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REPORT NO. 208-MGA-2001-009

SAFETY COMPLIANCE SLED TESTING FOR FMVSS 208
OCCUPANT CRASH PROTECTION

Nissan North America, Inc
2001 Nissan Altima 4 Door
NHTSA NO. C15200

MGA RESEARCH CORPORATION
5000 WARREN ROAD
BURLINGTON, WI 53105



Test Date. May 24, 2001

Report Date: June 4, 2001

FINAL REPORT

Prepared For:
U.S. DEPARTMENT OF TRANSPORTATION
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
SAFETY ASSURANCE
OFFICE OF VEHICLE SAFETY COMPLIANCE
MAIL CODE. NSA-30
400 SEVENTH STREET, S W , ROOM 6115
WASHINGTON, D.C. 20590

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PREPARED BY: Chad Gadberry
Chad Gadberry, Project Engineer
MGA Research Corporation

DATE: 6/11/01

APPROVED BY: David Winkelbauer
Facility Director, David Winkelbauer
MGA Research Corporation

DATE: 6/11/01

Technicians:

- Alan Artus
- Tammy Brausch
- Carl Ford
- Ben Marx
- Tim Michnay
- Doug Miller
- Chris Novak
- Kurt Range

Secretary. Donna M. Janovicz

FINAL REPORT ACCEPTED BY:

Charles R. Case
Contracting Officer's Technical Representative (COTR)
NHTSA, Office of Vehicle Safety Compliance

9/10/01
Date of Report Acceptance

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12 Sponsoring Agency Name and Address U S Department of Transportation National Highway Traffic Safety Administration Office of Vehicle Safety Compliance (Mail Code NSA-30) 400 Seventh St S W Room 6115 Washington, D C 20590		13 Type of Report and Period Covered Final Report May 24 to June 4, 2001	
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15 Supplementary Notes			
16 Abstract A compliance test (sled test) was conducted on the subject 2001 Nissan Altima 4 Door in accordance with the specifications of the Office of Vehicle Safety Compliance Test Procedure No TP208S-01 for the determination of FMVSS 208 compliance Test failures identified were as follows NONE			
17 Key Words Compliance Testing Safety Engineering FMVSS 208S Sled Test		18 Distribution Statement Copies of this report are available from NHTSA Technical Reference Division, Room 5108, (NAD-40) 400 Seventh Street, S W Washington, D C 20590 Telephone No (202) 366-4946	
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Purpose

This FMVSS 208 compliance sled test is part of the Federal Motor Vehicle Safety Standard (FMVSS) 208 compliance test program conducted for the National Highway Traffic Safety Administration (NHTSA) by MGA Research Corporation (MGA) under Contract No. DTNH22-98-D-11055. The purpose of this test was to determine if the subject vehicle, a 2001 Nissan Altima 4 Door, NHTSA No. C15200, meets the performance requirements of FMVSS 208, "Occupant Crash Protection," in the impact simulation sled test mode.

Test Procedure

This test was conducted in accordance with NHTSA's Office of Vehicle Safety Compliance (OVSC) Laboratory Test Procedure No TP-208S-01 dated January 15, 1998. Data was obtained relative to FMVSS 208, "Occupant Crash Protection," performance.

The test vehicle was instrumented with four (4) accelerometers to measure longitudinal axis accelerations.

The test vehicle contained two (2) Part 572 E 50th percentile adult male anthropomorphic test devices (dummies). The dummies were positioned in the front outboard seating positions according to the dummy placement procedures specified in Appendix B of the Laboratory Test Procedure. The dummies were not restrained by seat belts.

Both dummies were instrumented with head and chest accelerometers to measure longitudinal, lateral, and vertical accelerations; chest deflection potentiometers; left and right femur load cells to measure axial forces; and upper neck load cells to measure longitudinal, lateral, and vertical forces and moments.

The thirty-eight (38) data channels were digitally sampled at 10,000 samples per second and processed per Sections 11.7 through 11.9 of the Laboratory Test Procedure.

The crash event was recorded by one (1) real-time motion picture camera and six (6) high-speed motion picture cameras. The pre-test and post-test conditions were recorded by one (1) real-time motion picture camera.

Test Results Summary

This FMVSS 208 compliance sled test was conducted at MGA Research Corporation on May 24, 2001

The test vehicle, a 2001 Nissan Altima 4 Door, NHTSA No C15200, appeared to comply with the performance requirements of FMVSS 208 in the impact simulation sled test mode as measured by Hybrid III 50th percentile male dummies

	FMVSS 208 Max. Allowable Injury Assessment Values	Driver (Serial #340)	Passenger (Serial #312)
HIC	1000	295	303
Chest g	60 g	40.8 g	44.7 g
Chest displacement	3 in	1.3 in	0.4 in
Left Femur	2250 lb	833 lb	972 lb
Right Femur	2250 lb	806 lb	1152 lb
Neck Extension	57 Nm	5.1 Nm	29.4 Nm
Neck Flexion	190 Nm	69.1 Nm	76.6 Nm
Neck Tension	3300 N	348 N	669 N
Neck Compression	4000 N	3289 N	2162 N
Neck Shear	3100 N	1161 N	1424 N

The vehicle also appears to meet the other FMVSS 208 requirements for which it was tested. These results are shown in the data sheets that are included in this report.

The test vehicle was equipped with air bags at the driver and passenger seating positions. The dummies were not restrained by seat belts. The sled carriage was accelerated to 17.0 g with an integrated velocity change of 29.0 mph. After filtering the acceleration signal to Channel Class 60, the airbag system was triggered 20.2 milliseconds after 0.5 g acceleration.

INCLUDE DISCUSSION OF LOST CHANNELS OR OTHER TEST ISSUES

-None noted

Sled Test Summary

Vehicle NHTSA No C15200 Test Mode FMVSS 208 SLED TEST

Vehicle Yr/Make/Model/Body Style 2001/Nissan/Altima/4 Door

Test Date May 24, 2001 Time 11 40 a m Temp 70°F

Vehicle Test Weight 3332 lbs

DUMMY INFO.

DRIVER

PASSENGER

Dummy Type

Part 572E

Part 572E

Serial Number

340

312

Restraint System

Frontal airbag

Frontal airbag

No Data Channels

15

15

Number of Cameras

1 Real Time

6 High Speed

Door Opening Data:

yes Left Front

yes Right Front

FRONT SEAT(S) DATA

DRIVER

PASSENGER

Seat Track Failure -

0.0 inches shift,

0.0 inches shift

Seat Back Failure -

no

no

VISIBLE DUMMY CONTACT POINTS:

DRIVER

PASSENGER

Head

Airbag/windshield/
sunvisor

Airbag/sunvisor

Chest

Airbag

Airbag

Left Knee

Knee bolster/
steering column

Glove box

Right Knee

Knee bolster/
steering column

Glove box

General Test And Vehicle Parameter DataVehicle Yr/Make/Model/Body Style 2001/Nissan/Altima/4 DoorVehicle NHTSA No C15200 VIN 1N4DL01D81C130902 Color Black

Engine Data

No Cylinders 4, CID ____; Liters: 2.4, CCs: ____Placement Longitudinal/Inline ____; Transverse/Lateral X

Transmission Data

Speeds 5, Manual: X; Automatic ____; Overdrive ____

Final Drive

Rear Wheel Drive: ____, Front Wheel Drive X; Four Wheel Drive ____

Major Options

A/C ____, Pwr. Strg.: X; Pwr. Brakes: X, Pwr. Windows X,Pwr Dr Locks: ____; Other Tilt wheel, rear defogger, tinted glassDate Received: 1/26/01; Odometer Reading: 41 milesSelling Dealer Rosen Nissan, 5505 S 27th Street, Milwaukee, WI 53221

REMARKS None

General Test And Vehicle Parameter Data (Cont)

DATA FROM VEHICLE'S CERTIFICATION LABEL

Vehicle Manufactured By Nissan North America, Inc

Date of Manufacture 10/00, VIN 1N4DL01D81C130902

GVWR 3990 lbs, GAWR Front 2152 lbs

GAWR Rear 1863 lbs

DATA FROM TIRE PLACARD

Tire Pressure with Maximum Capacity Vehicle Load.

FRONT 30 psi REAR 29 psi

Recommended Tire Size P195/65R15,

Recommended Cold Tire Pressure

FRONT 30 psi REAR 29 psi

Size of Tires on Test Vehicle: P195/65R15

Type of Spare Tire T125/70D15, Space Saver. X; Standard _____

Vehicle Capacity Data:

Type of Front Seats. X Bucket, _____ Bench; _____ Split Bench

Number of Occupants 2 Front, 3 Rear, _____ 3rd Seat, 5 TOTAL

REMARKS None

VEHICLE CAPACITY WEIGHT (VCW) = 860 lbs.

No Of Occupants x 150 lbs = 750 lbs.

Rated Cargo/Luggage Weight (RCWL) = 110 lbs. (Difference)

General Test And Vehicle Parameter Data (Cont)

WEIGHT OF TEST VEHICLE AS RECEIVED AT LABORATORY (with maximum fluids)

Right Front =	<u>886</u> lbs	Right Rear =	<u>562</u> lbs
Left Front =	<u>877</u> lbs	Left Rear =	<u>557</u> lbs
TOTAL FRONT =	<u>1763</u> lbs	TOTAL REAR =	<u>1119</u> lbs
% Total Weight =	<u>61.2</u> %	% Total Weight =	<u>38.8</u> %
TOTAL DELIVERED WEIGHT = <u>2882</u> lbs			

WEIGHT OF FULLY LOADED TEST VEHICLE WITH TWO DUMMIES (344 LB) AND 110 POUNDS OF CARGO WEIGHT

Right Front =	<u>961</u> lbs	Right Rear =	<u>713</u> lbs
Left Front =	<u>949</u> lbs.	Left Rear =	<u>709</u> lbs
TOTAL FRONT =	<u>1910</u> lbs	TOTAL REAR =	<u>1422</u> lbs
% Total Weight =	<u>57.3</u> %	% Total Weight =	<u>42.7</u> %
TOTAL WEIGHT = <u>3332</u> lbs.			

TEST VEHICLE ATTITUDE (all measurements in degrees)

AS DELIVERED DOOR SILL ANGLE	<u>0.8° nose down</u>
AS TESTED DOOR SILL ANGLE	<u>0.4° nose down</u>
FULLY LOADED DOOR SILL ANGLE	<u>0.2° nose down</u>

FUEL SYSTEM DATA:

Fuel System Capacity From Owner's Manual = 15.8 gallons
 Usable Capacity Figure Furnished by COTR = 15.8 gallons

REMARKS None

Post-Impact Data

Test number	HT01052401	
NHTSA number	C15200	
Test date	May 24, 2001	
Test time	11 40 a m	
Test type	FMVSS 208 Compliance Sled Test	
Impact angle	0°	
Ambient Temperature at Impact Area	70°F	
Temperature in Occupant Compartment	70°F	
Impact Velocity		
Integrated velocity from the integration of the entire sled acceleration:	29.0 mph	
Specified integrated velocity range	28 to 30 mph	
Sled Carriage Acceleration		
Acceleration	17.0 g	
Specified Acceleration Range	16.0 - 18.2 g	
Sled Carriage Acceleration Duration		
Time from T-0 (-0.5 g) to 0.0 g	125.0 msec	
Specified Acceleration Duration	120.0 to 130.0 msec	
The sled acceleration corridor was achieved		

Seat and Steering Column Positioning Data

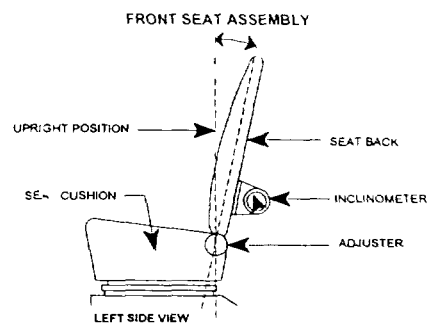
Vehicle Yr/Make/Model/Body Style 2001/Nissan/Altima/4 Door

Vehicle NHTSA No C15200 Test Date May 24, 2001

NOMINAL DESIGN RIDING POSITION

Driver Seat: Seat Back Angle = 14.7°

Passenger Seat Seat Back Angle = 14.2°



SEAT FORE AND AFT POSITIONS:

Driver Seat The seat track had a total position movement of 20 notches and was positioned 10 notches rearward from the foremost position with the forward most locking position as zero.

Passenger Seat: The seat track had a total position movement of 20 notches and was positioned 10 notches rearward from the foremost position with the forward most locking position as zero

STEERING COLUMN ADJUSTMENTS:

The steering column was placed in the mid position of its continuous angular adjustment (23.9°)

Dummy Positioning Measurement Table

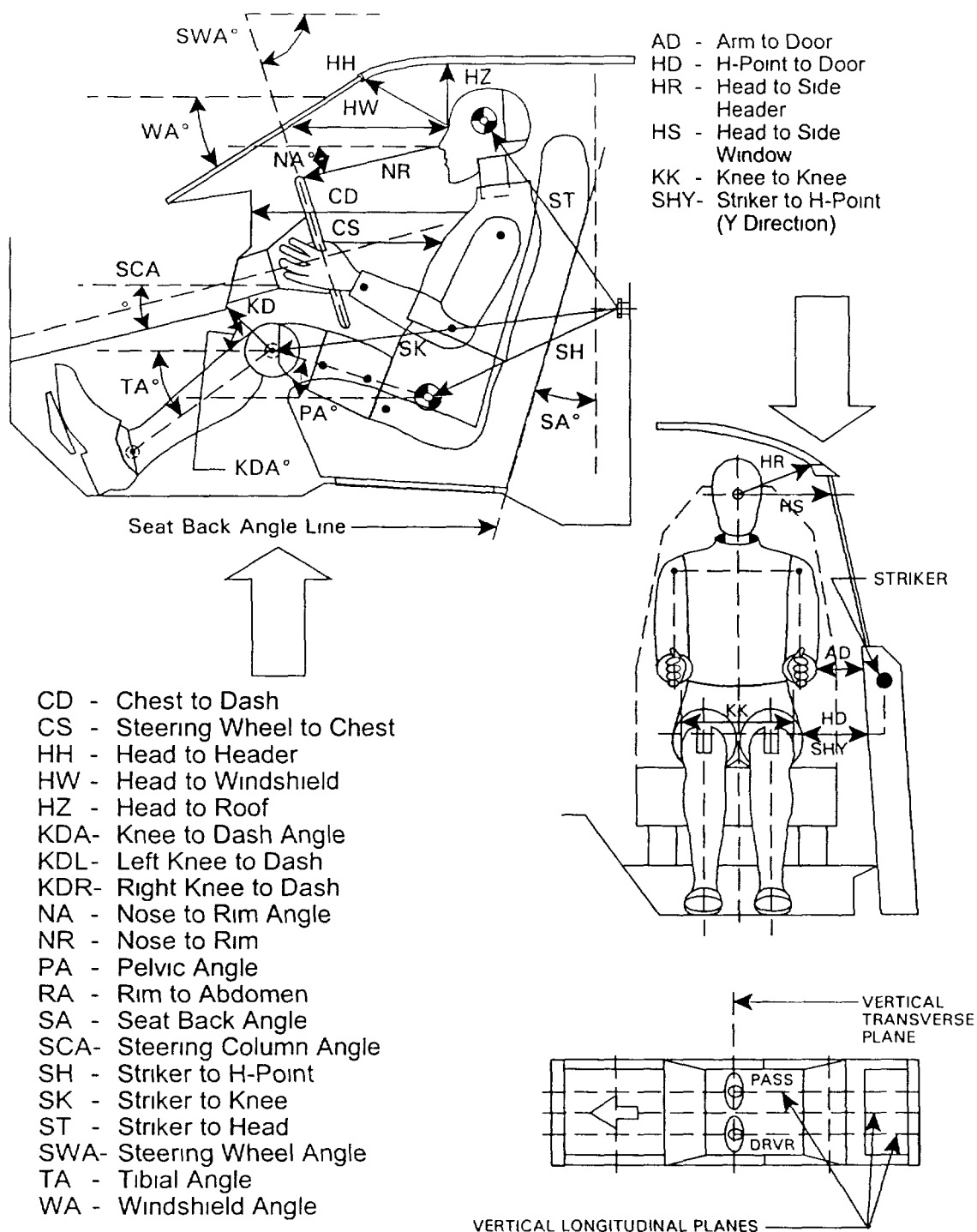
Vehicle Year/Make/Model/Body Style 2001/Nissan/Altima/4 Door

Vehicle NHTSA No C15200 Test Date May 24, 2001

	DRIVER (Serial #340)	PASSENGER (Serial #312)
WA°	29 0°	
SWA°	23.9°	
SCA°	25.2°	
SA°	14 7°	14.2°
HZ	6 6	6 1
HH	12 0	11 8
HW	22.6	21 8
HR	8.1	7.9
NR	16.5 Angle (NA°) 14.5°	
CD	21.0	21.9
CS	13.4	
RA	8.2	
KDL	7.5 Angle (KDA°) 18.2°	7.4
KDR	7 4	7.1 Angle (KDA°) 27 5°
PA°	24.3°	22 4°
TA°	40.3°	34 7°
KK	11.7	9 7
ST	20 0 Angle 8 0°	20 7 Angle 5 4°
SK	22 2 Angle 94.4°	23 5 Angle 97 0°
SH	9.0 Angle 125 6°	8 5 Angle 125 1°
SHY	10 0	9 7
HS	12.5	12 3
HD	5.3	5 1
AD	4 1	3 8

Dummy Positioning Measurement Locations

DUMMY MEASUREMENT FOR FRONT SEAT PASSENGERS



Description of Dummy Measurements

When a level is to be used, it is to ensure that the line containing the two points described is either parallel or perpendicular to the ground. If a measurement to be made is less than 10 inches ignore the directions to use a level and approximate a level measurement. Also, when a measurement is to be taken to or from the center of a bolt on the dummy, take the measurement from the center of the bolt hole if the bolt is recessed.

The following measurements are to be made within a vertical longitudinal plane.

- * HH Head to Header, taken from the point where the dummy's nose meets his forehead (between his eyes) to the furthest point forward on the header
- * HW Head to Windshield, taken from the point where the dummy's nose meets his forehead (between his eyes) to a point on the windshield. Use a level
- HZ Head to Roof, taken from the point where the dummy's nose meets his forehead (between his eyes) to the point on the roof directly above it. Use a level
- * CS Steering Wheel to Chest, taken from the center of the steering wheel hub to the dummy's chest. Use a level
- CD Chest to Dash, place a tape measure on the tip of the dummy's chin and rotate five inches of it downward toward the dummy to the point of contact on the transverse center of the dummy's chest. Then measure from this point to the closest point on the dashboard either between the upper part of the steering wheel between the hub and the rim, or measure to the dashboard placing the tape measure above the rim, whichever is a shorter measurement. See photograph
- RA Steering Wheel Rim to Abdomen, taken from the bottommost point of the steering wheel rim horizontally rearward to the dummy. Use a level
- NR Nose to Rim, taken from the tip of the dummy's nose to the closest point on the top of the steering wheel rim. Also indicate the angle this line makes with respect to the horizontal (NA)
- *¹ KDL, KDR Left and Right Knees to Dashboard, taken from the center of the knee pivot bolt's outer surface to the closest point forward acquired by swinging the tape measure in continually larger arcs until it contacts the dashboard. Also reference the angle of this measurement with respect to the horizontal for the outboard knee (KDA). See photograph

* Measurement used in Data Tape Reference Guide

¹ Only outboard measurement is referenced in Data Tape Reference Guide

Description of Dummy Measurements (Cont)

SH, SK, ST Striker to Hip, Knee, and Head, these measurements are to be taken in the X-Z plane measured from the forward most center point on the striker to the center of the H-point, outer knee bolt, and head target. When taking this measurement a firm device that can be rigidly connected to the striker should be used. Use a level. The angles of these measurements with respect to the horizontal should also be recorded. The measurement in the Y (transverse) direction from the striker to the H-point should also be taken (SHY). See photograph.

The following measurements are to be made within a vertical transverse plane.

HS Head to Side Window, taken from the point where the dummy's nose meets his forehead (between his eyes) to the outside of the side window. In order to make this measurement, roll the window down to the exact height which allows a level measurement. Use a level. See photograph.

* AD Arm to Door, taken from the outer surface of the elbow pivot bolt on a Hybrid II dummy to the first point it hits on the door. In the case of a Hybrid III dummy, measure from the bolt on the outer biceps. When a SID is used make the measurement from the center of the bottom of the arm segment where it meets the dummy's torso.

* HD H-point to Door, taken from the H-point on the dummy to the closest point on the door. Use a level.

* HR Head to Side Header, measure the shortest distance from the point where the dummy's nose meets his forehead (between his eyes) to the side edge of the header just above the window frame, directly adjacent to the dummy.

SHY Striker to H-point, taken from a rod rigidly connected to the forward most center point on the striker to the H-point. Use a level. See photograph.

KK Knee to Knee, for Hybrid II dummies measure the distance between knee pivot bolt head outer surfaces. For Hybrid III dummies measure the distance between the outboard knee clevis flange surfaces. (This measurement may not be exactly transverse).

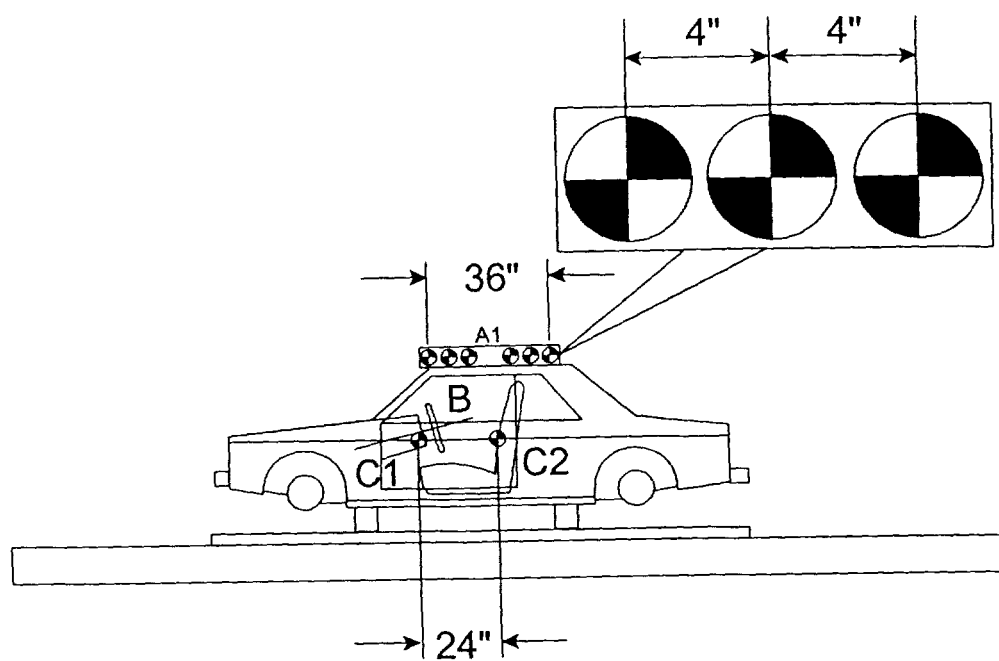
* Measurement used in Data Tape Reference Guide

Description of Dummy Measurements (Cont.)**Angles**

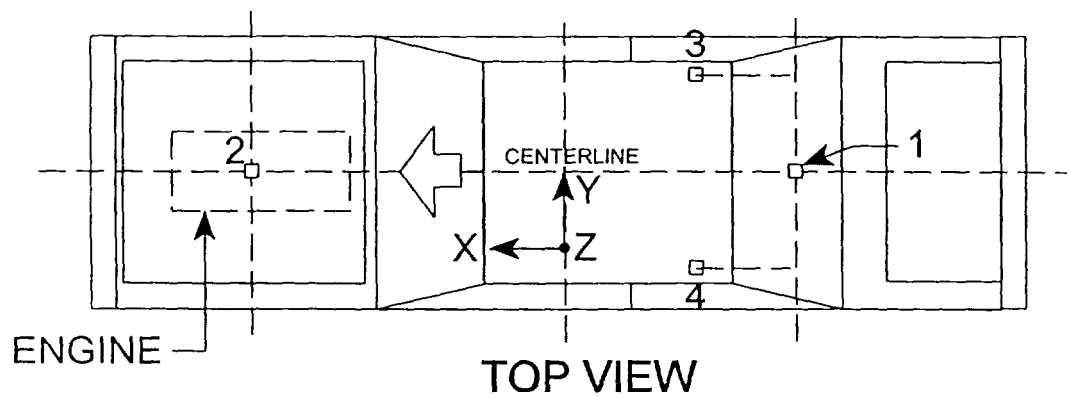
SA	Seat Back Angle, find this angle using the instructions provided by the manufacturer. If the manufacturer doesn't provide clear instructions contact the COTR.
PA	Pelvic or Femur Angle, taken by inserting the pelvic angle gauge into the H-point gauging hole on the SID or the Hybrid III dummies and taking this angle with respect to the horizontal. Measure the angle of the line connecting the H-point hole and the outer knee pivot bolt hole on a Hybrid II dummy with respect to the horizontal, to find the femur angle.
SWA	Steering Wheel Angle, find this by placing a straight edge against the steering wheel rim along the longitudinal plane. Then measure the acute angle of the straight edge with respect to the horizontal.
SCA	Steering Column Angle, measured with respect to the horizontal by placing an inclinometer on the center of the underside of the steering column.
NA	Measure the angle made when taking the measurement NR with respect to the horizontal.
KDA	Knee to Dash Angle, the angle that the measurement KD is taken at with respect to the horizontal. Only get this angle for the outboard knee. See photograph.
WA	Windshield Angle, place an inclinometer along the transverse center of the windshield exterior (measurement is made with respect to horizontal).
TA	Tibial Angle, use a straight edge to connect the dummy's knee and ankle bolts. Then place an inclinometer on the straight edge and measure the angle with respect to the horizontal.

Vehicle Targeting Measurements

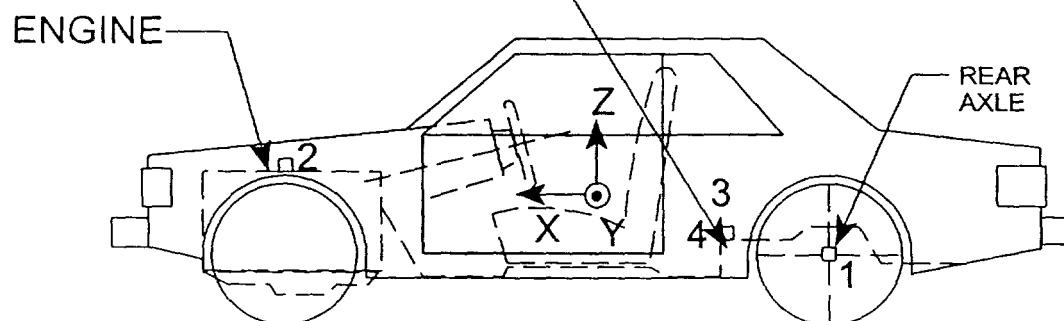
REFERENCE PHOTO TARGETS



LEFT SIDE VIEW

Vehicle Accelerometer Placement and Data SummaryVehicle Year/Make/Model/Body Style 2001/Nissan/Altima/4 DoorVehicle NHTSA No C15200 Test Date May 24, 2001

REAR SEAT CUSHION
ASSY. FRONT ATTACHMENT
BRACKET SUPPORT



LEFT SIDE VIEW

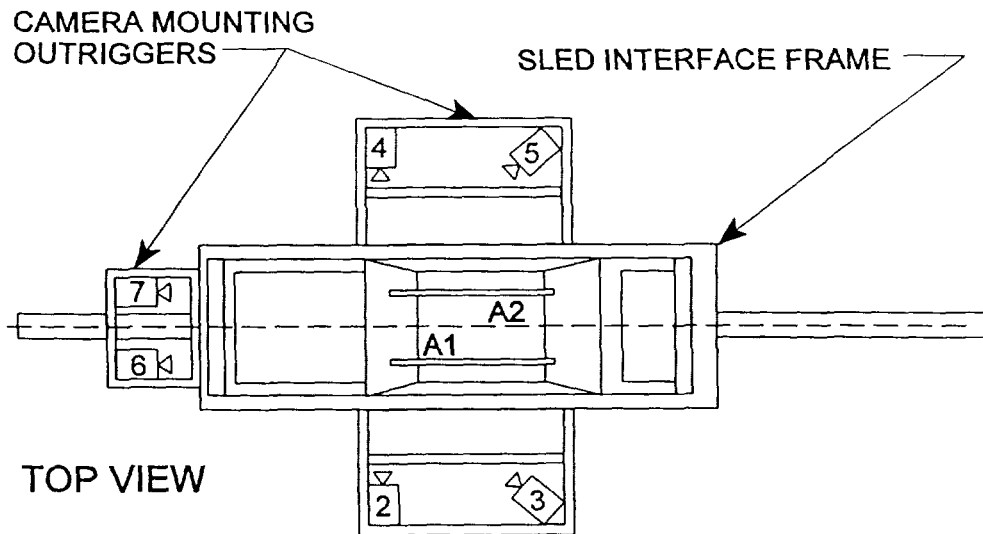
Vehicle Accelerometer Location Measurements and Data Summary

Vehicle Year/Make/Model/Body Style 2001/Nissan/Altima/4 Door

Vehicle NHTSA No C15200 Test Date May 24, 2001

No	Location	X (in)	Y (in)	Positive Direction		Negative Direction	
				Value	Time (msec)	Value	Time (msec)
	Sled Primary Longitudinal	67.0	0	17.0 g	70	-1.1 g	128
	Sled Redundant Longitudinal	67.0	4.0	17.2 g	70	-1.1 g	128
	Sled Velocity Measured Integrated	67.0	0	29.0 mph	125	--	--
1	Rear Axle Longitudinal	38.0	0	22.8 g	50	-2.3 g	176
2	Top Engine Longitudinal	153.0	0	19.0 g	49	-2.4 g	152
3	Right Rear Seat Member Longitudinal	70.0	12.0	17.8 g	48	-1.6 g	178
4	Left Rear Seat Member Longitudinal	70.0	12.0	18.2 g	48	-1.3 g	165

Camera Positions



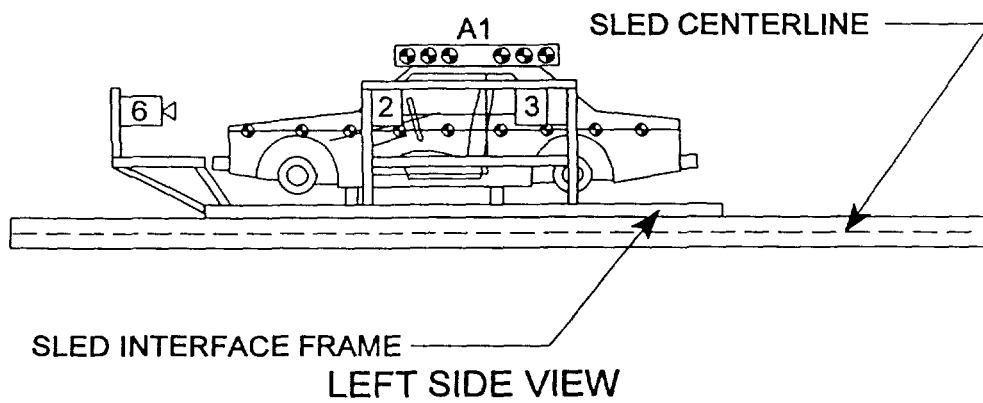
CAMERA FRAME RATES:

#1 = 24 fps

All Others = 1,000 fps



REAL TIME CAMERA



Camera Location Measurements

Camera No	VIEW	Camera Positions (inches)*			Angle (deg)	Film Plane To Head Target	Lens (mm)	Speed (fps)
		X	Y	Z				
1	Real-Time (Pre and Post)						10	24
2	Onboard Driver	70.6	88.6	38.4	90	72.4	13	1000
3	Onboard Driver Angle	150.9	91.1	47.8			13	580
4	Onboard Passenger	71.8	89.6	38.5	90	71.1	13	1005
5	Onboard Passenger Angle	146.7	88.5	47.9			13	1020
6	Onboard Windshield Driver	18.3	14.1	42.9			13	1015
7	Onboard Windshield Passenger	18.3	13.9	42.9			13	926

Reference* X = Front of sled carriage
 Y = Center of sled carriage
 Z = Top of sled carriage

Occupant Injury Data

Vehicle Year/Make/Model/Body Style: 2001/Nissan/Altima/4 Door

Vehicle NHTSA No. C15200 Test Date May 24, 2001

MAXIMUM ACCELERATION VALUES: (g's)	DRIVER DUMMY #340	PASSENGER DUMMY #312
Head Channel X	-54.4	-71.6
Head Channel Y	23.6	-17.9
Head Channel Z	-74.4	37.6
HEAD RESULTANT	80.1	81.3
Chest Channel X	-39.3	-43.4
Chest Channel Y	-2.2	-4.0
Chest Channel Z	18.4	35.6
CHEST RESULTANT	41.5	46.4

HEAD INJURY CRITERIA (HIC) VALUES:

HIC	295	303
$t_1 =$ (msec)	85.4	95.1
$t_2 =$ (msec)	117.6	104.5

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

CHEST INJURY CRITERIA (CLIP) VALUES: (g's)

CLIP	40.8	44.7
$t_1 =$ (msec)	101.2	97.5
$t_2 =$ (msec)	104.2	100.5
CHEST DEFLECTION (in)	1.3	0.4

Occupant Injury Data (Cont.)

MAX COMPRESSIVE FEMUR FORCES	DRIVER DUMMY #340	PASSENGER DUMMY #312
Left Side (lbs)	833	972
Right Side (lbs)	806	1152

NECK INJURY CRITERIA

Peak Flexion Bending Moment about the Occipital Condyle (N-m)	69.1	76.6
Peak Extension Bending Moment about the Occipital Condyle (N-m)	5.1	29.4
Peak Axial Tension (N)	348	669
Peak Axial Compression (N)	3289	2162
Peak Fore Shear (N)	1161	1424
Peak Aft Shear (N)	211	232

Seat Belt Warning System Data

Vehicle Year/Make/Model/Body Style 2001/Nissan/Altima/4 Door

NHTSA No C15200, Technician Chad Gadberry, Date April 9, 2001

Complete the following to determine which seat belt warning system option (S7.3(a)(1) or S7.3(a)(2)) is used (Manufacturers may use either option)

A With occupant in driver's position and lap belt in stowed position and ignition switch placed in "Start/On" position:

A.1 S7.3(a)(1)
Time duration of audible warning signal = 5 seconds
(4 to 8 seconds)

Time duration of reminder light operation = >60 seconds
(no less than 60 seconds)

A.2 S7.3(a)(2)
Time duration of audible warning signal = seconds
(4 to 8 seconds)(see 49 USCS @ 30124)

Time duration of reminder light operation = seconds
(4 to 8 seconds)

B. With occupant in driver's position and lap belt in use and ignition switch placed in "Start/On" position:

B.1 S7.3(a)(1)
Time duration of audible warning signal = 0 seconds
(audible warning not required)

Time duration of reminder light operation = 0 seconds
(reminder light not required)

B.2 S7.3(a)(2)
Time duration of audible warning signal = seconds
(audible warning not required)

Time duration of reminder light operation = seconds
(4 to 8 seconds)

C Note wording of visual warning:

Fasten seat belt	_____
Fasten Belt	_____
Symbol 101	<u> X </u>

Readiness IndicatorVehicle Year/Make/Model/Body Style 2001/Nissan/Altima/4 DoorNHTSA No C15200, Technician Chad Gadberry, Date April 9, 2001

An occupant restraint system that deploys in the event of a crash shall have a monitoring system with a readiness indicator. A totally mechanical system is exempt from this requirement (11/8/94 legal interpretation)

- 1 Is the system totally mechanical? ()Yes (X)No
(If YES this Data Sheet is complete.)
- 2 Describe the location of the readiness indicator: Top center of instrument panel

- 3 Is the readiness indicator clearly visible to the driver?
(X)Yes-Pass ()No-FAIL
4. Is a list of the elements in the occupant restraint system, being monitored by the readiness indicator, provided?
(X)Yes-Pass ()No-FAIL

Air Bag Labels Data

Vehicle Year/Make/Model/Body Style 2001/Nissan/Altima/4 Door

NHTSA No C15200, Technician Chad Gadberry, Date April 9, 2001

- 1 Air bag maintenance label and owner's manual instructions (S4.5 1(a))
- 1 1 Does the manufacturer recommend periodic maintenance or replacement of the airbag?
() Yes, go to 1.2 (X) No, go to 2
- 1 2 Does the vehicle have a maintenance or replacement label?
() Yes-Pass () No-FAIL
- 1 3 Does the label contain one of the following?
() Yes-Pass () No-FAIL
() Schedule on label specifies month and year (Date: _____)
() Schedule on label specifies vehicle mileage (Mileage: _____)
() Schedule on label specifies interval measured from date on certification label (Date: _____)
- 1.4 Is the label permanently affixed within the passenger compartment?
() Yes-Pass () No-FAIL
- 1 5 Is the label lettered in English?
() Yes-Pass () No-FAIL
- 1 6 Is the label in block capitals and numerals?
() Yes-Pass () No-FAIL
- 1 7 Are the letters and numerals at least 3/32 inches high?
() Yes-Pass () No-FAIL
- 1.8 Does the owner's manual set forth the recommended schedule for maintenance or replacement?
() Yes-Pass () No-FAIL
- 2 Does the owner's manual (S4 5 1(f)):
- 2 1 Include a description of the vehicle's airbag system in an easily understandable format?
(X) Yes-Pass () No-FAIL
- 2 2 Include a statement that the vehicle is equipped with an airbag and a lap/shoulder belt at the front outboard seating positions?
(X) Yes-Pass () No-FAIL

Air Bag Labels Data (Cont.)

- 2 3 Include a statement that the air bag is a supplemental restraint at the front outboard seating positions?
(X)Yes-Pass () No-FAIL
- 2 4 Emphasize that all occupants, including the driver, should always wear their seat belts whether or not an airbag is also provided at their seating positions to minimize the risk of severe injury or death in the event of a crash?
(X)Yes-Pass () No-FAIL
- 2 5 Provide any necessary precautions regarding the proper positioning of occupants, including children, at seating positions equipped with air bags to insure maximum safety protection for those occupants?
(X)Yes-Pass () No-FAIL
- 2 6 Explain that no objects should be placed over or near the air bag on the steering wheel or on the instrument panel, because any such objects could cause harm if the vehicle is in a crash severe enough to cause the air bag to inflate?
(X)Yes-Pass () No-FAIL

3. Does the vehicle.

- 3 1 Provide an automatic means to ensure that the airbag does not deploy when a child seat or child with a total mass of 30 kg or less is present on the front outboard passenger?
() Yes (X) No
- 3 2 Incorporate sensors, other than or in addition to weight sensors, which automatically prevent the passenger air bag from deploying in situations in which it might have an adverse effect on infants in rear-facing child seats, and unbelted or improperly belted children?
() Yes (X) No
- 3 3 Have a passenger air bag designed to deploy in a manner that does not create a risk of serious injury to infants in rear-facing child seats, and unbelted or improperly belted children?
() Yes (X) No

If yes to 3 1, or 3.2, or 3.3, the vehicle is not required to have a sunvisor warning label (S4 5 1(6)), an airbag alert label (S4.5.1(c)) or a label on the dash (S4.5 2(e)) and this check sheet is complete (S4 5.1). If no to 3 1, 3.2, and 3 3, go to 4

4 Sun Visor Warning Label

- 4 1 Is the label permanently affixed (may be permanent marking or molding) to either side of the sunvisor at each front outboard seating position with an airbag?
(S4 5 1(b)(2))
- | | | |
|------------------|-------------|-------------------------|
| Driver Side - | (X)Yes-Pass | () No-FAIL |
| Passenger Side - | () N/A | (X)Yes-Pass () No-FAIL |

Air Bag Labels Data (Cont.)

- 4 2 Does the label conform in content (vehicles without back seats may omit the statement "The back seat is the safest place for children ") (S4 5 1(b)(2)(v))) to either label shown on the next page as appropriate at each front outboard seating position with an air bag? (S4 5 1(b)(2))

4 2 1 **Dual air bags:** ☐ Not Applicable
 Driver Side - ☒ Yes-Pass ☐ No-FAIL
 Passenger Side - ☒ Yes-Pass ☐ No-FAIL

4.2.2 Vehicle with driver air bag ONLY - either 4.2.2.1 or 4.2.2.2 is applicable, not both. (S4.5.1(b)(2)(iv))

4.2.2.1 Does the label conform in content to either label shown on the following page as appropriate?
 ☒ Not Applicable
 Driver Side - ☐ Yes-Pass ☐ No-FAIL

4.2.2.2 Does the label conform in content to the first label shown on the following page where the label can be modified to omit the pictogram and the message text may read

DEATH or SERIOUS INJURY can occur.

- Sit as far back as possible from the air bag.
- ALWAYS use SEAT BELTS and CHILD RESTRAINTS
- The BACK SEAT is the SAFEST place for children.

☒ Not Applicable
 Driver Side - ☐ Yes-Pass ☐ No-FAIL

Air Bag Labels Data (Cont)

SUN VISOR LABEL VISIBLE WHEN VISOR IS IN DOWN POSITION

LABEL OUTLINE VERTICAL AND HORIZONTAL LINE BLACK

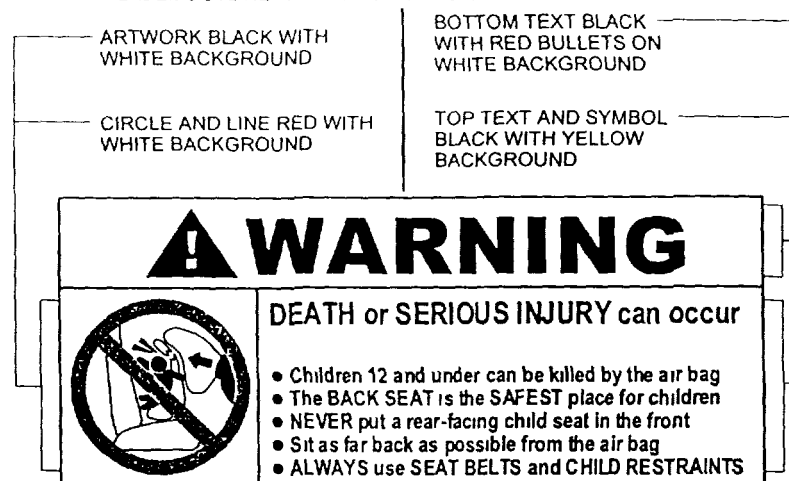


Figure 6a (S4.5.1(b)(2))

SUN VISOR LABEL VISIBLE WHEN VISOR IS IN DOWN POSITION

LABEL OUTLINE, VERTICAL AND HORIZONTAL LINE BLACK

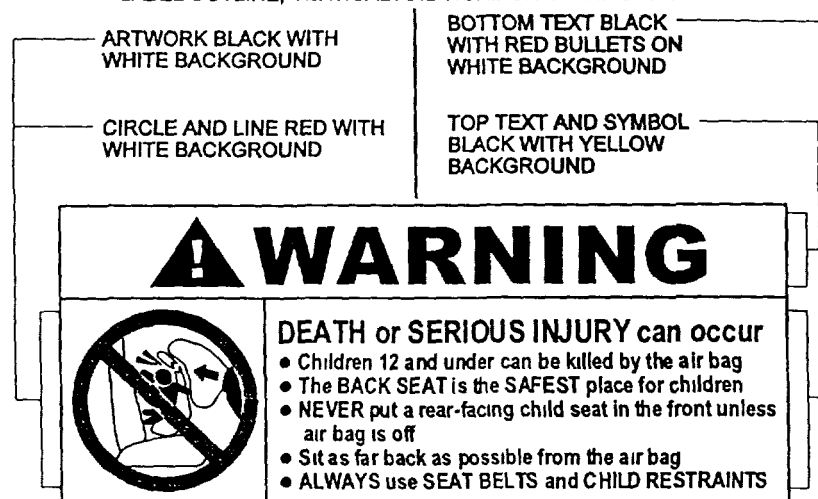


Figure 6b (S4.5 1(b)(2))

- | | | | | |
|-----|---|----------------|-------------|-------------|
| 4 3 | Is the label heading area yellow with the word "warning" and the alert symbol in black? (S4 5.1(b)(2)(i)) | Driver Side - | (X)Yes-Pass | () No-FAIL |
| | Passenger Side - | () No air bag | (X)Yes-Pass | () No-FAIL |
| 4 4 | Is the message white with black text? (S4.5.1(b)(2)(ii)) | Driver Side - | (X)Yes-Pass | () No-FAIL |
| | Passenger Side - | () No air bag | (X)Yes-Pass | () No-FAIL |

Air Bag Labels Data (Cont)

- 4 5 Is the message area at least 30 cm²? (S4 5 1(b)(2)(ii))
Actual message area 39.9 cm²
Driver Side - (X) Yes-Pass () No-FAIL
Passenger Side - () No air bag (X) Yes-Pass () No-FAIL
- 4 6 Is the pictogram black with a red circle and slash on a white background?
(S4 5 1(b)(2)(iii) & (S4 5 1(b)(2)(iv))
For vehicles with driver side air bag ONLY () Not Applicable
Driver Side - (X) Yes-Pass () No-FAIL
Passenger Side - () No air bag (X) Yes-Pass () No-FAIL
- 4 7 Is the pictogram at least 30 mm in diameter? (S4.5.1(b)(2)(iii))
Actual diameter 31 mm
For vehicles with driver side air bag ONLY () Not Applicable
Driver Side - (X) Yes-Pass () No-FAIL
Passenger Side - () No air bag (X) Yes-Pass () No-FAIL
- 4.8 Is the same side of the sun visor to which the sun visor label is affixed free of
other information with the exception of an air bag maintenance label?
(S4 5.1(b)(3))
Driver Side - (X) Yes-Pass () No-FAIL
Passenger Side - () No air bag (X) Yes-Pass () No-FAIL
- 4 9 Is the sun visor free of other information about air bags or the need to wear seat
belts with the exception of the air bag alert label or the utility vehicle label?
(S4 5.1(b)(3))
Driver Side - (X) Yes-Pass () No-FAIL
Passenger Side - () No air bag (X) Yes-Pass () No-FAIL

5 Air Bag Alert Label

- 5 1 Is the Sun Visor Warning Label visible when the sunvisor is in the stowed position?
- | | | |
|------------------|--|---|
| Driver Side - | ☒ Yes, go to 6 | ☐ No |
| Passenger Side - | ☐ No air bag | ☒ Yes ☐ No |
- 5 2 Does the label conform in content to the label shown below? (S4.5.1(c)(2))
- | | | |
|------------------|---|----------------------------------|
| Driver Side - | ☐ Yes | ☐ No-FAIL |
| Passenger Side - | ☐ No air bag ☐ Yes-Pass | ☐ No-FAIL |
- 5 3 Is the message area black with yellow text? (S4.5.1(c)(2)(i))
- | | | |
|------------------|---|----------------------------------|
| Driver Side - | ☐ Yes-Pass | ☐ No-FAIL |
| Passenger Side - | ☐ No air bag ☐ Yes-Pass | ☐ No-FAIL |

Air Bag Labels Data (Cont)

- 5 4 Is the message area at least 20 cm²? (S4 5 1(c)(2)(i))
 Actual message area _____ cm²
 Driver Side - () Yes-Pass () No-FAIL
 Passenger Side - () No air bag () Yes-Pass () No-FAIL
- 5 5 Is the pictogram black with a red circle and slash on a white background?
 (S4 5 1(c)(2)(ii))
 For vehicles with driver side air bag ONLY () Not Applicable
 () Yes-Pass () No-FAIL
- 5 6 Is the pictogram at least 20 mm in diameter? (S4 5 1(c)(2)(ii))
 Actual diameter _____ mm
 For vehicles with driver side air bag ONLY () Not Applicable
 () Yes-Pass () No-FAIL

SUN VISOR LABEL VISIBLE WHEN VISOR IS IN UP POSITION



Figure 6c (S4.5 1(c)(2))

- 6 Label On the Dash
- 6 1 Does the vehicle have a passenger side air bag?
 (X) Yes () No, check sheet is complete
- 6 2 Does the vehicle have a label on the dash or steering wheel hub? (S4 5 1(e))
 (X) Yes-Pass () No-FAIL
- 6 3 Does the label conform in content (vehicles without back seats may omit the statement: "The back seat is the safest place for children 12 and under " (S4 5 1(e)(iii)) to the label shown below. (S4.5.1(e))
 (X) Yes-Pass () No-FAIL

Air Bag Labels Data (Cont.)

- 6 4 Is the heading area yellow with the word "warning" and the alert symbol in black?
(S4 5 1(e)(i)) (X)Yes-Pass () No-FAIL
- 6 5 Is the message white with black text? (S4 5 1(e)(ii))
(X)Yes-Pass () No-FAIL
- 6 6 Is the message area at least 30 cm²? (S4 5 1(e)(ii))
Actual message area: 35.3 cm²
(X)Yes-Pass () No-FAIL

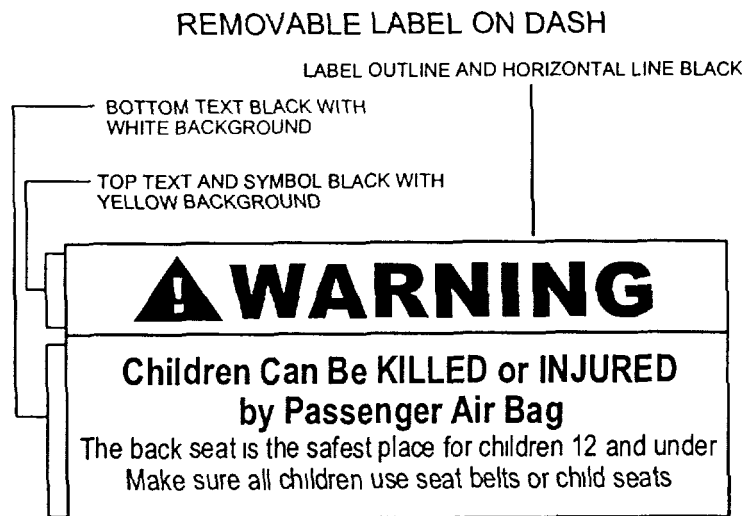


Figure 7 (S4 5 1(e))

Rear Outboard Seating Position Seat Belt DataVehicle Year/Make/Model/Body Style 2001/Nissan/Altima/4 DoorNHTSA No C15200, Technician Chad Gadberry, Date April 9, 2001

Do all rear outboard seating positions have type 2 seat belts?

☒ Yes☐ No

If NO, describe the seat belt installed, the seat location, and any other information about the seat that would explain why a type 2 belt was not installed.

Lap Belt Lockability Data

Vehicle Year/Make/Model/Body Style 2001/Nissan/Altima/4 Door

NHTSA No C15200, Technician: Chad Gadberry, Date April 9, 2001

Passenger cars, trucks, buses, and multipurpose passenger vehicles with a GVWR of 10,000 pounds or less. (S7.1.1 5)

Complete one of these forms for **each** designated seating position with forward-facing seats, other than the driver's seat, or seats that can be adjusted to forward-facing **and** that has seat belt retractors that are not automatic locking retractors (S7 1 1 5(c))

Designated Seating Position (DSP): Right Front

- 1 Record the seating position. Fully rearward
(S7 1 1 5(c)(1))
(Any position is acceptable.)
- 2 Buckle the seat belt. (S7.1.1.5(c)(1))
- 3 Complete any procedures recommended in the vehicle owner's manual to activate any locking feature (S7 1 1.5(c)(1))
4. Does the lap belt portion of the seat belt in the forward-facing seat or seat that can be adjusted to forward-facing consist of a locking device that does NOT have to be attached by the vehicle user to the seat belt webbing, retractor, or any other part of the vehicle (S7 1 1 5(a))

(X)Yes-Pass () No-FAIL
- 5 Does the lap belt portion of the seat belt in the forward-facing seat or seat that can be adjusted to forward-facing consist of a locking device that does NOT require inverting, twisting or deforming of the belt webbing. (S7.1.1.5(a))

(X)Yes-Pass () No-FAIL
- 6 Does the vehicle user need to take some action to activate the locking feature on the lap belt portion of the seat belt in any forward-facing seat or seat that can be adjusted to forward-facing? (X)Yes, go to 6.1 () No, go to 7
- 6 1 Does the vehicle owner's manual include a description in words and/or diagrams describing how to activate the locking feature so that the seat belt assembly can tightly secure a child restraint system and how to deactivate the locking feature to remove the child restraint system. (S7.1.1 5(b))

(X)Yes-Pass () No-FAIL
- 7 Locate a reference point A on the seat belt buckle. (S7 1.1 5(c)(2))

Lap Belt Lockability Data (Cont)

- 8 Locate a reference point B on the attachment hardware or retractor assembly at the other end of the lap belt or lap belt portion of the seat belt assembly (S7 1 1 5(c)(2))
- 9 Adjust the lap belt or lap belt portion of the seat belt assembly according to any procedures recommended in the vehicle owner's manual to activate any locking feature so that the webbing between points A and B is at the maximum length allowed by the belt system (S7 1 1 5(c)(2))
- 10 Measure and record the distance between points A and B along the longitudinal centerline of the webbing for the lap belt or lap belt portion of the seat belt assembly (S7 1 1.5(c)(2))

Measured distance between A and B is 61.8 inches
- 11 Readjust the belt system so that the webbing between points A and B is at any length that is 5 inches or more shorter than the maximum length of the webbing (S7 1.1.5(c)(3))
- 12 To the lap belt or lap belt portion of the seat belt assembly, apply a preload of 10 pounds using the webbing tension pull device. Apply the load in a vertical plane parallel to the longitudinal axis of the vehicle and passing through the seating reference point of the designated seating position. Apply the preload in a horizontal direction toward the front of the vehicle with a force application angle of not less than 5 degrees nor more than 15 degrees above the horizontal (S7.1.1.5(c)(4))

The measured force application angle = 10 (spec. 5-15 degrees)

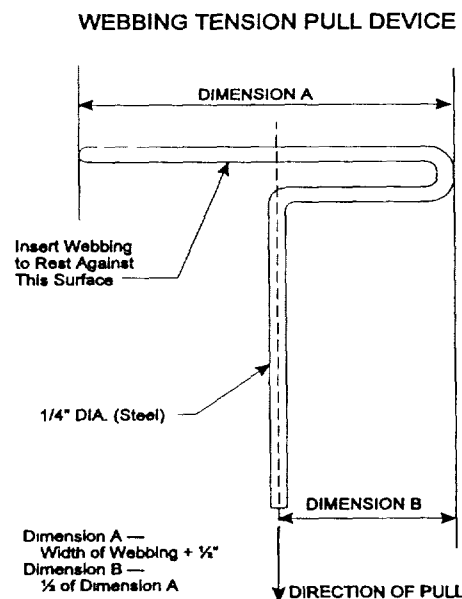


Figure 5 (S7.1.1.5(c)(4))

Lap Belt Lockability Data (Cont.)

- 13 Measure the length between points A and B along the longitudinal centerline of the webbing while the preload is being applied (S7.1.1.5(c)(4))

Measured distance between A and B is 23.3 inches

- 14 Increase the load to 50 pounds at a rate of no more than 50 pounds per second. Attain the load in not more than 5 seconds. (If webbing sensitive emergency locking retractors are installed as part of the lap belt or lap belt portion of the seat belt assembly, apply the load at a rate less than the threshold value for lock-up specified by the manufacturer.) Maintain the load for at least 5 seconds. Measure and record the distance between points A and B along the longitudinal centerline of the webbing (S7.1.1.5(c)(5))

Record onset rate: 10 lb/sec (Spec 10 to 50 lb/sec)

Measure distance between points A and B 24.1 inches (S7.1.1.5(c)(6))

- 15 Subtract the measurement in 13 from the measurement in 14. Is the difference 2 inches or less? (S7.1.1.5(c)(7))

14-13 = 0.8 inches

(X)Yes-Pass

() No-FAIL

- 16 Subtract the measurement in 14 from the measurement in 10. Is the difference 3 inches or more?

10-14 = 37.7 inches

(X)Yes-Pass

() No-FAIL

REMARKS None

Lap Belt Lockability Data (Cont)

Vehicle Year/Make/Model/Body Style 2001/Nissan/Altima/4 Door

NHTSA No C15200 , Technician Chad Gadberry , Date April 9, 2001

Passenger cars, trucks, buses, and multipurpose passenger vehicles with a GVWR of 10,000 pounds or less (S7 1 1 5)

Complete one of these forms for **each** designated seating position with forward-facing seats, other than the driver's seat, or seats that can be adjusted to forward-facing and that has seat belt retractors that are not automatic locking retractors. (S7 1 1 5(c))

Designated Seating Position (DSP): Left Rear

- 1 Record the seating position. Non-adjustable
(S7.1 1.5(c)(1))
(Any position is acceptable.)
- 2 Buckle the seat belt. (S7.1.1.5(c)(1))
- 3 Complete any procedures recommended in the vehicle owner's manual to activate any locking feature. (S7.1.1.5(c)(1))
- 4 Does the lap belt portion of the seat belt in the forward-facing seat or seat that can be adjusted to forward-facing consist of a locking device that does NOT have to be attached by the vehicle user to the seat belt webbing, retractor, or any other part of the vehicle (S7 1 1 5(a))

(X)Yes-Pass () No-FAIL
- 5 Does the lap belt portion of the seat belt in the forward-facing seat or seat that can be adjusted to forward-facing consist of a locking device that does NOT require inverting, twisting or deforming of the belt webbing (S7.1 1 5(a))

(X)Yes-Pass () No-FAIL
- 6 Does the vehicle user need to take some action to activate the locking feature on the lap belt portion of the seat belt in any forward-facing seat or seat that can be adjusted to forward-facing? (X)Yes, go to 6 1 () No, go to 7
 - 6 1 Does the vehicle owner's manual include a description in words and/or diagrams describing how to activate the locking feature so that the seat belt assembly can tightly secure a child restraint system and how to deactivate the locking feature to remove the child restraint system. (S7 1 1 5(b))

(X)Yes-Pass () No-FAIL
- 7 Locate a reference point A on the seat belt buckle (S7 1 1 5(c)(2))

Lap Belt Lockability Data (Cont)

- 8 Locate a reference point B on the attachment hardware or retractor assembly at the other end of the lap belt or lap belt portion of the seat belt assembly (S7 1 1 5(c)(2))
 - 9 Adjust the lap belt or lap belt portion of the seat belt assembly according to any procedures recommended in the vehicle owner's manual to activate any locking feature so that the webbing between points A and B is at the maximum length allowed by the belt system (S7 1 1 5(c)(2))
 - 10 Measure and record the distance between points A and B along the longitudinal centerline of the webbing for the lap belt or lap belt portion of the seat belt assembly (S7 1 1.5(c)(2))
- Measured distance between A and B is 62.8 inches.
- 11 Readjust the belt system so that the webbing between points A and B is at any length that is 5 inches or more shorter than the maximum length of the webbing (S7 1 1.5(c)(3))
 - 12 To the lap belt or lap belt portion of the seat belt assembly, apply a preload of 10 pounds using the webbing tension pull device. Apply the load in a vertical plane parallel to the longitudinal axis of the vehicle and passing through the seating reference point of the designated seating position. Apply the preload in a horizontal direction toward the front of the vehicle with a force application angle of not less than 5 degrees nor more than 15 degrees above the horizontal. (S7.1.1.5(c)(4))

The measured force application angle = 10 (spec. 5-15 degrees)

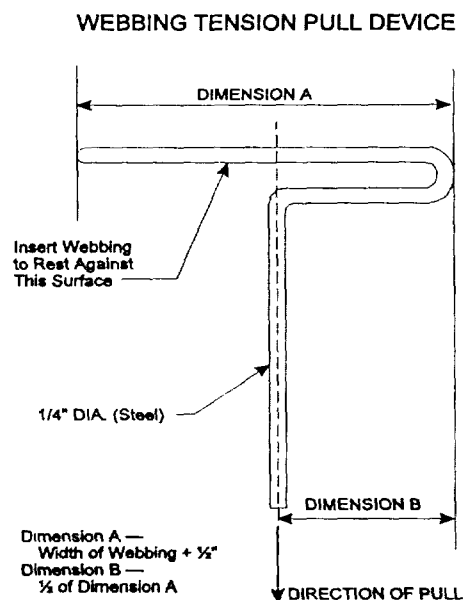


Figure 5 (S7 1.1.5(c)(4))

Lap Belt Lockability Data (Cont)

- 13 Measure the length between points A and B along the longitudinal centerline of the webbing while the preload is being applied (S7 1 1 5(c)(4))

Measured distance between A and B is 19 0 inches

- 14 Increase the load to 50 pounds at a rate of no more than 50 pounds per second. Attain the load in not more than 5 seconds. (If webbing sensitive emergency locking retractors are installed as part of the lap belt or lap belt portion of the seat belt assembly, apply the load at a rate less than the threshold value for lock-up specified by the manufacturer.) Maintain the load for at least 5 seconds. Measure and record the distance between points A and B along the longitudinal centerline of the webbing (S7 1.1.5(c)(5))

Record onset rate: 10 lb/sec (Spec. 10 to 50 lb/sec)

Measure distance between points A and B 21 0 inches (S7.1.1.5(c)(6))

- 15 Subtract the measurement in 13 from the measurement in 14. Is the difference 2 inches or less? (S7.1 1.5(c)(7))

14-13 = 2 0 inches

(X)Yes-Pass

() No-FAIL

- 16 Subtract the measurement in 14 from the measurement in 10. Is the difference 3 inches or more?

10-14 = 41 8 inches

(X)Yes-Pass

() No-FAIL

REMARKS None

Lap Belt Lockability Data (Cont)

Vehicle Year/Make/Model/Body Style 2001/Nissan/Altima/4 Door

NHTSA No C15200, Technician Chad Gadberry, Date April 9, 2001

Passenger cars, trucks, buses, and multipurpose passenger vehicles with a GVWR of 10,000 pounds or less. (S7 1 1 5)

Complete one of these forms for **each** designated seating position with forward-facing seats, other than the driver's seat, or seats that can be adjusted to forward-facing **and** that has seat belt retractors that are not automatic locking retractors. (S7 1.1 5(c))

Designated Seating Position (DSP) Center Rear

- 1 Record the seating position Non-adjustable
(S7 1 1.5(c)(1))
(Any position is acceptable)
- 2 Buckle the seat belt. (S7.1.1 5(c)(1))
- 3 Complete any procedures recommended in the vehicle owner's manual to activate any locking feature (S7.1.1.5(c)(1))
- 4 Does the lap belt portion of the seat belt in the forward-facing seat or seat that can be adjusted to forward-facing consist of a locking device that does NOT have to be attached by the vehicle user to the seat belt webbing, retractor, or any other part of the vehicle. (S7.1.1 5(a))

(X)Yes-Pass () No-FAIL
- 5 Does the lap belt portion of the seat belt in the forward-facing seat or seat that can be adjusted to forward-facing consist of a locking device that does NOT require inverting, twisting or deforming of the belt webbing (S7.1 1.5(a))

(X)Yes-Pass () No-FAIL
- 6 Does the vehicle user need to take some action to activate the locking feature on the lap belt portion of the seat belt in any forward-facing seat or seat that can be adjusted to forward-facing? (X)Yes, go to 6 1 () No, go to 7.
- 6 1 Does the vehicle owner's manual include a description in words and/or diagrams describing how to activate the locking feature so that the seat belt assembly can tightly secure a child restraint system and how to deactivate the locking feature to remove the child restraint system (S7 1 1 5(b))

(X)Yes-Pass () No-FAIL
- 7 Locate a reference point A on the seat belt buckle. (S7.1.1.5(c)(2))

Lap Belt Lockability Data (Cont.)

- 8 Locate a reference point B on the attachment hardware or retractor assembly at the other end of the lap belt or lap belt portion of the seat belt assembly (S7 1 1 5(c)(2))
- 9 Adjust the lap belt or lap belt portion of the seat belt assembly according to any procedures recommended in the vehicle owner's manual to activate any locking feature so that the webbing between points A and B is at the maximum length allowed by the belt system (S7 1 1 5(c)(2))
- 10 Measure and record the distance between points A and B along the longitudinal centerline of the webbing for the lap belt or lap belt portion of the seat belt assembly (S7 1.1 5(c)(2))

Measured distance between A and B is 59.0 inches
- 11 Readjust the belt system so that the webbing between points A and B is at any length that is 5 inches or more shorter than the maximum length of the webbing (S7 1 1 5(c)(3))
- 12 To the lap belt or lap belt portion of the seat belt assembly, apply a preload of 10 pounds using the webbing tension pull device. Apply the load in a vertical plane parallel to the longitudinal axis of the vehicle and passing through the seating reference point of the designated seating position. Apply the preload in a horizontal direction toward the front of the vehicle with a force application angle of not less than 5 degrees nor more than 15 degrees above the horizontal (S7 1 1 5(c)(4))

The measured force application angle = 10 (spec 5-15 degrees)

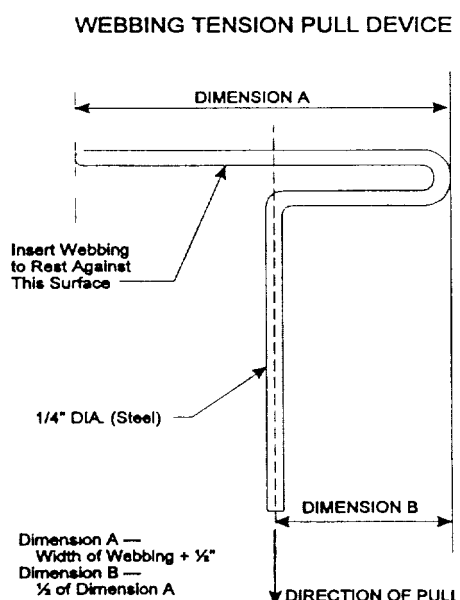


Figure 5 (S7.1.1 5(c)(4))

Lap Belt Lockability Data (Cont.)

- 13 Measure the length between points A and B along the longitudinal centerline of the webbing while the preload is being applied (S7.1.1.5(c)(4))

Measured distance between A and B is 18.0 inches

- 14 Increase the load to 50 pounds at a rate of no more than 50 pounds per second. Attain the load in not more than 5 seconds. (If webbing sensitive emergency locking retractors are installed as part of the lap belt or lap belt portion of the seat belt assembly, apply the load at a rate less than the threshold value for lock-up specified by the manufacturer.) Maintain the load for at least 5 seconds. Measure and record the distance between points A and B along the longitudinal centerline of the webbing (S7.1.1.5(c)(5))

Record onset rate: 10 lb/sec (Spec. 10 to 50 lb/sec)

Measure distance between points A and B 19.5 inches (S7.1.1.5(c)(6))

- 15 Subtract the measurement in 13 from the measurement in 14. Is the difference 2 inches or less? (S7.1.1.5(c)(7))

14-13 = 1.5 inches (X)Yes-Pass () No-FAIL

- 16 Subtract the measurement in 14 from the measurement in 10. Is the difference 3 inches or more?

10-14 = 39.5 inches (X)Yes-Pass () No-FAIL

REMARKS None

Lap Belt Lockability Data (Cont)

Vehicle Year/Make/Model/Body Style 2001/Nissan/Altima/4 Door

NHTSA No C15200, Technician Chad Gadberry, Date April 9, 2001

Passenger cars, trucks, buses, and multipurpose passenger vehicles with a GVWR of 10,000 pounds or less (S7 1 1 5)

Complete one of these forms for **each** designated seating position with forward-facing seats, other than the driver's seat, or seats that can be adjusted to forward-facing and that has seat belt retractors that are not automatic locking retractors. (S7 1 1 5(c))

Designated Seating Position (DSP) Right Rear

- 1 Record the seating position. Non-adjustable
(S7 1 1 5(c)(1))
(Any position is acceptable.)
- 2 Buckle the seat belt. (S7.1.1.5(c)(1))
- 3 Complete any procedures recommended in the vehicle owner's manual to activate any locking feature. (S7.1.1.5(c)(1))
- 4 Does the lap belt portion of the seat belt in the forward-facing seat or seat that can be adjusted to forward-facing consist of a locking device that does NOT have to be attached by the vehicle user to the seat belt webbing, retractor, or any other part of the vehicle (S7 1 1 5(a))

(X)Yes-Pass () No-FAIL
- 5 Does the lap belt portion of the seat belt in the forward-facing seat or seat that can be adjusted to forward-facing consist of a locking device that does NOT require inverting, twisting or deforming of the belt webbing (S7 1.1.5(a))

(X)Yes-Pass () No-FAIL
- 6 Does the vehicle user need to take some action to activate the locking feature on the lap belt portion of the seat belt in any forward-facing seat or seat that can be adjusted to forward-facing?

(X)Yes, go to 6.1 () No, go to 7.
- 6 1 Does the vehicle owner's manual include a description in words and/or diagrams describing how to activate the locking feature so that the seat belt assembly can tightly secure a child restraint system and how to deactivate the locking feature to remove the child restraint system (S7 1 1.5(b))

(X)Yes-Pass () No-FAIL
- 7 Locate a reference point A on the seat belt buckle. (S7.1.1.5(c)(2))

Lap Belt Lockability Data (Cont)

- 8 Locate a reference point B on the attachment hardware or retractor assembly at the other end of the lap belt or lap belt portion of the seat belt assembly (S7 1 1 5(c)(2))
- 9 Adjust the lap belt or lap belt portion of the seat belt assembly according to any procedures recommended in the vehicle owner's manual to activate any locking feature so that the webbing between points A and B is at the maximum length allowed by the belt system (S7 1 1 5(c)(2))
- 10 Measure and record the distance between points A and B along the longitudinal centerline of the webbing for the lap belt or lap belt portion of the seat belt assembly (S7 1 1.5(c)(2))

Measured distance between A and B is 62.8 inches
- 11 Readjust the belt system so that the webbing between points A and B is at any length that is 5 inches or more shorter than the maximum length of the webbing (S7 1 1 5(c)(3))
- 12 To the lap belt or lap belt portion of the seat belt assembly, apply a preload of 10 pounds using the webbing tension pull device. Apply the load in a vertical plane parallel to the longitudinal axis of the vehicle and passing through the seating reference point of the designated seating position. Apply the preload in a horizontal direction toward the front of the vehicle with a force application angle of not less than 5 degrees nor more than 15 degrees above the horizontal. (S7.1.1.5(c)(4))

The measured force application angle = 10 (spec. 5-15 degrees)

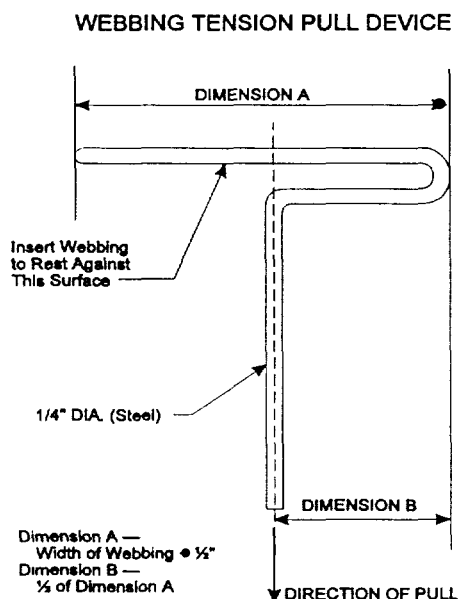


Figure 5 (S7.1.1.5(c)(4))

Lap Belt Lockability Data (Cont)

- 13 Measure the length between points A and B along the longitudinal centerline of the webbing while the preload is being applied (S7.1.1 5(c)(4))

Measured distance between A and B is 19.0 inches

- 14 Increase the load to 50 pounds at a rate of no more than 50 pounds per second. Attain the load in not more than 5 seconds. (If webbing sensitive emergency locking retractors are installed as part of the lap belt or lap belt portion of the seat belt assembly, apply the load at a rate less than the threshold value for lock-up specified by the manufacturer.) Maintain the load for at least 5 seconds. Measure and record the distance between points A and B along the longitudinal centerline of the webbing (S7.1.1 5(c)(5))

Record onset rate: 10 lb/sec (Spec 10 to 50 lb/sec)

Measure distance between points A and B 21.0 inches (S7.1.1 5(c)(6))

- 15 Subtract the measurement in 13 from the measurement in 14. Is the difference 2 inches or less? (S7.1.1 5(c)(7))

14-13 = 2.0 inches

(X)Yes-Pass

() No-FAIL

- 16 Subtract the measurement in 14 from the measurement in 10. Is the difference 3 inches or more?

10-14 = 41.8 inches

(X)Yes-Pass

() No-FAIL

REMARKS None

Seat Belt Comfort and Convenience Data

1 **BELT CONTACT FORCE (S7.4.3)**

Test Vehicle NHTSA No C15200

Vehicle Model Year/Make/Model/Body Style 2001/Nissan/Altima/4 Door

Designated Seating Position Tested Left Rear

Date of Comfort/Convenience Check April 9, 2001

Technician Performing Check Chad Gadberry

GVWR 3990 lb

Test all Type 2 seat belts other than those in walk-in van-type vehicles and those at front outboard designated seating positions in passenger cars. Complete a form for each applicable seat belt.

- 1 1 Does the vehicle incorporate a webbing tension-relieving device?
 - () Yes - go to latchplate access
 - (X) No - continue with this check sheet
- 1 2 Adjustable seats are in adjustment position midway between the forward most and rearmost positions. If an adjustment position does not exist midway between the forward most and rearmost positions, the next closest adjustment position to the rear of the midpoint is used (S8.1.2)
 - () Check
 - (X) N/A
- 1 3 If separately adjustable in a vertical direction, the seats are at the lowest position
 - () Check
 - (X) N/A
- 1 4 Place adjustable seat backs in the manufacturer's nominal design riding position in the manner specified by the manufacturer
 - () Check
 - (X) N/A
- 1 5 Place any adjustable anchorages at the manufacturer's nominal design position for a 50th percentile adult male (50M) occupant. This information will be furnished by the COTR
 - () Check
 - (X) N/A
- 1 6 Place each adjustable head restraint in its highest adjustment position
 - () Check
 - (X) N/A

Seat Belt Comfort and Convenience Data (Cont.)

-

Seat Belt Comfort and Convenience Data (Cont.)**1 BELT CONTACT FORCE (S7.4.3)**Test Vehicle NHTSA No C15200Vehicle Model Year/Make/Model/Body Style 2001/Nissan/Altima/4 DoorDesignated Seating Position Tested Center RearDate of Comfort/Convenience Check April 9, 2001Technician Performing Check Chad GadberryGVWR 3990 lb

Test all Type 2 seat belts other than those in walk-in van-type vehicles and those at front outboard designated seating positions in passenger cars. Complete a form for each applicable seat belt

- 1 1 Does the vehicle incorporate a webbing tension-relieving device?
() Yes - go to latchplate access
(X) No - continue with this check sheet
- 1 2 Adjustable seats are in adjustment position midway between the forward most and rearmost positions. If an adjustment position does not exist midway between the forward most and rearmost positions, the next closest adjustment position to the rear of the midpoint is used (S8 1.2)
() Check
(X) N/A
- 1 3 If separately adjustable in a vertical direction, the seats are at the lowest position
() Check
(X) N/A
- 1 4 Place adjustable seat backs in the manufacturer's nominal design riding position in the manner specified by the manufacturer
() Check
(X) N/A
- 1 5 Place any adjustable anchorages at the manufacturer's nominal design position for a 50th percentile adult male (50M) occupant. This information will be furnished by the COTR
() Check
(X) N/A
- 1 6 Place each adjustable head restraint in its highest adjustment position
() Check
(X) N/A

Seat Belt Comfort and Convenience Data (Cont.)

1 BELT CONTACT FORCE (S7.4.3)

Test Vehicle NHTSA No C15200

Vehicle Model Year/Make/Model/Body Style 2001/Nissan/Altima/4 Door

Designated Seating Position Tested Right Rear

Date of Comfort/Convenience Check April 9, 2001

Technician Performing Check: Chad Gadberry

GVWR 3990 lb

Test all Type 2 seat belts other than those in walk-in van-type vehicles and those at front outboard designated seating positions in passenger cars. Complete a form for each applicable seat belt.

- 1 1 Does the vehicle incorporate a webbing tension-relieving device?
 () Yes - go to latchplate access
 (X) No - continue with this check sheet
- 1 2 Adjustable seats are in adjustment position midway between the forward most and rearmost positions. If an adjustment position does not exist midway between the forward most and rearmost positions, the next closest adjustment position to the rear of the midpoint is used (S8.1.2)
 () Check
 (X) N/A
- 1.3 If separately adjustable in a vertical direction, the seats are at the lowest position.
 () Check
 (X) N/A
- 1 4 Place adjustable seat backs in the manufacturer's nominal design riding position in the manner specified by the manufacturer
 () Check
 (X) N/A
- 1 5 Place any adjustable anchorages at the manufacturer's nominal design position for a 50th percentile adult male (50M) occupant. This information will be furnished by the COTR
 () Check
 (X) N/A
- 1 6 Place each adjustable head restraint in its highest adjustment position.
 () Check
 (X) N/A

Seat Belt Comfort and Convenience Data (Cont.)

2 **LATCHPLATE ACCESS (S7.4.4)**

Test Vehicle NHTSA No C15200

Vehicle Model Year/Make/Model/Body Style: 2001/Nissan/Altima/4 Door

Designated Seating Position Tested: **Not applicable - passenger car**

Date of Comfort/Convenience Check: _____

Technician Performing Check: _____

GVWR _____

Test all front outboard seat belts other than those in walk-in van-type vehicles and those at front outboard designated seating positions in passenger cars. Complete a form for each applicable seat belt.

- 2 1 Position the seat in its forward most adjustment position
() Check
- 2 2 Position the test dummy using the procedures in Appendix B. (Some modifications to the positioning procedure may need to be made because the seat is in its forward most position.)
() Check
- 2 3 Position the adjustable seat belt anchorage in the manufacturer's nominal design position for a 50th percentile adult male occupant.
() Check
- 2 4 Attach the inboard and outboard reach string following the instructions on Figure 1C.
() Check
- 2 5 Place the latch plate in the stowed position.
() Check
- 2 6 Extend each line backward and outboard to generate arcs of the reach envelope of the test dummy's arms. Is the latch plate within the reach envelope?
() Yes-Pass () **No-FAIL**
- 2 7 Using the clearance test block, specified in Figure 2C, is there sufficient clearance between the vehicle seat and the side of vehicle interior to allow the test block to move unhindered to the latch plate or buckle?
() Yes-Pass () **No-FAIL**

Seat Belt Comfort and Convenience Data (Cont)

3 RETRACTION (S7.4.5)

Test Vehicle NHTSA No C15200

Vehicle Model Year/Make/Model/Body Style 2001/Nissan/Altima/4 Door

Designated Seating Position Tested Not applicable - passenger car

Date of Comfort/Convenience Check: _____

Technician Performing Check: _____

GVWR _____

Test all front outboard seat belts other than those in walk-in van-type vehicles and those at front outboard designated seating positions in passenger cars. Complete a form for each applicable seat belt.

- 3 1 Is the vehicle a passenger car or walk-in van-type vehicle?
() Yes If yes, go to seat belt guides and hardware
() No
- 3 2 Adjustable seats are in the adjustment position midway between the forward most and rearmost positions. If an adjustment position does not exist midway between the forward most and rearmost positions, the next closest adjustment position to the rear of the midpoint is used. (S8.1 2)
() Check
- 3 3 If separately adjustable in a vertical direction, the seats are at the lowest position.
() Check
- 3 4 Place adjustable seat backs in the manufacturer's nominal design riding position in the manner specified by the manufacturer.
() Check
- 3 5 Place any adjustable anchorages at the manufacturer's nominal design position for a 50th percentile adult male (50M) occupant. This information will be furnished by the COTR
() Check
- 3 6 Place each adjustable head restraint in its highest adjustment position
() Check
- 3 7 Adjustable lumbar supports are positioned so that the lumbar support is in its lowest adjustment position (S8 1 3)
() Check

Seat Belt Comfort and Convenience Data (Cont.)

- 3 8 Use anthropomorphic test dummies whose arms have been removed and position the dummies in the front outboard designated seating positions according to instructions in Appendix B
() Check
- 3 9 Restrain the dummies using the belt systems for the position being tested
() Check
- 3 10 Stow outboard armrests which are capable of being stowed.
() Check
- 3 11 Check the statement that applies to this test vehicle:
- (A) The torso and lap belt webbing of the seat belt system automatically retracts to a stowed position when the adjacent vehicle door is in an open position and the seat belt latch plate is released.
() Pass
- (B) The torso and lap belt webbing of the seat belt system automatically retracts when the seat belt latch plate is released.
() Pass
- (C) Neither A or B apply
() **FAIL**
- 3 12 With the webbing and hardware in the stowed position are the webbing and hardware prevented from being pinched when the door is closed?
() Yes - Pass
() **No - FAIL**
- 3 13 If this test vehicle has an open body (without doors) and has a seat belt system with a tension-relieving device, does the belt system fully retract when the tension-relieving device is deactivated?
() N/A
() Yes - Pass
() **No - FAIL**

Seat Belt Comfort and Convenience Data (Cont.)

4 SEAT BELT GUIDES AND HARDWARE (S7.4.6)

Test Vehicle NHTSA No. C15200

Vehicle Model Year/Make/Model/Body Style 2001/Nissan/Altima/4 Door

Designated Seating Position Tested Left Rear

Date of Comfort/Convenience Check. April 9, 2001

Technician Performing Check: Chad Gadberry

GVWR: 3990 lb

Test seat belts except those in walk-in van-type vehicles and those at front outboard designated seating positions in passenger cars. Complete a form for each applicable seat belt

The requirements for accessibility **DO NOT APPLY** to:

- A Seats whose seat cushions are movable so that the seat back serves a function other than seating (S7 4 6 1(b))
- B Seats which are removable
- C Seats which are movable so that the space formerly occupied by the seat can be used for a secondary function

If the seats in this vehicle are different than the criteria above determine the following:

- 4 1 Is the webbing designed to pass through the seat cushion or between the seat cushion and seat back?

☒ Yes - Go to 4 2.

☐ No - this form is complete

- 4 2 Does one of the following three parts, the seat belt latch plate, the buckle, or the seat belt webbing, stay on top of or above the seat cushion under normal conditions (i.e., conditions other than when belt hardware is intentionally pushed behind the seat by a vehicle occupant)?

☒ Yes - Pass

☐ No - **FAIL**

- 4 3 Are the remaining two seat belt parts accessible under normal conditions?

☒ Yes - Pass

☐ No - **FAIL**

Seat Belt Comfort and Convenience Data (Cont.)

4 4 The buckle and latch plate do not pass through the guides or conduits provided and fall behind the seat when the following events occur in order

(A) The belt is completely retracted or, if the belt is nonretractable, the belt is unlatched. (X) Check

(B) The seat is moved to any position to which it is designed to be adjusted (X) Check

(C) The seat back, if foldable, is folded forward as far as possible and then moved backward into position (X) Check

(X) Yes - Pass

() No - FAIL

4 5 Is the inboard receptacle end of the seat belt assembly, installed in the outboard designated seating position, accessible with the center arm rest in any position to which it can be adjusted (without moving the armrest)?

(X) Yes - Pass

() No - FAIL

Seat Belt Comfort and Convenience Data (Cont.)

4 **SEAT BELT GUIDES AND HARDWARE (S7.4.6)**

Test Vehicle NHTSA No C15200

Vehicle Model Year/Make/Model/Body Style 2001/Nissan/Altima/4 Door

Designated Seating Position Tested Center Rear

Date of Comfort/Convenience Check April 9, 2001

Technician Performing Check. Chad Gadberry

GVWR 3990 lb

Test seat belts except those in walk-in van-type vehicles and those at front outboard designated seating positions in passenger cars. Complete a form for each applicable seat belt.

The requirements for accessibility **DO NOT APPLY** to:

- A Seats whose seat cushions are movable so that the seat back serves a function other than seating (S7.4.6.1(b))
- B Seats which are removable
- C Seats which are movable so that the space formerly occupied by the seat can be used for a secondary function

If the seats in this vehicle are different than the criteria above determine the following

- 4 1 Is the webbing designed to pass through the seat cushion or between the seat cushion and seat back?
 (X) Yes - Go to 4 2
 () No - this form is complete
- 4 2 Does one of the following three parts, the seat belt latch plate, the buckle, or the seat belt webbing, stay on top of or above the seat cushion under normal conditions (i.e., conditions other than when belt hardware is intentionally pushed behind the seat by a vehicle occupant)?
 (X) Yes - Pass
 () No - FAIL
- 4 3 Are the remaining two seat belt parts accessible under normal conditions?
 (X) Yes - Pass
 () No - FAIL

Seat Belt Comfort and Convenience Data (Cont.)

- 4 4 The buckle and latch plate do not pass through the guides or conduits provided and fall behind the seat when the following events occur in order
- (A) The belt is completely retracted or, if the belt is nonretractable, the belt is unlatched (X) Check
 - (B) The seat is moved to any position to which it is designed to be adjusted (X) Check
 - (C) The seat back, if foldable, is folded forward as far as possible and then moved backward into position (X) Check
- (X) Yes - Pass
() No - **FAIL**
- 4 5 Is the inboard receptacle end of the seat belt assembly, installed in the outboard designated seating position, accessible with the center arm rest in any position to which it can be adjusted (without moving the armrest)?
- (X) Yes - Pass
() No - **FAIL**

Seat Belt Comfort and Convenience Data (Cont)

4 **SEAT BELT GUIDES AND HARDWARE (S7.4.6)**

Test Vehicle NHTSA No C15200

Vehicle Model Year/Make/Model/Body Style 2001/Nissan/Altima/4 Door

Designated Seating Position Tested Right Rear

Date of Comfort/Convenience Check. April 9, 2001

Technician Performing Check Chad Gadberry

GVWR 3990 lb

Test seat belts except those in walk-in van-type vehicles and those at front outboard designated seating positions in passenger cars. Complete a form for each applicable seat belt

The requirements for accessibility **DO NOT APPLY** to.

- A Seats whose seat cushions are movable so that the seat back serves a function other than seating (S7.4.6 1(b))
- B Seats which are removable.
- C Seats which are movable so that the space formerly occupied by the seat can be used for a secondary function

If the seats in this vehicle are different than the criteria above determine the following:

- 4 1 Is the webbing designed to pass through the seat cushion or between the seat cushion and seat back?
 (X)Yes - Go to 4.2.
 () No - this form is complete
- 4 2 Does one of the following three parts, the seat belt latch plate, the buckle, or the seat belt webbing, stay on top of or above the seat cushion under normal conditions (i.e., conditions other than when belt hardware is intentionally pushed behind the seat by a vehicle occupant)?
 (X)Yes - Pass
 () No - FAIL
- 4 3 Are the remaining two seat belt parts accessible under normal conditions?
 (X)Yes - Pass
 () No - FAIL

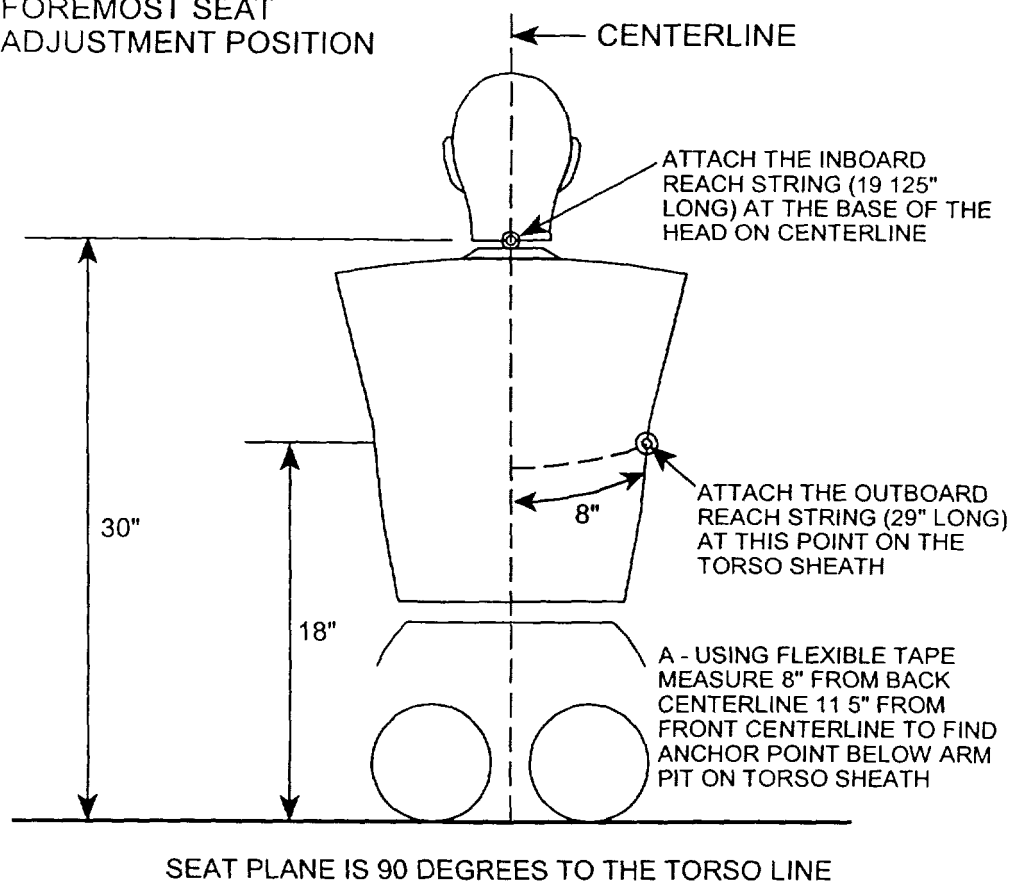
Seat Belt Comfort and Convenience Data (Cont)

- 4 4 The buckle and latch plate do not pass through the guides or conduits provided and fall behind the seat when the following events occur in order
- (A) The belt is completely retracted or, if the belt is nonretractable, the belt is unlatched (X) Check
 - (B) The seat is moved to any position to which it is designed to be adjusted (X) Check
 - (C) The seat back, if foldable, is folded forward as far as possible and then moved backward into position. (X) Check
- (X) Yes - Pass
() No - **FAIL**
- 4 5 Is the inboard receptacle end of the seat belt assembly, installed in the outboard designated seating position, accessible with the center arm rest in any position to which it can be adjusted (without moving the armrest)?
- (X) Yes - Pass
() No - **FAIL**

**LOCATION OF ANCHORING POINTS FOR
LATCHPLATE REACH LIMITING CHAINS OR STRINGS
TO TEST FOR LATCHPLATE ACCESSIBILITY**

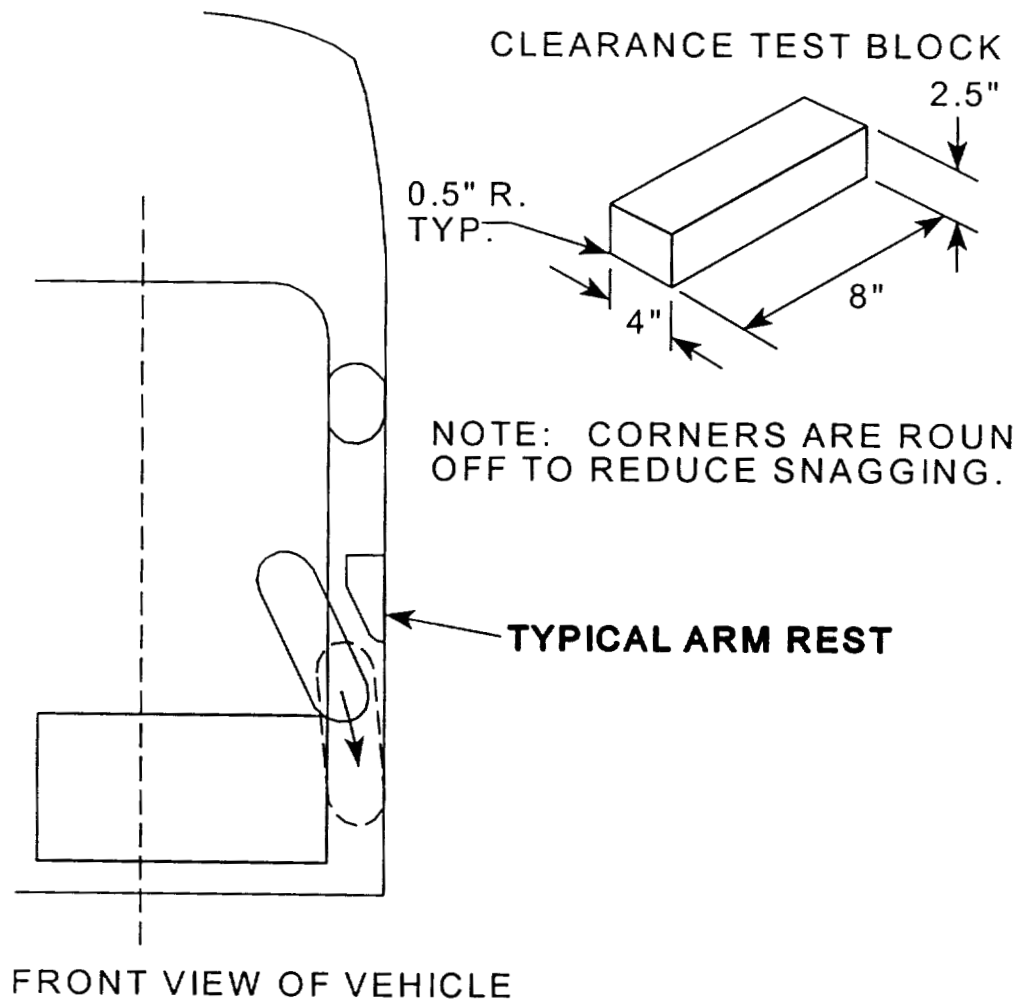
PART 572E DUMMY

50TH PERCENTILE
DUMMY SEATED IN
FOREMOST SEAT
ADJUSTMENT POSITION



REAR VIEW

USE OF CLEARANCE TEST BLOCK TO DETERMINE HAND/ARM ACCESS



APPENDIX A
PHOTOGRAPHS

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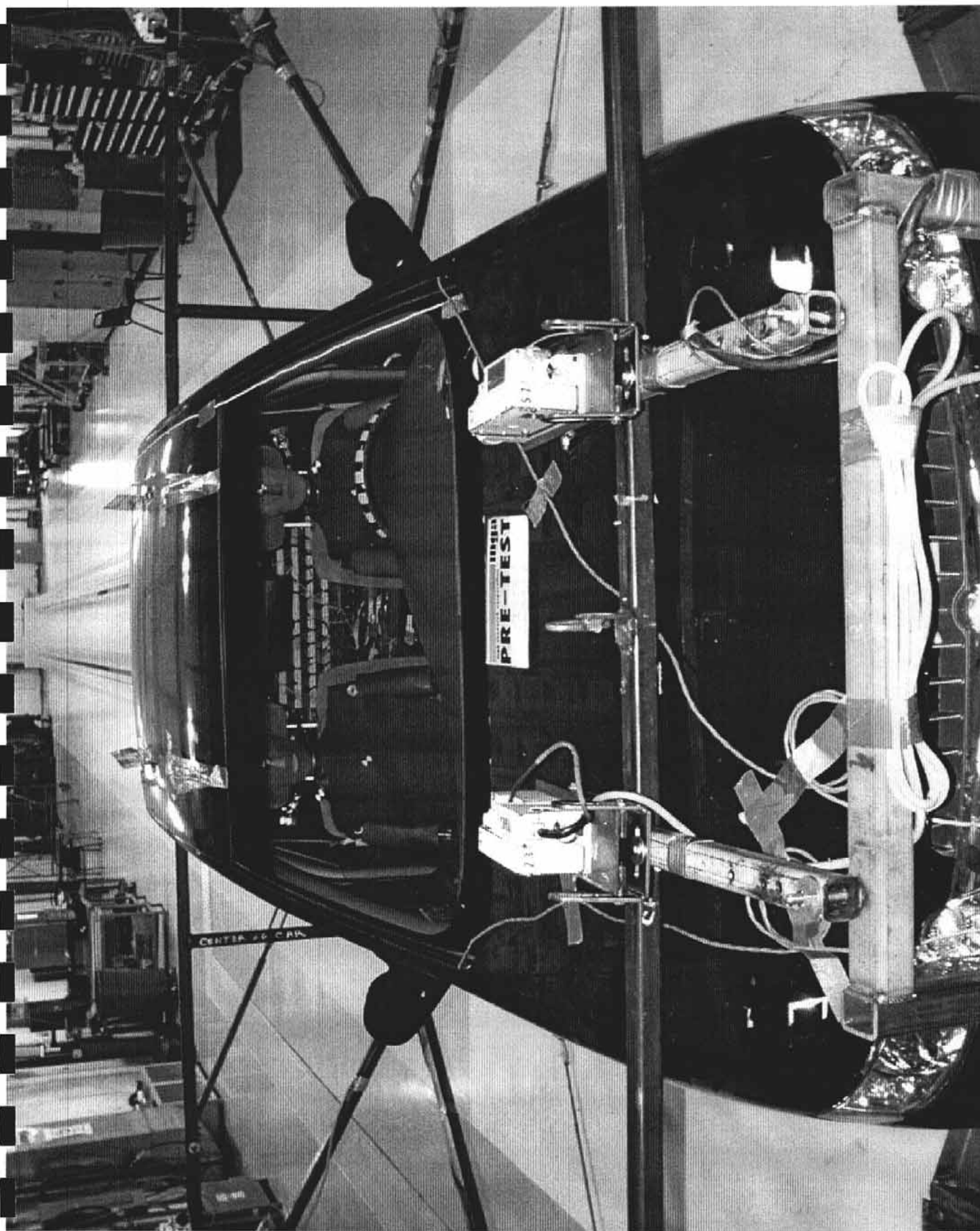


Photo No. A-1 - Pre-Test Frontal View

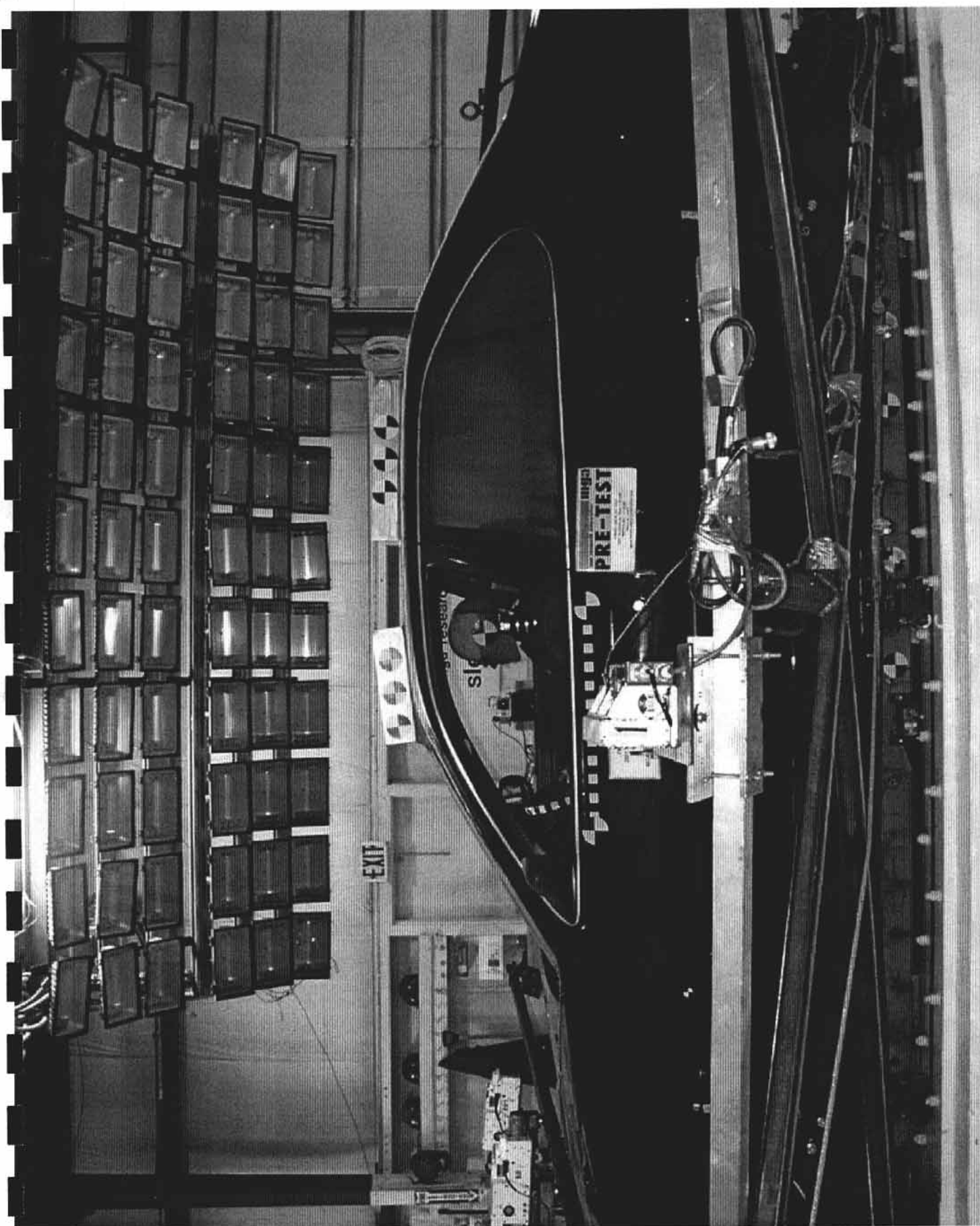


Photo No. A-2 - Pre-Test Left Side View

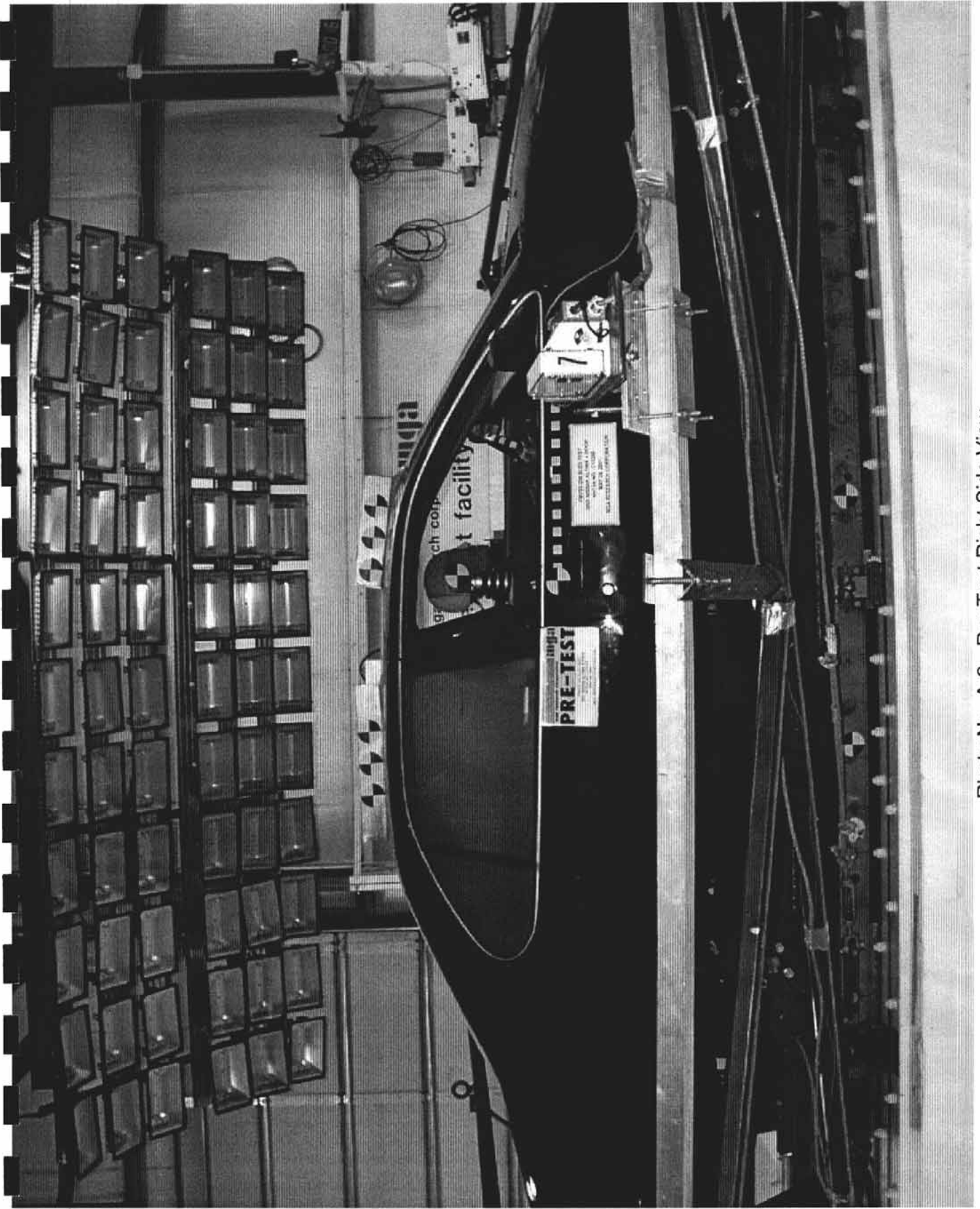


Photo No. A-3 - Pre-Test Right Side View

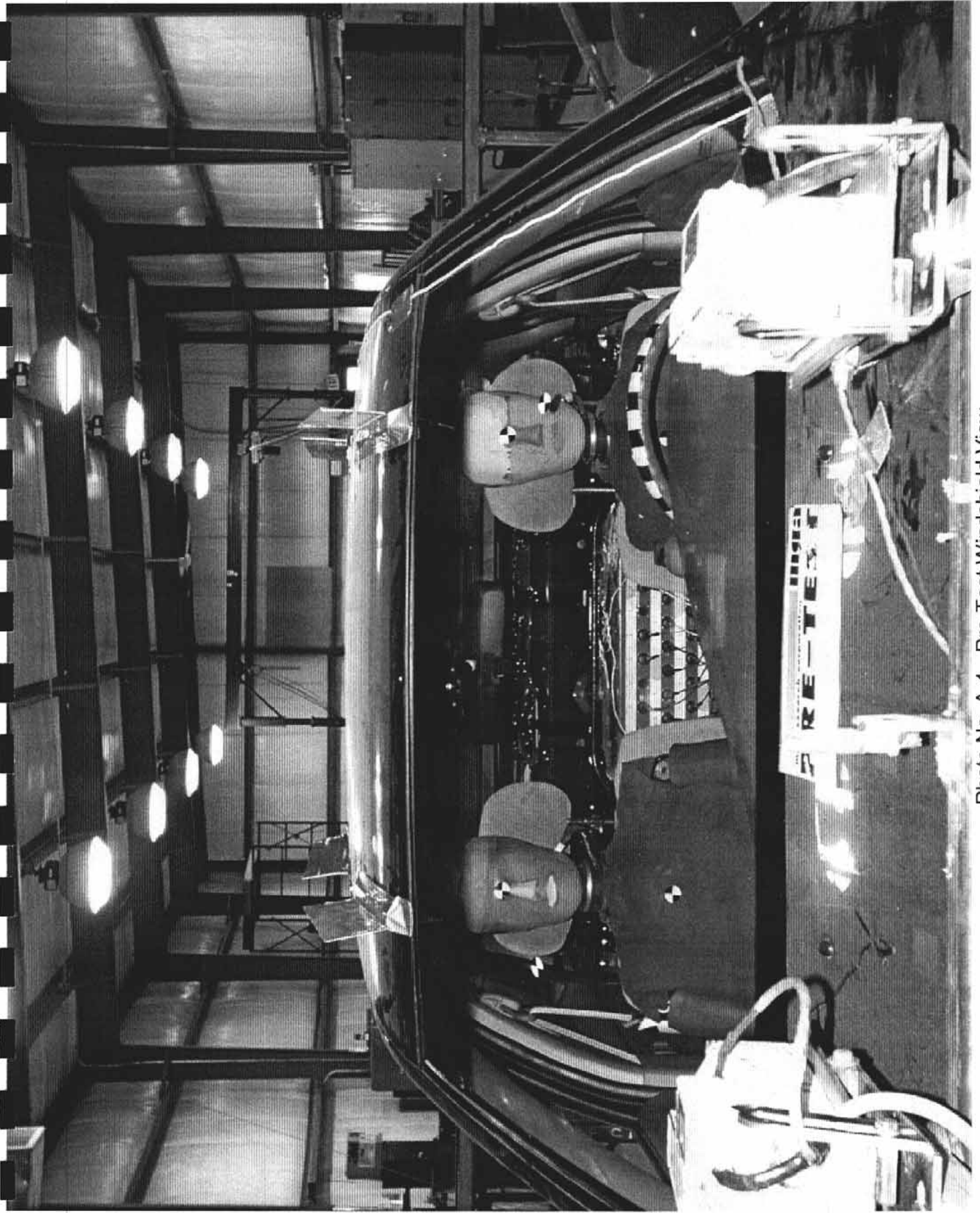


Photo No. A-4 - Pre-Test Windshield View



Photo No. A-5 - Post-Test Windshield View

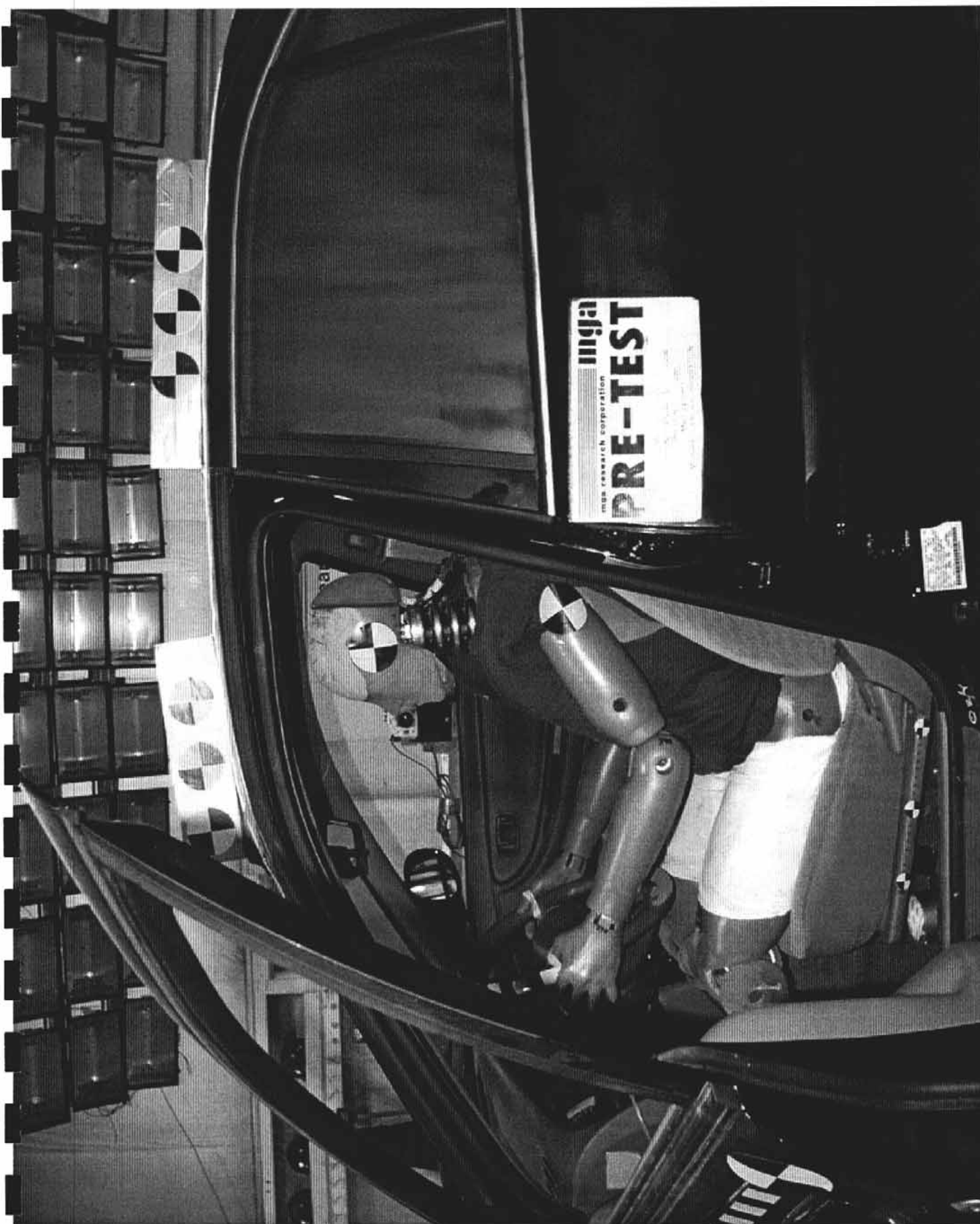


Photo No. A-6 - Pre-Test Driver Dummy Position View (Door Open)



Photo No. A-7 - Post-Test Driver Dummy Position View (Door Open)

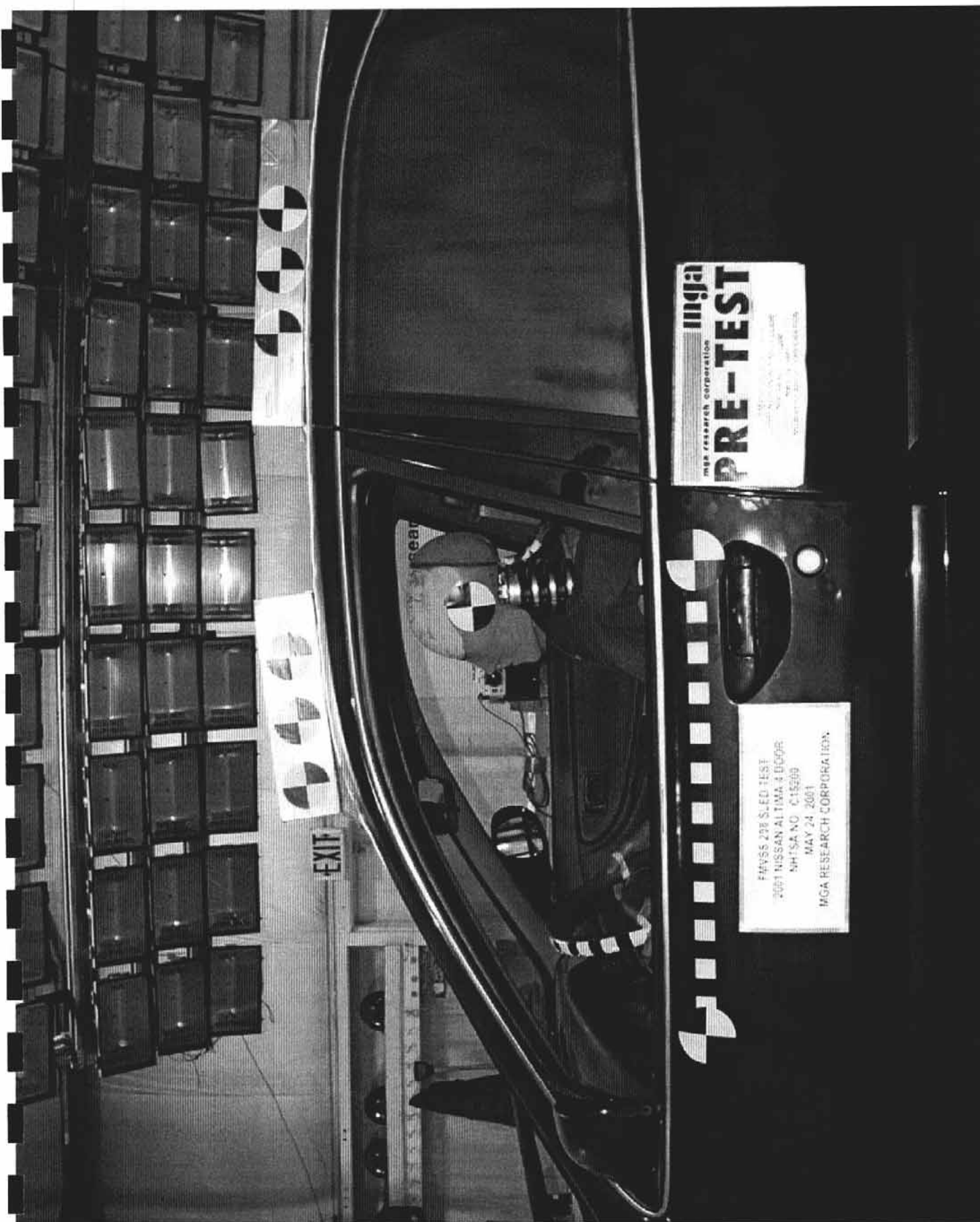


Photo No. A-8 - Pre-Test Driver Dummy Position View

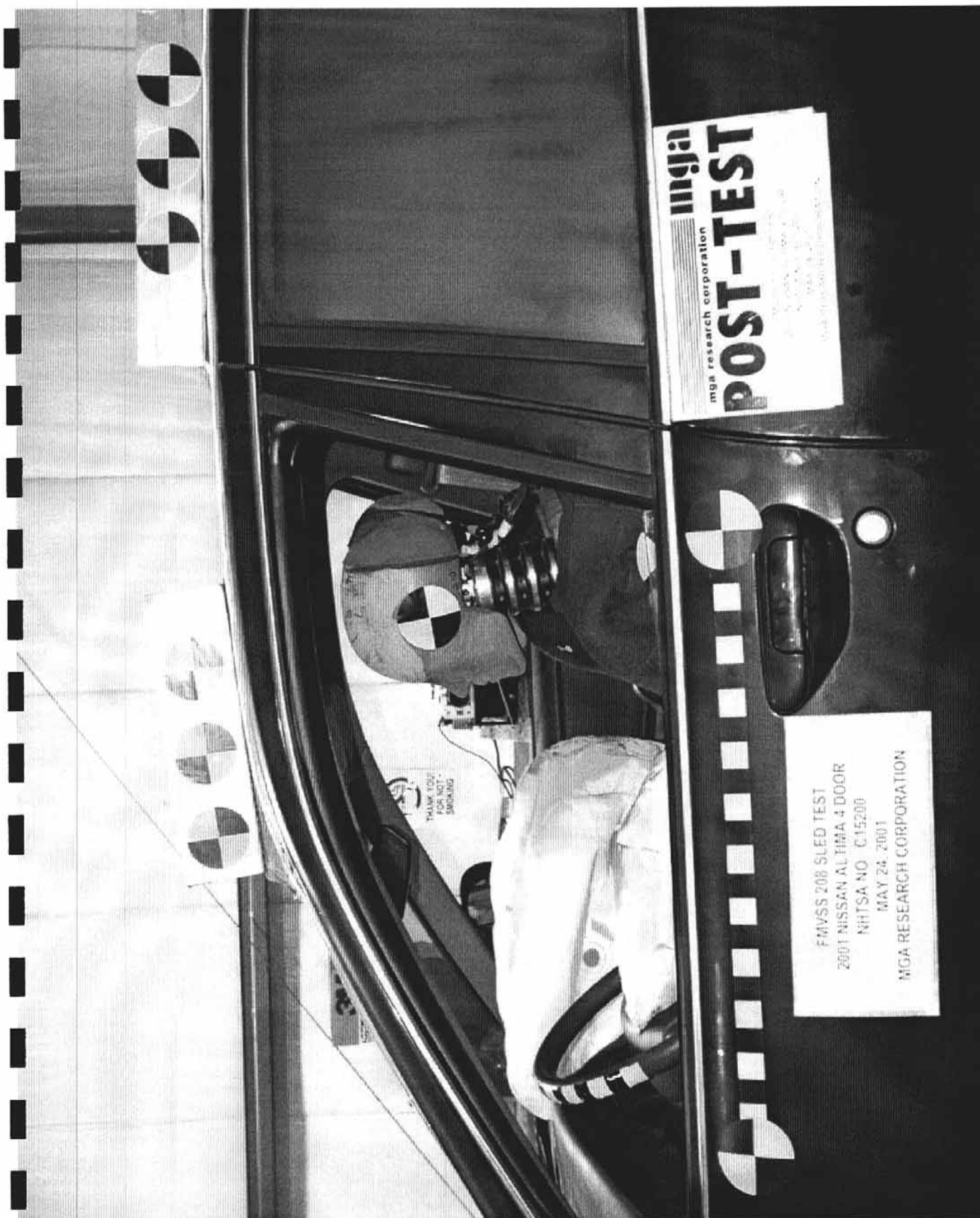


Photo No. A-9 - Post-Test Driver Dummy Position View



Photo No. A-10 - Pre-Test Passenger Dummy Position View (Door Open)



Photo No. A-11 - Post-Test Passenger Dummy Position View (Door Open)



Photo No. A-12 - Pre-Test Passenger Dummy Position View

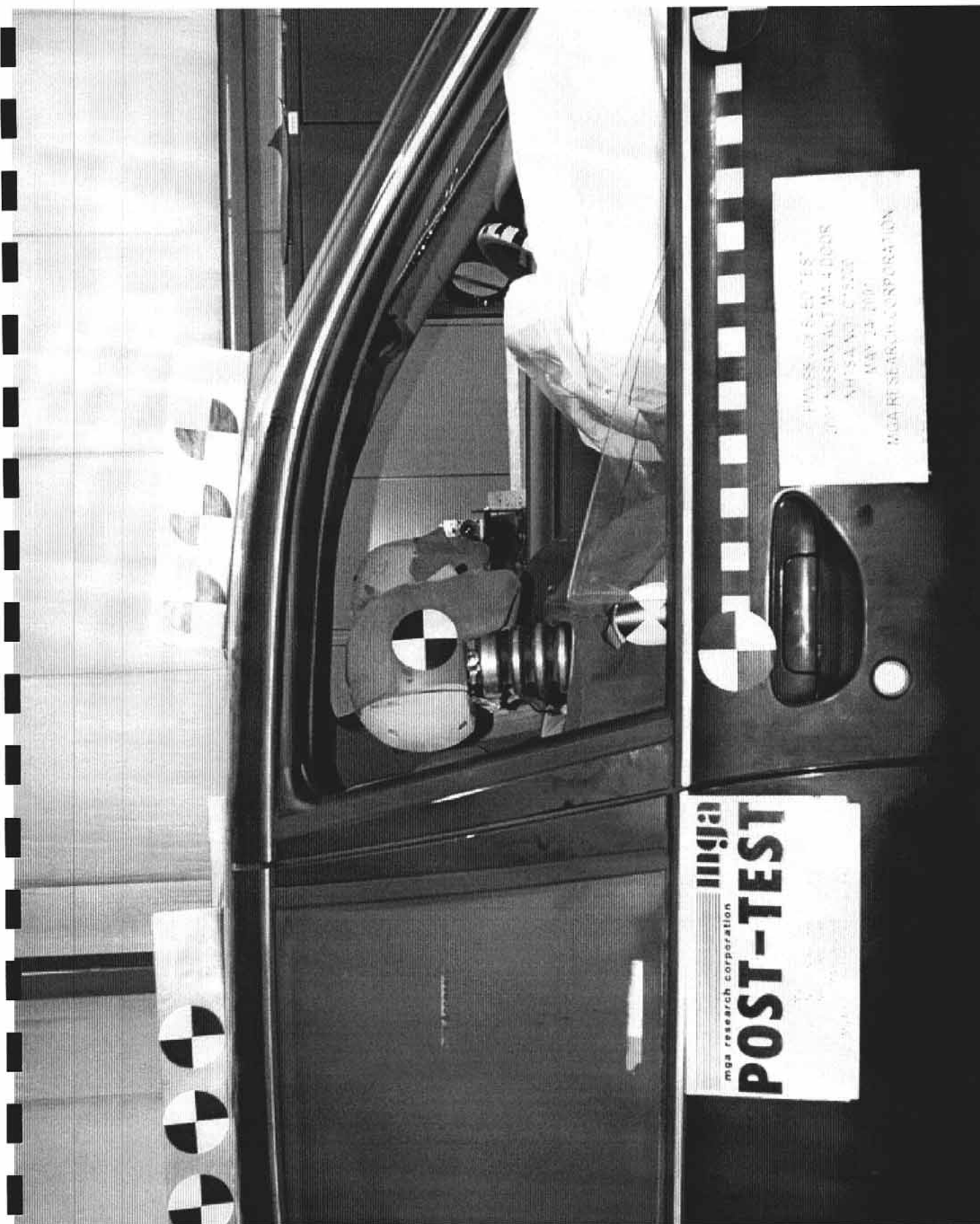


Photo No. A-13 - Post-Test Passenger Dummy Position View



Photo No. A-14 - Post-Test Driver Airbag View

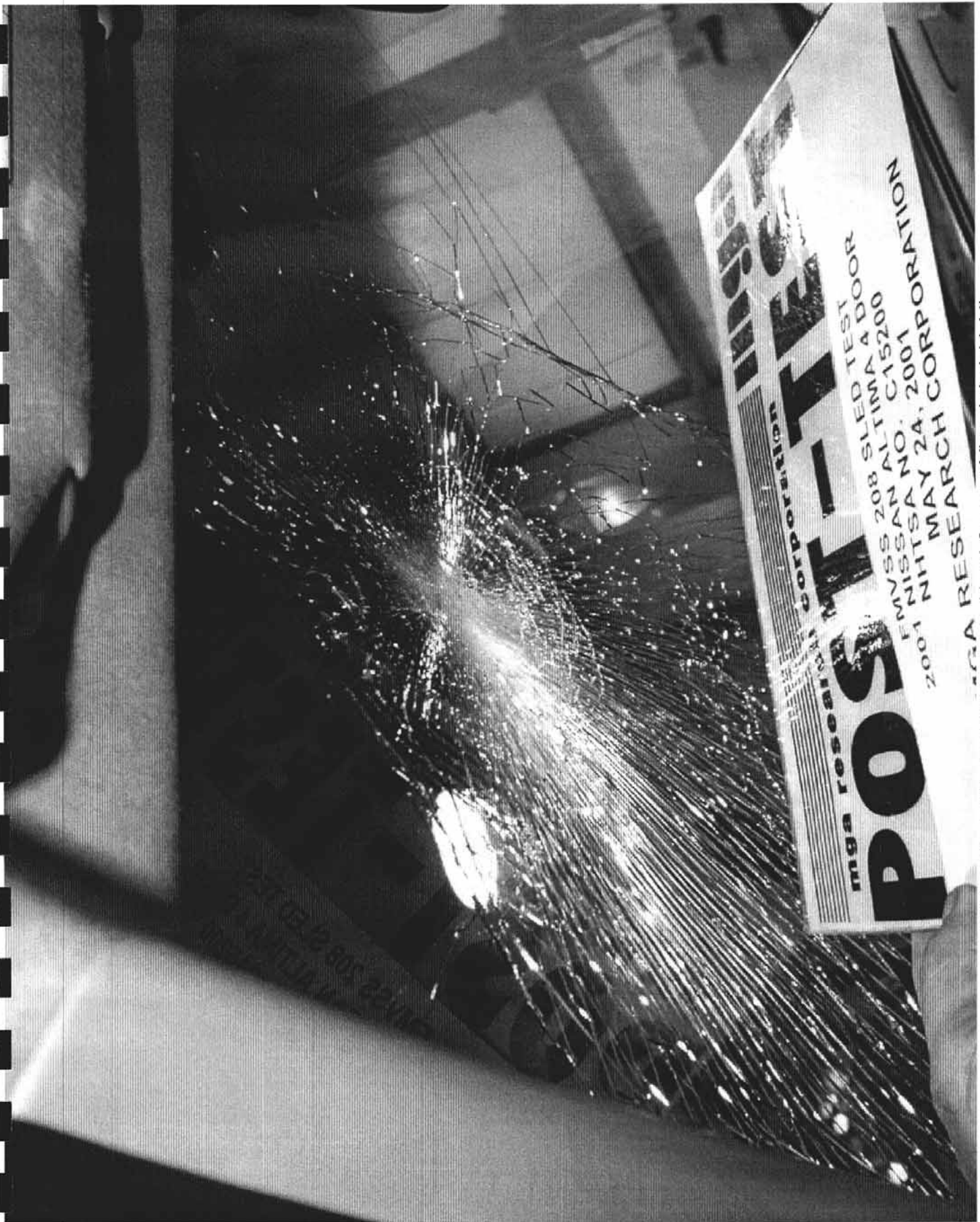


Photo No. A-15 - Post-Test Driver Head Contact View (windshield)

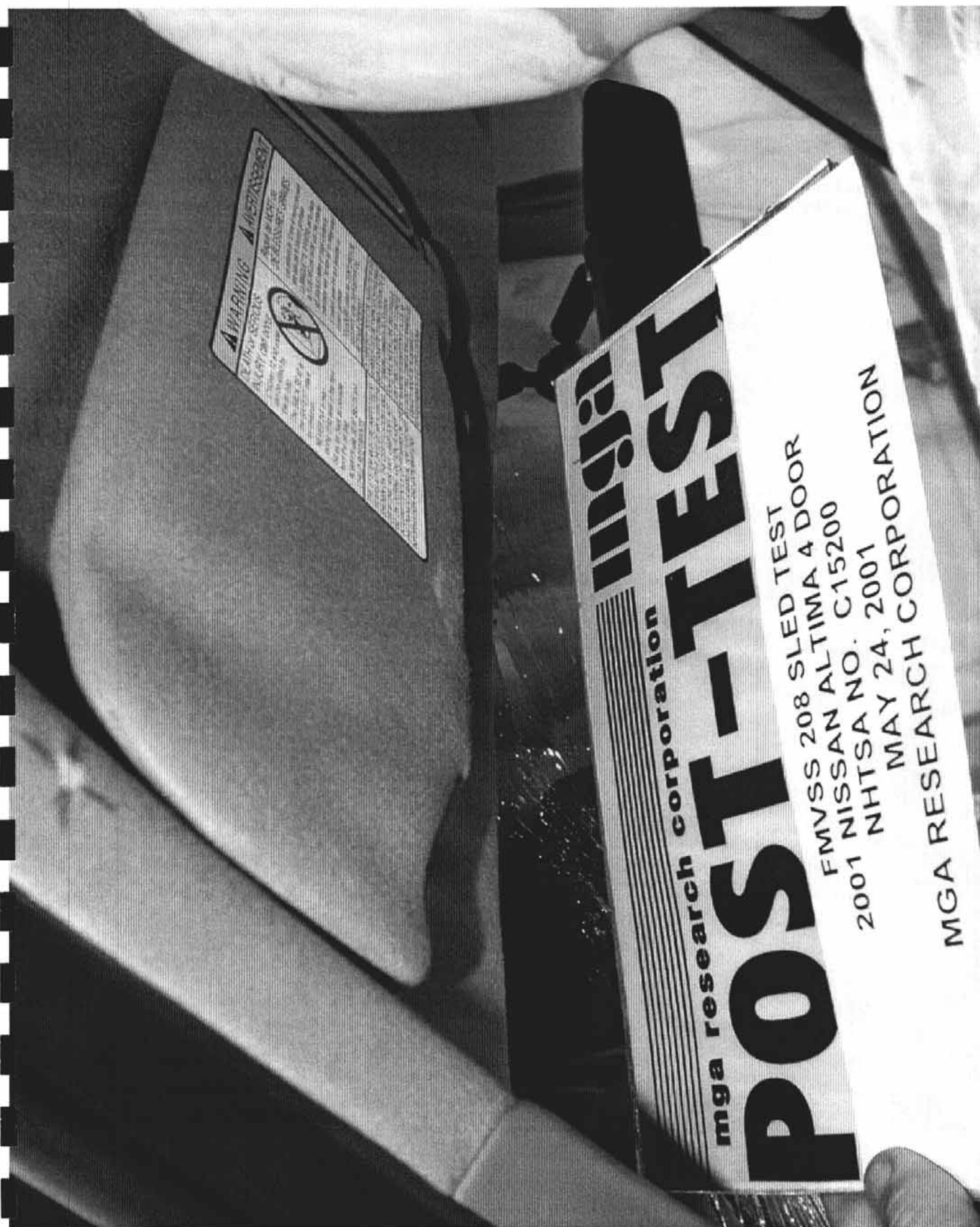


Photo No. A-16 - Post-Test Driver Head Contact View (visor)



Photo No. A-17 - Post-Test Driver Head Contact View (headrest)



Photo No. A-18 - Post-Test Passenger Airbag View

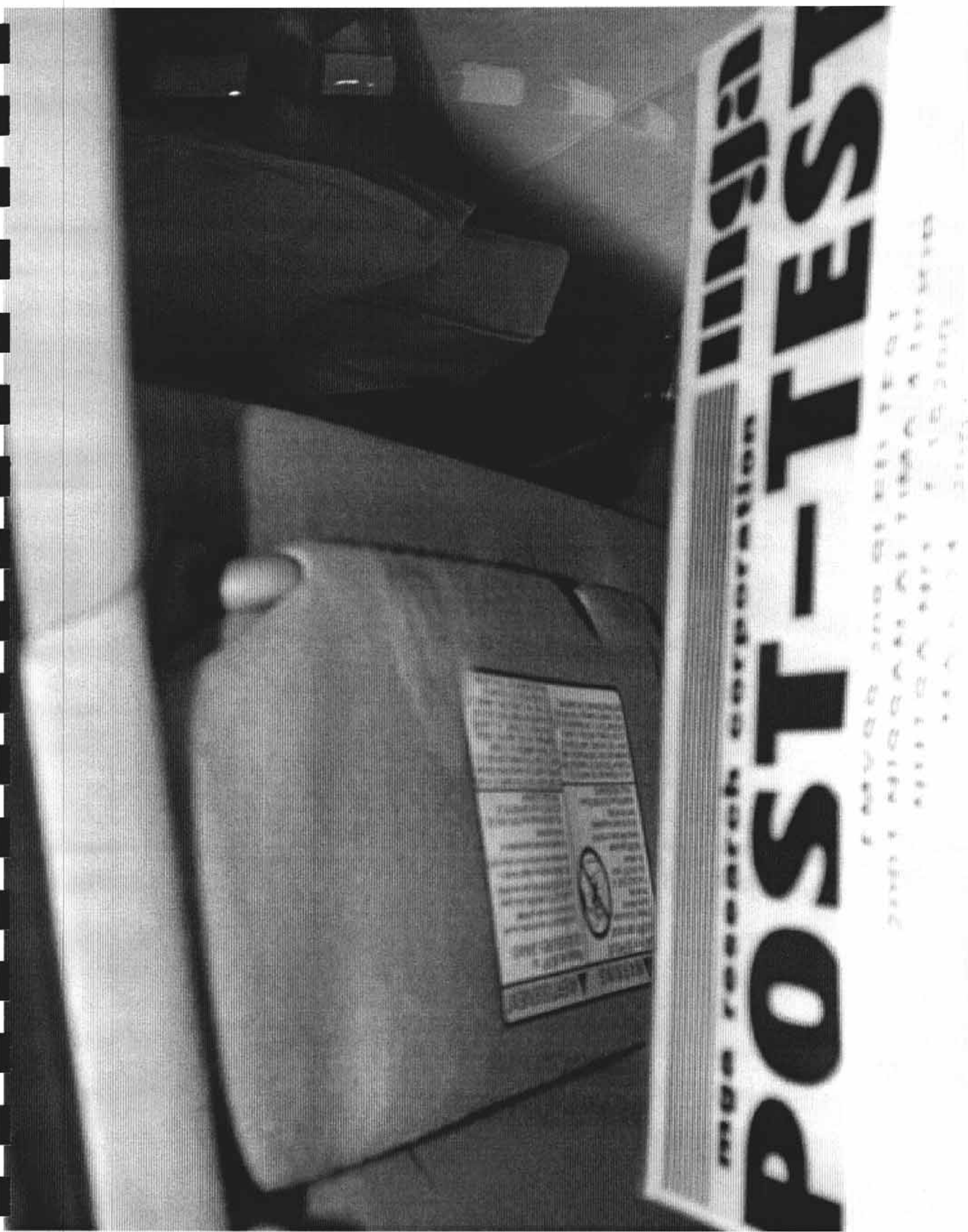
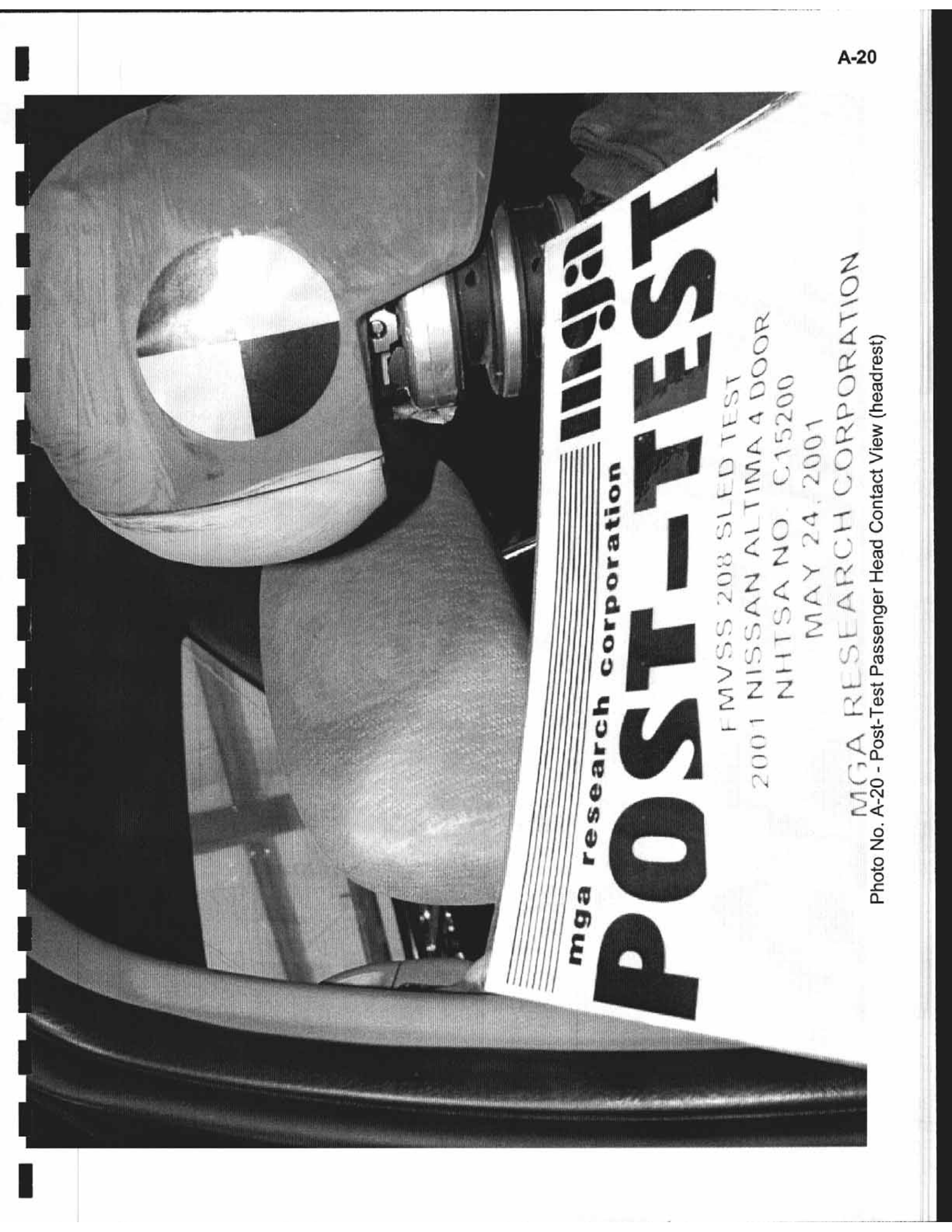


Photo No. A-19 - Post-Test Passenger Head Contact View (visor)



mga research corporation

POST-TEST

FMVSS 208 SLED TEST
2001 NISSAN ALTIMA 4 DOOR
NHTSA NO. C15200
MAY 24, 2001

MGA RESEARCH CORPORATION

Photo No. A-20 - Post-Test Passenger Head Contact View (headrest)



Photo No. A-21 - Pre-Test Driver Knee Bolster View

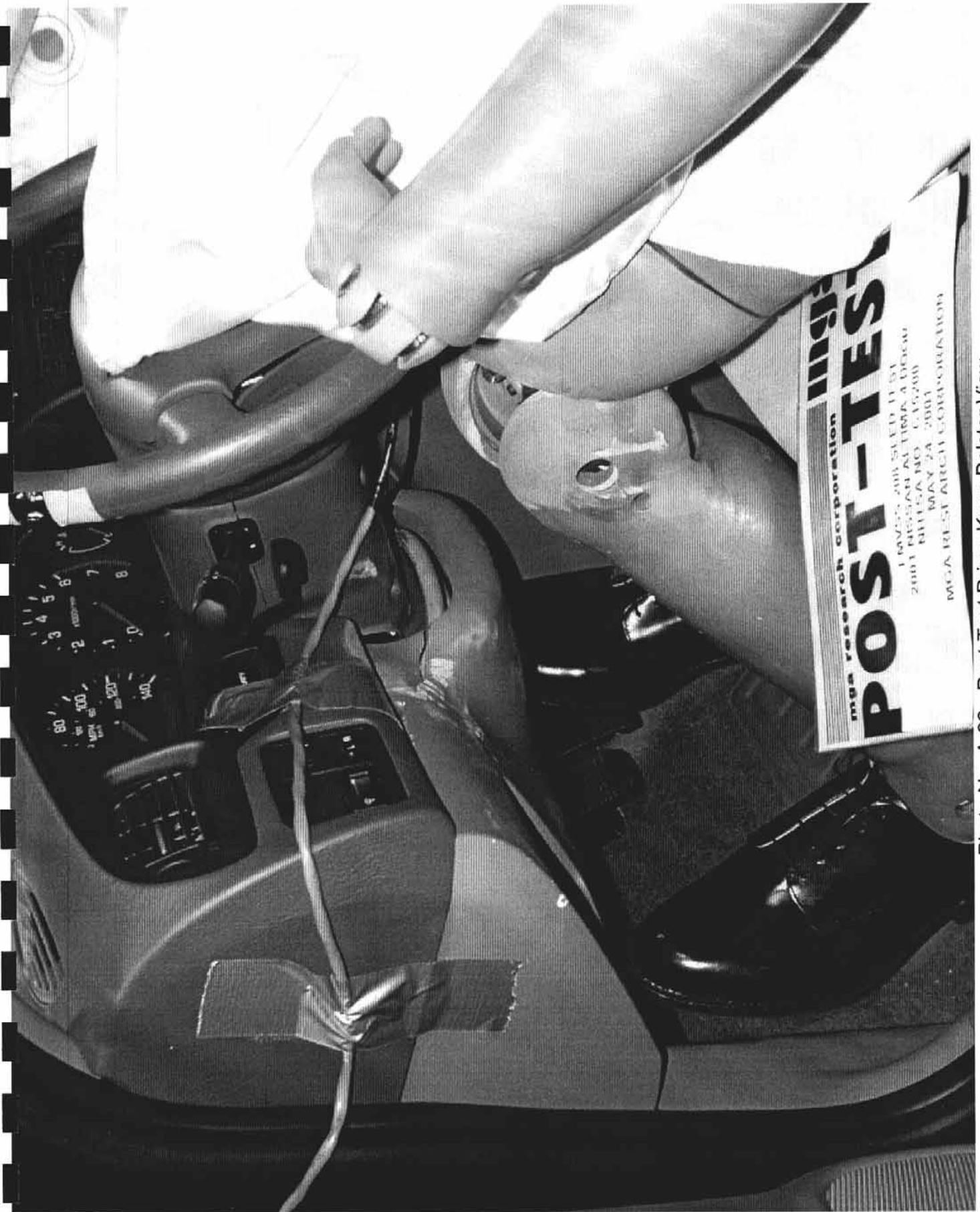


Photo No. A-22 - Post-Test Driver Knee Bolster View



Photo No. A-23 - Pre-Test Passenger Knee Bolster View



Photo No. A-24 - Post-Test Passenger Knee Bolster View



Photo No. A-25 - Pre-Test Driver Seat Position View

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POST-TEST

FMVSS 208 SLED TEST
2001 NISSAN ALTIMA 4 DOOR
NHTSA NO. C15200

MAY 24, 2001

MGA RESEARCH CORPORATION

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



Photo No. A-27 - Pre-Test Passenger Seat Position View



Photo No. A-28 - Post-Test Passenger Seat Position View

MANUFACTURED BY NISSAN MOTOR CO., LTD.

DATE	10/00	GVWR	3990 LB
GVWR FR.	2152 LB	GVWR RR.	1863 LB

THIS VEHICLE CONFORMS TO ALL APPLICABLE FEDERAL MOTOR
VEHICLE SAFETY, BUMPER AND THEFT PREVENTION STANDARDS
IN EFFECT ON THE DATE OF MANUFACTURE SHOWN ABOVE.
SEE OWNERS MANUAL FOR ADDITIONAL INFORMATION.

UTN:	1N4DL01D81C130902	PASSENGER CAR	ENGINE
COLOR	TRIM	TRANS	AXLE
KH3	K	R55F50A	F536
			477
			02000

MODEL: BBGALHF-EUR



1N4DL01D81C130902

VEHICLE CAPACITY WEIGHT	390kg	SEATING CAPACITY	FRONT 2 AVANT	TOTAL TOTAL	SPARE TIRE ROUE DE SECOURS	psi
POIDS UTILE DU VEHICULE	860 lbs.	NOMBRE DE PLACES	REAR 3 ARRIERE	5	T125/70D15 T125/70R15	420 60
RECOMMENDED COLD TIRE INFLATION PRESSURE. PRESSION DE GONFLAGE RECOMMANDEE DES PNEUS FROIDS.						
TIRE SIZE DIMENSIONS	FRONT AVANT	REAR ARRIERE				
P195/65R15	210 kPa	30 psi	200 kPa	29 psi	DO NOT USE IN EXCESS OF 50 MPH, 80 km/h. SEE OWNER'S MANUAL FOR ADDITIONAL INFORMATION. UTILISATION A UNE VITESSE MAX 50 MPH, 80 km/h. POUR LES DETAILS SE REFERER AU MANUEL DU CONDUCTEUR.	

9E003

APPENDIX B
DATA PLOTS

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TEST FMVSS 208 SLED (H01080)

TEST DATE 05-24-2001

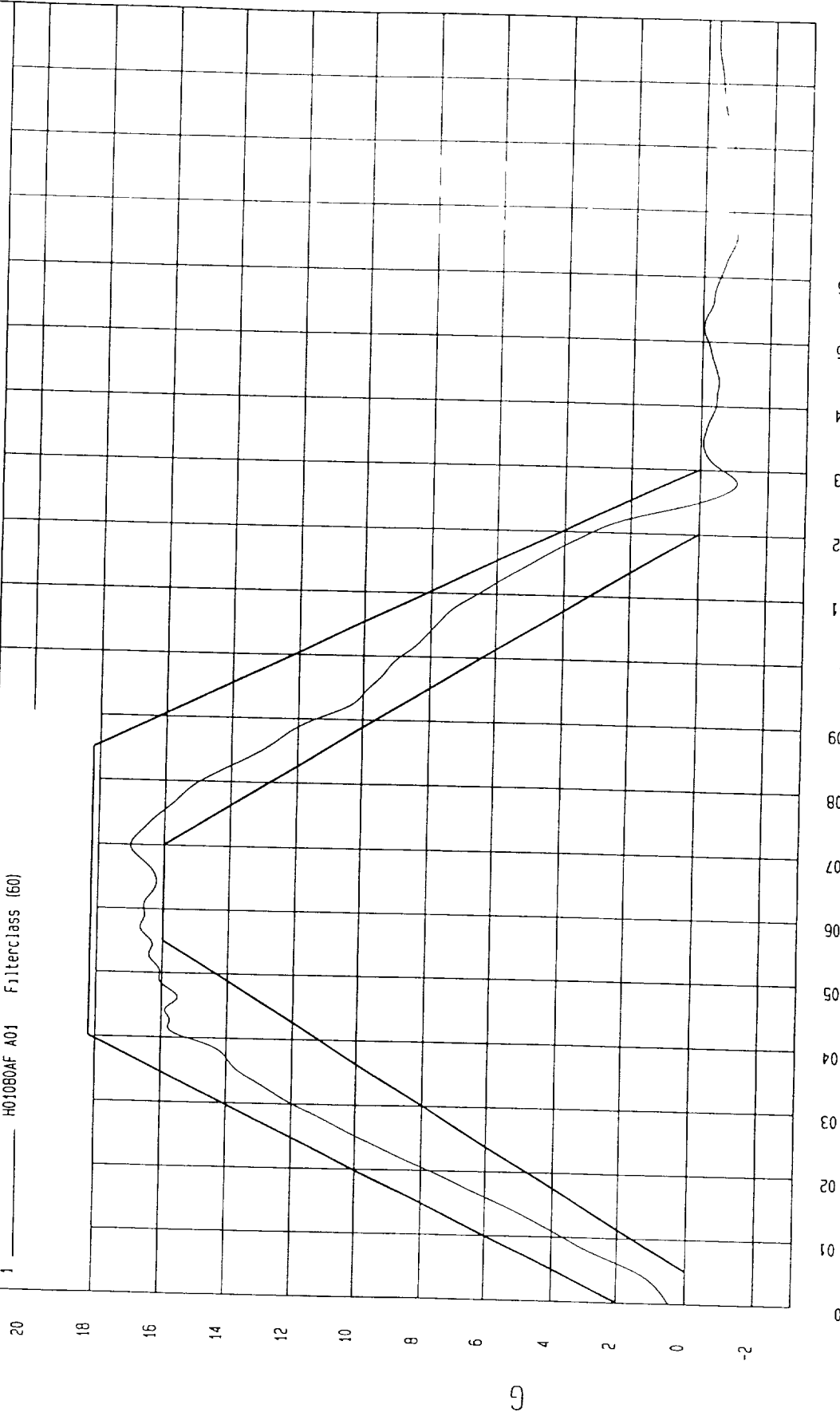
COMPONENT 2001 NISSAN ALTIMA 4 DOOR (C15200)

Minimum = -1.08 G at 128.1 msec

Maximum = 17.03 G at 69.9 msec

SLED X ACCELERATION

1 ——— H01080AF A01 Filterclass (60)



TEST FMVSS 208 SLED (H01080)

TEST DATE 05-24-2001

COMPONENT 2001 NISSAN ALTIMA 4 DOOR (C15200)

Minimum = 0 MPH at 0 msec

Maximum 29.02 MPH at 125 msec

SLED X VELOCITY

1 — H01080A1 V01 Filterclass (60)

30

28

26

24

22

20

18

16

14

12

10

8

6

4

2

0

MPH

01

02

03

04

05

06

07

08

09

10

11

12

13

14

15

16

17

18

19

TIME Seconds

WGA Research
05-24-2001 12:12

TEST FMVSS 208 SLED (H01080)

TEST DATE 05-24-2001

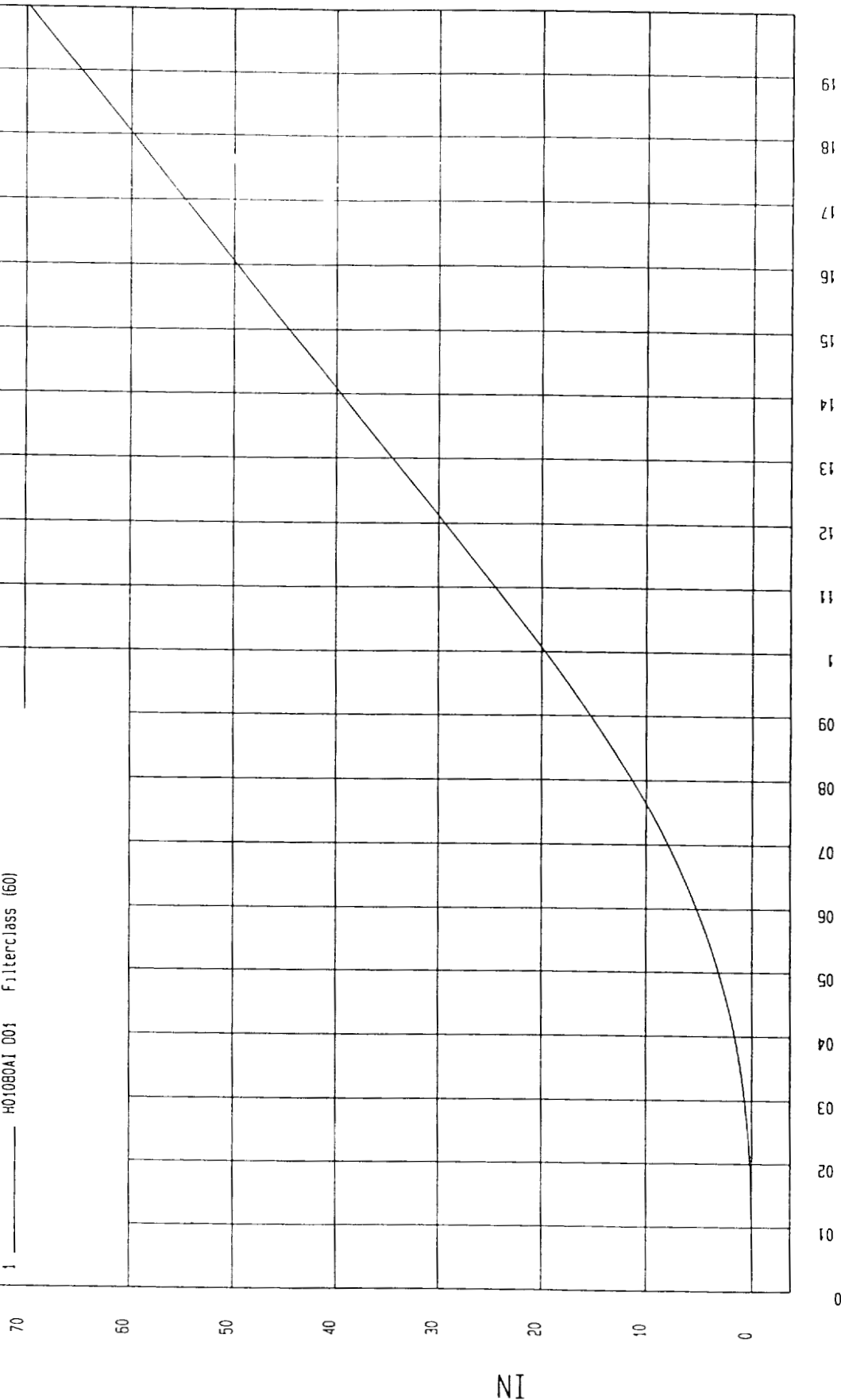
COMPONENT 2001 NISSAN ALTIMA 4 DOOR (C15200)

Minimum 0 IN at 0 msec

Maximum 69.67 IN at 200 msec

SLED X DISPLACEMENT

1 ——— H01080A1 001 FilterClass (60)



TIME Seconds

TIME (SECONDS)

19
18
17
16
15
14
13
12
11
10
9
8
7
6
5
4
3
2
1
0

VOLTS

1 METER TIMING

1 H0108001 010 Filterclass (1000)

Maximum 4.8 VOLTS at 140 msec

Minimum 0.7 VOLTS at 36 msec

COMPONENT 2001 NISSAN ALTIMA 4 DOOR (C15200)

TEST FMVSS 208 SLED (H01080)

TEST DATE 05-24-2001

5

4

3

2

1

0

1

TEST FMVSS 208 SLED (H01080)

TEST DATE 05-24-2001

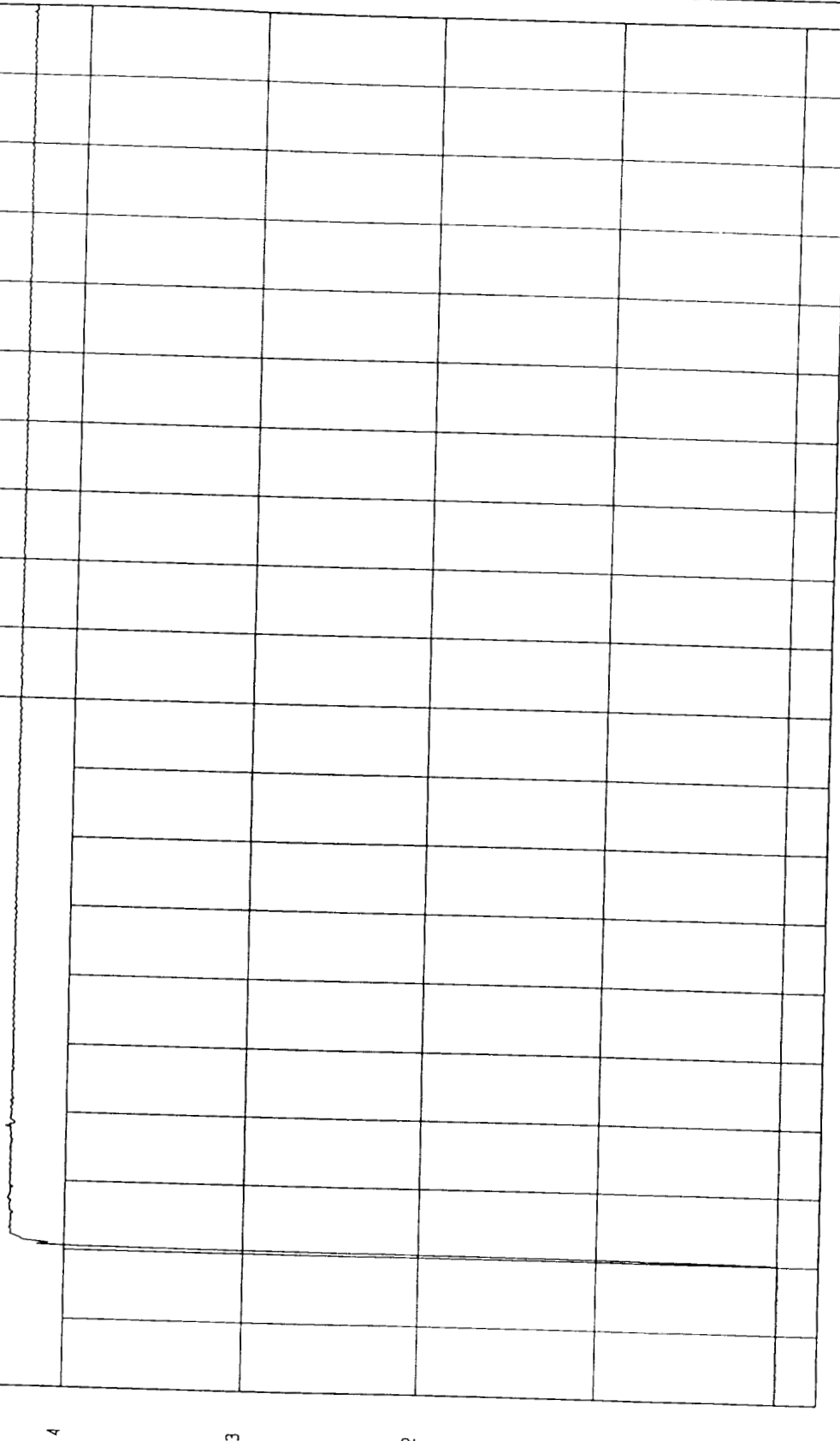
COMPONENT 2001 NISSAN ALTIMA 4 DOOR (C15200)

Minimum 7 70E 03 at 2 msec

Maximum - 4 34 at 38 msec

AIRBAG TIMING

1 H010800T 047 Filterclass (1000)



TIME (SECONDS)

TEST FMVSS 208 SLED (H01080)

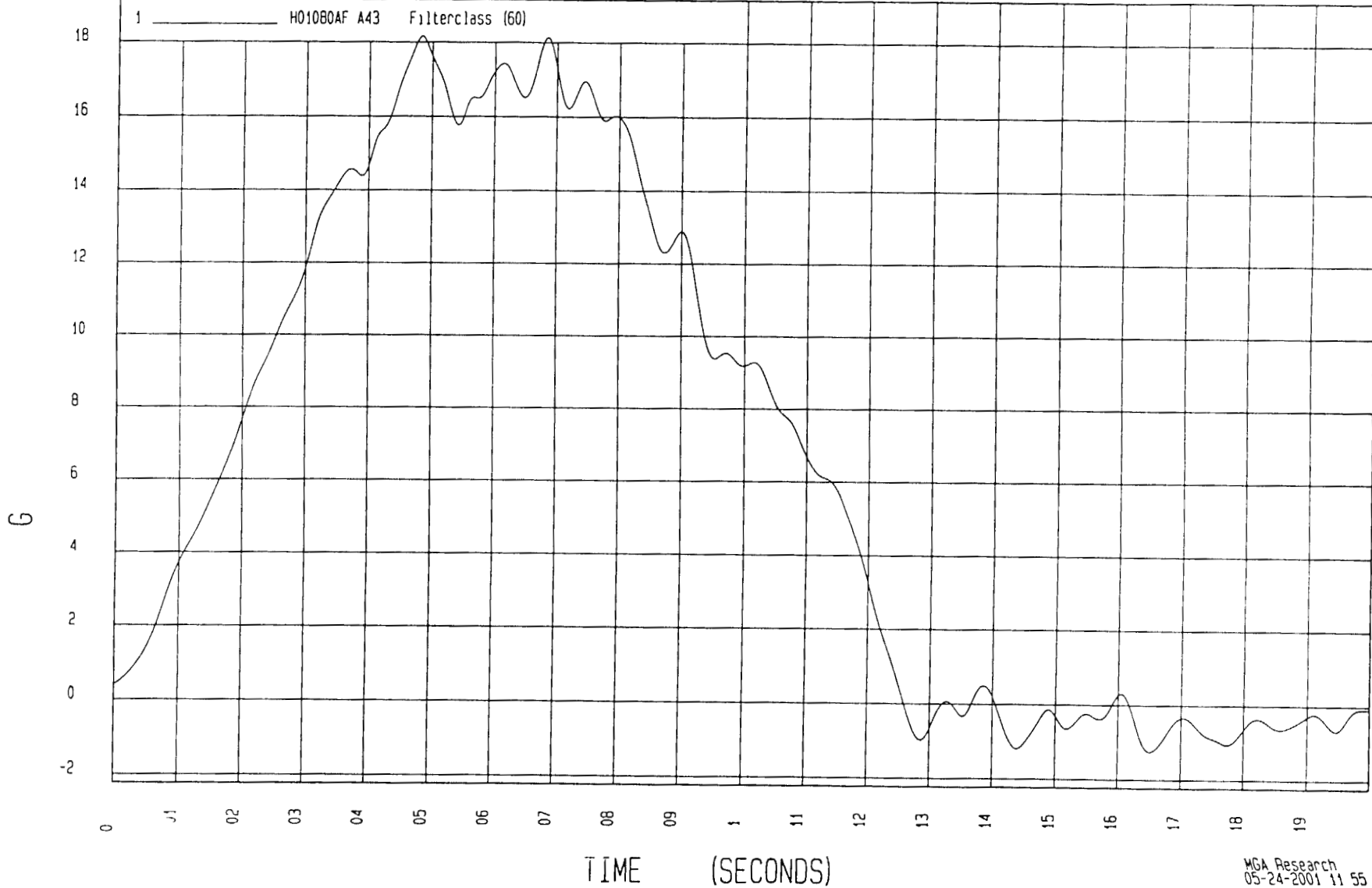
TEST DATE 05-24-2001

COMPONENT 2001 NISSAN ALTIMA 4 DOOR (C15200)

Minimum - 1.25 G at 165 msec

Maximum - 18.16 G at 48 msec

LEFT REAR SEAT CROSSMEMBER X ACCELERATION



MGA Research
05-24-2001 11:55

TEST FMVSS 208 SLED (H01080)

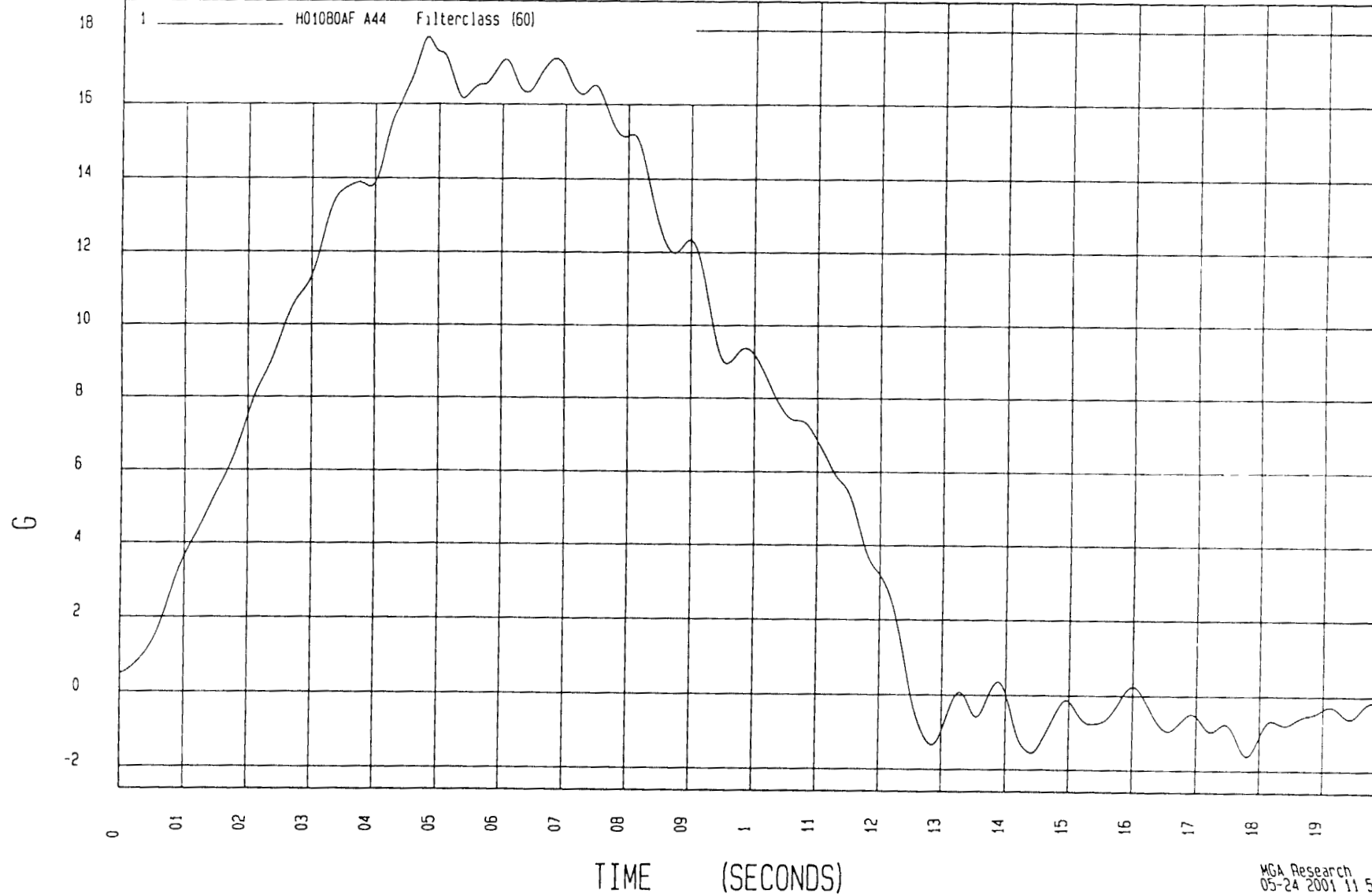
TEST DATE 05-24-2001

COMPONENT 2001 NISSAN ALTIMA 4 DOOR (C15200)

Minimum 1.61 G at 178 msec

Maximum 17.8 G at 48 msec

RIGHT REAR SEAT CROSSMEMBER X ACCELERATION



TEST FMVSS 208 SLED (H01080)

TEST DATE 05-24-2001

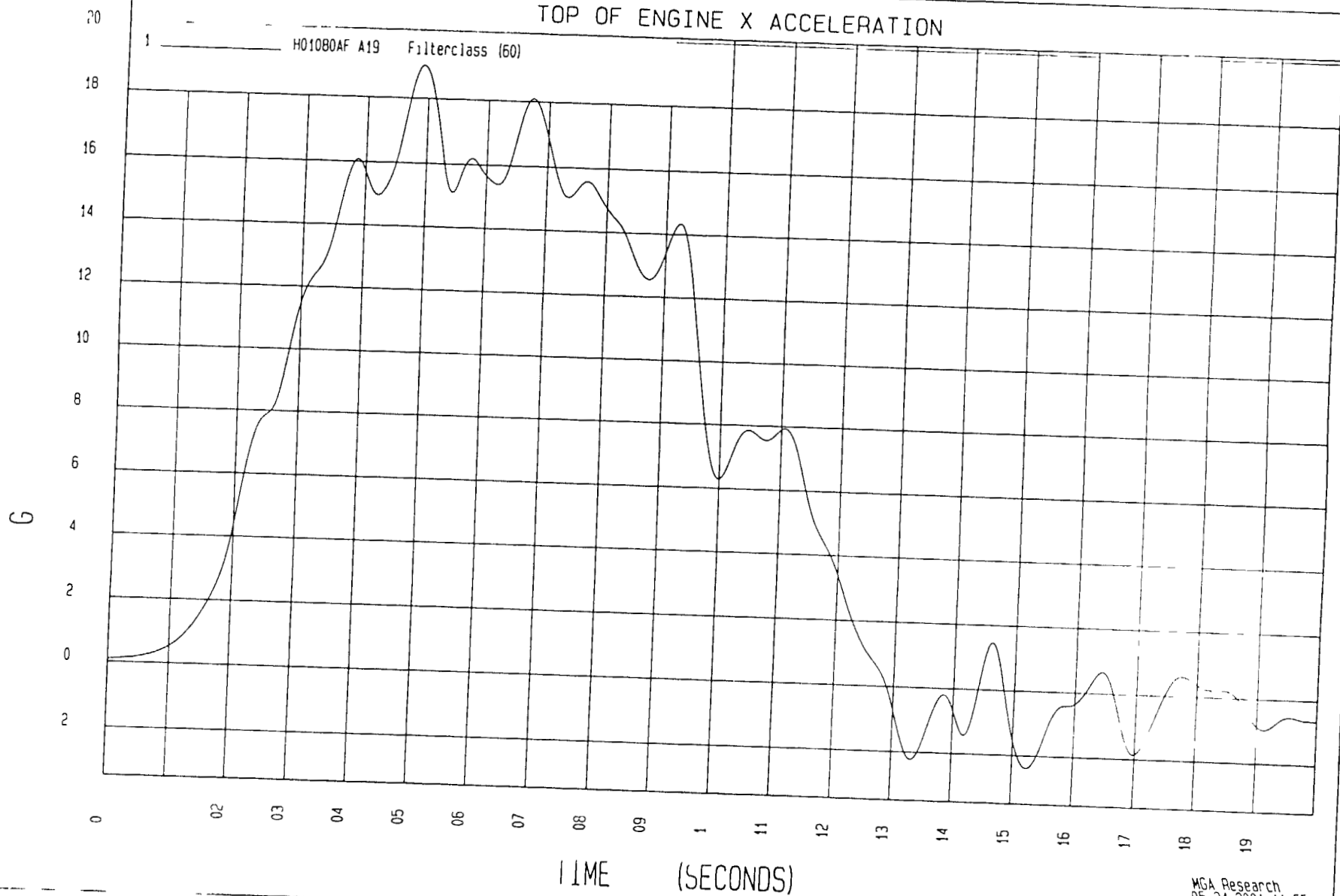
COMPONENT 2001 NISSAN ALTIMA 4 DOOR (C15200)

Minimum = 2.39 G at 152 msec

Maximum = 19.04 G at 49 msec

TOP OF ENGINE X ACCELERATION

1 H01080AF A19 Filterclass (60)



MGA Research
05 24 2001 11 55

TEST FMVSS 208 SLED (H01080)

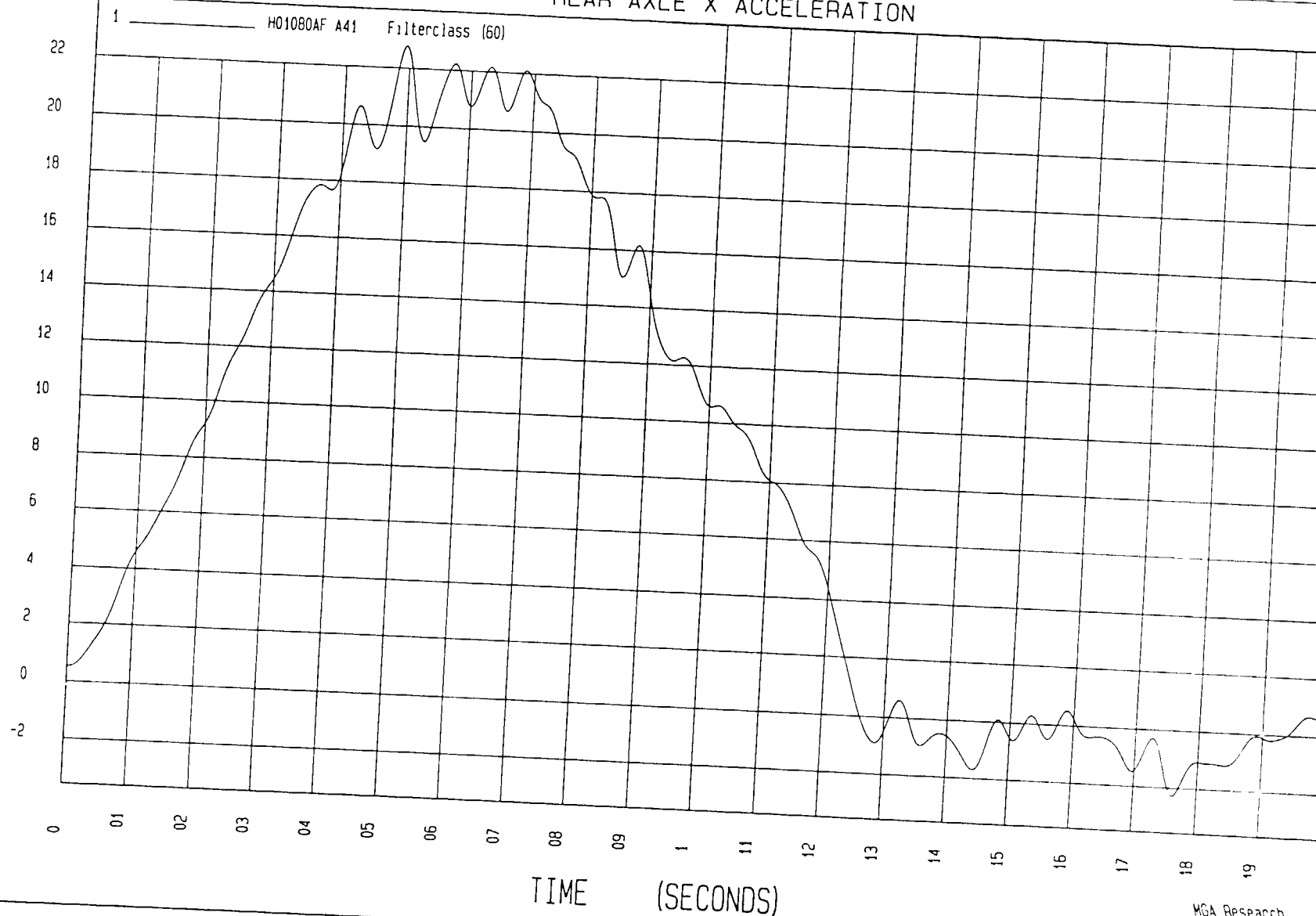
TEST DATE 05-24-2001

COMPONENT 2001 NISSAN ALTIMA 4 DOOR (C15200)

Minimum -2.26 G at 176 msec

Maximum 22.77 G at 50 msec

REAR AXLE X ACCELERATION

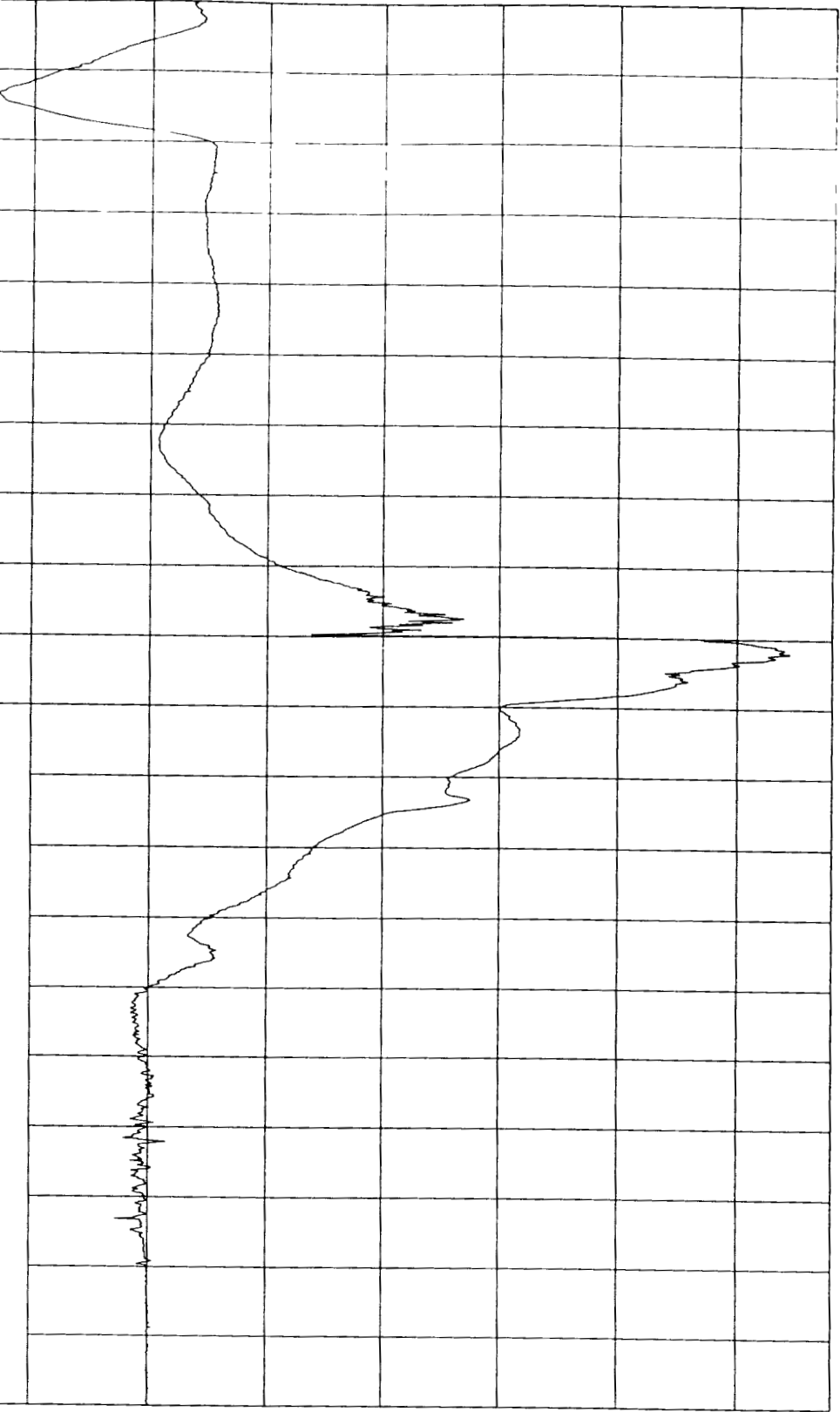


MCA Research
05-24-2001 11:55

MGA Research
05/24/2001 11:54

TIME (SECONDS)

19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1 0



1 H01080AT A03 Filterclass (1000)

DRIVER HEAD X ACCELERATION

Maximum - 13 G at 186 msec

Minimum 54.43 G at 108 msec

COMPONENT 2001 NISSAN ALTIMA 4 DOOR (C15200)

TEST FMVSS 208 SLED (H01080)

TEST DATE 05-24-2001

TEST FMVSS 208 SLED (H01080)

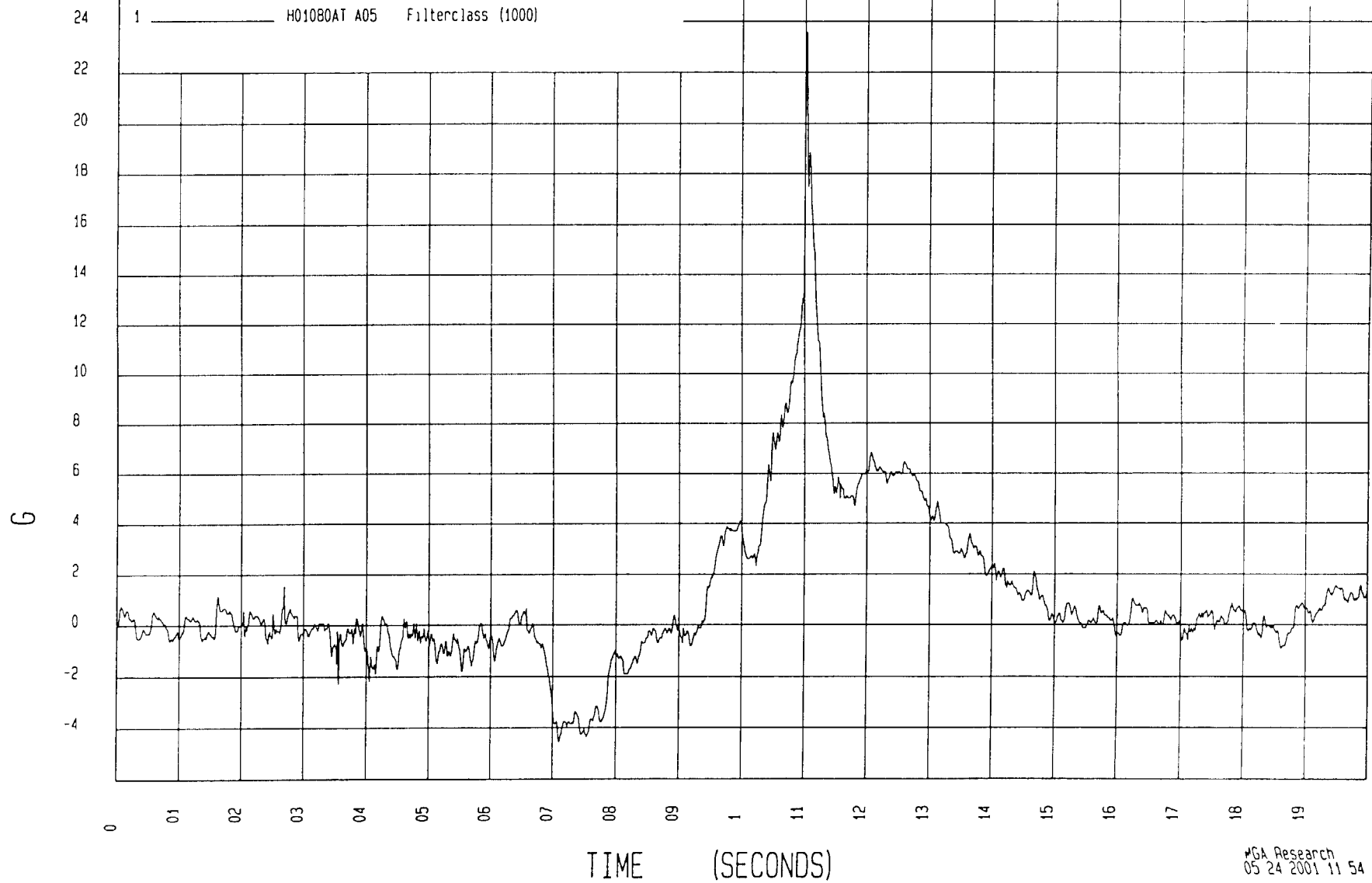
TEST DATE 05-24-2001

COMPONENT 2001 NISSAN ALTIMA 4 DOOR (C15200)

Minimum 4.55 G at 71 msec

Maximum 23.58 G at 110 msec

DRIVER HEAD Y ACCELERATION



MSA Research
05/24/2001 11:54

TIME (SECONDS)

19 18 17 16 15 14 13 12 11 10 09 08 07 06 05 04 03 02 01 0

G
-60
-40
20
0
20

1 - H01080AT A05 Filterclass (1000)

DRIVER HEAD Z ACCELERATION

Minimum 74.43 G at 110 msec

Maximum - 34.3 G at 102 msec

COMPONENT 2001 NISSAN ALTIMA 4 DOOR (C15200)

TEST FMVSS 208 SLED (H01080)

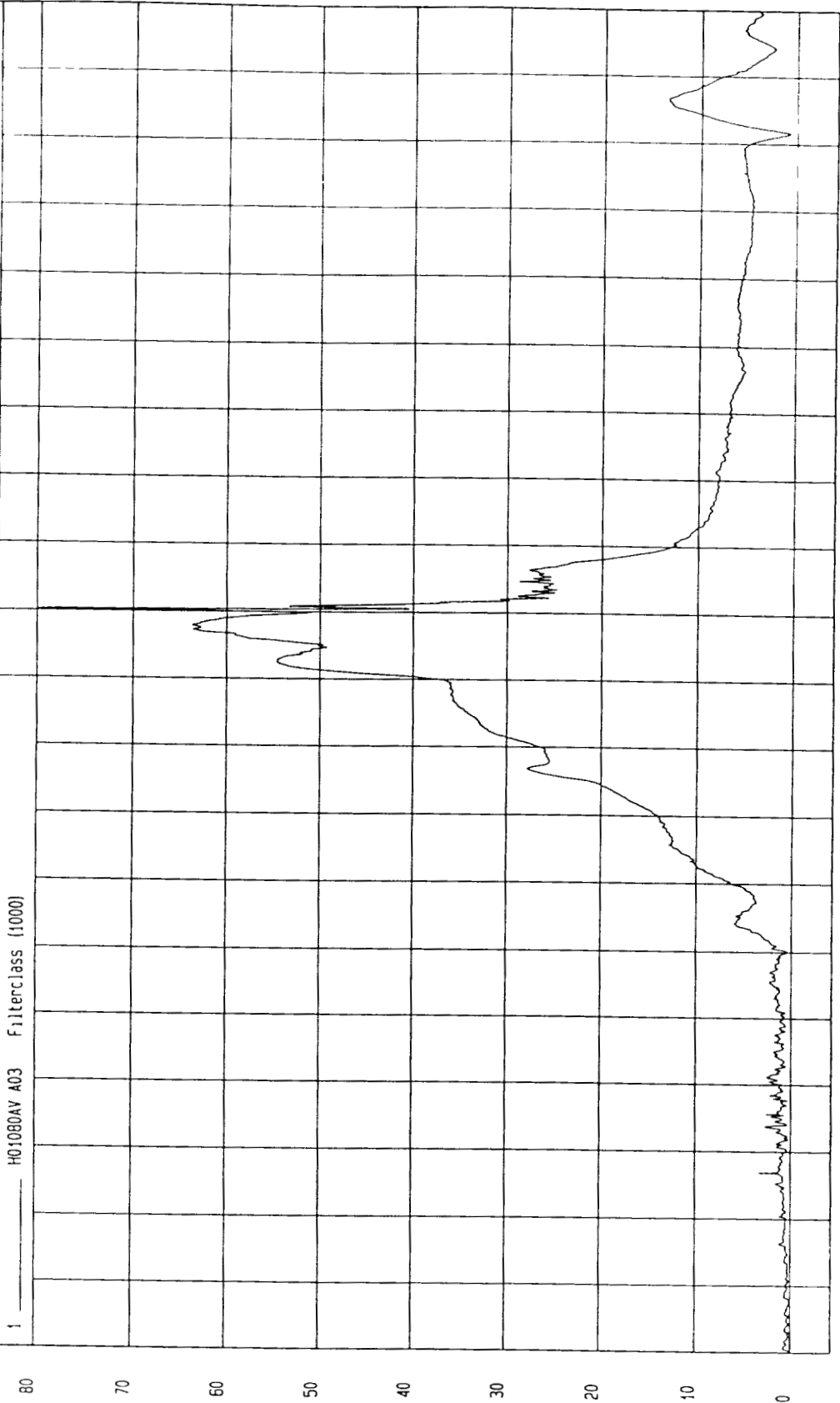
TEST DATE 05-24-2001

WGA Research
05/24/2001 11:54

TIME (SECONDS)

19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1 0

G



DRIVER HEAD RESULTANT ACCELERATION

1 H01080AV A03 Filterclass (1000)

Minimum 2 71E-02 G at 0 msec

Maximum - 80 06 G at 110 msec

COMPONENT 2001 NISSAN ALTIMA 4 DOOR (C15200)

TEST FMVSS 208 SLED (H01080) TEST DATE 05-24-2001

HGA Research
05/24/2001 11:54

TIME (SECONDS)

19
18
17
16
15
14
13
12
11
10
09
08
07
06
05
04
03
02
01
0

1200
1000
800
600
400
200
0
200

N

DRIVER NECK FORCE X

1 H01080FT F12 FilterClass (1000)

Maximum = 1161.27 N at 100 msec

Minimum -210.97 N at 159 msec

COMPONENT 2001 NISSAN ALTIMA 4 DOOR (C15200)

TEST DATE 05-24-2001

TEST FMVSS 208 SLED (H01080)

TIME (SECONDS)

0 0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8 0.9 1 1.1 1.2 1.3 1.4 1.5 1.6 1.7 1.8 1.9 2

DRIVER NECK FORCE Y

1 — H01080FT F13 Filterclass (1000)

Minimum - 330 32 N at 110 msec

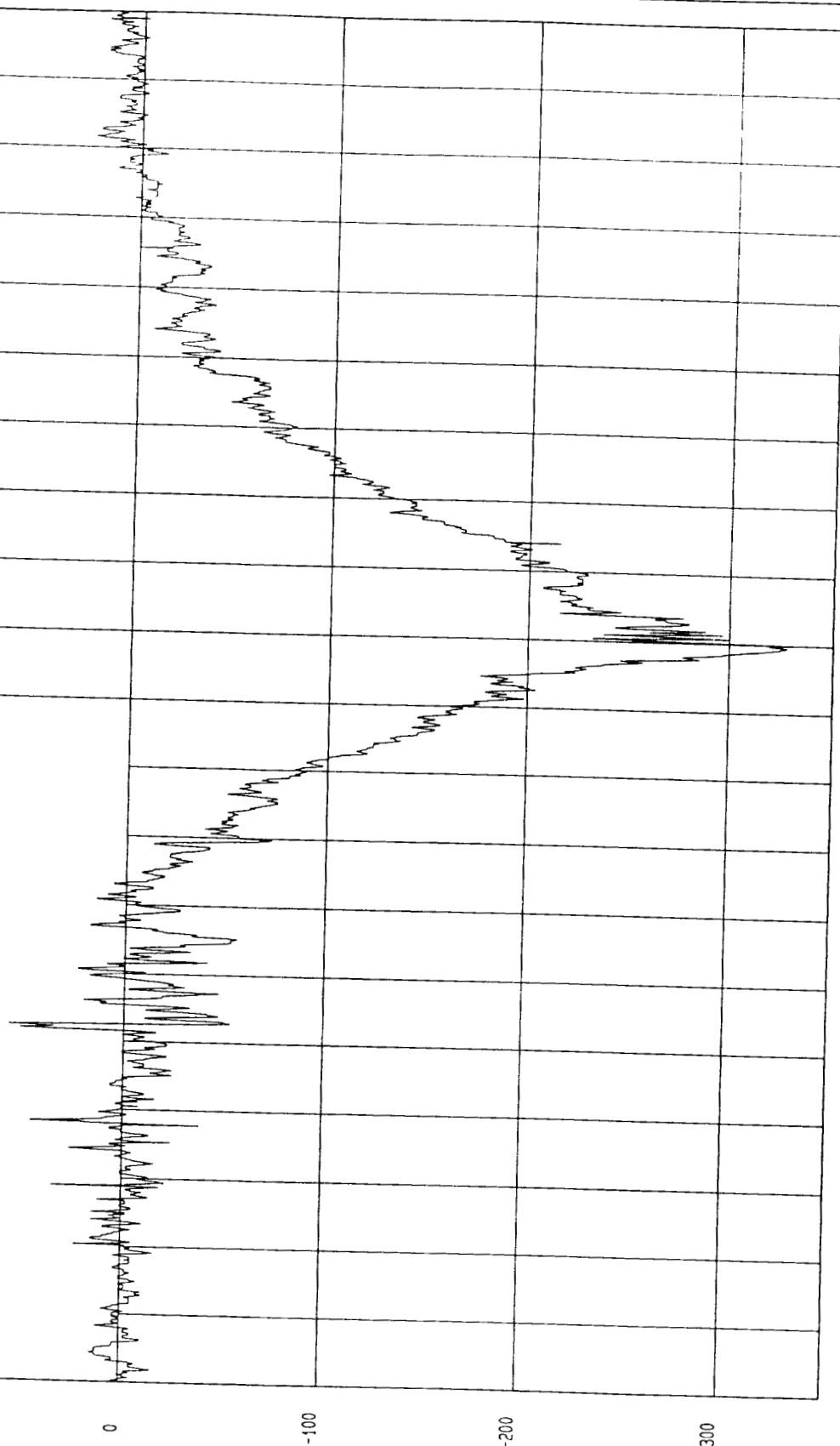
Maximum - 56 82 N at 52 msec

TEST FMVSS 208 SLED (H01080)

TEST DATE 05-24-2001

COMPONENT 2001 NISSAN ALTIMA 4 DOOR (C15200)

N



MGA Research
05 24 2001 11 54

TEST FMVSS 208 SLED (H01080)

TEST DATE 05-24-2001

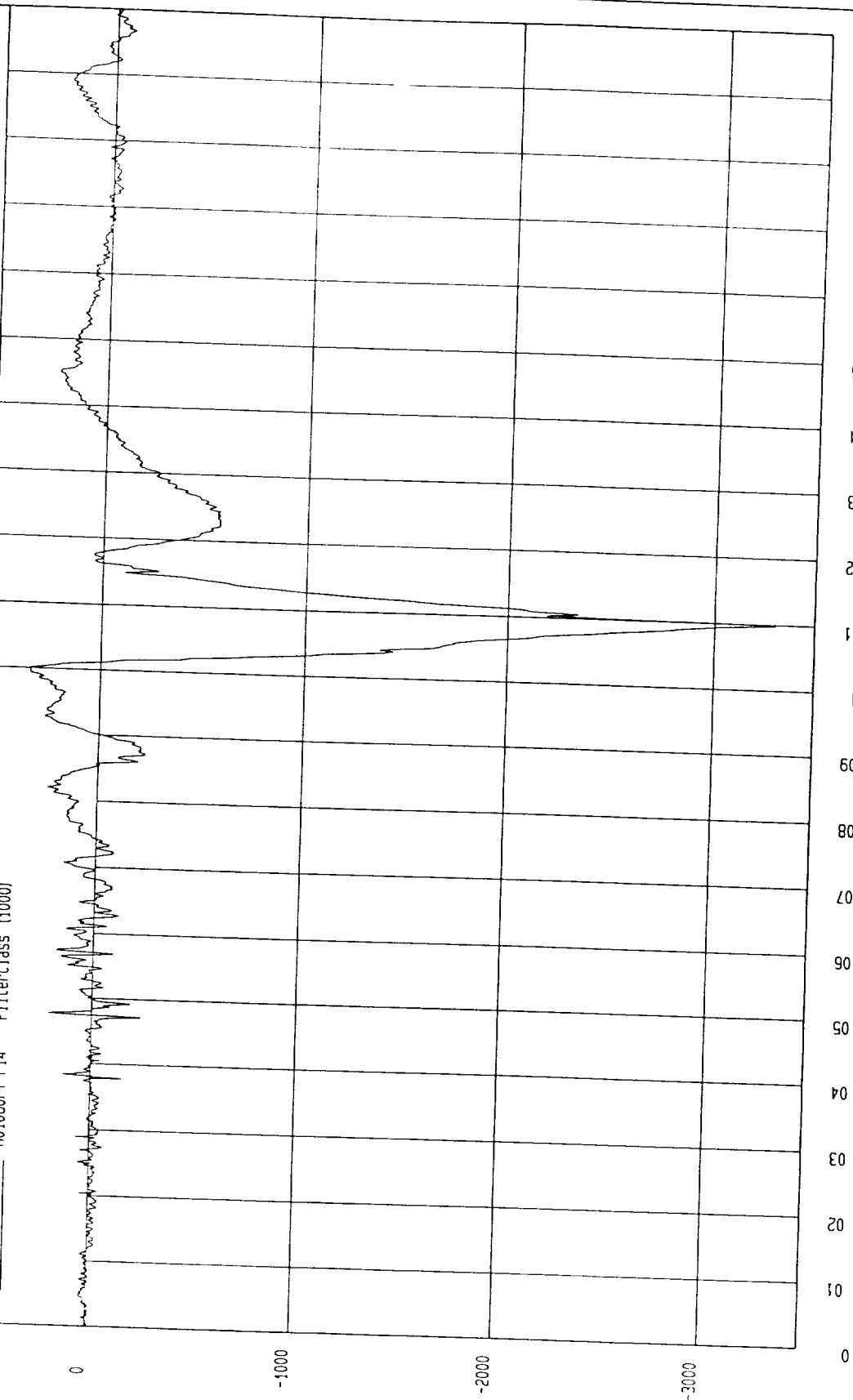
COMPONENT 2001 NISSAN ALTIMA 4 DOOR (C15200)

Minimum = -3289 41 N at 110 msec

Maximum = 348 41 N at 100 msec

DRIVER NECK FORCE Z

1 H01080FT F14 Filterclass (1000)



TIME (SECONDS)

N

TIME (SECONDS)

19
18
17
16
15
14
13
12
11
1
09
08
07
06
05
04
03
02
01
0

Nm

16
14
12
10
8
6
4
2
0
2
4

DRIVER NECK MOMENT X

1 — H01080MF M15 Filterclass (600)

Maximum - 15.57 Nm at 110 msec

Minimum 3.47 Nm at 148 msec

COMPONENT 2001 NISSAN ALTIMA 4 DOOR (C15200)

TEST FMVSS 208 SLED (H01080)

TEST DATE 05-24-2001

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05/24/2001 11:54

TEST FMVSS 208 SLED (H01080)

TEST DATE 05-24-2001

COMPONENT 2001 NISSAN ALTIMA 4 DOOR (C15200)

Minimum 4.87 Nm at 46 msec

Maximum 89.4 Nm at 100 msec

DRIVER NECK MOMENT Y

1 — H01080MF M16 Filterclass (600)

80

60

40

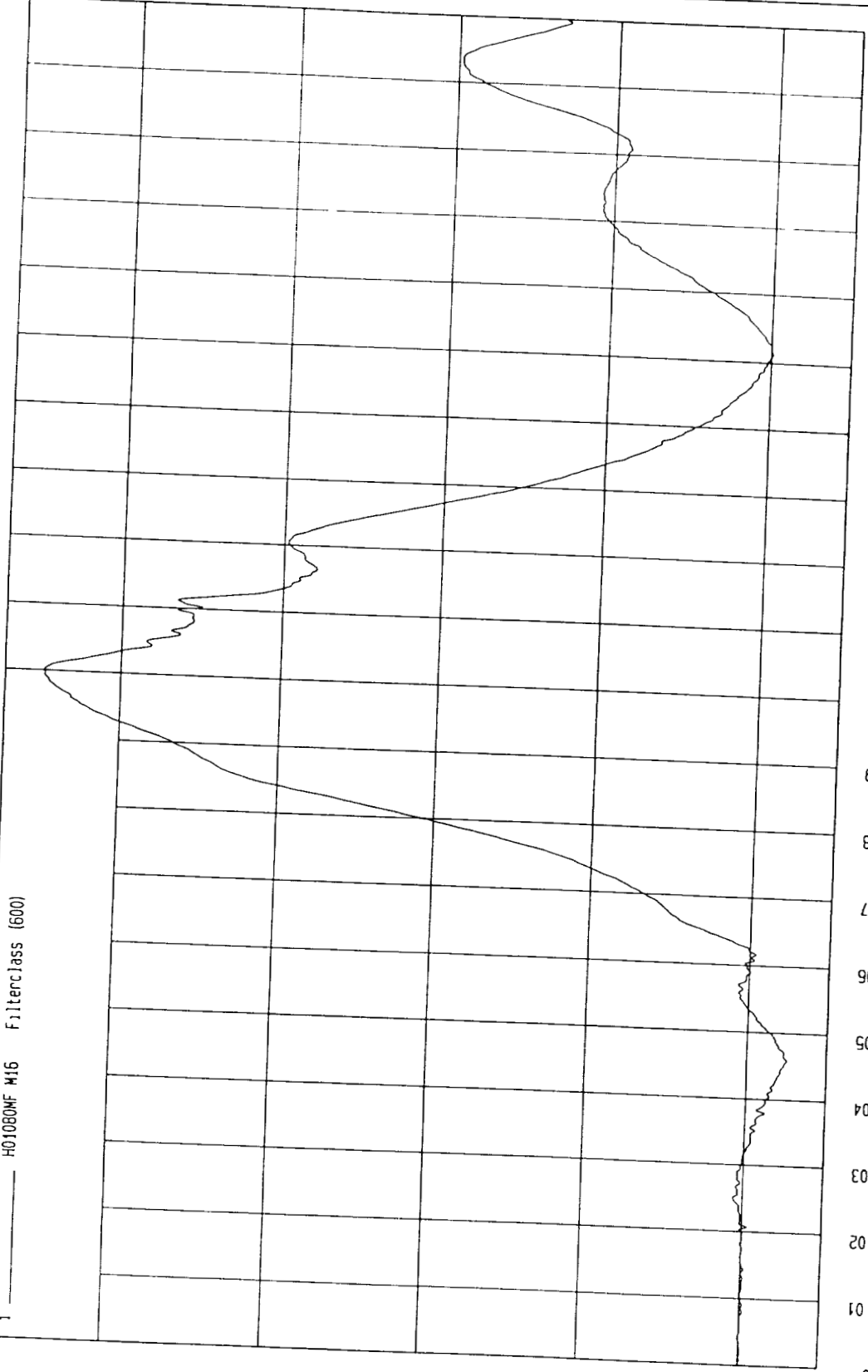
20

0

Nm

TIME (SECONDS)

0 0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8 0.9 1 1.1 1.2 1.3 1.4 1.5 1.6 1.7 1.8 1.9



TEST FMVSS 208 SLED (H01080)

TEST DATE 05-24-2001

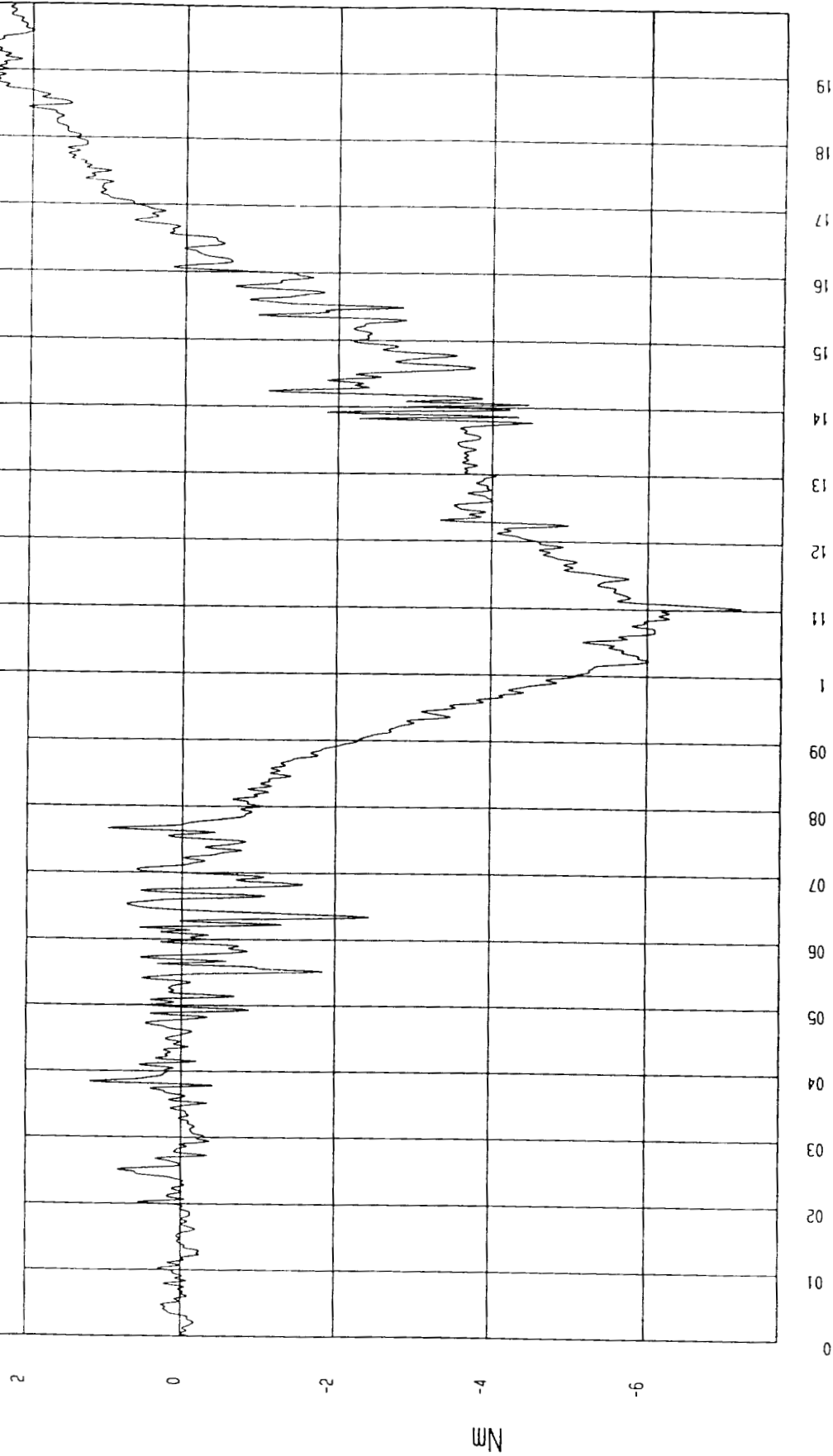
COMPONENT 2001 NISSAN ALTIMA 4 DOOR (C15200)

Minimum 7.17 Nm at 110 msec

Maximum 2.52 Nm at 194 msec

DRIVER NECK MOMENT Z

1 H01080MF #17 Filterclass (600)

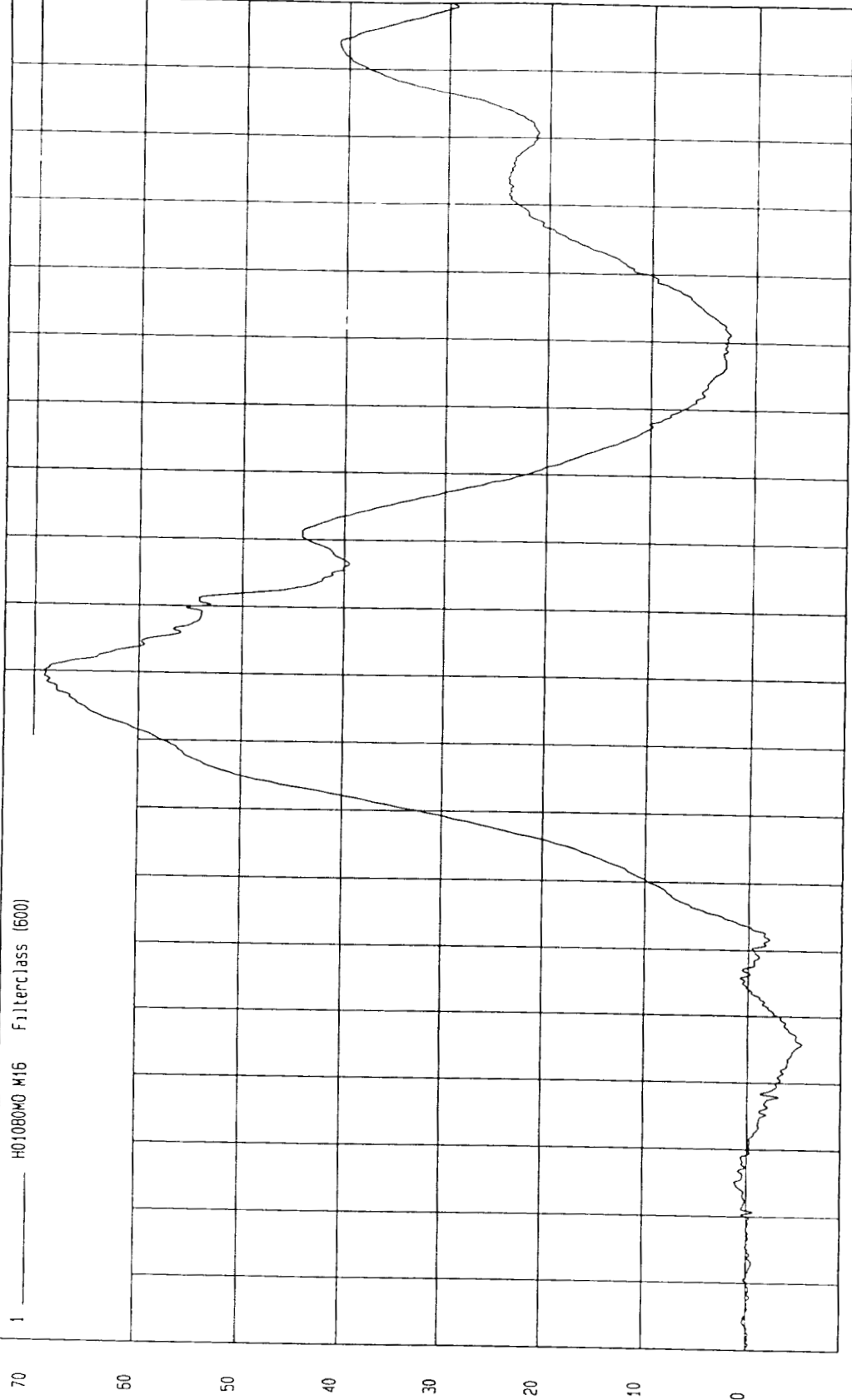


WJA, WJL, Col CH
05-24-2001 12:00

TIME (SECONDS)

0 0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8 0.9 1 1.1 1.2 1.3 1.4 1.5 1.6 1.7 1.8 1.9 2

Nm



1 H01080M0 M15 Filterclass (600)

DRIVER OCCIPITAL CONDYLE MOMENT Y

Maximum 69.1 Nm at 99 msec

Minimum 5.12 Nm at 46 msec

COMPONENT 2001 NISSAN ALTIMA 4 DOOR (C15200)

TEST FMVSS 208 SLED (H01080) TEST DATE 05-24-2001

TEST FMVSS 208 SLED (H01080)

TEST DATE 05-24-2001

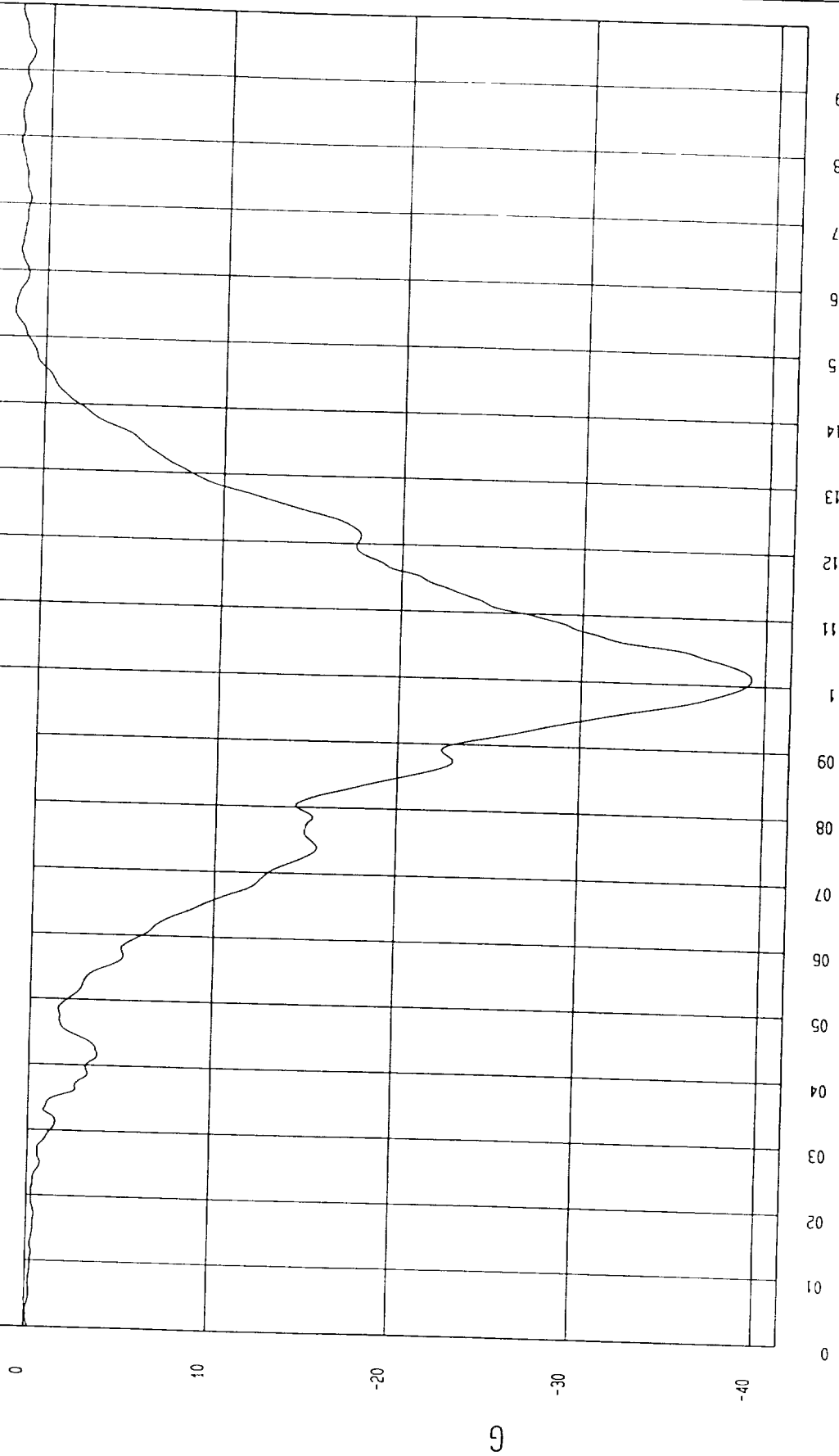
COMPONENT 2001 NISSAN ALTIMA 4 DOOR (C15200)

Minimum - 39.28 G at 101 msec

Maximum - 17.1 G at 154 msec

DRIVER CHEST X ACCELERATION

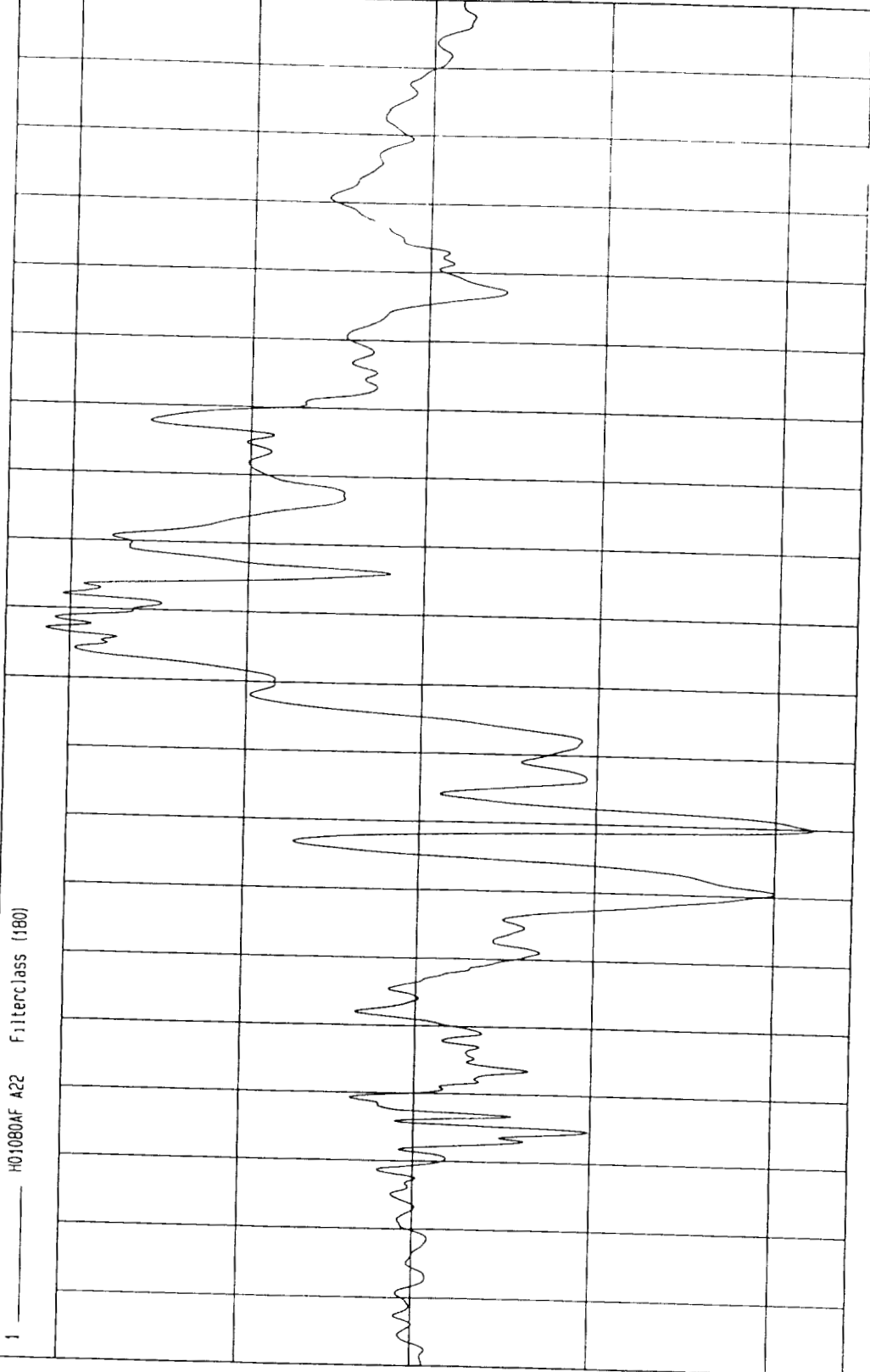
1 H01080AF A21 Filterclass (180)



TIME (SECONDS)

0 0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8 0.9 1 1.1 1.2 1.3 1.4 1.5 1.6 1.7 1.8 1.9

G



2

1

0

-1

-2

TEST FMVSS 208 SLED (H01080)

TEST DATE 05-24-2001

COMPONENT 2001 NISSAN ALTIMA 4 DOOR (C15200)

Minimum -2.22 G at 80 msec

Maximum = 2.14 G at 107 msec

DRIVER CHEST Y ACCELERATION

1 H01080AF A22 Filterclass (180)

TEST FMVSS 208 SLED (H01080)

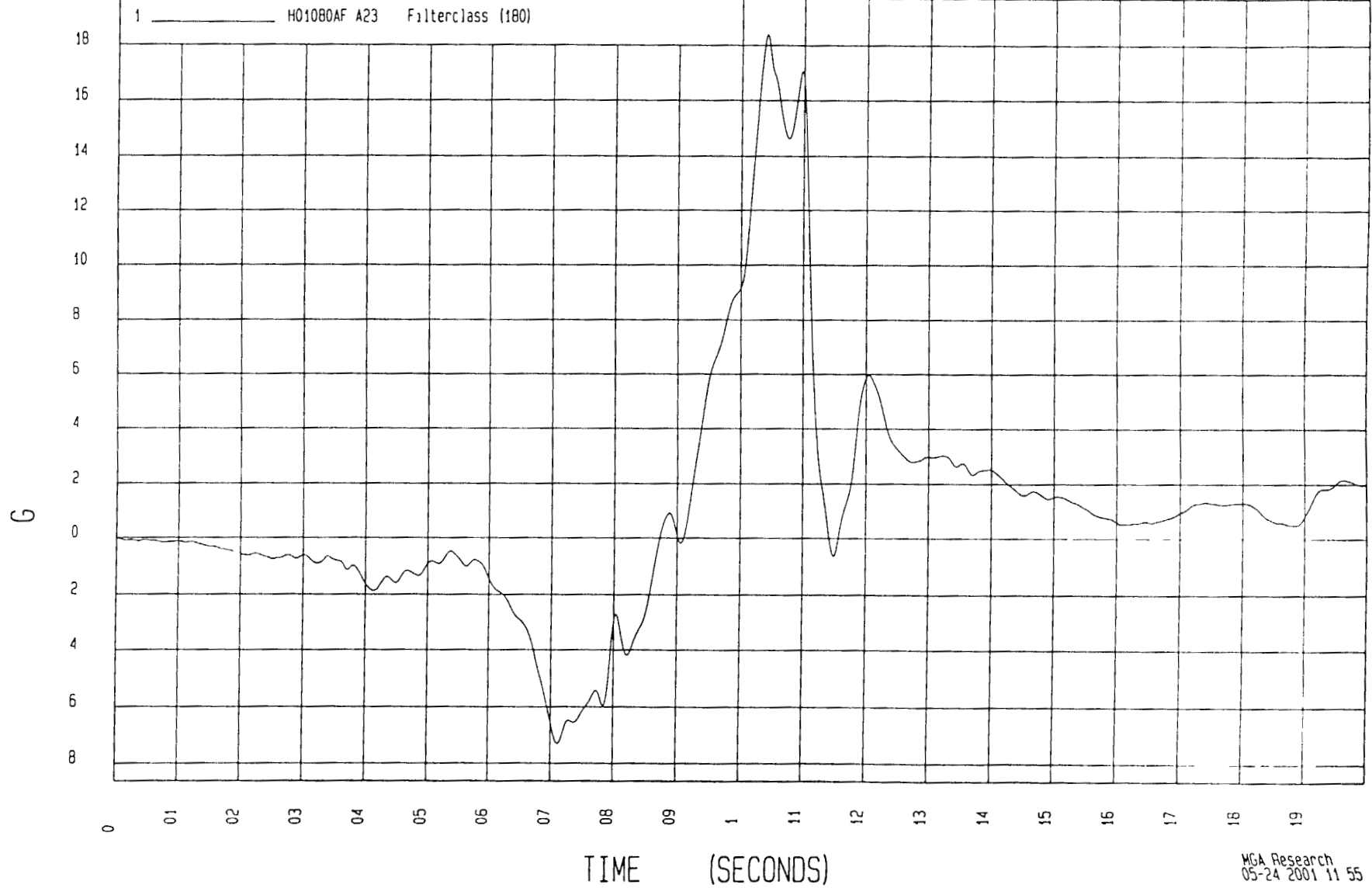
TEST DATE 05-24-2001

COMPONENT 2001 NISSAN ALTIMA 4 DOOR (C15200)

Minimum - -7.31 G at 71 msec

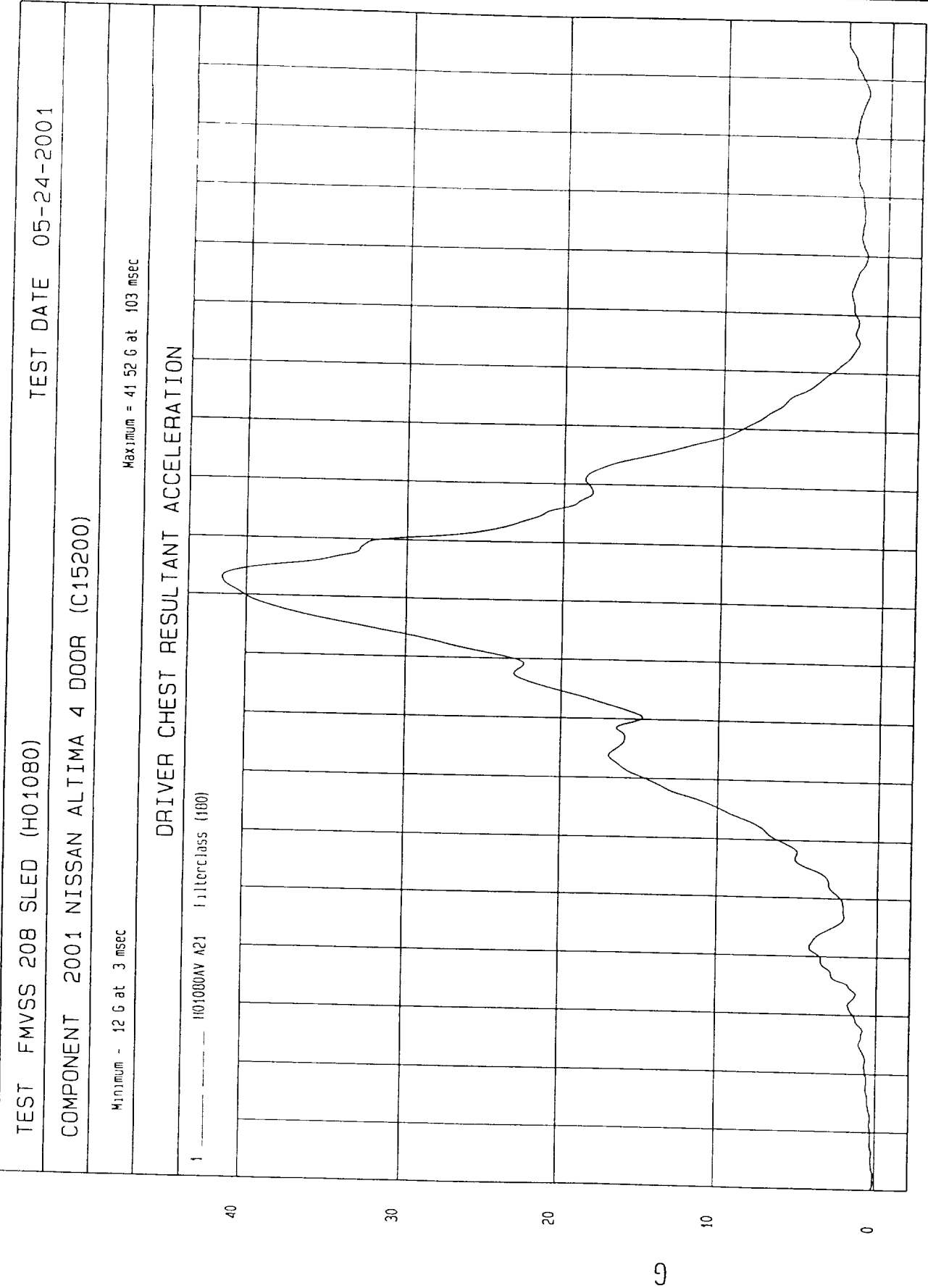
Maximum - 18.38 G at 104 msec

DRIVER CHEST Z ACCELERATION



MGA Research
05-24 2001 11 55

TIME (SECONDS)



TEST FMVSS 208 SLED (H01080)

TEST DATE 05-24-2001

COMPONENT 2001 NISSAN ALTIMA 4 DOOR (C15200)

Minimum - 12 G at 3 msec

Maximum = 41.52 G at 103 msec

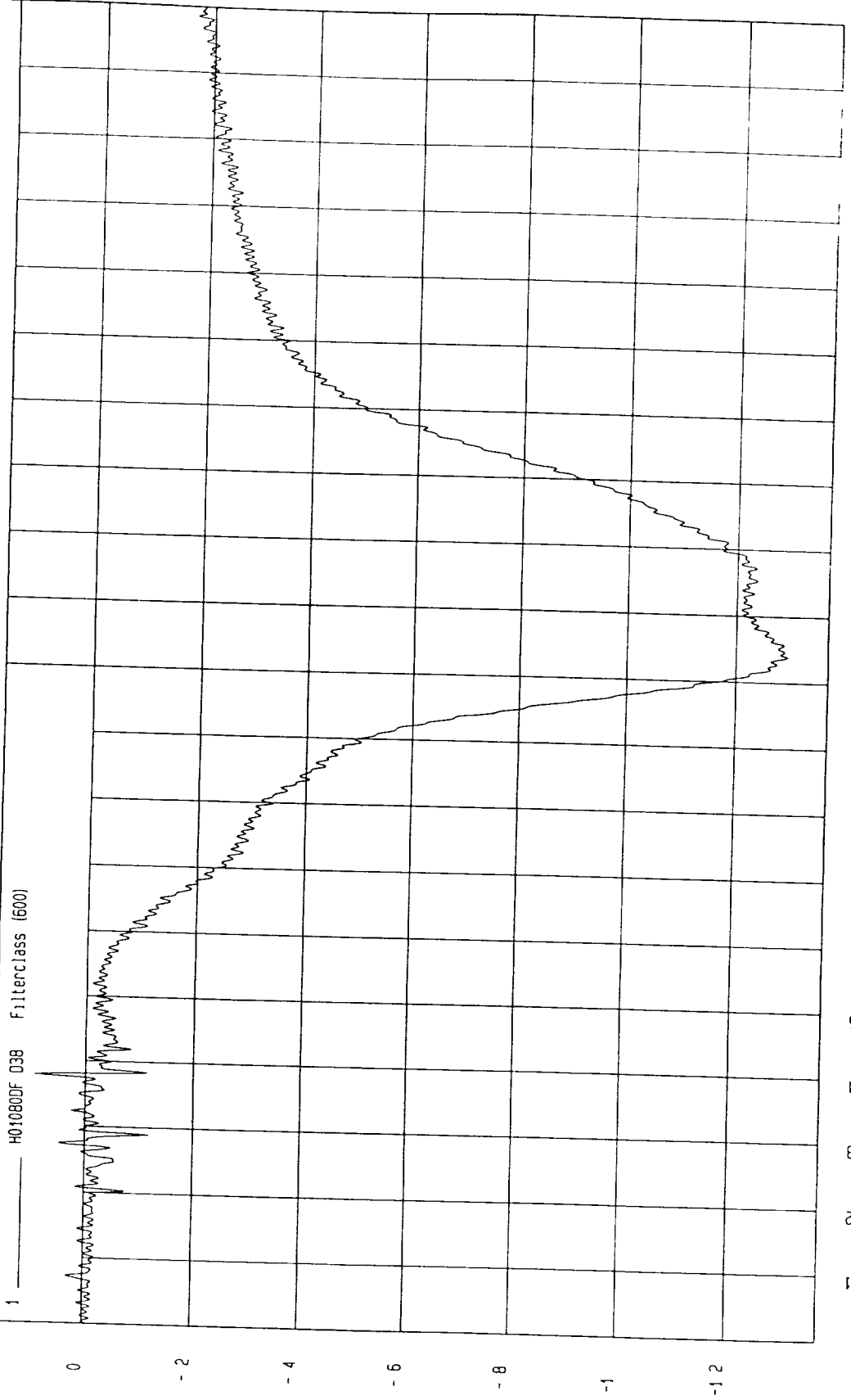
DRIVER CHEST RESULTANT ACCELERATION

MCA Research
05-24-2001 11:55

TIME SECONDS

0 0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8 0.9 1 1.1 1.2 1.3 1.4 1.5 1.6 1.7 1.8 1.9

INCHES



DRIVER CHEST COMPRESSION

Maximum 9.34E 02 INCHES at 38 msec

Minimum - 1.3 INCHES at 104 msec

COMPONENT 2001 NISSAN ALTIMA 4 DOOR (C15200)

TEST FMVSS 208 SLED (H01080)

TEST DATE 05-24-2001

1 H01080DF 038 Filterclass (600)

TEST FMVSS 208 SLED (H01080)

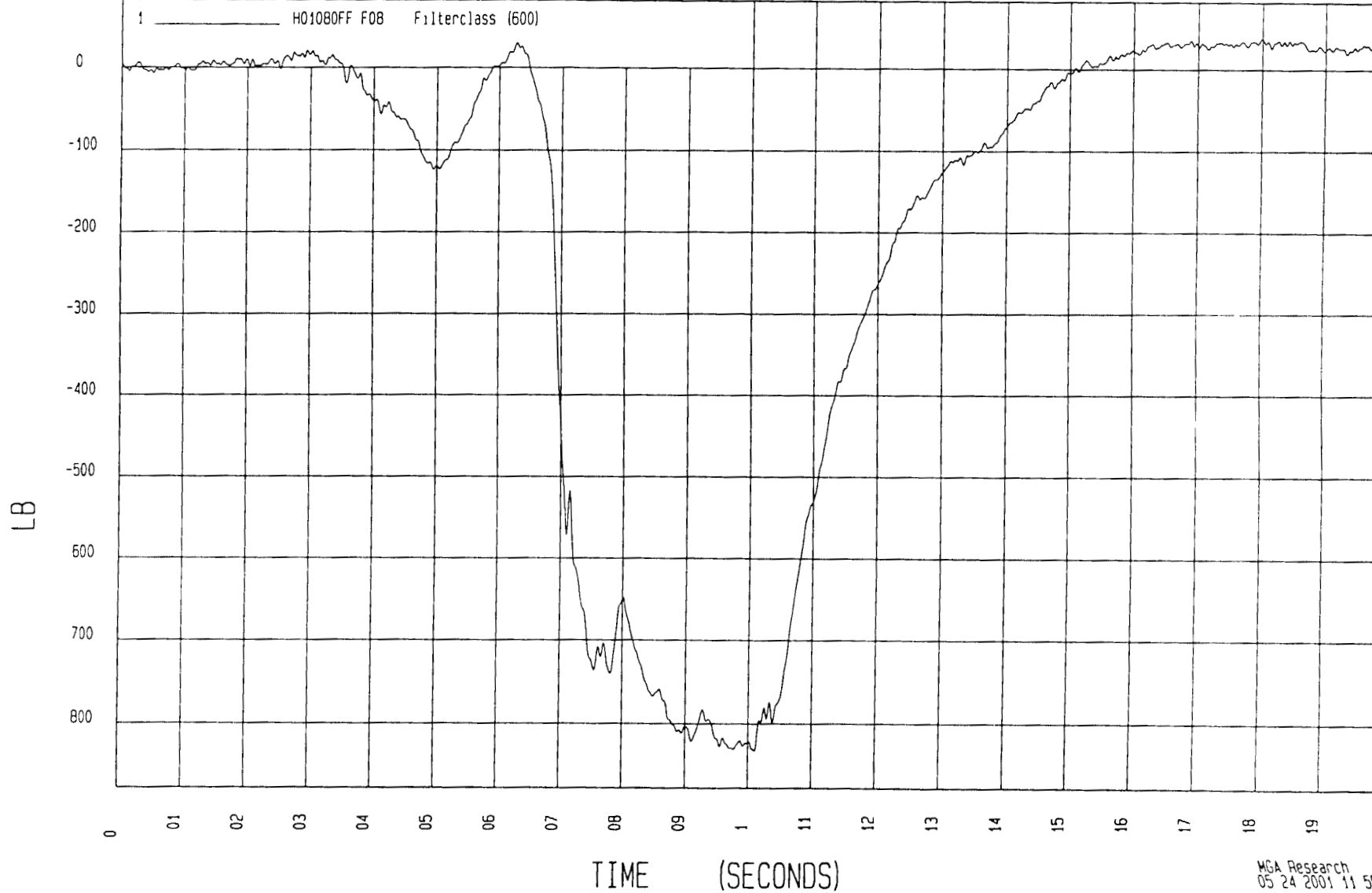
TEST DATE 05-24-2001

COMPONENT 2001 NISSAN ALTIMA 4 DOOR (C15200)

Minimum 832.99 LB at 101 msec

Maximum = 37.7 LB at 180 msec

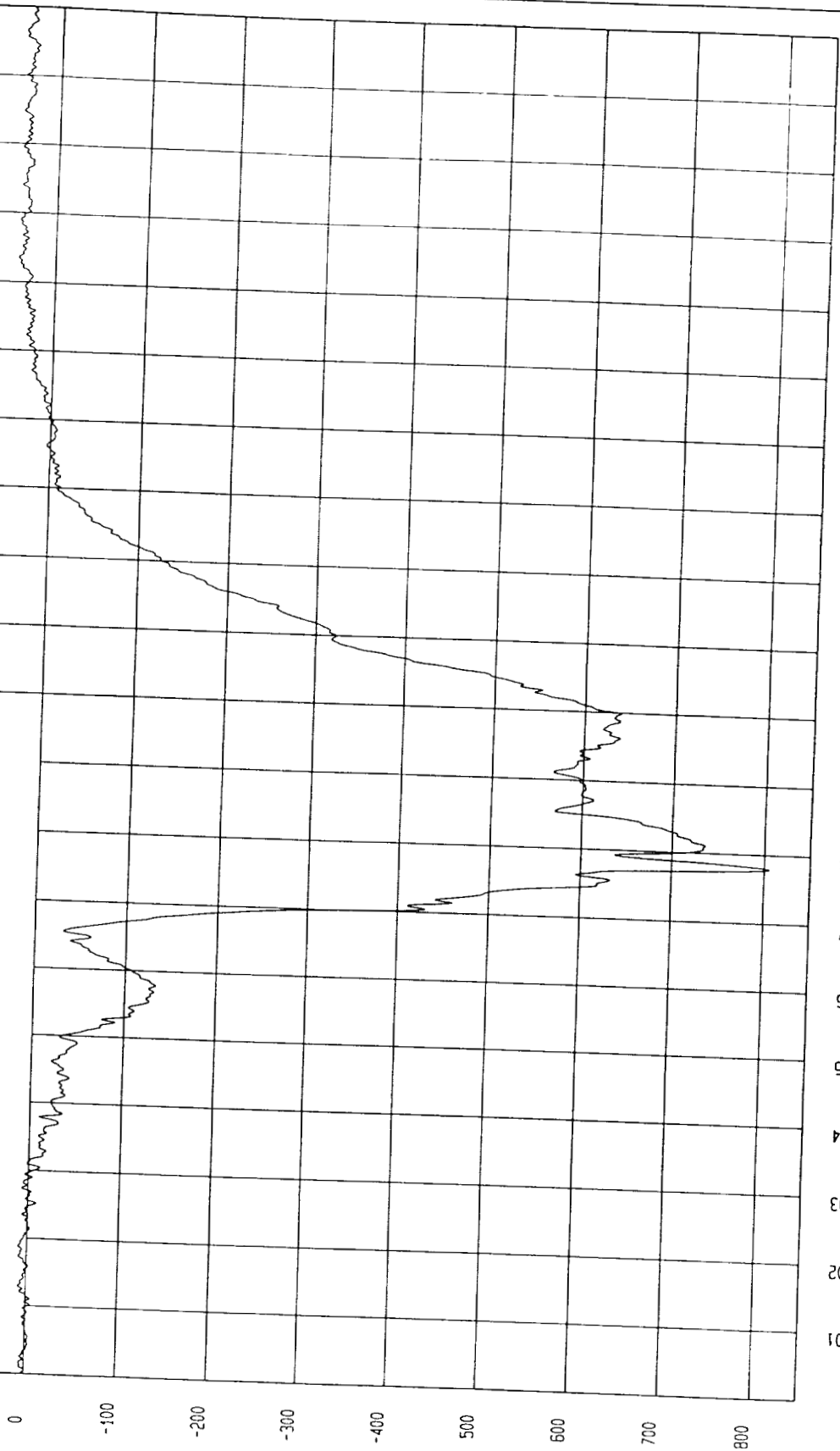
DRIVER LEFT FEMUR FORCE



TIME (SECONDS)

19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1 0

LB



DRIVER RIGHT FEMUR FORCE

Maximum = 40 69 LB at 164 msec

Minimum = -805 5 LB at 78 msec

TEST FMVSS 208 SLED (H01080)

COMPONENT 2001 NISSAN ALTIMA 4 DOOR (C15200)

TEST FMVSS 208 SLED (H01080)

TEST FMVSS 208 SLED (H01080)

TEST DATE 05-24-2001

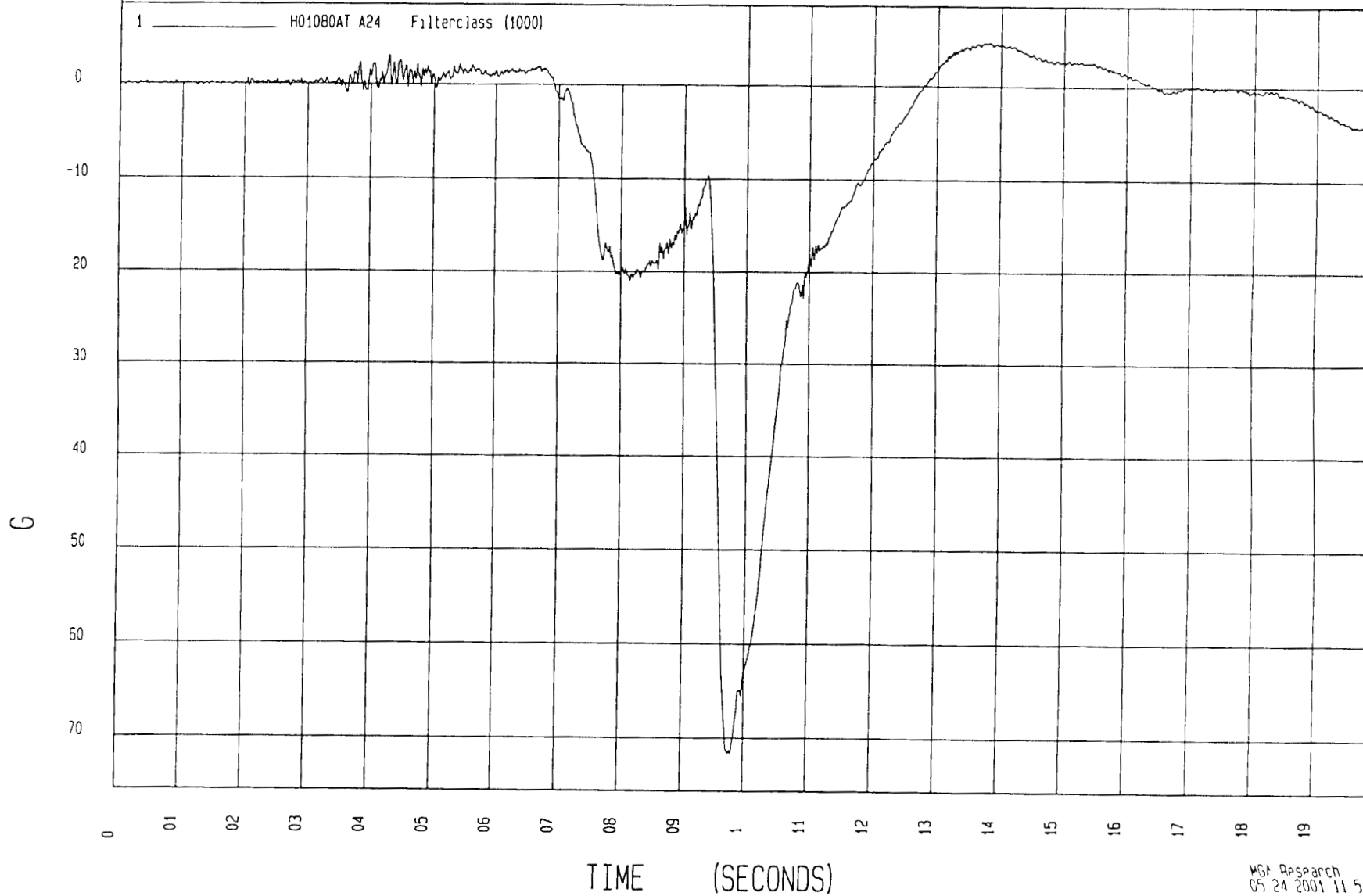
COMPONENT 2001 NISSAN ALTIMA 4 DOOR (C15200)

Minimum 71.59 G at 98 msec

Maximum 4.68 G at 138 msec

PASSENGER HEAD X ACCELERATION

1 H01080AT A24 Filterclass (1000)



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05/24/2001 11:54

TIME (SECONDS)

0 0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8 0.9 1 1.1 1.2 1.3 1.4 1.5 1.6 1.7 1.8 1.9 2

G

18 16 14 12 10 8 6 4 2 0 -2 -4 -6 -8 -10 -12 -14 -16 -18

! H01080A1 A25 Filterclass (5000)

PASSENGER HEAD Y ACCELERATION

Minimum 17.9 G at 98 msec

Maximum 4.35 G at 138 msec

COMPONENT 2001 NISSAN ALTIMA 4 DOOR (C15200)

TEST DATE 05-24-2001

TEST FMVSS 208 SLED (H01080)

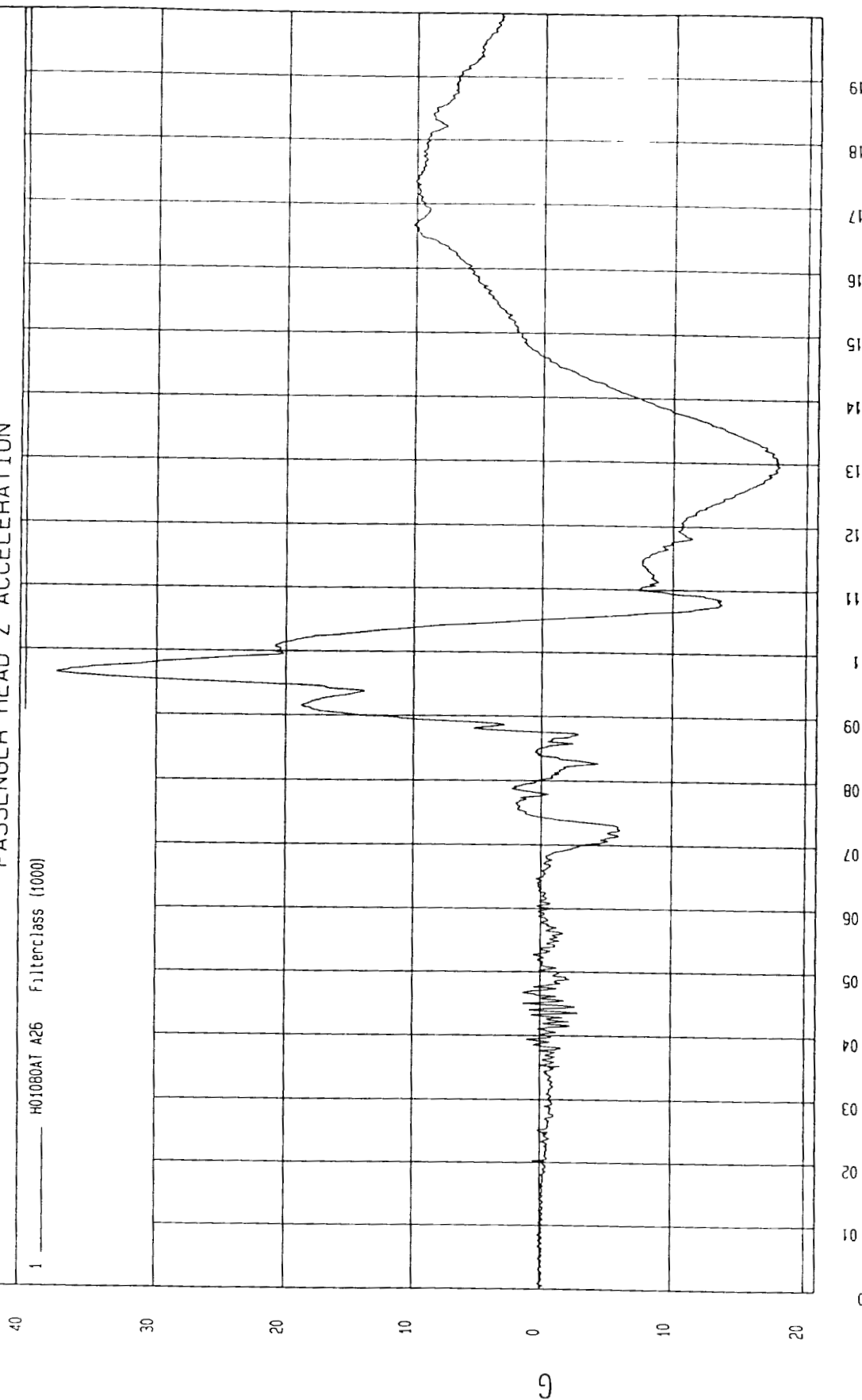
TEST FMVSS 208 SLED (H01080) TEST DATE 05-24-2001

COMPONENT 2001 NISSAN ALTIMA 4 DOOR (C15200)

Minimum 18.04 G at 130 msec Maximum 37.63 G at 96 msec

PASSENGER HEAD Z ACCELERATION

1 H01080AT A26 Filterclass (1000)



WCA Research
05/24/2001 11:54

HGA Res Arch
05 24 2001 11 54

TEST DATE 05-24-2001

TEST FMVSS 208 SLED (H01080)

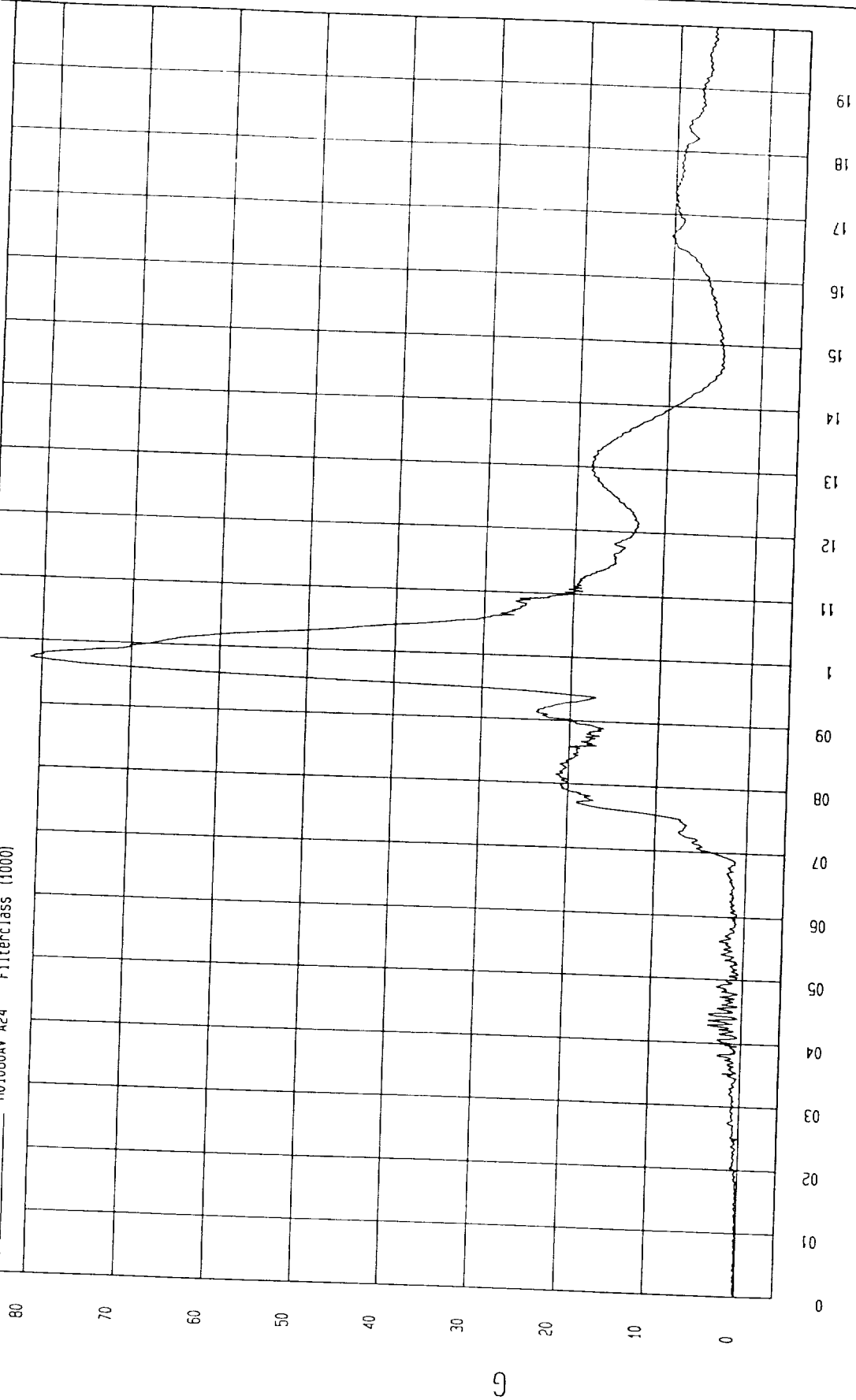
COMPONENT 2001 NISSAN ALTIMA 4 DOOR (C15200)

Minimum 9 131 03 G at 0 m/sec

Maximum 81 32 G at 97 m/sec

PASSENGER HEAD RESULTANT ACCELERATION

1 H01080AV A24 Filterclass (1000)



TIME (SECONDS)

MGA Research
05-24-2001 11:54

TEST FMVSS 208 SLED (H01080)

COMPONENT 2001 NISSAN ALTIMA 4 DOOR (C15200)

Minimum -231.62 N at 197 msec

TEST DATE 05-24-2001

Maximum -1423.6 N at 103 msec

PASSENGER NECK FORCE X

1 H01080FT F31 Filterclass (1000)

1400

1200

1000

800

600

400

200

0

200

N

0

01

02

03

04

05

06

07

08

09

1

11

12

13

14

15

16

17

18

19

TIME (SECONDS)



TEST FMVSS 208 SLED (H01080)

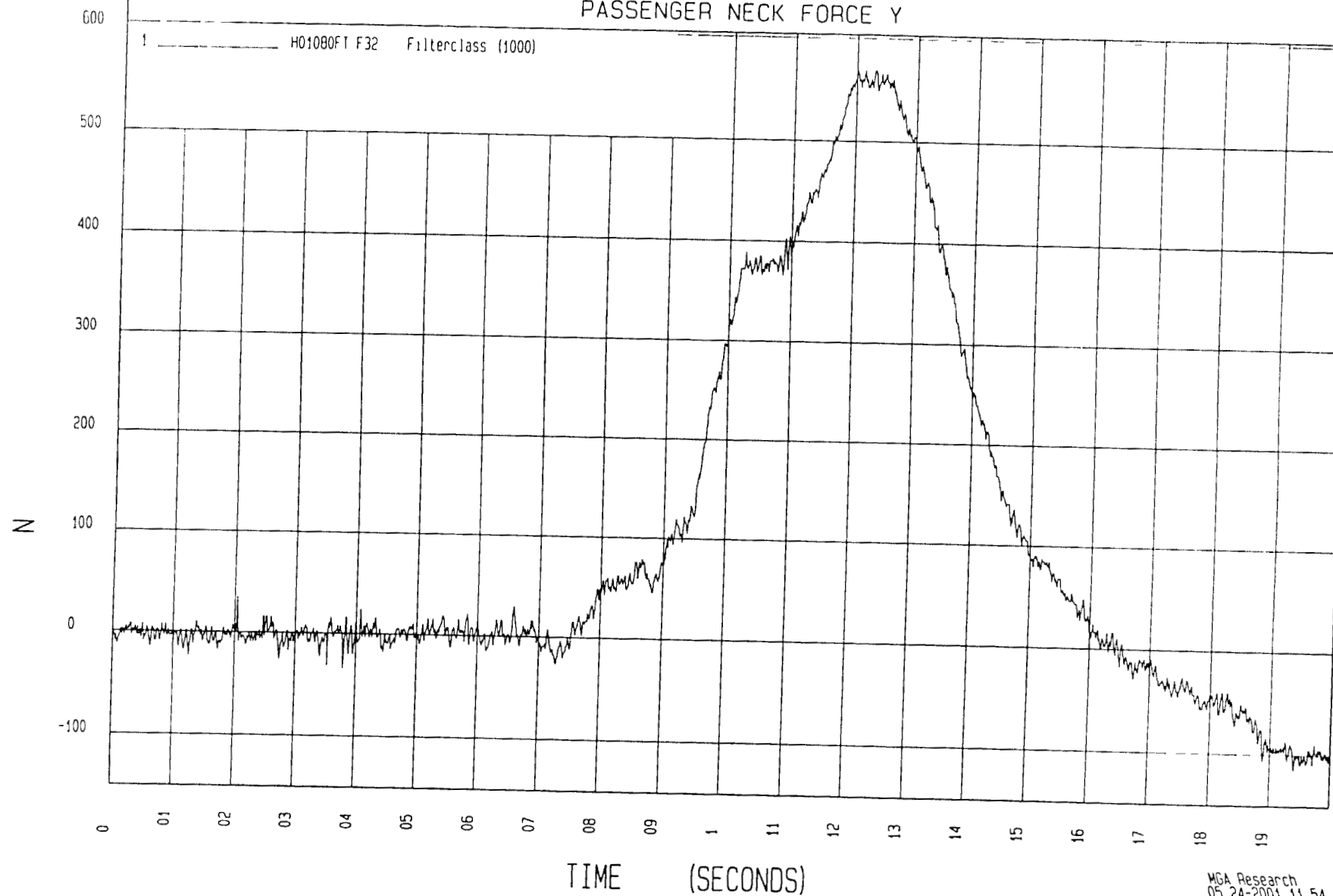
TEST DATE 05-24-2001

COMPONENT 2001 NISSAN ALTIMA 4 DOOR (C15200)

Minimum 114 54 N at 194 msec

Maximum 569 2 N at 120 msec

PASSENGER NECK FORCE Y



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05-24-2001 11:54

TEST FMVSS 208 SLED (H01080)

TEST DATE 05-24-2001

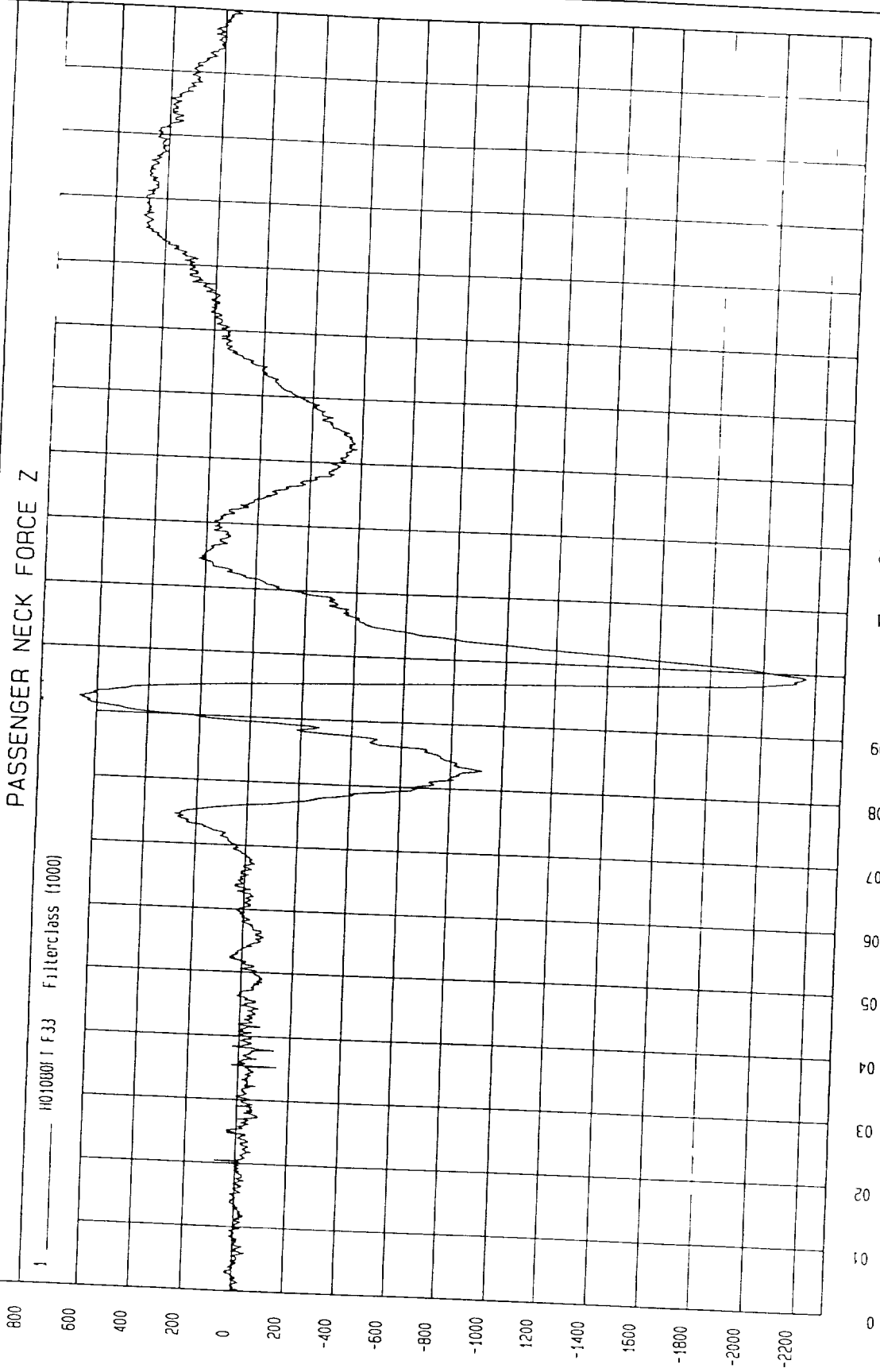
COMPONENT 2001 NISSAN ALTIMA 4 DOOR (C15200)

Minimum = -2162 38 N at 99 msec

Maximum = 668 86 N at 92 msec

PASSENGER NECK FORCE Z

____ H010801 F33 Filterclass (1000)



TIME (SECONDS)

TEST FMVSS 208 SLED (H01080)

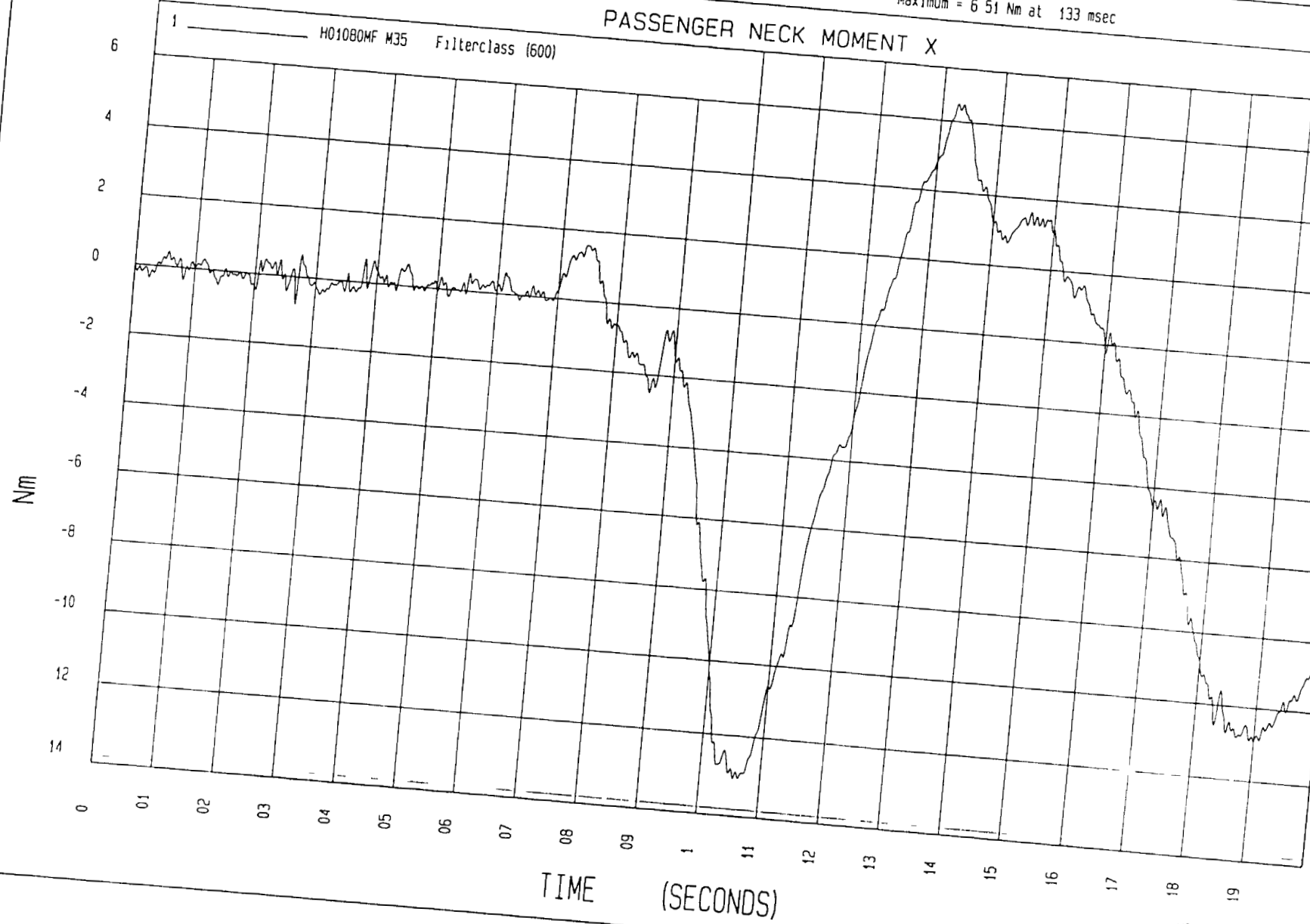
COMPONENT 2001 NISSAN ALTIMA 4 DOOR (C15200)

TEST DATE 05-24-2001

Minimum = -13.2 Nm at 106 msec

Maximum = 6.51 Nm at 133 msec

PASSENGER NECK MOMENT X



MGA Research
05 24 2001 11 54

TEST FMVSS 208 SLED (H01080)

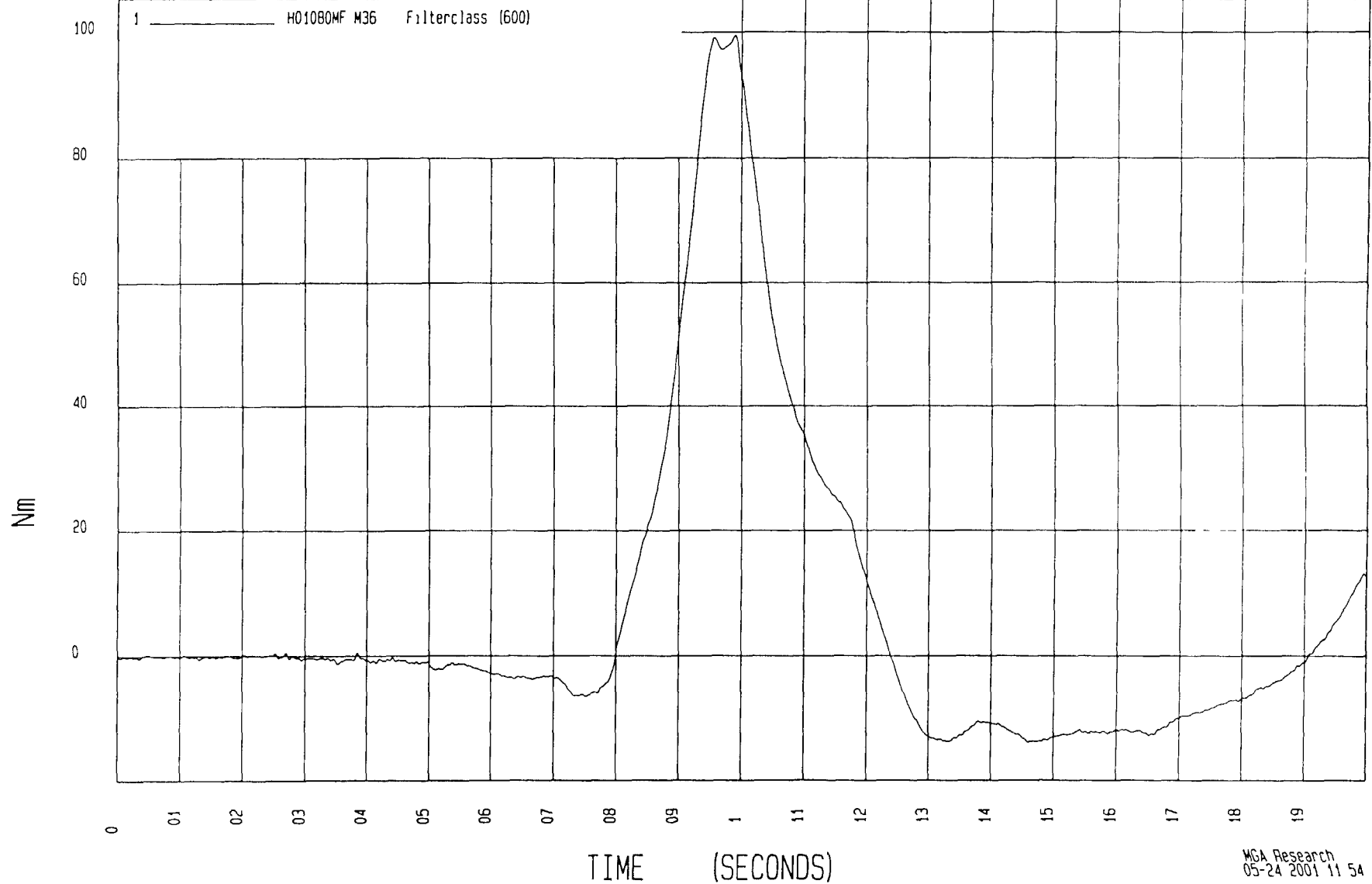
TEST DATE 05-24-2001

COMPONENT 2001 NISSAN ALTIMA 4 DOOR (C15200)

Minimum = -13 63 Nm at 146 msec

Maximum = 99 56 Nm at 99 msec

PASSENGER NECK MOMENT Y



TEST FMVSS 208 SLED (H01080)

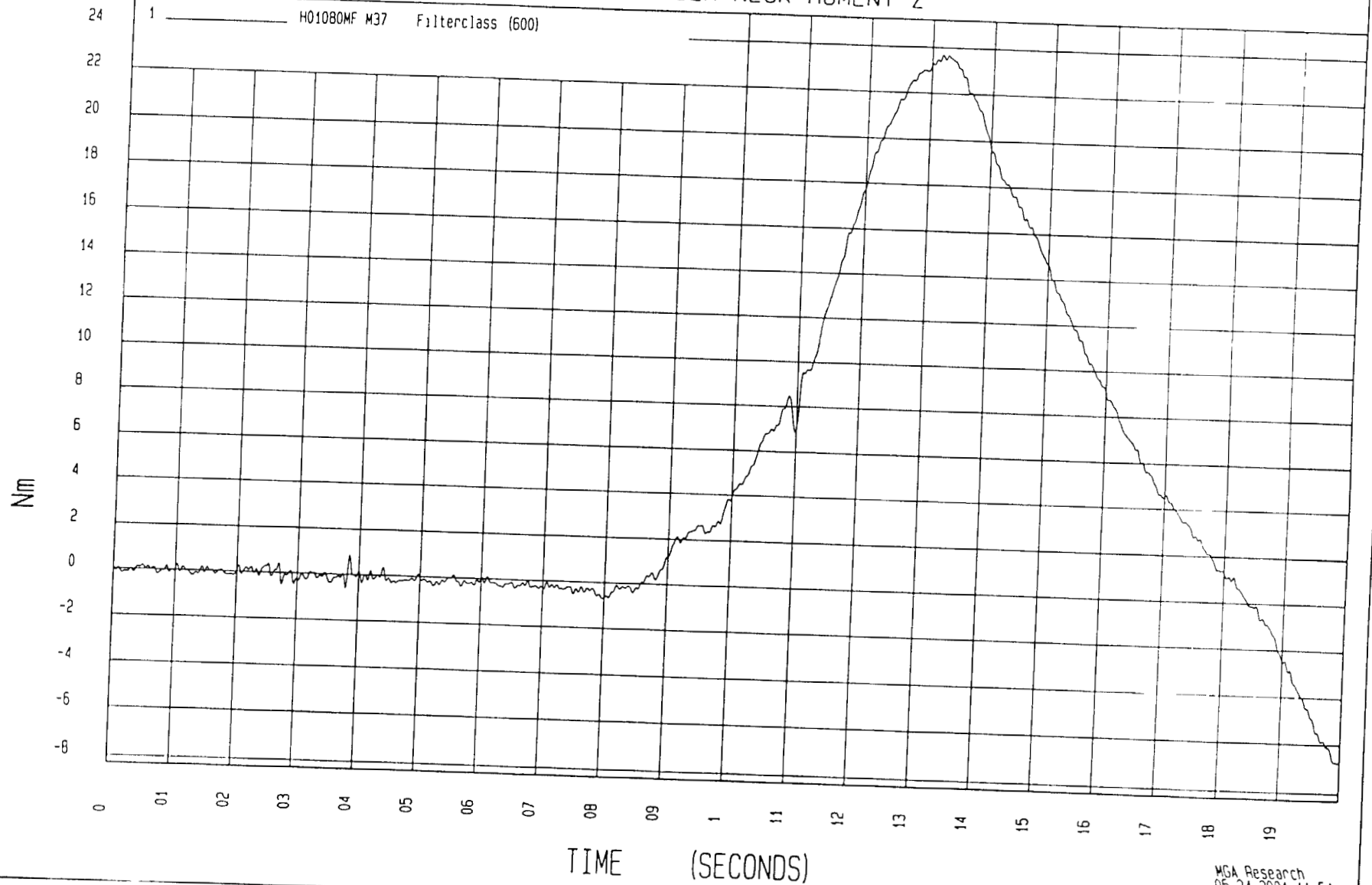
TEST DATE 05-24-2001

COMPONENT 2001 NISSAN ALTIMA 4 DOOR (C15200)

Minimum - 6.77 Nm at 200 msec

Maximum 23.68 Nm at 132 msec

PASSENGER NECK MOMENT Z



MGA Research
05/24/2001 11:54

TIME (SECONDS)

19
18
17
16
15
14
13
12
11
10
09
08
07
06
05
04
03
02
01

Nm

60

50

40

20

0

-20

TEST FMVSS 208 SLED (H01080)

TEST DATE 05-24-2001

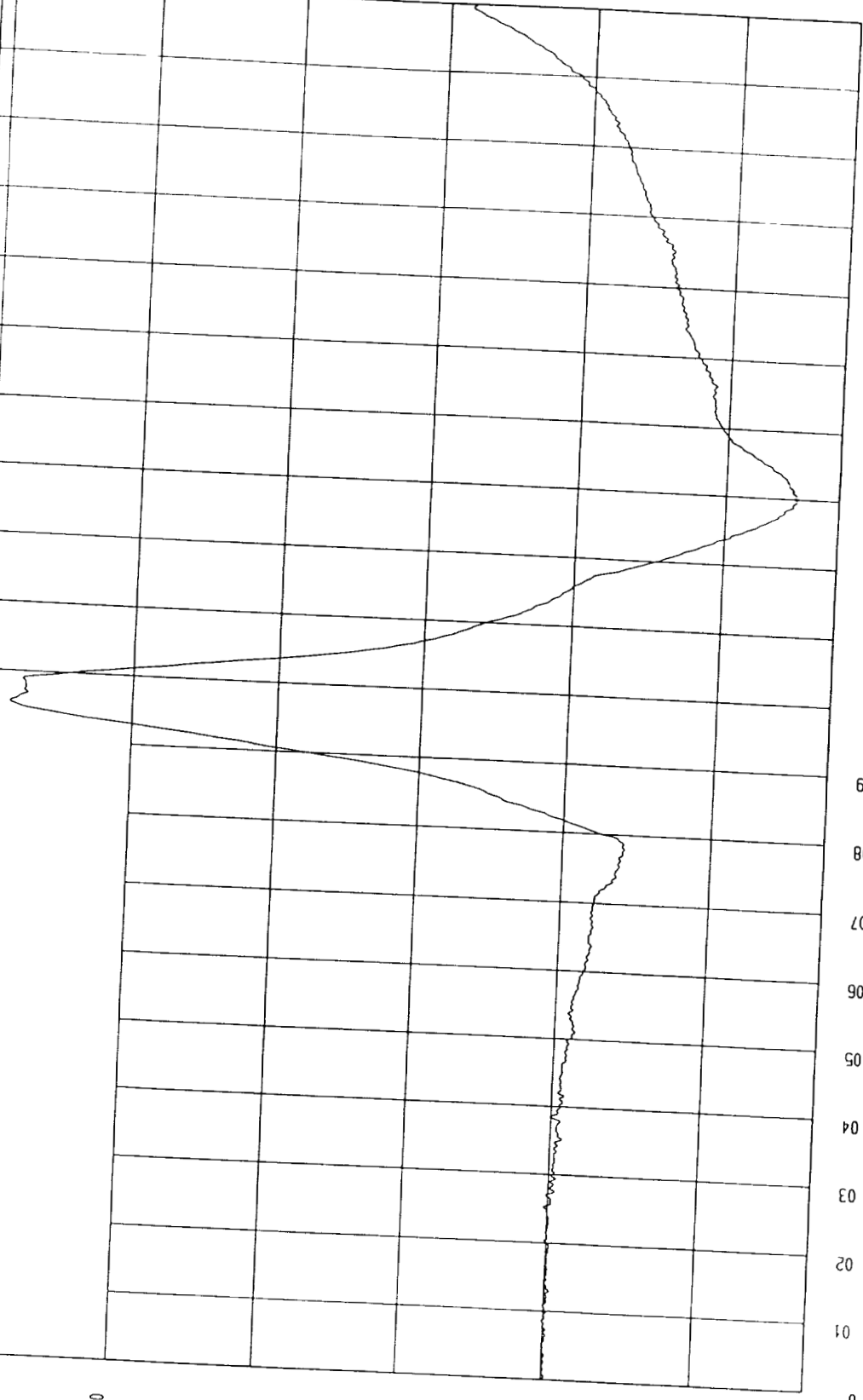
COMPONENT 2001 NISSAN ALTIMA 4 DOOR (C15200)

Minimum 29 38 Nm at 130 msec

Maximum 76 62 Nm at 96 msec

PASSENGER OCCIPITAL CONDYLE MOMENT Y

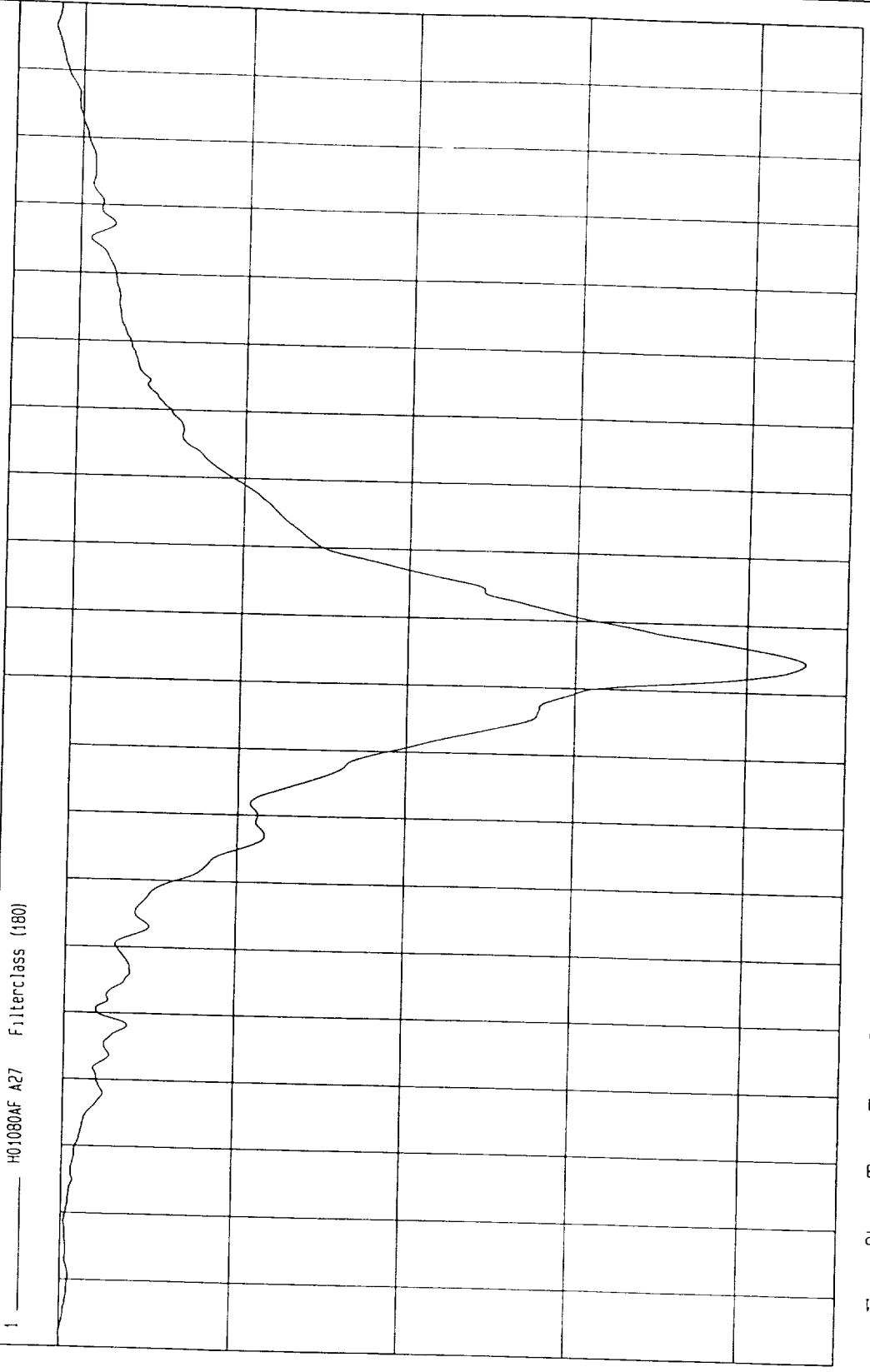
1 H01080M0 M35 Filterclass (600)



WGA Research
05-24-2001 11:55

TIME (SECONDS)

19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1 0



1 H01080AF A27 Filterclass (180)

PASSENGER CHEST X ACCELERATION

Maximum 166 G at 197 msec

Minimum 43.36 G at 104 msec

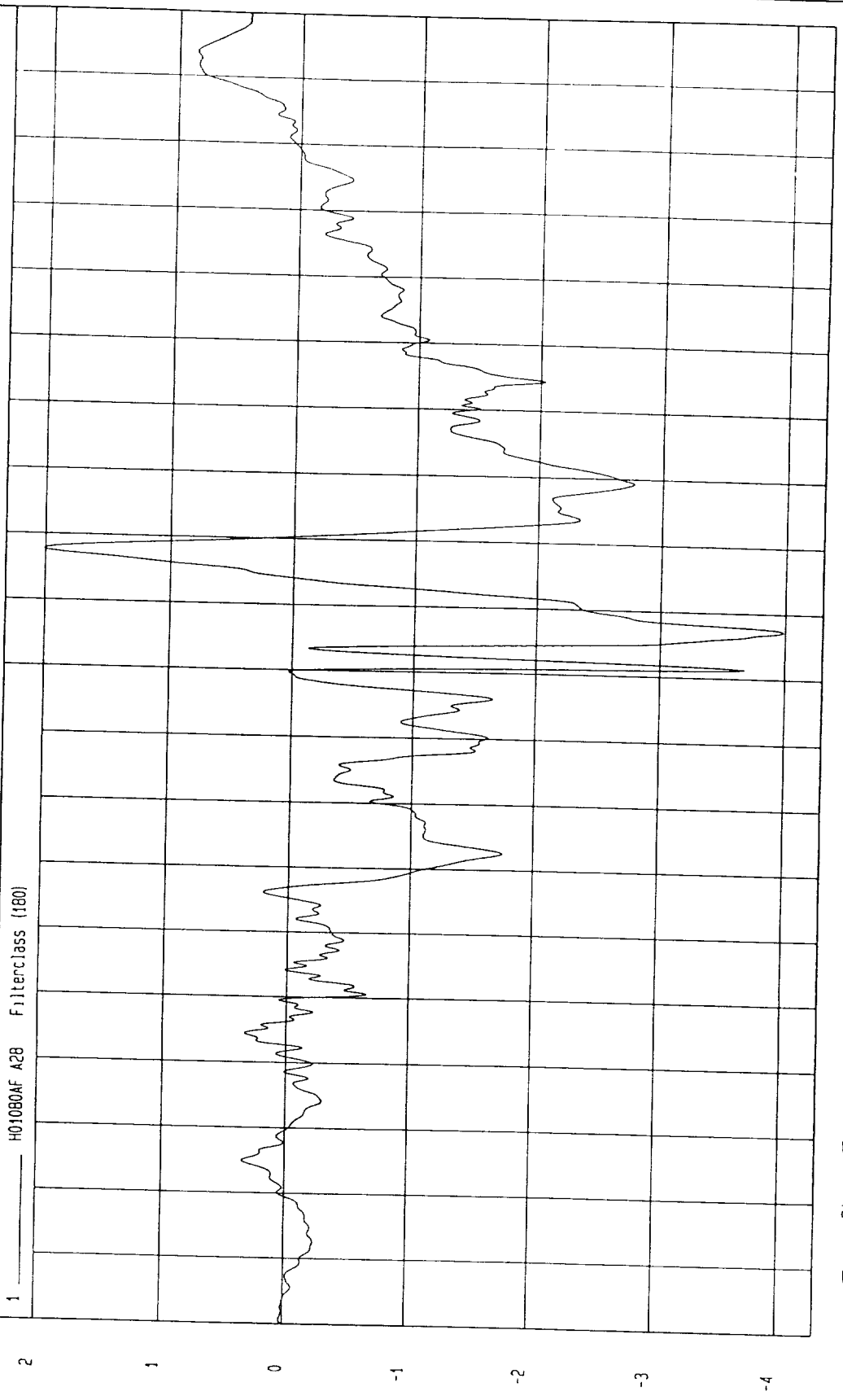
COMPONENT 2001 NISSAN ALTIMA 4 DOOR (C15200)

TEST FMVSS 208 SLED (H01080) TEST DATE 05-24-2001

TIME (SECONDS)

19 18 17 16 15 14 13 12 11 10 09 08 07 06 05 04 03 02 01 0

G



1 H01080AF A28 Filterclass (180)

PASSENGER CHEST Y ACCELERATION

Maximum 2.01 G at 118 msec

Minimum = 3.98 G at 107 msec

COMPONENT 2001 NISSAN ALTIMA 4 DOOR (C15200)

TEST FMVSS 208 SLED (H01080)

TEST DATE 05-24-2001

TEST FMVSS 208 SLED (H01080)

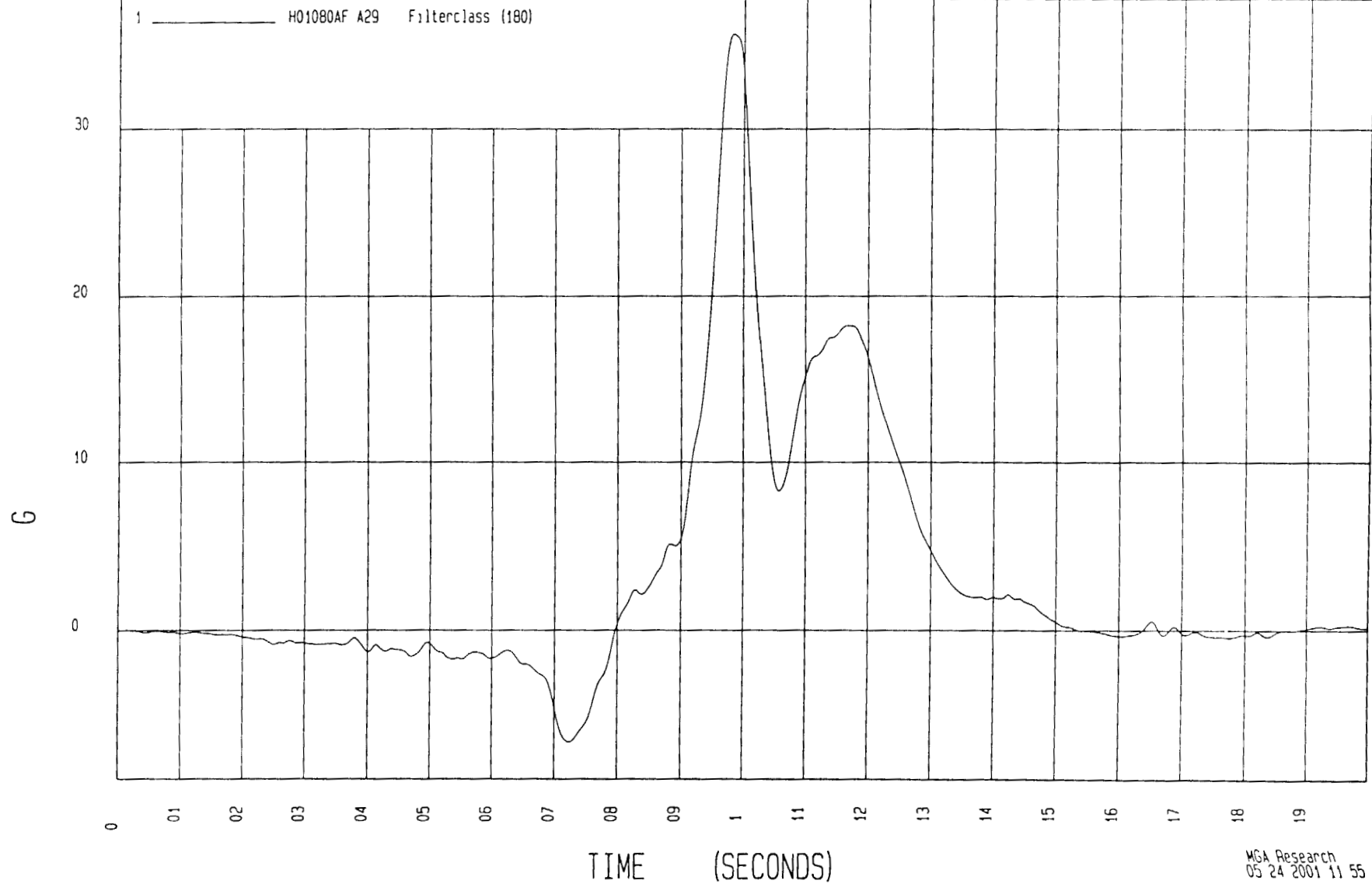
TEST DATE 05-24-2001

COMPONENT 2001 NISSAN ALTIMA 4 DOOR (C15200)

Minimum = -6.55 G at 72 msec

Maximum = 35.6 G at 98 msec

PASSENGER CHEST Z ACCELERATION



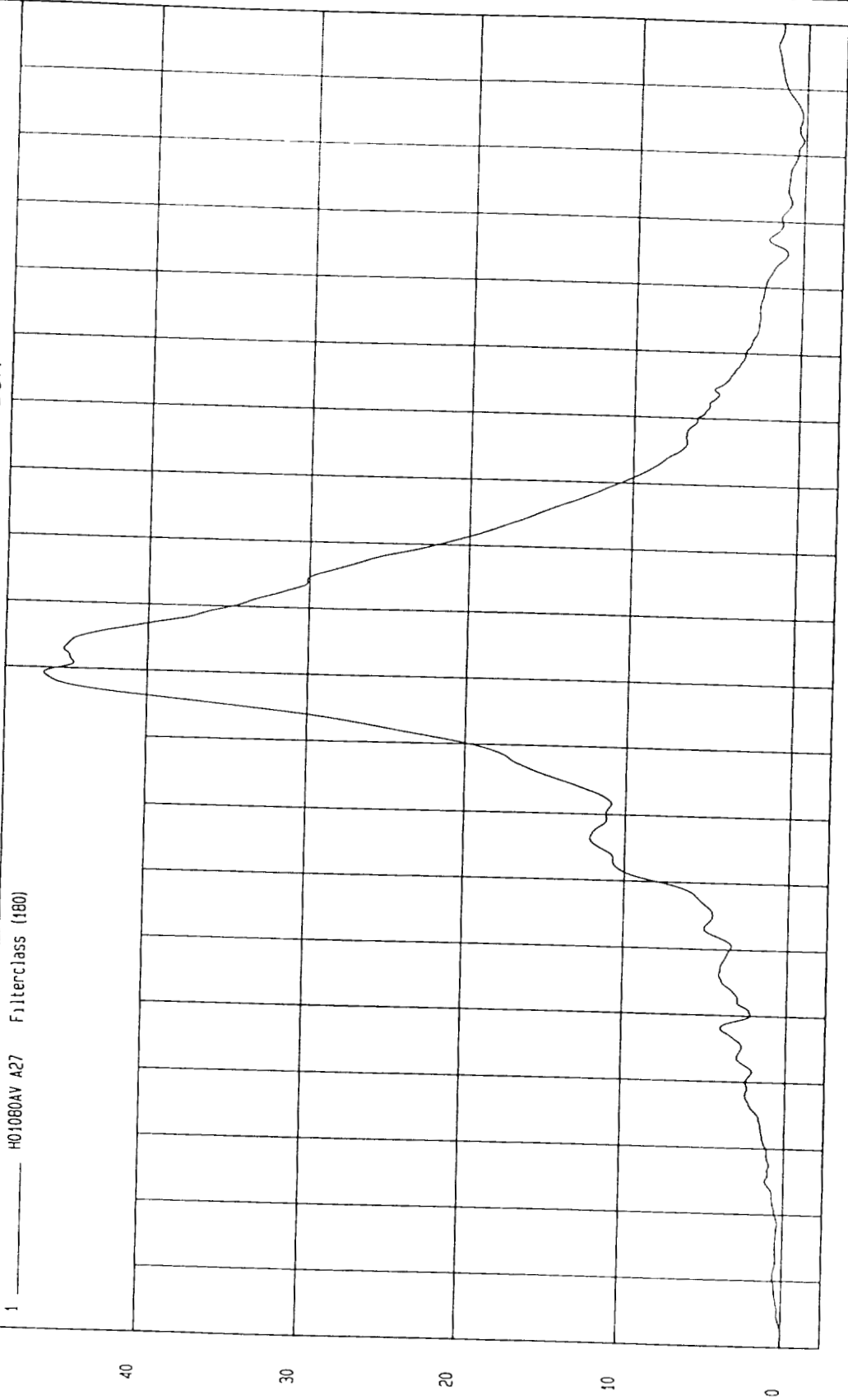
MCA Research
05/24/2001 11:55

MGA Research
05/24/2001 11:55

TIME (SECONDS)

19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1 0

G



PASSENGER CHEST RESULTANT ACCELERATION

Maximum 46.35 G at 99 msec

Minimum 2.02 G at 2 msec

COMPONENT 2001 NISSAN ALTIMA 4 DOOR (C15200)

TEST DATE 05-24-2001

TEST FMVSS 208 SLED (H01080)

1 H01080AV A27 Filterclass (180)

TEST FMVSS 208 SLED (H01080)

TEST DATE 05-24-2001

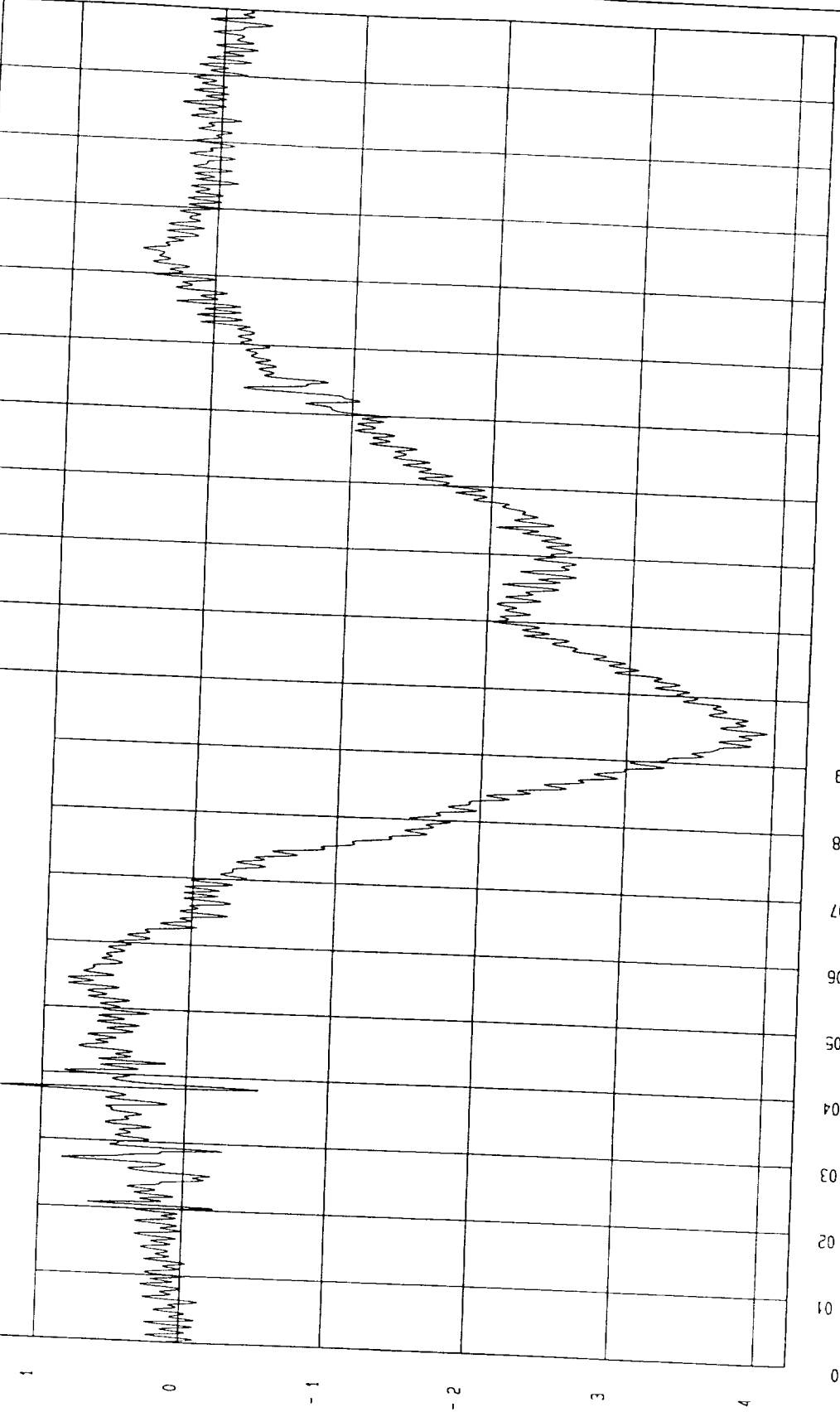
COMPONENT 2001 NISSAN ALTIMA 4 DOOR (C15200)

Minimum - - 4 INCHES at 95 msec

Maximum 13 INCHES at 38 msec

PASSENGER CHEST COMPRESSION

1 H010800F 039 Filterclass (600)



TIME SECONDS

INCHES

TEST FMVSS 208 SLED (H01080)

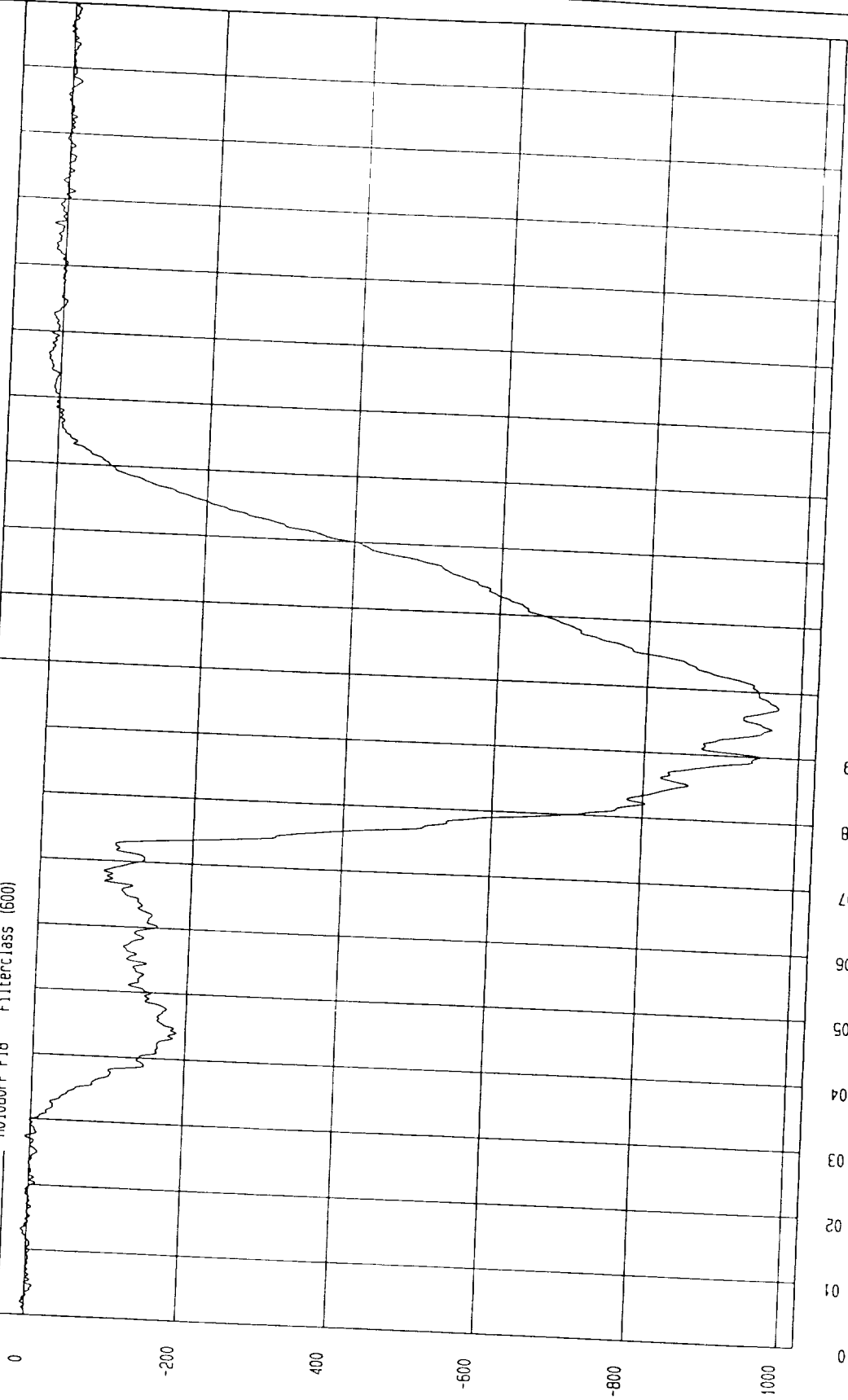
TEST DATE 05-24-2001
COMPONENT 2001 NISSAN ALTIMA 4 DOOR (C15200)

Minimum = -971.95 LB at 98 msec

Maximum 1705 LB at 147 msec

PASSENGER LEFT FEMUR FORCE

1 H01080FF F1B Filterclass (600)



TIME (SECONDS)

LB

TEST FMVSS 208 SLED (H01080)

TEST DATE 05-24-2001

COMPONENT 2001 NISSAN ALTIMA 4 DOOR (C15200)

Minimum 1151 54 LB at 99 msec

Maximum 289 LB at 163 msec

PASSENGER RIGHT FEMUR FORCE

1 H01080FF F45 FilterClass (600)

