

REPORT NO. TRC-93-N12

NEW CAR ASSESSMENT PROGRAM (NCAP)

FRONTAL BARRIER IMPACT TEST

HONDA MOTOR CO. LTD.

1994 HONDA CIVIC

4-DOOR SEDAN

NHTSA NO. MR5300

TRC TEST NO. 940516

PREPARED BY:

TRANSPORTATION RESEARCH CENTER INC.

10820 STATE ROUTE 347

EAST LIBERTY, OHIO 43319



JUNE 8, 1994

FINAL REPORT

PREPARED FOR:

U. S. DEPARTMENT OF TRANSPORTATION
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION

OFFICE OF MARKET INCENTIVES

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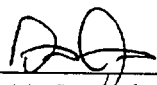
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WASHINGTON, D.C. 20590

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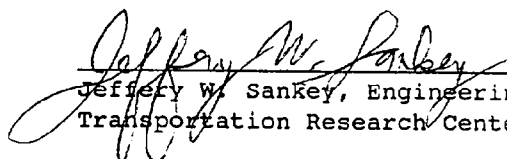
REPORT PREPARED BY:



Scott A. Johnston, Project Engineer
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Date 6/22/94

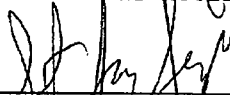
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16. Abstract A 56 kph (35 mph) frontal load cell barrier impact test was conducted on a 1994 Honda Civic 4-door sedan, NHTSA No. MR5300, at Transportation Research Center Inc. on May 16, 1994. This test was conducted to obtain new car assessment and 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 640 millimeters. The ambient temperature was 21° C. The driver's Head Injury Criteria (HIC) was 867. The driver's chest maximum resultant acceleration with three (3) milliseconds minimum duration was 60.5 g. The driver's chest maximum deflection was 51 millimeters. The driver's left and right femur maximum axial forces were 3497 N and 4295 N, respectively. The passenger's HIC was 684. The passenger's chest maximum resultant acceleration with three (3) milliseconds minimum duration was 57.4 g. The passenger's chest maximum deflection was 47 millimeters. The passenger's left and right femur maximum axial forces were 1550 N and 3375 N, respectively.			
17. Key Words 56 KPH (35 MPH) Frontal Barrier Impact Test: New Car Assessment Program (NCAP) FMVSS 208, "Occupant Crash Protection" FMVSS 212, "Windshield Retention" FMVSS 219, "Windshield Zone Intrusion" FMVSS 301, "Fuel System Integrity"		18. Distribution Statement Copies of this report are available from: National Highway Traffic Safety Admin. Technical Reference Division Nassif Building, Room 5108 400 Seventh Street, S.W. Washington, DC 20590	
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METRIC CONVERSION FACTORS

Approximate Conversions to Metric Measures

Symbol	When You Know	Multiply by	To Find	Symbol
LENGTH				
in	inches	2.5	centimeters	cm
ft	feet	30	meters	m
yd	yards	0.9	kilometers	km
mi	miles	1.6		
AREA				
in ²	square inches	6.5	square centimeters	cm ²
ft ²	square feet	0.09	square meters	m ²
yd ²	square yards	0.8	square meters	m ²
mi ²	square miles	2.6	square kilometers	km ²
	acres	0.4	hectares	ha
MASS (weight)				
oz	ounces	28	grams	g
lb	pounds	0.45	kilograms	kg
	short tons (2000 lb)	0.9	tonnes	t
VOLUME				
tsp	teaspoons	5	milliliters	ml
Tbsp	tablespoons	15	milliliters	ml
fl oz	fluid ounces	30	milliliters	ml
c	cups	0.24	liters	l
pt	pints	0.47	liters	l
qt	quarts	0.95	liters	l
gal	gallons	3.8	liters	l
ft ³	cubic feet	0.03	cubic meters	m ³
yd ³	cubic yards	0.76	cubic meters	m ³
TEMPERATURE (exact)				
°F	Fahrenheit temperature	5/9 (after subtracting 32)	Celsius temperature	°C

* 1 m = 2.54 (exactly). For other exact conversions and more detailed tables, see NIST Misc. Publ. 286, Units of Weights and Measures, Price \$2.25, SO Cablot No. C13.10.286.

Approximate Conversions from Metric Measures

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

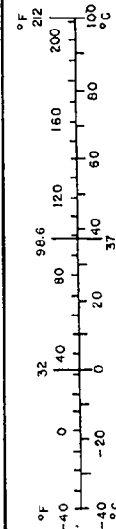


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SECTION 1.0

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 No. 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 1994 Honda Civic 4-door sedan, NHTSA No. MR5300, 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 four (4) seat belt load cells to measure lap belt tension and shoulder belt tension. 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 second use of the driver dummy and the passenger dummy.

Both dummies were instrumented with head and chest accelerometers to measure longitudinal, lateral, and vertical accelerations, and with left and right femur load cells to measure axial forces. Each Part 572E dummy's instrumentation also included a chest potentiometer to measure longitudinal deflection and a six-axis neck load cell to measure longitudinal, lateral, and vertical forces and moments.

The eighty-three (83) data channels were multiplexed and recorded on two (2) 14-track tape drives. The data was digitally sampled 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 sixteen (16) high-speed motion picture cameras. The pre- and post-test conditions were recorded by one (1) real-time motion picture camera.

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

SECTION 2.0

FRONTAL BARRIER IMPACT TEST SUMMARY

TEST RESULTS SUMMARY

This frontal load cell barrier test was conducted at TRC on May 16, 1994.

The test vehicle, a 1994 Honda Civic 4-door sedan, NHTSA No. MR5300, was equipped with a 1.5-liter transverse engine, automatic transmission, power steering, and power brakes. The vehicle's test weight was 1249 KG. The vehicle's impact speed was 56.5 kph. The vehicle sustained 640 mm of static crush during the impact.

The driver's Head Injury Criteria (HIC) was 867. The driver's chest maximum resultant acceleration with three (3) milliseconds minimum duration was 60.5 g. The driver's chest maximum deflection was 51 mm. The driver's left and right femur maximum axial forces were 3497 N and 4295 N, respectively.

The passenger's HIC was 684. The passenger's chest maximum resultant acceleration with three (3) milliseconds minimum duration was 57.4 g. The passenger's chest maximum deflection was 47 mm. The passenger's left and right femur maximum axial forces were 1550 N and 3375 N, respectively.

There was no loss of windshield periphery retention.

There was no penetration through the windshield.

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

DATA ACQUISITION EXPLANATIONS

The driver head Z-axis accelerometer, HEDZG1, recorded an anomalous spike at 73 milliseconds. The anomalous spike was removed for the HIC calculation.

The passenger shoulder belt force, SHBF2, recorded an anomalous spike at 36 milliseconds.

The left rear seat X-axis accelerometer, TLRXG1, recorded anomalous spikes throughout the crash test event. The velocity and displacement calculations were affected by this anomaly. The left rear seat X-axis redundant acceleration was used to calculate vehicle X-axis displacement.

The right rear seat X-axis accelerometer, TRRXGA, did not return to zero after the crash test. The displacement and velocity calculations were affected by this anomaly.

1. *Chlorophyll a* (Chl *a*)
2. *Chlorophyll b* (Chl *b*)
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4. *Chlorophyll d* (Chl *d*)
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²Speed trap measurement ($\pm .08$ kph accuracy)

TABLE 2 TEST VEHICLE INFORMATION

VEHICLE MANUFACTURER: Honda Motor Company Ltd.

MAKE/MODEL: Honda/Civic VIN: JHMEG8649RS003988

BODY STYLE: 4-door sedan MODEL YEAR: 1994

NHTSA NO.: MR5300 COLOR: White

ENGINE DATA: TYPE: Transverse CYLINDERS: 4 DISPLACEMENT: 1.5-liter

TRANSMISSION DATA: 4 SPEED, MANUAL, X AUTOMATIC, X FWD, RWD, 4WD

DATE VEHICLE RECEIVED: 05/12/94 ODOMETER READING: 22

DEALER'S NAME AND ADDRESS: Spreen Honda, Inc.
25025 Redlands Blvd.
Loma Linda, CA 92354

ACCESSORIES:

POWER STEERING	Yes	AUTOMATIC TRANSMISSION	Yes
POWER BRAKES	Yes	AUTOMATIC SPEED CONTROL	No
POWER SEATS	No	TILTING STEERING WHEEL	Yes
POWER WINDOWS	No	TELESCOPING STEERING WHEEL	No
TINTED GLASS	Yes	AIR CONDITIONING	No
RADIO	No	ANTI-SKID BRAKE	No
CLOCK	No	REAR WINDOW DEFROSTER	Yes
OTHER	None		

REMARKS:

1. IS THE VEHICLE STOCK THROUGHOUT? Yes
2. DOES VEHICLE SHOW EVIDENCE OF PRIOR ACCIDENT HISTORY? No
3. DOES VEHICLE SHOW ANY SIGNIFICANT CORROSION? No
4. CONDITION OF THE FRONT/REAR BUMPER AND FRAME: Good

CERTIFICATION DATA FROM VEHICLE'S LABEL:

VEHICLE MANUFACTURED BY: Honda Motor Company Ltd.

DATE OF MANUFACTURE: 10/93 VIN: JHMEG8649RS003988

GVWR: 3330 kg

GAWR: FRONT: 1765 kg, REAR: 1625 kg

TABLE 2 TEST VEHICLE INFORMATION CONT'D

TIRES ON VEHICLE (MFR., LINE, SIZE): Goodyear, P175/70R13

TIRE PRESSURE WITH MAXIMUM CAPACITY VEHICLE LOAD: FRONT: 300 kPa
REAR: 300 kPa

SPARE TIRE (MFR., SIZE): Goodyear, T105/80D13

TYPE OF SEATS: FRONT: Bucket
REAR: Bench

TYPE OF FRONT SEAT BACKS: Manually adjustable

MAXIMUM WIDTH: 1710 MM

WHEELBASE: 2618 MM

LOCATION OF LABEL STATING TIRE DATA:

The label was located in the glove box.

TIRE & CAPACITY DATA FROM VEHICLE'S LABEL:

RECOMMENDED TIRE SIZE: P175/70R13

RECOMMENDED COLD TIRE PRESSURE: FRONT: 32 psi ; REAR: 32 psi

DESIGNATED SEATING CAPACITY: 2 FRONT 3 REAR
5 TOTAL

VEHICLE CAPACITY WEIGHT: 850 lb

TEST VEHICLE ATTITUDE (ALL MEASUREMENTS ARE IN MILLIMETERS):

DELIVERED ATTITUDE: LF 642; RF 648; LR 649; RR 644

PRE-TEST ATTITUDE: LF 614; RF 618; LR 594; RR 600

POST-TEST ATTITUDE: LF 632; RF 645; LR 590; RR 590

TABLE 2 TEST VEHICLE INFORMATION CONT'D

WEIGHT OF TEST VEHICLE AS RECEIVED (WITH MAXIMUM FLUIDS):

RIGHT FRONT	321.0 KG	RIGHT REAR	202.0 KG
LEFT FRONT	323.0 KG	LEFT REAR	205.0 KG
TOTAL FRONT WEIGHT	644.0 KG	(61.3% OF TOTAL VEHICLE WEIGHT)	
TOTAL REAR WEIGHT	407.0 KG	(38.7% OF TOTAL VEHICLE WEIGHT)	
TOTAL DELIVERED WEIGHT	1051.0 KG		

CALCULATION OF TEST VEHICLE'S TARGET TEST WEIGHT:

RCLW¹ = RATED CARGO AND LUGGAGE WEIGHT

UDW = UNLOADED DELIVERED WEIGHT (1051 KG)

VCW = VEHICLE CAPACITY WEIGHT (386 KG)

DSC = DESIGNATED SEATING CAPACITY (5)

RCLW¹ = VCW - 68 (DSC) = 46 KG

TARGET TEST WEIGHT = UDW + RCLW¹ + (NO. OF HYBRID III DUMMIES X 76 KG/DUMMY)

TARGET TEST WEIGHT = 1051 + 46 + 152

TARGET TEST WEIGHT = 1249 KG

WEIGHT OF TEST VEHICLE WITH REQUIRED DUMMIES AND 51 KG OF CARGO WEIGHT:

RIGHT FRONT	362.0 KG	RIGHT REAR	261.0 KG
LEFT FRONT	361.0 KG	LEFT REAR	265.0 KG
TOTAL FRONT WEIGHT	723.0 KG	(57.9% OF TOTAL VEHICLE WEIGHT)	
TOTAL REAR WEIGHT	526.0 KG	(42.1% OF TOTAL VEHICLE WEIGHT)	
TOTAL TEST WEIGHT	1249.0 KG	(EQUAL TO TARGET TEST WEIGHT)	

WEIGHT OF BALLAST SECURED IN VEHICLE: 0 KG

COMPONENTS REMOVED TO MEET TARGET TEST WEIGHT: Rear bumper, trunk lid, rear door trim and window, muffler

CG = 1103 MM REARWARD OF FRONT WHEEL CENTERLINE

¹ Cargo weight for multi-purpose passenger vehicles, trucks, and buses is the vehicle's rated cargo and luggage weight from the vehicle's label or 136 KG, whichever is less.

TABLE 3 POST-IMPACT DATA

TEST NUMBER: 940516 NHTSA NO.: MR5300
TEST DATE: 05/16/94 TEST TIME: 1810
TEST TYPE: Frontal load cell barrier IMPACT ANGLE: 0°
AMBIENT TEMPERATURE AT IMPACT AREA: 21° 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 (ALL MEASUREMENTS ARE IN MILLIMETERS):

OVERALL LENGTH OF TEST VEHICLE: PRE-TEST: L 4230; C 4385; R 4225

POST-TEST: L 3765; C 3745; R 3730

TOTAL CRUSH: L 465; C 640; R 495

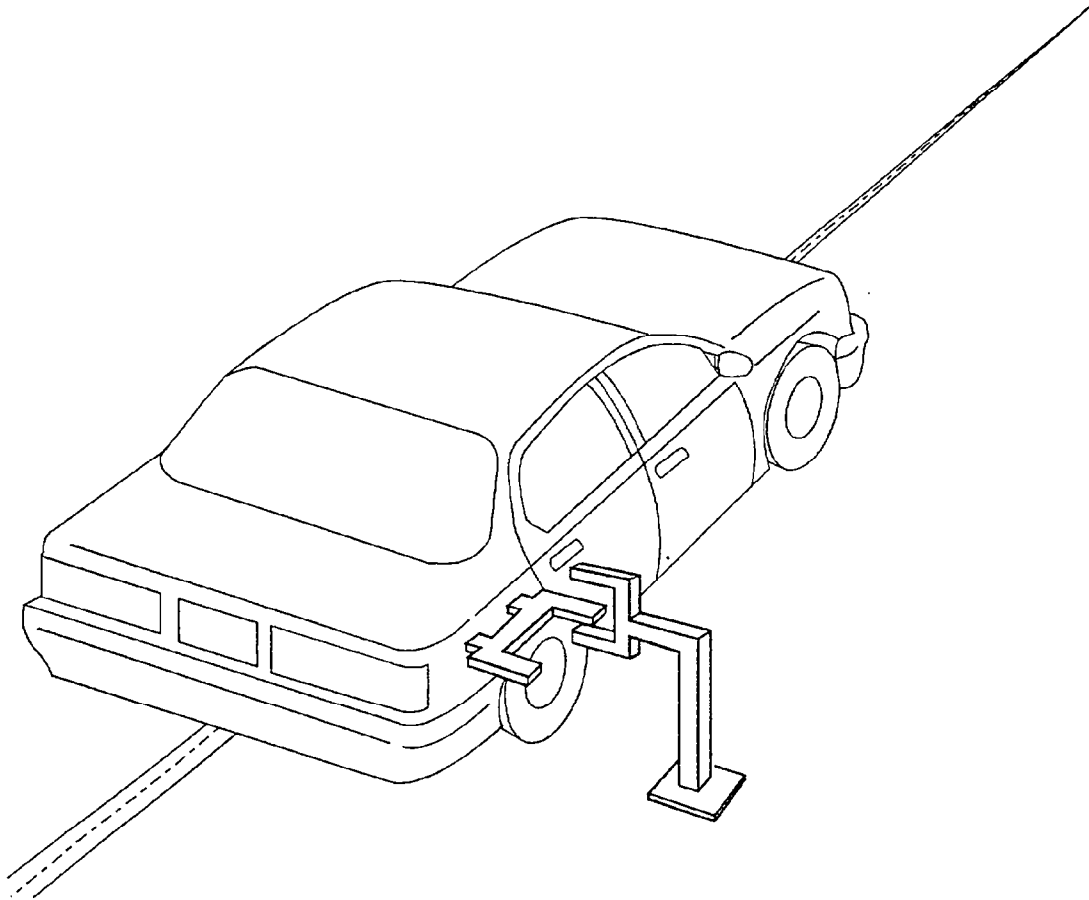
AVERAGE CRUSH: 533

TEST VEHICLE REBOUND FROM FLAT BARRIER

(ALL MEASUREMENTS ARE IN MILLIMETERS):

DISTANCE FROM TEST VEHICLE TO BARRIER: L 576; C 593; R 610; AVG. 593

FIGURE 1 IMPACT VELOCITY MEASUREMENT SYSTEM



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

The vanes have 305-millimeter spacing.

FIGURE 2 ACCIDENT INVESTIGATION DIVISION DATA
FOR 56 KPH (35 MPH) FRONTAL BARRIER IMPACT

VEHICLE MAKE/MODEL/BODY STYLE: Honda/Civic/4-door sedan

VEHICLE NHTSA NO.: MR5300; VIN: JHMEG8649RS003988

MODEL YEAR: 1994; BUILD DATE: 10/93; TEST DATE: 05/16/94

VEHICLE SIZE CATEGORY: Sub-compact; TEST WEIGHT: 1249 KG

VEHICLE WHEELBASE: 2618 MM

MAXIMUM WIDTH: 1710 MM

FRONT OVERHANG: 800 MM

COLLISION DEFORMATION
 CLASSIFICATION (CDC) CODE: 12FDEW3

CRUSH DEPTH
 MEASUREMENTS:

C1 =	<u>465</u>	MM
C2 =	<u>628</u>	MM
C3 =	<u>637</u>	MM
C4 =	<u>631</u>	MM
C5 =	<u>607</u>	MM
C6 =	<u>495</u>	MM

MIDPOINT OF DAMAGE: D = VEHICLE CENTERLINE
(LONGITUDINAL)

LENGTH OF DAMAGED
 REGION: L = 1445 MM

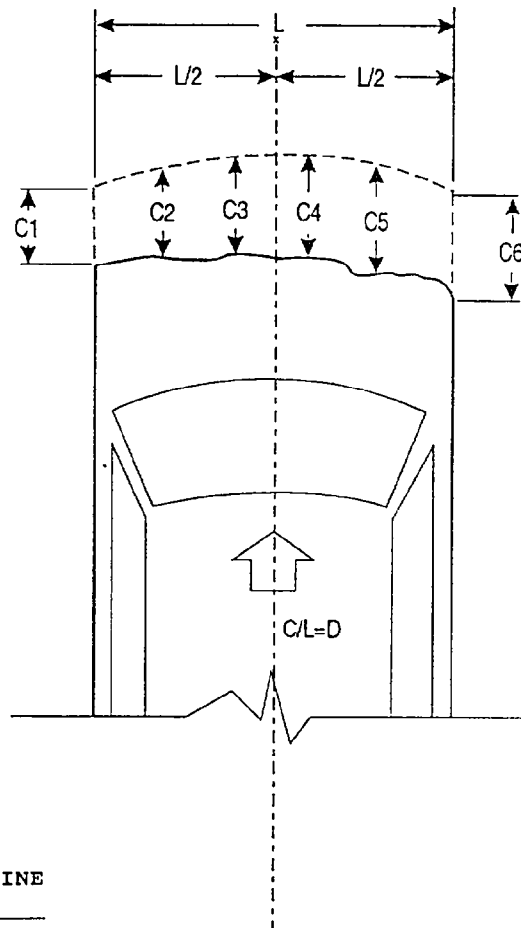
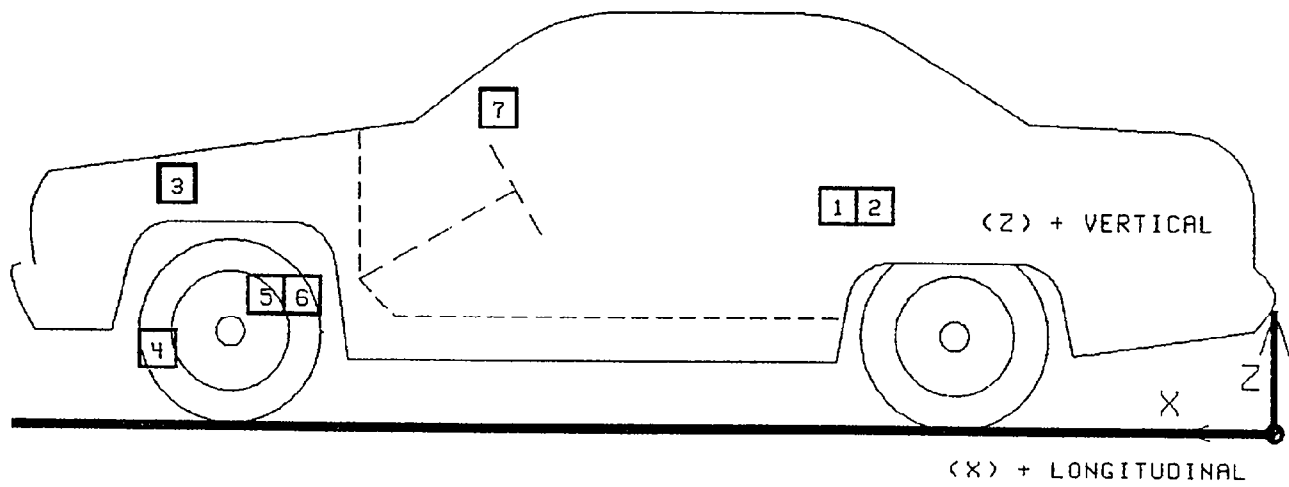
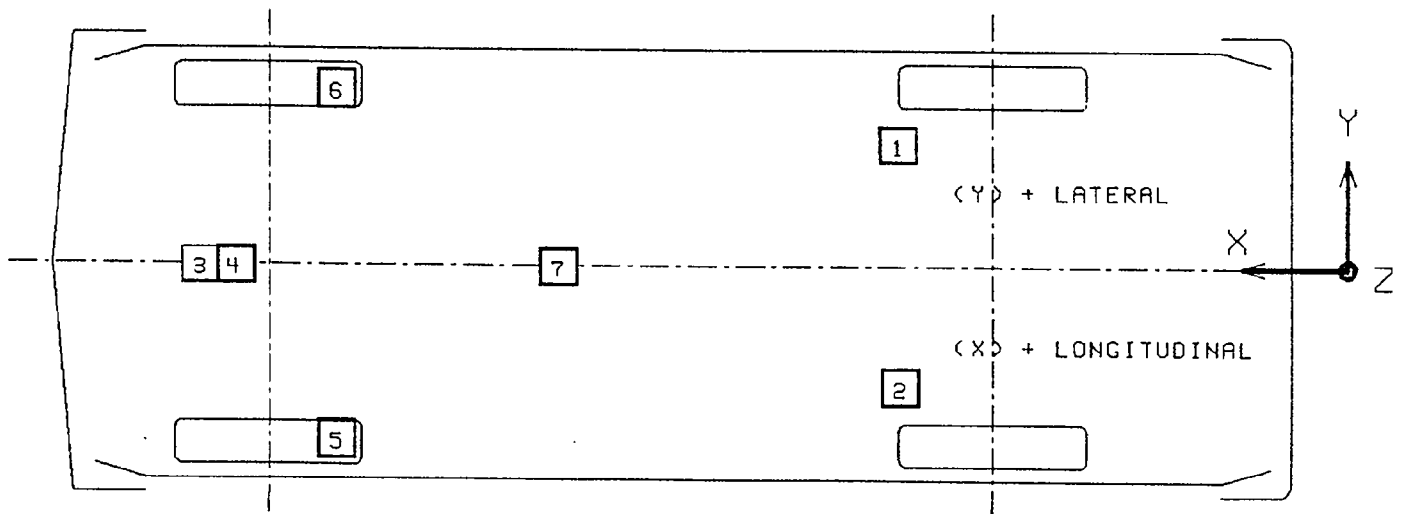


FIGURE 3 VEHICLE ACCELEROMETER PLACEMENT



SIDE VIEW



BOTTOM VIEW

TABLE 4 VEHICLE ACCELEROMETER LOCATIONS AND DATA SUMMARY

TEST NUMBER 940516

No. LOCATION	X	Y	Z	POSITIVE DIRECTION	NEGATIVE DIRECTION
1 LEFT REAR SEAT CROSSMEMBER LONGITUDINAL ¹ REDUNDANT	2830 mm	387 mm	365 mm	286.7 g @ 15.4 ms 2.0 g @ 141.4 ms	59.2 g @ 43.0 ms 56.9 g @ 42.7 ms
2 RIGHT REAR SEAT CROSSMEMBER LONGITUDINAL REDUNDANT ¹	2830 mm	-445 mm	374 mm	3.5 g @ 115.4 ms 0.6 g @ 115.4 ms	36.4 g @ 50.6 ms 53.6 g @ 50.8 ms
3 ENGINE TOP LONGITUDINAL	567 mm	85 mm	728 mm	41.7 g @ 34.5 ms	149.4 g @ 28.1 ms
4 ENGINE BOTTOM LONGITUDINAL	630 mm	218 mm	560 mm	67.7 g @ 37.4 ms	188.6 g @ 29.2 ms
5 RIGHT BRAKE CALIPER LONGITUDINAL	817 mm	-650 mm	274 mm	28.2 g @ 56.4 ms	90.9 g @ 39.6 ms
6 LEFT BRAKE CALIPER LONGITUDINAL	723 mm	650 mm	277 mm	51.5 g @ 59.4 ms	109.8 g @ 46.7 ms
7 INSTRUMENT PANEL CENTER LONGITUDINAL	1551 mm	-25 mm	869 mm	54.2 g @ 24.1 ms	81.3 g @ 36.8 ms

* X-AXIS LOCATIONS ARE MEASURED REARWARD FROM THE FRONT BUMPER.

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

¹ See DATA ACQUISITION EXPLANATIONS

TABLE 5 POST-IMPACT DUMMY/VEHICLE DATA

VISIBLE DUMMY CONTACT POINTS:

	DRIVER #192	PASSENGER #142
HEAD	<u>Airbag</u>	<u>Airbag</u>
CHEST	<u>Airbag</u>	<u>Airbag</u>
ABDOMEN	<u>Steering wheel rim</u>	<u>None</u>
LEFT KNEE	<u>Instrument panel</u>	<u>Instrument panel</u>
RIGHT KNEE	<u>Instrument panel</u>	<u>Instrument panel</u>

DOOR OPENING:

	LEFT	RIGHT
FRONT	<u>Easy</u>	<u>Easy</u>
REAR	<u>Easy</u>	<u>Easy</u>

SEAT MOVEMENT:

	SEAT BACK FAILURE	SEAT SHIFT
FRONT	<u>None</u>	<u>None</u>
REAR	<u>NA</u>	<u>NA</u>

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: 1994/Honda/Civic/4-door sedan

VEHICLE NHTSA NO.: MR5300; TEST DATE: 05/16/94

	DRIVER DUMMY #192	PASSENGER DUMMY #142
<u>MAXIMUM ACCELERATIONS (G):</u>		
HEAD X-AXIS	-69.7	-59.4
HEAD Y-AXIS	12.4	12.0
HEAD Z-AXIS ³	-113.3	-46.9
HEAD RESULTANT ³	129.0	73.2
 CHEST X-AXIS	 -61.6	 -58.1
CHEST Y-AXIS	6.6	7.1
CHEST Z-AXIS	12.9	-16.3
CHEST RESULTANT ¹	60.5	57.4
CHEST RESULTANT TIME INTERVAL (SEC.) ¹	.003	.003

HEAD INJURY CRITERIA (HIC) VALUES:

HIC ^{2,3}	867	684
HIC STARTING TIME (SEC.)	.051	.053
HIC ENDING TIME (SEC.)	.087	.089
AVG. HEAD RESULTANT ACCEL. DURING HIC TIME INTERVAL (G)	58.7	51.4

MAXIMUM CHEST DEFLECTIONS (MM):

CHEST X-AXIS	51	47
MAXIMUM CHEST DEFLECTION TIME (SEC)	.068	.078

MAXIMUM COMPRESSIVE FEMUR FORCES (N):

LEFT FEMUR	3497	1550
RIGHT FEMUR	4295	3375

MAXIMUM SEAT BELT FORCES (N):

LAP BELT	8001	9401
SHOULDER BELT ³	9326	9919

NOTE: ALL VALUES LISTED MUST BE OCCURRING DURING PRIMARY IMPACT EVENT.
(HEAD ACCELERATIONS LISTED MUST BE DURING HIC TIME INTERVAL.)

¹0.003 SEC. MINIMUM DURATION.

²THE MAXIMUM HIC TIME INTERVAL IS 36 MILLISECONDS.

³See DATA ACQUISITION EXPLANATIONS

TABLE 7 HYBRID III NECK DATA SUMMARY

VEHICLE YEAR/MAKE/MODEL/BODY STYLE: 1994/Honda/Civic/4-door sedan

VEHICLE NHTSA NO.: MR5300; TEST DATE: 05/16/94

<u>MAXIMUM VALUES:</u>	<u>DRIVER DUMMY #192</u>	<u>PASSENGER DUMMY #142</u>
NECK X-AXIS FORCE (N)	357	706
NECK Y-AXIS FORCE (N)	-213	-193
NECK Z-AXIS FORCE (N)	2552	1632
NECK MOMENT ABOUT X AXIS (N-M)	21	-26
NECK MOMENT ABOUT Y AXIS (N-M)	25	45
NECK MOMENT ABOUT Z AXIS (N-M)	39	16

NOTE: ALL VALUES LISTED MUST BE OCCURRING DURING PRIMARY IMPACT EVENT.

DUMMY KINEMATIC SUMMARY

DRIVER DUMMY

The airbag inflated and contacted the dummy's head and chest at impact. The dummy translated forward and the dummy's knees and hands impacted the instrument panel. The dummy rebounded into the seat. The dummy came to rest in the seat restrained by the three point uni-belt.

RIGHT FRONT PASSENGER DUMMY

The airbag inflated and contacted the dummy's head and chest at impact. The dummy translated forward and the dummy's knees and hands impacted the instrument panel. The dummy rebounded into the seat. The dummy came to rest in the seat restrained by the three point uni-belt.

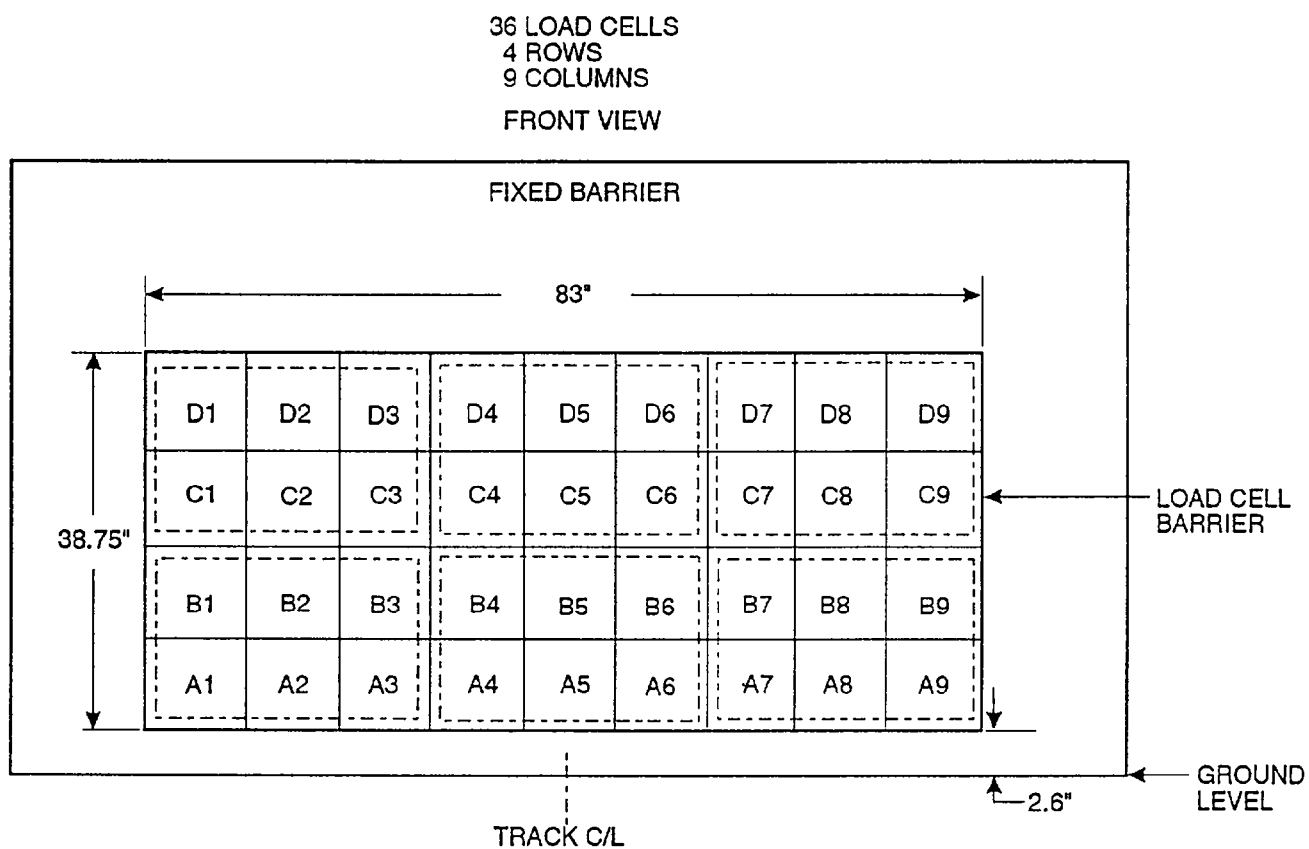
TABLE 8 SEAT BELT PERFORMANCE ASSESSMENT TEST DATA

	DRIVER	PASSENGER
<u>BELT LENGTH DATA:</u>		
BELT LENGTH FROM TRIM PANEL EXIT TO BOLT HOLE ANCHOR POINT FOR CONTINUOUS WEBBING SYSTEMS.	1875	1885
SHOULDER BELT LENGTH AS MEASURED ON PART 572 DUMMY.	1150	1150
LAP BELT LENGTH AS MEASURED ON PART 572 DUMMY.	825	810
<u>SHOULDER BELT SPOOL-OFF LENGTH:</u>		
AS DETERMINED BY FILM ANALYSIS ¹	NA	NA
AS DETERMINED MECHANICALLY	61	NA
AS DETERMINED ELECTRONICALLY	75	89
<u>BELT STRETCH LENGTH (MM/M):</u>		
AS MEASURED MECHANICALLY ¹	2	0
AS MEASURED ELECTRONICALLY ¹	3	3
<u>RETRACTOR LOCK-UP TIME (MS):</u>		
AS DETERMINED BY SHOULDER BELT SPOOL-OFF	61	68

ALL MEASUREMENTS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED.

¹ No spoolout cameras were mounted onboard the vehicle because of weight restrictions.

FIGURE 4 LOAD CELL BARRIER CONFIGURATION



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

TABLE 9 LOAD CELL BARRIER DATA SUMMARY

LOCATION	POSITIVE DIRECTION				NEGATIVE DIRECTION			
TOTAL GROUP 1	2.5	kN	@	1.8 ms	122.7	kN	@	14.9
TOTAL GROUP 2	1.6	kN	@	193.4 ms	216.4	kN	@	29.7
TOTAL GROUP 3	2.7	kN	@	1.6 ms	134.4	kN	@	14.1
TOTAL GROUP 4	1.0	kN	@	4.9 ms	38.9	kN	@	28.1
TOTAL GROUP 5	1.9	kN	@	1.7 ms	48.3	kN	@	28.2
TOTAL GROUP 6	1.6	kN	@	140.3 ms	23.4	kN	@	45.7
TOTAL LOAD CELL FORCE	5.3	kN	@	183.5 ms	489.0	kN	@	29.5

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.:

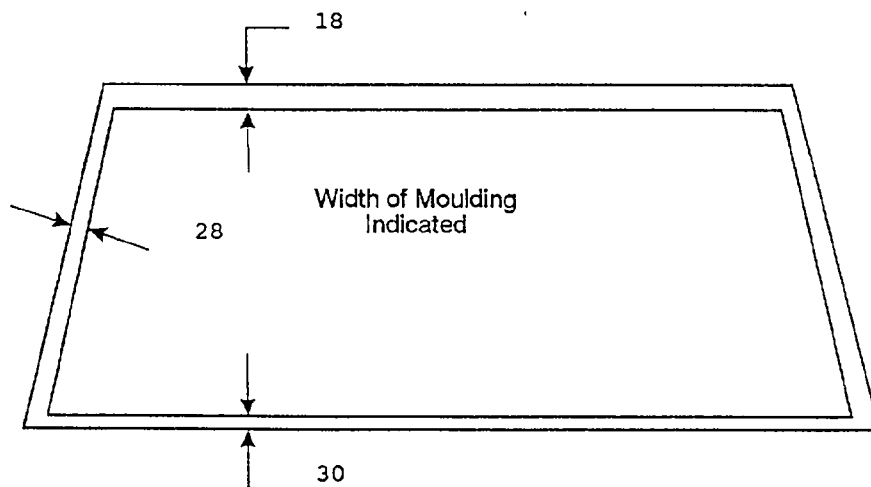
Plastic trim around outer perimeter, adhesive around inner perimeter.

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	2039	2039	100.0
LEFT SIDE	2039	2039	100.0
TOTAL	4078	4078	100.0

PRE-TEST WINDSHIELD MOUNTING MATERIAL TEMPERATURE: 21° C



FRONT VIEW OF WINDSHIELD¹

LOSS OF WINDSHIELD RETENTION LENGTHS: None

ALL DISTANCE MEASUREMENTS ARE IN MILLIMETERS.

¹INDICATE AREAS OF LOSS OF RETENTION, IF ANY, ON WINDSHIELD DIAGRAM.

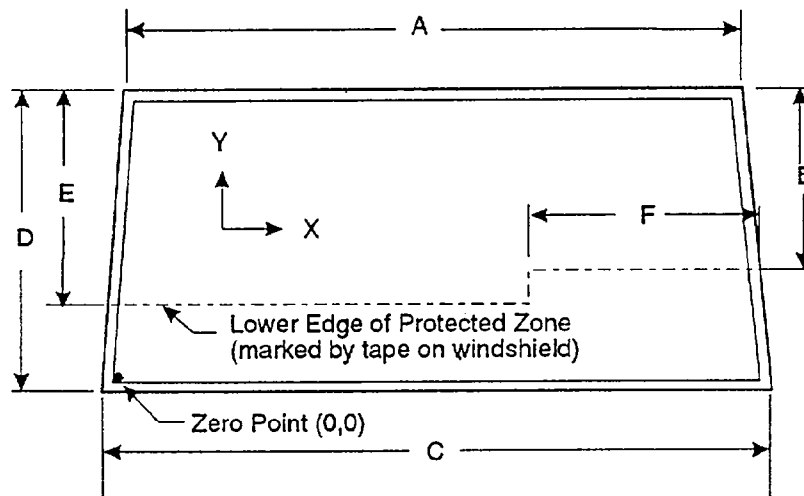
FIGURE 6 FMVSS 219 TEST DATA

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 = 1090
 B = 510
 C = 1500
 D = 840
 E = 560
 F = 621



FRONT VIEW

METHOD OF ADHERING PROTECTED ZONE TEMPLATE TO WINDSHIELD: NA

AREAS OF WINDSHIELD TEMPLATE PENETRATION
GREATER THAN 6.0 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.

ALL MEASUREMENTS ARE IN MILLIMETERS.

TABLE 10 FUEL SYSTEM DATA

MAKE/MODEL: Honda/Civic

NHTSA NO.: MR5300

FUEL SYSTEM CAPACITY: 45.0 LITERS (FROM OWNER'S MANUAL)

USABLE CAPACITY: 45.0 LITERS (FURNISHED BY COTR)

TEST VOLUME RANGE: 41.4 LITERS TO 42.3 LITERS (92-94% OF USABLE)

ACTUAL TEST VOLUME: 41.9 LITERS (WITH ENTIRE FUEL SYSTEM FILLED)

TEST FLUID TYPE: STODDARD SOLVENT

SPECIFIC GRAVITY: 0.764

KINEMATIC VISCOSITY: 0.99 CENTISTOKES

TEST FLUID COLOR: PURPLE

DETAILS OF FUEL SYSTEM: The fuel tank is located in front of the rear axle. The fuel filler neck is located on the left side. The fuel lines run along the right side to the front.

ELECTRIC FUEL PUMP: Yes FUEL INJECTION: Yes

DOES ELECTRIC FUEL PUMP OPERATE WITH IGNITION SWITCH "ON" AND THE ENGINE NOT OPERATING? No

TABLE 11 FMVSS 301 POST-IMPACT TEST DATA

TEST VEHICLE NHTSA NO.: MR5300; TEST DATE: 05/16/94

VEHICLE MAKE/MODEL/BODY STYLE: Honda/Civic/4-door sedan

TEST REQUIREMENTS:

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

TEST VEHICLE IMPACT TYPE:

- ☒ X FRONTAL (56 KPH)
☐ OBLIQUE (48 KPH) WITH ° BARRIER FACE
FIRST CONTACTING (DRIVER/PASS.) SIDE.
☐ REAR MOVING BARRIER (48 KPH)
☐ LATERAL MOVING BARRIER (32 KPH)

FUEL SYSTEM FLUID SPILLAGE MEASUREMENTS:

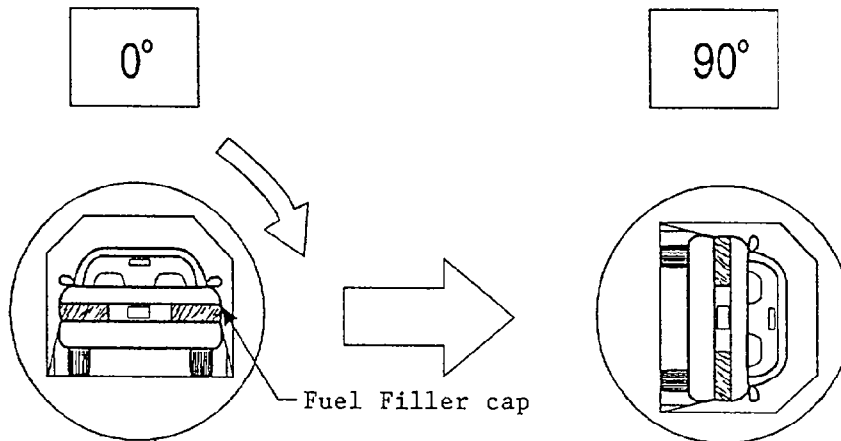
	<u>TEST</u> <u>RESULTS</u>	<u>MAXIMUM</u> <u>ALLOWABLE</u>
1. FROM IMPACT UNTIL VEHICLE MOTION CEASES - - -	0 G	28 G
2. 5 MINUTE PERIOD AFTER VEHICLE MOTION CEASES -	0 G	142 G
3. NEXT 25 MINUTES AFTER 5 MINUTE PERIOD - - - -	0 G	28 G/MN

FUEL SYSTEM FLUID SPILLAGE LOCATION(S):

None

FIGURE 7 FMVSS 301 STATIC ROLLOVER TEST DATA

NHTSA NO.: MR5300
TEST PHASE



STATIC ROLLOVER MACHINE ROTATION TIME INFORMATION:(Spec. Range = 1-3 min.)

TIME REQUIRED FOR MACHINE TO ROTATE 90° = 2 minutes, 00 seconds
FMVSS 301 POSITION HOLD TIME = 5 minutes, 00 seconds
TOTAL - - - - - = 7 minutes, 00 seconds
NEXT WHOLE MINUTE INTERVAL - - - - - = 7 minutes

FUEL SYSTEM FLUID SPILLAGE MEASUREMENTS:

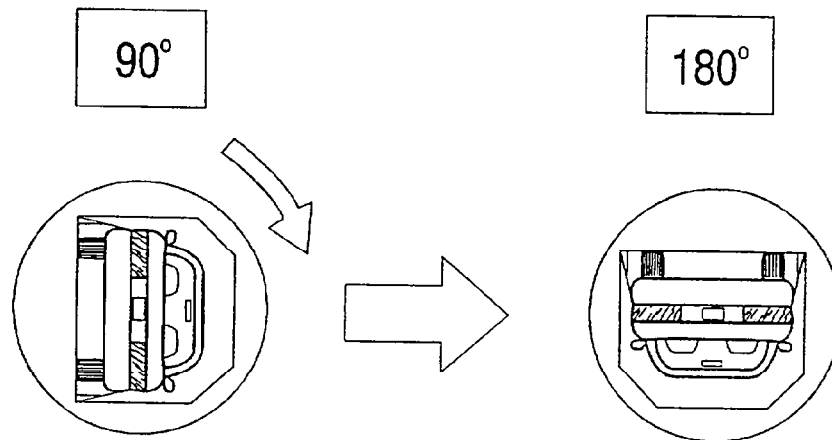
<u>0° TO 90° ROTATION (FUEL FILLER CAP DOWN)</u>	<u>TEST RESULTS</u>	<u>MAXIMUM ALLOWABLE</u>
1. FIRST 5 MINUTES FROM ONSET OF ROTATION - - - - -	0 G	142 G
2. 6TH MINUTE FROM ONSET OF ROTATION - - - - -	0 G	28 G
3. 7TH MINUTE FROM ONSET OF ROTATION - - - - -	0 G	28 G

FUEL SYSTEM FLUID SPILLAGE LOCATION(S):

None

FIGURE 7 FMVSS 301 STATIC ROLLOVER TEST DATA, CONT'D.

NHTSA NO.: MR5300
TEST PHASE



STATIC ROLLOVER MACHINE ROTATION TIME INFORMATION: (Spec. Range = 1-3 min.)

TIME REQUIRED FOR MACHINE TO ROTATE 90° = 2 minutes, 00 seconds
FMVSS 301 POSITION HOLD TIME = 5 minutes, 00 seconds
TOTAL - - - - - = 7 minutes, 00 seconds
NEXT WHOLE MINUTE INTERVAL - - - - - = 14 minutes

FUEL SYSTEM FLUID SPILLAGE MEASUREMENTS:

90° TO 180° ROTATION

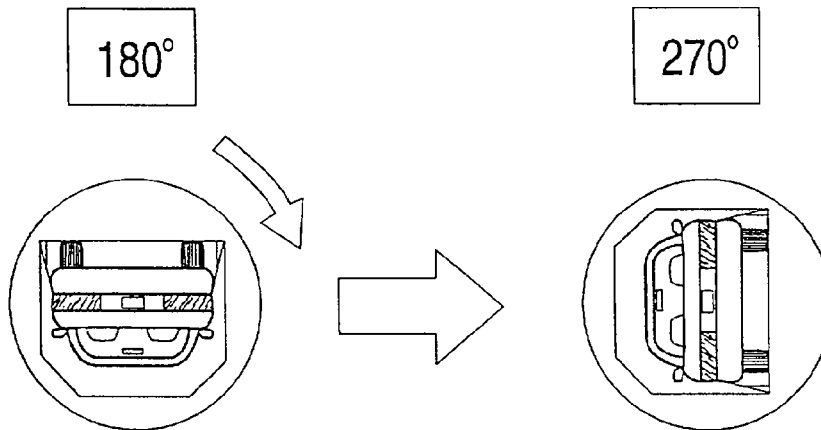
	TEST RESULTS	MAXIMUM ALLOWABLE
1. FIRST 5 MINUTES FROM ONSET OF ROTATION - - - - -	0 G	142 G
2. 6TH MINUTE FROM ONSET OF ROTATION - - - - -	0 G	28 G
3. 7TH MINUTE FROM ONSET OF ROTATION - - - - -	0 G	28 G

FUEL SYSTEM FLUID SPILLAGE LOCATION(S):

None

FIGURE 7 FMVSS 301 STATIC ROLLOVER TEST DATA, CONT'D.

NHTSA NO.: MR5300
TEST PHASE



STATIC ROLLOVER MACHINE ROTATION TIME INFORMATION: (Spec. Range = 1-3 min.)

TIME REQUIRED FOR MACHINE TO ROTATE 90° = 2 minutes, 00 seconds
FMVSS 301 POSITION HOLD TIME = 5 minutes, 00 seconds
TOTAL - - - - - = 7 minutes, 00 seconds
NEXT WHOLE MINUTE INTERVAL - - - - - = 21 minutes

FUEL SYSTEM FLUID SPILLAGE MEASUREMENTS:

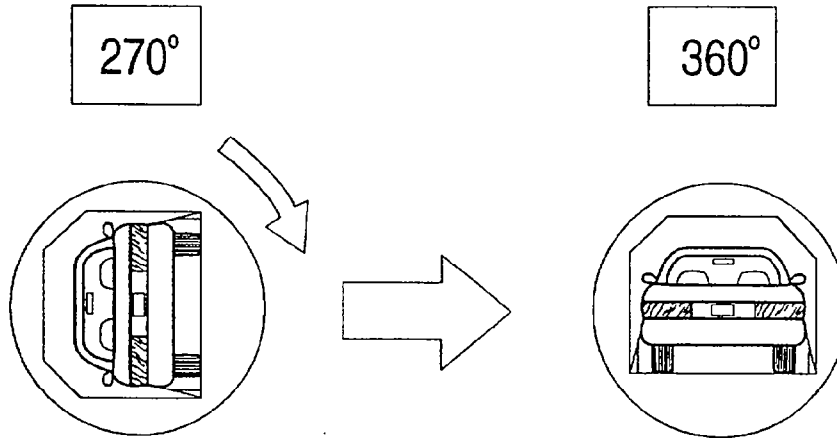
<u>180° TO 270° ROTATION</u>	<u>TEST RESULTS</u>	<u>MAXIMUM ALLOWABLE</u>
1. FIRST 5 MINUTES FROM ONSET OF ROTATION - - - - -	0 G	142 G
2. 6TH MINUTE FROM ONSET OF ROTATION - - - - -	0 G	28 G
3. 7TH MINUTE FROM ONSET OF ROTATION - - - - -	0 G	28 G

FUEL SYSTEM FLUID SPILLAGE LOCATION(S):

None

FIGURE 7 FMVSS 301 STATIC ROLLOVER TEST DATA, CONT'D.

NHTSA NO.: MR5300
TEST PHASE



STATIC ROLLOVER MACHINE ROTATION TIME INFORMATION: (Spec. Range = 1-3 min.)

TIME REQUIRED FOR MACHINE TO ROTATE 90° = 2 minutes, 00 seconds
FMVSS 301 POSITION HOLD TIME = 5 minutes, 00 seconds
TOTAL - - - - - = 7 minutes, 00 seconds
NEXT WHOLE MINUTE INTERVAL - - - - - = 28 minutes

FUEL SYSTEM FLUID SPILLAGE MEASUREMENTS:

<u>270° TO 360° ROTATION</u>	<u>TEST RESULTS</u>	<u>MAXIMUM ALLOWABLE</u>
1. FIRST 5 MINUTES FROM ONSET OF ROTATION - - - - -	0 G	142 G
2. 6TH MINUTE FROM ONSET OF ROTATION - - - - -	0 G	28 G
3. 7TH MINUTE FROM ONSET OF ROTATION - - - - -	0 G	28 G

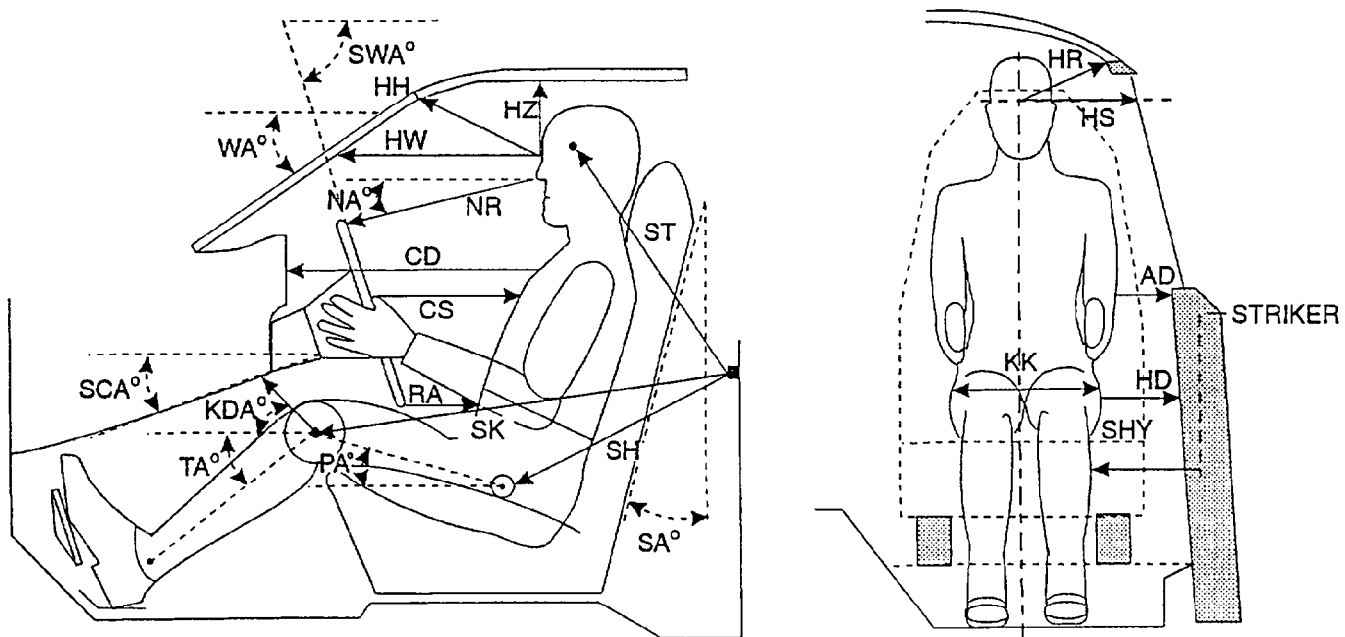
FUEL SYSTEM FLUID SPILLAGE LOCATION(S):

None

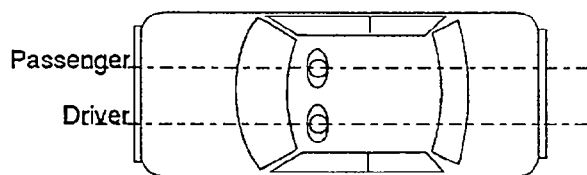
SECTION 4.0

VEHICLE, OCCUPANT, AND CAMERA INFORMATION

FIGURE 8 DUMMY MEASUREMENT LOCATIONS FOR FRONT SEAT OCCUPANTS



VERTICAL LONGITUDINAL PLANE



VERTICAL TRANSVERSE PLANE

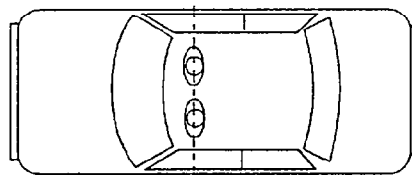


TABLE 12 DUMMY MEASUREMENT DATA FOR FRONT SEAT OCCUPANTS

DESIGNATION	TYPE OF MEASUREMENT	DRIVER (SERIAL #192)	PASSENGER (SERIAL #142)
WA°	WINDSHIELD ANGLE	27	27
SWA°	STEERING WHEEL ANGLE	66	NA
SCA°	STEERING COLUMN ANGLE	15	NA
SA°	SEAT BACK ANGLE ¹	NA	NA
HZ	HEAD TO ROOF	86	96
HH	HEAD TO HEADER	270	286
HW	HEAD TO WINDSHIELD	470	486
HR	HEAD TO SIDE HEADER	154	172
NR	NOSE TO RIM	398	NA
NA	NOSE TO RIM ANGLE	14	NA
CD	CHEST TO DASH	536	511
CS	STEERING WHEEL TO CHEST	287	NA
RA	RIM TO ABDOMEN	214	NA
KDL	LEFT KNEE TO DASH	91	138
KDR	RIGHT KNEE TO DASH	90	127
KDA	OUTBOARD KNEE TO DASH ANGLE	53	29
PA°	PELVIC ANGLE	22	22
TA°	TIBIAL ANGLE	33	34
KK	KNEE TO KNEE	270	210
ST	STRIKER TO HEAD	510	482
	STRIKER TO HEAD ANGLE	-78	-85
SK	STRIKER TO KNEE	565	617
	STRIKER TO KNEE ANGLE	7	3
SH	STRIKER TO H-POINT	238	245
	STRIKER TO H-POINT ANGLE	45	37
SHY	STRIKER TO H-POINT (Y DIR.)	210	210
HS	HEAD TO SIDE WINDOW	250	255
HD	H-POINT TO DOOR	168	157
AD	ARM TO DOOR	110	117

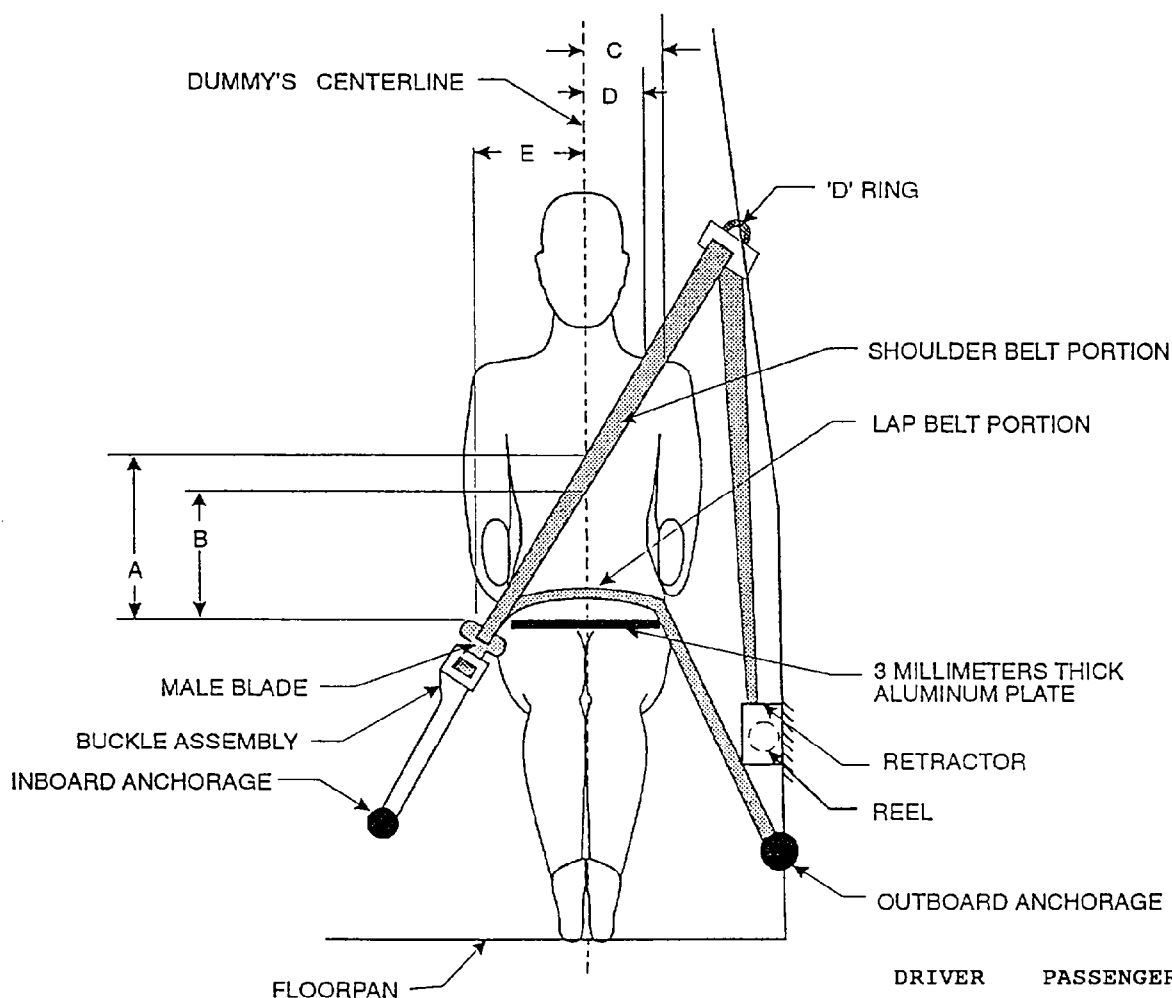
THE SEAT BACK ANGLE (SA°) IS MEASURED RELATIVE TO VERTICAL, ALL OTHER ANGLES ARE MEASURED RELATIVE TO HORIZONTAL.

ALL ANGLE MEASUREMENTS ARE IN DEGREES.

ALL DISTANCE MEASUREMENTS ARE IN MILLIMETERS.

¹Angle measured from head restraint support.

FIGURE 9 SEAT BELT POSITIONING DATA



	DRIVER	PASSENGER
A - TOP SURFACE OF ALUMINUM PLATE TO BELT UPPER EDGE	320	306
B - TOP SURFACE OF ALUMINUM PLATE TO BELT LOWER EDGE	240	220
C - DUMMY CENTERLINE TO OUTER EDGE OF BELT AT CHEST FLESH TOP	133	140
D - DUMMY CENTERLINE TO INNER EDGE OF BELT AT CHEST FLESH TOP	75	85
LAPBELT TENSION (N)	12	13
SHOULDER BELT TENSION (N)	16	12
ADJUSTABLE SEAT BELT ANCHORAGE POSITION	uppermost	uppermost

ALL DISTANCE MEASUREMENTS ARE IN MILLIMETERS.

FIGURE 10 CAMERA POSITIONS

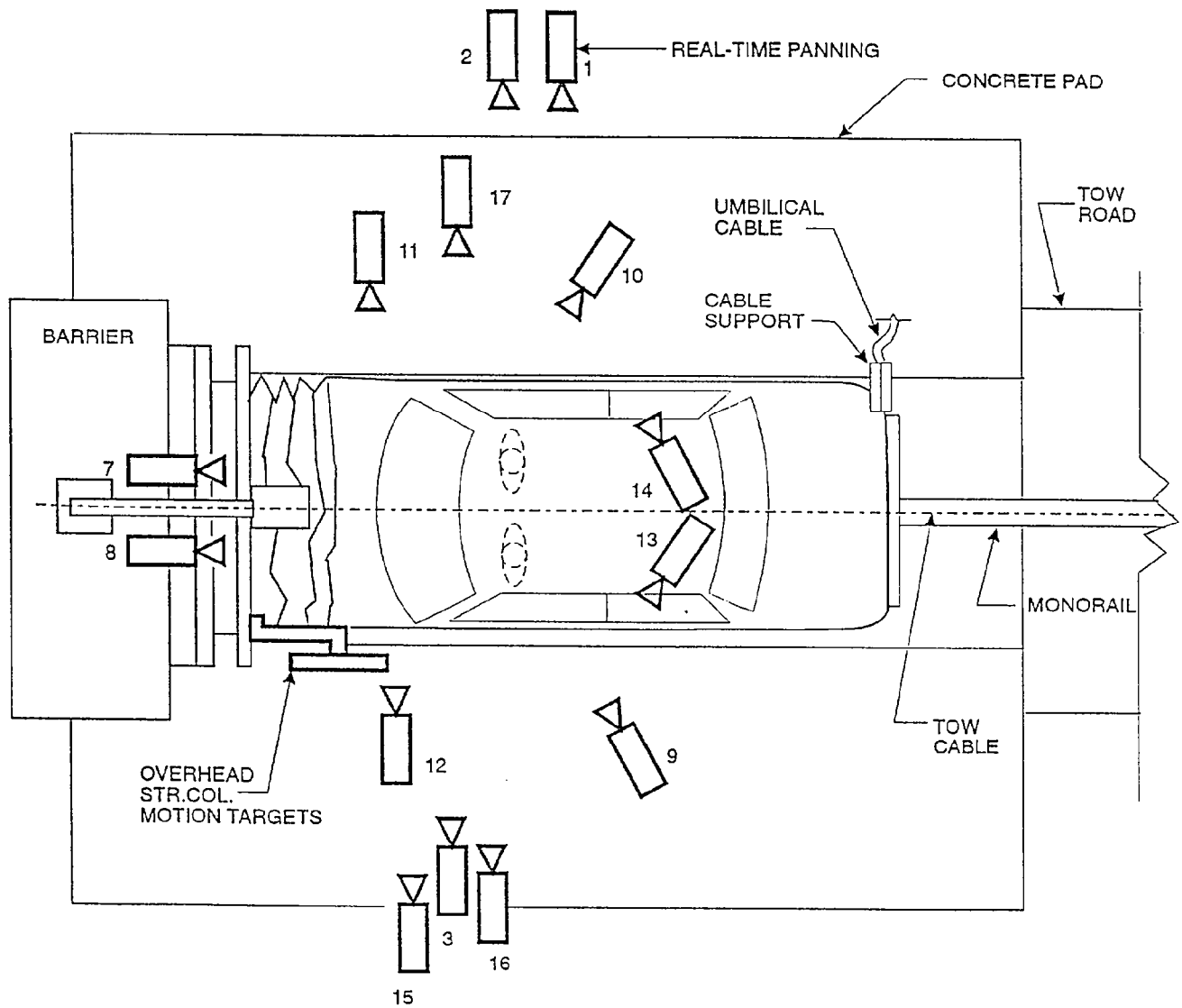


FIGURE 10 CAMERA POSITIONS, CONT'D.

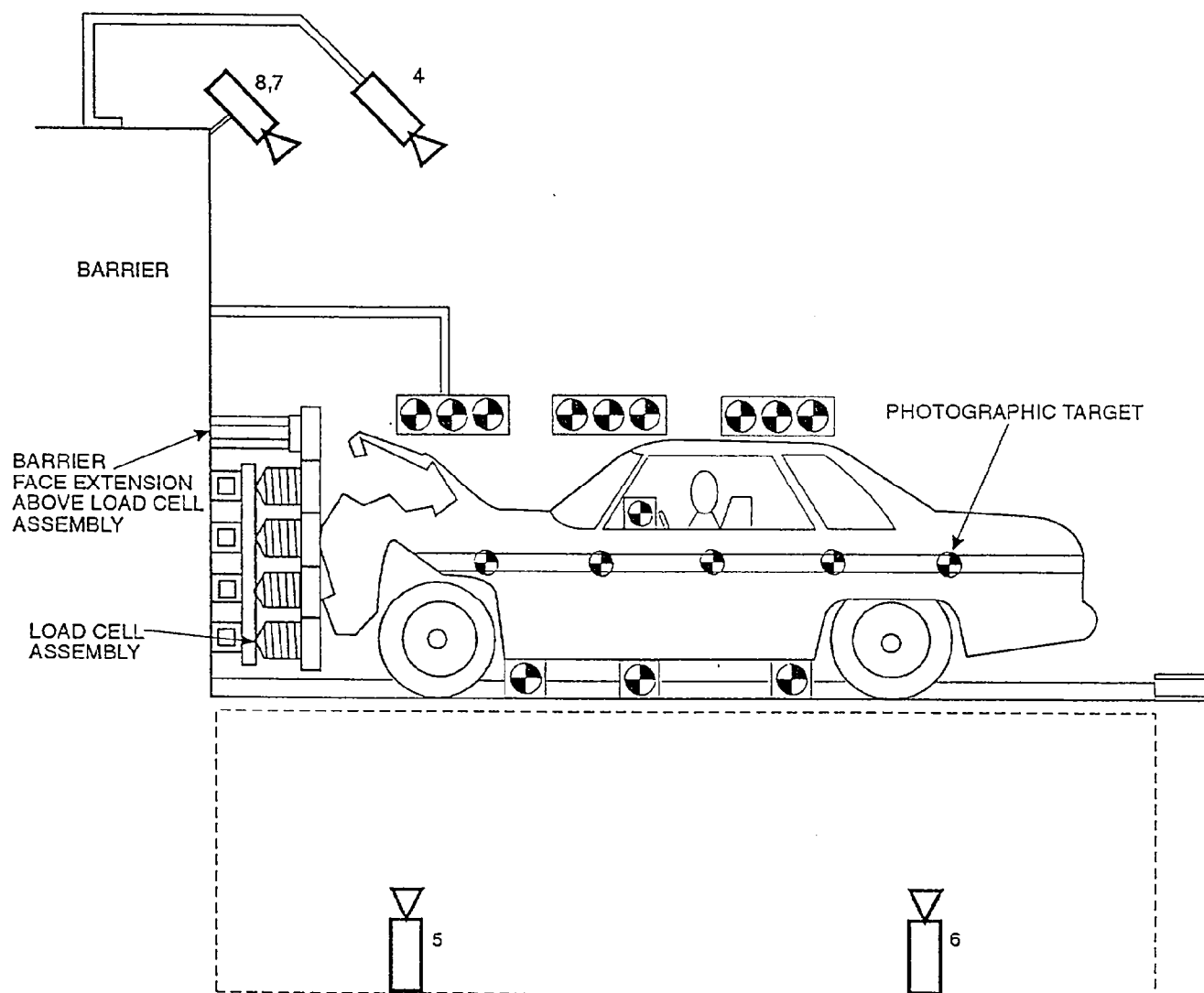


TABLE 13 MOTION PICTURE CAMERA LOCATIONS

TEST NO.: 940516		VEHICLE: 1994 Honda Civic		FILM PLANE		
CAMERA NO.	VIEW	CAMERA POSITIONS (MM) ¹			FILM TO HEAD TARGET (MM)	FILM SPEED (FPS)
		X	Y	Z		
1	Real-time panning	-3607	-12802	1549	NA	24
2	Vehicle crush	-2065	-6767	942	NA	498
3	Dummy kinematics	-1054	7493	1118	5791	1005
4	Windshield damage	-925	0	2489	NA	502
5	Crush & fluid spillage	-1283	0	-2347	NA	1005
6	Fluid spillage	-2522	0	-2515	NA	1015
7	Passenger kinematics	-114	-351	2159	NA	498
8	Driver kinematics	-173	368	2159	NA	538
9	Driver kinematics	-4572	1854	2591	2388	498
10	Passenger kinematics	-4674	-1880	2540	2261	493
11	Windshield intrusion	-968	-7775	1118	NA	500
12	Windshield intrusion	-1346	7859	1074	NA	502
13	Driver seat belt movement	NA	NA	NA	NA	NA
14	Passenger seat belt movement	NA	NA	NA	NA	NA
15	Column movement	-2184	7264	2616	NA	505
16	Column movement	-2184	7264	1908	NA	498
17	Passenger kinematics	-986	-5354	1151	5563	1020

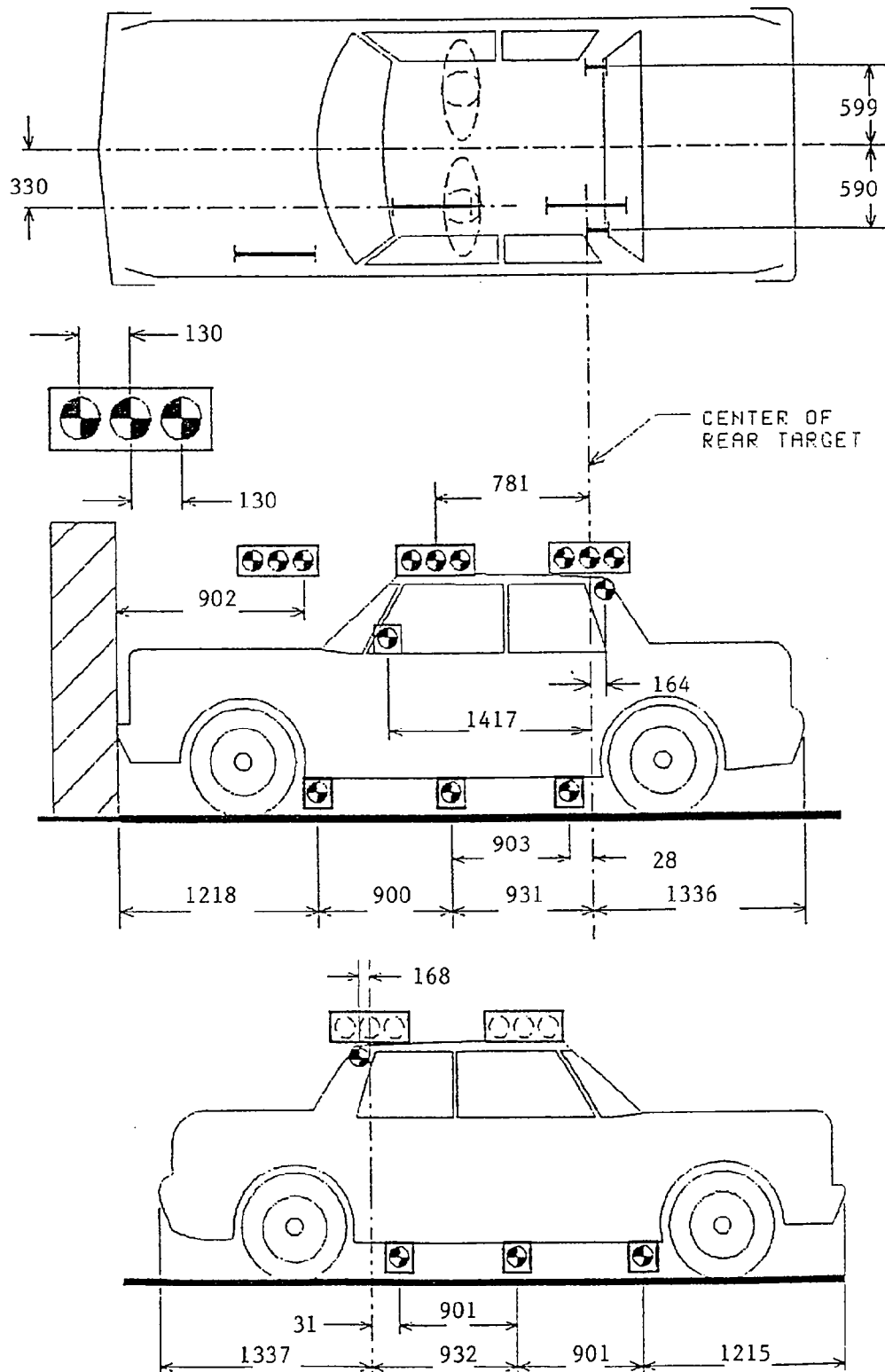
¹ +X = Film plane forward of barrier face

+Y = Film plane to left of monorail centerline

+Z = Film plane above ground level

² +Angle = Film plane angled upward from horizontal plane

FIGURE 11 VEHICLE TARGET LOCATIONS



All measurements are in millimeters.

FIGURE 12 PRE-TEST AND POST-TEST MEASUREMENT POINTS

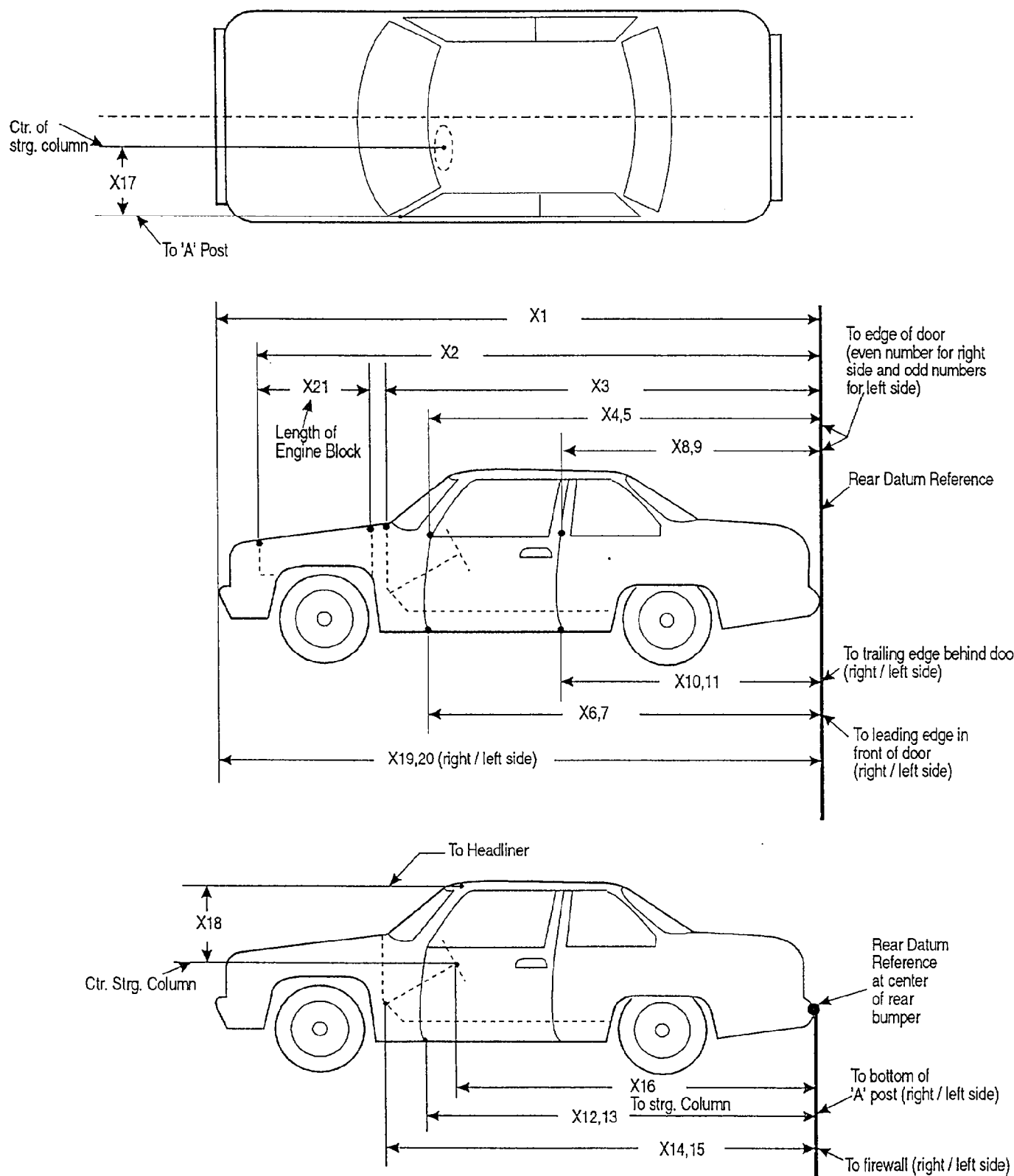


TABLE 14 IMPACTED VEHICLE MEASUREMENTS

VEHICLE MAKE/MODEL: Honda/Civic TEST NUMBER: 940516

NO.	TYPE OF MEASUREMENT	PRE-TEST	POST-TEST	DIFF.
X1	TOTAL LENGTH OF VEHICLE AT CENTERLINE	4385	3745	640
X2	REAR SURFACE OF VEHICLE TO FRONT OF ENGINE BLOCK	3900	3531	369
X3	REAR SURFACE OF VEHICLE TO FIREWALL	3358	3085	273
X4	REAR SURFACE OF VEHICLE TO UPPER LEADING EDGE OF RIGHT DOOR	2953	2905	48
X5	REAR SURFACE OF VEHICLE TO UPPER LEADING EDGE OF LEFT DOOR	2946	2954	-8
X6	REAR SURFACE OF VEHICLE TO LOWER LEADING EDGE OF RIGHT DOOR	2956	2308	648
X7	REAR SURFACE OF VEHICLE TO LOWER LEADING EDGE OF LEFT DOOR	2950	2938	12
X8	REAR SURFACE OF VEHICLE TO UPPER TRAILING EDGE OF RIGHT DOOR	1895	1886	9
X9	REAR SURFACE OF VEHICLE TO UPPER TRAILING EDGE OF LEFT DOOR	1891	1893	-2
X10	REAR SURFACE OF VEHICLE TO LOWER TRAILING EDGE OF RIGHT DOOR	1922	1902	20
X11	REAR SURFACE OF VEHICLE TO LOWER TRAILING EDGE OF LEFT DOOR	1910	1899	11
X12	REAR SURFACE OF VEHICLE TO BOTTOM OF "A" POST ON RIGHT SIDE	2939	2913	26
X13	REAR SURFACE OF VEHICLE TO BOTTOM OF "A" POST ON LEFT SIDE	2936	2928	8
X14	REAR SURFACE OF VEHICLE TO FIREWALL -- RIGHT SIDE	3260	3116	144
X15	REAR SURFACE OF VEHICLE TO FIREWALL -- LEFT SIDE	3280	3093	187
X16	REAR SURFACE OF VEHICLE TO STEERING WHEEL CENTER	2515	2453	62
X17	CENTER OF STEERING COLUMN TO "A" POST	305	252	53
X18	CENTER OF STEERING COLUMN TO HEADLINER	451	465	-14
X19	REAR SURFACE OF VEHICLE TO RIGHT SIDE OF FRONT BUMPER	4225	3730	495
X20	REAR SURFACE OF VEHICLE TO LEFT SIDE OF FRONT BUMPER	4230	3765	465
X21	LENGTH OF ENGINE BLOCK	405	405	0

All measurements are in millimeters.

APPENDIX A

PHOTOGRAPHS

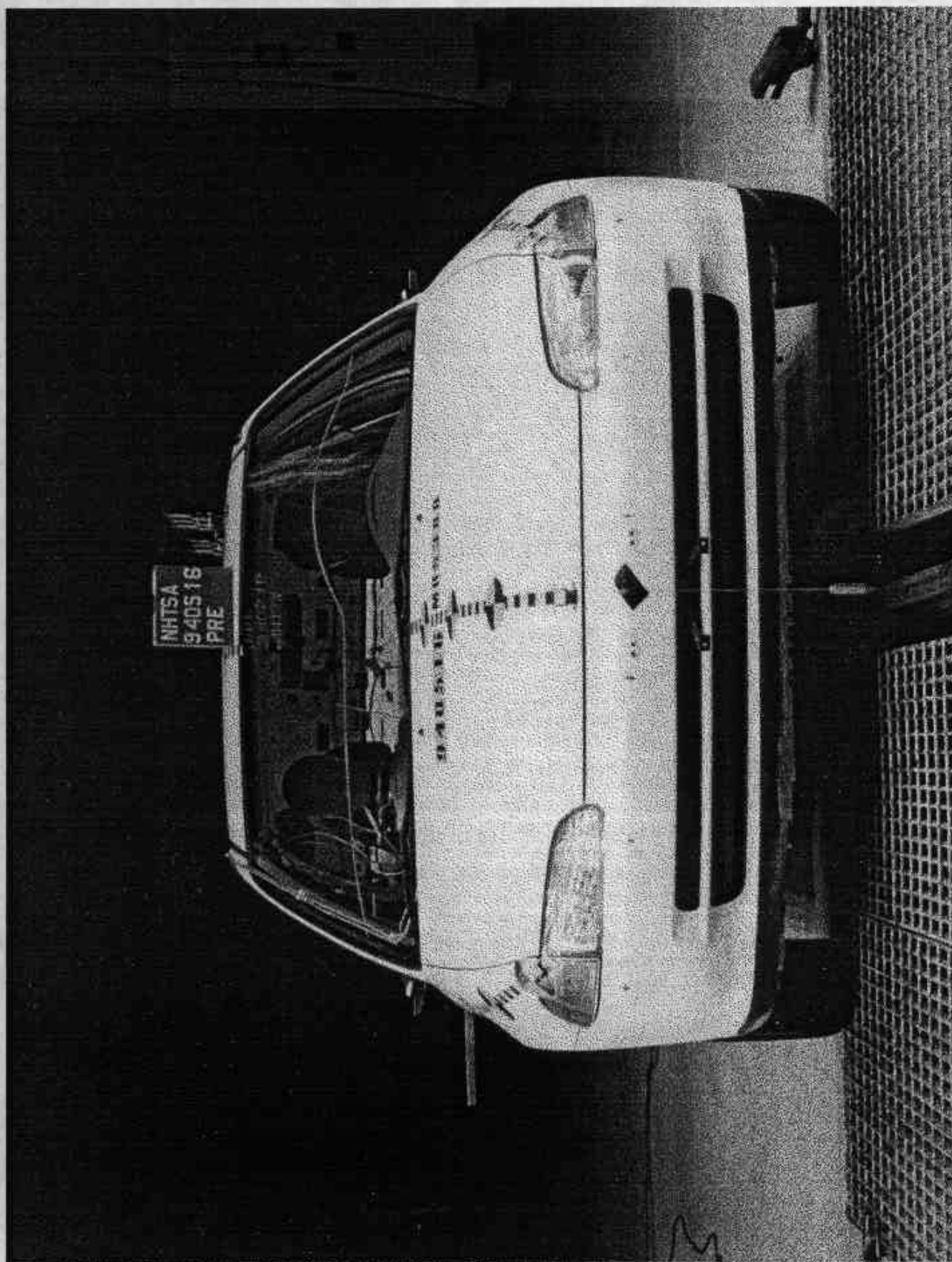


Figure A-1. PRE-TEST FRONT VIEW
A-2

940516

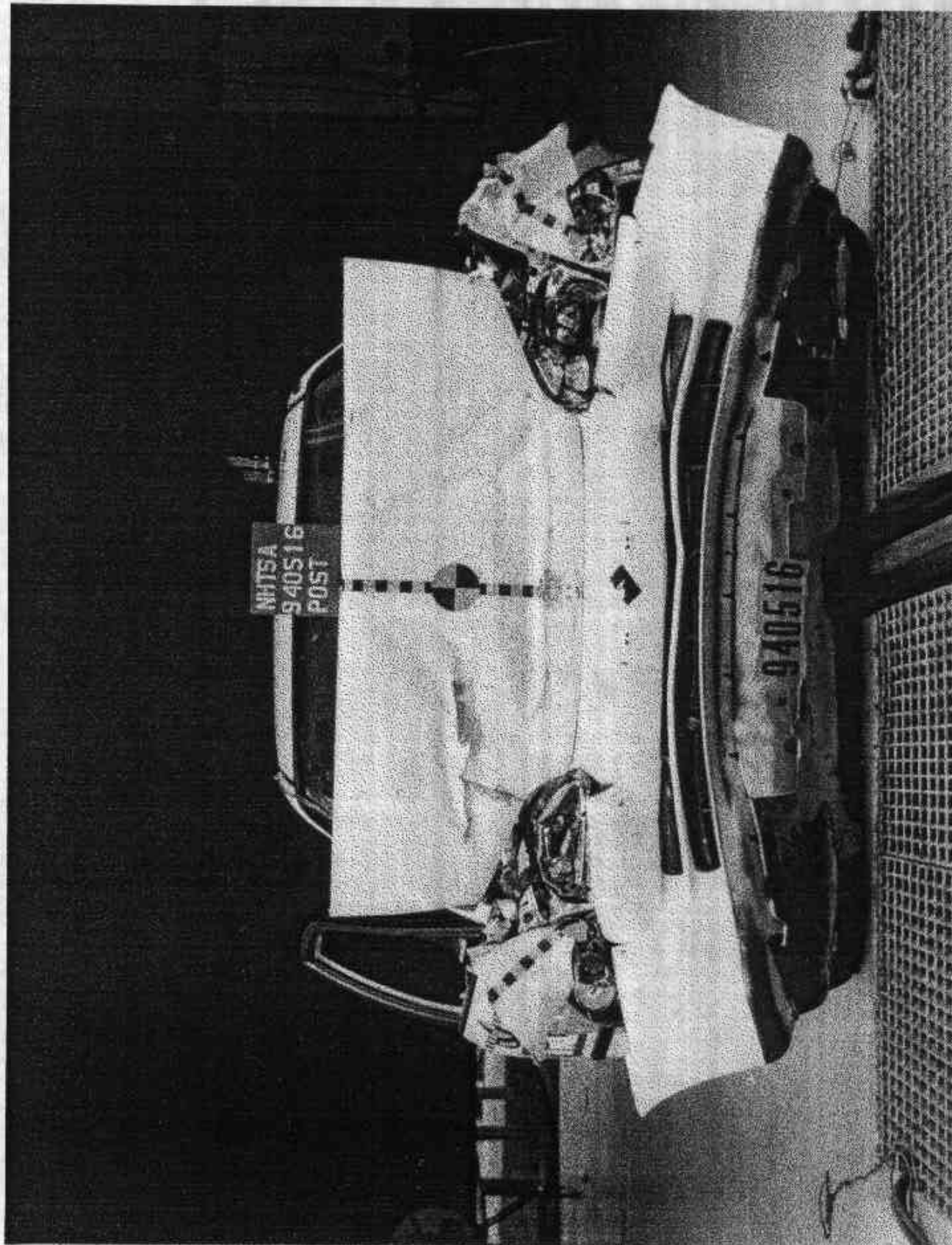


Figure A-2. POST-TEST FRONT VIEW
A-3

940516

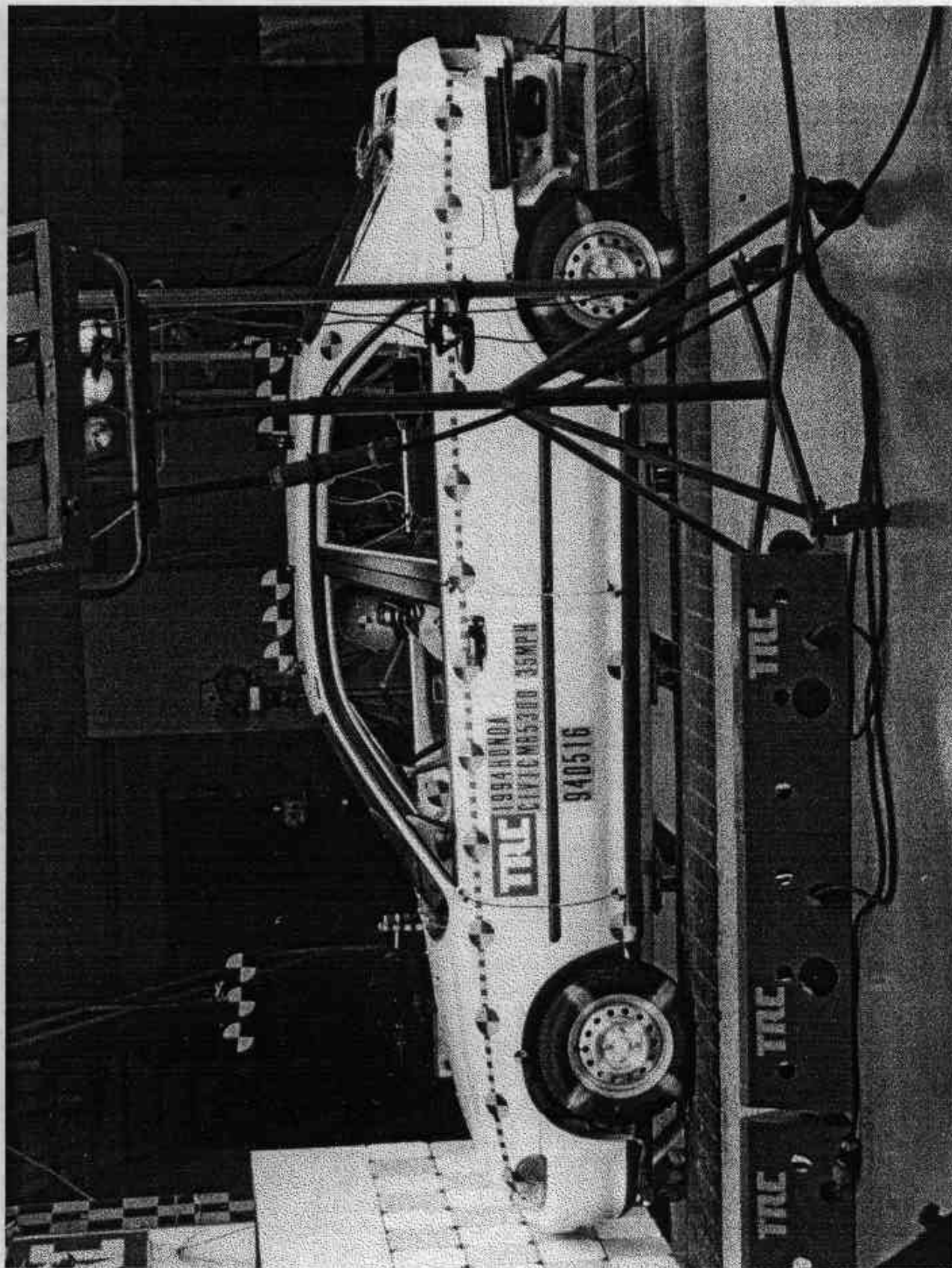


Figure A-3. PRE-TEST LEFT SIDE VIEW

A-4

940516

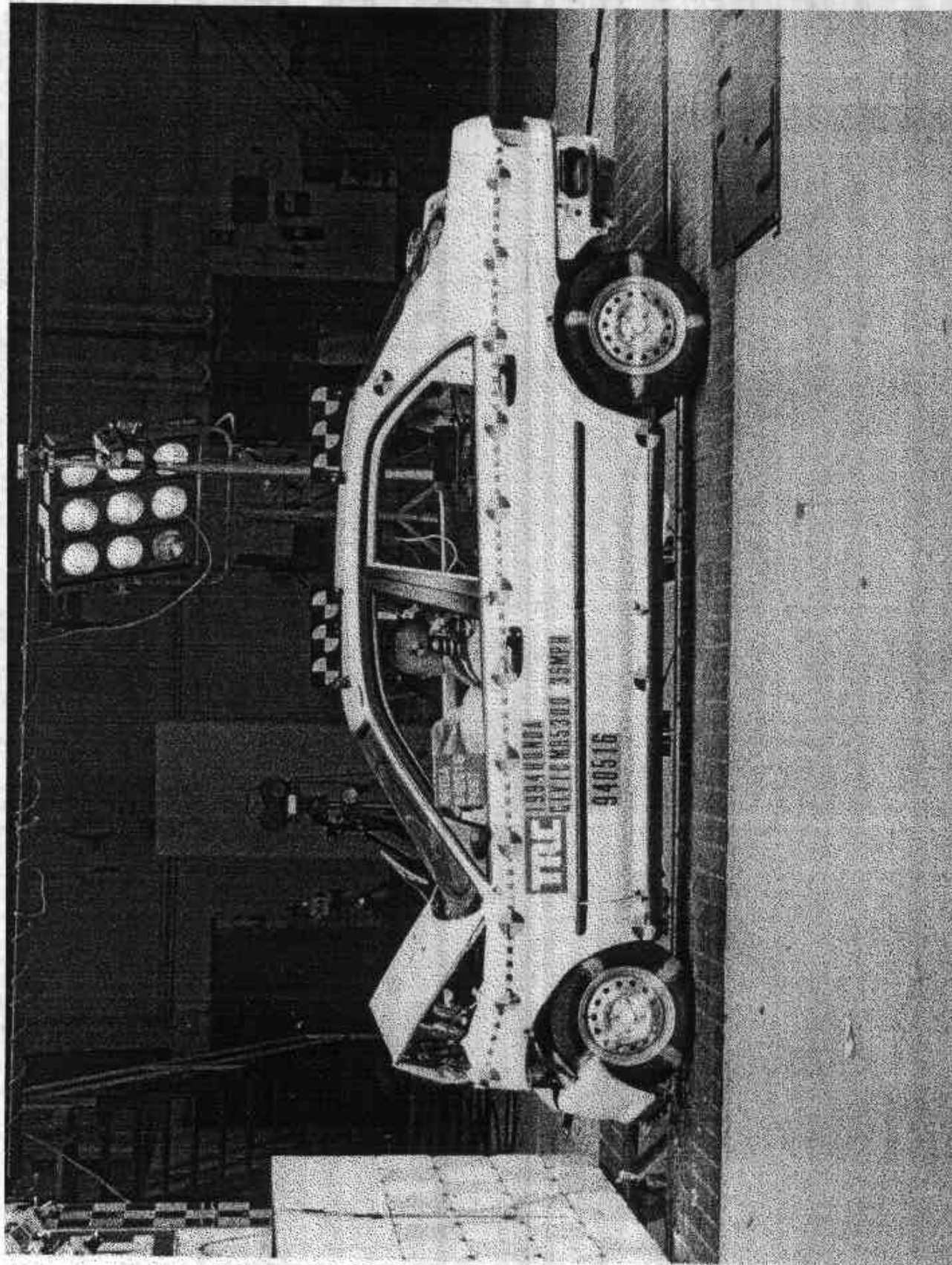


Figure A-4, POST-TEST LEFT SIDE VIEW
A-5

940516

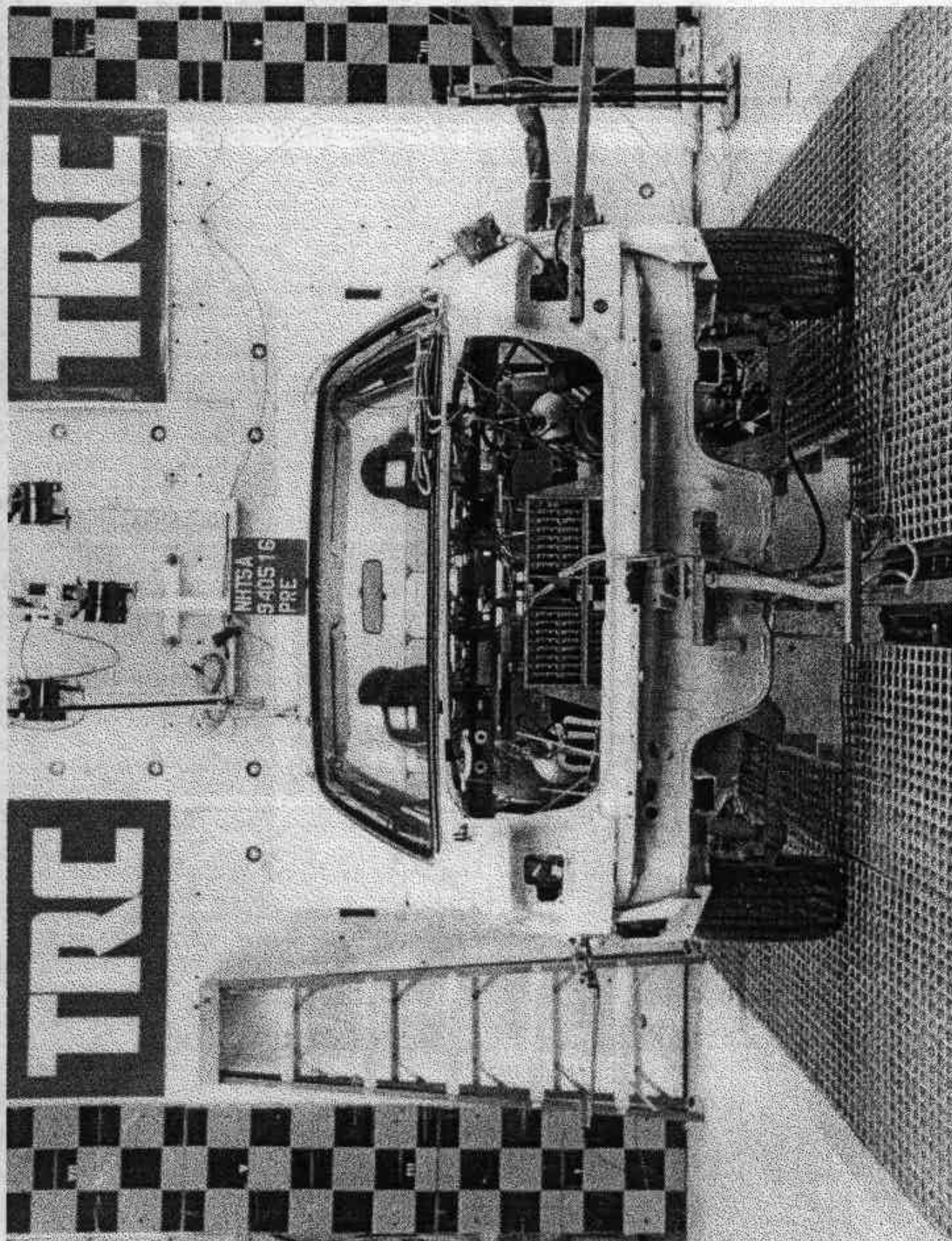


Figure A-5. PRE-TEST REAR VIEW
A-6

940516

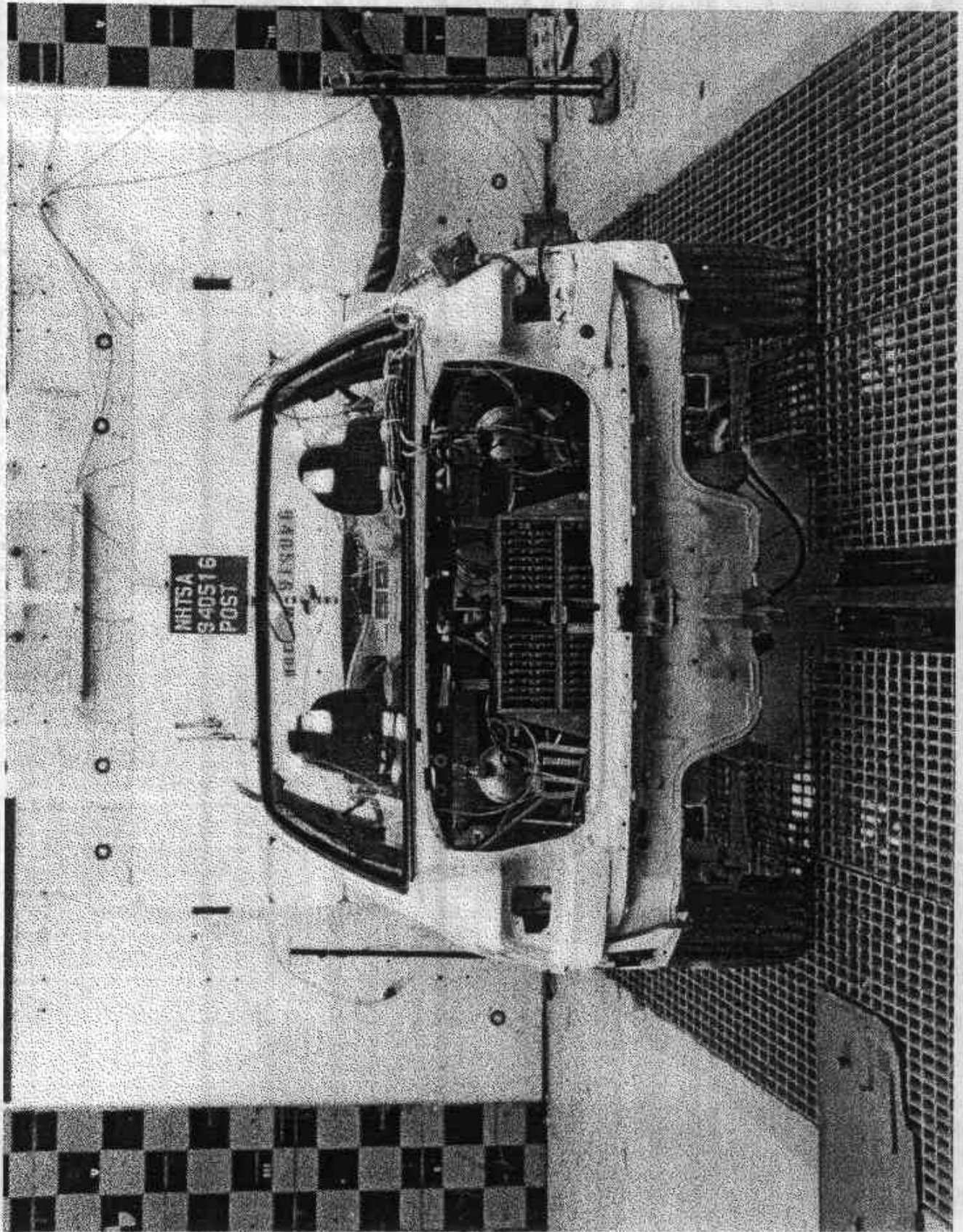


Figure A-6. POST-TEST REAR VIEW
A-7

940516

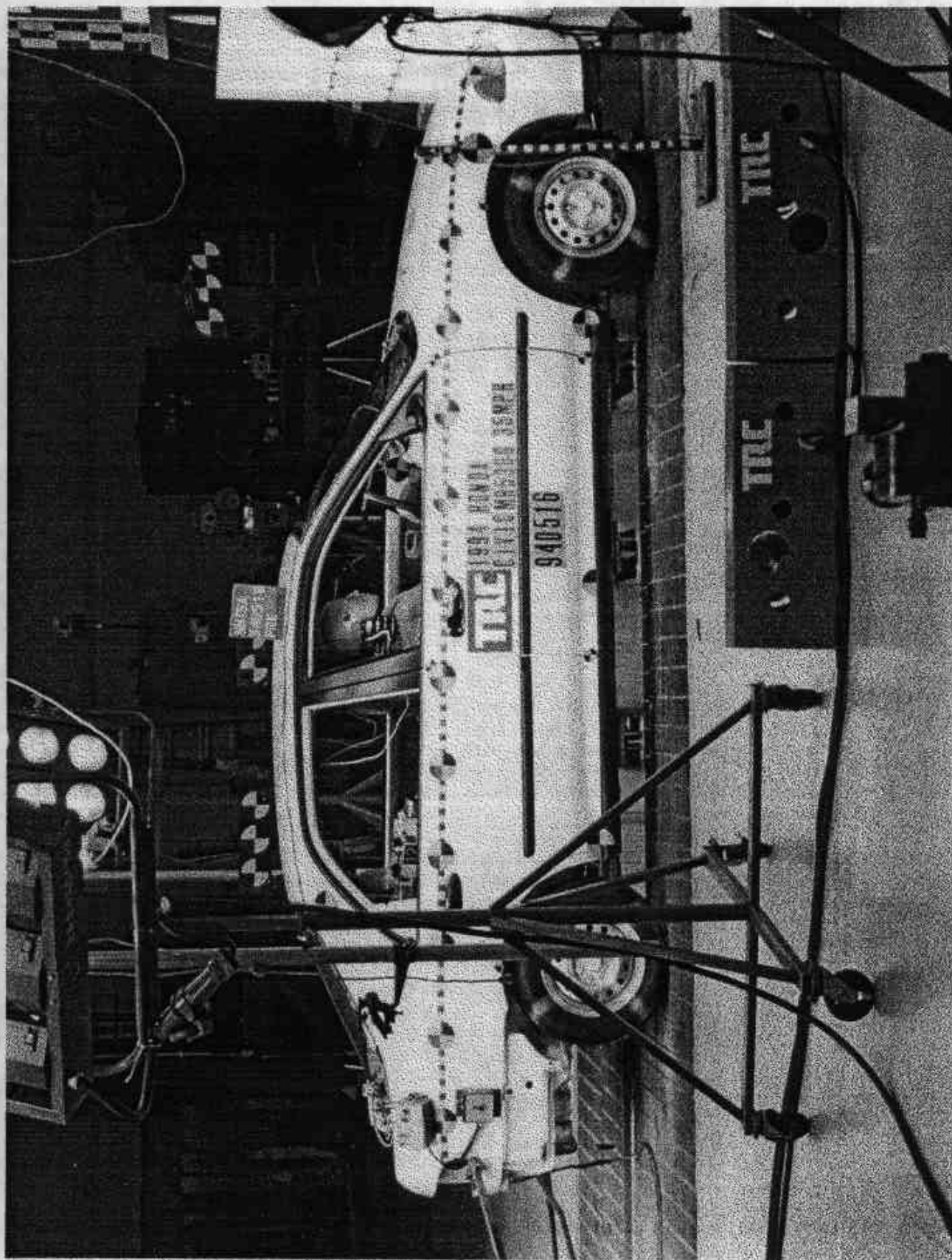


Figure A-7. PRE-TEST RIGHT SIDE VIEW

A-8

940516

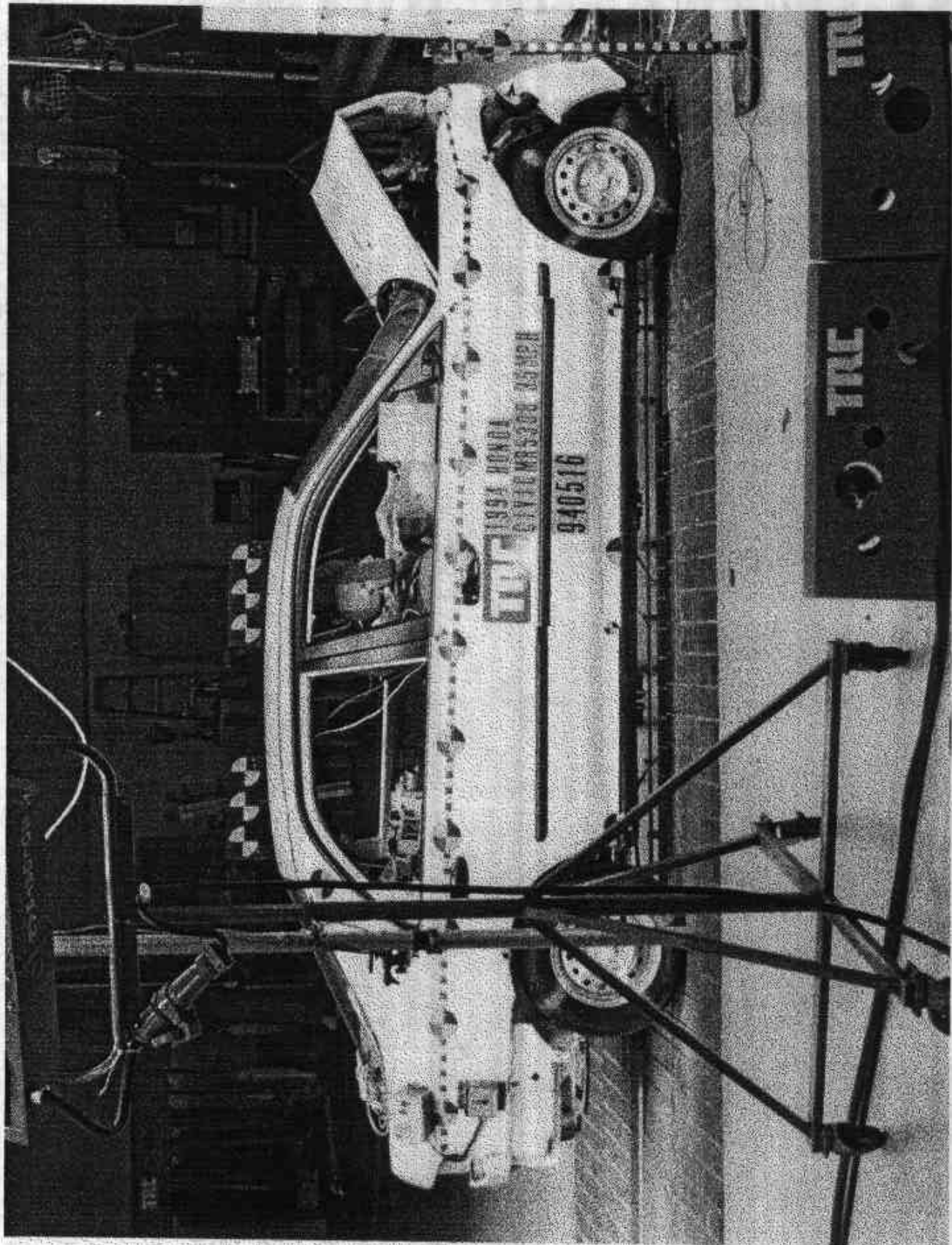


Figure A-8. POST-TEST RIGHT SIDE VIEW

A-9

940516

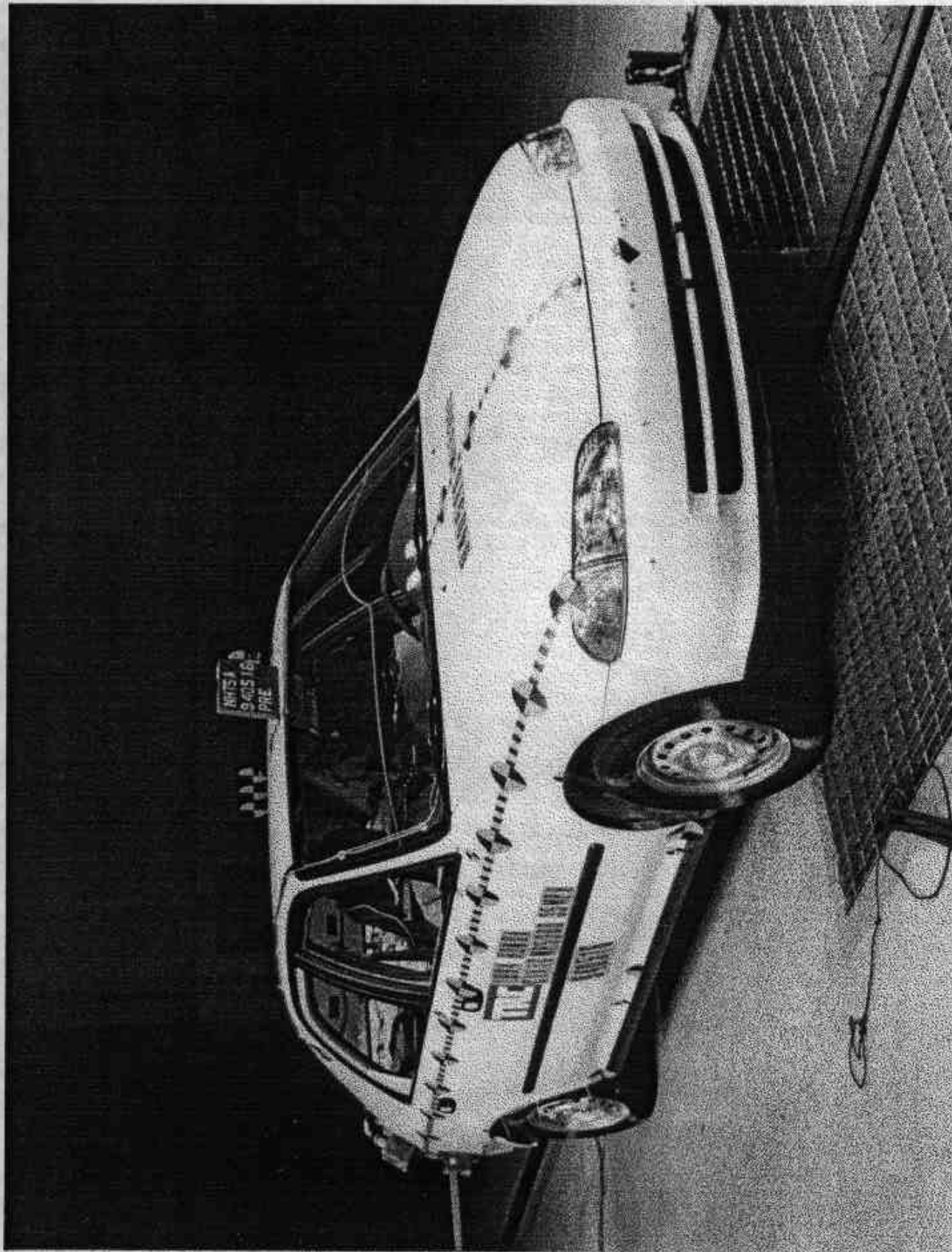


Figure A-9. PRE-TEST RIGHT FRONT THREE-QUARTER VIEW

A-10

940516

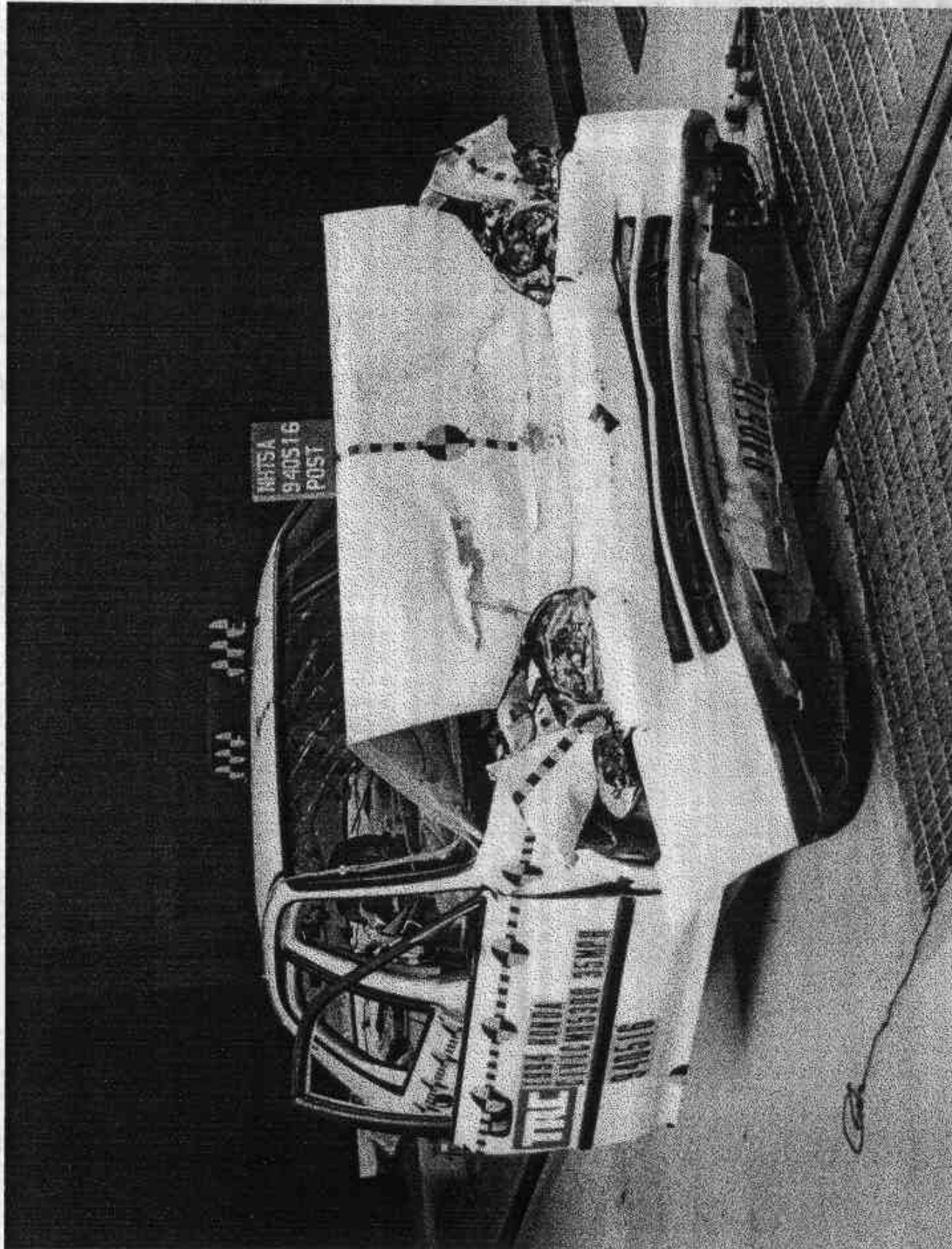


Figure A-10. POST-TEST RIGHT FRONT THREE-QUARTER VIEW

A-11

940516

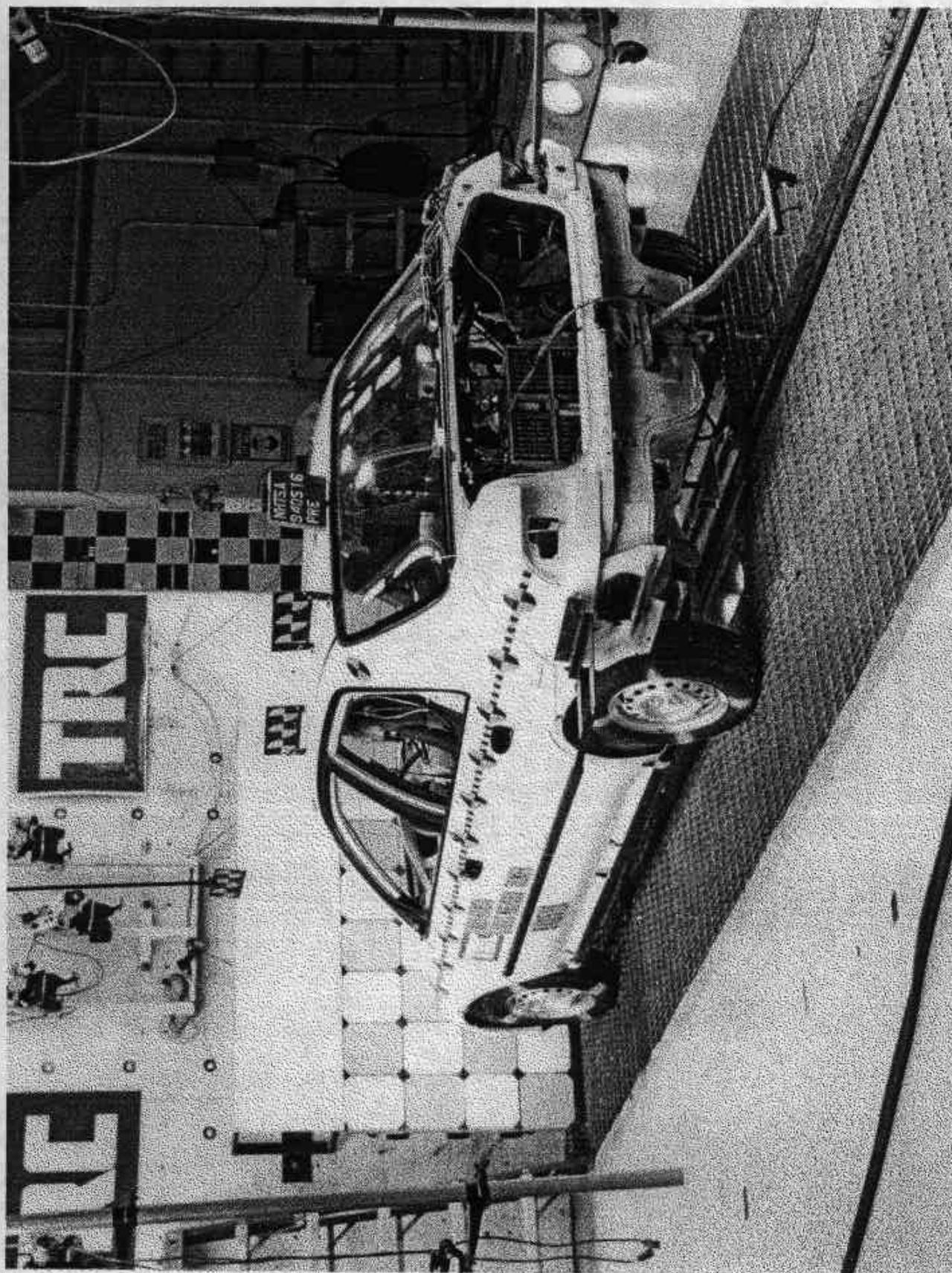


Figure A-11. PRE-TEST LEFT REAR THREE-QUARTER VIEW

A-12

940516

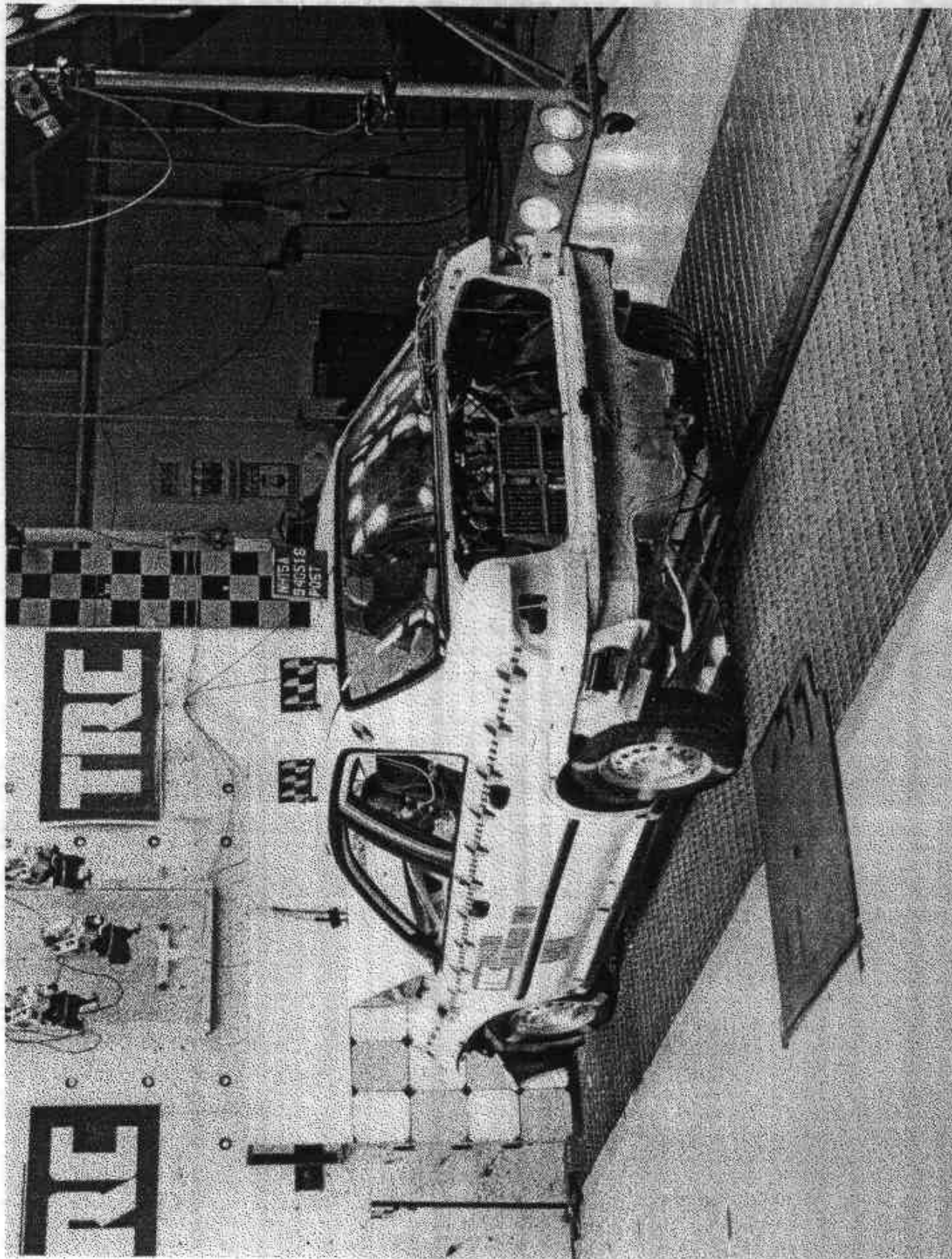


Figure A-12. POST-TEST LEFT REAR THREE-QUARTER VIEW

A-13

940516

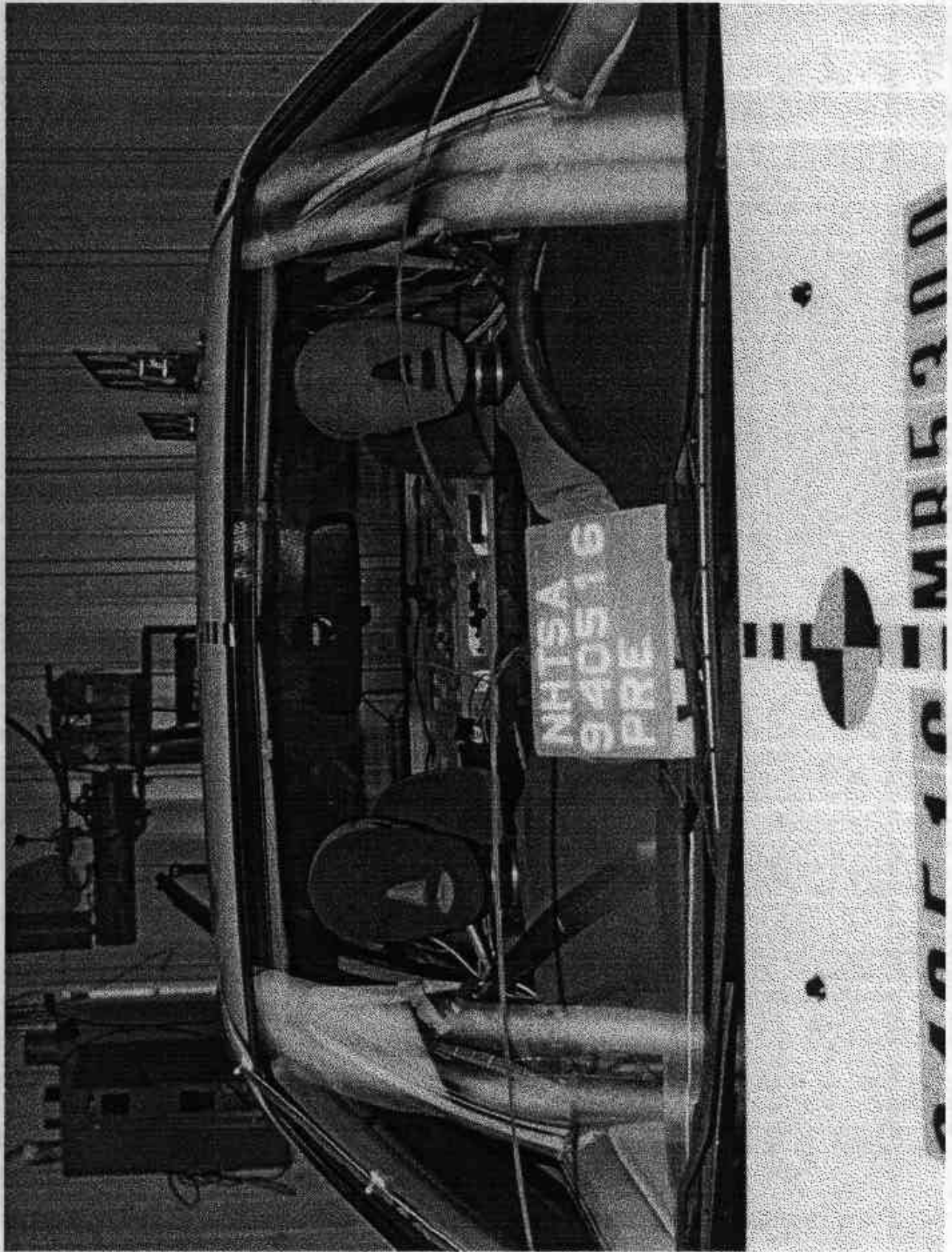


Figure A-13. PRE-TEST WINDSHIELD VIEW
A-14

940516

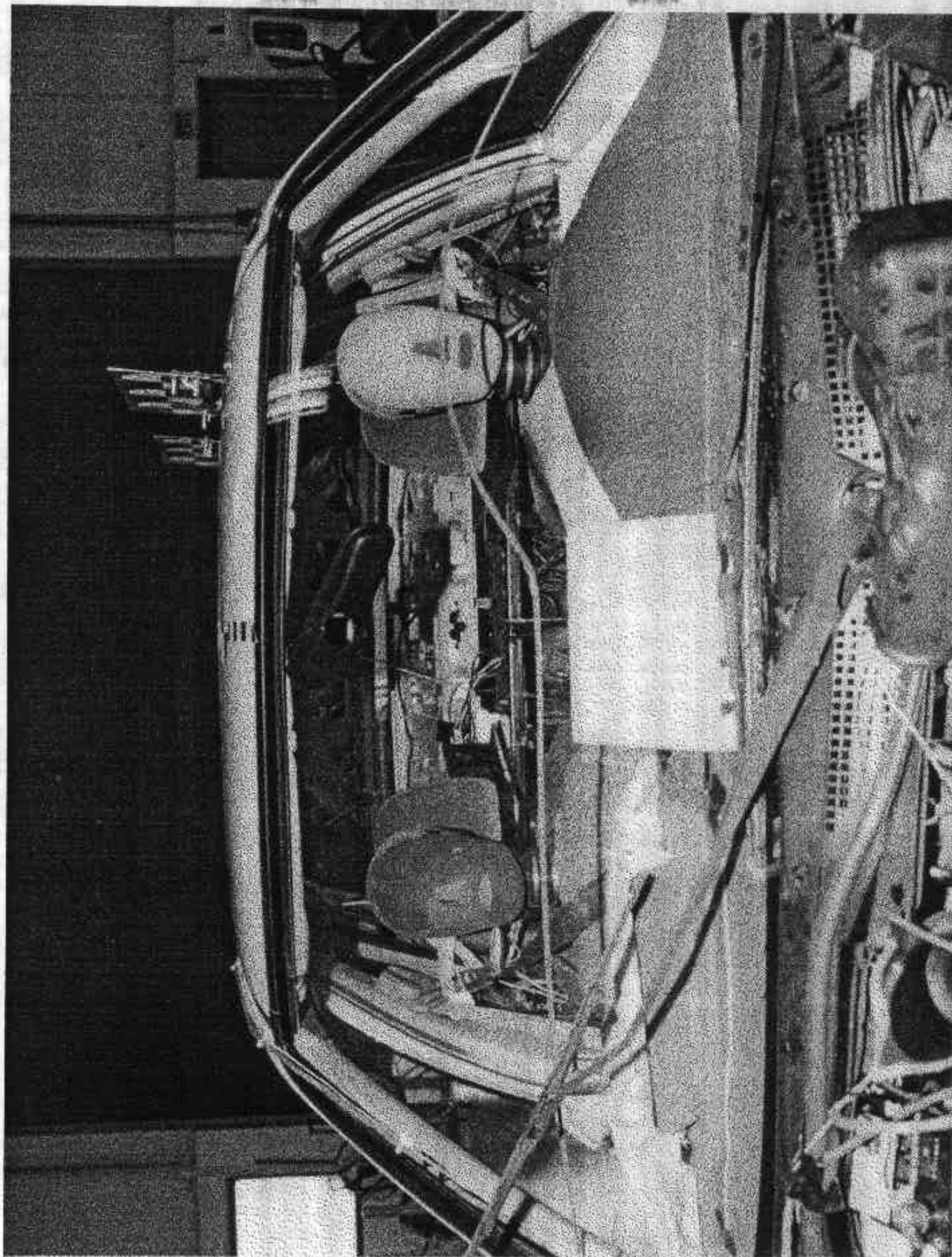


Figure A-14. POST-TEST WINDSHIELD VIEW
A-15

940516

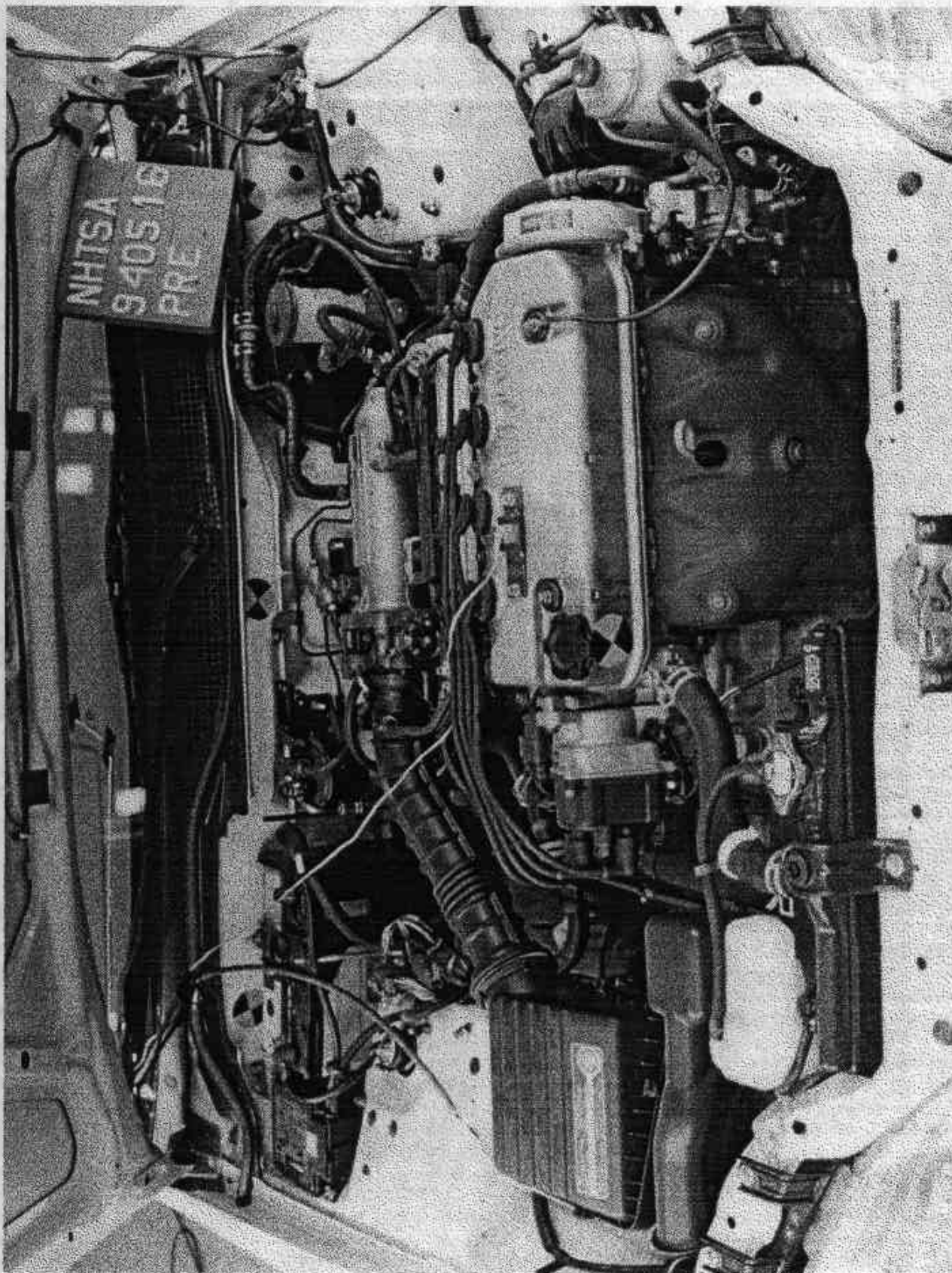


Figure A-15. PRE-TEST ENGINE COMPARTMENT VIEW
A-16

940516

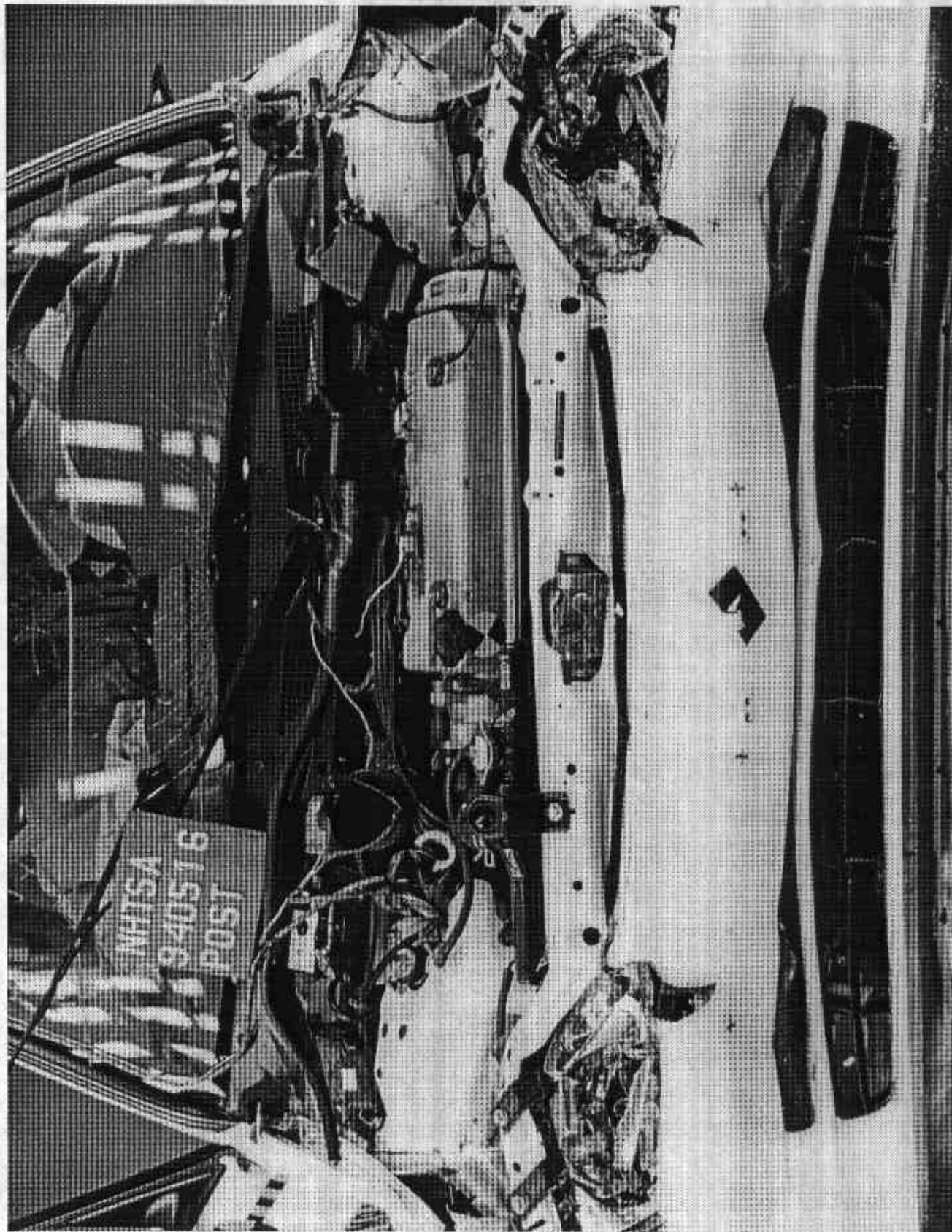


Figure A-16. POST-TEST ENGINE COMPARTMENT VIEW

A-17

940516

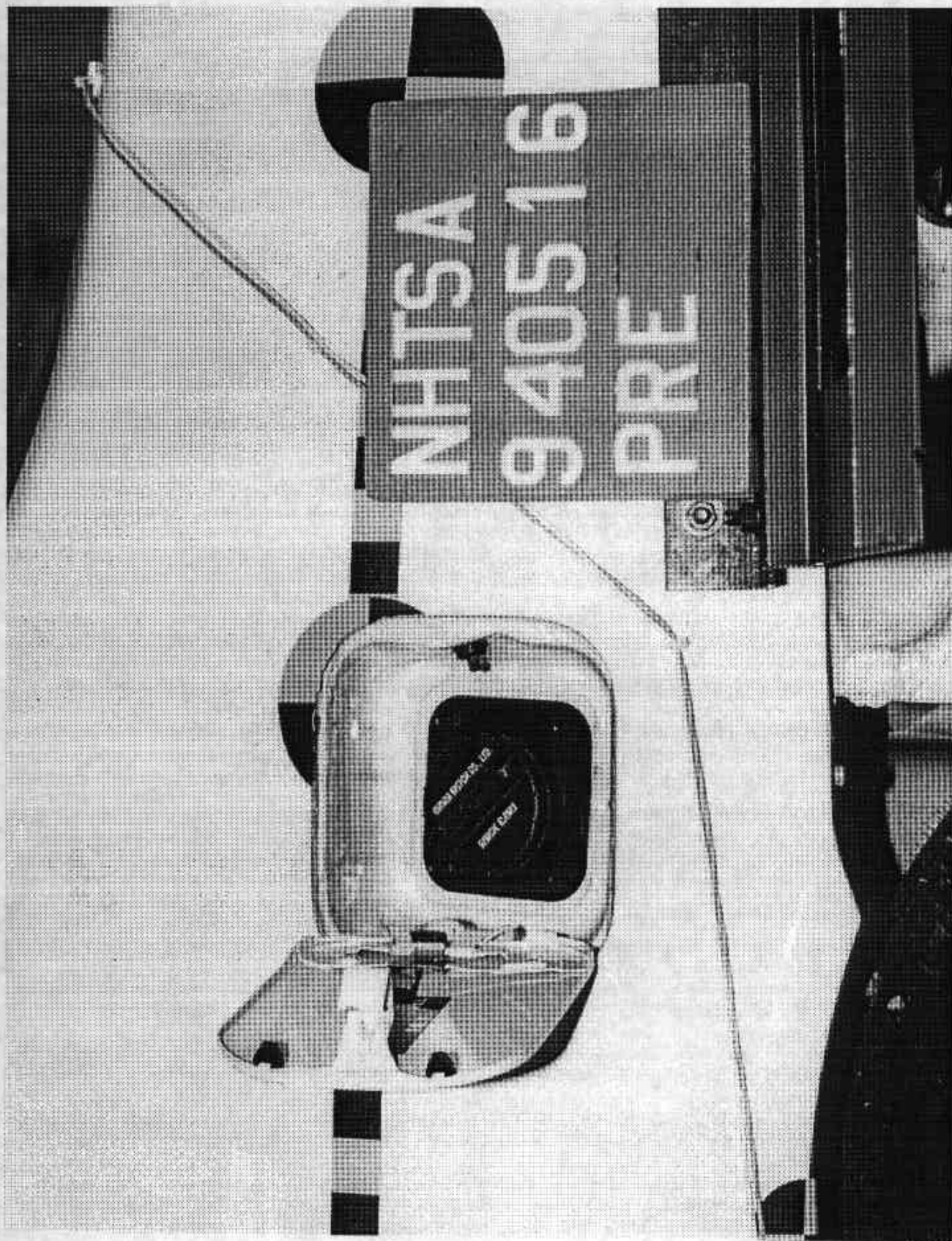


Figure A-17. PRE-TEST FUEL FILLER CAP VIEW
A-18

940516



Figure A-18. POST-TEST FUEL FILLER CAP VIEW
A-19

940516



Figure A-19. PRE-TEST FUEL FILLER NECK VIEW
A-20

940516

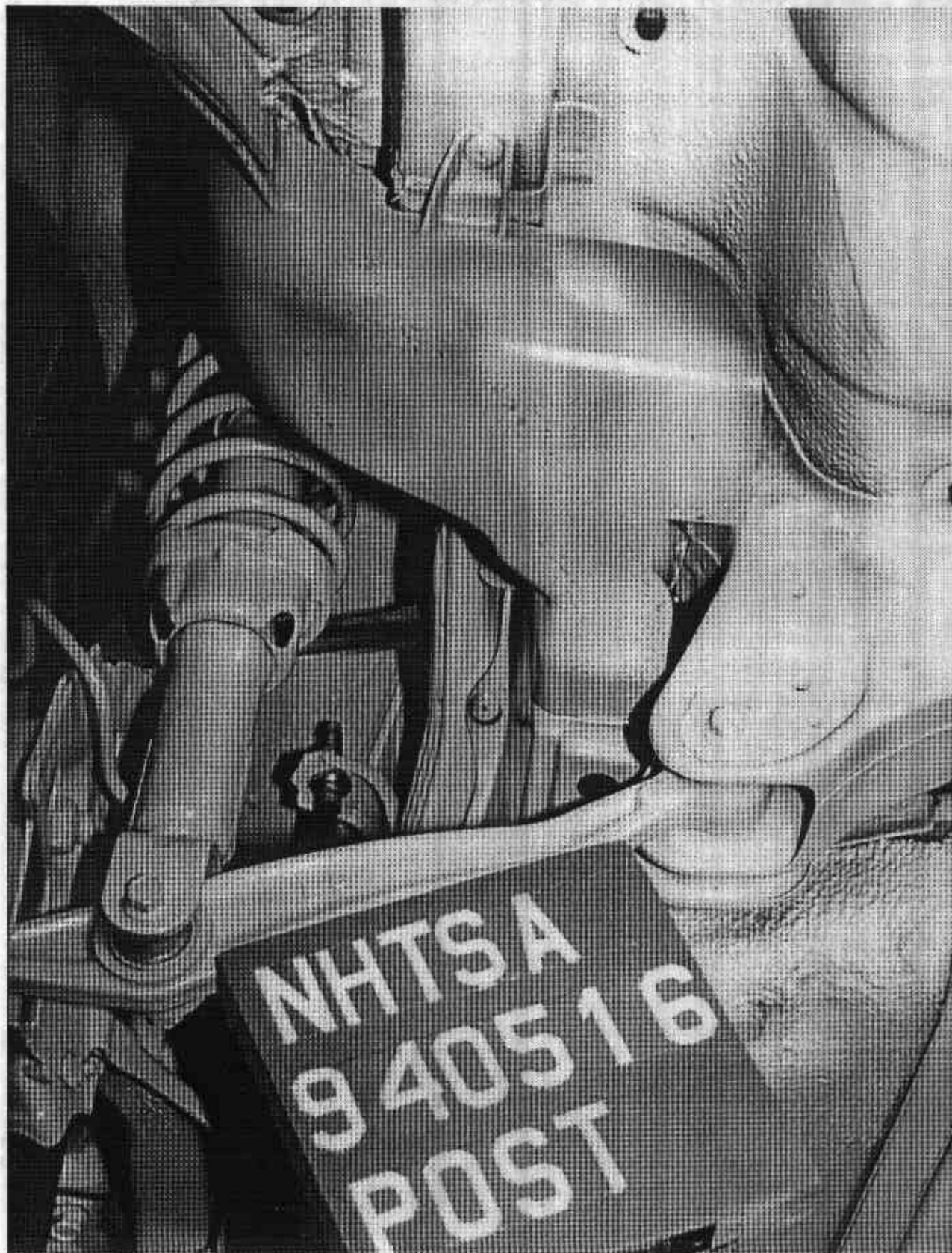


Figure A-20. POST-TEST FUEL FILLER NECK VIEW
A-21

940516

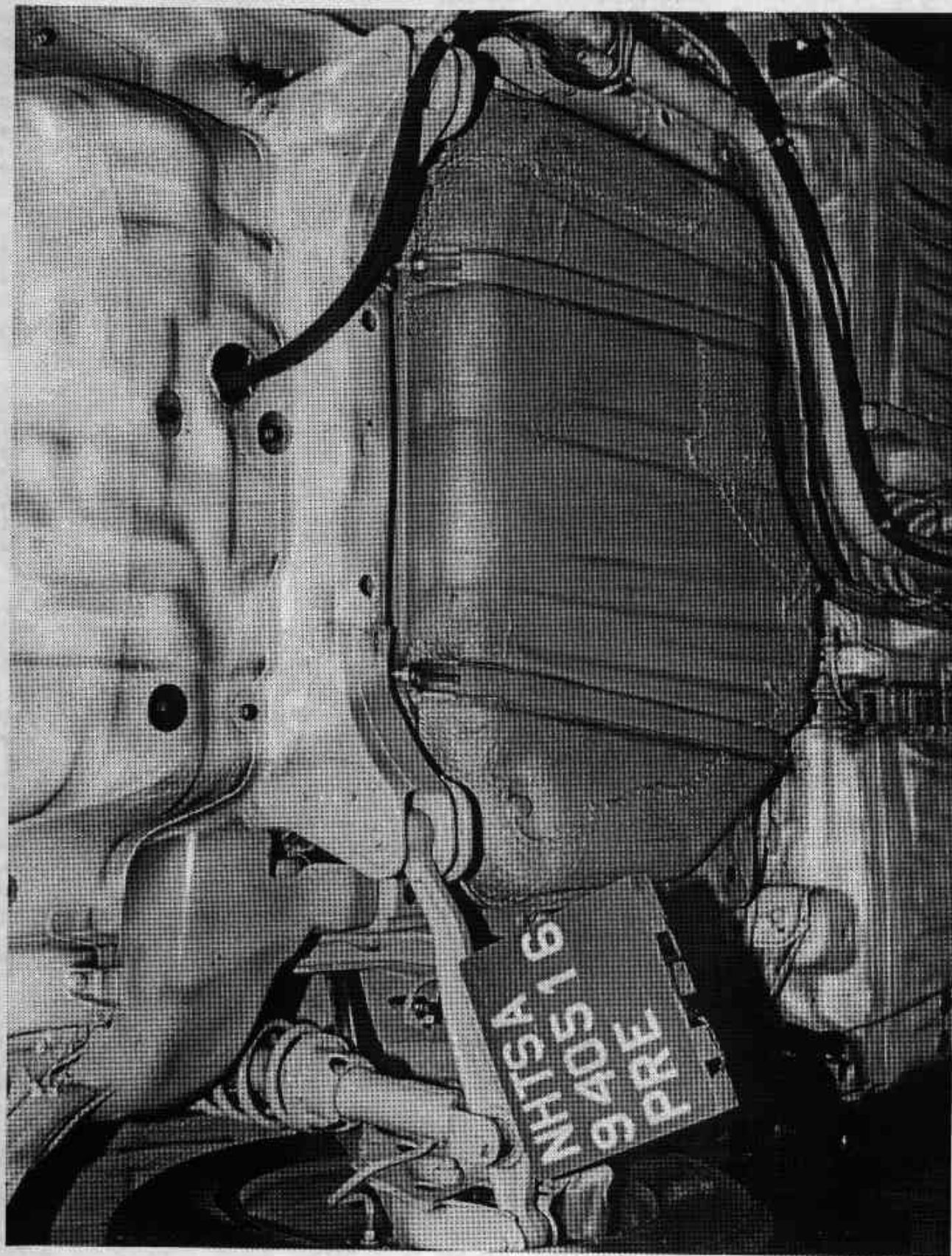


Figure A-21. PRE-TEST FUEL FILLER NECK AND TANK VIEW

A-22

940516

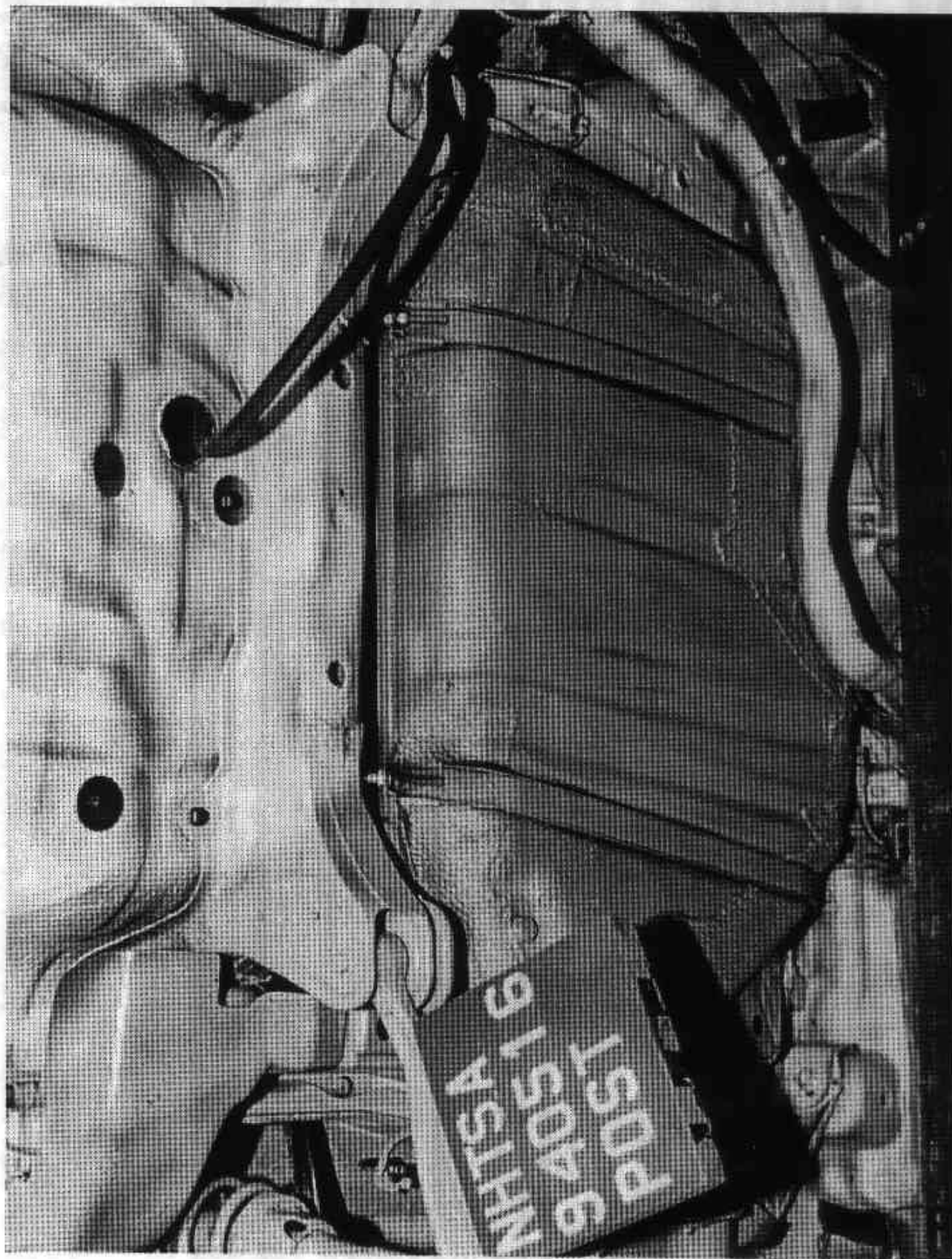


Figure A-22. POST-TEST FUEL FILLER NECK AND TANK VIEW

A-23

940516

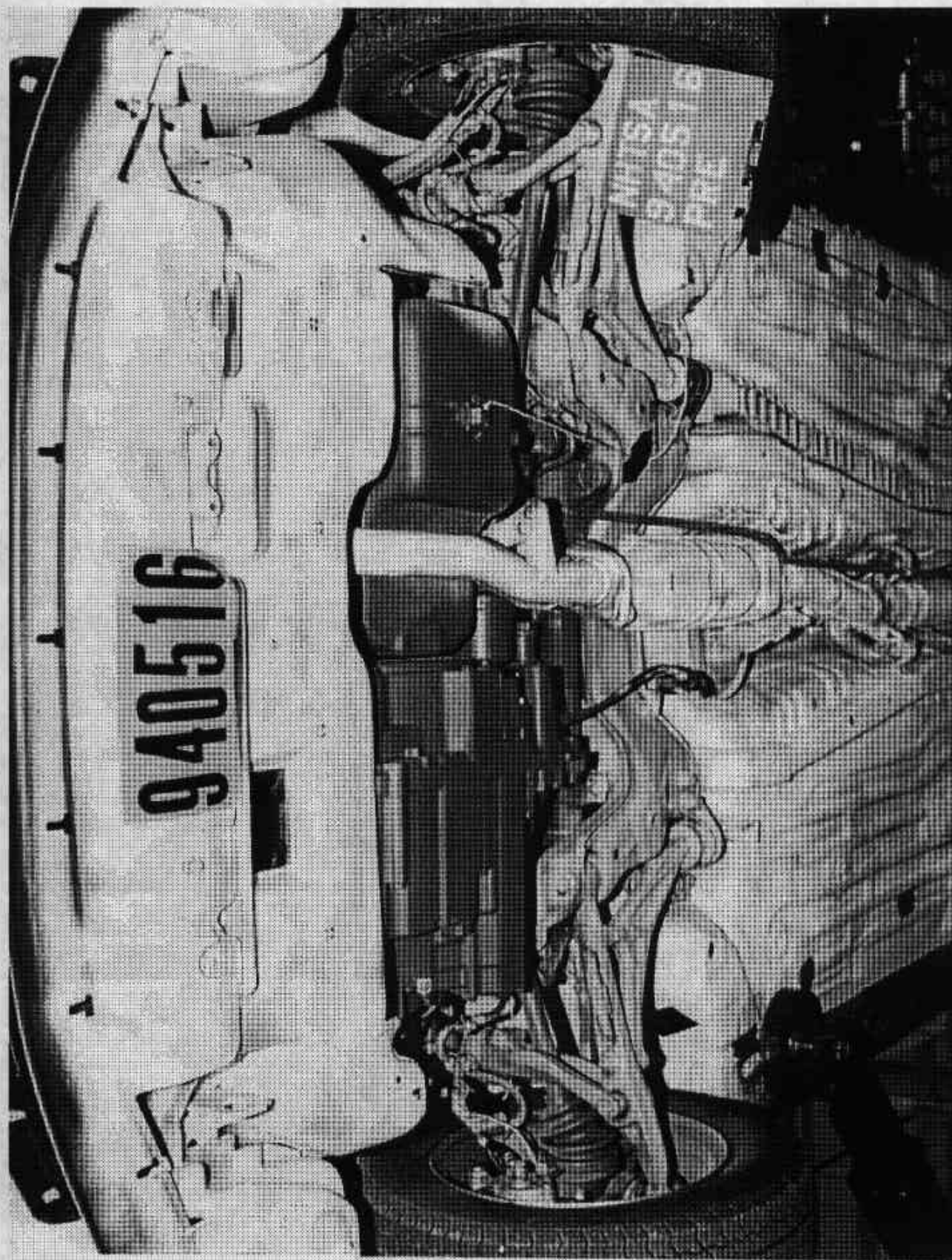


Figure A-23. PRE-TEST FRONT UNDERBODY VIEW

A-24

940516

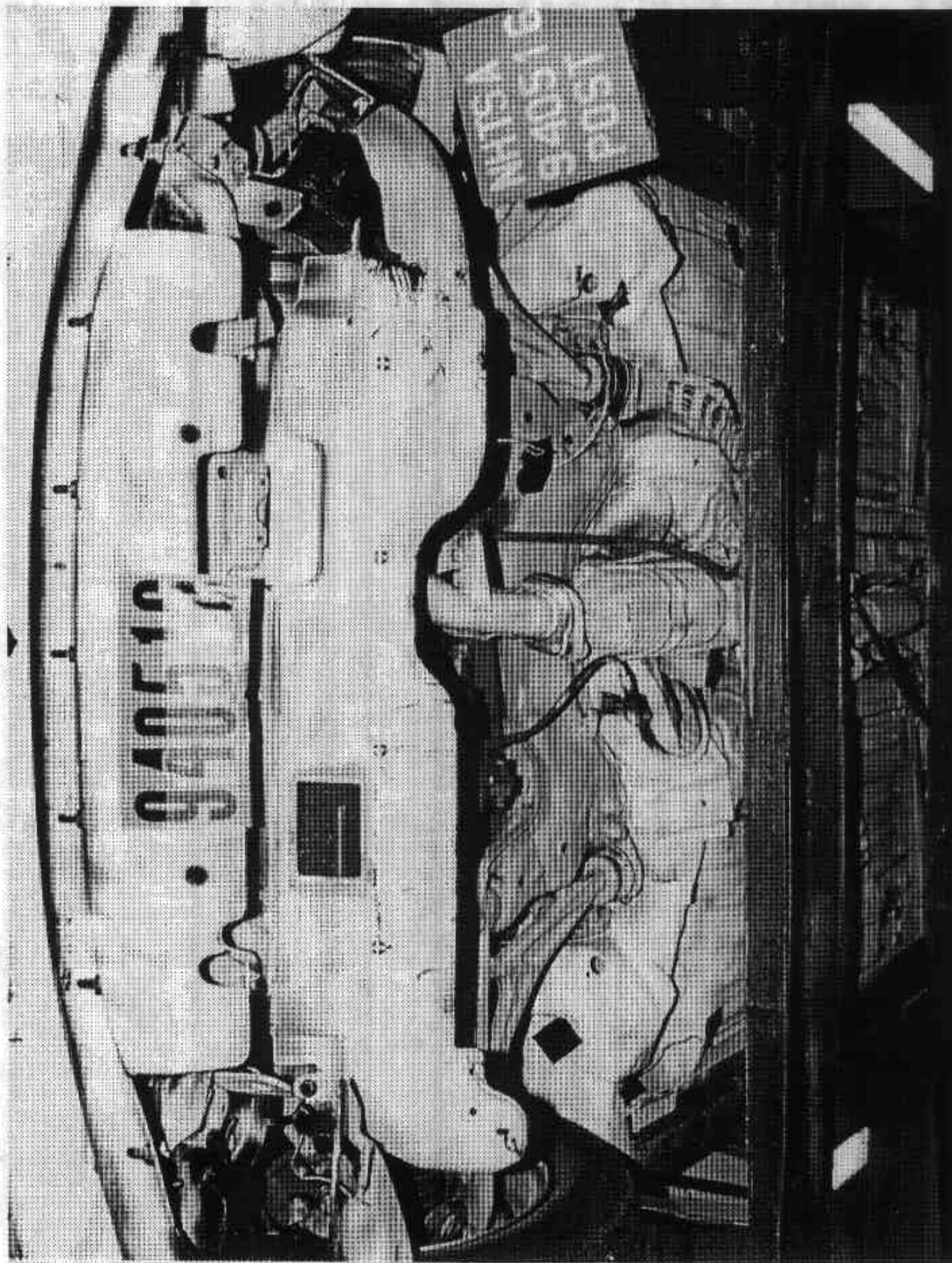


Figure A-24. POST-TEST FRONT UNDERBODY VIEW
A-25

940516

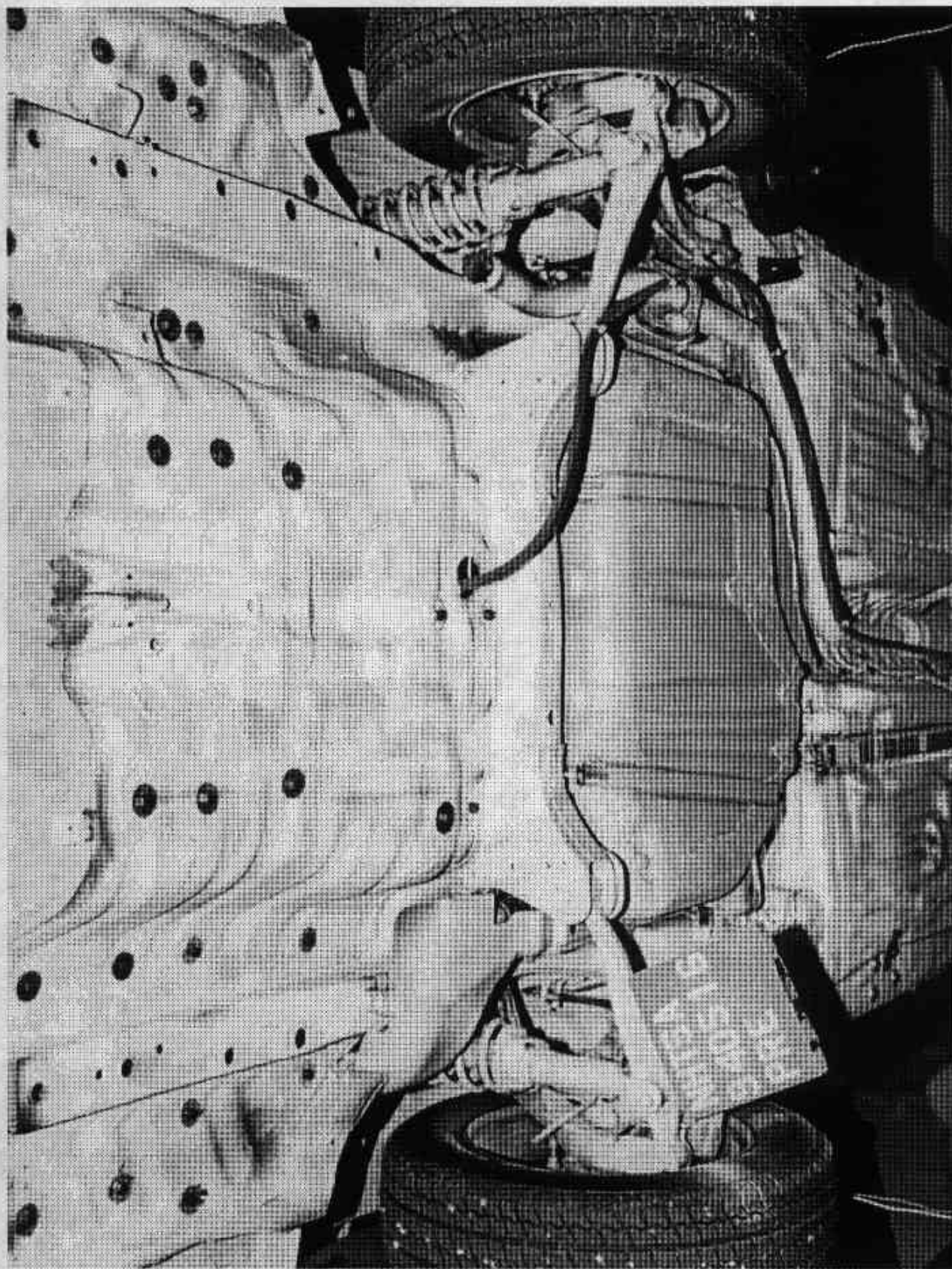


Figure A-25. PRE-TEST REAR UNDERBODY VIEW

A-26

940516

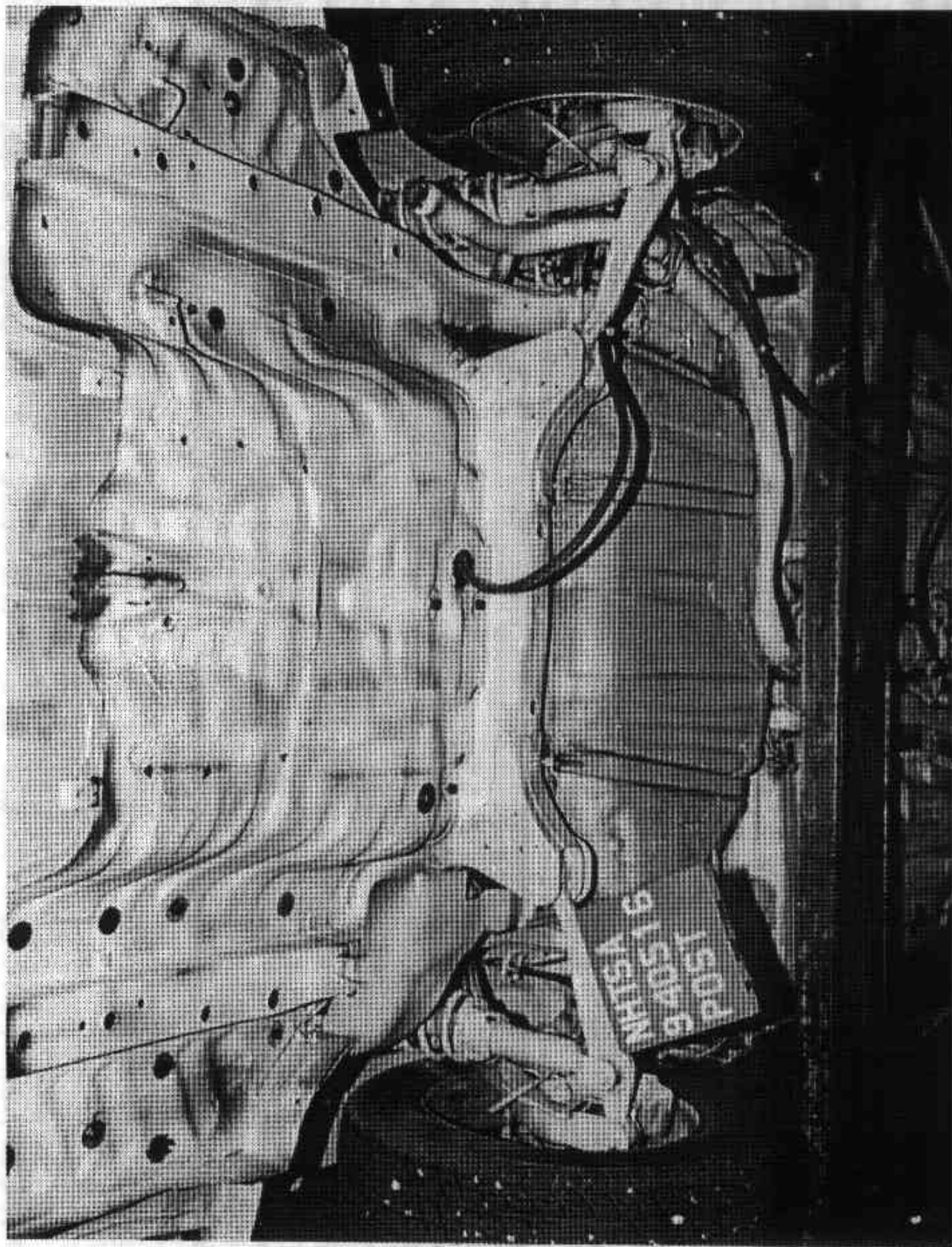


Figure A-26. POST-TEST REAR UNDERBODY VIEW
A-27

940516

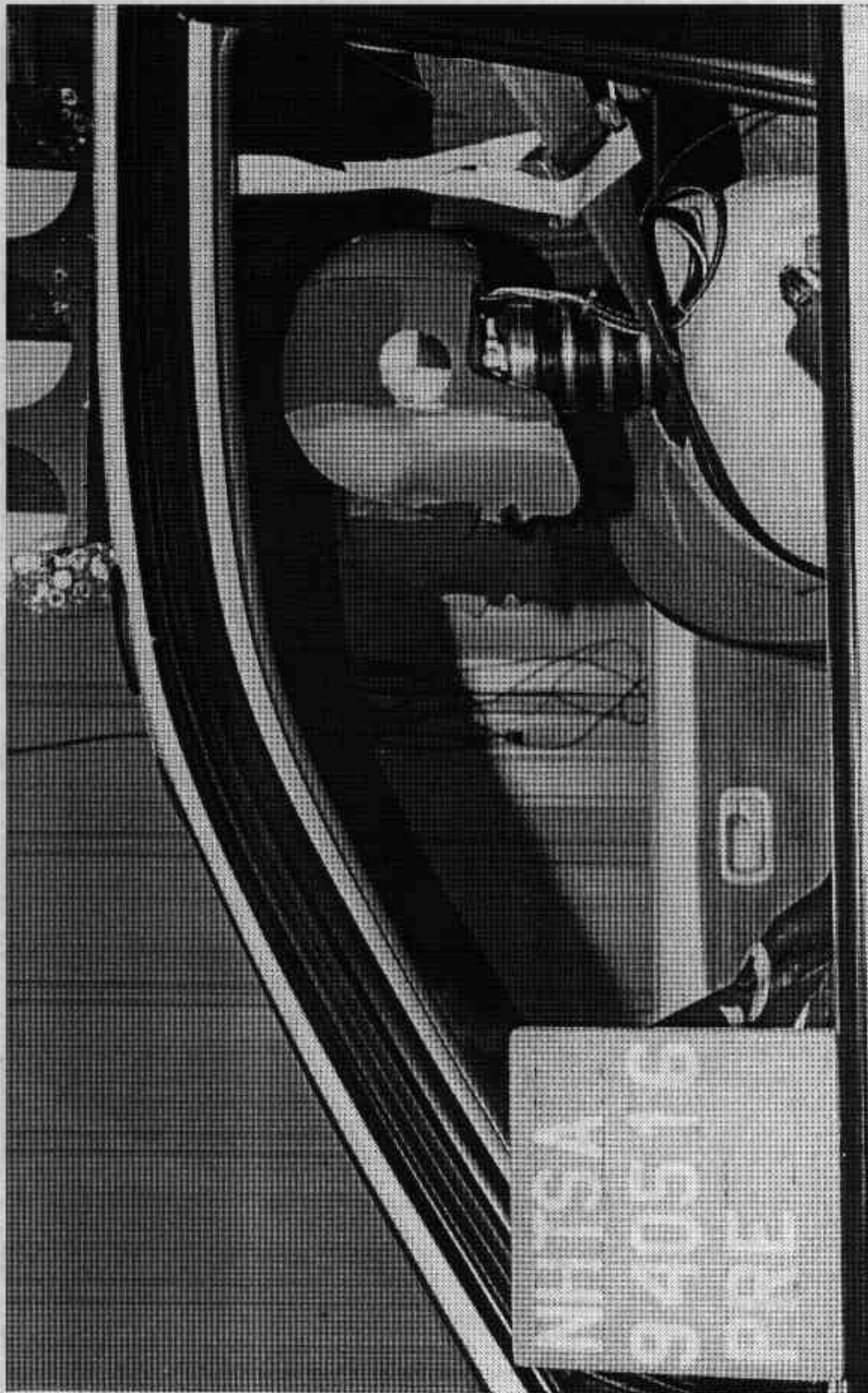


Figure A-27. PRE-TEST DRIVER DUMMY POSITION VIEW

A-28

940516



Figure A-28. POST-TEST DRIVER DUMMY POSITION VIEW

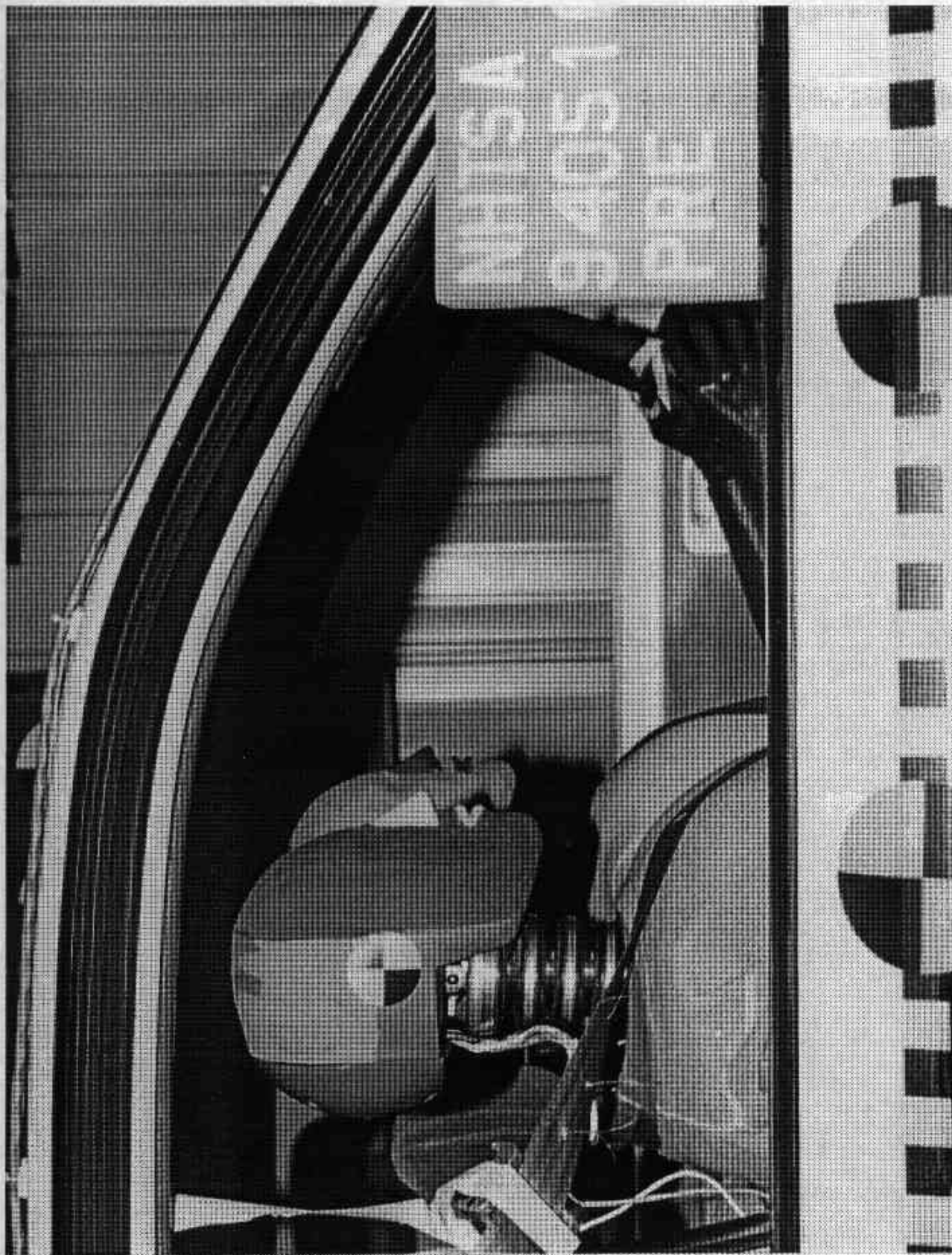


Figure A-29. PRE-TEST PASSENGER DUMMY POSITION VIEW

A-30

940516

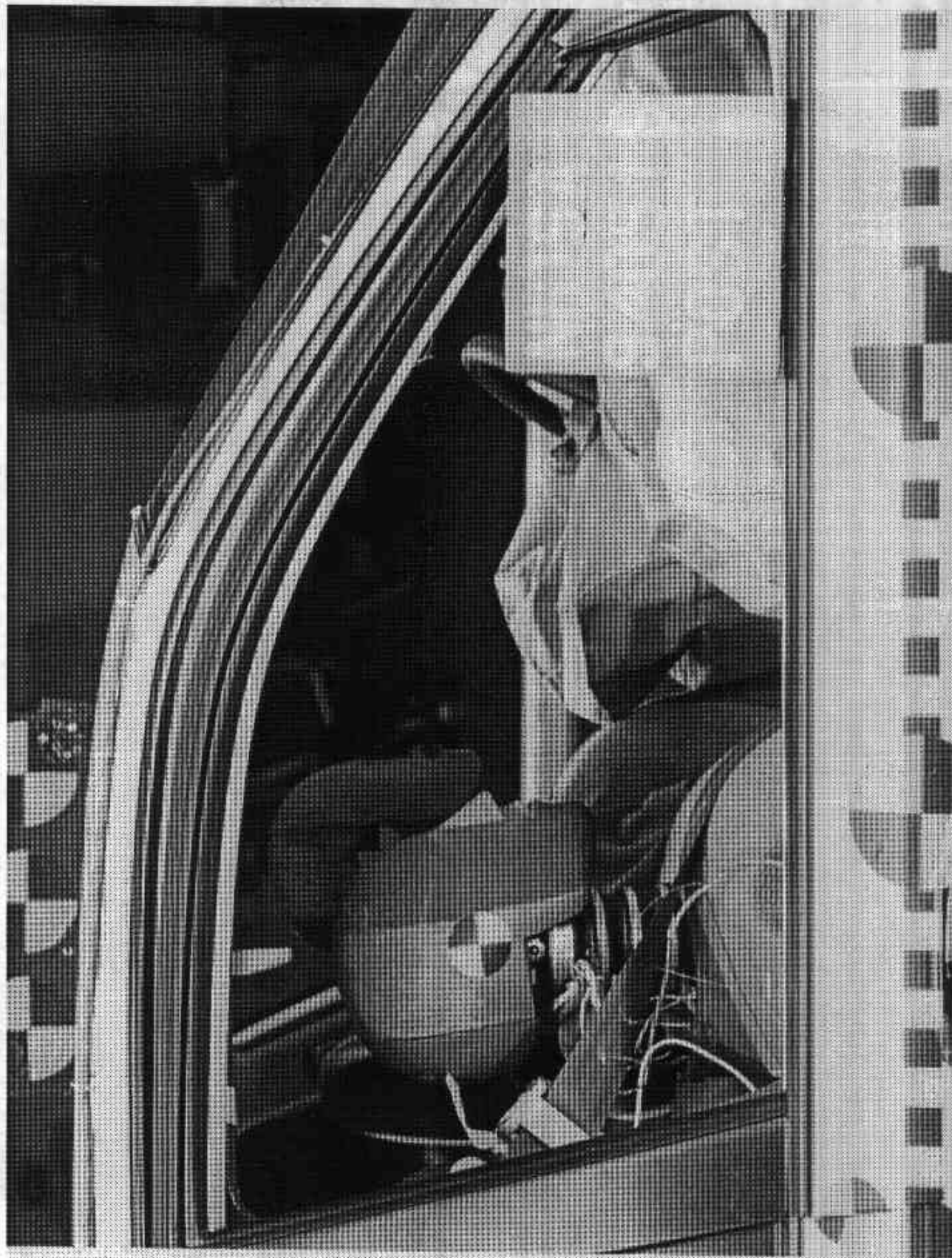


Figure A-30. POST-TEST PASSENGER DUMMY POSITION VIEW

A-31

940516

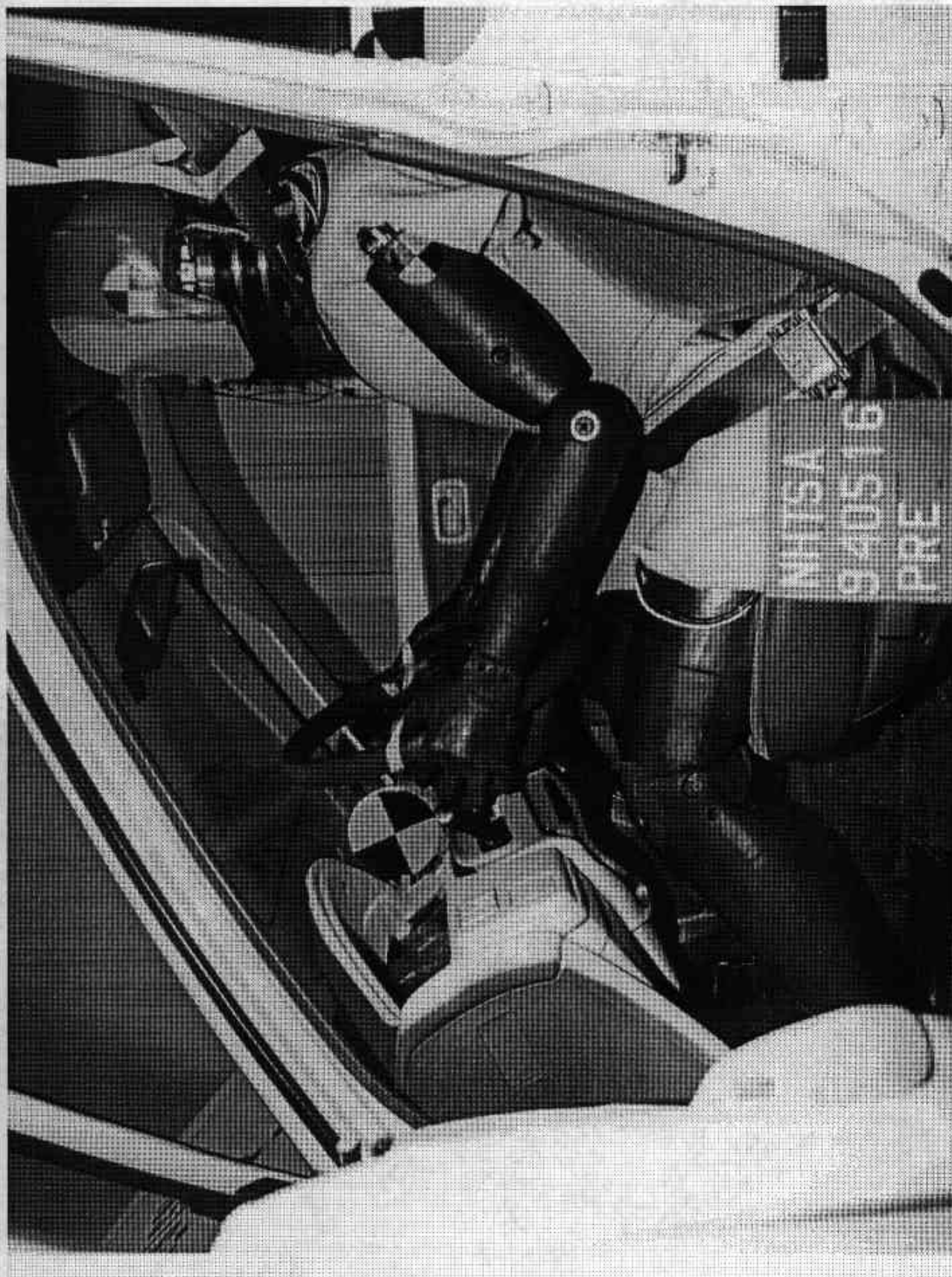


Figure A-31. PRE-TEST DRIVER DUMMY & VEHICLE INTERIOR - VIEW 1
A-32 940516



Figure A-32. POST-TEST DRIVER DUMMY & VEHICLE INTERIOR - VIEW 1

A-33

940516



Figure A-33. PRE-TEST DRIVER DUMMY & VEHICLE INTERIOR - VIEW 2

A-34

940516



Figure A-34. POST-TEST DRIVER DUMMY & VEHICLE INTERIOR - VIEW 2
A-35 940516



Figure A-35. PRE-TEST PASSENGER DUMMY & VEHICLE INTERIOR - VIEW 1

A-36

940516



Figure A-36. POST-TEST PASSENGER DUMMY & VEHICLE INTERIOR - VIEW
A-37 940516



Figure A-37. PRE-TEST PASSENGER DUMMY & VEHICLE INTERIOR - VIEW 2

A-38

940516



Figure A-38. POST-TEST PASSENGER DUMMY & VEHICLE INTERIOR - VIEW :
A-39 940516

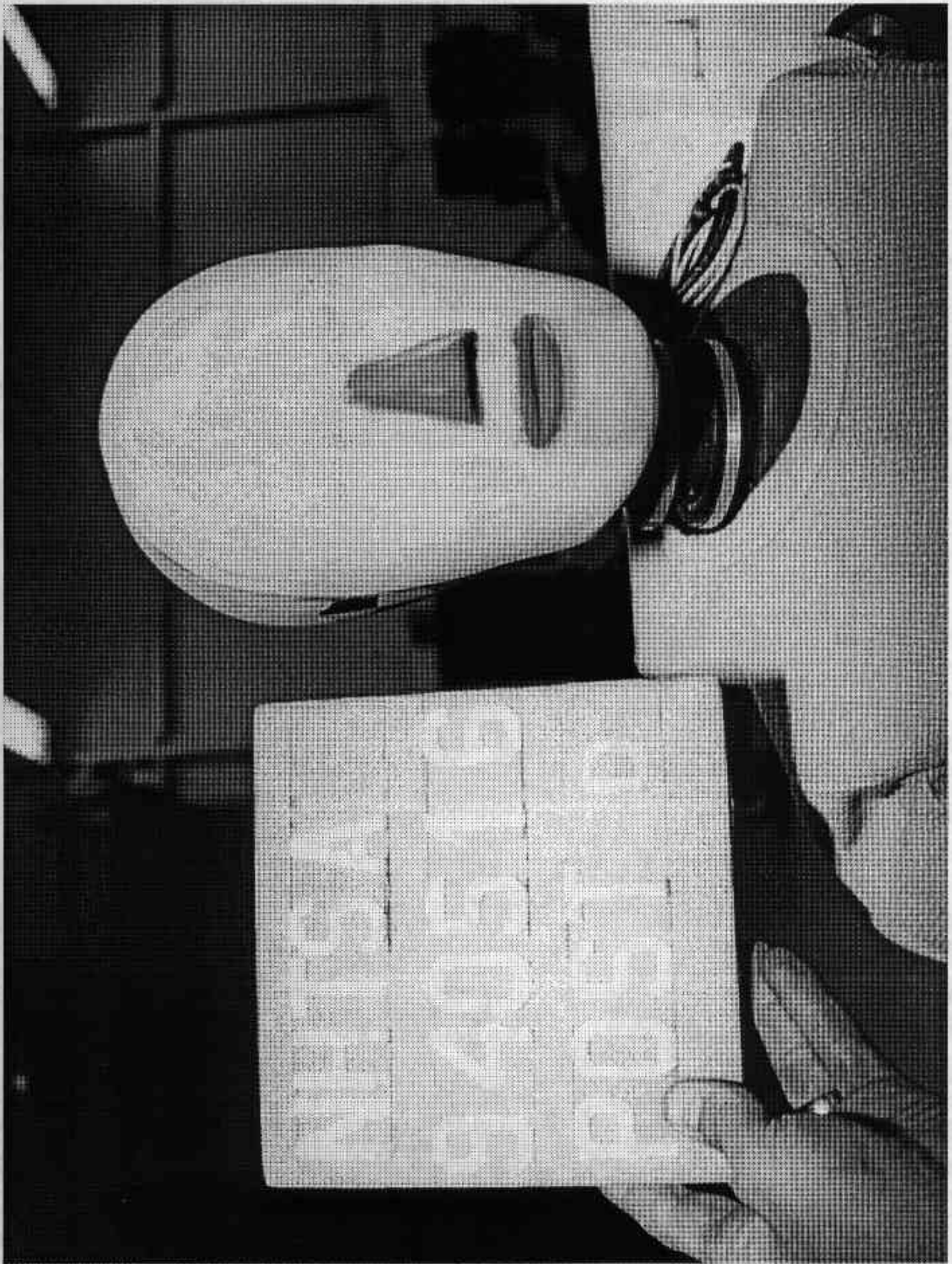


Figure A-39. POST-TEST DRIVER DUMMY HEAD CONTACT - VIEW 1

A-40

940516

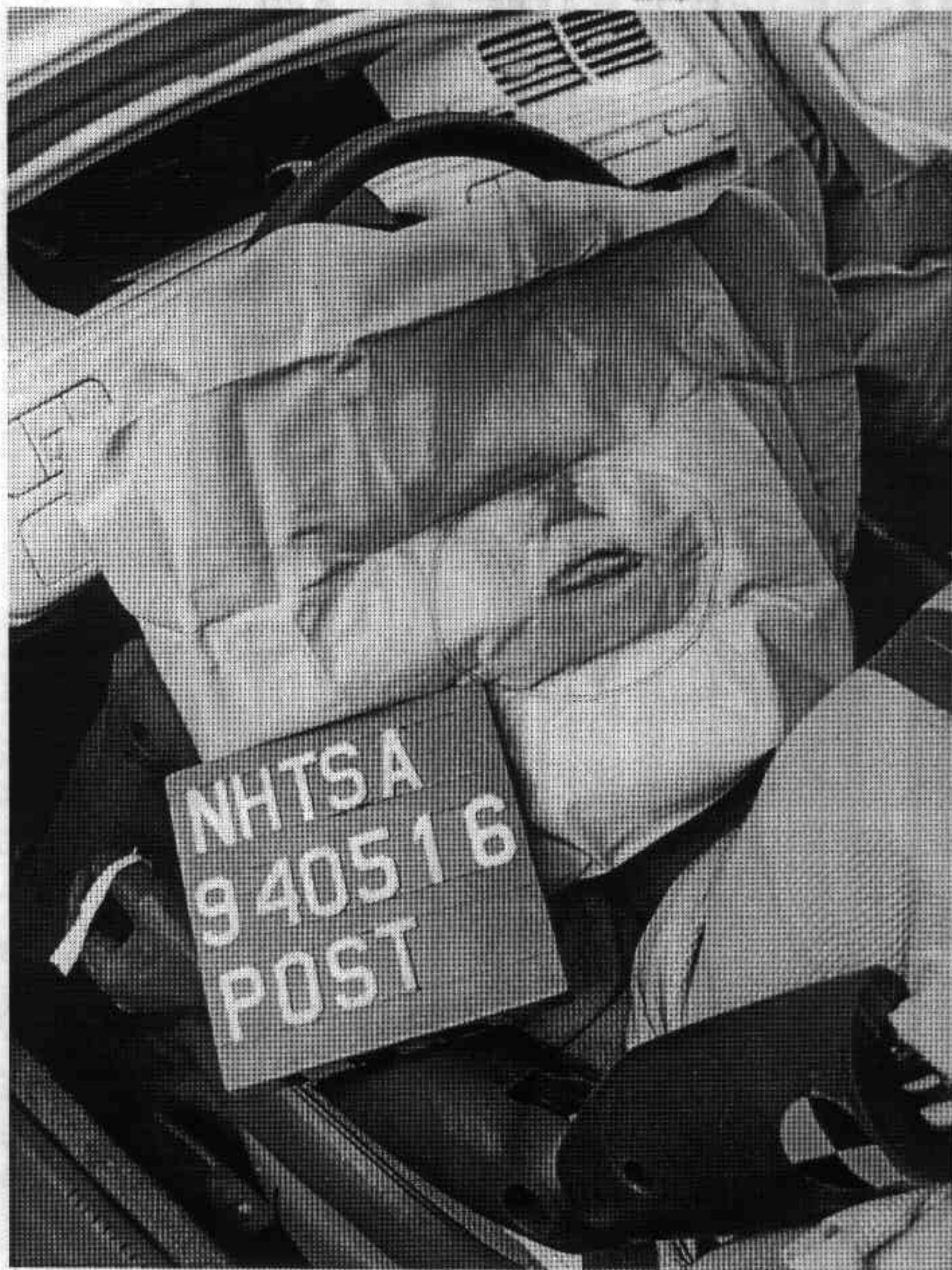


Figure A-40. POST-TEST DRIVER DUMMY HEAD CONTACT - VIEW 2

A-41

940516

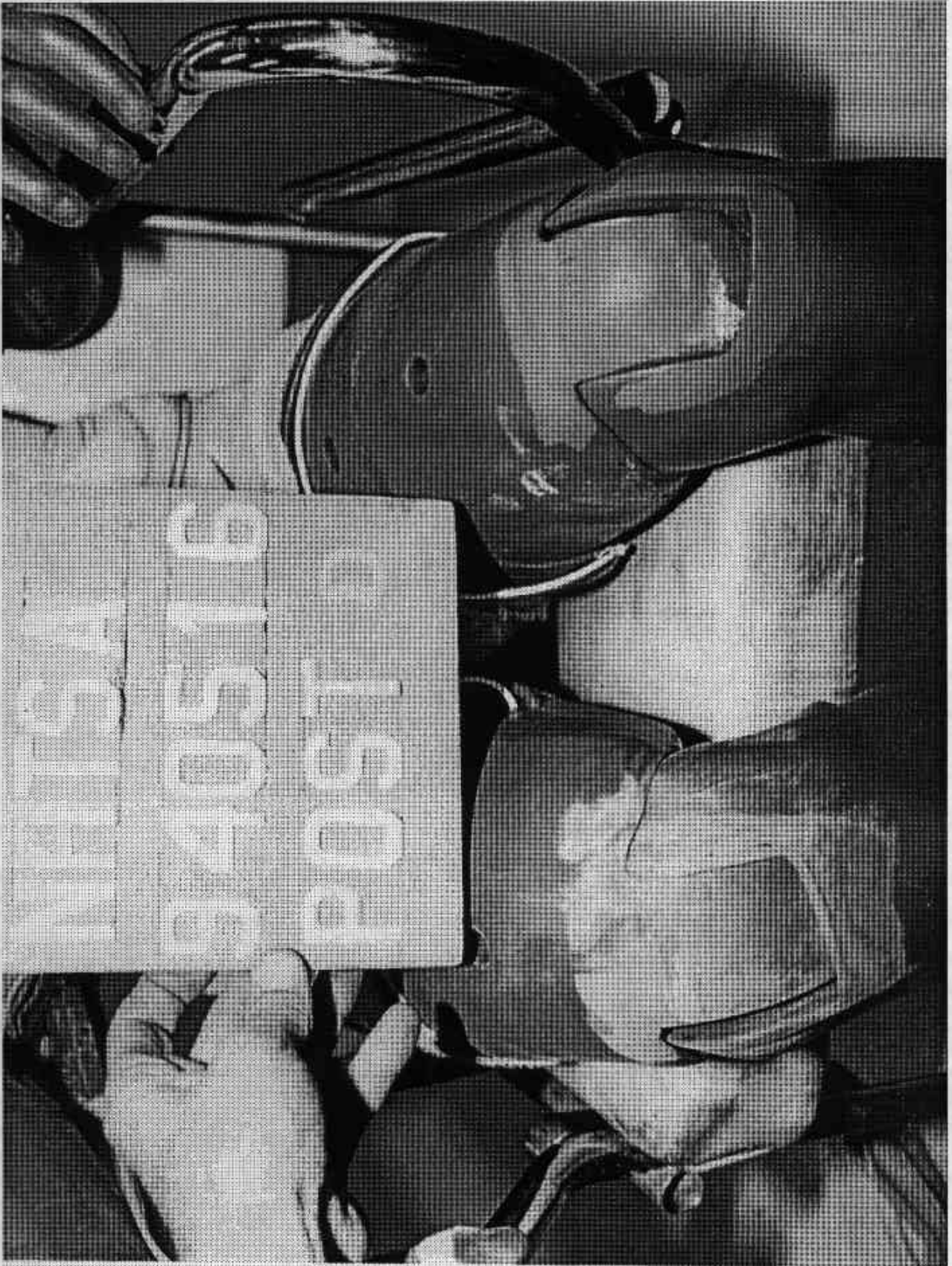


Figure A-41. POST-TEST DRIVER DUMMY KNEE CONTACT - VIEW 1

A-42

940516

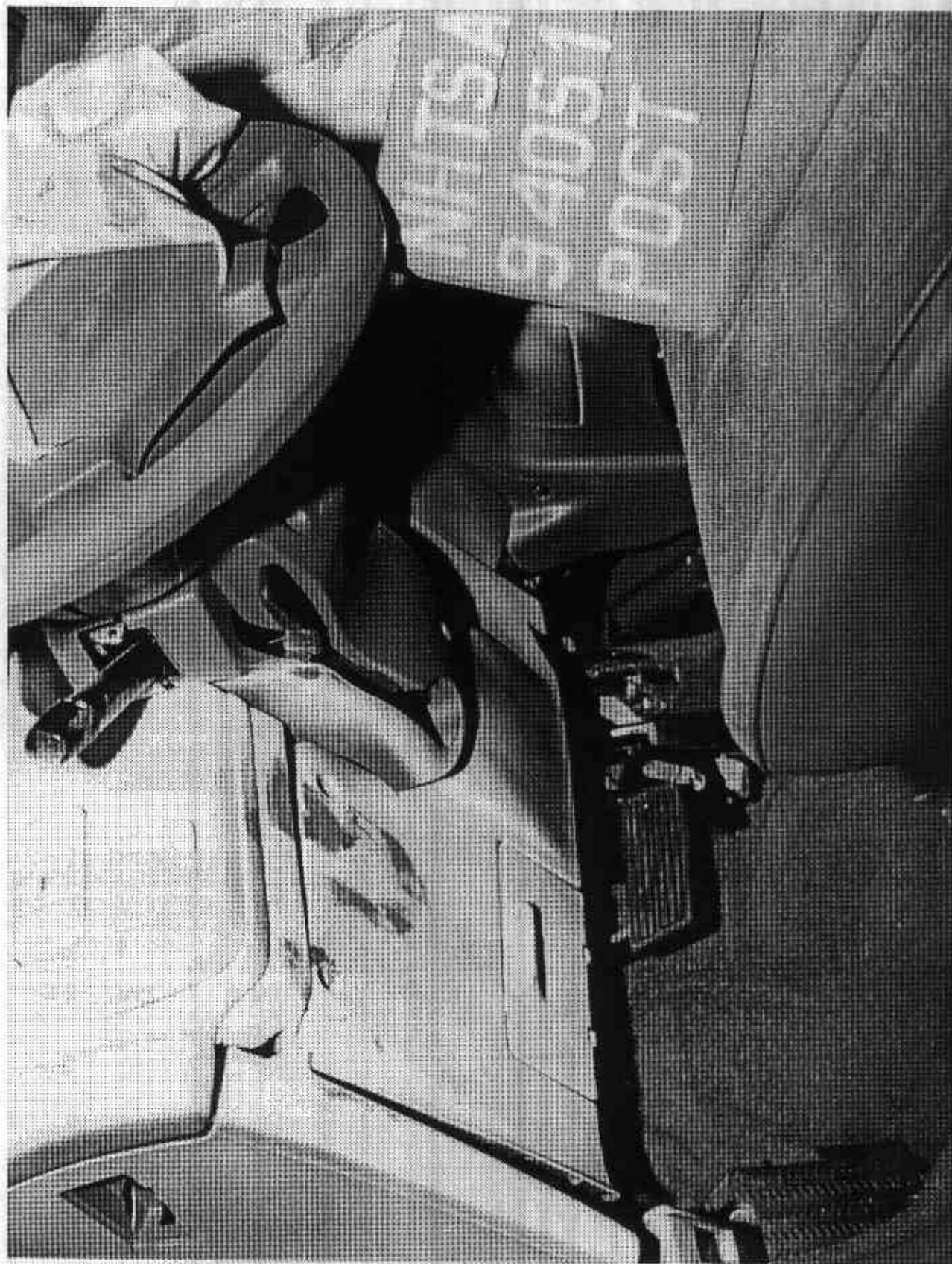


Figure A-42. POST-TEST DRIVER DUMMY KNEE CONTACT - VIEW 2

A-43

940516

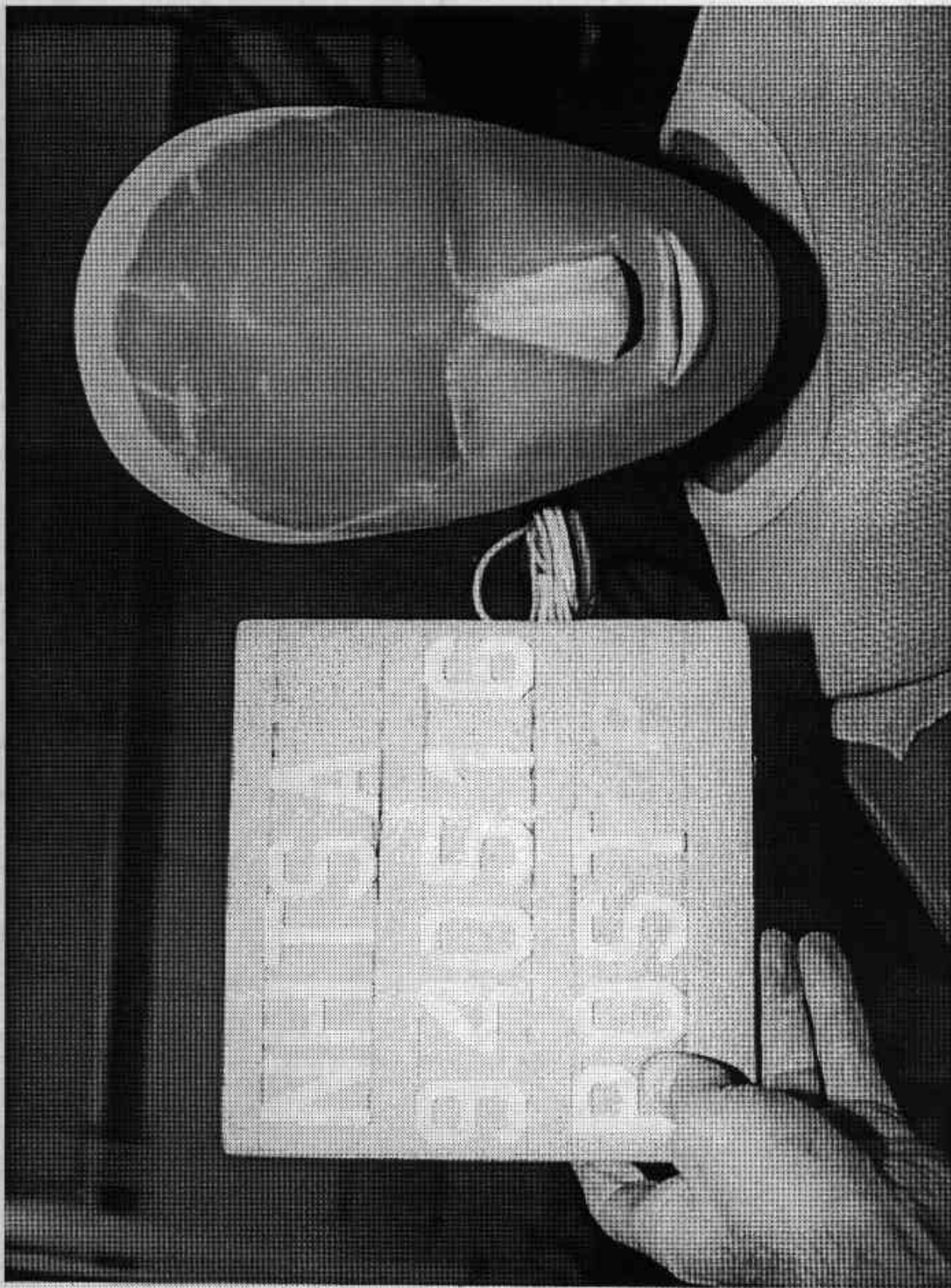


Figure A-43. POST-TEST PASSENGER DUMMY HEAD CONTACT - VIEW 1
A-44 940516



Figure A-44. POST-TEST PASSENGER DUMMY HEAD CONTACT - VIEW 2

A-45

940516



Figure A-45. POST-TEST PASSENGER DUMMY KNEE CONTACT - VIEW 1
A-46 940516



Figure A-46. POST-TEST PASSENGER DUMMY KNEE CONTACT - VIEW 2
A-47 940516

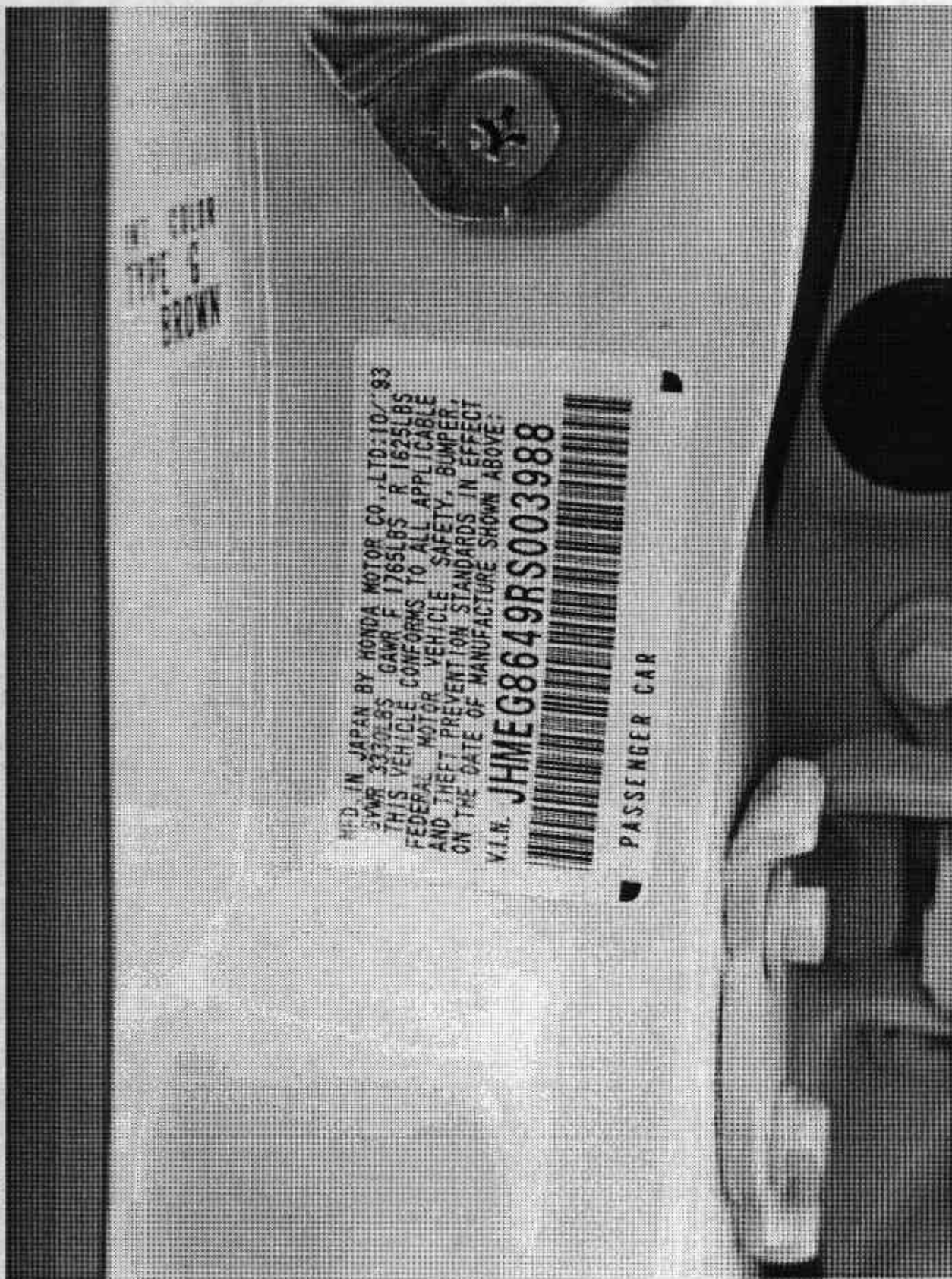


Figure A-47. PRE-TEST VEHICLE CERTIFICATION LABEL VIEW

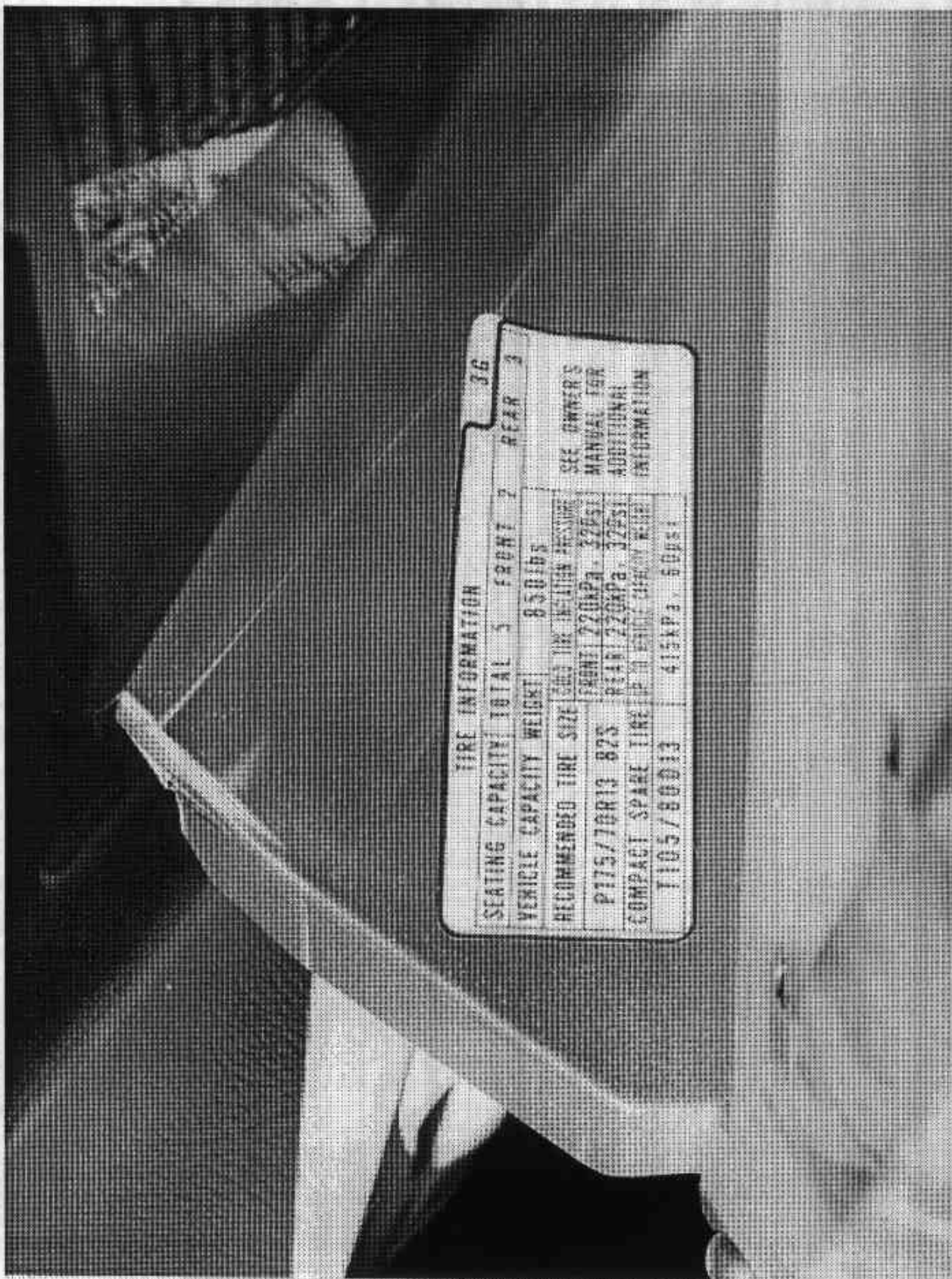


Figure A-48. PRE-TEST RECOMMENDED TIRE PRESSURE LABEL VIEW

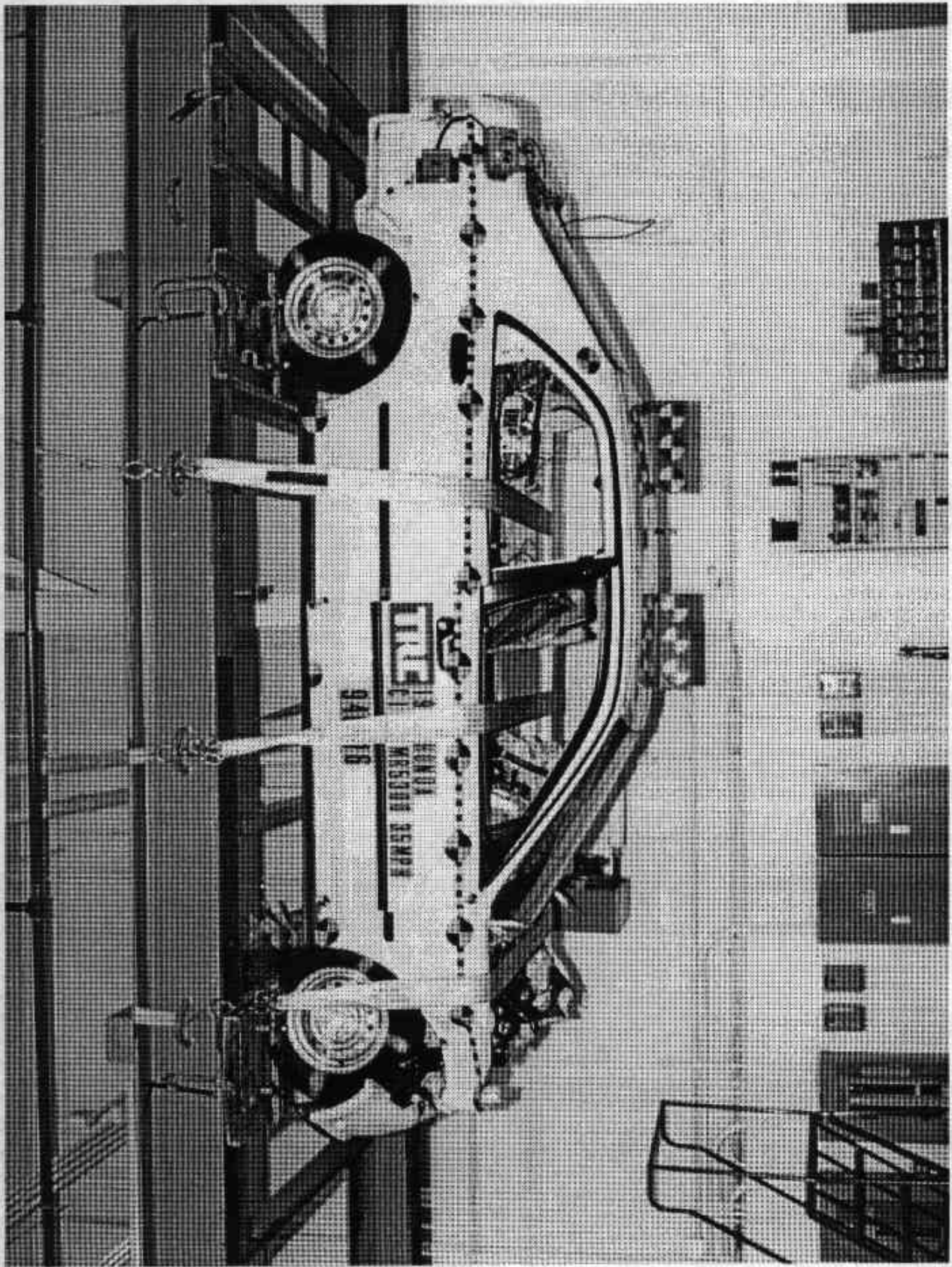


Figure A-49. POST-TEST VEHICLE ON STATIC ROLLOVER MACHINE VIEW

A-50

940516

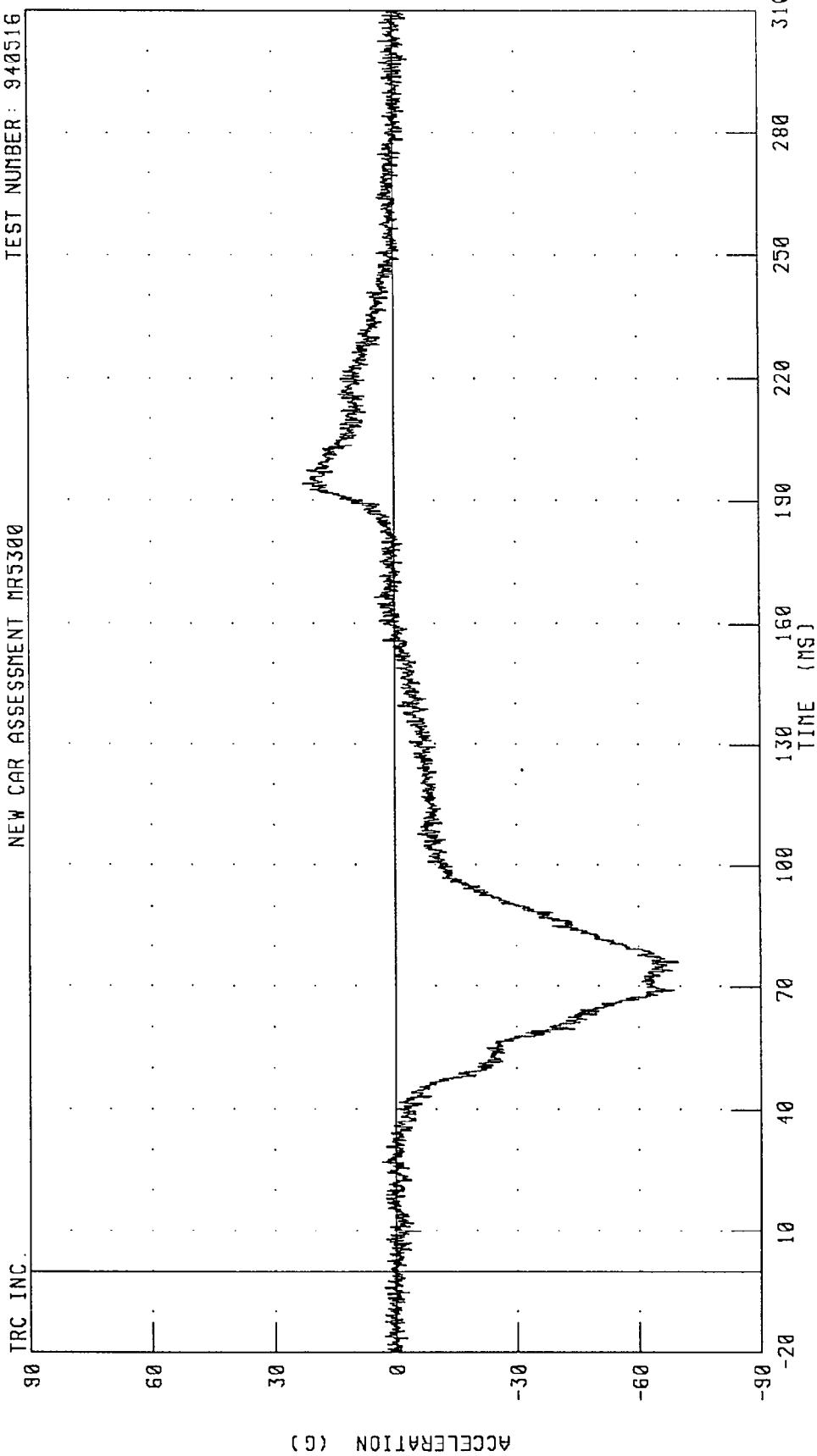
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APPENDIX B

DATA PLOTS

1994 HONDA CIVIC INTO FRONTAL LOAD CELL BARRIER
DRIVER HEAD X-AXIS ACCELERATION
NEW CAR ASSESSMENT MR5300

TEST NUMBER: 940516



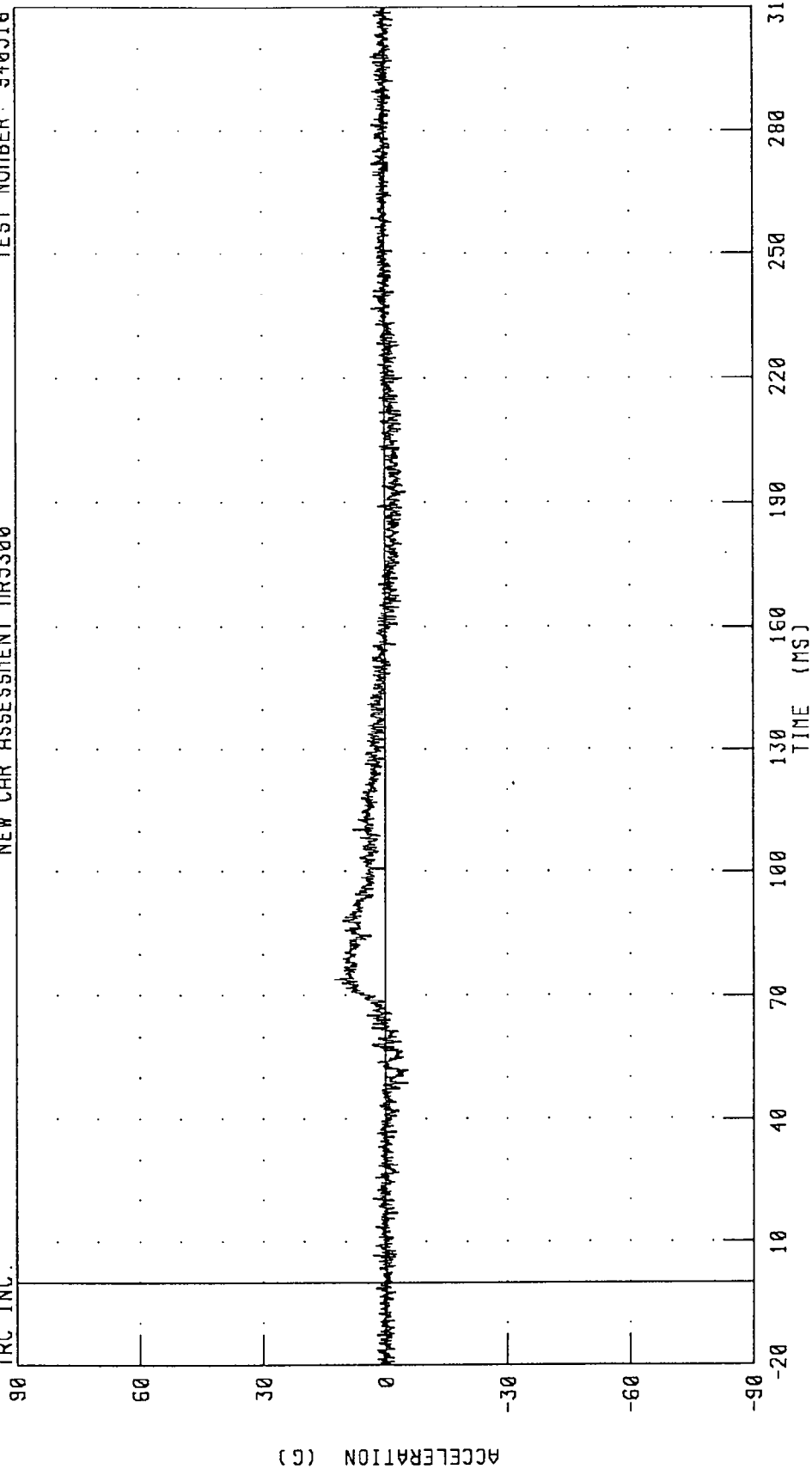
CHANNEL: HEDXG1 FILTER: CH. CLASS 1000

PEAK DATA: 22.63 G @ 194.32 MS; -69.68 G @ 76.16 MS

1994 HONDA CIVIC INTO FRONTAL LOAD CELL BARRIER
DRIVER HEAD Y-AXIS ACCELERATION
NEW CAR ASSESSMENT MR5300

TEST NUMBER: 940516

TRC INC.



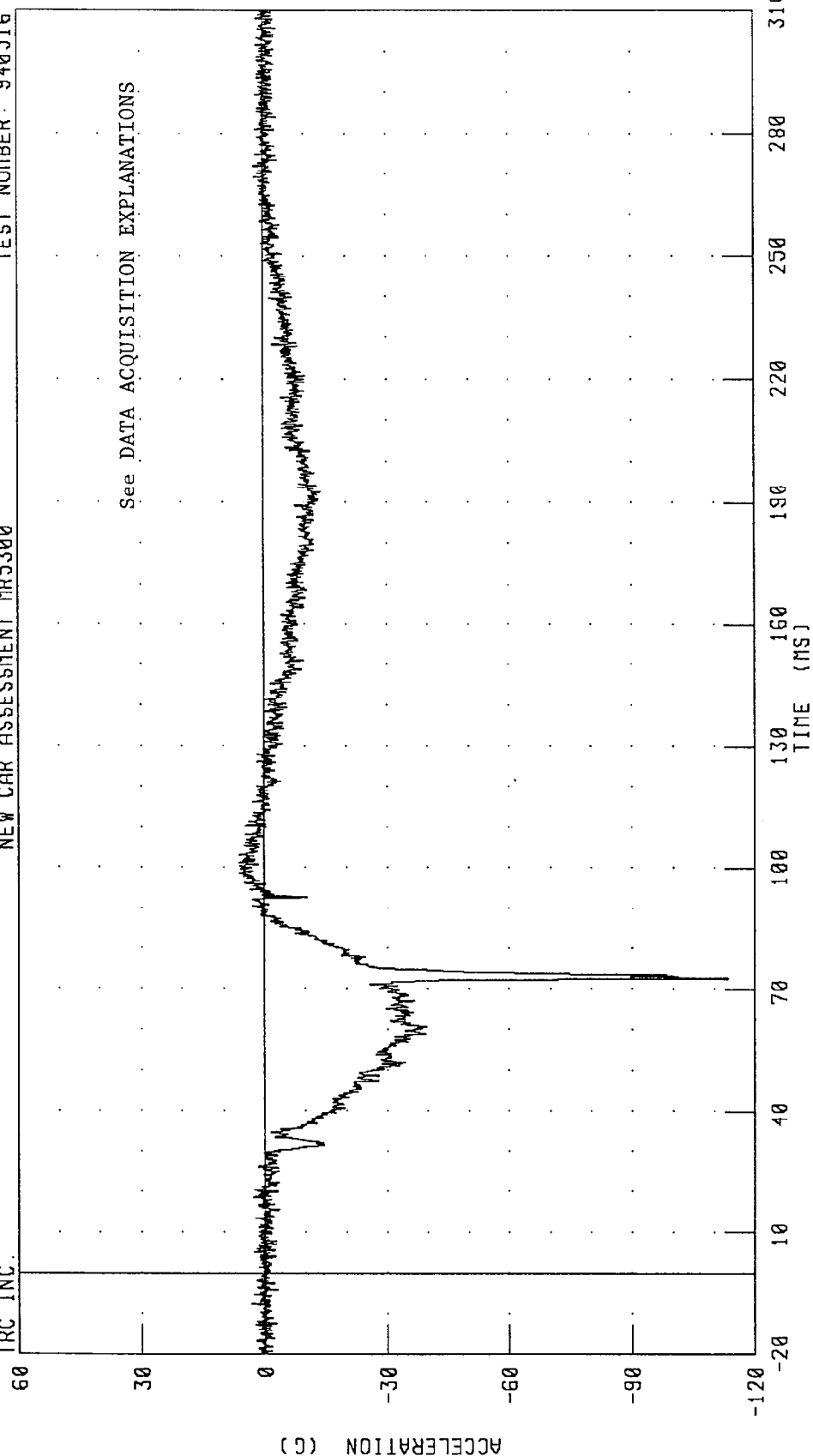
CHANNEL: HEDYG1 FILTER: CH. CLASS 1000

PEAK DATA: 12.40 G @ 74.08 MS; -5.20 G @ 48.72 MS

1994 HONDA CIVIC INTO FRONTAL LOAD CELL BARRIER
 DRIVER HEAD Z-AXIS ACCELERATION
 NEW CAR ASSESSMENT MR5300

TEST NUMBER: 940516

TRC INC.



See DATA ACQUISITION EXPLANATIONS

CHANNEL: HEDZG1 FILTER: CH. CLASS 1000

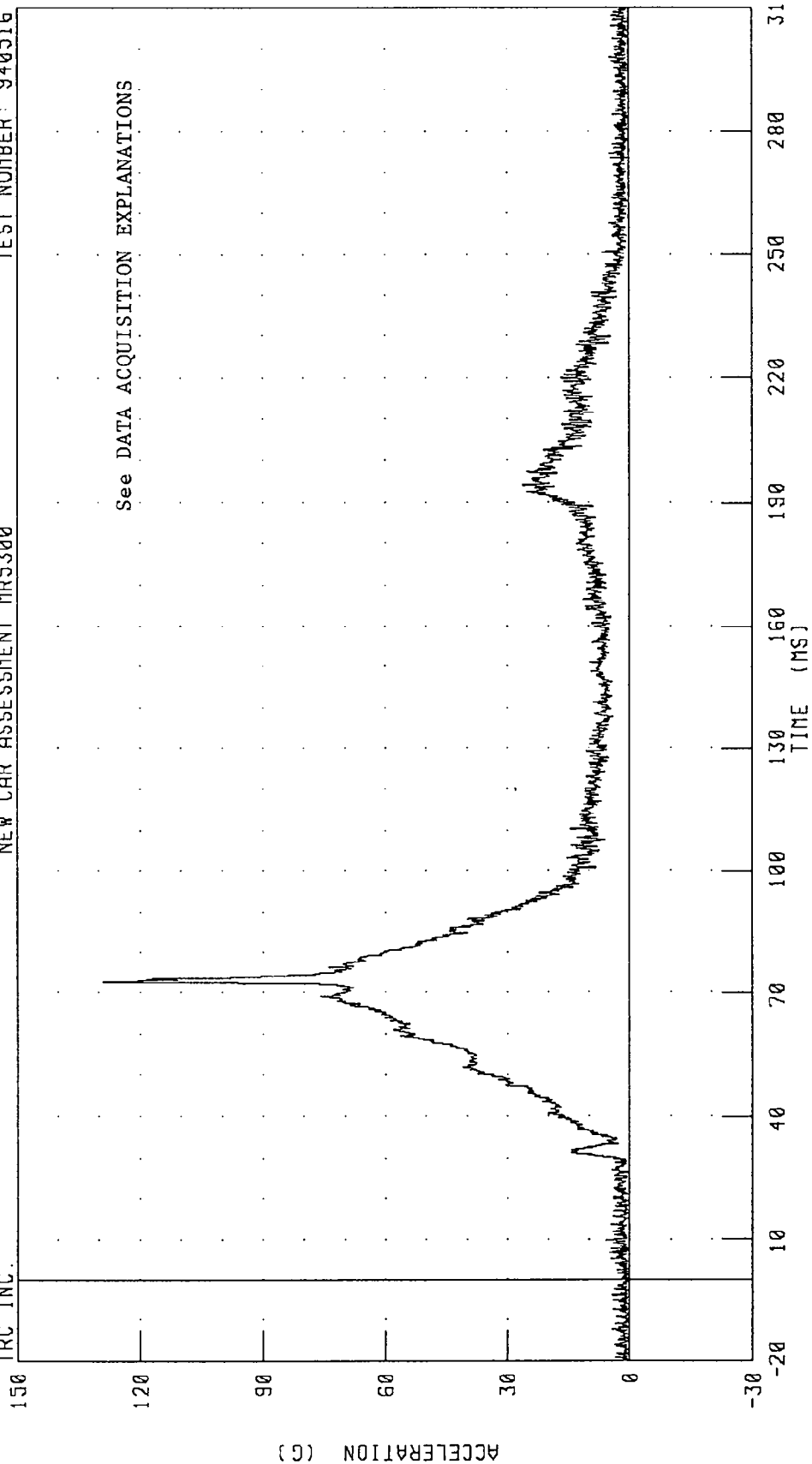
PEAK DATA: 6.24 G @ 101.28 MS; -113.33 G @ 72.64 MS

1994 HONDA CIVIC INTO FRONTAL LOAD CELL BARRIER
DRIVER HEAD RESULTANT ACCELERATION

TEST NUMBER: 940516

NEW CAR ASSESSMENT MR5300

TRC INC.



CHANNEL: HEDRG1 FILTER: CH. CLASS 1000

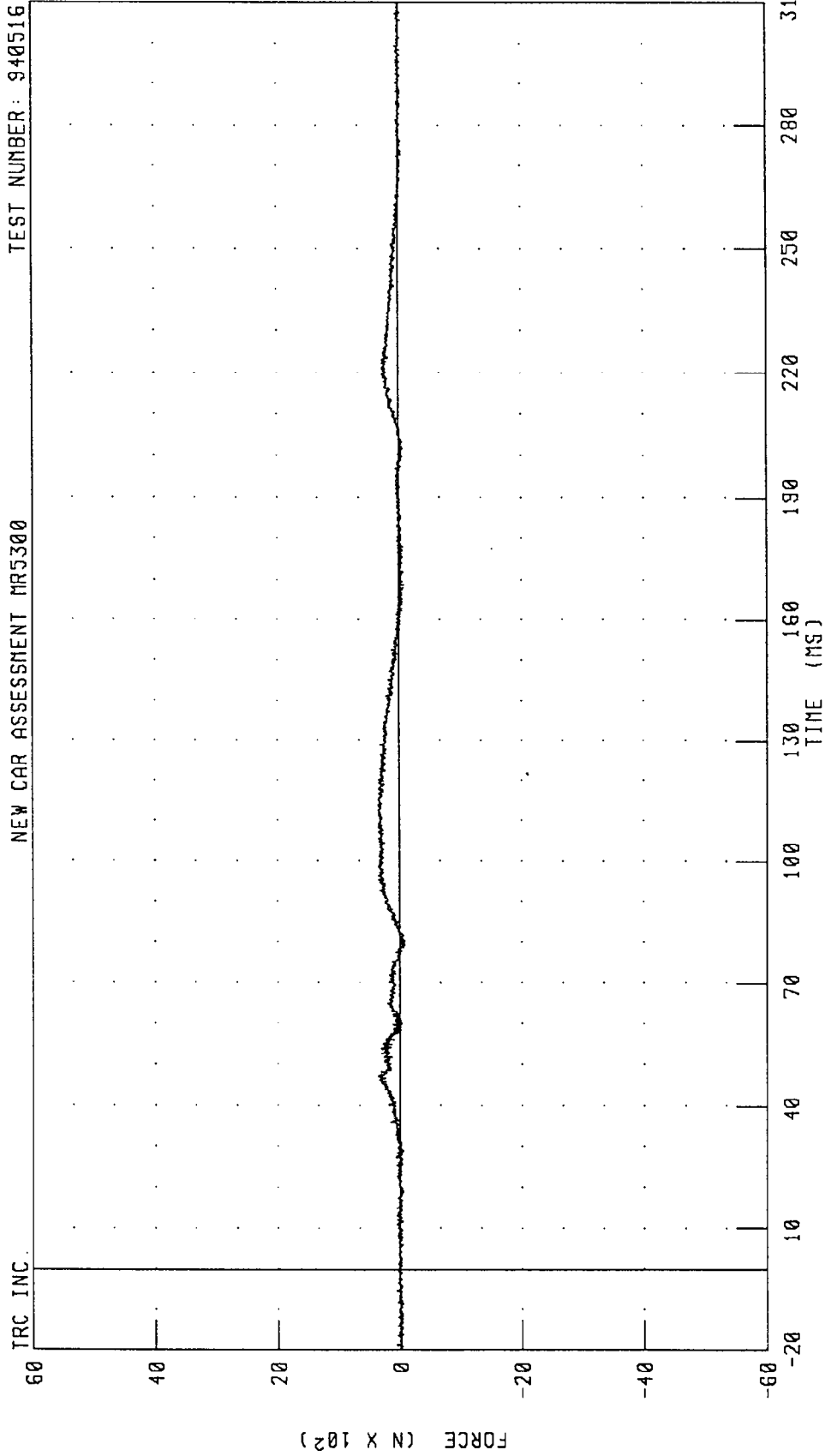
PEAK DATA: 129.03 G @ 72.64 MS; 0.11 G @ 304.48 MS

1994 HONDA CIVIC INTO FRONTAL LOAD CELL BARRIER

DRIVER NECK X-AXIS SHEAR FORCE

NEW CAR ASSESSMENT MR5300

TEST NUMBER: 940516



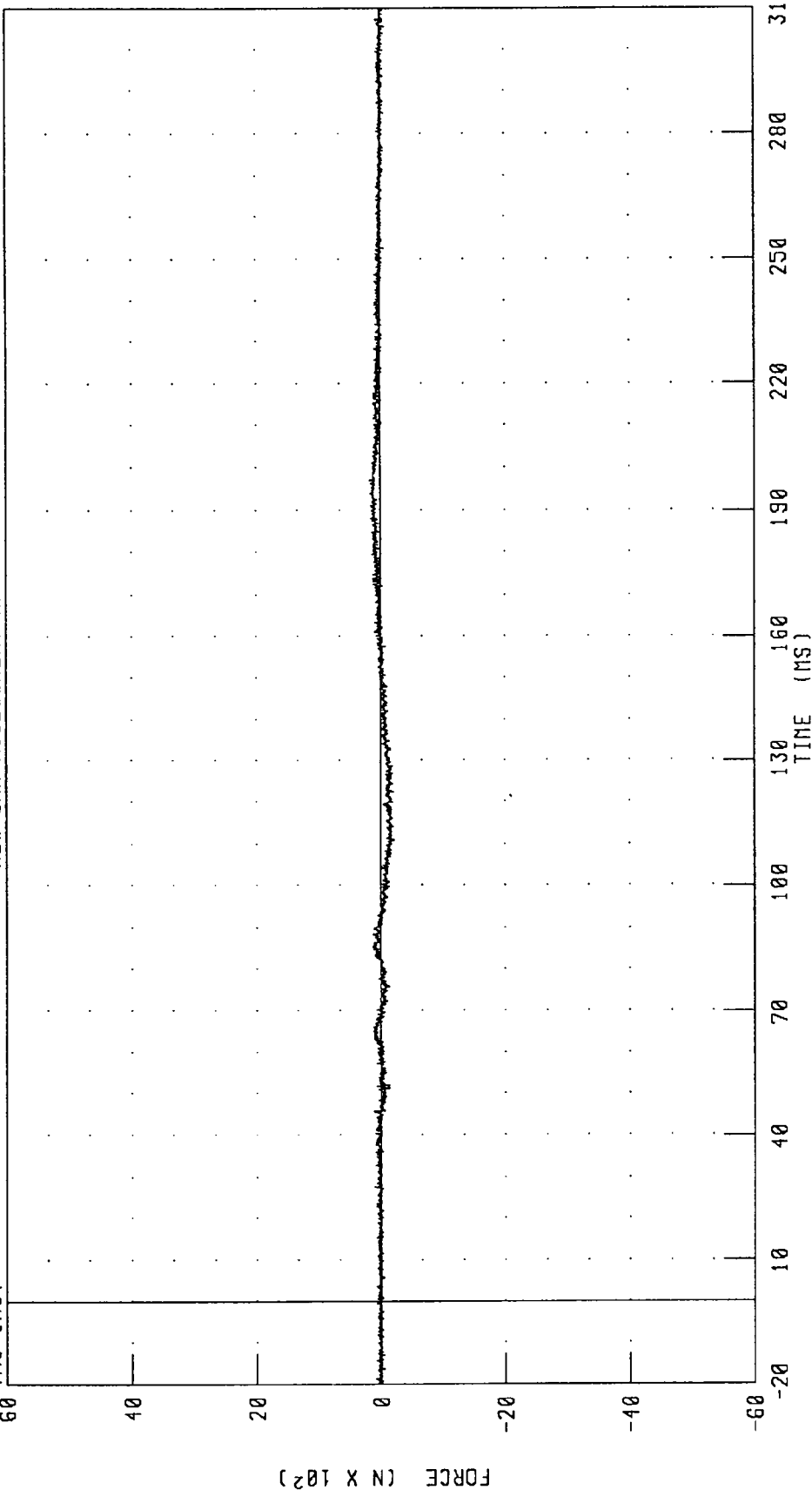
CHANNEL: NEKXF1 FILTER: CH. CLASS 1000

940516

1994 HONDA CIVIC INTO FRONTAL LOAD CELL BARRIER
 DRIVER NECK Y-AXIS SHEAR FORCE
 NEW CAR ASSESSMENT MR5300

TEST NUMBER: 940516

IRC INC.



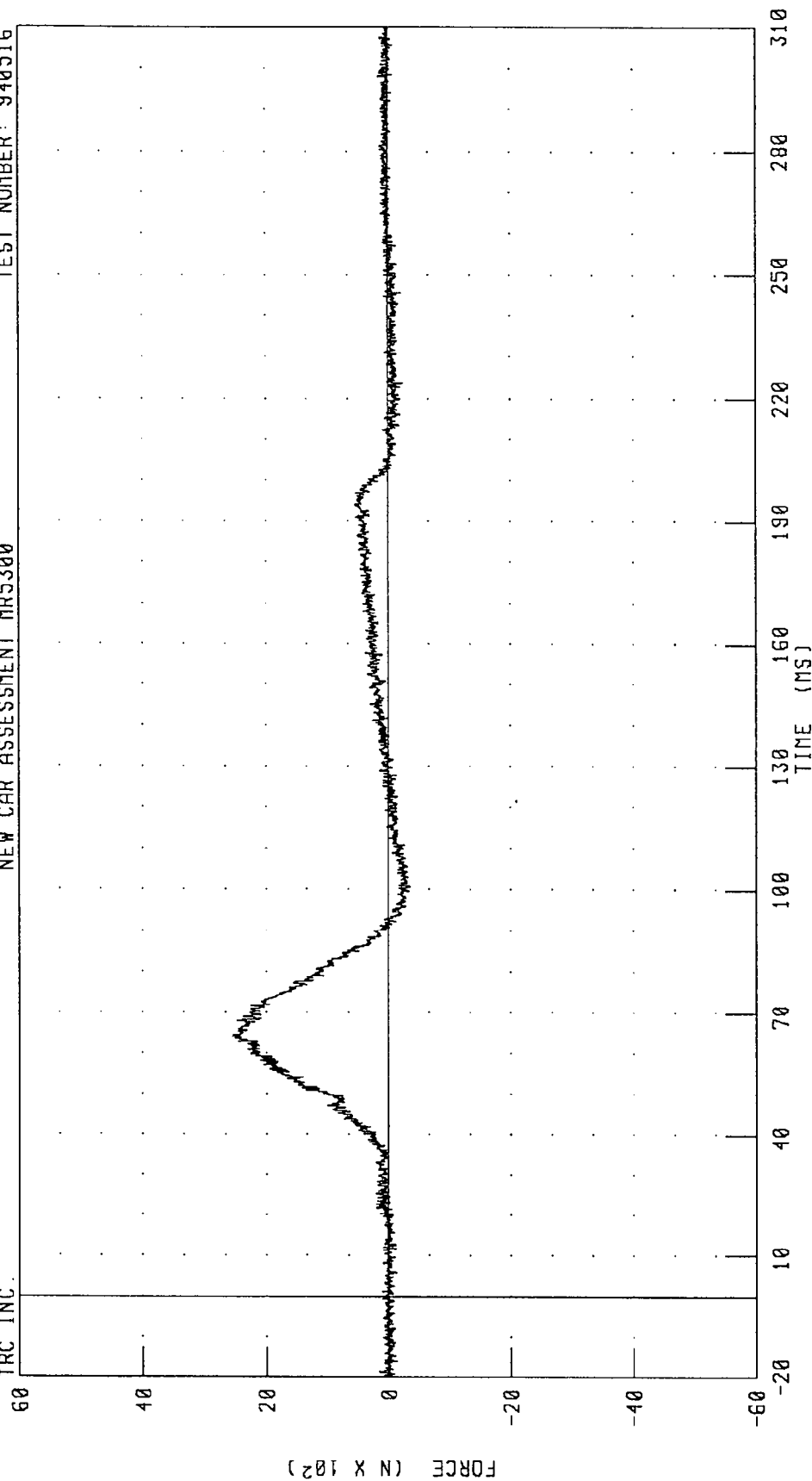
PEAK DATA: 170.46 N @ 193.92 MS; -212.84 N @ 110.96 MS

CHANNEL: NEKYF1 FILTER: CH. CLASS 1000

1994 HONDA CIVIC INTO FRONTAL LOAD CELL BARRIER
DRIVER NECK Z-AXIS AXIAL FORCE
NEW CAR ASSESSMENT MR5300

TEST NUMBER: 940516

TRC INC.

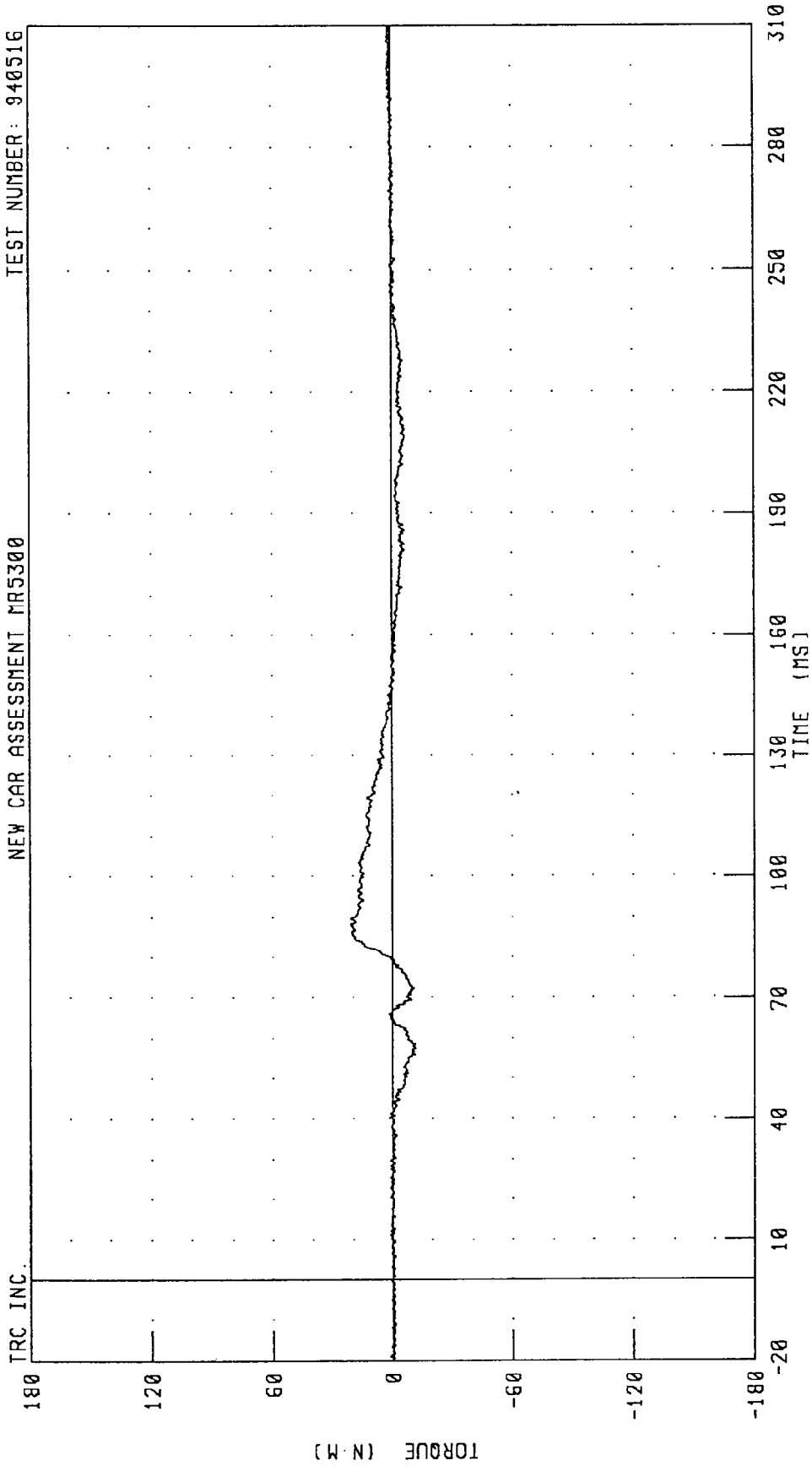


PEAK DATA: 2551.75 N @ 64.16 MS; -356.25 N @ 100.72 MS

CHANNEL: NEKZF1 FILTER: CH. CLASS 1000

1994 HONDA CIVIC INTO FRONTAL LOAD CELL BARRIER
DRIVER NECK MOMENT ABOUT X AXIS
NEW CAR ASSESSMENT NR5300

TEST NUMBER: 940516



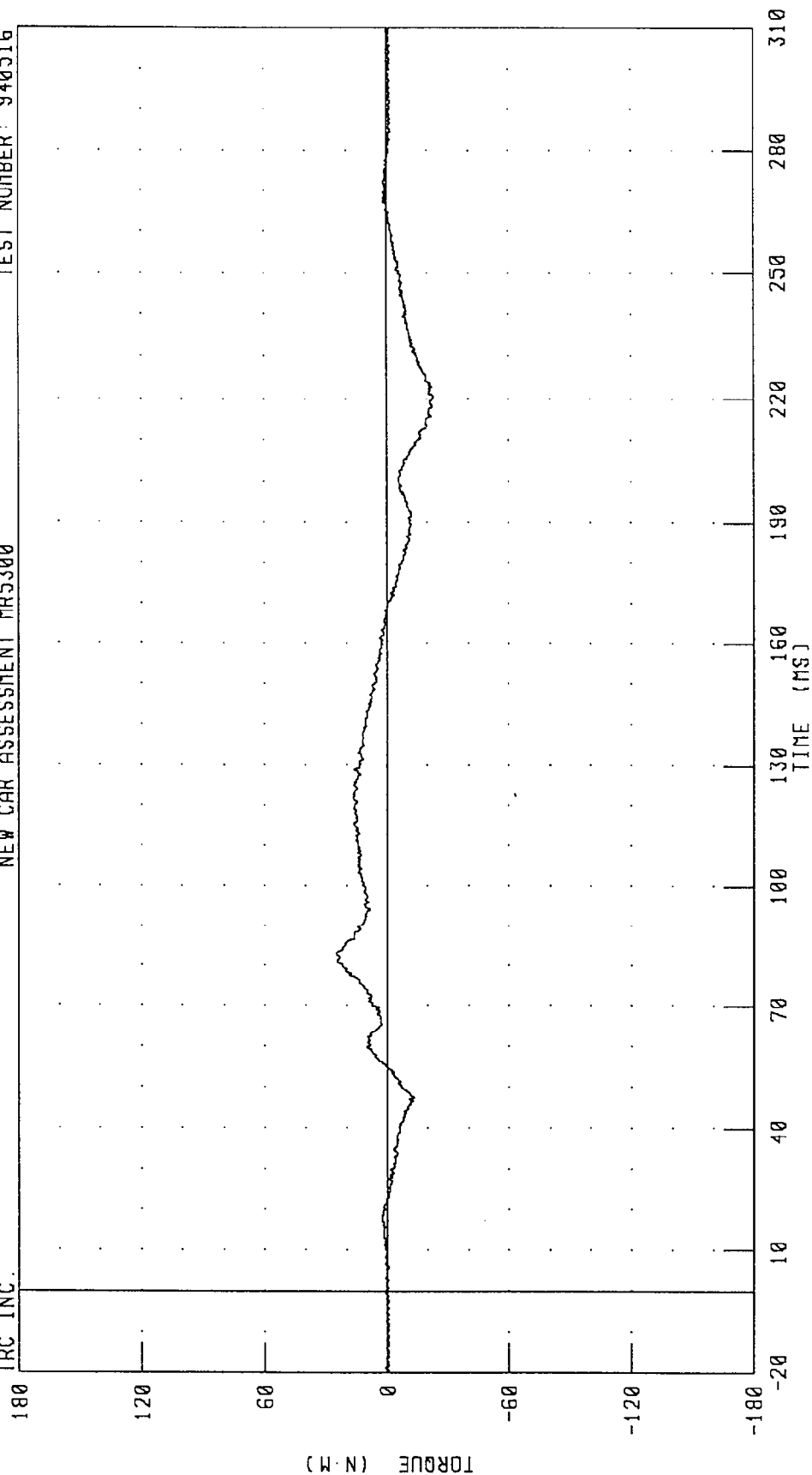
PEAK DATA: 21.10 N.M @ 88.32 MS; -11.46 N.M @ 57.76 MS

CHANNEL: NEKXM1 FILTER: CH. CLASS 600

1994 HONDA CIVIC INTO FRONTAL LOAD CELL BARRIER
 DRIVER NECK MOMENT ABOUT Y AXIS
 NEW CAR ASSESSMENT MR5300

TEST NUMBER: 940516

TRC INC.



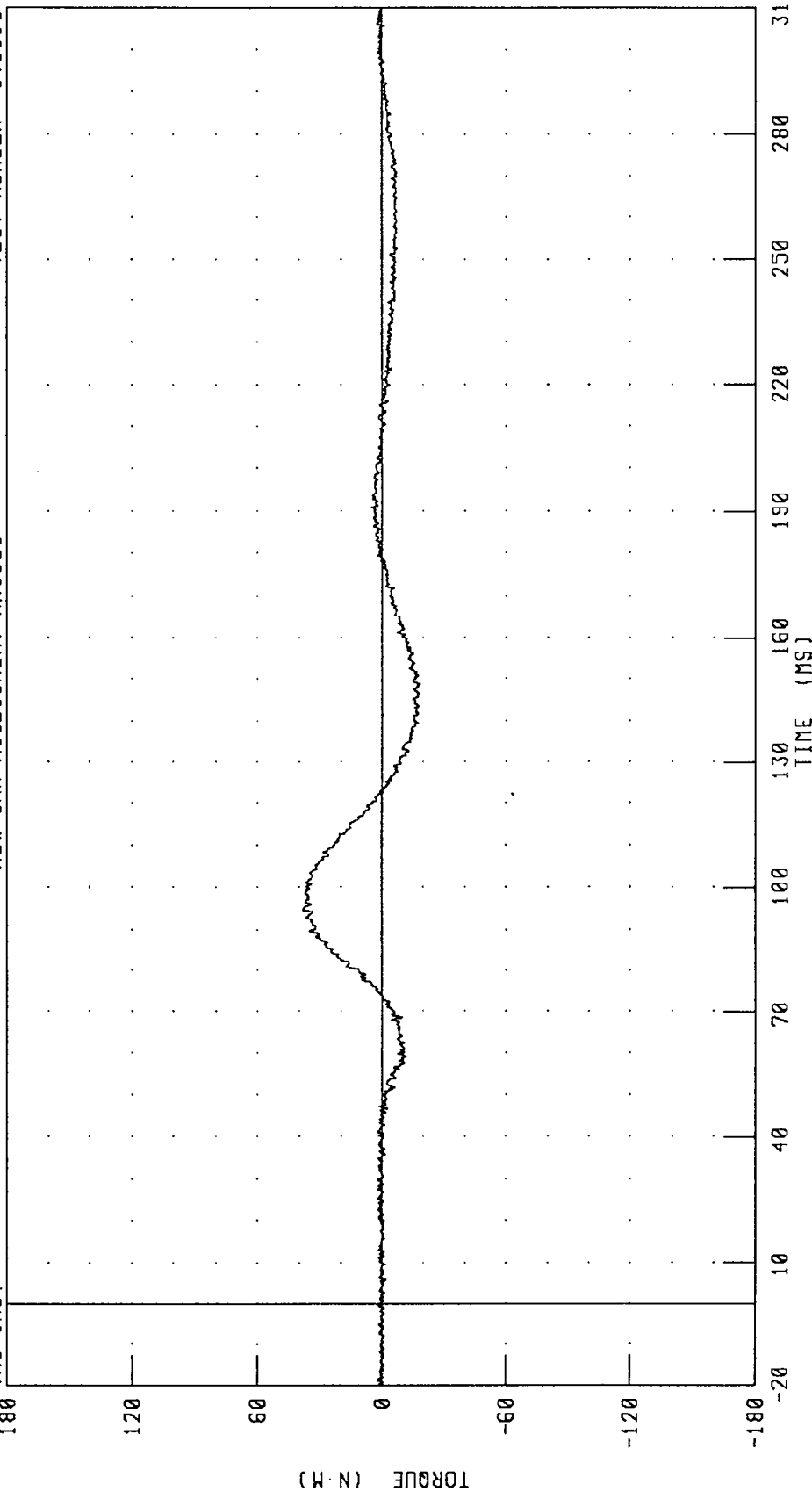
CHANNEL: NEKYM1 FILTER: CH. CLASS 600

PEAK DATA: 25.02 N-M @ 82.96 MS; -22.76 N-M @ 220.72 MS

1994 HONDA CIVIC INTO FRONTAL LOAD CELL BARRIER
DRIVER NECK MOMENT ABOUT Z AXIS
NEW CAR ASSESSMENT MR5300

TEST NUMBER: 940516

TRC INC.



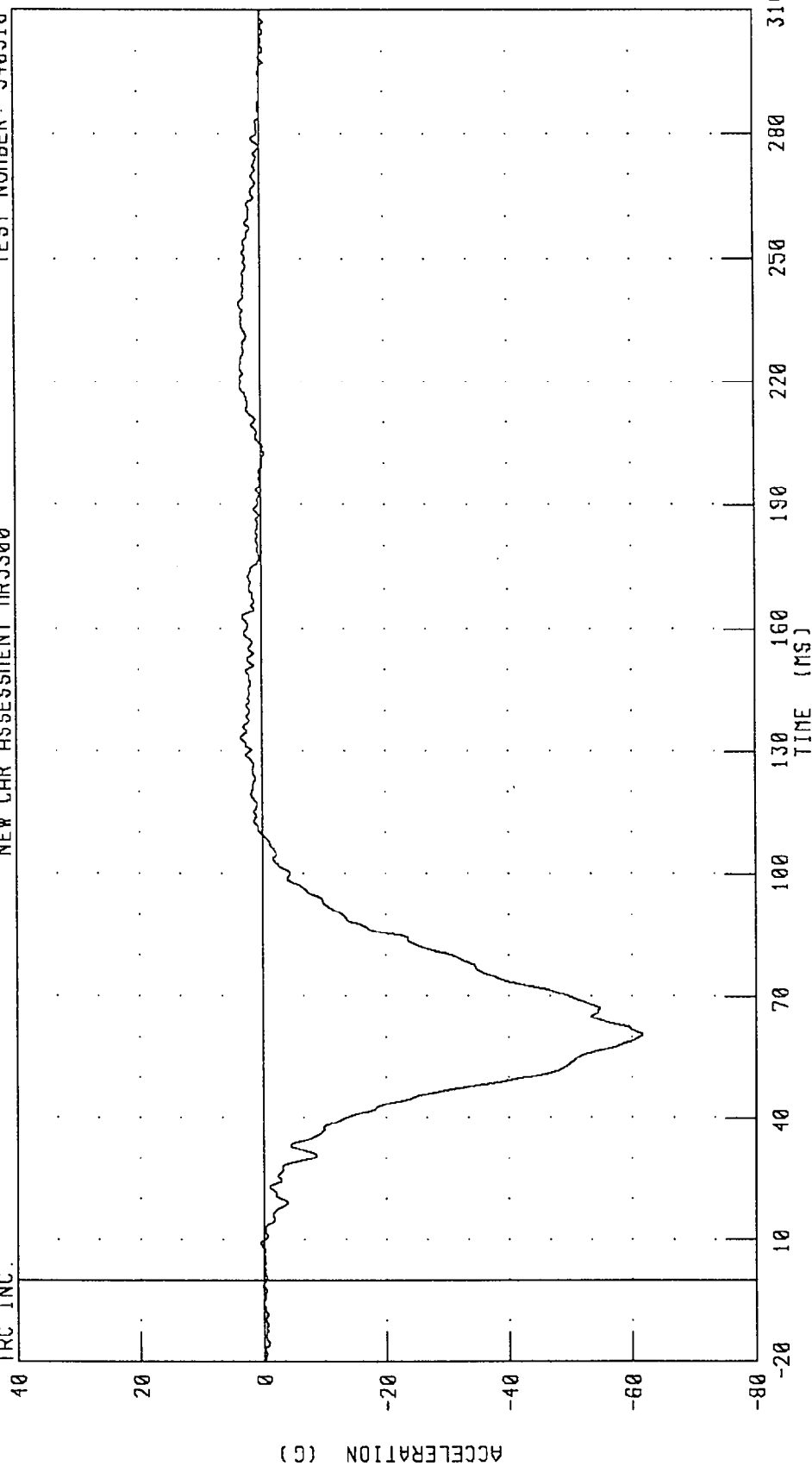
CHANNEL: NEKZM1 FILTER: CH. CLASS 600

PEAK DATA: 38.54 N-M @ 94.88 MS, -18.36 N-M @ 148.80 MS

1994 HONDA CIVIC INTO FRONTAL LOAD CELL BARRIER
 DRIVER CHEST X-AXIS ACCELERATION
 NEW CAR ASSESSMENT MR5300

TEST NUMBER: 940516

TRC INC.



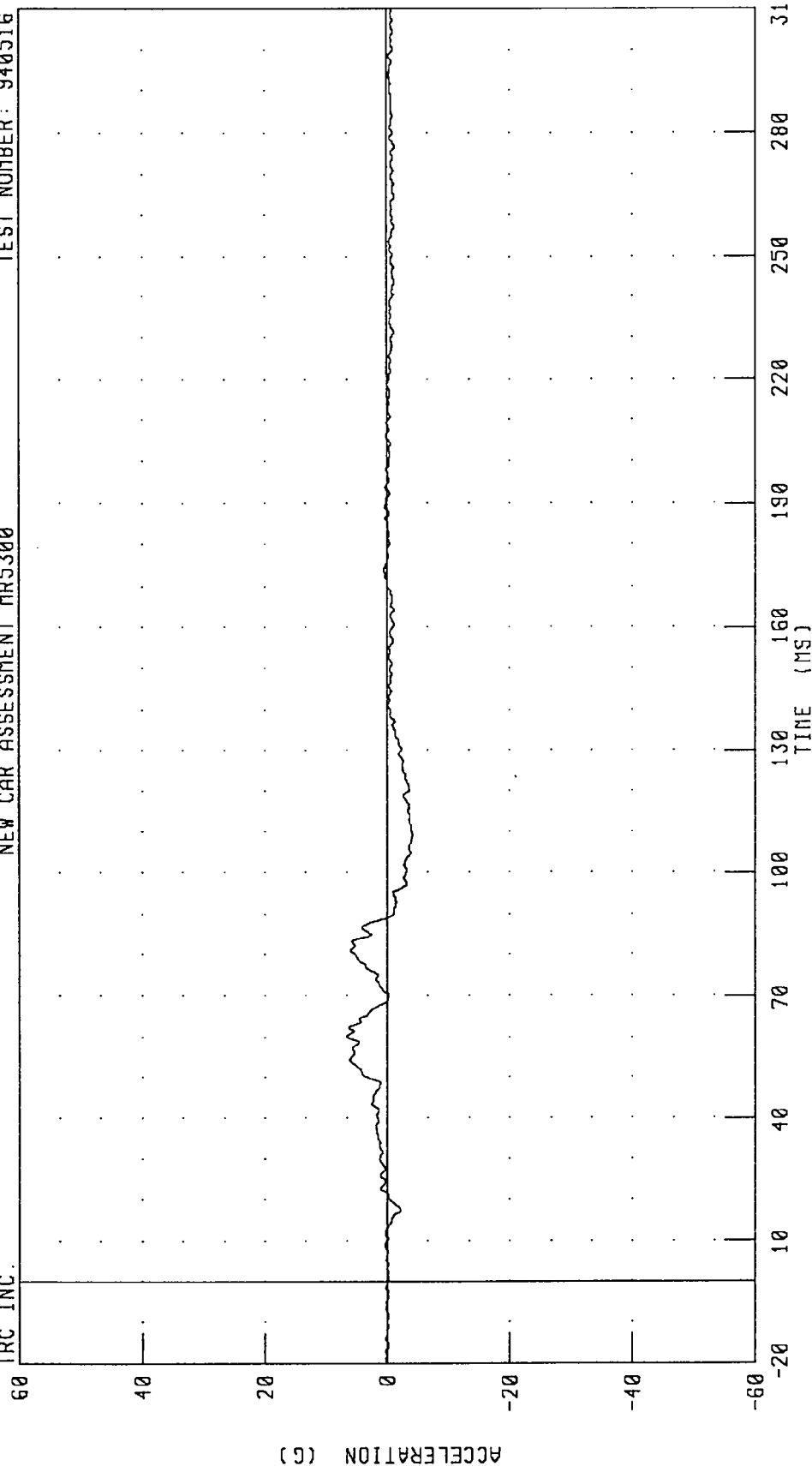
PEAK DATA: 3.54 G @ 239.12 MS; -61.65 G @ 60.56 MS

CHANNEL: CSTXG1 FILTER: CH. CLASS 180

1994 HONDA CIVIC INTO FRONTAL LOAD CELL BARRIER
DRIVER CHEST Y-AXIS ACCELERATION
NEW CAR ASSESSMENT MR5300

TEST NUMBER: 940516

TRC INC.



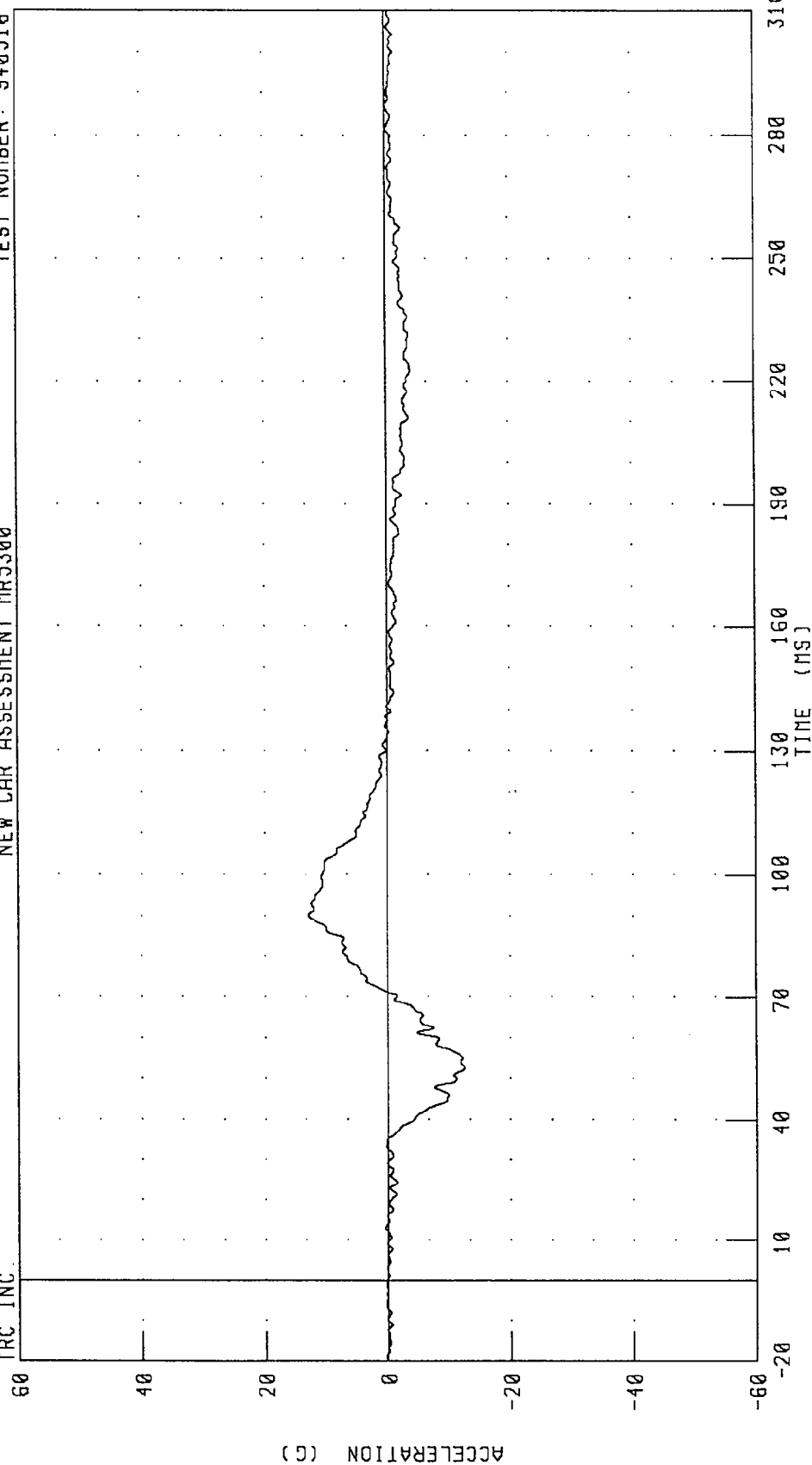
PEAK DATA: 6.59 G @ 60.32 MS; -4.16 G @ 109.04 MS

CHANNEL: CSTYG1 FILTER: CH. CLASS 180

1994 HONDA CIVIC INTO FRONTAL LOAD CELL BARRIER
DRIVER CHEST Z-AXIS ACCELERATION
NEW CAR ASSESSMENT MR5300

TEST NUMBER: 940516

TRC INC.



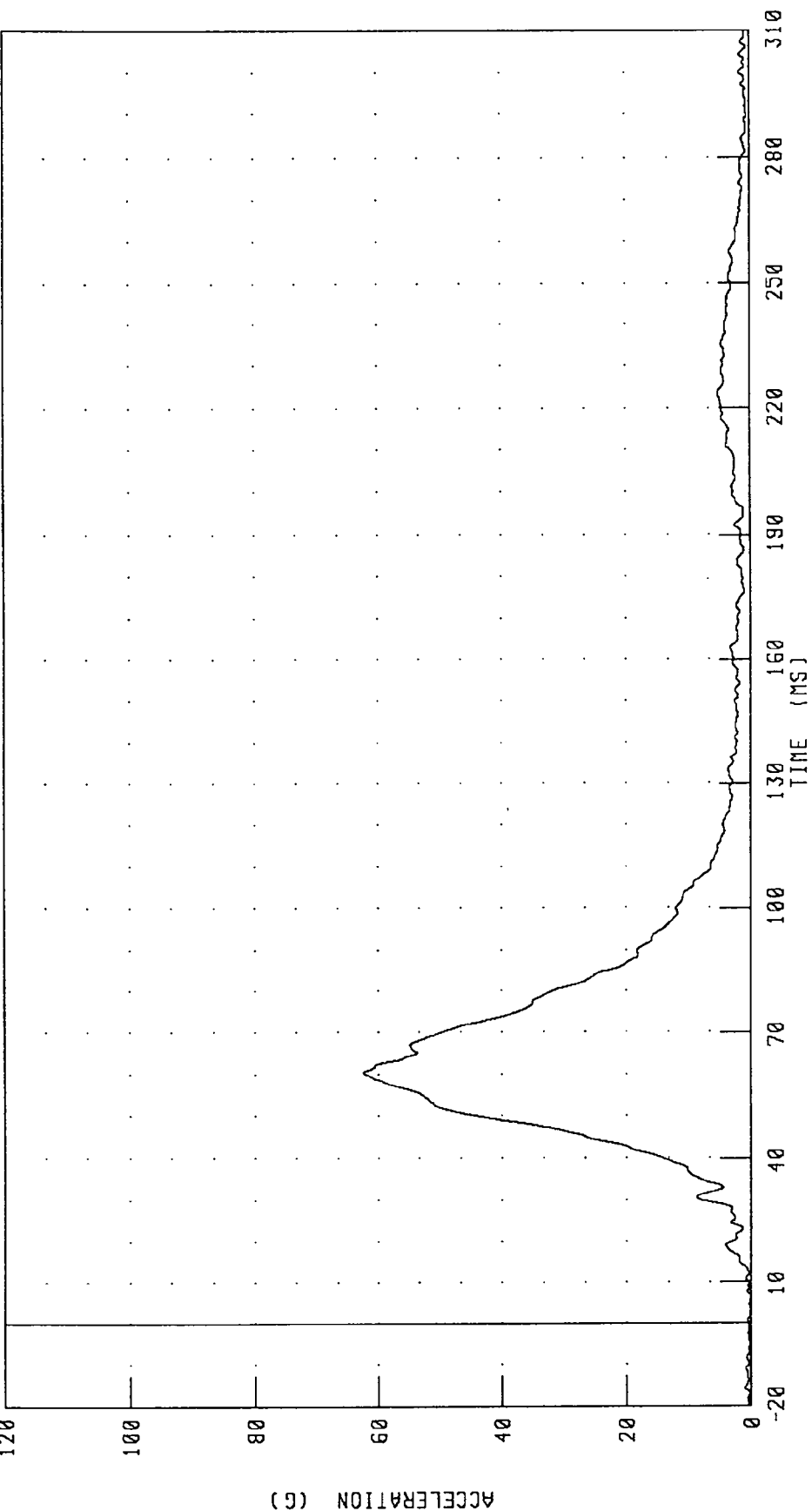
CHANNEL: CSTZG1 FILTER: CH. CLASS 180

PEAK DATA: 12.90 G @ 90.16 MS; -12.48 G @ 52.64 MS

1994 HONDA CIVIC INTO FRONTAL LOAD CELL BARRIER
DRIVER CHEST RESULTANT ACCELERATION
NEW CAR ASSESSMENT MR5300

TEST NUMBER: 940516

TRC INC.



PEAK DATA: 62.38 G @ 60.40 MS; 0.06 G @ -20.00 MS

CHANNEL: CSTRG1 FILTER: CH. CLASS 180

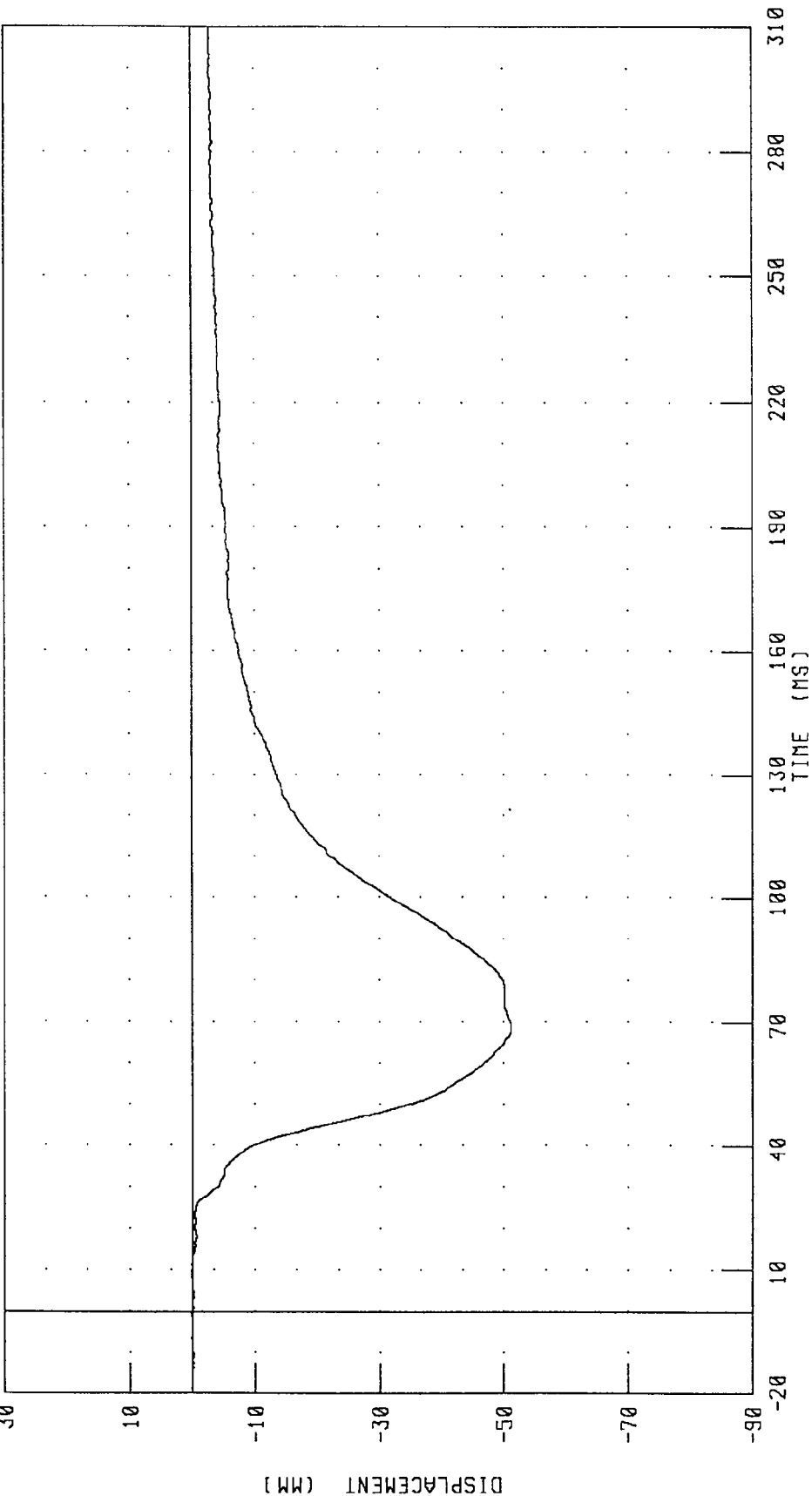
1994 HONDA CIVIC INTO FRONTAL LOAD CELL BARRIER

DRIVER CHEST DEFLECTION

NEW CAR ASSESSMENT MR5380

TEST NUMBER: 940516

TRC INC.



PEAK DATA: 0.19 MM @ 9.04 MS; -51.20 MM @ 68.24 MS

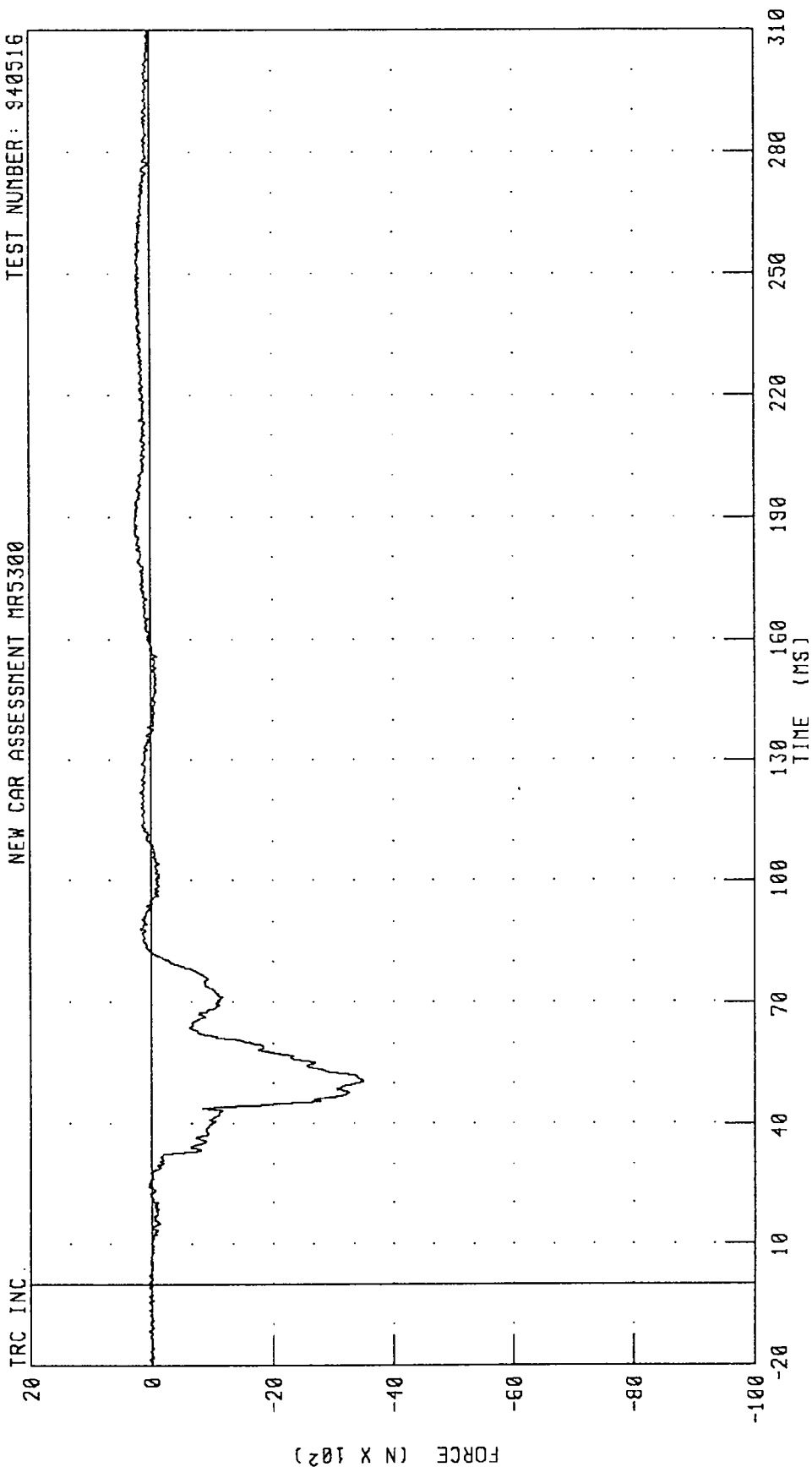
CHANNEL: CSTXD1 FILTER: CH. CLASS 180

1994 HONDA CIVIC INTO FRONTAL LOAD CELL BARRIER

DRIVER LEFT FEMUR FORCE

NEW CAR ASSESSMENT MR5300

TEST NUMBER: 940516



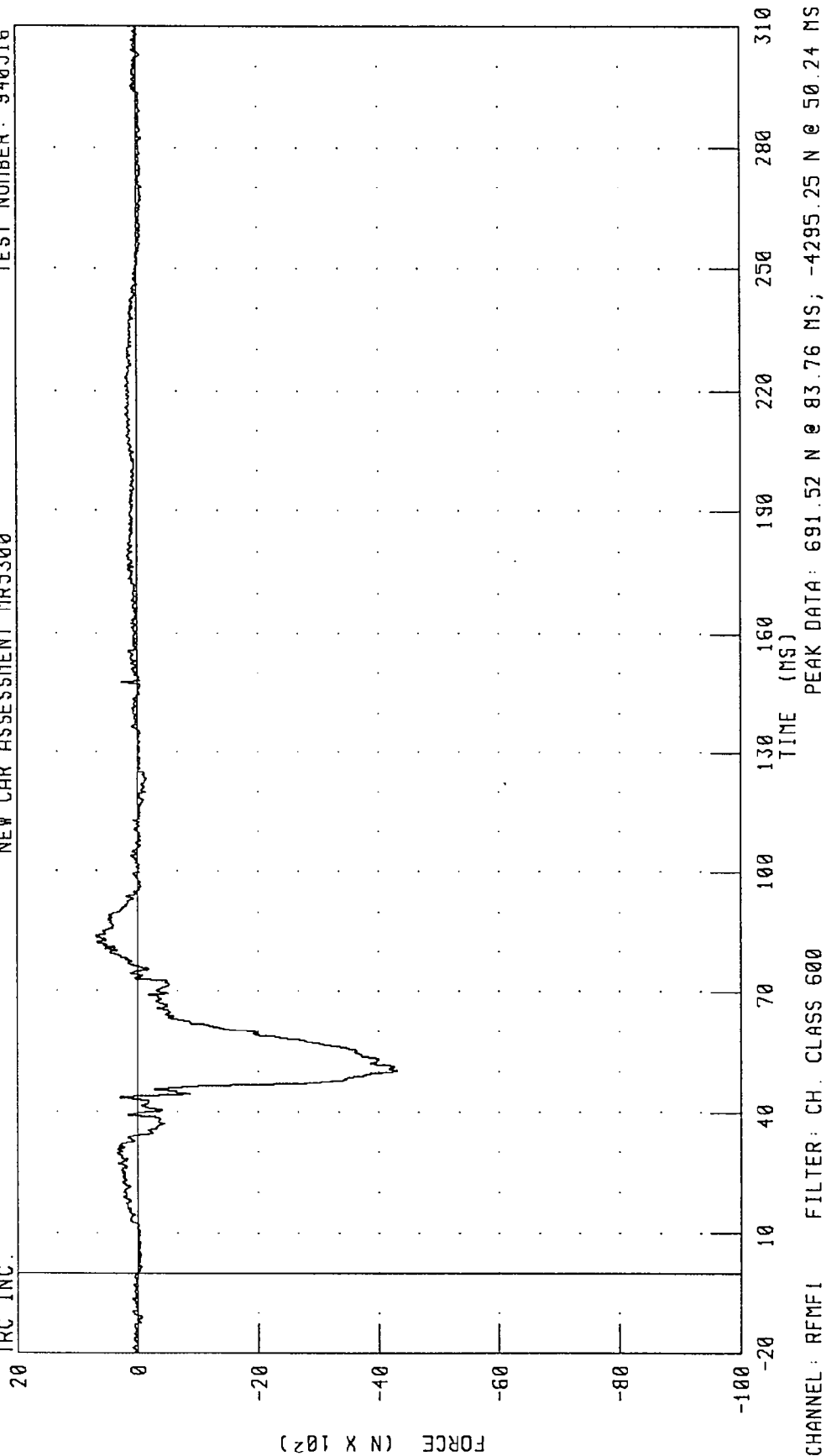
PEAK DATA: 258.75 N @ 189.12 MS; -3497.21 N @ 50.64 MS

CHANNEL: LFMF1 FILTER: CH. CLASS 600

1994 HONDA CIVIC INTO FRONTAL LOAD CELL BARRIER
 DRIVER RIGHT FEMUR FORCE
 NEW CAR ASSESSMENT MR5300

TEST NUMBER: 940516

TRC INC.

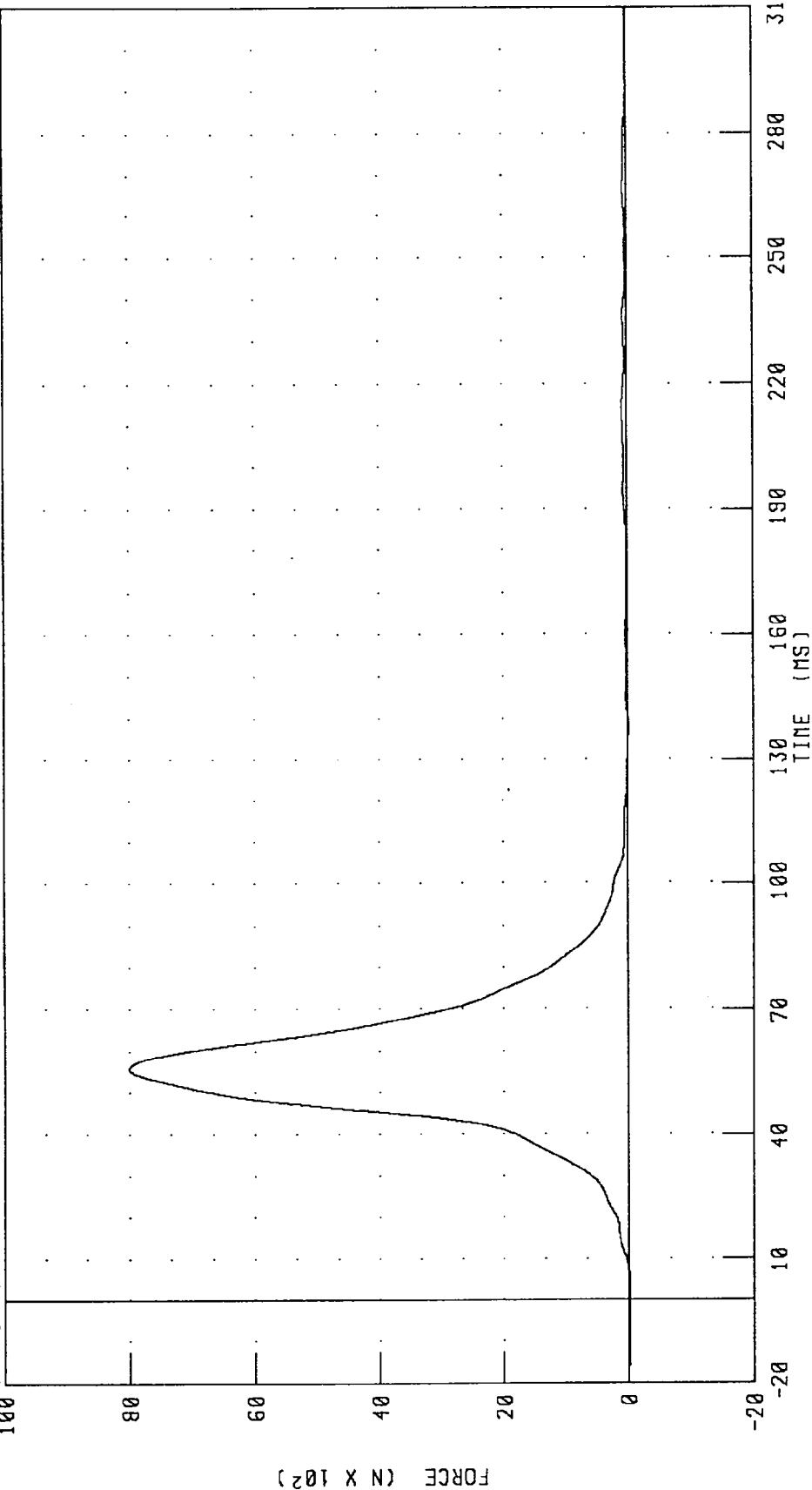


CHANNEL: RFMF1 FILTER: CH. CLASS 600

1994 HONDA CIVIC INTO FRONTAL LOAD CELL BARRIER
 DRIVER LAP BELT OUTBOARD FORCE
 NEW CAR ASSESSMENT MR5300

TEST NUMBER: 940516

TRC INC.



PEAK DATA: 8001.17 N @ 55.84 MS; -14.70 N @ 138.56 MS

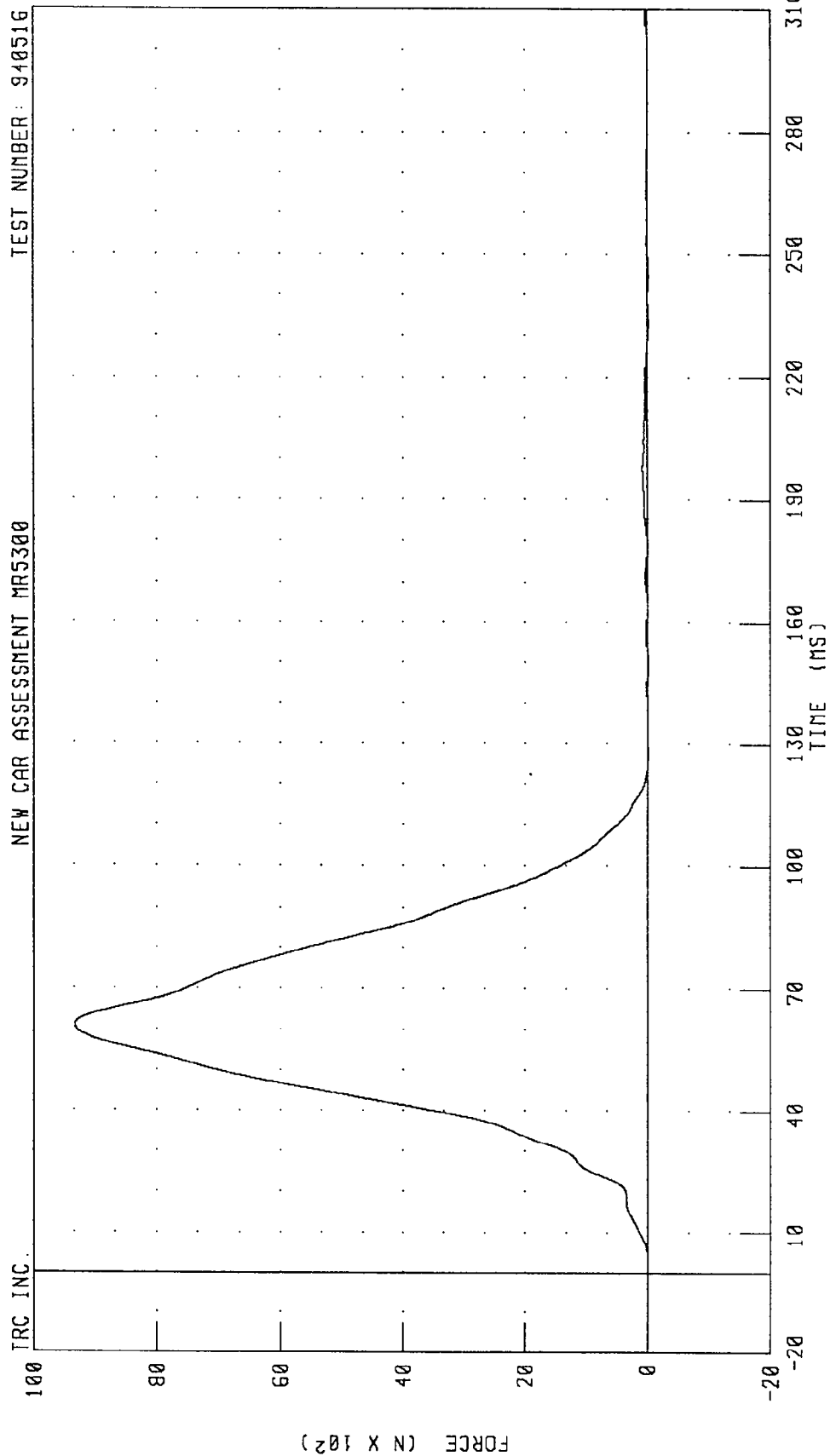
CHANNEL: LBOFI FILTER: CH. CLASS 60

1994 HONDA CIVIC INTO FRONTAL LOAD CELL BARRIER

DRIVER SHOULDER BELT FORCE

NEW CAR ASSESSMENT MR5300

TEST NUMBER: 940516

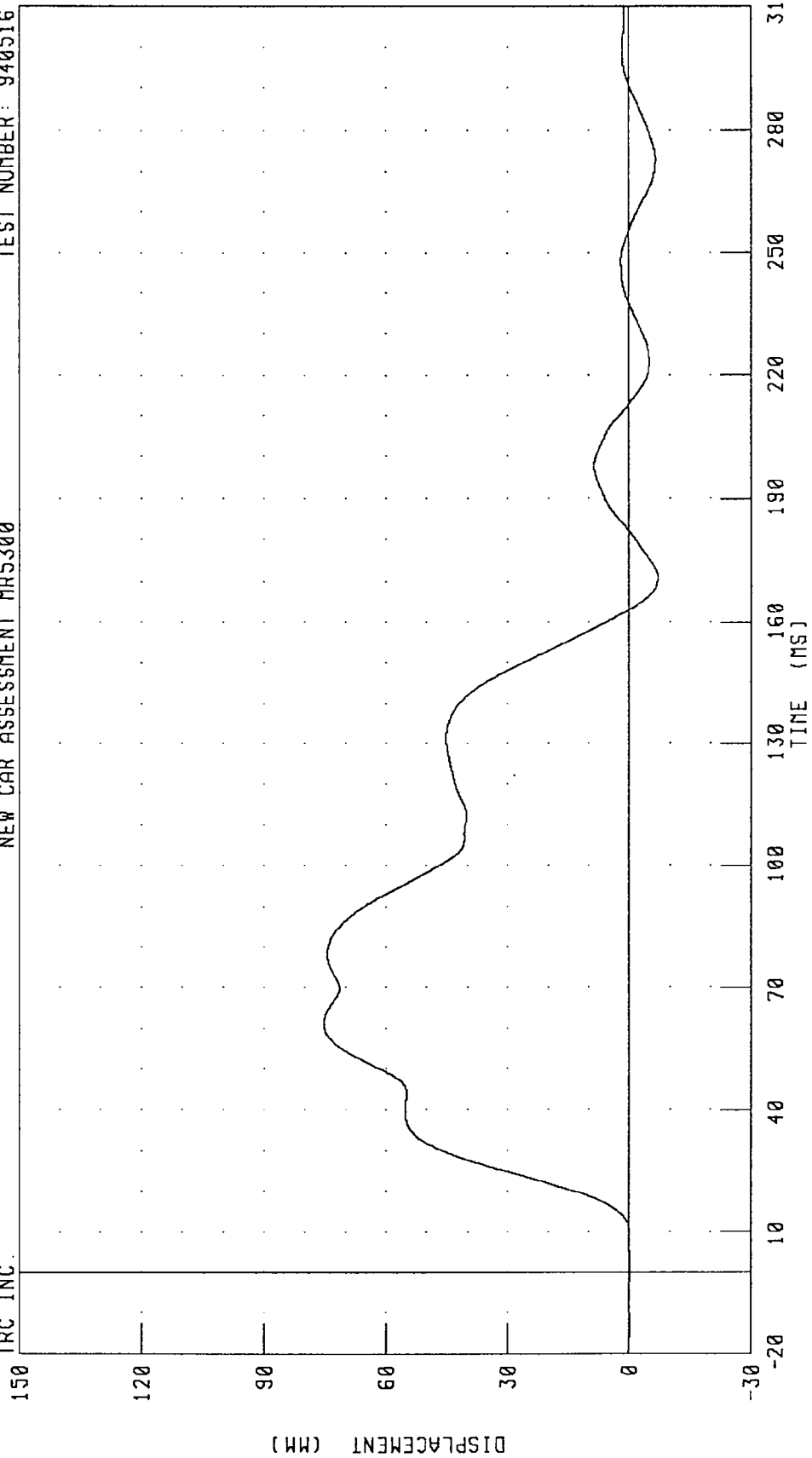


CHANNEL: SHBF1 FILTER: CH. CLASS 60

1994 HONDA CIVIC INTO FRONTAL LOAD CELL BARRIER
DRIVER SHOULDER BELT DISPLACEMENT
NEW CAR ASSESSMENT MR5300

TEST NUMBER: 940516

TRC INC.



CHANNEL: SHB01

FILTER: CH. CLASS 60

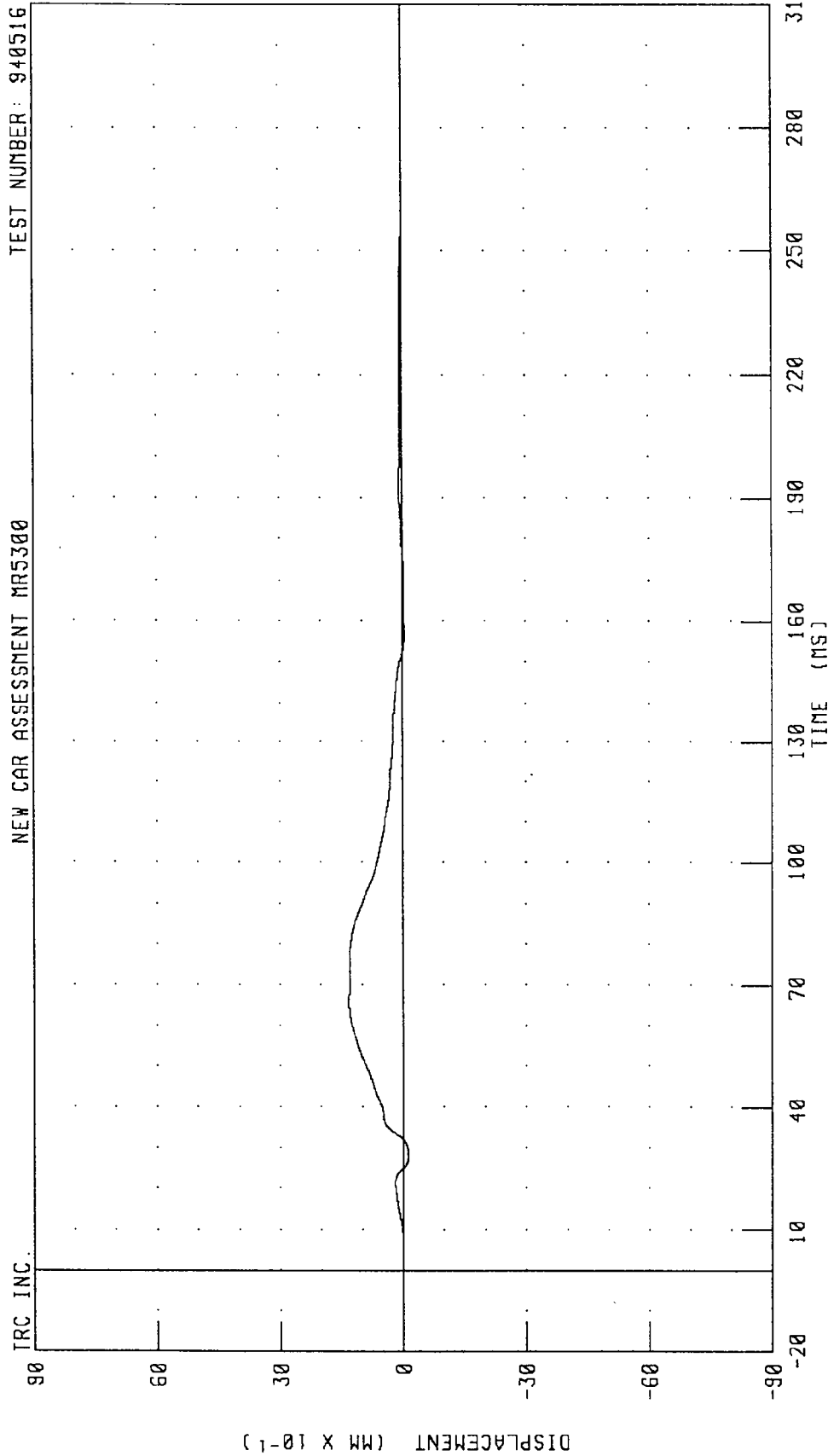
PEAK DATA: 75.30 MM @ 61.04 MS; -6.98 MM @ 170.88 MS

1994 HONDA CIVIC INTO FRONTAL LOAD CELL BARRIER

DRIVER SEAT BELT EXTENSION

NEW CAR ASSESSMENT MR5300

TEST NUMBER: 940516



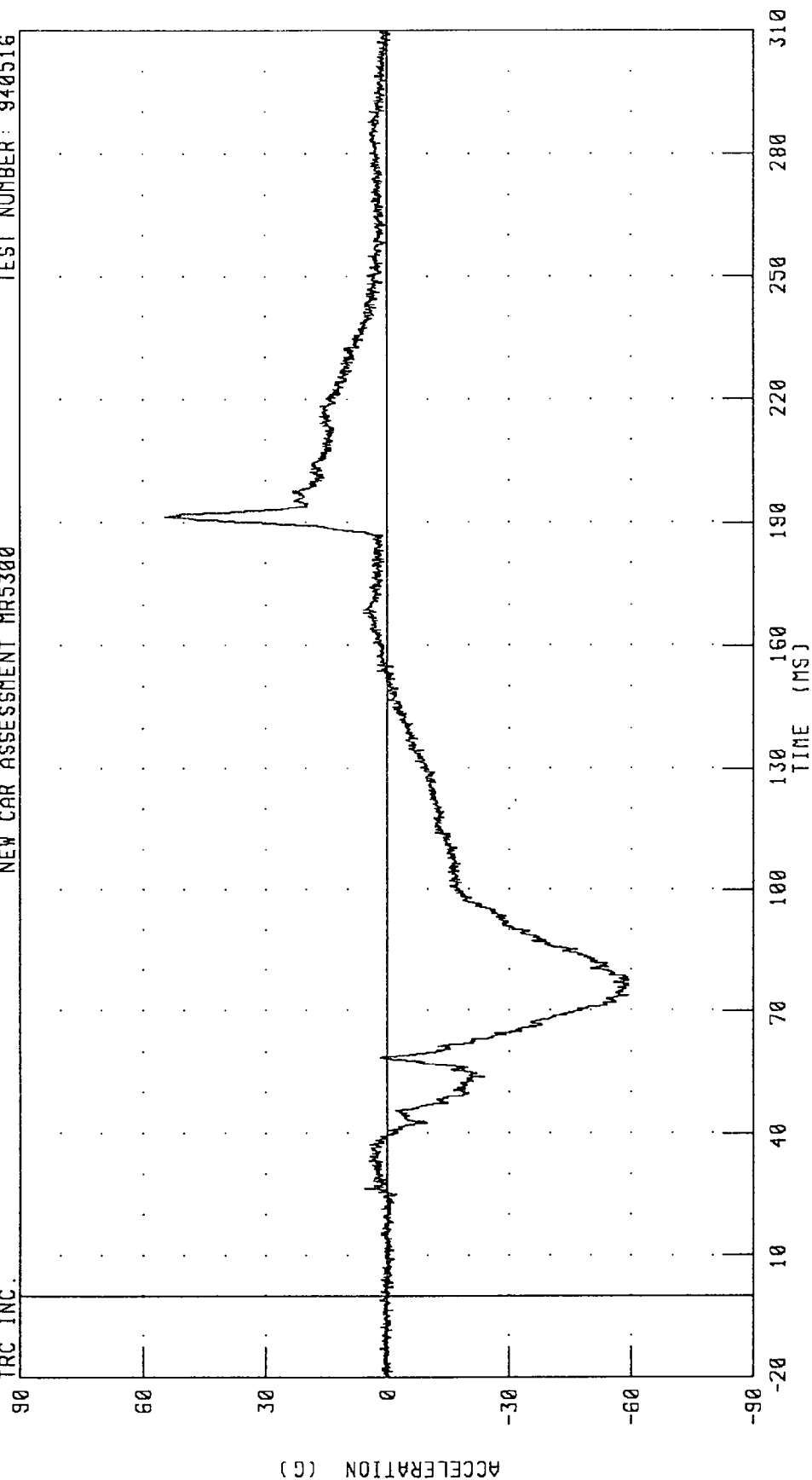
CHANNEL: SBED1 FILTER: CH. CLASS 60

PEAK DATA: 1.31 MM @ 65.76 MS; -0.14 MM @ 27.92 MS

1994 HONDA CIVIC INTO FRONTAL LOAD CELL BARRIER
PASSENGER HEAD X-AXIS ACCELERATION
NEW CAR ASSESSMENT MR5300

TEST NUMBER: 940516

TRC INC.



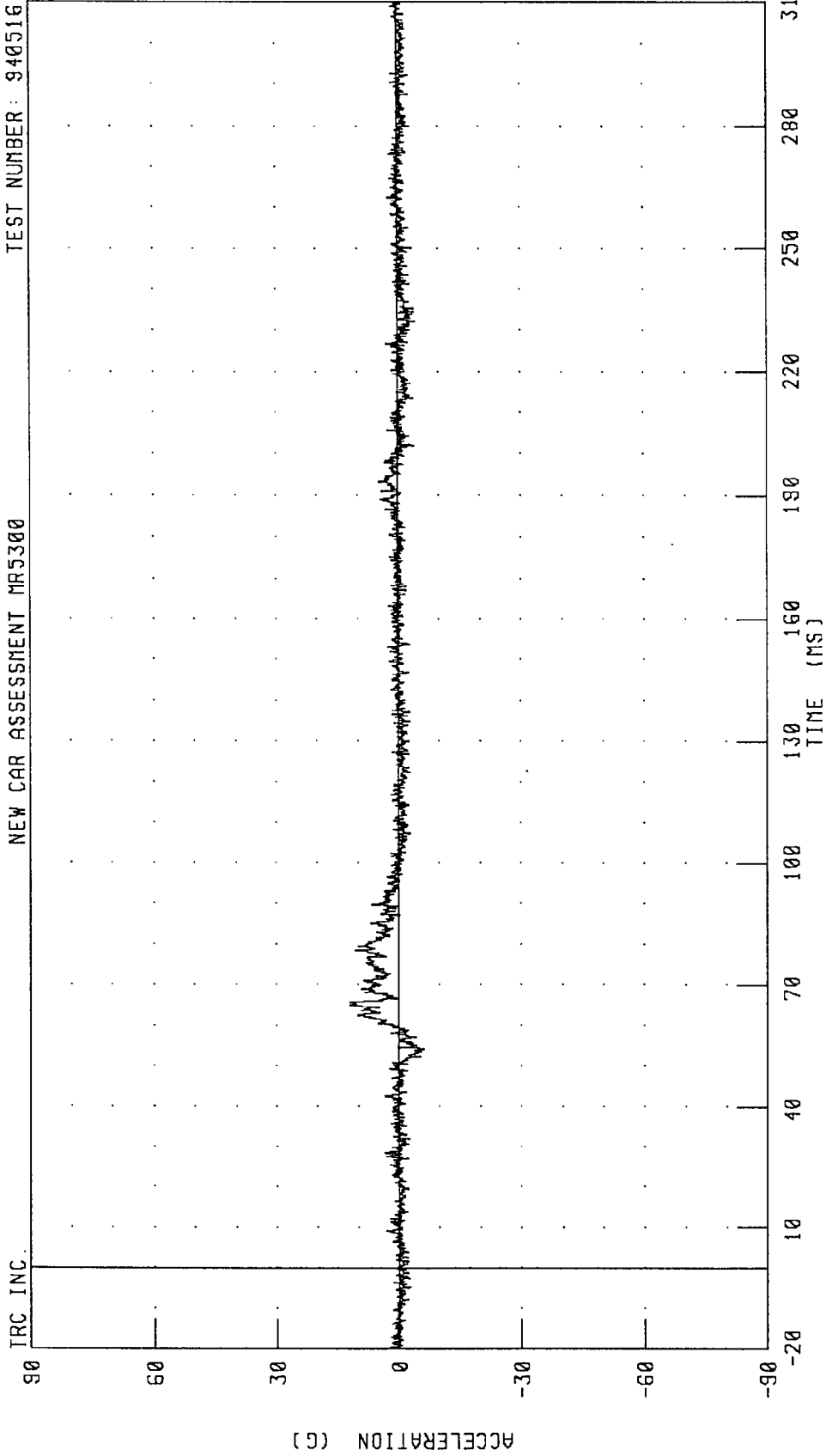
PEAK DATA: 54.51 G @ 191.44 MS; -59.44 G @ 73.76 MS

CHANNEL: HEDXC2 FILTER: CH. CLASS 1000

1994 HONDA CIVIC INTO FRONTAL LOAD CELL BARRIER
PASSENGER HEAD Y-AXIS ACCELERATION
NEW CAR ASSESSMENT MR5300

TEST NUMBER: 940516

TRC INC.



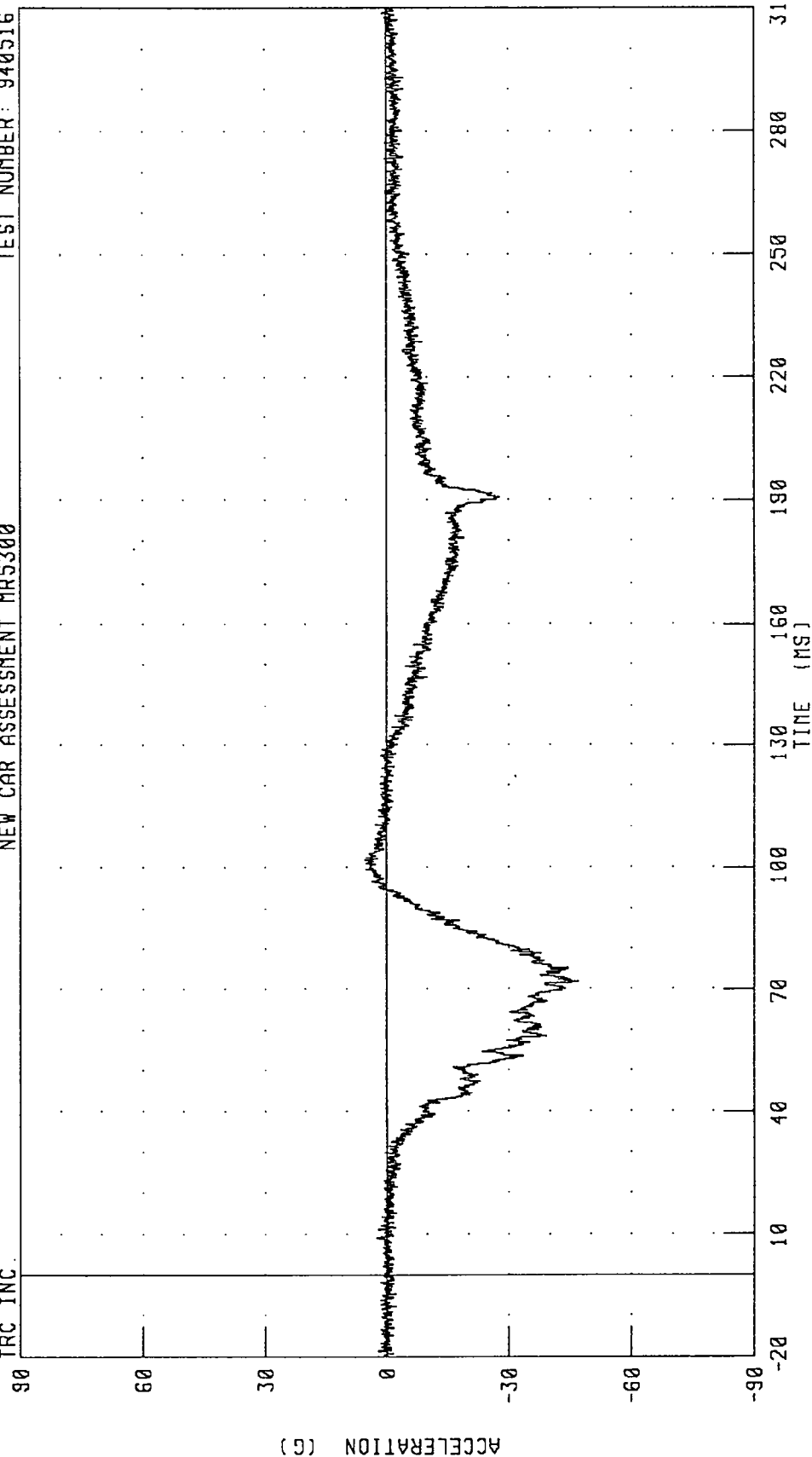
CHANNEL: HEDYG2 FILTER: CH. CLASS 1000

PEAK DATA: 12.04 G @ 65.04 MS; -6.05 G @ 54.08 MS

1994 HONDA CIVIC INTO FRONTAL LOAD CELL BARRIER
PASSENGER HEAD Z-AXIS ACCELERATION
NEW CAR ASSESSMENT MR5300

TEST NUMBER: 940516

TRC INC.



CHANNEL: HEDZG2 FILTER: CH. CLASS 1000

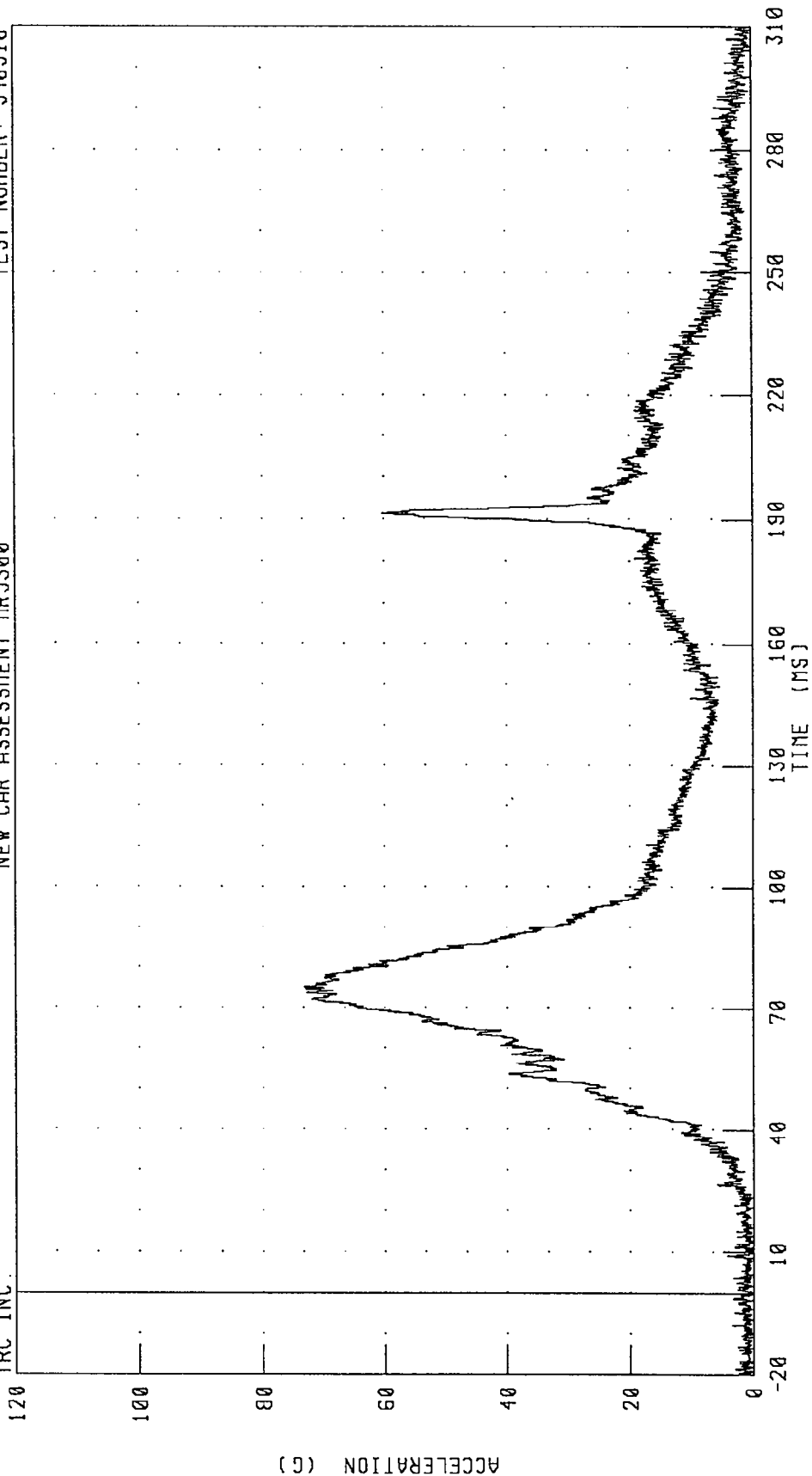
PEAK DATA: 5.26 G @ 101.84 MS; -46.93 G @ 71.84 MS

1994 HONDA CIVIC INTO FRONTAL LOAD CELL BARRIER
PASSENGER HEAD RESULTANT ACCELERATION

TEST NUMBER: 940516

NEW CAR ASSESSMENT MR5300

TRC INC.



CHANNEL: HEDRG2 FILTER: CH. CLASS 1000

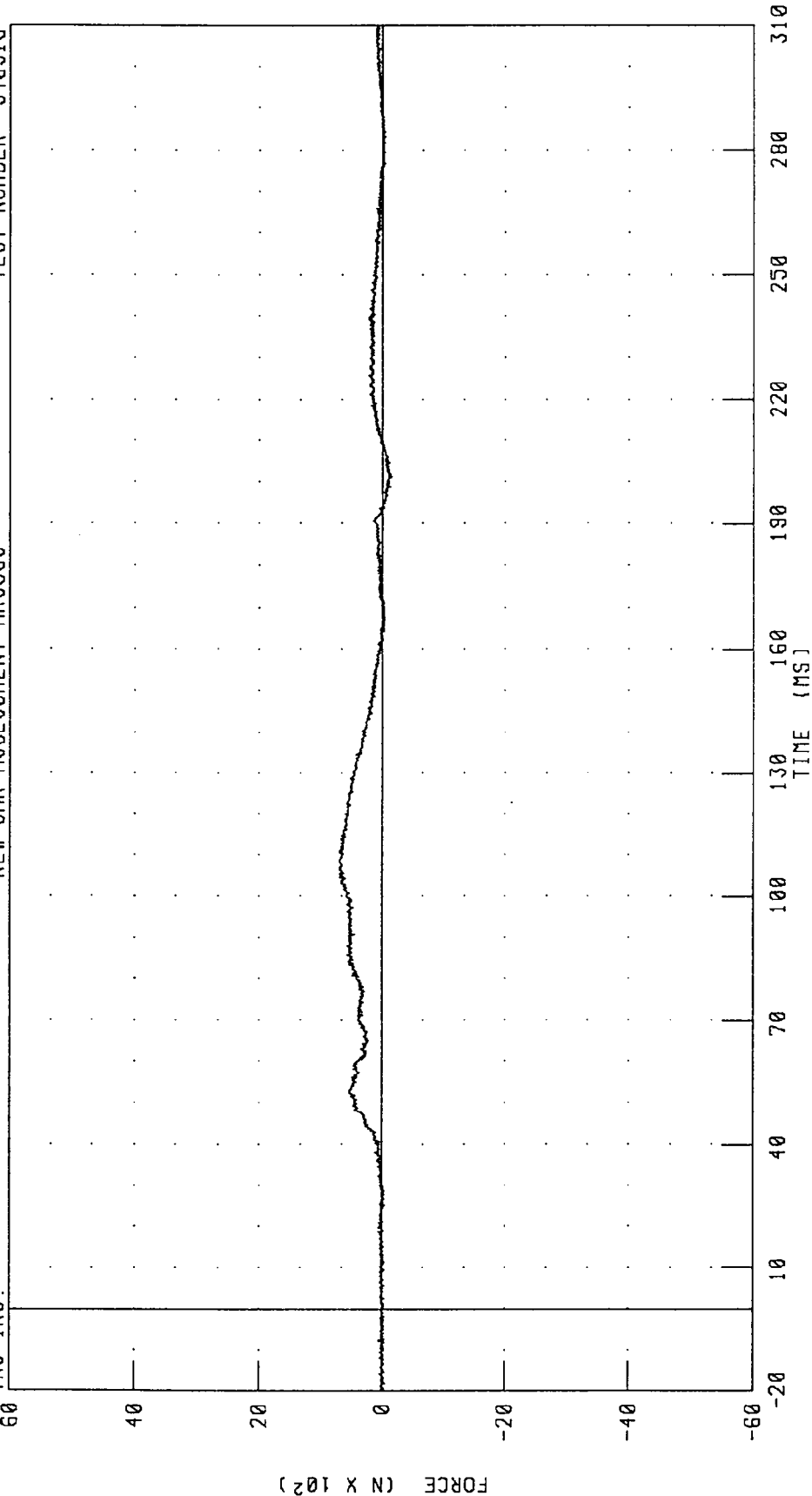
PEAK DATA: 73.16 G @ 75.20 MS; 0.11 G @ 12.64 MS

1994 HONDA CIVIC INTO FRONTAL LOAD CELL BARRIER
PASSENGER NECK X-AXIS SHEAR FORCE

TEST NUMBER: 940516

NEW CAR ASSESSMENT MR5300

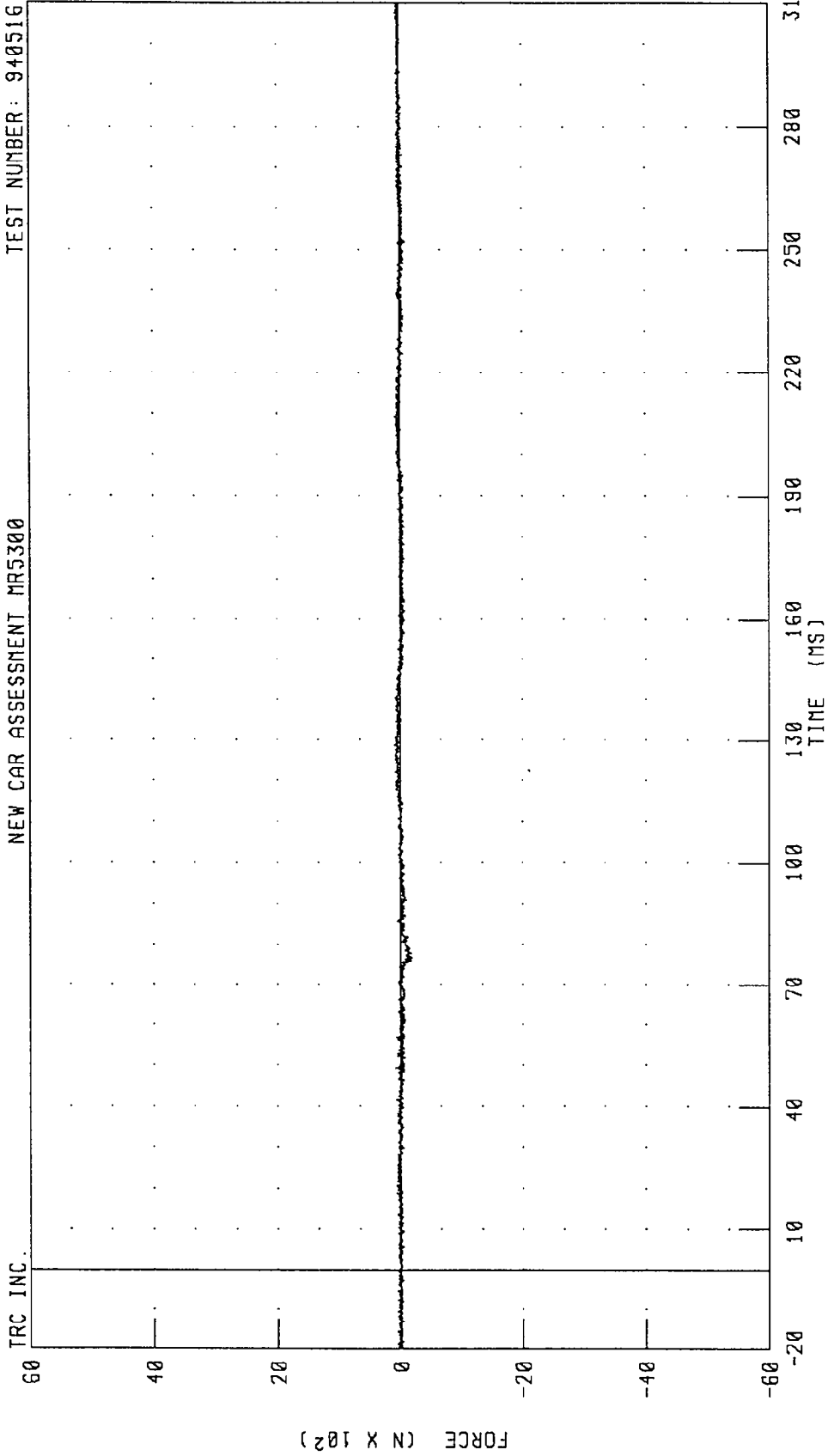
TRC INC.



CHANNEL: NEKXF2 FILTER: CH. CLASS 1000

1994 HONDA CIVIC INTO FRONTAL LOAD CELL BARRIER
PASSENGER NECK Y-AXIS SHEAR FORCE
NEW CAR ASSESSMENT MR5300

TEST NUMBER: 940516



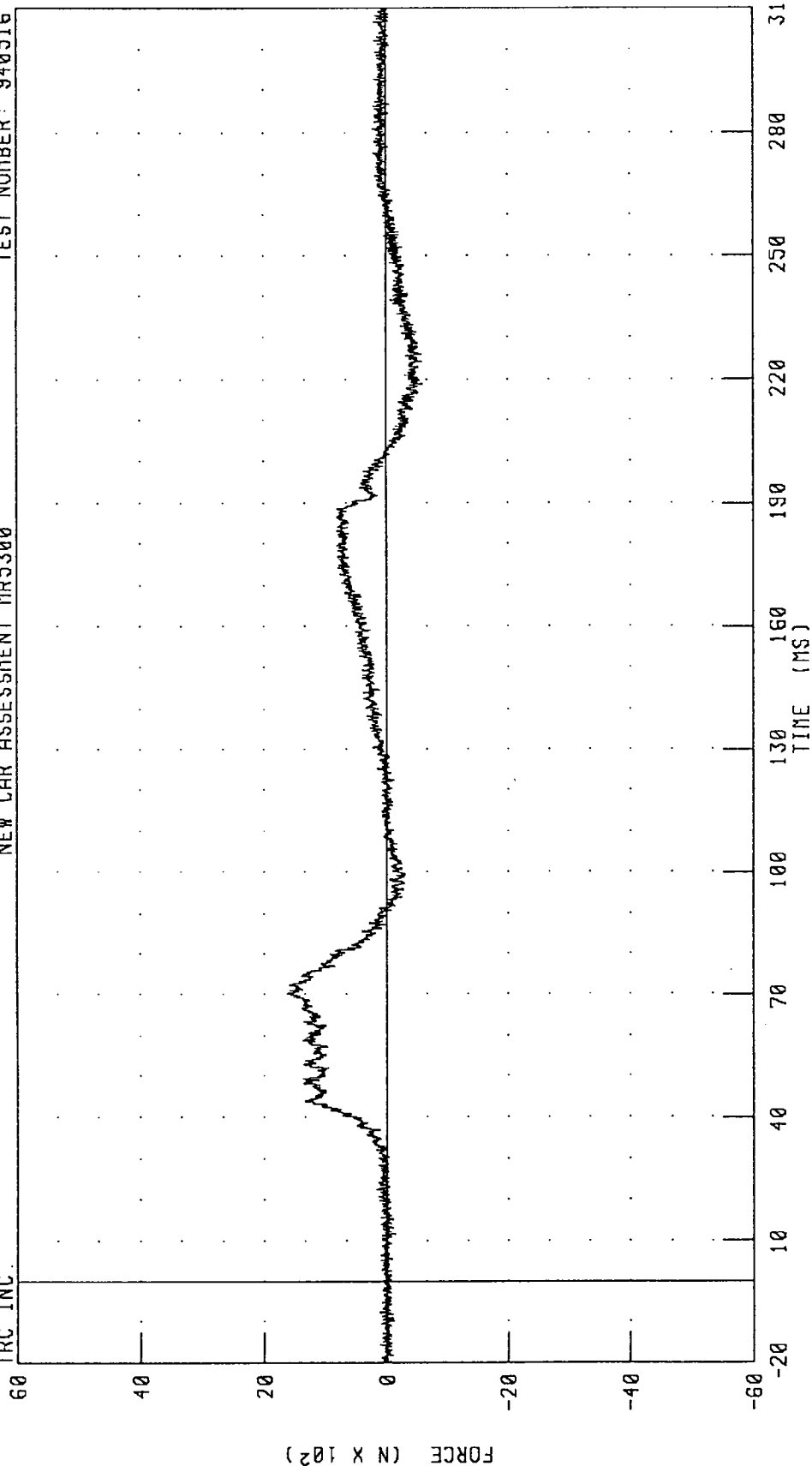
CHANNEL: NEKYF2 FILTER: CH. CLASS 1000

PEAK DATA: 94.07 N @ 128.80 MS; -193.13 N @ 76.80 MS

1994 HONDA CIVIC INTO FRONTAL LOAD CELL BARRIER
PASSENGER NECK Z-AXIS AXIAL FORCE
NEW CAR ASSESSMENT MR5300

TEST NUMBER: 940516

TRC INC.



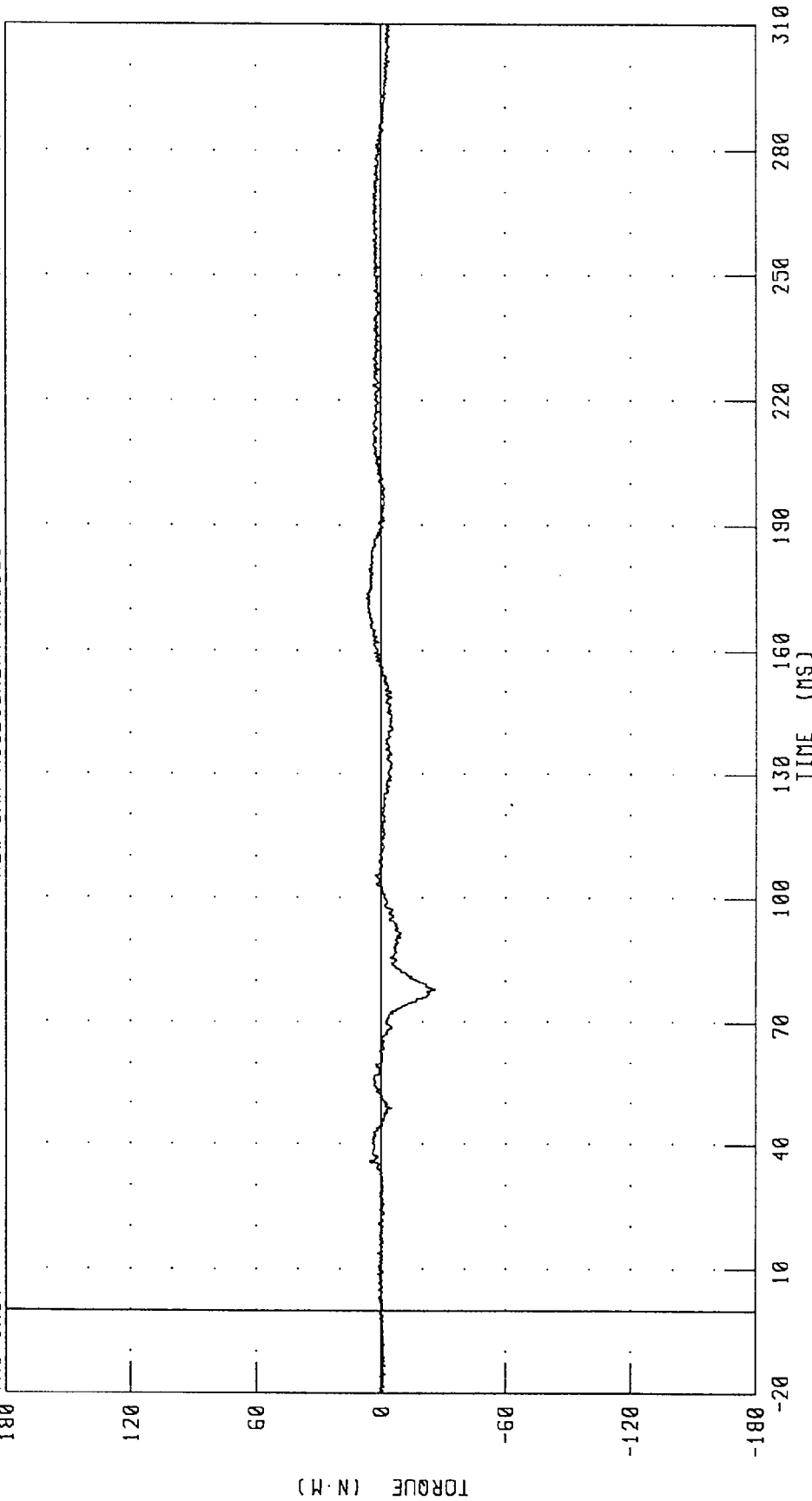
CHANNEL: NEKZF2 FILTER: CH. CLASS 1000

PEAK DATA: 1632.48 N @ 70.16 ms; -585.75 N @ 219.12 ms

1994 HONDA CIVIC INTO FRONTAL LOAD CELL BARRIER
PASSENGER NECK MOMENT ABOUT X AXIS
NEW CAR ASSESSMENT MR5300

TEST NUMBER: 940516

TRC INC.



PEAK DATA: 6.53 N-M @ 173.60 MS; -25.86 N-M @ 77.92 MS

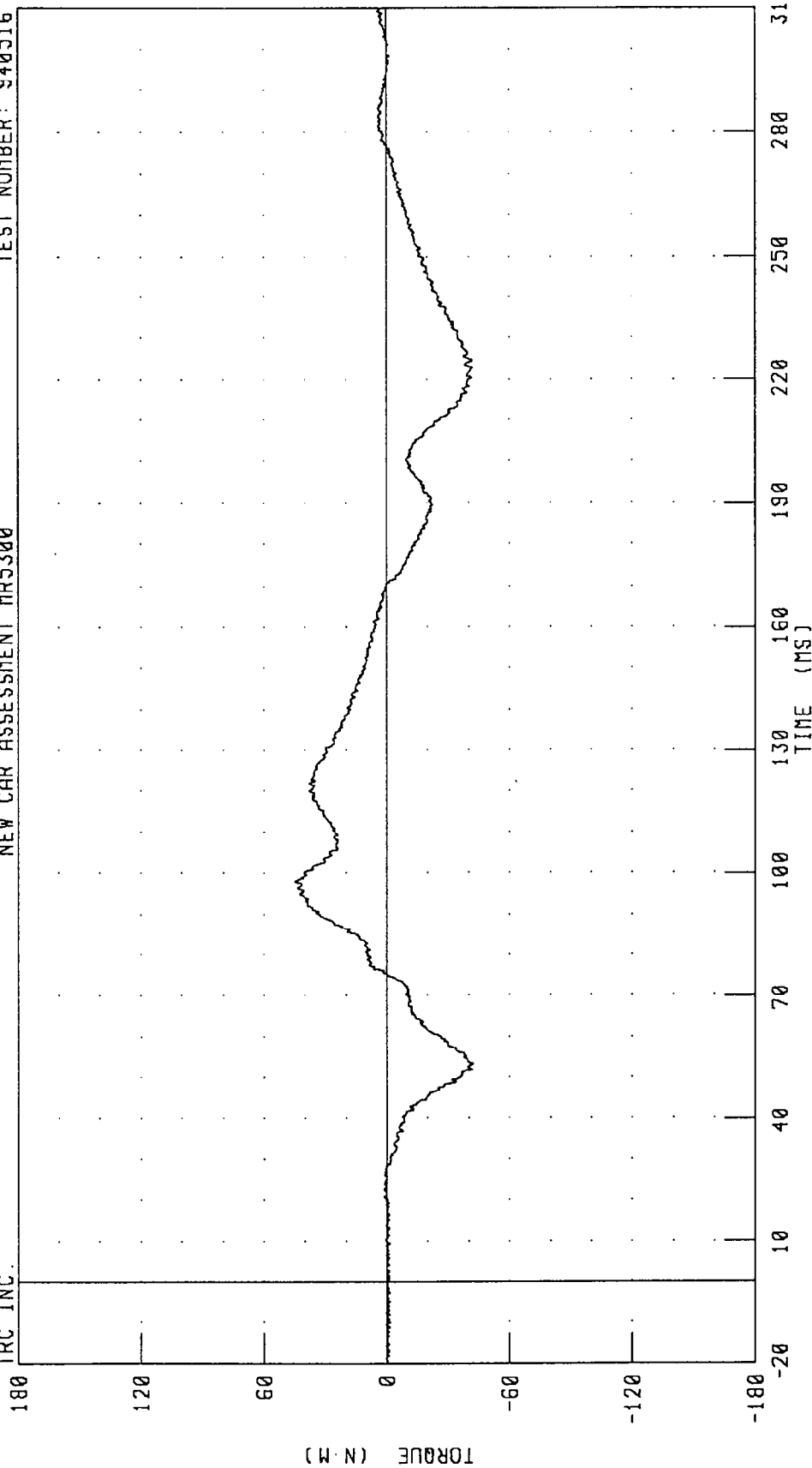
CHANNEL: NEKX12 FILTER: CH. CLASS 600

1994 HONDA CIVIC INTO FRONTAL LOAD CELL BARRIER
PASSENGER NECK MOMENT ABOUT Y AXIS

TEST NUMBER: 940516

NEW CAR ASSESSMENT MR5300

TRC INC.



CHANNEL: NEKYM2 FILTER: CH. CLASS 600

PEAK DATA: 44.78 N·M @ 98.00 MS; -42.01 N·M @ 53.12 MS

1994 HONDA CIVIC INTO FRONTAL LOAD CELL BARRIER
PASSENGER NECK MOMENT ABOUT Z AXIS
NEW CAR ASSESSMENT MR5300

TEST NUMBER: 940516

TRC INC.

180

120

60

0

-60

-120

-180

TORQUE (N·M)

310

280

250

220

190

160

130

100

70

40

10

-20

TIME (MS)

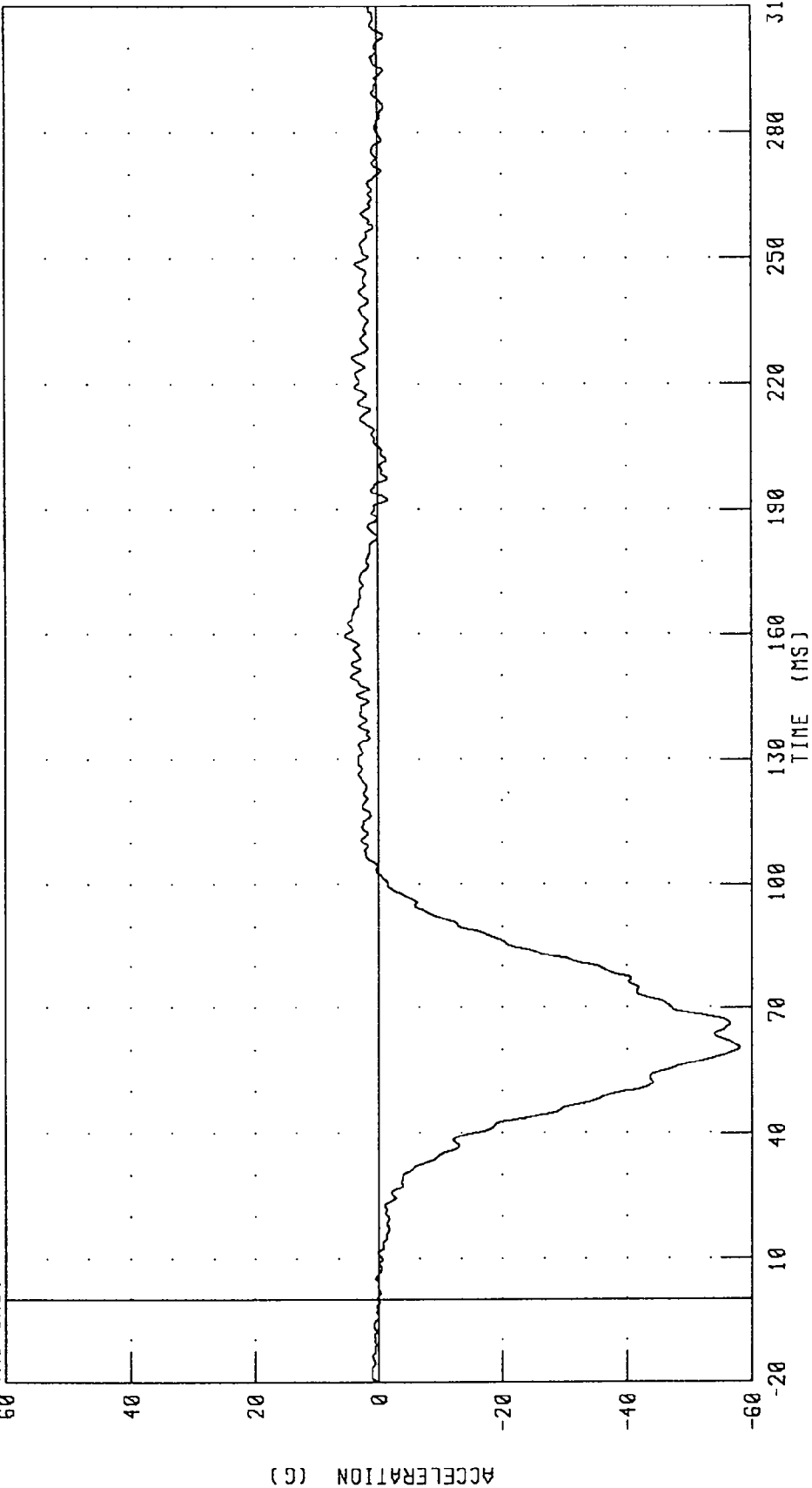
PEAK DATA: 16.49 N·M @ 85.76 MS; -7.09 N·M @ 131.60 MS

CHANNEL: NEKZM2 FILTER: CH. CLASS 600

1994 HONDA CIVIC INTO FRONTAL LOAD CELL BARRIER
PASSENGER CHEST X-AXIS ACCELERATION
NEW CAR ASSESSMENT MR5300

TEST NUMBER: 940516

TRC INC.



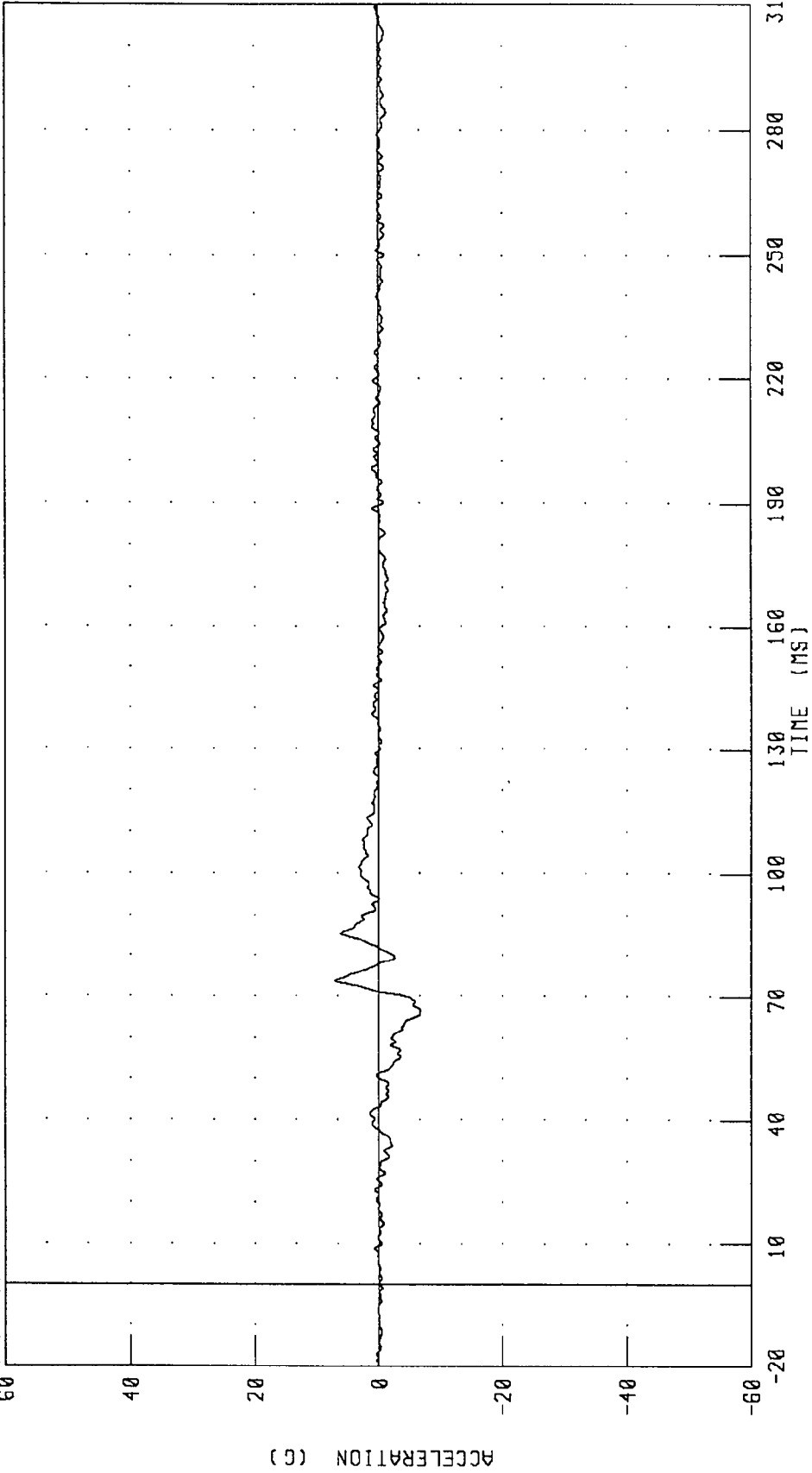
PEAK DATA: 5.50 G @ 159.60 MS; -58.09 G @ 60.40 MS

CHANNEL: CSTXG2 FILTER: CH. CLASS 180

1994 HONDA CIVIC INTO FRONTAL LOAD CELL BARRIER
PASSENGER CHEST Y-AXIS ACCELERATION
NEW CAR ASSESSMENT MR5300

TEST NUMBER: 940516

TRC INC.



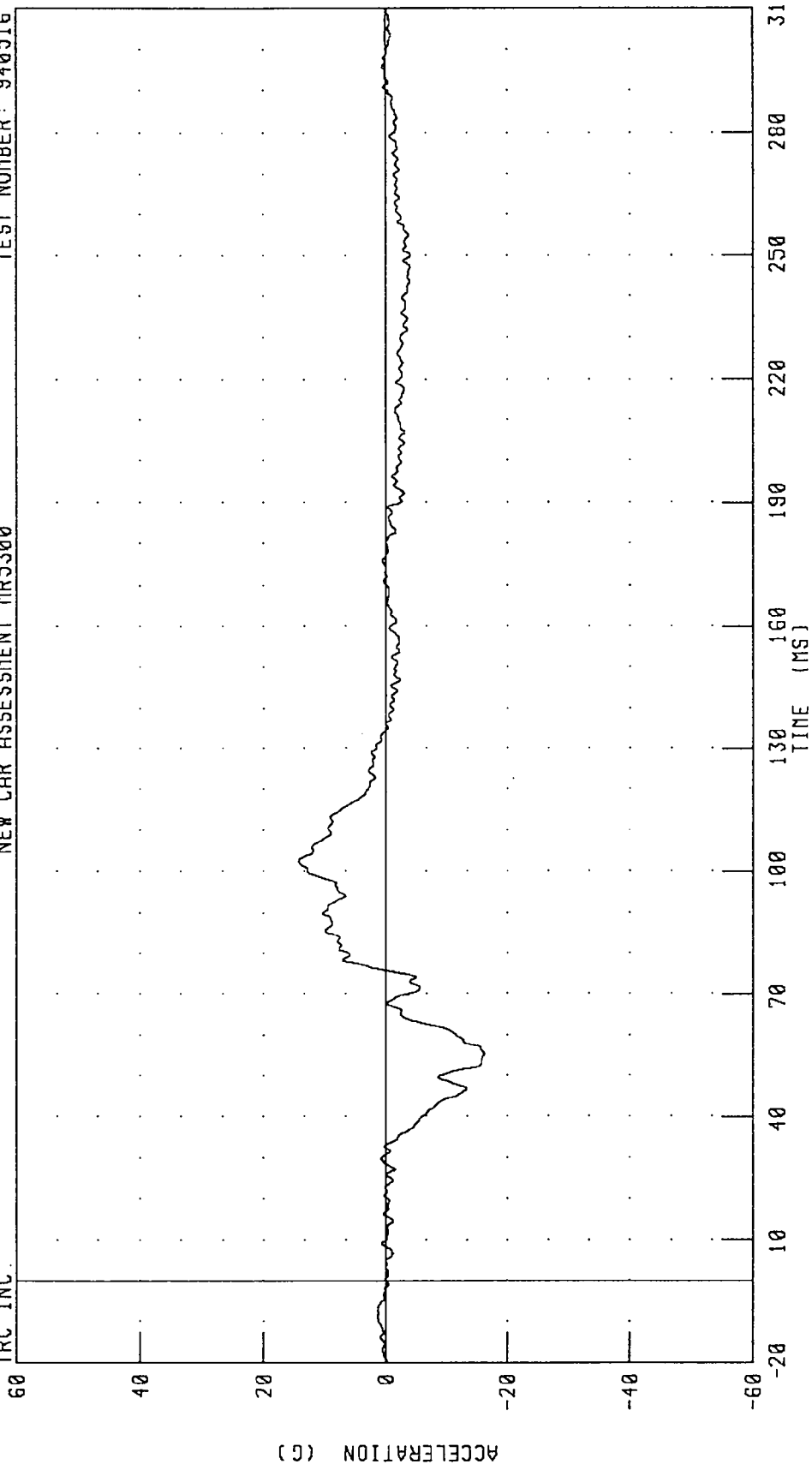
CHANNEL: CSTYG2 FILTER: CH. CLASS 180

PEAK DATA: 7.08 G @ 73.92 MS; -6.70 G @ 66.72 MS

1994 HONDA CIVIC INTO FRONTAL LOAD CELL BARRIER
 PASSENGER CHEST Z-AXIS ACCELERATION
 NEW CAR ASSESSMENT MR5300

TEST NUMBER: 940516

TRC INC.

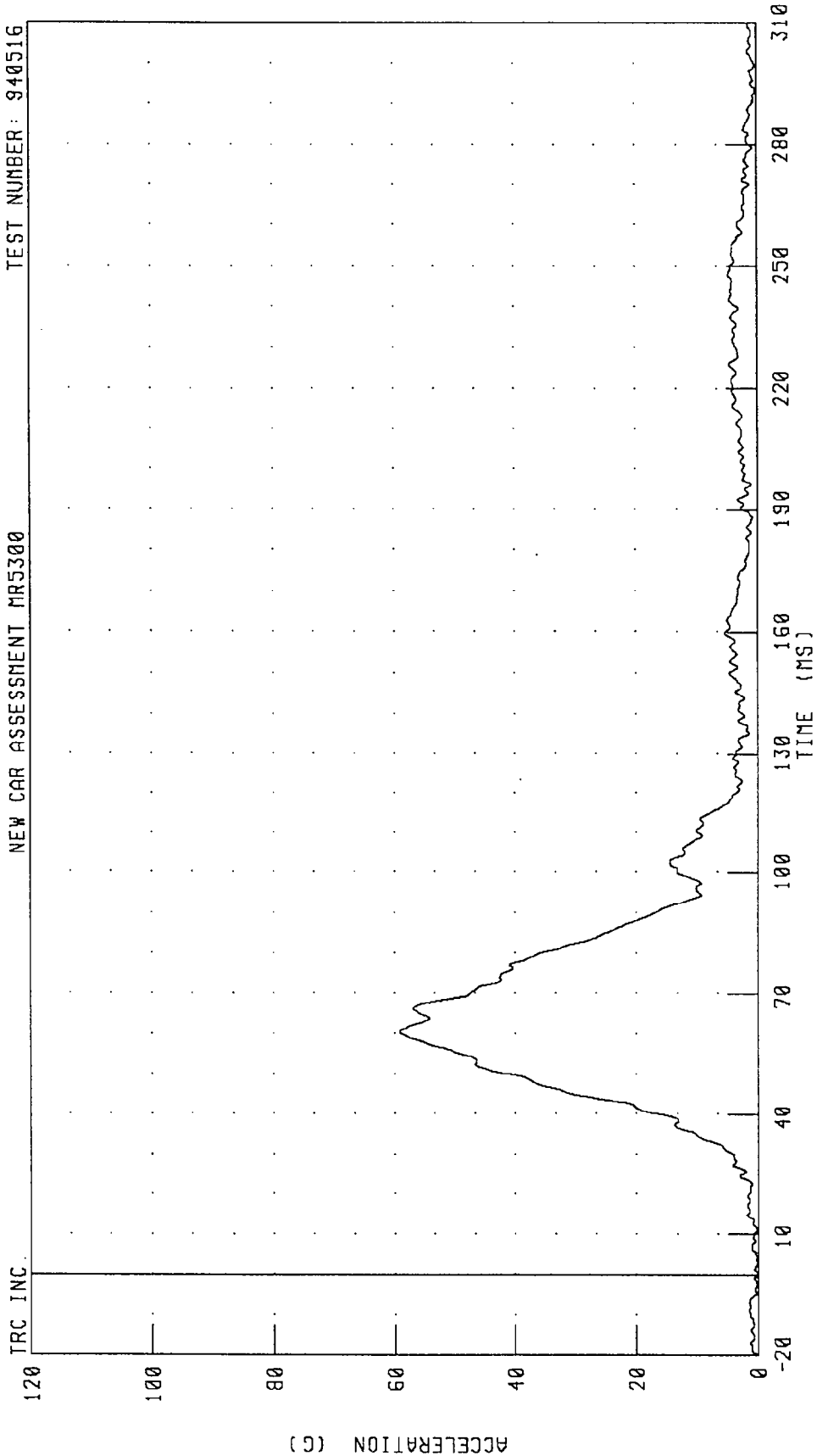


CHANNEL: CSTZG2 FILTER: CH. CLASS 180

PEAK DATA: 14.23 G @ 102.64 MS; -16.30 G @ 55.28 MS

1994 HONDA CIVIC INTO FRONTAL LOAD CELL BARRIER
PASSENGER CHEST RESULTANT ACCELERATION
NEW CAR ASSESSMENT MR5300

TEST NUMBER: 940516



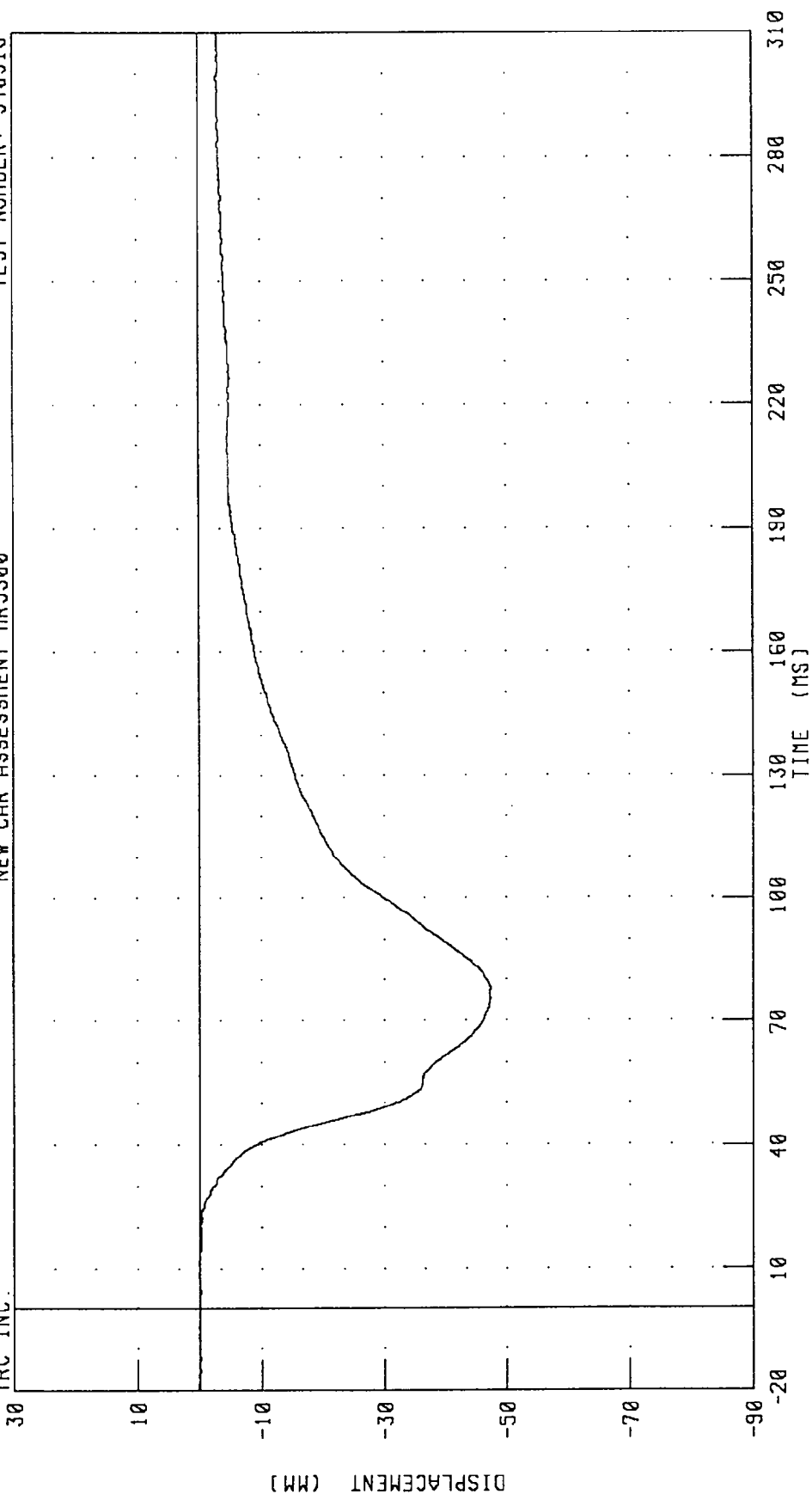
CHANNEL: CSTRG2 FILTER: CH. CLASS 180

PEAK DATA: 59.23 G @ 60.32 MS; 0.07 G @ -20.00 MS

1994 HONDA CIVIC INTO FRONTAL LOAD CELL BARRIER
PASSENGER CHEST DEFLECTION
NEW CAR ASSESSMENT MR5300

TEST NUMBER: 940516

TRC INC.



CHANNEL: CSTXD2 FILTER: CH. CLASS 180

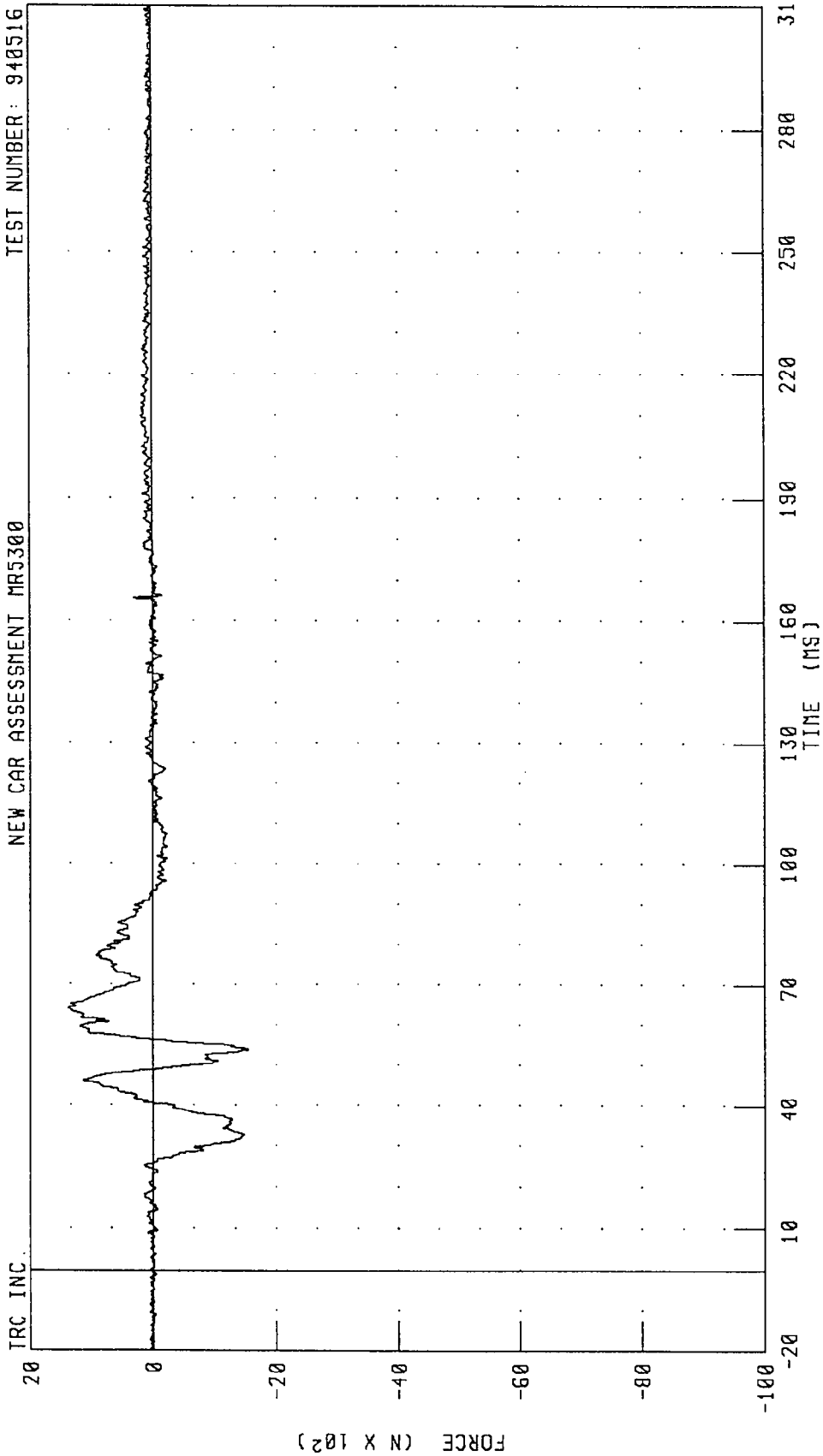
PEAK DATA: 0.14 MM @ 8.40 MS; -47.36 MM @ 77.84 MS

1994 HONDA CIVIC INTO FRONTAL LOAD CELL BARRIER

PASSENGER LEFT FEMUR FORCE

NEW CAR ASSESSMENT MR5300

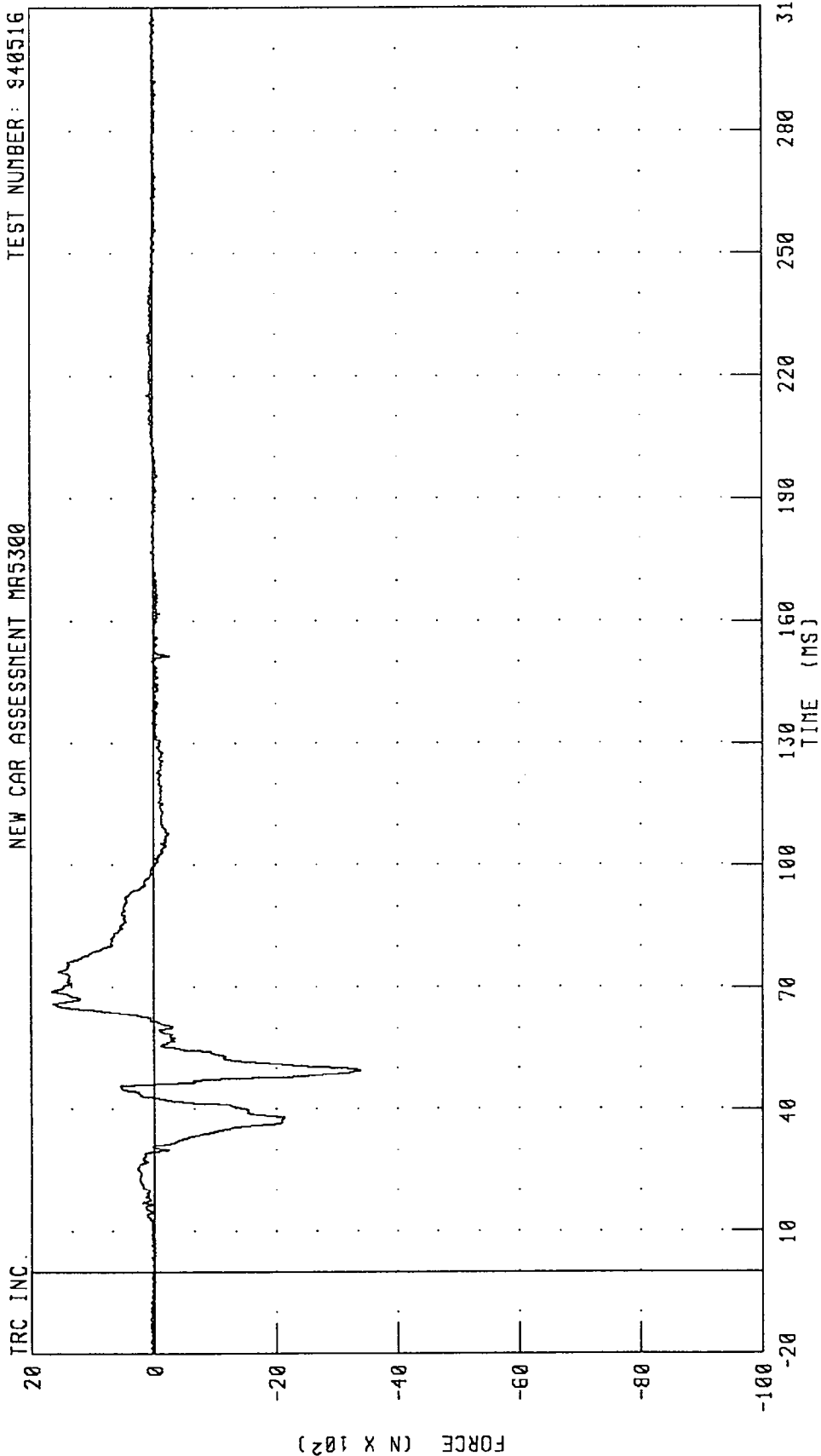
TEST NUMBER: 940516



CHANNEL: LFMF2 FILTER: CH. CLASS 600

1994 HONDA CIVIC INTO FRONTAL LOAD CELL BARRIER
PASSENGER RIGHT FEMUR FORCE
NEW CAR ASSESSMENT MR5300

TEST NUMBER: 940516



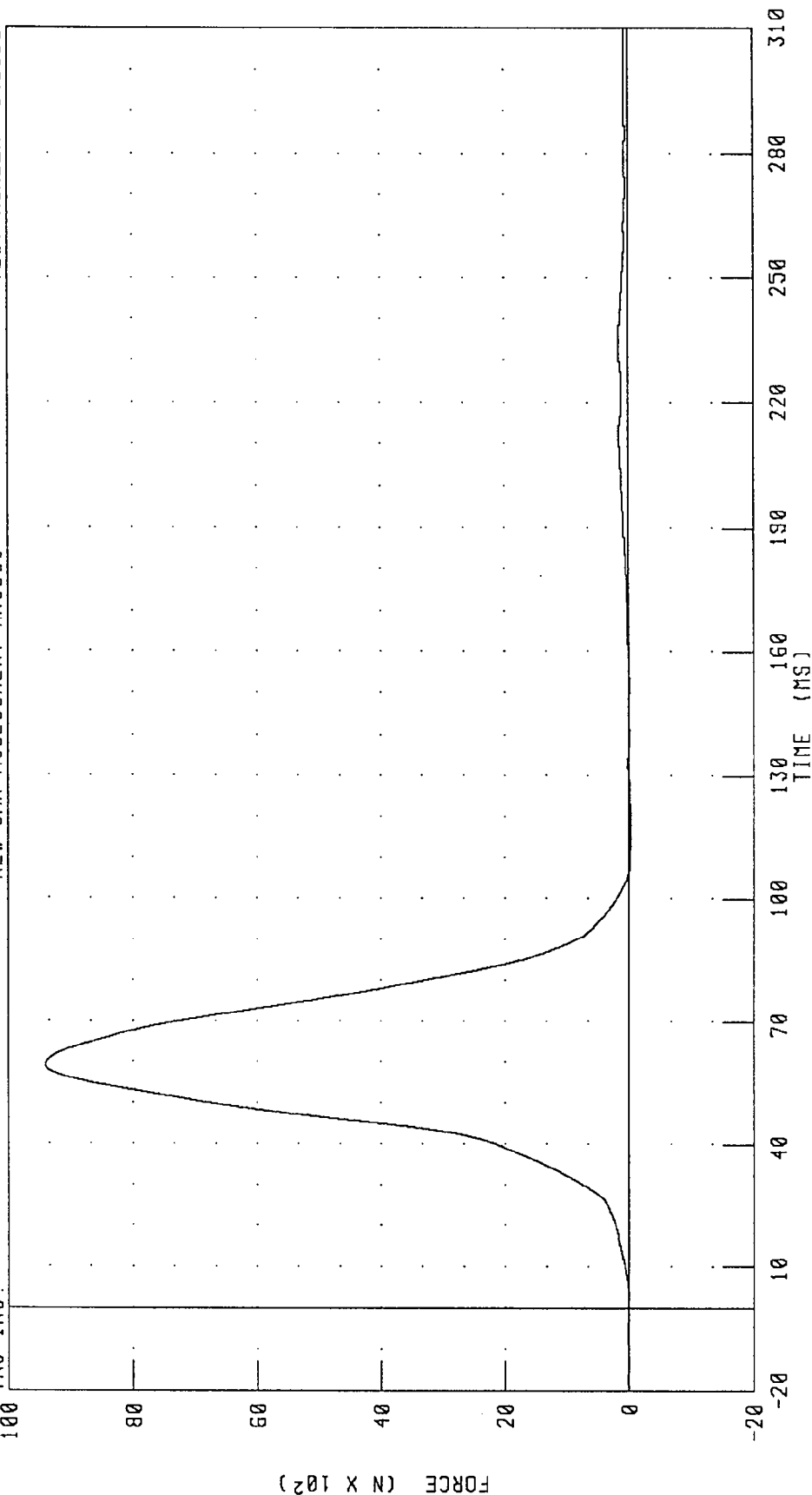
CHANNEL: RFMF2 FILTER: CH. CLASS 600

PEAK DATA: 1656.67 N @ 69.12 MS; -3374.60 N @ 49.60 MS

1994 HONDA CIVIC INTO FRONTAL LOAD CELL BARRIER
PASSENGER LAP BELT OUTBOARD FORCE
NEW CAR ASSESSMENT NR5300

TEST NUMBER: 940516

TRC INC.



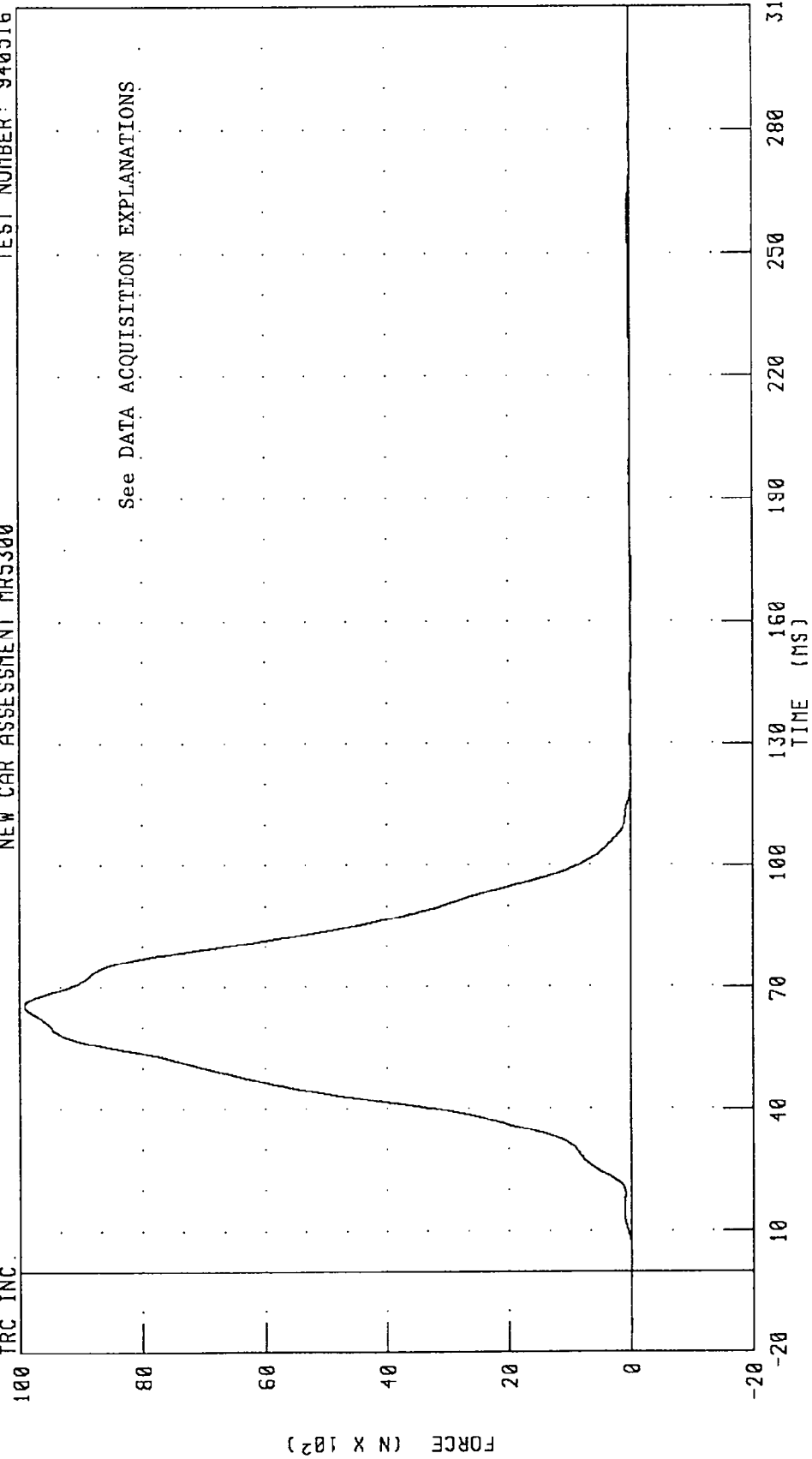
PEAK DATA: 9400.59 N @ 59.12 MS; -35.03 N @ 120.24 MS

CHANNEL: LBOF2 FILTER: CH. CLASS 60

1994 HONDA CIVIC INTO FRONTAL LOAD CELL BARRIER
PASSENGER SHOULDER BELT FORCE
NEW CAR ASSESSMENT MR5300

TEST NUMBER: 940516

TRC INC.

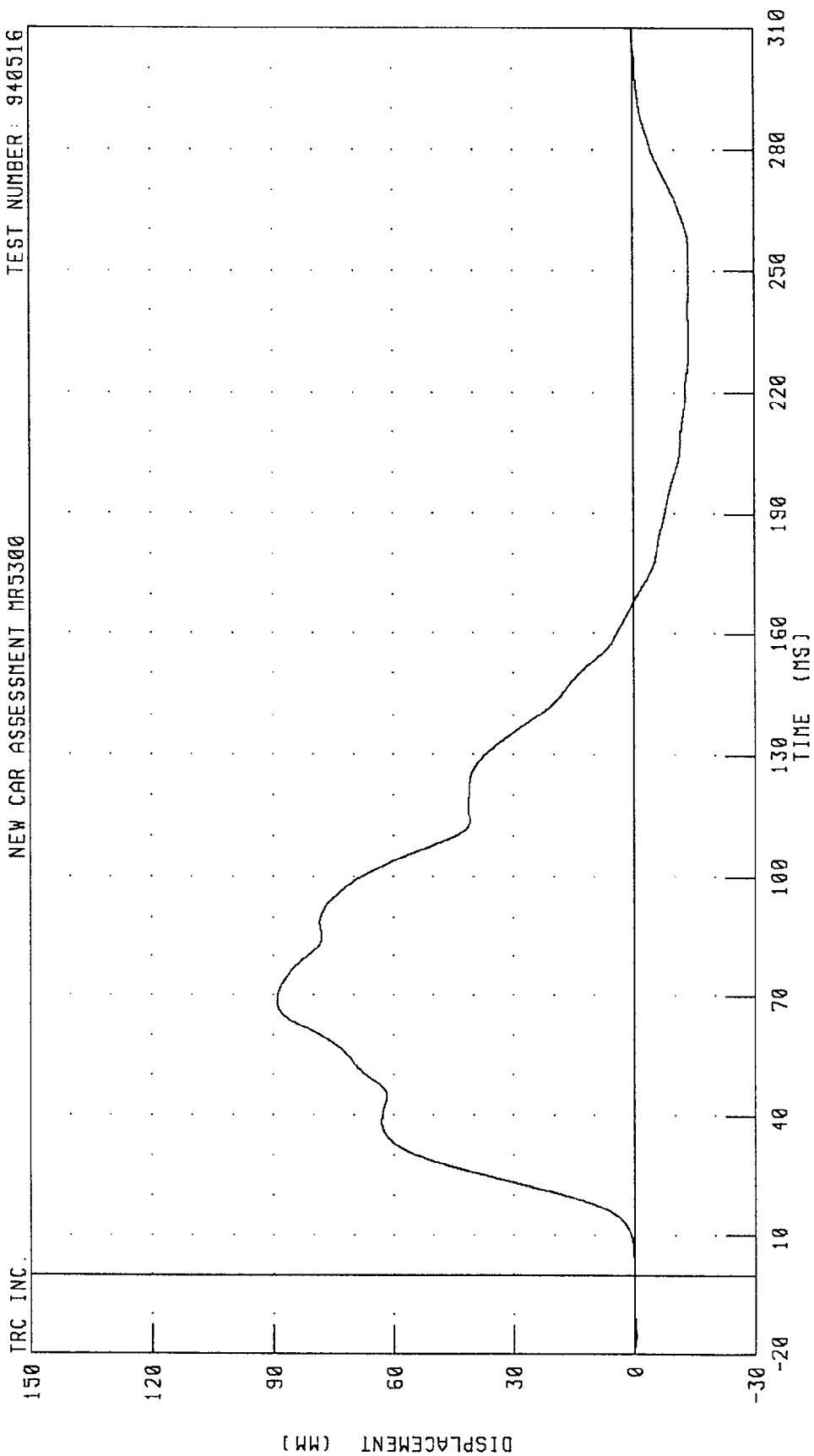


CHANNEL: SHBF2 FILTER: CH. CLASS 60

PEAK DATA: 9919.40 N @ 65.52 MS; -8.88 N @ 1.44 MS

1994 HONDA CIVIC INTO FRONTAL LOAD CELL BARRIER
PASSENGER SHOULDER BELT DISPLACEMENT
NEW CAR ASSESSMENT MR5300

TEST NUMBER: 940516

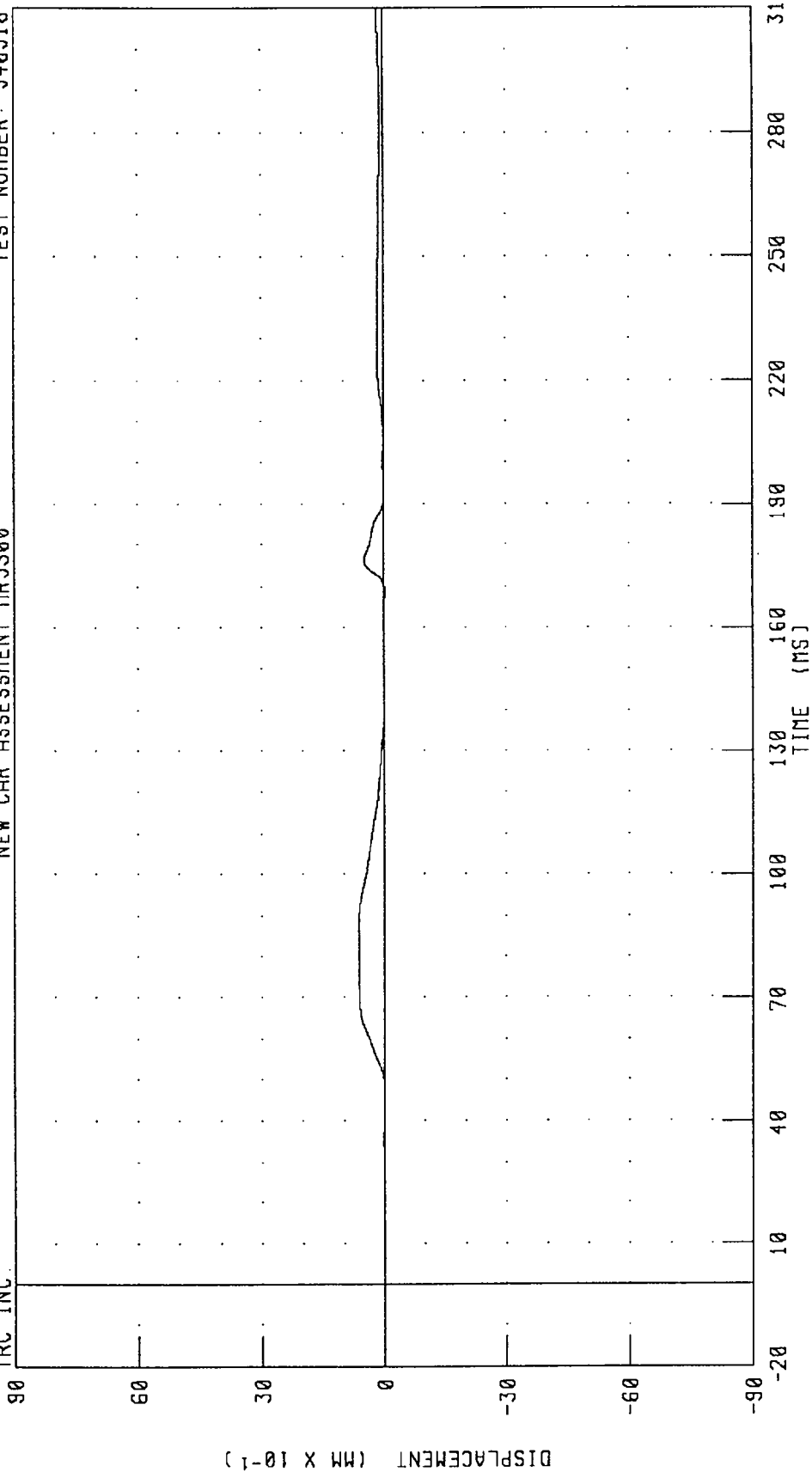


CHANNEL: SHB02 FILTER: CH. CLASS 60

1994 HONDA CIVIC INTO FRONTAL LOAD CELL BARRIER
PASSENGER SEAT BELT EXTENSION
NEW CAR ASSESSMENT MR5300

TEST NUMBER: 940516

TRC INC.



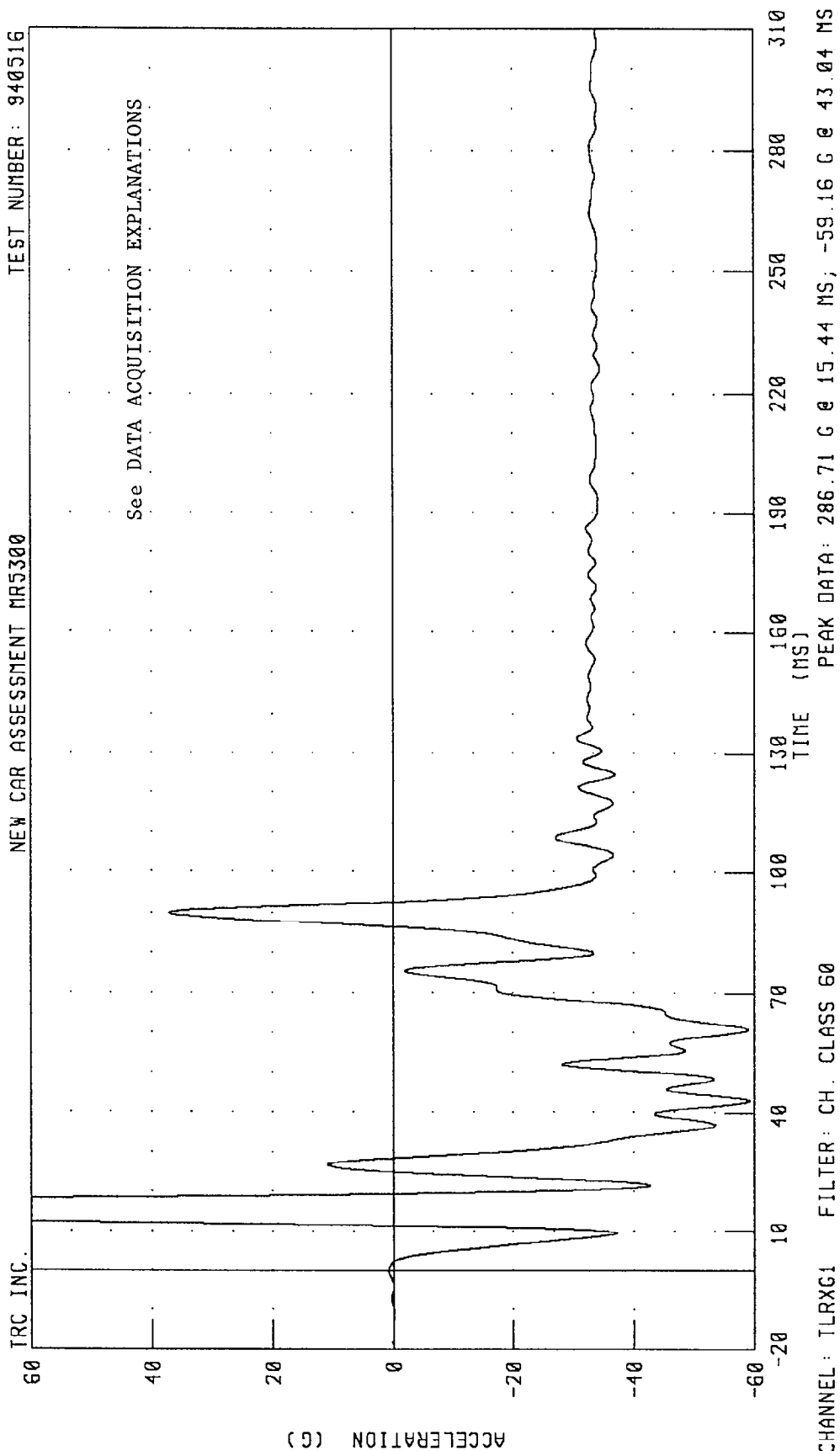
CHANNEL: SBED2 FILTER: CH. CLASS 60

940516

1994 HONDA CIVIC INTO FRONTAL LOAD CELL BARRIER
LEFT REAR SEAT X-AXIS ACCELERATION

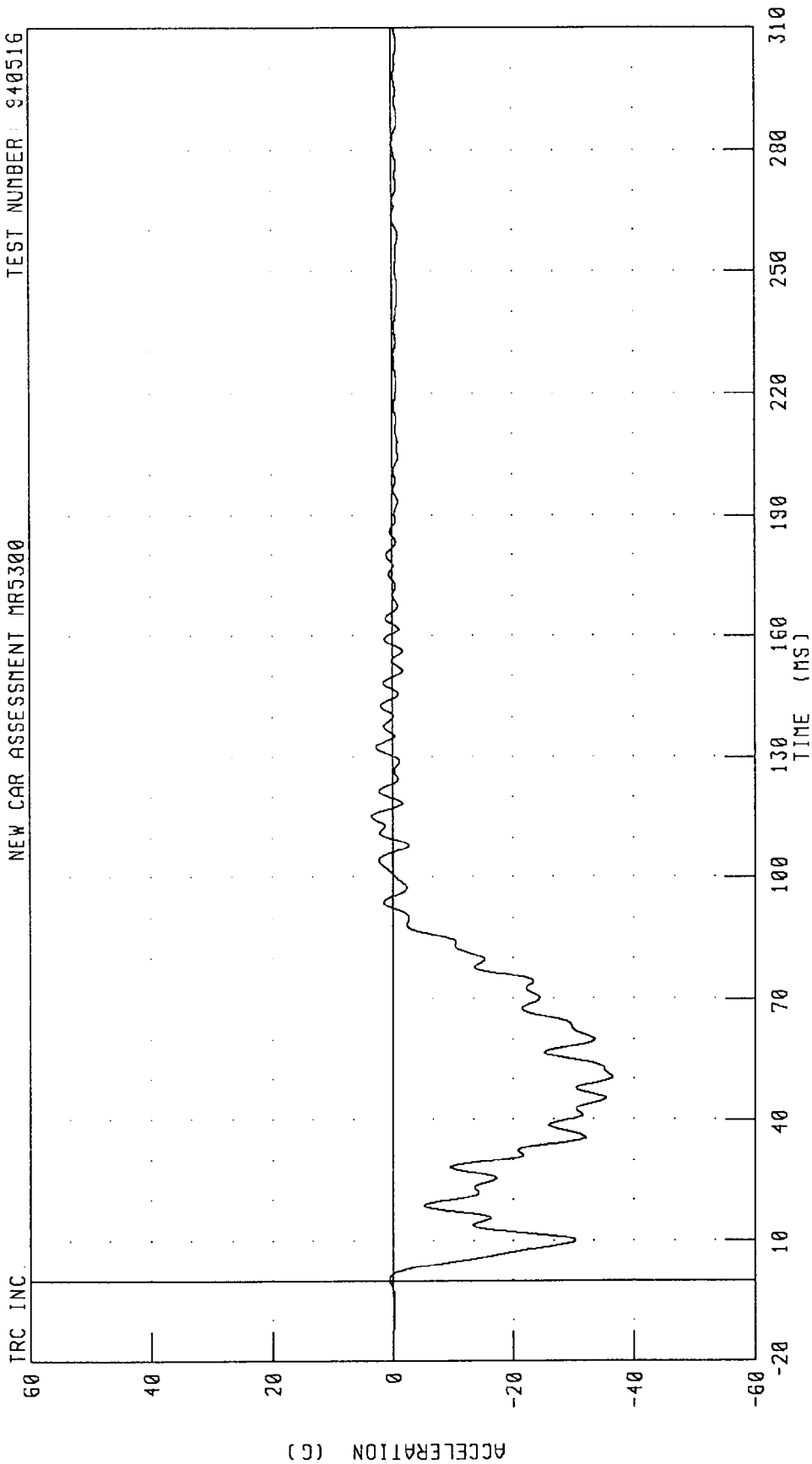
NEW CAR ASSESSMENT MR5300

TEST NUMBER: 940516



1994 HONDA CIVIC INTO FRONTAL LOAD CELL BARRIER
RIGHT REAR SEAT X-AXIS ACCELERATION
NEW CAR ASSESSMENT MR5300

TEST NUMBER: 940516

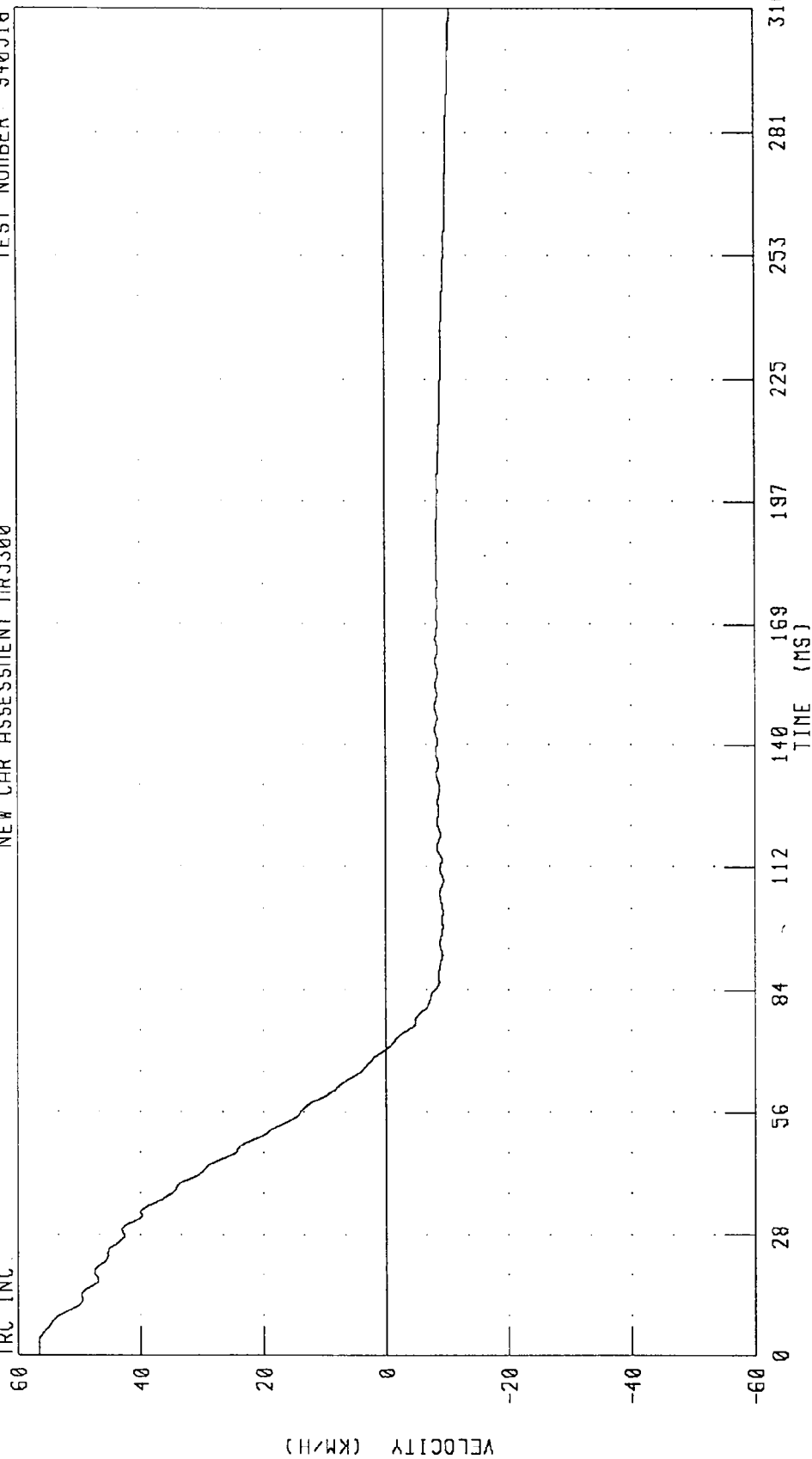


CHANNEL: TRRXG1 FILTER: CH. CLASS 60

1994 HONDA CIVIC INTO FRONTAL LOAD CELL BARRIER
 RIGHT REAR SEAT X-AXIS VELOCITY
 NEW CAR ASSESSMENT MR5300

TEST NUMBER: 940516

TRC INC



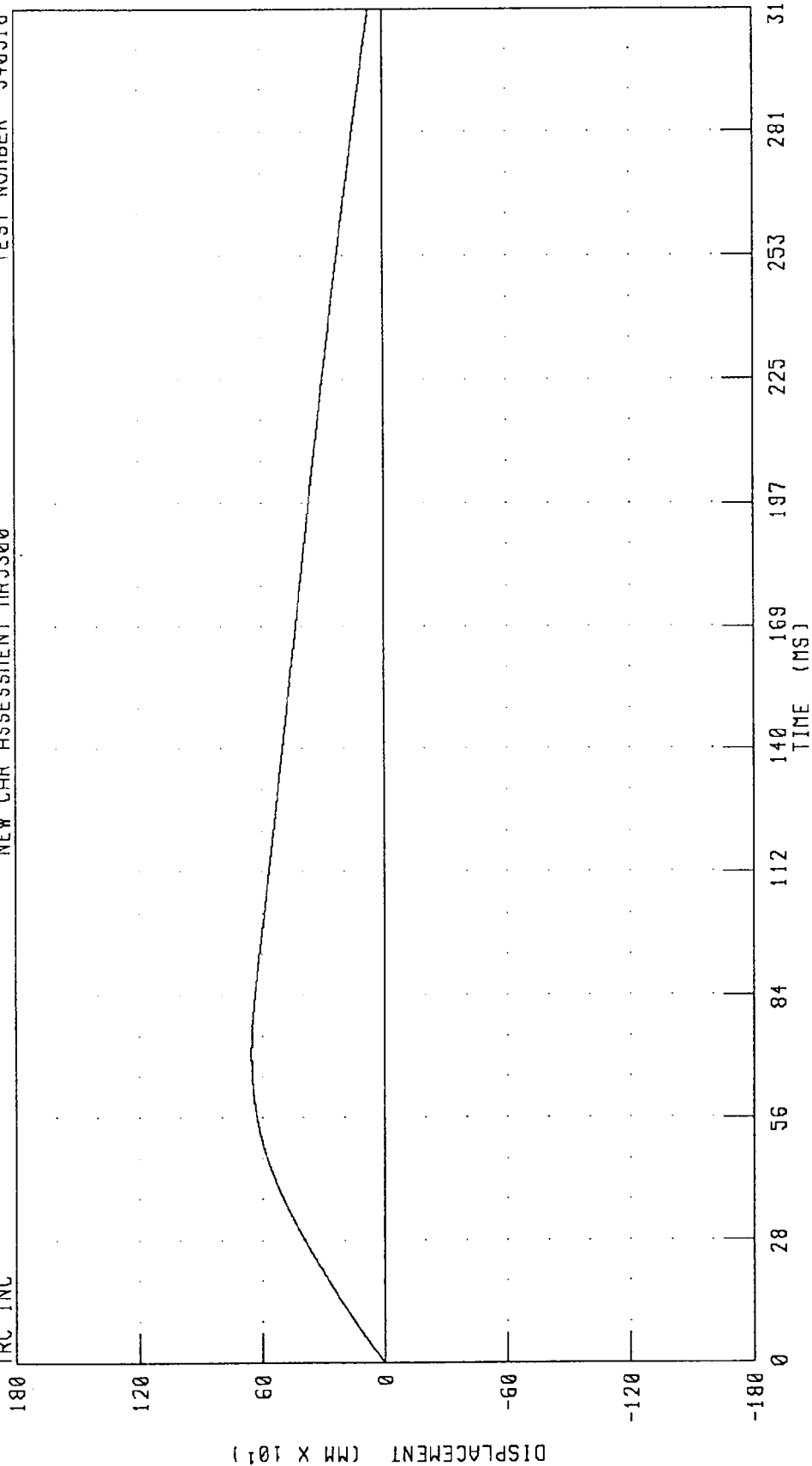
PEAK DATA: 56.55 KM/H @ 3.28 MS; -10.60 KM/H @ 308.64 MS

CHANNEL: TRRXV1 FILTER: CH. CLASS 180

1994 HONDA CIVIC INTO FRONTAL LOAD CELL BARRIER
RIGHT REAR SEAT X-AXIS DISPLACEMENT
NEW CAR ASSESSMENT MR5300

TEST NUMBER 940516

TRC INC



CHANNEL: TRRXD1 FILTER: CH. CLASS 180

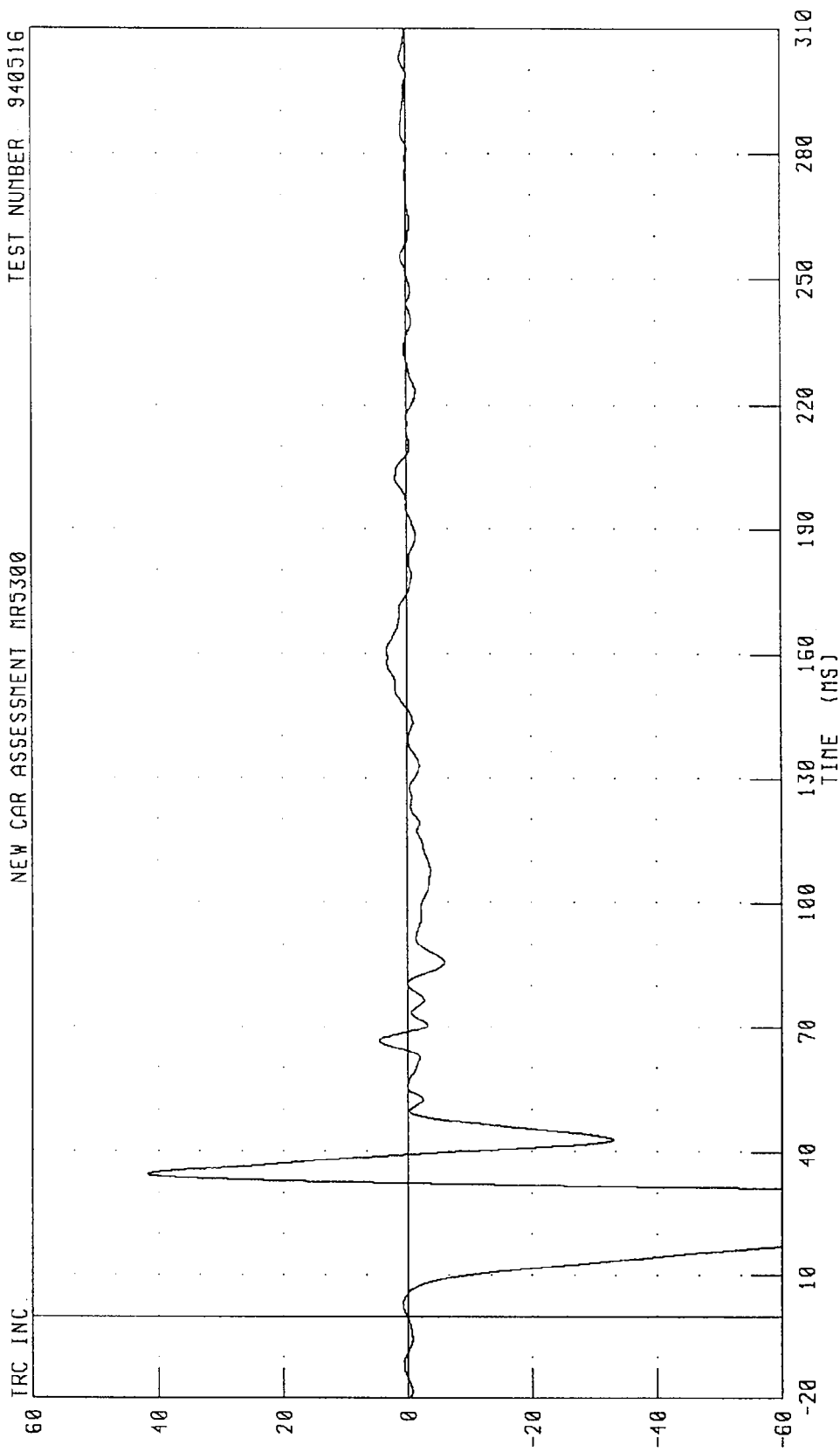
PEAK DATA: 653.36 MM @ 70.88 MS; 0.00 MM @ 0.00 MS

1994 HONDA CIVIC INTO FRONTAL LOAD CELL BARRIER
ENGINE TOP X-AXIS ACCELERATION
NEW CAR ASSESSMENT MR5300

TEST NUMBER 940516

TRC INC

ACCELERATION (G)

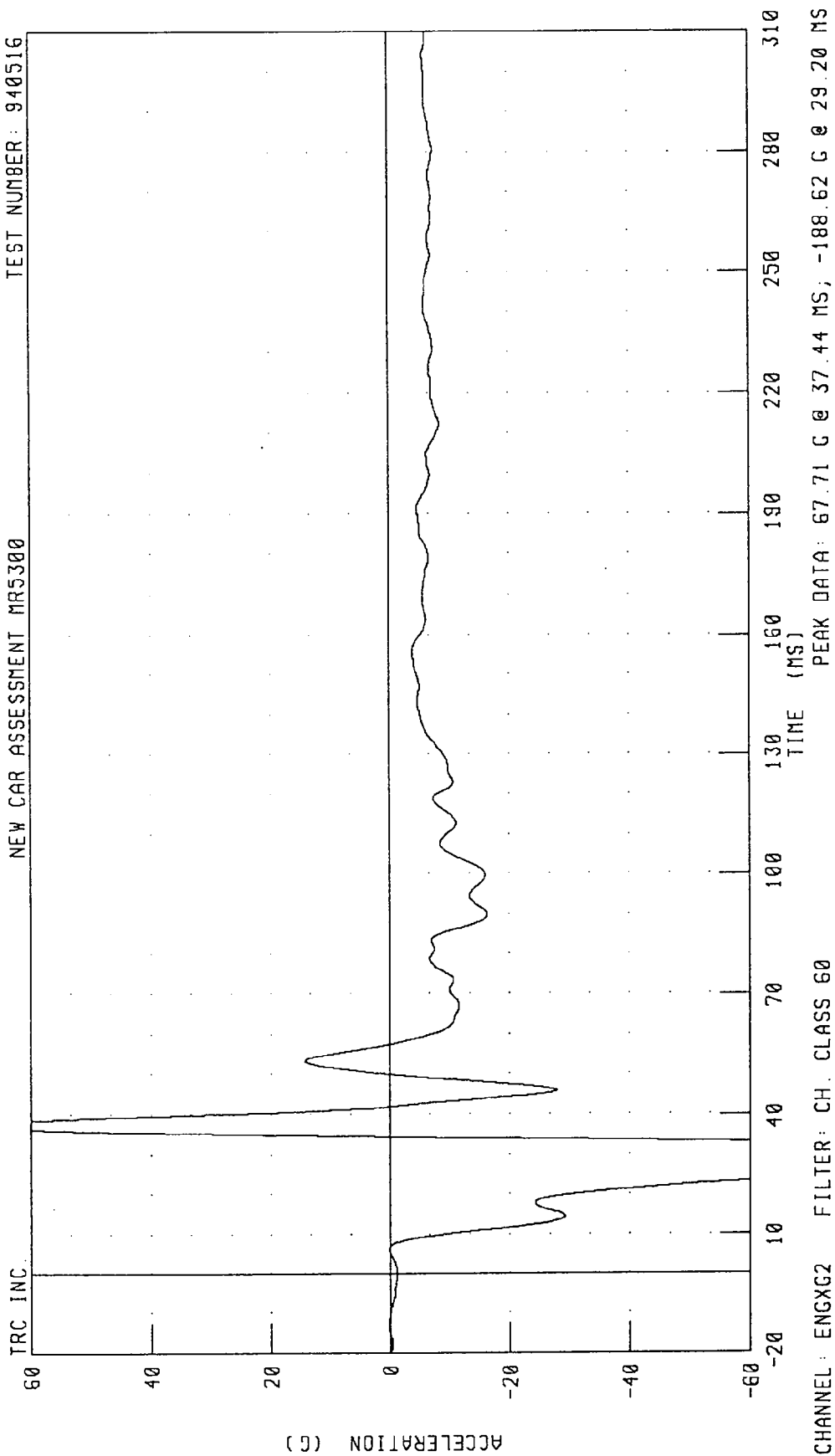


CHANNEL: ENXC01 FILTER: CH. CLASS 60

PEAK DATA: 41.66 G @ 34.48 MS, -149.42 G @ 28.08 MS

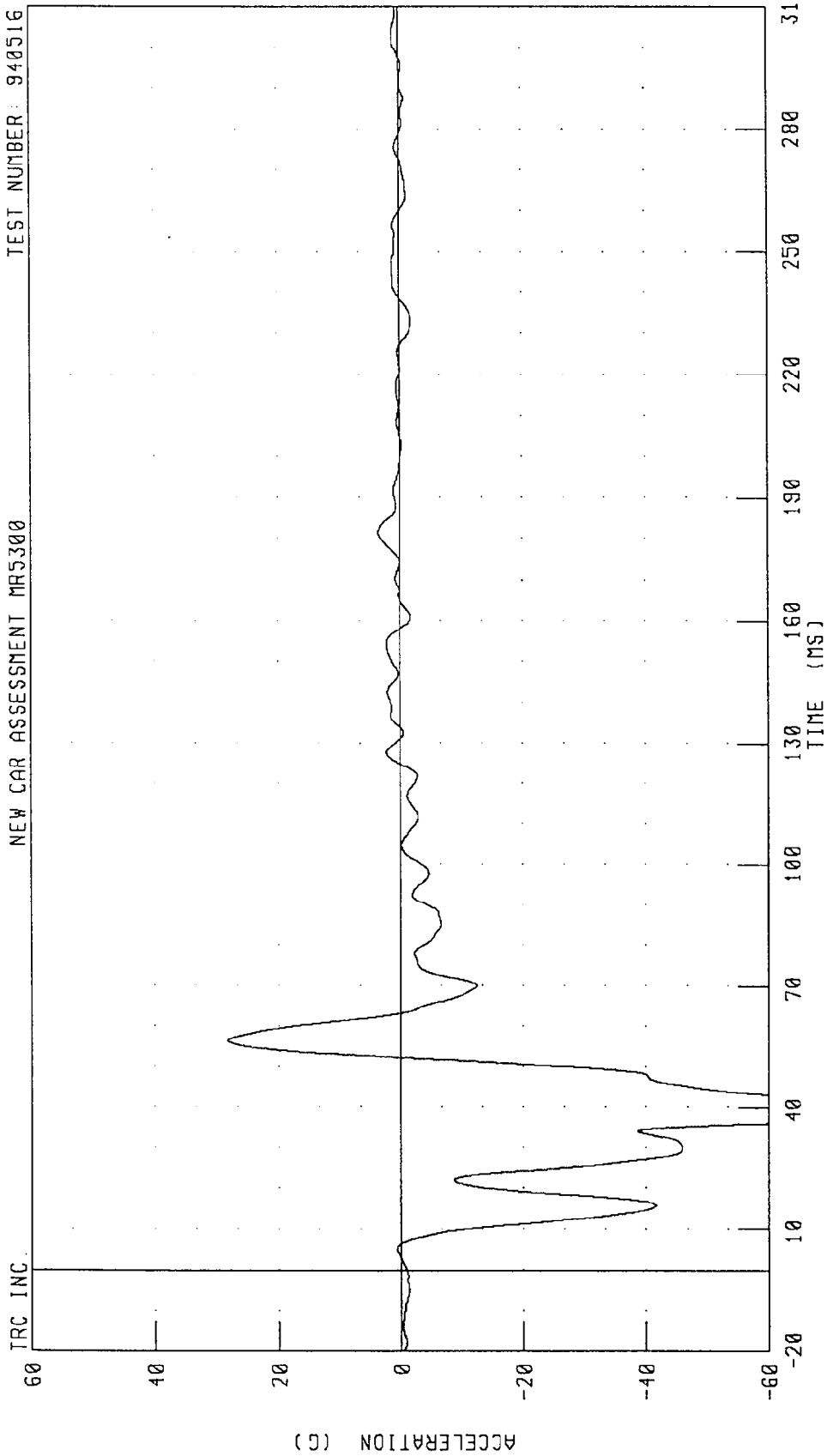
1994 HONDA CIVIC INTO FRONTAL LOAD CELL BARRIER
ENGINE BOTTOM X-AXIS ACCELERATION
NEW CAR ASSESSMENT MR5300

TEST NUMBER: 940516



1994 HONDA CIVIC INTO FRONTAL LOAD CELL BARRIER
RIGHT BRAKE CALIPER X-AXIS ACCELERATION
NEW CAR ASSESSMENT MR5300

TEST NUMBER: 940516

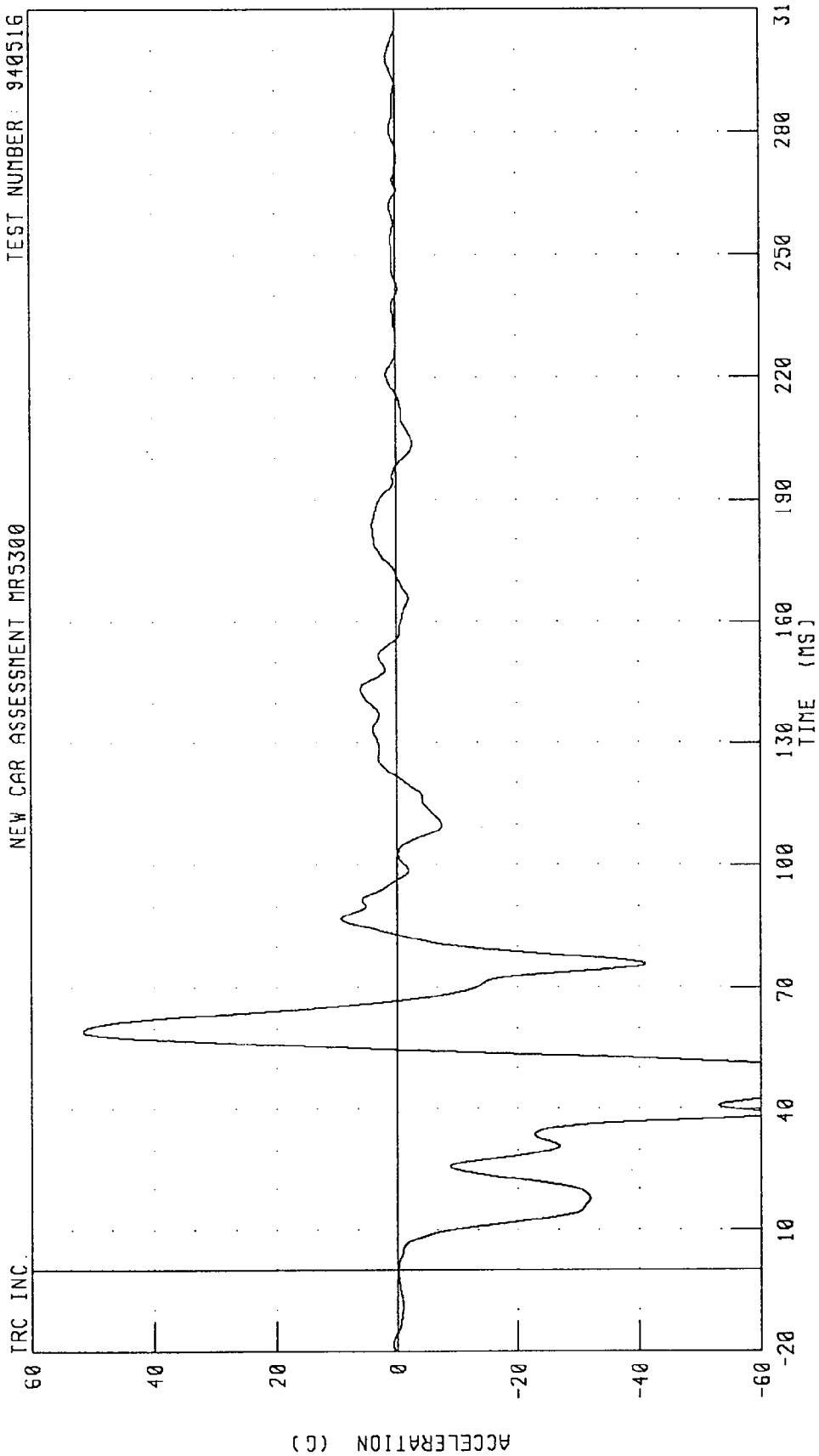


CHANNEL: BCRXG1 FILTER: CH. CLASS 60

1994 HONDA CIVIC INTO FRONTAL LOAD CELL BARRIER
LEFT BRAKE CALIPER X-AXIS ACCELERATION

TEST NUMBER: 940516

NEW CAR ASSESSMENT MR5300



CHANNEL: BCLXG1 FILTER: CH. CLASS 60

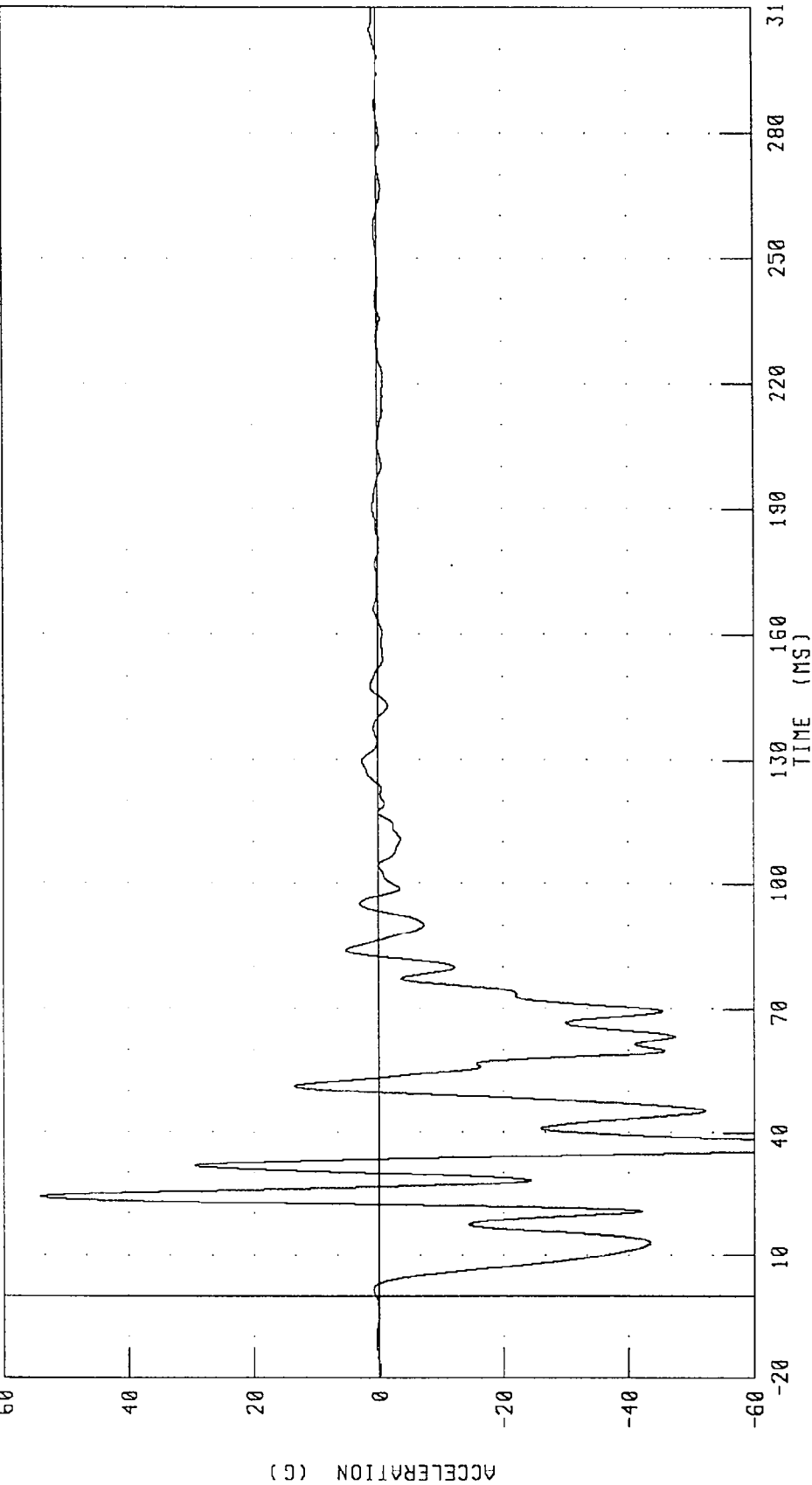
PEAK DATA: 51.54 G @ 59.44 MS, -109.76 G @ 46.72 MS

1994 HONDA CIVIC INTO FRONTAL LOAD CELL BARRIER
INSTRUMENT PANEL CENTER X-AXIS ACCELERATION

TEST NUMBER 940516

NEW CAR ASSESSMENT MR5300

TRC INC.



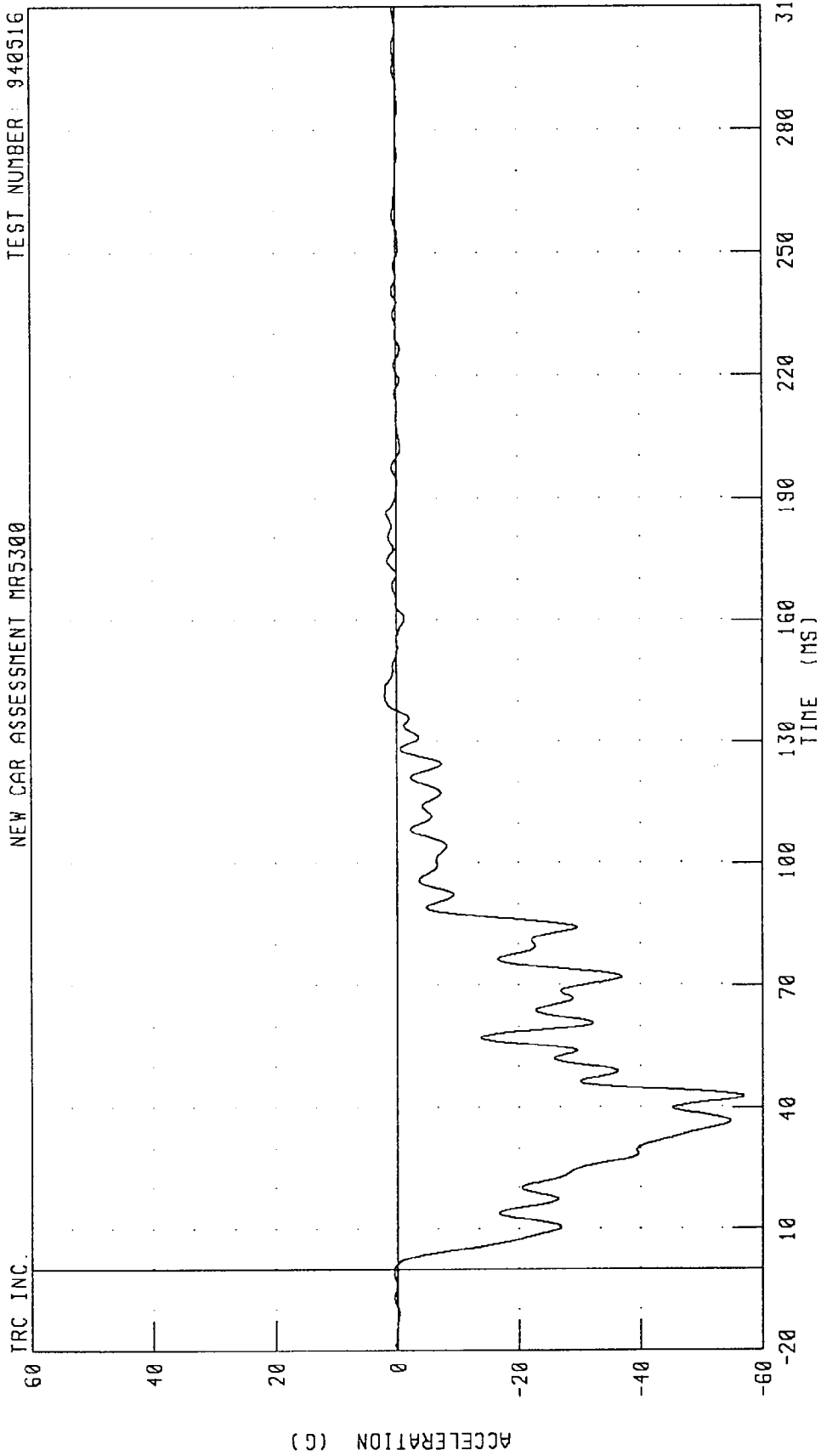
CHANNEL: DPCXG1 FILTER: CH. CLASS 60

PEAK DATA: 54.21 G @ 24.08 MS; -81.33 G @ 36.80 MS

1994 HONDA CIVIC INTO FRONTAL LOAD CELL BARRIER
LEFT REAR SEAT REDUNDANT X-AXIS ACCELERATION

TEST NUMBER: 940516

NEW CAR ASSESSMENT MR5300



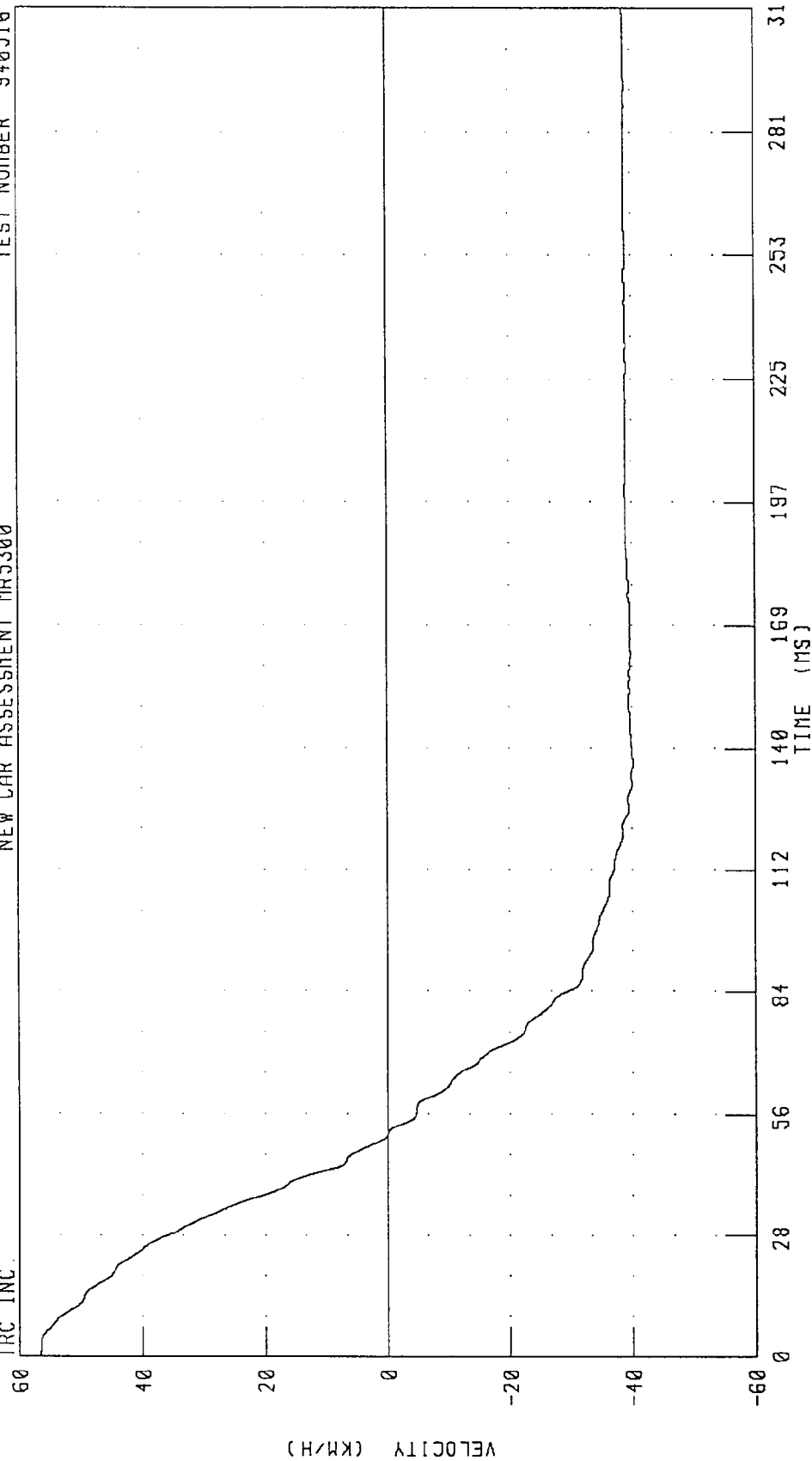
CHANNEL: TLRXGA FILTER: CH. CLASS 60

PEAK DATA: 1.96 G @ 141.44 MS; -56.86 G @ 42.72 MS

1994 HONDA CIVIC INTO FRONTAL LOAD CELL BARRIER
 LEFT REAR SEAT X-AXIS VELOCITY
 NEW CAR ASSESSMENT MR5300

TEST NUMBER 940516

TRC INC.



CHANNEL: TLRXVA FILTER: CH. CLASS 180

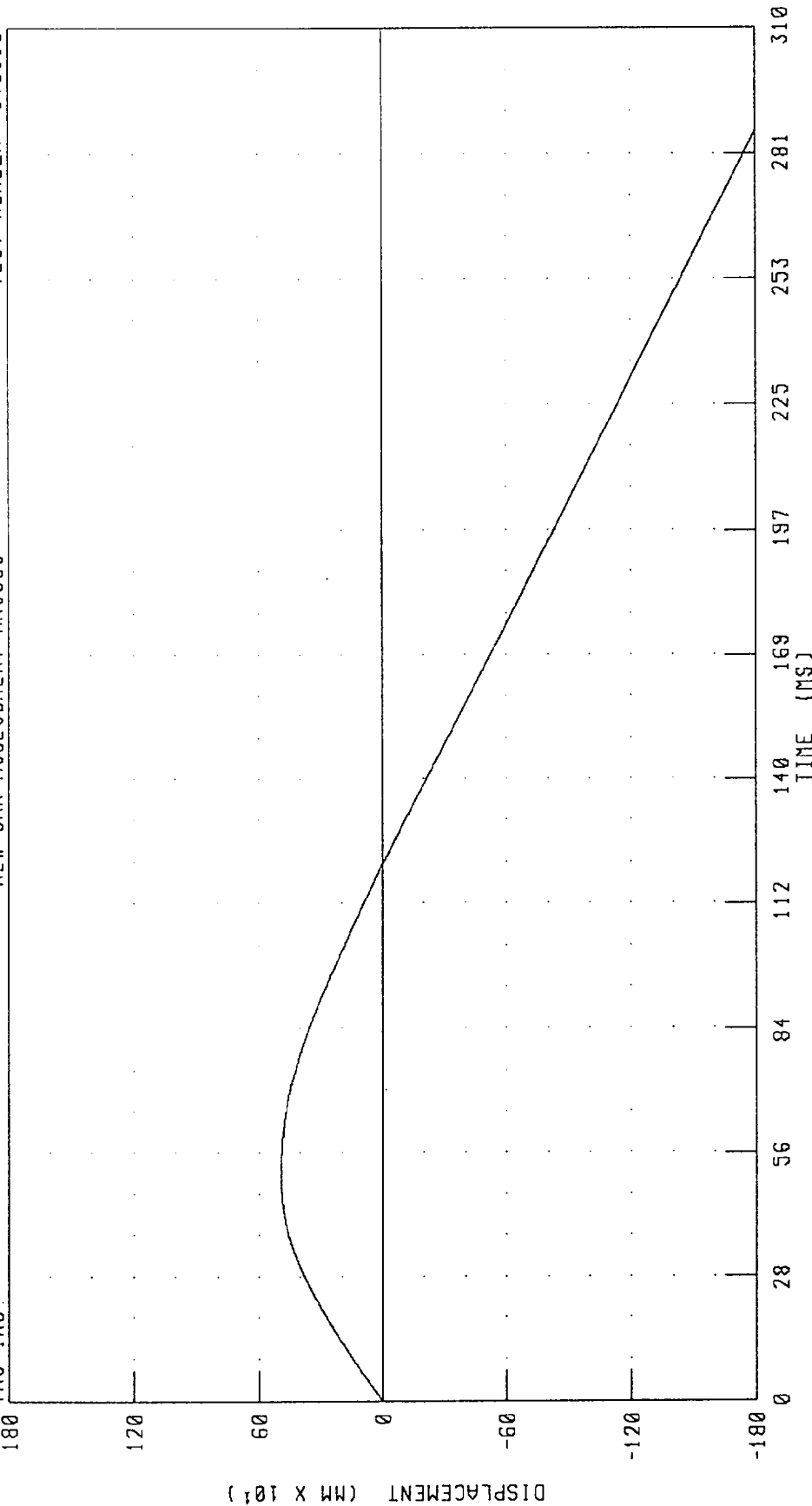
PEAK DATA: 56.50 KM/H @ 0.00 MS; -40.18 KM/H @ 137.68 MS

1994 HONDA CIVIC INTO FRONTAL LOAD CELL BARRIER
LEFT REAR SEAT X-AXIS DISPLACEMENT

TEST NUMBER 940516

NEW CAR ASSESSMENT MR5300

TRC INC.



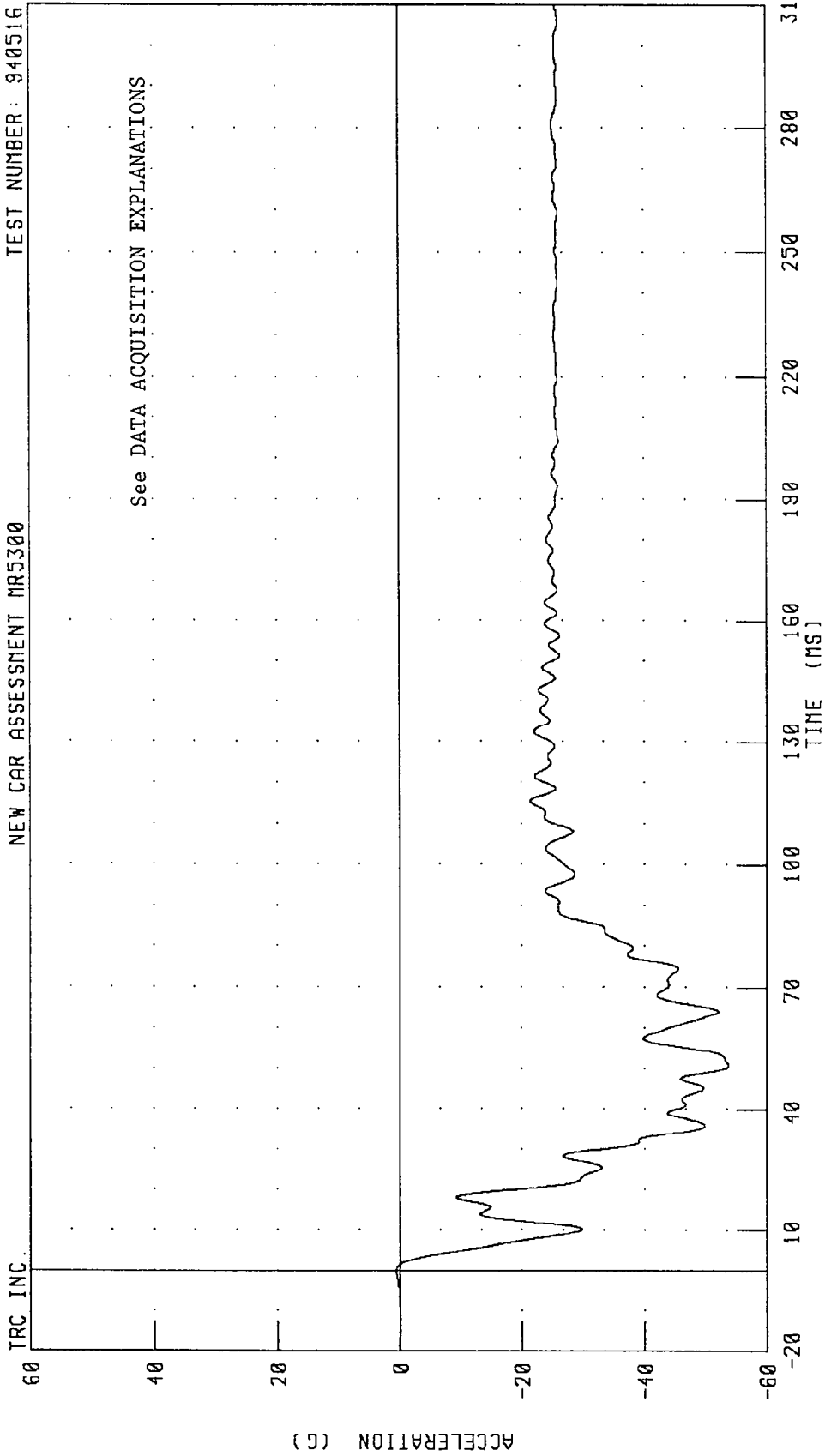
PEAK DATA: 493.23 MM @ 51.76 MS; -2045.65 MM @ 310.00 MS

CHANNEL: TLRXDA FILTER: CH. CLASS 180

1994 HONDA CIVIC INTO FRONTAL LOAD CELL BARRIER
RIGHT REAR SEAT REDUNDANT X-AXIS ACCELERATION

NEW CAR ASSESSMENT MR5300

TEST NUMBER: 940516



CHANNEL: TRRXGA FILTER: CH. CLASS 60

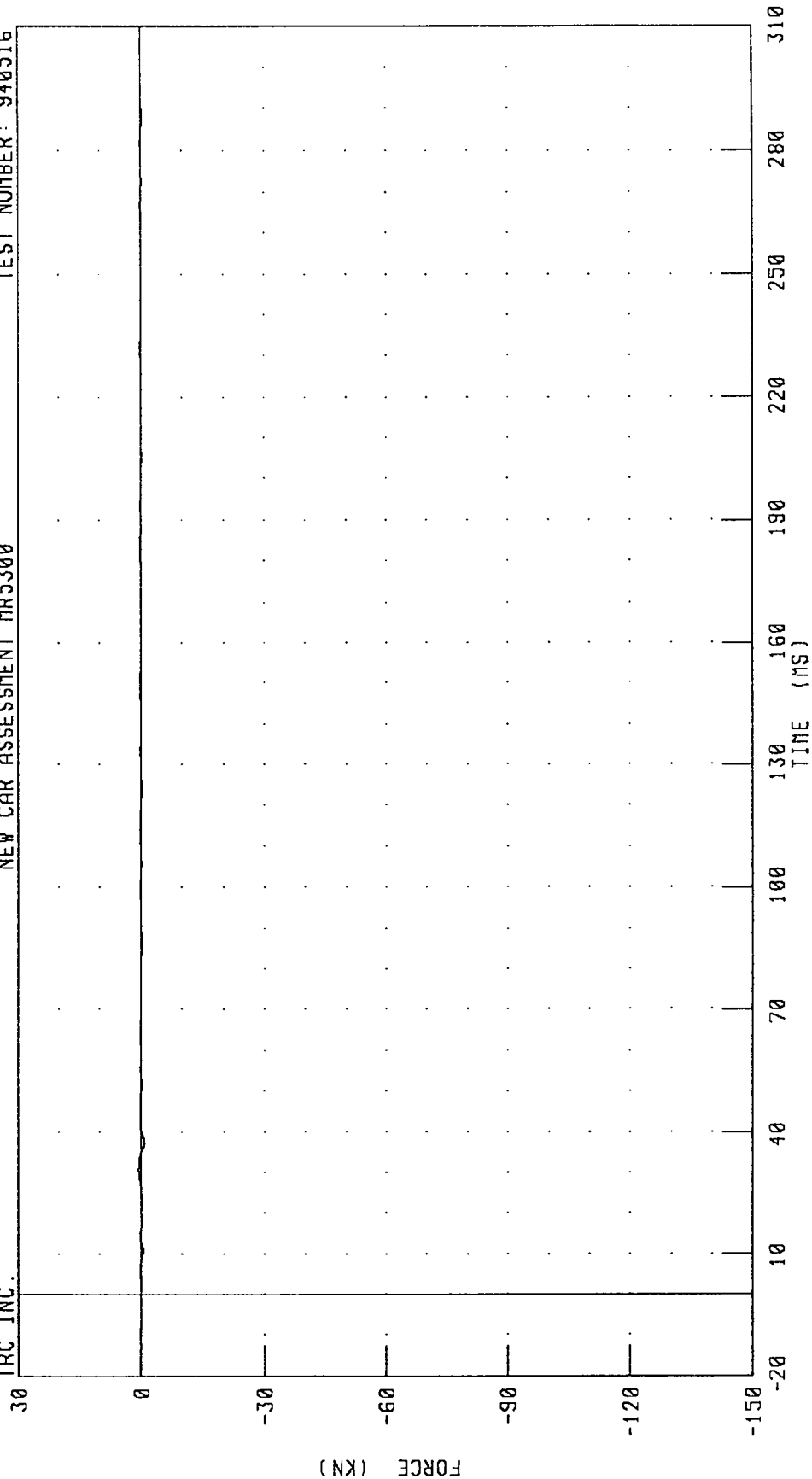
PEAK DATA: 0.64 G @ -0.32 MS; -53.60 G @ 50.80 MS

1984 HONDA CIVIC INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION A1 FORCE

TEST NUMBER: 940516

NEW CAR ASSESSMENT MR5300

TRC INC.



PEAK DATA: 0.60 KN @ 30.72 MS; -0.83 KN @ 37.68 MS

FILTER: CH. CLASS 60

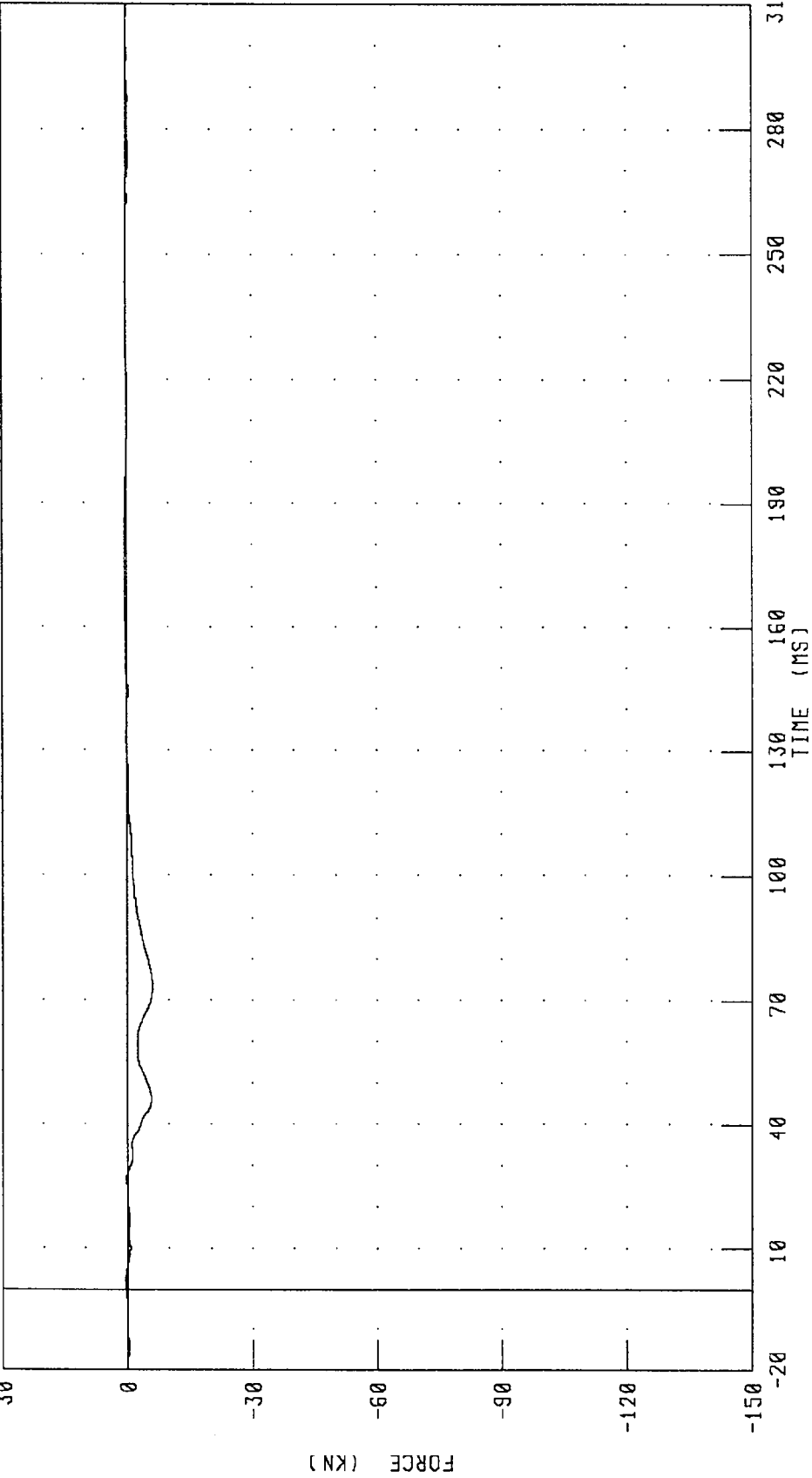
CHANNEL: BA1F

1994 HONDA CIVIC INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION A2 FORCE

TEST NUMBER: 940516

NEW CAR ASSESSMENT MR5300

TRC INC.



CHANNEL: BA2F FILTER: CH. CLASS 60

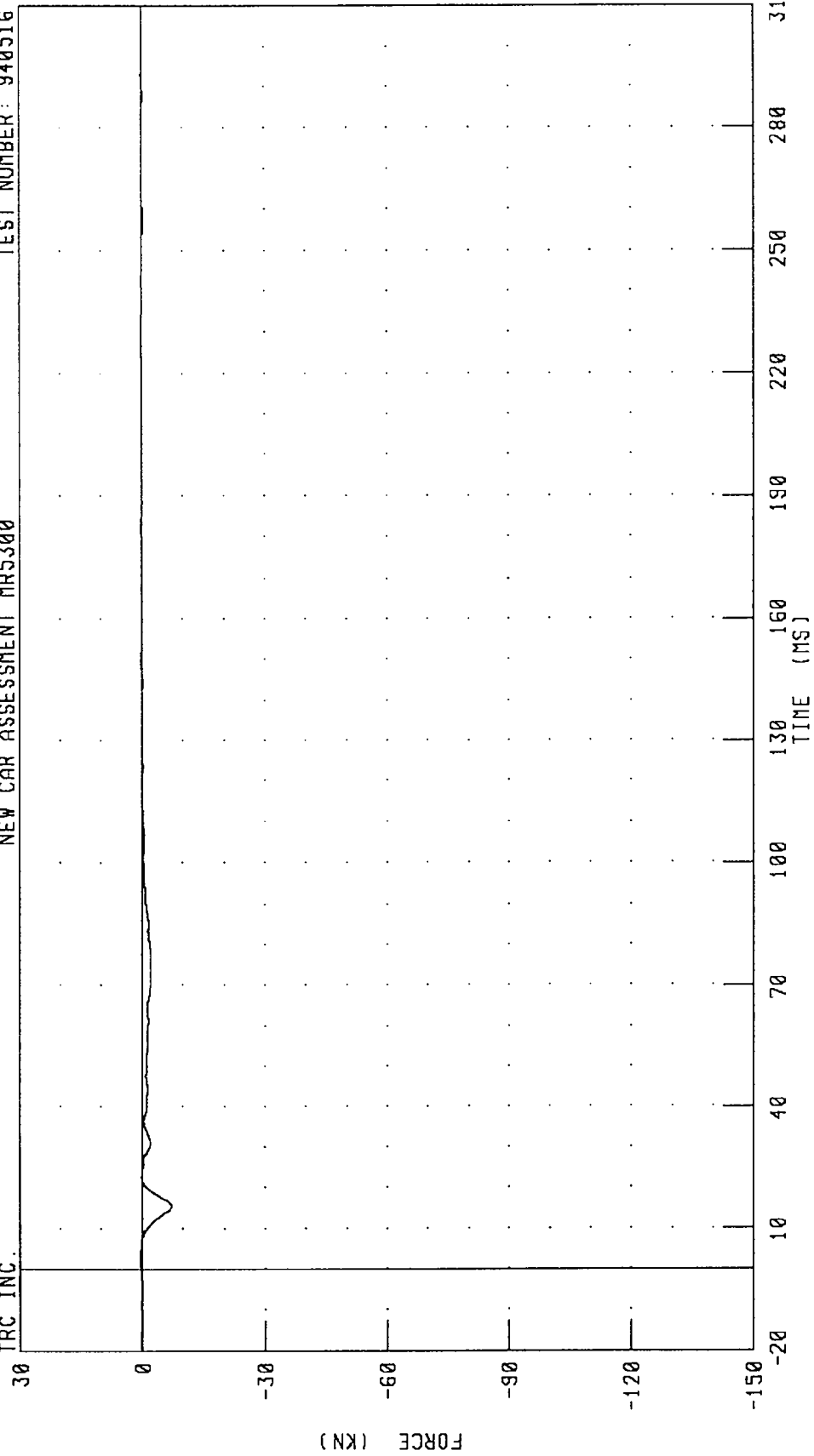
PEAK DATA: 0.58 KN @ 182.88 MS; -6.08 KN @ 73.28 MS

1994 HONDA CIVIC INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION A3 FORCE

TEST NUMBER: 940516

NEW CAR ASSESSMENT MR5300

TRC INC.



CHANNEL: BA3F

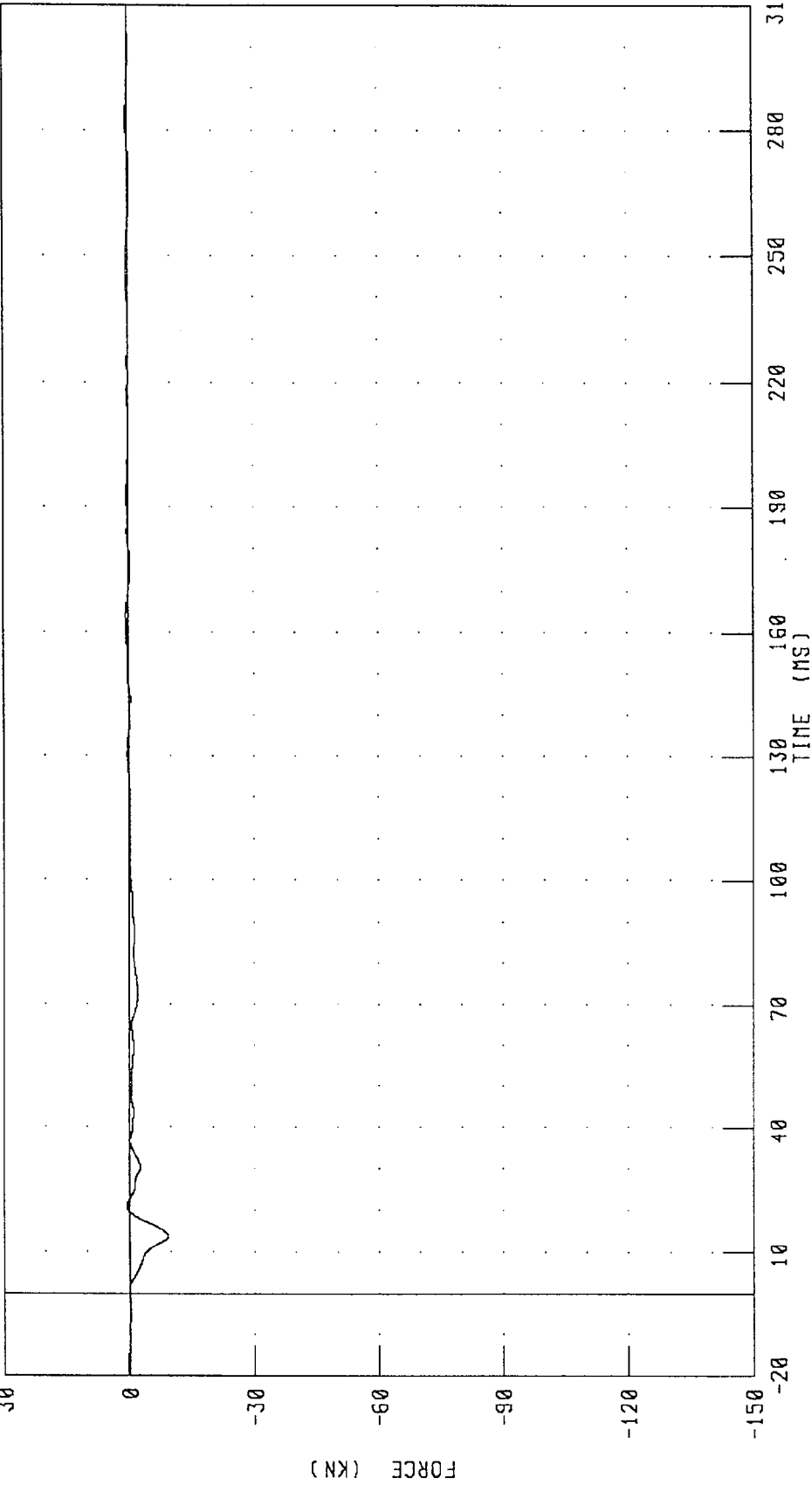
FILTER: CH. CLASS 60

PEAK DATA: 0.50 KN @ 2.56 MS; -7.12 KN @ 15.44 MS

1994 HONDA CIVIC INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION A4 FORCE
NEW CAR ASSESSMENT MR5300

TEST NUMBER: 940516

TRC INC.



PEAK DATA: 0.61 KN @ 164.16 MS; -9.25 KN @ 13.84 MS

FILTER: CH. CLASS 60

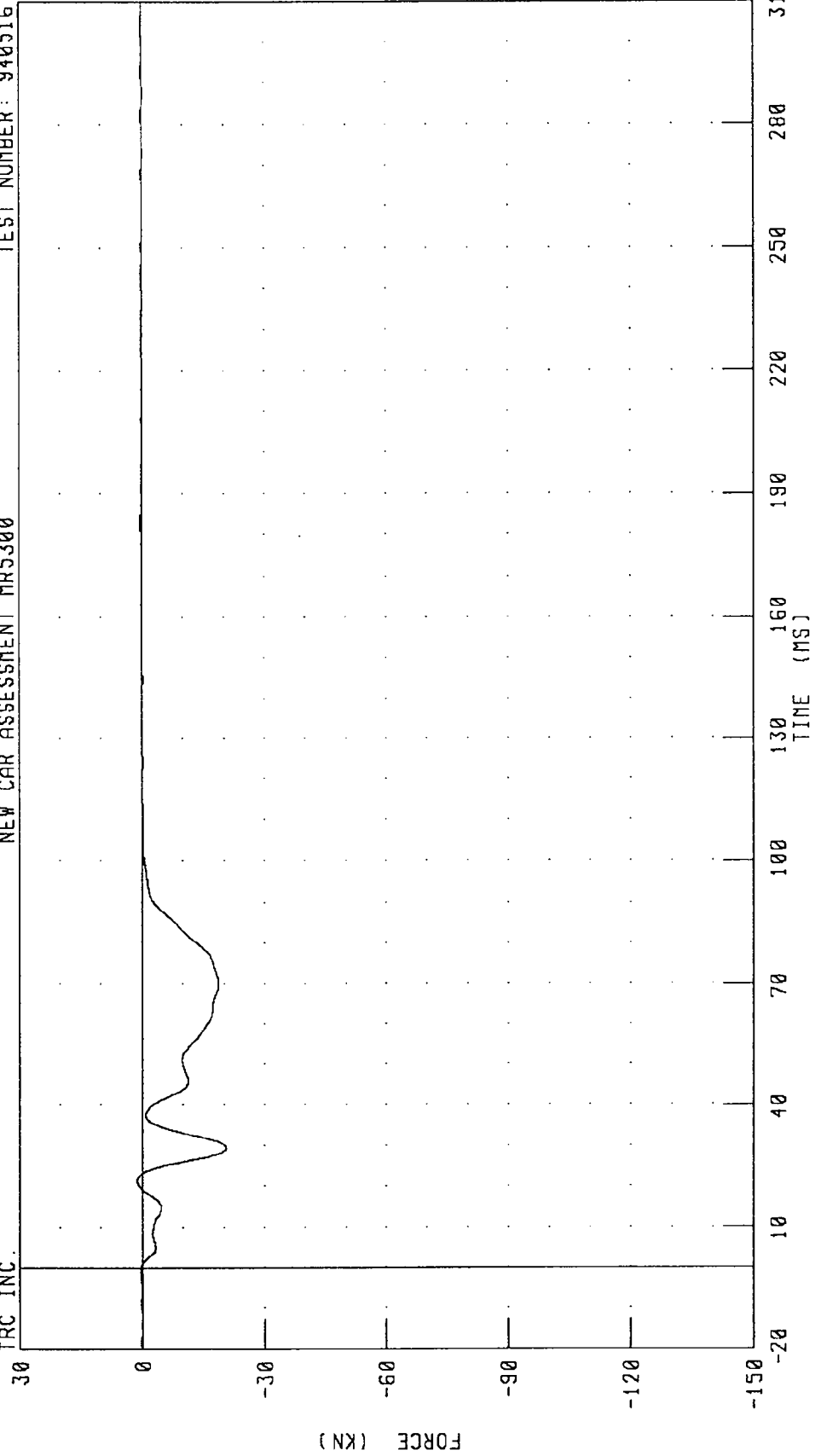
CHANNEL: BA4F

1994 HONDA CIVIC INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION A5 FORCE

TEST NUMBER: 940516

NEW CAR ASSESSMENT MR5300

TRC INC.



CHANNEL: BASF

FILTER: CH. CLASS 60

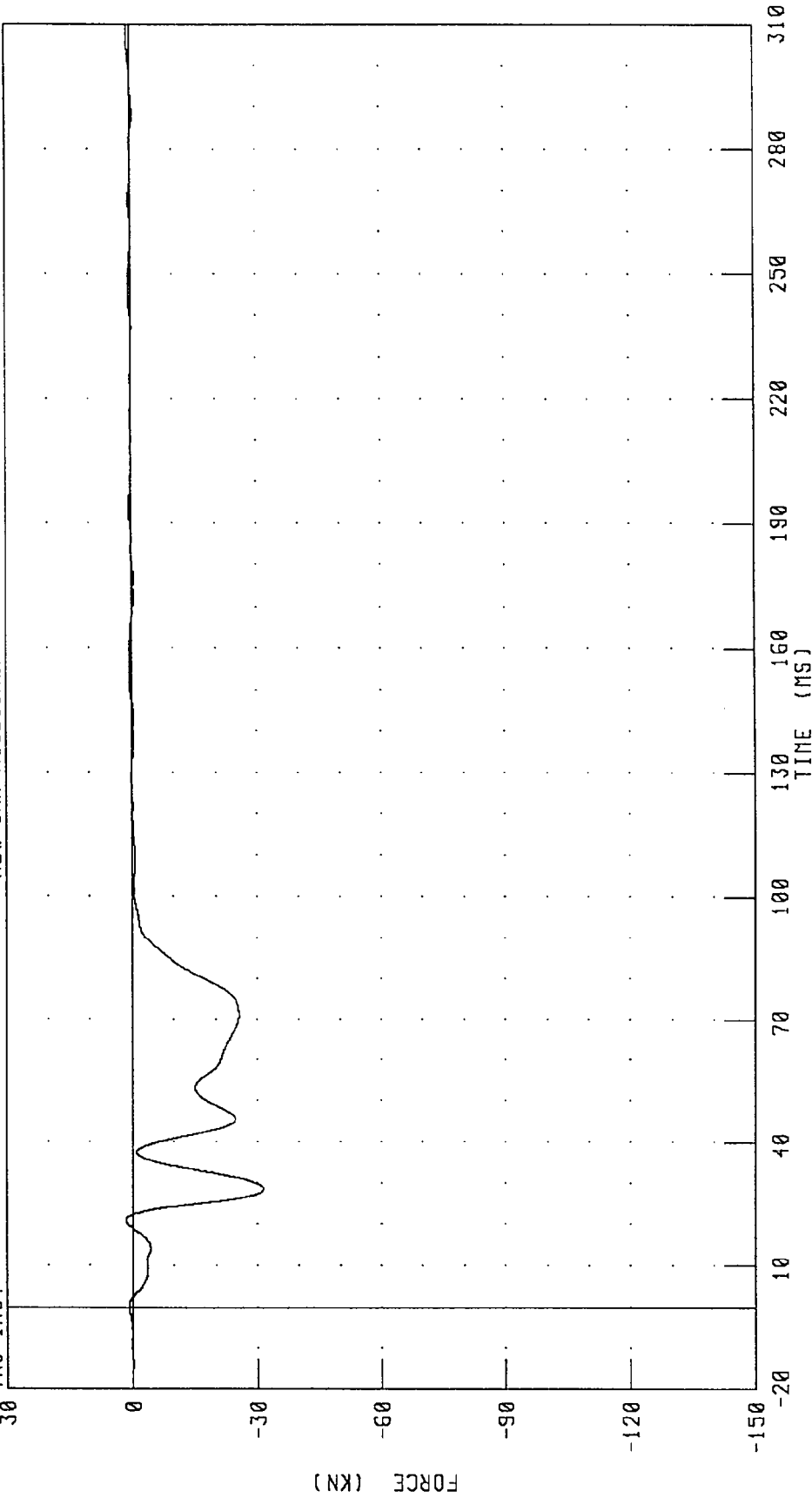
TIME (MS)

PEAK DATA: 1.20 KN @ 21.36 MS; -20.65 KN @ 29.60 MS

1994 HONDA CIVIC INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION A6 FORCE
NEW CAR ASSESSMENT MR5300

TEST NUMBER: 940516

TRC INC.



CHANNEL: BASF FILTER: CH. CLASS 60

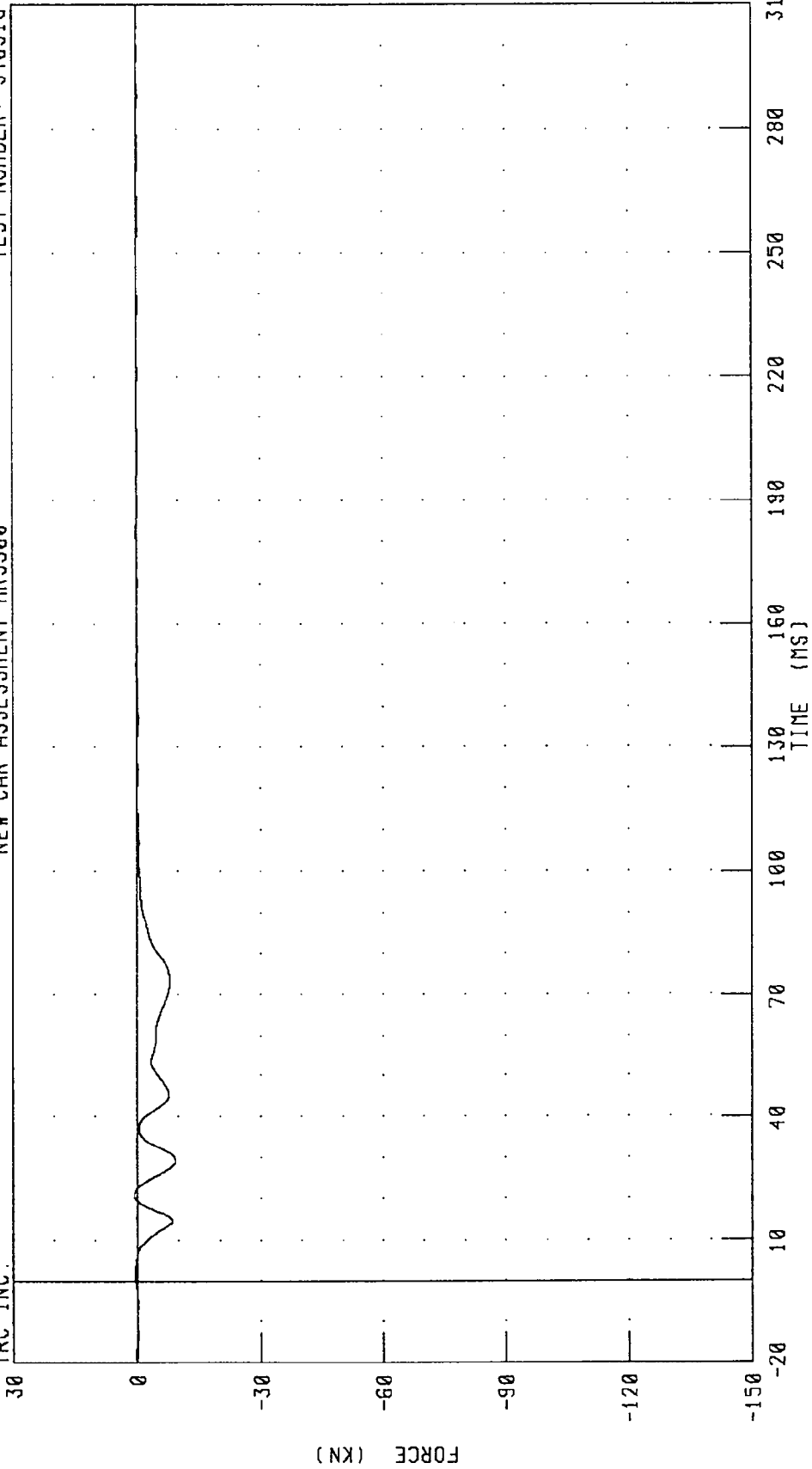
PEAK DATA: 1.55 KN @ 20.96 MS; -31.53 KN @ 28.56 MS

1994 HONDA CIVIC INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION A7 FORCE

TEST NUMBER: 940516

NEW CAR ASSESSMENT MR5300

IRC INC.



PEAK DATA: 0.73 KN @ 20.96 MS, -9.20 KN @ 29.36 MS

FILTER: CH. CLASS 60

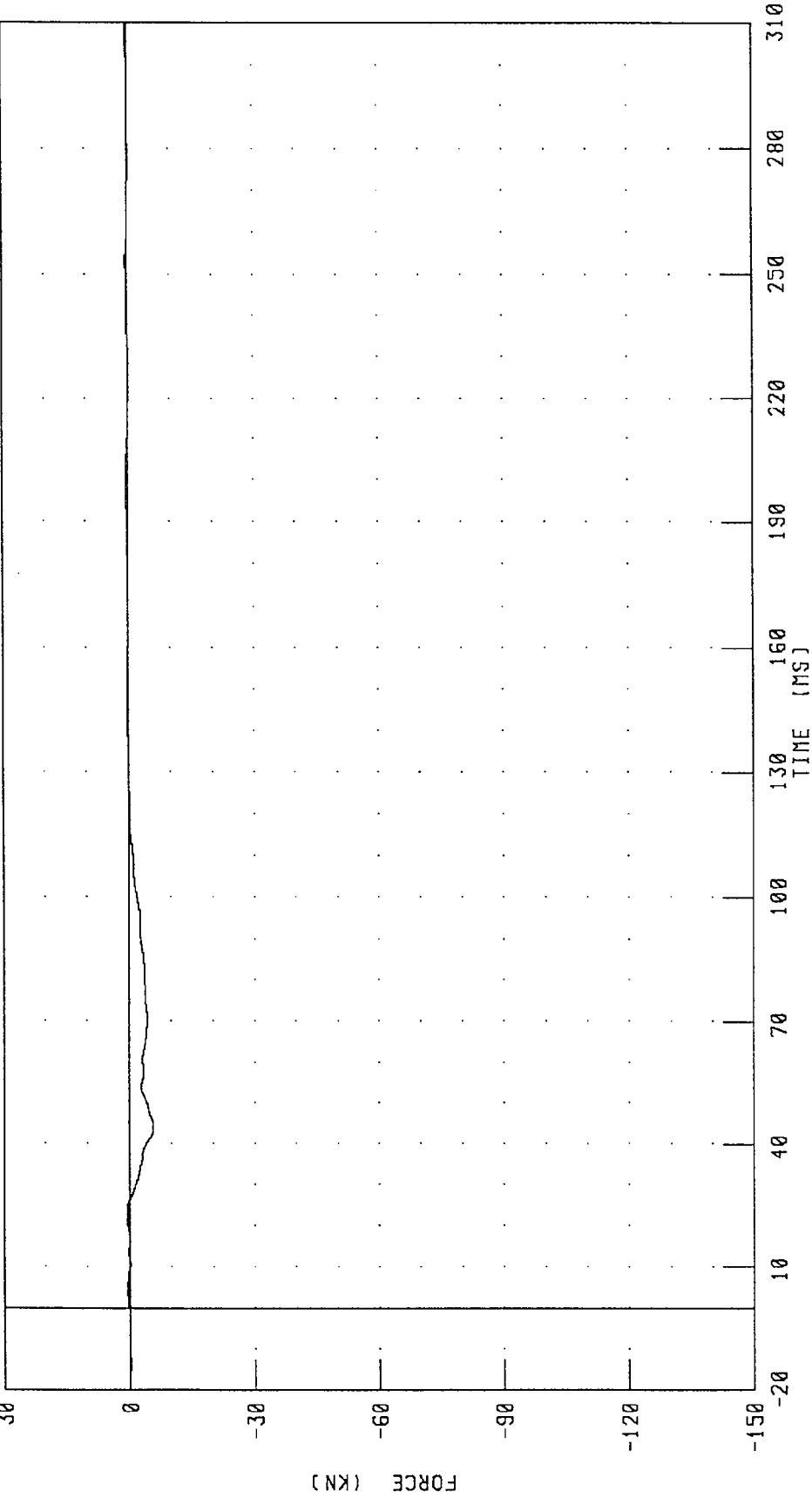
CHANNEL: BA7F

1994 HONDA CIVIC INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION A8 FORCE

TEST NUMBER: 940516

NEW CAR ASSESSMENT MR5300

TRC INC.



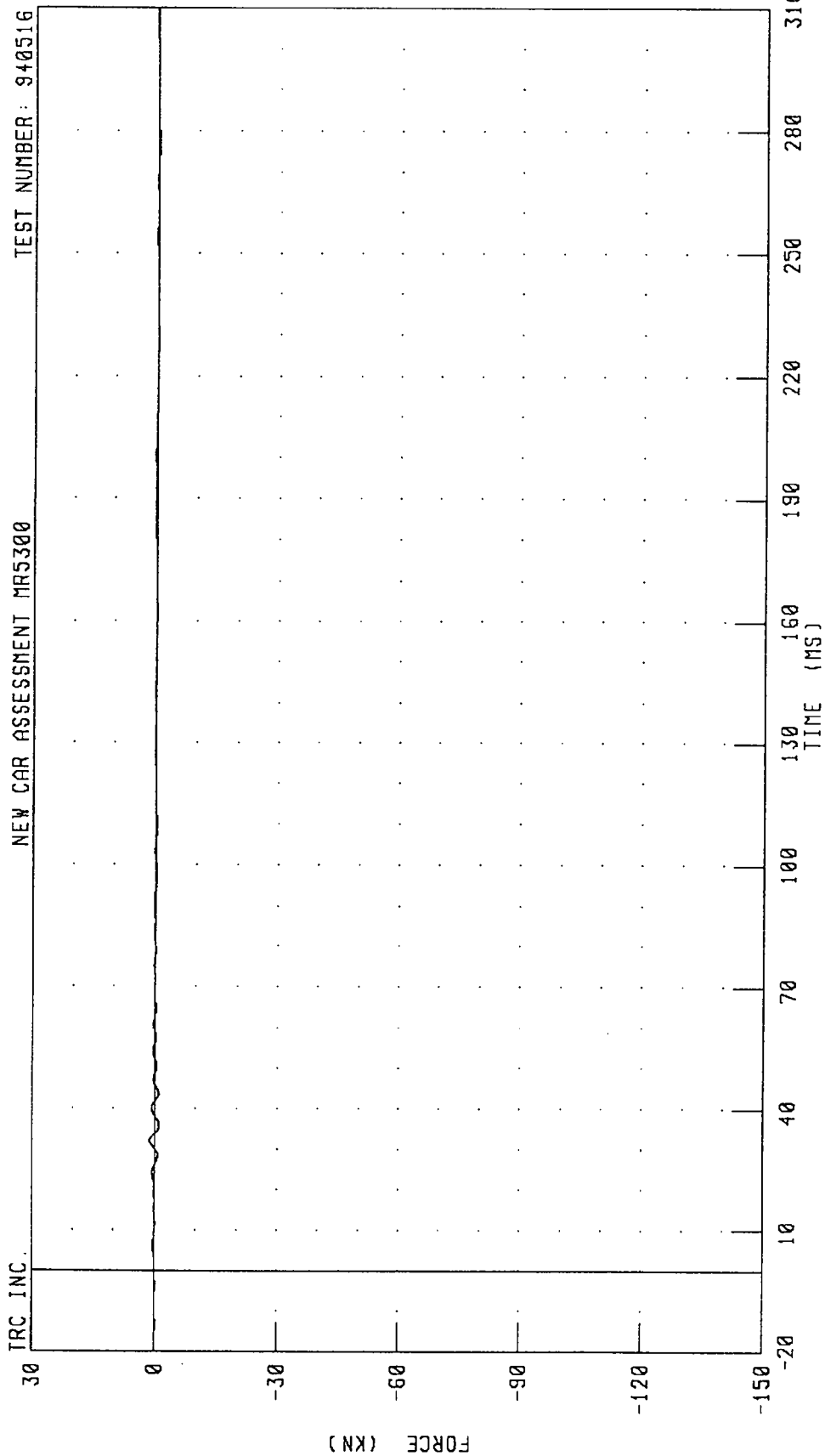
CHANNEL: BA8F

FILTER: CH. CLASS 60

PEAK DATA: 0.58 KN @ 22.88 MS; -5.73 KN @ 44.08 MS

1994 HONDA CIVIC INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION A9 FORCE
NEW CAR ASSESSMENT MR5300

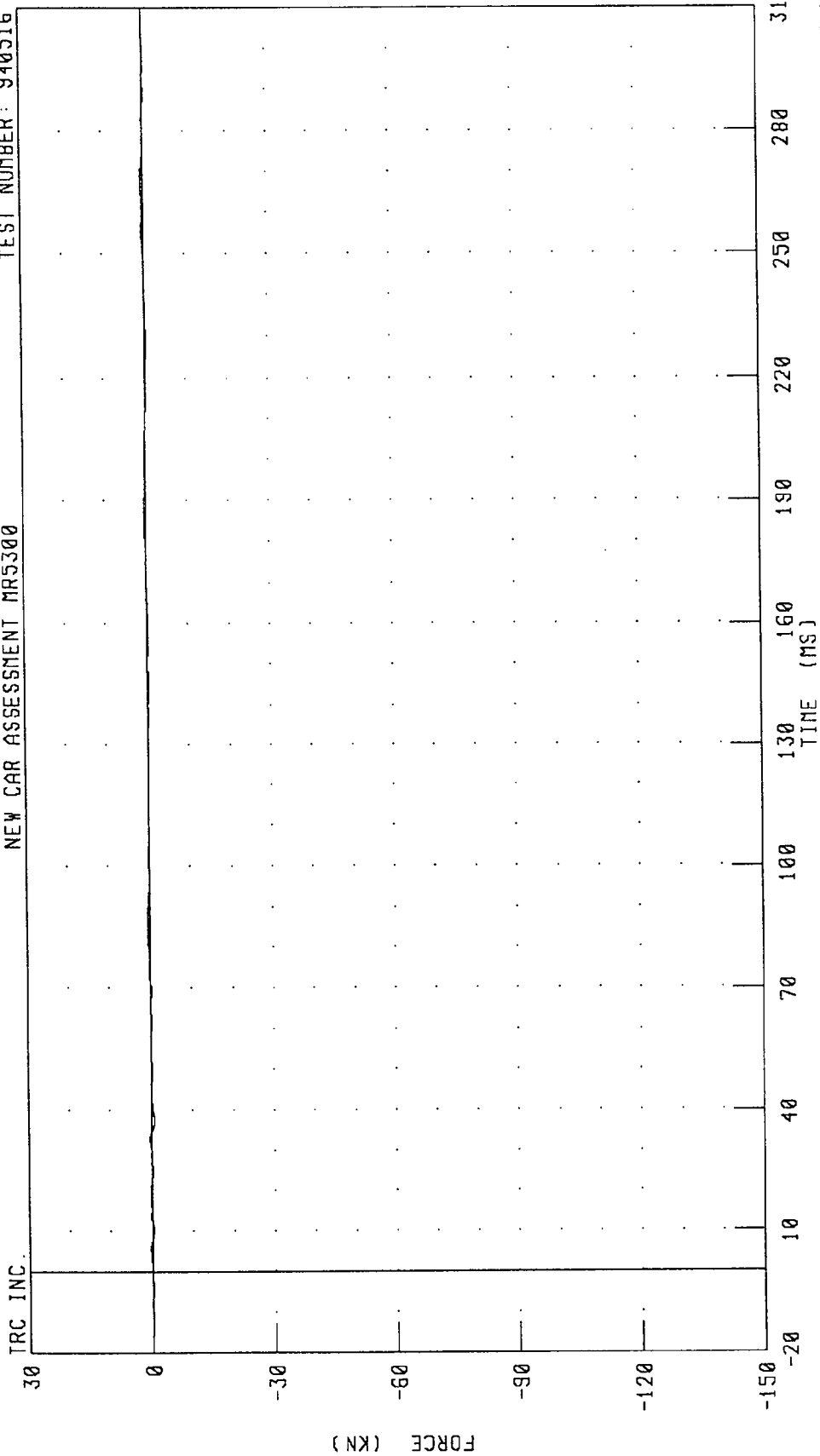
TEST NUMBER: 940516



CHANNEL: BASF FILTER: CH. CLASS 60

1994 HONDA CIVIC INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION B1 FORCE

NEW CAR ASSESSMENT MR5300 TEST NUMBER: 940516



PEAK DATA: 0.52 KN @ 267.44 MS; -0.80 KN @ 37.44 MS

CHANNEL: BB1F FILTER: CH. CLASS 60

FORCE (KN)

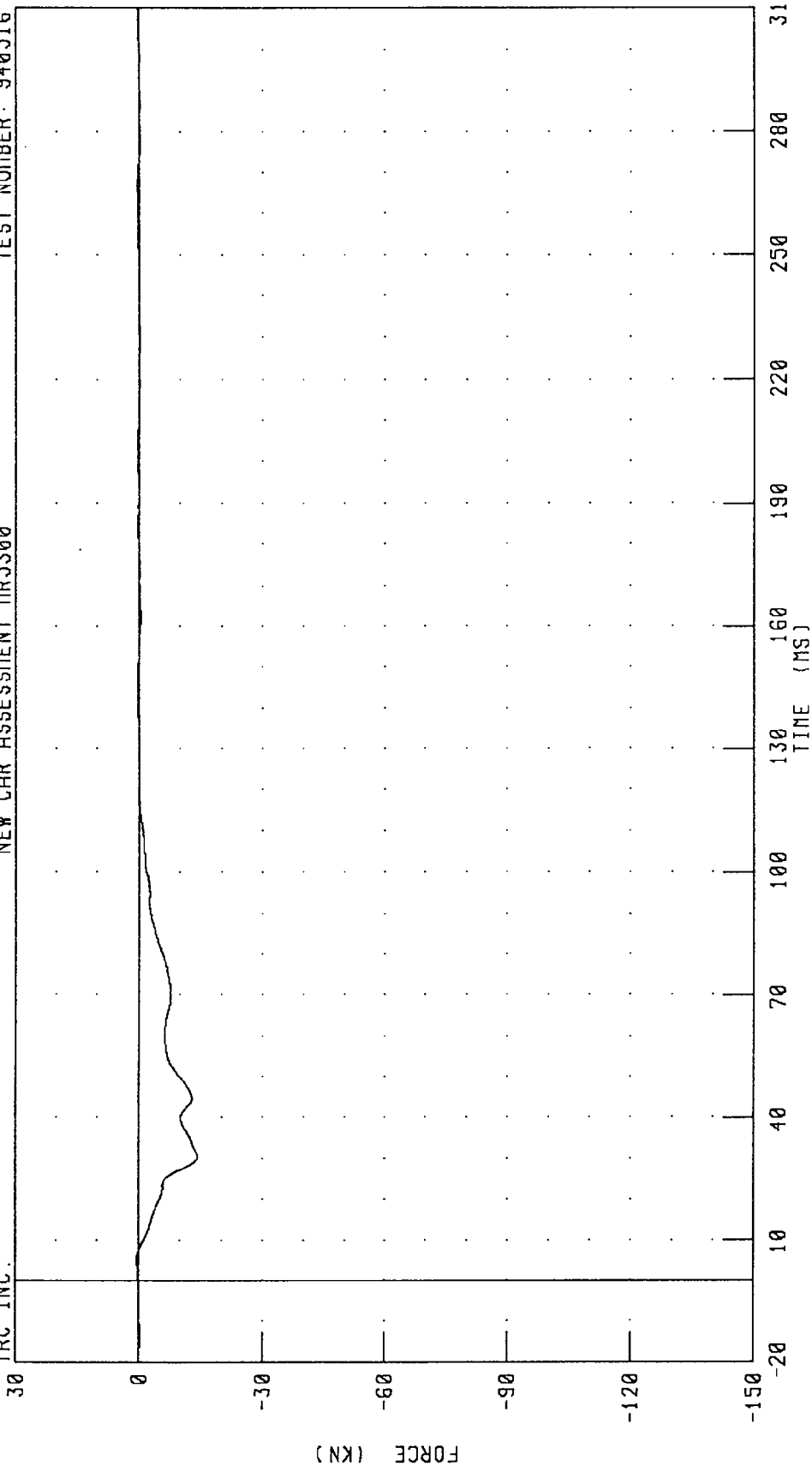
TIME (MS)

TRC INC.

1994 HONDA CIVIC INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION B2 FORCE
NEW CAR ASSESSMENT MR5300

TEST NUMBER: 940516

TRC INC.



PEAK DATA: 0.40 KN @ 5.12 MS; -14.26 KN @ 30.48 MS

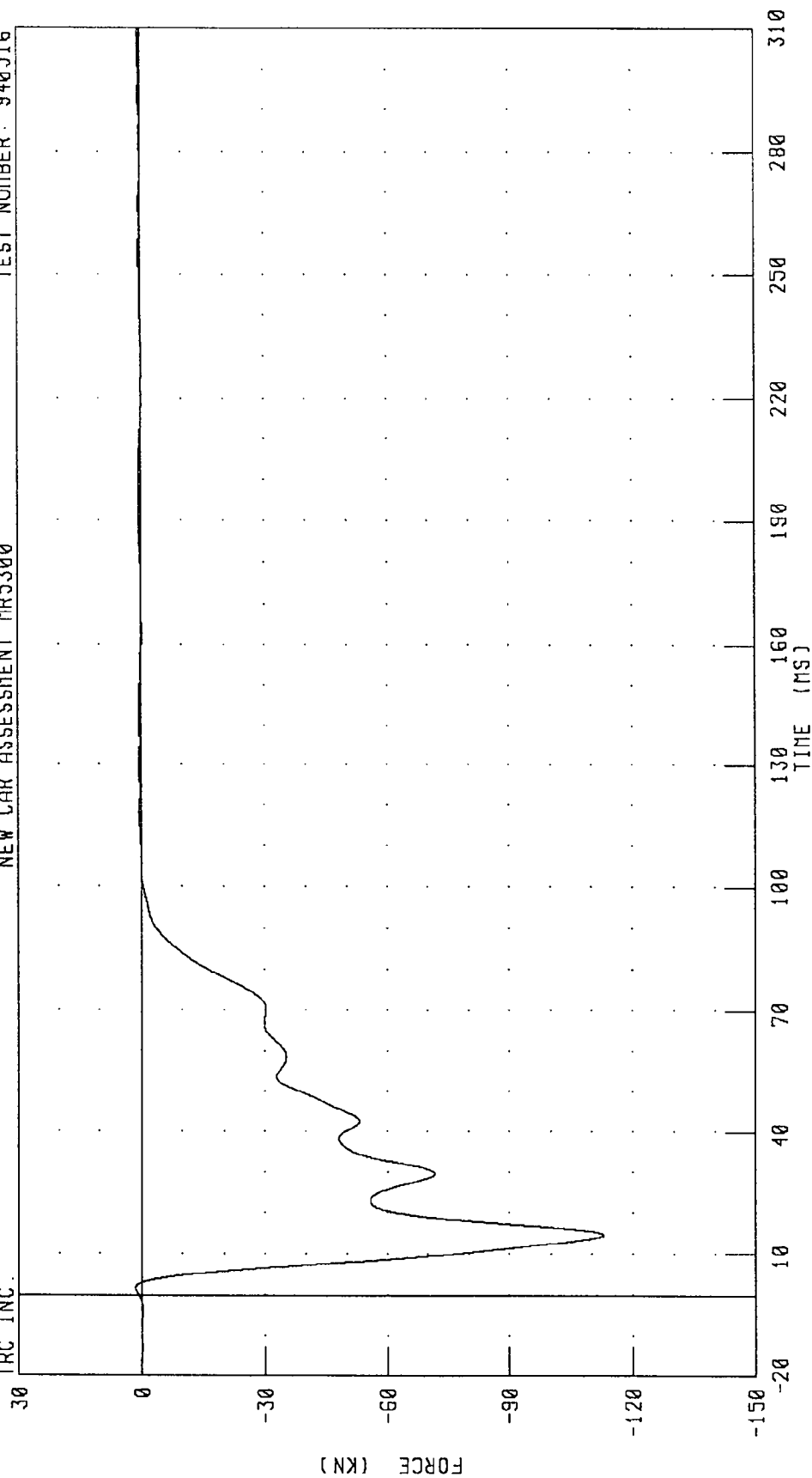
FILTER: CH. CLASS 60

CHANNEL: BB2F

1994 HONDA CIVIC INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION B3 FORCE
NEW CAR ASSESSMENT MR5300

TEST NUMBER: 940516

TRC INC.



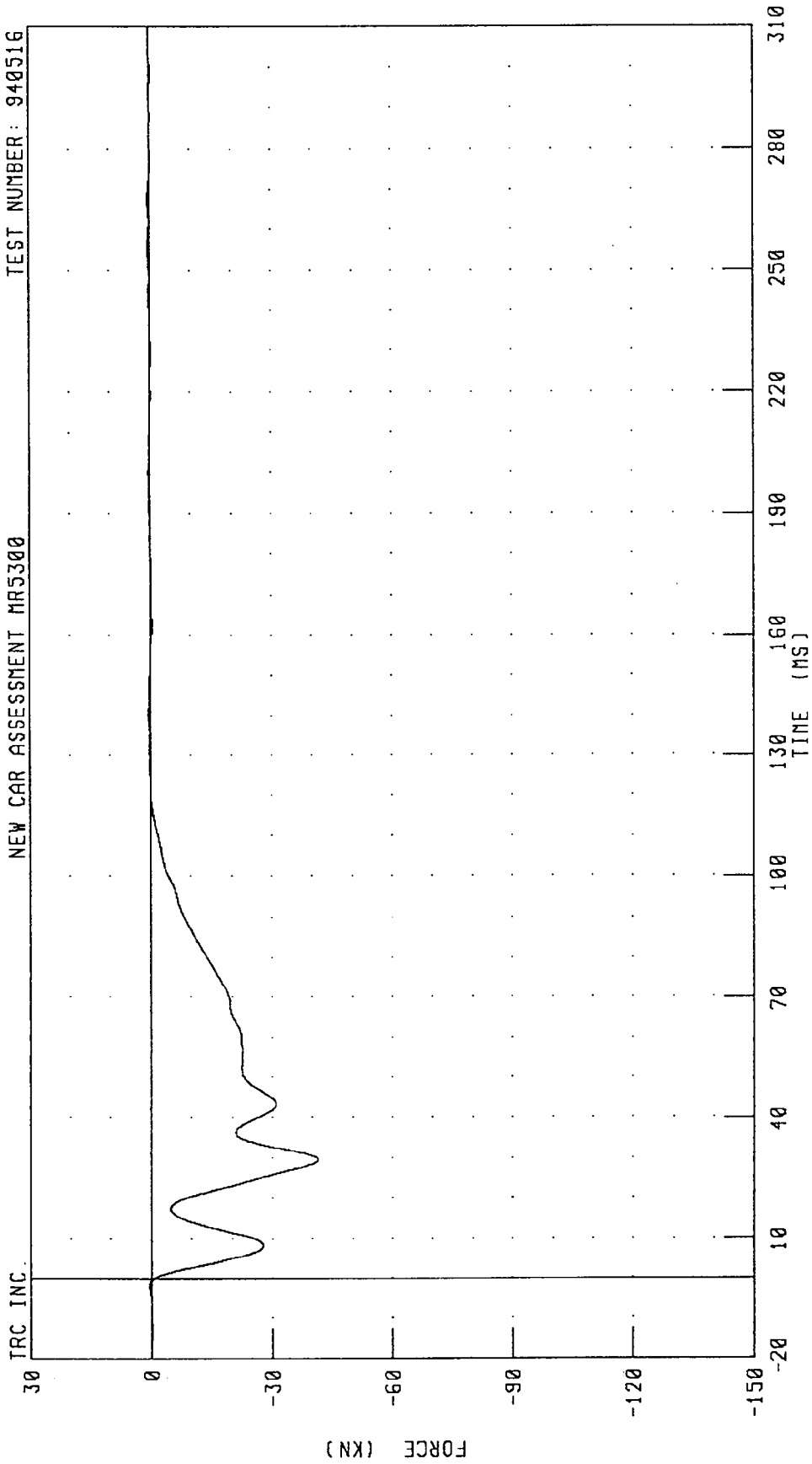
PEAK DATA: 1.43 KN @ 1.60 MS; -112.85 KN @ 14.64 MS

FILTER: CH. CLASS 60

CHANNEL: BB3F

1994 HONDA CIVIC INTO FRONTAL LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION B4 FORCE
 NEW CAR ASSESSMENT MR5300

TEST NUMBER: 940516



PEAK DATA: 0.44 KN @ 255.12 MS, -41.56 KN @ 29.60 MS

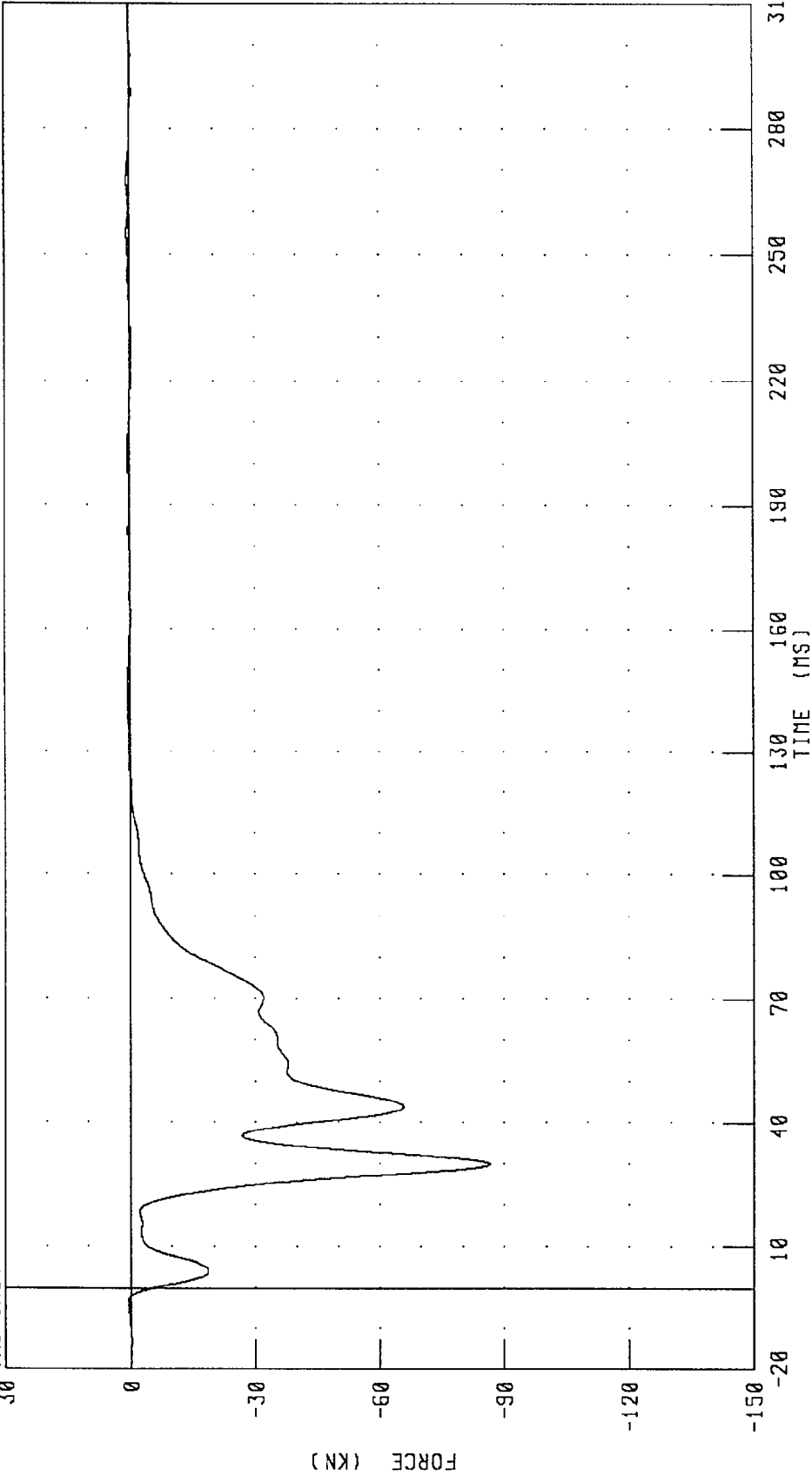
FILTER: CH. CLASS 60

CHANNEL: BB4F

1994 HONDA CIVIC INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION B5 FORCE
NEW CAR ASSESSMENT MR5300

TEST NUMBER: 940516

TRC INC.



CHANNEL: BB5F

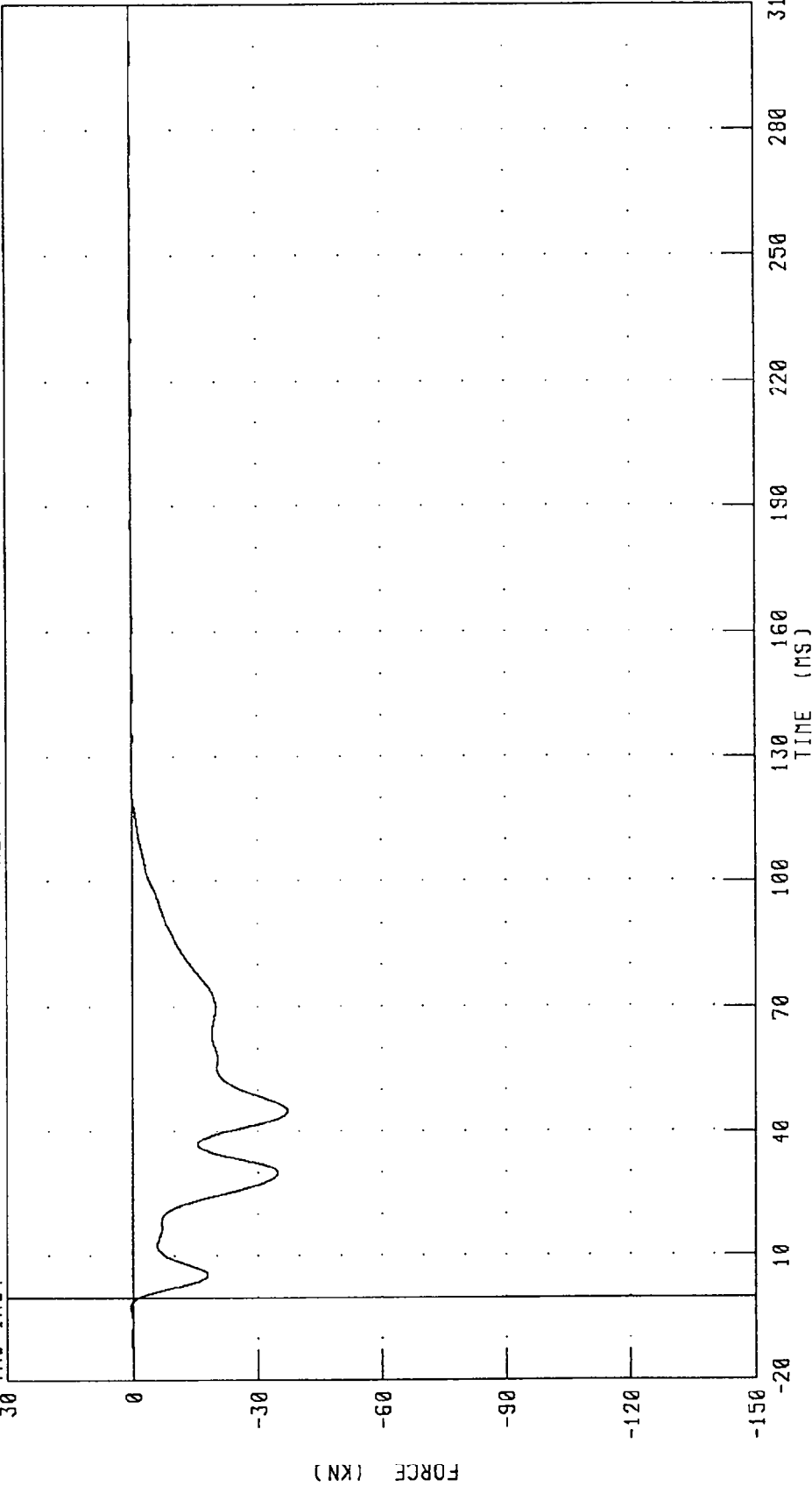
FILTER: CH. CLASS 60

PEAK DATA: 0.64 KN @ 255.12 MS; -86.67 KN @ 29.84 MS

1994 HONDA CIVIC INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION B6 FORCE
NEW CAR ASSESSMENT MR5300

TEST NUMBER: 940516

TRC INC.



CHANNEL: 886F

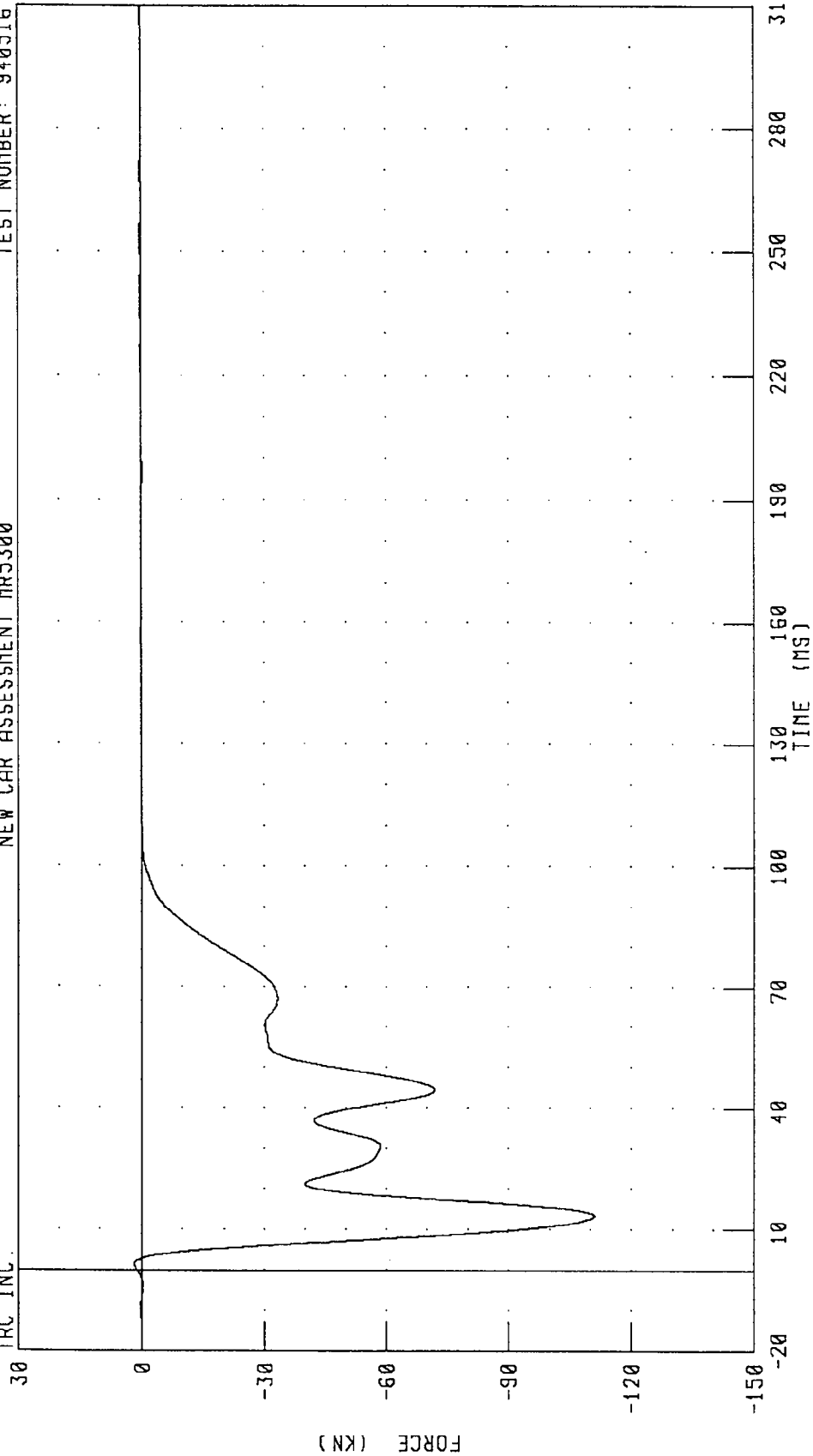
FILTER: CH. CLASS 60

PEAK DATA: 0.42 KN @ -2.32 MS; -37.16 KN @ 44.96 MS

1994 HONDA CIVIC INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION B7 FORCE
NEW CAR ASSESSMENT MR5300

TEST NUMBER: 940516

TRC INC.



CHANNEL: BB7F

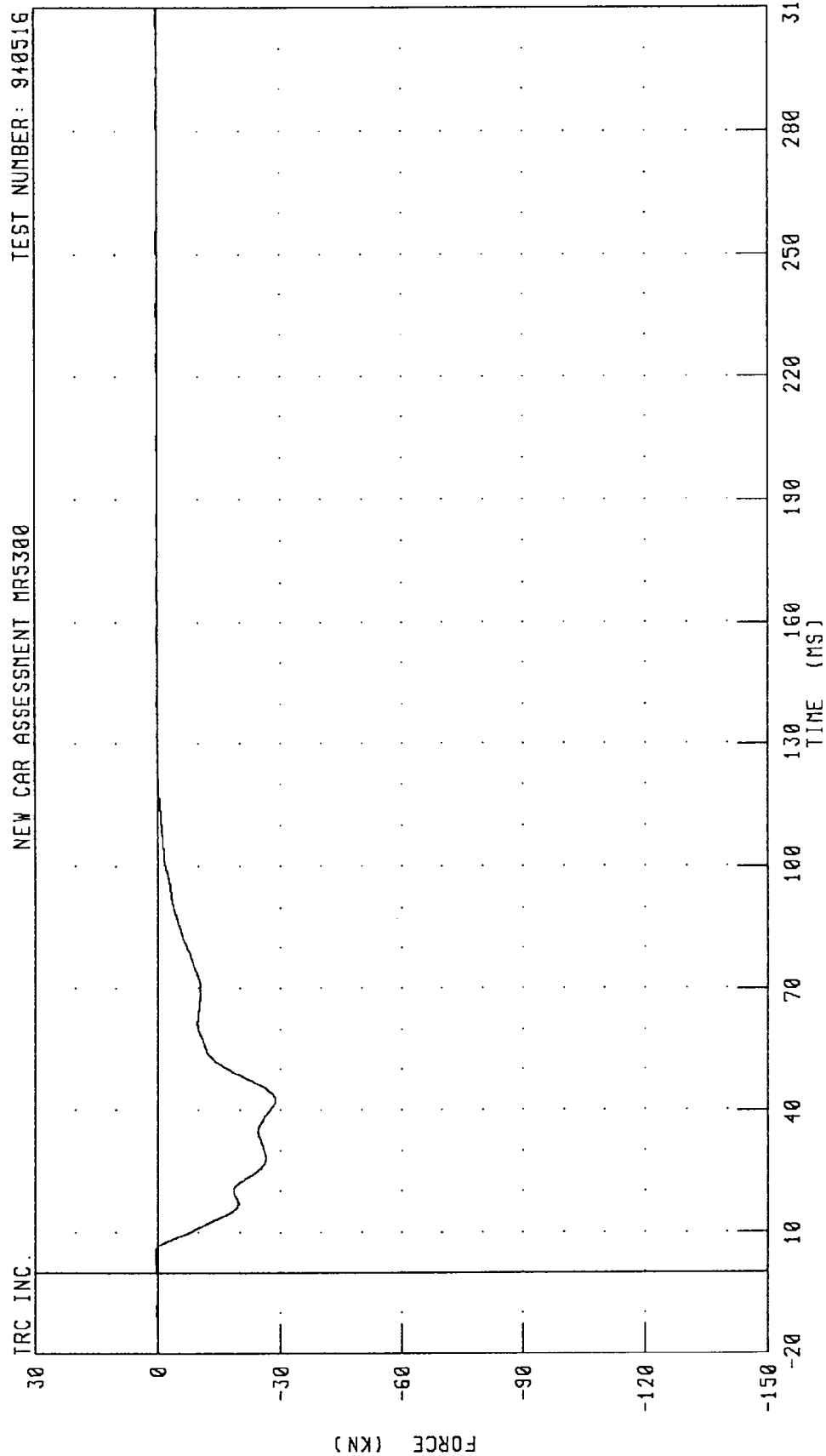
FILTER: CH. CLASS 60

PEAK DATA: 1.73 KN @ 1.36 MS; -110.97 KN @ 13.44 MS

1994 HONDA CIVIC INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION B8 FORCE

NEW CAR ASSESSMENT MR5300

TEST NUMBER: 940516



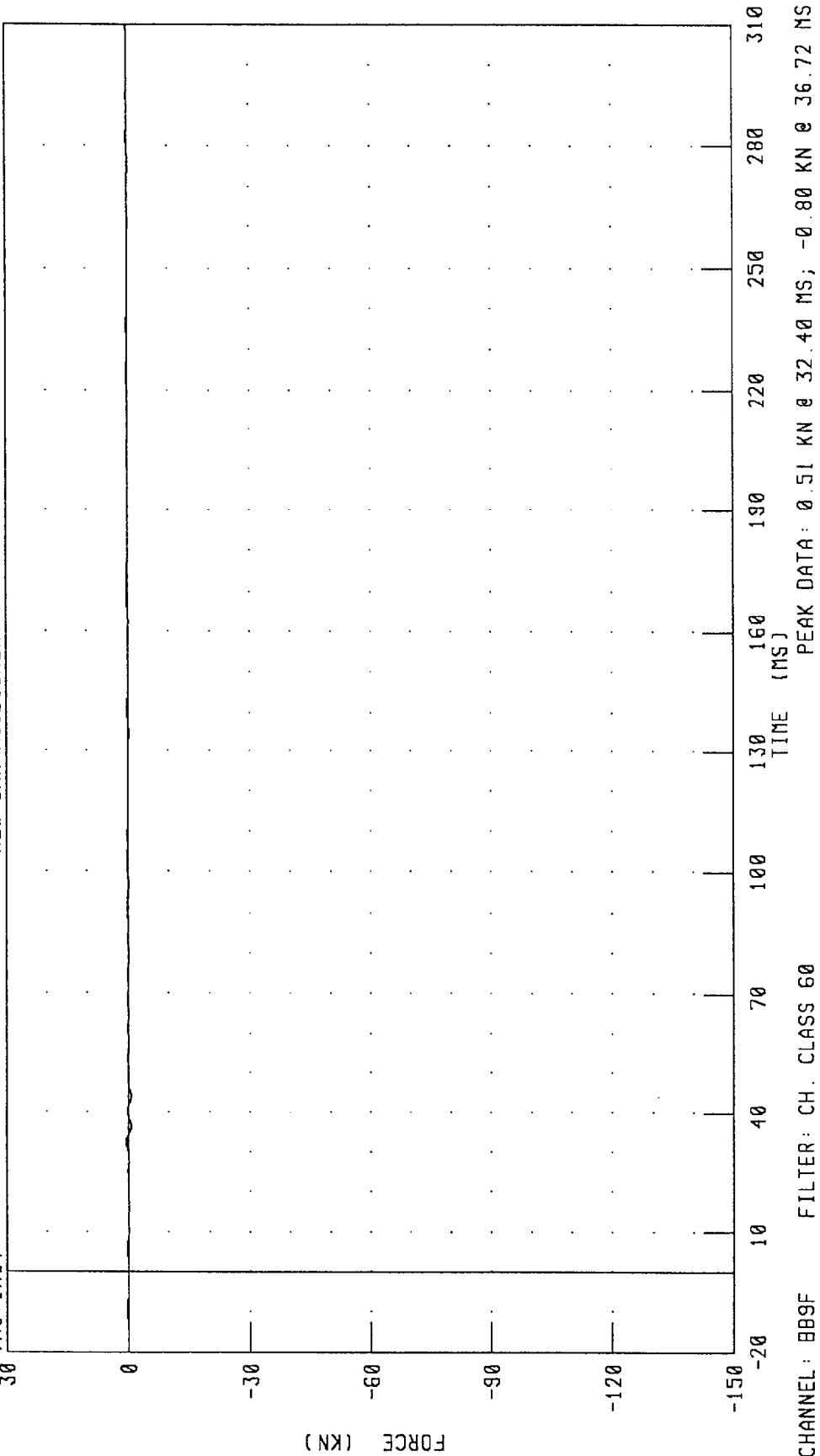
PEAK DATA: 0.58 KN @ 4.24 MS; -28.78 KN @ 42.48 MS

CHANNEL: BB8F FILTER: CH. CLASS 60

1994 HONDA CIVIC INTO FRONTAL LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION B9 FORCE
 NEW CAR ASSESSMENT MR5300

TEST NUMBER: 940516

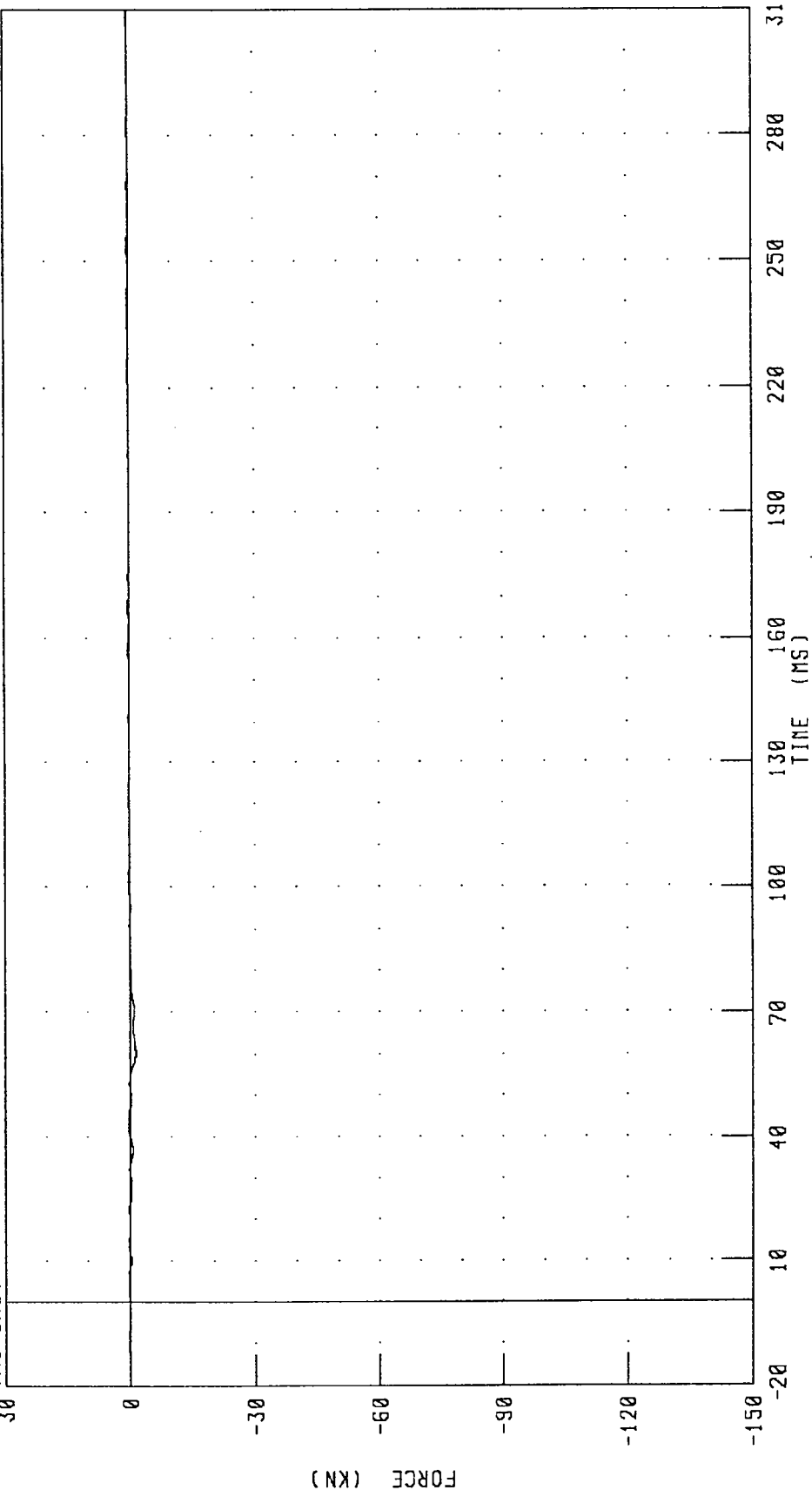
TRC INC.



1994 HONDA CIVIC INTO FRONTAL LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION C1 FORCE
 NEW CAR ASSESSMENT MR5300

TEST NUMBER: 940516

TRC INC.



PEAK DATA: 0.33 KN @ 44.72 MS; -1.48 KN @ 60.16 MS

FILTER: CH. CLASS 60

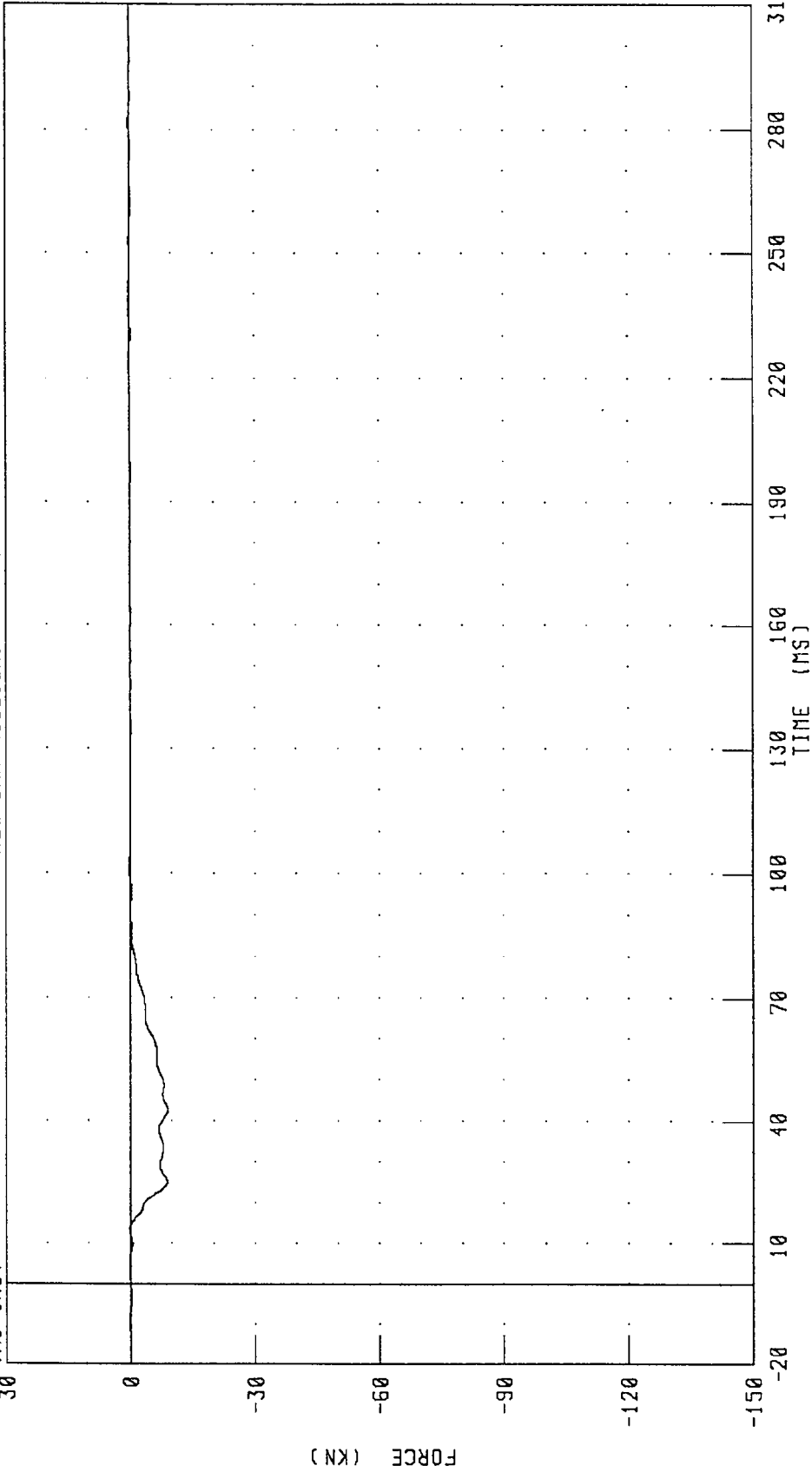
CHANNEL: BC1F

1994 HONDA CIVIC INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION C2 FORCE

TEST NUMBER: 940516

NEW CAR ASSESSMENT MR5300

TRC INC.



PEAK DATA: 0.30 KN @ 3.60 MS; -8.92 KN @ 42.80 MS

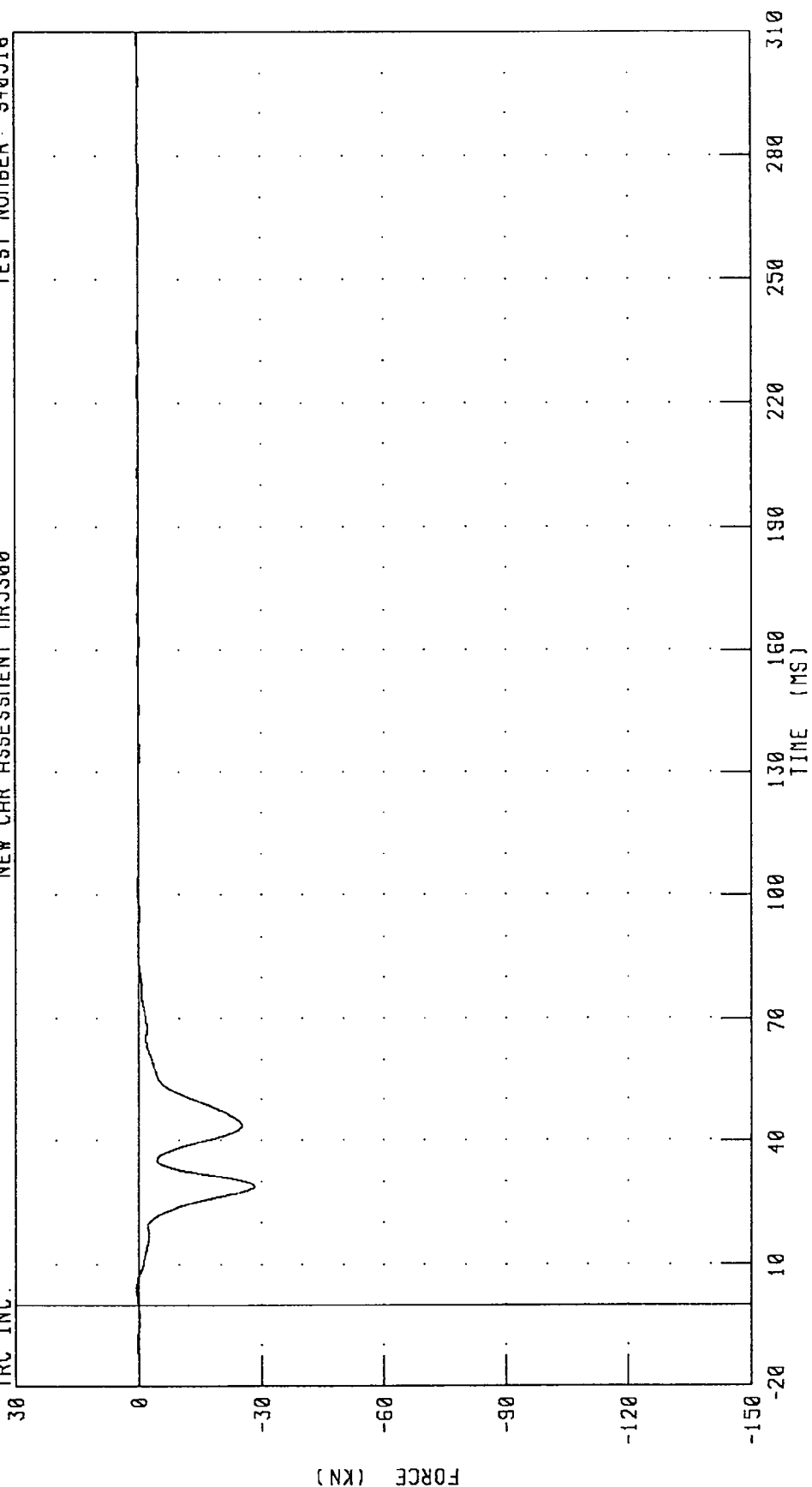
CHANNEL: BC2F FILTER: CH. CLASS 60

1994 HONDA CIVIC INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION C3 FORCE

TEST NUMBER: 940516

NEW CAR ASSESSMENT MR5300

TRC INC.



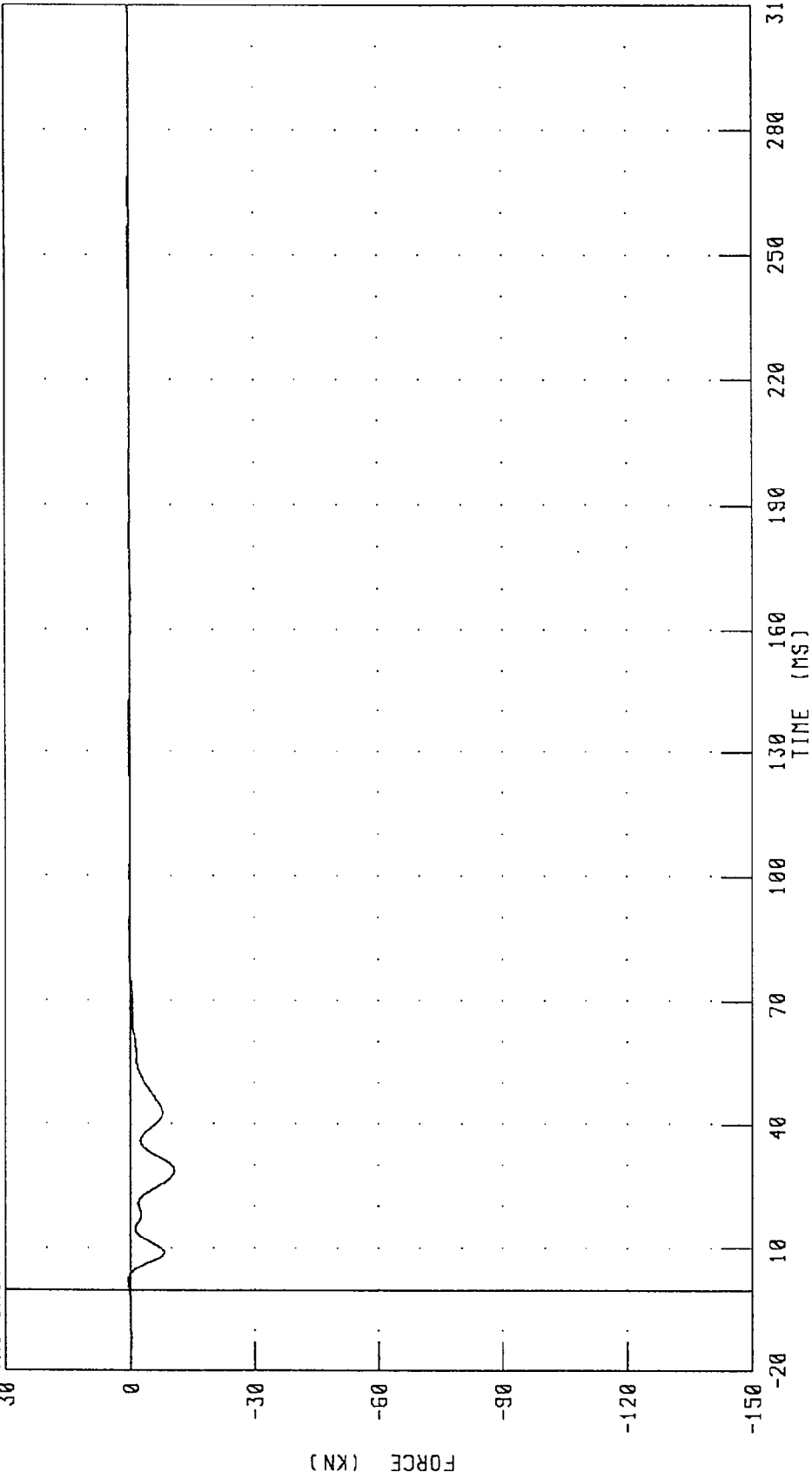
PEAK DATA: 0.37 KN @ 3.92 MS; -28.19 KN @ 28.88 MS

CHANNEL: BC3F FILTER: CH. CLASS 60

1994 HONDA CIVIC INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION C4 FORCE
NEW CAR ASSESSMENT MR5300

TEST NUMBER: 940516

TRC INC.



CHANNEL: BC4F FILTER: CH. CLASS 60

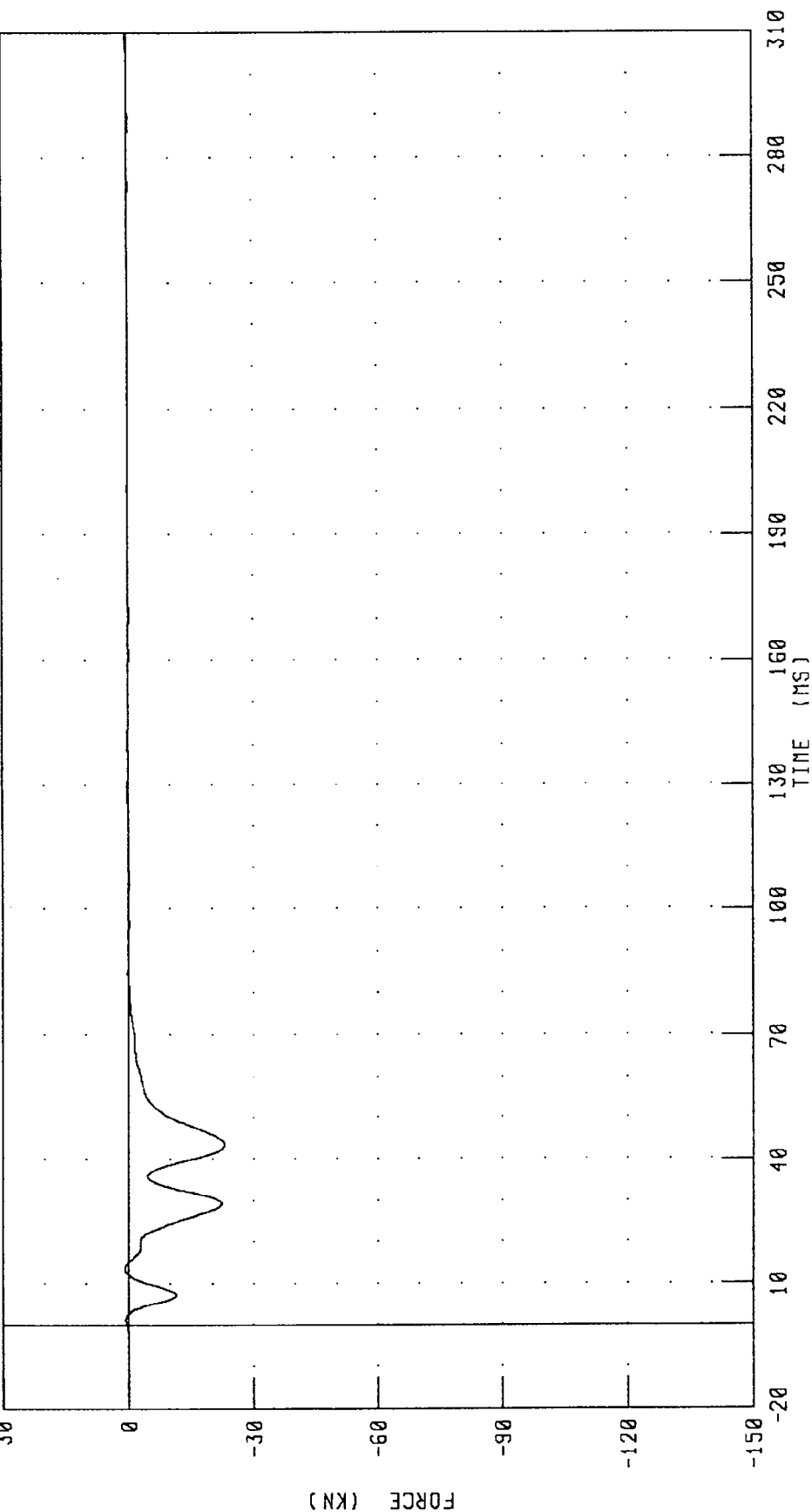
PEAK DATA: 0.47 KN @ 2.00 MS, -10.61 KN @ 28.64 MS

1994 HONDA CIVIC INTO FRONTAL LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION C5 FORCE

TEST NUMBER: 940516

NEW CAR ASSESSMENT MRS300

TRC INC.



PEAK DATA: 0.77 KN @ 13.60 MS; -23.01 KN @ 43.52 MS

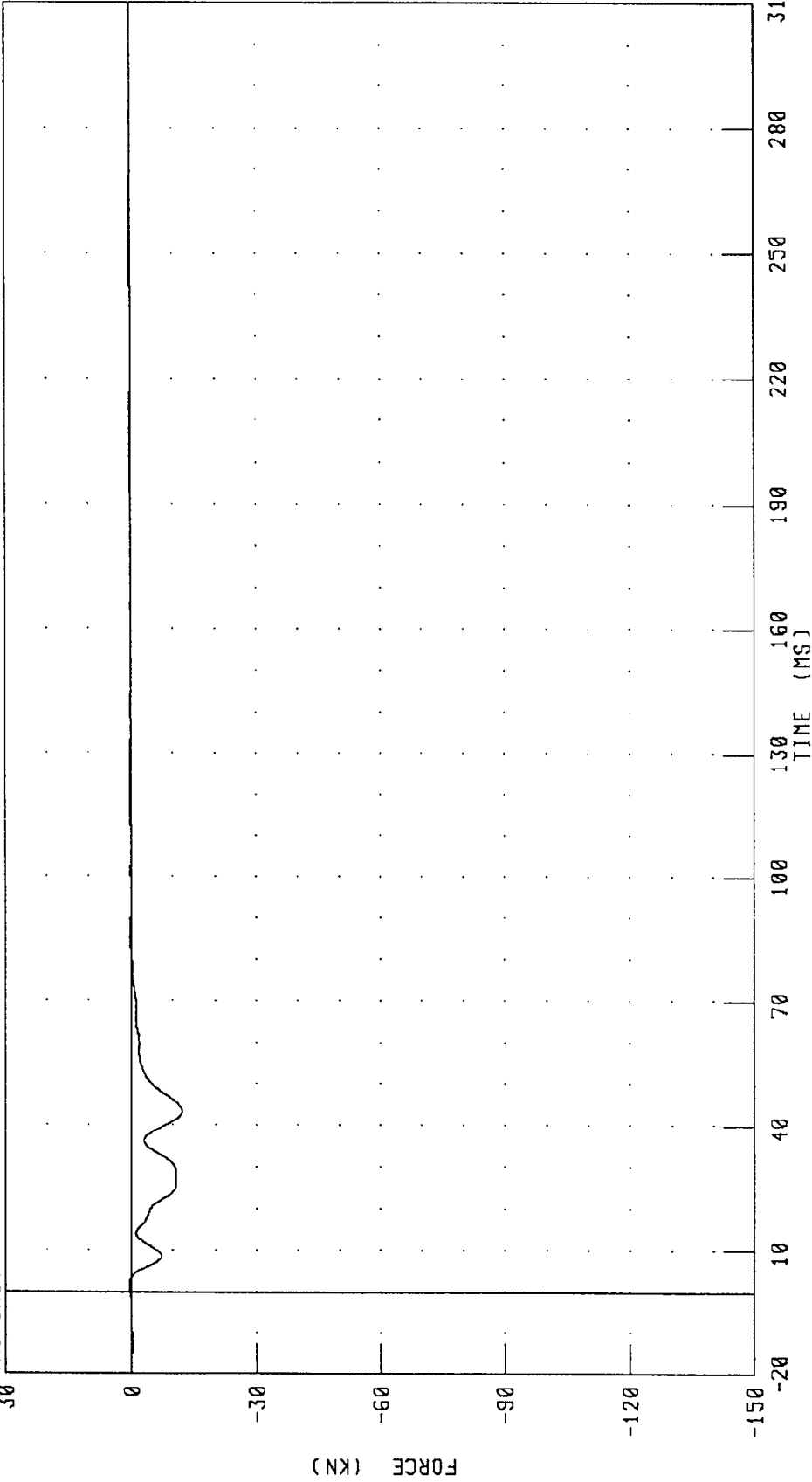
FILTER: CH. CLASS 60

CHANNEL: BC5F

1994 HONDA CIVIC INTO FRONTAL LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION C6 FORCE
 NEW CAR ASSESSMENT MR5300

TEST NUMBER: 940516

TRC INC.



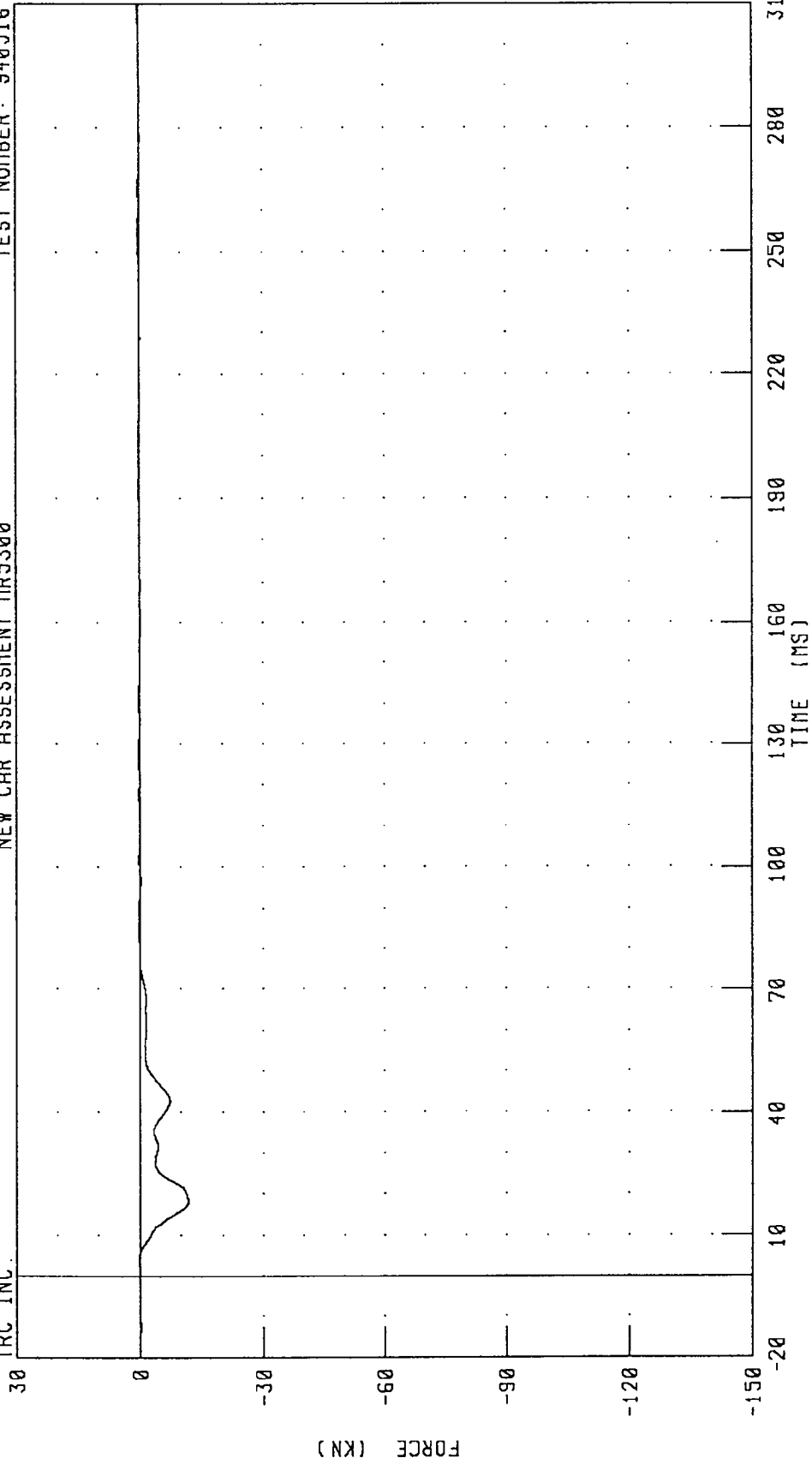
PEAK DATA: 0.44 KN @ 1.68 MS; -12.19 KN @ 43.36 MS

CHANNEL: BC6F FILTER: CH. CLASS 60

1994 HONDA CIVIC INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION C7 FORCE
NEW CAR ASSESSMENT MR5300

TEST NUMBER: 940516

TRC INC.



PEAK DATA: 0.33 KN @ 140.88 MS; -11.71 KN @ 18.24 MS

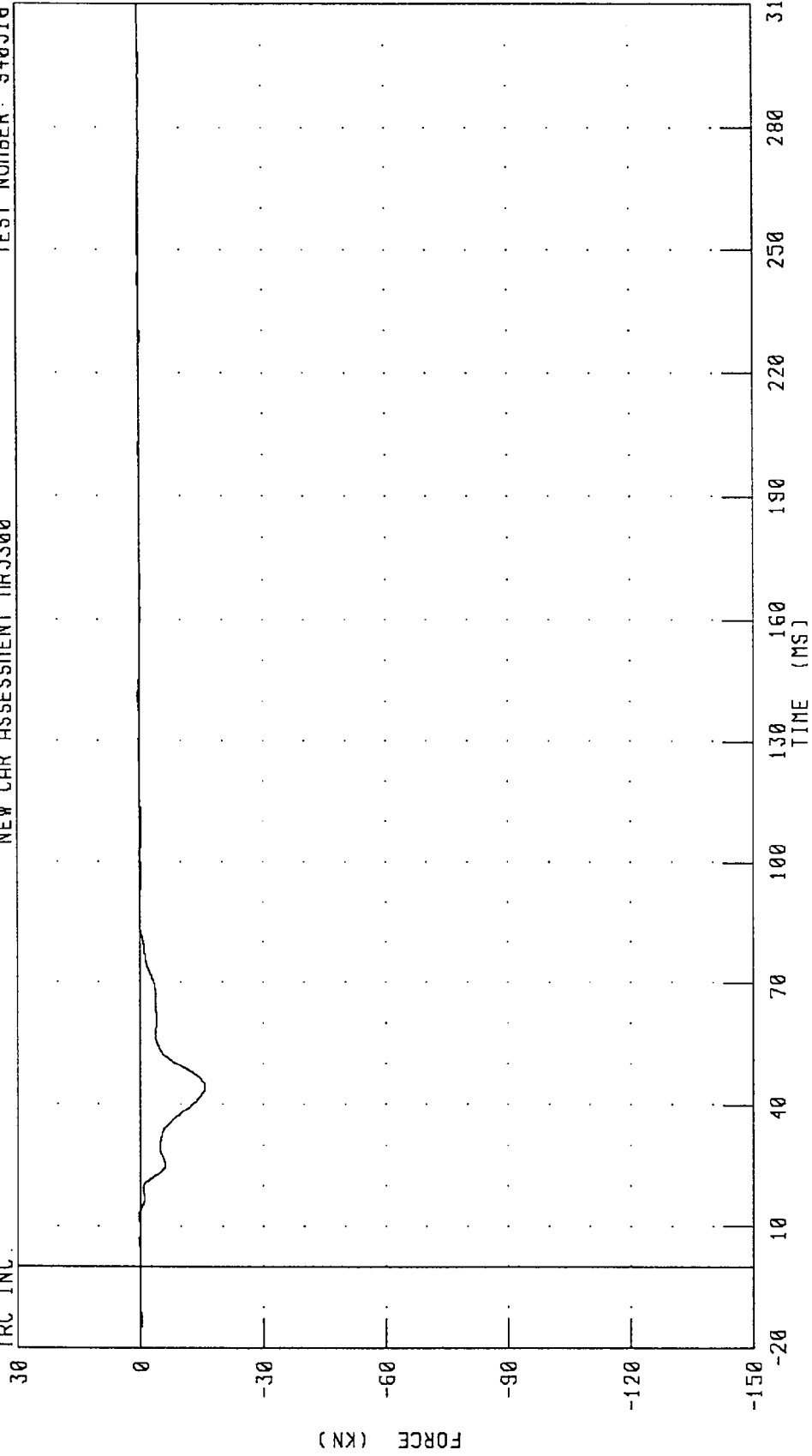
FILTER: CH. CLASS 60

CHANNEL: BC7F

1994 HONDA CIVIC INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION C8 FORCE
NEW CAR ASSESSMENT MR5300

TEST NUMBER: 940516

TRC INC.

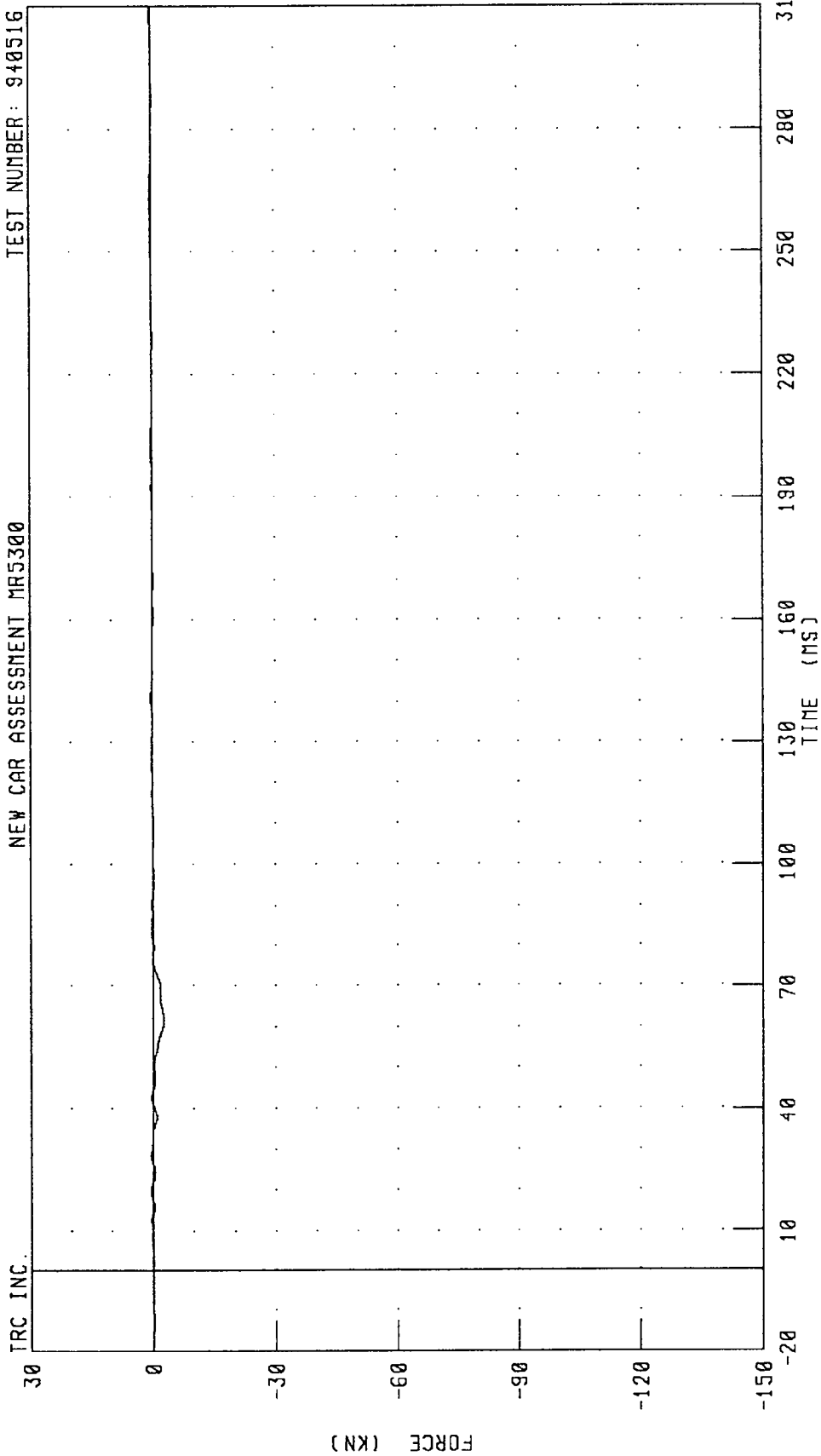


CHANNEL: BC8F FILTER: CH. CLASS 60

PEAK DATA: 0.40 KN @ 141.04 MS; -15.84 KN @ 44.48 MS

1994 HONDA CIVIC INTO FRONTAL LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION C9 FORCE
 NEW CAR ASSESSMENT MR5300

TEST NUMBER: 940516



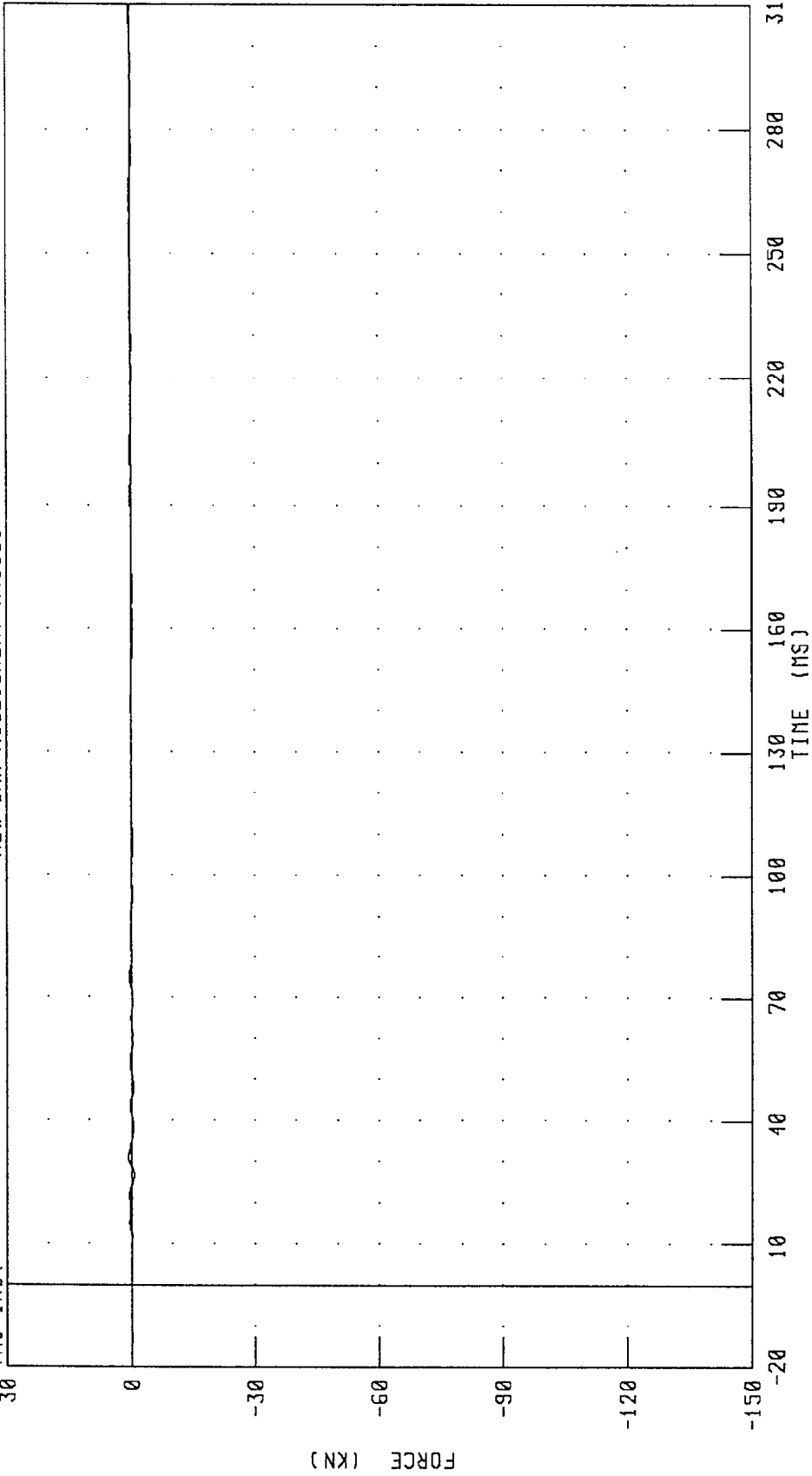
PEAK DATA: 0.47 KN @ 19.92 MS; -2.59 KN @ 61.52 MS

CHANNEL: BC9F FILTER: CH. CLASS 60

1994 HONDA CIVIC INTO FRONTAL LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION D1 FORCE
 NEW CAR ASSESSMENT MR5300

TEST NUMBER: 940516

TRC INC.



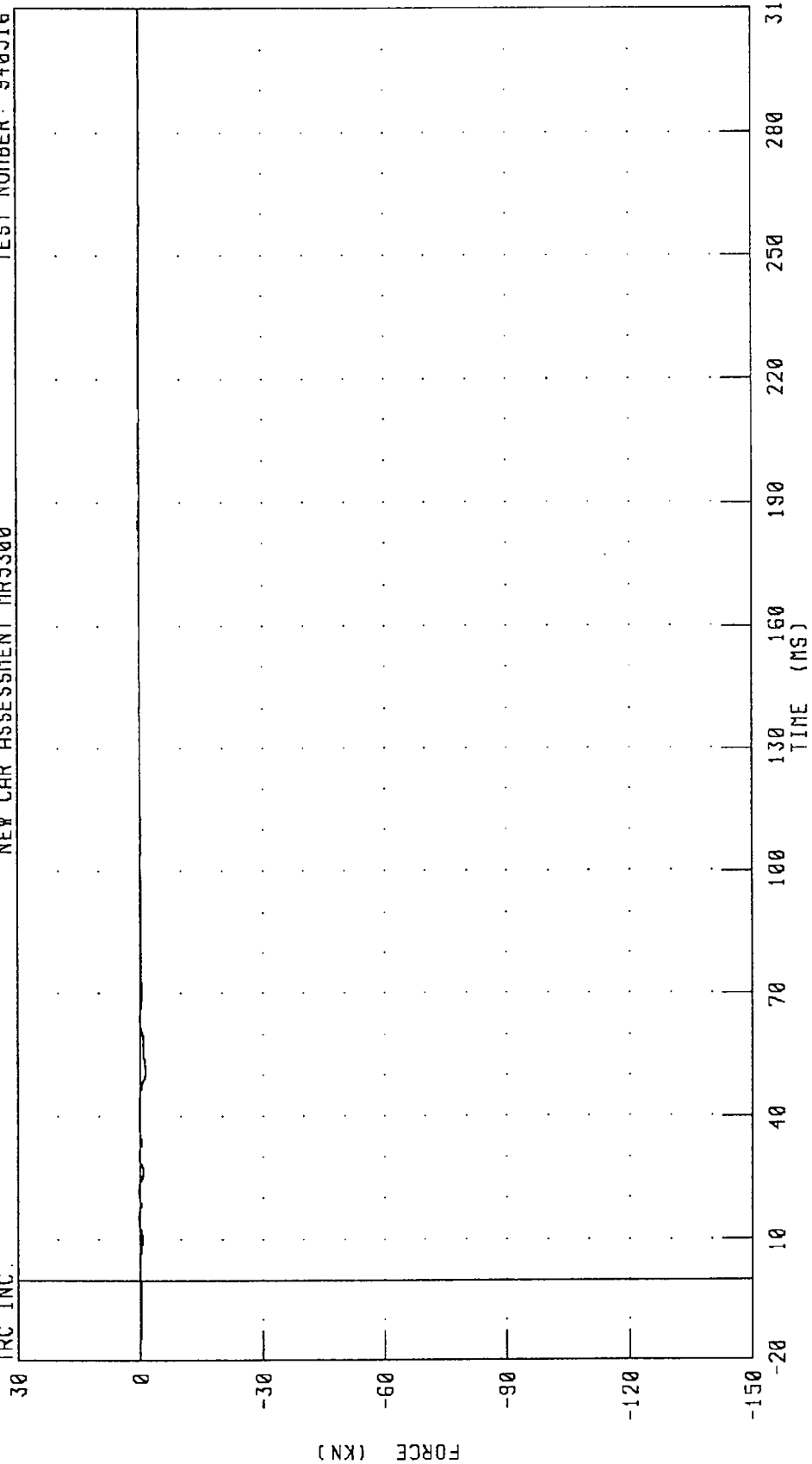
CHANNEL: B01F FILTER: CH. CLASS 60

1994 HONDA CIVIC INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION D2 FORCE

NEW CAR ASSESSMENT MR5300

TEST NUMBER: 940516

TRC INC.



CHANNEL: BD2F

FILTER: CH. CLASS 60

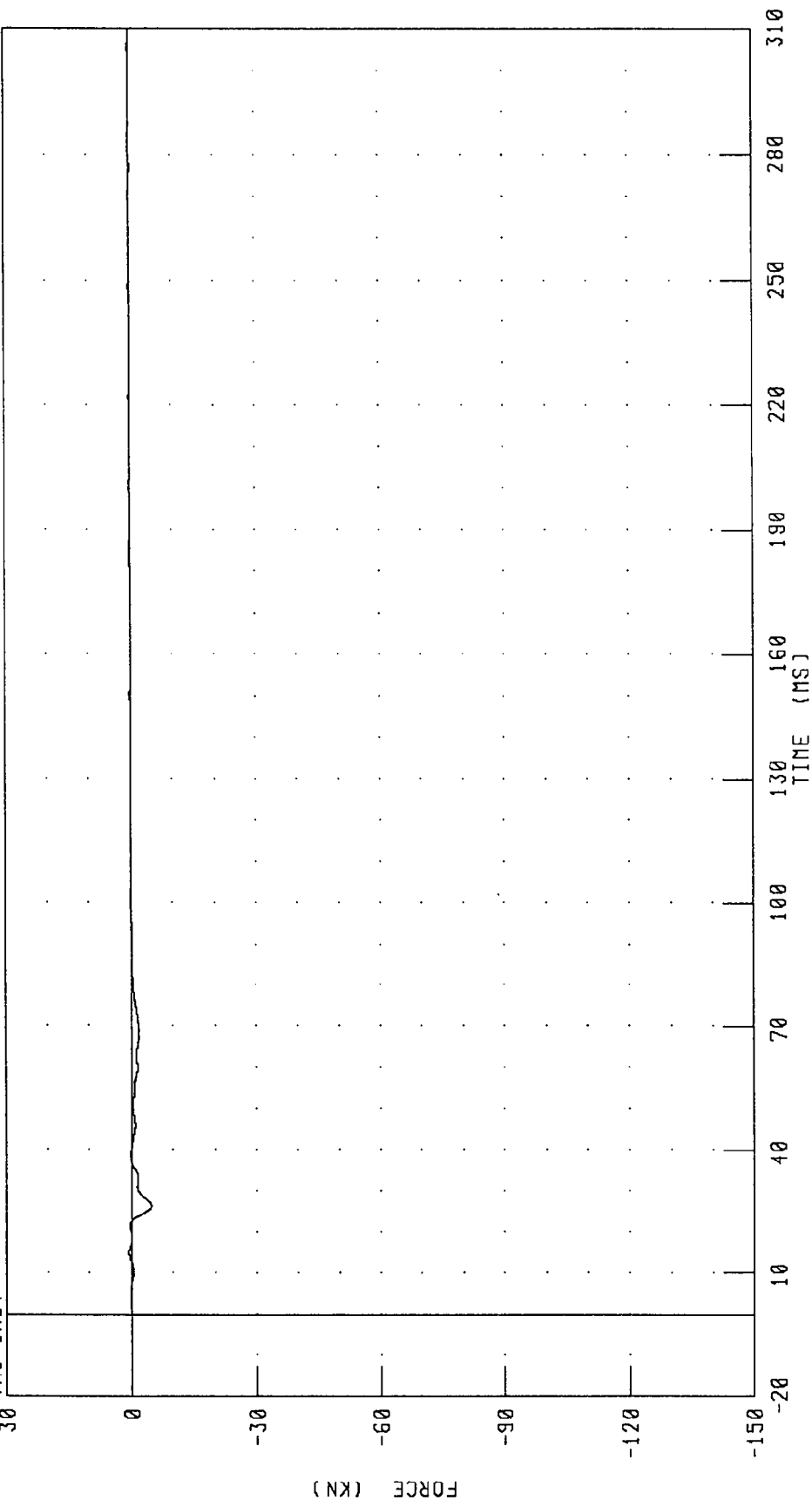
PEAK DATA: 0.37 KN @ 21.84 MS; -1.36 KN @ 50.96 MS

1994 HONDA CIVIC INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION D3 FORCE

NEW CAR ASSESSMENT MR5300

TEST NUMBER: 940516

TRC INC.



CHANNEL: BD3F

FILTER: CH. CLASS 60

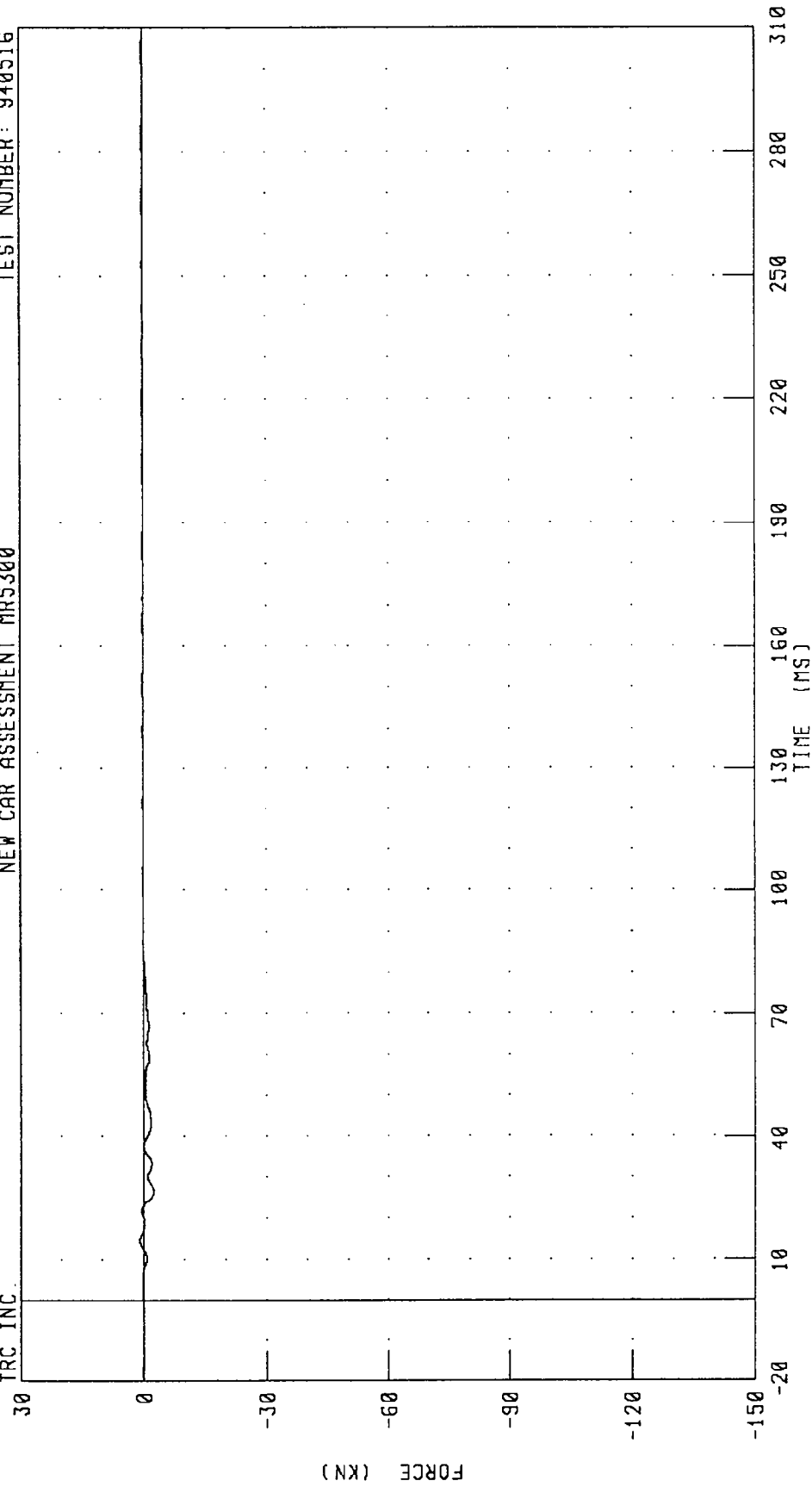
PEAK DATA: 0.66 KN @ 14.88 MS, -4.77 KN @ 26.32 MS

1994 HONDA CIVIC INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION D4 FORCE

NEW CAR ASSESSMENT NR5300

TEST NUMBER: 940516

TRC INC.

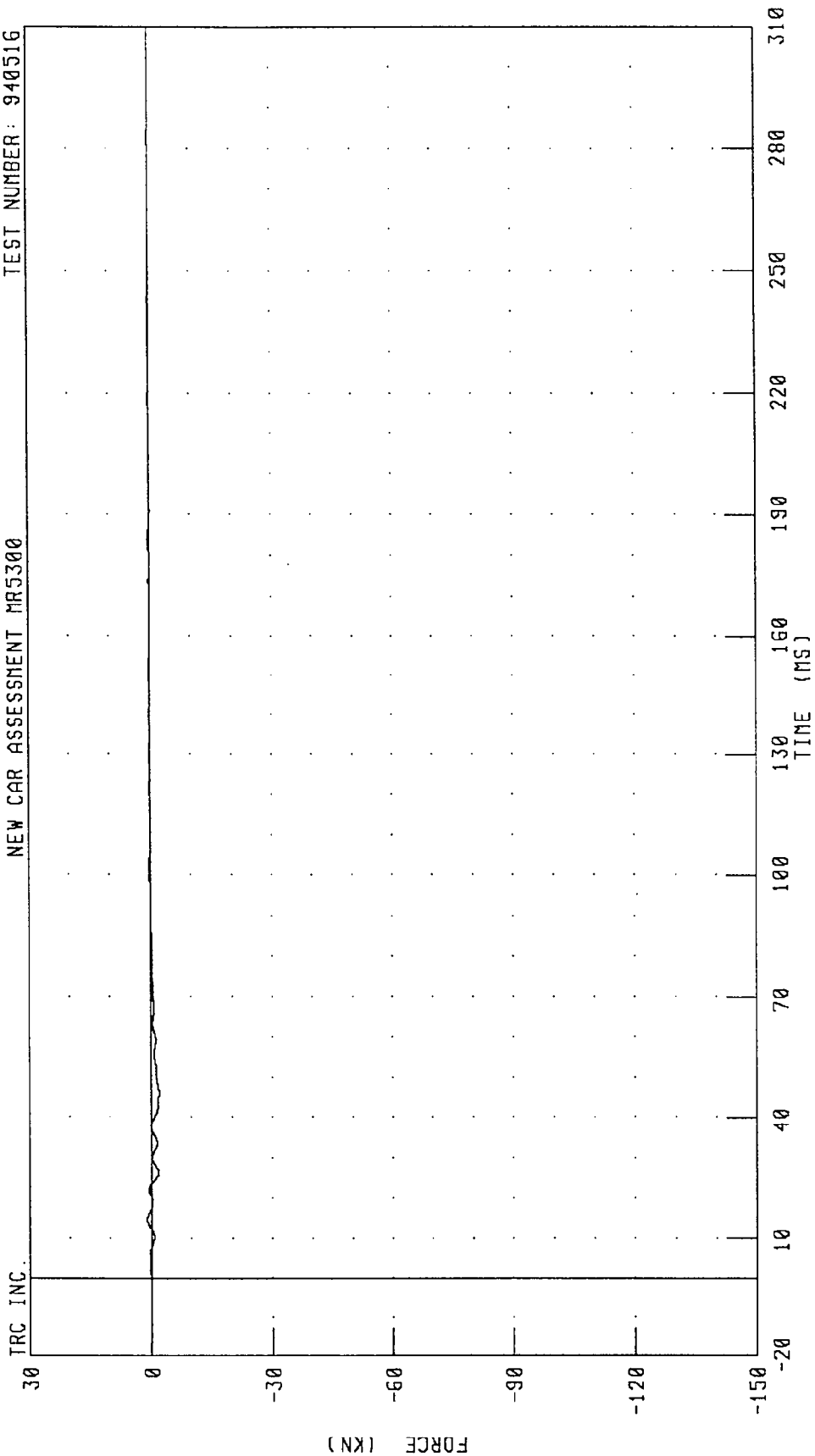


CHANNEL: BD4F FILTER: CH. CLASS 60

1994 HONDA CIVIC INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION D5 FORCE

NEW CAR ASSESSMENT MR5300

TEST NUMBER: 940516



CHANNEL: 805F

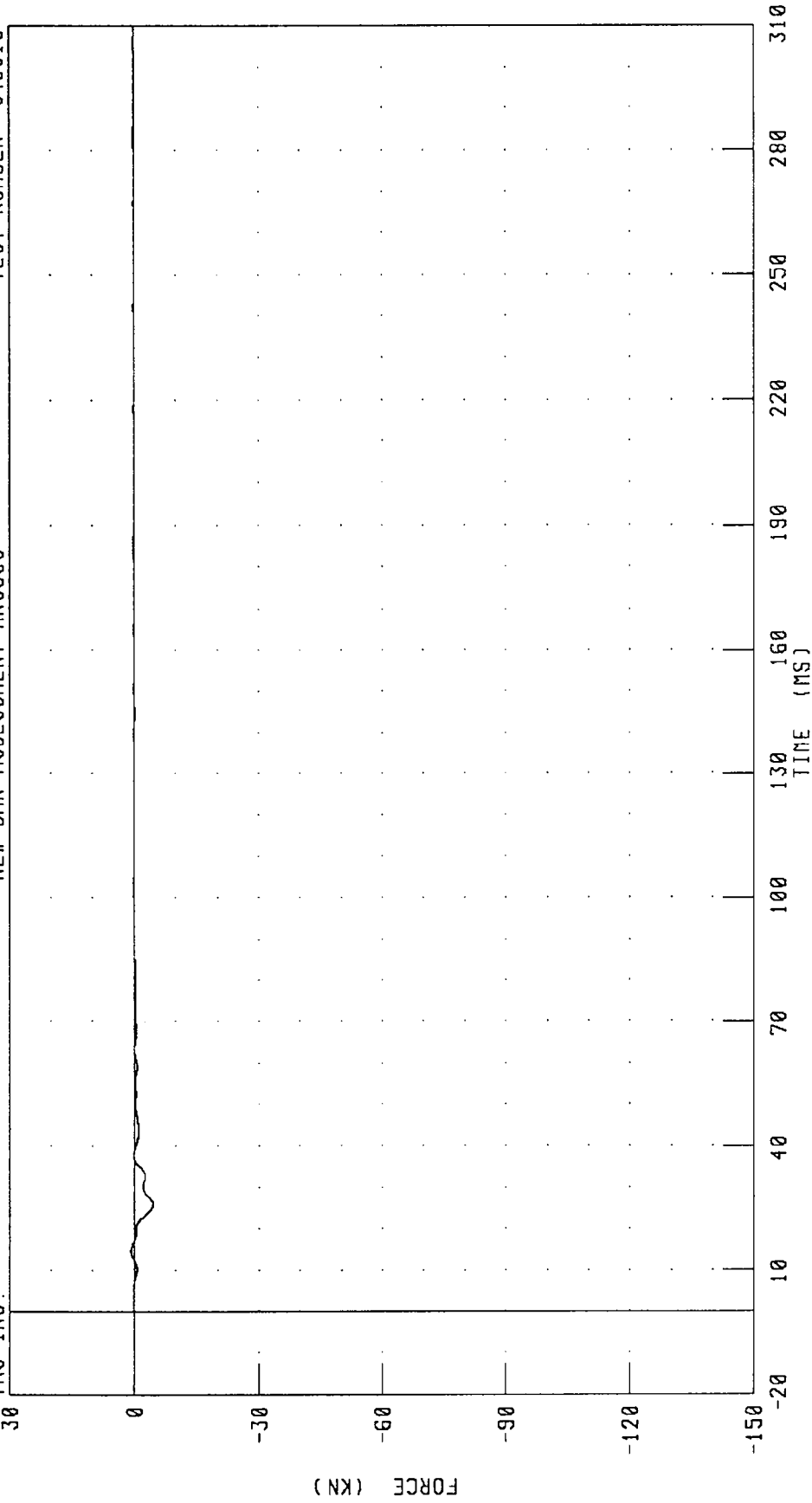
FILTER: CH. CLASS 60

1984 HONDA CIVIC INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION D6 FORCE

TEST NUMBER: 940516

NEW CAR ASSESSMENT MR5300

TRC INC.



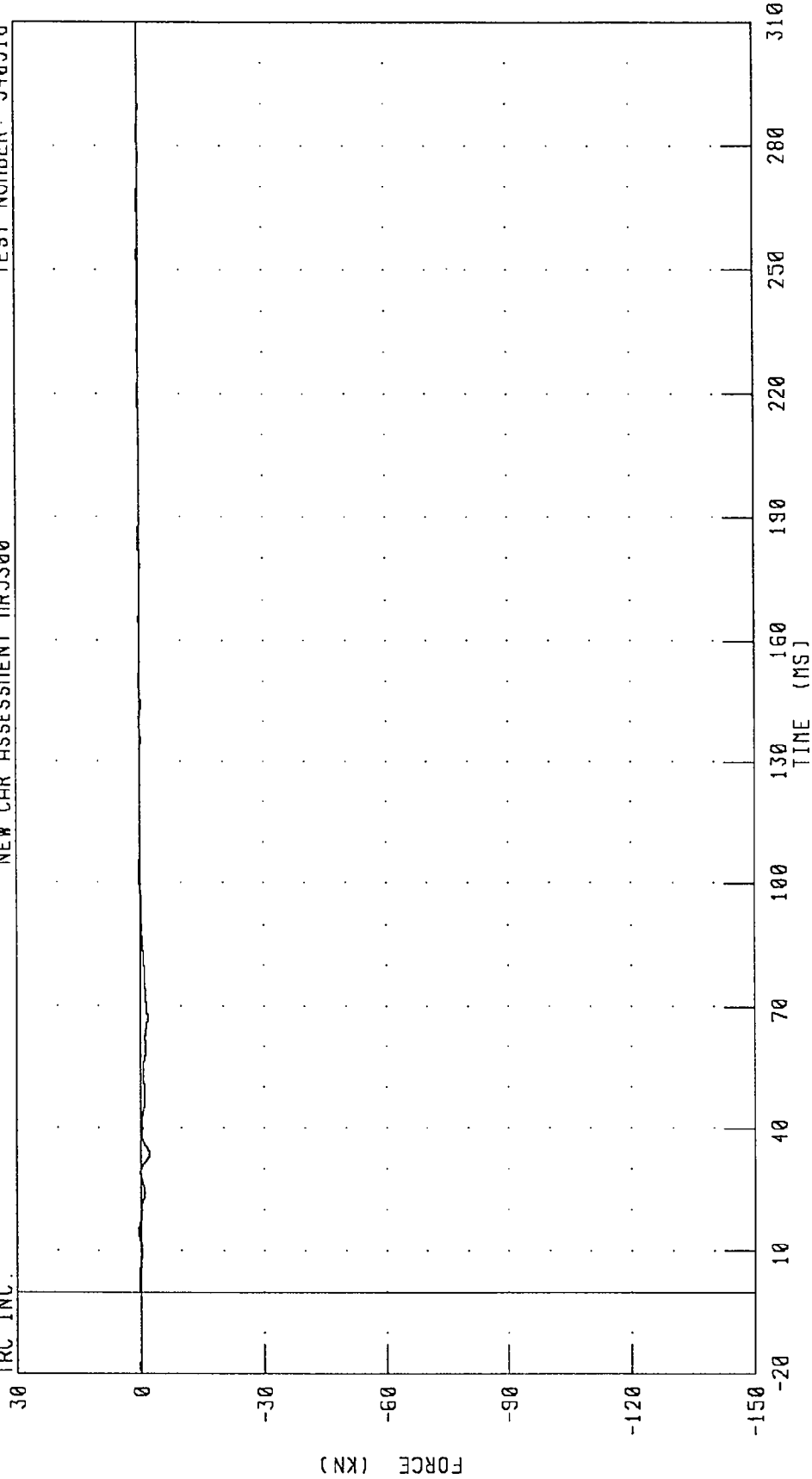
PEAK DATA: 0.85 KN @ 14.72 MS; -4.40 KN @ 26.00 MS

CHANNEL: BD6F FILTER: CH. CLASS 60

1984 HONDA CIVIC INTO FRONTAL LOAD CELL BARRIER
 LOAD CELL BARRIER POSITION D7 FORCE
 NEW CAR ASSESSMENT MR5300

TEST NUMBER: 940516

TRC INC.



PEAK DATA: 0.47 KN @ 14.64 MS; -2.12 KN @ 33.52 MS

FILTER: CH. CLASS 60

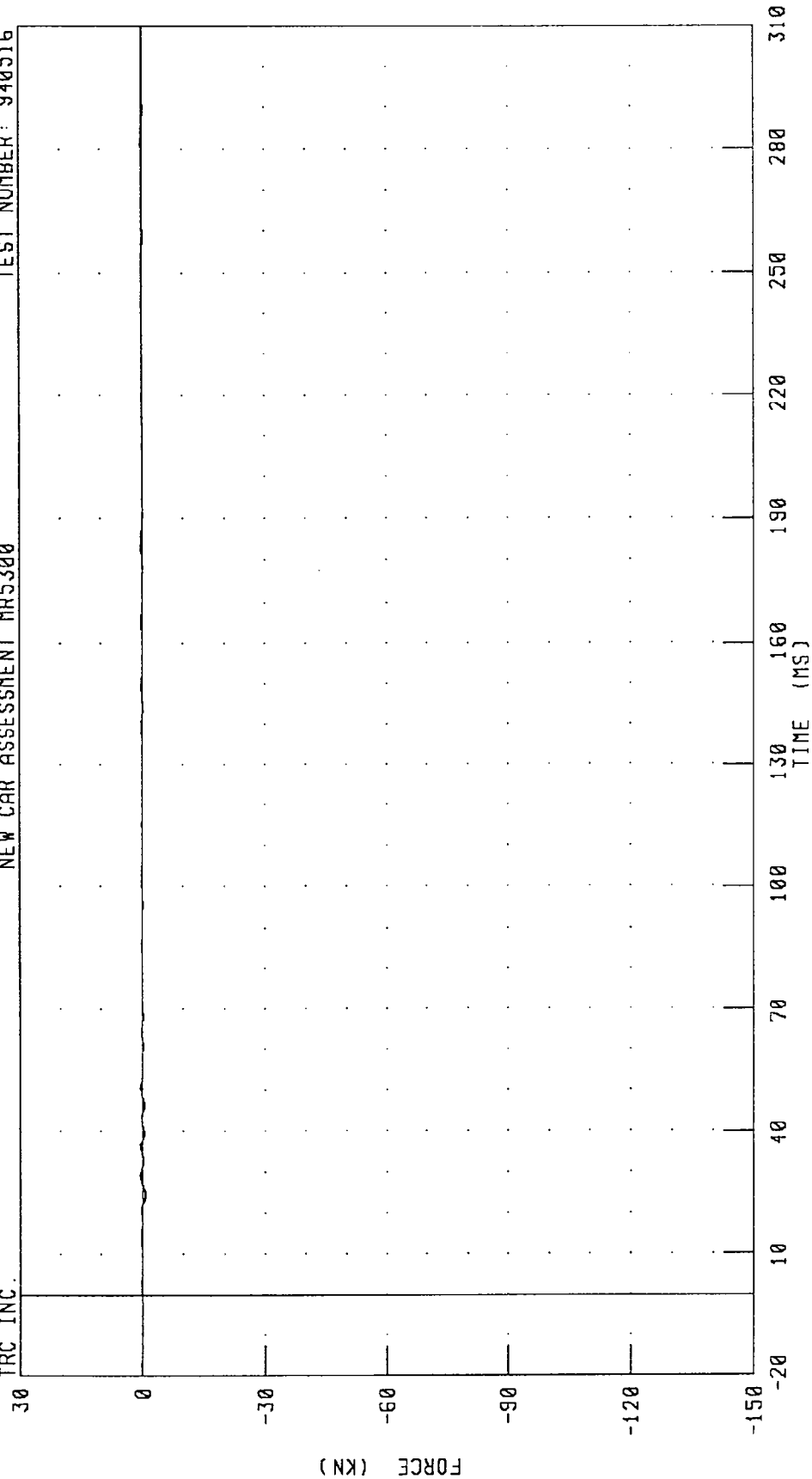
CHANNEL: B07F

1994 HONDA CIVIC INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION D8 FORCE

TEST NUMBER: 940516

NEW CAR ASSESSMENT MR5300

TRC INC.



CHANNEL: 808F

FILTER: CH. CLASS 60

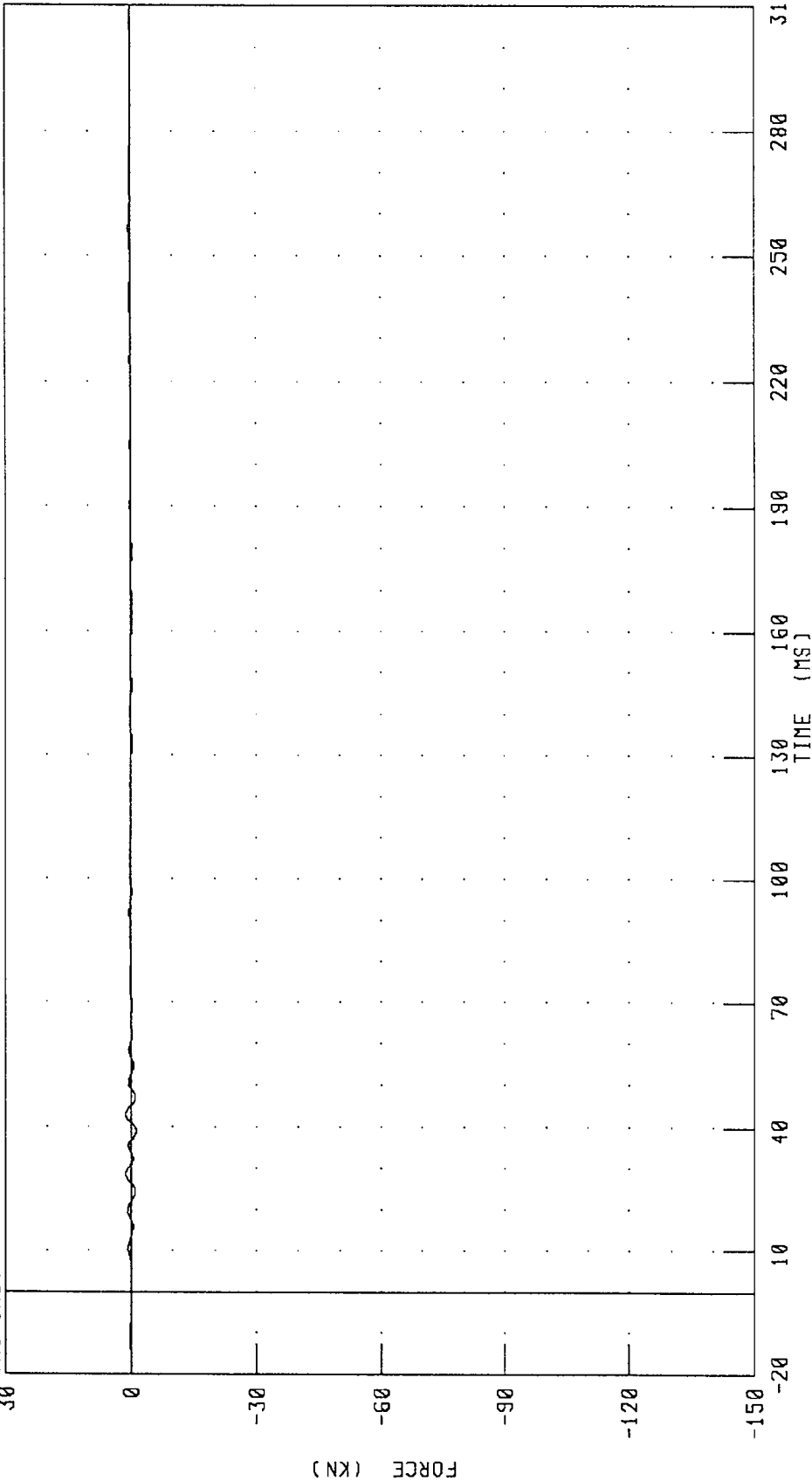
TIME (MS)

PEAK DATA: 0.42 KN @ 36.08 MS; -0.81 KN @ 24.56 MS

1994 HONDA CIVIC INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION D9 FORCE
NEW CAR ASSESSMENT MR5300

TEST NUMBER: 940516

TRC INC.

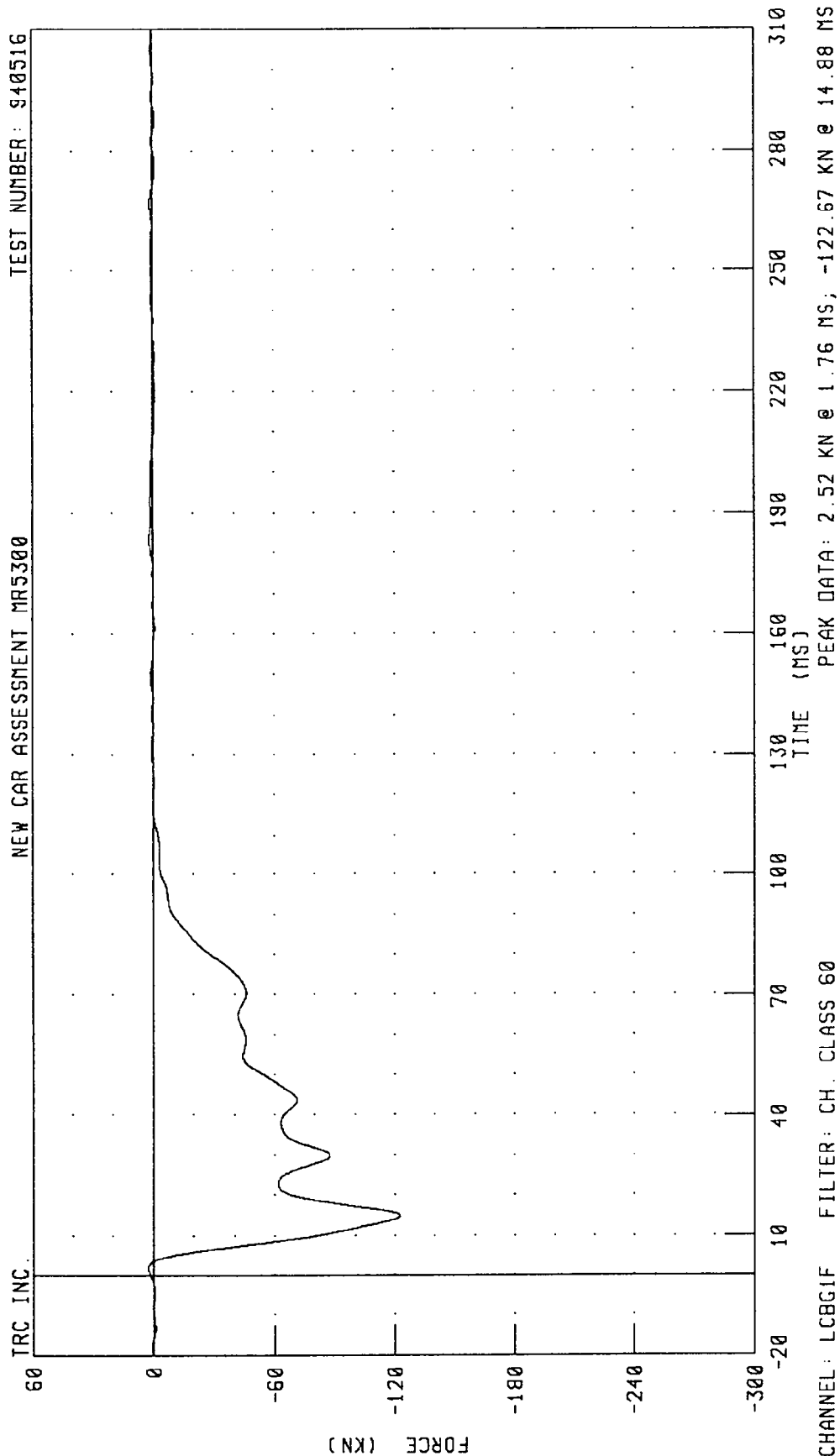


CHANNEL: BD9F

FILTER: CH. CLASS 60

PEAK DATA: 1.21 KN @ 43.12 MS; -1.34 KN @ 39.04 MS

1994 HONDA CIVIC INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER GROUP # 1 FORCE TOTAL

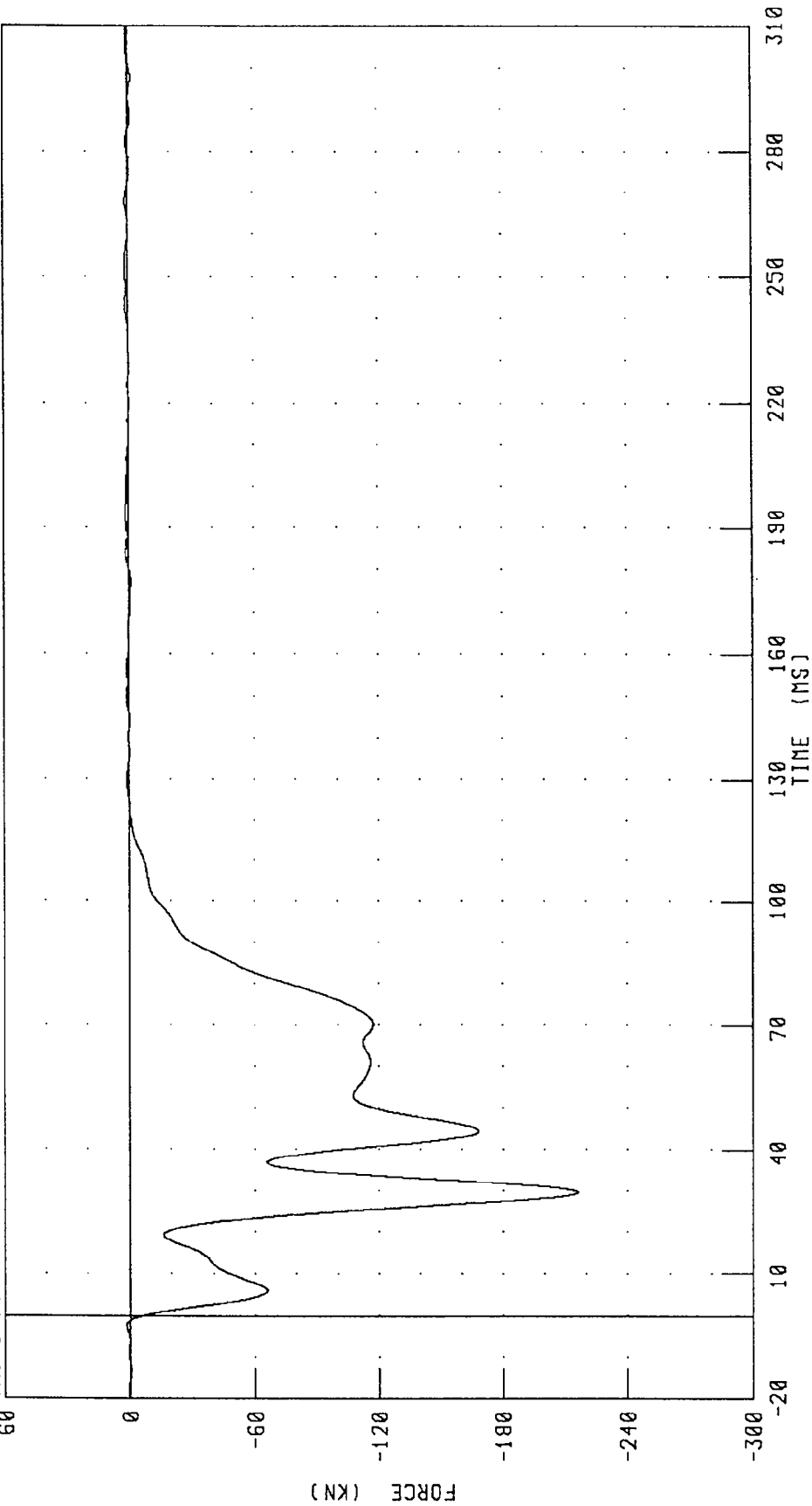


CHANNEL: LCBGIF FILTER: CH. CLASS 60

1994 HONDA CIVIC INTO FRONTAL LOAD CELL BARRIER
 LOAD CELL BARRIER GROUP # 2 FORCE TOTAL
 NEW CAR ASSESSMENT MR5300

TEST NUMBER: 940516

TRC INC.



PEAK DATA: 1.57 KN @ 193.36 MS; -216.38 KN @ 29.68 MS

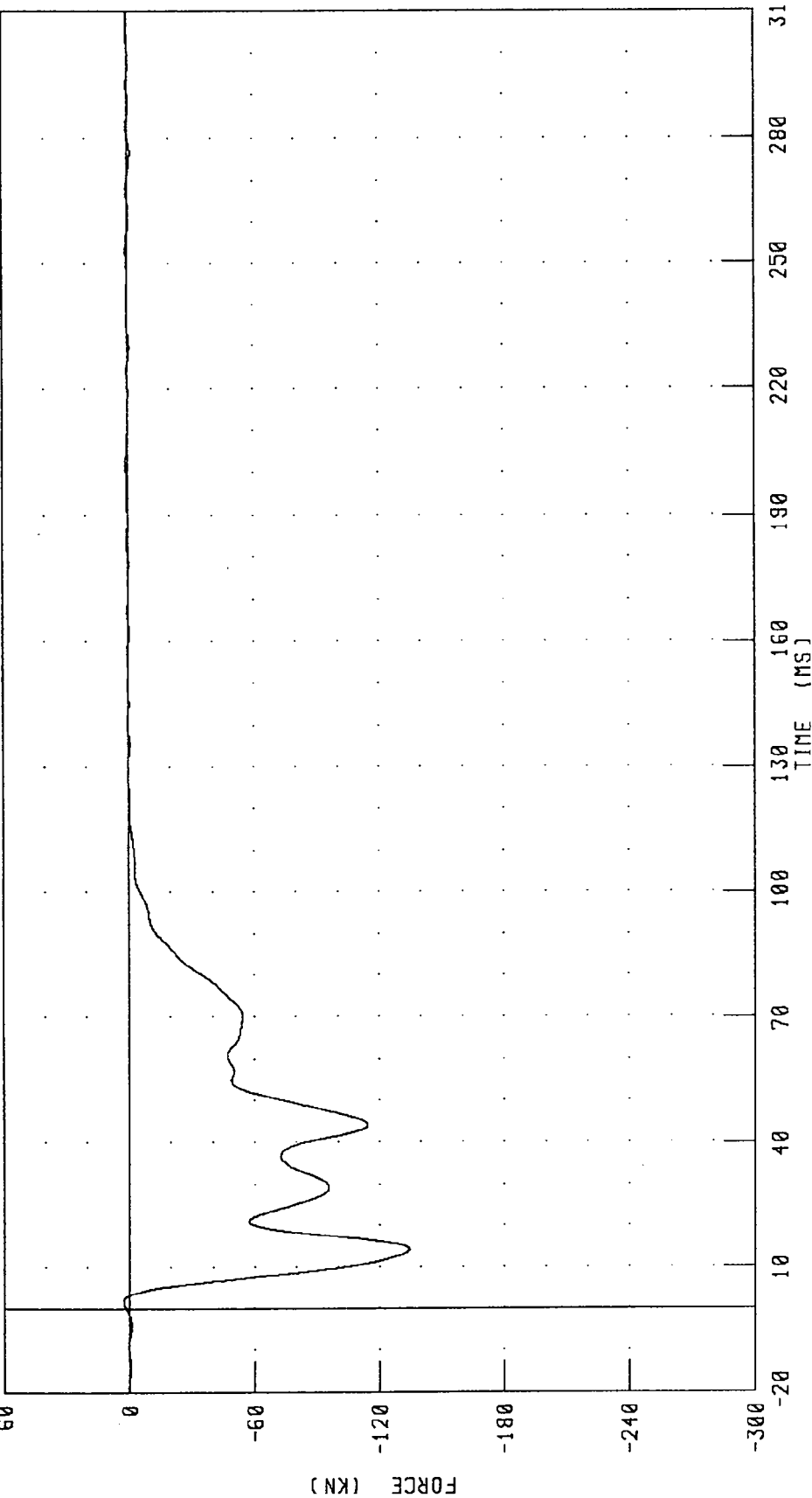
CHANNEL: LCBG2F FILTER: CH. CLASS 60

1994 HONDA CIVIC INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER GROUP # 3 FORCE TOTAL

TEST NUMBER: 940516

NEW CAR ASSESSMENT MR5300

TRC INC.

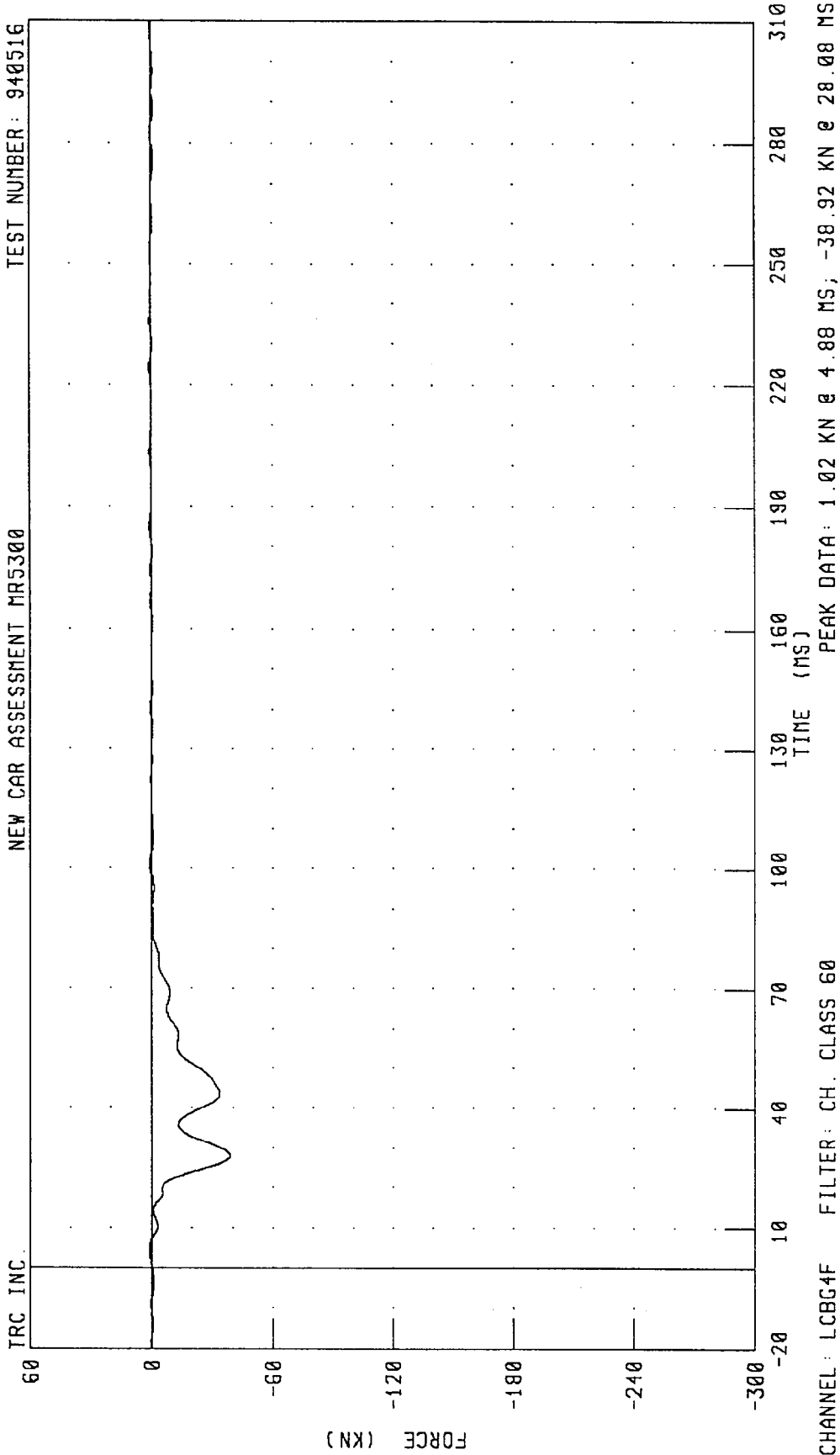


CHANNEL: LCBG3F FILTER: CH. CLASS 60

PEAK DATA: 2.71 KN @ 1.60 MS; -134.44 KN @ 14.08 MS

1994 HONDA CIVIC INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER GROUP # 4 FORCE TOTAL

NEW CAR ASSESSMENT MR5300 TEST NUMBER: 940516

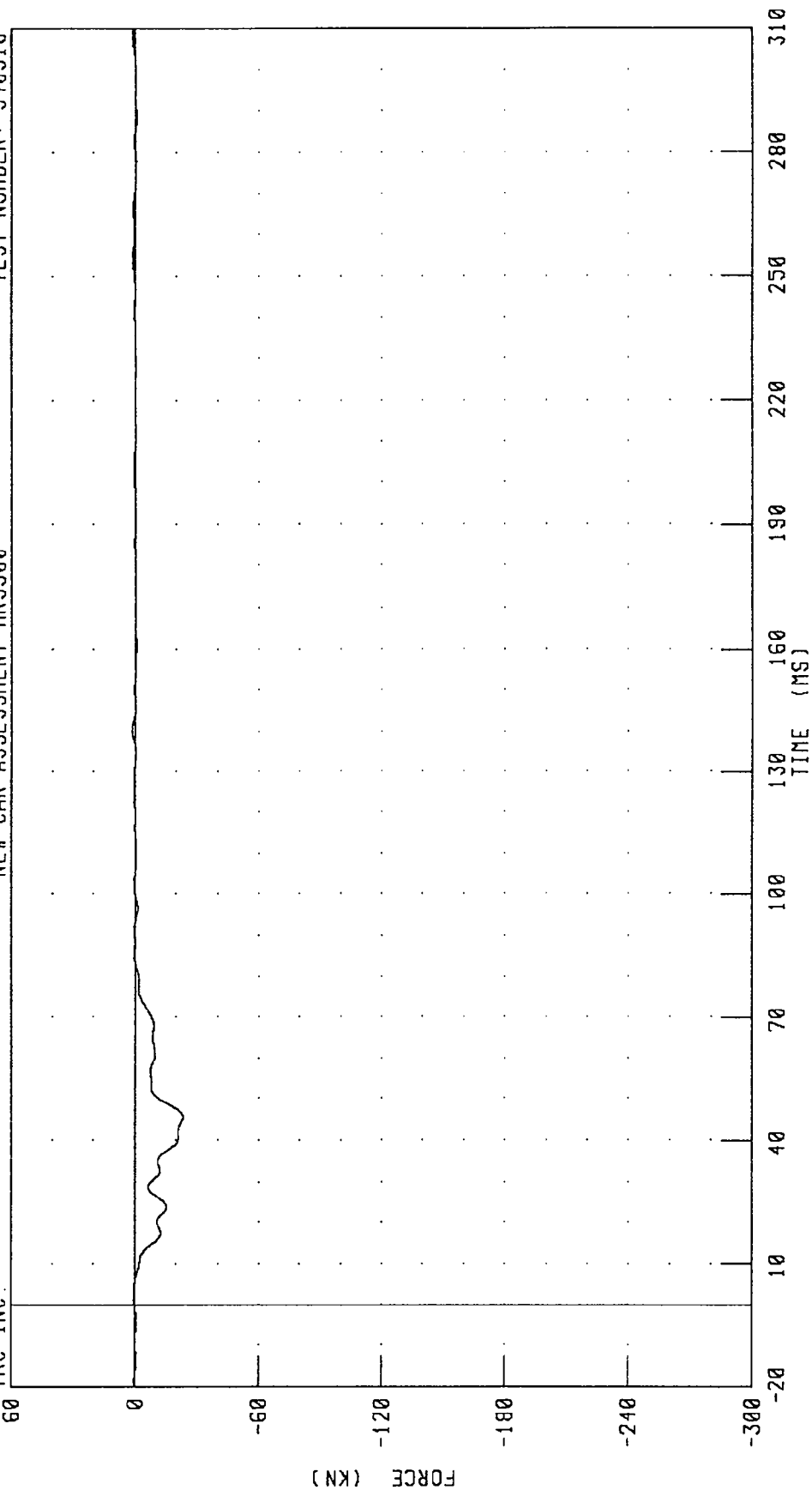


1994 HONDA CIVIC INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER GROUP # 6 FORCE TOTAL

NEW CAR ASSESSMENT MR5300

TEST NUMBER: 940516

TRC INC.



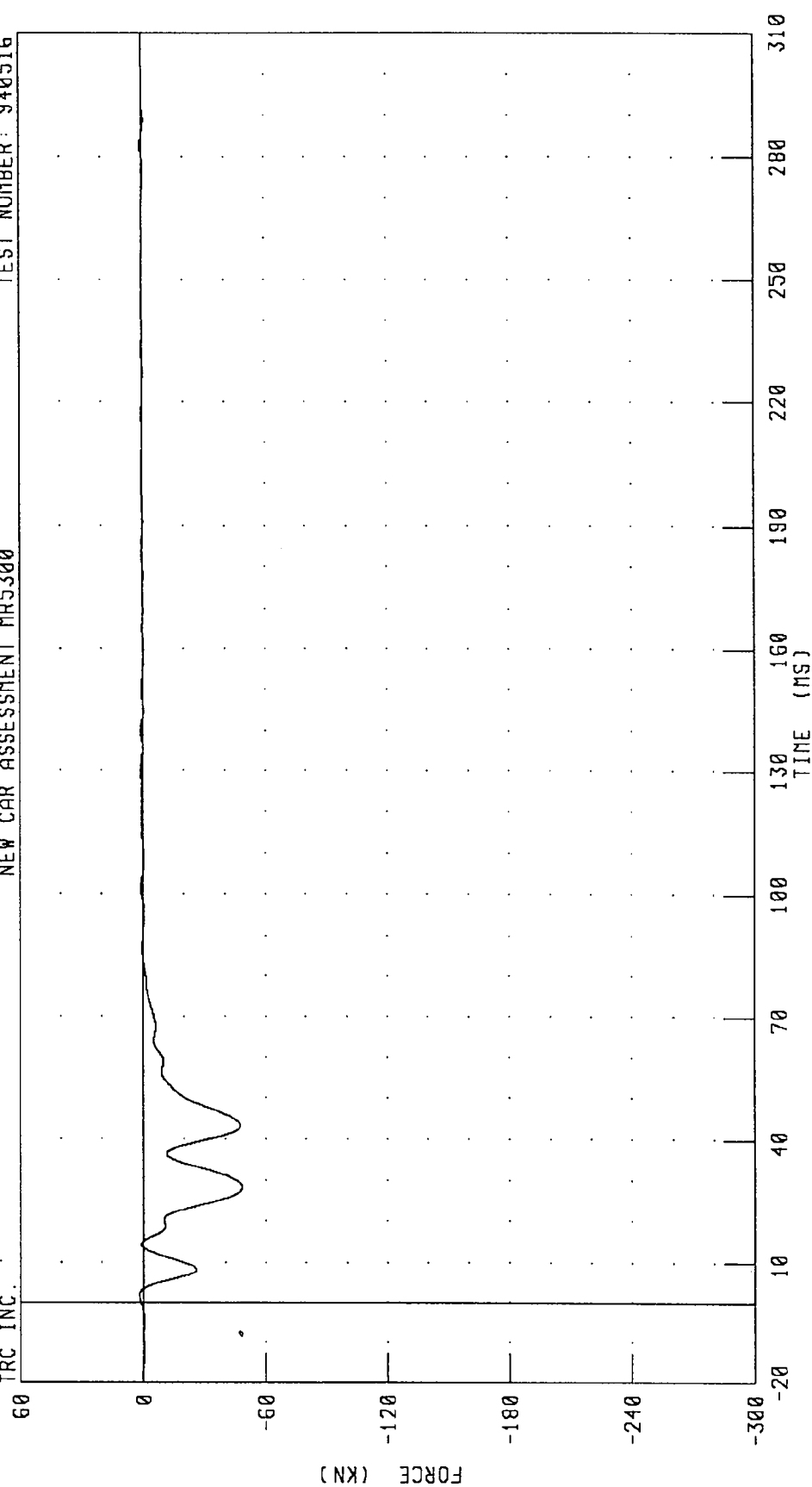
CHANNEL: LCBG6F FILTER: CH. CLASS 60

PEAK DATA: 1.64 KN @ 140.32 MS; -23.42 KN @ 45.68 MS

1994 HONDA CIVIC INTO FRONTAL LOAD CELL BARRIER
 LOAD CELL BARRIER GROUP # 5 FORCE TOTAL
 NEW CAR ASSESSMENT MR5300

TEST NUMBER: 940516

TRC INC.



CHANNEL: LCBG5F FILTER: CH. CLASS 60

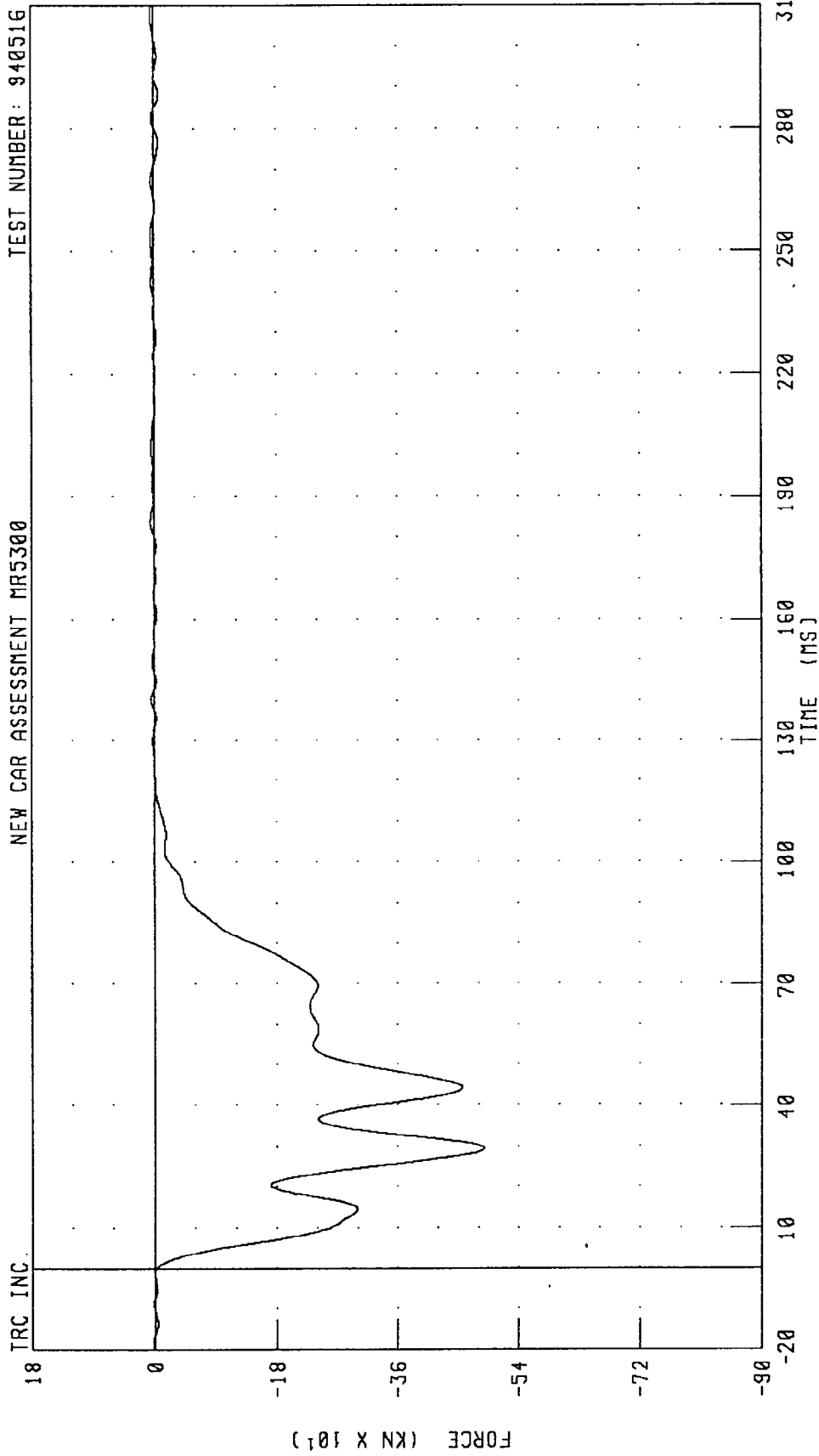
PEAK DATA: 1.94 KN @ 1.68 MS; -48.28 KN @ 28.24 MS

1994 HONDA CIVIC INTO FRONTAL LOAD CELL BARRIER

TOTAL LOAD CELL BARRIER FORCE

NEW CAR ASSESSMENT MR5300

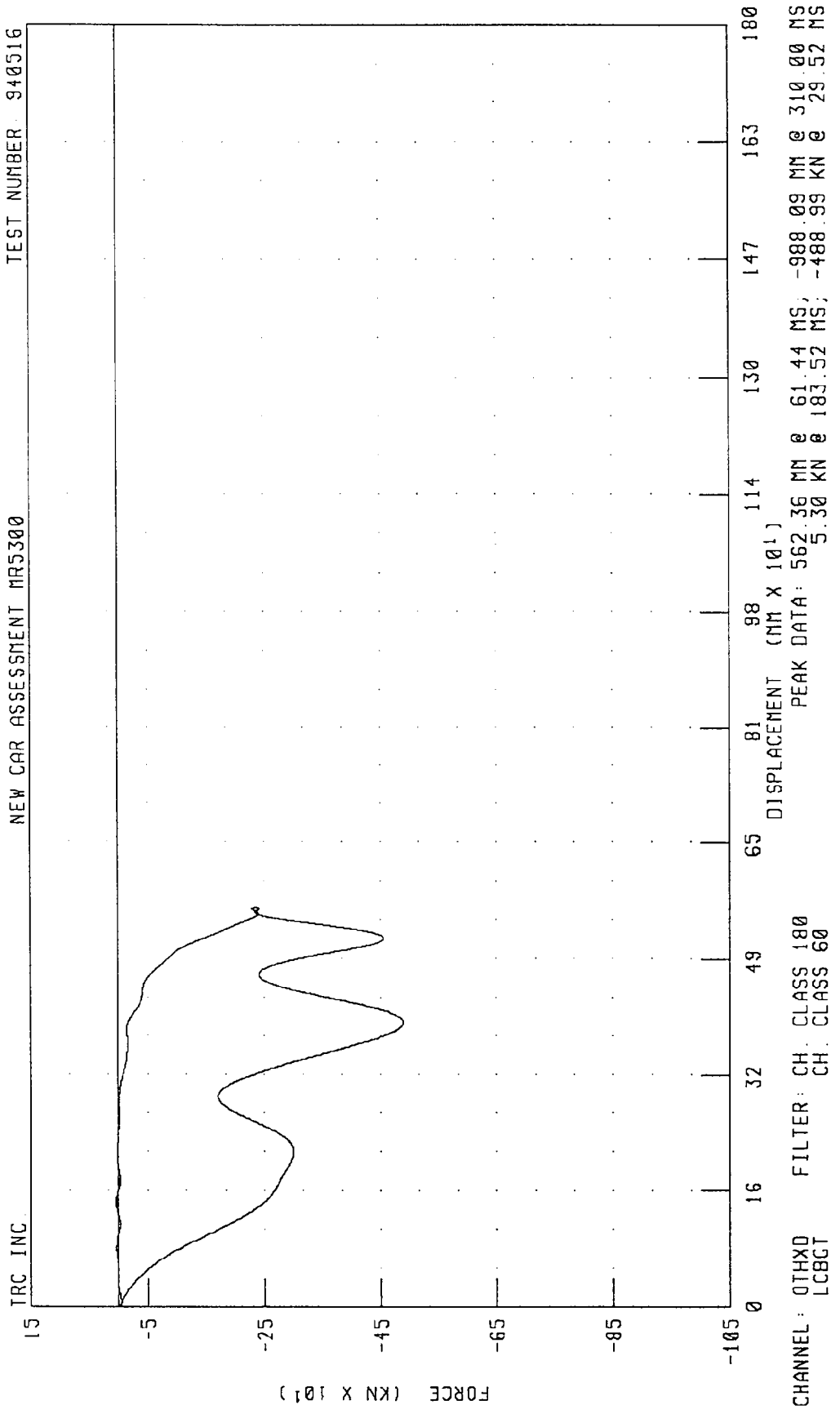
TEST NUMBER: 940516



PEAK DATA: 5.30 KN @ 183.52 MS; -488.99 KN @ 29.52 MS

CHANNEL: LCBGT FILTER: CH. CLASS 60

1994 HONDA CIVIC INTO FRONTAL LOAD CELL BARRIER
 TOTAL LOAD CELL BARRIER FORCE VS AVERAGE VEHICLE X-AXIS DISPLACEMENT
 NEW CAR ASSESSMENT MR5300 TEST NUMBER 940516



APPENDIX C

DUMMY CERTIFICATION DATA

PRE-TEST CERTIFICATION DATA

DRIVER DUMMY S/N: 192

TRANSPORTATION RESEARCH CENTER INC.
HYBRID III EXTERNAL DIMENSIONS

192 ALDERSON

28-MAR-94

TRC INC. TEST NO: 192C19ED1 572E SN192 EXT.DIMENSION CAL19

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	848. 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	136. MM
SKULL CAP TO BACKLINE (H)		41 - 46 MM	43. MM
TOTAL SITTING HEIGHT (A)		879 - 889 MM	884. MM
THIGH CLEARANCE (F)		140 - 155 MM	147. MM
BUTTOCK KNEE LENGTH (K)		579 - 605 MM	602. MM
BUTTOCK POPLITEAL LENGTH (N)		452 - 478 MM	472. MM
POPLITEAL HEIGHT (L)		429 - 455 MM	450. 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	91. MM
SHOULDER BREADTH (V)		422 - 437 MM	427. MM
SHOULDER PIVOT HEIGHT (B)		506 - 521 MM	513. MM
ELBOW REST HEIGHT (J)		191 - 211 MM	206. MM
SHOULDER-ELBOW LENGTH (I)		330 - 345 MM	340. MM
BACK OF ELBOW TO WRIST PIVOT (G)		290 - 305 MM	295. MM

DUMMY MEETS SPECIFICATIONS

TECHNICIAN Chas. Haddley

RUN NUMBER: 032994.1100

TRANSPORTATION RESEARCH CENTER INC.

HEAD DROP TEST

HYBRID III

28-MAR-94

TRC INC.

TEST NO: 192C19HD1

572E SN192 HEAD DROP CAL 19

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	18.9-25.6 DEG. C	21.1 DEG. C
RELATIVE HUMIDITY	10 - 70 %	51.0 %
PEAK RESULTANT ACCELERATION	225 - 275 G	270.14 G
PEAK LATERAL ACCELERATION	15 G MAX	-2.31 G
IS ACCELERATION CURVE UNIMODAL?	YES	YES

TEST MEETS SPECIFICATIONS

TECHNICIAN

Chas. Middleton

RUN NUMBER: 032894.1346;1

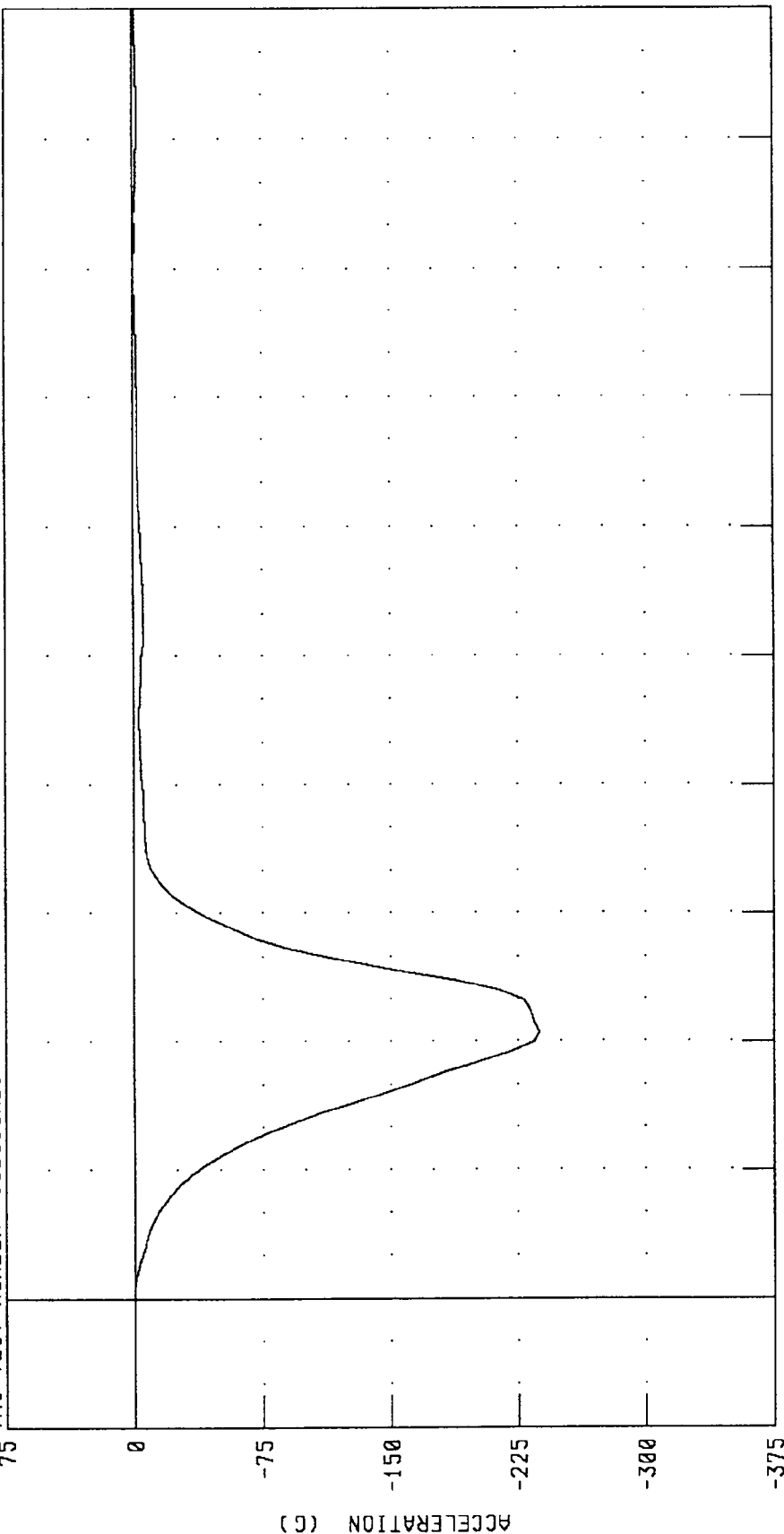
PART 572-E HYBRID III HEAD CALIBRATION

HEAD ACCELERATION X AXIS

572E SN192 HEAD DROP CAL 19 RUN NUMBER: 051994.1356.1

TRC TEST NUMBER: 192C19HD1

75



PEAK DATA: 0.06 G @ 0.00 MS; -237.54 G @ 2.08 MS

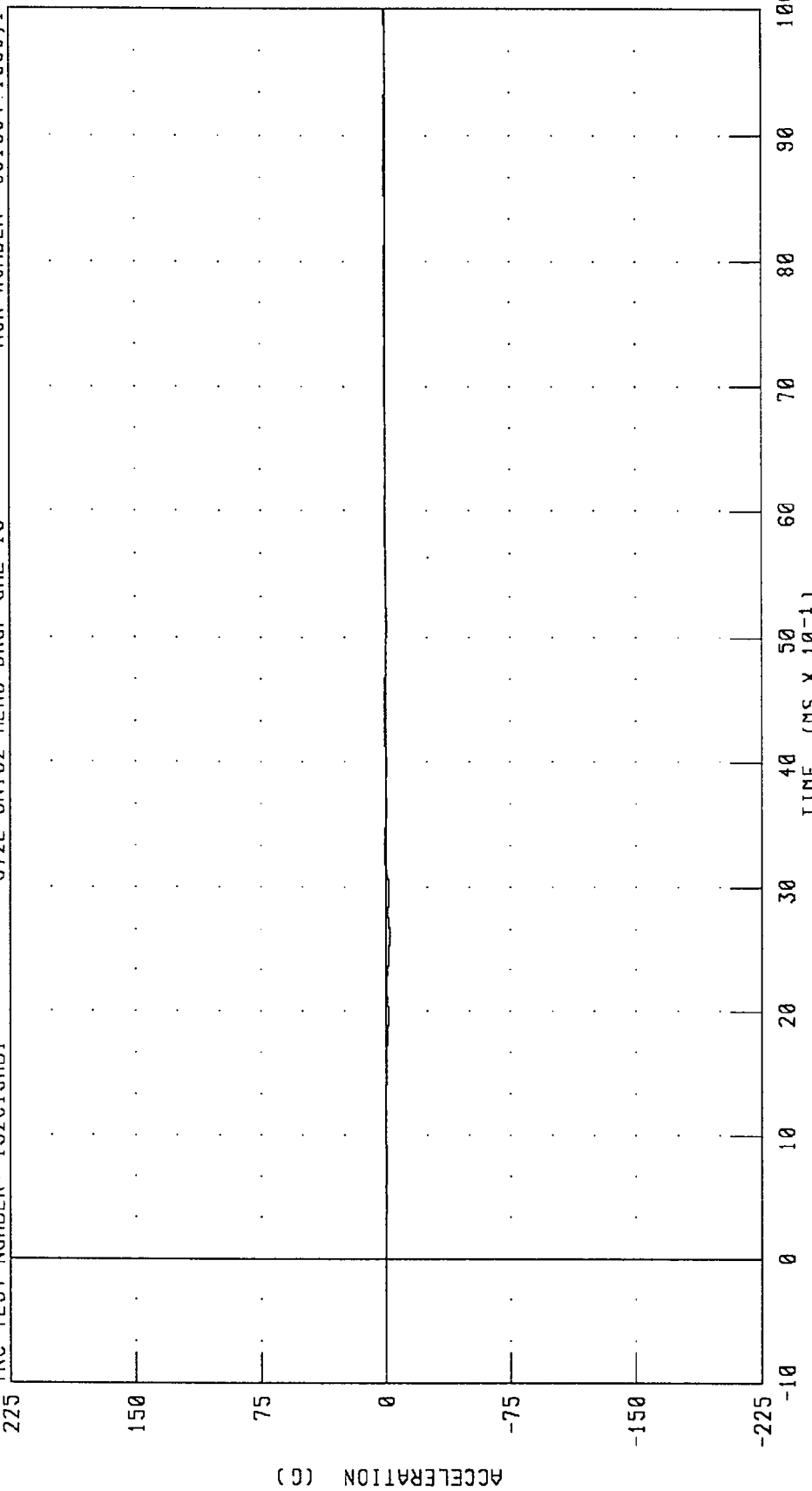
CHANNEL: HEDXG FILTER: CH. CLASS 1000

PART 572-E HYBRID III HEAD CALIBRATION

HEAD ACCELERATION Y AXIS

572E SN192 HEAD DROP CAL 19 RUN NUMBER: 051994.1356.1

TRC TEST NUMBER: 192C19HD1



PEAK DATA: 0.99 G @ 4.24 MS; -2.32 G @ 2.56 MS

CHANNEL: HEDYC FILTER: CH. CLASS 1000

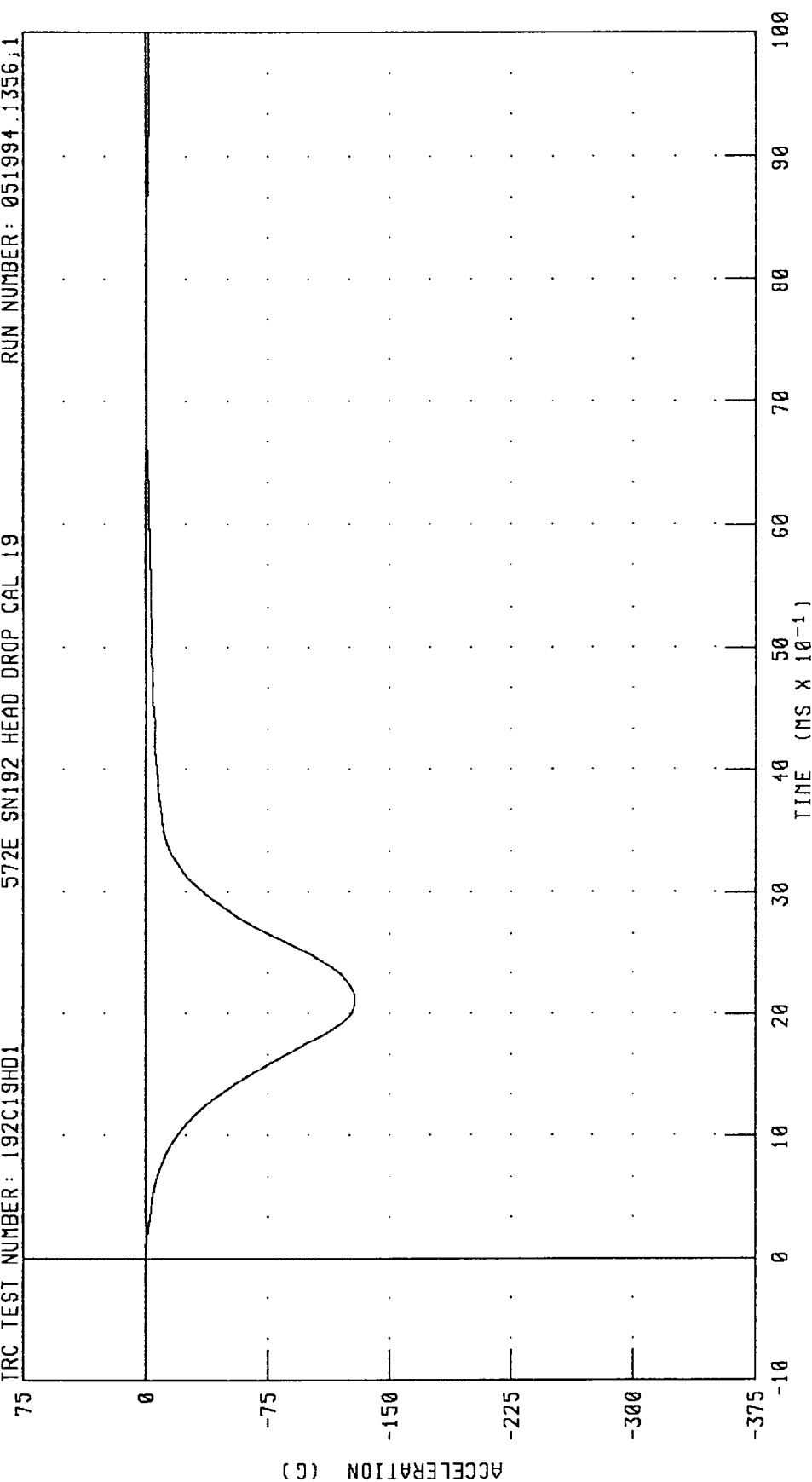
PART 572-E HYBRID III HEAD CALIBRATION

HEAD ACCELERATION Z AXIS

TRC TEST NUMBER: 192C19HD1

572E SN192 HEAD DROP CAL 19

RUN NUMBER: 051994.1356;1



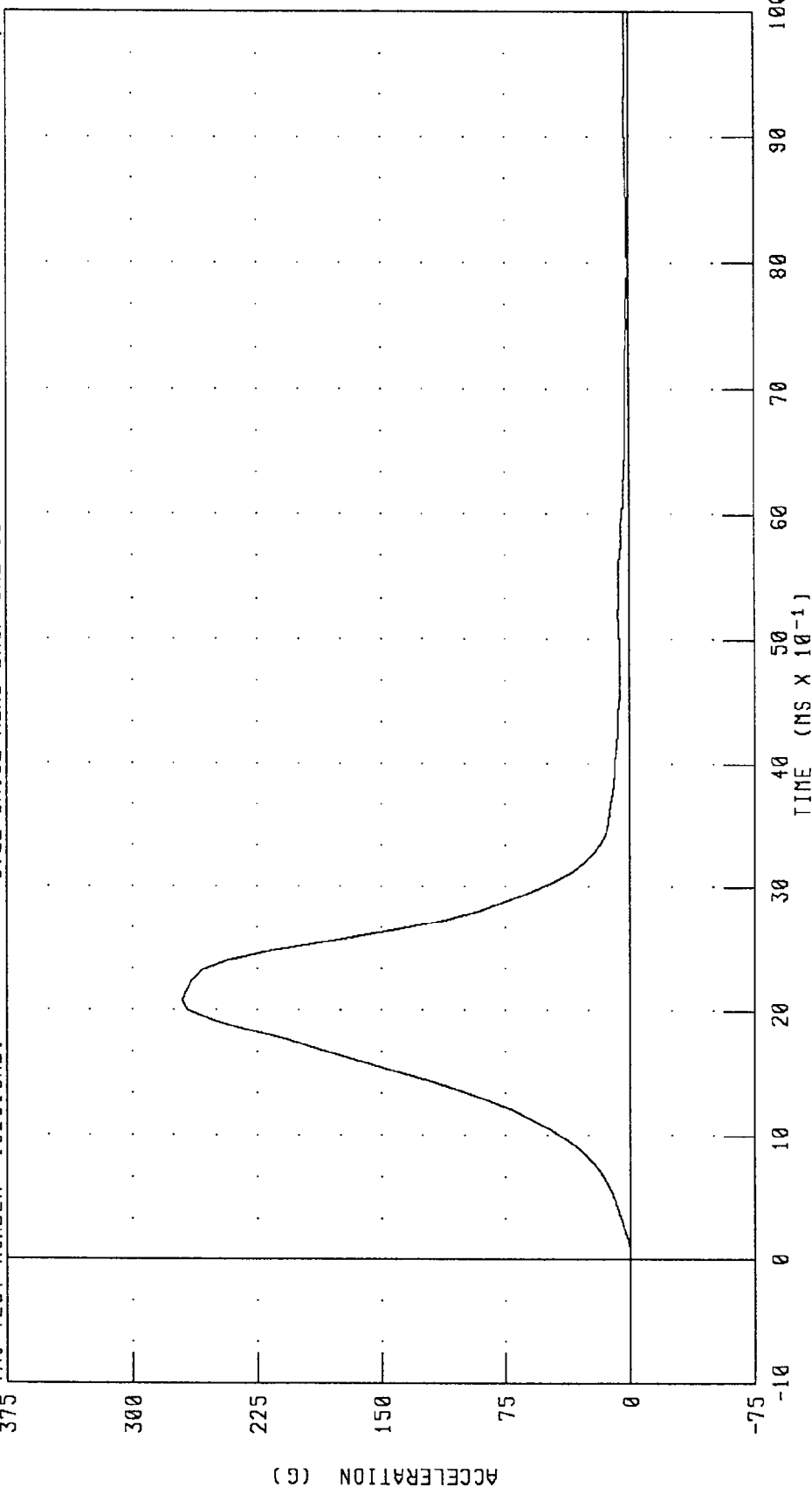
PEAK DATA: 0.03 G @ 0.00 MS, -128.64 G @ 2.08 MS

CHANNEL: HEDZG FILTER: CH. CLASS 1000

PART 572-E HYBRID III HEAD CALIBRATION
 HEAD RESULTANT ACCELERATION
 572E SN192 HEAD DRQP CAL 19

RUN NUMBER: 051994.1356;1

TRC TEST NUMBER: 192C19HD1



PEAK DATA: 270.14 G @ 2.08 MS; 0.06 G @ -0.08 MS

CHANNEL: HEDRG FILTER: CH. CLASS 1000

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

HYBRID III

28-MAR-94

TRC INC. TEST NO: 192C19NF1 572E SN192 NECK FLEXION CAL19

TEST PARAMETER		SPECIFICATION	TEST RESULTS
TEMPERATURE		20.6-22.2 DEG. C	21.1 DEG. C
RELATIVE HUMIDITY		10 - 70 %	51.0 %
IMPACT VELOCITY		6.89 - 7.13 M/S	7.06 M/S
PENDULUM DECELERATION	10 MS	22.50 - 27.50 G	23.95 G
	20 MS	17.60 - 22.60 G	18.58 G
	30 MS	12.50 - 18.50 G	14.66 G
MAX PENDULUM G		29 G MAX	24.66 G
MAX PENDULUM G ABOVE 30 MS		29 G MAX	14.68 G
DECELERATION-TIME CURVE DECAY TIME TO 5 G		34 - 42 MS	41.20 MS
D PLANE	MAX	64 - 78 DEG.	65.74 DEG.
ROTATION	TIME	57 - 64 MS	59.44 MS
MOMENT ABOUT OCCIPITAL	MAX	88.2 - 108.5 NM	89.82 NM
CONDYLE	TIME	47 - 58 MS	53.92 MS
ROTATION ANGLE-TIME CURVE DECAY TIME TO ZERO		113 - 128 MS	114.96 MS
POSITIVE MOMENT-TIME CURVE DECAY TIME TO ZERO		97 - 107 MS	106.00 MS

TEST MEETS SPECIFICATIONS

TECHNICIAN Chas. M. Mott

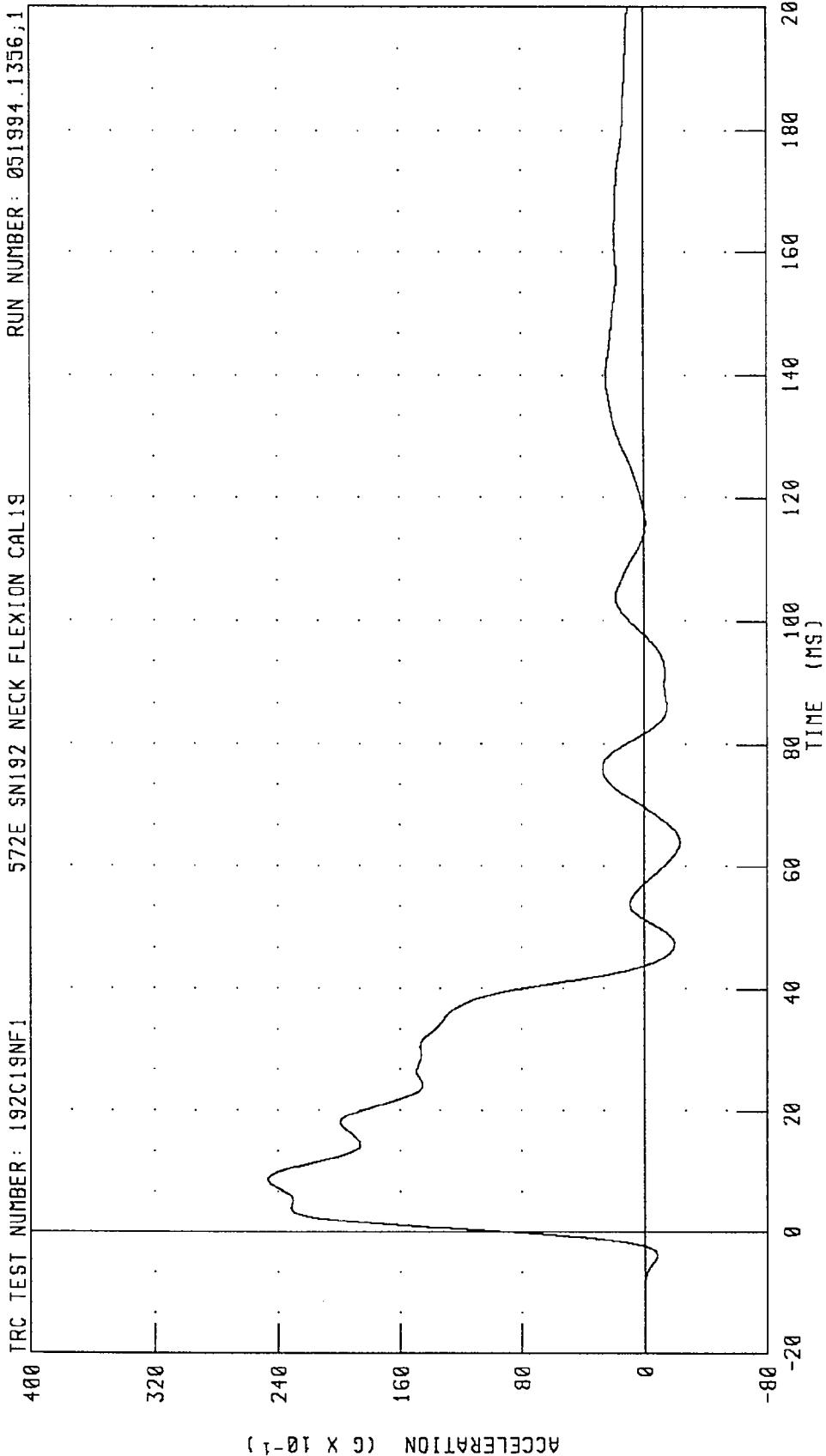
RUN NUMBER: 032894.1514;1

PART 572-E HYBRID III NECK FLEXION CALIBRATION
 PENDULUM DECELERATION

TRC TEST NUMBER: 192C19NF1

572E SN192 NECK FLEXION CAL19

RUN NUMBER: 051994.1356.1



PEAK DATA: 24.66 G @ 8.72 MS; -2.32 G @ 63.92 MS

CHANNEL: PENXG FILTER: CH. CLASS 60

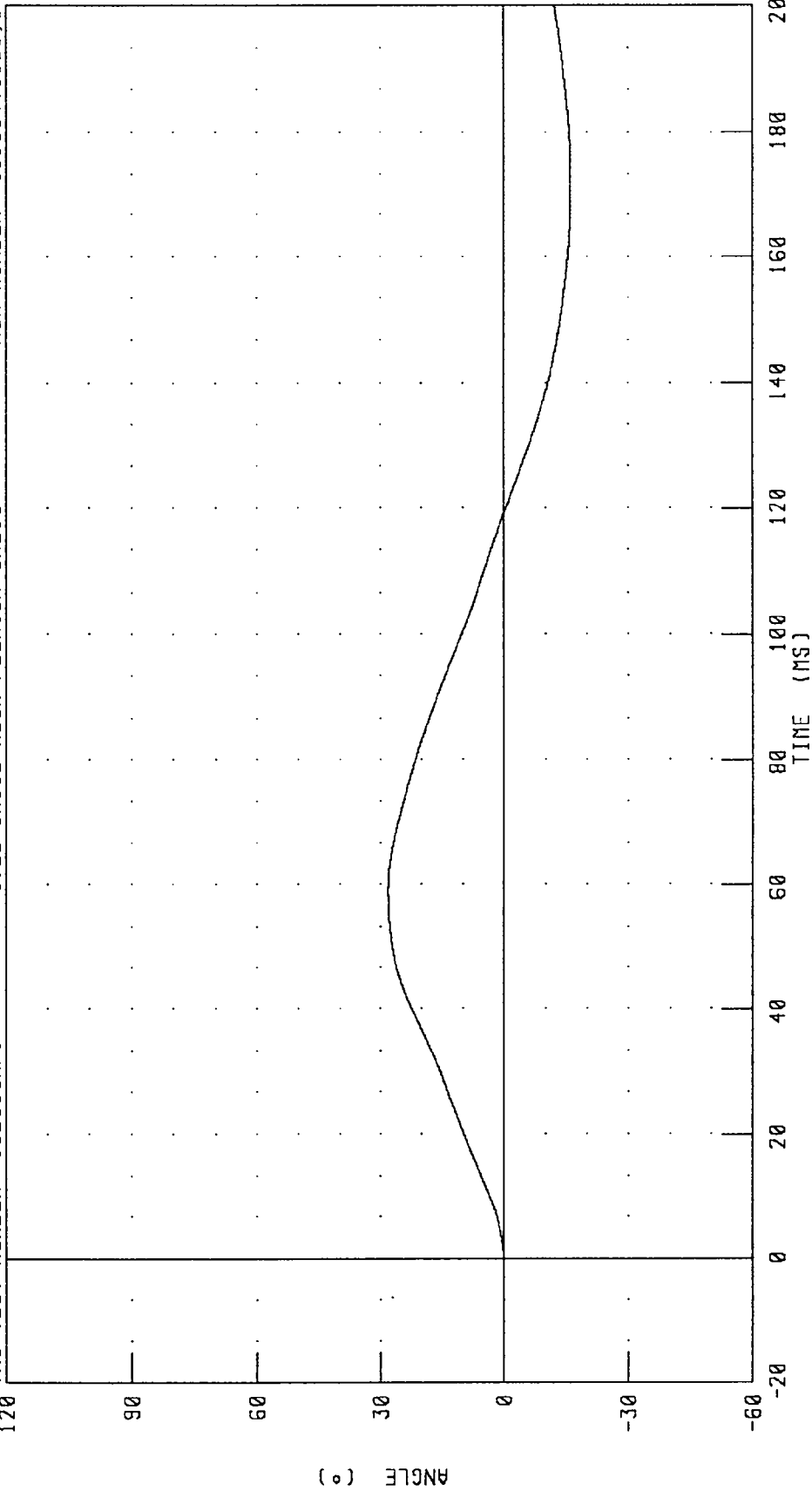
PART 572-E HYBRID III NECK FLEXION CALIBRATION

ROTATION ABOUT BASE OF NECK

TRC TEST NUMBER: 192C19NF1

572E SN192 NECK FLEXION CAL19

RUN NUMBER: 051994.1356.1



PEAK DATA: 28.12 ° @ 58.96 MS; -16.05 ° @ 173.84 MS

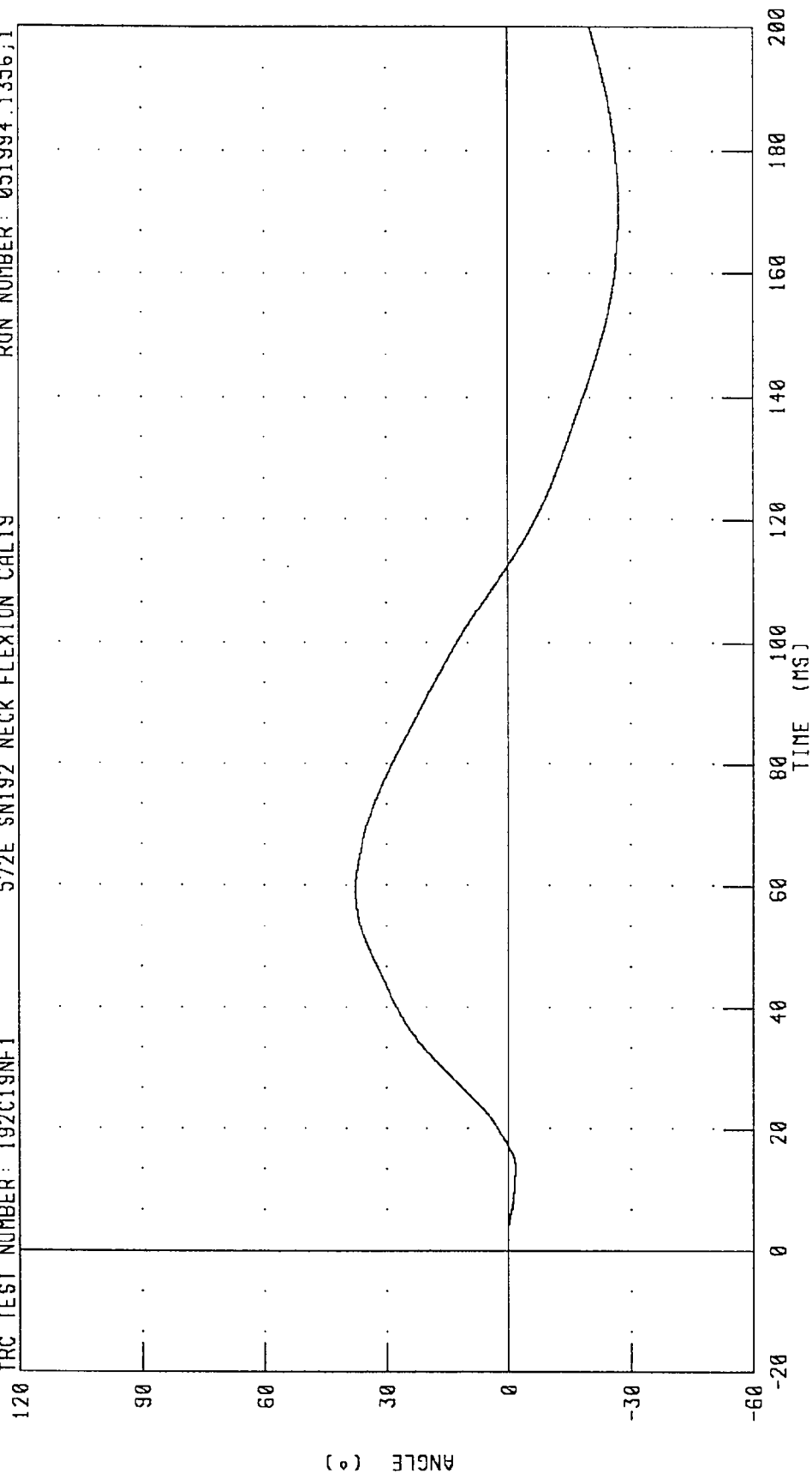
CHANNEL: BETA FILTER: CH. CLASS 60

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

TRC TEST NUMBER: 192C19NF1

572E SN192 NECK FLEXION CAL19

RUN NUMBER: 051994.1356;1



CHANNEL: THETA FILTER: CH. CLASS 60

PEAK DATA: 37.63 ° @ 59.52 MS; -27.09 ° @ 170.80 MS

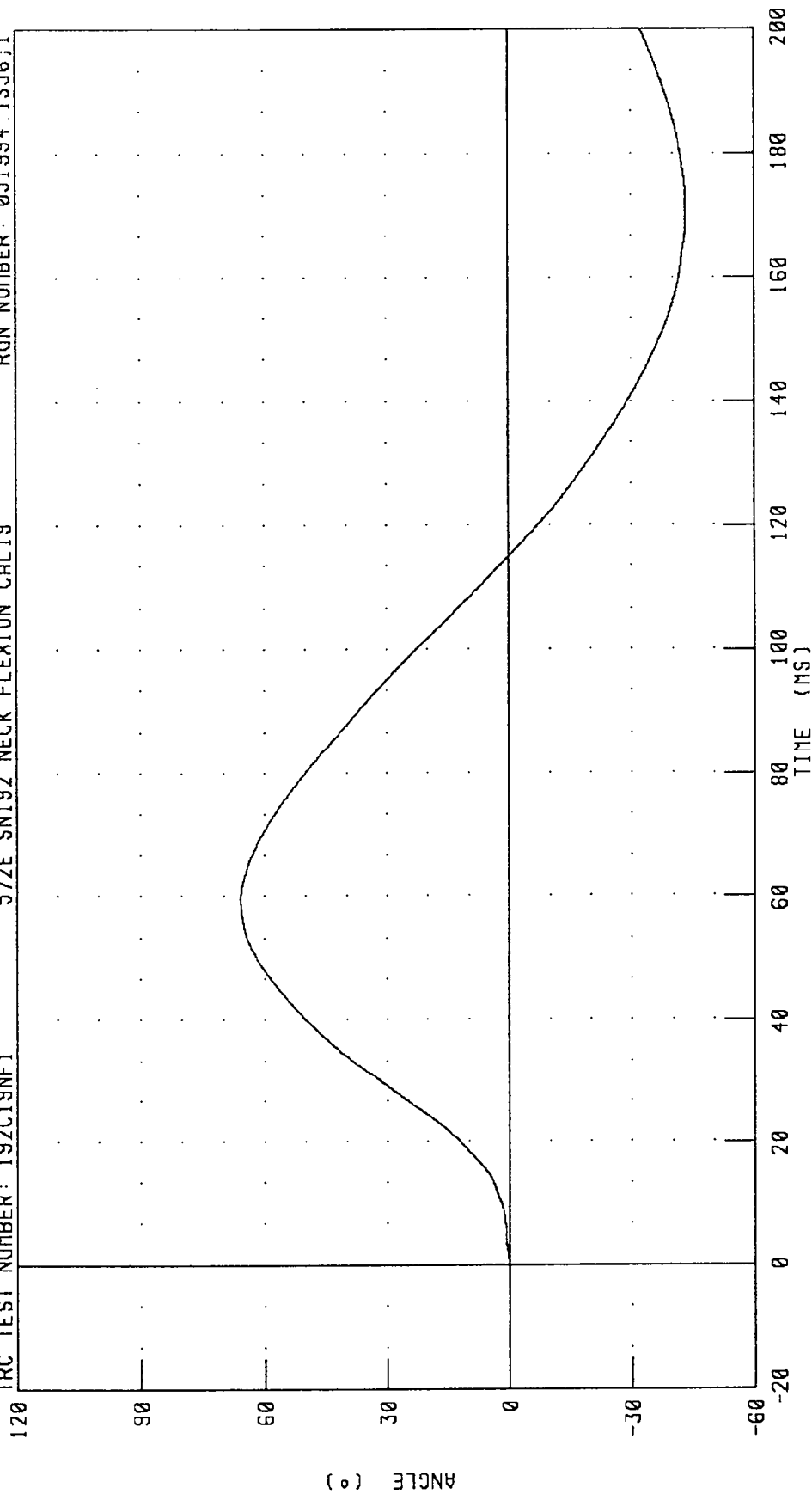
PART 572-E HYBRID III NECK FLEXION CALIBRATION

TOTAL ROTATION

TRC TEST NUMBER: 192C19NF1

572E SN192 NECK FLEXION CAL19

RUN NUMBER: 051994.1356,1



PEAK DATA: 65.74 ° @ 59.44 MS; -43.14 ° @ 170.00 MS

CHANNEL: TOTAL FILTER: CH. CLASS 60

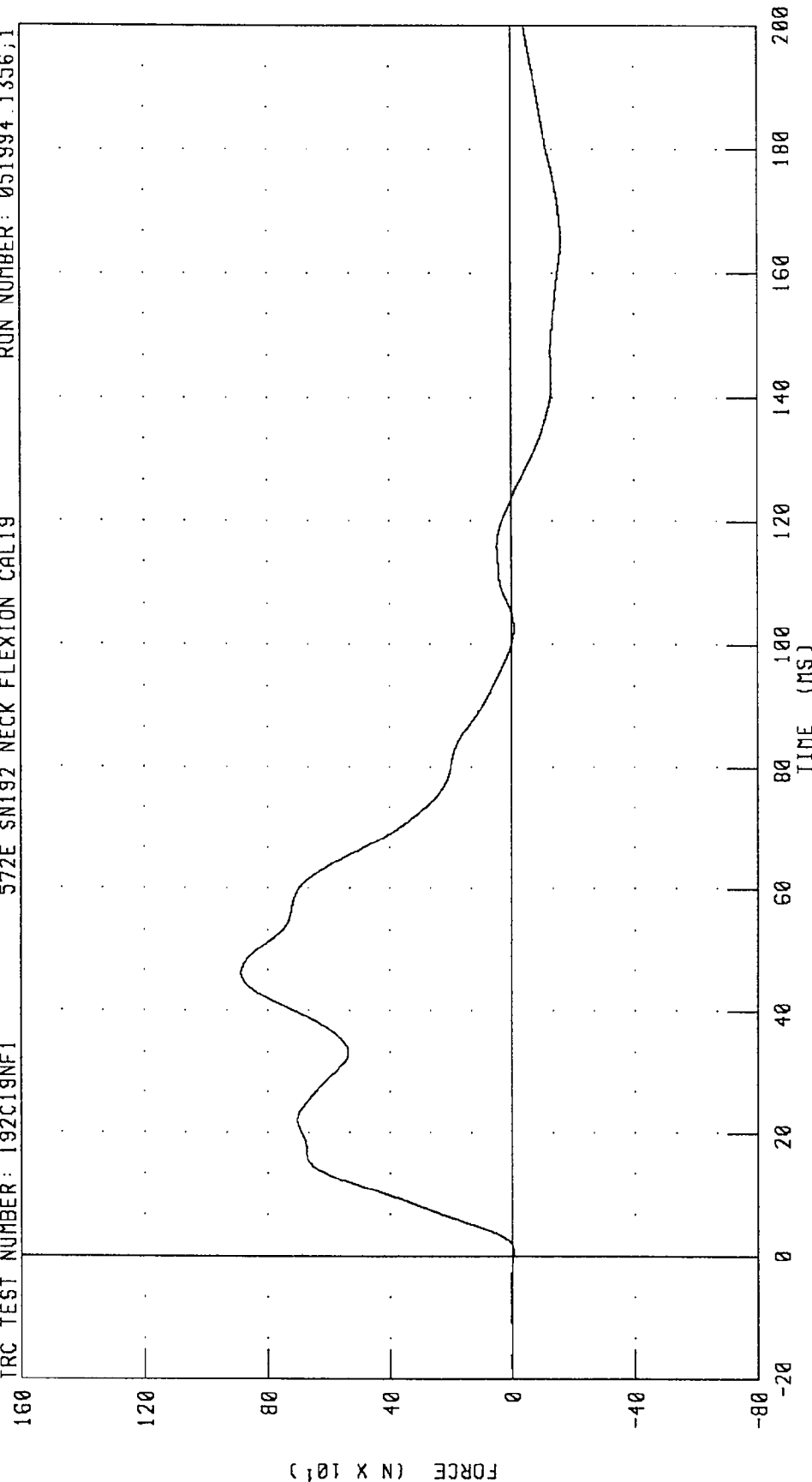
PART 572-E HYBRID III NECK FLEXION CALIBRATION

NECK FORCE X AXIS

IRC TEST NUMBER: 192C19NF1

572E SN192 NECK FLEXION CAL19

RUN NUMBER: 051994.1356;1



CHANNEL: NEKXF FILTER: CH. CLASS 60

PEAK DATA: 886.67 N @ 46.24 MS; -162.10 N @ 165.12 MS

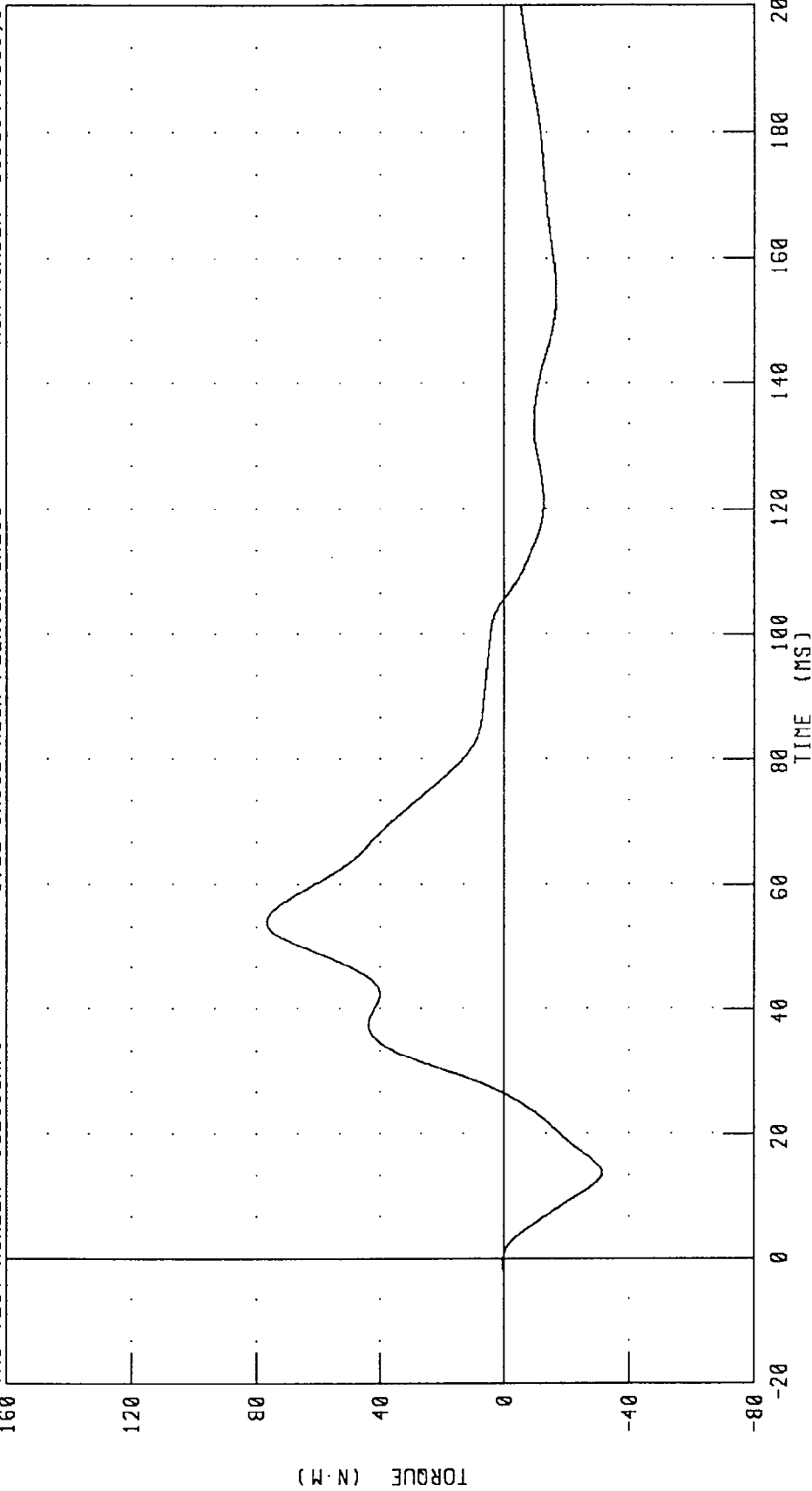
PART 572-E HYBRID III NECK FLEXION CALIBRATION

NECK MOMENT Y AXIS

TRC TEST NUMBER: 192C19NF1

572E SN192 NECK FLEXION CAL19

RUN NUMBER: 051994.1356;1



CHANNEL: NEKYM FILTER: CH. CLASS 60

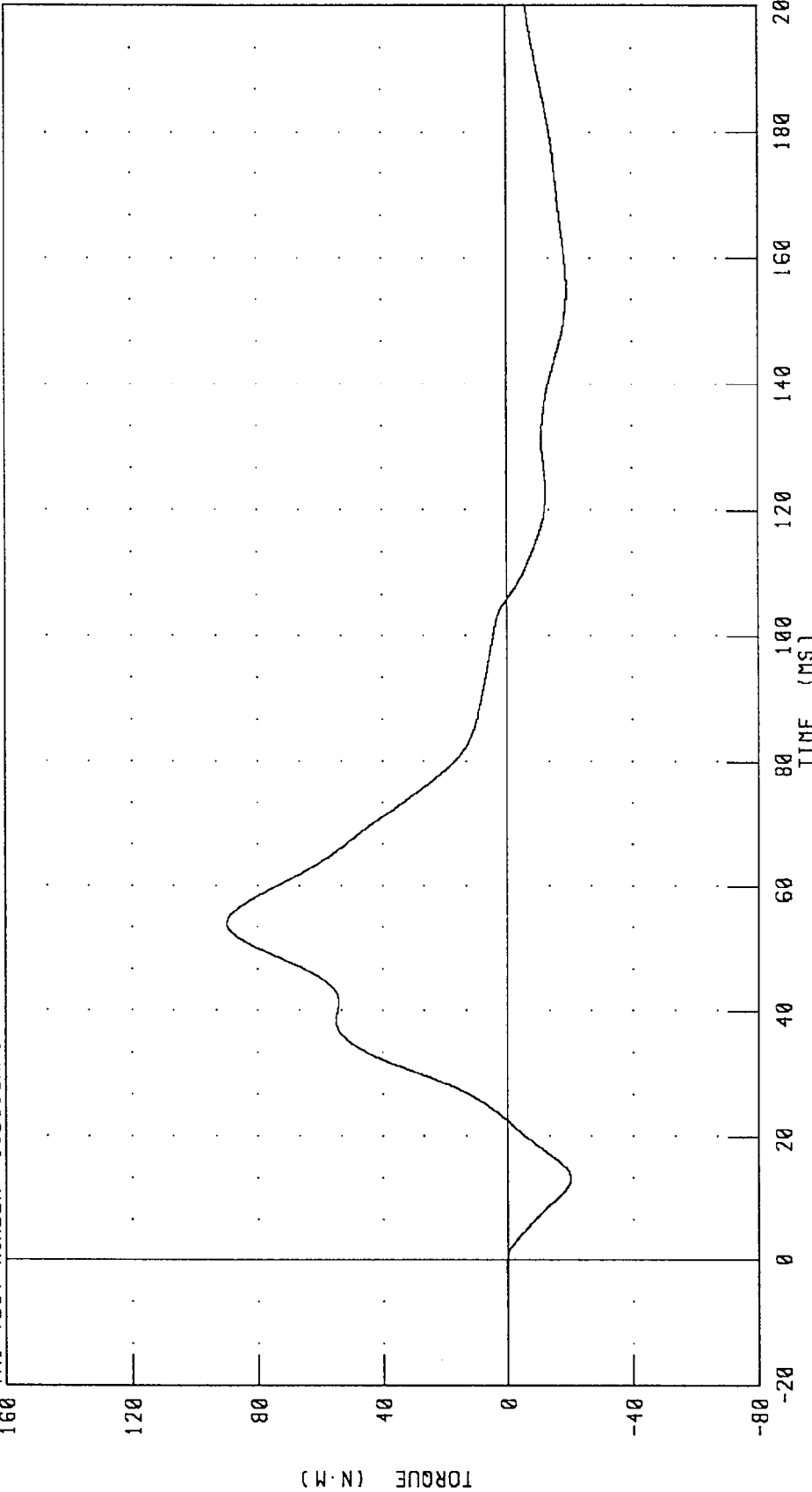
PEAK DATA: 76.66 N.M @ 54.08 MS; -31.15 N.M @ 13.84 MS

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

IRC TEST NUMBER: 192C19NF1

572E SN192 NECK FLEXION CAL19

RUN NUMBER: 051994.1356.1



CHANNEL: NEKOM FILTER: CH. CLASS 60

PEAK DATA: 89.82 N.M @ 53.92 MS; -20.06 N.M @ 13.28 MS

TRANSPORTATION RESEARCH CENTER INC.

NECK EXTENSION TEST - 6 CHANNEL TRANSDUCER

HYBRID III

29-MAR-94

TRC INC. TEST NO: 192C19NE1 572E SN192 NECK EXT. CAL19

TEST PARAMETER		SPECIFICATION	TEST RESULTS
TEMPERATURE		20.6 - 22.2 DEG. C	21.7 DEG. C
RELATIVE HUMIDITY		10 - 70 %	50.0 %
IMPACT VELOCITY		5.95 - 6.19 M/S	6.02 M/S
PENDULUM DECELERATION	10 MS	17.20 - 21.20 G	18.51 G
	20 MS	14.00 - 19.00 G	15.80 G
	30 MS	11.00 - 16.00 G	13.17 G
MAX PENDULUM G		22 G MAX	18.76 G
MAX PENDULUM G ABOVE 30 MS		22 G MAX	13.13 G
DECELERATION-TIME CURVE DECAY TIME TO 5 G		38 - 46 MS	41.60 MS
D PLANE	MAX	81 - 106 DEG.	91.29 DEG.
ROTATION	TIME	72 - 82 MS	75.84 MS
MOMENT ABOUT OCCIPITAL CONDYLE	MIN	-80.0/-52.9 NM	-56.78 NM
	TIME	65 - 79 MS	70.88 MS
ROTATION ANGLE-TIME CURVE DECAY TIME TO ZERO		147 - 174 MS	155.92 MS
NEGATIVE MOMENT-TIME CURVE DECAY TIME TO ZERO		120 - 148 MS	138.24 MS

TEST MEETS SPECIFICATIONS

TECHNICIAN Chas. Middle Z

RUN NUMBER: 032994.0735;1

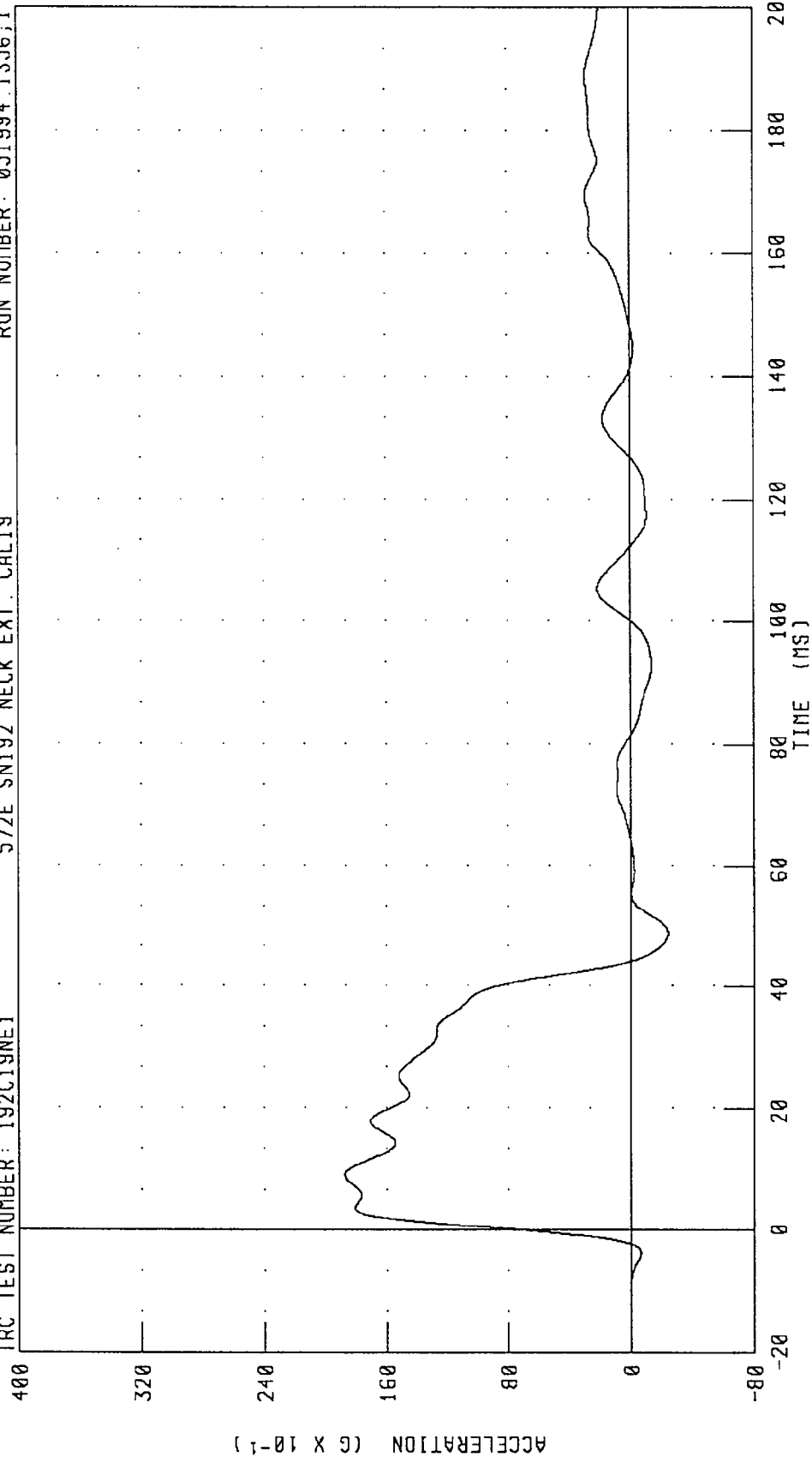
PART 572-E HYBRID III NECK EXTENSION CALIBRATION

PENDULUM DECELERATION

TRC TEST NUMBER: 192C19NE1

572E SN192 NECK EXT. CAL19

RUN NUMBER: 051994.1356;1



PEAK DATA: 18.76 G @ 9.12 MS, -2.40 G @ 48.72 MS

CHANNEL: PENXG FILTER: CH. CLASS 60

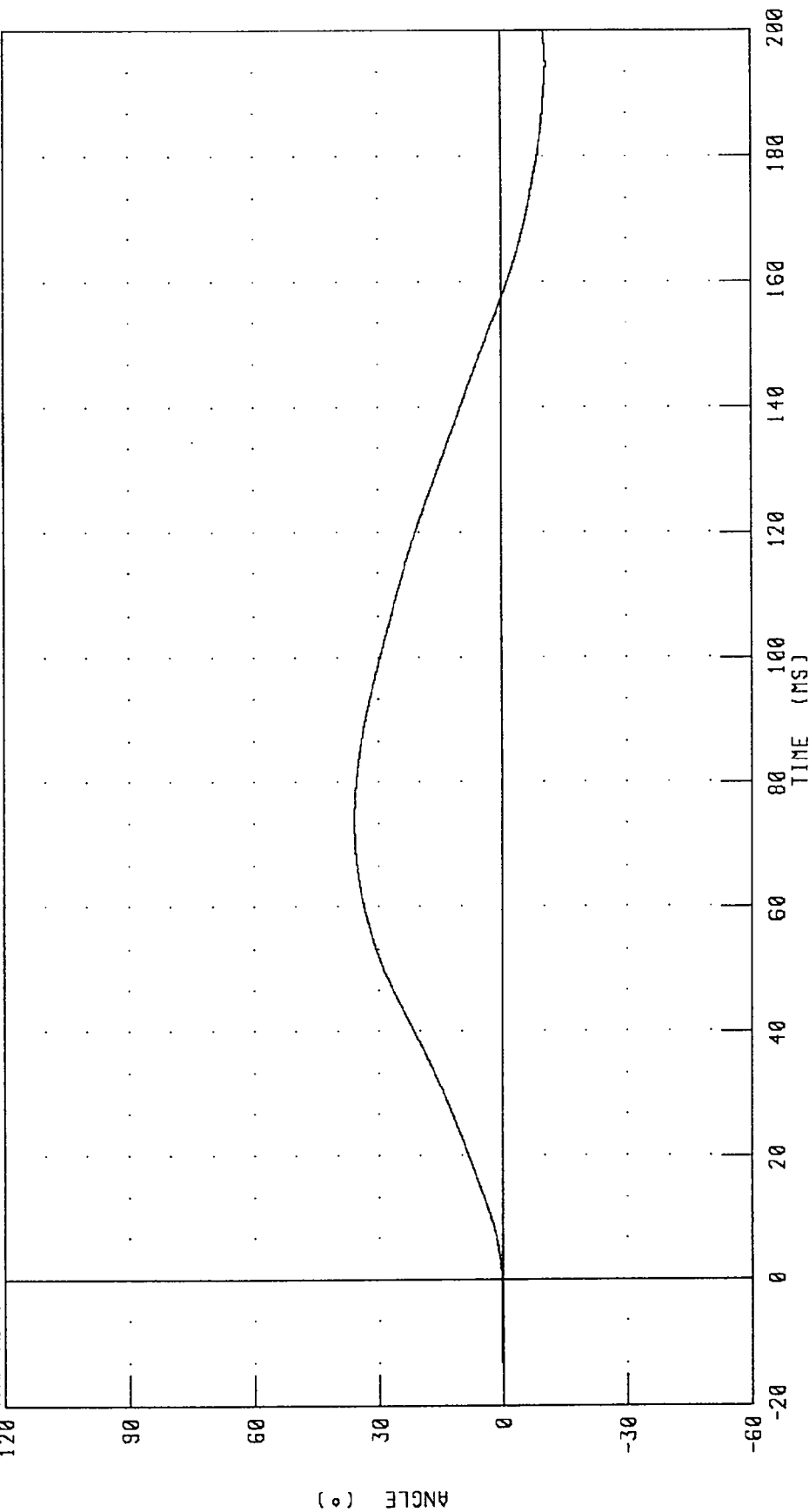
PART 572-E HYBRID III NECK EXTENSION CALIBRATION

ROTATION ABOUT BASE OF NECK

572E SN192 NECK EXT. CAL19

TRC TEST NUMBER: 192C19NE1

RUN NUMBER: 051994.1356.1



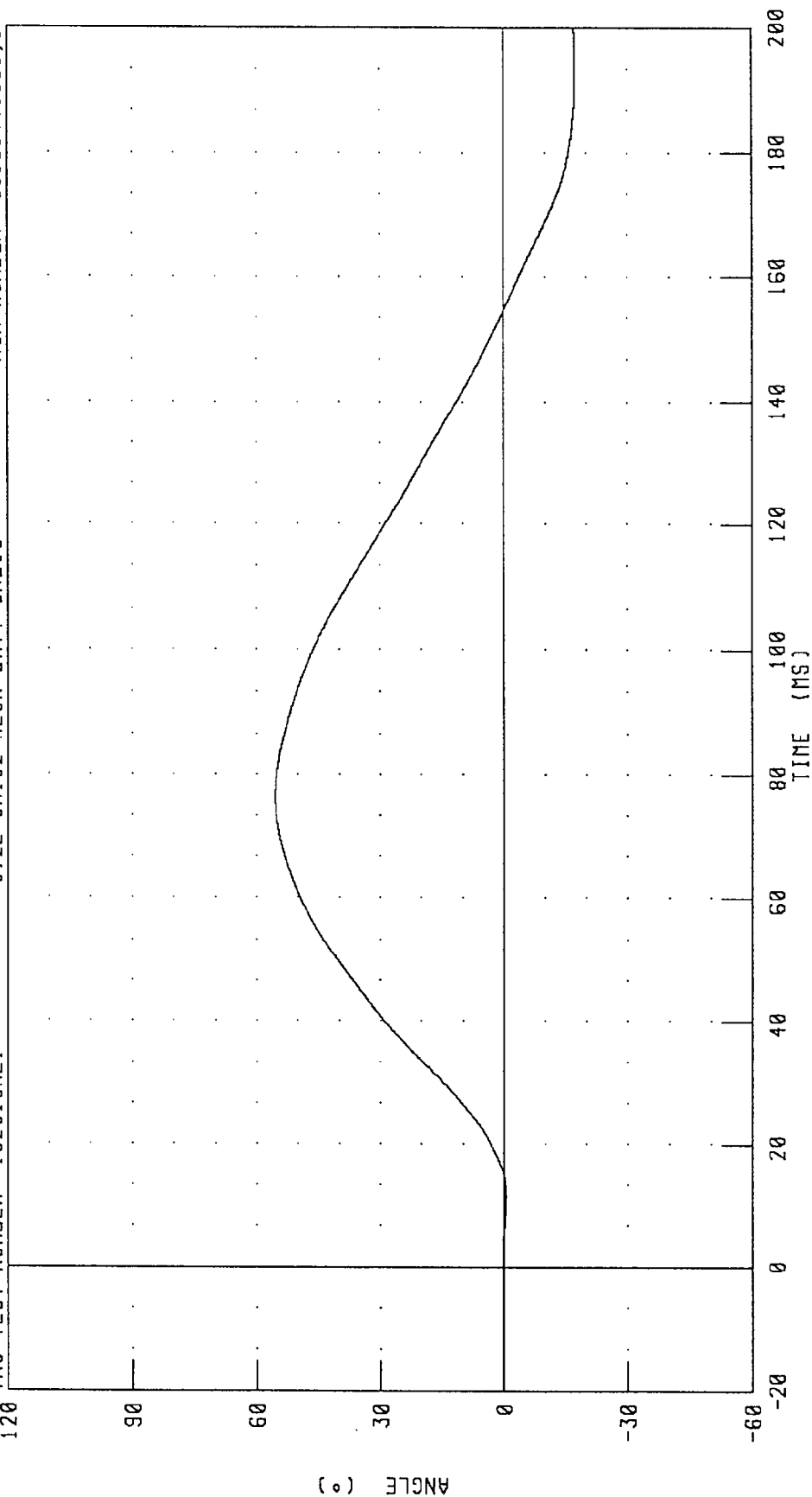
PEAK DATA: 35.76 ° @ 73.84 MS; -10.76 ° @ 194.64 MS

FILTER: CH. CLASS 60

CHANNEL: BETA

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

IRC TEST NUMBER: 192C19NE1 572E SN192 NECK EXT. CAL19 RUN NUMBER: 051994.1356;1



CHANNEL: THETA FILTER: CH. CLASS 60 PEAK DATA: 55.58 ° @ 76.32 MS; -17.26 ° @ 196.24 MS

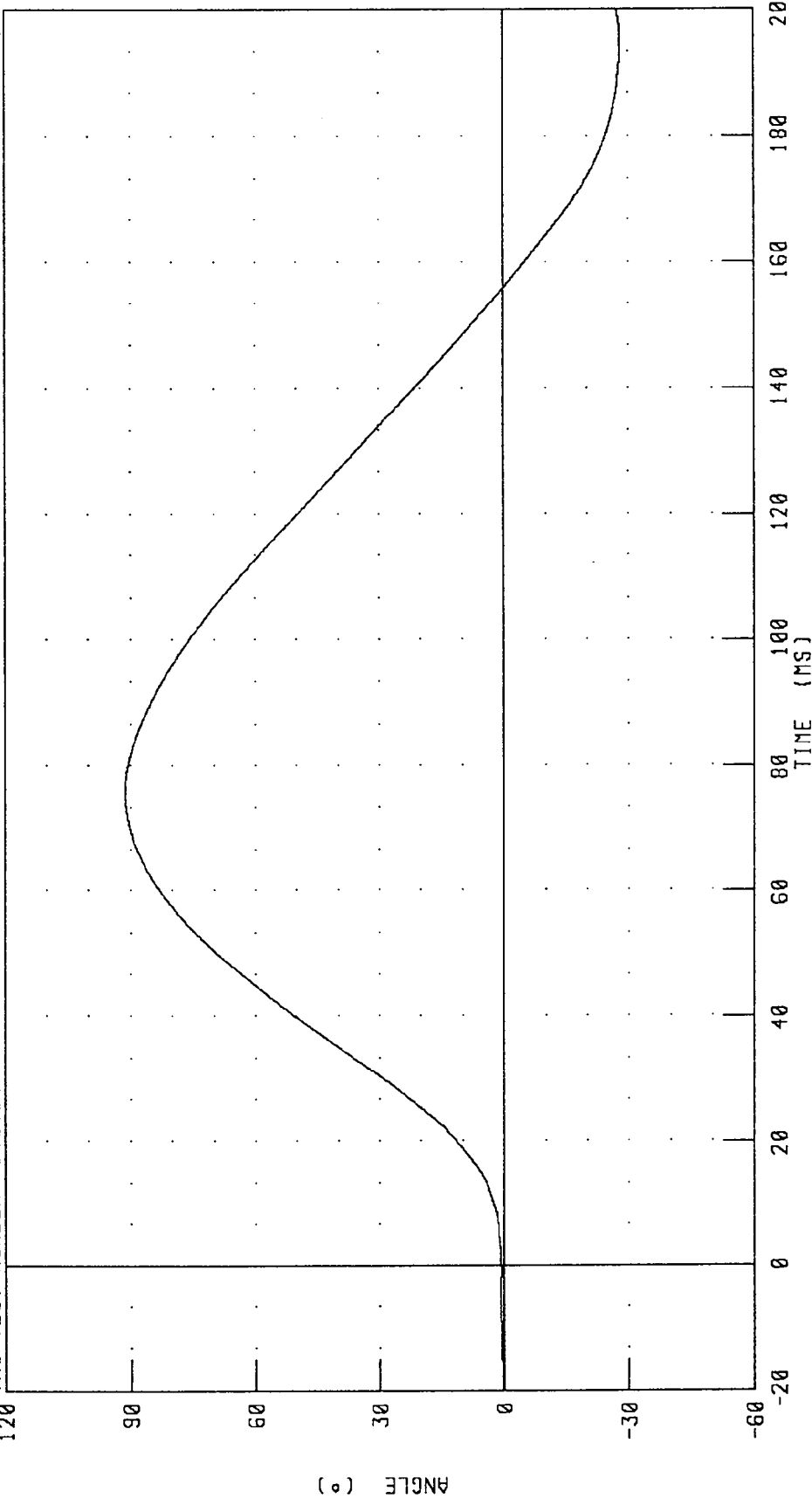
PART 572-E HYBRID III NECK EXTENSION CALIBRATION

TOTAL ROTATION

TRC TEST NUMBER: 192C19NE1

572E SN192 NECK EXT. CAL19

RUN NUMBER: 051994.1356.1



PEAK DATA: 91.30 ° @ 75.84 MS; -28.01 ° @ 194.80 MS

CHANNEL: TOTAN FILTER: CH. CLASS 60

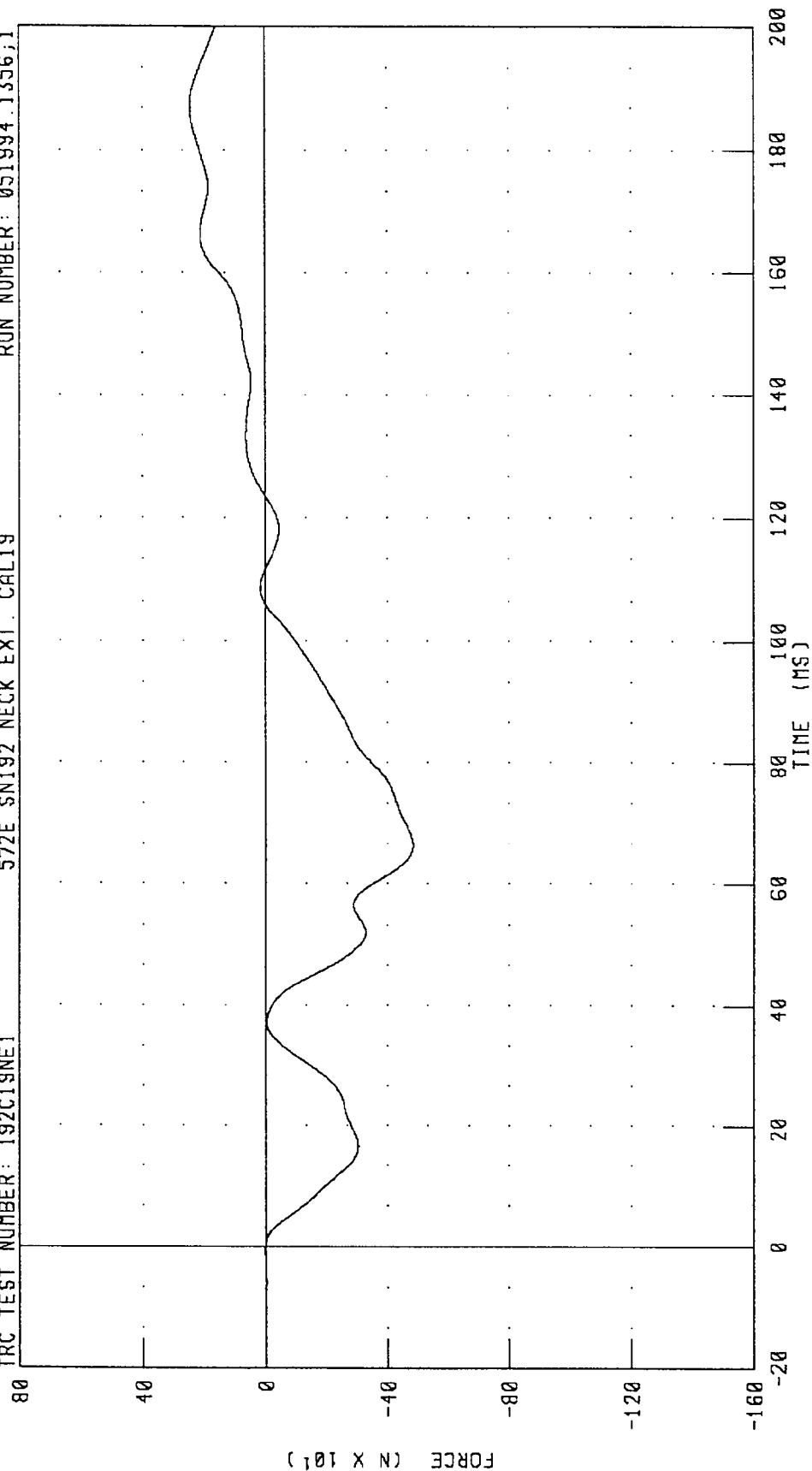
PART 572-E HYBRID III NECK EXTENSION CALIBRATION

NECK FORCE X AXIS

TRC TEST NUMBER: 192C19NE1

572E SN192 NECK EXT. CAL19

RUN NUMBER: 051994.1356;1



PEAK DATA: 245.06 N @ 187.04 MS; -483.59 N @ 66.32 MS

FILTER: CH. CLASS 60

CHANNEL: NEKXF

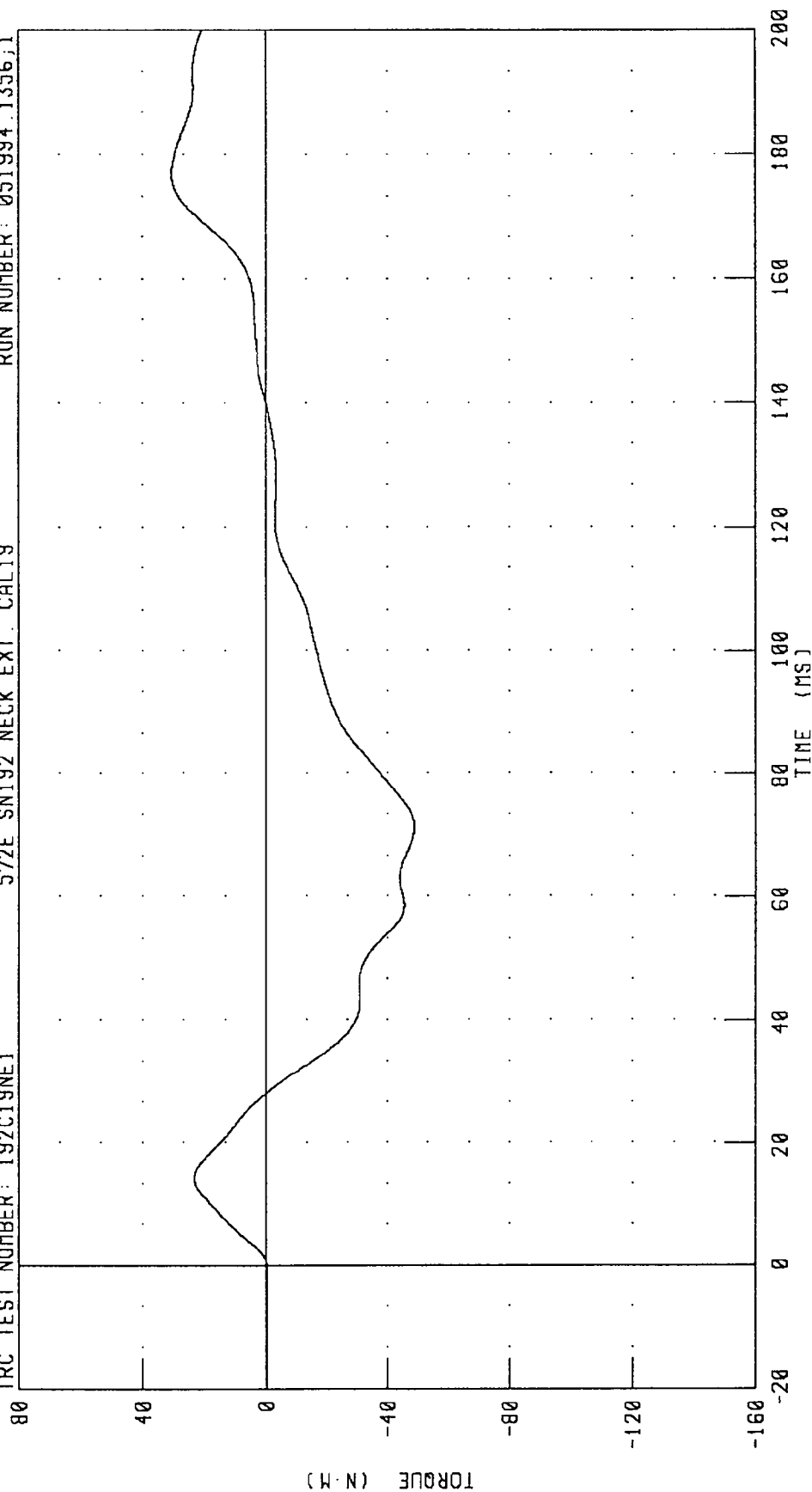
PART 572-E HYBRID III NECK EXTENSION CALIBRATION

NECK MOMENT Y AXIS

TRC TEST NUMBER: 192C19NE1

572E SN192 NECK EXT. CAL19

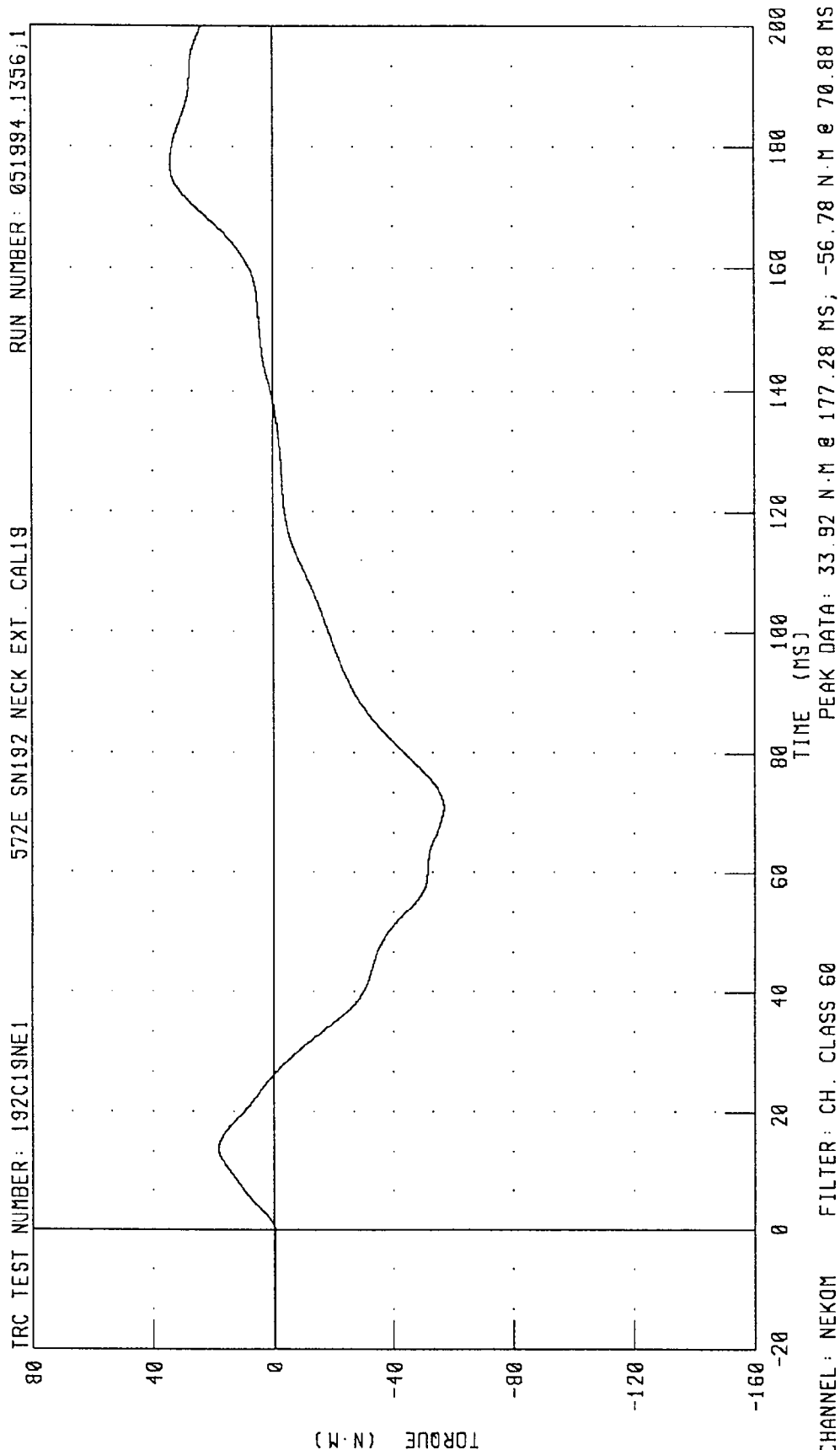
RUN NUMBER: 051994.1356.1



PEAK DATA: 30.44 N M @ 176.88 MS; -48.80 N M @ 71.28 MS

CHANNEL: NEKYM FILTER: CH. CLASS 60

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



CHANNEL: NEKOM FILTER: CH. CLASS 60

TRANSPORTATION RESEARCH CENTER INC.

THORAX IMPACT TEST

HYBRID III

29-MAR-94

TRC INC.

TEST NO: 192C19TH1

572E SN192 H.S.THORAX CAL19

TEST PARAMETER	HIGH SPEED TEST	TEST RESULTS
	SPECIFICATION	
TEMPERATURE	20.6-22.2 DEG. C	21.7 DEG. C
RELATIVE HUMIDITY	10 - 70 %	50.0 %
PENDULUM VELOCITY	6.59 - 6.83 M/S	6.68 M/S
MAXIMUM DEFLECTION	63.5 - 72.6 MM	72.3 MM
MAXIMUM RESISTIVE FORCE	5159 - 5894 N	5432. N
INTERNAL HYSTERESIS	69% - 85%	72.1%

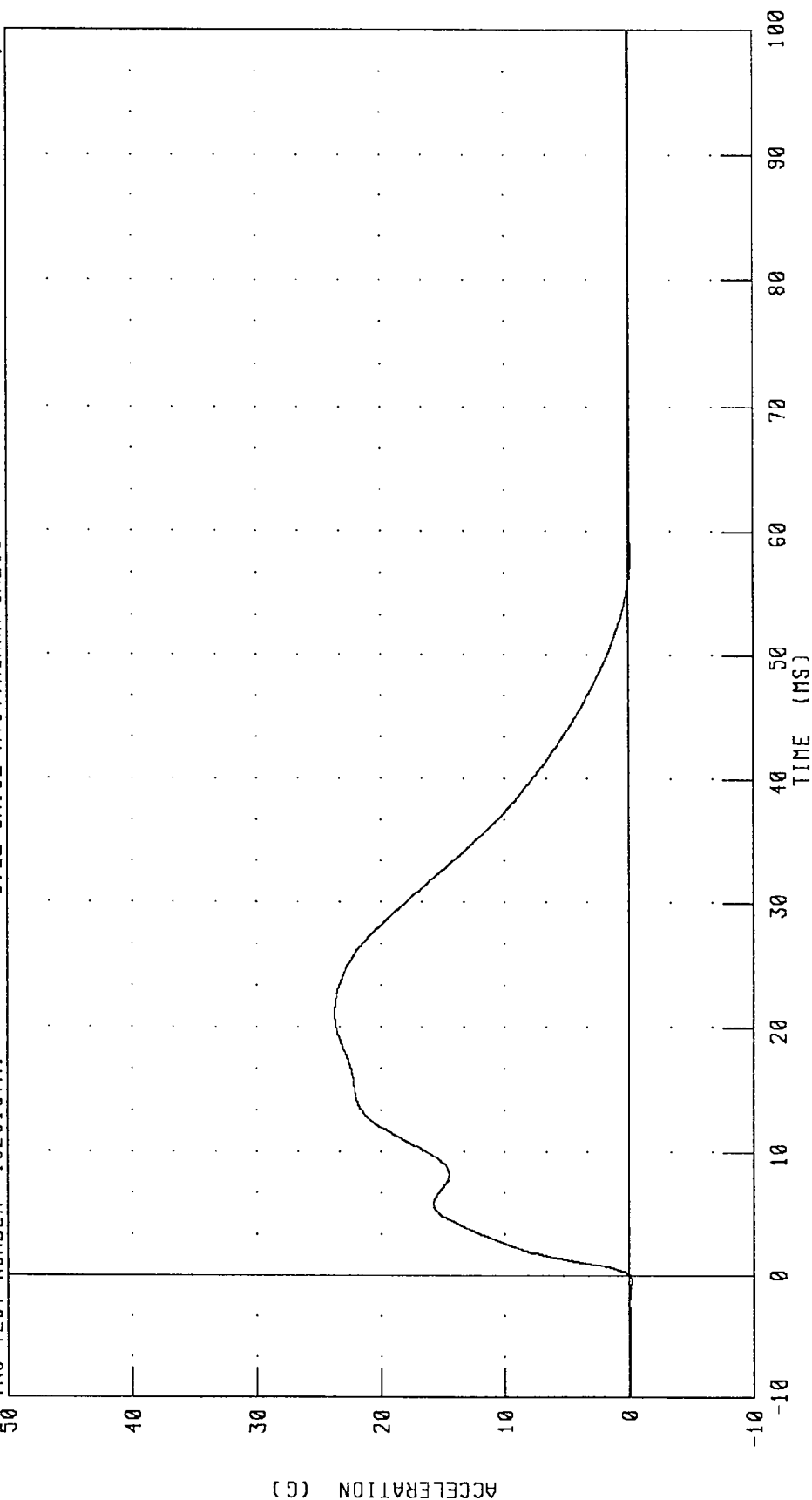
TEST MEETS SPECIFICATIONS

TECHNICIAN Chas Middleton

RUN NUMBER: 032994.1048;1

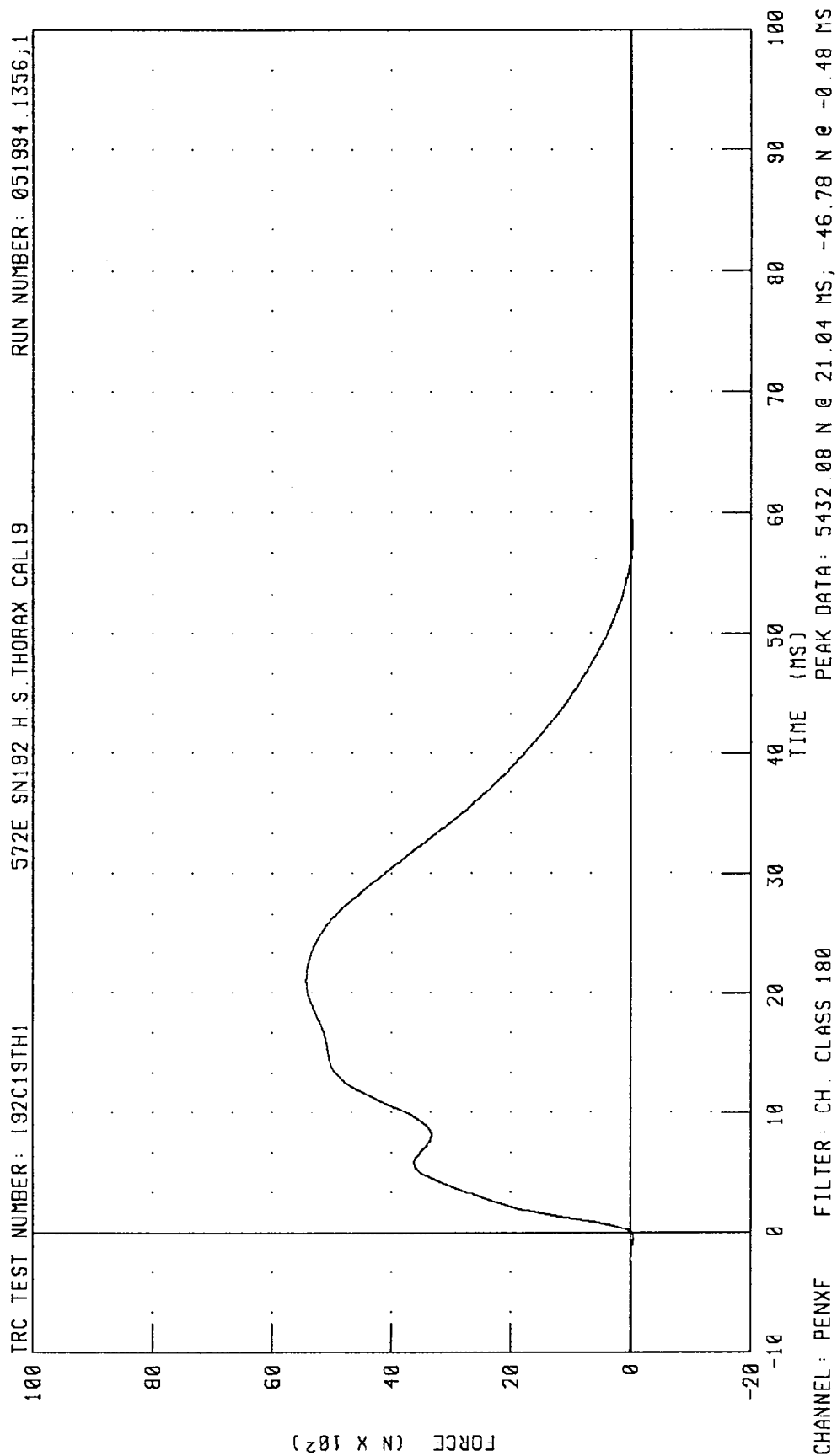
PART 572-E HYBRID III THORAX CALIBRATION PENDULUM DECELERATION

TRC TEST NUMBER: 192C19TH1 572E SN192 H.S. THORAX CAL19 RUN NUMBER: 051994.1356;1



CHANNEL: PENXG FILTER: CH. CLASS 180 PEAK DATA: 23.71 G @ 21.04 MS; -0.20 G @ -0.48 MS

PART 572-E HYBRID III THORAX CALIBRATION
PENDULUM FORCE



PART 572-E HYBRID III THORAX CALIBRATION

STERNUM DISPLACEMENT

572E SN192 H.S.THORAX CAL19

TRC TEST NUMBER: 192C18TH1

150

120

90

60

30

0

-30

DISPLACEMENT (MM)

TIME (MS)

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

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340

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360

370

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1010

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1070

1080

1090

1100

1110

1120

1130

1140

1150

1160

1170

1180

1190

1200

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1220

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1280

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1300

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2110

2120

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2140

2150

2160

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2180

2190

2200

2210

2220

2230

2240

2250

2260

2270

2280

2290

2300

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2650

2660

2670

2680

2690

2700

2710

2720

2730

2740

2750

2760

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2830

2840

2850

2860

2870

2880

2890

2900

2910

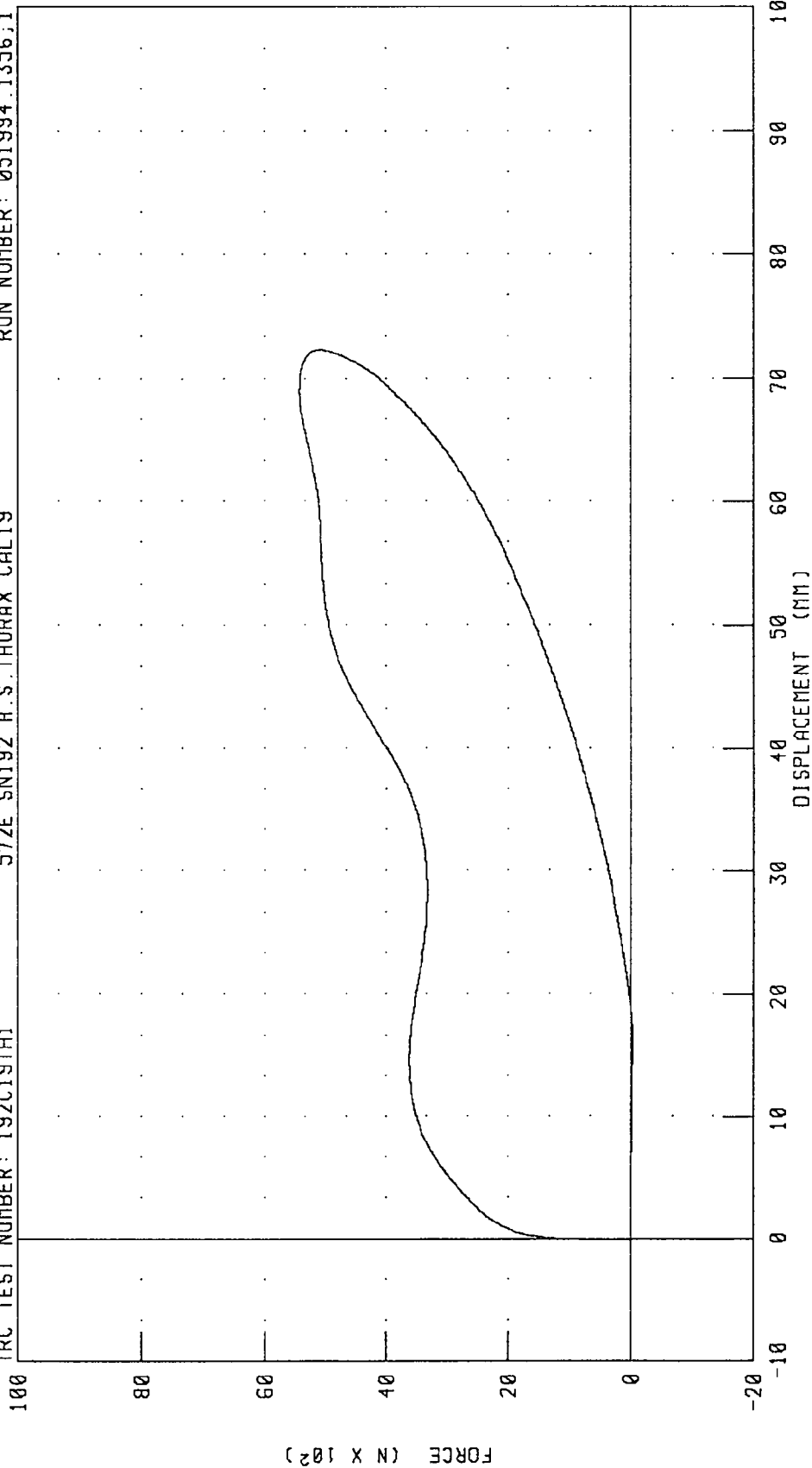
2920

2930

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

TRC TEST NUMBER: 192C19TH1 RUN NUMBER: 051994.1356;1

572E SN192 H.S. THORAX CAL19



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

PEAK DATA: 72.31 MM @ 25.60 MS; -0.05 MM @ 0.72 MS
5432.08 N @ 21.04 MS; -46.78 N @ -0.48 MS

TRANSPORTATION RESEARCH CENTER INC.

RIGHT KNEE IMPACT TEST

HYBRID III

28-MAR-94

TRC INC.

TEST NO: 192C19RK1

572E SN192 RIGHT KNEE CAL 19

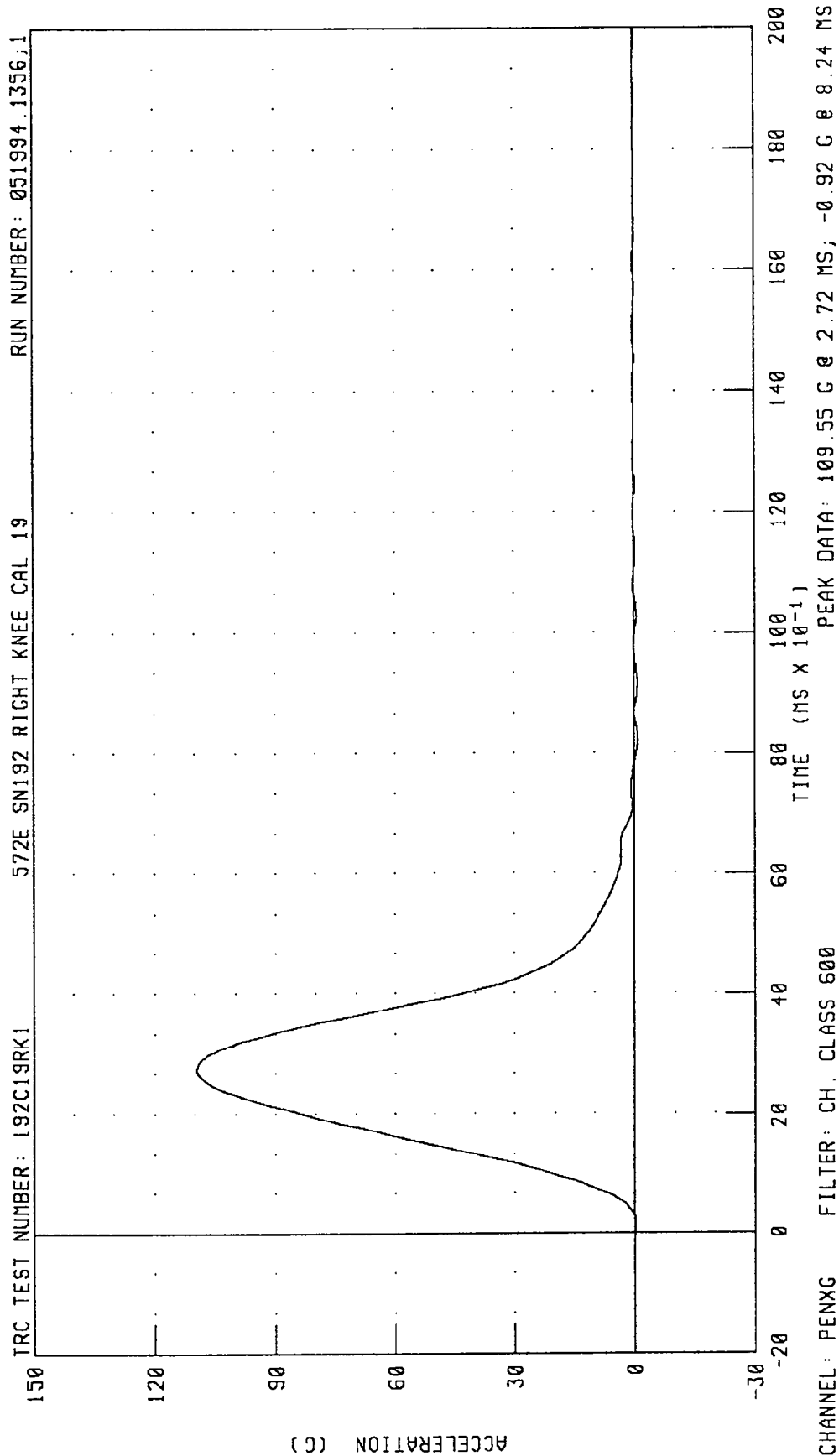
TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	18.9-25.6 DEG. C	21.1 DEG. C
RELATIVE HUMIDITY	10 - 70 %	51.0 %
PROBE VELOCITY	2.07 - 2.13 M/S	2.10 M/S
PEAK KNEE IMPACT FORCE 5.0 KG PENDULUM	4714 - 5783 N	5360.1 N

TEST MEETS SPECIFICATIONS

TECHNICIAN Chas. Muddelt

RUN NUMBER: 032894.1324;1

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



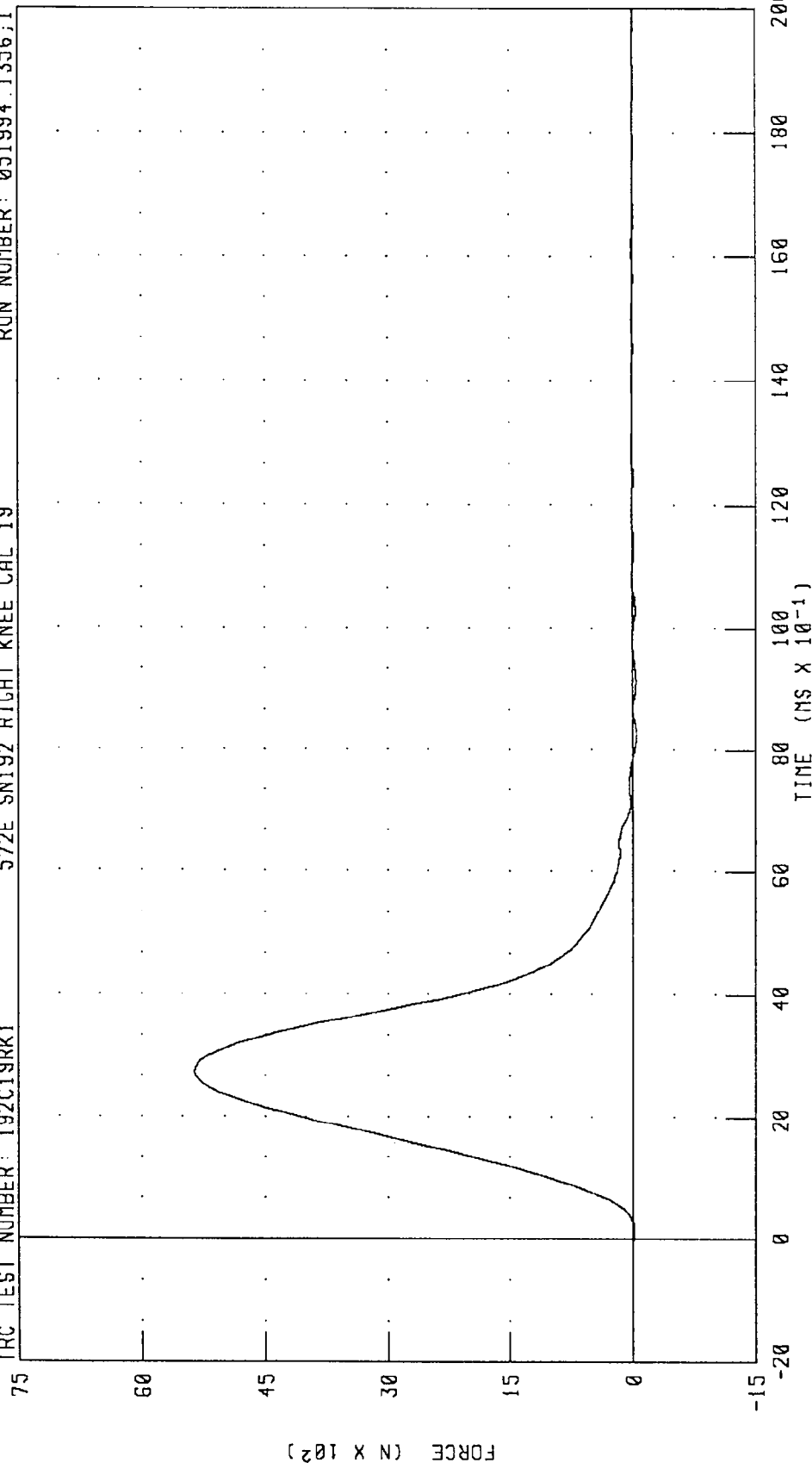
PART 572-E HYBRID III RIGHT KNEE CALIBRATION

PENDULUM FORCE (5 KC PEND.)

TRC TEST NUMBER: 192C19RK1

572E SN192 RIGHT KNEE CAL 19

RUN NUMBER: 051994.1356;1



CHANNEL: PENXF FILTER: CH. CLASS 600

PEAK DATA: 5360.15 N @ 2.72 MS; -44.98 N @ 8.24 MS

TRANSPORTATION RESEARCH CENTER INC.

LEFT KNEE IMPACT TEST

HYBRID III

28-MAR-94

TRC INC.

TEST NO: 192C19LK1

572E SN192 LEFT KNEE CAL 19

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	18.9-25.6 DEG. C	21.1 DEG. C
RELATIVE HUMIDITY	10 - 70 %	51.0 %
PROBE VELOCITY	2.07 - 2.13 M/S	2.10 M/S
PEAK KNEE IMPACT FORCE 5.0 KG PENDULUM	4714 - 5783 N	5227.2 N

TEST MEETS SPECIFICATIONS

TECHNICIAN Chas. Middelitz

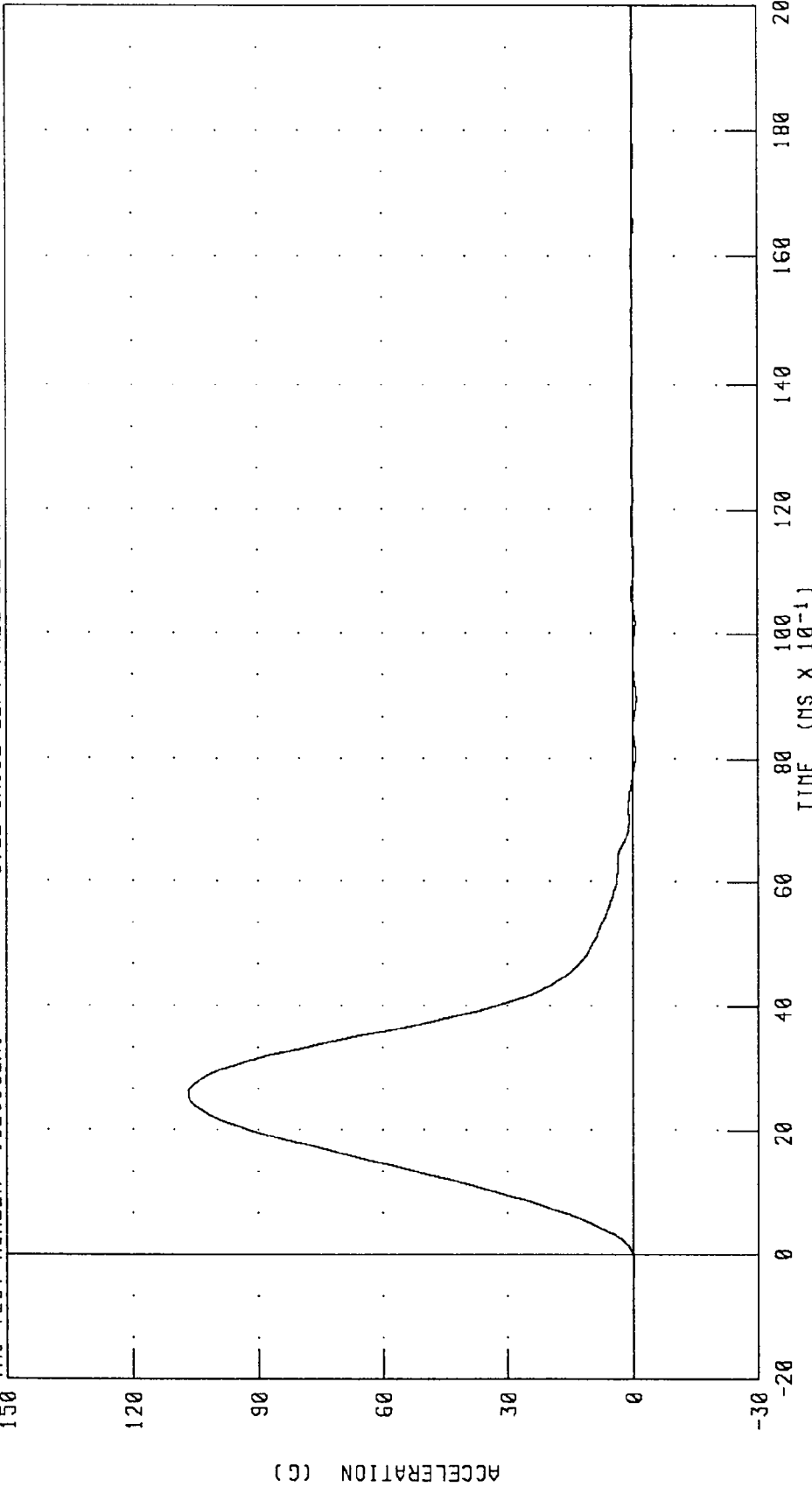
RUN NUMBER: 032894.1318;1

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

TRC TEST NUMBER: 192C19LK1

572E SN192 LEFT KNEE CAL 19

RUN NUMBER: 051994.1356;1



PEAK DATA: 106.83 G @ 2.56 MS; -0.82 G @ 8.96 MS

CHANNEL: PENXG FILTER: CH. CLASS 600

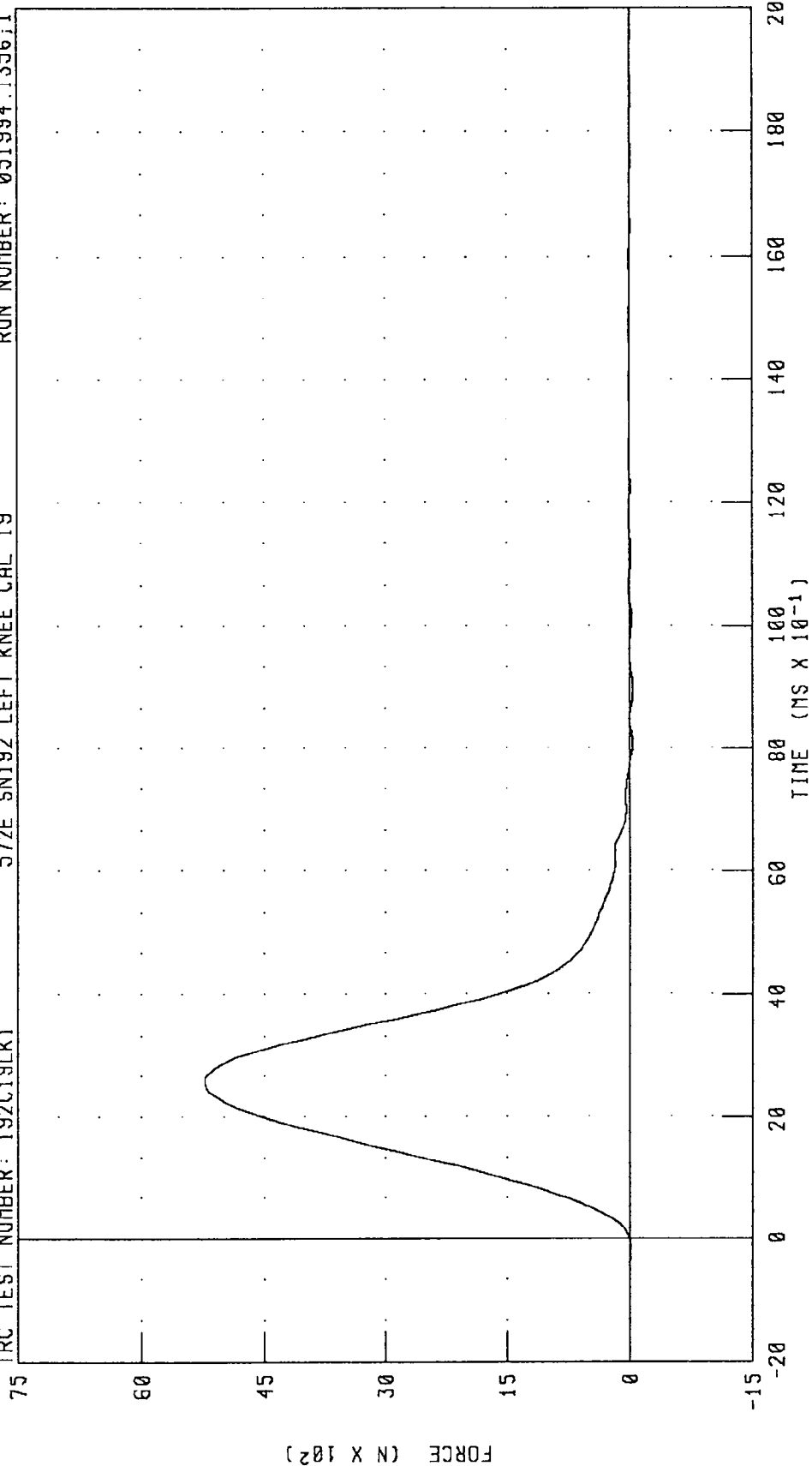
PART 572-E HYBRID III LEFT KNEE CALIBRATION

PENDULUM FORCE (5 KG PEND.)

572E SN192 LEFT KNEE CAL 19

RUN NUMBER: 051994.1356;1

TRC TEST NUMBER: 192C19LK1



PEAK DATA: 5227.21 N @ 2.56 MS; -40.30 N @ 8.96 MS

CHANNEL: PENXF FILTER: CH. CLASS 600

PRE-TEST CERTIFICATION DATA

PASSENGER DUMMY S/N: 142

TRANSPORTATION RESEARCH CENTER INC.
HYBRID III EXTERNAL DIMENSIONS

142 HUMANOID

28-MAR-94

TRC INC.

TEST NO: 142C21ED1

572E SN142 EXT.DIMENSION CAL21

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	983. MM
WAIST CIRCUMFERENCE	(Z)	836 - 866 MM	846. 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	137. MM
SKULL CAP TO BACKLINE	(H)	41 - 46 MM	43. MM
TOTAL SITTING HEIGHT	(A)	879 - 889 MM	884. MM
THIGH CLEARANCE	(F)	140 - 155 MM	145. MM
BUTTOCK KNEE LENGTH	(K)	579 - 605 MM	597. MM
BUTTOCK POPLITEAL LENGTH	(N)	452 - 478 MM	475. MM
POPLITEAL HEIGHT	(L)	429 - 455 MM	452. MM
KNEE PIVOT HEIGHT	(M)	485 - 500 MM	490. MM
FOOT LENGTH	(P)	252 - 267 MM	257. MM
FOOT BREADTH	(W)	91 - 107 MM	97. MM
SHOULDER PIVOT FROM BACKLINE	(E)	84 - 94 MM	89. MM
SHOULDER BREADTH	(V)	422 - 437 MM	427. MM
SHOULDER PIVOT HEIGHT	(B)	506 - 521 MM	508. MM
ELBOW REST HEIGHT	(J)	191 - 211 MM	208. 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 Chas. Middleton

RUN NUMBER: 032994.1056

TRANSPORTATION RESEARCH CENTER INC.

HEAD DROP TEST

HYBRID III

28-MAR-94

TRC INC.

TEST NO: 142C21HD1

572E SN142 HEAD DROP CAL 21

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	18.9-25.6 DEG. C	21.1 DEG. C
RELATIVE HUMIDITY	10 - 70 %	51.0 %
PEAK RESULTANT ACCELERATION	225 - 275 G	236.49 G
PEAK LATERAL ACCELERATION	15 G MAX	3.48 G
IS ACCELERATION CURVE UNIMODAL?	YES	YES

TEST MEETS SPECIFICATIONS

TECHNICIAN

Chas Middel

RUN NUMBER: 040694.1512;2

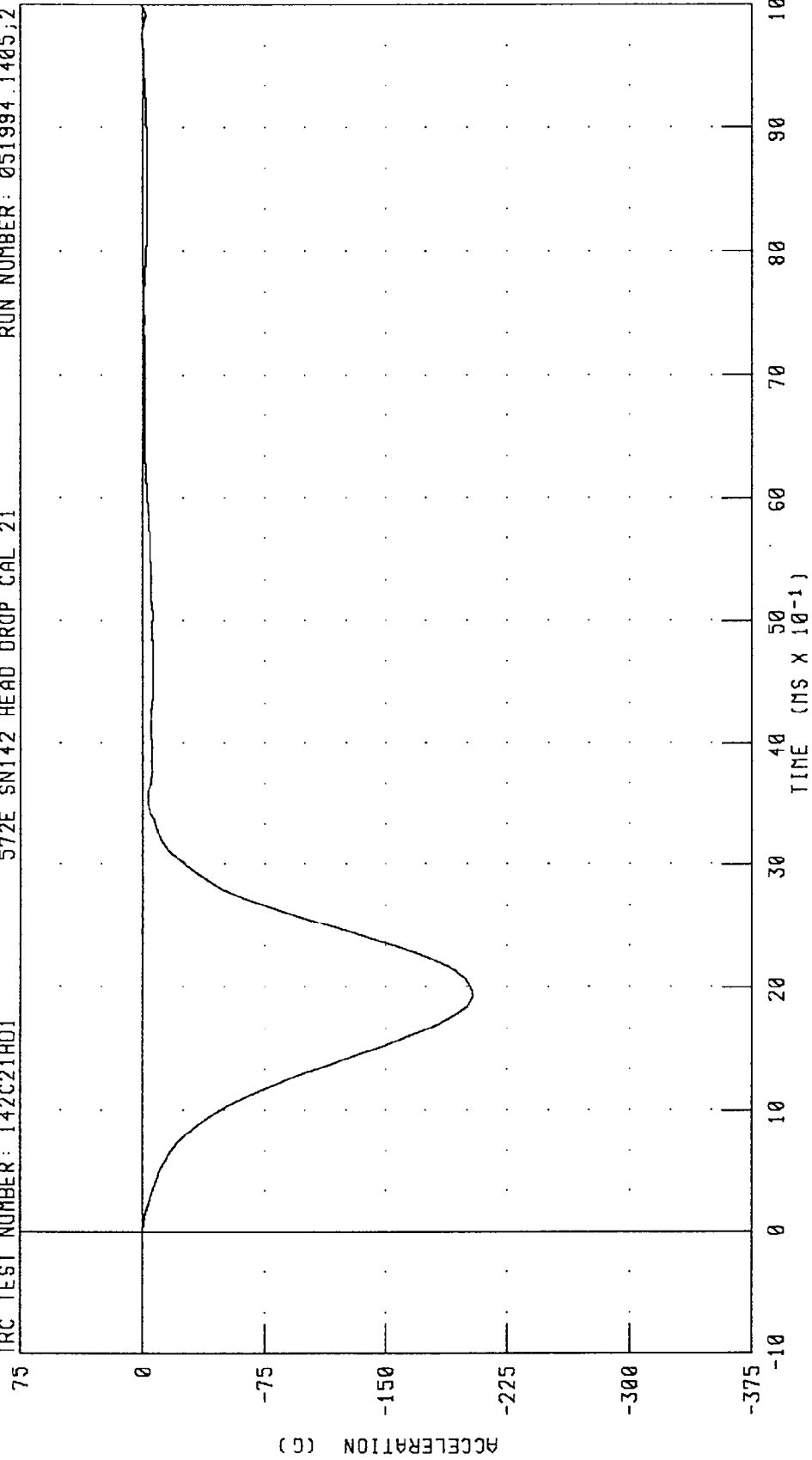
PART 572-E HYBRID III HEAD CALIBRATION

HEAD ACCELERATION X AXIS

572E SN142 HEAD DROP CAL 21

RUN NUMBER: 051994.1405;2

TRC TEST NUMBER: 142C21HD1



PEAK DATA: 0.73 G @ 10.00 MS; -203.66 G @ 1.92 MS

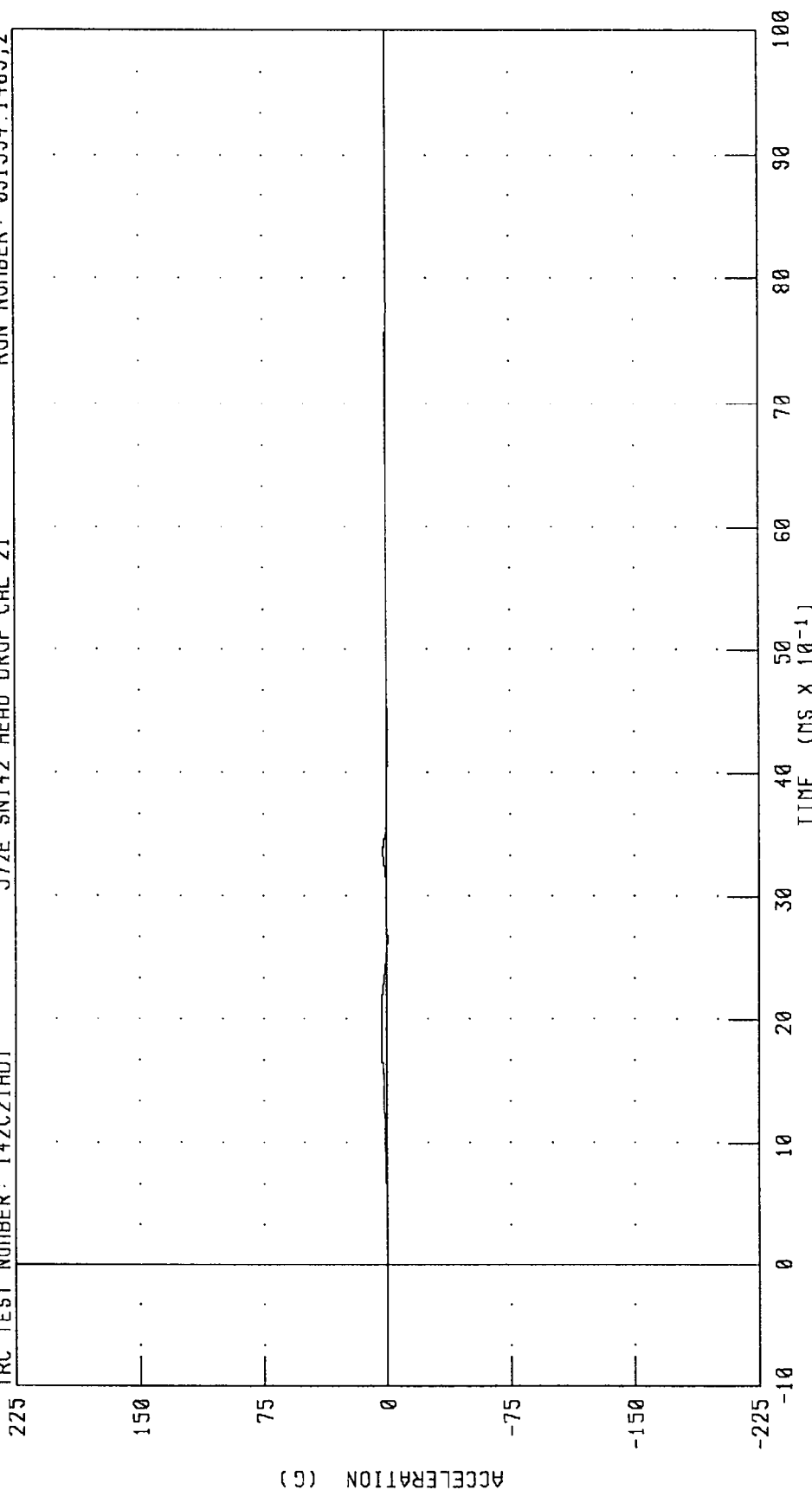
CHANNEL: HEDXG FILTER: CH. CLASS 1000

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

TRC TEST NUMBER: 142C21HD1

572E SN142 HEAD DROP CAL 21

RUN NUMBER: 051994.140512



PEAK DATA: 3.48 G @ 1.76 MS; -0.51 G @ 4.32 MS

CHANNEL: HEDYG FILTER: CH. CLASS 1000

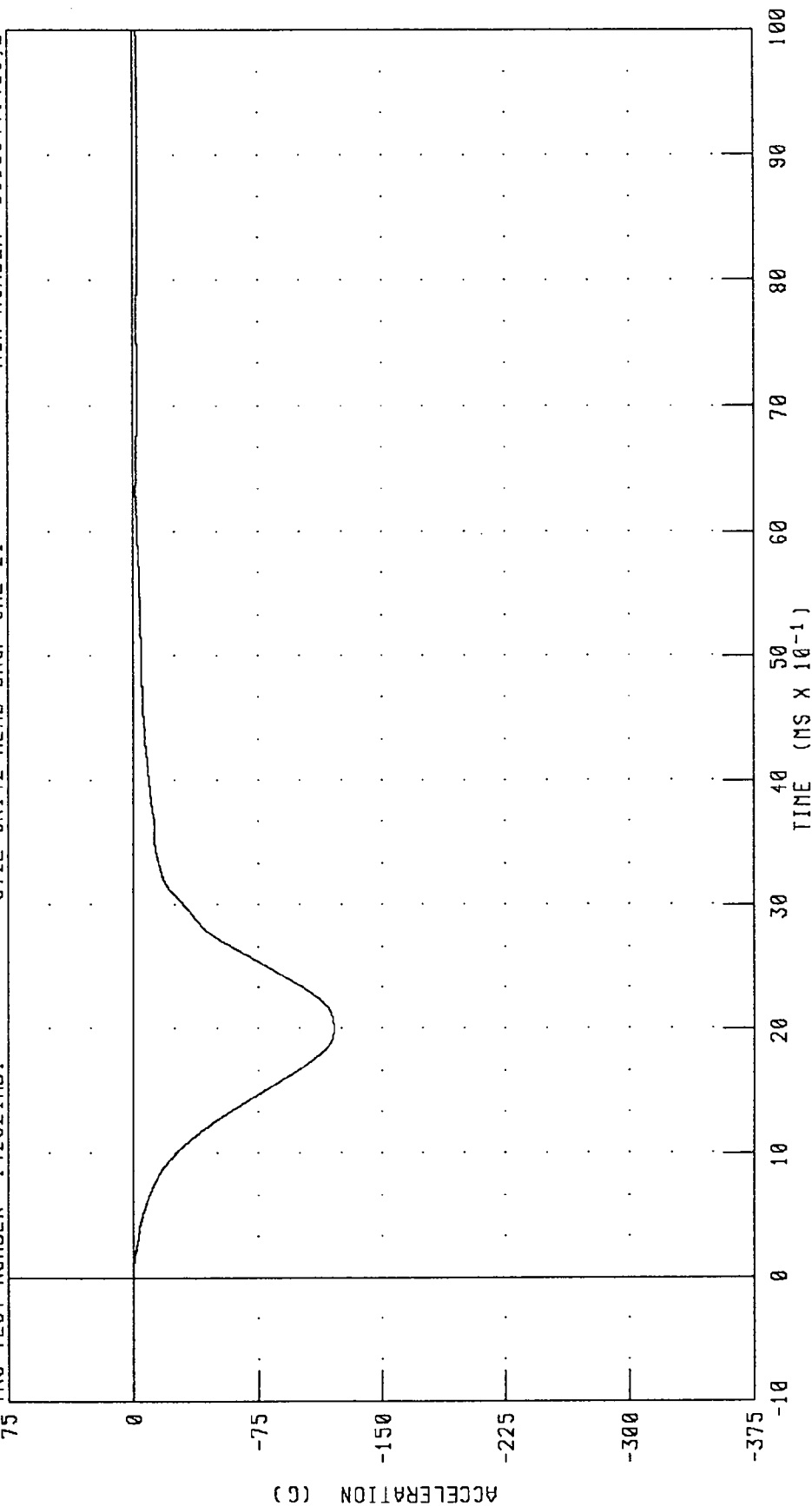
PART 572-E HYBRID III HEAD CALIBRATION

HEAD ACCELERATION Z AXIS

TRC TEST NUMBER: 142C21HD1

572E SN142 HEAD DROP CAL 21

RUN NUMBER: 051994.1405.2



PEAK DATA: 0.03 G @ -0.32 MS; -120.99 G @ 2.00 MS

CHANNEL: HEDZG FILTER: CH. CLASS 1000

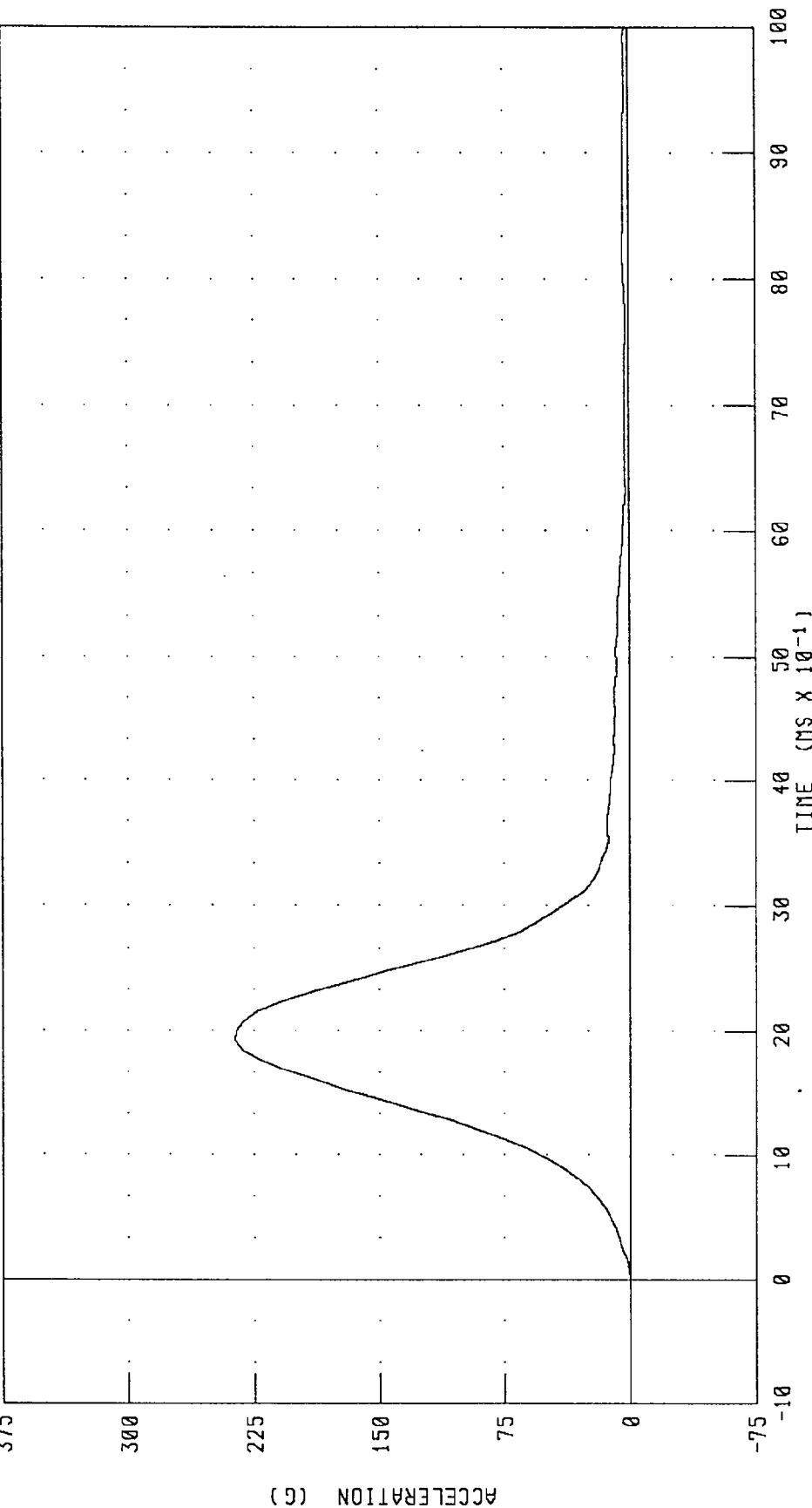
PART 572-E HYBRID III HEAD CALIBRATION

HEAD RESULTANT ACCELERATION

572E SN142 HEAD DROP CAL 21

RUN NUMBER: 051994 1405,2

TRC TEST NUMBER: 142C21HD1



PEAK DATA: 236.49 G @ 1.92 MS; 0.07 G @ -0.40 MS

CHANNEL: HEDRG FILTER: CH. CLASS 1000

TRANSPORTATION RESEARCH CENTER INC.

NECK FLEXION TEST - 6 CHANNEL TRANSDUCER

HYBRID III

29-MAR-94

TRC INC. TEST NO: 142C21NF1 572E SN142 NECK FLEXION CAL21

TEST PARAMETER		SPECIFICATION	TEST RESULTS
TEMPERATURE		20.6-22.2 DEG. C	21.7 DEG. C
RELATIVE HUMIDITY		10 - 70 %	50.0 %
IMPACT VELOCITY		6.89 - 7.13 M/S	7.06 M/S
PENDULUM DECELERATION	10 MS	22.50 - 27.50 G	24.17 G
	20 MS	17.60 - 22.60 G	20.66 G
	30 MS	12.50 - 18.50 G	16.34 G
MAX PENDULUM G		29 G MAX	24.86 G
MAX PENDULUM G ABOVE 30 MS		29 G MAX	16.32 G
DECELERATION-TIME CURVE DECAY TIME TO 5 G		34 - 42 MS	37.20 MS
D PLANE	MAX	64 - 78 DEG.	72.39 DEG.
ROTATION	TIME	57 - 64 MS	59.12 MS
MOMENT ABOUT OCCIPITAL CONDYLE	MAX	88.2 - 108.5 NM	93.29 NM
	TIME	47 - 58 MS	50.56 MS
ROTATION ANGLE-TIME CURVE DECAY TIME TO ZERO		113 - 128 MS	114.08 MS
POSITIVE MOMENT-TIME CURVE DECAY TIME TO ZERO		97 - 107 MS	102.56 MS

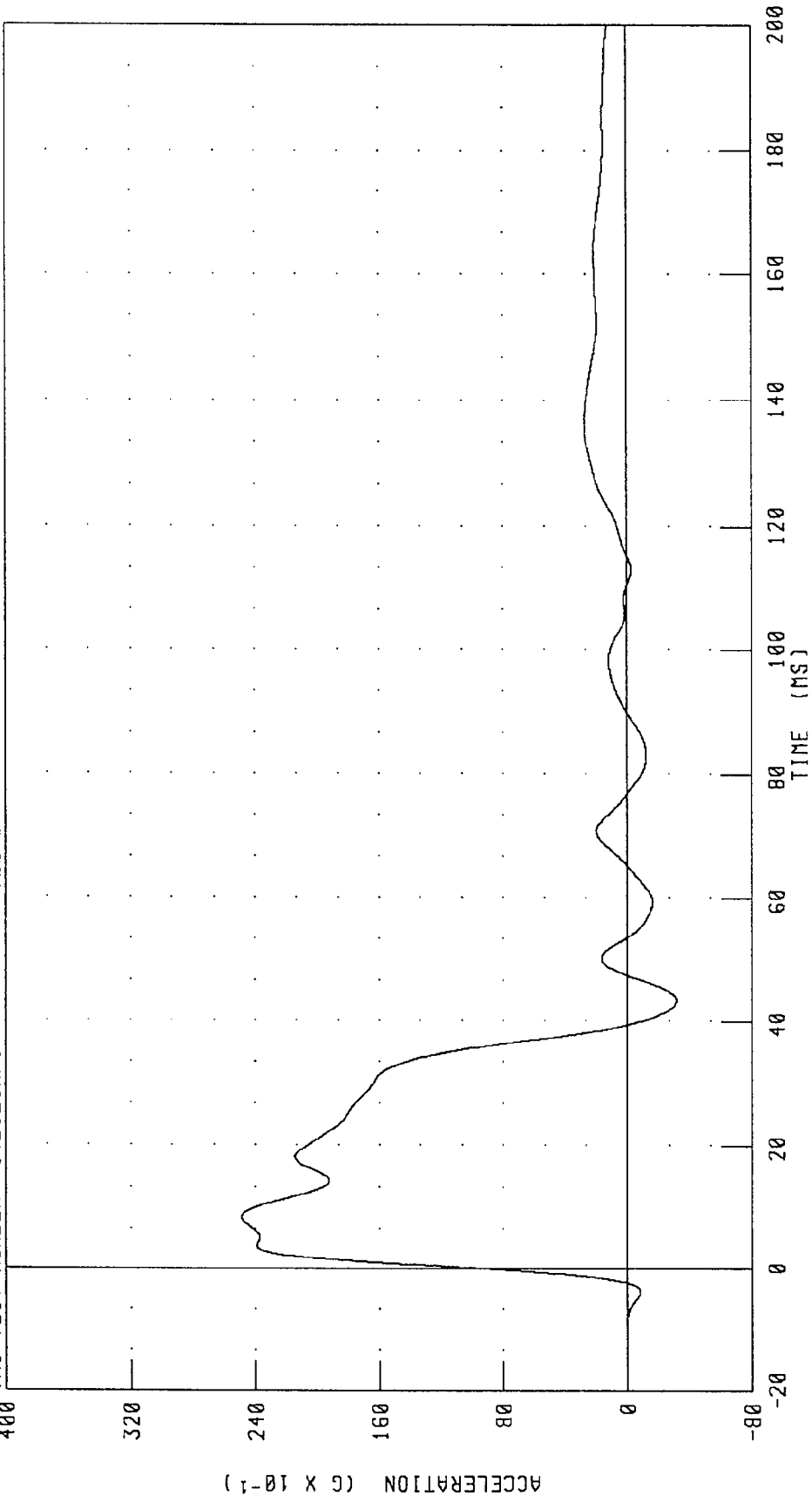
TEST MEETS SPECIFICATIONS

TECHNICIAN Chas. M. Holt

RUN NUMBER: 032994.0831;1

PART 572-E HYBRID III NECK FLEXION CALIBRATION
 PENDULUM DECELERATION

TRC TEST NUMBER: 142C21NF1 572E SN142 NECK FLEXION CAL21 RUN NUMBER: 051994.1405;1



PEAK DATA: 24.86 G @ 8.64 MS; -3.14 G @ 43.36 MS

CHANNEL: PENXG FILTER: CH. CLASS 60

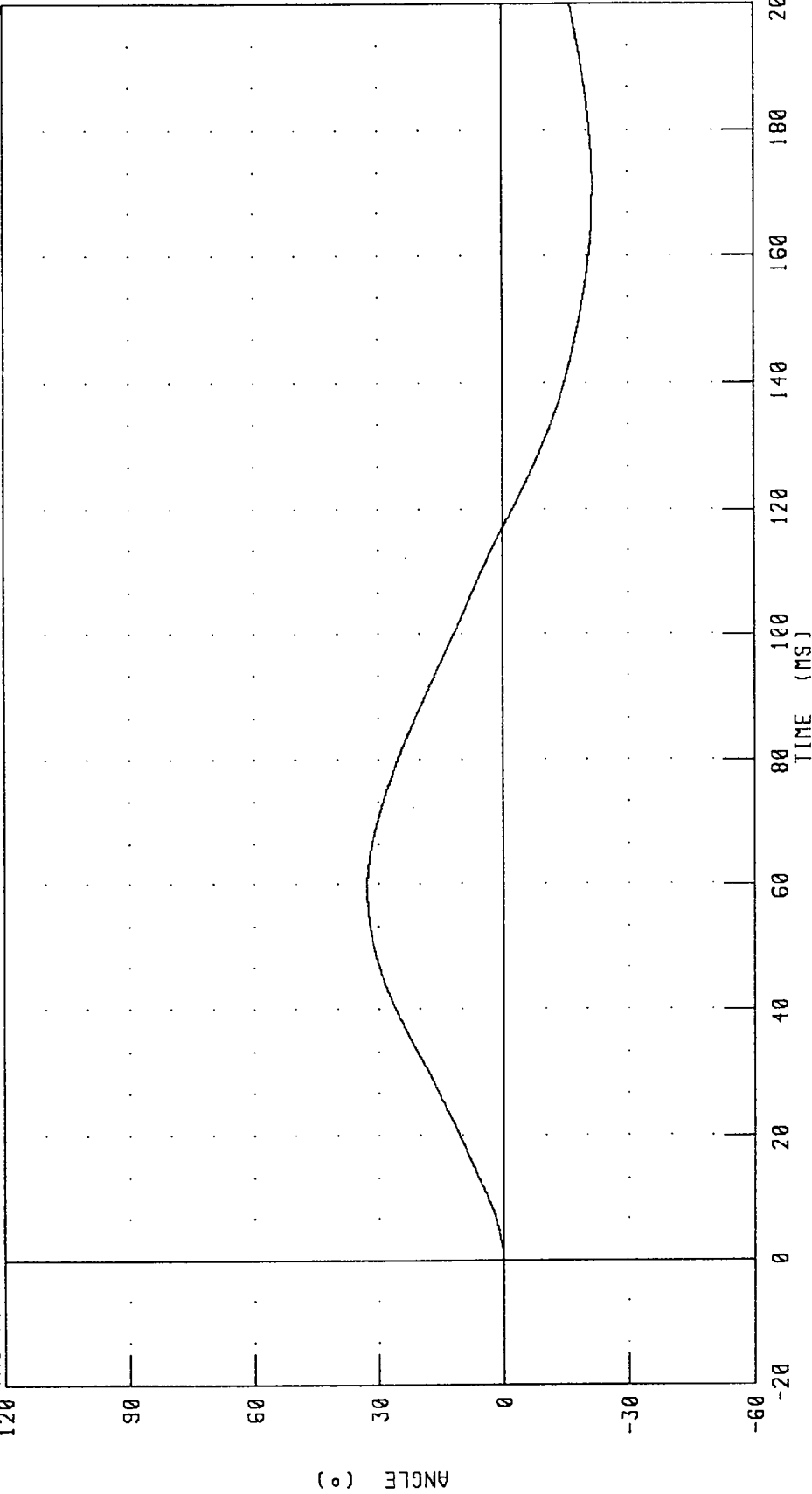
PART 572-E HYBRID III NECK FLEXION CALIBRATION

ROTATION ABOUT BASE OF NECK

572E SN142 NECK FLEXION CAL21

TRC TEST NUMBER: 142C21NF1

RUN NUMBER: 051994.1405,1



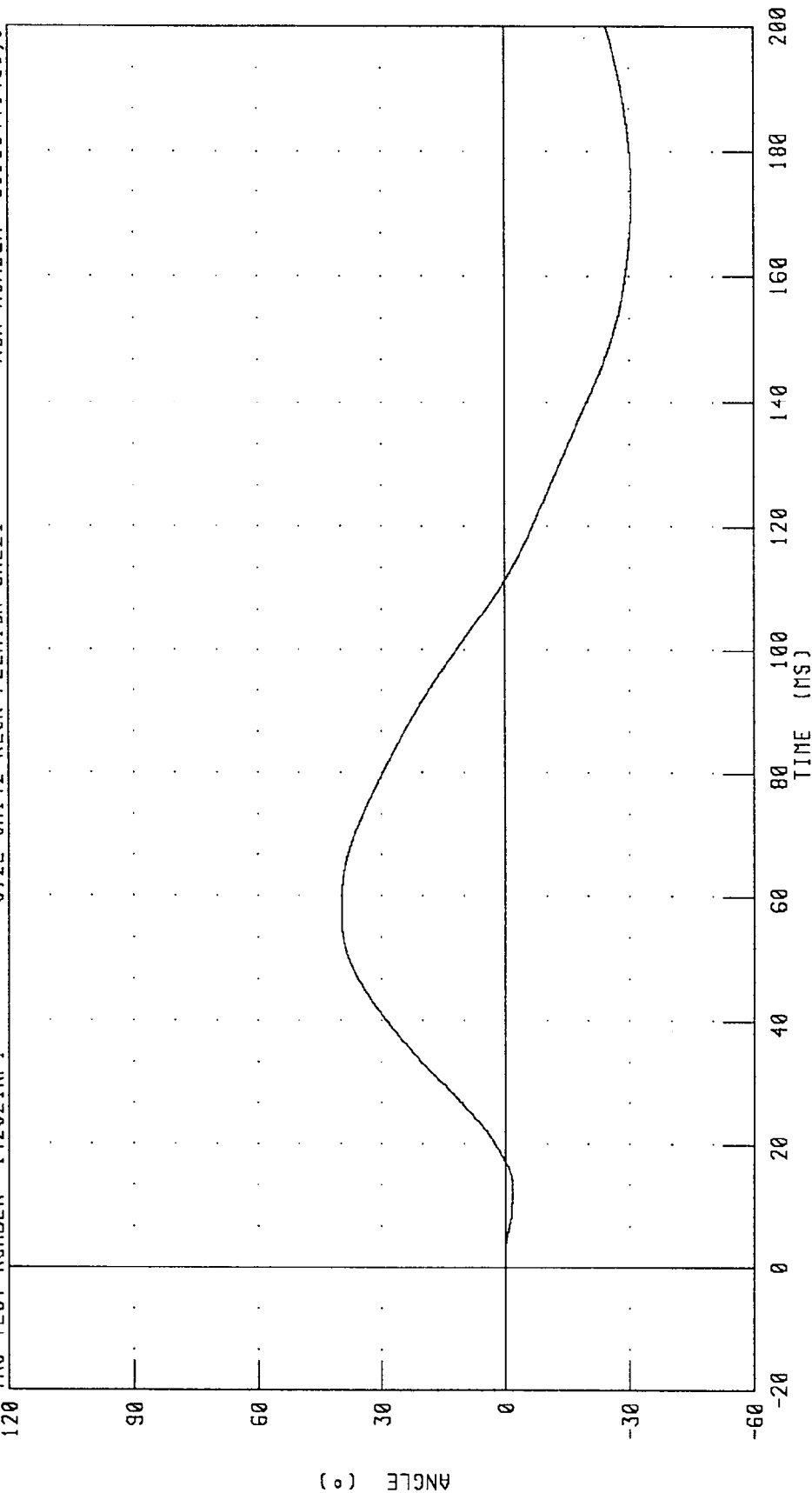
PEAK DATA: 32.73 ° @ 59.28 MS, -21.42 ° @ 172.00 MS

FILTER: CH. CLASS 60

CHANNEL: BETA

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

TRC TEST NUMBER: 142C21NF1 572E SN142 NECK FLEXION CAL21 RUN NUMBER: 051894.1405;1



CHANNEL: THETA FILTER: CH. CLASS 60

PEAK DATA: 39.66 ° @ 57.28 MS; -30.49 ° @ 173.04 MS

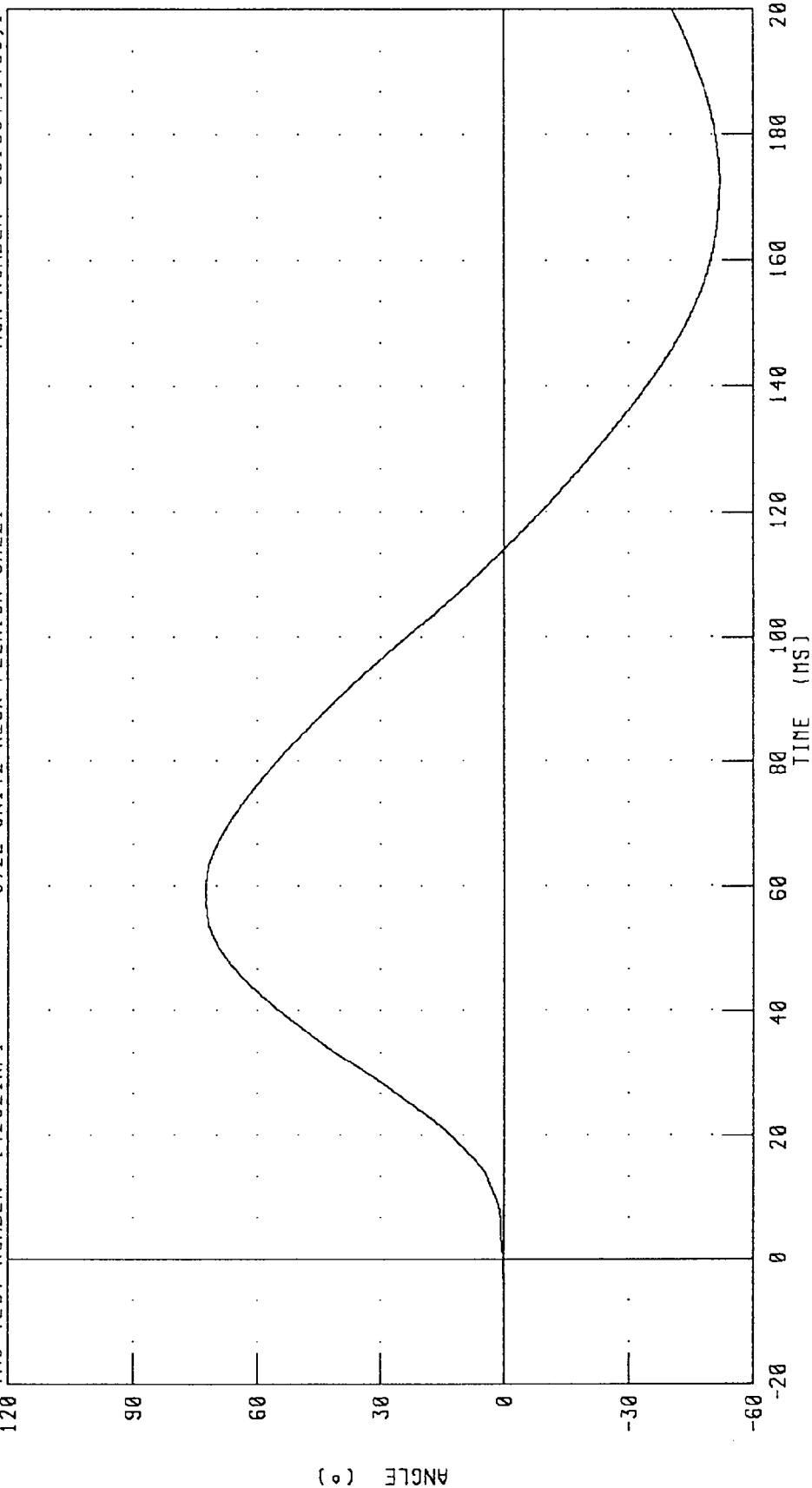
PART 572-E HYBRID III NECK FLEXION CALIBRATION

TOTAL ROTATION

TRC TEST NUMBER: 142C21NF1

572E SN142 NECK FLEXION CAL21

RUN NUMBER: 051994.1405;1



CHANNEL: TOTAN FILTER: CH. CLASS 60

PEAK DATA: 72.39 ° @ 59.12 MS; -51.91 ° @ 172.64 MS

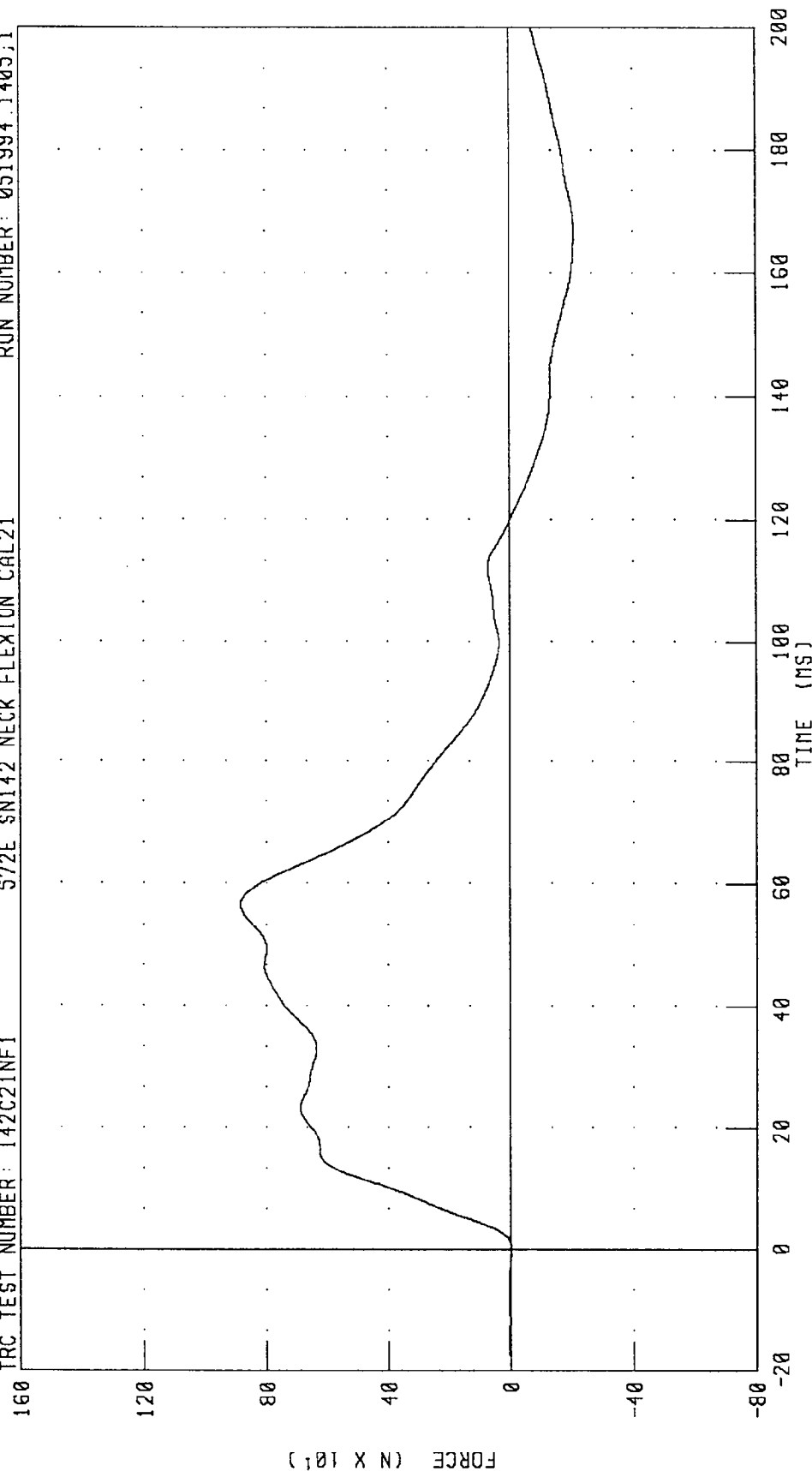
PART 572-E HYBRID III NECK FLEXION CALIBRATION

NECK FORCE X AXIS

TRC TEST NUMBER: 142C2INF1

572E SN142 NECK FLEXION CAL21

RUN NUMBER: 051994.1405.1



PEAK DATA: 884.79 N @ 56.56 MS; -208.84 N @ 166.56 MS

CHANNEL: NEKXF FILTER: CH. CLASS 60

PART 572-E HYBRID III NECK FLEXION CALIBRATION

NECK MOMENT Y AXIS

TRC TEST NUMBER: 142C21NF1

572E SN142 NECK FLEXION CAL21

RUN NUMBER: 051994.1405;1

160

120

80

40

0

-40

-80

TORQUE (N·M)

TIME (MS)

200

180

160

140

120

100

80

60

40

20

0

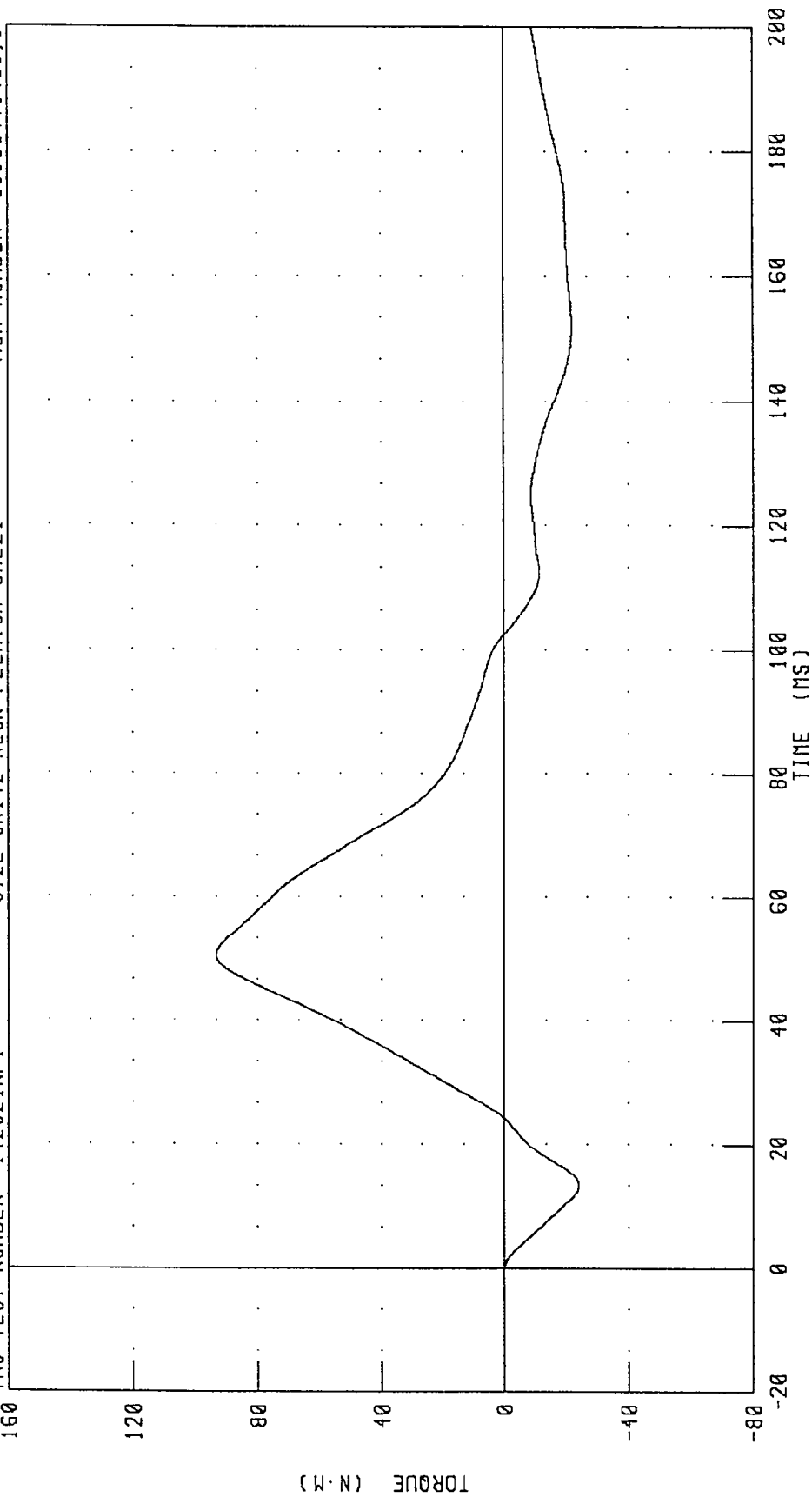
-20

PEAK DATA: 79.00 N·M @ 50.48 MS; -34.50 N·M @ 13.84 MS

CHANNEL: NEKYM FILTER: CH. CLASS 60

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

TRC TEST NUMBER: 142C21NF1 572E SN142 NECK FLEXION CAL21 RUN NUMBER: 051994.1405;1



CHANNEL: NEKOM FILTER: CH. CLASS 60 PEAK DATA: 93.29 N·M @ 50.56 MS; -24.03 N·M @ 13.36 MS

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

HYBRID III

29-MAR-94

TRC INC. TEST NO: 142C21NE1 572E SN142 NECK EXT. CAL21

TEST PARAMETER		SPECIFICATION	TEST RESULTS
TEMPERATURE		20.6 - 22.2 DEG. C	21.7 DEG. C
RELATIVE HUMIDITY		10 - 70 %	50.0 %
IMPACT VELOCITY		5.95 - 6.19 M/S	5.98 M/S
PENDULUM DECELERATION	10 MS	17.20 - 21.20 G	18.48 G
	20 MS	14.00 - 19.00 G	16.43 G
	30 MS	11.00 - 16.00 G	13.09 G
MAX PENDULUM G		22 G MAX	19.14 G
MAX PENDULUM G ABOVE 30 MS		22 G MAX	13.14 G
DECELERATION-TIME CURVE DECAY TIME TO 5 G		38 - 46 MS	41.68 MS
D PLANE	MAX	81 - 106 DEG.	95.22 DEG.
ROTATION	TIME	72 - 82 MS	73.76 MS
MOMENT ABOUT OCCIPITAL CONDYLE	MIN	-80.0/-52.9 NM	-71.60 NM
	TIME	65 - 79 MS	69.68 MS
ROTATION ANGLE-TIME CURVE DECAY TIME TO ZERO		147 - 174 MS	150.16 MS
NEGATIVE MOMENT-TIME CURVE DECAY TIME TO ZERO		120 - 148 MS	138.00 MS

TEST MEETS SPECIFICATIONS

TECHNICIAN Chas Middel

RUN NUMBER: 032994.0851;1

PART 572-E HYBRID III NECK EXTENSION CALIBRATION
 PENDULUM DECELERATION

TRC TEST NUMBER: 142021NE1

572E SNI42 NECK EXT. CAL21

RUN NUMBER: 051994.1405;1

400

320

ACCELERATION (G X 10⁻¹)

240

160

80

0

-80

TIME (MS)

-20

0

20

40

60

80

100

120

140

160

180

200

CHANNEL: PENXG FILTER: CH. CLASS 60

PEAK DATA: 19.15 G @ 8.56 MS; -1.91 G @ 49.68 MS

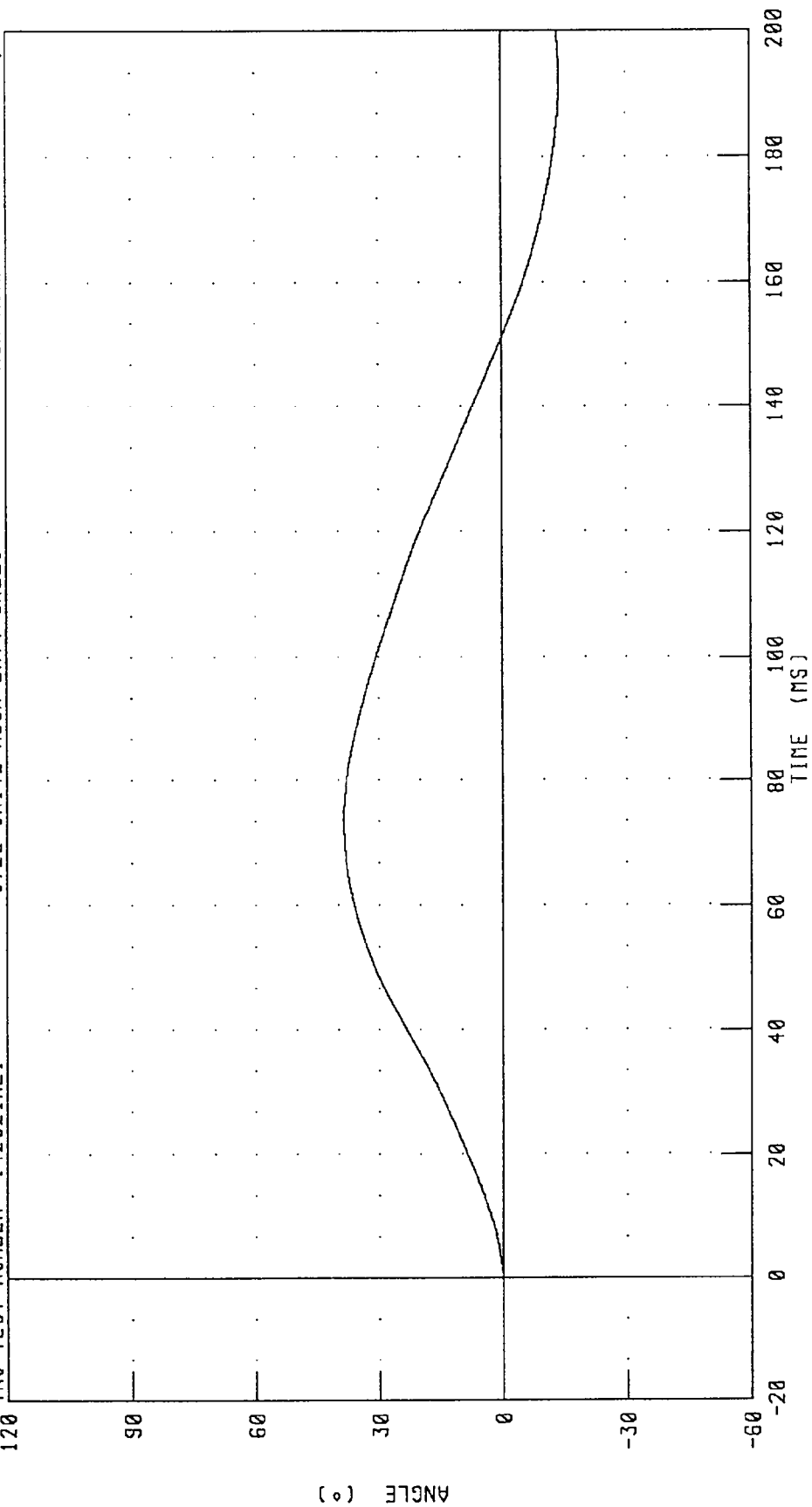
PART 572-E HYBRID III NECK EXTENSION CALIBRATION

ROTATION ABOUT BASE OF NECK

572E SN142 NECK EXT. CAL21

TRC TEST NUMBER: 142C21NE1

RUN NUMBER: 051994.1405;1



PEAK DATA: 38.64 ° @ 73.68 MS; -13.83 ° @ 193.76 MS

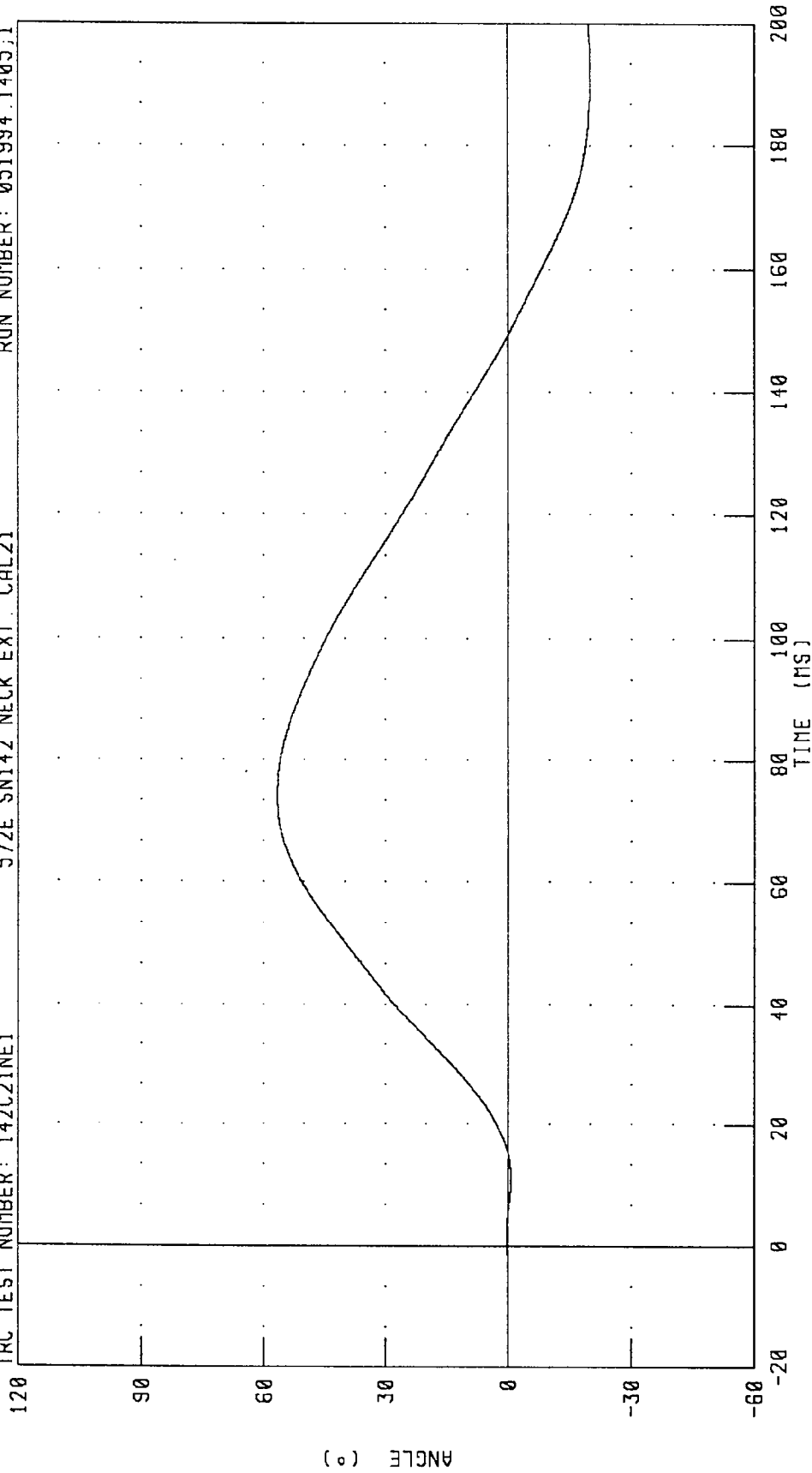
CHANNEL: BETA FILTER: CH. CLASS 60

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

TRC TEST NUMBER: 142C21NE1

572E SN142 NECK EXT. CAL21

RUN NUMBER: 051994.1405;1



CHANNEL: THETA FILTER: CH. CLASS 60

PEAK DATA: 56.58 ° @ 74.08 MS; -20.15 ° @ 192.00 MS

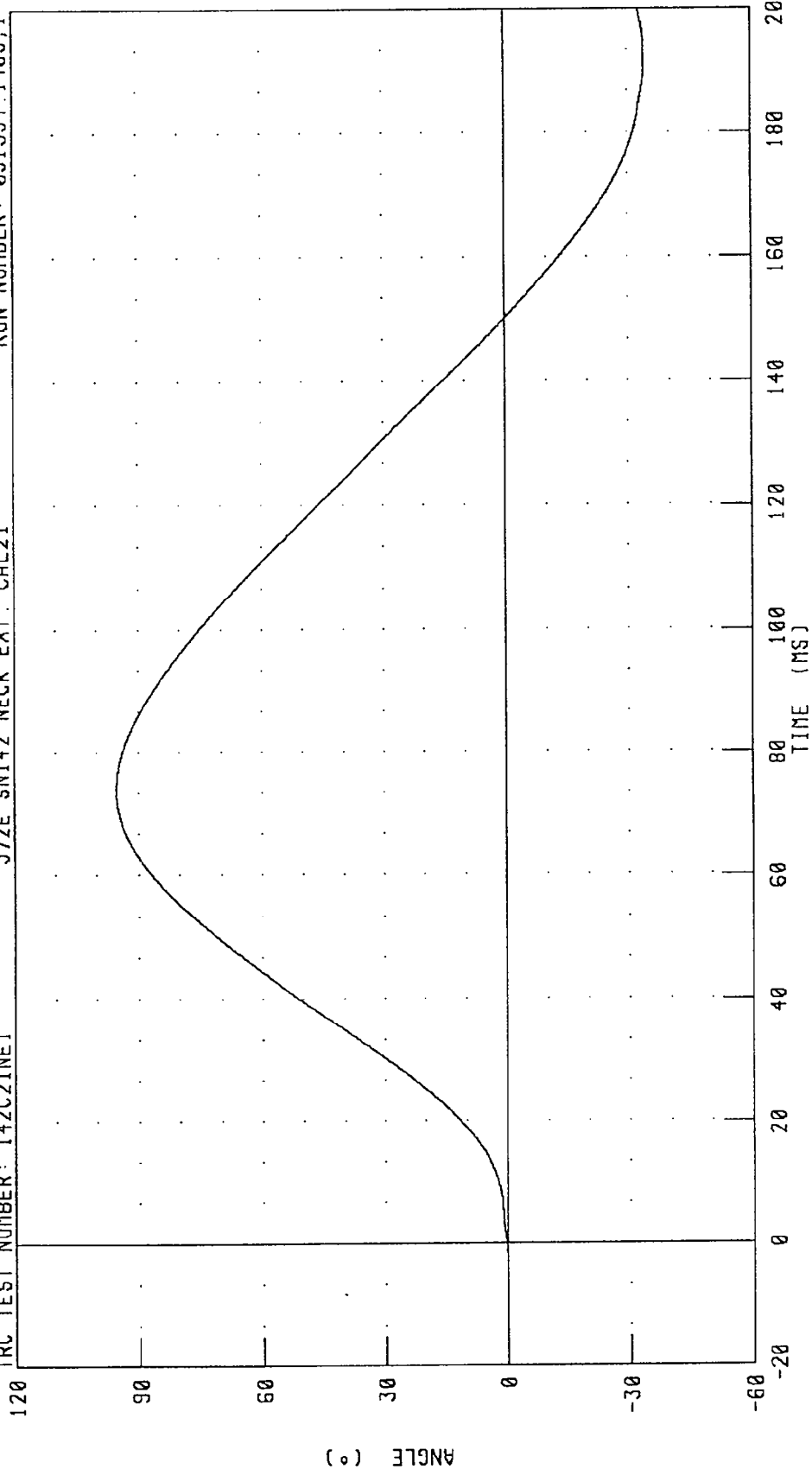
PART 572-E HYBRID III NECK EXTENSION CALIBRATION

TOTAL ROTATION

TRC TEST NUMBER: 142C21NE1

572E SN142 NECK EXT. CAL21

RUN NUMBER: 051994.1405;1



PEAK DATA: 95.22 ° @ 73.76 MS; -33.97 ° @ 192.16 MS

CHANNEL: TOTAL FILTER: CH. CLASS 60

PART 572-E HYBRID III NECK EXTENSION CALIBRATION

NECK FORCE X AXIS

TRC TEST NUMBER: 142C21NE1

572E SN142 NECK EXT. CAL21

RUN NUMBER: 051994.1405.1

80

40

0

-40

-80

-120

-160

FORCE (N X 10¹)

TIME (MS)

200

180

160

140

120

100

80

60

40

20

0

-20

PEAK DATA: 258.07 N @ 184.88 MS; -601.40 N @ 68.80 MS

CHANNEL: NEKXF FILTER: CH. CLASS 60

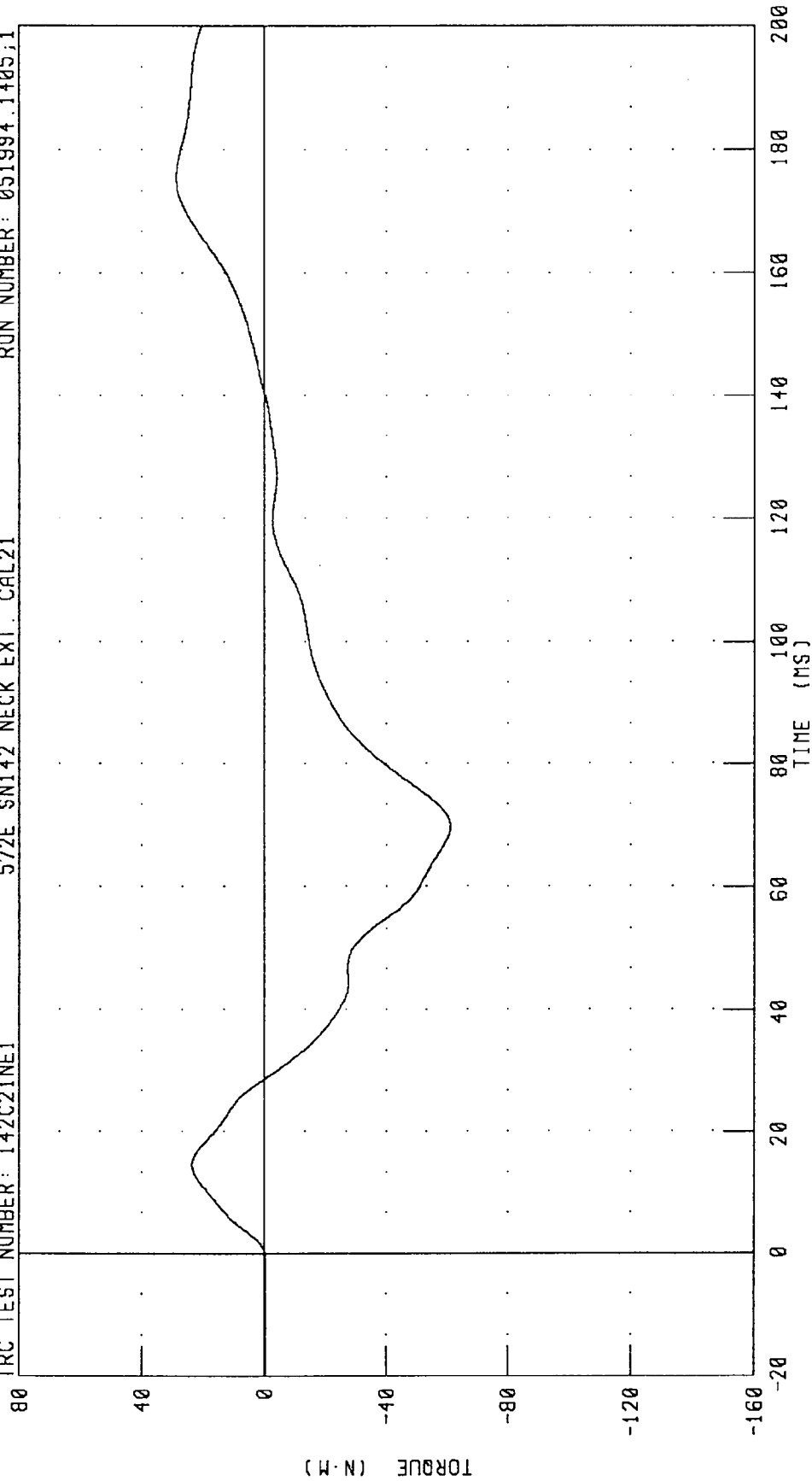
PART 572-E HYBRID III NECK EXTENSION CALIBRATION

NECK MOMENT Y AXIS

IRC TEST NUMBER: 142C21NE1

572E SN142 NECK EXT. CAL21

RUN NUMBER: 051994.1405;1



CHANNEL: NEKYM FILTER: CH. CLASS 60

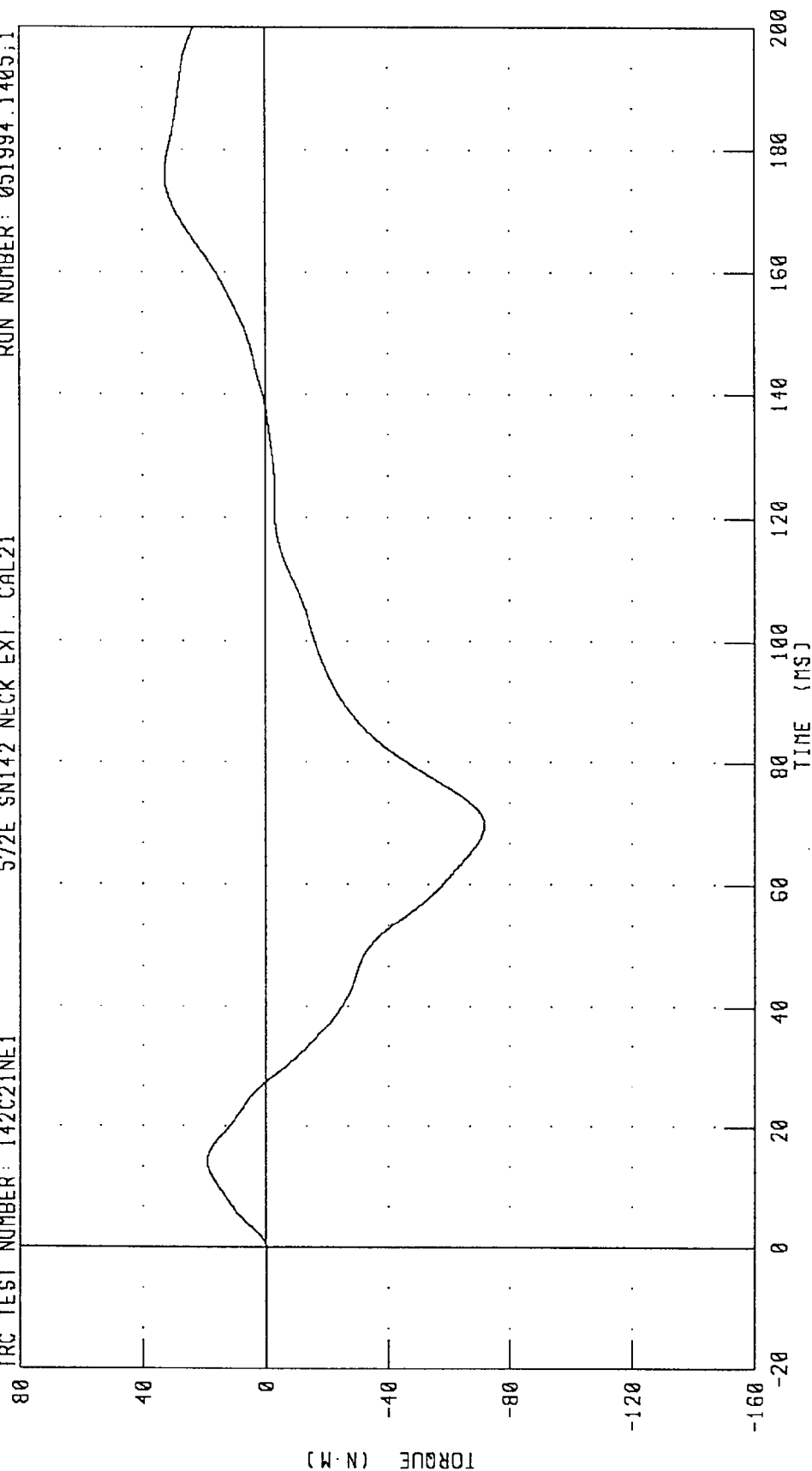
PEAK DATA: 28.66 N-M @ 175.44 MS; -60.93 N-M @ 69.76 MS

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

TRC TEST NUMBER: 142C21NE1

572E SN142 NECK EXT. CAL21

RUN NUMBER: 051994.1405;1



PEAK DATA: 32.61 N·M @ 175.84 MS; -71.60 N·M @ 69.68 MS

CHANNEL: NEKOM FILTER: CH. CLASS 60

TRANSPORTATION RESEARCH CENTER INC.

THORAX IMPACT TEST

HYBRID III

29-MAR-94

TRC INC.

TEST NO: 142C21TH1

572E SN142 H.S.THORAX CAL21

TEST PARAMETER	HIGH SPEED TEST	TEST RESULTS
	SPECIFICATION	
TEMPERATURE	20.6-22.2 DEG. C	21.7 DEG. C
RELATIVE HUMIDITY	10 - 70 %	50.0 %
PENDULUM VELOCITY	6.59 - 6.83 M/S	6.65 M/S
MAXIMUM DEFLECTION	63.5 - 72.6 MM	70.3 MM
MAXIMUM RESISTIVE FORCE	5159 - 5894 N	5415. N
INTERNAL HYSTERESIS	69% - 85%	73.5%

TEST MEETS SPECIFICATIONS

TECHNICIAN Chris Middleton

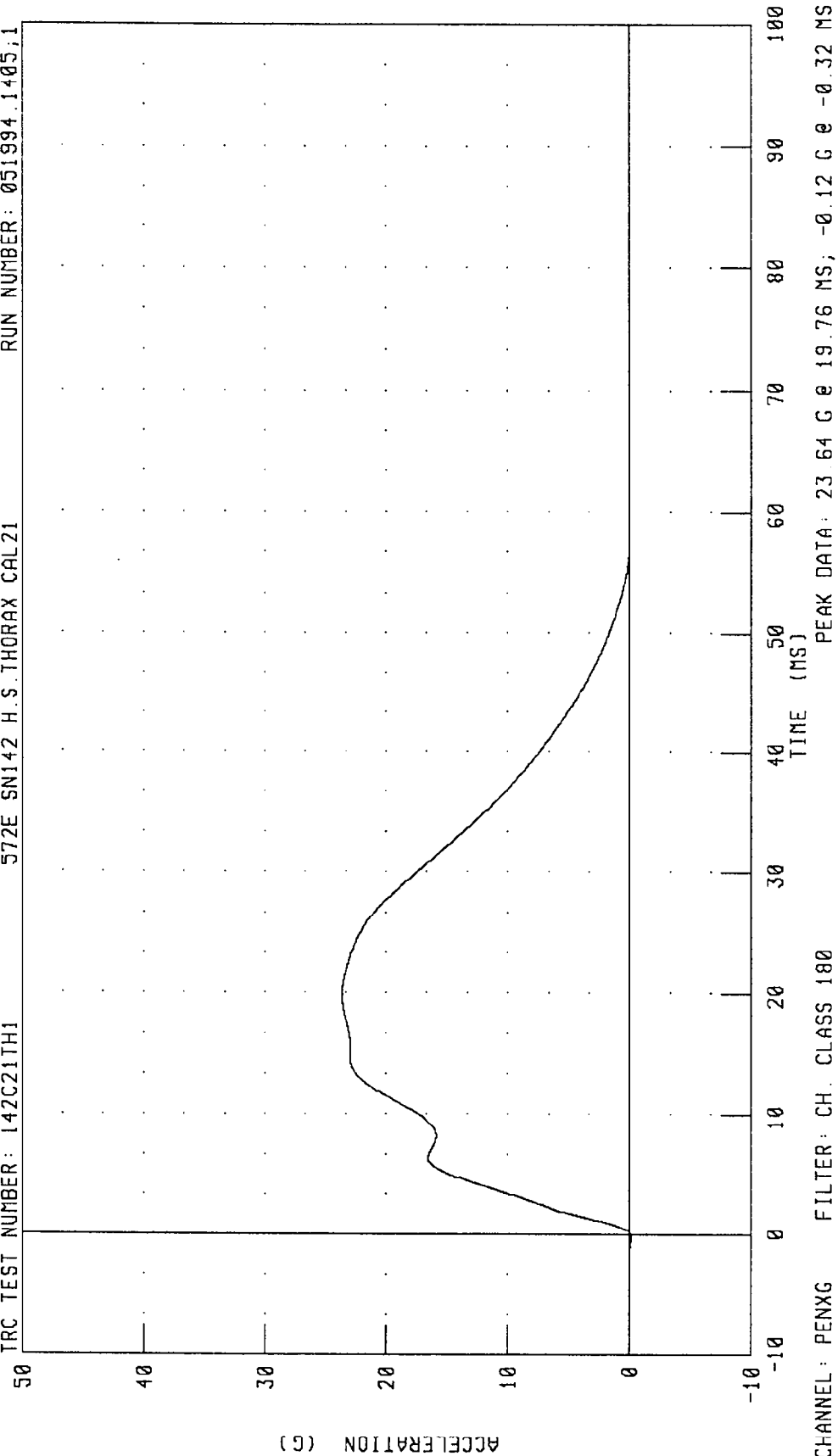
RUN NUMBER: 032994.1011;1

PART 572-E HYBRID III THORAX CALIBRATION
PENDULUM DECELERATION

TRC TEST NUMBER: 142C21TH1

572E SN142 H.S. THORAX CAL21

RUN NUMBER: 051994.1405,1



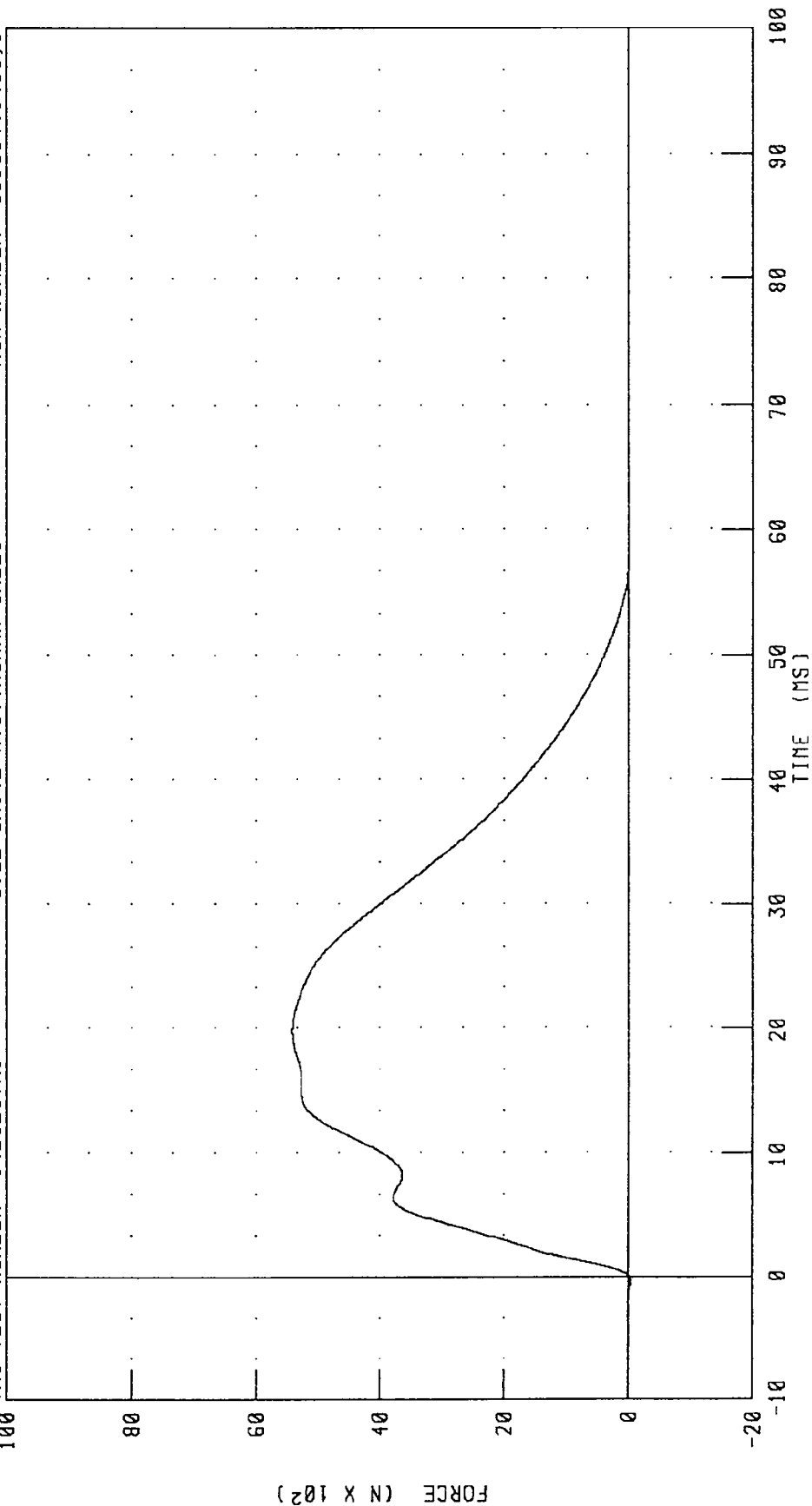
CHANNEL: PENXG FILTER: CH. CLASS 180

PEAK DATA: 23.64 G @ 19.76 MS; -0.12 G @ -0.32 MS

PART 572-E HYBRID III THORAX CALIBRATION

PENDULUM FORCE

TRC TEST NUMBER: 142C21TH1 572E SN142 H.S. THORAX CAL21 RUN NUMBER: 051994.1405,1



CHANNEL: PENXF FILTER: CH. CLASS 180 PEAK DATA: 5415.68 N @ 19.76 MS; -26.98 N @ -0.32 MS

PART 572-E HYBRID III THORAX CALIBRATION
STERNUM DISPLACEMENT

TRC TEST NUMBER: 142C21TH1

572E SN142 H.S. THORAX CAL21

RUN NUMBER: 051994.1405;1

150

120

90

60

30

0

-30

DISPLACEMENT (MM)

TIME (MS)

PEAK DATA: 70.35 MM @ 26.32 MS; -0.08 MM @ 1.36 MS

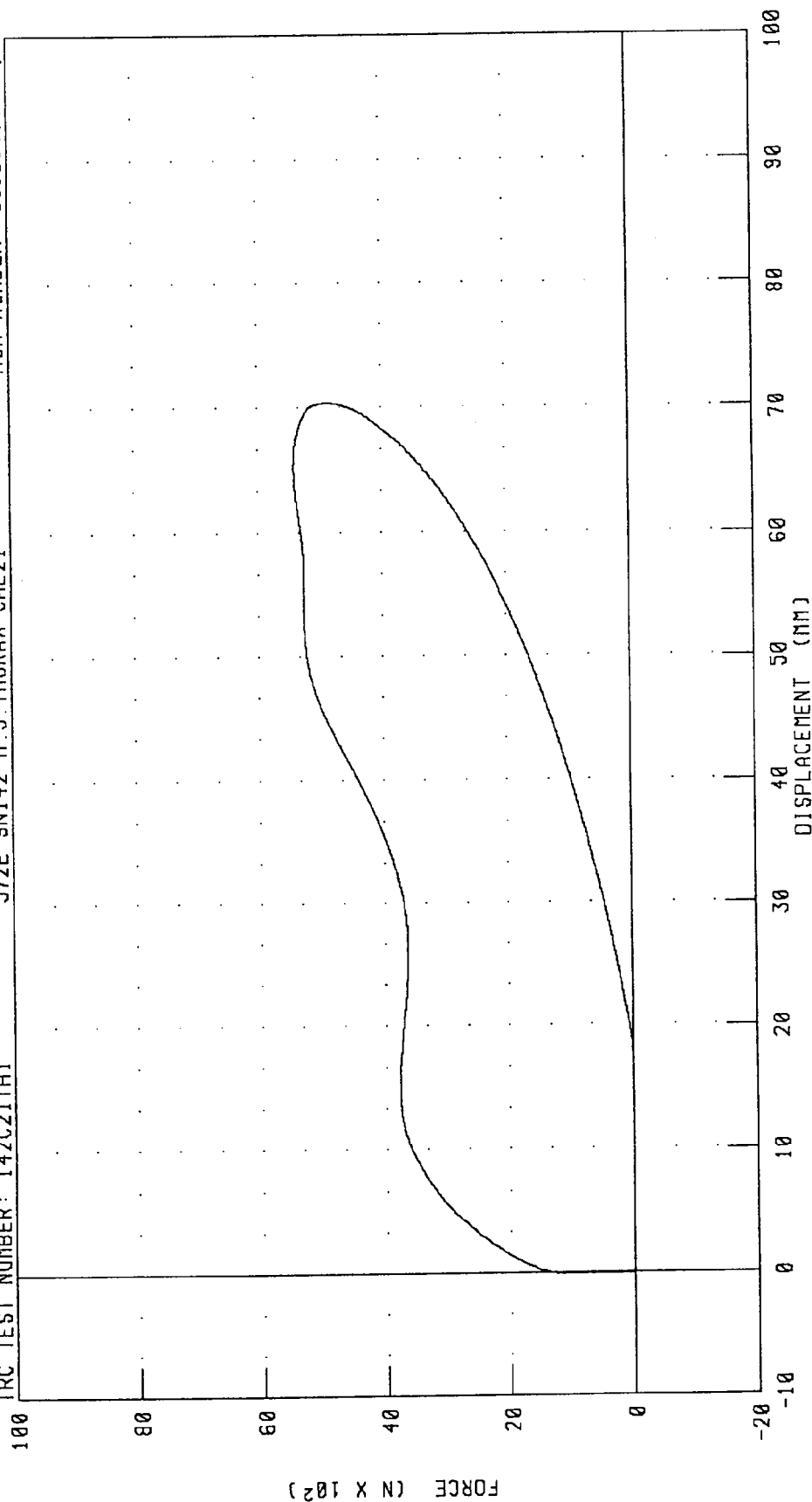
CHANNEL: CSTXD FILTER: CH. CLASS 180

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

TRC TEST NUMBER: 142C21TH1

572E SN142 H.S. THORAX CAL21

RUN NUMBER: 051994.1405;1



CHANNEL: CSTXD
PENXF

FILTER: CH. CLASS 180
CH. CLASS 180

PEAK DATA:

940516

TRANSPORTATION RESEARCH CENTER INC.

RIGHT KNEE IMPACT TEST

HYBRID III

28-MAR-94

TRC INC.

TEST NO: 142C21RK1

572E SN142 RIGHT KNEE CAL 21

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	18.9-25.6 DEG. C	21.1 DEG. C
RELATIVE HUMIDITY	10 - 70 %	51.0 %
PROBE VELOCITY	2.07 - 2.13 M/S	2.09 M/S
PEAK KNEE IMPACT FORCE 5.0 KG PENDULUM	4714 - 5783 N	5576.0 N

TEST MEETS SPECIFICATIONS

TECHNICIAN

Chas. Middel

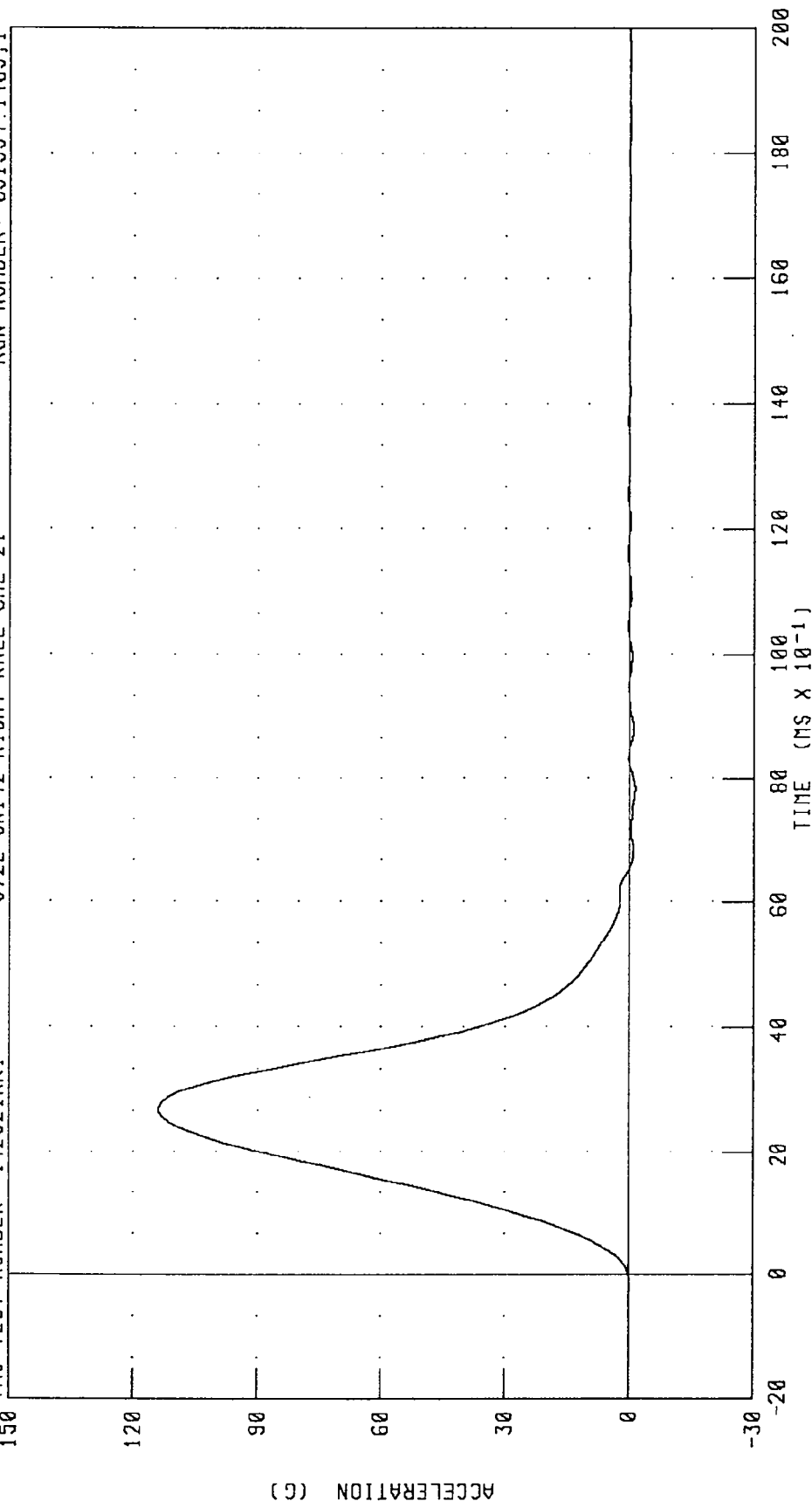
RUN NUMBER: 032894.1309;1

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

TRC TEST NUMBER: 142C21RK1

572E SNI42 RIGHT KNEE CAL 21

RUN NUMBER: 051994.1405;1



PEAK DATA: 113.96 G @ 2.72 MS; -1.37 G @ 7.84 MS

CHANNEL: PENXG FILTER: CH. CLASS 600

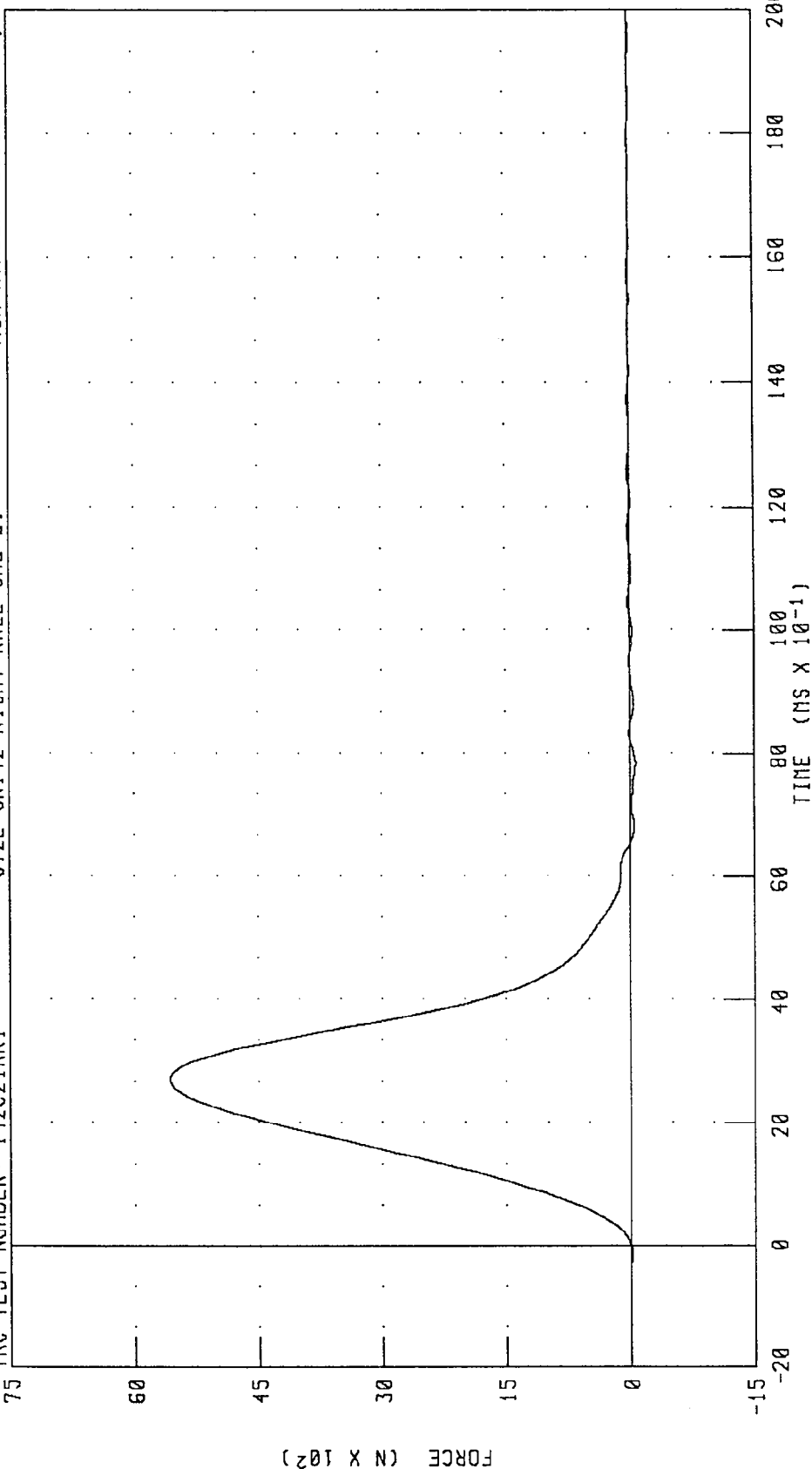
PART 572-E HYBRID III RIGHT KNEE CALIBRATION

PENDULUM FORCE (5 KG PEND.)

TRC TEST NUMBER: 142C21RK1

572E SNI42 RIGHT KNEE CAL 21

RUN NUMBER: 051994.1405.1



CHANNEL: PENXF FILTER: CH. CLASS 600

TRANSPORTATION RESEARCH CENTER INC.

LEFT KNEE IMPACT TEST

HYBRID III

28-MAR-94

TRC INC.

TEST NO: 142C21LK1

572E SN142 LEFT KNEE CAL 21

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	18.9-25.6 DEG. C	21.1 DEG. C
RELATIVE HUMIDITY	10 - 70 %	51.0 %
PROBE VELOCITY	2.07 - 2.13 M/S	2.10 M/S
PEAK KNEE IMPACT FORCE 5.0 KG PENDULUM	4714 - 5783 N	5272.6 N

TEST MEETS SPECIFICATIONS

TECHNICIAN Chas. Middleton

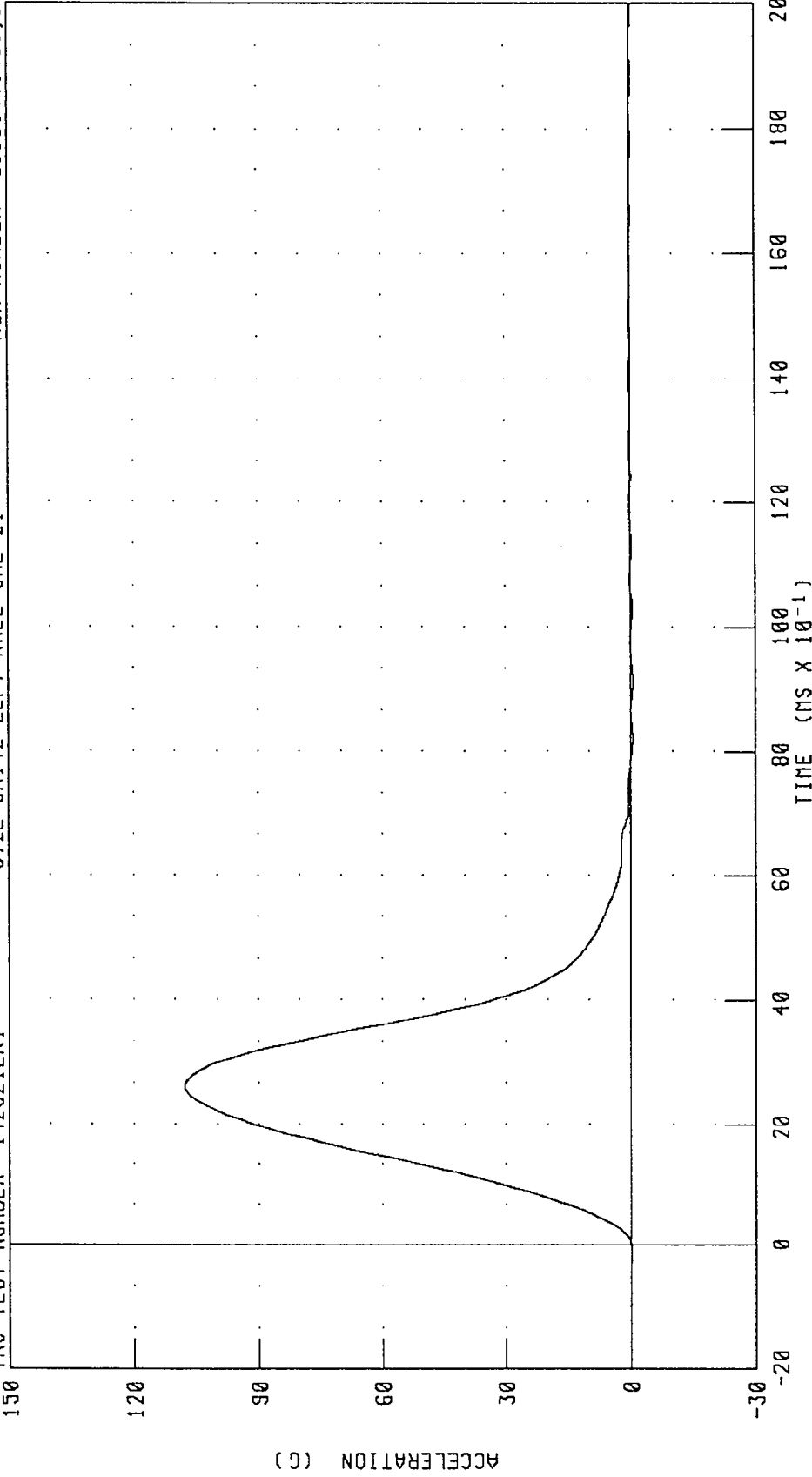
RUN NUMBER: 032894.1304;1

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

TRC TEST NUMBER: 142C21LK1

572E SN142 LEFT KNEE CAL 21

RUN NUMBER: 051994.1405.1



CHANNEL: PENXG FILTER: CH. CLASS 600

PEAK DATA: 107.76 G @ 2.64 MS; -0.64 G @ 9.12 MS

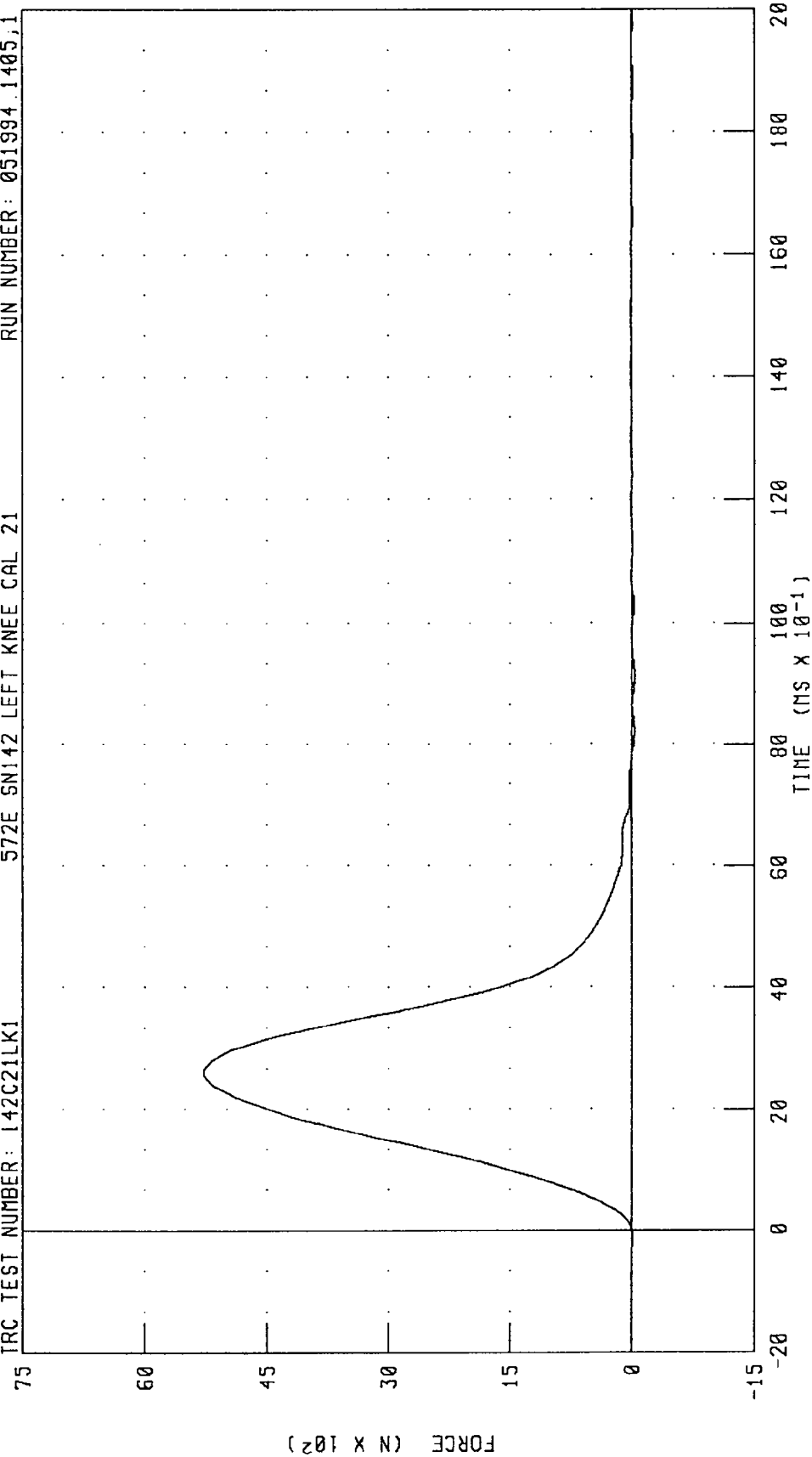
PART 572-E HYBRID III LEFT KNEE CALIBRATION

PENDULUM FORCE (5 KC PEND.)

572E SN142 LEFT KNEE CAL 21

RUN NUMBER: 051994.1405.1

TRC TEST NUMBER: 142C21LK1



PEAK DATA: 5272.67 N @ 2.64 MS; -31.38 N @ 9.12 MS

CHANNEL: PENXF FILTER: CH. CLASS 600

APPENDIX D

MISCELLANEOUS TEST INFORMATION

DUMMY INSTRUMENT CALIBRATIONS

DRIVER DUMMY #192

	SERIAL NO.	MODEL NO.	MFR.	CALIBRATION DATE	
				LAST	DUE
HEAD X-AXIS ACCELEROMETER	AAL82	7264	ENDEVCO	03/28/94	09/28/94
Y-AXIS ACCELEROMETER	A84JJ	7264	ENDEVCO	03/28/94	09/28/94
Z-AXIS ACCELEROMETER	DW04J	7264	ENDEVCO	03/28/94	09/28/94
CHEST X-AXIS ACCELEROMETER	CT22H	7264	ENDEVCO	03/28/94	09/28/94
Y-AXIS ACCELEROMETER	AC708	7264	ENDEVCO	03/28/94	09/28/94
Z-AXIS ACCELEROMETER	CW59H	7264	ENDEVCO	03/28/94	09/28/94
LEFT FEMUR FORCE LOAD CELL	986	2430	GSE	03/25/94	09/25/94
RIGHT FEMUR FORCE LOAD CELL	987	2430	GSE	03/25/94	09/25/94
*NECK X-AXIS FORCE LOAD CELL	085	1716	DENTON	03/28/94	09/28/94
Y-AXIS FORCE LOAD CELL	085	1716	DENTON	03/28/94	09/28/94
Z-AXIS FORCE LOAD CELL	085	1716	DENTON	03/28/94	09/28/94
*NECK MOMENT ABOUT X-AXIS LOAD CELL	085	1716	DENTON	03/28/94	09/28/94
MOMENT ABOUT Y-AXIS LOAD CELL	085	1716	DENTON	03/28/94	09/28/94
MOMENT ABOUT Z-AXIS LOAD CELL	085	1716	DENTON	03/28/94	09/28/94
*CHEST DEFLECTION POTENTIOMETER	87313-96	81422A	VERNITECH	03/28/94	09/28/94
LAP BELT FORCE LOAD CELL	674	3419	LEBOW	02/22/94	08/22/94
SHOULDER BELT FORCE LOAD CELL	616	3419	LEBOW	02/22/94	08/22/94

*HYBRID III USE ONLY.

DUMMY INSTRUMENT CALIBRATIONS

RIGHT FRONT PASSENGER DUMMY #142

	SERIAL NO.	MODEL NO.	MFR.	CALIBRATION DATE	
				LAST	DUE
HEAD X-AXIS ACCELEROMETER	FH25J	7264	ENDEVCO	03/28/94	09/28/94
Y-AXIS ACCELEROMETER	CY32H	7264	ENDEVCO	03/28/94	09/28/94
Z-AXIS ACCELEROMETER	DB81H	7264	ENDEVCO	03/28/94	09/28/94
CHEST X-AXIS ACCELEROMETER	DR49J7	7264	ENDEVCO	03/28/94	09/28/94
Y-AXIS ACCELEROMETER	AC8W6	7264	ENDEVCO	03/28/94	09/28/94
Z-AXIS ACCELEROMETER	CW42H	7264	ENDEVCO	03/28/94	09/28/94
LEFT FEMUR FORCE LOAD CELL	901	2430	GSE	03/25/94	09/25/94
RIGHT FEMUR FORCE LOAD CELL	902	2430	GSE	03/25/94	09/25/94
*NECK X-AXIS FORCE LOAD CELL	0280	1716	DENTON	03/28/94	09/28/94
Y-AXIS FORCE LOAD CELL	0280	1716	DENTON	03/28/94	09/28/94
Z-AXIS FORCE LOAD CELL	0280	1716	DENTON	03/28/94	09/28/94
*NECK MOMENT ABOUT X-AXIS LOAD CELL	0280	1716	DENTON	03/28/94	09/28/94
MOMENT ABOUT Y-AXIS LOAD CELL	0280	1716	DENTON	03/28/94	09/28/94
MOMENT ABOUT Z-AXIS LOAD CELL	0280	1716	DENTON	03/28/94	09/28/94
*CHEST DEFLECTION POTENTIOMETER	90320-B	81422A	VERNITECH	03/28/94	09/28/94
LAP BELT FORCE LOAD CELL	612	3419	LEBOW	02/22/94	08/22/94
SHOULDER BELT FORCE LOAD CELL	127	3419	LEBOW	02/22/94	08/22/94

*HYBRID III USE ONLY.

VEHICLE AND CALIBRATION LABORATORY INSTRUMENT CALIBRATIONS

VEHICLE ACCELEROMETERS

	SERIAL NUMBER	MODEL NUMBER	MFR.	CALIBRATION DATE	
				LAST	DUE
LEFT REAR SEAT CROSSMEMBER X-AXIS	AGRG8	7264	ENDEVCO	02/10/94	08/10/94
LEFT REAR SEAT CROSSMEMBER X-AXIS REDUNDANT	AGRG5	7264	ENDEVCO	03/07/94	09/07/94
RIGHT REAR SEAT CROSSMEMBER X-AXIS	CR26H	7264	ENDEVCO	12/30/93	06/30/94
RIGHT REAR SEAT CROSSMEMBER X-AXIS REDUNDANT	CK32H	7264	ENDEVCO	03/07/94	09/07/94
ENGINE TOP X-AXIS	CJ04H	7264	ENDEVCO	01/24/94	07/24/94
ENGINE BOTTOM X-AXIS	AC861	7264	ENDEVCO	04/28/94	10/28/94
RIGHT BRAKE CALIPER X-AXIS	CL98H	7264	ENDEVCO	03/28/94	09/28/94
LEFT BRAKE CALIPER X-AXIS	CL60H	7264	ENDEVCO	01/14/94	07/14/94
INSTRUMENT PANEL CENTER X-AXIS	DR87J	7264	ENDEVCO	01/24/94	07/24/94

CALIBRATION LABORATORY INSTRUMENTS

	SERIAL NUMBER	MODEL NUMBER	MFR.	CALIBRATION DATE	
				LAST	DUE
NECK BENDING PENDULUM ACCELEROMETER	CB27	7232	ENDEVCO	04/04/94	10/04/94
NECK BENDING ROTARY POTENTIOMETER	NA	35435-1-102	BOURNES	MFR. SPECIFICATION	
NECK BENDING LINEAR POTENTIOMETER	NA	5184-2051846003	BOURNES	04/05/94	10/05/94
THORAX/HYBRID II FEMUR PENDULUM ACCELEROMETER	CC64	7232	ENDEVCO	04/04/94	10/04/94
LUMBAR FLEXION FORCE GAUGE	NA	DPPH-50	CHATILLON	05/03/89	REPAIRED
LUMBAR FLEXION ROTATION GAUGE	CP17-0601-1	7020	HUMPHREY	MFR. SPECIFICATION	
ABDOMEN COMPRESSION DISPLACEMENT GAUGE	4075-175	80294-2051941504	BOURNES	04/05/94	10/05/94
ABDOMEN COMPRESSION FORCE GAUGE	3443	3167	LEBOW	04/05/94	10/05/94
HYBRID III FEMUR PENDULUM ACCELEROMETER	CG83	7232	ENDEVCO	04/04/94	10/04/94

SIGN CONVENTION
NHTSA DATA TAPE REFERENCE GUIDE

ACCELEROMETERS: +X: FORWARD
 +Y: LEFTWARD
 +Z: UPWARD

POTENTIOMETERS: +CHEST LONGITUDINAL DEFLECTION: OUTWARD
 +CHEST LATERAL DEFLECTION: LEFTWARD
 +SEAT BELT DISPLACEMENT: OUTWARD
 +SEAT BELT EXTENSION: ELONGATION
 +KNEE SLIDER DISPLACEMENT: DISTANCE BETWEEN FEMUR
 AND TIBIA INCREASED
 (IN RELATION TO A
 SEATED DUMMY)

LOAD CELLS: +FEMUR FORCE: TENSION
 +SEAT BELT FORCE: TENSION
 +BARRIER FORCE: TENSION

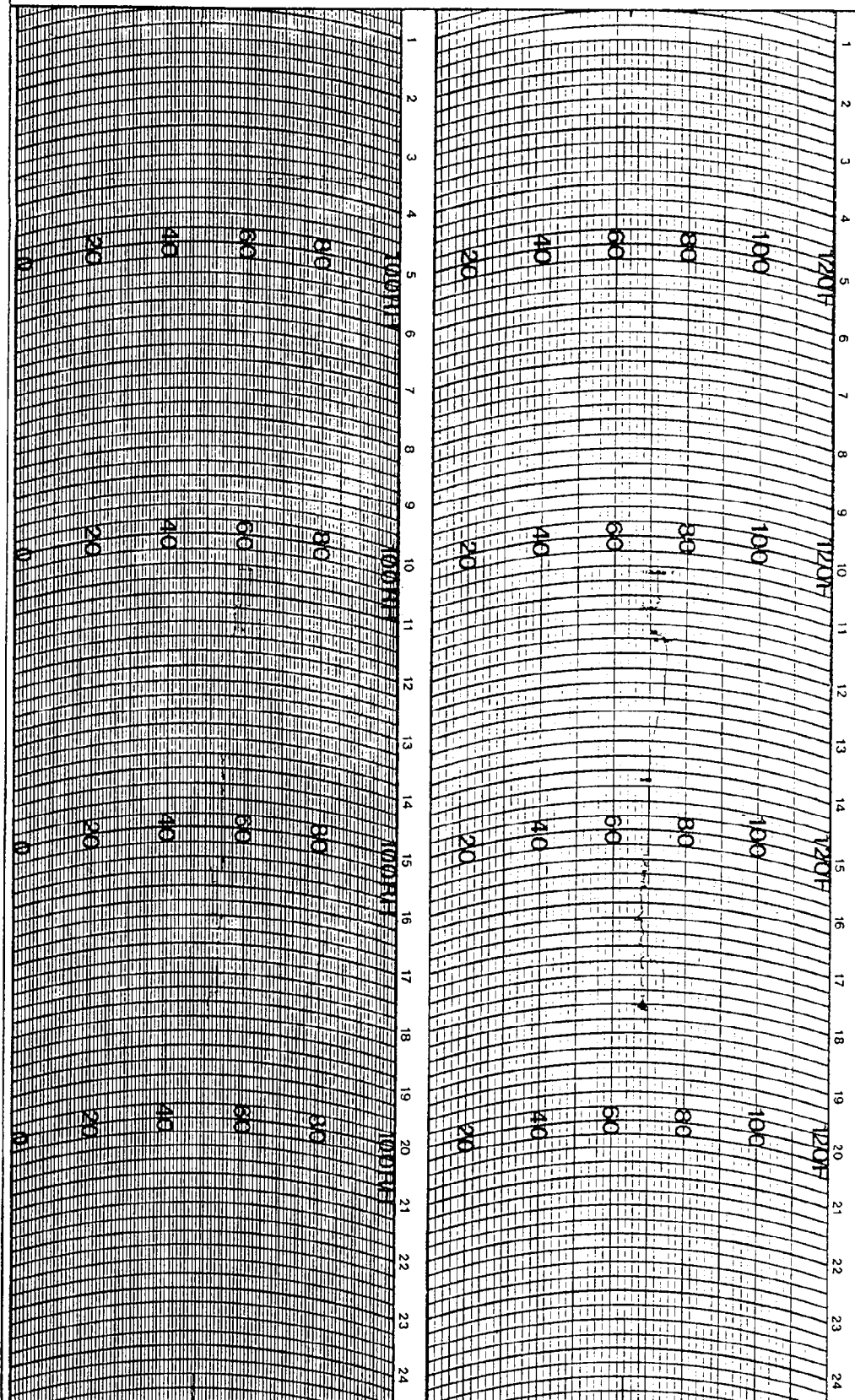
NECK LOAD CELLS: +X FORCE: HEAD PUSHED FORWARD
 +Y FORCE: HEAD PUSHED LEFTWARD
 +Z FORCE: HEAD PULLED UPWARD (TENSION ON NECK)
 +X MOMENT: RIGHT EAR ROTATING TOWARD RIGHT SHOULDER
 +Y MOMENT: CHIN ROTATING TOWARD CHEST
 +Z MOMENT: CHIN ROTATING TOWARD LEFT SHOULDER

TIBIA LOAD CELLS: +X FORCE: TENSION
 +Y FORCE: TENSION
 +Z FORCE: TENSION
 +X MOMENT: BOTTOM OF TIBIA MOVING LEFTWARD
 +Y MOMENT: BOTTOM OF TIBIA MOVING REARWARD

FREQUENCY RESPONSE CLASSES

SAE J211 OCT88

<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
Headform 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

Your Occupant Protection System

Your Honda is equipped with seat belts and other features that work together to protect you and your passengers during a crash.

Seat belts are the most important part of your occupant protection system. When worn properly, seat belts can reduce the chance of serious injury or death in a crash.

For added protection during a severe frontal collision, your Honda has a Supplemental Restraint System (SRS) with airbags for the driver and a front seat passenger. The Supplemental Restraint System is optional on the Canadian LX model.

Two indicator lights are also part of your safety system. One reminds you to make sure you and your passengers wear seat belts. The other alerts you to a possible problem with your supplemental restraint system (see page 15).

The seats, head restraints, and door locks also play a role in occupant safety. For example, reclining the seat-back can decrease the effectiveness of your seat belt. Head restraints can help protect your neck and head, especially during rear-end impacts. Door locks help keep your doors from being accidentally opened during a crash.

To get the maximum protection from your occupant protection system, check the following before you drive away:

- Everyone in the car is wearing a seat belt properly (see page 7).
- Infants and small children are properly secured in child safety seats (see page 19).
- All doors are closed and locked (see page 17).
- Seat-backs are upright (see page 17).
- There are no loose items that could be thrown around and hurt someone during a crash or sudden stop (see page 18).

By following these guidelines, you can reduce injuries to yourself and your passengers in many crash situations. Remember, however, that no safety system can prevent all injuries or deaths that can occur in severe crashes.

The Seat Belt System and How It Works

Why Wear Seat Belts

Wearing seat belts, and wearing them properly, is fundamental to your safety and the safety of your passengers.

During a crash or emergency stop, seat belts can help keep you from being thrown against the inside of the car, against other occupants, or out of the car.

Of course, seat belts cannot completely protect you in every crash. But, in most cases, seat belts reduce your chance of serious injury. They can even save your life. That is why many states and all Canadian provinces require you to wear seat belts.

WARNING

Not wearing a seat belt increases the chance of being killed or seriously hurt in a crash.

Be sure you and your passengers always wear seat belts and wear them properly.

Important Safety Reminders

Seat belts are designed for adults and larger children. All infants and small children must be properly restrained in child safety seats (see page 19).

A pregnant woman needs to wear a seat belt to protect herself and her unborn child (see page 10).

Two people should never use the same seat belt. If they do, they could be very seriously injured in a crash.

Do not place the shoulder portion of a lap/shoulder belt under your arm or behind your back. This could increase the chance of serious injuries in a crash.

Do not put shoulder belt pads or other accessories on seat belts. They can reduce the effectiveness of the belts and increase the chance of injury.

The Seat Belt System and How It Works

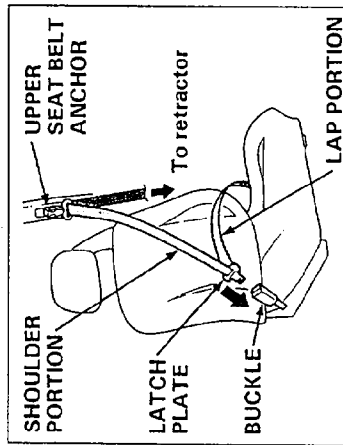
Seat Belt System Components

Your Honda has seat belts in all five seating positions. The front seats and the outside positions of the rear seat have lap/shoulder belts. The center position of the rear seat has a lap belt.

Your seat belt system also includes a light on the instrument panel to remind you to fasten your seat belt, and to make sure your passengers fasten theirs. This light comes on when you turn on the ignition if you have not fastened your seat belt. A beeper also sounds for several seconds (see page 34).

The following pages cover more about the seat belt components and how they work.

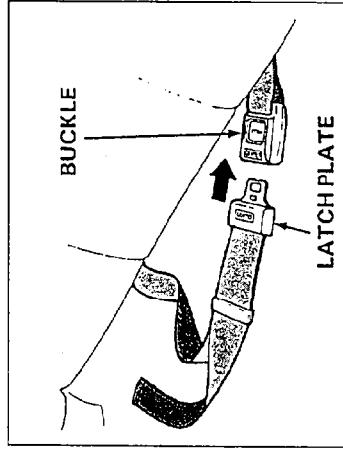
Lap/Shoulder Belt



This style of seat belt has a single belt that goes over your shoulder, across your chest, and across your hips.

Each lap/shoulder belt has an emergency locking retractor. In normal driving, the retractor lets you move freely in your seat while it keeps some tension on the belt. During a collision or sudden stop, the retractor automatically locks the belt to help restrain your body.

Lap Belt



The lap belt has one manually-adjusted belt that fits across the hips. It is similar to safety belts used in airplanes.

The Seat Belt System and How It Works

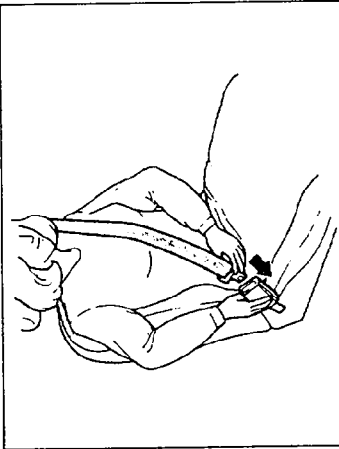
Wearing Seat Belts Properly
You can increase the effectiveness of your seat belts if you take a little time to read the following pages and make sure you know how to wear seat belts properly.

WARNING

Not wearing a seat belt properly increases the chance of serious injury or death in a crash.

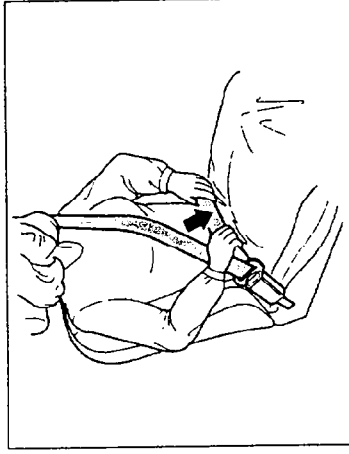
Be sure you and your passengers always wear seat belts and wear them properly.

Wearing a Lap/Shoulder Belt



Before putting on a front seat belt, be sure your seat is adjusted forward or backward to a good driving or riding position and the back of your seat is upright (see page 54).

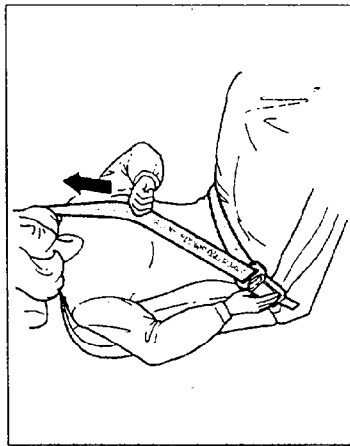
1. Pull the latch plate across your body and insert it into the buckle. Tug on the belt to make sure the latch is securely locked.



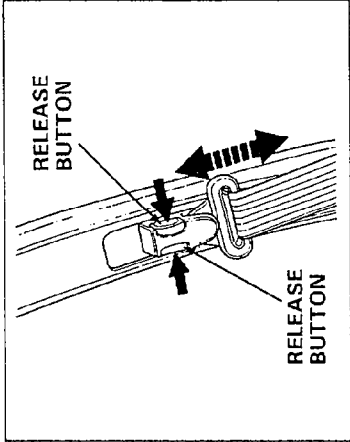
2. Check that the belt is not twisted.
3. Position the lap portion of the belt as low as possible across your hips, not across your stomach. This lets your strong pelvic bones take the force of a crash.

CONTINUED

The Seat Belt System and How It Works



4. Pull up on the shoulder part of the belt to remove any slack. Make sure the belt goes over your collarbone and across your chest.



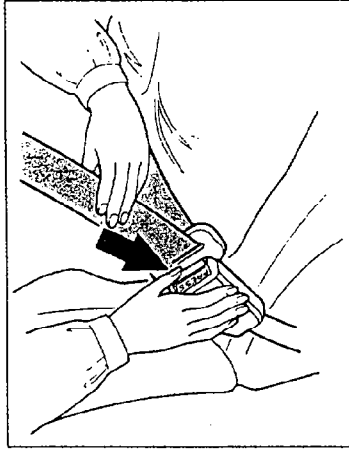
5. If the belt crosses your neck, you need to adjust the belt anchor height or your seating position.

Front seats:

Adjust the belt anchor by squeezing the two buttons and sliding the anchor downward (it has four positions).

Rear seat:

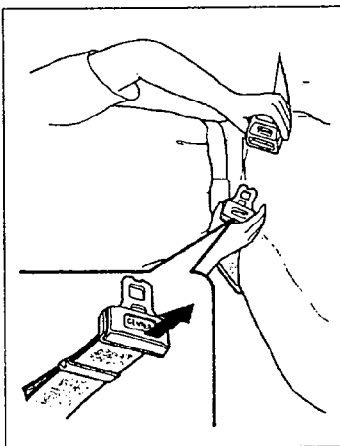
Move toward the center of the seat until the belt fits over your collarbone.



To unlatch the seat belt, push the red PRESS button on the buckle. Guide the belt across your body to the door pillar. If the belt doesn't retract easily, pull it out and check for twists or kinks.

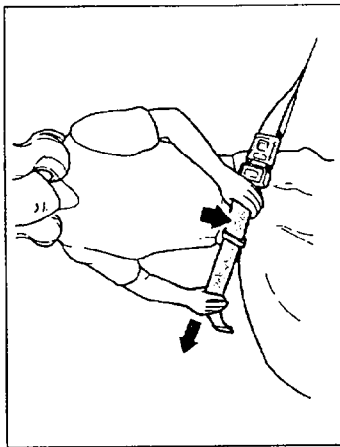
The Seat Belt System and How It Works

Wearing the Lap Belt

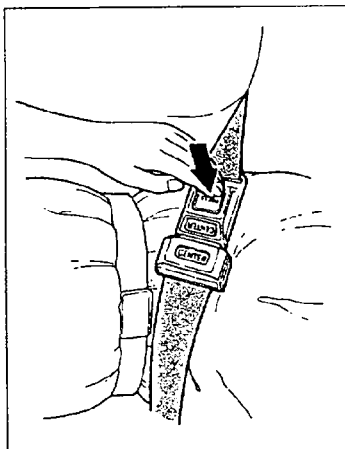


1. Pull the latch plate across your hips and insert it into the buckle marked **CENTER**.

If the belt is too short, hold the latch plate at a right angle and pull to extend the belt. Insert the latch plate into the buckle.



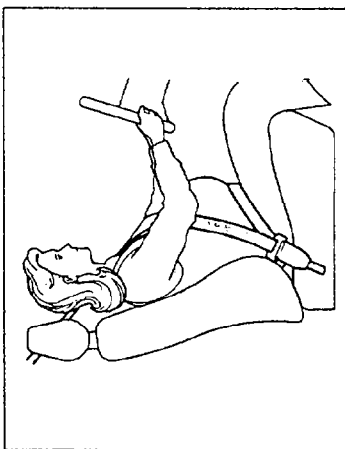
2. Position the belt as low as possible across your hips and pelvic bones, not across your stomach. Pull the loose end of the belt to adjust for a snug but comfortable fit.



To unlatch the belt, push the red **PRESS** button on the buckle.

The Seat Belt System and How It Works

Advice for Pregnant Women



Protecting the mother is the best way to protect her unborn child. Therefore, a pregnant woman should wear a properly-positioned seat belt whenever she drives or rides in a car.

If possible, use the lap/shoulder seat belt, remembering to keep the lap portion as low as possible (see page 7).

Each time you have a check-up, ask your doctor if it's okay for you to drive and how you should position a lap/shoulder seat belt.

Seat Belt Maintenance

For safety, you should check the condition of your seat belts regularly.

Pull out each belt fully and look for frays, cuts, burns, and wear. Check that the latches work smoothly and the lap/shoulder belts retract easily. Any belt not in good condition or not working properly should be replaced.

If a seat belt is worn during a crash, have your dealer replace the belt and inspect the anchors for damage.

For information on how to clean your seat belts, see page 163 .

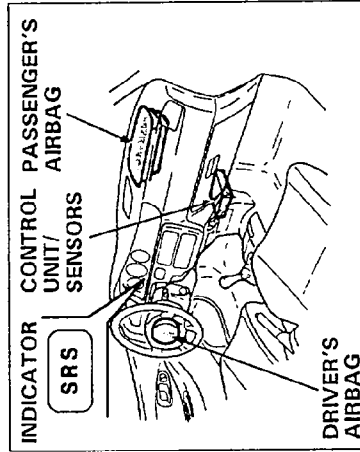
Supplemental Restraint System

Your Honda is equipped with a Supplemental Restraint System (SRS) to help protect your head and chest during a severe frontal collision. *This system does not replace your seat belt.* It supplements, or adds to, the protection offered by your seat belt.

WARNING

Not wearing a seat belt increases the chance of serious injury or death in a crash, even if you have an airbag.

Be sure you and your passengers always wear seat belts and wear them properly.



The main components in your SRS are:

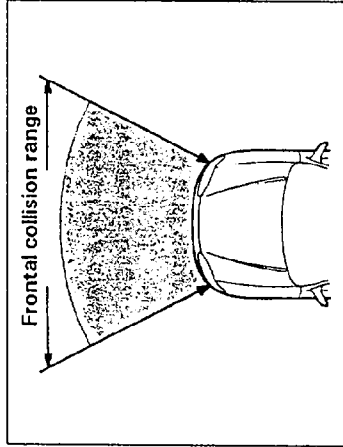
- One airbag in the steering wheel for the driver and another in the dashboard for the front passenger.
- A diagnostic system that, when the ignition is ON (II), continually monitors the control unit (including the sensors), airbag activator, and all related wiring.

CONTINUED

Supplemental Restraint System

- An indicator light to warn you of a possible problem with the system.
- Emergency power backup in case your car's electrical system is disconnected in a crash.

Important Safety Reminder



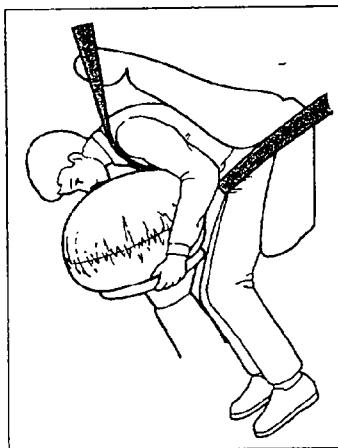
Even with an airbag, you need to wear a seat belt. The reasons are:

- An airbag inflates and deflates very quickly. It cannot protect you during any additional impacts that can occur during a crash.
- A seat belt helps keep you in the proper position when an airbag inflates. An airbag opens with considerable force and can hurt you if you are not in the proper position.

- Airbags only inflate in severe frontal collisions. They offer no protection in rear impacts, side impacts, rollovers, or moderate frontal collisions.

Supplemental Restraint System

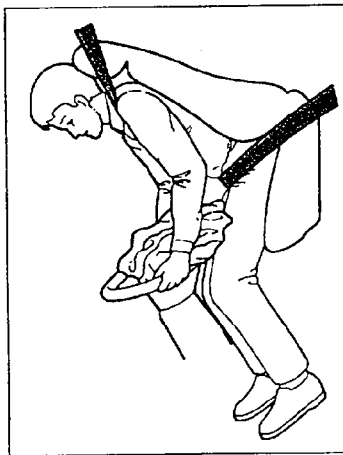
How the Driver's Airbag Works



If you ever have a severe frontal collision, your airbag will instantly inflate to help protect your head and chest.

When the airbag inflates, you may hear a fairly loud noise and you might see smoke or powder. This is normal; it is caused by the inflation of the airbag.

To do its job, the airbag inflates with considerable force. So, while it can reduce serious injuries and even save your life, the airbag might cause some facial abrasions or other injuries. For this reason, you should always sit as far back from the steering wheel as comfortable while still maintaining control.



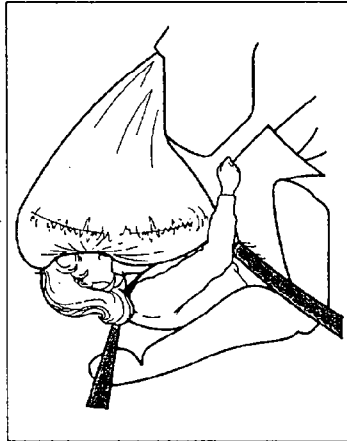
After the bag completely inflates, it immediately starts deflating so it won't interfere with your visibility, ability to steer, or ability to operate other controls. The total time for inflation and deflation takes less than a fraction of a second. You may not even be aware that the airbag has been fully inflated.

CONTINUED

Supplemental Restraint System

The airbag is stored in the center of the steering wheel. For your safety, do not attach any items to the steering wheel. They could interfere with the proper operation of the airbag. Or, if the airbag inflates, they could be propelled inside the car and hurt someone.

How the Passenger's Airbag Works



If you ever have a severe frontal collision, the passenger's airbag will inflate at the same time as the driver's airbag.

This airbag is quite large and inflates with considerable force. It can seriously hurt a front seat passenger who is not in the proper position and wearing the seat belt properly. Front seat passengers should move the seat as far back as practical and sit well back in the seat.

Because of the airbag, we strongly recommend that you do not put an infant seat in the front passenger's seat. If the airbag inflates, it can dislodge the infant seat and seriously injure the infant.

If a toddler seat is used in the front passenger's seat, the vehicle seat should be moved as far back as possible. If the passenger's bag inflates, it could seriously hurt a toddler who is not in the proper position or properly restrained.

Supplemental Restraint System

The passenger's airbag is stored near the top of the dashboard, under a lid marked SRS. Do not place any objects on top of this lid. If the airbag inflates, those objects can be propelled inside the car and possibly hurt someone.

SRS

How the SRS Indicator Light Works
The purpose of the SRS light on your instrument panel is to alert you of a potential problem with your supplemental restraint system.

Have the system checked if:

- The light does not come on when you turn the ignition ON (II).
- The light stays on after the engine starts.
- The light comes on or flashes while you are driving.

System Service

Your supplemental restraint system is virtually maintenance-free. There are no parts you can safely service.

You must have the system serviced by an authorized Honda dealer:

- If your airbags ever inflate. The airbags and control unit must be replaced. Do not try to remove or discard the airbags by yourself. This must be done by a Honda dealer.
- If the SRS indicator light alerts you of a problem. Have the supplemental restraint system checked as soon as possible. Otherwise, your airbag might not inflate when you need it.
- When the car is ten years old. Have the dealer inspect the system. The production date is on the driver's door jamb for your convenience.

Supplemental Restraint System

System Service Precautions
Do not modify your steering wheel or any other part of the supplemental restraint system. Modifications could make the system ineffective.

Do not tamper with the system's components or wiring. This could cause the airbag to inflate inadvertently, possibly injuring someone very seriously.

Tell anyone who works on your car that you have a supplemental restraint system. Failure to follow the procedures and precautions in the official Honda service manual could result in personal injury or damage to the system.

Scrapping an entire car that has an uninflated airbag can be dangerous. Get assistance from a Honda dealer if your car must be scrapped.

If you sell your car, please be sure to tell the new owner that the car has a supplemental restraint system. Alert them to the information and precautions in this part of the owner's manual.