

V3671

REPORT NO. 208-MGA-2001-006

SAFETY COMPLIANCE SLED TESTING FOR FMVSS 208
OCCUPANT CRASH PROTECTION

General Motors Corporation
2001 Chevrolet Cavalier 4 Door
NHTSA NO. C10107

MGA RESEARCH CORPORATION
5000 WARREN ROAD
BURLINGTON, WI 53105



Test Date: April 26, 2001

Report Date: May 14, 2001

FINAL REPORT

Prepared For:
U.S. DEPARTMENT OF TRANSPORTATION
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
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OFFICE OF VEHICLE SAFETY COMPLIANCE
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15 Supplementary Notes			
16 Abstract A compliance test (sled test) was conducted on the subject 2001 Chevrolet Cavalier 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 Airbag warning label is not permanently affixed to the sun visor			
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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 Chevrolet Cavalier 4 Door, NHTSA No. C10107, 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 April 26, 2001.

The test vehicle, a 2001 Chevrolet Cavalier 4 Door, NHTSA No. C10107, 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 #312)	Passenger (Serial #340)
HIC	1000	263	183
Chest g	60 g	36.4 g	36.7 g
Chest displacement	3 in.	1.1 in.	0.3 in.
Left Femur	2250 lb	1002 lb	1093 lb
Right Femur	2250 lb	1001 lb	932 lb
Neck Extension	57 Nm	27.4 Nm	16.8 Nm
Neck Flexion	190 Nm	67.0 Nm	27.2 Nm
Neck Tension	3300 N	196 lb	980 N
Neck Compression	4000 N	1078 lb	1618 N
Neck Shear	3100 N	1616 N	1065 N

The vehicle also appears to meet the other FMVSS 208 requirements for which it was tested, with the exception of the requirement that the sunvisor airbag warning label shall be permanently affixed to the sunvisor. 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 17.9 g with an integrated velocity change of 30.4 mph. After filtering the acceleration signal to Channel Class 60, the airbag system was triggered 20.3 milliseconds after 0.5 g acceleration.

INCLUDE DISCUSSION OF LOST CHANNELS OR OTHER TEST ISSUES.

- No valid data was collected from the Passenger Neck Moment X or the Rear Axle X Acceleration channels.

Sled Test Summary

Vehicle NHTSA No.: C10107 Test Mode: FMVSS 208 SLED TEST

Vehicle Yr/Make/Model/Body Style: 2001/Chevrolet/Cavalier/4 Door

Test Date: April 26, 2001

Time: 12:05 p m

Temp: 71°F

Vehicle Test Weight: 3199 lbs.

DUMMY INFO.

DRIVER

PASSENGER

Dummy Type

Part 572E

Part 572E

Serial Number

312

340

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;

0.2 inches shift forward

Seat Back Failure -

no

no

VISIBLE DUMMY CONTACT POINTS:

DRIVER

PASSENGER

Head

Airbag/sunvisor

Airbag/windshield/
sunvisor

Chest

Airbag

Airbag

Left Knee

Knee bolster

Glove box

Right Knee

Knee bolster

Glove box

General Test And Vehicle Parameter DataVehicle Yr/Make/Model/Body Style: 2001/Chevrolet/Cavalier/4 DoorVehicle NHTSA No.: C10107 VIN: 1G1JF524917216625 Color: Silver

Engine Data:

No. Cylinders: 4; CID: ; Liters: 2.2; CCs: Placement: Longitudinal/Inline: ; Transverse/Lateral: X

Transmission Data:

Speeds: 4; Manual: ; Automatic: X; Overdrive:

Final Drive:

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

Major Options:

A/C: X; Pwr. Strg.: X; Pwr. Brakes: X; Pwr. Windows: Pwr. Dr. Locks: ; Other: Cruise control, rear defogger, CD playerDate Received: 1/25/01; Odometer Reading: 60 milesSelling Dealer: Bud Weiser Mtrs. Inc., 2676 Milwaukee Road, Beloit, WI 53511

REMARKS: None

General Test And Vehicle Parameter Data (Cont.)

DATA FROM VEHICLE'S CERTIFICATION LABEL:

Vehicle Manufactured By: General Motors CorporationDate of Manufacture: 10/00; VIN: 1G1JF524917216625GVWR: 3635 lbs; GAWR Front: 1989 lbs.GAWR Rear: 1646 lbs.

DATA FROM TIRE PLACARD:

Tire Pressure with Maximum Capacity Vehicle Load:

FRONT: 30 psi REAR: 30 psiRecommended Tire Size: P195/65R15;

Recommended Cold Tire Pressure:

FRONT: 30 psi REAR: 30 psiSize of Tires on Test Vehicle: P195/65R15Type of Spare Tire: T115/70D14; Space Saver: X; Standard:

Vehicle Capacity Data:

Type of Front Seats: X Bucket; Bench; Split BenchNumber of Occupants: 2 Front; 3 Rear; 3rd Seat; 5 TOTAL

REMARKS: None

VEHICLE CAPACITY WEIGHT (VCW) = 882 lbs.No. Of Occupants x 150 lbs = 750 lbsRated Cargo/Luggage Weight (RCWL) = 132 lbs. (Difference)

General Test And Vehicle Parameter Data (Cont.)

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

Right Front =	<u>885</u> lbs.	Right Rear =	<u>476</u> lbs.
Left Front =	<u>876</u> lbs.	Left Rear =	<u>486</u> lbs.
TOTAL FRONT =	<u>1761</u> lbs.	TOTAL REAR =	<u>962</u> lbs.
% Total Weight =	<u>64.7</u> %	% Total Weight =	<u>35.3</u> %
TOTAL DELIVERED WEIGHT = <u>2723</u> lbs.			

WEIGHT OF FULLY LOADED TEST VEHICLE WITH TWO DUMMIES (344 LB) AND 132 POUNDS OF CARGO WEIGHT:

Right Front =	<u>968</u> lbs.	Right Rear =	<u>634</u> lbs.
Left Front =	<u>958</u> lbs.	Left Rear =	<u>639</u> lbs.
TOTAL FRONT =	<u>1926</u> lbs.	TOTAL REAR =	<u>1273</u> lbs.
% Total Weight =	<u>60.2</u> %	% Total Weight =	<u>39.8</u> %
TOTAL WEIGHT = <u>3199</u> lbs.			

TEST VEHICLE ATTITUDE: (all measurements in degrees)

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

FUEL SYSTEM DATA:

Fuel System Capacity From Owner's Manual = 15.2 gallons
Usable Capacity Figure Furnished by COTR = 15.2 gallons

REMARKS: None

Seat and Steering Column Positioning Data

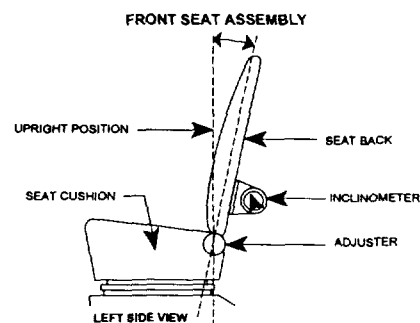
Vehicle Yr/Make/Model/Body Style: 2001/Chevrolet/Cavalier/4 Door

Vehicle NHTSA No.: C10107 Test Date: April 26, 2001

NOMINAL DESIGN RIDING POSITION:

Driver Seat: Seat Back Angle = 27.1°

Passenger Seat: Seat Back Angle = 27.2°



SEAT FORE AND AFT POSITIONS:

Driver Seat. The seat track had a total position movement of 22 notches and was positioned 11 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 10 notches and was positioned 5 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 (3rd locking position of 5).

Dummy Positioning Measurement Table

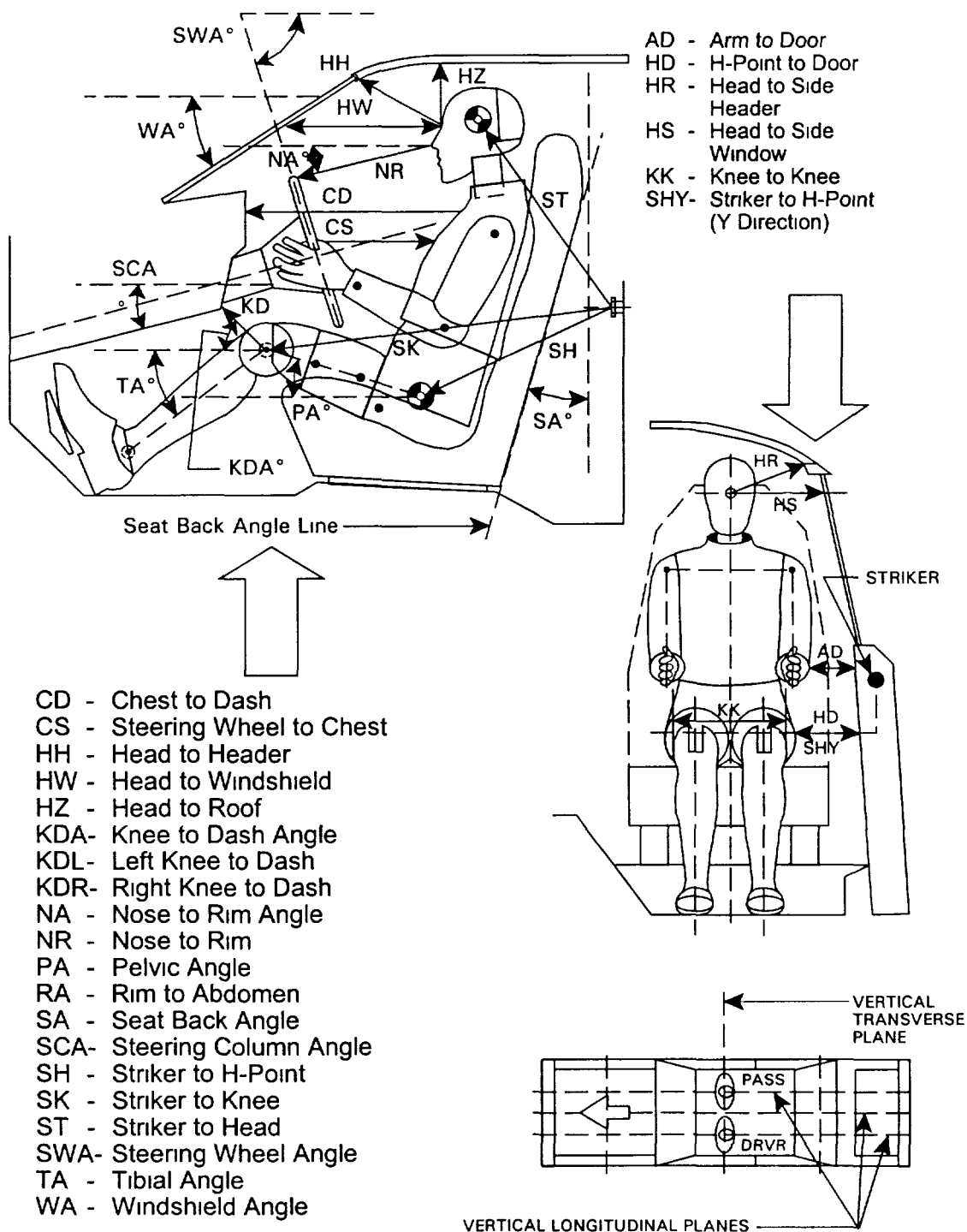
Vehicle Year/Make/Model/Body Style: 2001/Chevrolet/Cavalier/4 Door

Vehicle NHTSA No.: C10107 Test Date: April 26, 2001

	DRIVER (Serial #312)	PASSENGER (Serial #340)
WA°	27.0°	
SWA°	21.8°	
SCA°	21.1°	
SA°	27.1°	27.2°
HZ	6.3	6.3
HH	11.1	12.0
HW	22.2	22.8
HR	6.6	6.9
NR	15.3 Angle (NA°) 11.8°	
CD	19.7	19.7
CS	12.3	
RA	7.4	
KDL	6.3 Angle (KDA°) 23.6°	6.2
KDR	5.8	6.5 Angle (KDA°) 35.5°
PA°	24.2°	24.5°
TA°	35.5°	35.8°
KK	12.9	9.6
ST	19.9 Angle 6.4°	20.4 Angle 5.6°
SK	23.0 Angle 93.0°	23.0 Angle 93.8°
SH	8.1 Angle 124.1°	7.5 Angle 123.1°
SHY	11.1	11.1
HS	11.3	11.7
HD	5.1	5.2
AD	4.6	5.2

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)

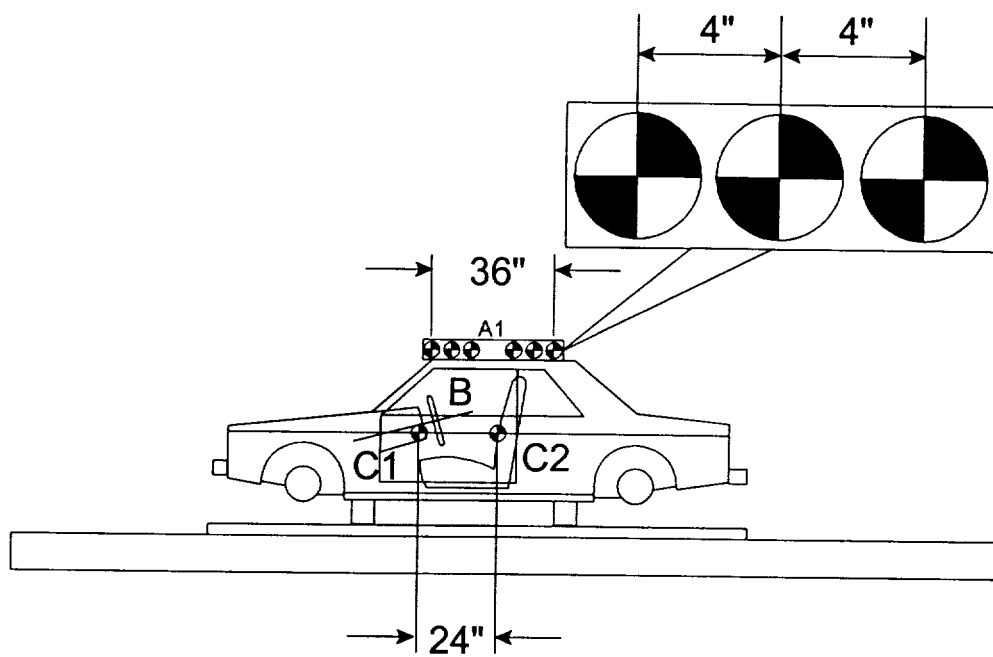
* Measurement used in Data Tape Reference Guide

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

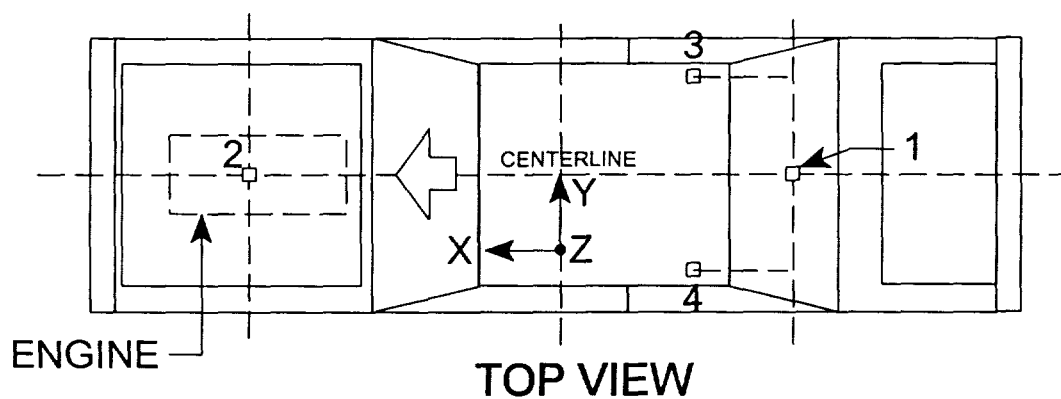
SA	Seat Back Angle, find this angle using the instructions provided by the manufacturer. If the manufacturer doesn't provide clear instructions contact the COTR.
PA	Pelvic or Femur Angle, taken by inserting the pelvic angle gauge into the H-point gauging hole on the SID or the Hybrid III dummies and 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

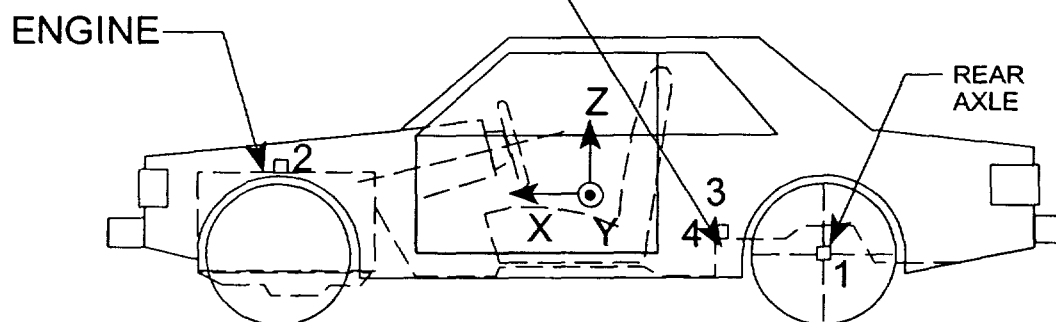
REFERENCE PHOTO TARGETS



LEFT SIDE VIEW

Vehicle Accelerometer Placement and Data SummaryVehicle Year/Make/Model/Body Style: 2001/Chevrolet/Cavalier/4 DoorVehicle NHTSA No.: C10107 Test Date April 26, 2001

REAR SEAT CUSHION
ASSY. FRONT ATTACHMENT
BRACKET SUPPORT



LEFT SIDE VIEW

Vehicle Accelerometer Location Measurements and Data Summary

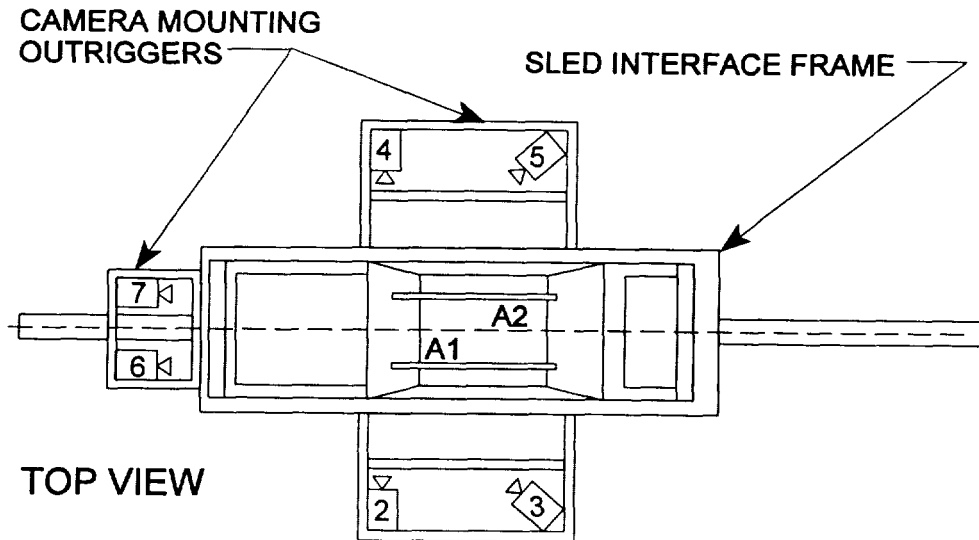
Vehicle Year/Make/Model/Body Style. 2001/Chevrolet/Cavalier/4 Door

Vehicle NHTSA No C10107 Test Date: April 26, 2001

No	Location	X (in)	Y (in)	Positive Direction		Negative Direction	
				Value	Time (msec)	Value	Time (msec)
	Sled Primary Longitudinal	67.0	0	17.9 g	65	-1.1 g	172
	Sled Redundant Longitudinal	67.0	4.0	18.1 g	66	-1.1 g	129
	Sled Velocity Measured Integrated	67.0	0	30.4 mph	126	--	--
1	Rear Axle Longitudinal	46.0	0	**	**	**	**
2	Top Engine Longitudinal	148.0	0	20.7 g	64	-3.0 g	155
3	Right Rear Seat Member Longitudinal	70.0	15.5	19.0 g	54	-1.7 g	178
4	Left Rear Seat Member Longitudinal	70.0	15.5	18.1 g	55	-1.5 g	146

** - No valid data collected

Camera Positions



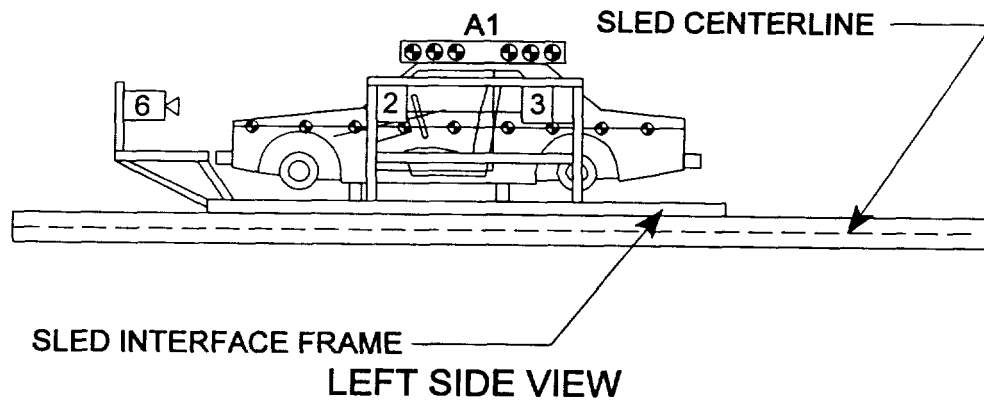
CAMERA FRAME RATES:

#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	67.1	13	1000
3	Onboard Driver Angle	150.9	91.1	47.8			13	1000
4	Onboard Passenger	71.8	89.6	38.5	90	70.1	13	990
5	Onboard Passenger Angle	146.7	88.5	47.9			13	952
6	Onboard Windshield Driver	18.3	14.1	47.5			13	1026
7	Onboard Windshield Passenger	18.3	13.9	47.5			13	1000

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/Chevrolet/Cavalier/4 Door

Vehicle NHTSA No.: C10107 Test Date. April 26, 2001

MAXIMUM ACCELERATION VALUES: (g's)	DRIVER DUMMY #312	PASSENGER DUMMY #340
Head Channel X	-48.3	-66.5
Head Channel Y	12.6	-11.6
Head Channel Z	14.8	49.3
HEAD RESULTANT	50.5	82.9
Chest Channel X	-34.5	-33.5
Chest Channel Y	3.3	-8.8
Chest Channel Z	17.1	30.8
CHEST RESULTANT	37.0	40.7

HEAD INJURY CRITERIA (HIC) VALUES:

HIC	263	183
t_1 = (msec)	80.4	86.9
t_2 = (msec)	106.1	115.1

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

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

CLIP	36.4	36.7
t_1 = (msec)	95.8	97.0
t_2 = (msec)	98.8	100.0
CHEST DEFLECTION (in)	1.1	0.3

Occupant Injury Data (Cont.)

MAX. COMPRESSIVE FEMUR FORCES	DRIVER DUMMY #312	PASSENGER DUMMY #340
Left Side (lbs)	1002	1093
Right Side (lbs)	1001	932

NECK INJURY CRITERIA:

Peak Flexion Bending Moment about the Occipital Condyle (N-m)	67.0	27.2
Peak Extension Bending Moment about the Occipital Condyle (N-m)	27.4	16.8
Peak Axial Tension (N)	196	980
Peak Axial Compression (N)	1078	1618
Peak Fore Shear (N)	1616	1065
Peak Aft Shear (N)	233	266

Seat Belt Warning System Data

Vehicle Year/Make/Model/Body Style: 2001/Chevrolet/Cavalier/4 Door

NHTSA No.. C10107 ; Technician Chad Gadberry, Date: March 27, 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 = 8 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 = 5 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	X

Readiness IndicatorVehicle Year/Make/Model/Body Style: 2001/Chevrolet/Cavalier/4 DoorNHTSA No.: C10107; Technician: Chad Gadberry; Date: March 27, 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: Left side 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/Chevrolet/Cavalier/4 Door

NHTSA No. C10107; Technician Chad Gadberry; Date March 27, 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 ☒ 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? ☒ 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? ☒ 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 - | () Yes-Pass | (X) No-FAIL |
| Passenger Side - | () N/A | (X) 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

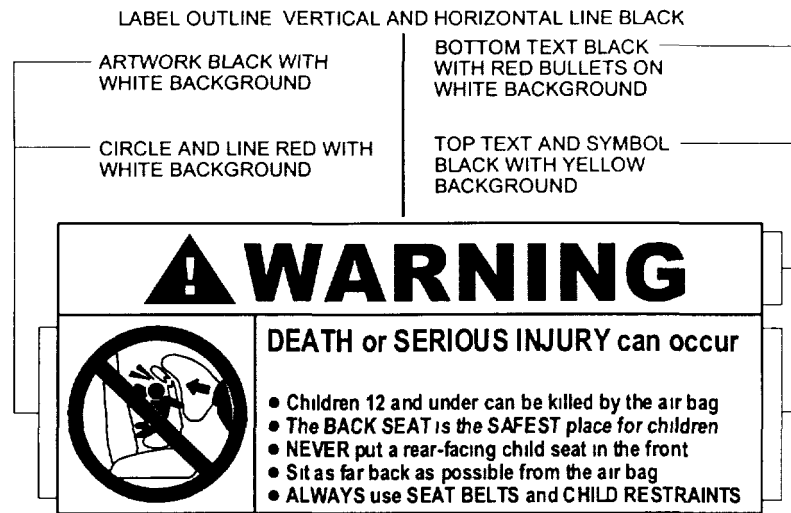


Figure 6a (S4.5.1(b)(2))

SUN VISOR LABEL VISIBLE WHEN VISOR IS IN DOWN POSITION

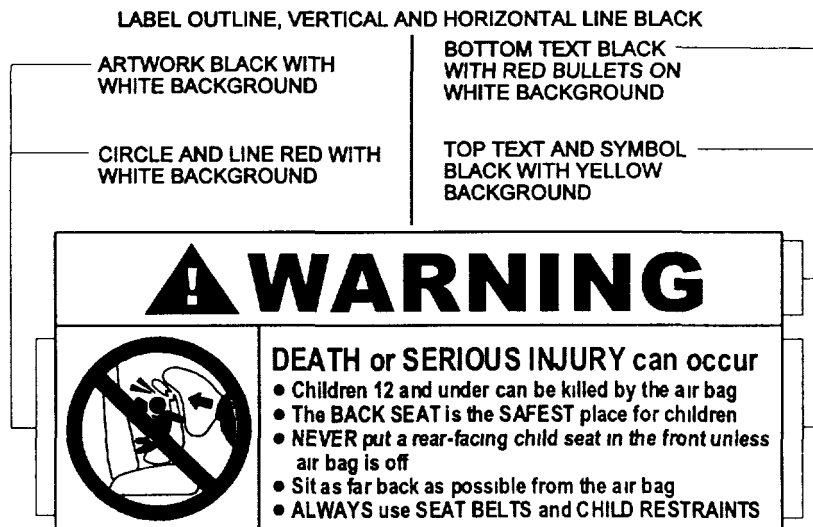


Figure 6b (S4 5 1(b)(2))

- | | | | | |
|-----|---|------------------|----------------|-------------------------|
| 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)

- 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

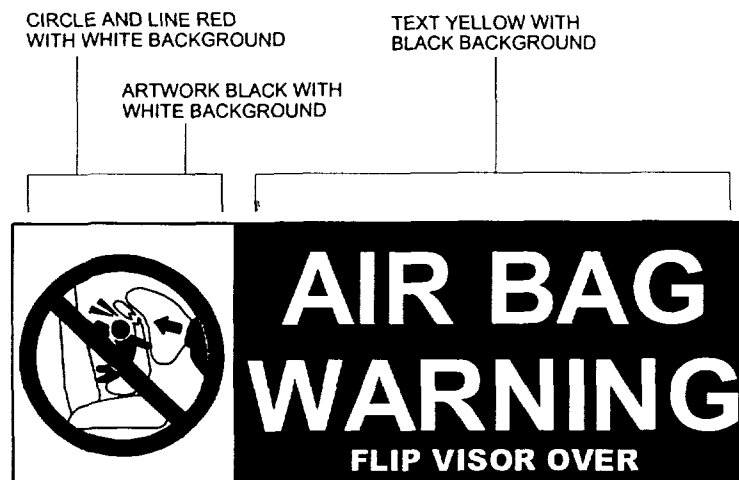


Figure 6c (S4.5.1(c)(2))

- 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. 53 6 cm²
(X)Yes-Pass () No-FAIL

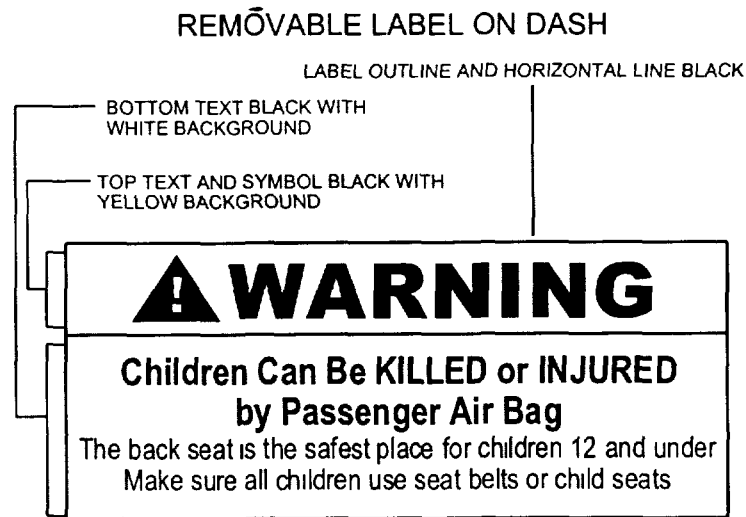


Figure 7 (S4.5.1(e))

Rear Outboard Seating Position Seat Belt DataVehicle Year/Make/Model/Body Style: 2001/Chevrolet/Cavalier/4 DoorNHTSA No.. C10107; Technician Chad Gadberry, Date: March 27, 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 DataVehicle Year/Make/Model/Body Style: 2001/Chevrolet/Cavalier/4 DoorNHTSA No C10107, Technician Chad Gadberry; Date: March 27, 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 55.5 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)

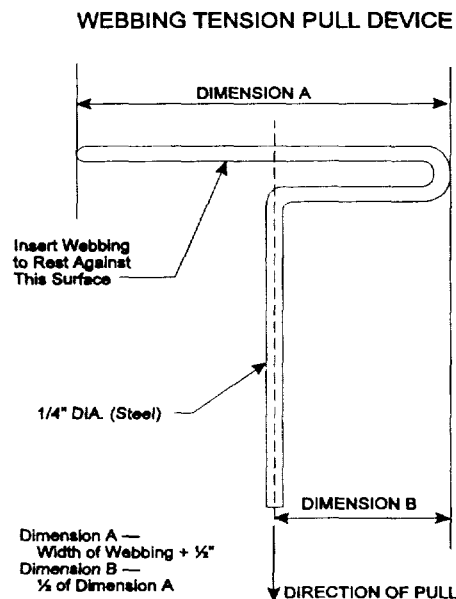


Figure 5 (S7.1.1.5(c)(4))

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 20.5 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 20.9 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 = 0.4 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 = 34.6 inches

(X)Yes-Pass

() No-FAIL

REMARKS: None

Lap Belt Lockability Data (Cont)

Vehicle Year/Make/Model/Body Style: 2001/Chevrolet/Cavalier/4 Door

NHTSA No : C10107 , Technician: Chad Gadberry , Date: March 27, 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? () Yes, go to 6.1 (X) 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))

() 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 59.5 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)

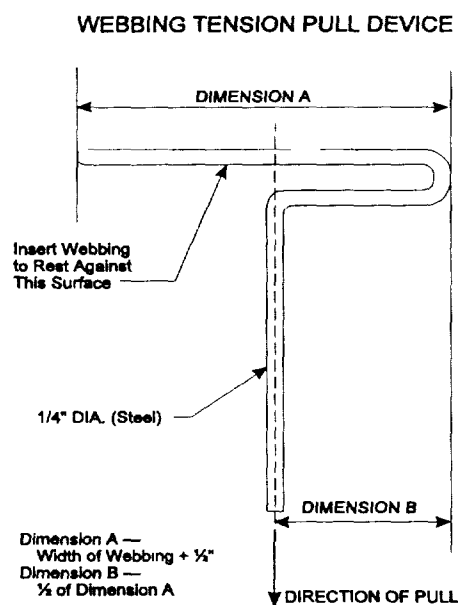


Figure 5 (S7.1.1.5(c)(4))

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 17.0 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 17.3 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 = 0.3 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 = 42.2 inches

(X)Yes-Pass

() No-FAIL

REMARKS: None

Lap Belt Lockability Data (Cont.)

Vehicle Year/Make/Model/Body Style: 2001/Chevrolet/Cavalier/4 Door

NHTSA No. C10107; Technician Chad Gadberry, Date March 27, 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? () Yes, go to 6.1 (X) 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))

() 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 36.0 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)

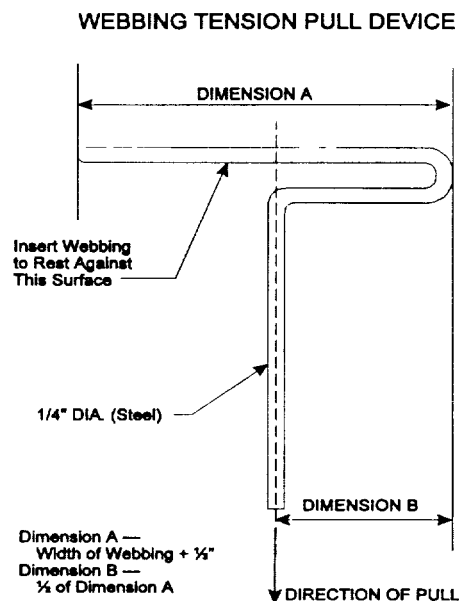


Figure 5 (S7 1 1 5(c)(4))

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 18.0 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 = 0.0 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 = 18.0 inches

(X)Yes-Pass

() No-FAIL

REMARKS. None

Lap Belt Lockability Data (Cont.)

Vehicle Year/Make/Model/Body Style: 2001/Chevrolet/Cavalier/4 Door

NHTSA No C10107 ; Technician: Chad Gadberry ; Date March 27, 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?

() Yes, go to 6.1 (X) 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))

() 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 59.5 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)

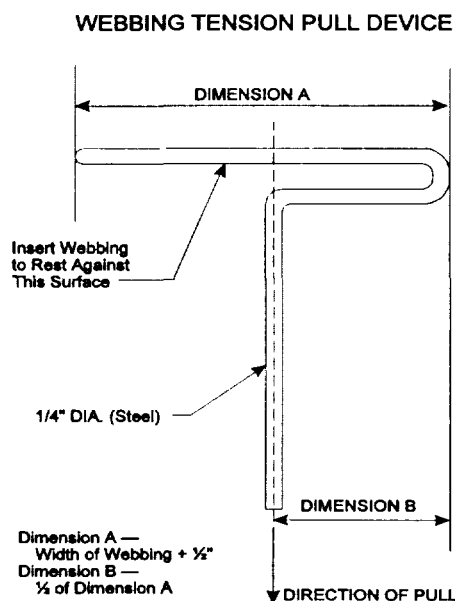


Figure 5 (S7.1.1.5(c)(4))

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 17.0 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 17.3 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 = 0.3 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 = 42.2 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. C10107

Vehicle Model Year/Make/Model/Body Style 2001/Chevrolet/Cavalier/4 Door

Designated Seating Position Tested: Left Rear

Date of Comfort/Convenience Check: March 27, 2001

Technician Performing Check: Chad Gadberry

GVWR 3635 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)

- 1.7 Adjustable lumbar supports are positioned so that the lumbar support is in its lowest adjustment position. (S8 1 3)
☐ Check
☒ N/A
- 1.8 Position the test dummies according to dummy position placement instructions in Appendix B.
☒ Check
- 1 9 Fasten the seat belt latch. Pull either 12 inches of belt webbing or the maximum available amount of belt webbing, whichever is less, from the retractor and then release it, allowing the belt webbing to return to the dummy's chest. Locate the point where the centerline of the upper torso belt webbing crosses the midsagittal line on the dummy's chest. At that point, pull the belt webbing out 3 inches from the dummy's chest and release until it is within one inch from the dummy's chest. (S10.8) Measure the contact force exerted by the belt webbing on the dummy's chest. Contact the COTR if the contact force exceeds 0.7 pounds.
Contact Force 0.1 lb. ☒ 0.0 to 0.7 pounds - Pass
☐ greater than 0.7 pounds - FAIL*
- * If the seat belts are voluntarily installed by the manufacturer they do not have to comply.

Seat Belt Comfort and Convenience Data (Cont.)

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

Test Vehicle NHTSA No C10107

Vehicle Model Year/Make/Model/Body Style 2001/Chevrolet/Cavalier/4 Door

Designated Seating Position Tested. Right Rear

Date of Comfort/Convenience Check: March 27, 2001

Technician Performing Check. Chad Gadberry

GVWR: 3635 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 7 Adjustable lumbar supports are positioned so that the lumbar support is in its lowest adjustment position (S8 1.3)
() Check
(X) N/A
- 1 8 Position the test dummies according to dummy position placement instructions in Appendix B
(X) Check
- 1 9 Fasten the seat belt latch. Pull either 12 inches of belt webbing or the maximum available amount of belt webbing, whichever is less, from the retractor and then release it, allowing the belt webbing to return to the dummy's chest. Locate the point where the centerline of the upper torso belt webbing crosses the midsagittal line on the dummy's chest. At that point, pull the belt webbing out 3 inches from the dummy's chest and release until it is within one inch from the dummy's chest. (S10.8) Measure the contact force exerted by the belt webbing on the dummy's chest. Contact the COTR if the contact force exceeds 0.7 pounds
Contact Force 0.1 lb. (X) 0.0 to 0.7 pounds - Pass
() greater than 0.7 pounds - FAIL*
- * If the seat belts are voluntarily installed by the manufacturer they do not have to comply.

Test Vehicle NHTSA No C10107

Vehicle Model Year/Make/Model/Body Style. 2001/Chevrolet/Cavalier/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 : C10107

Vehicle Model Year/Make/Model/Body Style: 2001/Chevrolet/Cavalier/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.: C10107

Vehicle Model Year/Make/Model/Body Style 2001/Chevrolet/Cavalier/4 Door

Designated Seating Position Tested Left Rear

Date of Comfort/Convenience Check: March 27, 2001

Technician Performing Check: Chad Gadberry

GVWR 3635 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 C10107

Vehicle Model Year/Make/Model/Body Style: 2001/Chevrolet/Cavalier/4 Door

Designated Seating Position Tested Center Rear

Date of Comfort/Convenience Check: March 27, 2001

Technician Performing Check Chad Gadberry

GVWR: 3635 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.: C10107

Vehicle Model Year/Make/Model/Body Style: 2001/Chevrolet/Cavalier/4 Door

Designated Seating Position Tested: Right Rear

Date of Comfort/Convenience Check: March 27, 2001

Technician Performing Check: Chad Gadberry

GVWR 3635 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)?

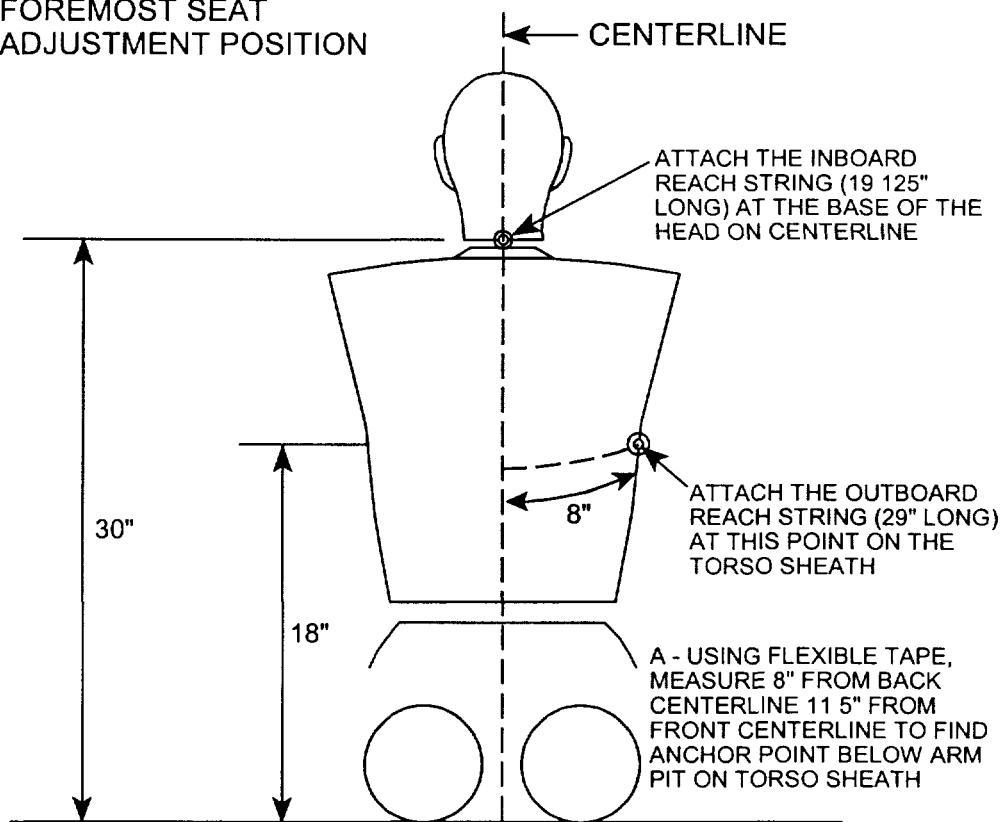
(X) Yes - Pass

() No - **FAIL**

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

PART 572E DUMMY

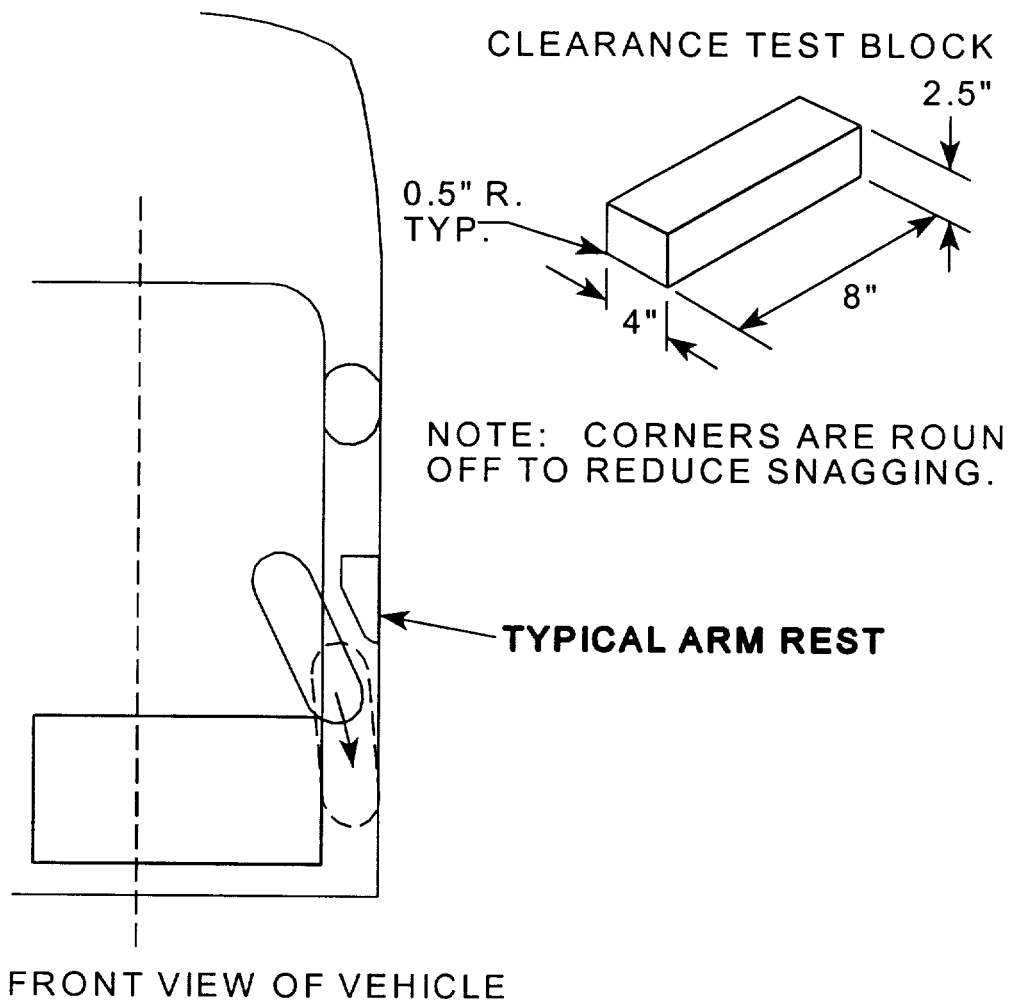
50TH PERCENTILE
DUMMY SEATED IN
FOREMOST SEAT
ADJUSTMENT POSITION



SEAT PLANE IS 90 DEGREES TO THE TORSO LINE

REAR VIEW

USE OF CLEARANCE TEST BLOCK TO DETERMINE HAND/ARM ACCESS



APPENDIX A
PHOTOGRAPHS

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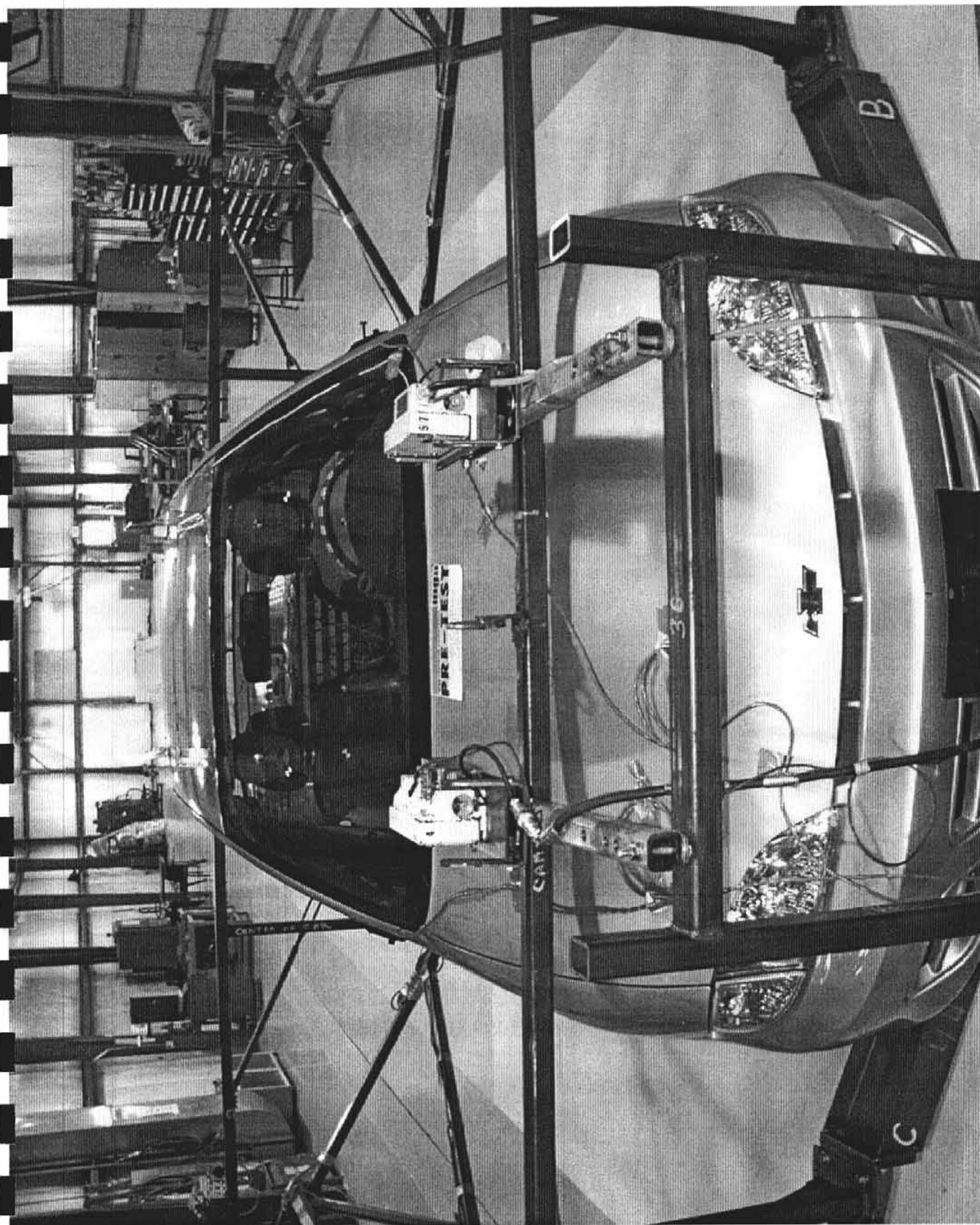


Photo No. A-1 - Pre-Test Frontal View

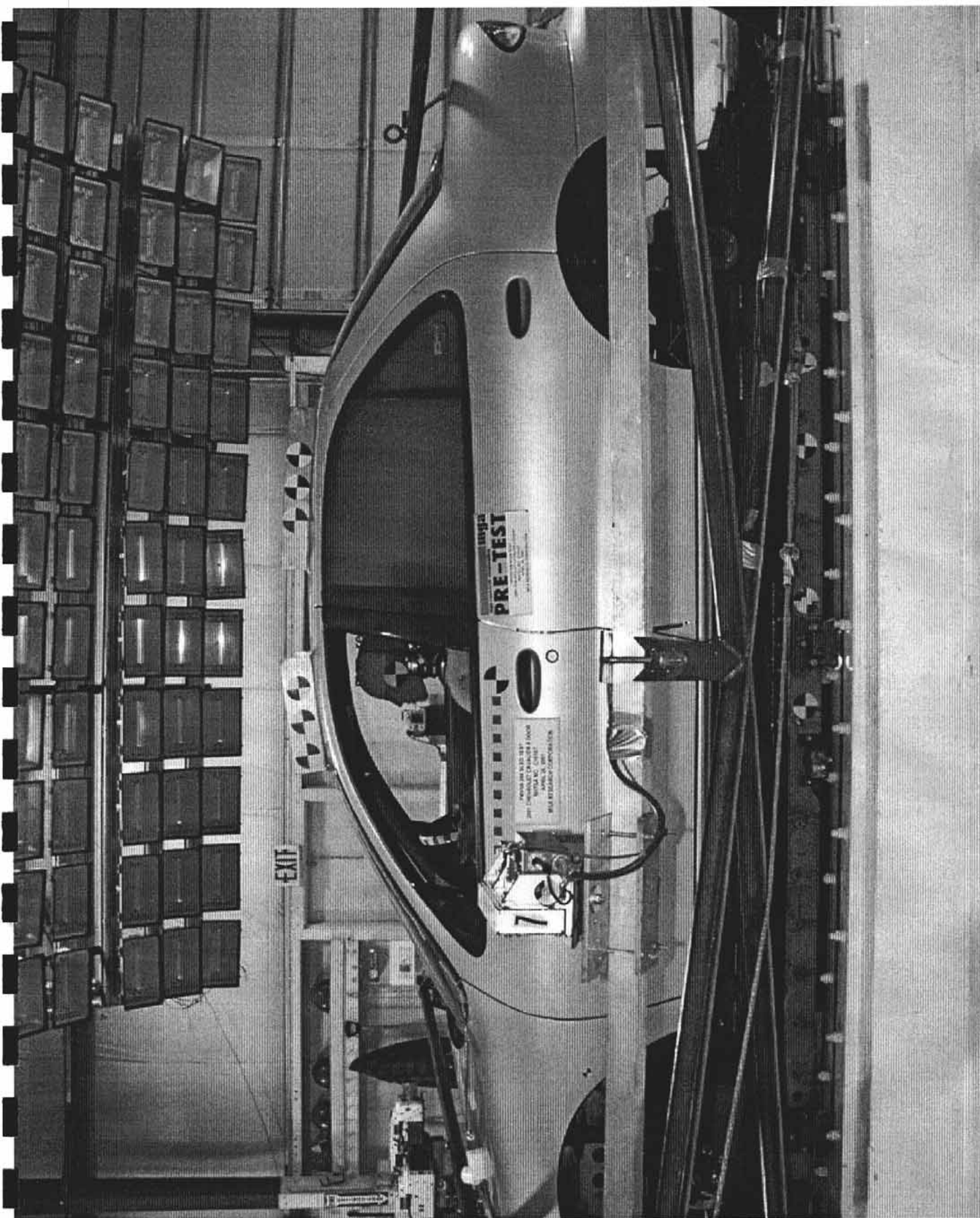


Photo No. A-2 - Pre-Test Left Side View

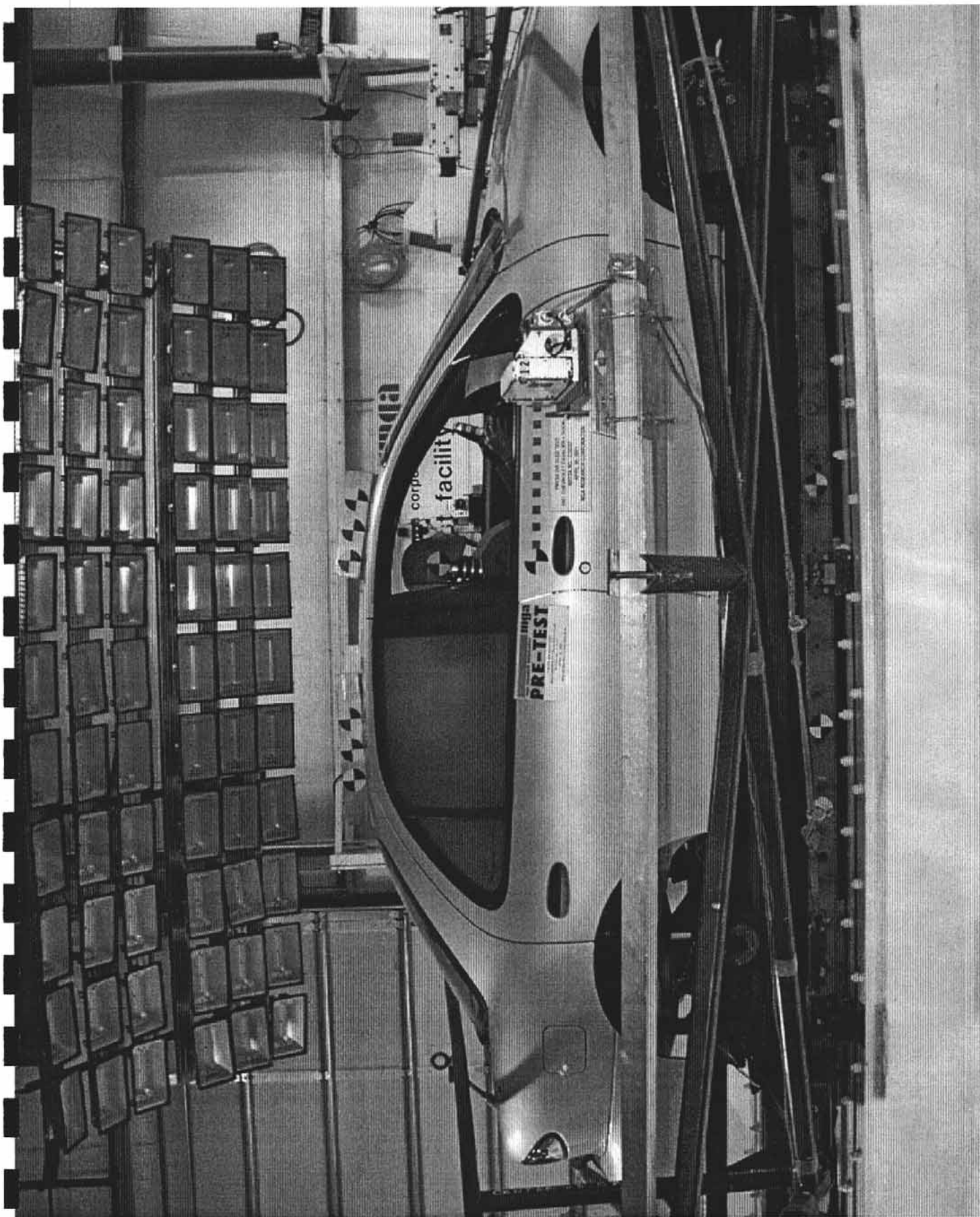


Photo No. A-3 - Pre-Test Right Side View

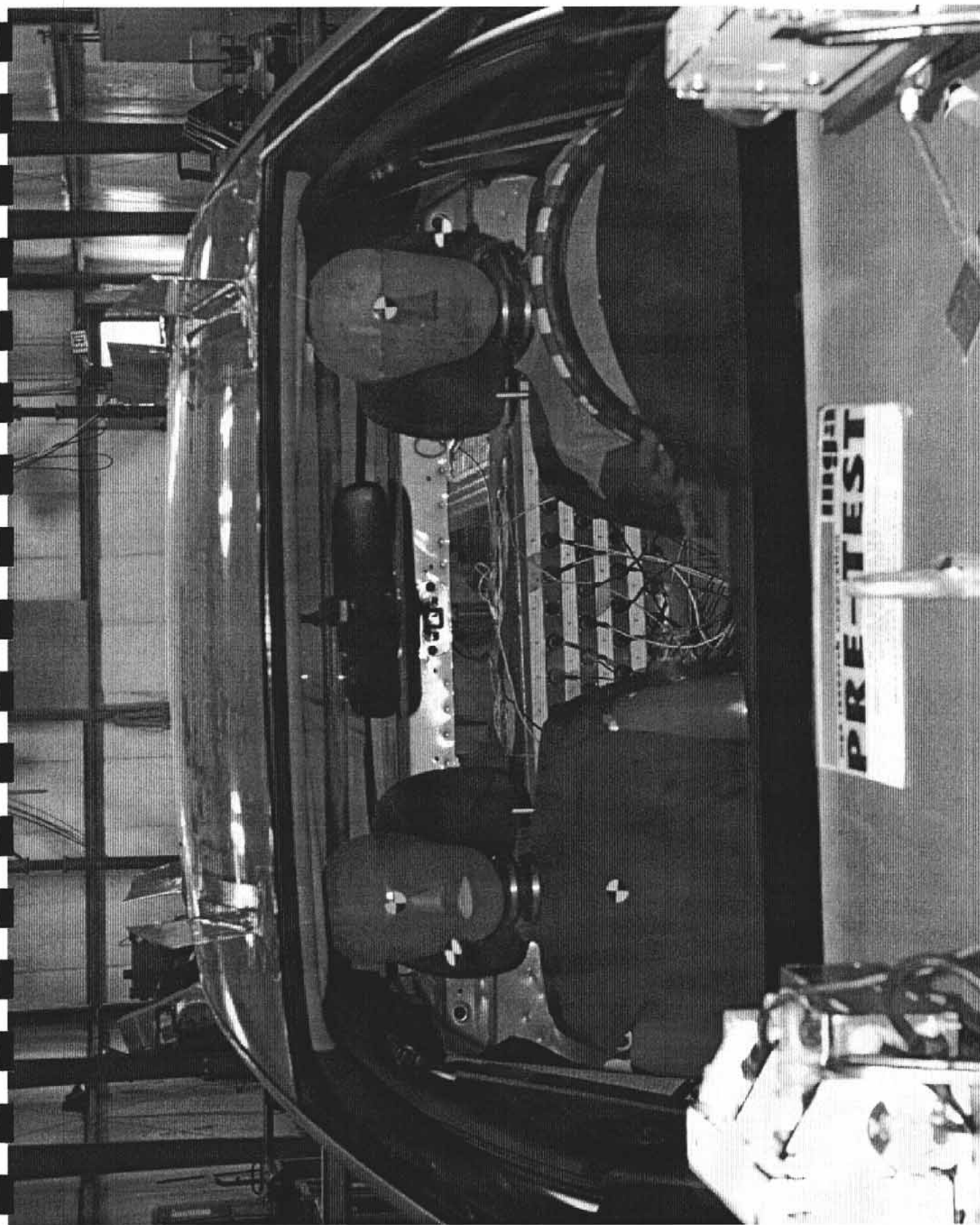


Photo No. A-4 - Pre-Test Windshield View

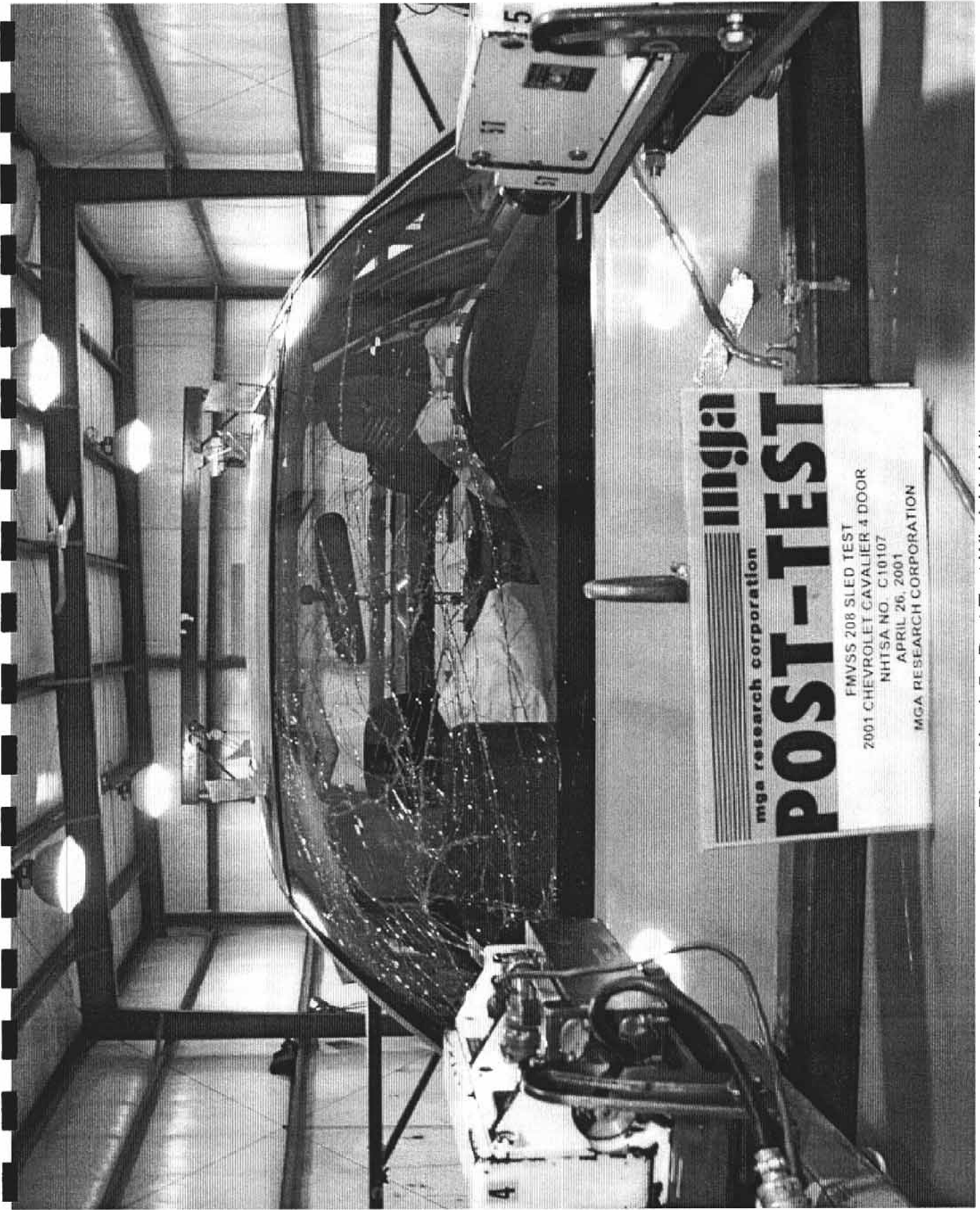


Photo No. A-5 - Post-Test Windshield View



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



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

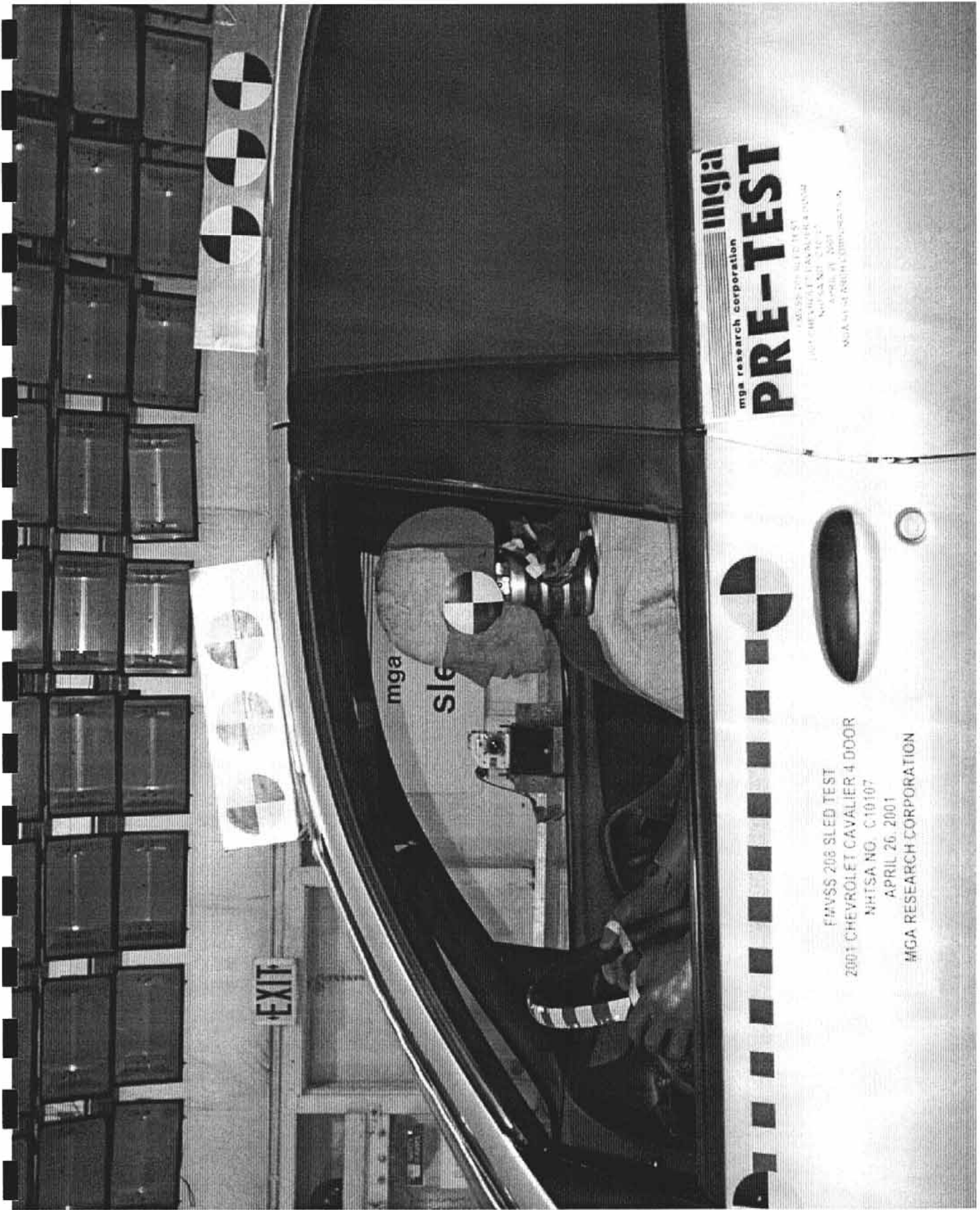


Photo No. A-8 - Pre-Test Driver Dummy Position View



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POST-TEST

FMVSS 208 SLED TEST
2001 CHEVROLET CAVALIER 4 DOOR
NHTSA NO. C10107
APRIL 20, 2001
MGA RESEARCH CORPORATION

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)



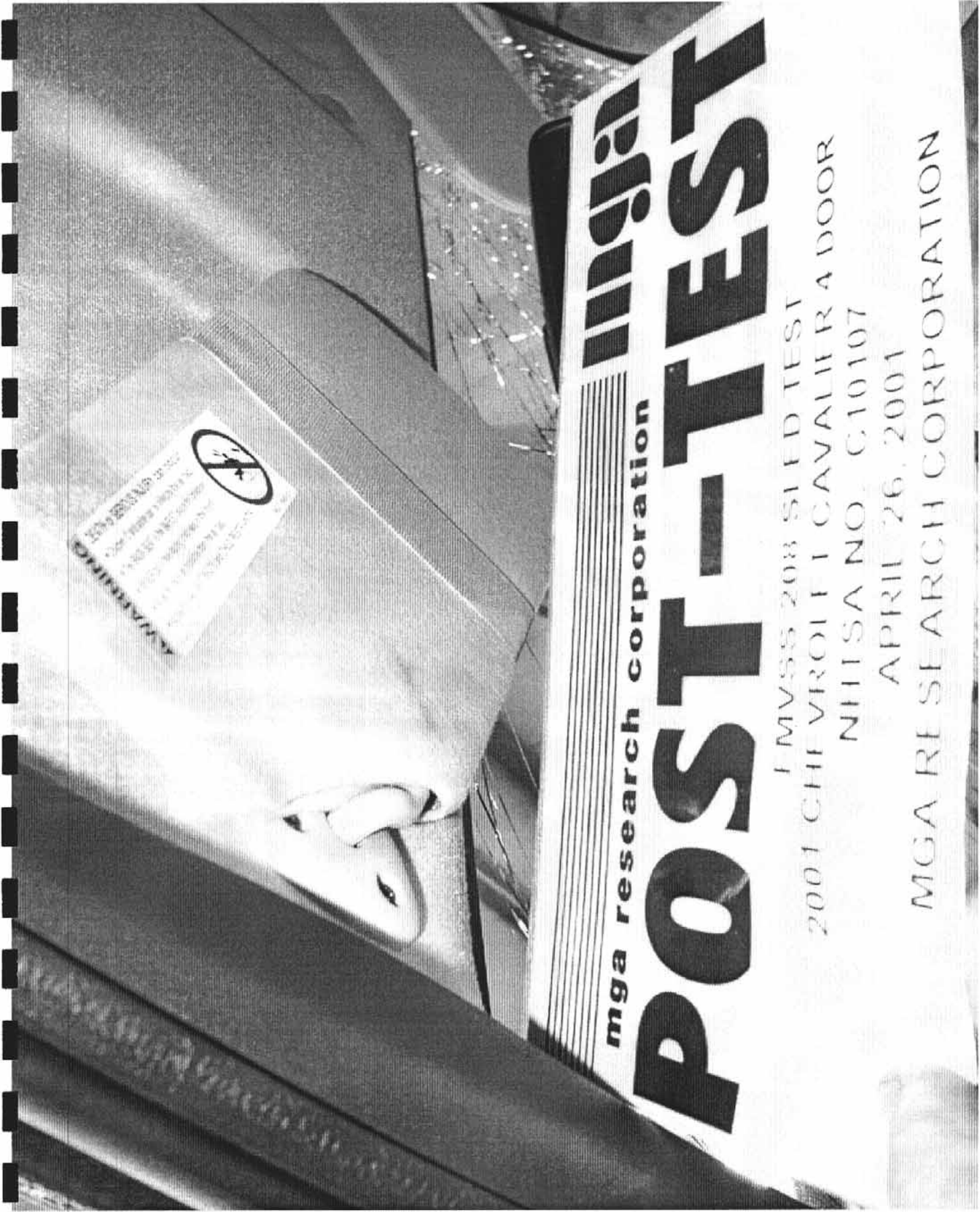
Photo No. A-12 - Pre-Test Passenger Dummy Position View



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



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



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POST-TEST

1 MVSS 208 SLED TEST
2001 CHEVROLET CAVALIER 4 DOOR
NHTSA NO. C10107

APRIL 26, 2001

MGA RESEARCH CORPORATION

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

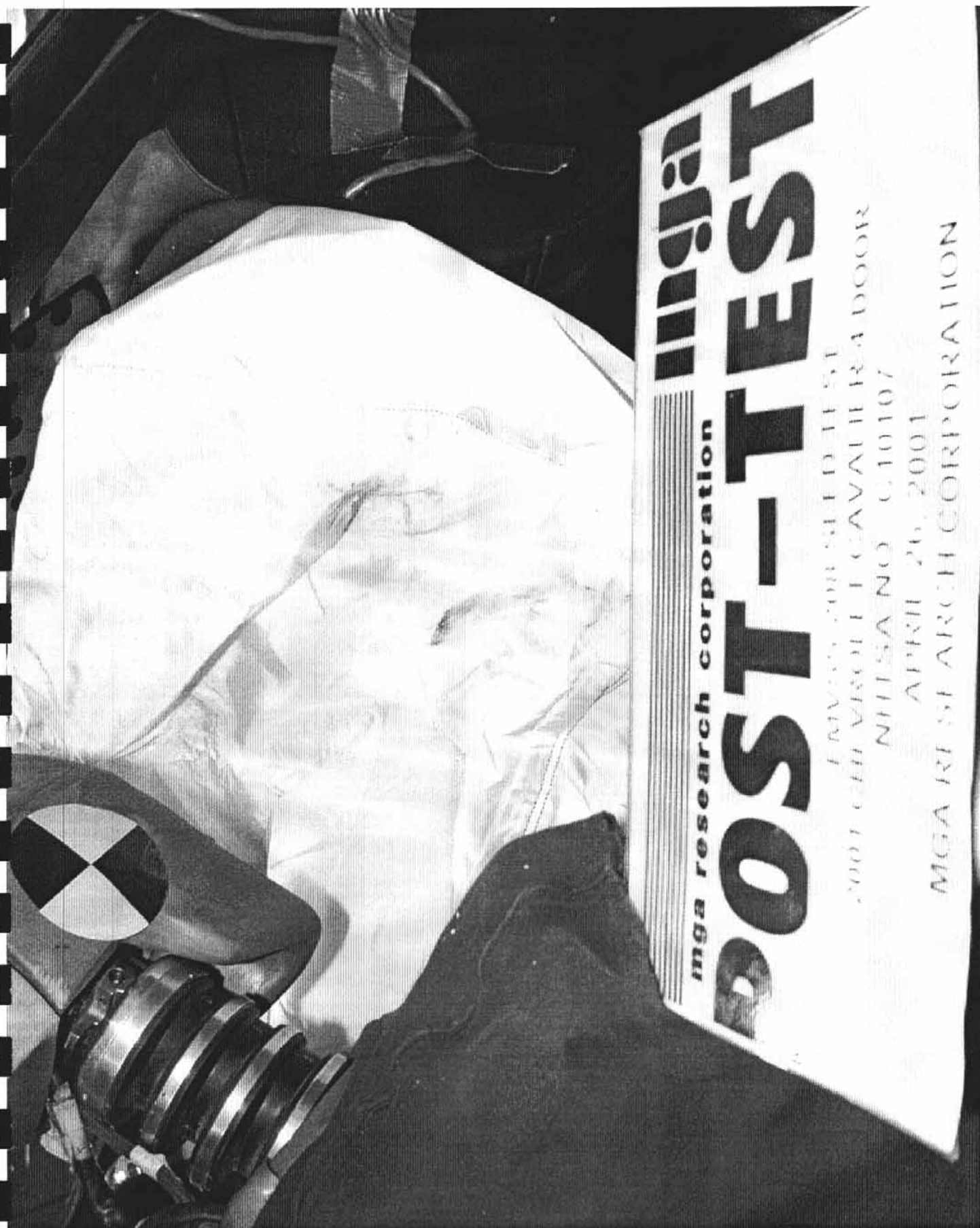


Photo No. A-16 - Post-Test Passenger Dummy Airbag View



Photo No. A-17 - Post-Test Passenger Dummy Head Contact View (visor)

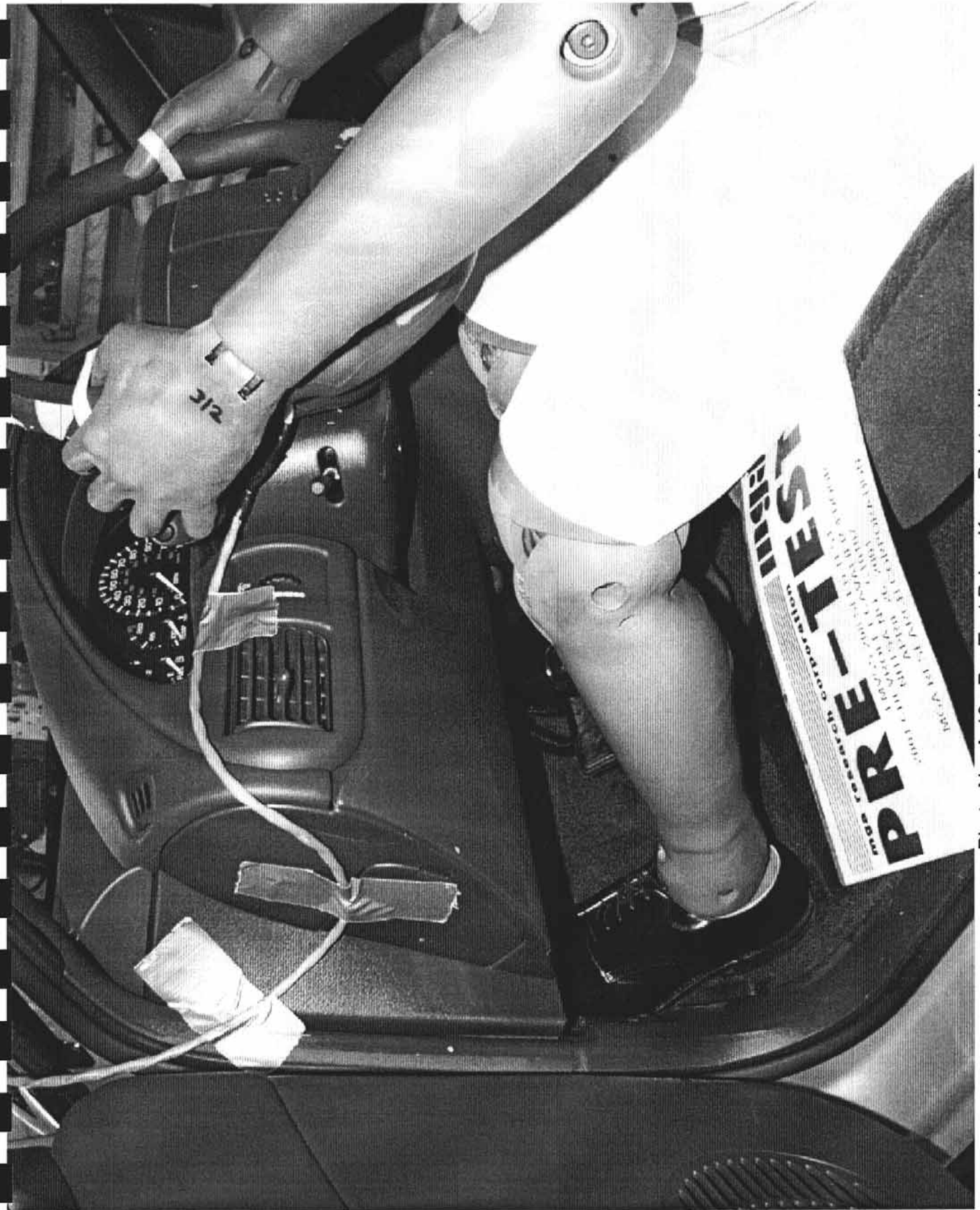


Photo No. A-18 - Pre-Test Driver Knee Bolster View



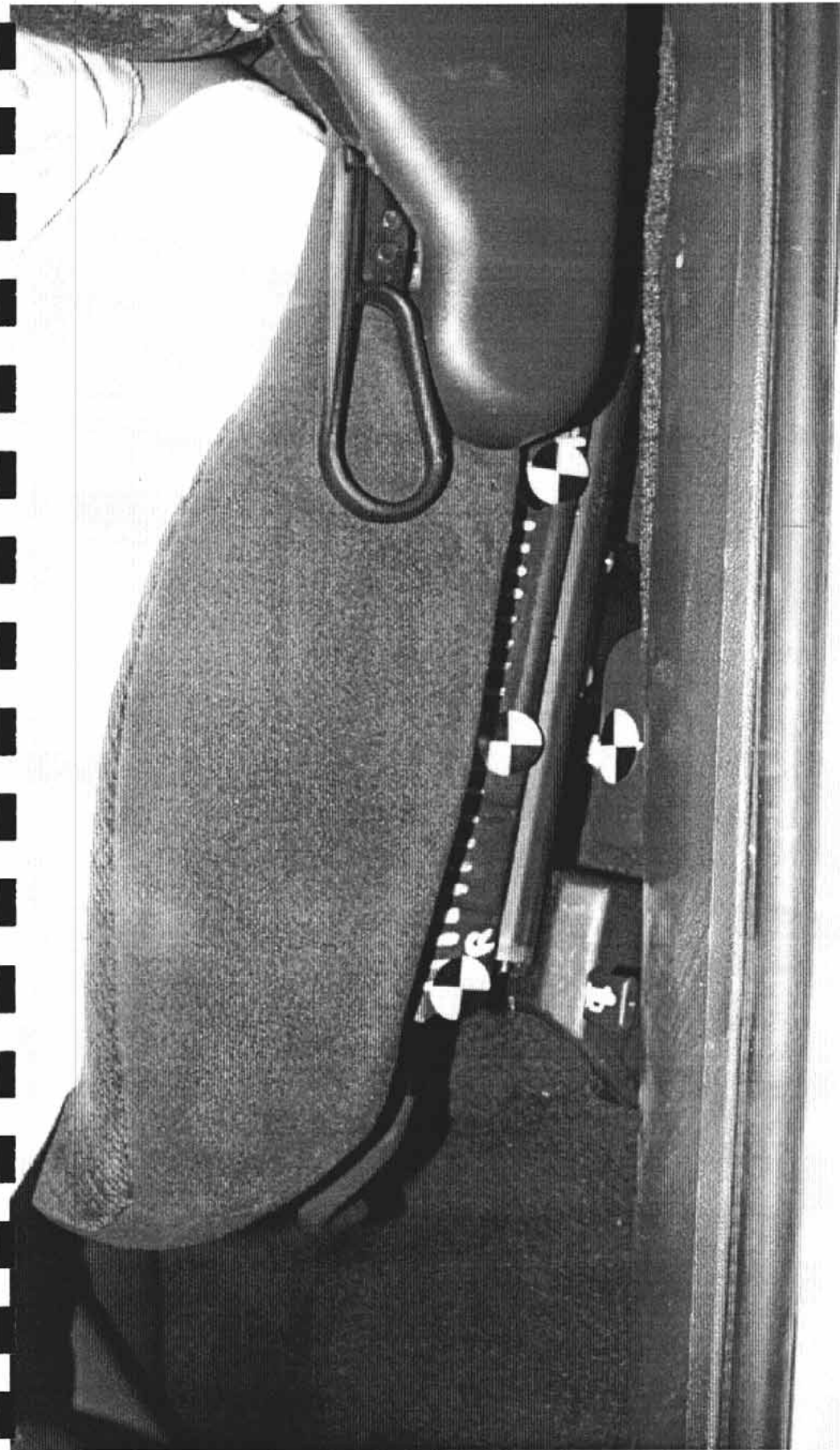
Photo No. A-19 - Post-Test Driver Knee Bolster View



Photo No. A-20 - Pre-Test Passenger Knee Bolster View



Photo No. A-21 - Post-Test Passenger Knee Bolster View



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PRE-TEST

1 MV955 208 SLID II 51
2001 CH VIRGIL 1 CAVALLIERA
NHTSA NO. 010107
APRIL 26, 2001

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Photo No. A-22 - Pre-Test Driver Seat Position

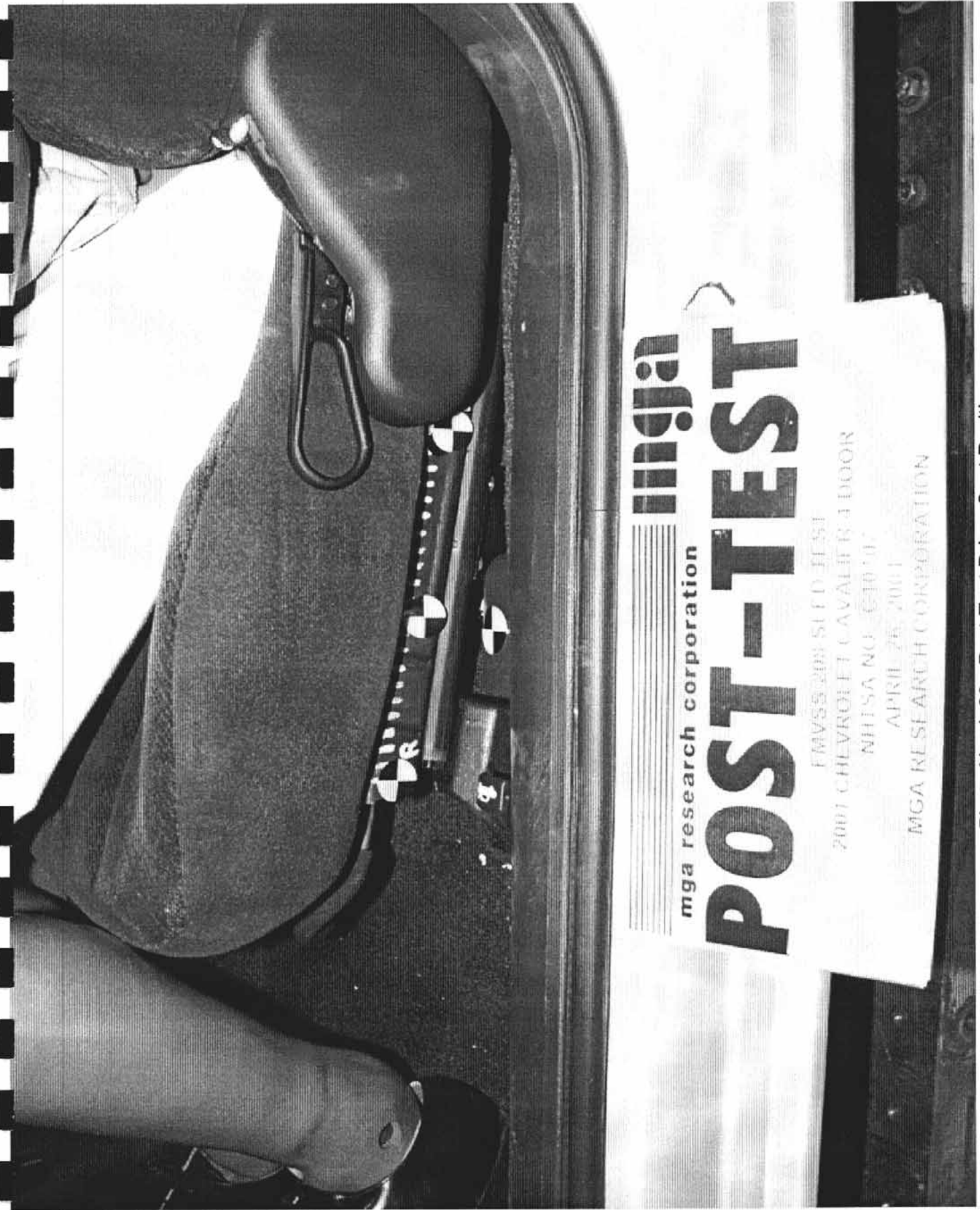


Photo No. A-23 - Post-Test Driver Seat Position

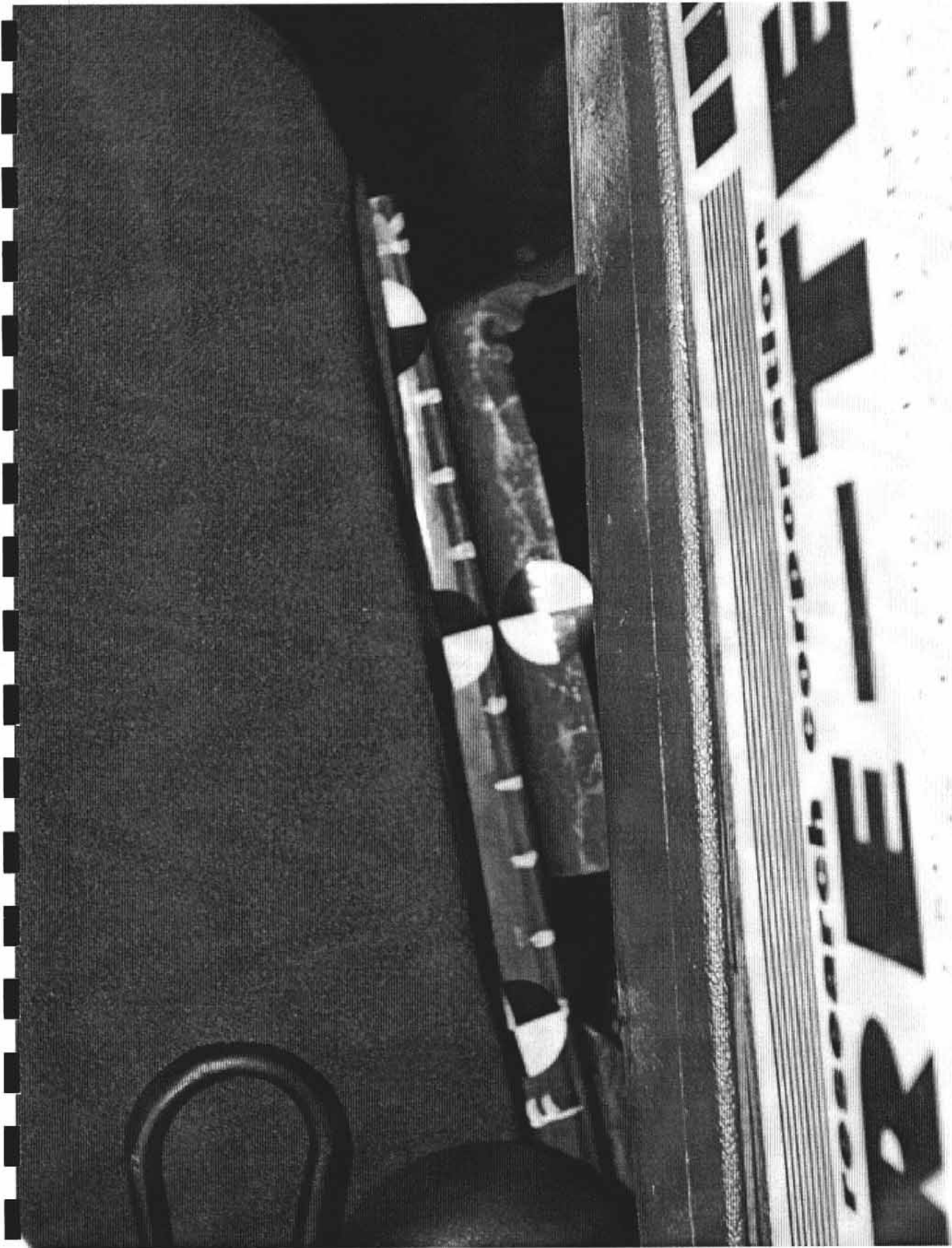


Photo No. A-24 - Pre-Test Passenger Seat Position

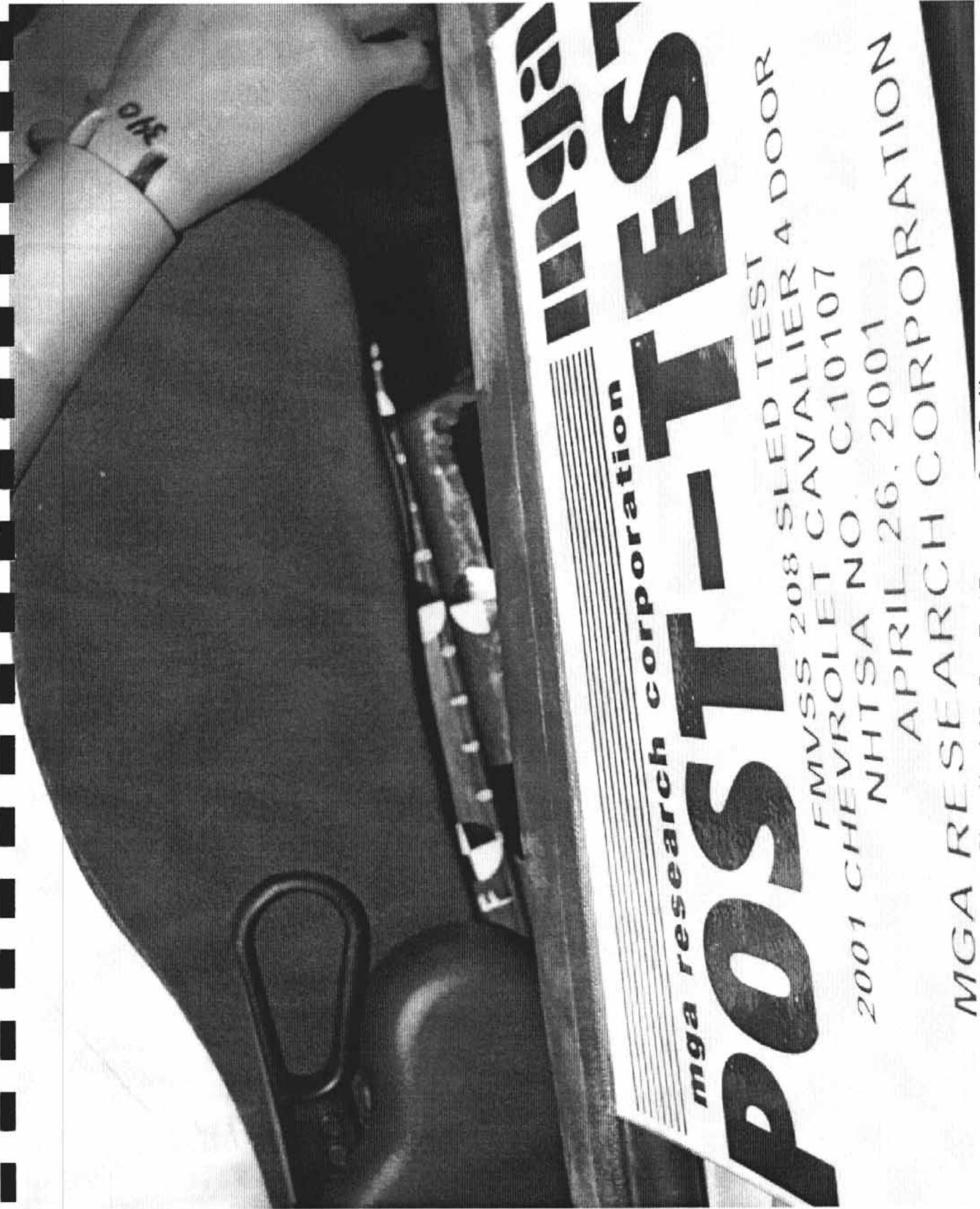


Photo No. A-25 - Post-Test Passenger Seat Position

MFD BY GENERAL MOTORS CORP			
DATE	GVWR	GAWR FRT	GAWR RR
10/00	1648 KG	902 KG	746 KG
	3635 LB	1989 LB	1646 LB

THIS VEHICLE CONFORMS TO ALL APPLICABLE U.S. FEDERAL MOTOR
VEHICLE SAFETY, BUMPER, AND THEFT PREVENTION STANDARDS IN
EFFECT ON THE DATE OF MANUFACTURE SHOWN ABOVE.

1G1JF524917216625 TYPE: PASS CAR

Photo No. A-26 - Vehicle Certification Label



TIRE - LOADING INFORMATION

OCCUPANTS			VEHICLE CAP. WT.	
FRT.	CTR.	RR.	TOTAL	
				KG LBS
2	0	3	5	400 882

MAX. LOADING @ GVWR SAME AS VEHICLE CAPACITY WEIGHT.
1G1JF524917216625

MODEL: JF69 JAB

TIRE SIZE		SPEED RTG	COLD TIRE PRESSURE
FRT	P195/65R15	S	210KPA(30PSI)
RR	P195/65R15	S	210KPA(30PSI)
SPA	T115/70D14	M	420KPA(60PSI)

IF TIRES ARE HOT, ADD 28KPA(4PSI)

SEE OWNER'S MANUAL FOR MORE INFORMATION

APPENDIX B
DATA PLOTS

APPENDIX B
DATA PLOTS

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* No Valid Data Collected

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* No Valid Data Collected

TEST FMVSS 208 SLED (H01061)

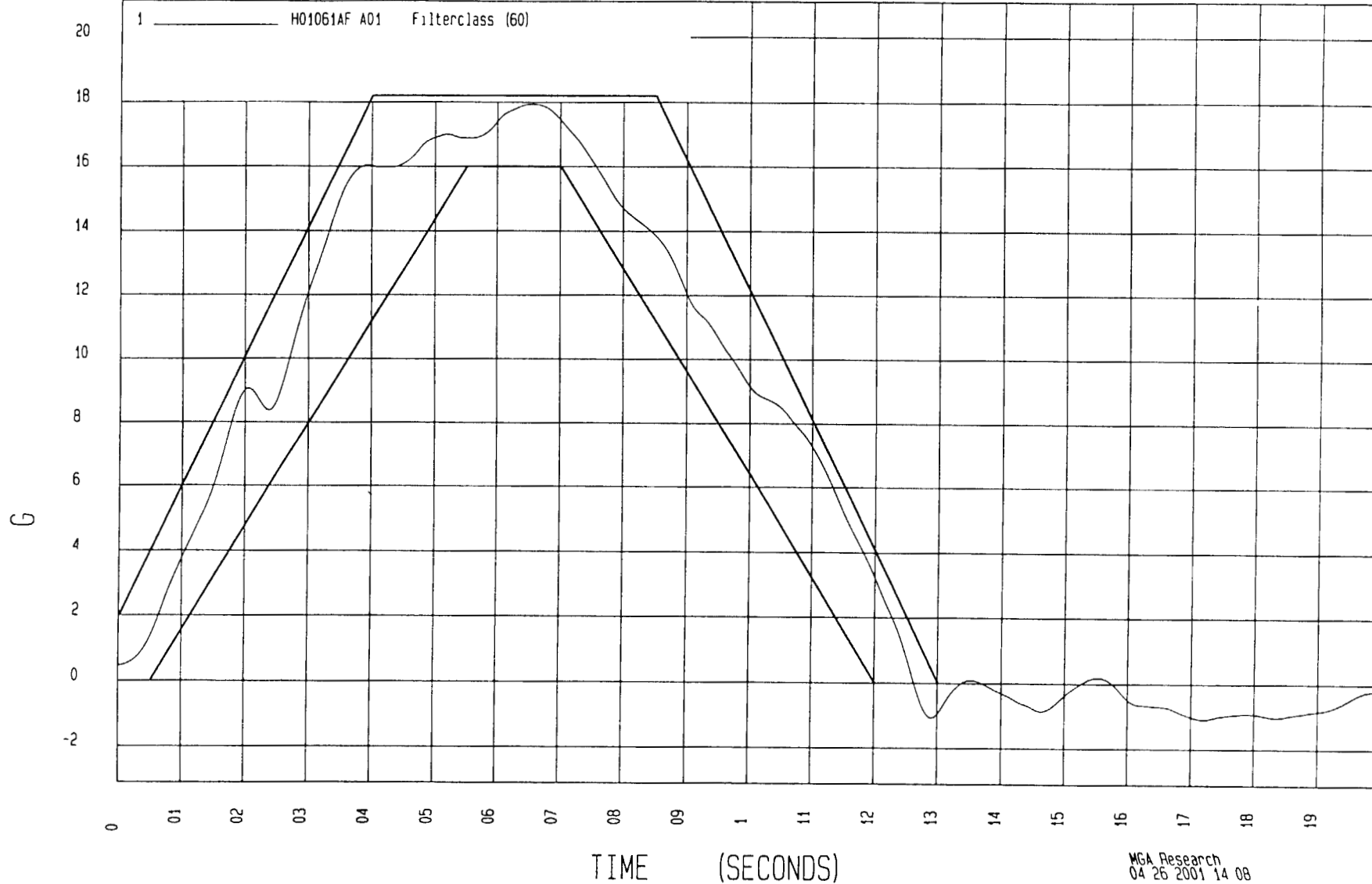
TEST DATE 04-26-2001

COMPONENT 2001 CHEVROLET CAVALIER 4 DOOR (C10107)

Minimum - 1.09 G at 172 msec

Maximum - 17.93 G at 65.4 msec

SLED X ACCELERATION



TEST FMVSS 208 SLED (H01061)

TEST DATE 04-26-2001

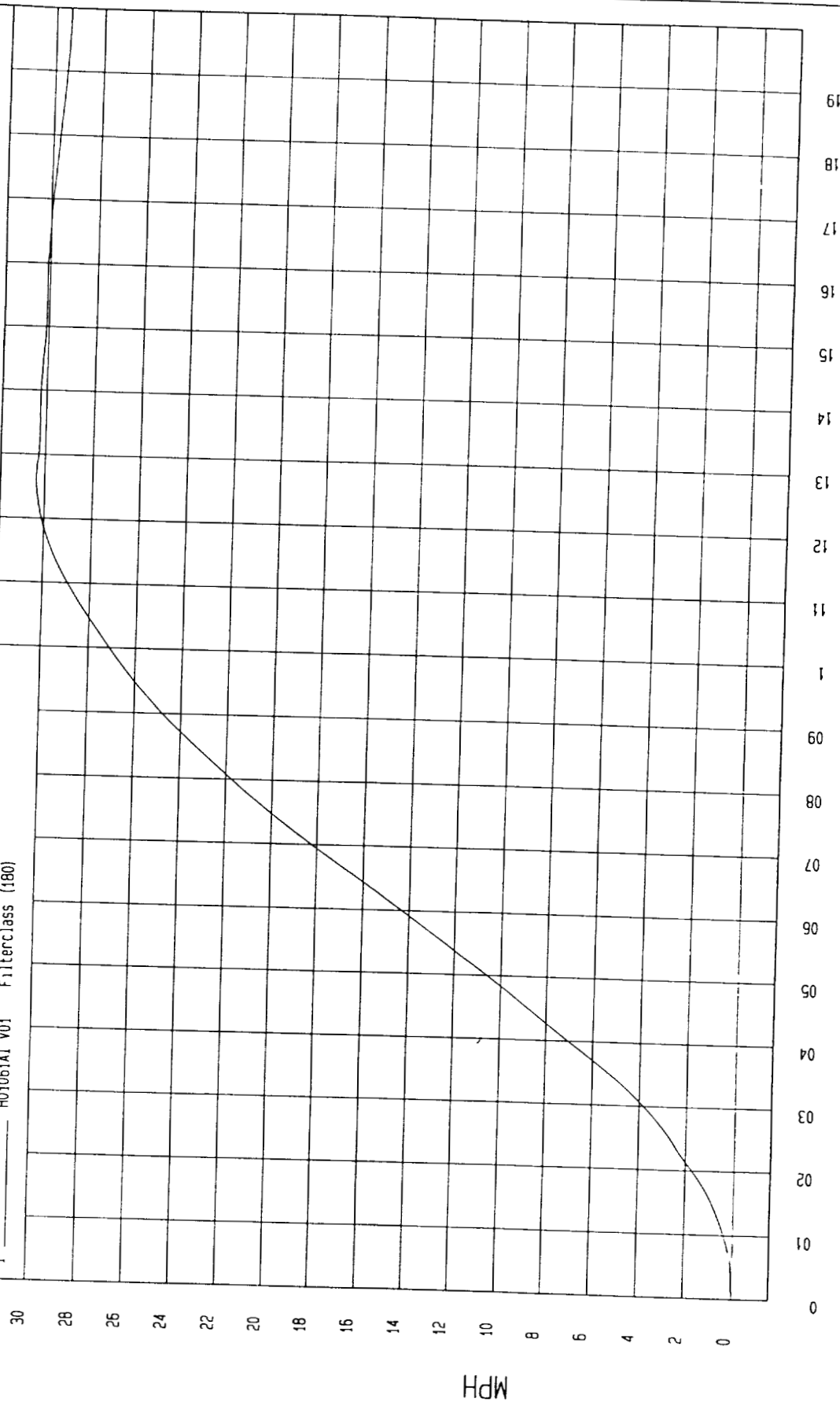
COMPONENT 2001 CHEVROLET CAVALIER 4 DOOR (C10107)

Minimum 0 MPH at 0 msec

Maximum = 30.35 MPH at 126 msec

SLED X VELOCITY

1 _____ H01061AI V01 Filterclass (180)



TIME Seconds

MCA Research
04-26-2001 14 07

TEST FMVSS 208 SLED (H01061)

TEST DATE 04-26-2001

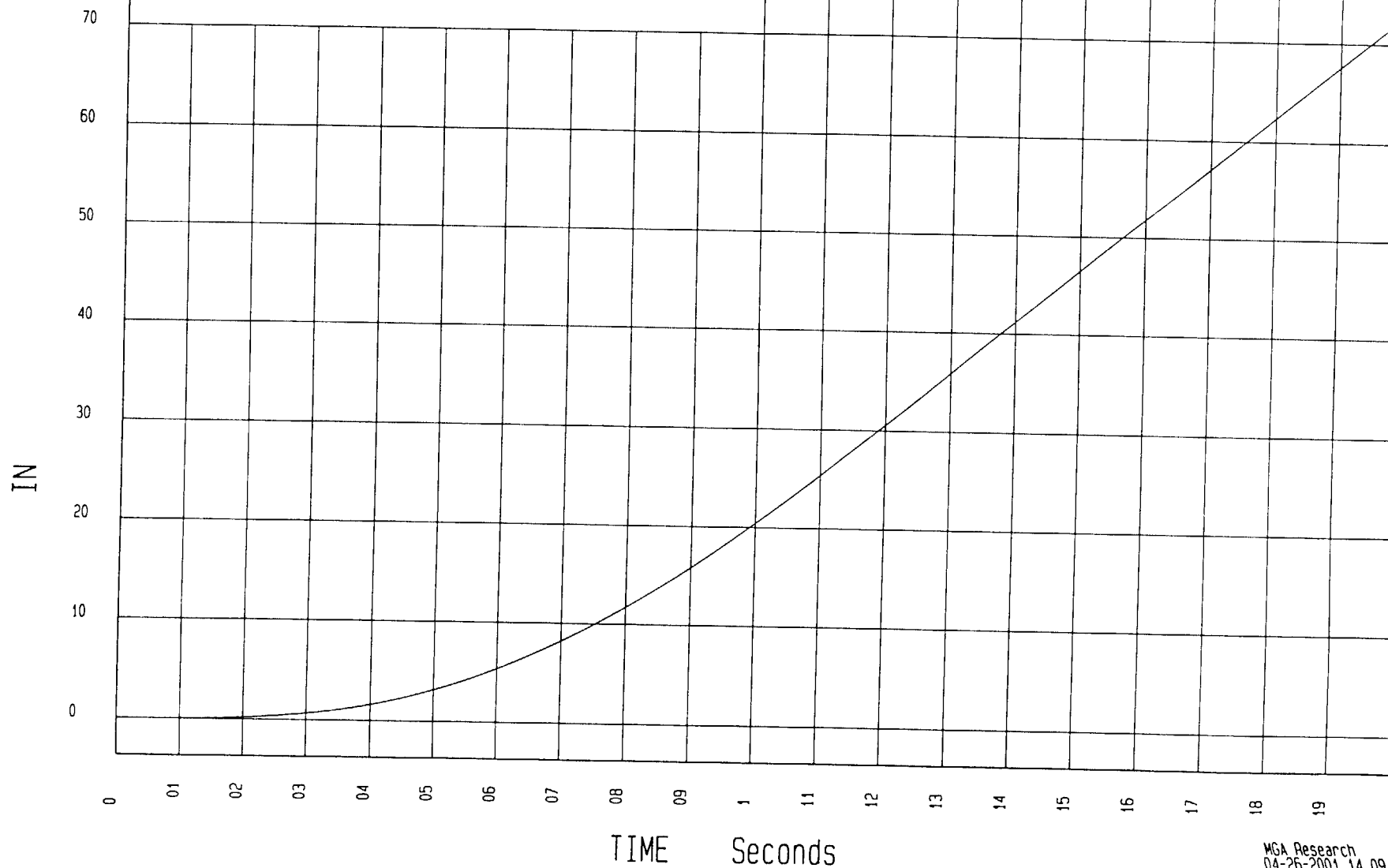
COMPONENT 2001 CHEVROLET CAVALIER 4 DOOR (C10107)

Minimum = 0 IN at 0 msec

Maximum = 72.72 IN at 200 msec

SLED X DISPLACEMENT

1 ——— H01061AI D01 Filterclass (180)



MGA Research
04-26-2001 14 09

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

01

02

03

04

05

06

07

08

09

1

11

12

13

14

15

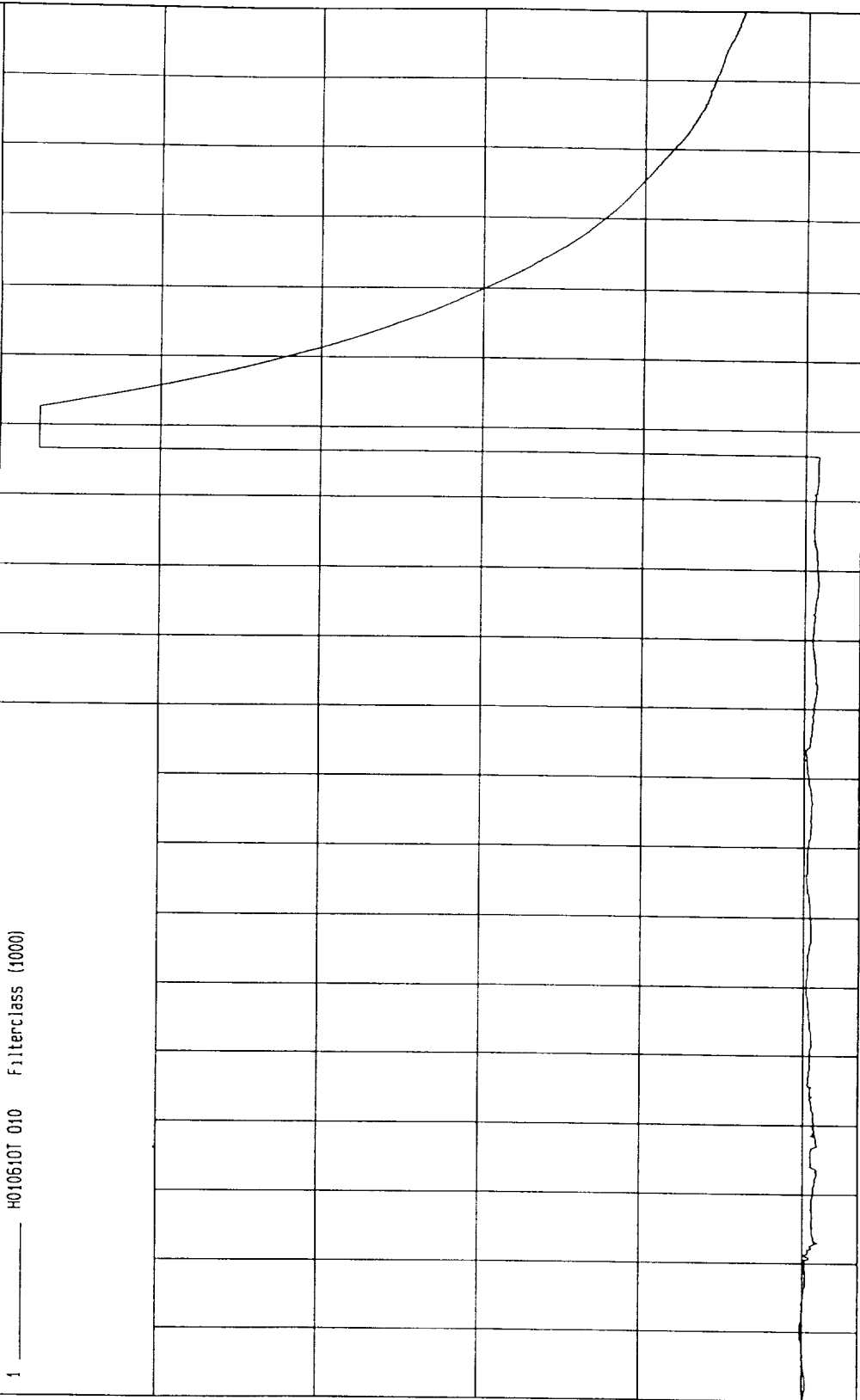
16

17

18

19

VOLTS



1

H010610T 010

Filterclass (1000)

Minimum - -9.54E 02 VOLTS at 23 msec

Maximum = 4.75 VOLTS at 137 msec

COMPONENT 2001 CHEVROLET CAVALIER 4 DOOR (C10107)

TEST FMVSS 208 SLED (H01061)

TEST DATE 04-26-2001

TEST FMVSS 208 SLED (H01061)

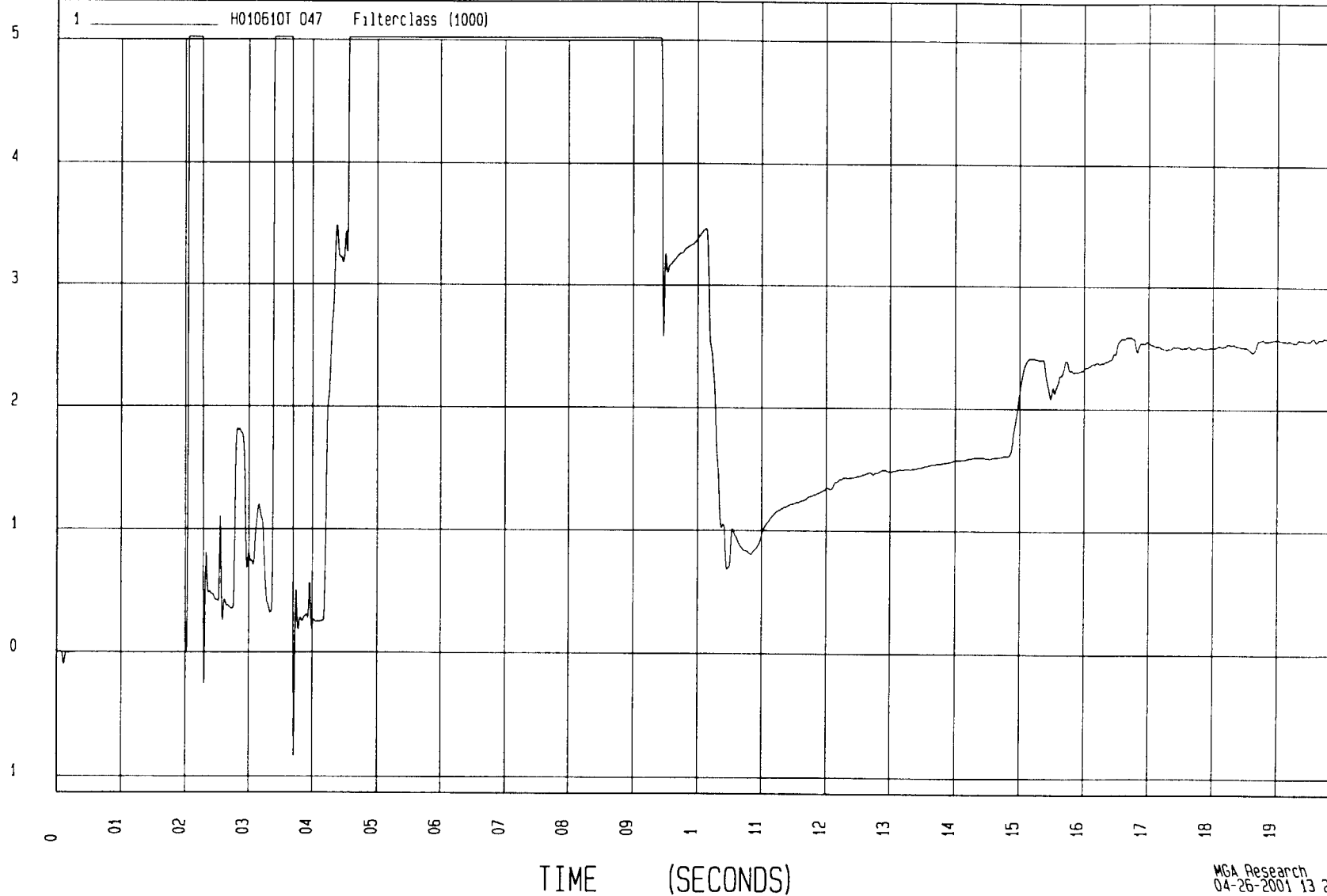
TEST DATE 04-26-2001

COMPONENT 2001 CHEVROLET CAVALIER 4 DOOR (C10107)

Minimum - 84 at 37 msec

Maximum = 5.02 at 20 msec

AIRBAG TIMING



MGA Research
04-26-2001 13 27

TEST FMVSS 208 SLED (H01061)

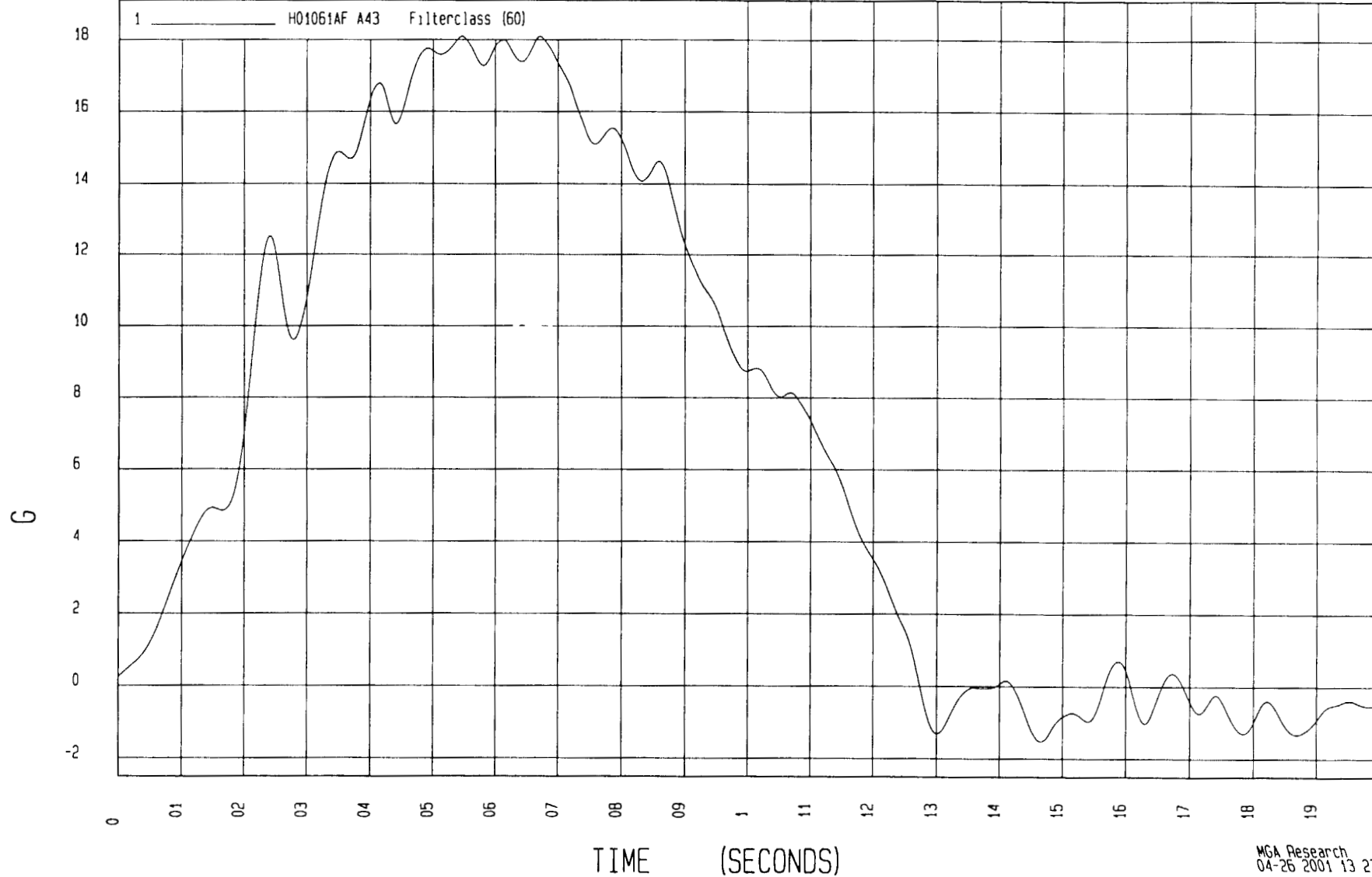
TEST DATE 04-26-2001

COMPONENT 2001 CHEVROLET CAVALIER 4 DOOR (C10107)

Minimum - 1.52 G at 146 msec

Maximum = 18.1 G at 55 msec

LEFT REAR SEAT CROSSMEMBER X ACCELERATION



MCA Research
04-26-2001 13:27

TEST FMVSS 208 SLED (H01061)

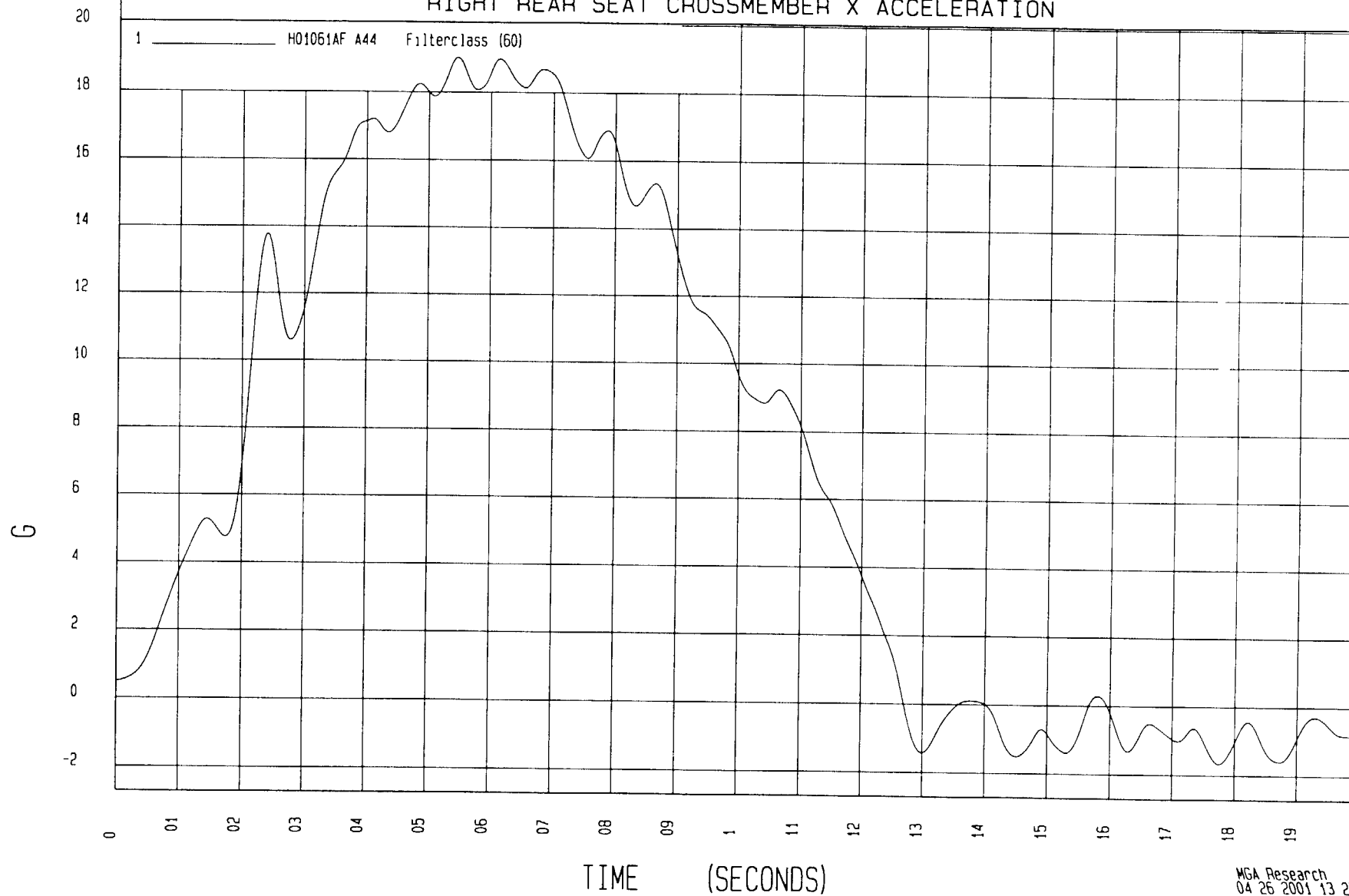
TEST DATE 04-26-2001

COMPONENT 2001 CHEVROLET CAVALIER 4 DOOR (C10107)

Minimum = 1.66 G at 178 msec

Maximum 19.03 G at 54 msec

RIGHT REAR SEAT CROSSMEMBER X ACCELERATION



MGA Research
04 26 2001 13 27

TEST FMVSS 208 SLED (H01061)

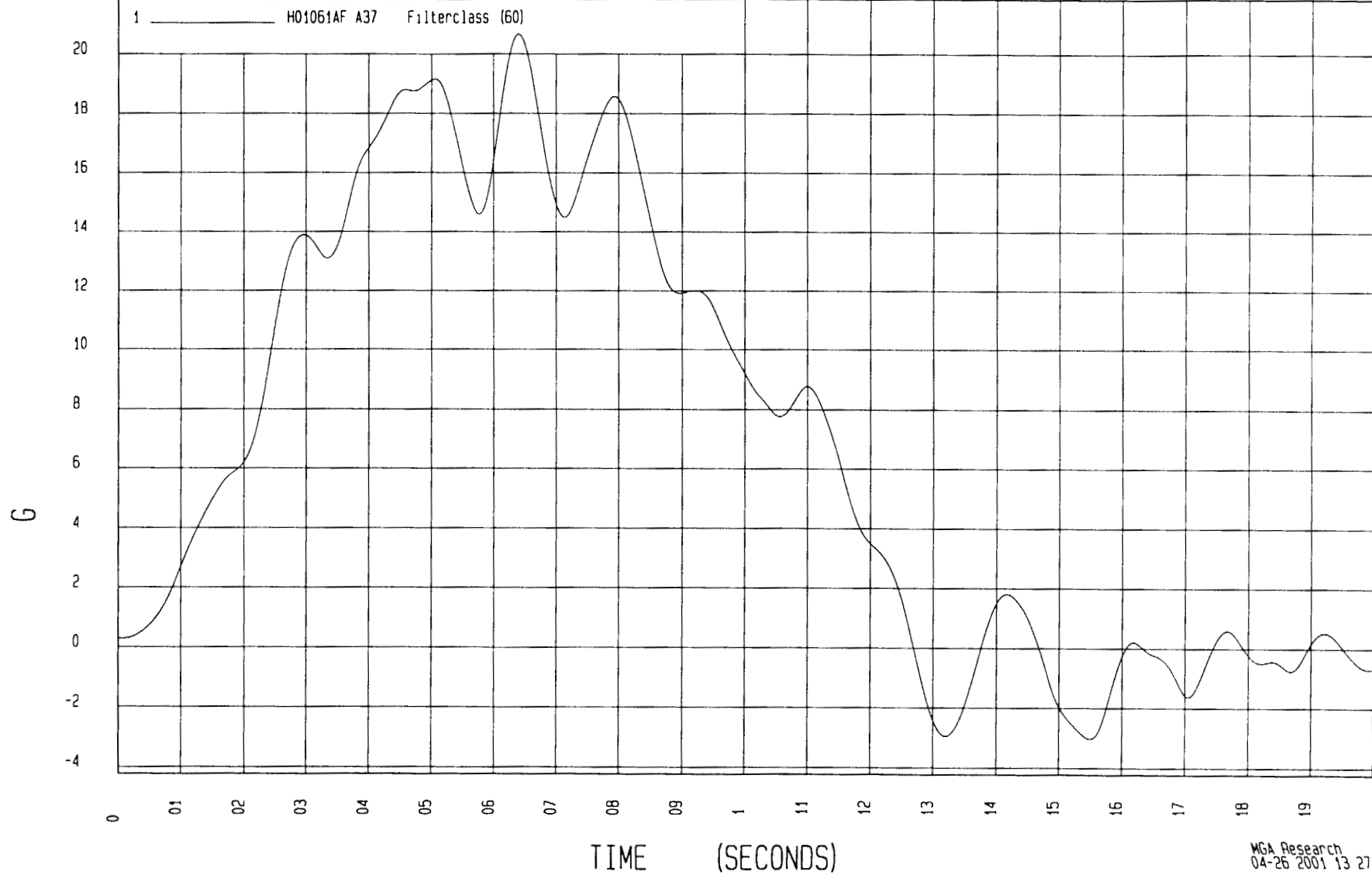
TEST DATE 04-26-2001

COMPONENT 2001 CHEVROLET CAVALIER 4 DOOR (C10107)

Minimum = -3.03 G at 155 msec

Maximum = 20.66 G at 64 msec

TOP OF ENGINE X ACCELERATION

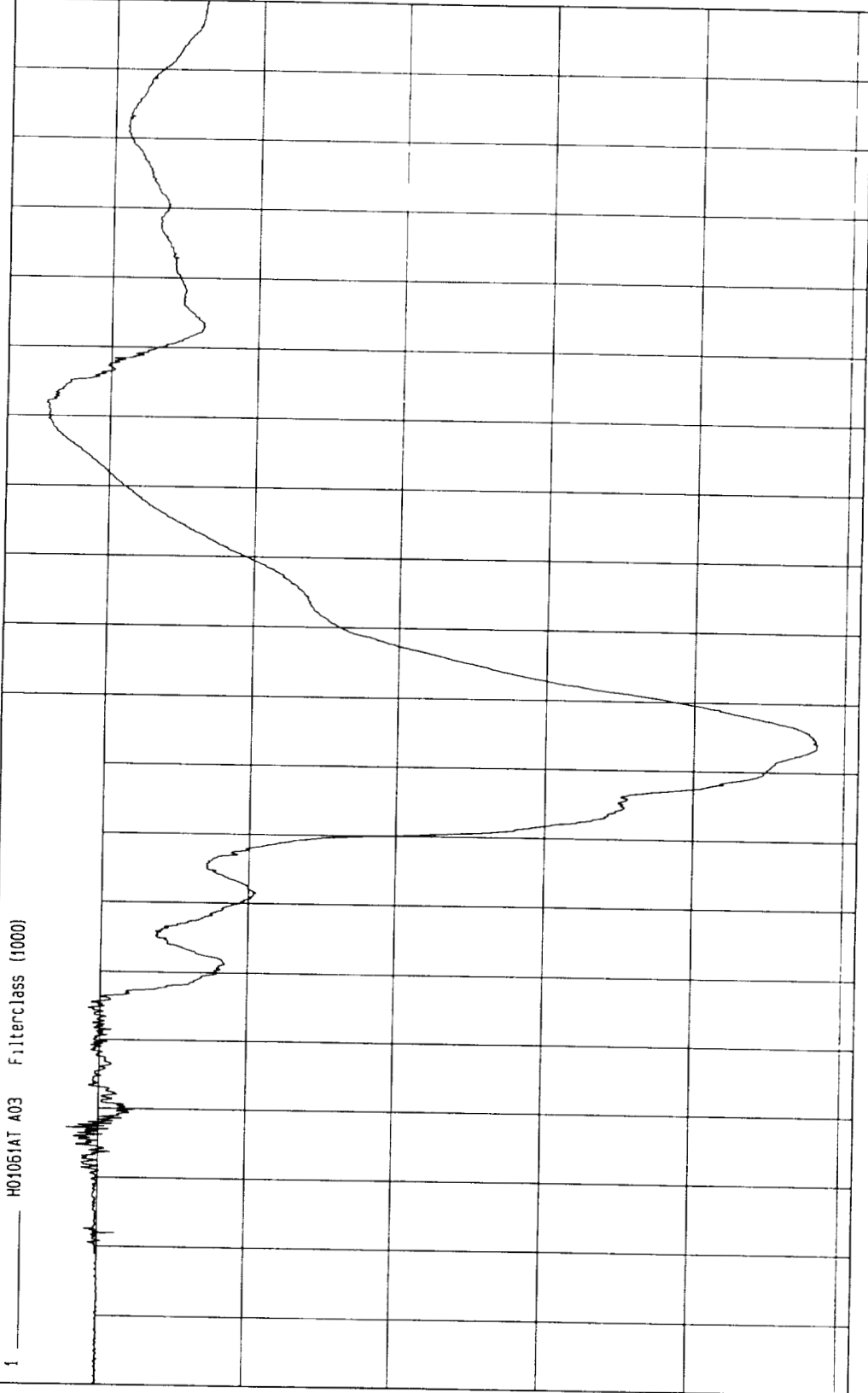


MGA Research
04-26-2001 13:27

REAR AXLE X ACCELERATION VS. TIME
NO VALID DATA COLLECTED

TIME (SECONDS)

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



Maximum = 4.33 G at 142 msec

Minimum = -48.27 G at 94 msec

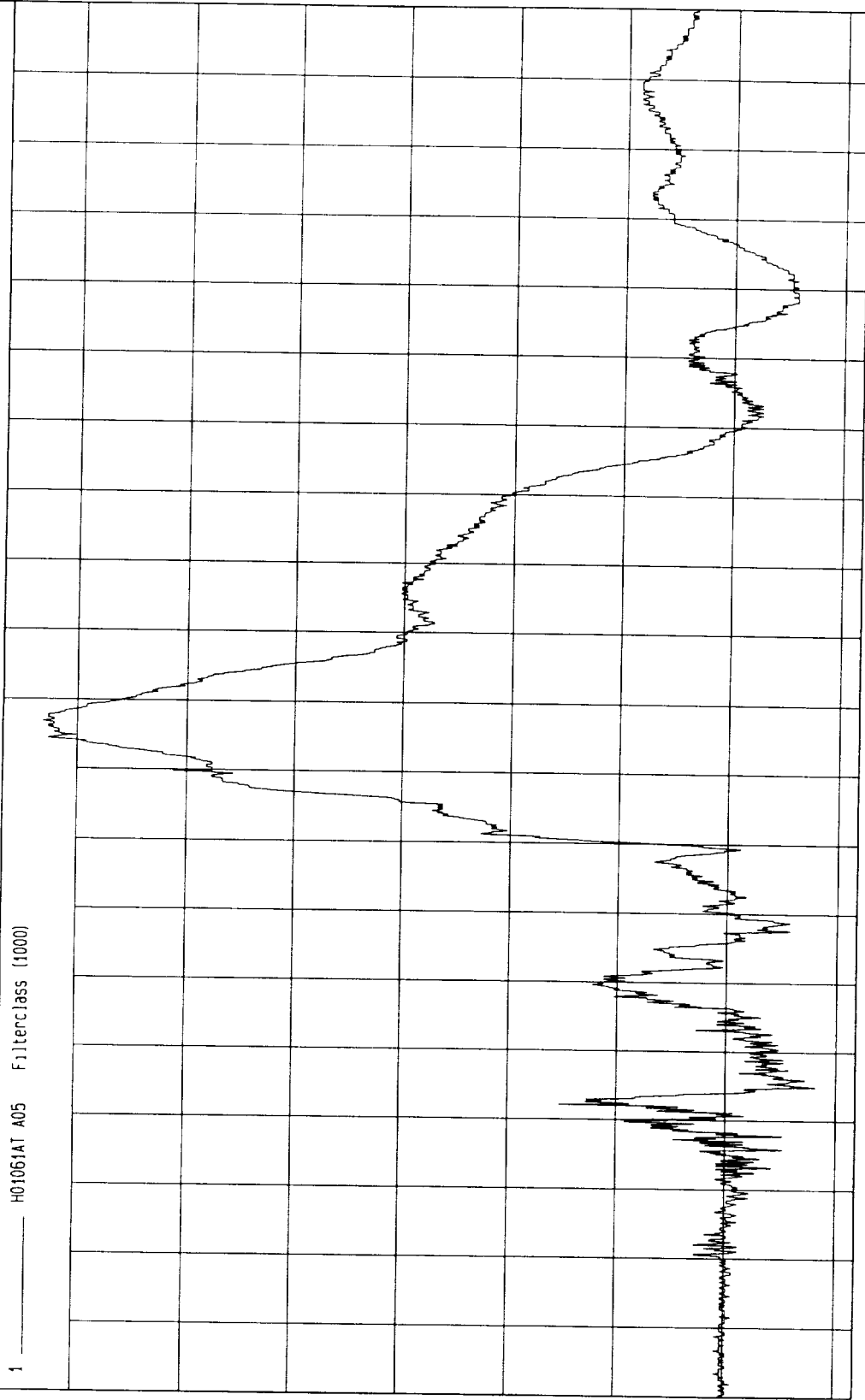
DRIVER HEAD X ACCELERATION

COMPONENT 2001 CHEVROLET CAVALIER 4 DOOR (C10107)

TEST FMVSS 208 SLED (H01061) TEST DATE 04-26-2001

TIME (SECONDS)

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



DRIVER HEAD Y ACCELERATION

Maximum = 12.63 G at 97 msec

Minimum = -1.64 G at 45 msec

COMPONENT 2001 CHEVROLET CAVALIER 4 DOOR (C10107)

TEST FMVSS 208 SLED (H01061) TEST DATE 04-26-2001

TEST FMVSS 208 SLED (H01061)

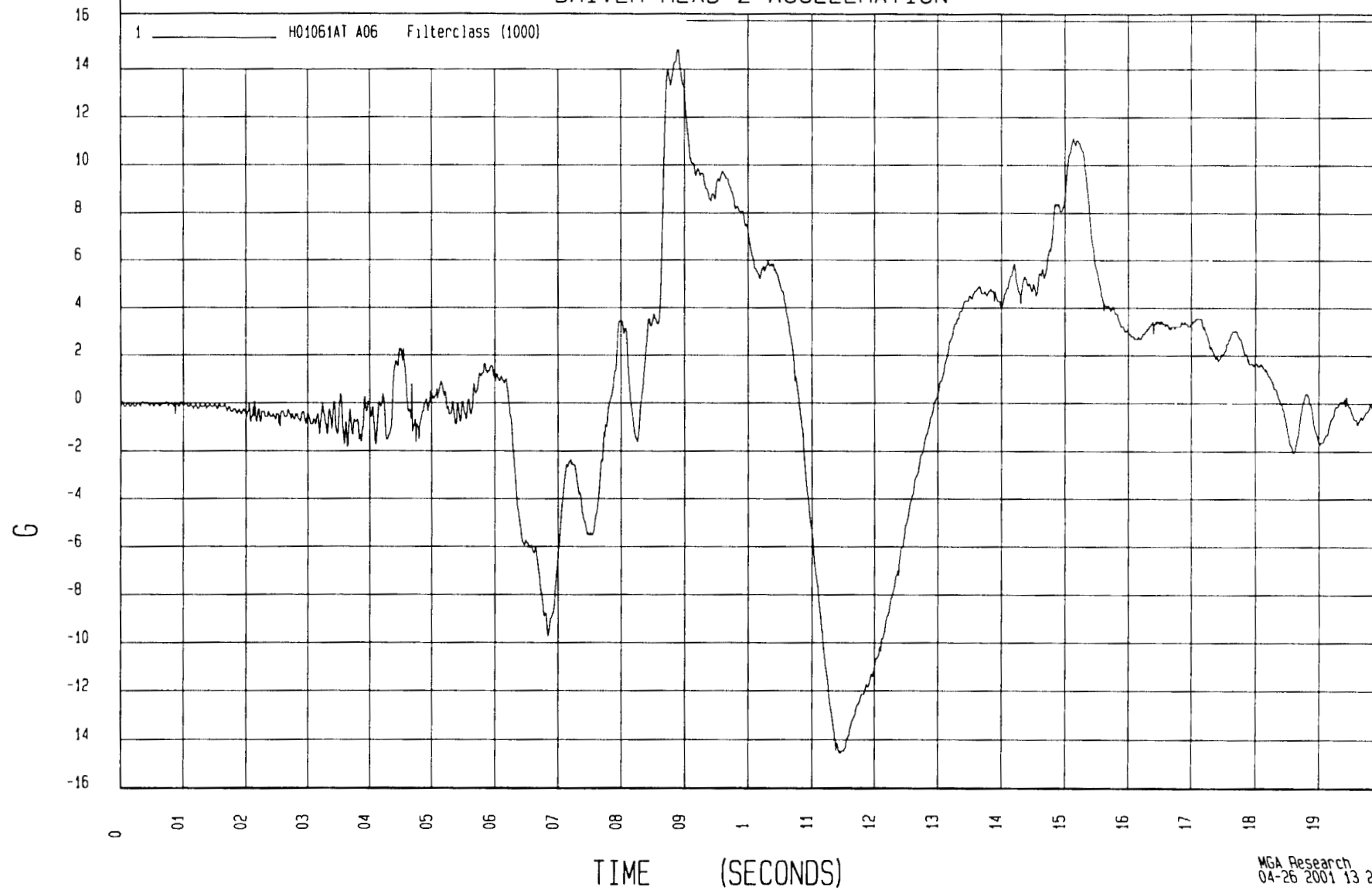
TEST DATE 04-26-2001

COMPONENT 2001 CHEVROLET CAVALIER 4 DOOR (C10107)

Minimum = -14.57 G at 114 msec

Maximum = 14.8 G at 89 msec

DRIVER HEAD Z ACCELERATION



MGA Research
04-26 2001 13 26

TEST FMVSS 208 SLED (H01061)

TEST DATE 04-26-2001

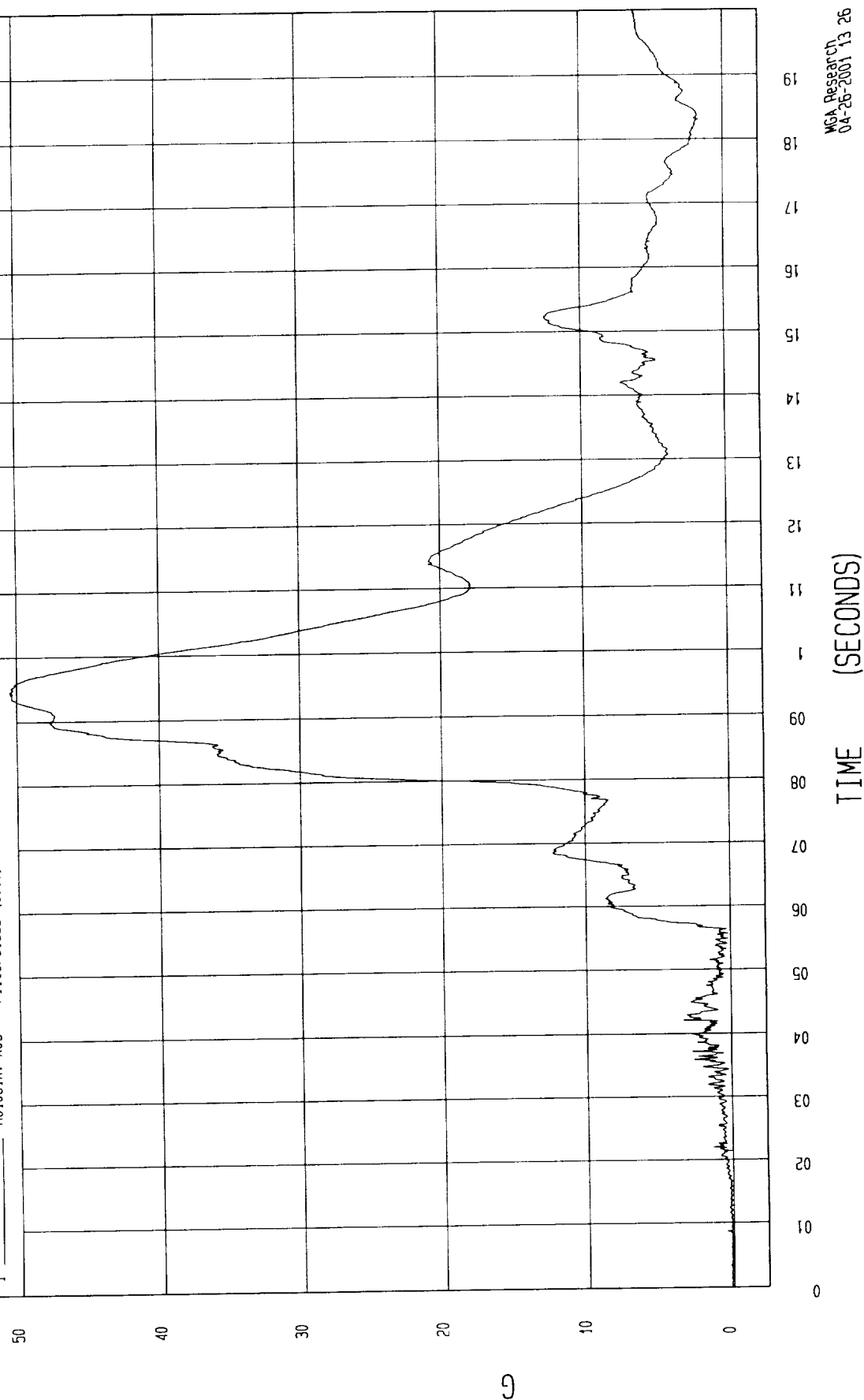
COMPONENT 2001 CHEVROLET CAVALIER 4 DOOR (C10107)

Maximum = 50.52 G at 95 msec

Minimum = 6.69E 02 G at 0 msec

DRIVER HEAD RESULTANT ACCELERATION

1 H01061AV A03 Filterclass (1000)

MGA Research
04-26-2001 13 26

TEST FMVSS 208 SLED (H01061)

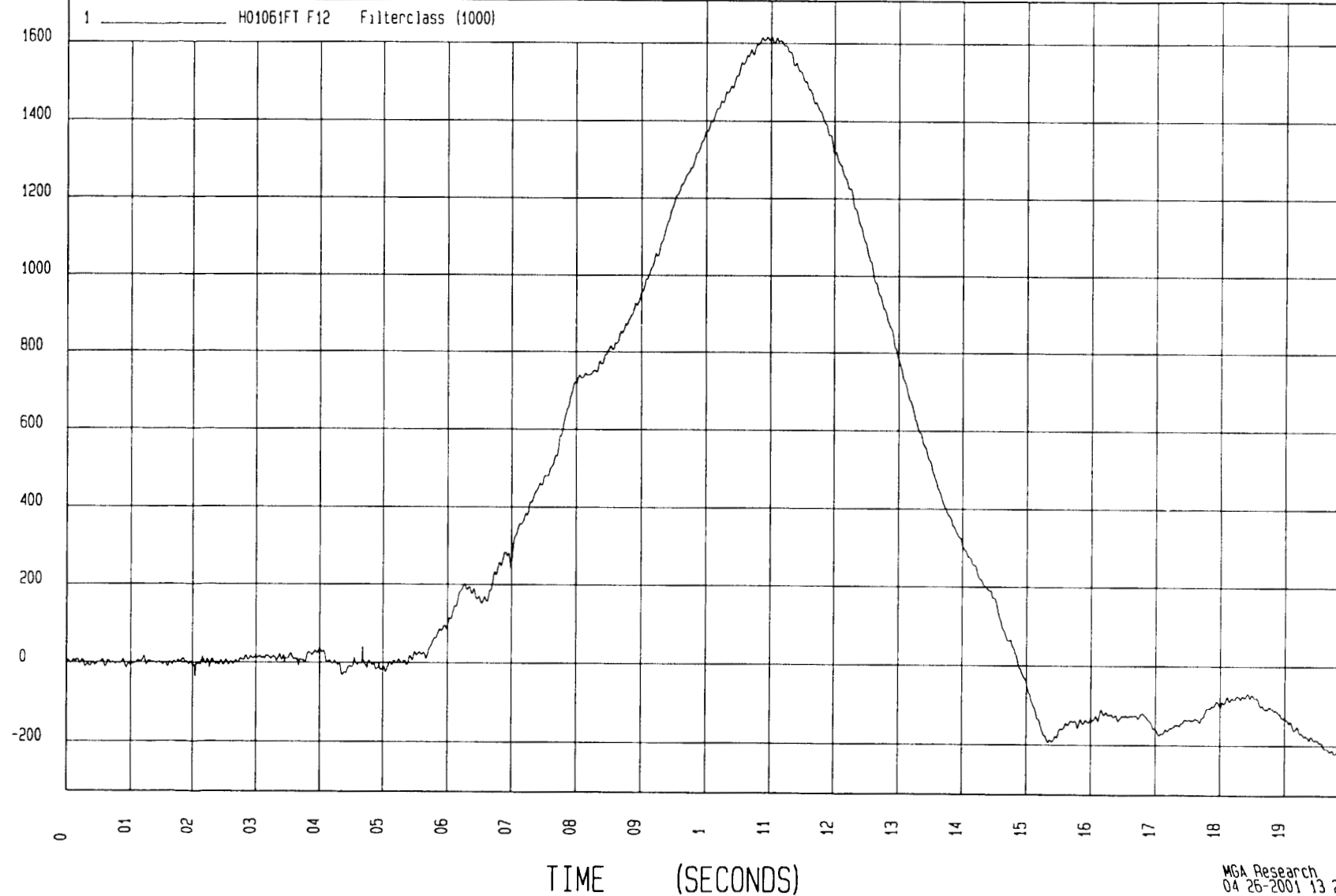
TEST DATE 04-26-2001

COMPONENT 2001 CHEVROLET CAVALIER 4 DOOR (C10107)

Minimum = 232 67 N at 199 msec

Maximum = 1615 93 N at 109 msec

DRIVER NECK FORCE X



MGA Research
04-26-2001 13:26

TEST FMVSS 208 SLED (H01061)

TEST DATE 04-26-2001

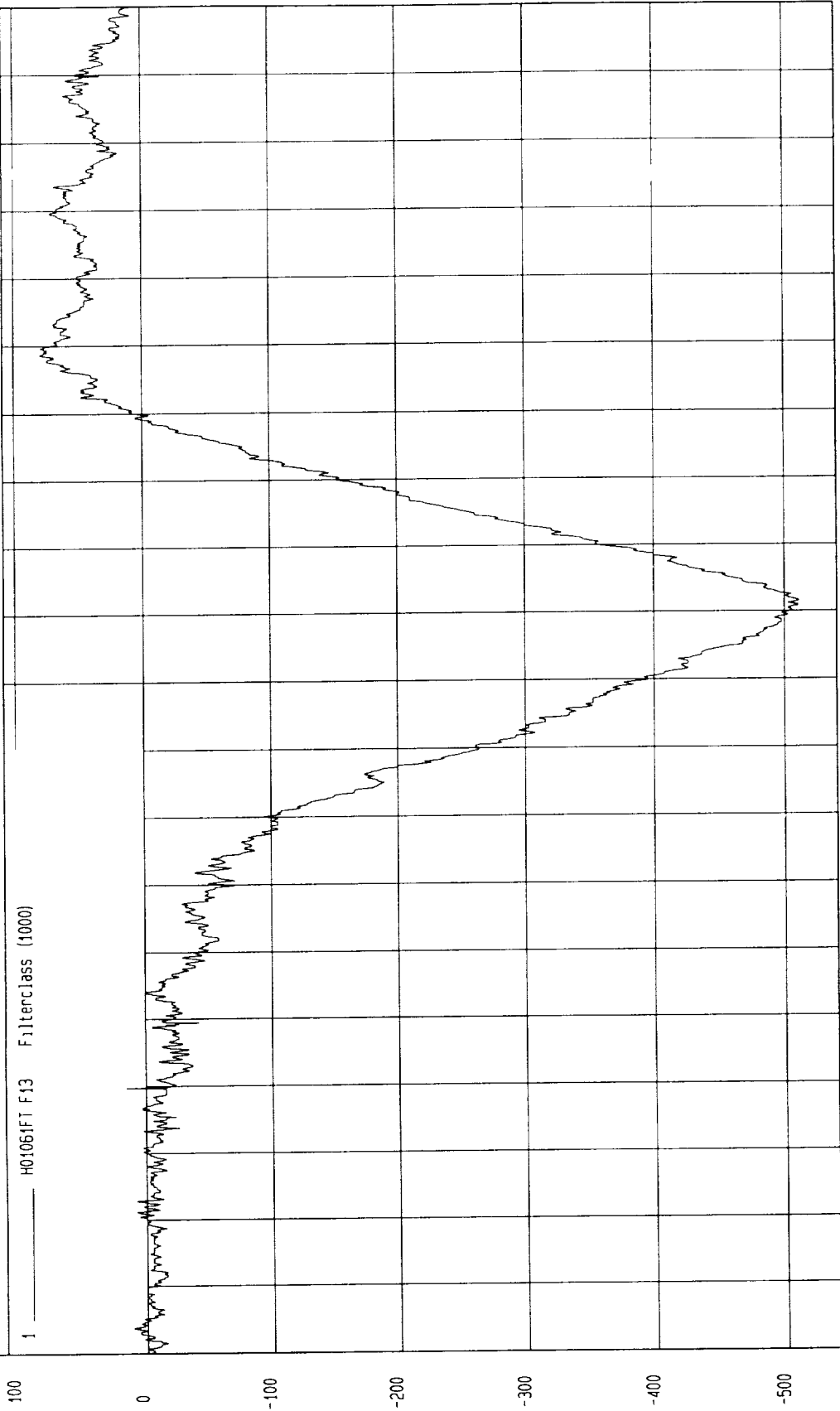
COMPONENT 2001 CHEVROLET CAVALIER 4 DOOR (C10107)

Minimum 510 73 N at 111 msec

Maximum - 79 15 N at 149 msec

DRIVER NECK FORCE Y

1 H01061FT F13 Filterclass (1000)



TIME (SECONDS)

MCA Research
04-26-2001 13 26

TEST FMVSS 208 SLED (H01061)

TEST DATE 04-26-2001

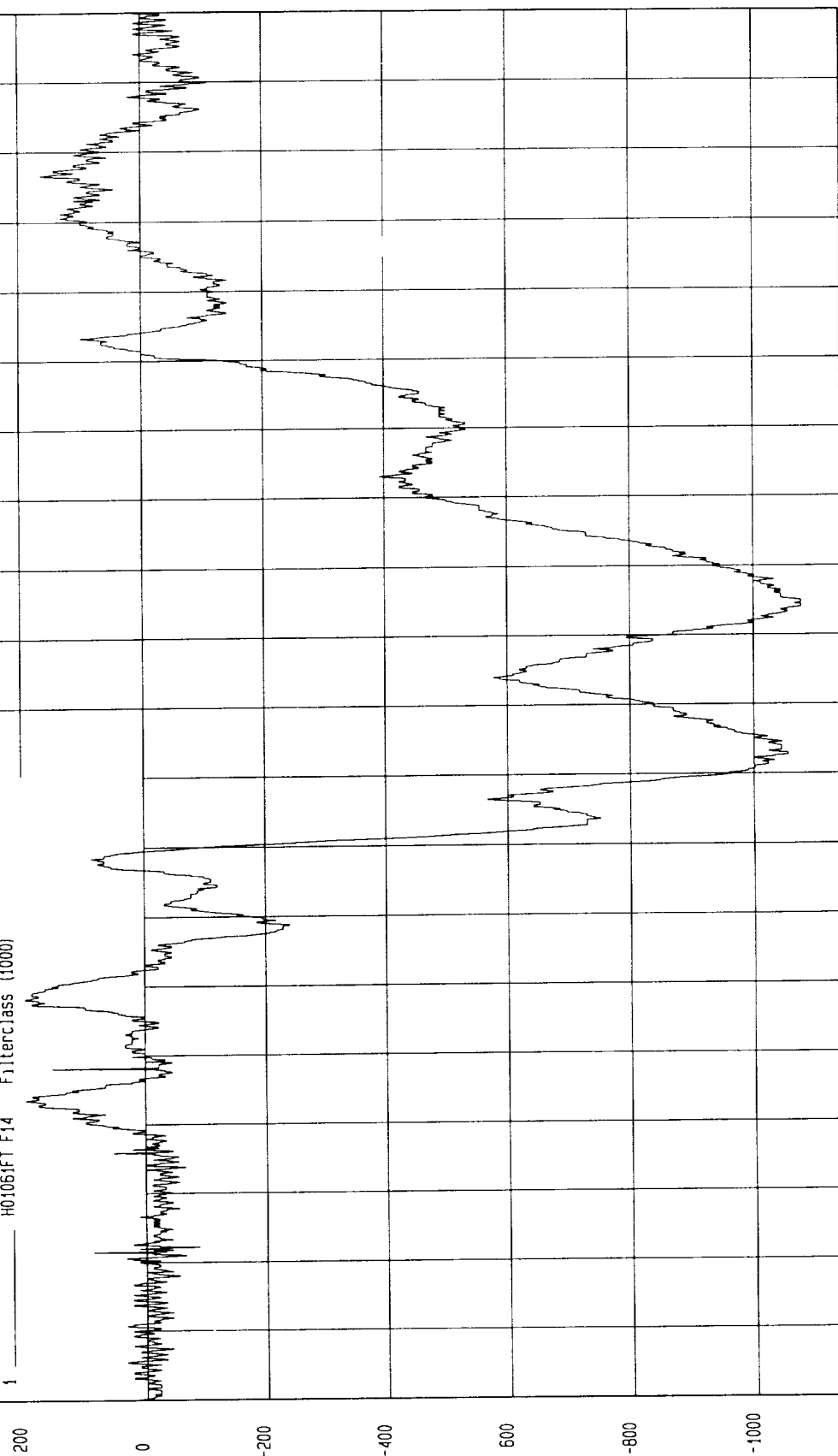
COMPONENT 2001 CHEVROLET CAVALIER 4 DOOR (C10107)

Minimum -1077 61 N at 114 msec

Maximum = 195 88 N at 44 msec

DRIVER NECK FORCE Z

1 H01061FT F14 Filterclass (1000)

MCA Research
04-26-2001 13 26

TIME (SECONDS)

TEST FMVSS 208 SLED (H01061)

TEST DATE 04-26-2001

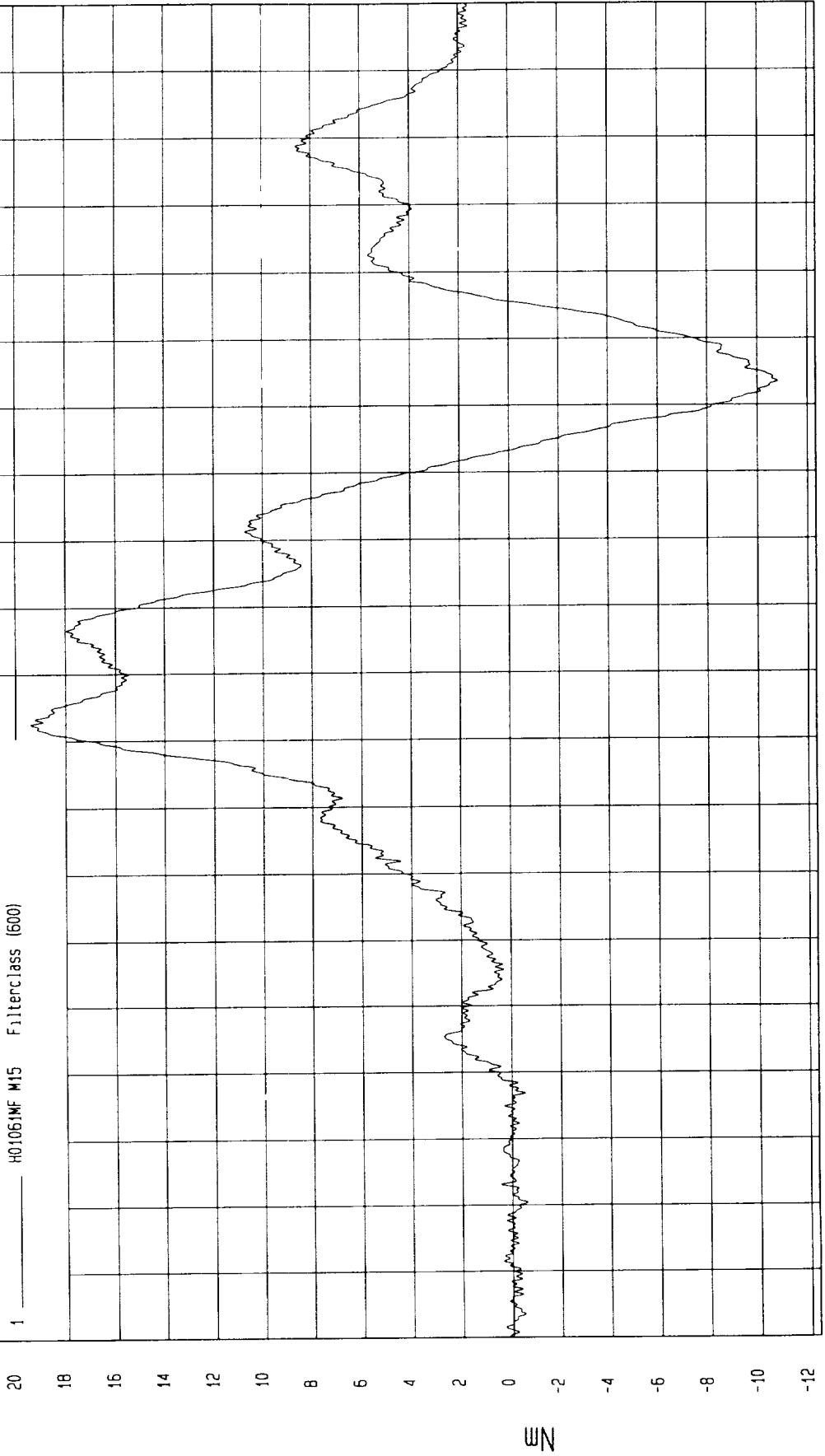
COMPONENT 2001 CHEVROLET CAVALIER 4 DOOR (C10107)

Minimum = -10.8 Nm at 144 msec

Maximum = 19.4 Nm at 92 msec

DRIVER NECK MOMENT X

1 H01061MF M15 Filterclass (600)



TEST FMVSS 208 SLED (H01061)

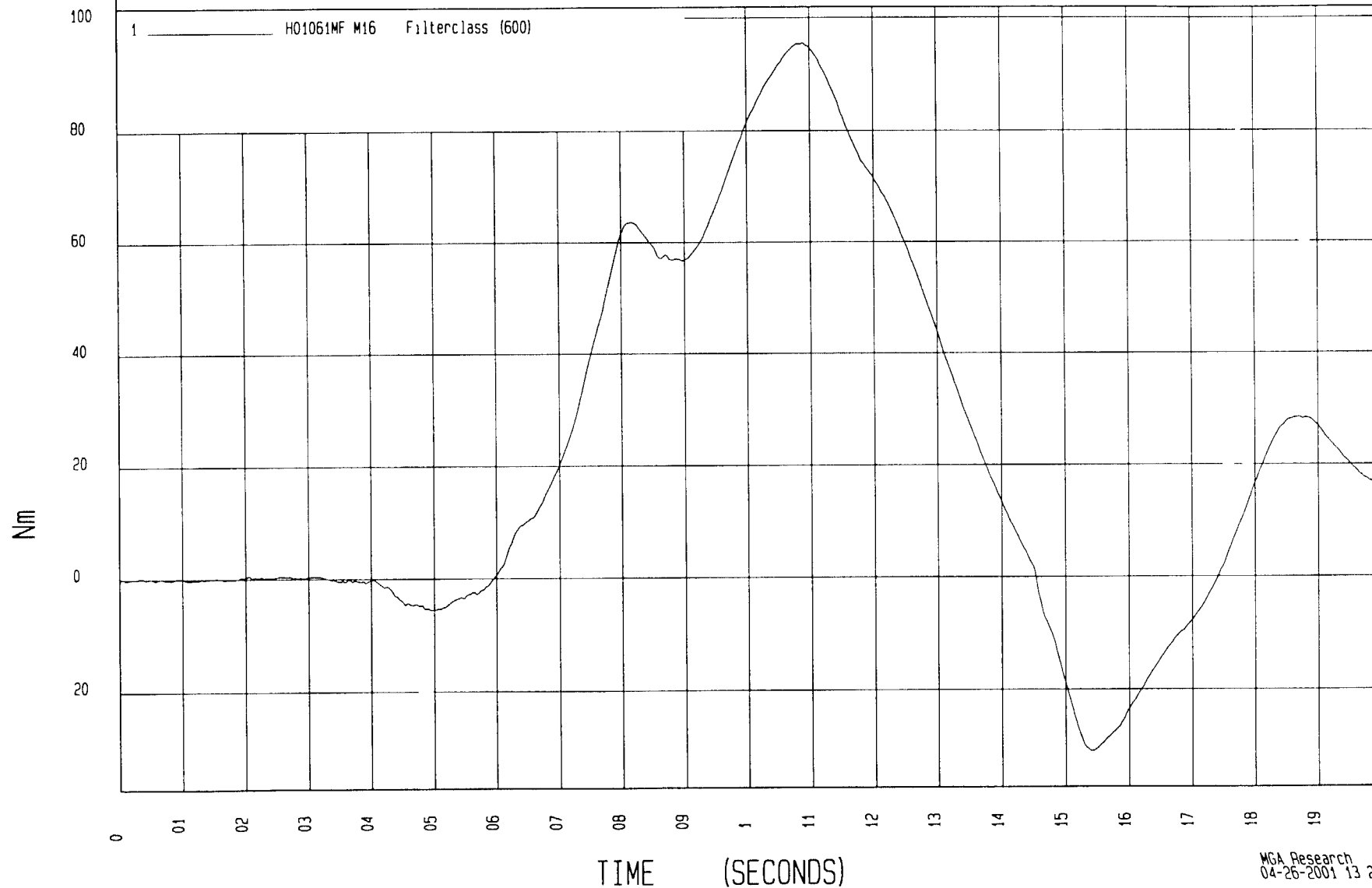
TEST DATE 04-26-2001

COMPONENT 2001 CHEVROLET CAVALIER 4 DOOR (C10107)

Minimum = 30.76 Nm at 154 msec

Maximum = 95.52 Nm at 109 msec

DRIVER NECK MOMENT Y



TEST FMVSS 208 SLED (H01061)

TEST DATE 04-26-2001

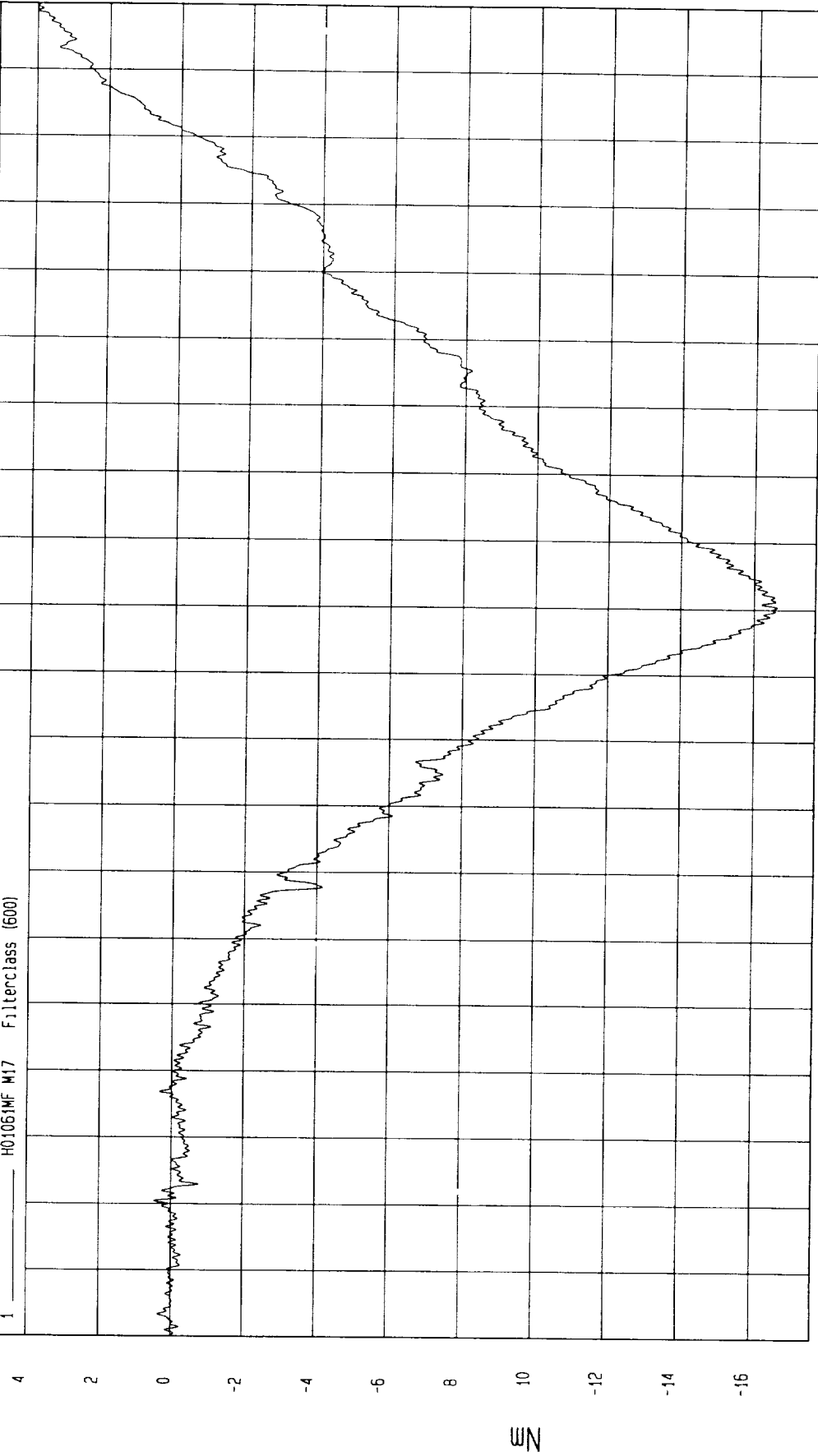
COMPONENT 2001 CHEVROLET CAVALIER 4 DOOR (C10107)

Minimum = -16.64 Nm at 110 msec

Maximum = 4.01 Nm at 199 msec

DRIVER NECK MOMENT Z

1 — H01051MF M17 Filterclass (600)



TEST FMVSS 208 SLED (H01061)

TEST DATE 04-26-2001

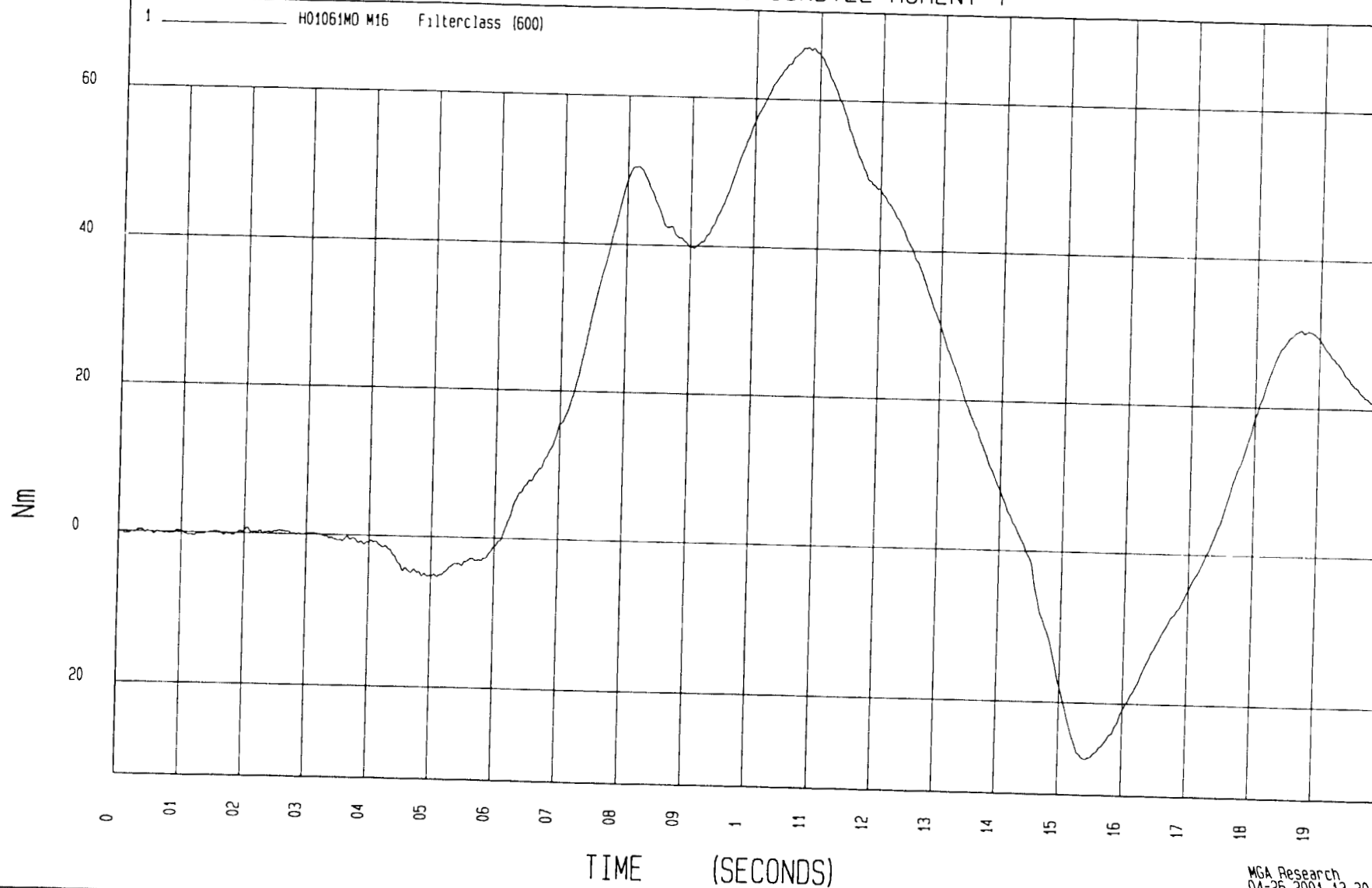
COMPONENT 2001 CHEVROLET CAVALIER 4 DOOR (C10107)

Minimum = -27.44 Nm at 154 msec

Maximum 67 Nm at 108 msec

DRIVER OCCIPITAL CONDYLE MOMENT Y

1 H01061M0 M16 Filterclass (600)



MGA Research
04-26 2001 13 30

TEST FMVSS 208 SLED (H01061)

TEST DATE 04-26-2001

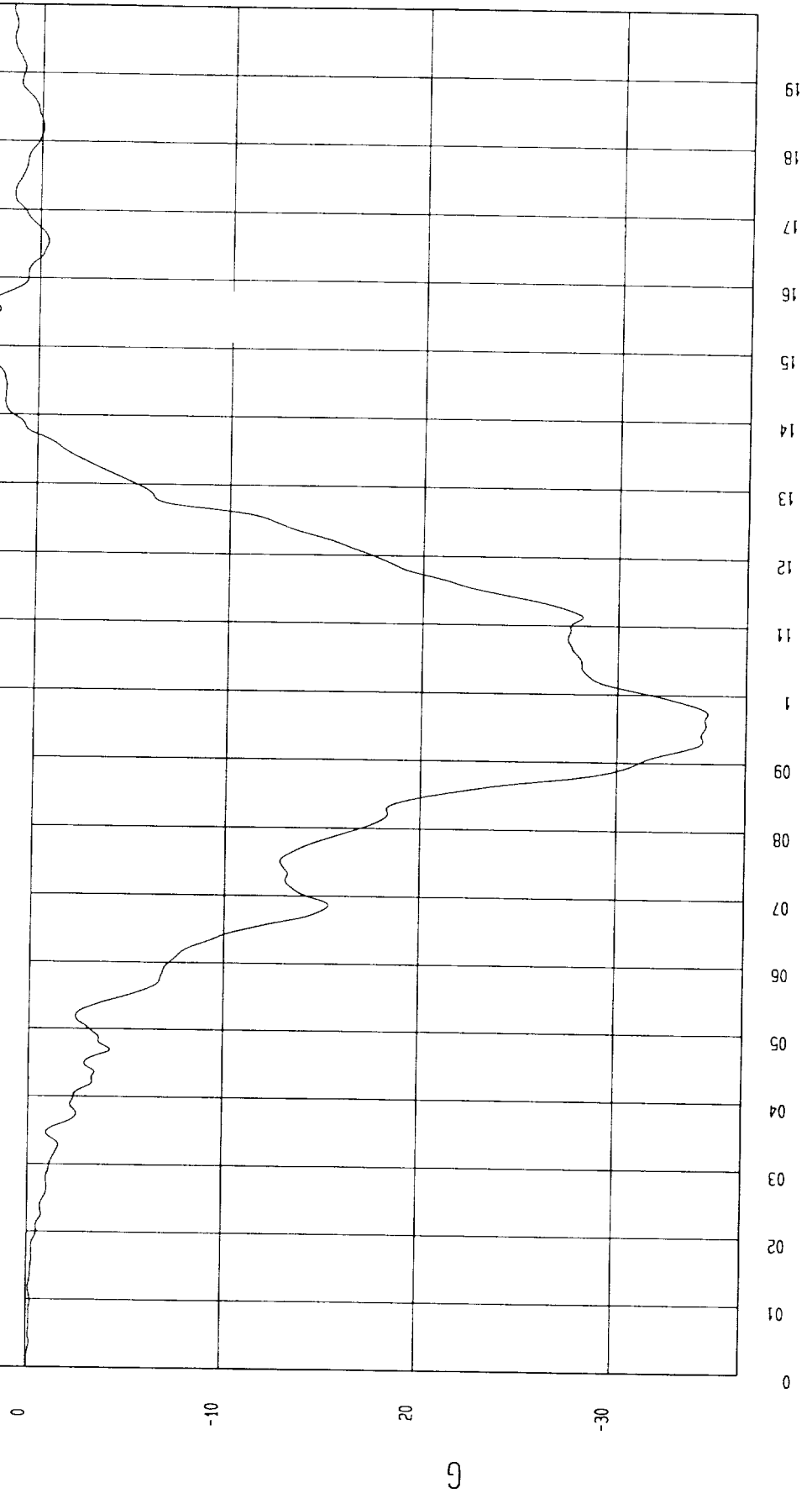
COMPONENT 2001 CHEVROLET CAVALIER 4 DOOR (C10107)

Minimum 34.52 G at 97 msec

Maximum = 4.59 G at 153 msec

DRIVER CHEST X ACCELERATION

1 H01061AF A21 Filterclass (180)



TEST FMVSS 208 SLED (H01061)

TEST DATE 04-26-2001

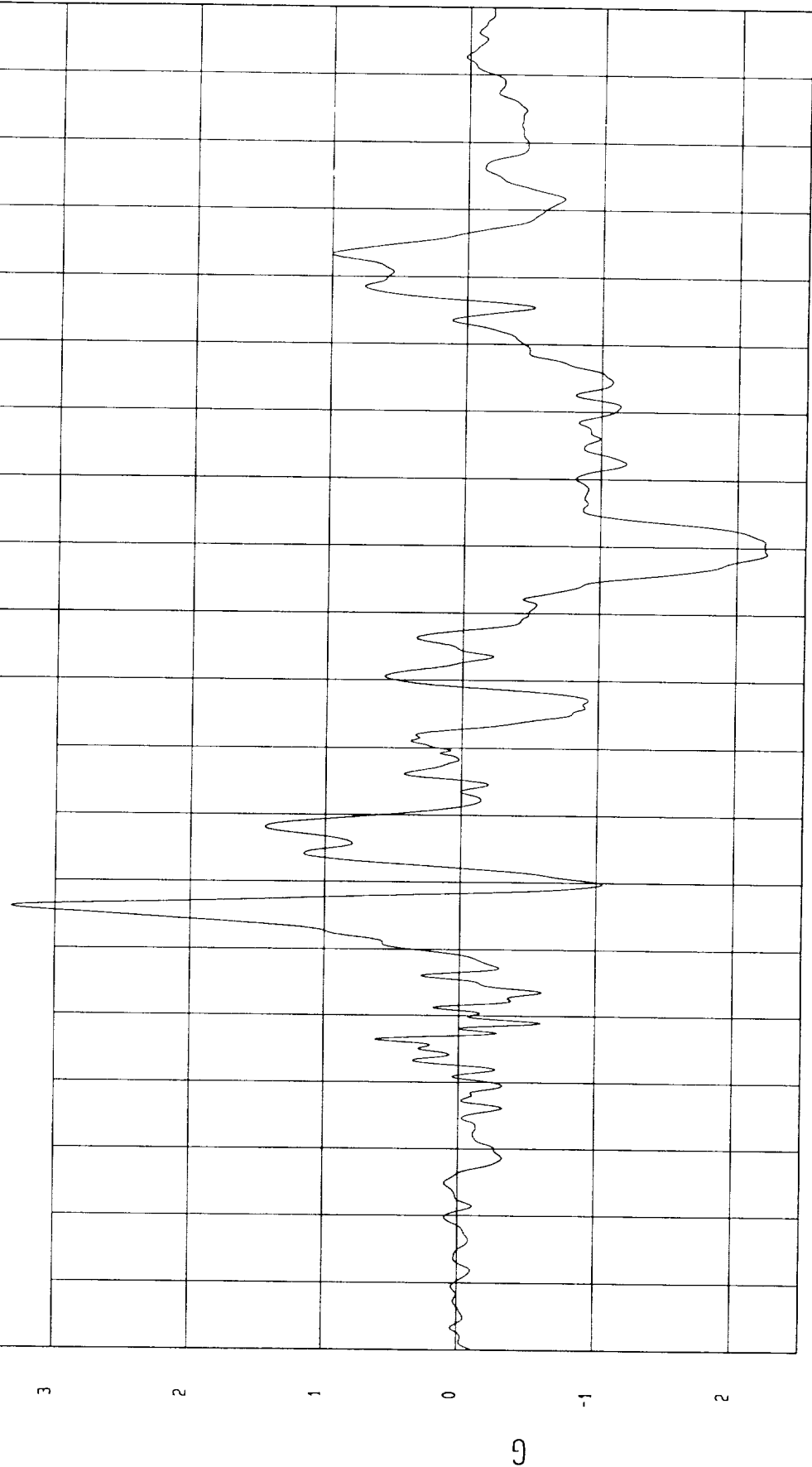
COMPONENT 2001 CHEVROLET CAVALIER 4 DOOR (C10107)

Minimum = -2.22 G at 119 msec

Maximum = 3.32 G at 66 msec

DRIVER CHEST Y ACCELERATION

1 H01061AF A22 Filterclass (180)



TIME (SECONDS)

G

TEST FMVSS 208 SLED (H01061)

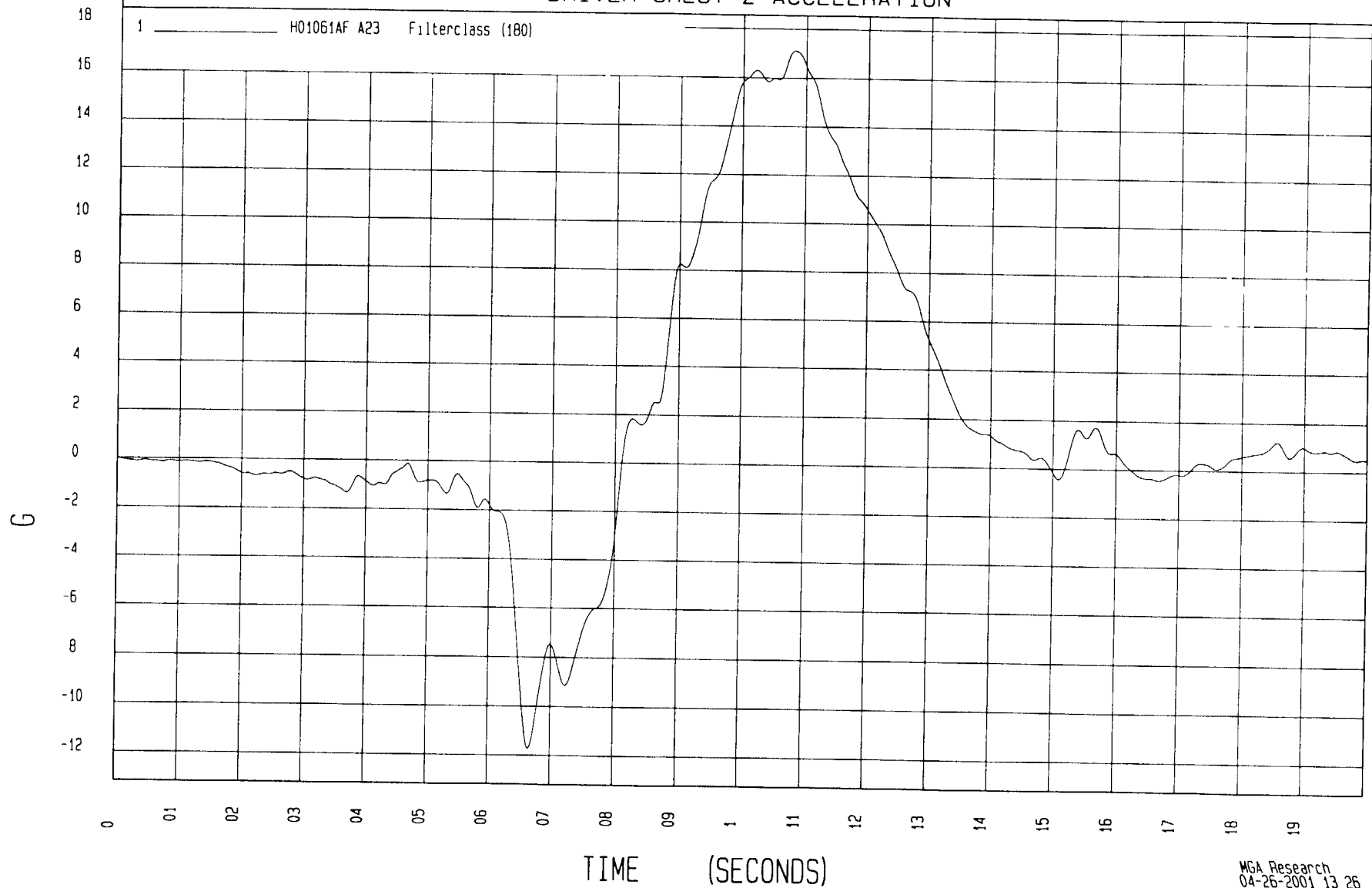
TEST DATE 04-26-2001

COMPONENT 2001 CHEVROLET CAVALIER 4 DOOR (C10107)

Minimum = -11.71 G at 66 msec

Maximum = 17.1 G at 108 msec

DRIVER CHEST Z ACCELERATION



TEST FMVSS 208 SLED (H01061)

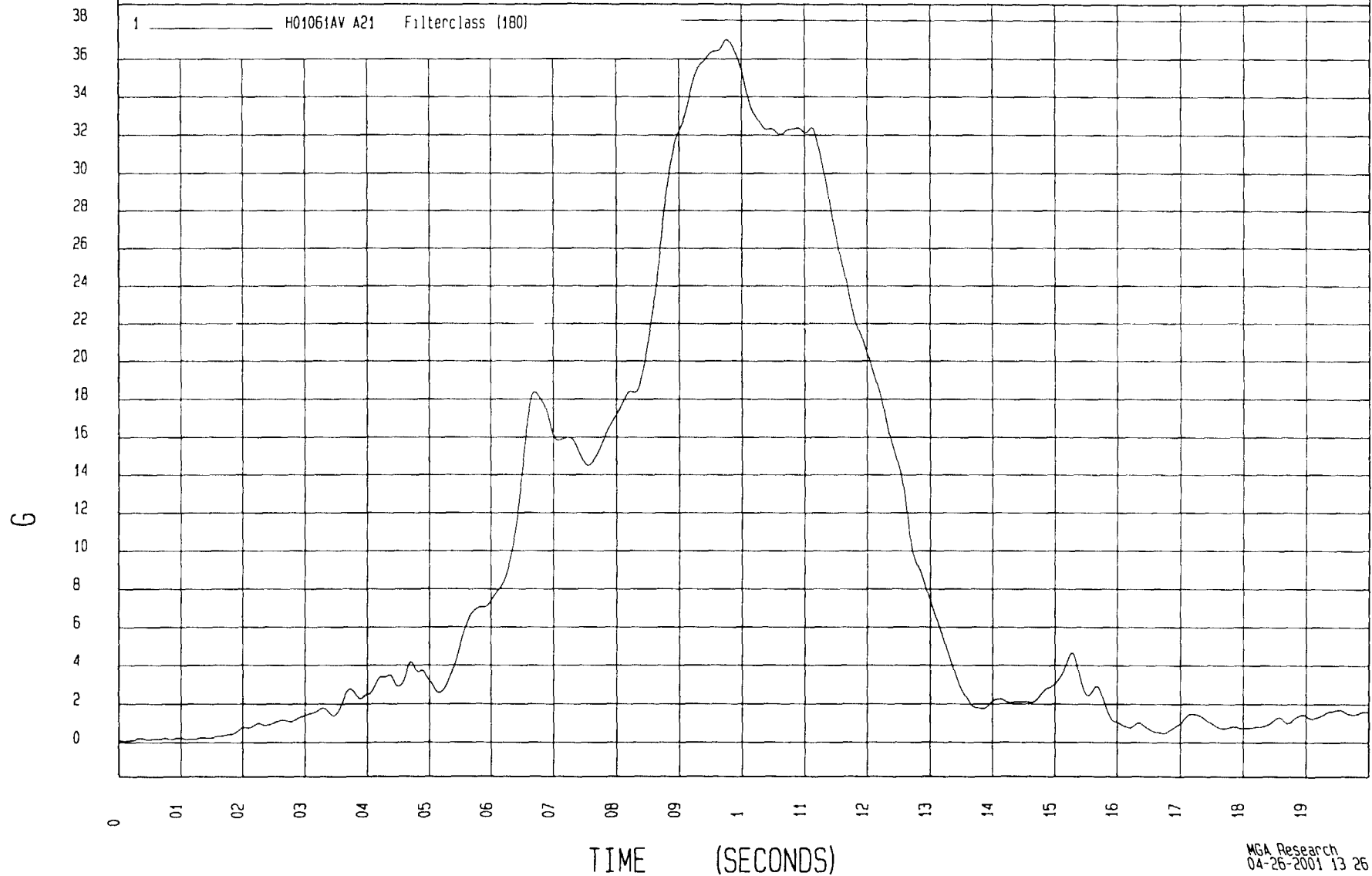
TEST DATE 04-26-2001

COMPONENT 2001 CHEVROLET CAVALIER 4 DOOR (C10107)

Minimum = 7.17E-02 G at 1 msec

Maximum = 36.99 G at 98 msec

DRIVER CHEST RESULTANT ACCELERATION



TEST FMVSS 208 SLED (H01061)

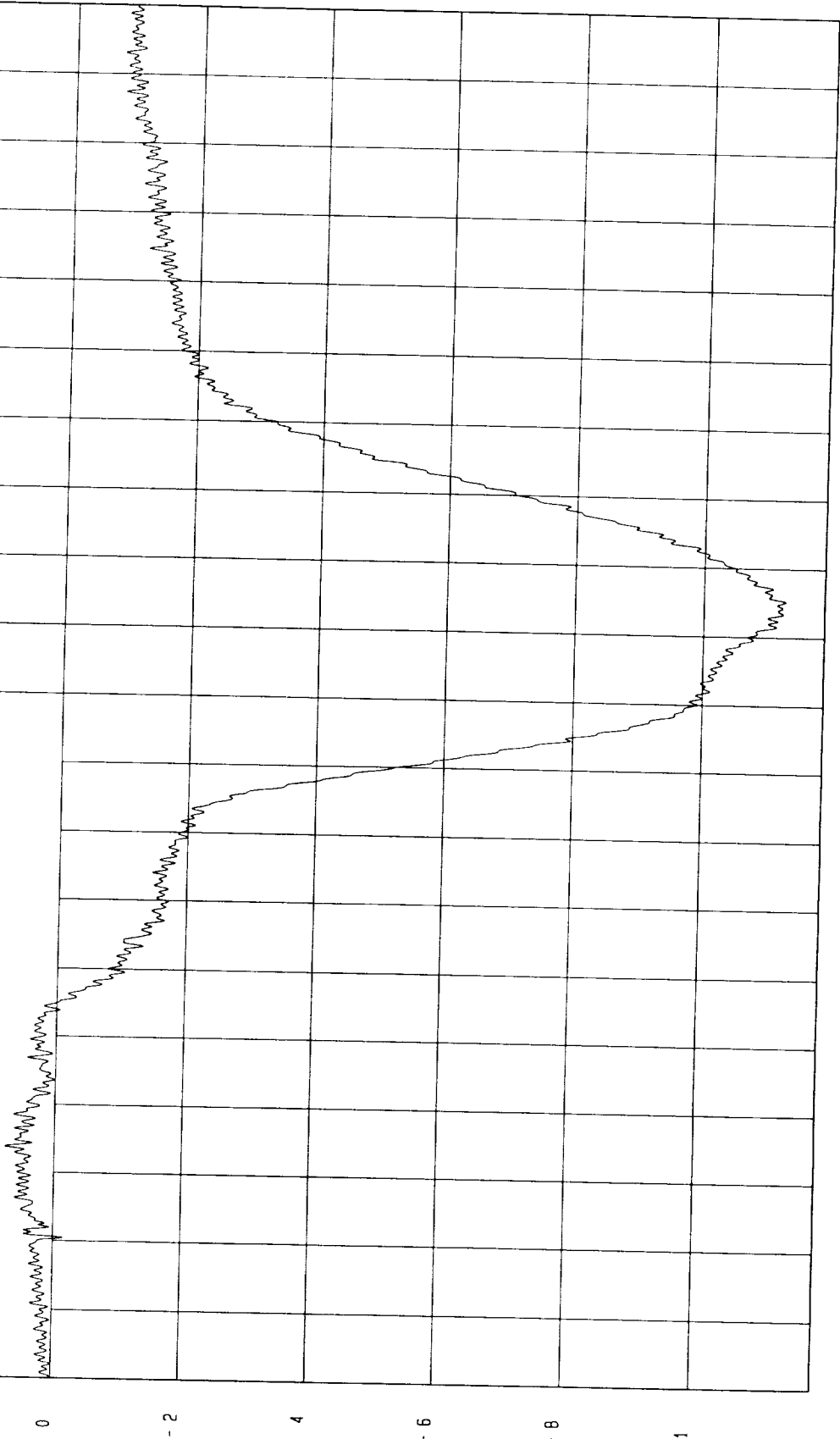
TEST DATE 04-26-2001
COMPONENT 2001 CHEVROLET CAVALIER 4 DOOR (C10107)

Minimum = -1.13 INCHES at 115 msec

Maximum = 7.73E-02 INCHES at 34 msec

DRIVER CHEST COMPRESSION

1 ——— H010610F D38 Filterclass (600)



TIME SECONDS

TEST FMVSS 208 SLED (H01061)

TEST DATE 04-26-2001

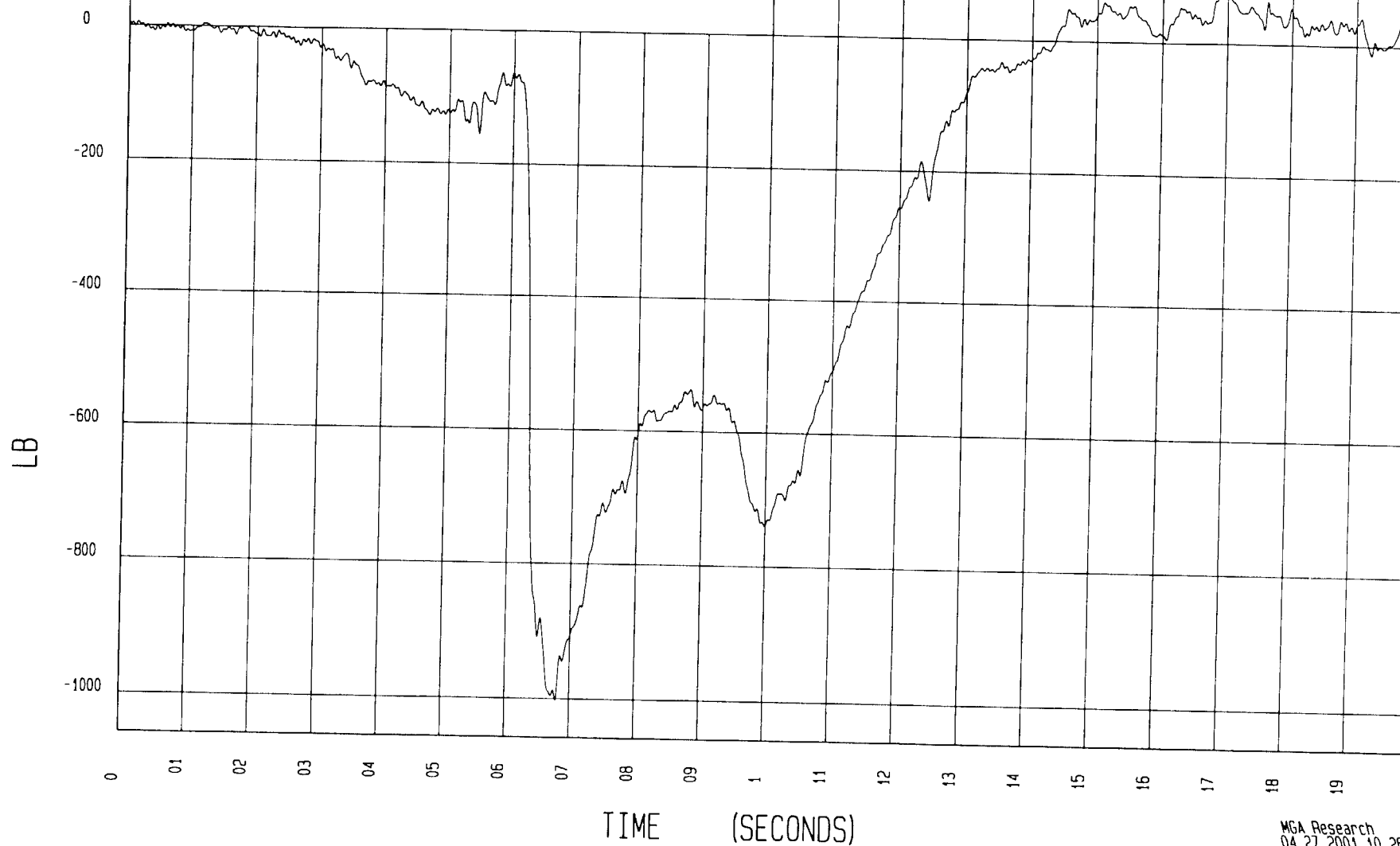
COMPONENT 2001 CHEVROLET CAVALIER 4 DOOR (C10107)

Minimum = -1002.08 LB at 68 msec

Maximum = 84.77 LB at 199 msec

DRIVER LEFT FEMUR FORCE

1 H01061FF F08 Filterclass (600)



MGA Research
04 27 2001 10 26

TIME (SECONDS)

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

LB



DRIVER RIGHT FEMUR FORCE

1 — H01061FF F09 Filterclass (600)

Maximum - 35 41 LB at 191 msec

Minimum 1000 95 LB at 67 msec

COMPONENT 2001 CHEVROLET CAVALIER 4 DOOR (C10107)

TEST FMVSS 208 SLED (H01061)

TEST DATE 04-26-2001

TEST FMVSS 208 SLED (H01061)

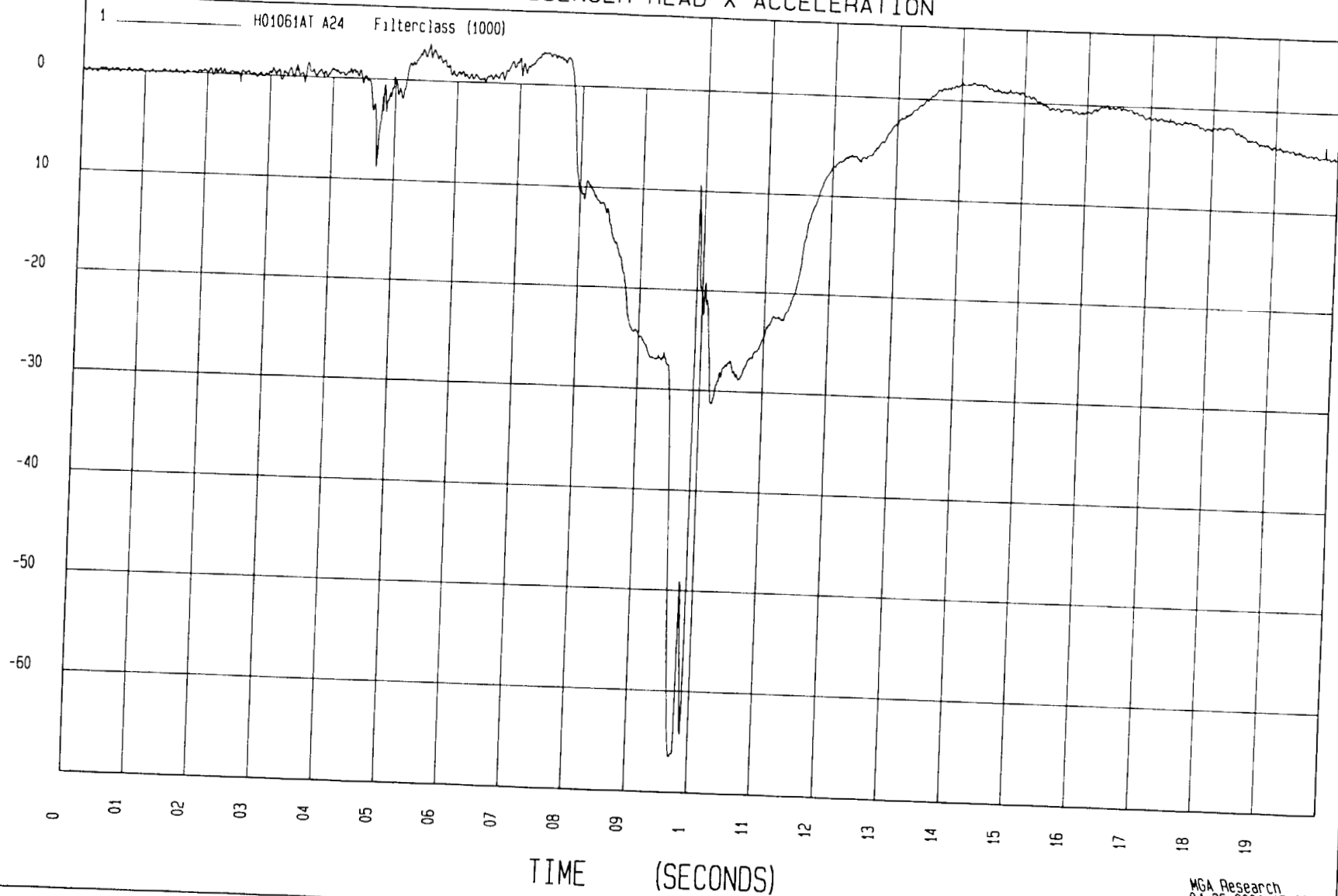
TEST DATE 04-26-2001

COMPONENT 2001 CHEVROLET CAVALIER 4 DOOR (C10107)

Minimum = -66.46 G at 97 msec

Maximum = 3.67 G at 55 msec

PASSENGER HEAD X ACCELERATION



MGA Research
04-26-2001 13 26

TEST FMVSS 208 SLED (H01061)

TEST DATE 04-26-2001

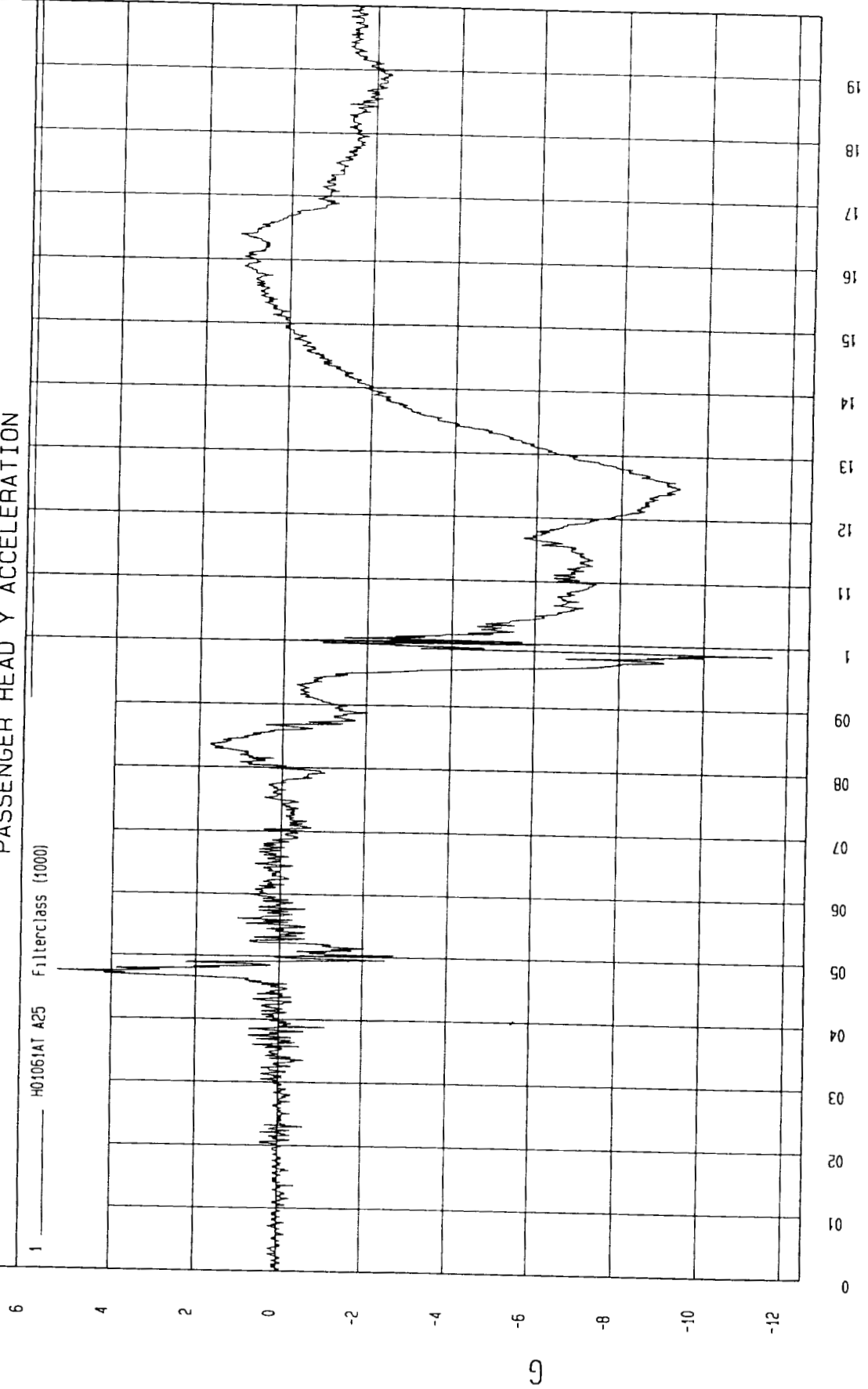
COMPONENT 2001 CHEVROLET CAVALIER 4 DOOR (C10107)

Minimum 11.53 G at 99 msec

Maximum = 5.31 G at 47 msec

PASSENGER HEAD Y ACCELERATION

1 H01061AT A25 Filterclass (1000)



TIME (SECONDS)

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

G
40
20
0
20
-40

PASSENGER HEAD Z ACCELERATION

Maximum = 49.26 G at 97 msec

Minimum = 48.41 G at 99 msec

TEST DATE 04-26-2001

TEST FMVSS 208 SLED (H01061)

COMPONENT 2001 CHEVROLET CAVALIER 4 DOOR (C10107)

1 H01061AT A26 Filterclass (1000)

TEST FMVSS 208 SLED (H01061)

TEST DATE 04-26-2001

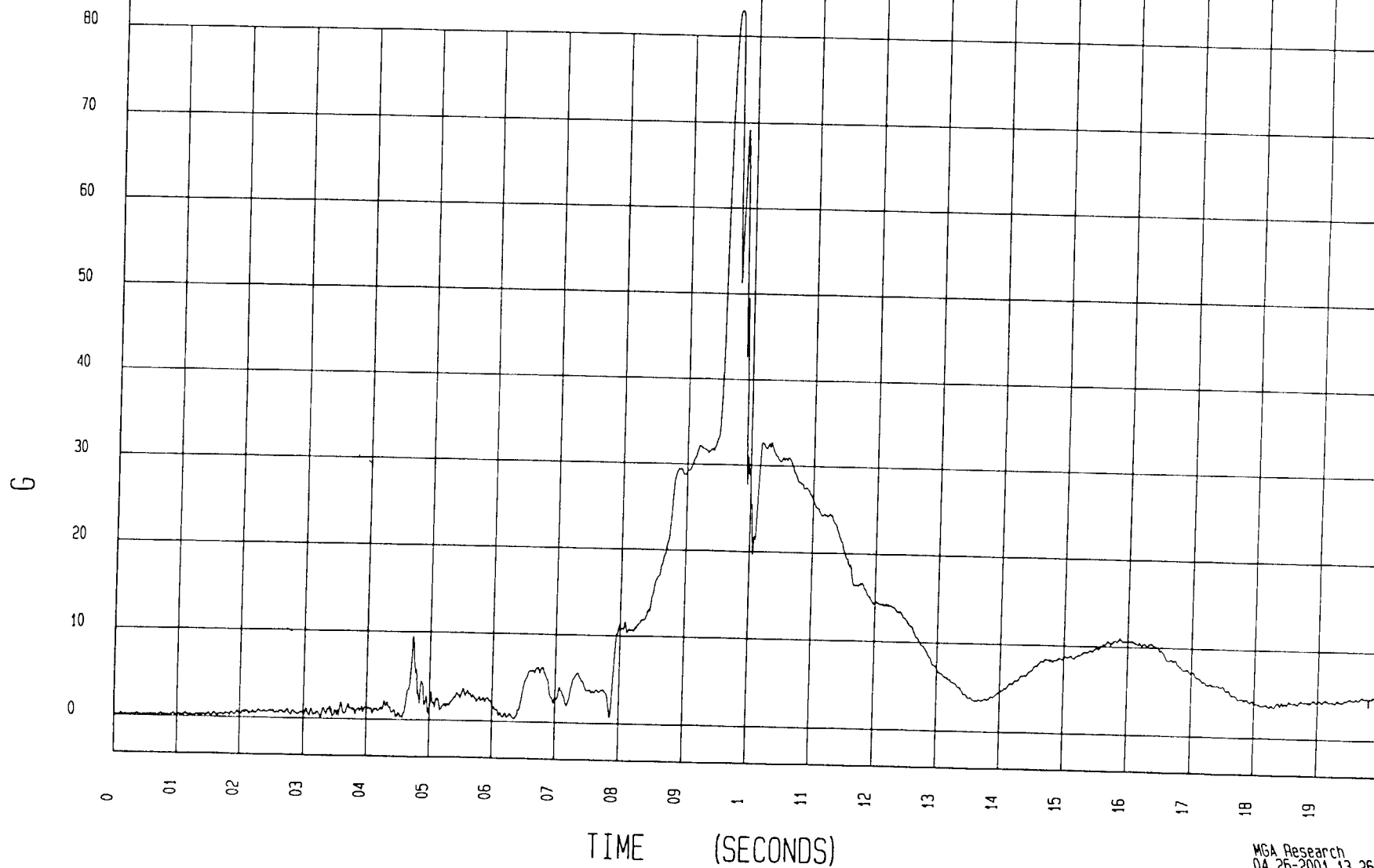
COMPONENT 2001 CHEVROLET CAVALIER 4 DOOR (C10107)

Minimum = 2.57E 02 G at 2 msec

Maximum = 82.94 G at 97 msec

PASSENGER HEAD RESULTANT ACCELERATION

1 H01061AV A24 Filterclass (1000)



MGA Research
04-26-2001 13:26

TEST FMVSS 208 SLED (H01061)

TEST DATE 04-26-2001

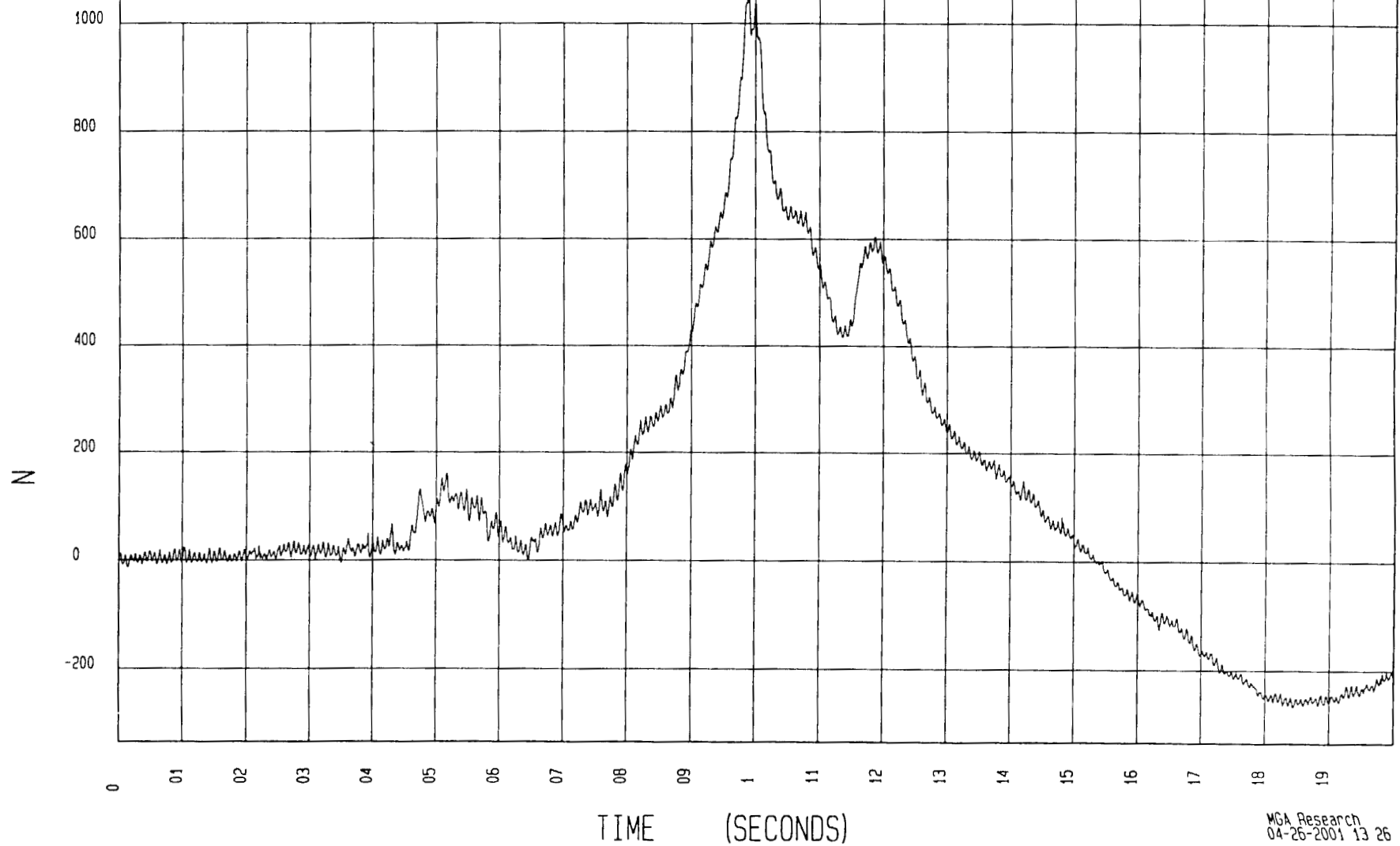
COMPONENT 2001 CHEVROLET CAVALIER 4 DOOR (C10107)

Minimum = 266 14 N at 184 msec

Maximum = 1064 97 N at 99 msec

PASSENGER NECK FORCE X

1 H01061FT F31 Filterclass (1000)



MCA Research
04-26-2001 13 26

TEST FMVSS 208 SLED (H01061)

TEST DATE 04-26-2001

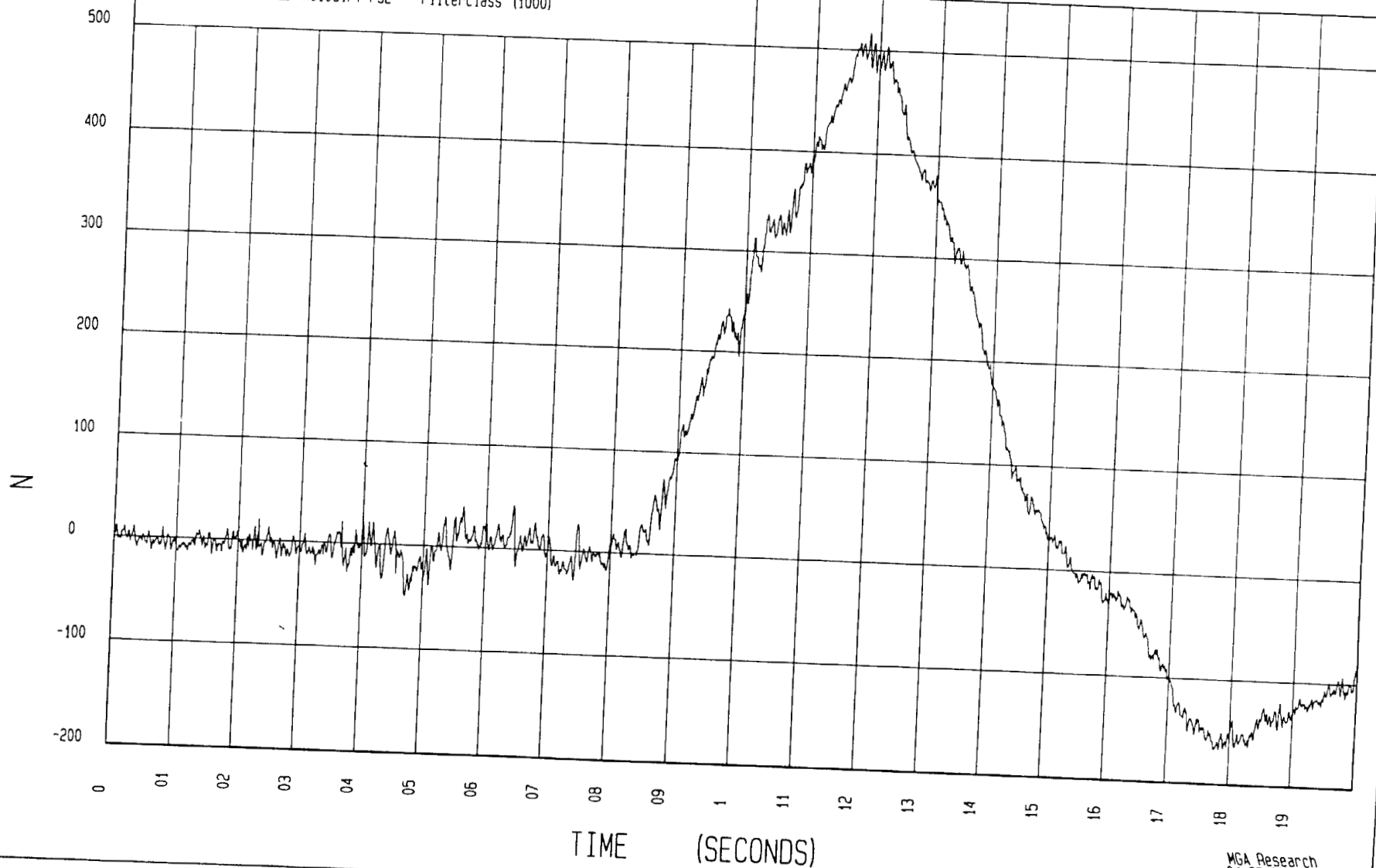
COMPONENT 2001 CHEVROLET CAVALIER 4 DOOR (C10107)

Minimum = -166 7 N at 178 msec

Maximum = 517 02 N at 118 msec

PASSENGER NECK FORCE Y

1 H01061FT F32 Filterclass (1000)



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TEST FMVSS 208 SLED (H01061)

TEST DATE 04-26-2001

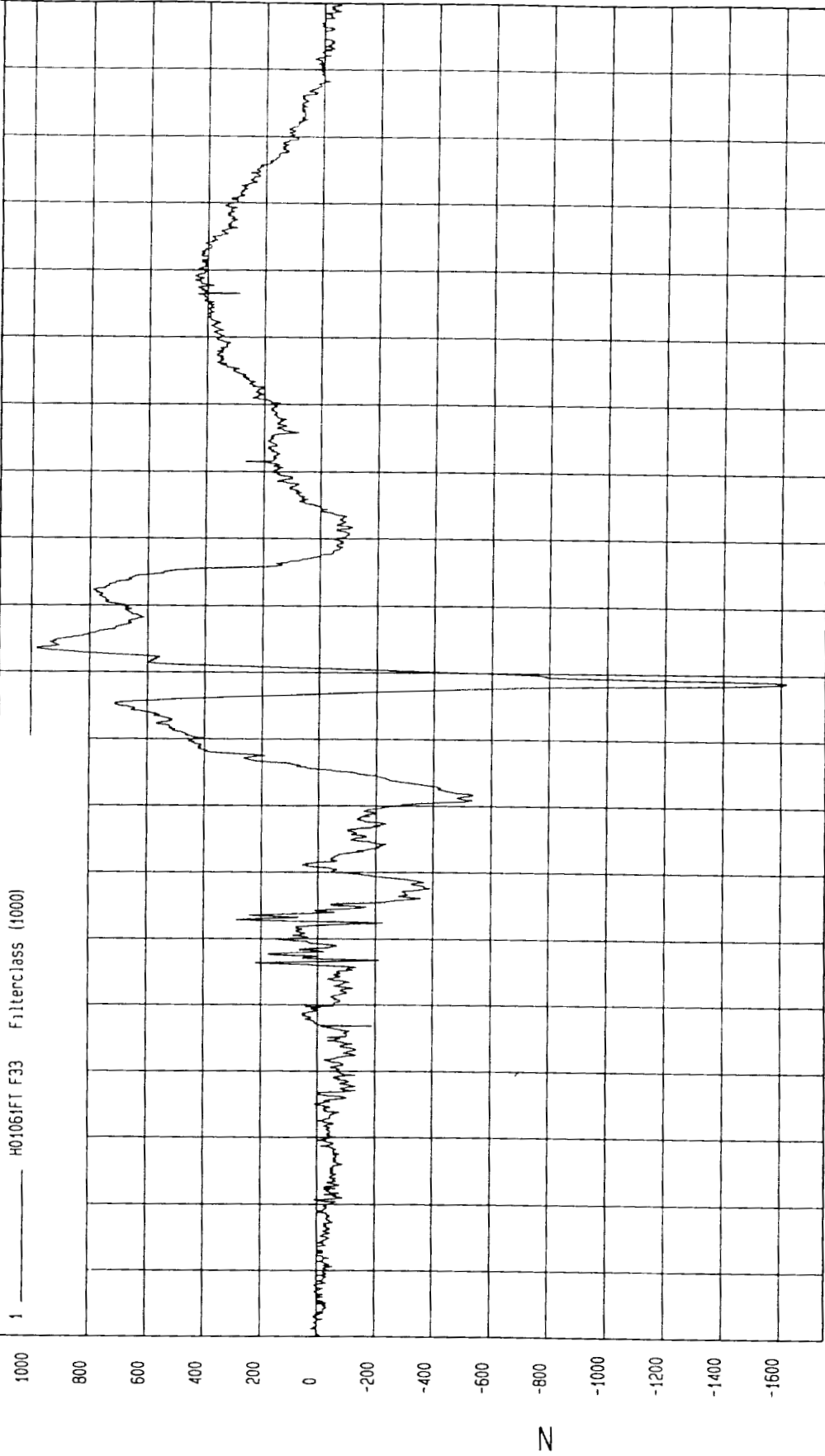
COMPONENT 2001 CHEVROLET CAVALIER 4 DOOR (C10107)

Minimum = -1617 86 N at 99 msec

Maximum = 980 22 N at 104 msec

PASSENGER NECK FORCE Z

1 ——— H01061FT F33 Filterclass (1000)



PASSENGER NECK MOMENT X VS TIME
NO VALID DATA COLLECTED

TEST FMVSS 208 SLED (H01061)

TEST DATE 04-26-2001

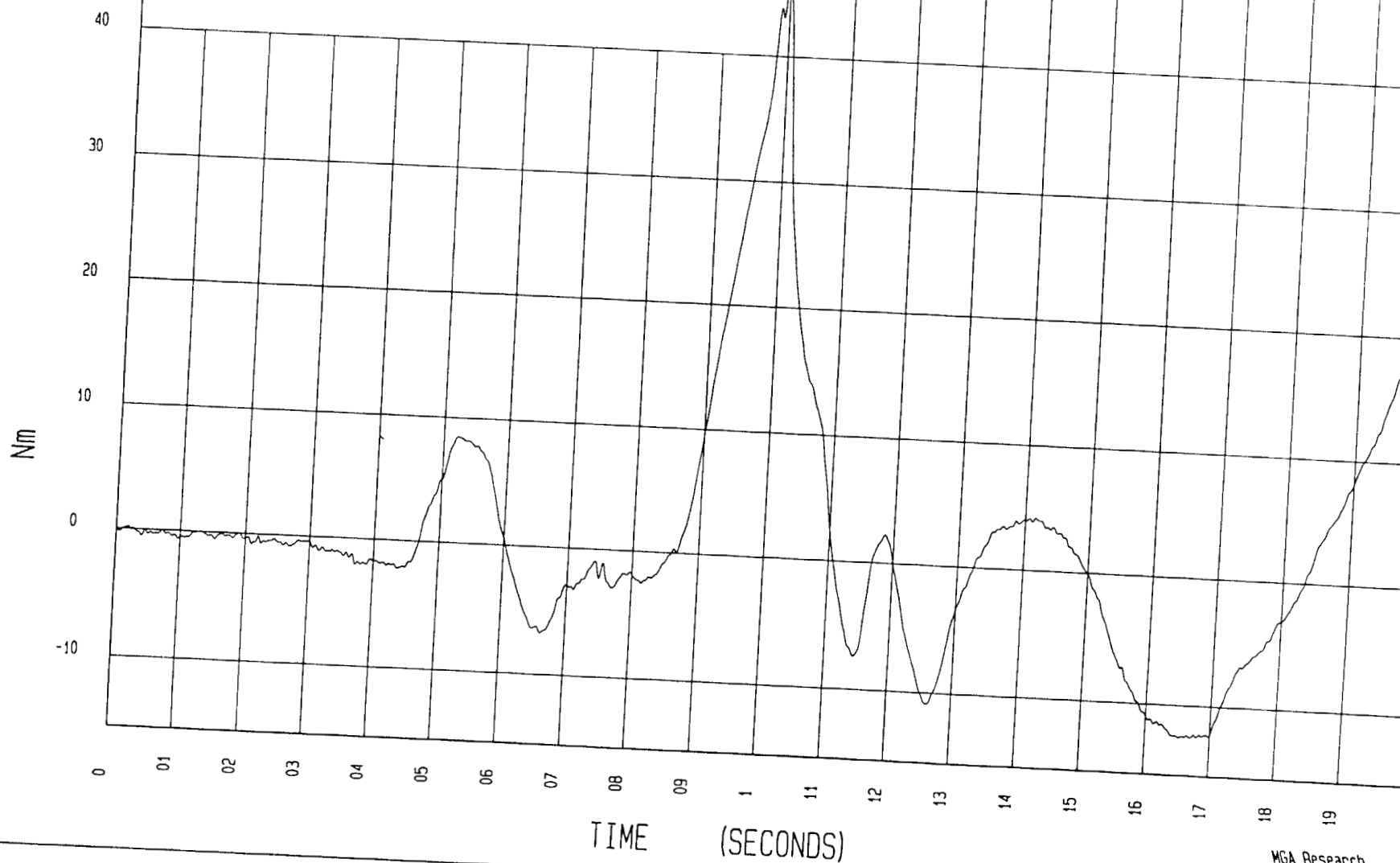
COMPONENT 2001 CHEVROLET CAVALIER 4 DOOR (C10107)

Minimum = -12.51 Nm at 165 msec

Maximum = 45.34 Nm at 100 msec

PASSENGER NECK MOMENT Y

1 H01061MF M35 Filterclass (600)



MGA Research
04-26-2001 13 26

TEST FMVSS 208 SLED (H01061)

TEST DATE 04-26-2001

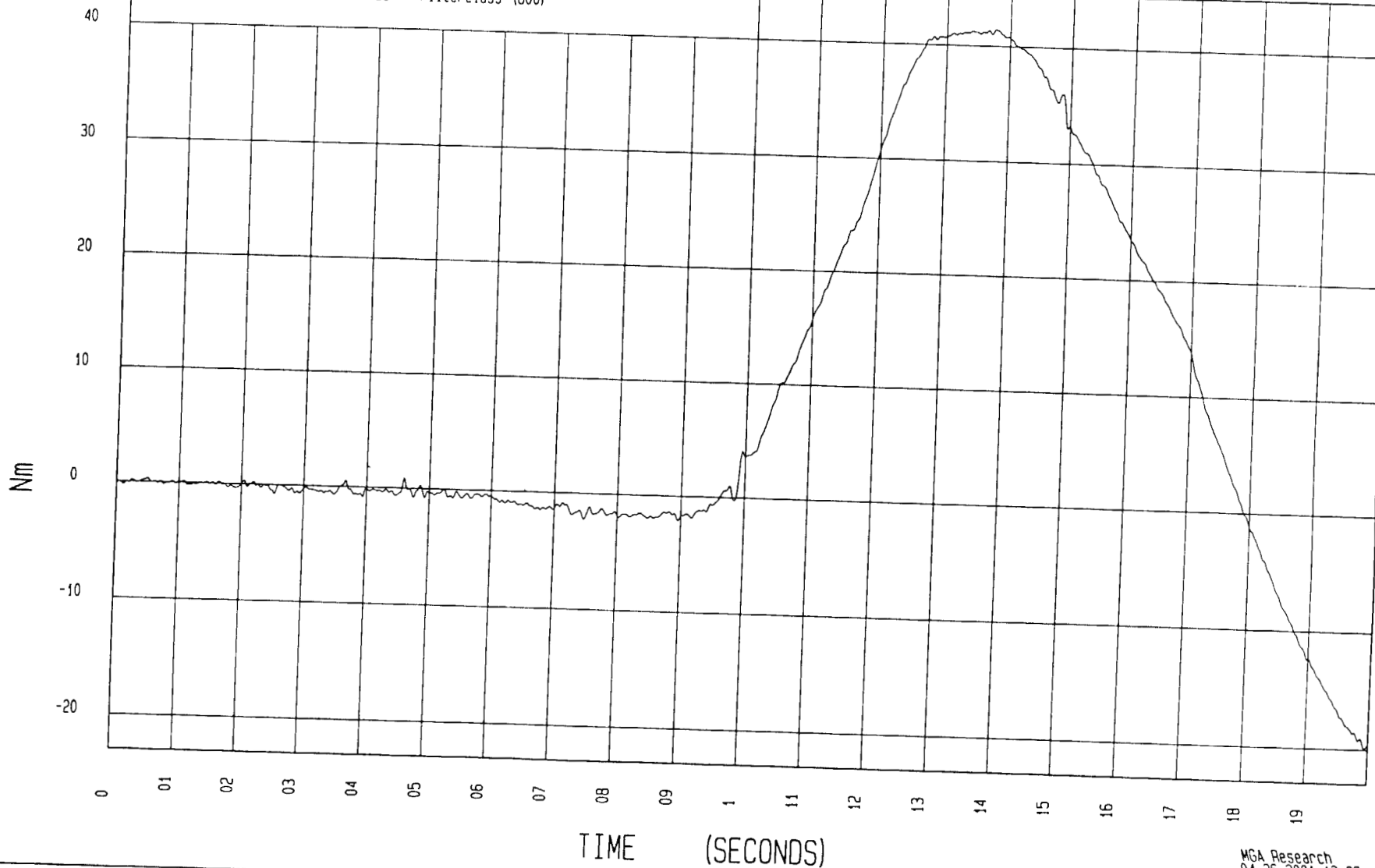
COMPONENT 2001 CHEVROLET CAVALIER 4 DOOR (C10107)

Minimum 19.92 Nm at 200 msec

Maximum 41.43 Nm at 138 msec

PASSENGER NECK MOMENT Z

1 H01061MF M36 Filterclass (600)



MGA Research
04-26-2001 13:26

TEST FMVSS 208 SLED (H01061)

TEST DATE 04-26-2001

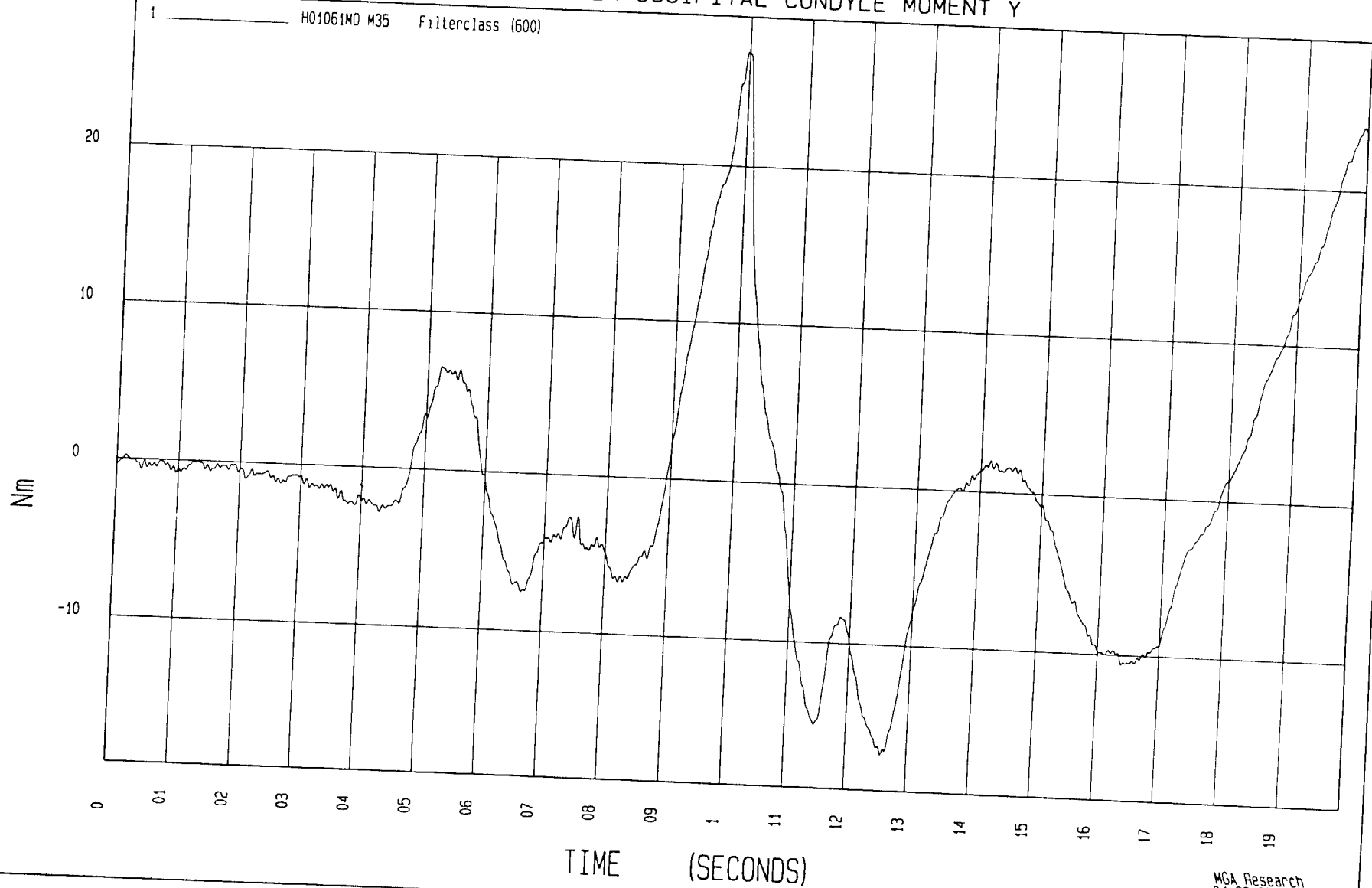
COMPONENT 2001 CHEVROLET CAVALIER 4 DOOR (C10107)

Minimum = -16.83 Nm at 126 msec

Maximum = 27.19 Nm at 100 msec

PASSENGER OCCIPITAL CONDYLE MOMENT Y

1 H01061M0 M35 Filterclass (600)



MCA Research
04-26-2001 13 30

TEST FMVSS 208 SLED (H01061)

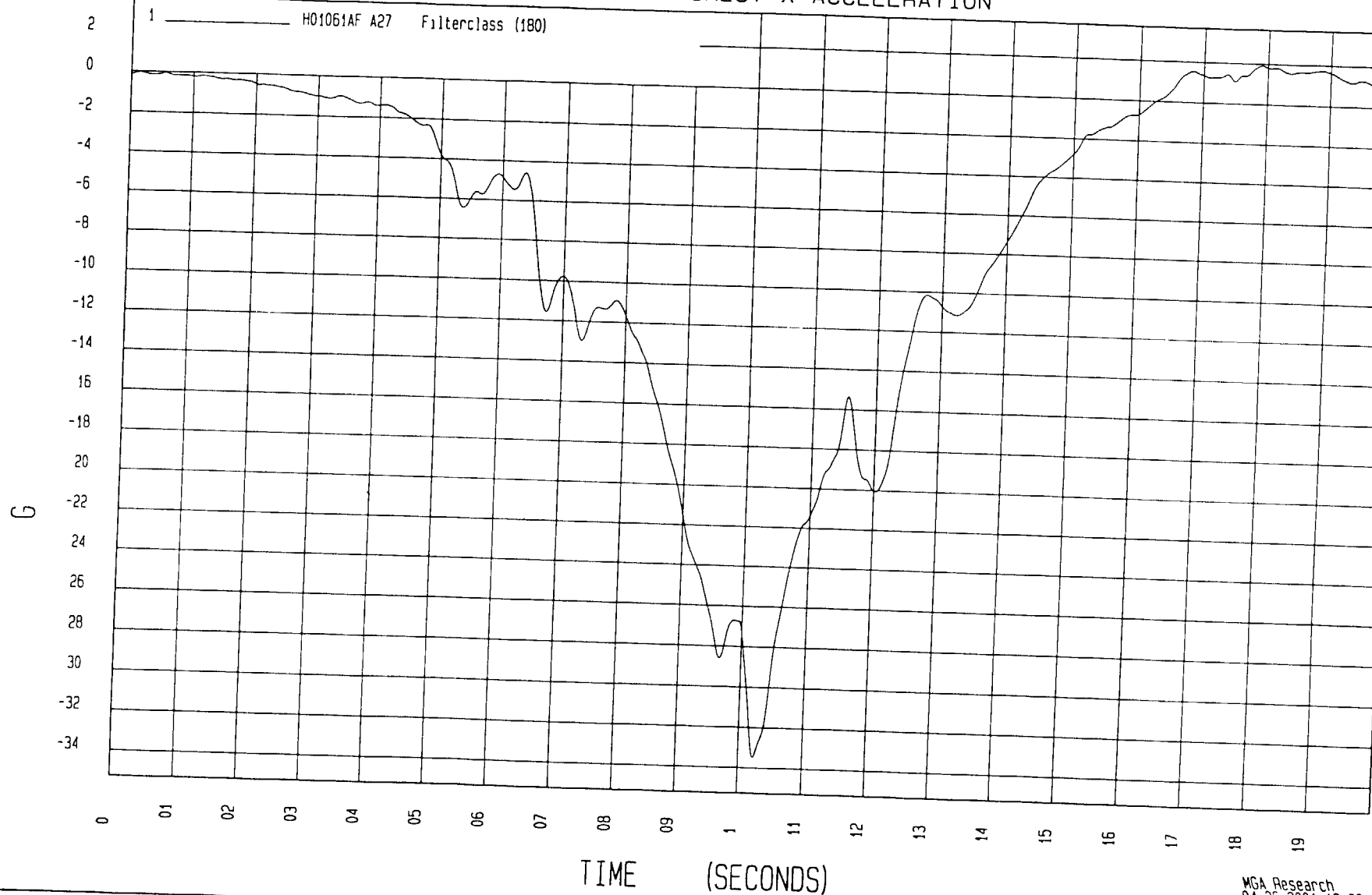
TEST DATE 04-26-2001

COMPONENT 2001 CHEVROLET CAVALIER 4 DOOR (C10107)

Minimum = -33.47 G at 102 msec

Maximum = 1.92 G at 179 msec

PASSENGER CHEST X ACCELERATION



MGA Research
04-26-2001 13 26

TEST FMVSS 208 SLED (H01061)

TEST DATE 04-26-2001

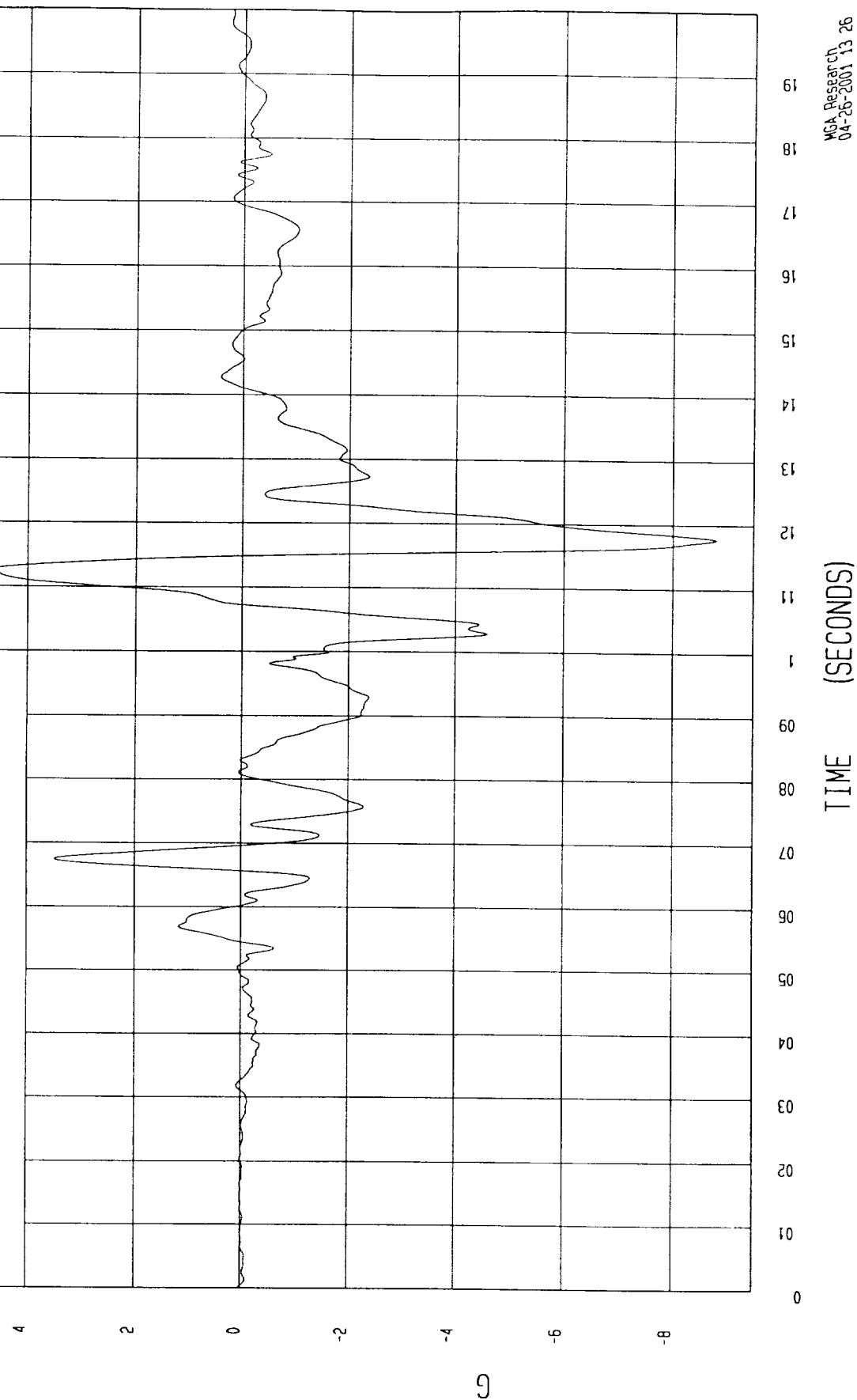
COMPONENT 2001 CHEVROLET CAVALIER 4 DOOR (C10107)

Minimum = -8.8 G at 118 msec

Maximum = 4.59 G at 113 msec

PASSENGER CHEST Y ACCELERATION

1 H01061AF A28 Filterclass (180)



TEST FMVSS 208 SLED (H01061)

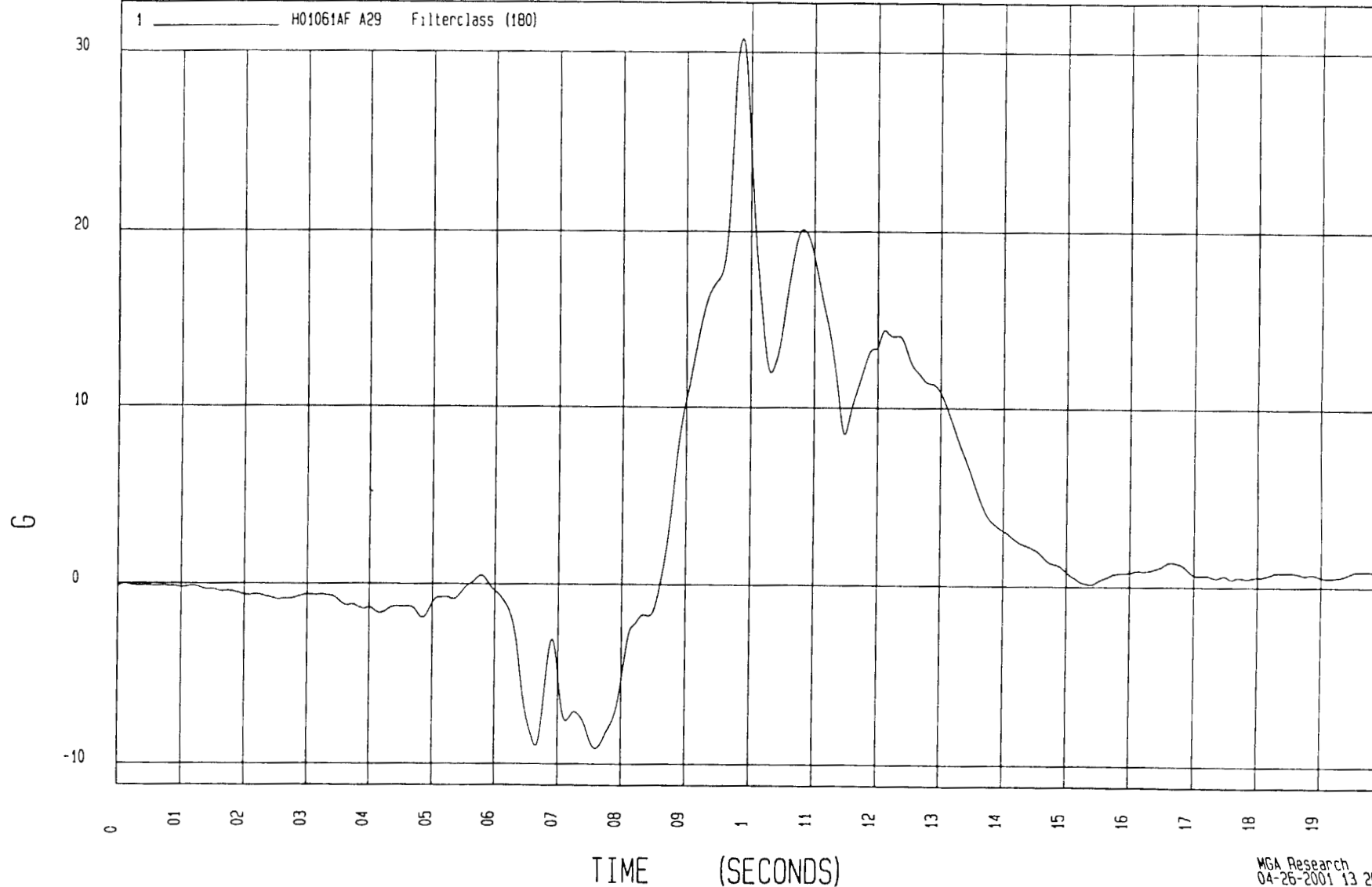
TEST DATE 04-26-2001

COMPONENT 2001 CHEVROLET CAVALIER 4 DOOR (C10107)

Minimum 9.15 G at 76 msec

Maximum = 30.75 G at 99 msec

PASSENGER CHEST Z ACCELERATION



MGA Research
04-26-2001 13 26

TEST FMVSS 208 SLED (H01061)

TEST DATE 04-26-2001

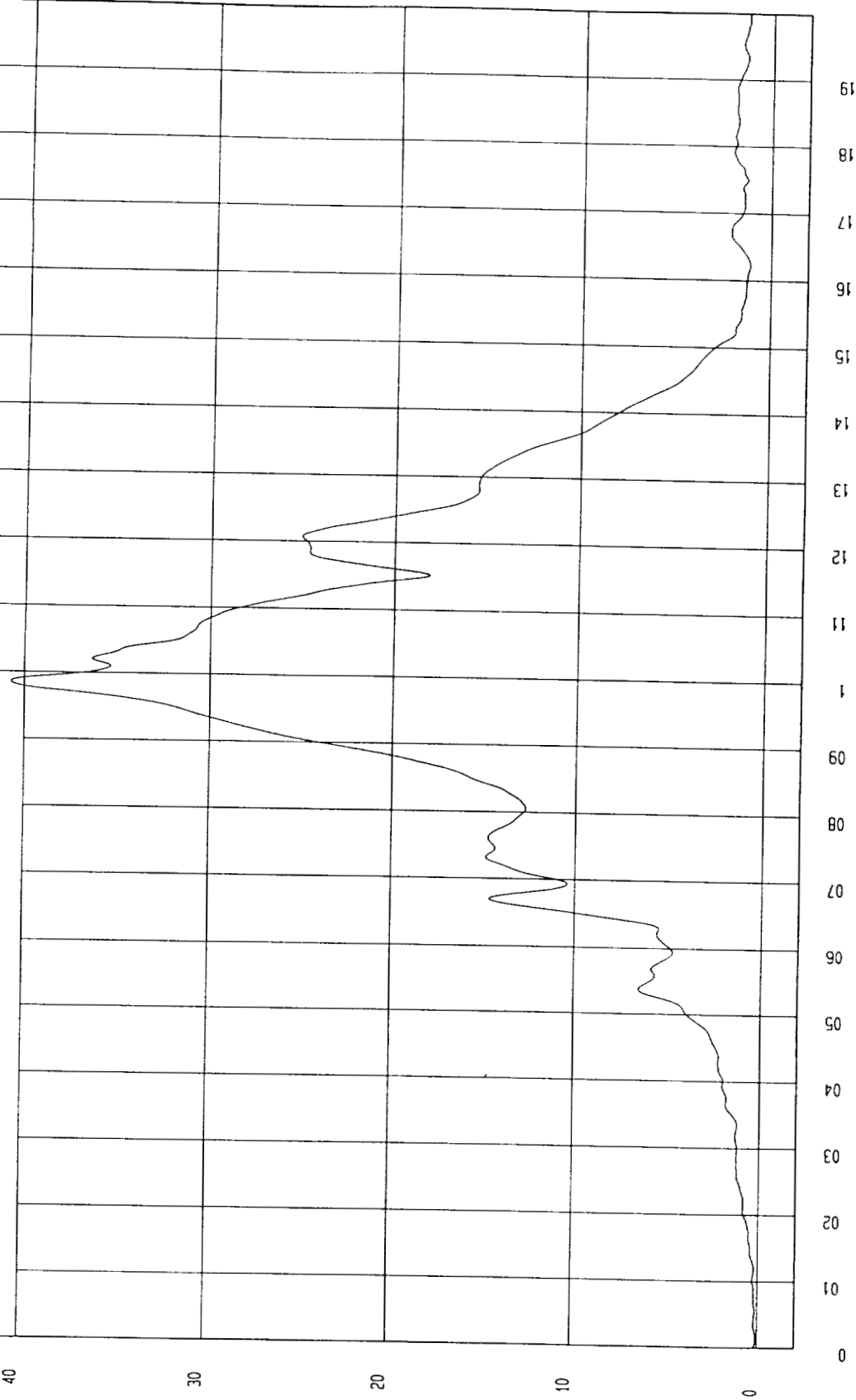
COMPONENT 2001 CHEVROLET CAVALIER 4 DOOR (C10107)

Minimum = 8.66E-02 G at 1 msec

Maximum = 40.73 G at 99 msec

PASSENGER CHEST RESULTANT ACCELERATION

1 — H01061AV A27 Filterclass (180)



TEST FMVSS 208 SLED (H01061)

TEST DATE 04-26-2001

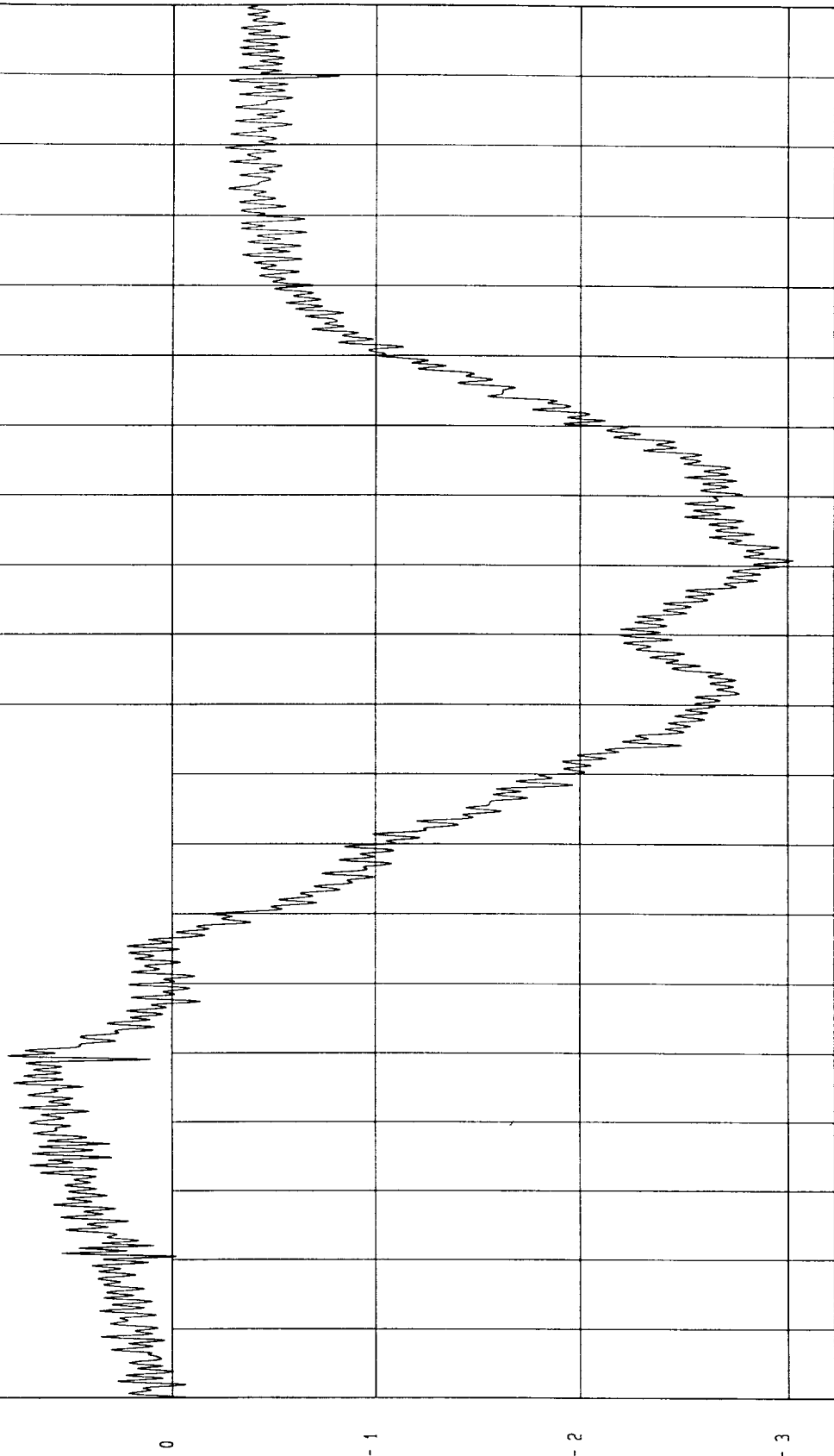
COMPONENT 2001 CHEVROLET CAVALIER 4 DOOR (C10107)

Minimum - - 3 INCHES at 121 msec

Maximum 7.99E-02 INCHES at 50 msec

PASSENGER CHEST COMPRESSION

1 ——— H01061DF D39 Filterclass (600)



TEST FMVSS 208 SLED (H01061)

TEST DATE 04-26-2001

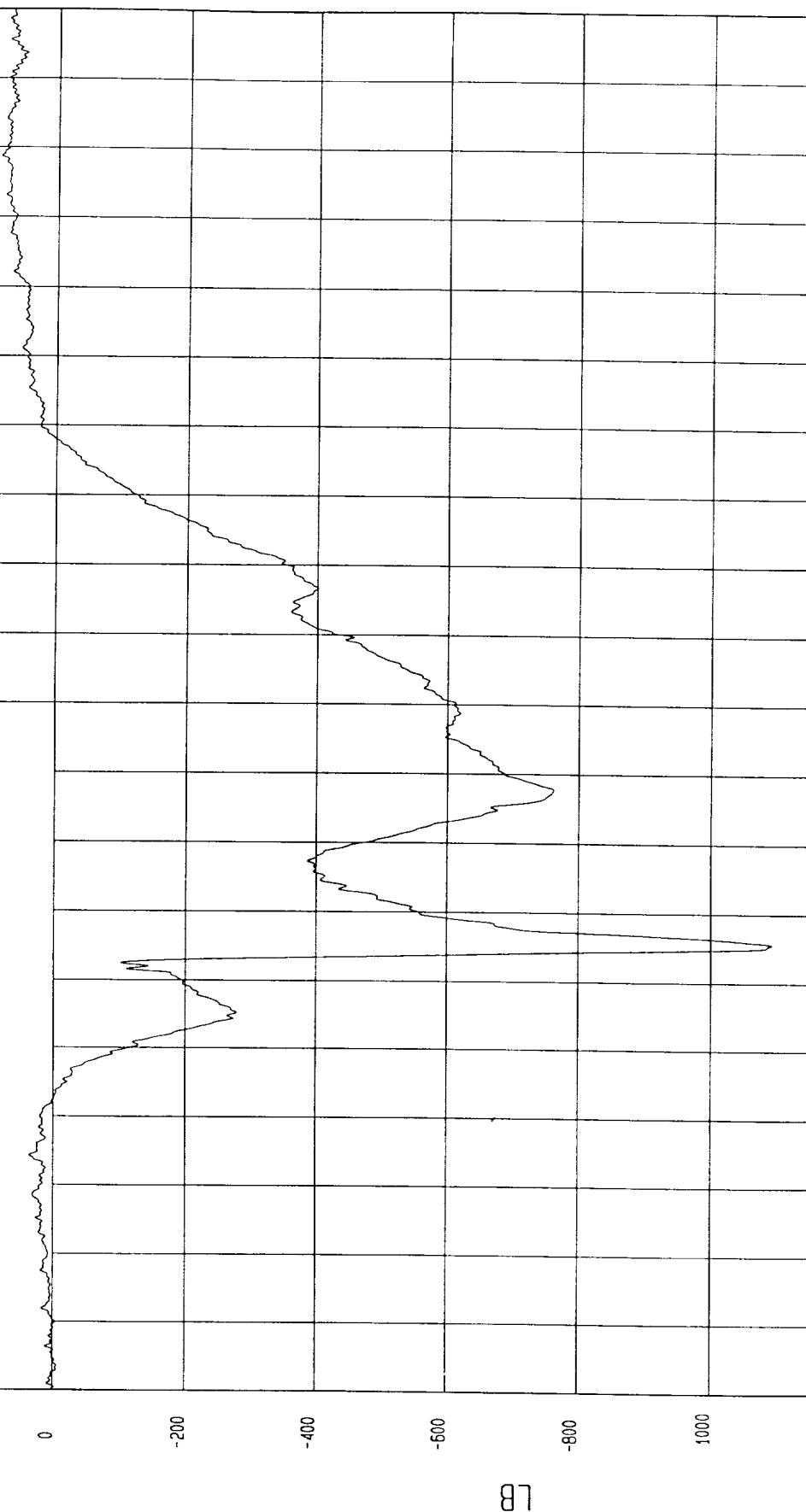
COMPONENT 2001 CHEVROLET CAVALIER 4 DOOR (C10107)

Minimum = -1092 LB at 66 msec

Maximum = 86 22 LB at 179 msec

PASSENGER LEFT FEMUR FORCE

1 H01061FF F18 Filterclass (500)



TEST FMVSS 208 SLED (H01061)

TEST DATE 04-26-2001

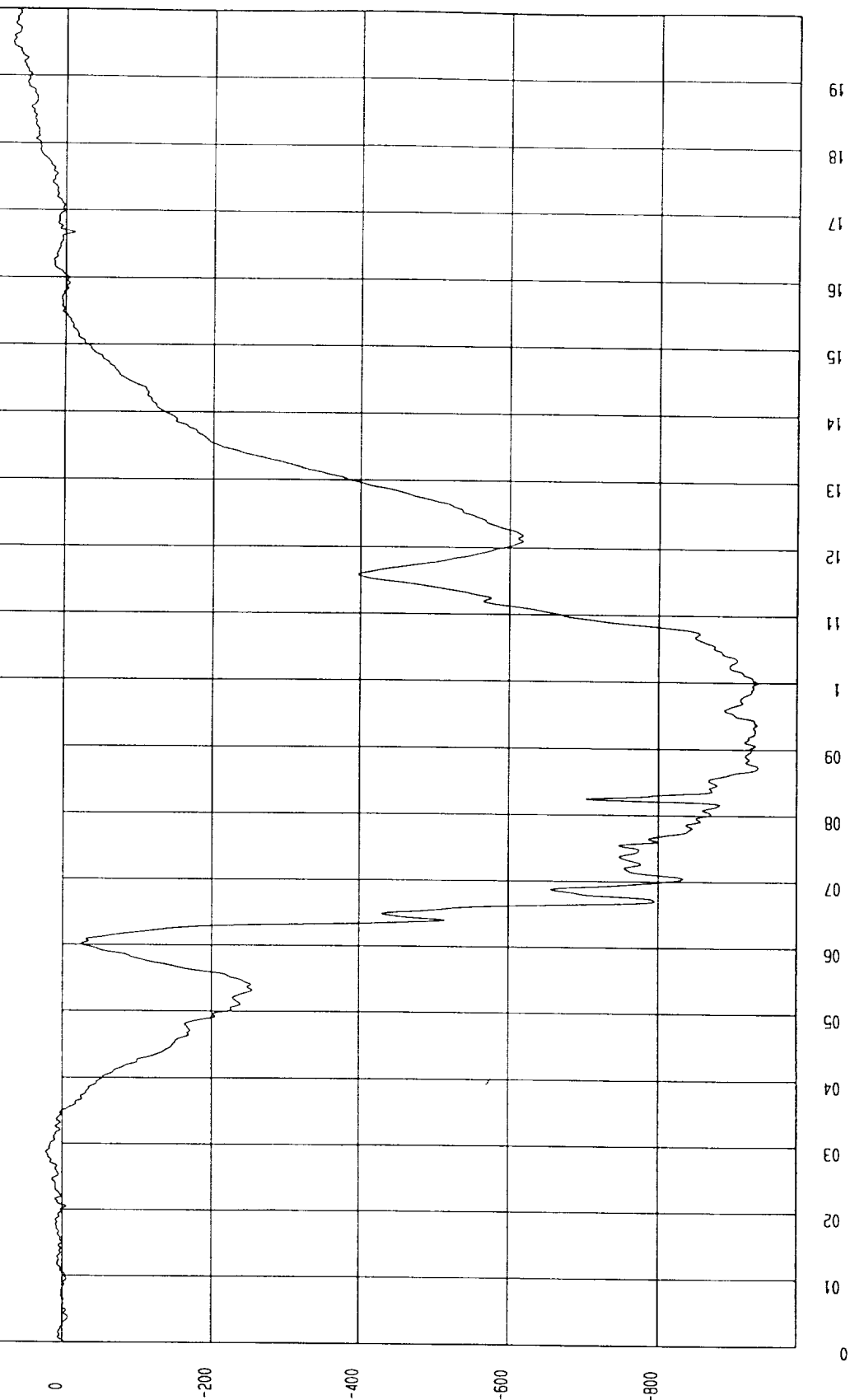
COMPONENT 2001 CHEVROLET CAVALIER 4 DOOR (C10107)

Minimum -931.58 LB at 87 msec

Maximum = 70.79 LB at 195 msec

PASSENGER RIGHT FEMUR FORCE

1 — H01061FF F45 Filterclass (500)



TIME (SECONDS)

MGA Research
04-26-2001 13 27

APPENDIX C
MANUFACTURER'S VEHICLE INFORMATION



GENERAL MOTORS NORTH AMERICA
Safety Center

November 30, 2000
USG 3599

Ms Marilynne Jacobs, Director
Office of Vehicle Safety Compliance
Safety Assurance
National Highway Traffic Safety
Administration
400 Seventh St , S W
Washington, D C. 20590

Subject: Information Request NSA-31CCa/OA-208-001018K

Dear Ms Jacobs

This is in response to your letter received October 27, 2000, requesting information for proposed FMVSS 208 enforcement testing of the 2001 Chevrolet Cavalier. Specifically, the letter requested certain information on the alternative requirements that the automatic restraint in this vehicle meets, if tension-relief devices were incorporated into the restraint system and certain test set-up information.

The specific OVSC questions and the General Motors Corporation responses are included in Enclosure 1.

We trust this information is responsive to your request. We welcome the opportunity to discuss any aspects of our response with you or members of your staff. If there are any questions, please do not hesitate to contact Mr. John E. Kromrei (810/947-1735) of my staff, or Mr. Richard F. Humphrey (202/775-5071) of GM's Washington Office.

Sincerely,

C. Thomas Terry, Director
Safety Regulations & Consumer Information
Safety Center

Attachments
cc C. Case, NHTSA

Safety Regulations & Consumer Information
Mail Code 480 111-S56 • 30200 Mound Road • Warren, Michigan 48090 9010
FAX (810) 986-8018



NHTSA IR NSA-31Cca
OA-208-001018K
2001 Chevrolet Cavalier

Question 1

Please inform OVSC if the air bag restraint system is certified to meet the requirements of S4.1.5.1(a)(1) or S13.

If the air bags were installed to meet the requirements of S4.1.5.1(a)(1) please provide a copy of the certification test reports for the frontal/angular barrier impact tests of the automatic restraint system with the manual safety belts unfastened and fastened.

If the air bags were installed to meet the requirements of S13 please provide a copy of the certification test reports for the frontal/angular barrier impact tests of the automatic restraint system with the manual safety belts fastened and the certification test reports for the sled test using only the automatic restraint system.

GM Response

The air bag restraint system provided at the driver's and passenger's seating positions in the subject vehicle is installed to meet S13. In addition, the air bag restraint system provided at the driver's and passenger's seating positions, along with the manual 3-point safety belt, were installed to meet the requirements of paragraphs S4.1.5.1(a)(3) of FMVSS 208.

Attachment A includes those portions of the frontal barrier test reports and sled tests pertinent to the requirements of FMVSS 208.

Question 2

Provide the following: (1) describe the difference between the MY 2001 air bag system and the MY 2000 air bag system, (2) explain what other restraint changes have been made, (3) explain what other vehicle changes have been made that might have affected FMVSS 208 performance, and (4) describe any features that might affect performance with respect to children and out of position occupants.

GM Response

- 1) The MY 2001 air bag system design has not changed from the MY 2000 air bag system.
- 2) No other restraint changes have been made between MY 2000 and MY 2001.
- 3) No other changes were made that might affect FMVSS 208 performance.
- 4) No other features affecting children and out of position occupants were changed.

NHTSA IR NSA-31Cca
OA-208-001018K
2001 Chevrolet Cavalier**Question 3**

If the vehicle was certified with unrestrained dummies to meet the requirements of S13, describe how to disconnect the air bags from the vehicle sensors and connect them to the triggering mechanism used in the sled test. Describe the method used in certification to determine when to trigger the air bag system and the system used to trigger the air bag.

For air bags with dual stage or multistage inflators describe when the stages are triggered and provide data to show that this is similar to what would occur in a crash of similar severity. (See enclosure 1)

GM Response

Sled tests used to meet the requirements of S13 were performed on a sled buck, in which the air bags were not connected to a full vehicle system. For GM's sled testing, the air bags are powered and activated by a remote deploy system. This can also be done in a full vehicle test. This remote deploy air bag control system is electronically wired to the air bag through a junction box. To deploy the air bags, the air bag control system provides the power through the interconnect of electronic wiring. The air bag control system is programmed to deploy the air bag as follows:

The air bag system should be disabled prior to performing the following actions. Disablement can be accomplished by disconnecting the battery negative cable from the battery. Wait approximately one hour following disconnection to ensure stored energy is dissipated.

On the driver's side, remove the air bag module from the steering wheel by inserting a flat head screwdriver into each of the screws located behind the steering wheel shroud. Slowly lift the air bag module from the steering column and disconnect the yellow air bag connector from the back of the air bag module. A spare connector is used to connect the module to the sled triggering system. However, the leads could be cut-off from the top of the steering column and then wired into the triggering mechanism. Reinstall the air bag module, ensuring that it is properly aligned with the snap features, allowing the leads, or connector, to hang on the outside of the shroud.

On the passenger side, remove the I/P top pad to access the yellow air bag wire located at the left side of the passenger module. Disconnect the yellow air bag connector and attach to the sled triggering mechanism.

The FMVSS 208 requirement states that the air bag "is to be activated at 20 ms $\pm$ 2 ms from the time that 0.5 g is measured on the dynamic test platform." GM's sled facility generates a time reference signal when the sled reaches 1.0 g. After reviewing the reference signal's time difference between 0.5 g and 1.0 g in several sled tests, the average difference was determined to be 0.61 ms. Using this information, the remote air bag control system at GM's sled facility is programmed to trigger at 19 ms after the 1.0 g reference level to activate the air bag within the required timing stated above.

NHTSA IR NSA-31Cca
OA-208-001018K
2001 Chevrolet CavalierGM Response

The Chevrolet Cavalier uses a single stage inflator system

Question 4

State for any safety belt system in this vehicle whether or not it is equipped with a tension-relieving device. Provide a copy of the information furnished in accordance with S7.4.2 if the tension-relieving device is used.

GM Response

The Chevrolet Cavalier is not equipped with a tension-relieving device.

Question 5

FMVSS No. 208, S8.1.5 allows the manufacturer the option of having movable vehicle windows and vents placed in the closed position. State whether the vehicle's movable windows and vents were opened or closed for the certification tests.

GM Response

The left and right front windows on barrier test C11548 (35 mph 0 degree frontal) were open

Question 6

Submit dummy placement measurements, including diagrams or photographs that show exactly where measurements were taken. Enclosed is a diagram of some of OVSC's dummy measurements. Where possible, use the dimensions shown in the diagram to provide the individual dummy placement measurements.

GM Response

Attachment B includes the available dummy measurements

This vehicle is not equipped with a footrest

NHTSA IR NSA-31Cca
OA-208-001018K
2001 Chevrolet Cavalier

Question 7

Provide the seat positioning, steering column positioning, and fuel tank data on the enclosed form. If more than one front seating, steering column or fuel tank configuration is available on this vehicle, provide separate information for each. In addition, provide the seating reference point for each seat for the lockable seat belt requirement in S7.1.1.5.

GM Response

Attachment C provides all vehicle test information required on the NHTSA form

Question 8

If the vehicle is equipped with adjustable seat belt anchorages, provide the manufacturer's nominal design position for a 50th percentile adult male occupant

GM Response

The Chevrolet Cavalier sedan has an adjustable guide loop. The nominal design position for a 50th percentile adult male occupant is one notch below the top position.

Question 9

For barrier tests provide the speed at impact, vehicle test weight, and resulting injury criteria (i.e. HIC, chest acceleration, chest compression, and femur loads) recorded for all certification tests conducted to meet the requirements of S4.1.5.1(a)(1). For sled tests, provide the resulting injury criteria (i.e. HIC, chest acceleration, chest compression, femur loads, and neck moments and forces) recorded for all certification tests conducted to meet the requirements of S13.

GM Response

Attachment D provides the requested barrier and sled test information

Question 10

When vehicle components must be removed to obtain the proper test weight for the barrier test, what components do you recommend for removal and in what priority order do you recommend removal?

GM Response

GM does not typically prioritize which components are to be removed from a test vehicle to accommodate test mass. However, components that have been removed during our testing include the rear bumper and spare tire. In addition, interior trim components behind the "B" pillar, including rear seats, carpeting and trim panels could be removed if necessary.

NHTSA IR NSA-31Cca
OA-208-001018K
2001 Chevrolet Cavalier

Question 11

If the vehicle uses a pressure vessel to inflate the air bag, provide a copy of the test reports or engineering analysis to demonstrate that it meets all the requirements of S9.1.

GM Response

Attachment E provides information on the pressure vessel in the Chevrolet Cavalier

Question 12

If the vehicle uses an explosive device to inflate the air bag, provide a copy of the test report or engineering analysis to demonstrate that it meets all the requirements of S9.2.

GM Response

The Chevrolet Cavalier does not use an explosive device to inflate the air bag

USG 3599
Enclosure 1
Attachment B

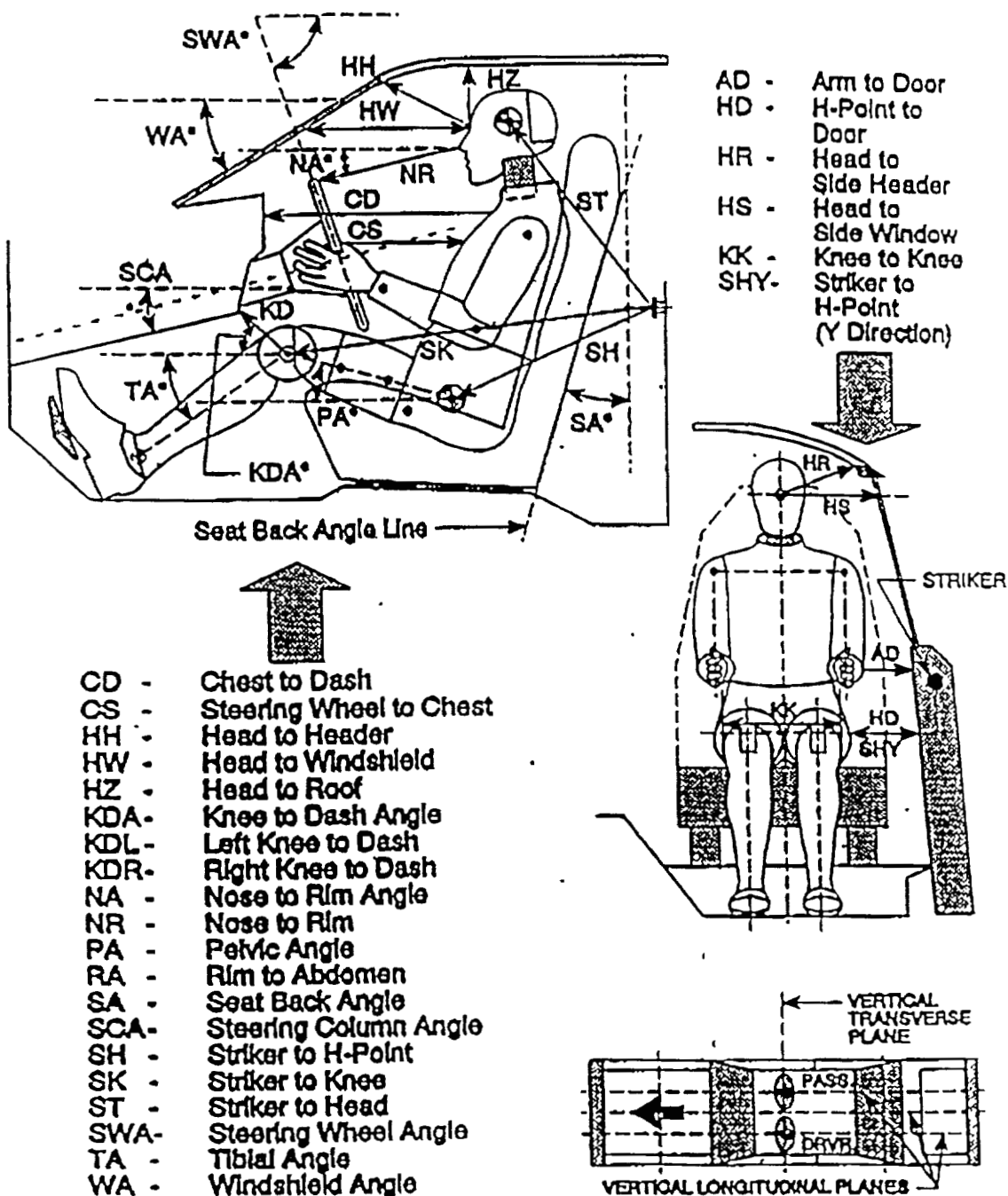
NSA-31CCa
OA:208-001018K

3 pages
(Including this cover)

USG - 3365

Attachment B

DUMMY MEASUREMENT FOR FRONT SEAT PASSENGERS



USG - 3365

Attachment B

1998 CHEV. CAVALIER SEDAN
DUMMY POSITIONING IN VEHICLE
FRONT SEAT MEASUREMENT TABLE

	DRIVER	PASS.
WA°	20.4°	
SWA°	18.4°	
SCA°	Not DETERMINED	
SA°	27.5	27.5
HZ	Not RECORDED	Not RECORDED
HH	285 mm	285 mm
HW	495 mm	495 mm
HR	187 mm	187 mm
NR	520 mm ANGLE (NA°)	Not RECORDED
CD	Not RECORDED	471 mm
CS	445 mm	
RA		
KDL	178 mm ANGLE (KDA°)	Not RECORDED
KDR		180 mm ANGLE (KDA°)
PA°	21°	22.5°
TA°	Not RECORDED	Not RECORDED
KK	385 mm	385 mm
ST	Not ANGLE RECORDED	ANGLE
SK	Not ANGLE RECORDED	ANGLE
SH	Not ANGLE RECORDED	ANGLE
SHY	265 mm	265 mm
HS	260 mm	260 mm
HD	120 mm	120 mm
AD	80 mm	80 mm

USG 3599
Enclosure 1
Attachment C

NSA-31CCa
OA:208-001018K

4 pages
(Including this cover)

TEST VEHICLE INFORMATION

Vehicle Model Year and Make 2001 Chevrolet
 Vehicle Model and Body Style Cavalier 2-Door

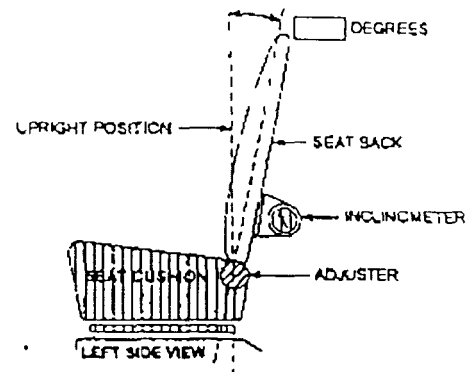
Nominal Design Riding Position

For adjustable driver and passenger seat backs
 Please describe how to position the inclinometer to measure the seat back angle. Include description of the location of the adjustment latch/detent if applicable. Indicate, if applicable, how the detents are numbered (Is the first detent "0" or "1"?)

Seat back angle for Driver's seat = 27.5 (°)

Measurement Instructions

See Passenger seat instructions



FRONT SEAT ASSEMBLY

Seat back angle for Passenger's seat = 27.5 (°)

Measurement Instructions

This information applies for both driver and passenger seats for all seat trim options. An inclinometer should be placed on the rearward surface of the outboard metal seat frame.

Starting approximately 9-10 inches above the seat back pivot point near the outboard edge, press against the seat back rear surface to feel for hard structure (i.e. steel frame). Cut through the seat fabric in this area to expose the metal frame. Make sure that there is enough flat surface on the frame to correctly position the inclinometer. Place inclinometer firmly on the frame through the fabric opening and adjust the seat back until the correct angle is indicated.

Seat Fore & Aft Positions

Provide instructions for positioning the driver and front outboard passenger seat(s) in the center of fore and aft travel. For example, provide information to locate the detent in which the seat track is locked.

Positioning of the driver's seat

See passenger seat instructions below.

Positioning of the passenger's seat (if applicable)

This information applies for both driver and passenger seats for all seat trim options. Place the seat in full forward position and mark with a paint pen on the seat adjuster. Mark the same location when the seat is positioned in the full rearward location. Measure the distance between the two paint marks and place the seat in the mid point.

Front driver and passenger Seating Reference Points

Fiducial x = 2761, y = -505, z = 251

Front driver-coupe/sedan x = 3150, y = -334, z = 438

Front passenger-coupe/sedan x = 3175, y = 334, z = 438

Rear Driver-coupe x = 3881, y = -320, z = 435

Rear Passenger-coupe x = 3881, y = 320, z = 435

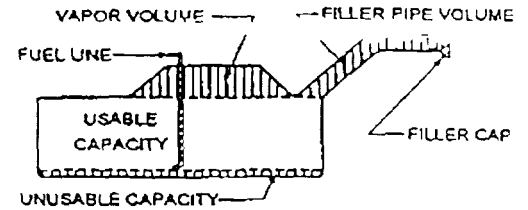
Rear Driver-sedan x = 3917, y = -320, z = 450

Rear Passenger-sedan x = 3917, y = 320, z = 450

Sign convention X Rearward (+), Forward (-)
 Y Passenger side (+), Driver side (-)
 Z Upward (+), Downward (-)

FUEL TANK CAPACITY DATA

- A "Useable Capacity" of standard equipment fuel tank = 15.2 (gallons)
 B "Useable Capacity" of optional equipment fuel tank = N/A (gallons)
 C "Useable Capacity" of vehicle(s) used for certification to requirements of FMVSS 301 = 15.2 (gallons)



VEHICLE FUEL TANK ASSEMBLY

Operating Instructions

Remove all fuel (usable & unusable) from tank. Fill tank with unusable (0.3 gal/ 1L) and 95% of usable (14.4 gal/54.625L).

Amount of Stoddard solvent added to vehicle(s) used for certification test(s) = 14.43 gallons

Is vehicle equipped with electric fuel pump? Yes ☒ No ☐

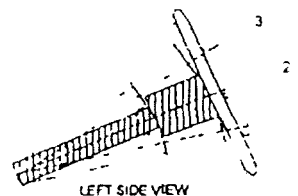
If yes, explain the vehicle operating conditions under which the fuel pump will pump fuel

With the ignition on, fuel pump will operate for 3 seconds and stop. With the engine running, the pump will run continuously.

Steering Column Adjustments

Steering wheel and column adjustments are made so the steering wheel hub is at the geometric center of the locus it describes when it is moved through its full range of driving positions.

If the tested vehicle has any of these adjustments, does your company use any specific procedures to determine the geometric center



LEFT SIDE VIEW
STEERING COLUMN ASSEMBLY

Operating Instructions

There are 5 column tilt detents, with the top detent referred to as position "1" Set the wheel to the 3rd detent