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REPORT NO. 208-MGA-2000-05
212-MGA-2000-05
301-MGA-2000-05

VEHICLE SAFETY COMPLIANCE TESTING
FOR
FMVSS 208, OCCUPANT CRASH PROTECTION
FMVSS 212, WINDSHIELD MOUNTING
FMVSS 219, WINDSHIELD INTRUSION (PARTIAL)
FMVSS 301, FUEL SYSTEM INTEGRITY

DaimlerChrysler Corporation
2000 Jeep Cherokee 4-Door
NHTSA NO. CY0306

MGA RESEARCH CORPORATION
5000 WARREN ROAD
BURLINGTON, WI 53105



Test Date: April 12, 2000

Report Date: May 19, 2000

Final Report

Prepared For:

U.S. DEPARTMENT OF TRANSPORTATION
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
SAFETY ASSURANCE
OFFICE OF VEHICLE SAFETY COMPLIANCE

MAIL CODE: NSA-30
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7/12/00
Date of Report Acceptance

200 JUL - 3 2000
NHTSA
OFFICE OF VEHICLE SAFETY COMPLIANCE

TECHNICAL REPORT STANDARD TITLE PAGE

1. Report No. 208-MGA-2000-05 212-MGA-2000-05 301-MGA-2000-05		2. Government Accession No.		3. Recipient's Catalog No.	
4. Title and Subtitle Final Report for FMVSS 208 Compliance Testing of a 2000 Jeep Cherokee 4-Door NHTSA No. CY0306				5. Report Date May 19, 2000	
				6. Performing Organization Code MGA	
7. Author(s) Gary Strassburg				8. Performing Organization Report No. MGA-DOT-208-05	
9. Performing Organization Name and Address MGA Research Corporation 5000 Warren Road Burlington, WI 53105				10. Work Unit No.	
				11. Contract or Grant No. DTNH22-98-D-11055	
12. Sponsoring Agency Name and Address U.S. Department of Transportation National Highway Traffic Safety Administration Office of Vehicle Safety Compliance (Mail Code: NSA-30) 400 Seventh St., S.W., Room 6115 Washington, D.C. 20590				13. Type of Report and Period Covered Final Report April 12, 2000 to May 19, 2000	
				14. Sponsoring Agency Code NSA-30	
15. Supplementary Notes					
16. Abstract Compliance tests were conducted on the subject 2000 Jeep Cherokee 4-Door in accordance with the specifications of the Office of Vehicle Safety Compliance Test Procedure No. TP208-10 on January 15, 1998 for the determination of FMVSS 208 compliance. Test failures identified were as follows: NONE					
17. Key Words Frontal Impact 30 mph Vehicle Safety Compliance Testing FMVSS 208, "Occupant Crash Protection" FMVSS 212, "Windshield Mounting" FMVSS 219 (partial), "Windshield Zone Intrusion" FMVSS 301, "Fuel System Integrity"				18. Distribution Statement Copies of this report are available from: NHTSA Technical Reference Division, Room 5108 (NAD-52), 400 Seventh Street, S.W. Washington, D.C. 20590 Telephone No. (202) 366-4946	
19. Security Classif. (of this report) Unclassified	20. Security Classif. (of this page) Unclassified	21. No. of Pages 198	22. Price		

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SECTION 1
PURPOSE AND TEST PROCEDURE

PURPOSE

This 30 mph flat frontal barrier impact test is part of the Federal Motor Vehicle Safety Standard (FMVSS) 208, 212, 219 (partial), and 301 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 whether the subject vehicle, a 2000 Jeep Cherokee 4-Door, NHTSA No. CY0306, meets the performance requirements of FMVSS 208, "Occupant Crash Protection"; FMVSS 212, "Windshield Mounting"; FMVSS 219 (partial), "Windshield Zone Intrusion"; and FMVSS 301, "Fuel System Integrity," in the flat frontal barrier impact mode.

TEST PROCEDURE

This test was conducted in accordance with NHTSA's Office of Vehicle Safety Compliance (OVSC) Laboratory Test Procedure No. TP-208-10 dated January 15, 1998. Data was obtained relative to FMVSS 208, "Occupant Crash Protection"; FMVSS 212, "Windshield Mounting"; FMVSS 219 (partial), "Windshield Zone Intrusion"; and FMVSS 301, "Fuel System Integrity," performance.

The test vehicle was instrumented with seven (7) accelerometers to measure longitudinal axis accelerations and one (1) accelerometer to measure vertical axis acceleration. The vehicle's specified impact velocity range was 28.9 to 29.9 mph. The vehicle impacted a fixed flat barrier the face of which was covered with a sheet of 3/4 inch thick plywood.

The test vehicle contained two (2) Part 572 E 50th percentile adult male anthropomorphic test devices (ATDs). The dummies were positioned in the front outboard seating positions according to the dummy placement procedures specified in Appendix C of the Laboratory Test Procedure.

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

The thirty eight (38) data channels were multiplexed and recorded on five IBM PC compatible computers with Metrabyte DAS-16F A/D converter boards. The data was digitally sampled at 10,000 samples per second and processed per Section 11.13 through 11.15 of the Laboratory Test Procedure.

The crash event was recorded by one (1) real-time panning motion picture camera and fourteen (14) high-speed motion picture cameras. The pre-test and post-test conditions were recorded by the real-time motion picture camera.

The vehicle and occupant data are summarized in Section 2. The FMVSS 208, 212, 219 (partial) and 301 data are presented in Section 3. The vehicle, occupant, and camera measurements are presented in Section 4. Appendix A contains the still photographic prints. Appendix B contains the dummy and vehicle data plots. Appendix C contains the manufacturer's vehicle information.

SECTION 2
SUMMARY OF FRONTAL BARRIER IMPACT TEST

TEST RESULTS SUMMARY

This flat frontal barrier test was conducted at MGA Research Corporation on April 12, 2000.

The test vehicle, a 2000 Jeep Cherokee 4-Door, NHTSA No. CY0306, appeared to comply with the performance requirements of FMVSS 208, 212, 219 (partial), and 301 in the flat frontal barrier impact mode. The Head Injury Criteria (HIC) calculations were less than 1000, the chest resultant accelerations did not exceed 60 g's. The compressive forces transmitted through the upper legs did not exceed 2,250 pounds as measured by Part 572 E dummies seated in the front outboard designated seating positions. For each Part 572 E dummy, the chest deflection did not exceed 3.0 inches. The vehicle's restraint system met the applicable comfort and convenience requirements. The windshield periphery retention on each side of the vehicle centerline was greater than 50 percent. There was no penetration into any portion of the windshield. No fluid spilled from the vehicle's fuel system following the impact or during the static rollover test.

The test vehicle was equipped with an airbag and a Type 2 seat belt in the front outboard designated seating positions. Both dummies were restrained by the seat belts and airbags during the test. The vehicle's test weight was 4128 pounds. The vehicle's impact speed was 29.7 mph. The vehicle's maximum static crush was 15.6 inches.

The driver's HIC was 351. The driver's chest maximum resultant acceleration with three (3) milliseconds minimum duration was 56.3 g's. The driver's chest maximum deflection was 1.1 inches. The driver's left and right femur maximum compressive forces were 1032 pounds and 1291 pounds, respectively.

The right front passenger's HIC was 306. The right front passenger's chest maximum resultant acceleration with three (3) milliseconds minimum duration was 48.6 g's. The right front passenger's chest maximum deflection was 1.4 inches. The right front passenger's left and right femur maximum compressive forces were 1652 pounds and 1074 pounds, respectively.

There was no loss of windshield periphery retention and no penetration through the windshield.

Following the impact and during the static rollover test, no fluid spilled from the vehicle's fuel system.

TEST NOTES

TABLE 1 CRASH TEST SUMMARY

Vehicle Yr/Make/Model/Body Style: 2000/Jeep/Cherokee/4 Door
 Vehicle NHTSA No.: CY0306 Test Type: Frontal Barrier Impact
 Test Date: April 12, 2000 Time: 3:24 p.m. Temp: 70°F
 Vehicle Test Weight: 4128 lbs. Vehicle/Barrier Impact Angle: 0°
 Impact Velocity: 29.7 mph Maximum Static Crush: 15.6 inches
 Vehicle Rebound: 30.1 inches

Dummies:	Driver	Passenger
Dummy Type	<u>Part 572E</u>	<u>Part 572E</u>
Serial Number	<u>401</u>	<u>403</u>
Restraint System	<u>Frontal Airbag</u> <u>& Type II Seatbelts</u>	<u>Frontal Airbag</u> <u>& Type II Seatbelts</u>
No. of Data Channels	<u>15</u>	<u>15</u>

Number of Cameras: 1 Real Time
14 High Speed

Door Opening Data:	Left Front: <u>Yes</u>	Left Rear: <u>Yes</u>
	Right Front: <u>Yes</u>	Right Rear: <u>Yes</u>

Front Seat(s) Data:	Driver	Passenger
Seat Track Failure	<u>0 in.</u>	<u>0 in.</u>
Seat Back Failure	<u>None</u>	<u>None</u>

Visible Dummy Contact Points:	Driver	Passenger
Head	<u>Airbag</u>	<u>Airbag</u>
Chest	<u>Airbag</u>	<u>Airbag</u>
Left Knee	<u>Knee Bolster</u>	<u>Glovebox</u>
Right Knee	<u>Knee Bolster</u>	<u>Glovebox</u>

TABLE 2 GENERAL TEST AND VEHICLE PARAMETER DATAVehicle Yr/Make/Model/Body Style: 2000/Jeep/Cherokee/4 DoorNHTSA No: CY0306 VIN: 1J4FF58S3YL194734 Body Color: WhiteEngine: 6 Cylinders; C.I.D.; 4.0 liters; CCX Gas; Diesel; TurbochargedX Longitudinal; TransverseTransmission: 4 Speed; Manual; X Automatic; OverdriveFinal Drive: Front Wheel; Rear Wheel; X Four WheelMajor Option: X A/C; X P/S; X P/B; X P/wdo; X P/door locks;
 P/seats; X Tilt Wheel; Anti-skid Brakes; X Cruise ControlDate Received: 2/25/00; Odometer Reading: 55 milesDealer's Name/Address: Country Jeep Eagle
3017 W. Route 120
McHenry, IL 60050DATA FROM VEHICLE'S CERTIFICATION LABEL:Vehicle Manufactured By: DaimlerChrysler CorporationDate of Manufacture: 1/00; VIN: 1J4FF58S3YL194734GVWR: 4900 lbs; GAWR Front: 2500 lbs. GAWR Rear: 2700 lbs.DATA FROM TIRE PLACARD:Tire Pressure with maximum capacity vehicle load: Front 33 psi Rear 33 psiRecommended Tire Size: P215/75R15Recommended Cold Tire Pressure: Front 33 psi; Rear 33 psiTires on Vehicle: P225/70R16; Manufacturer: GoodyearType of Spare Tire: Space saverNumber of Occupants: 2 Front; 3 Rear; 3rd Seat; 5 TOTALType of Front Seats: X Bucket; Bench; Split BenchType of Front Seat Back: Fixed; X Adj. With; X Lever; Rot. Knob Power

TABLE 2 GENERAL TEST AND VEHICLE PARAMETER DATA (Cont'd)WEIGHT OF TEST VEHICLE AS RECEIVED FROM DEALER(WITH MAXIMUM FLUIDS) = UDW:Right Front = 966 lbsRight Rear = 776 lbsLeft Front = 996 lbsLeft Rear = 766 lbsTOTAL FRONT WEIGHT = 1962 lbs (56 % of Total Vehicle Weight)TOTAL REAR WEIGHT = 1542 lbs (44 % of Total Vehicle Weight)TOTAL UNLOADED DELIVERED WEIGHT (UDW) = 3504 lbsCALCULATION FOR TARGET TEST WEIGHT:UDW (Unloaded Delivered Weight) = 3504 lbsVCW (Vehicle Capacity Weight) = 1396 lbsDSC (Designated Seating Capacity) = 5RCLW*(Rated Cargo/Luggage Weight) = VCW - 150 (DSC) = 1396 - 150 (5) = 300 lbs

Target Test Weight = UDW + RCLW + (2 Dummies x Dummy Weight)

Target Test Weight = 3504 + 300 + 344 = 4148 lbsWEIGHT OF TEST VEHICLE WITH REQUIRED DUMMIES AND CARGO WEIGHT:Right Front = 1028 lbs Right Rear = 1017 lbsLeft Front = 1085 lbs Left Rear = 998 lbsTOTAL FRONT WEIGHT = 2113 lbs (51.2 % of Total Vehicle Weight)TOTAL REAR WEIGHT = 2015 lbs (48.8 % of Total Vehicle Weight)TOTAL TEST WEIGHT = 4128 lbsWeight of ballast secured in vehicle = 112 lbsVehicle components removed to meet target weight: Rear seat & carpeting, jack,
Tailgate moldingVEHICLE ATTITUDE (all dimensions in inches):Delivered Attitude: RF 35.4 LF 35.4 RR 35.1 LR 35.1Fully Loaded Attitude: RF 34.8 LF 34.9 RR 33.5 LR 33.6Test Attitude: RF 34.9 LF 34.9 RR 33.5 LR 33.7Wheel Base: 101.4 in; C.G. = 49.5 in rearward of front wheel centerline

*Cargo weight for multi-purpose passenger vehicles, truck, and buses is the vehicle's rated cargo and luggage weight from the vehicle's label or 300 pounds, whichever is less.

TABLE 3 POST-IMPACT DATA

Type of Test: Frontal Barrier Impact Impact Angle: 0°
 Test Date: April 12, 2000 Time: 3:24 p.m. Temperature: 70° F
 Vehicle NHTSA No.: CY0306 VIN: 1J4FF58S3YL194734

BARRIER IMPACT VELOCITY

Required Impact Velocity Range: 28.9 to 29.9 mph

Impact Velocity: Primary = 29.68 mph; Secondary = 29.72 mph

Distance From Front Bumper to Barrier Face When

Entering Speed Trap: 52 inches

Exiting Speed Trap: 12 inches

VEHICLE STATIC CRUSH AND REBOUND (inches):

Vehicle Length:	Pre-test	= R <u>164.0</u>	C <u>165.4</u>	L <u>163.9</u>
	Post-test	= R <u>153.3</u>	C <u>149.8</u>	L <u>153.7</u>
	Crush	= R <u>10.7</u>	C <u>15.6</u>	L <u>10.2</u>
	Average	= <u>12.2</u>		

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

R 29.7 in C 31.0 in L 29.7 in

TABLE 4 ACCIDENT INVESTIGATION DIVISION DATA

Vehicle Year/Make/Model/Body Style: 2000/Jeep/Cherokee/4 Door
 Veh. NHTSA No.: CY0306 ; VIN: 1J4FF58S3YL194734
 Build Date: 1/2000 ; Test Date: April 12, 2000
 Veh. Size Category: MPV ; Test Weight: 4128 lbs
 Veh. Wheelbase: 101.1 in. ; Front Overhang: 29.0 in.
 Overall Width: 67.6 in

ACCELEROMETER DATA:

Location: As per measurements on page 2-11

Calibration Procedure: As per MGA Calibration Procedure

Linearity: >99.9% ; Integration Algorithm: Trapezoidal

COLLISION DEFORMATION CLASSIFICATION (CDC) CODE:

Impact Mode: Frontal Barrier

Crush Depth C1 = 10.2 inches

Dimensions: C2 = 12.1 inches

C3 = 14.6 inches

C4 = 13.2 inches

C5 = 13.5 inches

C6 = 10.7 inches

Midpoint of Damage:

D = Vehicle Longitudinal Centerline

Length of Damaged Region:

L = 54.3 inches

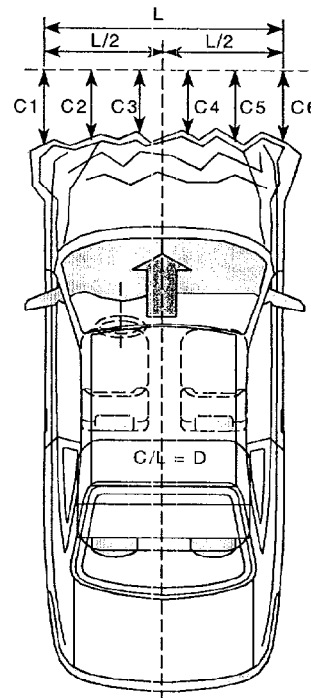
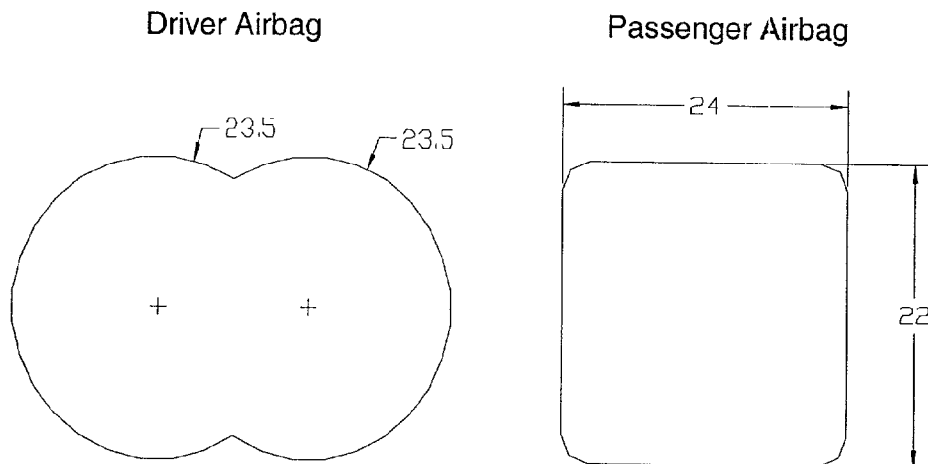
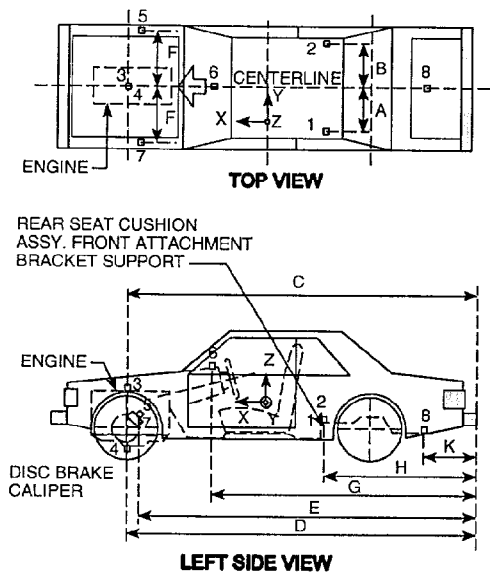


TABLE 5 POST TEST AIRBAG DATAVehicle Year/Make/Model/Body Style: 2000/Jeep/Cherokee/4 DoorNHTSA No: CY0306 ; Test Date: April 12, 2000 ; Technician: Chris Novak

- A. No of Vent Holes: Driver 0 ; Passenger 0
- B. Size of Vent Holes: Driver in. dia.; Passenger in. dia.
- C. Total Vent Area: Driver in²; Passenger in²
- D. Deflated Airbag Length and Width Dimensions or, if Round, Diameter
 Driver; Length NA ; Width NA ; Diameter 23.5
 Passenger; Length 24 ; Width 22 ; Diameter N/A
- E. Is the Airbag Tethered?
 Driver; X Yes; No; If yes, record length of tether 9.0 in
 Passenger; Yes; X No; If yes, record length of tether



- F. Part Numbers and Manufacture Name of Airbag and Gas Generator
 Driver; Mfr Chrysler ; Airbag P118137-O4R TMR344860727; Gen N/A
 Passenger; Mfr Chrysler ; Airbag P116064-O2P TMR3358D0409 ; Gen N/A

TABLE 6 VEHICLE ACCELEROMETER LOCATION AND DATA SUMMARYVehicle Year/Make/Model/Body Style: 2000/Jeep/Cherokee/4 DoorVehicle NHTSA No.: CY0306 ; Test Date: April 12, 2000

ACCELEROMETER LOCATION (inches)		
	PRE-TEST	POST-TEST
A	23.4	23.4
B	23.2	23.2
C	141.0	133.8
D	130.8	129.2
E	131.3	130.3
F	23.1	23.0
G	105.7	104.5
H	59.1	59.2
K	9.4	9.4

ACCELEROMETER DATA SUMMARY					
No.	DESCRIPTION	MAXIMUM (g's)	TIME (msec)	MINIMUM (g's)	TIME (msec)
1	Left Rear Seat Crossmember	1.9	144	-35.7	42
2	Right Rear Seat Crossmember	2.0	146	-31.5	39
3	Top of Engine Block	**	**	**	**
4	Bottom of Engine	37.6	38	-156.2	32
5	Right Disc Brake Caliper	12.0	57	-56.1	47
6	Instrument Panel	52.7	42	-94.1	60
7	Left Disc Brake Caliper	26.7	59	-70.4	38
8	Trunk	10.0	100	-14.4	61

** No Valid Data Collected

TABLE 7 REPORT OF VEHICLE CONDITION AT THE COMPLETION OF TESTING

Contract Number: DTNH22-98-D-11055

From: MGA Research Corporation
5000 Warren Road
Burlington, WI 53105

To: Mr. Charles Case, COTR
Office of Vehicle Safety Compliance

The following vehicle has been subjected to testing for FMVSS 208. The vehicle was inspected upon arrival at the laboratory for the test and found to contain all of the equipment listed below. The vehicle was again inspected after the above test had been conducted, and all changes were noted below. The final condition of the vehicle was also noted in detail.

Vehicle Year/Make/Model/Body Style: 2000/Jeep/Cherokee/4 Door

Vehicle NHTSA No.: CY0306 Body Color: White

VIN: 1J4FF58S3YL194734 Cost: \$ 22,178

Odometer: Arrival Date: 2/25/00 Reading: 55 miles

Completion Date: 4/14/2000 Reading: 58 miles

Engine: 6 Cylinders; 4.0 Liters; X Gas; Diesel

Transmission: 4 Speed; Manual; X Automatic

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

Tire Size: P225/70R161; Manufacturer: Goodyear

Air Conditioner	<u>X</u>	Console	<u>X</u>	Brakes	<u>Power</u>
Tinted Glass	<u>X</u>	Tachometer	<u>X</u>	Front	<u>Disc</u>
Power Steering	<u>X</u>	Cruise Control	<u>X</u>	Rear	<u>Drum</u>
Power Windows	<u>X</u>	Rear Window Def.	<u>X</u>	Front Seats	<u> </u>
Power Door Locks	<u>X</u>	Sun/Moon Roof	<u> </u>	Seat Type	<u> </u>
Radio	<u>X</u>	T-Top	<u> </u>	Front	<u>BUCKET</u>
Clock	<u>X</u>	Tilt Steering Wheel	<u>X</u>	Rear	<u>BENCH</u>
Roof Rack	<u>X</u>	Other Options:	<u> </u>	No. of Seats	<u>5</u>

Equipment that is no longer on the vehicle as noted above: Rear seat & carpeting, jack, and tailgate molding

Explanation:

Items removed to allow installation of data acquisition system.

Vehicle Condition:

The vehicle was subjected to a 30 mph frontal crash test. There is severe structural damage on the front body. Various interior and exterior portions of the vehicle have been painted and have had holes drilled to facilitate attachment of instrumentation. Various body parts have been removed. Stoddard solvent replaced the fuel in the fuel system and engine. **THE VEHICLE IS FOR SALVAGE ONLY AND IS NOT TO BE REPAIRED FOR HIGHWAY USE.**

SECTION 3
SUMMARY OF RESULTS FOR FMVSS 208
212, 219 (PARTIAL), AND 301

TABLE 8 FMVSS 208 OCCUPANT INJURY CRITERIA

Veh. Yr./Make/Model/Body Style: 2000/Jeep/Cherokee/4 DoorVeh. NHTSA No.: CY0306 Test Date: April 12, 2000

MAXIMUM ACCELERATION VALUES: (g's)	DRIVER DUMMY #401	PASSENGER DUMMY #403
Head Channel X	-45.8	-40.9
Head Channel Y	-12.1	-5.3
Head Channel Z	17.5	26.0
HEAD RESULTANT	48.1	46.0
Chest Channel X	-56.8	-48.1
Chest Channel Y	-6.5	-3.6
Chest Channel Z	15.7	17.1
CHEST RESULTANT	58.8	49.6

HEAD INJURY CRITERIA (HIC)
VALUES:

HIC	351	306
$t_1 =$ (msec)	55.8	54.4
$t_2 =$ (msec)	91.8	90.4

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

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

CLIP	56.3	48.6
$t^1 =$ (msec)	61.8	67.7
$t^2 =$ (msec)	64.9	70.8
CHEST DEFLECTION (in)	-1.1	-1.4

TABLE 8 FMVSS 208 OCCUPANT INJURY CRITERIA (CONTINUED)

Veh. Yr./Make/Model/Body Style: 2000/Jeep/Cherokee/4 DoorVeh. NHTSA No.: CY0306 Test Date: April 12, 2000

MAX. COMPRESSIVE FEMUR FORCES:	Units (lbs)	
	DRIVER DUMMY #401	PASSENGER DUMMY #403
Left Side	-1032	-1652
Right Side	-1291	-1074

NECK FORCES:

Neck Force X (N)	2204	1280
Neck Force Y (N)	-261	270
Neck Force Z (N)	2425	1890

NECK MOMENTS:

Neck Moment X (N·m)	-27.0	-16.9
Neck Moment Y (N·m)	139.4	92.8
Neck Moment Z (N·m)	-9.0	16.1

NECK INJURY CRITERIA:

Peak Flexion Bending Moment about the Occipital Condyle (N·m)	101.9	71.7
Peak Extension Bending Moment about the Occipital Condyle (N·m)	-42.8	-32.6
Peak Axial Tension (N)	2425	1890
Peak Axial Compression (N)	-294	-192
Peak Fore Shear (N)	2204	1280
Peak Aft Shear (N)	-52	-44

TABLE 9 DUMMY KINEMATIC SUMMARYDRIVER DUMMY

Upon impact, the driver dummy translated forward on the seat impacting both knees into the instrument panel. The dummy's head and chest impacted the airbag with the dummy's head rotating rearward. The driver dummy was restrained by the vehicle's lap and shoulder belts and by the airbag. The dummy rebounded rearward into the seat back with the dummy's head contacting the head restraint. The driver dummy came to rest in the seat.

RIGHT FRONT PASSENGER DUMMY

Upon impact, the right front passenger dummy translated forward on the seat impacting both knees into the dashboard. The dummy's head and chest impacted the airbag with the dummy's head rotating rearward. The right front passenger dummy was restrained by the vehicle's lap and shoulder belts and by the airbag. The dummy rebounded rearward into the seat back with the dummy's head contacting the head restraint. The right front passenger dummy came to rest in the seat.

TABLE 10
FMVSS 208 SEAT BELT COMFORT AND CONVENIENCE TEST SUMMARY

Vehicle Year/Make/Model/Body Style: 2000/Jeep/Cherokee/4 Door

NHTSA No.: CY0306; Date of Comfort/Convenience Check: 4/6/00

Technician Performing Check: Dave Winkelbauer

GVWR: 4900 lbs

Automatic seat belts installed in any vehicle, other than a walk-in van-type vehicle which has a gross vehicle weight rating of 10,000 pounds or less, and is manufactured on or after September 1, 1986, shall meet the requirements for convenience hooks, webbing tension relieving devices, and belt contact force.

Manual seat belts installed for compliance with this standard in front outboard designated seating positions of any vehicle, other than a walk-in van-type vehicle which has a gross vehicle rating of 10,000 pounds or less, and is manufactured on or after September 1, 1989, shall meet the requirements for belt contact force, plate access, retraction and seat belt guides, and hardware.

VEHICLE EQUIPMENT:

The vehicle's front outboard seating positions were equipped with manual Type 2 seat belts which must comply with the dynamic test requirements of S5.1; requirements for webbing tension-relieving devices (S7.4.2), belt contact force (S7.4.3), latchplate access (S7.4.4), retraction (S7.4.5), and seat belt guides and hardware (S7.4.6) apply.

CONVENIENCE HOOKS (S7.4.1):

Not applicable, the vehicle was not equipped with automatic seat belts.

WEBBING TENSION-RELIEVING DEVICE (S7.4.2)

The seat belt assembly on the front outboard seating positions did not have webbing tension-relieving devices.

TABLE 10 (Cont'd)

FMVSS 208 SEAT BELT COMFORT AND CONVENIENCE TEST SUMMARYBELT CONTACT FORCE (S7.4.3)Vehicle Year/Make/Model/Body Style: 2000/Jeep/Cherokee/4 DoorNHTSA No.: CY0306; Technician: Dave Winkelbauer Date: 4/6/00Designated Seating Position Tested: Left Front

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 checksheet
- 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

TABLE 10 (Cont'd)
FMVSS 208 SEAT BELT COMFORT AND CONVENIENCE TEST SUMMARY

- 1.6 Place each adjustable head restraint in its highest adjustment position.
 ☒ Check
 ☐ N/A
- 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.

BELT CONTACT FORCE (S7.4.3)

Designated Seating Position Tested: Right Front

- 1.1 Does the vehicle incorporate a webbing tension-relieving device?
 ☐ Yes - go to latchplate access
 ☒ No - continue with this checksheet
- 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

TABLE 10 (Cont'd)
FMVSS 208 SEAT BELT COMFORT AND CONVENIENCE TEST SUMMARY

- 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
- 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 0.4 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.

TABLE 10 (Cont'd)
FMVSS 208 SEAT BELT COMFORT AND CONVENIENCE TEST SUMMARY

LATCHPLATE ACCESS (S7.4.4)

Vehicle Year/Make/Model/Body Style: 2000/Jeep/Cherokee/4 Door

NHTSA No.: CY0306 ; Technician: Dave Winkelbauer Date: 4/6/00

Designated Seating Position Tested: Left Front

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.
☒ (X) Check
☐ () N/A
- 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.)
☒ (X) Check
☐ () N/A
- 2.3 Position the adjustable seat belt anchorage in the manufacturer's nominal design position for a 50th percentile adult male occupant.
☒ (X) Check
☐ () N/A
- 2.4 Attach the inboard and outboard reach string following the instructions on Figure 1C.
☒ (X) Check
☐ () N/A
- 2.5 Place the latch plate in the stowed position.
☒ (X) Check
☐ () N/A
- 2.6 Extend each line backward and outboard to generate arcs of the reach envelope of the test dummy's arms. Is the latch plate within the reach envelope?
☒ (X) 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?
☒ (X) Yes - Pass
☐ () No - **FAIL**

TABLE 10 (Cont'd)
FMVSS 208 SEAT BELT COMFORT AND CONVENIENCE TEST SUMMARY

LATCHPLATE ACCESS (S7.4.4)

Designated Seating Position Tested: Right Front

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.
(X) Check
() N/A
- 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.)
(X) Check
() N/A
- 2.3 Position the adjustable seat belt anchorage in the manufacturer's nominal design position for a 50th percentile adult male occupant.
(X) Check
() N/A
- 2.4 Attach the inboard and outboard reach string following the instructions on Figure 1C.
(X) Check
() N/A
- 2.5 Place the latch plate in the stowed position.
(X) Check
() N/A
- 2.6 Extend each line backward and outboard to generate arcs of the reach envelope of the test dummy's arms. Is the latch plate within the reach envelope?
(X) 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?
(X) Yes - Pass
() **No - FAIL**

TABLE 10 (Cont'd)
FMVSS 208 SEAT BELT COMFORT AND CONVENIENCE TEST SUMMARY

RETRACTION (S7.4.5):

Vehicle Year/Make/Model/Body Style: 2000/Jeep/Cherokee/4 Door

NHTSA No.: CY0306; Technician: Dave Winkelbauer Date: 4/6/00

Designated Seating Position Tested: Left Front

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.
 (X) 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.)
 (X) Check
 () N/A
- 3.3 If separately adjustable in a vertical direction, the seats are at the lowest position.
 () Check
 (X) N/A
- 3.4 Place the adjustable seat backs in the manufacturer's nominal design riding position in the manner specified by the manufacturer.
 (X) Check
 () N/A
- 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.
 (X) Check
 () N/A
- 3.6 Place each adjustable head restraint in its highest adjustment position.
 (X) Check
 () N/A
- 3.7 Adjustable lumbar supports are positioned so that the lumbar support is in its lowest adjustment position (S8.1.3)
 () Check
 (X) N/A

TABLE 10 (Cont'd)
FMVSS 208 SEAT BELT COMFORT AND CONVENIENCE TEST SUMMARY

- 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.
(X) Check
- 3.9 Restrain the dummies using the belt systems for the position begin tested.
(X) Check
- 3.10 Stow outboard armrests which are capable of being stowed.
(X) 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.
() Yes - Pass
- (B) The torso and lap belt webbing of the seat belt system automatically retracts when the seat belt latch plate is released.
(X) Yes - Pass
- (C) Neither A or B apply.
() Yes - Pass
() **No - 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?
(X) 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?
(X) N/A
() Yes - Pass
() **No - FAIL**

TABLE 10 (Cont'd)
FMVSS 208 SEAT BELT COMFORT AND CONVENIENCE TEST SUMMARY

RETRACTION (S7.4.5):

Designated Seating Position Tested: Right Front

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
☐ N/A
- 3.3 If separately adjustable in a vertical direction, the seats are at the lowest position.
☐ Check
☒ N/A
- 3.4 Place the adjustable seat backs in the manufacturer's nominal design riding position in the manner specified by the manufacturer.
☒ Check
☐ N/A
- 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
☐ N/A
- 3.6 Place each adjustable head restraint in its highest adjustment position.
☒ Check
☐ N/A
- 3.7 Adjustable lumbar supports are positioned so that the lumbar support is in its lowest adjustment position (S8.1.3)
☐ Check
☒ N/A

TABLE 10 (Cont'd)
FMVSS 208 SEAT BELT COMFORT AND CONVENIENCE TEST SUMMARY

- 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. (X) Check
- 3.9 Restrain the dummies using the belt systems for the position begin tested. (X) Check
- 3.10 Stow outboard armrests which are capable of being stowed. (X) 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.
() Yes - Pass
- (B) The torso and lap belt webbing of the seat belt system automatically retracts when the seat belt latch plate is released.
(X) Yes - Pass
- (C) Neither A or B apply.
() Yes - Pass
() **No - 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?
(X) 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?
(X) N/A
() Yes - Pass
() **No - FAIL**

TABLE 10 (Cont'd)
FMVSS 208 SEAT BELT COMFORT AND CONVENIENCE TEST SUMMARY

SEAT BELT GUIDES AND HARDWARE (S7.4.6)

Vehicle Year/Make/Model/Body Style: 2000/Jeep/Cherokee/4 Door

NHTSA No.: CY0306 ; Technician: Dave Winkelbauer Date: 4/6/00

Designated Seating Position Tested: Left Front

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

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

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

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

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

☐ Yes - Go to 4.2.
☒ No - this form is complete
- 4.2 Does one of the following three parts, the seat belt latch plate, the buckle, or the seat belt webbing, stay on top of or above the seat cushion under normal conditions (i.e., conditions other than when belt hardware is intentionally pushed behind the seat by a vehicle occupant)?

☐ Yes - Pass
☐ No - **FAIL**

TABLE 10 (Cont'd)
FMVSS 208 SEAT BELT COMFORT AND CONVENIENCE TEST SUMMARY

- 4.3 Are the remaining two seat belt parts accessible under normal conditions?
 () Yes - Pass
 () **No - FAIL**
- 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. () Check
- (B) The seat is moved to any position to which it is designed to be adjusted. () Check
- (C) The seat back, if foldable, is folded forward as far as possible and then moved backward into position. () Check
- () 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)?
 () Yes - Pass
 () **No - FAIL**

Designated Seating Position Tested: Right Front

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.

TABLE 10 (Cont'd)
FMVSS 208 SEAT BELT COMFORT AND CONVENIENCE TEST SUMMARY

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

- 4.1 Is the webbing designed to pass through the seat cushion or between the seat cushion and seat back?
 () Yes - Go to 4.2.
 (X) No - this form is complete
- 4.2 Does one of the following three parts, the seat belt latch plate, the buckle, or the seat belt webbing, stay on top of or above the seat cushion under normal conditions (i.e., conditions other than when belt hardware is intentionally pushed behind the seat by a vehicle occupant)?
 () Yes - Pass
 () **No - FAIL**
- 4.3 Are the remaining two seat belt parts accessible under normal conditions?
 () Yes - Pass
 () **No - FAIL**
- 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. () Check
- (B) The seat is moved to any position to which it is designed to be adjusted.
 () Check
- (C) The seat back, if foldable, is folded forward as far as possible and then moved backward into position.
 () Check
- () 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)?
 () Yes - Pass
 () **No - FAIL**

TABLE 10 (Cont'd)
FMVSS 208 SEAT BELT COMFORT AND CONVENIENCE TEST SUMMARY

Designated Seating Position Tested: Left Rear

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

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

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

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

TABLE 10 (Cont'd)
FMVSS 208 SEAT BELT COMFORT AND CONVENIENCE TEST SUMMARY

- (C) The seat back, if foldable, is folded forward as far as possible and then moved backward into position.
 ☐ Check
 ☐ 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)?
 ☐ Yes - Pass
 ☐ **No - FAIL**

Designated Seating Position Tested: Center Rear

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

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

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

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

TABLE 10 (Cont'd)
FMVSS 208 SEAT BELT COMFORT AND CONVENIENCE TEST SUMMARY

- 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. ☒ Check
 - (B) The seat is moved to any position to which it is designed to be adjusted. ☒ Check
 - (C) The seat back, if foldable, is folded forward as far as possible and then moved backward into position.
 - ☒ Check
 - ☒ 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)?
- ☐ Yes - Pass
 - ☐ **No - FAIL**
 - ☒ N/A

Designated Seating Position Tested: Right Rear

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

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

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

- 4.1 Is the webbing designed to pass through the seat cushion or between the seat cushion and seat back?
- ☐ Yes - Go to 4.2.
 - ☒ No - this form is complete

TABLE 10 (Cont'd)
FMVSS 208 SEAT BELT COMFORT AND CONVENIENCE TEST SUMMARY

- 4.2 Does one of the following three parts, the seat belt latch plate, the buckle, or the seat belt webbing, stay on top of or above the seat cushion under normal conditions (i.e., conditions other than when belt hardware is intentionally pushed behind the seat by a vehicle occupant)?
- ☐ Yes - Pass
☐ No - **FAIL**
- 4.3 Are the remaining two seat belt parts accessible under normal conditions?
- ☐ Yes - Pass
☐ No - **FAIL**
- 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.
☐ Check
- (B) The seat is moved to any position to which it is designed to be adjusted.
☐ Check
- (C) The seat back, if foldable, is folded forward as far as possible and then moved backward into position.
☐ Check
☐ 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)?
- ☐ Yes - Pass
☐ No - **FAIL**

TABLE 11 FMVSS 208 EQUIPMENT DATA

FMVSS 208 SEAT BELT WARNING SYSTEM CHECK

Vehicle Year/Make/Model/Body Style: 2000/Jeep/Cherokee/4 Door

NHTSA No.: CY0306 ; Technician: Dave Winkelbauer ; Date: 4/6/00

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 = _____ seconds
(4 to 8 seconds)

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

A.2 S7.3(a)(2)
Time duration of audible warning signal = 5 seconds
(4 to 8 seconds)(see 49 USCS @ 30124)

Time duration of reminder light operation = 6 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 = 6 seconds
(4 to 8 seconds)

A. Note wording of visual warning: ()Fasten seat belt ()Fasten Belt
(X)Symbol 101

TABLE 11 FMVSS 208 EQUIPMENT DATA (Cont'd)

FMVSS 208 READINESS INDICATOR (S4.5.2)

Vehicle Year/Make/Model/Body Style: 2000/Jeep/Cherokee/4 Door

NHTSA No.: CY0306 ; Technician: Dave Winkelbauer ; Date: 4/6/00

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: Instrument panel under the
Speedometer

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

TABLE 11 FMVSS 208 EQUIPMENT DATA (Cont'd)FMVSS 208 REAR OUTBOARD SEATING POSITION SEAT BELTSVehicle Year/Make/Model/Body Style: 2000/Jeep/Cherokee/4 DoorNHTSA No.: CY0306; Technician: Dave Winkelbauer; Date: 4/6/00

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

(X)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.

TABLE 12 LAP BELT LOCKABILITY

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))

Vehicle Year/Make/Model/Body Style: 2000/Jeep/Cherokee/4 Door

NHTSA No.: CY0306; Technician: Dave Winkelbauer; Date: 4/6/00

Designated Seating Position Tested: Right Front

1. Record the seating position. Full Rearward
(Any position is acceptable)
2. Buckle the seat belt.
3. Complete any procedures recommended in the vehicle owner's manual to activate any locking feature.
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.

(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.

(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 If yes, 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.

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

TABLE 12 LAP BELT LOCKABILITY (Cont'd)

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.
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.
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.
Measured distance between A and B is 46 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.
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.
The measured force application angle = 10 degrees.
13. The length between points A and B along the longitudinal centerline of the webbing while the preload is being applied.
Measured distance between A and B is 30 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.
Record onset rate: 20 lb/sec.
Record the distance between points A and B: 30.4 inches
15. Subtract the measurement in 13 from the measurement in 14. Is the difference 2 inches or less? $14-13 = \underline{0.4 \text{ inches}}$ (X)Yes-Pass () No-FAIL
16. Subtract the measurement in 14 from the measurement in 10. Is the difference 3 inches or more? $10-14 = \underline{15.6 \text{ inches}}$ (X)Yes-Pass () No-FAIL

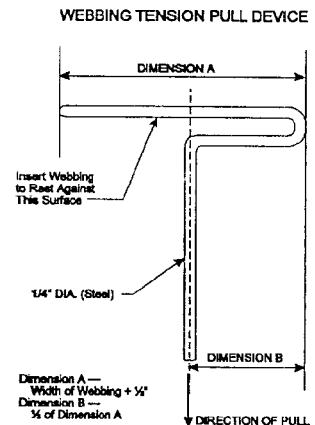


TABLE 12 LAP BELT LOCKABILITY (Cont'd)

Designated Seating Position Tested: Left Rear

1. Record the seating position. Non-adjustable
(Any position is acceptable.)
2. Buckle the seat belt.
3. Complete any procedures recommended in the vehicle owner's manual to activate any locking feature.
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.

(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.

(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 If yes, 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.

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

TABLE 12 LAP BELT LOCKABILITY (Cont'd)

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.
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.
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.
Measured distance between A and B is 45 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.
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.
The measured force application angle = 10 degrees.
13. The length between points A and B along the longitudinal centerline of the webbing while the preload is being applied.
Measured distance between A and B is 28 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.
Record onset rate: 20 lb/sec.
Record the distance between points A and B: 28.3 inches
15. Subtract the measurement in 13 from the measurement in 14. Is the difference 2 inches or less? $14-13 = \underline{0.3 \text{ inches}}$ (X)Yes-Pass () No-FAIL
16. Subtract the measurement in 14 from the measurement in 10. Is the difference 3 inches or more? $10-14 = \underline{16.7 \text{ inches}}$ (X)Yes-Pass () No-FAIL

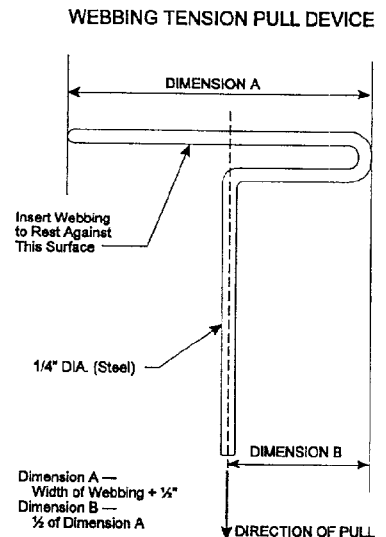


TABLE 12 LAP BELT LOCKABILITY (Cont'd)

Vehicle Year/Make/Model/Body Style: 2000/Jeep/Cherokee/4 Door
 NHTSA No.: CY0306 ; Technician: Dave Winkelbauer ; Date: 4/6/00
 Designated Seating Position Tested: Center rear

1. Record the seating position. Non-adjustable
 (Any position is acceptable.)
2. Buckle the seat belt.
3. Complete any procedures recommended in the vehicle owner's manual to activate any locking feature.
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.

(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.

(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 If yes, 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.

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

TABLE 12 LAP BELT LOCKABILITY (Cont'd)

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.
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.
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.
Measured distance between A and B is 26 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.
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.
The measured force application angle = 10 degrees.
13. The length between points A and B along the longitudinal centerline of the webbing while the preload is being applied.
Measured distance between A and B is 18 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.
Record onset rate: 20 lb/sec.
Record the distance between points A and B: 18.5 inches
15. Subtract the measurement in 13 from the measurement in 14. Is the difference 2 inches or less? $14-13 = \underline{0.5 \text{ inches}}$ (X)Yes-Pass () **No-FAIL**
16. Subtract the measurement in 14 from the measurement in 10. Is the difference 3 inches or more? $10-14 = \underline{7.5 \text{ inches}}$ (X)Yes-Pass () **No-FAIL**

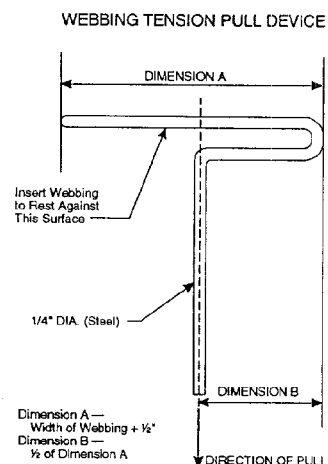


TABLE 12 LAP BELT LOCKABILITY (Cont'd)

Designated Seating Position Tested: Right Rear

1. Record the seating position. Non-adjustable
(Any position is acceptable.)
2. Buckle the seat belt.
3. Complete any procedures recommended in the vehicle owner's manual to activate any locking feature.
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.

(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.

(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 If yes, 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.

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

TABLE 12 LAP BELT LOCKABILITY (Cont'd)

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.
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.
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.
Measured distance between A and B is 44 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.
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.
The measured force application angle = 10 degrees.
13. The length between points A and B along the longitudinal centerline of the webbing while the preload is being applied.
Measured distance between A and B is 28 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.
Record onset rate: 20 lb/sec.
Record the distance between points A and B: 28.3 inches
15. Subtract the measurement in 13 from the measurement in 14. Is the difference 2 inches or less? $14-13 = \underline{0.3 \text{ inches}}$ (X)Yes-Pass () No-FAIL
16. Subtract the measurement in 14 from the measurement in 10. Is the difference 3 inches or more? $10-14 = \underline{15.7 \text{ inches}}$ (X)Yes-Pass () No-FAIL

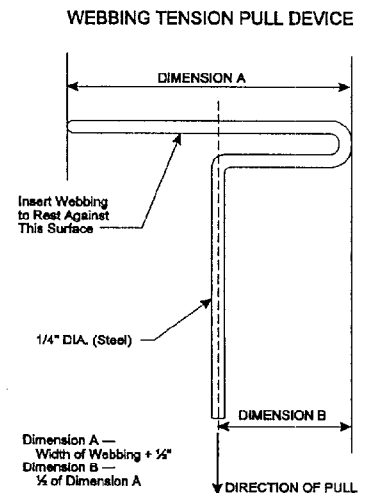


TABLE 13 AIR BAG LABELS

Vehicle Year/Make/Model/Body Style: 2000/Jeep/Cherokee/4 DoorNHTSA No.: CY0306 ; Technician: Dave Winkelbauer ; Date: 4/6/00

1. Air bag maintenance label and owner's manual instructions:
 - 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
 - ☐ Schedule on label specifies vehicle mileage
 - ☐ Schedule on label specifies interval measured from date on certification label
 - 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:
 - 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

TABLE 13 AIR BAG LABELS (Cont'd)

- 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 is 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

TABLE 13 AIR BAG LABELS (Cont'd)

If yes to 3.1, or 3.2, or 3.3, the vehicle is not required to have a sunvisor warning label, an airbag alert label or a label on the dash and this check sheet is complete. 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?

Driver Side - (X)Yes-Pass () No-FAIL

Passenger Side - (X)Yes-Pass () No-FAIL

- 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.") to either label shown on the next page as appropriate at each front outboard seating position with an air bag?

- 4.2.1 **Dual air bags:** () Not Applicable

Driver Side - (X)Yes () No-FAIL

Passenger Side - (X)Yes () No-FAIL

- 4.2.2 **Vehicle with driver air bag ONLY - either 4.2.1 or 4.2.2 is applicable, not both.**

- 4.2.2.1 Does the label conform in content to either label shown on the following page as appropriate?

(X) 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:

TABLE 13 AIR BAG LABELS (Cont'd)

DEATH or SERIOUS INJURY can occur.

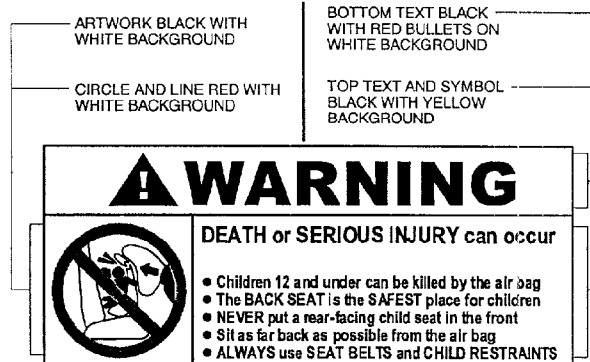
- Sit as far back as possible from the air bag.
- ALWAYS use SEAT BELTS and CHILD RESTRAINTS
- The BACK SEAT is the SAFEST place for children.

() Not Applicable

Driver Side - () Yes-Pass () No-FAIL

SUN VISOR LABEL VISIBLE WHEN VISOR IS IN DOWN POSITION

LABEL OUTLINE, VERTICAL AND HORIZONTAL LINE BLACK



SUN VISOR LABEL VISIBLE WHEN VISOR IS IN DOWN POSITION

LABEL OUTLINE, VERTICAL AND HORIZONTAL LINE BLACK

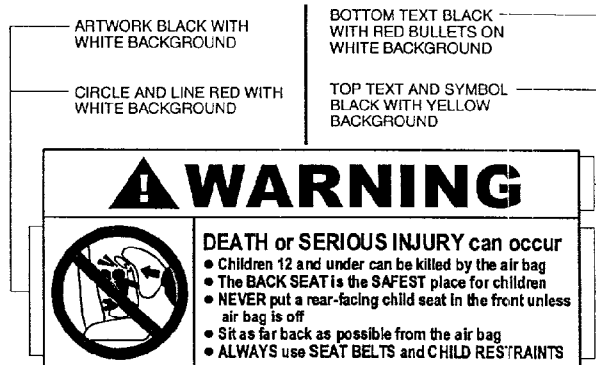


TABLE 13 AIR BAG LABELS (Cont'd)

- 4.3 Is the label heading area yellow with the word "warning" and the alert symbol in black?
- | | | |
|------------------|-------------|--------------------|
| Driver Side - | (X)Yes-Pass | () No-FAIL |
| Passenger Side - | (X)Yes-Pass | () No-FAIL |
- 4.4 Is the message white with black text?
- | | | |
|------------------|-------------|--------------------|
| Driver Side - | (X)Yes-Pass | () No-FAIL |
| Passenger Side - | (X)Yes-Pass | () No-FAIL |
- 4.5 Is the message area at least 30 cm²? Actual message area: 31 cm²
- | | | |
|------------------|-------------|--------------------|
| Driver Side - | (X)Yes-Pass | () No-FAIL |
| Passenger Side - | (X)Yes-Pass | () No-FAIL |
- 4.6 Is the pictogram black with a red circle and slash on a white background?
- For vehicles with driver side air bag ONLY () Not Applicable
- | | | |
|------------------|-------------|--------------------|
| Driver Side - | (X)Yes-Pass | () No-FAIL |
| Passenger Side - | (X)Yes-Pass | () No-FAIL |
- 4.7 Is the pictogram at least 30 mm in diameter? Actual diameter: 30 mm
- For vehicles with driver side air bag ONLY () Not Applicable
- | | | |
|------------------|-------------|--------------------|
| Driver Side - | (X)Yes-Pass | () No-FAIL |
| Passenger Side - | (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?
- | | | |
|------------------|-------------|--------------------|
| Driver Side - | (X)Yes-Pass | () No-FAIL |
| Passenger Side - | (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?
- | | | |
|------------------|-------------|--------------------|
| Driver Side - | (X)Yes-Pass | () No-FAIL |
| Passenger Side - | (X)Yes-Pass | () No-FAIL |

TABLE 13 AIR BAG LABELS (Cont'd)

5. Air Bag Alert Label

5.1 Is the Sun Visor Warning Label visible when the sunvisor is in the stowed position?

Driver Side - ☒ Yes, go to 6 ☐ No

Passenger Side - ☐ No air bag ☒ Yes ☐ No

5.2 Does the label conform in content to the label shown below?

Driver Side - ☐ Yes ☐ No-FAIL

Passenger Side - ☐ No air bag ☐ Yes-Pass ☐ No-FAIL

5.3 Is the message area black with yellow text?

Driver Side - ☐ Yes-Pass ☐ No-FAIL

Passenger Side - ☐ No air bag ☐ Yes-Pass ☐ No-FAIL

5.4 Is the message area at least 20 cm²? 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?

For vehicles with driver side air bag ONLY ☐ Not Applicable

☐ Yes-Pass ☐ No-FAIL

TABLE 13 AIR BAG LABELS (Cont'd)

- 5.6 Is the pictogram at least 20 mm in diameter? 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

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?
 (X)Yes-Pass () **No-FAIL**
- 6.3 Does the label conform in content (vehicles without back seats may omit the statement: "The back seat is the safest place for children 12 and under." to the label shown below. (X)Yes-Pass () **No-FAIL**
- 6.4 Is the heading area yellow with the word "warning" and the alert symbol in black?
 (X)Yes-Pass () **No-FAIL**

TABLE 13 AIR BAG LABELS (Cont'd)

- 6.5 Is the message white with black text? (X)Yes-Pass () No-FAIL
- 6.6 Is the message area at least 30 cm²? Actual message area: 30 cm²
(X)Yes-Pass () No-FAIL

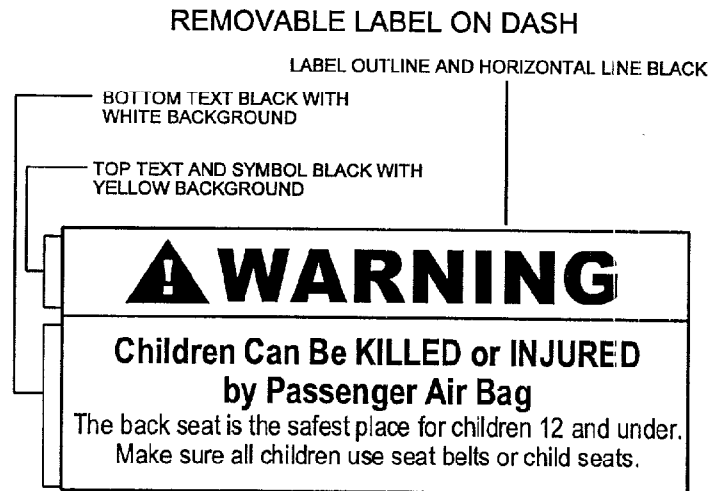


TABLE 14 FMVSS 212, "WINDSHIELD MOUNTING", DATA SUMMARYVehicle Year/Make/Model/Body Style: 2000/Jeep/Cherokee/4 DoorVehicle NHTSA No.: CY0306 Test Date: April 12, 2000DETAILS OF WINDSHIELD MOUNTING SUCH AS RETENTION METHOD, TRIM TYPE, ETC.:

Rubber trim with glue retention

CLIPS OR BRACKETS USED TO RETAIN WINDSHIELD: None

FMVSS 212 REQUIREMENTS: The post-test periphery retention amount must be at least 75% of the pre-test periphery measurement for vehicles NOT equipped with automatic restraints, and 50% for each side of windshield for vehicles equipped with automatic restraint systems for front occupants.

FMVSS 212 TEST DATA:

	WINDSHIELD PERIPHERY (inches)		PERCENT RETENTION
	PRE-TEST	POST-TEST	
RIGHT SIDE	77.2	77.2	100%
LEFT SIDE	77.2	77.2	100%
TOTAL	154.4	154.4	100%

Pre-Test Windshield Mounting Material
Temperature: 70 ° F

Width of Molding TOP: 0.9 inches
SIDE: 0.9 inches
BOTTOM: 0.8 inches

FAILURE DETAILS: None**FRONT VIEW OF WINDSHIELD**

INDICATE WIDTH OF MOLDING →

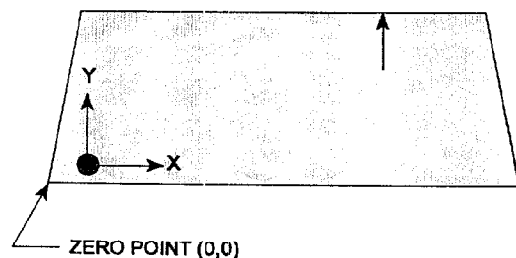
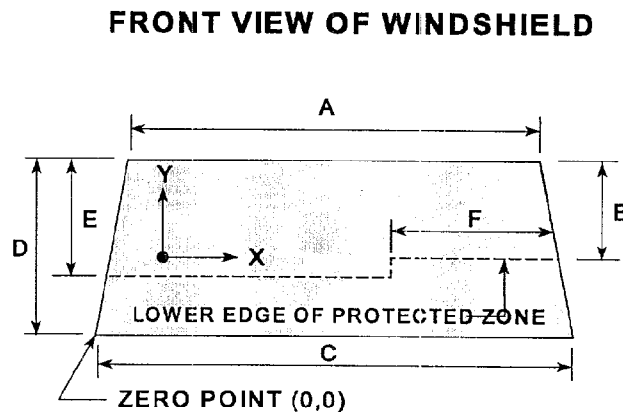


TABLE 15 FMVSS 219, "WINDSHIELD ZONE INTRUSION", DATA SUMMARYVehicle Year/Make/Model/Body Style: 2000/Jeep/Cherokee/4 DoorVehicle NHTSA No.: CY0306 Test Date: April 12, 2000PROTECTED ZONE LOWER EDGE REQUIREMENT:

The lower edge of the protected zone is determined by placing a 6.5" dia. rigid sphere weighing 15 pounds in a position such that it simultaneously contacts the inner surface of the windshield and the top surface of the instrument panel including padding. Draw the locus of points on the inner surface of the windshield contacted by the sphere across the width of the instrument panel. From the outermost contact points, extend the locus line horizontally to the edges of the windshield, and then draw a line on the inner surface of the windshield below and $\frac{1}{2}$ " distant from the locus line. The LOWER EDGE OF THE PROTECTED ZONE is the longitudinal projection onto the outer surface of the windshield of this line.

WINDSHIELD MEASUREMENTS:A= 51.2 inB= 11.4 inC= 58.9 inD= 22.2 inE= 14.3 inF= 38.8 inAREAS OF WINDSHIELD TEMPLATE PENETRATION GREATER THAN 1/4 IN:

None

AREAS OF WINDSHIELD PENETRATION, BELOW THE PROTECTED ZONE, THROUGH THE INNER SURFACE OF THE WINDSHIELD:

None

TABLE 16 FUEL SYSTEM DATA

Vehicle Year/Make/Model/Body Style: 2000/Jeep/Cherokee/4 Door

Vehicle NHTSA No.: CY0306 Test Date: April 12, 2000

Fuel System Capacity from Owner's Manual = 20 gallons

Usable Capacity Figure Furnished by COTR = 20 gallons

Test Volume Range (92 to 94% of Usable Capacity)

= 18.5 to 18.8 gallons

Actual Test Volume = 18.6 gallons

Test Fluid Type: Stoddard Solvent; Spec. Grav. = 0.77

Kinematic Viscosity = 1.788 centistokes; Color = Purple

Type of Fuel Pump: X Electric; Mechanical

Does electric pump operate with ignition switch "On" and engine "Off"?

X Yes; No

Details of Fuel System:

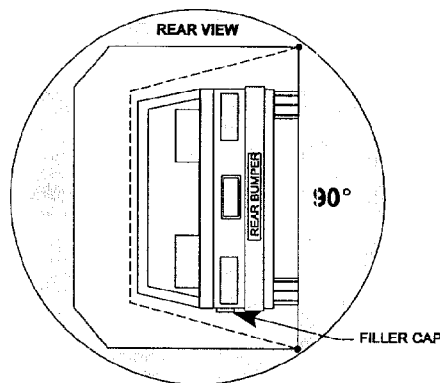
TABLE 17 FMVSS 301 POST IMPACT TEST DATAVehicle Year/Make/Model/Body Style: 2000/Jeep/Cherokee/4 DoorVehicle NHTSA No.: CY0306 Test Date: April 12, 2000TEST REQUIREMENTS:

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

TEST VEHICLE IMPACT TYPE:X Frontal (30 mph) Oblique (30 mph) with ° barrier face first contacting (driver/passenger) side Rear Moving Barrier (30 mph) Lateral Moving Barrier (20 mph)FUEL SPILLAGE MEASUREMENT:

POST IMPACT TEST	TEST RESULTS	MAXIMUM ALLOWABLE
1. From impact until vehicle motion ceases	0 oz	1 oz
2. For 5 minute period after vehicle motion ceases	0 oz	5 oz
3. For next 25 minutes	0 oz	1 oz./1 min

FUEL SPILLAGE LOCATION(S): None

TABLE 18 FMVSS 301 STATIC ROLLOVER TEST DATAVehicle Year/Make/Model/Body Style: 2000/Jeep/Cherokee/4 DoorVehicle NHTSA No.: CY0306 Test Date: April 12, 2000TEST PHASE: 0° - 90°DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:Rollover Fixture 90° Rotation Time = 2 minutes 43 seconds

(Spec. Range = 1 to 3 minutes)

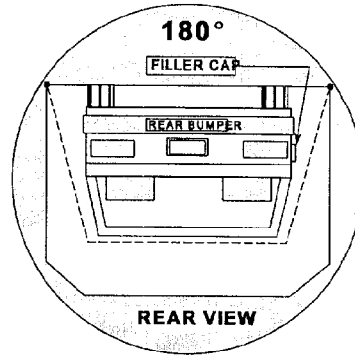
FMVSS 301 Position Hold Time = 5 minutes 0 secondsTOTAL TIME = 7 minutes 43 secondsNext Whole Minute Interval = 8 minutesFUEL SPILLAGE MEASUREMENT:

0° TO 90° ROTATION (FILLER CAP DOWN)	TEST RESULTS	MAXIMUM ALLOWABLE
1. First 5 Minutes From Onset of Rotation	0 oz.	5 oz
2. Sixth Minute From Onset of Rotation	0 oz.	1 oz
3. Seventh Minute From Onset of Rotation	0 oz.	1 oz
4. Eighth Minute if Required	0 oz.	1 oz

FUEL SPILLAGE LOCATIONS(S): None

TABLE 18 FMVSS 301 STATIC ROLLOVER TEST DATA (Cont'd)

TEST PHASE: 90° - 180°



DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:

Rollover Fixture 90° Rotation Time = 2 minutes 22 seconds

(Spec. Range = 1 to 3 minutes)

FMVSS 301 Position Hold Time = 5 minutes 0 seconds

TOTAL TIME = 7 minutes 22 seconds

Next Whole Minute Interval = 8 minutes

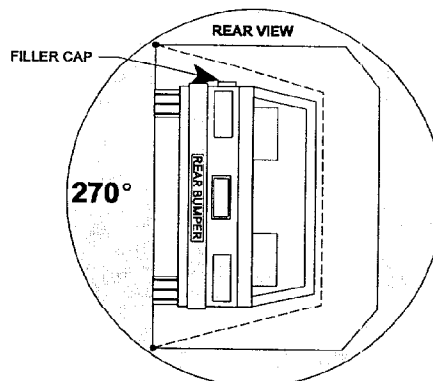
FUEL SPILLAGE MEASUREMENT:

90° TO 180° ROTATION	TEST RESULTS	MAXIMUM ALLOWABLE
1. First 5 Minutes From Onset of Rotation	0 oz.	5 oz
2. Sixth Minute From Onset of Rotation	0 oz.	1 oz
3. Seventh Minute From Onset of Rotation	0 oz.	1 oz
4. Eighth Minute if Required	0 oz.	1 oz

FUEL SPILLAGE LOCATIONS(S): None

TABLE 18 FMVSS 301 STATIC ROLLOVER TEST DATA (Cont'd)

TEST PHASE: 180° - 270°

DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:Rollover Fixture 90° Rotation Time = 2 minutes 14 seconds

(Spec. Range = 1 to 3 minutes)

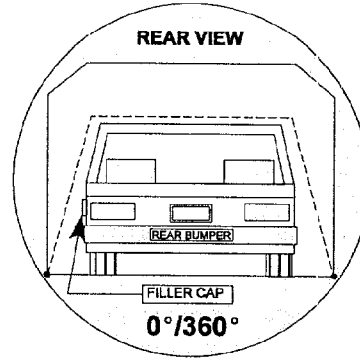
FMVSS 301 Position Hold Time = 5 minutes 0 secondsTOTAL TIME = 7 minutes 14 secondsNext Whole Minute Interval = 8 minutesFUEL SPILLAGE MEASUREMENT:

180° TO 270° ROTATION	TEST RESULTS	MAXIMUM ALLOWABLE
1. First 5 Minutes From Onset of Rotation	0 oz.	5 oz
2. Sixth Minute From Onset of Rotation	0 oz.	1 oz
3. Seventh Minute From Onset of Rotation	0 oz.	1 oz
4. Eighth Minute if Required	0 oz.	1 oz

FUEL SPILLAGE LOCATIONS(S): None

TABLE 18 FMVSS 301 STATIC ROLLOVER TEST DATA (Cont'd)

TEST PHASE: 270° - 360°

DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:Rollover Fixture 90° Rotation Time = 2 minutes 45 seconds

(Spec. Range = 1 to 3 minutes)

FMVSS 301 Position Hold Time = 5 minutes 0 secondsTOTAL TIME = 7 minutes 45 secondsNext Whole Minute Interval = 8 minutesFUEL SPILLAGE MEASUREMENT:

270° TO 360° ROTATION	TEST RESULTS	MAXIMUM ALLOWABLE
1. First 5 Minutes From Onset of Rotation	0 oz.	5 oz
2. Sixth Minute From Onset of Rotation	0 oz.	1 oz
3. Seventh Minute From Onset of Rotation	0 oz.	1 oz
4. Eighth Minute if Required	0 oz.	1 oz

FUEL SPILLAGE LOCATIONS(S): None

SECTION 4
OCCUPANT, VEHICLE, AND CAMERA INFORMATION

TABLE 19 SEAT AND STEERING COLUMN POSITIONING DATA

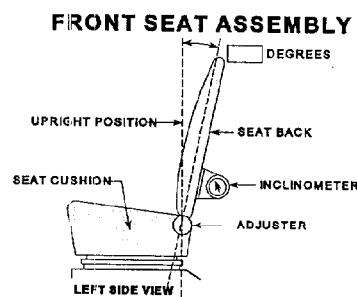
Vehicle Year/Make/Model/Body Style: 2000/Jeep/Cherokee/4 Door

Vehicle NHTSA No.: CY0306 Test Date: April 12, 2000

NOMINAL DESIGN RIDING POSITION:

Driver Seat: * Seat Back Angle = 13.6 °

Passenger Seat: * Seat Back Angle = 13.9°



* Seat positioned 7 degrees reclined from full forward

SEAT FORE AND AFT POSITIONS:

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

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

STEERING COLUMN ADJUSTMENTS:

The steering column was positioned at the mid-point of its swing. The angle of the steering column was 25.2°.

FIGURE 1 DUMMY MEASUREMENT LOCATIONS FOR FRONT SEAT OCCUPANTS

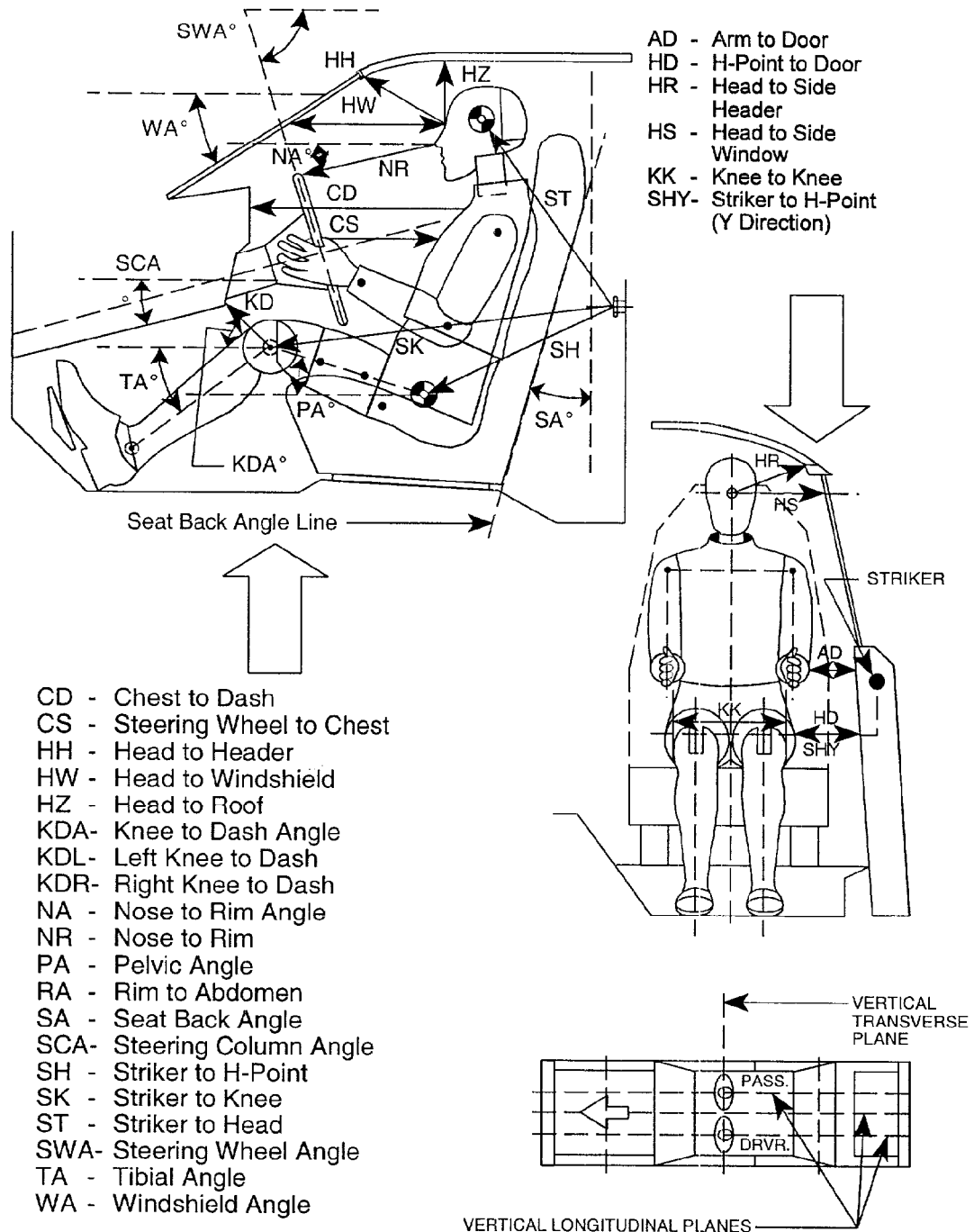
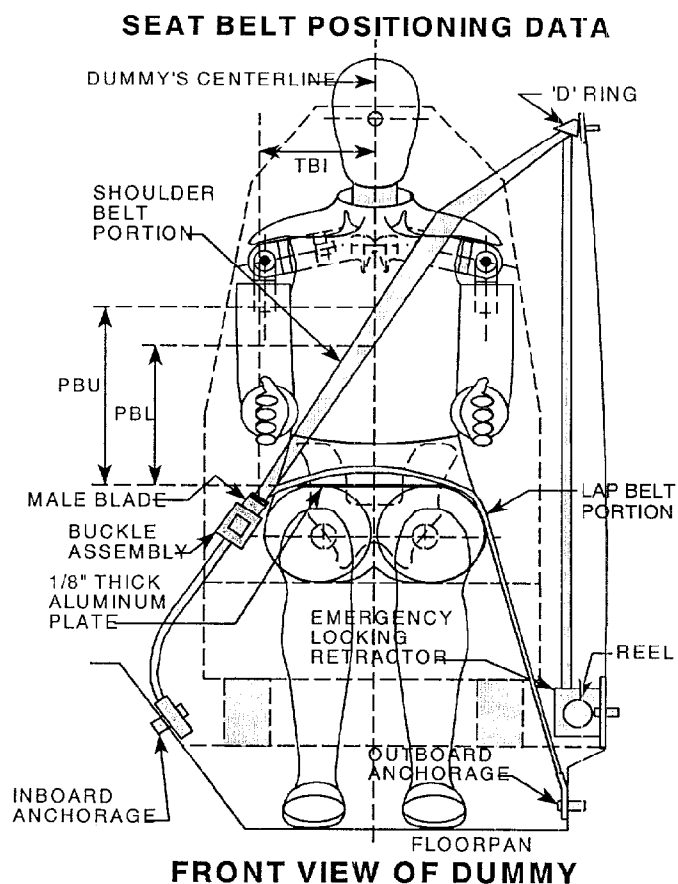


TABLE 20 DUMMY MEASUREMENT DATA FOR FRONT SEAT OCCUPANTSVehicle Year/Make/Model/Body Style: 2000/Jeep/Cherokee/4 DoorVehicle NHTSA No.: CY0306 Test Date: April 12, 2000

	DRIVER (Serial #401)	PASSENGER (Serial #403)
WA°	42.1°	
SWA°	64.8°	N/A
SCA°	25.4°	N/A
SA°	13.6°	13.9°
HZ	16.1	5.5
HH	13.9	13.6
HW	18.9	17.6
HR	10.9	10.0
NR	13.8 Angle 12.2 °	N/A
CD	19.0	21.1
CS	10.7	N/A
RA	6.2	N/A
KDL	6.2 Angle 10.9 °	5.7
KDR	5.9	5.6 Angle 19.3°
PA°	24.2°	22.3°
TA°	43.2°	43.4°
KK	12.2	8.9
ST*	23.6 Angle 8.6°	24.3 Angle 10.6°
SK*	23.6 Angle 87.9°	23.8 Angle 86.8°
SH*	7.6 Angle 100.5°	7.7 Angle 97.3°
SHY	9.1	8.8
HS	12.1	11.5
HD	5.8	5.6
AD	3.0	2.6

Units in inches

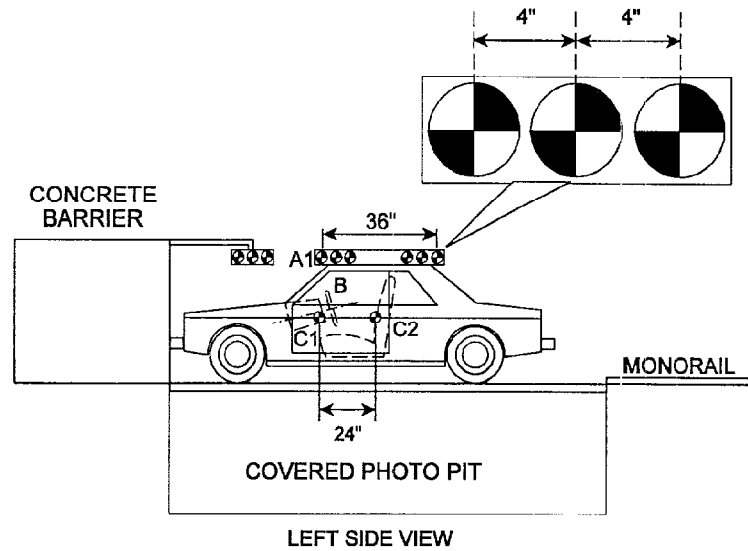
TABLE 21 SEAT BELT POSITIONING DATAVehicle Year/Make/Model/Body Style: 2000/Jeep/Cherokee/4 DoorVehicle NHTSA No.: CY0306 Test Date: April 12, 2000

(Illustration)

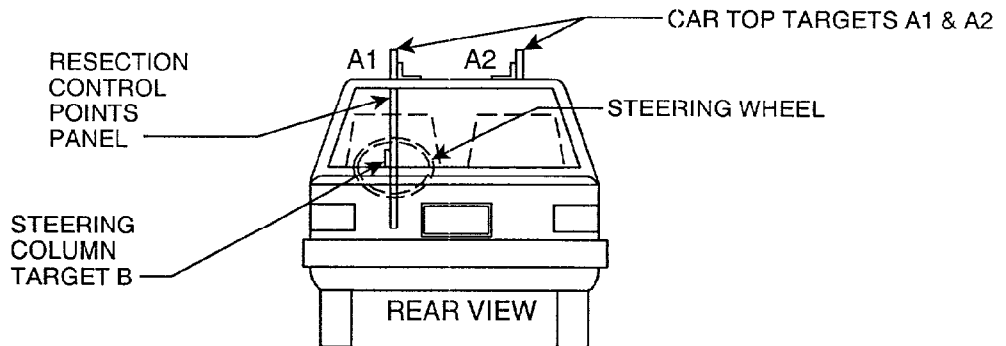
	Driver Dummy	Passenger Dummy
<u>TBI</u> —Vertical centerline of 50% dummy to intersection of upper torso belt to lap belt	8.2	7.9
<u>PBU</u> —Top surface of aluminum plate to belt upper edge (inches)	12.6	13.3
<u>PBL</u> —Top surface of aluminum plate to belt lower edge (inches)	9.6	9.9

FIGURE 2 VEHICLE TARGET LOCATIONS

REFERENCE PHOTO TARGETS



RESECTION PANEL TARGETING ALIGNMENT



TEST RUN STEERING COLUMN CAMERA VIEW OF TYPICAL TIME ZERO VEHICLE POSITION

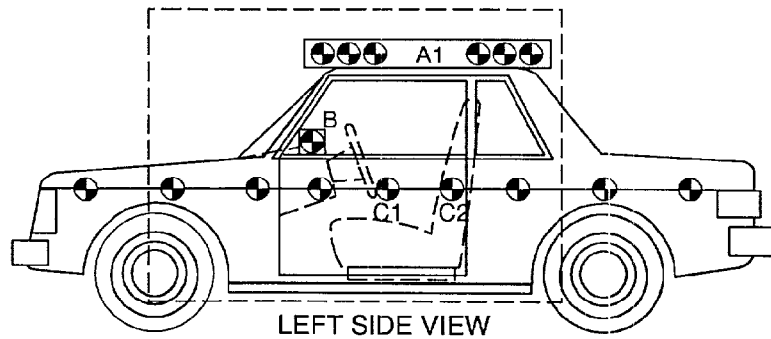


FIGURE 6

FIGURE 3 CAMERA POSITIONS

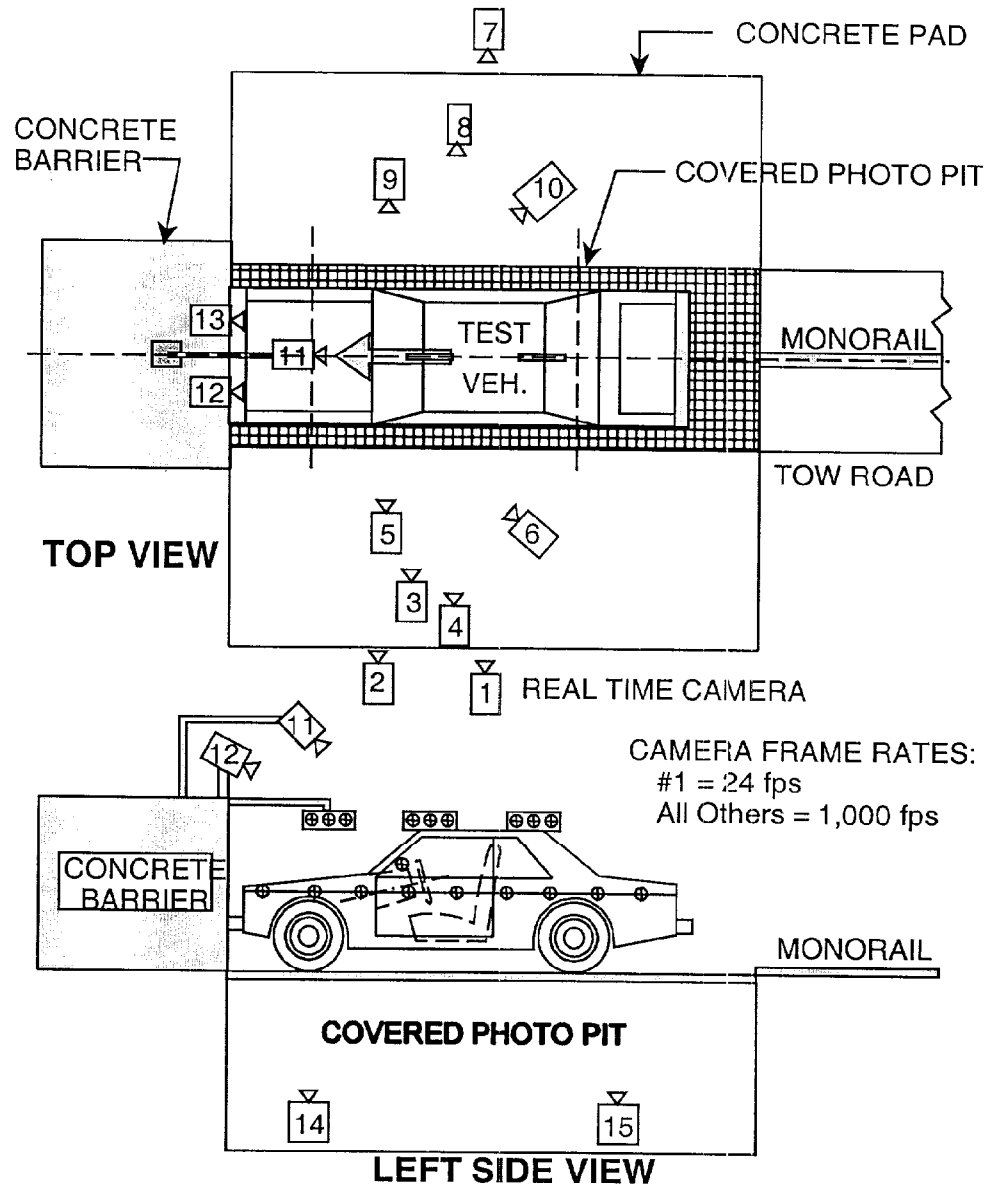


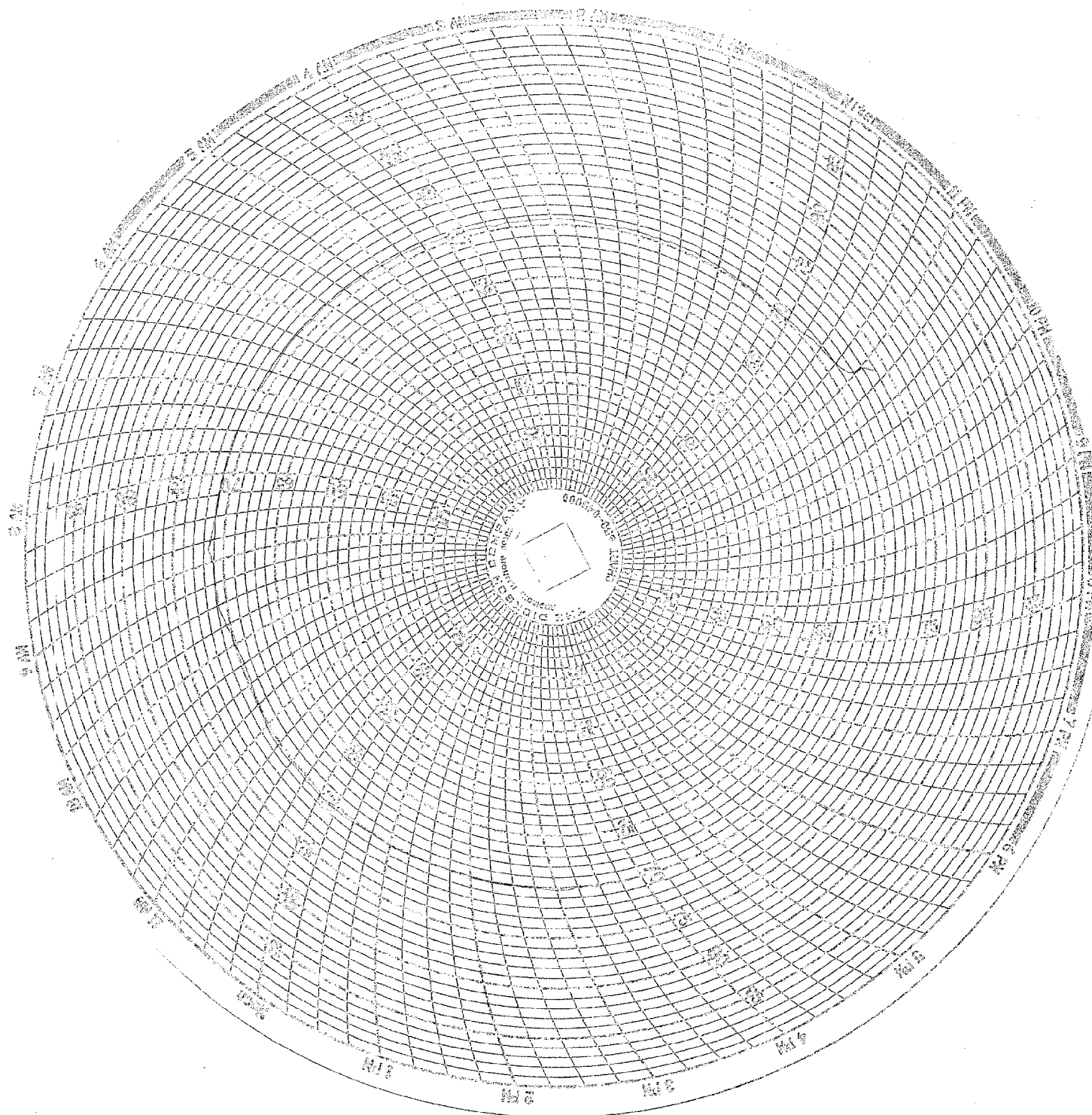
TABLE 22 CAMERA LOCATIONS

Veh. Year/Make/Model/Body Style: 2000/Jeep/Cherokee/4 DoorVehicle NHTSA No.: CY0306 ; Test Date: April 12, 2000

	VIEW	CAMERA POSITIONS (inches)*			ANGLE (deg)	LENS (mm)	SPEED (fps)
		X	Y	Z			
1	Real-Time Left Side View					10	24
2	Left Front	760	7660	1560	90	75	1015
3	Driver Close-up	1390	10850	1460	90	75	1111
4	Steering Column Bottom	1640	7570	1040	90	25	855
5	Steering Column Top	1640	7570	1570	90	25	1010
6	Driver Angle Motion	4650	5200	2030		50	1183
7	Right Overall	1800	-6720	1500	90	13	1005
8	Right Close-up	1350	-10250	1430	90	75	1198
9	Right Passenger	940	-7250	1460	90	25	1000
10	Right Angle	5070	-5500	2020		50	1130
11	Top Overall	1470	0	2700		13	1117
12	Top Driver	870	440	1790		13	1000
13	Top Passenger	870	-480	1780		13	1000
14	Pit Front	1020	0	-3140		13	1015
15	Pit Rear View	2585	0	-3140		13	1010

- *
 +X = Film plane rearward of barrier
 +Y = Film plane to left of monorail centerline
 +Z = Film plane to above ground level

FIGURE 4 TEMPERATURE



**APPENDIX A
PHOTOGRAPHS**

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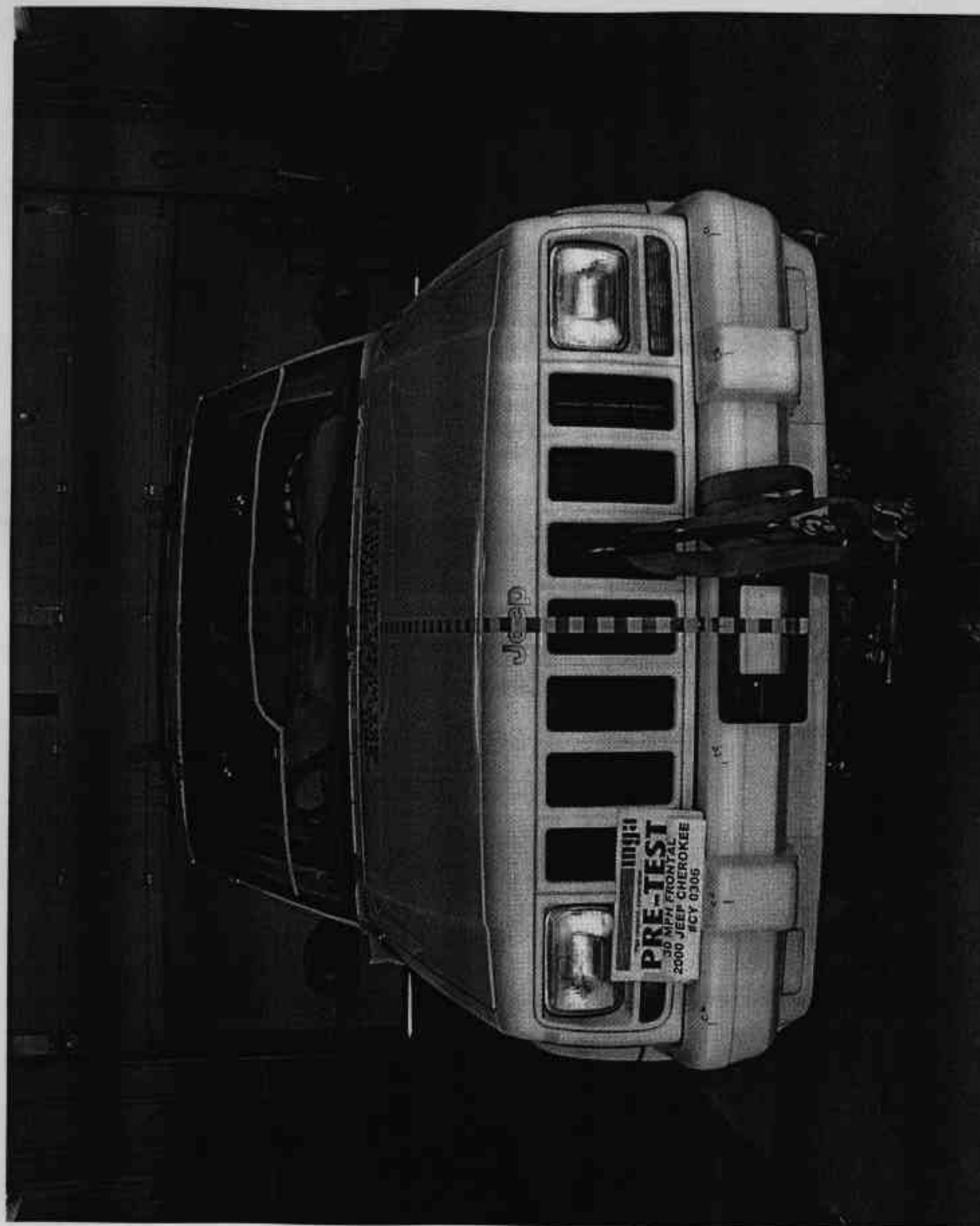


Photo No. A-1 - Pre-Test Front View

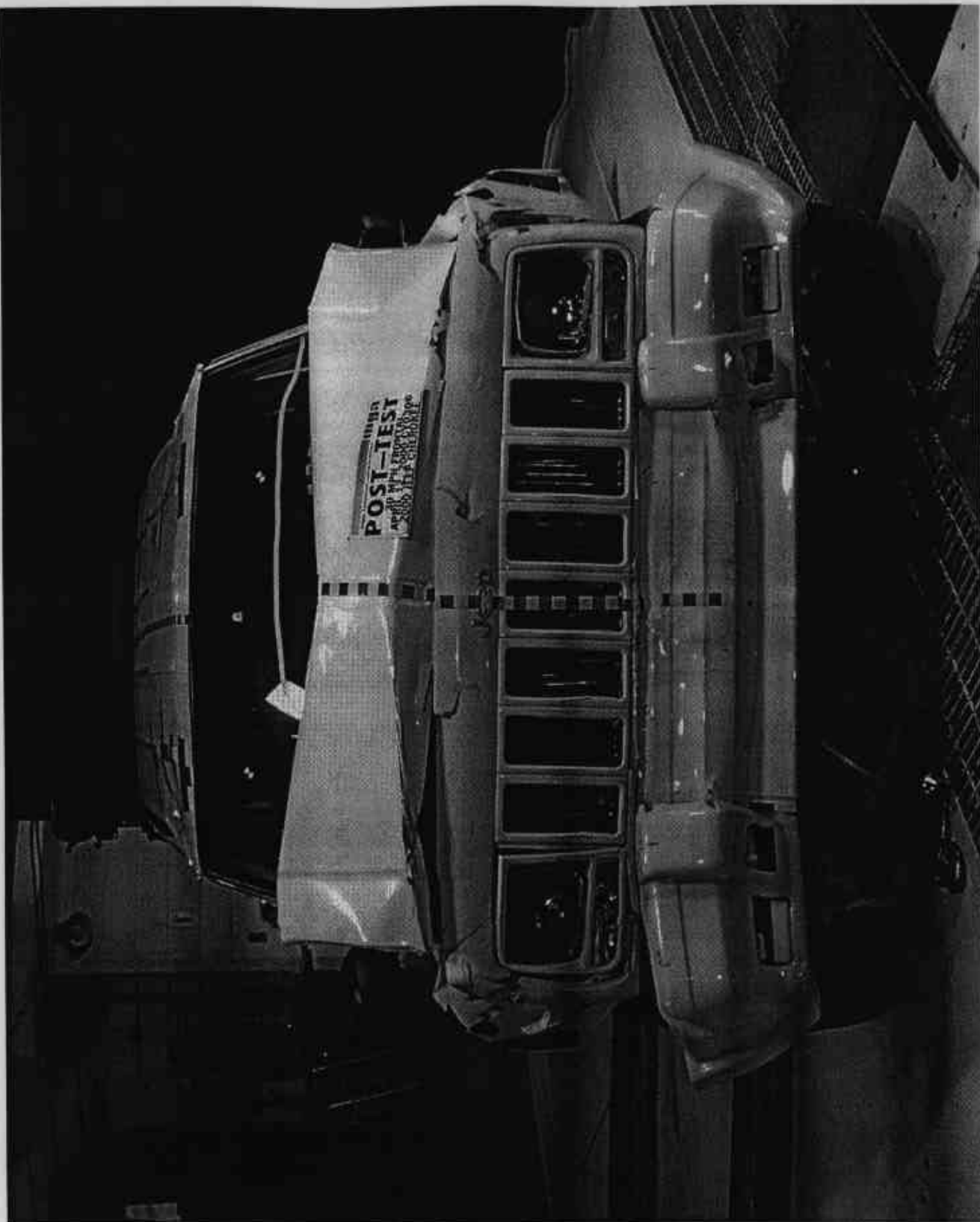


Photo No. A-2 - Post-Test Front View

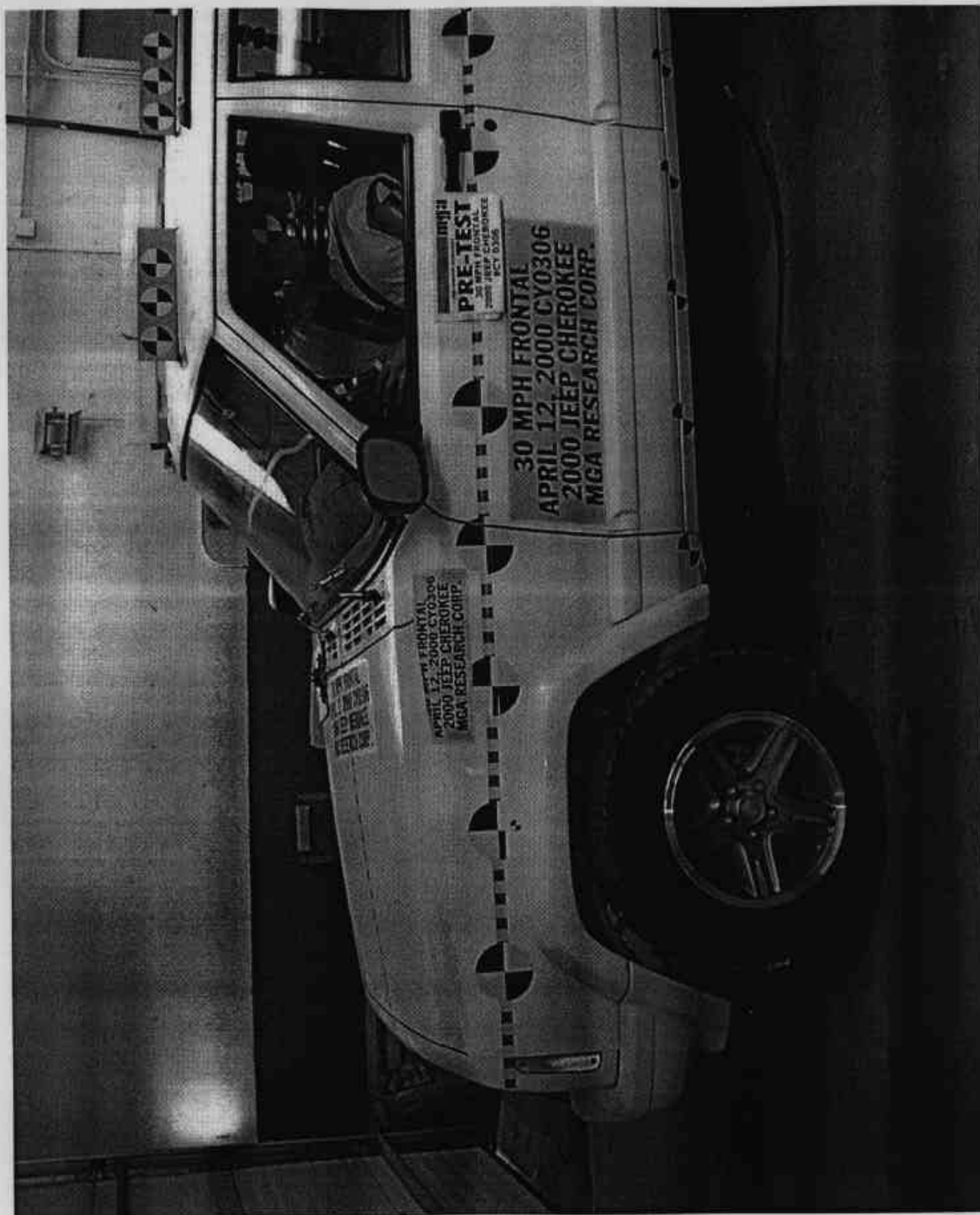


Photo No. A-3 - Pre-Test Left Front Side View



Photo No. A-4 - Pre-Test Left Rear Side View

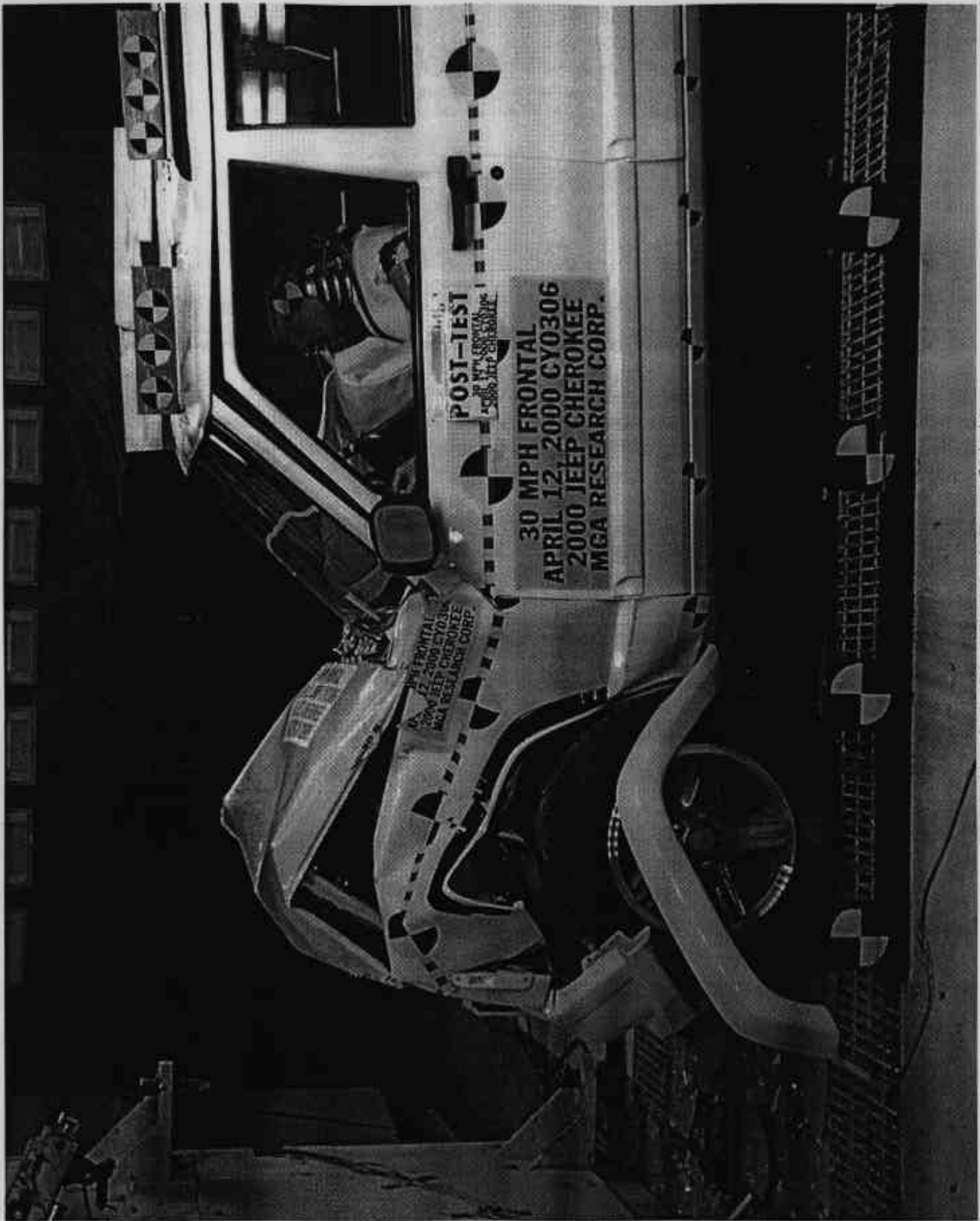


Photo No. A-5 - Post-Test Left Front Side View

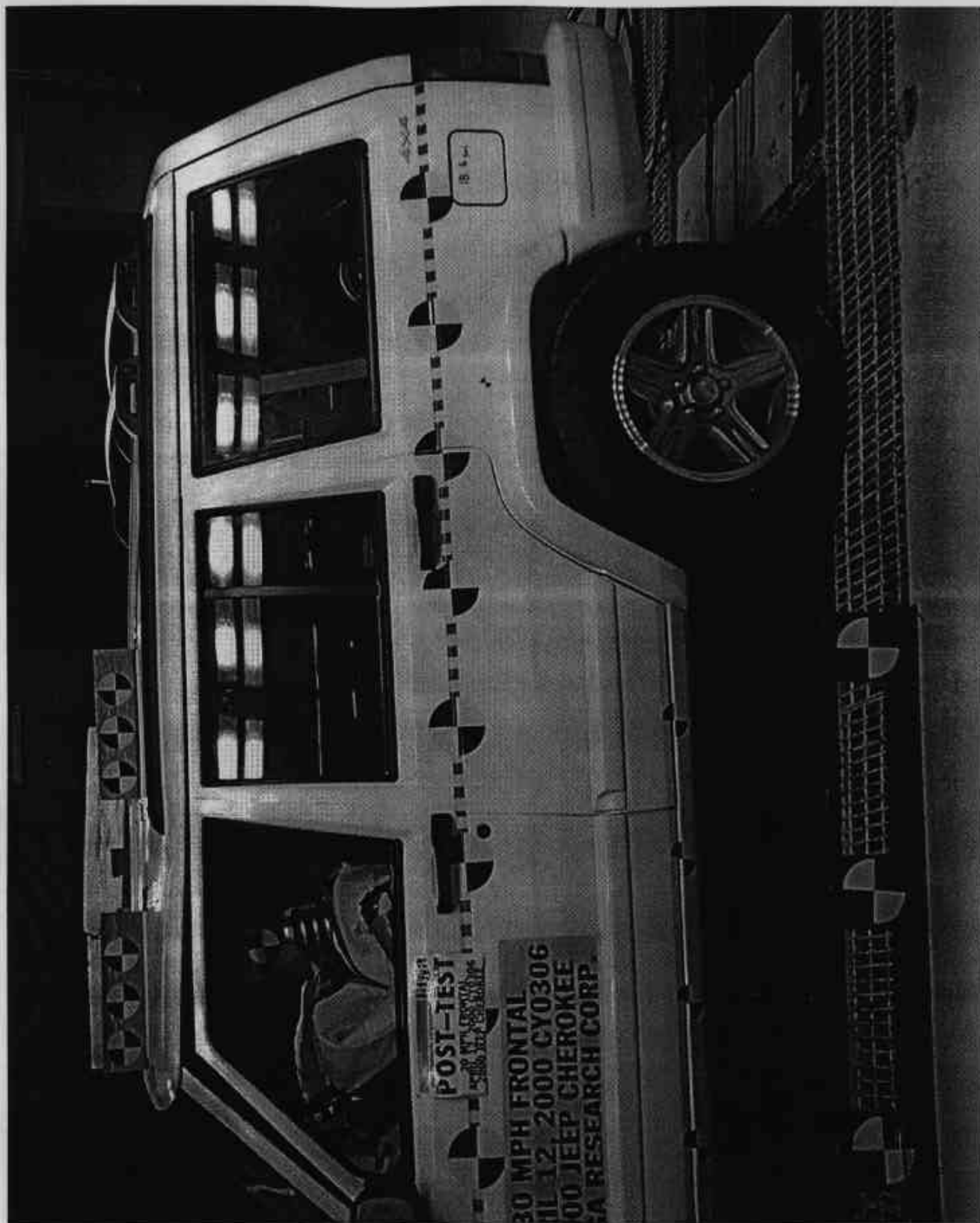


Photo No. A-6 - Post-Test Left Rear Side View

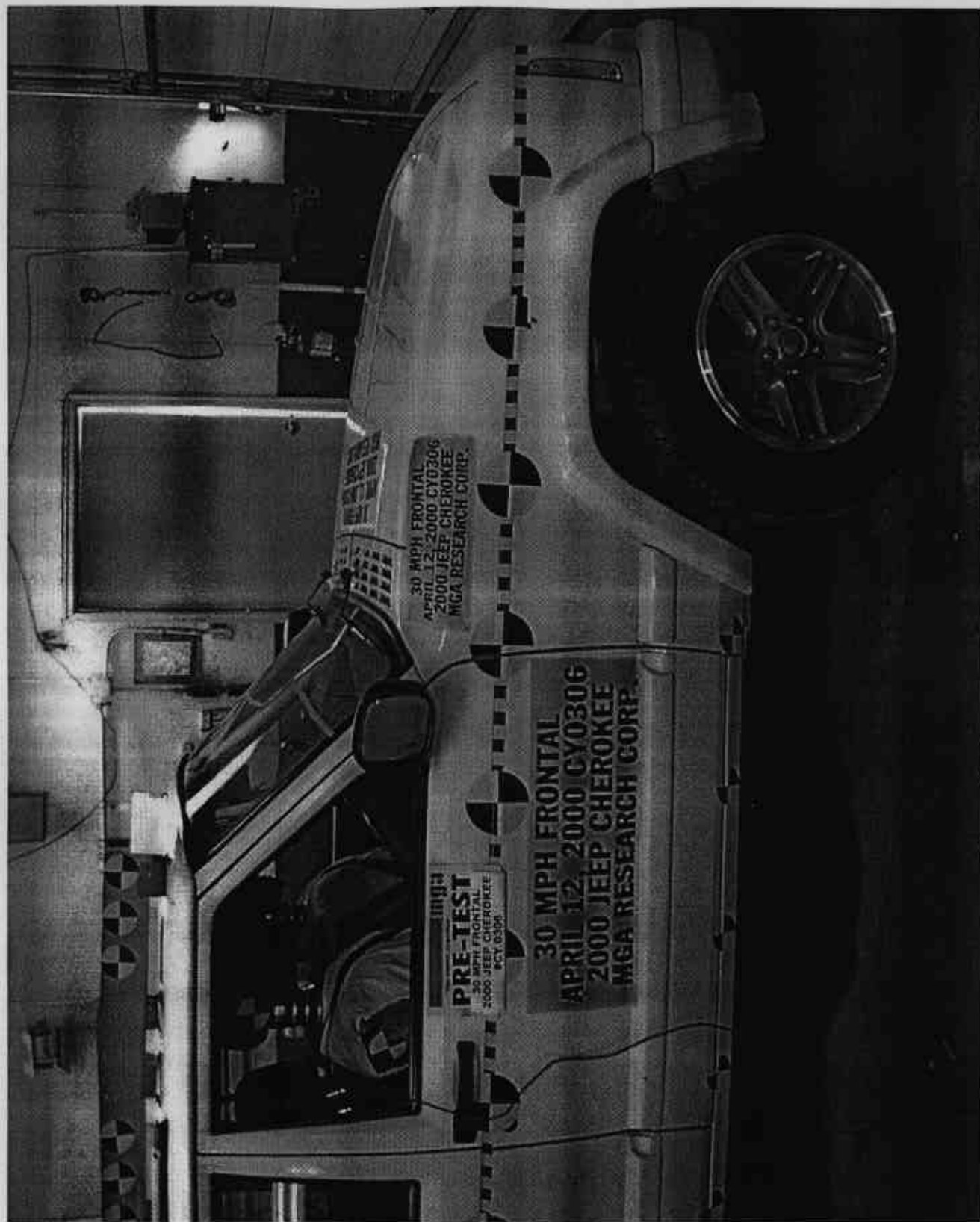


Photo No. A-7 - Pre-Test Right Front Side View



Photo No. A-8 - Pre-Test Right Rear Side View

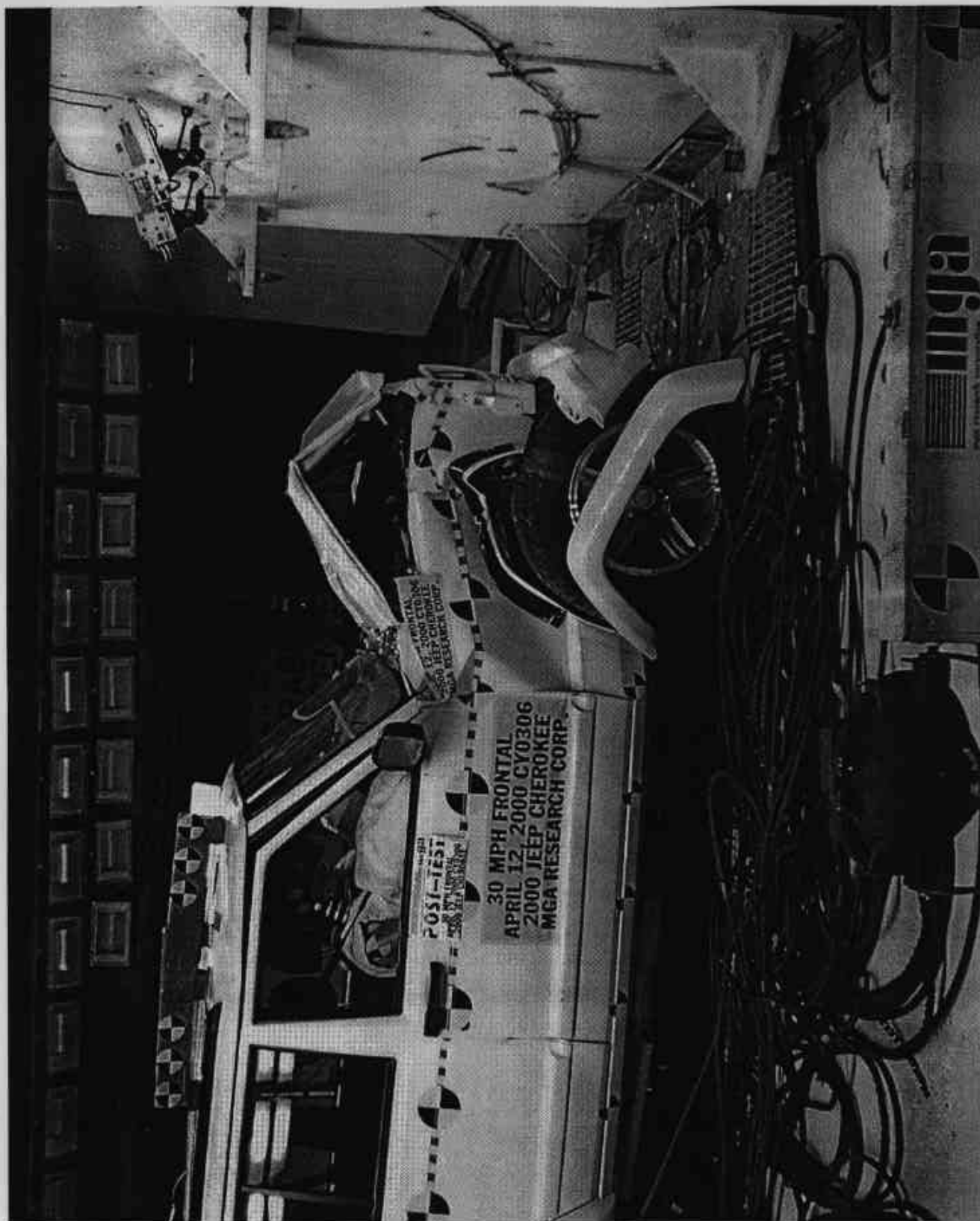


Photo No. A-9 - Post-Test Right Front Side View



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



Photo No. A-11 - Pre-Test 3/4 Left Rear View



Photo No. A-12 - Post-Test 3/4 Left Rear View

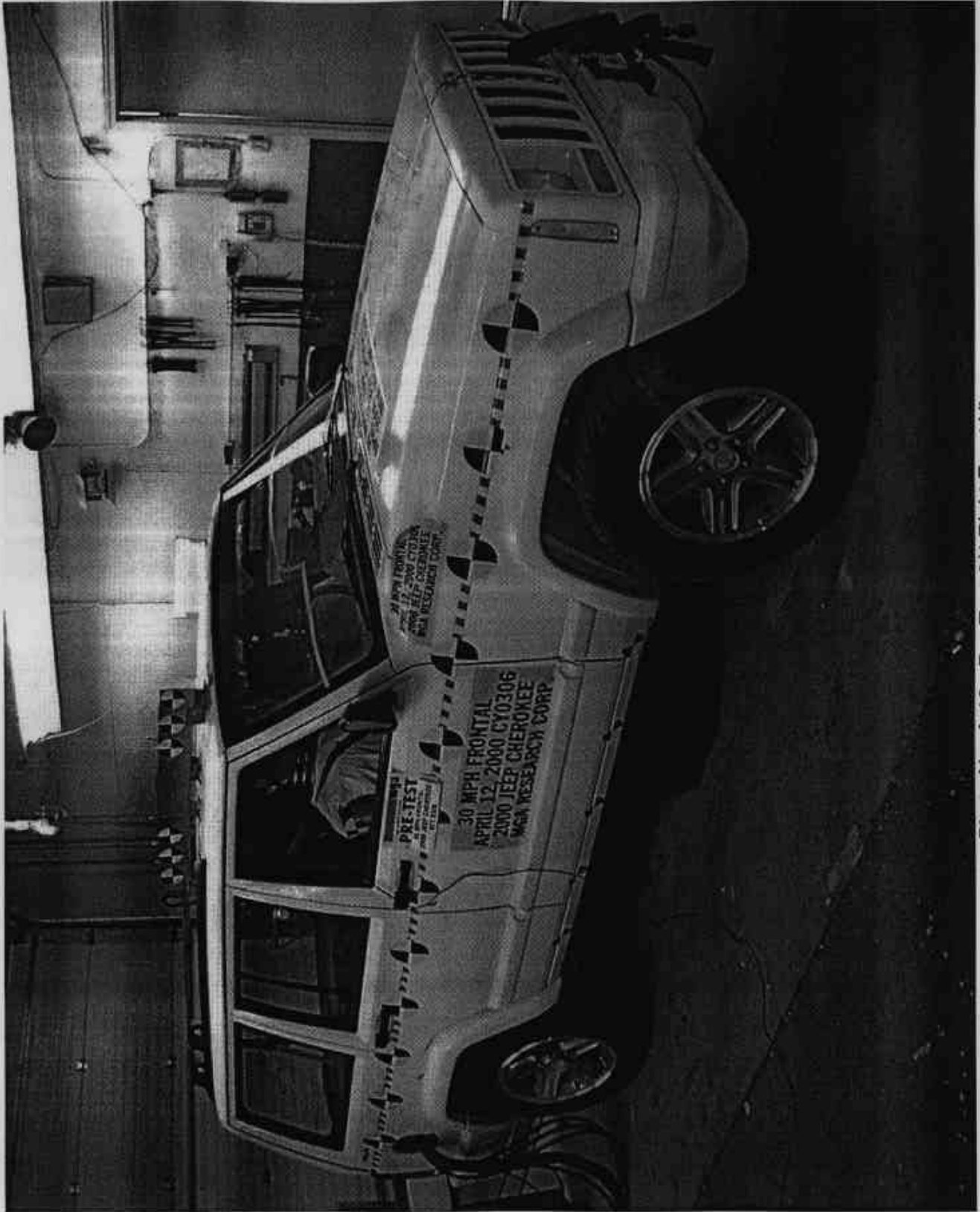


Photo No. A-13 - Pre-Test 3/4 Right Front View

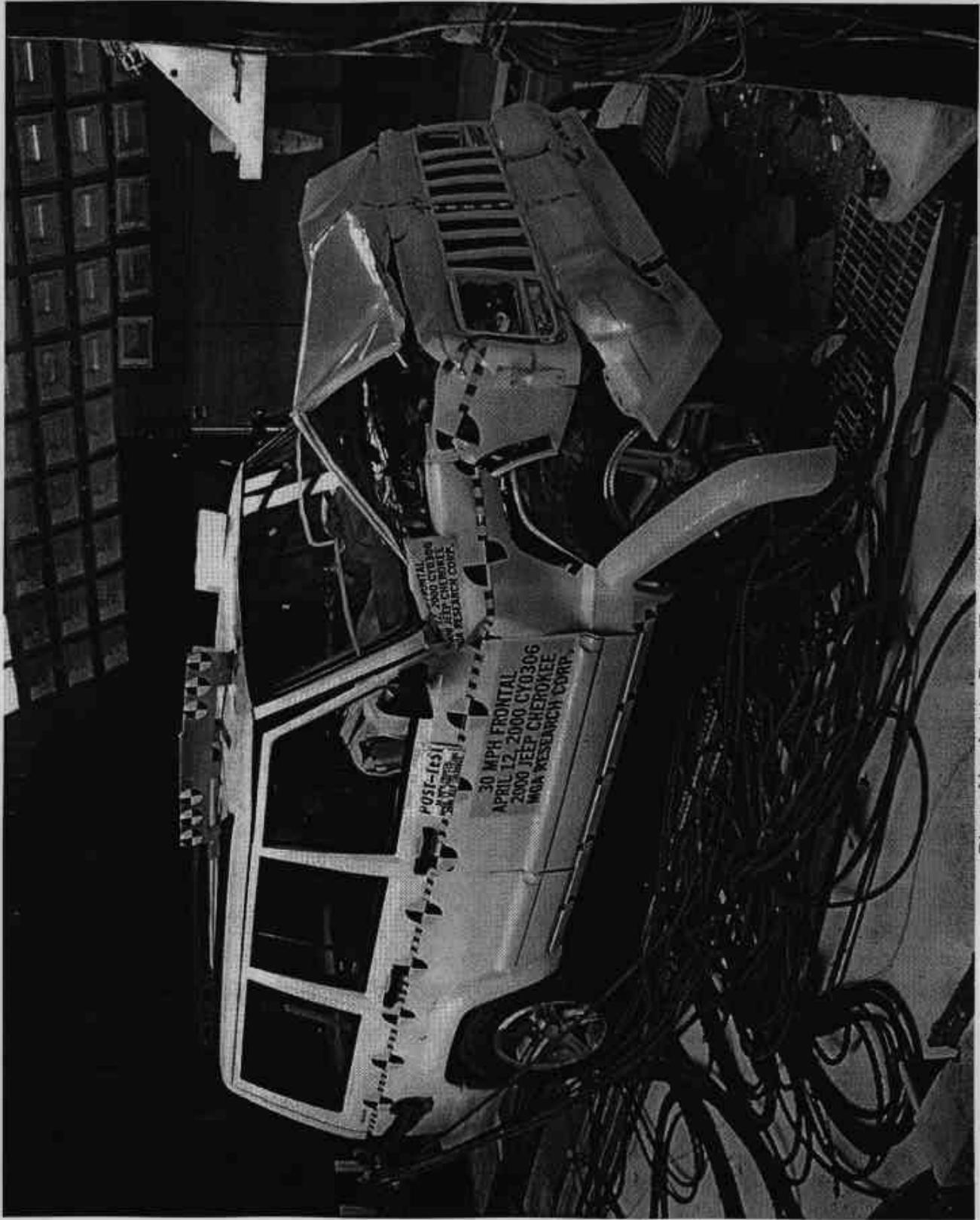


Photo No. A-14 - Post-Test 3/4 Right Front View



Photo No. A-15 - Pre-Test Rear View

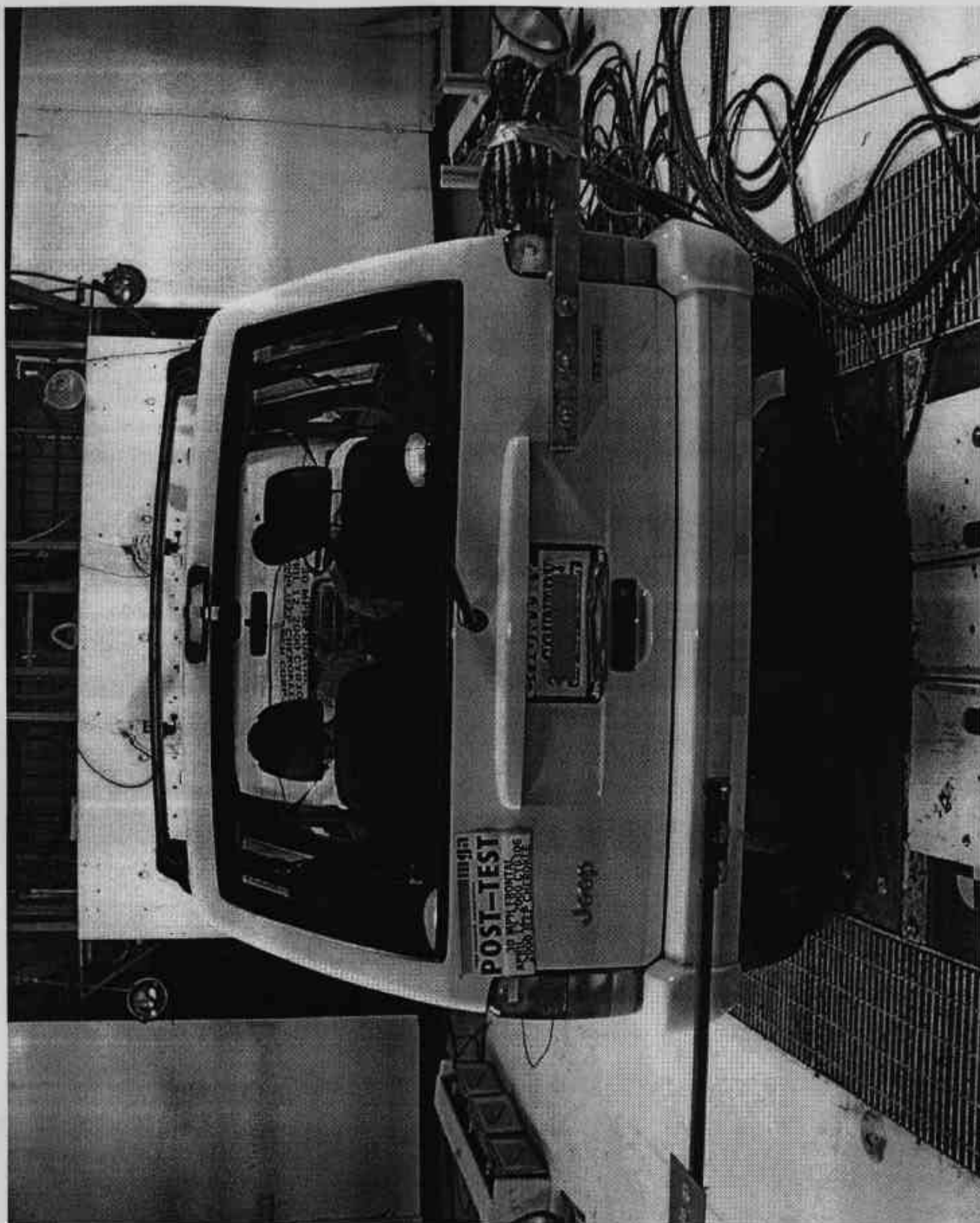


Photo No. A-16 - Post-Test Rear View



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

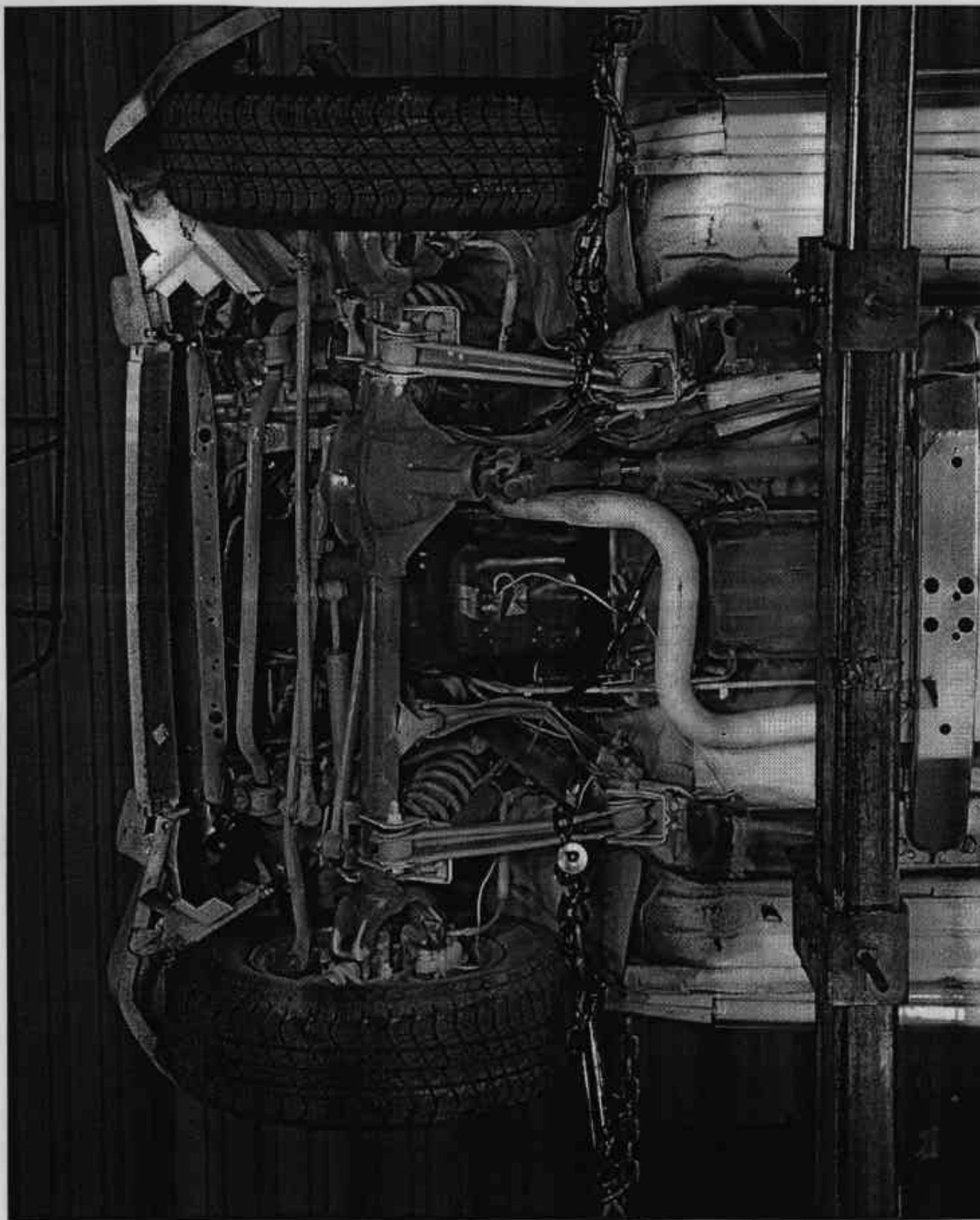


Photo No. A-18 - Post-Test Front Underbody View

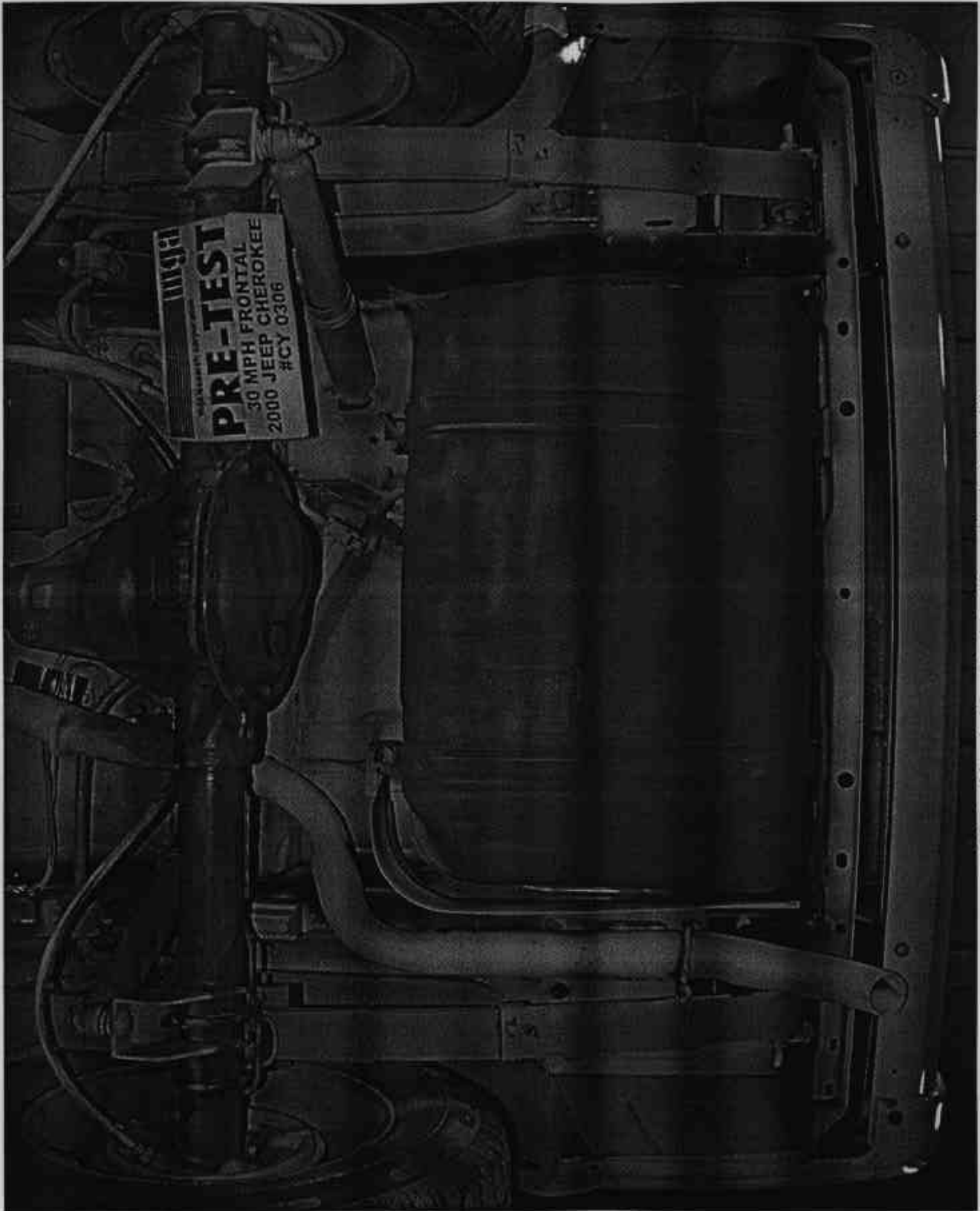


Photo No. A-19 - Pre-Test Rear Underbody View

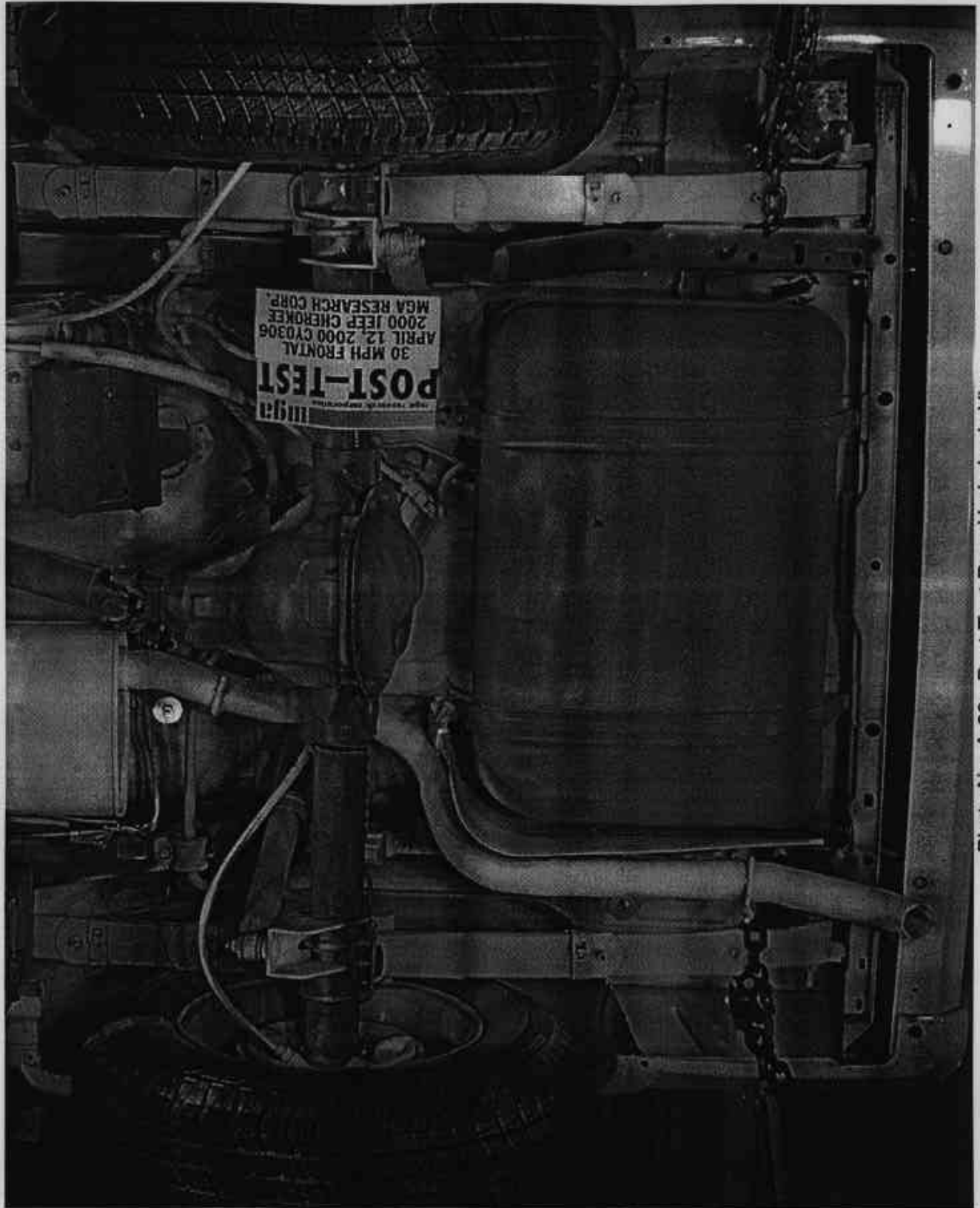


Photo No. A-20 - Post-Test Rear Underbody View

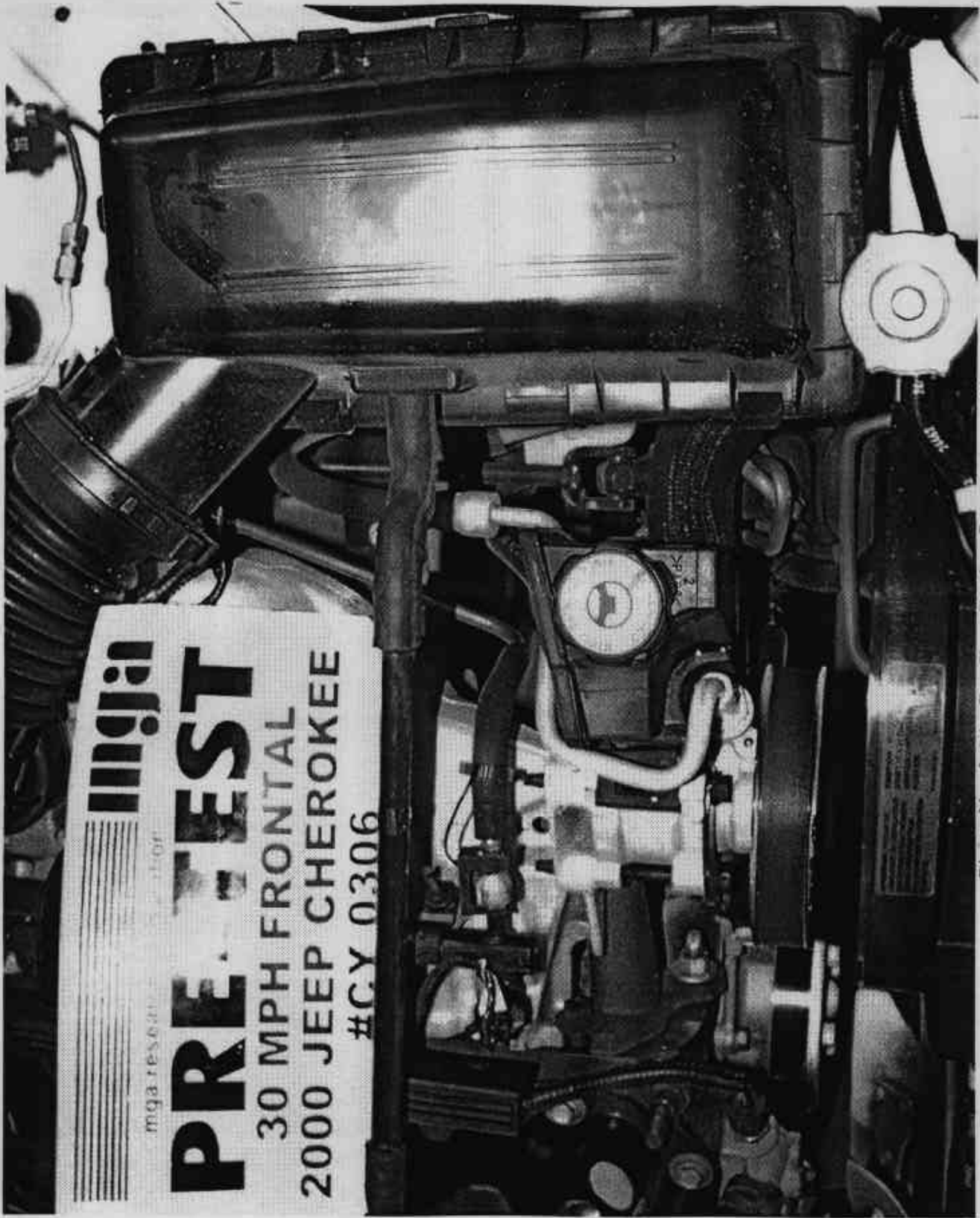


Photo No. A-21 - Pre-Test Engine Compartment View

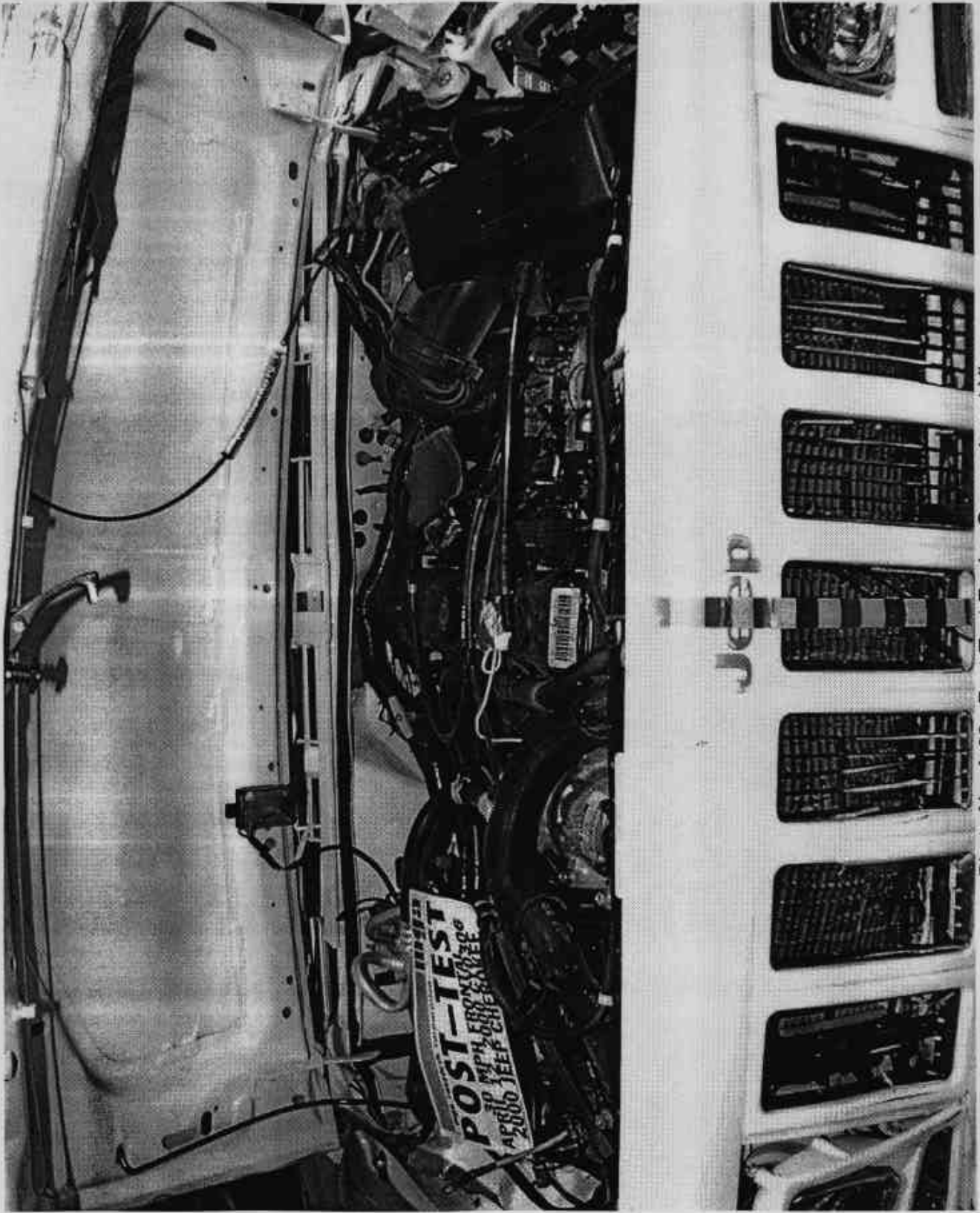


Photo No. A-22 - Post-Test Engine Compartment View



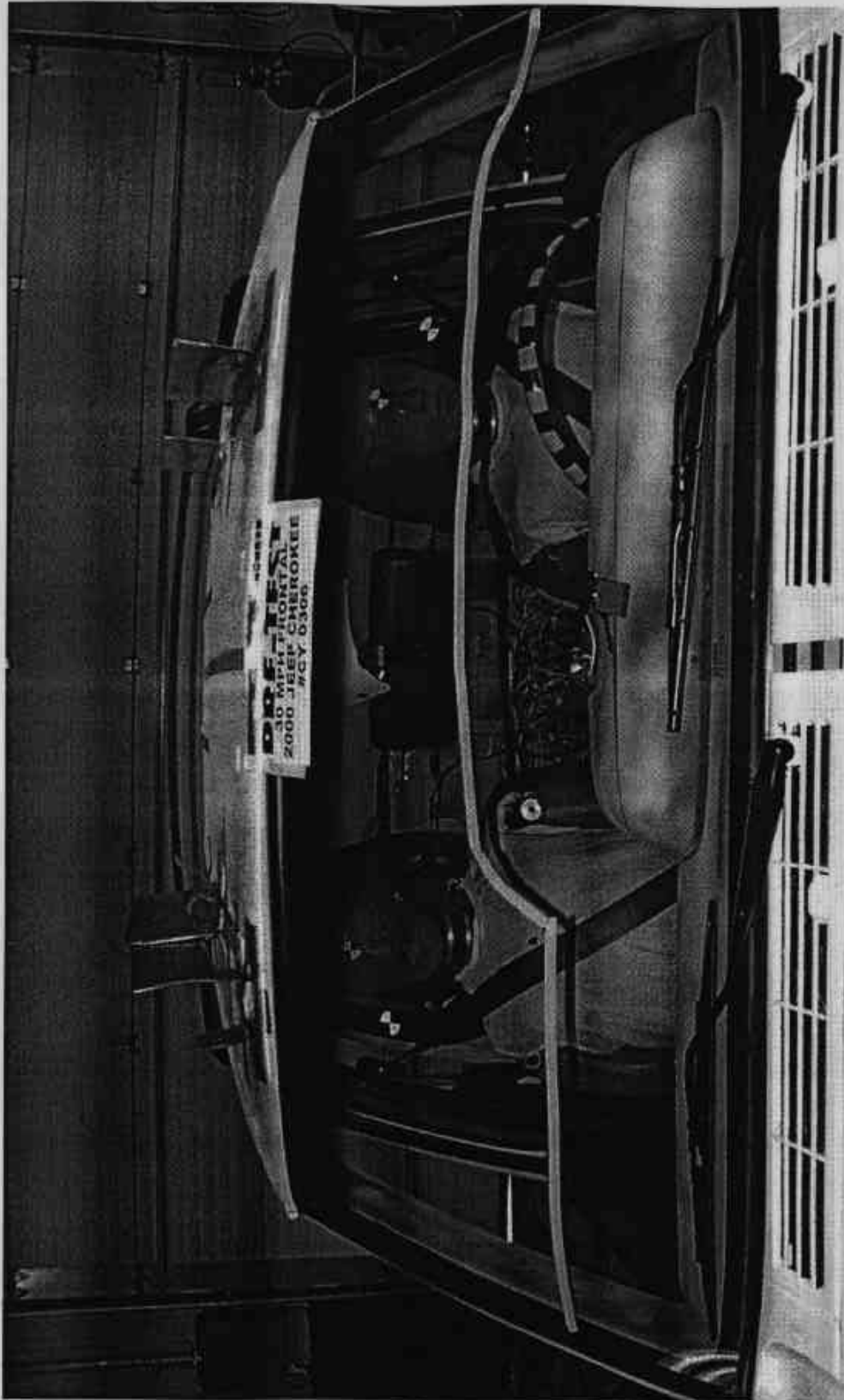
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mga rese... oration

PRE-TEST

**30 MPH FRONTAL
2000 JEEP CHEROKEE
#CY 0306**

Photo No. A-23 - Pre-Test Fuel Filler Cap View



**30 MPH FRONTAL
APRIL 12, 2000 CY0306
2000 JEEP CHEROKEE
MGA RESEARCH CORP.**

Photo No. A-24 - Pre-Test Windshield View

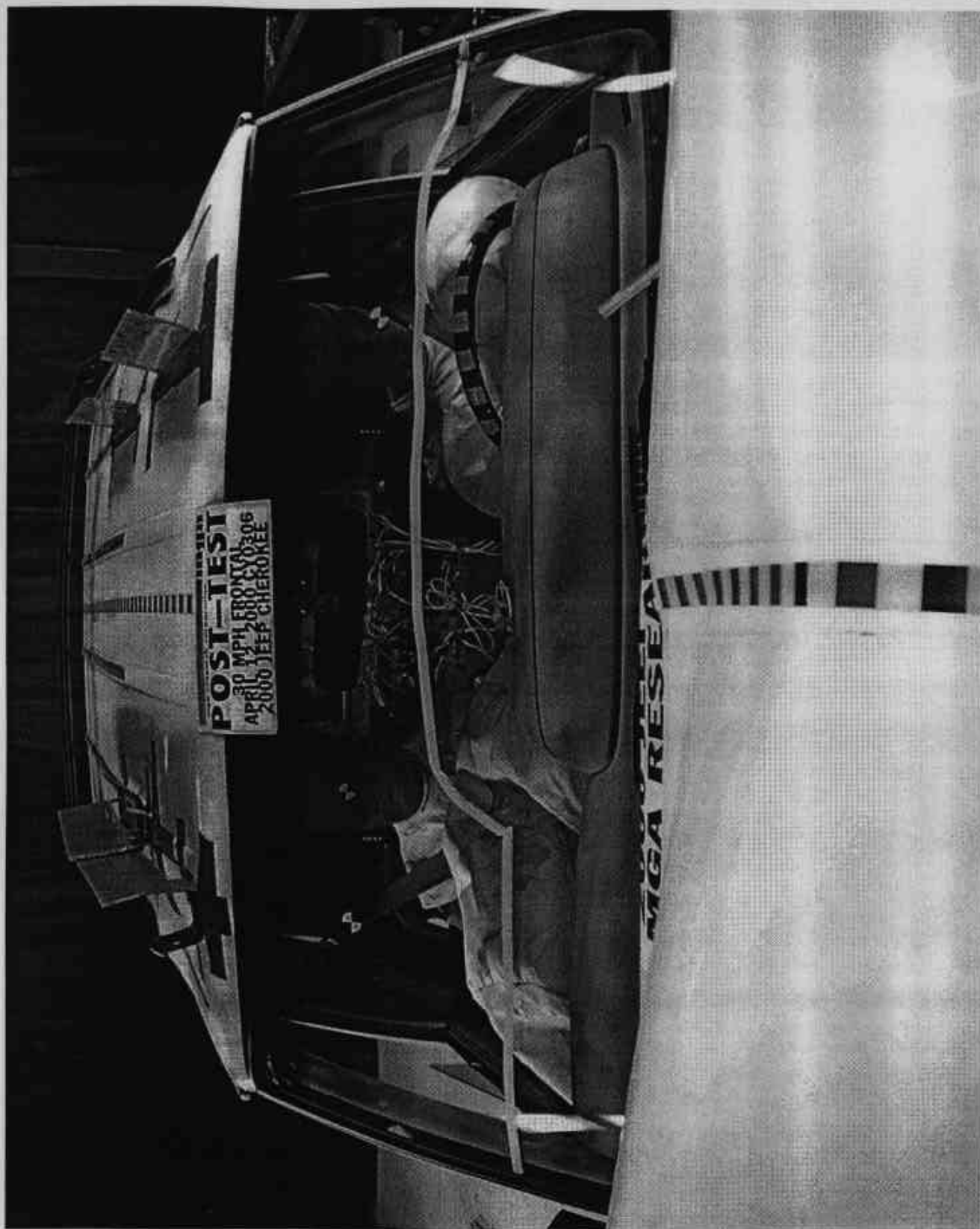


Photo No. A-25 - Post-Test Windshield View

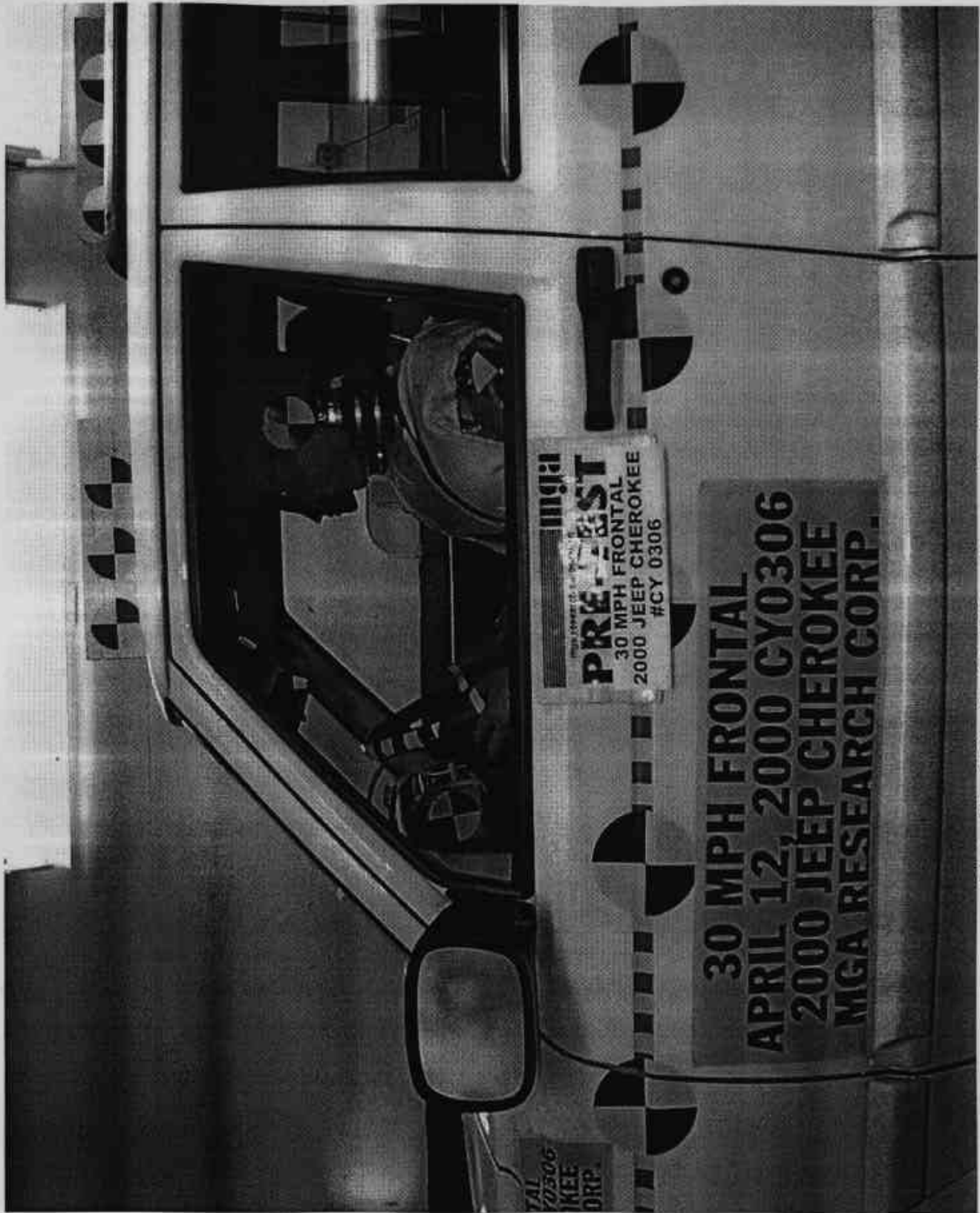


Photo No. A-26 - Pre-Test Driver Dummy Position View

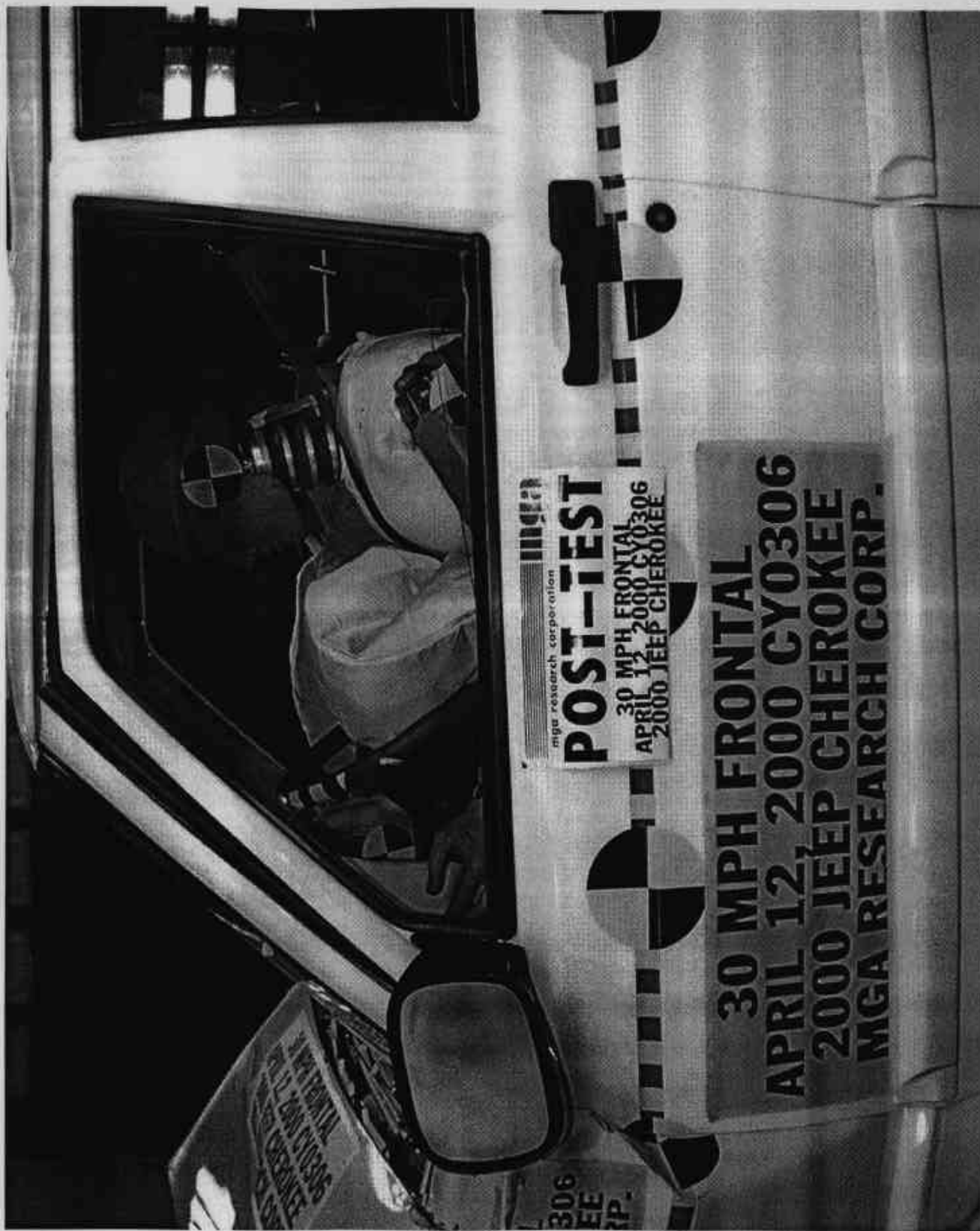


Photo No. A-27 - Post-Test Driver Dummy Position View

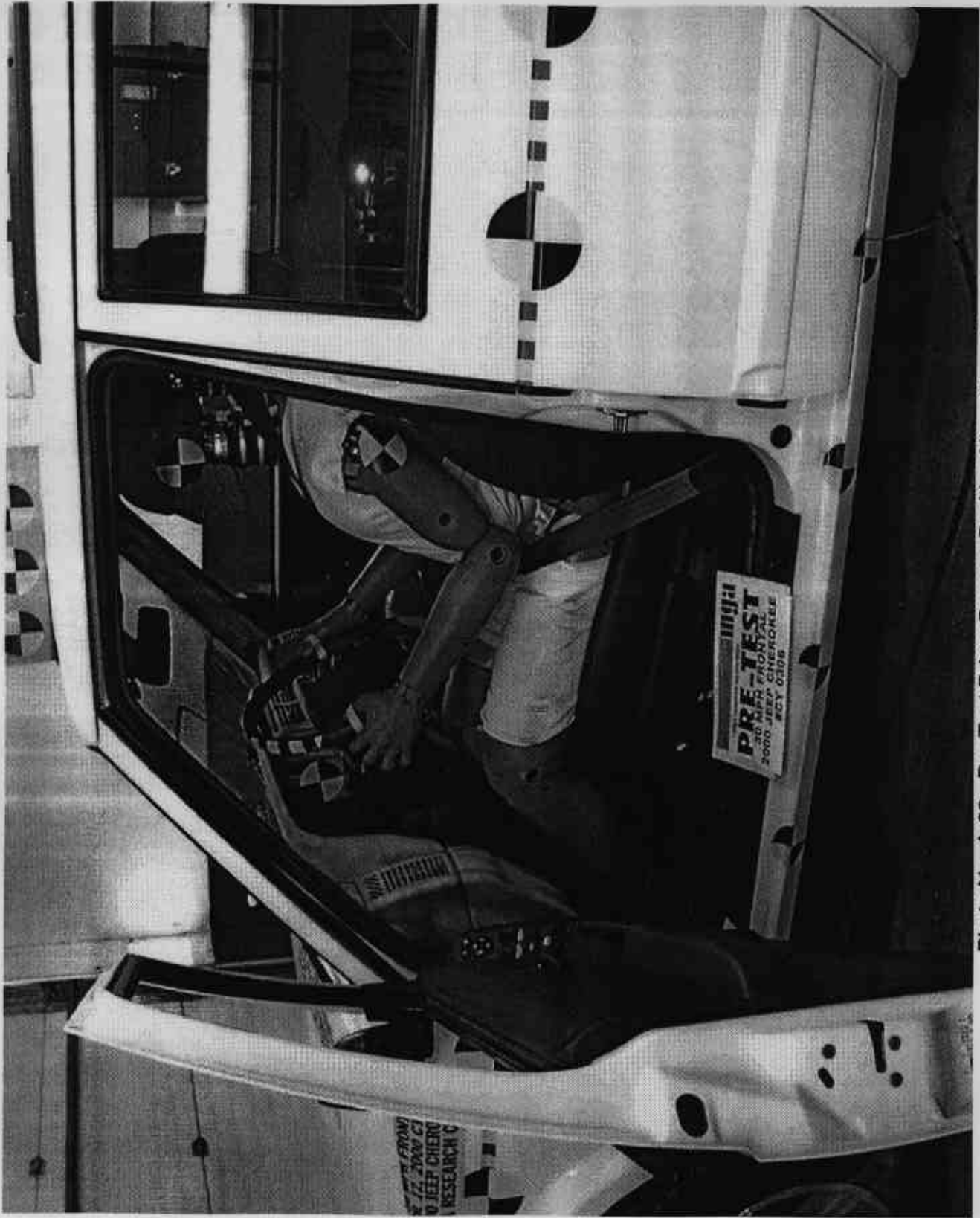


Photo No. A-28 - Pre-Test Driver Dummy Position View (Door Open)





Photo No. A-30 - Pre-Test Driver Windshield View



Photo No. A-31 - Post-Test Driver Windshield View



Photo No. A-32 - Pre-Test Driver Seat Position View



Photo No. A-33 - Post-Test Driver Seat Position View



Photo No. A-34 - Pre-Test Driver Knee Position View



Photo No. A-35 - Post-Test Driver Knee Position View



Photo No. A-36 - Post-Test Driver Airbag View

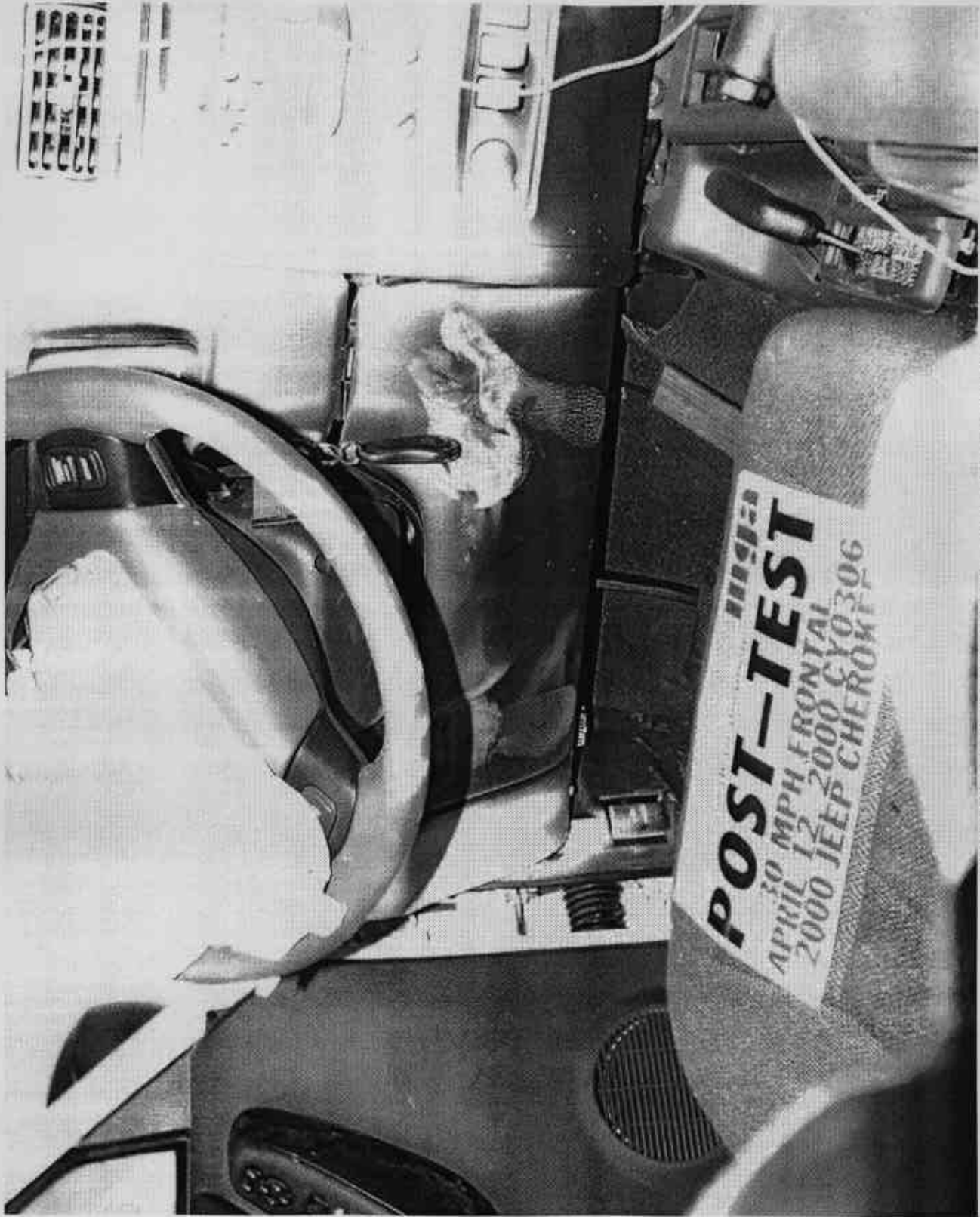


Photo No. A-37 - Post-Test Driver Knee Contact View



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



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

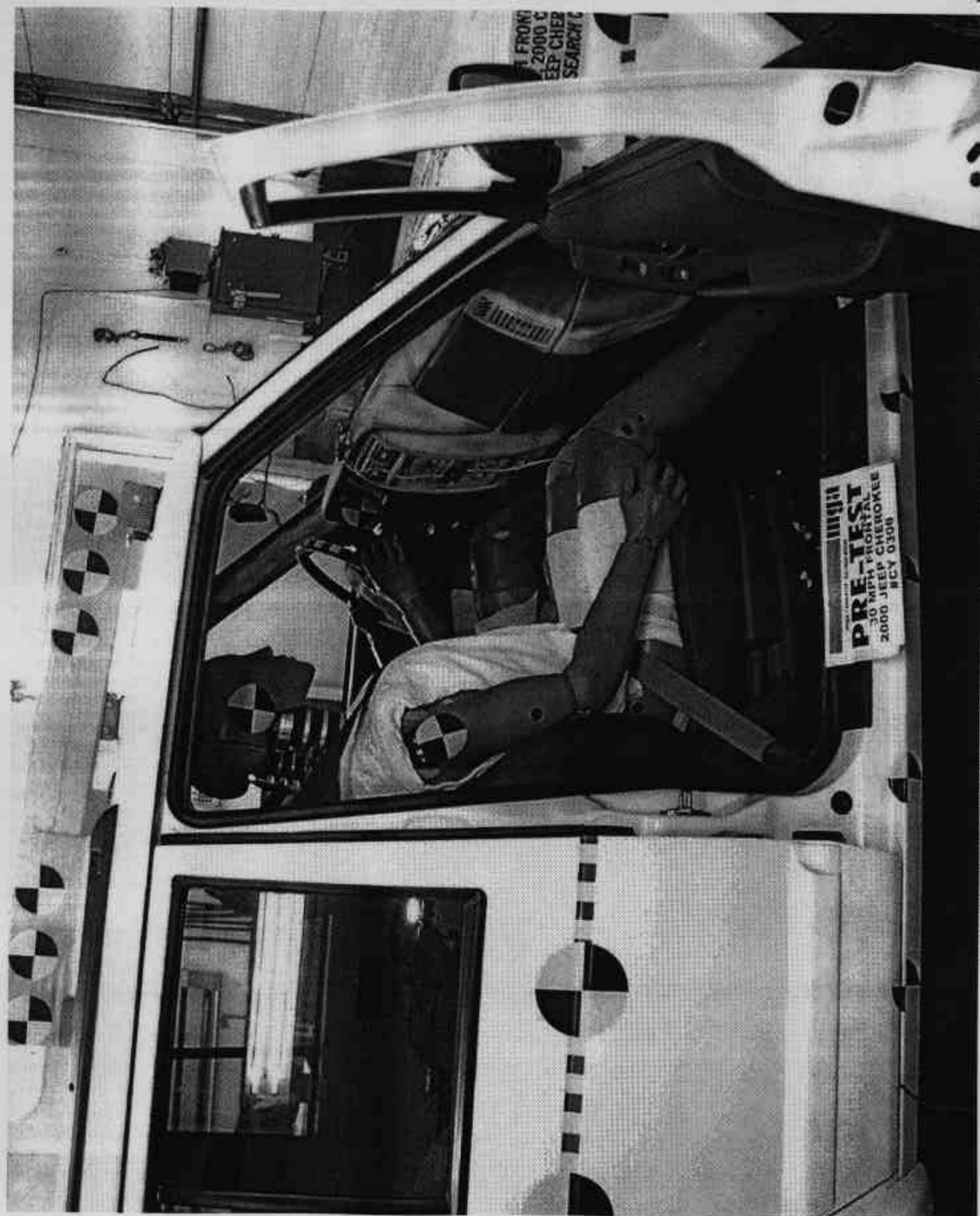


Photo No. A-40 - Pre-Test Passenger Dummy Position View (Door Open)



Photo No. A-41 - Post-Test Passenger Dummy Position View (Door Open)



Photo No. A-42 - Pre-Test Passenger Windshield View



Photo No. A-43 - Post-Test Passenger Windshield View

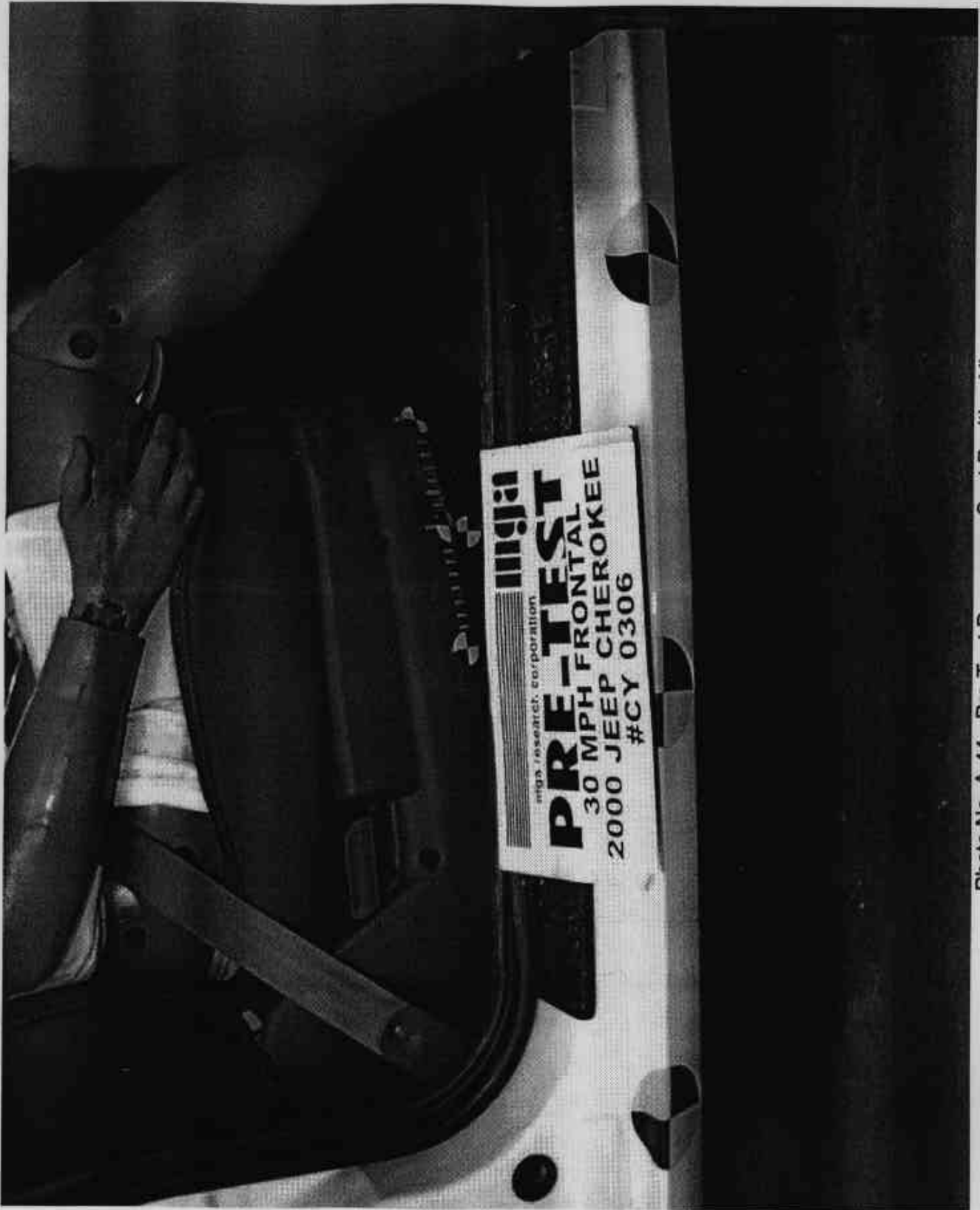


Photo No. A-44 - Pre-Test Passenger Seat Position View



Photo No. A-45 - Post-Test Passenger Seat Position View



Photo No. A-46 - Pre-Test Passenger Dummy Knee Position View



Photo No. A-47 - Post-Test Passenger Dummy Knee Position View



Photo No. A-48 - Post-Test Passenger Dummy Airbag View



Photo No. A-49 - Post-Test Passenger Dummy Knee Contact View

MED BY DAIMLERCHRYSLER DATE OF MED
 CORPORATION 1-88
 SAGG FROM*
 134 KG (296 LB) WITH TIRES
 SAGG REAR P215/75R15
 1225 KG (2700 LB) WITH TIRES
 P215/75R15
 COLD
 2223 KG (4900 LB)
 COLD
 227 KPA (33 PSI)
 COLD
 227 KPA (33 PSI)
 THIS VEHICLE CONFORMS TO ALL APPLICABLE FEDERAL MOTOR VEHICLE SAFETY AND THEFT
 PREVENTION STANDARDS IN EFFECT ON THE DATE OF MANUFACTURE SHOWN ABOVE.
 VIN: 1J4FF58S3Y 194734 TYPE: MPV
 018869 44560 011201 VEHICLE MADE IN U.S.A. 10M1X102 4835502
 SINGLE X DUAL

Photo No. A-50 - Vehicle Certification Label and Tire Placard

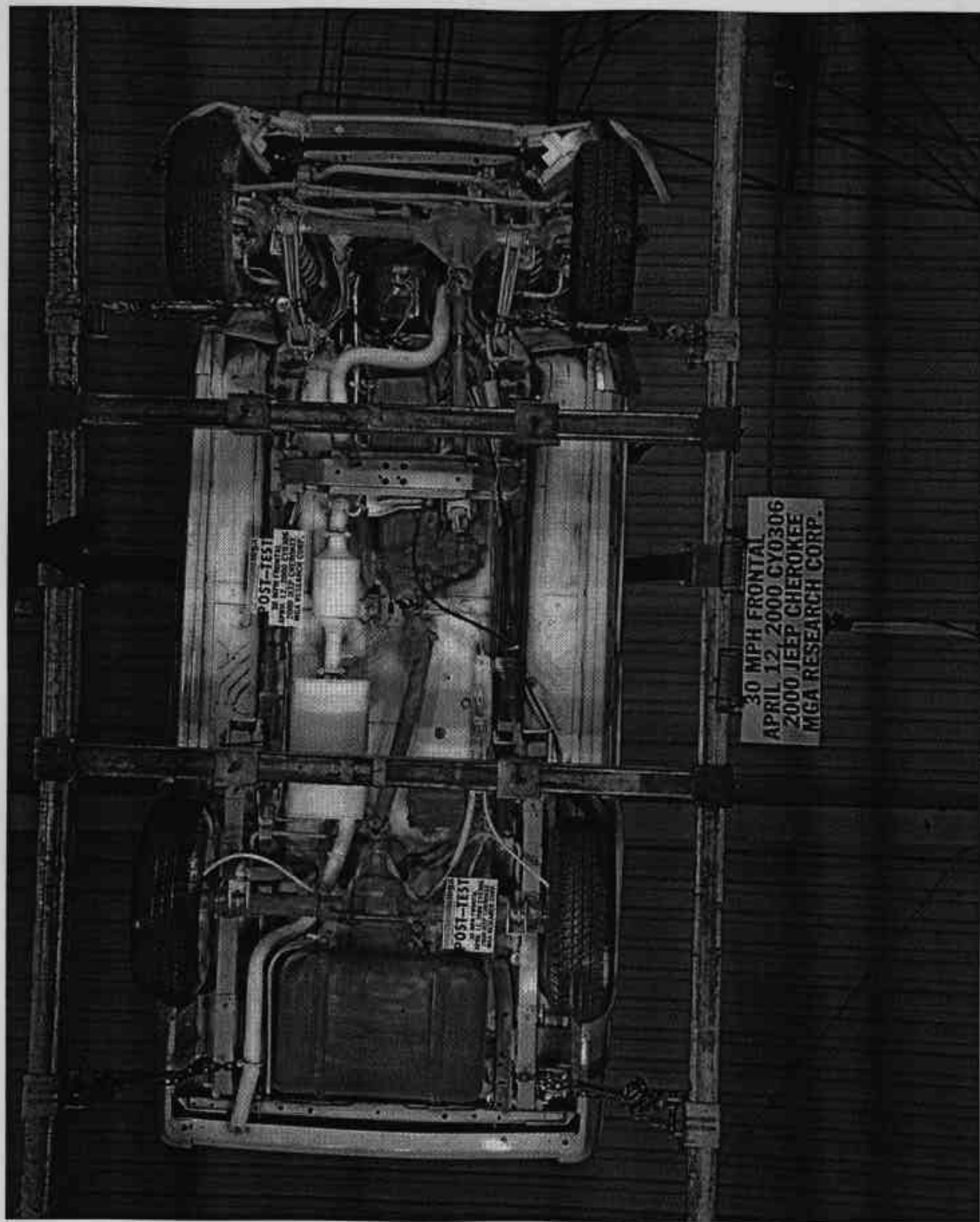


Photo No. A-51 - Rollover 90°



Photo No. A-52 - Rollover 180°



Photo No. A-53 - Rollover 270°

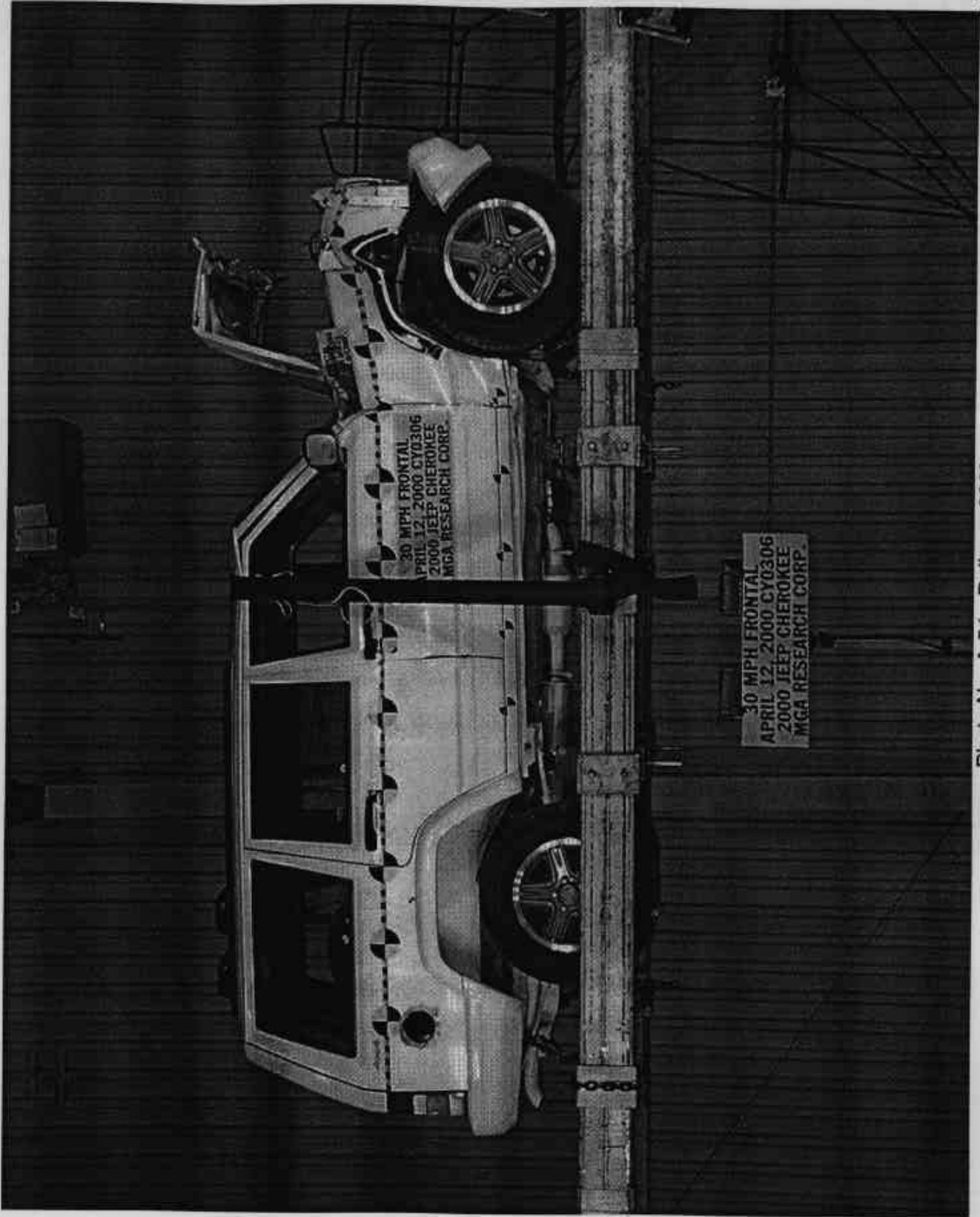


Photo No. A-54 - Rollover 360°



Photo No. A-55 - Ballast in Vehicle

APPENDIX B

DATA PLOTS

TABLE OF DATA PLOTS

<u>Description</u>	<u>Page No.</u>
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Figure B-2 - Driver Head Y Acceleration vs. Time	B-2
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* No Valid Data Collected

TEST: FMVSS 208 BARRIER

TEST DATE: 04-12-2000

COMPONENT: 2000 JEEP CHEROKEE (CY0306)

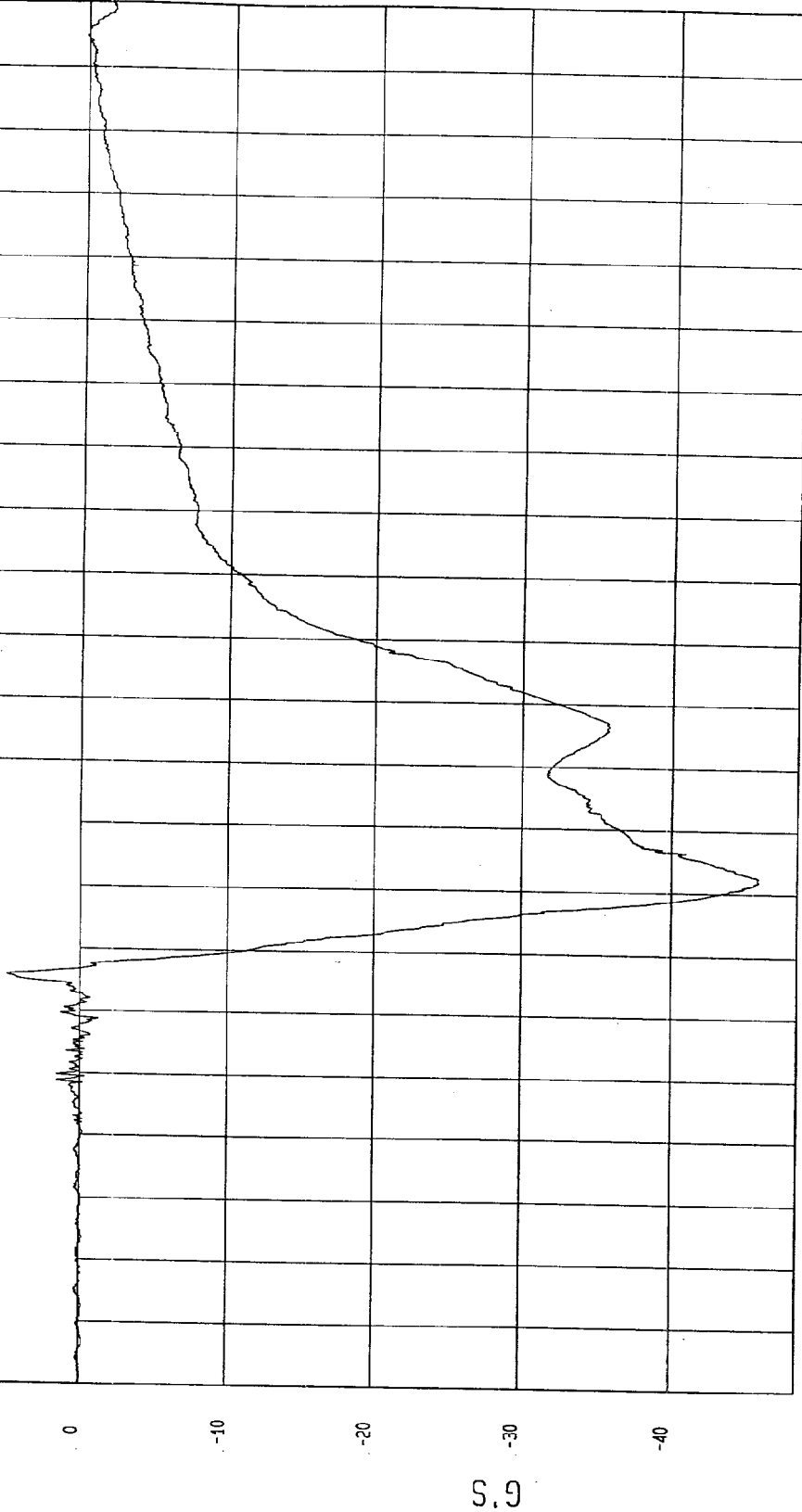
Speed: 29.7 MPH 47.8 KPH

Minimum = -45.84 G'S at 62 msec

Maximum = 4.94 G'S at 46 msec

DRIVER HEAD X ACCELERATION

1 ——— B00029AT.A12 Filterclass (1000)



MCA Research
04-10-2000 17:17

TEST: FMVSS 208 BARRIER

TEST DATE: 04-12-2000

COMPONENT: 2000 JEEP CHEROKEE (CY0306)

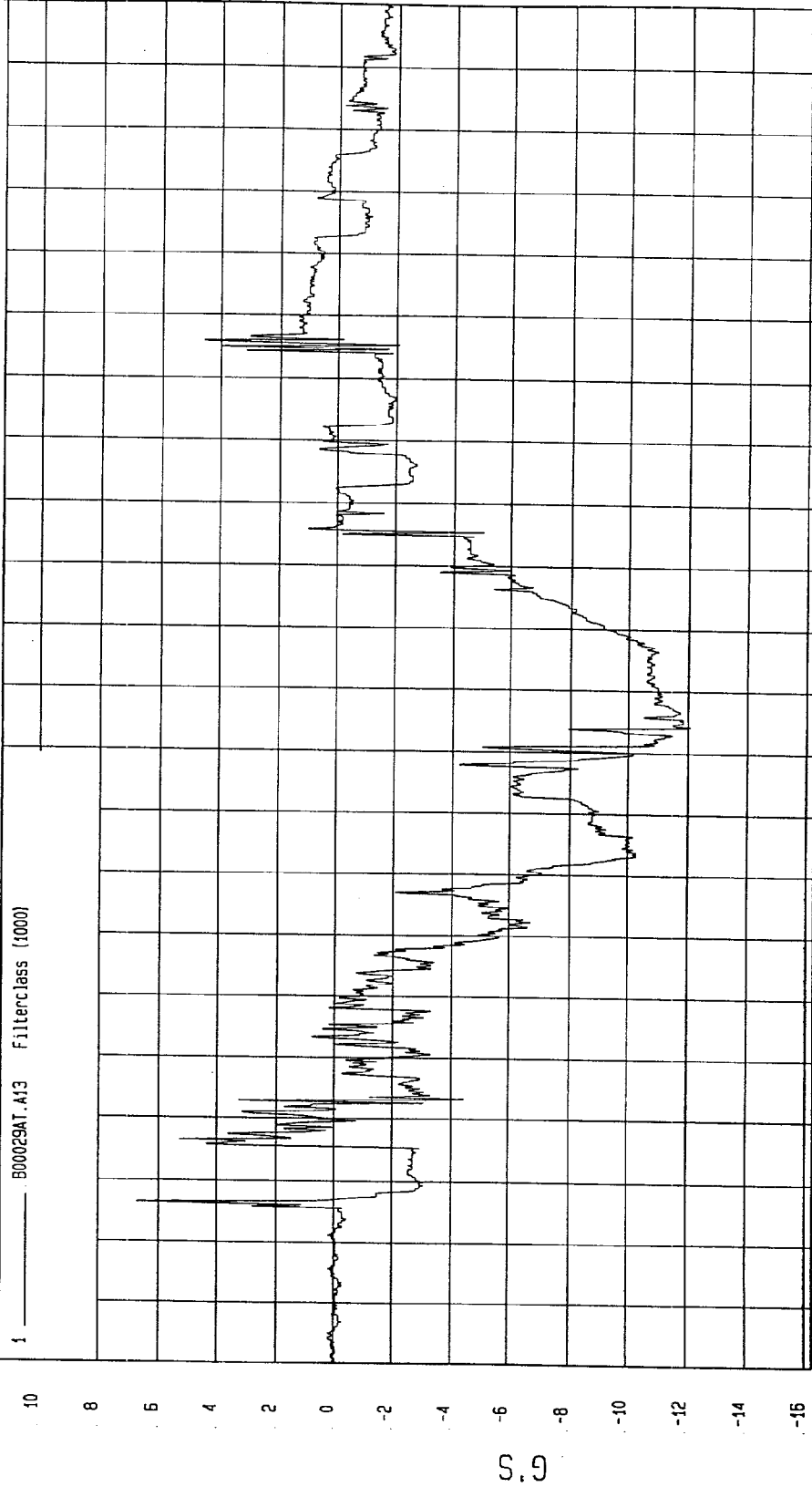
Speed: 29.7 MPH 47.8 KPH

Minimum = -12.07 G'S at 84 msec

Maximum = 6.72 G'S at 6 msec

DRIVER HEAD Y ACCELERATION

1 ——— B00029AT.A13 Filterclass (1000)



TEST: FMVSS 208 BARRIER

TEST DATE: 04-12-2000

COMPONENT: 2000 JEEP CHEROKEE (CY0306)

Speed: 29.7 MPH 47.8 KPH

Minimum = -8.11 G'S at 109 msec

Maximum = 17.47 G'S at 66 msec

DRIVER HEAD Z ACCELERATION

1 B00029AT.A14 FilterClass (1000)

18

16

14

12

10

8

6

4

2

0

-2

-4

-6

-8

G'S

-02

-01

0

01

02

03

04

05

06

07

08

09

1

11

12

13

14

15

16

17

18

19

TIME (SECONDS)

NSA Research
04-10-2000 17:17

TEST: FMVSS 208 BARRIER

TEST DATE: 04-12-2000

COMPONENT: 2000 JEEP CHEROKEE (CY0306)

Speed: 29.7 MPH 47.8 KPH

Minimum = 9.12E-02 G'S at -20 msec

Maximum = 48.14 G'S at 63 msec

DRIVER HEAD RESULTANT ACCELERATION

1 ——— B00029AV.M12 FilterClass (1000)

50

40

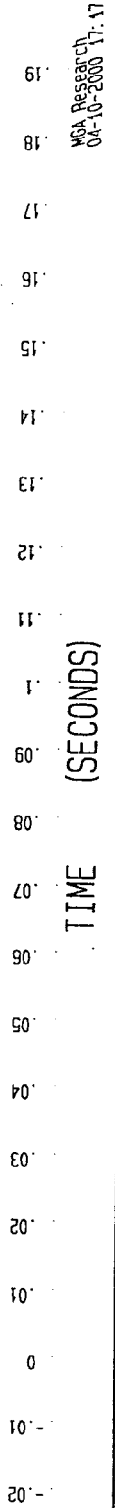
30

20

10

0

G.S



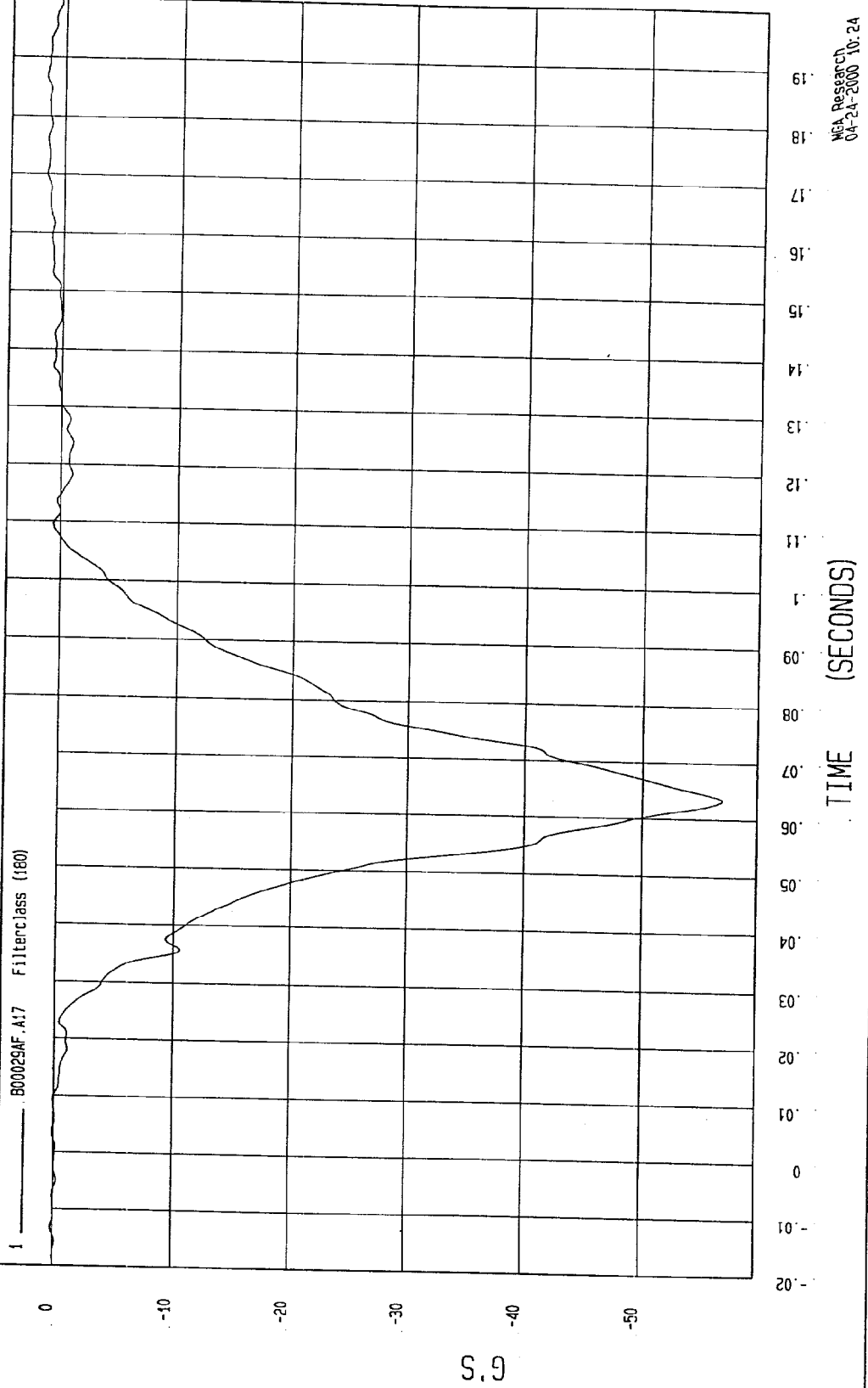
WGA Research
04-10-2000 17:17

TEST: FMVSS 208 BARRIER TEST DATE: 04-12-2000

COMPONENT: 2000 JEEP CHEROKEE (CY0306) Speed: 29.7 MPH 47.8 KPH

Minimum = -56.81 G'S at 64 msec Maximum = 1.55 G'S at 187 msec

DRIVER CHEST X ACCELERATION



TEST: FMVSS 208 BARRIER

TEST DATE: 04-12-2000

COMPONENT: 2000 JEEP CHEROKEE (CY0306)

Speed: 29.7 MPH 47.8 KPH

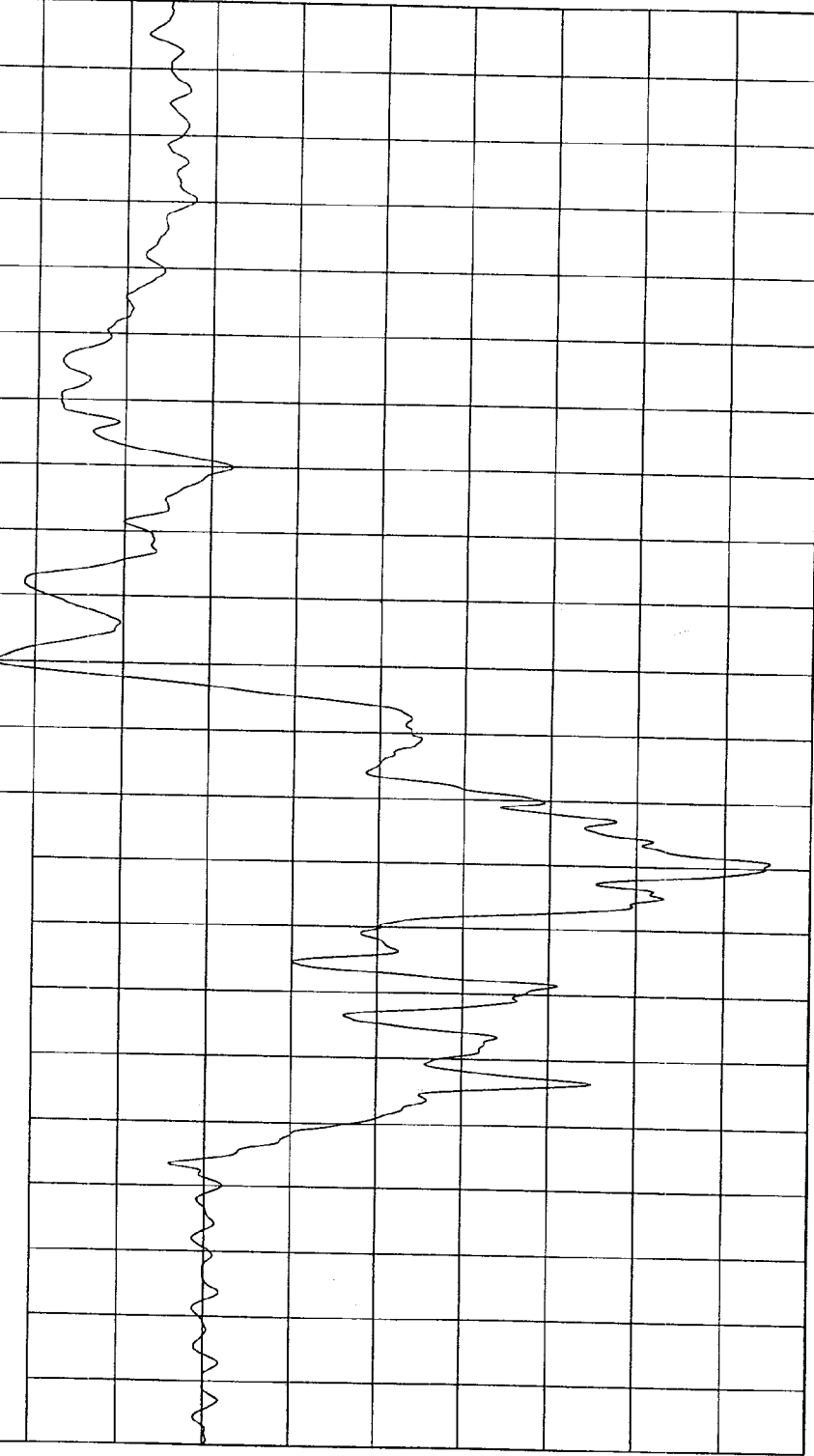
Minimum = -6.53 G'S at 71 msec

Maximum = 2.48 G'S at 100 msec

DRIVER CHEST Y ACCELERATION

1 800029AF.415 Filterclass (180)

G.S.



MSA Research
04-24-2000 10:24

TEST: FMVSS 208 BARRIER

TEST DATE: 04-12-2000

COMPONENT: 2000 JEEP CHEROKEE (CY0306)

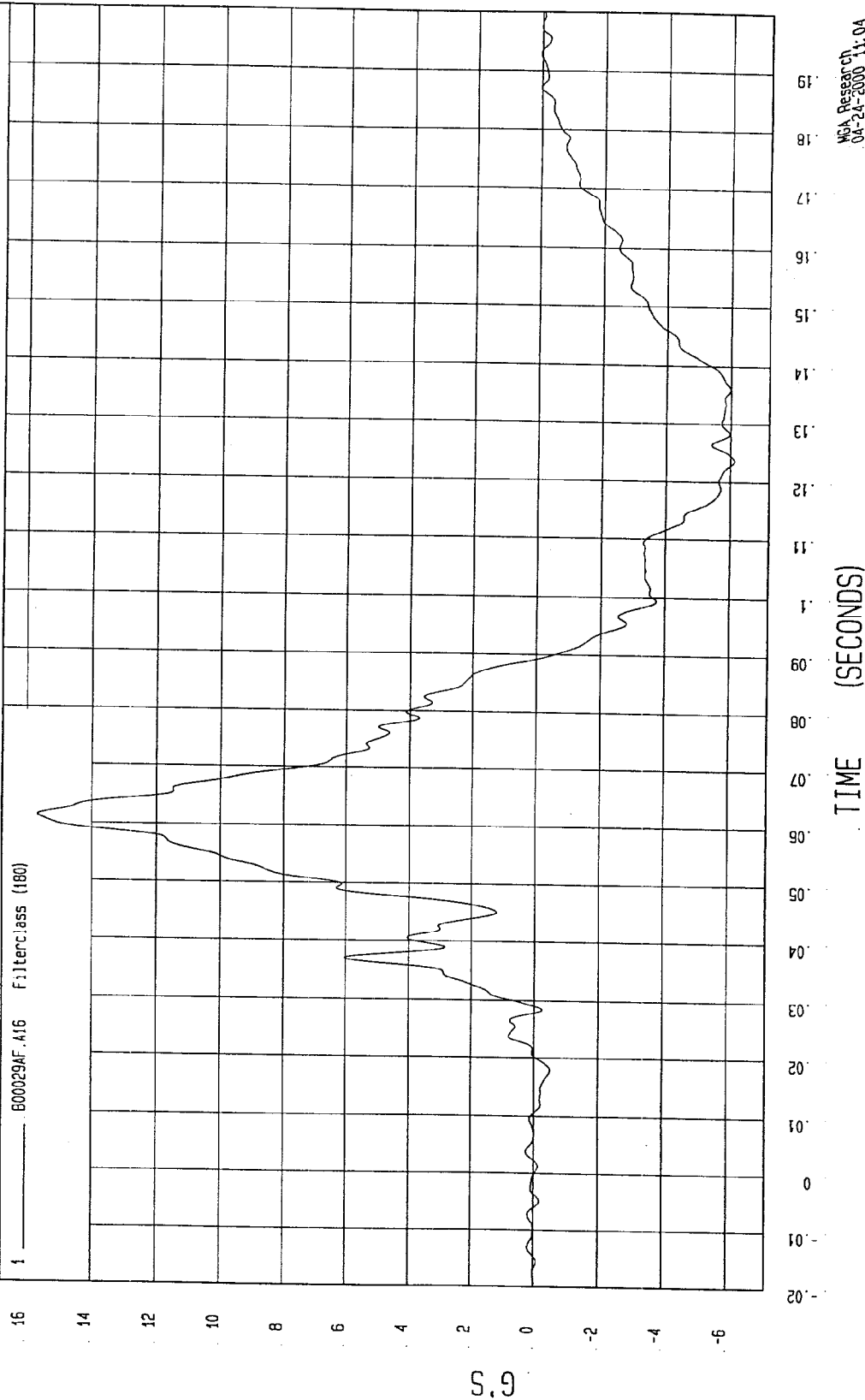
Speed: 29.7 MPH 47.8 KPH

Minimum = -6.13 G'S at 124 msec

Maximum = 15.66 G'S at 61 msec

DRIVER CHEST Z ACCELERATION

1 ——— B00029AF.A16 Filterclass (180)

MCA Research
04-24-2000 11:04

TEST: FMVSS 208 BARRIER

TEST DATE: 04-12-2000

COMPONENT: 2000 JEEP CHEROKEE (CY0306)

Speed: 29.7 MPH 47.8 KPH

Minimum = 6.31E-03 G'S at -17 msec

Maximum = 58.78 G'S at 63 msec

DRIVER CHEST RESULTANT ACCELERATION

1 — 8000294V.A15 Filterclass (180)

60

50

40

30

G'S

20

10

0

-0.02

-0.01

0

.01

.02

.03

.04

.05

.06

.07

.08

.09

.10

.11

.12

.13

.14

.15

.16

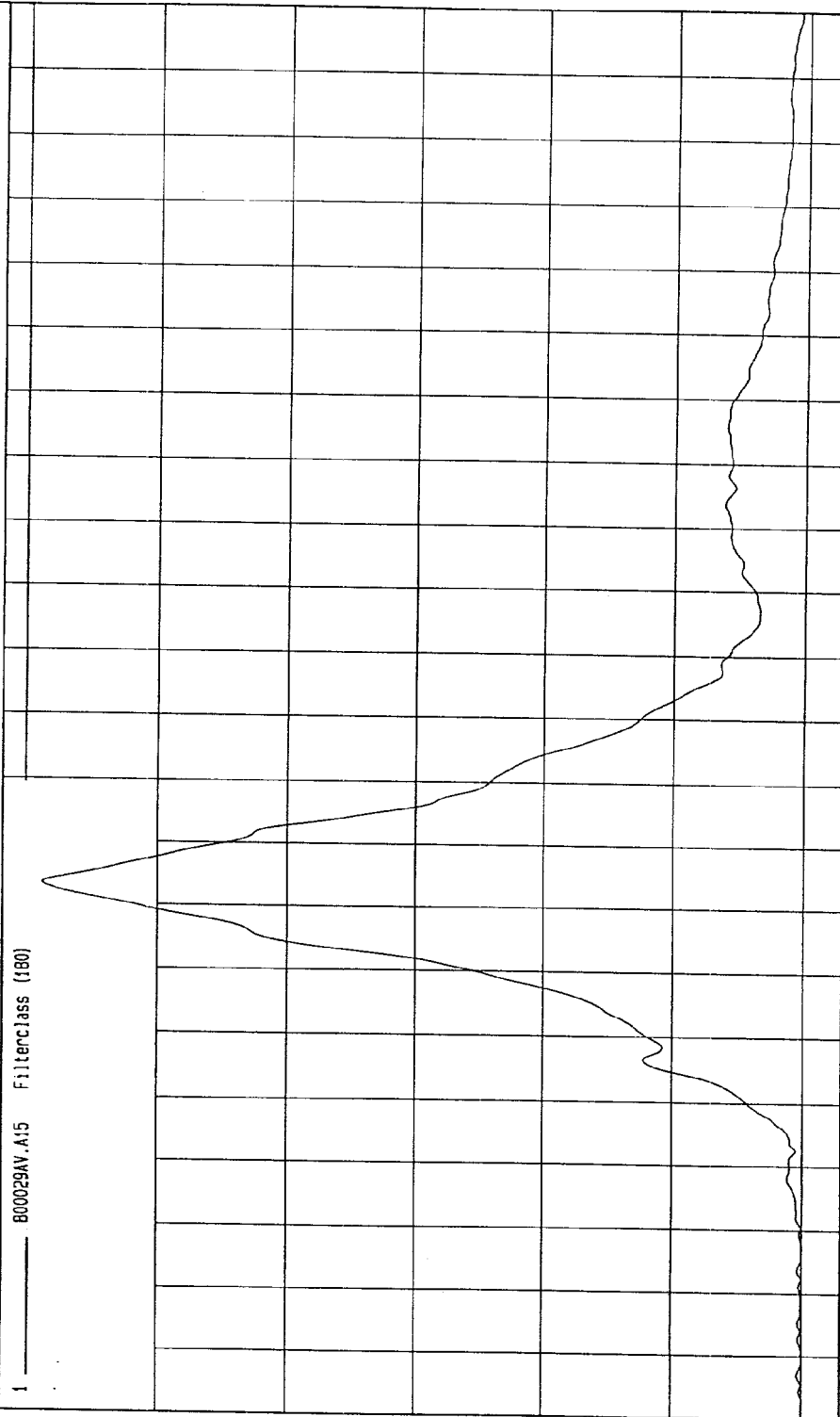
.17

.18

.19

TIME (SECONDS)

WCA Research
04-24-2000 11:02



TEST: FMVSS 208 BARRIER

TEST DATE: 04-12-2000

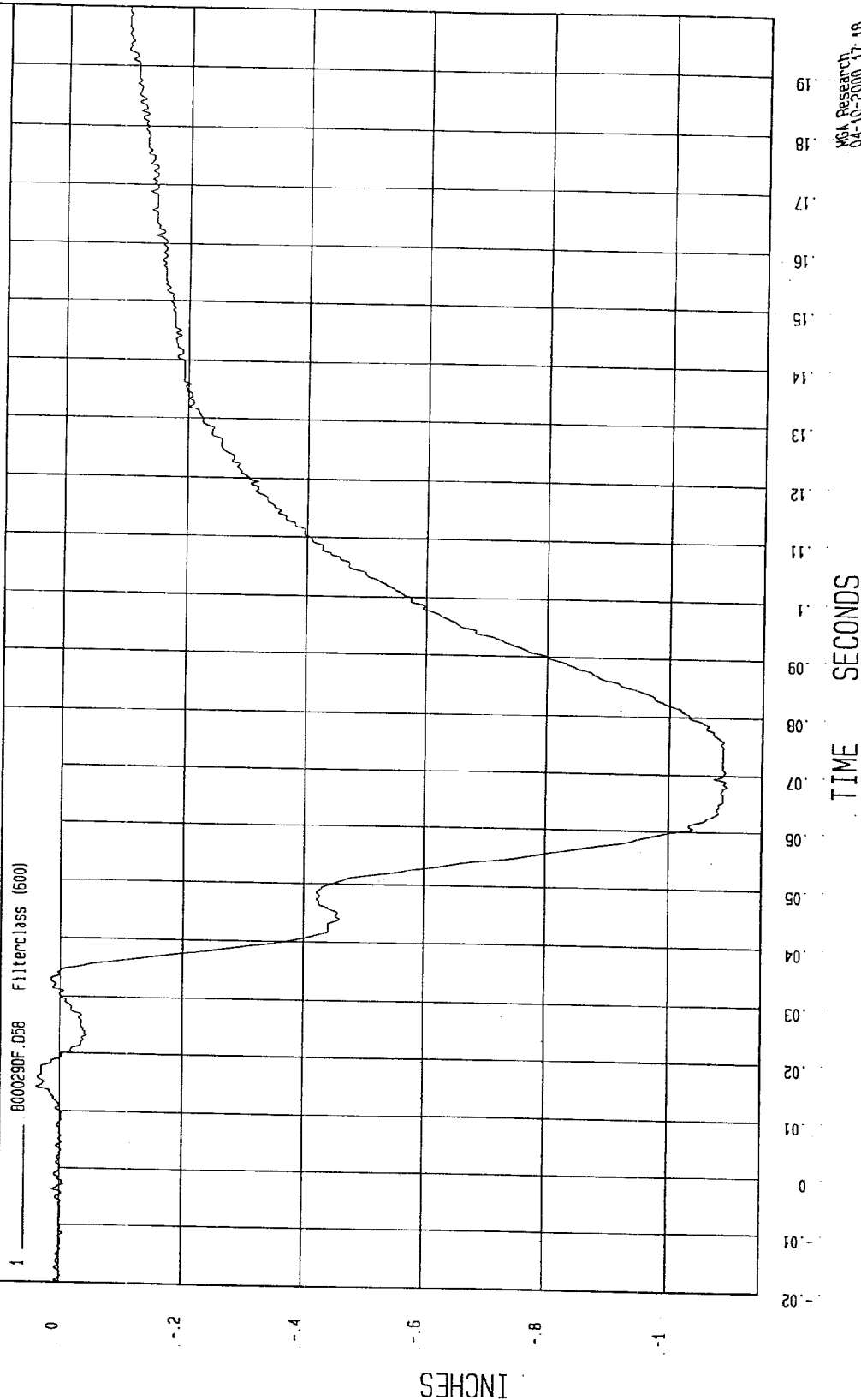
COMPONENT: 2000 JEEP CHEROKEE (CY0306)

Speed: 29.7 MPH 47.8 KPH

Minimum = -1.1 INCHES at 68 msec

Maximum = 3.76E-02 INCHES at 14 msec

DRIVER CHEST COMPRESSION



TEST: FMVSS 208 BARRIER

TEST DATE: 04-12-2000

COMPONENT: 2000 JEEP CHEROKEE (CY0306)

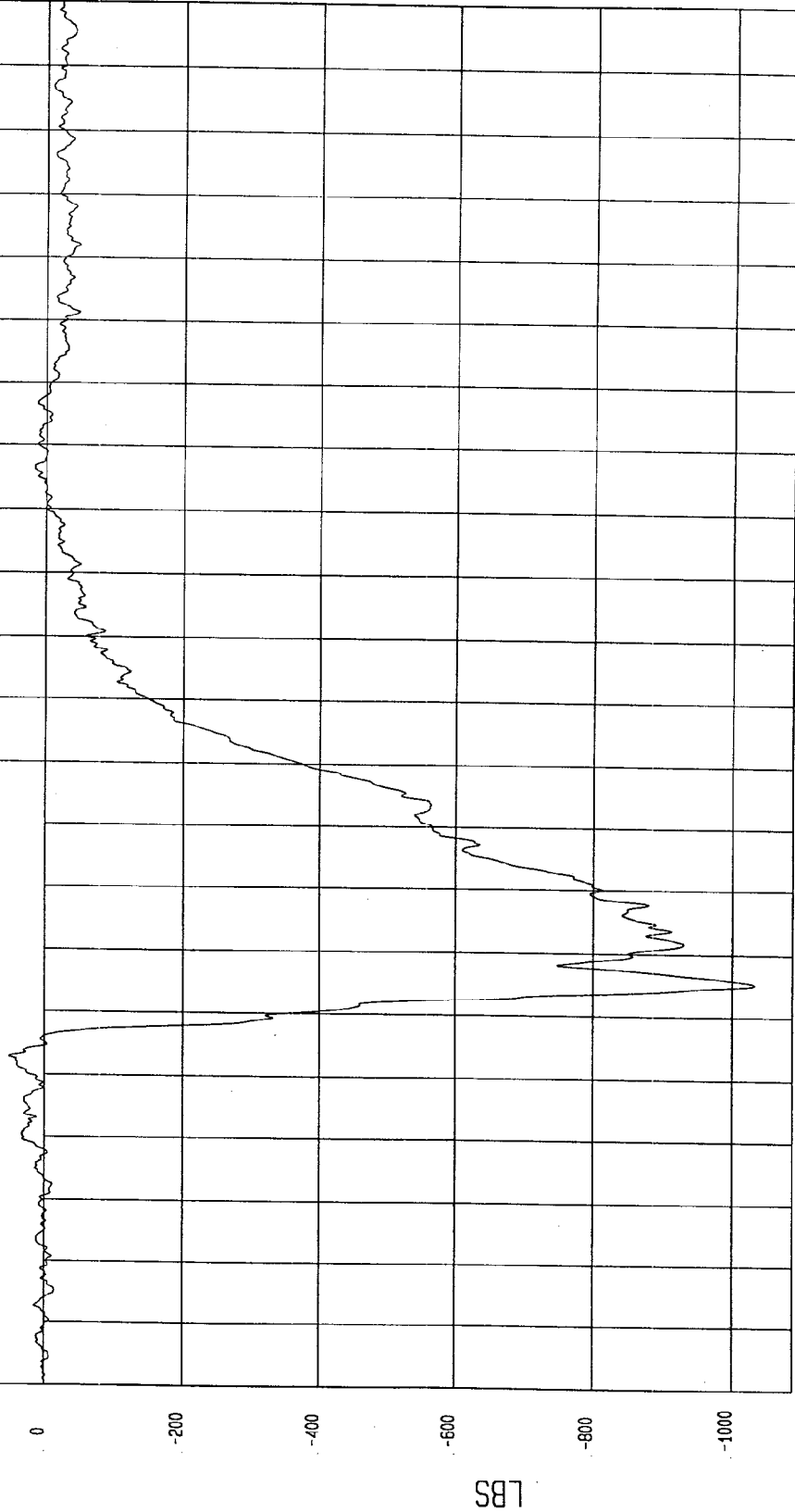
Speed: 29.7 MPH 47.8 KPH

Minimum = -1032.41 LBS at 45 msec

Maximum = 50.84 LBS at 33 msec

DRIVER LEFT FEMUR FORCE

1 — B00029FF.F19 Filterclass (600)



NSA Research
04-23-2000 17:21

TEST: FMVSS 208 BARRIER

TEST DATE: 04-12-2000

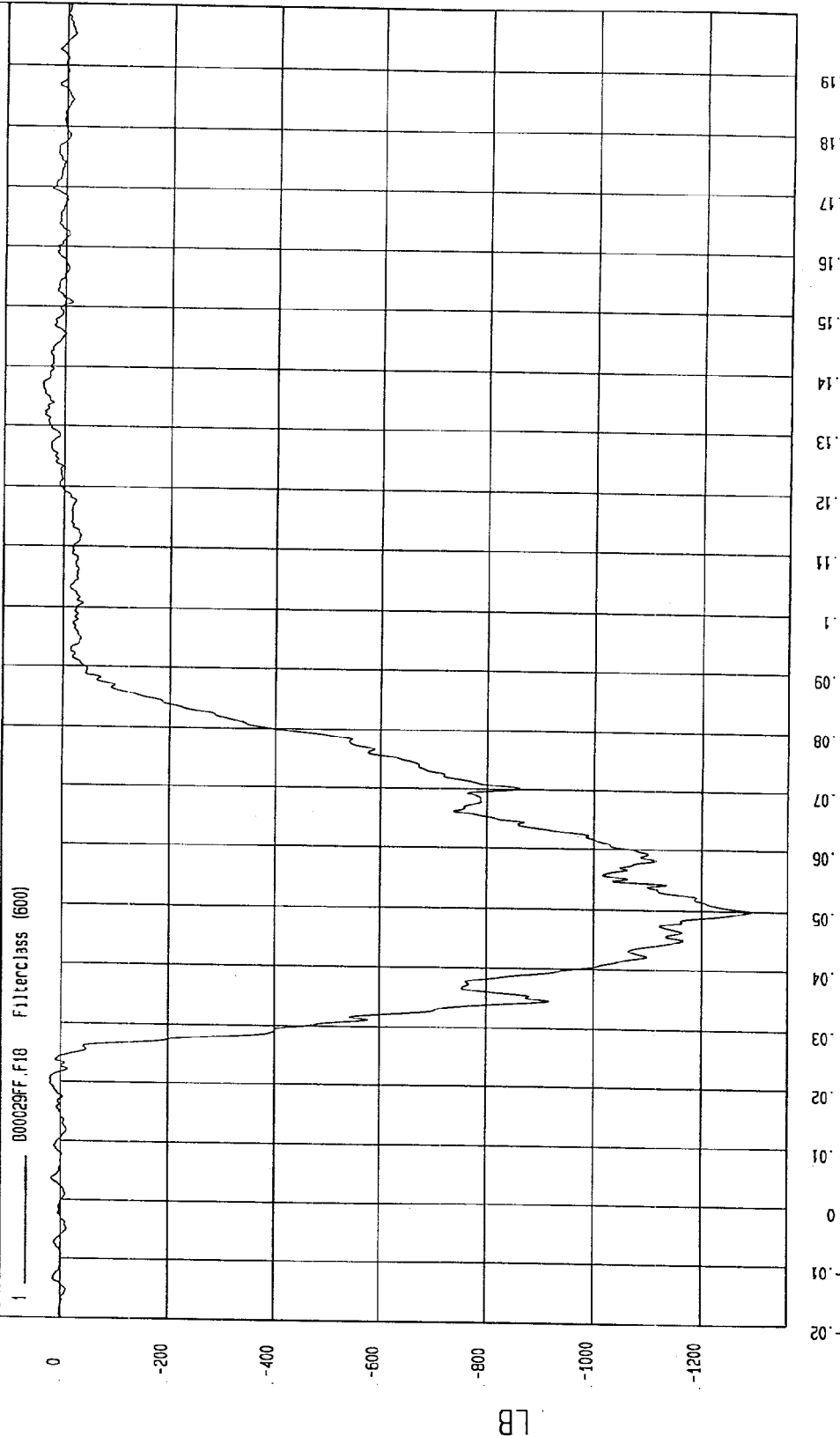
COMPONENT: 2000 JEEP CHEROKEE (CY0306)

Speed: 29.7 MPH 47.8 KPH

Minimum = -1290.62 LB at 50 msec

Maximum = 39.52 LB at 137 msec

DRIVER RIGHT FEMUR FORCE



WCA Research
04-10-2000 11:18

TEST: FMVSS 208 BARRIER

TEST DATE: 04-12-2000

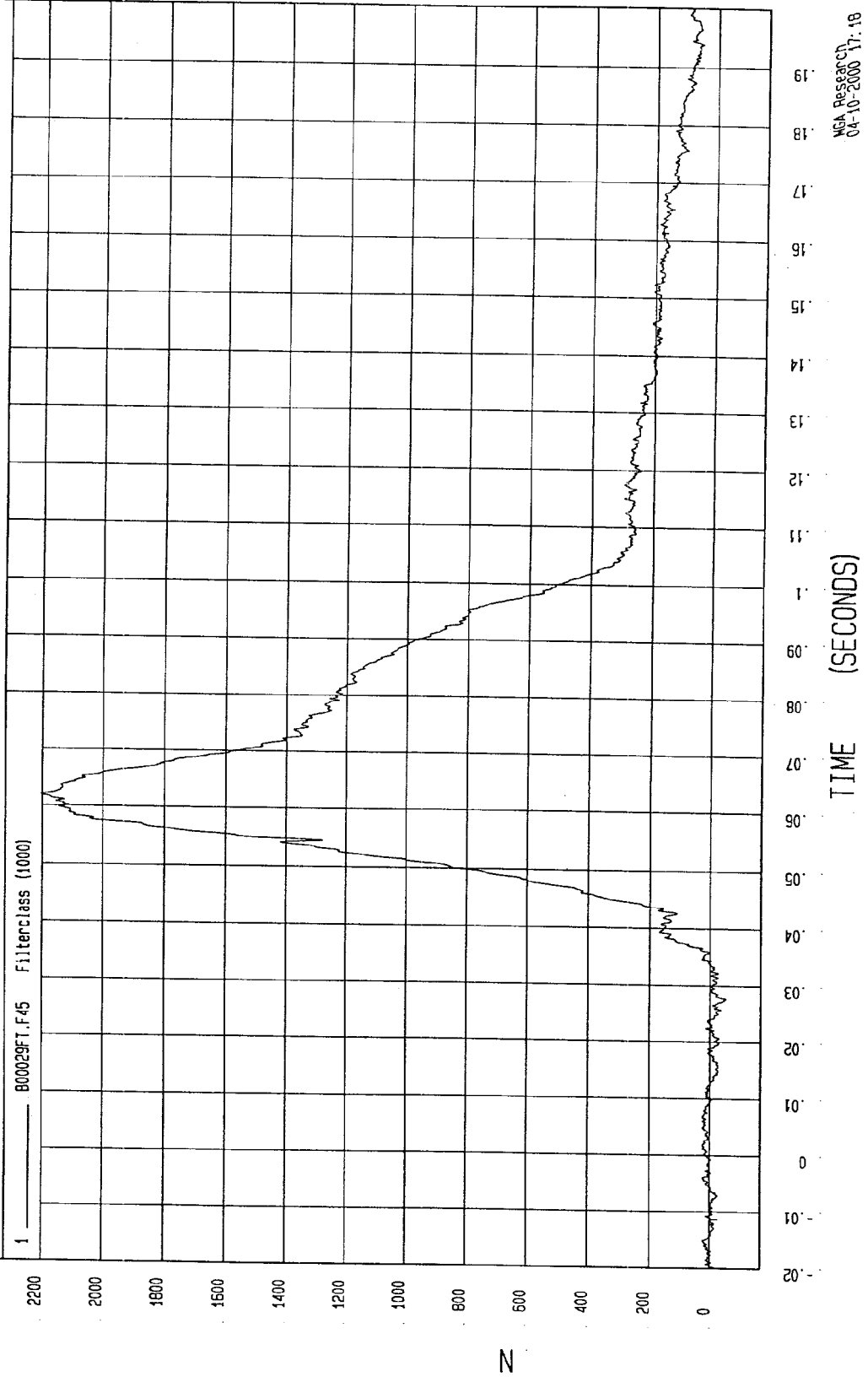
COMPONENT: 2000 JEEP CHEROKEE (CY0306)

Speed: 29.7 MPH 47.8 KPH

Minimum = -51.7 N at 28 msec

Maximum = 2204.29 N at 62 msec

DRIVER NECK FORCE X



MCA Research
04-10-2000 17:18

TEST: FMVSS 208 BARRIER

TEST DATE: 04-12-2000

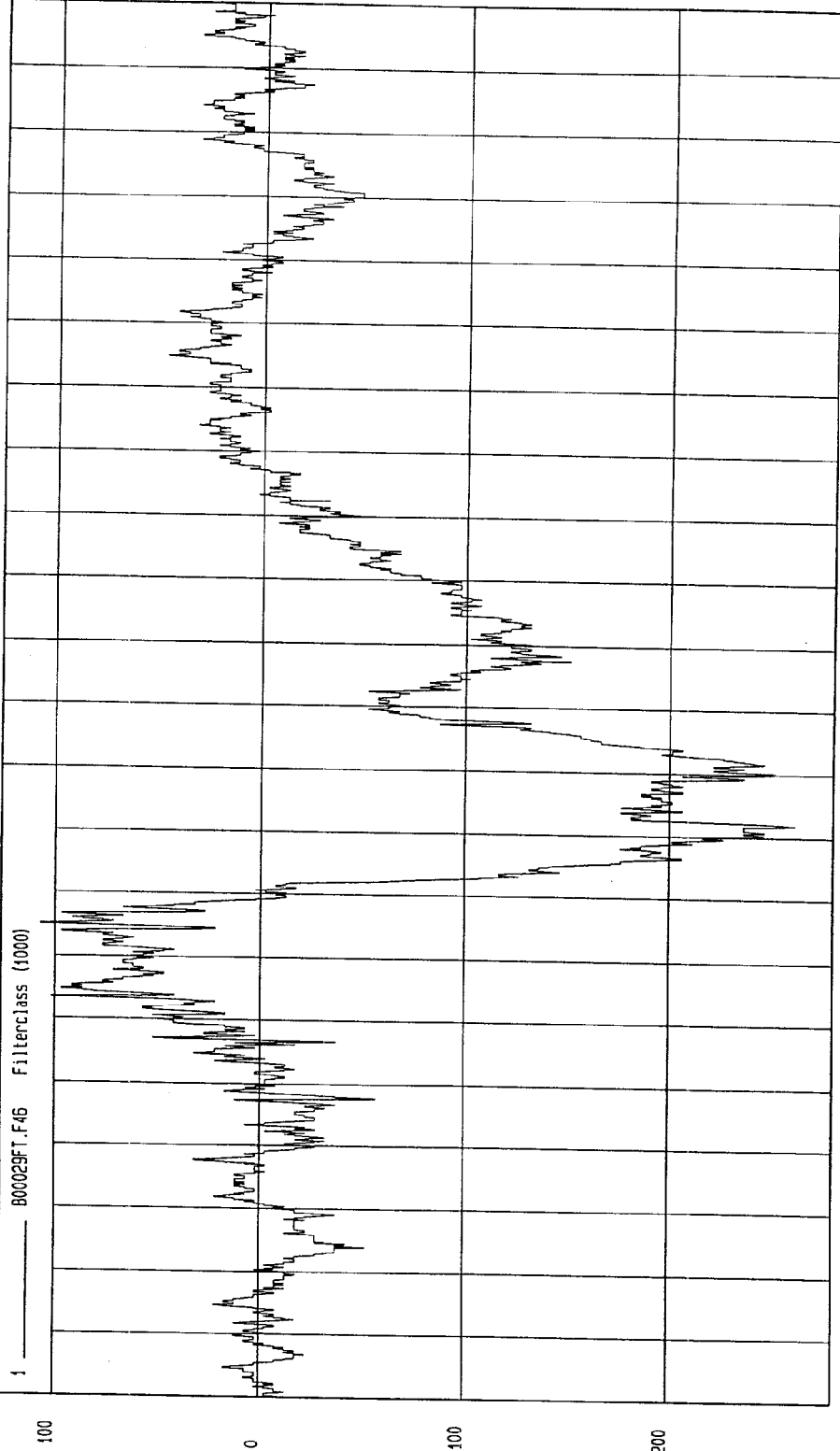
Speed: 29.7 MPH 47.8 KPH

COMPONENT: 2000 JEEP CHEROKEE (CY0306)

Maximum = 105.65 N at 55 msec

Minimum = -260.9 N at 72 msec

DRIVER NECK FORCE Y



MCA Research
04-10-2000 17:18

TIME (SECONDS)

TEST: FMVSS 208 BARRIER

TEST DATE: 04-12-2000

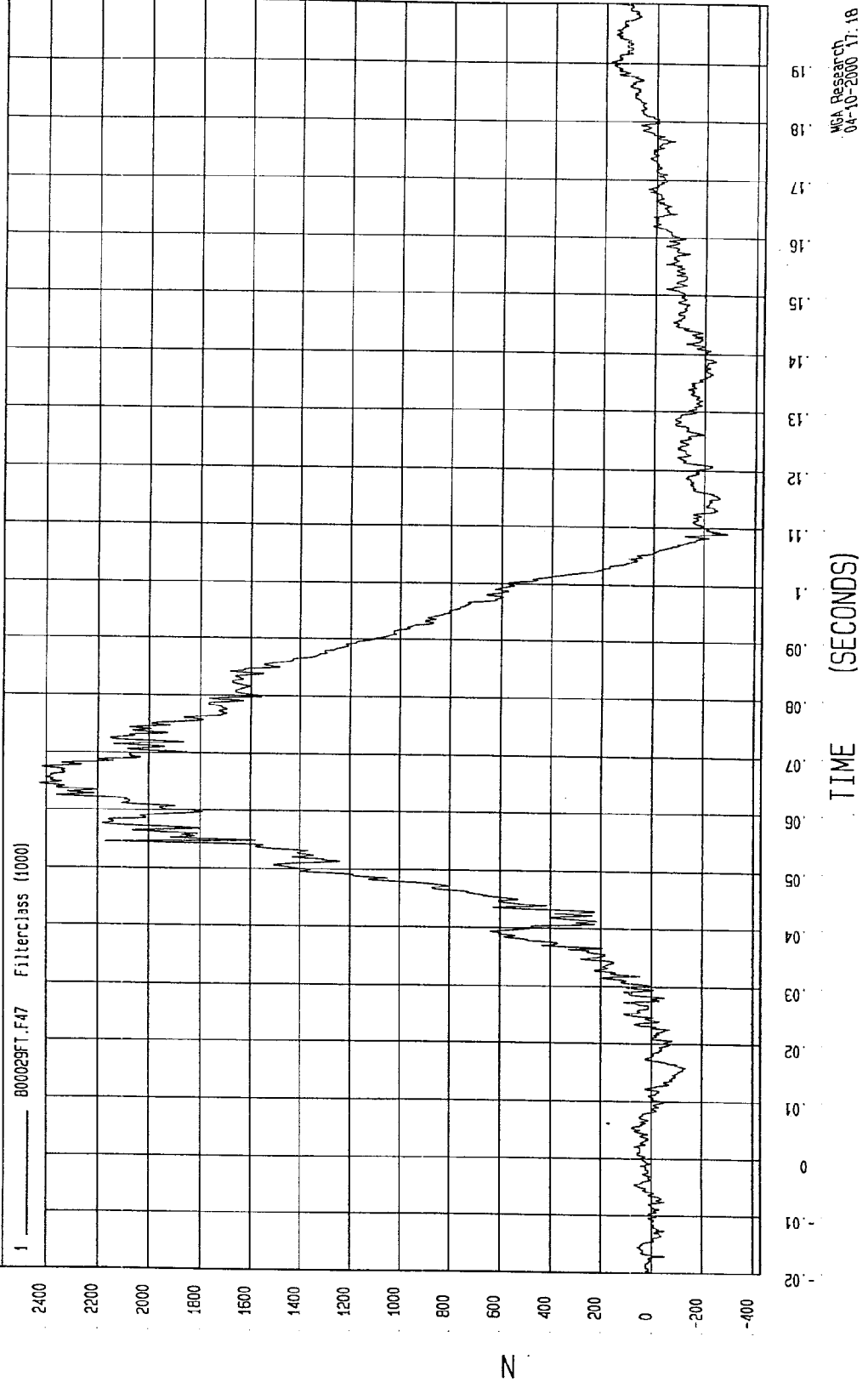
COMPONENT: 2000 JEEP CHEROKEE (CY0306)

Speed: 29.7 MPH 47.8 KPH

Minimum = -293.69 N at 109 msec

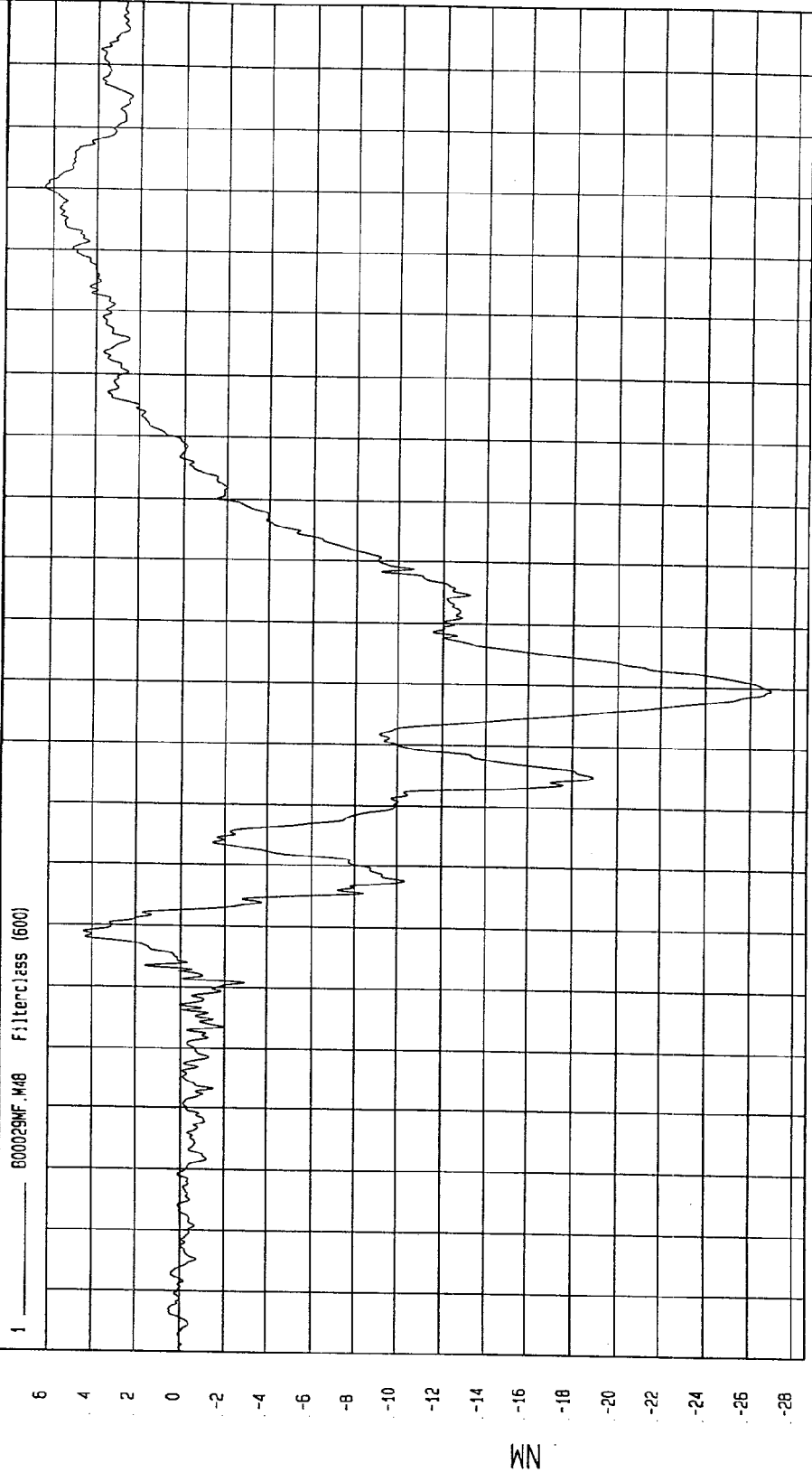
Maximum = 2424.71 N at 65 msec

DRIVER NECK FORCE Z



TEST: FMVSS 208 BARRIER
TEST DATE: 04-12-2000
COMPONENT: 2000 JEEP CHEROKEE (CY0306)
Speed: 29.7 MPH 47.8 KPH
Minimum = -26.95 NM at 90 msec
Maximum = 6.4 NM at 170 msec

DRIVER NECK MOMENT X



NGA Research
04-10-2000 17:18

TEST: FMVSS 208 BARRIER

TEST DATE: 04-12-2000

COMPONENT: 2000 JEEP CHEROKEE (CY0306)

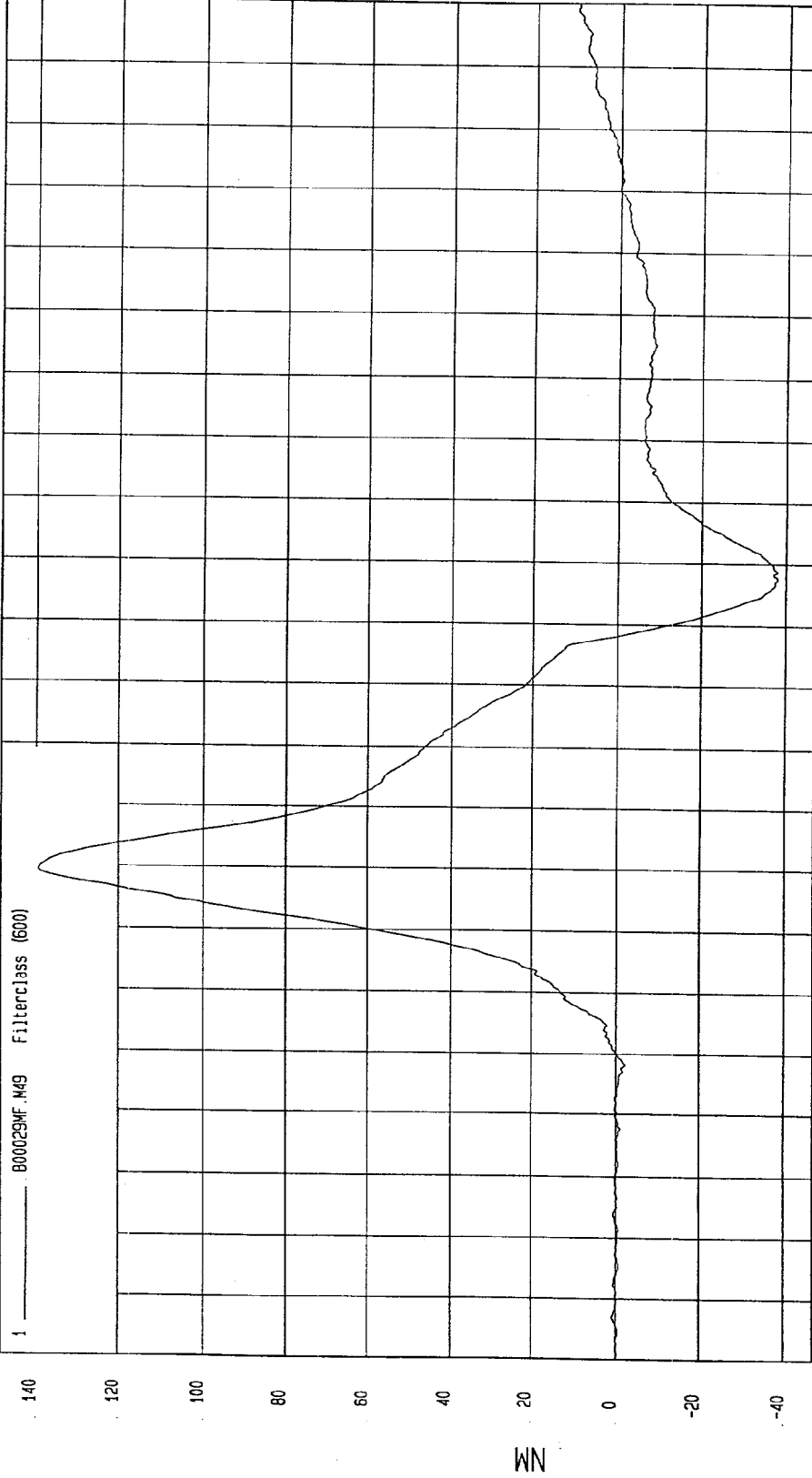
Speed: 29.7 MPH 47.8 KPH

Minimum = -37.98 NM at 108 msec

Maximum = 139.41 NM at 59 msec

DRIVER NECK MOMENT Y

1 — 800029MF.M49 Filterclass (600)



MSA Research
04-10-2000 17:18

TEST: FMVSS 208 BARRIER

TEST DATE: 04-12-2000

Speed: 29.7 MPH 47.8 KPH

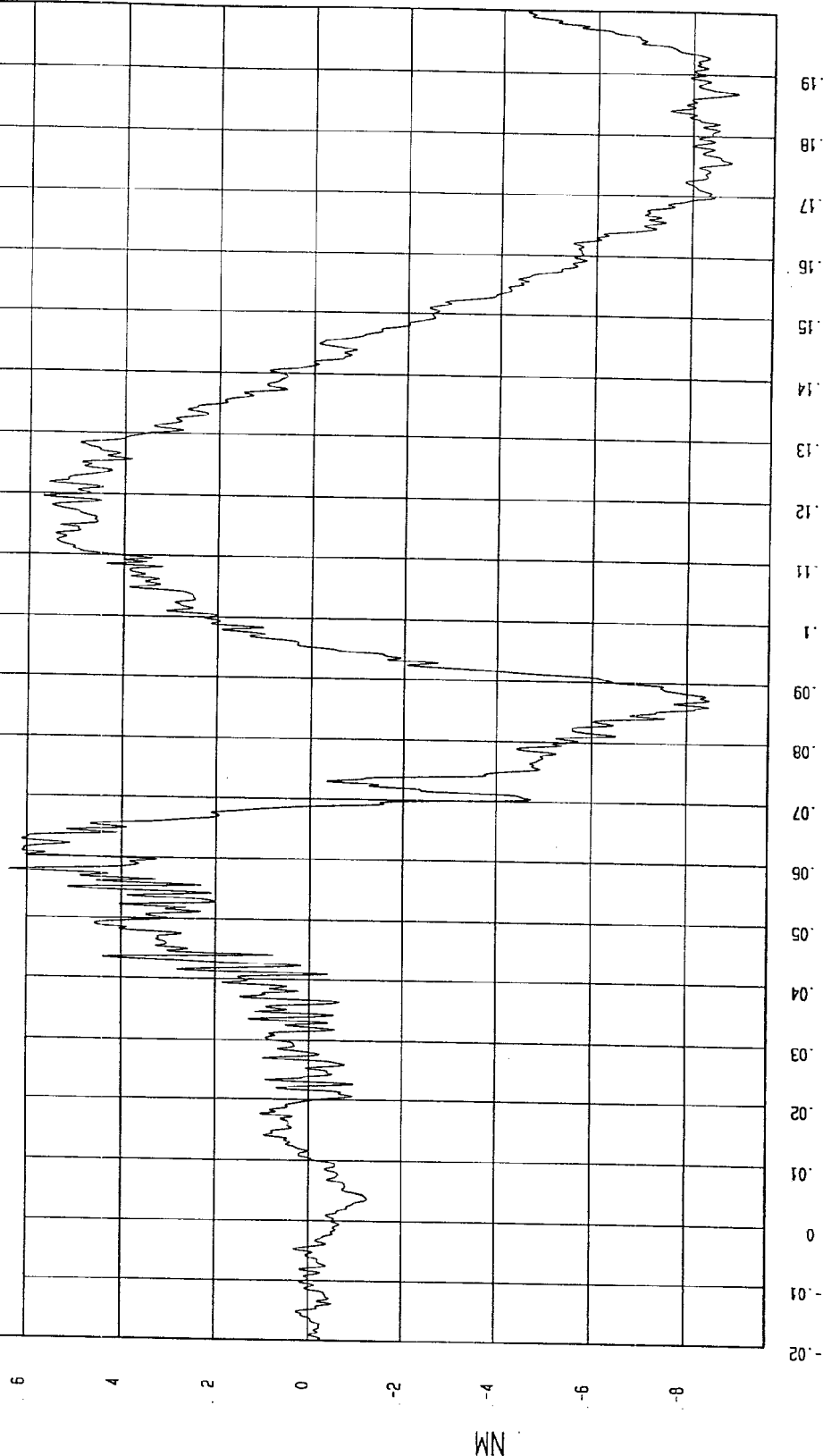
COMPONENT: 2000 JEEP CHEROKEE (CY0306)

Minimum = -8.95 NM at 187 msec

Maximum = 6.36 NM at 58 msec

DRIVER NECK MOMENT Z

1 800023MF.M50 Filterclass (600)



NSA Research
0A-10-2000 17:18

TEST: FMVSS 208 BARRIER

TEST DATE: 04-12-2000

COMPONENT: 2000 JEEP CHEROKEE (CY0306)

Speed: 29.7 MPH 47.8 KPH

Minimum = -42.82 NM at 108 msec

Maximum = 101.99 NM at 59 msec

DRIVER OCCIPITAL CONDYLE MOMENT Y

1 800C29M0.M49 Filterclass (600)

100

80

60

40

20

NM

0

-20

-40

-0.02

-0.01

0

0.01

0.02

0.03

0.04

0.05

0.06

0.07

0.08

0.09

0.1

0.11

0.12

0.13

0.14

0.15

0.16

0.17

0.18

0.19

TIME (SECONDS)

NSA Research
04-10-2000 11:18

TEST: FMVSS 208 BARRIER

TEST DATE: 04-12-2000

COMPONENT: 2000 JEEP CHEROKEE (CY0306)

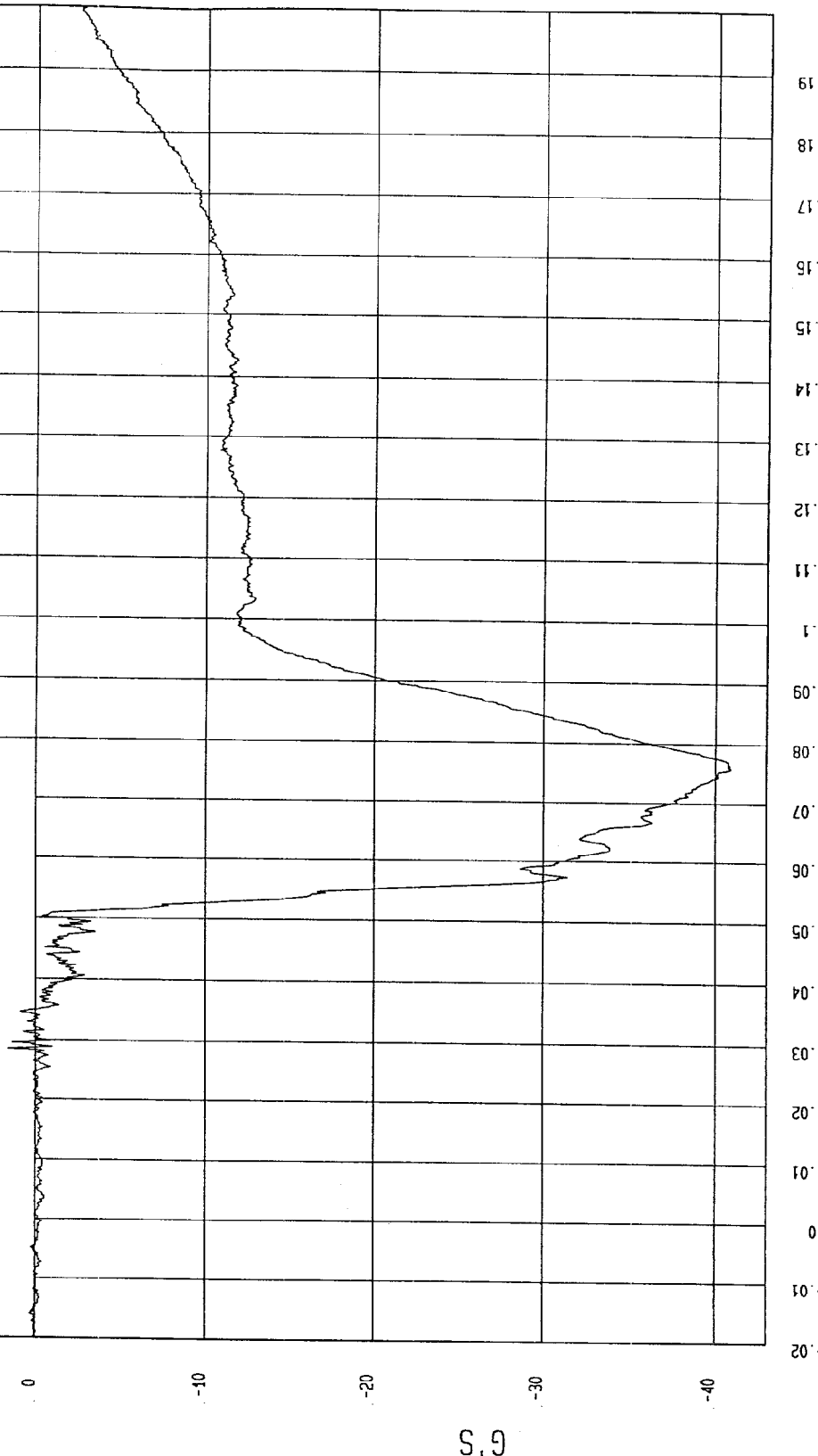
Speed: 29.7 MPH 47.8 KPH

Minimum = -40.9 G'S at 76 msec

Maximum = 1.58 G'S at 29 msec

PASSENGER HEAD X ACCELERATION

1 — 800029AT.A22 Filterclass (1000)



WCA Research
04-10-2000 17:18

TEST: FMVSS 208 BARRIER

TEST DATE: 04-12-2000

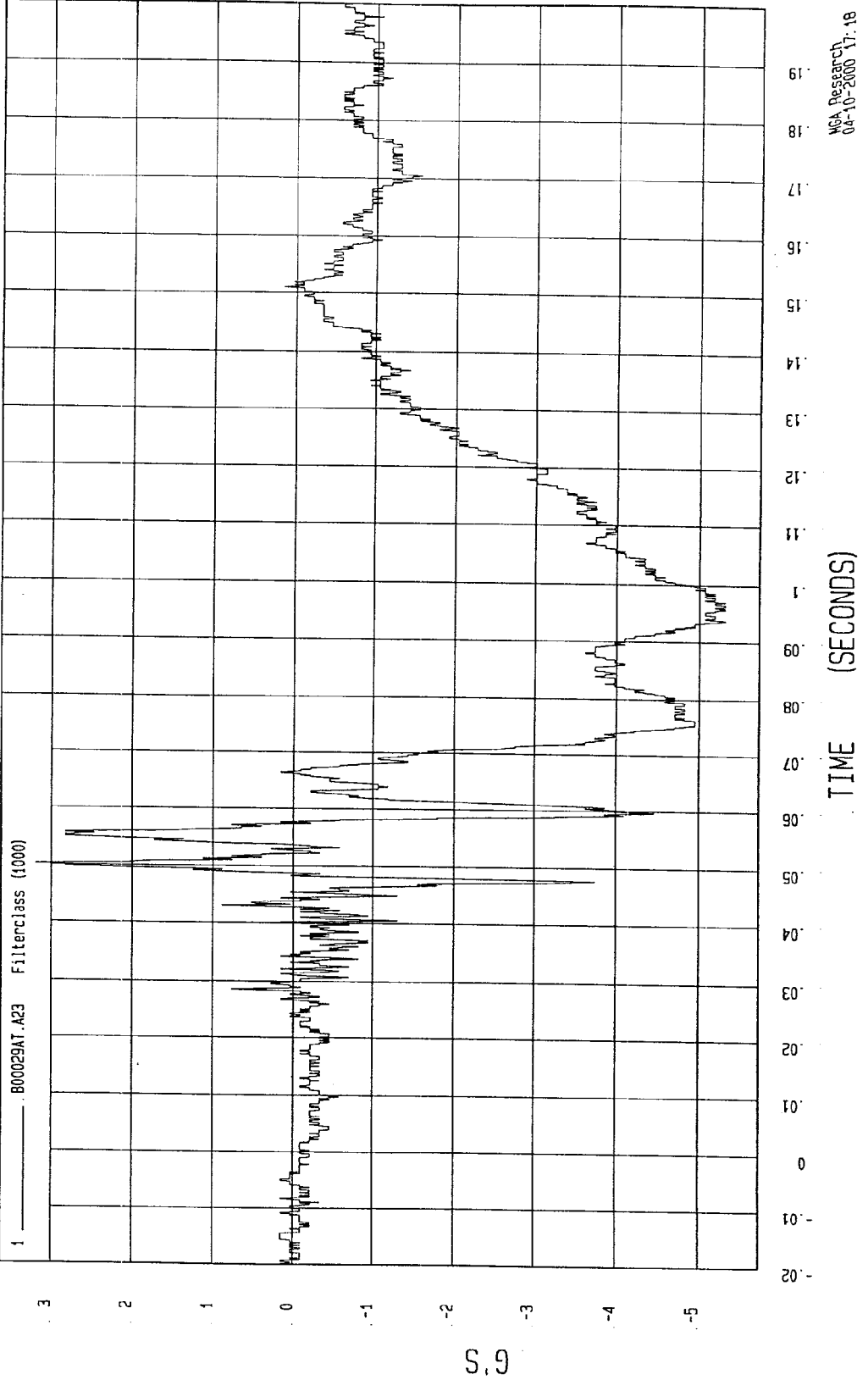
Speed: 29.7 MPH 47.8 KPH

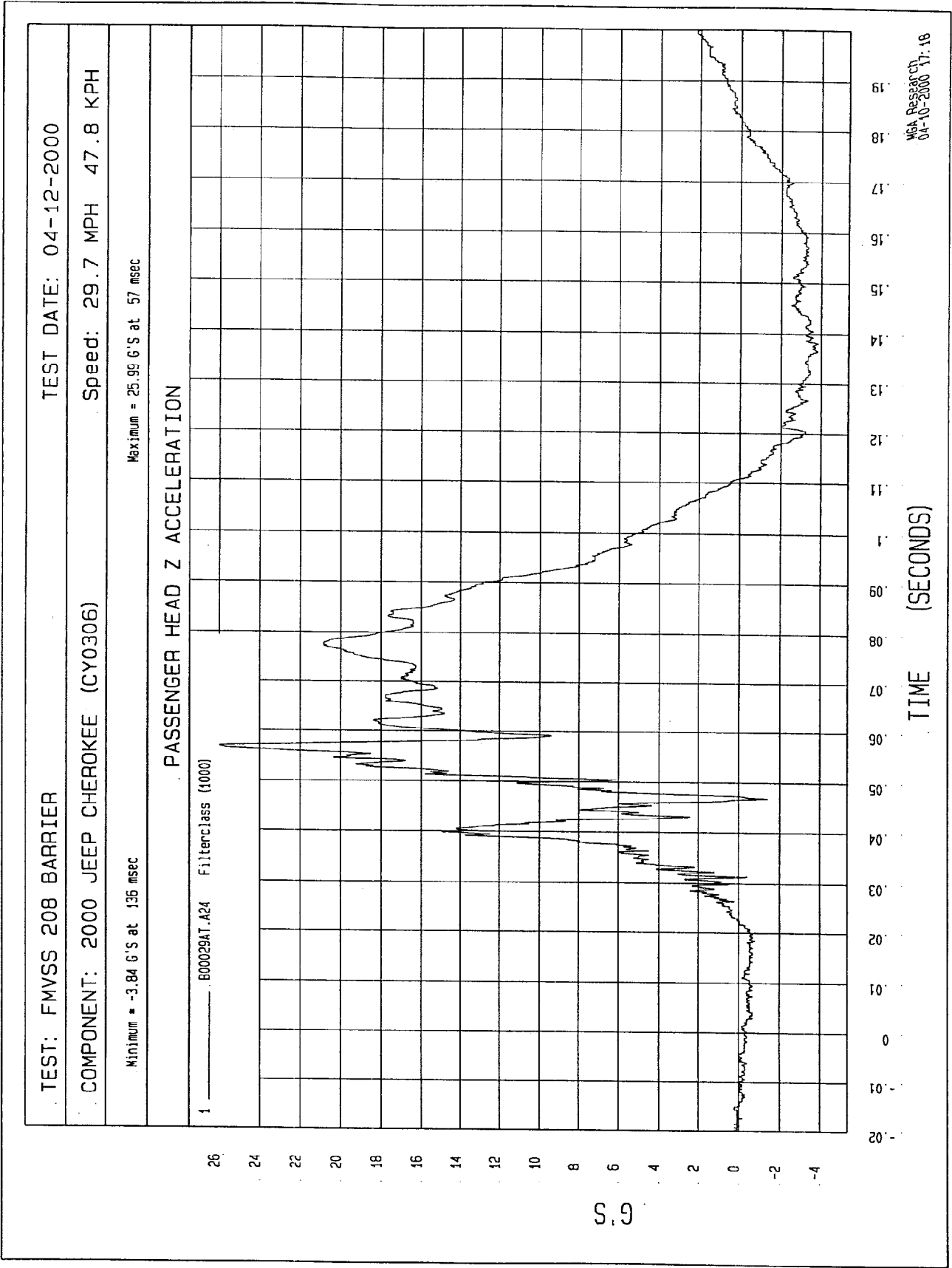
COMPONENT: 2000 JEEP CHEROKEE (CY0306)

Maximum = 3.19 G'S at 50 msec

Minimum = -5.32 G'S at 94 msec

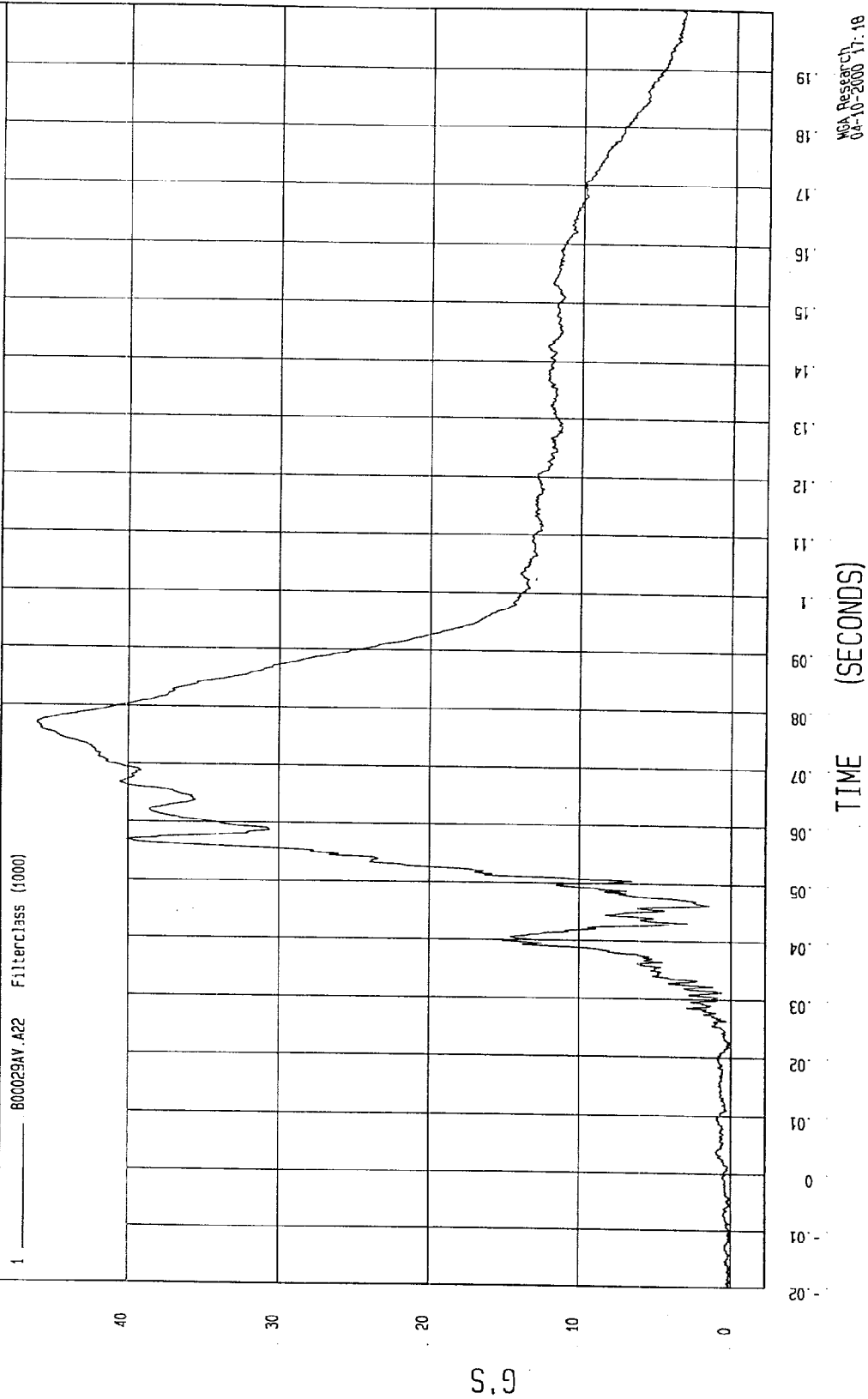
PASSENGER HEAD Y ACCELERATION





TEST: FMVSS 208 BARRIER
 TEST DATE: 04-12-2000
 COMPONENT: 2000 JEEP CHEROKEE (CY0306)
 Speed: 29.7 MPH 47.8 KPH
 Minimum = 6.11E-02 G'S at -18 msec
 Maximum = 45.98 G'S at 77 msec

PASSENGER HEAD RESULTANT ACCELERATION



TEST: FMVSS 208 BARRIER

TEST DATE: 04-12-2000

COMPONENT: 2000 JEEP CHEROKEE (CY0306)

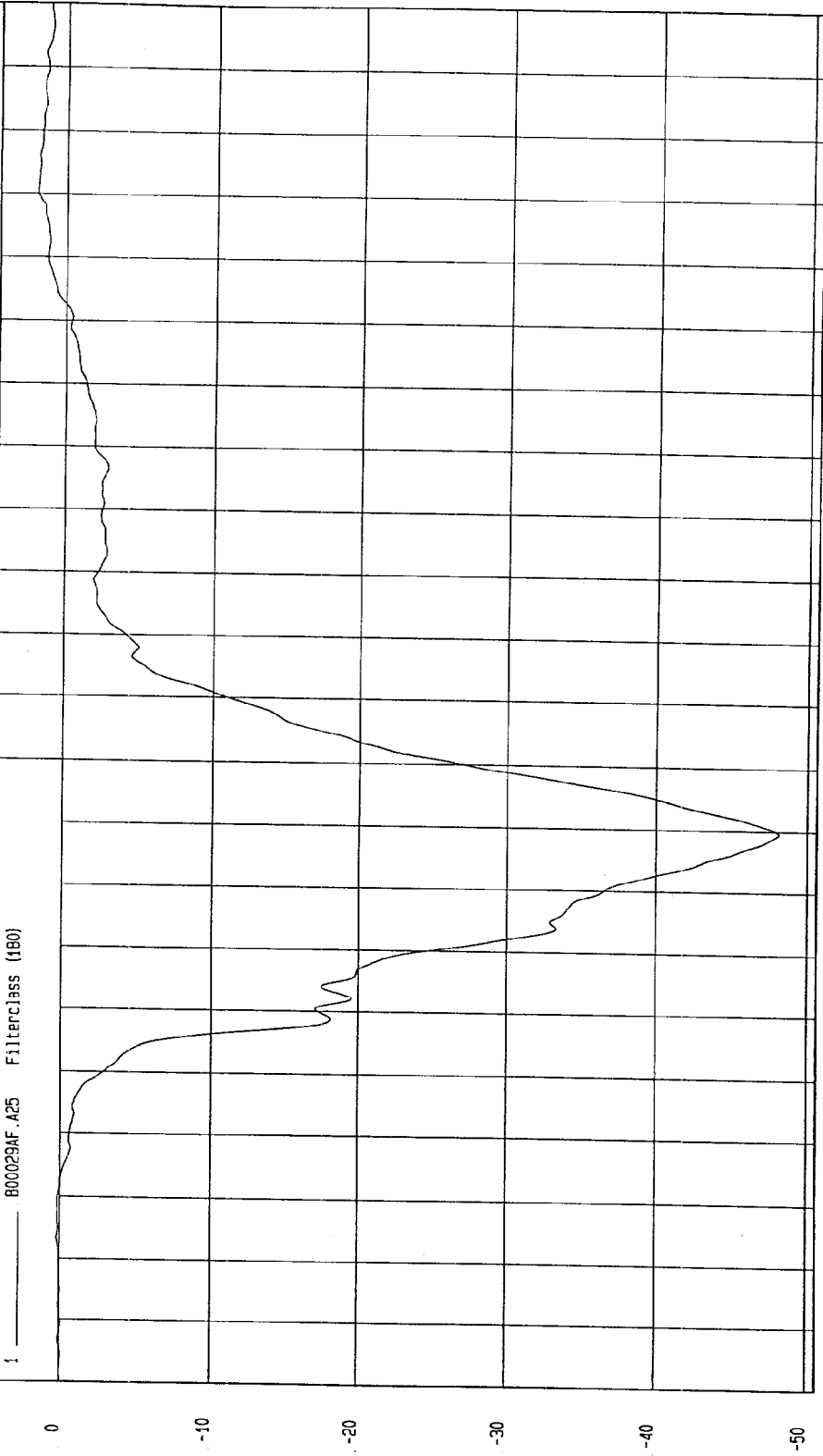
Speed: 29.7 MPH 47.8 KPH

Minimum = -48.11 G'S at 70 msec

Maximum = 1.96 G'S at 170 msec

PASSENGER CHEST X ACCELERATION

1 B00029AF.A25 FilterClass (180)



NGA Research
04-10-2000 17:18

TIME (SECONDS)

G's

TEST: FMVSS 208 BARRIER

TEST DATE: 04-12-2000

COMPONENT: 2000 JEEP CHEROKEE (CY0306)

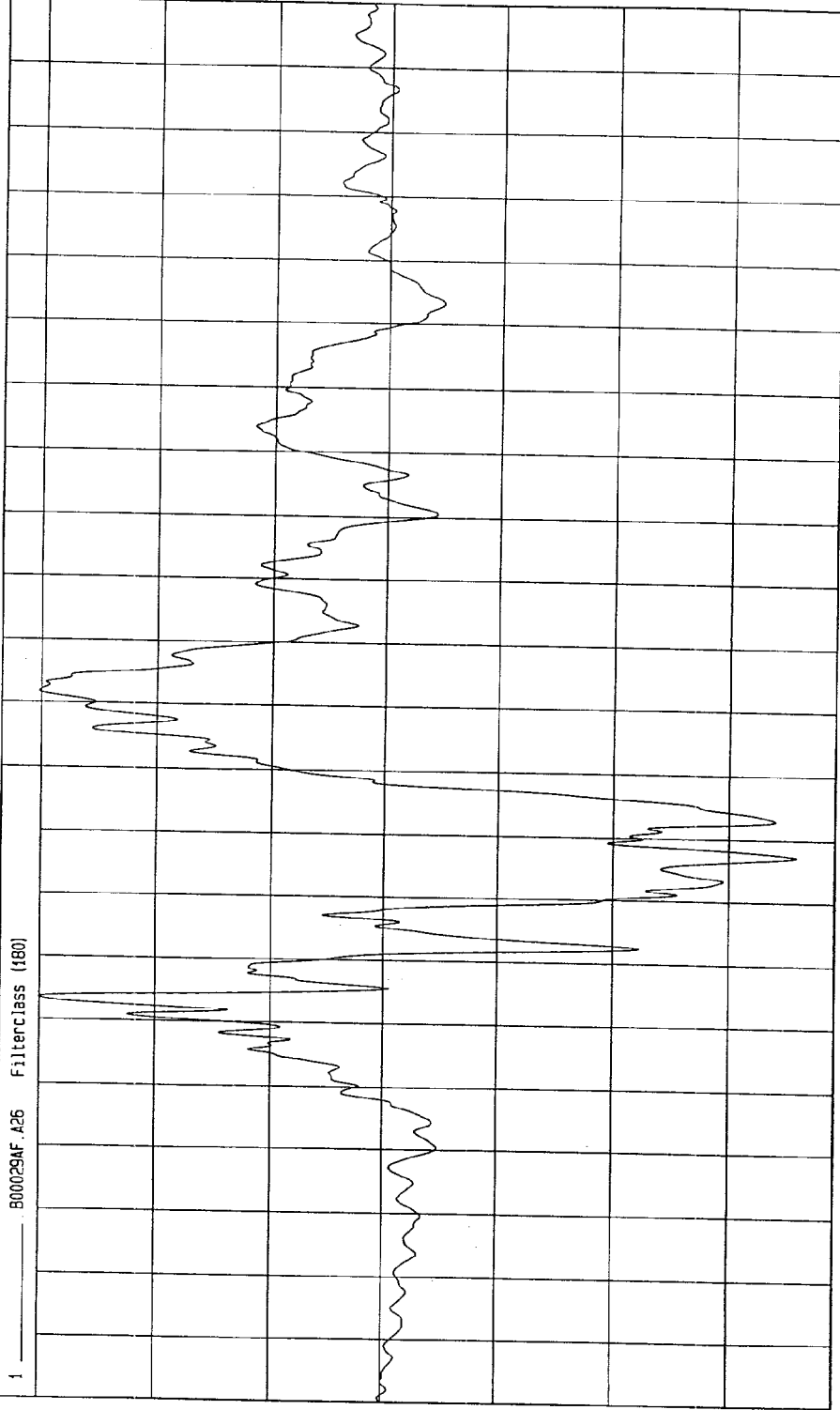
Speed: 29.7 MPH 47.8 KPH

Minimum = -3.59 G'S at 67 msec

Maximum = 3.02 G'S at 92 msec

PASSENGER CHEST Y ACCELERATION

1 800029AF.A26 FilterClass (180)



NSA Research
04-10-2000 17:18

TEST: FMVSS 208 BARRIER

TEST DATE: 04-12-2000

COMPONENT: 2000 JEEP CHEROKEE (CY0306)

Speed: 29.7 MPH 47.8 KPH

Minimum = -8.55 G'S at 136 msec

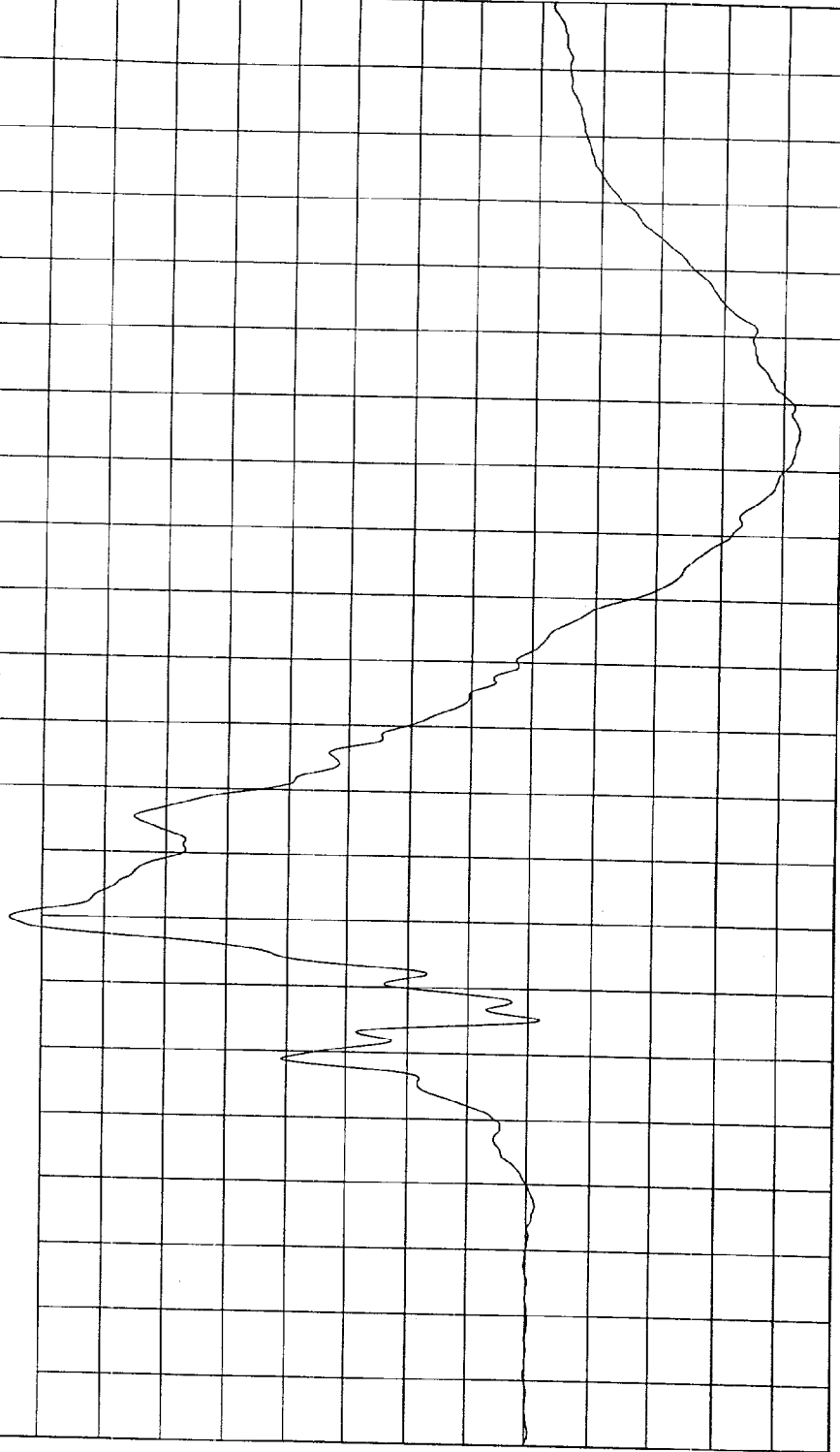
Maximum = 17.06 G'S at 60 msec

PASSENGER CHEST Z ACCELERATION

1 ——— E00029AF.A27 FilterClass (180)

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

G



TIME (SECONDS)

0.19
0.18
0.17
0.16
0.15
0.14
0.13
0.12
0.11
0.10
0.09
0.08
0.07
0.06
0.05
0.04
0.03
0.02
0.01
0
-0.01
-0.02

NGA Research
04-10-2000 17:18

TEST: FMVSS 208 BARRIER

TEST DATE: 04-12-2000

COMPONENT: 2000 JEEP CHEROKEE (CY0306)

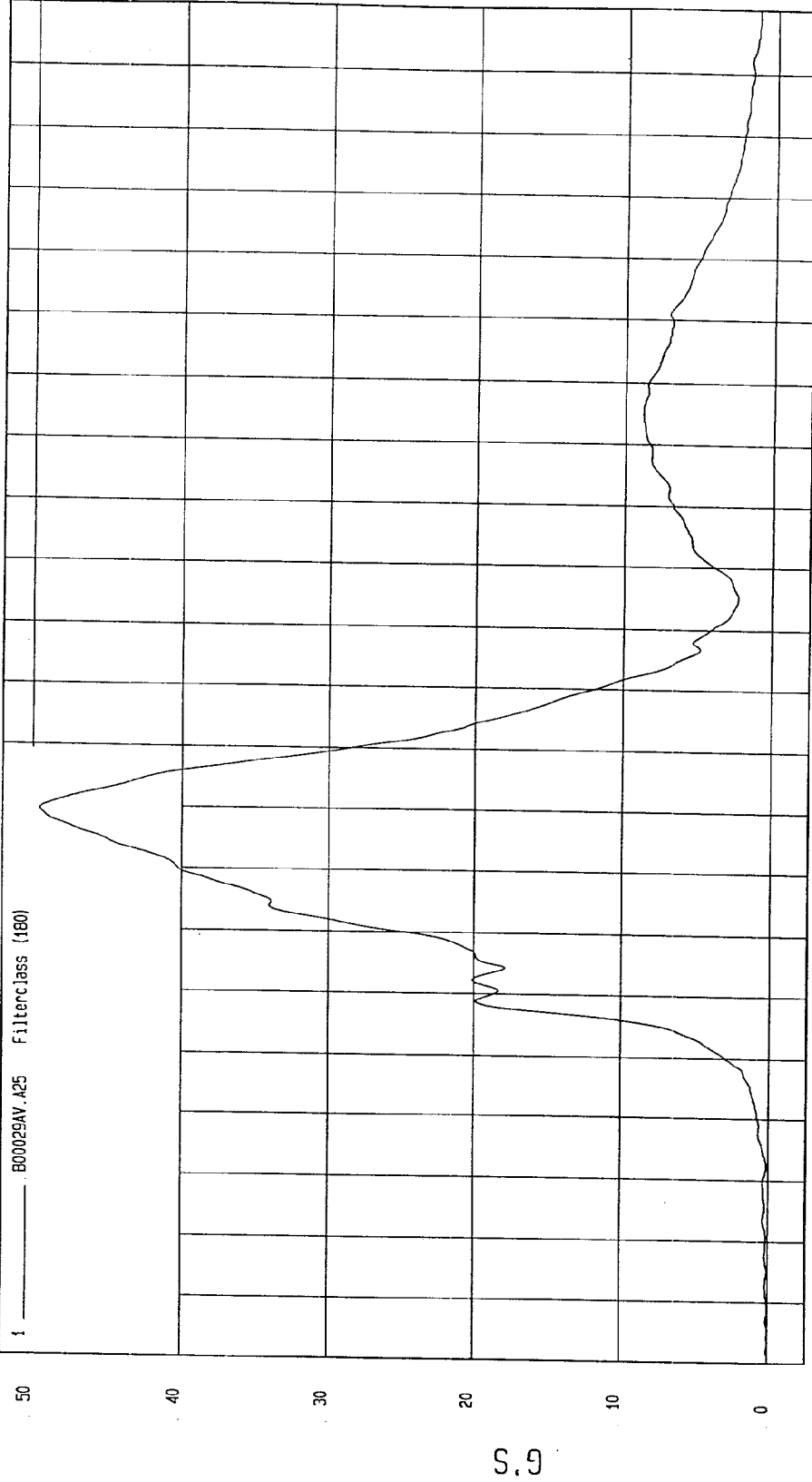
Speed: 29.7 MPH 47.8 KPH

Minimum = 3.95E-02 G'S at -20 msec

Maximum = 49.56 G'S at 69 msec

PASSENGER CHEST RESULTANT ACCELERATION

1 ——— B00029AV.A25 Filterclass (180)



NSA Research
04-10-2000 17:18

TEST: FMVSS 208 BARRIER

TEST DATE: 04-12-2000

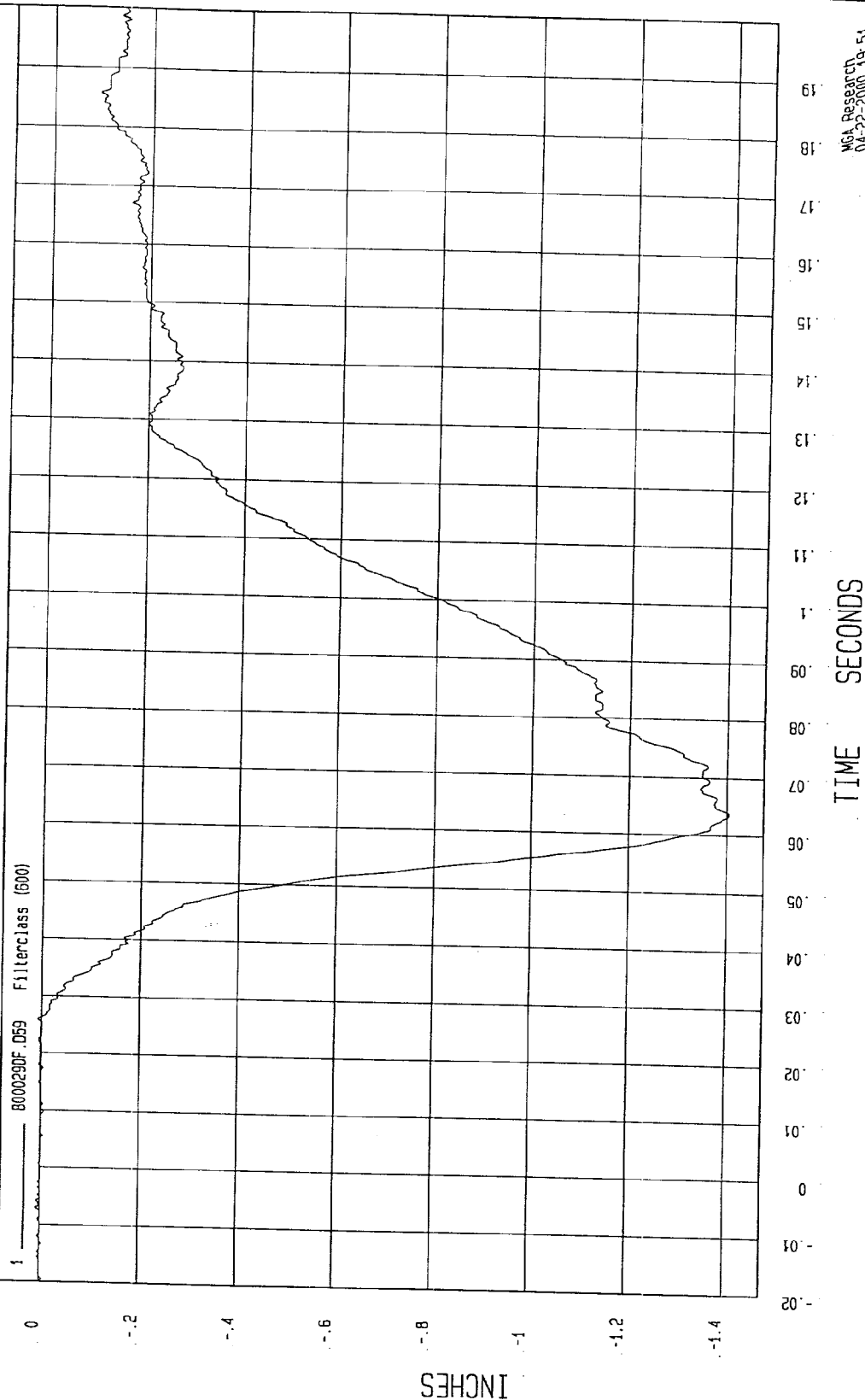
COMPONENT: 2000 JEEP CHEROKEE (CY0306)

Speed: 29.7 MPH 47.8 KPH

Minimum = -1.4 INCHES at 64 msec

Maximum = 8.60E-03 INCHES at -7 msec

PASSENGER CHEST COMPRESSION



TEST: FMVSS 208 BARRIER

TEST DATE: 04-12-2000

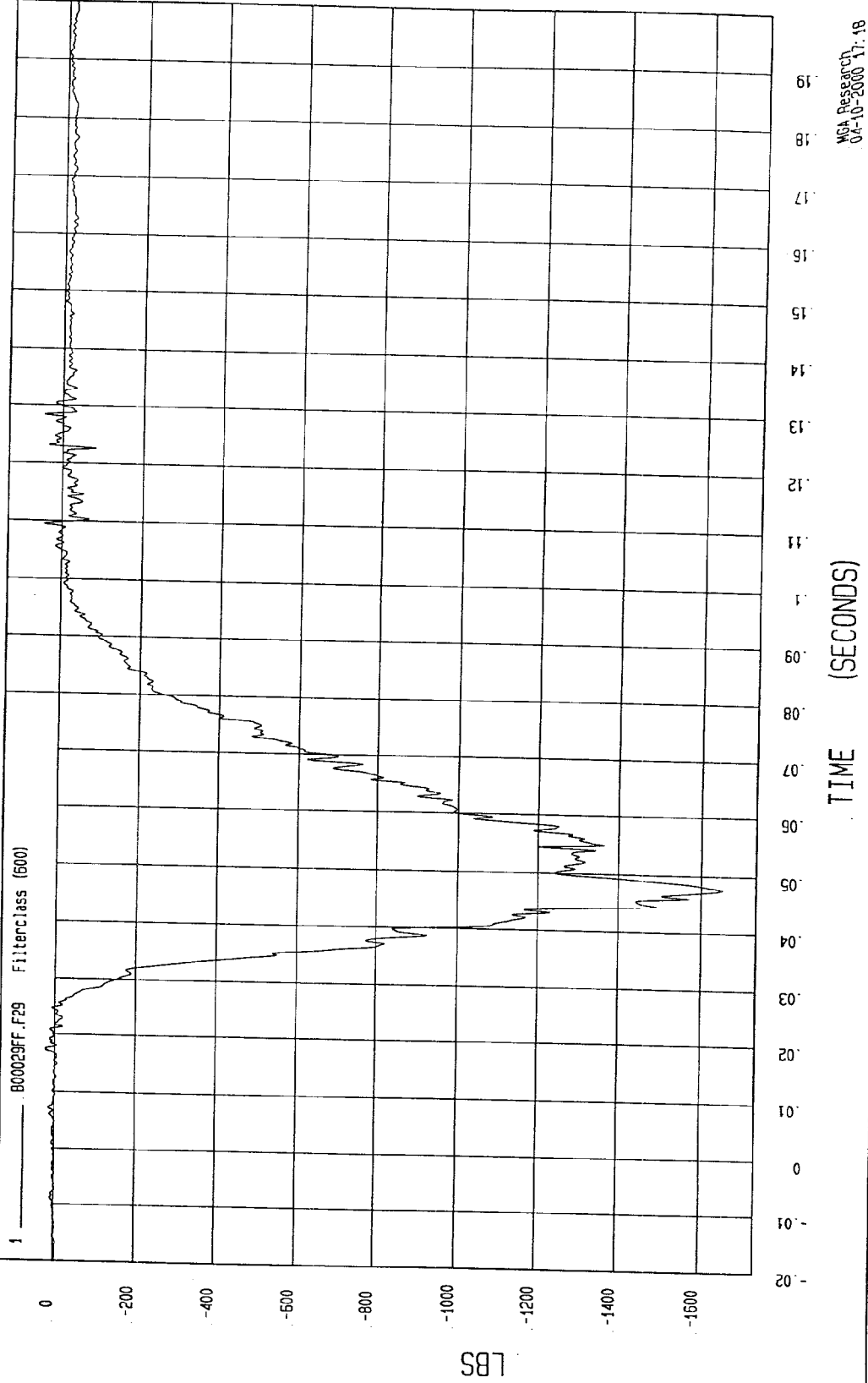
COMPONENT: 2000 JEEP CHEROKEE (CY0306)

Speed: 29.7 MPH 47.8 KPH

Minimum = -1652.01 LBS at 48 msec

Maximum = 48.22 LBS at 128 msec

PASSENGER LEFT FEMUR FORCE



TEST: FMVSS 208 BARRIER

TEST DATE: 04-12-2000

COMPONENT: 2000 JEEP CHEROKEE (CY0306)

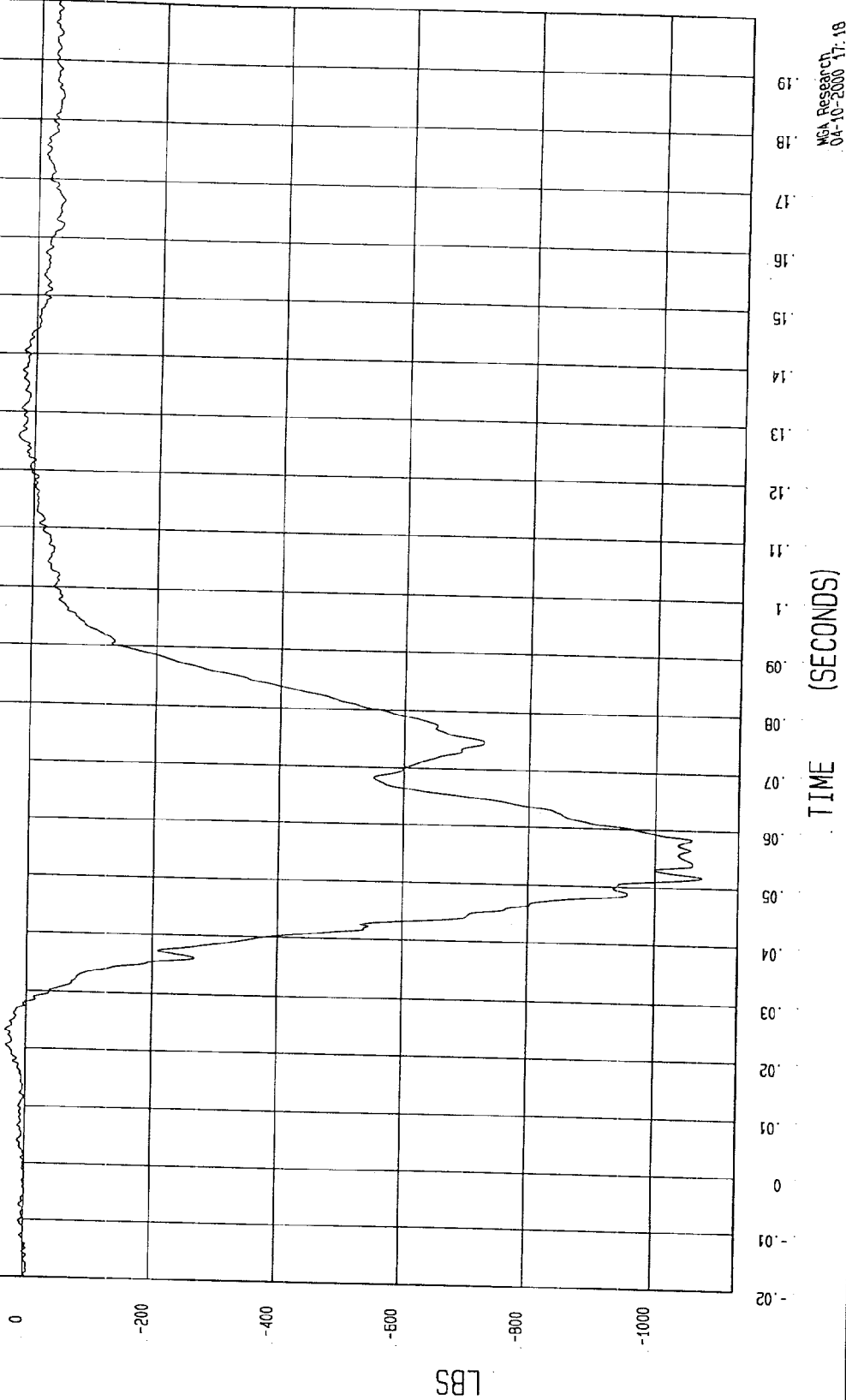
Speed: 29.7 MPH 47.8 KPH

Minimum = -1073.98 LBS at 52 msec

Maximum = 31.74 LBS at 23 msec

PASSENGER RIGHT FEMUR FORCE

1 ——— B00029FF.F28 Filterclass (500)



NGA Research
04-10-2000 17:19

TEST: FMVSS 208 BARRIER

TEST DATE: 04-12-2000

COMPONENT: 2000 JEEP CHEROKEE (CY0306)

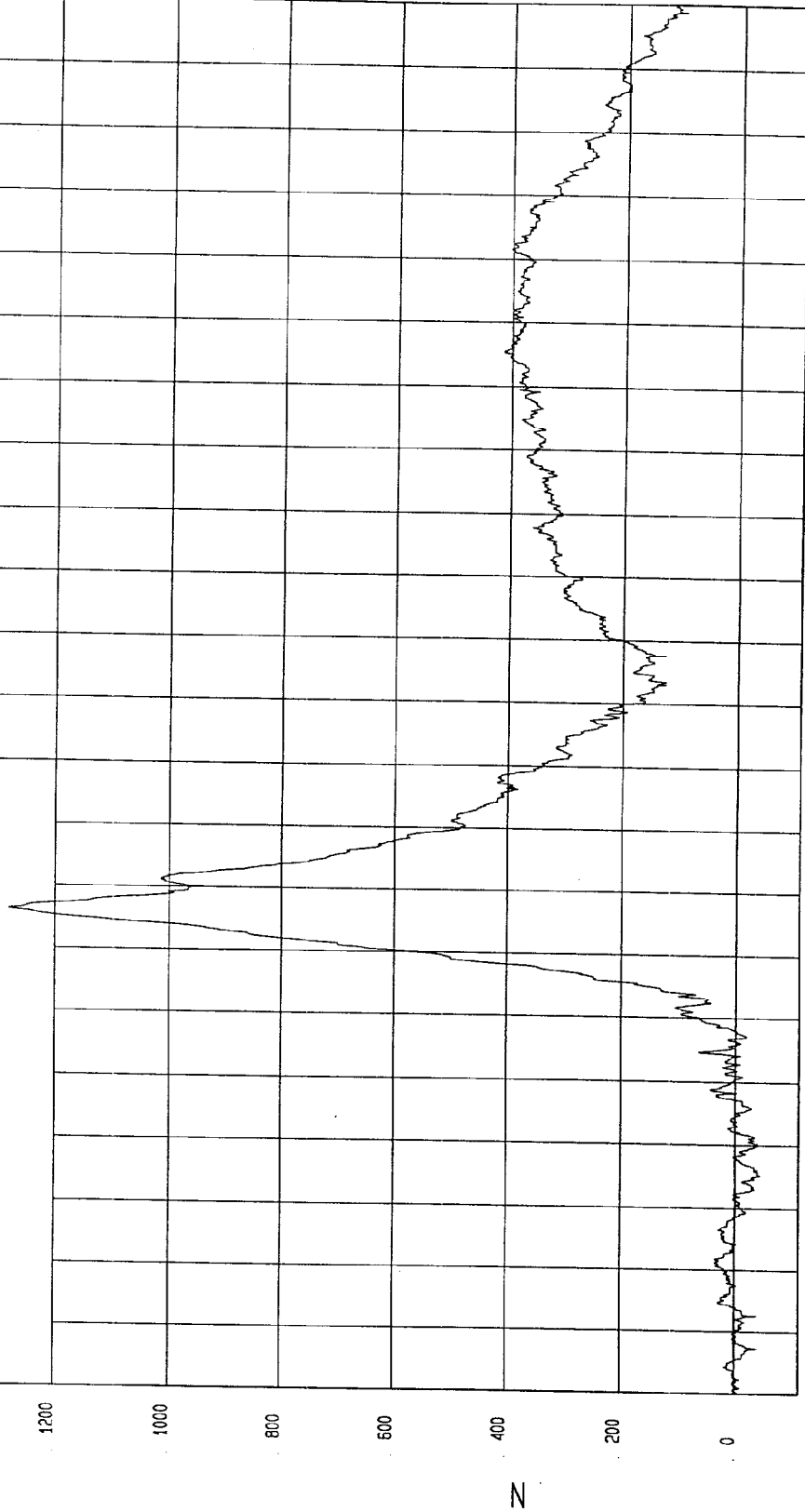
Speed: 29.7 MPH 47.8 KPH

Minimum = -43.65 N at 15 msec

Maximum = 1280.04 N at 56 msec

PASSENGER NECK FORCE X

1 ——— B00029T.F51 Filterclass (1000)



MCA Research
04-10-2000 17.18

TEST: FMVSS 208 BARRIER

TEST DATE: 04-12-2000

COMPONENT: 2000 JEEP CHEROKEE (CY0306)

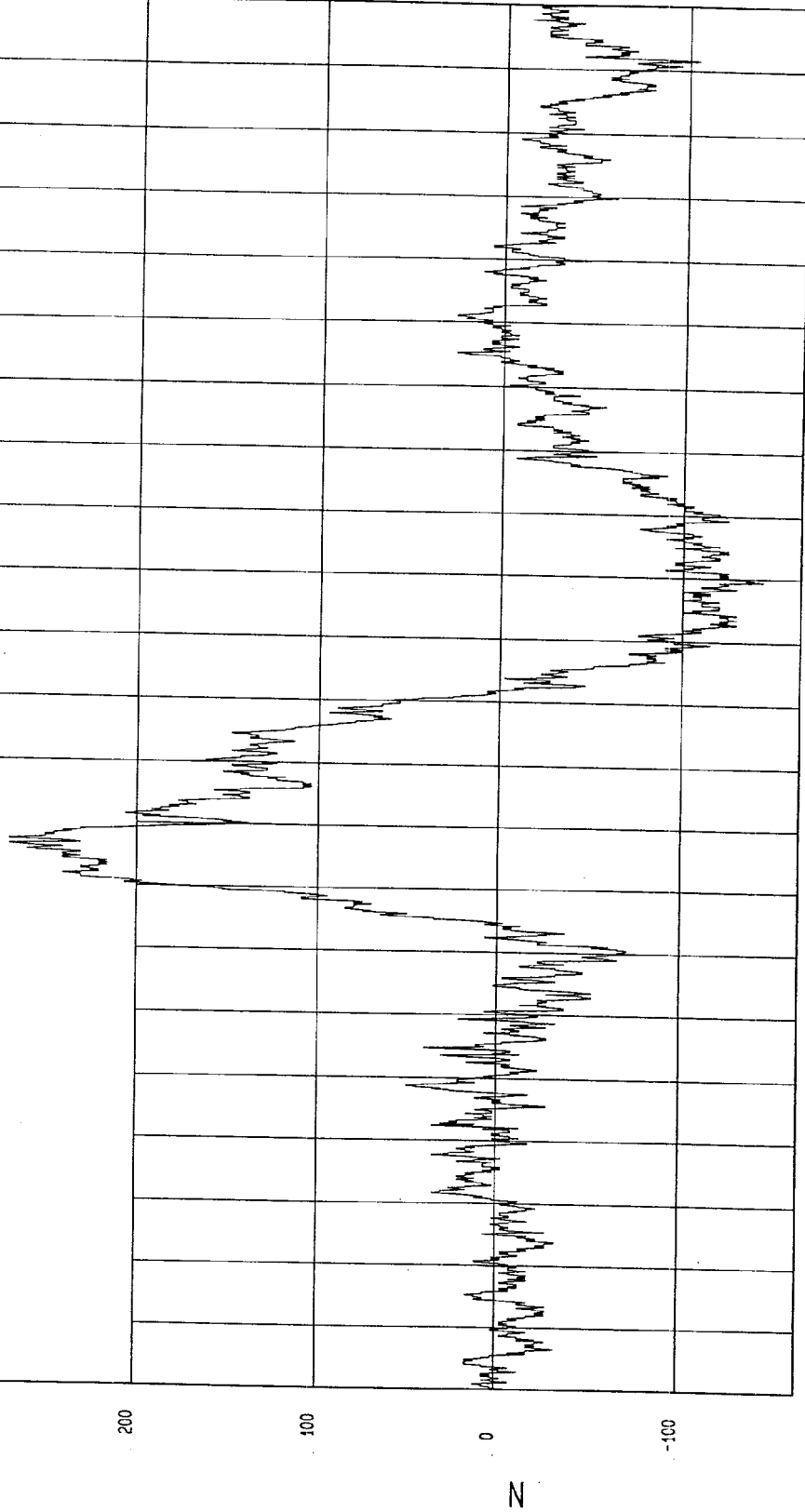
Speed: 29.7 MPH 47.8 KPH

Minimum = -144.02 N at 109 msec

Maximum = 269.75 N at 66 msec

PASSENGER NECK FORCE Y

1 ——— B00029FT.F52 Filterclass (1000)



MGA Research
04-10-2000 17:19

TEST: FMVSS 208 BARRIER

TEST DATE: 04-12-2000

COMPONENT: 2000 JEEP CHEROKEE (CY0306)

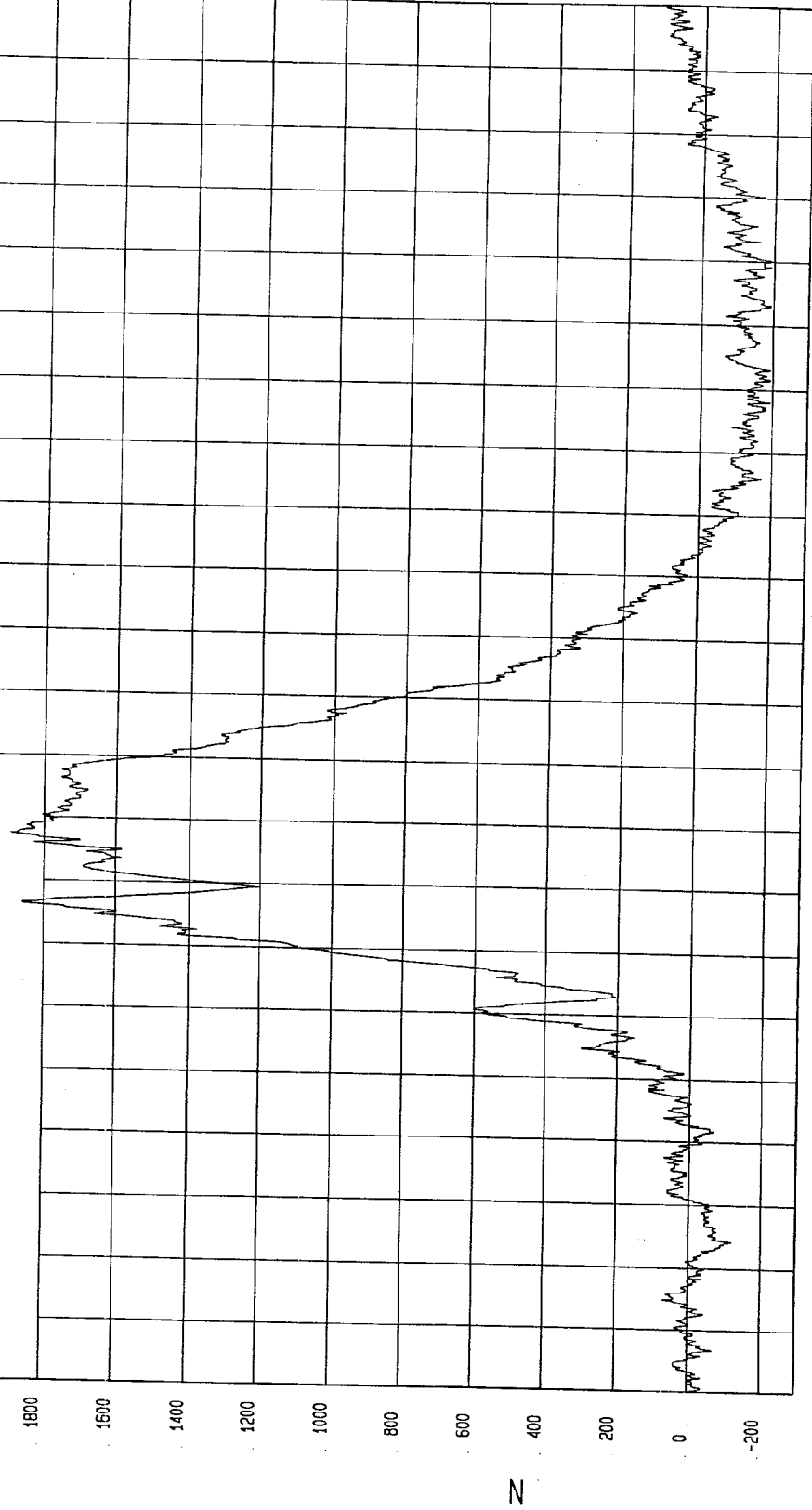
Speed: 29.7 MPH 47.8 KPH

Minimum = -192.49 N at 138 msec

Maximum = 1885.7 N at 67 msec

PASSENGER NECK FORCE Z

1 ——— 800029FT.F53 FilterClass (1000)



MSA Research
04-10-2000 17:19

TEST: FMVSS 208 BARRIER

TEST DATE: 04-12-2000

COMPONENT: 2000 JEEP CHEROKEE (CY0306)

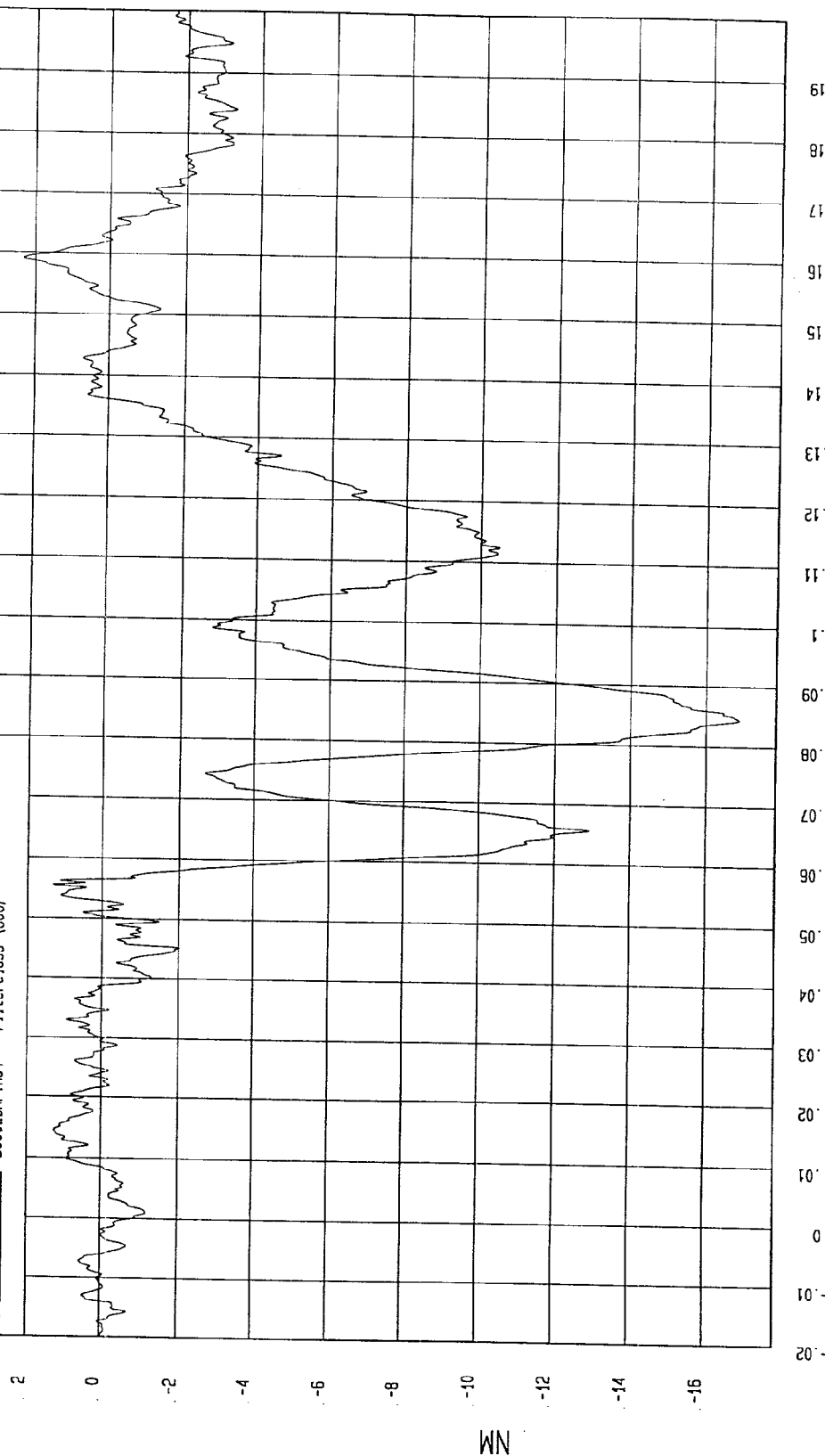
Speed: 29.7 MPH 47.8 KPH

Minimum = -15.87 NM at 84 msec

Maximum = 2.32 NM at 159 msec

PASSENGER NECK MOMENT X

1 ——— 800029MF.N54 Filterclass (600)

MCA Research
04-10-2000 17:19

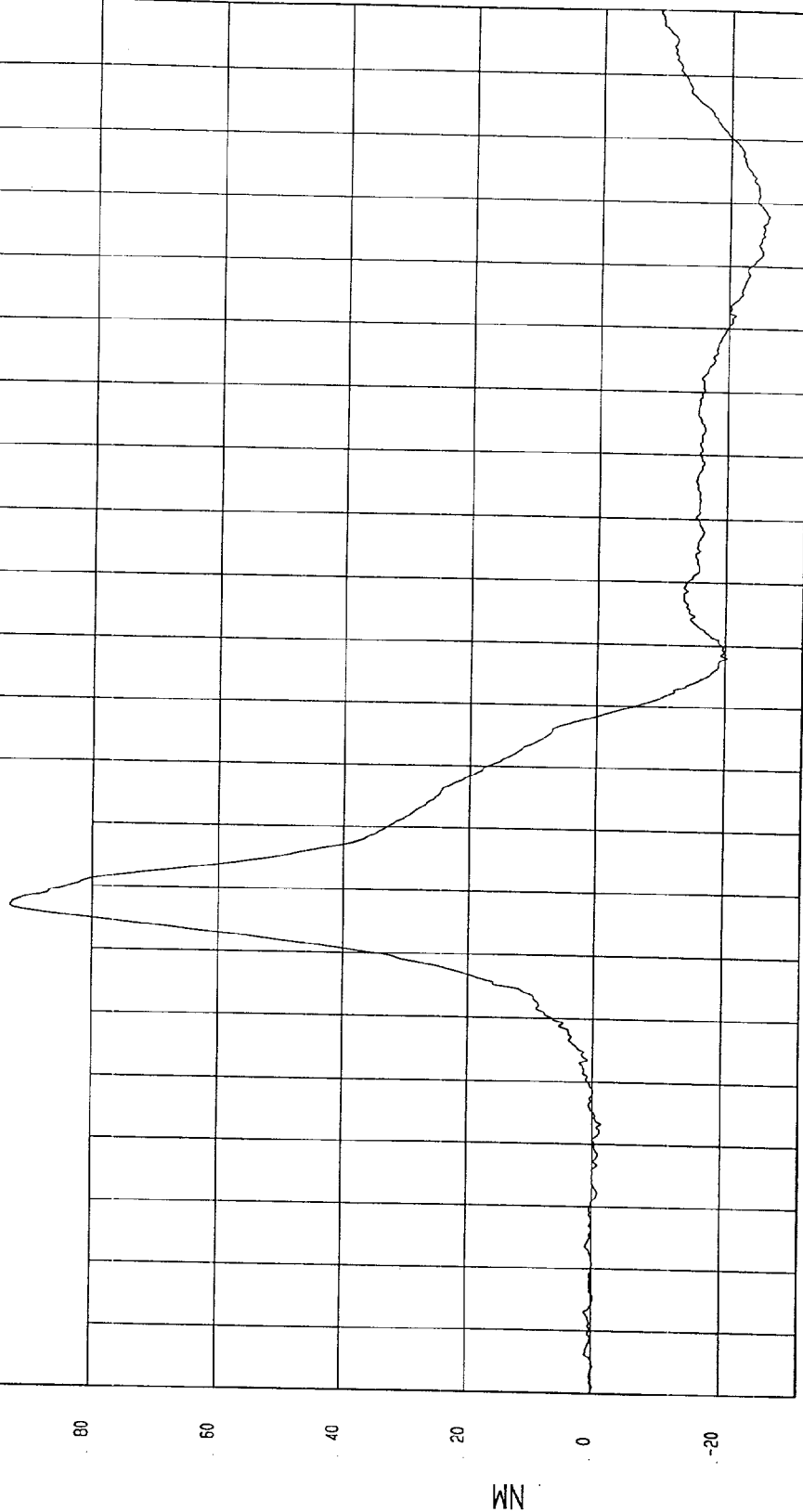
TEST: FMVSS 208 BARRIER TEST DATE: 04-12-2000

COMPONENT: 2000 JEEP CHEROKEE (CY0306) Speed: 29.7 MPH 47.8 KPH

Minimum = -26.11 NM at 168 msec Maximum = 92.81 NM at 57 msec

PASSENGER NECK MOMENT Y

1 — 800029MF.M55 Filterclass (600)



MCA Research
04-10-2000 17:19

TEST: FMVSS 208 BARRIER

TEST DATE: 04-12-2000

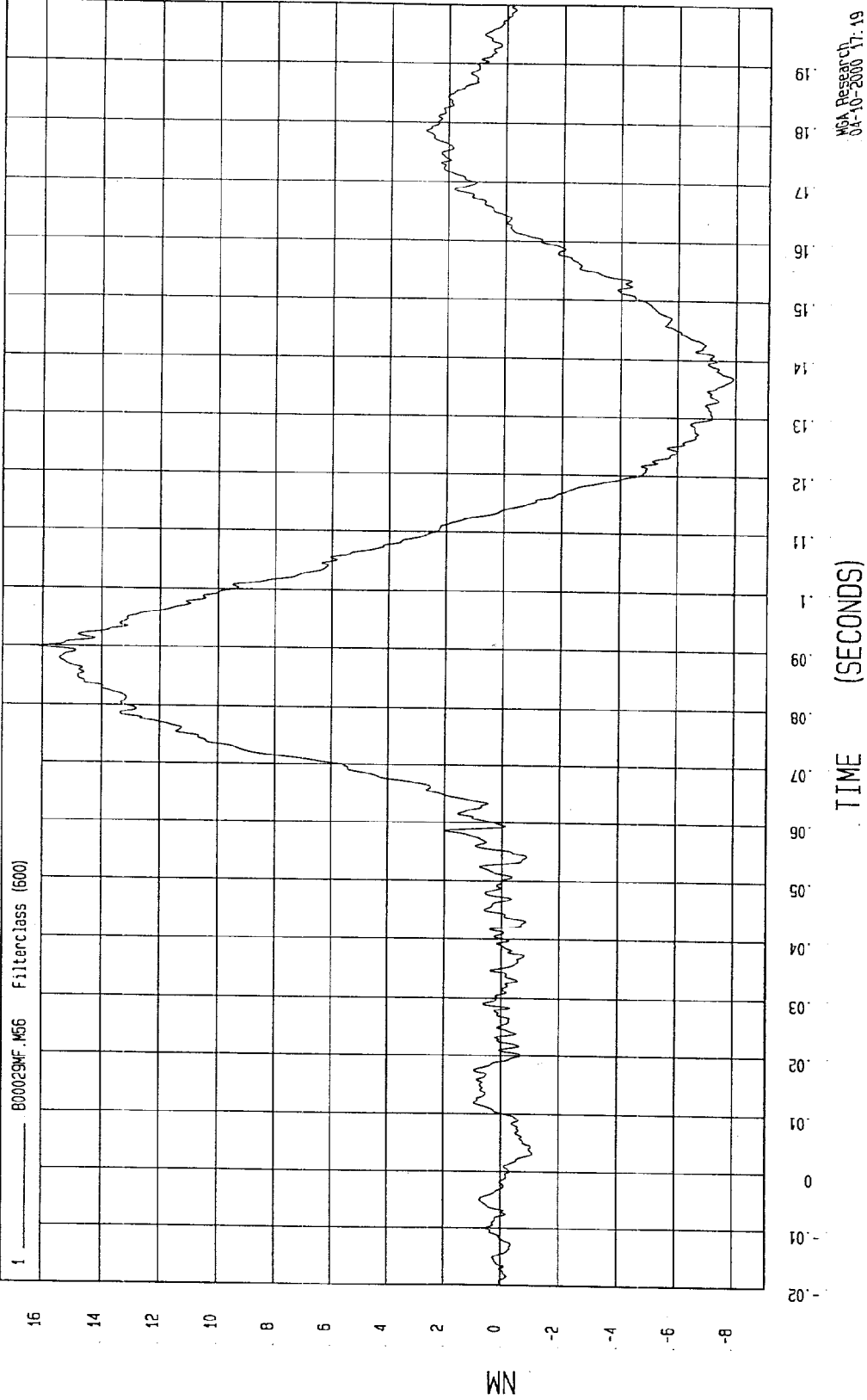
COMPONENT: 2000 JEEP CHEROKEE (CY0306)

Speed: 29.7 MPH 47.8 KPH

Minimum = -7.92 NM at 137 msec

Maximum = 16.13 NM at 90 msec

PASSENGER NECK MOMENT Z



TEST: FMVSS 208 BARRIER

TEST DATE: 04-12-2000

COMPONENT: 2000 JEEP CHEROKEE (CY0306)

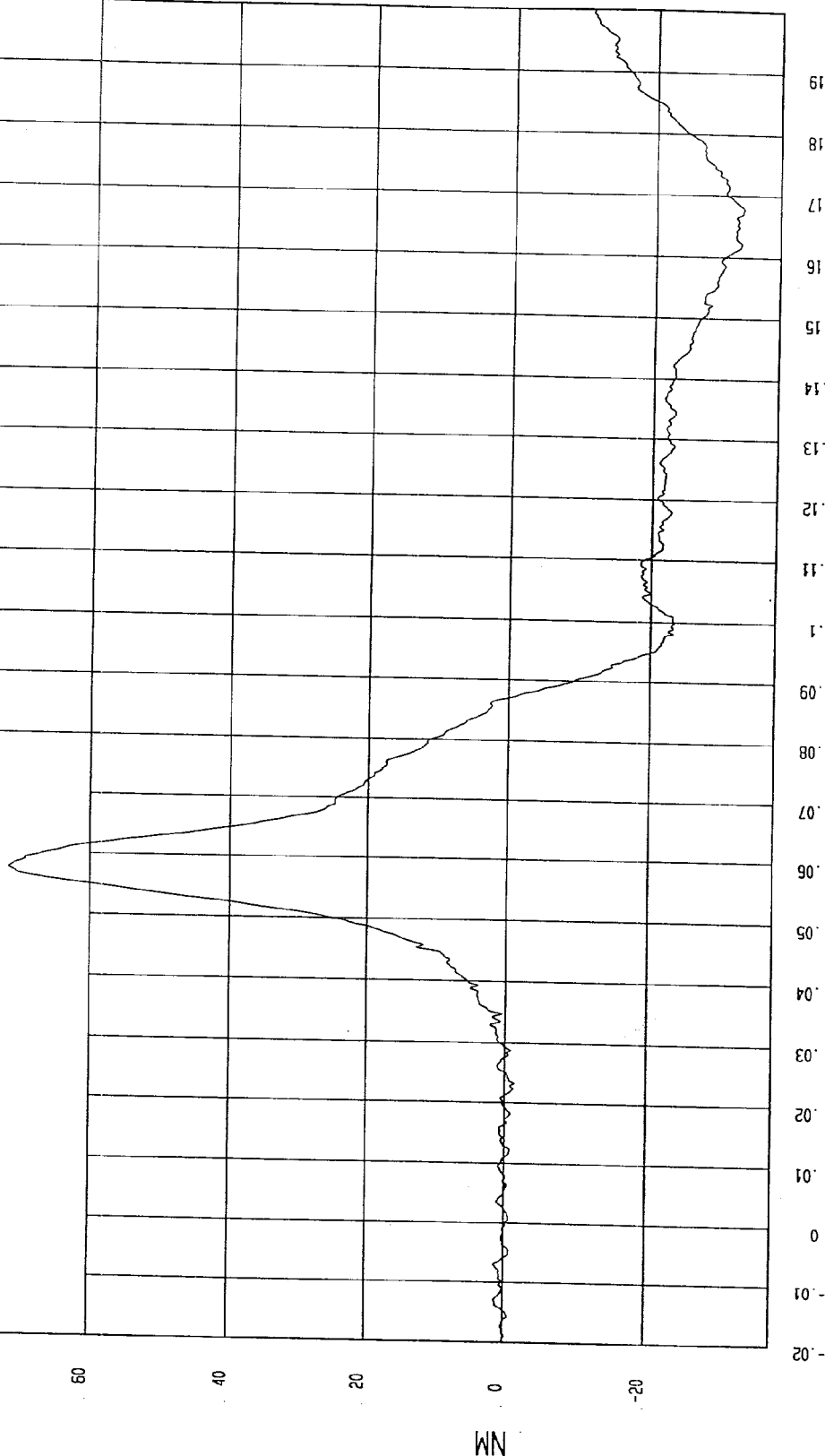
Speed: 29.7 MPH 47.8 KPH

Minimum = -32.64 NM at 168 msec

Maximum = 71.65 NM at 58 msec

PASSENGER OCCIPITAL CONDYLE MOMENT Y

1 — 800029M0.ME5 Filterclass (500)



MCA Research
04-10-2000 17:19

TEST: FMVSS 208 BARRIER

TEST DATE: 04-12-2000

COMPONENT: 2000 JEEP CHEROKEE (CY0306)

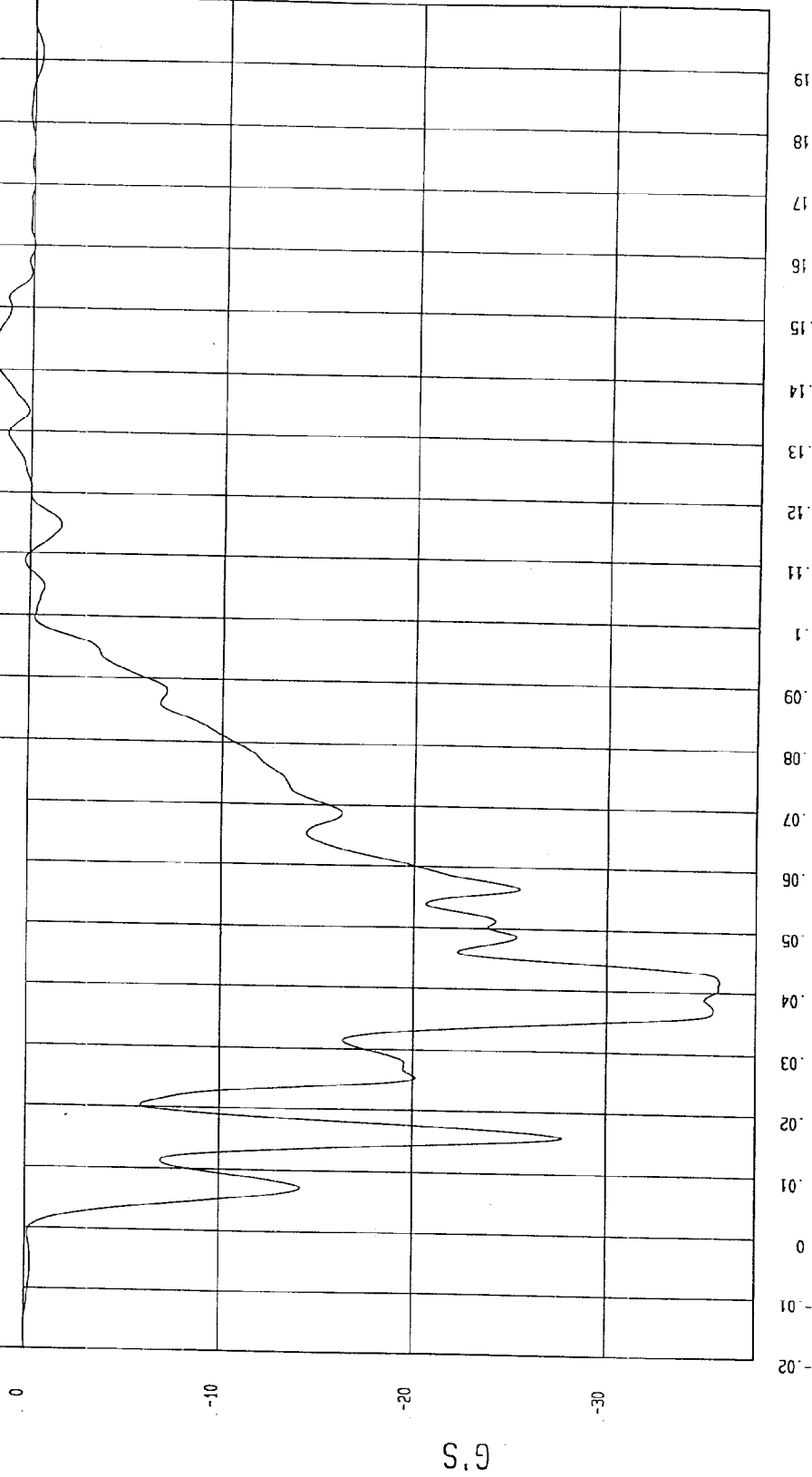
Speed: 29.7 MPH 47.8 KPH

Minimum = -35.7 G'S at 42 msec

Maximum = 1.88 G'S at 144 msec

LEFT REAR SEAT CROSSMEMBER X ACCELERATION

1 ——— B00029AF.A30 FilterClass (60)



MCA Research
04-10-2000 16:49

TEST: FMVSS 208 BARRIER

TEST DATE: 04-12-2000

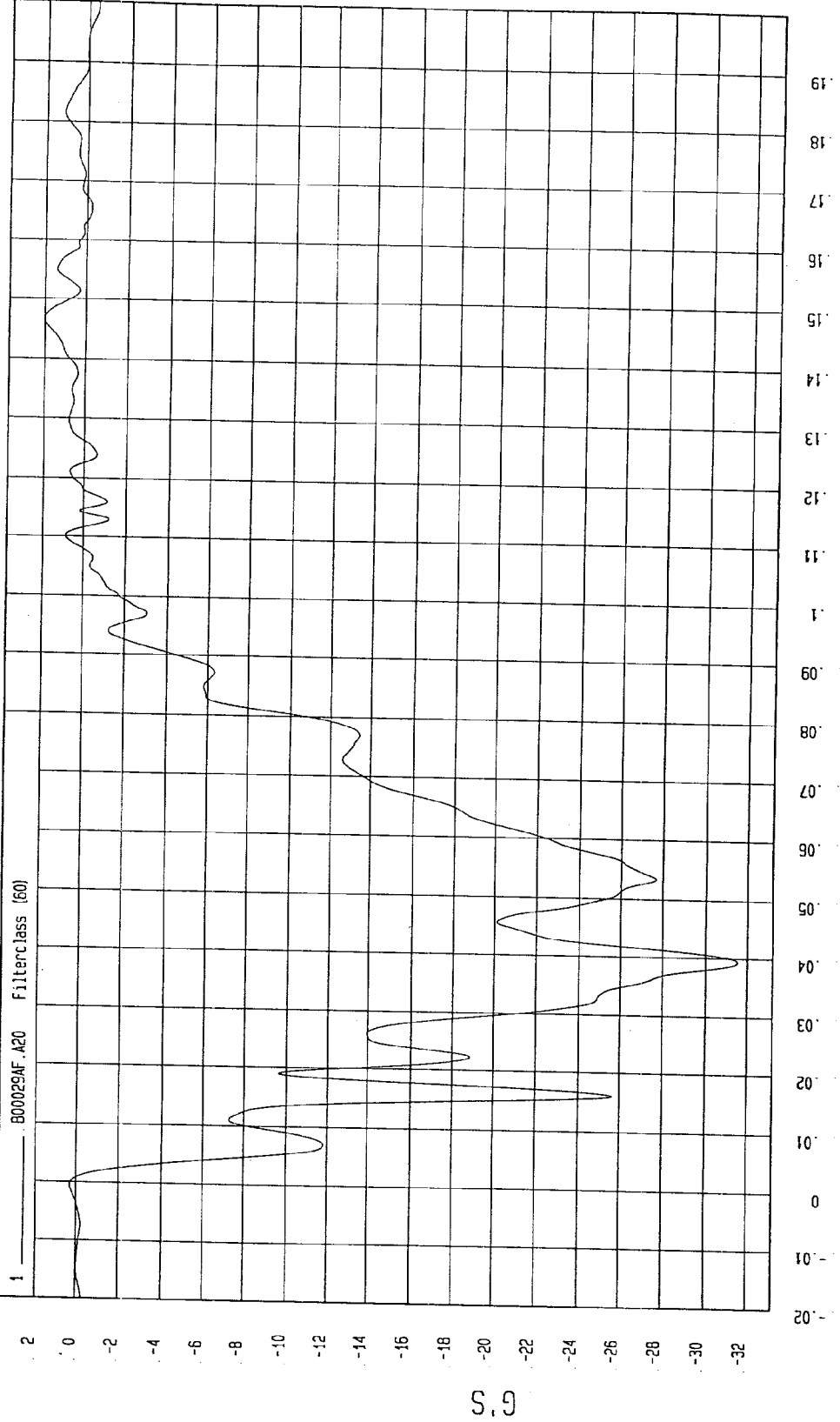
COMPONENT: 2000 JEEP CHEROKEE (CY0306)

Speed: 29.7 MPH 47.8 KPH

Minimum = -31.54 G'S at 39 msec

Maximum = 2.02 G'S at 146 msec

RIGHT REAR SEAT CROSSMEMBER X ACCELERATION



MCA Research
04-10-2000 16:49

TOP OF ENGINE X ACCELERATION VS. TIME
NO VALID DATA COLLECTED

TEST: FMVSS 208 BARRIER

TEST DATE: 04-12-2000

COMPONENT: 2000 JEEP CHEROKEE (CY0306)

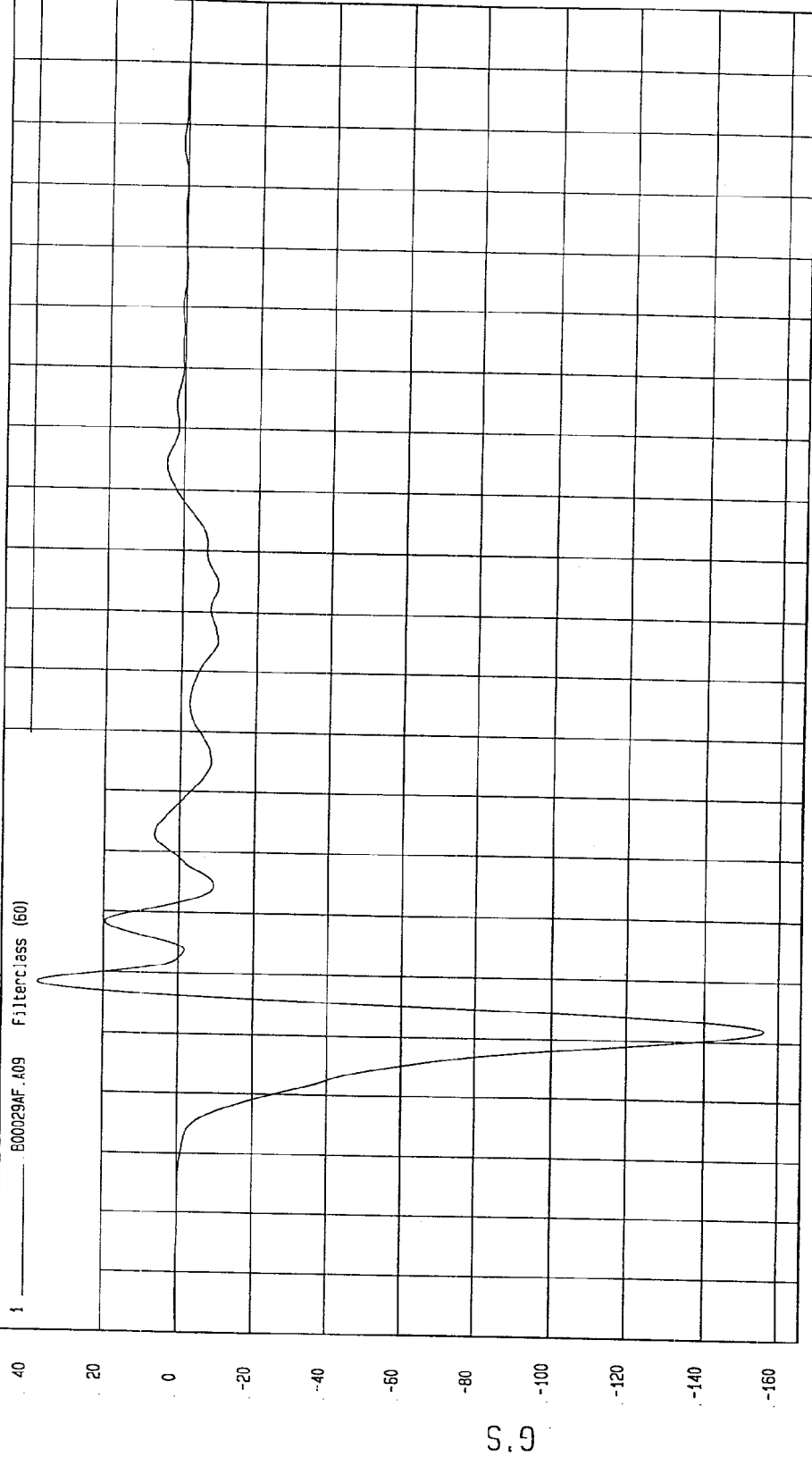
Speed: 29.7 MPH 47.8 KPH

Minimum = -156.17 G'S at 32 msec

Maximum = 37.59 G'S at 38 msec

BOTTOM OF ENGINE X ACCELERATION

1 800029AF.A09 Filterclass (60)



NSA Research
04-10-2000 16:50

TIME (SECONDS)

TEST: FMVSS 208 BARRIER

TEST DATE: 04-12-2000

COMPONENT: 2000 JEEP CHEROKEE (CY0306)

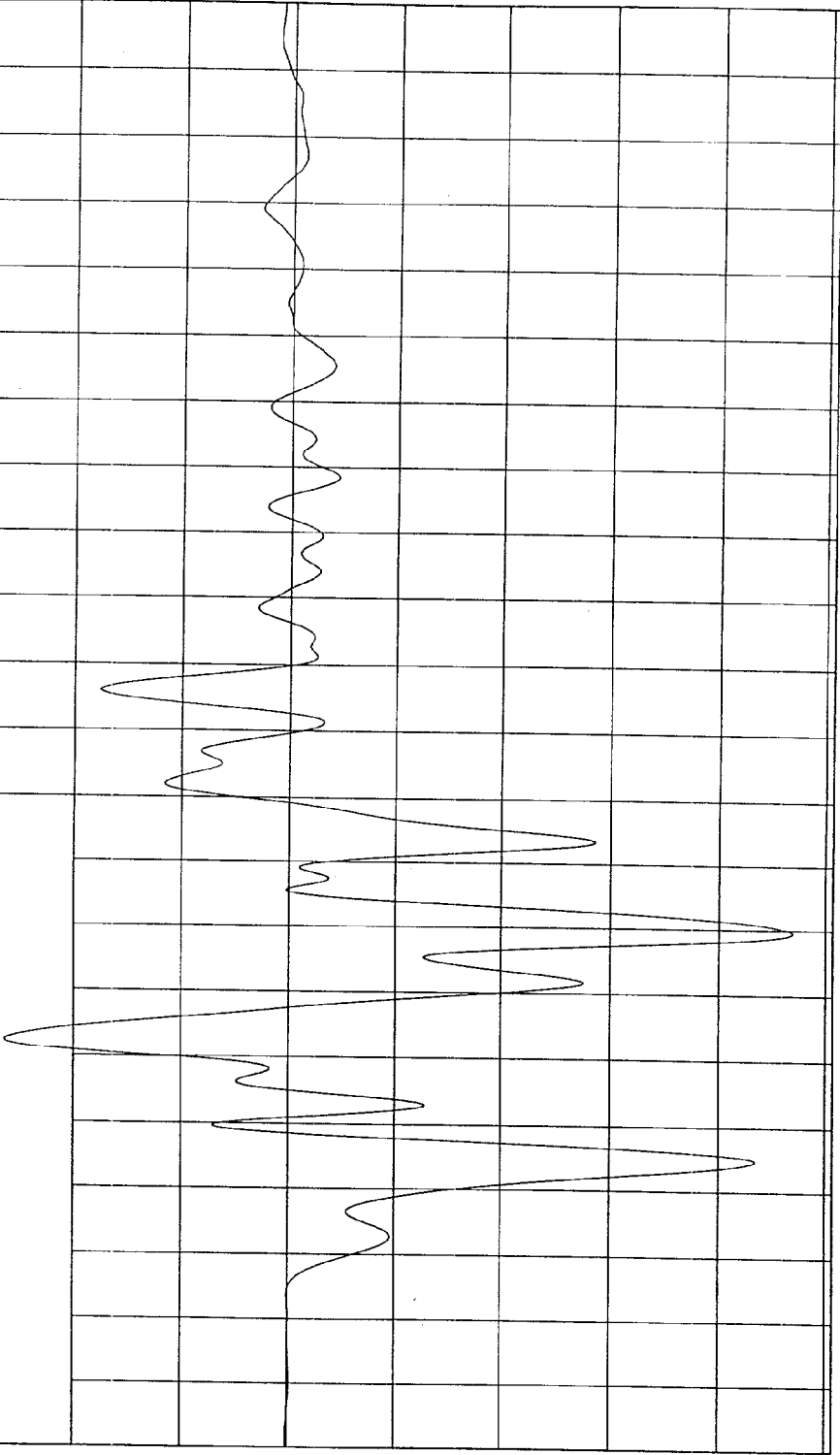
Speed: 29.7 MPH 47.8 KPH

Minimum = -94.05 G'S at 60 msec

Maximum = 52.63 G'S at 42 msec

INSTRUMENT PANEL X ACCELERATION

1 800029AF.A10 Filterclass (60)



TIME (SECONDS)

NCA Research
04-10-2000 16:50

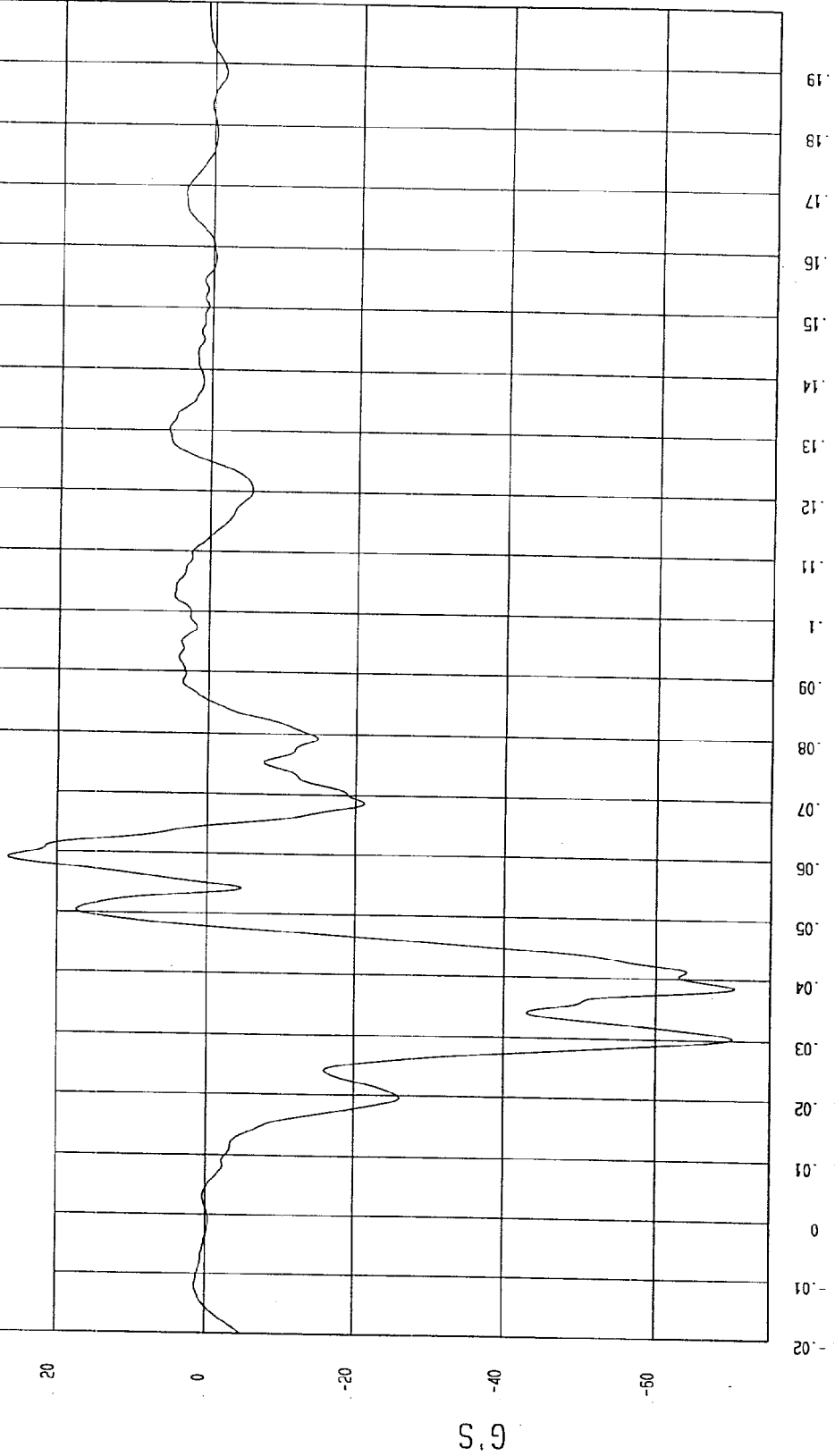
TEST: FMVSS 208 BARRIER TEST DATE: 04-12-2000

COMPONENT: 2000 JEEP CHEROKEE (CY0306) Speed: 29.7 MPH 47.8 KPH

Minimum = -70.41 G'S at 38 msec Maximum = 26.65 G'S at 59 msec

LEFT BRAKE CALIPER X ACCELERATION

1 ——— 800029AF.A03 Filterclass (60)



TEST: FMVSS 208 BARRIER

TEST DATE: 04-12-2000

COMPONENT: 2000 JEEP CHEROKEE (CY0306)

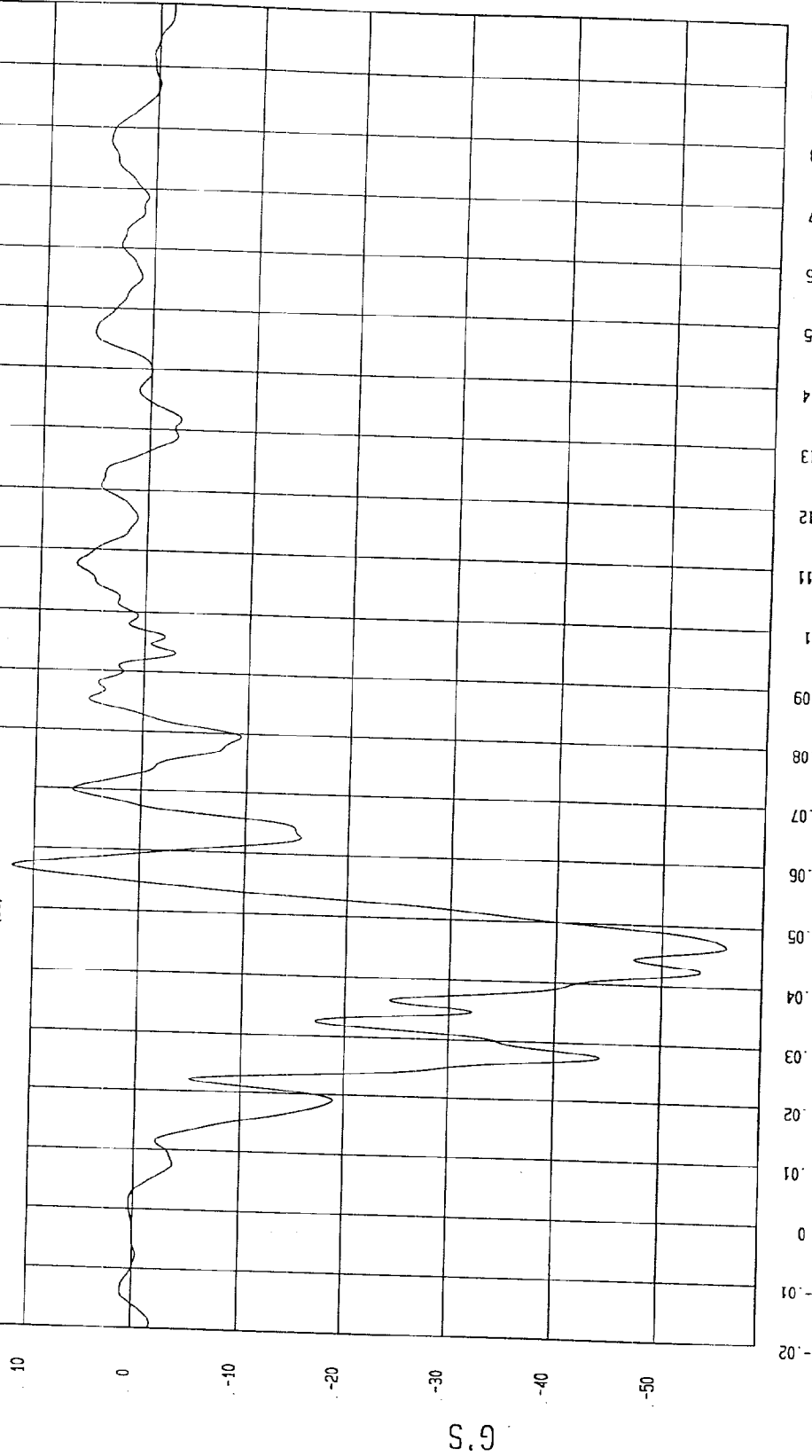
Speed: 29.7 MPH 47.8 KPH

Minimum = -56.05 G'S at 47 msec

Maximum = 12.02 G'S at 57 msec

RIGHT BRAKE CALIPER X ACCELERATION

1 B00029AF.A02 Filterclass (60)



MCA Research
04-10-2000 16:50

TEST: FMVSS 208 BARRIER

TEST DATE: 04-12-2000

COMPONENT: 2000 JEEP CHEROKEE (CY0306)

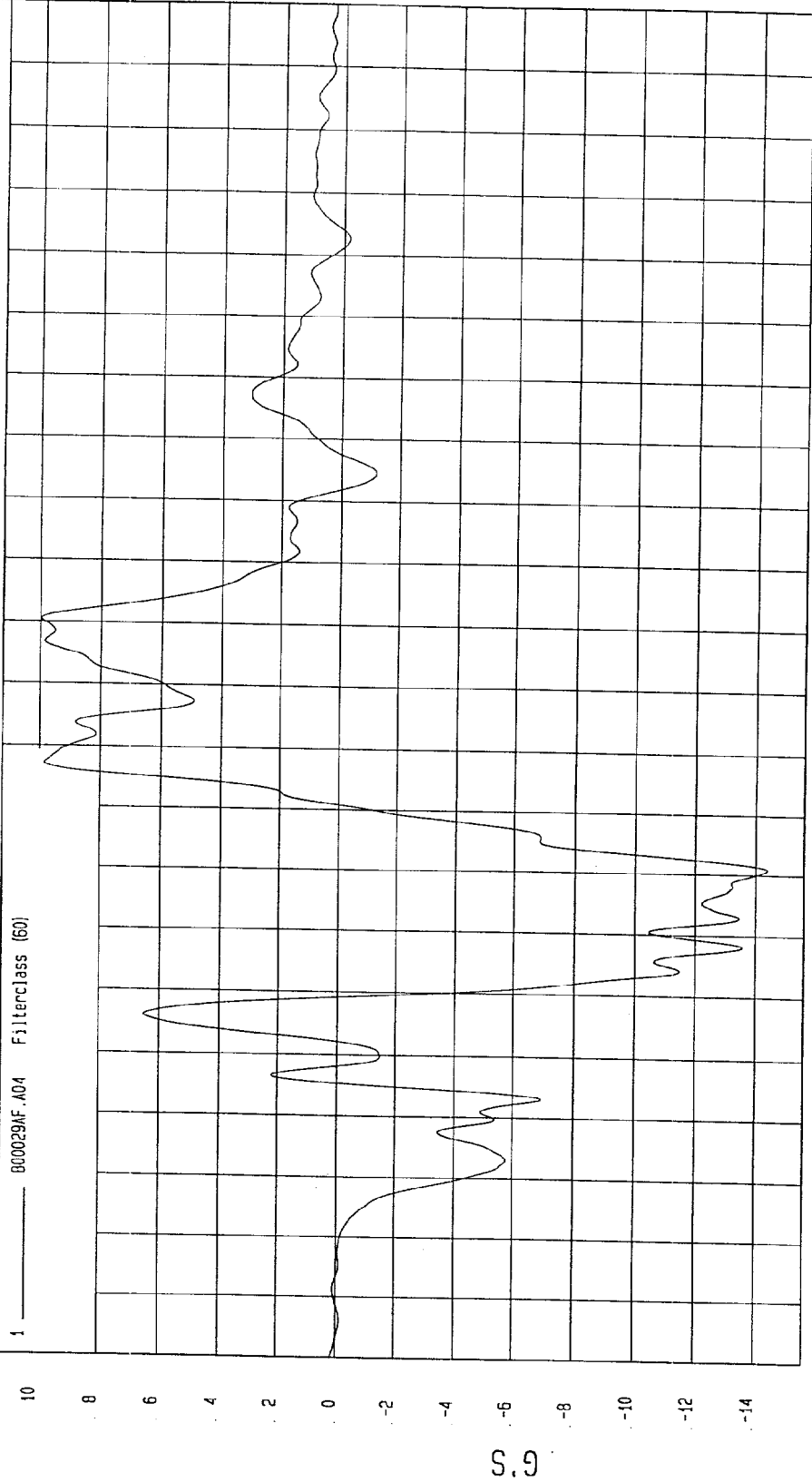
Speed: 29.7 MPH 47.8 KPH

Minimum = -14.39 G'S at 61 msec

Maximum = 9.95 G'S at 100 msec

TRUNK Z ACCELERATION

1 ——— 000029AF.A04 Filterclass (60)



M&A Research
04-10-2000 16:50

APPENDIX C
MANUFACTURER'S VEHICLE INFORMATION

DAIMLERCHRYSLER

January 7, 2000

Ms Marilynne Jacobs, Director
Office of Vehicle Safety Compliance
National Highway Traffic Administration
U.S. Department of Transportation
400 Seventh Street, S.W.
Washington, D.C. 20590

DaimlerChrysler Corporation

Susan M. Cischke
Sr. Vice President
Regulatory Affairs &
Passenger Car Operations

RECEIVED
BY NSA-30
JAN 13 PM 1:15

Dear Ms Jacobs:

Reference: **NSA-31CCa/OA:208991029E**
FMVSS 208 Occupant Crash Protection (Compliance Test)
2000 Jeep Cherokee

The following is provided in response to your November 5, 1999 information request.

Q1. Please inform OVSC if the air bag restraint system is certified to meet the requirements of S4.1.5.1(a)(1) or S13.

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

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

A1. The 2000 Jeep Cherokee is carryover from the 1998 model year and is certified to meet the requirements of FMVSS 208 S13. The compliance test data was provided in our response of September 19, 1997, Reference NSA - 31CCa OA:208970811G Attachment 1.

Q2. If this is a new design vehicle/model, describe any features that might affect performance with respect to children and out of position occupants.

Q2. Continued

If this is not a new design vehicle/model provide the following: (1) state when the air bag was depowered, (2) describe the difference between the MY 2000 air bag system and the MY 1999 air bag system, (3) explain what other restraint changes have been made, and (4) explain what other vehicle changes have been made that might have affected FMVSS 208 performance. Explain which changes might affect performance with respect to children and out of position occupants.

- A2.** For the 1998 and subsequent model years Jeep Cherokee, both driver and passenger airbags were depowered.

The 2000 model year vehicle incorporates no new technology developed with the specific intent of affecting performance in a FMVSS 208 crash test or the performance characteristics of the restraint system with regard to children and out of position occupants.

- Q3.** 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.

- A3.** The 2000 Jeep Cherokee does not have a crash event recorder.

- Q4.** If the vehicle was certified with unrestrained dummies to meet the requirements of S13, describe how to disconnect the air bags from the vehicle sensors and connect them to the triggering mechanism used in the sled test. Describe the method used in certification to determine when to trigger the air bag and the system used to trigger the air bag.

- A4.** Disconnect the battery and wait at least two minutes. Remove the driver air bag module from the steering wheel and unplug the connector; unplug the passenger air bag pigtail from the vehicle body wiring harness underneath the instrument panel. Once the air bags have been disconnected, cut the wires on the body wiring harness. Use the cut wires to construct an overlay harness, which will be used to deploy the air bags during the impact simulator test. Using the overlay harness, the air bags are wired in parallel to a 12 volt power supply controlled by an "air bag timer delay box" which is used to trigger the air bags 20 milliseconds following a 1/2 G carriage acceleration event.

- Q5.** 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.

- A5.** The safety belts are not equipped with tension-relieving devices.

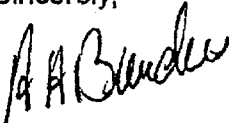
- Q6. FMVSS No. 208, S8.1.5 allows the manufacturer the option of having movable vehicle windows and vents placed in the closed position. State whether the vehicle's movable windows and vents were opened or closed for the certification tests.
- A6. All tests were performed with the front windows in the fully down position and the rear moveable windows in the fully closed position.
- Q7. 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.
- A7. Dummy placement measurements, where available, were provided in our response of September 19, 1997, Reference NSA - 31CCa OA:208970811G Attachment 2. A driver foot rest is not provided on the 2000 Jeep Cherokee.
- Q8. 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.
- A8. The requested set up information was provided in our response of September 19, 1997, Reference NSA - 31CCa OA:208970811G Attachment 3.
- Q9. If the vehicle is equipped with adjustable seatbelt anchorages, provide the manufacturer's nominal design position for a 50th percentile adult male occupant.
- A9. The adjustable seat belt anchorages for both front seat occupants should be placed in the mid position, 2 notches from either the fully up or fully down positions. This is the nominal design position for a 50th percentile male occupant.
- Q10. 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.

Ms Marilynn Jacobs
NSA-31CCa ; 0A-208991029E
January 7, 2000
Page 4 of 4

- A10. The requested information was provided in our response of September 19, 1997, Reference NSA - 31CCa OA:208970811G Attachment 1.
- Q11. 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?**
- A11. If vehicle components are removed, the recommended order is; spare tire, rear quarter interior trim, rear seat, rear door trim, and rear bumper.
- Q12. If the vehicle uses a pressure vessel to inflate the air bag, provide a copy of the test reports or engineering analysis to demonstrate that it meets all the requirements of S9.1.**
- A12. A pressure vessel is used to deploy the passenger air bag. See Attachment 1 of this response for the requested information.
- Q13. If the vehicle uses an explosive device to inflate the air bag, provide a copy of the test report or engineering analysis to demonstrate that it meets all the requirements of S9.2.**
- A13. Explosive devices are used to deploy the air bags. See Attachment 2 of this response for the requested information.
- Q14. Explain any leakage that has occurred from the onboard vapor recovery system pressure relief valve during any frontal impact development or certification testing performed by or for DaimlerChrysler. If any leakage occurred, include the amount. Describe the method used to collect fluid from the onboard vapor recovery system pressure relief valve for the period from impact until motion of the vehicle has ceased.**
- A14. The 2000 MY Jeep Cherokee does not have an onboard vapor recovery system and is not equipped with a pressure relief valve. The 2000 MY Jeep Cherokee meets FMVSS 301 requirements. No leakage has been observed during impact testing.

If you have any questions regarding the information provided, please contact Mr. Archie J. Rock of my staff at (248) 576-7324.

Sincerely,



for S. M. Cischke

Attachments



Susan M. Clischke
Executive Director
Vehicle Certification Compliance & Safety Affairs

September 19, 1997

Mr. Harry Thompson, Chief
Office of Vehicle Safety Compliance
National Highway Traffic Safety Administration
U.S. Department of Transportation
400 Seventh Street, S.W.
Washington, D.C. 20590

07 SEP 29 P 2: 34
RECEIVED NSA-30

Dear Mr. Thompson:

Reference: NSA-31CCA OA:208970811G; FMVSS 208 – 1998 Jeep Cherokee

The following is provided in response to your August 13, 1997 information request.

Q1. Please inform OVSC if the air bag restraint system is certified to meet the requirements of S4.1.5.1(a)(1) or S13.

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

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

A1. The 1998 Jeep Cherokee is certified to meet the requirements of FMVSS 208 S13. A copy of the Compliance Report is provided in Attachment 1.

Q2. If the air bags are or will be depowered or changed from the previous model year, explain the changes.

A2. For the 1998 model year Jeep Cherokee, both the driver and passenger airbags have been depowered relative to their 1997 model year counterparts. The driver module was depowered by increasing the generant thickness and revising both the screen wrap and diffuser in the inflator. Reducing the propellant and gas loads reduced the passenger airbag output.

- Q3. If the air bag has been depowered or changed, explain how it can be determined, prior to purchase, that a particular vehicle has a depowered air bag.**
- A3. For the 1998 model year Jeep Cherokee, the part number for the driver and passenger air bag assemblies have been changed to reflect that the airbags have been depowered. In addition the Monroney label will read "Airbags-Next Generation*" and include the footnote "**Certified to the new Federal Regulations that allow less forceful airbags."**
- Q4. If the vehicle was certified with unrestrained dummies to meet the requirements of S13, describe how to disconnect the air bags from the vehicle sensors and connect them to the triggering mechanism used in the sled test. Describe the method used in certification to determine when to trigger the air bag and the system used to trigger the air bag.**
- A4. Disconnect the battery and wait at least two minutes. Remove the driver air bag module from the steering wheel and unplug the connector; unplug the passenger air bag pigtail from the vehicle body wiring harness underneath the instrument panel. Once the air bags have been disconnected, cut the wires on the body wiring harness. Use the cut wires to construct an overlay harness, which will be used to deploy the air bags during the impact simulator test. Using the overlay harness, the air bags are wired in parallel to a 12 volt power supply controlled by an "air bag timer delay box" which is used to trigger the air bags 20 milliseconds following a 1/2 G carriage acceleration event.**
- Q5. 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.**
- A5. The safety belts are not equipped with tension-relieving devices.**
- Q6. FMVSS No. 208, S8.1.5 allows the manufacturer the option of having movable vehicle windows and vents placed in the closed position. State whether the vehicle's movable windows and vents were opened or closed for the certification tests.**
- A6. All tests were performed with the front windows in the fully down position and the rear moveable windows in the fully closed position.**
- Q7. 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.**

Mr. Harry Thompson
NSA-31CCA ; OA:208970811G
September 19, 1997
Page 3 of 4

Q7. Continued

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

A7. Dummy placement measurements are provided in Attachment 1.

A driver foot rest is not provided on the 1998 Jeep Cherokee.

Q8. 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.

A8. No optional fuel tank or optional seats that would change the dummy placement are available on the Jeep Cherokee. The requested set up information is provided in Attachment 2.

Q9. If the vehicle is equipped with adjustable seatbelt anchorages, provide the manufacturer's nominal design position for a 50th percentile adult male occupant.

A9. The adjustable seat belt anchorages for both front seat occupants should be placed in the mid position, 2 notches from either the fully up or fully down positions. This is the nominal design position for a 50th percentile male occupant.

Q10. 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.

A10. The requested information is in the Compliance Report provided in Attachment 1.

Q11. 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?

A11. If vehicle components are removed, the recommended order is; spare tire, rear quarter interior trim, rear seat, rear door trim, and rear bumper.

Mr. Harry Thompson
NSA-31CCA ; OA:208970811G
September 19, 1997
Page 4 of 4

- Q12. If the vehicle uses a pressure vessel to inflate the air bag, provide a copy of the test reports or engineering analysis to demonstrate that it meets all the requirements of S9.1.
- A12. A pressure vessel is used to inflate the passenger side air bag. See Attachment 3 for the requested information.
- Q13. If the vehicle uses an explosive device to inflate the air bag, provide a copy of the test report or engineering analysis to demonstrate that it meets all the requirements of S9.2.
- A13. An explosive device is used to deploy both the driver and passenger air bags. See Attachment 4 for the requested information.

If you have any questions regarding the information provided, please contact Mr. Archie J. Rock of my staff at (248) 576-7324.

Sincerely,


S. M. Cischke

Attachments

FMVSS 208

1998 JEEP CHEROKEE

NSA-31CCA ; OA:208970811G

ATTACHMENT 2

RESPONSE TO QUESTION #8

GENERAL SETUP CONDITIONS

TEST VEHICLE INFORMATION

Page 1 of 2

Vehicle Model Year & Make: 1998 JeepVehicle Model & Body Style: Cherokee Sport Utility Vehicle 2 or 4-Door

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.

Seat back angle for driver's seat = 7 degrees.

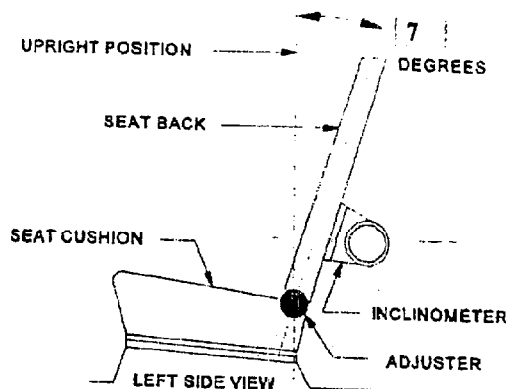
Measurement Instructions:

7 deg. back from full up-witness hole in seat back adjuster (behind plastic trim cover) will line up with sighting hole when adjusted correctly (electric seats should be positioned in the bottom most or full down position for setting seat back angle)

Seat back angle for passenger's seat = 7 degrees.

Measurement Instructions:

Same as driver seat



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:

Manual seat: mid position, 11 notches rearward from front (out of 20 total) or nine "notches" remain on the seat track behind the seat locking device when adjusted correctly.
Electric seat: seat full down and in mid travel position for/aft

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

Same as driver

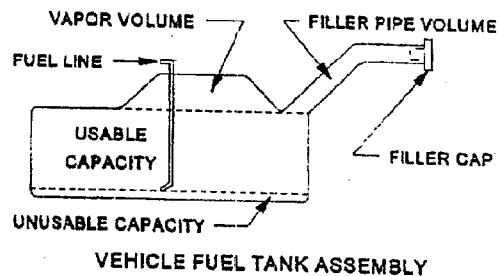
3. FUEL TANK CAPACITY DATA - -

- 3.1 A. "Usable Capacity" of standard equipment fuel tank = 20 gallons

- B. "Usable Capacity" of optional equipment fuel tank = N/A gallons.

- C. Capacity used when certification testing to requirements of FMVSS 301 = 20 gallons.

Operational Instructions:



- 3.2 Amount of Stoddard solvent added to vehicle for certification test = 19 gallons

Rev. 09/97ajr