V2059

REPORT NO. MGA-94-N009

NEW CAR ASSESSMENT PROGRAM (NCAP)

FRONTAL BARRIER IMPACT TEST

Nissan
1994 Nissan Stanza Altima
4 Door
NHTSA NO. MR5201

MGA PROVING GROUNDS
5000 WARREN ROAD
BURLINGTON, WI 53105

Test Date: March 21, 1994

Report Date: April 6, 1994

FINAL REPORT

Prepared For:

U. S. DEPARTMENT OF TRANSPORTATION
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
OFFICE OF MARKET INCENTIVES
400 SEVENTH STREET, S.W.
Room No. 5313 (NRM-22)
400 Seventh Street, S.W.
Washington, D.C. 20590

This publication is distributed by the U.S. Department of Transportation, National Highway Traffic Safety Administration, in the interest of information exchange. The opinions, findings and conclusions expressed in this publication are those of the author(s) and not necessarily those of the Department of Transportation or the National Highway Traffic Safety for its contents or use thereof. If trade or manufacturers' names or products are mentioned, it is only because they are considered essential to the object of the publication and should not be construed as an endorsement. The United States Government does not endorse products or manufacturers.

This Final Test Report was prepared for the U.S. Department of Transportation, National Highway Traffic Safety Administration, under Contract No. DTNH22-90-D-12121. This document is disseminated under the sponsorship of the U.S. Dept. of Transportation in the interest of information exchange. The United States Government assumes no liability for its contents or use thereof.

APPROVED BY: John Fleck

John Fleck
MGA Research Corporation

FINAL REPORT ACCEPTED BY:

Manager, New Car Assess. Program (NCAP)

JUN 13 1994

Date of Report Acceptance

Contracting Officer's Tech. Rep. (COTR)

JUN 13 1994

Date of Report Acceptance

TECHNICAL REPORT STANDARD TITLE PAGE

1. Report No. MGA-94-N009	2. Government Accession No.	3. Recipient's Catalog No.
4. Title and Subtitle NHTSA New Car Assessment Program (NCAP) Frontal Barrier Impact Test on a 1994 Nissan Stanza Altima to the requirements FMVSS No. 208, 212, 219 (partial) and 301.		5. Report Date April 6, 1994 6. Performing Organization Code MGA
7. Author(s) John Fleck		8. Performing Organization Report No. MGA-OMI-009
9. Performing Organization Name and Address MGA Research Corporation 5000 Warren Road Burlington, WI 53105		10. Work Unit No. MGA-94-DOT-1 11. Contract or Grant No. DTNH22-90-D-12121
12. Sponsoring Agency Name and Address U.S. Department of Transportation National Highway Traffic Safety Administration Office of Market Incentives (NRM-20) 400 Seventh St., S.W. Washington, D.C. 20590		13. Type of Report and Period Covered Final Report August 1993 - April 1994 14. Sponsoring Agency Code DOT/NHTSA/RM/OMI

15. Supplementary Notes

16. Abstract

A 56 kph (35 mph) frontal barrier impact using a 30 load cell barrier was conducted on a 1994 Nissan Stanza Altima 4 Door at the MGA Proving Grounds and Crash Test Center in Burlington, WI. on March 21, 1994.

The barrier impact velocity was 56.3 kph (35.0 mph), and the ambient temperature at the time of impact was 21° C. The post-test maximum static crush was 485 mm.

The test vehicle appeared to comply with the requirements of the following Federal Motor Vehicle Safety Standards:

1. FMVSS 212, "Windshield Mounting"
2. FMVSS 219 (partial), "Windshield Zone Intrusion"
3. FMVSS 301, "Fuel System Integrity"

With regard to FMVSS 208, "Occupant Crash Protection" injury criteria, the driver's HIC was 563.5 and the 3 msec. Clip (Chest g's) was 45.4 g's. The left and right maximum femur loads for the driver were 2986 and 3633 Newtons, respectively. The passenger's HIC was 905.8 and the 3 msec Clip was 54.1 g's. The left and right femur maximum loads were 3721 and 2304 Newtons respectively.

17. Key Words	18. Distribution Statement
35 mph Frontal Barrier Impact Test New Car Assessment Program (NCAP) FMVSS 212 Indicant Testing FMVSS 219 (partial) Indicant Testing FMVSS 301 Indicant Testing	Copies of this report are available from: Technical Ref. Division, National Highway Traffic Safety Adm., NASSIF Building, Room 5108 400 Seventh Street, S.W. Washington, D.C. 20590

19. Security Classif. (of this report)	20. Security Classif. (of this page)	21. No. of Pages	22. Price
Unclassified	Unclassified		

Form DOT F 1700.7 (8-69)

TABLE OF CONTENTS

SECTION 1

PURPOSE AND TEST PROCEDURE

This 35 mph frontal barrier impact test is part of the Composite FY'94 Vehicle Barrier Impact Testing Program sponsored by the National Highway Traffic Safety Administration (NHTSA) under Contract No. DTNH22-90-D-12121. The purpose of this test was to obtain vehicle crashworthiness and occupant restraint system performance data for an impact speed in excess of the current 48 kph (30 mph) FMVSS 208/212/219/301-75 requirements.

The 56 kph (35 mph) frontal barrier impact test was conducted in accordance with the National Highway Traffic Safety Administration (NHTSA) Indicant Test Procedure for New Car Assessment Program (NCAP) dated January 1, 1990. Data for FMVSS No. 212, "Windshield Mounting", FMVSS No. 219 (Partial), "Windshield Zone Intrusion", FMVSS No. 301-75, "Fuel System Integrity," as well as occupant performance data are provided herein.

SECTION 2

SUMMARY OF FRONTAL BARRIER IMPACT TEST

A load cell barrier consisting of 30 load cells was impacted by a 1994 Nissan Stanza Altima 4 Door at a velocity of 56.3 kph (35.0 mph). The test was performed at the MGA Proving Grounds and Crash Test Center on March 21, 1994. Pre- and post-test photographs of the vehicle and dummies can be found in Appendix A.

The frontal barrier impact event was documented by one real-time camera and 16 high speed cameras. Camera locations and other pertinent camera information can be found in this report.

Two Part 572E, 50th percentile male anthropomorphic test devices (ATDs) were placed in the driver and right-front passenger seating positions according to dummy placement instructions specified in the Laboratory Indicant Test Procedure.

Both ATDs were fully instrumented with head and chest triaxial accelerometers, neck load cell, and right/left femur load cells. The driver was also instrumented with right and left lower leg sensors. Seat belt load cells were also on the driver's and passenger's lap and shoulder belts to measure dummy torso and pelvic section loading. The driver ATD (Serial No. 36) had one prior exposure but did not exceed injury criteria. The right-front passenger ATD (Serial No. 66) was calibrated prior to this test. Certification details, along with instrumentation calibration data, are found in Appendix C and D.

The 62 channels of data were recorded on 6 computers. Appendix B contains the vehicle, load cell barrier and dummy response data traces.

The driver's head struck the inflated airbag. The driver HIC was 563.5. The maximum chest deceleration over 3 milliseconds was 45.4 G's. The left and right maximum femur loads were 2986 and 3633 Newtons respectively.

The right front passenger's head struck the passenger side inflated airbag. The right front passenger's HIC was 905.8 and maximum chest deceleration over 3 milliseconds was 54.1 g's. The left and right femur loads were 3721 and 2304 Newtons respectively.

GENERAL TEST AND VEHICLE PARAMETER DATA

Vehicle Yr/Make/Model/Body Style: 1994/Nissan/Stanza Altima/4 Door

NHTSA No.: MR5201 VIN.: 1N4BU31Ø0RC163Ø4Ø

Body color: Maroon Date of Manufacture: 1-94

Engine: 4 Cylinders; __C.I.D.; 2.4Liters; __CC

X Gas; __Diesel; __Turbocharged

__Longitudinal; X Transverse

Transmission: 3 Speed; __Manual; X Automatic; X Overdrive

Final Drive: X Front Wheel; __Rear Wheel; __Four Wheel

Odometer Reading: 119

X A/C; X P/S; X P/B; X P/wdo;

__P/seats; X Tilt Wheel; X Cruise Control;

Type of Occupant Restraint: Type II belt system and driver & passenger airbag

DATA RECORDED FROM VEHICLE'S TIRE PLACARD:

Tire Pressure (at capacity): Front 2.1 kg/cm^2 32 Psi; Rear 2.1 kg/cm^2 32 Psi:

Recommended Tire Size: P2Ø5/6ØR15

Recommended Cold Tire Pressure: Front 2.1 kg/cm^2; Rear 2.1 kg/cm^2

Tires on Vehicle: P2Ø5/6ØR15 ; Manufacturer: Goodyear

Number of Occupants: 2 Front; 3 Rear; __3rd Seat; 5 TOTAL

Type of Front Seats: X Bucket; __Bench; __Split Bench

Type of Front Seat Back: __Fixed; X Adj. With; X Lever; __Rot. Knob

Vehicle Capacity Weight (VCW) = 4Ø8.2 kg. (A)

No. of Occupants x 68.Ø kg. = 34Ø.Ø kg. (B)

Rated Cargo Weight (RCW) A-B = 68.2 kg.

GVWR 1835.7 kg. GAWR: Front 1Ø29.7 kg.; Rear 844.6 kg.

GENERAL TEST AND VEHICLE PARAMETER DATA (Cont'd)

WEIGHT OF TEST VEHICLE AS RECEIVED FROM DEALER (WITH MAXIMUM FLUIDS) = UDW:

Right Front = 409.6 kg Right Rear = 219.5 kg

Left Front = 419.1 kg Left Rear = 227.7 kg

TOTAL FRONT WEIGHT = 828.7 kg (65 % of Total Vehicle Weight)

TOTAL REAR WEIGHT = 447.2 kg (35 % of Total Vehicle Weight)

TOTAL UNLOADED DELIVERED WEIGHT (UDW) = 1275.9 kg

CALCULATION FOR TARGET TEST WEIGHT:

UDW = Unloaded Delivered Weight 1275.9 kg

VCW = Vehicle Capacity Weight 408.2 kg DSC = Designated Seating Capacity 5

RCW = VCW - 68 (DSC) = 68.2 *kg

Target Test Weight = UDW + RCW + (2 dummies x 75.8 kg/dummy)

Target Test Weight = 1495.7 kg

WEIGHT OF TEST VEHICLE WITH REQUIRED DUMMIES AND CARGO:

Right Front = 441.8 kg Right Rear = 296.2 kg

Left Front = 462.2 kg Left Rear = 292.6 kg

TOTAL FRONT WEIGHT = 904.0 kg (60.6% of Total Vehicle Weight)

TOTAL REAR WEIGHT = 588.8 kg (39.4% of Total Vehicle Weight)

TOTAL TEST WEIGHT = 1492.8 kg

Weight of ballast secured in vehicle = 0 kg

Vehicle components removed to meet target weight: Rear seat, spare tire, rear seat back

VEHICLE ATTITUDE (all dimensions in mm):

Delivered Attitude: RF 718 LF 717 RR 713 LR 713

Test Attitude: RF 697 LF 693 RR 675 LR 679

Wheel Base: 2620 mm; C.G. = 1033 mm rearward of front wheel C/L

Remarks: None

*light trucks and MPVs RCW is 136 kgs or manufacturer's value, whichever is less

GENERAL TEST AND VEHICLE PARAMETER DATA (Cont'd)

POST-IMPACT DATA:

Type of Test: 35 mph Frontal Impact Impact Angle: 90°

Date of Test: March 21, 1994 Time of Test: 3:55 p.m.

Ambient Temperature: 21 °C (Spec. Range = 18.8 to 25.6°C)

Temperature in Occupant Compartment: 21 °C

Windshield Molding Temperature: 21 °C

Required Impact Velocity Range: 55.5 to 57.1 kph

Impact Velocity: primary = 56.3 kph; secondary = 56.3 kph

Distance From Front Bumper to Barrier Face When

Entering Speed Trap: 1210 mm

Exiting Speed Trap: 210 mm

VEHICLE REBOUND AND CRUSH (mm):

Vehicle Length: Pre-test = R 4409 C_L 4572 L 4427

Post-test = R 3953 C_L 4087 L 4012

Crush = R 456 C_L 485 L 415

Distance from front of test vehicle to point of impact (rebound):

R 677 mm C_L 639 mm L 698 mm

VISIBLE DUMMY CONTACT POINTS:

	Driver	Passenger
Head	To airbag	To airbag
Chest	To airbag	To airbag
Abdomen	No visible contact	No visible contact
Left Knee	To lower dash panel	To lower dash panel
Right Knee	To lower dash panel	To lower dash panel

GENERAL TEST AND VEHICLE PARAMETER DATA (cont'd)

	Front		Rear	
Door Opening	Left	Right	Left	Right
(without use of tools)	Yes	Yes	Yes	Yes

	Front		Rear	
Seat Movement	Left	Right	Left	Right
Seat Back Movement	Ø	Ø	Ø	Ø
Seat Shift (mm)	Ø	Ø	Ø	Ø

Glazing Damage

Backlight/Windshield Cracked windshield

Other Notable Impact Effects: None

SECTION 3

SUMMARY OF RESULTS FOR-------

FMVSS 212, "Windshield Mounting"

FMVSS 219 (Partial), "Windshield Zone Intrusion"

FMVSS 3Ø1-75, "Fuel System Integrity"

FMVSS NO. 212, "WINDSHIELD MOUNTING", DATA SHEET

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

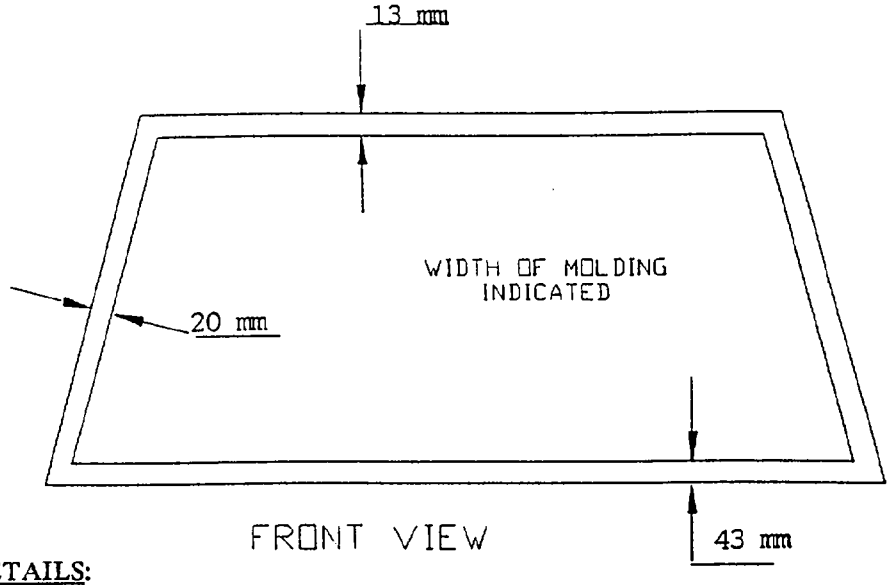
Windshield set in rubber molding within windshield frame

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.

FMVSS 212 TEST DATA:

	WINDSHIELD PERIPHERY		
	PRE-TEST (mm)	POST-TEST (mm)	PERCENT RETENTION
RIGHT SIDE	2110.0	2100.0	100%
LEFT SIDE	2100.0	2100.0	100%
TOTAL	4200.0	4200.0	100%

AREA OF RETENTION FAILURE: None



FAILURE DETAILS:

None

FMVSS NO. 219, "WINDSHIELD ZONE INTRUSION", DATA SHEET

PROTECTED ZONE LOWER EDGE REQUIREMENT:

The lower edge of the protected zone is determined by placing a 6.5" dia. rigid sphere weighing 15 pounds 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 contacted by the sphere across the width of the instrument panel. From the outermost contact 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 1/2" distant 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.

FMVSS 219 TEST DATA:

A= 1114 mm

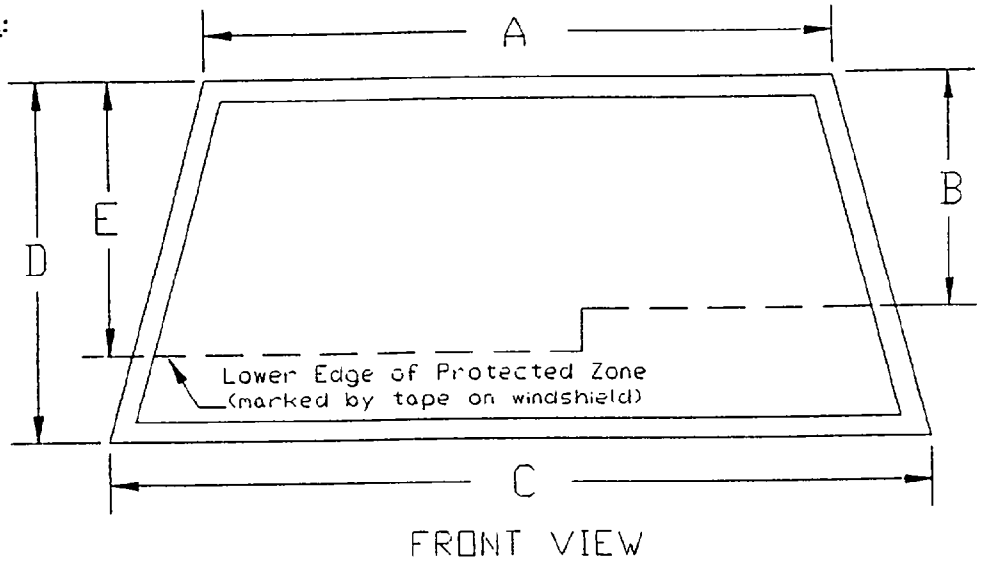
B= 465 mm

C= 1456 mm

D= 815 mm

E= 575 mm

F= 845 mm



FRONT VIEW

DETAILS OF WINDSHIELD GLASS PENETRATION GREATER THAN 1/4":

(Show location of penetration)

NONE

FMVSS NO. 301-75, FUEL SYSTEM INTEGRITY POST IMPACT TEST DATA

FMVSS NO. 301

TEST VEHICLE NHTSA NO.: MR5201 Test Date: March 21, 1994

Vehicle Mfgr./Make/Model: Nissan/Stanza Altima/4 Door

Usable Capacity of Vehicle's Fuel Tank: 60 Liters
(figure furnished by vehicle manufacturer)

TEST REQUIREMENTS:

Test vehicle's engine operated to "run dry" condition, and then a small amount of stoddard solvent which has been dyed red shall be added to the vehicle's fuel tank. Operate the fuel pump enough to completely fill the fuel system ahead of the fuel tank, and add 92 to 94% of the stated USABLE CAPACITY to the fuel tank.

AMOUNT OF STODDARD SOLVENT ADDED TO VEHICLE'S FUEL TANK:

55.6 Liters which is 93 % of the stated USABLE CAPACITY.

TEST VEHICLE IMPACT TYPE:

X Frontal (35 mph)

___ Oblique (30 mph) with ___° barrier face first contacting (driver/passenger) side

___ Rear Moving Barrier (30 mph)

___ Side Impact MDB (33.2 mph)

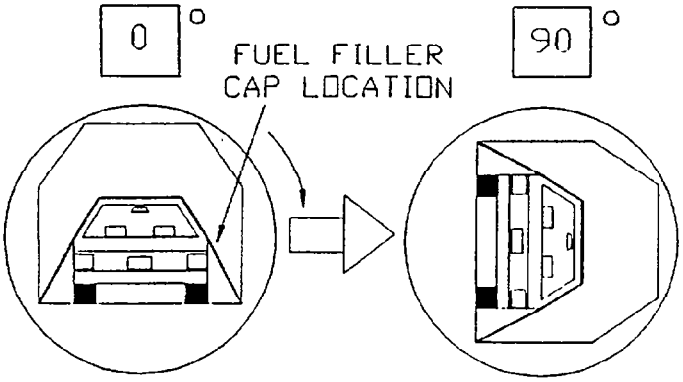
FUEL SPILLAGE MEASUREMENT:

	ACTUAL	MAX ALLOWED
1. From impact until vehicle motion ceases	0	1 OZ
2. For 5 minute period after vehicle motion ceases	0	5 OZ
3. For next 25 minutes	0	1 oz./1 MIN

SOLVENT SPILLAGE DETAILS: None

FMVSS NO. 301 STATIC ROLLOVER DATA SHEET

TEST PHASE: 0° - 90° Vehicle NHTSA ID No.: MR5201



I. DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:

Rollover Fixture 90° Rotation Time 2 minutes 48 seconds

(Spec. Range = 1 to 3 minutes)

FMVSS 301 Position Hold Time + 5 minutes 0 seconds

TOTAL 7 minutes 48 seconds

Next whole minute interval 8 minutes

II. FMVSS 301 REQUIREMENTS:

(1) Time Period

First 5 min FROM onset of rotation	6th min.	7th min.	8th min. if reqd.

(2) Maximum Allowable Solvent Spillage

5 ounces	1 ounce	1 ounce	1 ounce

III. ACTUAL TEST VEHICLE SOLVENT SPILLAGE:

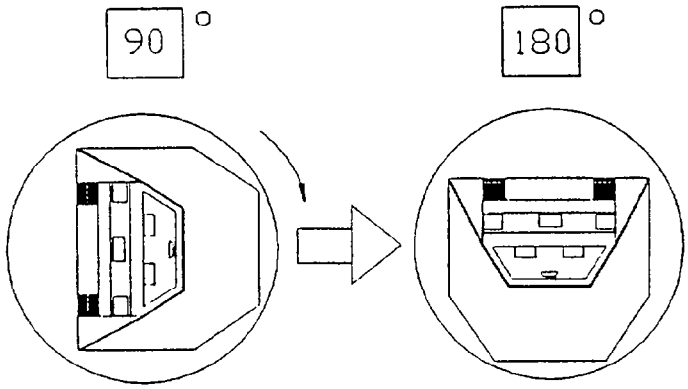
0	0	0	0

Note: Record Spillage for whole minute intervals only as determined above.

IV. SOLVENT SPILLAGE LOCATIONS(S): None

FMVSS NO. 301 STATIC ROLLOVER DATA SHEET

TEST PHASE: 90° - 180° Vehicle NHTSA ID No.: MR5201



I. DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:

Rollover Fixture 90° Rotation Time 2 minutes 17 seconds

(Spec. Range = 1 to 3 minutes)

FMVSS 301 Position Hold Time + 5 minutes 0 seconds

TOTAL 7 minutes 17 seconds

Next whole minute interval 8 minutes

II. FMVSS 301 REQUIREMENTS:

(1) Time Period

First 5 min FROM onset of rotation	6th min.	7th min.	8th min. if reqd.

(2) Maximum Allowable Solvent Spillage

5 ounces	1 ounce	1 ounce	1 ounce

III. ACTUAL TEST VEHICLE SOLVENT SPILLAGE:

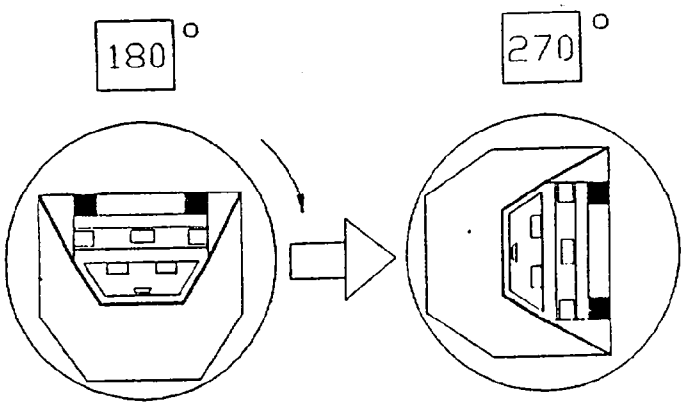
0	0	0	0

Note: Record Spillage for whole minute intervals only as determined above.

IV. SOLVENT SPILLAGE LOCATIONS(S): None

FMVSS NO. 301 STATIC ROLLOVER DATA SHEET

TEST PHASE: 180° - 270° Vehicle NHTSA ID No.: MR5201



I. DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:

Rollover Fixture 90° Rotation Time 2 minutes 27 seconds

(Spec. Range = 1 to 3 minutes)

FMVSS 301 Position Hold Time + 5 minutes 0 seconds

TOTAL 7 minutes 27 seconds

Next whole minute interval 8 minutes

II. FMVSS 301 REQUIREMENTS:

(1) Time Period

First 5 min FROM onset of rotation	6th min.	7th min.	8th min. if reqd.

(2) Maximum Allowable Solvent Spillage

5 ounces	1 ounce	1 ounce	1 ounce

III. ACTUAL TEST VEHICLE SOLVENT SPILLAGE:

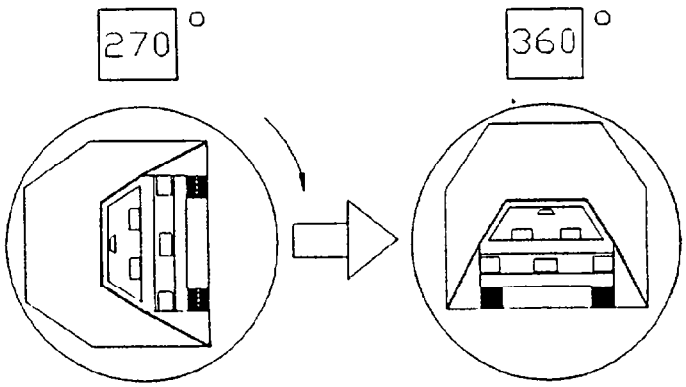
0	0	0	0

Note: Record Spillage for whole minute intervals only as determined above.

IV. SOLVENT SPILLAGE LOCATIONS(S): None

FMVSS NO. 301 STATIC ROLLOVER DATA SHEET

TEST PHASE: 270° - 360° Vehicle NHTSA ID No.: MR5201



I. DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:

Rollover Fixture 90° Rotation Time 2 minutes 47 seconds

(Spec. Range = 1 to 3 minutes)

FMVSS 301 Position Hold Time + 5 minutes 0 seconds

TOTAL 7 minutes 47 seconds

Next whole minute interval 8 minutes

II. FMVSS 301 REQUIREMENTS:

(1) Time Period

First 5 min FROM onset of rotation	6th min.	7th min.	8th min. if reqd.

(2) Maximum Allowable Solvent Spillage

5 ounces	1 ounce	1 ounce	1 ounce

III. ACTUAL TEST VEHICLE SOLVENT SPILLAGE:

0	0	0	0

Note: Record Spillage for whole minute intervals only as determined above.

IV. SOLVENT SPILLAGE LOCATIONS(S): None

SECTION 4

OMI FINAL DATA

Occupant and Vehicle Information

I. OMI DATA

1. "Occupant Crash Protection Data Sheet"
2. Dummy Positioning Data
3. Seat Belt Positioning Data
4. Seat Belt Performance Assessment Data
5. Camera Locations
6. Vehicle Target Locations

II. OVR DATA

1. Load Cell Barrier Data
2. Vehicle Accelerometer Data
3. Test Vehicle Measurements

III. AID DATA

1. Accident Investigation Damage Data Summary

FMVSS NO. 208, "OCCUPANT CRASH PROTECTION", DATA SHEET

VEH. YR./MAKE/MODEL/BODY STYLE: 1994/Nissan/Stanza Altima/4 Door

VEH. NHTSA NO.: MR5201 TEST DATE: March 21, 1994

MAXIMUM ACCELERATION VALUES: (g's)	DRIVER DUMMY #36	PASSENGER DUMMY #66
Head Channel X	-57.0	-64.0
Head Channel Y	-7.2	-12.7
Head Channel Z	28.5	40.8
HEAD RESULTANT	61.5	71.7
Chest Channel X	-45.9	-54.8
Chest Channel Y	10.8	-15.9
Chest Channel Z	6.3	-6.4
CHEST RESULTANT (CLIP)	45.4	54.1
TIME INTERVAL (msec) [0.003 seconds minimum]	t_1 = 61.7 t_2 = 64.7	t_1 = 62.6 t_2 = 65.6

HEAD INJURY CRITERIA (HIC) VALUES:

HIC	563.5	905.8
t_1 = (msec)	51.9	59.2
t_2 = (msec)	87.9	95.2
Avg. Accel. t_1 to t_2 (g's)	47.6	57.6

[The maximum time interval from t_1 to t_2 is 36 milliseconds.]

MAXIMUM FEMUR FORCES:

Right Side (N)	-3633	-2304
Left Side (N)	-2986	-3721

MAXIMUM SEAT BELT FORCES:

Lap Belt (N)	5339	7275
Shoulder Belt (N)	6056	7421

NOTE: All values listed must occur during primary impact event.
(Head X,Y,Z and R listed must be during t_1 to t_2 HIC interval)

HYBRID III NECK AND CHEST DATA SHEET

VEHICLE YR./MAKE/MODEL/BODY STYLE: 1994/Nissan/Stanza Altima/4 Door

VEHICLE NHTSA NO.: MR5201 TEST DATE: March 21, 1994

MAXIMUM VALUES	DRIVER DUMMY # 36	PASSENGER DUMMY #66
Neck Load X (N)	-601.6	565.2
Neck Load Y (N)	-95.6	236.7
Neck Load Z (N)	-2330.7	-1731.4
Neck Moment X (N.M)	11.4	-12.4
Neck Moment Y (N.M)	-41.8	-42.6
Neck Moment Z (N.M)	11.4	-13.5
Chest Deflection X (mm)	32.7	33.2
Time of Max. Occurrence	72 msec	78 msec

PART 572 DUMMY IN-VEHICLE POSITION

Test No.: MR5201 Vehicle: 1994 Nissan Stanza Altima 4 Door

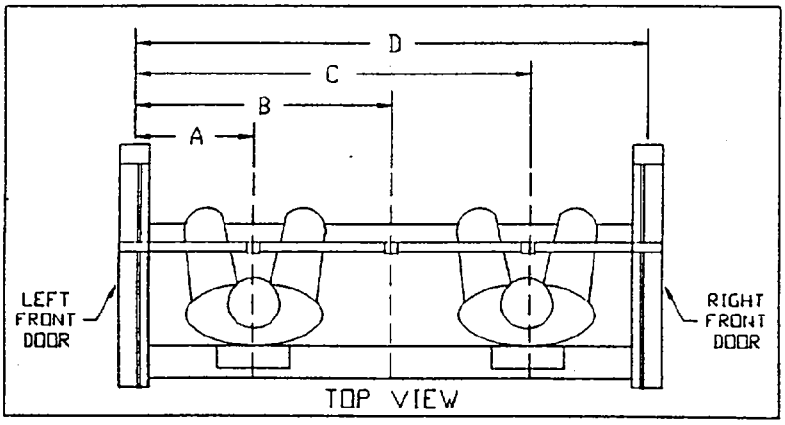
SEAT TYPE:	ADJUSTER TYPE:	BUCKET SEAT BACK TYPE:
	Driver	
X Bench	X Manual	____Fixed
____Bucket	____Power	X Adjustable Reclining
____Split Bench		
	Passenger	
	X Manual	
	____Power	

Driver

Seat notch 10th from rear

Passenger

Seat notch 10th from rear



36 DUMMY ID 66

A	= Left Door to Driver Centerline	376 mm
B	= Left Door to Vehicle Centerline	752 mm
C	= Left Door to Right Passenger Centerline	1102 mm
D	= Left Door to Right Door	1503 mm

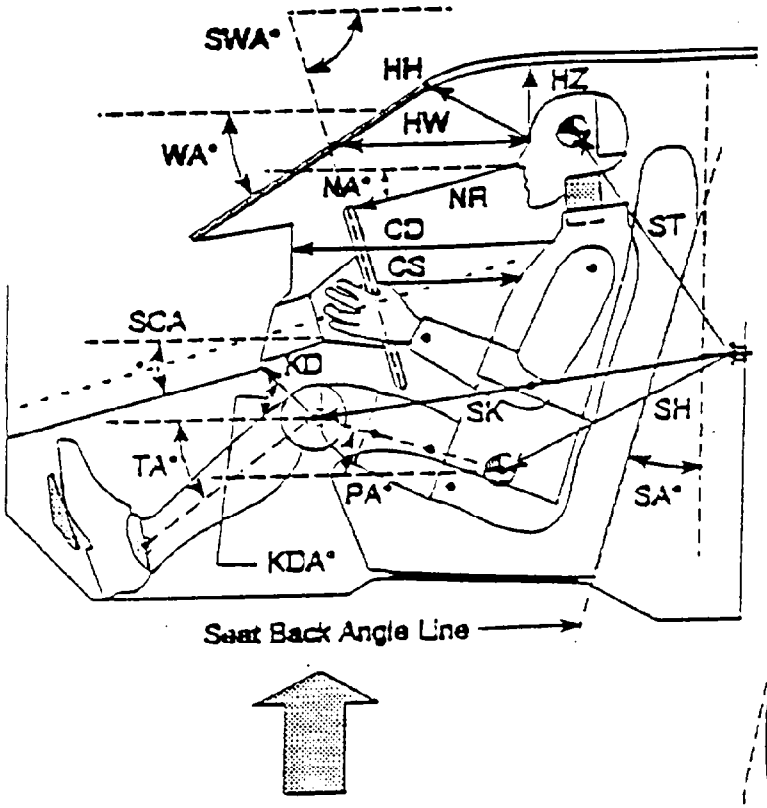
FRONT SEAT MEASUREMENT TABLE

Units (mm)

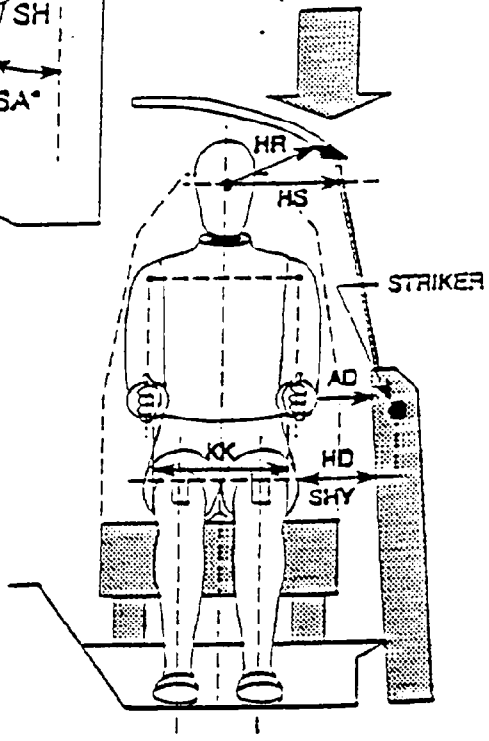
	DRIVER (Serial #36)	PASSENGER (Serial #66)
WA°	29.9°	29.9°
SWA°	66.2°	N/A
SCA°	23.8°	N/A
SA°	23°	23.1°
HZ	160	160
HH	292	295
HW	520	542
HR	218	212
NR	404 Angle 13.6°	N/A
CD	524	576
CS	320	N/A
RA	189	N/A
KDL	164 Angle 26.2°	160
KDR	152	162 Angle 28°
PA°	23.7°	24.1°
TA°	44°	39.9°
KK	284	249
ST	573 Angle 6.8°	547 Angle 9.7°
SK	600 Angle 3.1°	592 Angle -.9°
SH	234 Angle 26.4°	221 Angle 25.8°
SHY	232	216
HS	264	307
HD	174	161
AD	90	79

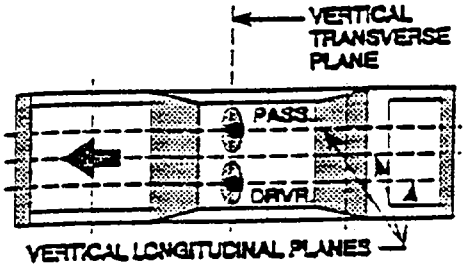
N/A = Not Applicable

FRONT SEAT MEASUREMENTS



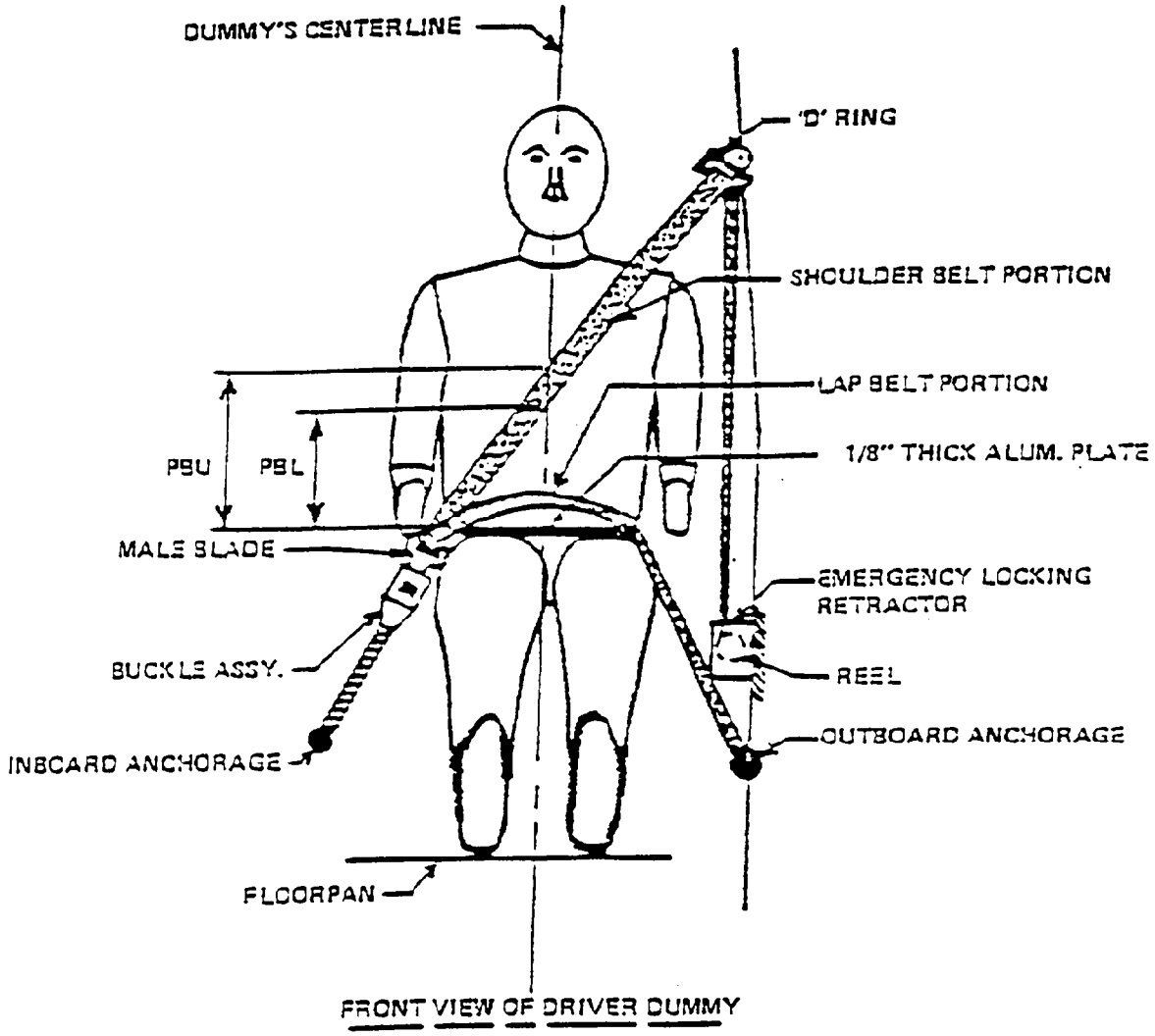
AD - Arm to Door
HD - H-Point to Door
HR - Head to Side Header
HS - Head to Side Window
KK - Knee to Knee
SHY- Striker to H-Point (Y Direction)





CD	-	Chest to Dash
CS	-	Steering Wheel to Chest
HH	-	Head to Header
HW	-	Head to Windshield
HZ	-	Head to Roof
KDA	-	Knee to Dash Angle
KDL	-	Left Knee to Dash
KDR	-	Right Knee to Dash
NA	-	Nose to Rim Angle
NR	-	Nose to Rim
PA	-	Pelvic Angle
RA	-	Rim to Abdomen
SA	-	Seat Back Angle
SCA	-	Steering Column Angle
SH	-	Striker to H-Point
SK	-	Striker to Knee
ST	-	Striker to Head
SWA	-	Steering Wheel Angle
TA	-	Tibial Angle
WA	-	Windshield Angle

SEAT BELT POSITIONING DATA



(illustration)

		DRIVER DUMMY	PASSENGER DUMMY
PBU --	Top surface of alum. plate to upper edge (mm)	340	338
PBL --	Top surface of alum. plate to belt lower edge (mm)	264	260

Note: Adjustable "D" ring set in 2nd position from bottom

SEAT BELT PERFORMANCE ASSESSMENT TEST DATA

BELT LENGTH DATA:	Driver	Passenger
Belt length from trim panel exit to bolt hole anchor point for continuous webbing systems.	154 mm	152 mm
Shoulder belt length as measured on Part 572 Dummy.	868 mm	858 mm
Lap belt length as measured on Part 572 Dummy.	758 mm	827 mm
SHOULDER BELT SPOOL-OFF DATA:		
As determined by film analysis	[1]	51 mm
As determined mechanically	54 mm	65 mm
As determined electronically	*	*
BELT STRETCH DATA:		
Measured electronically between shoulder belt load cell and the "D" ring.	*	*
Measured mechanically	Ø	Ø
RETRACTOR LOCK-UP TIME:		
As determined by shoulder belt spool-off observed in on-board cameras	30 msec	30 msec

* Electronic sensors not mounted due to limited space and/or possible interference with belt function.

[1] Cannot determine from film

CAMERA LOCATIONS

VEH. NHTSA NO.: MR5201 ; TEST DATE: March 21, 1994 ; TIME: 3:55 p.m.

VEH. YEAR/MAKE/MODEL/BODY STYLE: 1994/Nissan/Stanza Altima/4 Door

	VIEW	CAMERA POSITIONS (mm.)*			ANGLE (deg)	FILM PLANE TO HEAD TARGET	LENS (mm)	SPEED (fps)
		X	Y	Z				
1	Real-Time Left Side View						10	24
3	Left Front View	800	7700	1100	90°	7300	25	no timing
15	Steering Column Top	2000	7900	1570	90°	7500	25	1000
16	Steering Column Bottom	2000	7900	1070	90°	7500	25	1000
12	Left Driver Close-up	1370	7050	1100	90°	6650	50	1170
9	Left Angle	3900	3600	2170	50°		25	694
13	Driver Onboard Seat Belt						35	1015
14	Passenger Onboard Seat Belt						35	939
2	Right Overall	2050	-6740	1100	90°	6340	13	1000
17	Right Front	560	-7120	1060	90°	6720	25	800
11	Right Passenger Close-up	1300	-5000	1080	90°	4600	35	1274
10	Right Angle	5000	-5900	2100	50°		50	1005
4	Top View Wide	300	0	4370			13	1111
8	Top Driver	-400	300	2440			13	N/A
7	Top Passenger	-400	-400	2440			13	1010
5	Pit Engine	1000	0	-3150			13	930
6	Pit Fuel Tank	2700	0	-3000			13	1379

COORDINATES:

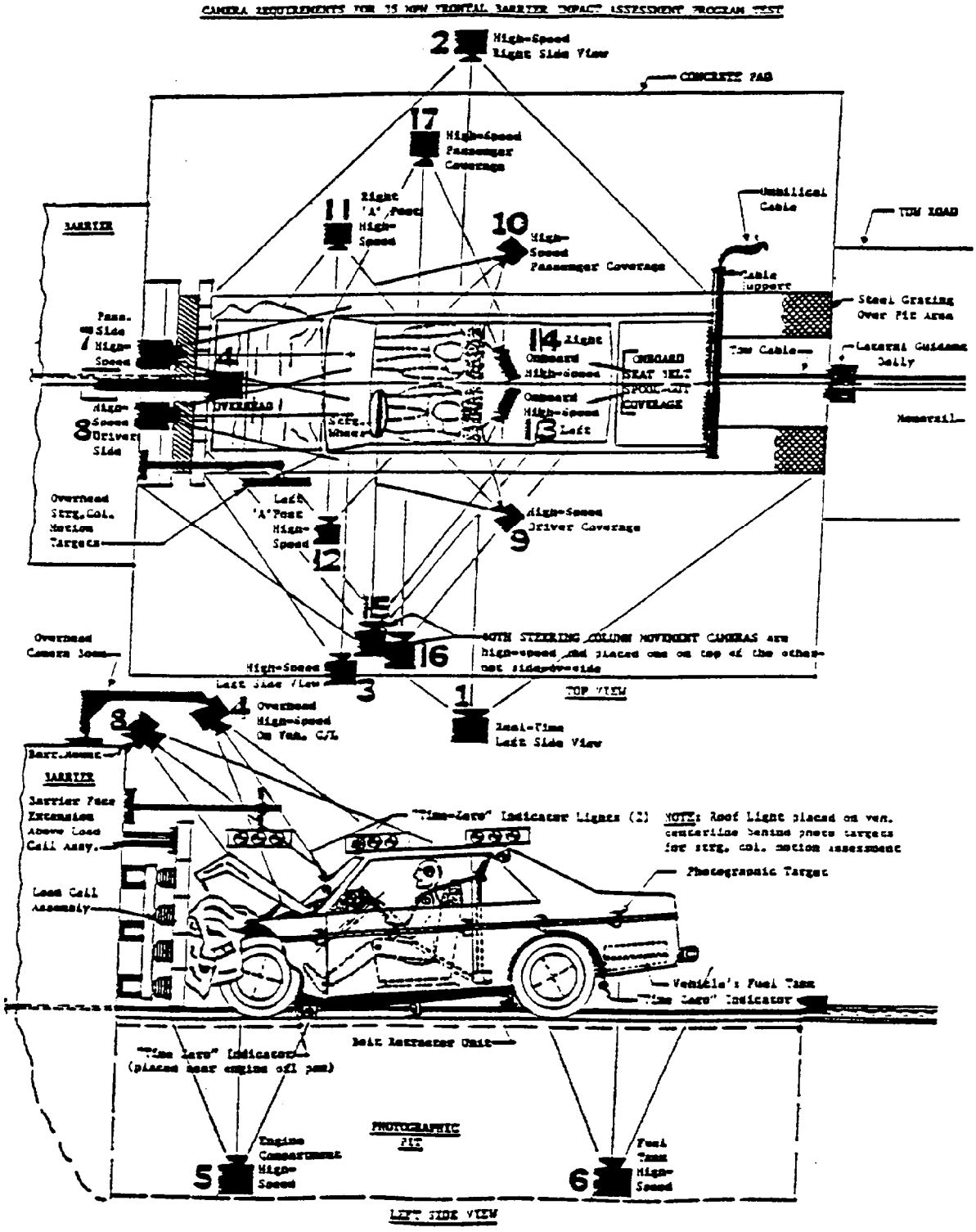
* X = film plane to monorail centerline

Y = film plane to barrier face

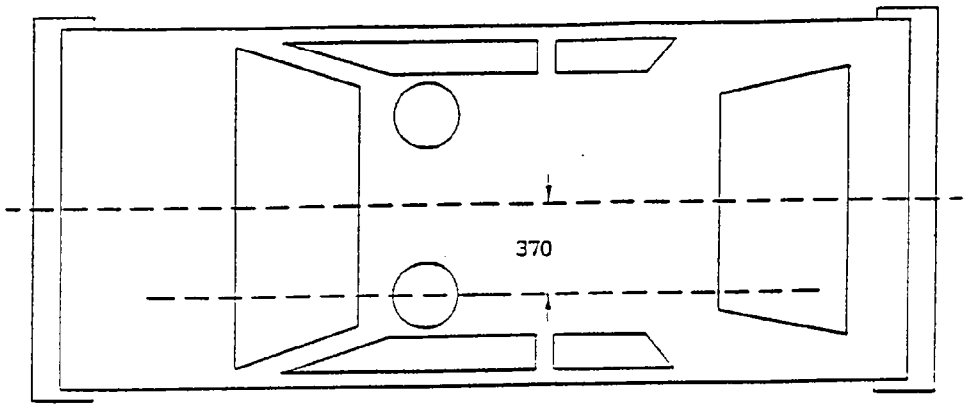
Z = film plane to ground

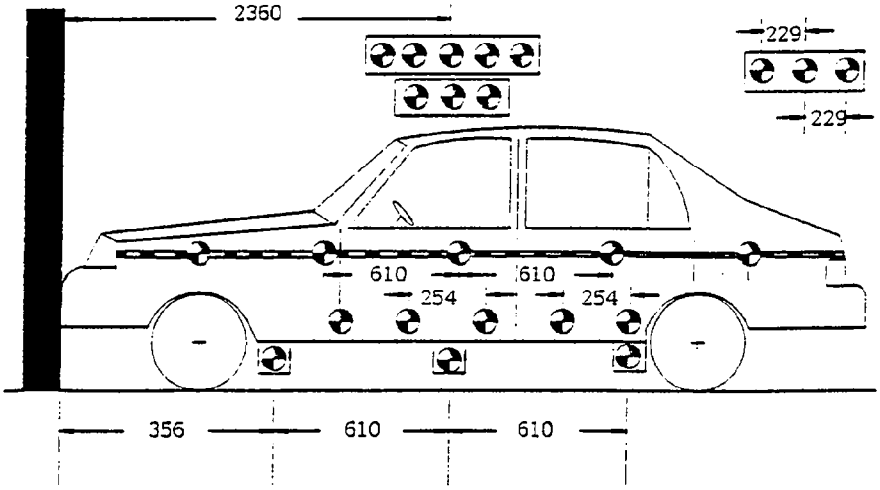
ORIGIN: For X and Y it is the Impact Point. For Z it is the Floor.

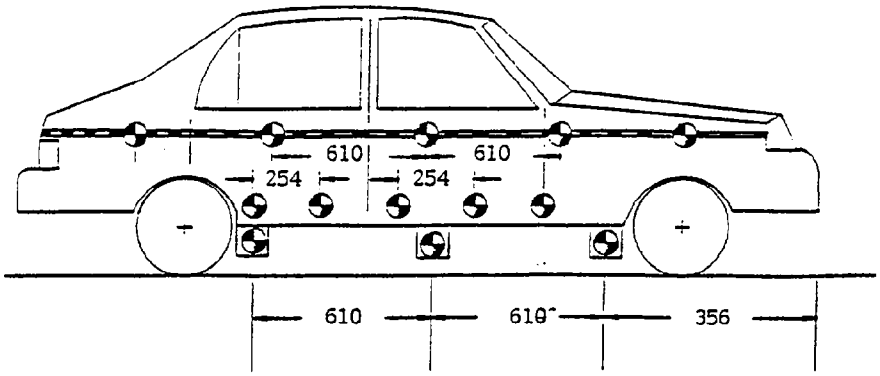
CAMERA LOCATIONS (CONTINUED)



VEHICLE TARGET LOCATIONS







(DIMENSIONS IN MM)

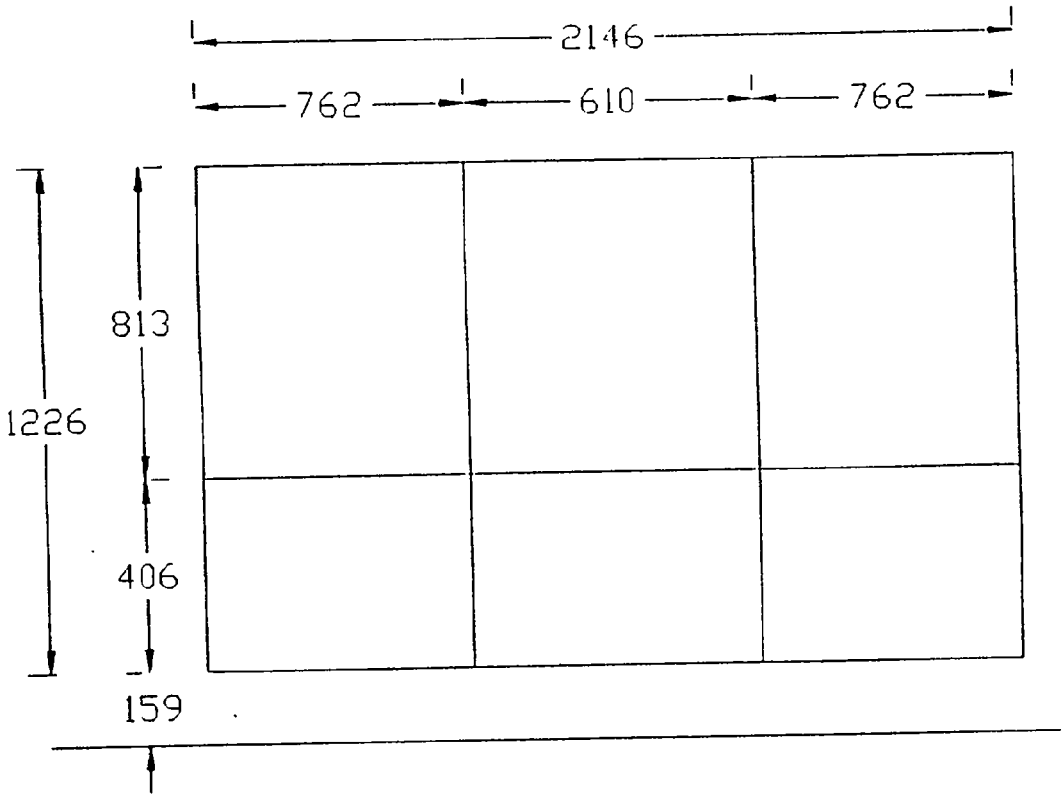
LOAD CELL LOCATIONS ON FIXED BARRIER

30 Load Cells

6 Rows

9 Columns

6 Groupings (5 cells/group)

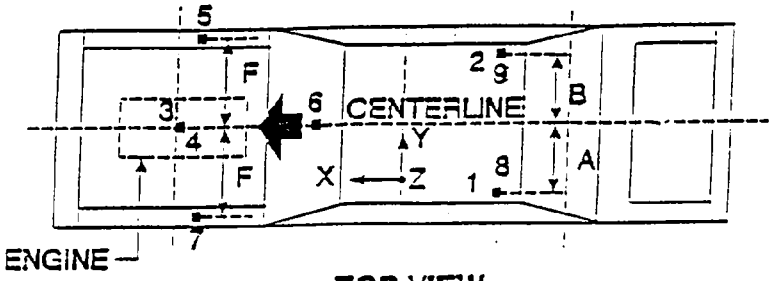


The following data is presented in Appendix B:

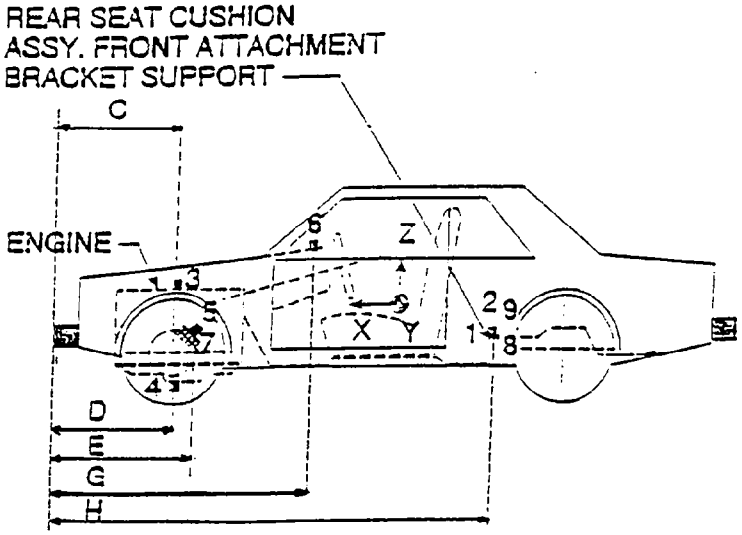
(1) Total or Sum of 30 individual load cells

(2) Data from 6 Groupings shown above (5 cells/group)

VEHICLE ACCELEROMETER LOCATION AND DATA SUMMARY



TOP VIEW



LEFT SIDE VIEW

Units: (mm)

Dimension	Length
A	-382
B	370
C	685
D	732
E	844
F	572
G	1570
H	2890

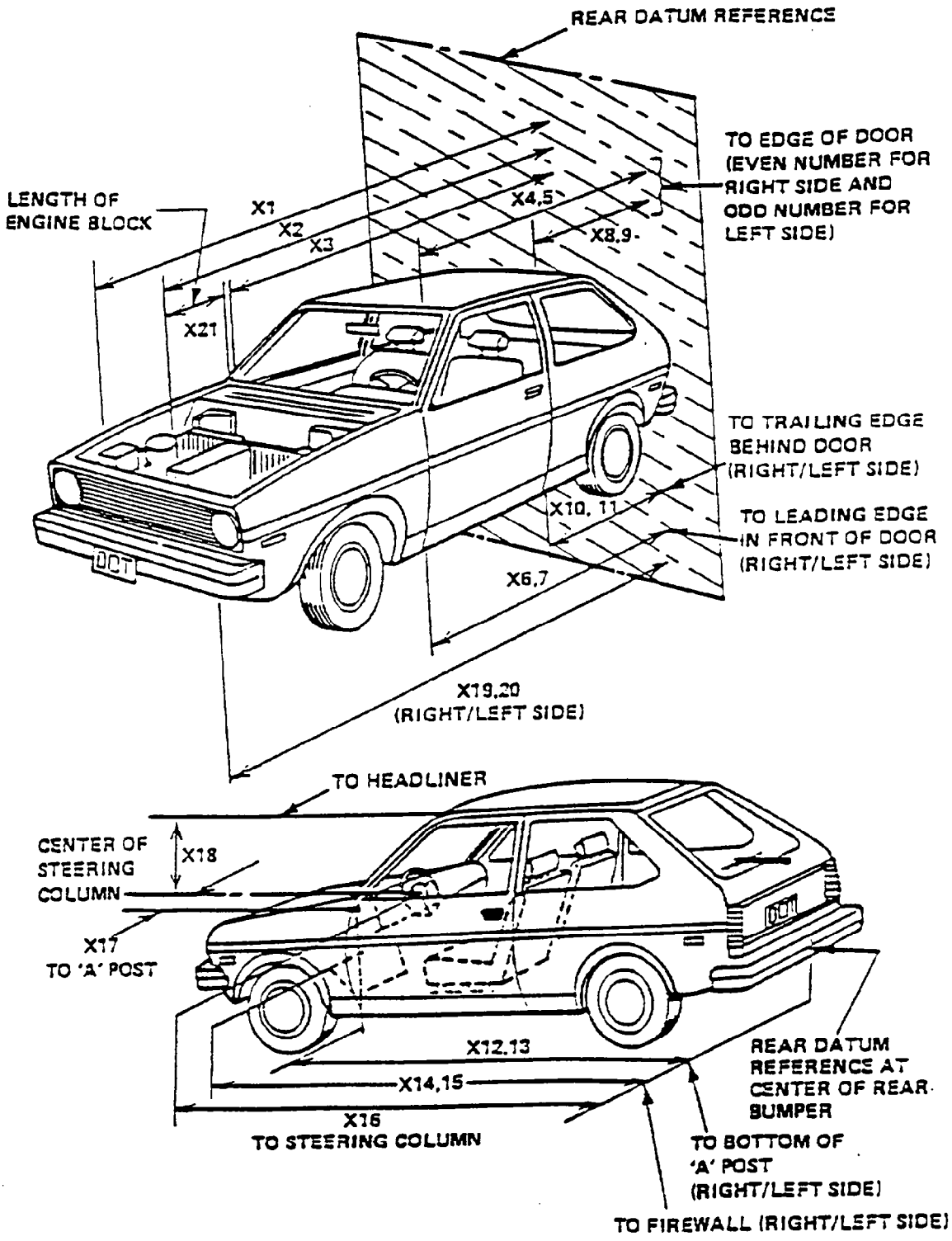
ACCELEROMETER	ACCELEROMETER LOCATION	DIRECTIO
1 and 8	Left Rear Seat Crossmember	X
2 and 9	Right Rear Seat Crossmember	X
3	Top of Engine	X
4	Bottom of Engine	X
5	Right Side Brake Caliper	X
6	Instrument Panel	X
7	Left Disc Brake Caliper	X

* The accelerometer pack number can be correlated with the vehicle response data traces in Appendix B.

TEST VEHICLE MEASUREMENTS

No.	MEASUREMENT DESCRIPTION:	Pre-Test (mm)	Post-Test (mm)	Diff. (mm)
X1	Total Length of Test Vehicle at Centerline	4572	4087	485
X2	Rear Surface of Vehicle to Front of Engine	3947	3692	255
X3	Rear Surface of Vehicle to Firewall	3480	3381	99
X4	Rear Surface to Upr. Leading Edge of Rt. Door	3124	3150	-26
X5	Rear Surface to Upr. Leading Edge of Left Door	3118	3150	-32
X6	Rear Surface to Lwr. Leading Edge of Rt. Door	3139	3150	-11
X7	Rear Surface to Lwr. Leading Edge of Left Door	3131	3148	-17
X8	Rear Surface to Upr. Trailing Edge of Rt. Door	2096	2120	-24
X9	Rear Surface to Upr. Trailing Edge of Left Door	2087	2108	-21
X10	Rear Surface to Lwr. Trailing Edge of Rt. Door	2077	2085	-8
X11	Rear Surface to Lwr. Trailing Edge of Left Door	2061	2081	-20
X12	Rear Surface to Bottom of 'A' Post on Rt. Side	3147	3147	0
X13	Rear Surface to Bottom of 'A' Post on Left Side	3139	3139	0
X14	Rear Surface to Firewall on Right Side	3427	3364	63
X15	Rear Surface to Firewall on Left Side	3421	3334	87
X16	Rear Surface to Steering Column	2666	2694	-28
X17	Center of Steering Column to 'A' Post	377	347	30
X18	Center of Steering Column to Headlining	455	350	105
X19	Rear Surface to Right Side of Front Bumper	4409	3953	456
X20	Rear Surface to Left Side of Front Bumper	4427	4012	415
X21	Length of Engine Block	640	640	0

TEST VEHICLE MEASUREMENTS



ACCIDENT INVESTIGATION DIVISION DATA

FOR 35 MPH FRONTAL BARRIER IMPACT

VEHICLE MAKE/MODEL/BODY STYLE: Nissan/Stanza Altima/4 Door

VEH. NHTSA NO.: MR5201 ; VIN: 1N4BU3100RC163040

MODEL YEAR: 1994 ; BUILD DATE: 1-94 ; TEST DATE: 3-21-94

VEH. SIZE CATEGORY: Mid Size ; TEST WEIGHT: 1492.8 kg

VEH. WHEELBASE: 2620 mm ; FRONT OVERHANG: 913 mm ; OVERALL WIDTH: 1695 mm

ACCELEROMETER DATA:

LOCATION: As per measurements on pages 4-13

CALIBRATION PROCEDURE: As per MGA Calibration Procedure

LINEARITY: >99.9% ; INTEGRATION ALGORITHM: Trapezoidal

VEH: IMPACT SPEED: 56.3 kph ; TIME OF SEPARATION: 76 msec

VELOCITY CHANGE: 67.1 kph

COLLISION DEFORMATION CLASSIFICATION (CDC) CODE:

F (Frontal)

CRUSH DEPTH DIMENSIONS:

C1 = 415 mm

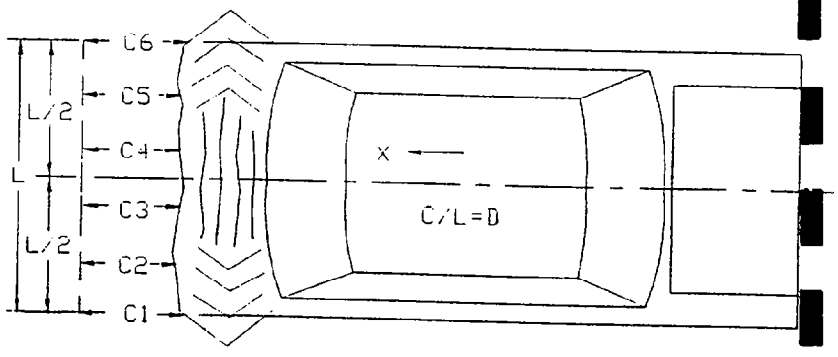
C2 = 453 mm

C3 = 474 mm

C4 = 470 mm

C5 = 457 mm

C6 = 456 mm



MIDPOINT OF DAMAGE: D = Vehicle Centerline (Longitude)

LENGTH OF DAMAGED REGION: L = 1465 mm

APPENDIX A

PHOTOGRAPHS

TABLE OF PHOTOGRAPHS

TABLE OF PHOTOGRAPHS (Cont'd)

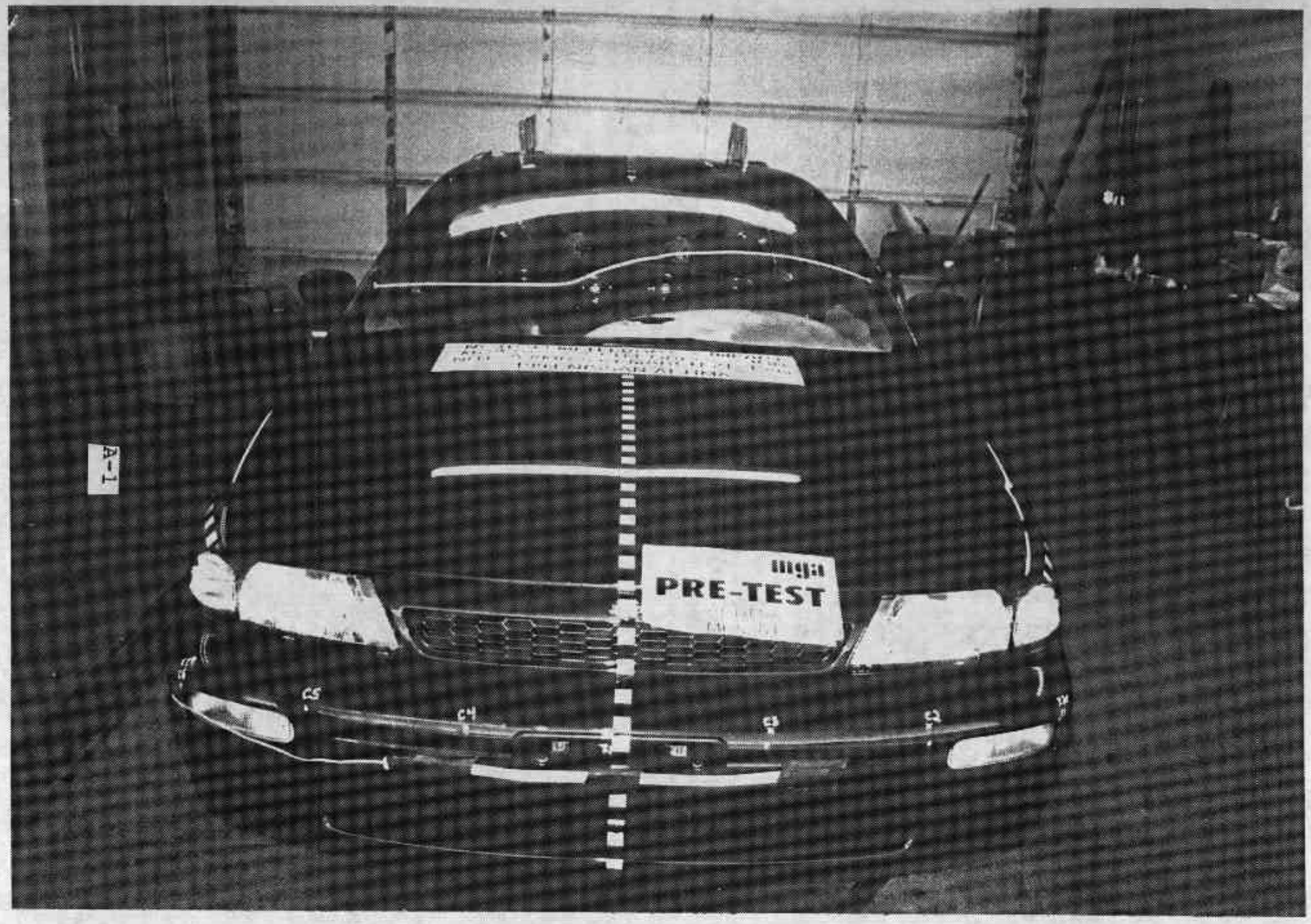


Photo No. A-1 - Pre-Test Front View

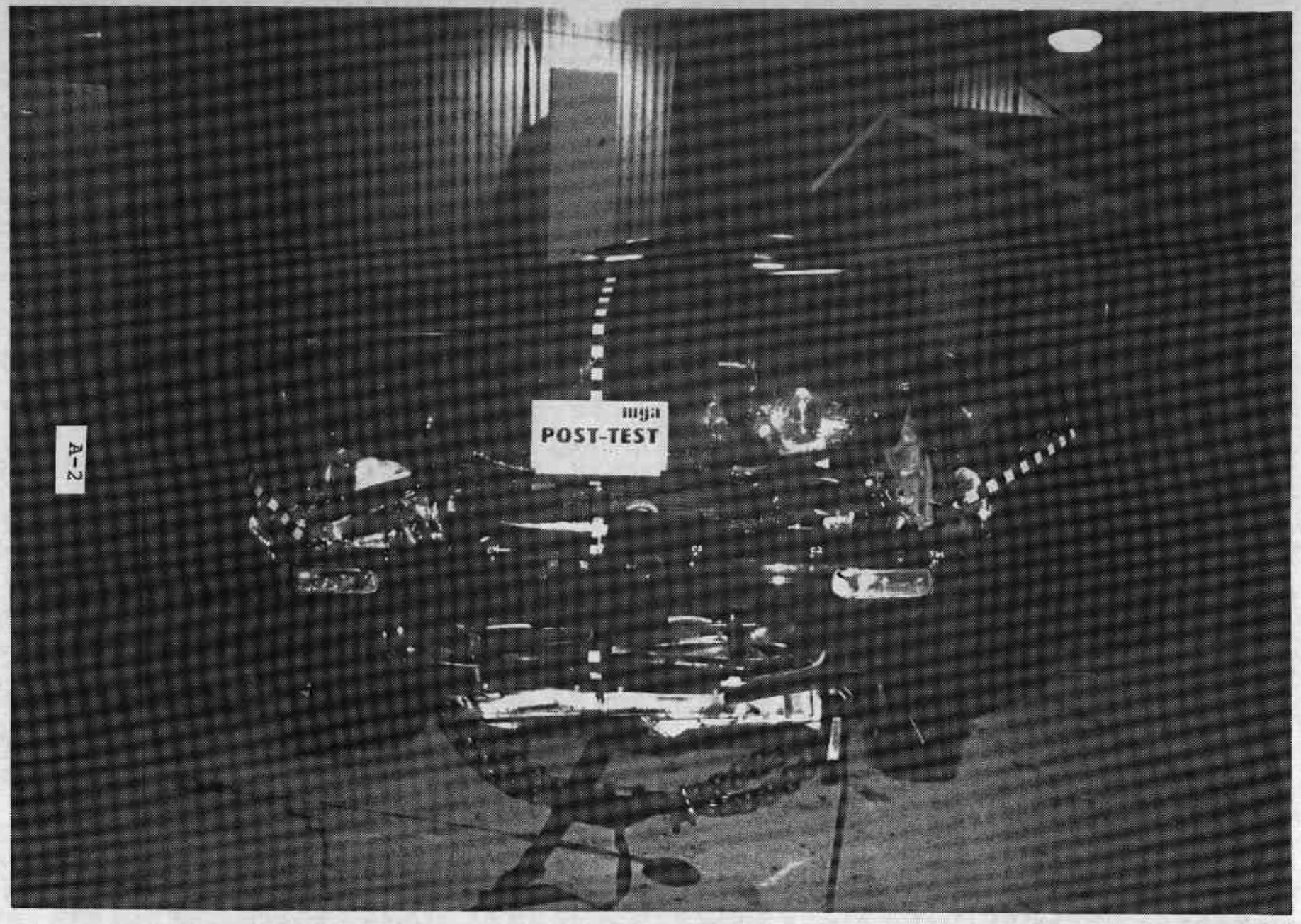


Photo No. A-2 - Post-Test Front View

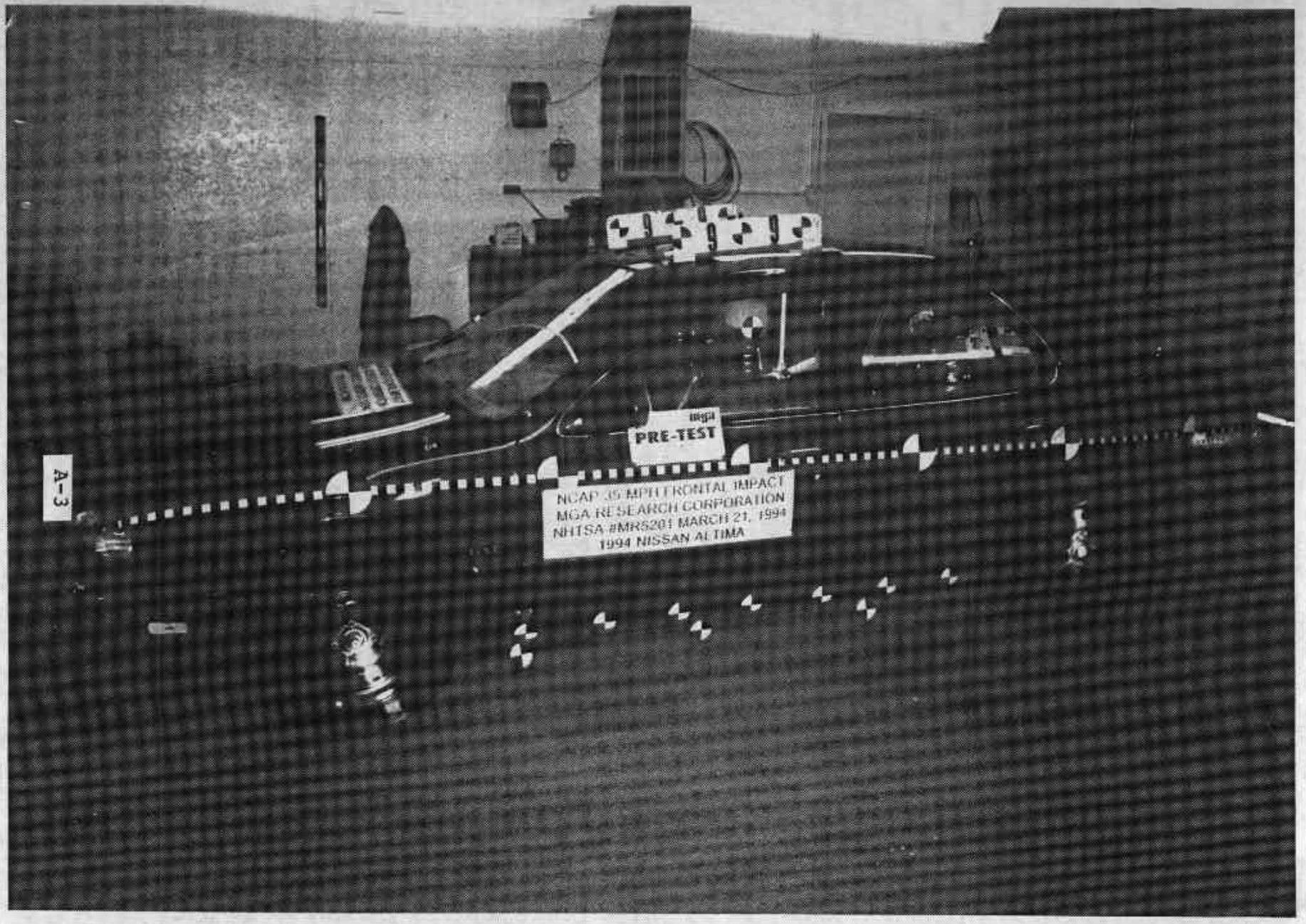


Photo No. A-3 - Pre-Test Left Side View

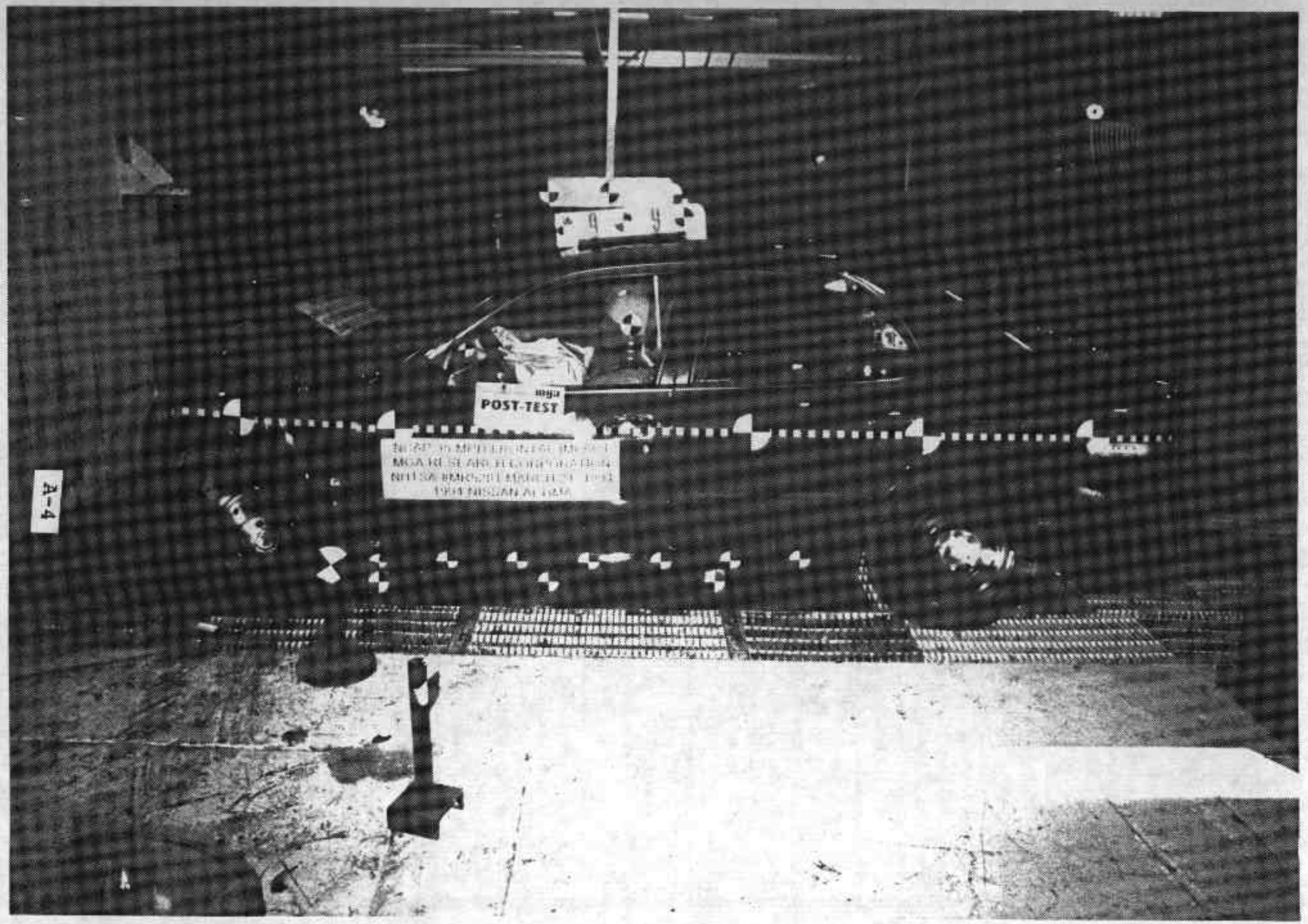


Photo No. A-4 - Post-Test Left Side View

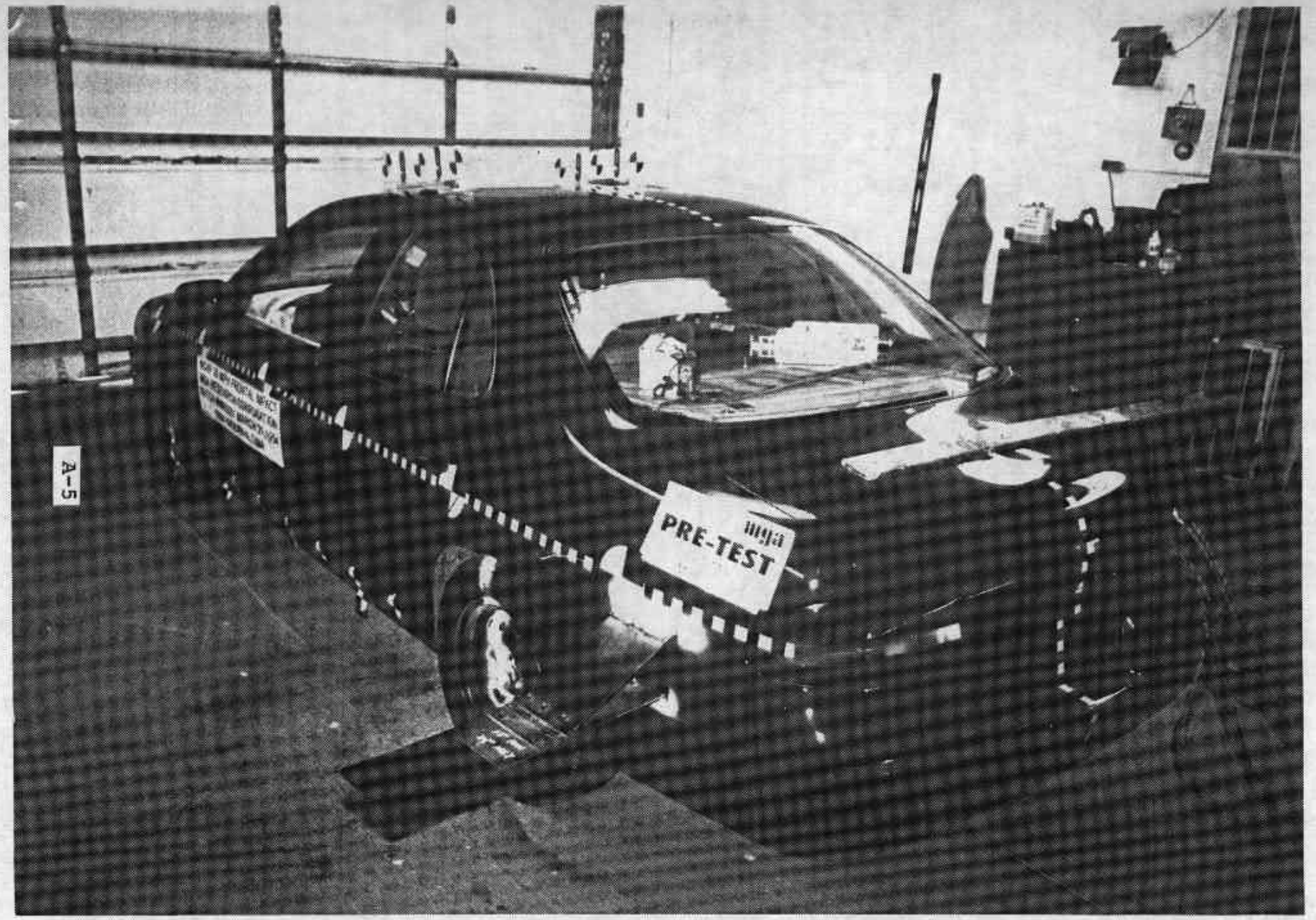


Photo No. A-5 - Pre-Test Left Rear Three-Quarter View

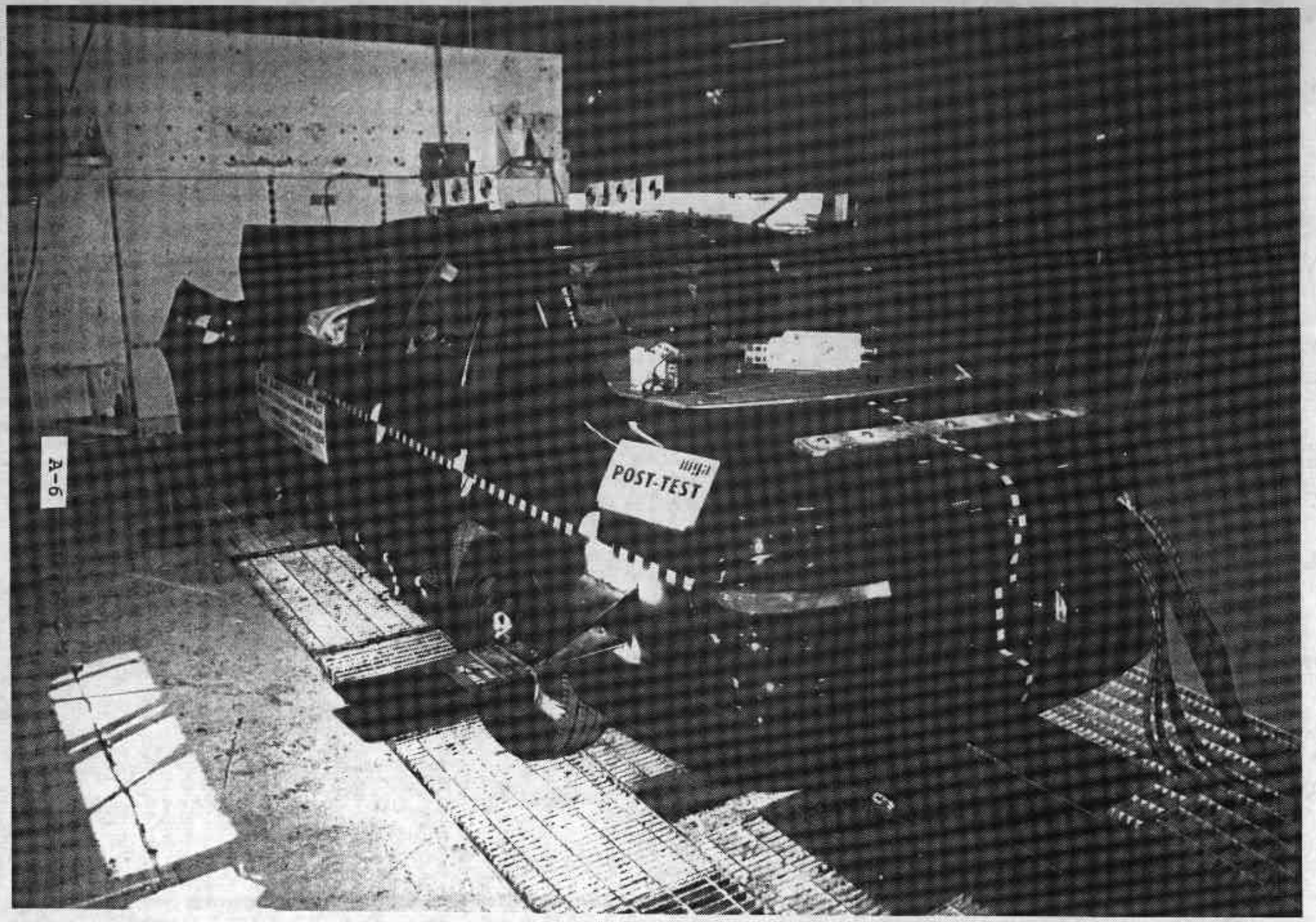


Photo No. A-6 - Post-Test Left Rear Three-Quarter View

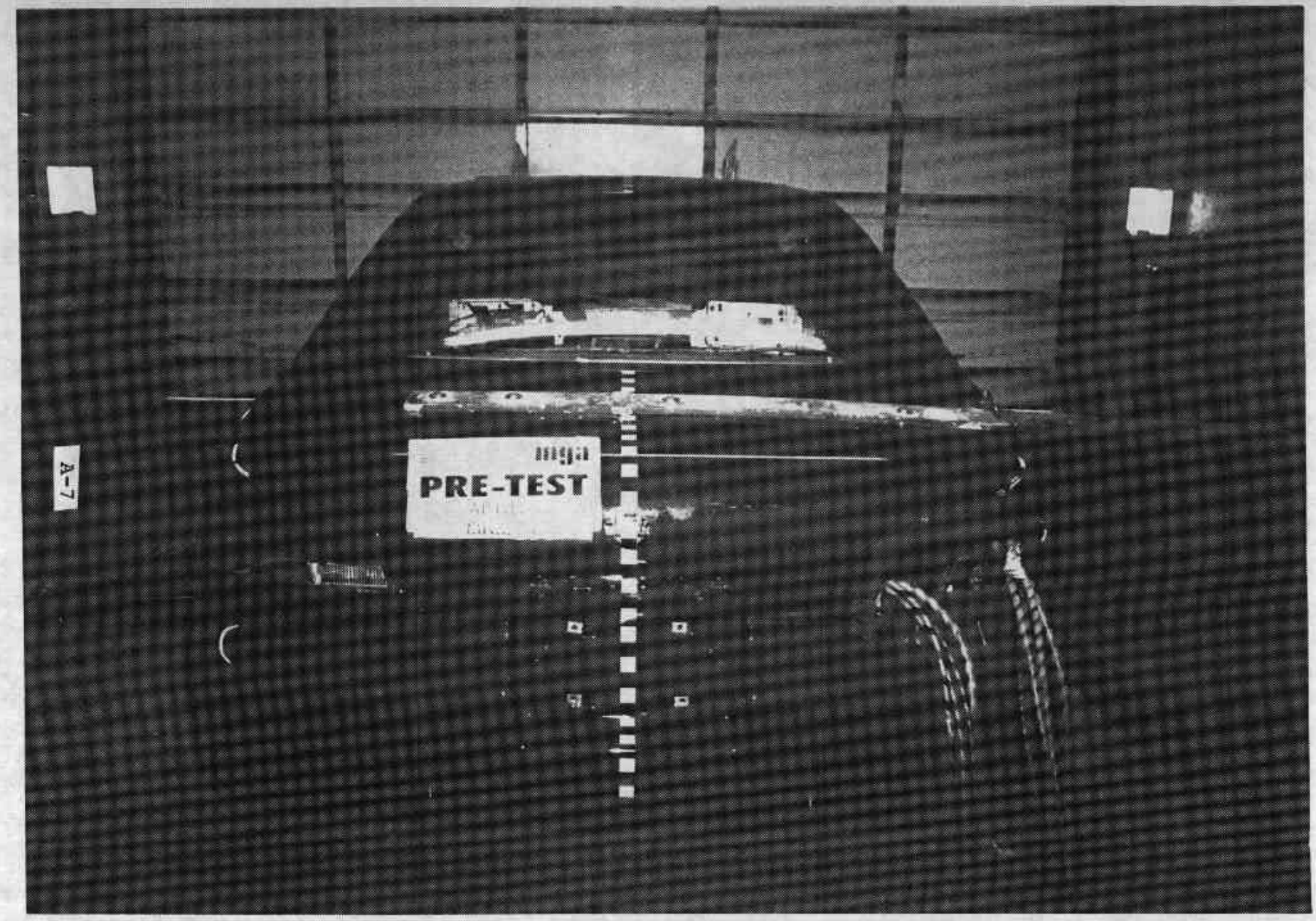


Photo No. A-7 - Pre-Test Rear View

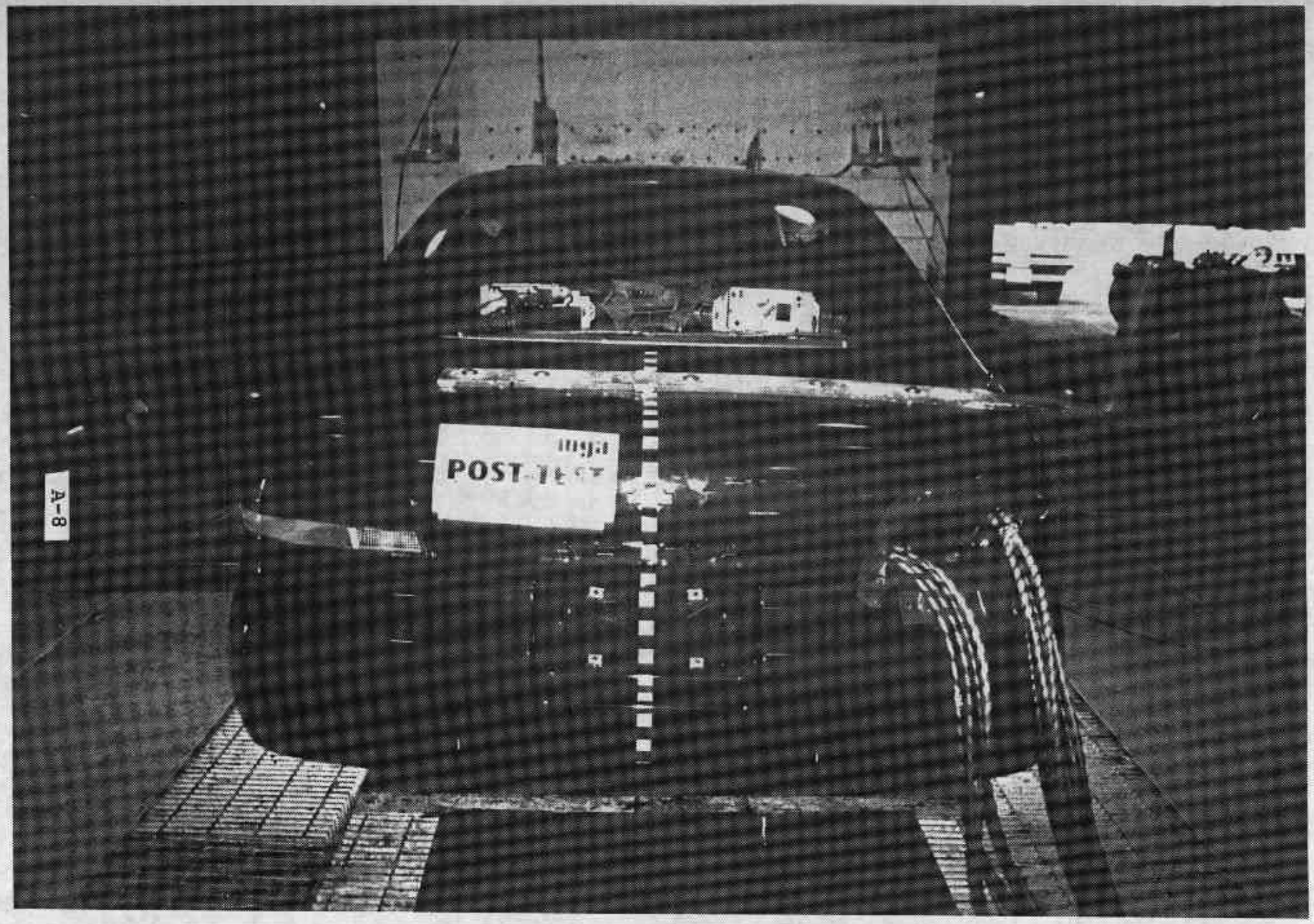


Photo No. A-8 - Post-Test Rear View

Photo No. A-9 - Pre-Test Right Side View

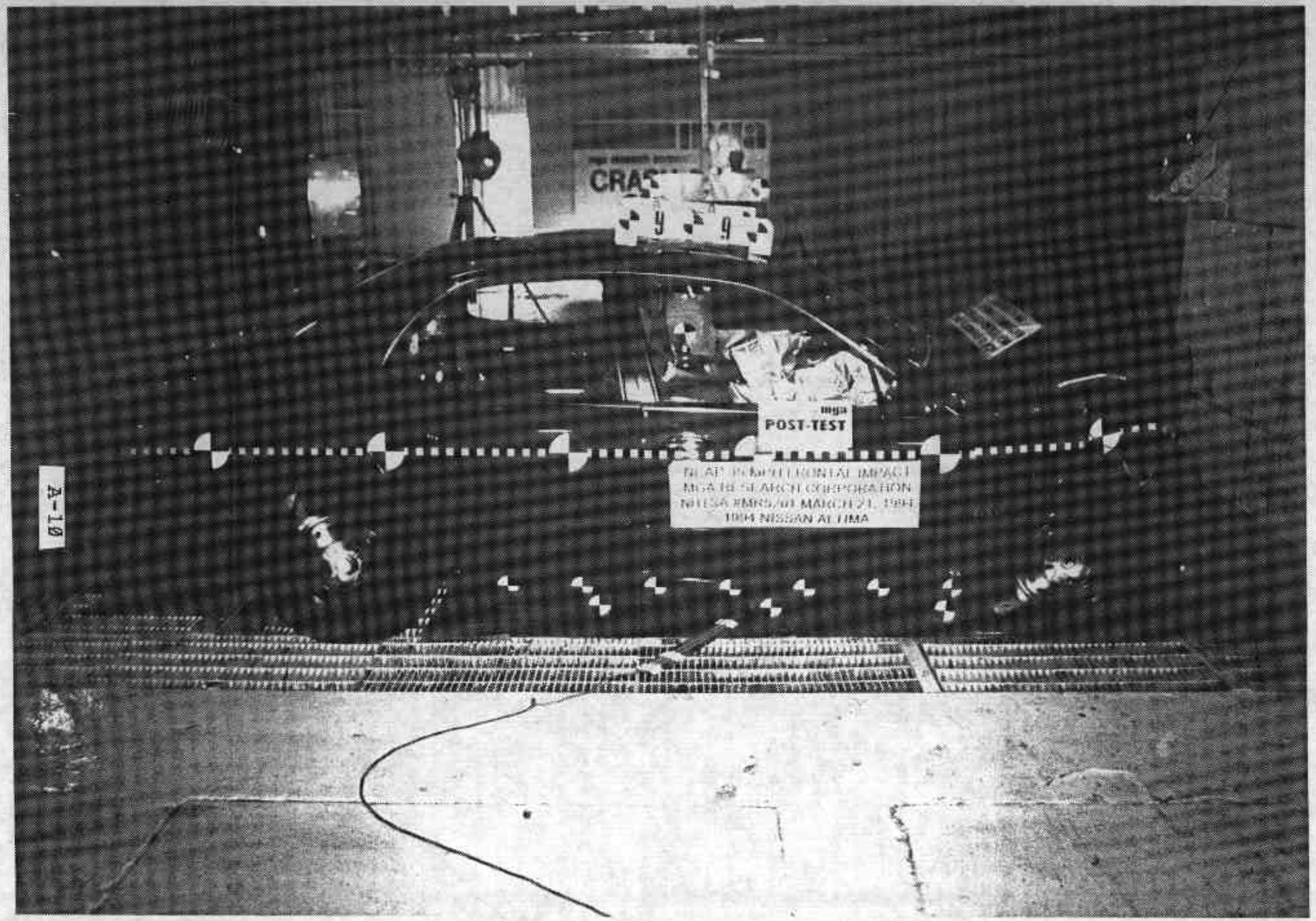


Photo No. A-10 - Post-Test Right Side View

Photo No. A-11 - Pre-Test Right Front Three-Quarter View

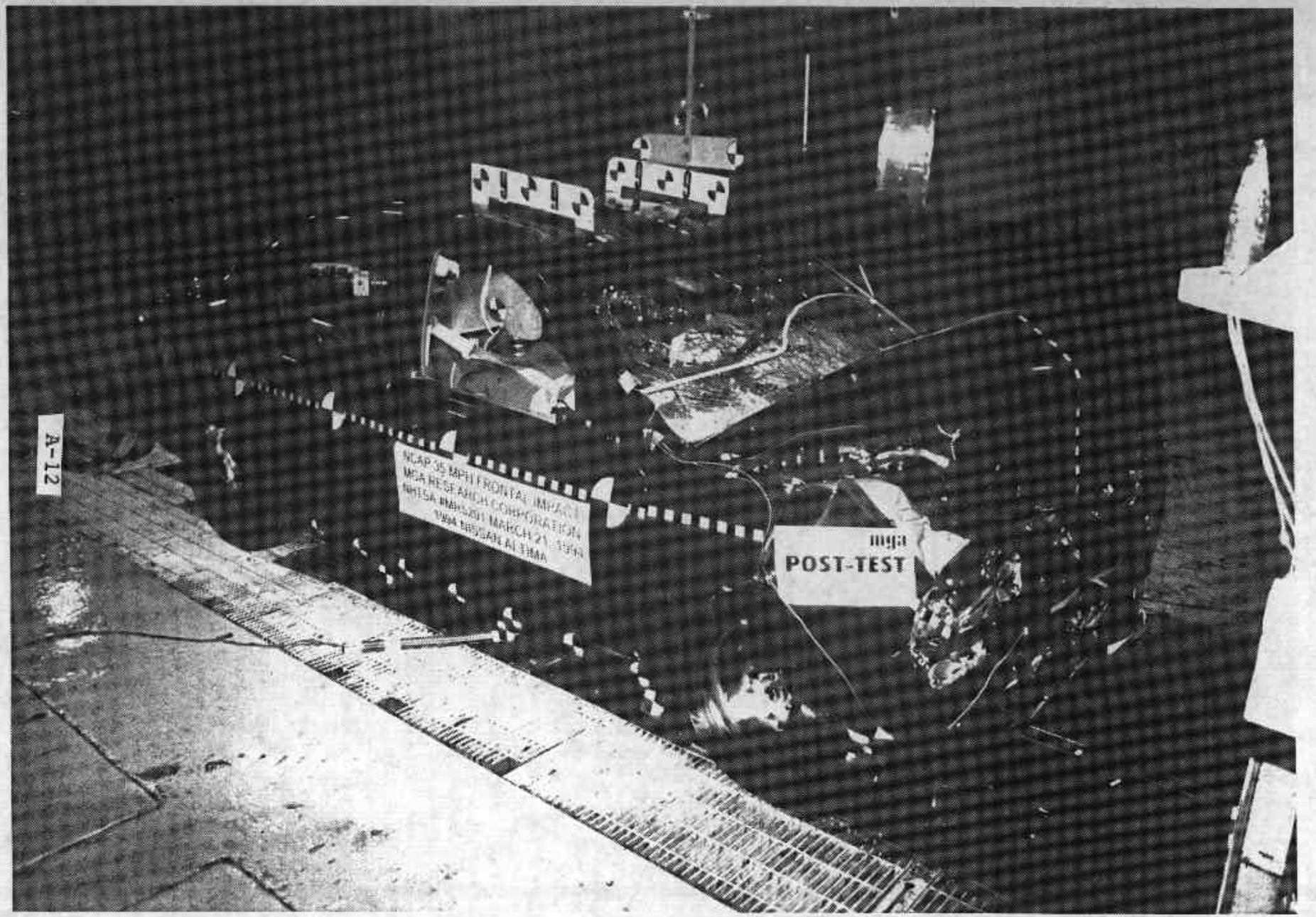


Photo No. A-12 - Post-Test Right Front Three-Quarter View

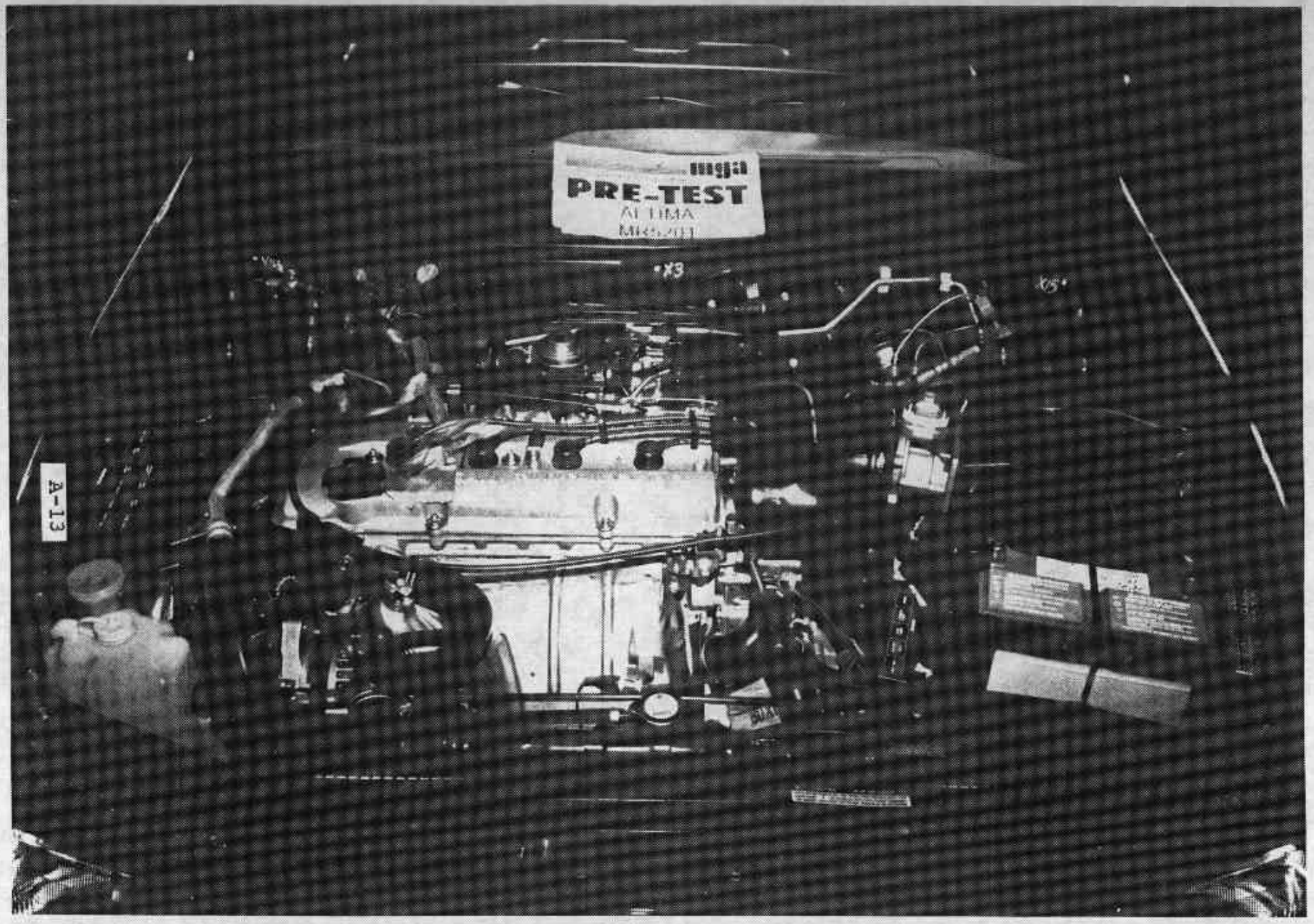


Photo No. A-13 - Pre-Test Engine Compartment View

Photo No. A-14 - Post-Test Engine Compartment View

Photo No. A-15 - Pre-Test Fuel Filler Cap View

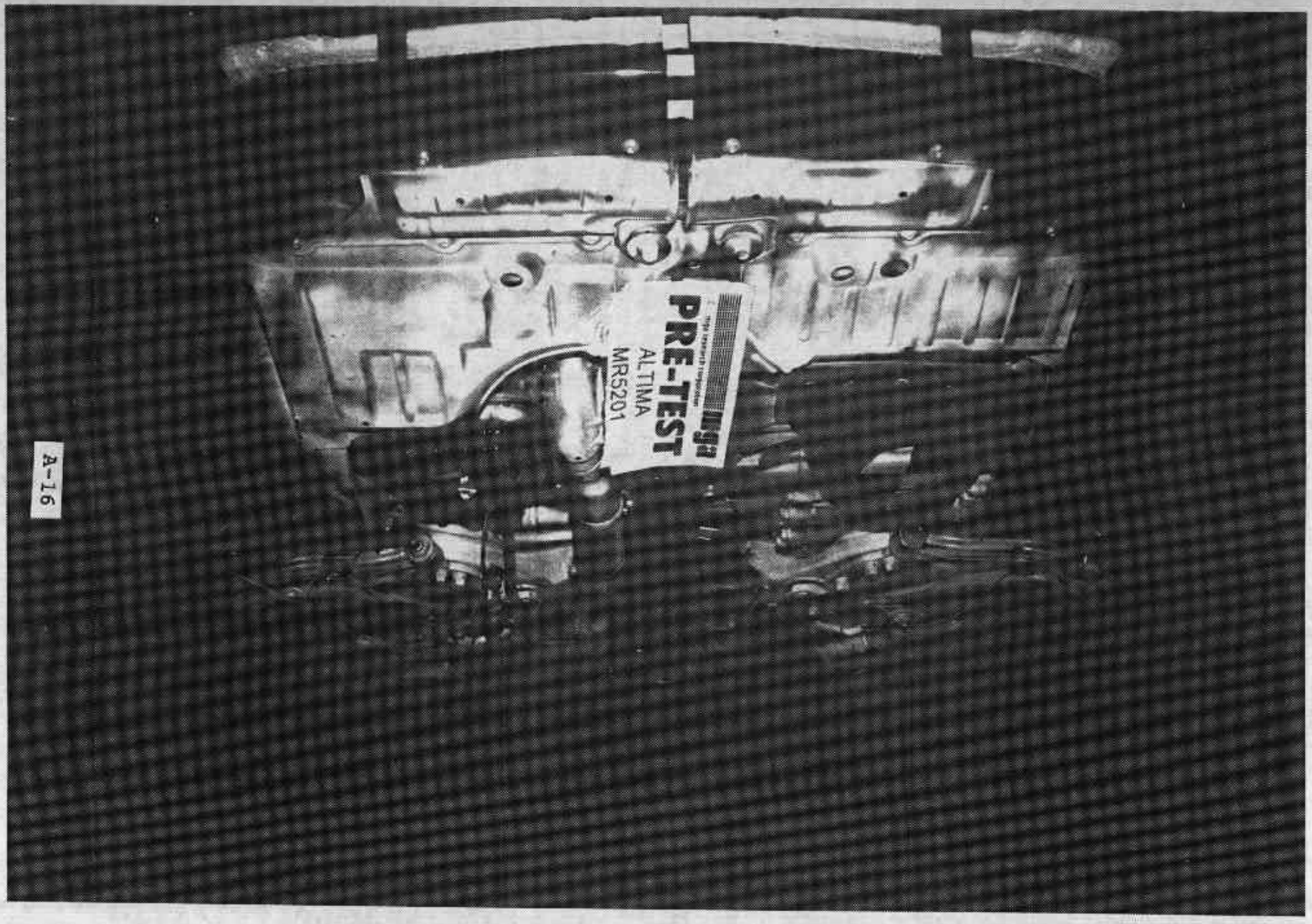


Photo No. A-16 - Pre-Test Front Underbody View

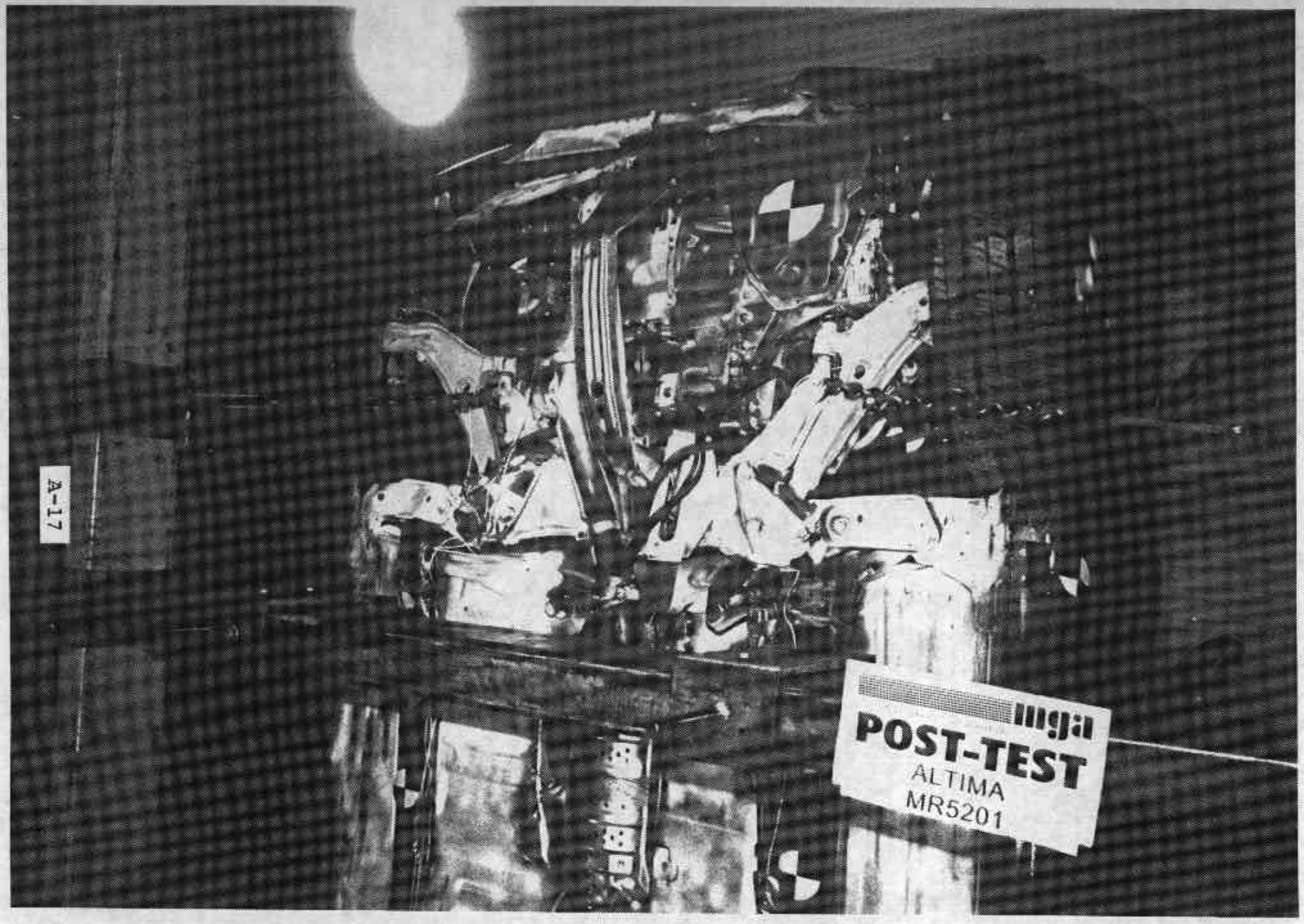


Photo No. A-17 - Post-Test Front Underbody View

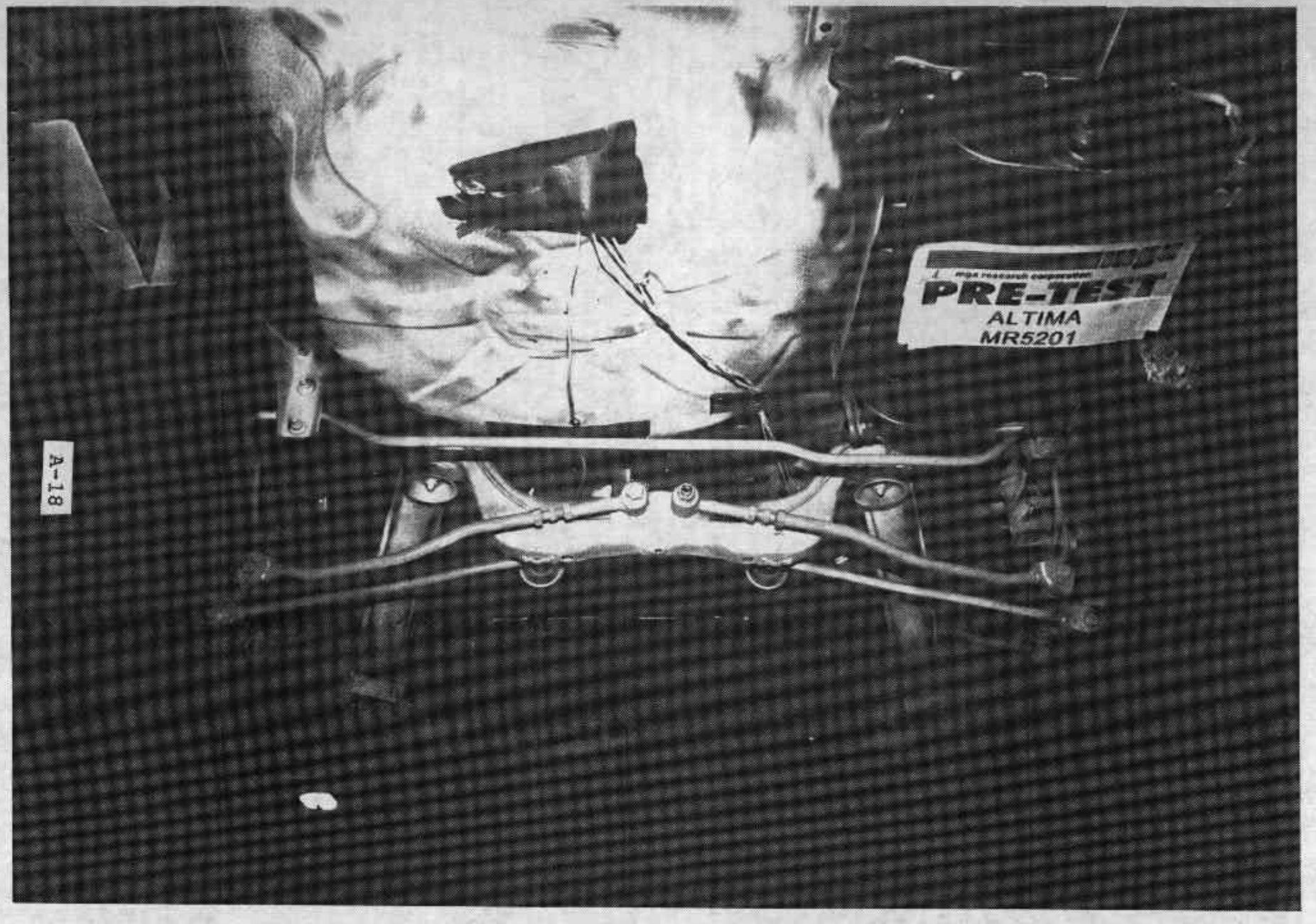


Photo No. A-18 - Pre-Test Rear Underbody View

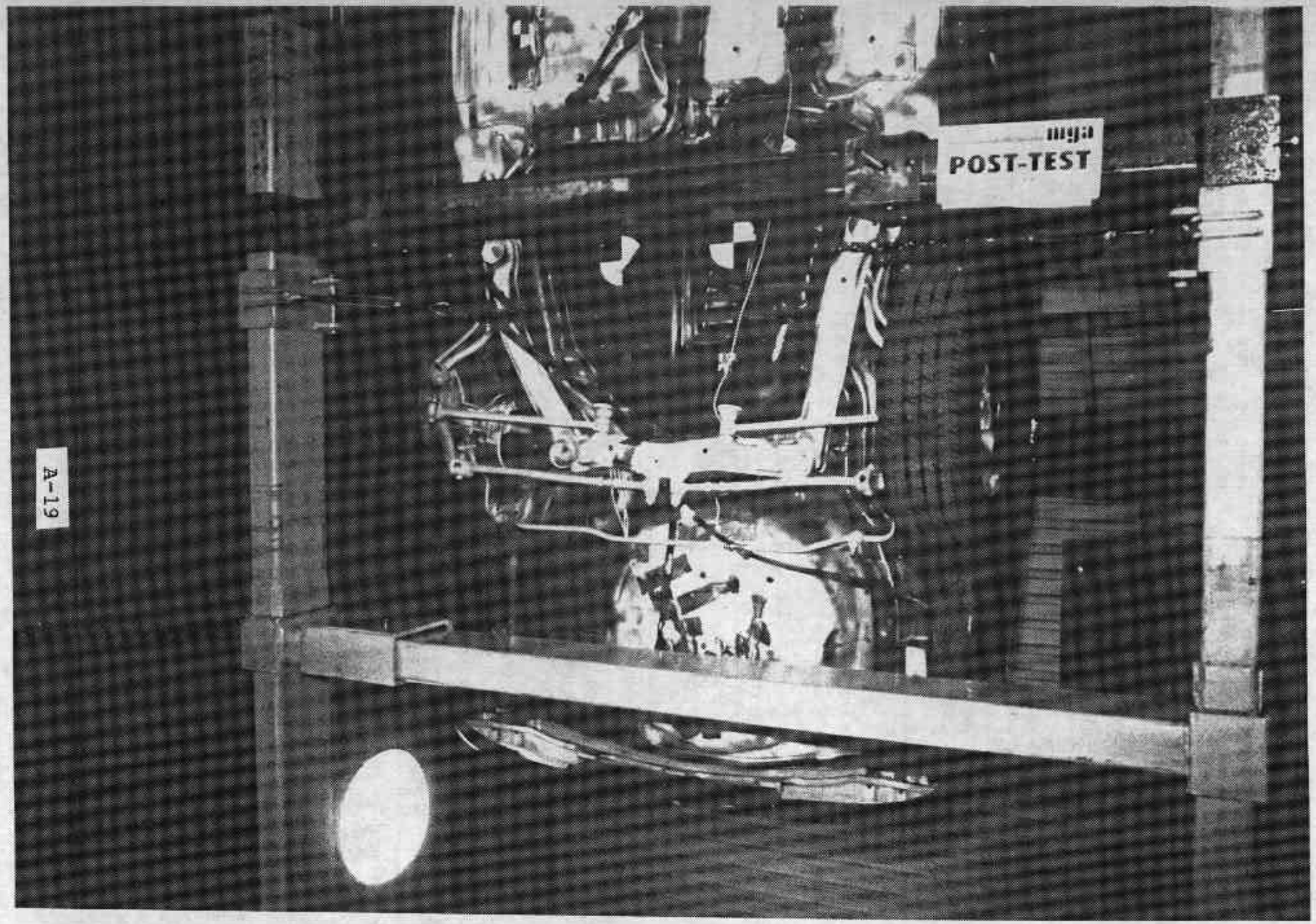


Photo No. A-19 - Post-Test Rear Underbody View

Photo No. A-20 - Pre-Test Windshield View

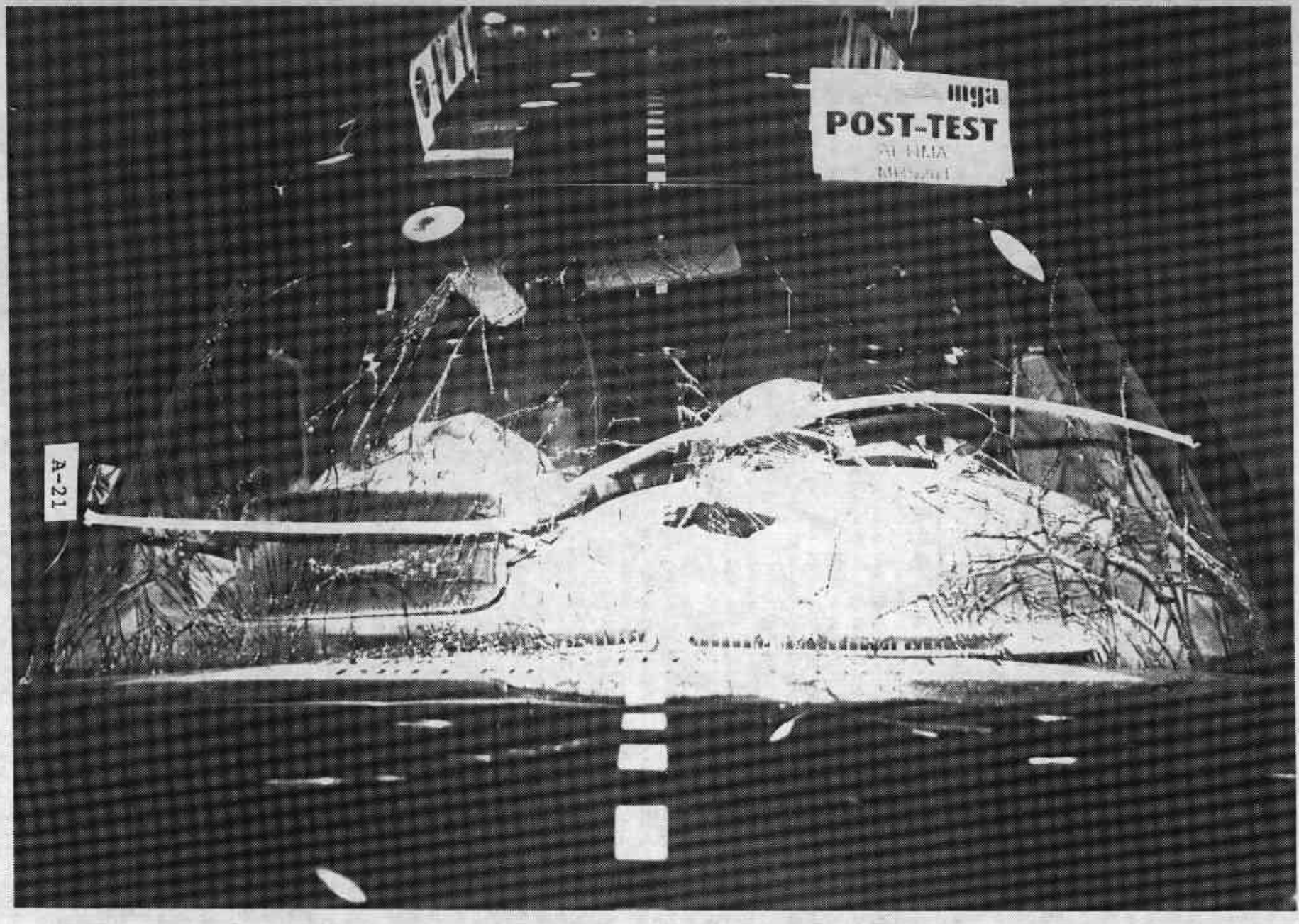


Photo No. A-21 - Post-Test Windshield View

Photo No. A-22 - Pre-Test Driver Dummy Position View

Photo No. A-23 - Post-Test Driver Dummy Position View

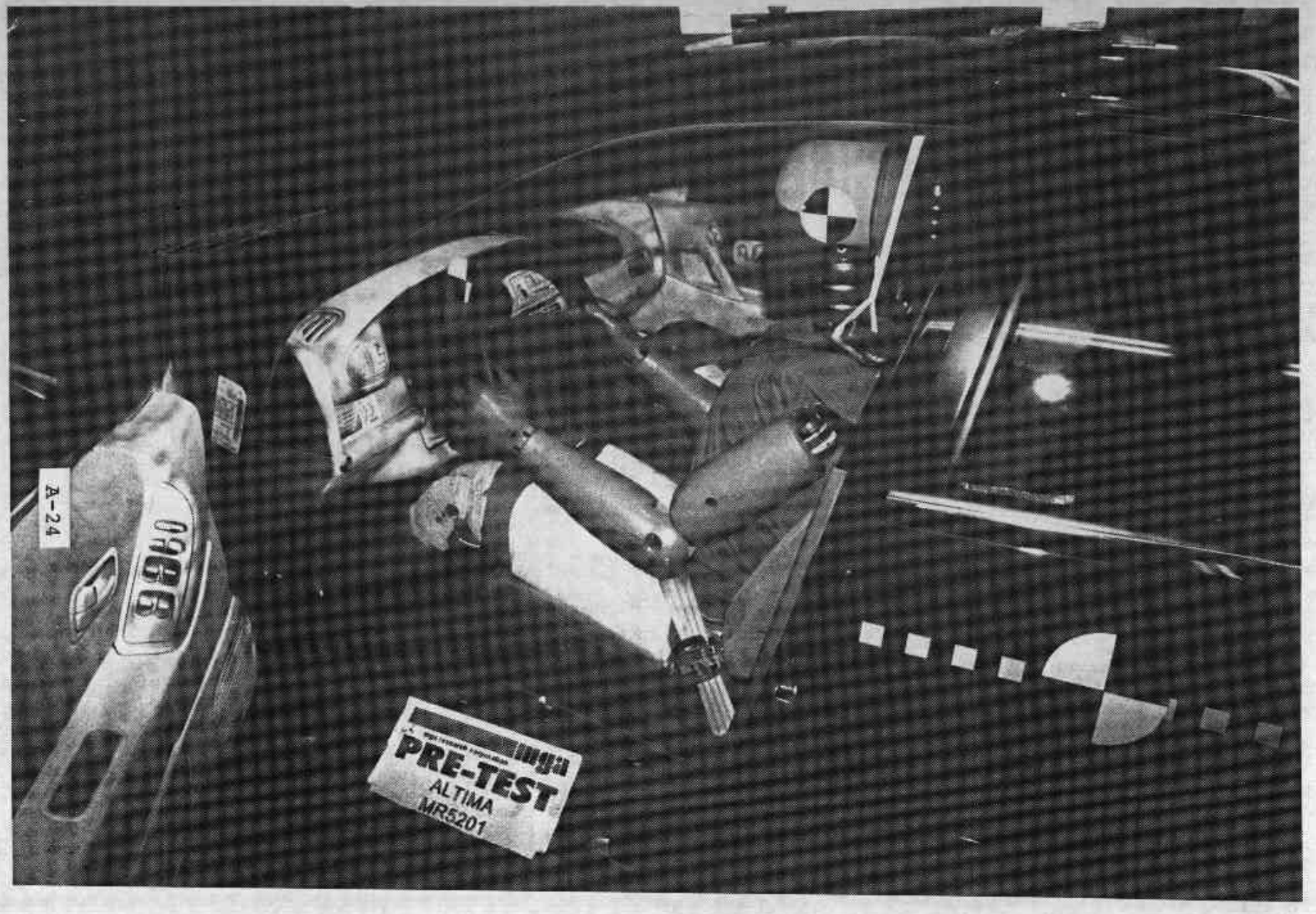


Photo No. A-24 - Pre-Test Driver Dummy Position View (Door Open)

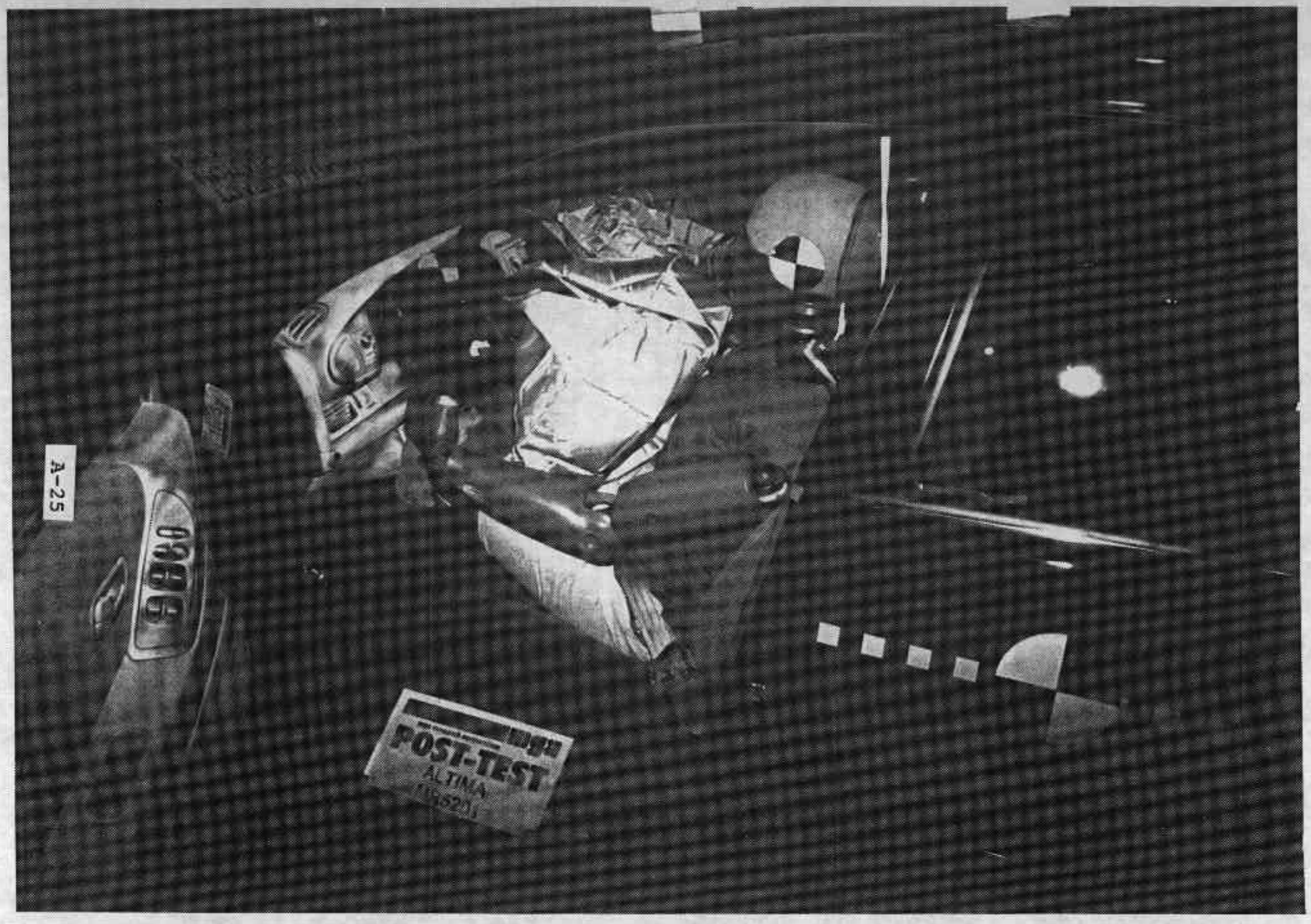


Photo No. A-25 - Post-Test Driver Dummy Position View (Door Open)

Photo No. A-26 - Pre-Test Driver Seat Position View

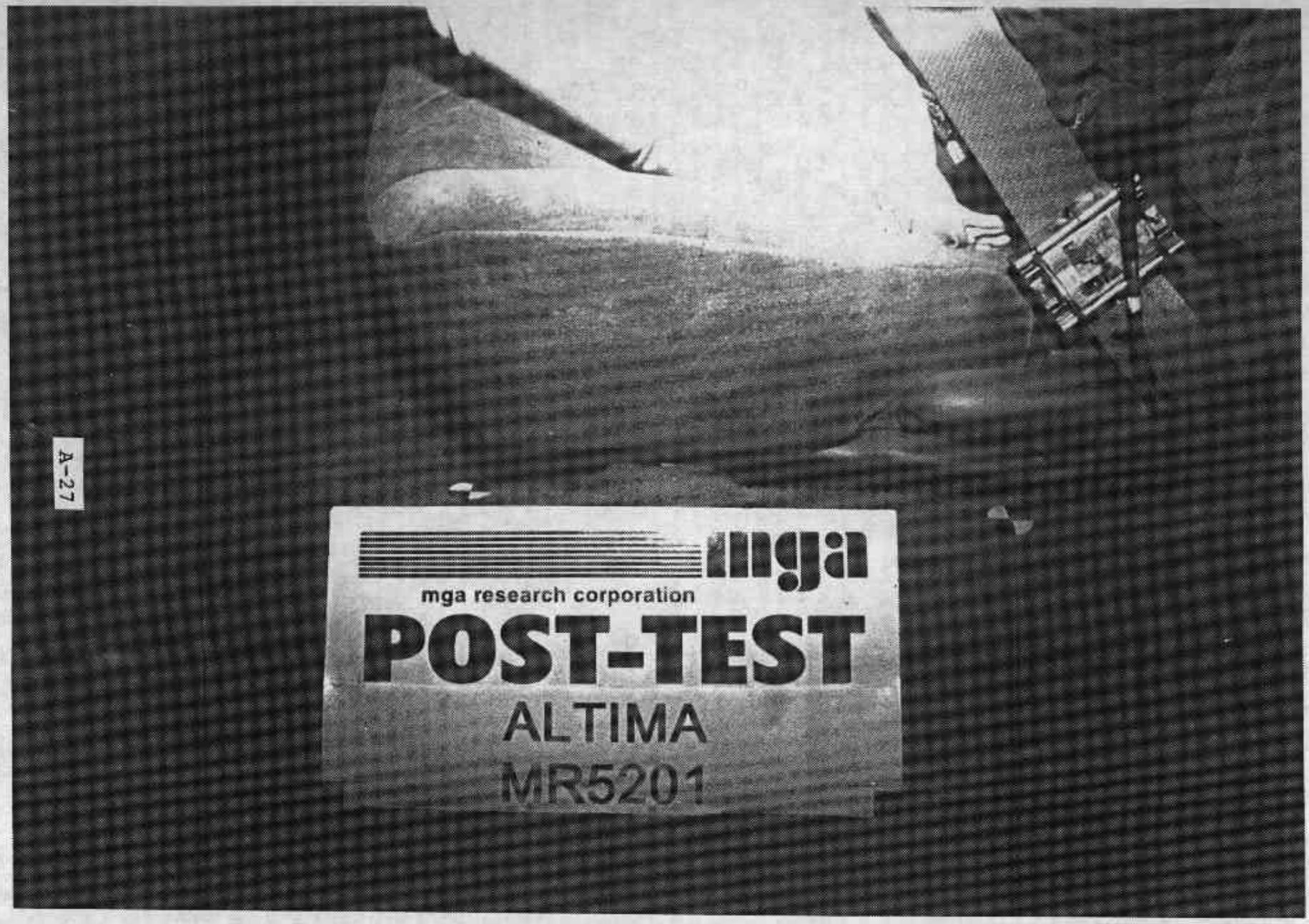


Photo No. A-27 - Post-Test Driver Seat Position View

Photo No. A-28 - Pre-Test Driver Knee Position View

Photo No. A-29 - Post-Test Driver Knee Position View

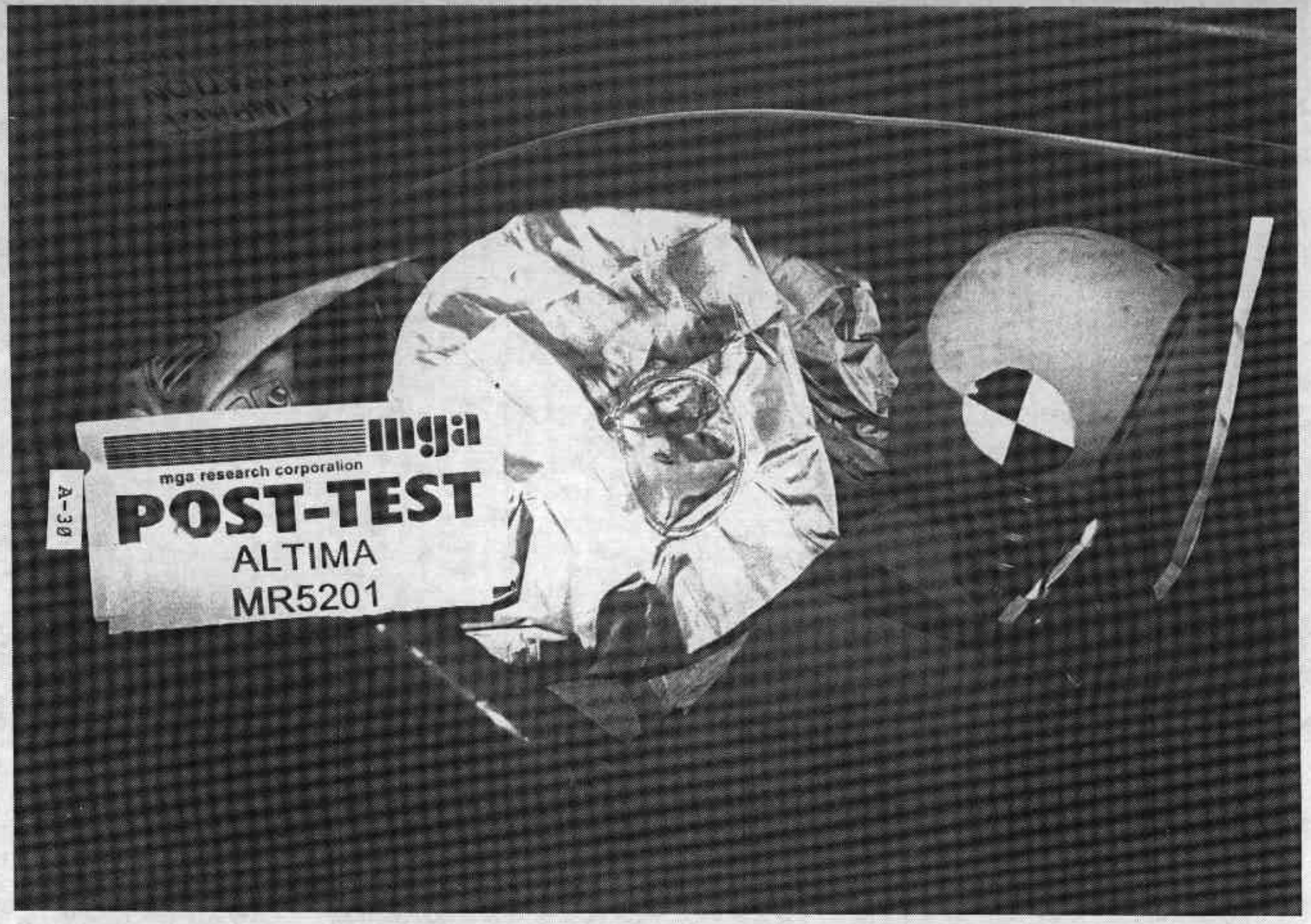


Photo No. A-30 - Post-Test Driver Airbag Contact

Photo No. A-31 - Pre-Test Passenger Dummy Position View

Photo No. A-32 - Post-Test Passenger Dummy Position View

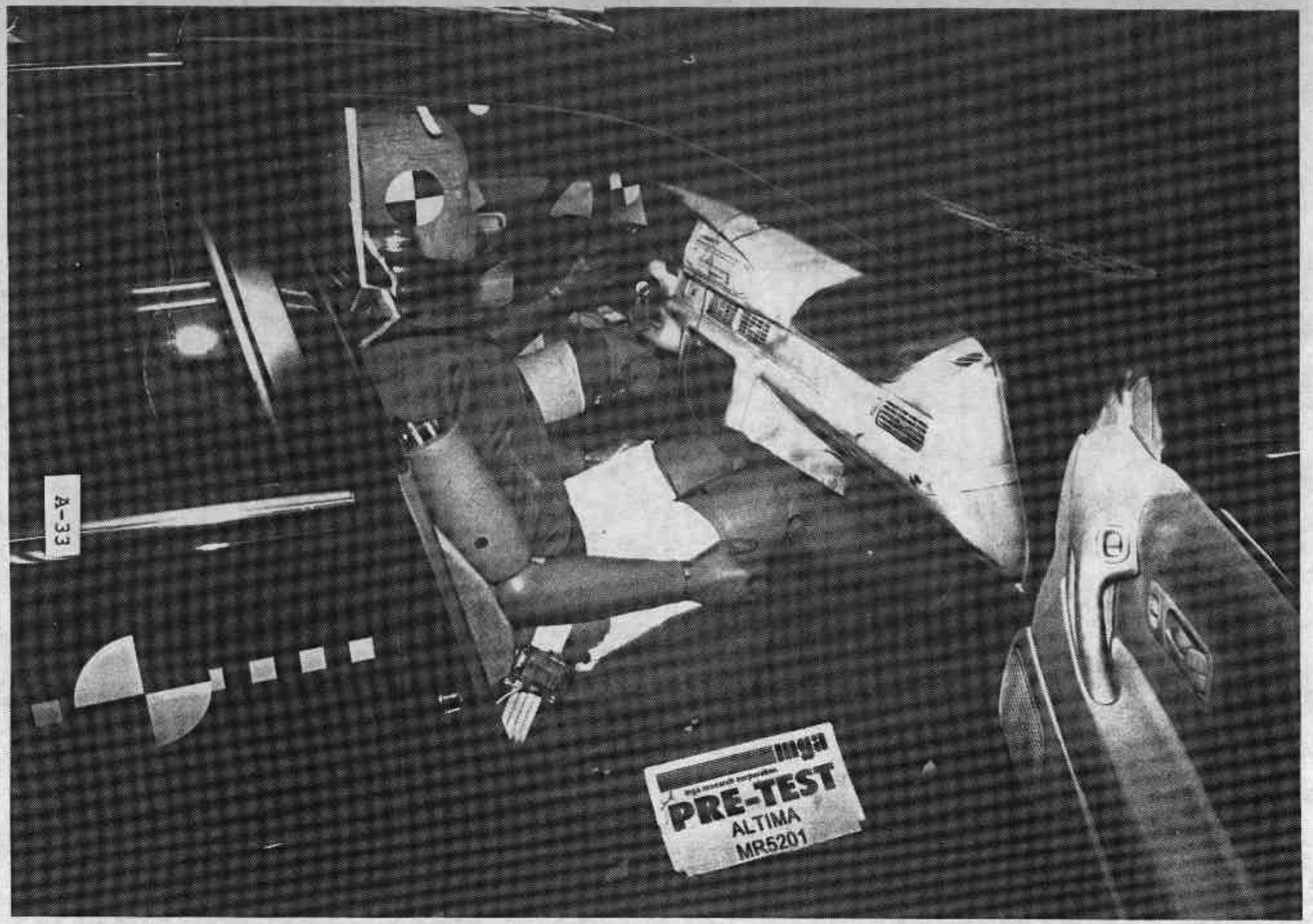


Photo No. A-33 - Pre-Test Passenger Dummy Position View (Door Open)

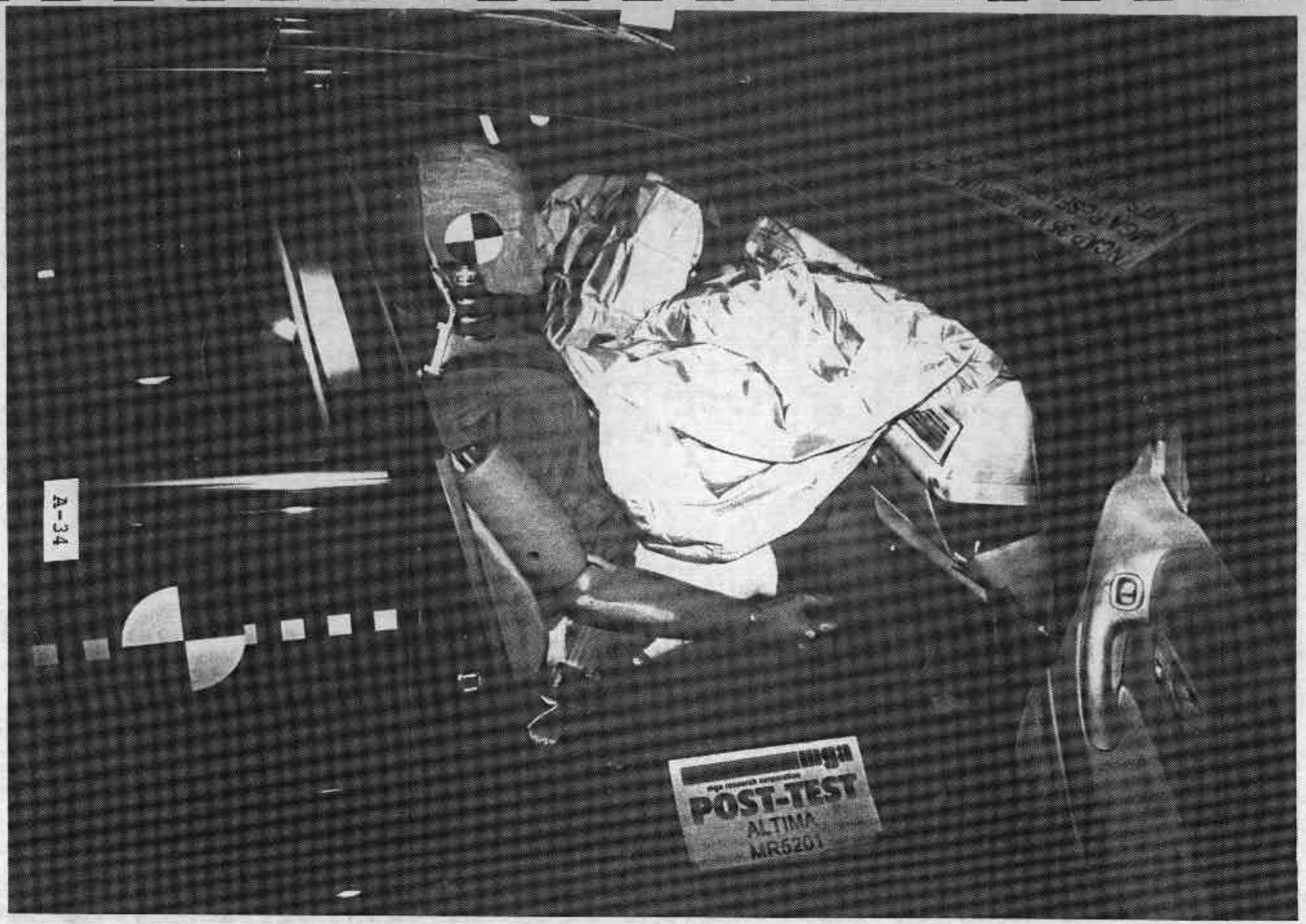


Photo No. A-34 - Post-Test Passenger Dummy Position View (Door Open)

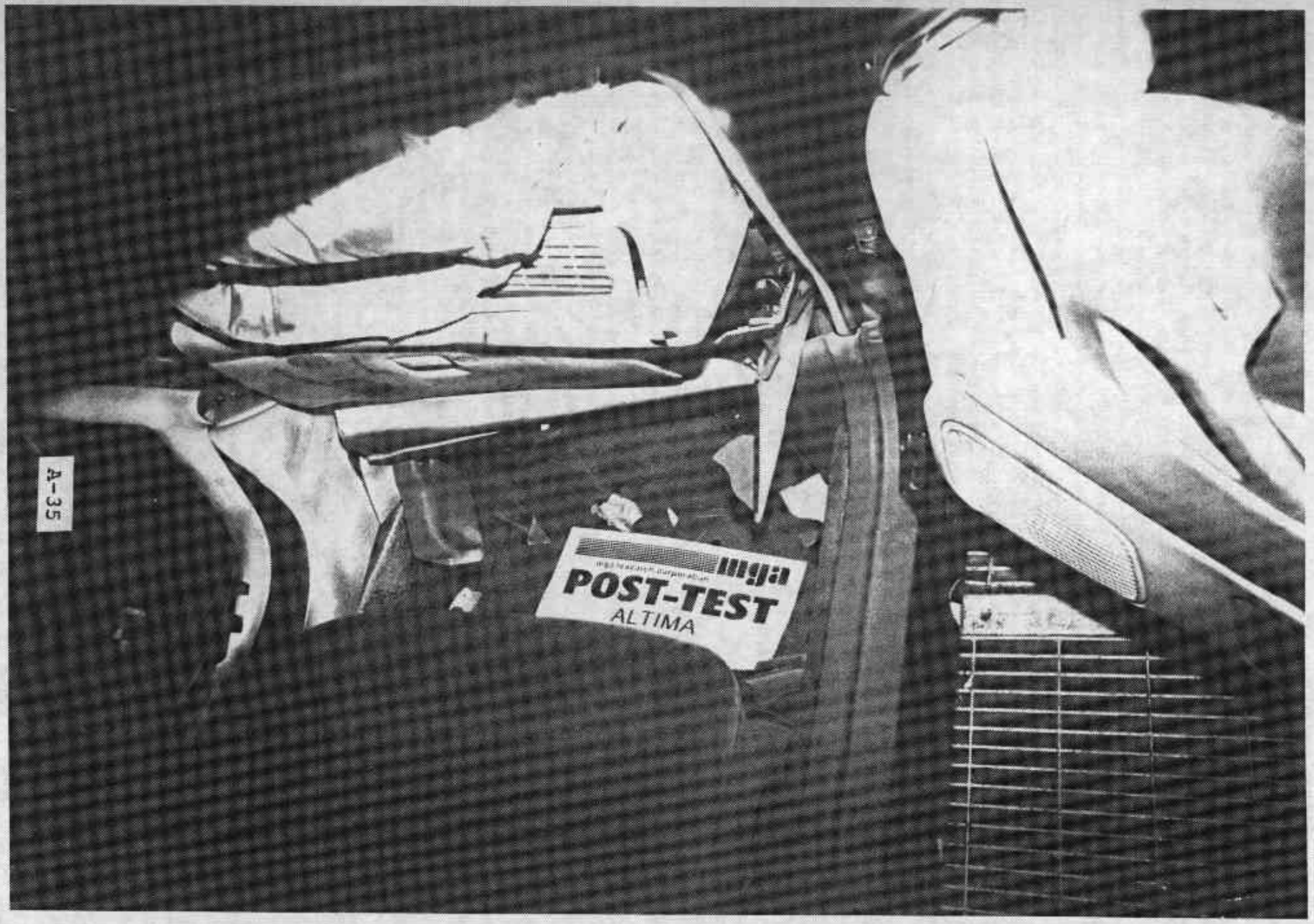


Photo No. A-35 - Post-Test Passenger Dash

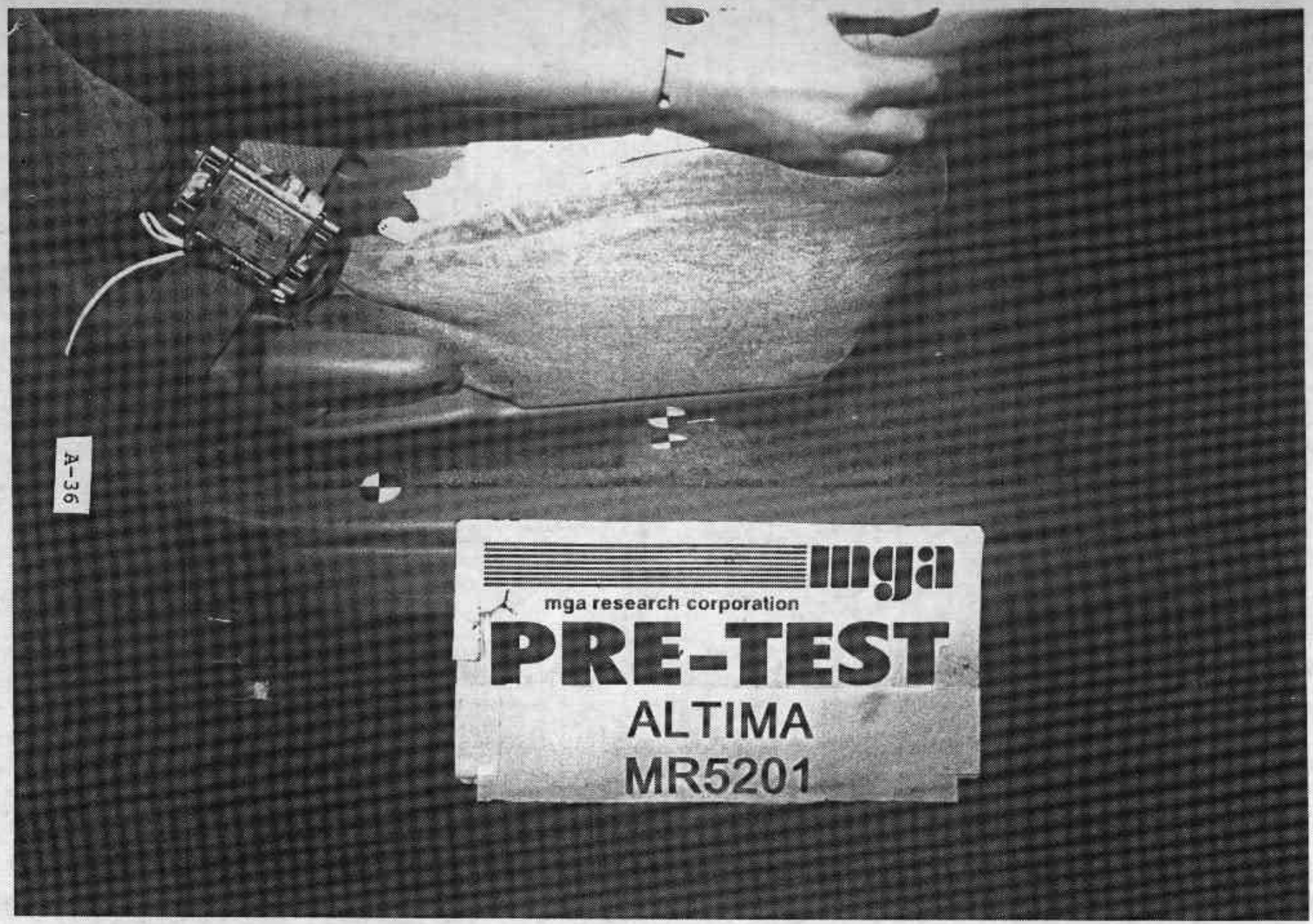


Photo No. A-36 - Pre-Test Passenger Seat Position View

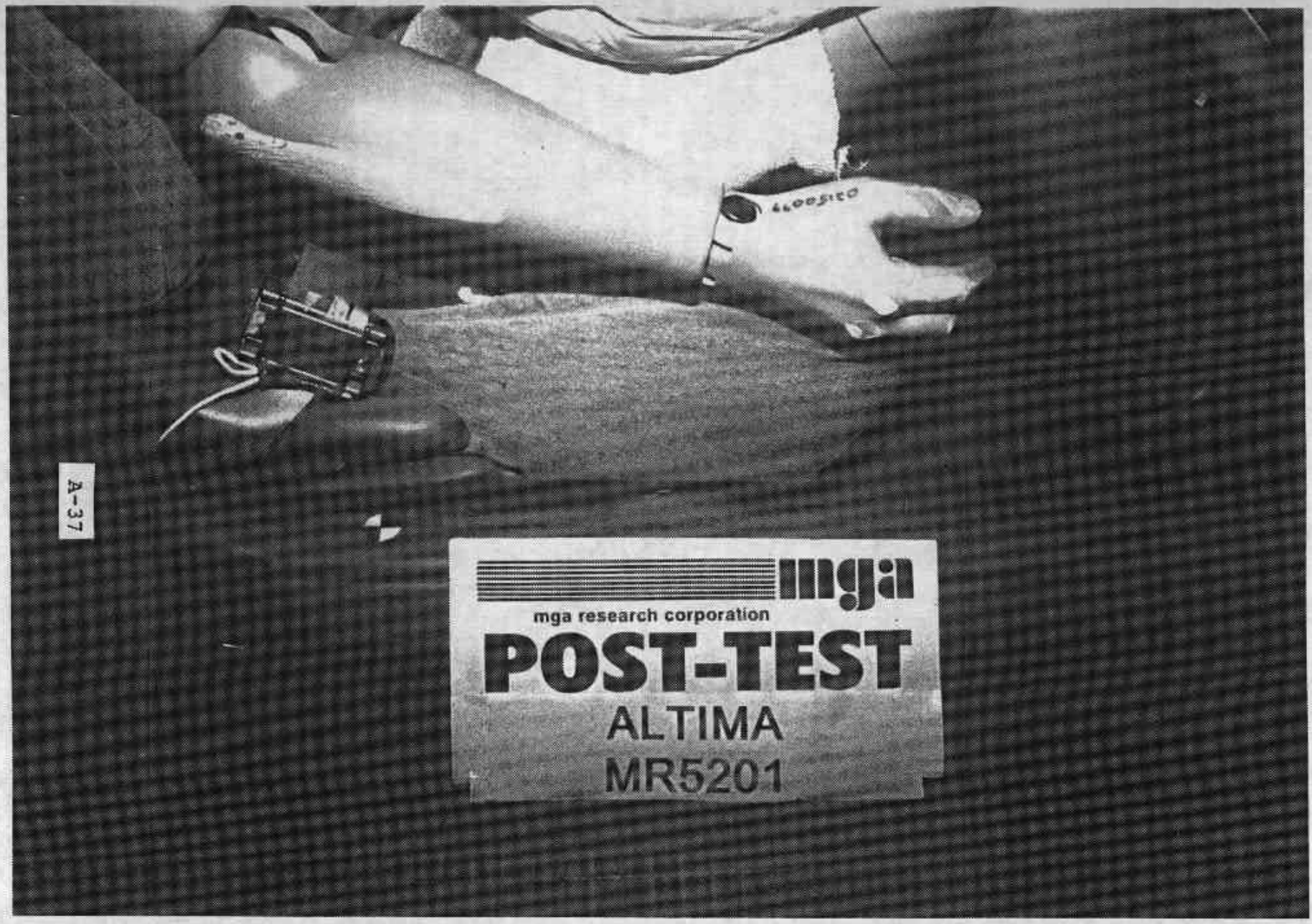


Photo No. A-37 - Post-Test Passenger Seat Position View

Photo No. A-38 - Pre-Test Passenger Knee Position View

Photo No. A-39 - Post-Test Passenger Knee Position View

Photo No. A-40 - Post-Test Passenger Airbag Contact

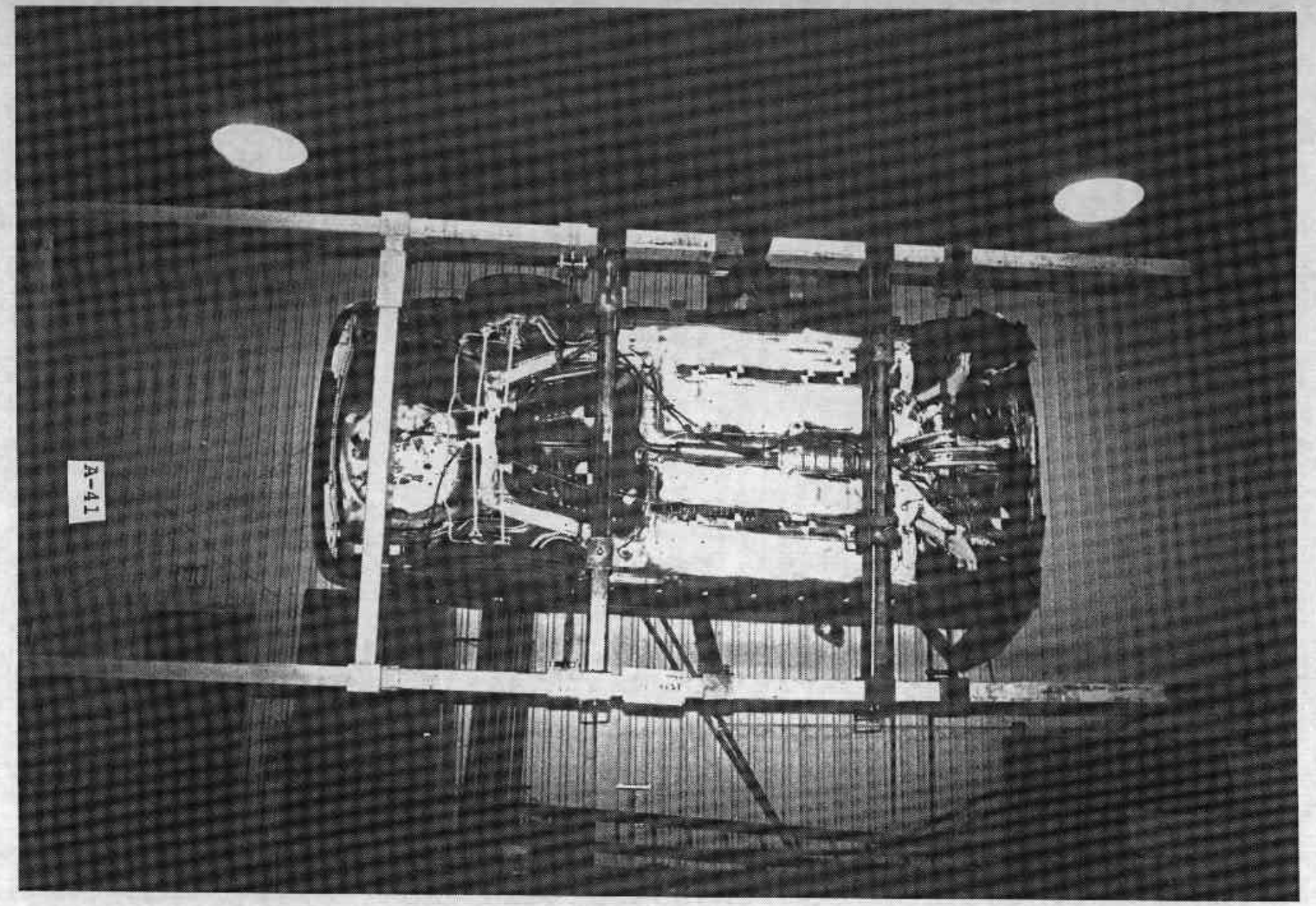


Photo No. A-41 - Rollover 90°

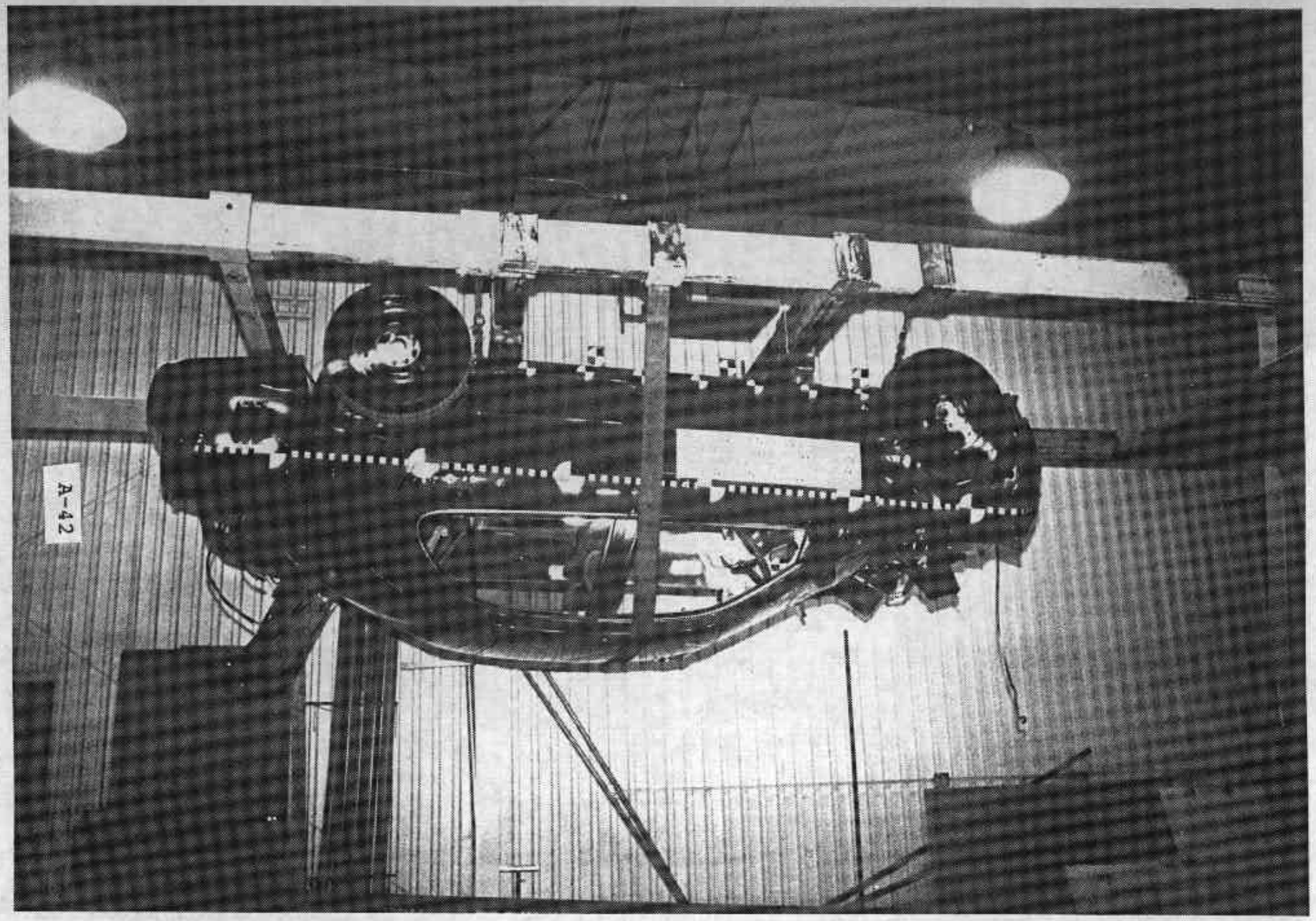


Photo No. A-42 - Rollover 180°

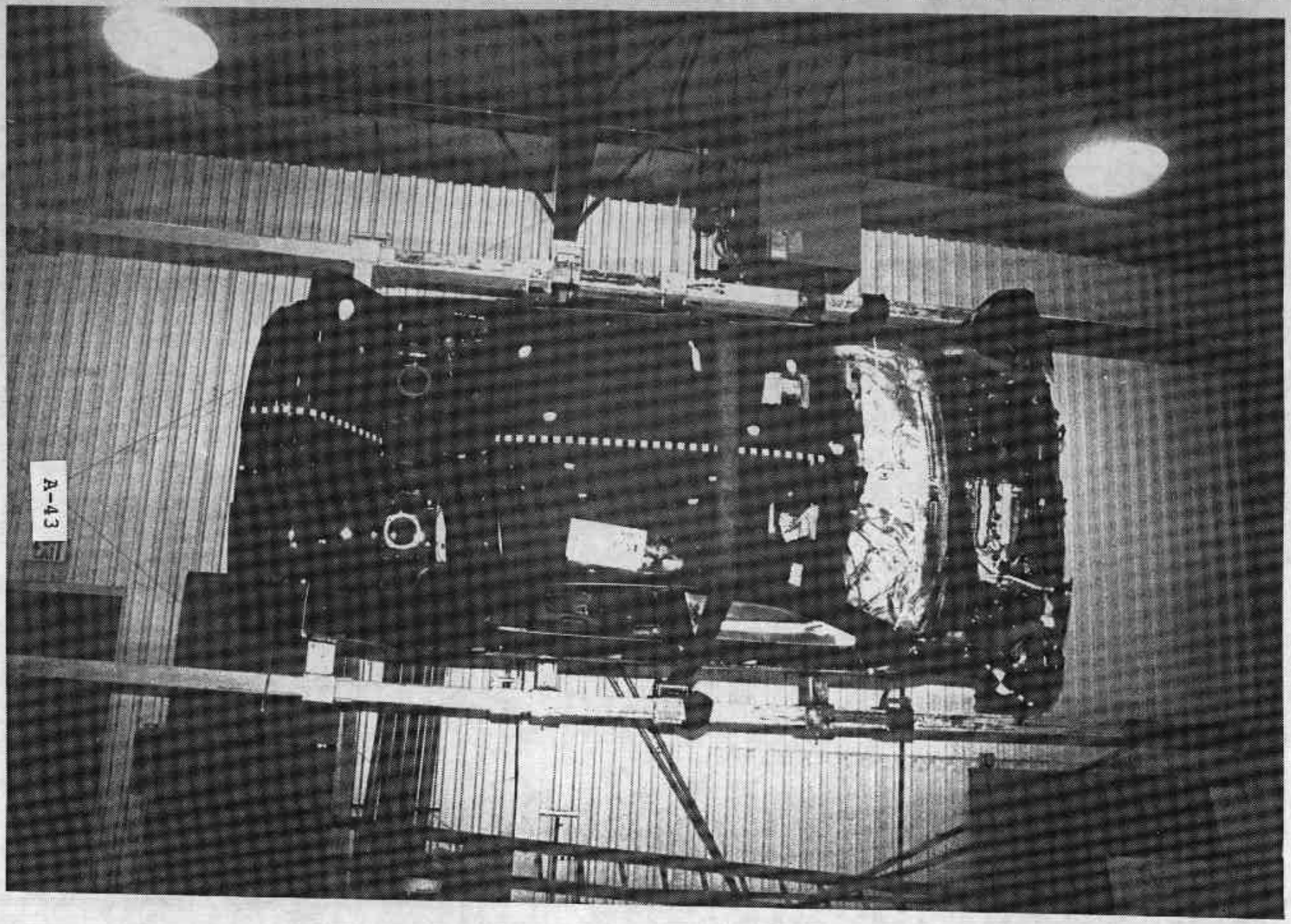


Photo No. A-43 - Rollover 270°

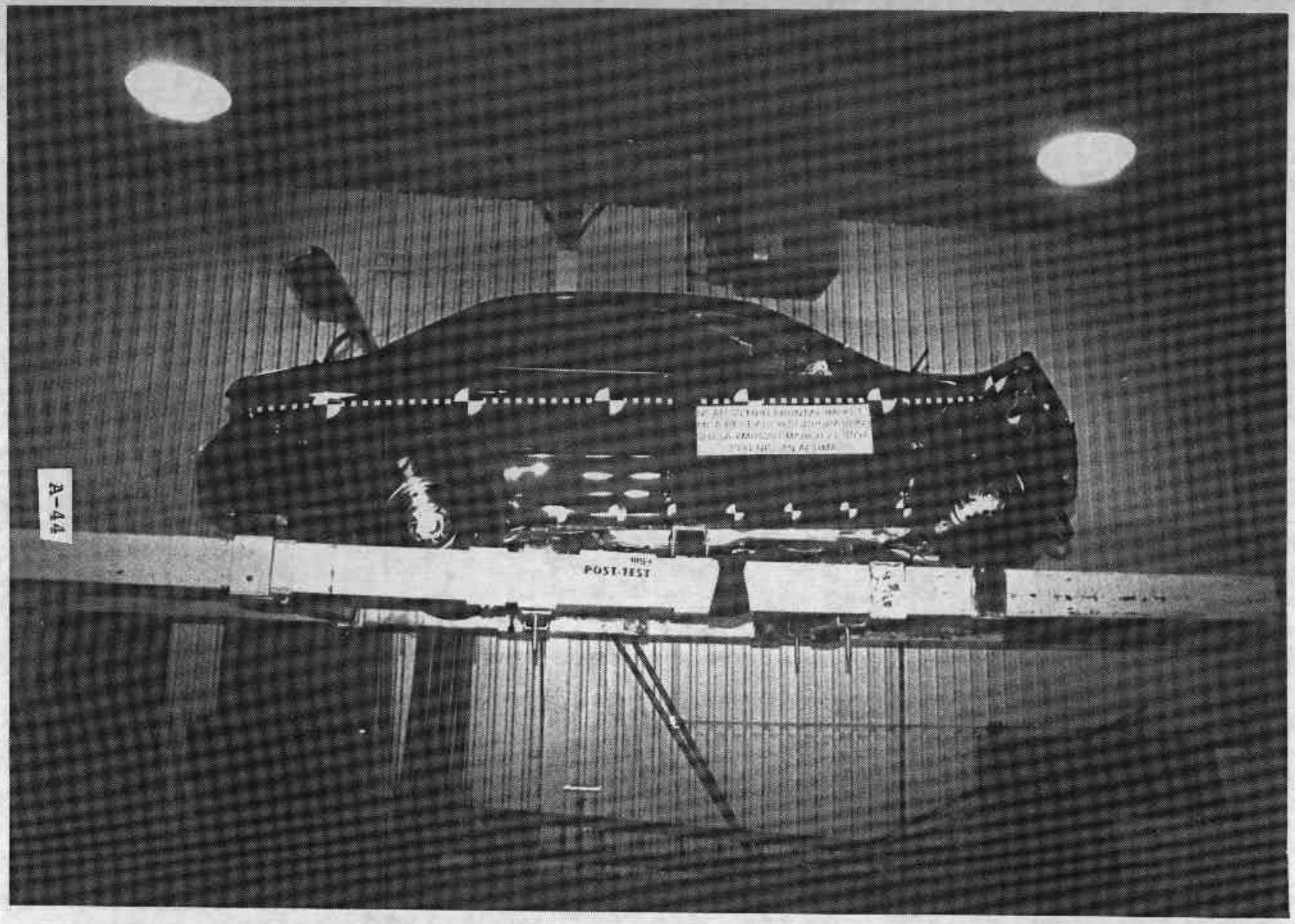


Photo No. A-44 - Rollover 360°

APPENDIX B

Vehicle, Load Cell Barrier and Dummy Response Data

1994 NISSAN ALTIMA 4 DOOR

NHTSA NO.: MR5201

VEHICLE DATA		FILTER CHANNEL CLASS
Head Accelerations	1000	(1650 Hz)
Chest Accelerometers	180	(300 Hz)
Vehicle Accelerometers	60	(100 Hz)
Barrier Load Cells	60	(100 Hz)
Femur Load Cells	600	(1000 Hz)
Lap and Torso Belts	60	(100 Hz)

* No valid data collected

NO VALID DATA COLLECTED

Figure B-1 - Right Rear Seat Crossmember X Acceleration vs. Time

NO VALID DATA COLLECTED

Figure B-2 - Right Rear Seat Crossmember X Velocity vs. Time

NO VALID DATA COLLECTED

Figure B-3 - Right Rear Seat Crossmember X Displacement vs.Time

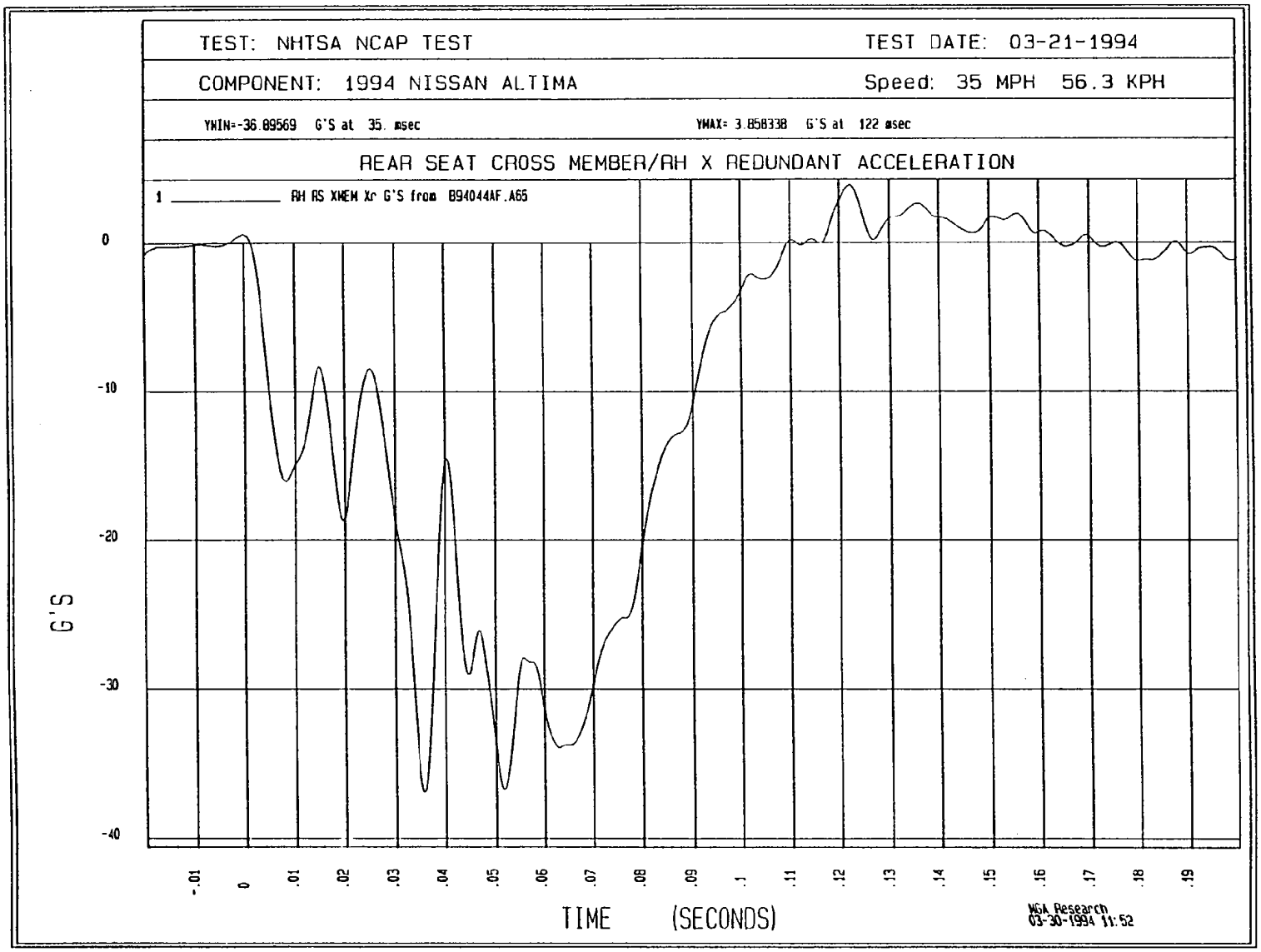


Figure B-4 - Right Rear Seat Crossmember X Redundant Acceleration vs. Time

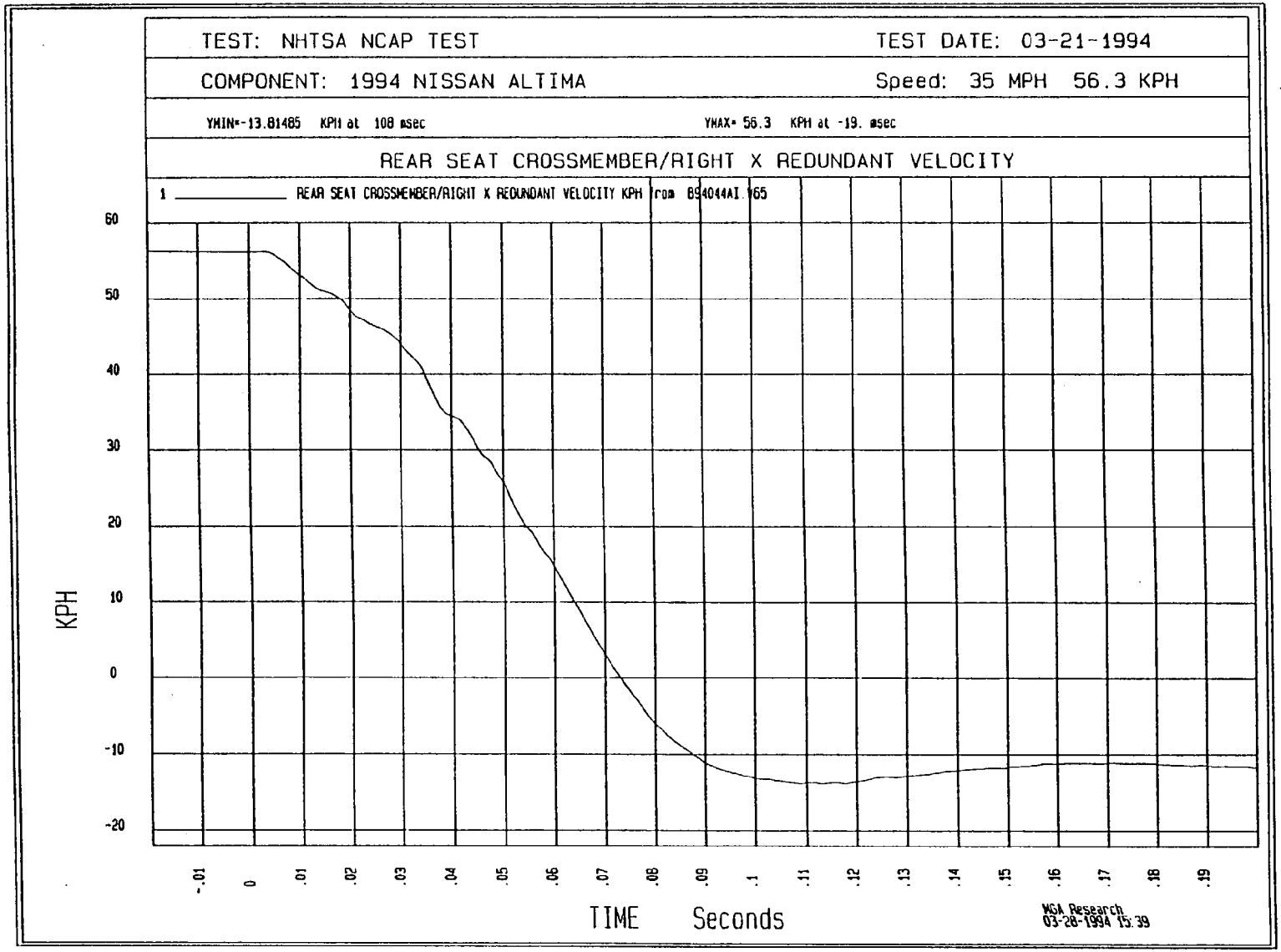


Figure B-5 - Right Rear Seat Crossmember X Redundant Velocity vs. Time

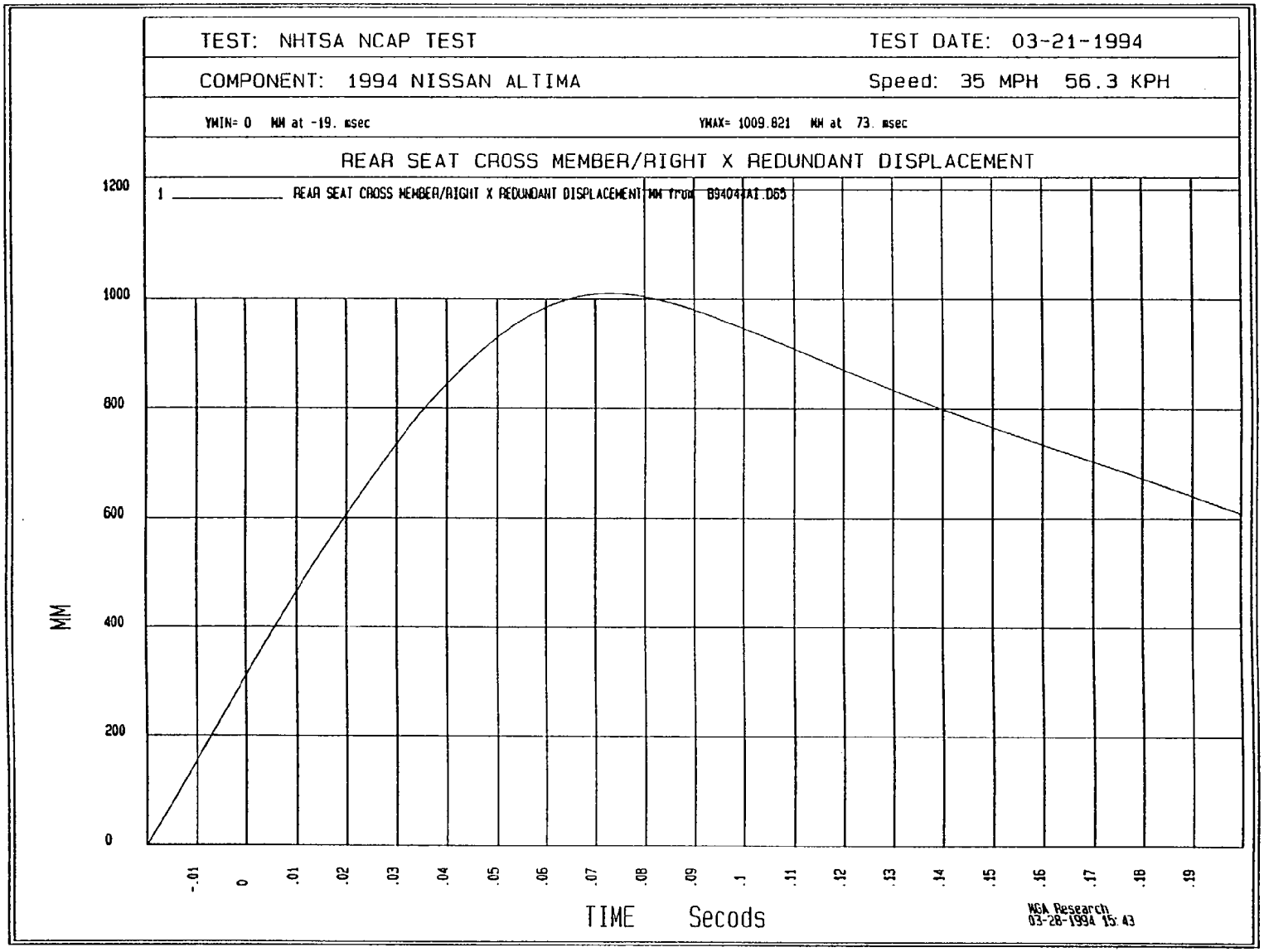


Figure B-6 - Right Rear Seat Crossmember X Redundant Displacement vs. Time

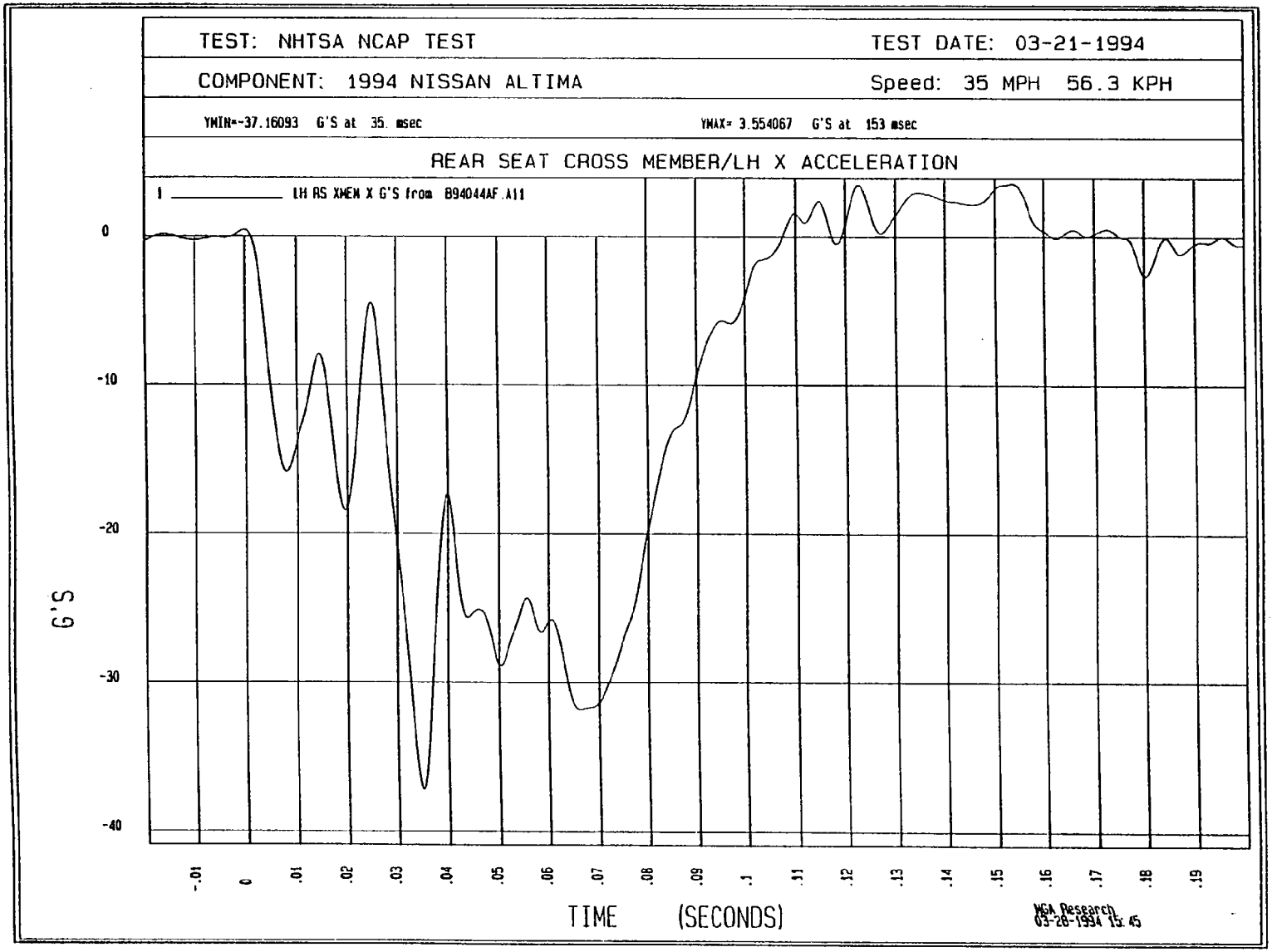


Figure B-7 - Left Rear Seat Crossmember X Acceleration vs. Time

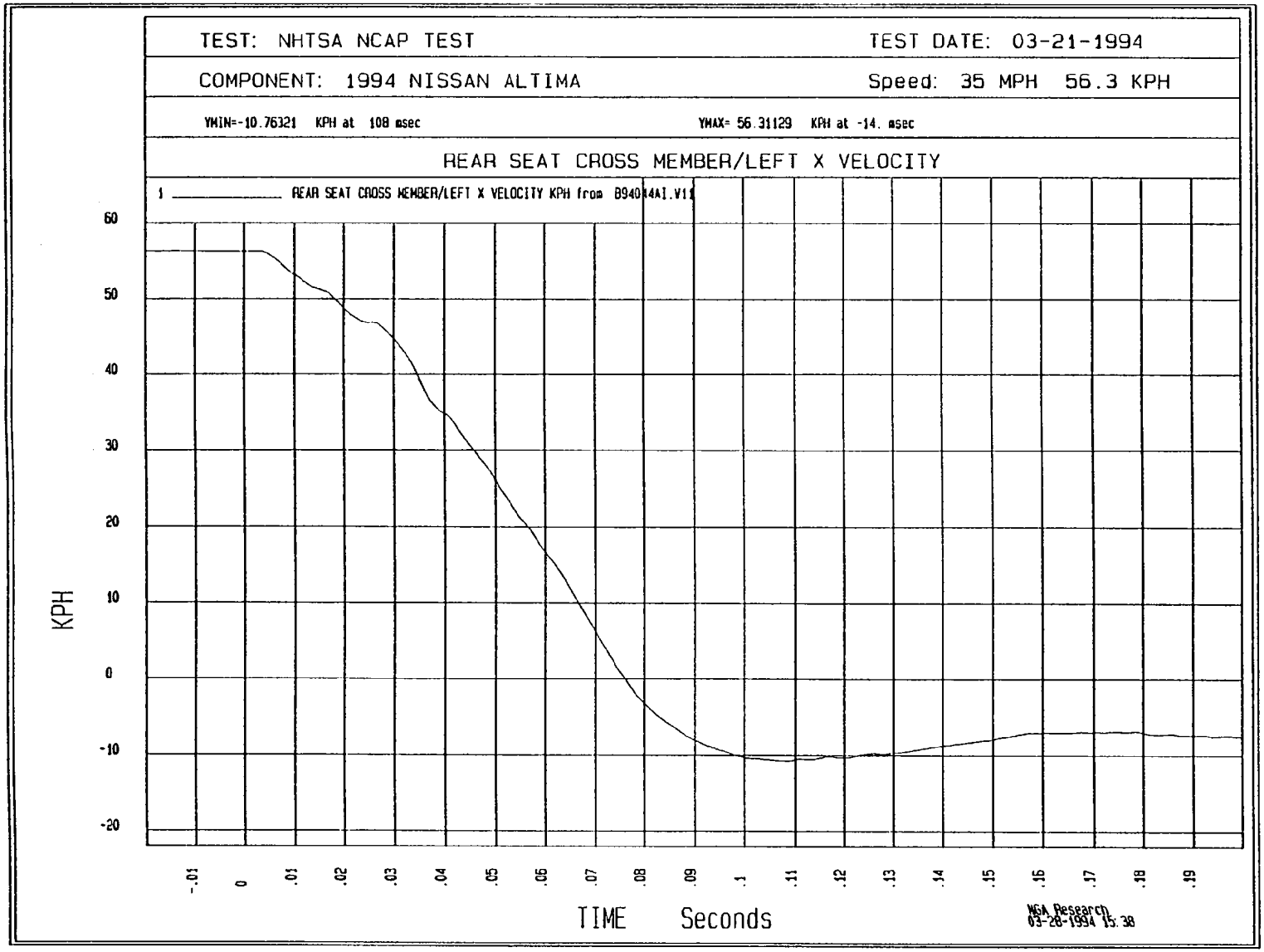
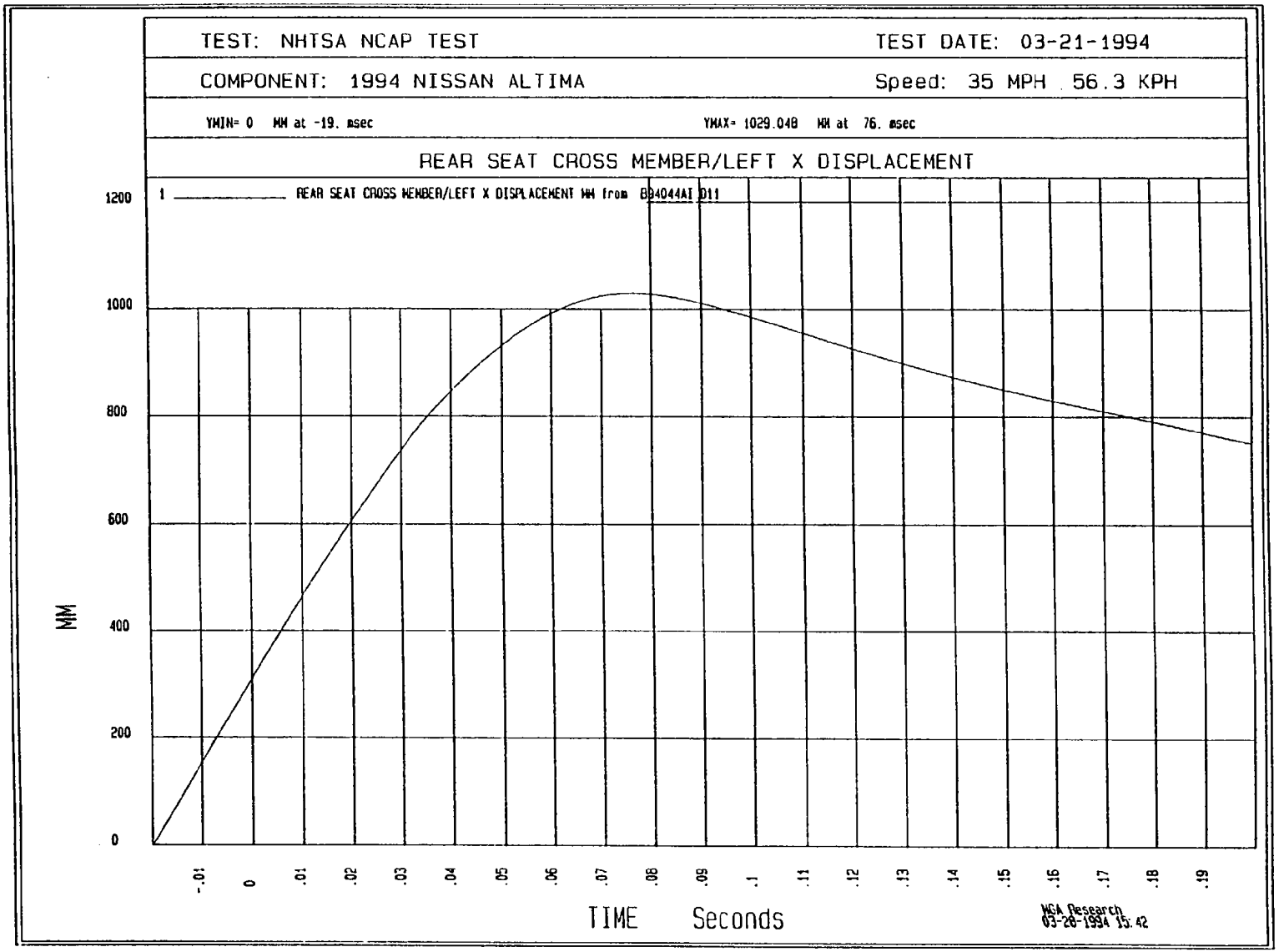


Figure B-8 - Left Rear Seat Crossmember X Velocity vs. Time



B-9

Figure B-9 - Left Rear Seat Crossmember X Displacement vs. Time

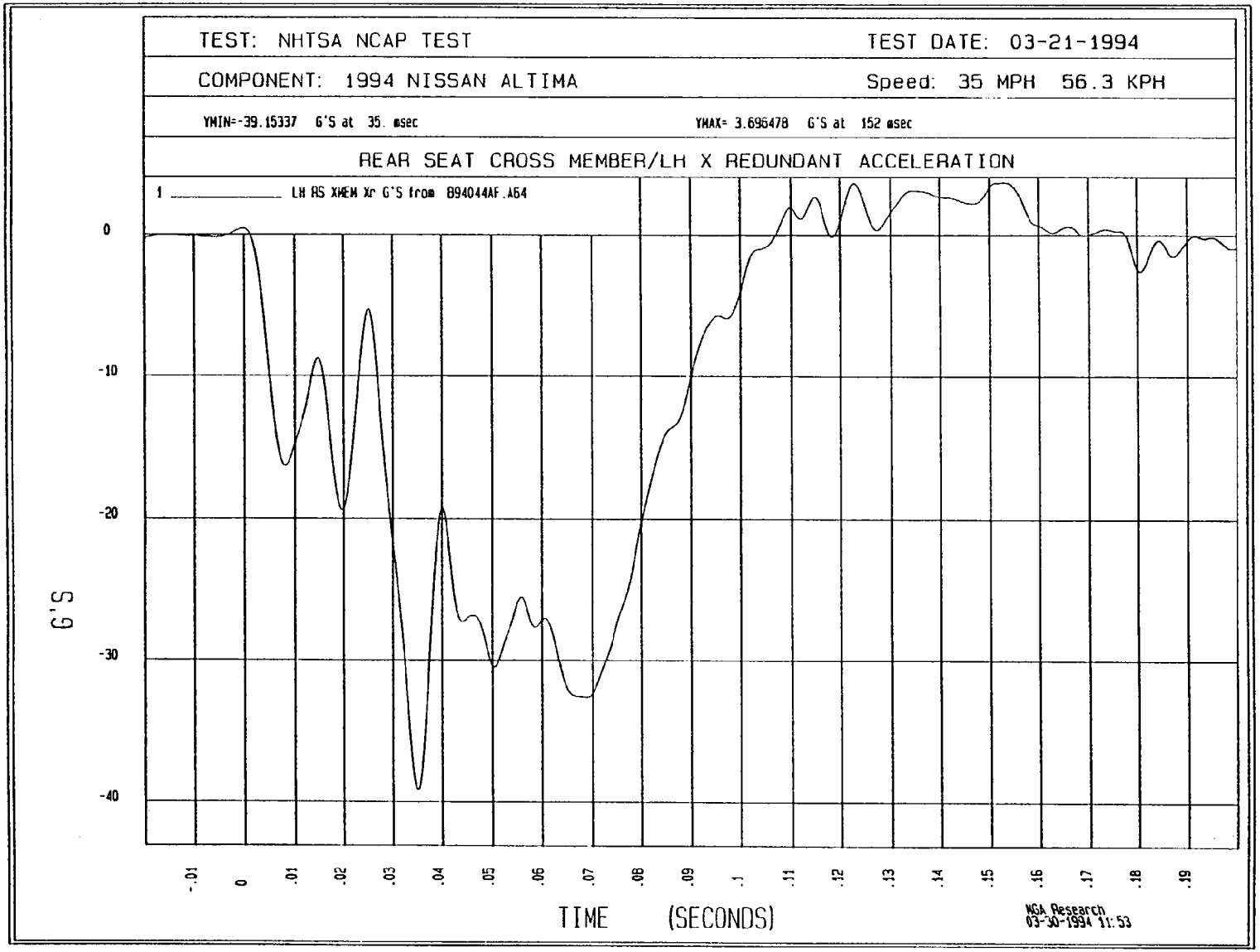


Figure B-10 - Left Rear Seat Crossmember X Redundant Acceleration vs. Time

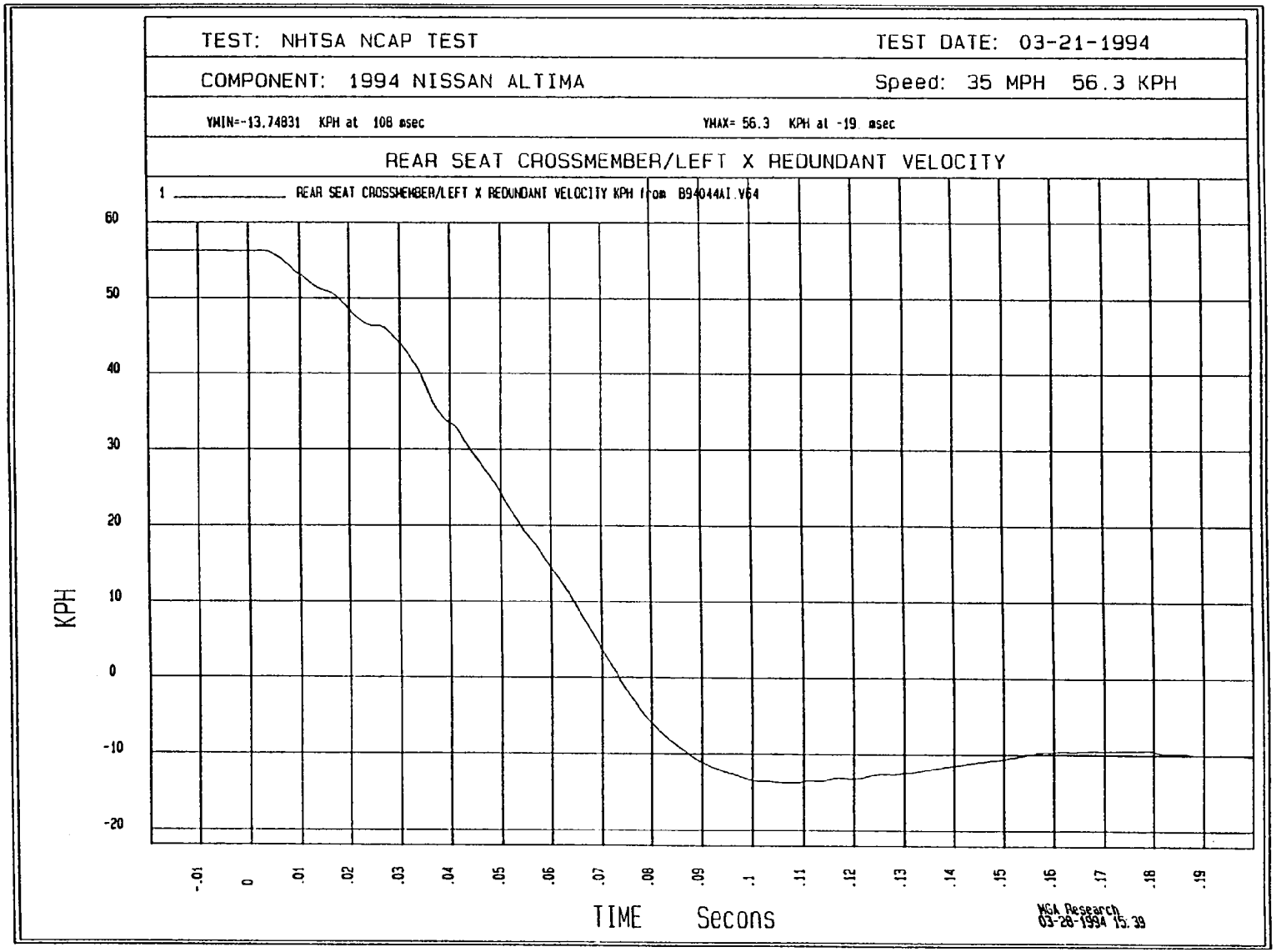


Figure B-11 - Left Rear Seat Crossmember X Redundant Velocity vs. Time

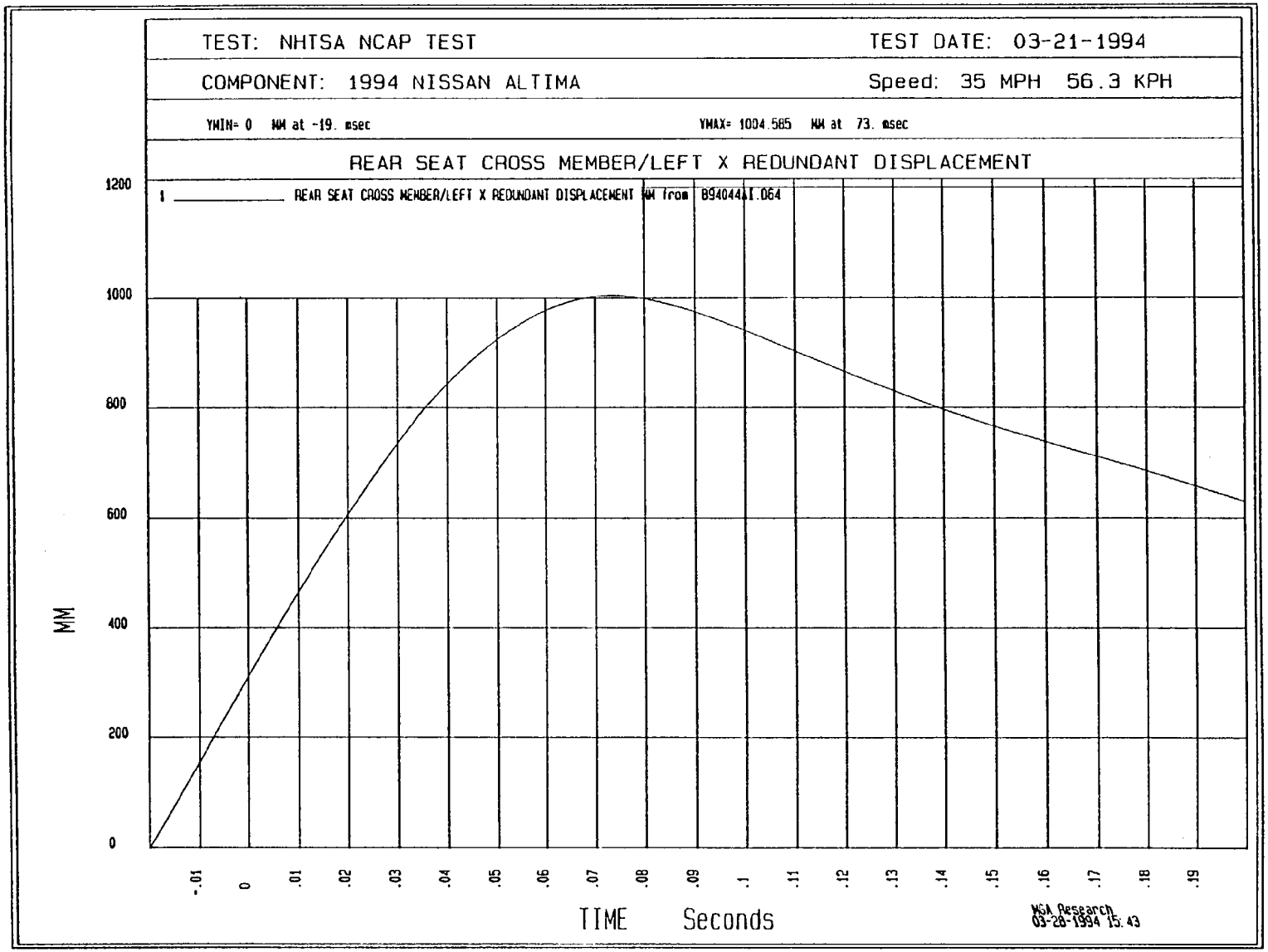


Figure B-12 - Left Rear Seat Crossmember X Redundant Displacement vs. Time

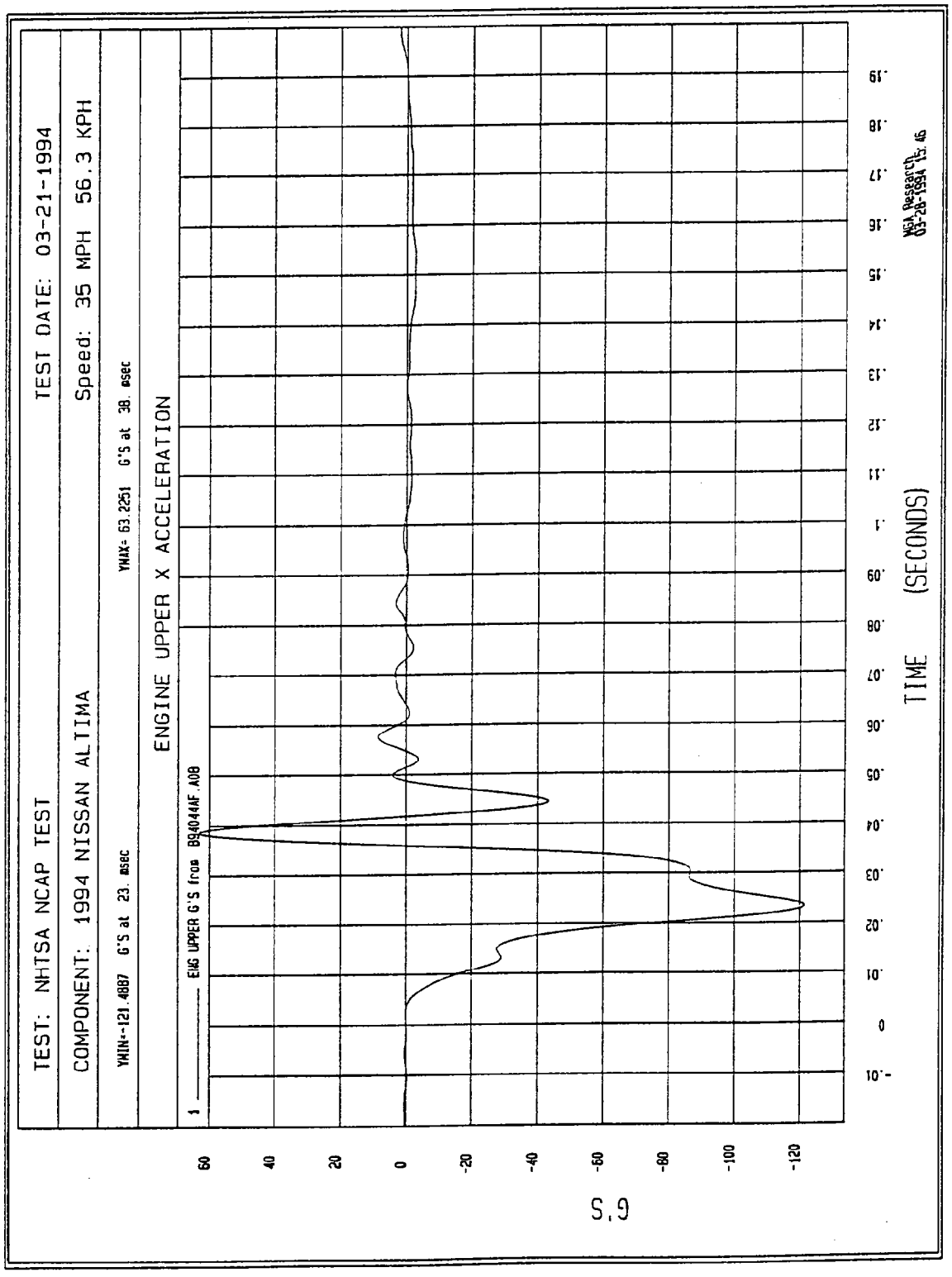


Figure B-13 - Upper Engine Block X Acceleration vs. Time

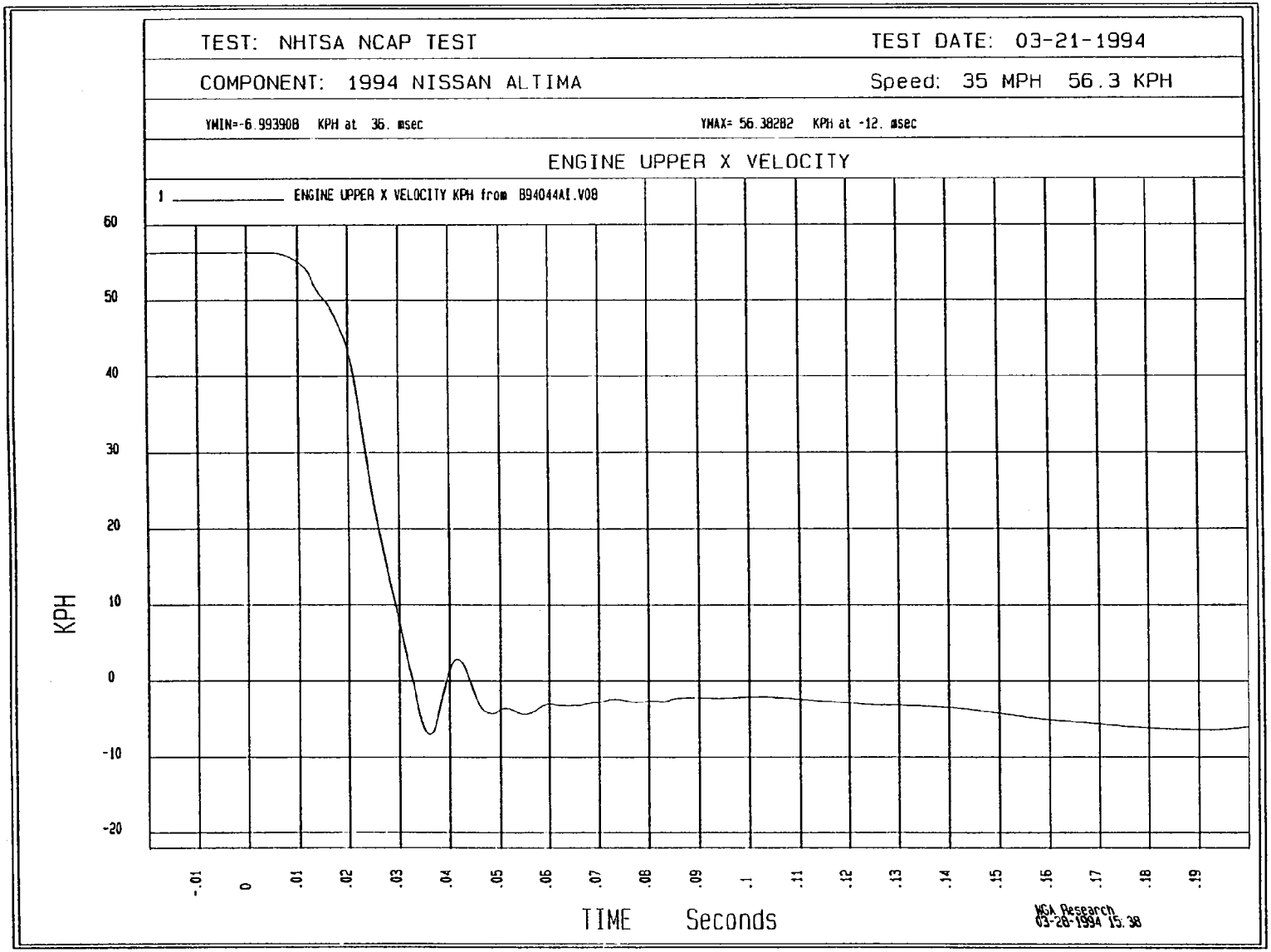


Figure B-14 - Upper Engine Block X Velocity vs. Time

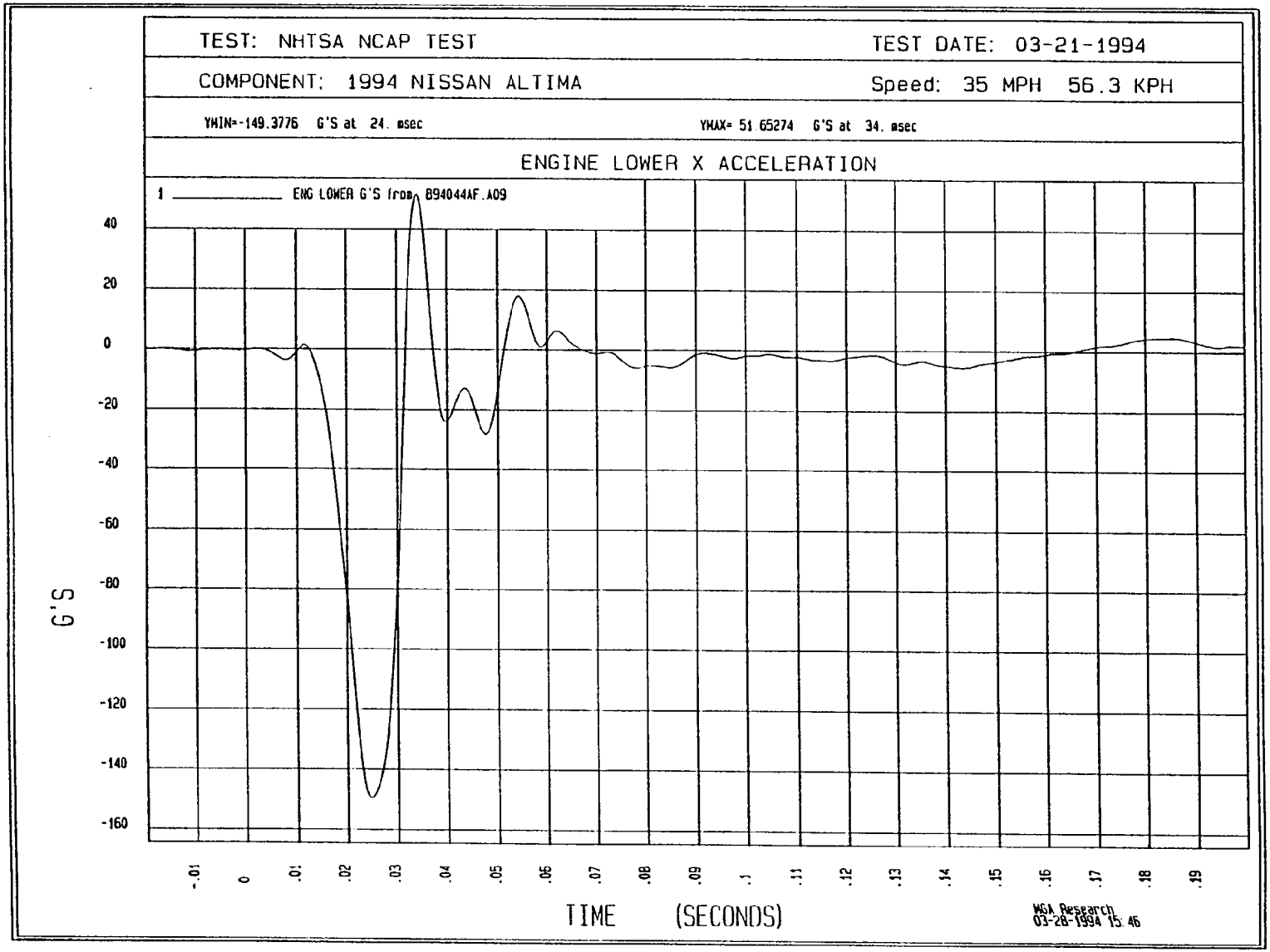


Figure B-15 - Bottom of Engine Block X Acceleration vs. Time

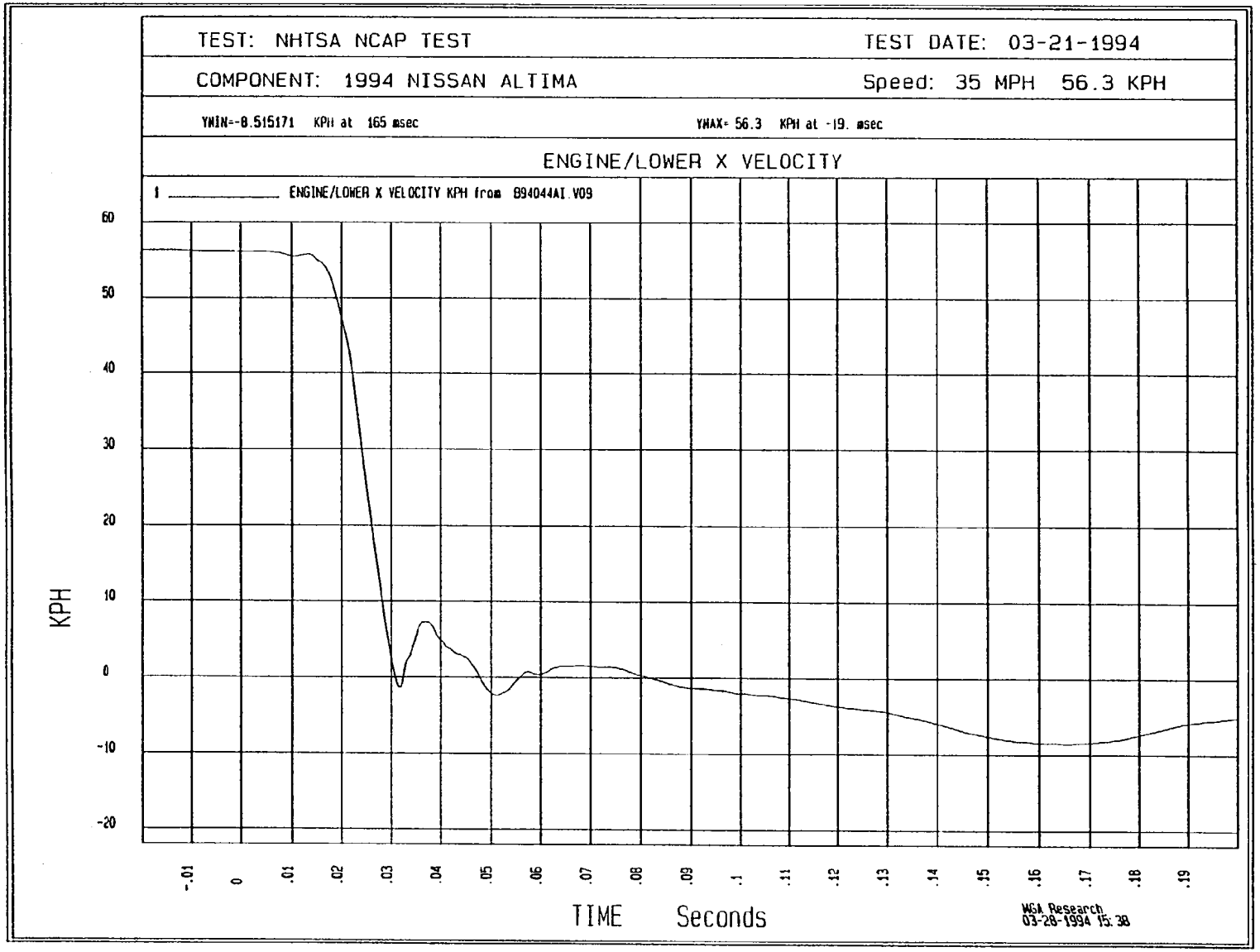


Figure B-16 - Bottom of Engine Block X Velocity vs. Time

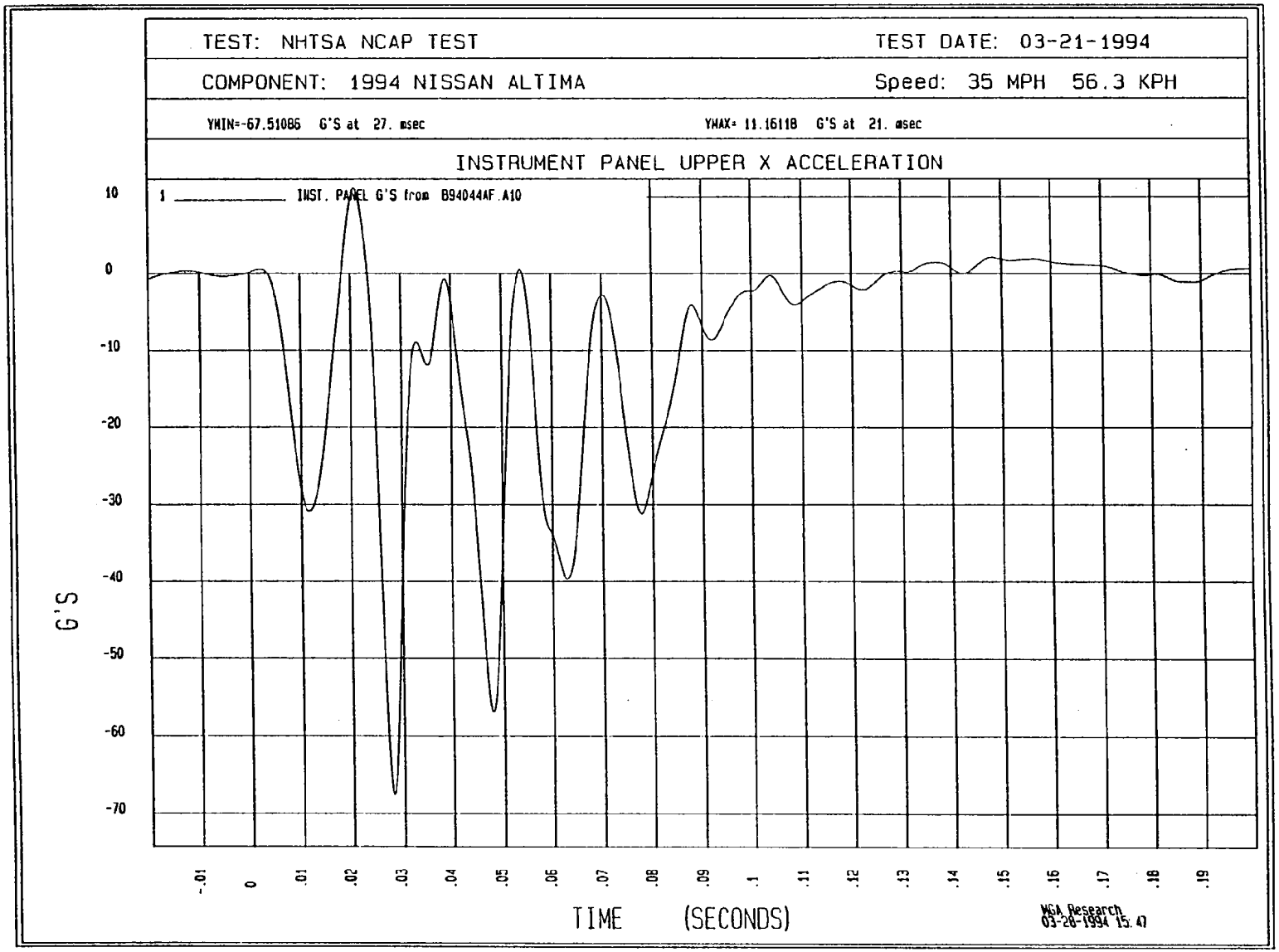


Figure B-17 - Instrument Panel X Acceleration vs. Time

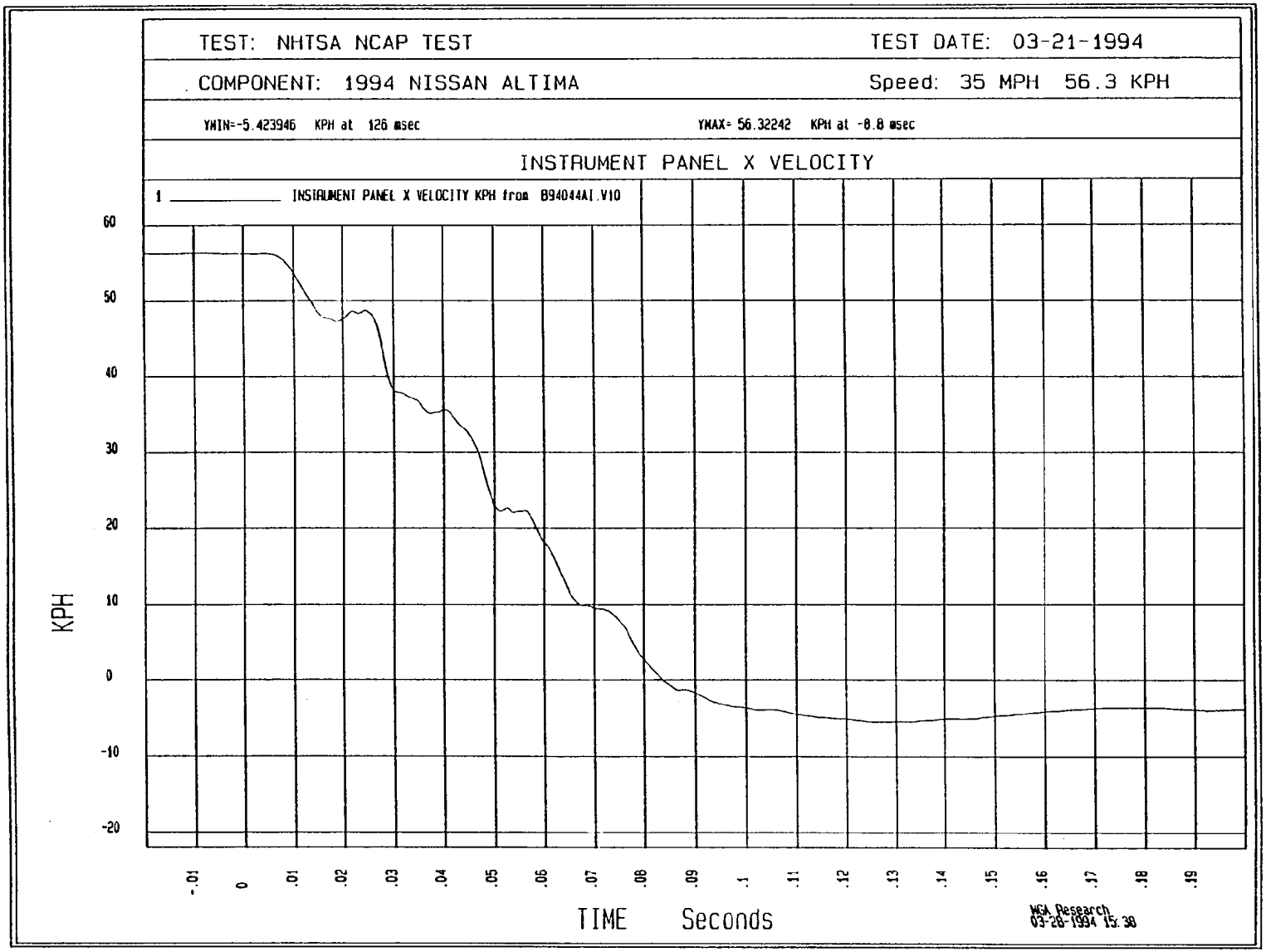


Figure B-18 - Instrument Panel X Velocity vs. Time

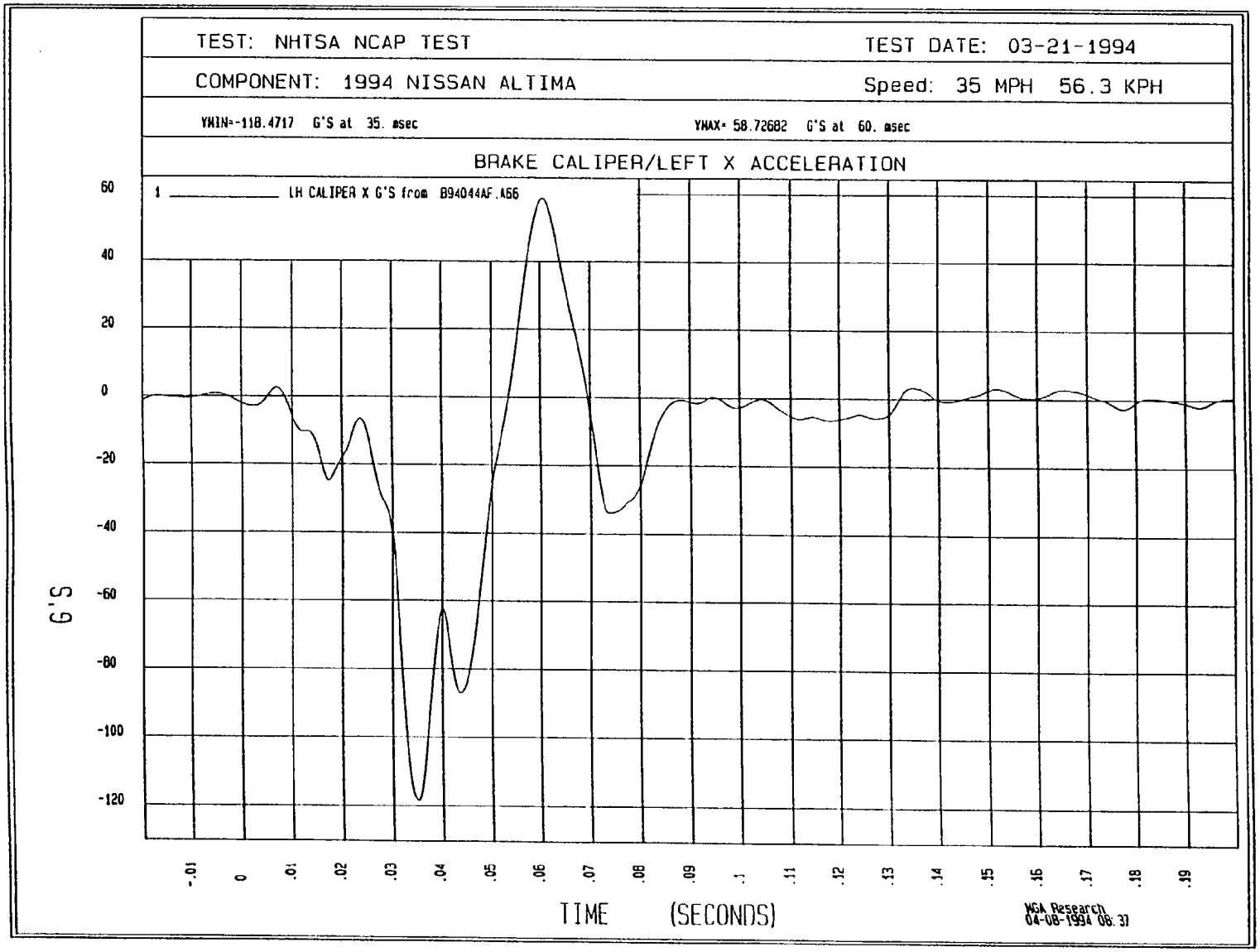


Figure B-19 - Left Brake Caliper X Acceleration vs. Time

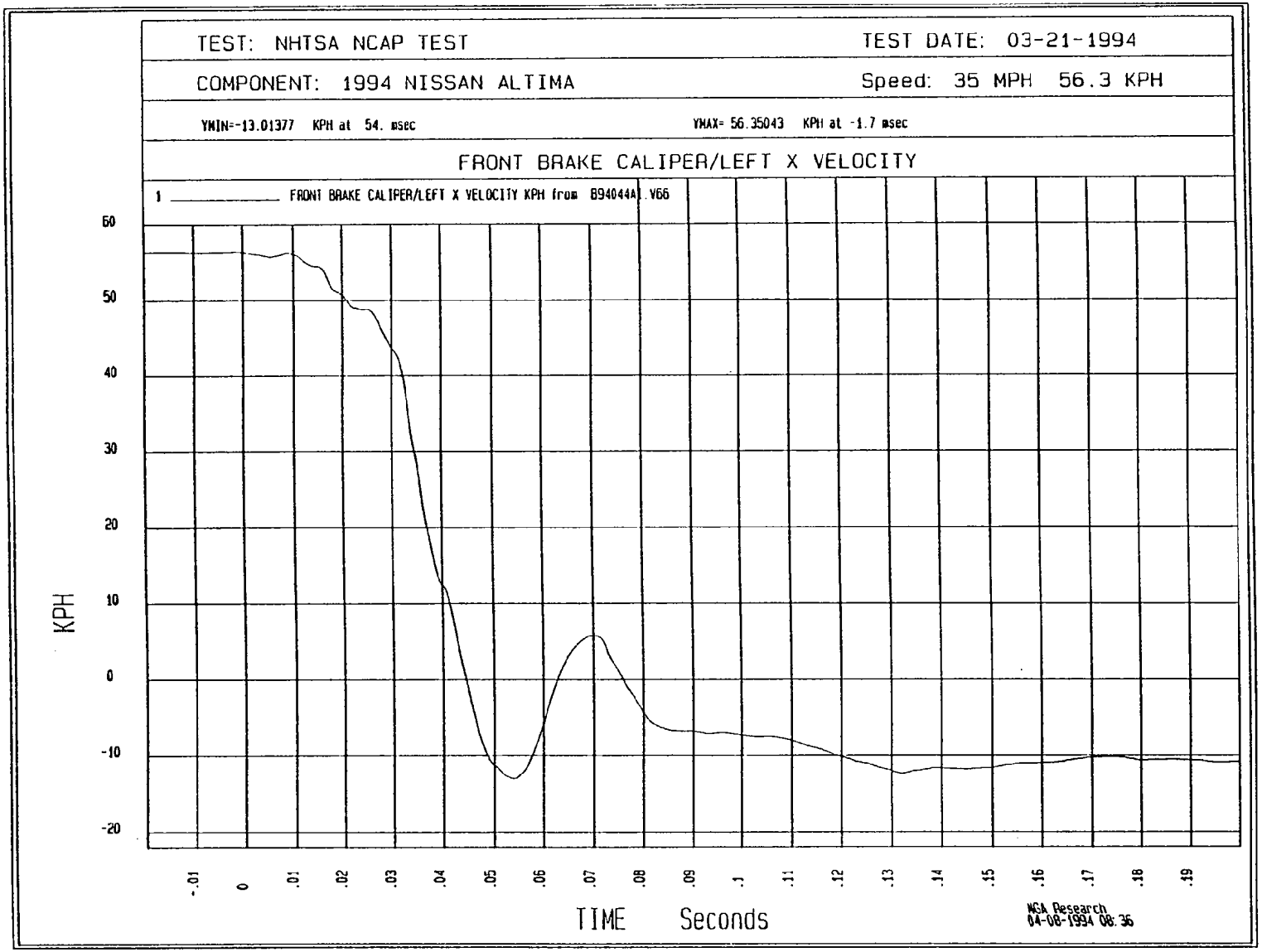


Figure B-2Ø - Left Brake Caliper X Velocity vs. Time

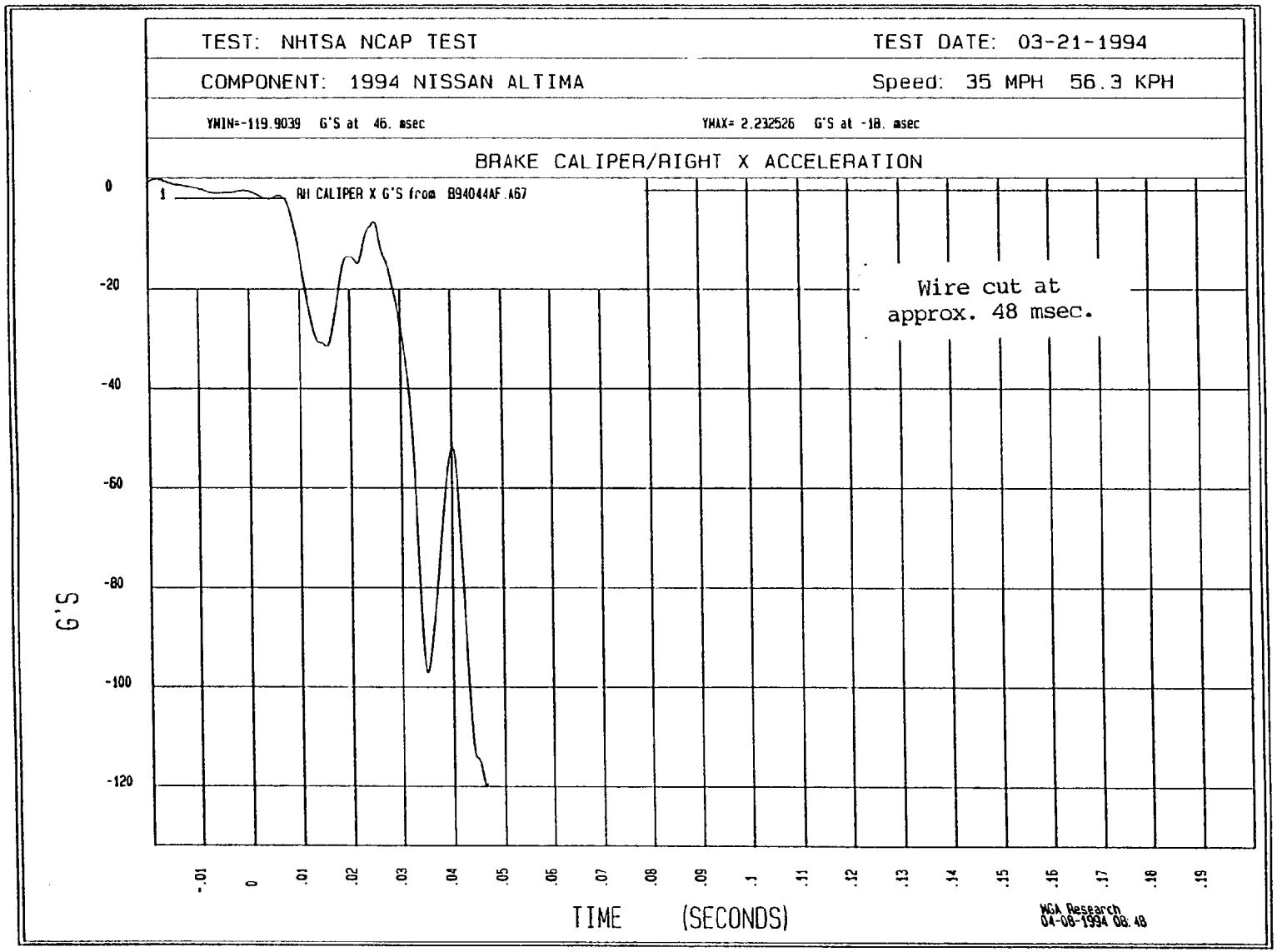


Figure B-21 - Right Brake Caliper X Acceleration vs. Time

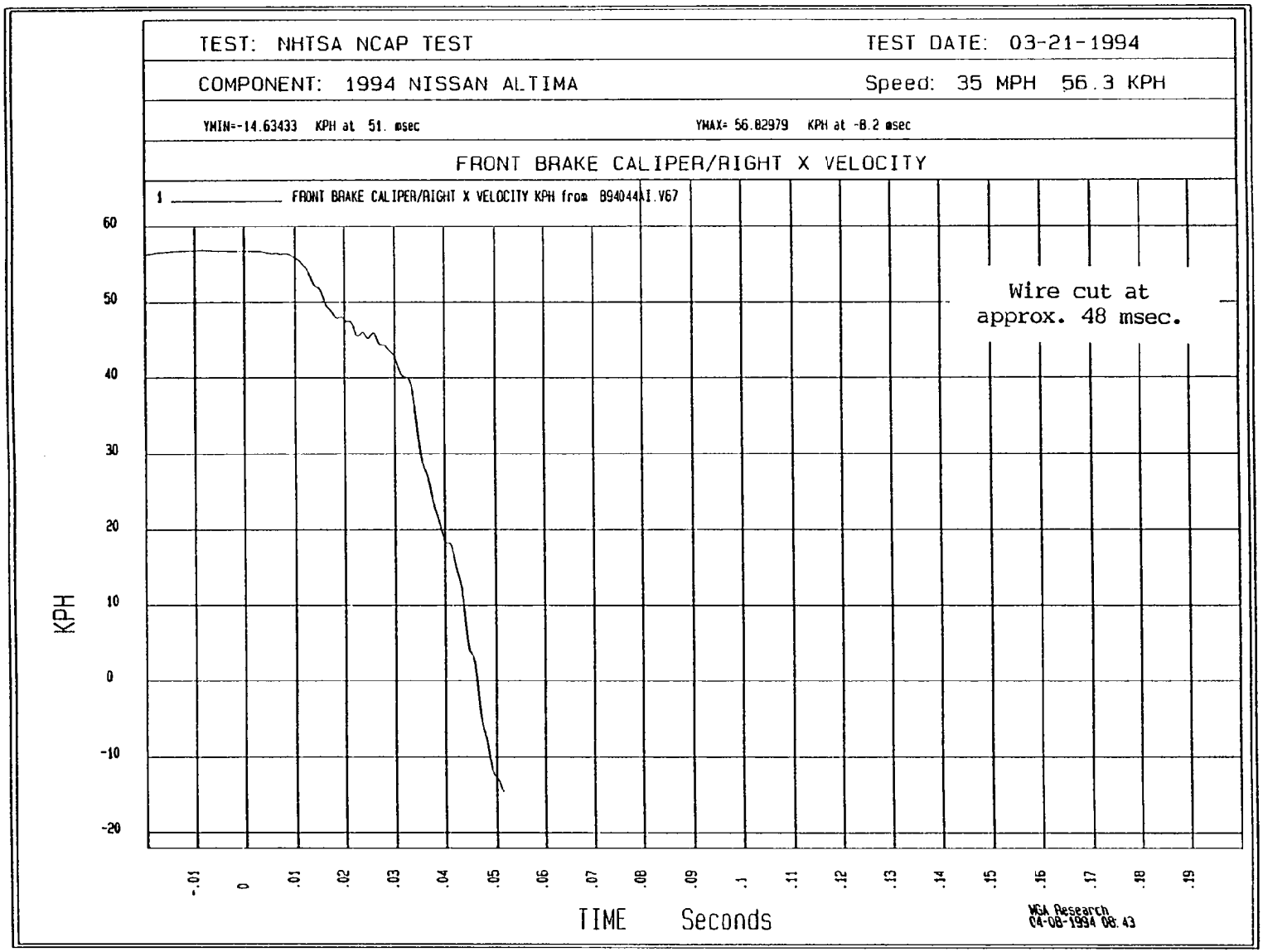


Figure B-22 - Right Brake Caliper X Velocity vs. Time

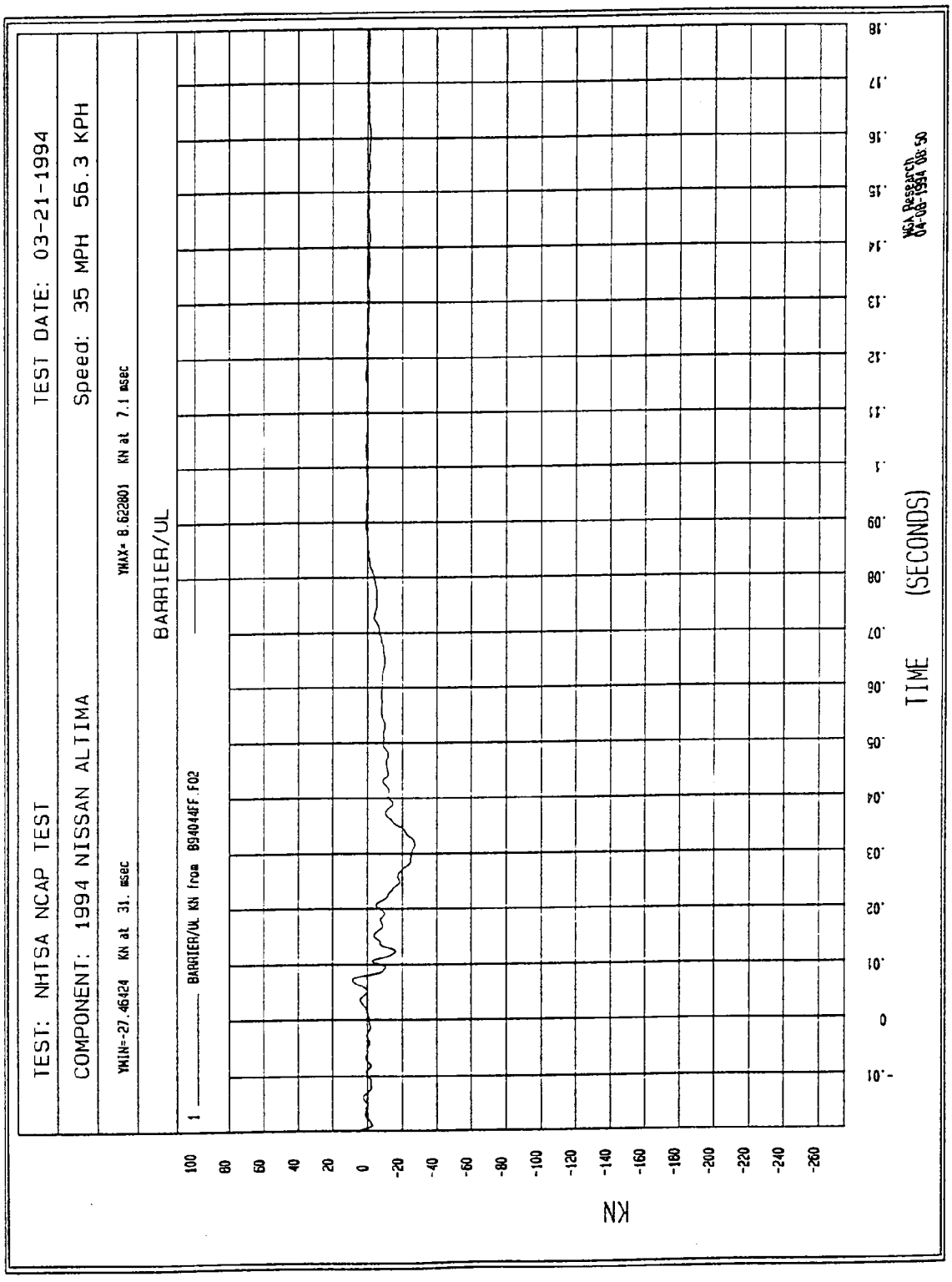


Figure B-23 - Upper Left Barrier Force vs. Time

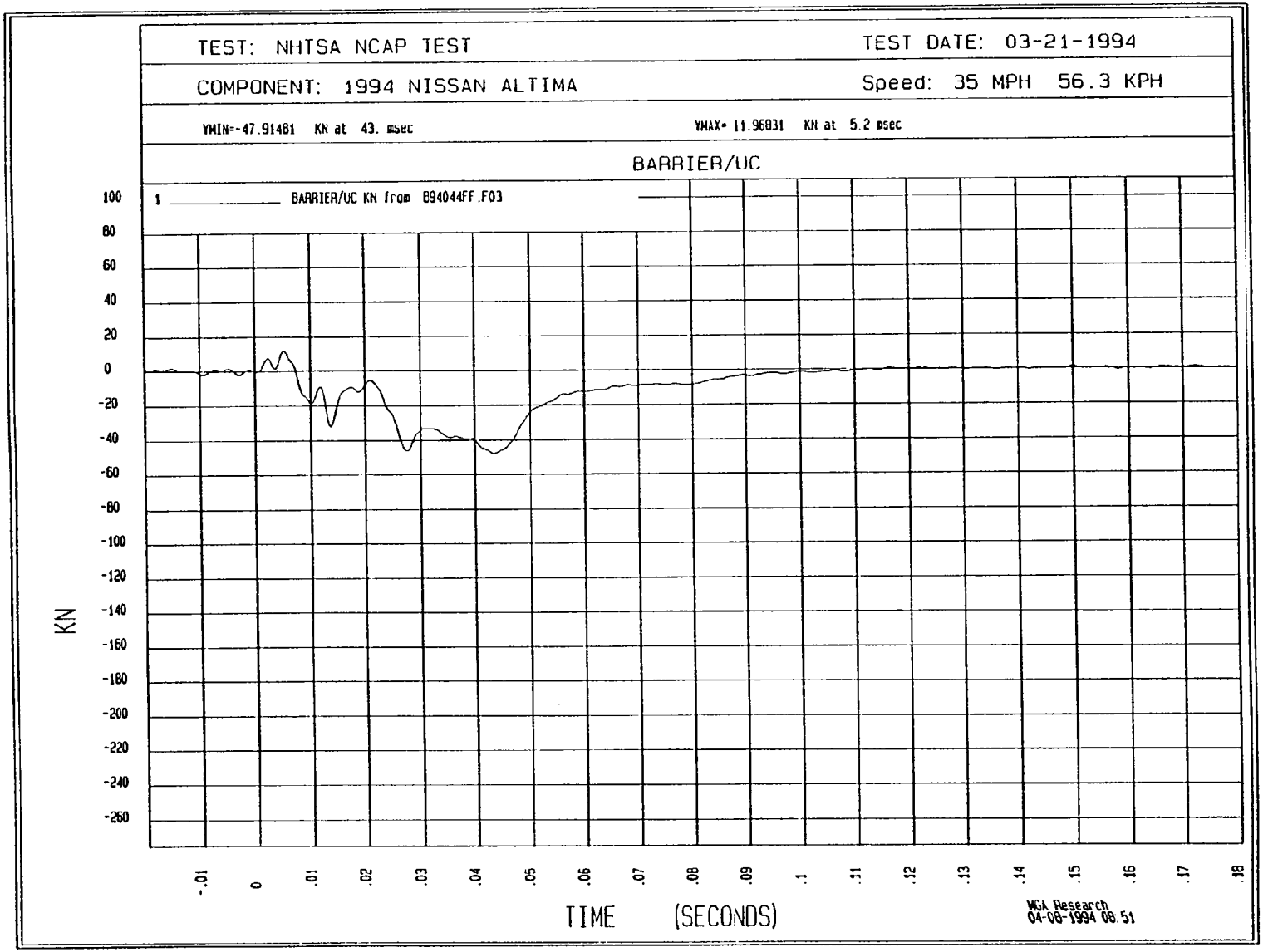


Figure B-24 - Upper Center Barrier Force vs. Time

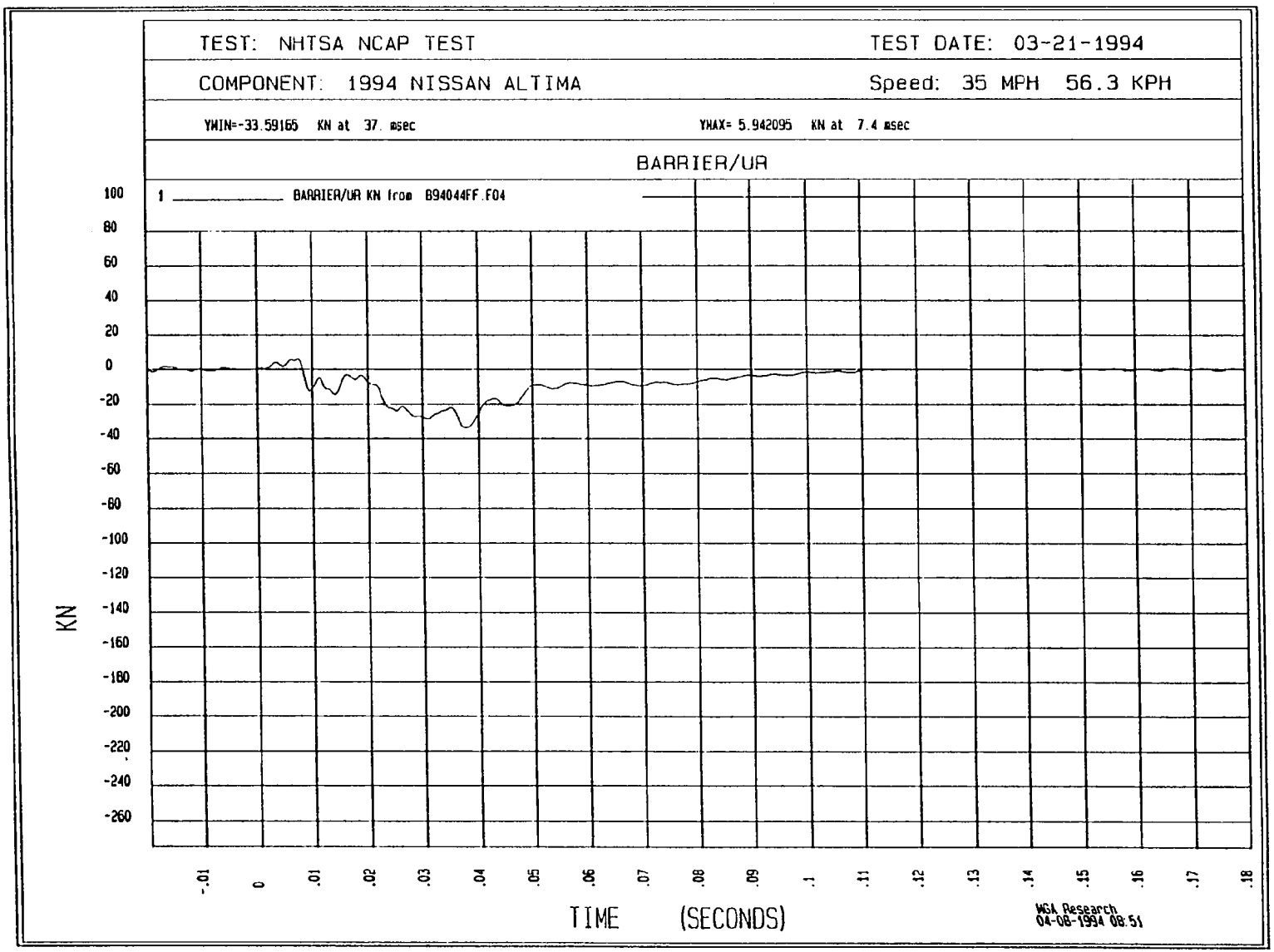


Figure B-25 - Upper Right Barrier Force vs. Time

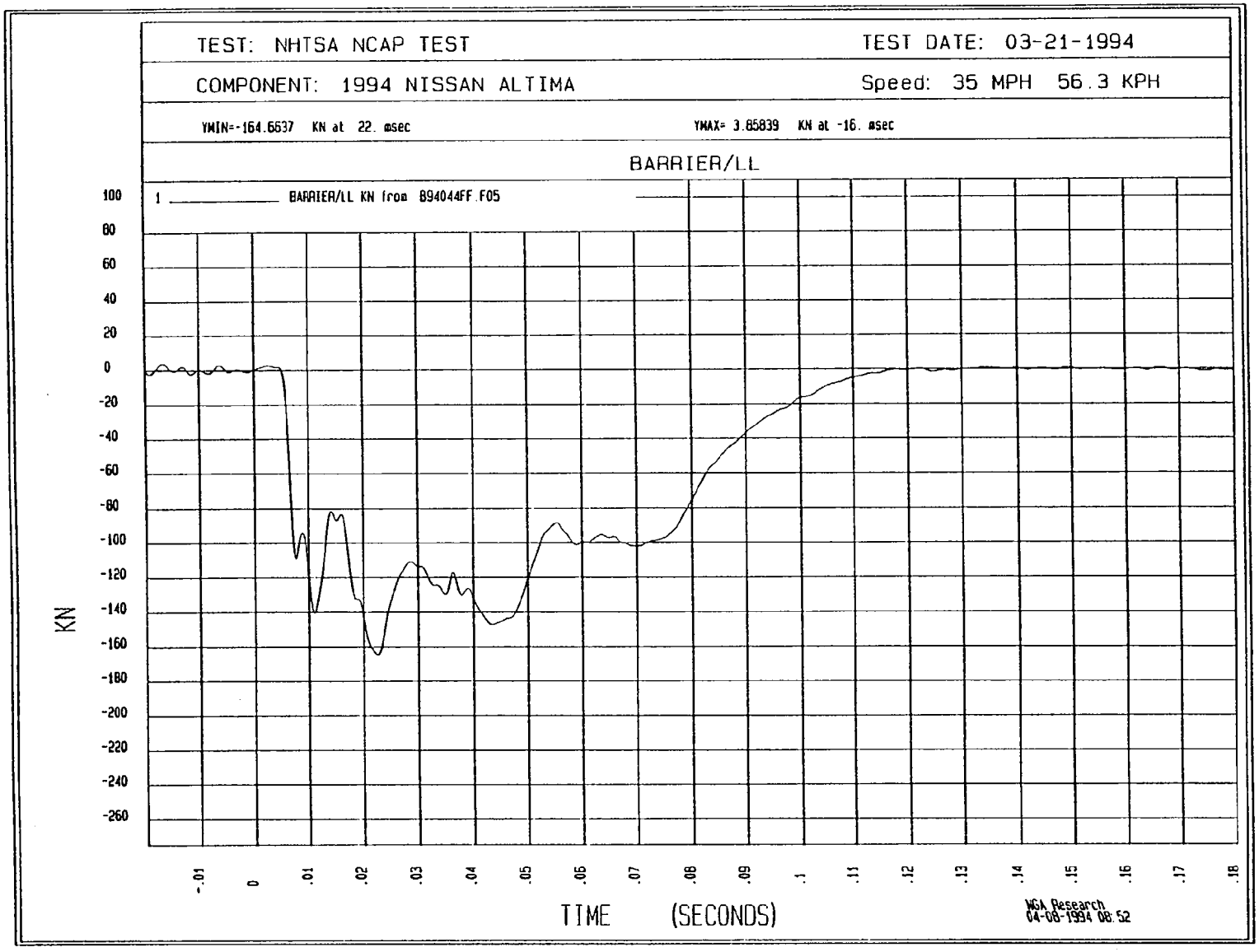


Figure B-26 - Lower Left Barrier Force vs. Time

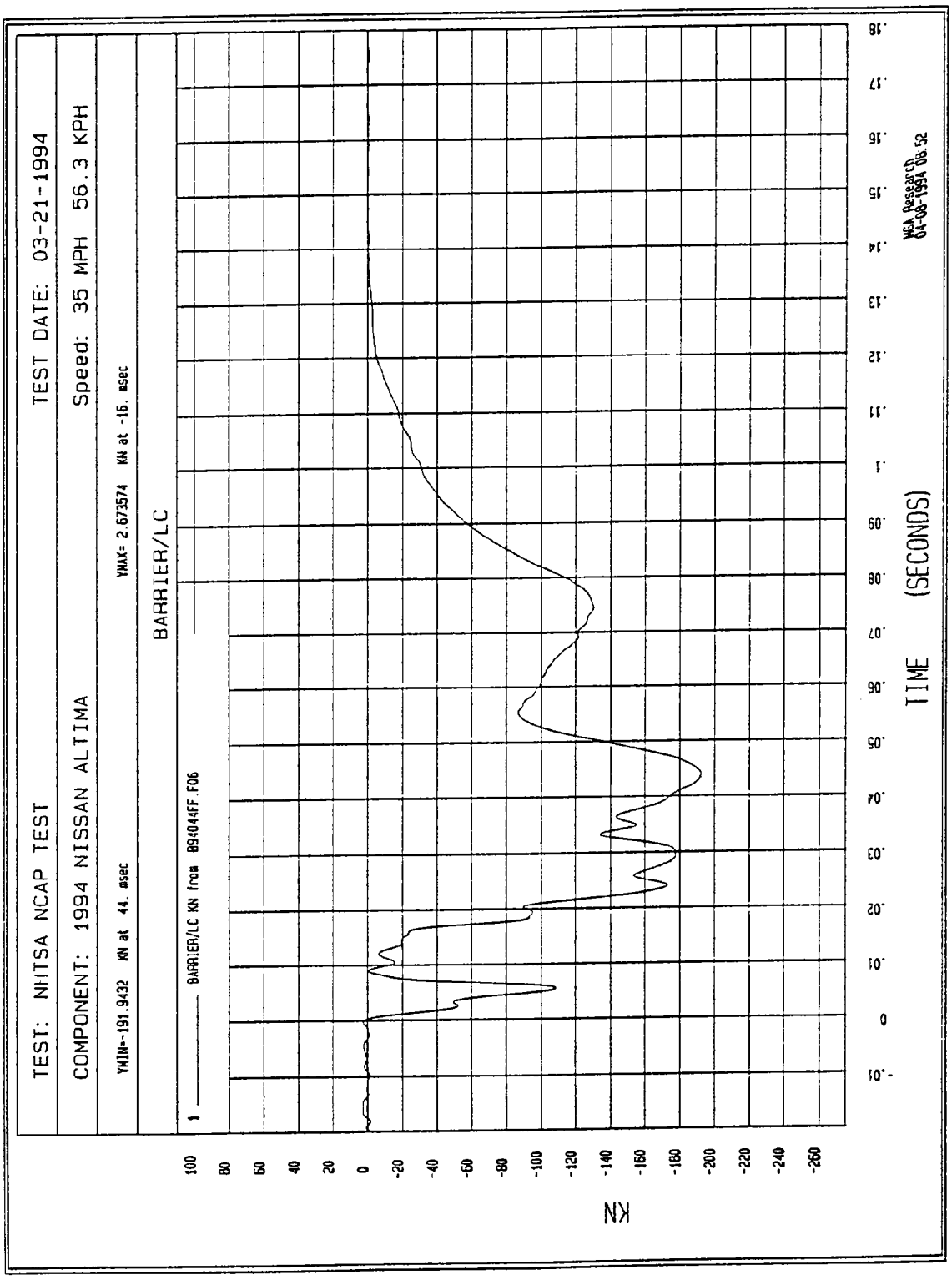


Figure B-27 - Lower Center Barrier Force vs. Time

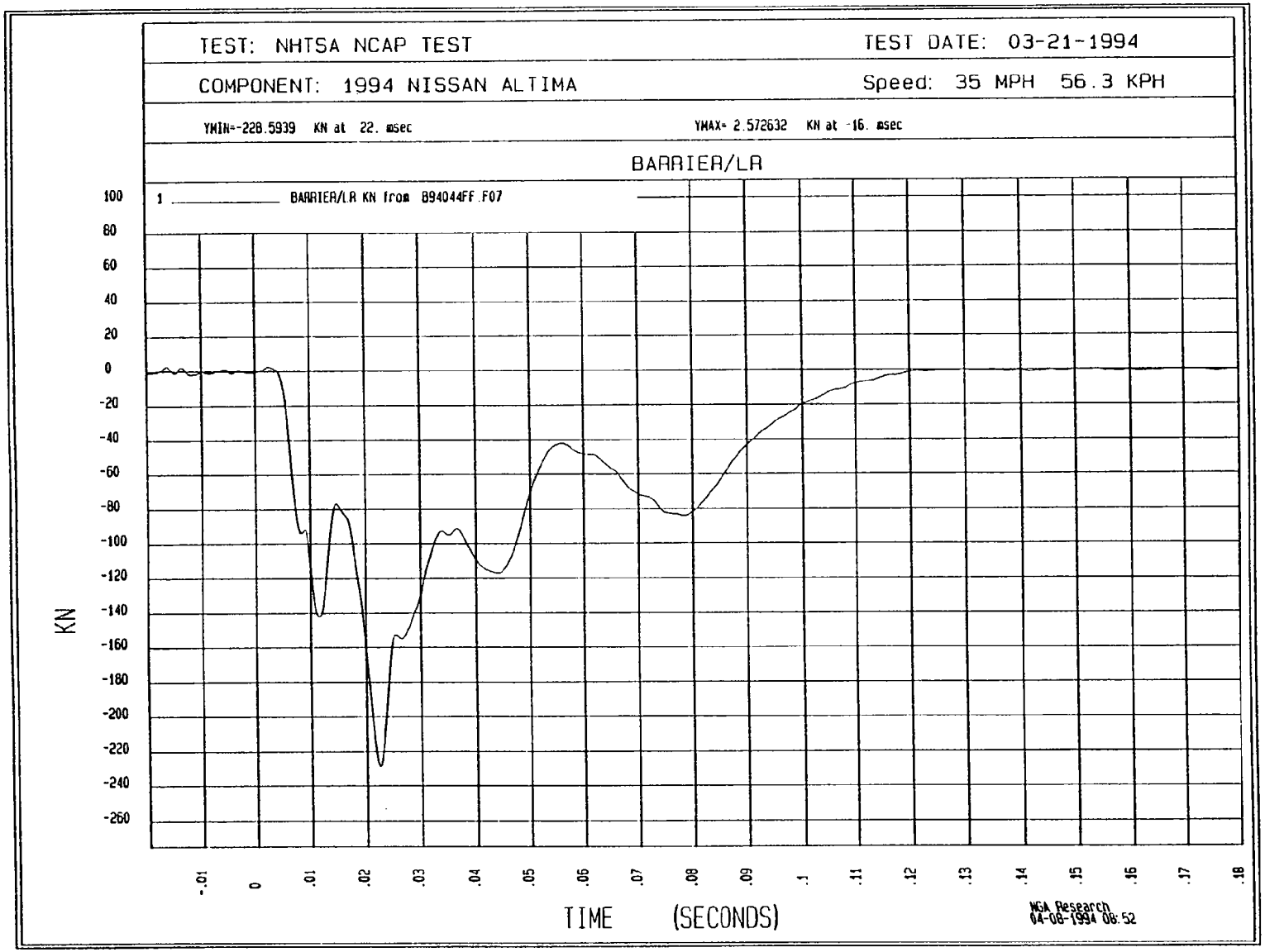


Figure B-28 - Lower Right Barrier Force vs. Time

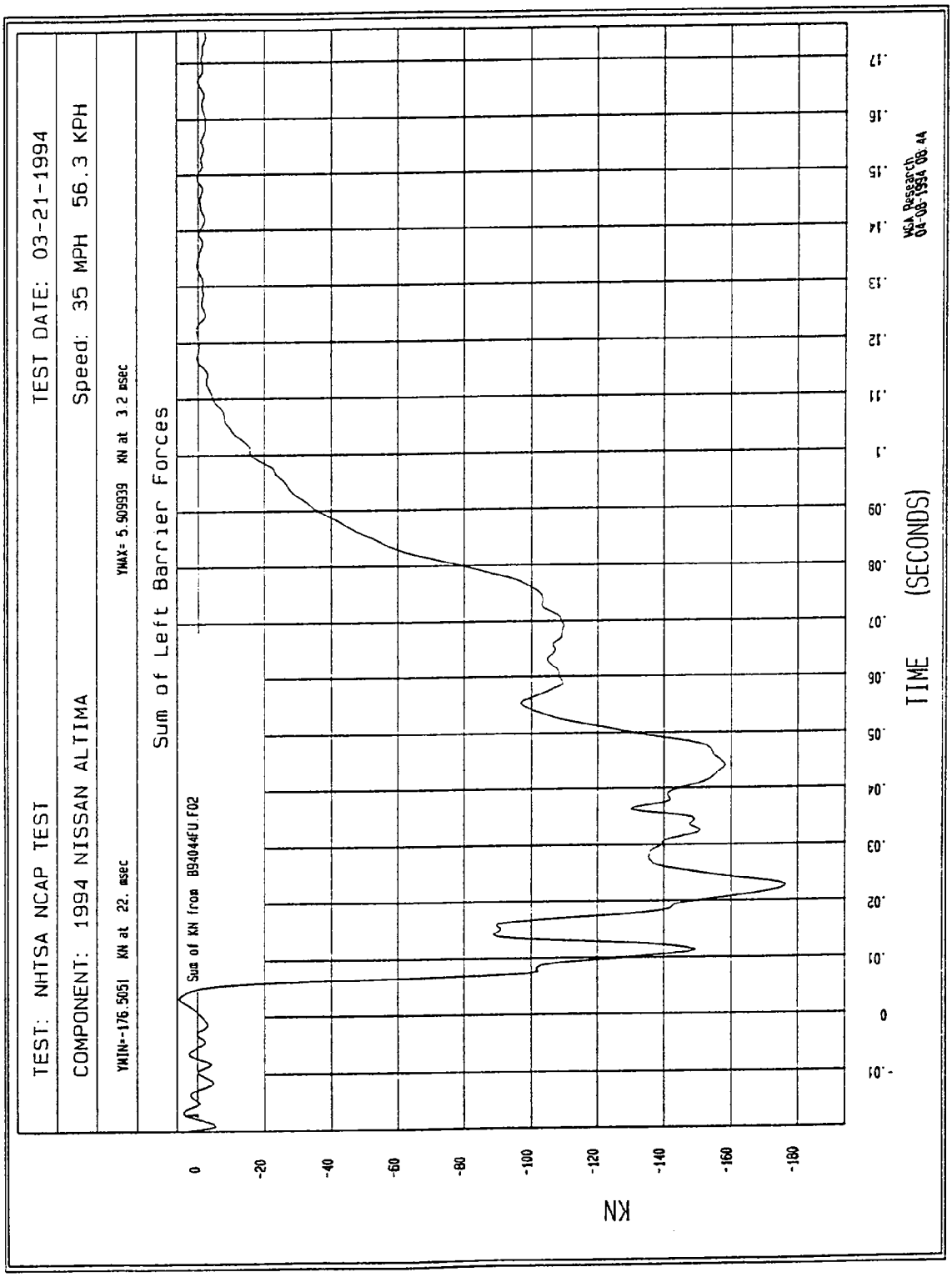


Figure B-29 - Sum of left Barrier Forces vs. Time

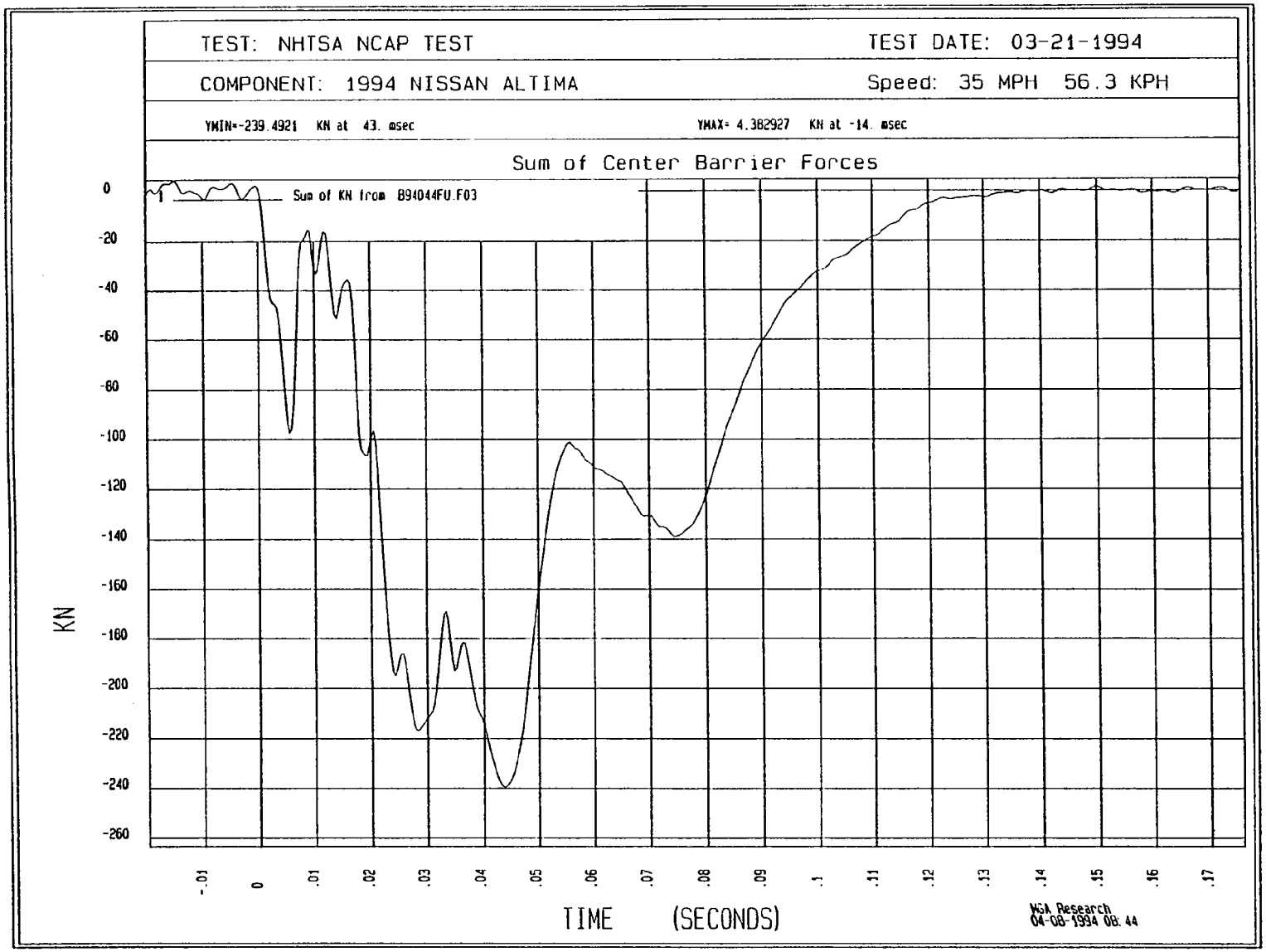


Figure B-3Ø - Sum of Center Barrier Forces vs. Time

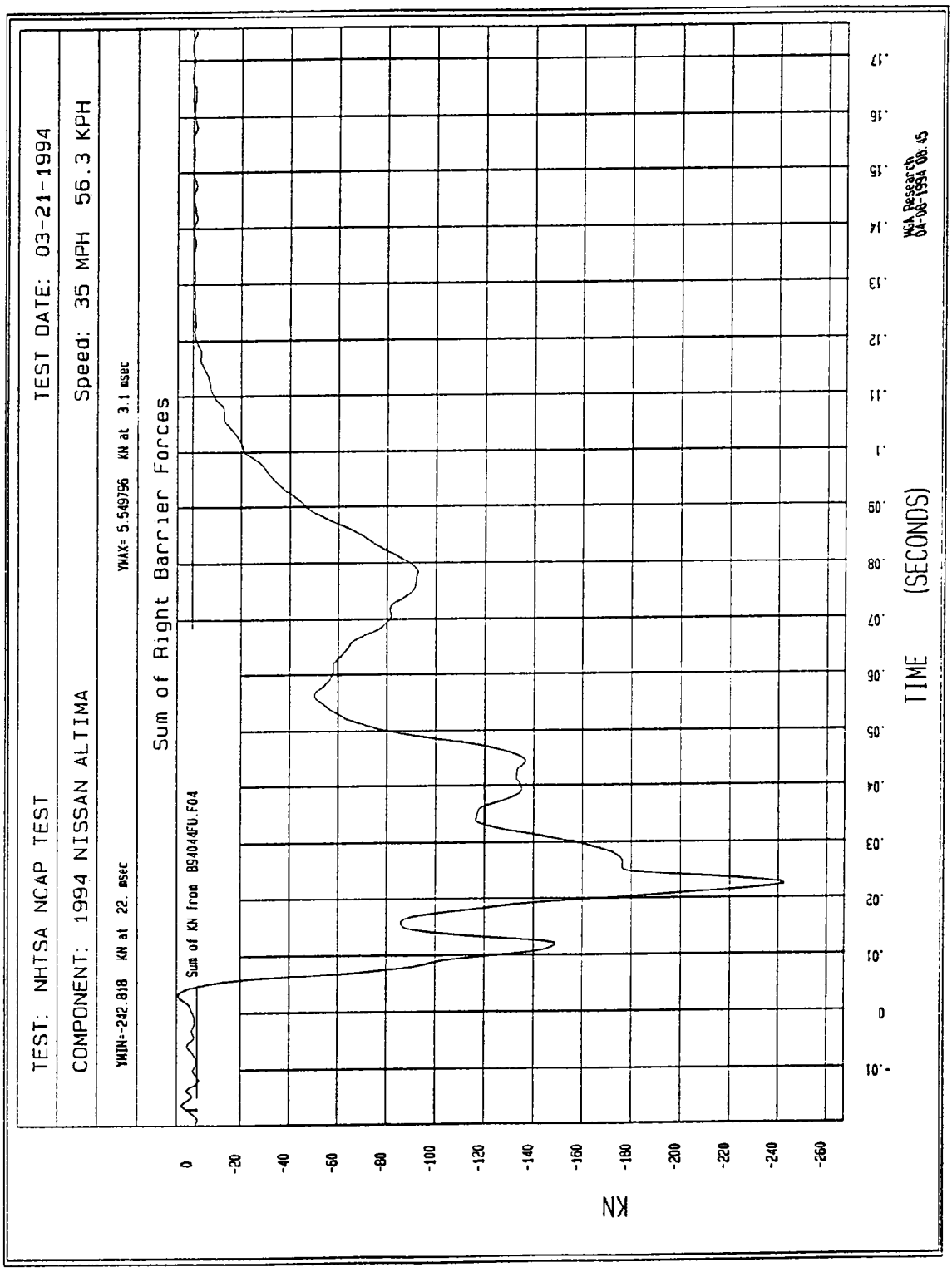


Figure B-31 - Sum of Right Barrier Forces vs. Time

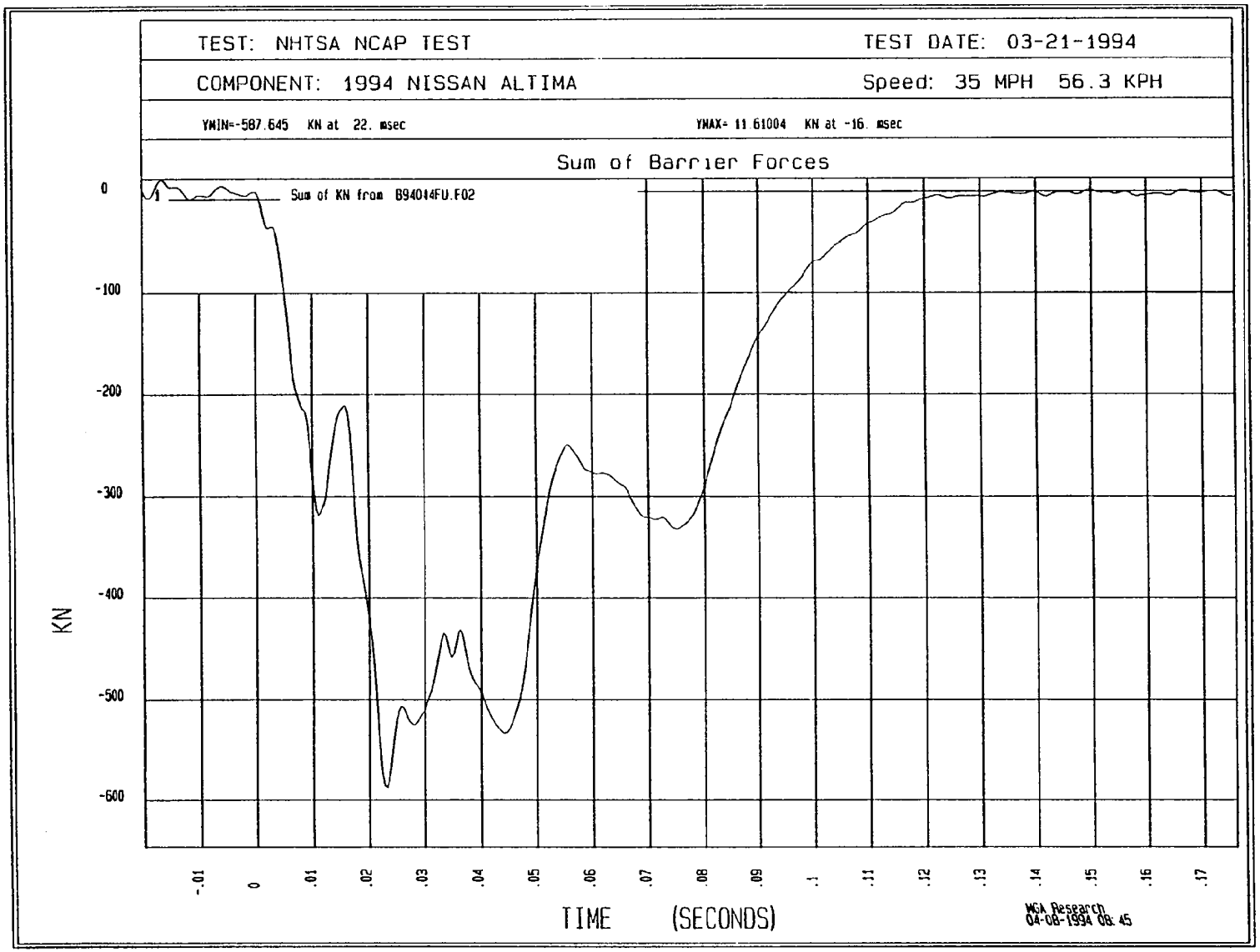


Figure B-32 - Sum of Barrier Forces vs. Time

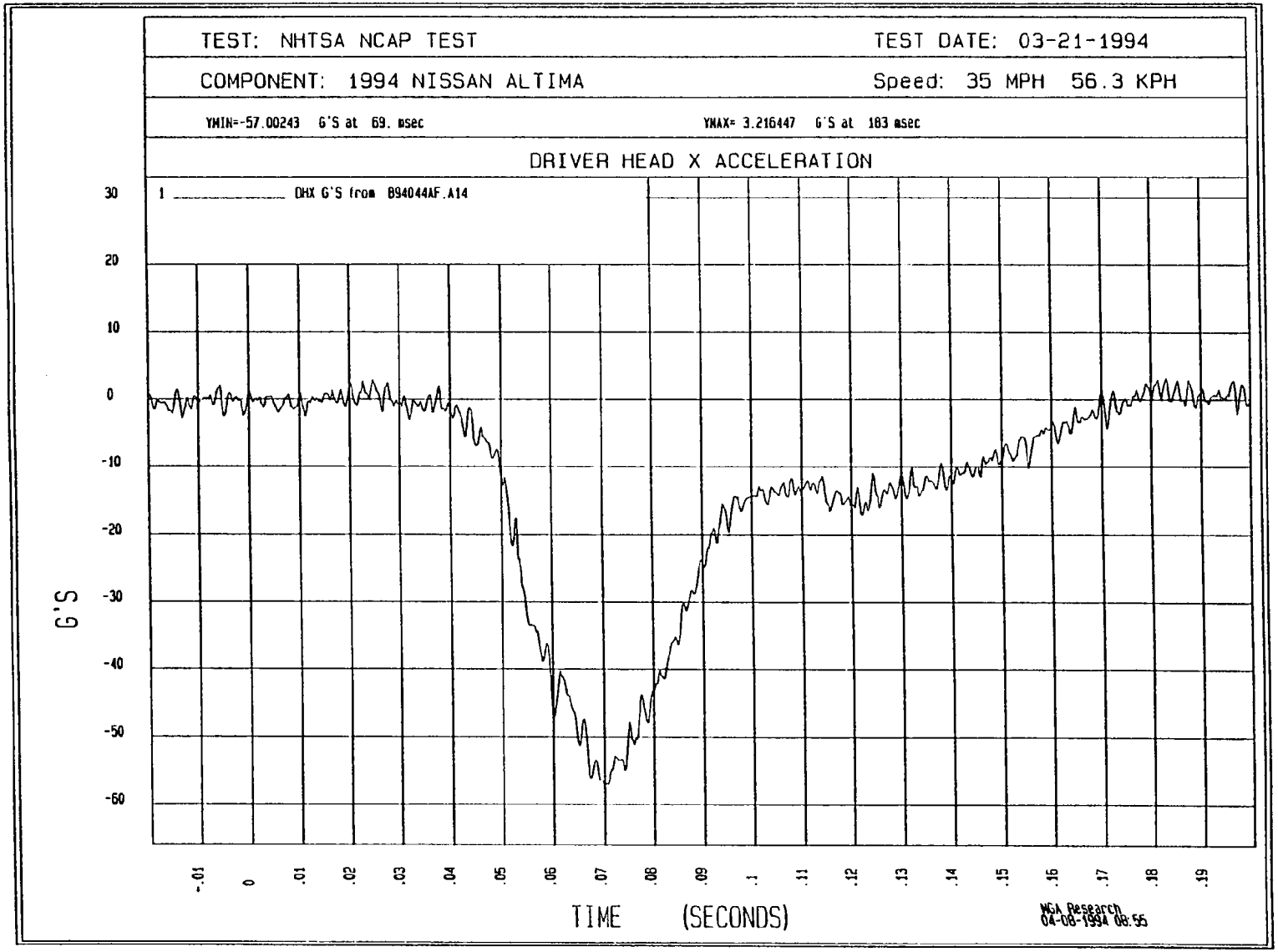


Figure B-33 - Driver Head X Acceleration vs. Time

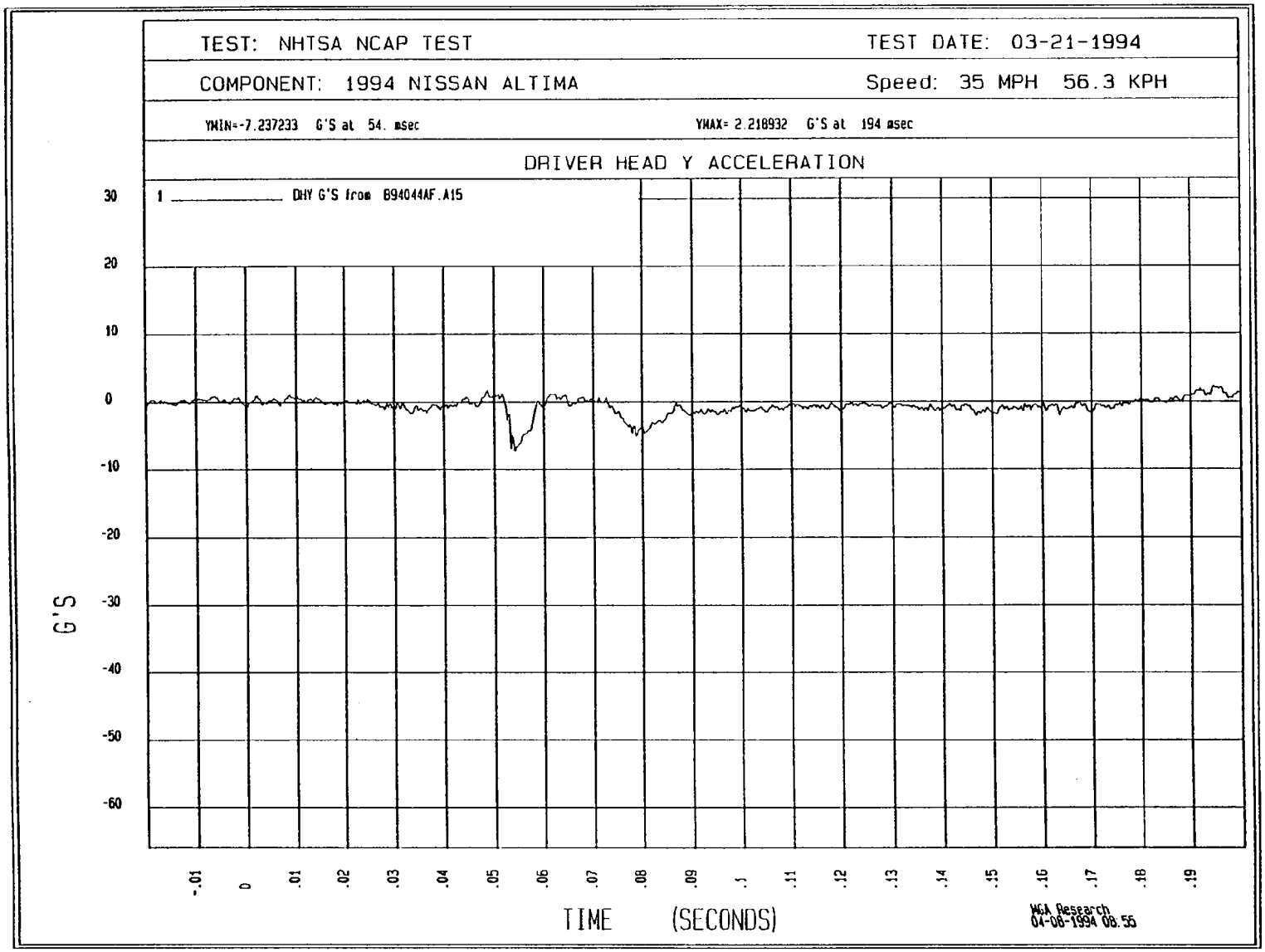


Figure B-34 - Driver Head Y Acceleration vs. Time

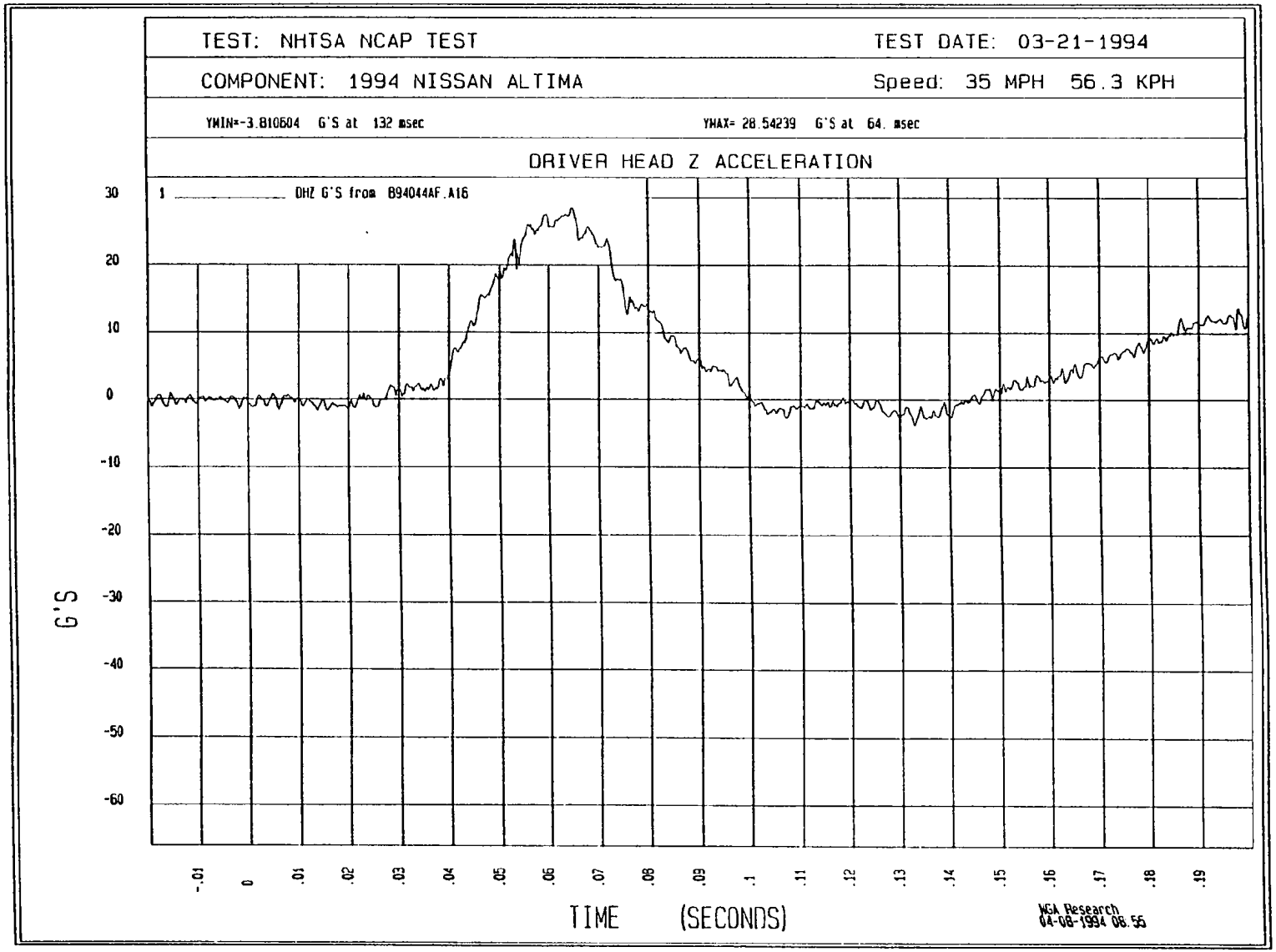


Figure B-35 - Driver Head Z Acceleration vs. Time

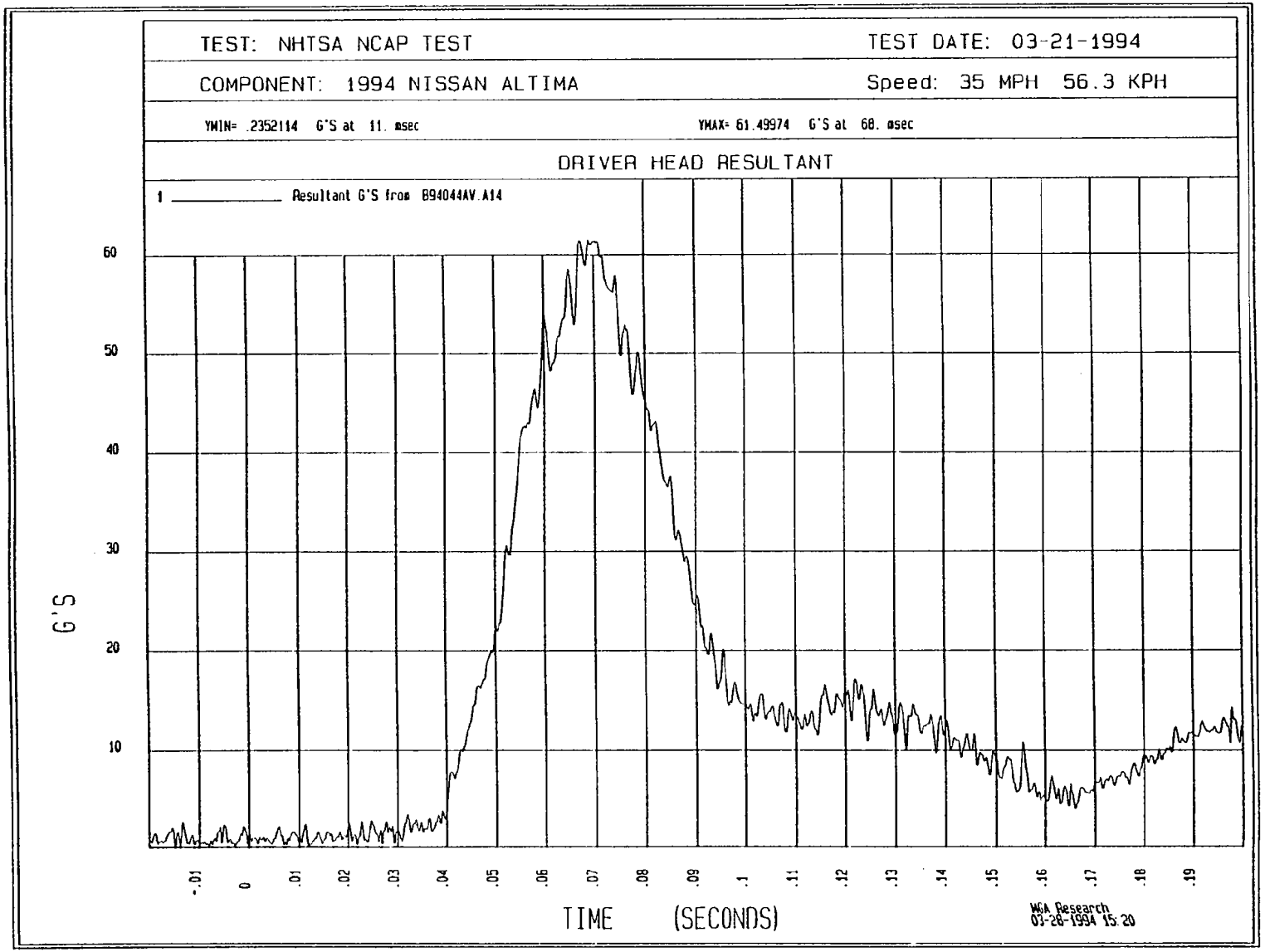


Figure B-36 - Driver Head Resultant Acceleration vs. Time

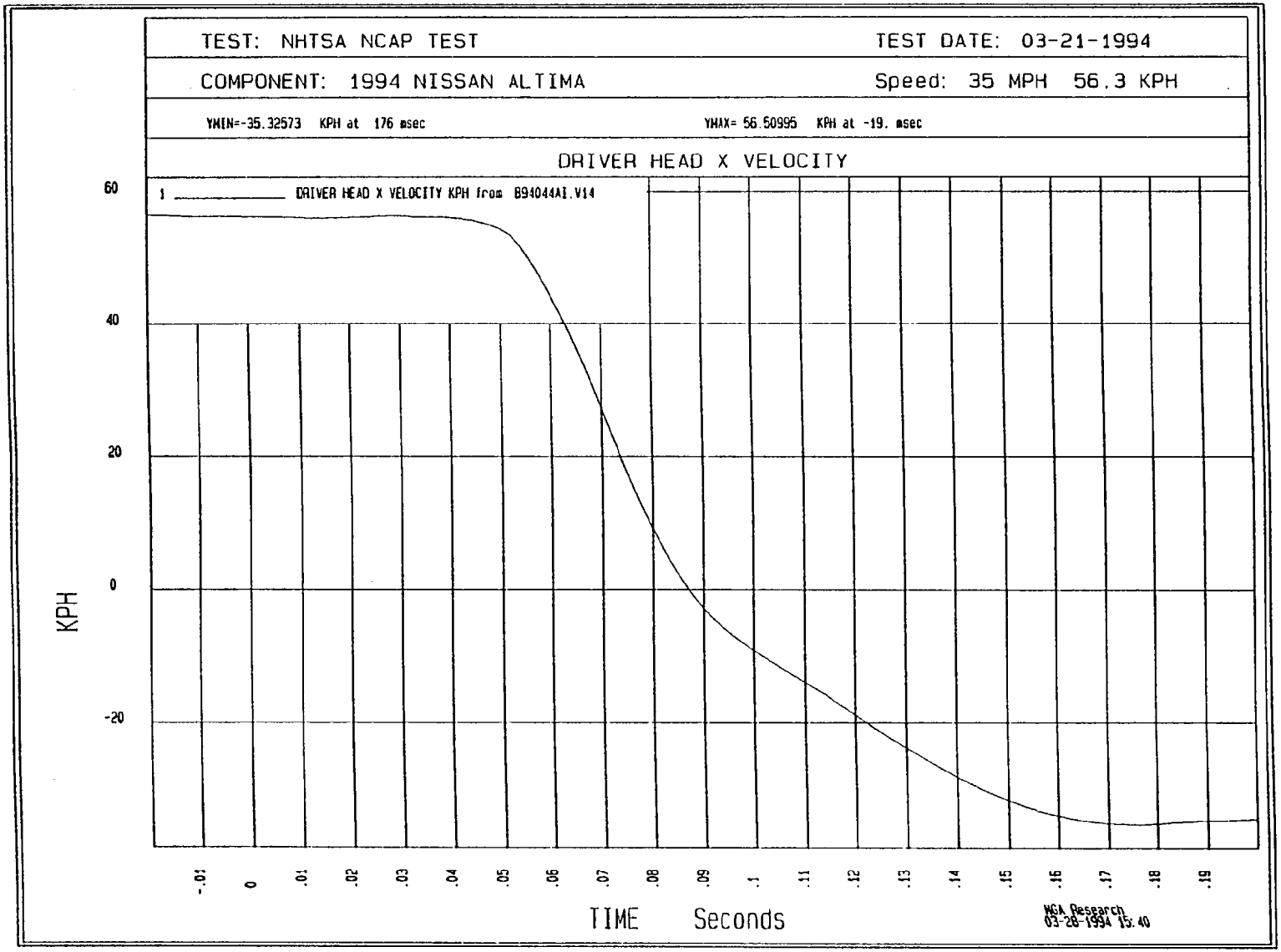


Figure B-37 - Driver Head X Velocity vs. Time

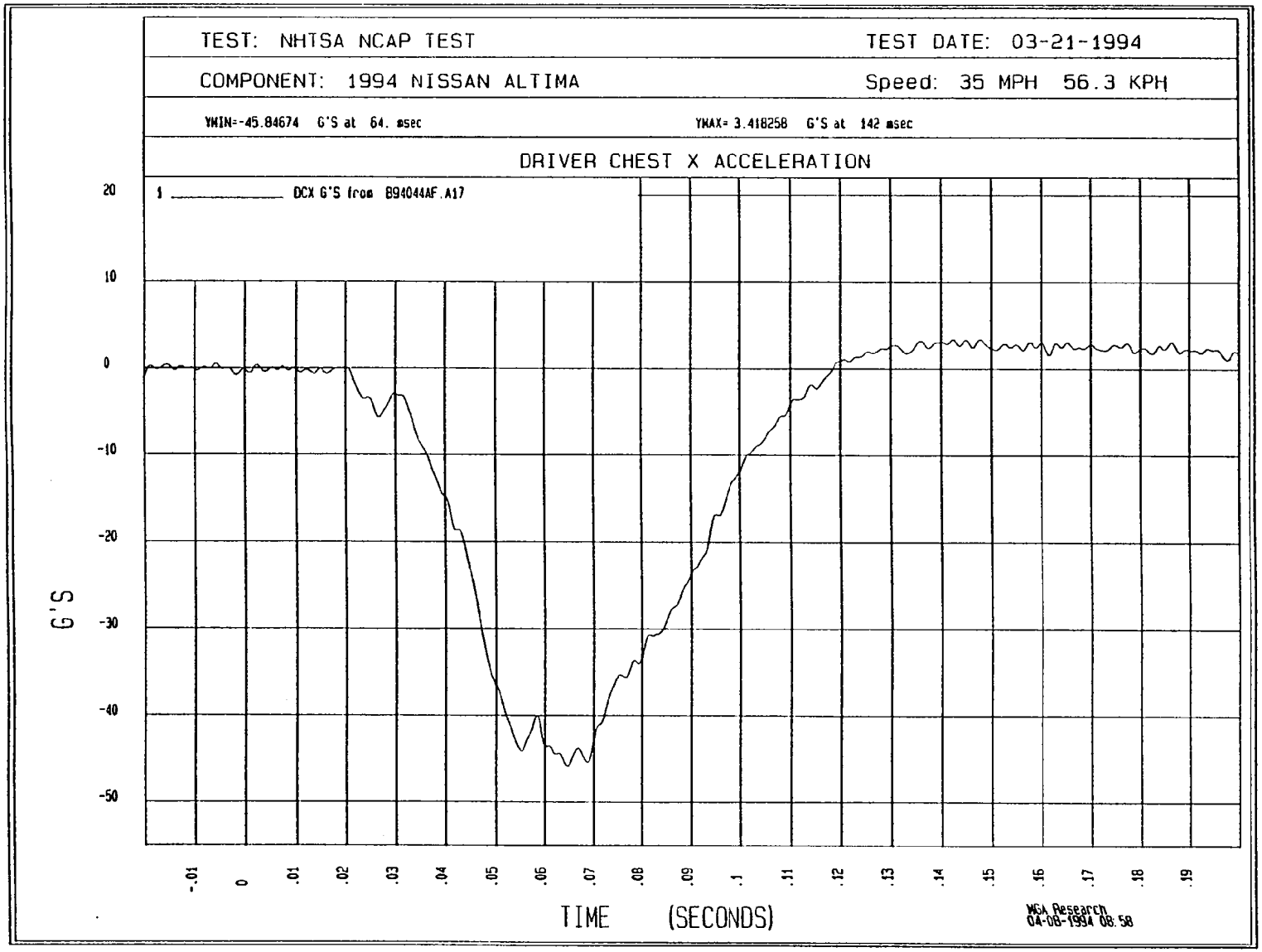


Figure B-38 - Driver Chest X Acceleration vs. Time

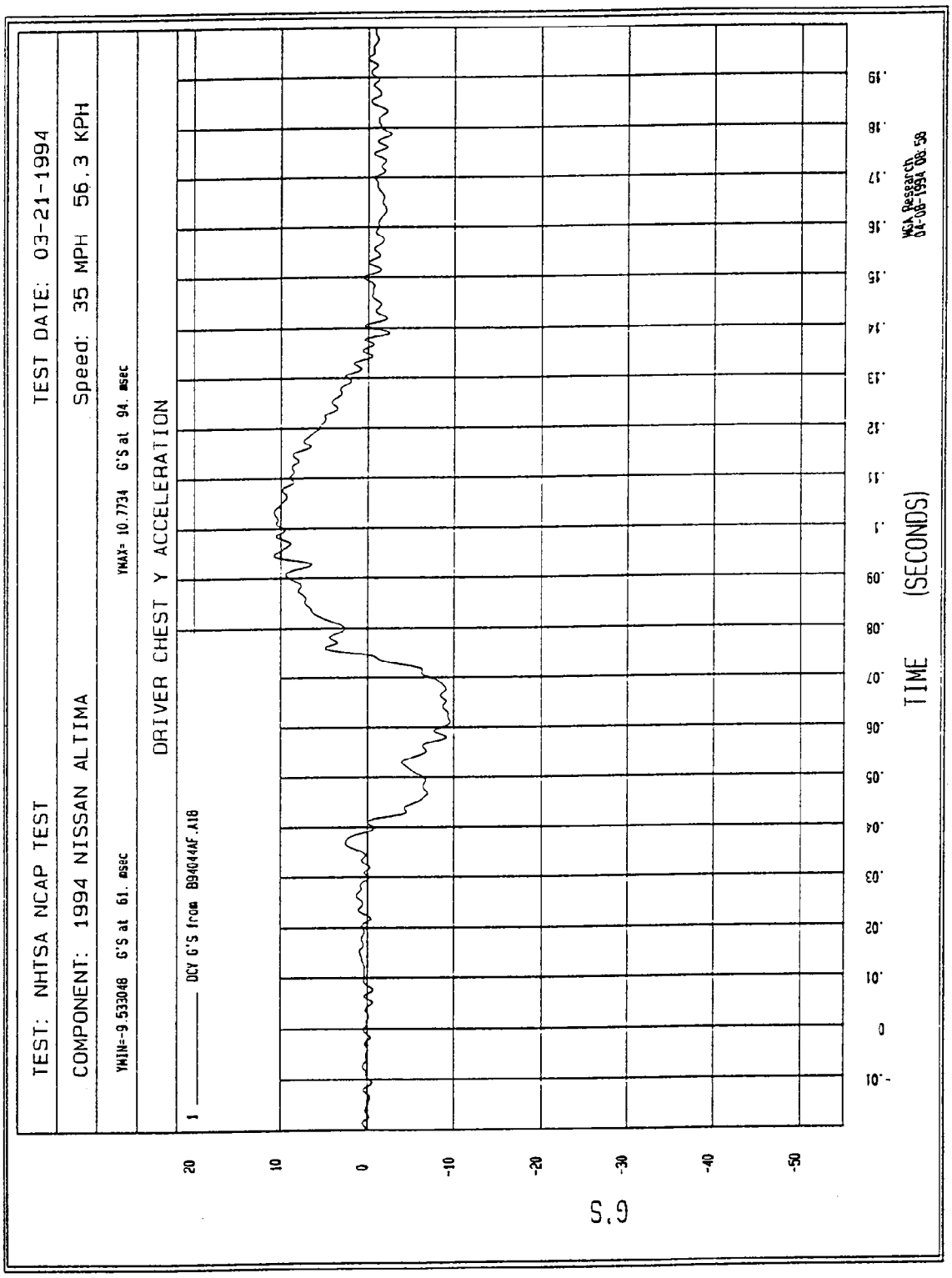


Figure B-39 - Driver Chest Y Acceleration vs. Time

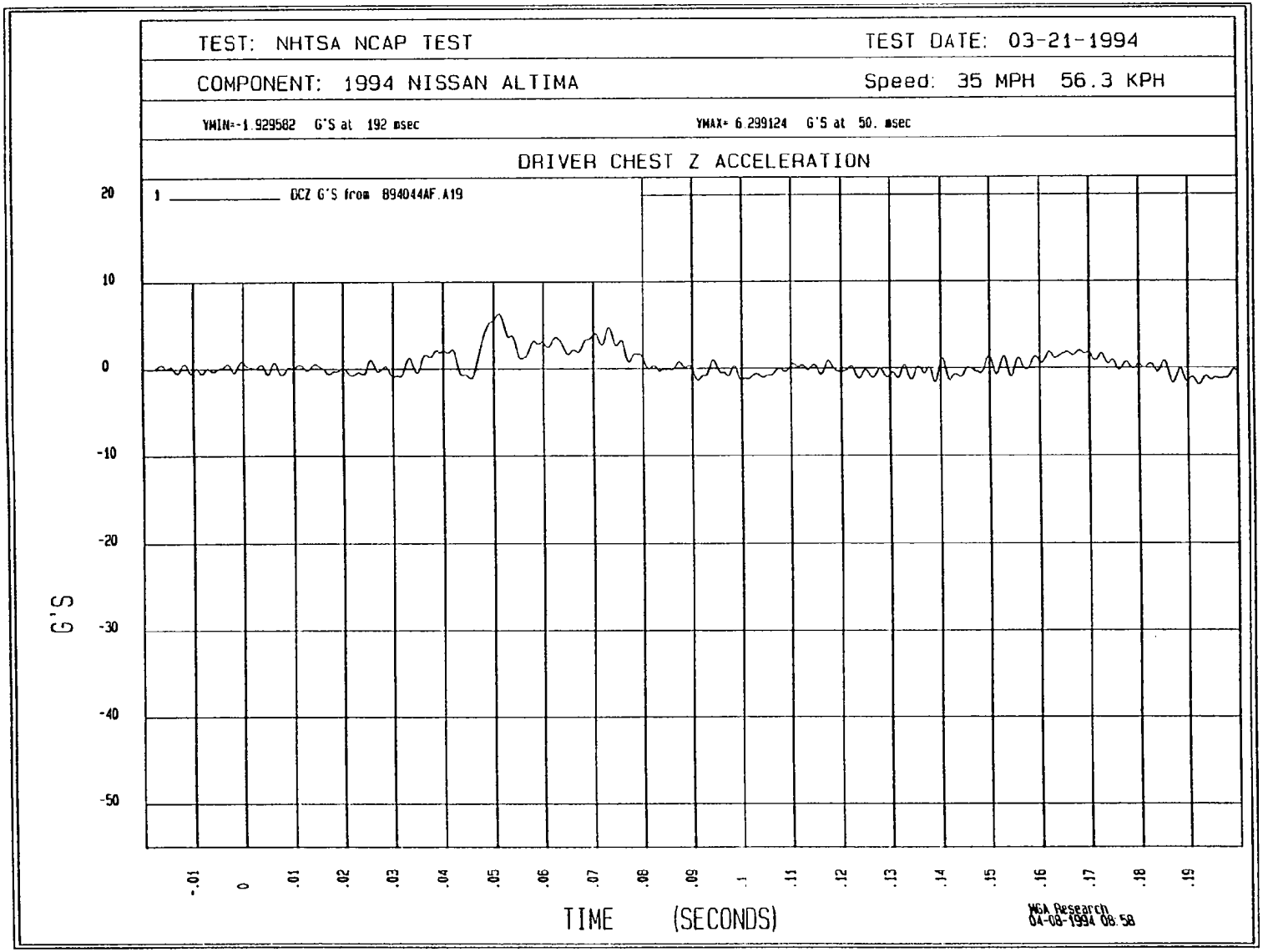


Figure B-40 - Driver Chest Z Acceleration vs. Time

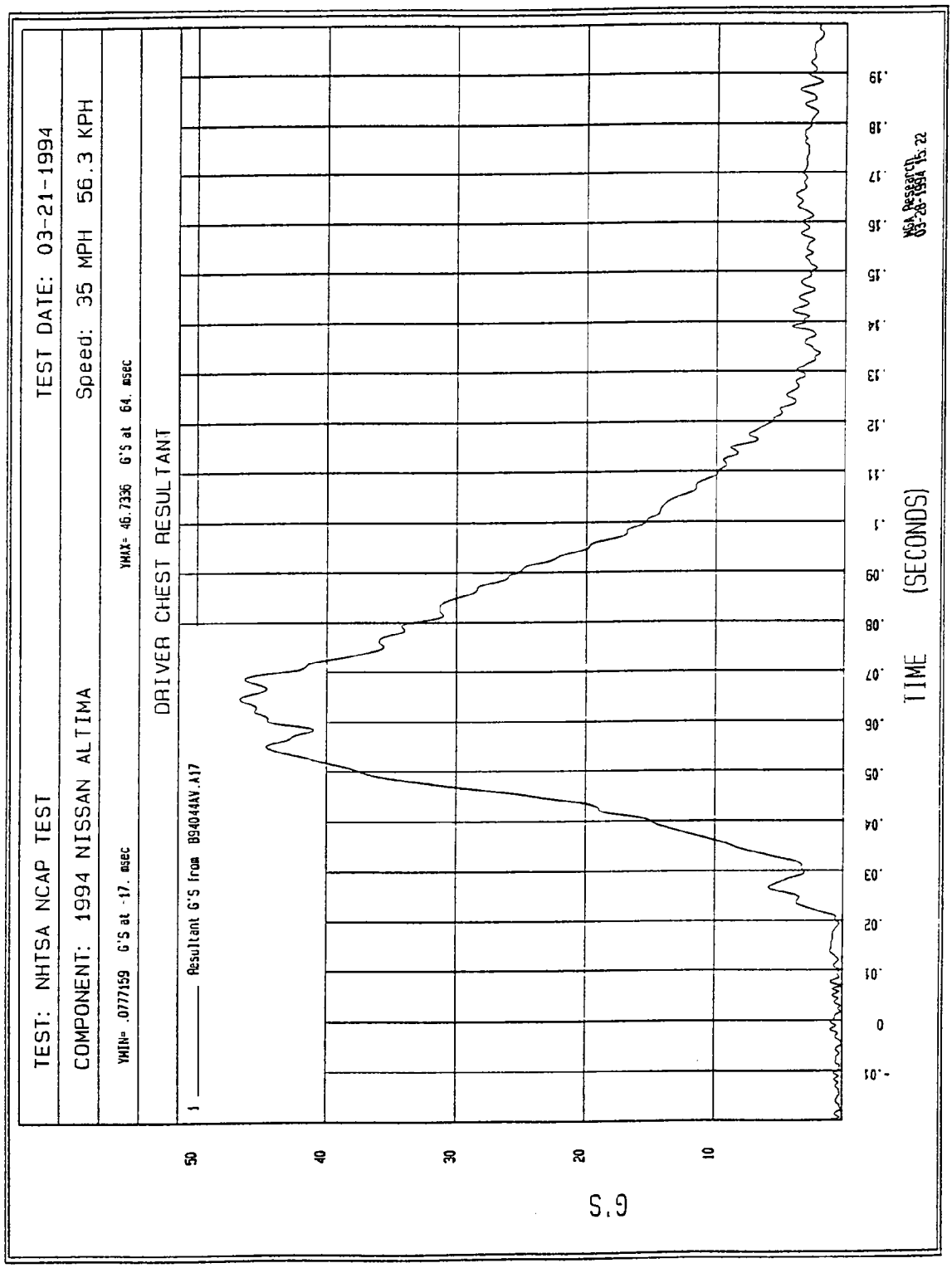


Figure B-41 - Driver Chest Resultant vs. Time

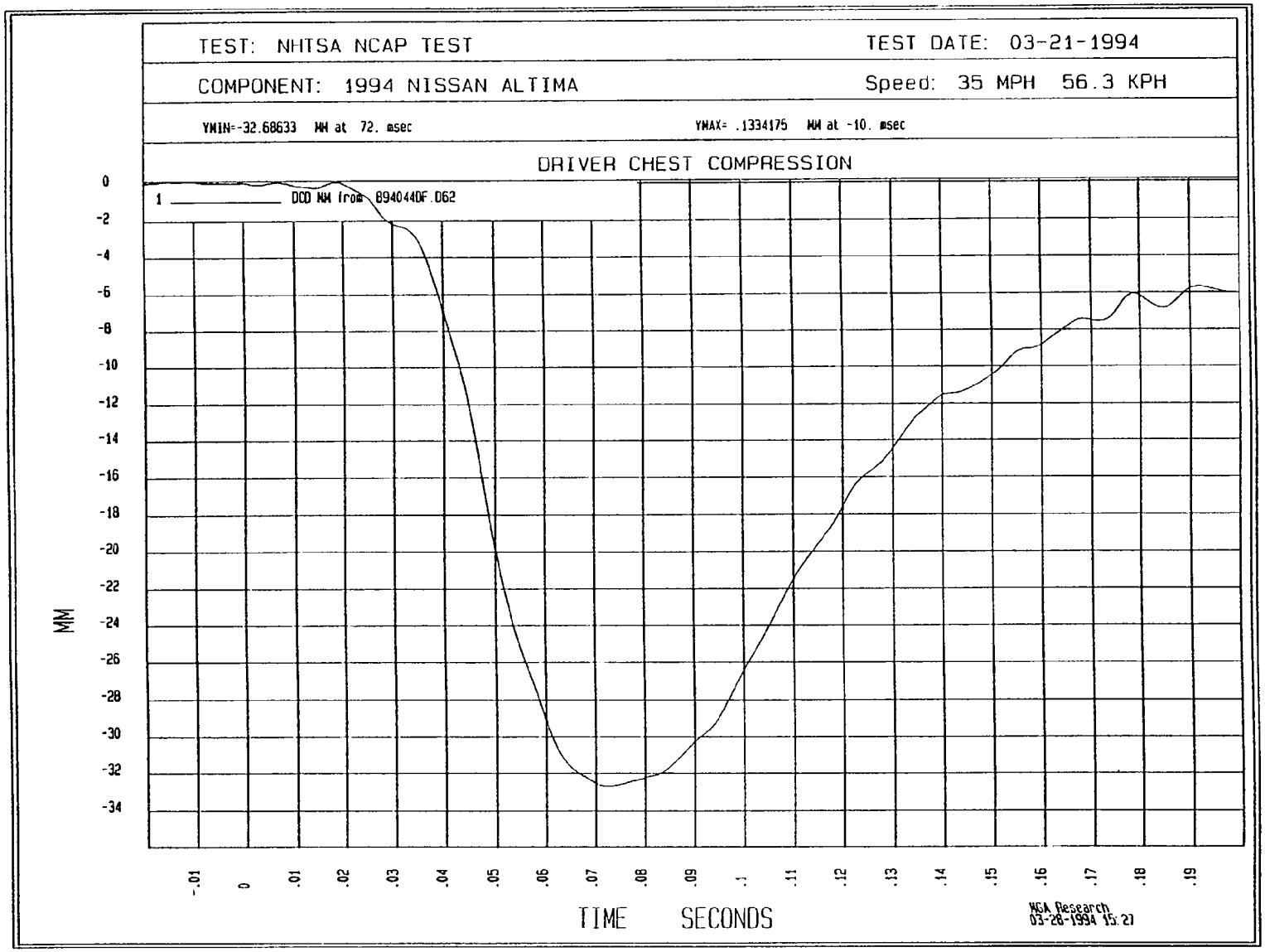


Figure B-42 - Driver Chest Compression vs. Time

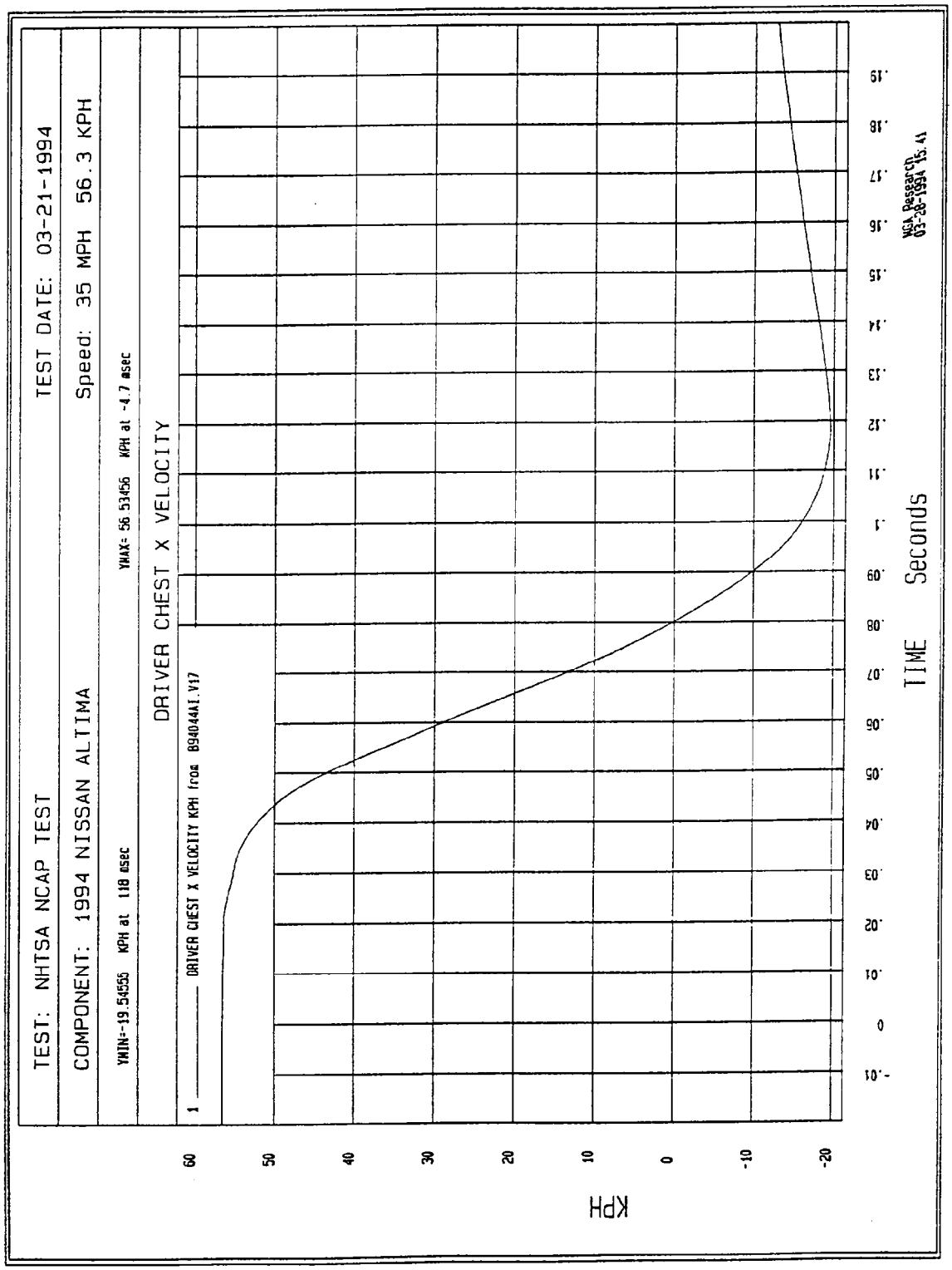


Figure B-43 - Driver Chest X Velocity vs. Time

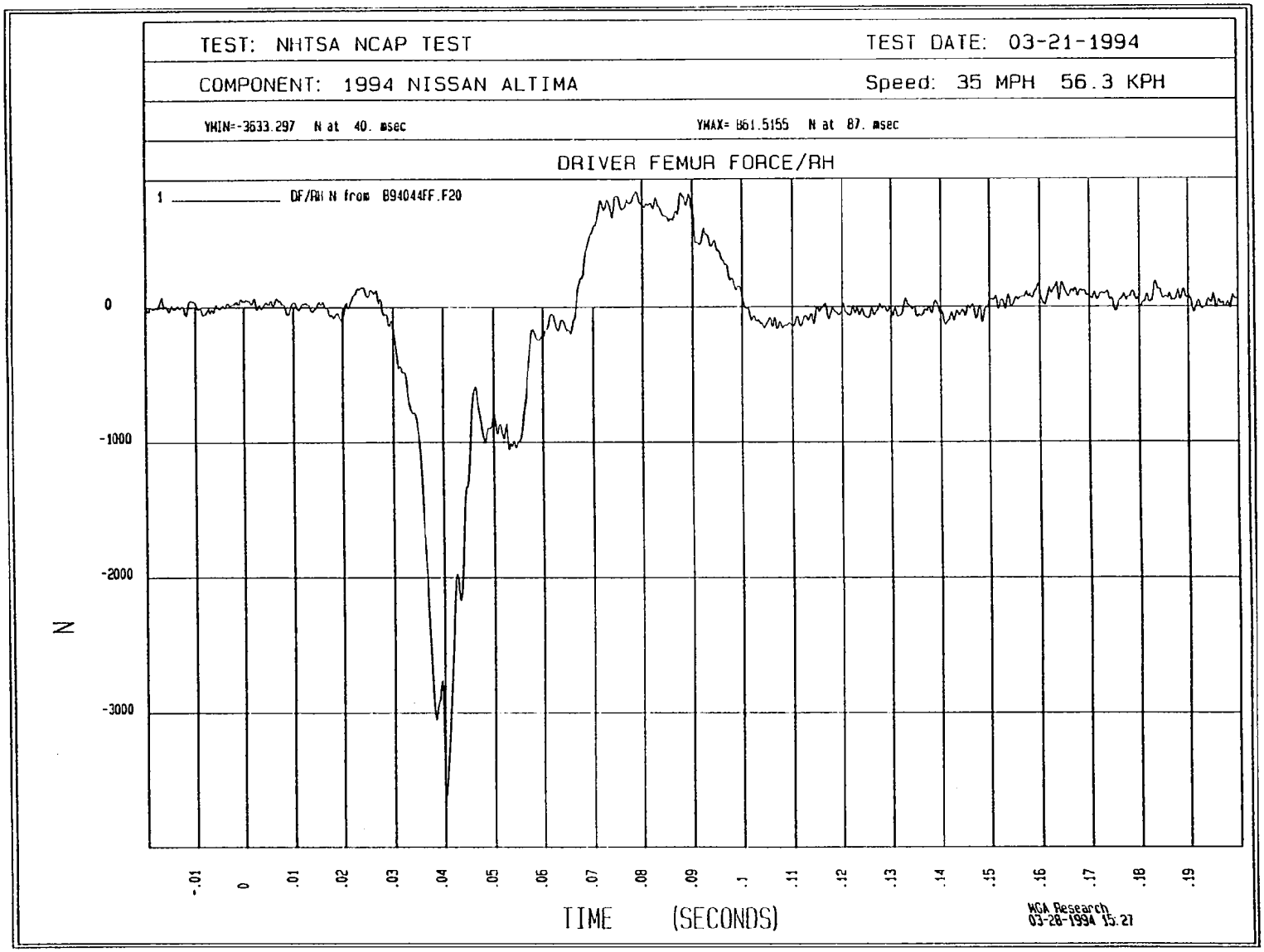


Figure B-44 - Driver Right Femur Force vs. Time

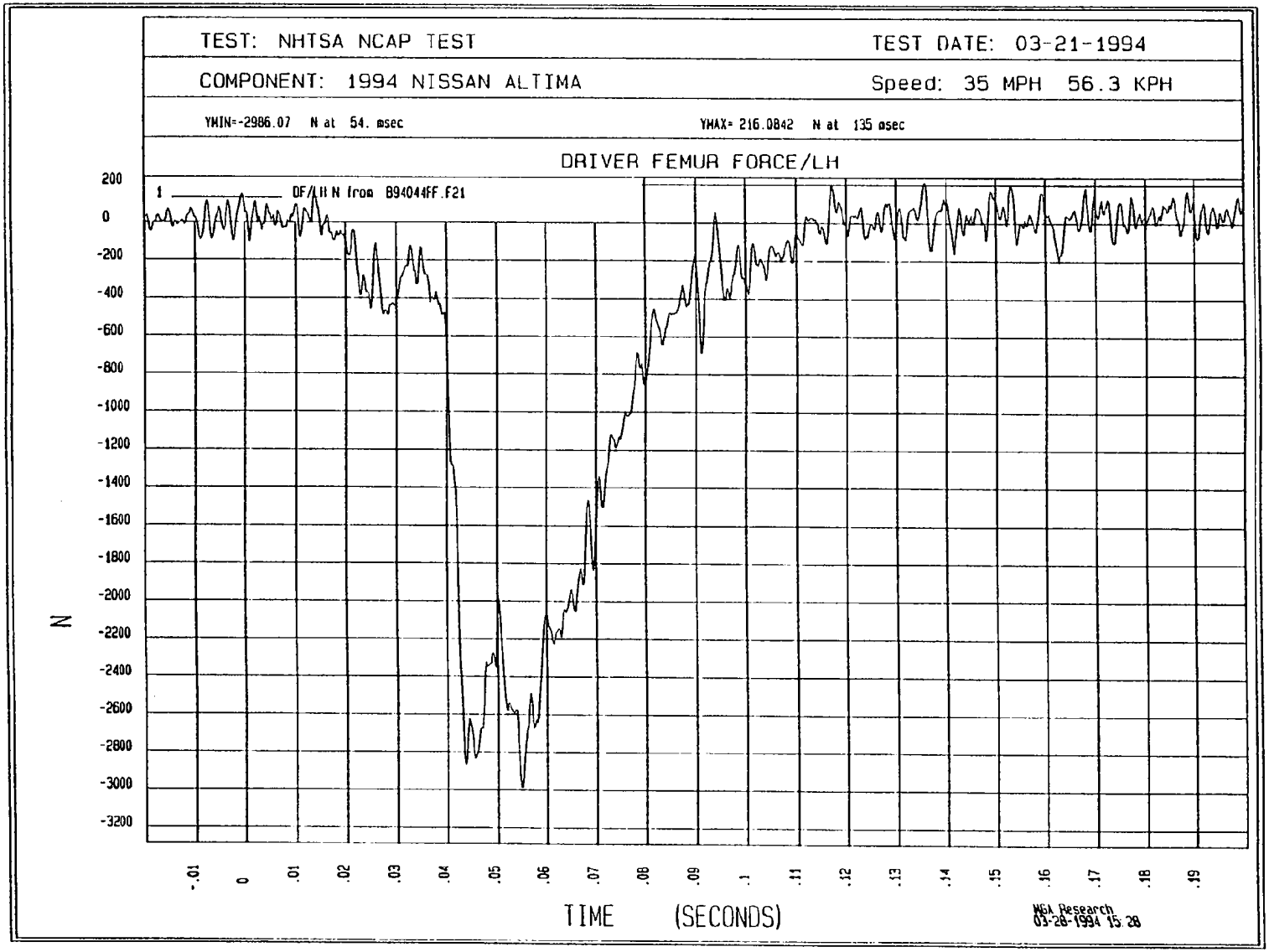


Figure B-45 - Driver Left Femur Force vs. Time

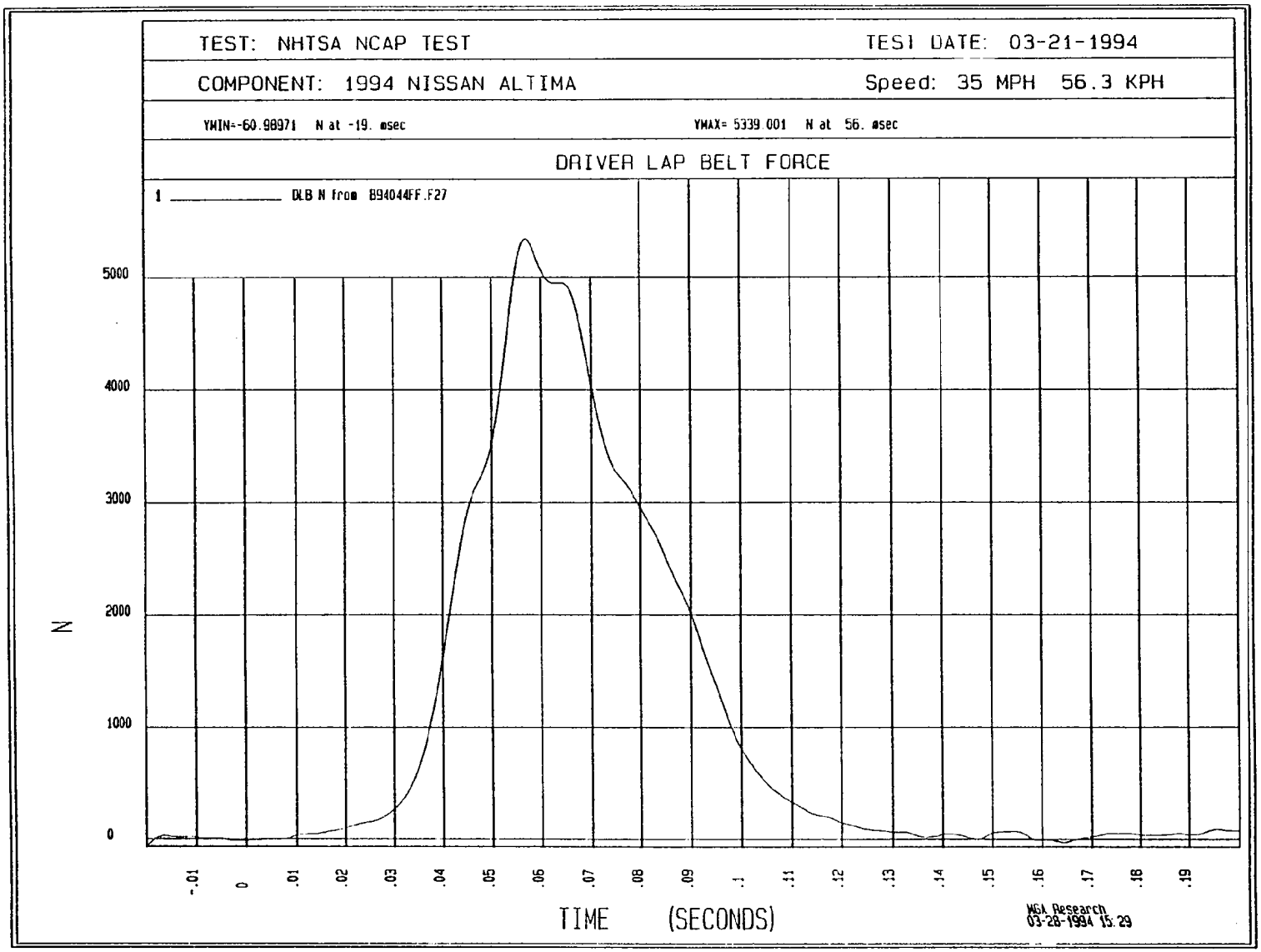


Figure B-46 - Driver Lap Belt Force vs. Time

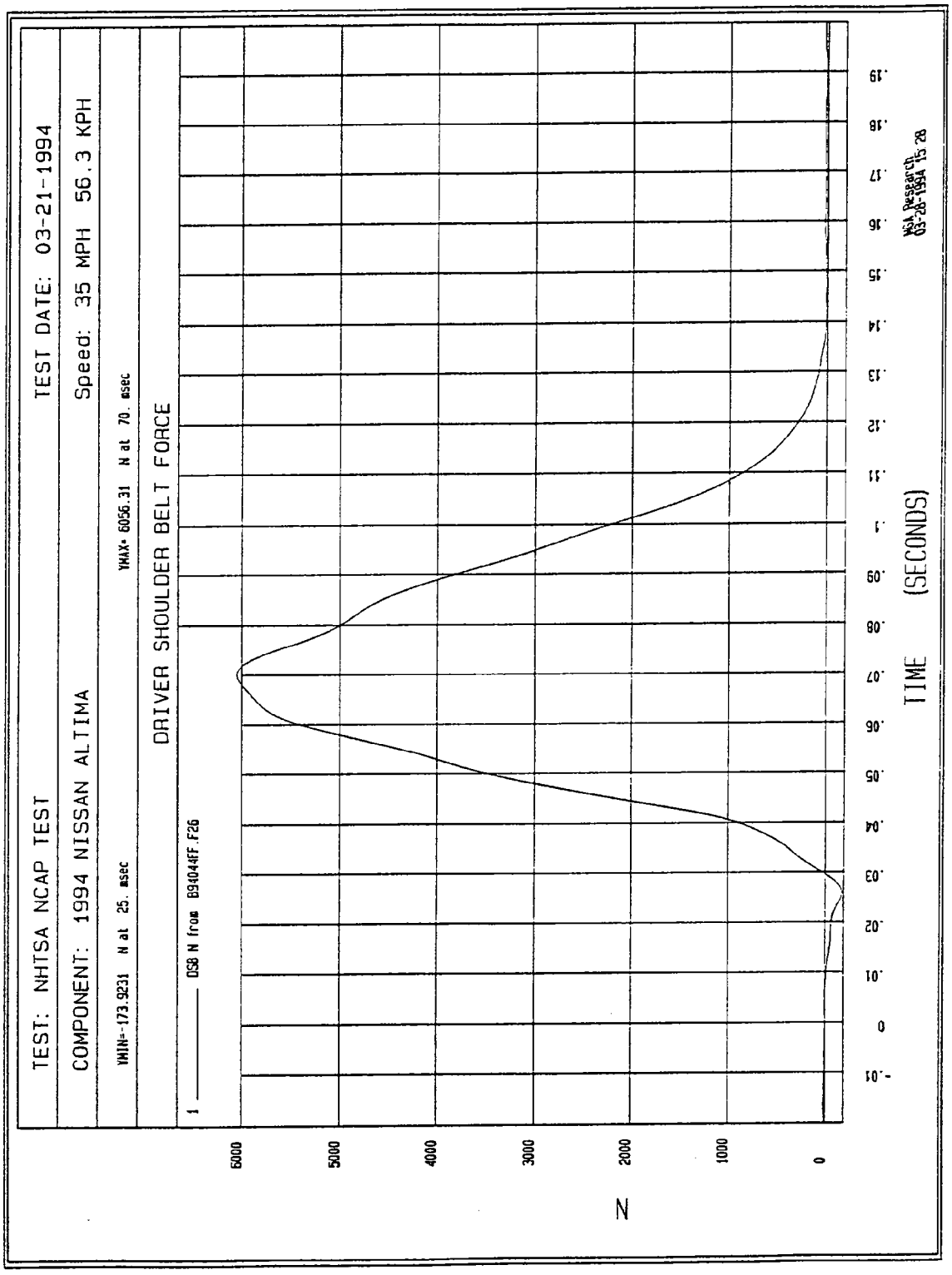


Figure B-47 - Driver Shoulder Belt Force vs. Time

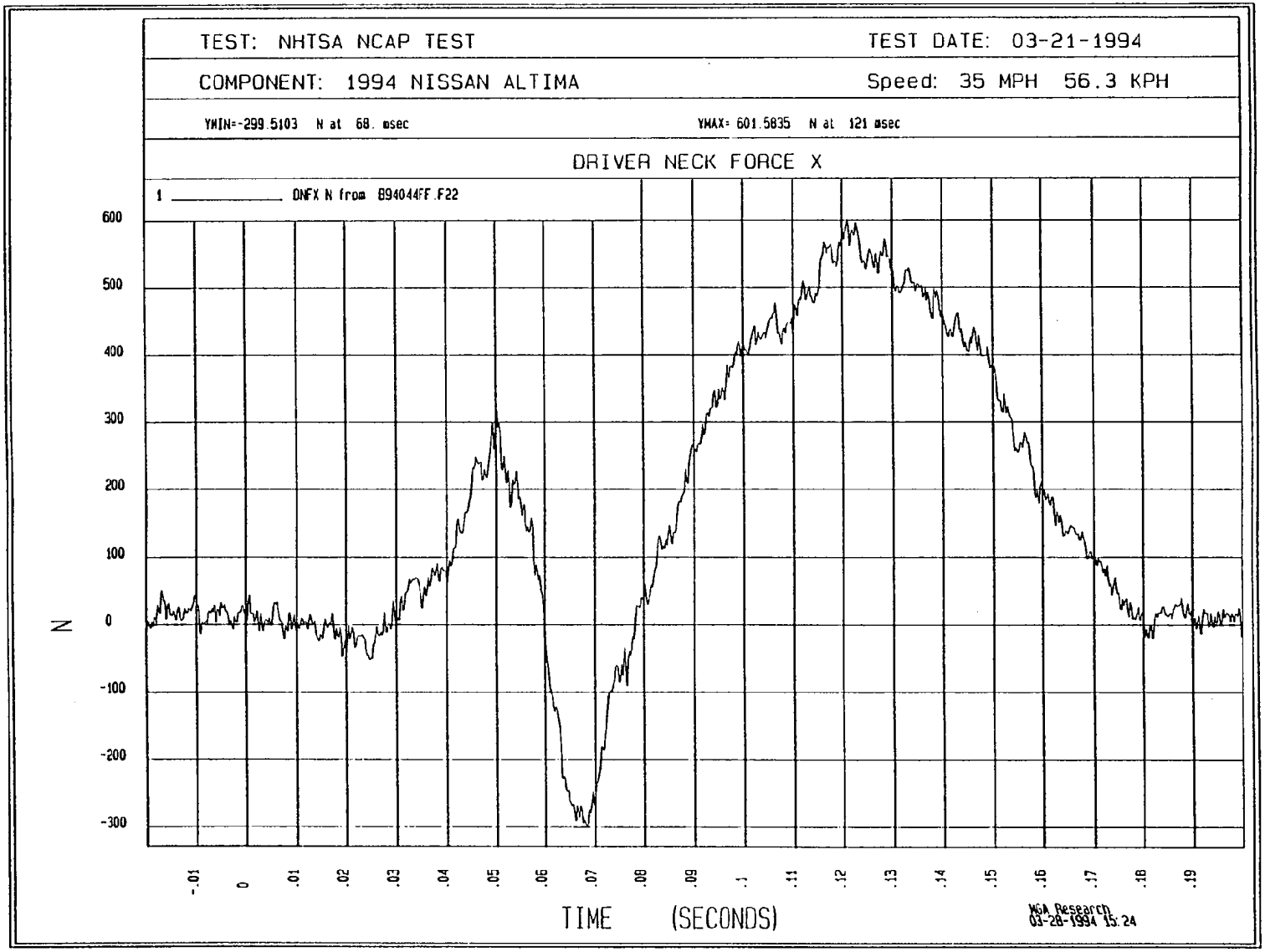


Figure B-48 - Driver Neck Force X vs. Time

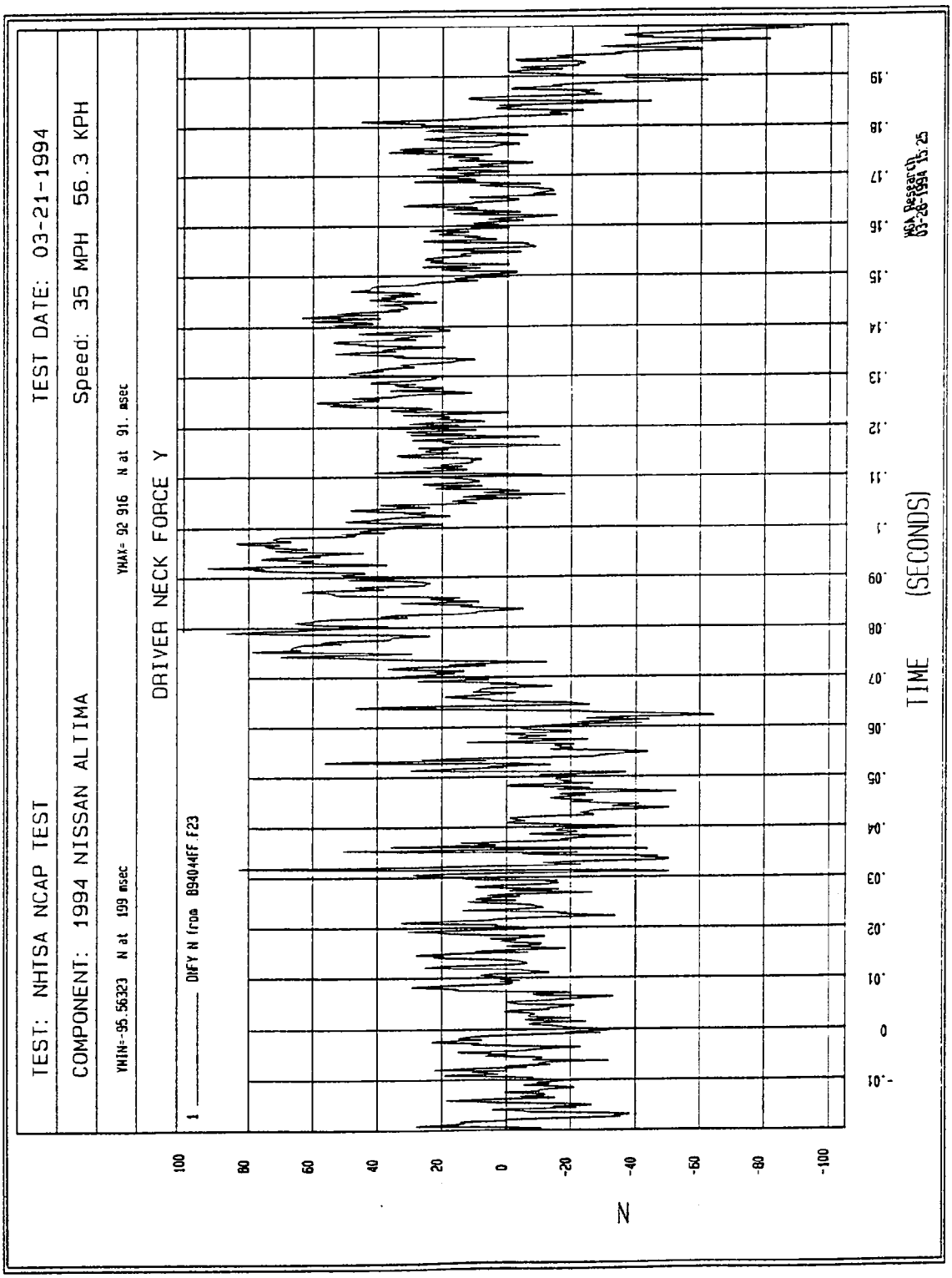


Figure B-49 - Driver Neck Force Y vs. Time

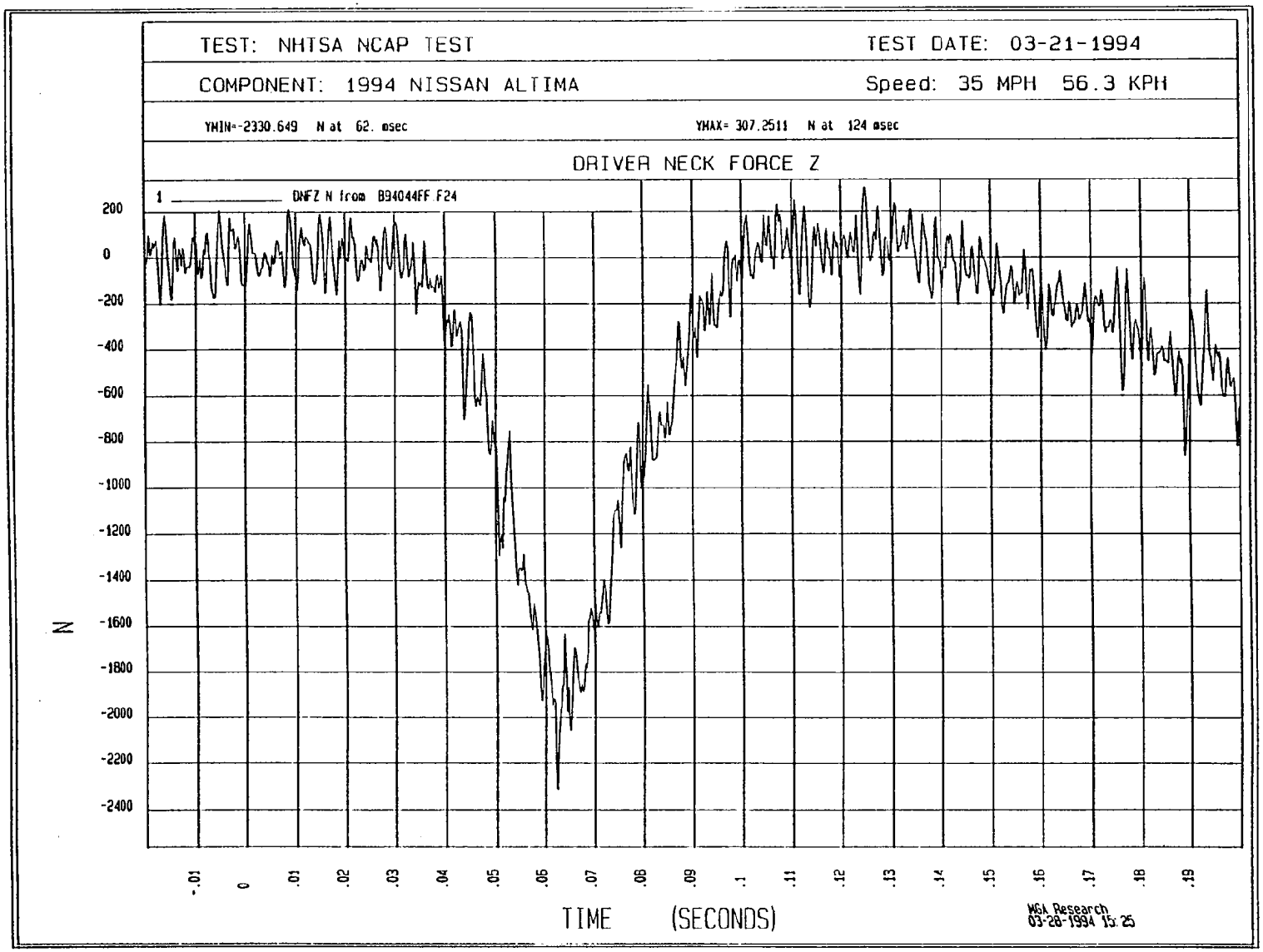


Figure B-5Ø - Driver Neck Force Z vs. Time

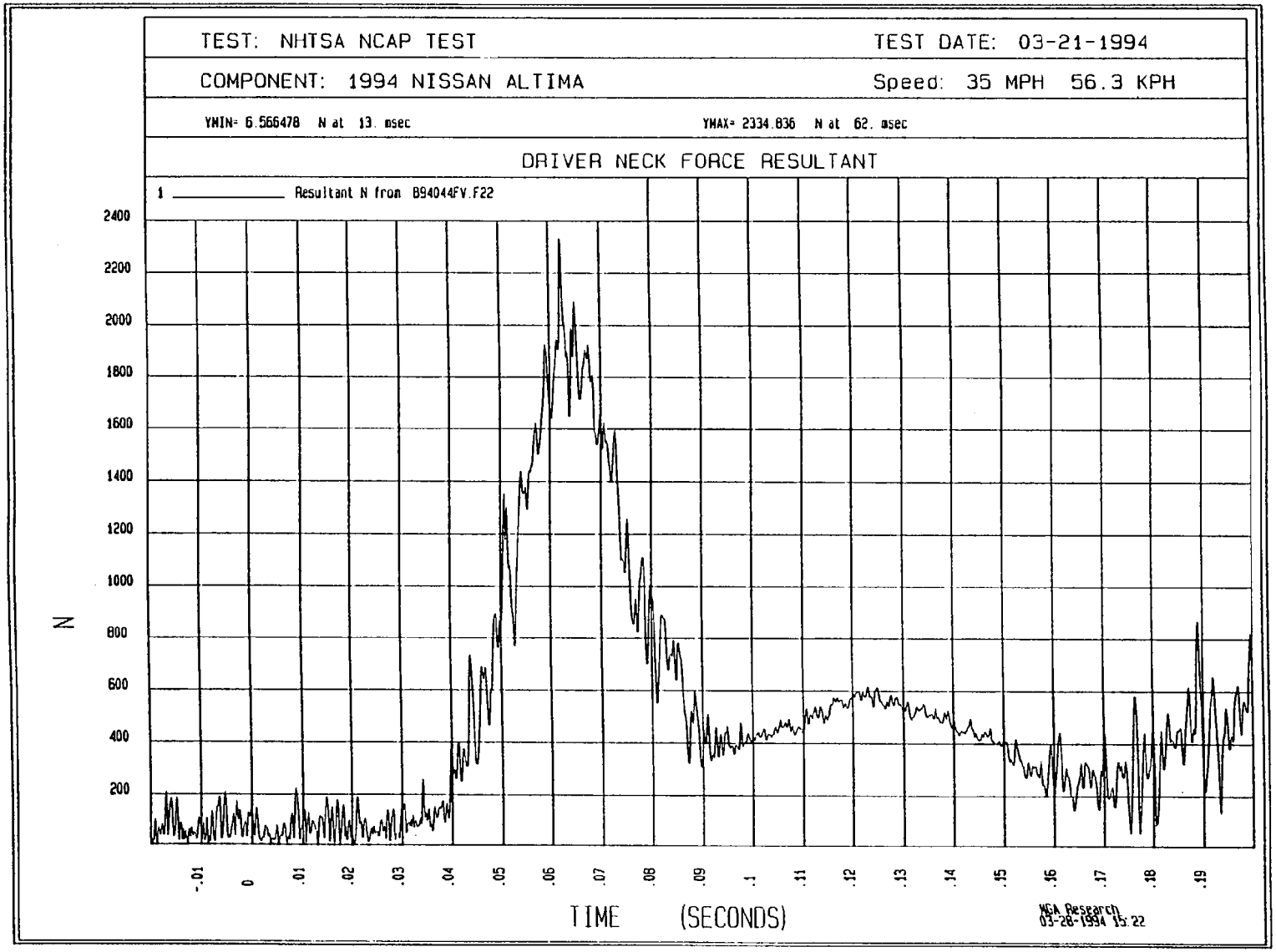


Figure B-51 - Driver Neck Force Resultant vs. Time

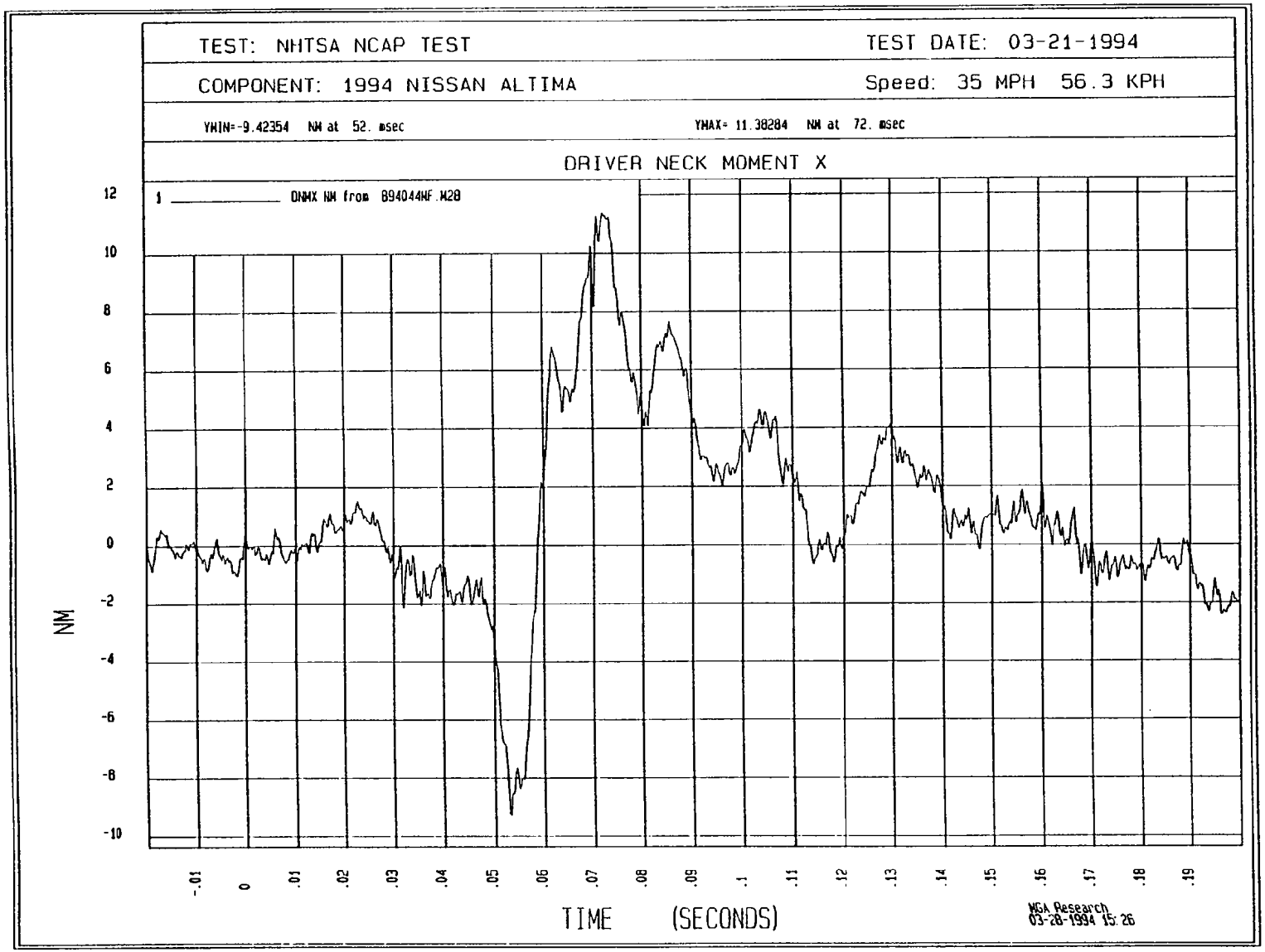


Figure B-52 - Driver Neck Moment X vs. Time

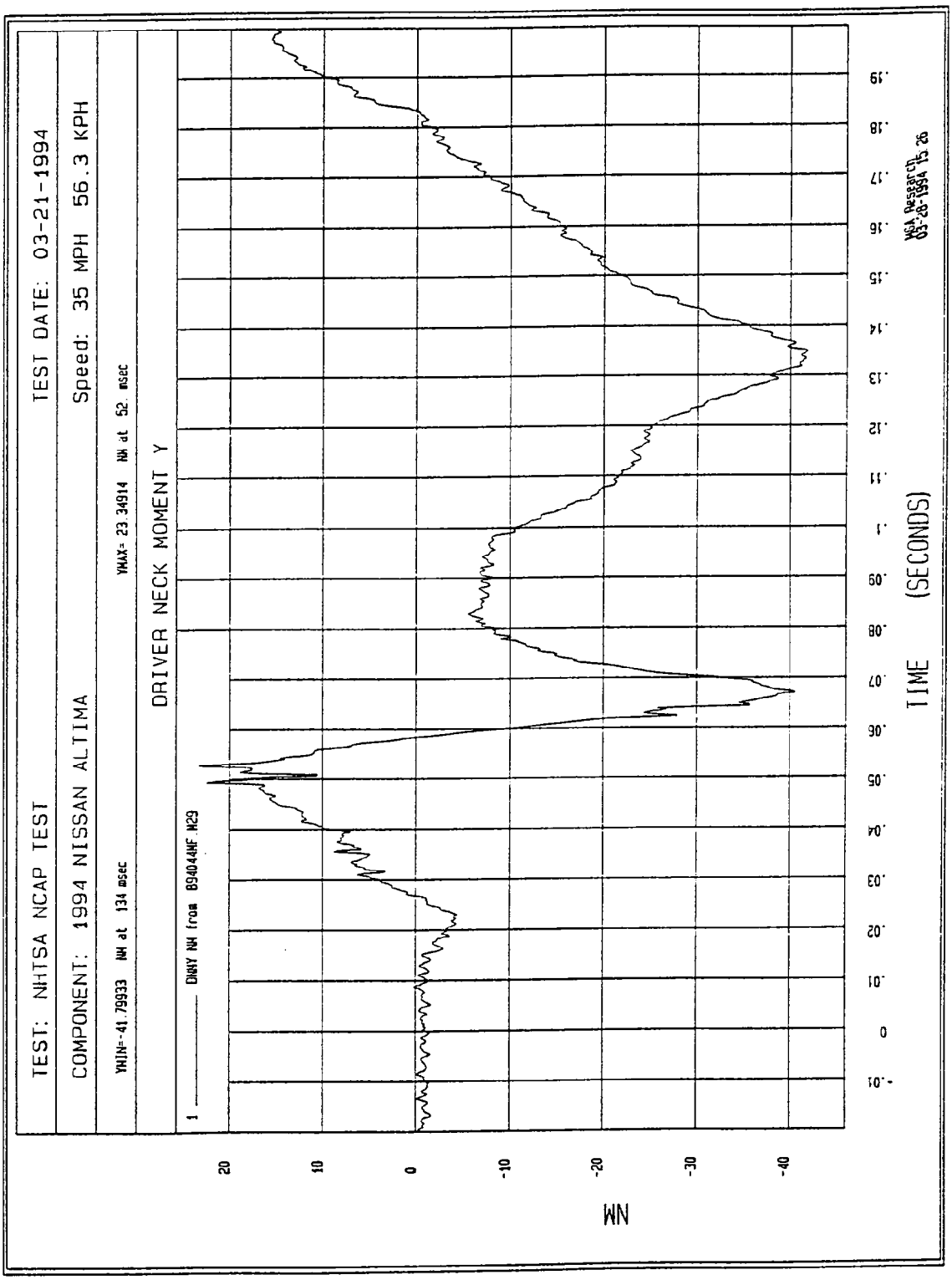


Figure B-53 - Driver Neck Moment Y vs. Time

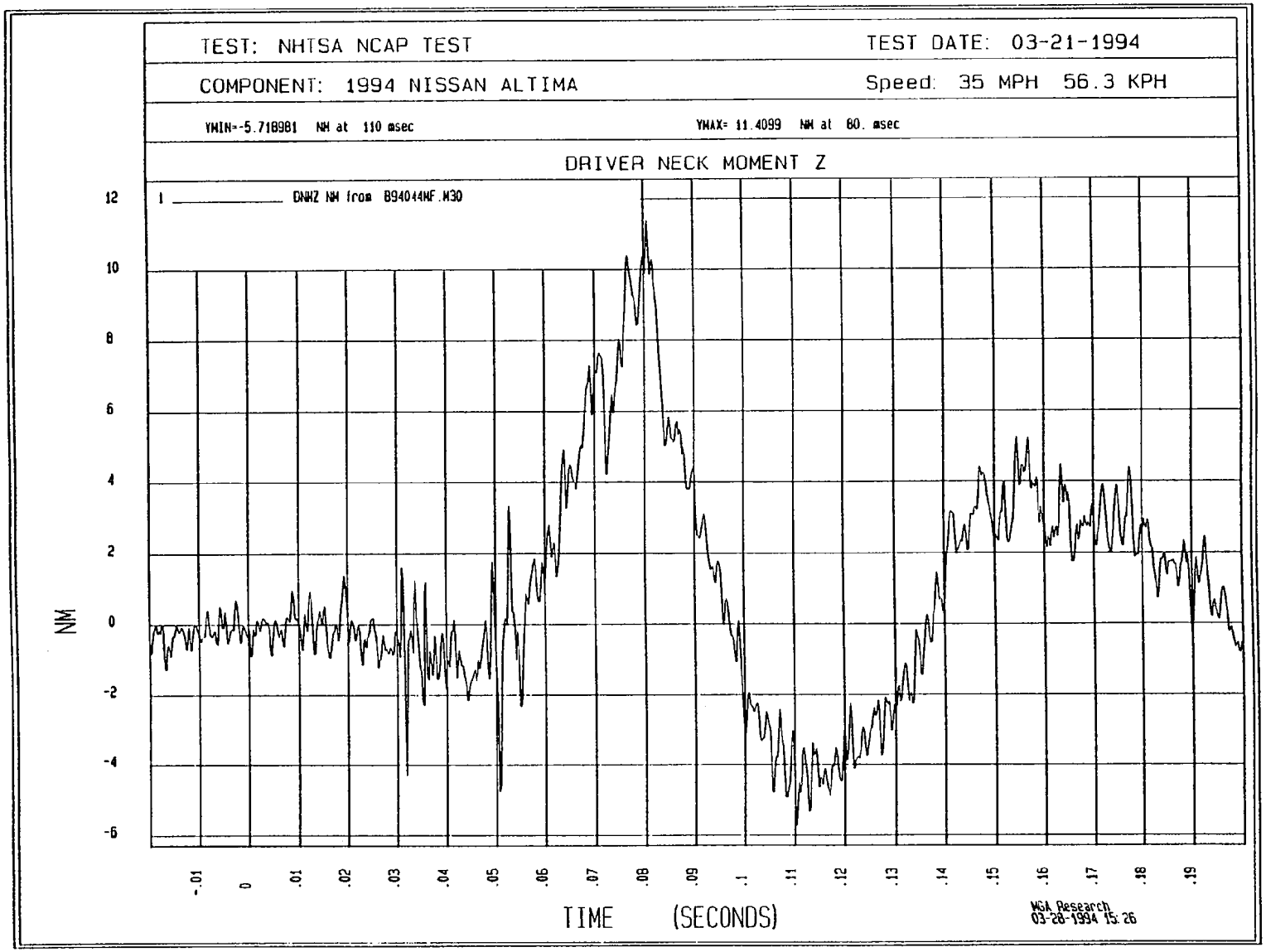


Figure B-54 - Driver Neck Moment Z vs. Time

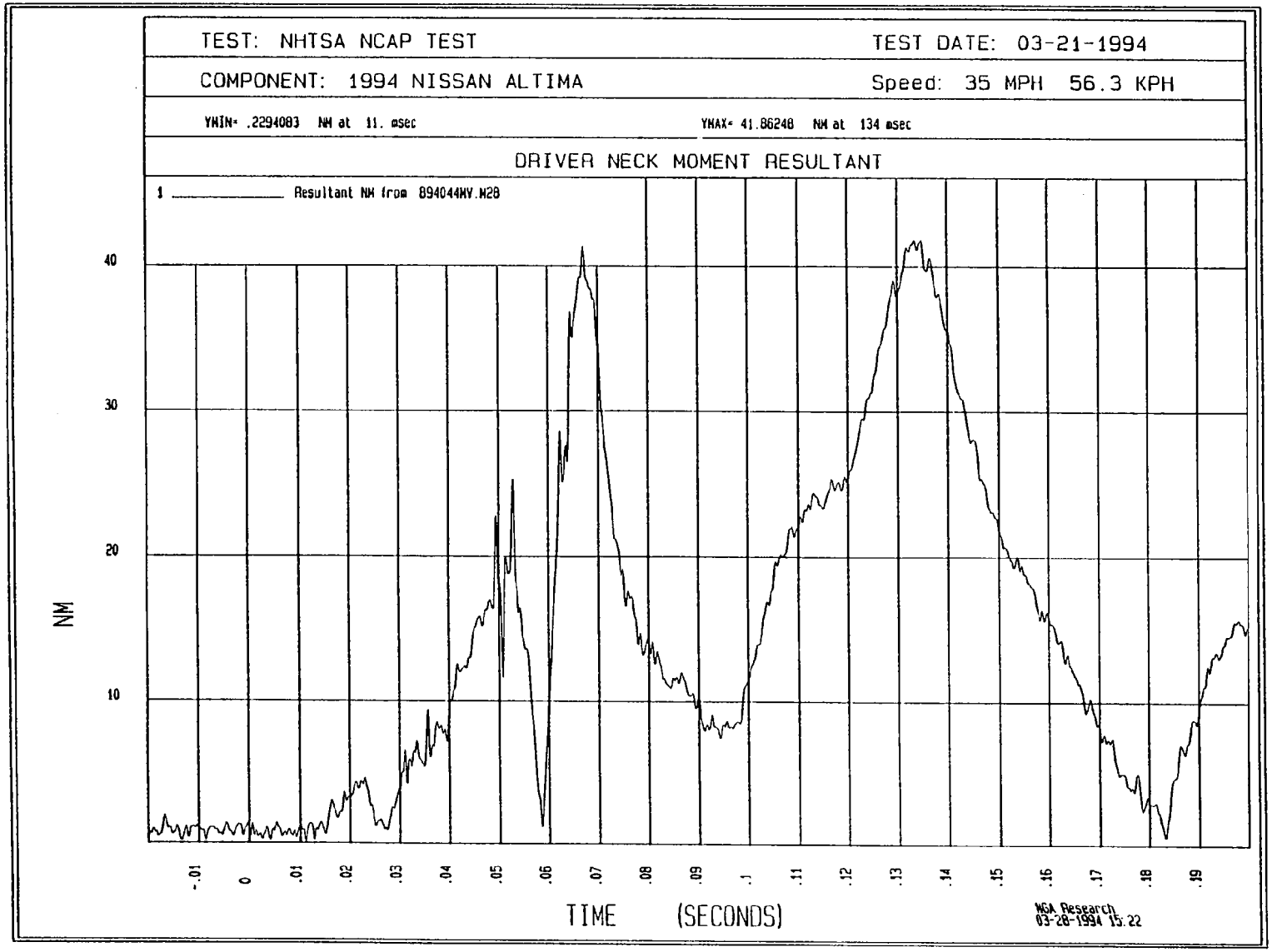


Figure B-55 - Driver Neck Moment Resultant vs. Time

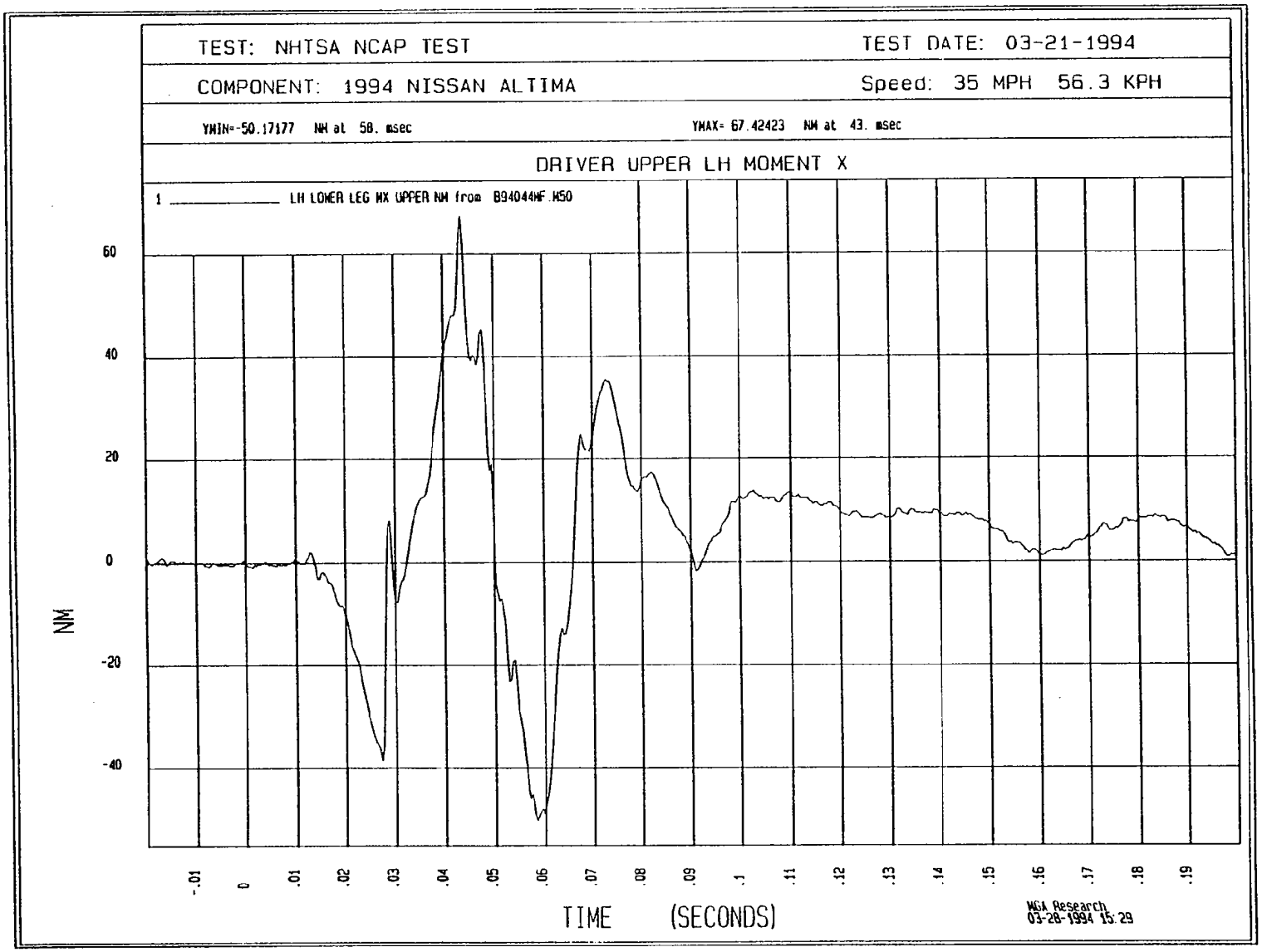


Figure B-56 - Driver Left Upper Leg Moment X vs. Time

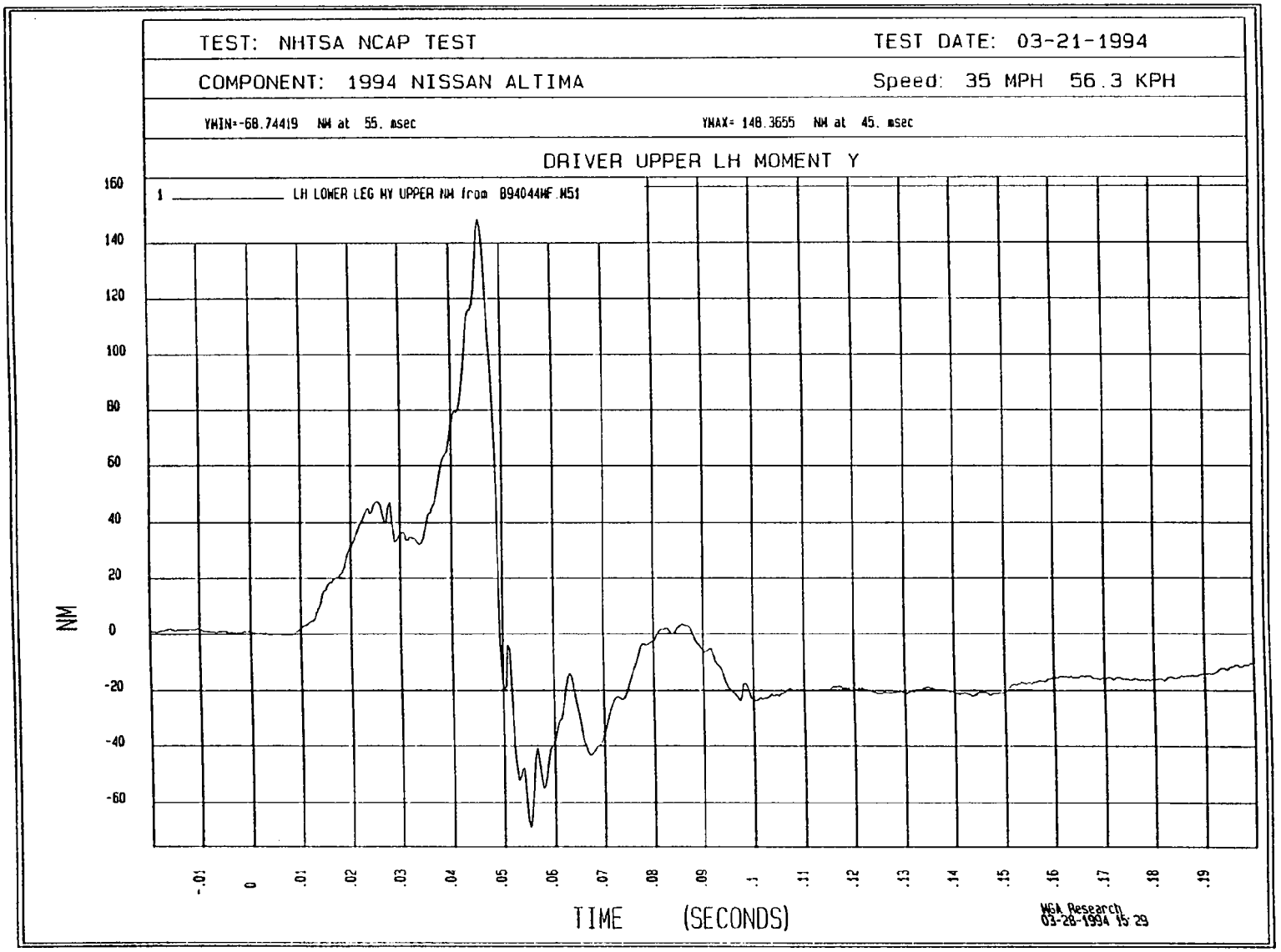


Figure B-57 - Driver Left Upper Leg Moment Y vs. Time

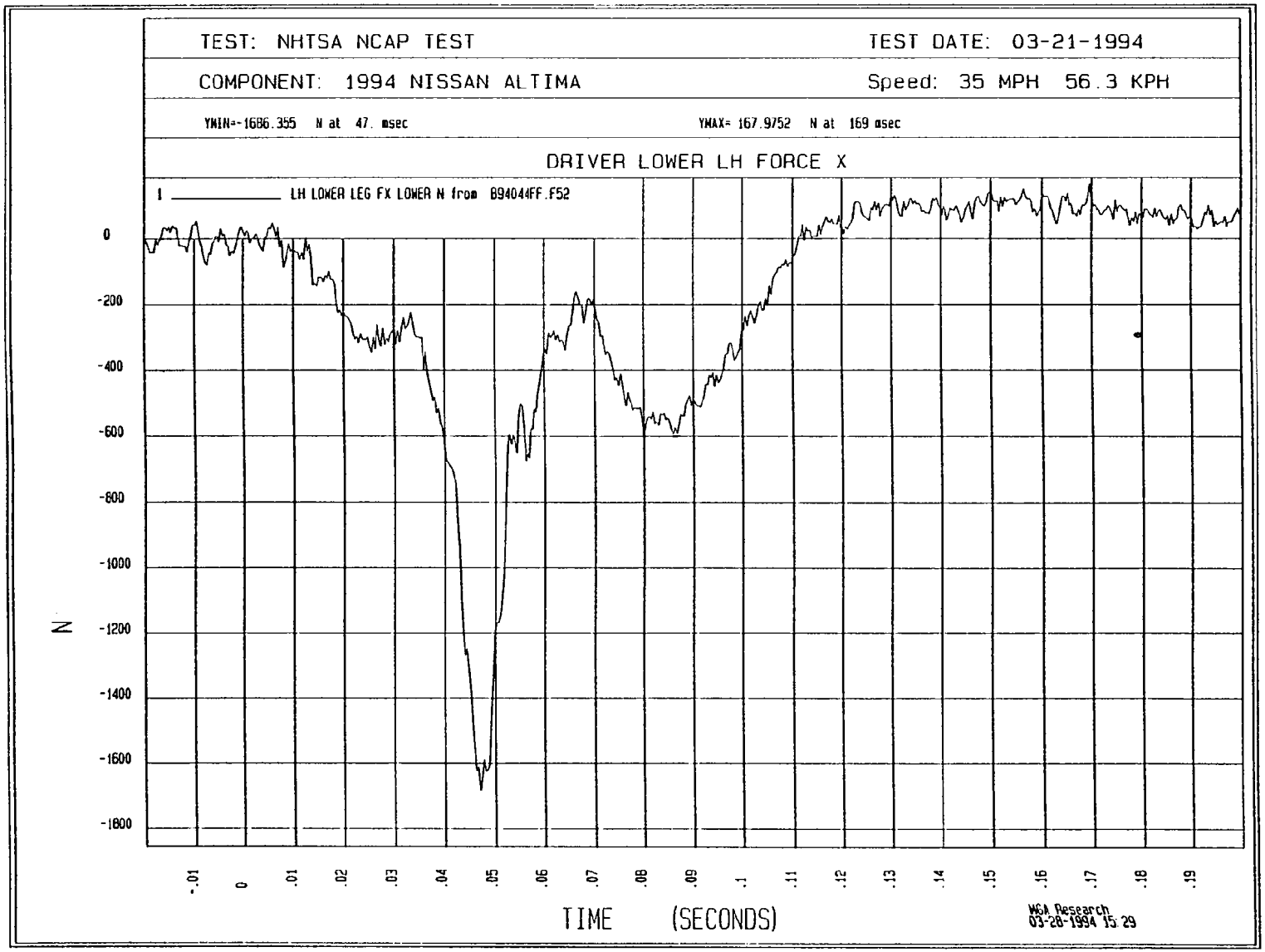


Figure B-58 - Driver Left Lower Leg Force X vs. Time

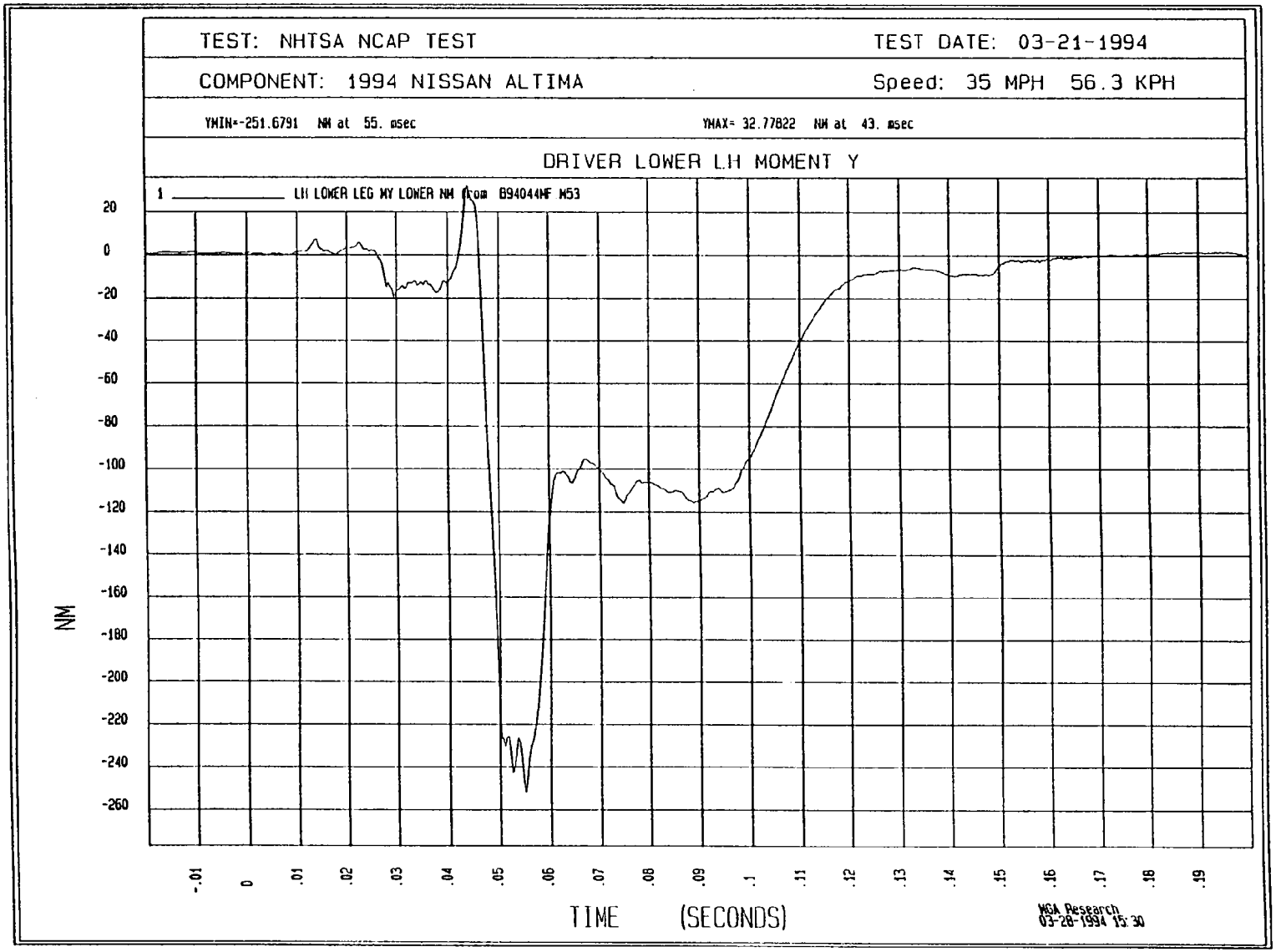


Figure B-59 - Driver Left Lower Leg Moment Y vs. Time

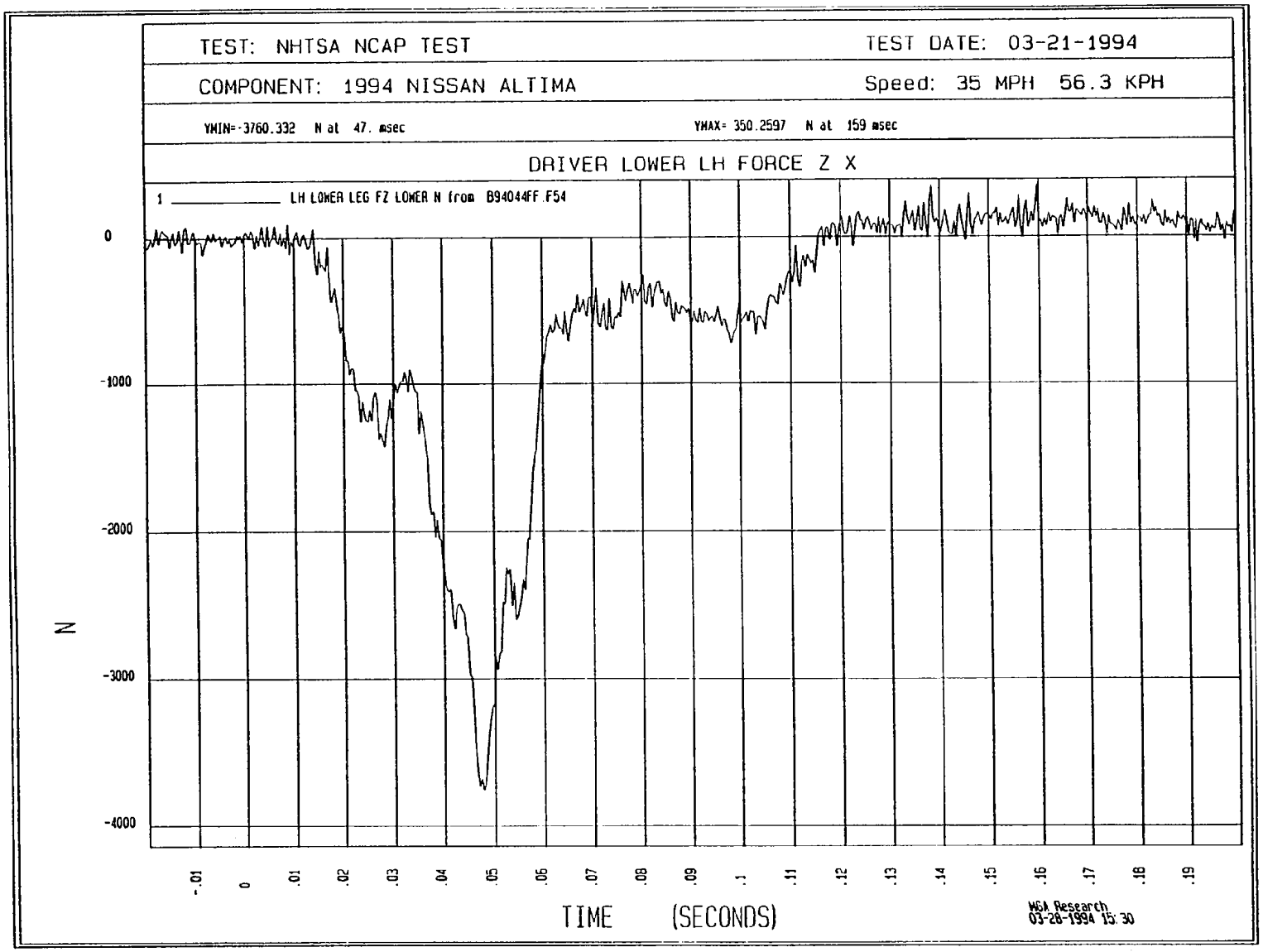


Figure B-60 - Driver Left Lower Leg Force Z vs. Time

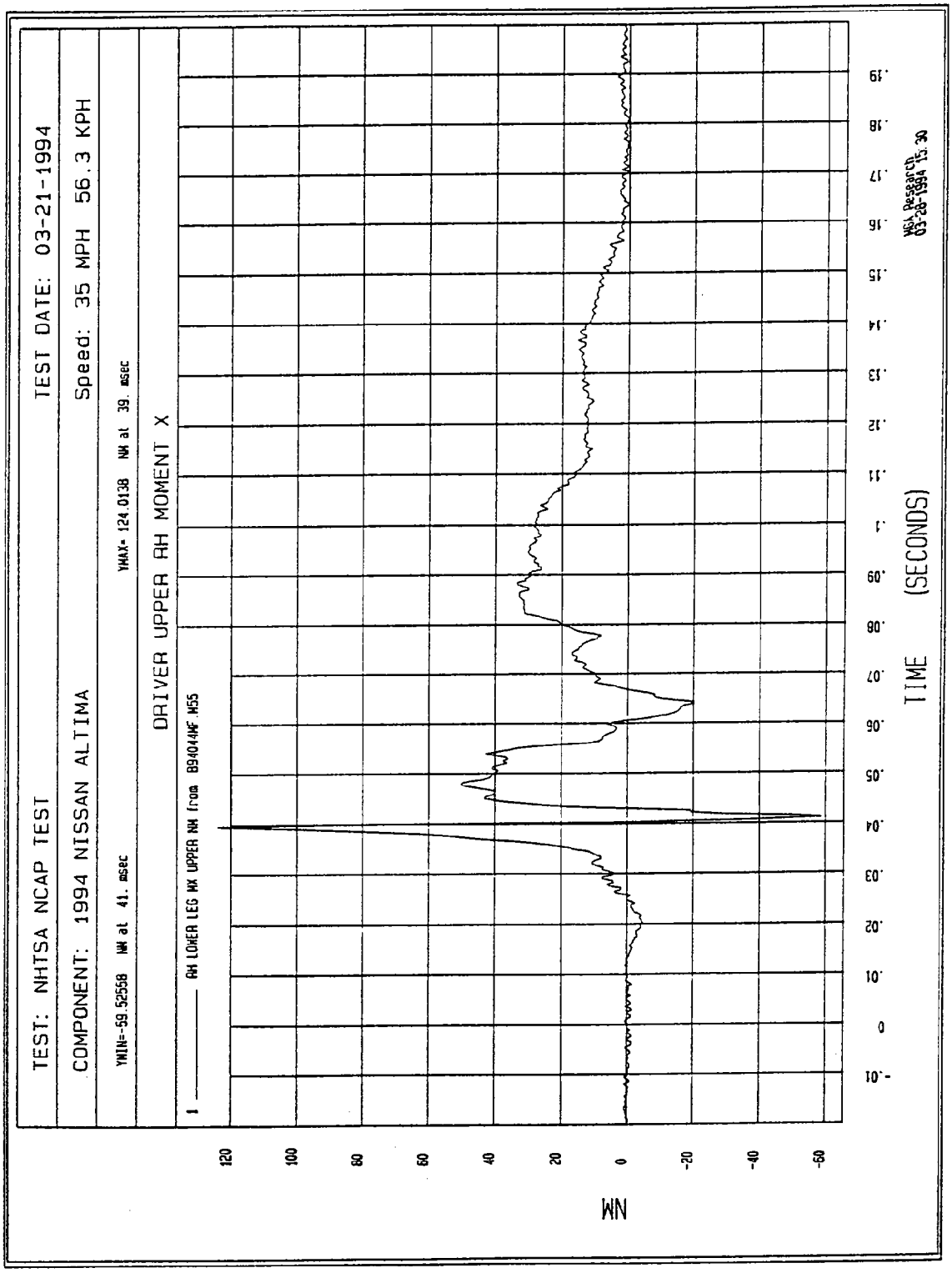


Figure B-61 - Driver Right Upper Leg Moment X vs. Time

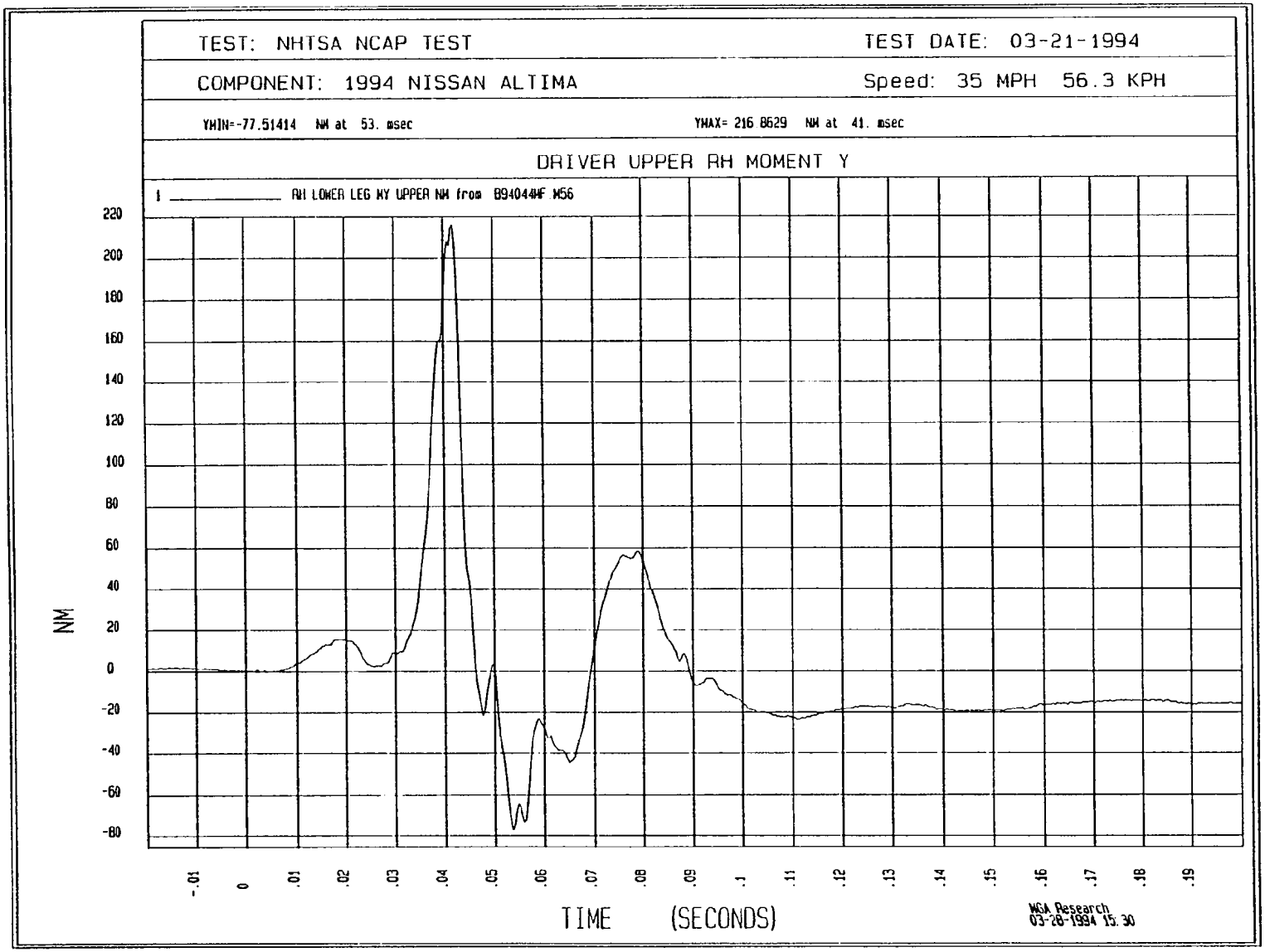


Figure B-62 - Driver Right Upper Leg Moment Y vs. Time

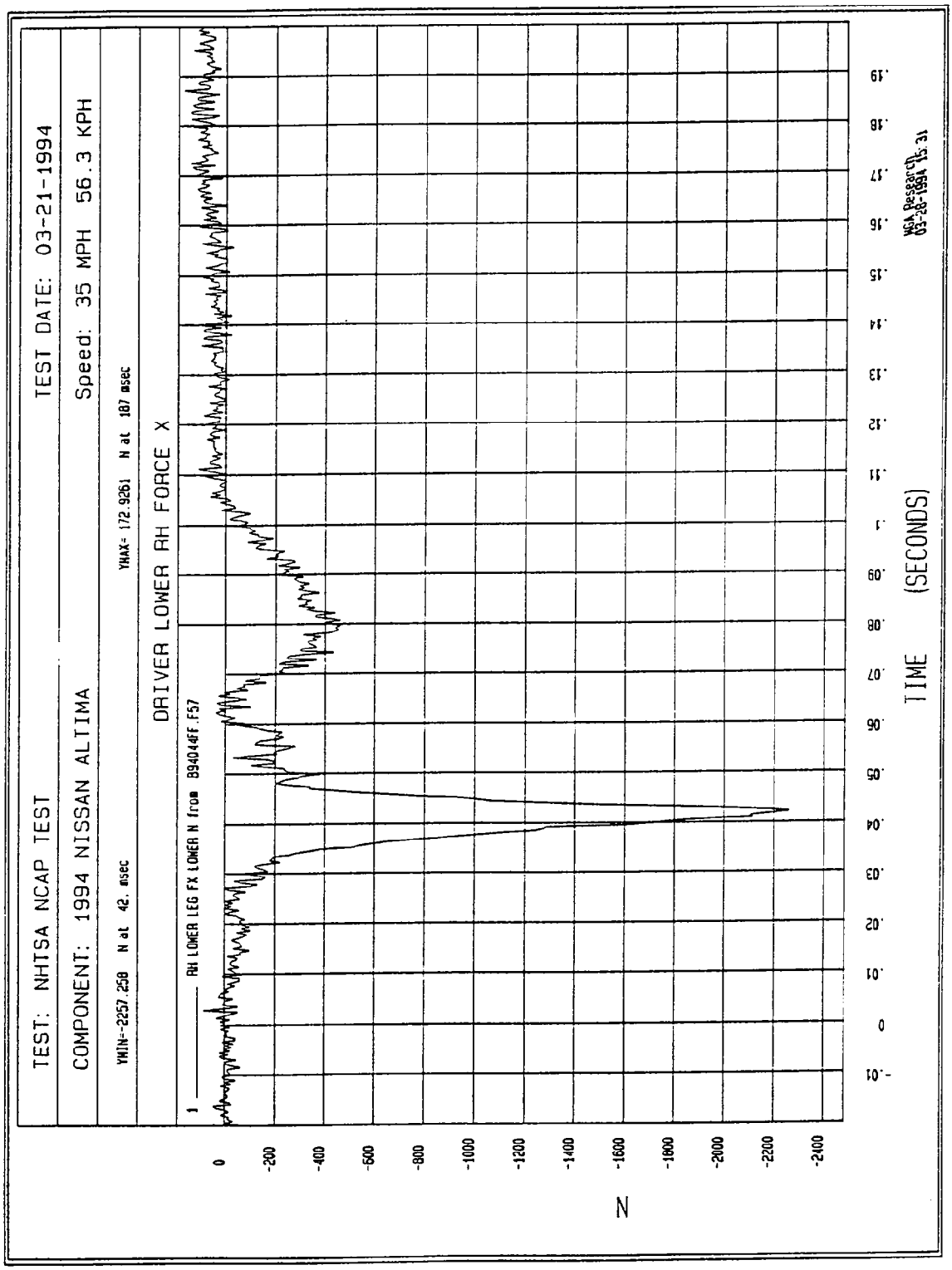


Figure B-63 - Driver Right Lower Leg Force X vs. Time

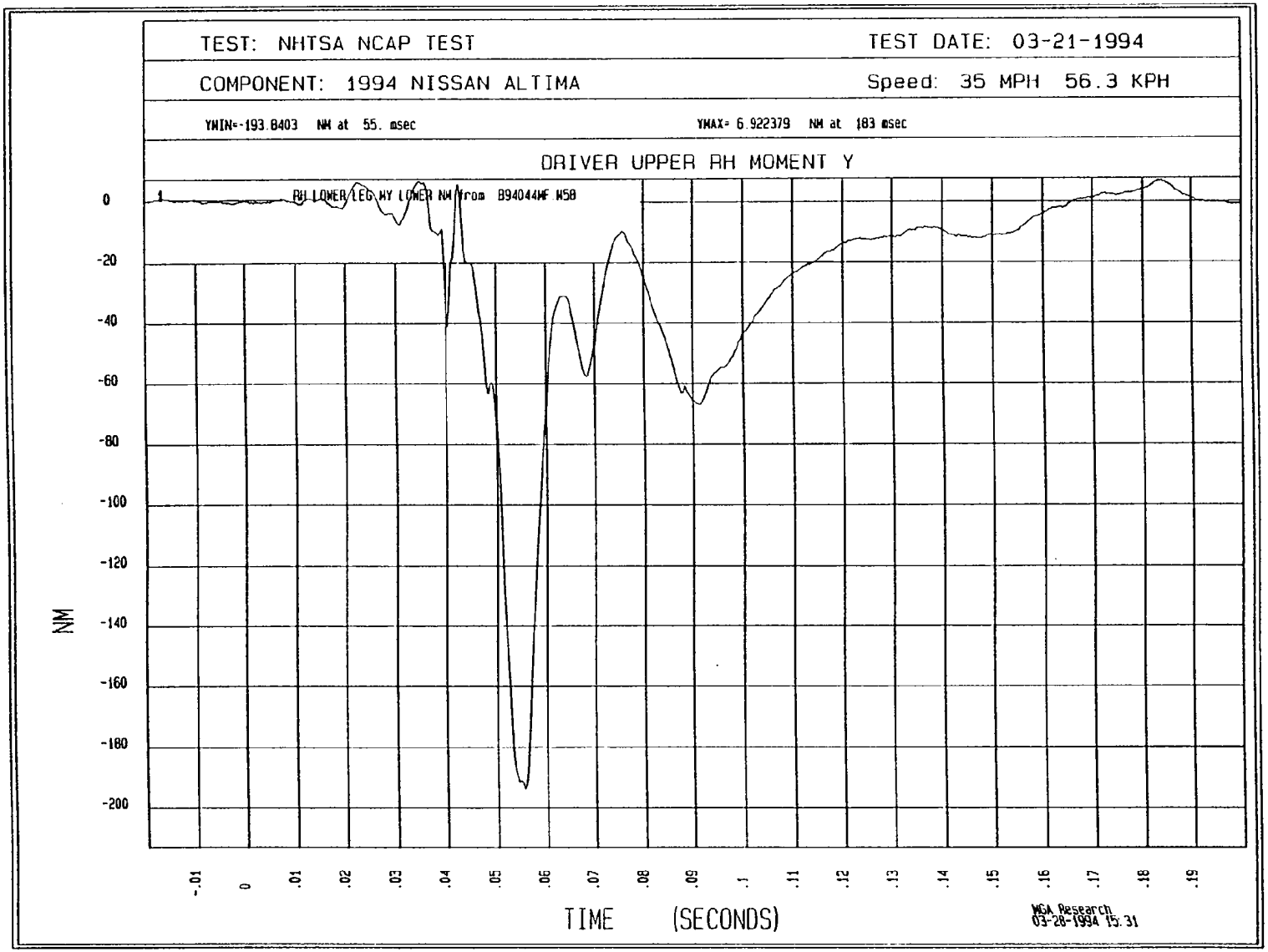


Figure B-64 - Driver Right Lower Leg Moment Y vs. Time

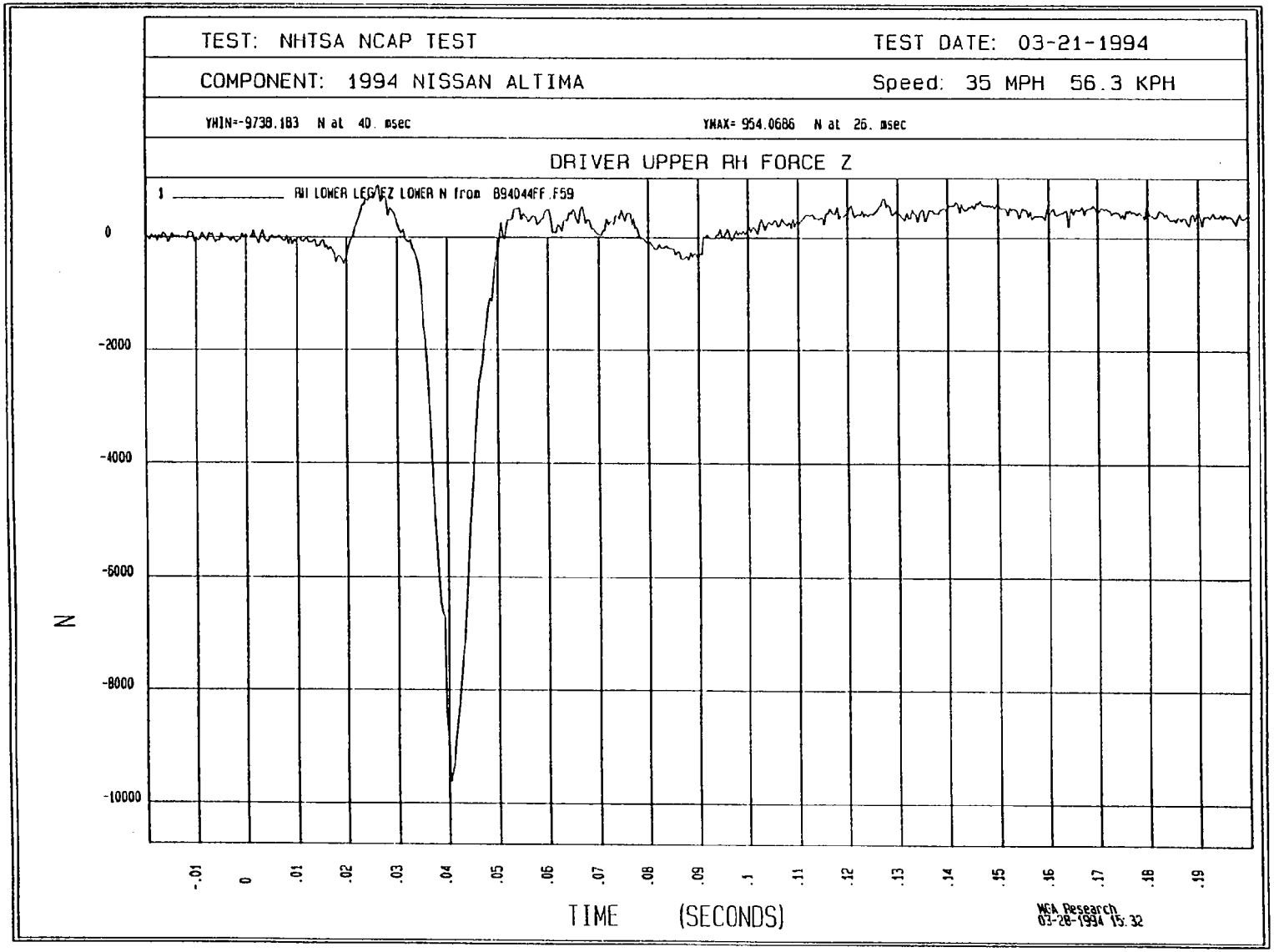


Figure B-65 - Driver Right Lower Leg Force Z vs. Time

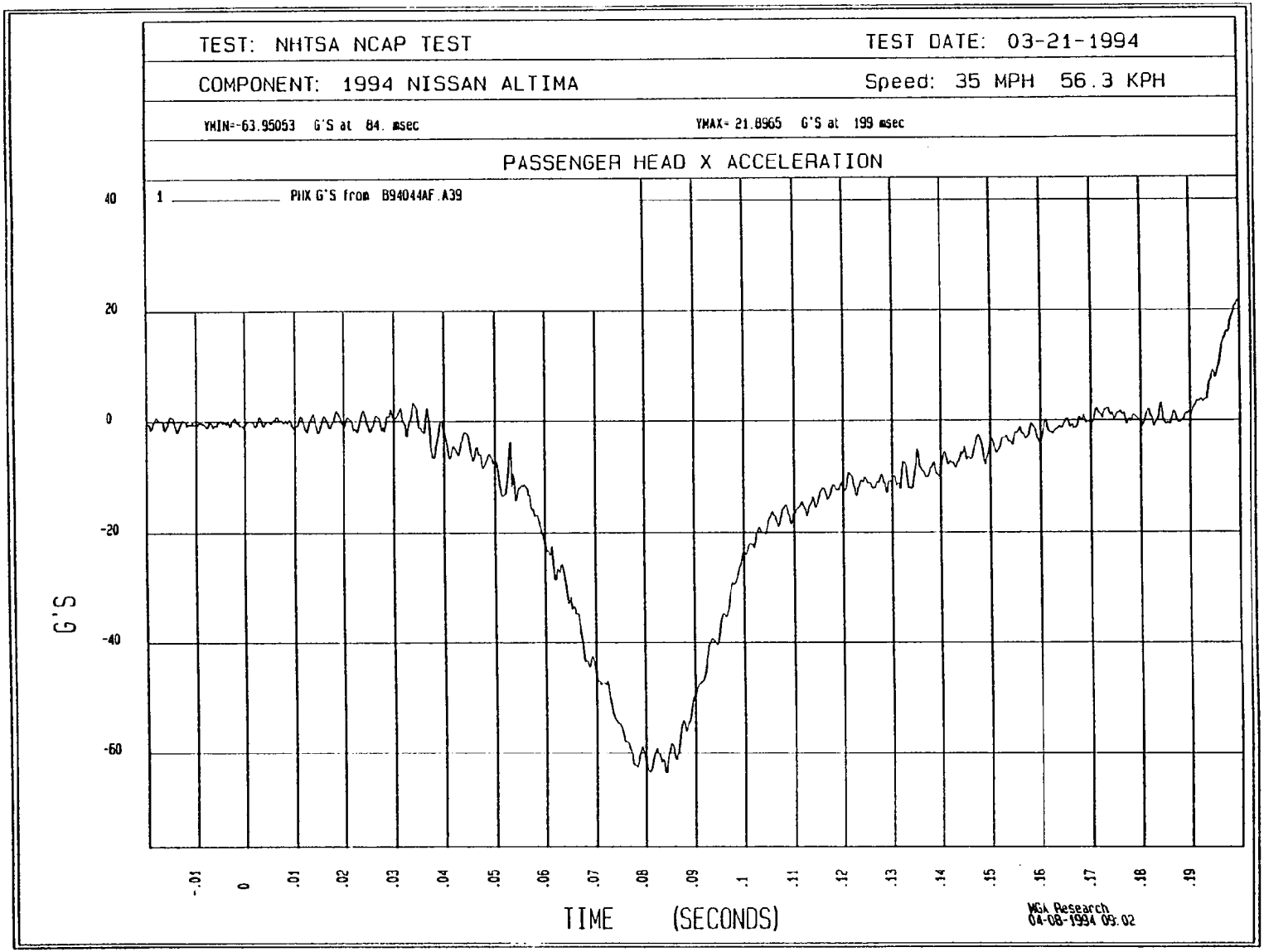


Figure B-66 - Passenger Head X Acceleration vs. Time

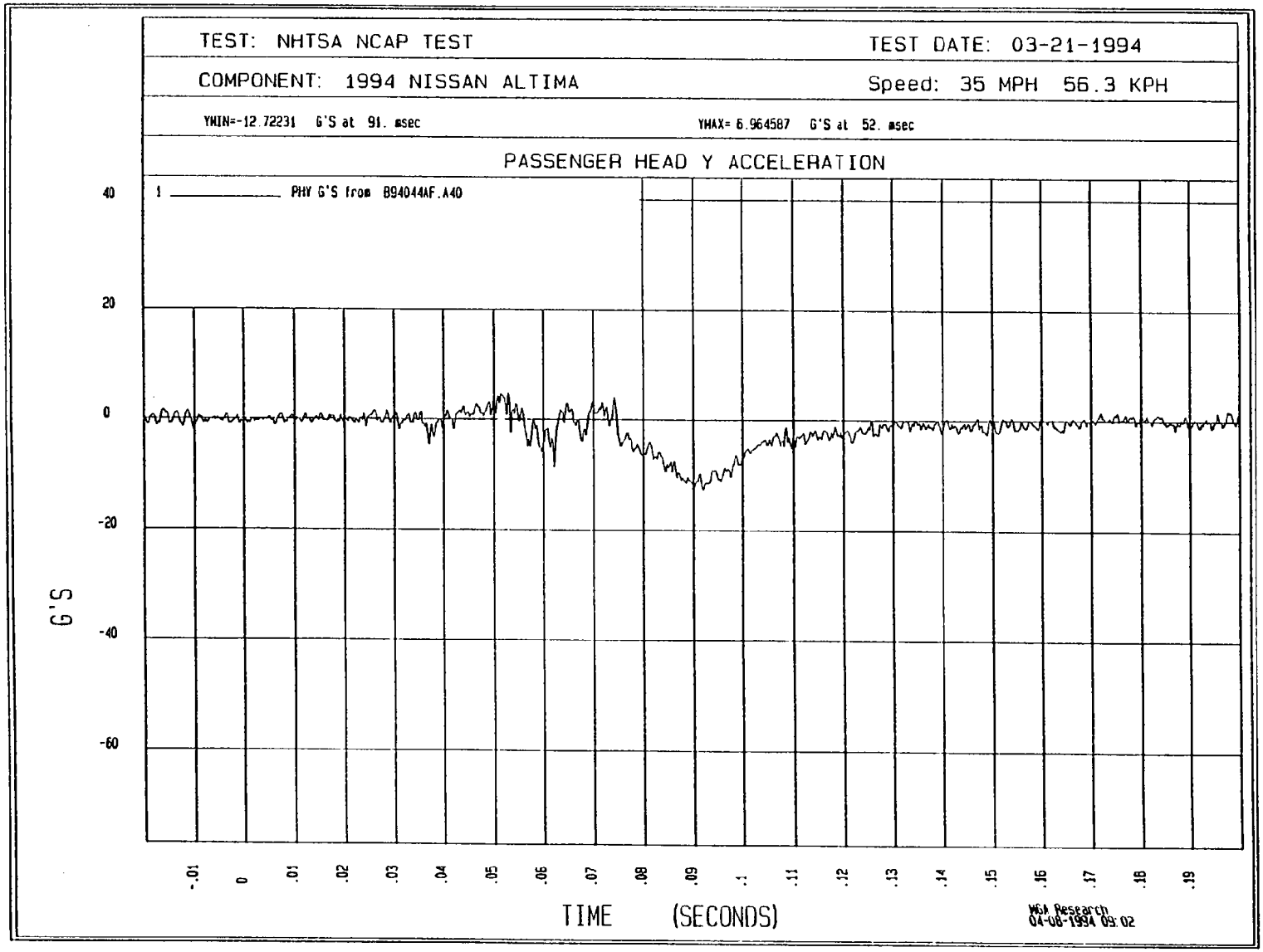


Figure B-67 - Passenger Head Y Acceleration vs. Time

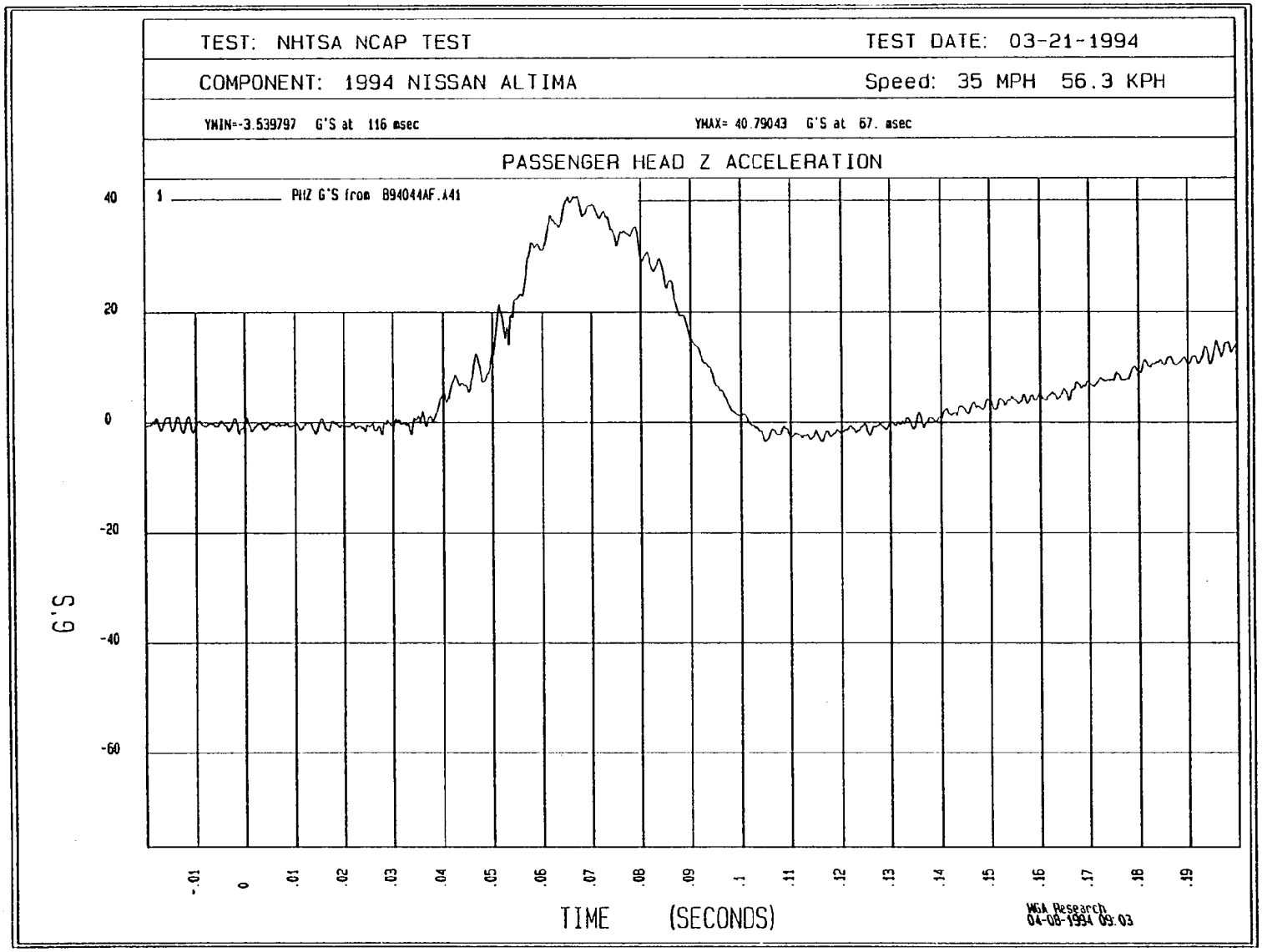


Figure B-68 - Passenger Head Z Acceleration vs. Time

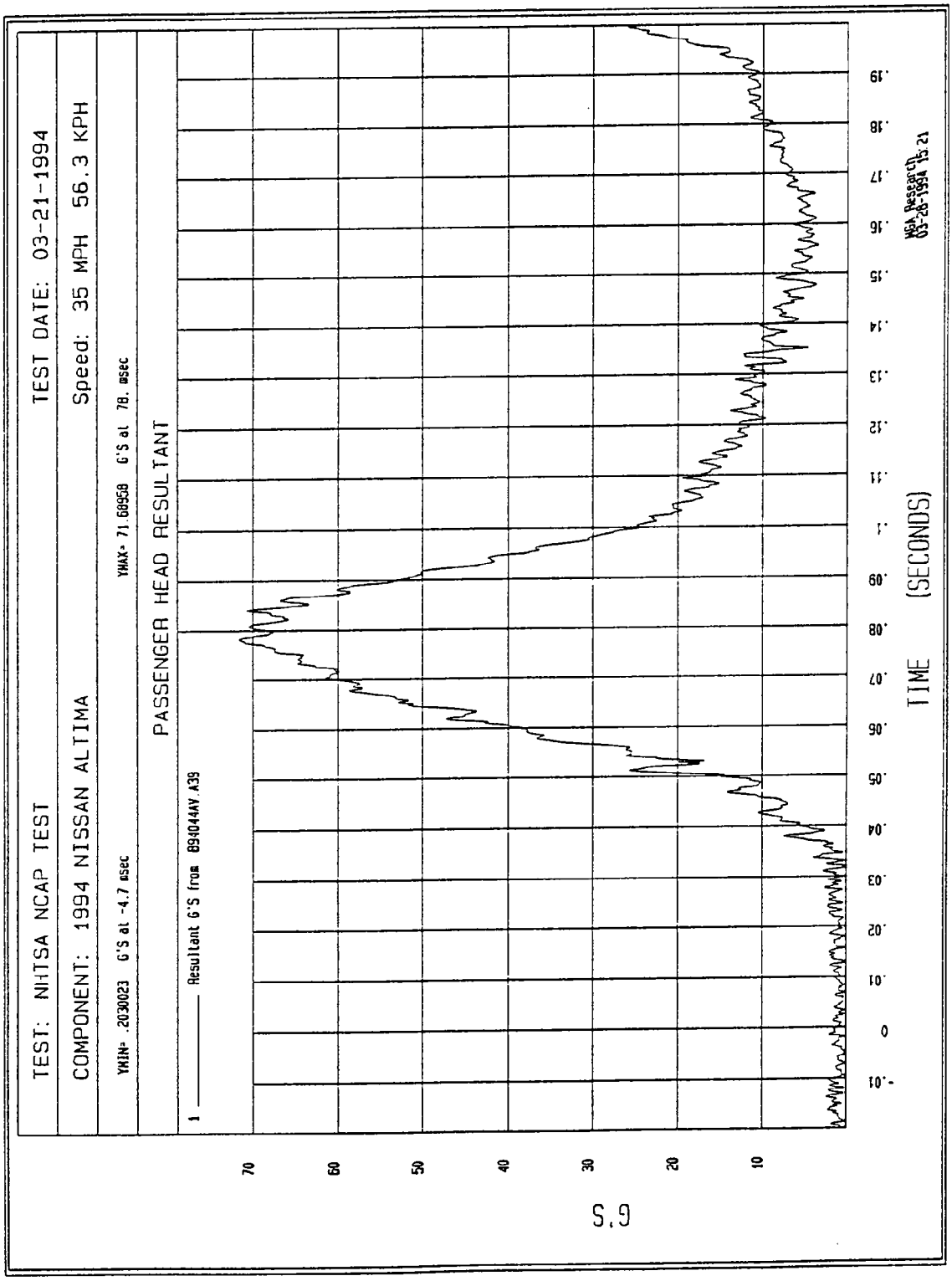


Figure B-69 - Passenger Head Resultant Acceleration vs. Time

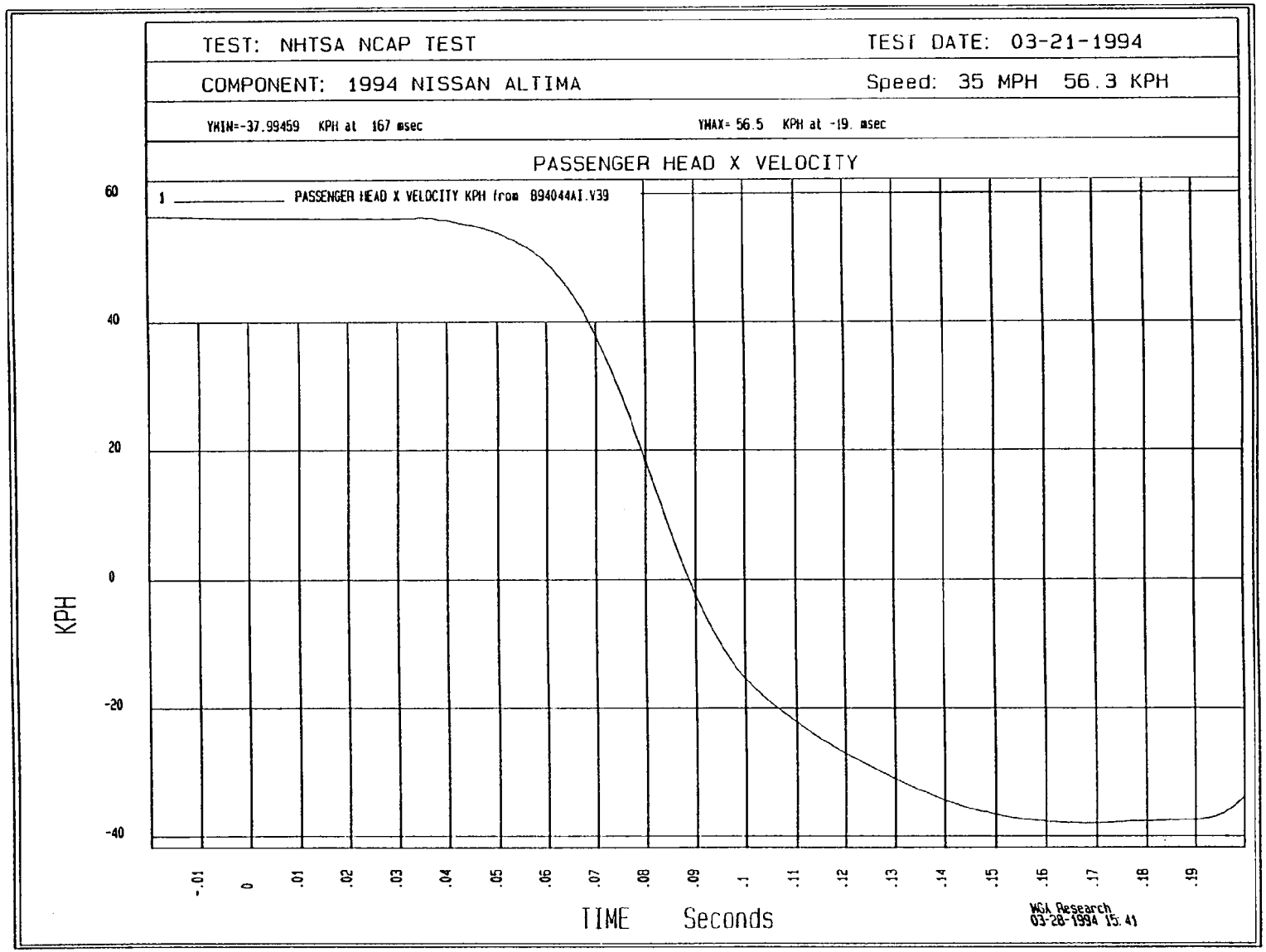


Figure B-70 - Passenger Head X Velocity vs. Time

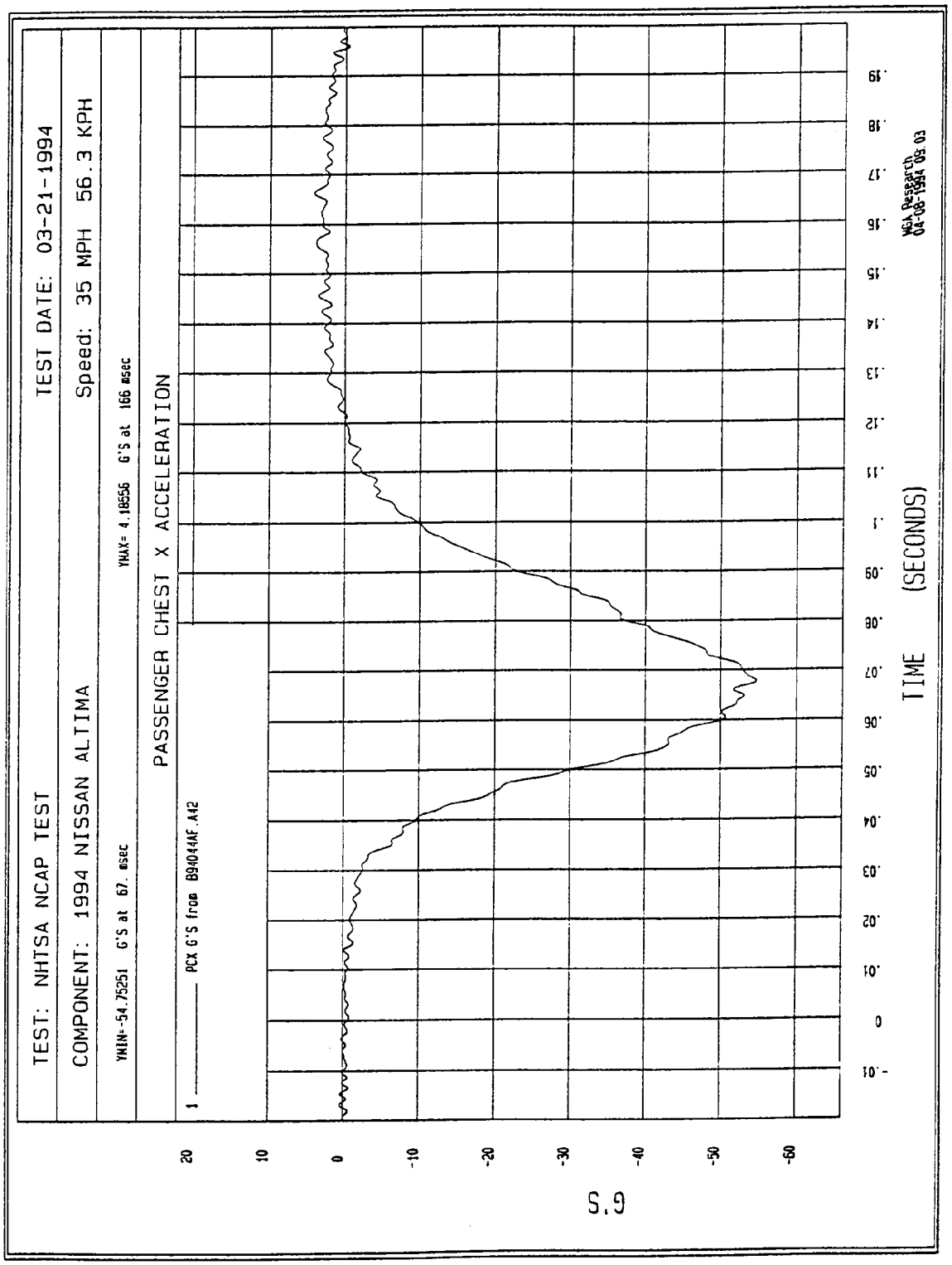


Figure B-71 - Passenger Chest X Acceleration vs. Time

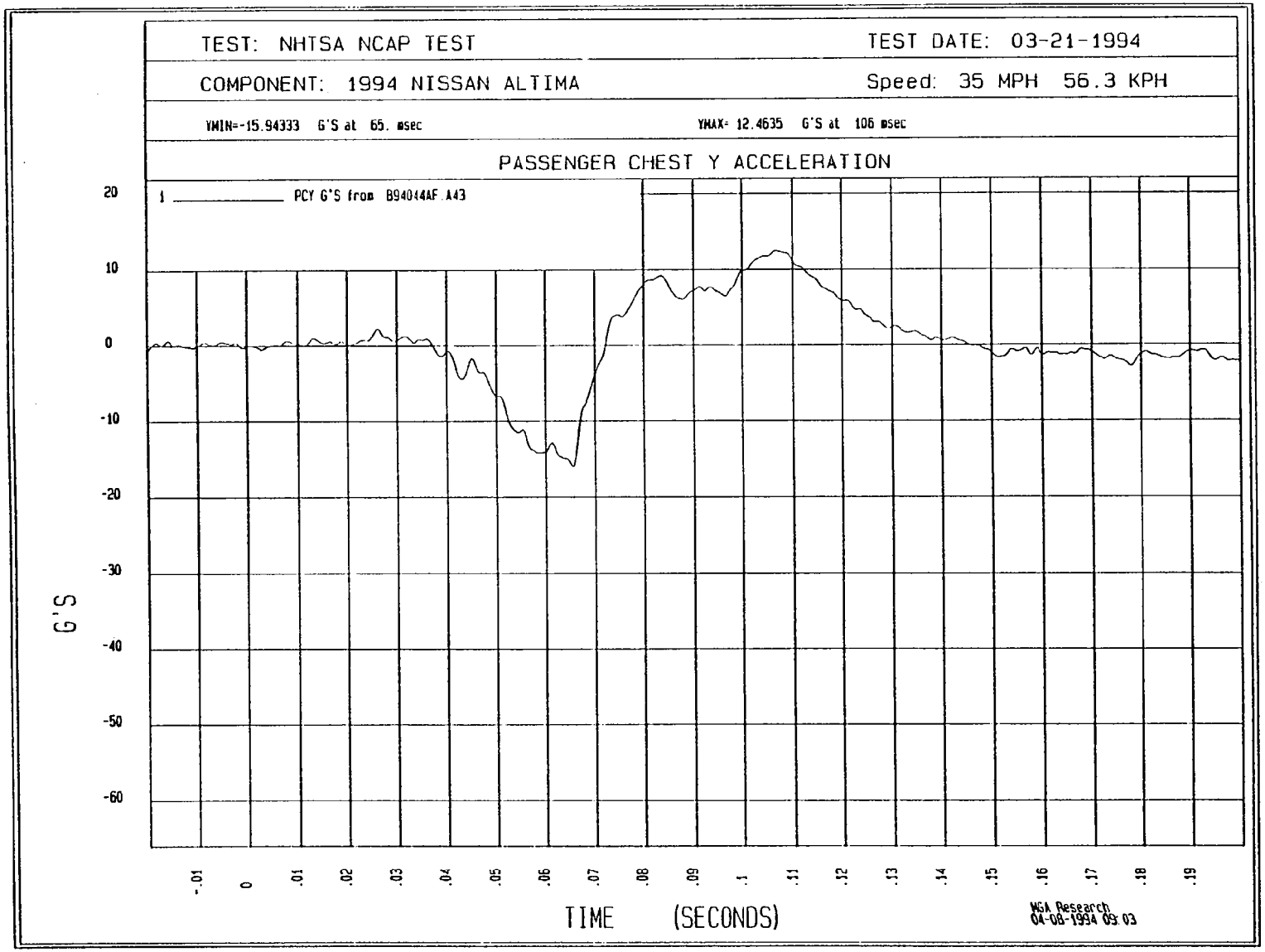


Figure B-72 - Passenger Chest Y Acceleration vs. Time

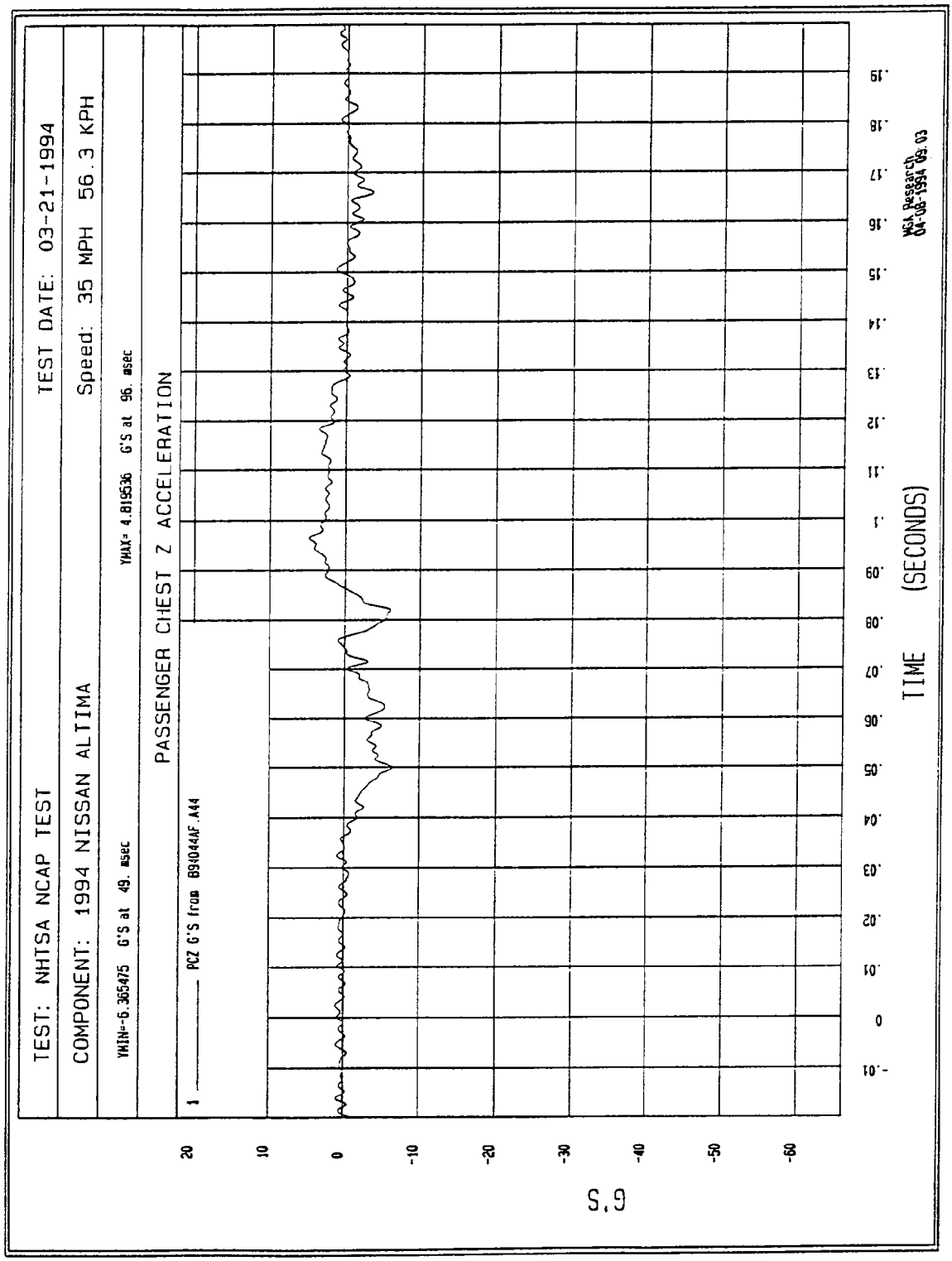


Figure B-73 - Passenger Chest Z Acceleration vs. Time

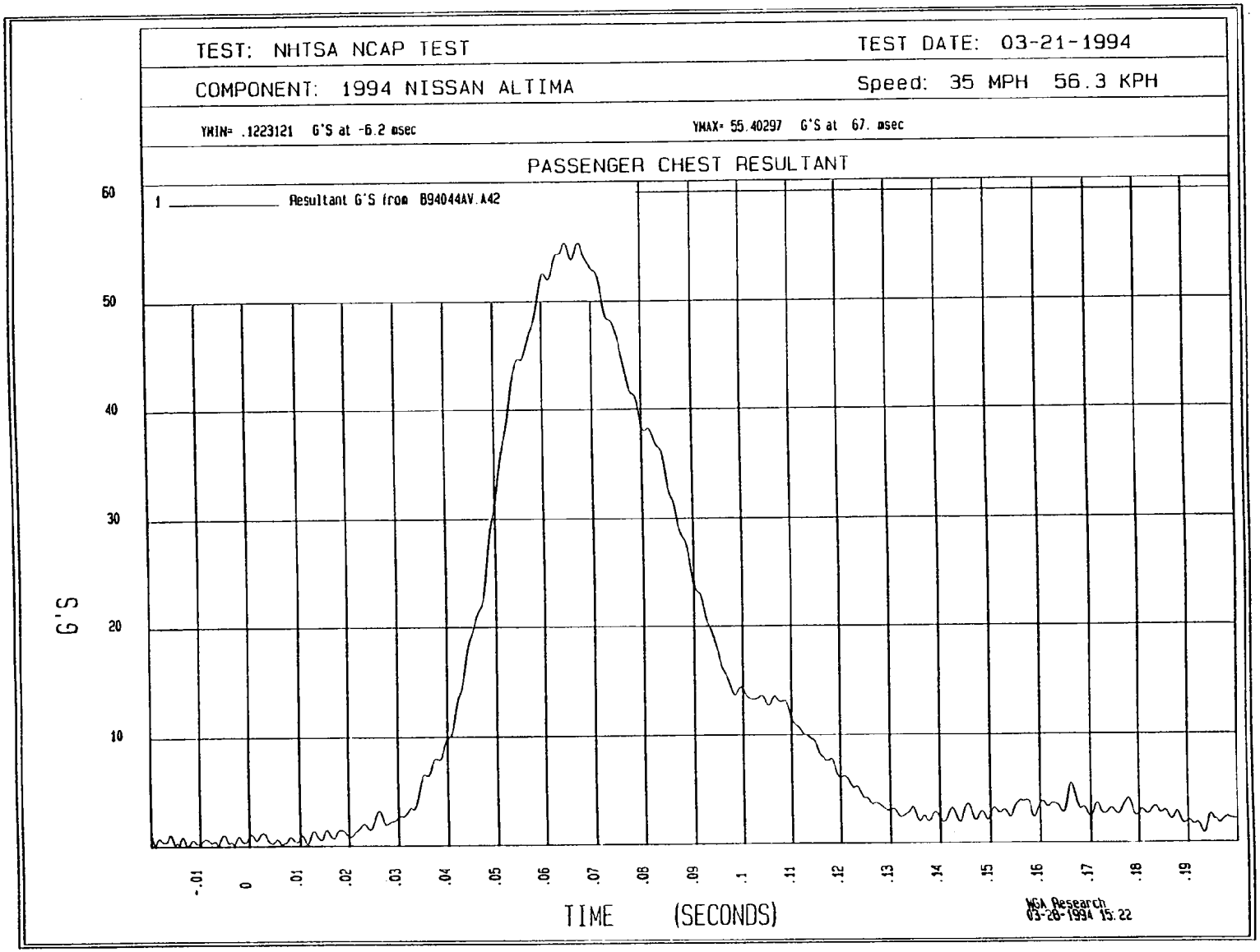


Figure B-74 - Passenger Chest Resultant vs. Time

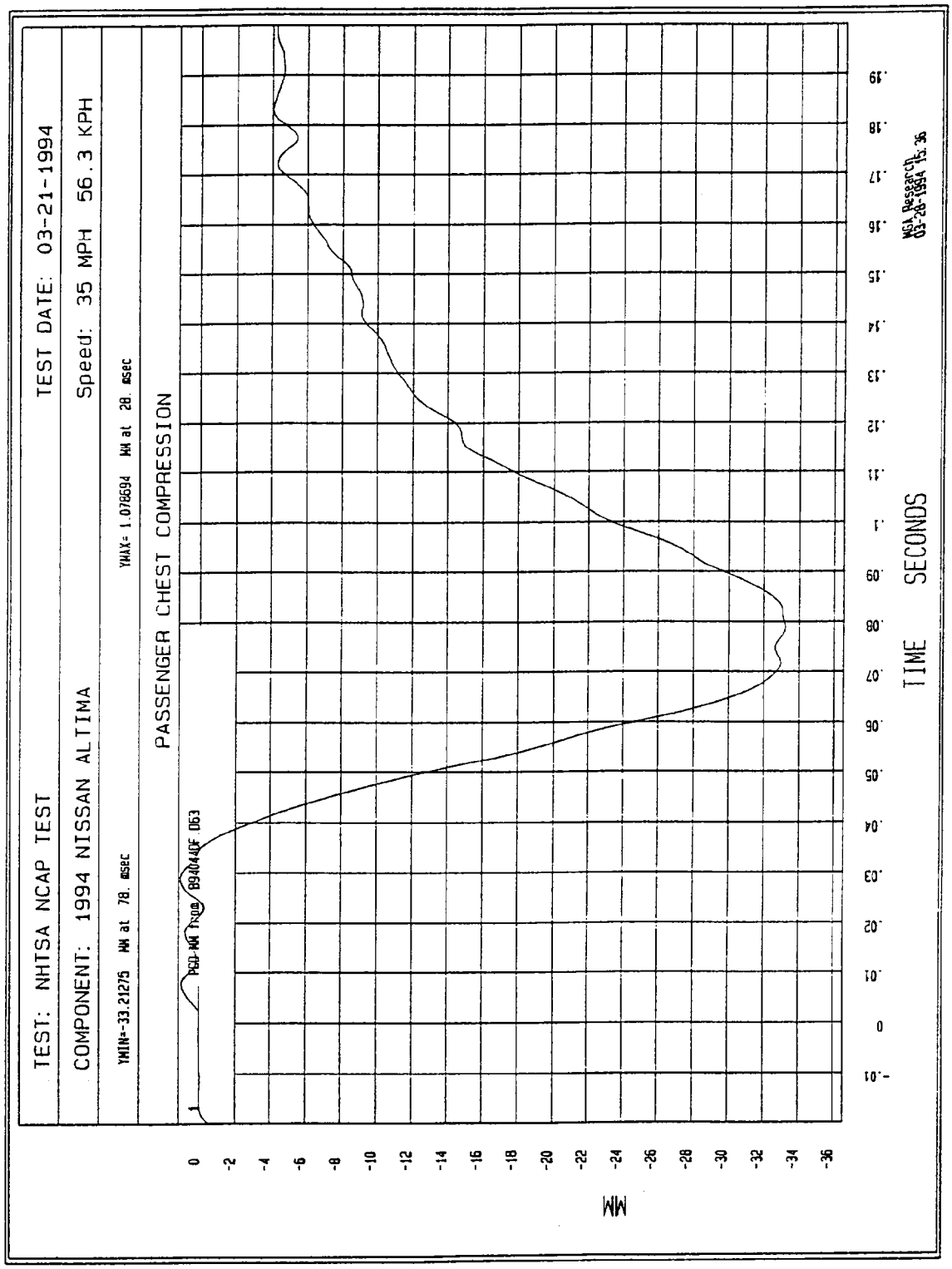


Figure B-75 - Passenger Chest Compression vs. Time

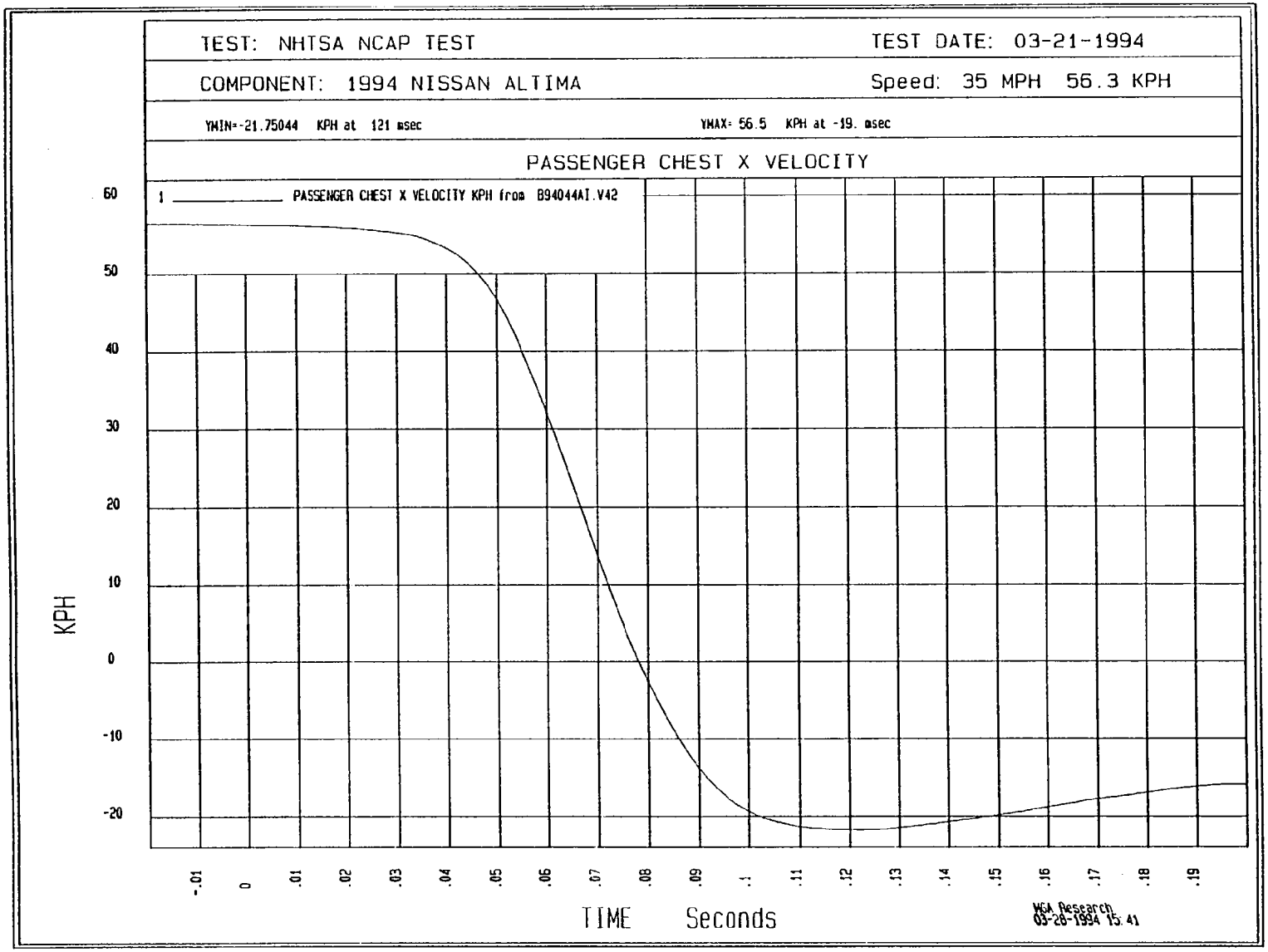


Figure B-76 - Passenger Chest X Velocity vs. Time

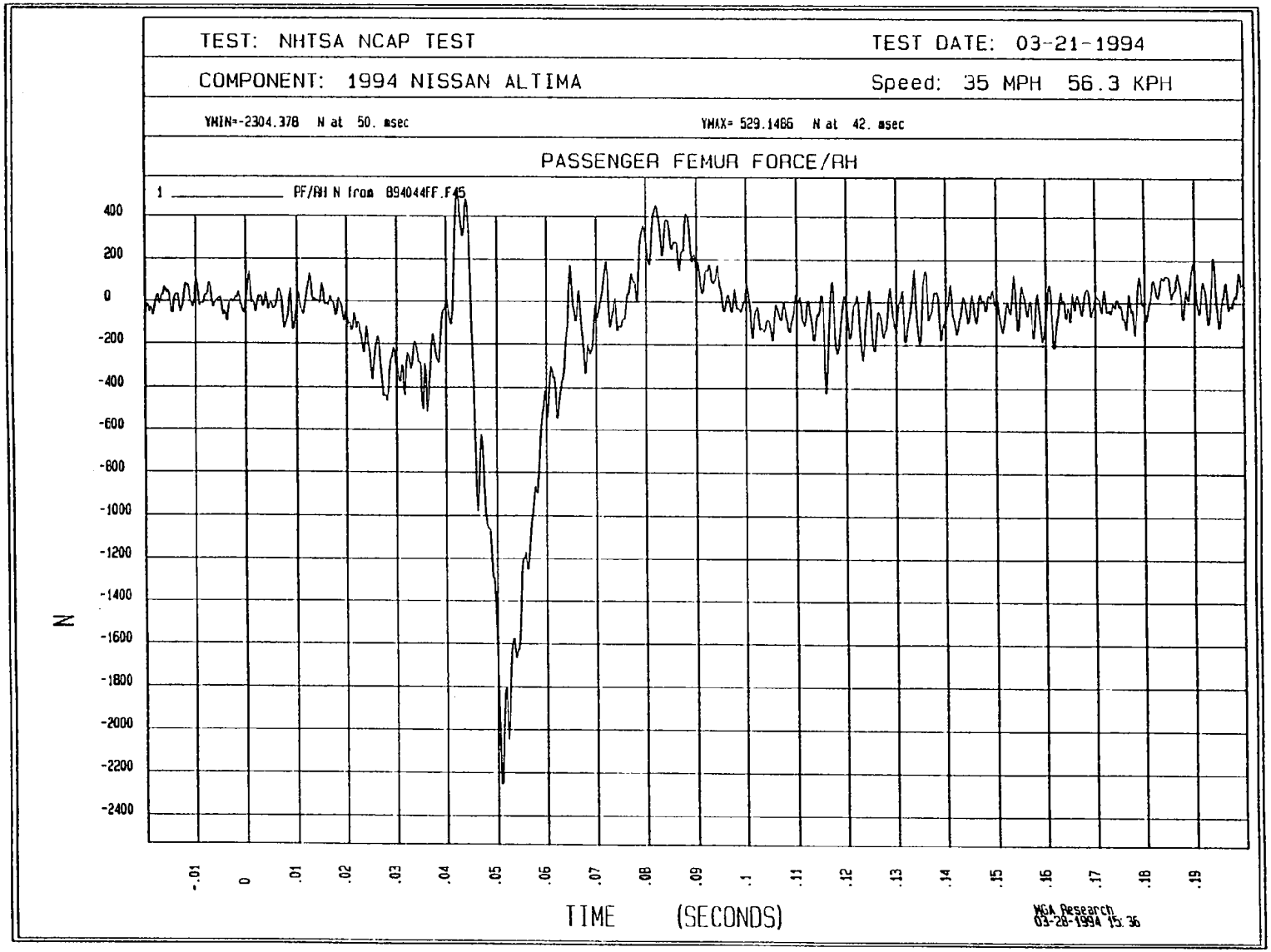


Figure B-77 - Passenger Right Femur Force vs. Time

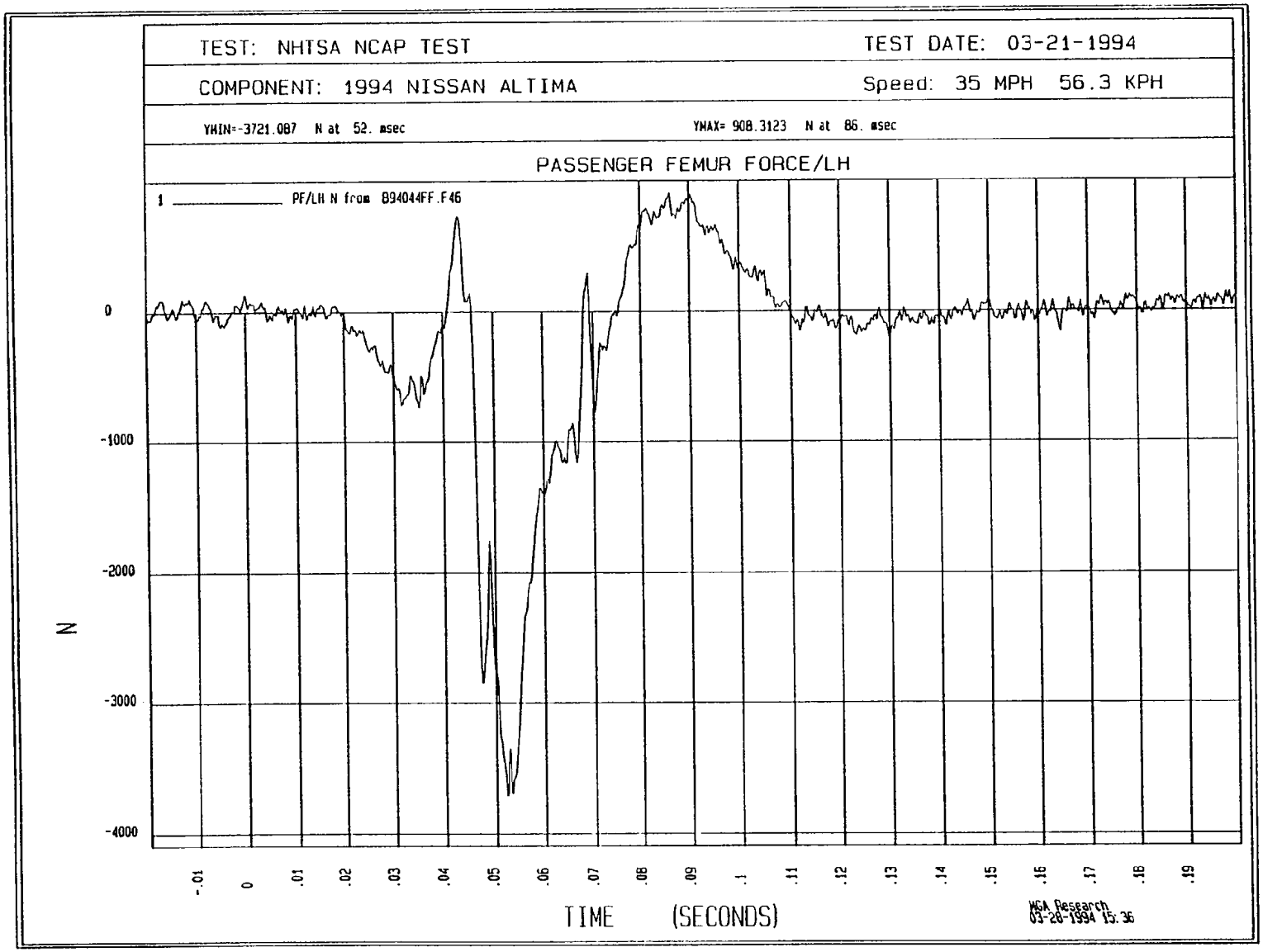


Figure B-78 - Passenger Left Femur Force vs. Time

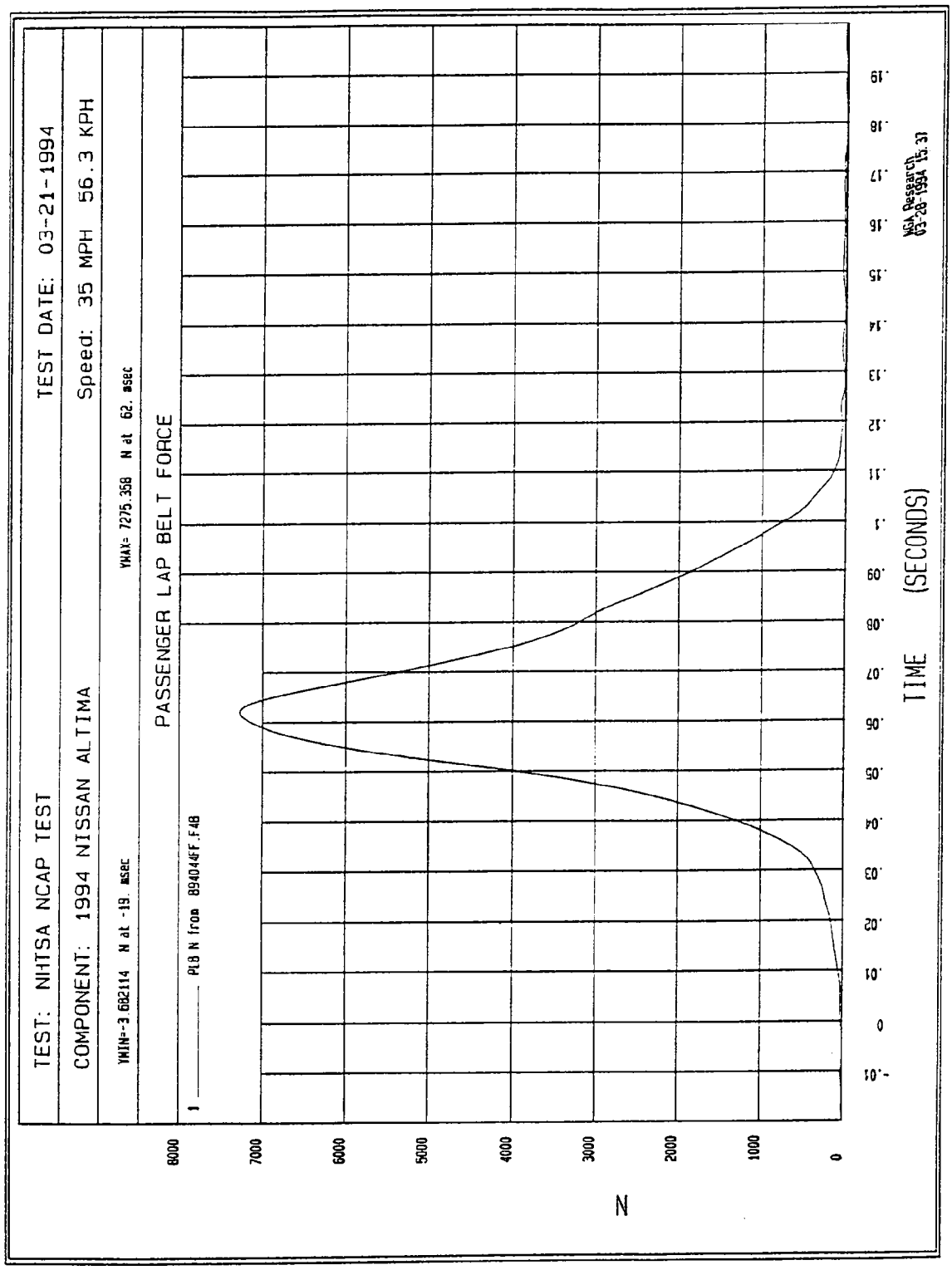


Figure B-79 - Passenger Lap Belt Force vs. Time

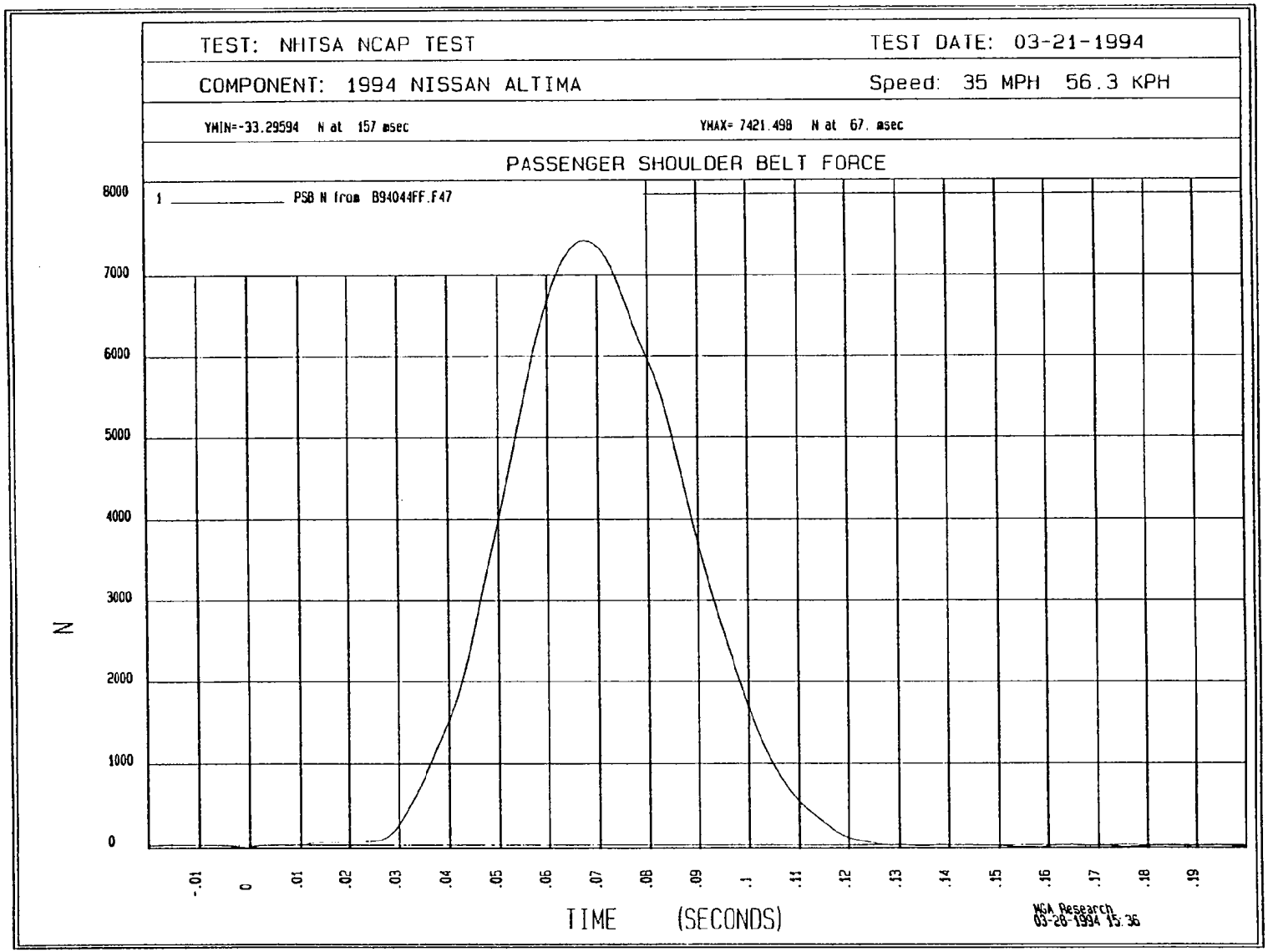


Figure B-80 - Passenger Shoulder Belt Force vs. Time

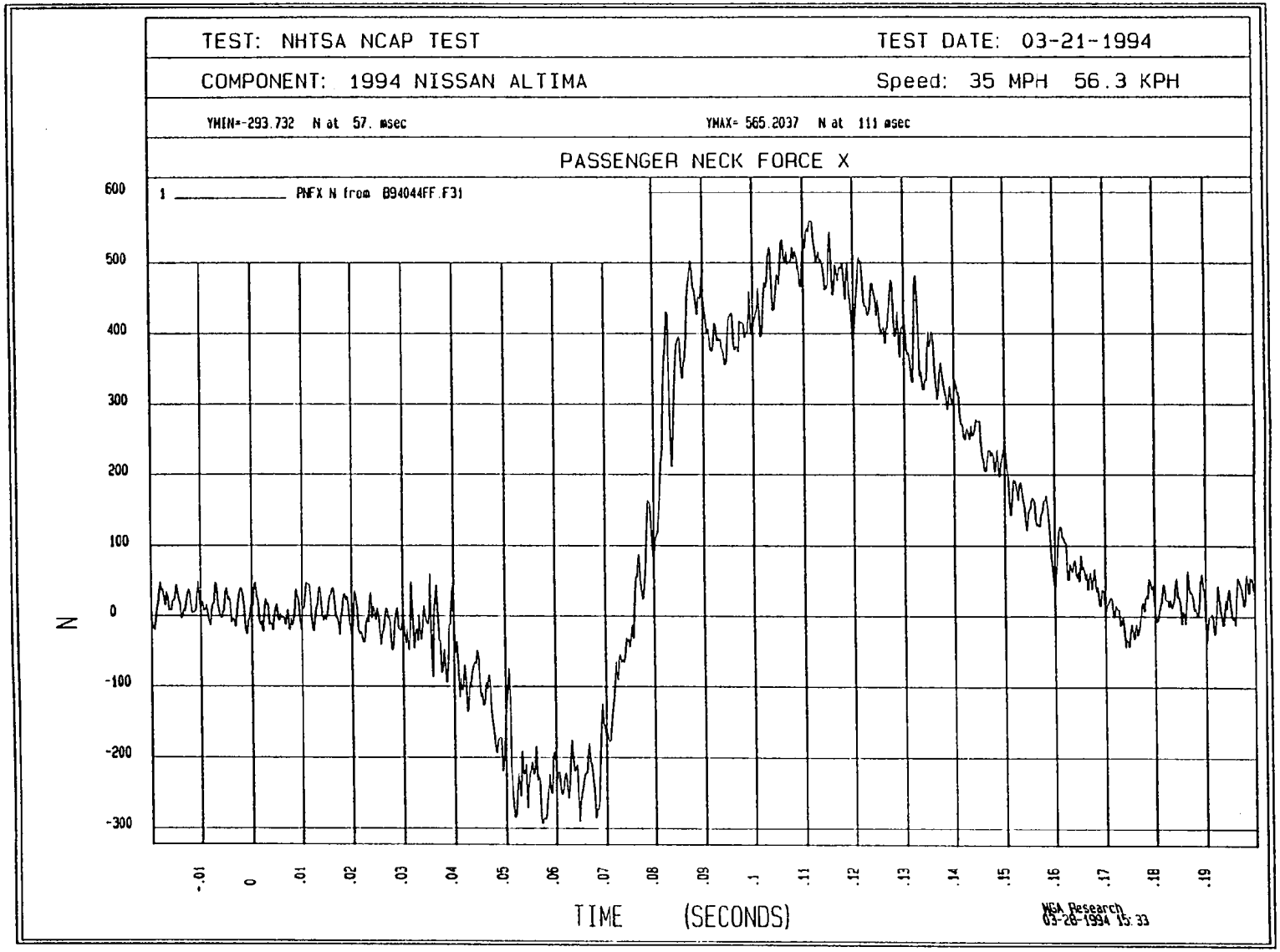


Figure B-81 - Passenger Neck Force X vs. Time

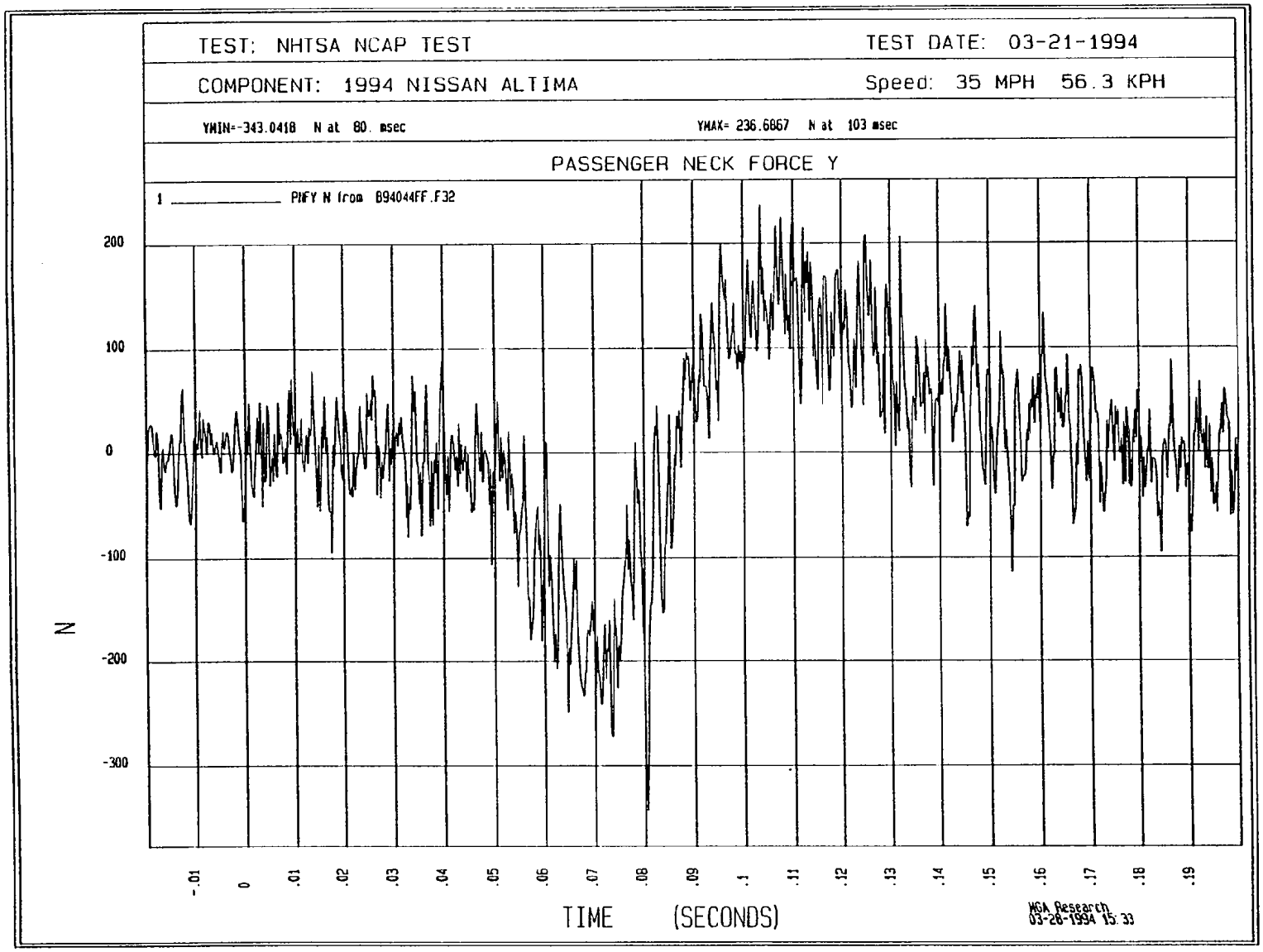


Figure B-82 - Passenger Neck Force Y vs. Time

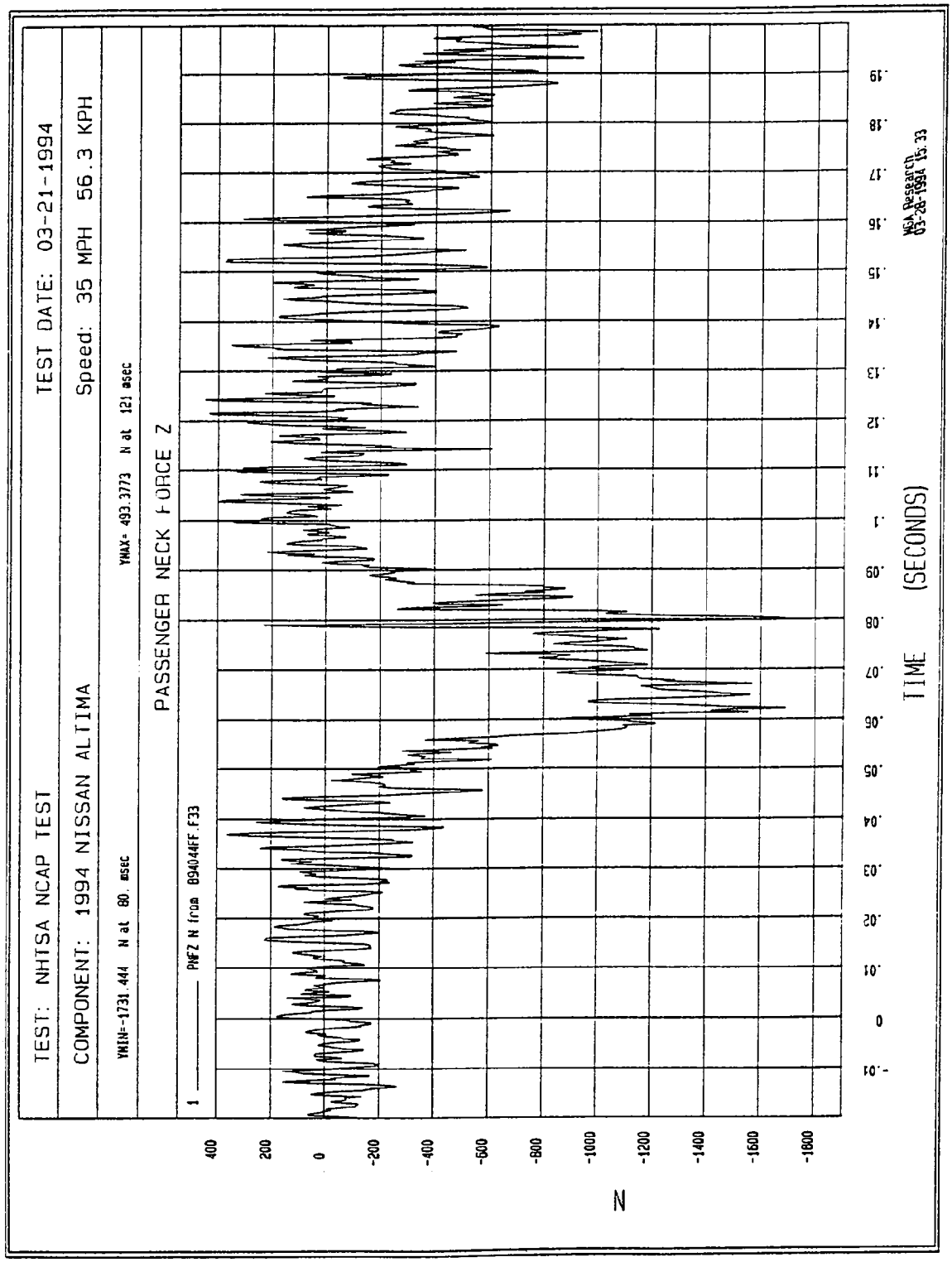


Figure B-83 - Passenger Neck Force Z vs. Time

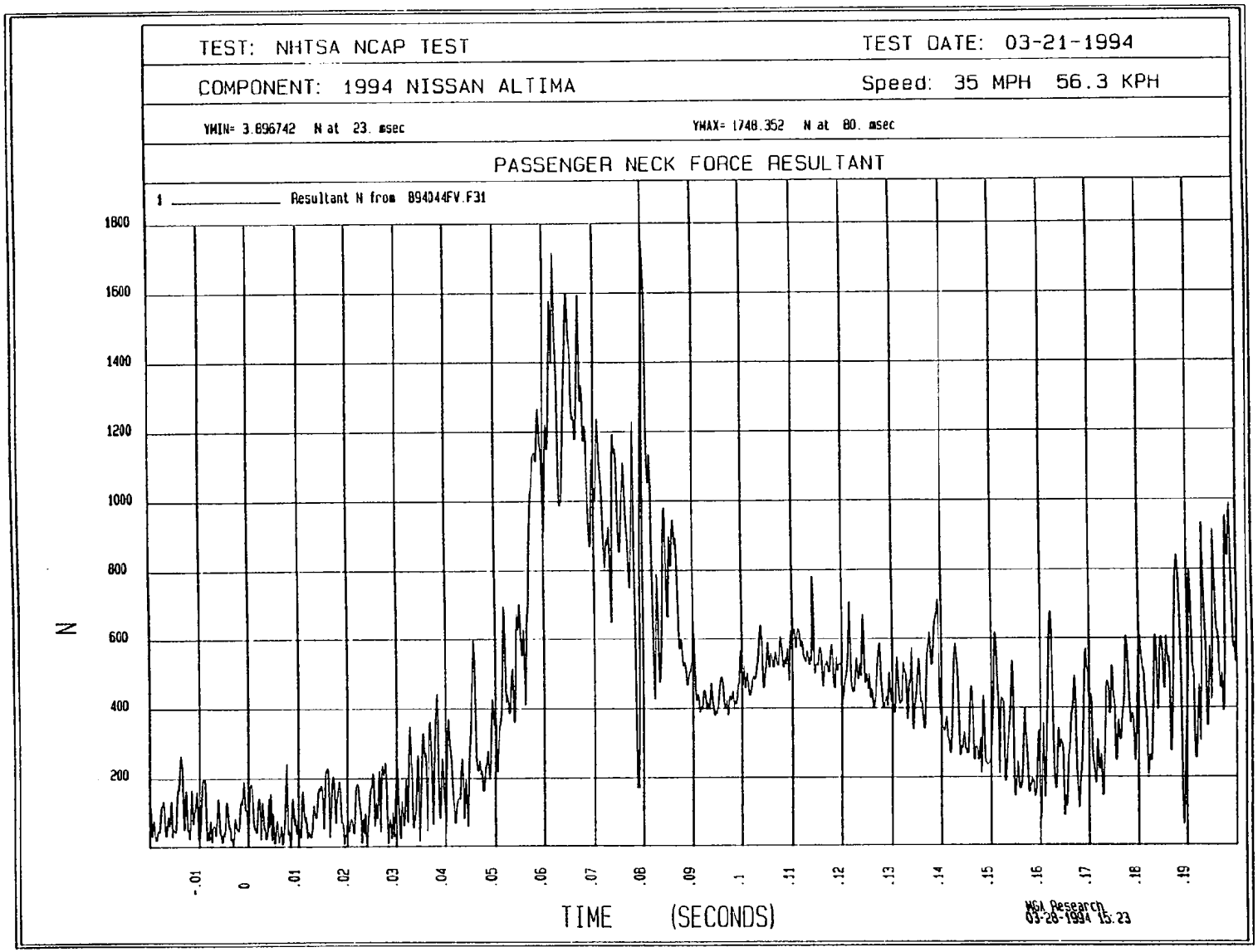


Figure B-84 - Passenger Neck Force Resultant vs. Time

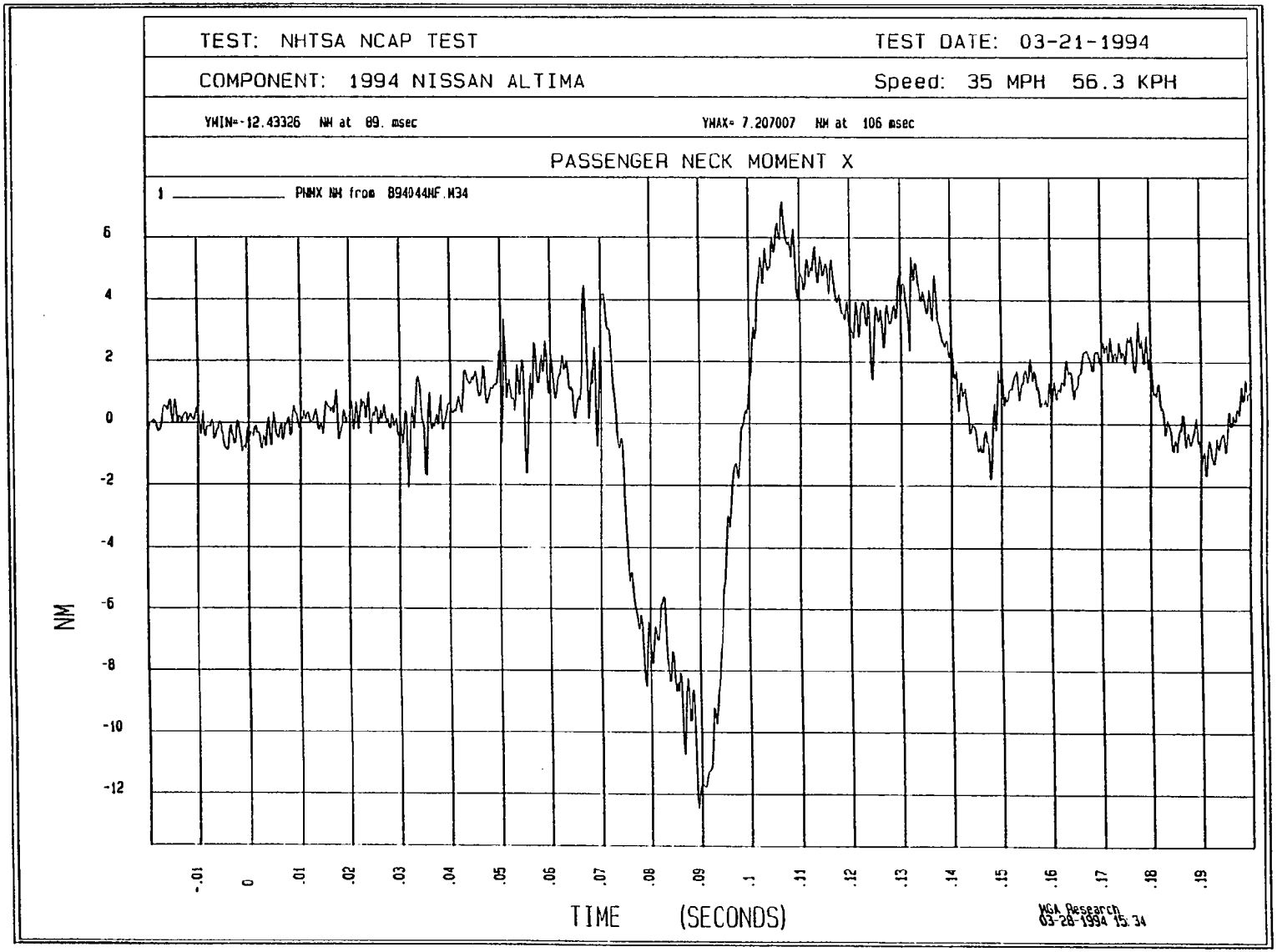


Figure B-85 - Passenger Neck Moment X vs. Time

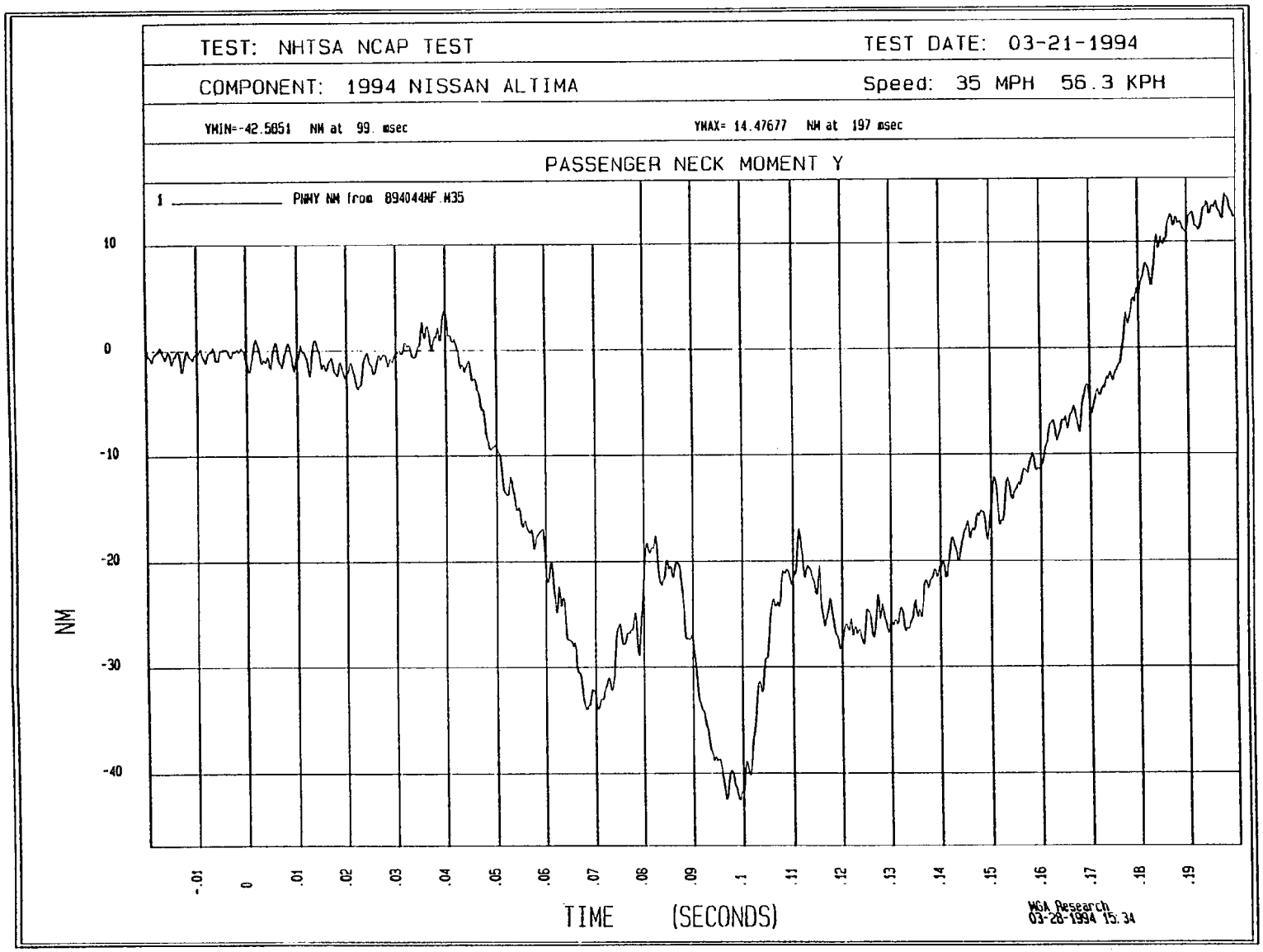


Figure B-86 - Passenger Neck Moment Y vs. Time

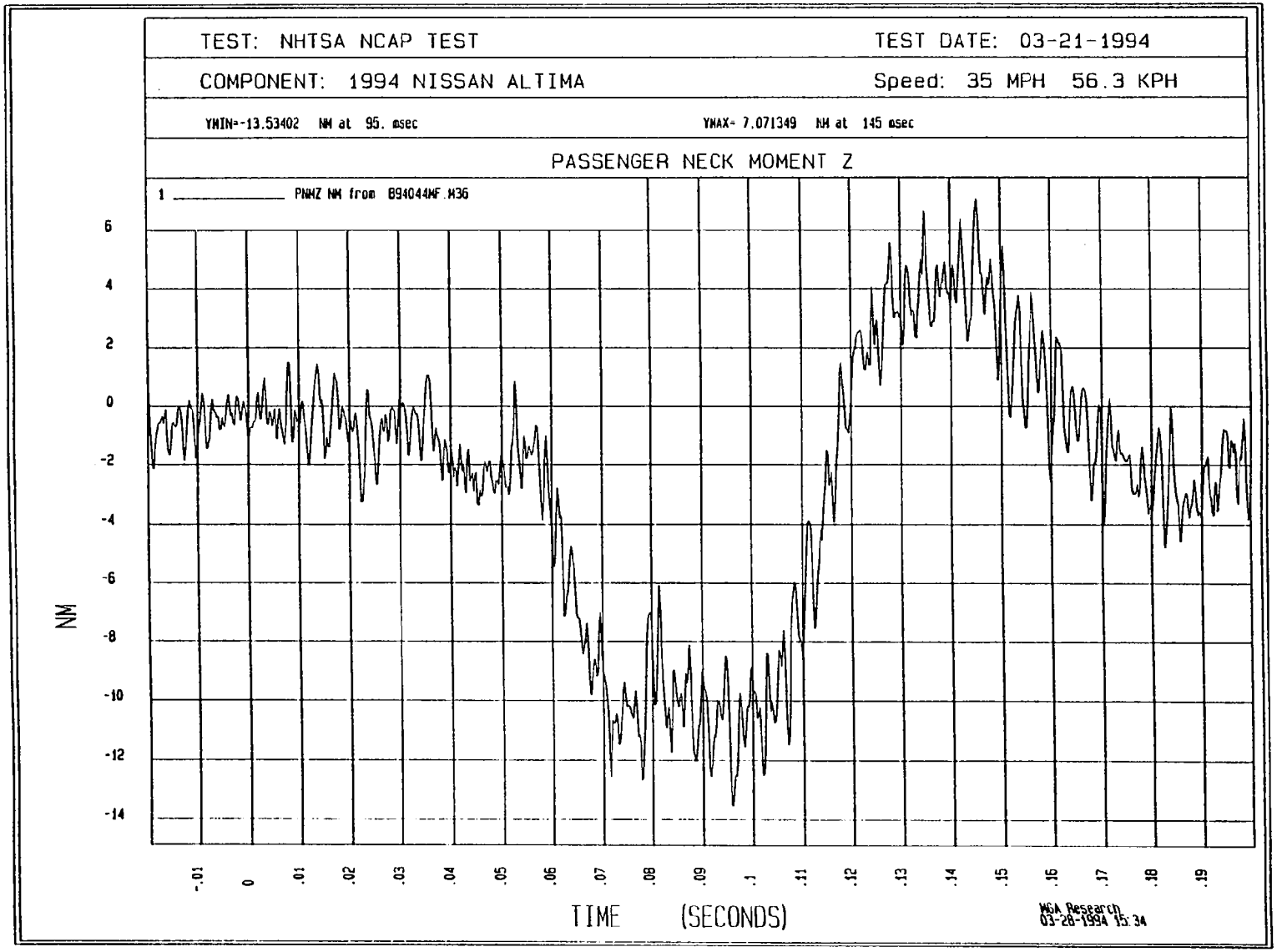


Figure B-87 - Passenger Neck Moment Z vs. Time

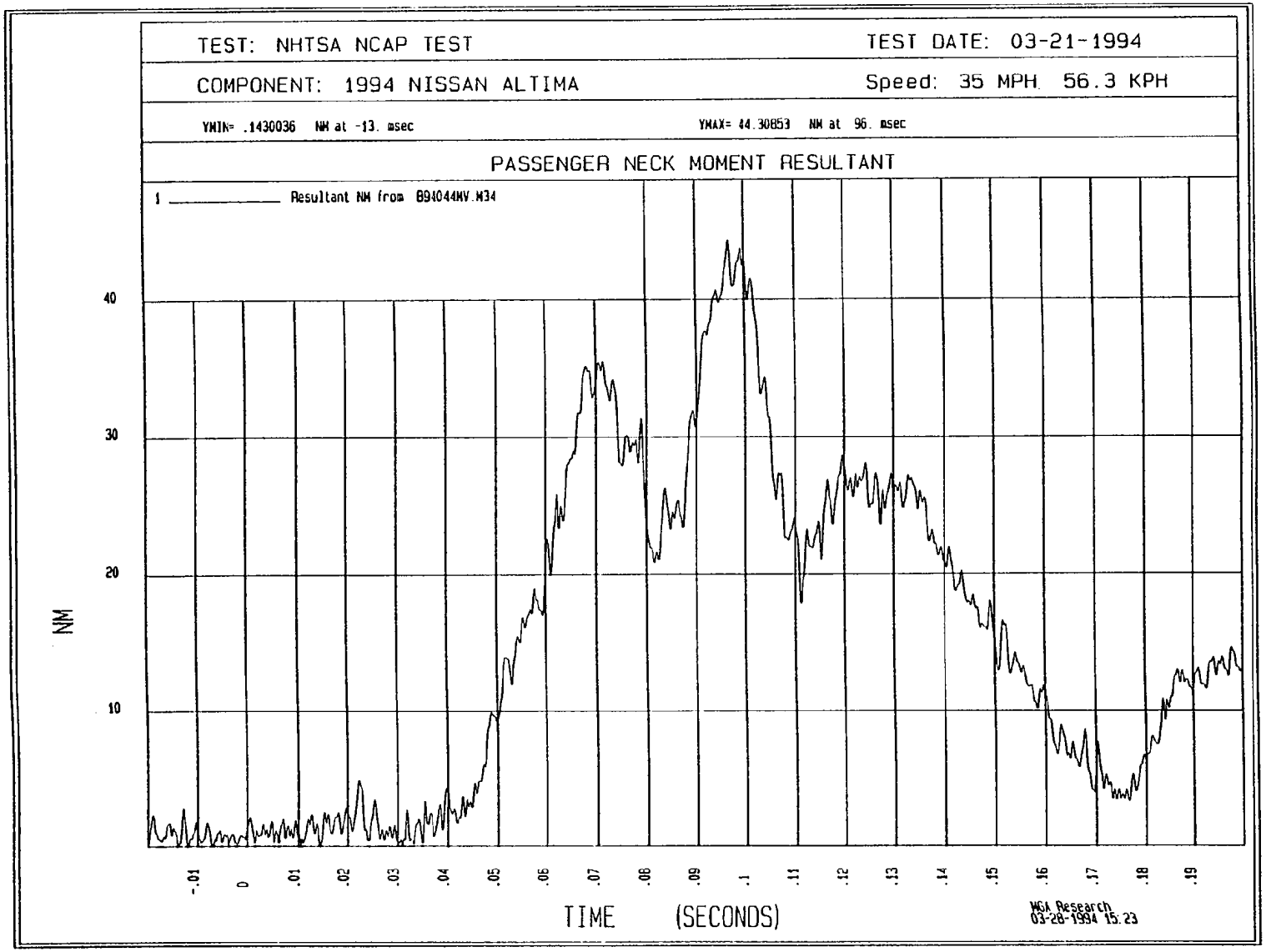


Figure B-88 - Passenger Neck Moment Resultant vs. Time

APPENDIX C

Dummy Configuration & Performance Verification Data

HYBRID III DUMMY CONFIGURATION AND PERFORMANCE VERIFICATION DATA

DUMMY NO.: 36 DUMMY CALIBRATION BY: Rod McClelland

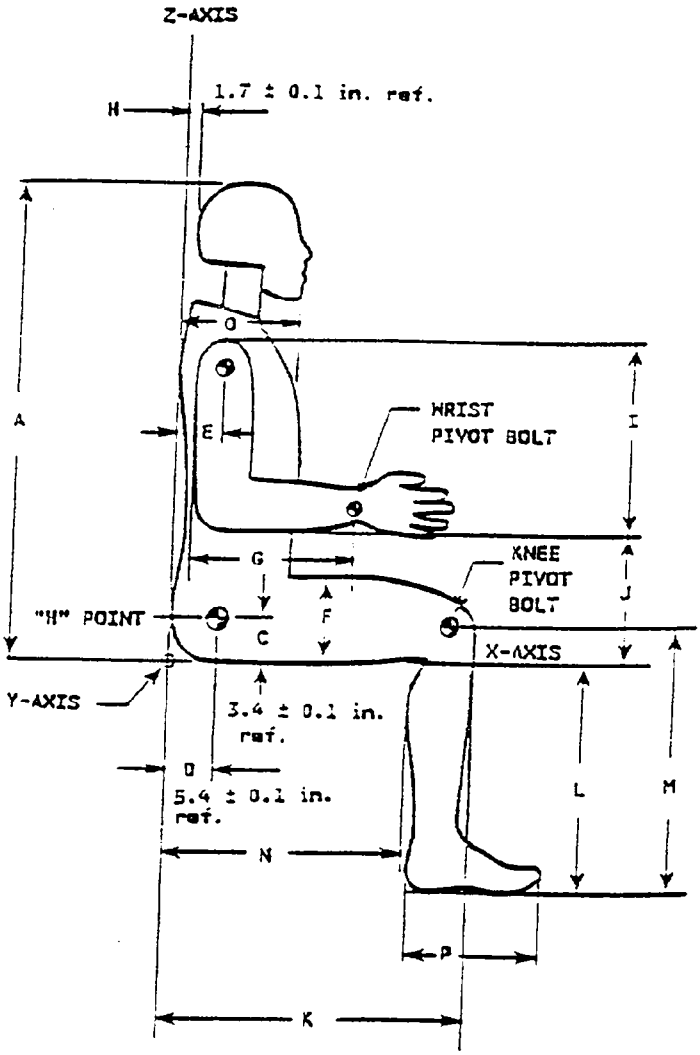
I. CONFIGURATION VERIFICATION DATA

DATE OF VERIFICATION: 03-10-94

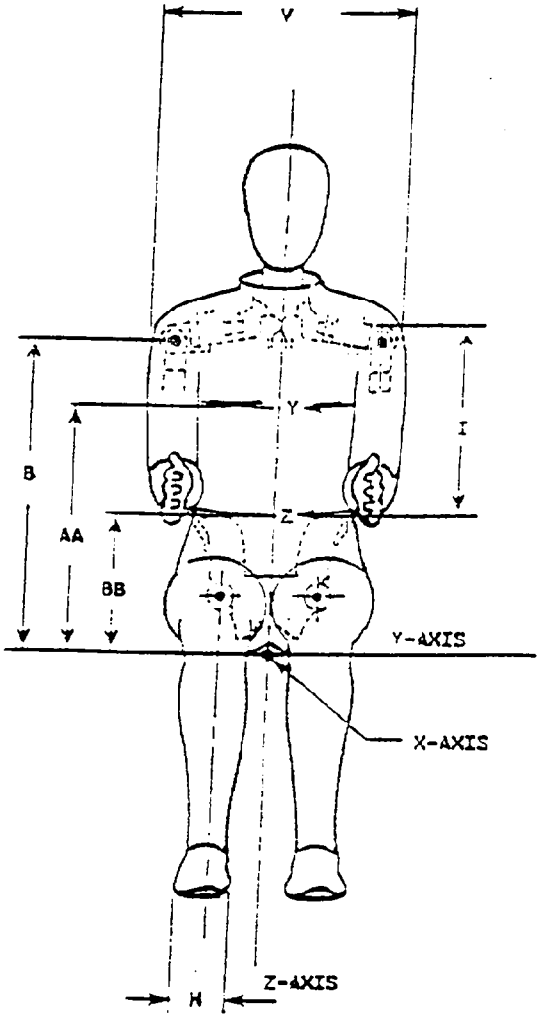
DESCRIPTION	SPECIFICATION (inches)	ACTUAL MEASUREMENT (inches)
A - Total Sitting Height	34.6 - 35.0	34.8
B - Shoulder Pivot Height	19.9 - 20.5	20.5
C - "H" Point Height	3.3 - 3.5	3.5
D - "H" Point from Seat Back	5.3 - 5.5	5.5
E - Shoulder Pivot From Backline	3.3 - 3.7	3.5
F - Thigh Clearance	5.5 - 6.1	6.1
G - Back of Elbow to Wrist Pivot	11.4 - 12.0	11.5
H - Skull Cap Skin to Backline	1.6 - 1.8	1.7
I - Shoulder - Elbow Length	13.0 - 13.6	13.0
J - Elbow Rest Height	7.5 - 8.3	8.0
K - Buttock to Knee Length	22.8 - 23.8	23.5
L - Popliteal Height	16.9 - 17.9	17.0
M - Knee Pivot Height	19.1 - 19.9	19.5
N - Buttock Popliteal Length	17.8 - 18.8	18.5
O - Chest Depth at 3rd Rib	8.4 - 9.0	8.8
P - Foot Length	9.9 - 10.5	10.3
V - Shoulder Breadth	16.6 - 17.2	16.8
W - Foot Breadth	3.6 - 4.2	4.0
Y - Chest Circumference	38.2 - 39.4	39.0
Z - Waist Circumference	32.9 - 34.1	33.5

Note: (See next page for external dimensions)

HYBRID III EXTERNAL DIMENSIONS



SIDE VIEW



FRONT VIEW

Note: Figure is referenced to the erect seated position. The curved lumbar does not allow the hybrid III to be positioned in a perfect erect attitude.

HYBRID III DUMMY CALIBRATION DATA SUMMARY SHEET

DUMMY NO.: 36 DUMMY CALIBRATION BY: Jeff Robbins

VERIFICATION DATE: 03-10-94

VERIFICATION LABORATORY TEMPERATURE (66° - 78°): 70°

1.0 HEAD DROP TEST

	SPECIFICATION	MEASUREMENT
Peak Resultant Acceleration	225 - 275 G	227
Peak Lateral Acceleration	15 G. MAX	14
Is Acceleration Curve Unimodal	within 10% of peak	Yes

2.0 NECK FLEXION TEST

		SPECIFICATION	MEASUREMENT
Pendulum Speed		22.6 - 23.4 FT/SEC	22.84
Pendulum Deceleration	10 MS	22.50 - 27.50 G	25.03
	20 MS	17.60 - 22.60 G	19.49
	30 MS	12.50 - 18.50 G	14.94
Max. Pendulum G Above 30 MS		29.0 G MAX	14.9
Deceleration - Time Curve Decay Time to 5 G		34 - 42 MS	39
D Plane Rotation	MAX	64 - 78 DEG.	77
	TIME	57 - 64 MS	57
Rotation Angle - Time Curve Decay Time to Zero		113 - 128 MS	114
Moment About Occipital Condyle	MIN.	65 - 80 FT.LBS	72
	TIME	47 - 58 MS	53
Positive Moment - Time Curve Decay Time to Zero		97 - 107 MS	100

HYBRID III DUMMY CALIBRATION DATA SUMMARY SHEET (CONT.)

3.0 NECK EXTENSION TEST

		SPECIFICATION	MEASUREMENT
Pendulum Speed		19.50 - 20.30 F/S	19.95
Pendulum Deceleration	10 MS	17.20 - 21.20 G	18.58
	20 MS	14.00 - 19.00 G	15.71
	30 MS	11.00 - 16.00 G	12.29
Max. Pendulum G Above 30 MS		22 G Max	12
Deceleration - Time Curve Decay Time to 5 G		38 - 46 MS	46
D Plane Rotation	MAX	81 - 106 DEG.	96
	TIME	72 - 82 MS	82
Rotation Angle - Time Curve Decay Time to Zero		147 - 174 MS	154
Moment About Occipital Condyle	MIN.	-59.0/-39.0 FT LBS	-48.9
	TIME	65 - 79 MS	70
Positive Moment - Time Curve Decay Time to Zero		120 - 148 MS	143

4.0 CHEST IMPACT TESTS

	SPECIFICATION	MEASUREMENT
Probe Speed	21.6 to 22.4 F/S	22.1
Peak Deflection	2.50 to 2.86 IN.	2.77
Peak Resistive Force	1160 to 1325 LBS.	1248
Internal Hysteresis	69 to 85%	70

5.0 KNEE IMPACT TESTS

LEFT KNEE	SPECIFICATION	MEASUREMENT
Probe Speed	6.8 to 7.0 F/S	7.0
Maximum Force	1060 - 1300 LBS.	1164

RIGHT KNEE	SPECIFICATION	MEASUREMENT
Probe Speed	6.8 to 7.0 F/S	7.0
Maximum Force	1060 - 1300 LBS.	1146

HYBRID III DUMMY CONFIGURATION AND PERFORMANCE VERIFICATION DATA

DUMMY NO.: 66 DUMMY CALIBRATION BY: Jeff Robbins

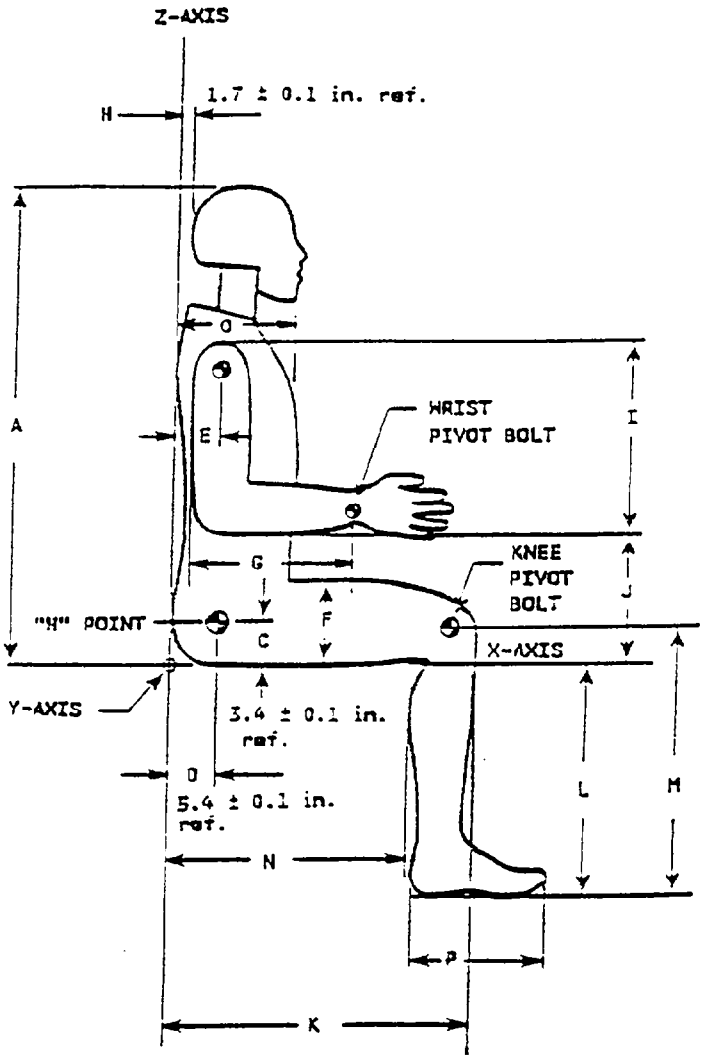
I. CONFIGURATION VERIFICATION DATA

DATE OF VERIFICATION: 03-16-94

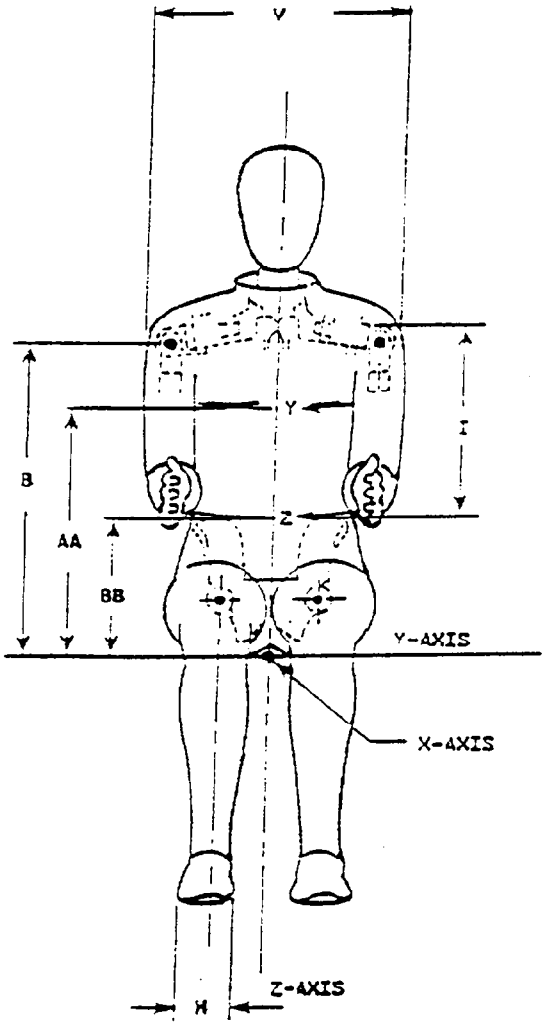
DESCRIPTION	SPECIFICATION (Inches)	ACTUAL MEASUREMENT (inches)
A - Total Sitting Height	34.6 - 35.0	34.9
B - Shoulder Pivot Height	19.9 - 20.5	20.5
C - "H" Point Height	3.3 - 3.5	3.5
D - "H" Point from Seat Back	5.3 - 5.5	5.5
E - Shoulder Pivot From Backline	3.3 - 3.7	3.5
F - Thigh Clearance	5.5 - 6.1	6.1
G - Back of Elbow to Wrist Pivot	11.4 - 12.0	11.5
H - Skull Cap Skin to Backline	1.6 - 1.8	1.7
I - Shoulder Elbow Length	13.0 - 13.6	13.0
J - Elbow Rest Height	7.5 - 8.3	8.0
K - Buttock Knee Length	22.8 - 23.8	23.5
L - Popliteal Height	16.9 - 17.9	17.0
M - Knee Pivot Height	19.1 - 19.9	19.5
N - Buttock Popliteal Length	17.8 - 18.8	18.5
O - Chest Depth at 3rd Rib	8.4 - 9.0	8.8
P - Foot Length	9.9 - 10.5	10.3
V - Shoulder Breadth	16.6 - 17.2	16.8
W - Foot Breadth	3.5 - 4.2	4.0
Y - Chest Circumference	38.2 - 39.4	39.0
Z - Waist Circumference	32.9 - 34.1	33.5

Note: (See next page for external dimensions)

HYBRID III EXTERNAL DIMENSIONS



SIDE VIEW



FRONT VIEW

Note: Figure is referenced to the erect seated position. The curved lumbar does not allow the hybrid III to be positioned in a perfect erect attitude.

HYBRID III DUMMY CALIBRATION DATA SUMMARY SHEET (CONT.)

DUMMY NO.: 66 DUMMY CALIBRATION BY: Jeff Robbins

VERIFICATION DATE: 03-16-94

VERIFICATION LABORATORY TEMPERATURE (66° - 78°): 70°

1.0 HEAD DROP TEST

	SPECIFICATION	MEASUREMENT
Peak Resultant Acceleration	225 - 275 G	271
Peak Lateral Acceleration	-15 G. MAX	8
Is Acceleration Curve Unimodal	within 10% of peak	Yes

2.0 NECK FLEXION TEST

		SPECIFICATION	MEASUREMENT
Pendulum Speed		22.6 - 23.4 FT/SEC	23.0
Pendulum Deceleration	10 MS	22.50 - 27.50 G	24.47
	20 MS	17.60 - 22.60 G	21.36
	30 MS	12.50 - 18.50 G	14.42
Max. Pendulum G Above 30 MS		29.0 G MAX	16.0
Deceleration - Time Curve Decay Time to 5 G		34 - 42 MS	39
D Plane Rotation	MAX	64 - 78 DEG.	75
	TIME	57 - 64 MS	58
Rotation Angle - Time Curve Decay Time to Zero		113 - 128 MS	115
Moment About Occipital Condyle	MIN.	65 - 80 FT.LBS	67
	TIME	47 - 58 MS	52
Positive Moment - Time Curve Decay Time to Zero		97 - 107 MS	102

HYBRID III DUMMY CALIBRATION DATA SUMMARY SHEET (CONT.)

3.0 NECK EXTENSION TEST

		SPECIFICATION	MEASUREMENT
Pendulum Speed		19.50 - 20.30 F/S	20.04
Pendulum Deceleration	10 MS	17.20 - 21.20 G	18.97
	20 MS	14.00 - 19.00 G	15.43
	30 MS	11.00 - 16.00 G	13.08
Max. Pendulum G Above 30 MS		22 G Max	13
Deceleration - Time Curve Decay Time to 5 G		38 - 46 MS	45
D Plane Rotation	MAX	81 - 106 DEG.	98
	TIME	72 - 82 MS	77
Rotation Angle - Time Curve Decay Time to Zero		147 - 174 MS	159
Moment About Occipital Condyle	MIN.	-59.0/-39.0 FT LBS	-44.6
	TIME	65 - 79 MS	72
Positive Moment - Time Curve Decay Time to Zero		120 - 148 MS	147

4.0 CHEST IMPACT TESTS

	SPECIFICATION	MEASUREMENT
Probe Speed	21.6 to 22.4 F/S	22.1
Peak Deflection	2.50 to 2.86 IN.	2.62
Peak Resistive Force	1160 to 1325 LBS.	1301
Internal Hysteresis	69 to 85%	71

5.0 KNEE IMPACT TESTS

LEFT KNEE	SPECIFICATION	MEASUREMENT
Probe Speed	6.8 to 7.0 F/S	6.88
Maximum Force	1060 - 1300 LBS.	1077

RIGHT KNEE	SPECIFICATION	MEASUREMENT
Probe Speed	6.8 to 7.0 F/S	6.88
Maximum Force	1060 - 1300 LBS.	1078

APPENDIX D

Dummy, Vehicle and Laboratory Calibration Data

DUMMY, VEHICLE AND LABORATORY INSTRUMENT CALIBRATION

INSTRUMENTS FOR DUMMY NO. 36

	DRIVER		
	SERIAL NO.	MANUFACTURER	CALIBRATION DATE
Head X	ACDE7	Endevco	1/25/94
Head Y	ACC7Ø	Endevco	1/25/94
Head Z	ACCW9	Endevco	1/25/94
Chest X	ACC78	Endevco	1/25/94
Chest Y	ACCE6	Endevco	1/25/94
Chest Z	ACC93	Endevco	1/25/94
Right Femur Load Cell	259	GSE	1/27/94
Left Femur Load Cell	26Ø	GSE	1/27/94
Neck Load Cell X	442	Denton	2/9/94
Neck Load Cell Y	442	Denton	2/9/94
Neck Load Cell Z	442	Denton	2/9/94
Neck Moment X	442	Denton	2/9/94
Neck Moment Y	442	Denton	2/9/94
Neck Moment Z	442	Denton	2/9/94
Chest Deflection Gauge	36G	Bourns	2/21/94
Lap Belt Load Cell	661	Lebow	11/22/93
Torso Belt Load Cell	691	Lebow	11/22/93

DUMMY, VEHICLE AND LABORATORY INSTRUMENT CALIBRATION

INSTRUMENTS FOR DUMMY NO. 36

	DRIVER		
	SERIAL NO.	MANUFACTURER	CALIBRATION DATE
Upper Right Tibia Moment X	439	Denton	8/18/93
Upper Right Tibia Moment Y	439	Denton	8/18/93
Lower Right Tibia Moment Y	427	Denton	8/18/93
Lower Right Tibia Load Cell X	427	Denton	8/18/93
Lower Right Tibia Load Cell Z	427	Denton	8/18/93
Upper Left Tibia Moment X	437	Denton	8/18/93
Upper Left Tibia Moment Y	437	Denton	8/18/93
Lower Left Tibia Moment Y	425	Denton	8/18/93
Lower Left Tibia Load Cell X	425	Denton	8/18/93
Lower Left Tibia Load Cell Z	425	Denton	8/18/93

DUMMY, VEHICLE AND LABORATORY INSTRUMENT CALIBRATION

INSTRUMENTS FOR DUMMY NO. 66

	PASSENGER		
	SERIAL NO.	MANUFACTURER	CALIBRATION DATE
Head X	ACCY6	Endevco	1/25/94
Head Y	ACCH1	Endevco	1/25/94
Head Z	AAMW5	Endevco	1/25/94
Chest X	ACCY1	Endevco	1/25/94
Chest Y	ACCC8	Endevco	1/25/94
Chest Z	ACCT7	Endevco	1/25/94
Right Femur Load Cell	950	GSE	1/27/94
Left Femur Load Cell	947	GSE	1/27/94
Neck Load Cell X	443	Denton	2/9/94
Neck Load Cell Y	443	Denton	2/9/94
Neck Load Cell Z	443	Denton	2/9/94
Neck Moment X	443	Denton	2/9/94
Neck Moment Y	443	Denton	2/9/94
Neck Moment Z	443	Denton	2/9/94
Chest Deflection Gauge	066	Servo	3/8/94
Lap Belt Load Cell	624	Lebow	11/22/93
Torso Belt Load Cell	212	Lebow	11/22/93

	VEHICLE ACCELEROMETERS		
	SERIAL NO.	MANUFACTURER	CALIBRATION DATE
Left Rear Seat Crossmember X	AC815	Endevco	11/10/93
Right Rear Seat Crossmember X	DK21	Endevco	12/6/93
Top of Engine X	MGA130	Entran	11/10/93
Bottom of Engine X	MGA098	Entran	2/2/94
Left Brake Caliper X	MGA034	Entran	2/2/94
Right Brake Caliper X	MGA169	Endevco	1/10/94
Instrument Panel X	MGA063	Entran	2/2/94
Redundant Left Rear Seat Crossmember X	MGA146	Entran	11/10/93
Redundant Right Rear Seat Crossmember X	ACC00	Endevco	11/30/93

	LABORATORY INSTRUMENTS		
	SERIAL NO.	MANUFACTURER	CALIBRATION DATE
Neck Bending Pendulum Accelerometer	MGA126	Entran	10/22/93
Neck Bending Rotary Potentiometer	N/A	Bourns	Prior to use
Neck Bending Linear Potentiometer	N/A	Bourns	Prior to use
Femur/Chest/Thorax Probe Accelerometer	282369	Sensotec	2/1/94
Abdomen Compression Force Gauge	N/A	Transducers Inc.	N/A

APPENDIX E

Vehicle Owner's Occupant Restraint System Instructions

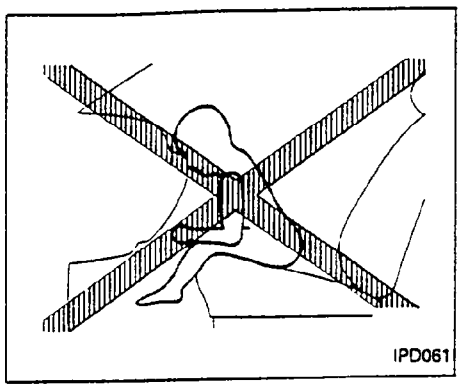
SUPPLEMENTAL RESTRAINT SYSTEM (AIR BAG SYSTEM)

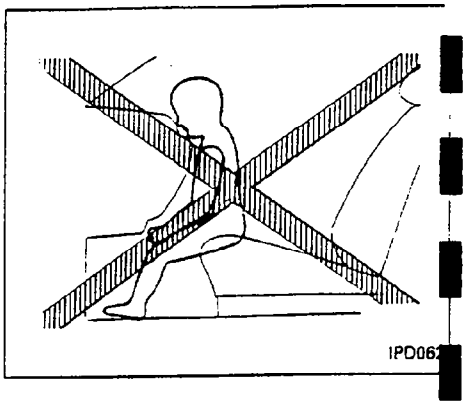
This Supplemental Restraint System section contains important information concerning the driver and passenger air bags. The Supplemental Restraint System Air Bag can help reduce impact force to the driver and to the front passenger in certain frontal collisions. The air bags are designed to **supplement** the crash protection provided by the driver and front passenger seat belts and are **not a substitute** for them. The seat belts should always be correctly worn and the driver and front passenger seated a suitable distance from the steering wheel and instrument panel. (See "Seat belts" for instructions and precautions on seat belt usage.)

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

WARNING:

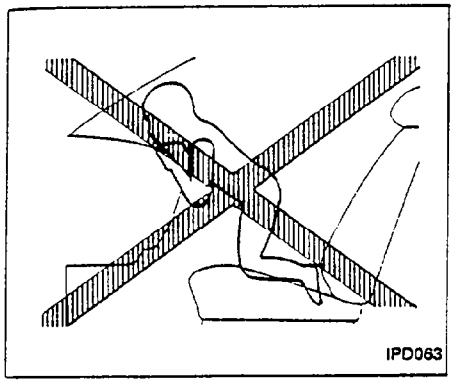
The air bags ordinarily will not inflate in the event of a side impact, rear impact, roll over, or lower severity frontal collision; so always wear your seat belts to help reduce the risk or severity of injury in various kinds of accidents.

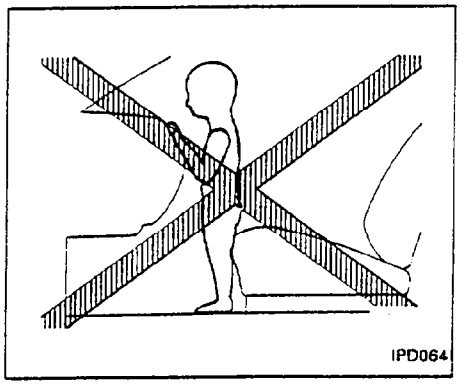




WARNING:

The seat belts and the air bags are most effective when you are sitting back and upright in the seat. Air bags inflate with great force. If you are unrestrained, leaning forward, sitting sideways or out of position in any way, you are at greater risk of injury or death in a crash and may also receive serious or fatal injuries from the air bag if you are up against it when it inflates.



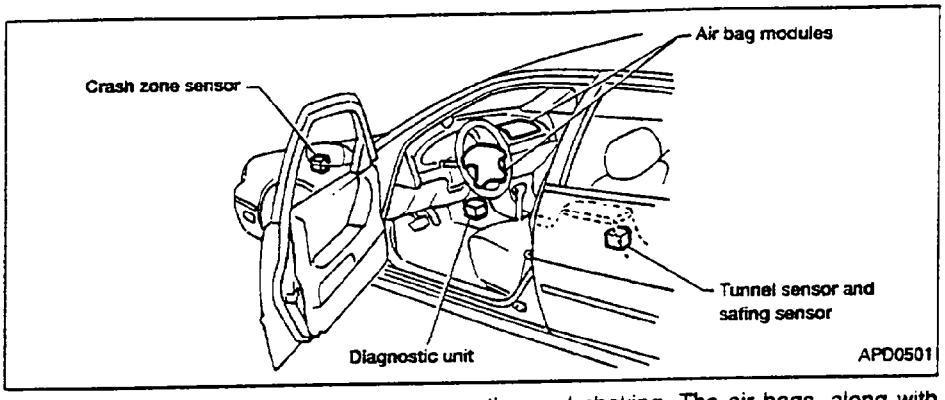


WARNING:

Never let children ride unrestrained as shown in the previous illustrations.

Children may be severely injured or killed when the air bag inflates if they are not properly restrained.

Also, never install a rear-facing child restraint in the front seat. See "Child restraints for infants and small children" for details.



Air bag system

The driver air bag is located in the center of the steering wheel; the front passenger air bag is mounted in the dashboard above the glove box. The air bag system is designed to inflate in higher severity frontal collisions, although it may inflate if the forces in another type of collision are similar to those of a higher severity frontal impact. When the air bag inflates, a fairly loud noise may be heard, followed by release of smoke. This smoke is not harmful and does not indicate a fire, but care should be taken not to intentionally inhale it, as it may cause irritation and choking. The air bags, along with the use of seat belts, help to cushion the impact force on the face and chest of the occupant.

The seat belts should be correctly worn and the driver and passenger seated upright as far as practical away from the steering wheel or dashboard. Since the air bag inflates quickly in order to help protect the occupant, the force of the air bag inflating can increase the risk of injury if the occupant is too close to or is against the air bag module during inflation. The air bag will deflate quickly after the collision is over.

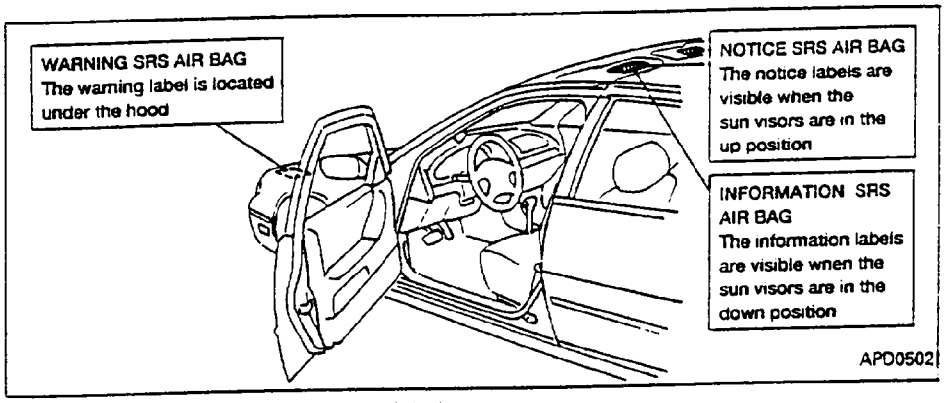
The air bags will operate only when the ignition switch is in the "ON" or "START" position.

WARNING:

- **Right after inflation, several air bag system components will be hot. Do not touch them; you may severely burn yourself.**
- **No unauthorized changes should be made to any components or wiring of the air bag system. This is to prevent accidental inflation of the air bag or damage to the air bag system.**
- **Tampering with the air bag system may result in serious personal injury. Tampering includes changes to the steering wheel and the instrument panel assembly by placing material over the steering wheel pad and above the dashboard, or by installing additional trim material around the air bag system.**
- **Do not attach any objects to the steering wheel pad and to the instrument panel. Objects attached to the steering wheel pad and to the instrument panel may become dangerous projectiles and cause injury if the air bag inflates.**

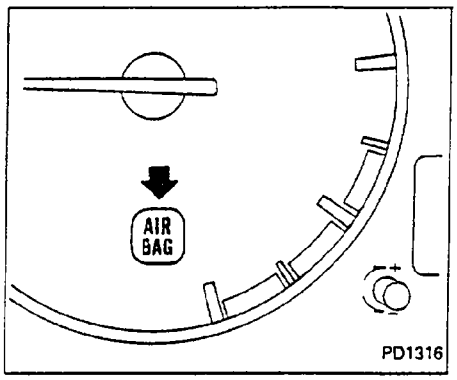
Work around and on the air bag system should be done by an authorized NISSAN dealer. Installation of electrical equipment should also be done by an authorized NISSAN dealer. The yellow SRS wiring should not be modified or disconnected. Unauthorized electrical test equipment and probing devices should not be used on the air bag system.

INFORMATION, WARNING AND NOTICE LABELS



Information, warning and notice labels about the air bag system are placed in the vehicle.

AIR BAG WARNING LIGHT



The air bag light, displaying "AIR BAG" in the instrument panel, monitors the circuits of the air bag. The circuits monitored by the air bag light are the crash zone sensor, tunnel sensor, safing sensor and all related wiring.

When the ignition key is in the "ON" or "START" position, the air bag light will illuminate for about 7 seconds and then turn off. This means the system is operational.

If any of the following conditions occurs, the air bag needs servicing and should be taken to your nearest authorized NISSAN dealer:

1. The air bag light does not come on for 7 seconds and then goes off as described above.
2. The air bag light flashes intermittently or remains on.
3. The air bag light does not come on at all.

Under these conditions, the Supplemental Restraint System Air Bag will not operate properly. It must be checked and repaired.

Repair and replacement procedure

The air bag system is designed to inflate on a one-time-only basis. As a reminder, unless it is damaged, the air bag light will remain illuminated after inflation has occurred. Repair and replacement of the air bag system should be done only by authorized NISSAN dealers. **To ensure long-term functioning, the system must be inspected 10 years after the date of manufacture as noted on the certification label located on the driver side front pillar.**

When maintenance work is required on the vehicle, the air bag system and related parts should be pointed out to the person conducting the maintenance. The ignition key should always be in the "LOCK" position when working under the hood or inside the vehicle.

WARNING:

- **Once the air bag inflates, the air bag module will not function again and must be replaced. The air bag module cannot be repaired.**
- **After an air bag inflates, the front instrument panel assembly should be replaced by your NISSAN dealer.**
- **The air bag system should be inspected by an authorized NISSAN dealer if there is any damage to the front end portion of the vehicle or replaced if the air bag has inflated.**
- **When selling your vehicle, we request that you inform the buyer about the air bag system and guide the buyer to the appropriate sections in this Owner's Manual.**
- **If you need to dispose of an air bag or scrap the vehicle, contact an authorized NISSAN dealer. Correct air bag disposal procedures are set forth in the appropriate NISSAN Service Manual. Incorrect disposal procedures could cause personal injury.**

SEAT BELTS

PRECAUTIONS ON SEAT BELT USAGE

Your chances of being injured or killed in an accident and/or the severity of injury may be greatly reduced if you are wearing your seat belt and it is properly adjusted. NISSAN strongly encourages you and all of your passengers to buckle up every time you drive, even if your seating position includes an air bag.

Some states, provinces or territories require that seat belts be worn at all times when a vehicle is being driven.

WARNING:

- **Every person who drives or rides in this vehicle should wear a seat belt at all times. Children should be in appropriate child restraints.**
- **The belt should be adjusted to a snug fit. Failure to do so will reduce the effectiveness of the entire restraint system.**
- **Do no wear the belt inside out or twisted.**
- **Do not allow more than one person to use the same belt.**
- **All seat belt assemblies including retractors and attaching hardware should be inspected by your NISSAN dealer after any collision. NISSAN recommends that all seat belt assemblies in use during a collision be replaced unless the collision was minor and the belts show no damage and continue to operate properly. Seat belt assemblies not in use during a collision should also be inspected and replaced if either damage or improper operation is noted.**
- **Never carry more people in the vehicle than there are seat belts.**

If the seat belt warning lamp glows continuously while the ignition is turned "ON" with all doors closed and all seat belts fastened, it may indicate a malfunction in the system. Have the system checked by your NISSAN dealer.

Be sure to observe the following cautions when using seat belts. Failure to do so could increase the chance and/or severity of injury in an accident.

- **Always route the shoulder belt over your shoulder and across your chest.**

Never run the belt under your arm. Serious injury can occur if the seat belt is not worn properly.

- **Position the lap belt as low as possible AROUND THE HIPS, NOT THE WAIST.**

Infant or small child

NISSAN recommends that infants or small children be placed in child restraint systems that comply with Federal Motor Vehicle Safety Standards or Canadian Motor Vehicle Safety Standards. You should choose a child restraint system that fits your vehicle and always follow the manufacturer's instructions for installation and use.

Children

Children who are too large for child restraint systems should be seated and restrained by the seat belts which are provided.

NISSAN recommends that children sit in the rear seat if possible. According to accident statistics, children are safer when properly restrained in the rear seat than in the front seat.

If the child's seating position has a shoulder belt that fits close to the face or neck, the use of a booster seat (commercially available) may help overcome this. The booster seat should raise the child so that the shoulder belt is properly positioned across the top, middle portion of the shoulder and the lap belt is low on the hips. The booster seat should fit the vehicle seat and have a label certifying that it complies with Federal Motor Vehicle Safety Standards or Canadian Motor Vehicle Safety Standards. Once the child has grown so the shoulder belt is no longer on or near the face and neck, use the shoulder belt without the booster seat.

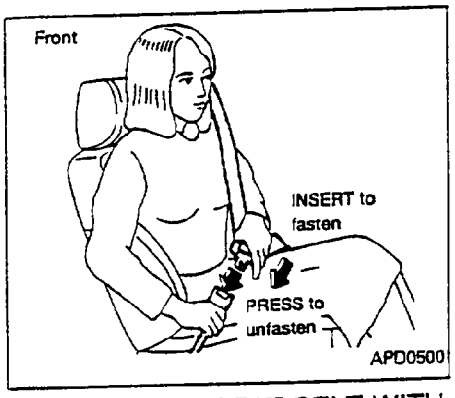
Never let a child stand or kneel on any seat and do not allow a child in the cargo areas while the vehicle is moving.

Pregnant women

NISSAN recommends that pregnant women use seat belts. Contact your doctor for specific recommendations. The lap belt should be worn snug and positioned as low as possible around the hips, not the waist.

Injured persons

NISSAN recommends that injured persons use seat belts, depending on the injury. Check with your doctor for specific recommendations.



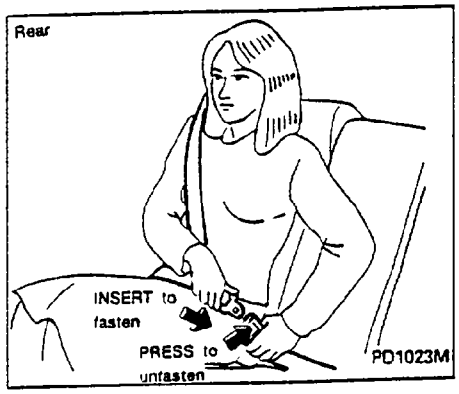
3-POINT TYPE SEAT BELT WITH RETRACTOR

Every person who drives or rides in this vehicle should wear a seat belt at all times.

Fastening the belts

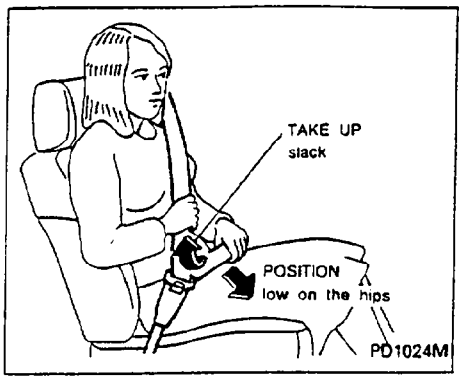
1. Adjust the seat.

The seatback should not be reclined any more than needed for comfort when the vehicle is moving. Seat belts are most effective when the passenger sits well back and straight up in the seat. If the seat is reclined, the risk of sliding under the lap belt and being injured is increased.



2. Slowly pull the seat belt out of the retractor and insert the tongue into the buckle until it snaps.

The retractor is designed to lock during a sudden stop or on impact. A slow pulling motion will permit the belt to move, and allow you some freedom of movement in the seat.



3. Position the lap belt portion **low on the hips** as shown.
4. Pull the shoulder belt portion toward the retractor to take up extra slack.

The front seat passenger side seat belt and rear 3-point seat belts have a cinching mechanism for child seat installation. It is referred to as the automatic locking mode.

When the cinching mechanism is activated the seat belt cannot be withdrawn again until the seat belt tongue is detached from the buckle and fully retracted. Refer to "Child Restraint Systems for Infants and Small Children" later in this section for more information.

WARNING:

- **The automatic locking mode should be used only for child seat installation. During normal seat belt use by a passenger, the locking mode should not be activated. If it is activated it may cause uncomfortable seat belt tension.**

Unfastening the belts

To unfasten the belt, press the button on the buckle. The seat belt will automatically retract.

Checking seat belt operation (3-point type with retractor)

Your seat belt retractors are designed lock belt movement using two separate methods:

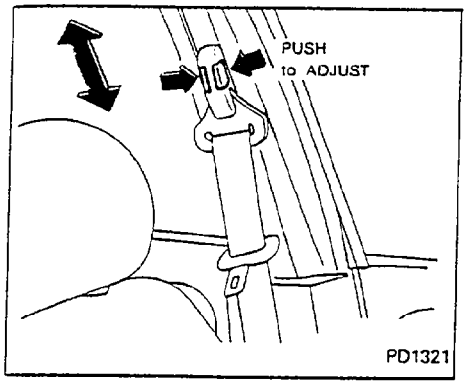
1) When the belt is pulled quickly from th retractor.

2) When the vehicle slows down rapidly.

To increase your confidence in the belt check their operation as follows:

- Grasp the shoulder belt and pull quickly forward. The retractor should lock an restrict further belt movement.

If the retractor does not lock during this check or if you have any questions abou belt operation, see your NISSAN dealer.

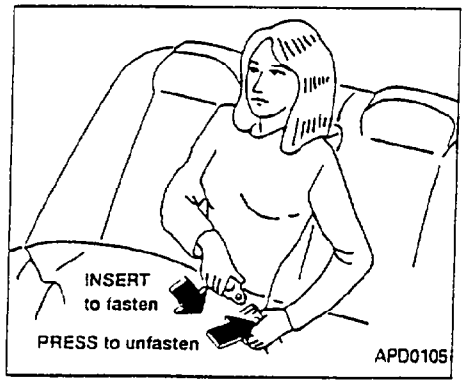


Shoulder belt height adjustment (For front seats)

The shoulder belt anchor height should be adjusted to the position best for you. (See "Precautions on Seat Belt Usage".) To adjust, push the release button, and then move it to the desired position, so that the belt passes over the shoulder.

CAUTION:

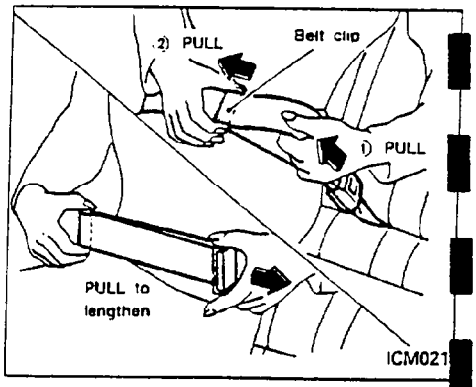
After adjustment, make sure the shoulder belt anchor is securely fixed.



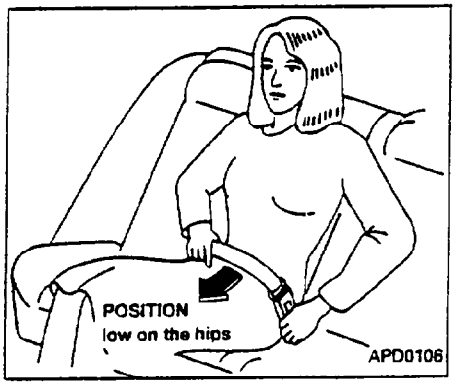
2-POINT TYPE WITHOUT RETRACTOR (center position of rear seat)

Fastening the belts

1. Insert the tongue into the buckle marked CENTER until it snaps.



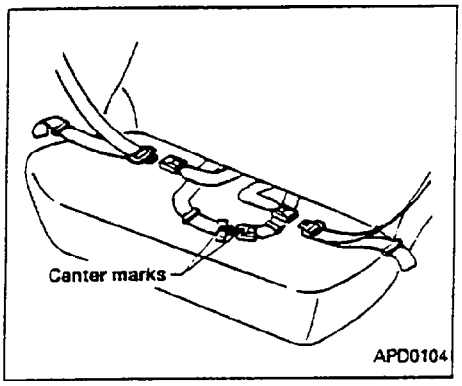
2. To lengthen, hold the tongue at a right angle to the belt and pull on the belt. To shorten, pull the end of the belt attached to the belt clip away from the tongue, and then pull the belt clip to take up the slack.



3. Position the lap belt **low on the hips** as illustrated.

Unfastening the belts

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



Selecting correct set of belts

The center seat belt buckle and tongue are identified by the CENTER label. The center seat belt tongue can be fastened **only** into the center seat belt buckle.

SEAT BELT EXTENDERS

If, because of body size or driving position, it is not possible to properly fit the lap-shoulder belt and fasten it, an extender is available which is compatible with the installed seat belts. The extender adds approximately 8 inches (200 mm) of length and may be used for either the driver or front passenger seating position. See your NISSAN dealer for assistance if the extender is required.

WARNING:

- **Only NISSAN belt extenders, made by the same company which made the original equipment belts, should be used with NISSAN belts.**
- **Persons who can use the standard seat belt should not use an extender. Such unnecessary use could result in serious personal injury in the event of an accident.**