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REPORT NO. 208-MGA-99-03

SAFETY COMPLIANCE SLED TESTING FOR FMVSS 208
OCCUPANT CRASH PROTECTION

General Motors Corporation
1999 Pontiac Grand Am 4 Door
NHTSA NO. CX0104

MGA RESEARCH CORPORATION
5000 WARREN ROAD
BURLINGTON, WI 53105



Test Date: January 19, 1999

Report Date: January 29, 1999

FINAL REPORT

Prepared For:
U.S. DEPARTMENT OF TRANSPORTATION
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
SAFETY ASSURANCE
OFFICE OF VEHICLE SAFETY COMPLIANCE
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16. Abstract A compliance test (sled test) was conducted on the subject 1999 Pontiac Grand Am 4 Door in accordance with the specifications of the Office of Vehicle Safety Compliance Test Procedure No. TP208S-01 for the determination of FMVSS 208 compliance. Test failures identified were as follows: NONE			
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Purpose

This Federal Motor Vehicle Safety Standard (FMVSS) 208 compliance sled test is part of the FMVSS 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 1999 Pontiac Grand Am 4 Door, NHTSA No. CX0104, 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-seven (37) 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 January 19, 1999.

The test vehicle, a 1999 Pontiac Grand Am 4 Door, NHTSA No. CX0104, 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 #403)	Passenger (Serial #401)
HIC	1000	173	224
Chest g	60 g	38	38
Chest displacement	3 inches	1.1	0.4
Left Femur	2250 lb	1271	1193
Right Femur	2250 lb	1023	1093
Neck Extension	57 Nm	18	19
Neck Flexion	190 Nm	44	60
Neck Tension	3300 N	563	462
Neck Compression	4000 N	211	1923
Neck Shear	3100 N	1230	1203

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

The test vehicle was equipped with air bags at the driver and passenger seating positions. The dummies were not restrained by seat belts. The sled carriage was accelerated to 17.6 g with an integrated velocity change of 29.8 mph. The air bags were triggered at 18 milliseconds after 0.5 g acceleration was measured by the firing circuit. Following subsequent digital data processing and filtering the acceleration signal to Channel Class 60, the air bag event trigger signal was 19 ms after the 0.5 g acceleration level was indicated.

INCLUDE DISCUSSION OF LOST CHANNELS OR OTHER TEST ISSUES.

NONE NOTED

Sled Test Summary

Vehicle NHTSA No.: CX0104 Test Mode: FMVSS 208 SLED TEST

Vehicle Yr/Make/Model/Body Style: 1999/Pontiac/Grand Am/4 Door

Test Date: January 19, 1999 Time: 12:17 p.m. Temp: 71°F

Vehicle Test Weight: 3601 lbs.

DUMMY INFO.

DRIVER

PASSENGER

Dummy Type

Part 572E

Part 572E

Serial Number

403

401

Restraint System

Airbag

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 inches shift;

0 inches shift

Seat Back Failure -

None

None

VISIBLE DUMMY

CONTACT POINTS:

DRIVER

PASSENGER

Head airbag, visor, head liner, headrest

airbag, visor, headliner, windshield

Chest airbag

airbag

Left Knee instrument panel

instrument panel, airbag

Right Knee instrument panel, steering column

instrument panel, airbag

General Test And Vehicle Parameter DataVehicle Yr/Make/Model/Body Style: 1999/Pontiac/Grand Am/4 DoorVehicle NHTSA No.: CX0104 VIN: 1G2NE52T2XM735498 Color: White

Engine Data:

No. Cylinders: 4; CID: ; Liters: 2.4; CCs: Placement: Longitudinal/Inline: X; Transverse/Lateral:

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: X; Other: tilt wheel, cruise control, tachometer,
rear window defrosterDate Received: 10/23/98; Odometer Reading: 110 milesSelling Dealer: LEMAY Pontiac-GMC Truck, Inc., 5419 Washington Road,
Kenosha, WI 53144

REMARKS:

General Test And Vehicle Parameter Data (Cont.)

DATA FROM VEHICLE'S CERTIFICATION LABEL:

Vehicle Manufactured By: General Motors Corporation

Date of Manufacture: 5/98; VIN: 1G2NE52T2XM735498

GVWR: 3986 lbs; GAWR Front: 2249 lbs.

GAWR Rear: 1737 lbs.

DATA FROM TIRE PLACARD:

Tire Pressure with Maximum Capacity Vehicle Load:

FRONT: 34 psi REAR: 34 psi

Recommended Tire Size: P215/60R15

Recommended Cold Tire Pressure:

FRONT: 30 psi REAR: 30 psi

Size of Tires on Test Vehicle: P215/60R15

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

Vehicle Capacity Data:

Type of Front Seats: X Bucket; Bench; Split Bench

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

REMARKS:

VEHICLE CAPACITY WEIGHT (VCW) = 899 lbs.

No. Of Occupants x 150 lbs = 750 lbs.

Rated Cargo/Luggage Weight (RCWL) = 149 lbs. (Difference)

General Test And Vehicle Parameter Data (Cont.)

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

Right Front =	<u>1003</u> lbs.	Right Rear =	<u>543</u> lbs.
Left Front =	<u>983</u> lbs.	Left Rear =	<u>573</u> lbs.
TOTAL FRONT =	<u>1986</u> lbs.	TOTAL REAR =	<u>1116</u> lbs.
% Total Weight =	<u>64</u> %	% Total Weight =	<u>36</u> %
TOTAL DELIVERED WEIGHT = <u>3102</u> lbs.			

WEIGHT OF FULLY LOADED TEST VEHICLE WITH TWO DUMMIES AND 149 POUNDS OF CARGO WEIGHT:

Right Front =	<u>1101</u> lbs.	Right Rear =	<u>699</u> lbs.
Left Front =	<u>1070</u> lbs.	Left Rear =	<u>731</u> lbs.
TOTAL FRONT =	<u>2171</u> lbs.	TOTAL REAR =	<u>1430</u> lbs.
% Total Weight =	<u>60</u> %	% Total Weight =	<u>40</u> %
TOTAL WEIGHT = <u>3601</u> lbs.			

TEST VEHICLE ATTITUDE: (all measurements in degrees)

AS DELIVERED DOOR SILL ANGLE:	<u>0.0</u>
AS TESTED DOOR SILL ANGLE:	<u>0.5</u>
FULLY LOADED DOOR SILL ANGLE:	<u>0.5</u>
Vehicle's Wheelbase = <u>106.5</u> inches	

FUEL SYSTEM DATA:

Fuel System Capacity From Owner's Manual =	<u>15.0</u> gallons
Usable Capacity Figure Furnished by COTR =	<u>15.0</u> gallons

REMARKS:

Post-Impact Data

Test number: HT99011901

NHTSA number: CX0104

Test date: January 19, 1999

Test time: 12:17 p.m.

Test type: FMVSS 208 Compliance Sled Test

Impact angle: 0°

Ambient Temperature
at Impact Area: 71° F

Temperature in
Occupant Compartment: 71° F

Impact Velocity:

Integrated velocity from the integration of the entire sled acceleration: 29.8 mph

Specified integrated velocity range: 28 to 30 mph

Sled Carriage Acceleration:

Acceleration: 17.6 g

Specified Acceleration Range: 16.0 - 18.2 g

Sled Carriage Acceleration Duration:

Time from T-0 (-0.5 g) to 0.0 g: 121.2 msec

Specified Acceleration Duration: 120.0 to 130.0 msec

The sled acceleration corridor was achieved.

Seat and Steering Column Positioning Data

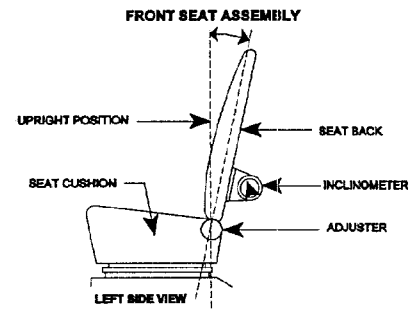
Vehicle Yr/Make/Model/Body Style: 1999/Pontiac/Grand Am/4 Door

Vehicle NHTSA No.: CX0104 Test Date: January 19, 1999

NOMINAL DESIGN RIDING POSITION:

Driver Seat: Seat Back Angle = 26.9°

Passenger Seat: Seat Back Angle = 27.2°



SEAT FORE AND AFT POSITIONS:

Driver Seat: The seat track had a total position movement of 25 notches and was positioned 13 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 25 notches and was positioned 13 notches rearward from the foremost position with the forward most locking position as zero.

STEERING COLUMN ADJUSTMENTS:

The steering column was placed in the 3rd notch down of 5 total.

Dummy Positioning Measurement Table

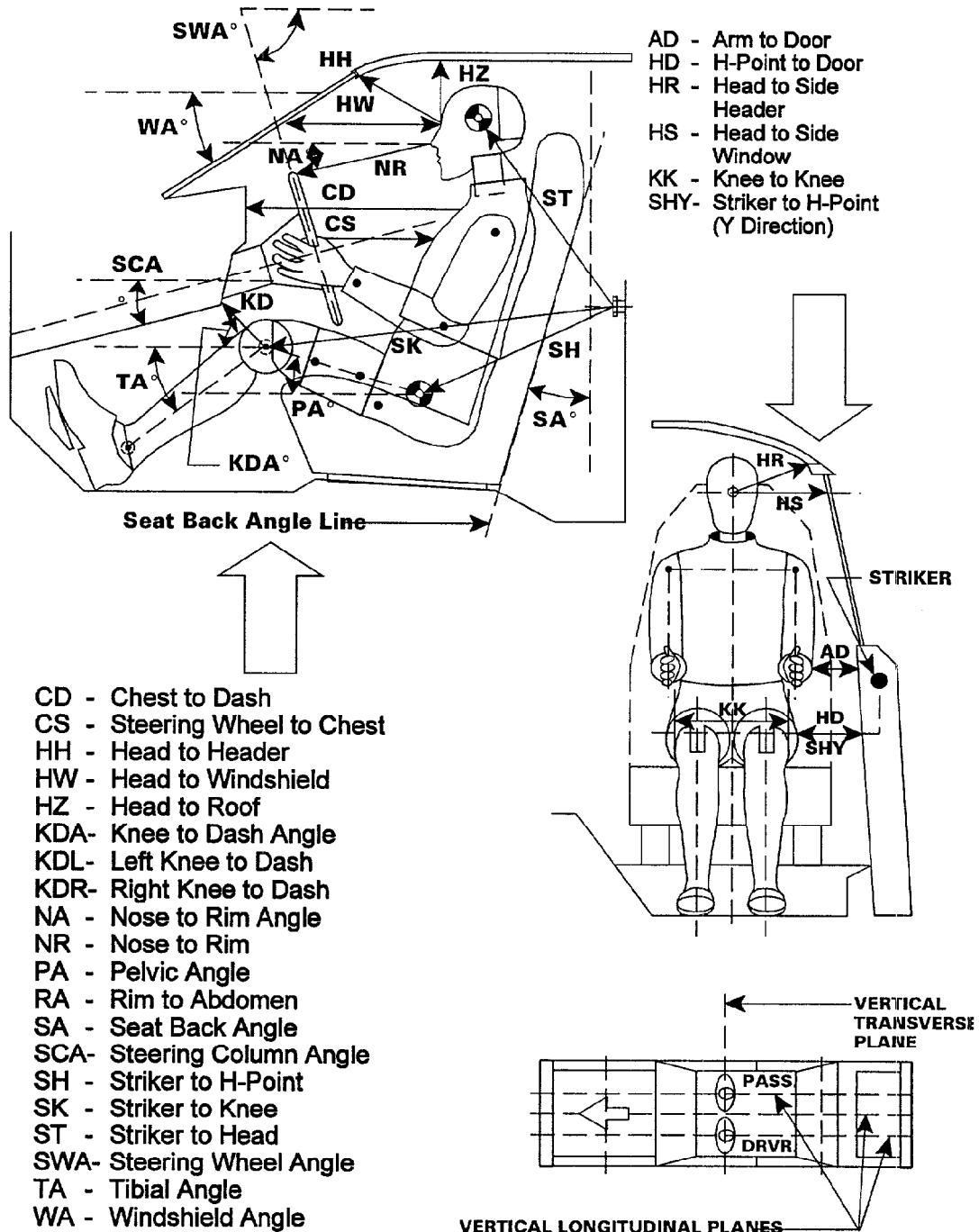
Vehicle Year/Make/Model/Body Style: 1999/Pontiac/Grand Am/4 Door

Vehicle NHTSA No.: CX0104 Test Date: January 19, 1999

	DRIVER (Serial #403)	PASSENGER (Serial #401)
WA°	26.0°	
SWA°	68.8°	N/A
SCA°	24.9°	N/A
SA°	26.9°	27.2°
HZ	6.3	6.0
HH	12.0	11.4
HW	22.5	21.3
HR	9.1	8.5
NR	15.2 Angle (NA°) 13.5	N/A
CD	20.8	19.4
CS	13.1	N/A
RA	7.4	N/A
KDL	8.0 Angle (KDA°) 0.0°	6.6
KDR	8.0	8.3 Angle (KDA°) 0.0
PA°	23.8	24.4
TA°	44.0	40.1
KK	12.0	10.6
ST	21.8 Angle 11.5°	21.2 Angle 11.2°
SK	23.8 Angle 91.6°	24.3 Angle 95.1°
SH	9.8 Angle 123.1°	9.9 Angle 124.4°
SHY	9.4	9.5
HS	12.1	11.8
HD	5.3	5.0
AD	4.4	4.3

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

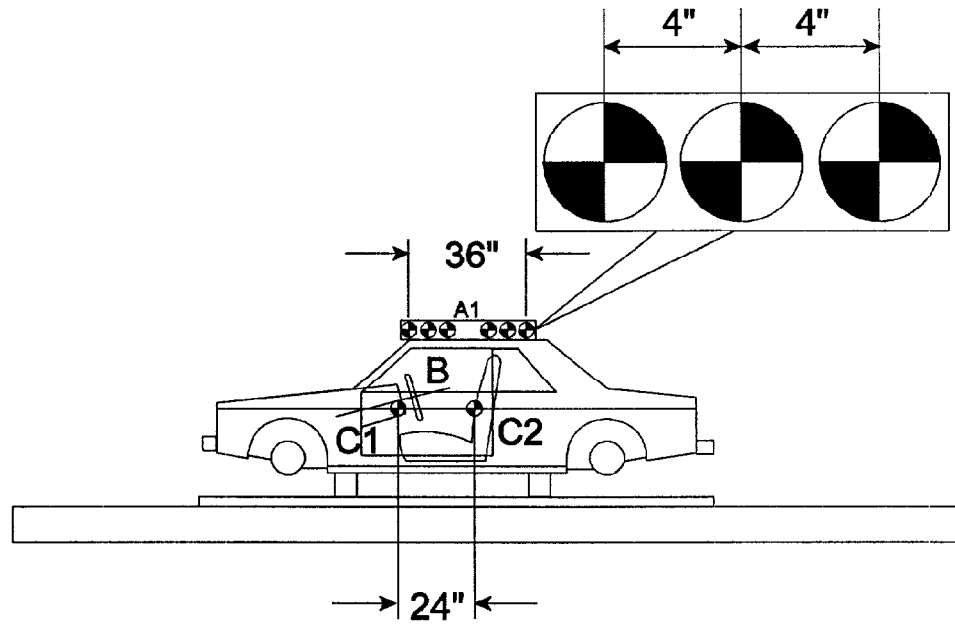
Description of Dummy Measurements (Cont.)

Angles

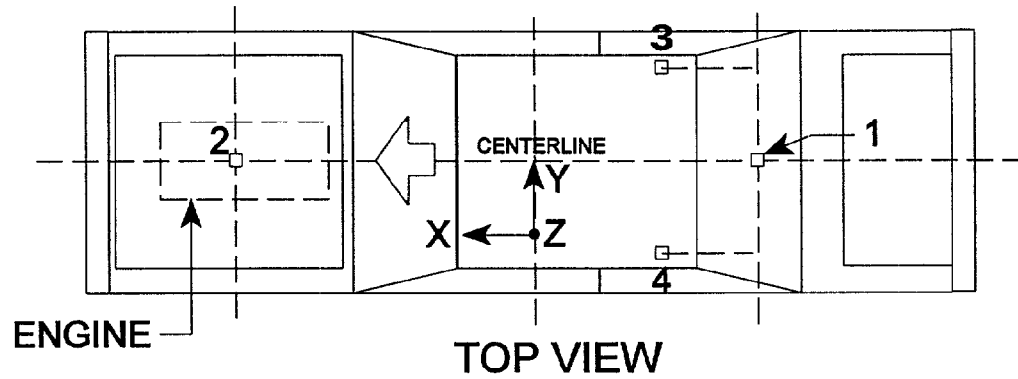
SA	Seat Back Angle, find this angle using the instructions provided by the manufacturer. If the manufacturer doesn't provide clear instructions contact the COTR.
PA	Pelvic or Femur Angle, taken by inserting the pelvic angle gauge into the H-point gauging hole on the SID or the Hybrid III dummies and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

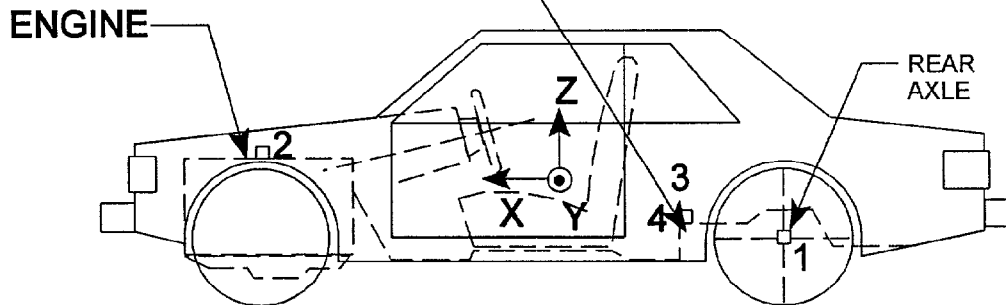
REFERENCE PHOTO TARGETS



LEFT SIDE VIEW

Vehicle Accelerometer Placement and Data SummaryVehicle Year/Make/Model/Body Style: 1999/Pontiac/Grand Am/4 DoorVehicle NHTSA No.: CX0104 Test Date: January 19, 1999

REAR SEAT CUSHION
ASSY. FRONT ATTACHMENT
BRACKET SUPPORT

**LEFT SIDE VIEW**

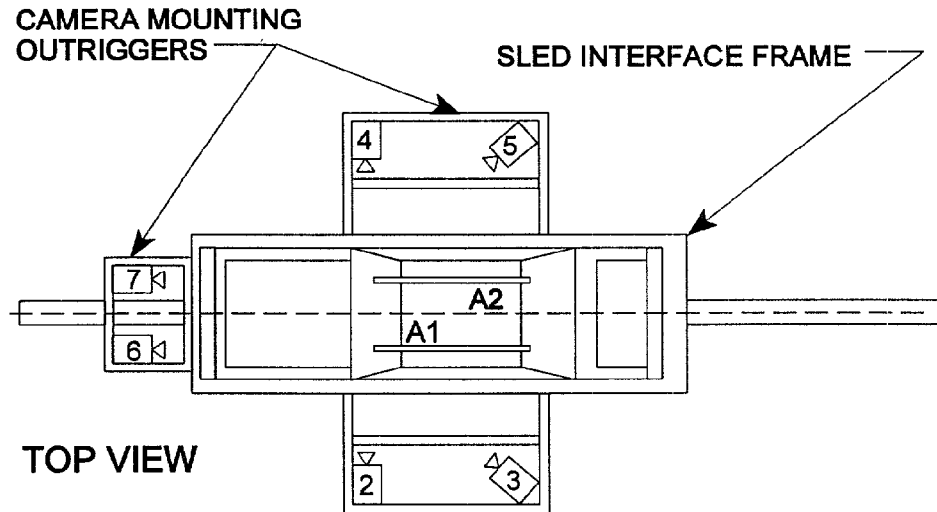
Vehicle Accelerometer Location Measurements and Data Summary

Vehicle Year/Make/Model/Body Style: 1999/Pontiac/Grand Am/4 Door

Vehicle NHTSA No.: CX0104 Test Date: January 19, 1999

No.	Location	X (in)	Y (in)	Positive Direction		Negative Direction	
	Sled Primary Longitudinal	67.0	0	17.6	55	1.2	124
	Sled Redundant Longitudinal	114.0	0	17.4	63	1.2	124
	Sled Velocity Measured Integrated	67.0	0	29.8	121	N/A	N/A
1	Rear Axle Longitudinal	34.0	0	18.0	55	1.4	124
2	Top Engine Longitudinal	155.5	0	20.4	55	3.3	145
3	Right Rear Seat Member Longitudinal	69.3	16.5	18.2	54	1.6	124
4	Left Rear Seat Member Longitudinal	69.3	18.0	17.6	53	1.6	125

Camera Positions



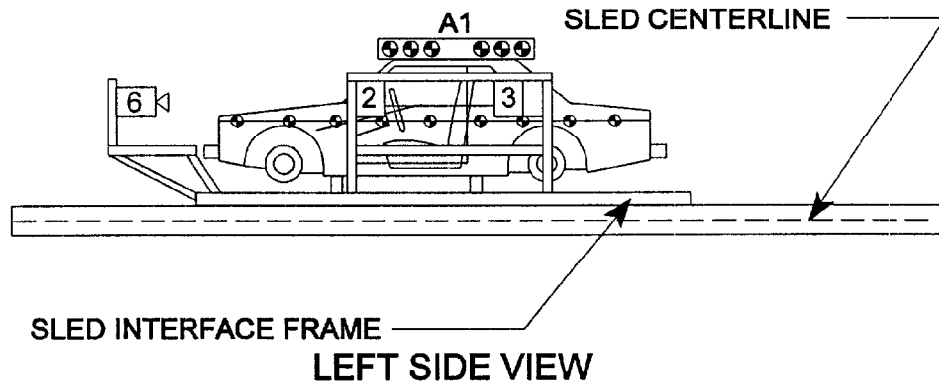
CAMERA FRAME RATES:

#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	76.3	84.5	37.5	90	70.0	13	1015
3	Onboard Driver Angle	142.5	84.0	47.5			13	1015
4	Onboard Passenger	79.3	84.5	38.0	90	69.0	13	1010
5	Onboard Passenger Angle	142.8	84.0	48.0			13	889
6	Onboard Windshield Driver	22.3	13.3	43.0			13	1010
7	Onboard Windshield Passenger	22.0	14.0	42.3			13	889

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: 1999/Pontiac/Grand Am/4 Door

Vehicle NHTSA No.: CX0104 Test Date: January 19, 1999

MAXIMUM ACCELERATION VALUES: (g's)	DRIVER DUMMY #403	PASSENGER DUMMY #401
Head Channel X	-39.5	-51.5
Head Channel Y	5.1	-18.4
Head Channel Z	-10.3	28.9
HEAD RESULTANT	39.6	59.7
Chest Channel X	-38.6	-33.9
Chest Channel Y	5.6	-2.9
Chest Channel Z	15.2	24.7
CHEST RESULTANT	39.4	38.6

HEAD INJURY CRITERIA (HIC) VALUES:

HIC	173	224
t_1 = (msec)	74.0	93.6
t_2 = (msec)	110.0	110.0

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

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

CLIP	38	38
t_1 = (msec)	87.3	94.4
t_2 = (msec)	90.4	95.7
CHEST DEFLECTION (in)	1.1	0.4

Occupant Injury Data (Cont.)

MAX. COMPRESSIVE FEMUR FORCES:	DRIVER DUMMY #403	PASSENGER DUMMY #401
Left Side (lbs)	1271	1193
Right Side (lbs)	1023	1093

NECK INJURY CRITERIA:

Peak Flexion Bending Moment about the Occipital Condyle (N-m)	43.5	60.0
Peak Extension Bending Moment about the Occipital Condyle (N-m)	17.7	19.0
Peak Axial Tension (N)	562.6	462.4
Peak Axial Compression (N)	211.0	1923.2
Peak Fore Shear (N)	1229.7	1203.2
Peak Aft Shear (N)	222.5	271.9

Seat Belt Warning System Data

Vehicle Year/Make/Model/Body Style: 1999/Pontiac/Grand Am/4 Door

NHTSA No.: CX0104 ; Technician: David Winkelbauer ; Date: December 11, 1998

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)

* until belt is buckled

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 = _____ seconds
(audible warning not required)

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

B.2 S7.3(a)(2)

Time duration of audible warning signal = 0 seconds
(audible warning not required)

Time duration of reminder light operation = 4 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: 1999/Pontiac/Grand Am/4 DoorNHTSA No.: CX0104 ; Technician: David Winkelbauer ; Date: December 11, 1998

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 ☒ No
(If YES this Data Sheet is complete.)
2. Describe the location of the readiness indicator: Lower left corner of
instrument cluster
3. Is the readiness indicator clearly visible to the driver?

☒ Yes-Pass ☐ No-FAIL
4. Is a list of the elements in the occupant restraint system, being monitored by the readiness indicator, provided?

☒ Yes-Pass ☐ No-FAIL

Air Bag Labels Data

Vehicle Year/Make/Model/Body Style: 1999/Pontiac/Grand Am/4 Door

NHTSA No.: CX0104 ; Technician: David Winkelbauer ; Date: December 11, 1998

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 - | (X)Yes-Pass | () No-FAIL |
| Passenger Side - | () N/A | (X)Yes-Pass () No-FAIL |

Air Bag Labels Data (Cont.)

- 4.2. Does the label conform in content (vehicles without back seats may omit the statement: "The back seat is the safest place for children.") (S4.5.1(b)(2)(v))) to either label shown on the next page as appropriate at each front outboard seating position with an air bag? (S4.5.1(b)(2))

4.2.1 **Dual air bags:** ☐ Not Applicable
 Driver Side - ☒ Yes ☐ **No-FAIL**
 Passenger Side - ☒ Yes ☐ **No-FAIL**

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

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

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

DEATH or SERIOUS INJURY can occur.

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

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

Air Bag Labels Data (Cont.)

SUN VISOR LABEL VISIBLE WHEN VISOR IS IN DOWN POSITION

LABEL OUTLINE, VERTICAL AND HORIZONTAL LINE BLACK

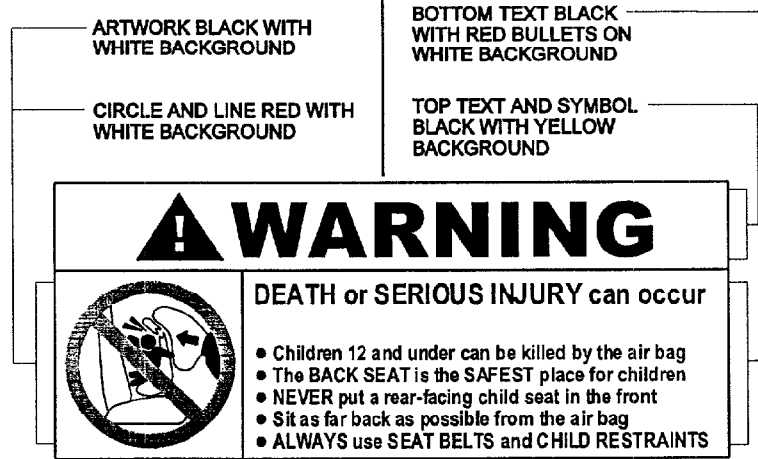


Figure 6a (S4.5.1(b)(2))

SUN VISOR LABEL VISIBLE WHEN VISOR IS IN DOWN POSITION

LABEL OUTLINE, VERTICAL AND HORIZONTAL LINE BLACK

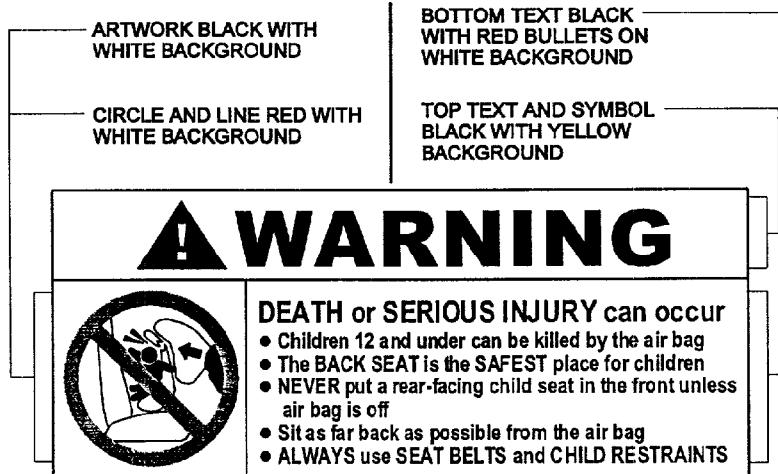


Figure 6b (S4.5.1(b)(2))

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

Air Bag Labels Data (Cont.)

- 4.5 Is the message area at least 30 cm²? (S4.5.1(b)(2)(ii))
 Actual message area: 36 cm²
- | | | |
|---------------------------------|-------------|-------------|
| Driver Side - | (X)Yes-Pass | () No-FAIL |
| Passenger Side - () No air bag | (X)Yes-Pass | () No-FAIL |
- 4.6 Is the pictogram black with a red circle and slash on a white background?
 (S4.5.1(b)(2)(iii) & (S4.5.1(b)(2)(iv))
- | | | |
|--|--------------------|-------------|
| For vehicles with driver side air bag ONLY | () Not Applicable | |
| Driver Side - | (X)Yes-Pass | () No-FAIL |
| Passenger Side - () No air bag | (X)Yes-Pass | () No-FAIL |
- 4.7 Is the pictogram at least 30 mm in diameter? (S4.5.1(b)(2)(iii))
 Actual diameter: 30 mm
- | | | |
|--|--------------------|-------------|
| For vehicles with driver side air bag ONLY | () Not Applicable | |
| Driver Side - | (X)Yes-Pass | () No-FAIL |
| Passenger Side - () No air bag | (X)Yes-Pass | () No-FAIL |
- 4.8 Is the same side of the sun visor to which the sun visor label is affixed free of other information with the exception of an air bag maintenance label?
 (S4.5.1(b)(3))
- | | | |
|---------------------------------|-------------|-------------|
| Driver Side - | (X)Yes-Pass | () No-FAIL |
| Passenger Side - () No air bag | (X)Yes-Pass | () No-FAIL |
- 4.9 Is the sun visor free of other information about air bags or the need to wear seat belts with the exception of the air bag alert label or the utility vehicle label?
 (S4.5.1(b)(3))
- | | | |
|---------------------------------|-------------|-------------|
| Driver Side - | (X)Yes-Pass | () No-FAIL |
| Passenger Side - () No air bag | (X)Yes-Pass | () No-FAIL |

5. Air Bag Alert Label

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

Air Bag Labels Data (Cont.)

- 5.4 Is the message area at least 20 cm²? (S4.5.1(c)(2)(i))
 Actual message area: _____ cm²
 Driver Side - () Yes-Pass () No-FAIL
 Passenger Side - () No air bag () Yes-Pass () No-FAIL
- 5.5 Is the pictogram black with a red circle and slash on a white background?
 (S4.5.1(c)(2)(ii))
 For vehicles with driver side air bag ONLY () Not Applicable
 () Yes-Pass () No-FAIL
- 5.6 Is the pictogram at least 20 mm in diameter? (S4.5.1(c)(2)(ii))
 Actual diameter _____ mm
 For vehicles with driver side air bag ONLY () Not Applicable
 () Yes-Pass () No-FAIL

SUN VISOR LABEL VISIBLE WHEN VISOR IS IN UP POSITION



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

6. Label On the Dash
- 6.1 Does the vehicle have a passenger side air bag?
 (X) Yes () No, check sheet is complete.
- 6.2 Does the vehicle have a label on the dash or steering wheel hub? (S4.5.1(e))
 () Yes-Pass (X) No
- 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))
 () 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)) ☐ Yes-Pass ☐ No-FAIL
- 6.5 Is the message white with black text? (S4.5.1(e)(ii)) ☐ Yes-Pass ☐ No-FAIL
- 6.6 Is the message area at least 30 cm²? (S4.5.1(e)(ii))
Actual message area: ____ cm² ☐ Yes-Pass ☐ No-FAIL

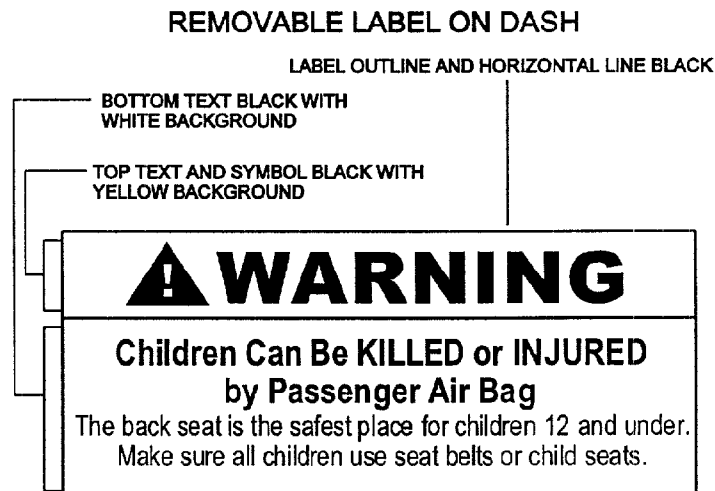


Figure 7 (S4.5.1(e))

Rear Outboard Seating Position Seat Belt DataVehicle Year/Make/Model/Body Style: 1999/Pontiac/Grand Am/4 DoorNHTSA No.: CX0104 ; Technician: David Winkelbauer ; Date: December 11, 1998

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

☒ Yes ☐ No

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

Lap Belt Lockability Data

Vehicle Year/Make/Model/Body Style: 1999/Pontiac/Grand Am/4 Door

NHTSA No.: CX0104; Technician: David Winkelbauer; Date: December 11, 1998

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. Full Rear
(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 40.5 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 = 9 (spec. 5-15 degrees)

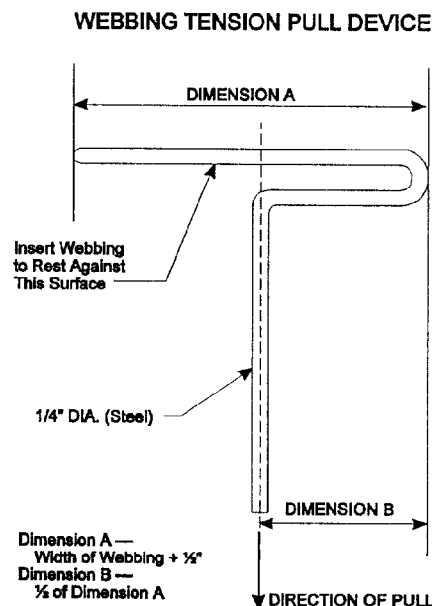


Figure 5 (S7.1.1.5(c)(4))

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 24 inches.

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

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

Measure distance between points A and B 24.5 inches (S7.1.1.5(c)(6))

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

14-13 = 0.5 inches

(X)Yes-Pass

() No-FAIL

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

10-14 = 16 inches

(X)Yes-Pass

() No-FAIL

REMARKS:

Lap Belt Lockability Data (Cont.)Vehicle Year/Make/Model/Body Style: 1999/Pontiac/Grand Am/4 DoorNHTSA No.: CX0104; Technician: David Winkelbauer; Date: December 11, 1998

Passenger cars, trucks, buses, and multipurpose passenger vehicles with a GVWR of 10,000 pounds or less. (S7.1.1.5)

Complete one of these forms for **each** designated seating position with forward-facing seats, other than the driver's seat, or seats that can be adjusted to forward-facing **and** that has seat belt retractors that are not automatic locking retractors. (S7.1.1.5(c))

Designated Seating Position (DSP): Left Rear

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

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

(X) Yes-Pass () No-FAIL
6. Does the vehicle user need to take some action to activate the locking feature on the lap belt portion of the seat belt in any forward-facing seat or seat that can be adjusted to forward-facing? (X) Yes, go to 6.1 () No, go to 7.
 - 6.1 Does the vehicle owner's manual include a description in words and/or diagrams describing how to activate the locking feature so that the seat belt assembly can tightly secure a child restraint system and how to deactivate the locking feature to remove the child restraint system. (S7.1.1.5(b))

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

Lap Belt Lockability Data (Cont.)

8. Locate a reference point B on the attachment hardware or retractor assembly at the other end of the lap belt or lap belt portion of the seat belt assembly. (S7.1.1.5(c)(2))
9. Adjust the lap belt or lap belt portion of the seat belt assembly according to any procedures recommended in the vehicle owner's manual to activate any locking feature so that the webbing between points A and B is at the maximum length allowed by the belt system. (S7.1.1.5(c)(2))
10. Measure and record the distance between points A and B along the longitudinal centerline of the webbing for the lap belt or lap belt portion of the seat belt assembly. (S7.1.1.5(c)(2))

Measured distance between A and B is 32 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)

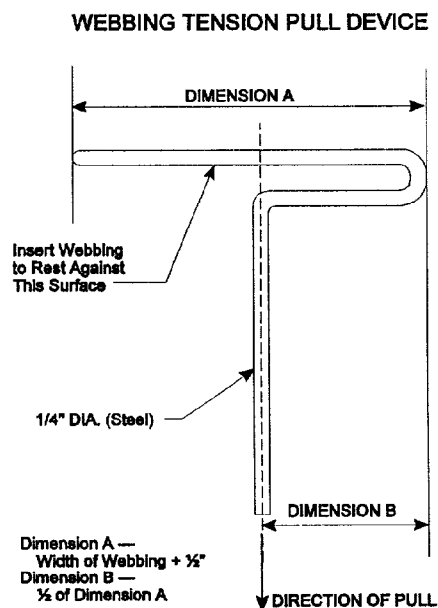


Figure 5 (S7.1.1.5(c)(4))

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 24 inches.

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

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

Measure distance between points A and B 24.3 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 = 7.7 inches

(X)Yes-Pass () No-FAIL

REMARKS:

Lap Belt Lockability Data (Cont.)

Vehicle Year/Make/Model/Body Style: 1999/Pontiac/Grand Am/4 Door

NHTSA No.: CX0104 ; Technician: David Winkelbauer ; Date: December 11, 1998

Passenger cars, trucks, buses, and multipurpose passenger vehicles with a GVWR of 10,000 pounds or less. (S7.1.1.5)

Complete one of these forms for **each** designated seating position with forward-facing seats, other than the driver's seat, or seats that can be adjusted to forward-facing **and** that has seat belt retractors that are not automatic locking retractors. (S7.1.1.5(c))

Designated Seating Position (DSP): Center Rear

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

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

(X)Yes-Pass () No-FAIL
6. Does the vehicle user need to take some action to activate the locking feature on the lap belt portion of the seat belt in any forward-facing seat or seat that can be adjusted to forward-facing? (X)Yes, go to 6.1 () No, go to 7.
 - 6.1 Does the vehicle owner's manual include a description in words and/or diagrams describing how to activate the locking feature so that the seat belt assembly can tightly secure a child restraint system and how to deactivate the locking feature to remove the child restraint system. (S7.1.1.5(b))

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

Lap Belt Lockability Data (Cont.)

8. Locate a reference point B on the attachment hardware or retractor assembly at the other end of the lap belt or lap belt portion of the seat belt assembly. (S7.1.1.5(c)(2))
9. Adjust the lap belt or lap belt portion of the seat belt assembly according to any procedures recommended in the vehicle owner's manual to activate any locking feature so that the webbing between points A and B is at the maximum length allowed by the belt system. (S7.1.1.5(c)(2))
10. Measure and record the distance between points A and B along the longitudinal centerline of the webbing for the lap belt or lap belt portion of the seat belt assembly. (S7.1.1.5(c)(2))

Measured distance between A and B is 33.5 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)

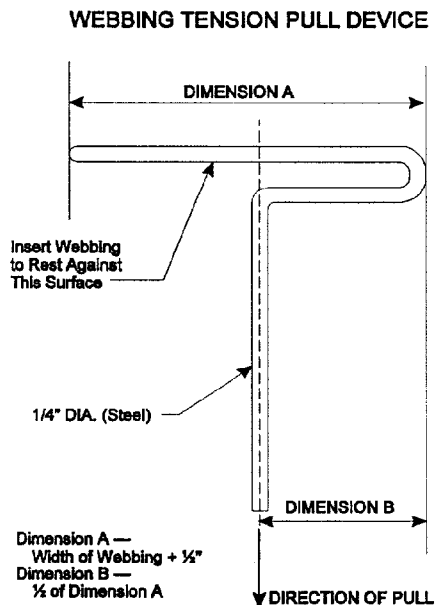


Figure 5 (S7.1.1.5(c)(4))

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 27 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 27.3 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 = 6.2 inches

(X)Yes-Pass

() No-FAIL

REMARKS:

Lap Belt Lockability Data (Cont.)

Vehicle Year/Make/Model/Body Style: 1999/Pontiac/Grand Am/4 Door

NHTSA No.: CX0104 ; Technician: David Winkelbauer ; Date: December 11, 1998

Passenger cars, trucks, buses, and multipurpose passenger vehicles with a GVWR of 10,000 pounds or less. (S7.1.1.5)

Complete one of these forms for **each** designated seating position with forward-facing seats, other than the driver's seat, or seats that can be adjusted to forward-facing **and** that has seat belt retractors that are not automatic locking retractors. (S7.1.1.5(c))

Designated Seating Position (DSP): Right Rear

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

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

(X) Yes-Pass () No-FAIL
6. Does the vehicle user need to take some action to activate the locking feature on the lap belt portion of the seat belt in any forward-facing seat or seat that can be adjusted to forward-facing? (X) Yes, go to 6.1 () No, go to 7.
 - 6.1 Does the vehicle owner's manual include a description in words and/or diagrams describing how to activate the locking feature so that the seat belt assembly can tightly secure a child restraint system and how to deactivate the locking feature to remove the child restraint system. (S7.1.1.5(b))

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

Lap Belt Lockability Data (Cont.)

8. Locate a reference point B on the attachment hardware or retractor assembly at the other end of the lap belt or lap belt portion of the seat belt assembly. (S7.1.1.5(c)(2))
9. Adjust the lap belt or lap belt portion of the seat belt assembly according to any procedures recommended in the vehicle owner's manual to activate any locking feature so that the webbing between points A and B is at the maximum length allowed by the belt system. (S7.1.1.5(c)(2))
10. Measure and record the distance between points A and B along the longitudinal centerline of the webbing for the lap belt or lap belt portion of the seat belt assembly. (S7.1.1.5(c)(2))

Measured distance between A and B is 32.5 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)

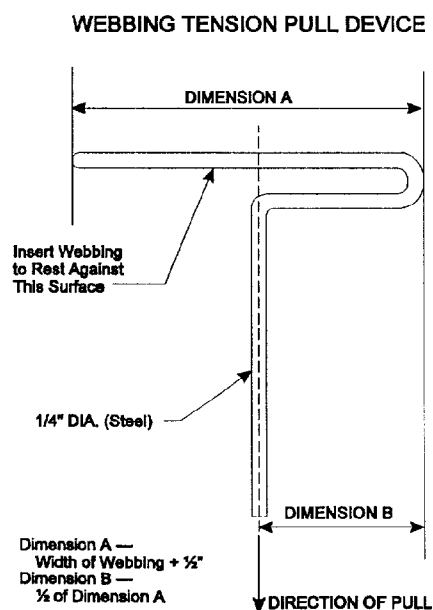


Figure 5 (S7.1.1.5(c)(4))

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 25 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 25.5 inches (S7.1.1.5(c)(6))

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

14-13 = 0.5 inches

(X)Yes-Pass

() No-FAIL

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

10-14 = 7 inches

(X)Yes-Pass

() No-FAIL

REMARKS:

Seat Belt Comfort and Convenience Data

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

Test Vehicle NHTSA No.: CX0104

Vehicle Model Year/Make/Model/Body Style: 1999/Pontiac/Grand Am/4 Door

Designated Seating Position Tested: Left Rear

Date of Comfort/Convenience Check: December 11, 1998

Technician Performing Check: David Winkelbauer

GVWR: 3986 lbs.

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
☒ 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
☒ N/A
- 1.3 If separately adjustable in a vertical direction, the seats are at the lowest position.
☐ Check
☒ N/A
- 1.4 Place adjustable seat backs in the manufacturer's nominal design riding position in the manner specified by the manufacturer.
☐ Check
☒ 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
☒ N/A
- 1.6 Place each adjustable head restraint in its highest adjustment position.
☐ Check
☒ 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 0.3 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.: CX0104

Vehicle Model Year/Make/Model/Body Style: 1999/Pontiac/Grand Am/4 Door

Designated Seating Position Tested: Right Rear

Date of Comfort/Convenience Check: December 11, 1998

Technician Performing Check: David Winkelbauer

GVWR: 3986 lbs.

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
☒ 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
☒ N/A
- 1.3 If separately adjustable in a vertical direction, the seats are at the lowest position.
☐ Check
☒ N/A
- 1.4 Place adjustable seat backs in the manufacturer's nominal design riding position in the manner specified by the manufacturer.
☐ Check
☒ 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
☒ N/A
- 1.6 Place each adjustable head restraint in its highest adjustment position.
☐ Check
☒ 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 0.2 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.)

2. LATCHPLATE ACCESS (S7.4.4)

Test Vehicle NHTSA No.: CX0104

Vehicle Model Year/Make/Model/Body Style: 1999/Pontiac/Grand Am/4 Door

Designated Seating Position Tested: Not Applicable/Passenger Car

Date of Comfort/Convenience Check: _____

Technician Performing Check: _____

GVWR: _____ lbs.

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 envelop 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.: CX0104

Vehicle Model Year/Make/Model/Body Style: 1999/Pontiac/Grand Am/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.: CX0104

Vehicle Model Year/Make/Model/Body Style: 1999/Pontiac/Grand Am/4 Door

Designated Seating Position Tested: Left Rear

Date of Comfort/Convenience Check: December 11, 1998

Technician Performing Check: David Winkelbauer

GVWR: 3986 lbs.

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.: CX0104

Vehicle Model Year/Make/Model/Body Style: 1999/Pontiac/Grand Am/4 Door

Designated Seating Position Tested: Center Rear

Date of Comfort/Convenience Check: December 11, 1998

Technician Performing Check: David Winkelbauer

GVWR: 3986 lbs.

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.: CX0104

Vehicle Model Year/Make/Model/Body Style: 1999/Pontiac/Grand Am/4 Door

Designated Seating Position Tested: Right Rear

Date of Comfort/Convenience Check: December 11, 1998

Technician Performing Check: David Winkelbauer

GVWR: 3986 lbs.

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

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

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

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

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

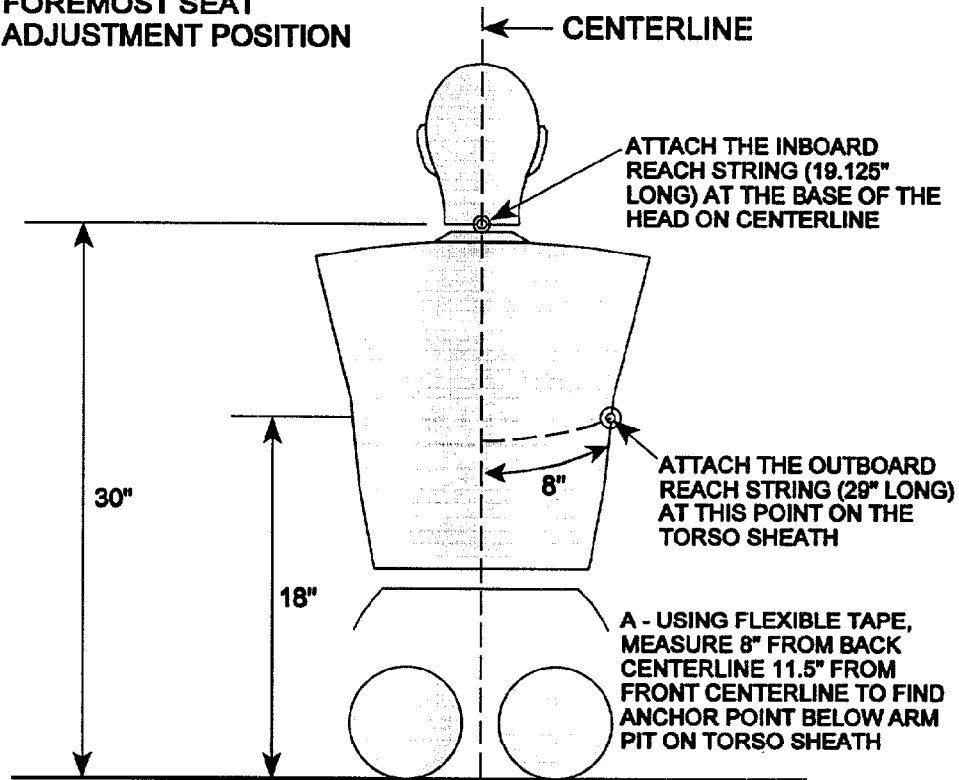
Seat Belt Comfort and Convenience Data (Cont.)

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

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

PART 572E DUMMY

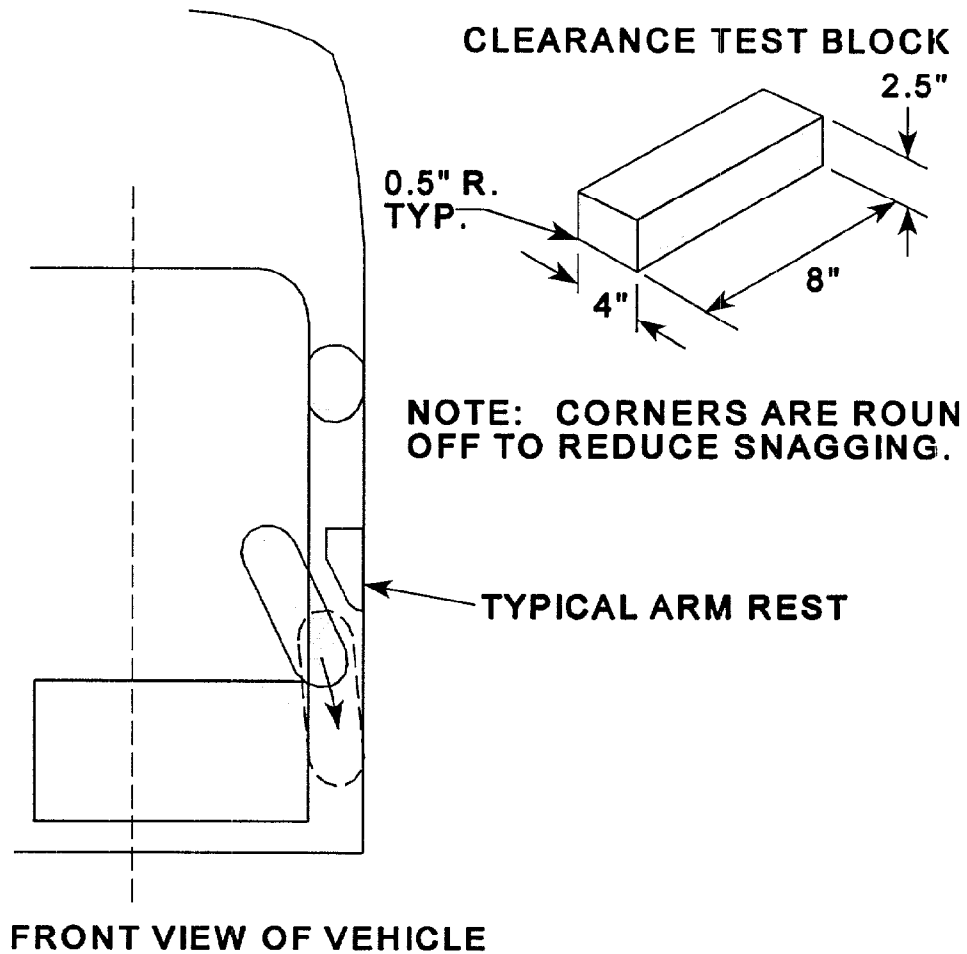
**50TH PERCENTILE
DUMMY SEATED IN
FOREMOST SEAT
ADJUSTMENT POSITION**



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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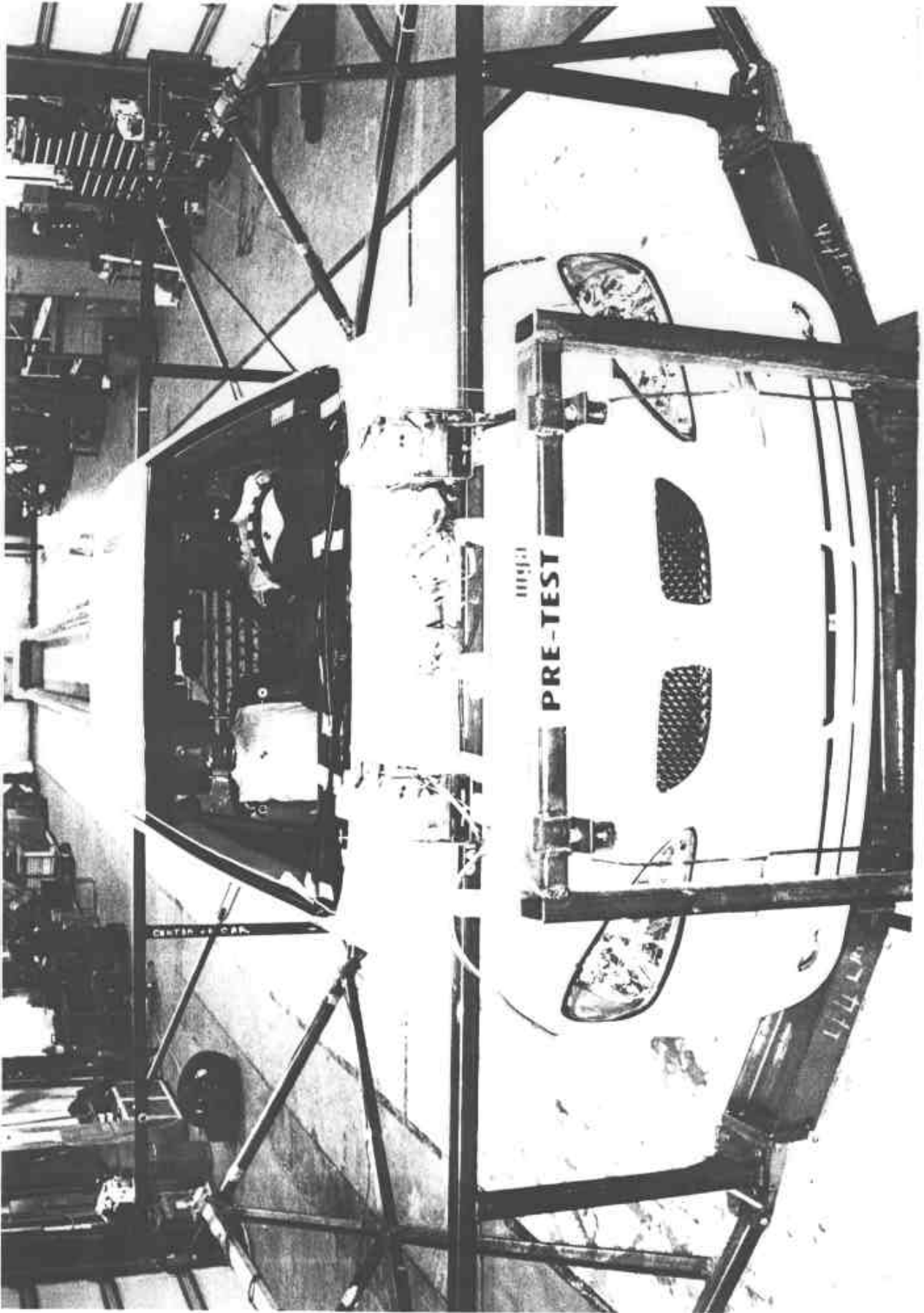


Photo No. A-1 - Pre-Test Frontal View

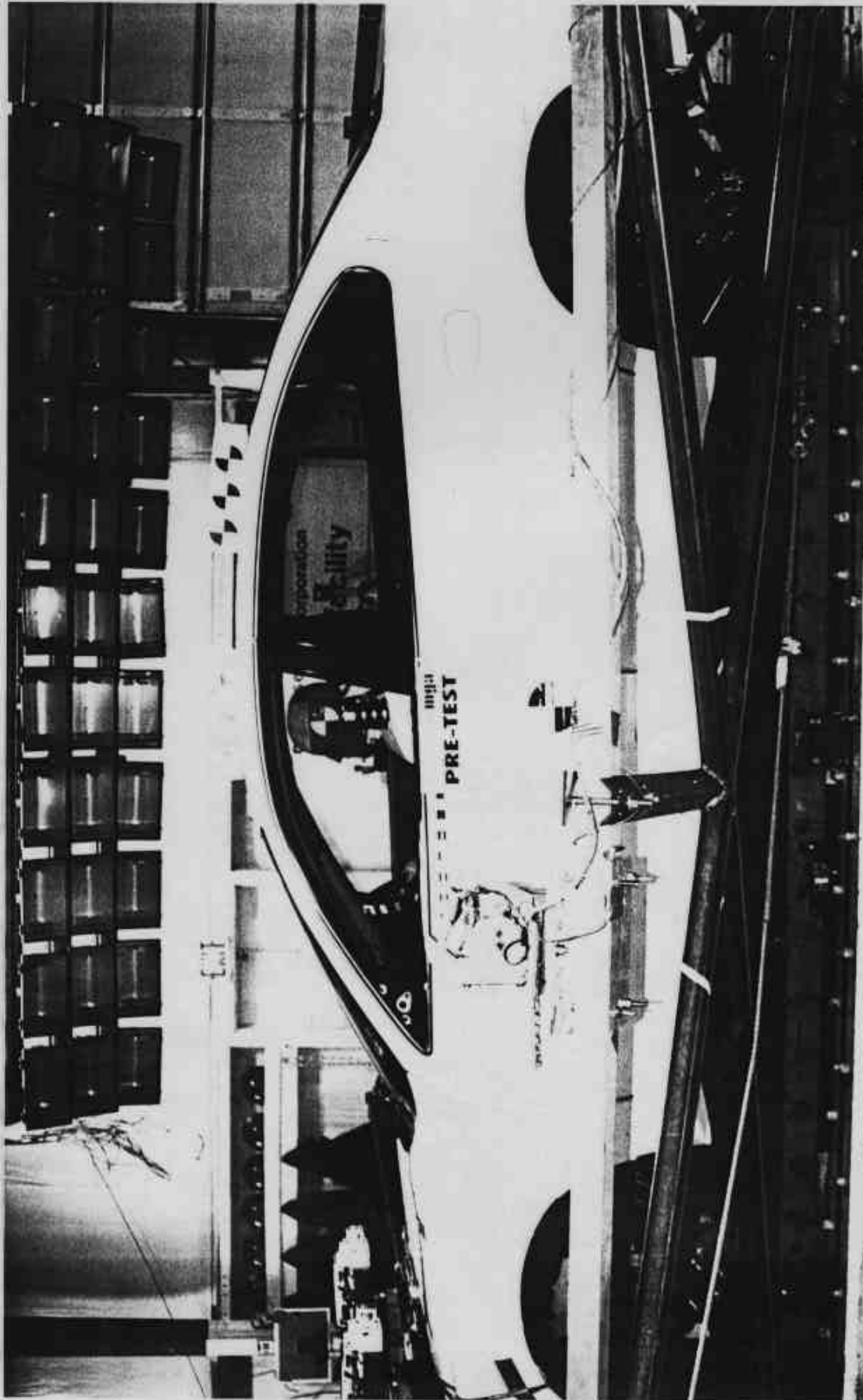


Photo No. A-2 - Pre-Test Left Side View

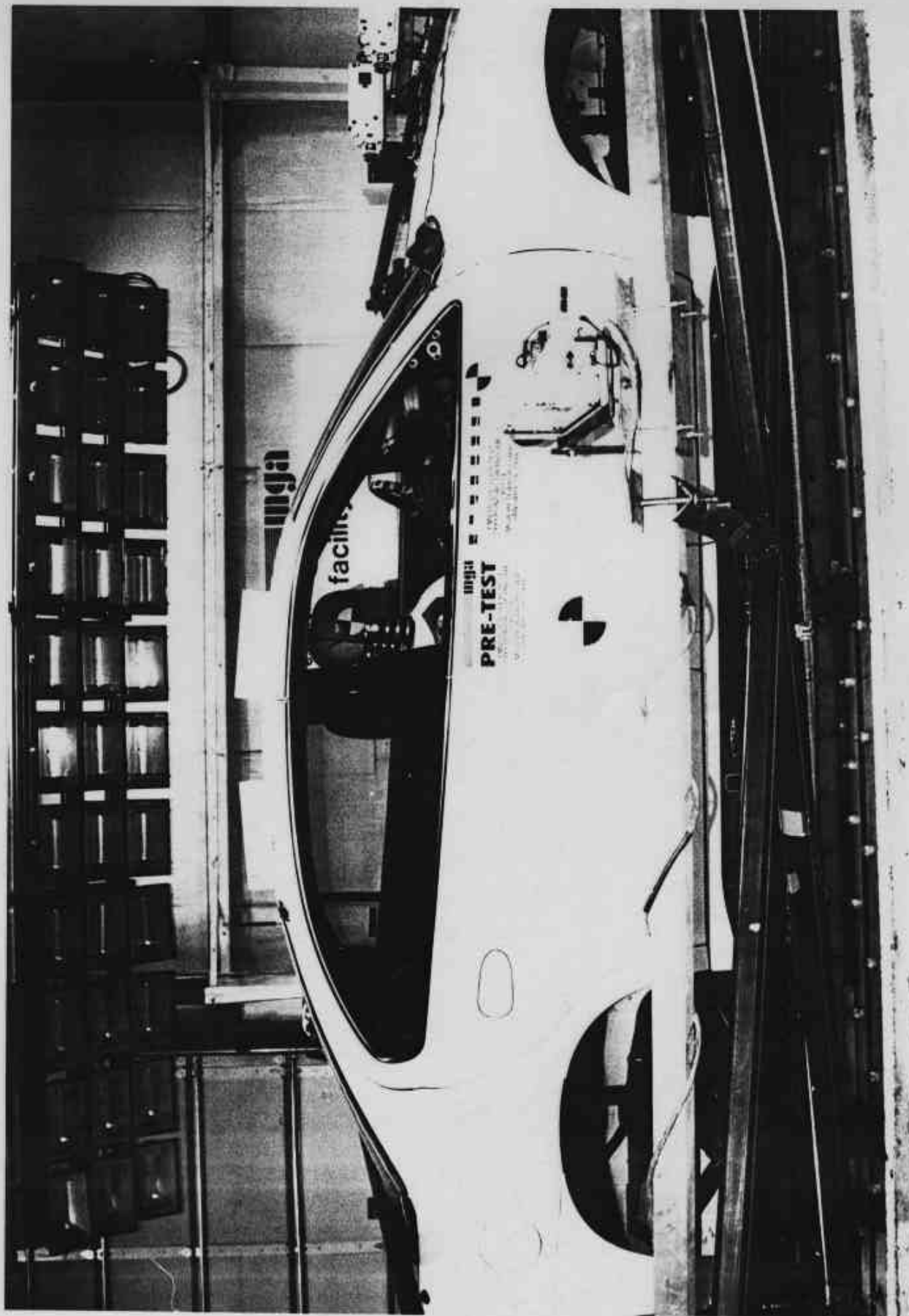


Photo No. A-3 - Pre-Test Right Side View

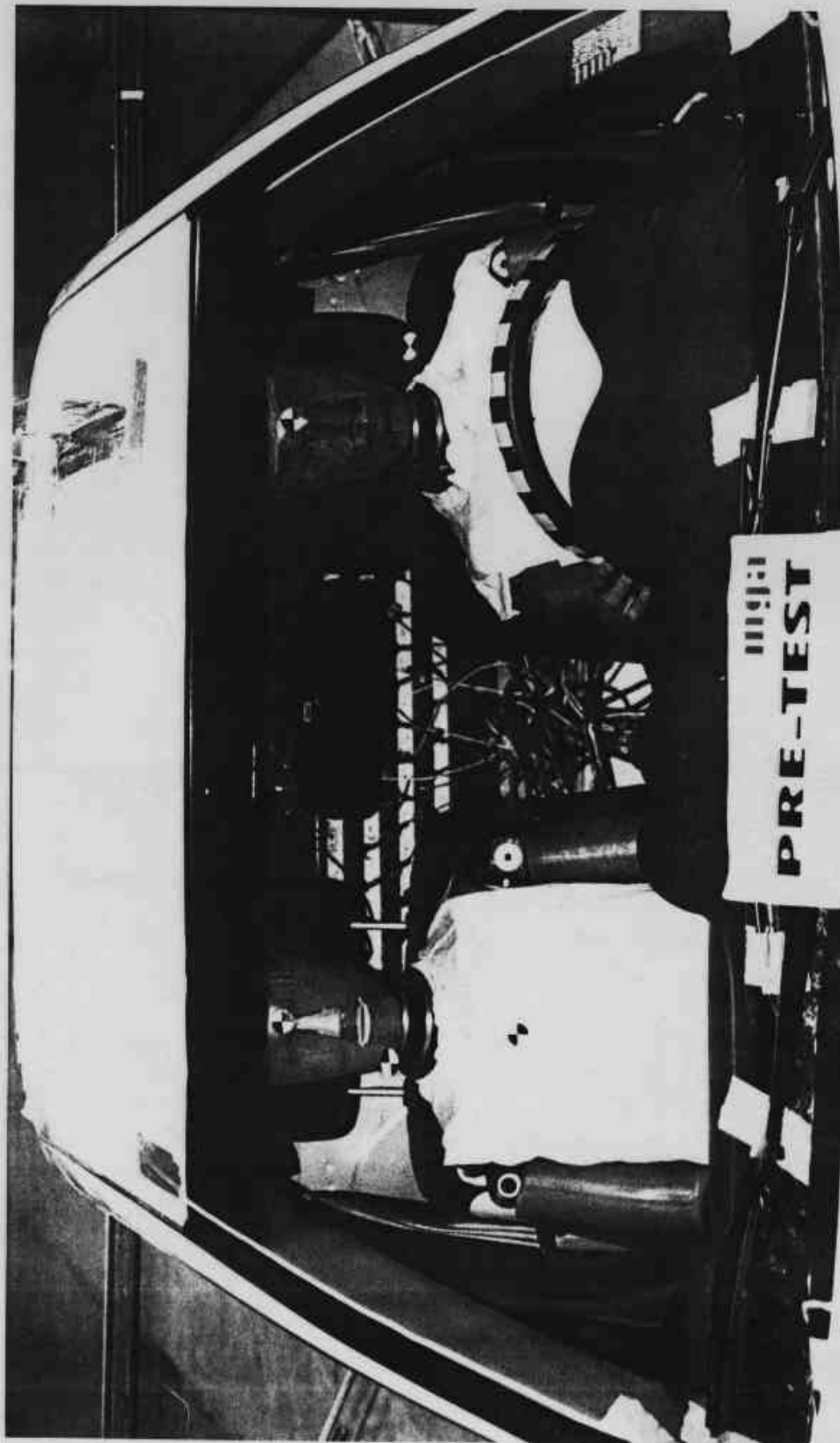


Photo No. A-4 - Pre-Test Windshield View

A-4

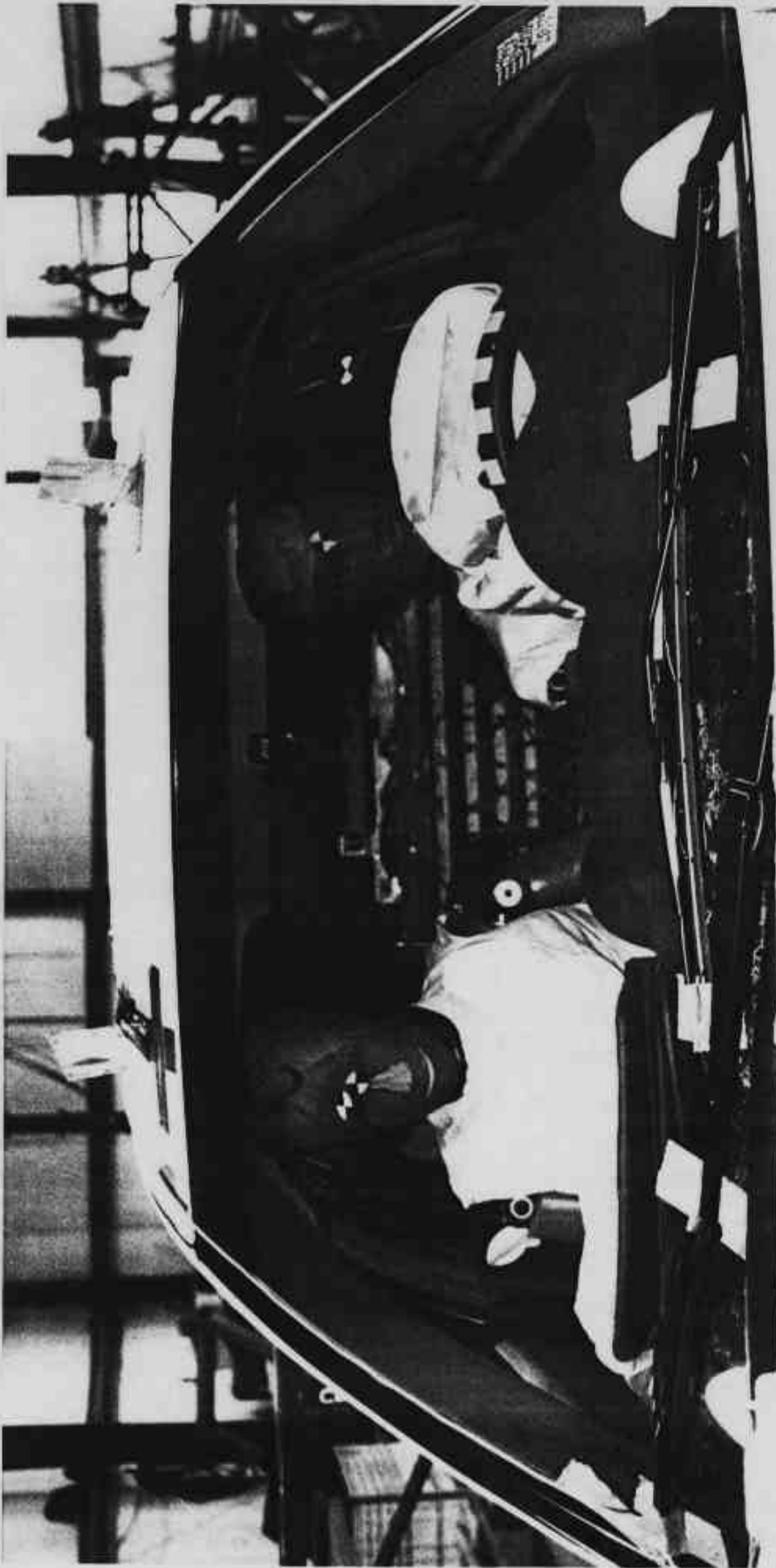


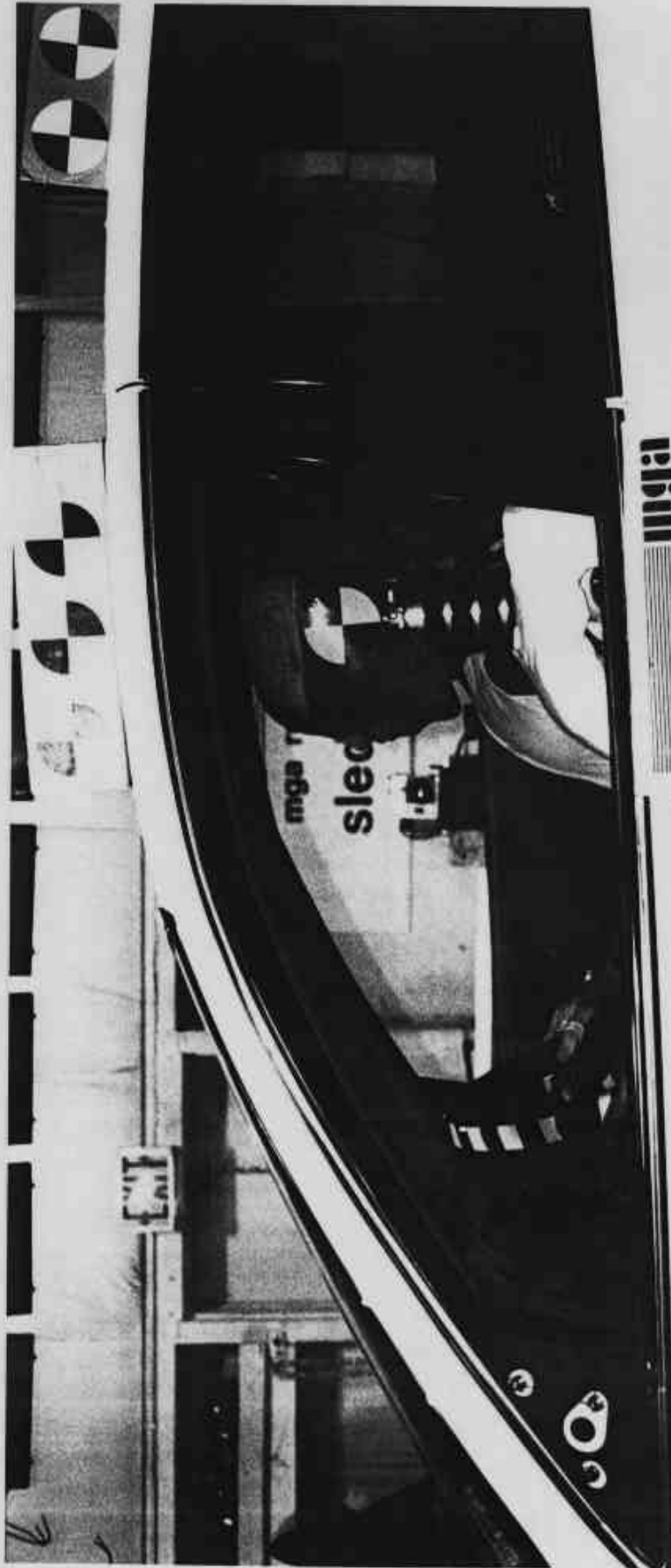
Photo No. A-5 - Post-Test Windshield View



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



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



mga

PRE-TEST

FMVSS 208 SLED TEST
1999 PONTIAC GRAND AM
CX0104
MGA RESEARCH CORP.
JANUARY 19, 1999



FMVSS 208 SLED TEST
1999 PONTIAC GRAND AM
CX0104
MGA RESEARCH CORP.
JANUARY 19, 1999



PONTIAC SE

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



mgia

THE PONTIAC CORPORATION

POST-TEST

FMVSS 208 SLED TEST
1999 PONTIAC GRAND AM
CX0104

MGA RESEARCH CORP.
JANUARY 19, 1999

FMVSS 208 SLED TEST
1999 PONTIAC GRAND AM
CX0104

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JANUARY 19, 1999

GRAND AM SE

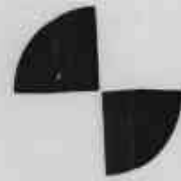


Photo No. A-9 - Post-Test Driver Dummy Position View



A-10

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

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MOBILE SAFETY RESEARCH CORPORATION

PRE-TEST

FMVSS 208 SLED TEST
1999 PONTIAC GRAND AM
CX0104

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JANUARY 19, 1999



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POST-TEST

FMVSS 208 SLED TEST
1999 PONTIAC GRAND AM
CX0104
MGA RESEARCH CORP
JANUARY 19, 1999

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

A-11



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PRE-TEST

FMVSS 208 SLED TEST
1999 PONTIAC GRAND AM

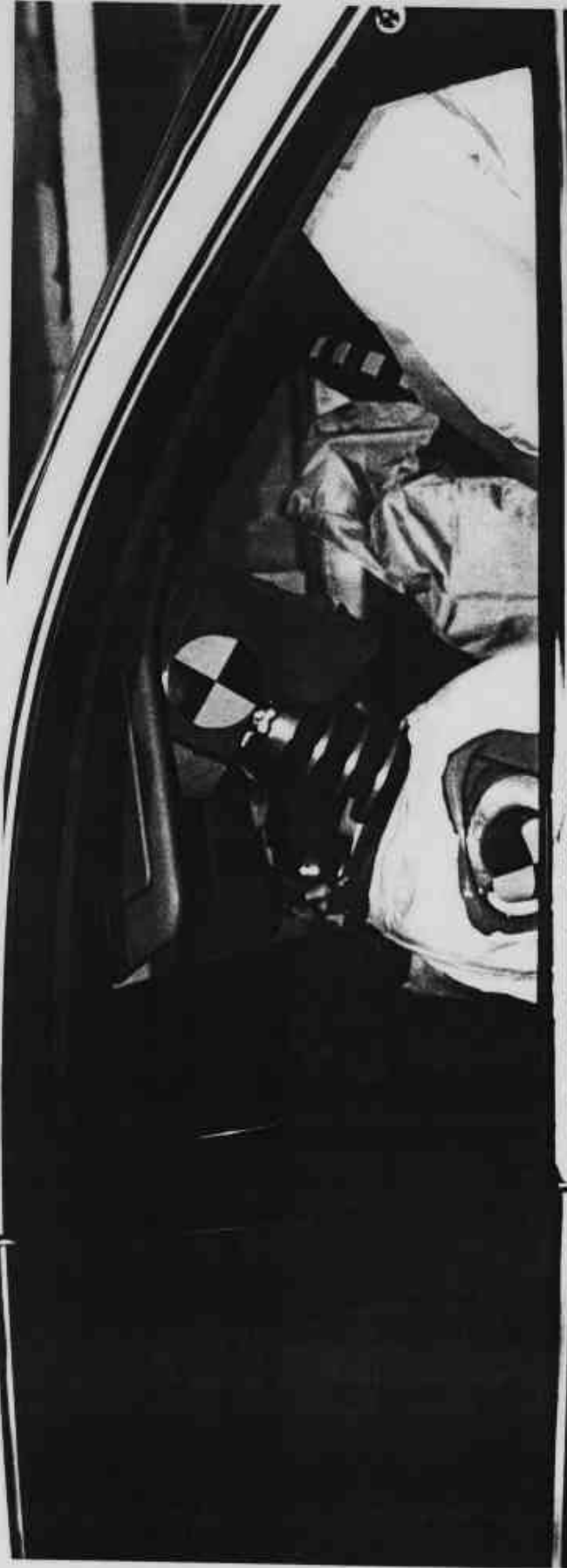
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GRAM

A-12

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



POST-TEST

FMVSS 208 SLED TEST
1999 PONTIAC GRAND AM
CX0104
MGA RESEARCH CORP.
JANUARY 19, 1999

FMVSS 208 SLED TEST
1999 PONTIAC GRAND AM
CX0104
MGA RESEARCH CORP.
JANUARY 19, 1999

GRAND AM

A-13

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



A-14

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



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

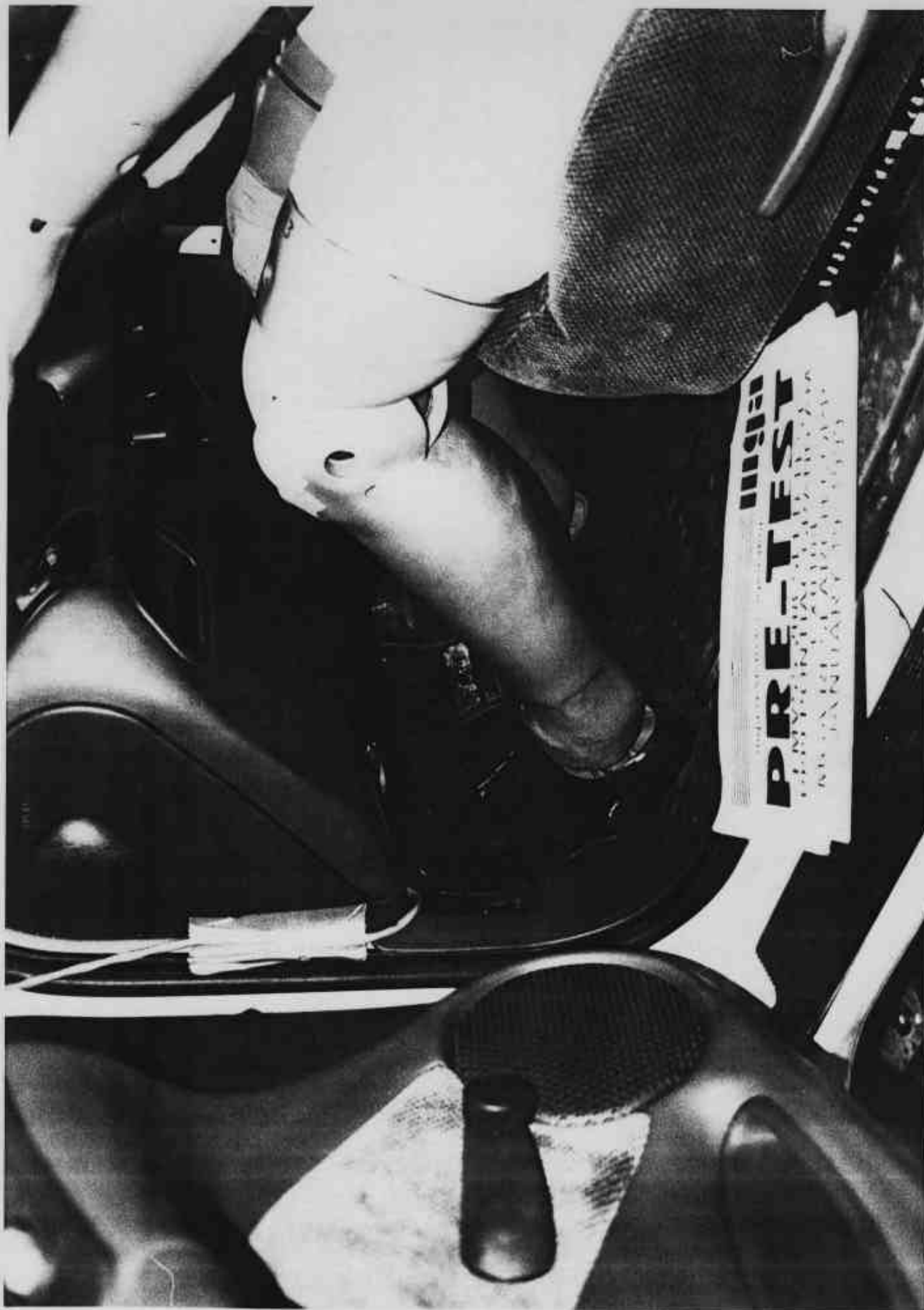


A-16

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



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



A-18

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



A-19

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

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



A-21

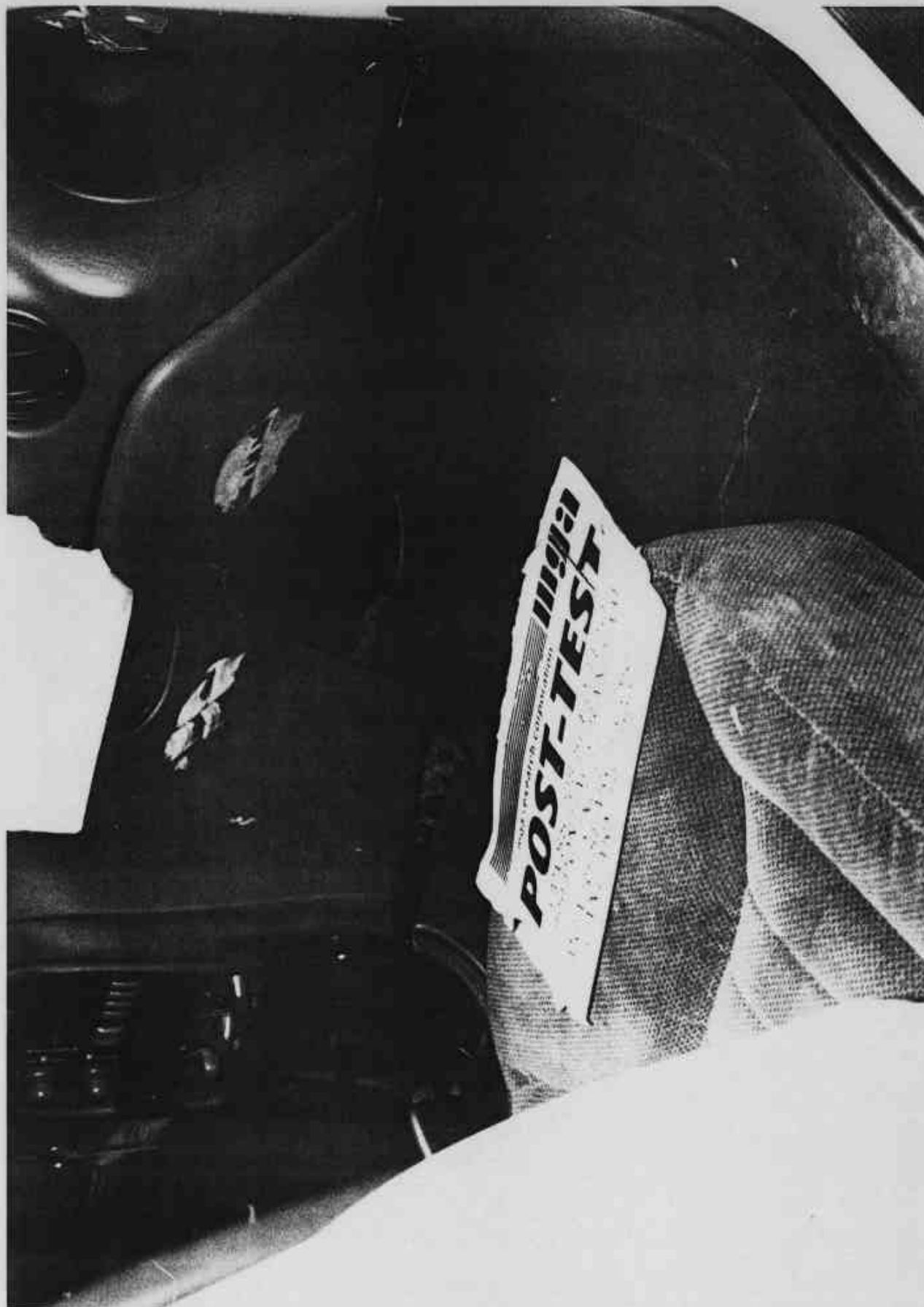


Photo No. A-21 - Post-Test Passenger Knee Contact View



TIRE - LOADING INFORMATION

OCCUPANTS		VEHICLE CAP. WT.	
FRT.	RR.	TOTAL	LBS
2	0	3	899

MAX. LOADING @ GVWR SAME AS VEHICLE CAPACITY WEIGHT.
1G2NE52T2XM735498

MODEL: NE99 NBJ

TIRE SIZE	SPEED RTG	COLD TIRE PRESSURE
FRT P215/60R15	S	210KPA(30PSI)
RR P215/60R15	S	210KPA(30PSI)
SPA T125/70D15	M	420KPA(60PSI)

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

SEE OWNER'S MANUAL FOR MORE INFORMATION



MFD BY GENERAL MOTORS CORP

DATE	GVWR	GAWR FRT	GAWR RR
05/98	1808 KG	1020 KG	788 KG
	3986 LB	2249 LB	1737 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.

1G2NE52T2XM735498

TYPE: PASS CAR

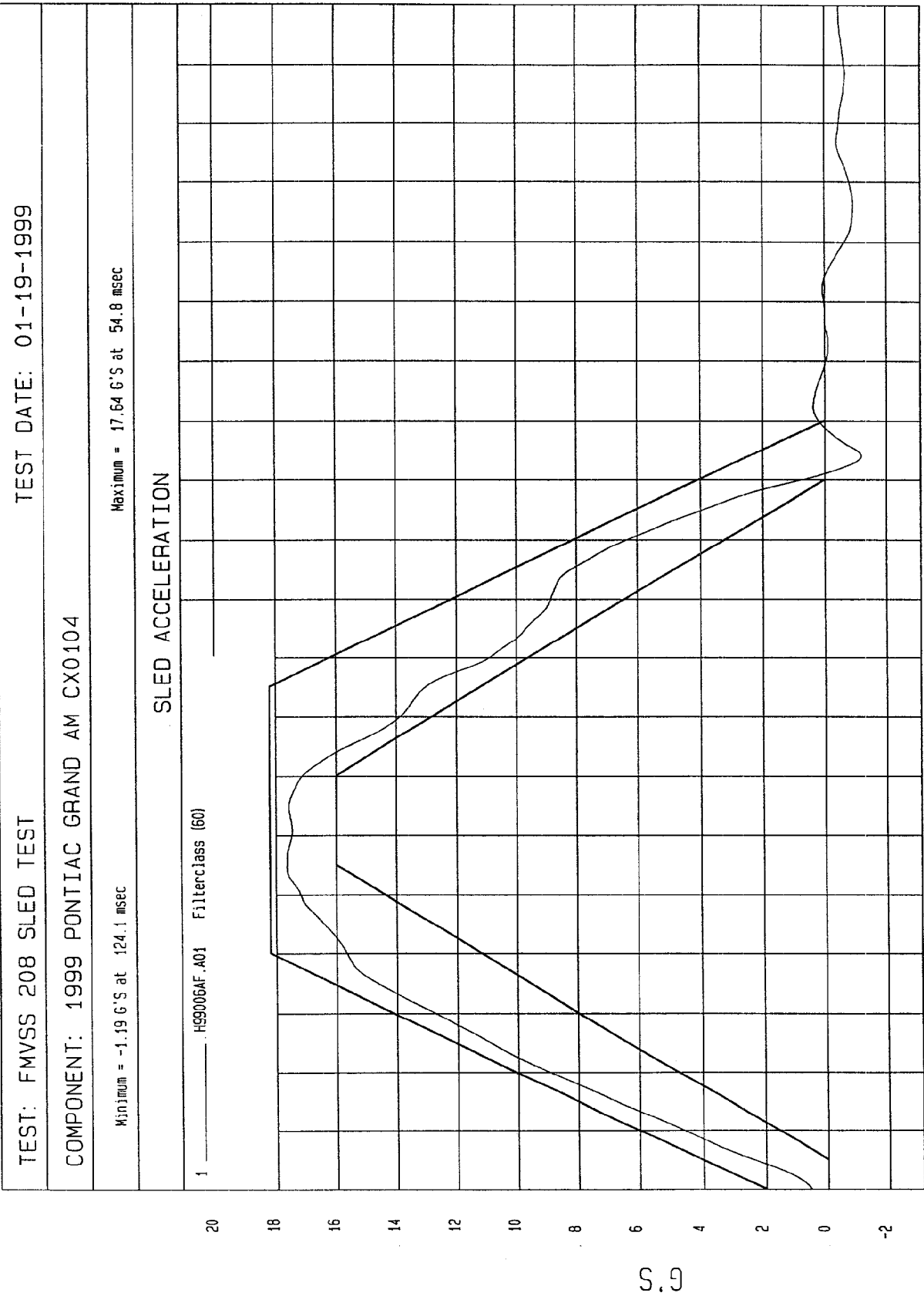
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NGA Research
01-19-1999 12:48

TEST DATE: 01-19-1999

TEST: FMVSS 208 SLED TEST

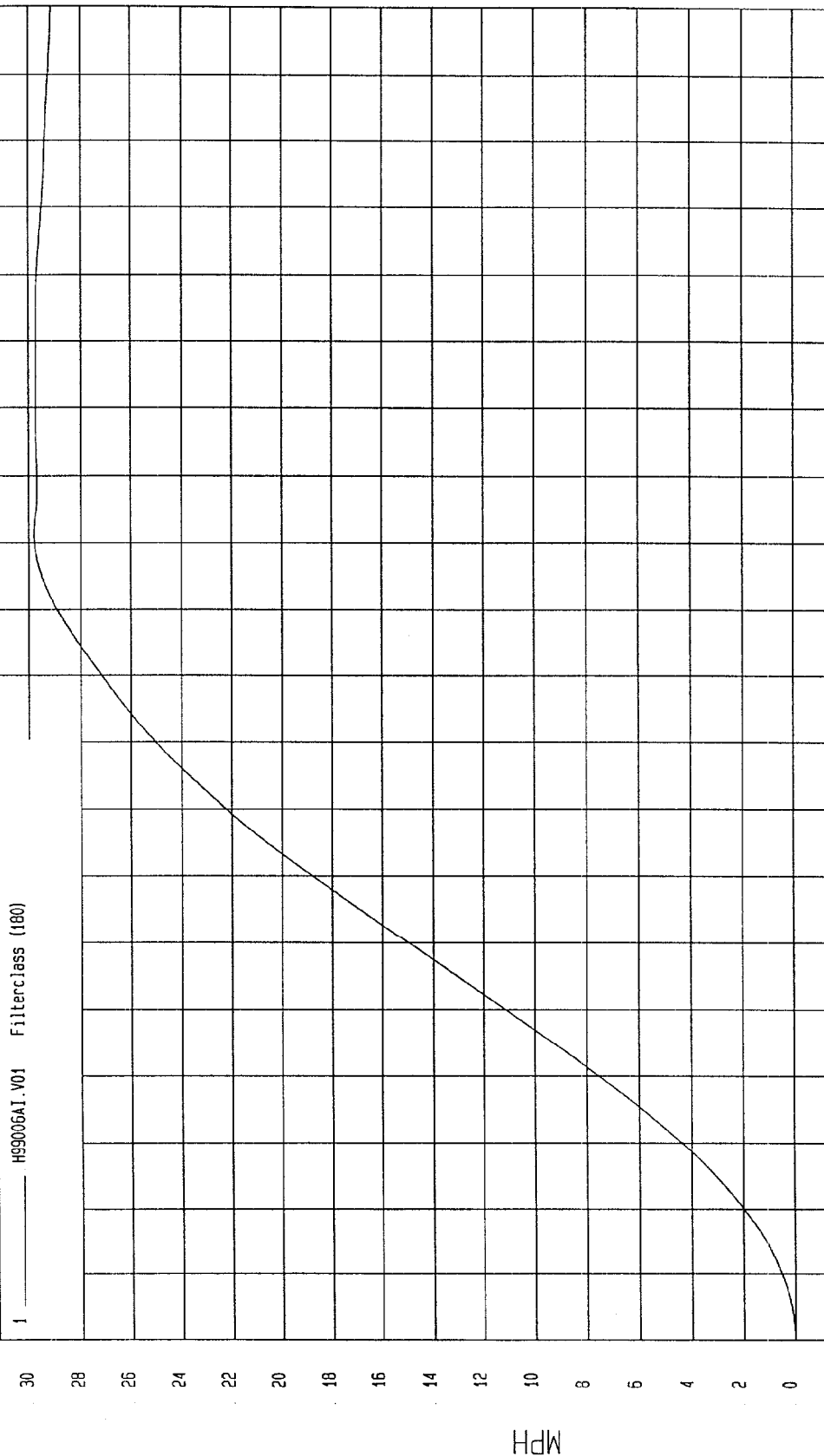
COMPONENT: 1999 PONTIAC GRAND AM CX0104

YMIN= 0 MPH at 9.9 msec

YMAX= 29.79399 MPH at 121 msec

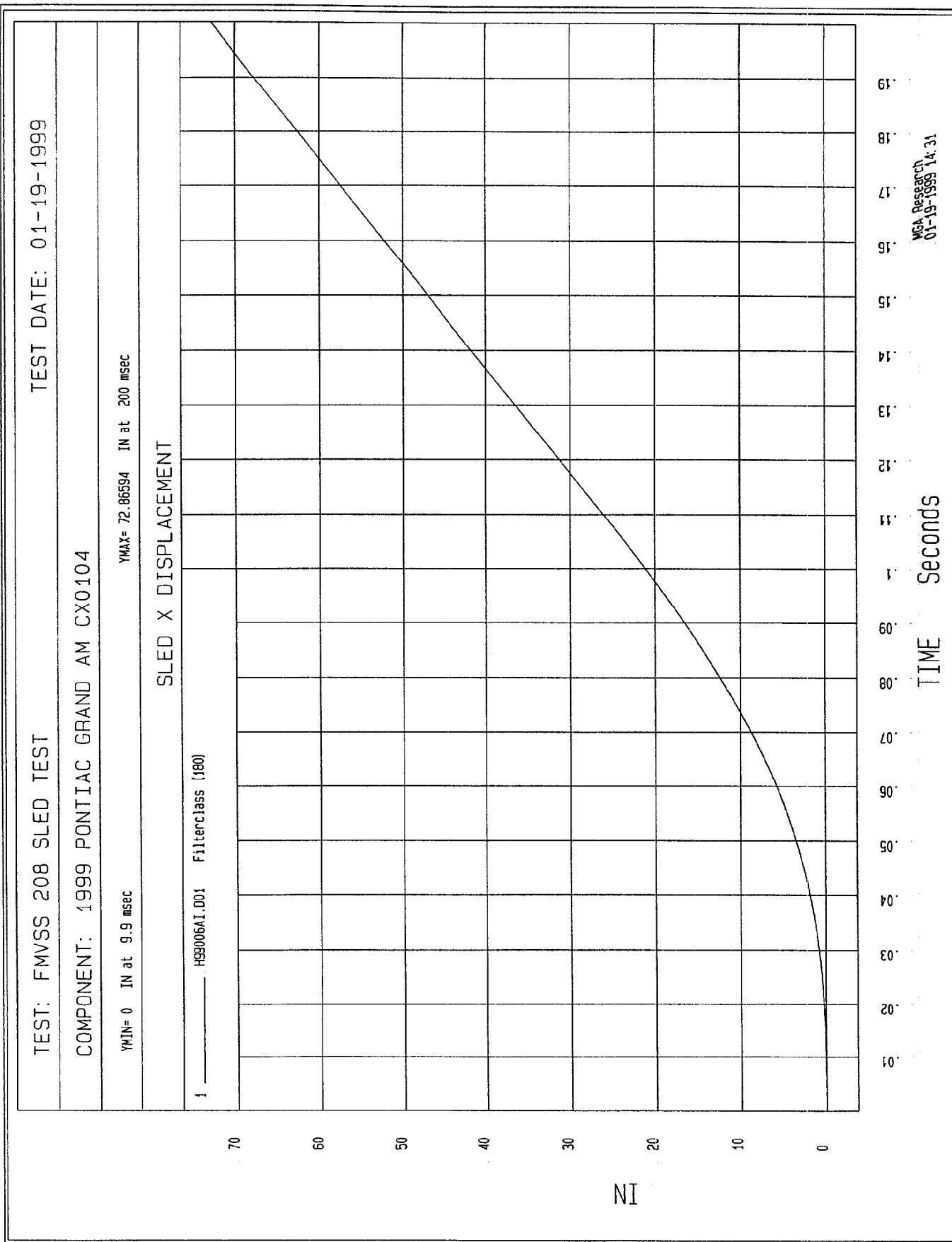
SLED X VELOCITY

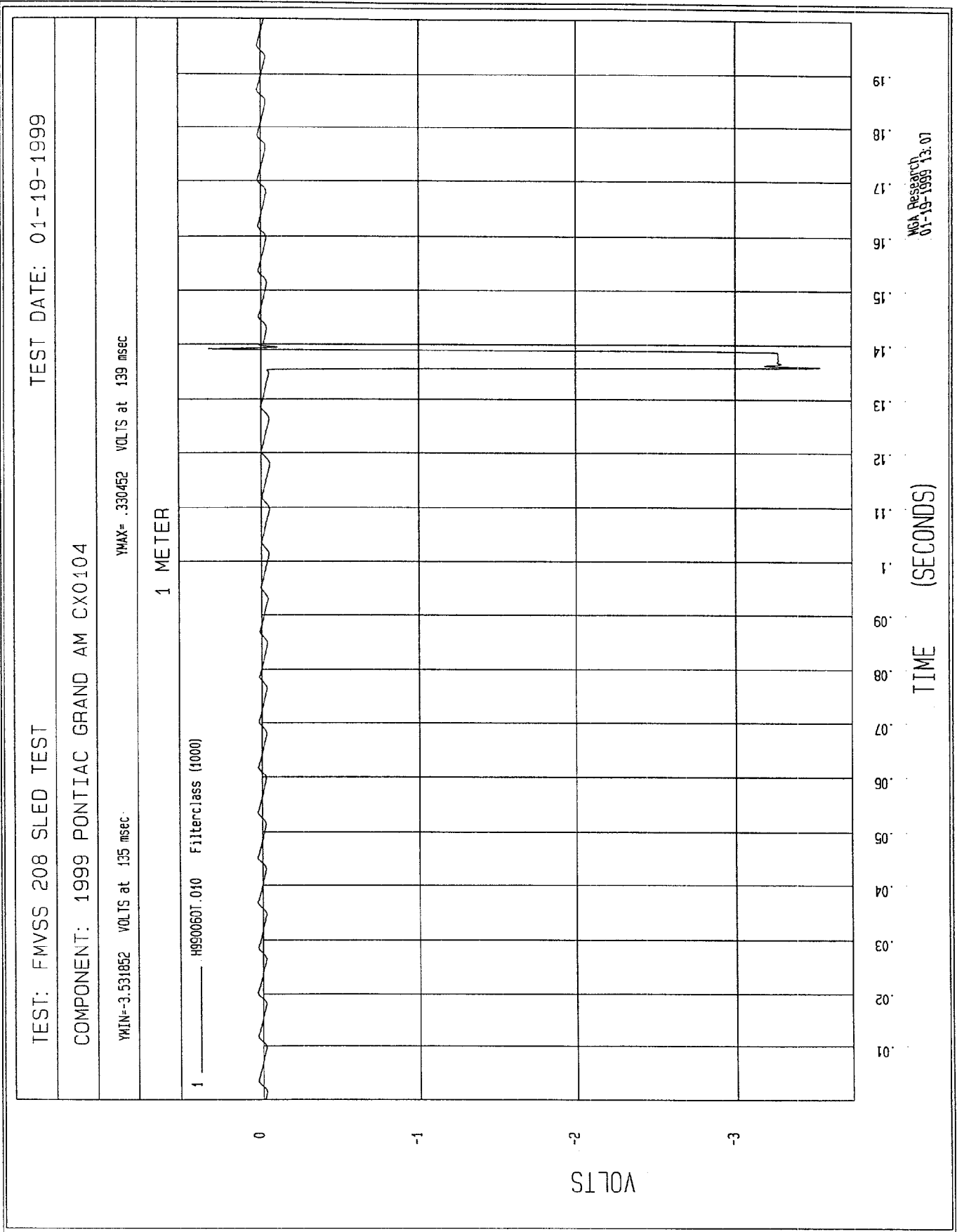
1 — H99006AJ.V01 Filterclass (180)

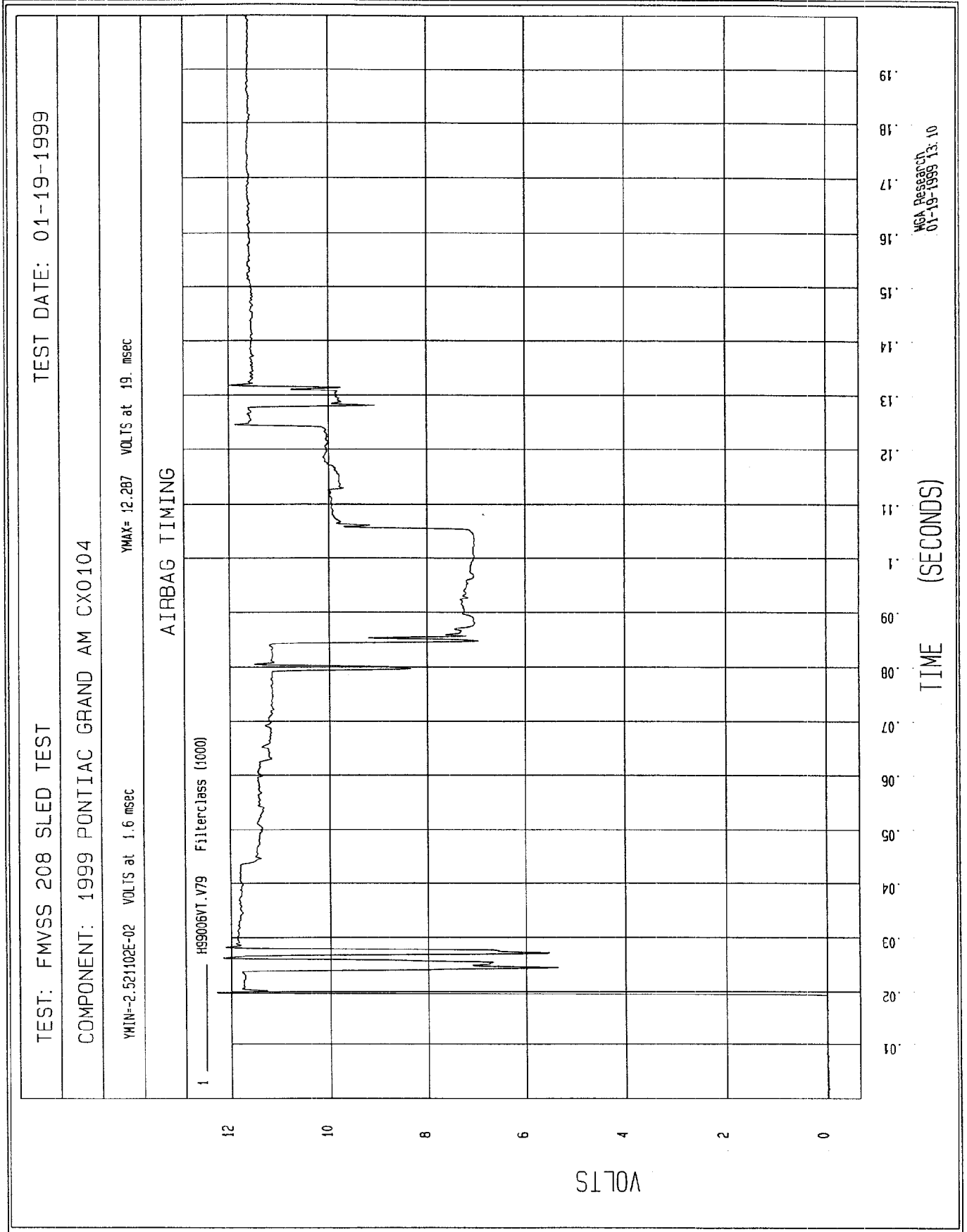


WCA Research
01-19-1999 14:31

TIME Seconds





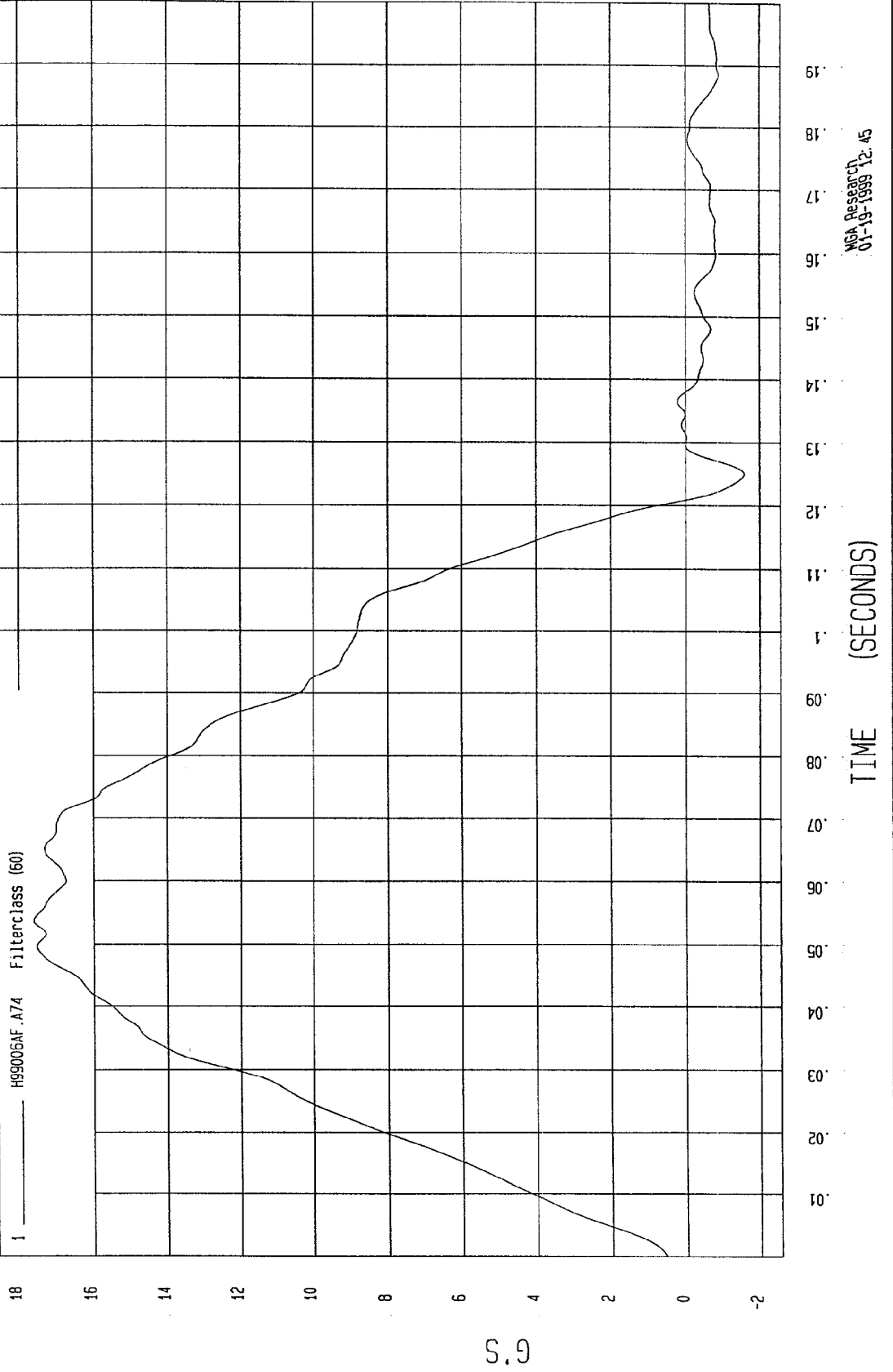


TEST: FMVSS 208 SLED TEST TEST DATE: 01-19-1999

COMPONENT: 1999 PONTIAC GRAND AM CX0104

YMIN=-1.589094 G'S at 125 msec YMAX= 17.61258 G'S at 53. msec

REAR SEAT CROSSMEMBER @ LEFT SIDE X ACCELERATION



TEST DATE: 01-19-1999

TEST: FMVSS 208 SLED TEST

COMPONENT: 1999 PONTIAC GRAND AM CX0104

YMIN=-1.628638 G'S at 124 msec

YMAX= 18.15935 G'S at 54. msec

REAR SEAT CROSSMEMBER @ RIGHT SIDE X ACCELERATION

1 H99005AF.A75 Filterclass (60)

G.S.

18
16
14
12
10
8
6
4
2
0
-2TIME (SECONDS)
61
18
17
16
15
14
13
12
11
1
60
09
08
07
06
05
04
03
02
01WCA Research
01-19-1999 12.45

TEST: FMVSS 208 SLED TEST

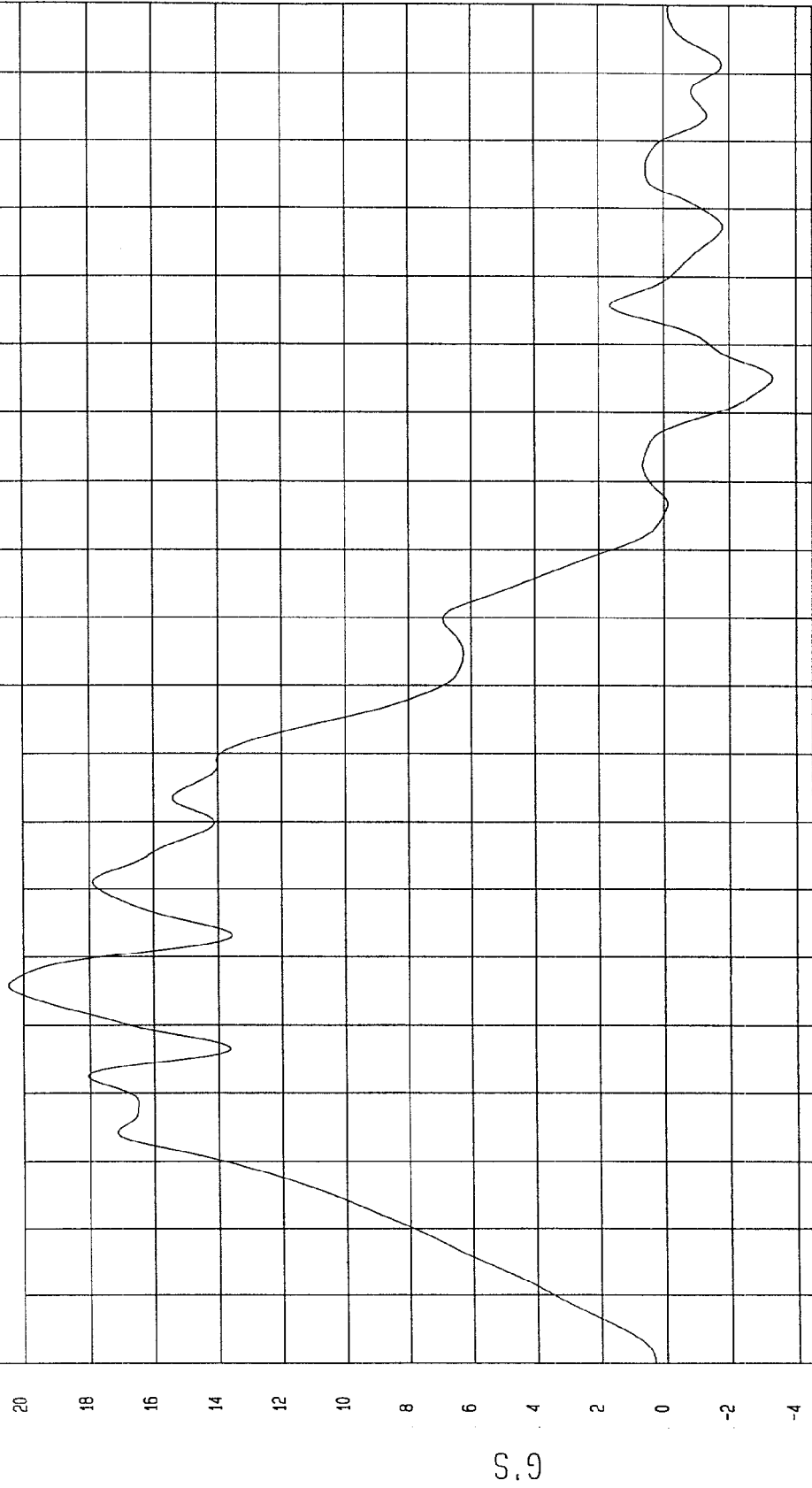
TEST DATE: 01-19-1999

COMPONENT: 1999 PONTIAC GRAND AM CX0104

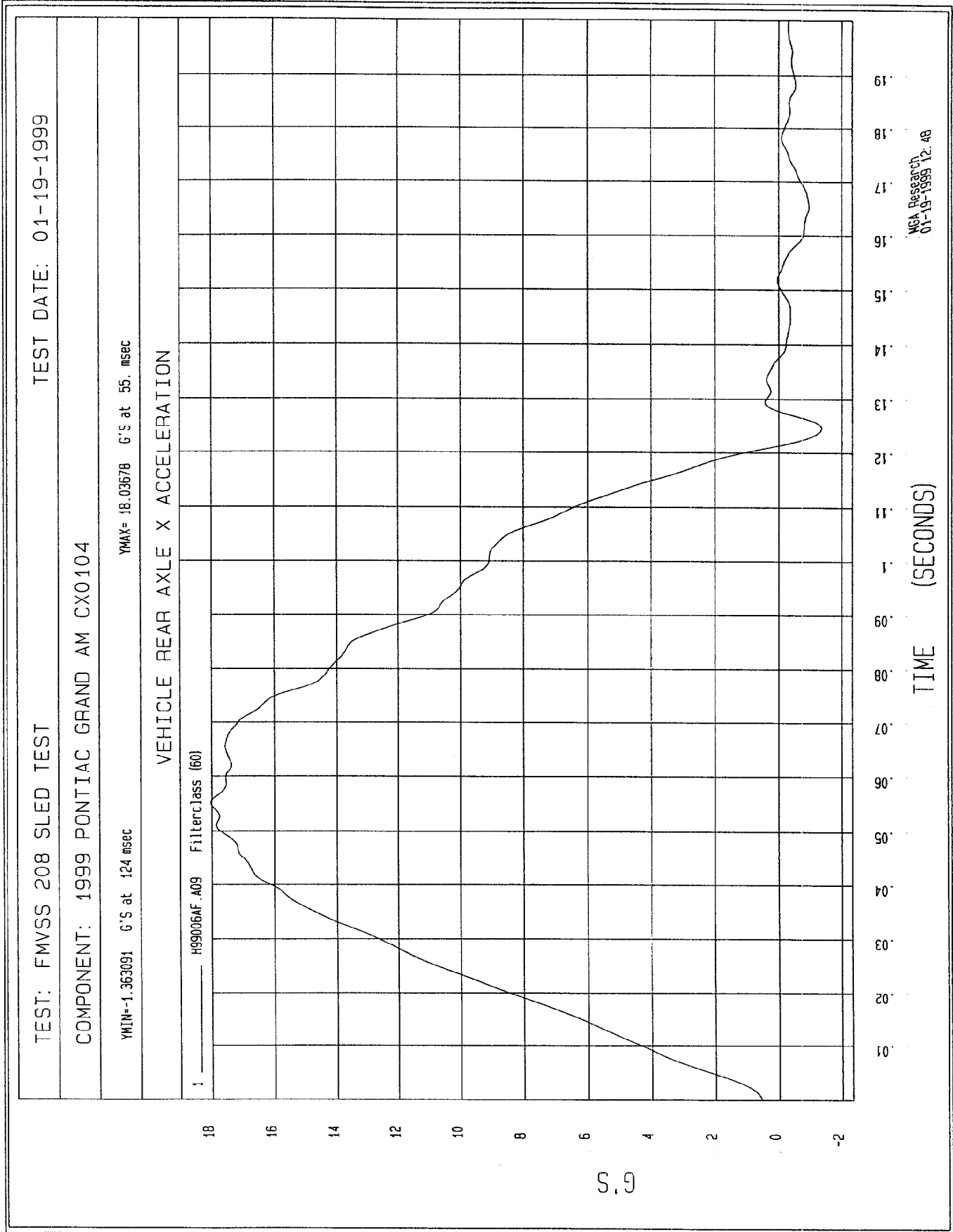
YMIN=-3.296281 G'S at 145 msec YMAX= 20.44629 G'S at 55. msec

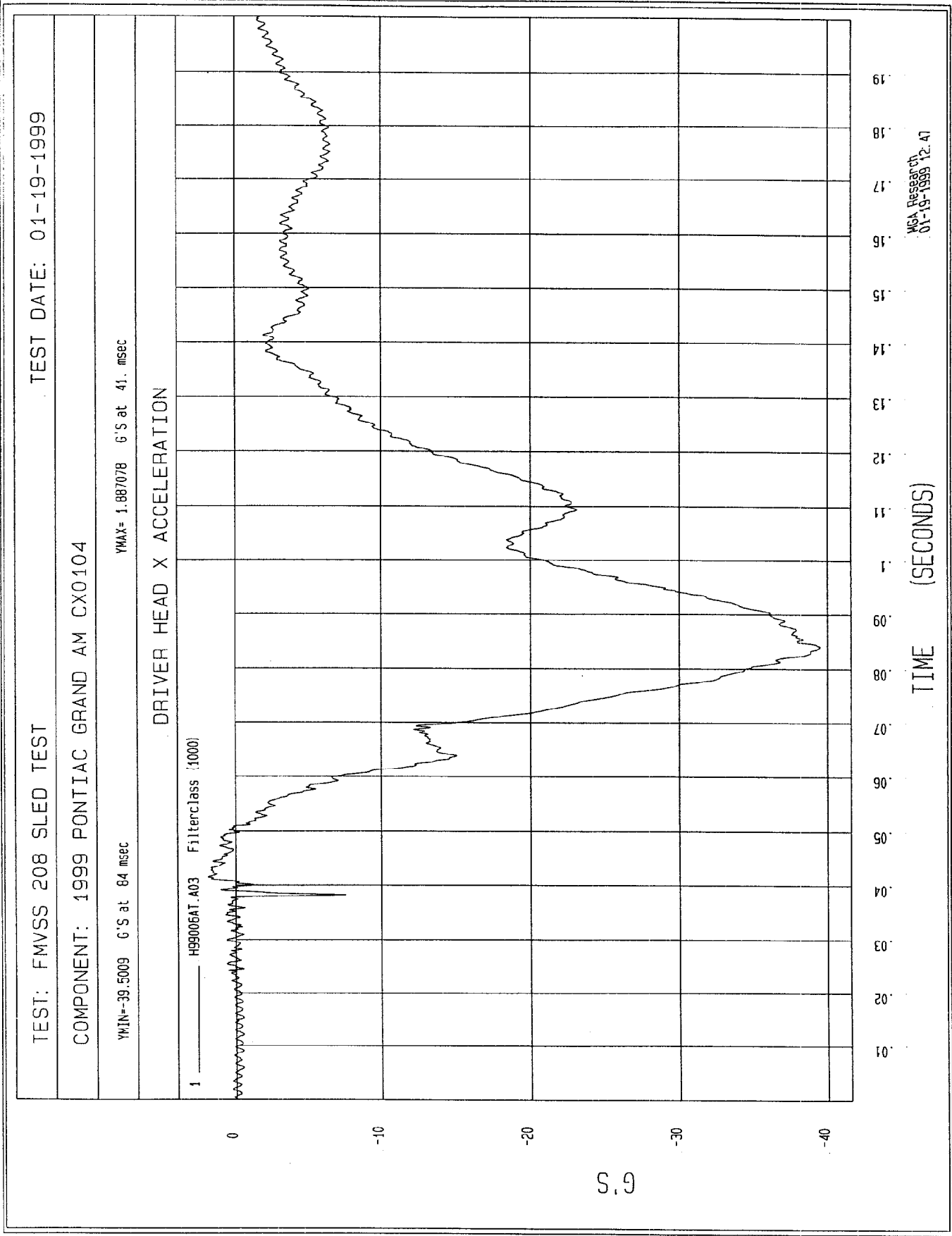
TOP OF ENGINE X ACCELERATION

1 H99005AF.A73 Filterclass (60)



WCA Research
01-19-1999 12:44





TEST: FMVSS 208 SLED TEST

TEST DATE: 01-19-1999

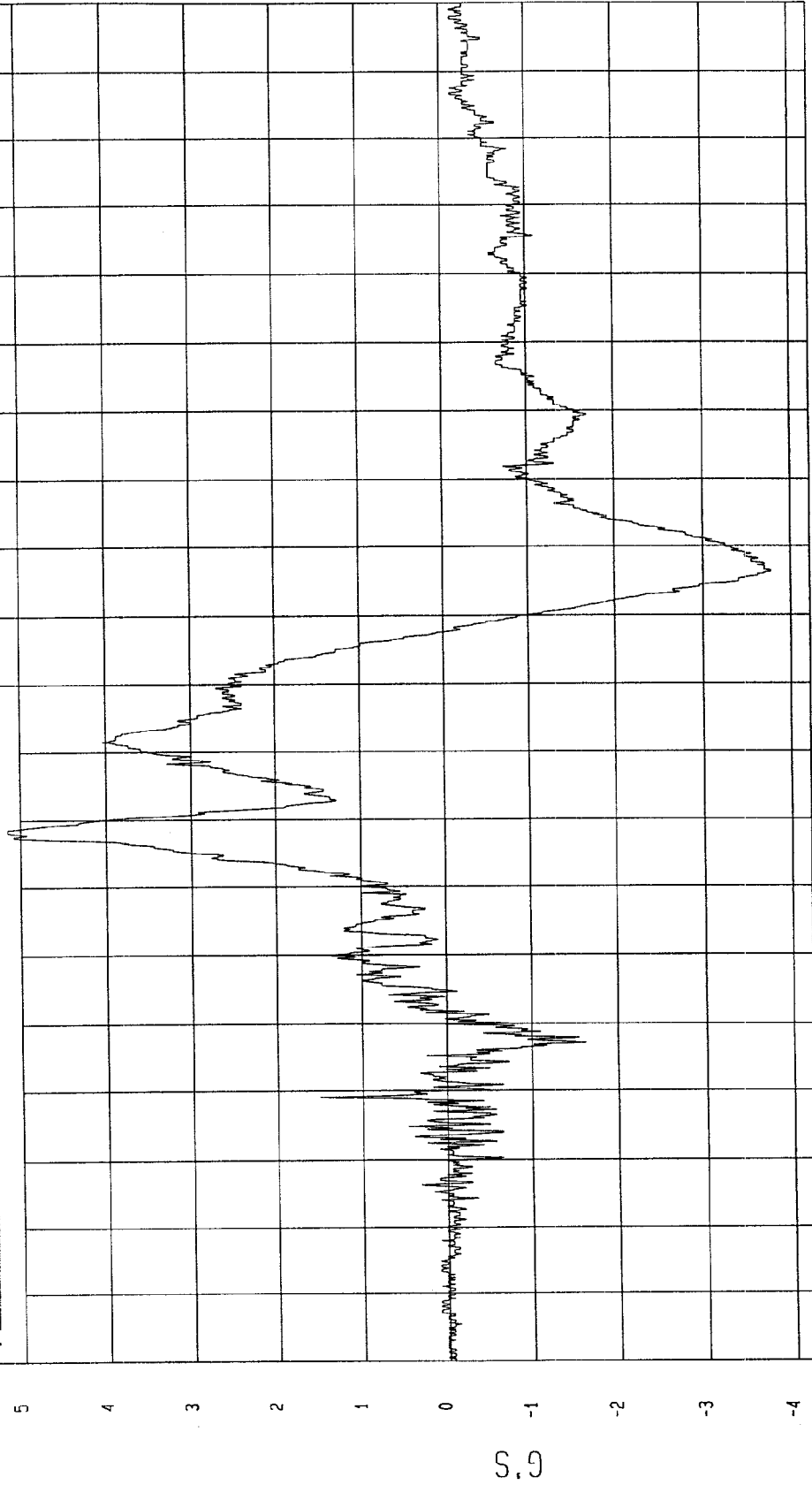
COMPONENT: 1999 PONTIAC GRAND AM CX0104

YMAX= 5.149462 G'S at 78. msec

YMIN=-3.772167 G'S at 116 msec

DRIVER HEAD Y ACCELERATION

1 H99006AT.A04 Filterclass (1000)



WCA Research
01-19-1999 12.41

TEST: FMVSS 208 SLED TEST

TEST DATE: 01-19-1999

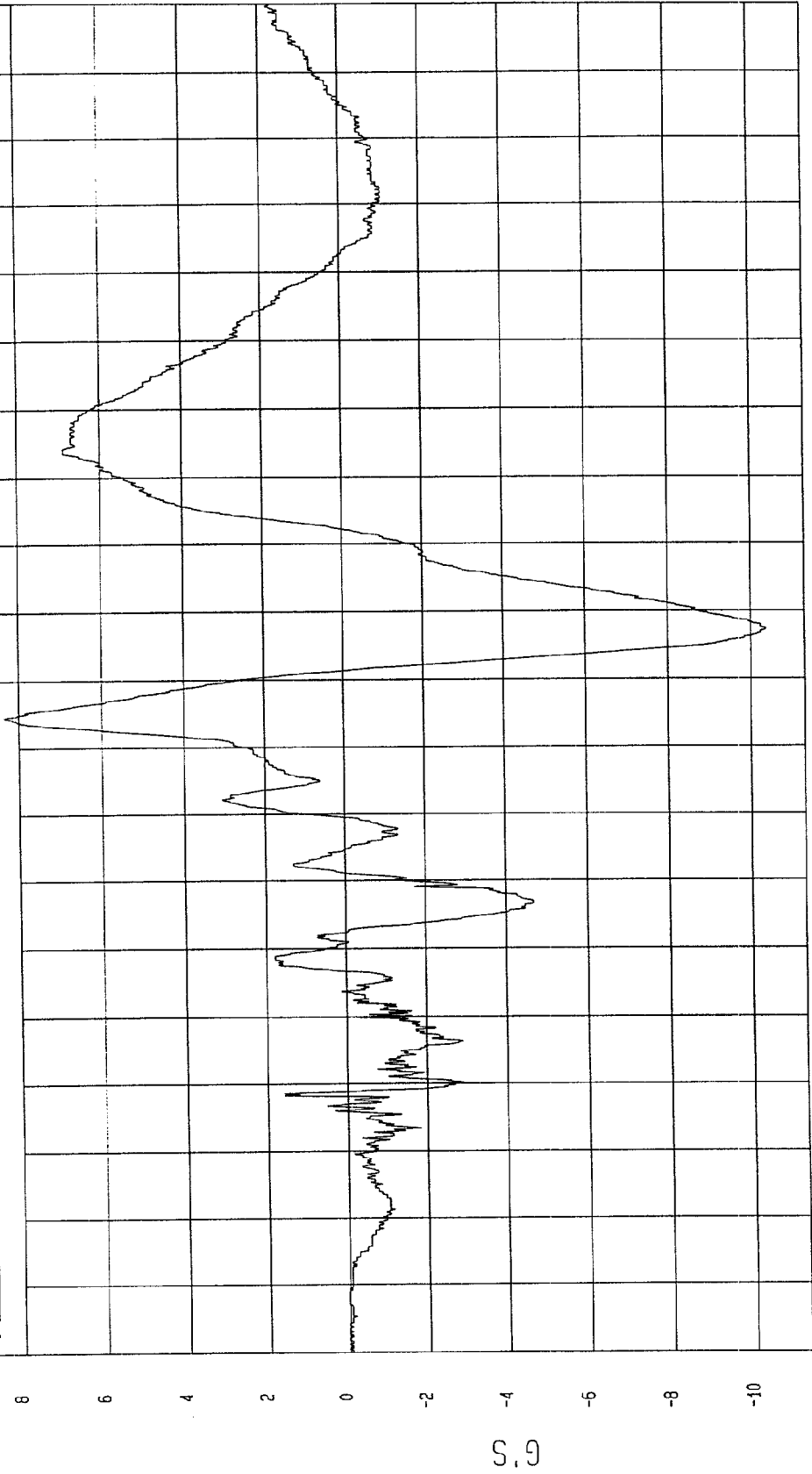
COMPONENT: 1999 PONTIAC GRAND AM CX0104

YMIN=-10.34204 G'S at 107 msec

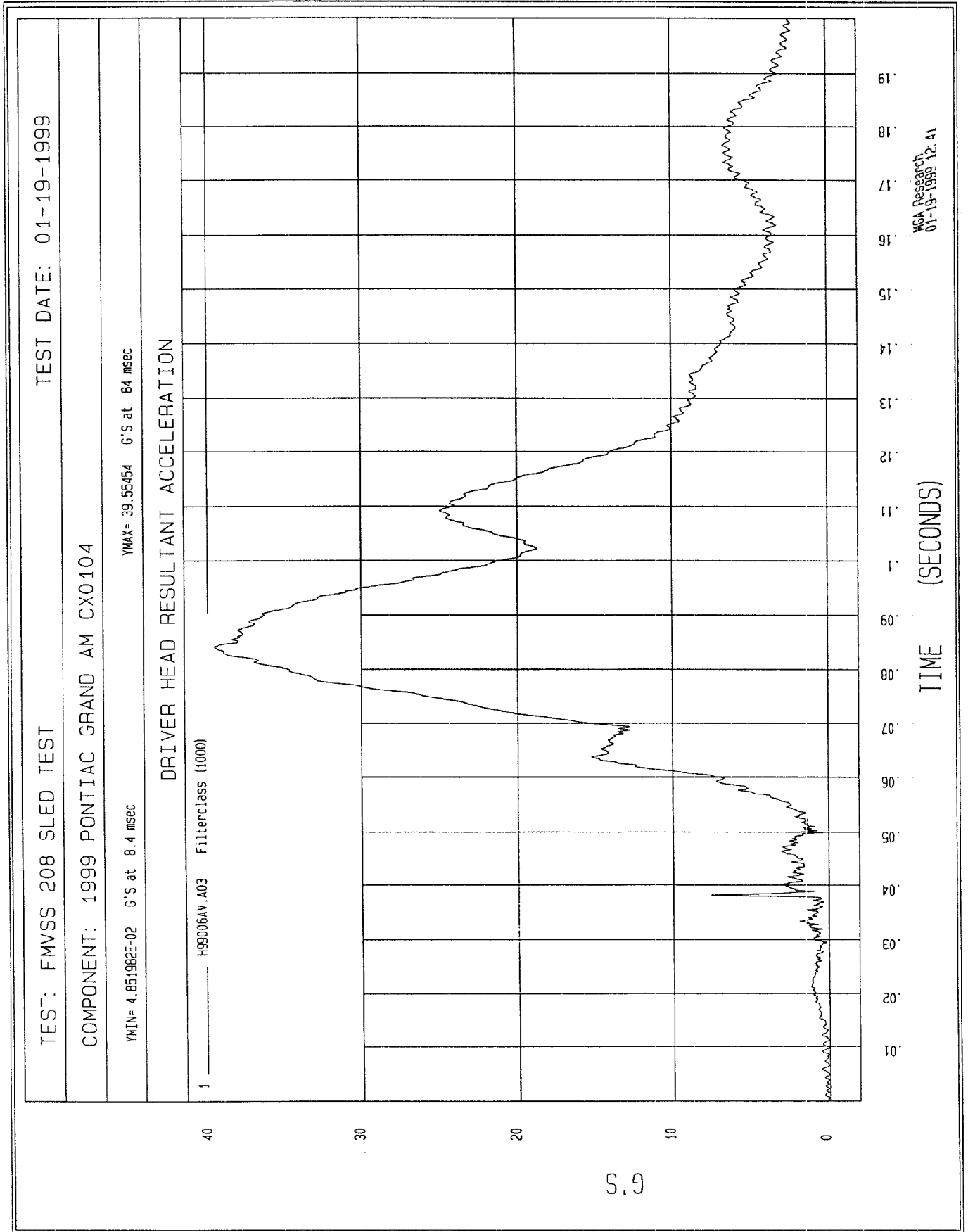
YMAX= 8.353717 G'S at 94. msec

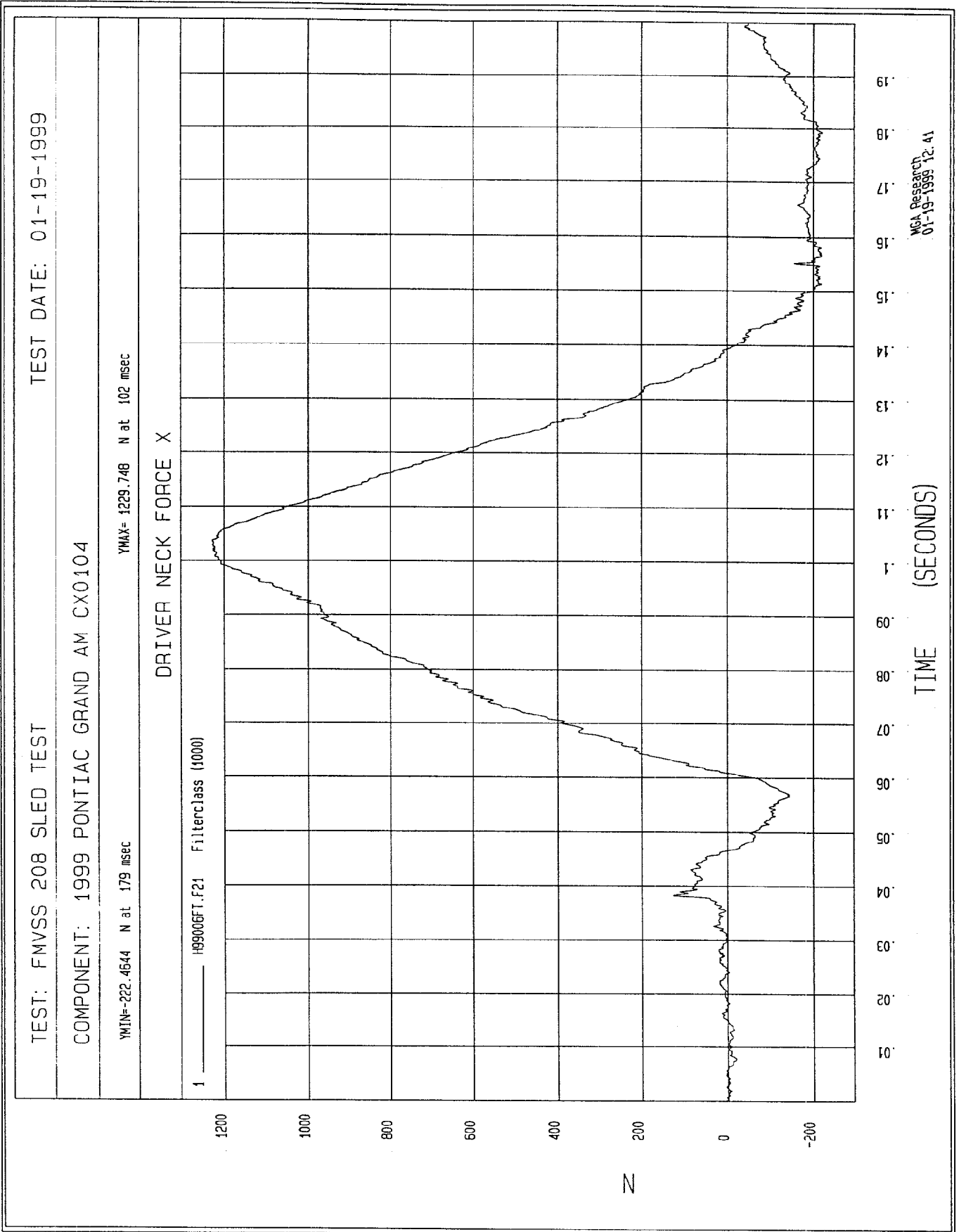
DRIVER HEAD Z ACCELERATION

1 H9900EAT.A05 Filterclass (1000)



MCA Research
01-19-1999 12.41





TEST DATE: 01-19-1999

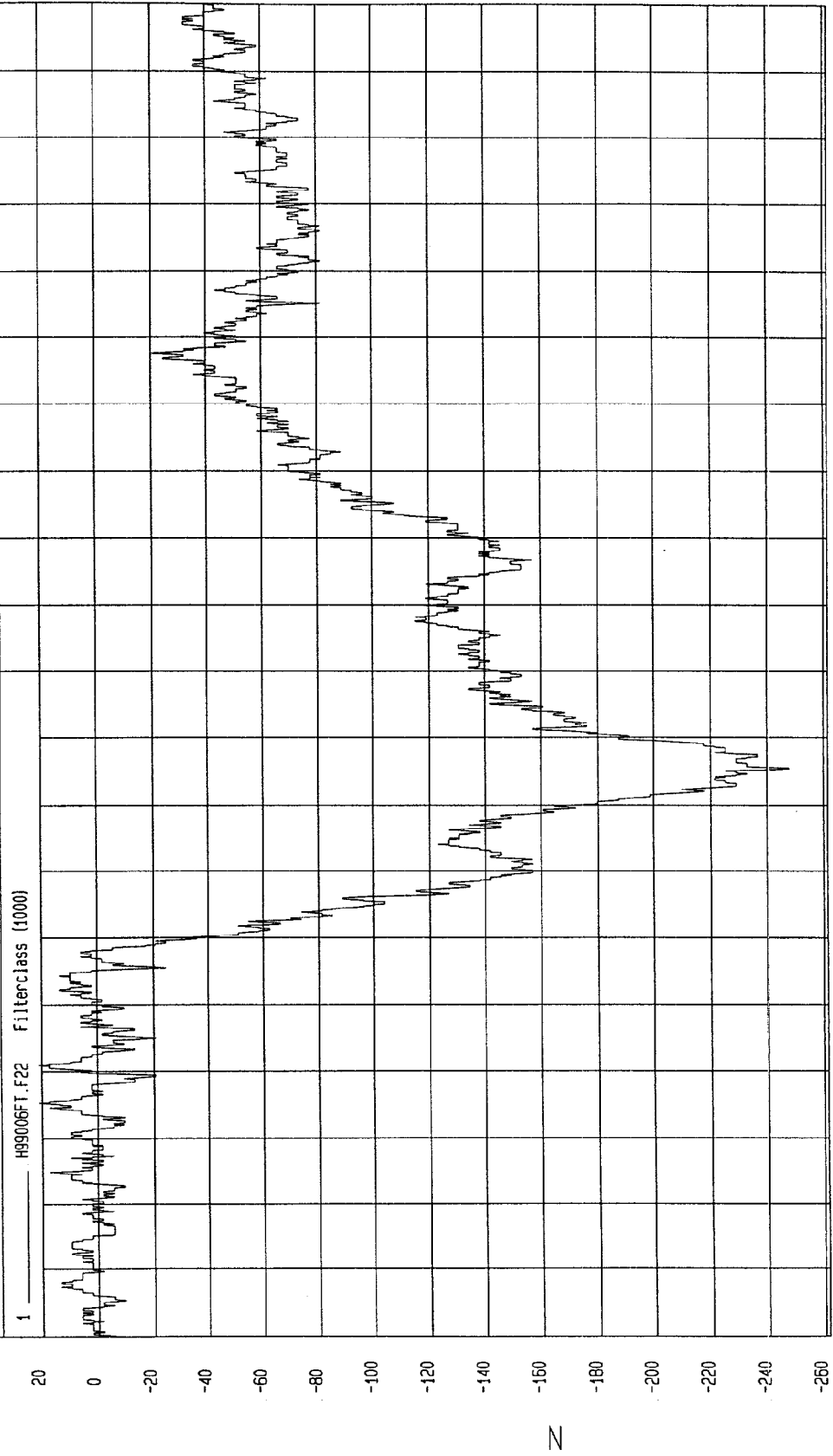
TEST: FMVSS 208 SLED TEST

COMPONENT: 1999 PONTIAC GRAND AM CX0104

YMAX= 20.96155 N at 35. msec

YMIN= -247.9048 N at 85. msec

DRIVER NECK FORCE Y



WCA Research
01-19-1999 12:41

TIME (SECONDS)

TEST DATE: 01-19-1999

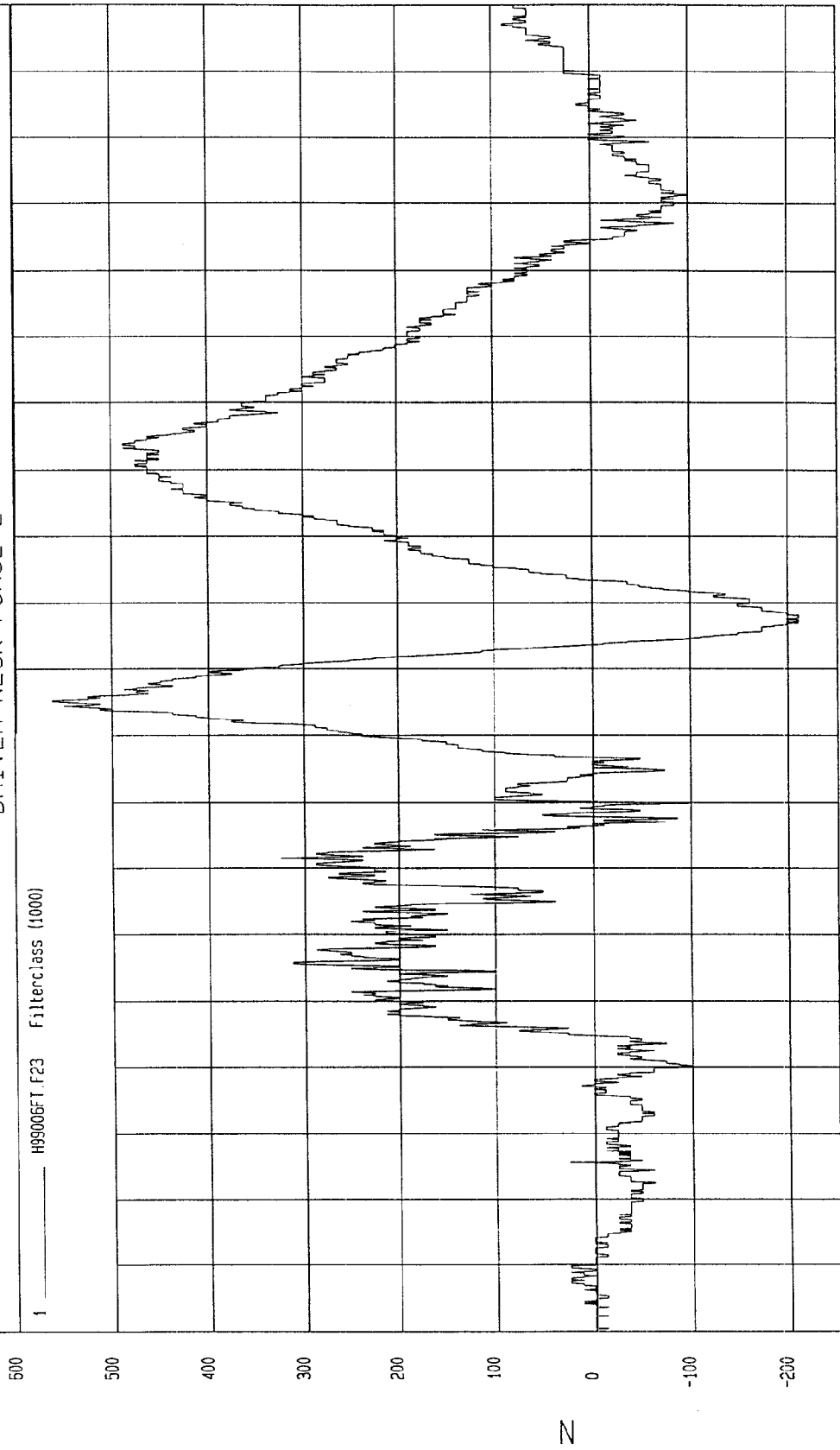
TEST: FMVSS 208 SLED TEST

COMPONENT: 1999 PONTIAC GRAND AM CX0104

YMAX= 562.5748 N at 95. msec

YMIN=-210.9656 N at 106 msec

DRIVER NECK FORCE Z



WSA Research
01-19-1999 12:41

TIME (SECONDS)

TEST DATE: 01-19-1999

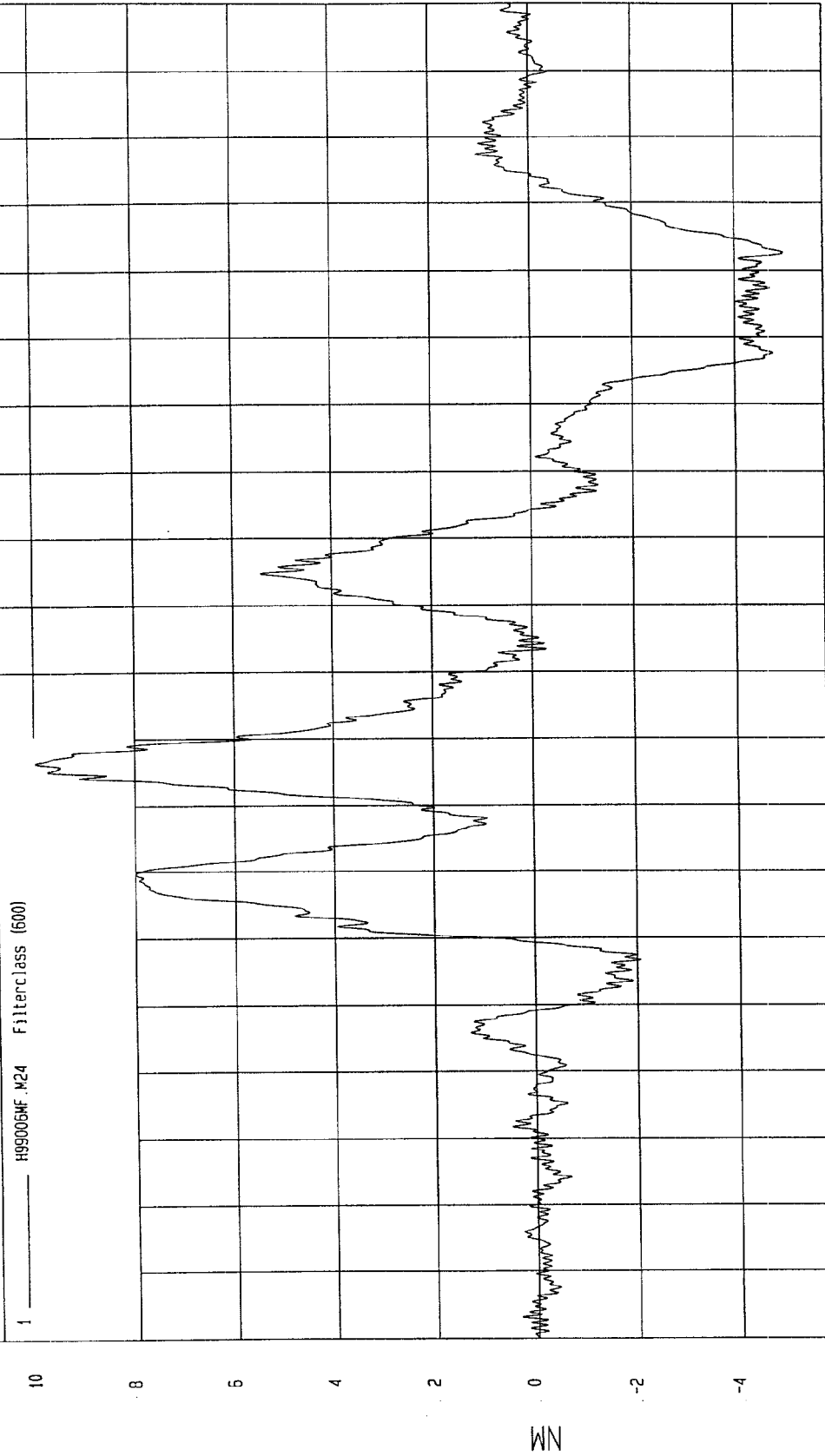
TEST: FMVSS 208 SLED TEST

COMPONENT: 1999 PONTIAC GRAND AM CX0104

YMAX= 9.970009 NM at 86. msec

YMIN=-4.944265 NM at 162 msec

DRIVER NECK MOMENT X



MSA Research
01-19-1999 12:41

TIME (SECONDS)

TEST DATE: 01-19-1999

TEST: FMVSS 208 SLED TEST

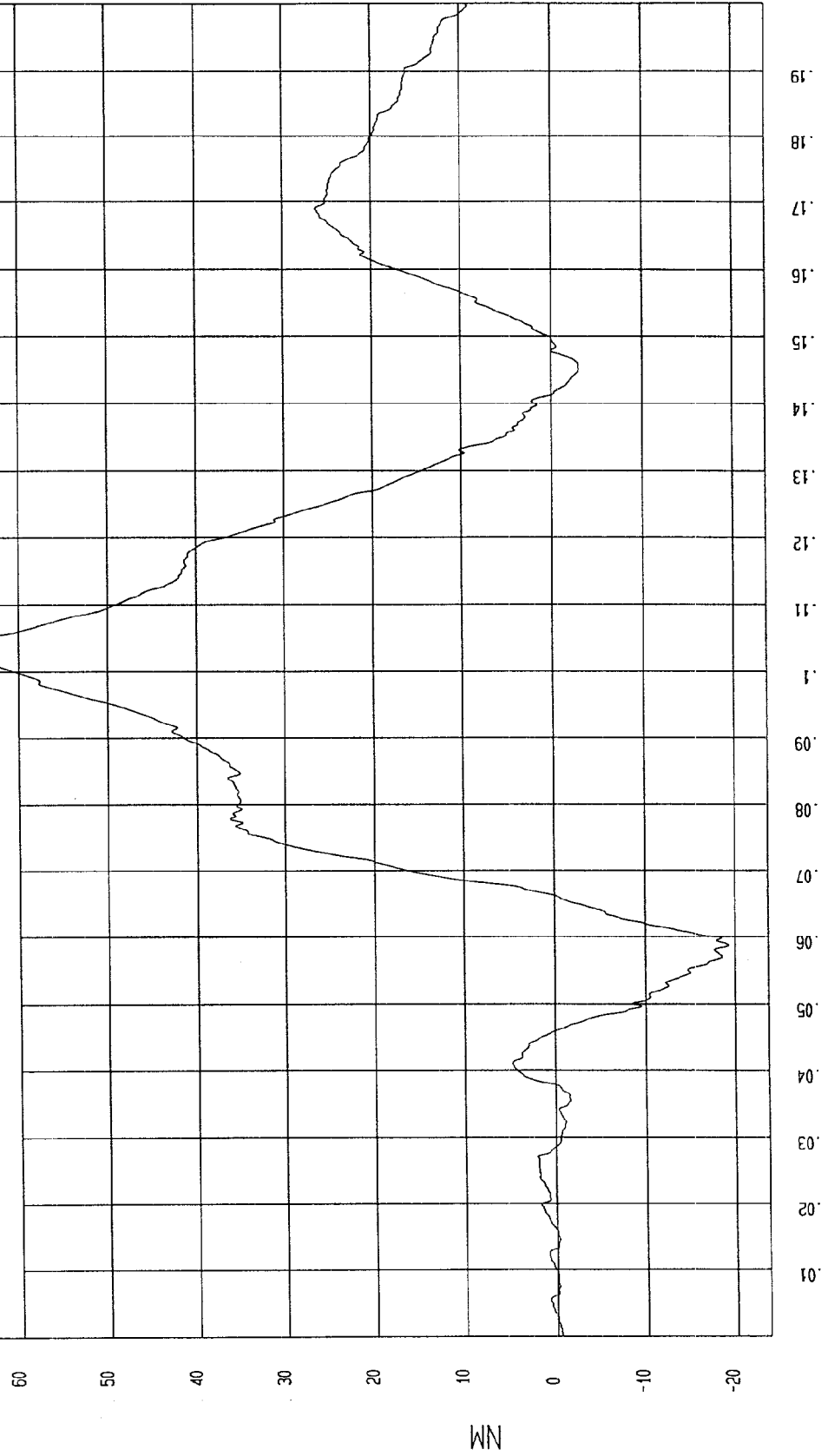
COMPONENT: 1999 PONTIAC GRAND AM CX0104

YMAX= 55.30122 NM at 103 msec

YMIN=-19.31191 NM at 58. msec

DRIVER NECK MOMENT Y

1 H99006MF.M25 Filterclass (600)



MGA Research
01-19-1999 12:41

TEST DATE: 01-19-1999

TEST: FMVSS 208 SLED TEST

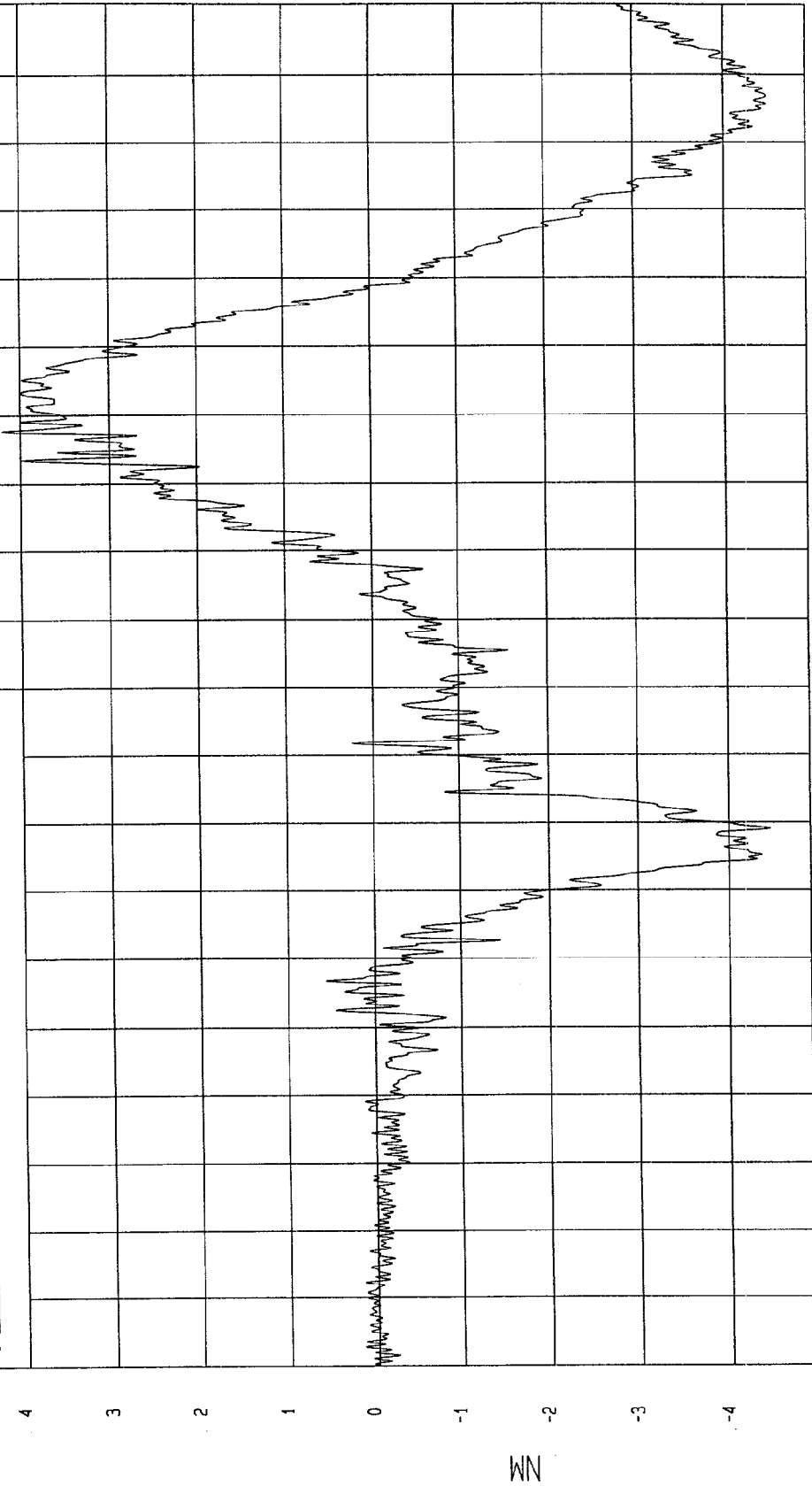
COMPONENT: 1999 PONTIAC GRAND AM CX0104

YMIN=-4.4716 NM at 185 msec

YMAX= 4.210688 NM at 137 msec

DRIVER NECK MOMENT Z

1 H9900GMF.M26 Filterclass (600)



MCA Research
01-19-1999 12:42

TIME (SECONDS)

TEST DATE: 01-19-1999

TEST: FMVSS 208 SLED TEST

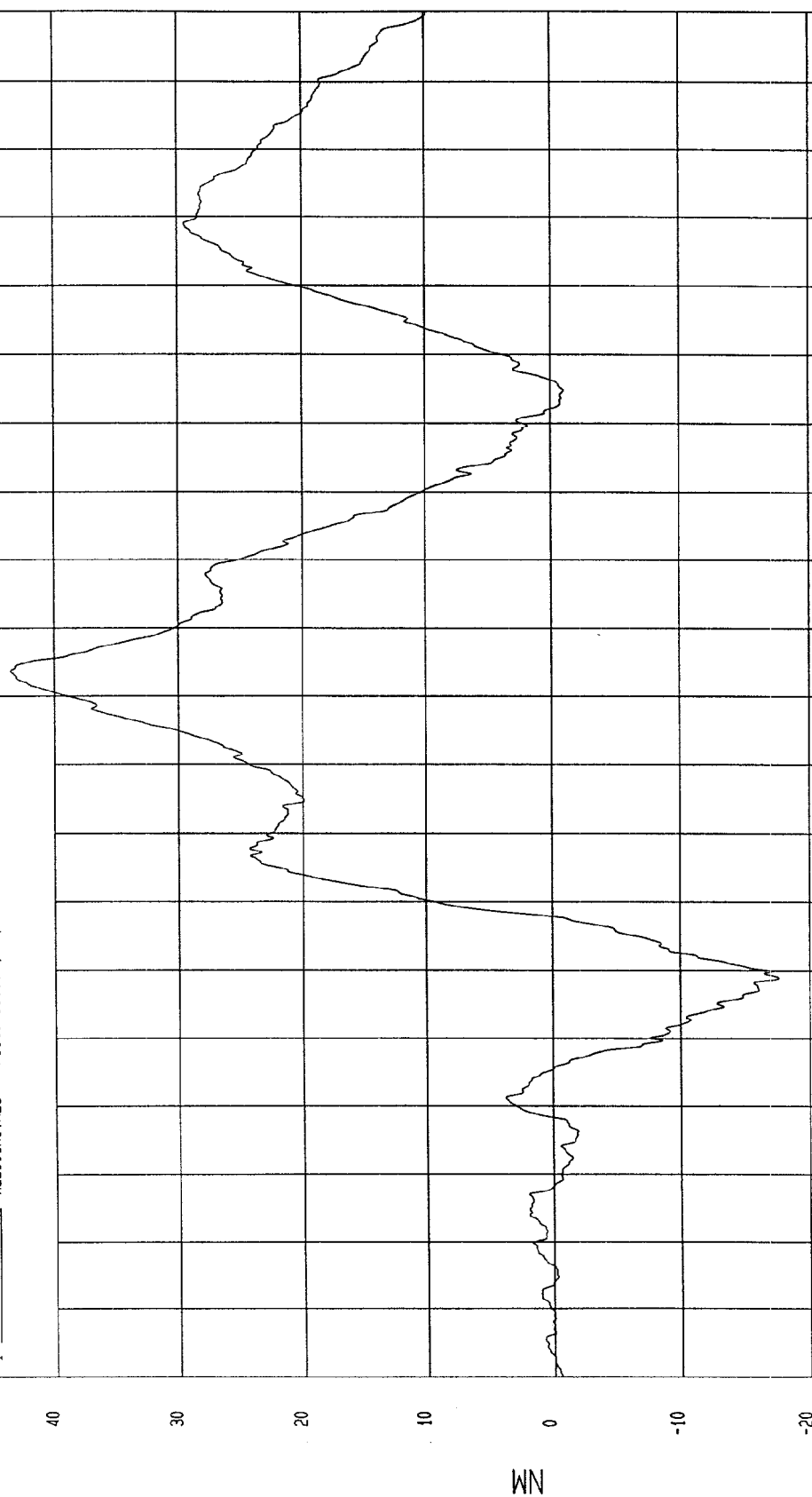
COMPONENT: 1999 PONTIAC GRAND AM CX0104

YMAX= 43.51242 NM at 103 msec

YMIN=-17.65068 NM at 58. msec

DRIVER OCCIPITAL CONDYLE MOMENT Y

1 ——— H9900640.M25 Filterclass (600)

MCA Research
01-19-1999 12:53

TIME (SECONDS)

TEST: FMVSS 208 SLED TEST

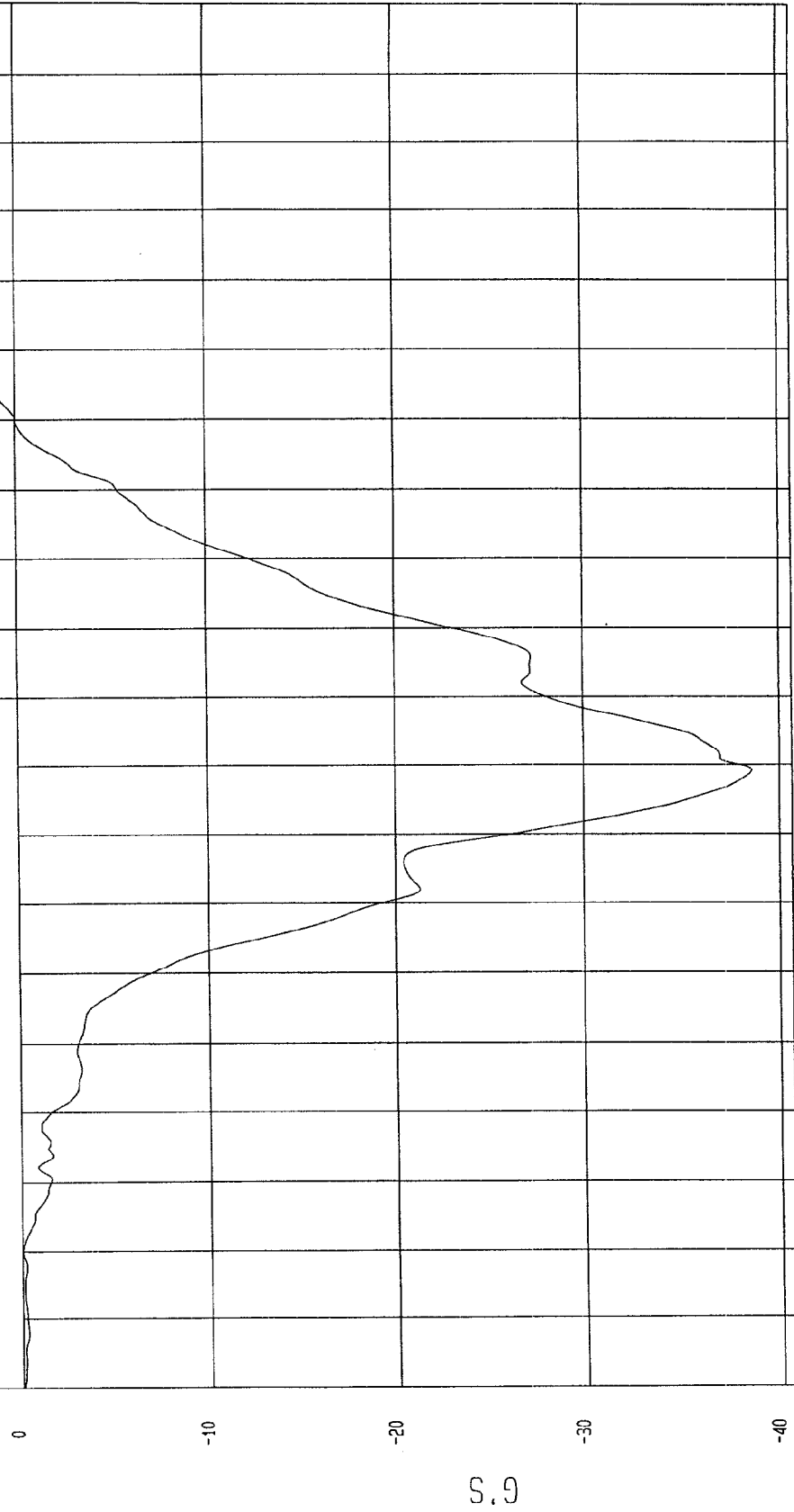
TEST DATE: 01-19-1999

COMPONENT: 1999 PONTIAC GRAND AM CX0104

YMIN=-38.59766 G'S at 89. msec YMAX= 2.36201 G'S at 151 msec

DRIVER CHEST X ACCELERATION

1 H99006AF.A12 Filterclass (180)



WCA Research
01-19-1999 12.42

TEST: FMVSS 208 SLED TEST

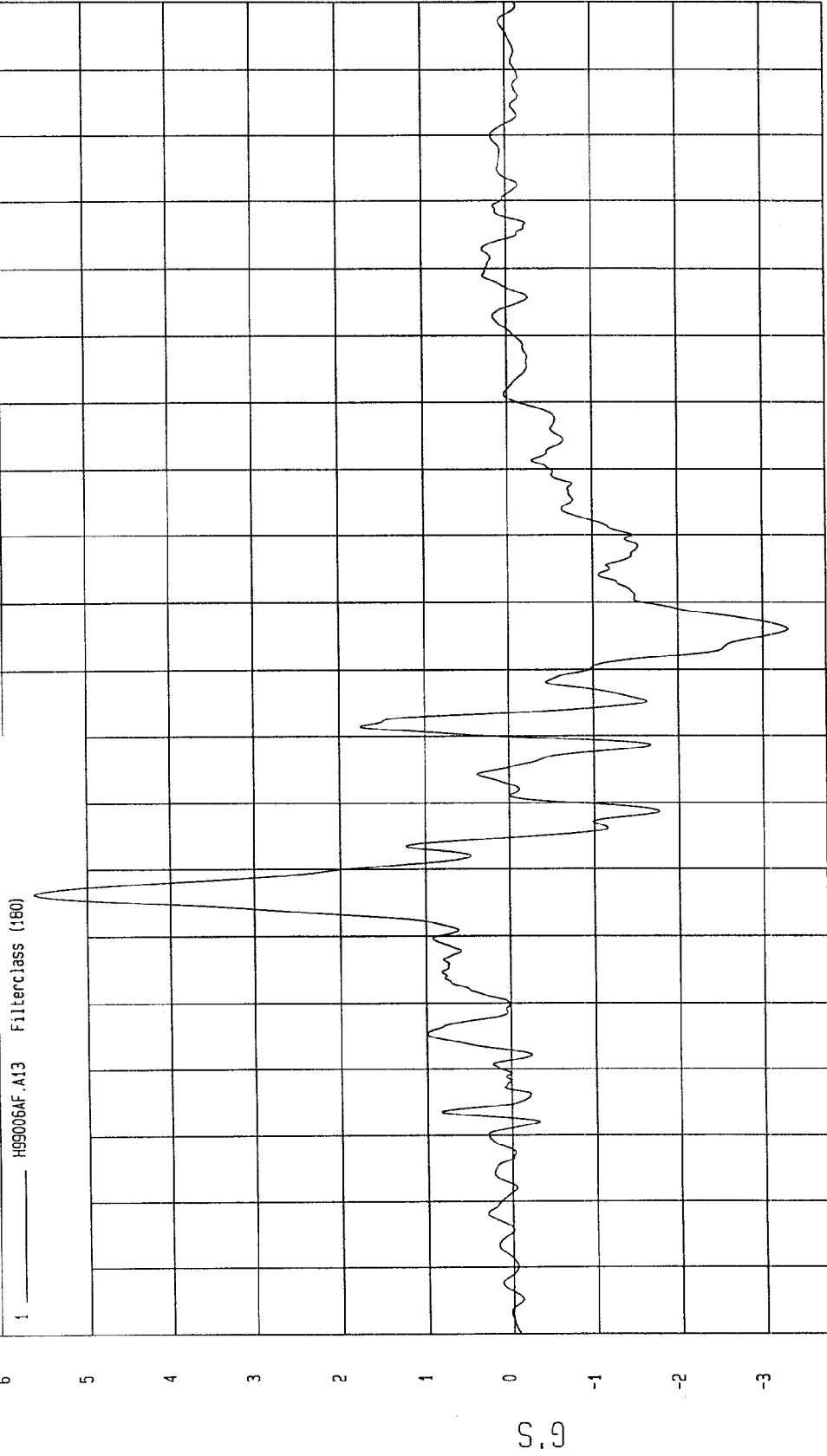
TEST DATE: 01-19-1999

COMPONENT: 1999 PONTIAC GRAND AM CX0104

YMAX= 5.628208 G'S at 56. msec

YMIN=-3.2946 G'S at 106 msec

DRIVER CHEST Y ACCELERATION



WSA Research
01-19-1999 12:42

TEST DATE: 01-19-1999

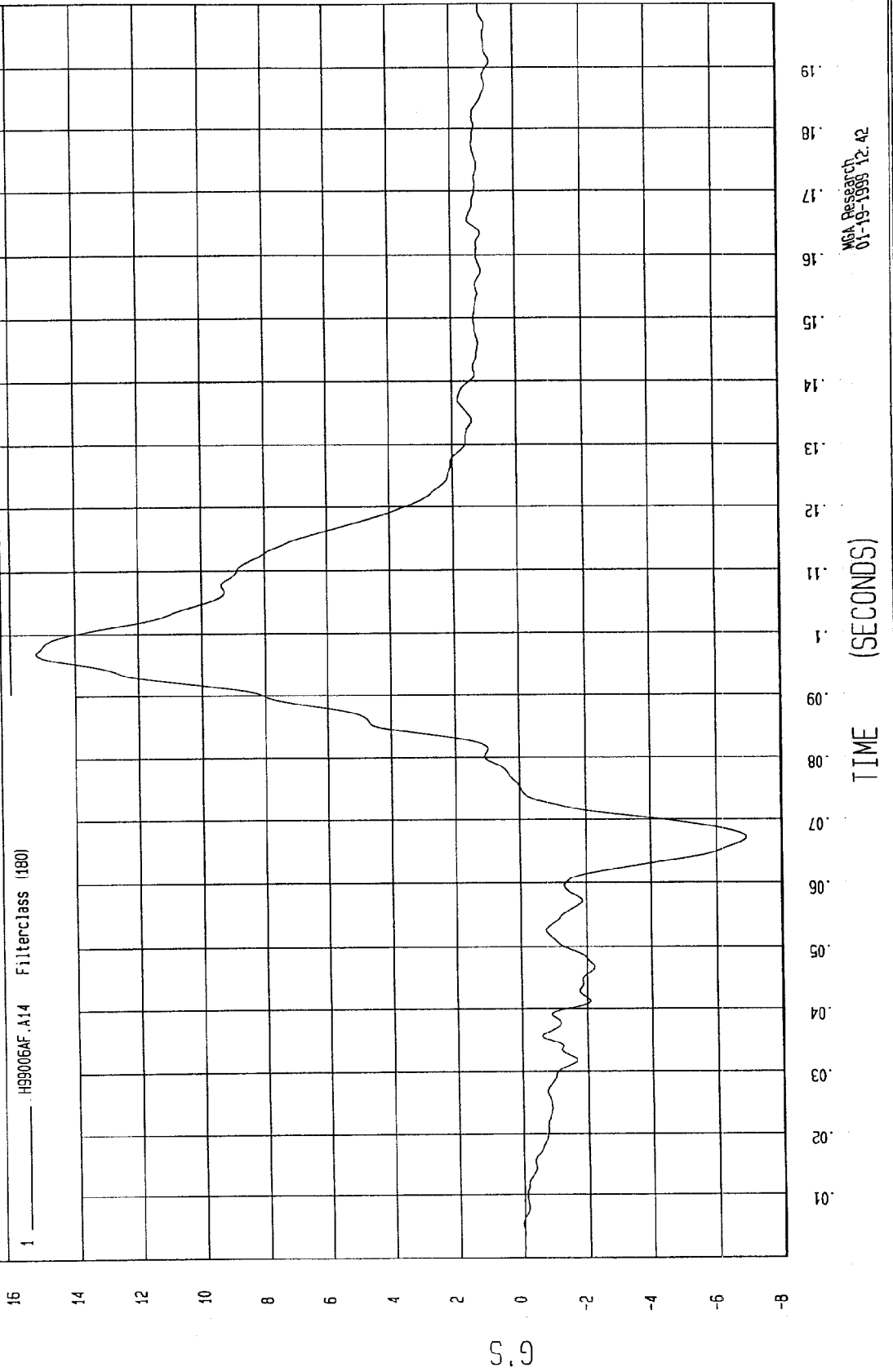
TEST: FMVSS 208 SLED TEST

COMPONENT: 1999 PONTIAC GRAND AM CX0104

YMIN=-6.927521 G'S at 67. msec

YMAX= 15.19074 G'S at 96. msec

DRIVER CHEST Z ACCELERATION



TEST DATE: 01-19-1999

TEST: FMVSS 208 SLED TEST

COMPONENT: 1999 PONTIAC GRAND AM CX0104

YMIN= 9.912907E-02 G'S at 9.9 msec

YMAX= 39.36975 G'S at 89. msec

DRIVER CHEST RESULTANT ACCELERATION

1 _____ H99005AV.A12 Filterclass (180)

40

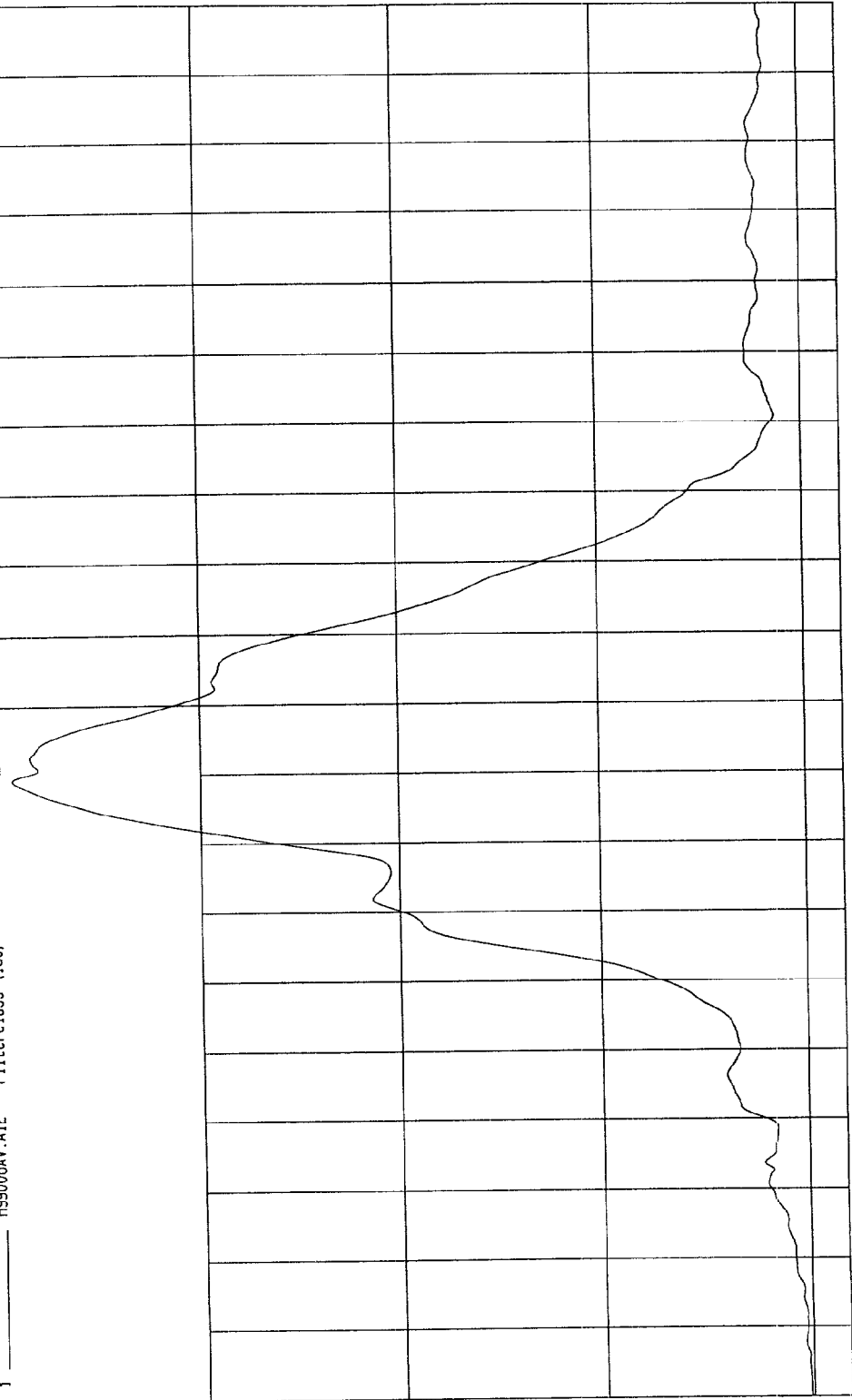
30

20

10

0

G.S



MCA Research
01-19-1999 12:42

TIME (SECONDS)

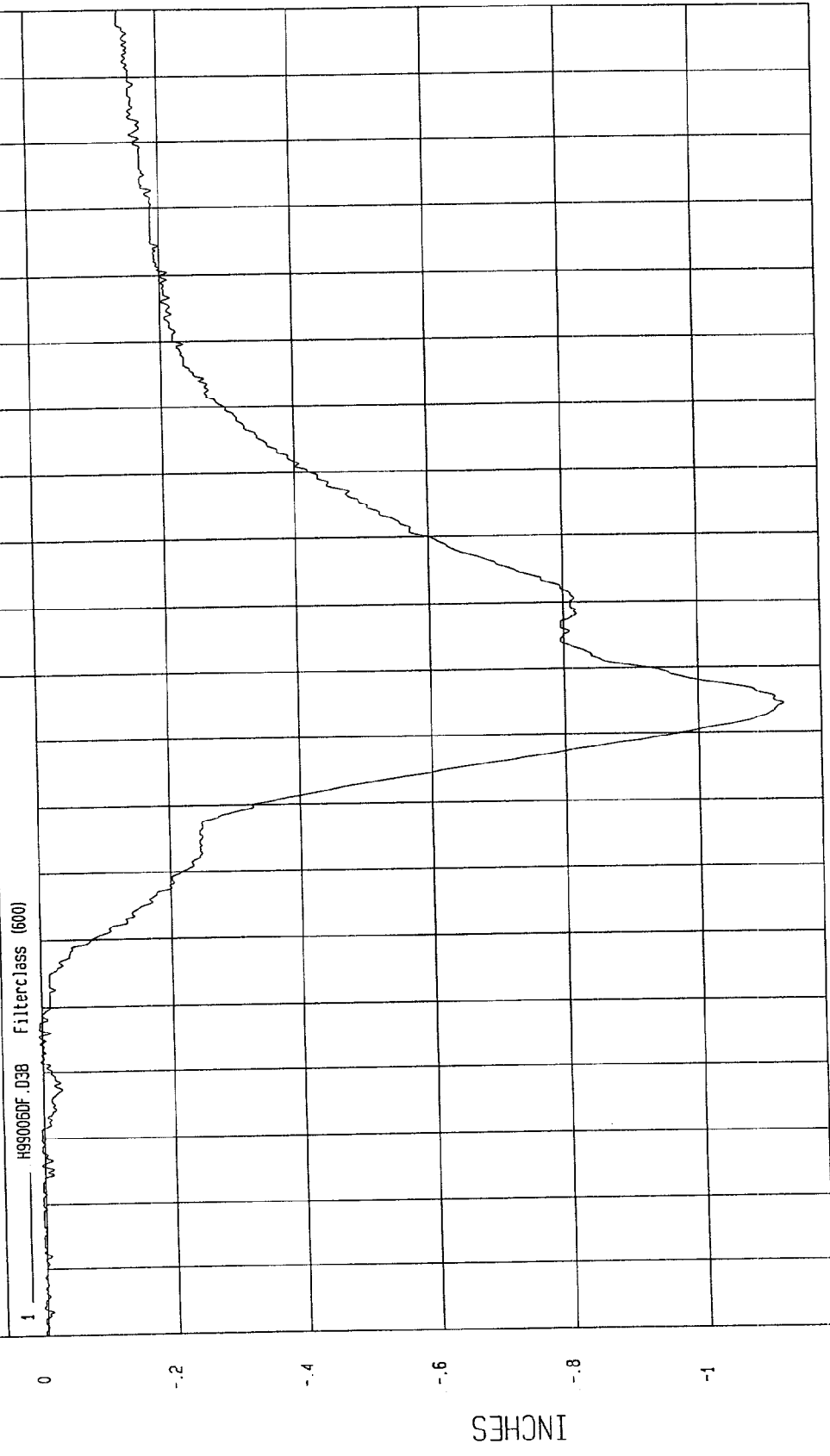
TEST DATE: 01-19-1999

TEST: FMVSS 208 SLED TEST

COMPONENT: 1999 PONTIAC GRAND AM CX0104

YMIN=-1.1263 INCHES at 94. msec YMAX= 4.994324E-03 INCHES at 4.1 msec

DRIVER CHEST COMPRESSION



MSA Research
01-19-1999 12:42

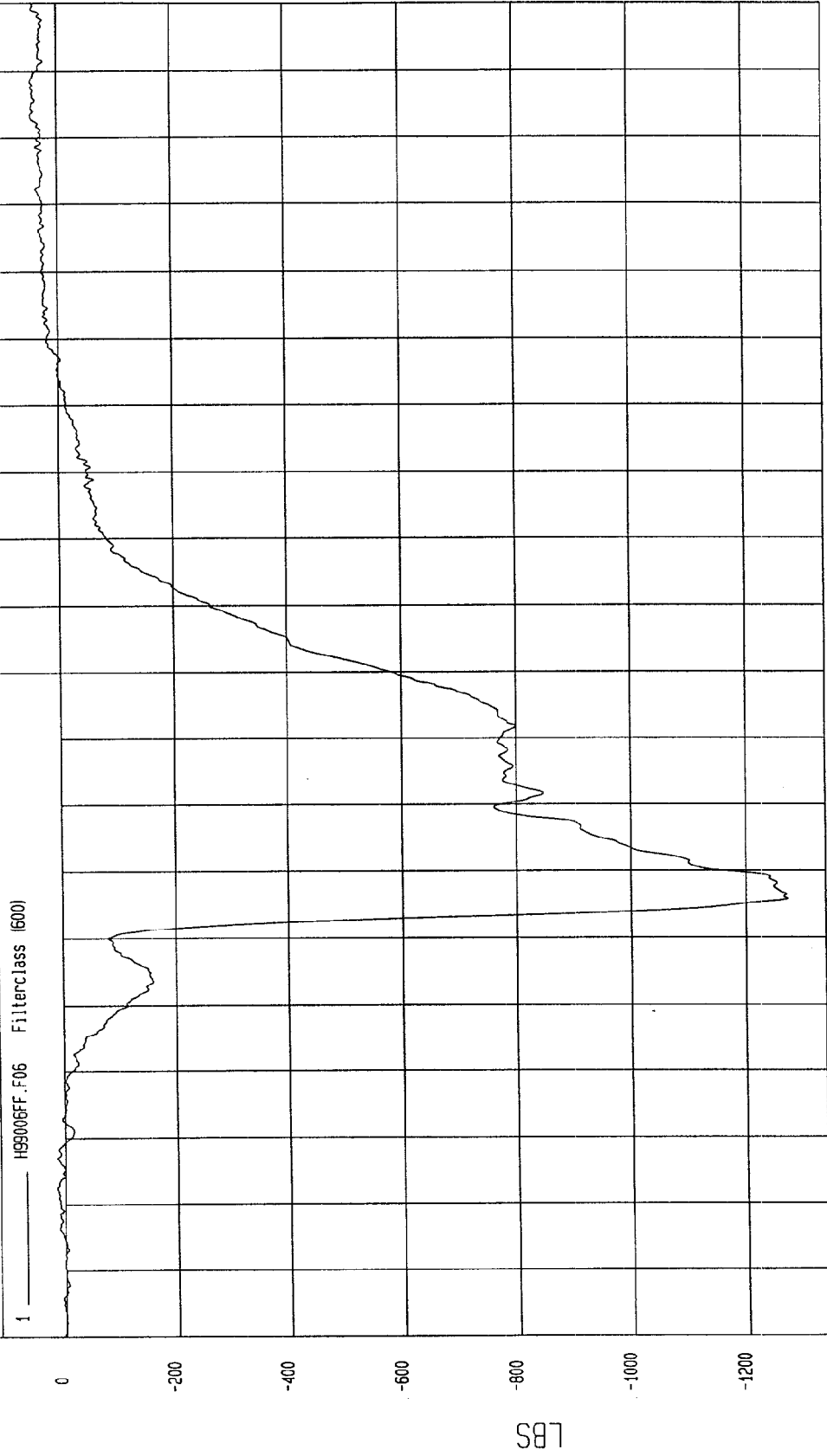
TEST: FMVSS 208 SLED TEST

TEST DATE: 01-19-1999

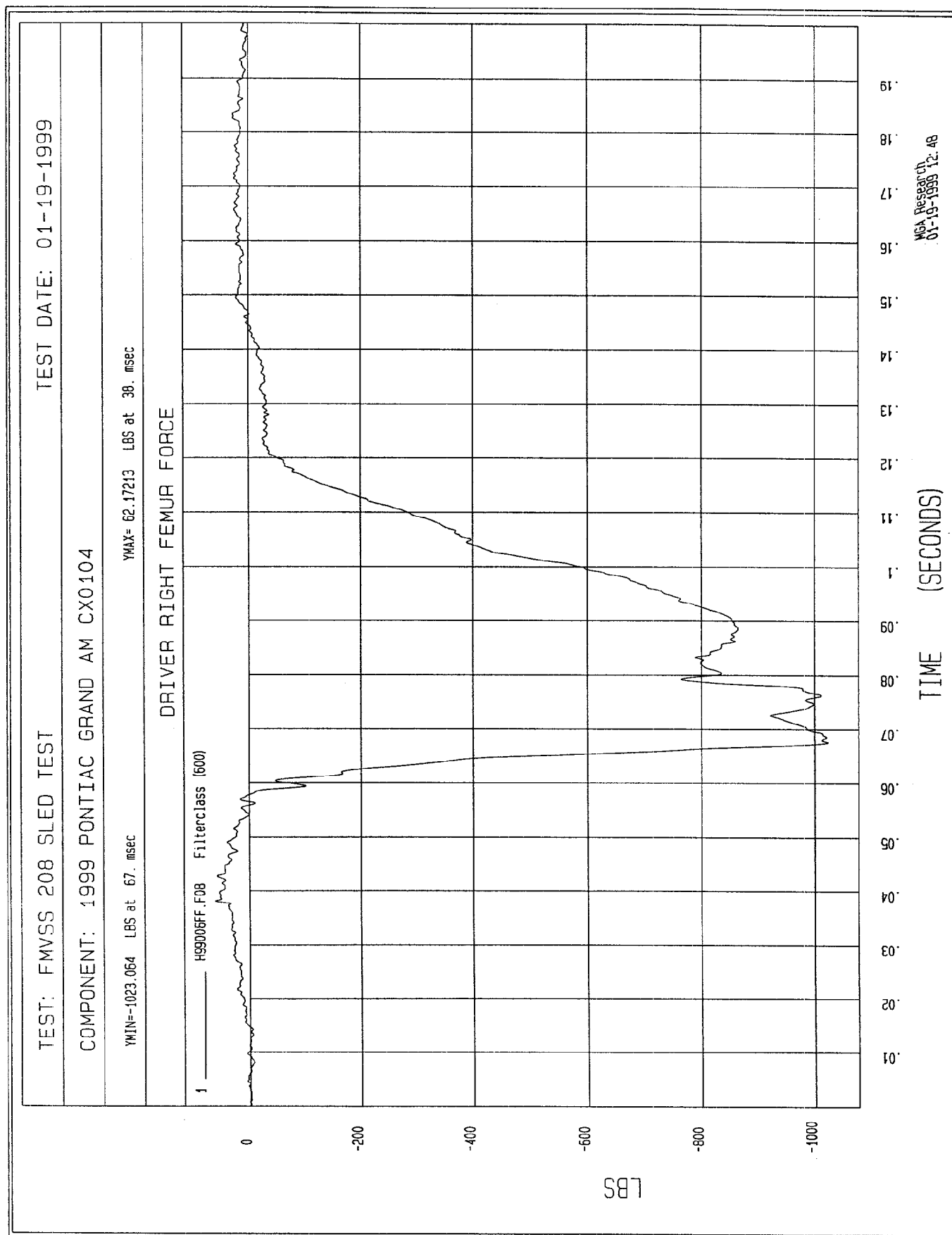
COMPONENT: 1999 PONTIAC GRAND AM CX0104

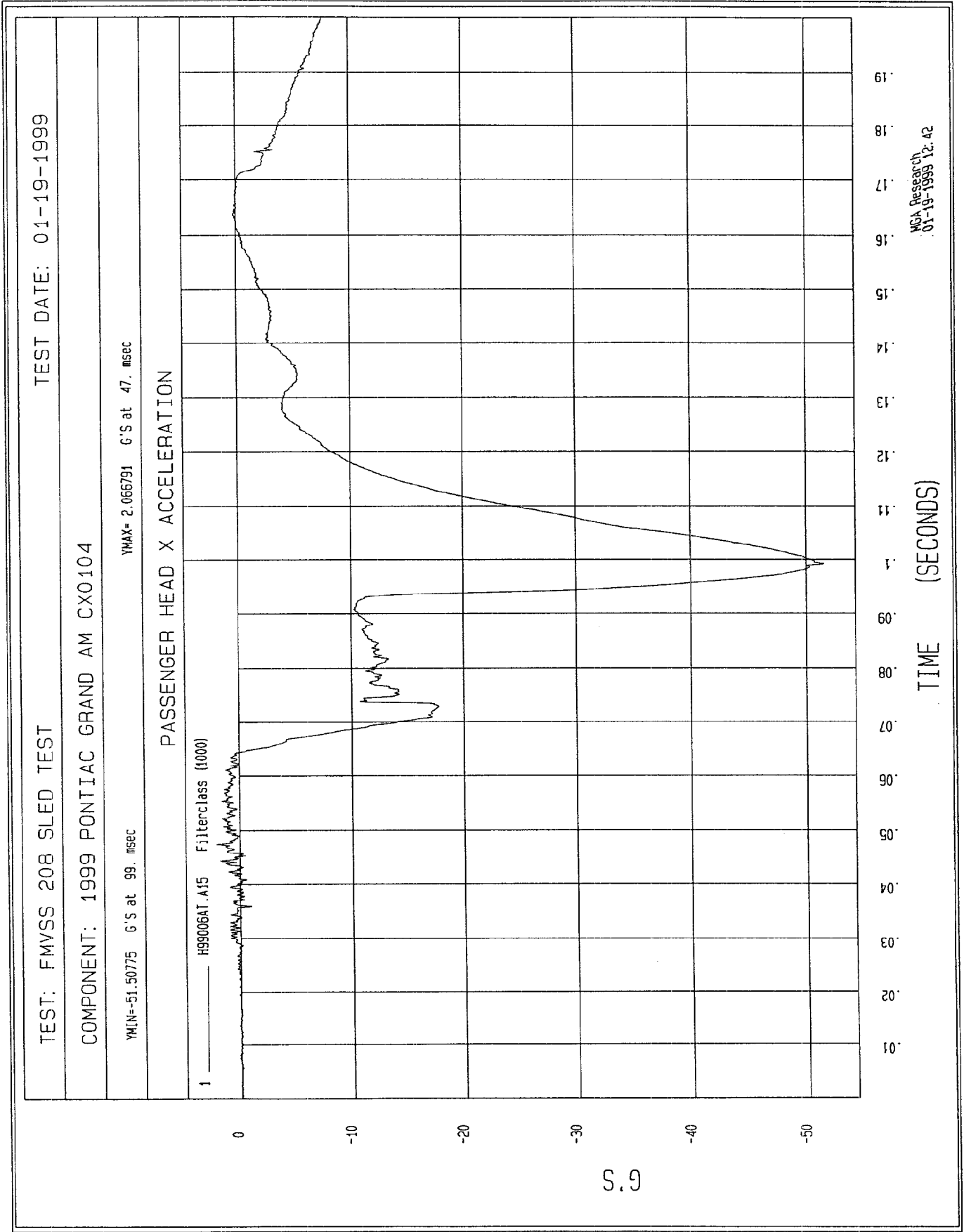
YMIN=-1271.452 LBS at 65. msec YMAX= 45.76162 LBS at 188 msec

DRIVER LEFT FEMUR FORCE



MCA Research
01-19-1999 12:47





S.9

TEST: FMVSS 208 SLED TEST

TEST DATE: 01-19-1999

COMPONENT: 1999 PONTIAC GRAND AM CX0104

YMIN=-12.99284 G'S at 106 msec

YMAX= 28.93218 G'S at 97. msec

PASSENGER HEAD Z ACCELERATION

1 _____ H99006AT.A17 Filterclass (1000)

30

20

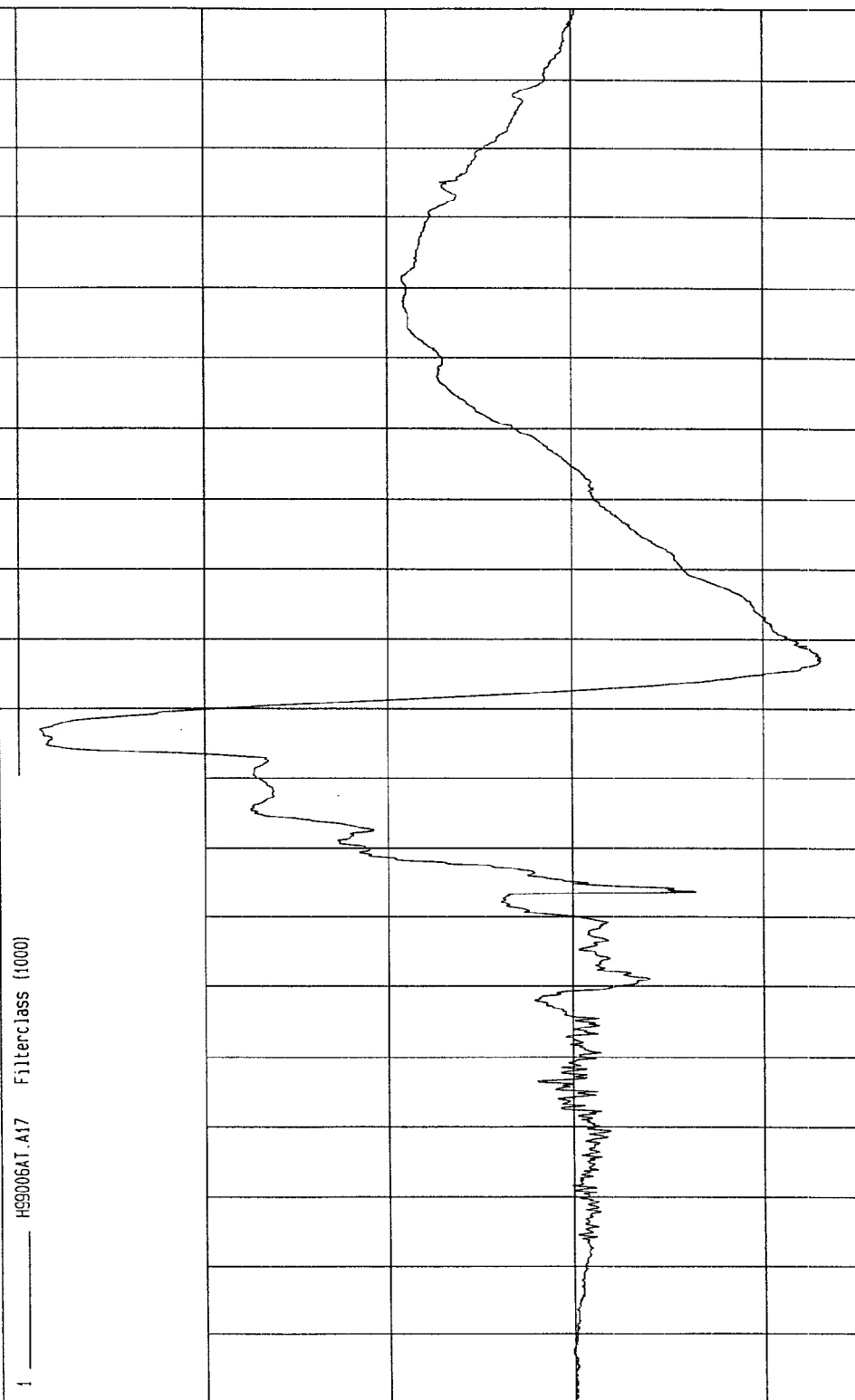
10

0

-10

G'S

TIME (SECONDS)

WCA Research
01-19-1999 12:43

TEST DATE: 01-19-1999

TEST: FMVSS 208 SLED TEST

COMPONENT: 1999 PONTIAC GRAND AM CX0104

YMIN= 5.10883E-02 G'S at 2.2 msec

YMAX= 59.69537 G'S at 98. msec

PASSENGER HEAD RESULTANT ACCELERATION

1 ——— H99006AV.A15 Filterclass (1000)

60

50

40

30

20

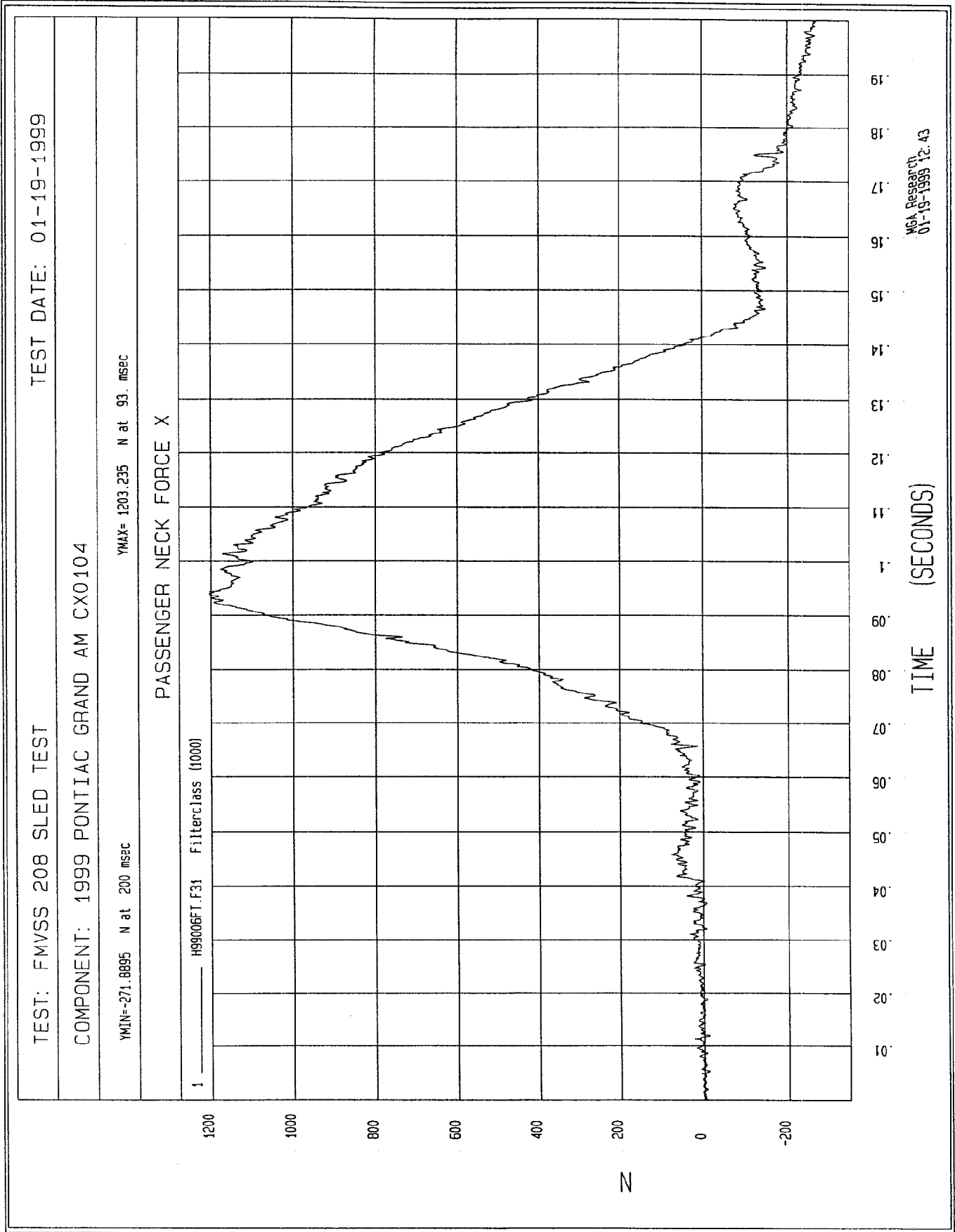
10

0

G.S

TIME (SECONDS)

MCA Research
01-19-1999 12:43



TEST DATE: 01-19-1999

TEST: FMVSS 208 SLED TEST

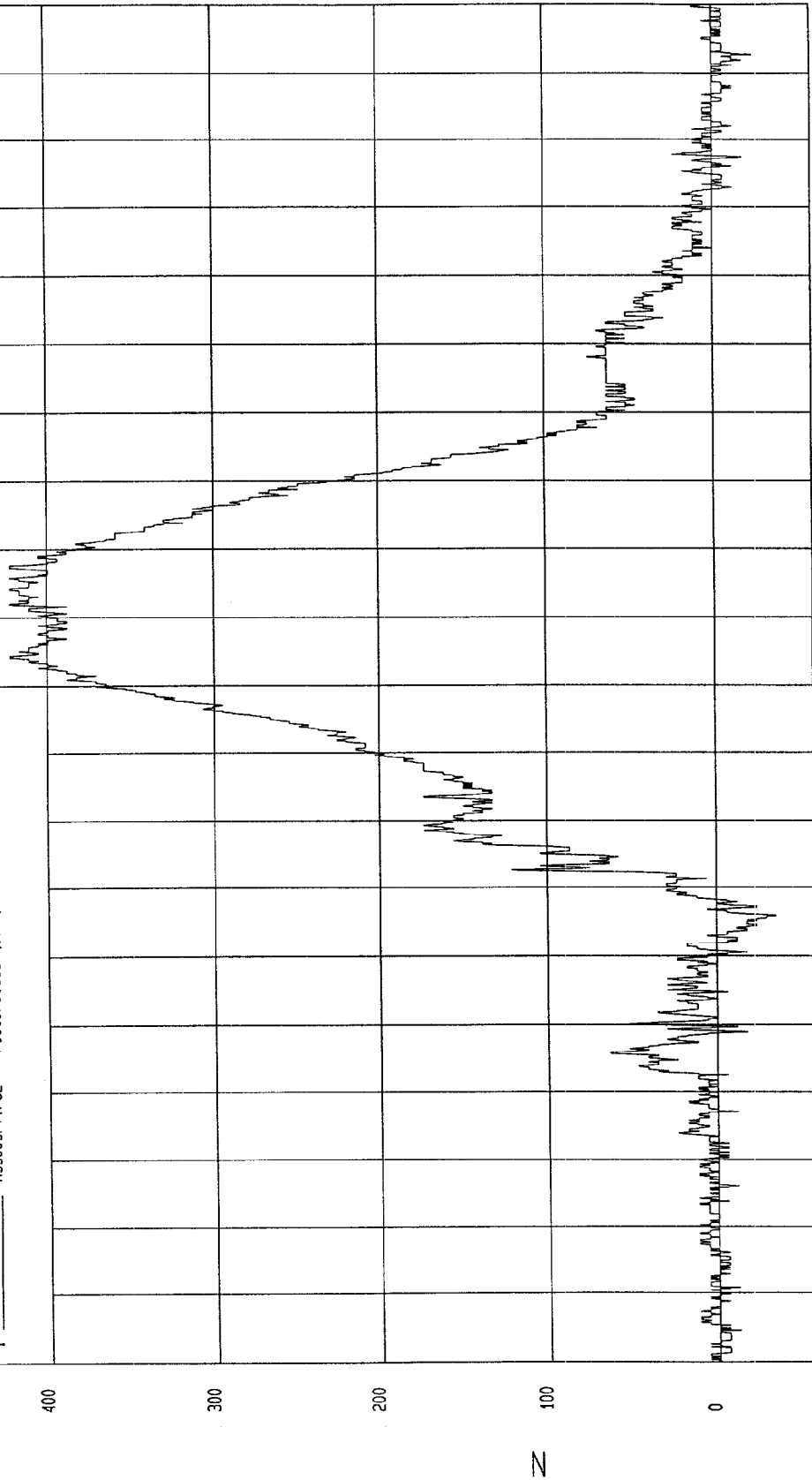
COMPONENT: 1999 PONTIAC GRAND AM CX0104

YMIN=-34.91463 N at 65. msec

YMAX= 422.4846 N at 104 msec

PASSENGER NECK FORCE Y

1 H99006FT.F32 Filterclass (1000)



MCA Research
01-19-1999 12:43

TEST DATE: 01-19-1999

TEST: FMVSS 208 SLED TEST

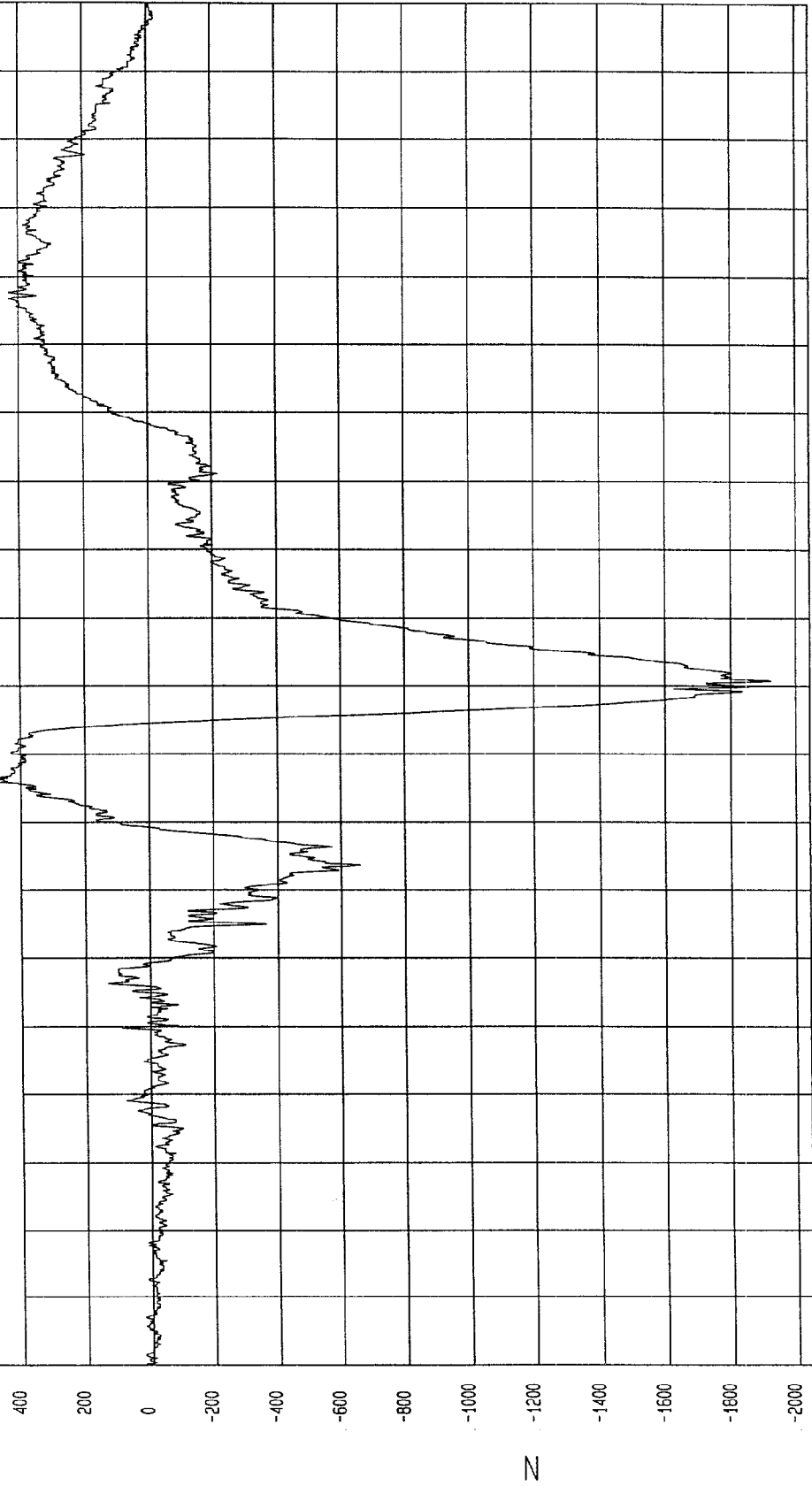
COMPONENT: 1999 PONTIAC GRAND AM CX0104

YMIN=-1923.219 N at 100 msec

YMAX= 462.3987 N at 85. msec

PASSENGER NECK FORCE Z

1 ——— H99006FT.F33 Filterclass (1000)



MCA Research
01-19-1999 12:43

TEST DATE: 01-19-1999

TEST: FMVSS 208 SLED TEST

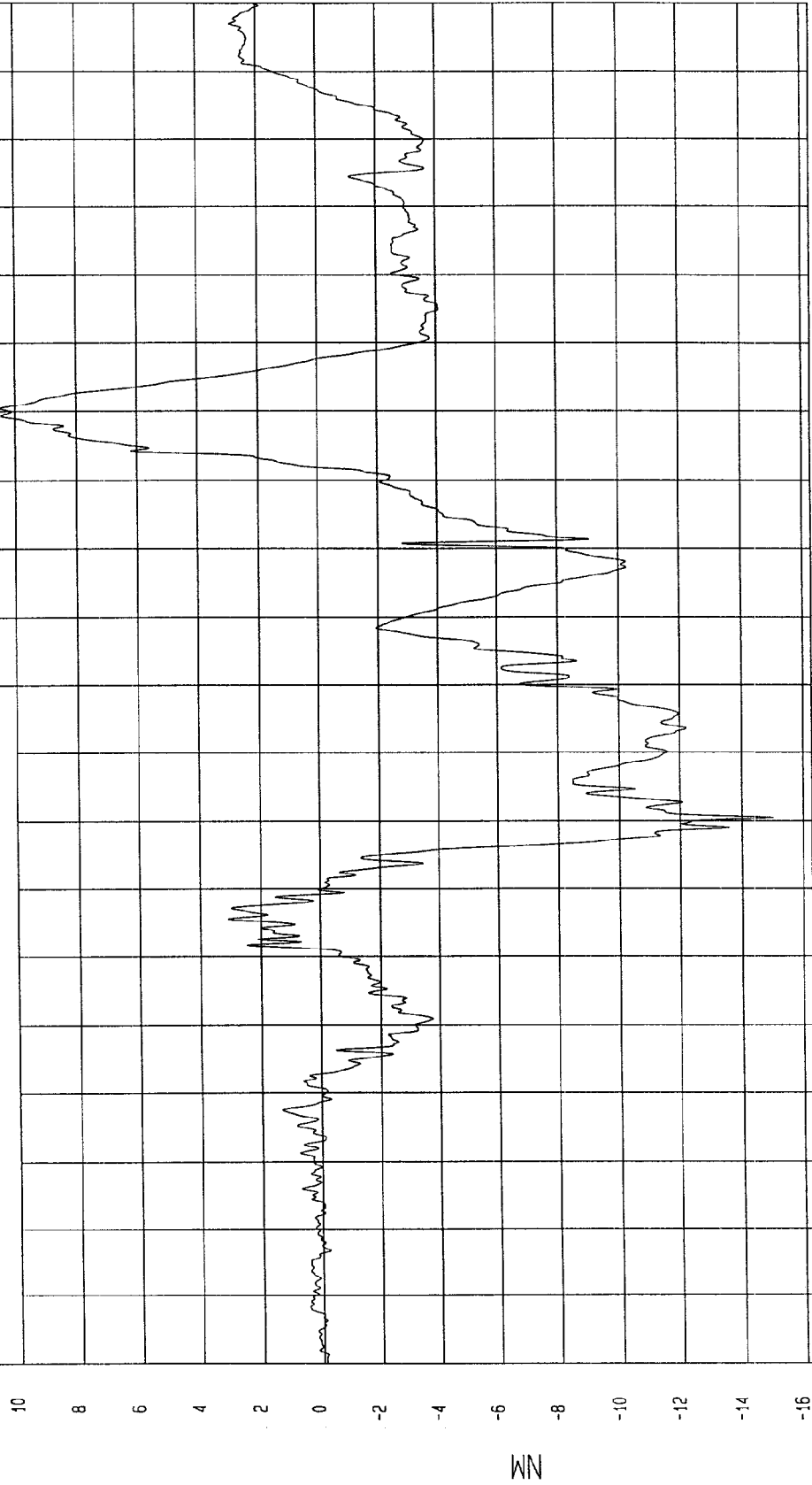
COMPONENT: 1999 PONTIAC GRAND AM CX0104

YMAX= 10.49733 NM at 140 msec

YMIN=-15.01095 NM at 80. msec

PASSENGER NECK MOMENT X

1 H99006MF.M34 Filterclass :600



WCA Research
01-19-1999 12:43

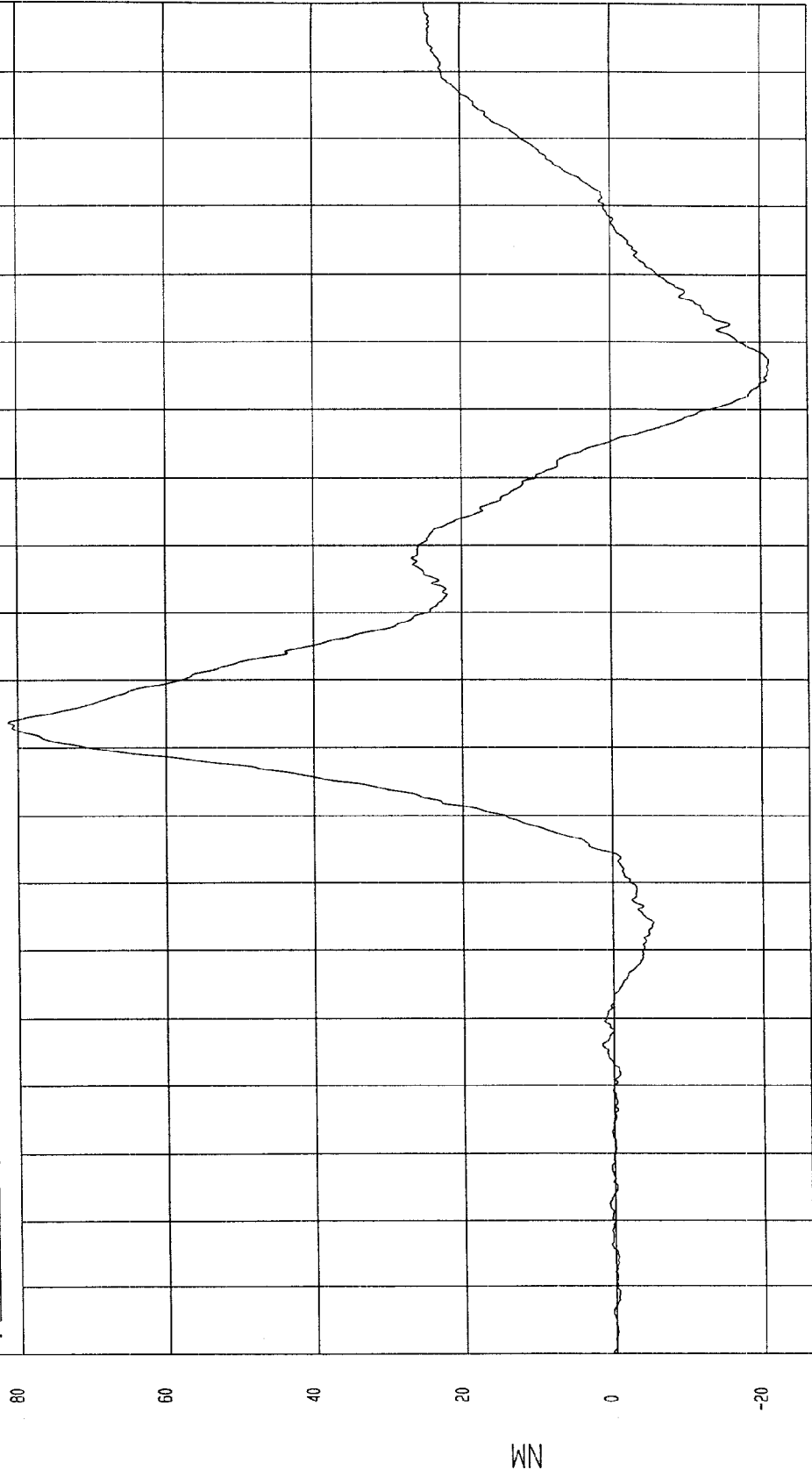
TEST: FMVSS 208 SLED TEST TEST DATE: 01-19-1999

COMPONENT: 1999 PONTIAC GRAND AM CX0104

YMIN=-21.15656 NM at 147 msec YMAX= 81.32168 NM at 93. msec

PASSENGER NECK MOMENT Y

1 H99006MF M35 Filterclass (600)



MCA Research
01-19-1999 12.43

TEST DATE: 01-19-1999

TEST: FMVSS 208 SLED TEST

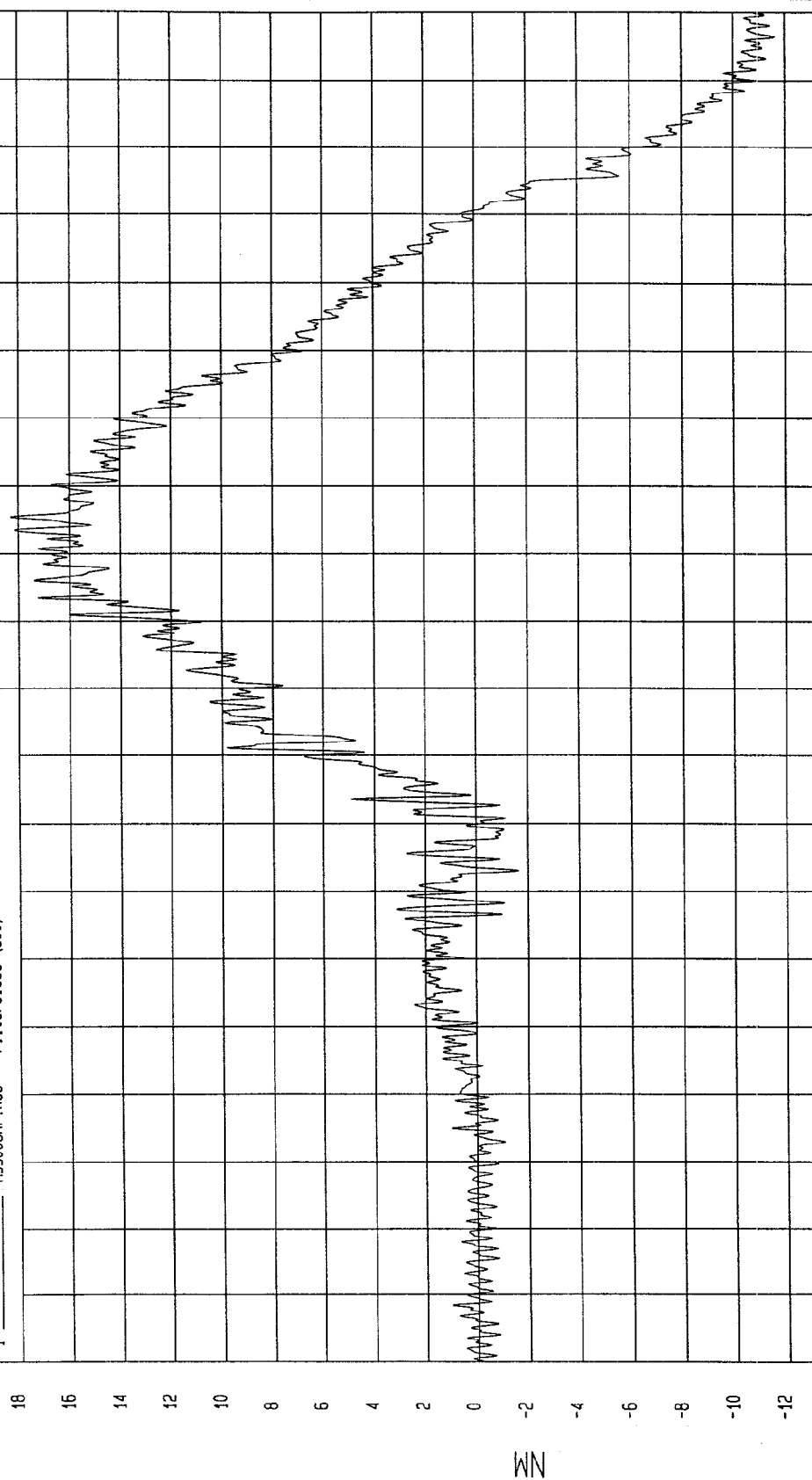
COMPONENT: 1999 PONTIAC GRAND AM CX0104

YMAX= 18.31244 NM at 125 msec

YMIN=-11.62204 NM at 195 msec

PASSENGER NECK MOMENT Z

1 H99006MF.M36 Filterclass (600)

MGA Research
01-19-1999 12:43

TIME (SECONDS)

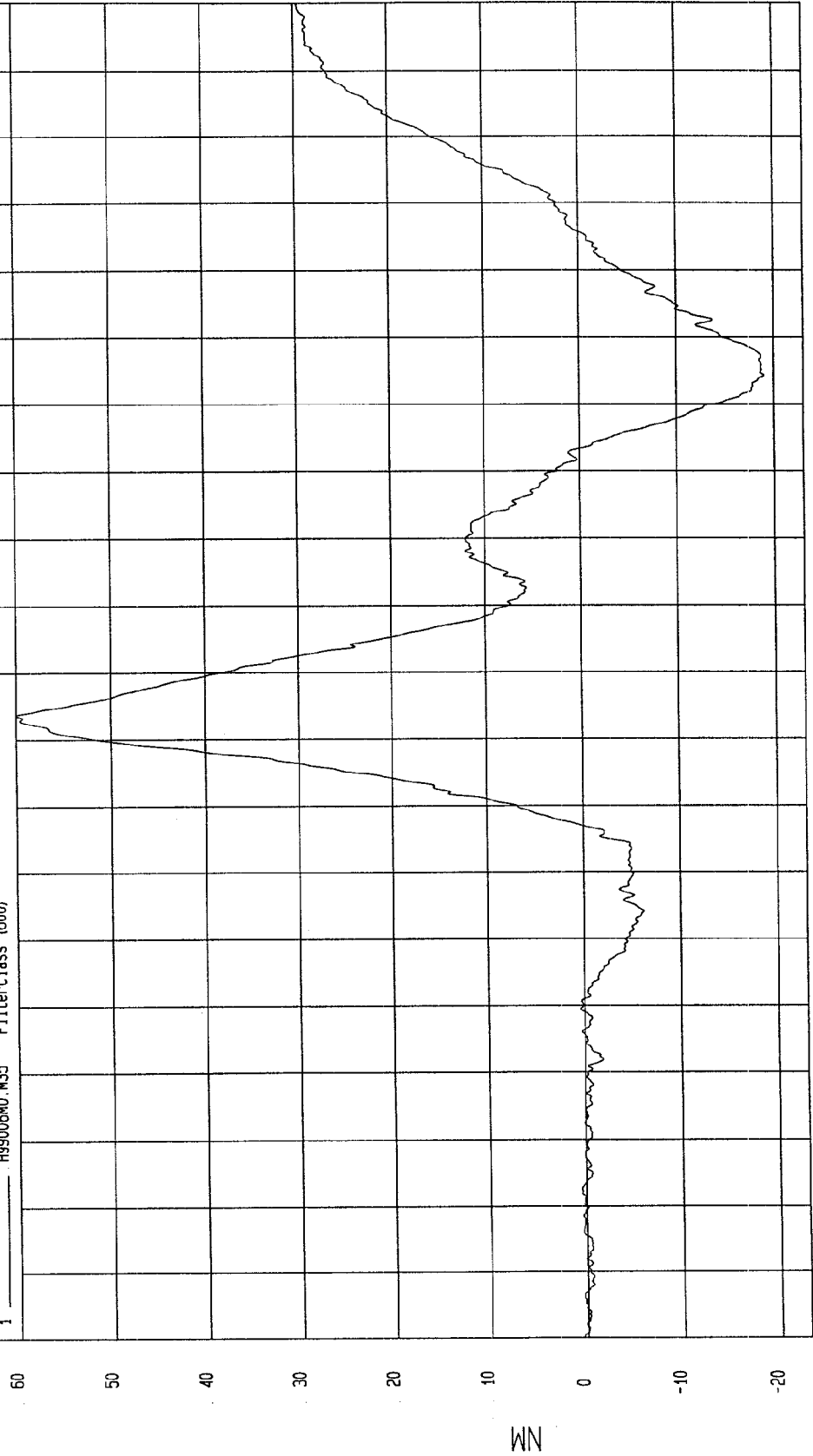
TEST: FMVSS 208 SLED TEST TEST DATE: 01-19-1999

COMPONENT: 1999 PONTIAC GRAND AM CX0104

YMIN=-19.03546 NM at 144 msec YMAX= 60.03251 NM at 93 msec

PASSENGER OCCIPITAL CONDYLE MOMENT Y

1 H9900640.M35 Filterclass (600)



MGA Research
01-19-1999 12:53

TIME (SECONDS)

TEST: FMVSS 208 SLED TEST

TEST DATE: 01-19-1999

COMPONENT: 1999 PONTIAC GRAND AM CX0104

YMIN=-33.87806 G'S at 93. msec

YMAX= 1.650168 G'S at 193 msec

PASSENGER CHEST X ACCELERATION

1 ——— H99006AF A27 Filterclass (180)

2

0

-2

-4

-6

-8

-10

-12

-14

-16

-18

-20

-22

-24

-26

-28

-30

-32

-34

G.S

TIME (SECONDS)

WCA Research
01-19-1999 12.44

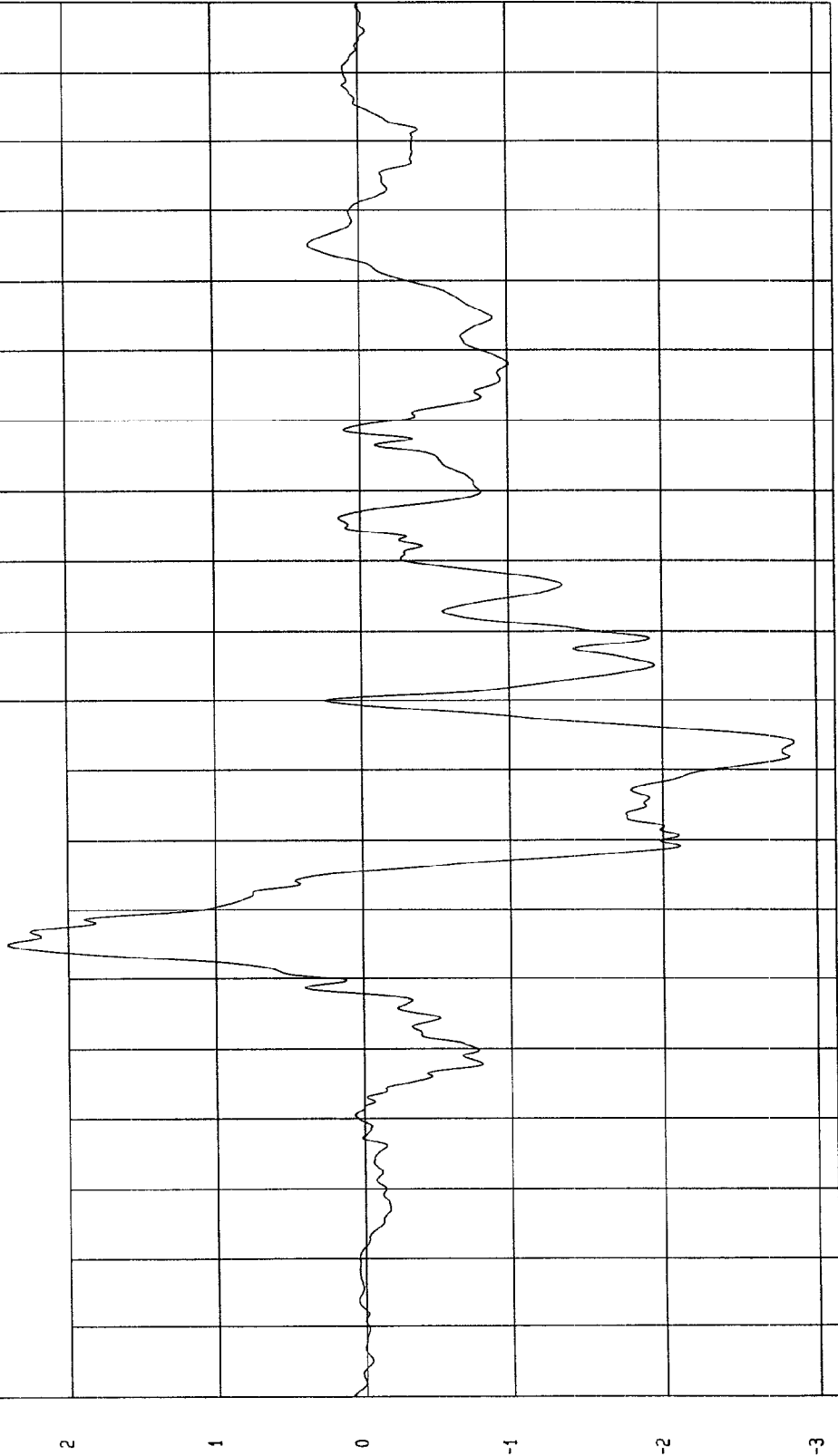
TEST: FMVSS 208 SLED TEST TEST DATE: 01-19-1999

COMPONENT: 1999 PONTIAC GRAND AM CX0104

YMIN=-2.059662 G'S at 94. msec YMAX= 2.40388 G'S at 65. msec

PASSENGER CHEST Y ACCELERATION

1 H99006AF.A28 Filterclass (180)



MCA Research
01-19-1999 12:44

TEST: FMVSS 208 SLED TEST

TEST DATE: 01-19-1999

COMPONENT: 1999 PONTIAC GRAND AM CX0104

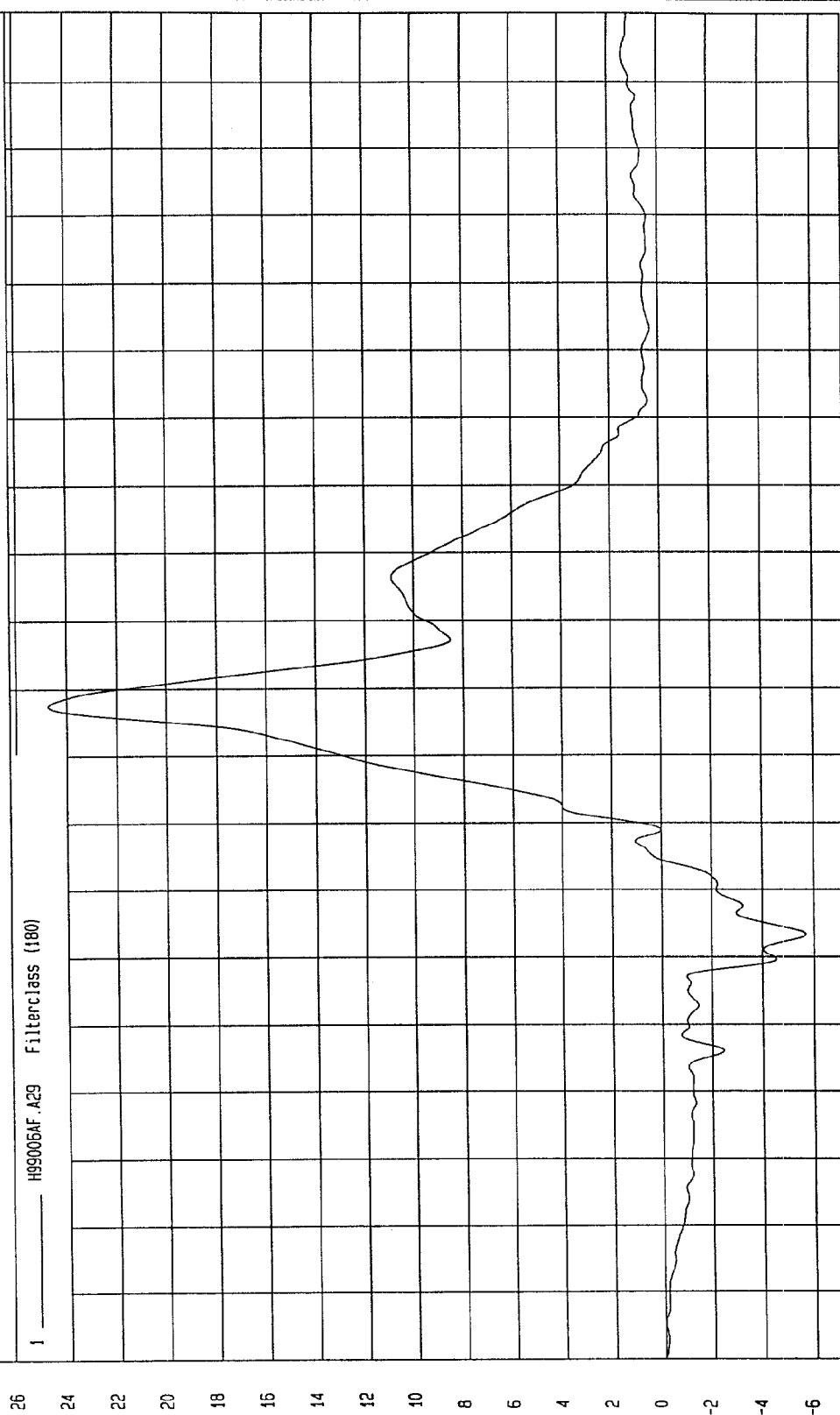
YMIN=-5.687851 G'S at 53. msec

YMAX= 24.72553 G'S at 97. msec

PASSENGER CHEST Z ACCELERATION

1 _____ H99005AF.A29 Filterclass (180)

G.S

MCA Research
01-19-1999 12.44

TEST DATE: 01-19-1999

TEST: FMVSS 208 SLED TEST

COMPONENT: 1999 PONTIAC GRAND AM CX0104

YMIN= .1009787 G'S at 5 msec

YMAX= 38.56858 G'S at 96. msec

PASSENGER CHEST RESULTANT ACCELERATION

1 H99006AV.A27 Filterclass (180)

40

30

20

10

0

G.S

.19

.18

.17

.16

.15

.14

.13

.12

.11

.1

.09

.08

.07

.06

.05

.04

.03

.02

.01

MCA Research
01-19-1999 12:44

TIME (SECONDS)

TEST DATE: 01-19-1999

TEST: FMVSS 208 SLED TEST

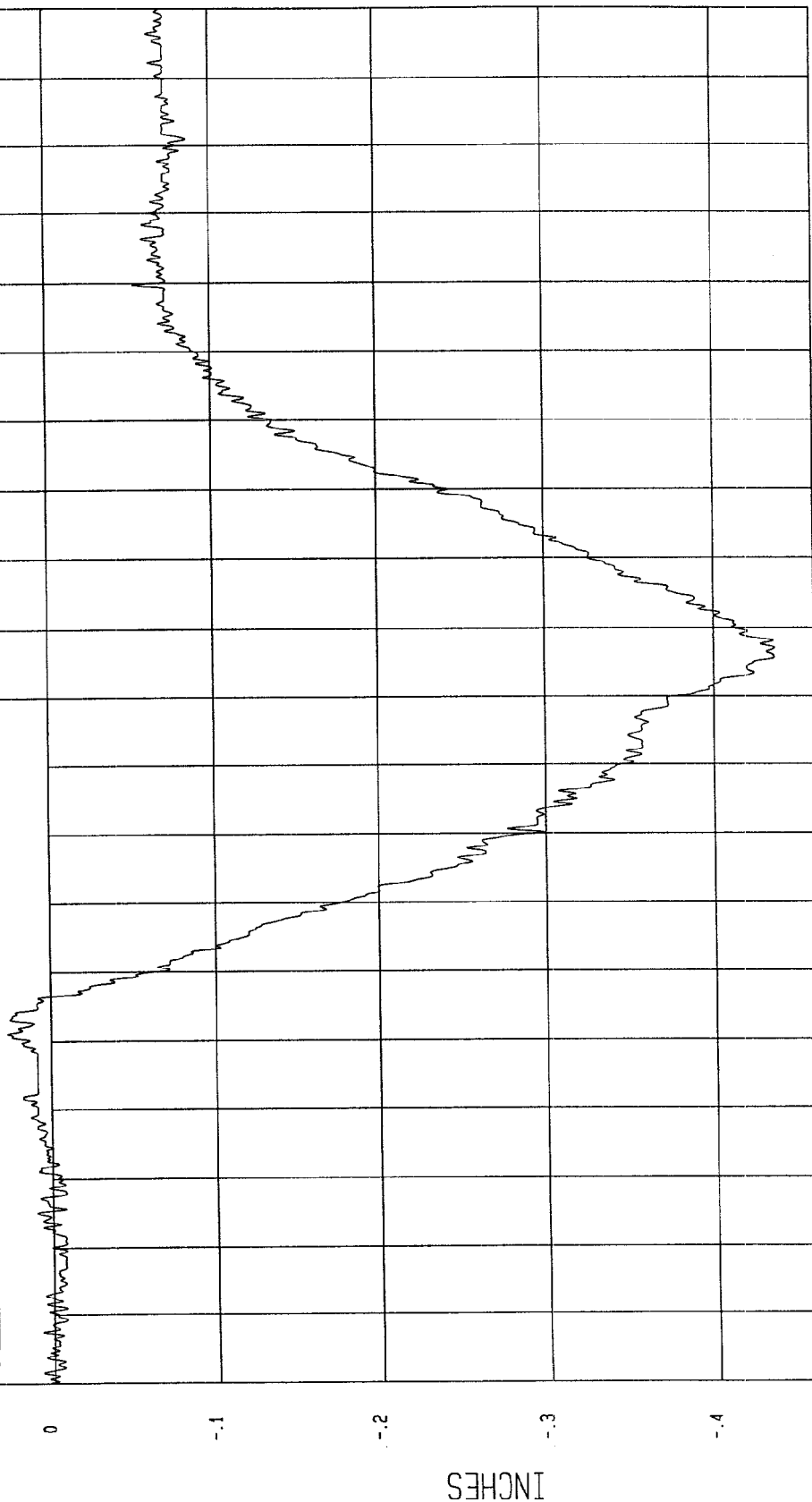
COMPONENT: 1999 PONTIAC GRAND AM CX0104

YMIN=-.4360835 INCHES at 107 msec

YMAX= 2.67135E-02 INCHES at 51. msec

PASSENGER CHEST COMPRESSION

1 — H990050F.039 Filterclass (500)

MCA Research
01-19-1999 12.44

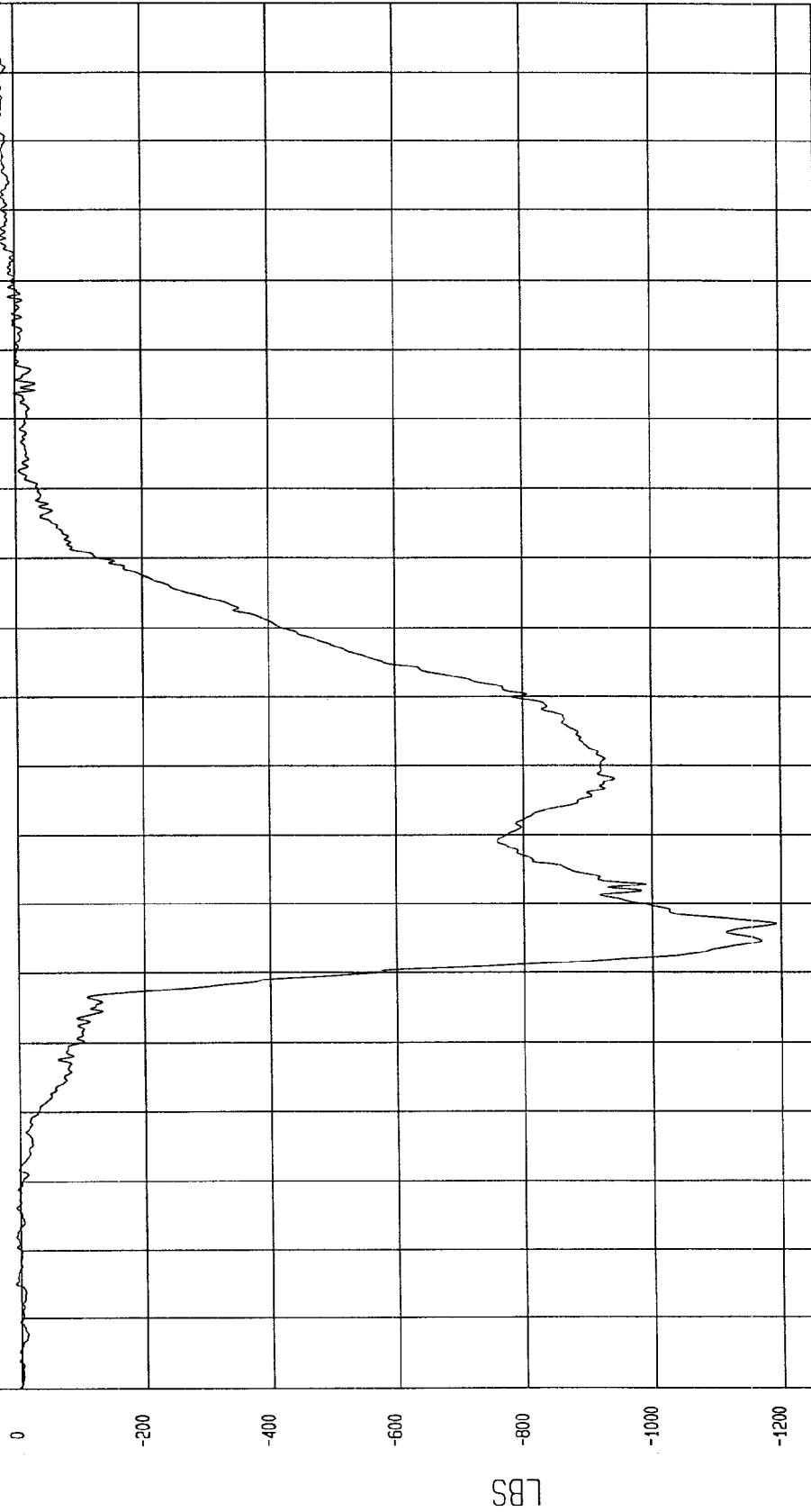
TEST: FMVSS 208 SLED TEST TEST DATE: 01-19-1999

COMPONENT: 1999 PONTIAC GRAND AM CX0104

YMIN=-1193.058 LBS at 67. msec YMAX= 39.72414 LBS at 199 msec

PASSENGER LEFT FEMUR FORCE

1 H99006FF.F18 Filterclass (600)



MCA Research
01-19-1999 12.44

TEST: FMVSS 208 SLED TEST TEST DATE: 01-19-1999

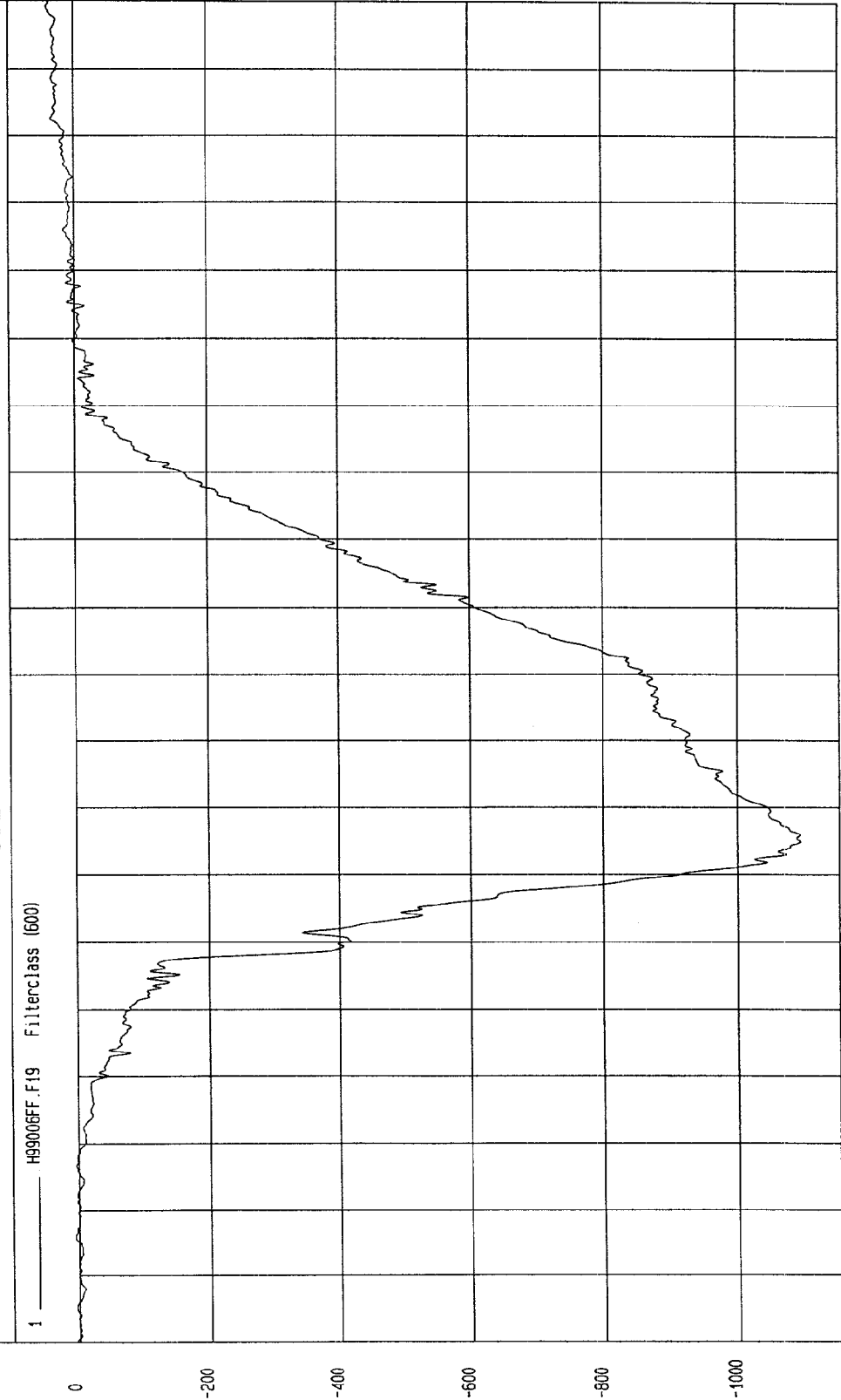
COMPONENT: 1999 PONTIAC GRAND AM CX0104

YMIN=-1093.466 LBS at 74. msec YMAX= 41.76388 LBS at 195 msec

PASSENGER RIGHT FEMUR FORCE

1 H99006FF.F19 Filterclass (600)

LBS



TIME (SECONDS)

MGA Research
01-19-1999 12: 44

APPENDIX C
MANUFACTURER'S VEHICLE INFORMATION

NHTSA IR: NSA-31CCa
OA:208980925J
1999 Grand AM

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 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 with 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.

Since the subject vehicle's driver's and passenger's air bag restraint system are installed to meet the requirements of S13, no response is required.

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

Question 2

State when the air bag was depowered. Explain what other restraint changes have been made and what other vehicle changes have been made that might have effected FMVSS 208 performance since the last FMVSS 208 compliance test.

GM Response

The 1999 Grand AM is a new model based on the platform developed for the 1997/8 Chevrolet Malibu and Oldsmobile Cutlass. It employs basically the same air bag system of these models. The Malibu and Cutlass air bag systems were reconfigured to reduced force for the 1998 model year. Inflation rates have been maintained since that time. Thus all 1999 models of the Grand AM have a reduced force air bag system.

Question 3

State if these vehicles have crash event recorders. If yes, explain any procedures needed for the sled or barrier crash event to be recorded. In addition, explain how to retrieve the crash event data from the recorder.

GM Response

The 1999 Grand AM is equipped with a crash event recorder. No special procedures are required for the sled or barrier crash event to be recorded. Data retrieval currently requires utilization of a proprietary diagnostic tool. However, consistent with discussion at a June 15, 1998 meeting involving GM, a representative from NHTSA Research, and potential tool suppliers, GM expects a vendor to begin selling systems which will enable the downloading of EDR data into a laptop computer early in 1999.

**NHTSA IR: NSA-31CCa
OA:208980925J
1999 Grand AM**

Question 4

If the vehicle was certified with unrestrained dummies to meet the requirements of S13, describe how to disconnect the air bags from the 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 and the system used to trigger the air bag.

GM Response

Sled tests used to meet the requirements of S13 were performed on a sled buck, in which the air bags were never connected to vehicle sensors. Air bags for full scale tests can be electrically disconnected from the vehicle harness and a separate electrical harness can be attached directly to the air bags, specifically for test deployment. For the 1999 Grand AM model, the battery should be disconnected for at least one hour before the air bag module harness is disconnected. The harness can be found at the base of the steering column for the driver air bag and under the right instrument panel lower hush panel for the passenger air bag. The harnesses are bright yellow and connect directly to the respective driver and passenger air bags.

For GM's sled testing, the air bags are powered and activated by a remote system whether a full vehicle or a sled buck is used. This remote 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 the interconnect of electronic wiring. The air bag control system is programmed to activate the air bag as follows;

The FMVSS 208 requirement states that the air bag "is to be activated at $20 \text{ ms} \pm 2 \text{ ms}$ 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.

Question 5

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

1999 Grand Am models are not equipped with tension relieving devices.

Question 6

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

GM Response

Moveable windows on FMVSS 208 certification barrier tests for 1999 Grand Am Models were fully open to facilitate camera coverage. For sled tests, to facilitate camera coverage, there were no side doors present in the rigidized body used for the sled tests.

Grand Am models are not equipped with moveable vents.

NHTSA IR: NSA-31CCa
OA:208980925J
1999 Grand AM

Question 7

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

State whether the vehicle has a foot rest for the driver.

GM Response

ATTACHMENT B includes all dummy placement measurements.

This vehicle is not equipped with a driver foot rest.

Question 8

Provide the seat positioning, steering column positioning, and fuel tank data on the enclosed form. If more than one front seating configuration, steering column, or fuel tank are 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 includes vehicle test information.

Question 9

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

Grand Am models are equipped with upper adjustable seat belt anchorages for the driver and right front passenger. The nominal design position for a 50th percentile male occupant is one (1) position down from full up.

Question 10

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

NHTSA IR: NSA-31CCa
OA:208980925J
1999 Grand AM

Question 11

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 weight. However, components that have been removed during our testing include the rear bumper, spare tire, and rear deck lid. In addition, interior trim components behind the "B" pillar, including rear seats, carpeting and trim panels could be removed if necessary.

Question 12

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 requirements of S9.1.

GM Response

Attachment E includes the requested information

Question 13

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 the requirements of S9.2.

GM Response

The air bag restraints installed in this vehicle do not incorporate an explosive device to inflate the system. Therefore, no further response is required.

NHTSA IR: NSA-31CCa
OA:208980925J
1999 Grand AM

ATTACHMENT B

DUMMY PLACEMENT MEASUREMENTS

INFORMATION FOR THIS ATTACHMENT IS STILL BEING COMPILED
IT WILL BE FORWARDED AS SOON AS IT IS AVAILABLE

NHTSA IR: NSA-31CCa
OA:208980925J
1999 Grand AM

ATTACHMENT C

TEST INFORMATION & NHTSA FORM 4

TEST VEHICLE INFORMATION

Vehicle Model Year & Make: 1999 Pontiac Grand AmVehicle Model & Body Style: 4 door Sedan

1. 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°

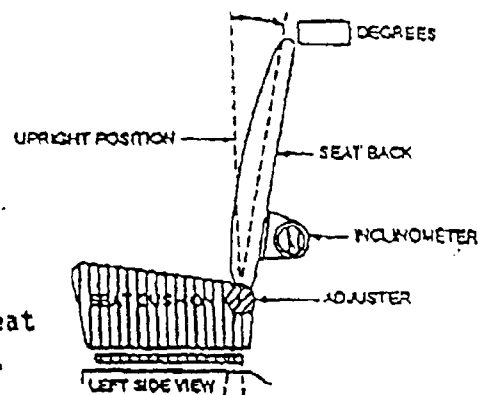
Measurement Instructions:

Measure with dummy in seat. Remove foam from seat back recliner & measure on flat surface approx. 3 notches rearward of full up.

Seat back angle for passenger's seat =

Measurement Instructions:

Right front passenger same as driver.



FRONT SEAT ASSEMBLY

2. 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 to be locked.

Positioning of the driver's seat:

Power seat - Adjust per positioning information in Standard.

Manual seat - Adjust seat full forward, mark position, then full rearward and mark position. Position seat at nearest notch to mid-point position.

Positioning of the passenger's seat (if applicable):

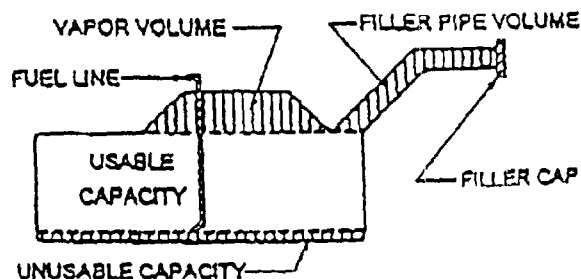
Same as driver.

3. FUEL TANK CAPACITY DATA --

- 3.1 A. "Usable Capacity" of standard equipment fuel tank = 56.8 gal/lt. liters
- B. "Usable Capacity" of optional equipment fuel tank = N/A gallons. No optional tank
- C. "Usable Capacity" of vehicle(s) used for certification testing to requirements of FMVSS 301 = 56.8 gal/lt. liters

Operational Instructions:

Remove fuel from tank. Fill tank with desired percentage of usable capacity (56.8 liters).



VEHICLE FUEL TANK ASSEMBLY

3.2 Amount of Stoddard solvent added to vehicle(s) used for certification test(s) = 53.8 ~~gallons~~ ^{C-8} liters

3.3 Is vehicle equipped with electric fuel pump?

Yes- X;

No-

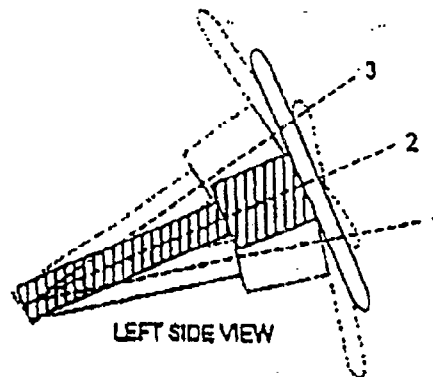
If YES, explain the vehicle operating conditions under which the fuel pump will pump fuel.
When the ignition is first turned to the "ON" position without the engine running,
the PCM activates the fuel pump relay for 2 seconds. This establishes fuel pressure
quickly. If engine is not started within 2 seconds, the PCM shuts the pump off
and waits until ignition reference pulses are present. As soon as the engine is
4. STEERING COLUMN ADJUSTMENTS.. cranked, the PCM turns the relay on which powers
the fuel pump.

Steering wheel and column adjustments are made so that 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.

Operational Instructions:

Adjustable column has 5 positions.
Mid-position is the third position.



LEFT SIDE VIEW

STEERING COLUMN ASSEMBLY