

REPORT NOS. 208-CAL-88-06
212-CAL-88-06
301-CAL-88-06

**VEHICLE SAFETY COMPLIANCE TESTING FOR OCCUPANT CRASH PROTECTION,
WINDSHIELD MOUNTING, WINDSHIELD ZONE INTRUSION (PARTIAL)
AND FUEL SYSTEM INTEGRITY**

VOLKSWAGEN AG
1988 VOLKSWAGEN JETTA GL
4-DOOR SEDAN

NHTSA NO. CJ5801
CALSPAN TEST NO. 7669-7
AUGUST 30, 1988

CALSPAN CORPORATION
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FINAL REPORT

Prepared for:

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16. Abstract A 30 mph vehicle safety compliance test was conducted on a 1988 Volkswagen Jetta GL 4-Door Sedan. This test was performed at the Calspan Advanced Technology Center in Buffalo, New York on August 30, 1988. The purpose of this test was to determine compliance with the performance requirements of the following Federal Motor Vehicle Safety Standards (FMVSS): 1. FMVSS No. 208, "Occupant Crash Protection" 2. FMVSS No. 212, "Windshield Mounting" 3. FMVSS No. 219 (partial), "Windshield Zone Intrusion" 4. FMVSS No. 301, "Fuel System Integrity" The test mode was perpendicular (0°) and the impact velocity was 29.1 mph. The ambient temperature at the impact face was 74°F. The subject test vehicle appears to comply with the requirements of FMVSS Nos. 208, 212, 219 (partial) and 301. <u>Type of Restraint System:</u> The test vehicle was equipped with an automatic torso belt in both the driver and passenger positions.					
17. Key Words 30 mph Vehicle Safety Compliance Testing FMVSS 208, "Occupant Crash Protection" FMVSS 212, "Windshield Mounting" FMVSS 219, "Windshield Zone Intrusion" FMVSS 301, "Fuel System Integrity" Frontal Impact			18. Distribution Statement Copies of this report are available from: Technical Reference Division National Highway Traffic Safety Admin. Nassif Building, Room 5108 400 Seventh St., S.W., Washington, DC 20590		
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Section 1
PURPOSE AND TEST PROCEDURE

This 30 mph frontal barrier impact test is part of the Federal Motor Vehicle Safety Standard (FMVSS) 208, 212, 219 (partial) and 301 compliance test program conducted for the National Highway Traffic Safety Administration (NHTSA) by Calspan Advanced Technology Center under Contract No. DTNH22-88-C-01038. The purpose of this test was to determine if the subject vehicle, a 1988 Volkswagen Jetta 4-Door Sedan, meets the performance requirements of FMVSS 208, "Occupant Crash Protection"; FMVSS No. 212, "Windshield Mounting"; FMVSS No. 219 (partial), "Windshield Zone Intrusion"; and FMVSS No. 301, "Fuel System Integrity". This compliance test was conducted using the requirements found in the OVSC Laboratory Test Procedure No. TP-208-07.

Section 2
SUMMARY OF FRONTAL BARRIER IMPACT TEST CJ5801

A frontal barrier was impacted by a 1988 Volkswagen Jetta 4-Door Sedan at a velocity of 29.1 mph. The test was performed at the Calspan Corporation Advanced Technology Center on August 30, 1988. Pre- and post-test photographs of the vehicle and dummies can be found in Appendix A.

The frontal barrier impact event was documented by one real-time camera and 14 high-speed cameras. Camera locations and other pertinent camera information can be found in this report.

Two Part 572, 50th percentile male anthropomorphic test devices (ATDs) were placed in the driver and right-front passenger seating positions, according to dummy placement instructions specified in Laboratory Test Procedure.

Both ATDs were fully instrumented with head and chest triaxial accelerometers and right/left femur load cells. These ATDs had been certified prior to the test. The test vehicle was equipped with 5 restraint systems.

The 23 channels of data were recorded on two 14-channel FM tape recorders. Appendix B contains the vehicle and dummy response data traces.

The driver's head struck the steering wheel rim and his HIC was 678. The maximum chest deceleration over 3 milliseconds was 50 g's and femur loads were 1421 and 1072 pounds.

The right-front passenger's head struck the dash panel and his HIC was 710. The maximum chest deceleration over 3 milliseconds was 43 g's and femur loads were 1213 and 822 pounds.

TABLE 1

CRASH TEST SUMMARY

VEHICLE NHTSA NO.: CJ5801 TEST MODE: 30 mph Frontal Barrier
 TEST DATE: 8/30/88 TIME: 11:45 TEMP: 74° F
 VEHICLE MAKE/MODEL/BODY STYLE: 1988 Volkswagen Jetta GL 4-Door Sedan
 VEHICLE TEST WEIGHT: 2810 lbs
 VEHICLE/BARRIER IMPACT ANGLE: 0°
 IMPACT VELOCITY: 29.1 mph
 MAXIMUM STATIC CRUSH: 16.1"
 VEHICLE REBOUND: 8.4"
 DUMMIES:

	<u>DRIVER</u>	<u>PASSENGER</u>
TYPE	<u>Part 572 (S/N 1019)</u>	<u>Part 572 (S/N 1020)</u>
RESTRAINT SYSTEM	<u>Automatic Torso Belt</u>	<u>Automatic Torso Belt</u>

NUMBER OF DATA CHANNELS: 23
 NUMBER OF CAMERAS: 1 Real Time
14 High Speed
 DOOR OPENING DATA: not operable - Left Front
not operable - Right Front
 FRONT SEAT(S) DATA:

	<u>DRIVER</u>	<u>PASSENGER</u>
Seat Track Failure -	<u>None</u>	<u>None</u>
	<u>inches of shift</u>	
Seat Back Failure -	<u>None</u>	<u>None</u>

VISIBLE DUMMY CONTACT POINTS:

	<u>DRIVER</u>	<u>PASSENGER</u>
Head	<u>Steering Rim</u>	<u>No contact</u>
Chest	<u>No contact</u>	<u>No contact</u>
Knees	<u>Dash</u>	<u>Dash</u>

TABLE 2

GENERAL TEST AND VEHICLE PARAMETER DATATEST VEHICLE INFORMATION:

Year/Make/Model/Body Style: 1988 Volkswagen Jetta 4-Door Sedan
 NHTSA No. CJ5801; VIN WVWFB9169JW363357; Color: Alpine White
 Engine Data: 4 cylinders; 109 CID; 1.8 Litres; - cc
 Placement - Longitudinal or In-Line; X Transverse or lateral
 Transmission Data: 5 speeds; X Manual; - Automatic; - Overdrive
 Final Drive: - Rear Wheel Drive; X Front Wheel Drive; - Four Wheel Drive
 Major Options: X A/C; X Pwr Strg. X Pwr. Brakes - Pwr Windows
- Power Door Locks
 Date Received: 6-22-88; Odometer Reading - 29 miles
 Selling Dealer: Lockport Volkswagen
 & address 6145 So. Transit Road Lockport, NY 14094

DATA FROM VEHICLE'S CERTIFICATION LABEL:

Vehicle Manufactured by: Volkswagen AG
 Date of Manufacture: 1/88; VIN WVWFB9169JW363357
 GVWR: 3252 lbs; GAWR: 1808 lbs FRONT
1609 lbs REAR

DATA FROM TIRE PLACARD:

Tire Pressure with Maximum Capacity Vehicle Load 32 psi Front
36 psi Rear
 Recommended Tire Size 175/70R13 Load Range Standard
 Recommended Cold Tire Pressure 32 psi Front 36 psi Rear
 Size of Tires on Test Vehicle 175/70R13
 Type of Spare Tire: X Space Saver; - Regular
 Vehicle Capacity Data:
 Type of Front Seats - Bench X Bucket - Split Bench
 Number of Occupants 2 Front 3 Rear 5 Total
 Vehicle Capacity Weight (VCW) = 885 lbs.
 No. of Occupants x 150 lbs = 750 lbs.
 Rated Cargo/Luggage Weight (RCLW) = 135 lbs. (Difference)

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

Right Front = 730 lbs Right Rear = 470 lbs
 Left Front = 690 lbs Left Rear = 460 lbs
 TOTAL FRONT = 1420 lbs TOTAL REAR = 930 lbs
 % of Total Weight = 60 % % of Total Weight = 40 %
 TOTAL DELIVERED WEIGHT = 2350 lbs.

TABLE 2
GENERAL TEST & VEHICLE PARAMETER DATA (cont.)

CALCULATION OF VEHICLE'S TARGET TEST WEIGHT:

Total Delivered Weight	=	<u>2350</u>	lbs.
Rated Cargo/Luggage Weight (RCLW)	=	<u>135</u>	lbs.
Weight of 2 P.572 Dummies @ 164 ea.	=	<u>328</u>	lbs.
TARGET TEST WEIGHT	=	<u><u>2813</u></u>	lbs. (sum)

WEIGHT OF TEST VEHICLE WITH TWO DUMMIES AND 132 LBS OF CARGO WEIGHT:

Right Front = <u>780</u>	lbs.	Right Rear = <u>640</u>	lbs.
Left Front = <u>800</u>	lbs.	Left Rear = <u>590</u>	lbs.
TOTAL FRONT = <u>1580</u>	lbs.	TOTAL REAR = <u>1230</u>	lbs.
% of Total Weight = <u>56</u> %		% of Total Weight = <u>44</u> %	
TOTAL TEST WEIGHT = <u>2810</u> lbs.			
Weight of Ballast secured in vehicle's cargo area = <u>0</u> lbs.			
Vehicle Components Removed for Weight Reduction <u>None</u>			

TEST VEHICLE ATTITUDE: (all dimensions in inches)

AS DELIVERED	RF <u>24.9</u> ;	LF <u>24.6</u> ;	RR <u>24.7</u> ;	LR <u>24.4</u>
FULLY LOADED	RF <u>24.3</u> ;	LF <u>24.3</u> ;	RR <u>23.5</u> ;	LR <u>23.3</u>
AS TESTED	RF <u>24.3</u> ;	LF <u>24.4</u> ;	RR <u>23.5</u> ;	LR <u>23.3</u>
Vehicle's Wheelbase = <u>97.5</u> inches				
Location of Vehicle's C.G. = <u>42.7 inches rearward of front wheel centerline</u> (if required)				

FUEL SYSTEM DATA:

Fuel System Capacity From Owner's Manual =	<u>14.0</u>	gallons
Usable Capacity Figure Furnished by COTR =	<u>14.5</u>	gallons
Test Volume Range (92 to 94% of Usable Capacity) =	<u>13.3</u> to <u>13.6</u>	gallons
ACTUAL TEST VOLUME =	<u>13.5</u>	gallons (with entire fuel system filled)
Test Fluid Type:	<u>Stoddard Solution</u>	; Spec. Grav. <u>0.764</u>
Kinematic Viscosity =	<u>0.96</u>	centistokes; Color = <u>Purple</u>
Type of Fuel Pump:	<u>X</u> Electric;	<u>-</u> Manual/Mechanical
Does Electric Pump operate with ign. sw. "ON" & engine "OFF"? <u>No</u> (yes/no)		

TABLE 3
POST-IMPACT DATA

TYPE OF TEST: X Frontal (0°) Impact; - Oblique (30°) Impact- - Left/ - Right
- Rear; - Lateral/Side - - Left/ - Right

TEST DATE: August 30, 1988 TIME: 11:45 TEMP: 74 °F

VEHICLE NHTSA NO.: CJ5801; VIN WVWFB9169JW363357

REQUIRED IMPACT VELOCITY RANGE: 28.9 to 29.9 mph

BARRIER IMPACT VELOCITY: (speed traps within 5 feet of impact plane)

Trap No. 1 = 29.1 mph; Trap No. 2 = 29.1 mph

Distance from vehicle to barrier (1) entering trap = 52 inches

(2) exiting trap = 12 inches

VEHICLE STATIC CRUSH: (for Frontal and Rear Impacts Only)

Vehicle Length: Pre-Test Right = 170.0 "; C/L = 172.1 "; Left = 170.2 "

Post-Test Right = 154.5 "; C/L = 156.0 "; Left = 155.6 "

CRUSH Right = 15.5 "; C/L = 16.1 "; Left = 14.6 "

AVERAGE = 15.4 inches

VEHICLE REBOUND: (from rigid barrier only)

Distance from front of test vehicle to impact point:

Right = 8.1 "; C/L = 8.3 "; Left = 8.7 "

AVERAGE = 8.4 inches

DOOR OPENING:

Left

Right

Front not operable

not operable

Rear operable

operable

SEAT MOVEMENT:

Seat Back Failure

Seat Shift

Front None

None

Rear None

None

TABLE 3

POST-IMPACT DATA (cont)

GLAZING DAMAGE: Windshield remained intact

Section 3
OCCUPANT AND VEHICLE DATA

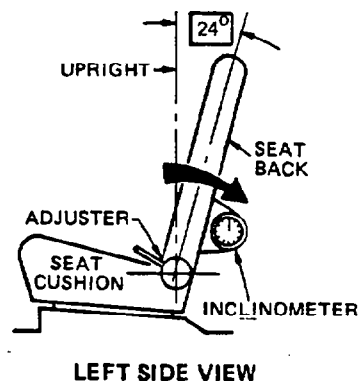
Figure 1

TEST VEHICLE INFORMATION

VEHICLE IDENTIFICATION:

Model year: 1988 Vehicle Model: Volkswagen Jetta Body Style: 4-Door Sedan

1. Nominal Design Riding Position for adjustable driver and passenger seat backs. Please describe how to position the inclinometer to measure the seat back angle. Include description of the location of the adjustment latch detent, if applicable.



Seat back angle for driver's seat 24°
Measurement instructions: Seat back angle is measured by 3-dimensional H-Point machine. Place seat in full down position.

Seat back angle for passenger's seat 24°
Measurement instructions: Same as driver's seat.

2. Seat Fore and Aft Positioning

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

Positioning of the driver's seat: Seat was placed in mid-position

Positioning of the passenger's seat (if applicable): Seat was placed in mid position

3. Fuel Tank Capacity Data

- A. "Usable Capacity" of the standard equipment fuel tank is 14.5 gallons.
- B. "Usable Capacity" of the optional equipment fuel tank is N/A gallons.

Additional Instructions: None

Figure 2

PART 572 DUMMY IN-VEHICLE POSITION

TEST NO.: CJ5801

VEHICLE: 1988 Volkswagen Jetta GL

SEAT TYPE:

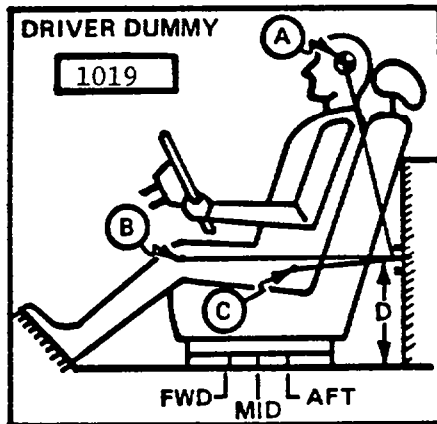
☐ Bench
☒ Bucket
☐ Split Bench

ADJUSTER TYPE:

☒ Manual
☐ Power

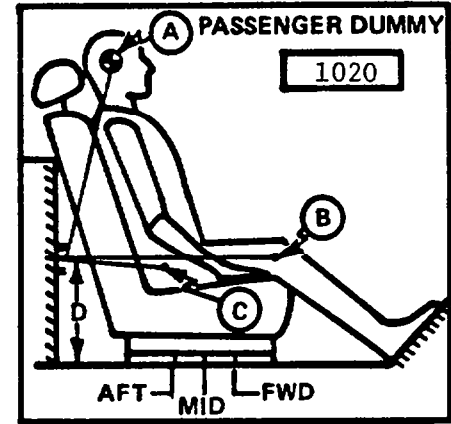
BUCKET SEAT BACK TYPE:

☐ Fixed
☒ Adjustable Reclining



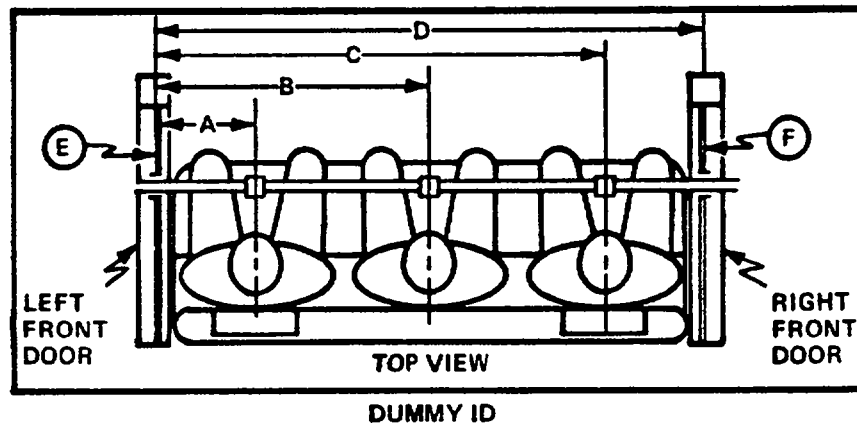
MEASUREMENT LOCATION

- A - Head Target
- B - Knee Joint
- C - Approximate 'H' Point
- D - Sill to Reference Point



A = 17.7 in. 6 Degrees
 B = 24.2 in. 105 Degrees
 C = 11.8 in. 136 Degrees
 D = 17.8 in.

A = 17.8 in. 5 Degrees
 B = 25.1 in. 106 Degrees
 C = 12.1 in. 138 Degrees
 D = 17.8 in.



1019

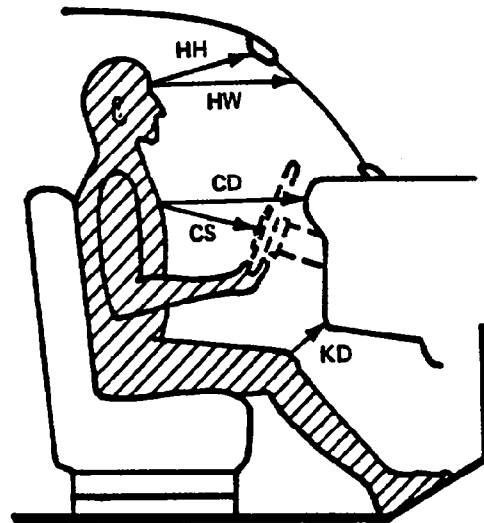
1020

A	=	Left Door to Driver Centerline	11.0 in.
B	=	Left Door to Center Passenger Centerline	- in.
C	=	Left Door to Right Passenger Centerline	36.2 in.
D	=	Left Door to Right Door	46.7 in.
E, F	=	Window Glass Height (Right and Left Must Be Equal)	13.5 in.

Figure 3

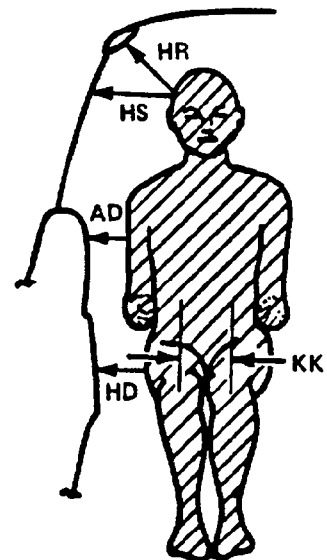
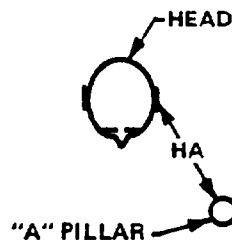
OCCUPANT CLEARANCE DIMENSIONS

	DRIVER	PASSENGER
HH	16.7	16.5
HW	20.0	20.1
CD	22.1	22.0
CS	14.1	-
KDL	3.7	3.1
KDR	4.3	2.7
SA	24°	24°
TA	25°	25°



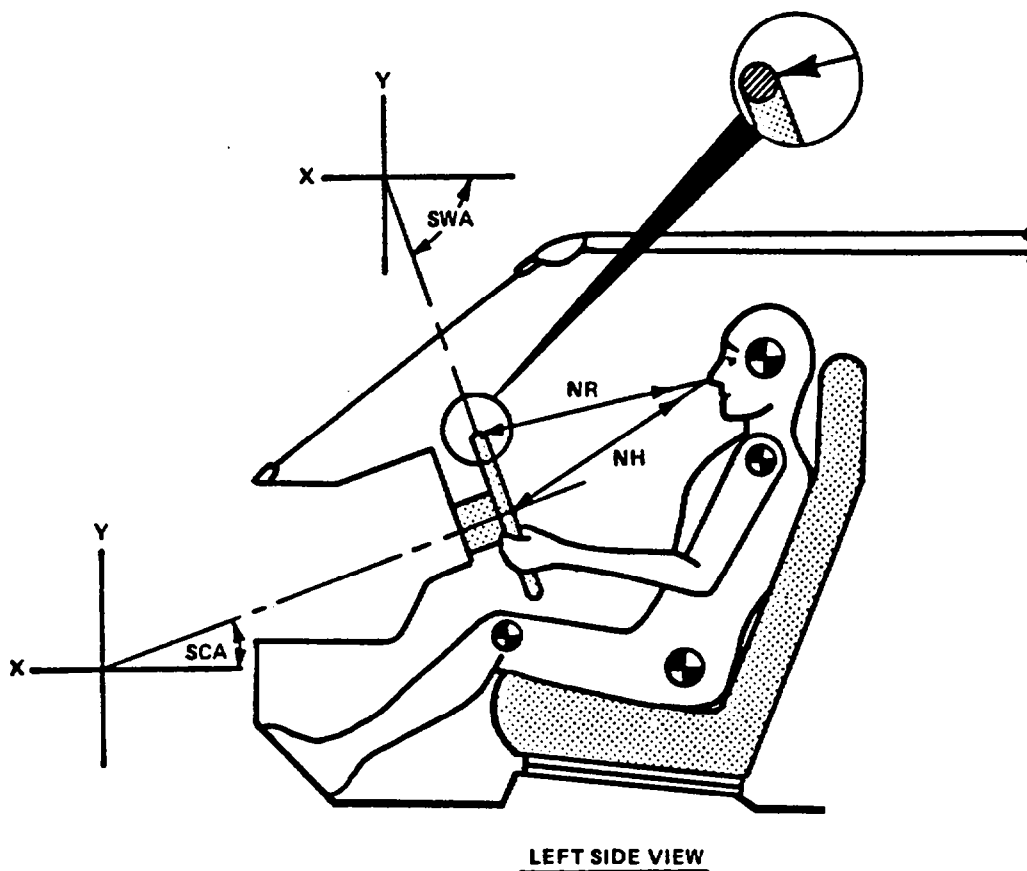
HH = Head to Windshield Header
 HW = Head to Windshield
 CD = Chest to Dash
 CS = Chest to Steering Wheel
 KD(L/R) = Knee to Dash (Left/Right)
 SA = Seat Back Angle
 TA = Torso Angle

HA = Head Target to "A" Pillar
 HR = Head to Side Roof
 HS = Head to Side Window
 AD = Arm to Door
 HD = Hip to Door
 KK = Knee to Knee



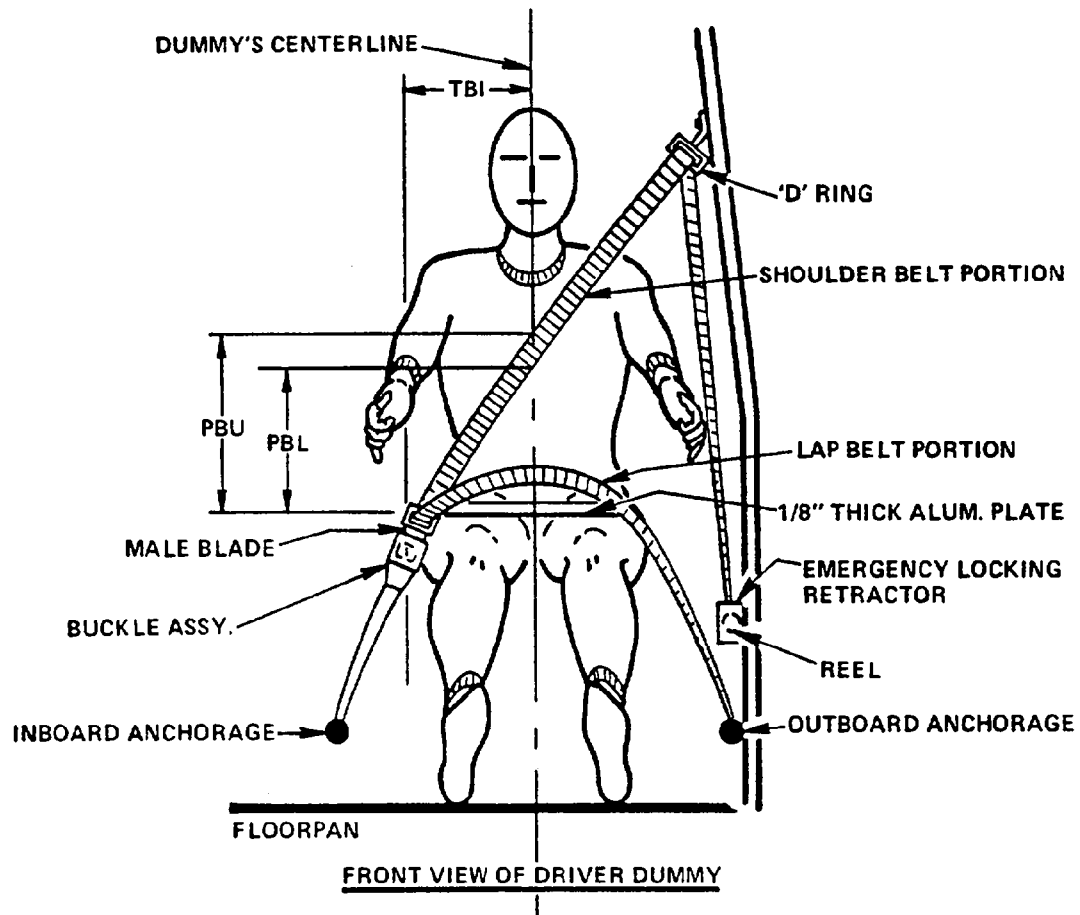
	DRIVER	PASSENGER
HR	4.7	4.7
HS	7.7	7.4
AD	3.9	4.3
HD	5.9	5.7
KK	9.5	9.0
HA	19.9	20.0

Figure 4
DRIVER DUMMY TO STEERING COLUMN/WHEEL ASSY. REFERENCE DIMENSIONS



		MEASUREMENTS
<u>NR</u> -- Distance from tip of dummy's nose to Top Rear surface of steering wheel rim	19.6	Inches
<u>NH</u> -- Distance from tip of dummy's nose to center of steering column hub	20.2	Inches
<u>SCA</u> -- Angle of steering column relative to the horizontal X axis	27	Degrees
<u>SWA</u> -- Angle of steering wheel relative to the horizontal X axis	-63	Degrees

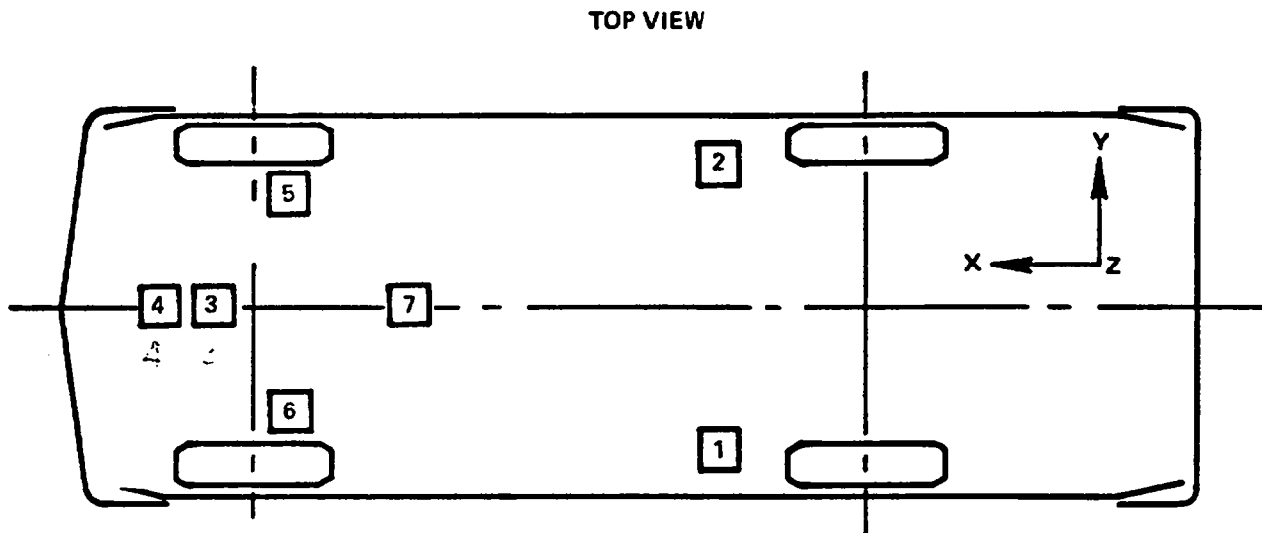
Figure 5
SEAT BELT POSITIONING DATA



	DRIVER DUMMY (inches)	PASSENGER DUMMY (inches)
<u>PBU</u> -- Top surface of alum. plate to upper edge	13.5	14.0
<u>PBL</u> -- Top surface of alum. plate to belt lower edge	10.5	11.0
<u>TBI</u> -- distance from Torso centerline to buckle	N/A	N/A

Figure 6

VEHICLE ACCELEROMETER LOCATIONS



ACCELEROMETER NUMBER*	ACCELEROMETER LOCATION	DIRECTION		
		X	Y	Z
1	Left Rear Seat Crossmember	x		
2	Right Rear Seat Crossmember	x		
3	Top of Engine	x		
4	Bottom of Engine	x		
5	Right Disc Brake Caliper	x		
6	Left Disc Brake Caliper	x		
7	Instrument Panel	x		

*The accelerometer pack number can be correlated with the vehicle response data traces found in Appendix B.

TABLE 4

VEHICLE ACCELEROMETER LOCATIONS AND DATA SUMMARY

NO.	LOCATION	X*	Y*	Z*	POSITIVE DIRECTION**		NEGATIVE DIRECTION**	
					MAX (g)	TIME (msec)	MAX (g)	TIME (msec)
1	REAR SEAT X-MEMBER AT LEFT SIDE PRE: POST: LONGITUDINAL FORCE	70.2	16.0	21.0				
		69.8	16.1	17.2				
					7	20	-39	25
2	REAR SEAT X-MEMBER AT RIGHT SIDE PRE: POST: LONGITUDINAL FORCE	70.2	-16.0	21.0				
		69.9	-16.0	17.5				
					4	140	-35	59
3	TOP OF ENGINE BLOCK PRE: POST: LONGITUDINAL FORCE	146.6	0.0	34.0				
		143.5	-5.5	29.2				
					27	38	-119	29
4	BOTTOM OF ENGINE BLOCK PRE: POST: LONGITUDINAL FORCE	148.2	0.0	12.0				
		137.6	-1.75	10.0				
					15	37	-108	22
5	BRAKE CALIPER AT RIGHT SIDE PRE: POST: LONGITUDINAL FORCE	136.1	-23.2	22.0				
		133.7	-21.0	20.0				
					30	57	-71	40
6	BRAKE CALIPER AT LEFT SIDE PRE: POST: LONGITUDINAL FORCE	136.1	23.2	22.0				
		136.2	21.0	20.0				
					10	85	-71	20
7	DASH PANEL PRE: POST: LONGITUDINAL FORCE	111.8	0.0	40.0				
		112.4	2.6	35.2				
					62	61	-91	72

**

POSITIVENEGATIVE

*X + Forward from rear bumper
 Y + Left from vehicle centerline
 Z + Up from ground

LONGITUDINAL: FORWARD
 LATERAL: LEFTWARD
 VERTICAL: UPWARD

REARWARD
 RIGHTWARD
 DOWNWARD

DISTANCE MEASUREMENTS IN INCHES

Figure 7

CAMERA POSITIONS FOR FRONTAL IMPACTS

NOTE: Camera Information Shown on Table 5

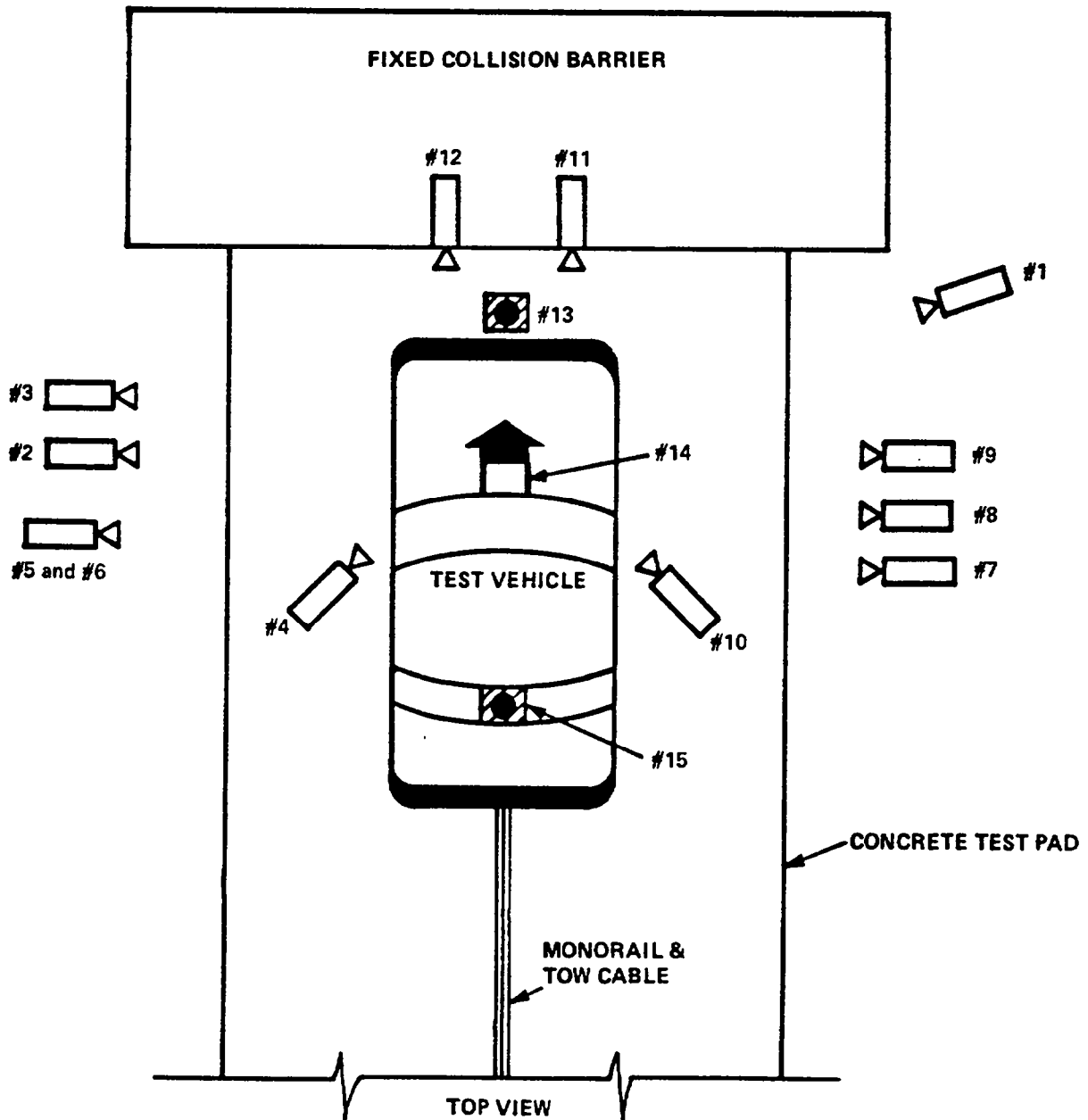


TABLE 5
HIGH-SPEED CAMERA LOCATIONS

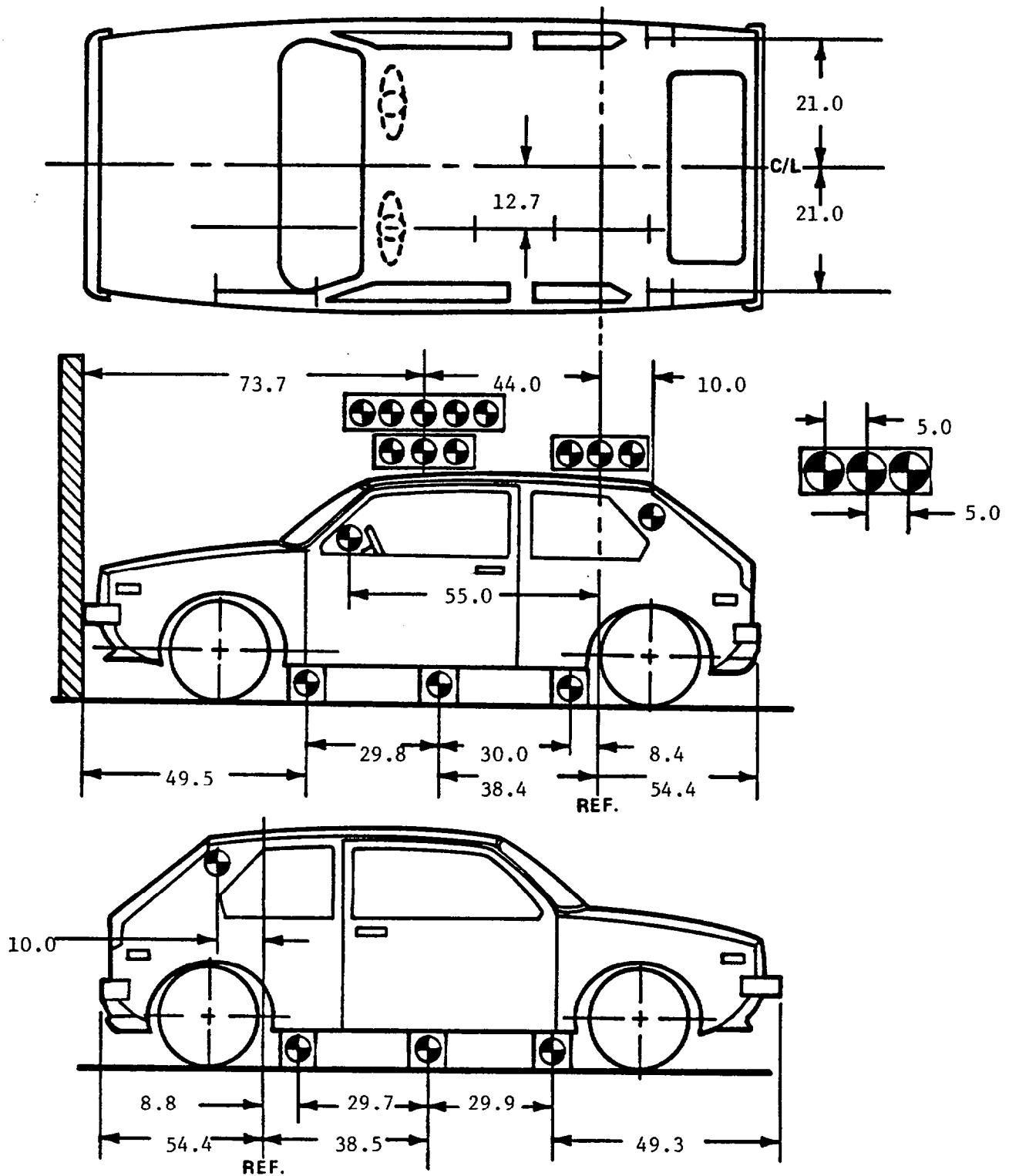
CAMERA NO.	VIEW	CAMERA POSITIONS (in)*			ANGLE** (deg)	FILM PLANE TO HEAD TARGET	LENS (mm)	SPEED (fps)
		X	Y	Z				
1	Real-Time Camera	-	-	-	-	-	-	24
2	Overall Left Side	232	64	41	-3	216	13	530
3	Left Side View	282	41	42	-5	266	25	530
4	Driver and Interior View	106	98	72	-17	-	13	740
5	Steering Column (bottom)	302	90	46	-4	286	25	540
6	Steering Column (top)	302	90	70	-8	286	25	545
7	Overall Right Side	244	69	42	-3	228	13	800
8	Right Side View	280	48	41	-1	264	25	770
9	Right Passenger View	305	60	58	-4	289	35	780
10	Passenger and Interior View	98	108	74	-19	-	25	600
11	Passenger Front View	22	18	75	-49	-	13	550
12	Driver Front View	22	18	75	-45	-	13	540
13	Windshield View	0	0	120	-60	-	13	540
14	Pit View of Engine	0	24	85	90	-	13	800
15	Pit View of Fuel Tank	0	93	86	90	-	13	780

Test No. CJ5801 Vehicle 1988 Volkswagen Jetta

* X = Film plane to monorail centerline
Y = Film plane to impact location
Z = Film plane to ground
** = Referenced to horizontal plane

Figure 8

VEHICLE TARGET LOCATIONS



(DIMENSIONS IN INCHES)

Figure 9

TEST VEHICLE MEASUREMENTS

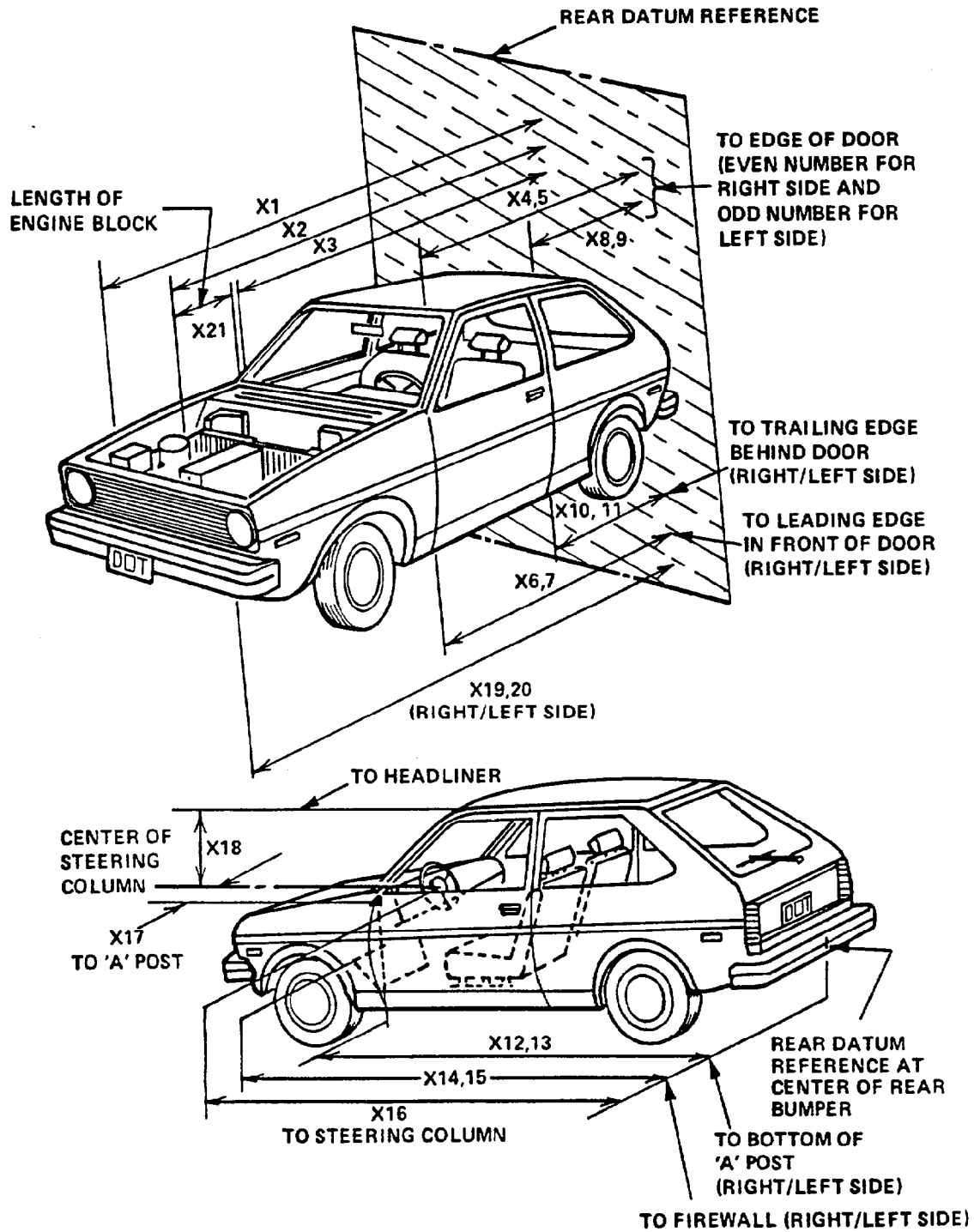


TABLE 6
VEHICLE MEASUREMENTS

No.		All Dimensions in Inches		
		Pre-Test	Post-Test	Differences
X1	Total Length of Vehicle at Centerline	172.1	156.0	16.1
X2	Rear Surface of Vehicle to Front of Engine	154.8	146.6	8.2
X3	Rear Surface of Vehicle to Firewall	138.9	130.8	8.1
X4	Rear Surface of Vehicle to Upper Leading Edge of Right Door	122.3	122.0	0.3
X5	Rear Surface of Vehicle to Upper Leading Edge of Left Door	122.1	121.5	-0.4
X6	Rear Surface of Vehicle to Lower Leading Edge of Right Door	121.3	120.9	0.4
X7	Rear Surface of Vehicle to Lower Leading Edge of Left Door	121.5	120.6	0.9
X8	Rear Surface of Vehicle to Upper Trailing Edge of Right Door	82.6	81.9	0.7
X9	Rear Surface of Vehicle to Upper Trailing Edge of Left Door	82.7	82.0	0.7
X10	Rear Surface of Vehicle to Lower Trailing Edge of Right Door	83.0	82.5	0.5
X11	Rear Surface of Vehicle to Lower Trailing Edge of Left Door	83.0	82.3	0.7
X12	Rear Surface of Vehicle to Bottom of "A" Post of Right Side	121.6	121.1	0.5
X13	Rear Surface of Vehicle to Bottom of "A" Post of Left Side	121.6	121.0	0.6
X14	Rear Surface of Vehicle to Firewall, Right Side	131.5	129.5	2.0
X15	Rear Surface of Vehicle to Firewall, Left Side	131.3	131.8	-0.5
X16	Rear Surface of Vehicle to Steering Column	105.5	105.3	0.2
X17	Center of Steering Column to "A" Post	15.5	16.0	-0.5
X18	Center of Steering Column to Headliner	18.3	19.1	-0.8
X19	Rear Surface of Vehicle to Right Side of Front Bumper	170.0	154.5	15.5
X20	Rear Surface of Vehicle to Left Side of Front Bumper	170.2	155.6	14.6
X21	Length of Engine Block	16.0	16.0	0.0

Section 4

SUMMARY OF RESULTS OF FMVSS NOS. 208, 212, 219(P) AND 301-75

- o "Occupant Crash Protection," FMVSS No. 208 Data**
- o "Windshield Mounting," FMVSS No. 212 Data**
- o "Windshield Zone Intrusion," FMVSS No. 219 (Partial) Data**
- o "Fuel System Integrity," FMVSS No. 301-75**

TABLE 7
DUMMY INJURY CRITERIA VALUES

	MAXIMUM ACCELERATION ("G")							
	HEAD				CHEST			
	X	Y	Z	R	X	Y	Z	R*
DUMMY (1)	-53	-38	59	71	-52	-23	11	50
DUMMY (2)	-23	15	74	75	-43	17	7	43

	MAXIMUM FORCE - FEMUR LOAD (LBS)	
	Right Femur	Left Femur
DUMMY (1)	1421	1072
DUMMY (2)	1213	822

	HEAD INJURY CRITERIA **			
	HIC	36 millisecond Maximum		AVE. ACC. (g) t ₁ TO t ₂
		t ₁ (SEC)	t ₂ (SEC)	
DUMMY (1)	678	.07492	.11092	51.3
DUMMY (2)	656	.07065	.10665	50.6

*Defined as exceeding 0.003 sec. duration

**As defined in FMVSS No. 208

TABLE 8

FMVSS NO. 208 - SEAT BELT WARNING SYSTEM CHECK

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

Log time duration of audible warning signal = 5.9 sec.

Log time duration of reminder light operation = continuous sec.

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

Log time duration of audible warning signal = 0.0 sec.
(audible warning should not operate)

Log time duration of reminder light operation = 5.6 sec.

Note wording of visual warning:

Fasten seat belt

Fasten Belt

Symbol 101-80 X

TABLE 9

FMVSS NO. 208 - LABELING AND DRIVER'S MANUAL INFORMATION

Locate label which describes manufacturers maintenance or replacement schedule for crash-deployed occupant protection system.

Describe location: Not Applicable

TABLE 10

FMVSS NO 208 - READINESS INDICATOR

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.

Is the system totally mechanical? YES X NO

TABLE 11
FMVSS NO. 208 - COMFORT AND CONVENIENCE TEST SUMMARY

Test Vehicle NHTSA No.:	<u>CJ5801</u>
Make/Model:	<u>1988 VW Jetta</u>
Date of Comfort/Convenience Check:	<u>7-8-88</u>
Technician Performing Check:	<u>RFH, Jr.</u>
GVWR:	<u>3252</u>

Seat belt comfort and convenience requirements cover vehicles manufactured on or after September 1, 1986, which have a gross vehicle weight rating of 10,000 pounds or less. Exemptions to this rule are belts installed in a walk-in, van-type vehicle and manual Type 2 belt systems installed in the front outboard seating positions of passenger automobiles. On or after September 1, 1989, the exemption of the Type 2 manual seat belts installed in the front outboard seating positions of passenger automobiles will change depending on the states' enactment of mandatory usage laws.

Was vehicle built after or on September 1, 1986, and is it equipped with:

1. Automatic seat belts YES X NO

If yes, go to requirements D1, D2 and D3

TABLE 11 (continued)

D1
CONVENIENCE HOOKS

A convenience hook or other device is provided to stow seat belt webbing to facilitate entering or exiting the vehicle.

YES _____ NO X

D2
WEBBING TENSION - RELIEVING DEVICE

The seat belt assembly installed in the outboard designated seating position has either manual or automatic tension relieving devices permitting the introduction of slack in the webbing of the should belt ("comfort clips" or "window shade" devices).

YES _____ NO X

D3
BELT CONTACT FORCE

1. Do not measure the belt contact force if the manual or automatic seat belt assemblies in this vehicle incorporate a webbing tension relieving device.

YES _____ NO X

2. Seats are adjusted according to instructions in Appendix B.

YES X NO _____

3. The test dummies are positioned according to dummy position placement instructions in Appendix B and Appendix C.

YES X NO _____

4. Close the vehicle's adjacent door, 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. Then fasten the latch. 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. Measure the contact force exerted by the belt webbing on the dummy's chest. The contact force is 0.3 pounds. Contact the COTR if the contact force exceeds 0.7 pounds.

Figure 10

FMVSS NO. 212 - "WINDSHIELD MOUNTING" DATA SHEET

DETAILS OF WINDSHIELD MOUNTING SUCH AS RETENTION METHOD, TRIM TYPE, ETC.:

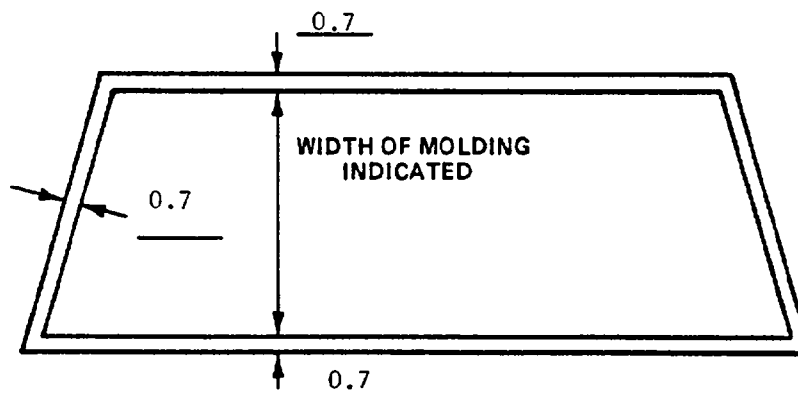
Windshield is bonded in place and covered with 0.7 inch molding.

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

FMVSS 212 TEST DATA:

	WINDSHIELD PREIPHERY		
	PRE-TEST (in.)	POST-TEST (in.)	PERCENT RETENTION
RIGHT SIDE	76.5	76.5	100%
LEFT SIDE	76.5	76.5	100%
TOTAL	153.0	153.0	100%

AREA OF RETENTION FAILURE:



FRONT VIEW

FAILURE DETAILS:

NONE

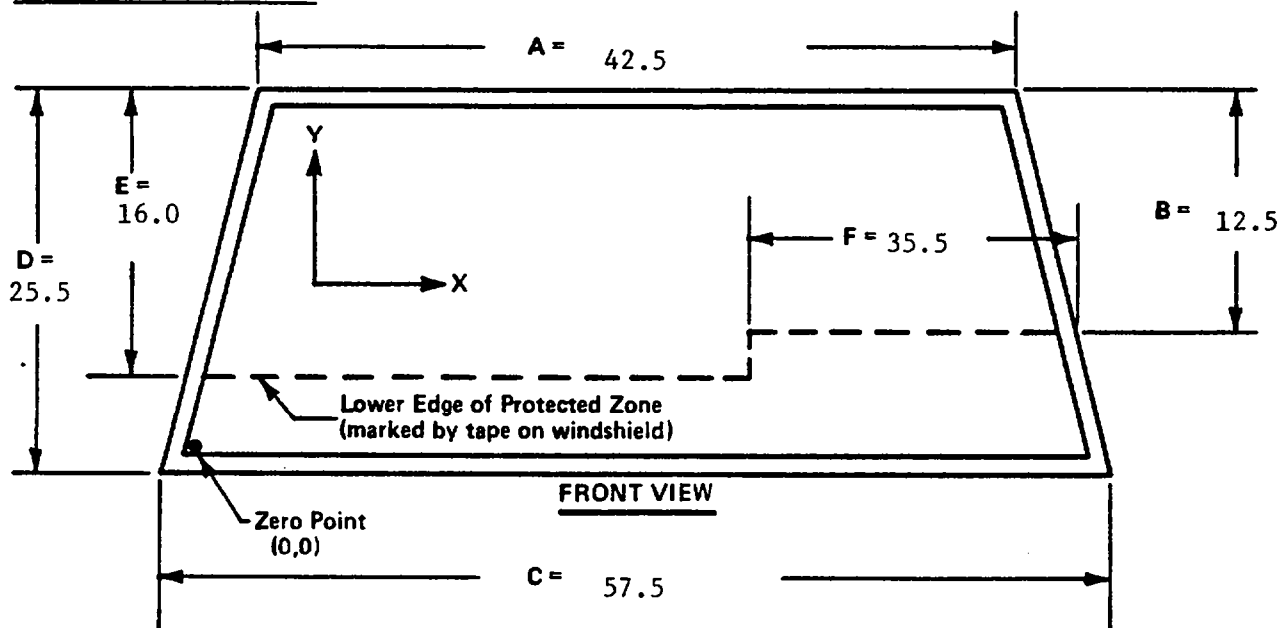
Figure 11

FMVSS NO. 219 (PARTIAL) - "WINDSHIELD ZONE INTRUSION" DATA SHEET

PROTECTED ZONE LOWER EDGE REQUIREMENT:

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

FMVSS 219 TEST DATA:



DETAILS OF WINDSHIELD GLASS PENETRATION GREATER THAN 1/4":

(Show location of penetration on above sketch)

	COORDINATES	
	X	Y
1.		
2.		
3.		
4.		

TABLE 12

FUEL SYSTEM INTEGRITY POST IMPACT TEST DATAFMVSS NO. 301

TEST VEHICLE NHTSA NO.:

C J 5 8 0 1

TEST DATE: 8-30-88

Vehicle Mfr/Make/Model:

1988 Volkswagen Jetta GL

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

TEST VEHICLE IMPACT TYPE

X

Frontal (30 mph)

-

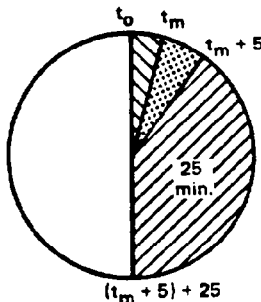
Oblique (30 mph) with ___° barrier face
first contacting _____
(driver/passenger) side

-

Rear Moving Barrier (30 mph)

-

Lateral Moving Barrier (20 mph)

FUEL SPILLAGE MEASUREMENTSOLVENT SPILLAGE DETAILS

NONE

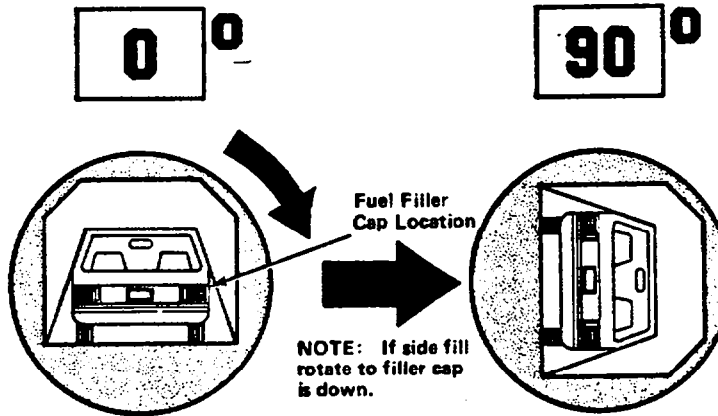
1. From impact until vehicle motion ceases
2. For 5 minute period after vehicle motion ceases
3. For next 25 minutes

ACTUAL	MAX ALLOWED
0	1 oz
0	5 oz
0	1 oz/1 min

FMVSS NO. 301 STATIC ROLLOVER DATA SHEET

Veh. NHTSA ID No.:
CJ5801

TEST PHASE:



I. DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:

Rollover Fixture 90° Rotation Time 3 minutes 00 seconds
(Spec. Range = 1 to 3 minutes)

FMVSS 301 Position Hold Time + 05 minutes 00 seconds

TOTAL 8 minutes 00 seconds

Next whole minute interval 8 minutes

II. FMVSS 301 REQUIREMENTS:

(1) Time Period

First 5 min FROM onset of rotation	6th min.	7th min.	8th min. if reqd.
------------------------------------	----------	----------	----------------------

(2) Maximum Allowable Solvent Spillage

5 ounces	1 ounce	1 ounce	1 ounce
----------	---------	---------	---------

III. ACTUAL TEST VEHICLE SOLVENT SPILLAGE:

0	0	0	0
---	---	---	---

Note: Record spillage for
whole minute intervals
only as determined
above.

IV. SOLVENT SPILLAGE LOCATION(S):

NONE

Veh. NHTSA ID No.:
CJ5801

The diagram illustrates the rotation of the front panel. On the left, a circular inset shows the front panel at a 90° angle, with a curved arrow indicating the direction of rotation. On the right, a circular inset shows the front panel at a 180° angle, with a large straight arrow pointing from the 90° position to the 180° position.

Rollover Fixture 90° Rotation Time 3 minutes 00 seconds
(Spec. Range = 1 to 3 minutes)

TOTAL	<u>8</u> minutes <u>00</u> seconds
Next whole minute interval	8 minutes

(1) Time Period

First 5 min FROM onset of rotation	6th min.	7th min.	8th min. if reqd.
------------------------------------	----------	----------	----------------------

5 ounces	1 ounce	1 ounce	1 ounce
----------	---------	---------	---------

0	0	0	0
---	---	---	---

IV. SOLVENT SPILLAGE LOCATION(S):

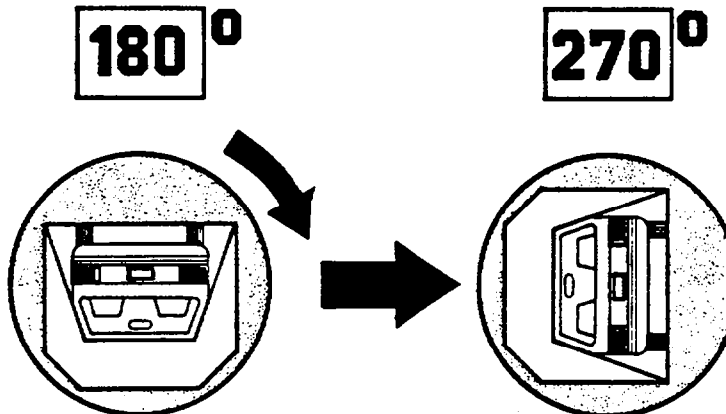
4-12

7669-7

TABLE 13 (CONTINUED)
FMVSS NO. 301 STATIC ROLLOVER DATA SHEET

Veh. NHTSA ID No.:
CJ5801

TEST PHASE:



I. DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:

Rollover Fixture 90° Rotation Time
(Spec. Range = 1 to 3 minutes) 03 minutes 00 seconds

FMVSS 301 Position Hold Time + 05 minutes 00 seconds

TOTAL 08 minutes 00 seconds

Next whole minute interval 8 minutes

II. FMVSS 301 REQUIREMENTS:

(1) Time Period

First 5 min FROM onset of rotation	6th min.	7th min.	8th min. if reqd.
------------------------------------	----------	----------	----------------------

(2) Maximum Allowable Solvent Spillage

5 ounces	1 ounce	1 ounce	1 ounce
----------	---------	---------	---------

III. ACTUAL TEST VEHICLE SOLVENT SPILLAGE:

0	0	0	0
---	---	---	---

Note: Record spillage for
whole minute intervals
only as determined
above.

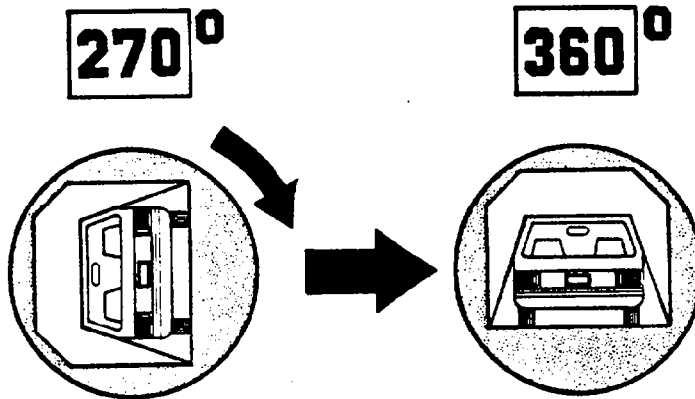
IV. SOLVENT SPILLAGE LOCATION(S):

NONE

TABLE 13 (continued)
FMVSS NO. 301 STATIC ROLLOVER DATA SHEET

Veh. NHTSA ID No.:
 CJ5801

TEST PHASE:



I. DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:

Rollover Fixture 90° Rotation Time (Spec. Range = 1 to 3 minutes)	<u>03</u> minutes <u>00</u> seconds
FMVSS 301 Position Hold Time +	<u>05</u> minutes <u>00</u> seconds
TOTAL	<u>08</u> minutes <u>00</u> seconds
Next whole minute interval	<u>8</u> minutes

II. FMVSS 301 REQUIREMENTS:

(1) Time Period

First 5 min FROM onset of rotation	6th min.	7th min.	8th min. if reqd.
------------------------------------	----------	----------	----------------------

(2) Maximum Allowable Solvent Spillage

5 ounces	1 ounce	1 ounce	1 ounce
----------	---------	---------	---------

III. ACTUAL TEST VEHICLE SOLVENT SPILLAGE:

0	0	0	0
---	---	---	---

Note: Record spillage for whole minute intervals only as determined above.

IV. SOLVENT SPILLAGE LOCATION(S):

NONE

TABLE 14

TEST VEHICLE NONCOMPLIANCE NOTICENHTSA CONTRACT LAB: Calspan Advanced Technology CenterLAB. PROJECT MANAGER & TELEPHONE NO.: Walter E. Levan (716) 632-7500DATE OF TEST: August 30, 1988 VEH. NHTSA No. CJ5801VEHICLE MANUFACTURER: Volkswagen AGModel Year 1988 VIN: WVWFB9169JW363357Body Style: Jetta GL Build Date: 1/88DUMMY STABILIZED TEMPERATURE AT TIME OF TEST: 70 °F (Spec. = 66-78°F)IMPACT VELOCITY: 29.1 mph TIME OF TEST: 11:45TYPE OF AUTOMATIC RESTRAINT SYSTEM: 2-point automatic torso beltFAILURE DETAILS: Vehicle appears to comply with the requirement ofFMVSS Nos 208, 212, 219 (partial) and 301.

Appendix A

PHOTOGRAPHS

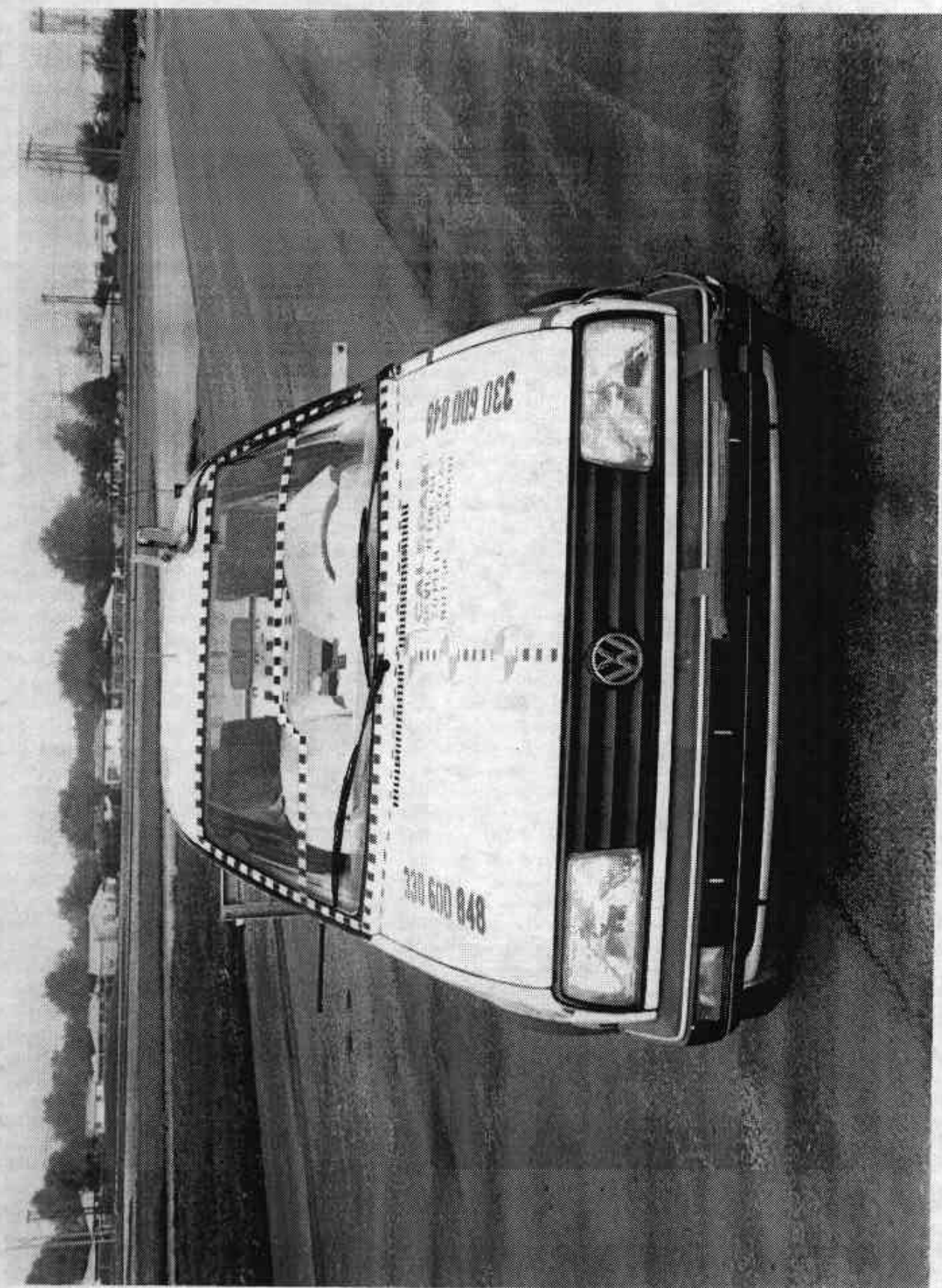


Figure A-1 PRE-TEST FRONT VIEW



Figure A-2 POST-TEST FRONT VIEW

A-3

7669-7

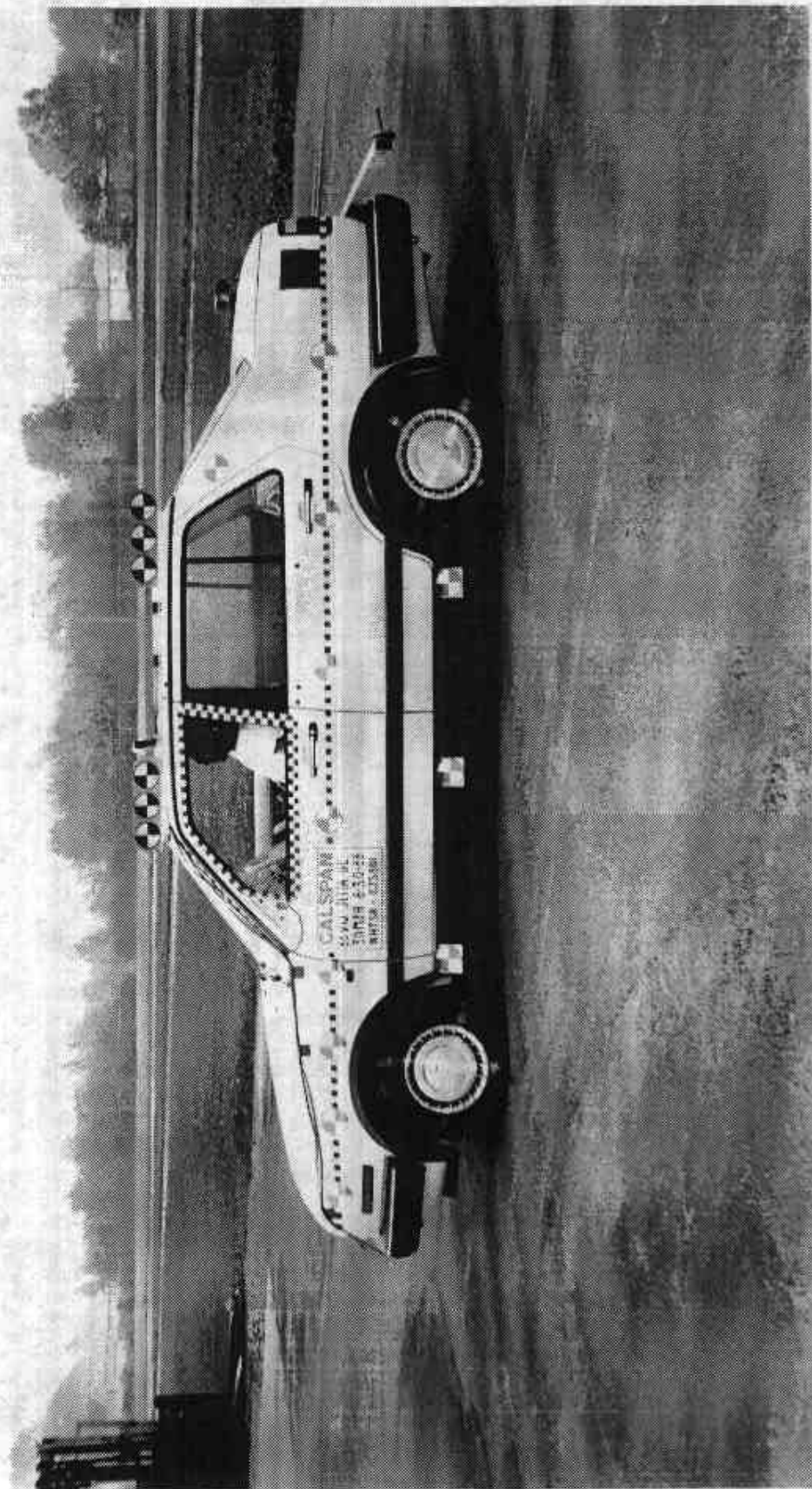


Figure A-3 PRE-TEST LEFT SIDE VIEW

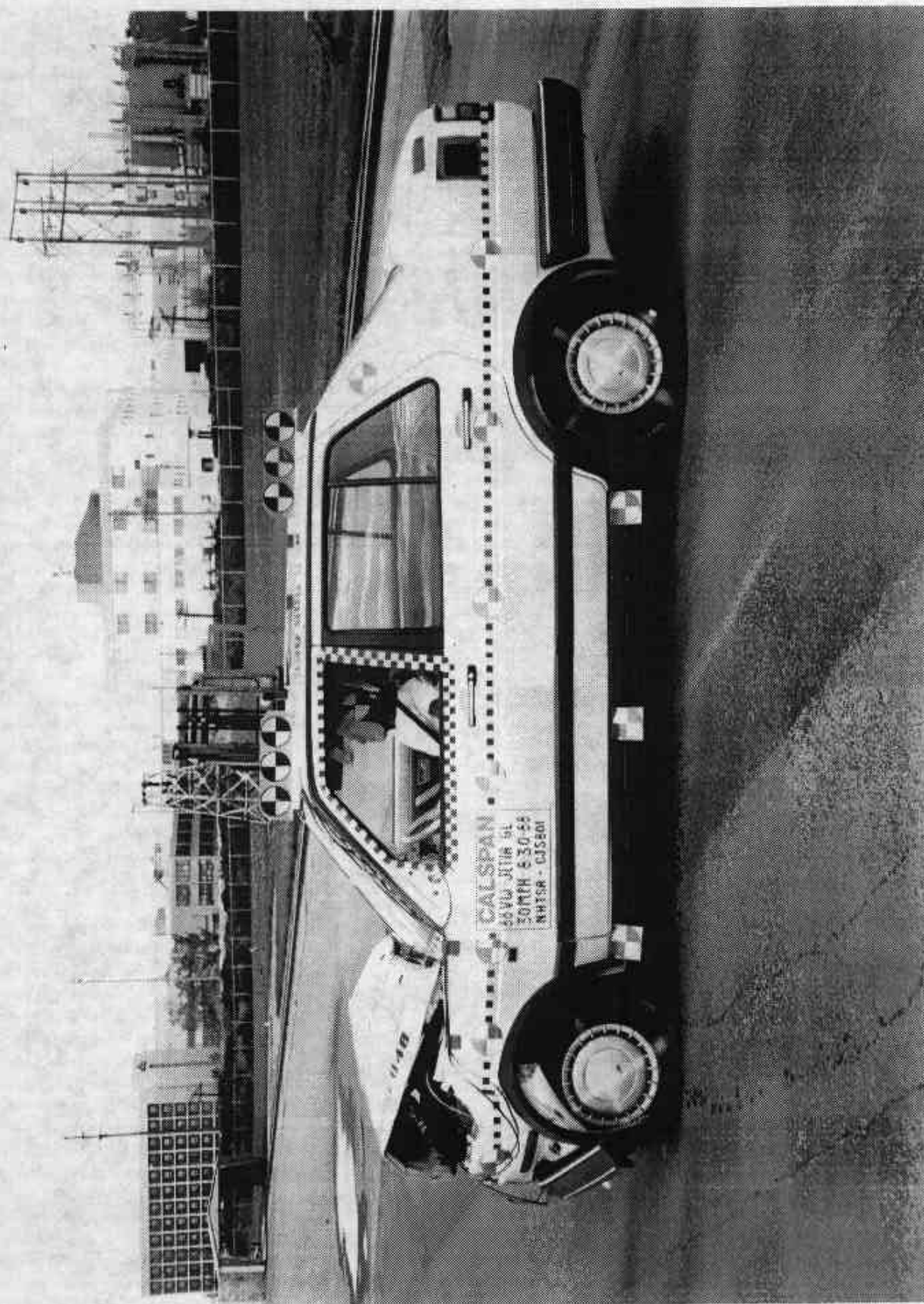


Figure A-4 POST-TEST LEFT SIDE VIEW

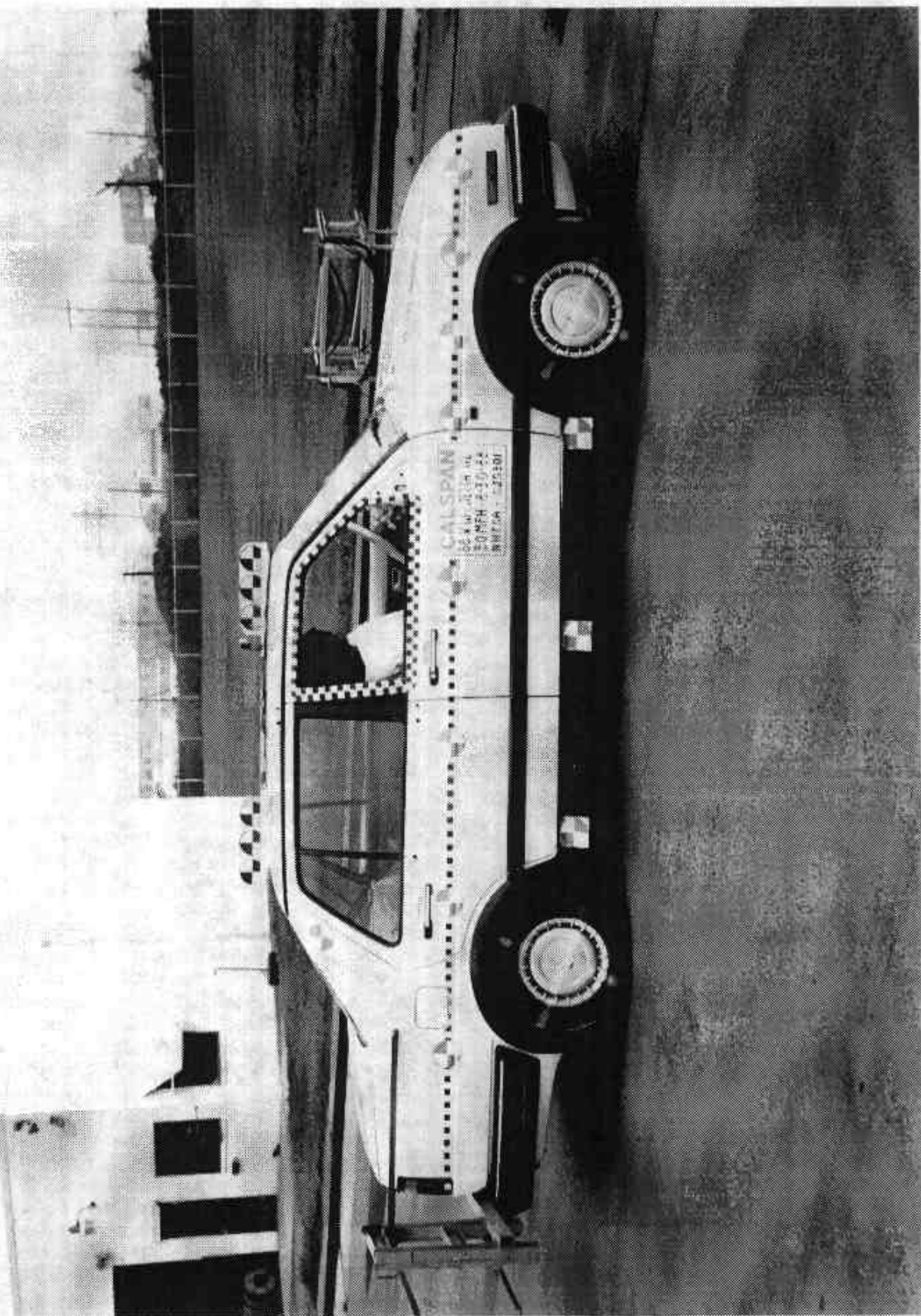


Figure A-5 PRE-TEST RIGHT SIDE VIEW

A-6

7669-7

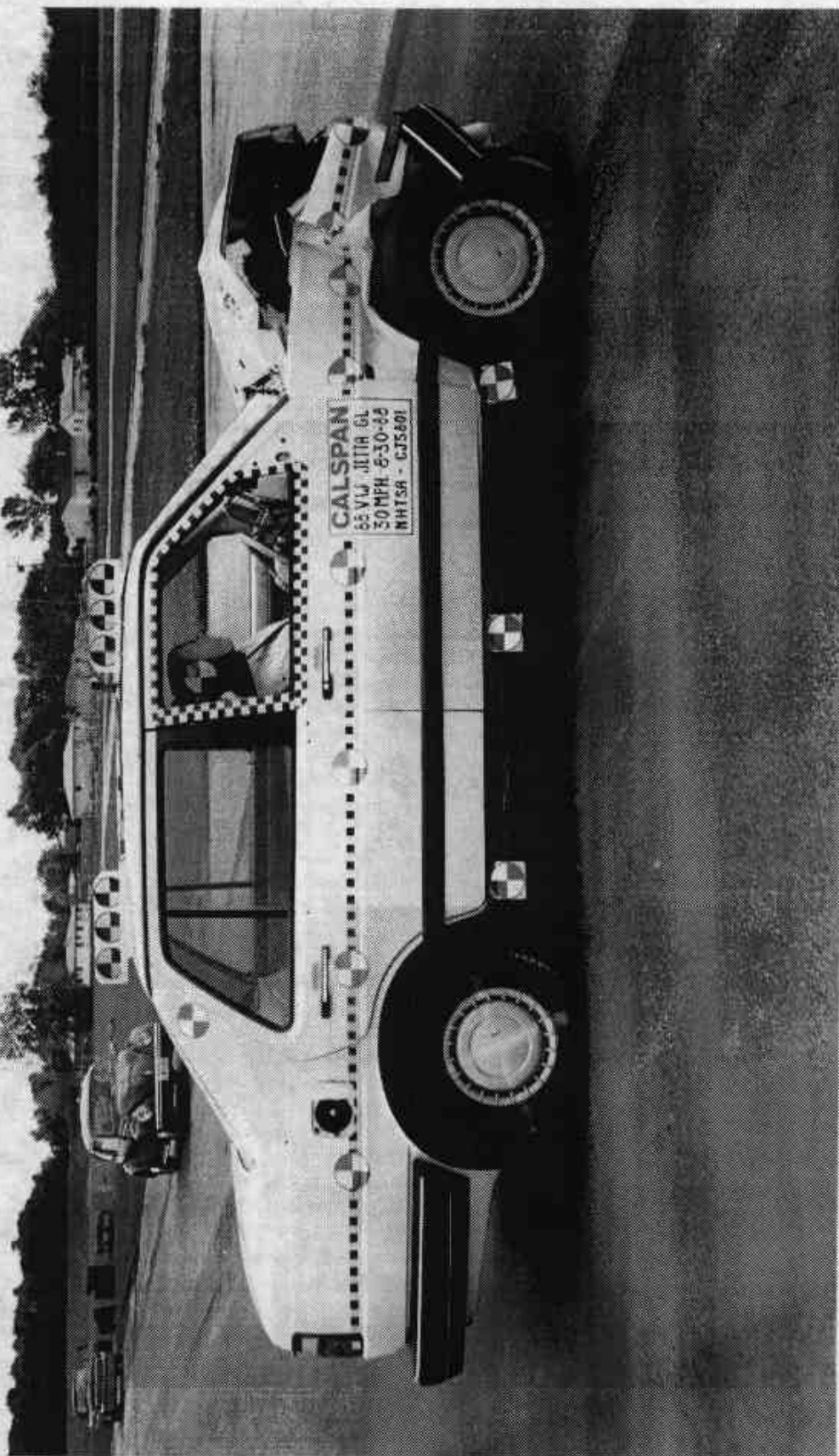


Figure A-6 POST-TEST RIGHT SIDE VIEW

A-7

7669-7



Figure A-7 PRE-TEST RIGHT FRONT THREE-QUARTER VIEW

A-8

7669-7

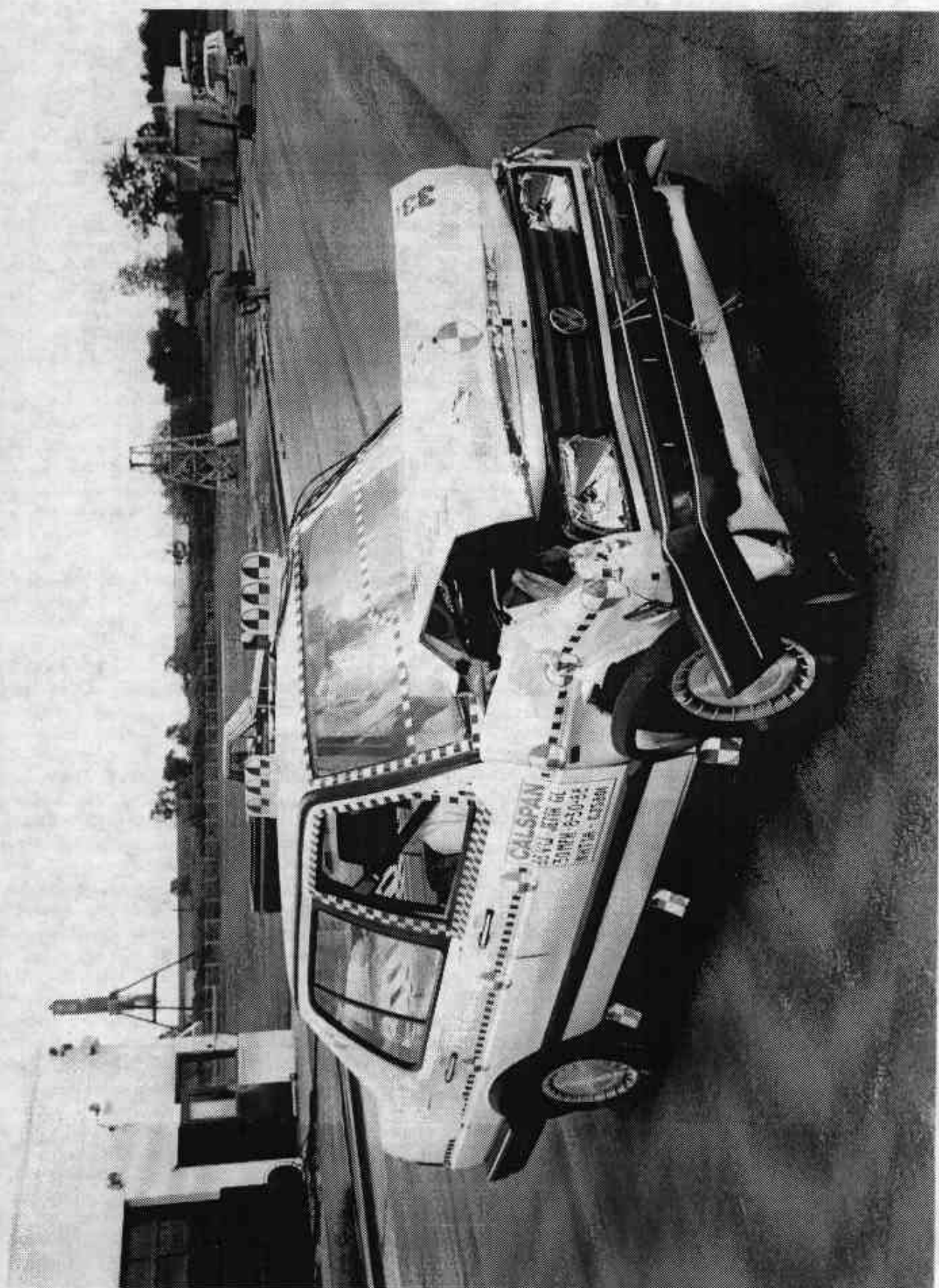


Figure A-8 POST-TEST RIGHT FRONT THREE-QUARTER VIEW



Figure A-9 PRE-TEST LEFT REAR THREE-QUARTER VIEW

A-10

7669-7



Figure A-10 POST-TEST LEFT REAR THREE-QUARTER VIEW

A-11

7669-7

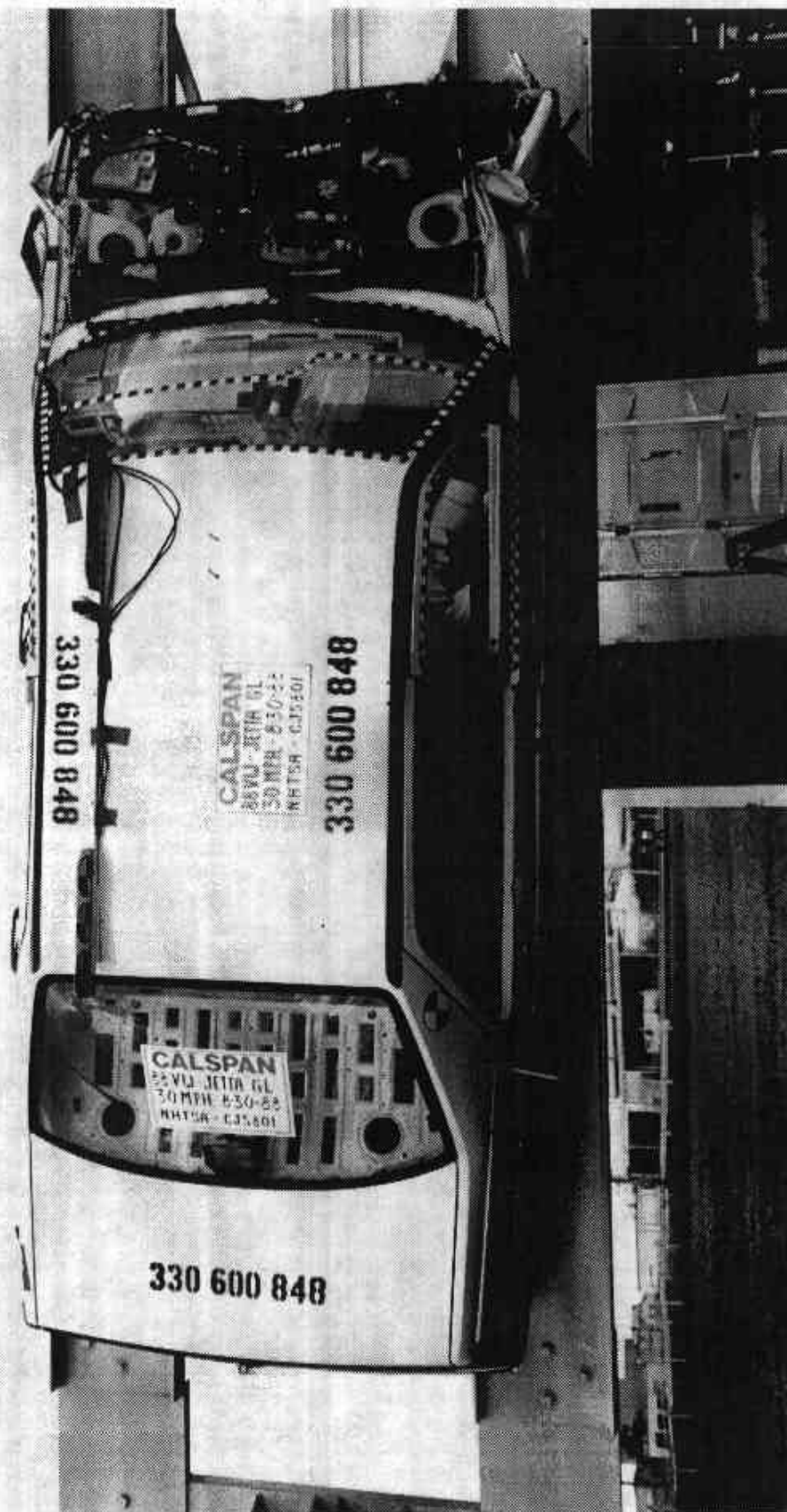


Figure A-11 POST-TEST TOP VIEW

A-12

7669-7

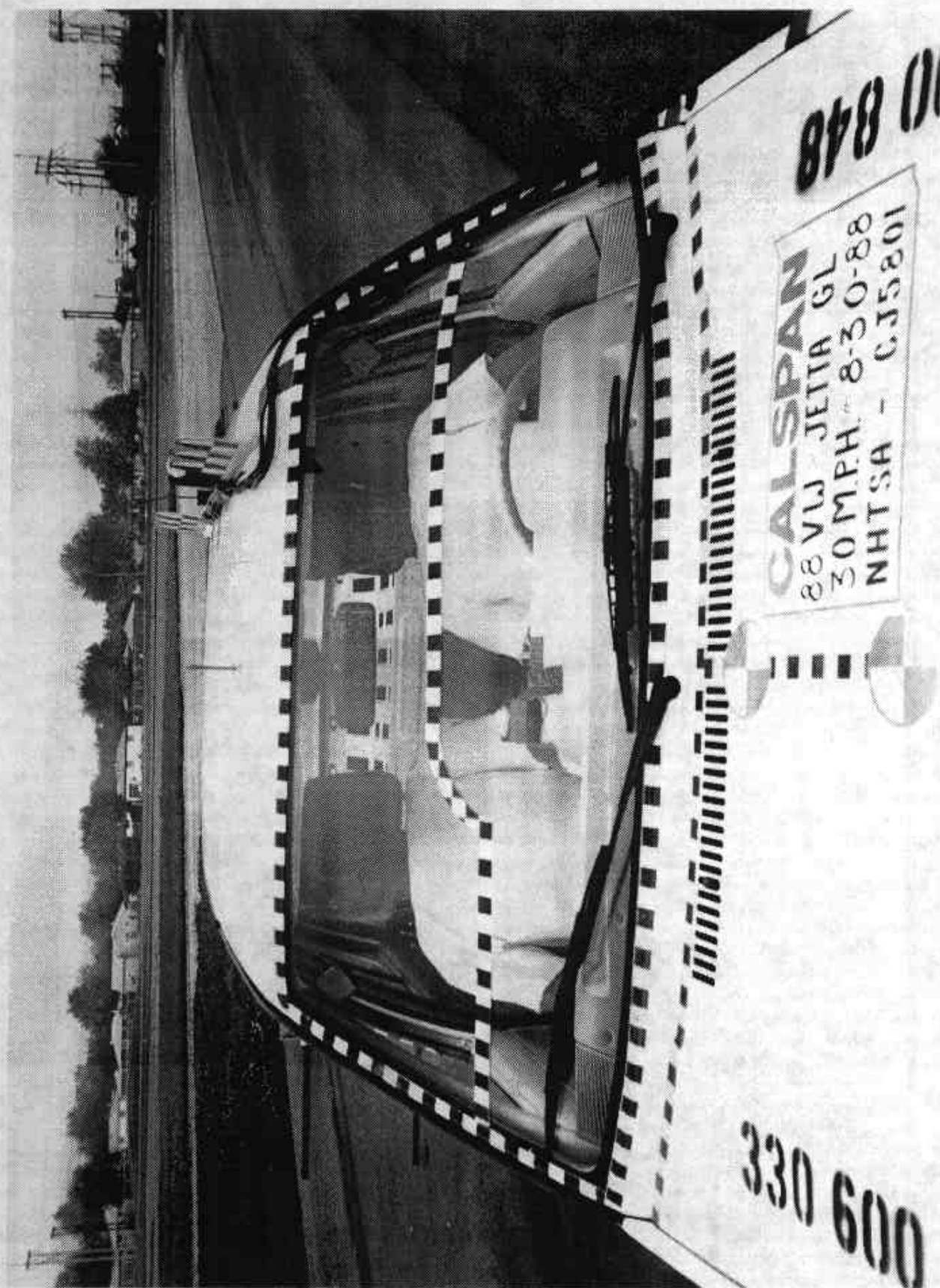


Figure A-12 PRE-TEST WINDSHIELD VIEW

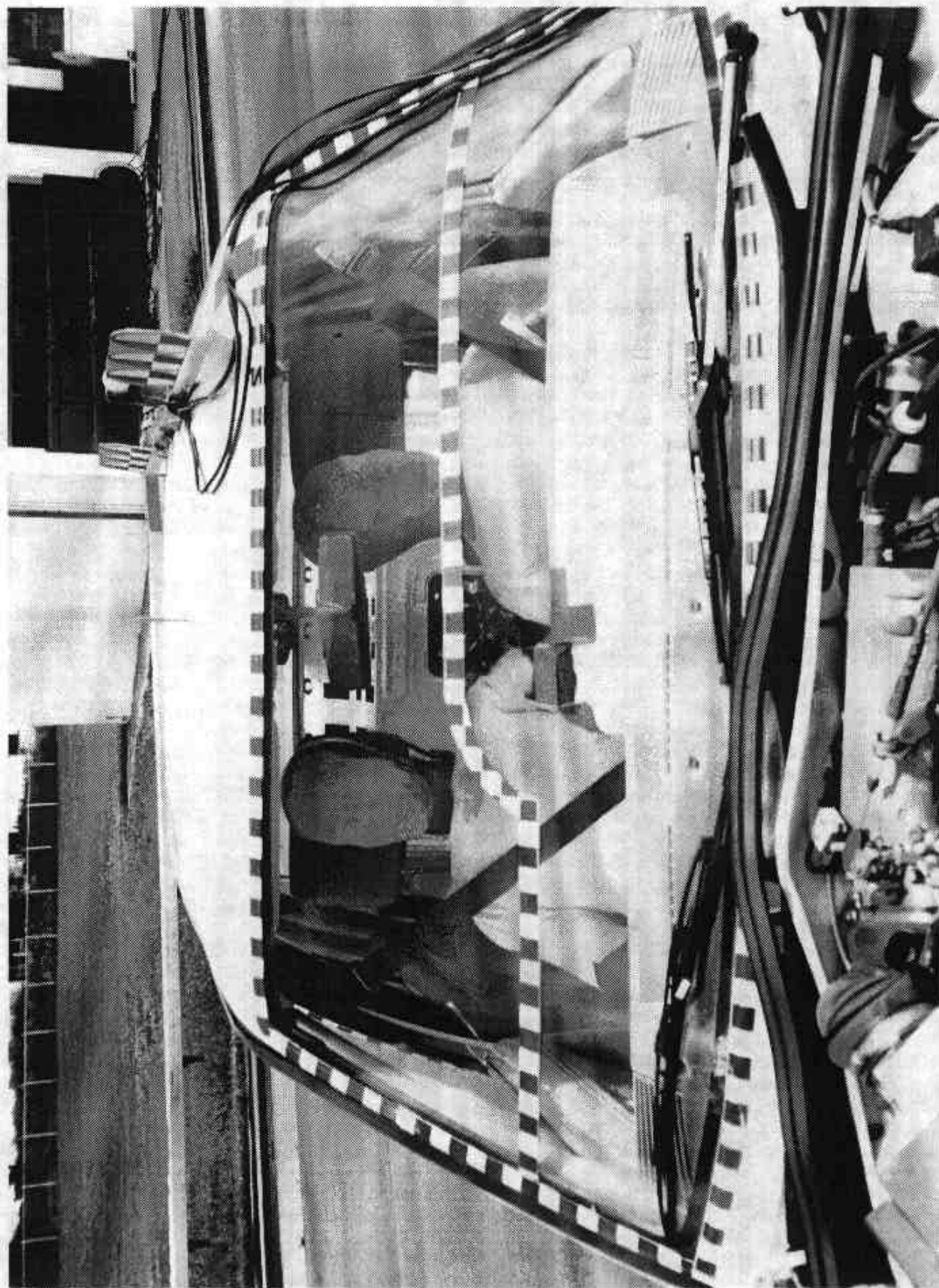


Figure A-13 POST-TEST WINDSHIELD VIEW

A-14

7669-7

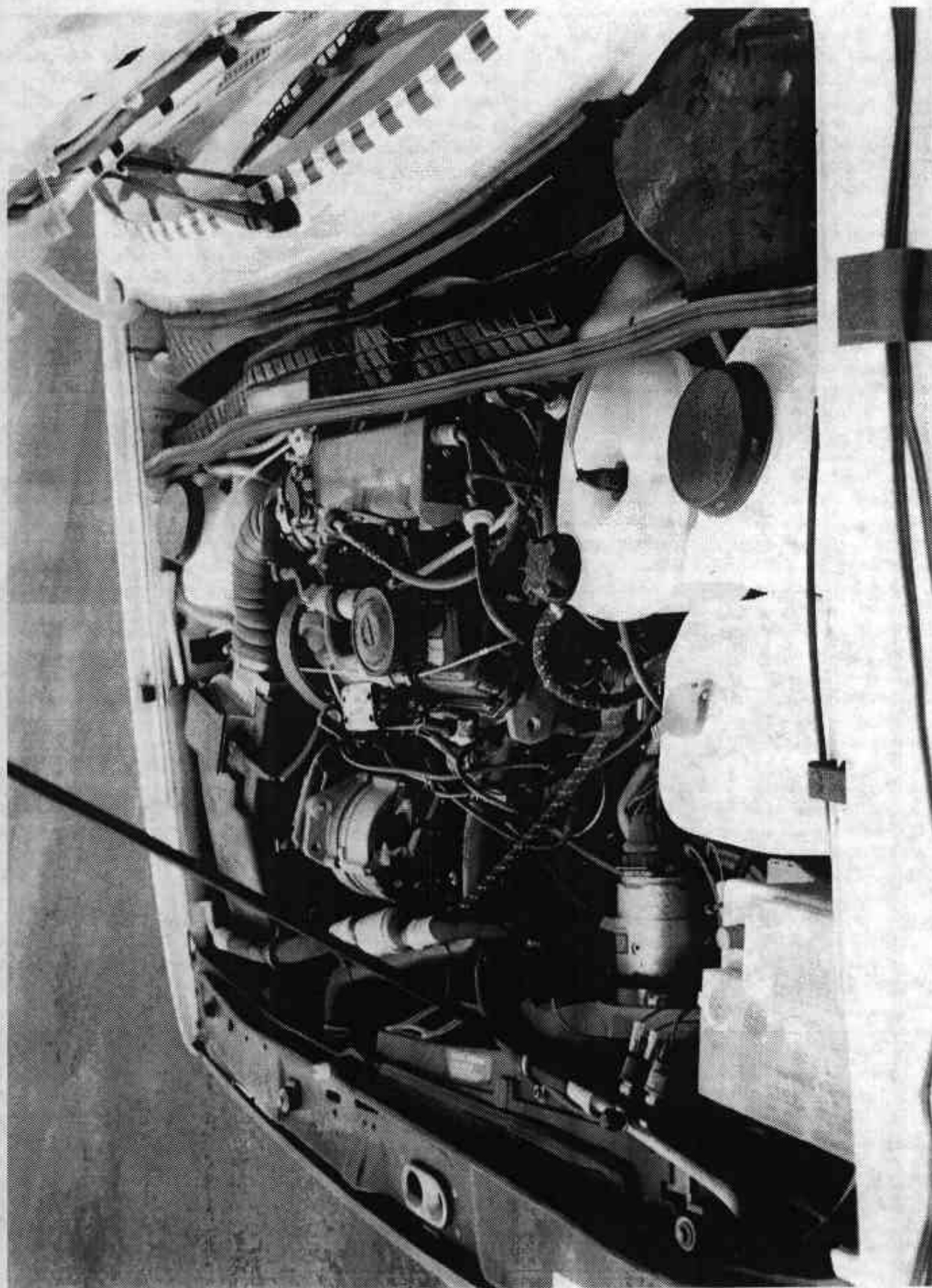


Figure A-14 PRE-TEST ENGINE COMPARTMENT VIEW

A-15

7669-7

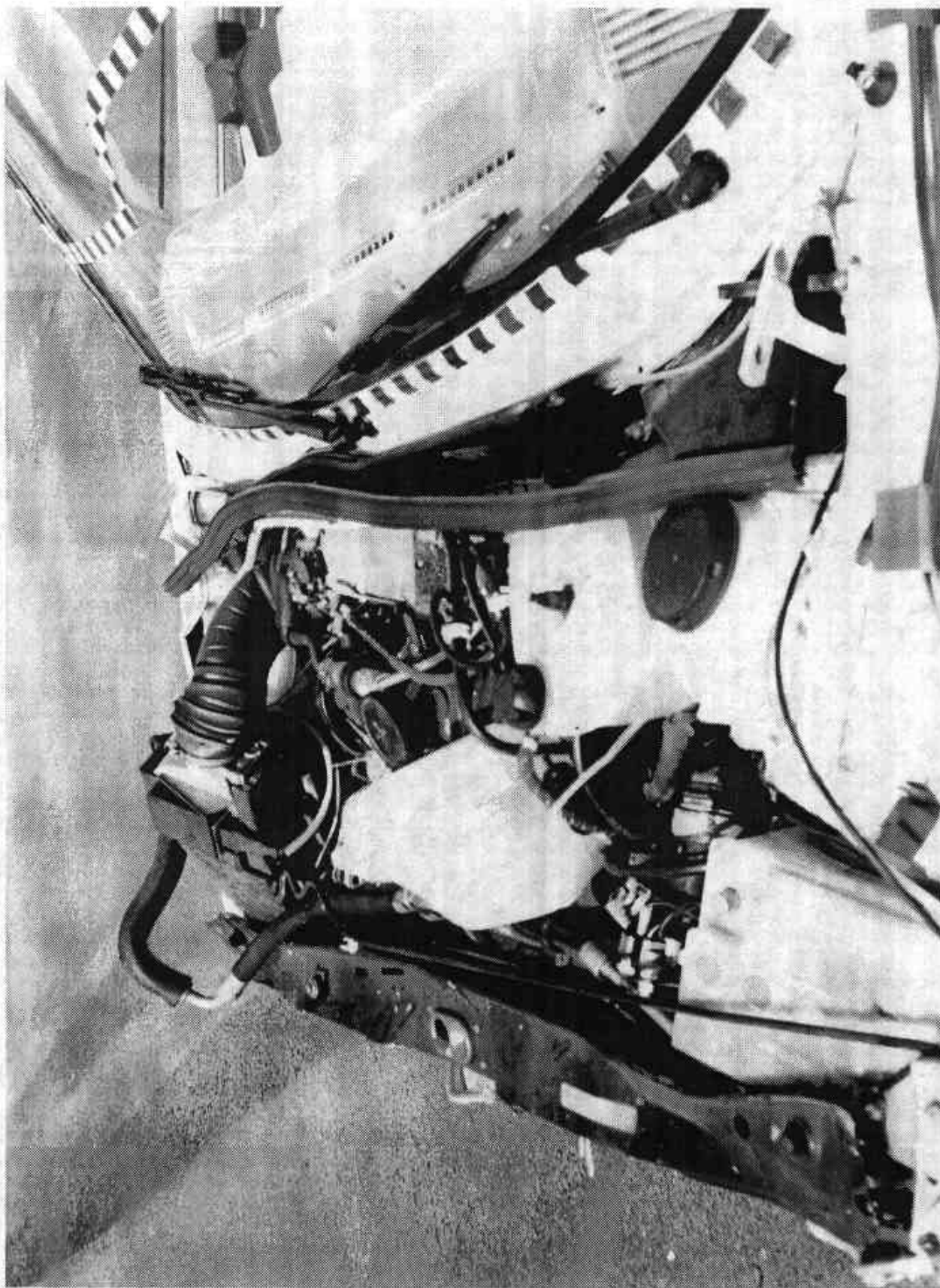


Figure A-15 POST-TEST ENGINE COMPARTMENT VIEW

A-16

7669-7

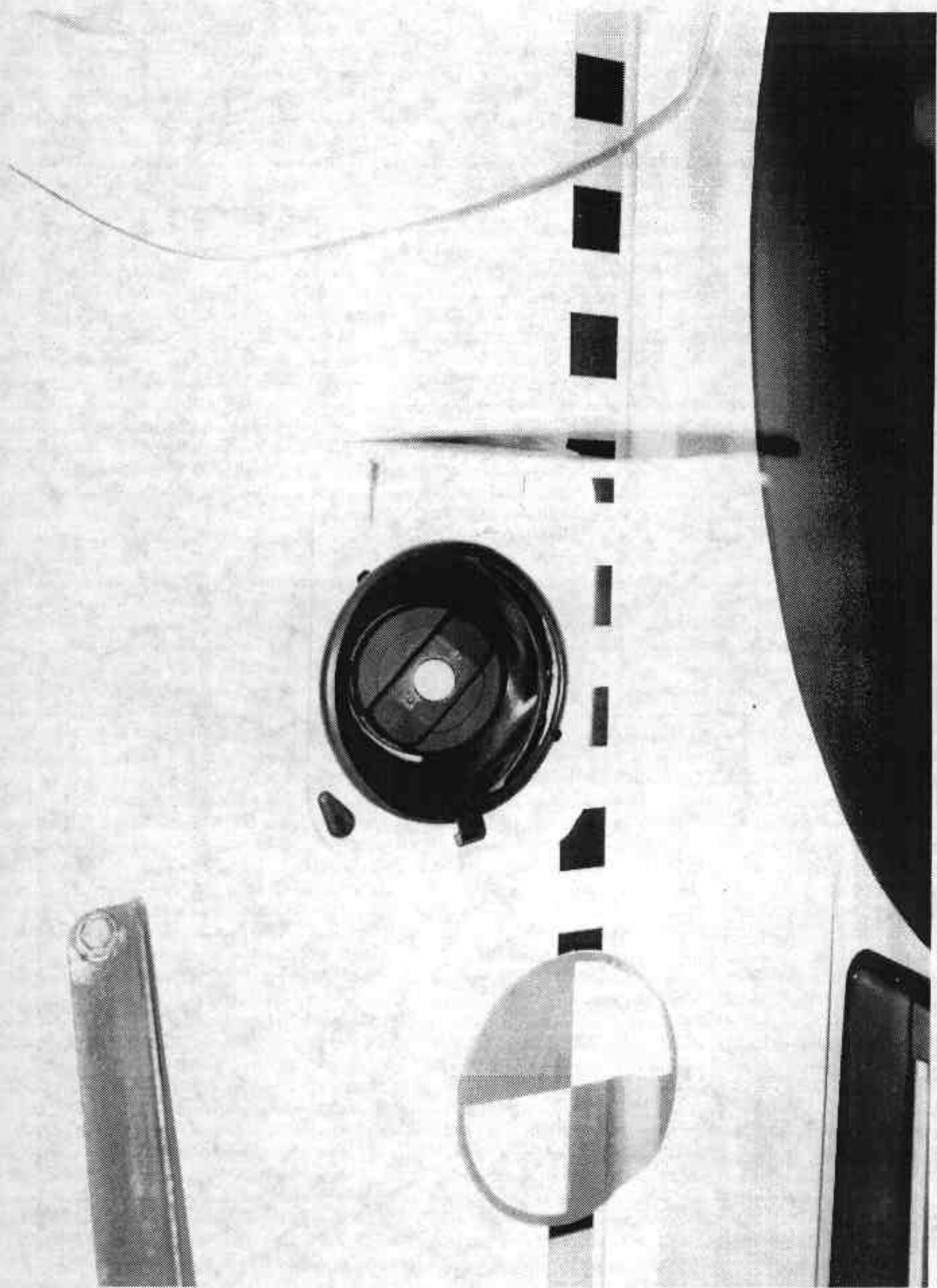


Figure A-16 PRE-TEST FUEL FILLER CAP VIEW

A-17

7669-7

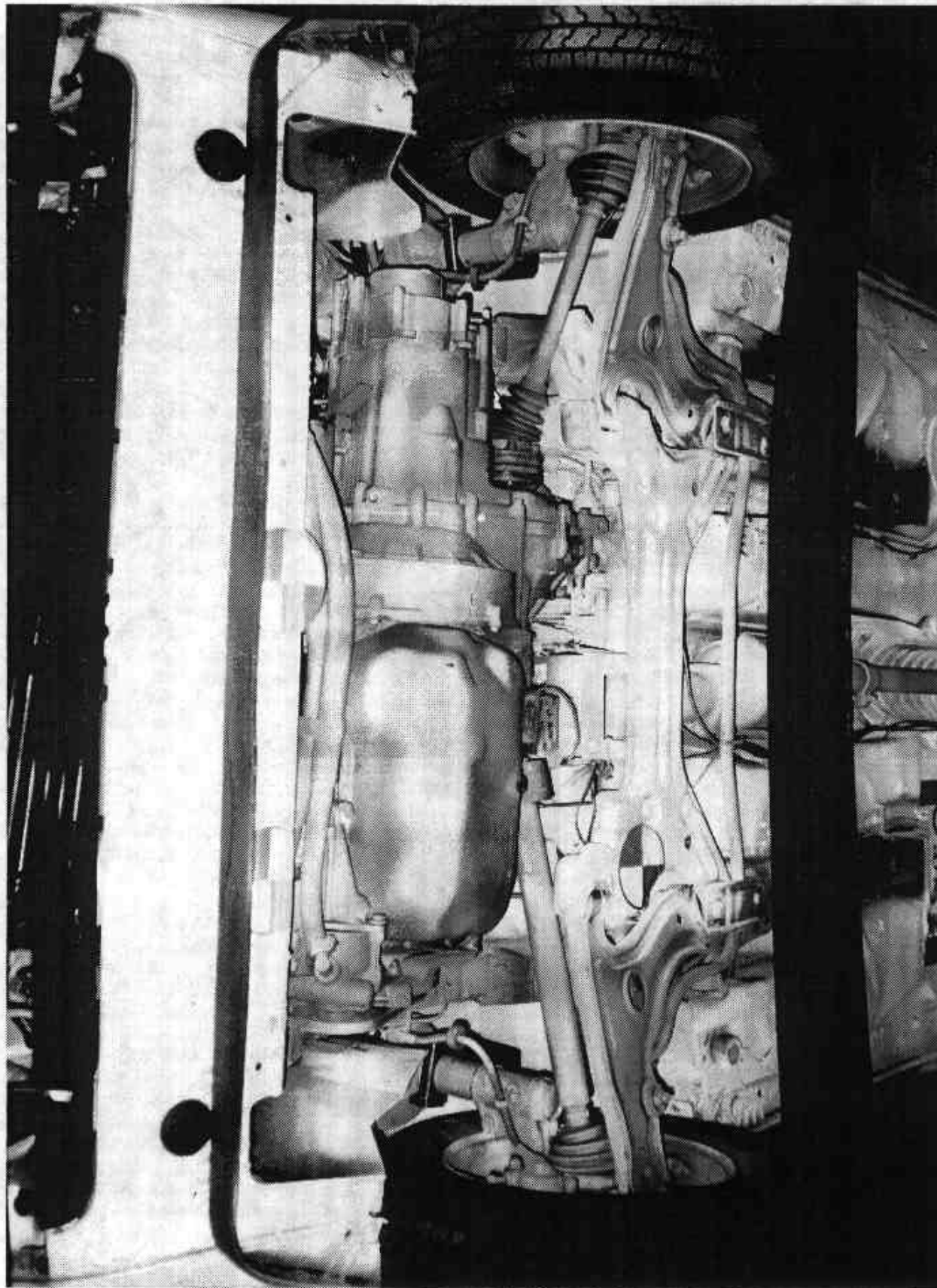


Figure A-17 PRE-TEST FRONT UNDERBODY VIEW

A-18

7669-7

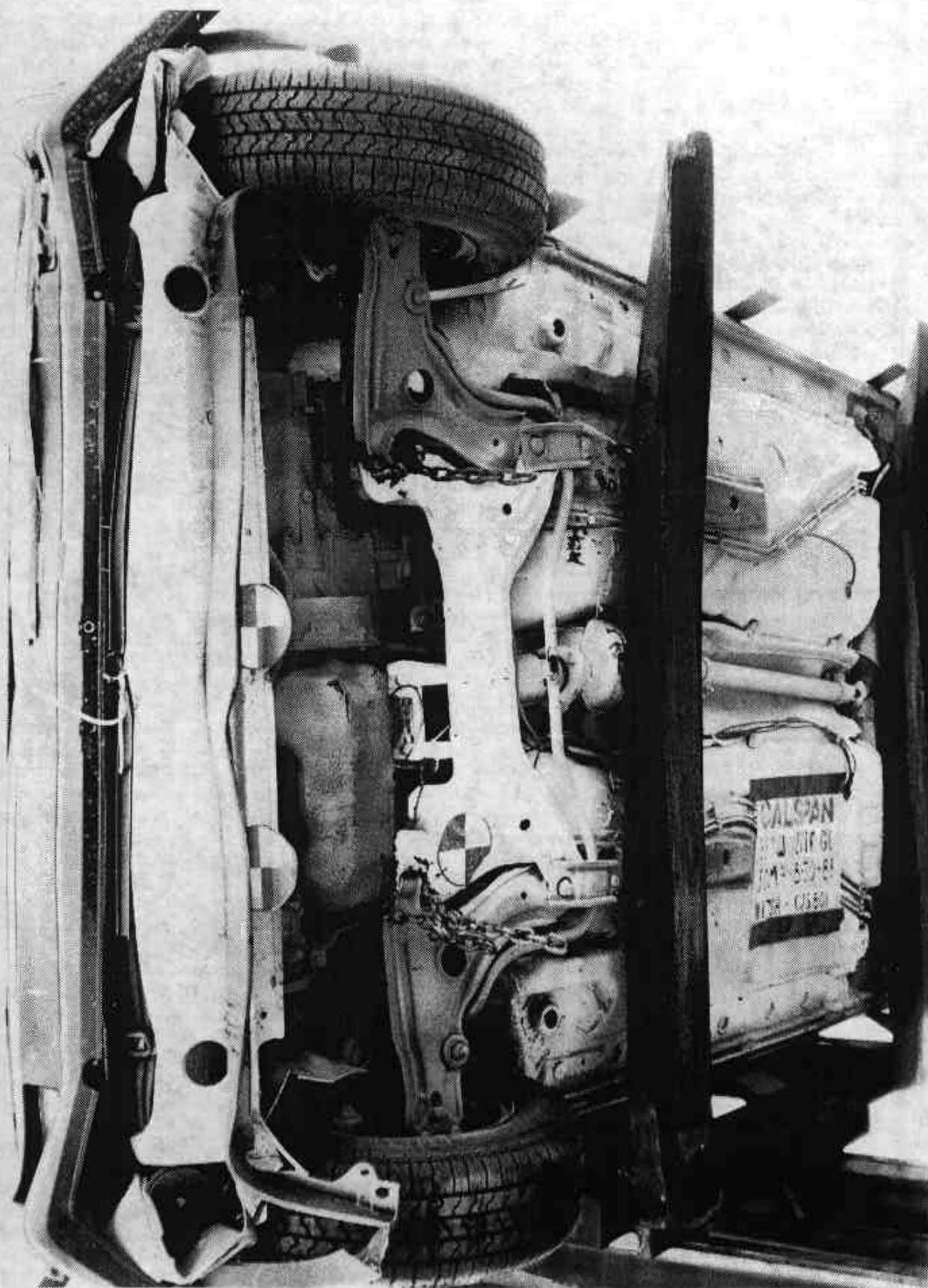


Figure A-18 POST-TEST FRONT UNDERBODY VIEW

A-19

7669-7



Figure A-19 PRE-TEST FRONT SIDE UNDERBODY VIEW

A-20

7669-7

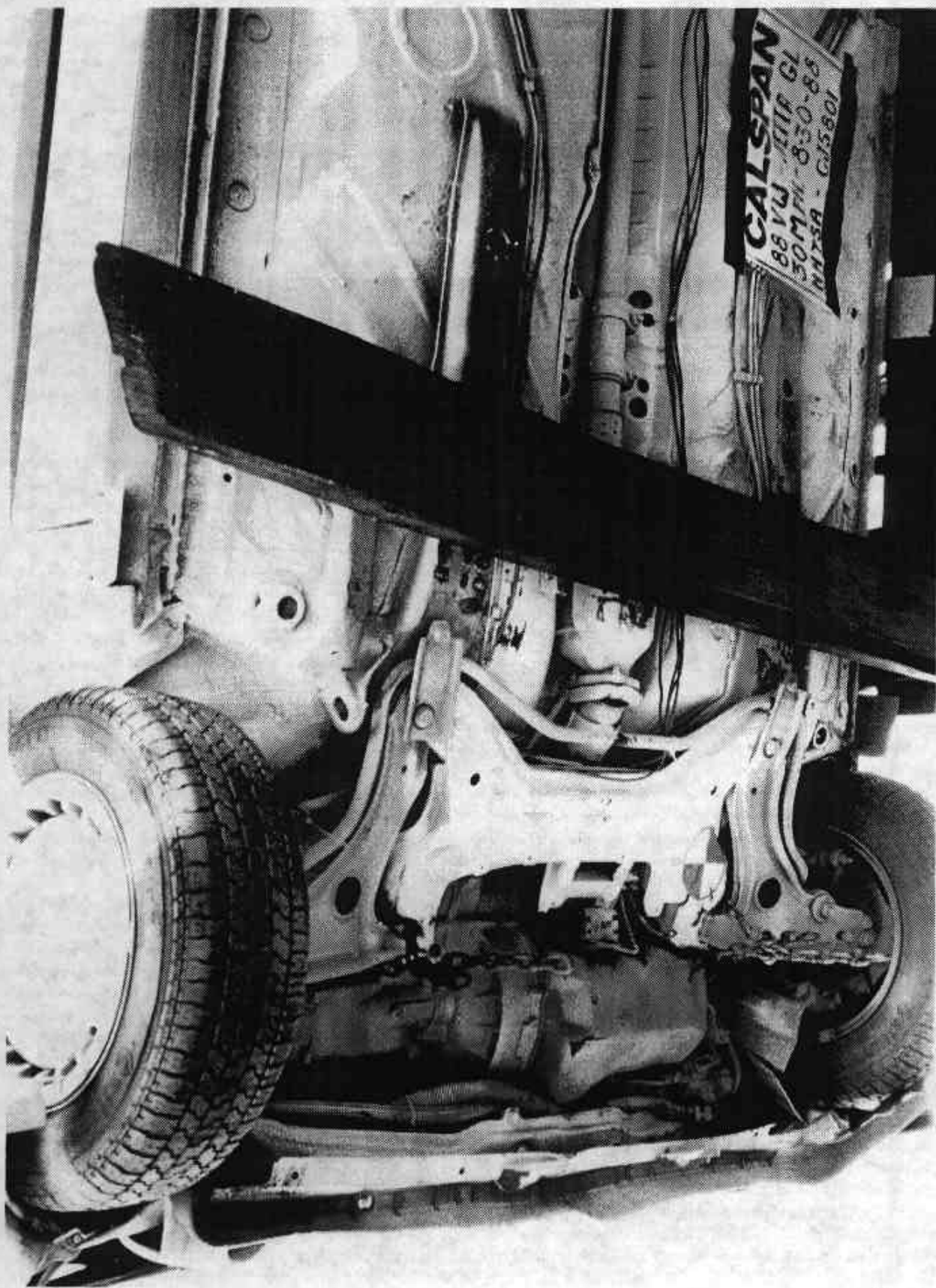


Figure A-20 POST-TEST FRONT SIDE UNDERBODY VIEW

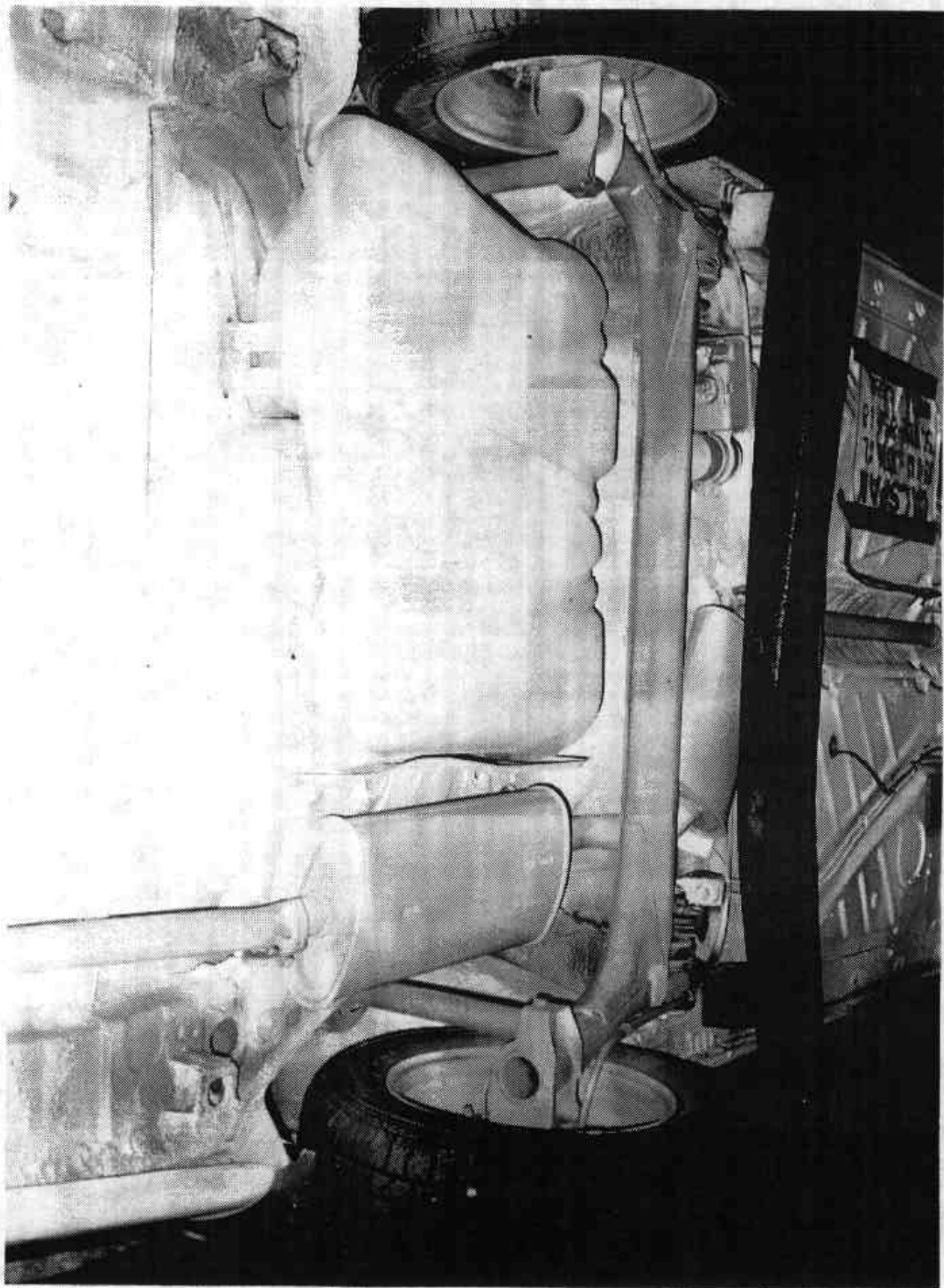


Figure A-21 PRE-TEST REAR UNDERBODY VIEW

A-22

7669-7

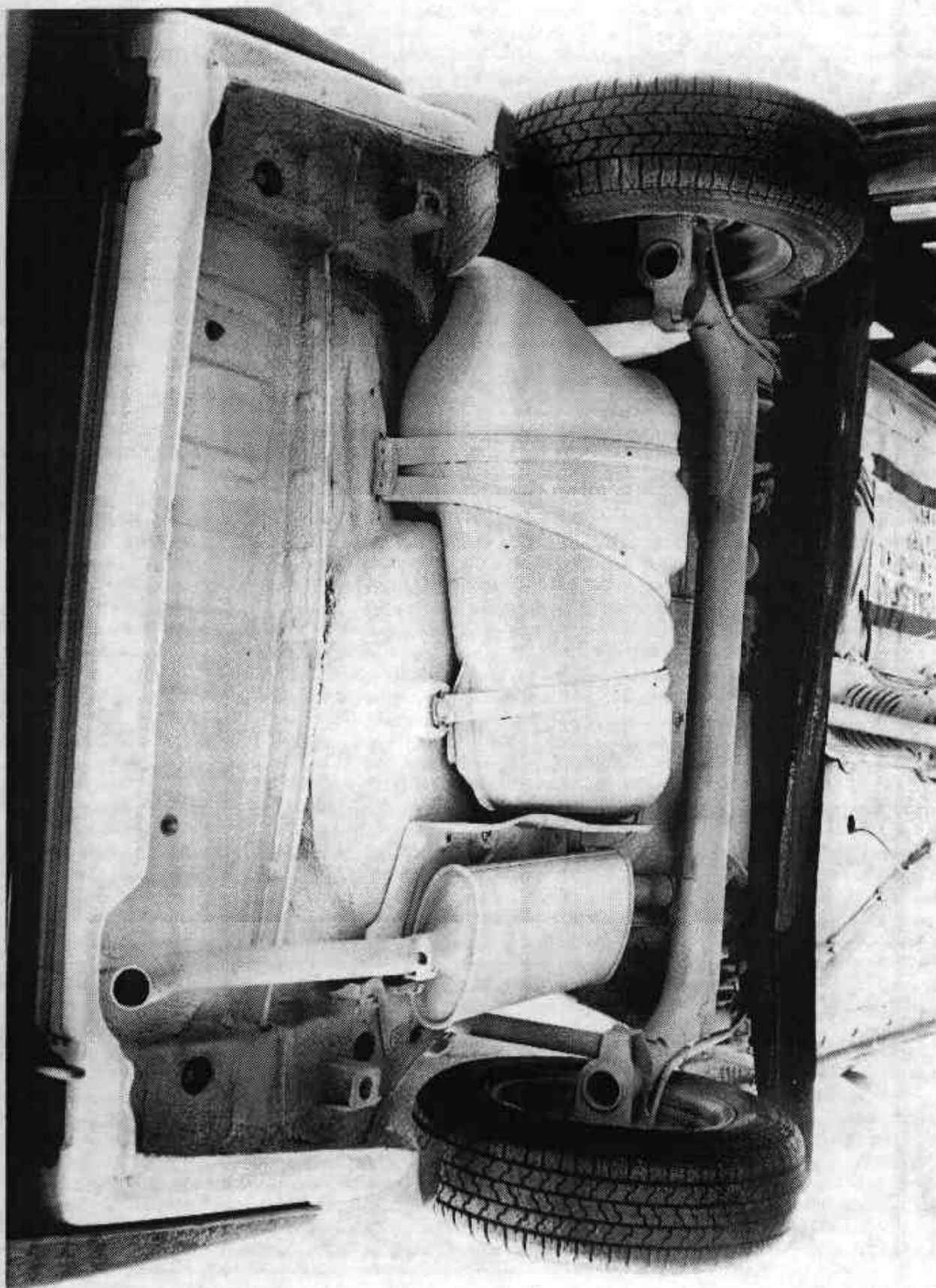


Figure A-22 POST-TEST REAR UNDERBODY VIEW

A-23

7669-7

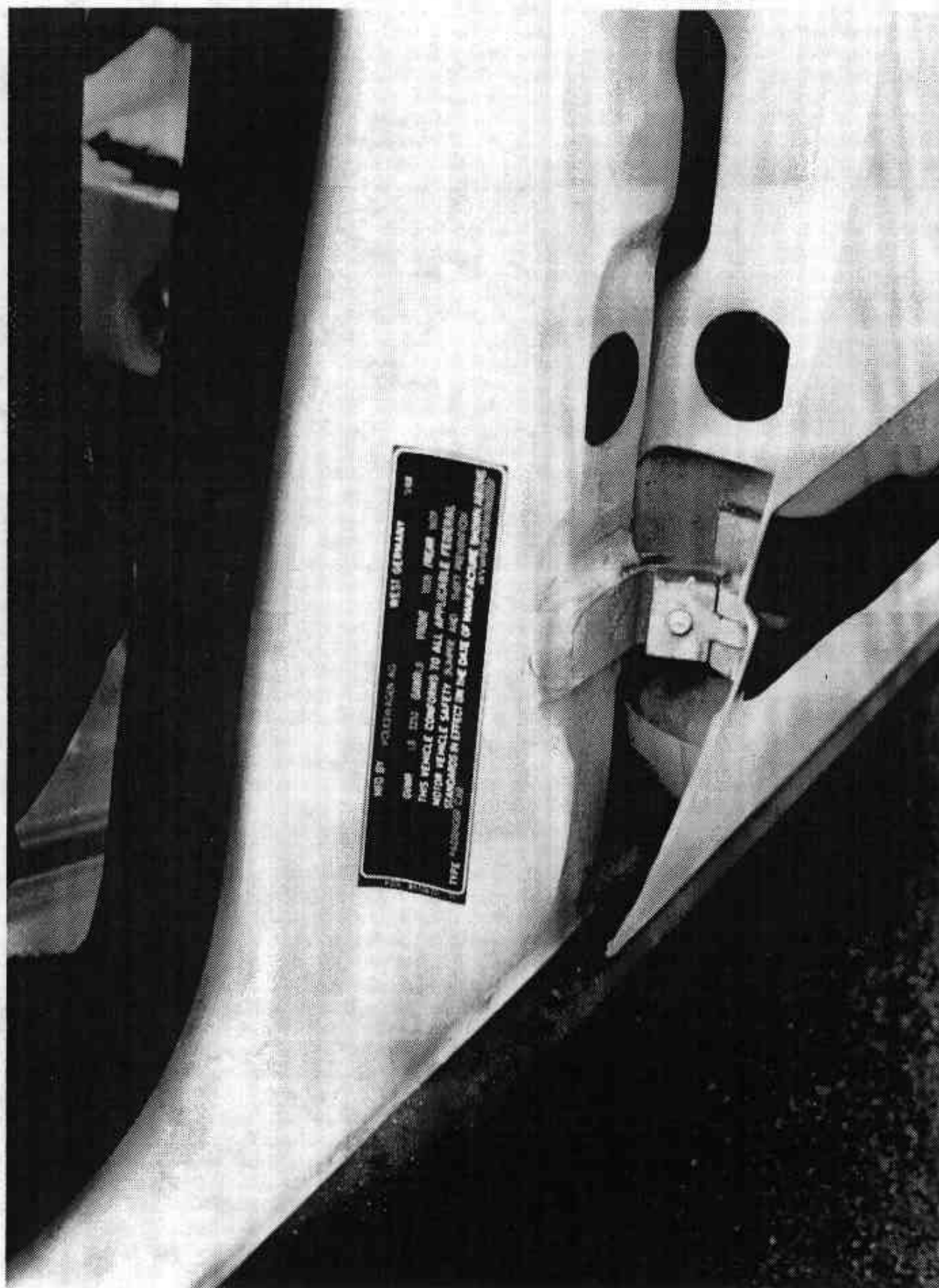


Figure A-23 CERTIFICATION LABEL

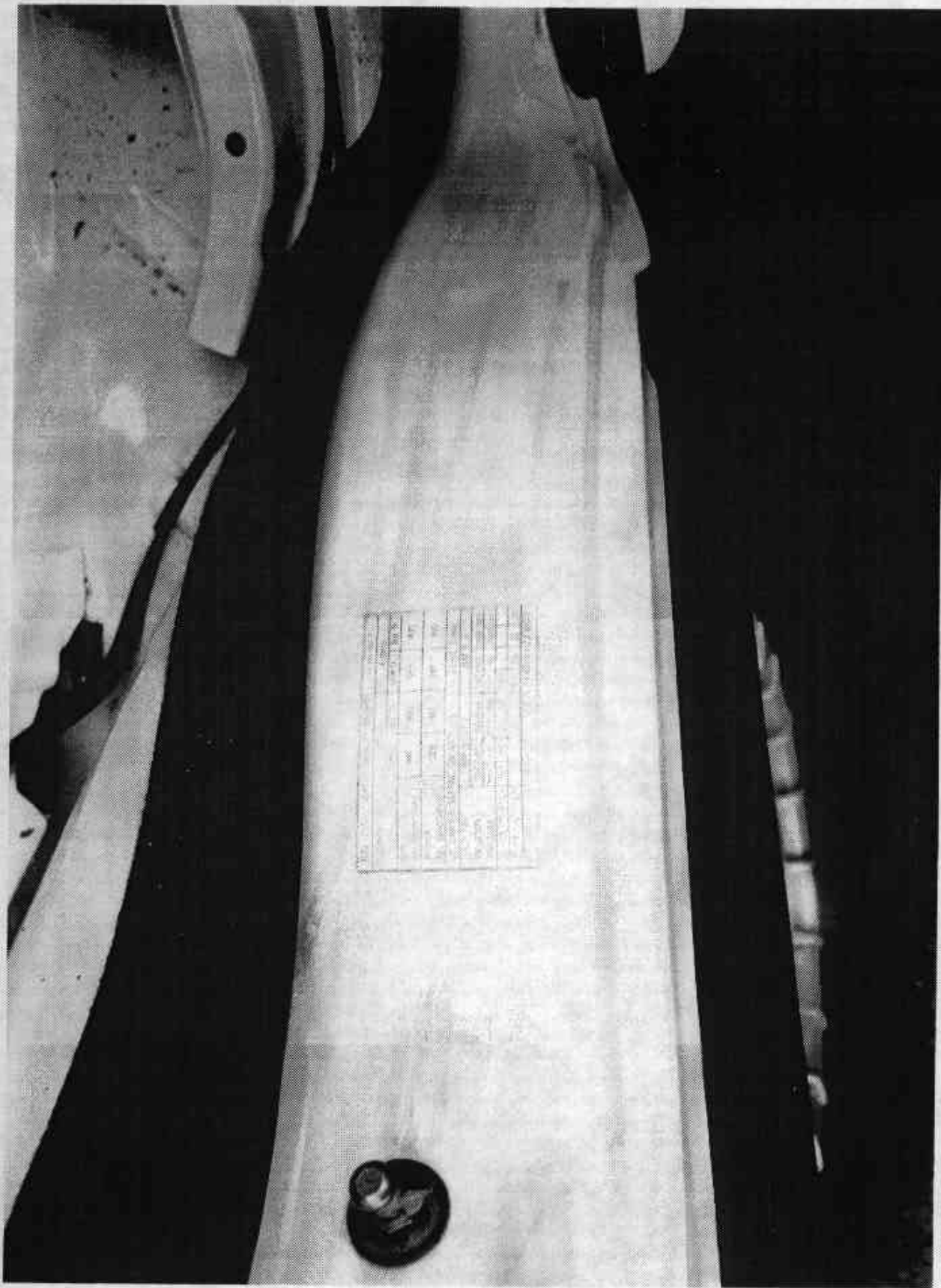


Figure A-24 TIRE PLACARD

A-25

7669-7

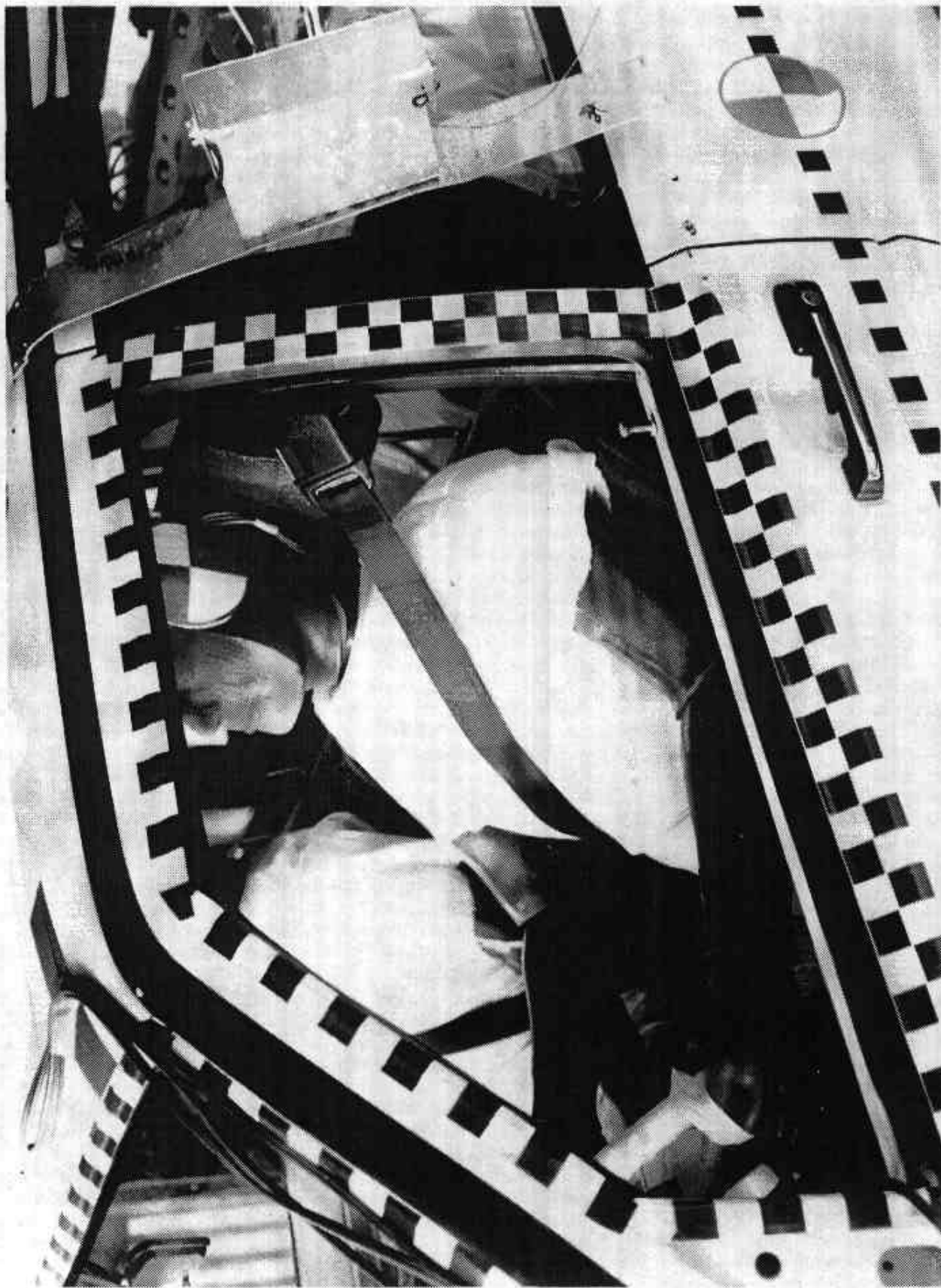


Figure A-25 PRE-TEST DRIVER DUMMY POSITION

A-26

7669-7

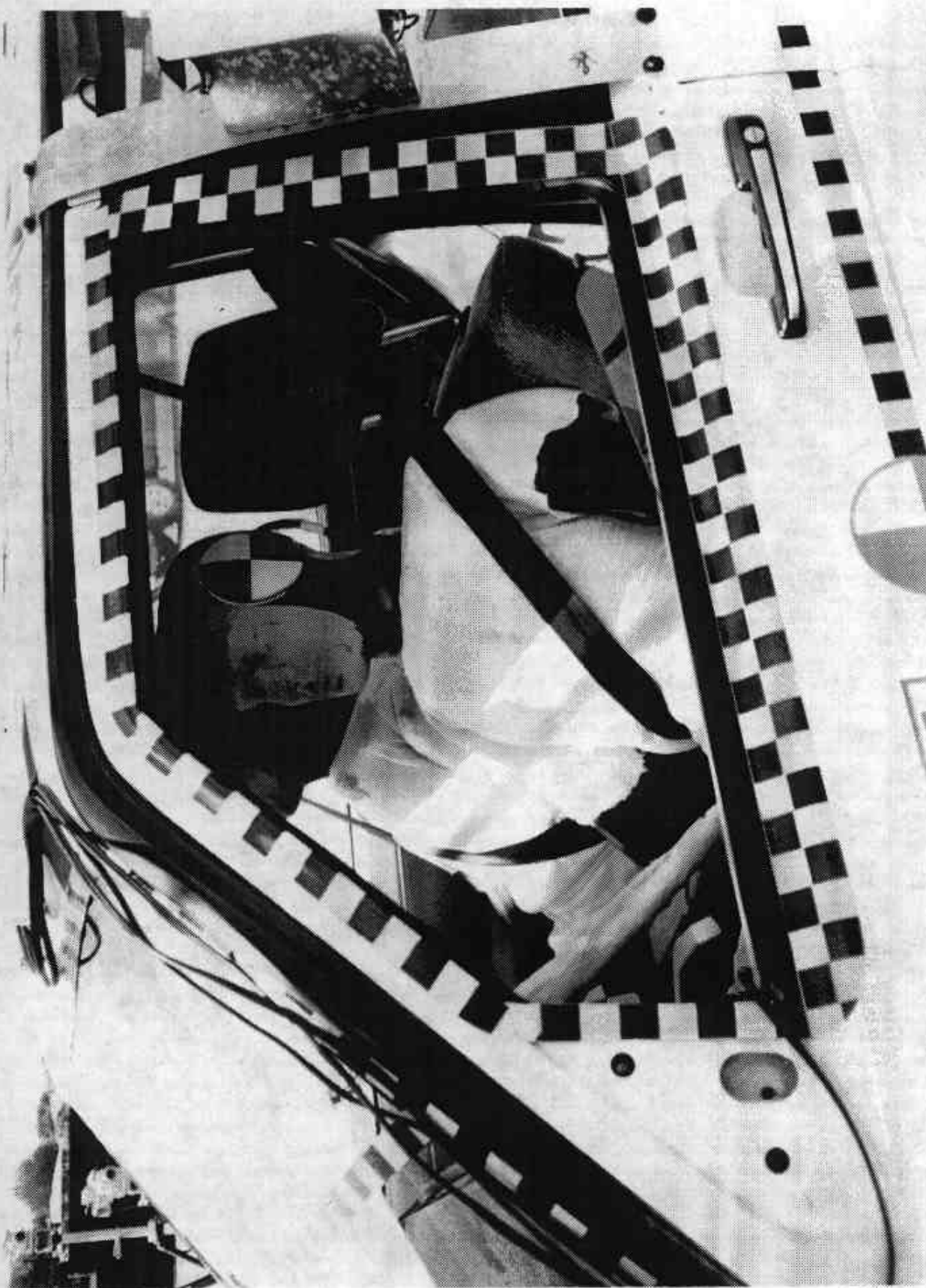


Figure A-26 POST-TEST DRIVER DUMMY POSITION



Figure A-27 PRE-TEST PASSENGER DUMMY POSITION



Figure A-28 POST-TEST PASSENGER DUMMY POSITION

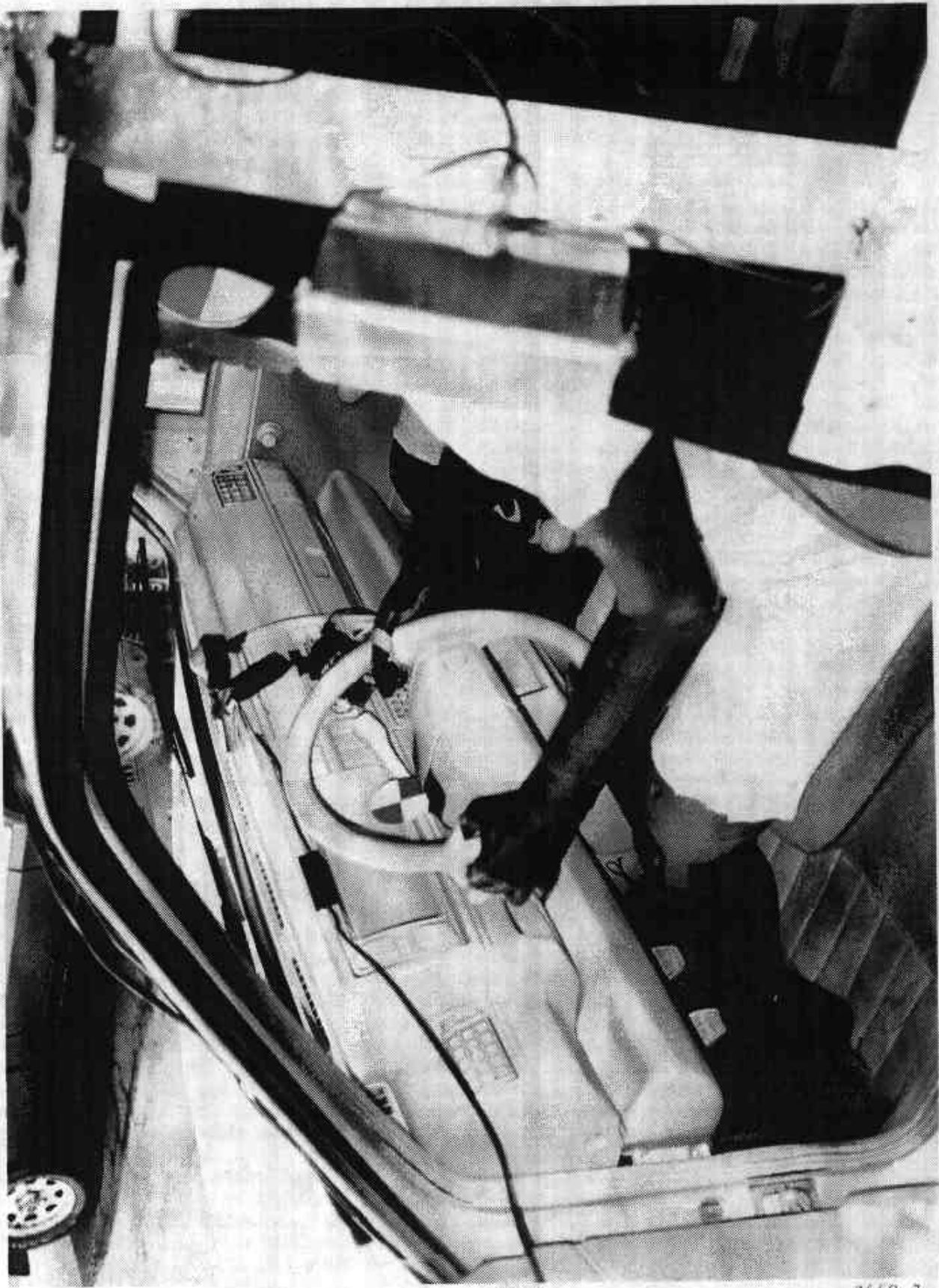


Figure A-29 PRE-TEST DRIVER DUMMY AND INTERIOR VIEW

A-30

7669-7



Figure A-30 POST-TEST DRIVER DUMMY AND INTERIOR VIEW

A-31

7669-7



Figure A-31 PRE-TEST PASSENGER DUMMY AND INTERIOR VIEW

A-32

7669-7



Figure A-32 POST-TEST PASSENGER DUMMY AND INTERIOR VIEW

Appendix B

VEHICLE AND DUMMY RESPONSE DATA

TEST NO. CJ5801

VEHICLE DATA

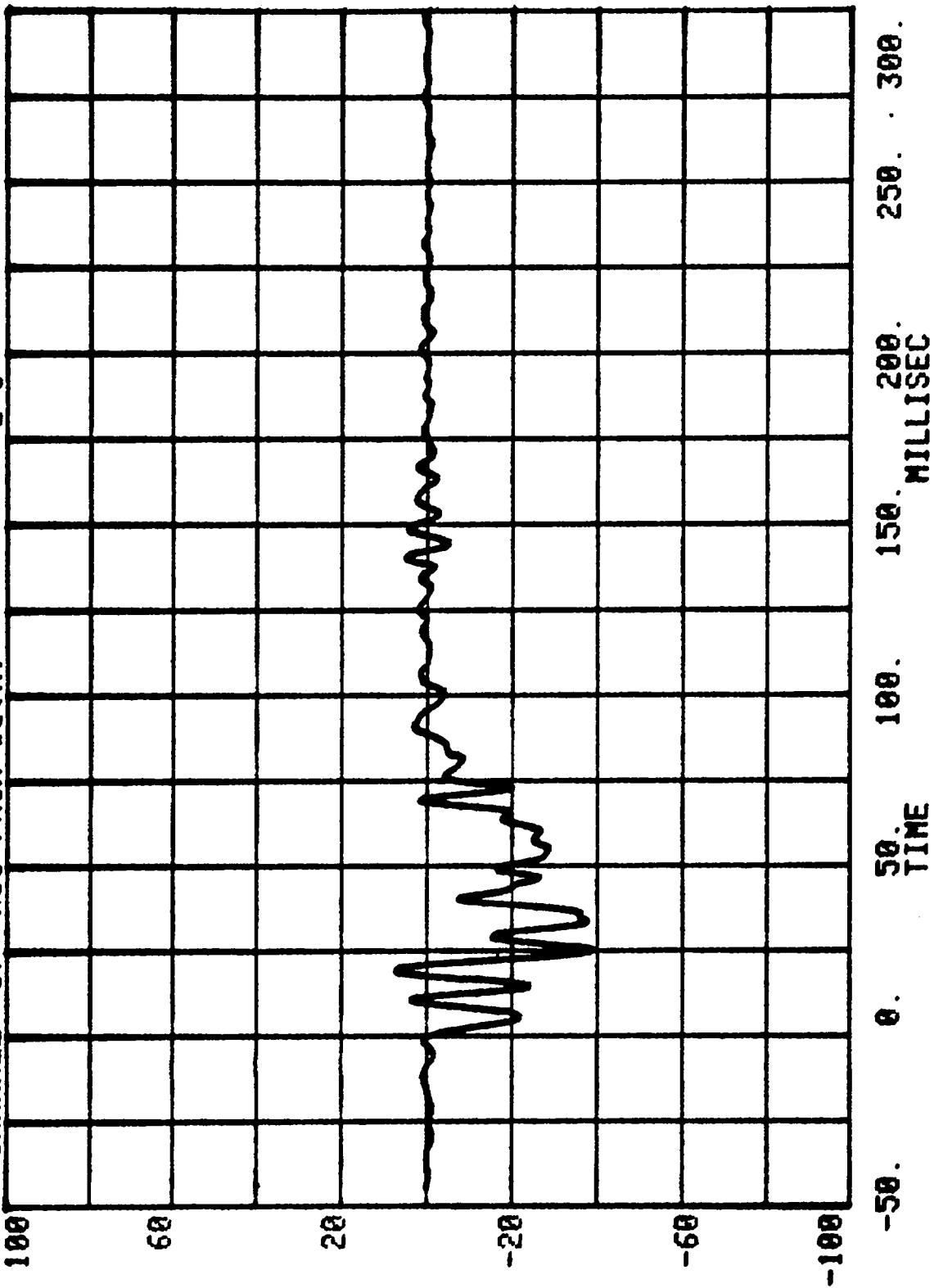
FILTER CHANNEL CLASS

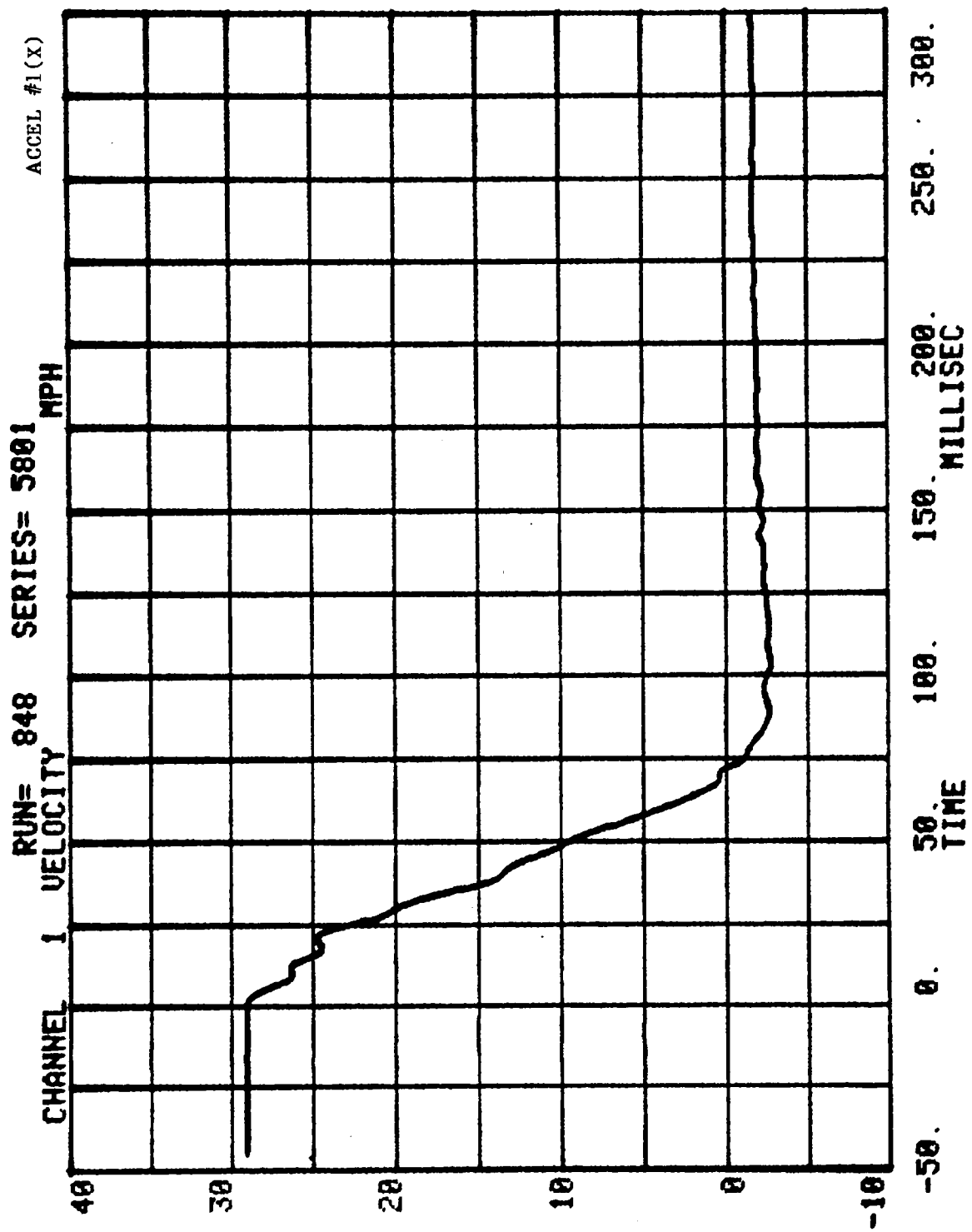
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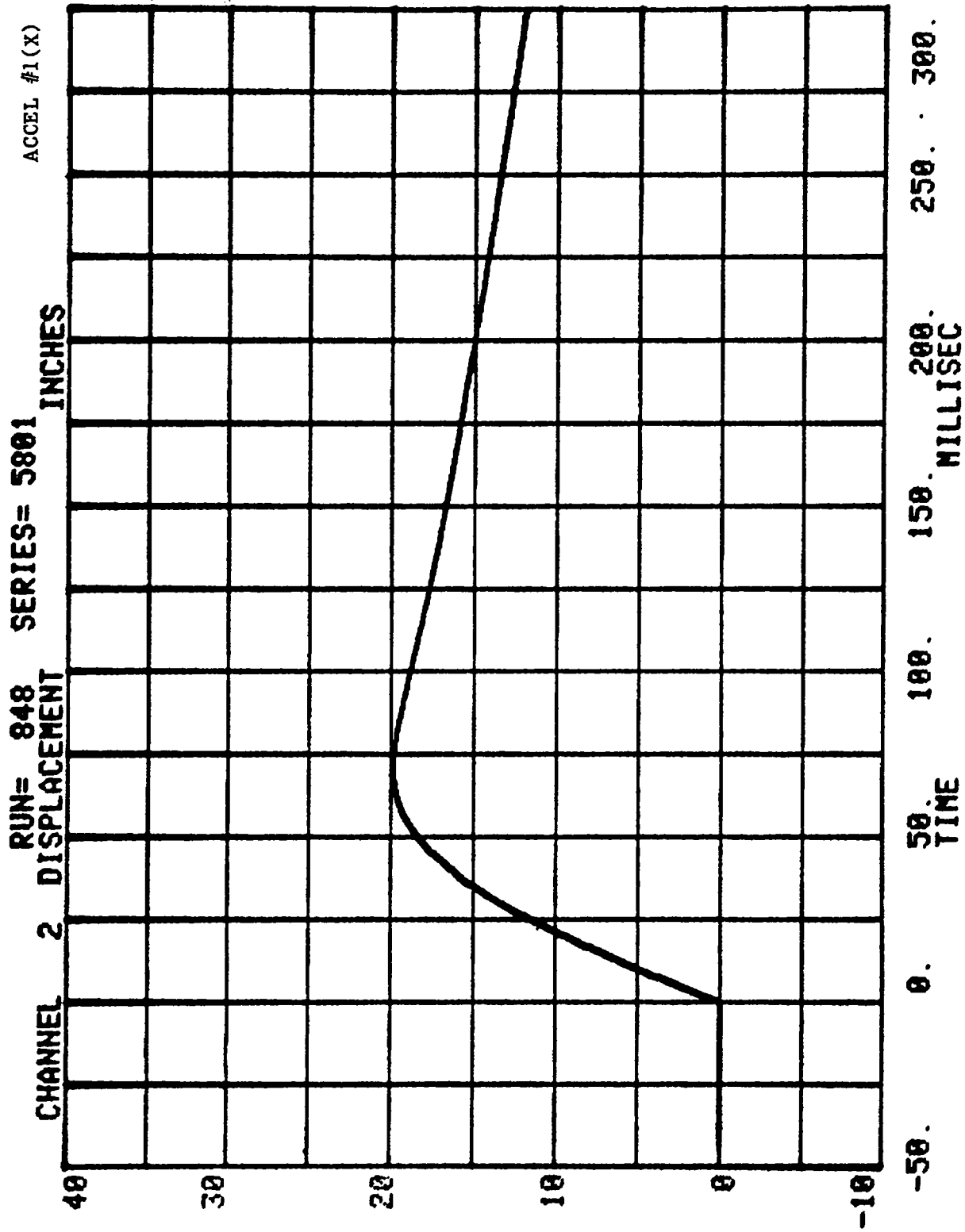
B-2

7669-7

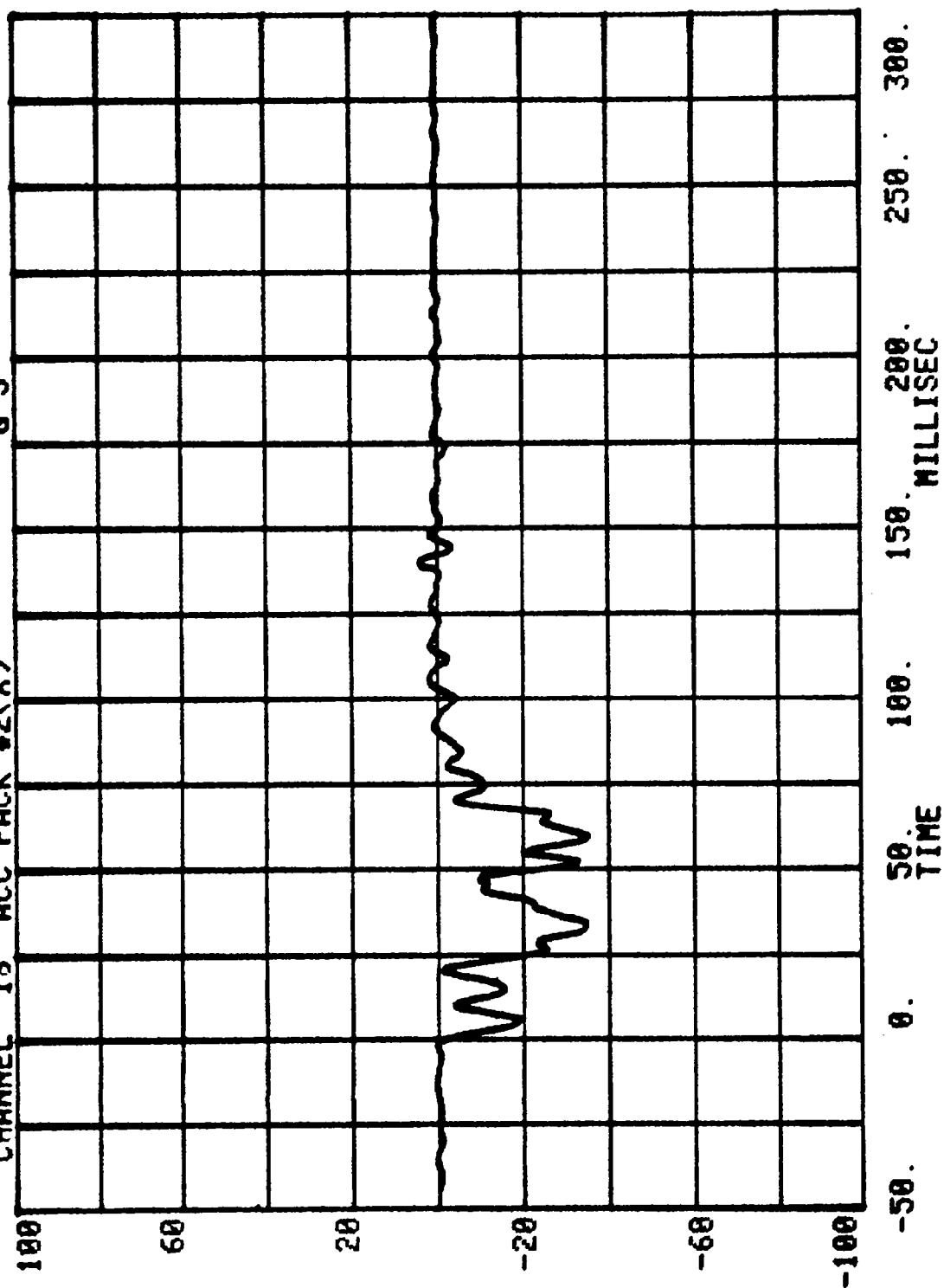
CHANNEL 17 ACC PACK #1(X) RUN= 848 SERIES= 5801 G'S





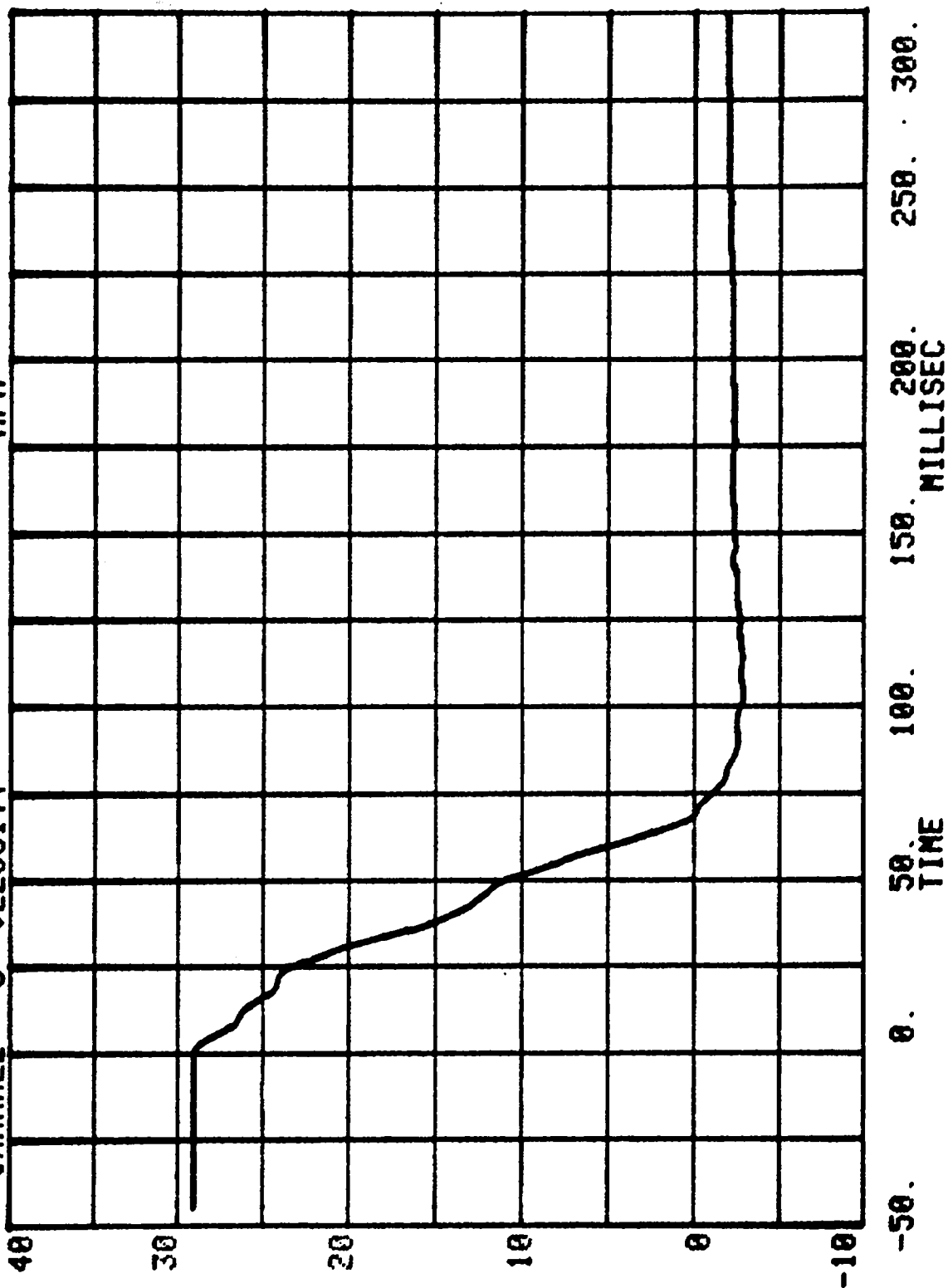


CHANNEL 18 ACC PACK #2(X) RUN= 848 SERIES= 5801 G'S



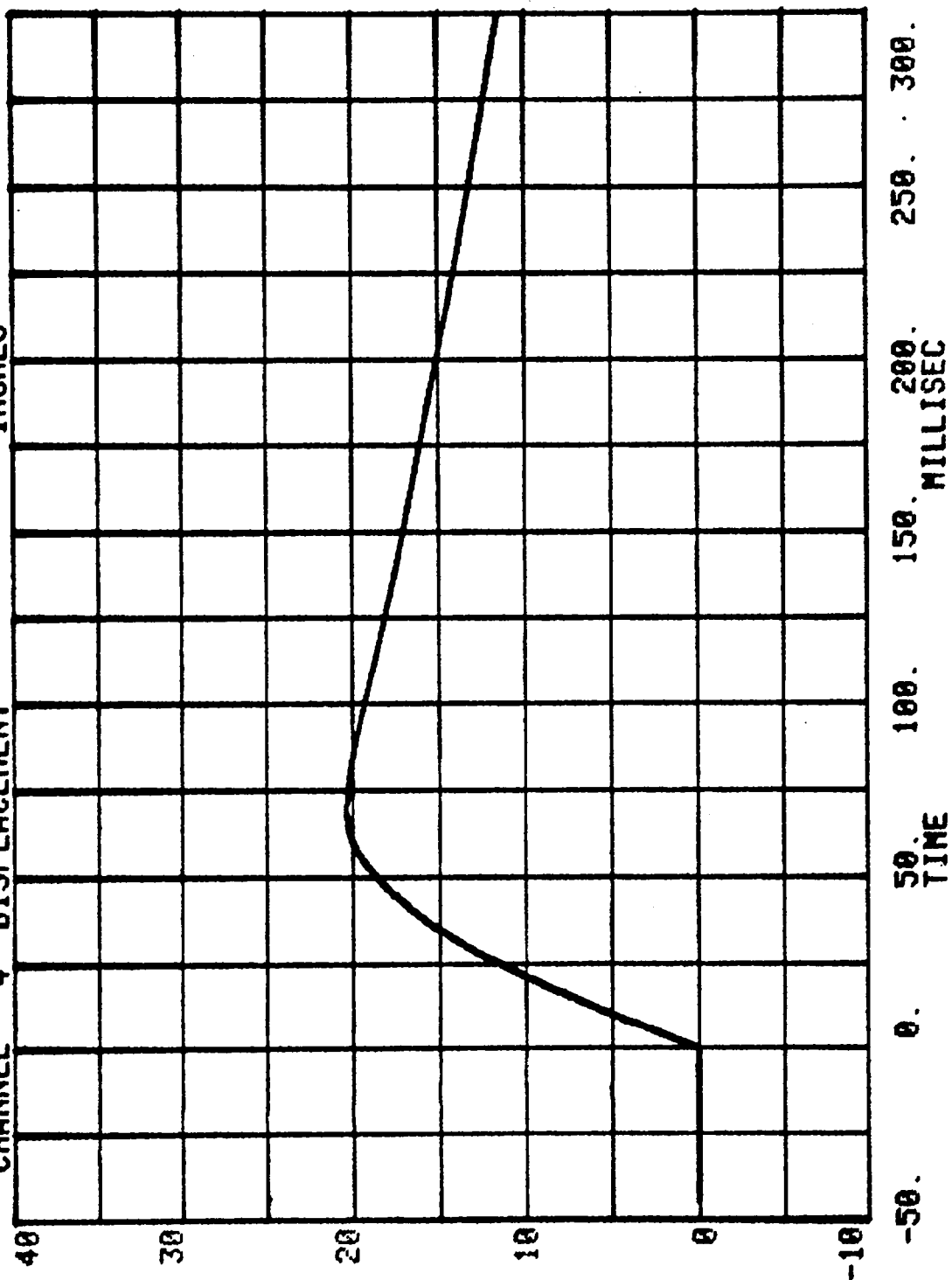
CHANNEL 3 VELOCITY RUN= 848 SERIES= 5801 MPH

ACCEL #2(X)

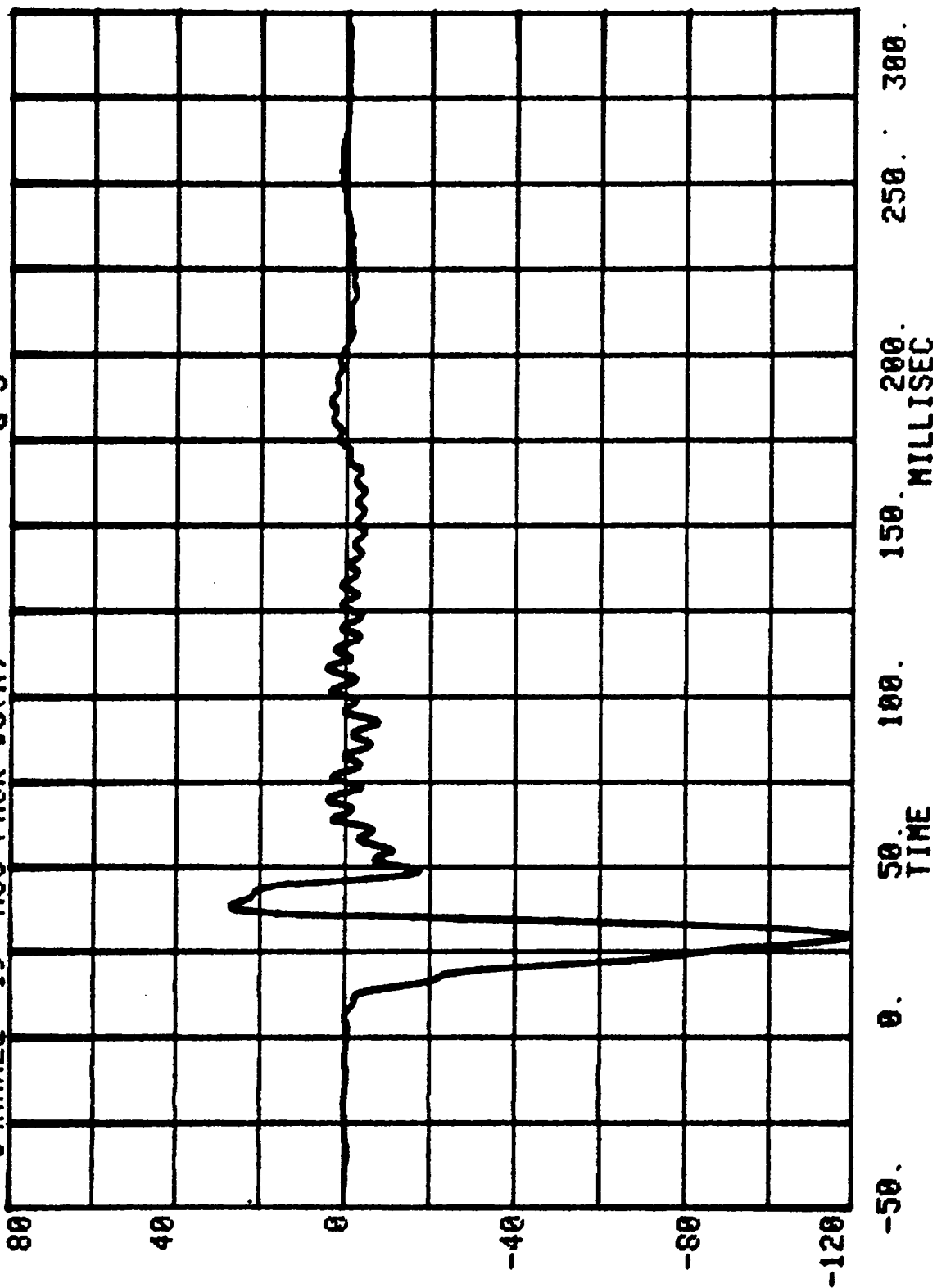


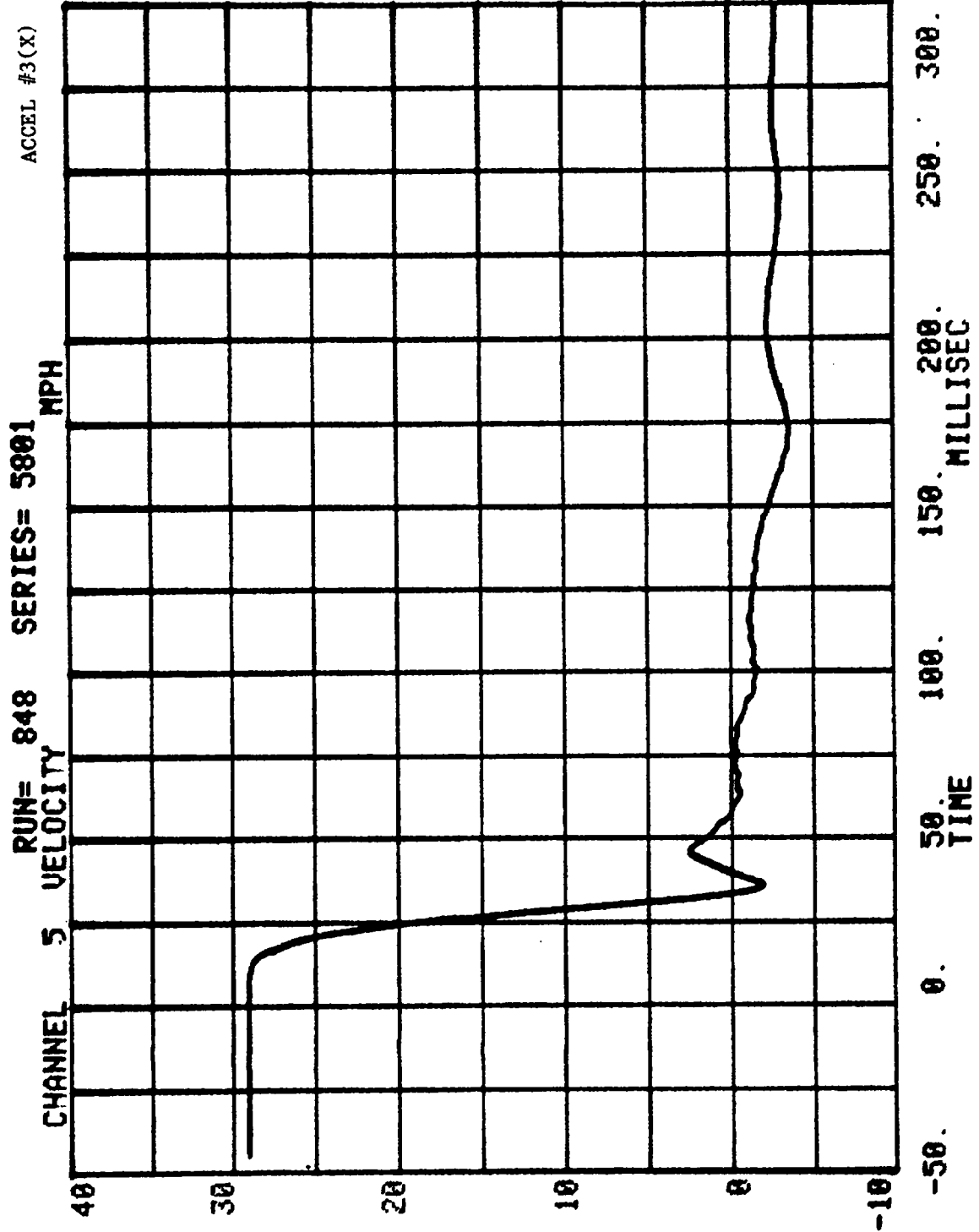
ACCEL #2(X)

RUN= 848 SERIES= 5801 INCHES
CHANNEL 4 DISPLACEMENT

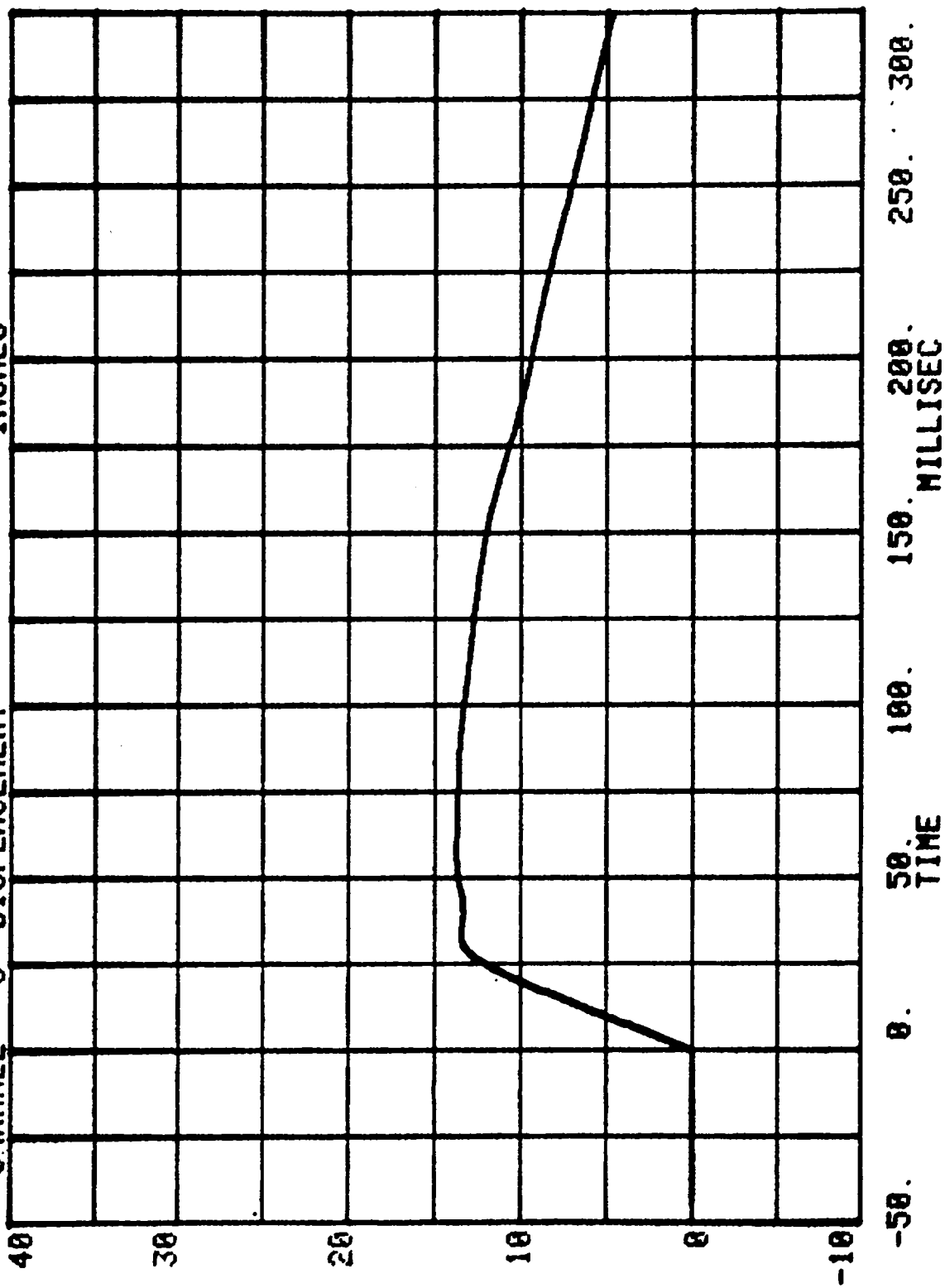


RUN= 848 SERIES= 5801
CHANNEL 19 ACC PACK #3(X) G'S

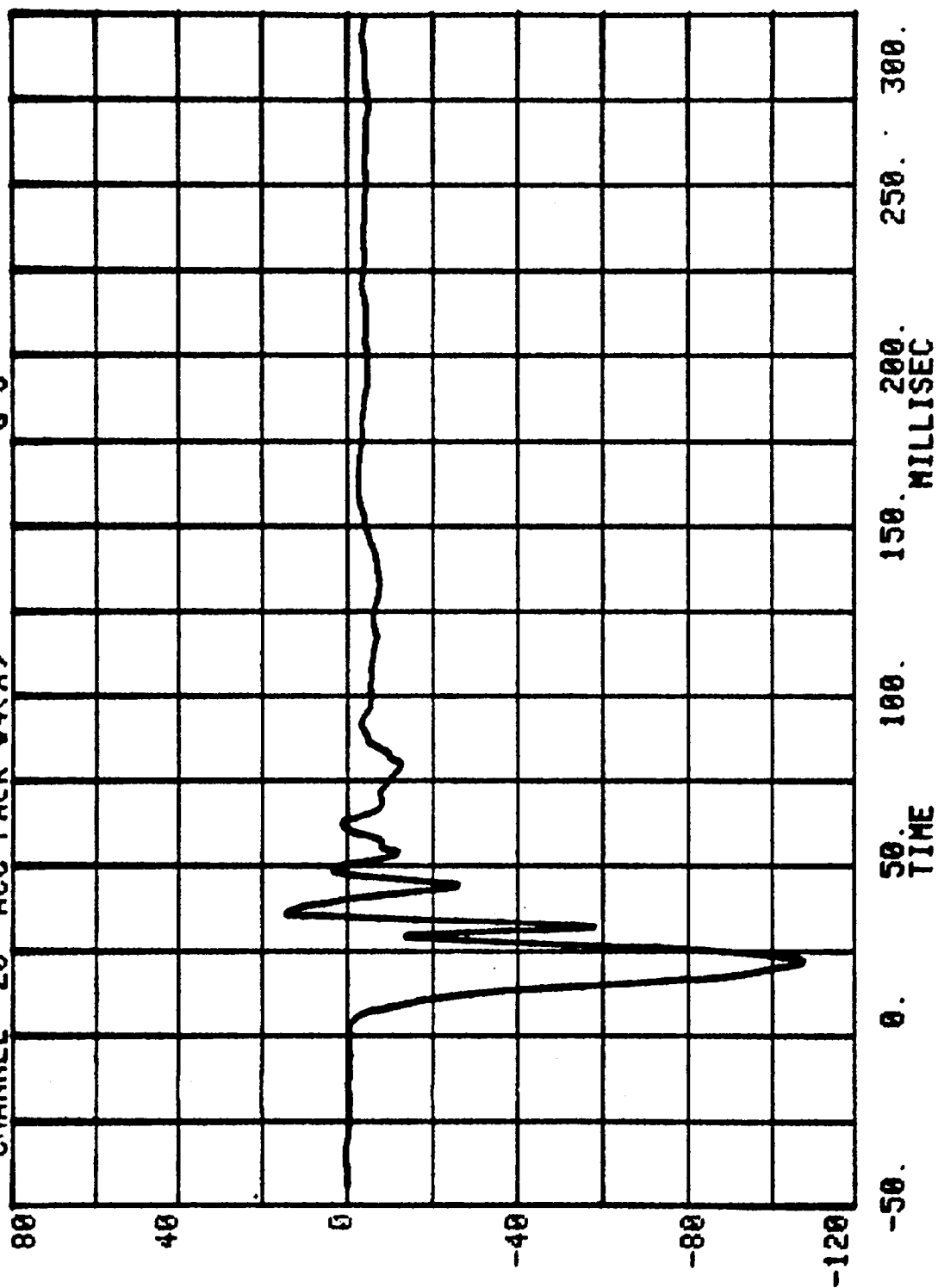


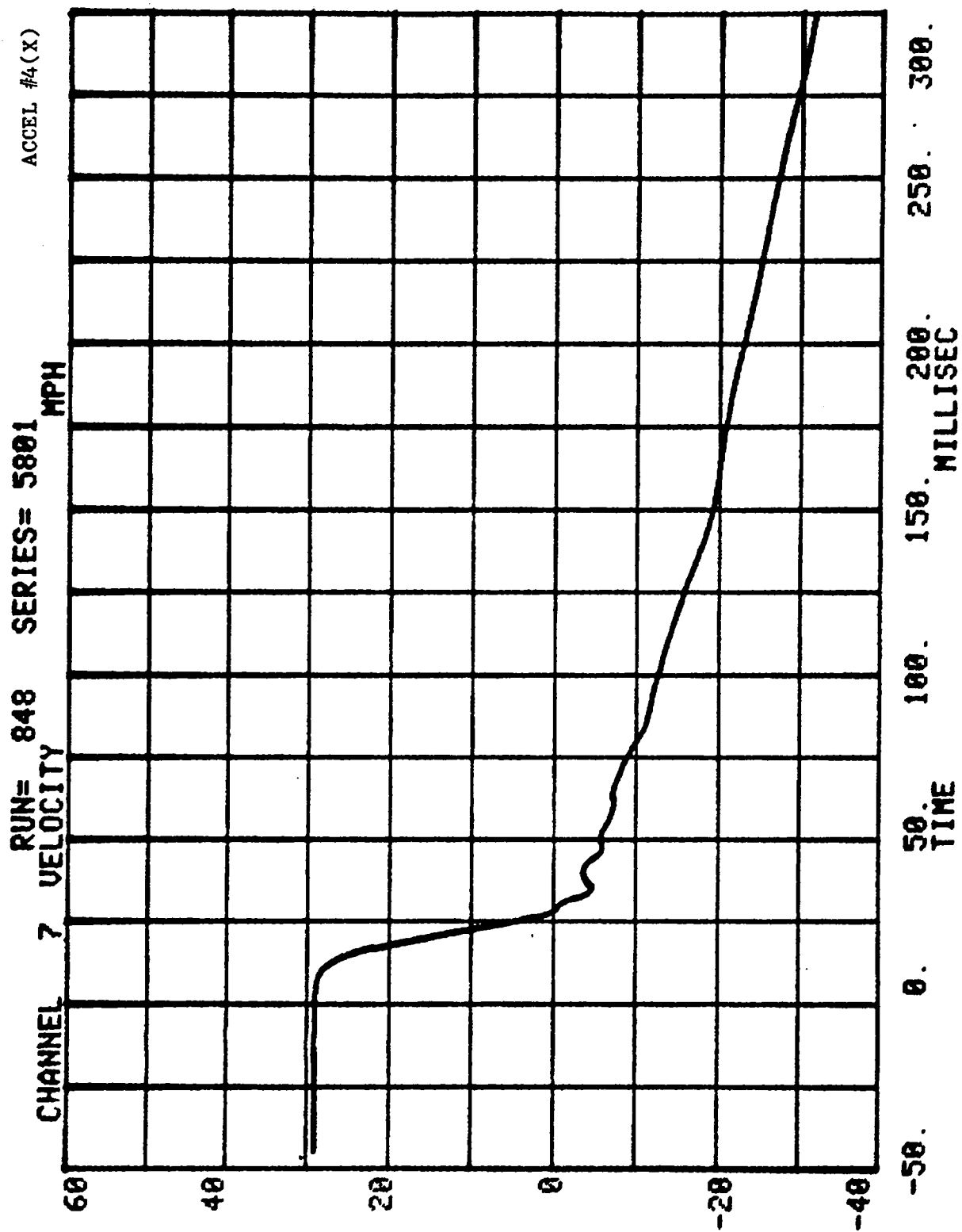


CHANNEL 6 DISPLACEMENT RUN= 848 SERIES= 5801 INCHES ACCEL #3(X)



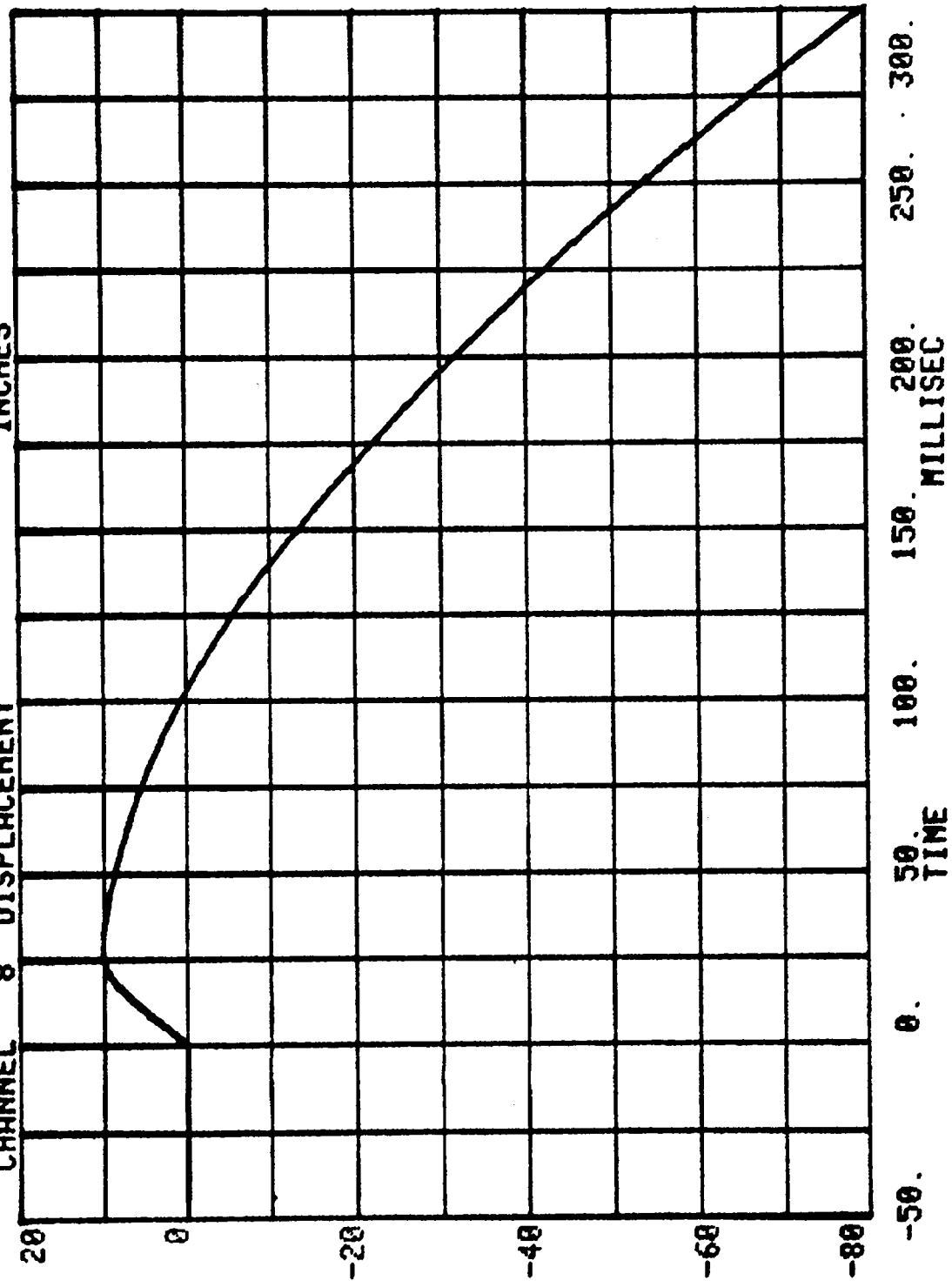
RUN= 848 SERIES= 5801 G'S
CHANNEL 20 ACC PACK #4(X)



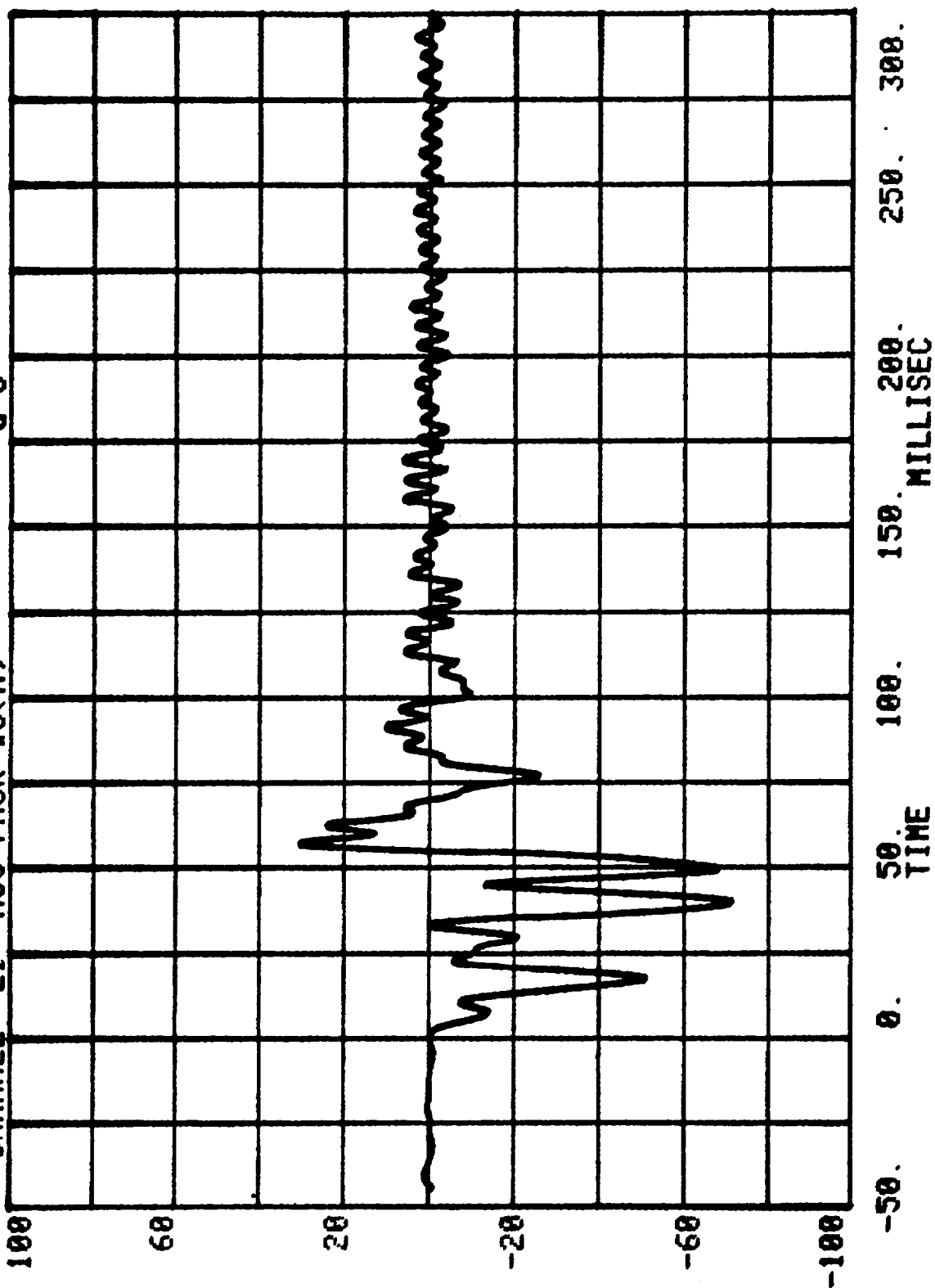


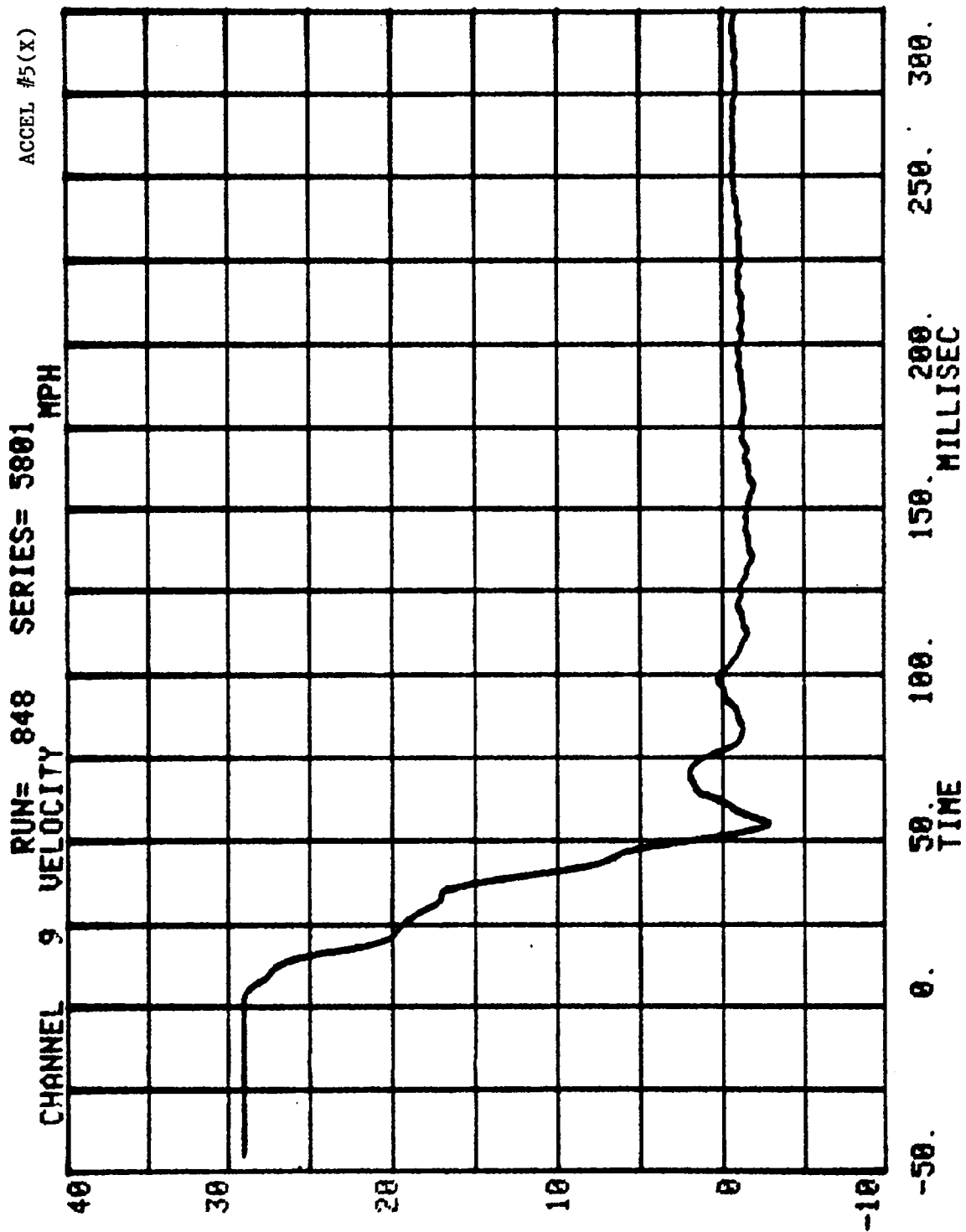
ACCEL #4(X)

CHANNEL 8 DISPLACEMENT RUN= 848 SERIES= 5801 INCHES



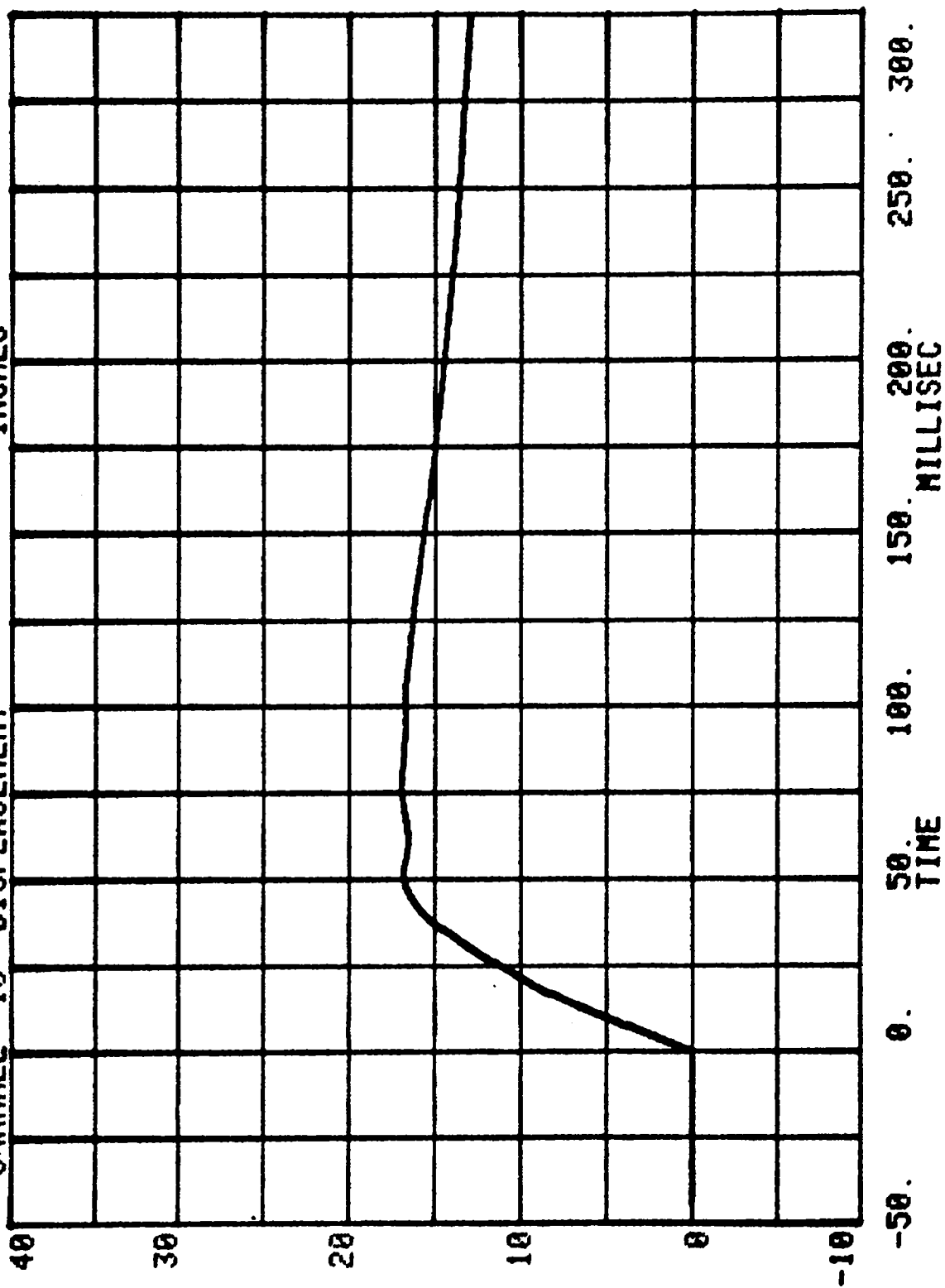
RUN= 848 SERIES= 5801 G'S
CHANNEL 21 ACC PACK #5(X)



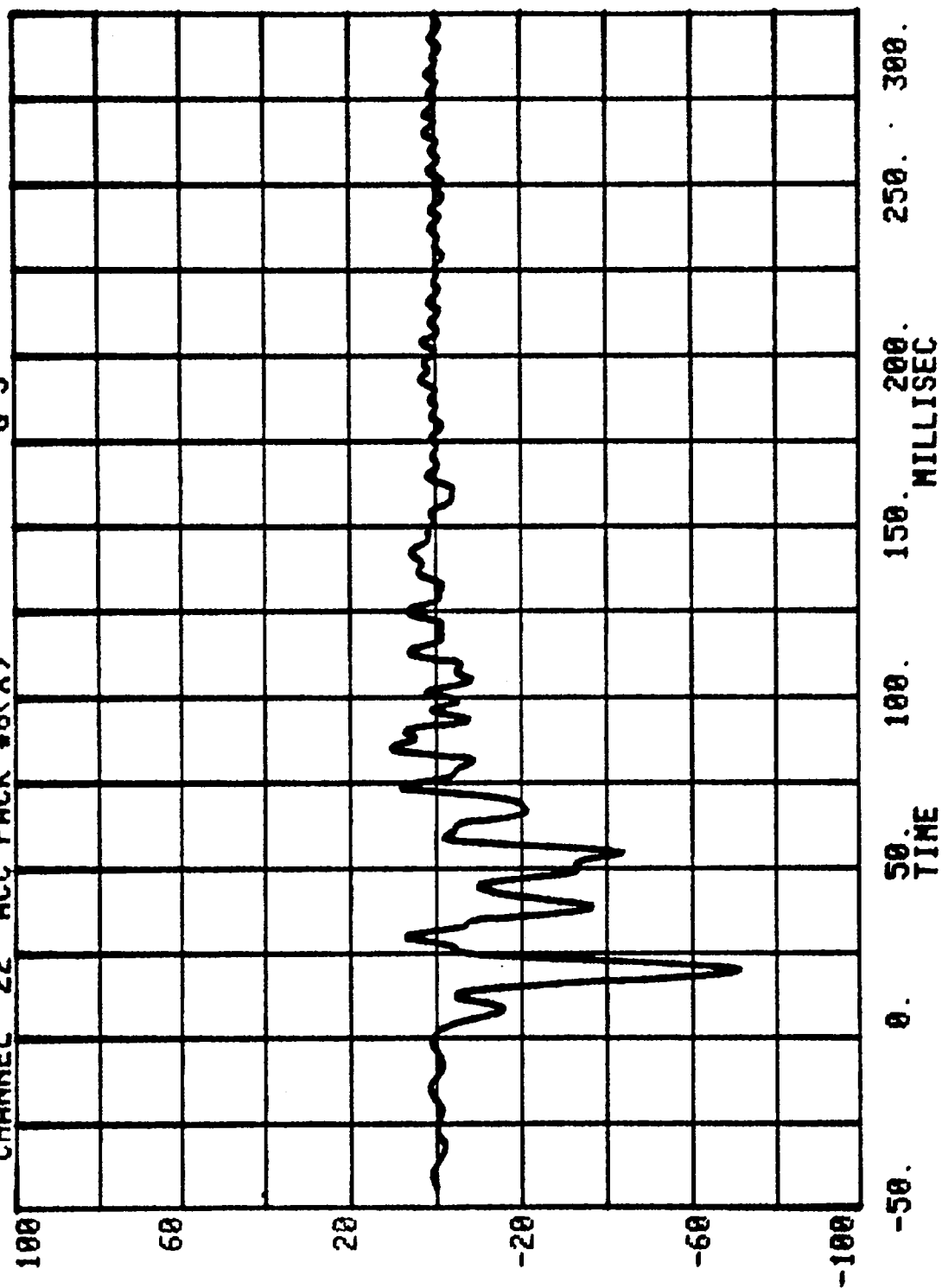


ACCEL #5(X)

RUN= 848 SERIES= 5801
CHANNEL 10 DISPLACEMENT INCHES



RUN= 848 SERIES= 5801 G'S
CHANNEL 22 ACC PACK #5(X)

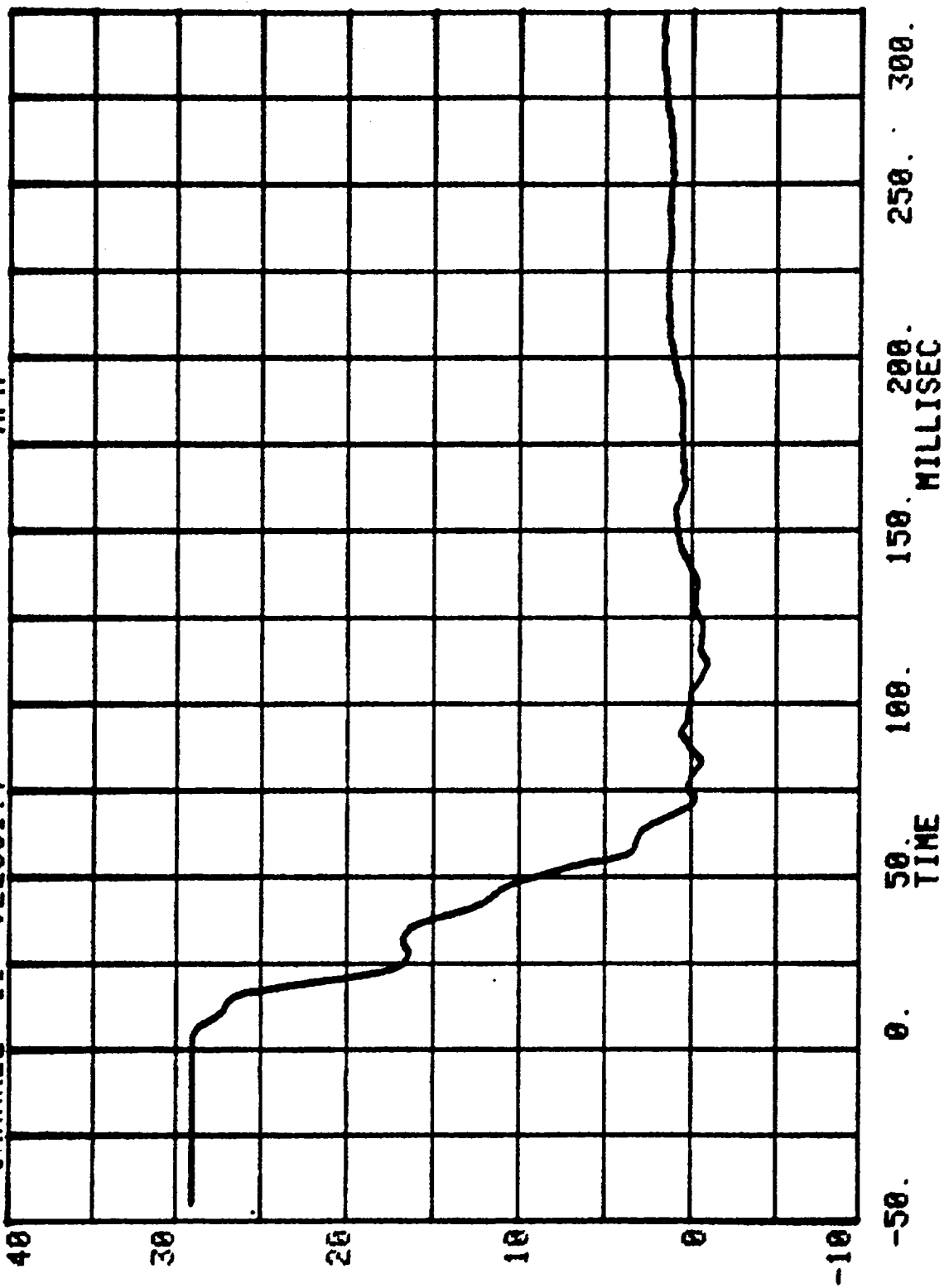


ACCEL #6(X)

RUN= 848 SERIES= 5801

MPH

CHANNEL 11 VELOCITY



ACCEL #6(X)

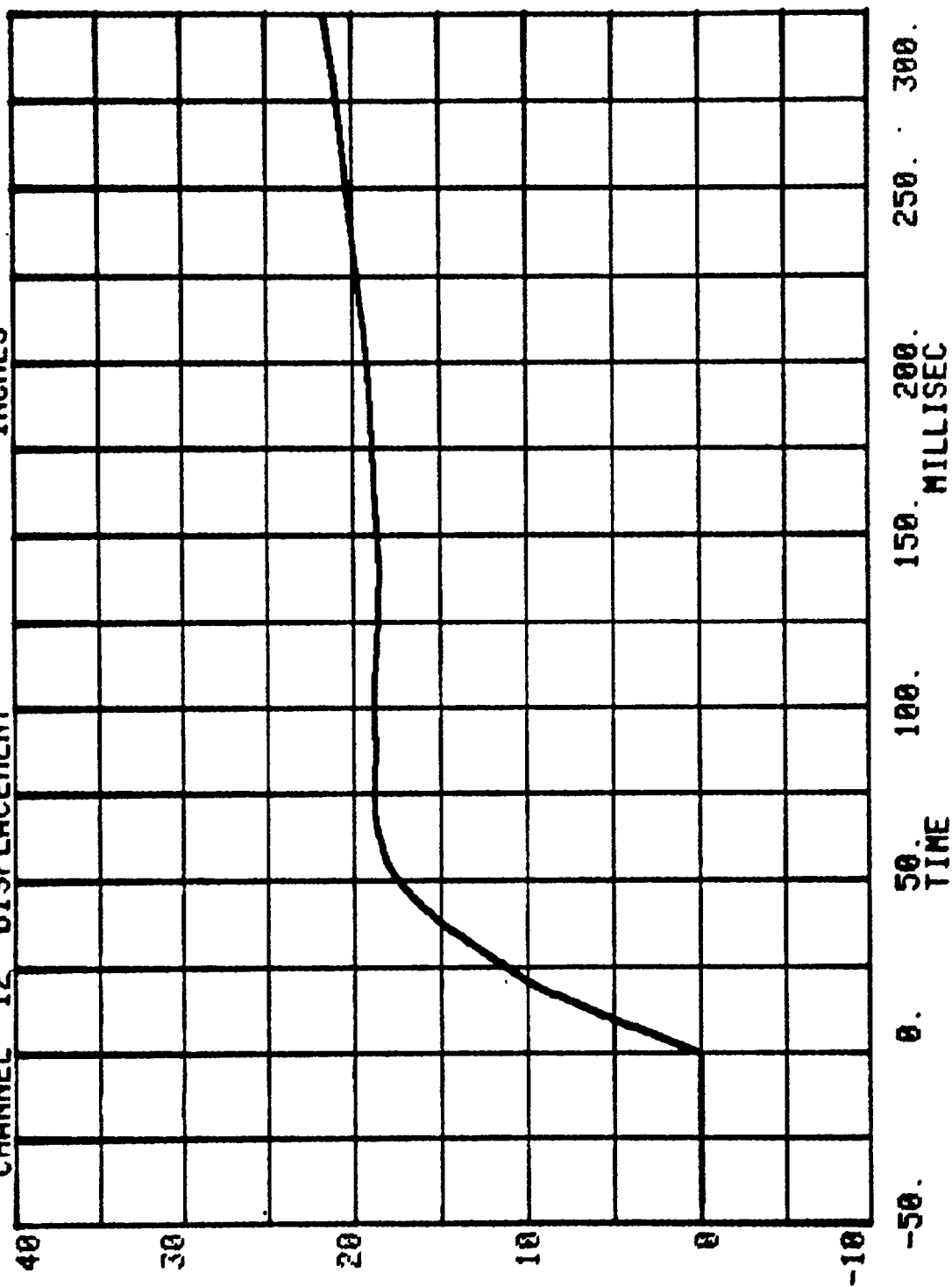
SERIES= 5801

RUN= 848

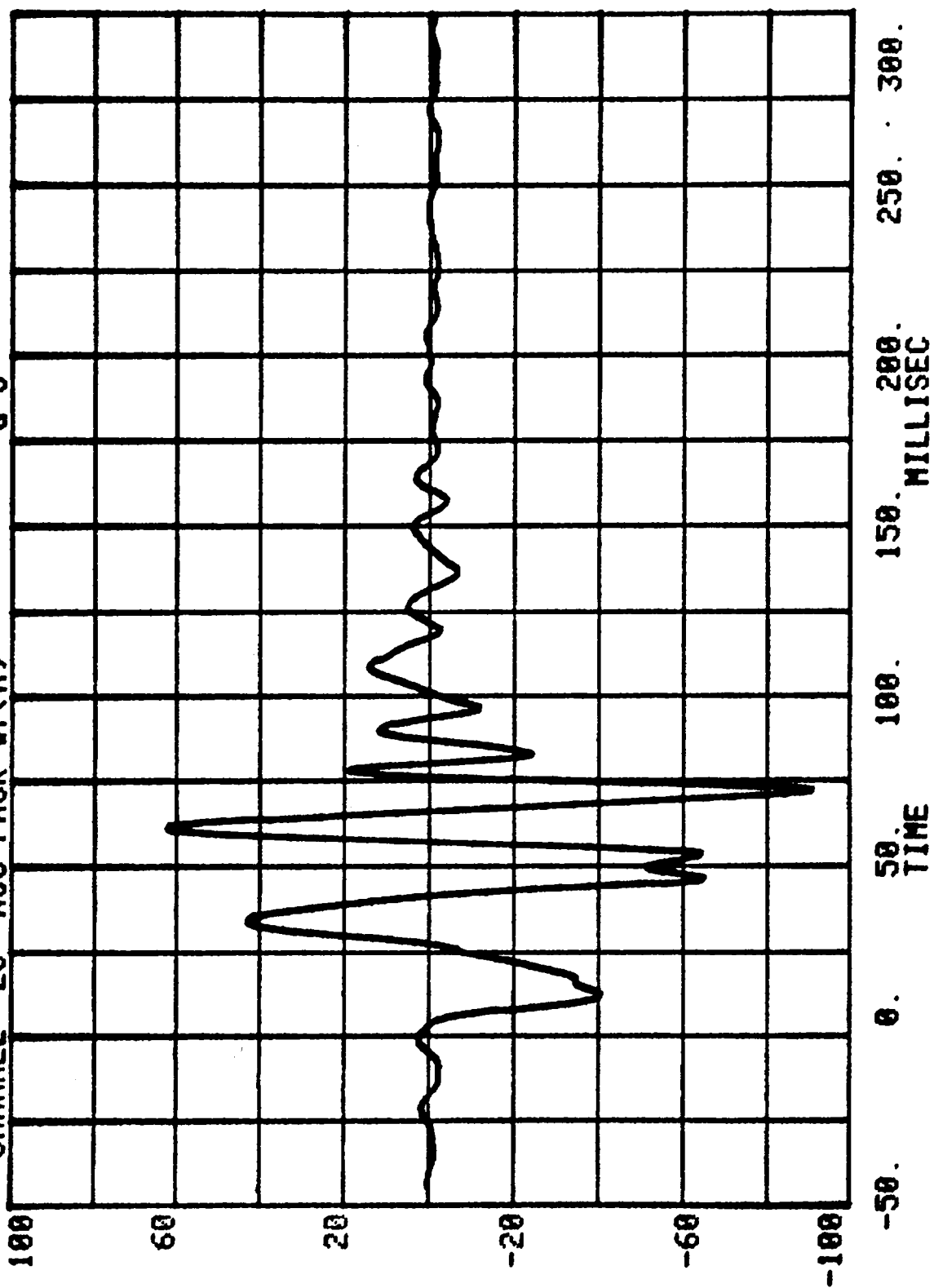
CHANNEL 12

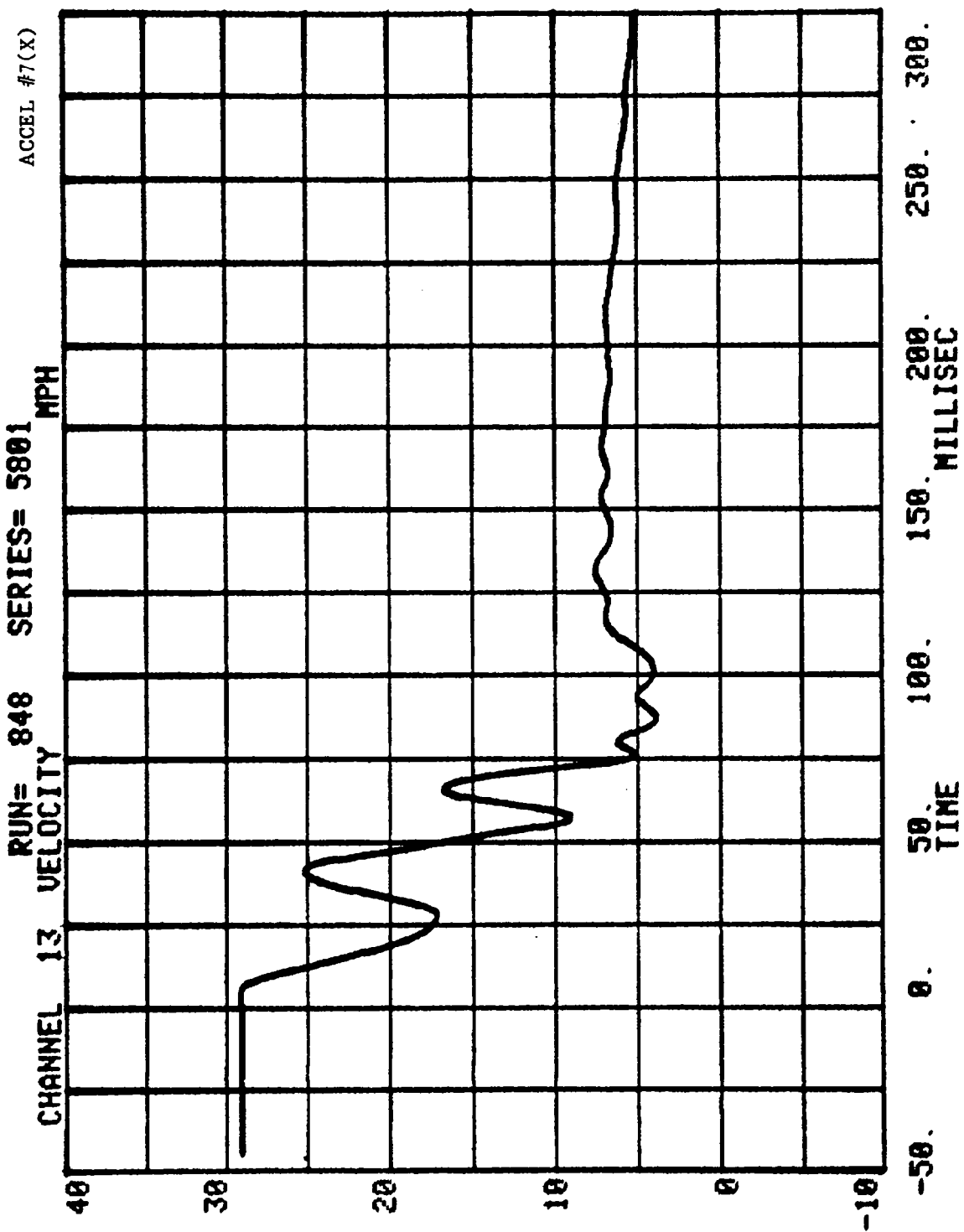
DISPLACEMENT

INCHES



CHANNEL 23 ACC PACK #7(X) RUN= 848 SERIES= 5801 G'S

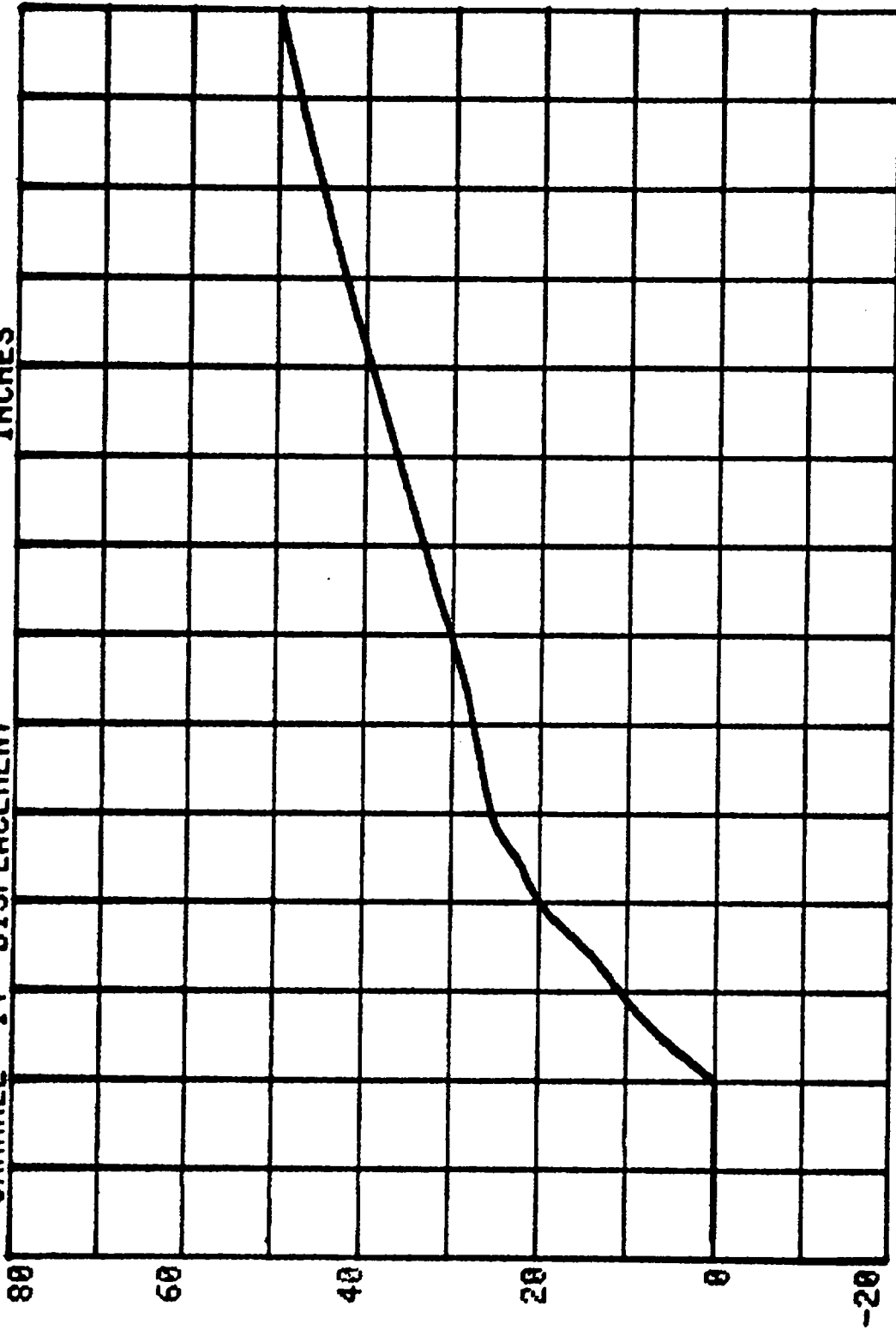




ACCEL #7(X)

RUN= 848 SERIES= 5801 INCHES

CHANNEL 14 DISPLACEMENT



250. 300.

200. 150. MILLISEC

100. 50. TIME

0.

-50.

TEST NO. CJ5801

DUMMY DATA

FILTER CHANNEL CLASS

HEAD ACCELERATIONS	1000
CHEST ACCELERATIONS	180
FEMUR FORCES	600
BELT LOADS	60

HEAD INJURY CRITERION
HEAD SEVERITY INDEX
36MS. MAXIMUM DURATION

NHTSA CRASH TEST - PROC.208

RUN= 848

POS#1 HEAD R

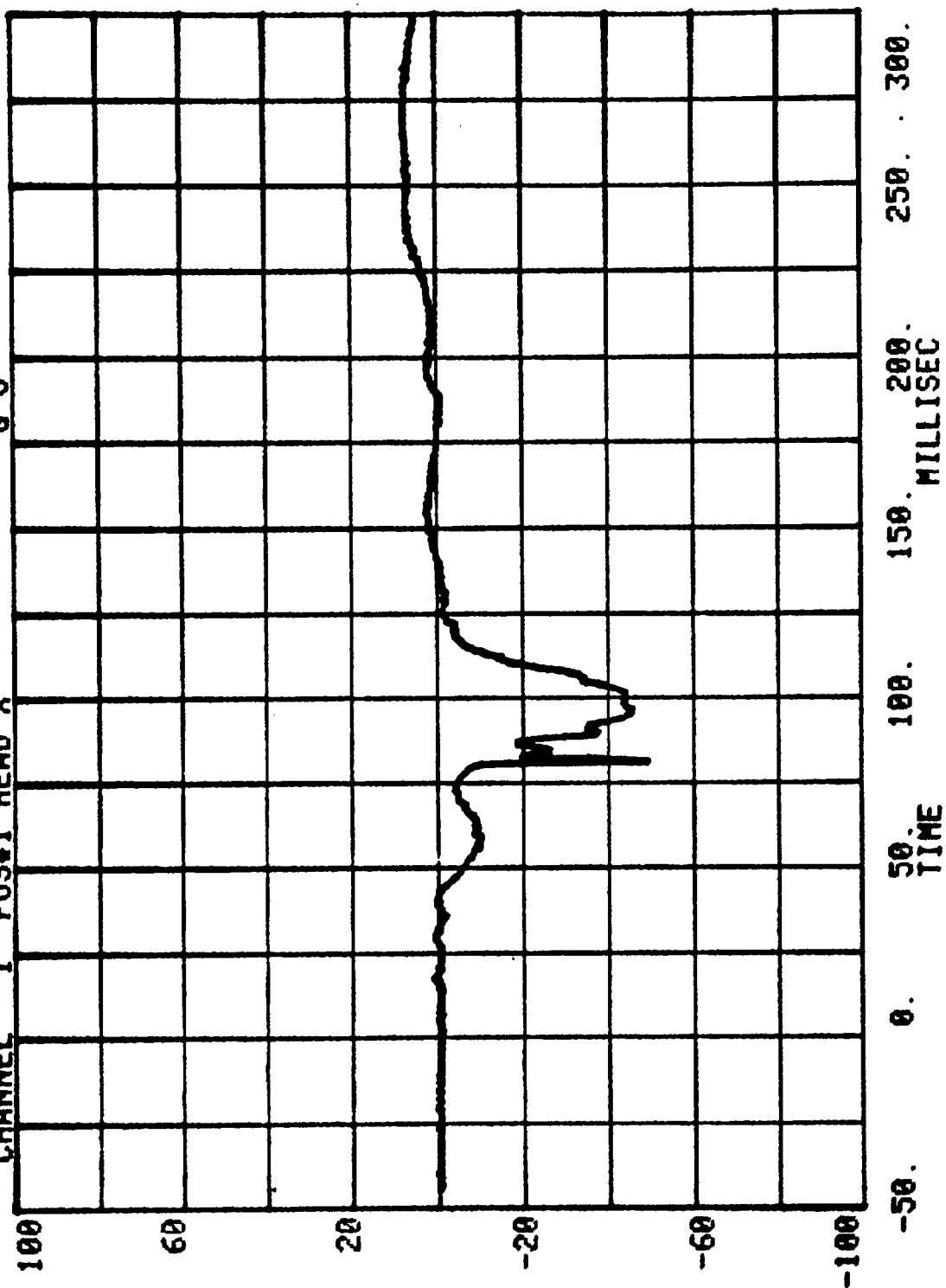
HIC= 677.5 FROM T1= .07492 TO T2= .11092

AVERAGE ACCELERATION BETWEEN T1 AND T2= 51.3G'S

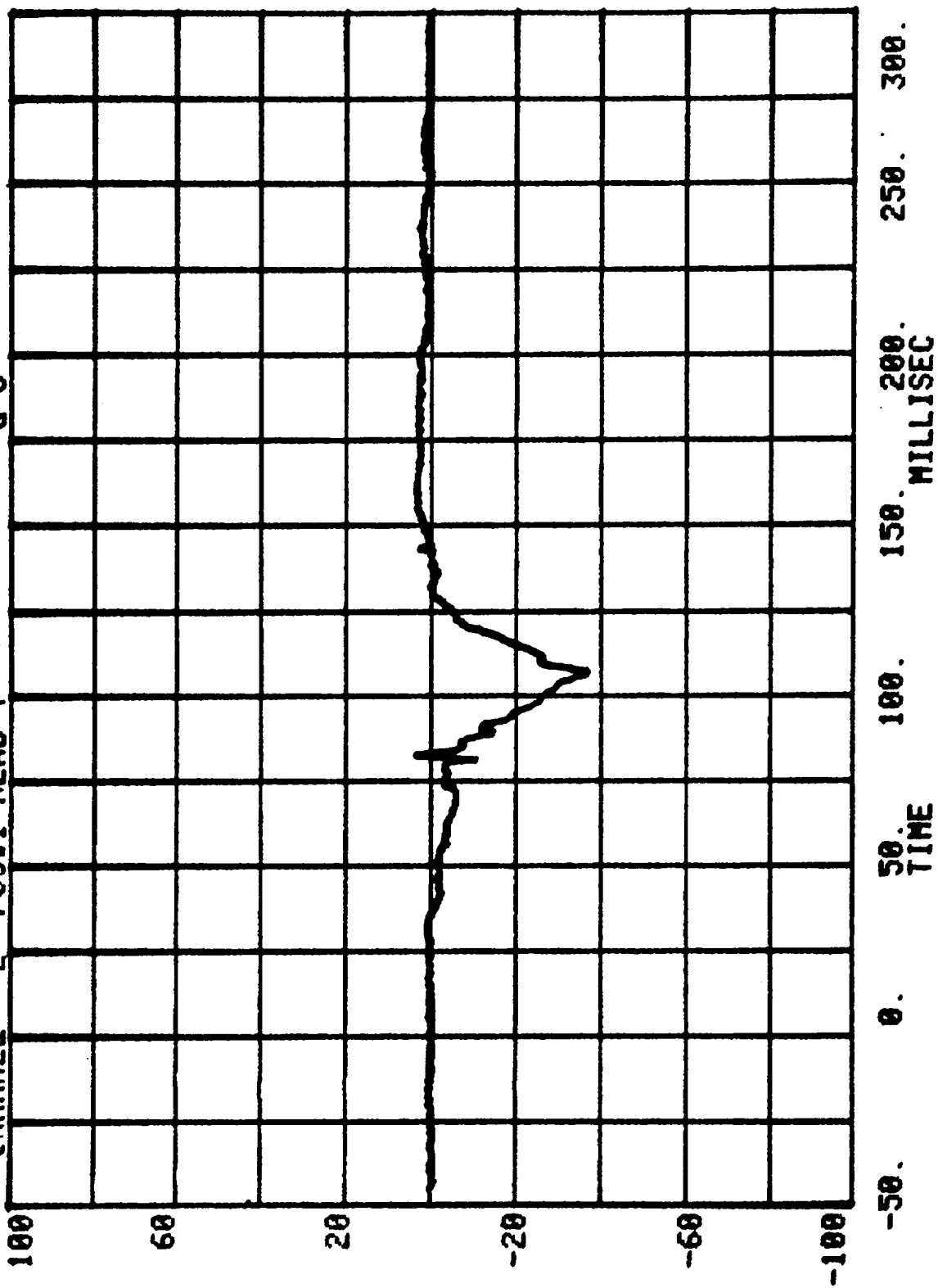
EVENT TIME= 300.0 MSEC

SEVERITY INDEX= 824.3

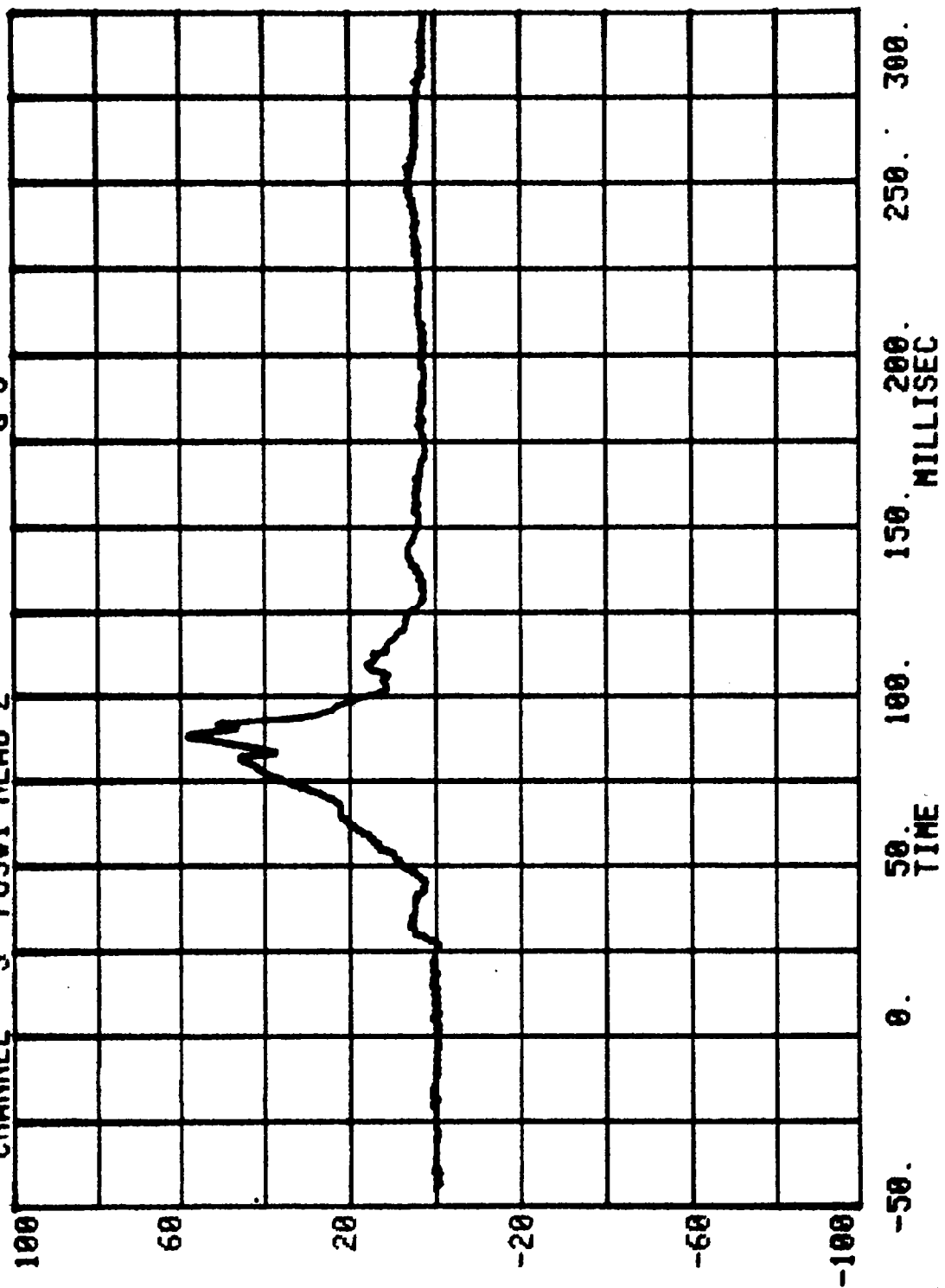
CHANNEL 1 POS#1 HEAD X RUN= 848 SERIES= 5801 G'S



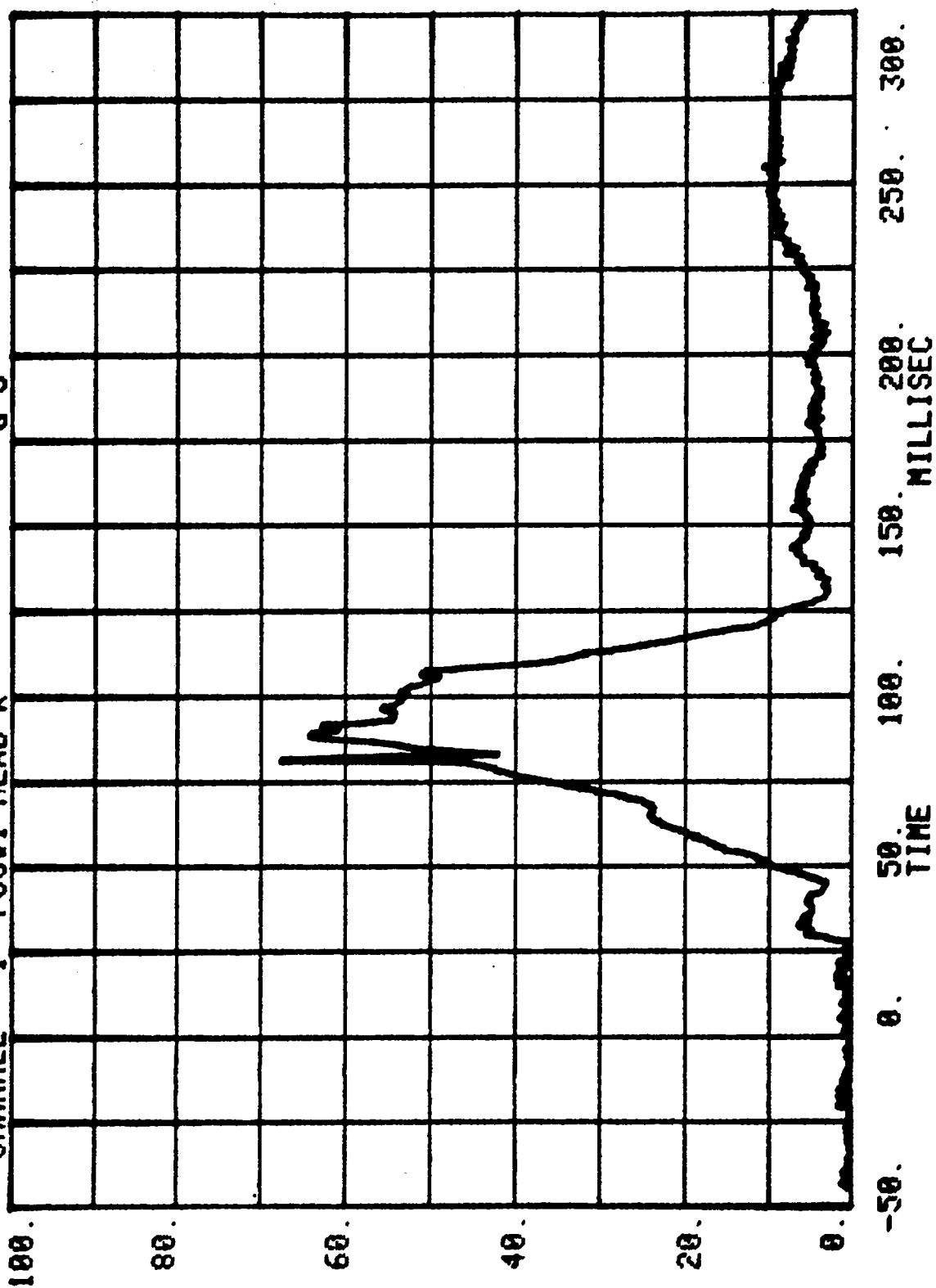
CHANNEL 2 POS#1 HEAD Y RUN= 848 SERIES= 5801 G'S



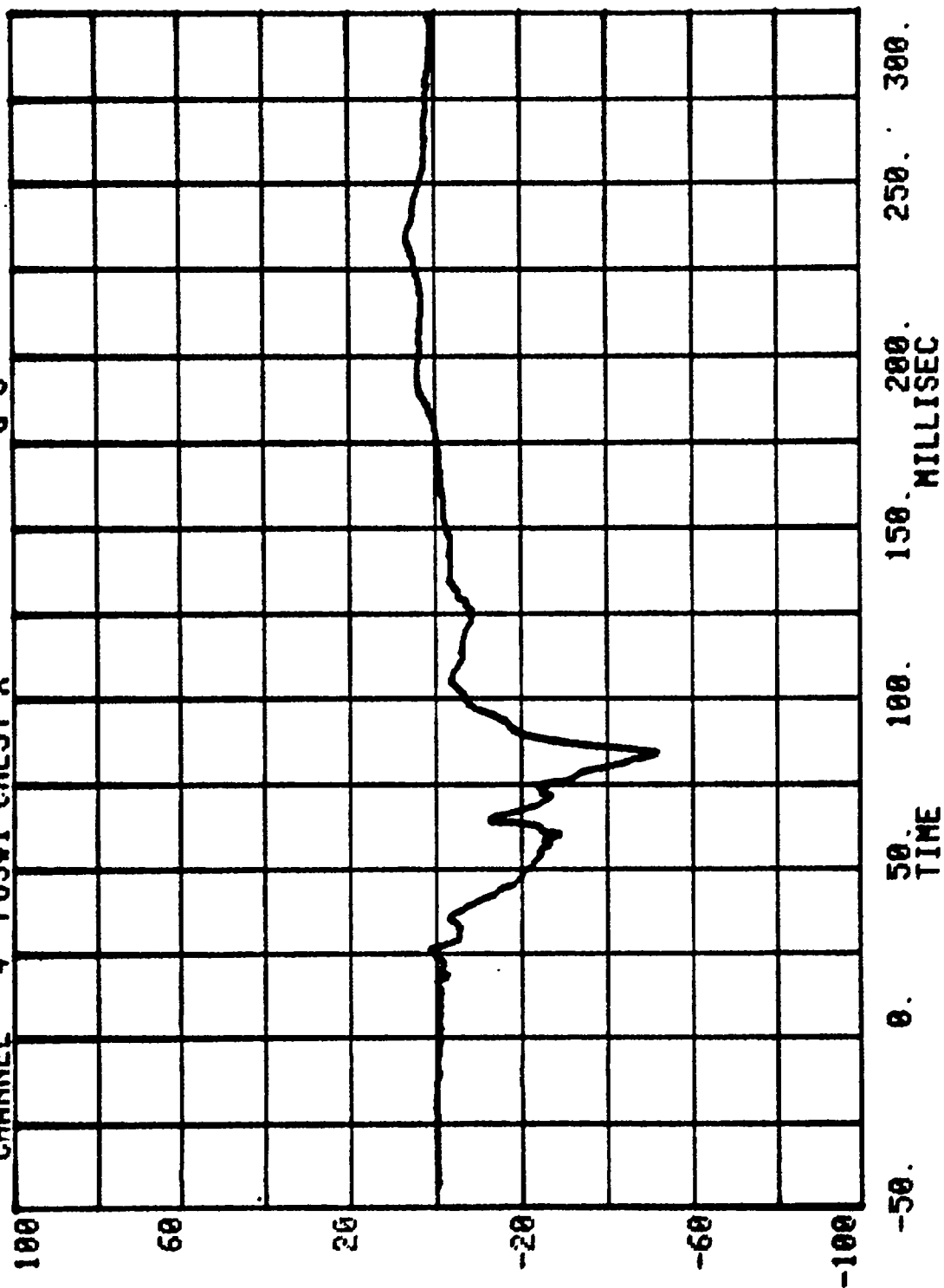
CHANNEL 3 POS#1 HEAD Z RUN= 848 SERIES= 5801 G'S



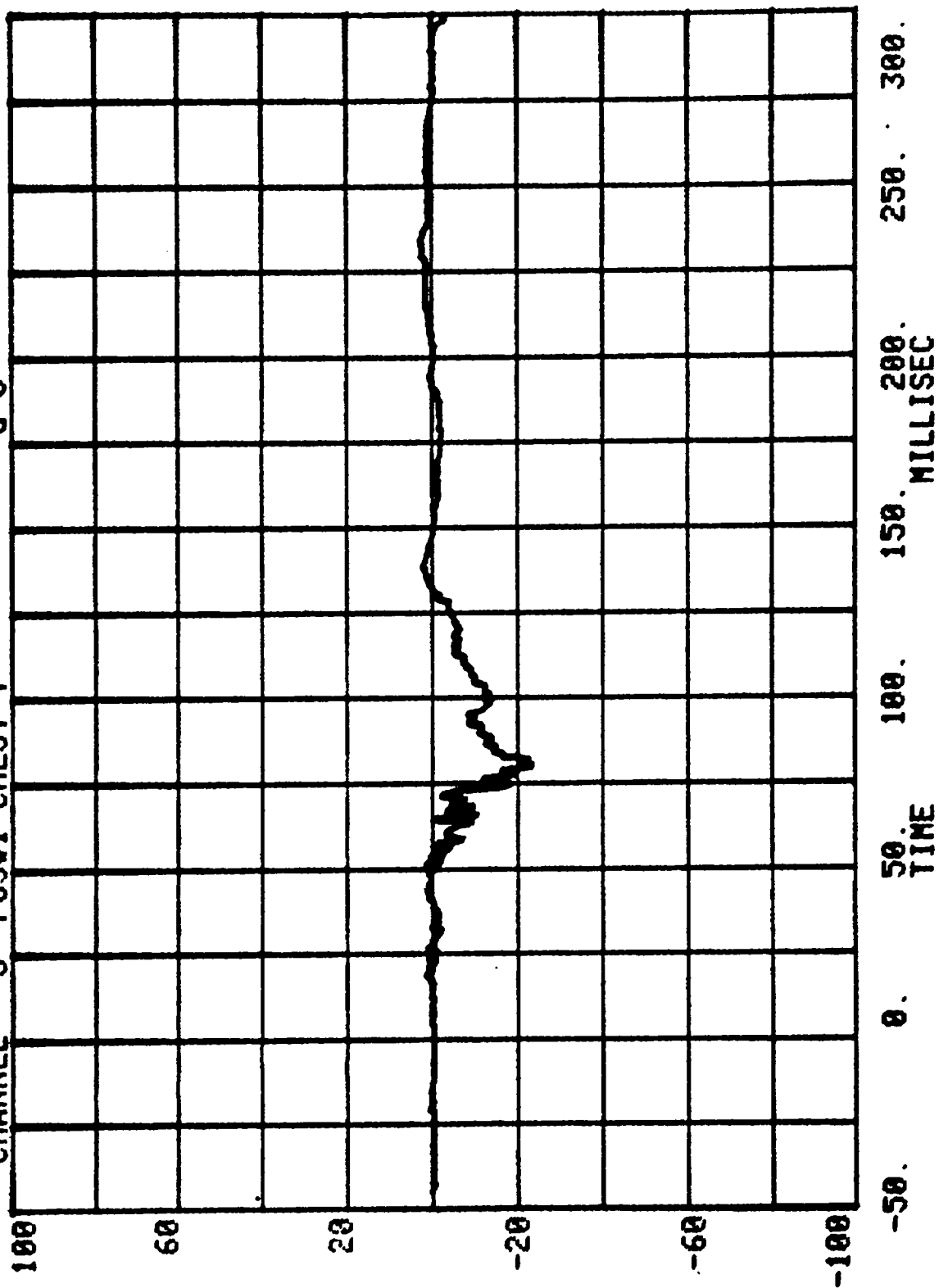
CHANNEL 1 POS#1 HEAD R RUN= 848 SERIES= 5801 G'S



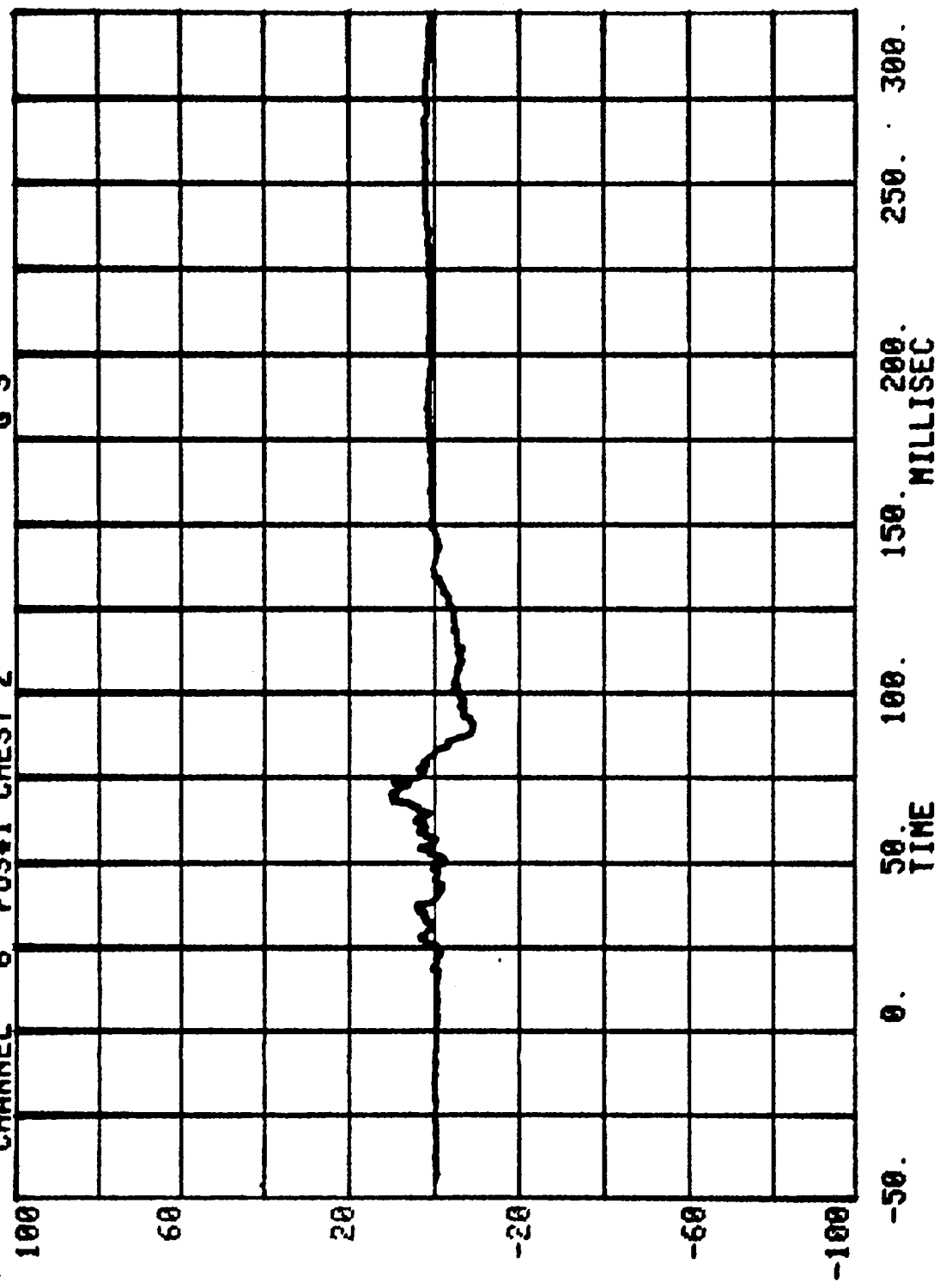
CHANNEL 4 POS#1 CHEST X RUN= 848 SERIES= 5801 G'S



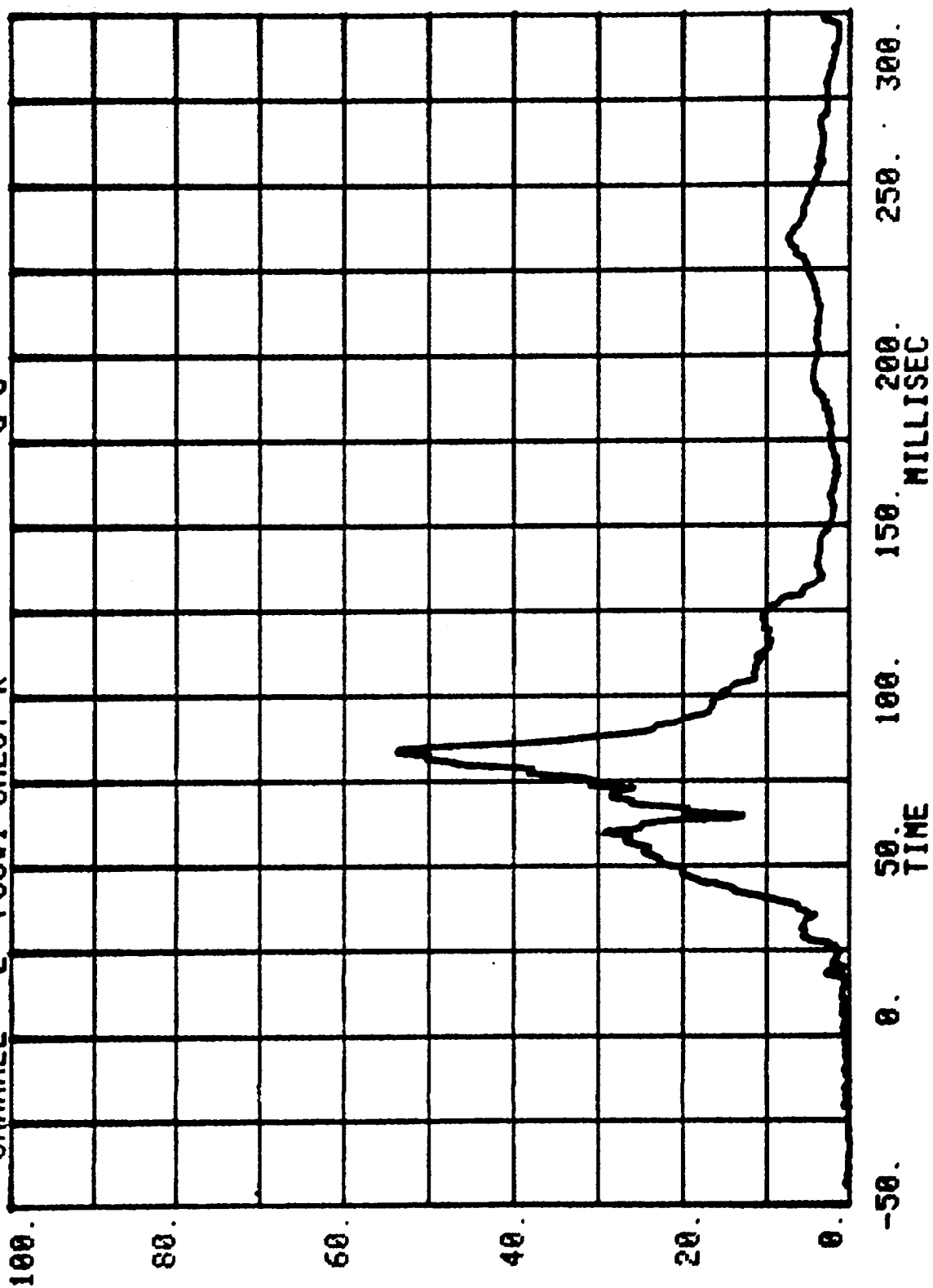
CHANNEL 5 POS#1 CHEST Y
RUN= 848 SERIES= 5801 G'S



CHANNEL 6 POS#1 CHEST Z RUN= 848 SERIES= 5801 G'S

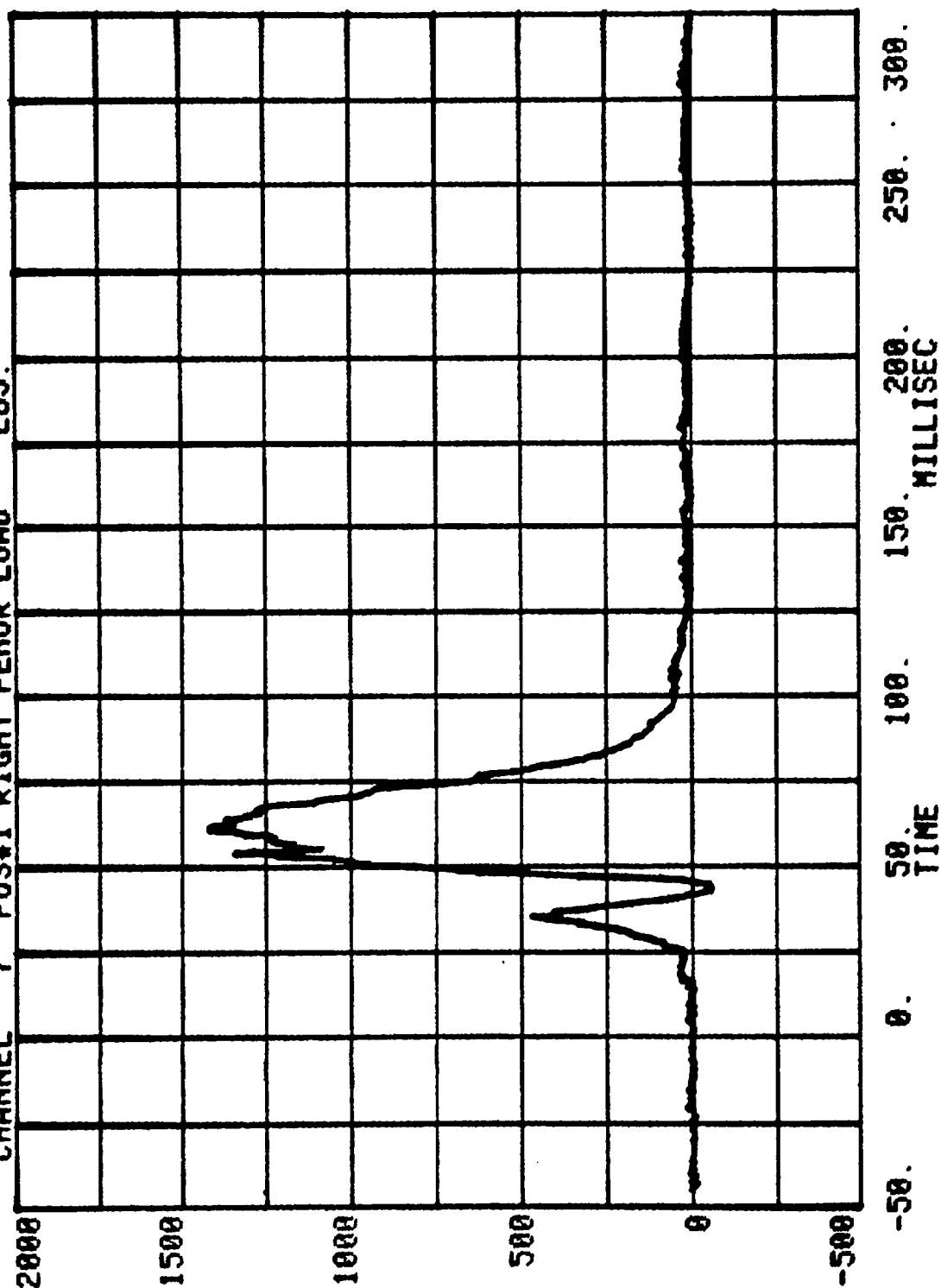


CHANNEL 2 POS#1 CHEST R
RUN= 848 SERIES= 5801 G'S

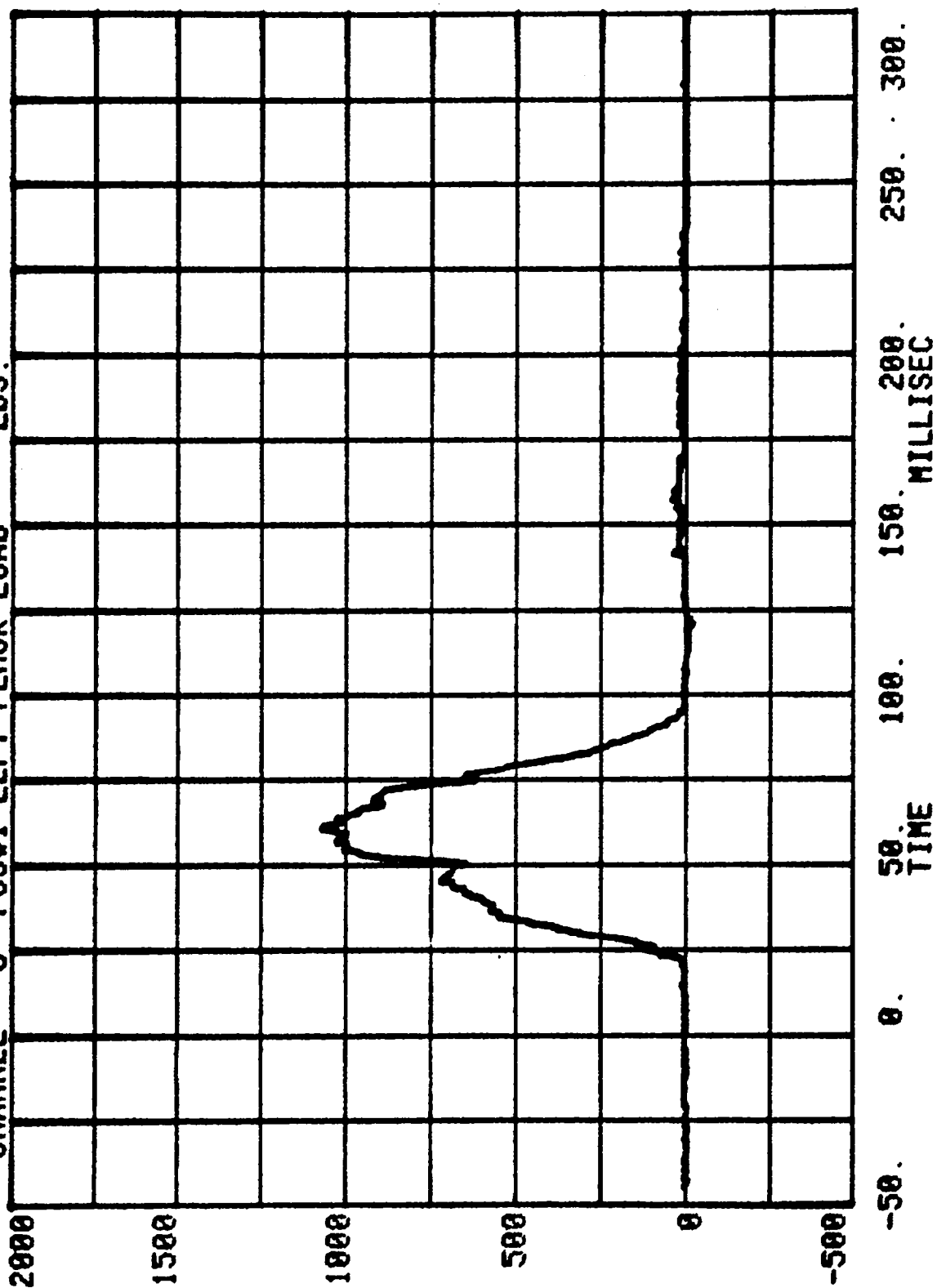


CHANNEL 7 POS#1 RIGHT FEMUR LOAD LBS.

RUN= 848 SERIES= 5801



RUN= 848 SERIES= 5801
CHANNEL 8 POS#1 LEFT FEMUR LOAD LBS.



HEAD INJURY CRITERION
HEAD SEVERITY INDEX
36MS. MAXIMUM DURATION

NHTSA CRASH TEST - PROC.208

RUN= 848

POS#2 HEAD R

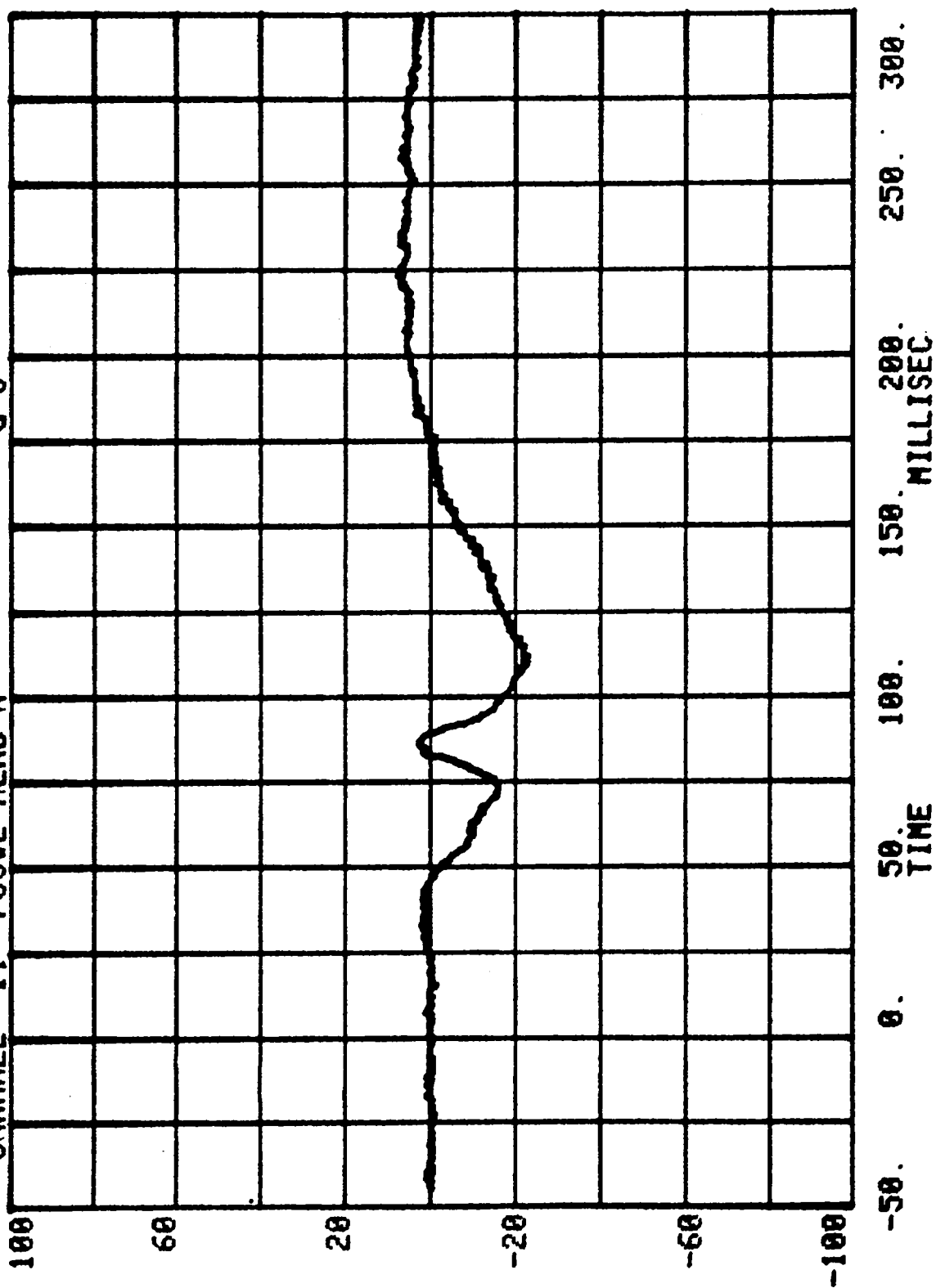
HIC= 656.1 FROM T1= .07065 TO T2= .10665

AVERAGE ACCELERATION BETWEEN T1 AND T2= 50.6G'S

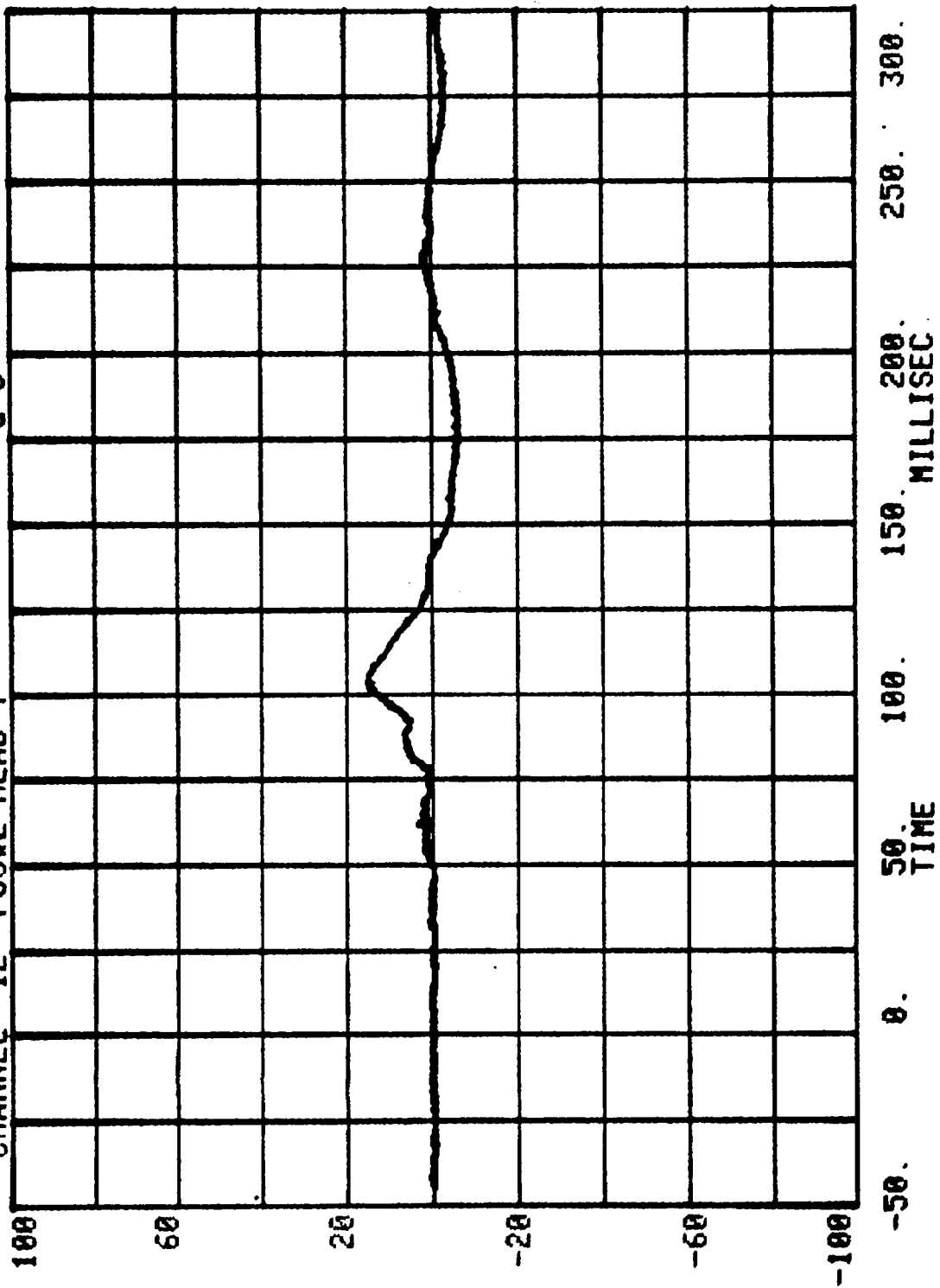
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SEVERITY INDEX= 939.4

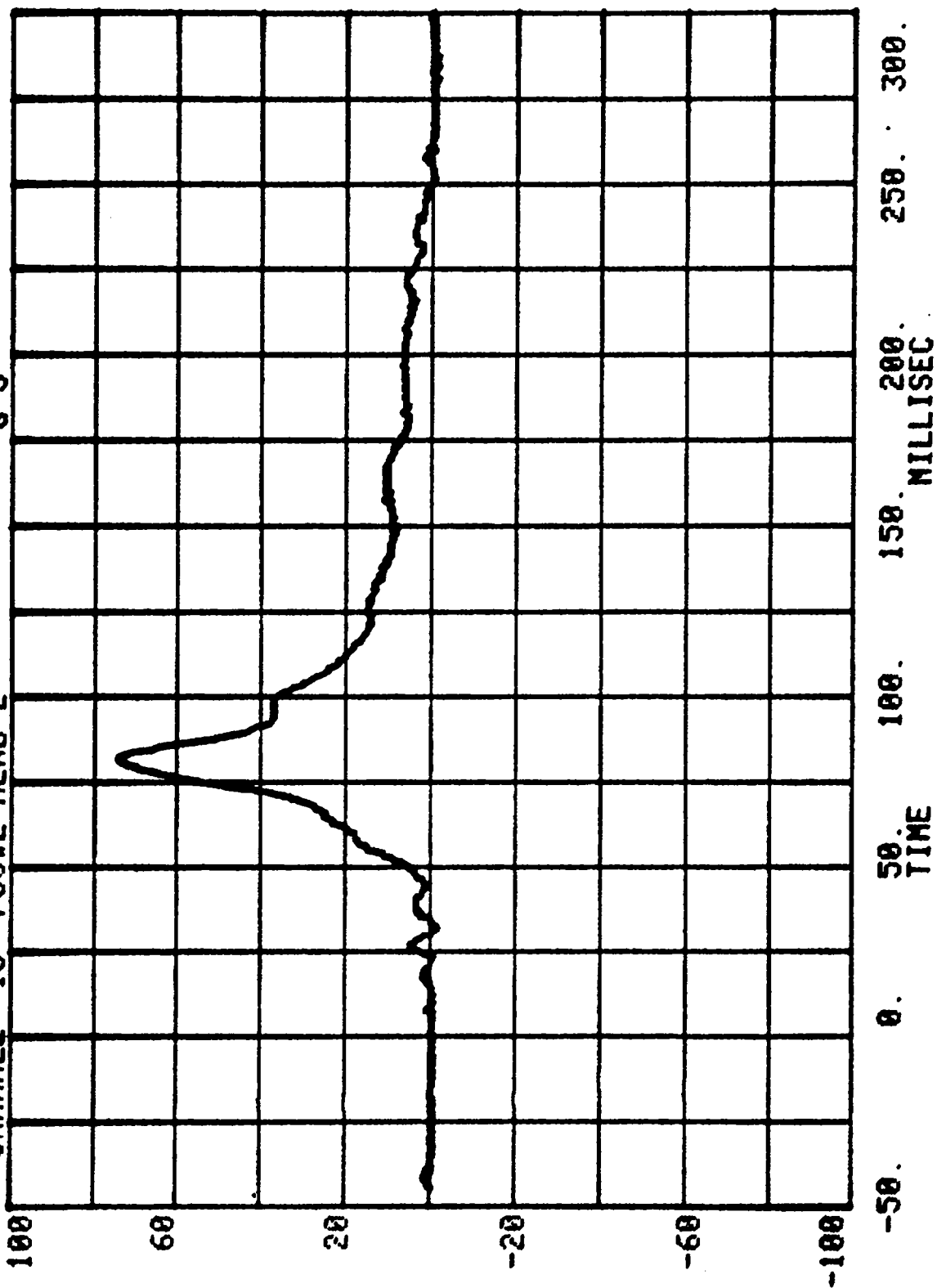
CHANNEL 11 POS#2 HEAD X RUN= 848 SERIES= 5801 G'S



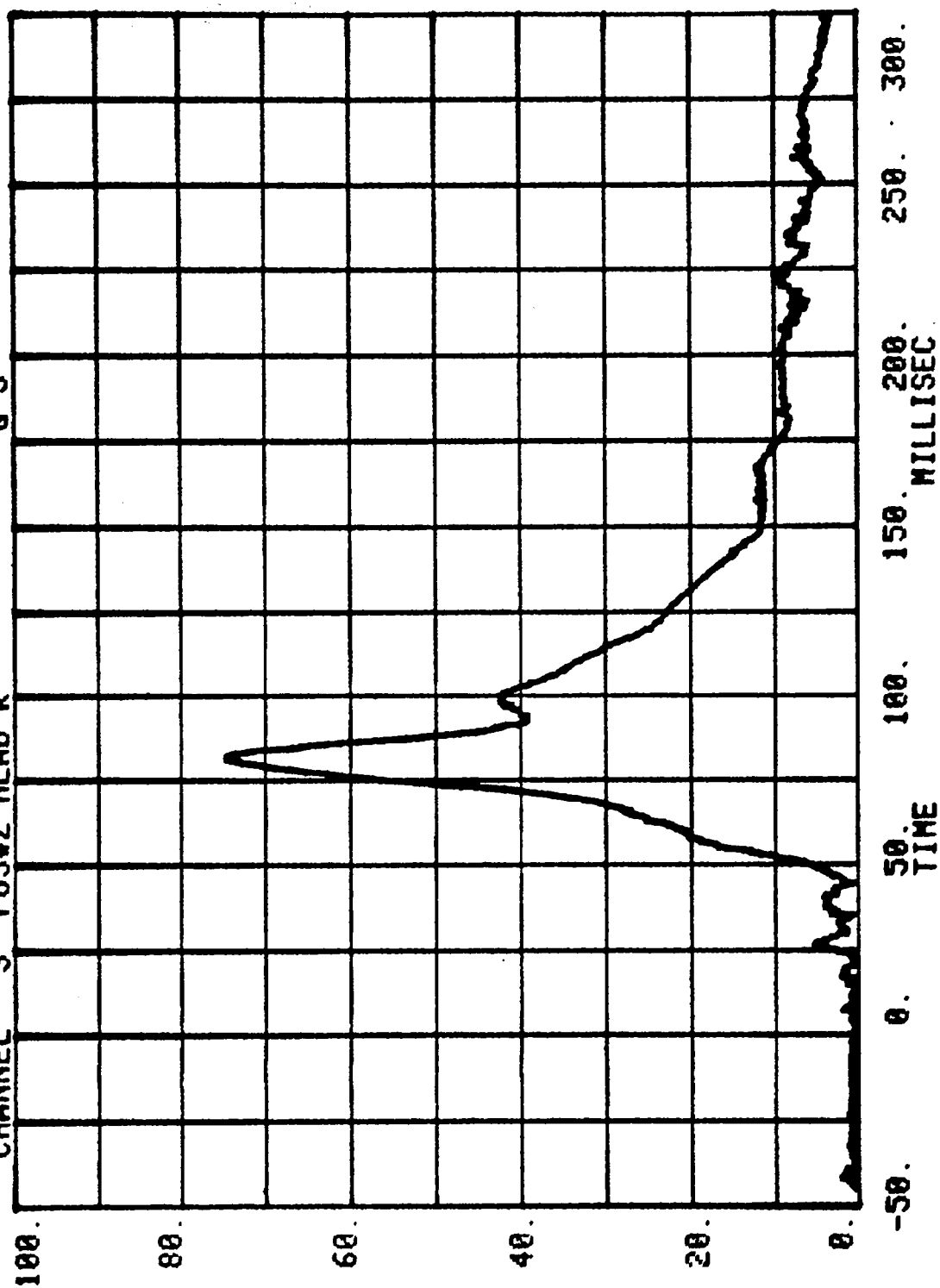
CHANNEL 12 POS#2 HEAD Y RUN= 848 SERIES= 5801 G'S



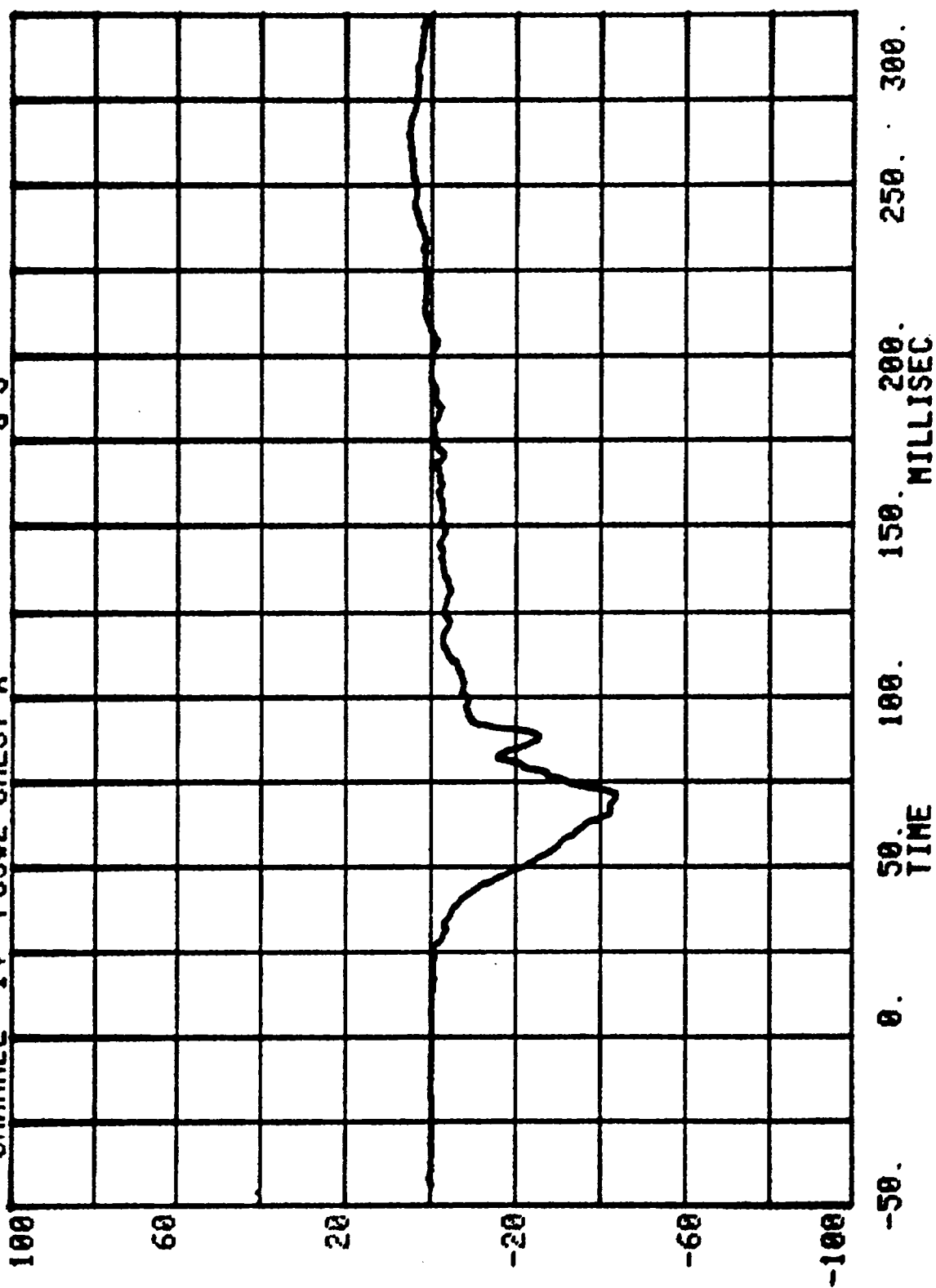
CHANNEL 13 POS#2 HEAD 2 RUN= 848 SERIES= 5801 G'S



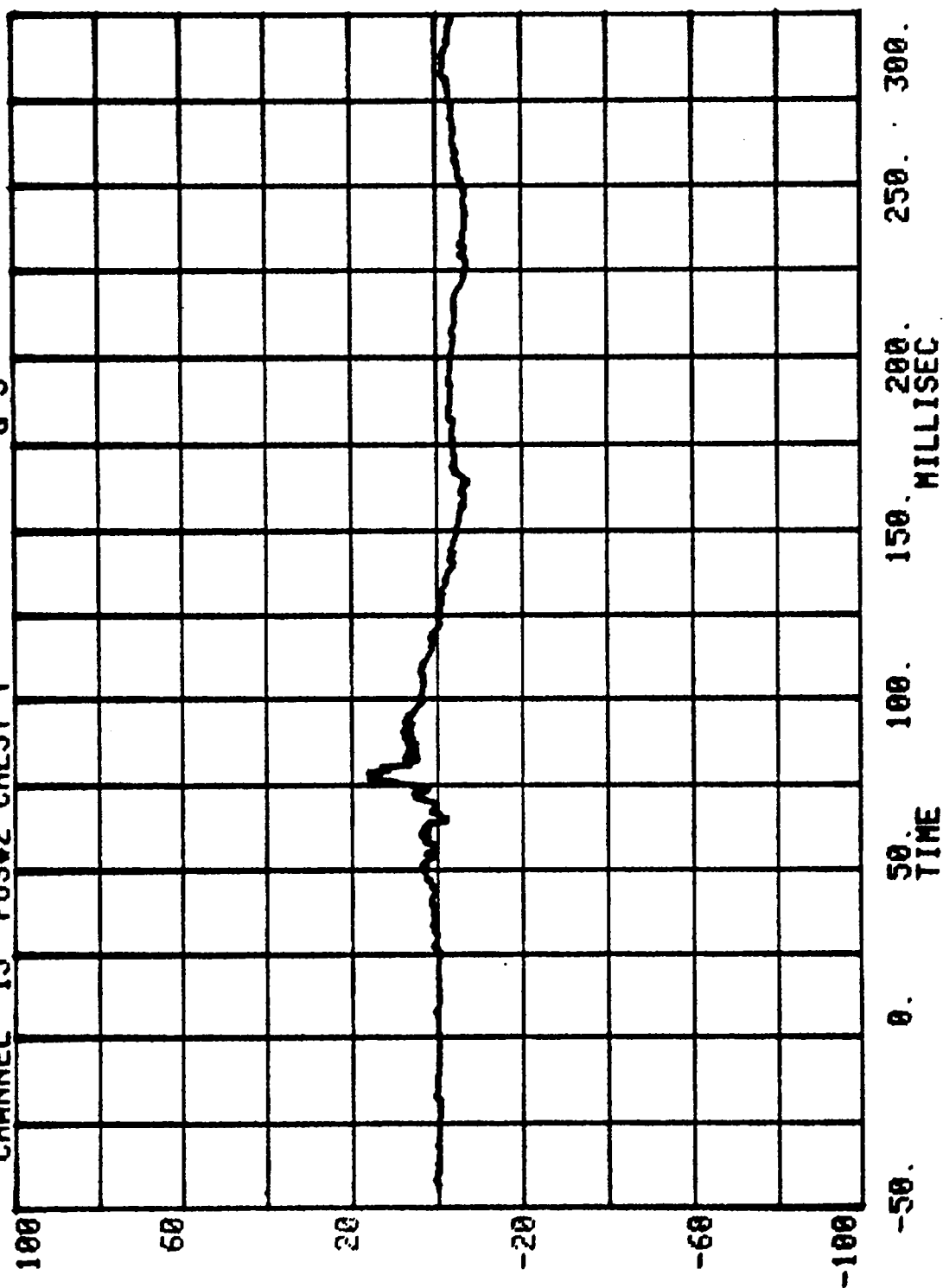
CHANNEL 3 POS#2 HEAD R RUN= 848 SERIES= 5801 G'S



CHANNEL 14 POS#2 CHEST X
RUN= 848 SERIES= 5801 G'S



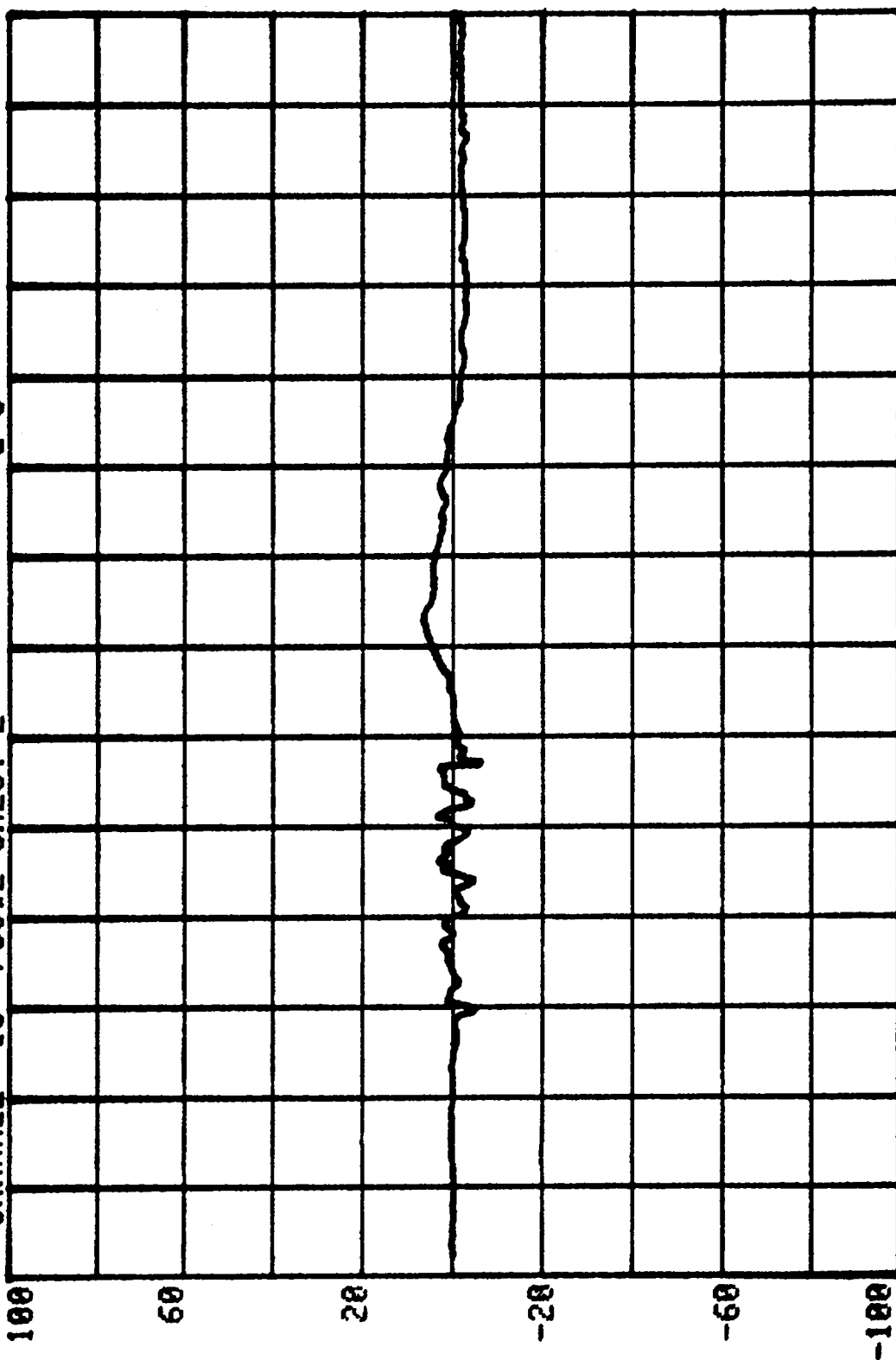
CHANNEL 15 POS#2 CHEST Y RUN= 848 SERIES= 5801 G'S



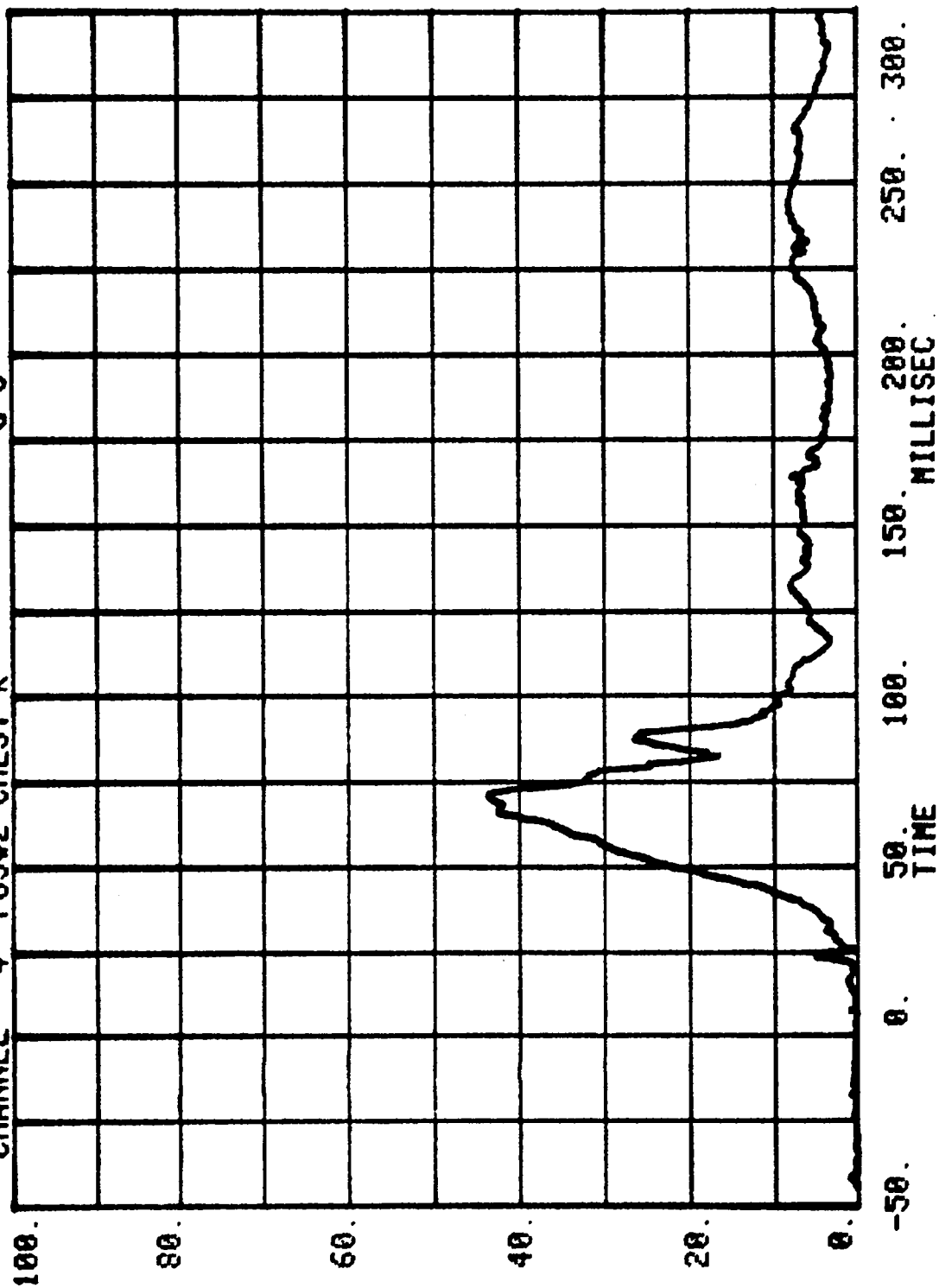
CHANNEL 16 POS#2 CHEST Z G'S

RUN= 848

SERIES= 5801

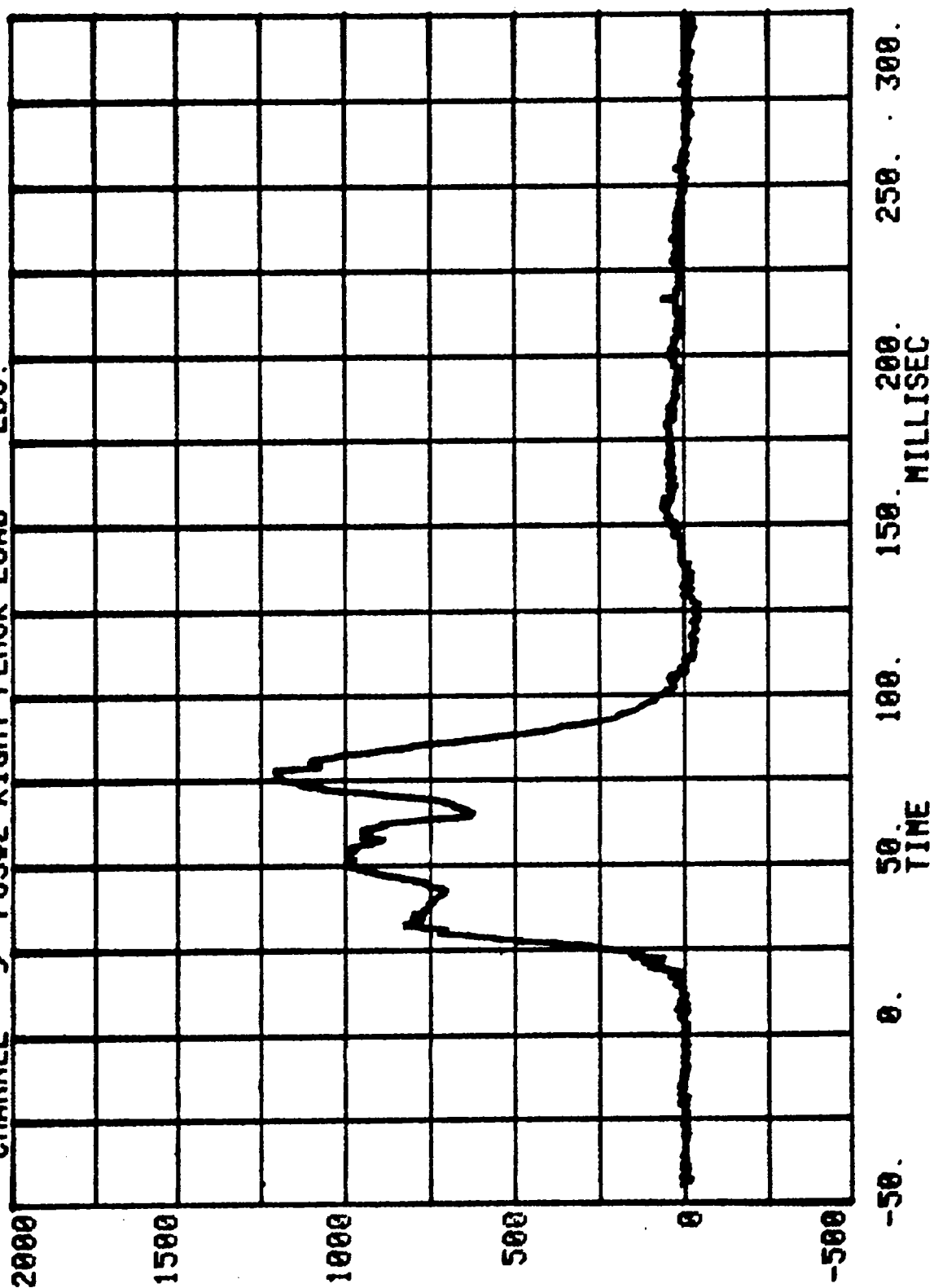


CHANNEL 4 POS#2 CHEST R RUN= 848 SERIES= 5801 G'S

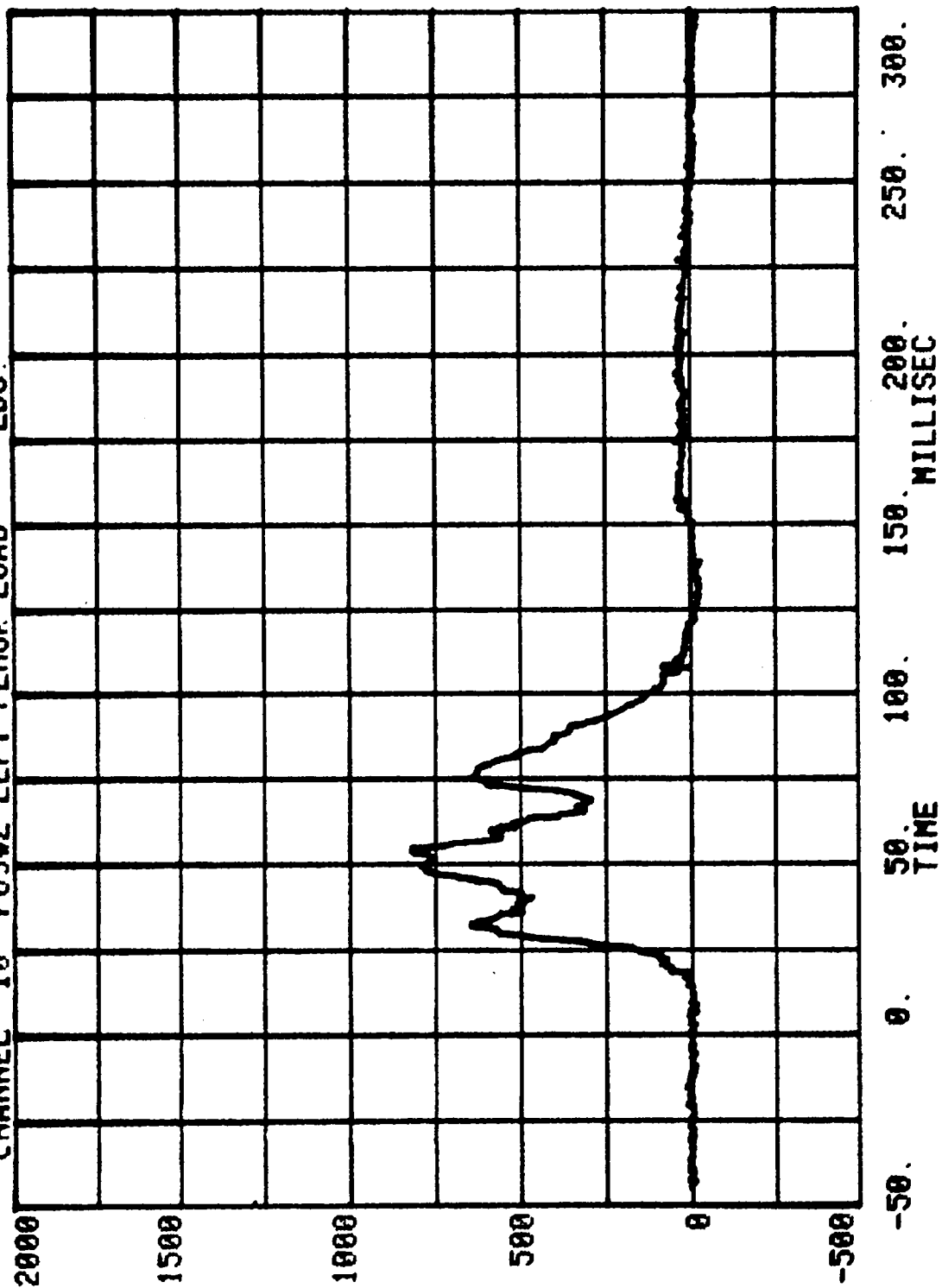


CHANNEL 9 POS#2 RIGHT FEMUR LOAD LBS.

RUN= 848 SERIES= 5801



RUN= 848 SERIES= 5801
CHANNEL 10 POS#2 LEFT FEMUR LOAD LBS.



Appendix C

VEHICLE OWNERS MANUAL OCCUPANT RESTRAINT SYSTEM INSTRUCTIONS

NEW EDITION, JANUARY 1900.

■ **Do not use comfort clips or devices**

portion and can increase the risk of injury in an accident. However such clips may be required in the proper use of some child restraint systems.

■ Do not strap in more than one person with each belt.

■ **For maximum effectiveness, the lap belt must be worn low and tight across the pelvis. Make sure any slack is wound on the retractor.**

■ **Do not wear shoulder part of belt under your arm or otherwise out of position. This would increase the risk of serious injury in case of an accident.**

■ Belts should not be worn twisted.

■ **Do not wear belts over rigid or breakable objects in or on your clothing, such as eye glasses, pens, keys, etc. as these may cause injury.**

■ Several layers of heavy clothing may interfere with proper positioning of belts and reduce the overall effectiveness of the system.

- **Keep belt buckles free of any obstruction that may prevent secure locking.**

■ **Never bleach or dye safety belts.**

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■ The belts must be kept clean as otherwise the retractors may not work properly (also see "Vehicle care", page 71).

WARNING continued

- Do not allow safety belts to retract until they are completely dry.

Child safety

WARNING

All vehicle occupants and especially children should be restrained whenever riding in cars. Holding a child in your arms is not a substitute for a child restraint system. In an accident, a child held in a person's arms can be struck or crushed by any unrestrained rider. An unrestrained child could also be injured by striking the interior, or by being ejected from the vehicle during a sudden maneuver or impact. A child restraint system can help protect a child in a car.

Accident statistics have shown that children are generally safer in the rear seat area than in the front seating positions.

A suitable child restraint properly installed and used in one of the rear seating positions provides the highest degree of protection for infants and small children in most accident situations.

Commercially available child seats complying with US Federal Standard FMVSS 213 (or in Canada CMVSS 213) are required to be capable of being installed with a lap belt or with the lap belt portion of a combination lap-shoulder belt.

Because improperly or inadequately installed child restraint systems can increase the risk of injury to children in accidents, always carefully read and follow all instructions on installation and use that come with the system.

Children must be positioned so that the shoulder belt does not contact or remain in front of the face, chin, neck or throat. Failure to follow this precaution can increase the risk or severity of injury in the event of a collision.

If your vehicle is equipped with an VW Automatic Seatbelt System see also page 20.

In summary:

Children who are less than 12 years old should sit in the rear.

For reasons of safety a child should only occupy the front seat if all of the rear seating positions are already occupied by other children.

The children should wear, depending on age, either a child restraint system or the existing safety belts:

- Infants or toddlers should be secured with a child restraint system designed for their size.

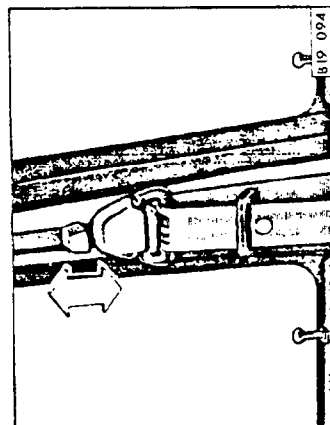
- Children at about six years old and older may wear lap belts.

- If the child is big enough to wear a combination lap/shoulder belt, make sure that the shoulder belt is positioned midway over the shoulder – never across the neck of the child. See illustration on next page.

Belt warning system

An audio-visual warning system is interconnected with the driver's safety belt.

Every time the ignition is turned on, the safety belt warning light will come on for about six seconds as a reminder to buckle up. If the driver does not fasten the safety belt, the chime will also come on for six seconds. With the driver's door closed, the chime will go off as soon as the driver has buckled up.



Adjusting shoulder seatbelt

The front seat shoulder belt anchor on the door pillar can be adjusted up or down to accommodate the height of the driver and the front passenger. The second position from top is the standard position.

- To adjust, push the lever up or down so that the shoulder belt is positioned midway over the shoulder — **never across the neck**. See right illustration.
- Pull on the shoulder belt to check whether the belt anchor is securely locked into place.

Lap-shoulder belt

The combination lap-shoulder belt is equipped with a locking retractor. The system adjusts automatically to your size and movements as long as the pull on the belt is slow.

Hard braking or a collision locks the belt. The belt will also lock when you drive up or down a steep hill or in a sharp curve.

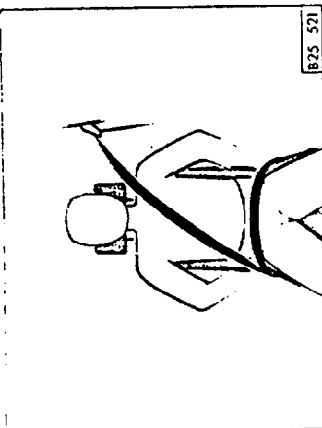
- To fasten, grasp belt tongue and pull belt in continuous slow motion across your chest and lap.

Insert belt tongue into buckle on in-board side of seat. Push down until it is securely locked with an audible click. Pull belt to check.

- Pull shoulder section to make sure belt fits snugly across the pelvis.

The shoulder belt must be positioned midway over the shoulder — **it must never rest against the neck**. See right illustration.

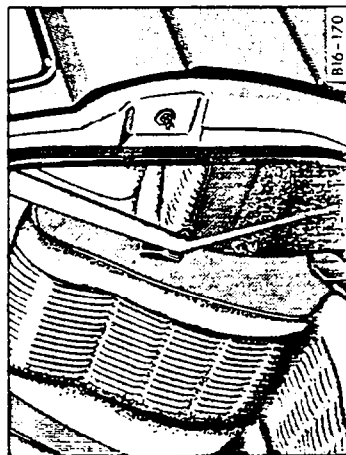
- Belts should fit snugly across the pelvis and chest. **Make sure any slack is wound up on the retractor.**



Adjust height of belt anchorage, if necessary. Do not wear shoulder part of belt under your arm or otherwise out of position. This would increase the possibility of serious injury in case of an accident.

- To unfasten belt, push in release button on buckle. Belt will spring out of buckle.
- To release a locked belt, lean back to take the body pressure off the belt.
- To store lap-shoulder belt, allow belt to wind up on retractor as you guide belt tongue to its stowed position.

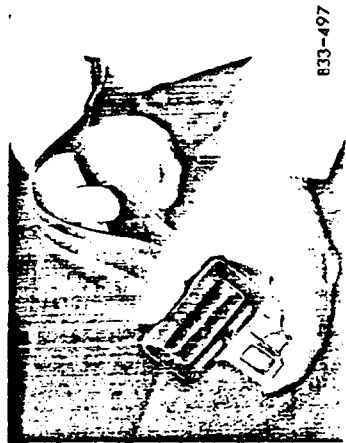
Always heed **WARNINGS** on pages 14/15.



Safety belt holder
(two-door model)

The release lever on side of the seatback also serves as a convenient safety belt holder. Unhook the belt before pulling the lever up.

After returning the seatback to its original position, the belt should be hooked into the holder again so that it is easy to reach when buckling up.



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Lap belt for rear center seating position

The safety belt for the rear center seating position is not equipped with a retractor, and has to be adjusted manually.

The belt must always be kept on top of the seat for ready use. Do not permit it to get caught under the seat.

■ To lengthen belt, hold belt tongue at a right angle to belt and loop out the required portion. For ease of operation, press cap and tongue of buckle together.

■ To tighten belt, buckle up and pull at loose end of the belt.
Take up any slack by moving the slide on the belt.

WARNING

To reduce the risk of injury in an accident, position the lap belt as low as possible across the pelvis.

■ To fasten lap belt, grasp belt tongue on outboard side of seat, pull across pelvis and insert in inboard buckle.

■ To unfasten belt, push in release button on buckle.

During pregnancy

Pregnant women should always wear combination lap/shoulder belts. The lap belt portion must be worn snugly and as low as possible across the pelvis. To avoid pressure on the abdomen the belt must never pass over the waist.

Child restraint anchorages

Depending upon the child restraint system to be fitted, additional anchorage points may be required — ask your VW dealer.

Always heed **WARNINGS** on pages 14/15.

VW AUTOMATIC SEATBELT SYSTEM FOR FRONT SEATS*

The VW Automatic Seatbelt System is a passive restraint system. Driver and front seat passenger are buckled up automatically as they sit down and close the door.

The automatic seatbelt on the driver's side is connected to the ignition.

To be able to start engine, the driver's belt should be properly connected to buckle at upper rear edge of door.

■ **Open door (do not disconnect belt at top where marked PRESSEMERGENCY)**

■ **Sit on seat**

■ **Belt places itself across chest as you close the door (make sure belt is fully retracted)**

■ **Start the engine**

For best protection, belt should fit snugly across chest. If belt has too much slack, pull in direction of retractor on inboard side of seat to permit belt to wind up on retractor.

Front seat passengers should not ride in a moving vehicle with the seatback reclined. Safety belts only offer optimum protection when the seatback is in an upright position, as illustrated.

Always heed WARNING on pages 14/15.

*where applicable



WARNING

■ **When wearing the automatic seat belt, make sure that the belt is positioned midway over the shoulder – never across the neck.**

■ **Children who are less than 12 years old should sit in the rear.**

For reasons of safety a child should only occupy the front seat if all of the rear seating positions are already occupied by other children.

The children should wear, depending on age, either a child restraint system or the existing safety belts -- see page 15.

WARNING continued

■ **The automatic seatbelt must not be used to hold a child's seat as the diagonal belt will not provide the needed protection.**

If a child seat has to be installed on the front passenger seat, a separate lap belt must be mounted to hold the child's seat. For details see next page.

How the automatic seatbelt system works

The belt tongue is locked in the belt buckle which is fastened firmly to the upper rear edge of the door (C) which mates with the load bearing structure of the vehicle body. The other end of the belt is wound automatically on the automatic retractor under the seat (A).

As the door opens, it pulls the belt from the retractor and provides access to the interior of the vehicle. When the door is closed, the belt automatically places itself diagonally across the chest.

WARNING

Do not wear shoulder part of belt under your outboard arm or otherwise out of position. This would increase the possibility of serious injury in case of an accident.

The belt automatically takes up any belt slack and adjusts to your normal wearing position and movements so that you can conveniently reach all operating controls.

Safety belt warning light and chime

When belts are not connected...
the engine cannot be started. The chime will sound for about six seconds, and the warning light will glow until the belts are reconnected. Only after the belts are reconnected, can the engine be started.

If belts are disconnected while you are driving...

the engine will not stop but the warning light will glow until the belts are reconnected.

A stalled engine cannot be restarted if the belts are disconnected.

Inertia reel retractor (A)

In a sudden stop or impact, the belt's inertia reel retractor automatically locks the belt. Sudden acceleration or hard braking, fast cornering or driving up or down steep hills also locks the belt. To release a locked belt, lean back to take the body pressure off the belt.

A plate containing an anchorage for the subsequent installation of a lap belt to hold a child's seat is located adjacent to the retractor mounting bracket – see also next page.

Knee bar (B)

The knee bar, which is located under the dashboard, resists driver and passenger from sliding toward the dashboard in a sudden stop. **The knee bar must not be removed.**

Emergency release (C)

If required, press the emergency release on the belt buckle marked PRESS EMERGENCY, and pull out the belt tongue. Always reconnect the belt to the buckle.

Since the automatic restraint system of the driver's seat is interconnected with the ignition, the engine can only be started if the driver's belt is properly connected.

Always heed WARNINGS on pages 14/15.