

REPORT NO. 208-MGA-2002-009

SAFETY COMPLIANCE SLED TESTING FOR FMVSS 208
OCCUPANT CRASH PROTECTION

Volkswagen de Mexico S.A. de C.V.
2002 Volkswagen New Beetle 2 Door
NHTSA NO. C25801

MGA RESEARCH CORPORATION
5000 WARREN ROAD
BURLINGTON, WI 53105



Test Date: July 9, 2002

Report Date: July 19, 2002

FINAL REPORT

Prepared For:
U.S. DEPARTMENT OF TRANSPORTATION
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
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16. Abstract A compliance test (sled test) was conducted on the subject 2002 Volkswagen New Beetle 2 Door in accordance with the specifications of the Office of Vehicle Safety Compliance Test Procedure No. TP208S-01 for the determination of FMVSS 208 compliance. Test failures identified were as follows: The message area of the removable airbag warning label on the dash was 28.8 cm ² . This is less than the minimum allowable area of 30 cm ² . (S4.5.1(e)(II))			
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Purpose

This FMVSS 208 compliance sled test is part of the Federal Motor Vehicle Safety Standard (FMVSS) 208 compliance test program conducted for the National Highway Traffic Safety Administration (NHTSA) by MGA Research Corporation (MGA) under Contract No. DTNH22-98-D-11055. The purpose of this test was to determine if the subject vehicle, a 2002 Volkswagen New Beetle 2 Door, NHTSA No. C25801, meets the performance requirements of FMVSS 208, "Occupant Crash Protection," in the impact simulation sled test mode.

Test Procedure

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

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

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

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

The thirty-seven (37) data channels were digitally sampled at 10,000 samples per second and processed per Sections 11.7 through 11.9 of the Laboratory Test Procedure.

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

Test Results Summary

This FMVSS 208 compliance sled test was conducted at MGA Research Corporation on July 9, 2002.

The test vehicle, a 2002 Volkswagen New Beetle 2 Door, NHTSA No. C25801, appeared to comply with the performance requirements of FMVSS 208 in the impact simulation sled test mode as measured by Hybrid III 50th percentile male dummies.

	FMVSS 208 Max. Allowable Injury Assessment Values	Driver (Serial #403)	Passenger (Serial #401)
HIC	1000	110	180
Chest g	60 g	39.6 g	33.1 g
Chest Displacement	3 in.	1.6 in.	**
Left Femur	2250 lb	1032 lb	1080 lb
Right Femur	2250 lb	862 lb	1089 lb
Neck Extension	57 Nm	5.7 Nm	28.1 Nm
Neck Flexion	190 Nm	52.7 Nm	114.0 Nm
Neck Tension	3300 N	1103 N	1500 N
Neck Compression	4000 N	180 N	280 N
Neck Shear	3100 N	594 N	789 N

** - No valid data collected

The vehicle also appears to meet the other FMVSS 208 requirements for which it was tested, except for the message area of the removable airbag warning label off the dash. The message area of the removable airbag warning label on the dash was 28.8 cm². This is less than the minimum allowable area of 30 cm². (S4.5.1(e)(II)). These results are shown in the data sheets that are included in this report.

The test vehicle was equipped with air bags at the driver and passenger seating positions. The dummies were not restrained by seat belts. The sled carriage was accelerated to 17.5g with an integrated velocity change of 29.8 mph. After filtering the acceleration signal to Channel Class 60, the airbag system was triggered 20.9 milliseconds after 0.5 g acceleration.

Test Anomalies:

- No valid data was collected from the Passenger Chest Displacement channel.
- The high-speed film did not have timing marks or a time-zero strobe. Film speed was then determined from other means.

Sled Test Summary

Vehicle NHTSA No.: C25801 Test Mode: FMVSS 208 SLED TEST
 Vehicle Yr/Make/Model/Body Style: 2002/Volkswagen/New Beetle/2 Door
 Test Date: July 9, 2002 Time: 10:40 a.m. Temp: 71°F
 Vehicle Test Weight: 3308 lbs.

DUMMY INFO.

Dummy Type

Serial Number

Restraint System

No. Data Channels

DRIVERPart 572E403Frontal airbag15**PASSENGER**Part 572E401Frontal airbag15

Number of Cameras:

1 Real Time6 High Speed

Door Opening Data:

yes Left Frontyes Right Front**FRONT SEAT(S) DATA**

Seat Track Failure -

Seat Back Failure -

DRIVER0.1 inch shift forward;no**PASSENGER**0.3 inch shift forwardno**VISIBLE DUMMY
CONTACT POINTS:**

Head

Chest

Left Knee

Right Knee

DRIVERAirbag/side headerAirbagKnee bolster/steering
column coverKnee bolster**PASSENGER**AirbagAirbagGlove boxGlove box

General Test And Vehicle Parameter DataVehicle Yr/Make/Model/Body Style: 2002/Volkswagen/New Beetle/2 DoorVehicle NHTSA No.: C25801 VIN: 3VWBB21C42M431946 Color: Green

Engine Data:

No. Cylinders: 4; CID: ; Liters: 2.0; CCs: Placement: Longitudinal/Inline: ; Transverse/Lateral: X

Transmission Data:

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

Final Drive:

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

Major Options:

A/C: X; Pwr. Strg.: X; Pwr. Brakes: X; Pwr. Windows: Pwr. Dr. Locks: X; Other: Tilt wheel, rear defoggerDate Received: 4/23/02; Odometer Reading: 9 milesSelling Dealer: Ernie Von Schledom - Volkswagen, N88 W14167 Main Street,
Menomonee Falls, WI 53052

REMARKS: None

General Test And Vehicle Parameter Data (Cont.)

DATA FROM VEHICLE'S CERTIFICATION LABEL:

Vehicle Manufactured By: Volkswagen de Mexico S.A. de C.V.

Date of Manufacture: 12/01; VIN: 3VWBB21C42M431948

GVWR: 3616 lbs; GAWR Front: 2073 lbs.

GAWR Rear: 1588 lbs.

DATA FROM TIRE PLACARD:

Tire Pressure with Maximum Capacity Vehicle Load:

FRONT: 30 psi REAR: 38 psi

Recommended Tire Size: 195/65R15 91H, 205/55R16 91H, 225/45R17 91H,
or 225/45R17 90 H

Recommended Cold Tire Pressure:

FRONT: 30 psi REAR: 38 psi

Size of Tires on Test Vehicle: 205/55R16 91H

Type of Spare Tire: 205/55R16 91H; Space Saver: ; Standard: X

Vehicle Capacity Data:

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

Number of Occupants: 2 Front; 2 Rear; 3rd Seat; 4 TOTAL

REMARKS: None

VEHICLE CAPACITY WEIGHT (VCW) = 750 lbs.

No. Of Occupants x 150 lbs = 600 lbs.

Rated Cargo/Luggage Weight (RCWL) = 150 lbs. (Difference)

General Test And Vehicle Parameter Data (Cont.)

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

Right Front =	<u>879</u> lbs.	Right Rear =	<u>526</u> lbs.
Left Front =	<u>898</u> lbs.	Left Rear =	<u>511</u> lbs.
TOTAL FRONT =	<u>1777</u> lbs.	TOTAL REAR =	<u>1037</u> lbs.
% Total Weight =	<u>63.1</u> %	% Total Weight =	<u>38.9</u> %
TOTAL DELIVERED WEIGHT = <u>2814</u> lbs.			

WEIGHT OF FULLY LOADED TEST VEHICLE WITH TWO DUMMIES (344 LB) AND 150 POUNDS OF CARGO WEIGHT:

Right Front =	<u>984</u> lbs.	Right Rear =	<u>686</u> lbs.
Left Front =	<u>984</u> lbs.	Left Rear =	<u>674</u> lbs.
TOTAL FRONT =	<u>1948</u> lbs.	TOTAL REAR =	<u>1360</u> lbs.
% Total Weight =	<u>58.9</u> %	% Total Weight =	<u>41.1</u> %
TOTAL WEIGHT = <u>3308</u> lbs.			

TEST VEHICLE ATTITUDE: (all measurements in degrees)

AS DELIVERED DOOR SILL ANGLE:	<u>0.3° nose down</u>
AS TESTED DOOR SILL ANGLE:	<u>0.0°</u>
FULLY LOADED DOOR SILL ANGLE:	<u>0.2° nose up</u>

FUEL SYSTEM DATA:

Fuel System Capacity From Owner's Manual = 14.5 gallons
 Usable Capacity Figure Furnished by COTR = 14.5 gallons

REMARKS: None

Post-Impact Data

Test number: HT02070901

NHTSA number: C25801

Test date: July 8, 2002

Test time: 10:40 a.m.

Test type: FMVSS 208 Compliance Sled Test

Impact angle: 0°

Ambient Temperature
at Impact Area: 71°F

Temperature in
Occupant Compartment: 71°F

Impact Velocity:

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

Specified Integrated velocity range: 28 to 30 mph

Sled Carriage Acceleration:

Acceleration: 17.5 g

Specified Acceleration Range: 16.0 - 18.2 g

Sled Carriage Acceleration Duration:

Time from T-0 (-0.5 g) to 0.0 g: 125.0 msec

Specified Acceleration Duration: 120.0 to 130.0 msec

The sled acceleration corridor was achieved.

Seat and Steering Column Positioning Data

Vehicle Yr/Make/Model/Body Style: 2002/Volkswagen/New Beetle/2 Door

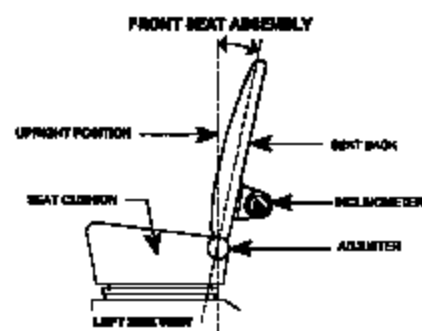
Vehicle NHTSA No.: C25801 Test Date: July 9, 2002

NOMINAL DESIGN RIDING POSITION:

Driver Seat: Seat Back Angle = 21**

Passenger Seat: Seat Back Angle = 21**

* - As measured from torso angle of H-point machine



SEAT FORE AND AFT POSITIONS:

Driver Seat: The seat track had a total position movement of 14 notches and was positioned 7 notches rearward from the foremost position with the forward most locking position as zero.

Passenger Seat: The seat track had a total position movement of 14 notches and was positioned 7 notches rearward from the foremost position with the forward most locking position as zero.

STEERING COLUMN ADJUSTMENTS:

The steering column was placed in the mid position (65.9°) of its angular adjustment (64.0° - 67.7°) and in the mid position (0.87 in.) of its telescoping adjustment (1.73in. total travel).

Dummy Positioning Measurement Table

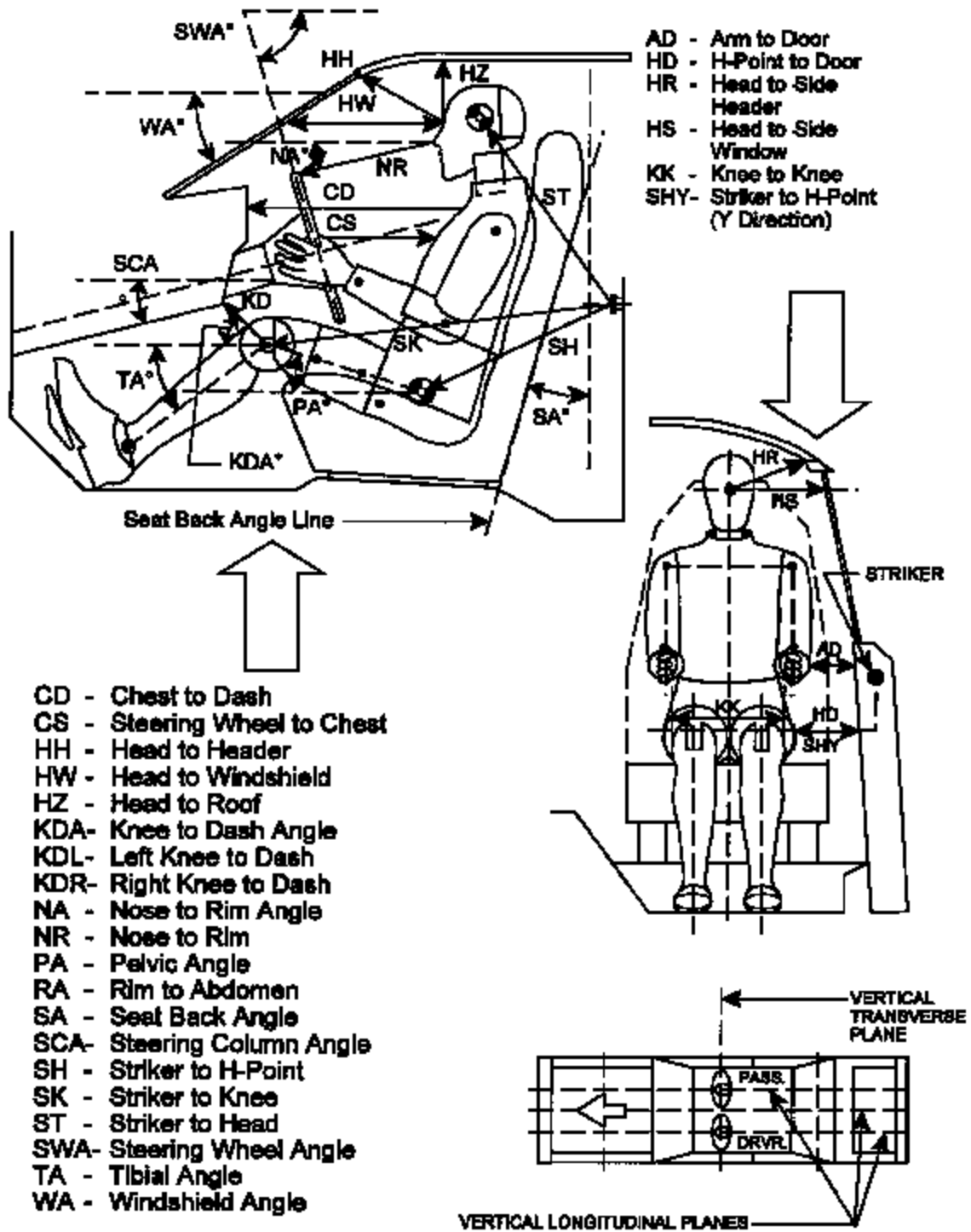
Vehicle Year/Make/Model/Body Style: 2002/Volkswagen/New Beetle/2 Door

Vehicle NHTSA No.: C25801 Test Date: July 9, 2002

	DRIVER (Serial #403)	PASSENGER (Serial #401)
WA°	33.0°	
SWA°	65.9°	
SCA°	24.4°	
SA°	21°	
HZ	11.1	10.9
HH	23.0	22.8
HW	35.8	36.0
HR	10.1	9.8
NR	16.8 Angle (NA°) 9.2°	
CD	22.1	
CS	13.1	
RA	9.0	
KDL	8.8 Angle (KDA°) 0.0°	
KDR	8.6	
PA°	24.0°	24.0°
TA°	38.7°	42.0°
KK	12.4	10.2
ST	17.6 Angle 24.7°	17.3 Angle 23.0°
SK	27.0 Angle 99.8°	27.9 Angle 98.2°
SH	14.6 Angle 126.4°	14.8 Angle 125.9°
SHY	9.5	9.3
HS	13.6	13.7
HD	5.9	5.8
AD	3.7	4.8

Dummy Positioning Measurement Locations

DUMMY MEASUREMENT FOR FRONT SEAT PASSENGERS



Description of Dummy Measurements

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

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

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

* Measurement used in Data Tape Reference Guide

¹ Only outboard measurement is referenced in Data Tape Reference Guide

Description of Dummy Measurements (Cont.)

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

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

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

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

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

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

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

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

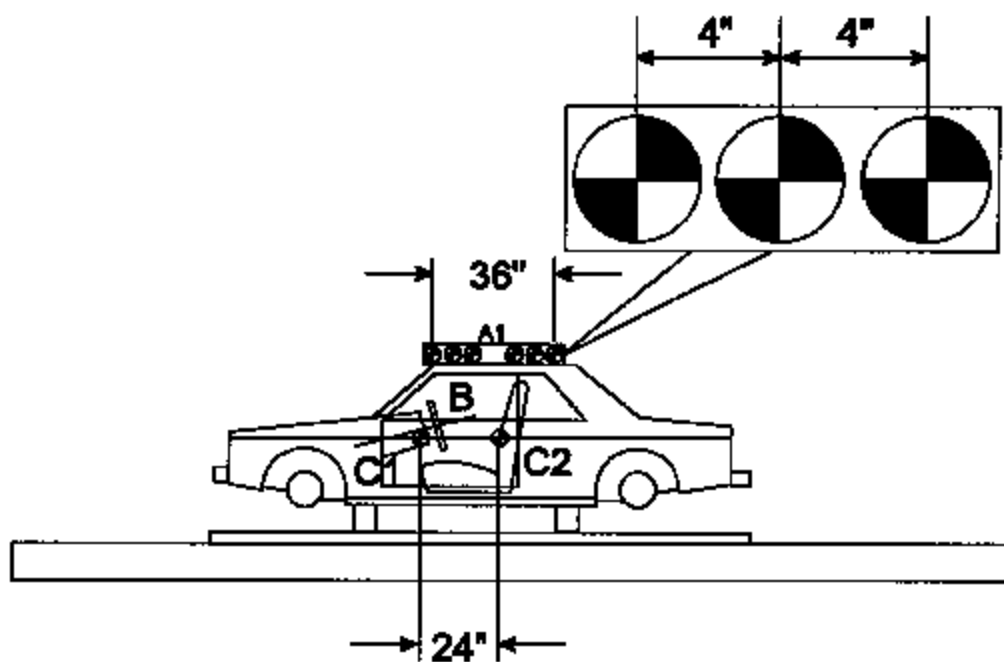
* Measurement used in Data Tape Reference Guide

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

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

Vehicle Targeting Measurements

REFERENCE PHOTO TARGETS

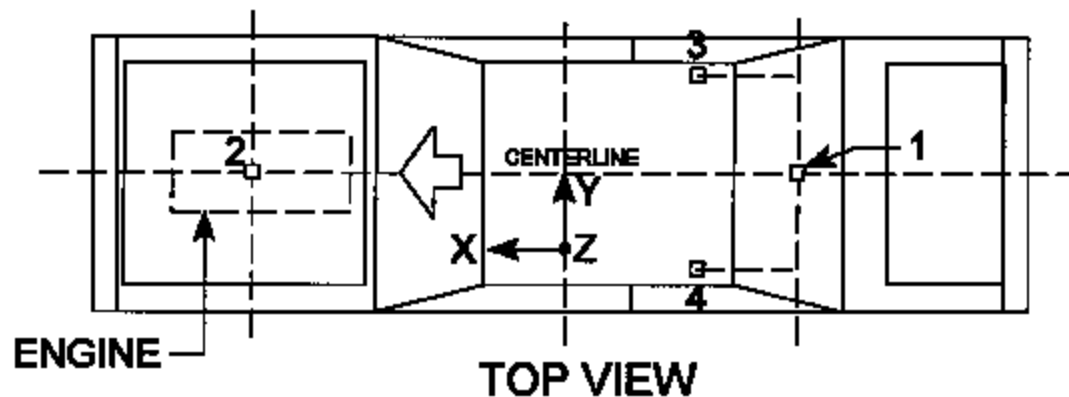


LEFT SIDE VIEW

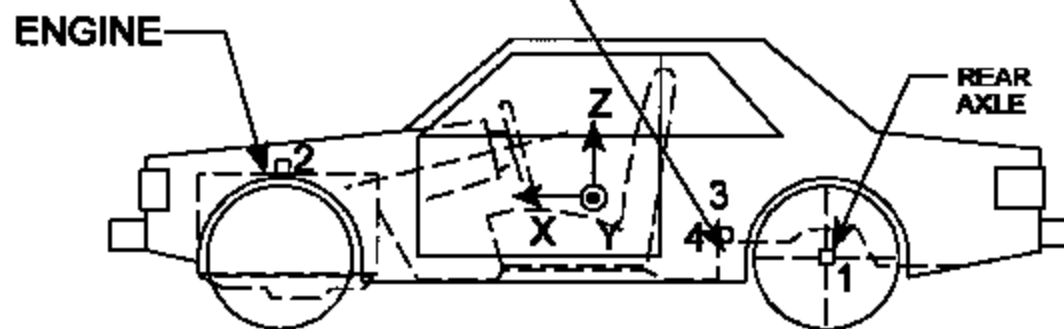
Vehicle Accelerometer Placement and Data Summary

Vehicle Year/Make/Model/Body Style: 2002/Volkswagen/New Beetle/2 Door

Vehicle NHTSA No.: C25801 Test Date: July 9, 2002



REAR SEAT CUSHION
ASSY. FRONT ATTACHMENT
BRACKET SUPPORT



LEFT SIDE VIEW

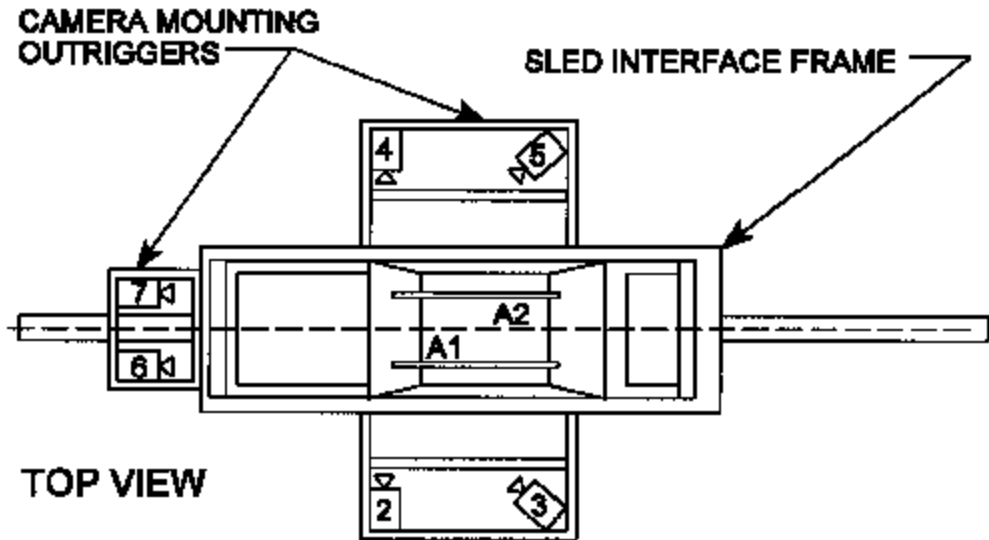
Vehicle Accelerometer Location Measurements and Data Summary

Vehicle Year/Make/Model/Body Style: 2002/Volkswagen/New Beetle/2 Door

Vehicle NHTSA No.: C25801 Test Date: July 9, 2002

No.	Location	X (In)	Y (in)	Positive Direction		Negative Direction	
				Value	Time (msec)	Value	Time (msec)
	Sled Primary Longitudinal	67.0	0	17.5 g	55	-1.3 g	128
	Sled Redundant Longitudinal	67.0	4.0	17.6 g	55	-1.4 g	129
	Sled Velocity Measured Integrated	67.0	0	29.8 mph	125	—	—
1	Rear Axle Longitudinal	42.0	0	17.8 g	58	-1.4 g	150
2	Top Engine Longitudinal	138.0	0	21.3 g	51	-3.9 g	148
3	Right Rear Seat Member Longitudinal	57.0	17.5	17.8 g	57	-1.8 g	151
4	Left Rear Seat Member Longitudinal	57.0	17.5	18.1 g	45	-1.3 g	151

Camera Positions



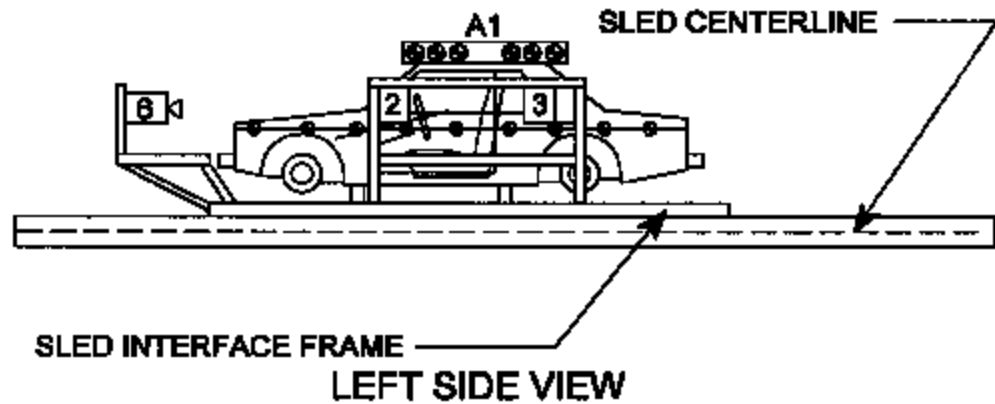
CAMERA FRAME RATES:

#1 = 24 fps

All Others = 1,000 fps



1 REAL TIME CAMERA



Camera Location Measurements

Camera No.	VIEW	Camera Positions (inches)*			Angle (deg)	Film Plane To Head Target	Lens (mm)	Speed (fps)
		X	Y	Z				
1	Real-Time (Pre and Post)						10	24
2	Onboard Driver	70.6	88.8	38.4	90	72.4	13	900
3	Onboard Driver Angle	150.9	91.1	47.8			13	805
4	Onboard Passenger	71.8	89.6	38.5	90	71.1	13	1010
5	Onboard Passenger Angle	146.7	88.5	47.9			13	1000
6	Onboard Windshield Driver	18.3	14.1	42.9			13	1000
7	Onboard Windshield Passenger	18.3	13.9	42.9			13	785

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

Occupant Injury DataVehicle Year/Make/Model/Body Style: 2002/Volkswagen/New Beetle/2 DoorVehicle NHTSA No.: C25801 Test Date: July 9, 2002

MAXIMUM ACCELERATION VALUES: (g's)	DRIVER DUMMY #403	PASSENGER DUMMY #401
Head Channel X	-24.1	-29.0
Head Channel Y	-3.8	-10.5
Head Channel Z	18.7	29.6
HEAD RESULTANT	30.7	36.3
Chest Channel X	-35.5	-32.2
Chest Channel Y	3.5	2.7
Chest Channel Z	18.8	19.8
CHEST RESULTANT	40.1	33.8

HEAD INJURY CRITERIA (HIC) VALUES:

HIC	110	180
t_1 = (msec)	91.4	92.8
t_2 = (msec)	127.4	128.8

[The maximum time interval from t_1 to t_2 is 36 milliseconds.]CHEST INJURY CRITERIA (CLIP) VALUES: (g's)

CLIP	39.8	33.1
t_1 = (msec)	103.8	103.0
t_2 = (msec)	106.8	108.0
CHEST DEFLECTION (In)	1.8	**

** - No valid data collected

Occupant Injury Data (Cont.)

MAX. COMPRESSIVE FEMUR FORCES:	DRIVER DUMMY #403	PASSENGER DUMMY #401
Left Side (lbs)	1032	1080
Right Side (lbs)	862	1089

NECK INJURY CRITERIA:

Peak Flexion Bending Moment about the Occipital Condyle (N-m)	52.7	114.0
Peak Extension Bending Moment about the Occipital Condyle (N-m)	5.7	28.1
Peak Axial Tension (N)	1103	1500
Peak Axial Compression (N)	180	280
Peak Fore Shear (N)	219	789
Peak Aft Shear (N)	594	54

Seat Belt Warning System DataVehicle Year/Make/Model/Body Style: 2002/Volkswagen/New Beetle/2 DoorNHTSA No.: C25801 ; Technician: Chad Gadberry ; Date: May 21, 2002

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 = 6 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)

C. Note wording of visual warning:

Fasten seat belt _____

Fasten Belt _____

Symbol 101 _____ X _____

Readiness IndicatorVehicle Year/Make/Model/Body Style: 2002/Volkswagen/New Beetle/2 DoorNHTSA No.: C25801 ; Technician: Chad Gadberry ; Date: May 21, 2002

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

1. Is the system totally mechanical? ☐ Yes ☒ No
(If YES this Data Sheet is complete.)
2. Describe the location of the readiness indicator. lower-left of instrument panel

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

Air Bag Labels DataVehicle Year/Make/Model/Body Style: 2002/Volkswagen/New Beetle/2 DoorNHTSA No.: C25801 ; Technician: Chad Gadberry ; Date: May 21, 2002

1. Air bag maintenance label and owner's manual instructions (S4.5.1(a)):
 - 1.1. Does the manufacturer recommend periodic maintenance or replacement of the airbag?
() Yes, go to 1.2 (X) No, go to 2
 - 1.2. Does the vehicle have a maintenance or replacement label?
() Yes-Pass () No-FAIL
 - 1.3. Does the label contain one of the following?
() Yes-Pass () No-FAIL
 () Schedule on label specifies month and year (Date: _____)
 () Schedule on label specifies vehicle mileage (Mileage: _____)
 () Schedule on label specifies Interval measured from date on certification label (Date: _____)
 - 1.4. Is the label permanently affixed within the passenger compartment?
() Yes-Pass () No-FAIL
 - 1.5. Is the label lettered in English?
() Yes-Pass () No-FAIL
 - 1.6. Is the label in block capitals and numerals?
() Yes-Pass () No-FAIL
 - 1.7. Are the letters and numerals at least 3/32 inches high?
() Yes-Pass () No-FAIL
 - 1.8. Does the owner's manual set forth the recommended schedule for maintenance or replacement?
() Yes-Pass () No-FAIL
2. Does the owner's manual (S4.5.1(f)):
 - 2.1. Include a description of the vehicle's airbag system in an easily understandable format?
(X) Yes-Pass () No-FAIL
 - 2.2. Include a statement that the vehicle is equipped with an airbag and a lap/shoulder belt at the front outboard seating positions?
(X) Yes-Pass () No-FAIL

Air Bag Labels Data (Cont.)

- 2.3 Include a statement that the air bag is a supplemental restraint at the front outboard seating positions?
(X)Yes-Pass () No-FAIL
- 2.4 Emphasize that all occupants, including the driver, should always wear their seat belts whether or not an airbag is also provided at their seating positions to minimize the risk of severe injury or death in the event of a crash?
(X)Yes-Pass () No-FAIL
- 2.5 Provide any necessary precautions regarding the proper positioning of occupants, including children, at seating positions equipped with air bags to insure maximum safety protection for those occupants?
(X)Yes-Pass () No-FAIL
- 2.6 Explain that no objects should be placed over or near the air bag on the steering wheel or on the instrument panel, because any such objects could cause harm if the vehicle is in a crash severe enough to cause the air bag to inflate?
(X)Yes-Pass () No-FAIL
3. Does the vehicle:
- 3.1. Provide an automatic means to ensure that the airbag does not deploy when a child seat or child with a total mass of 30 kg or less is present on the front outboard passenger?
() Yes (X) No
- 3.2. Incorporate sensors, other than or in addition to weight sensors, which automatically prevent the passenger air bag from deploying in situations in which it might have an adverse effect on infants in rear-facing child seats, and unbelted or improperly belted children?
() Yes (X) No
- 3.3. Have a passenger air bag designed to deploy in a manner that does not create a risk of serious injury to infants in rear-facing child seats, and unbelted or improperly belted children?
() Yes (X) No

If yes to 3.1, or 3.2, or 3.3, the vehicle is not required to have a survivor warning label (S4.5.1(f)), an airbag alert label (S4.5.1(c)) or a label on the dash (S4.5.2(e)) and this check sheet is complete (S4.5.1). If no to 3.1, 3.2, and 3.3, go to 4.

4. Sun Visor Warning Label

- 4.1. Is the label permanently affixed (may be permanent marking or molding) to either side of the sunvisor at each front outboard seating position with an airbag?
(S4.5.1(b)(2))
- | | | |
|------------------|-------------|-------------------------|
| Driver Side - | (X)Yes-Pass | () No-FAIL |
| Passenger Side - | () N/A | (X)Yes-Pass () No-FAIL |

Air Bag Labels Data (Cont.)

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

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

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

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

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

DEATH or SERIOUS INJURY can occur.

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

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

Air Bag Labels Data (Cont.)

SUN VISOR LABEL VISIBLE WHEN VISOR IS IN DOWN POSITION

LABEL OUTLINE, VERTICAL AND HORIZONTAL LINE BLACK



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

SUN VISOR LABEL VISIBLE WHEN VISOR IS IN DOWN POSITION

LABEL OUTLINE, VERTICAL AND HORIZONTAL LINE BLACK

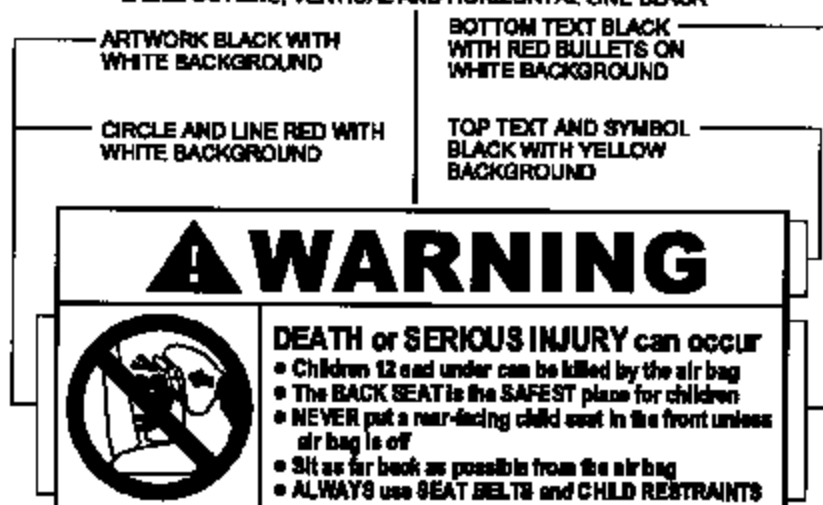


Figure 6b (S4.5.1(b)(2))

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

Air Bag Labels Data (Cont.)

- 4.5 Is the message area at least 30 cm²? (S4.5.1(b)(2)(ii))

Actual message area: 33.1 cm²

Driver Side -	(X) Yes-Pass	() No-FAIL
Passenger Side - () No air bag	(X) Yes-Pass	() No-FAIL

- 4.6 Is the pictogram black with a red circle and slash on a white background?
(S4.5.1(b)(2)(iii) & (S4.5.1(b)(2)(iv)))

For vehicles with driver side air bag ONLY () Not Applicable

Driver Side -	(X) Yes-Pass	() No-FAIL
Passenger Side - () No air bag	(X) Yes-Pass	() No-FAIL

- 4.7 Is the pictogram at least 30 mm in diameter? (S4.5.1(b)(2)(iii))

Actual diameter: 30 mm

For vehicles with driver side air bag ONLY () Not Applicable

Driver Side -	(X) Yes-Pass	() No-FAIL
Passenger Side - () No air bag	(X) Yes-Pass	() No-FAIL

- 4.8 Is the same side of the sun visor to which the sun visor label is affixed free of other information with the exception of an air bag maintenance label?
(S4.5.1(b)(3))

Driver Side -	(X) Yes-Pass	() No-FAIL
Passenger Side - () No air bag	(X) Yes-Pass	() No-FAIL

- 4.9 Is the sun visor free of other information about air bags or the need to wear seat belts with the exception of the air bag alert label or the utility vehicle label?
(S4.5.1(b)(3))

Driver Side -	(X) Yes-Pass	() No-FAIL
Passenger Side - () No air bag	(X) Yes-Pass	() No-FAIL

5. Air Bag Alert Label

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

Driver Side -	() Yes, go to 6	(X) No
Passenger Side - () No air bag	() Yes	(X) No

- 5.2 Does the label conform in content to the label shown below? (S4.5.1(c)(2))

Driver Side -	(X) Yes-Pass	() No-FAIL
Passenger Side - () No air bag	(X) Yes-Pass	() No-FAIL

- 5.3 Is the message area black with yellow text? (S4.5.1(c)(2)(i))

Driver Side -	(X) Yes-Pass	() No-FAIL
Passenger Side - () No air bag	(X) Yes-Pass	() No-FAIL

Air Bag Labels Data (Cont.)

- 5.4 Is the message area at least 20 cm²? (S4.5.1(c)(2)(i))
 Actual message area: 20.5 cm²
 Driver Side - (X)Yes-Pass ()No-FAIL
 Passenger Side - ()No air bag (X)Yes-Pass ()No-FAIL
- 5.5 Is the pictogram black with a red circle and slash on a white background?
 (S4.5.1(c)(2)(ii))
 For vehicles with driver side air bag ONLY () Not Applicable
 (X)Yes-Pass ()No-FAIL
- 5.6 Is the pictogram at least 20 mm in diameter? (S4.5.1(c)(2)(ii))
 Actual diameter 20 mm
 For vehicles with driver side air bag ONLY () Not Applicable
 (X)Yes-Pass ()No-FAIL

SUN VISOR LABEL VISIBLE WHEN VISOR IS IN UP POSITION



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

6. Label On the Dash

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

Air Bag Labels Data (Cont.)

- 6.4 Is the heading area yellow with the word "warning" and the alert symbol in black?
(S4.5.1(e)(i)) (X)Yes-Pass () No-FAIL
- 6.5 Is the message white with black text? (S4.5.1(e)(II))
(X)Yes-Pass () No-FAIL
- 6.6 Is the message area at least 30 cm²? (S4.5.1(e)(II))
Actual message area: 28.8 cm² ()Yes-Pass (X)No-FAIL

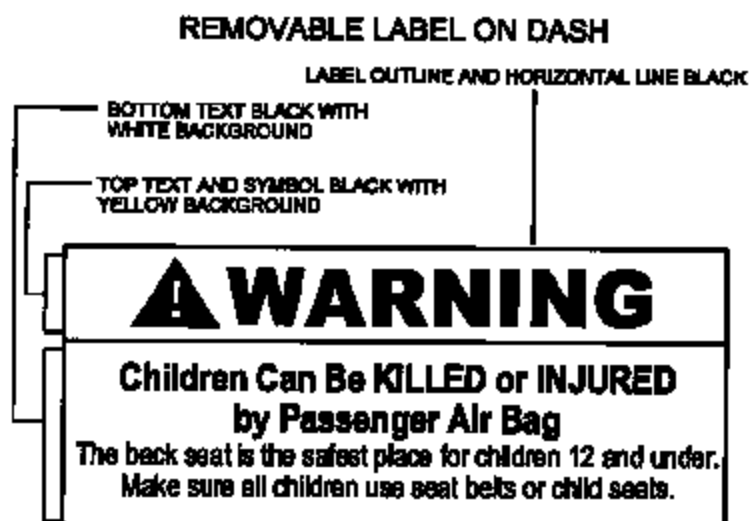


Figure 7 (S4.5.1(e))

Rear Outboard Seating Position Seat Belt Data**Vehicle Year/Make/Model/Body Style:** 2002/Volkswagen/New Beetle/2 Door**NHTSA No.:** C25801 ; **Technician:** Chad Gadberry ; **Date:** May 21, 2002**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.**

Lap Belt Lockability DataVehicle Year/Make/Model/Body Style: 2002/Volkswagen/New Beetle/2 DoorNHTSA No.: C25801; Technician: Chad Gadberry; Date: May 21, 2002

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

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

Designated Seating Position (DSP): Right Front

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

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

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

(X)Yes, go to 6.1 () No, go to 7.

 - 6.1 Does the vehicle owner's manual include a description in words and/or diagrams describing how to activate the locking feature so that the seat belt assembly can tightly secure a child restraint system and how to deactivate the locking feature to remove the child restraint system. (S7.1.1.5(b))

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

Lap Belt Lockability Data (Cont.)

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

Measured distance between A and B is 73.5 inches.

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

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

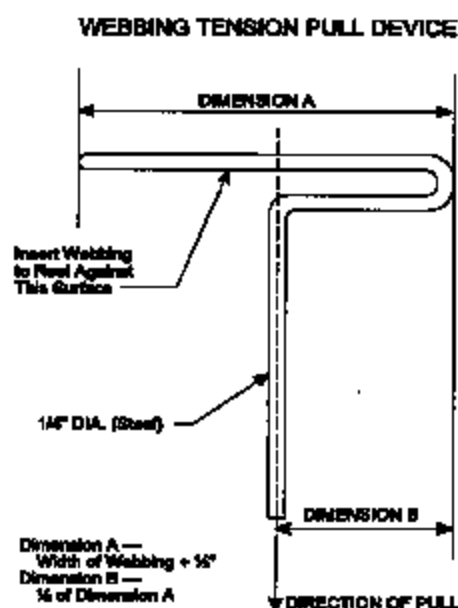


Figure 5 (S7.1.1.5(c)(4))

Lap Belt Lockability Data (Cont.)

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

Measured distance between A and B is 26.0 inches.

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

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

Measure distance between points A and B 26.4 inches (S7.1.1.5(c)(6))

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

14-13 = 0.4 inches

(X)Yes-Pass

() No-FAIL

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

10-14 = 47.1 inches

(X)Yes-Pass

() No-FAIL

REMARKS: None

Lap Belt Lockability Data (Cont.)

Vehicle Year/Make/Model/Body Style: 2002/Volkswagen/New Beetle/2 Door

NHTSA No.: C25801; Technician: Chad Gadberry; Date: May 21, 2002

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

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

Designated Seating Position (DSP): Left Rear

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

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

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

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

Lap Belt Lockability Data (Cont.)

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

Measured distance between A and B is 70.9 inches.

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

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

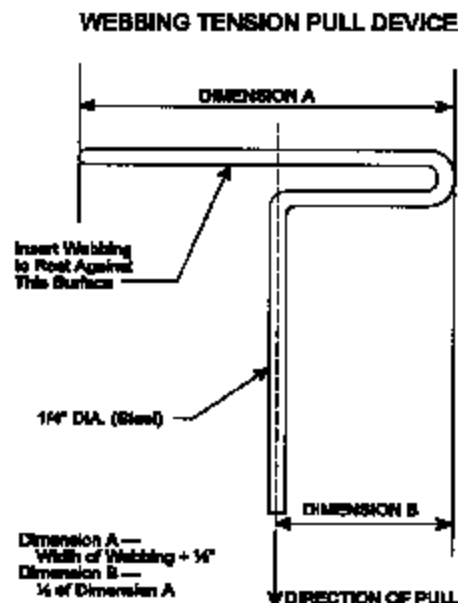


Figure 5 (S7.1.1.5(c)(4))

Lap Belt Lockability Data (Cont.)

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

Measured distance between A and B is 23.5 inches.

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

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

Measure distance between points A and B 24.8 inches (S7.1.1.5(c)(6))

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

14-13 = 1.3 inches

(X)Yes-Pass

() No-FAIL

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

10-14 = 46.1 inches

(X)Yes-Pass

() No-FAIL

REMARKS: None

Lap Belt Lockability Data (Cont.)Vehicle Year/Make/Model/Body Style: 2002/Volkswagen/New Beetle/2 DoorNHTSA No.: C25801; Technician: Chad Gadberry; Date: May 21, 2002

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

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

Designated Seating Position (DSP): Right Rear

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

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

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

(X)Yes, go to 6.1 () No, go to 7.

 - 6.1 Does the vehicle owner's manual include a description in words and/or diagrams describing how to activate the locking feature so that the seat belt assembly can tightly secure a child restraint system and how to deactivate the locking feature to remove the child restraint system. (S7.1.1.5(b))

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

Lap Belt Lockability Data (Cont.)

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

Measured distance between A and B is 70.7 inches.

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

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

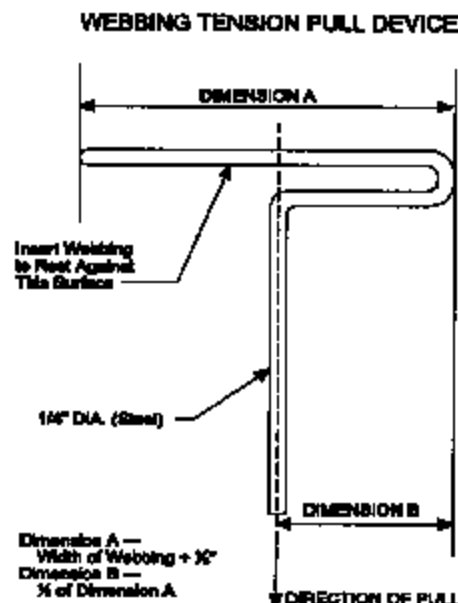


Figure 5 (S7.1.1.5(c)(4))

Lap Belt Lockability Data (Cont.)

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

Measured distance between A and B is 26.5 inches.

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

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

Measure distance between points A and B 27.1 inches (S7.1.1.5(c)(6))

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

14-13 = 0.6 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 = 43.6 inches

(X)Yes-Pass

() No-FAIL

REMARKS: None

Seat Belt Comfort and Convenience Data

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

Test Vehicle NHTSA No.: C25801

Vehicle Model Year/Make/Model/Body Style: 2002/Volkswagen/New Beetle/2 Door

Designated Seating Position Tested: Left Rear

Date of Comfort/Convenience Check: May 21, 2002

Technician Performing Check: Chad Gedberry

GVWR: 3616 lb.

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

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

Seat Belt Comfort and Convenience Data (Cont.)

- 1.7 Adjustable lumbar supports are positioned so that the lumbar support is in its lowest adjustment position. (S8.1.3)
☐ Check
☒ N/A
- 1.8 Position the test dummies according to dummy position placement instructions in Appendix B.
☒ Check
- 1.9 Fasten the seat belt latch. Pull either 12 inches of belt webbing or the maximum available amount of belt webbing, whichever is less, from the retractor and then release it, allowing the belt webbing to return to the dummy's chest. Locate the point where the centerline of the upper torso belt webbing crosses the midsagittal line on the dummy's chest. At that point, pull the belt webbing out 3 inches from the dummy's chest and release until it is within one inch from the dummy's chest. (S10.8) Measure the contact force exerted by the belt webbing on the dummy's chest. Contact the COTR if the contact force exceeds 0.7 pounds.
Contact Force 0.3 lb. ☒ 0.0 to 0.7 pounds - Pass
☐ greater than 0.7 pounds - FAIL*
- * If the seat belts are voluntarily installed by the manufacturer they do not have to comply.

Seat Belt Comfort and Convenience Data (Cont.)

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

Test Vehicle NHTSA No.: C25801

Vehicle Model Year/Make/Model/Body Style: 2002/Volkswagen/New Beetle/2 Door

Designated Seating Position Tested: Right Rear

Date of Comfort/Convenience Check: May 21, 2002

Technician Performing Check: Chad Gadberry

GVWR: 3616 lb

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

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

Seat Belt Comfort and Convenience Data (Cont.)

- 1.7 Adjustable lumbar supports are positioned so that the lumbar support is in its lowest adjustment position. (S8.1.3)
() Check
(X) N/A
- 1.8 Position the test dummies according to dummy position placement instructions in Appendix B.
(X) Check
- 1.9 Fasten the seat belt latch. Pull either 12 inches of belt webbing or the maximum available amount of belt webbing, whichever is less, from the retractor and then release it, allowing the belt webbing to return to the dummy's chest. Locate the point where the centerline of the upper torso belt webbing crosses the midsagittal line on the dummy's chest. At that point, pull the belt webbing out 3 inches from the dummy's chest and release until it is within one inch from the dummy's chest. (S10.8) Measure the contact force exerted by the belt webbing on the dummy's chest. Contact the COTR if the contact force exceeds 0.7 pounds.
Contact Force 0.3 lb. (X) 0.0 to 0.7 pounds - Pass
() greater than 0.7 pounds - FAIL*
- * If the seat belts are voluntarily installed by the manufacturer they do not have to comply.

Seat Belt Comfort and Convenience Data (Cont.)

2. LATCHPLATE ACCESS (S7.4.4)

Test Vehicle NHTSA No.: C25801

Vehicle Model Year/Make/Model/Body Style: 2002/Volkswagen/New Beetle/2 Door

Designated Seating Position Tested: Not applicable - passenger car

Date of Comfort/Convenience Check: _____

Technician Performing Check: _____

GVWR: _____

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

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

Seat Belt Comfort and Convenience Data (Cont.)

3. RETRACTION (S7.4.5)

Test Vehicle NHTSA No.: C25801

Vehicle Model Year/Make/Model/Body Style: 2002/Volkswagen/New Beetle/2 Door

Designated Seating Position Tested: Not applicable - passenger car

Date of Comfort/Convenience Check: _____

Technician Performing Check: _____

GVWR: _____

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

- 3.1 Is the vehicle a passenger car or walk-in van-type vehicle?
 () Yes If yes, go to seat belt guides and hardware.
 () No
- 3.2 Adjustable seats are in the adjustment position midway between the forward most and rearmost positions. If an adjustment position does not exist midway between the forward most and rearmost positions, the next closest adjustment position to the rear of the midpoint is used. (S8.1.2)
 () Check
- 3.3 If separately adjustable in a vertical direction, the seats are at the lowest position.
 () Check
- 3.4 Place adjustable seat backs in the manufacturer's nominal design riding position in the manner specified by the manufacturer.
 () Check
- 3.5 Place any adjustable anchorages at the manufacturer's nominal design position for a 50th percentile adult male (50M) occupant. This information will be furnished by the COTR.
 () Check
- 3.6 Place each adjustable head restraint in its highest adjustment position.
 () Check
- 3.7 Adjustable lumbar supports are positioned so that the lumbar support is in its lowest adjustment position (S8.1.3)
 () Check

Seat Belt Comfort and Convenience Data (Cont.)

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

Seat Belt Comfort and Convenience Data (Cont.)**4. SEAT BELT GUIDES AND HARDWARE (S7.4.6)**

Test Vehicle NHTSA No.: C25801

Vehicle Model Year/Make/Model/Body Style: 2002/Volkswagen/New Beetle/2 Door

Designated Seating Position Tested: Left Rear - Does not apply (Requirement C)

Date of Comfort/Convenience Check: May 21, 2002

Technician Performing Check: Chad Gadberry

GVWR: 3616 lb

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

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

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

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

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

Seat Belt Comfort and Convenience Data (Cont.)

- 4.4 The buckle and latch plate do not pass through the guides or conduits provided and fall behind the seat when the following events occur in order:
- (A) The belt is completely retracted or, if the belt is nonretractable, the belt is unlatched. ☐ 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

Seat Belt Comfort and Convenience Data (Cont.)**4. SEAT BELT GUIDES AND HARDWARE (S7.4.6)**Test Vehicle NHTSA No.: C25801Vehicle Model Year/Make/Model/Body Style: 2002/Volkswagen/New Beetle/2 DoorDesignated Seating Position Tested: Right Rear - Does not apply (Requirement C)Date of Comfort/Convenience Check: May 21, 2002Technician Performing Check: Chad GadberryGVWR: 3616 lb

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

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

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

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

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

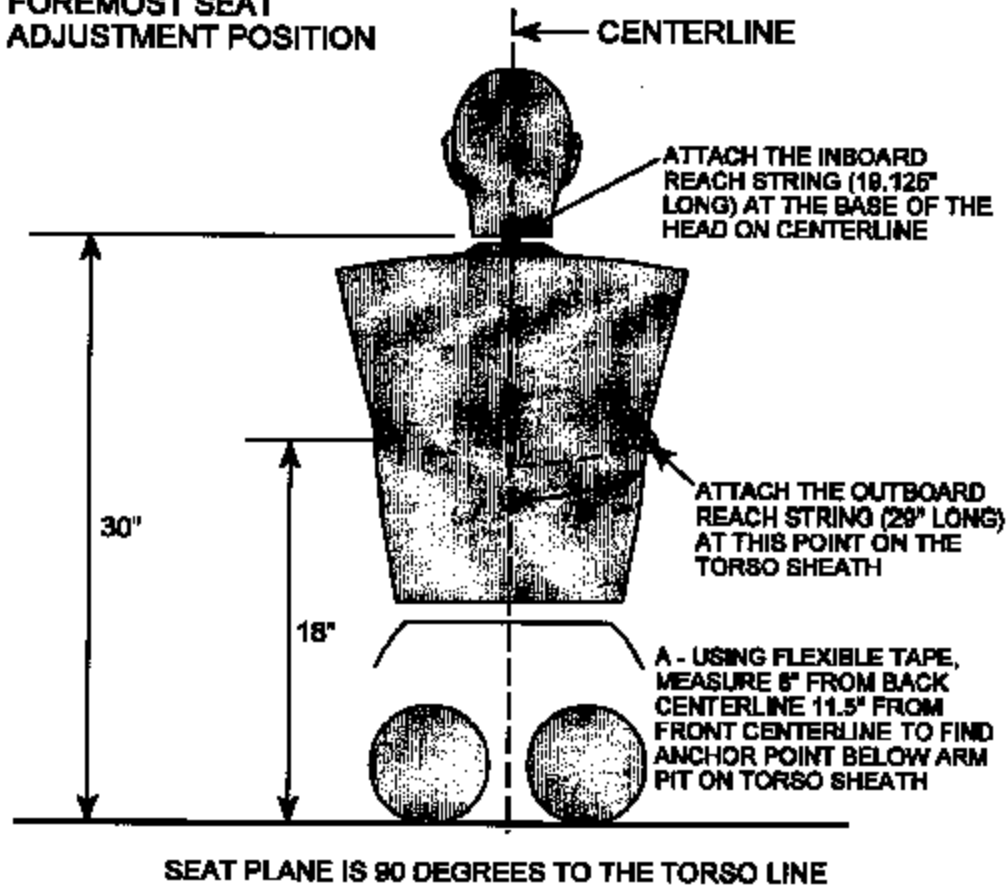
Seat Belt Comfort and Convenience Data (Cont.)

- 4.4 The buckle and latch plate do not pass through the guides or conduits provided and fall behind the seat when the following events occur in order:
- (A) The belt is completely retracted or, if the belt is nonretractable, the belt is unlatched. ☐ 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

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

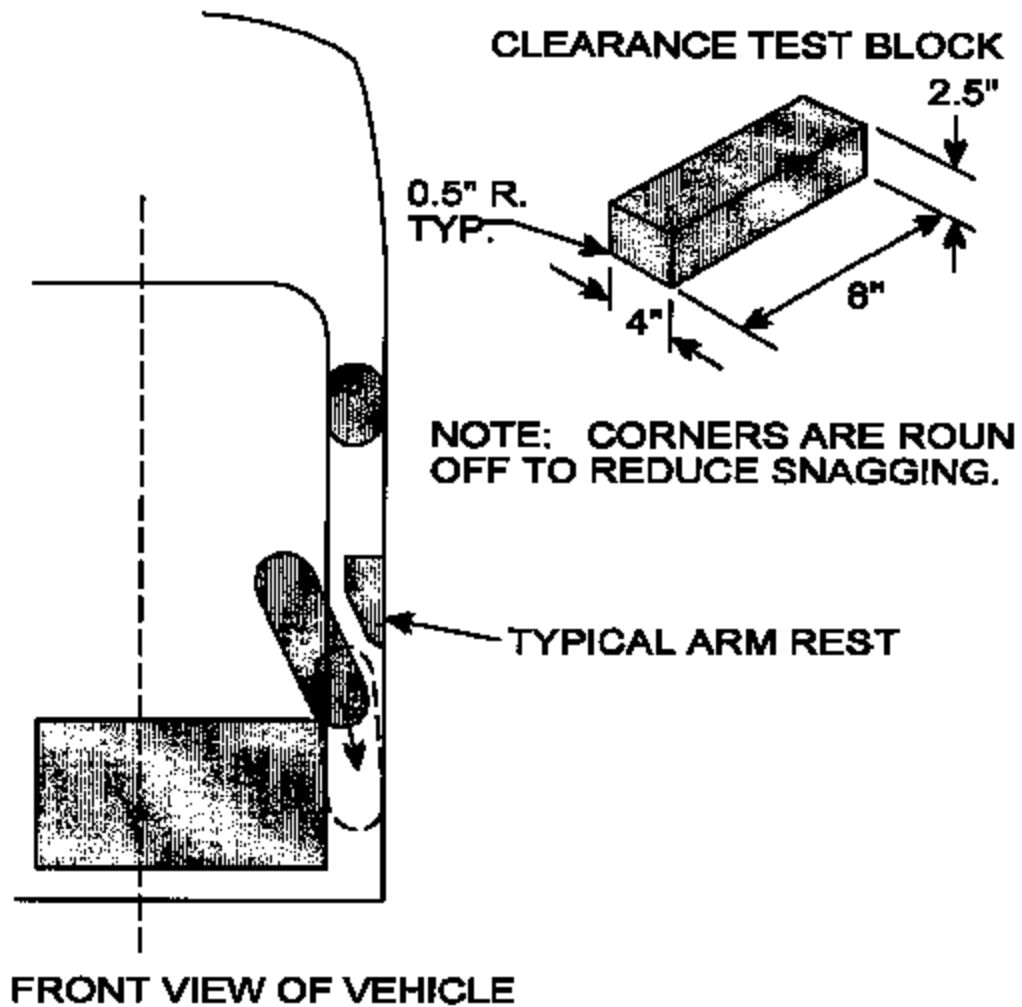
PART 572E DUMMY

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



REAR VIEW

USE OF CLEARANCE TEST BLOCK TO DETERMINE HAND/ARM ACCESS



APPENDIX A
PHOTOGRAPHS

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Photo No. A-6 - Pre-Test Driver Dummy Position View (Door Open)	A-6
Photo No. A-7 - Post-Test Driver Dummy Position View (Door Open)	A-7
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PRE-TEST

195

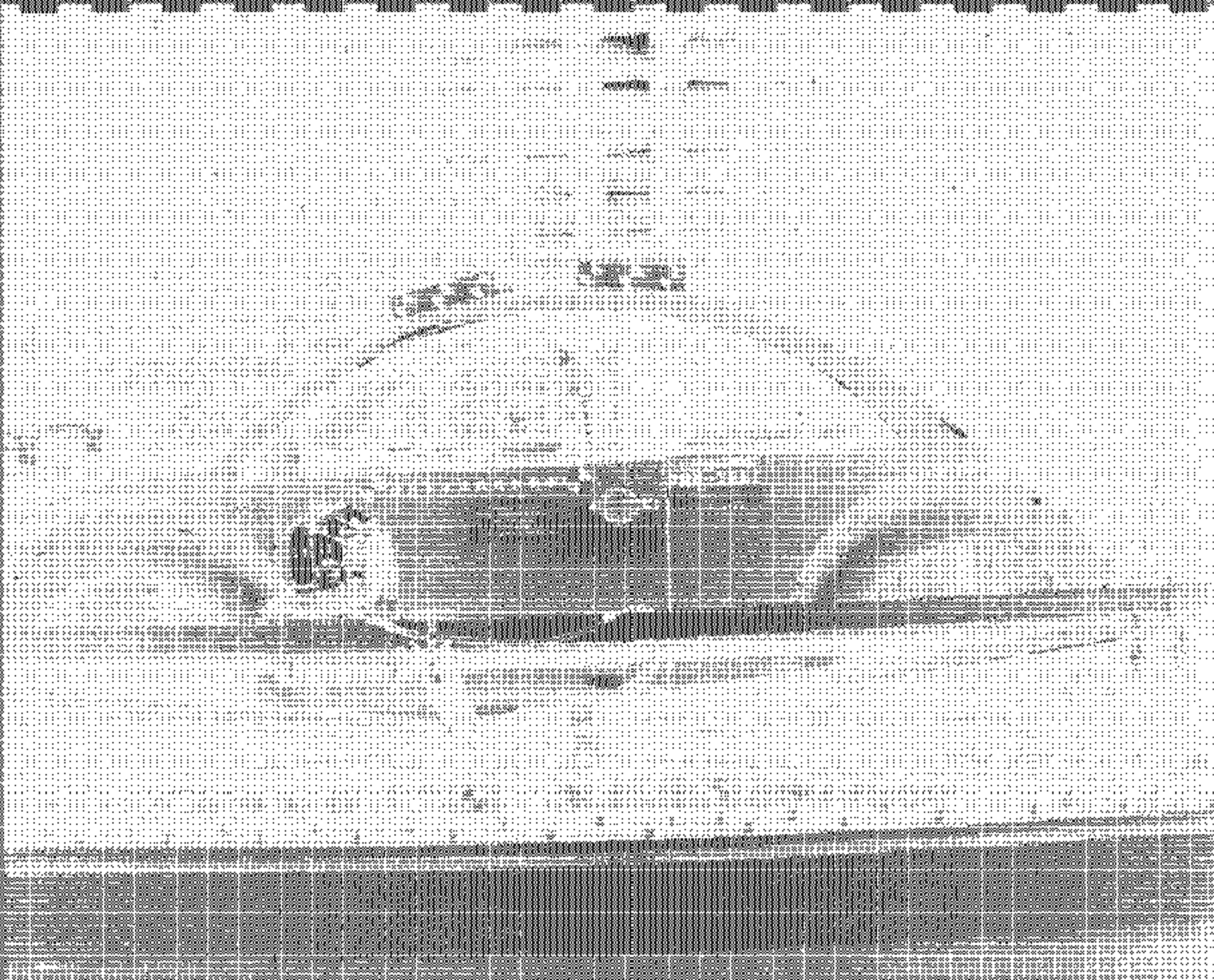


Photo No. A-2 - Pre-Test Left Side View

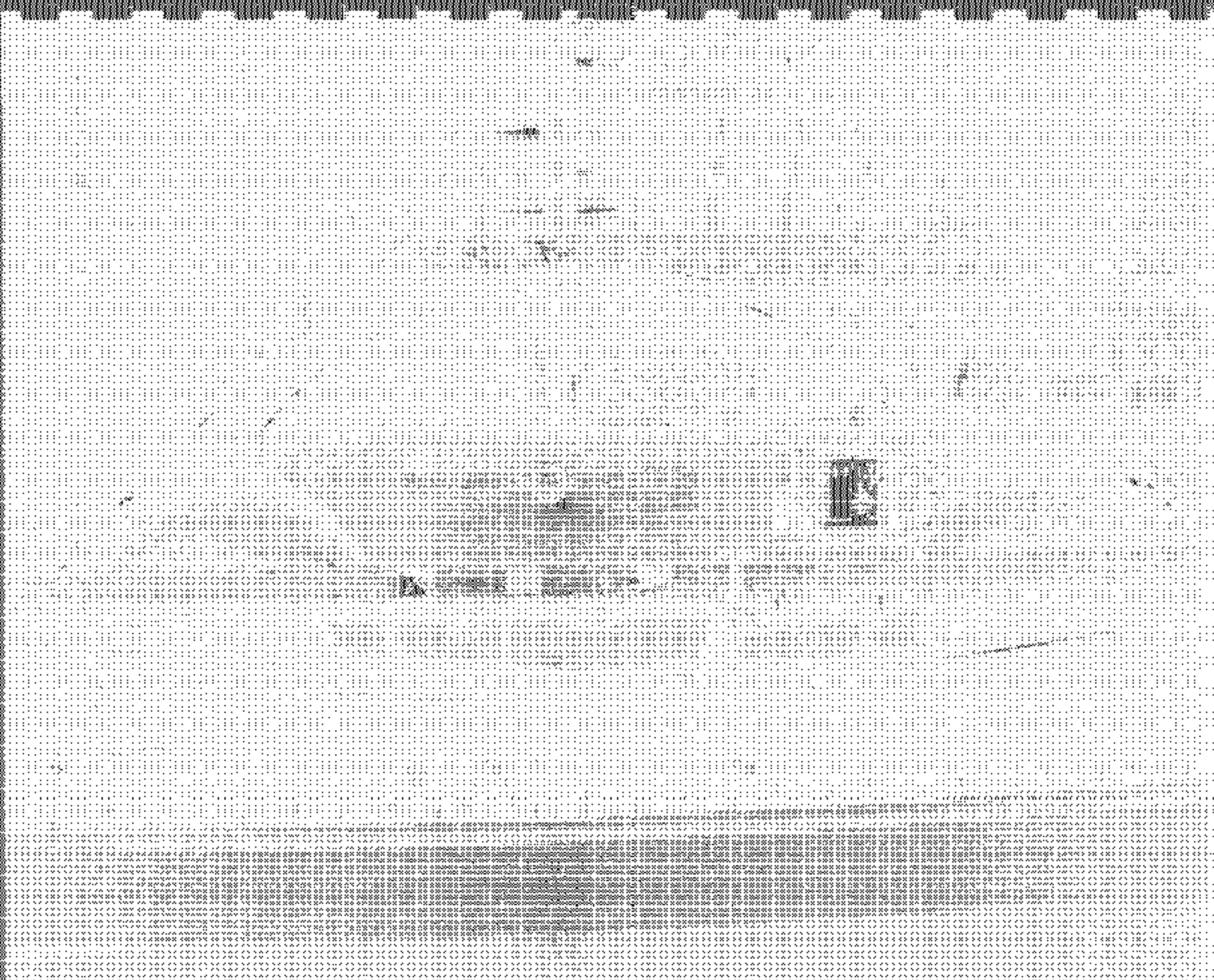


Photo No. A-3. Fire Test Right Side View



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

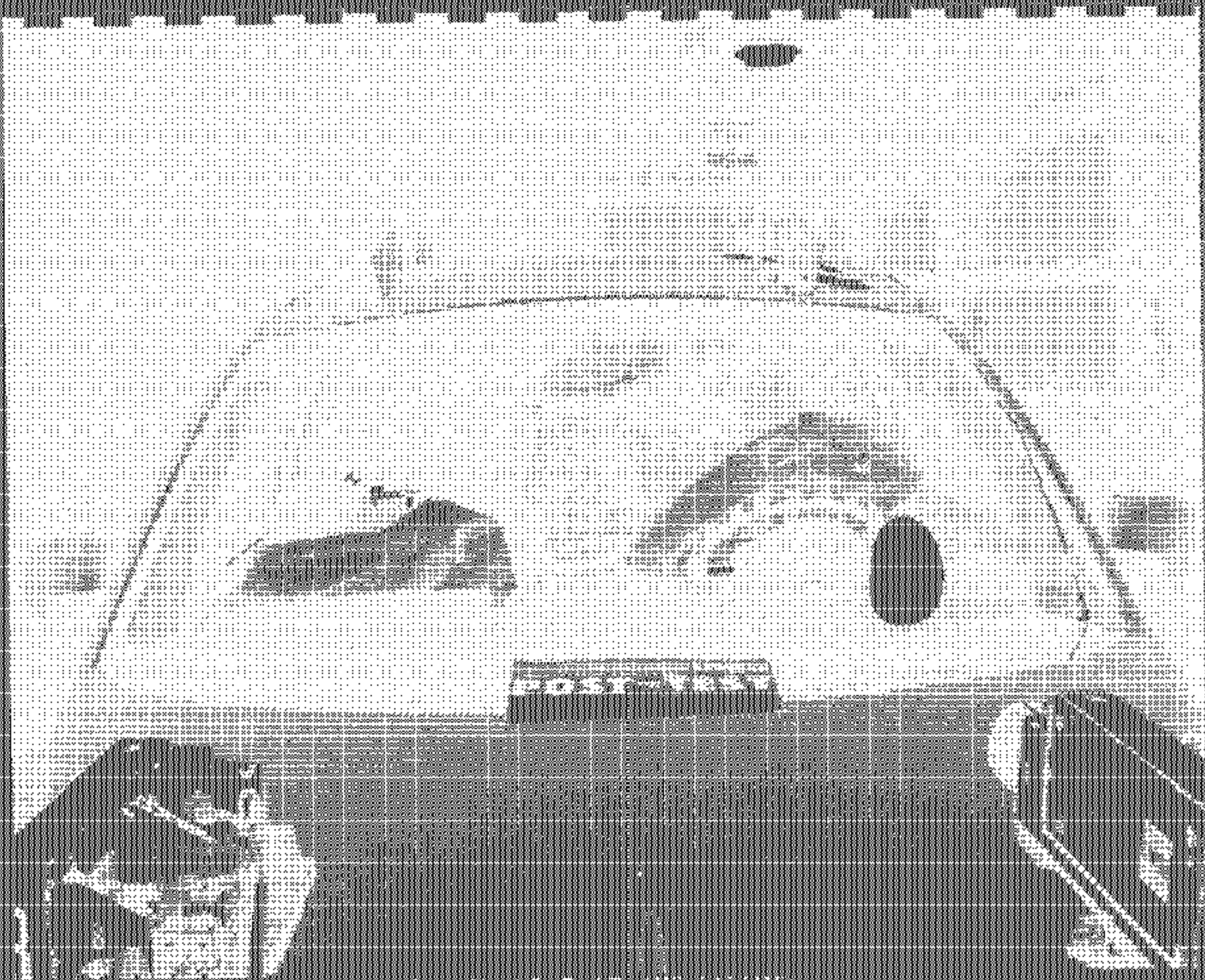


Photo No. A-5 - Rest-Tel Windshield View

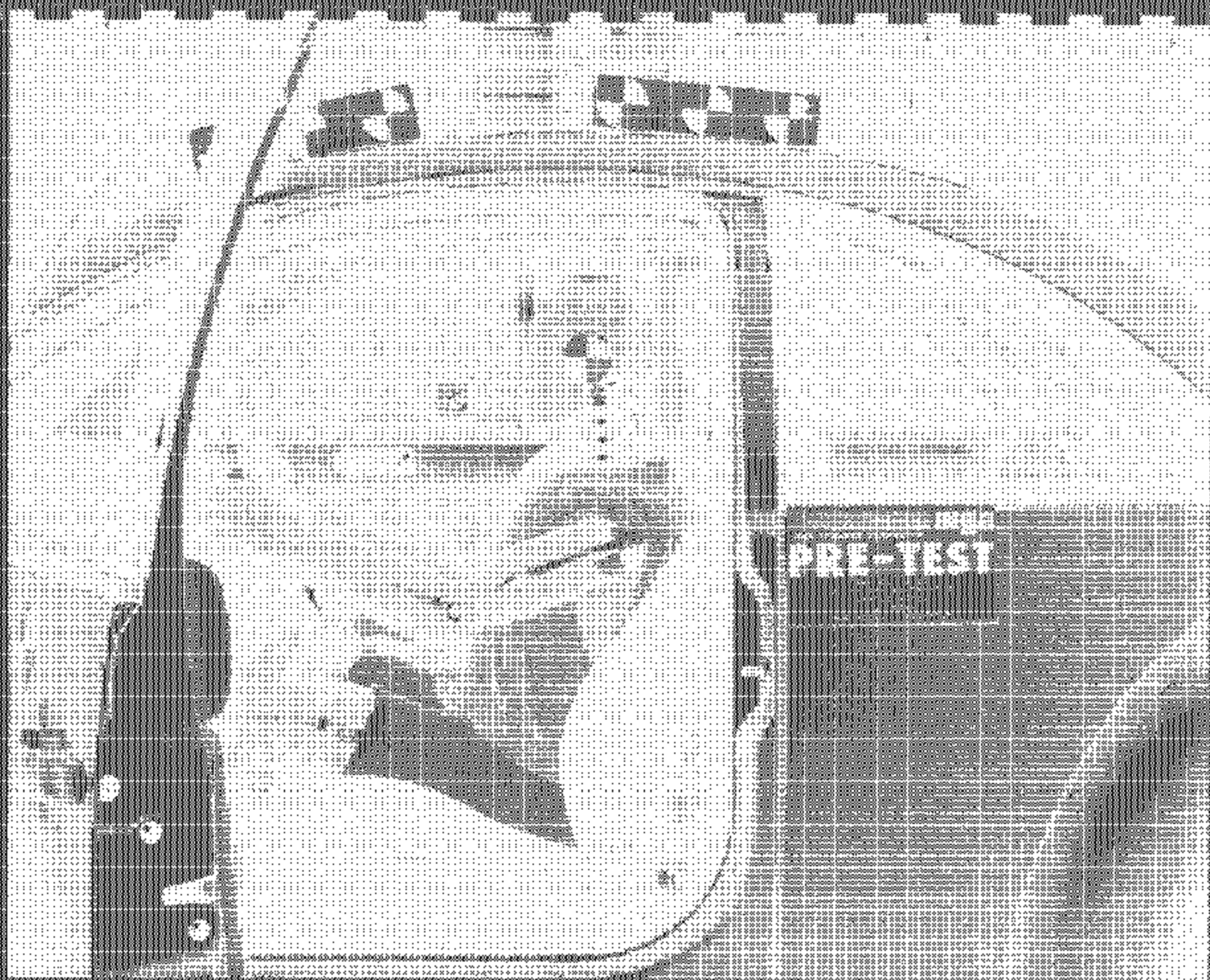


Photo No. A46 - Pre-Test Driver's Side, Driver's View (Over Door)

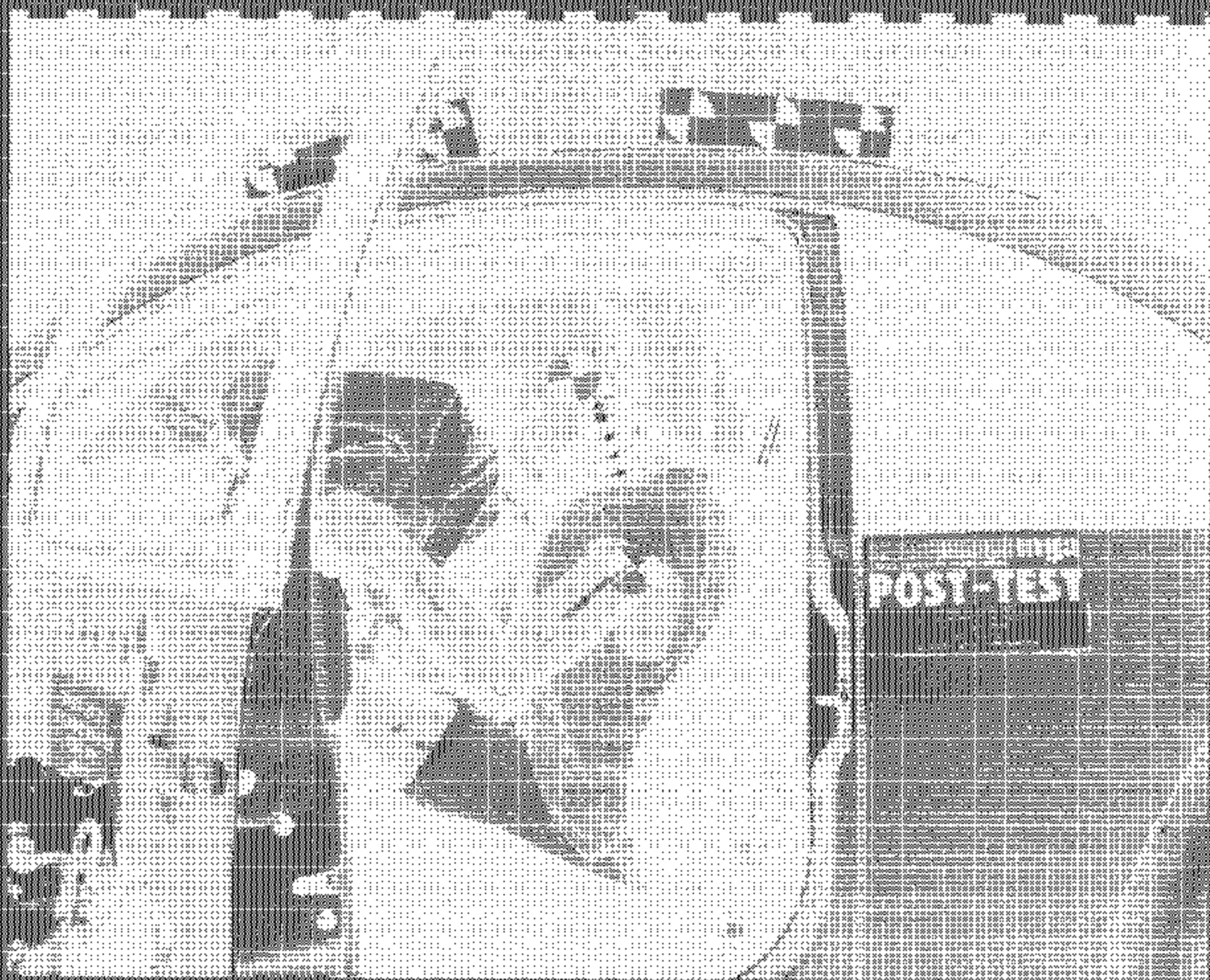
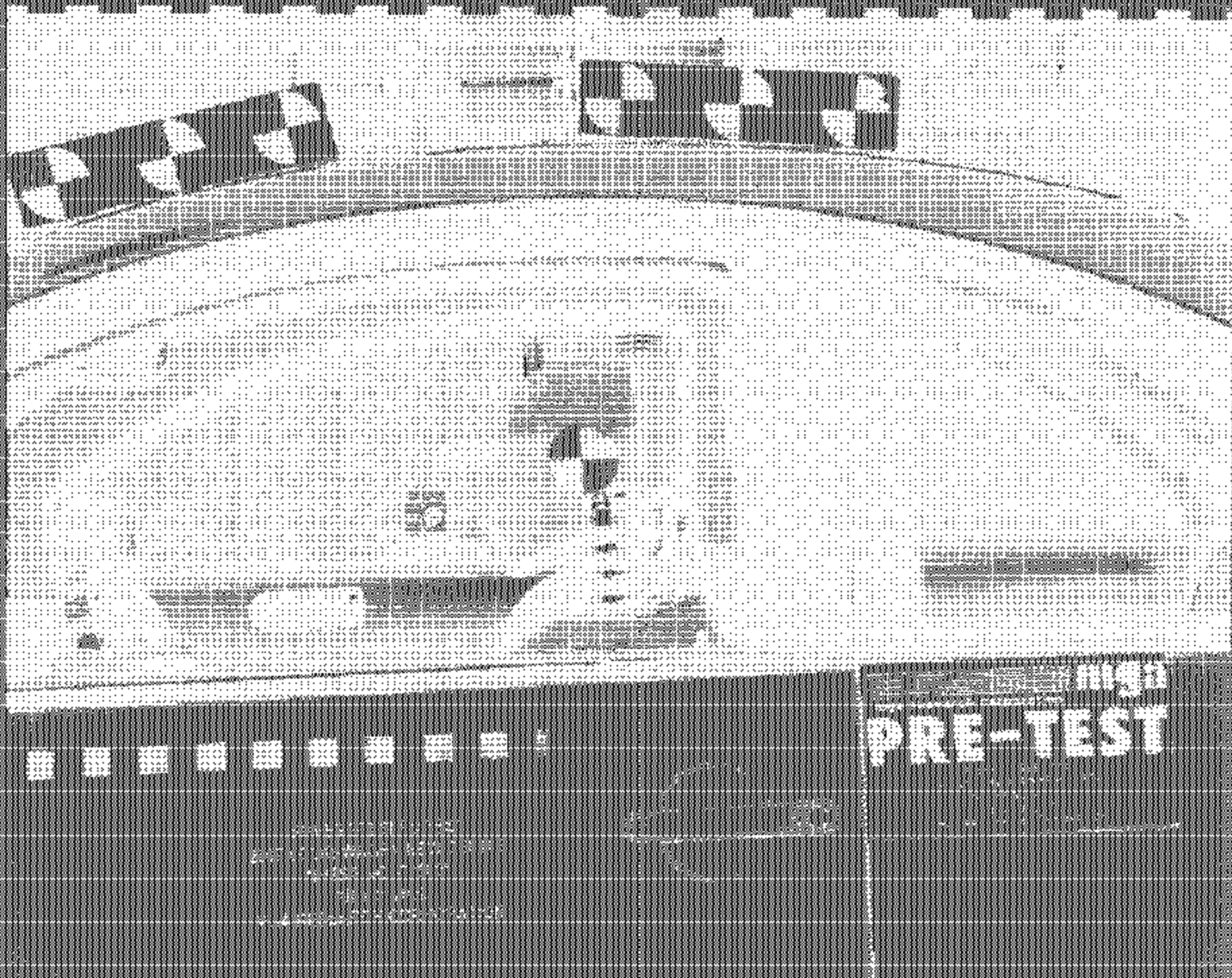
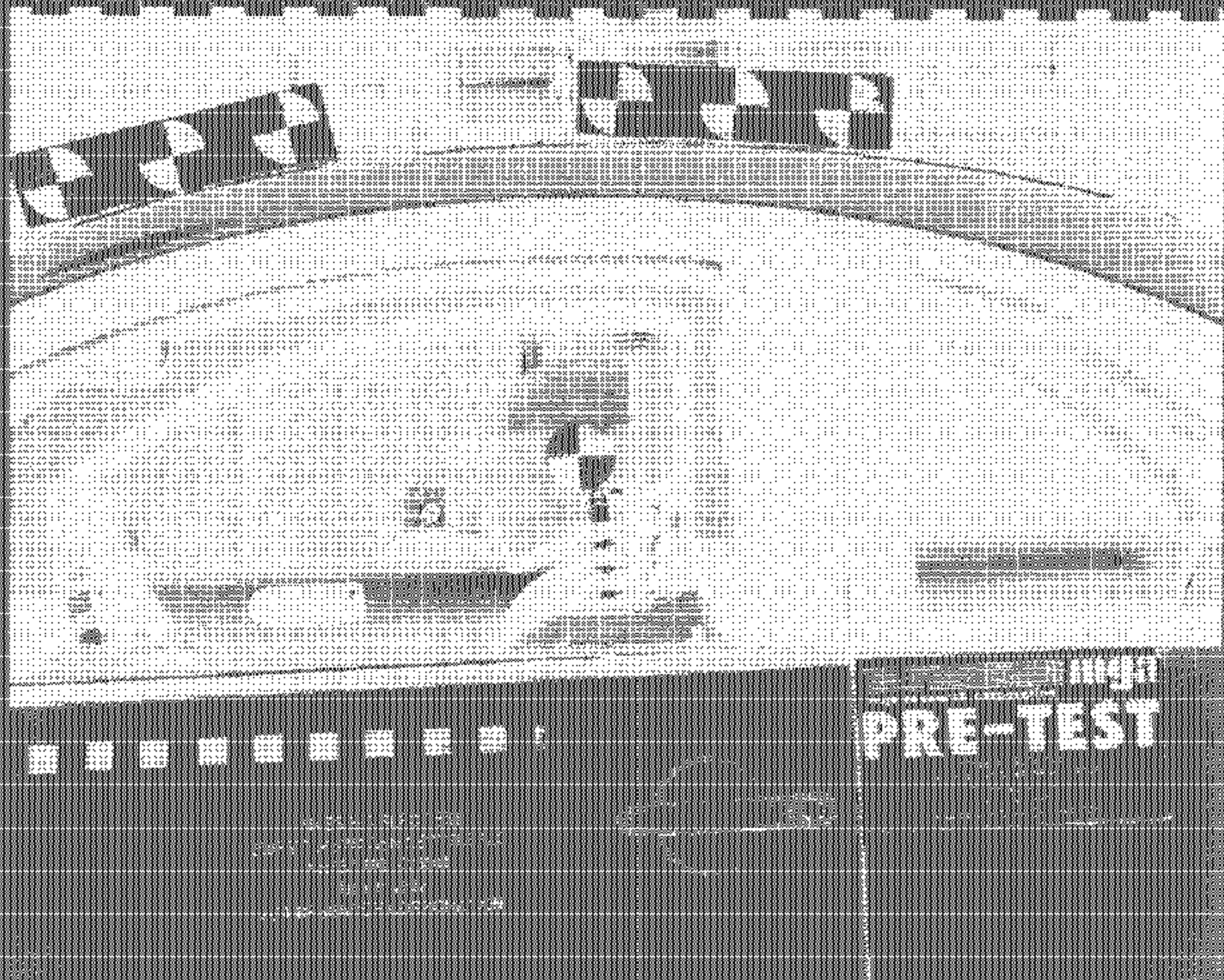


Photo No. A-7 - Pool-Test Driver During Practice View (Door Open)



Ford No. A-5 - Pre-Test Driver Dummy Position View



PRE-TEST

Photo No. A-8 - Post-Test Drive Dummy Position View

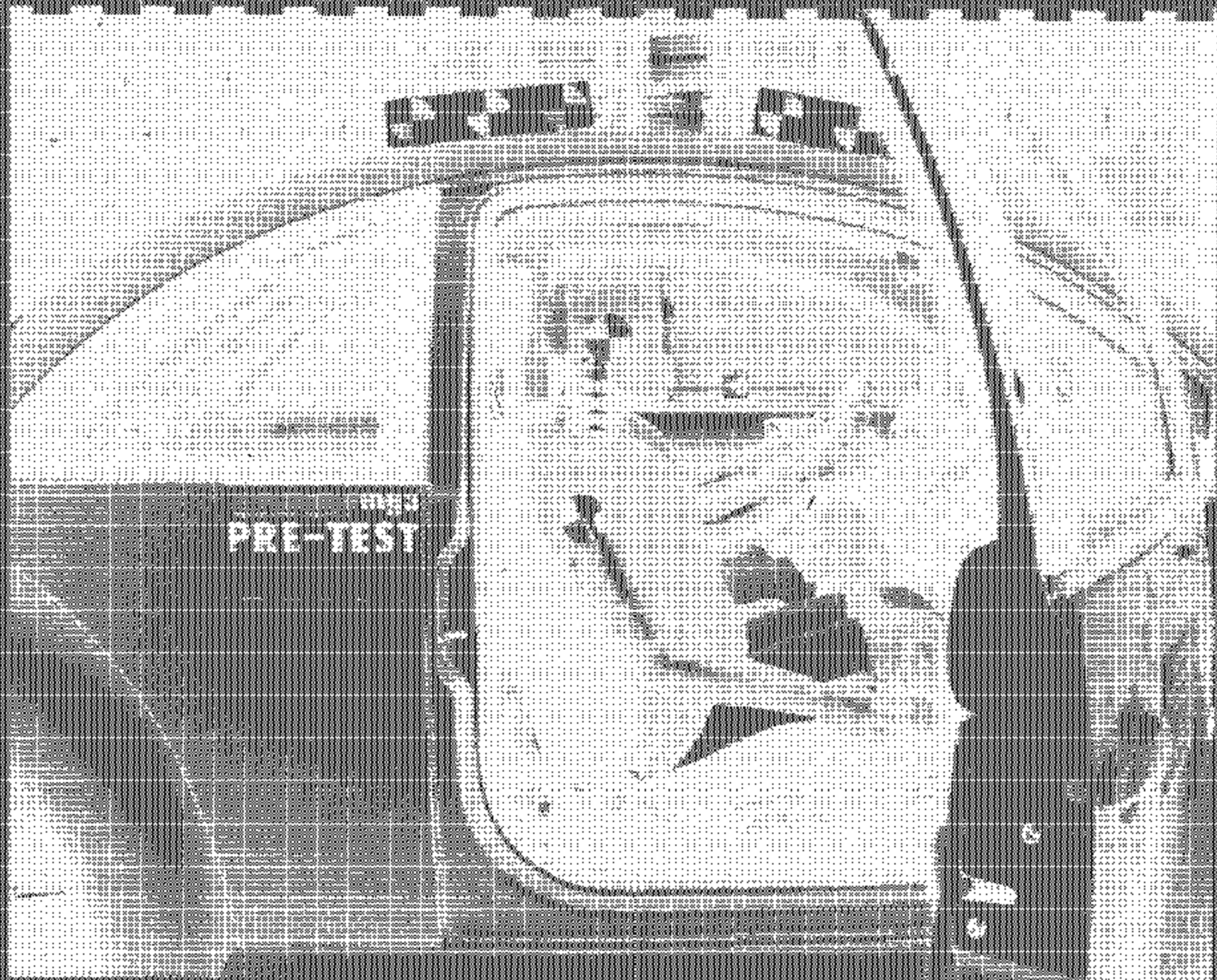


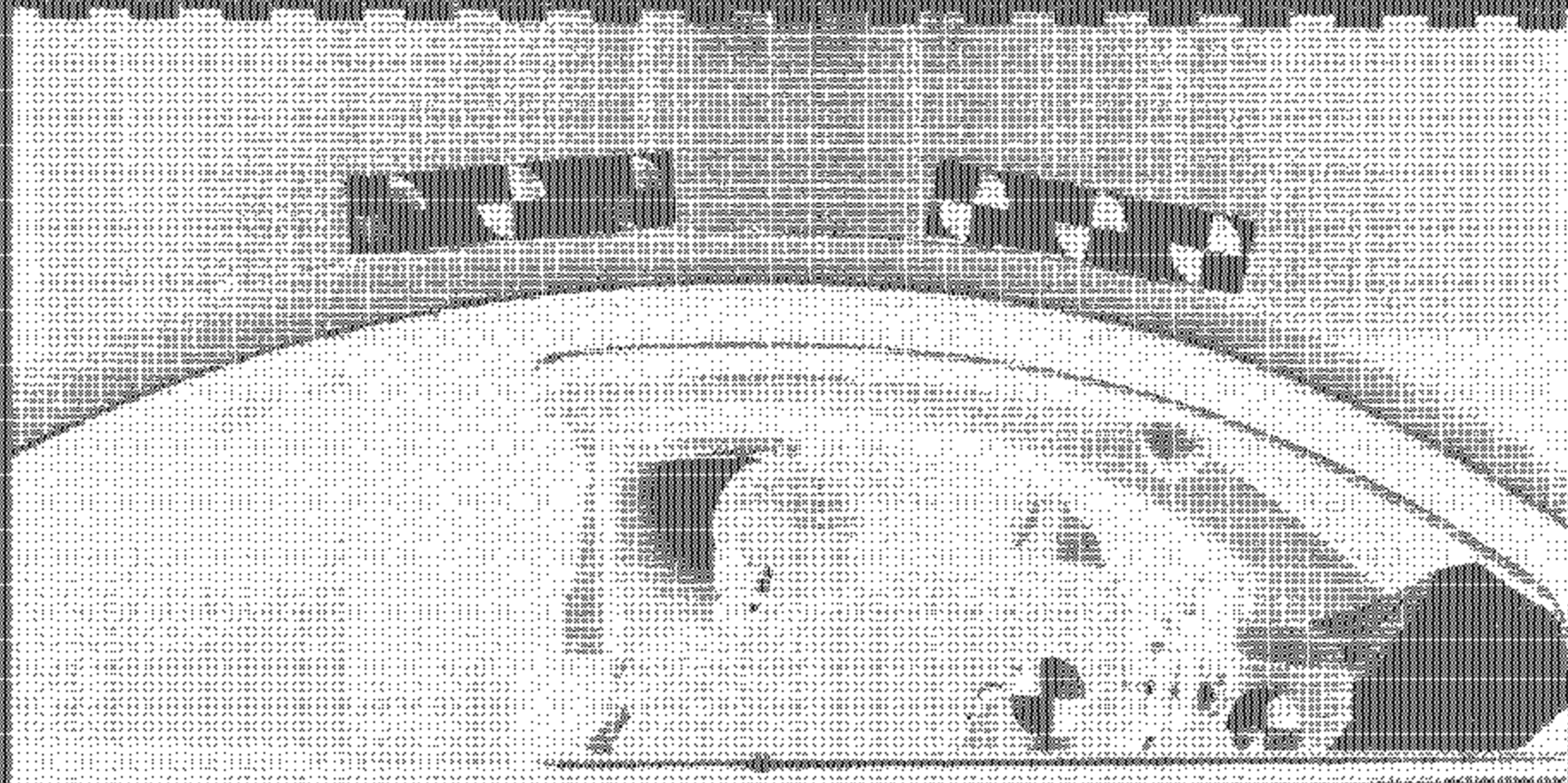
Photo No. A-40 - Pre-Test Passenger Dummy Seated - Door Open

High
POST-TEST

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



Photo No. A-12 - The Red Dead dummy position map



High
POST-TEST

Photo No. A-43 - Post-Test Passenger Dummy Position View



FMVSS 228 BLEED TEST
2002 VOLKSWAGEN NEW BEETLE
NHTSA NO. C255001
JULY 9, 2002
MGA RESEARCH CORPORATION

Photo No. A-24 Post Test Drive Along View



Photo No. A-13 - Post-Test Drive - Front (Driver) View (1440-2221-7)

FMVSS 202A LED TEST
2002 VOLKSWAGEN NEW BEETLE
NHTSA NO. C25801

JULY 9, 2002

MGA RESEARCH CORPORATION

2000-06 A-45 Over-Test Passenger Dummy Array V-01

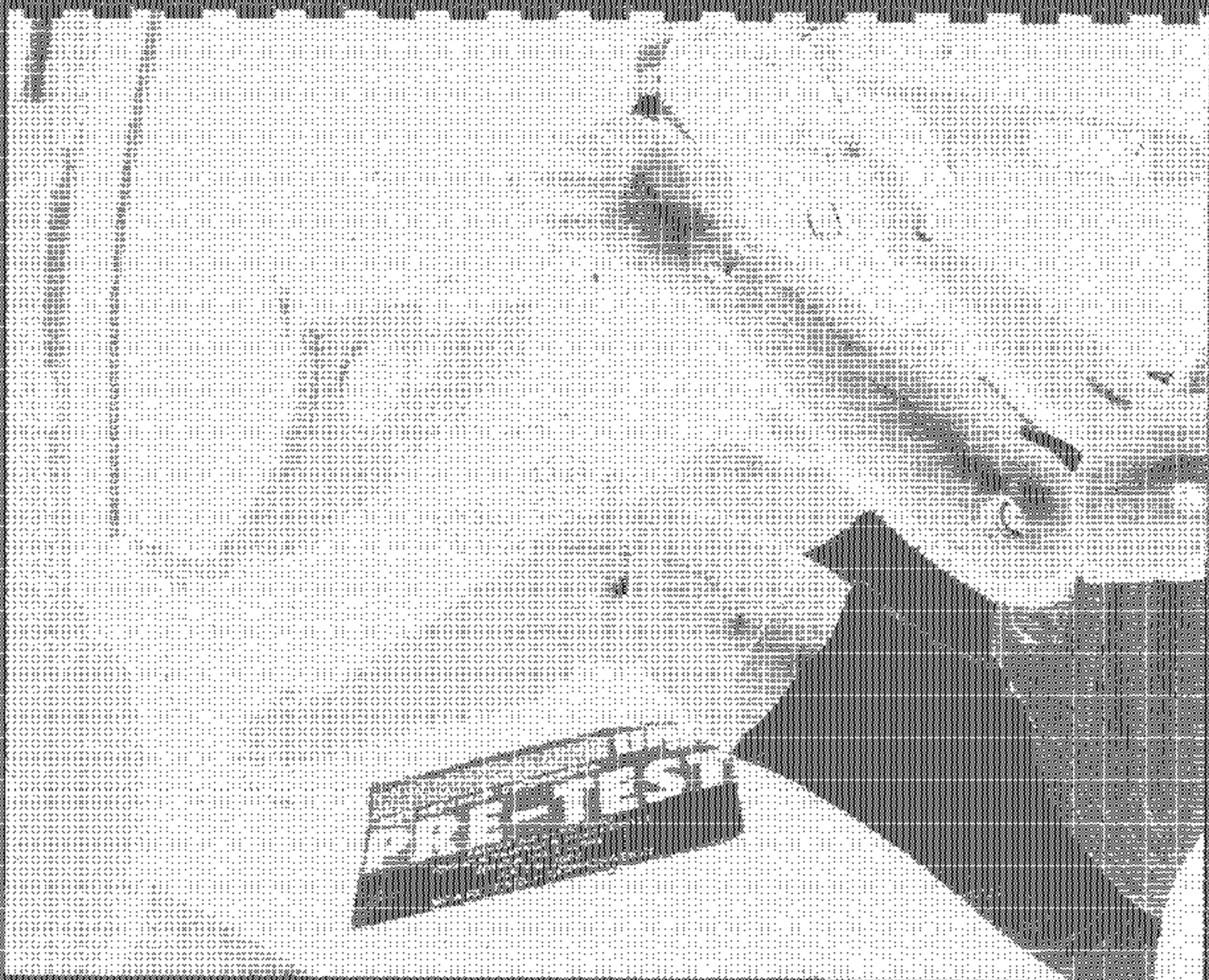


Photo No. A-17 - Pre-Test Paper Keg, Exterior View



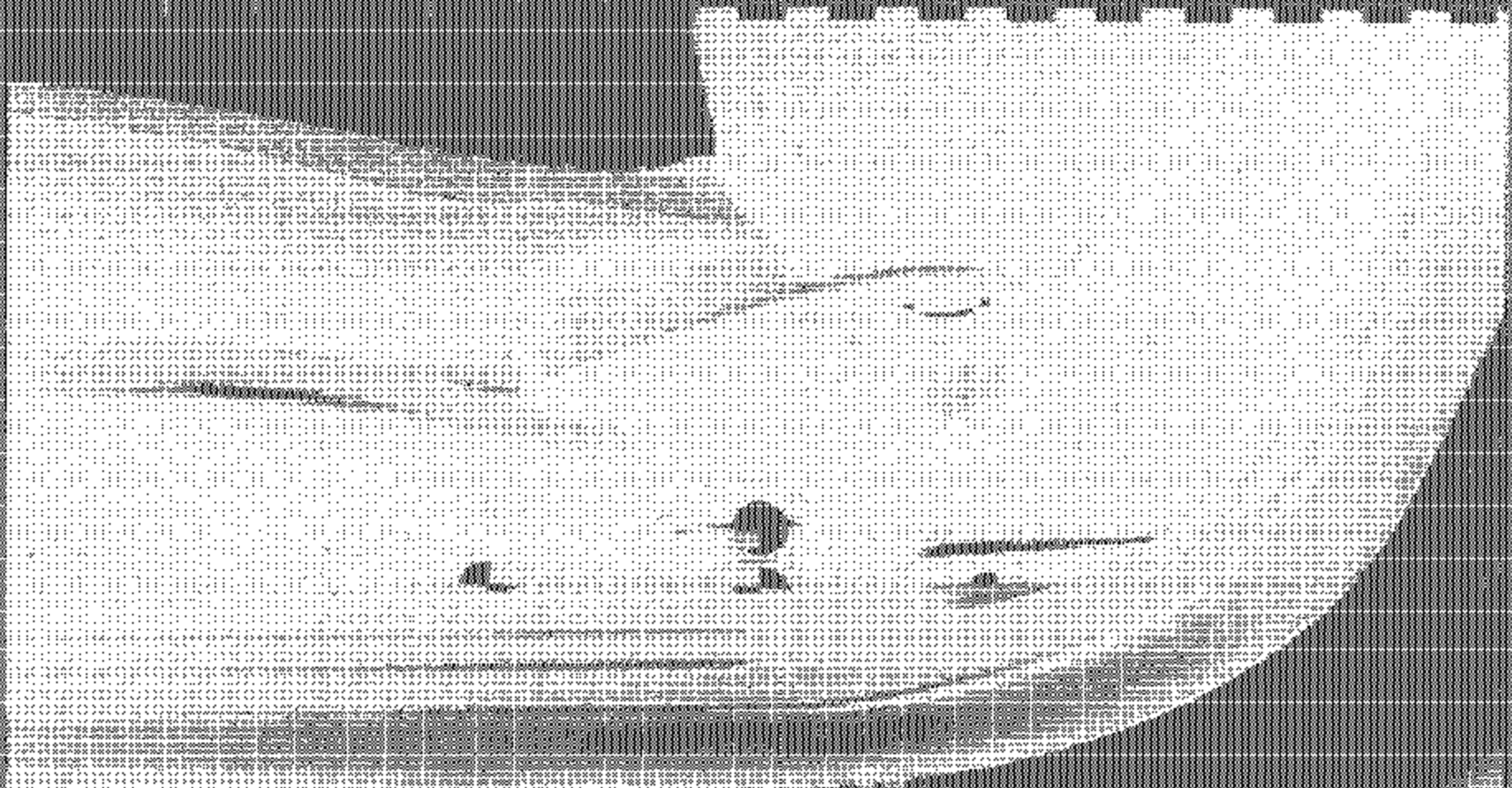
POST-TEST



Photo No. A-13. Pre-Test Package, Known Subject View



Photo No. A-20 - Post-Test Passenger Kiosk - Border View

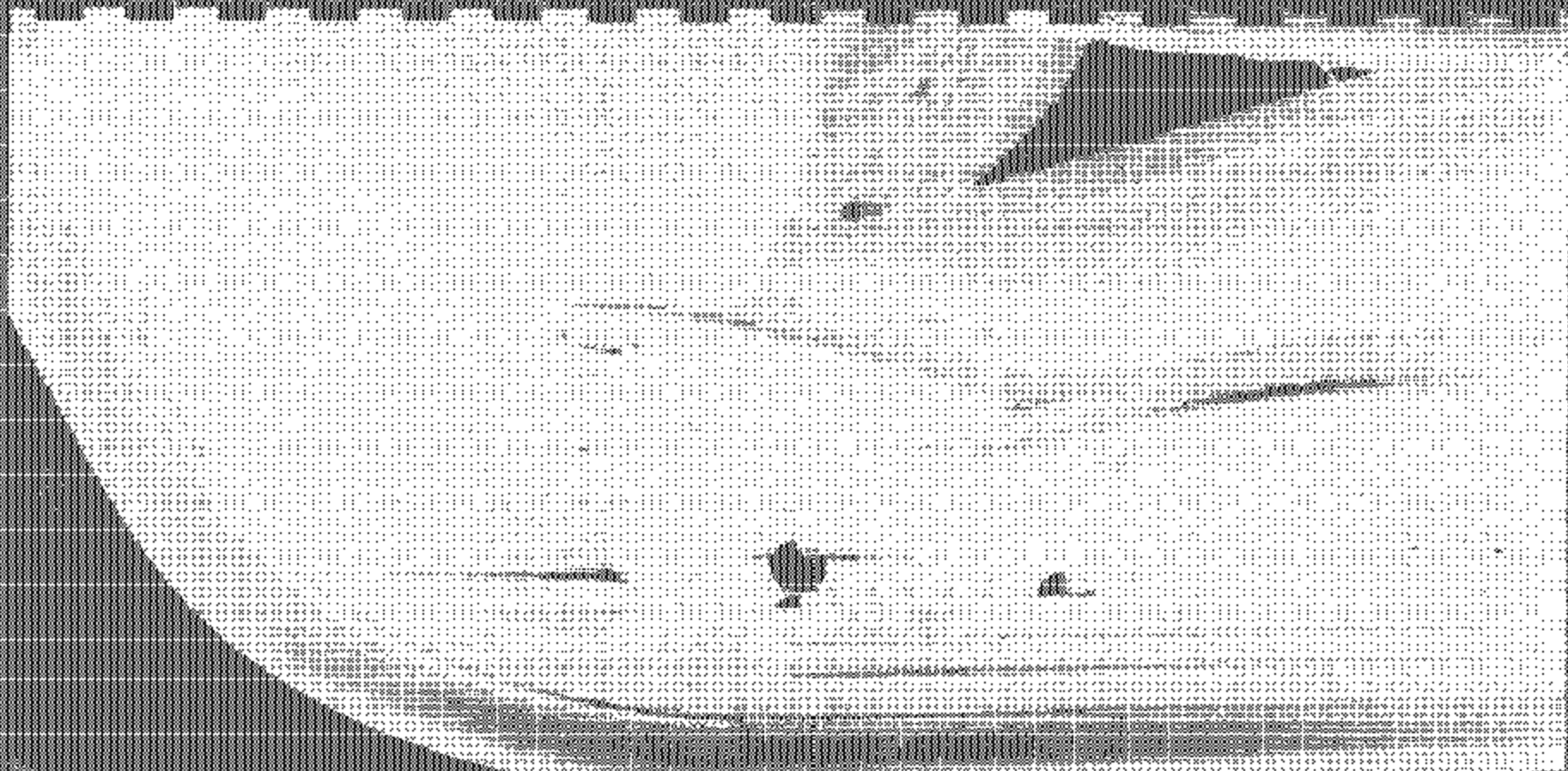


PRE-TEST

Photo No. A-24 - Pre-Test Driver Seat Position View

POST-TEST

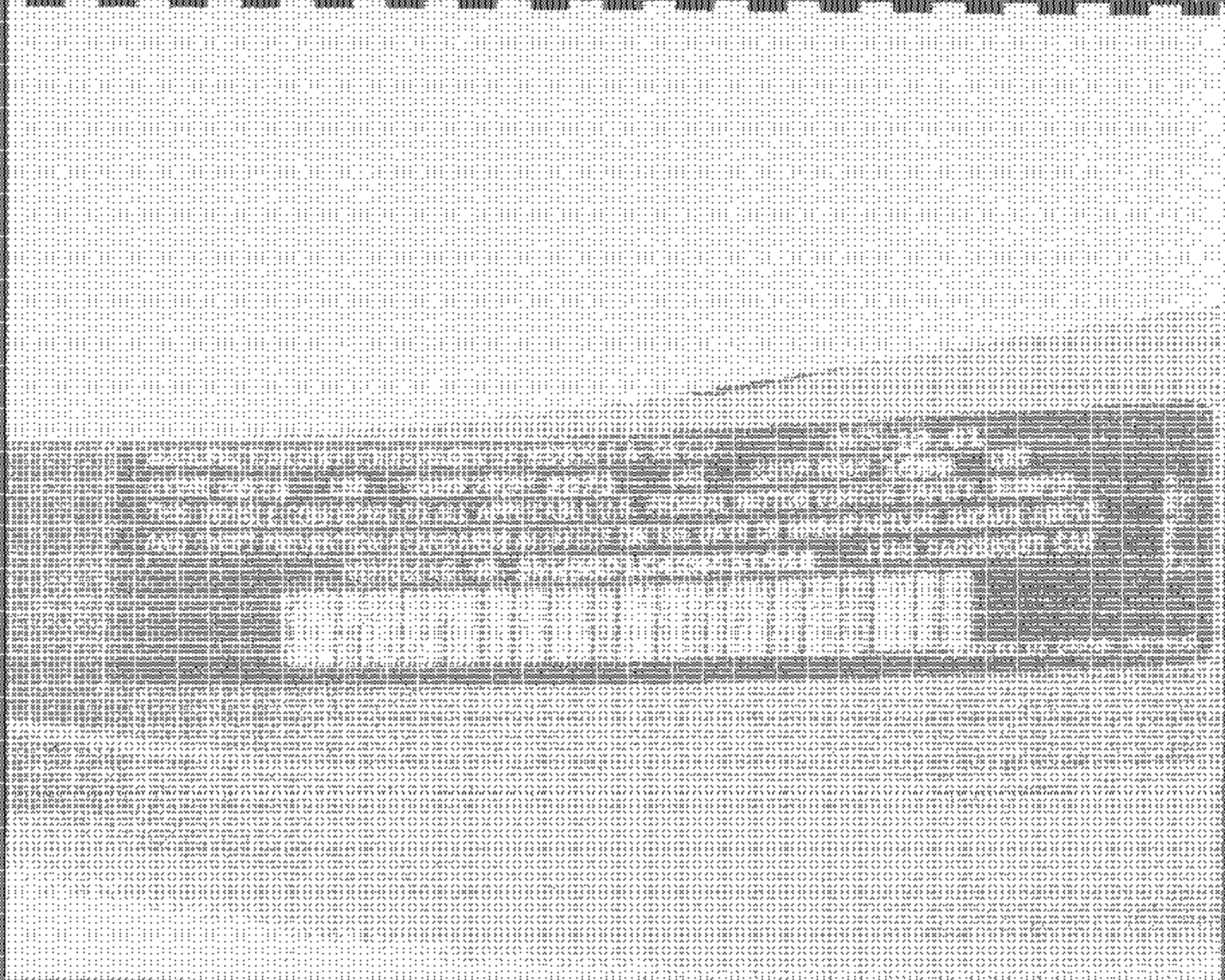
FMVSS 208 SLED TEST
2002 VOLKSWAGEN NEW BEETLE
NHTSA NO. DZ5801
JULY 6, 2002



PRE-TEST



Photo No. 4-24 - Post-Test Passenger Cabin Interior View



CARBURANT SANS PLOMB

NORMALE MINORON 91



MAX. LOAD (VEHICLE CAPACITY WEIGHTS)

If provided	Shift Tr.	Aut. Tr.
lbs	750	750

DESIGNATED SEATING CAPACITY: 4 2 front/2 rear

COLD TIRE INFLATION PRESSURE PSI

C: 2 / 01

Tire size	RIM	half load		max. load	
		front	rear	front	rear
195/65 R15 91 H	6J	29	28	30	38
205/55 R16 91 H	6 1/2J				
225/45 R17 91 H	7J				
225/45 R17 90 H	7J				

1C0 010 303 N

APPENDIX B
DATA PLOTS

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* No valid data collected

TEST: FMVSS 208 SLED (H02176)

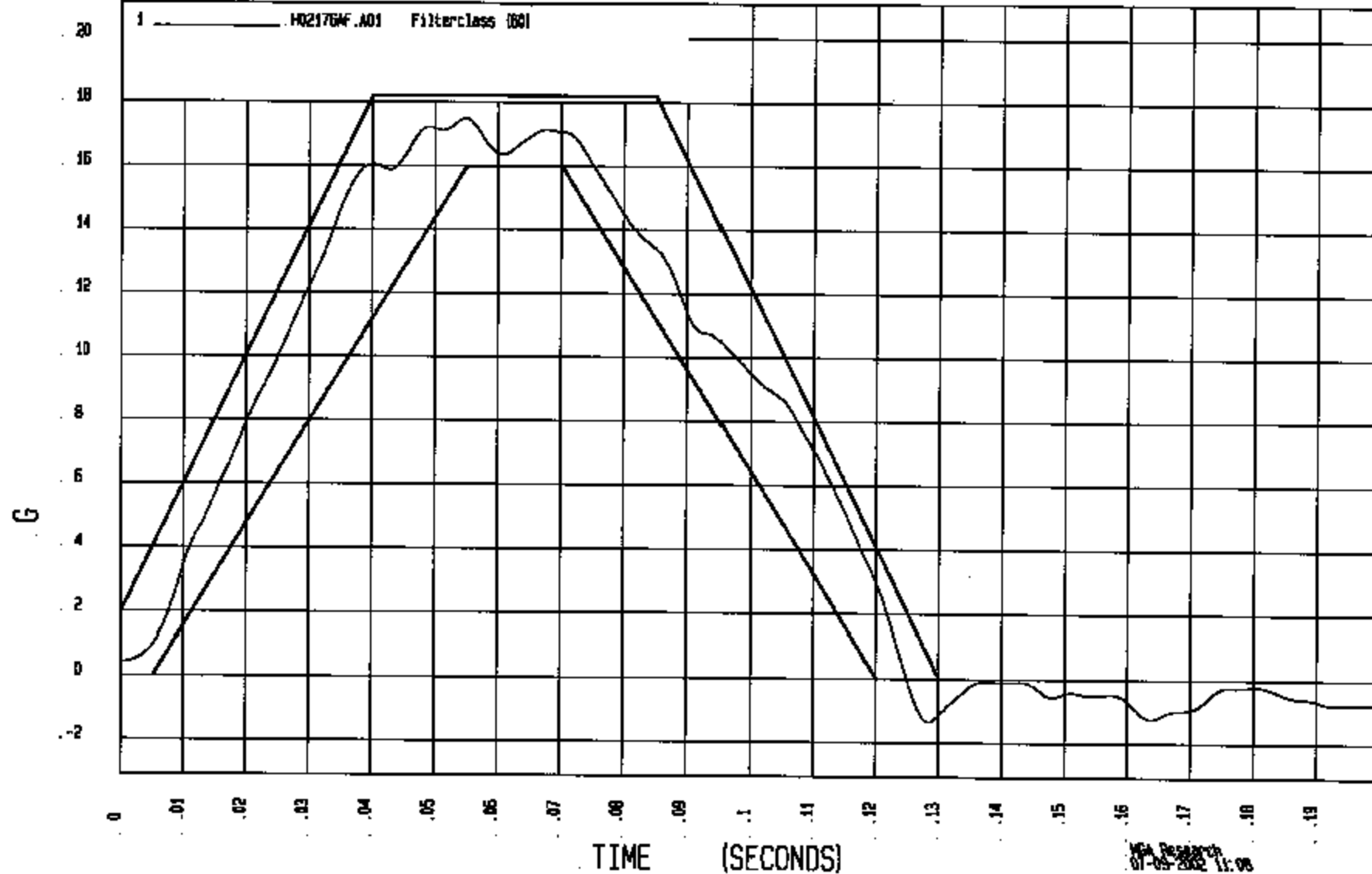
TEST DATE: 07-09-2002

COMPONENT: 2002 VOLKSWAGEN NEW BEETLE (C25801)

Minimum = -1.33 G at 129.4 msec

Maximum = 17.40 G at 54.8 msec

SLED X ACCELERATION



TEST: FMVSS 208 SLED (H02176)

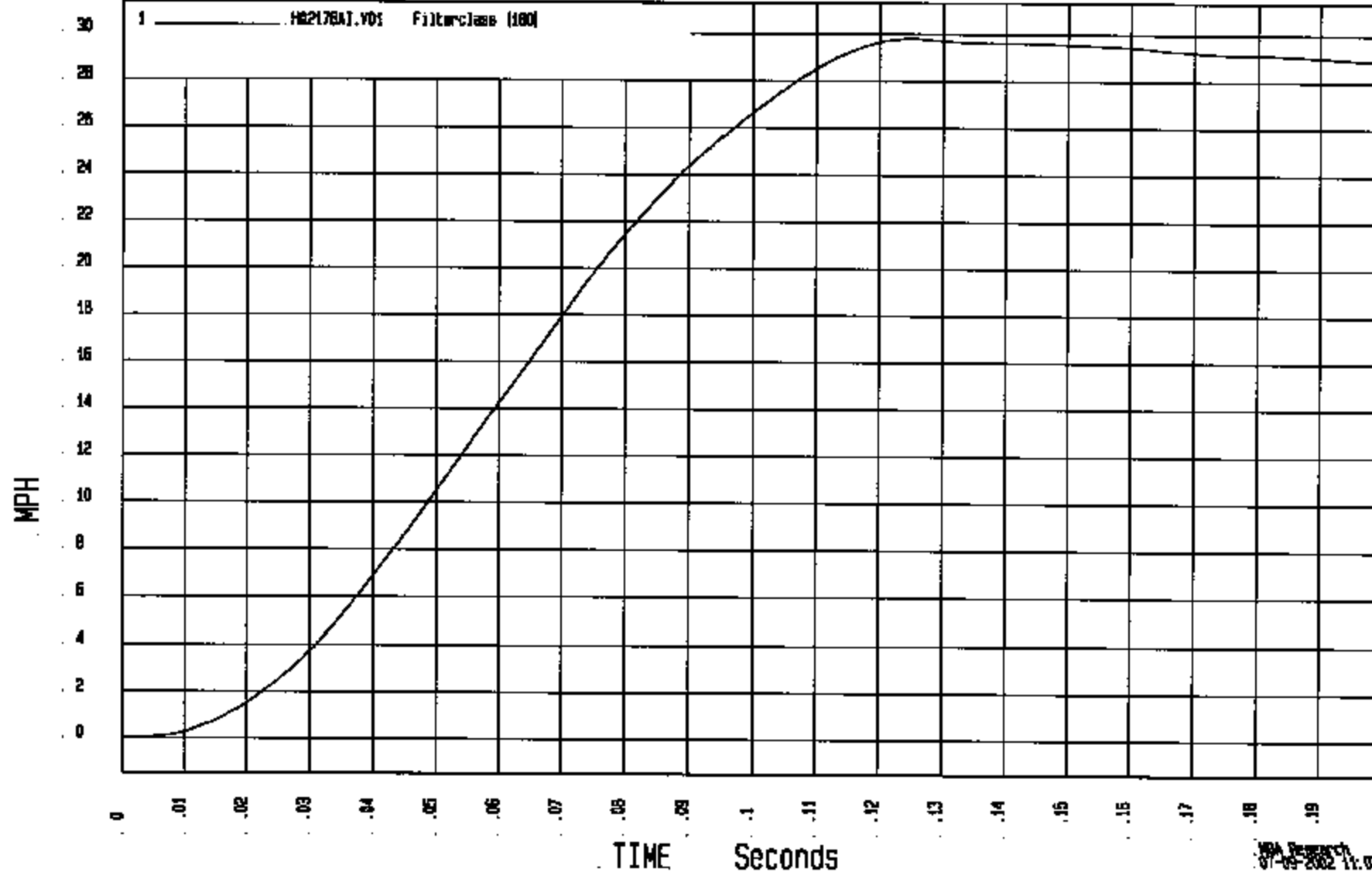
TEST DATE: 07-09-2002

COMPONENT: 2002 VOLKSWAGEN NEW BEETLE (C25801)

Minimum = 0 MPH at 0 msec

Maximum = 29.02 MPH at 125 msec

SLED X VELOCITY



TEST: FMVSS 208 SLED (H02176)

TEST DATE: 07-09-2002

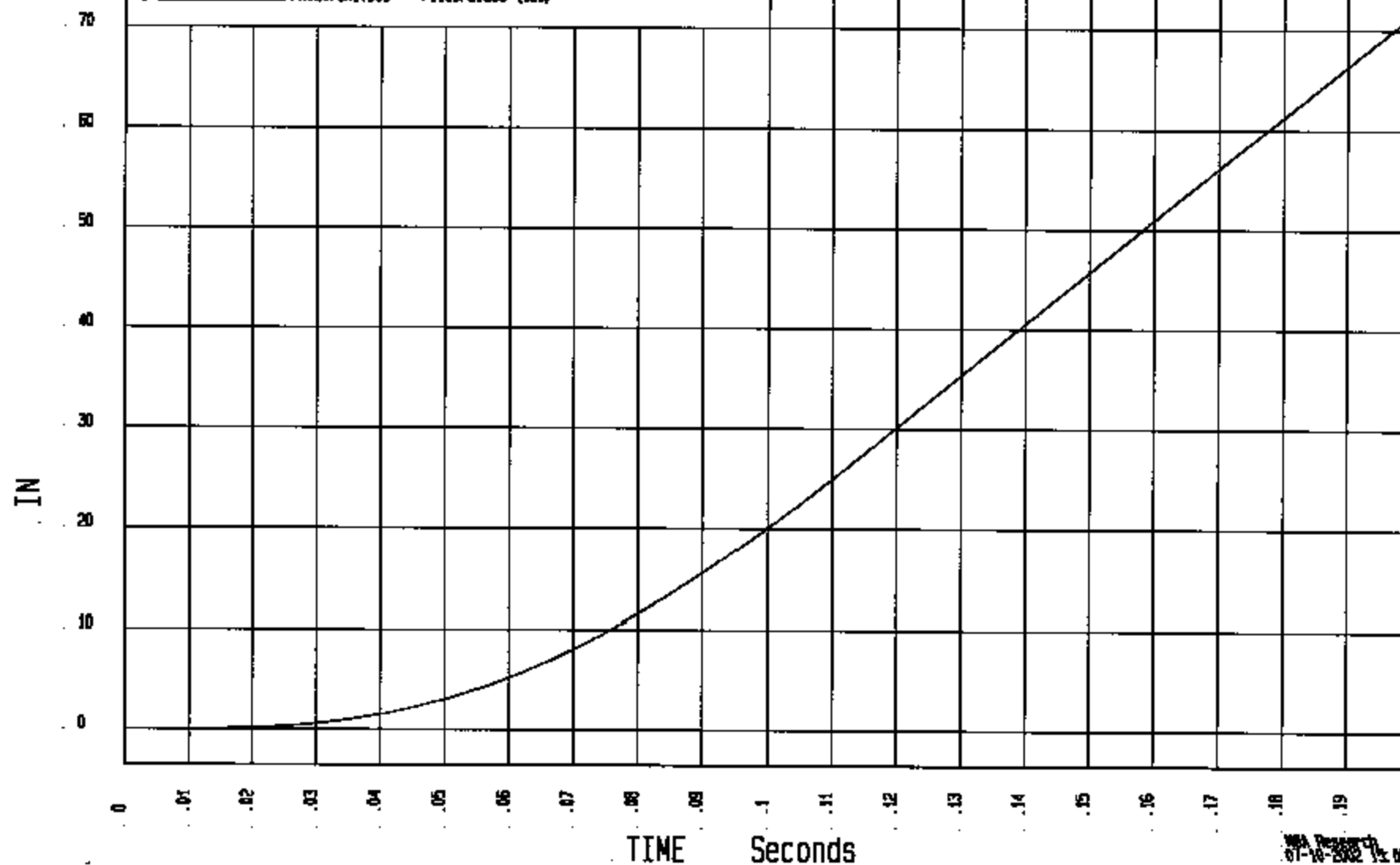
COMPONENT: 2002 VOLKSWAGEN NEW BEETLE (C25801)

Minimum = 0 IN at 0 msec

Maximum = 71.41 IN at 200 msec

SLED X DISPLACEMENT

1 H02176A1.D01 Filterclass (160)



07-10-2002 11:56

TEST: FMVSS 208 SLED (H02176)

TEST DATE: 07-09-2002

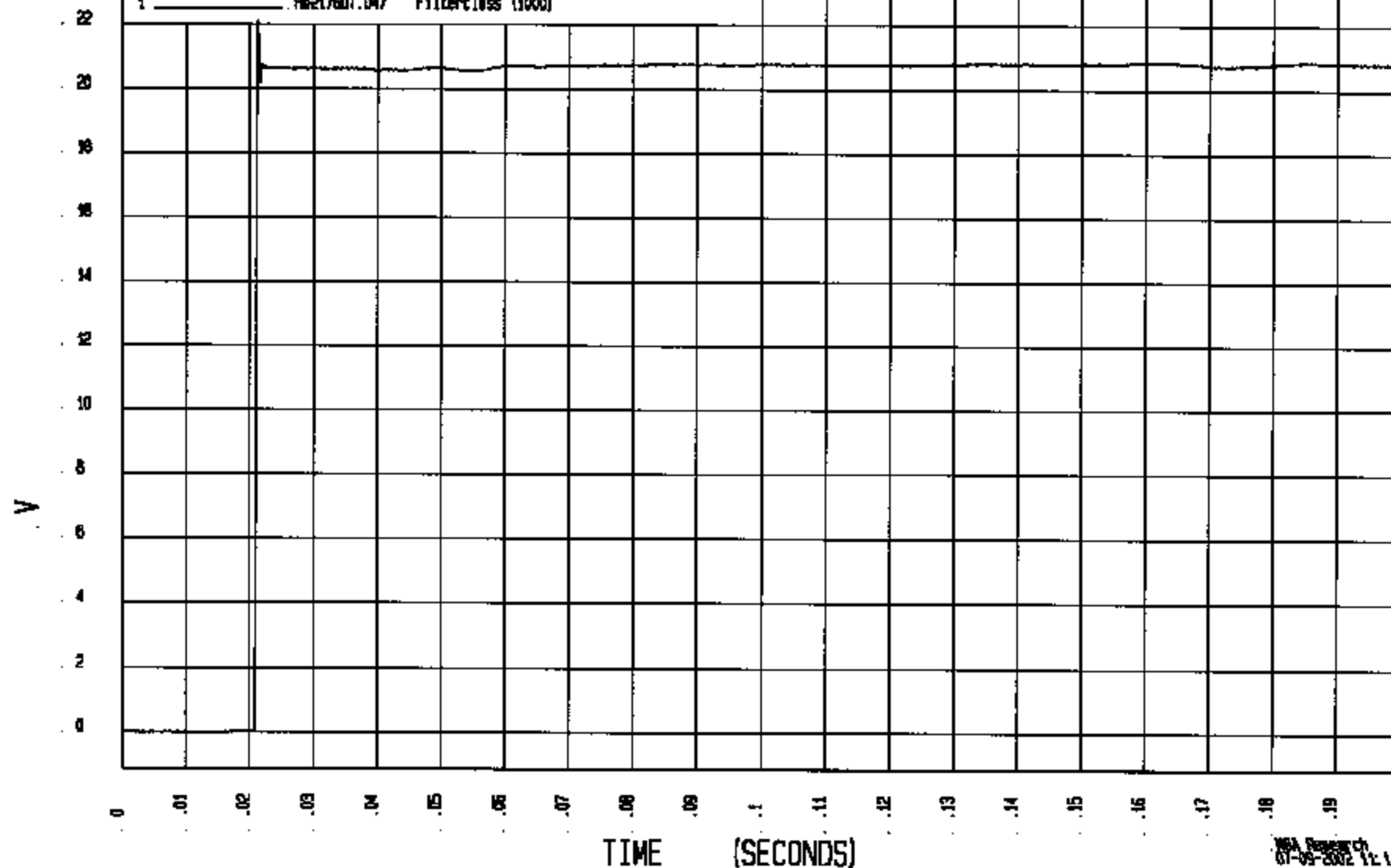
COMPONENT: 2002 VOLKSWAGEN NEW BEETLE (C25801)

Minimum = -4.45E-02 V at 4 msec

Maximum = 22.12 V at 21 msec

AIRBAG VOLTAGE

1 H0217607.D47 Filterclass (1000)



07-09-2002 11:11

TEST: FMVSS 208 SLED (H02176)

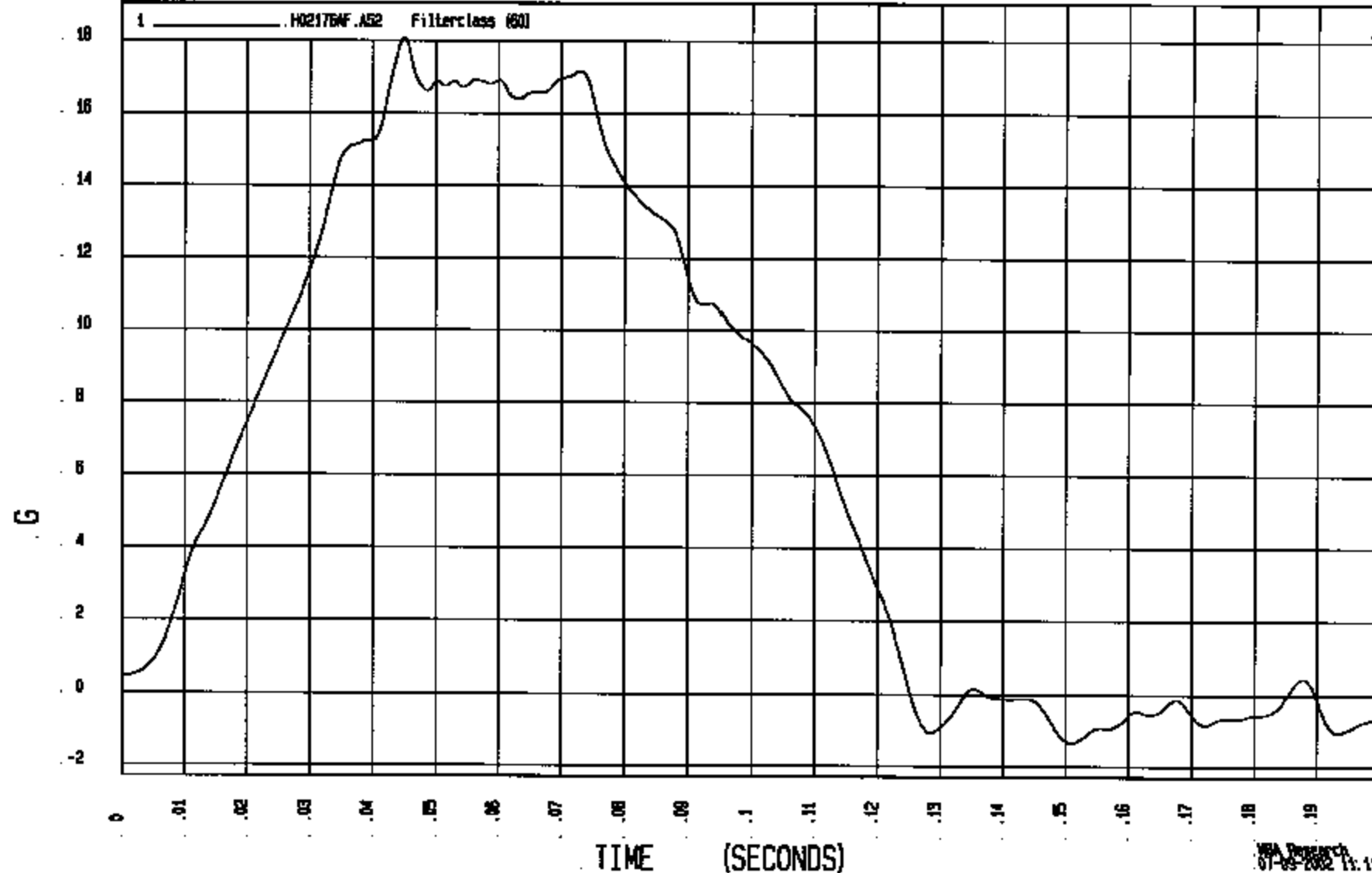
TEST DATE: 07-09-2002

COMPONENT: 2002 VOLKSWAGEN NEW BEETLE (C25801)

Minimum = -1.33 G at 151 msec

Maximum = 18.07 G at 45 msec

LEFT REAR SEAT CROSSMEMBER X ACCELERATION



TEST: FMVSS 208 SLED (H02176)

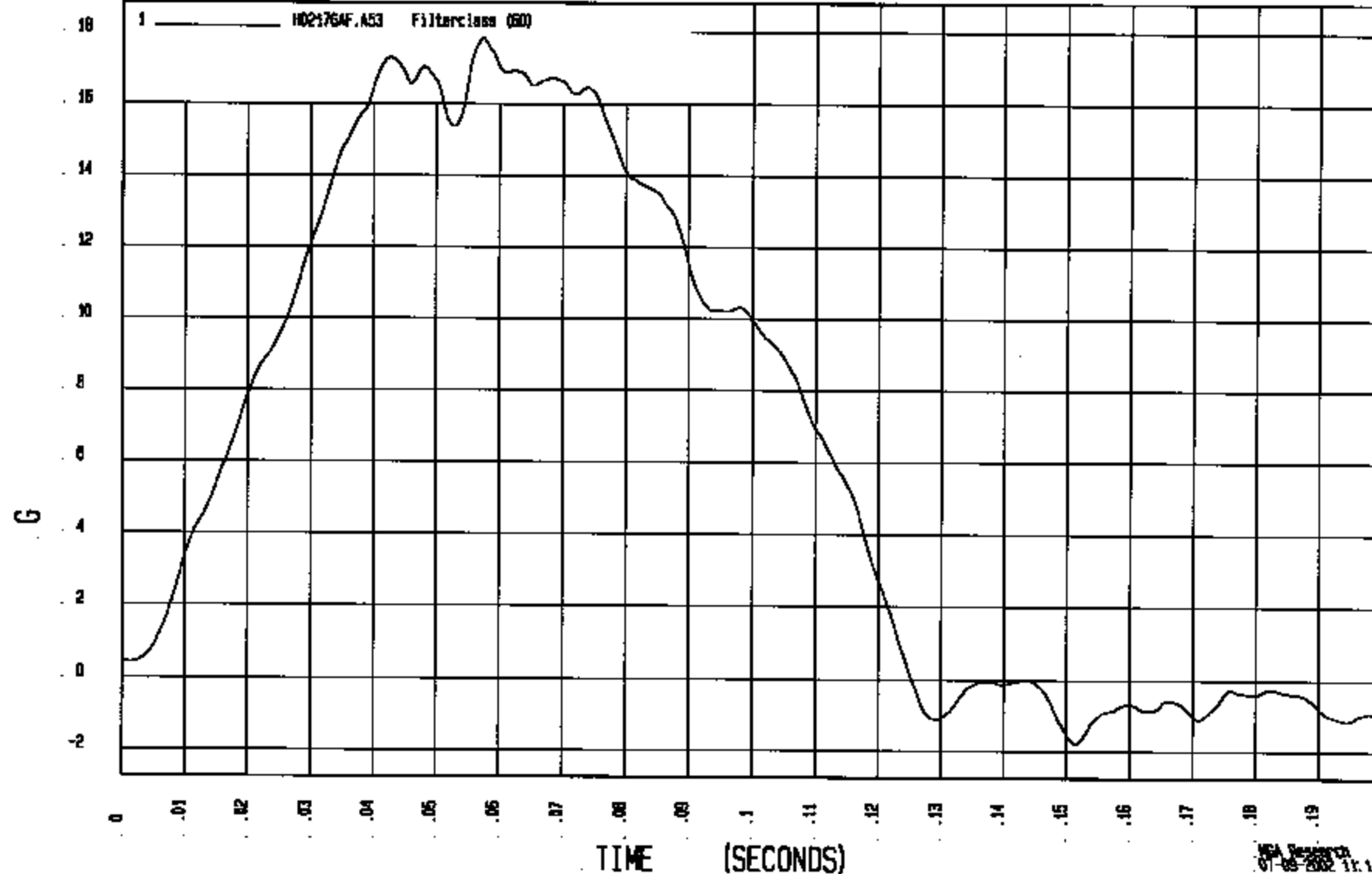
TEST DATE: 07-09-2002

COMPONENT: 2002 VOLKSWAGEN NEW BEETLE (C25801)

Minimum = -1.78 G at 151 msec

Maximum = 17.83 G at 57 msec

RIGHT REAR SEAT CROSSMEMBER X ACCELERATION



TEST: FMVSS 208 SLED (H02176)

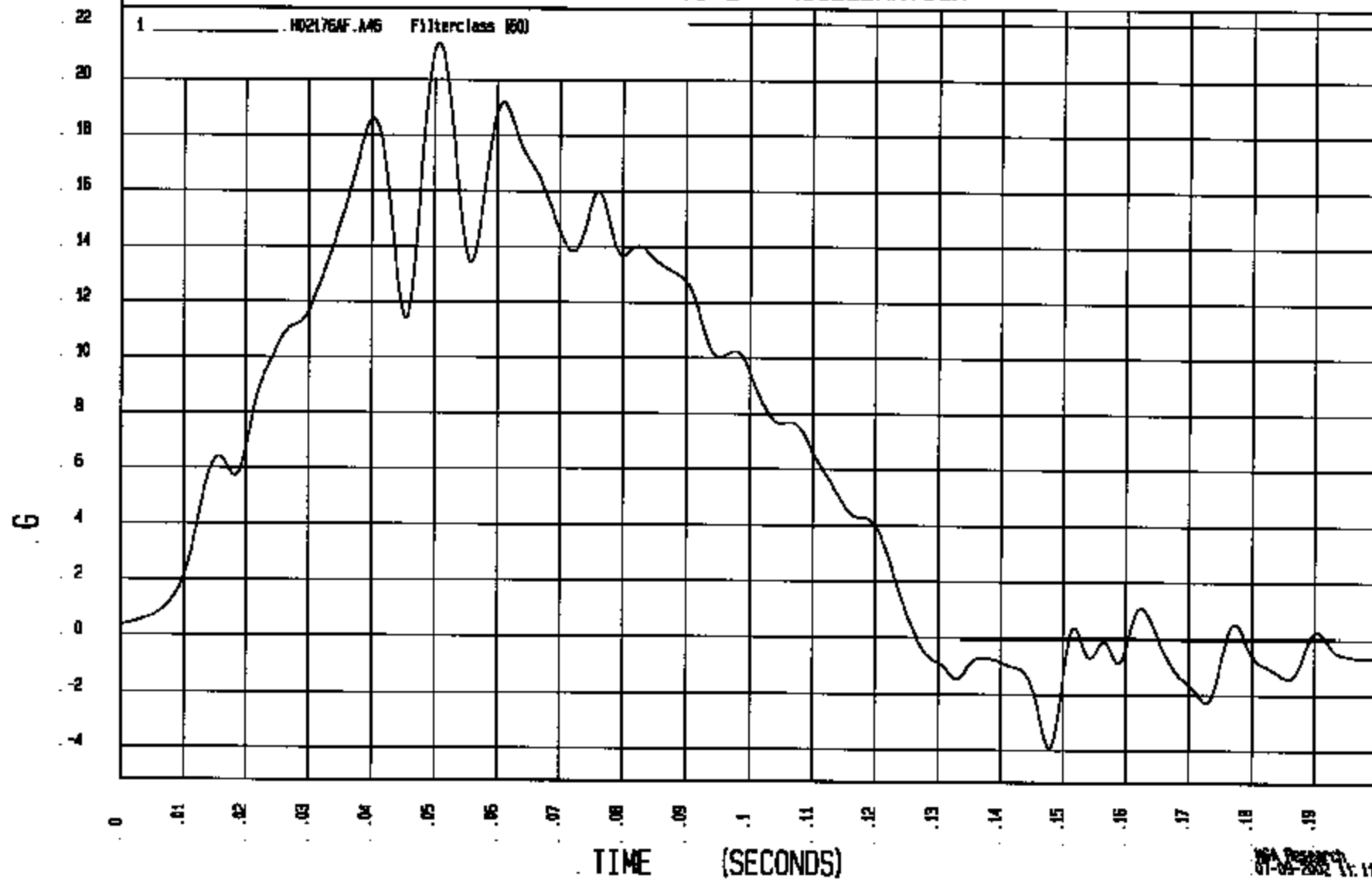
TEST DATE: 07-09-2002

COMPONENT: 2002 VOLKSWAGEN NEW BEETLE (C25801)

Minimum = -3.93 G at 148 msec

Maximum = 21.31 G at 51 msec

TOP OF ENGINE X ACCELERATION



TEST: FMVSS 208 SLED (H02176)

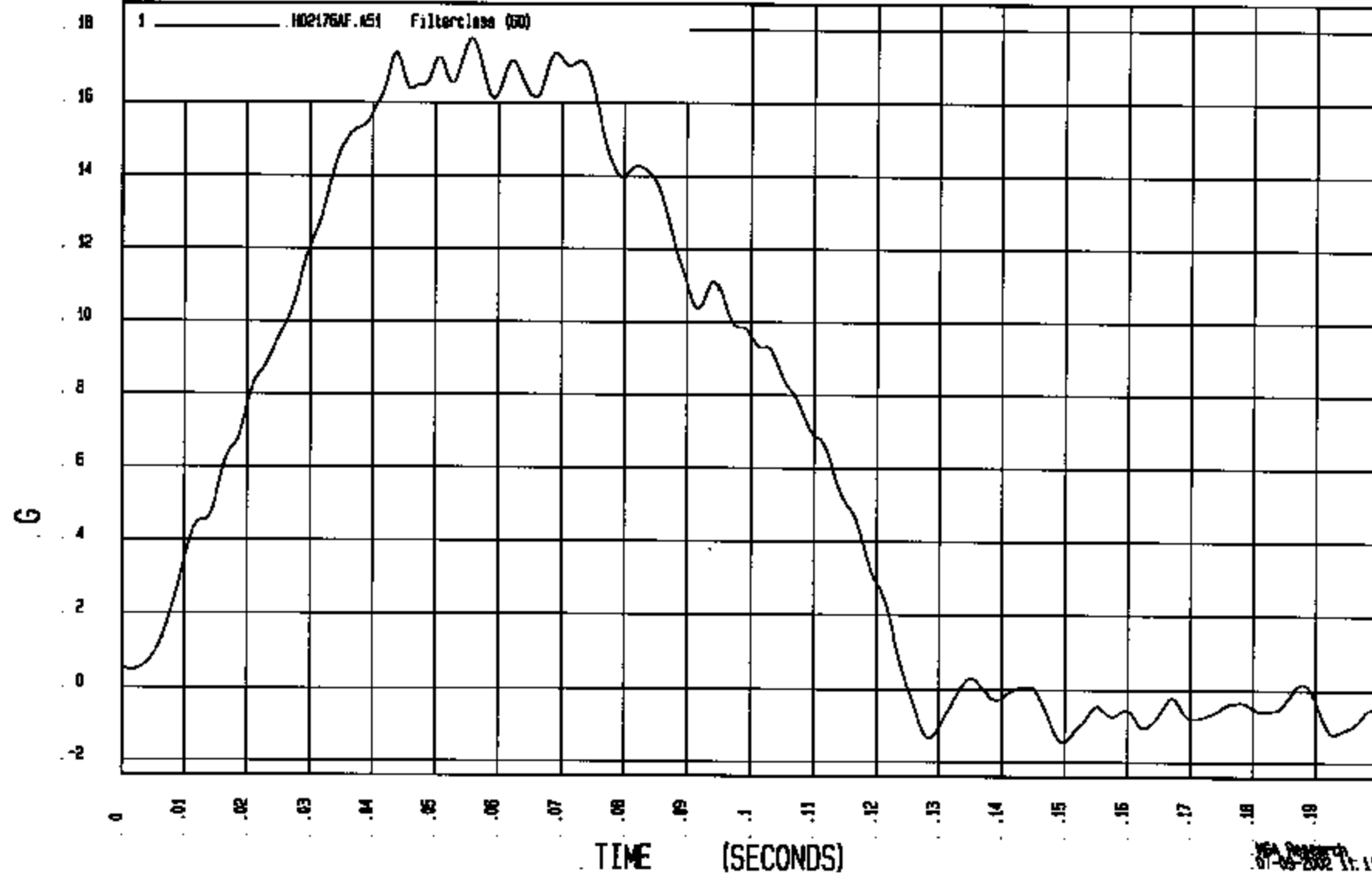
TEST DATE: 07-09-2002

COMPONENT: 2002 VOLKSWAGEN NEW BEETLE (C25801)

Minimum = -1.44 G at 150 msec

Maximum = 17.75 G at 56 msec

REAR AXLE X ACCELERATION



TEST: FMVSS 208 SLED (H02176)

TEST DATE: 07-09-2002

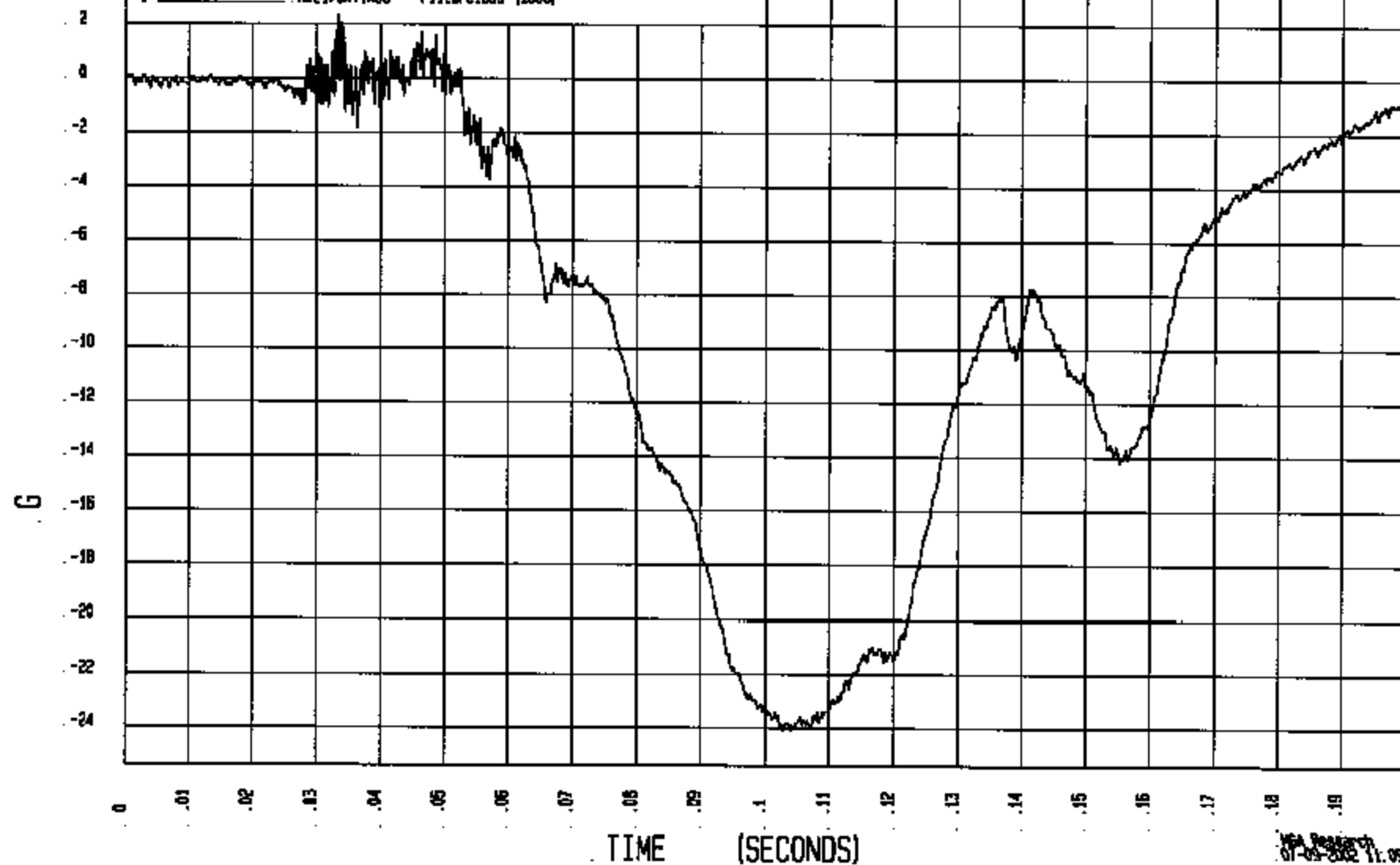
COMPONENT: 2002 VOLKSWAGEN NEW BEETLE (C25801)

Minimum = -24.09 G at 103 msec

Maximum = 2.37 G at 33 msec

DRIVER HEAD X ACCELERATION

1 H02176AT.A06 Filterclass (1000)



07-09-2002 11:09

TEST: FMVSS 208 SLED (H02176)

TEST DATE: 07-09-2002

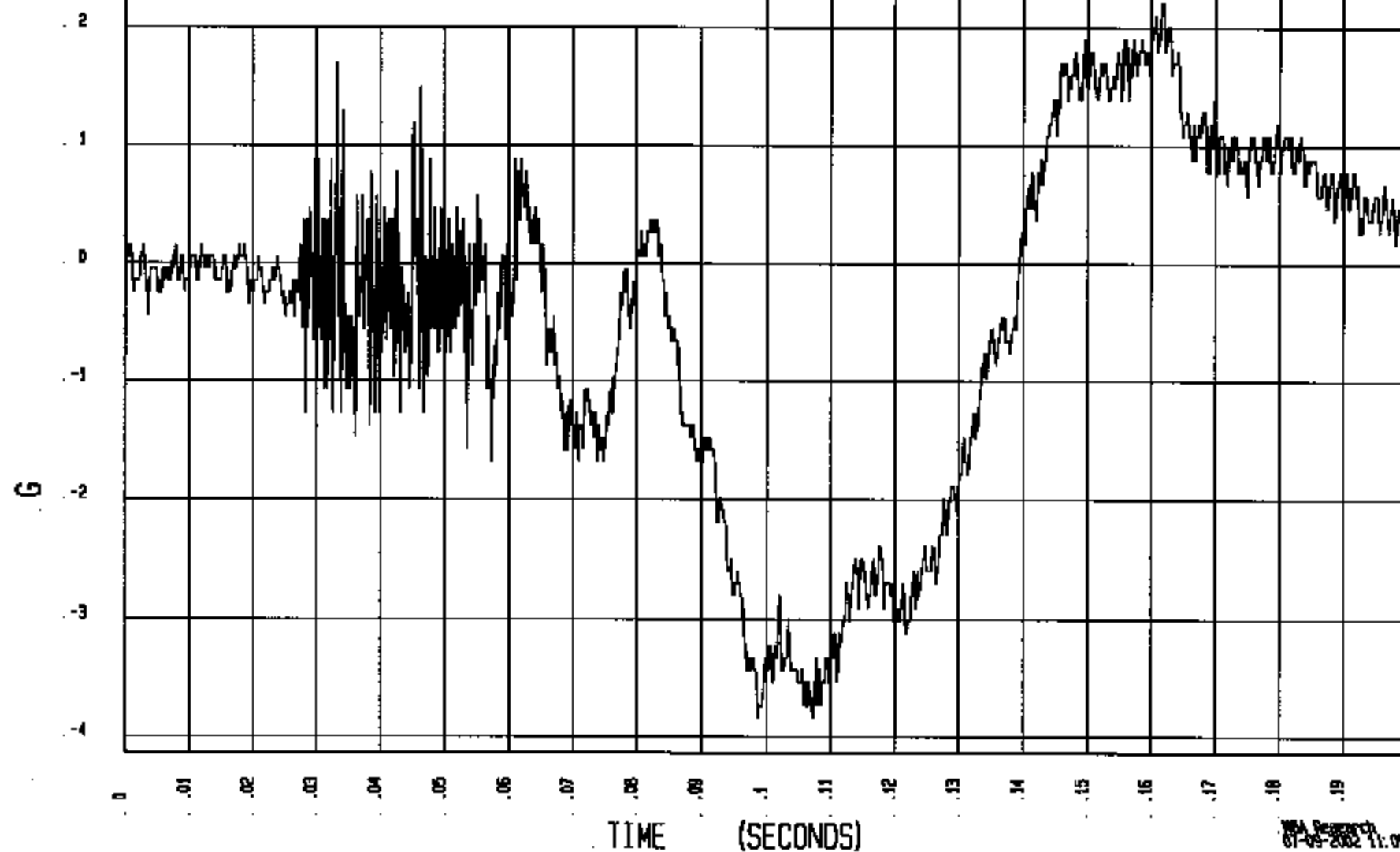
COMPONENT: 2002 VOLKSWAGEN NEW BEETLE (C25801)

Minimum = -3.84 G at 99 msec

Maximum = 2.21 G at 162 msec

DRIVER HEAD Y ACCELERATION

1 H02176AT.AOB Filter:less (1000)



07-09-2002 11:09

TEST: FMVSS 208 SLED (H02176)

TEST DATE: 07-09-2002

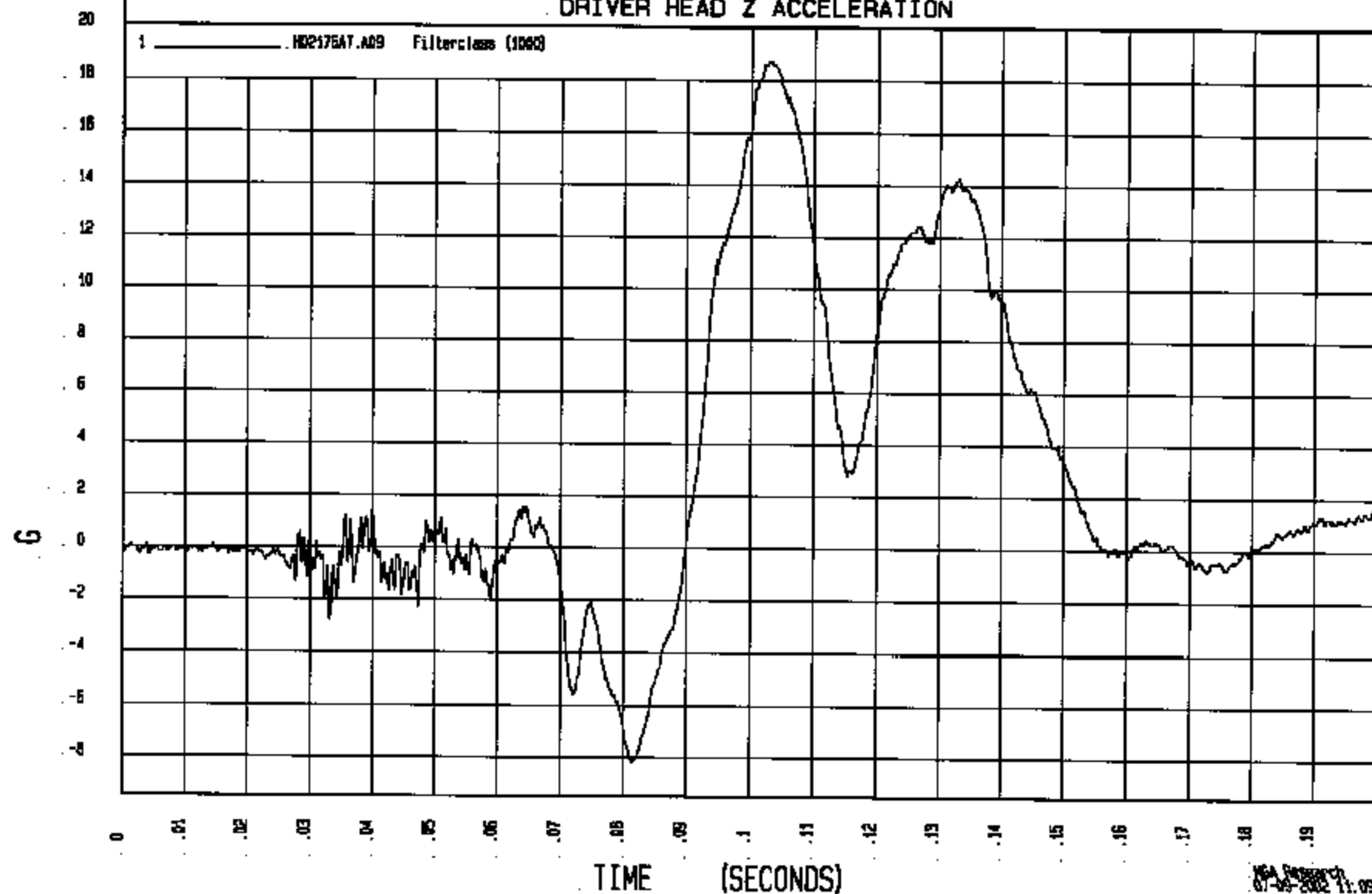
COMPONENT: 2002 VOLKSWAGEN NEW BEETLE (C25801)

Minimum = -8.17 G at 81 msec

Maximum = 18.72 G at 103 msec

DRIVER HEAD Z ACCELERATION

1 H02176AT.A09 Filterclass (1000)



TEST: FMVSS 208 SLED (H02176)

TEST DATE: 07-09-2002

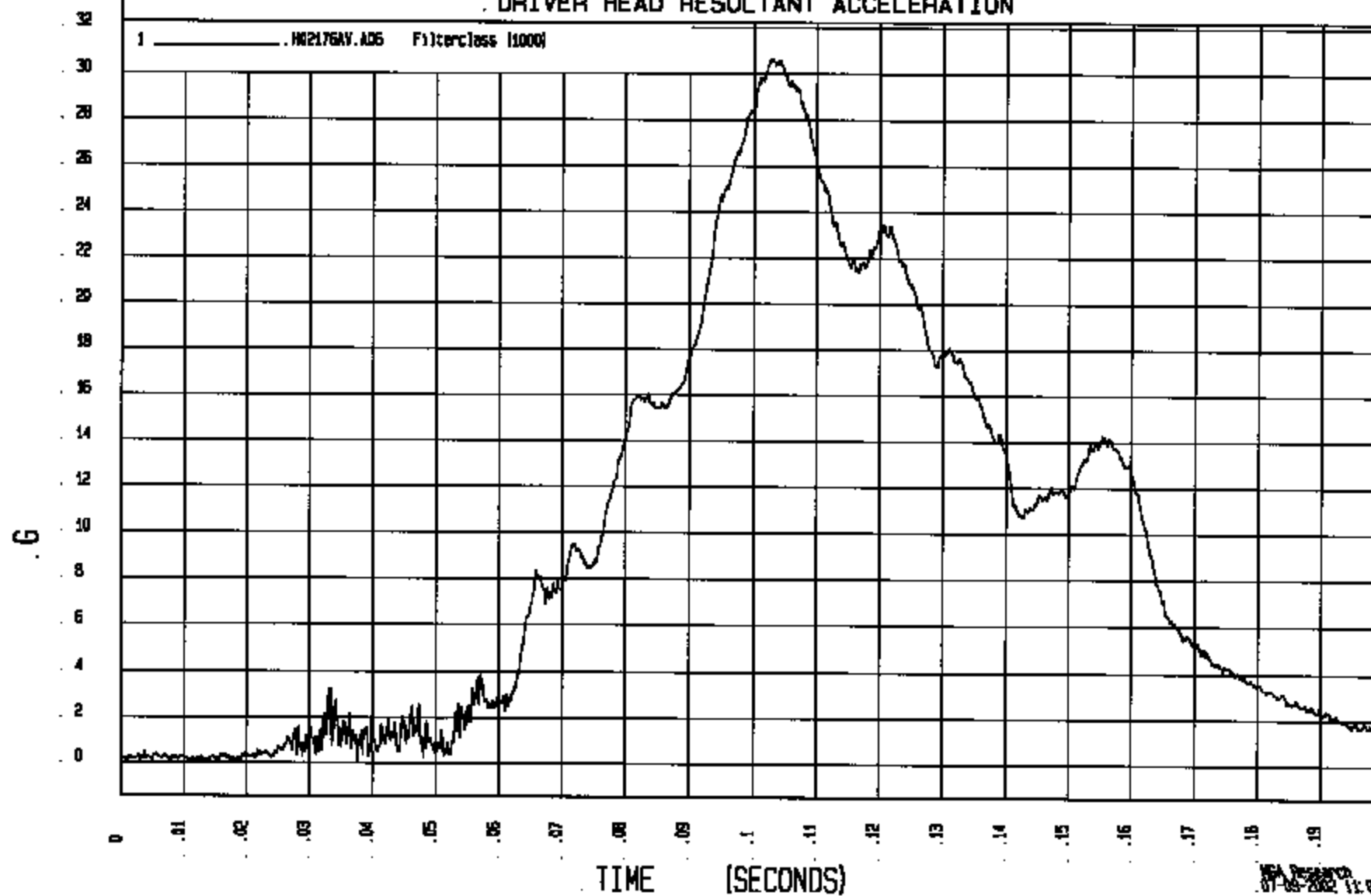
COMPONENT: 2002 VOLKSWAGEN NEW BEETLE (C25801)

Minimum = $5.46E-02$ G at 1 msec

Maximum = 30.69 G at 103 msec

DRIVER HEAD RESULTANT ACCELERATION

1 H02176AV.A05 Filterclass (1000)



TEST: FMVSS 208 SLED (H02176)

TEST DATE: 07-09-2002

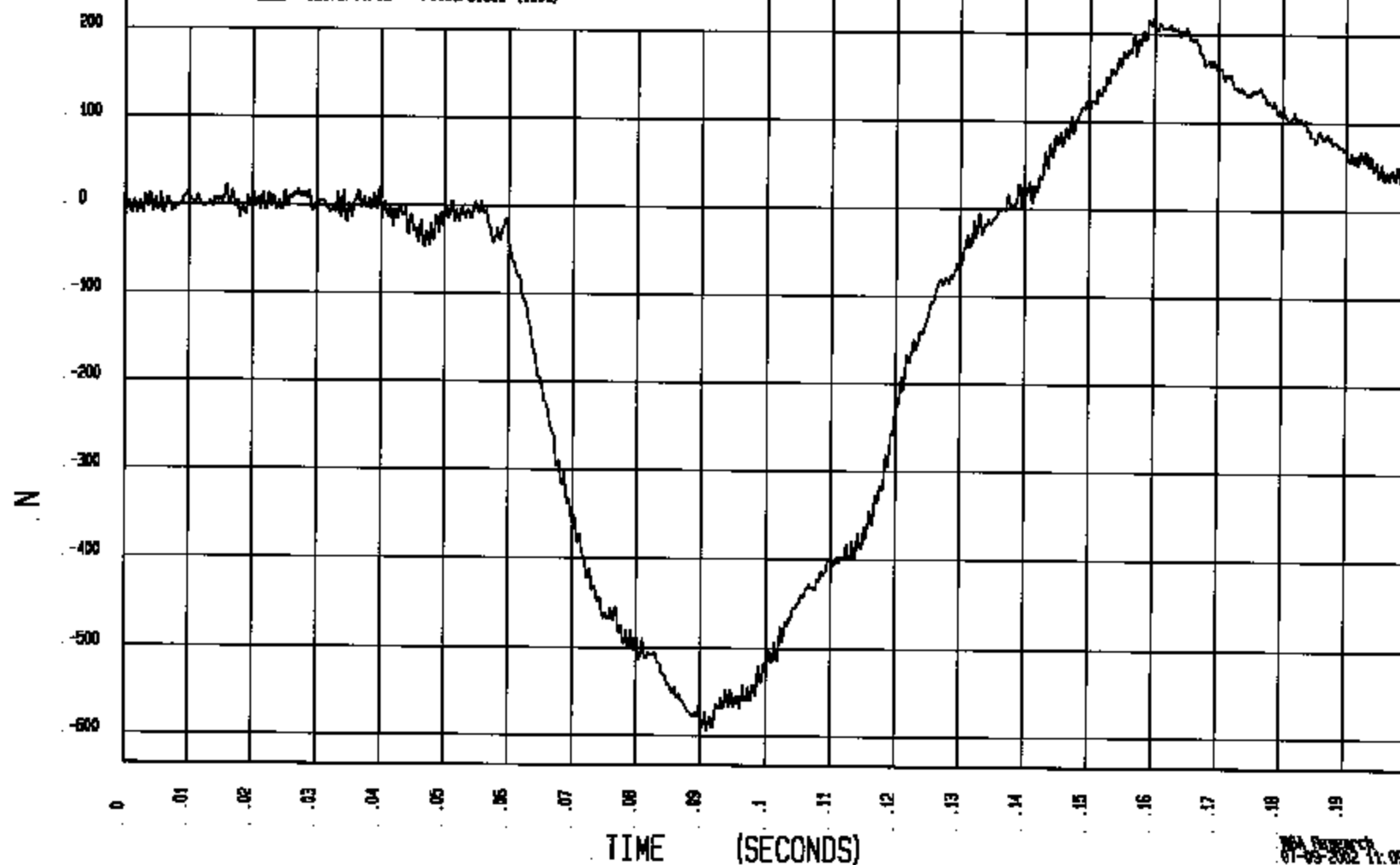
COMPONENT: 2002 VOLKSWAGEN NEW BEETLE (C25001)

Minimum = -593.73 N at 91 msec

Maximum = 219.08 N at 160 msec

DRIVER NECK FORCE X

1 H02176T.F12 Filterclass (3090)



TEST: FMVSS 208 SLED (H02176)

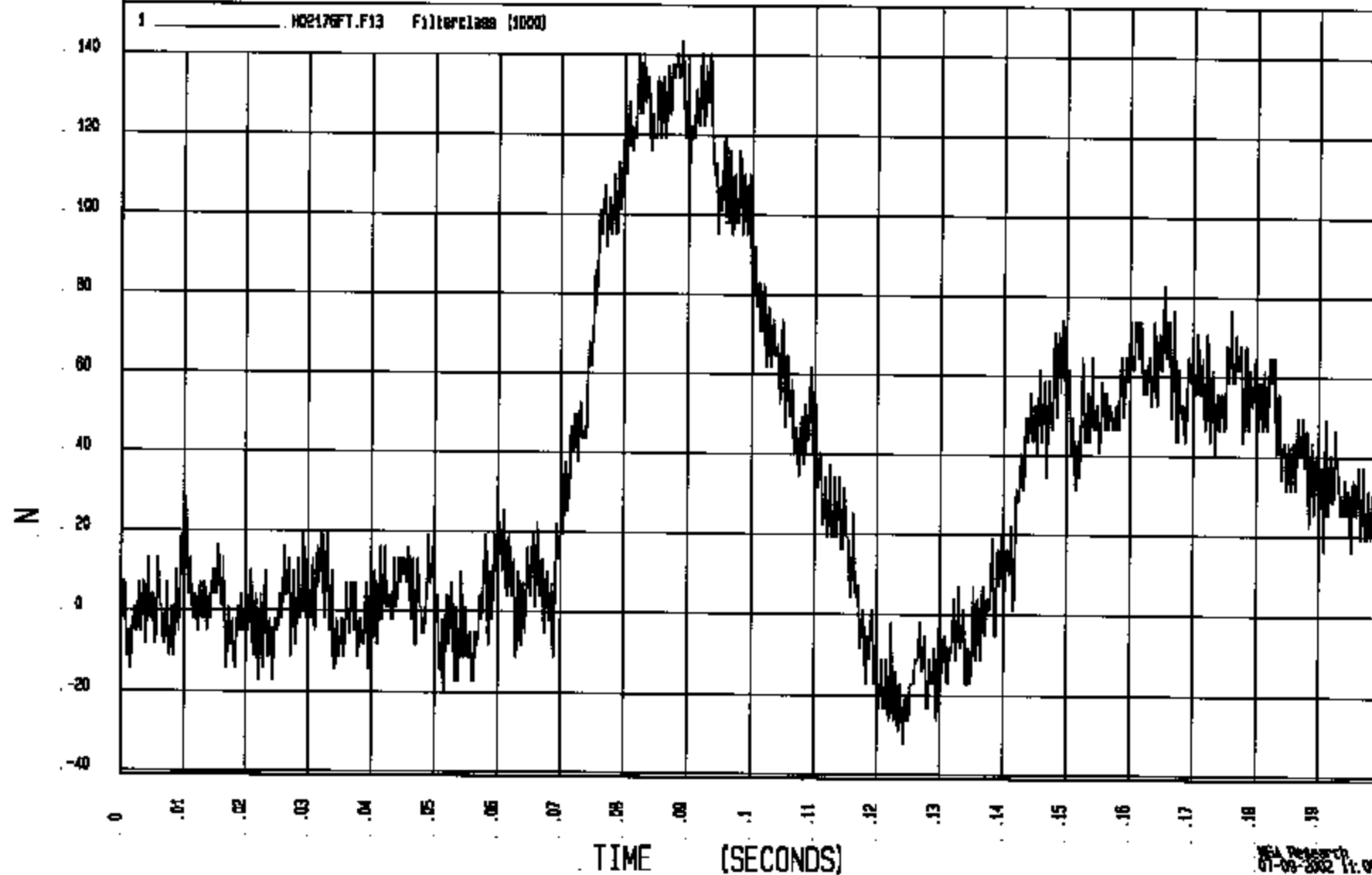
TEST DATE: 07-09-2002

COMPONENT: 2002 VOLKSWAGEN NEW BEETLE (C25801)

Minimum = -32.24 N at 124 msec

Maximum = 143.57 N at 89 msec

DRIVER NECK FORCE Y



TEST: FMVSS 208 SLED (H02176)

TEST DATE: 07-09-2002

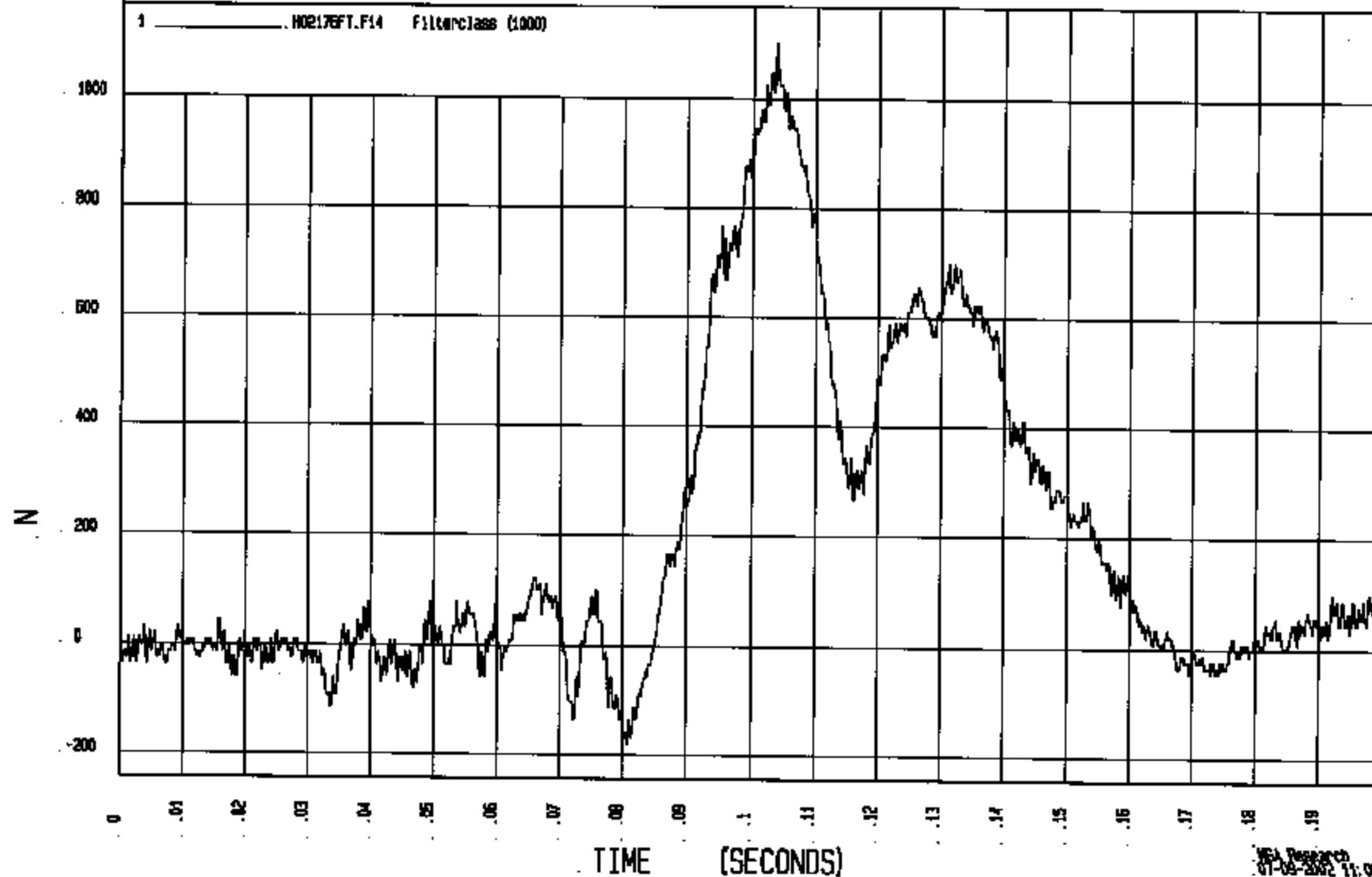
COMPONENT: 2002 VOLKSWAGEN NEW BEETLE (C25804)

Minimum = -179.84 N at 81 msec

Maximum = 1102.65 N at 104 msec

DRIVER NECK FORCE Z

1 H02176FT.F14 FilterClass (1000)



MSA Research
07-09-2002 11:09

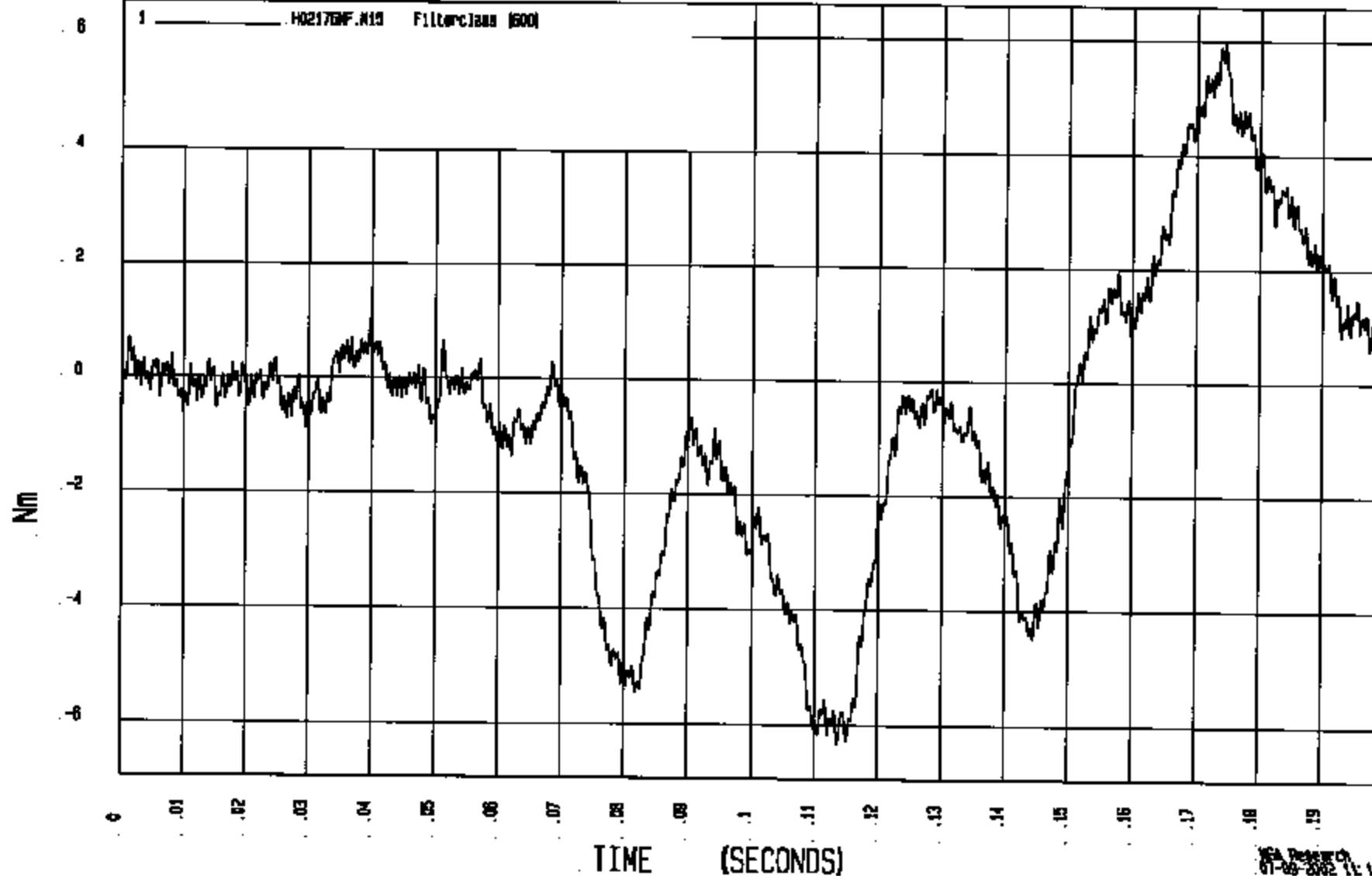
TEST DATE: 07-09-2002

Minimum = -6.34 Nm at 114 msdc

Maximum = 5.96 Km at 174 msec

DRIVER NECK MOMENT X

1 _____ H0217ENF.M19 Filterc)aus (500)



TEST: FMVSS 208 SLED (H02176)

TEST DATE: 07-09-2002

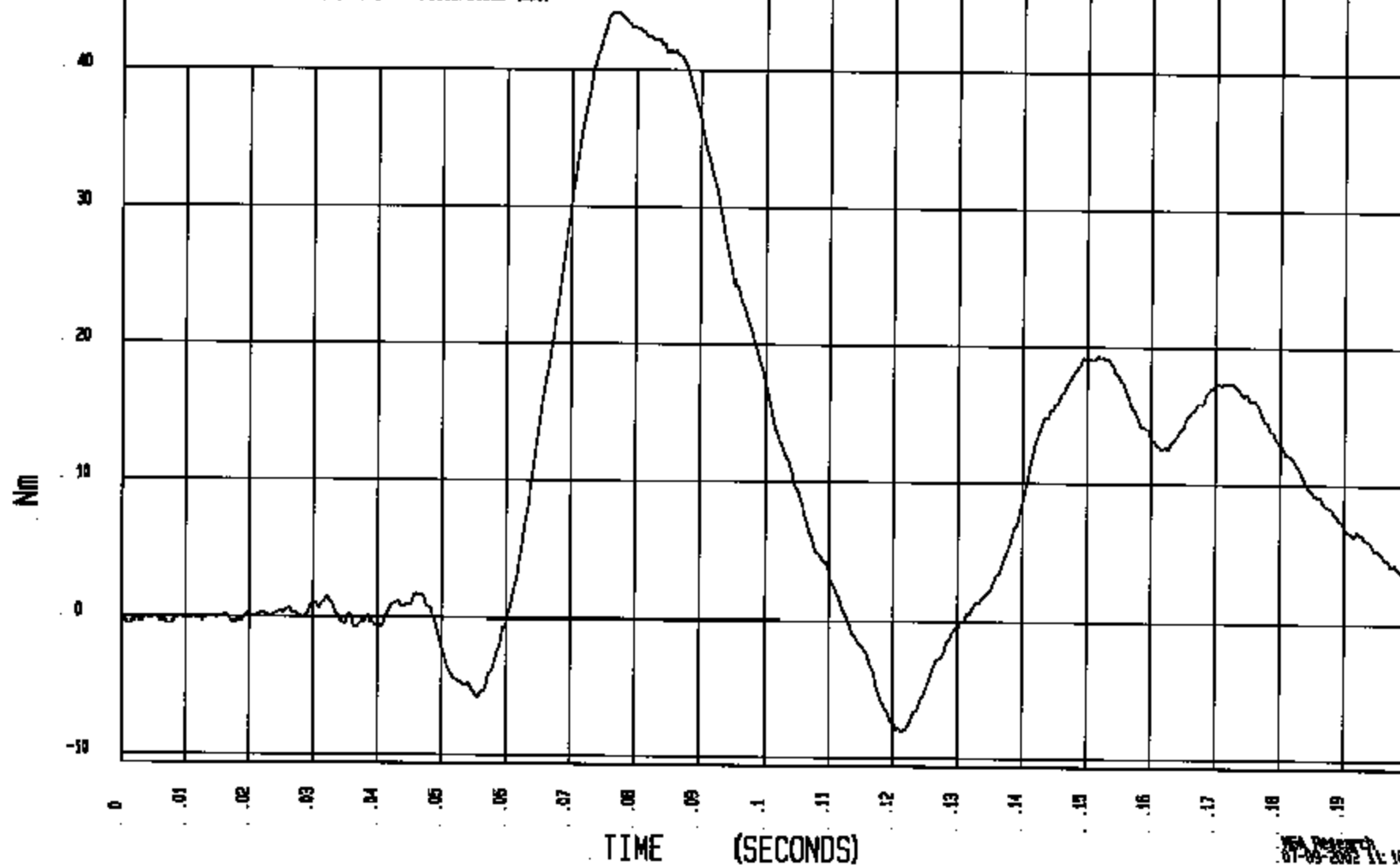
COMPONENT: 2002 VOLKSWAGEN NEW BEETLE (C25801)

Minimum = -8.01 Nm at 121 msec

Maximum = 44.22 Nm at 76 msec

DRIVER NECK MOMENT Y

1 H02176F.M17 Filterclass (500)



TEST: FMVSS 208 SLED (H02176)

TEST DATE: 07-09-2002

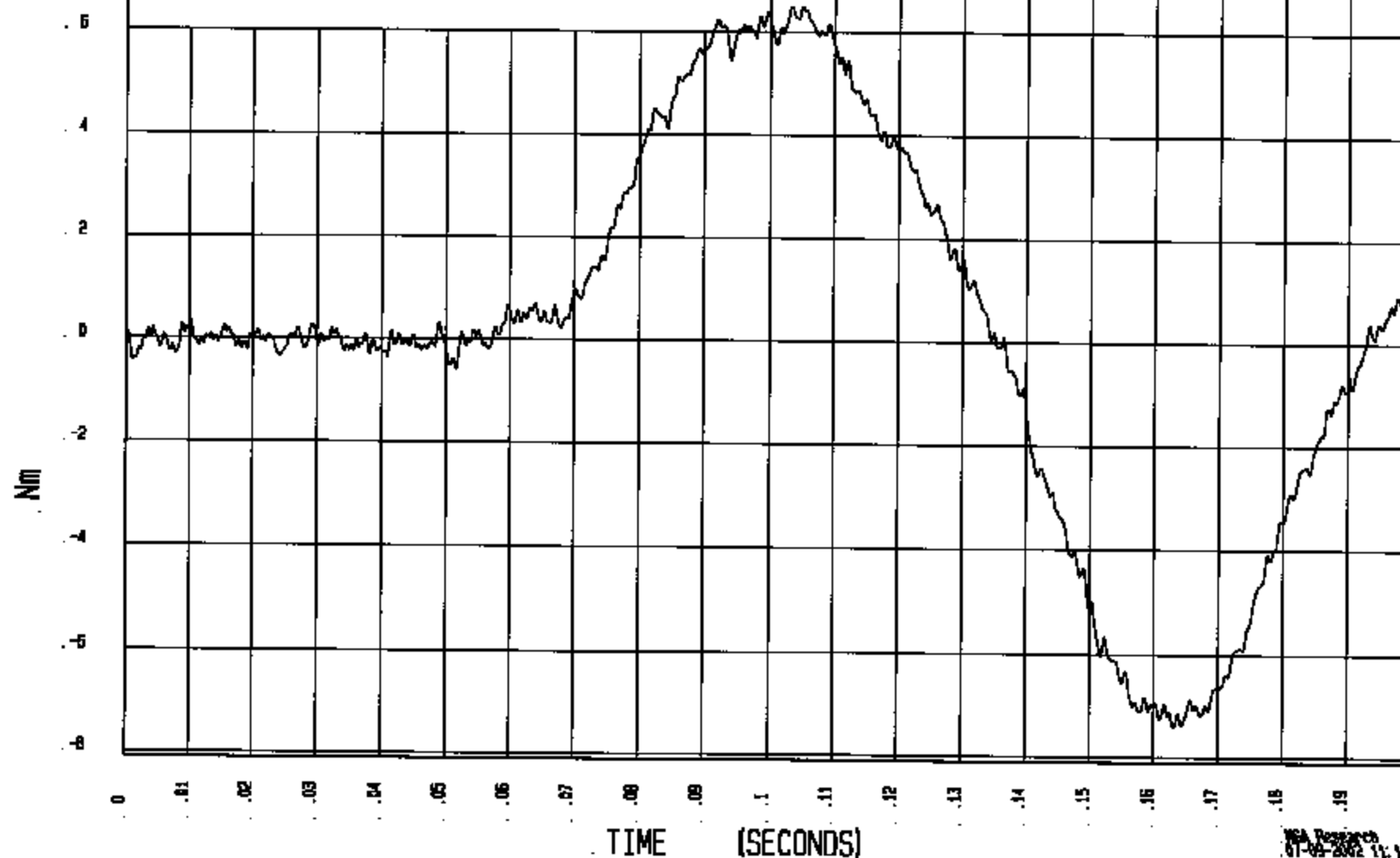
COMPONENT: 2002 VOLKSWAGEN NEW BEETLE (C25801)

Minimum = -7.41 Nm at 163 msec

Maximum = 6.5 Nm at 103 msec

DRIVER NECK MOMENT Z

1 H02176MF.M18 Filterclass (500)



NSA Research
07-09-2002 11:10

TEST: FMVSS 208 SLED (H02176)

TEST DATE: 07-09-2002

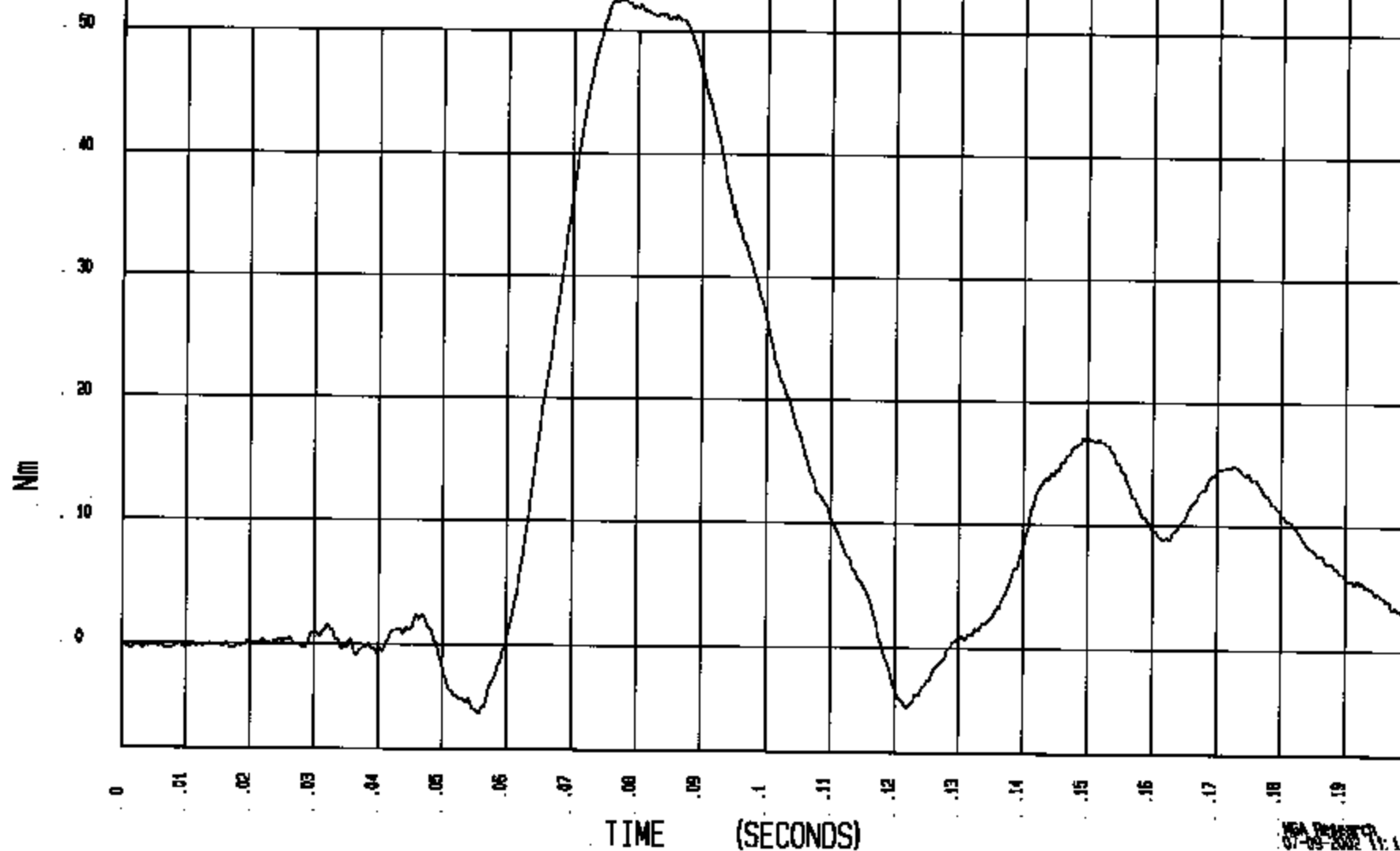
COMPONENT: 2002 VOLKSWAGEN NEW BEETLE (C25801)

Minimum = -5.68 Nm at 56 msec

Maximum = 52.7 Nm at 77 msec

DRIVER OCCIPITAL CONDYLE MOMENT Y

1 H02176M0.M17 Filterclass (500)



07-09-2002 11:14

TEST: FMVSS 208 SLED (H02176)

TEST DATE: 07-09-2002

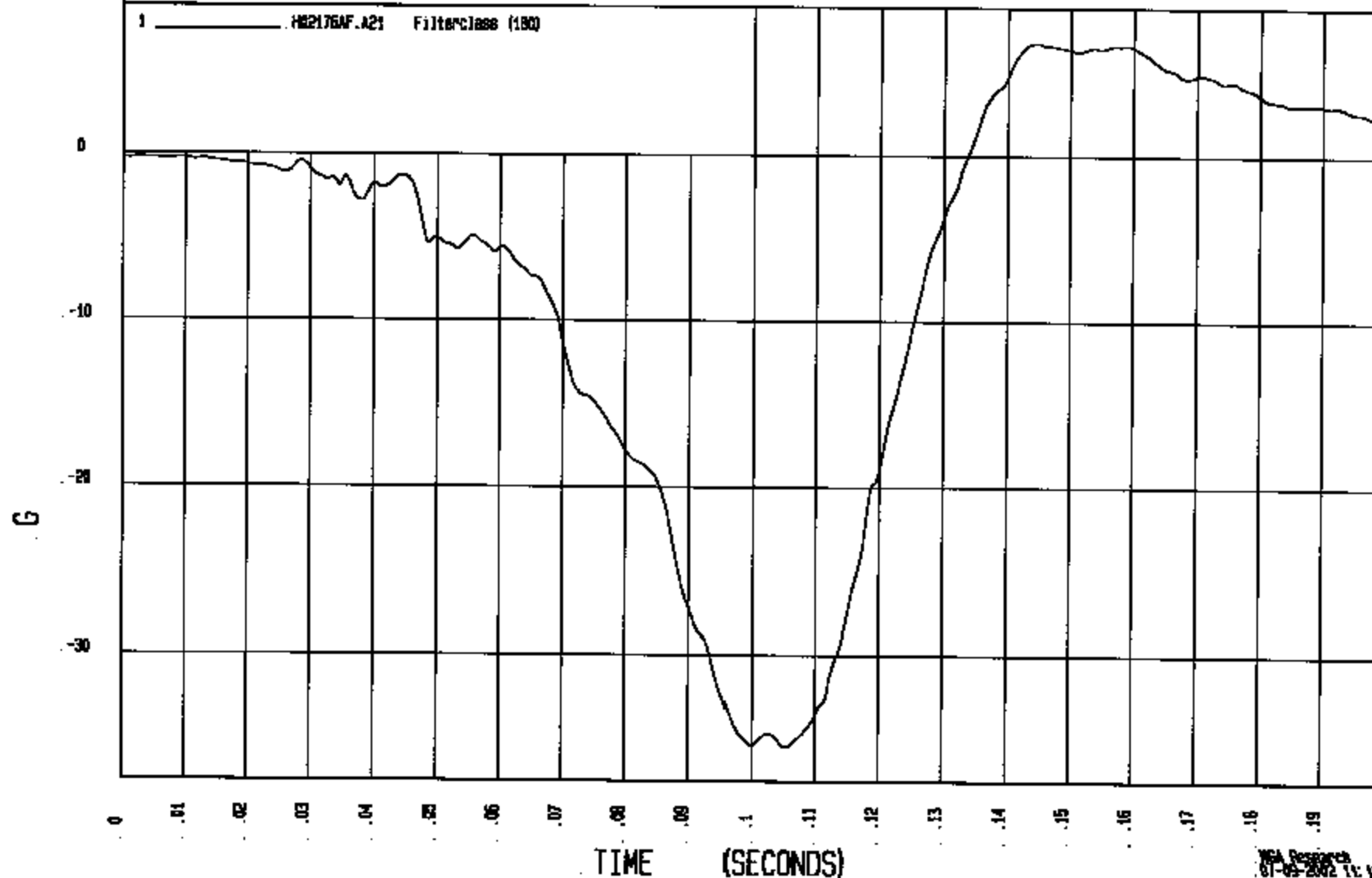
COMPONENT: 2002 VOLKSWAGEN NEW BEETLE (C25801)

Minimum = -35.43 G at 105 msec

Maximum = 6.76 G at 145 msec

DRIVER CHEST X ACCELERATION

1 H02176AF.A21 FilterClass (180)



TEST: FMVSS 208 SLED (H02176)

TEST DATE: 07-09-2002

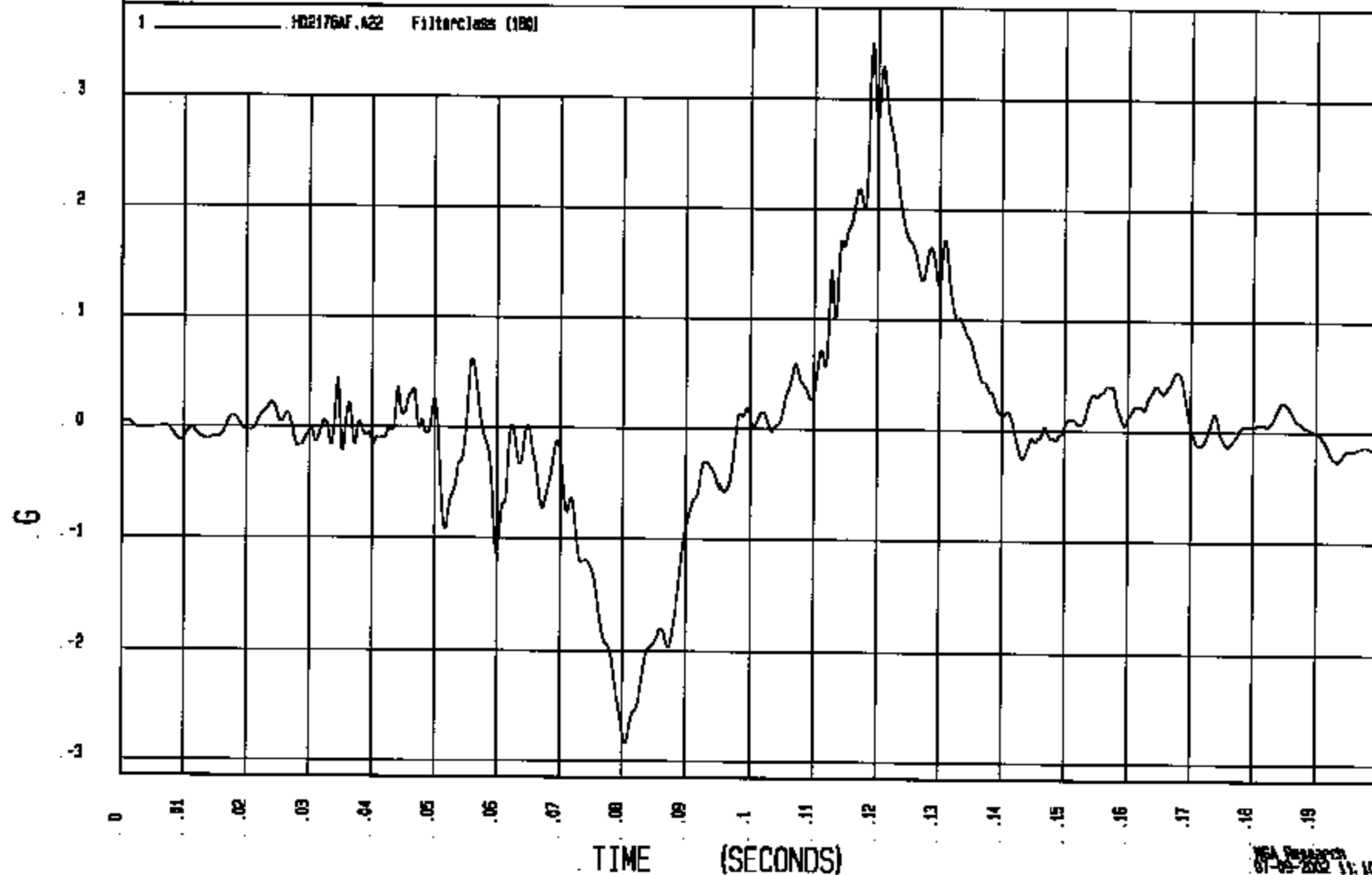
COMPONENT: 2002 VOLKSWAGEN NEW BEETLE (C25801)

Minimum = -2.83 G at 80 msec

Maximum = 3.5 G at 119 msec

DRIVER CHEST Y ACCELERATION

1 H02176AF.A22 Filterclass (180)



TEST: FMVSS 208 SLED (H02176)

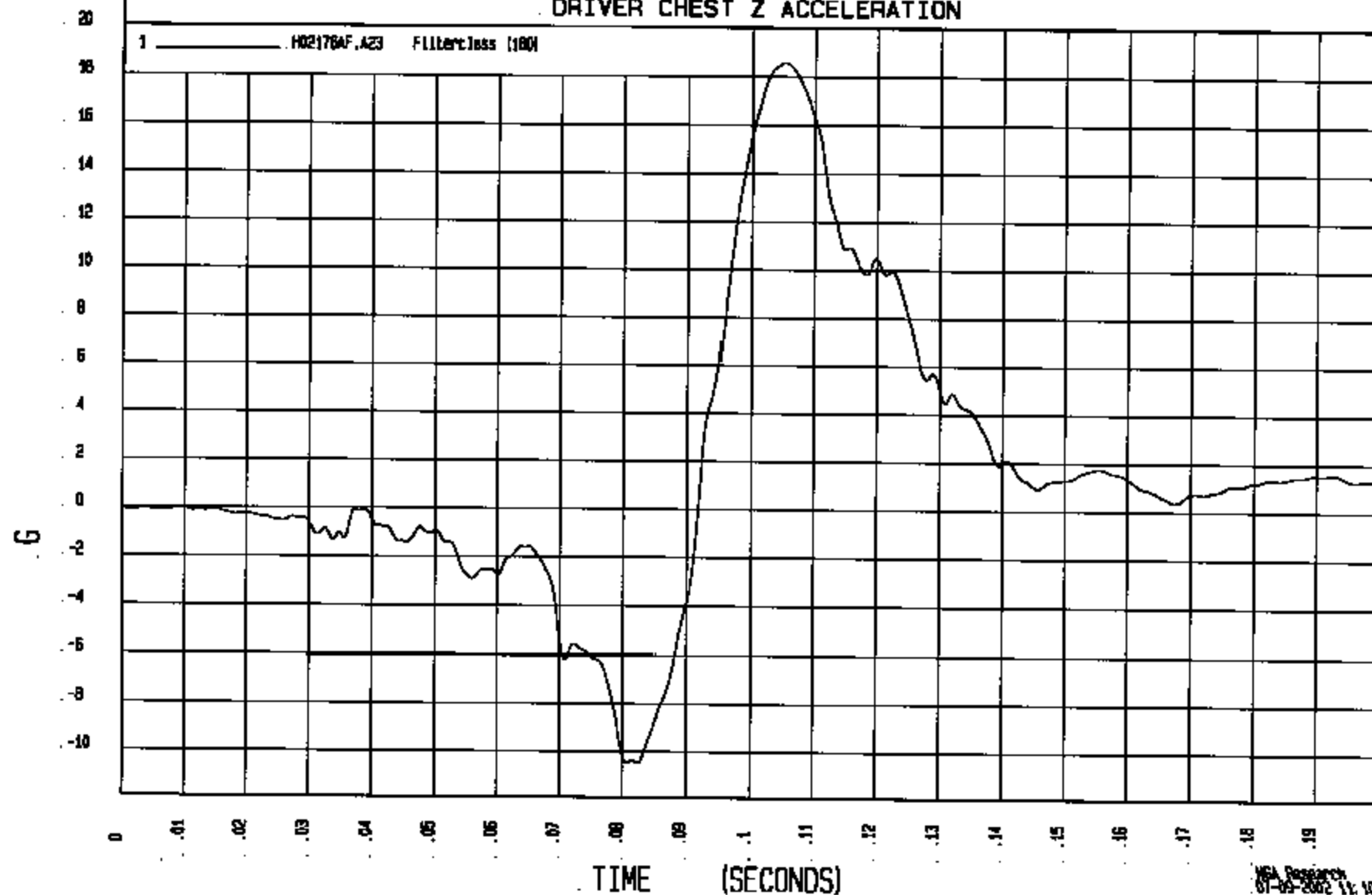
TEST DATE: 07-09-2002

COMPONENT: 2002 VOLKSWAGEN NEW BEETLE (C25801)

Minimum = -10.47 G at 81 msec

Maximum = 18.59 G at 105 msec

DRIVER CHEST Z ACCELERATION



TEST: FMVSS 208 SLED (H02176)

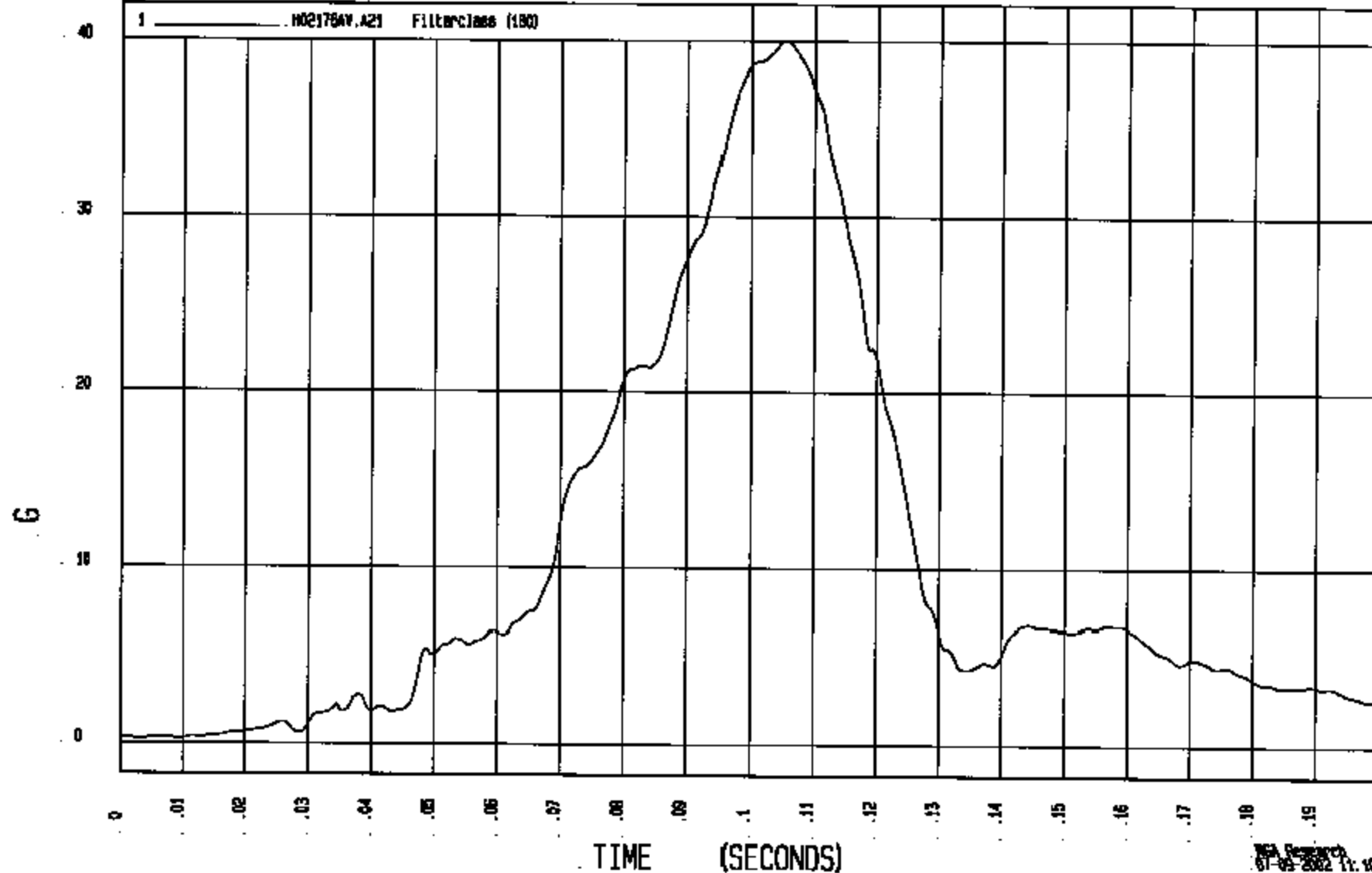
TEST DATE: 07-09-2002

COMPONENT: 2002 VOLKSWAGEN NEW BEETLE (C25801)

Minimum = .22 g at 3 msec

Maximum = 40.07 g at 105 msec

DRIVER CHEST RESULTANT ACCELERATION



TEST: FMVSS 208 SLED (H02176)

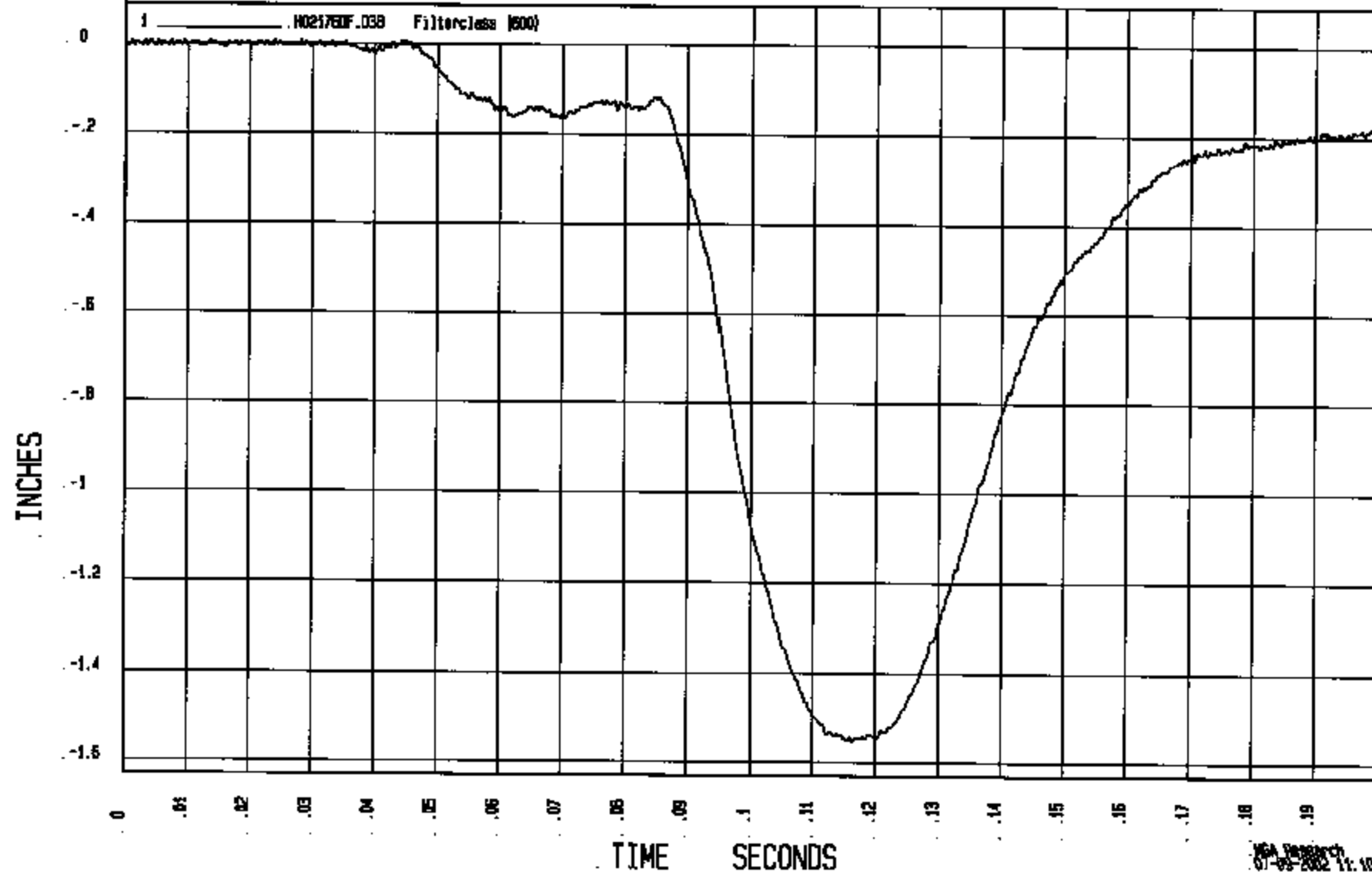
TEST DATE: 07-09-2002

COMPONENT: 2002 VOLKSWAGEN NEW BEETLE (C25801)

Minimum = -1.55 INCHES at 116 msec

Maximum = 0.66E-03 INCHES at 24 msec

DRIVER CHEST COMPRESSION



TEST: FMVSS 208 SLED (H02176)

TEST DATE: 07-09-2002

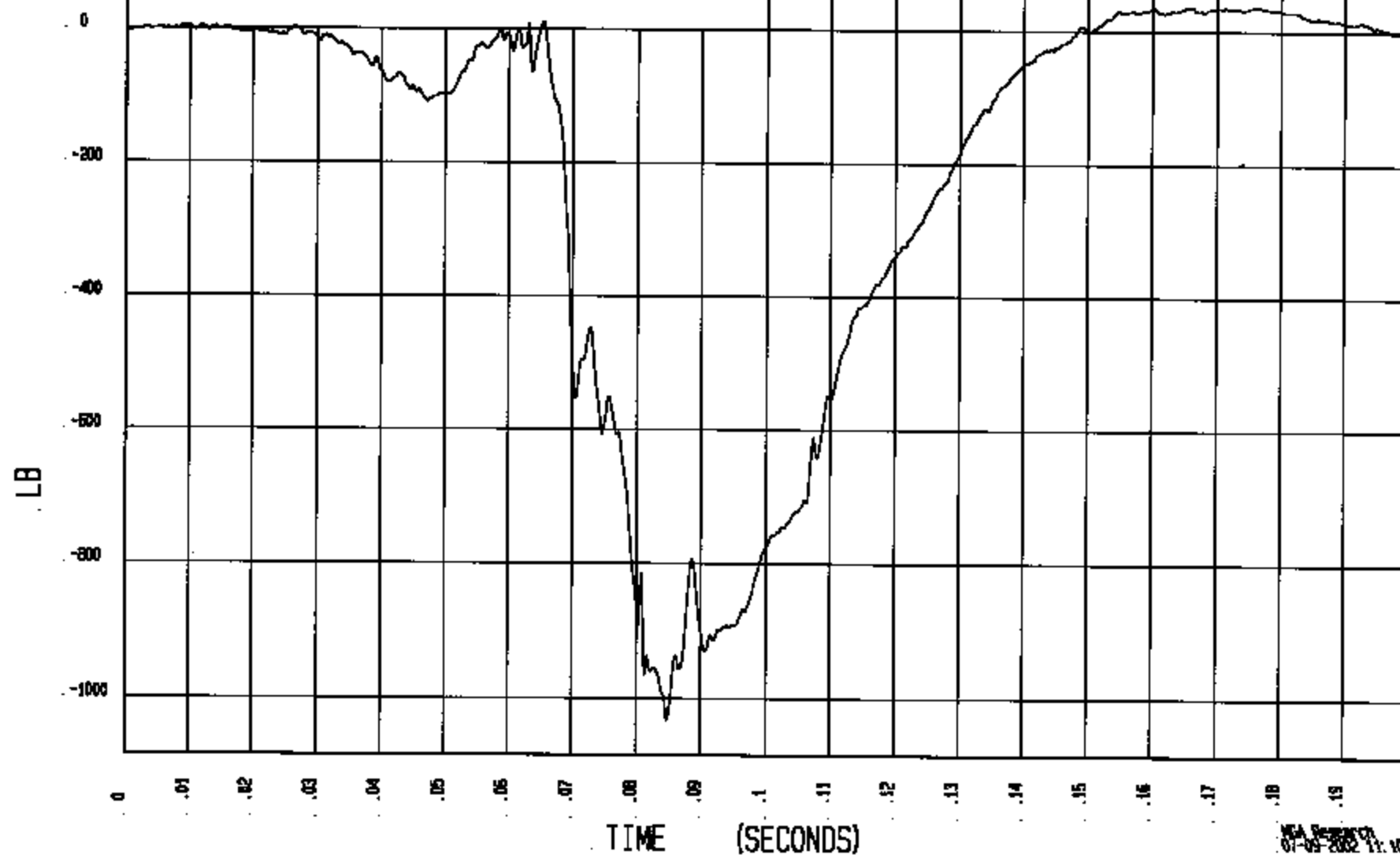
COMPONENT: 2002 VOLKSWAGEN NEW BEETLE (C25801)

Minimum = -1032.25 LB at 85 msec

Maximum = 37.19 LB at 165 msec

DRIVER LEFT FEMUR FORCE

1 H02176FF.F41 Filterclass (000)



TEST: FMVSS 208 SLED (H02176)

TEST DATE: 07-09-2002

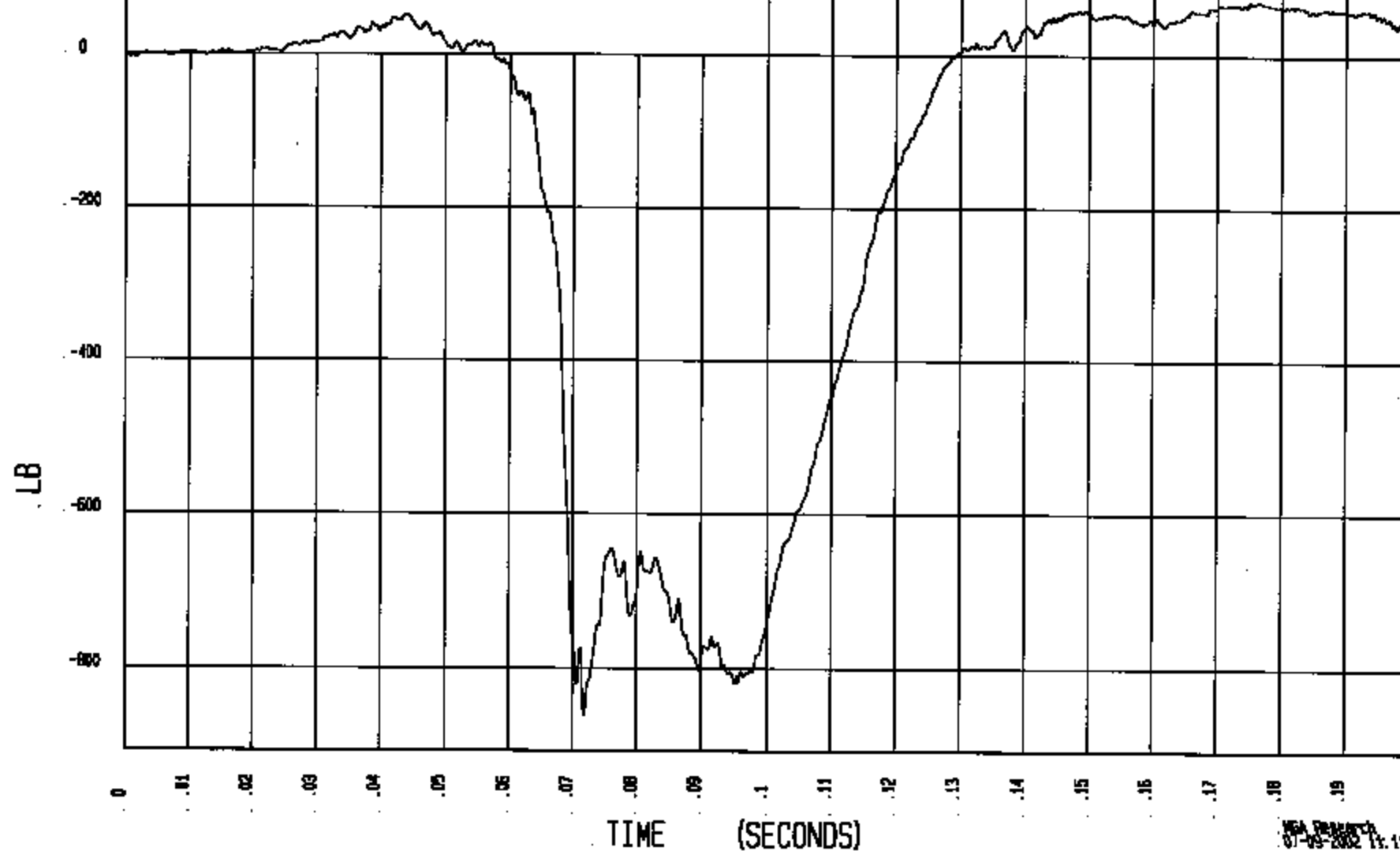
COMPONENT: 2002 VOLKSWAGEN NEW BEETLE (C25801)

Minimum = -852.02 LB at 72 msec

Maximum = 71.65 LB at 176 msec

DRIVER RIGHT FEMUR FORCE

1 H02176FF.F43 Filter:less (800)



TEST: FMVSS 208 SLED (H02176)

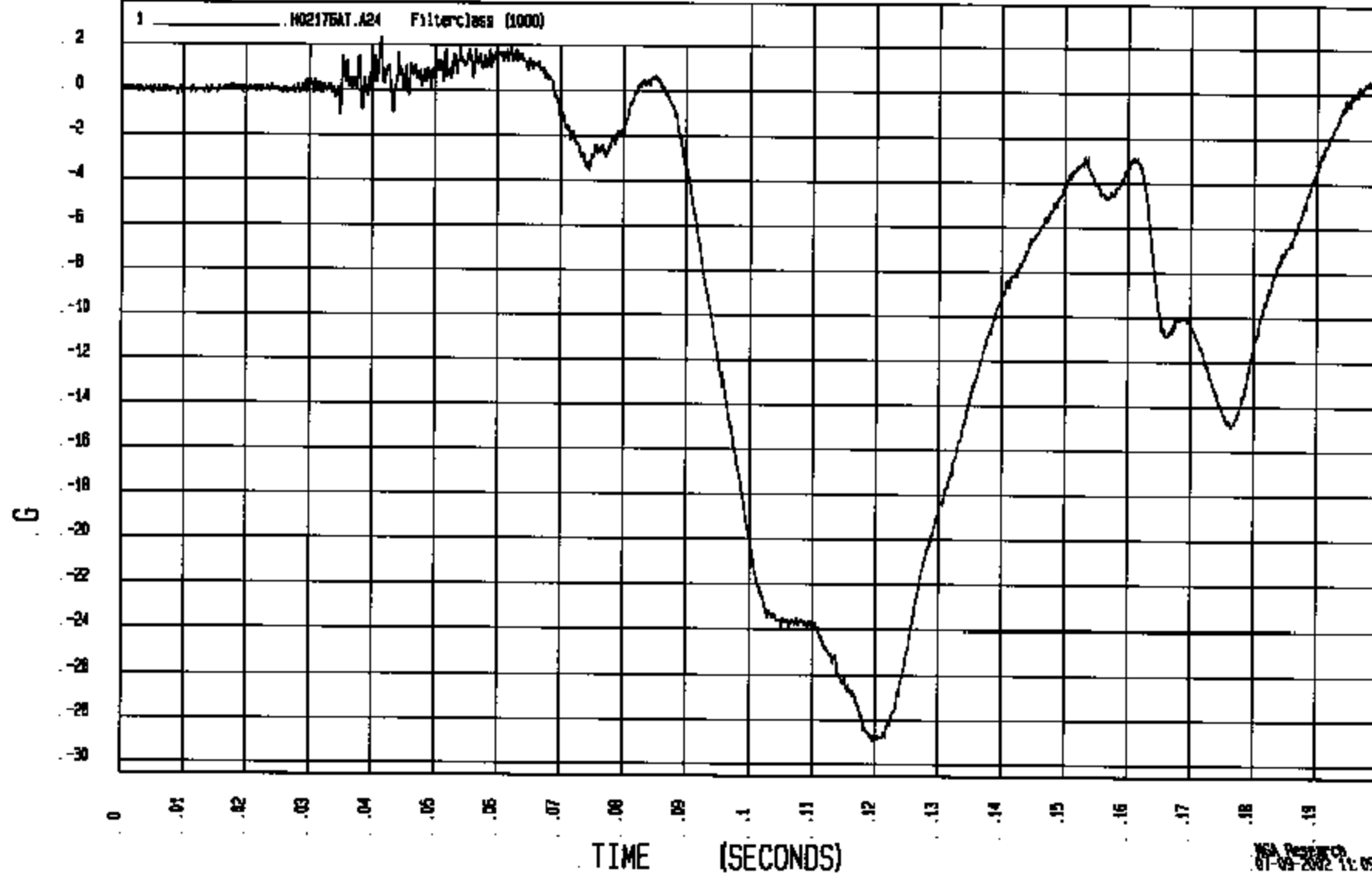
TEST DATE: 07-09-2002

COMPONENT: 2002 VOLKSWAGEN NEW BEETLE (C25801)

Minimum = -28.97 G at 1.20 msec

Maximum = 2.33 G at 41 msec

PASSENGER HEAD X ACCELERATION



TEST: FMVSS 208 SLED (H02176)

TEST DATE: 07-09-2002

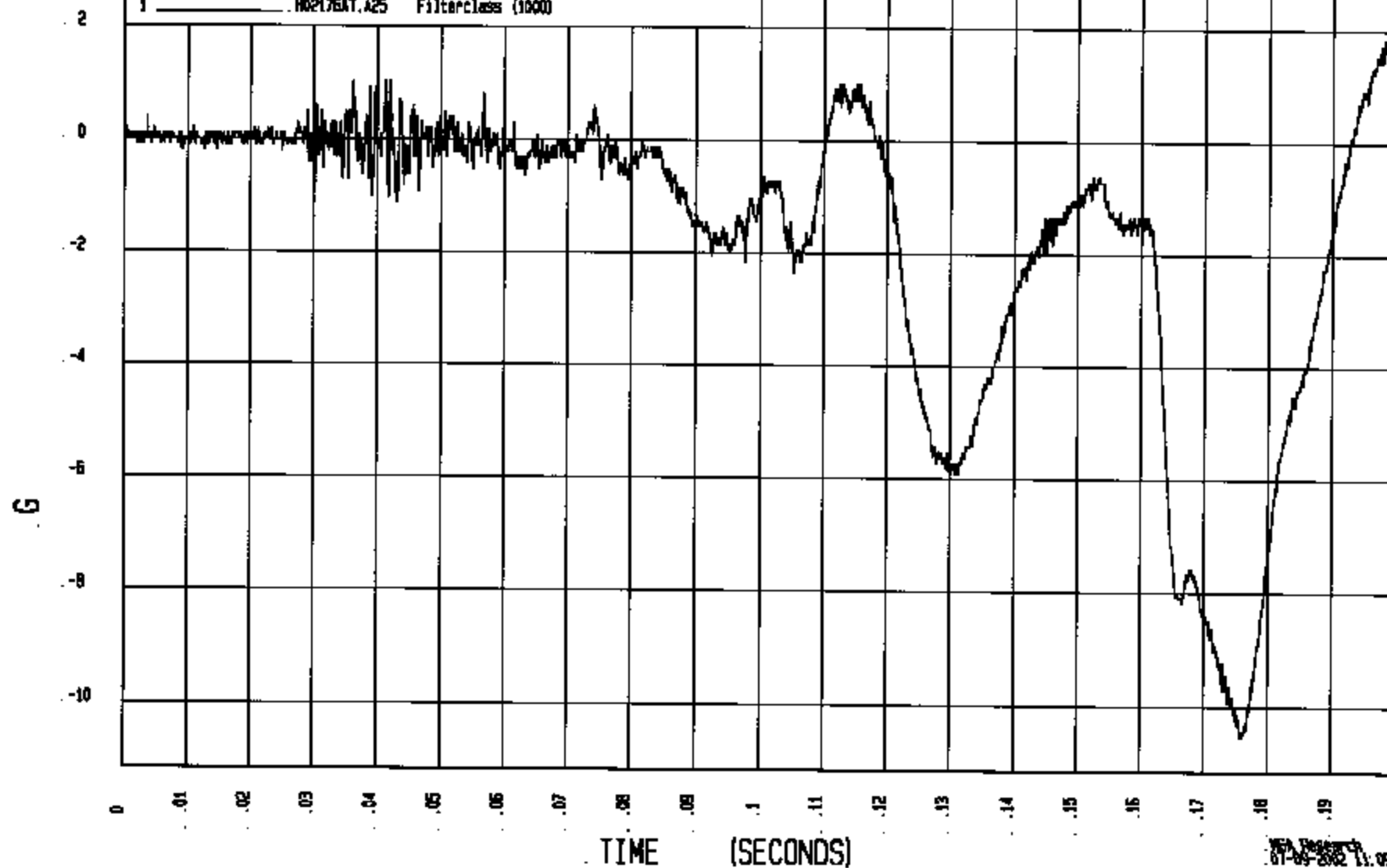
COMPONENT: 2002 VOLKSWAGEN NEW BEETLE (C25801)

Minimum = -10.54 G at 176 msec

Maximum = 2.04 G at 200 msec

PASSENGER HEAD Y ACCELERATION

1 H02176AT.A25 Filterclass (1000)



TEST: FMVSS 208 SLED (H02176)

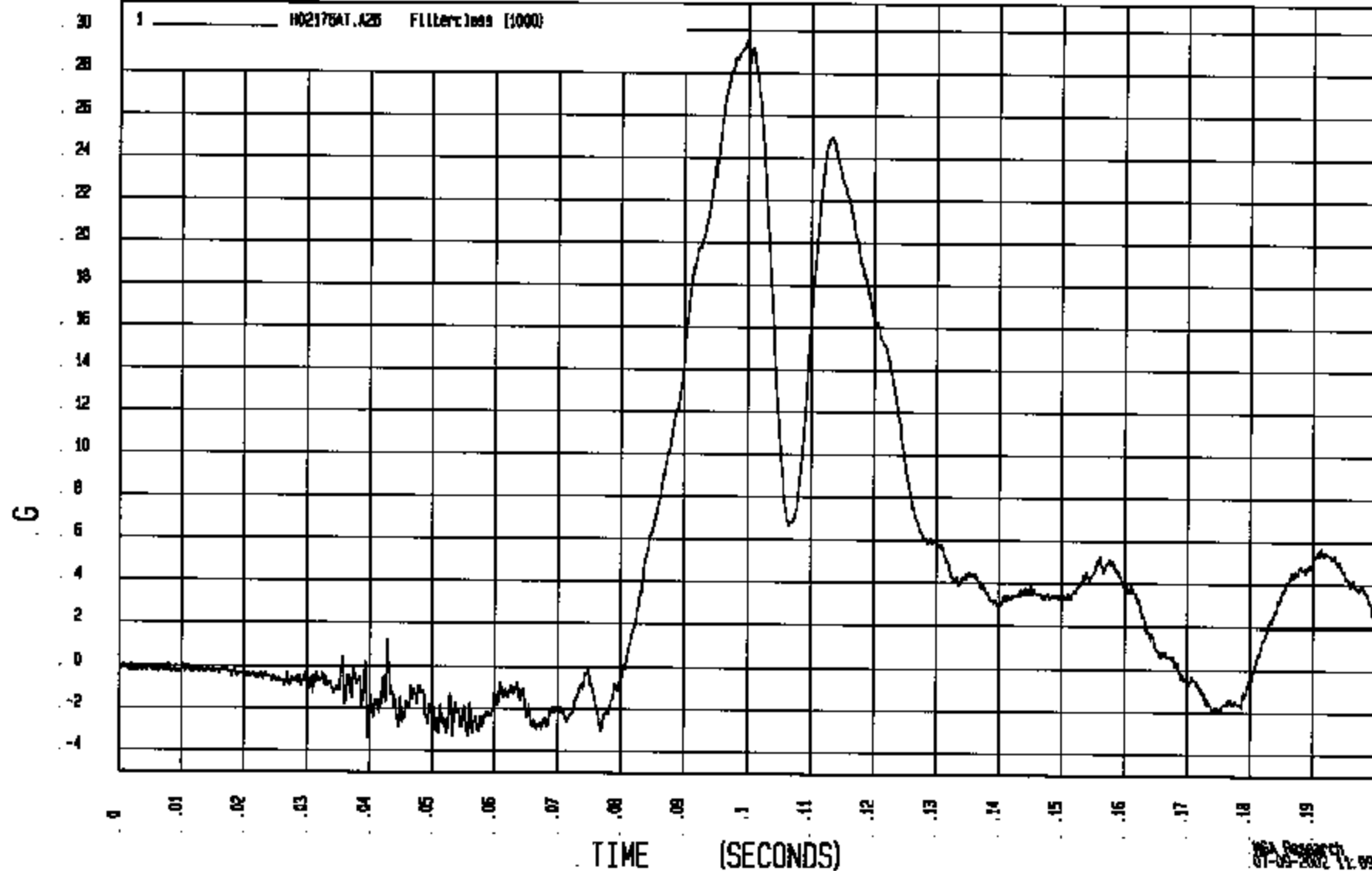
TEST DATE: 07-09-2002

COMPONENT: 2002 VOLKSWAGEN NEW BEETLE (C25B01)

Minimum = -3.38 G at 40 msec

Maximum = 29.6 G at 100 msec

PASSENGER HEAD Z ACCELERATION



TEST: FMVSS 208 SLED (H02176)

TEST DATE: 07-09-2002

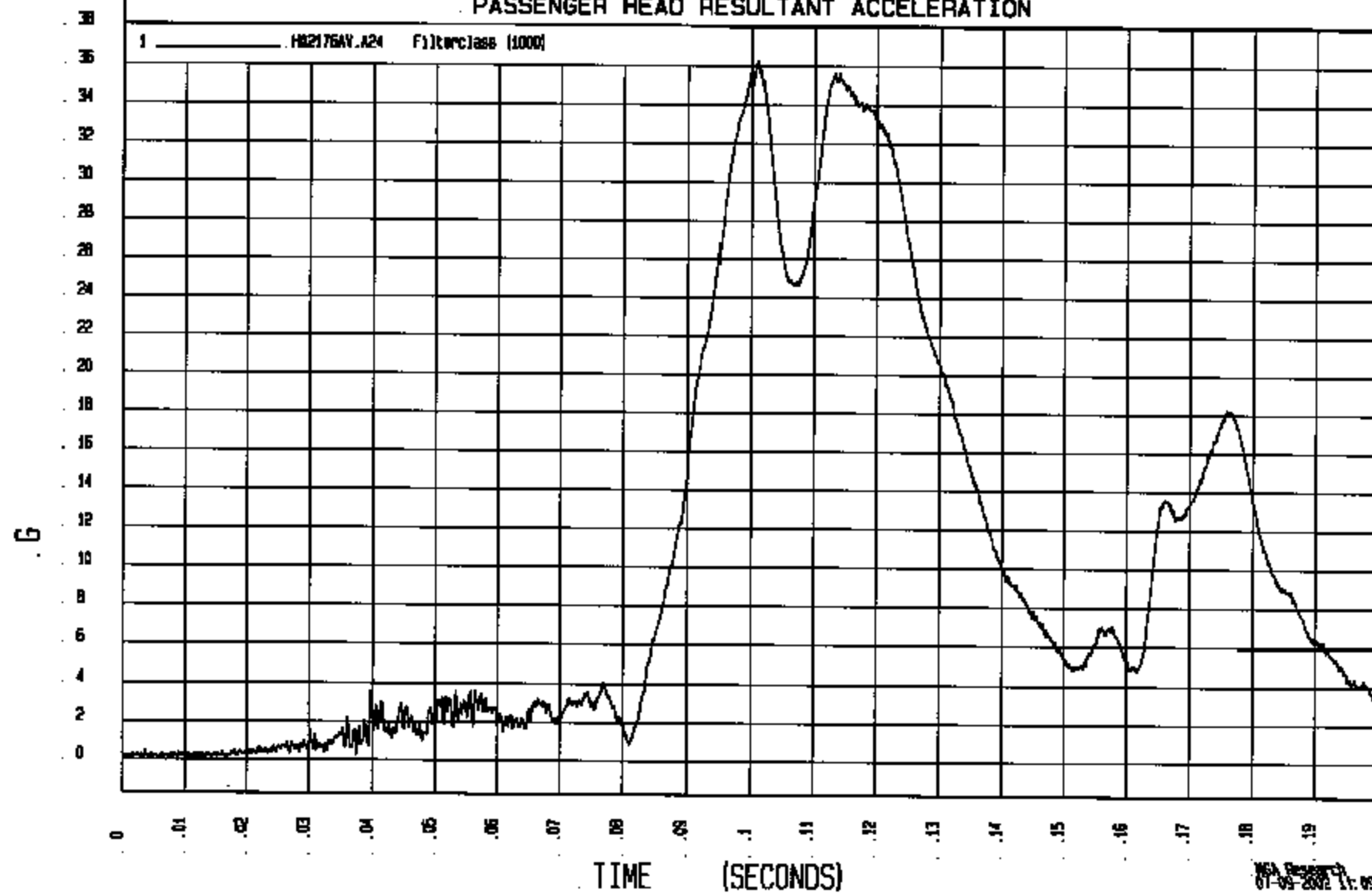
COMPONENT: 2002 VOLKSWAGEN NEW BEETLE (C25801)

Minimum = $5.50E-02$ g at 3 msec

Maximum = 35.27 g at 101 msec

PASSENGER HEAD RESULTANT ACCELERATION

1 H02176AV.A24 Filterclass (1000)



TEST: FMVSS 208 SLED (H02176)

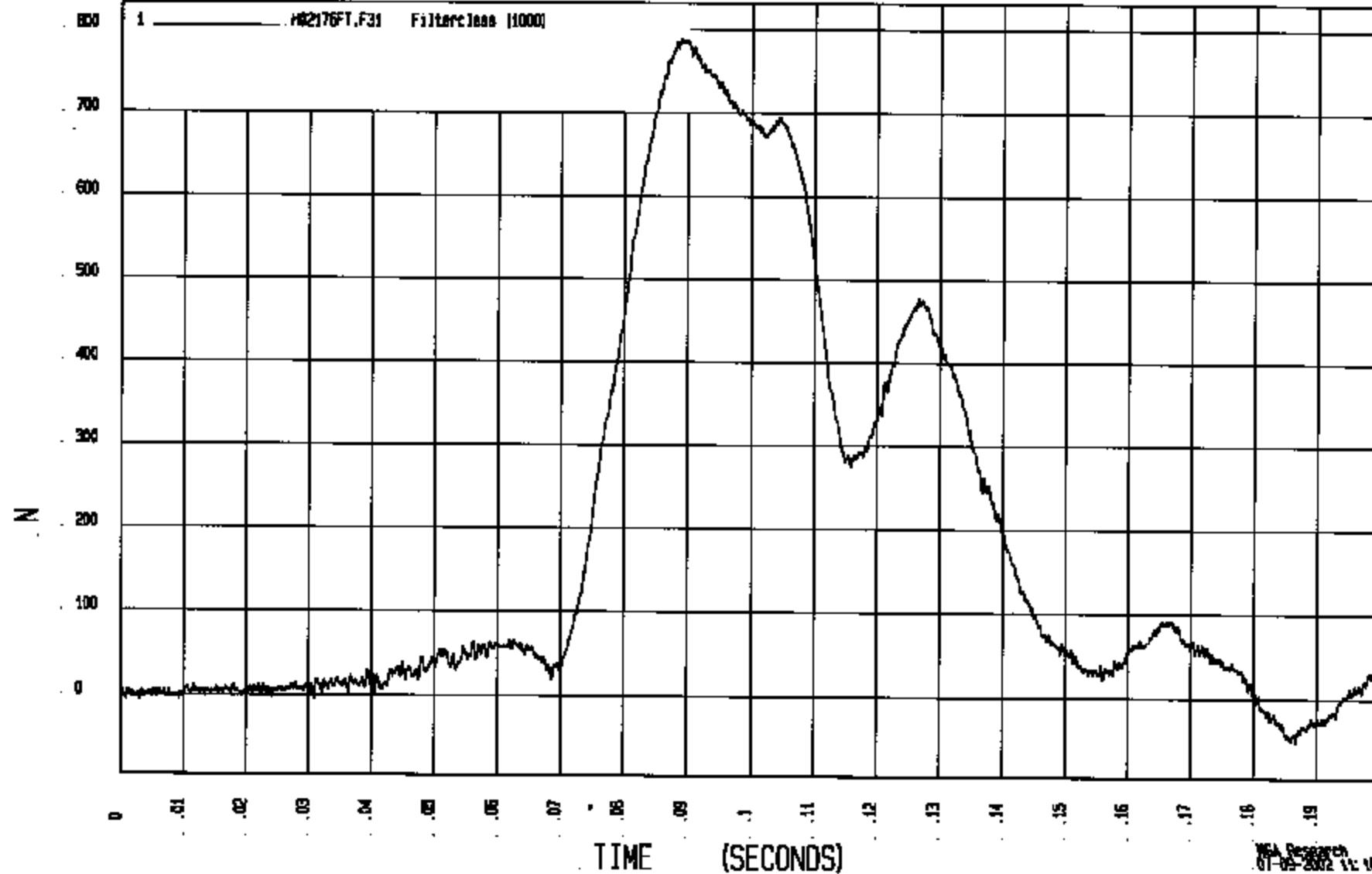
TEST DATE: 07-09-2002

COMPONENT: 2002 VOLKSWAGEN NEW BEETLE (C25801)

Minimum = -54.15 N at 187 msec

Maximum = 789.01 N at 88 msec

PASSENGER NECK FORCE X



TEST: FMVSS 208 SLED (H02176)

TEST DATE: 07-09-2002

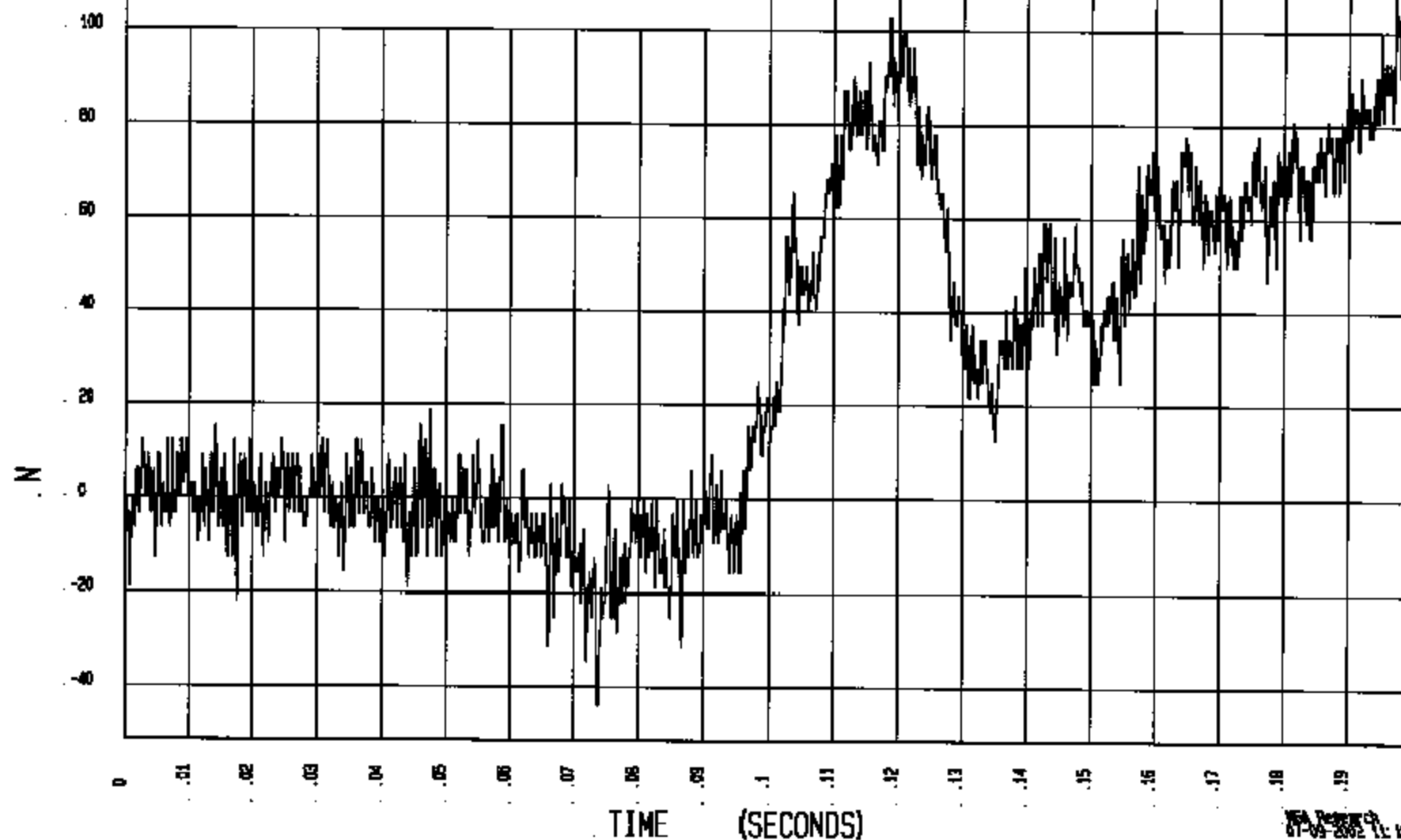
COMPONENT: 2002 VOLKSWAGEN NEW BEETLE (C25801)

Minimum = -43.8 N at 74 msec

Maximum = 109.87 N at 197 msec

PASSENGER NECK FORCE Y

1 H02176FT.F32 FilterClass (1800)



TEST: FMVSS 208 SLED (H02176)

TEST DATE: 07-09-2002

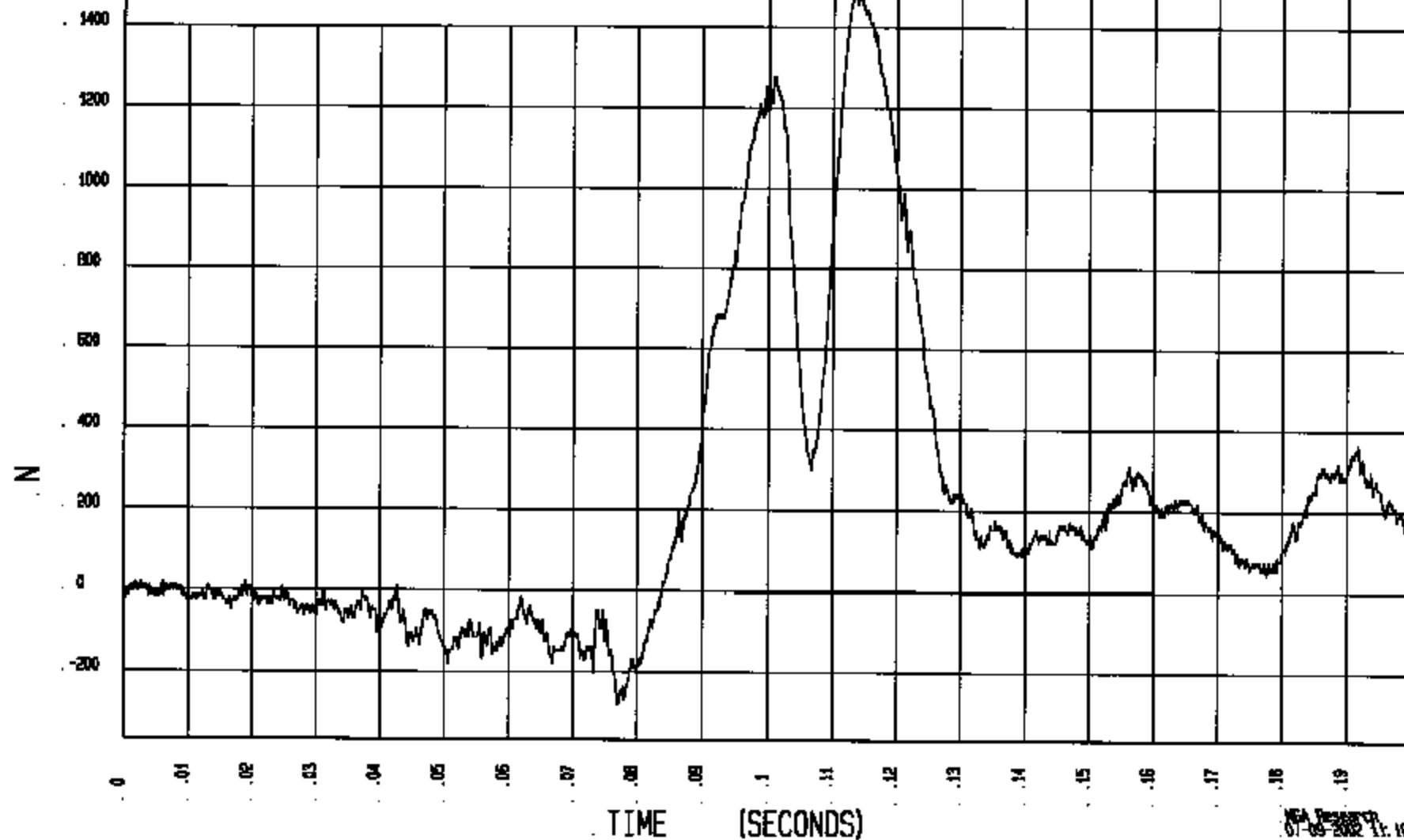
COMPONENT: 2002 VOLKSWAGEN NEW BEETLE (C25801)

Minimum = -280.24 N at 77 msec

Maximum = 1499.58 N at 113 msec

PASSENGER NECK FORCE Z

1 H02176T.F33 Filterclass (1000)



TEST: FMVSS 208 SLED (H02176)

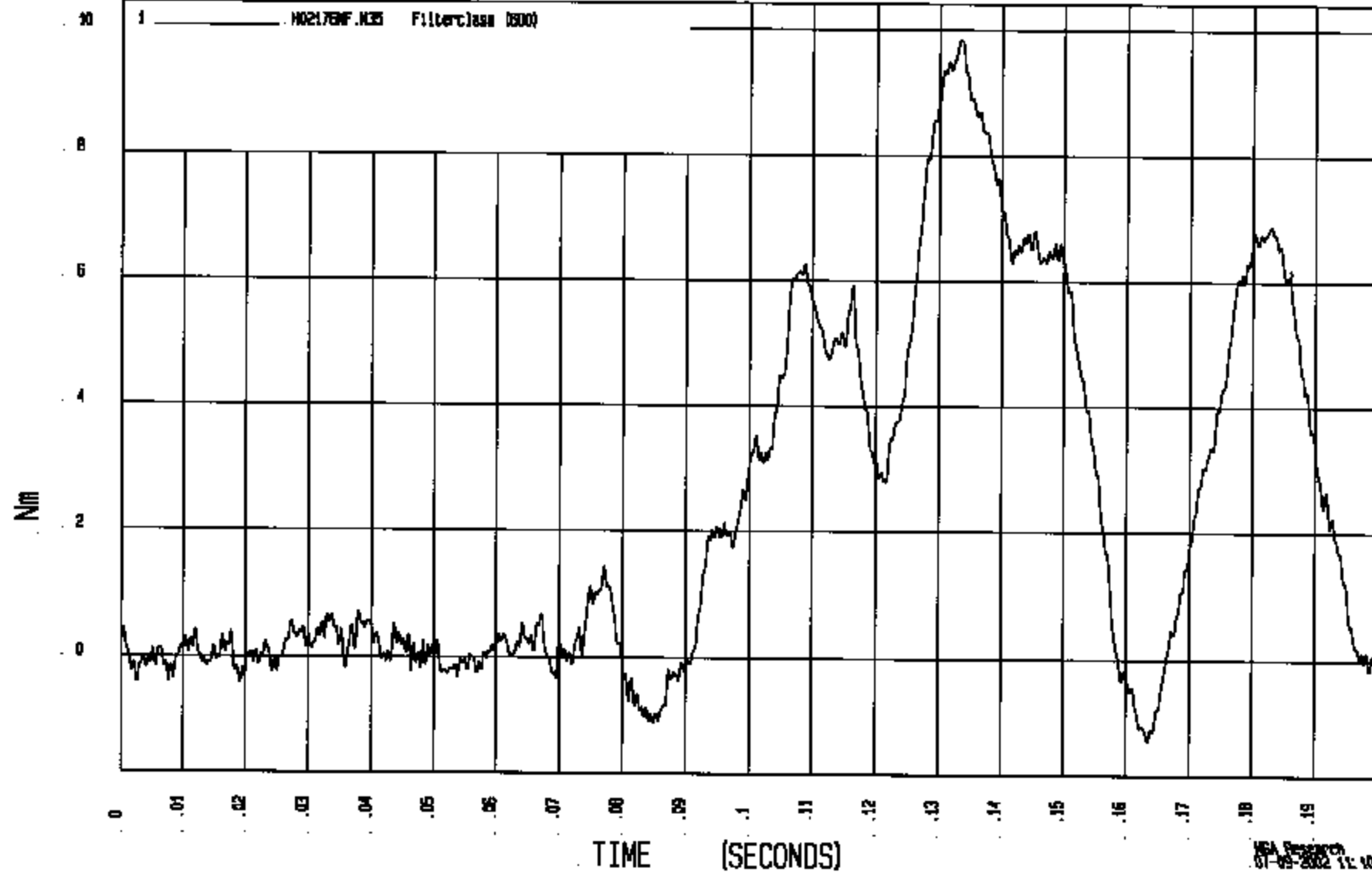
TEST DATE: 07-09-2002

COMPONENT: 2002 VOLKSWAGEN NEW BEETLE (C25801)

Minimum = -1.3 Nm at 163 msec

Maximum = 9.85 Nm at 133 msec

PASSENGER NECK MOMENT X



TEST: FMVSS 208 SLED (H02176)

TEST DATE: 07-09-2002

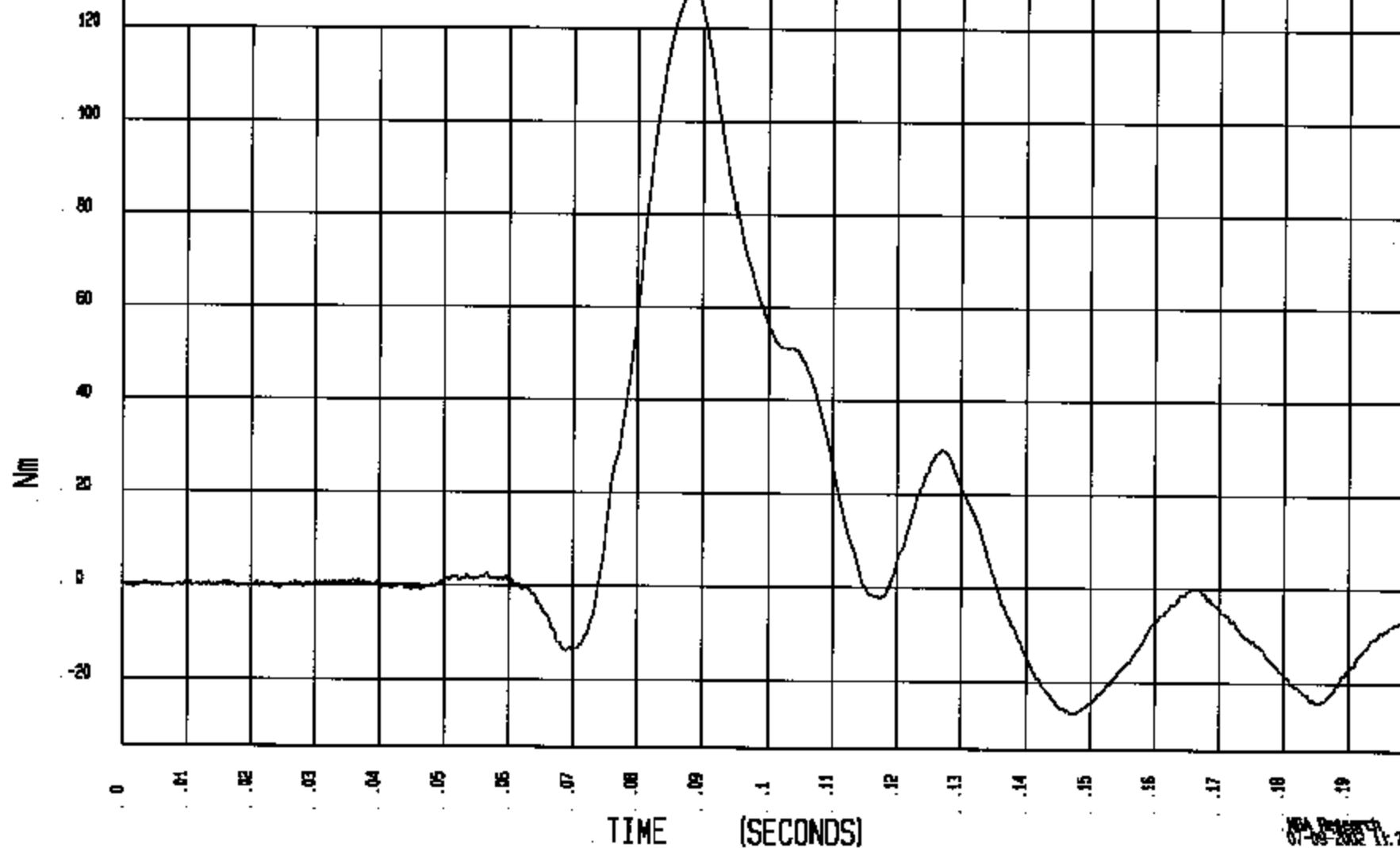
COMPONENT: 2002 VOLKSWAGEN NEW BEETLE (C25B01)

Minimum = -25.84 Nm at .147 msec

Maximum = 127.87 Nm at .09 msec

PASSENGER NECK MOMENT Y

1 H02176F.N37 Filterclass B000



TEST: FMVSS 20B SLED (H02176)

TEST DATE: 07-09-2002

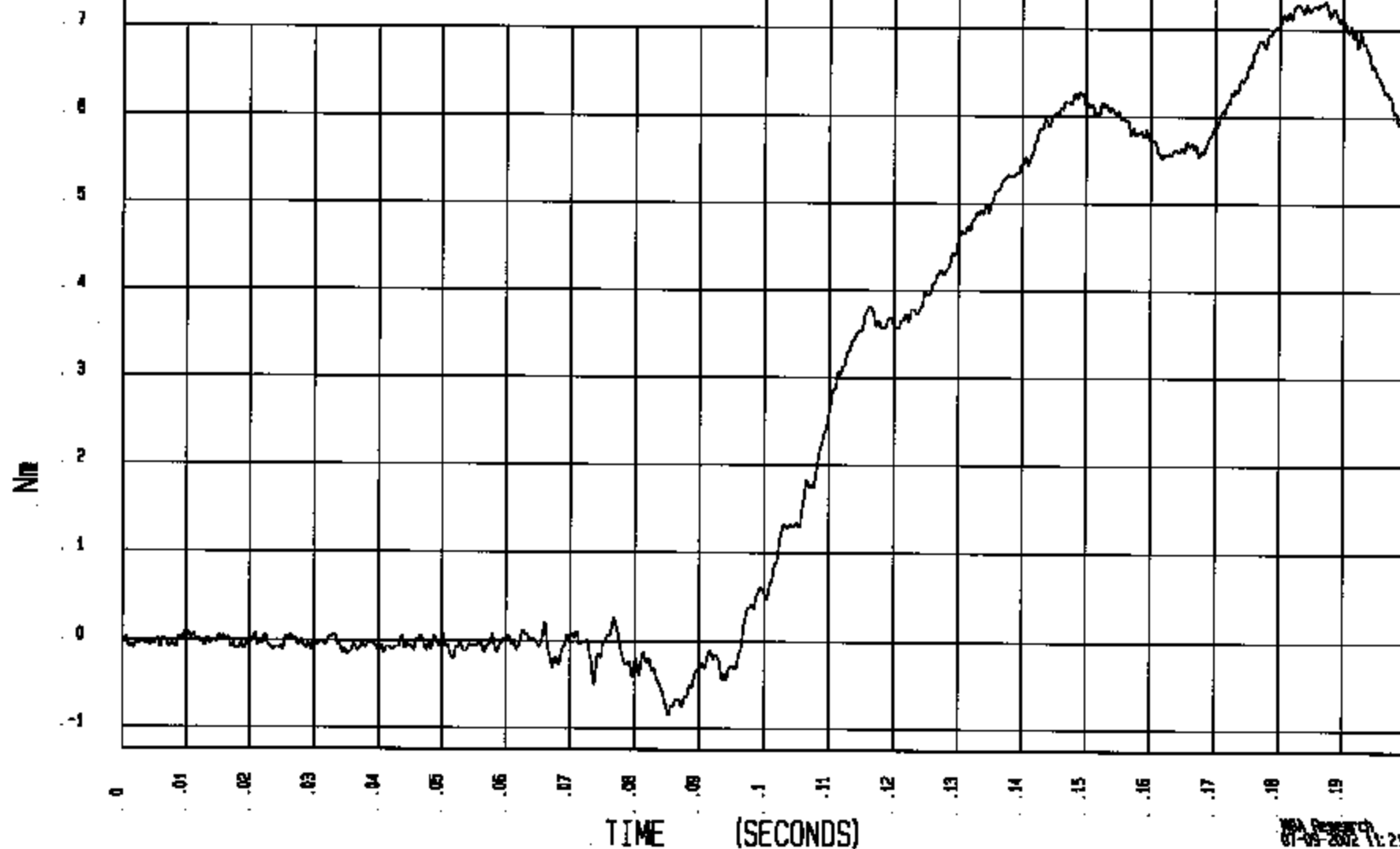
COMPONENT: 2002 VOLKSWAGEN NEW BEETLE (C25B01)

Minimum = -.84 Nm at .05 msec

Maximum = 7.32 Nm at .187 msec

PASSENGER NECK MOMENT Z

1 H02176F.N36 Filter:None (500)



TEST: FMVSS 208 SLED (H02176)

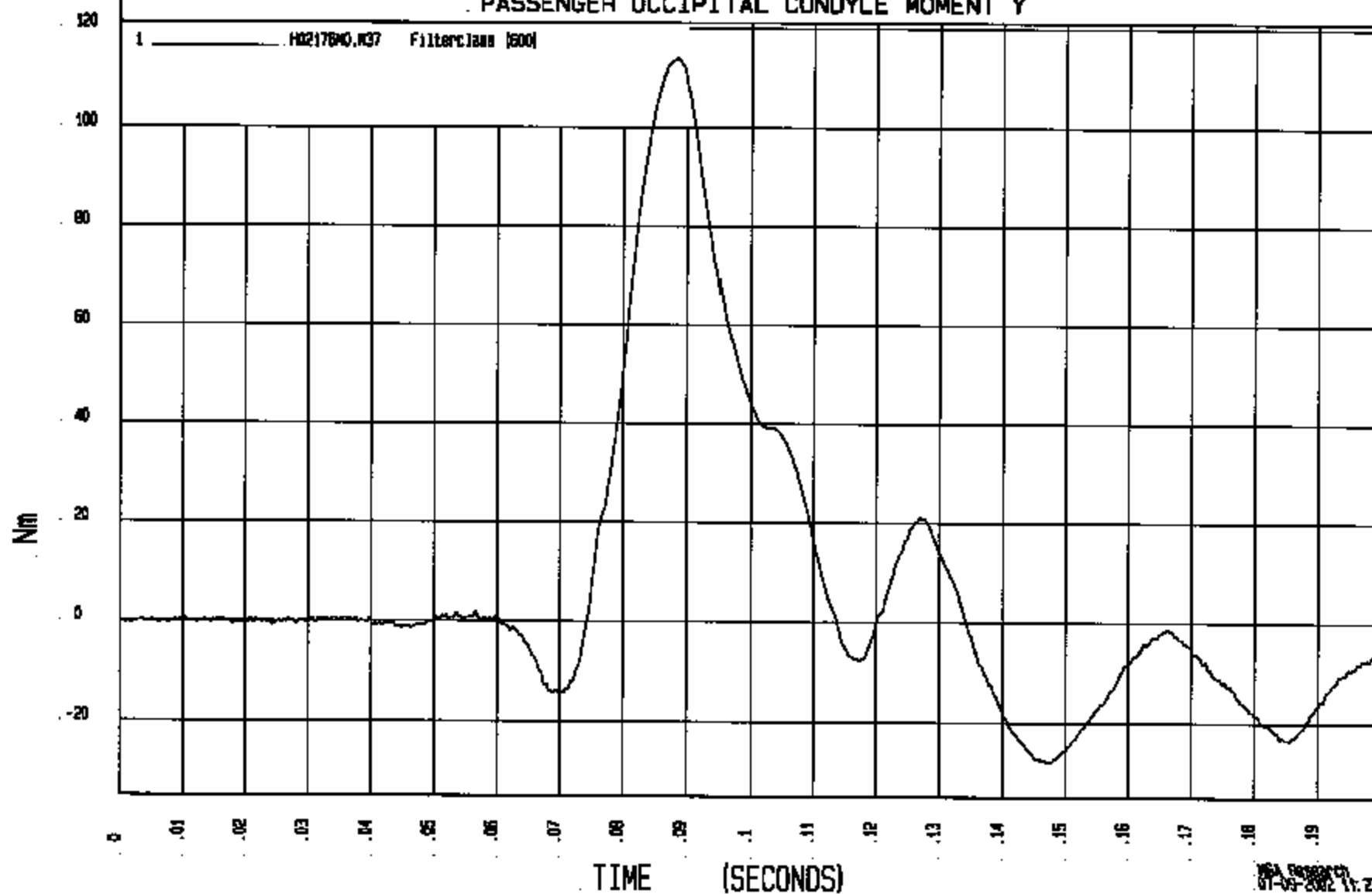
TEST DATE: 07-09-2002

COMPONENT: 2002 VOLKSWAGEN NEW BEETLE (C25801)

Minimum = -28.12 Nm at 147 msec

Maximum = 113.97 Nm at 89 msec

PASSENGER OCCIPITAL CONDYLE MOMENT Y



TEST: FMVSS 208 SLED (H02176)

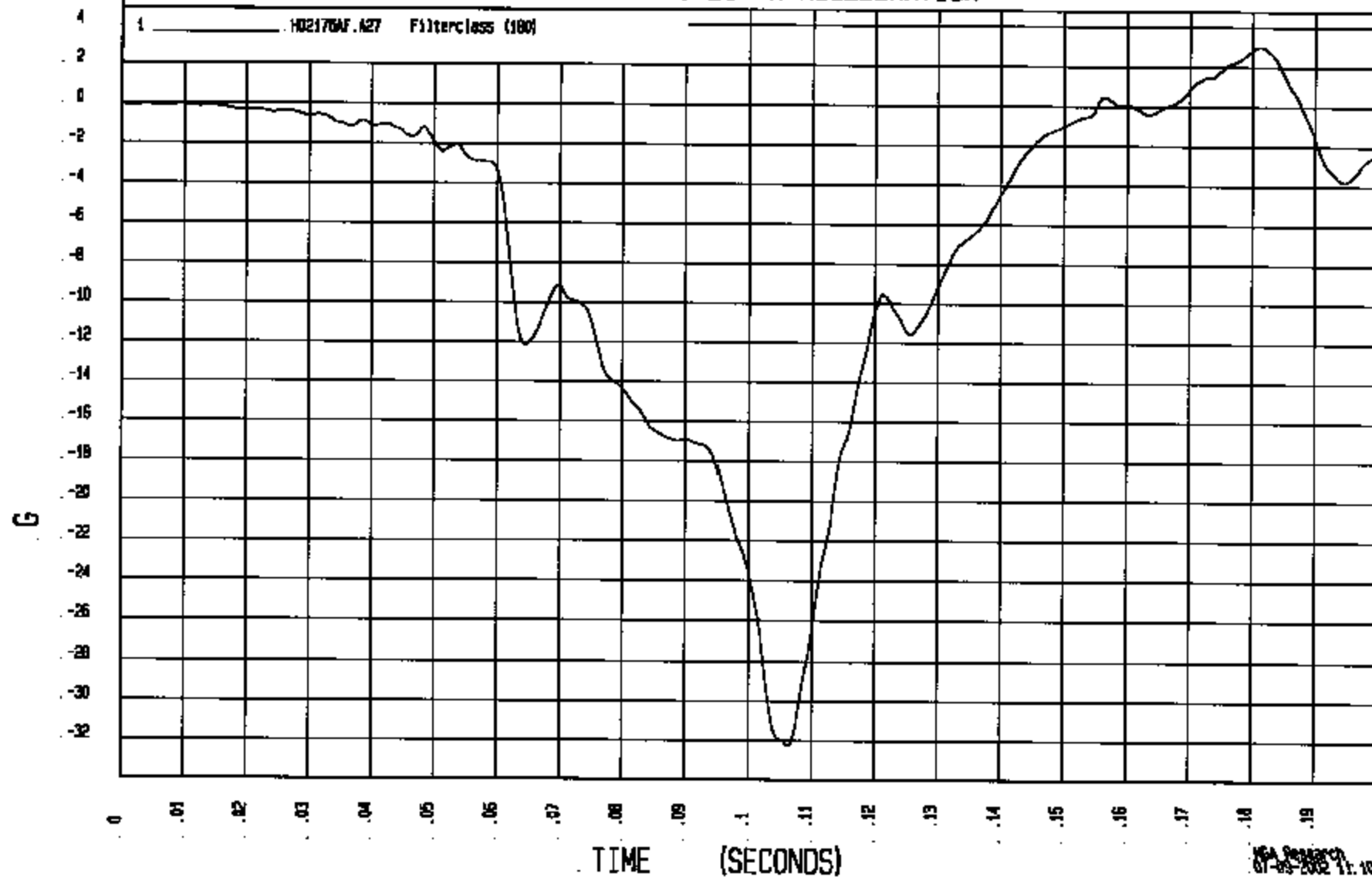
TEST DATE: 07-09-2002

COMPONENT: 2002 VOLKSWAGEN NEW BEETLE (C25801)

Minimum = -32.22 G at 106 msec

Maximum = 3.01 G at 181 msec

PASSENGER CHEST X ACCELERATION



TEST: FMVSS 208 SLED (H02176)

TEST DATE: 07-09-2002

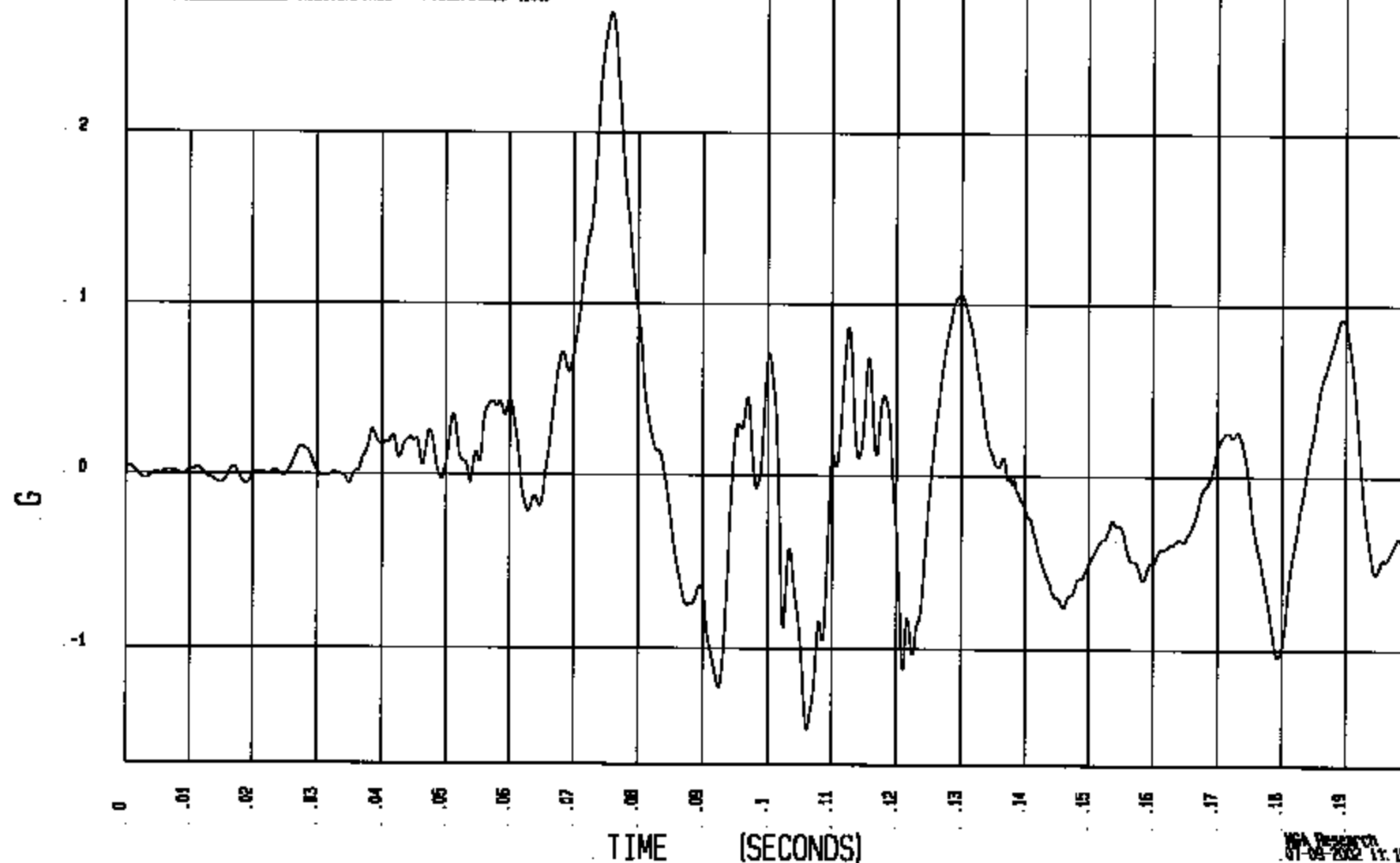
COMPONENT: 2002 VOLKSWAGEN NEW BEETLE (C25801)

Minimum = -1.47 G at 106 msec

Maximum = 2.7 G at 76 msec

PASSENGER CHEST Y ACCELERATION

1 H02176AF.A28 Filterclass (190)



07-09-2002 11:10

TEST: FMVSS 208 SLED (H02176)

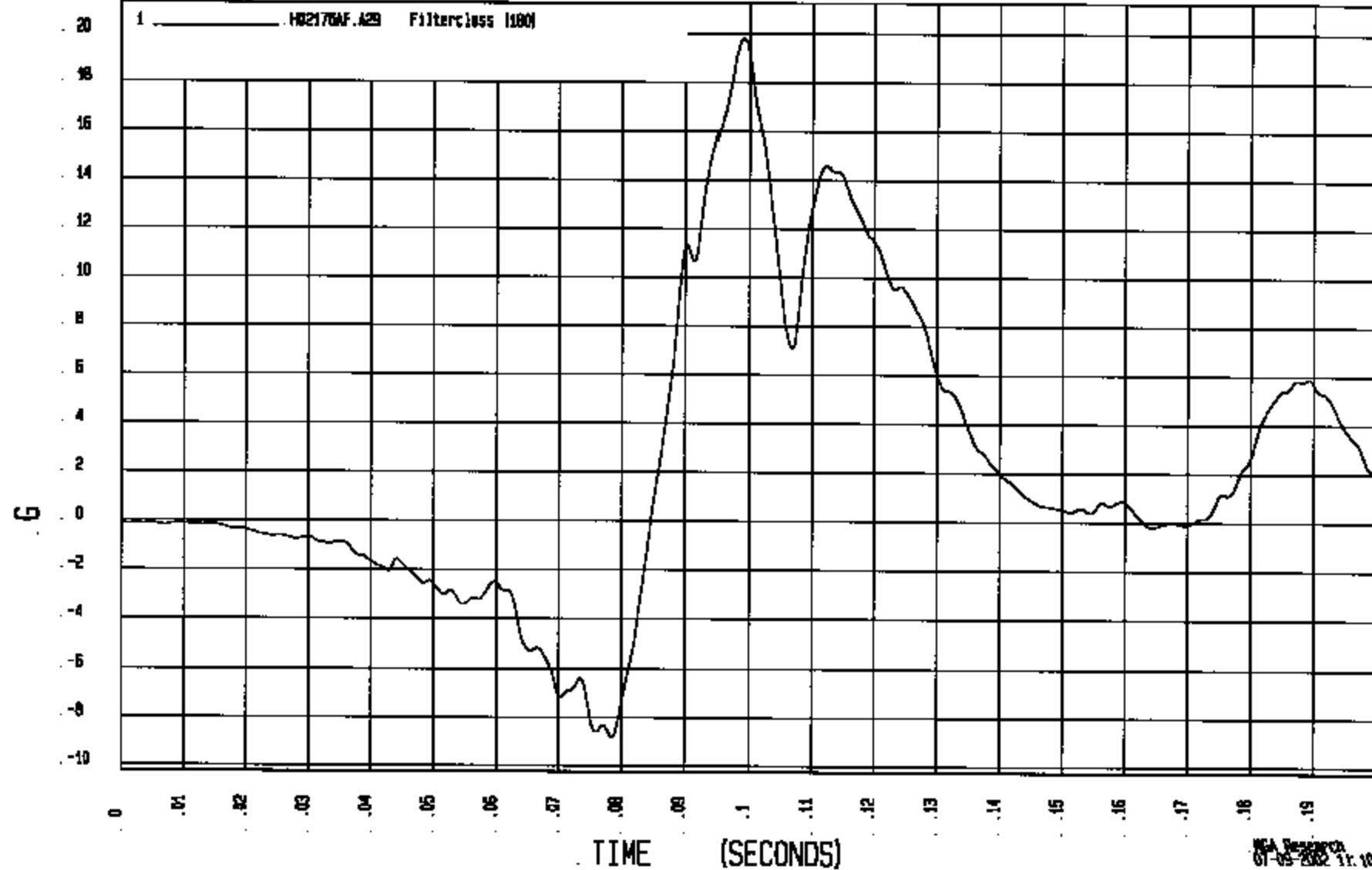
TEST DATE: 07-09-2002

COMPONENT: 2002 VOLKSWAGEN NEW BEETLE (C25B01)

Minimum = -8.82 G at 79 msec

Maximum = 19.81 G at 99 msec

PASSENGER CHEST Z ACCELERATION



TEST: FMVSS 208 SLED (H02176)

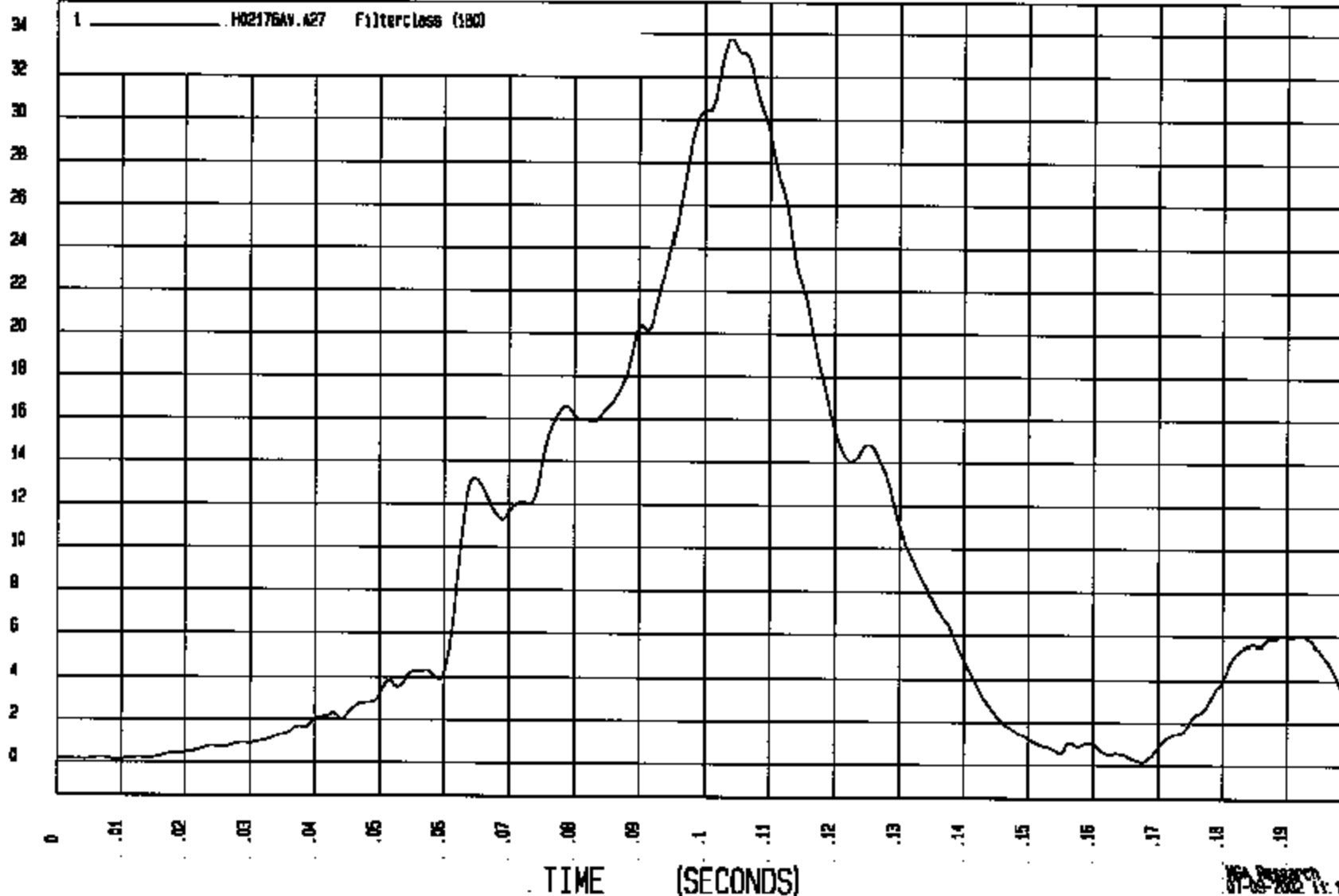
TEST DATE: 07-09-2002

COMPONENT: 2002 VOLKSWAGEN NEW BEETLE (C25801)

Minimum = .11 G at 9 msec

Maximum = 33.75 G at 104 msec

PASSENGER CHEST RESULTANT ACCELERATION



PASSENGER CHEST COMPRESSION VS. TIME

NO VALID DATA COLLECTED

TEST: FMVSS 208 SLED (H02176)

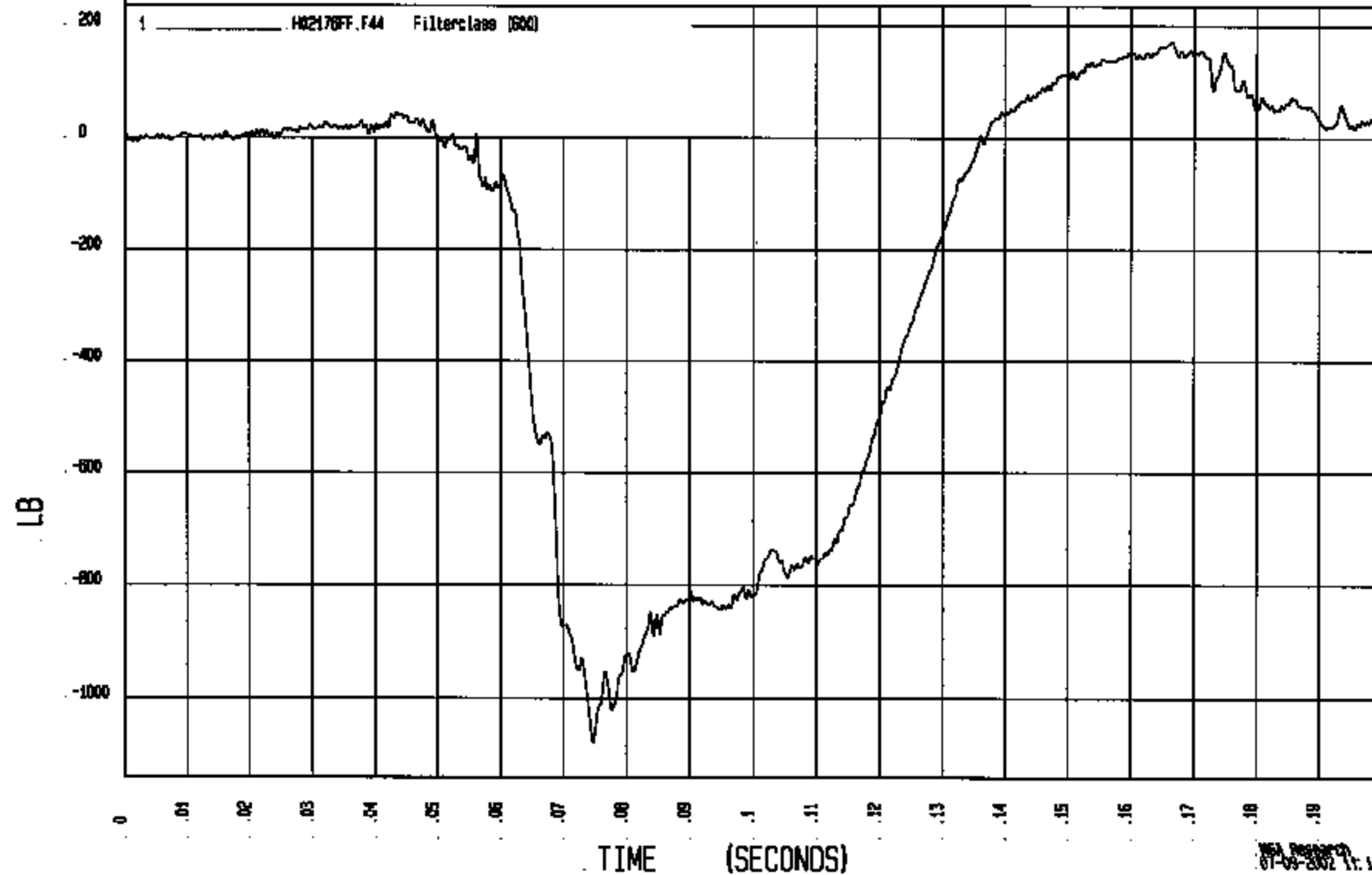
TEST DATE: 07-09-2002

COMPONENT: 2002 VOLKSWAGEN NEW BEETLE (C25801)

Minimum = -1079.73 LB at 75 msec

Maximum = 171.48 LB at 166 msec

PASSENGER LEFT FEMUR FORCE



TEST: FMVSS 208 SLED (H02176)

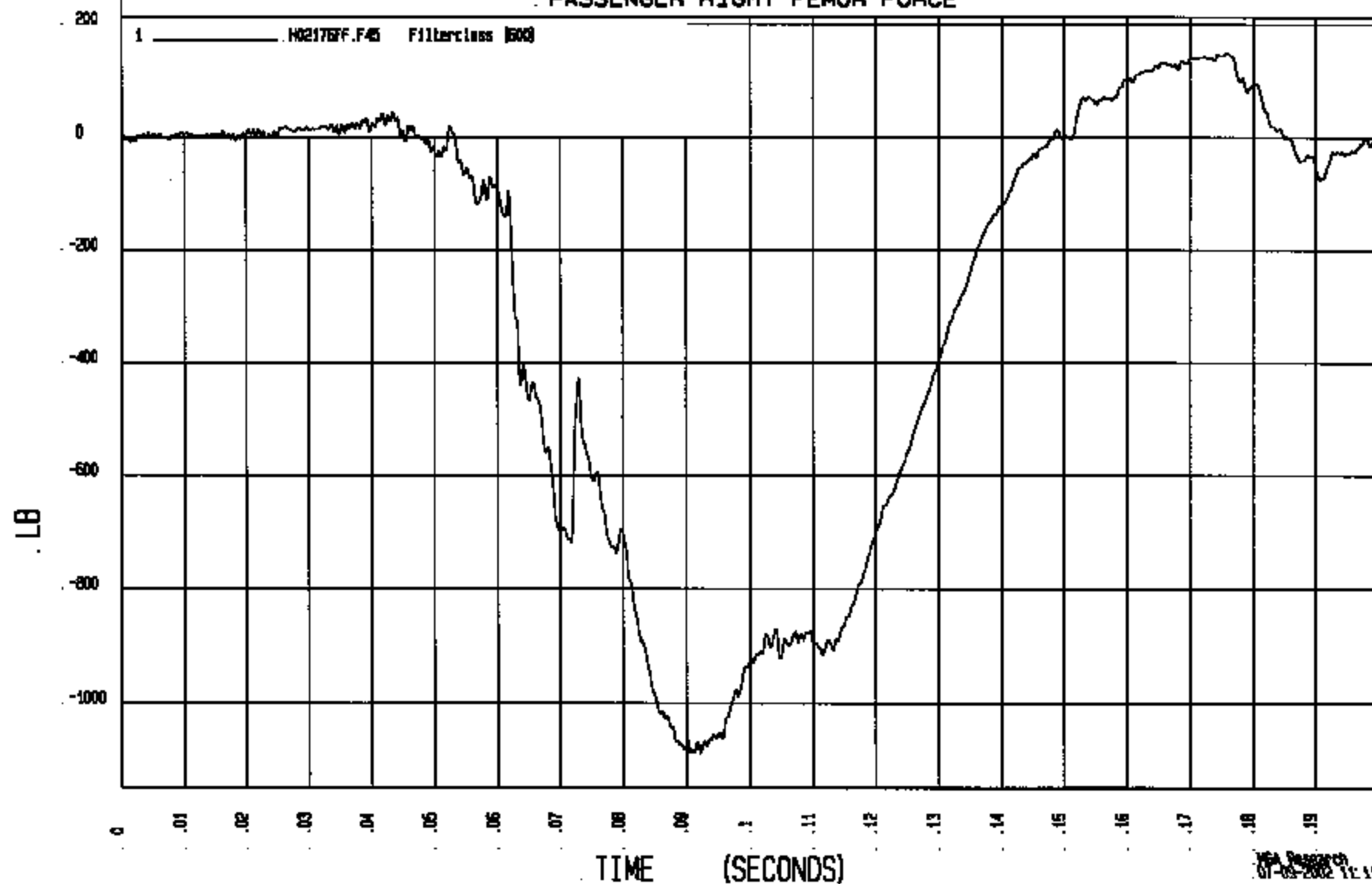
TEST DATE: 07-09-2002

COMPONENT: 2002 VOLKSWAGEN NEW BEETLE (C25801)

Minimum = -1088.96 LB at 92 msec

Maximum = 150.14 LB at 176 msec

PASSENGER RIGHT FEMUR FORCE



APPENDIX C
MANUFACTURER'S VEHICLE INFORMATION

VOLKSWAGEN

29 October 2001



Ms. Marilynne Jacobs
Director
Office of Vehicle Safety Compliance
Room 6111
National Highway Traffic
Safety Administration
400 Seventh St., S.W.
Washington, D.C. 20590

Safety Affairs and
Vehicle Testing
Mail Code 3C02
3800 Howden Road
Auburn Hills, MI 48326
Tel. (248) 754-3000
Fax (248) 754-3099

Subject: NSA-31Cca / OA-208-010824-Y

A CONFIDENTIALITY REQUEST HAS BEEN SUBMITTED TO THE CHIEF COUNSEL

Dear Ms. Jacobs:

In response to your letter of September 28, 2001 with regard to potential compliance testing of a 2002 model year Volkswagen New Beetle to the requirements of FMVSS No. 208, we provide you with the following information:

1. *Please inform OVSC to which sections of FMVSS No. 208 the subject vehicle is certified with respect to dynamic tests in which seat belts are fastened and seat belts are unfastened. Provide a copy of the certification test reports for all the applicable impact tests and sled tests which respect to these sections.*

The air bag restraint system is certified to meet the requirements of S13.

The results of a 0 degree 35 mph frontal impact test are shown in Test Report No. 01/001 (Attachment 1).

The results of a 30 degree 30 mph right frontal impact test are shown in Test Report No. 01/002 (Attachments 2).

The results of a 30 degree 30 mph left frontal impact test are shown in Test Report No. 01/003 (Attachments 3).

The results of a sled test are shown in Test Report No. 2001/004 (Attachment 4) for the driver. Test Report No. 2001/005 (Attachment 5) shows results of a sled test for the passenger airbag used at start of production of the 2002 models.

Results from a sled test for new passenger airbag modules to be phased-in during November 2001 are shown in the Autoliv Report (Attachment 10 C).

2. *Provide the following: (1) describe the difference between the MY 2002 air bag system and the MY 2001 air bag system, (2) explain what other restraint changes have been made, (3) explain what other vehicle changes have been made that might have affected FMVSS No. 208 performance, and (4) describe any features that might affect performance with respect to children and out of position occupants.*

- (1) A change in propellant from Sodium Azide to Sodium Azide free was introduced as a late change to the MY 2002 New Beetle passenger air bag generator. This change does not affect the performance of the system.
- (2) No changes were made to the 2002 MY New Beetle restraint system as compared to the 2001 MY New Beetle that might have affected FMVSS 208 performance.
- (3) No vehicle changes were made to the 2002 MY New Beetle as compared to the 2001 MY New Beetle that might have affected FMVSS 208 performance.
- (4) There are no features that might affect performance with respect to children or out of position occupants.

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

Disconnect the vehicle battery. After one minute unplug the cables that are attached to the gas generator at their connectors. Connect these cables directly to the timer. The air bag is activated 22 ms after the sled acceleration crosses the .5 g level.

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

The MY 2002 VW Beetle is not equipped with dual stage or multistage inflators.

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

A tension-relieving device is not used.

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

The front windows are open in our tests.

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

The dummy placement measurements are included in Attachment 4, Pages 7 & 8 driver and Attachment 5, Page 8.

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

The vehicle has a foot rest for the driver.

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

For seat positioning, steering column positioning, and fuel tank data see Attachment 6.

The seating reference points are shown in Attachment 7. The measurements refer to the center of the front wheels.

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

The adjustable seat belt anchorages should be set to the third position from the top (center position).

10. *For all certification barrier tests, provide the speed at impact, vehicle test weight, and resulting injury criteria (i.e., HIC, chest acceleration, chest compression, femur loads, and where applicable neck moments and forces). For all certification sled tests, provide the resulting injury criteria (i.e., HIC, chest acceleration, chest compression, femur loads, and neck moments and forces).*

For all certification barrier test results see Attachment 8.

For all certification sled test results see Attachment 9.

11. *When vehicle components must be removed to obtain the proper test weight for the barrier test, what components do you recommend for removal and in what priority order do you recommend removal?*
- (1) Spare Wheel
 - (2) Rear Seat
 - (3) Trunk Lid.
12. *If the vehicle uses a pressure vessel to inflate the air bag, provide a copy of the test reports or engineering analysis to demonstrate that it meets all the requirements of S9.1.*
13. *If the vehicle uses an explosive device to inflate the air bag, provide a copy of the test report or engineering analysis to demonstrate that it meets all the requirements of S9.2.*

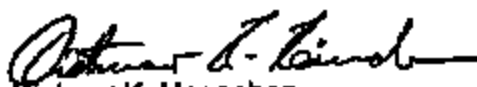
See Attachment 10A for certification of FMVSS 208 S9.2.

See Attachment 10B for certification of FMVSS 208 S9.1.

We hope that this information satisfies your needs. Please call me at (248) 754-5095 if you have any questions.

Sincerely,

VOLKSWAGEN OF AMERICA, INC.



Dietmar K. Haenchen
Process Leader
Safety Affairs and Vehicle Testing

TEST VEHICLE INFORMATION

Vehicle Model Year & Make: my 2002 Volkswagen
 Vehicle Model & Body Style: New Beetle

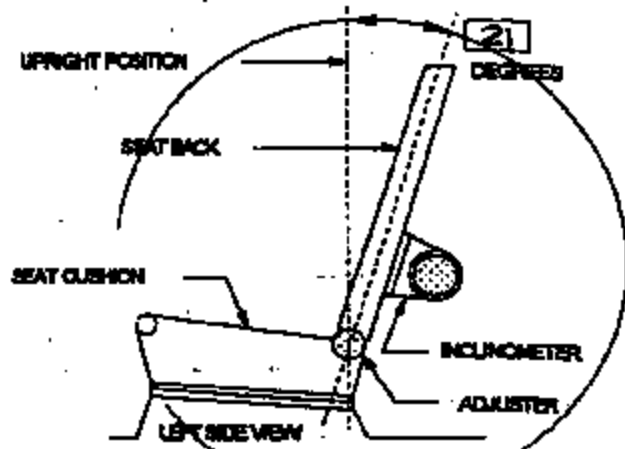
1. NOMINAL DESIGN RIDING POSITION - -

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

Seat back angle for driver's seat = 21° degrees.

Measurement instructions:

Measured at dummy torso.



Seat back angle for passenger's seat = 21° degrees.

Measurement instructions:

Measured at dummy torso.

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, indicate how the detents are numbered (Is the first detent "0" or "1"?). Provide information to locate the detent in which the seat track is to be locked.

Positioning of the driver's seat:

Adjustment in longitudinal direction: 8th position from front (Forward most)

Adjustment in vertical direction: lowest position.

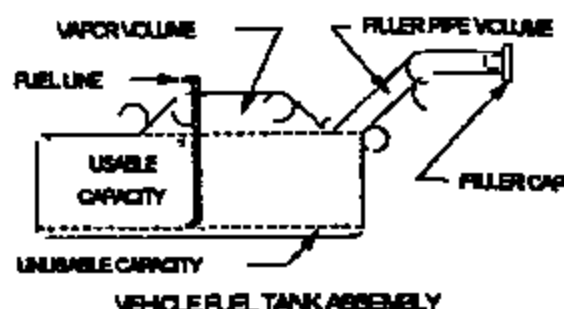
First detent is "1"

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 = 14.53 gallons.
- B. "Usable Capacity" of optional equipment fuel tank = _____ gallons.
- C. "Usable Capacity" of vehicle(s) used for certification testing to requirements of FMVSS 301 = 14.53 gallons.



Operational Instructions:

- 3.2 Amount of Stoddard solvent added to vehicle(s) used for certification test(s) = 13.74 gallons

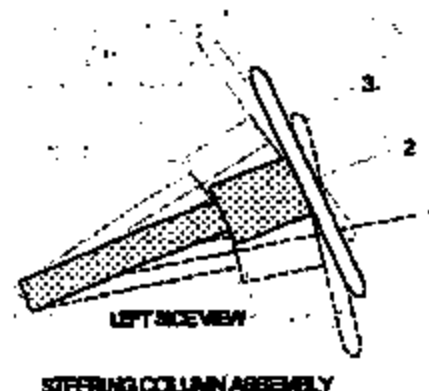
- 3.3 Is vehicle equipped with electric fuel pump? gasoline YES diesel NO
 If YES, explain the vehicle operating conditions under which the fuel pump will pump fuel.
The fuel pump will pump fuel when the ignition is on and the engine is running. It is also activated when the ignition is in the "start" position.
The fuel pump will cease to pump fuel if the engine stops running, i.e., stalls or when the electrical system is deactivated.

4. STEERING COLUMN ADJUSTMENTS --

Steering wheel and column adjustments are made so that the steering wheel hub is at the geometric center of the locus it describes when it is moved through its full range of driving positions. If the tested vehicle has any of these adjustments, does your company use any specific procedures to determine the geometric center.

Operational Instructions:

Steering wheel is adjusted
at middle position like in the
sketch pointed at number 2.
Adjustment in lengthways
direction: middle position.



ATTACHMENT 7

SEATING REFERENCE POINTS - NEW BEETLE

FRONT, LEFT AND RIGHT

X	Y	Z
1258	± 328	273

REAR, LEFT AND RIGHT

X	Y	Z
2021	± 300	286