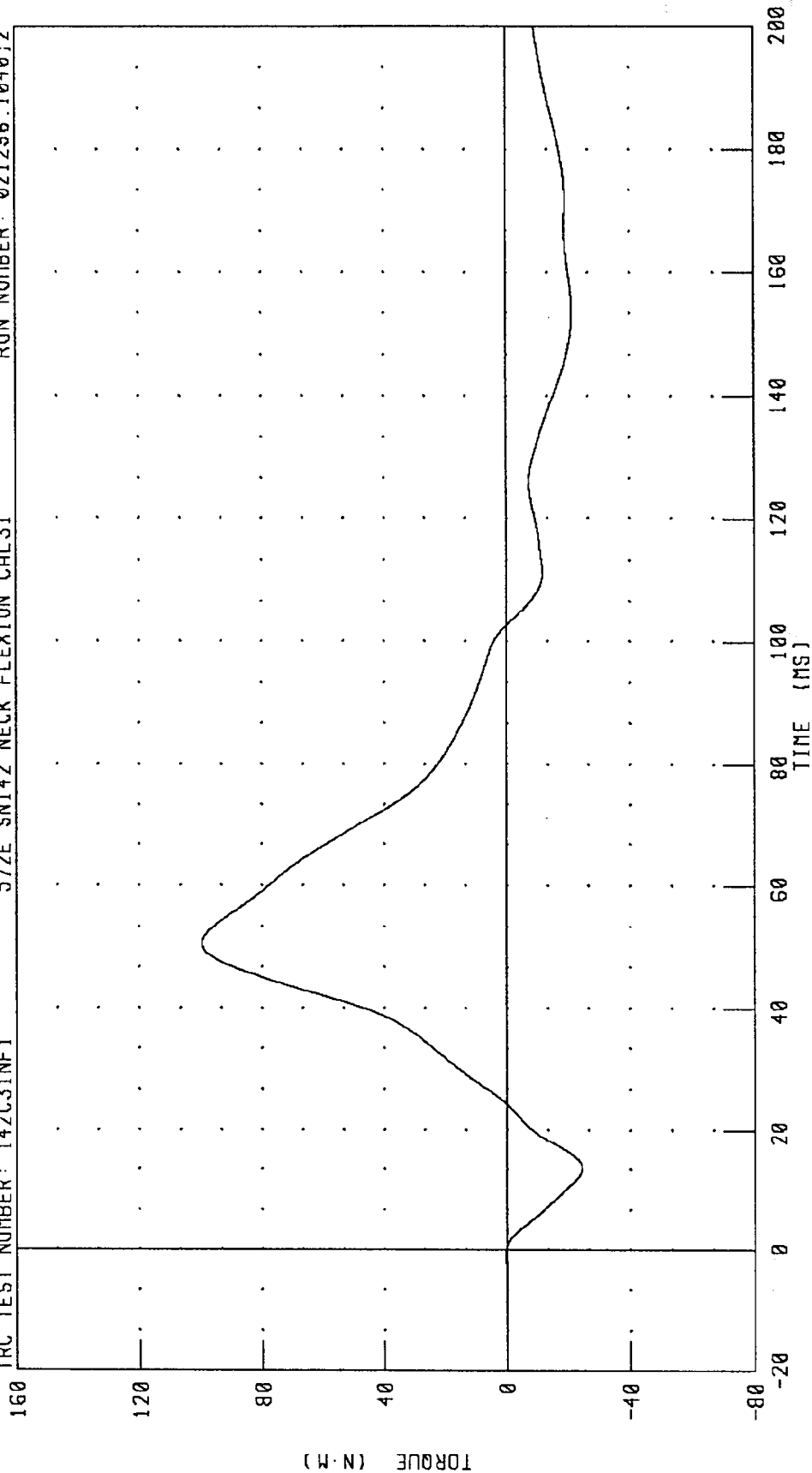
CHANNEL: NEKYM FILTER: CH. CLASS 60

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

TRC TEST NUMBER: 142C31NF1

572E SN142 NECK FLEXION CAL31

RUN NUMBER: 021286.1040;2



PEAK DATA: 99.74 N·M @ 50.56 MS; -24.44 N·M @ 13.60 MS

CHANNEL: NEKOM FILTER: CH. CLASS 60

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

HYBRID III

16-JAN-96

TRC INC.      TEST NO: 142C31NE1      572E SN142 NECK EXT. CAL31

| TEST PARAMETER                                   |       | SPECIFICATION      | TEST RESULTS |
|--------------------------------------------------|-------|--------------------|--------------|
| TEMPERATURE                                      |       | 20.6 - 22.2 DEG. C | 21.1 DEG. C  |
| RELATIVE HUMIDITY                                |       | 10 - 70 %          | 23.0 %       |
| IMPACT VELOCITY                                  |       | 5.95 - 6.19 M/S    | 6.19 M/S     |
| PENDULUM<br>DECELERATION                         | 10 MS | 17.20 - 21.20 G    | 17.45 G      |
|                                                  | 20 MS | 14.00 - 19.00 G    | 16.33 G      |
|                                                  | 30 MS | 11.00 - 16.00 G    | 14.31 G      |
| MAX PENDULUM G                                   |       | 22 G MAX           | 17.98 G      |
| MAX PENDULUM G ABOVE 30 MS                       |       | 22 G MAX           | 14.26 G      |
| DECELERATION-TIME CURVE<br>DECAY TIME TO 5 G     |       | 38 - 46 MS         | 41.04 MS     |
| D PLANE                                          | MAX   | 81 - 106 DEG.      | 97.38 DEG.   |
| ROTATION                                         | TIME  | 72 - 82 MS         | 74.88 MS     |
| MOMENT ABOUT<br>OCCIPITAL<br>CONDYLE             | MIN   | -80.0/-52.9 NM     | -75.61 NM    |
|                                                  | TIME  | 65 - 79 MS         | 70.24 MS     |
| ROTATION ANGLE-TIME CURVE<br>DECAY TIME TO ZERO  |       | 147 - 174 MS       | 151.68 MS    |
| NEGATIVE MOMENT-TIME CURVE<br>DECAY TIME TO ZERO |       | 120 - 148 MS       | 135.76 MS    |

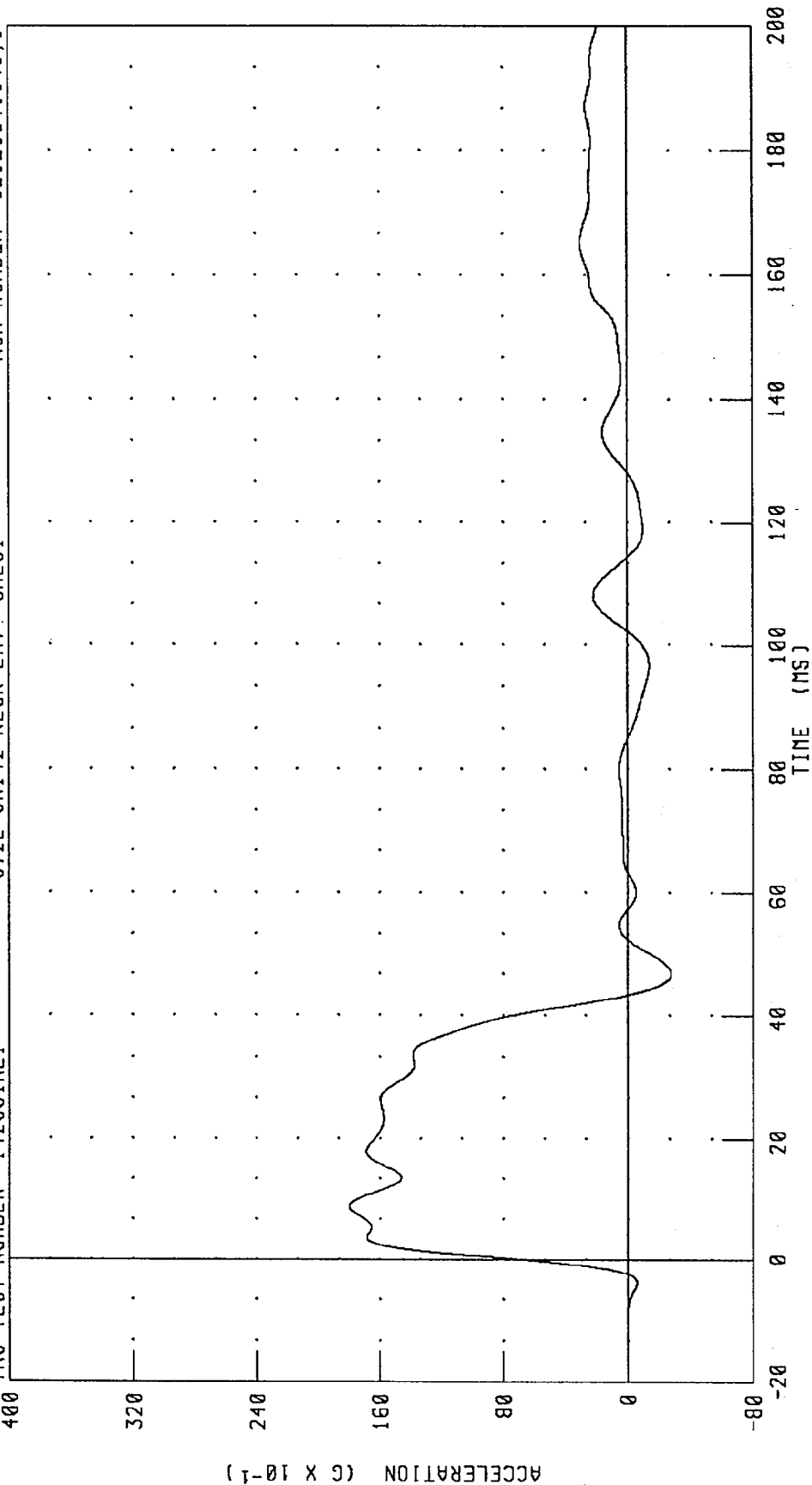
TEST MEETS SPECIFICATIONS

TECHNICIAN Chas. Middel

RUN NUMBER: 011696.0920;1

PART 572-E HYBRID III NECK EXTENSION CALIBRATION  
 PENDULUM DECELERATION

TRC TEST NUMBER: 142C31NE1 572E SN142 NECK EXT. CAL31 RUN NUMBER: 021296.1040;1



PEAK DATA: 17.99 G @ 8.80 MS; -2.77 G @ 46.72 MS

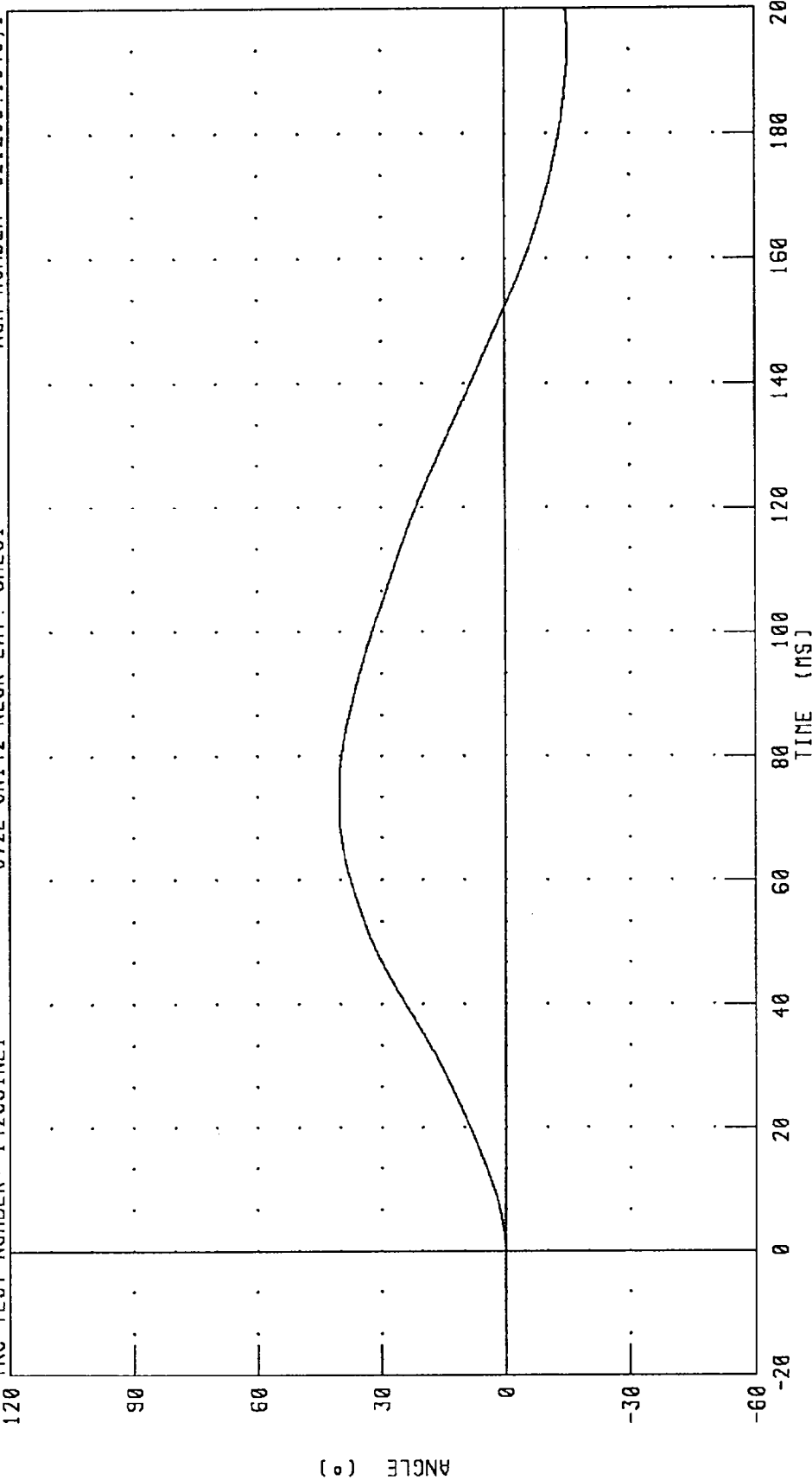
CHANNEL: PENXG FILTER: CH. CLASS 60

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

TRC TEST NUMBER: 142C31NE1

572E SN142 NECK EXT. CAL31

RUN NUMBER: 021296.1040;1



CHANNEL: BETA FILTER: CH. CLASS 60

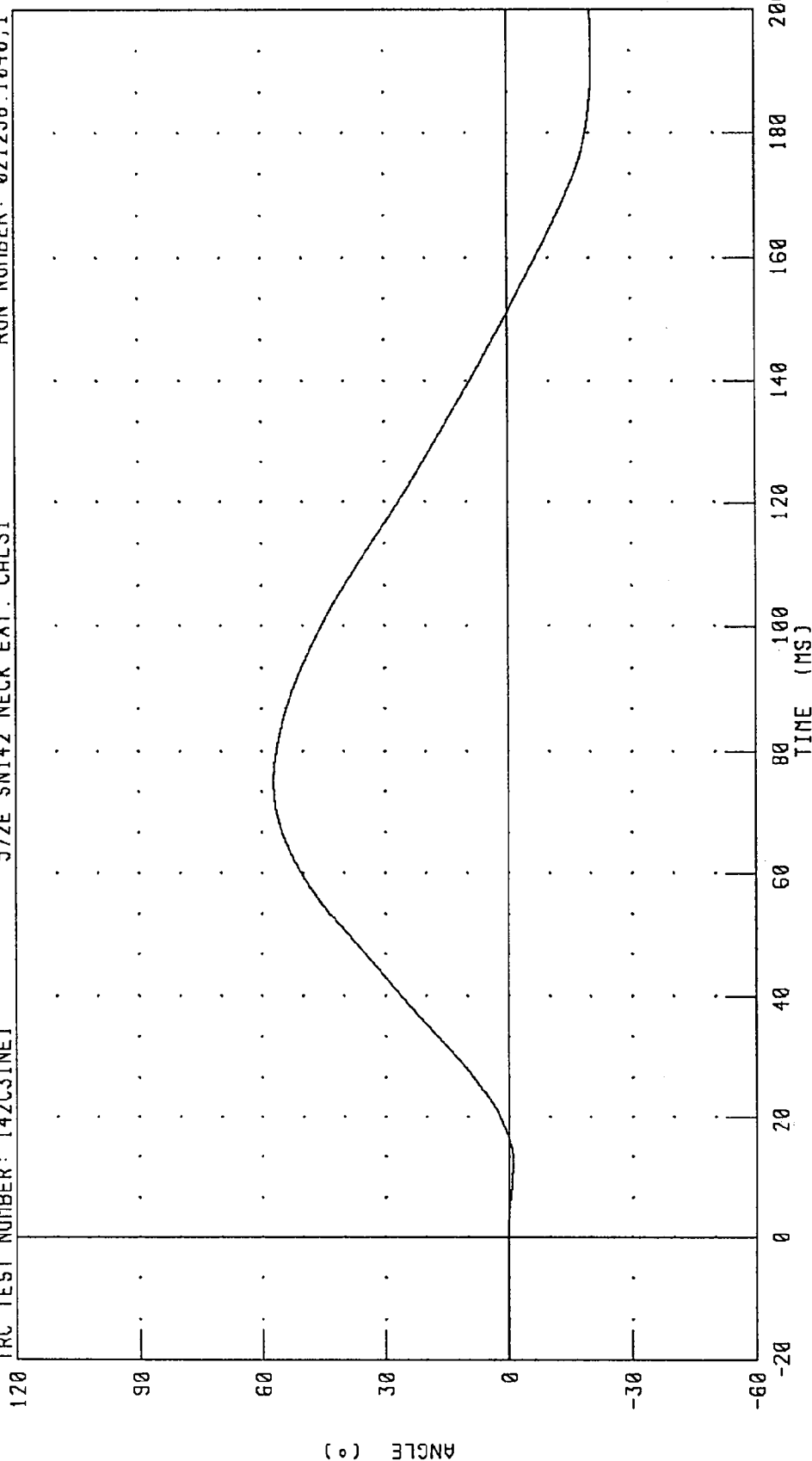
PEAK DATA: 40.28 ° @ 72.16 MS; -15.14 ° @ 195.12 MS

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

TRC TEST NUMBER: 142C31NE1

572E SN142 NECK EXT. CAL31

RUN NUMBER: 021296.1040,1



PEAK DATA: 57.11 ° @ 74.96 MS; -20.60 ° @ 194.96 MS

CHANNEL: THETA FILTER: CH. CLASS 60

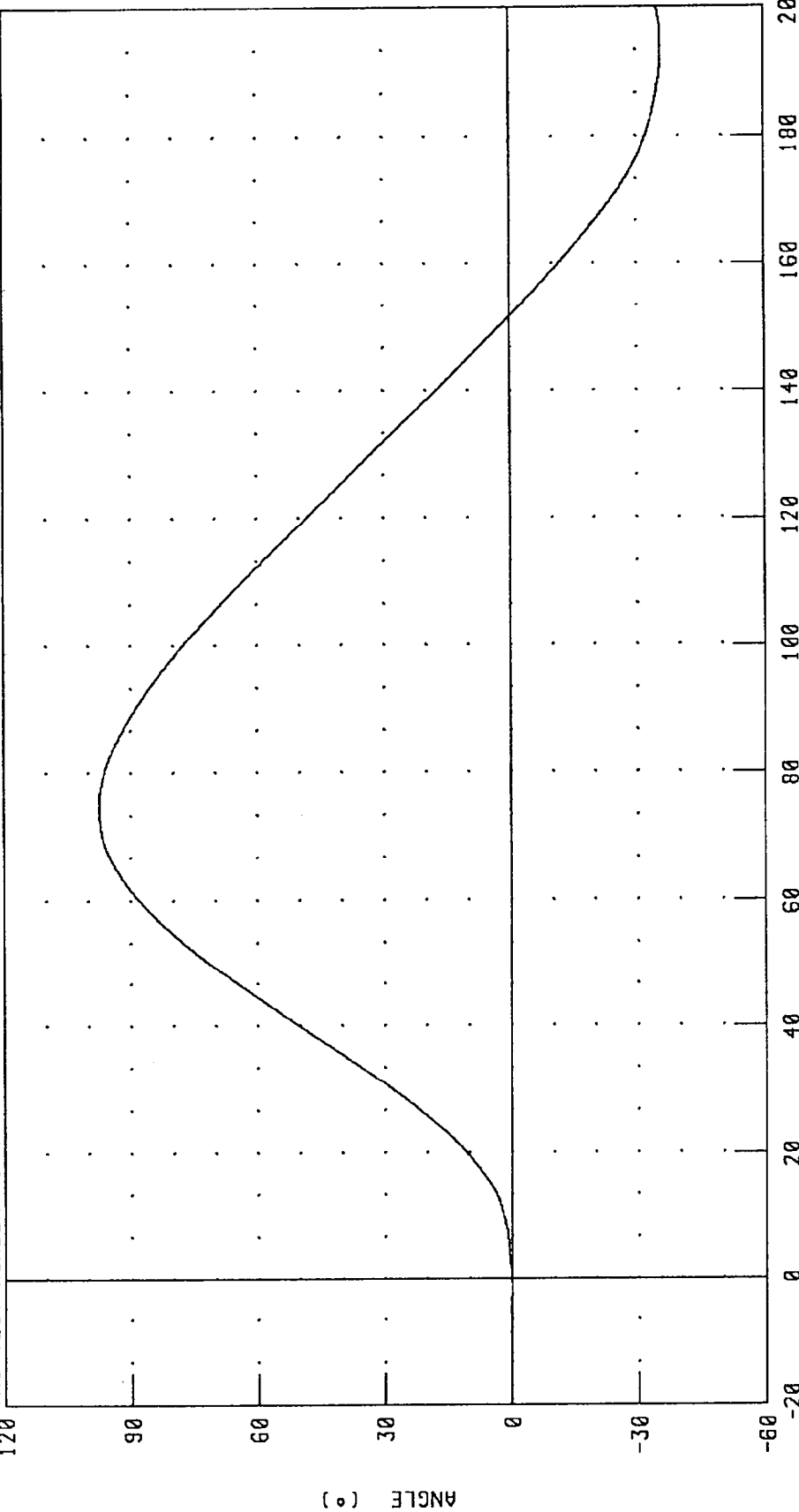
# PART 572-E HYBRID III NECK EXTENSION CALIBRATION

TOTAL ROTATION

TRC TEST NUMBER: 142C31NE1

572E SN142 NECK EXT. CAL31

RUN NUMBER: 021296.1040;1

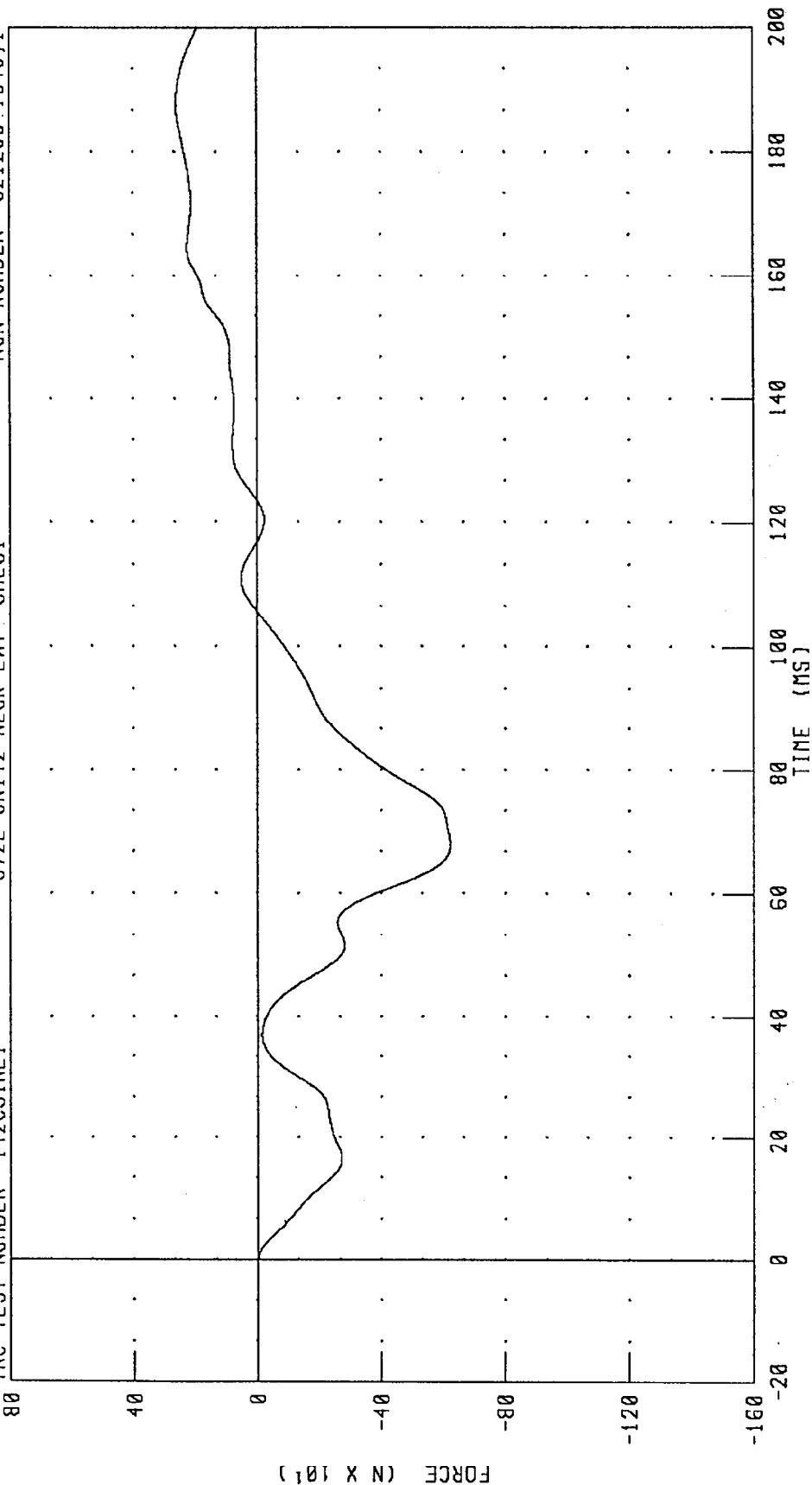


PEAK DATA: 97.39 ° @ 74.88 MS; -35.74 ° @ 194.96 MS

CHANNEL: TOTAL FILTER: CH. CLASS 60

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

TRC TEST NUMBER: 142C3INE1 572E SN142 NECK EXT CAL31 RUN NUMBER: 021296 1040;1



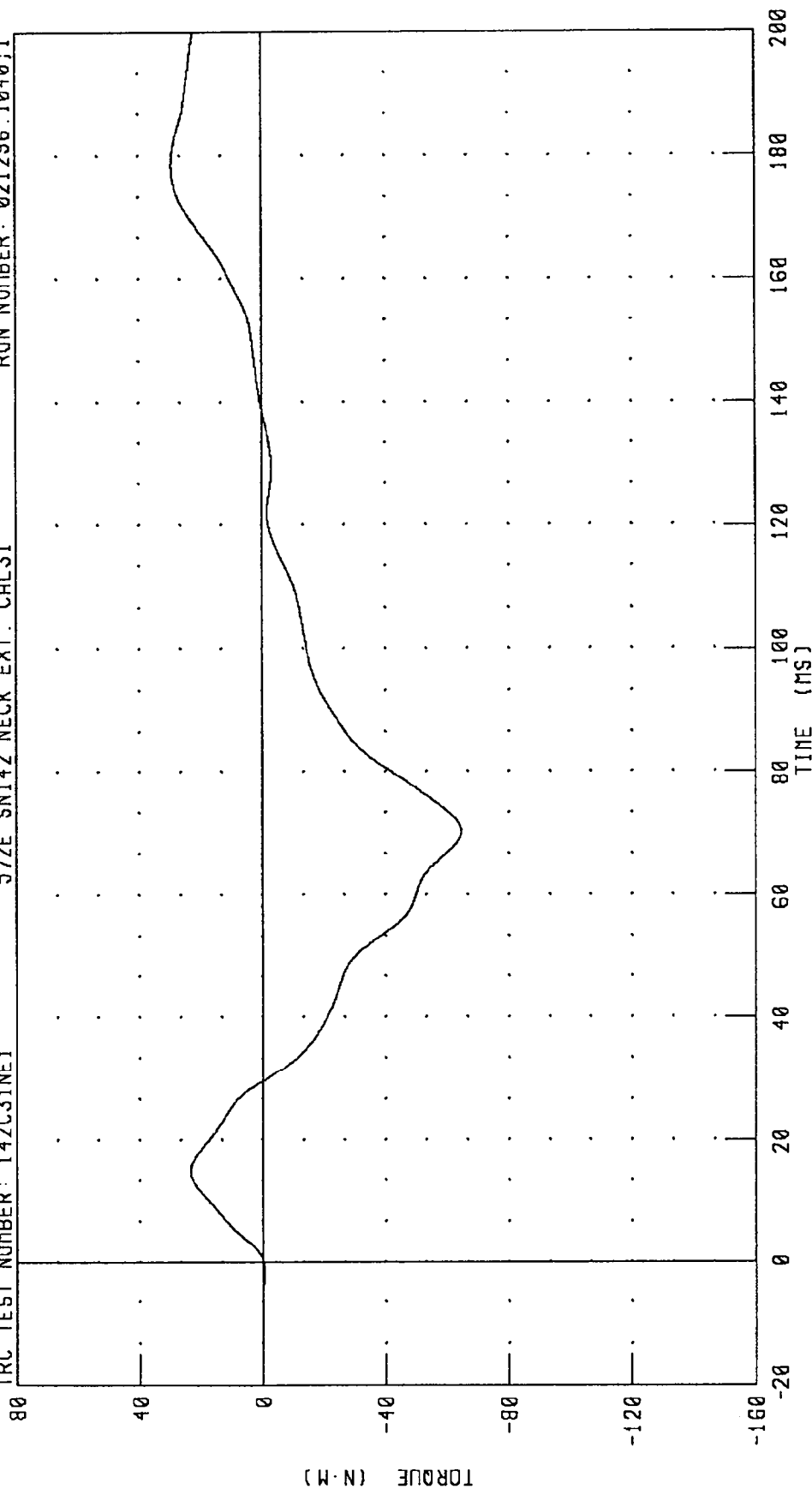
PEAK DATA: 261.34 N @ 187.68 MS; -622.82 N @ 67.76 MS

CHANNEL: NEKXF FILTER: CH. CLASS 60

# PART 572-E HYBRID III NECK EXTENSION CALIBRATION

NECK MOMENT Y AXIS

TRC TEST NUMBER: 142C31NE1 572E SN142 NECK EXT. CAL31 RUN NUMBER: 021296.1040,1

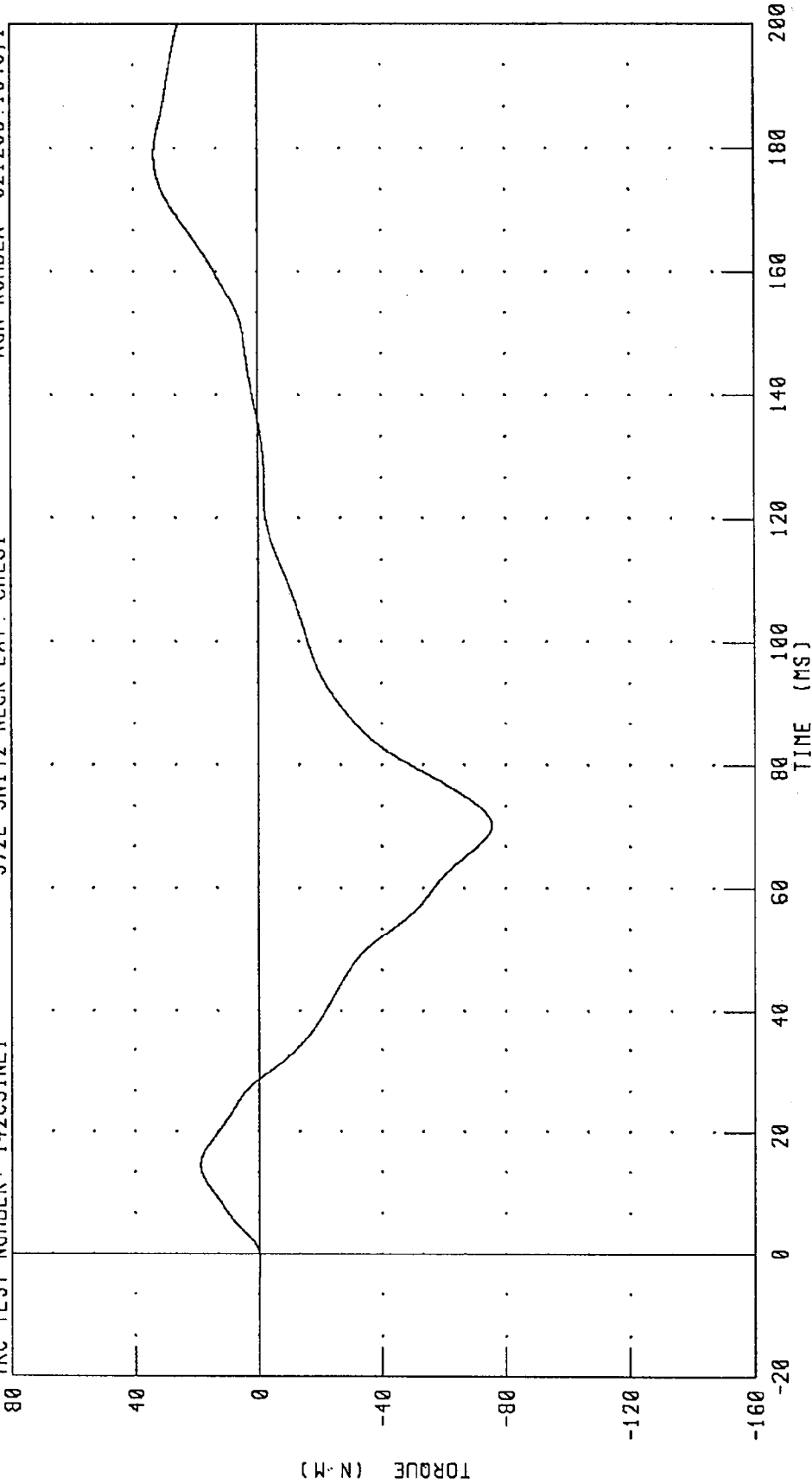


PEAK DATA: 29.28 N-M @ 170.40 MS, -64.67 N-M @ 70.32 MS

CHANNEL: NEKYM FILTER: CH. CLASS 60

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

TRC TEST NUMBER: 142C31NE1 572E SN142 NECK EXT. CAL31 RUN NUMBER: 021296.1040;1



CHANNEL: NEKOM FILTER: CH. CLASS 60 PEAK DATA: 33.38 N·M @ 178.96 MS; -75.61 N·M @ 70.24 MS

## TRANSPORTATION RESEARCH CENTER INC.

## THORAX IMPACT TEST

HYBRID III

16-JAN-96

TRC INC.

TEST NO: 142C31TH1

572E SN142 H.S.THORAX CAL31

| TEST PARAMETER          | HIGH SPEED TEST  | TEST RESULTS |
|-------------------------|------------------|--------------|
|                         | SPECIFICATION    |              |
| TEMPERATURE             | 20.6-22.2 DEG. C | 21.5 DEG. C  |
| RELATIVE HUMIDITY       | 10 - 70 %        | 23.0 %       |
| PENDULUM VELOCITY       | 6.59 - 6.83 M/S  | 6.62 M/S     |
| MAXIMUM DEFLECTION      | 63.5 - 72.6 MM   | 69.0 MM      |
| MAXIMUM RESISTIVE FORCE | 5159 - 5894 N    | 5638. N      |
| INTERNAL HYSTERESIS     | 69% - 85%        | 71.6%        |

TEST MEETS SPECIFICATIONS

TECHNICIAN

Char. M. Hill

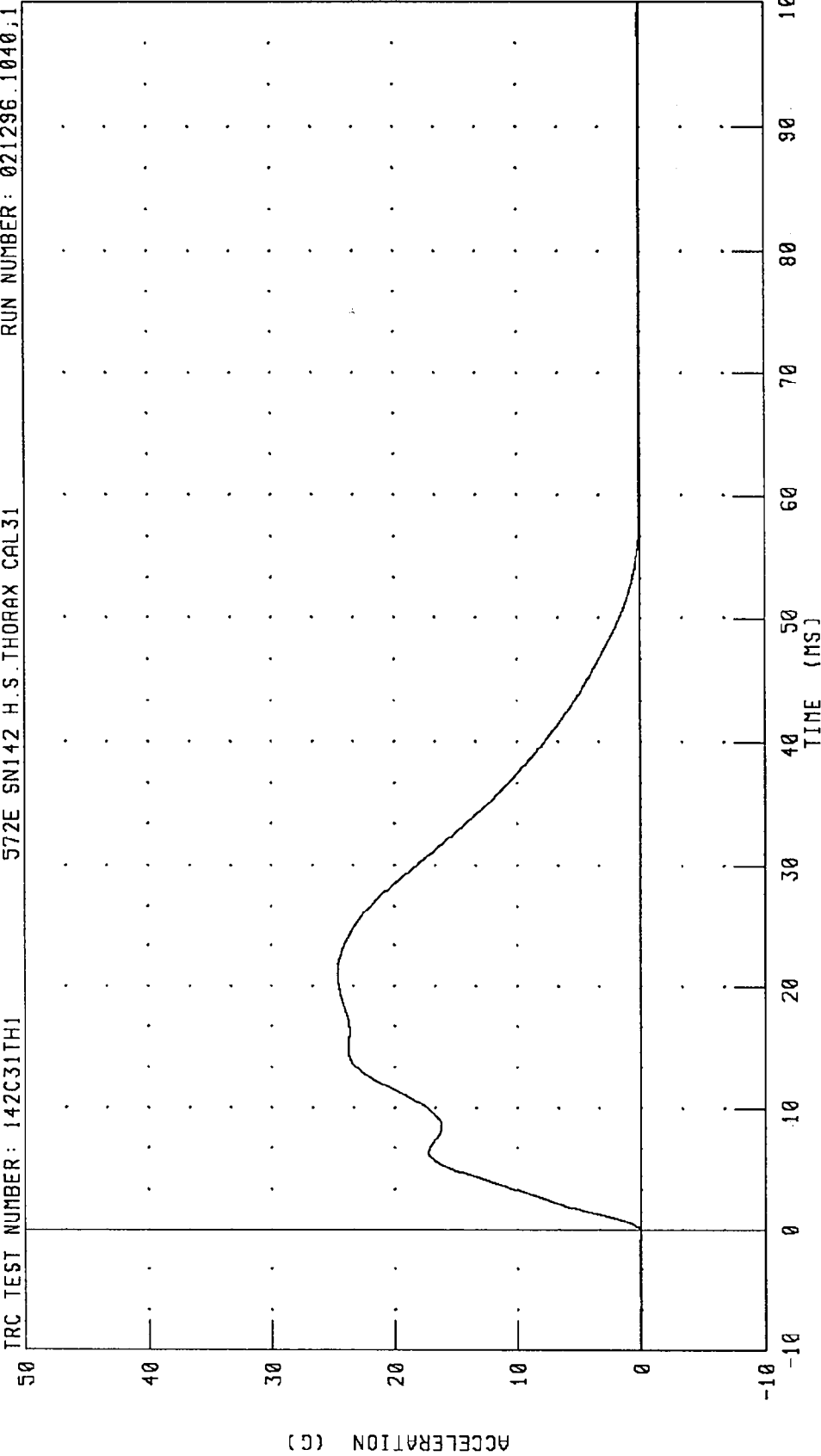
RUN NUMBER: 011696.1251;1

PART 572-E HYBRID III THORAX CALIBRATION  
 PENDULUM DECELERATION

TRC TEST NUMBER: 142C31TH1

572E SN142 H.S. THORAX CAL31

RUN NUMBER: 021296.1040;1

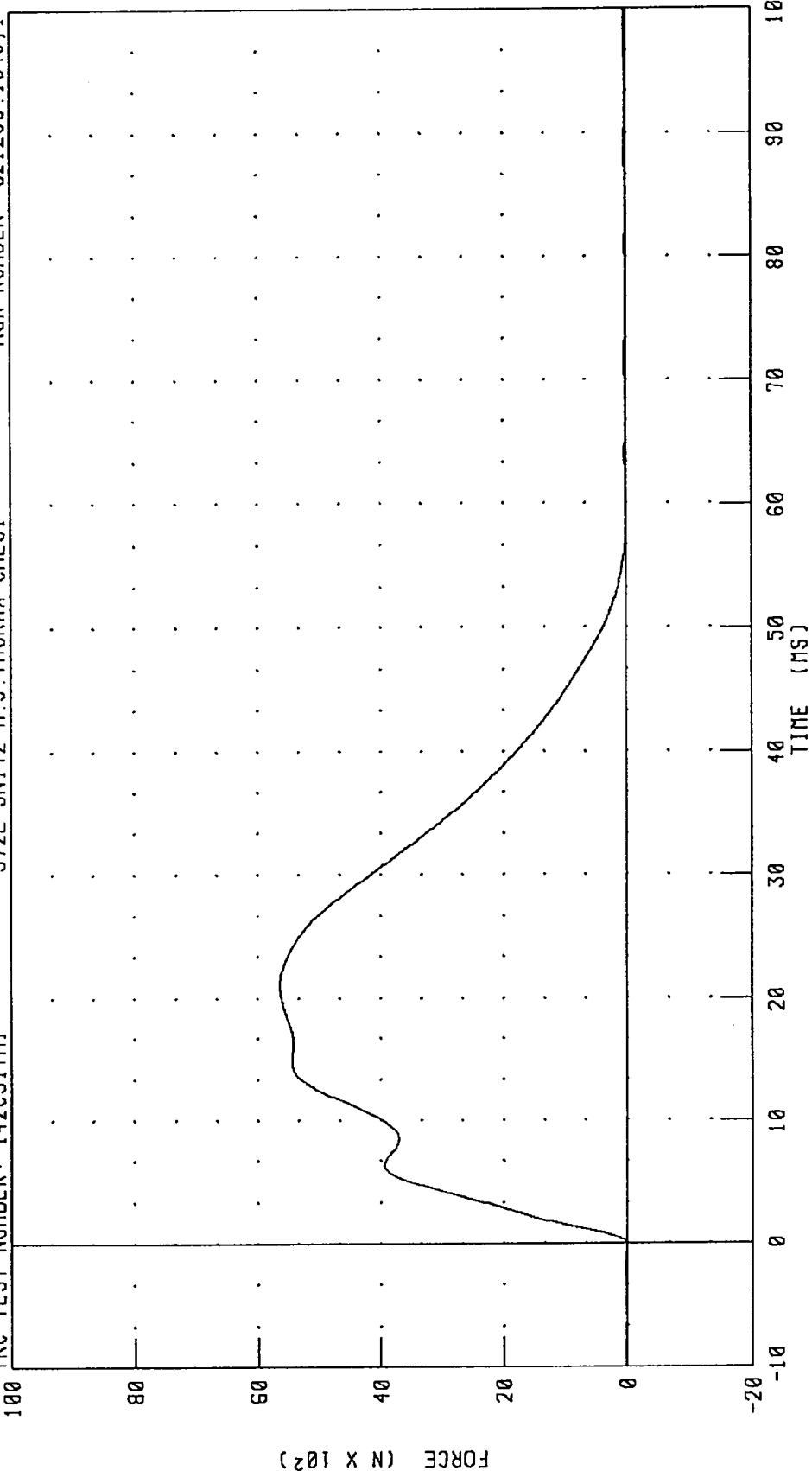


PEAK DATA: 24.61 G @ 21.12 MS; 0.01 G @ -0.32 MS

CHANNEL: PENXG FILTER: CH. CLASS 180

# PART 572-E HYBRID III THORAX CALIBRATION PENDULUM FORCE

TRC TEST NUMBER: 142C31TH1 572E SN142 H.S. THORAX CAL31 RUN NUMBER: 021296.1040.1



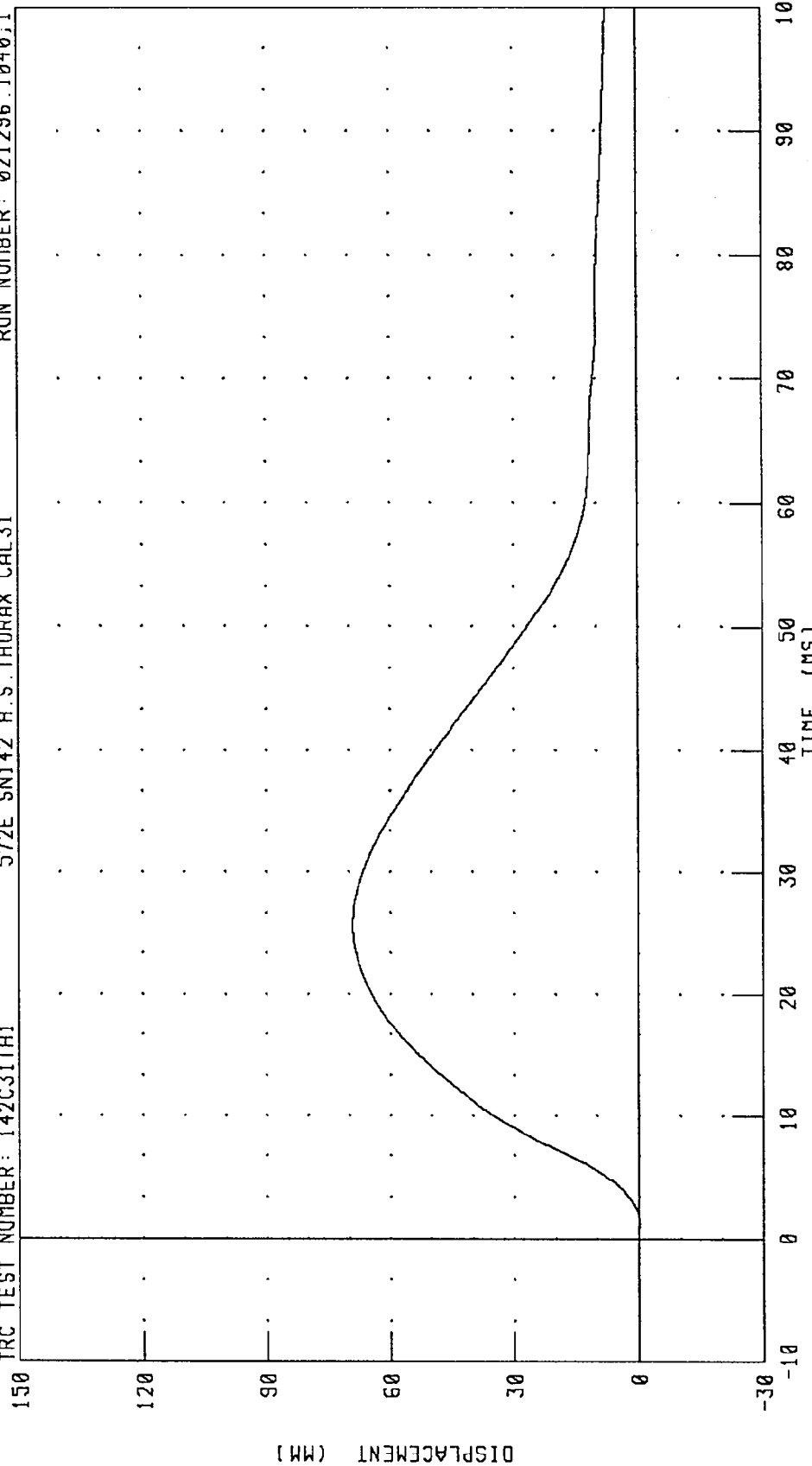
CHANNEL: PENXF FILTER: CH. CLASS 180 PEAK DATA: 5638.80 N @ 21.12 MS; 1.94 N @ -0.32 MS

PART 572-E HYBRID III THORAX CALIBRATION  
STERNUM DISPLACEMENT

TRC TEST NUMBER: 142C31TH1

572E SN142 H.S. THORAX CAL31

RUN NUMBER: 021296.1040.1



PEAK DATA: 69.07 MM @ 25.52 MS; -0.08 MM @ 1.28 MS

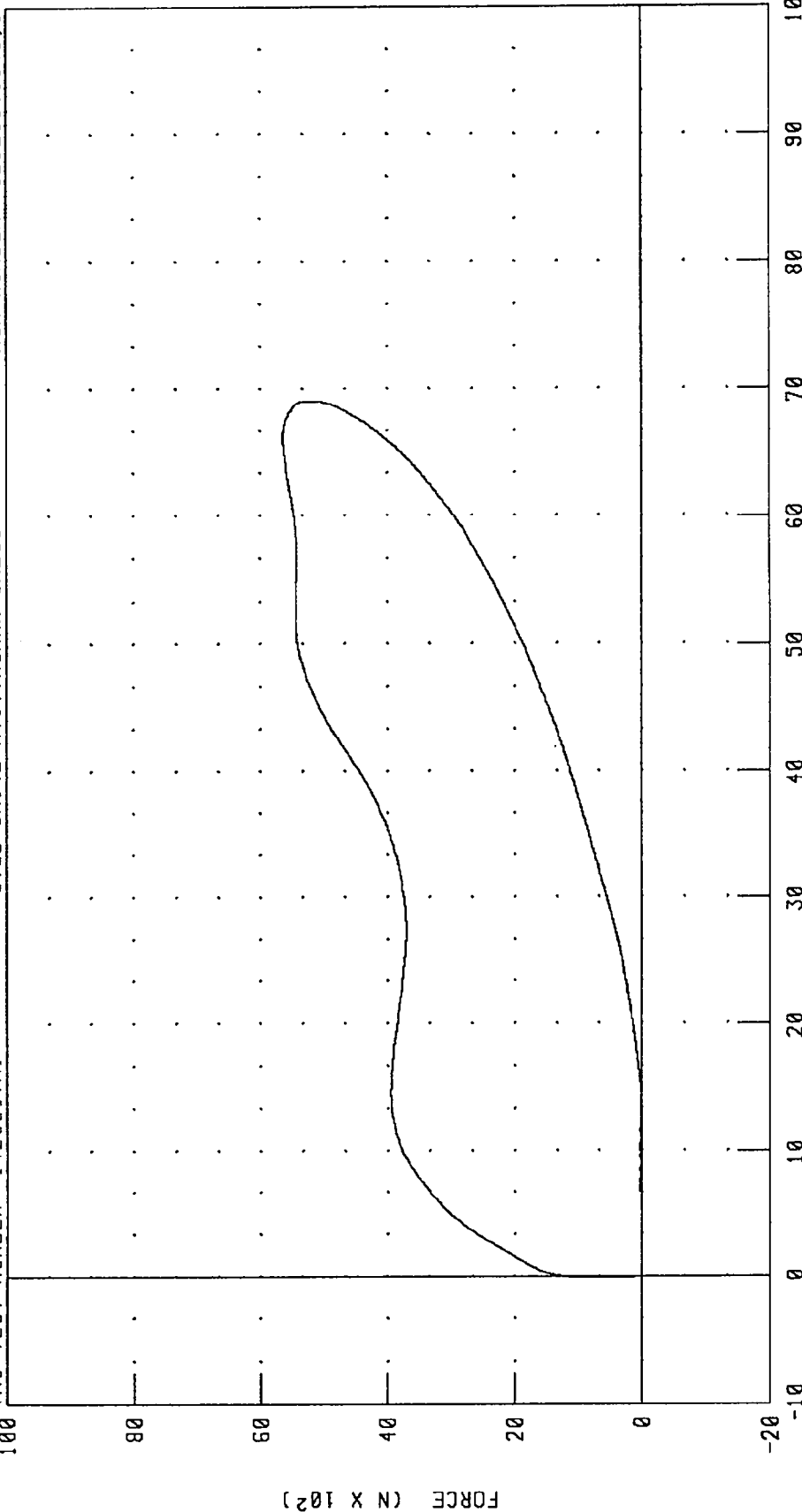
CHANNEL: CSTXD FILTER: CH. CLASS 180

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

TRC TEST NUMBER: 142C31TH1

572E SN142 H.S. THORAX CAL31

RUN NUMBER: 021296.1040;1



CHANNEL: CSTX0  
PENXF

FILTER: CH. CLASS 180  
CH. CLASS 180

DISPLACEMENT (MM)

PEAK DATA:

69.07 MM @ 25.52 MS; -0.08 MM @ 1.28 MS  
5638.80 N @ 21.12 MS; 1.94 N @ -0.32 MS

TRANSPORTATION RESEARCH CENTER INC.

RIGHT KNEE IMPACT TEST

HYBRID III

16-JAN-96

TRC INC.

TEST NO: 142C31RK1

572E SN142 RIGHT KNEE CAL 31

| TEST PARAMETER                            | SPECIFICATION    | TEST RESULTS |
|-------------------------------------------|------------------|--------------|
| TEMPERATURE                               | 18.9-25.6 DEG. C | 21.1 DEG. C  |
| RELATIVE HUMIDITY                         | 10 - 70 %        | 23.0 %       |
| PROBE VELOCITY                            | 2.07 - 2.13 M/S  | 2.11 M/S     |
| PEAK KNEE IMPACT FORCE<br>5.0 KG PENDULUM | 4715 - 5782 N    | 4791.3 N     |

TEST MEETS SPECIFICATIONS

TECHNICIAN Chas. M. Mudd

RUN NUMBER: 011696.0848;1

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

TRC TEST NUMBER: 142C31RK1

572E SN142 RIGHT KNEE CAL 31

RUN NUMBER: 021296.1040;1

150

120

90

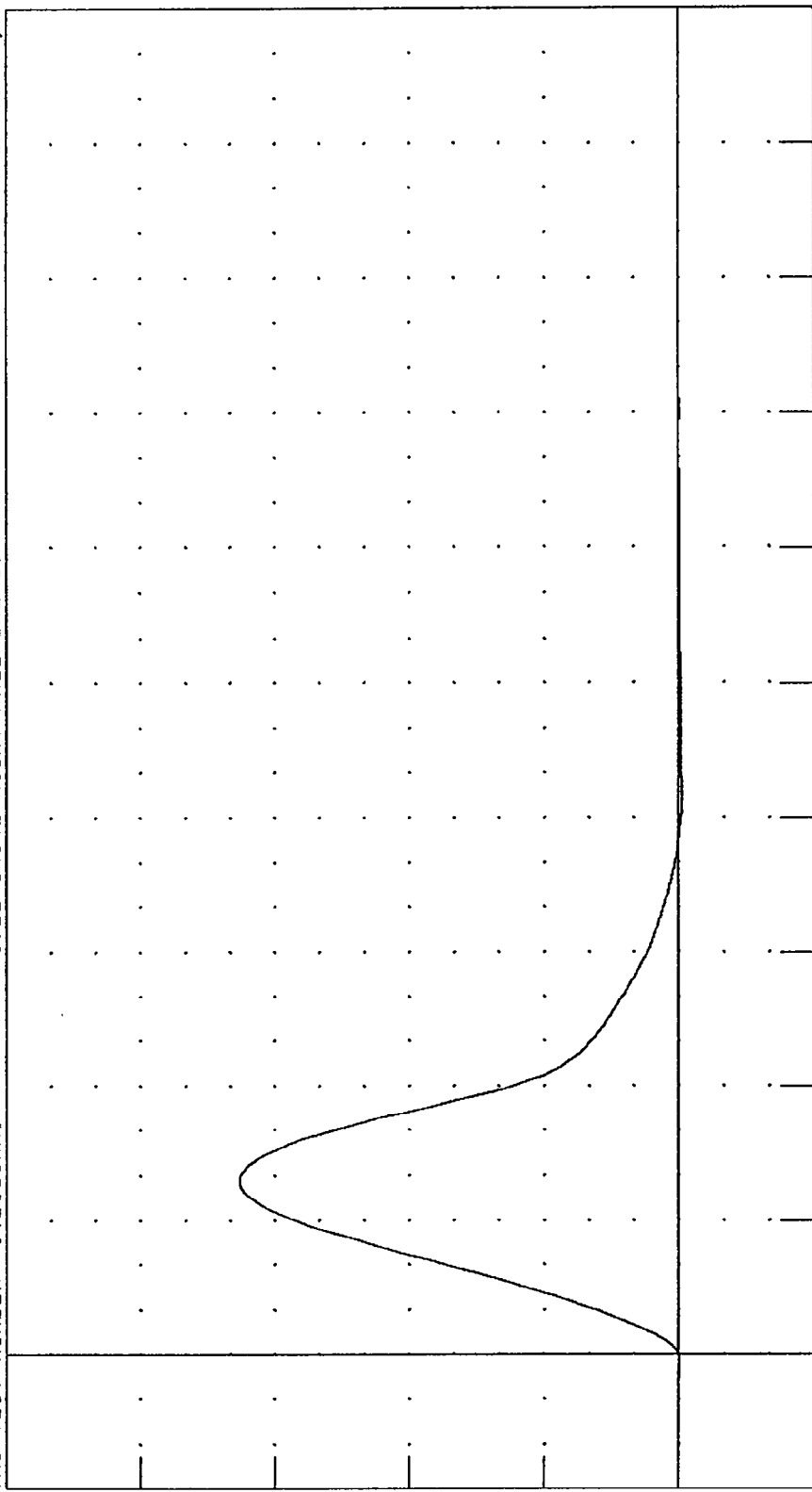
60

30

0

-30

ACCELERATION (G)



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

200

180

160

140

120

100

80

60

40

20

0

-20

CHANNEL: PENXG FILTER: CH. CLASS 600

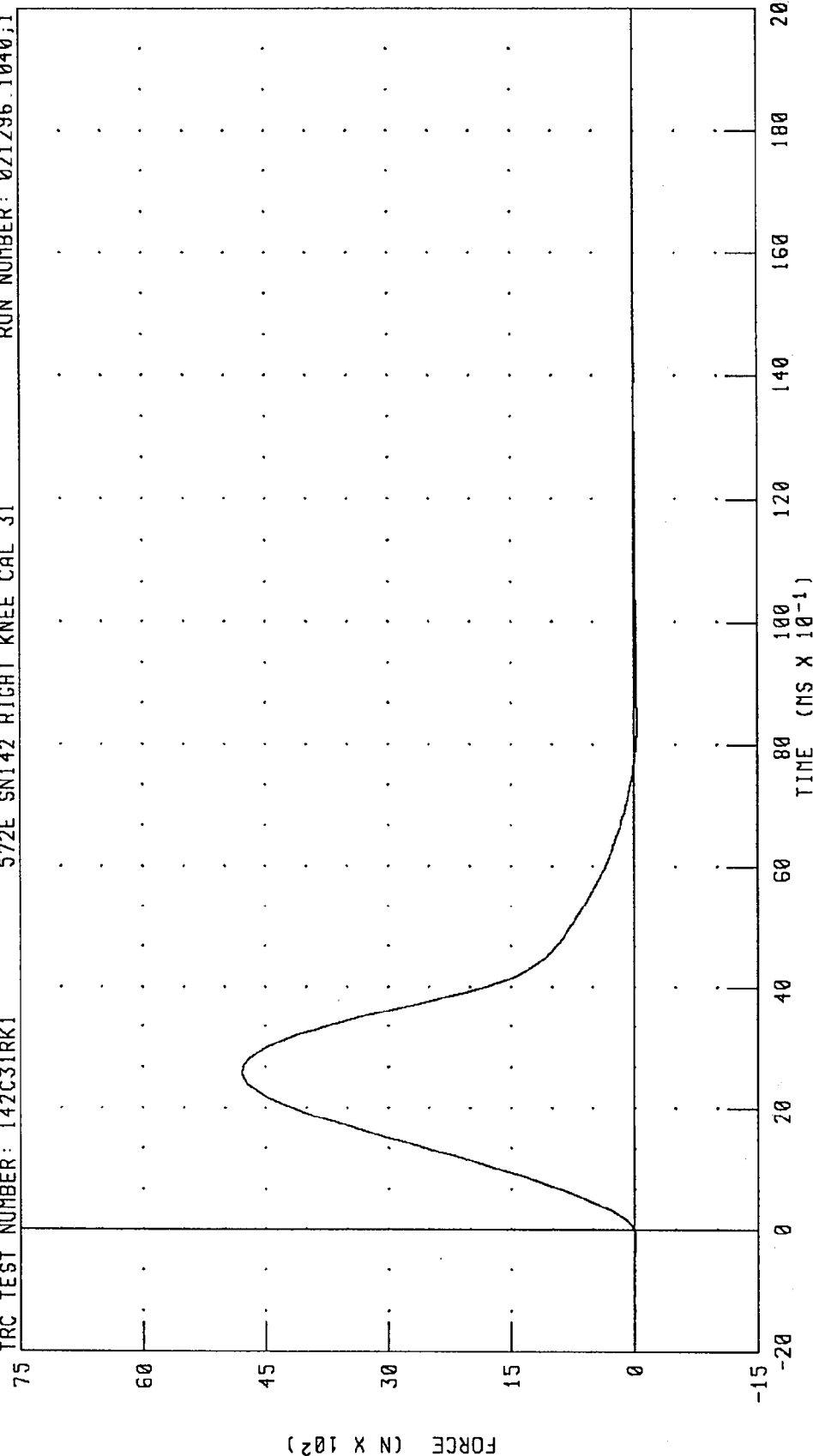
PEAK DATA: 97.93 G @ 2.56 MS; -0.71 G @ 8.32 MS

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

TRC TEST NUMBER: 142C31RK1

572E SN142 RIGHT KNEE CAL 31

RUN NUMBER: 021296.1040;1



PEAK DATA: 4791.38 N @ 2.56 MS; -34.53 N @ 8.32 MS

CHANNEL: PENXF FILTER: CH. CLASS 600

TRANSPORTATION RESEARCH CENTER INC.

LEFT KNEE IMPACT TEST

HYBRID III

16-JAN-96

TRC INC.

TEST NO: 142C31LK1

572E SN142 LEFT KNEE CAL 31

| TEST PARAMETER                            | SPECIFICATION    | TEST RESULTS |
|-------------------------------------------|------------------|--------------|
| TEMPERATURE                               | 18.9-25.6 DEG. C | 21.1 DEG. C  |
| RELATIVE HUMIDITY                         | 10 - 70 %        | 23.0 %       |
| PROBE VELOCITY                            | 2.07 - 2.13 M/S  | 2.11 M/S     |
| PEAK KNEE IMPACT FORCE<br>5.0 KG PENDULUM | 4715 - 5782 N    | 5257.1 N     |

TEST MEETS SPECIFICATIONS

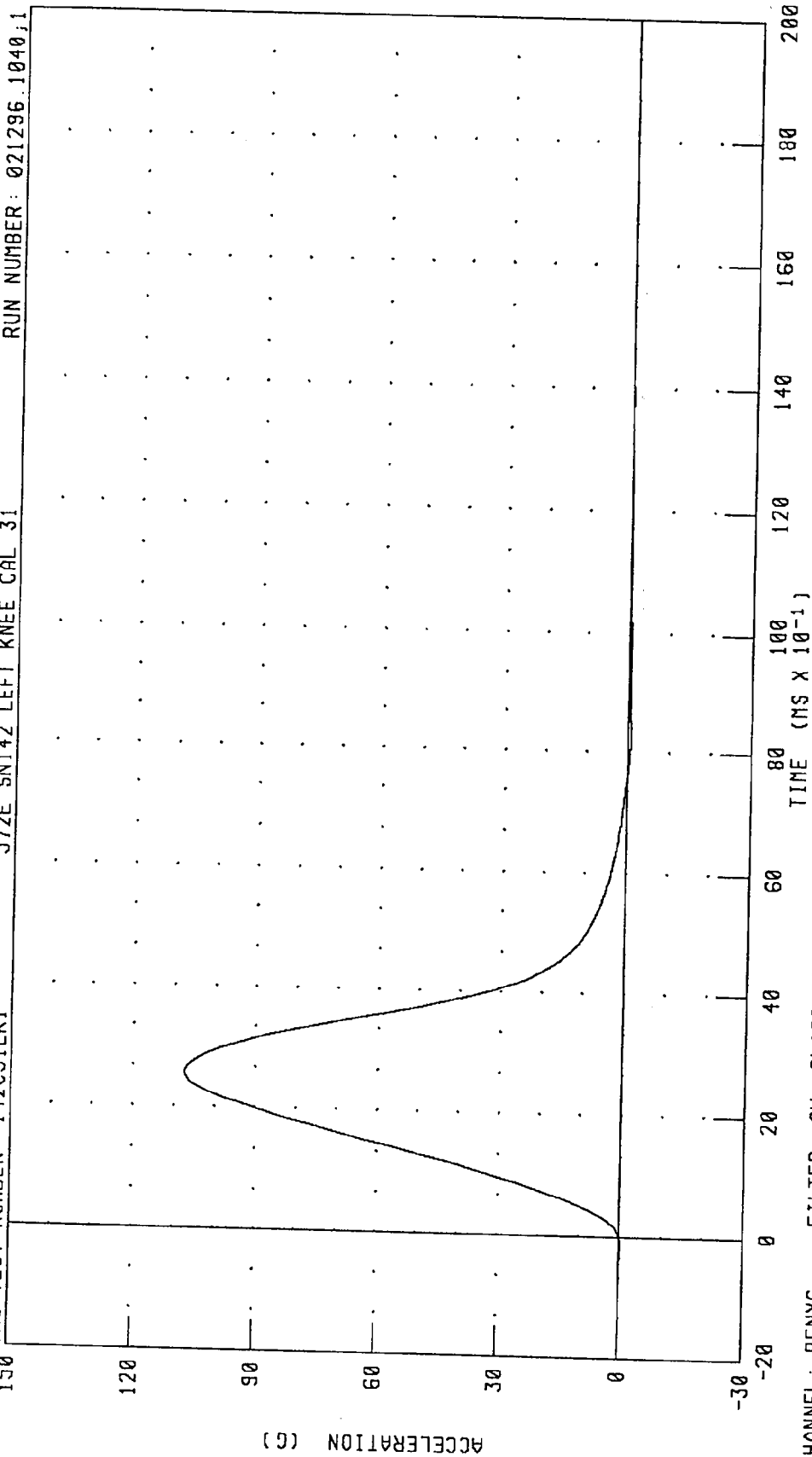
TECHNICIAN

Chas. M. Willert

RUN NUMBER: 011696.0839;1

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

IRC TEST NUMBER: 142C31LK1 572E SN142 LEFT KNEE CAL 31 RUN NUMBER: 021296.1040;1



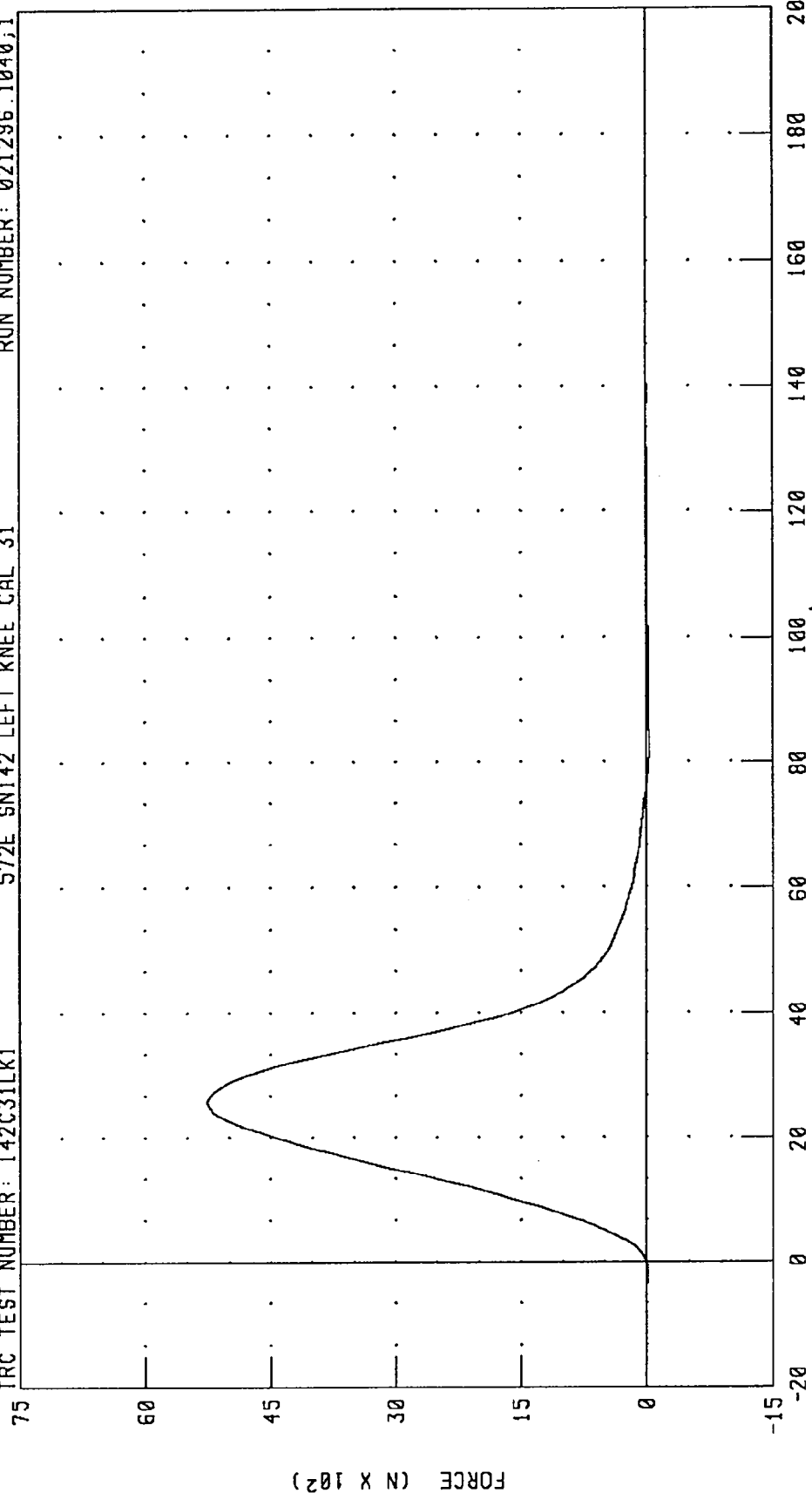
CHANNEL: PENXG FILTER: CH. CLASS 600  
 PEAK DATA: 107.45 G @ 2.56 MS; -0.63 G @ 8.32 MS

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

IRC TEST NUMBER: 142C31LK1

572E SN142 LEFT KNEE CAL 31

RUN NUMBER: 021296.1040;1



CHANNEL: PENXF FILTER: CH. CLASS 600

PEAK DATA: 5257.18 N @ 2.56 MS; -30.67 N @ 8.32 MS

Pre-test Certification Data

Passenger Dummy S/N: 192

TRANSPORTATION RESEARCH CENTER INC.  
HYBRID III EXTERNAL DIMENSIONS  
SN 192 ALDERSON

16-JAN-96

TRC INC. TEST NO: 192C31ED1 572E SN192 EXT.DIMENSION CAL31

| TEST PARAMETER                        | (DIMEN.) | SPECIFICATION | TEST RESULTS |
|---------------------------------------|----------|---------------|--------------|
| LOCATION FOR CHEST CIRCUMFERENCE (AA) |          | 429 - 434 MM  | 432. MM      |
| LOCATION FOR WAIST CIRCUMFERENCE (BB) |          | 226 - 231 MM  | 229. MM      |
| CHEST CIRCUMFERENCE                   | (Y)      | 970 -1001 MM  | 980. MM      |
| WAIST CIRCUMFERENCE                   | (Z)      | 836 - 866 MM  | 851. MM      |
| CHEST DEPTH                           | (O)      | 213 - 229 MM  | 218. MM      |
| H-POINT HEIGHT                        | (C)      | 84 - 89 MM    | 84. MM       |
| H-POINT FROM SEATBACK                 | (D)      | 135 - 140 MM  | 135. MM      |
| SKULL CAP TO BACKLINE                 | (H)      | 41 - 46 MM    | 43. MM       |
| TOTAL SITTING HEIGHT                  | (A)      | 879 - 889 MM  | 889. MM      |
| THIGH CLEARANCE                       | (F)      | 140 - 155 MM  | 150. MM      |
| BUTTOCK KNEE LENGTH                   | (K)      | 579 - 605 MM  | 597. MM      |
| BUTTOCK POPLITEAL LENGTH              | (N)      | 452 - 478 MM  | 470. MM      |
| POPLITEAL HEIGHT                      | (L)      | 429 - 455 MM  | 447. MM      |
| KNEE PIVOT HEIGHT                     | (M)      | 485 - 500 MM  | 493. MM      |
| FOOT LENGTH                           | (P)      | 252 - 267 MM  | 259. MM      |
| FOOT BREADTH                          | (W)      | 91 - 107 MM   | 102. MM      |
| SHOULDER PIVOT FROM BACKLINE          | (E)      | 84 - 94 MM    | 94. MM       |
| SHOULDER BREADTH                      | (V)      | 422 - 437 MM  | 429. MM      |
| SHOULDER PIVOT HEIGHT                 | (B)      | 506 - 521 MM  | 516. MM      |
| ELBOW REST HEIGHT                     | (J)      | 191 - 211 MM  | 211. MM      |
| SHOULDER-ELBOW LENGTH                 | (I)      | 330 - 345 MM  | 345. MM      |
| BACK OF ELBOW TO WRIST PIVOT          | (G)      | 290 - 305 MM  | 290. MM      |

DUMMY MEETS SPECIFICATIONS  
TECHNICIAN Chas. Marshall

RUN NUMBER: 011696.1302

TRANSPORTATION RESEARCH CENTER INC.

HEAD DROP TEST

HYBRID III

16-JAN-96

TRC INC.

TEST NO: 192C31HD1

572E SN192 HEAD DROP CAL 31

| TEST PARAMETER                  | SPECIFICATION    | TEST RESULTS |
|---------------------------------|------------------|--------------|
| TEMPERATURE                     | 18.9-25.6 DEG. C | 21.1 DEG. C  |
| RELATIVE HUMIDITY               | 10 - 70 %        | 23.0 %       |
| PEAK RESULTANT ACCELERATION     | 225 - 275 G      | 258.94 G     |
| PEAK LATERAL ACCELERATION       | 15 G MAX         | -4.21 G      |
| IS ACCELERATION CURVE UNIMODAL? | YES              | YES          |

TEST MEETS SPECIFICATIONS

TECHNICIAN Chas. M. Middle

RUN NUMBER: 011696.0757;1

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

TRC TEST NUMBER: 192C31HD1

572E SN192 HEAD DROP CAL 31

RUN NUMBER: 021296.1048;1

75

0

-75

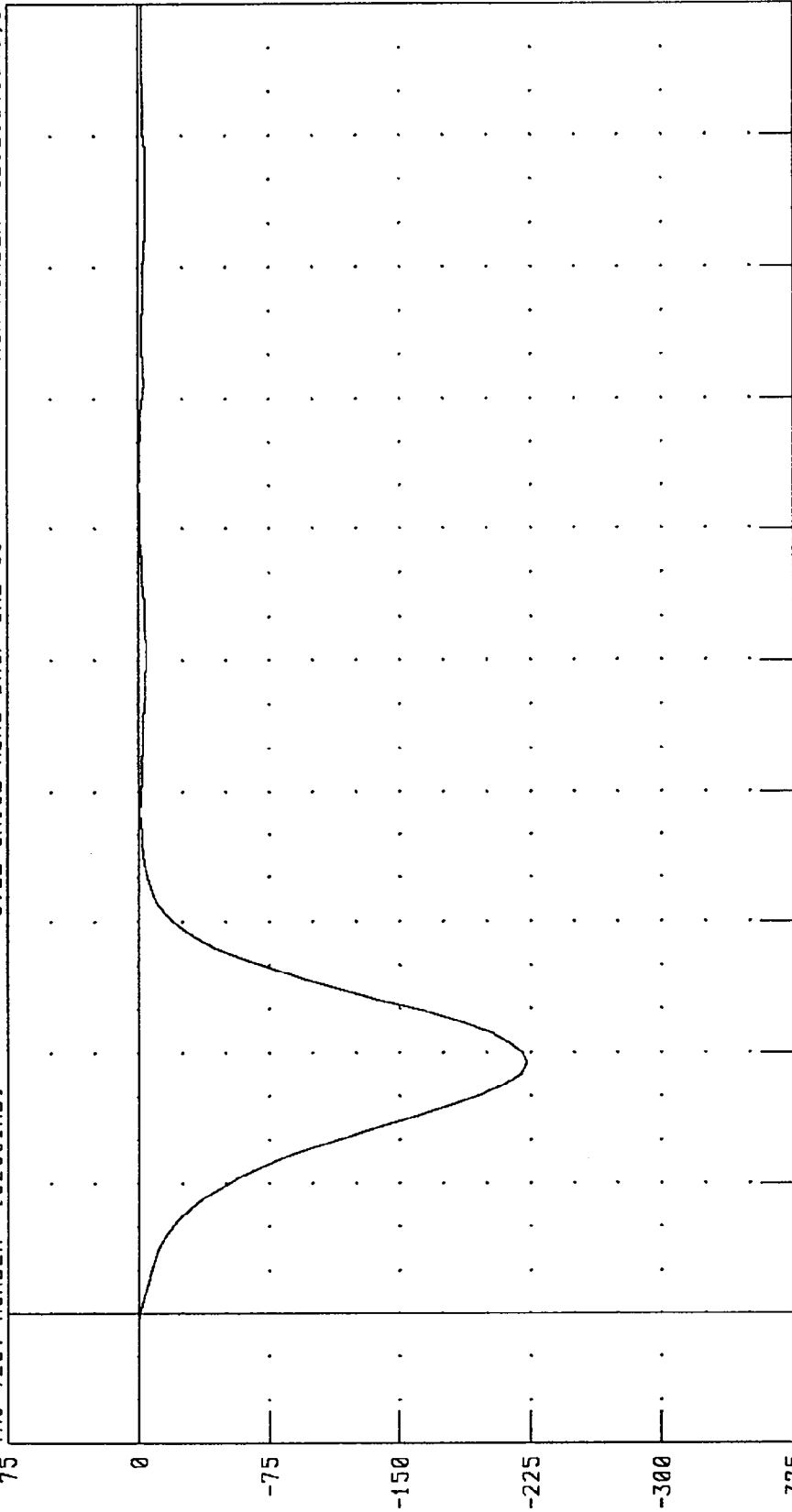
-150

-225

-300

-375

ACCELERATION (G)



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

CHANNEL: HEDXC FILTER: CH. CLASS 1000

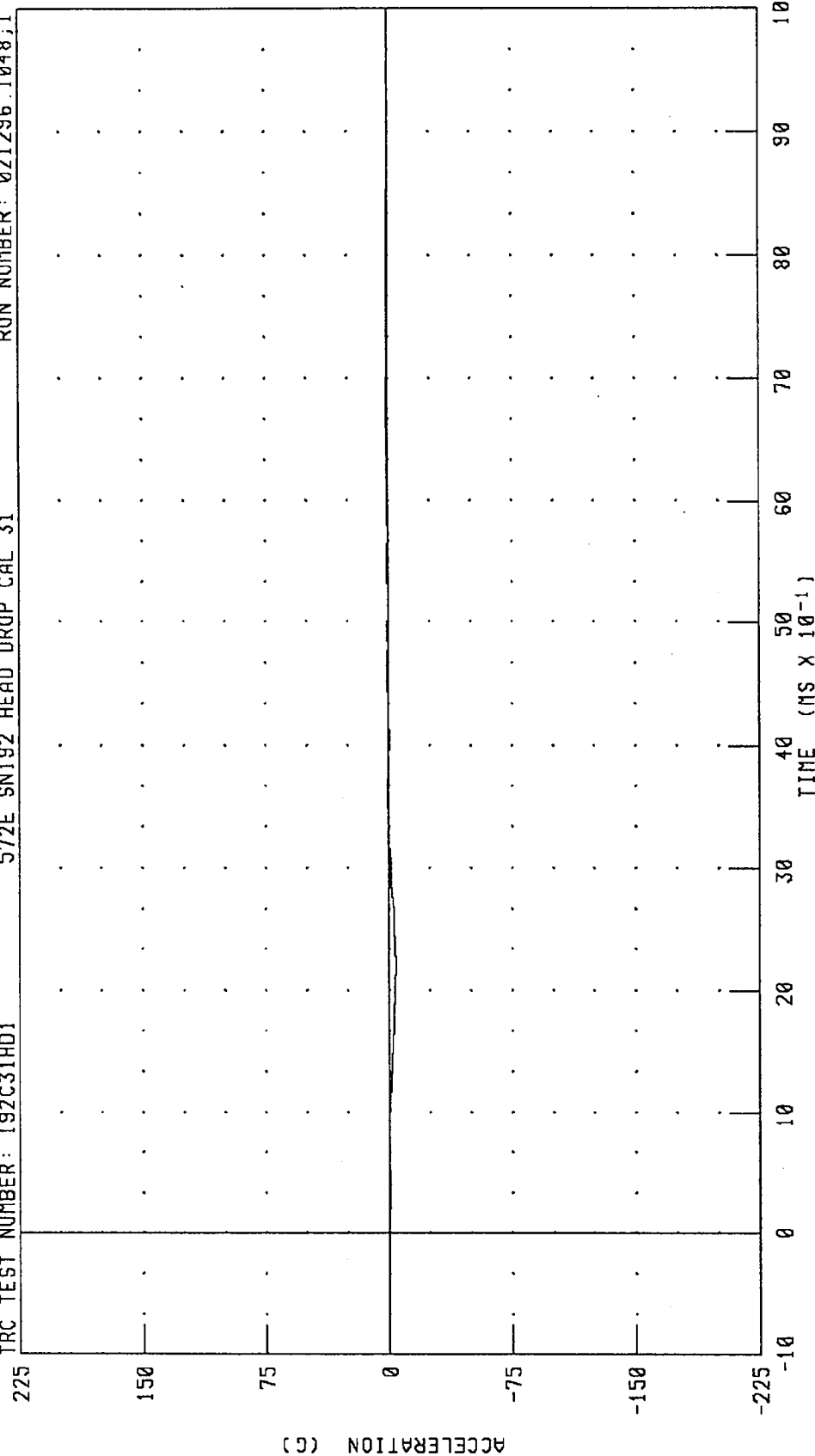
PEAK DATA: 0.03 G @ -0.16 MS; -222.80 G @ 1.92 MS

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

TRC TEST NUMBER: 192C31HD1

572E SN192 HEAD DROP CAL 31

RUN NUMBER: 021296.1048;1



PEAK DATA: 1.19 G @ 6.72 MS, -4.22 G @ 2.24 MS

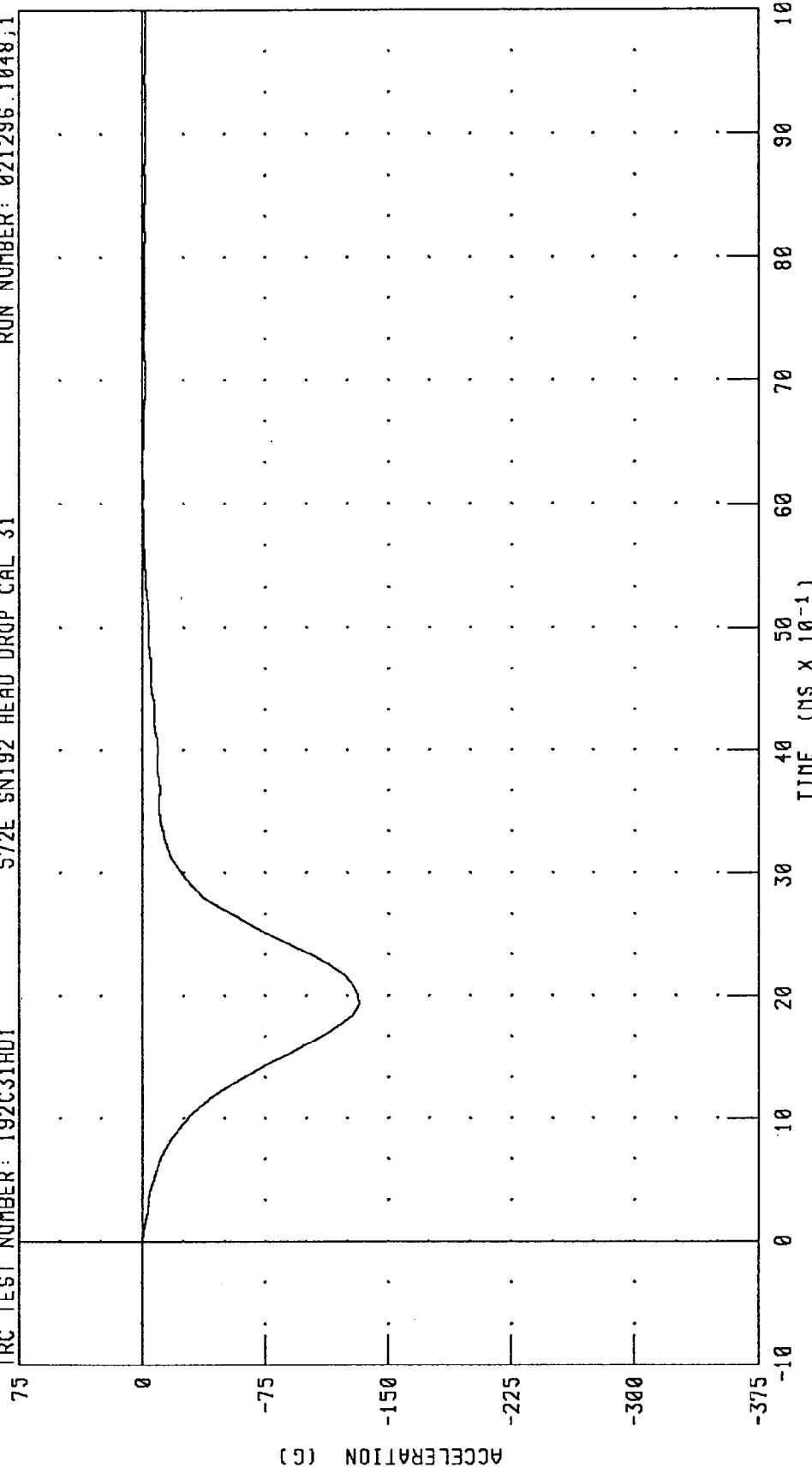
CHANNEL: HEDYG FILTER: CH. CLASS 1000

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

TRC TEST NUMBER: 192C31HD1

572E SN192 HEAD DROP CAL 31

RUN NUMBER: 021296.1048,1



PEAK DATA: 0.03 G @ -0.08 MS; -131.90 G @ 1.92 MS

CHANNEL: HEDZG FILTER: CH. CLASS 1000

PART 572-E HYBRID III HEAD CALIBRATION  
HEAD RESULTANT ACCELERATION

TRC TEST NUMBER: 192C31HD1 RUN NUMBER: 021296.1048,1

572E SN192 HEAD DROP CAL 31

375

300

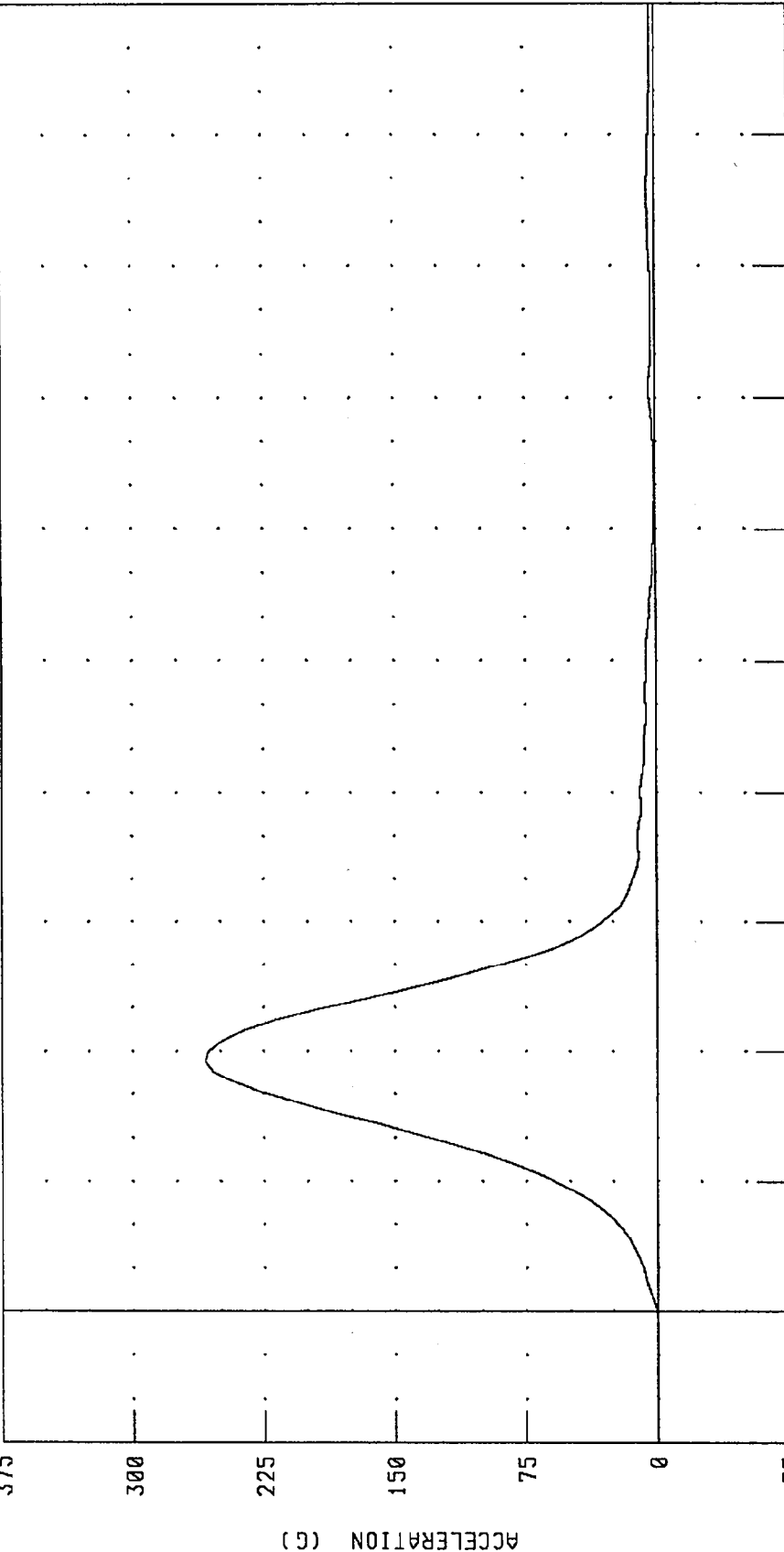
225

150

75

0

-75



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

40 50 60 70 80 90 100

PEAK DATA: 258.94 G @ 1.92 MS; 0.02 G @ -0.80 MS

CHANNEL: HEDRG FILTER: CH. CLASS 1000

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

HYBRID III

16-JAN-96

TRC INC.      TEST NO: 192C31NF1      572E SN192 NECK FLEXION CAL31

| TEST PARAMETER                                   |       | SPECIFICATION    | TEST RESULTS |
|--------------------------------------------------|-------|------------------|--------------|
| TEMPERATURE                                      |       | 20.6-22.2 DEG. C | 21.1 DEG. C  |
| RELATIVE HUMIDITY                                |       | 10 - 70 %        | 23.0 %       |
| IMPACT VELOCITY                                  |       | 6.89 - 7.13 M/S  | 7.06 M/S     |
| PENDULUM<br>DECELERATION                         | 10 MS | 22.50 - 27.50 G  | 22.65 G      |
|                                                  | 20 MS | 17.60 - 22.60 G  | 20.79 G      |
|                                                  | 30 MS | 12.50 - 18.50 G  | 17.09 G      |
| MAX PENDULUM G                                   |       | 29 G MAX         | 23.10 G      |
| MAX PENDULUM G ABOVE 30 MS                       |       | 29 G MAX         | 17.03 G      |
| DECELERATION-TIME CURVE<br>DECAY TIME TO 5 G     |       | 34 - 42 MS       | 37.84 MS     |
| D PLANE                                          | MAX   | 64 - 78 DEG.     | 69.30 DEG.   |
| ROTATION                                         | TIME  | 57 - 64 MS       | 58.32 MS     |
| MOMENT ABOUT<br>OCCIPITAL<br>CONDYLE             | MAX   | 88.2 - 108.5 NM  | 99.78 NM     |
|                                                  | TIME  | 47 - 58 MS       | 50.48 MS     |
| ROTATION ANGLE-TIME CURVE<br>DECAY TIME TO ZERO  |       | 113 - 128 MS     | 113.04 MS    |
| POSITIVE MOMENT-TIME CURVE<br>DECAY TIME TO ZERO |       | 97 - 107 MS      | 99.12 MS     |

TEST MEETS SPECIFICATIONS

TECHNICIAN Chas. Middleh

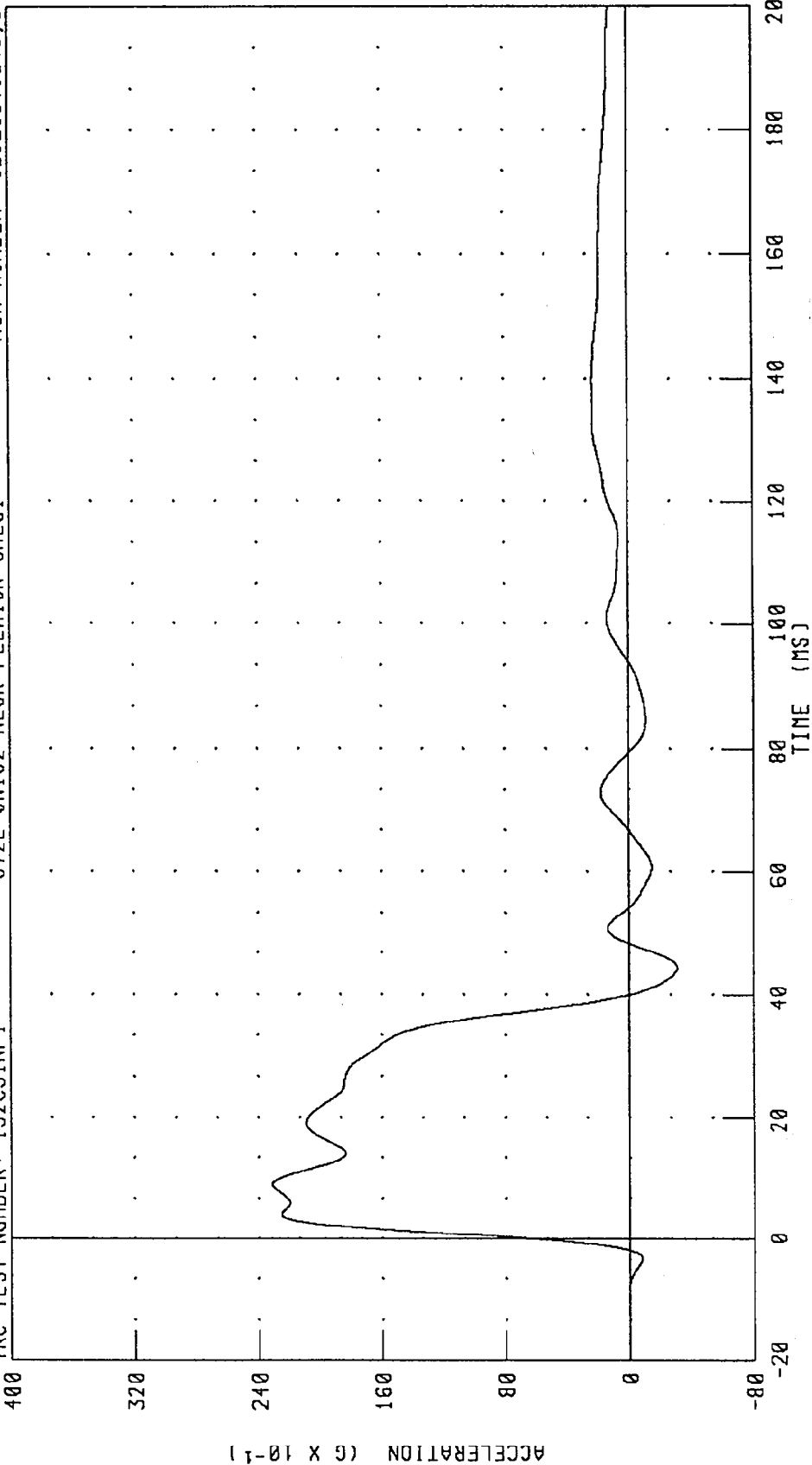
RUN NUMBER: 011696.1039;3

PART 572-E HYBRID III NECK FLEXION CALIBRATION  
PENDULUM DECELERATION

TRC TEST NUMBER: 192C3INF1

572E SN192 NECK FLEXION CAL31

RUN NUMBER: 021286.1048;3



PEAK DATA: 23.11 G @ 8.96 MS; -3.08 G @ 44.32 MS

CHANNEL: PENXG FILTER: CH. CLASS 60

# PART 572-E HYBRID III NECK FLEXION CALIBRATION

ROTATION ABOUT BASE OF NECK

572E SN192 NECK FLEXION CAL31

TRC TEST NUMBER: 192C31NF1

120

90

60

30

0

-30

-60

ANGLE (°)

TIME (MS)

80

100

120

140

160

180

200

220

240

260

280

300

320

RUN NUMBER: 021296.1048;3

PEAK DATA: 30.86 ° @ 58.24 MS; -19.51 ° @ 164.56 MS

CHANNEL: BETA

FILTER: CH. CLASS 60

960117

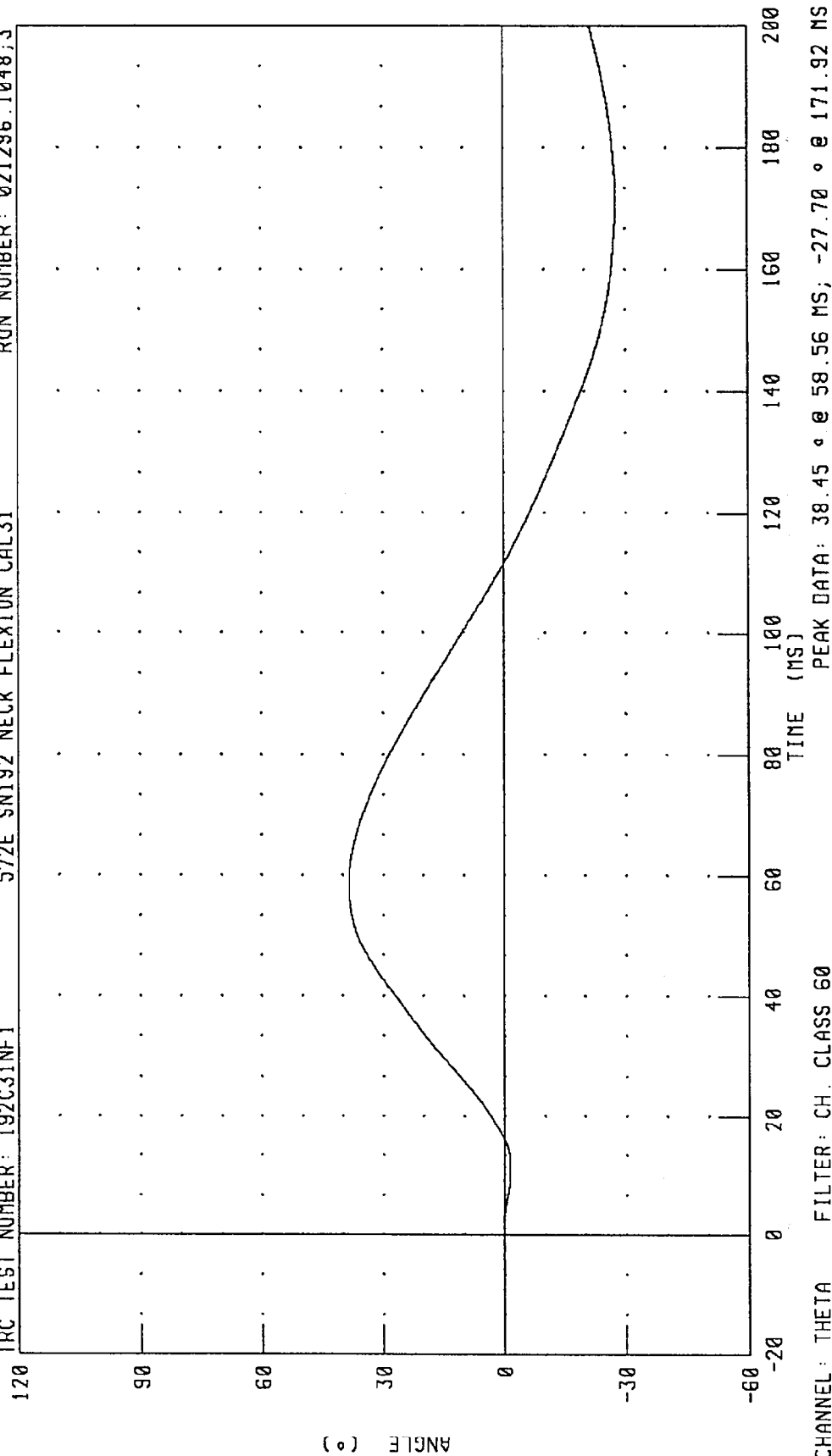
C-45

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

IRC TEST NUMBER: 192C31NF1

572E SN192 NECK FLEXION CAL31

RUN NUMBER: 021296.1048,3

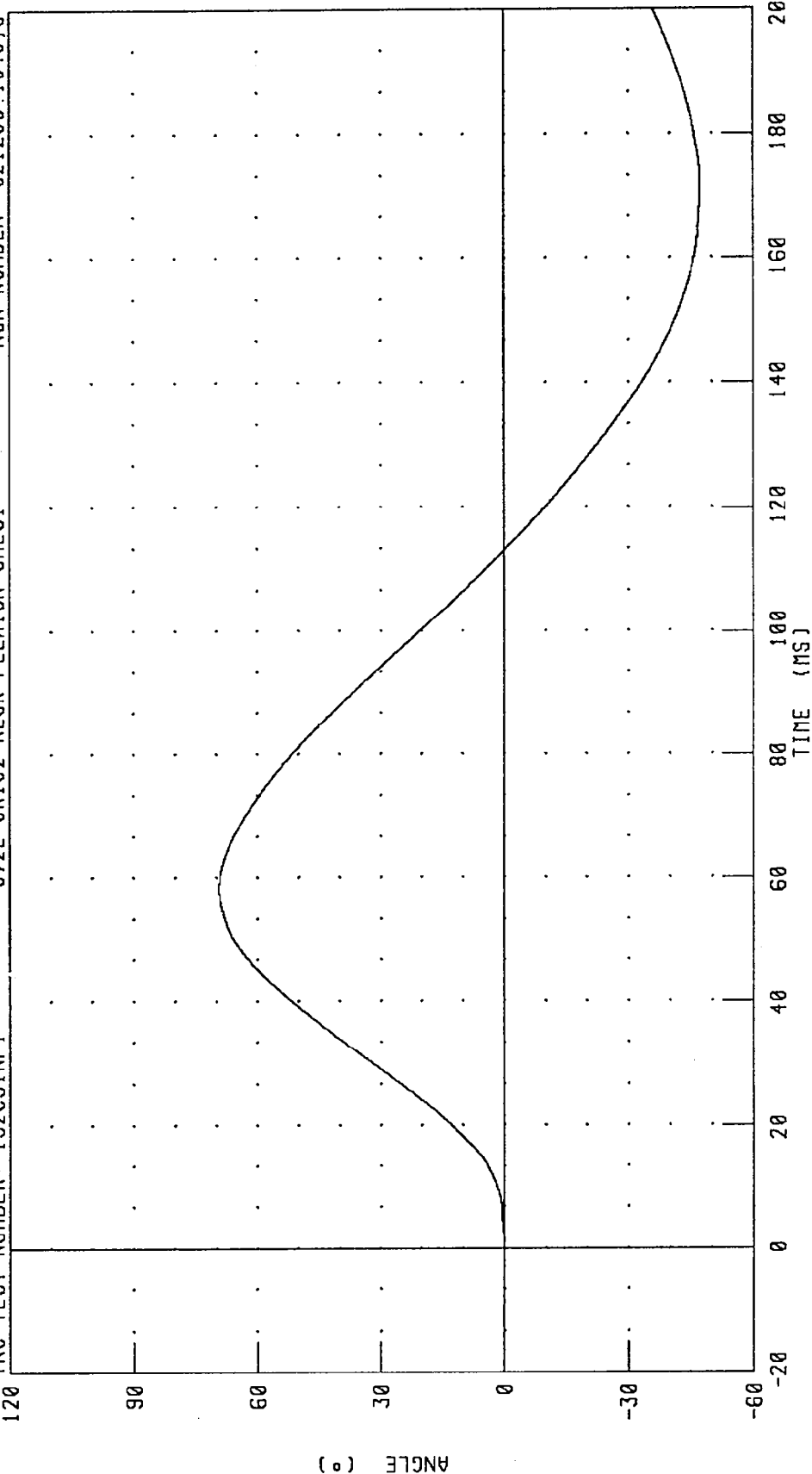


CHANNEL: THETA FILTER: CH. CLASS 60

# PART 572-E HYBRID III NECK FLEXION CALIBRATION

TOTAL ROTATION

TRC TEST NUMBER: 192C31NF1 572E SN192 NECK FLEXION CAL31 RUN NUMBER: 021296.1048;3



PEAK DATA: 69.30 ° @ 58.32 MS; -47.21 ° @ 172.40 MS

CHANNEL: TOTAN FILTER: CH. CLASS 60

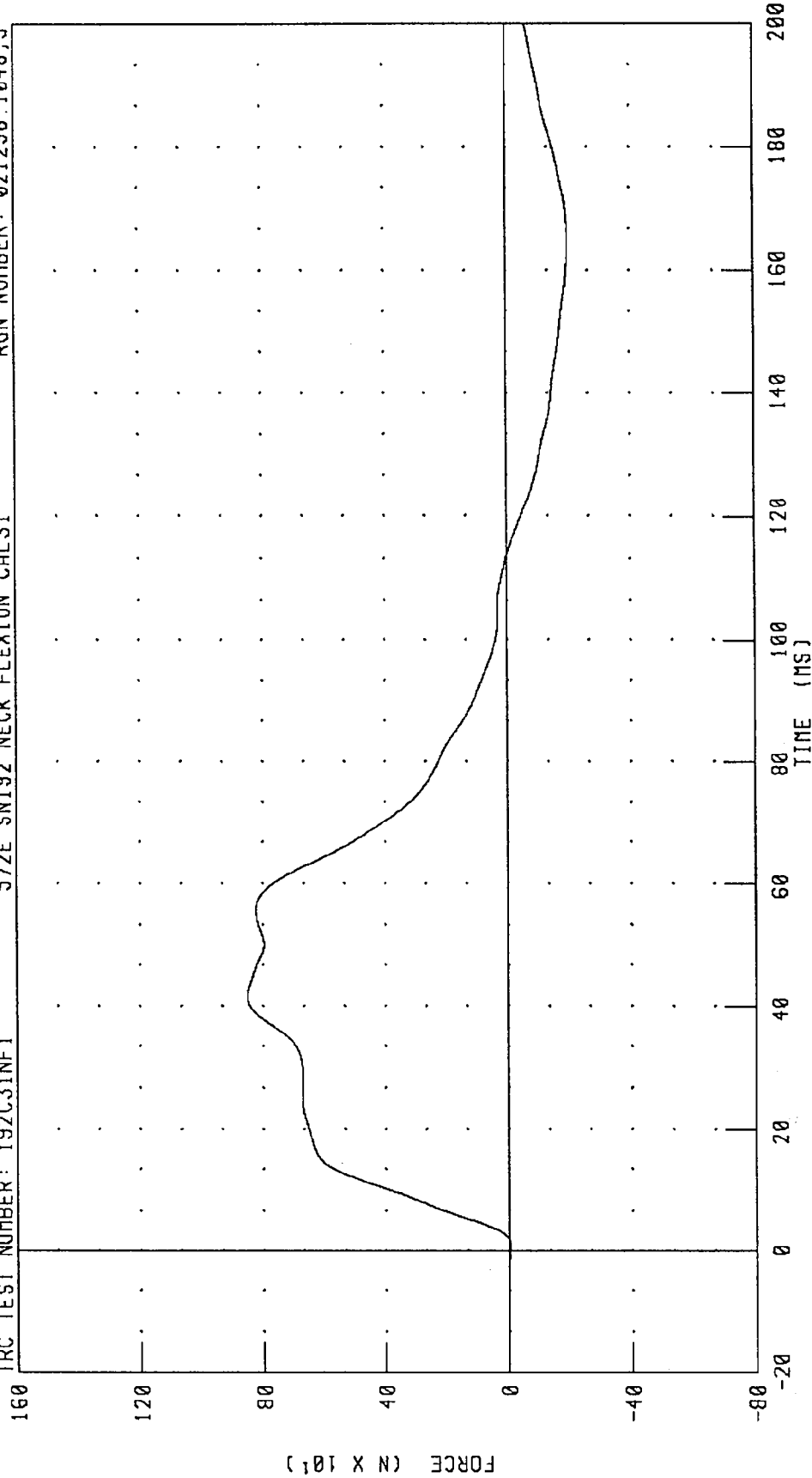
# PART 572-E HYBRID III NECK FLEXION CALIBRATION

NECK FORCE X AXIS

TRC TEST NUMBER: 192C3INF1

572E SN192 NECK FLEXION CAL31

RUN NUMBER: 021296.1048,3



PEAK DATA: 851.82 N @ 41.52 MS; -199.75 N @ 163.92 MS

CHANNEL: NEKXF FILTER: CH. CLASS 60

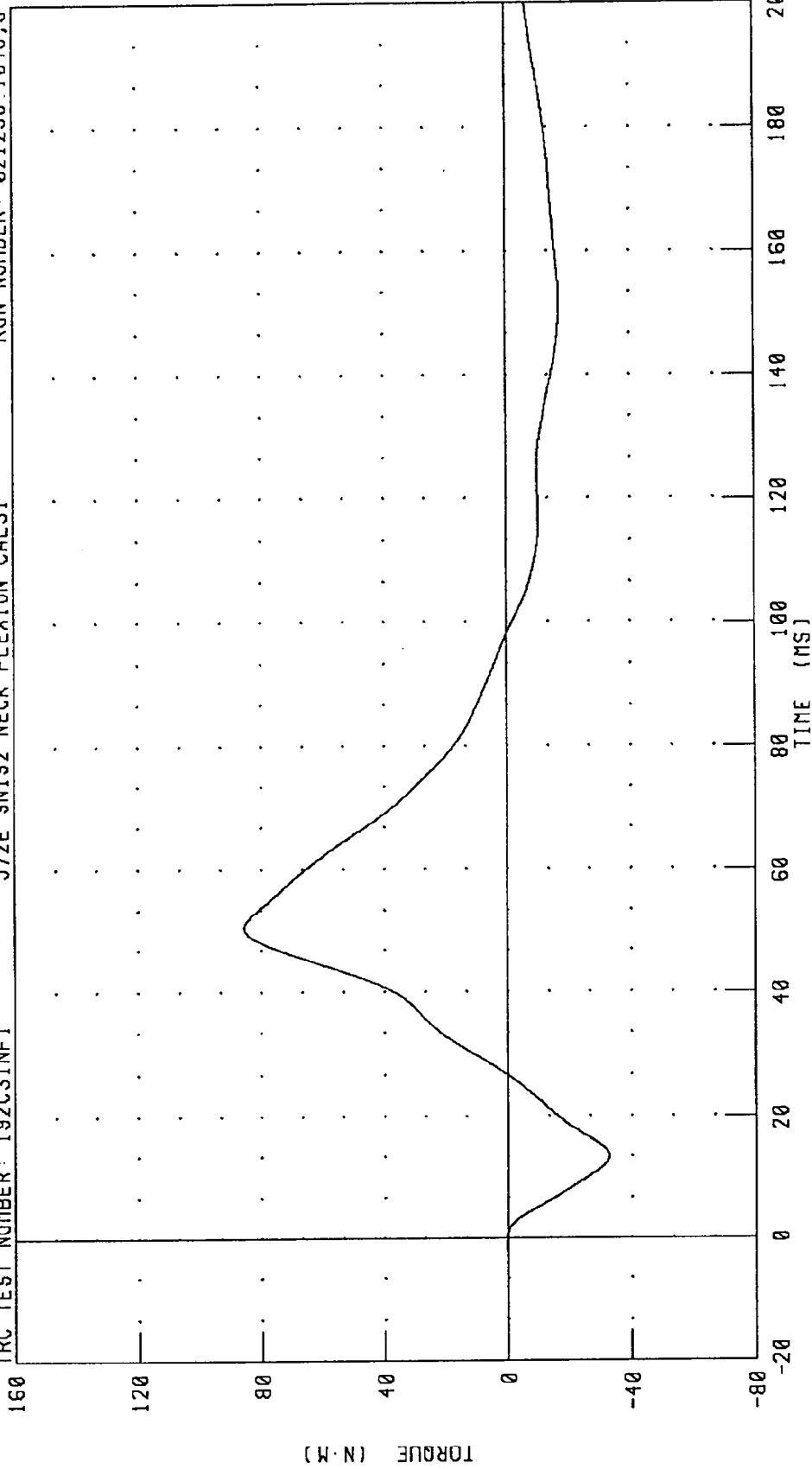
# PART 572-E HYBRID III NECK FLEXION CALIBRATION

NECK MOMENT Y AXIS

TRC TEST NUMBER: 192C31NF1

572E SN192 NECK FLEXION CAL31

RUN NUMBER: 021296.1048;3

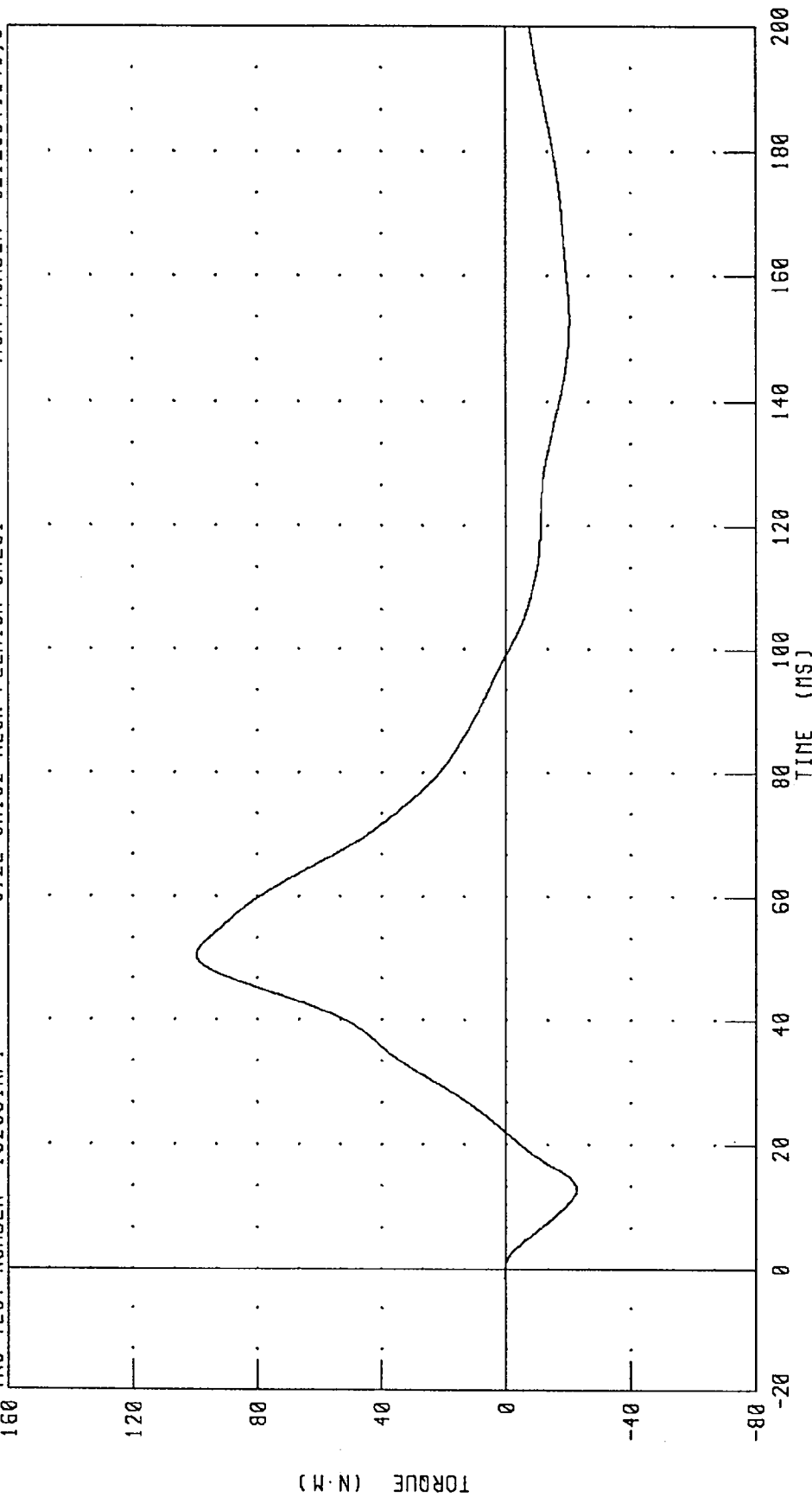


CHANNEL: NEKYM FILTER: CH. CLASS 60

PEAK DATA: 85.59 N·M @ 50.40 MS; -32.69 N·M @ 13.44 MS

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

TRC TEST NUMBER: 192C31NF1 572E SN192 NECK FLEXION CAL31 RUN NUMBER: 021296.1048.3



CHANNEL: NEKOM FILTER: CH. CLASS 60 PEAK DATA: 99.78 N·M @ 50.48 MS; -22.68 N·M @ 12.88 MS

## TRANSPORTATION RESEARCH CENTER INC.

## NECK EXTENSION TEST - 6 CHANNEL TRANSDUCER

HYBRID III

16-JAN-96

TRC INC. TEST NO: 192C31NE1 572E SN192 NECK EXT. CAL31

| TEST PARAMETER                                   |       | SPECIFICATION      | TEST RESULTS |
|--------------------------------------------------|-------|--------------------|--------------|
| TEMPERATURE                                      |       | 20.6 - 22.2 DEG. C | 21.1 DEG. C  |
| RELATIVE HUMIDITY                                |       | 10 - 70 %          | 23.0 %       |
| IMPACT VELOCITY                                  |       | 5.95 - 6.19 M/S    | 6.05 M/S     |
| PENDULUM<br>DECELERATION                         | 10 MS | 17.20 - 21.20 G    | 17.99 G      |
|                                                  | 20 MS | 14.00 - 19.00 G    | 16.37 G      |
|                                                  | 30 MS | 11.00 - 16.00 G    | 12.72 G      |
| MAX PENDULUM G                                   |       | 22 G MAX           | 18.48 G      |
| MAX PENDULUM G ABOVE 30 MS                       |       | 22 G MAX           | 12.68 G      |
| DECELERATION-TIME CURVE<br>DECAY TIME TO 5 G     |       | 38 - 46 MS         | 41.36 MS     |
| D PLANE                                          | MAX   | 81 - 106 DEG.      | 95.15 DEG.   |
| ROTATION                                         | TIME  | 72 - 82 MS         | 77.52 MS     |
| MOMENT ABOUT<br>OCCIPITAL<br>CONDYLE             | MIN   | -80.0/-52.9 NM     | -62.09 NM    |
|                                                  | TIME  | 65 - 79 MS         | 71.68 MS     |
| ROTATION ANGLE-TIME CURVE<br>DECAY TIME TO ZERO  |       | 147 - 174 MS       | 156.40 MS    |
| NEGATIVE MOMENT-TIME CURVE<br>DECAY TIME TO ZERO |       | 120 - 148 MS       | 139.84 MS    |

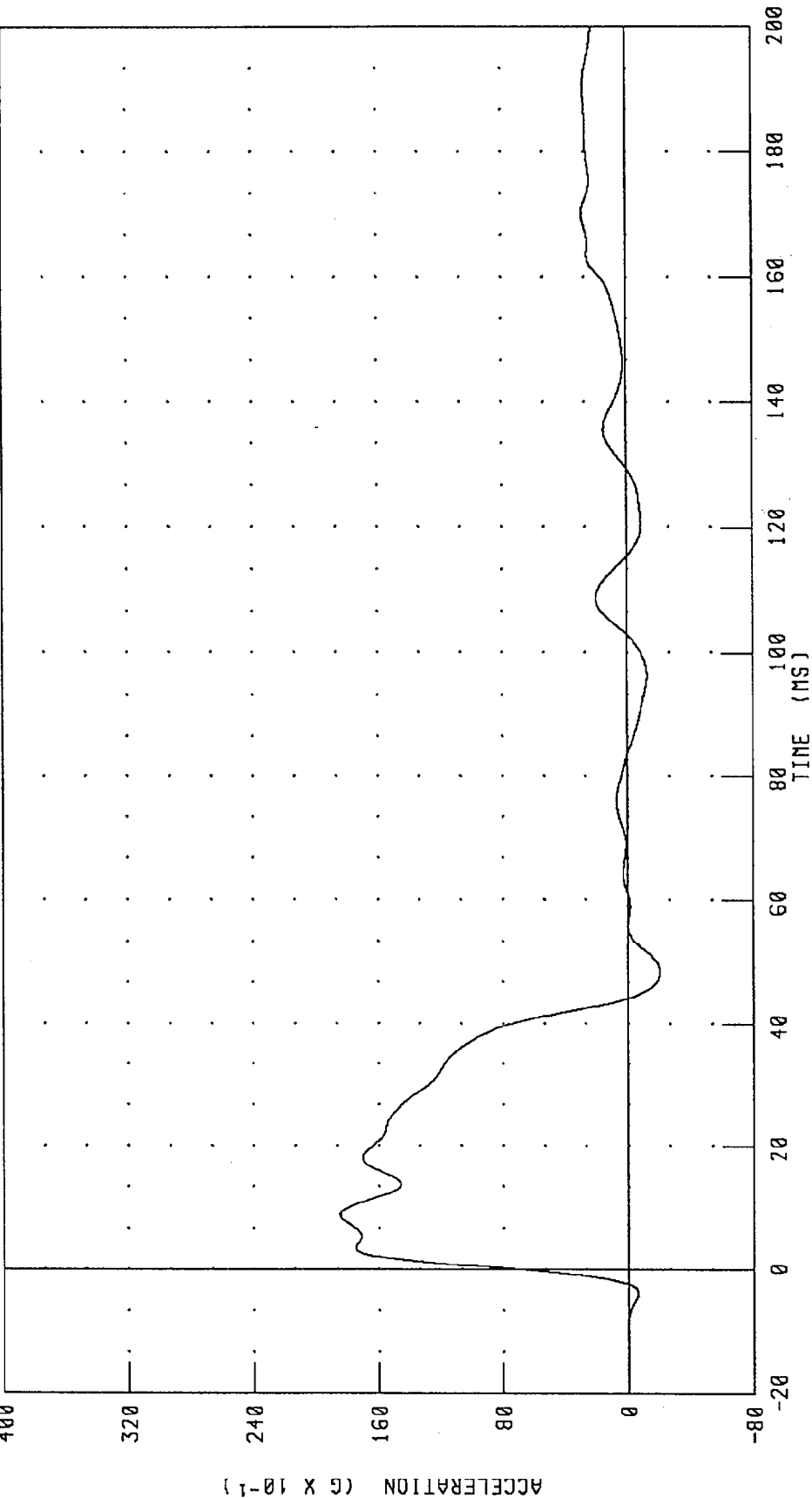
TEST MEETS SPECIFICATIONS

TECHNICIAN Chas. M. Hertz

RUN NUMBER: 011696.1122;1

PART 572-E HYBRID III NECK EXTENSION CALIBRATION  
 PENDULUM DECELERATION

TRC TEST NUMBER: 192C31NE1 572E SN192 NECK EXT. CAL31 RUN NUMBER: 021296.1048,1



PEAK DATA: 18.48 G @ 8.88 MS; -2.04 G @ 48.40 MS

CHANNEL: PENXG FILTER: CH. CLASS 60

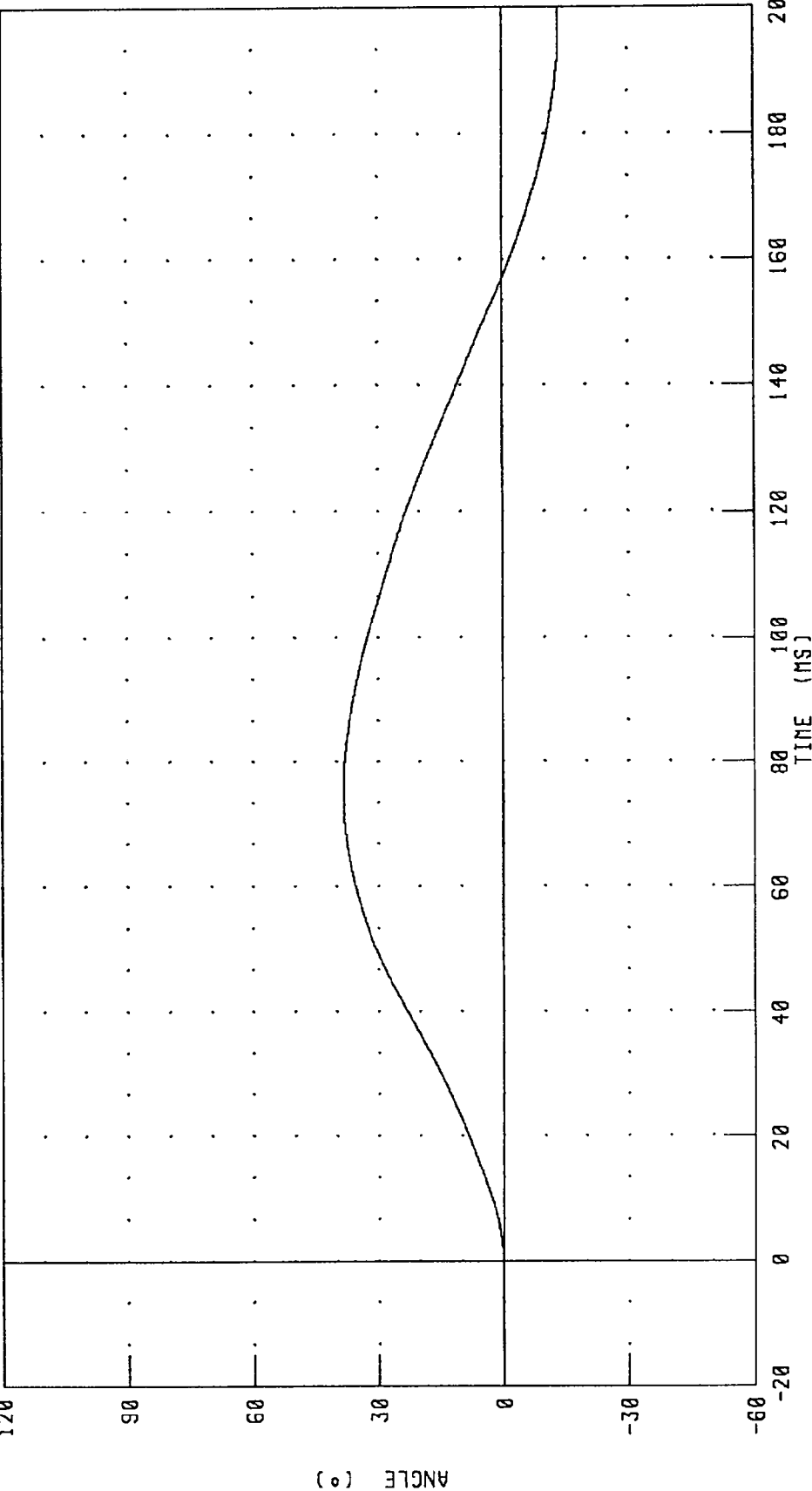
# PART 572-E HYBRID III NECK EXTENSION CALIBRATION

ROTATION ABOUT BASE OF NECK

TRC TEST NUMBER: 192C31NE1

572E SN192 NECK EXT. CAL31

RUN NUMBER: 021296.1048;1

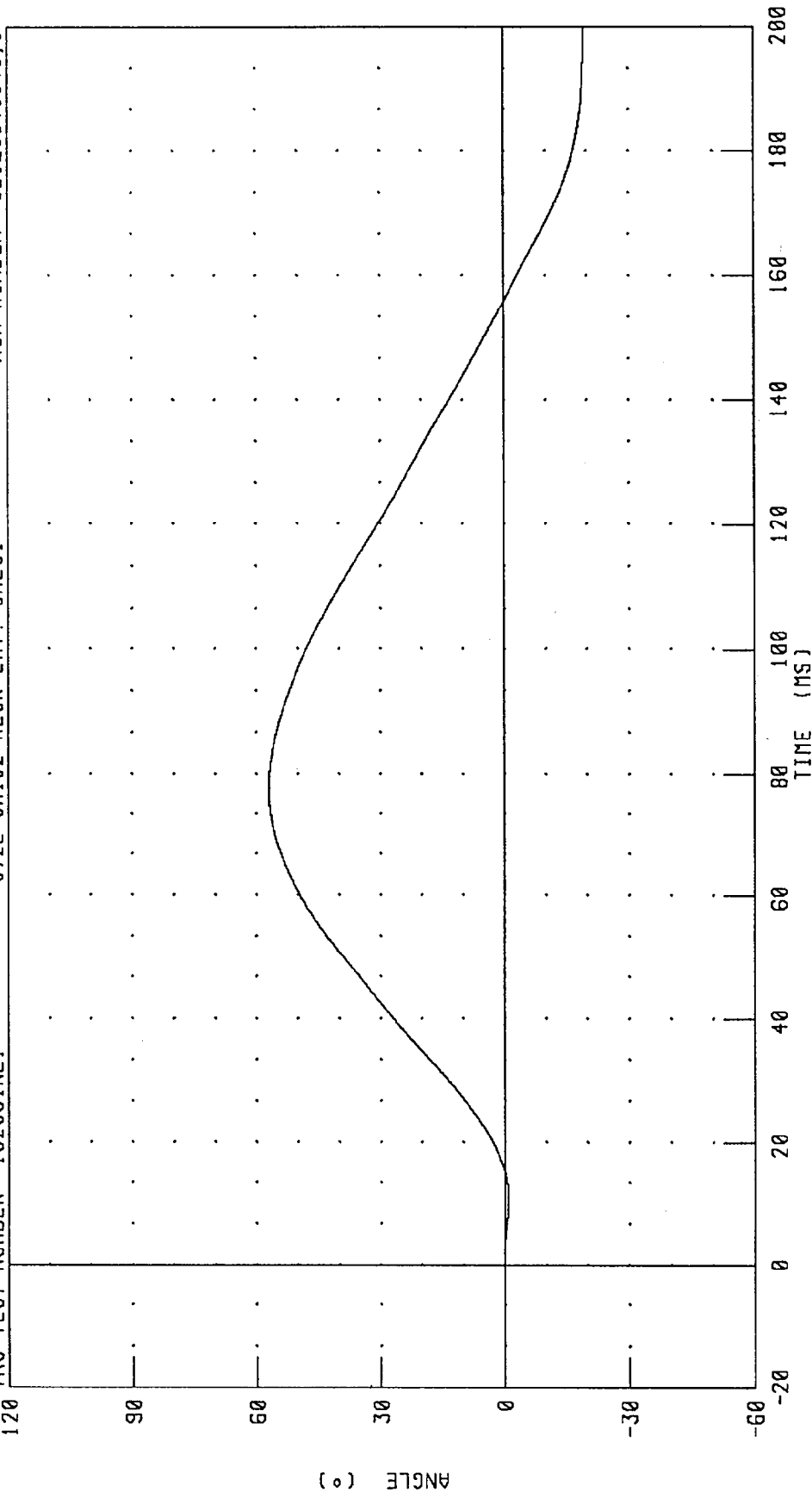


PEAK DATA: 38.15 ° @ 73.04 MS; -13.52 ° @ 195.76 MS

CHANNEL: BETA FILTER: CH. CLASS 60

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

TRC TEST NUMBER: 192C31NE1 572E SN192 NECK EXT. CAL31 RUN NUMBER: 021296.1048;1

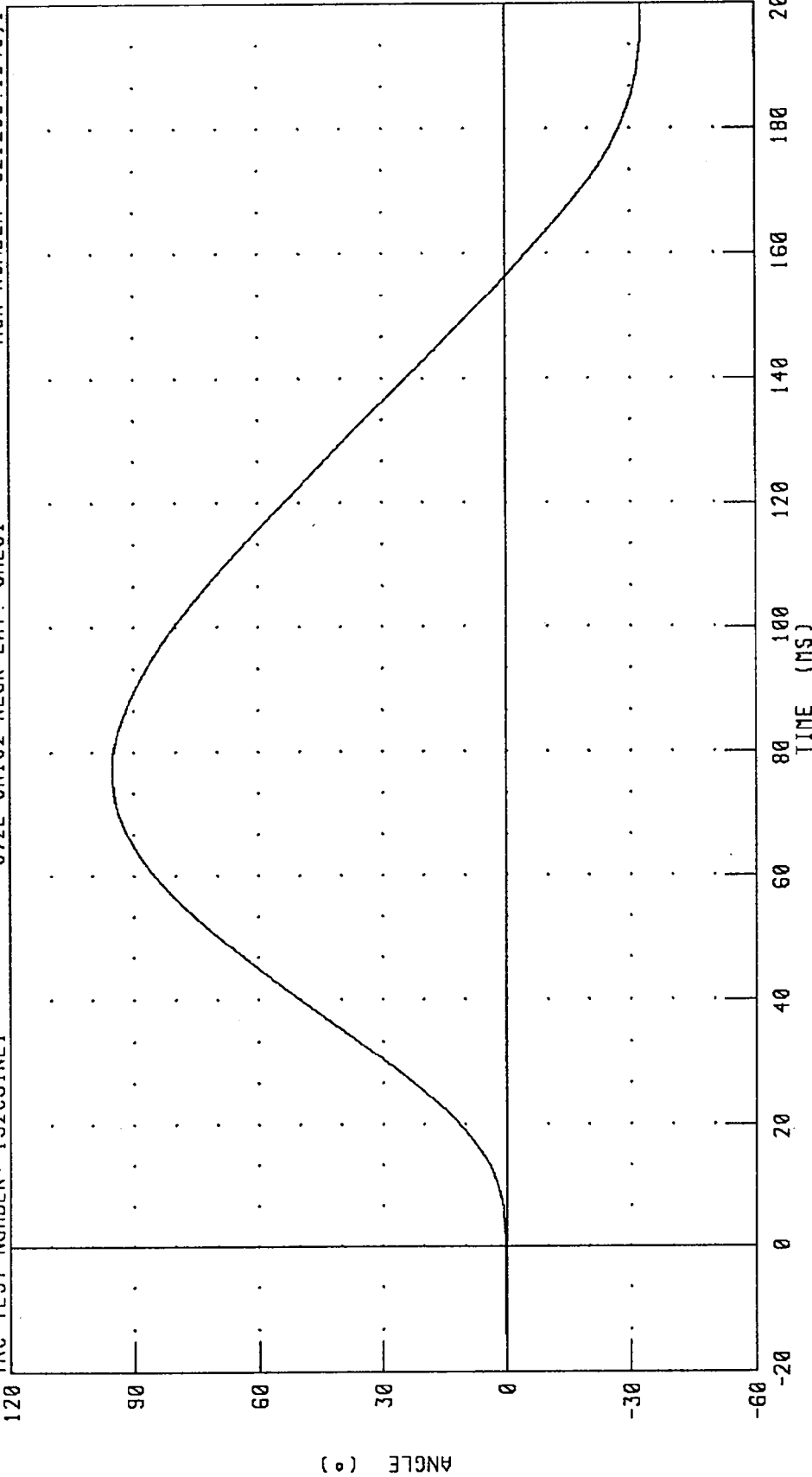


CHANNEL: THETA FILTER: CH. CLASS 60

# PART 572-E HYBRID III NECK EXTENSION CALIBRATION

TOTAL ROTATION

TRC TEST NUMBER: 192C31NE1 572E SN192 NECK EXT. CAL31 RUN NUMBER: 021296.1048,1

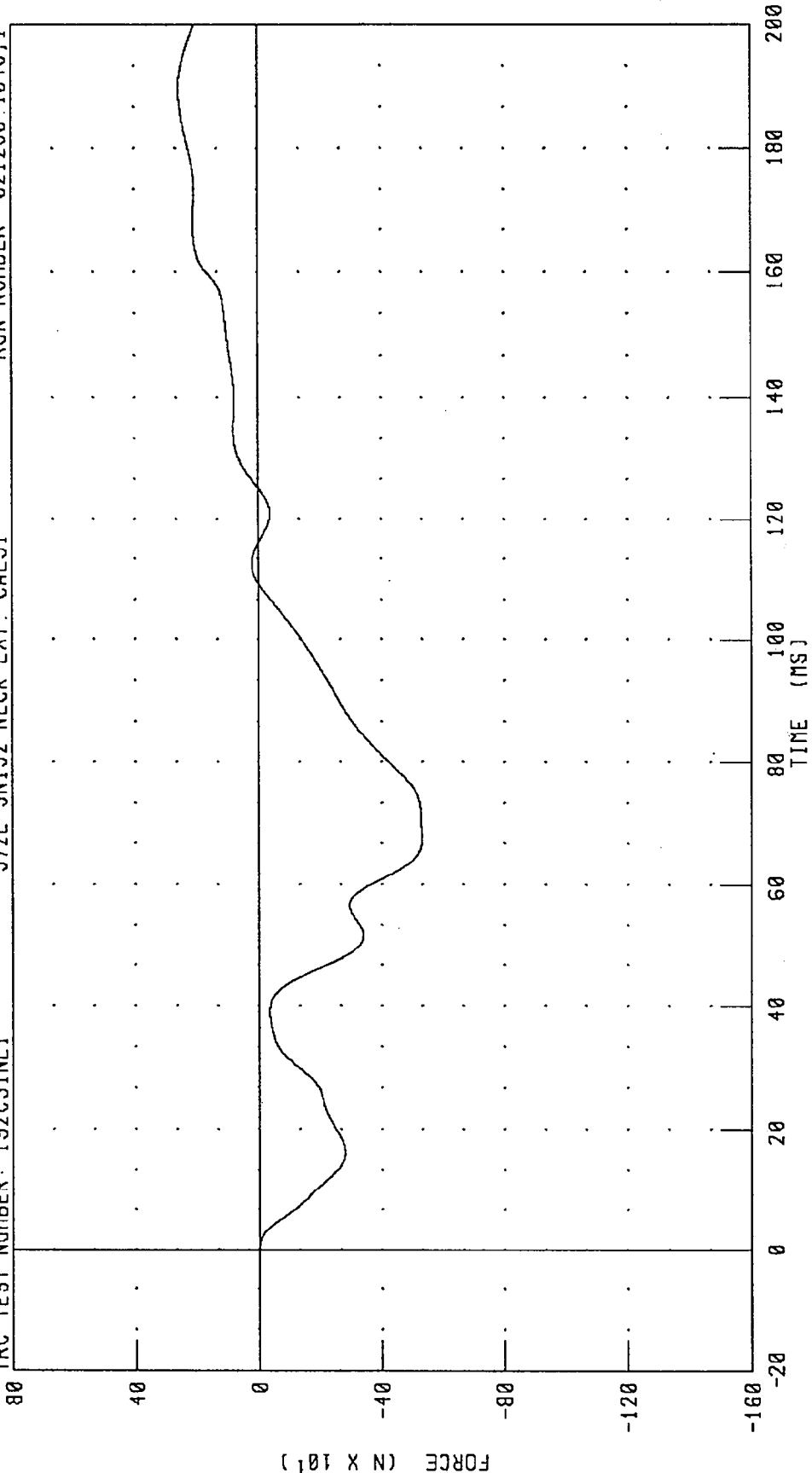


PEAK DATA: 95.16 ° @ 77.52 MS; -32.74 ° @ 197.04 MS

CHANNEL: TOTAL FILTER: CH. CLASS 60

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

TRC TEST NUMBER: 192C31NE1 572E SN192 NECK EXT. CAL31 RUN NUMBER: 021296.1048;1



CHANNEL: NEKXF FILTER: CH. CLASS 60

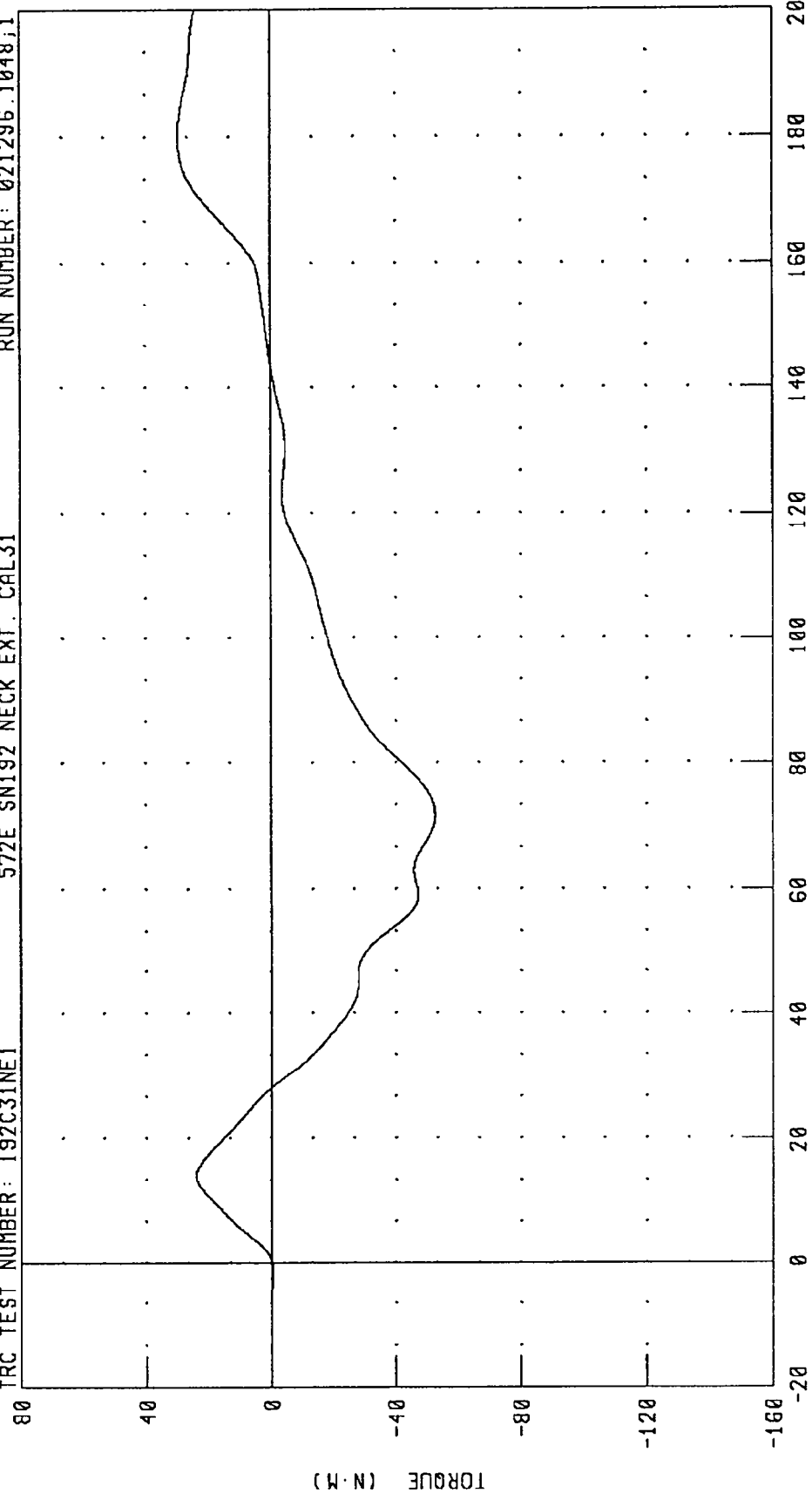
# PART 572-E HYBRID III NECK EXTENSION CALIBRATION

NECK MOMENT Y AXIS

TRC TEST NUMBER: 192C31NE1

572E SN192 NECK EXT. CAL31

RUN NUMBER: 021296.1048;1



PEAK DATA: 29.53 N.M @ 180.00 MS, -52.70 N.M @ 71.76 MS

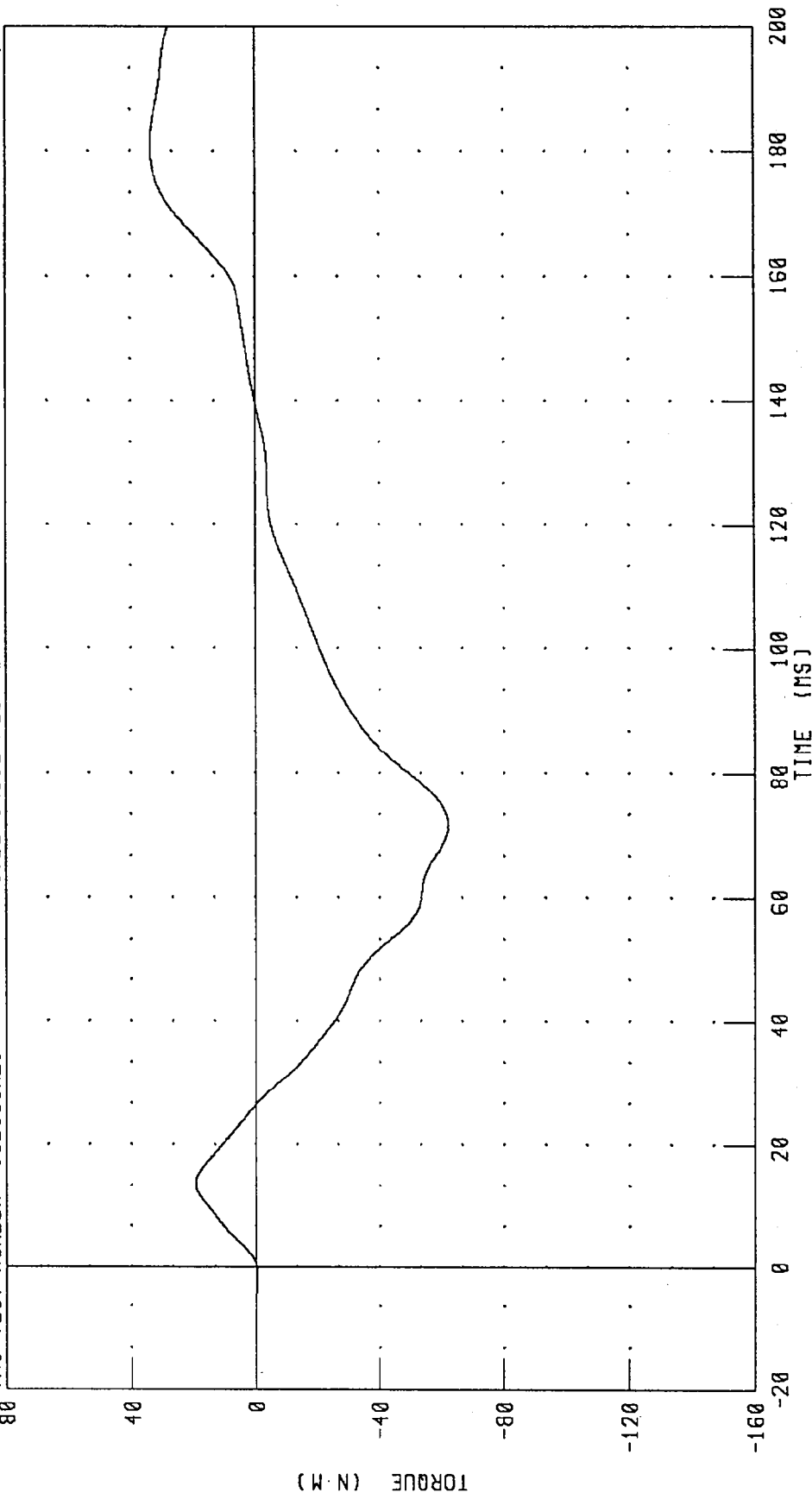
CHANNEL: NEKYM FILTER: CH. CLASS 60

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

TRC TEST NUMBER: 192C31NE1

572E SN192 NECK EXT. CAL31

RUN NUMBER: 021296.1048;1



PEAK DATA: 33.59 N-M @ 180.88 MS; -62.09 N-M @ 71.68 MS

CHANNEL: NEKOM FILTER: CH. CLASS 60

TRANSPORTATION RESEARCH CENTER INC.

THORAX IMPACT TEST

HYBRID III

16-JAN-96

TRC INC.

TEST NO: 192C31TH1

572E SN192 H.S.THORAX CAL31

| TEST PARAMETER          | HIGH SPEED TEST  | TEST RESULTS |
|-------------------------|------------------|--------------|
|                         | SPECIFICATION    |              |
| TEMPERATURE             | 20.6-22.2 DEG. C | 22.2 DEG. C  |
| RELATIVE HUMIDITY       | 10 - 70 %        | 23.0 %       |
| PENDULUM VELOCITY       | 6.59 - 6.83 M/S  | 6.62 M/S     |
| MAXIMUM DEFLECTION      | 63.5 - 72.6 MM   | 66.6 MM      |
| MAXIMUM RESISTIVE FORCE | 5159 - 5894 N    | 5855. N      |
| INTERNAL HYSTERESIS     | 69% - 85%        | 71.8%        |

TEST MEETS SPECIFICATIONS

TECHNICIAN Chas. Miedt

RUN NUMBER: 011696.1546;3

PART 572-E HYBRID III THORAX CALIBRATION  
 PENDULUM DECELERATION

TRC TEST NUMBER: 192C31TH1

572E SN192 H.S. THORAX CAL31

RUN NUMBER: 021296.1048;3

50

40

30

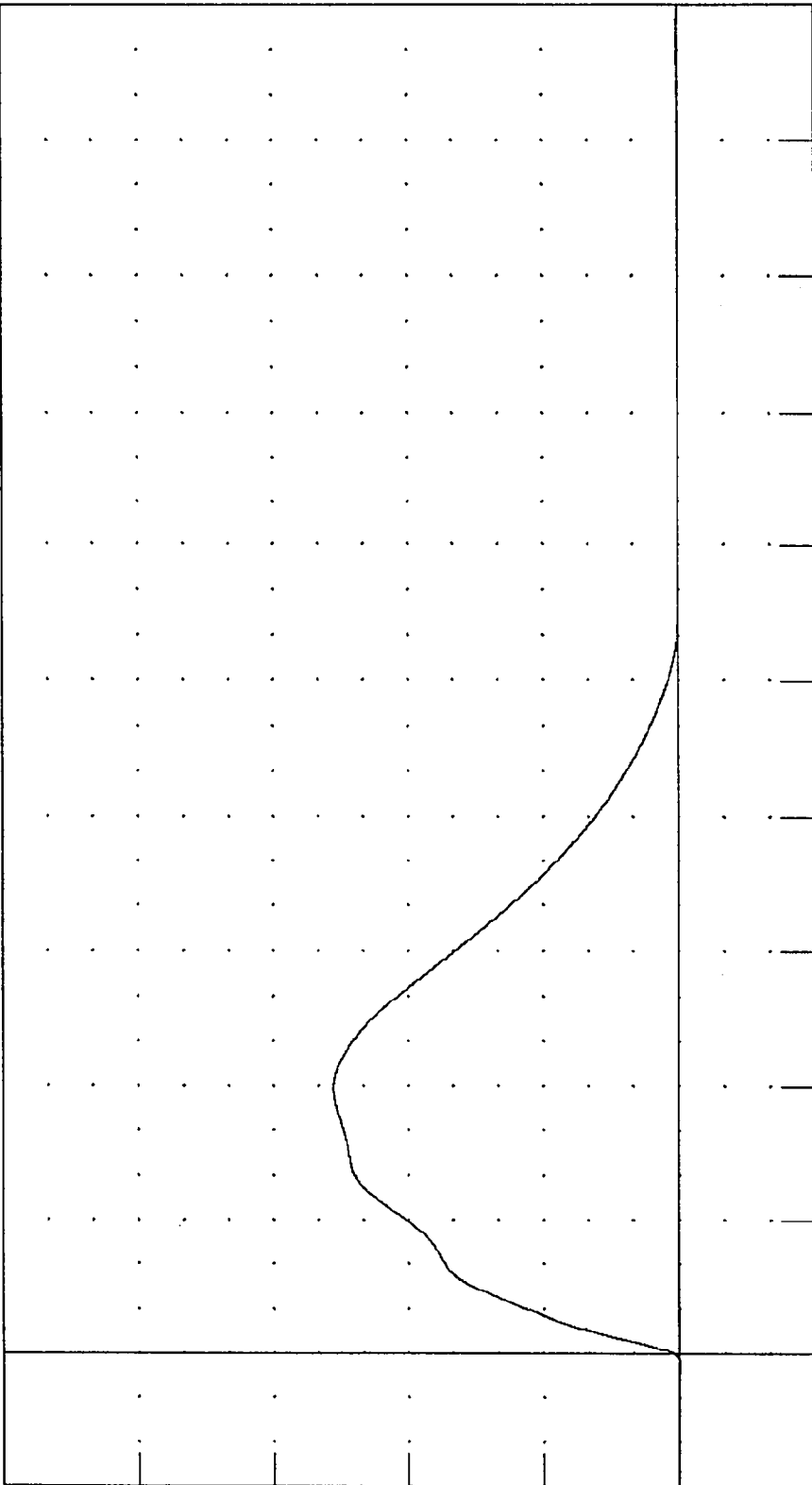
20

10

0

-10

ACCELERATION (G)



TIME (MS)

100

PEAK DATA: 25.56 G @ 19.84 MS; -0.08 G @ -0.88 MS

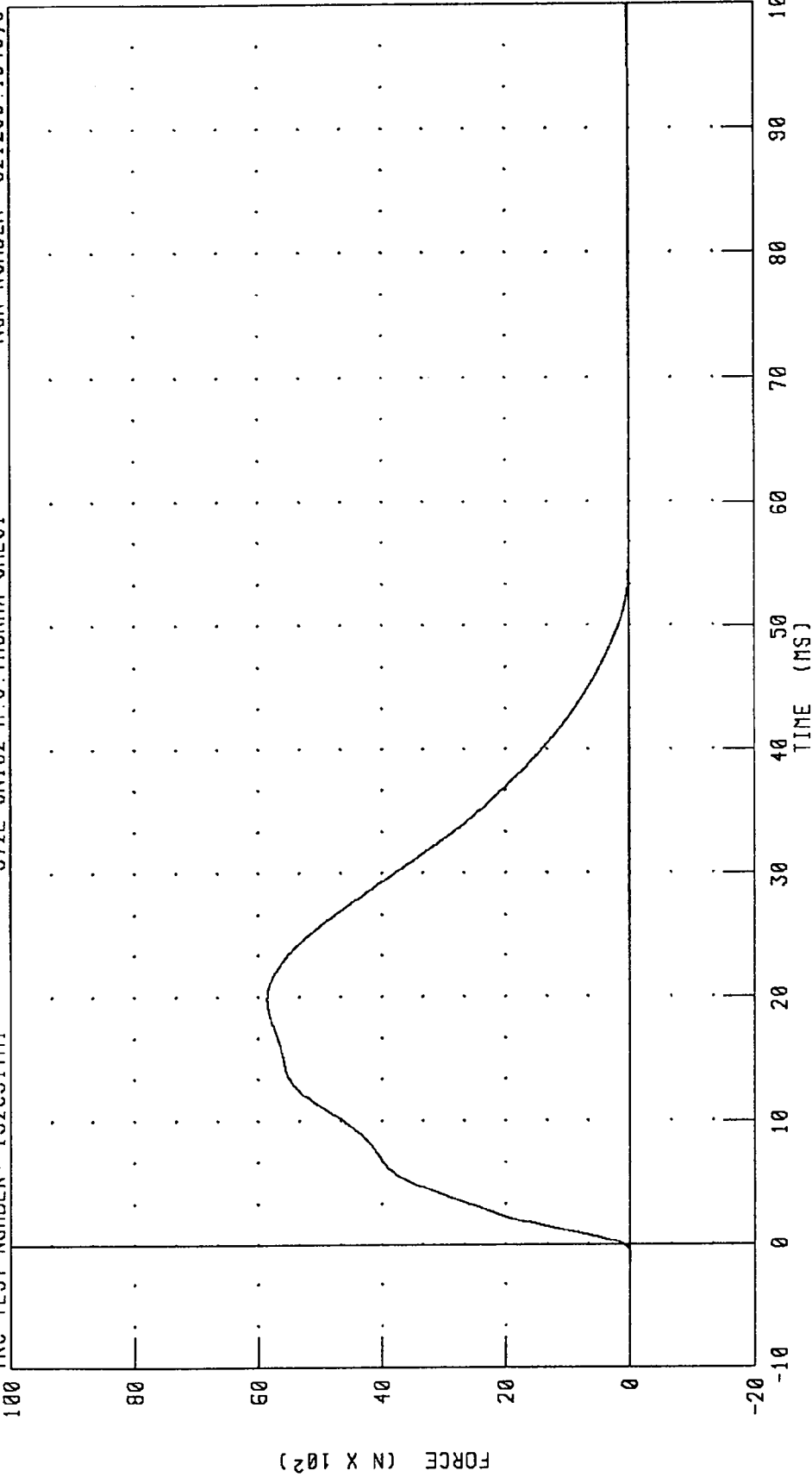
CHANNEL: PENXG FILTER: CH. CLASS 180

PART 572-E HYBRID III THORAX CALIBRATION  
 PENDULUM FORCE

TRC TEST NUMBER: 192C31TH1

572E SN192 H.S. THORAX CAL31

RUN NUMBER: 021296.1048;3



PEAK DATA: 5855.78 N @ 19.84 MS; -19.30 N @ -0.88 MS

CHANNEL: PENXF FILTER: CH. CLASS 180

PART 572-E HYBRID III THORAX CALIBRATION  
STERNUM DISPLACEMENT

TRC TEST NUMBER: 192C31TH1

572E SN192 H.S. THORAX CAL31

RUN NUMBER: 021296.1048;3

150

120

90

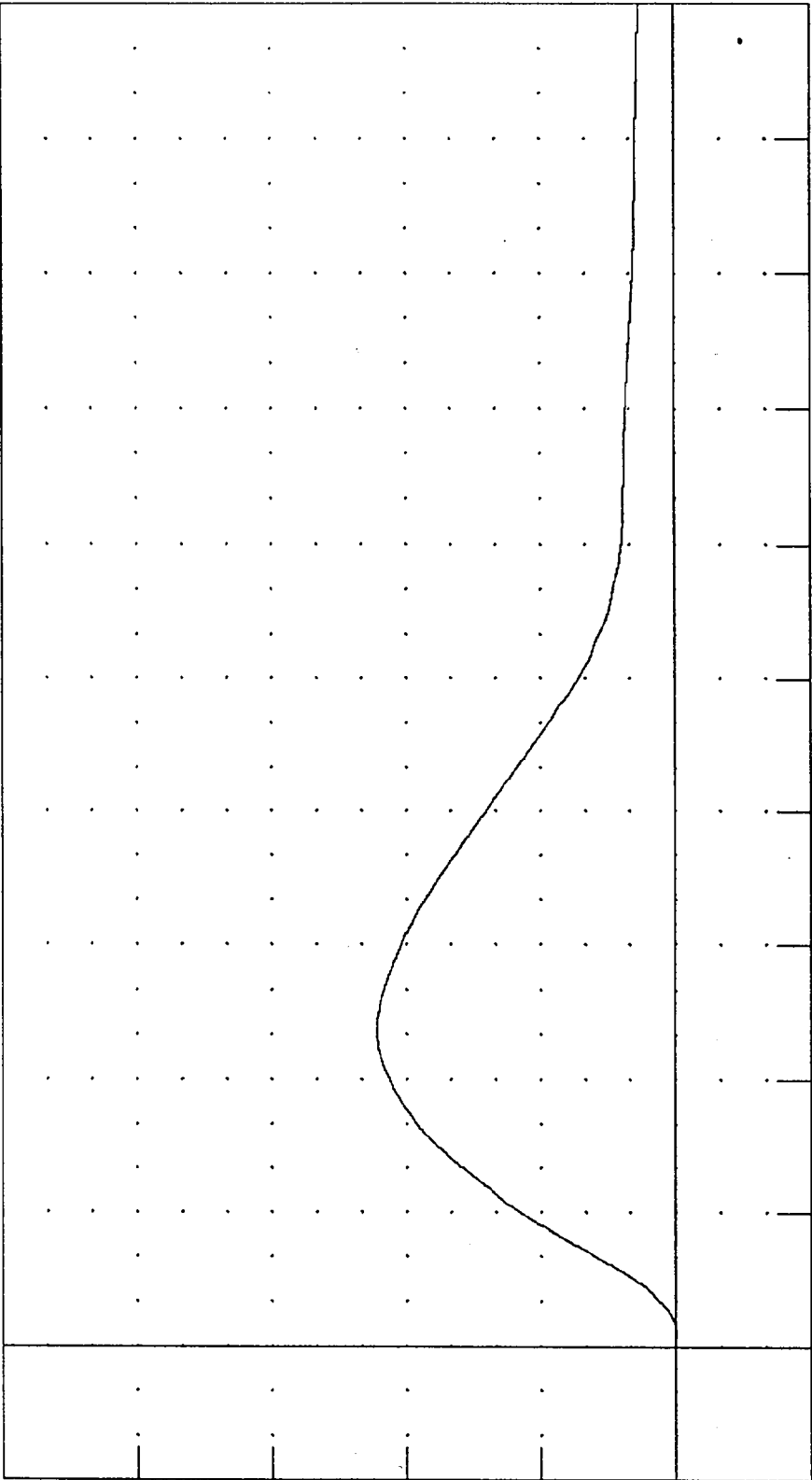
60

30

0

-30

DISPLACEMENT (MM)



TIME (MS)

PEAK DATA: 66.64 MM @ 23.76 MS; -0.07 MM @ 0.96 MS

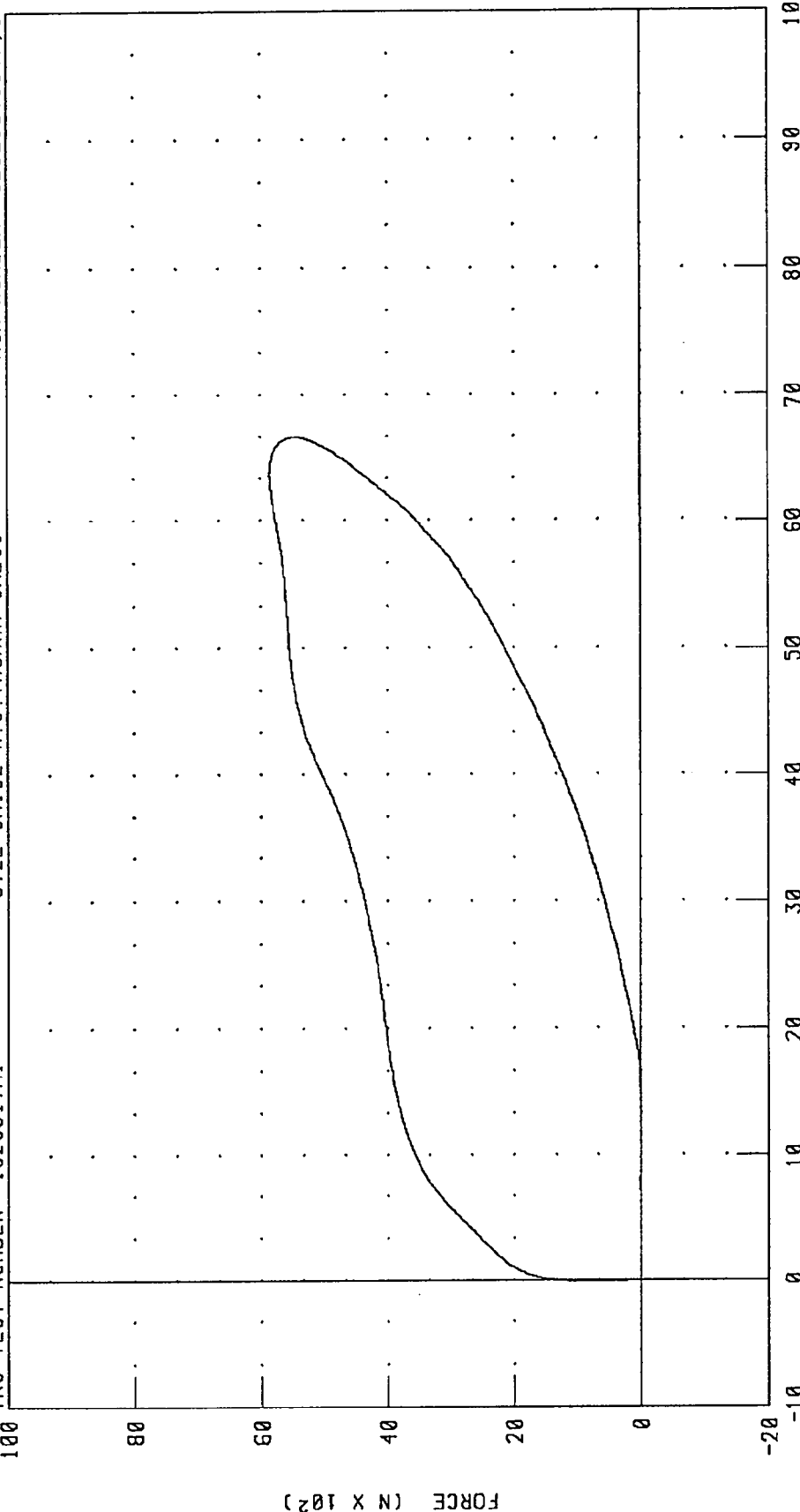
CHANNEL: CSTXD FILTER: CH. CLASS 180

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

TRC TEST NUMBER: 192C31TH1

572E SN192 H.S. THORAX CAL31

RUN NUMBER: 021296.1048;3



CHANNEL: CSTXD  
PENXF

FILTER: CH. CLASS 180  
CH. CLASS 180

PEAK DATA:

66.64 MM @ 23.76 MS;  
5855.78 N @ 19.84 MS;

-0.07 MM @ 0.96 MS  
-0.30 N @ -0.88 MS

TRANSPORTATION RESEARCH CENTER INC.

RIGHT KNEE IMPACT TEST

HYBRID III

16-JAN-96

TRC INC.

TEST NO: 192C31RK1

572E SN192 RIGHT KNEE CAL 31

| TEST PARAMETER                            | SPECIFICATION    | TEST RESULTS |
|-------------------------------------------|------------------|--------------|
| TEMPERATURE                               | 18.9-25.6 DEG. C | 21.1 DEG. C  |
| RELATIVE HUMIDITY                         | 10 - 70 %        | 23.0 %       |
| PROBE VELOCITY                            | 2.07 - 2.13 M/S  | 2.11 M/S     |
| PEAK KNEE IMPACT FORCE<br>5.0 KG PENDULUM | 4715 - 5782 N    | 5483.2 N     |

TEST MEETS SPECIFICATIONS

TECHNICIAN Chas. M. Holt

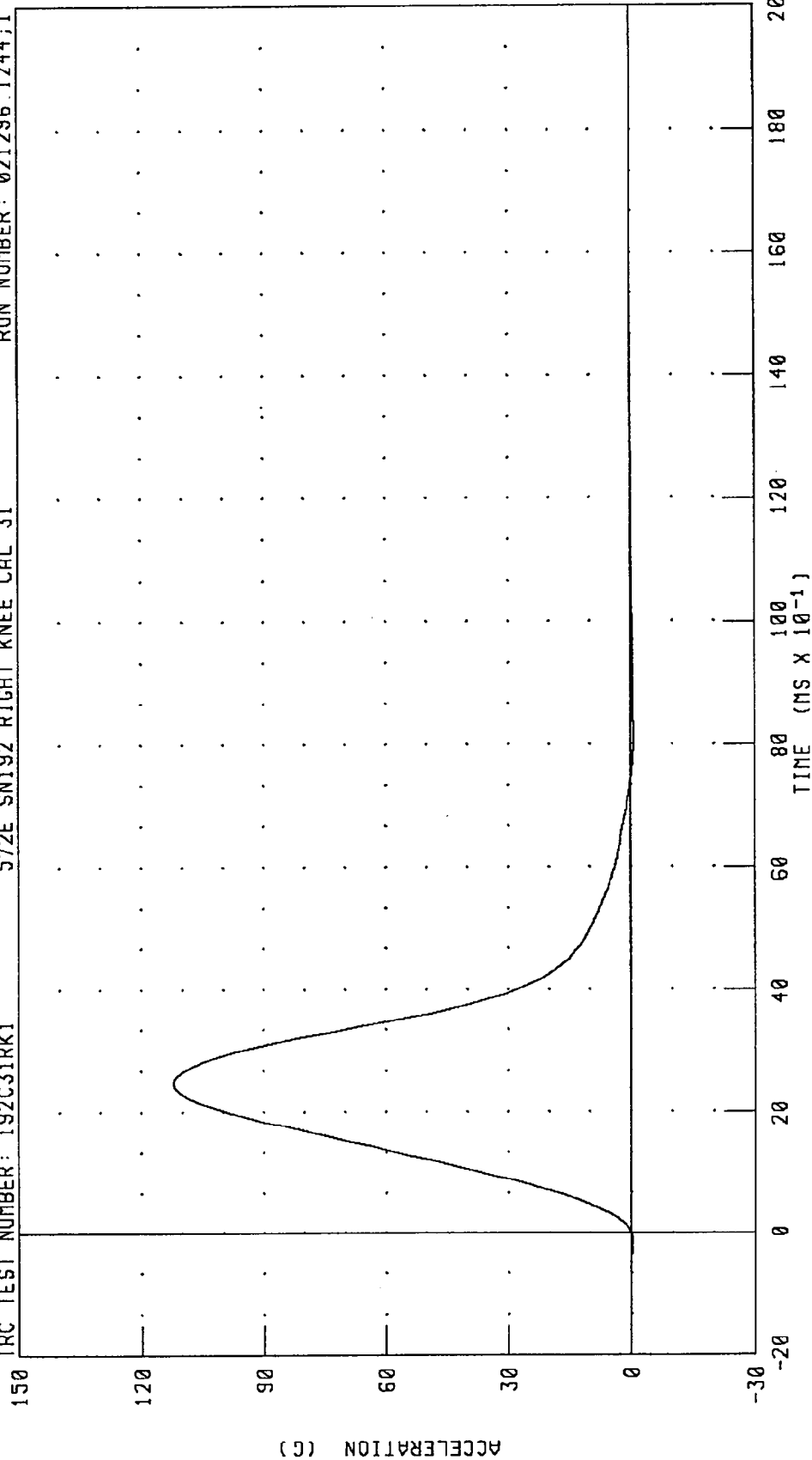
RUN NUMBER: 011696.0855;1

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

TRC TEST NUMBER: 192C31RK1

572E SN192 RIGHT KNEE CAL 31

RUN NUMBER: 021296.1244;1



PEAK DATA: 112.07 G @ 2.48 MS; -0.65 G @ 8.08 MS

CHANNEL: PENXG FILTER: CH. CLASS 600

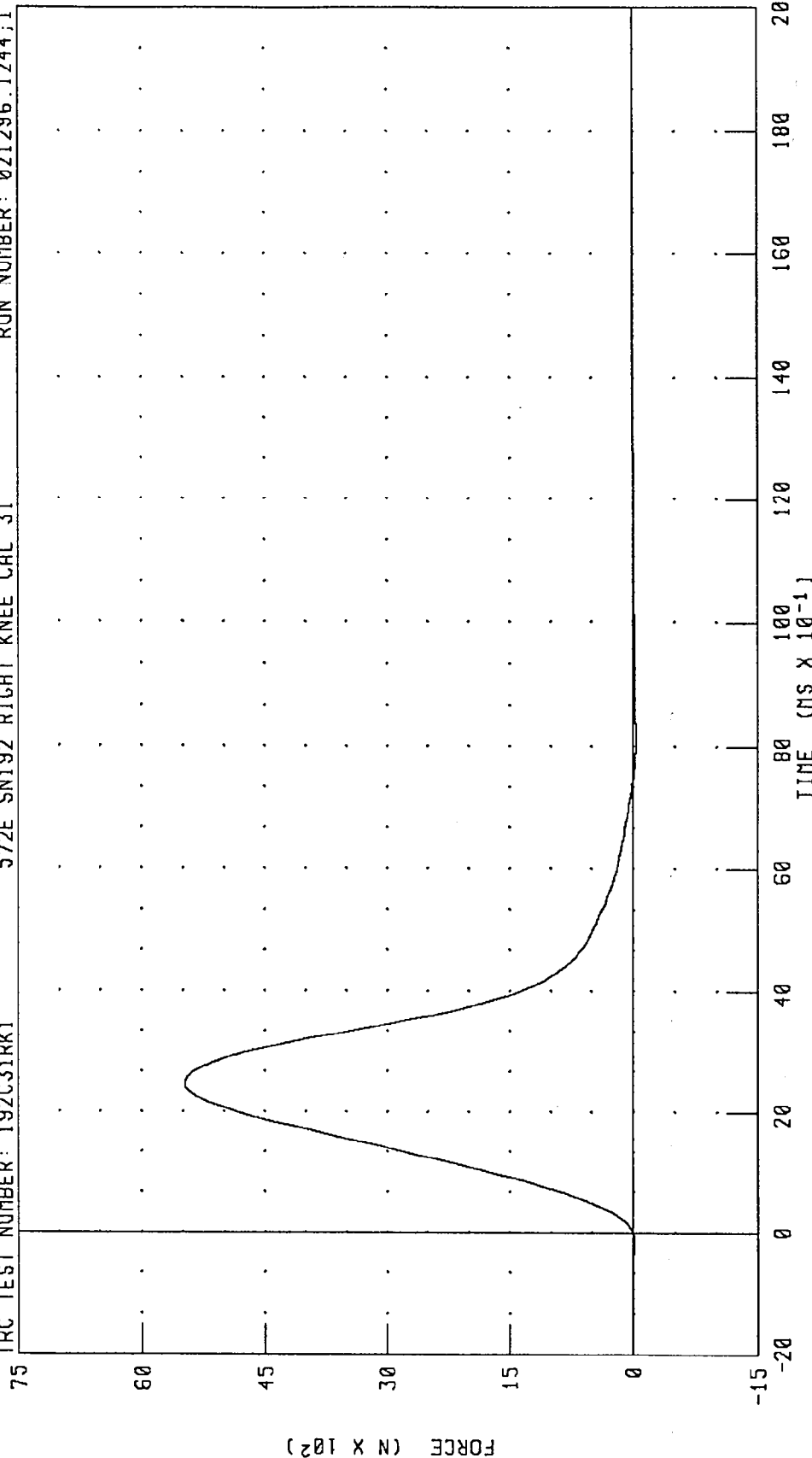
# PART 572-E HYBRID III RIGHT KNEE CALIBRATION

PENDULUM FORCE (5 KG PEND.)

TRC TEST NUMBER: 192C31RK1

572E SNI92 RIGHT KNEE CAL 31

RUN NUMBER: 021296.1244;1



PEAK DATA: 5483.28 N @ 2.48 MS, -32.04 N @ 8.08 MS

CHANNEL: PENXF FILTER: CH. CLASS 600

TRANSPORTATION RESEARCH CENTER INC.

LEFT KNEE IMPACT TEST

HYBRID III

16-JAN-96

TRC INC.

TEST NO: 192C31LK1

572E SN192 LEFT KNEE CAL 31

| TEST PARAMETER                            | SPECIFICATION    | TEST RESULTS |
|-------------------------------------------|------------------|--------------|
| TEMPERATURE                               | 18.9-25.6 DEG. C | 21.1 DEG. C  |
| RELATIVE HUMIDITY                         | 10 - 70 %        | 23.0 %       |
| PROBE VELOCITY                            | 2.07 - 2.13 M/S  | 2.10 M/S     |
| PEAK KNEE IMPACT FORCE<br>5.0 KG PENDULUM | 4715 - 5782 N    | 5145.2 N     |

TEST MEETS SPECIFICATIONS

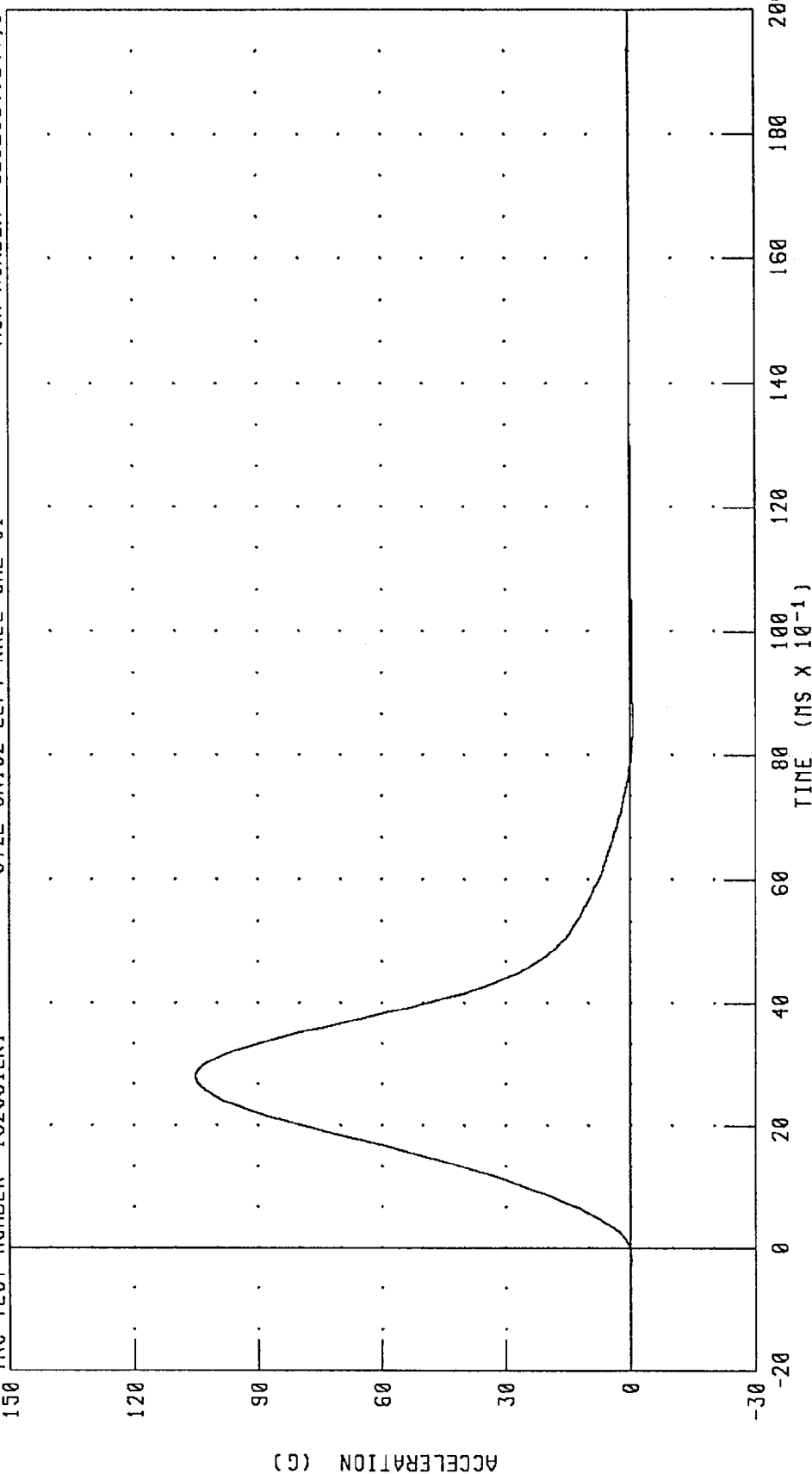
TECHNICIAN

Char. M. Middel

RUN NUMBER: 011696.0852;1

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

TRC TEST NUMBER: 192C31LK1 572E SN192 LEFT KNEE CAL 31 RUN NUMBER: 021296.1244;1



PEAK DATA: 105.16 G @ 2.80 MS; -0.70 G @ 8.56 MS

CHANNEL: PENXG FILTER: CH. CLASS 600

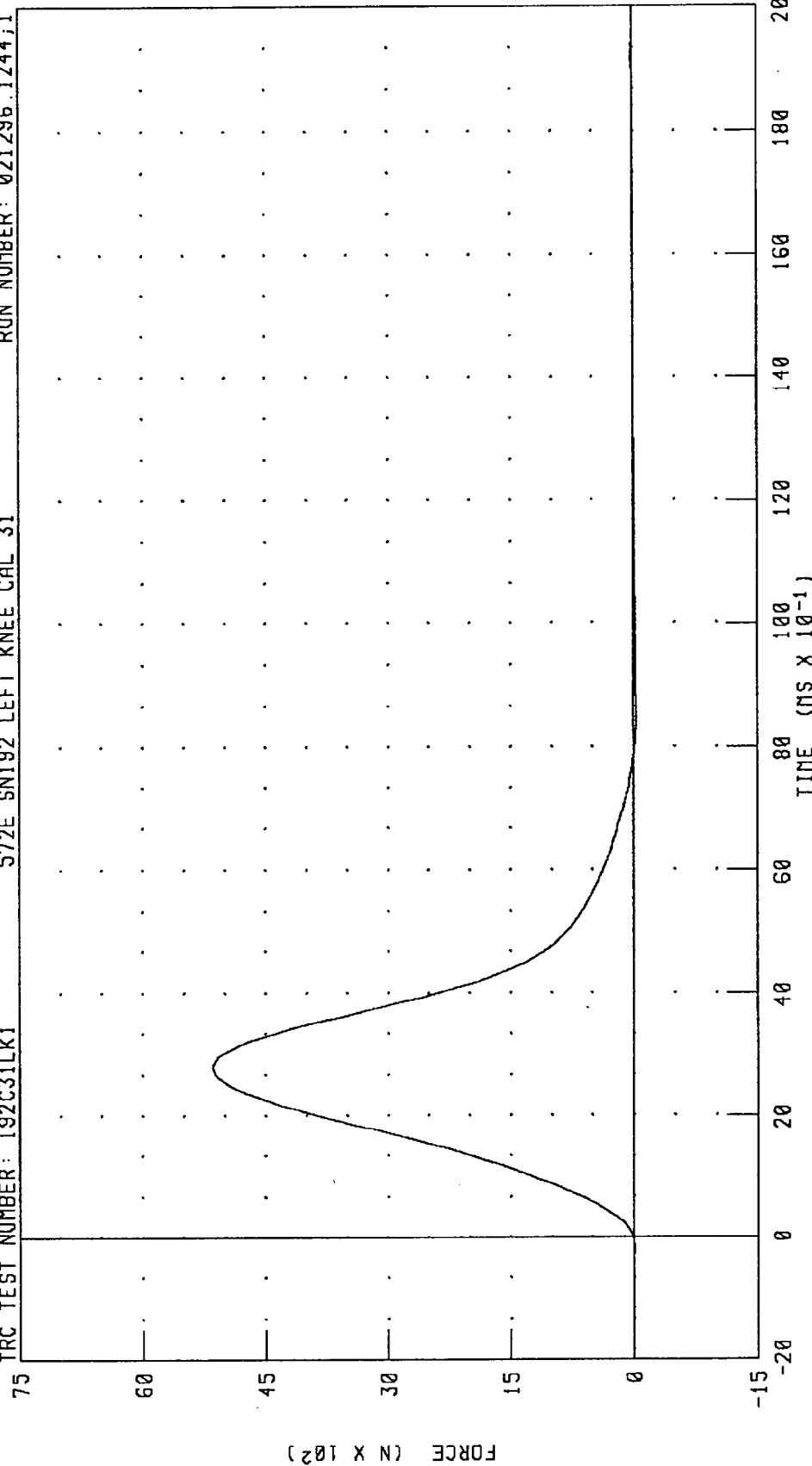
PART 572-E HYBRID III LEFT KNEE CALIBRATION

PENDULUM FORCE (5 KG PEND.)

TRC TEST NUMBER: 192C31LK1

572E SN192 LEFT KNEE CAL 31

RUN NUMBER: 021296.1244,1



CHANNEL: PENXF FILTER: CH. CLASS 600

PEAK DATA: 5145.25 N @ 2.80 MS; -34.32 N @ 8.56 MS

Appendix D

Miscellaneous Test Information

Dummy Instrument Calibrations  
Driver Dummy #142

|                                                 | Serial<br>Number | Model<br>Number | Manufacturer | Calibration Date |          |
|-------------------------------------------------|------------------|-----------------|--------------|------------------|----------|
|                                                 |                  |                 |              | Last             | Due      |
| Head X-axis accelerometer                       | A74JJ            | 7264            | Endevco      | 09/01/95         | 03/01/96 |
| Head X-axis accelerometer-redundant             | AC8L5            | 7264            | Endevco      | 09/01/95         | 03/01/96 |
| Head Y-axis accelerometer                       | ACCR7            | 7264            | Endevco      | 09/01/95         | 03/01/96 |
| Head Y-axis accelerometer-redundant             | AC872            | 7264            | Endevco      | 09/01/95         | 03/01/96 |
| Head Z-axis accelerometer                       | ACCJ1            | 7264            | Endevco      | 09/01/95         | 03/01/96 |
| Head Z-axis accelerometer-redundant             | A68JJ            | 7264            | Endevco      | 09/01/95         | 03/01/96 |
|                                                 |                  |                 |              |                  |          |
| Chest X-axis accelerometer                      | AC721            | 7264            | Endevco      | 09/01/95         | 03/01/96 |
| Chest X-axis accelerometer-redundant            | A65JJ            | 7264            | Endevco      | 09/01/95         | 03/01/96 |
| Chest Y-axis accelerometer                      | CY47H            | 7264            | Endevco      | 09/01/95         | 03/01/96 |
| Chest Y-axis accelerometer-redundant            | FH14J            | 7264            | Endevco      | 09/01/95         | 03/01/96 |
| Chest Z-axis accelerometer                      | AAL44            | 7264            | Endevco      | 09/01/95         | 03/01/96 |
| Chest Z-axis accelerometer-redundant            | AC745            | 7264            | Endevco      | 09/01/95         | 03/01/96 |
|                                                 |                  |                 |              |                  |          |
| Left femur force load cell                      | 903              | 2430            | GSE          | 09/01/95         | 03/01/96 |
| Right femur force load cell                     | 904              | 2430            | GSE          | 09/01/95         | 03/01/96 |
|                                                 |                  |                 |              |                  |          |
| Neck X-axis force load cell <sup>1</sup>        | 280              | 1716            | Denton       | 09/01/95         | 03/01/96 |
| Neck Y-axis force load cell <sup>1</sup>        | 280              | 1716            | Denton       | 09/01/95         | 03/01/96 |
| Neck Z-axis force load cell <sup>1</sup>        | 280              | 1716            | Denton       | 09/01/95         | 03/01/96 |
|                                                 |                  |                 |              |                  |          |
| Neck Moment about X-axis load cell <sup>1</sup> | 280              | 1716            | Denton       | 09/01/95         | 03/01/96 |
| Neck Moment about Y-axis load cell <sup>1</sup> | 280              | 1716            | Denton       | 09/01/95         | 03/01/96 |
| Neck Moment about Z-axis load cell <sup>1</sup> | 280              | 1716            | Denton       | 09/01/95         | 03/01/96 |
|                                                 |                  |                 |              |                  |          |
| Pelvis X-axis accelerometer                     | CY63H            | 7264            | Endevco      | 09/01/95         | 03/01/96 |
| Pelvis Y-axis accelerometer                     | AMWA9            | 7264            | Endevco      | 09/01/95         | 03/01/96 |
| Pelvis Z-axis accelerometer                     | ANA55            | 7264            | Endevco      | 09/01/95         | 03/01/96 |
|                                                 |                  |                 |              |                  |          |
| Chest deflection potentiometer <sup>1</sup>     | 142              | 14CB1-2981      | Vernitech    | 09/01/95         | 03/01/96 |
| Lap belt force load cell                        | 234              | 3419            | Lebow        | 07/14/95         | 01/14/96 |
| Shoulder belt force load cell                   | 616              | 3419            | Lebow        | 07/14/95         | 01/14/96 |

<sup>1</sup> Hybrid III use only.

Dummy Instrument Calibrations, Cont'd  
Driver Dummy #142

|                                                    | Serial<br>Number | Model<br>Number | Manufacturer | Calibration Date |          |
|----------------------------------------------------|------------------|-----------------|--------------|------------------|----------|
|                                                    |                  |                 |              | Last             | Due      |
| Left upper tibia moment about<br>X-axis load cell  | 46               | 1583            | Denton       | 10/03/95         | 04/03/96 |
| Left upper tibia moment about<br>Y-axis load cell  | 46               | 1583            | Denton       | 10/03/95         | 04/03/96 |
| Right upper tibia moment about<br>X-axis load cell | 35               | 1583            | Denton       | 10/03/95         | 04/03/96 |
| Right upper tibia moment about<br>Y-axis load cell | 35               | 1583            | Denton       | 10/03/95         | 04/03/96 |
| Left Lower tibia X-axis<br>force load cell         | 42               | 1584            | Denton       | 10/03/95         | 04/03/96 |
| Left Lower tibia Z-axis<br>force load cell         | 42               | 1584            | Denton       | 10/03/95         | 04/03/96 |
| Left Lower tibia moment about<br>Y-axis load cell  | 42               | 1584            | Denton       | 10/03/95         | 04/03/96 |
| Right Lower tibia X-axis<br>force load cell        | 39               | 1584            | Denton       | 10/03/95         | 04/03/96 |
| Right Lower tibia Z-axis<br>force load cell        | 39               | 1584            | Denton       | 10/03/95         | 04/03/96 |
| Right Lower tibia moment about<br>Y-axis load cell | 39               | 1584            | Denton       | 10/03/95         | 04/03/96 |
| Left foot X-axis accelerometer                     | APOA1            | 7264            | Endevco      | 10/16/95         | 04/16/96 |
| Left foot heel Z-axis accelerometer                | 10102            | 7264            | Endevco      | 10/16/95         | 04/16/96 |
| Left foot toe Z-axis accelerometer                 | 10074            | 7264            | Endevco      | 10/16/95         | 04/16/96 |
| Right foot X-axis accelerometer                    | 10088            | 7264            | Endevco      | 10/16/95         | 04/16/96 |
| Right foot heel Z-axis accelerometer               | 10089            | 7264            | Endevco      | 10/16/95         | 04/16/96 |
| Right foot toe Z-axis accelerometer                | 10087            | 7264            | Endevco      | 10/17/95         | 04/17/96 |

Dummy Instrument Calibrations, Cont'd.  
Right Front Passenger Dummy #192

|                                                 | Serial<br>Number | Model<br>Number | Manufacturer | Calibration Date |          |
|-------------------------------------------------|------------------|-----------------|--------------|------------------|----------|
|                                                 |                  |                 |              | Last             | Due      |
| Head X-axis accelerometer                       | AAL82            | 7264            | Endevco      | 08/30/95         | 03/01/96 |
| Head X-axis accelerometer-redundant             | AJ8J7            | 7264            | Endevco      | 08/30/95         | 03/01/96 |
| Head Y-axis accelerometer                       | A84JJ            | 7264            | Endevco      | 08/30/95         | 03/01/96 |
| Head Y-axis accelerometer-redundant             | AJ8A6            | 7264            | Endevco      | 08/30/95         | 03/01/96 |
| Head Z-axis accelerometer                       | FH87J            | 7264            | Endevco      | 08/30/95         | 03/01/96 |
| Head Z-axis accelerometer-redundant             | AC8W6            | 7264            | Endevco      | 08/30/95         | 03/01/96 |
|                                                 |                  |                 |              |                  |          |
| Chest X-axis accelerometer                      | CT22H            | 7264            | Endevco      | 08/30/95         | 03/01/96 |
| Chest X-axis accelerometer-redundant            | A79GJ            | 7264            | Endevco      | 08/30/95         | 03/01/96 |
| Chest Y-axis accelerometer                      | AC708            | 7264            | Endevco      | 08/30/95         | 03/01/96 |
| Chest Y-axis accelerometer-redundant            | AGR69            | 7264            | Endevco      | 08/30/95         | 03/01/96 |
| Chest Z-axis accelerometer                      | CW59H            | 7264            | Endevco      | 08/30/95         | 03/01/96 |
| Chest Z-axis accelerometer-redundant            | DB74H            | 7264            | Endevco      | 08/30/95         | 03/01/96 |
|                                                 |                  |                 |              |                  |          |
| Left femur force load cell                      | 986              | 2430            | GSE          | 08/30/95         | 03/01/96 |
| Right femur force load cell                     | 987              | 2430            | GSE          | 08/30/95         | 03/01/96 |
|                                                 |                  |                 |              |                  |          |
| Neck X-axis force load cell <sup>1</sup>        | 85               | 1716            | Denton       | 08/30/95         | 03/01/96 |
| Neck Y-axis force load cell <sup>1</sup>        | 85               | 1716            | Denton       | 08/30/95         | 03/01/96 |
| Neck Z-axis force load cell <sup>1</sup>        | 85               | 1716            | Denton       | 08/30/95         | 03/01/96 |
|                                                 |                  |                 |              |                  |          |
| Neck Moment about X-axis load cell <sup>1</sup> | 85               | 1716            | Denton       | 08/30/95         | 03/01/96 |
| Neck Moment about Y-axis load cell <sup>1</sup> | 85               | 1716            | Denton       | 08/30/95         | 03/01/96 |
| Neck Moment about Z-axis load cell <sup>1</sup> | 85               | 1716            | Denton       | 08/30/95         | 03/01/96 |
|                                                 |                  |                 |              |                  |          |
| Pelvis X-axis accelerometer                     | AJ694            | 7264            | Endevco      | 08/30/95         | 03/01/96 |
| Pelvis Y-axis accelerometer                     | AJ656            | 7264            | Endevco      | 08/30/95         | 03/01/96 |
| Pelvis Z-axis accelerometer                     | AJ788            | 7264            | Endevco      | 08/30/95         | 03/01/96 |
|                                                 |                  |                 |              |                  |          |
| Chest deflection potentiometer                  | 87313-96         | 14CB1-2981      | Vernitech    | 08/30/95         | 03/01/96 |
| Lap belt force load cell                        | 612              | 3419            | Lebow        | 07/14/95         | 01/14/96 |
| Shoulder belt force load cell                   | 613              | 3419            | Lebow        | 07/14/95         | 01/14/96 |

<sup>1</sup> Hybrid III use only.

Dummy Instrument Calibrations, Cont'd.  
Right Front Passenger Dummy #192

|                                      | Serial<br>Number | Model<br>Number | Manufacturer | Calibration Date |          |
|--------------------------------------|------------------|-----------------|--------------|------------------|----------|
|                                      |                  |                 |              | Last             | Due      |
| Left foot X-axis accelerometer       | 10073            | 7264            | Endevco      | 10/17/95         | 04/17/96 |
| Left foot heel Z-axis accelerometer  | 10263            | 7264            | Endevco      | 10/16/95         | 04/16/96 |
| Left foot toe Z-axis accelerometer   | 10101            | 7264            | Endevco      | 10/17/95         | 04/17/96 |
| Right foot X-axis accelerometer      | APYT4            | 7264            | Endevco      | 10/17/95         | 04/17/96 |
| Right foot heel Z-axis accelerometer | APOR8            | 7264            | Endevco      | 10/17/95         | 04/17/96 |
| Right foot toe Z-axis accelerometer  | 10076            | 7264            | Endevco      | 10/16/95         | 04/16/96 |

# Vehicle and Calibration Laboratory Instrument Calibrations

## Vehicle Accelerometers

|                                                 | Serial<br>Number | Model<br>Number | Manufacturer | Calibration Date |          |
|-------------------------------------------------|------------------|-----------------|--------------|------------------|----------|
|                                                 |                  |                 |              | Last             | Due      |
| Left rear seat<br>crossmember X-axis            | J10789           | 7264            | Endevco      | 11/30/95         | 05/30/96 |
| Left rear seat<br>crossmember X-axis redundant  | J11004           | 7264            | Endevco      | 01/02/96         | 07/02/96 |
| Right rear seat<br>crossmember X-axis           | J11149           | 7264            | Endevco      | 01/02/96         | 07/02/96 |
| Right rear seat<br>crossmember X-axis redundant | J11052           | 7264            | Endevco      | 01/02/96         | 07/02/96 |
| Engine top X-axis                               | J10726           | 7264            | Endevco      | 11/30/95         | 05/30/96 |
| Engine bottom X-axis                            | AMTA4            | 7264            | Endevco      | 10/27/95         | 04/27/96 |
| Right brake caliper X-axis                      | J11497           | 7264            | Endevco      | 01/09/96         | 07/09/96 |
| Left brake caliper X-axis                       | AMR93            | 7264            | Endevco      | 01/04/96         | 07/04/96 |
| Instrument panel center X-axis                  | AMTA9            | 7264            | Endevco      | 01/04/96         | 07/04/96 |

## Calibration Laboratory Instruments

|                                                  | Serial<br>Number | Model<br>Number  | Manufacturer | Calibration Date   |          |
|--------------------------------------------------|------------------|------------------|--------------|--------------------|----------|
|                                                  |                  |                  |              | Last               | Due      |
| Neck bending pendulum accelerometer              | CB27             | 7232             | Endevco      | 09/19/95           | 03/19/96 |
| Neck bending rotary potentiometer                | NA               | 35435-1-102      | Bournes      | Mfr. Specification |          |
| Neck bending linear potentiometer                | NA               | 5184-2051846003  | Bournes      | 09/19/95           | 03/19/96 |
| Thorax/Hybrid II femur<br>pendulum accelerometer | CC64             | 7232             | Endevco      | 09/19/95           | 03/19/96 |
| Lumbar flexion force gauge                       | NA               | DPPH-50          | Chatillon    | 05/03/89           | repaired |
| Lumbar flexion rotation gauge                    | CP17-0601-1      | 7020             | Humphrey     | Mfr. Specification |          |
| Abdomen compression<br>displacement gauge        | 4075-175         | 80294-2051941504 | Bournes      | 09/19/95           | 03/19/96 |
| Abdomen compression force gauge                  | 3443             | 3167             | Lebow        | 09/19/95           | 03/19/96 |
| Hybrid III femur<br>pendulum accelerometer       | CG83             | 7232             | Endevco      | 09/19/95           | 03/19/96 |

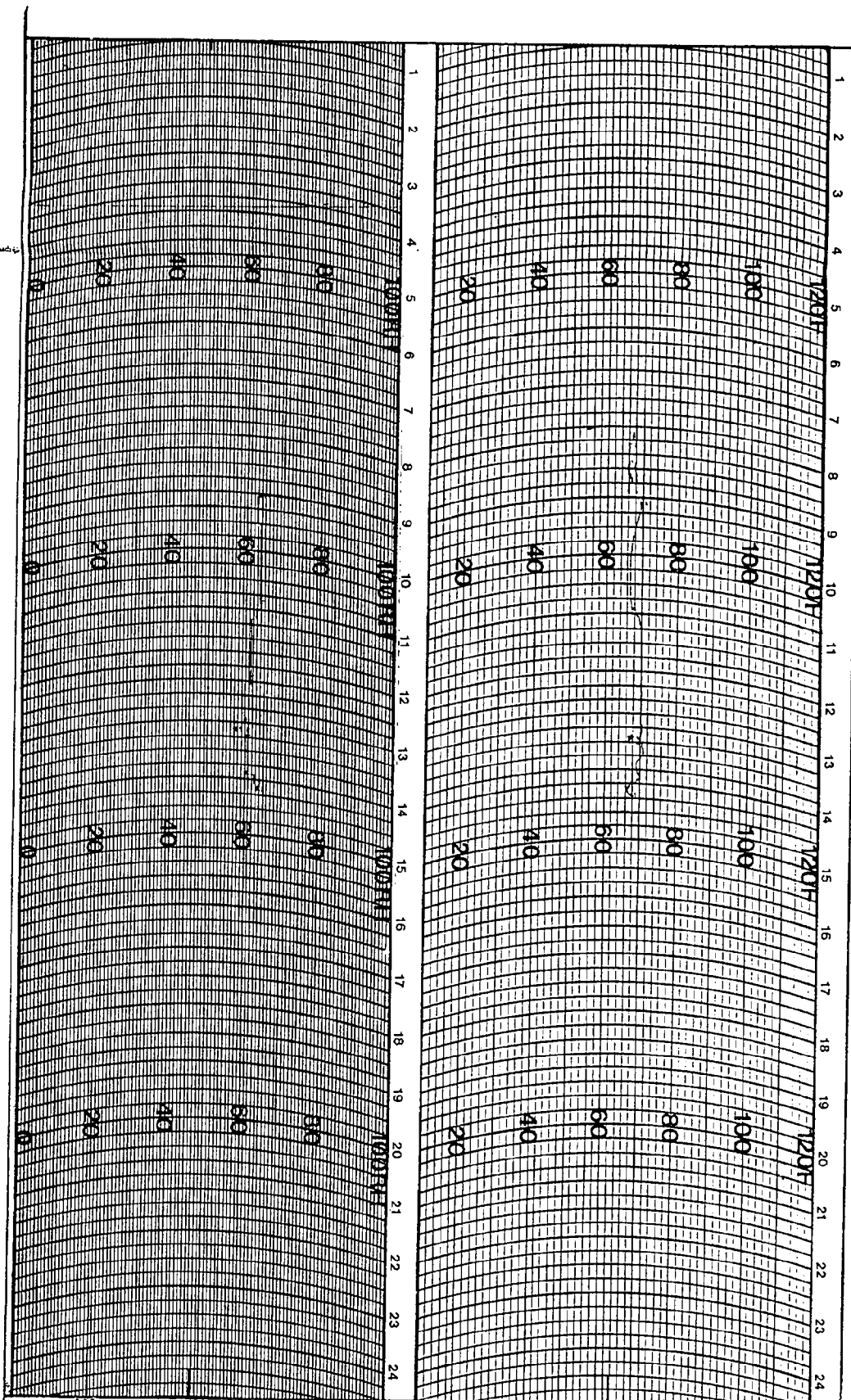
Sign Convention  
NHTSA Data Tape Reference Guide

|                          |                                 |                                                                               |
|--------------------------|---------------------------------|-------------------------------------------------------------------------------|
| <u>Accelerometers:</u>   | +X: Forward                     |                                                                               |
|                          | +Y: Leftward                    |                                                                               |
|                          | +Z: Upward                      |                                                                               |
| <u>Potentiometers:</u>   | +Chest longitudinal deflection: | Outward                                                                       |
|                          | +Chest lateral deflection:      | Leftward                                                                      |
|                          | +Seat belt displacement:        | Outward                                                                       |
|                          | +Seat belt extension:           | Elongation                                                                    |
|                          | +Knee slider displacement:      | Distance between femur and tibia increased<br>(in relation to a seated dummy) |
| <u>Load cells:</u>       | +Femur force:                   | Tension                                                                       |
|                          | +Seat belt force:               | Tension                                                                       |
|                          | +Barrier force:                 | Tension                                                                       |
| <u>Neck load cells:</u>  | +X force:                       | Head pushed forward                                                           |
|                          | +y force:                       | Head pushed leftward                                                          |
|                          | +Z force:                       | Head pulled upward (tension on neck)                                          |
|                          | +X moment:                      | Right ear rotating toward right shoulder                                      |
|                          | +Y moment:                      | Chin rotating toward chest                                                    |
|                          | +Z moment:                      | Chin rotating toward left shoulder                                            |
| <u>Tibia load cells:</u> | +X force:                       | Tension                                                                       |
|                          | +Y force:                       | Tension                                                                       |
|                          | +Z force:                       | Tension                                                                       |
|                          | +X moment:                      | Bottom of tibia moving leftward                                               |
|                          | +Y moment:                      | Bottom of tibia moving rearward                                               |

## Frequency Response Classes

SAE J211 OCT88

| <u>Typical Test Measurements</u>             | <u>Channel Class</u> |
|----------------------------------------------|----------------------|
| Vehicle Structural Accelerations for use in: |                      |
| Total vehicle comparison                     | 60                   |
| Collision simulation input                   | 60                   |
| Component analysis                           | 600                  |
| Integration for velocity or displacement     | 180                  |
| Barrier Face Forces                          | 60                   |
| Belt Restraint System Loads                  | 60                   |
| Anthropomorphic Test Device                  |                      |
| Head accelerations (linear and angular)      | 1000                 |
| Neck                                         |                      |
| Forces                                       | 1000                 |
| Moments                                      | 600                  |
| Thorax                                       |                      |
| Spine accelerations                          | 180                  |
| Rib accelerations                            | 1000                 |
| Sternum accelerations                        | 1000                 |
| Deflections                                  | 180                  |
| Lumbar                                       |                      |
| Forces                                       | 1000                 |
| Moments                                      | 1000                 |
| Pelvis                                       |                      |
| Accelerations                                | 1000                 |
| Forces                                       | 1000                 |
| Moments                                      | 1000                 |
| Femur/Knee/Tibia/Ankle                       |                      |
| Forces                                       | 600                  |
| Moments                                      | 600                  |
| Displacements                                | 180                  |
| Sled Accelerations                           | 60                   |
| Steering Column Loads                        | 600                  |
| Head form Accelerations                      | 1000                 |



WEATHER MEASURE  
P.O. BOX 41257  
SACRAMENTO, CA. 95841  
PHONE (916) 481-7565

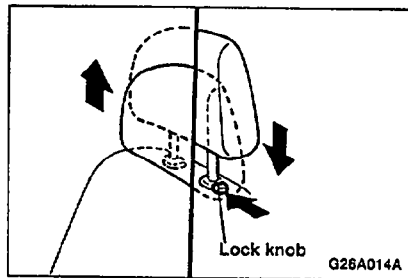
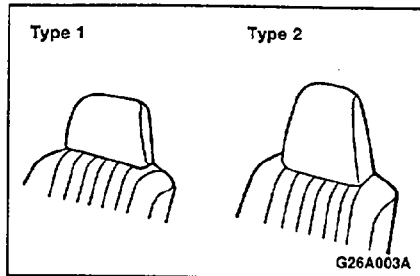
HYGROTHERMOGRAPH  
1 DAY

CHART # C311 D HF  
PART # 699123

STATION \_\_\_\_\_ DATE ON \_\_\_\_\_ DATE OFF \_\_\_\_\_

Appendix E

Restraint System Instructions from Owner's Manual



## Head restraints

ND05A-BE

Padded head restraints for the front seats may reduce the risk of whiplash injury in the event of impact from the rear.

### Adjustment of the head restraints (Type 1 only)

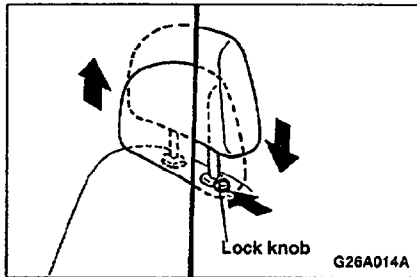
To reduce the chance of injury in the event of collision, adjust the head restraint height so that the center of the restraint is as close as possible to the eye level.

To raise the restraint, pull it straight up. To lower the restraint, push down on it while pressing the height adjusting knob in the direction indicated by the arrow. After adjusting the height, push down on the restraint to confirm that it is locked in position.

### **WARNING!**

- (1) Failure to have them properly mounted may increase the chance of injury in the event of a collision.
- (2) A cushion or the like inserted between the back and the seat-back will not prevent the possibility of injury in the event of a collision.

## Seat and seatbelt



### Removal of the head restraint (Type 1 only)

ND05B-KB

To remove the head restraints press the lock knob in the direction indicated by the arrows and pull the head restraints up.

To remount the head restraints first confirm that they are facing the correct direction and then insert them into the seatback and push down while pressing the lock knob until they lock. Confirm that the lock knobs are correct as shown in the illustration and also pull the head restraints up to confirm that they do not come out of the seatback.

### **WARNING!**

Driving with the head restraints removed is dangerous. Always have them mounted when operating the car. Failure to have them properly mounted may increase the chance of injury in the event of a collision.

### Seat belts

ND06A-AG

Seat belts are installed in your car for the protection of the driver and passengers. Always use the seat belts. In the event of an accident, injury to the driver and passengers may be reduced if seat belts are properly used.

#### NOTE

Legislation in your state may require seat belt usage, but even if not required, they should always be used.

### **WARNING!**

- (1) Be sure to lock all doors before driving. Locking the doors and using the seat belts provided will minimize the risk of injury or ejection in an accident.
- (2) Seat belts should always be worn by everyone who drives or rides in this car, with infants and small children in child restraints.
- (3) Never use one seat belt for more than one occupant.
- (4) Never carry more people in the car than there are seat belts.
- (5) Always adjust the belt to a snug fit.
- (6) Always route the shoulder belt over your shoulder and across your chest.
- (7) Always wear the lap belt as low as possible around the hips, not around the waist.

## UNIBELT restraint system

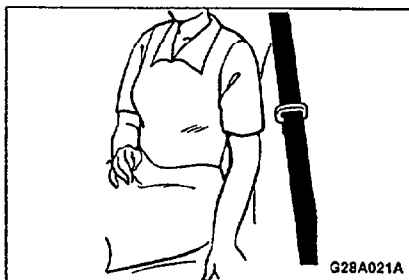
ND06B-RA

Front seats and both outboard rear seat positions are equipped with a UNIBELT system which uses a single combined lap-and-shoulder belt with an emergency locking retractor.

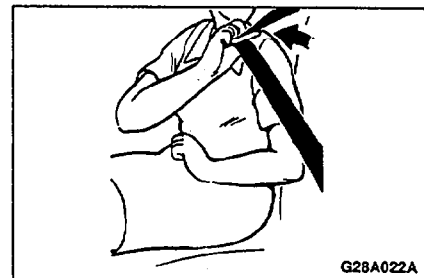
This system is designed to provide comfort and safety by permitting full extension and automatic retraction of the belts during normal car operation. A sensing device inside the belt retractor is designed to lock the retractor in the event of an abrupt change in car motion.

### NOTE

For instruction on how to install a child restraint system in an outboard rear seat position or in the front passenger seat, see "Installing a child restraint system with a UNIBELT at the outboard rear seat positions or the front passenger seat" on page 26.



G28A021A



G28A022A

## UNIBELT instructions

ND06D-AI

1. Get in the car and sit in the normal correct posture. Adjust the seat.

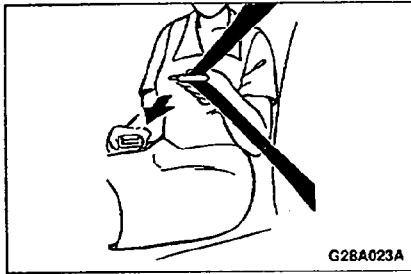
### WARNING!

To minimize the risk of personal injury in the event of a collision or sudden stop, both the driver and passenger seatbacks should always be in a nearly upright position while the car is in motion.

The protection provided by the seat belts may be reduced significantly when the seatback is reclined. There is greater risk that the driver or the passenger will slide under the belt and be seriously injured when the seatback is reclined.

2. Grasp the movable latch plate and slide it up the webbing as far as necessary so that it will be easy to pull across your body. After a couple of tries this will become an automatic one-handed operation.

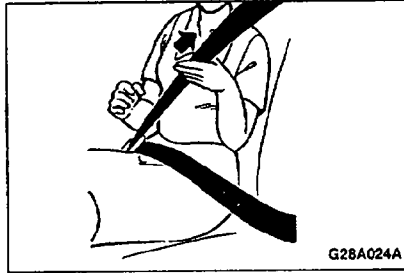
## Seat and seatbelt



3. Pull the seat belts out slowly while holding the plate. This system will not lock up if you stop or hesitate, so relax and continue to "buckle-up". Push the latch plate into the buckle until a "click" is heard.

### NOTE

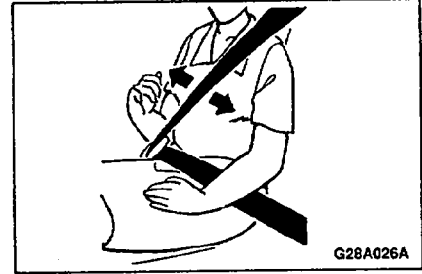
When the seat belts cannot be pulled out in a locked condition, pull the belts once with force and then return them. After that, pull the belts out slowly once again.



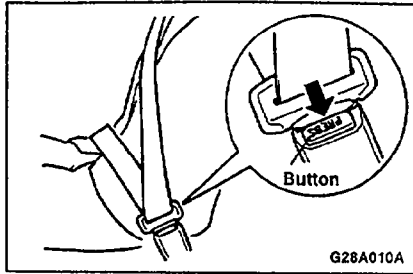
4. Pull up on the shoulder belt to ensure that there is no extra slack in the seat belt. The belt will retain the small amount of slack necessary for comfort when you return to your normal seating position. If the belt is still too tight, pull out 6 inches or 8 inches of webbing, release the belt and let it return to your chest.

### WARNING!

- (1) Be sure the lap belt portion fits snugly and as low as possible around the hips, not around the waist. Failure to do so may increase the chance or severity of injury in the event of a collision.
- (2) Wear the seat belt without twisting it.



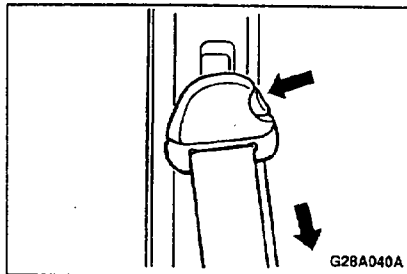
5. The shoulder belt will allow regular movement under normal conditions. The belt will lock in the event of an abrupt change in car motion.



6. To release the belt, push the button on the buckle. To return the belt to its stowed position, pull the shoulder belt down slightly and release immediately.

## NOTE

The belt retracts automatically, so hold the latch plate while the belt retracts when it is released.

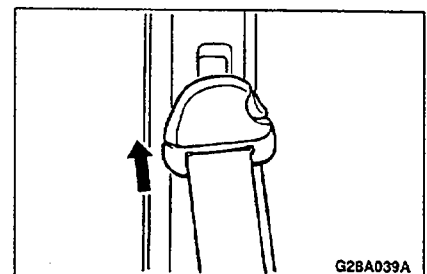


## Adjustable shoulder belt anchor (front seats)

ND06E-CA

The shoulder belt anchor height can be adjusted.

To move the seat belt anchor down, depress the lock knob.



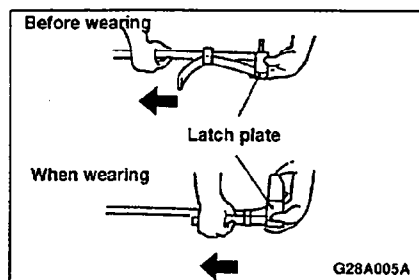
To move the anchor up, do not depress the lock knob.

## WARNING!

When adjusting the anchor, set it at a position so that the belt passes over your shoulder but will not touch your neck.

Make sure the anchor is securely fixed after adjustment.

## Seat and seatbelt



### Rear seat lap belt(center rear seat)

ND06C-CE

The center rear seat belt should be adjusted by holding the belt and latch plate at right angles to each other, and then pulling the belt as illustrated above to a snug fit, low around the occupants hips. Insert the latch plate into the buckle until a "click" is heard.

**NEVER USE THE LAP BELT ON MORE THAN ONE PERSON AT A TIME.**

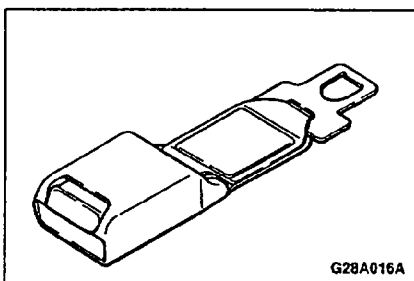
To unfasten the belt, press the button on the buckle.

#### NOTE

The buckle and latch plate of the center rear lap belt are marked "CENTER". Be sure to check the marking before wearing the center rear lap belt.

The center rear lap belt latch plate will not fasten in the outboard rear seat positions' buckles.

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### Seat belt extender

ND06J-AD

If the seat belt is too short, even when fully extended, a seat belt extender is available from your dealer. The extender may be used for either front seating position.

This extender should only be used if the existing belt is not long enough. When not required, it must be removed and stowed because the use of the extender when not required may deactivate the seat belt locking mechanism.

#### **WARNING!**

Persons who can use the standard seat belt should not use an extender. Such unnecessary use could result in serious personal injury in the event of an accident.

## Child restraints for infants and small children

ND06FSWD

When transporting infants or small children in your car, an appropriate child restraint system should always be used. This is required by law in most states.

Child restraints specifically designed for infants and small children are available from your authorized dealer or from most automotive parts and accessory supply outlets. Only choose a child restraint system with a label certifying it complies with Federal Motor Vehicle Standard 213.

The child restraint system should be appropriate for your child's weight and height and properly fit the vehicle's seat.

#### **WARNING!**

- (1) Accident statistics indicate that children are safer when properly restrained in the rear seat rather than in the front seat. Accordingly Mitsubishi Motor Sales of America, Inc. recommends that child restraints be installed in the rear seat.
- (2) Holding a child in your arms or on your lap is no substitute for a restraint system. Failure to use a proper child restraint system can result in severe or fatal injury to your child.

- (3) This car is also equipped with a front passenger airbag. **REAR-FACING CHILD RESTRAINTS SHOULD ONLY BE USED IN THE REAR SEAT.**

The force of an inflating front passenger airbag could strike a rear-facing child restraint, causing serious or fatal injury to the child.

Front-facing child restraints should be used in the rear seat whenever possible; if used in the front passenger seat, adjust the seat as far back as possible.

- (4) When installing a child restraint system, follow the instructions provided by its manufacturer, and follow the directions in this manual.

Failure to do so can result in severe or fatal injury to your child.

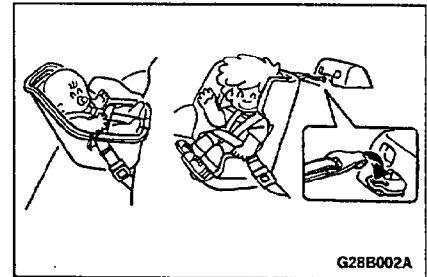
- (5) After installation, push and pull the child restraint system back and forth, and side to side, to see that it is positively secured. If the child restraint system is not installed securely, it may cause injury to the child or other occupants in case of accident or sudden stops.

- (6) When not in use, keep your child restraint system secured with a seat belt or remove it from the car in order to prevent it being thrown forward in an accident.

## NOTE

Before purchasing a child restraint system try installing it in the rear seat to ensure a good fit. Due to the location of the seat belt buckles in the seat cushion, it may be difficult to securely install some child restraint systems.

If the child restraint system can be pulled forward easily on the seat cushion after the belt has been tightened, choose another child restraint system.



## Installing a child restraint system in the rear center seat (Lap belt)

### Installation:

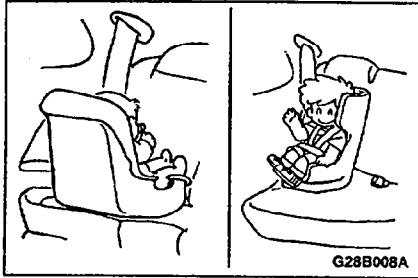
1. Fasten the rear center lap belt to secure the child restraint system. Make sure you hear a "click" when you insert the latch plate into the buckle.

### WARNING!

For safety, an infant carrier should face to the rear; a child seat should face to the front. Follow the manufacturer's instructions.

2. Remove all slack by pulling the webbing through the belt's adjustment feature.
  3. Push and pull the child restraint in all directions to be sure it is secure.
- If your child restraint system requires the use of a top strap, refer to "Anchors for the child restraint system" on page 27.

## Seat and seatbelt

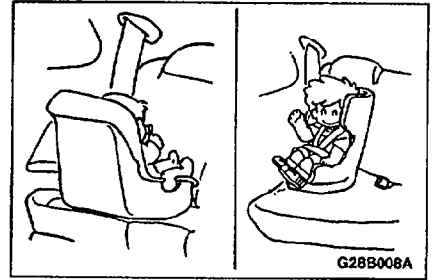


### Installing a child restraint system with a UNIBELT at the outboard rear seat positions or the front passenger seat (Combination lap/shoulder belt)

The UNIBELT at the outboard rear seat positions, and at the front passenger seat, can be converted from normal emergency locking retractor mode, to automatic locking retractor mode. It must be so converted when installing a child restraint system.

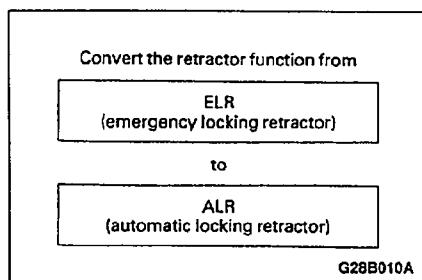
#### **WARNING!**

- (1) For safety, an infant carrier should face to the rear, a child seat should face to the front. Follow the manufacturer's instructions.
- (2) Accident statistics indicate that children are safer when properly restrained in the rear seat of a car rather than in the front seat. For this reason Mitsubishi Motor Sales of America, Inc. recommends that child restraints be installed in the rear seat.
- (3) Rear-facing child restraints must always be in the rear seat, never in the front passenger seat. A rear-facing child restraint in the front passenger seat could be struck by the inflating passenger air bag, causing serious or fatal injury to the child.
- (4) Front-facing child restraints should be used in the rear seat whenever possible; if used in the front passenger seat, adjust the seat as far back as possible.



#### **Installation:**

1. Place the child restraint system in the seating position as shown in the illustration.
2. Route the latch plate through the child restraint and insert it into the buckle until a "click" is heard. Follow the restraint system manufacturer's routing instructions.

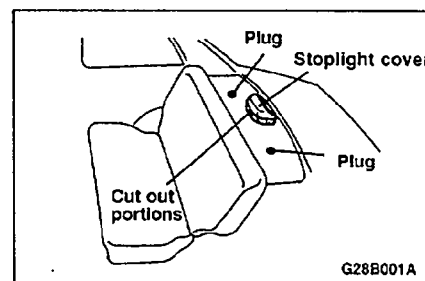


### WARNING!

Before putting the child in the restraint, be absolutely sure to make the conversion of the retractor from the ELR mode to the ALR mode. By doing so, the child restraint system is always tightly secured to the seat by the automatic lock. If the conversion to ALR is not made, the child restraint system could move forward in the event of sudden braking or an accident, seriously injuring the child or other occupants.

3. Pull the seat belt to it's fully extended position. Hold the belt taut (extended), until a click is heard. When the belt is released, it will be in the proper ALR mode.
4. Allow the belt to retract. A clicking sound will be heard, indicating ALR mode. Pull down on the belt to remove any slack.
5. Before putting the child in the restraint, push and pull the restraint in all directions to be sure it is secure. Do this before catch use.
6. To confirm ALR mode, try to pull webbing from the retractor. If you cannot, the belt is in ALR mode.

After removing the child from the restraint, once the seat belt rewinds into its retractor the ALR mode cancels, and the belt returns to normal ELR mode.



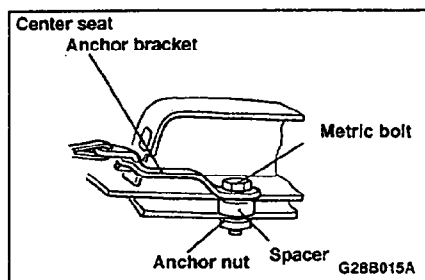
### Anchors for the child restraint system

If you choose to use a top-strap equipped child restraint in the rear seat, ask your dealer how to attach it. Your car is provided with anchors to secure the top strap of a child restraint system.

The anchor nuts are welded to the back of the sheet metal of the rear shelf and concealed by the stoplight cover or the plugs on the rear shelf trim.

Before installing the anchor bracket, cut out the portions of the stoplight cover or remove the plug as illustrated.

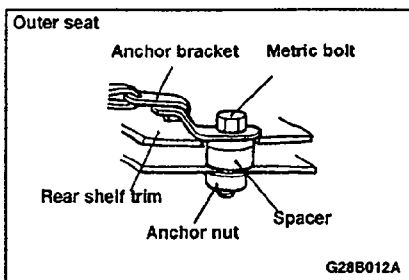
## Seat and seatbelt



A metric bolt is required to install the anchor bracket.

### NOTE

- (1) The bolt provided with the child restraint system may not be a metric type. You can damage the anchor nuts on your car if you try to force bolts with different thread into the anchor nuts.
- (2) Anchoring hardware (anchor bracket, metric bolt and spacer) and installation instructions are available from authorized dealers.



Hook the top strap to the anchor bracket and tighten the top strap.

## Children who have outgrown child restraint

Children who have outgrown child restraint system should be seated in the rear seat and wear combination UNIBELT. If the shoulder belt crosses the face or neck, a commercially available booster seat may be used, to help raise the child so that the shoulder belt crosses the shoulder and the lap belt is low on the hips. The booster seat should fit the vehicle seat, and should have a label certifying compliance with Federal Motor Vehicle Safety Standards.

### WARNING!

- (1) Children who are not buckled up, with the doors all locked, can be thrown out of the vehicle or otherwise be seriously injured in the event of an accident.
- (2) A child should never be left unattended in your car. When you leave the car, take the child out as well.

## Pregnant woman restraint

ND06G-EB

### **WARNING!**

Mitsubishi Motor Sales of America, Inc. recommends that pregnant women use the available UNIBELT. This will reduce the likelihood of injury to both the woman and the unborn child. The seat belt should be worn as snug and low as possible across the hips, not across the waist. The woman's doctor should be consulted if there are any questions.

## Maintenance and inspection of seat belts

ND06H-AF

The webbing used in seat belts may be cleaned with a hydrocarbon dry cleaner or with mild soap or detergent solution.

Allow the belts to dry in the shade. Do not allow them to retract until fully dry. Do not attempt to bleach or redye belts. The resulting color may rub off and webbing strength could be affected.

Regularly check seat belt buckles and release mechanisms for positive action, and automatic locking retractors for positive engagement.

Check that the anchor mounting bolts are tight. If the seat belt webbing shows obvious cuts, protruding broken fibers causing a local increase in webbing thickness, or severe fading which indicates weakening by exposure to sunlight, the entire seat belt assembly should be replaced.

### **WARNING!**

All seat belt assemblies including retractors and attaching hardware should be inspected by an authorized dealer after any collision. We recommend that all seat belt assemblies in use during a collision be replaced unless the collision was minor and the belts show no damage and continue to operate properly.

Do not attempt to repair or replace any part of the seat belt assemblies; that work should be done by an authorized dealer. Failure to have an authorized dealer perform the work could reduce the effectiveness of the belts and could result in serious injury in the event of a collision.

## Seat and seatbelt

### Supplemental Restraint System (SRS)

ND10A-BC

This car is equipped with a Supplemental Restraint System (SRS), which includes driver and front passenger air bags. The SRS is designed to supplement the seat belts to provide those occupants with protection against head and chest injuries in certain moderate to severe frontal collisions.

The SRS is NOT a substitute for the seat belts; for maximum protection in all types of crashes and accidents, seat belts should ALWAYS be worn by everyone who drives or rides in this vehicle, with infants and small children in child restraints.

#### **WARNING!**

**IT IS VERY IMPORTANT TO ALWAYS WEAR YOUR SEAT BELT, EVEN WITH AN AIR BAG:**

- (1) Seat belts help keep the driver and front passenger properly positioned, which reduces injury risk in all accidents, and reduces injury risk when the air bags inflate.
- (2) Seat belts reduce the risk of injury in rollovers, side or rear impact collisions, and in lower-speed frontal collisions, because the air bag is not designed to inflate in those situations.
- (3) Seat belts reduce the risk of being thrown from your vehicle in a collision or rollover.

#### **WARNING!**

**IT IS VERY IMPORTANT TO BE PROPERLY SEATED, EVEN WITH AN AIR BAG:**

Air bags inflate very fast, and with great force.

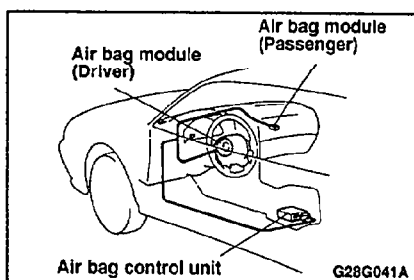
If the driver and front passenger are not properly seated, the air bag may not protect you properly, and could cause injury when it inflates. So:

- (1) Before driving, adjust the driver's seat as far back as possible while still maintaining complete control of the car.
- (2) Before driving, adjust the front passenger seat as far back as possible.
- (3) With seat belts properly fastened, the driver and front passenger should sit upright with backs against the seat back.
- (4) Do not lean head or chest close to the steering wheel or instruments panel. Do not put feet or legs on or against the instrument panel.

(5) Infants and small children should never be unrestrained, or held in your arms or on your lap, while in the car; they could be seriously hurt in an accident, or when the air bag inflates. They should be properly seated in a child restraint system. See the "Child Restraints for infants and small children" section of this owner's manual.

● **REAR- FACING CHILD RESTRAINTS** must NOT be used in the front passenger seat, because the force of an inflating passenger air bag could strike that restraint causing serious or fatal injury to the child. Rear-facing child restraints should only be used in the rear seat.

● **FRONT- FACING CHILD RESTRAINTS** should be used in the rear seat whenever possible; if used in the front passenger seat, adjust the seat as far back as possible from instrument panel.



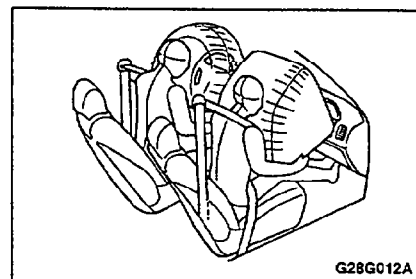
## How the Supplement Restraint System works

ND10B-FA

The SRS includes the following components:

- Air bag control unit (including the impact sensors)
- SRS warning light
- Air bag module
- Interconnecting wiring

The air bags will operate only when the ignition switch is in the "ON" or "START" position.



## Air bag system

The driver's air bag is located under the padded cover in the middle of the steering wheel. The front passenger air bag is contained in the instrument panel above the glove compartment. The driver air bag and the front passenger air bag are designed to inflate at the same time.

The air bags are designed to inflate only in certain moderate to severe frontal collision. The air bags are not designed to inflate in certain lower-speed frontal collisions, in rollovers, or in side or rear impact collisions. The air bags also may not inflate in certain frontal collisions, even though the car may be severely damaged.

Such non-inflation does not mean that something is wrong with the SRS system, but rather that the collision forces were not severe enough to activate it.

## Seat and seatbelt

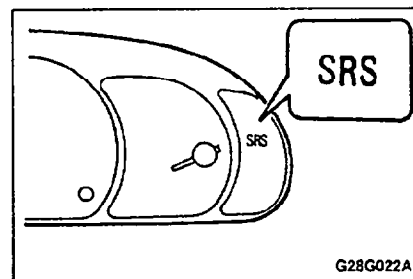
When the impact sensors detect an impact of sufficient frontal force, their switches close a circuit which ignites materials in the inflator to generate nitrogen gas and inflate the air bags.

Deployment of the air bags produces a sudden, fairly loud noise, and releases some smoke and powder, but these conditions are not injurious, and do not indicate a fire in the car. The air bags deflate very rapidly after deployment, so there is little danger of obscured vision. Mild discomfort may result from the deployment of the air bag due to the sudden inflation of the device. The driver air bag and the front passenger air bag are designed to inflate at the same time.

### **WARNING!**

- (1) Do not attach anything to the steering wheel padded cover, such as trim material, badges, etc.. It might strike and injure an occupant if the air bag inflates.
- (2) Do not set anything on, or attach anything to the instrument panel above the glove compartment. It might strike and injure an occupant if the air bag inflates.

- (3) Do not attach accessories to or put them in front of the windshield. They could restrict air bag inflation, or strike and injure an occupant if the air bags inflate.
- (4) Do not put packages, pets or other objects between the air bags and the driver or front passenger. It could affect air bag performance, or could cause injury when the air bag inflates.
- (5) Right after air bag inflation, several air bag system components will be hot. Do not touch them; you could be burned.
- (6) The SRS system is designed to work only once. After the air bags deploy, they will not work again. They must promptly be replaced, and the entire SRS system inspected, by an authorized dealer.



### **SRS warning light**

There is a Supplemental restraint system ("SRS") warning light on the instrument panel. The system checks itself and the light tells you if there is a problem. When the ignition key is turned to the "ON" or "START" position, the warning light should illuminate for about 7 seconds and then should go out. This means the system is ready.

The air bags will operate only when the ignition switch is in the "ON" or "START" position.

## SRS servicing

ND10C-C

The entire SRS system must be inspected by an authorized dealer 10 years after the car manufacture date shown on the certification label located on the center pillar on the driver's side.

### **WARNING!**

If any of following conditions occur, the SRS is not working properly, and you should immediately have it inspected by an authorized dealer:

- The SRS warning light does not illuminate when you start the car.
- The SRS warning light does not go off after about 7 seconds.
- The SRS warning light illuminates while driving.

### **WARNING!**

- (1) Any maintenance performed on or near the components of the SRS must be performed only by an authorized dealer.

Do not permit anyone else to do service, inspection, maintenance or repair on any SRS components or wiring, similarly, no part of the SRS system should ever be handled or disposed of by anyone except an authorized dealer.

Improper work on the SRS components or wiring could result in inadvertent deployment of the air bags, or could render the SRS system inoperative; either situation could result in serious injury.

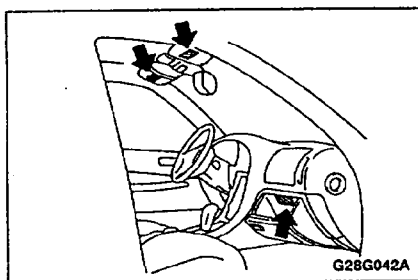
- (2) Do not modify your steering wheel or any other SRS components. For example, replacement of the steering wheel, or modifications to the front bumper or body structure can adversely affect SRS performance and lead to possible injury.

- (3) If your car has received any front-end damage, you should have the SRS system inspected by an authorized dealer to ensure it is in proper working order.

### NOTE

- (1) When you transfer ownership of the car to some other person, we urge you to alert the new owner that it is equipped with the SRS system and refer that owner to the applicable section in this owner's manual.
- (2) If you junk or scrap the car, we urge you to first take the car to an authorized dealer so that the SRS system can be rendered safe.

## Seat and seatbelt



### Service and Information label

Service and information labels are attached as shown in the illustration.