

REPORT NOS. 208-CAL-88-01
212-CAL-88-01
301-CAL-88-01

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

CHRYSLER CORPORATION
1988 DODGE DAYTONA COUPE
2-DOOR HATCHBACK

NHTSA NO. CJ0302
CALSPAN TEST NO. 7669-2
JULY 20, 1988

CALSPAN CORPORATION
ADVANCED TECHNOLOGY CENTER
P.O. BOX 400
BUFFALO, NEW YORK 14225



FINAL REPORT

Prepared for:

U.S. DEPARTMENT OF TRANSPORTATION
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
OFFICE OF VEHICLE SAFETY COMPLIANCE
400 SEVENTH STREET, S.W.
ROOM NO. 6115 (NEF-31)
WASHINGTON, DC 20590

This Final Test Report was prepared for the U.S. Department of Transportation, National Highway Traffic Safety Administration, under Contract No. DTNH22-88-C-01038. This document is disseminated under the sponsorship of the U.S. Department of Transportation in the interest of information exchange. The United States Government assumes no liability for its contents or use thereof.

Prepared:

Michael J. Kilgallon
Michael J. Kilgallon, Project Engineer

Approved:

Walter E. Levan
Walter E. Levan, Program Manager
Transportation Research/
Physical Sciences Department

Approval date: _____

FINAL REPORT ACCEPTED BY:

John J. Brammer
Contracting Officer's Technical Representative
(COTR), NHTSA, Office of Vehicle Safety Compliance

Nov. 23, 1988
Date of Report Acceptance

TECHNICAL REPORT STANDARD TITLE PAGE

1. Report No. 212-CAL-88-01 208-CAL-88-01 301-CAL-88-01		2. Government Accession No.		3. Recipient's Catalog No.	
4. Title and Subtitle Final Report of FMVSS Nos. 208, 212, 219 (partial) and 301 Compliance Testing of a 1988 Dodge Daytona Coupe 2-Door Hatchback				5. Report Date July 20, 1988	
				6. Performing Organization Code CAL	
7. Author(s) Michael J. Kilgallon, Project Engineer Walter E. Levan, Program Manager				8. Performing Organization Report No. 7669-2	
9. Performing Organization Name and Address Calspan Advanced Technology Center P.O. Box 400 Buffalo, NY 14225 Phone No.: (716) 632-7500				10. Work Unit No. 330- 1-843	
				11. Contract or Grant No. DTNH22-88-C-01038	
				13. Type of Report and Period Covered Final Report July-August	
12. Sponsoring Agency Name and Address U.S. Department of Transportation National Highway Traffic Safety Administration Office of Vehicle Safety Compliance (NEF-31) 400 Seventh St., S.W., Rm.6115, Washington, DC 20590				14. Sponsoring Agency Code DOT/NHTSA/NEF/OVSC	
15. Supplementary Notes					
16. Abstract A 30 mph vehicle safety compliance test was conducted on a 1988 Dodge Daytona 2-door Hatchback. This test was performed at the Caslpan Advanced Technology Center in Buffalo, New York on July 20, 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 29.5 mph. The ambient temperature at the impact face was 80°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 driver dummy was restrained with an airbag. The passenger dummy was restrained with a torso belt.					
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	
19. Security Classif. (of this report) Unclassified		20. Security Classif. (of this page) Unclassified		21. No. of Pages 22. Price	

TABLE OF CONTENTS

<u>Section</u>		<u>Page No.</u>
1	PURPOSE AND TEST PROCEDURE	1-1
2	SUMMARY OF FRONTAL BARRIER IMPACT TEST	2-1
3	OCCUPANT AND VEHICLE INFORMATION	3-1
4	SUMMARY OF RESULTS FOR:	4-1
	FMVSS 208, "Occupant Crash Protection"	4-3
	FMVSS 212, "Windshield Mounting"	4-8
	FMVSS 219 (Partial), "Windshield Zone Intrusion"	4-9
	FMVSS 301, "Fuel System Integrity"	4-10
APPENDIX A	PHOTOGRAPHS	A-1
APPENDIX B	VEHICLE AND DUMMY RESPONSE DATA	B-1
APPENDIX C	VEHICLE OWNER'S MANUAL OCCUPANT RESTRAINT SYSTEM INSTRUCTIONS	C-1

LIST OF FIGURES

<u>Figure No.</u>	<u>Description</u>	<u>Page No.</u>
1	TEST VEHICLE INFORMATION	3-2
2	PART 572 DUMMY IN-VEHICLE POSITION	3-3
3	OCCUPANT CLEARANCE DIMENSIONS	3-4
4	DRIVER DUMMY TO STEERING COLUMN/WHEEL ASSEMBLY REFERENCE DIMENSIONS	3-5
5	SEAT BELT POSITIONING DATA	3-6
6	VEHICLE ACCELEROMETER LOCATIONS	3-7
7	CAMERA POSITIONS FOR FRONTAL IMPACTS	3-9
8	VEHICLE TARGET LOCATIONS	3-11
9	TEST VEHICLE MEASUREMENTS	3-12
10	FMVSS NO. 212 - "WINDSHIELD MOUNTING" DATA SHEET	4-8
11	FMVSS NO. 219 (PARTIAL) - "WINDSHIELD ZONE INTRUSION" DATA SHEET	4-9

LIST OF TABLES

<u>Table No.</u>	<u>Description</u>	<u>Page No.</u>
1	Crash Test Summary	2-2
2	General Test and Vehicle Parameter Data	2-3
3	Post-Impact Data	2-5
4	Vehicle Accelerometer Locations and Data Summary	3-8
5	High Speed Camera Locations	3-10
6	Vehicle Measurements	3-13
7	Dummy Injury Criteria Values	4-2
8	FMVSS No. 208 - Seat Belt Warning System Check	4-3
9	FMVSS No. 208 - Labeling and Driver's Manual Information	4-4
10	FMVSS No. 208 - Readiness Indicator	4-5
11	FMVSS No. 208 - Comfort and Convenience Test Summary	4-6
12	FMVSS No. 301 - "Fuel System Integrity" Post-Impact Test Data	4-10
13	FMVSS No. 301 - Static Rollover Data Sheet	4-11
14	Test Vehicle Noncompliance Notice	4-15

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 Dodge Daytona 2-Door Hatchback, 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 CJ0302

A frontal barrier was impacted by a 1988 Dodge Daytona 2-Door Hatchback at a velocity of 29.5 mph. The test was performed at the Calspan Corporation Advanced Technology Center on July 20, 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 4 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 left femur data became intermittent between 85 to 115 milliseconds. It is believed that the femur force did not exceed the maximum femur force as specified by FMVSS 208.

The driver's head struck the air bag and his HIC was 194. The maximum chest deceleration over 3 milliseconds was 28 g's and femur loads were 1439 and 677 pounds.

The right-front passenger's HIC was 319. The maximum chest deceleration over 3 milliseconds was 28 g's and femur loads were 825 and 991 pounds.

TABLE 1

CRASH TEST SUMMARYVEHICLE NHTSA NO.: CJ0302 TEST MODE: 30 mph Frontal BarrierTEST DATE: 7/20/88 TIME: 11:30 TEMP: 80° FVEHICLE MAKE/MODEL/BODY STYLE: 1988 Dodge Daytona CoupeVEHICLE TEST WEIGHT: 3140 WINDSHIELD TEMP: 80°VEHICLE/BARRIER IMPACT ANGLE: 0° INTERIOR TEMP: 70°IMPACT VELOCITY: 29.5MAXIMUM STATIC CRUSH: 24.2VEHICLE REBOUND: 8.9DUMMIES:DRIVERPASSENGERTYPE Part 572 (S/N 1019) Part 572 (S/N 1020)RESTRAINT SYSTEM Airbag Automatic Torso BeltNUMBER OF DATA CHANNELS: 23NUMBER OF CAMERAS: 1 Real Time14 High SpeedDOOR OPENING DATA: operable - Left Frontoperable - Right Front

FRONT SEAT(S) DATA:

DRIVERPASSENGERSeat Track Failure - None None
inches of shiftSeat Back Failure - None None

VISIBLE DUMMY CONTACT POINTS:

DRIVERPASSENGERHead Airbag No contactChest Airbag No contactKnees Dash Dash

TABLE 2

GENERAL TEST AND VEHICLE PARAMETER DATATEST VEHICLE INFORMATION:

Year/Make/Model/Body Style: 1988 Dodge Daytona Coupe
 NHTSA No. CJ0302 ; VIN 1B3YA44K0JG436327 ; Color: Black Cherry
 Engine Data: 4 cylinders; - CID; 2.5 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: - A/C; X Pwr Strg. X Pwr. Brakes - Pwr Windows
- Power Door Locks;
 Date Received: 6-20-88 ; Odometer Reading - 23 miles
 Selling Dealer: Best Dodge
 & address West Seneca, NY 14224

DATA FROM VEHICLE'S CERTIFICATION LABEL:

Vehicle Manufactured by: Chrysler Corporation
 Data of Manufacture: 6-88 ; VIN 1B3YA44K0JG436327
 GVWR: 3527 lbs; GAWR: 1959 lbs FRONT
1618 lbs REAR

DATA FROM TIRE PLACARD:

Tire Pressure with Maximum Capacity Vehicle Load 32 psi Front
32 psi Rear
 Recommended Tire Size P185/70R14 Load Range Std
 Recommended Cold Tire Pressure 32 psi Front 32 psi Rear
 Size of Tires on Test Vehicle P185/70R14
 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 2 Rear 4 Total
 Vehicle Capacity Weight (VCW) = 715 lbs.
 No. of Occupants x 150 lbs = 600 lbs.
 Rated Cargo/Luggage Weight (RCLW)= 115 lbs. (Difference)

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

Right Front = 800 lbs Right Rear = 550 lbs
 Left Front = 870 lbs Left Rear = 490 lbs
 TOTAL FRONT = 1670 lbs TOTAL REAR = 1040 lbs
 % of Total Weight = 62 % % of Total Weight = 38 %
 TOTAL DELIVERED WEIGHT = 2710 lbs.

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

CALCULATION OF VEHICLE'S TARGET TEST WEIGHT:

Total Delivered Weight	=	<u>2710</u>	lbs.
Rated Cargo/Luggage Weight (RCLW)	=	<u>115</u>	lbs.
Weight of 2 P.572 Dummies @ 164 ea.	=	<u>328</u>	lbs.
TARGET TEST WEIGHT	=	<u>3153</u>	lbs. (sum)

WEIGHT OF TEST VEHICLE WITH TWO DUMMIES AND 102 LBS OF CARGO WEIGHT:

Right Front =	<u>890</u>	lbs.	Right Rear =	<u>690</u>	lbs.
Left Front =	<u>920</u>	lbs.	Left Rear =	<u>640</u>	lbs.
TOTAL FRONT =	<u>1810</u>	lbs.	TOTAL REAR =	<u>1330</u>	lbs.
% of Total Weight =	<u>58</u>	%	% of Total Weight =	<u>42</u>	%
TOTAL TEST WEIGHT =	<u>3140</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>26.3</u>	;	LF	<u>26.4</u>	;	RR	<u>26.5</u>	;	LR	<u>26.5</u>
FULLY LOADED	RF	<u>25.7</u>	;	LF	<u>25.7</u>	;	RR	<u>25.0</u>	;	LR	<u>24.8</u>
AS TESTED	RF	<u>26.2</u>	;	LF	<u>26.2</u>	;	RR	<u>25.0</u>	;	LR	<u>24.9</u>
Vehicle's Wheelbase =	<u>97.0</u>	inches									
Location of Vehicle's C.G. =	<u>41.1 inches rearward of front wheel</u>										
(if required)											

FUEL SYSTEM DATA:

Fuel System Capacity From Owner's Manual =	<u>14</u>	gallons
Usable Capacity Figure Furnished by COTR =	<u>14</u>	gallons
Test Volume Range (92 to 94% of Usable Capacity) =	<u>13.2</u>	to <u>12.9</u> gallons
ACTUAL TEST VOLUME =	<u>13</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: 7/20/88 **TIME:** 11:30 **TEMP:** 80 °F

VEHICLE NHTSA NO.: CJ0302 ; **VIN** 1B3YA44K0JG436327

REQUIRED IMPACT VELOCITY RANGE: 28.9 to 29.9 mph

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

Trap No. 1 = 29.5 mph; Trap No. 2 = 29.5 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 = 175.3 "; C/L = 179.7 "; Left = 175.3 "

Post-Test Right = 155.7 "; C/L = 155.5 "; Left = 155.0 "

CRUSH Right = 19.6 "; C/L = 24.2 "; Left = 20.3 "

AVERAGE = 21.4 inches

VEHICLE REBOUND: (from rigid barrier only)

Distance from front of test vehicle to impact point:

Right = 10.1 "; C/L = 8.0 "; Left = 8.7 "

AVERAGE = 8.9 inches

DOOR OPENING:

Left

Right

Front

operable

operable

SEAT MOVEMENT:

Seat Back Failure

Seat Shift

Front

None

None

TABLE 3

POST-IMPACT DATA (cont)

GLAZING DAMAGE:

Windshield remained intact

Section 3
OCCUPANT AND VEHICLE DATA

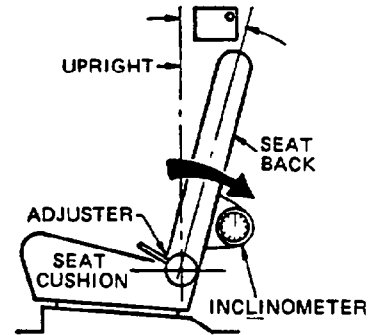
Figure 1
TEST VEHICLE INFORMATION

VEHICLE IDENTIFICATION:

Model year: 1988 Vehicle Model: Daytona Body Style: Coupe

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.

- 1) Lift recline handle
- 2) Rotate seat to full forward position
- 3) Lower recline handle to original position
- 4) Seat should be engaged on first tooth



Seat back angle for driver's seat 19
Measurement instructions: See 1

Seat back angle for passenger's seat 19
Measurement instructions: See 1

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 midposition

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

3. Fuel Tank Capacity Data

- A. "Usable Capacity" of the standard equipment fuel tank is 14 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

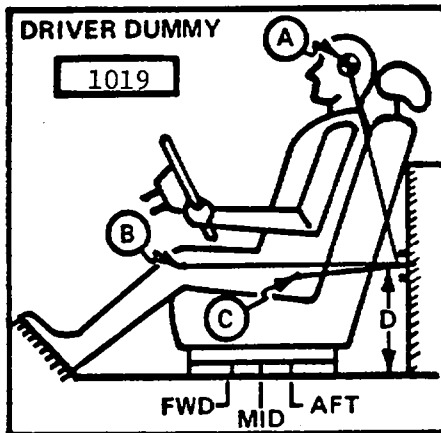
TEST NO.: CJ0302

VEHICLE: 1988 Dodge Daytona Coupe

SEAT TYPE:
☒ Bench
☐ Bucket
☐ Split Bench

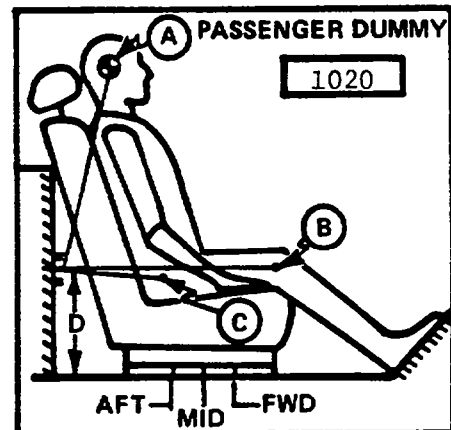
ADJUSTER TYPE:
☒ Manual
☐ Power

BUCKET SEAT BACK TYPE:
☐ Fixed
☒ Adjustable Reclining



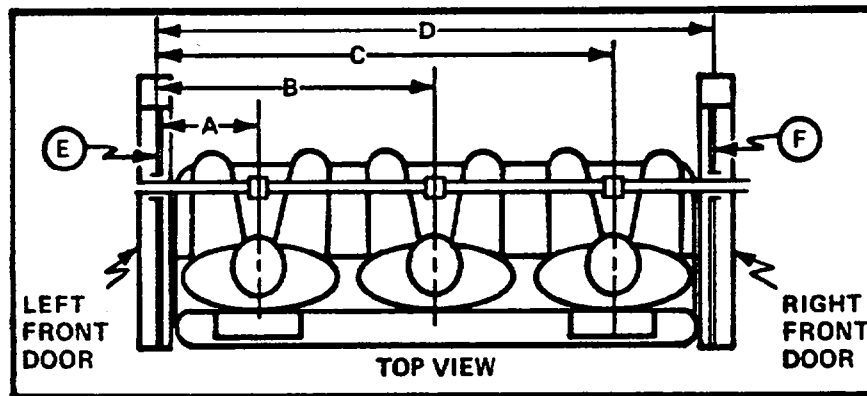
MEASUREMENT
LOCATION

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



A = 27.1 in. 38 Degrees
 B = 37.2 in. 94 Degrees
 C = 22.0 in. 108 Degrees
 D = 14.5 in.

A = 26.8 in. 38 Degrees
 B = 36.5 in. 95 Degrees
 C = 21.0 in. 105 Degrees
 D = 14.5 in.



DUMMY ID

1019

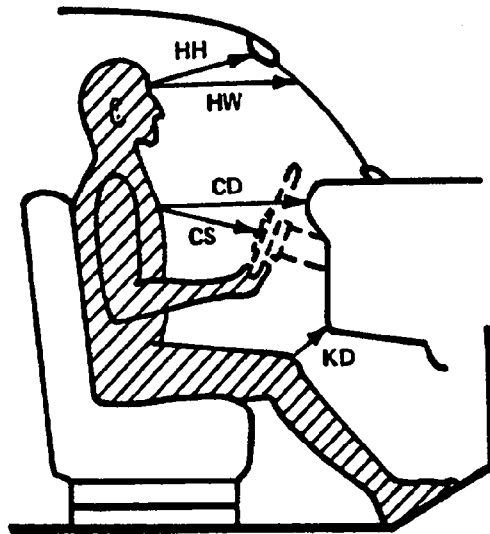
1020

A = Left Door to Driver Centerline 12.7 in.
 B = Left Door to Center Passenger Centerline - in.
 C = Left Door to Right Passenger Centerline 39.7 in.
 D = Left Door to Right Door 52.0 in.
 E, F = Window Glass Height (Right and Left Must Be Equal) 11.0 in.

Figure 3

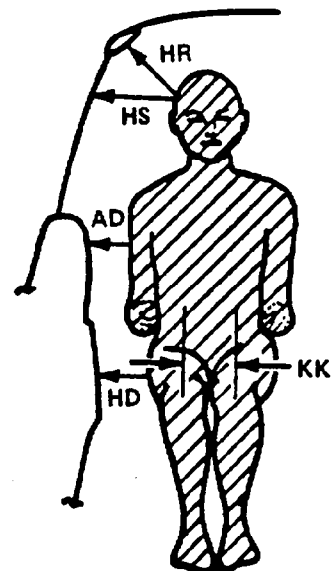
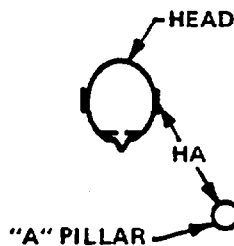
OCCUPANT CLEARANCE DIMENSIONS

	DRIVER	PASSENGER
HH	10.2	10.3
HW	14.5	14.5
CD	18.9	21.7
CS	12.0	--
KDL	5.3	5.3
KDR	5.7	5.6
SA	19°	19°
TA	19°	20°



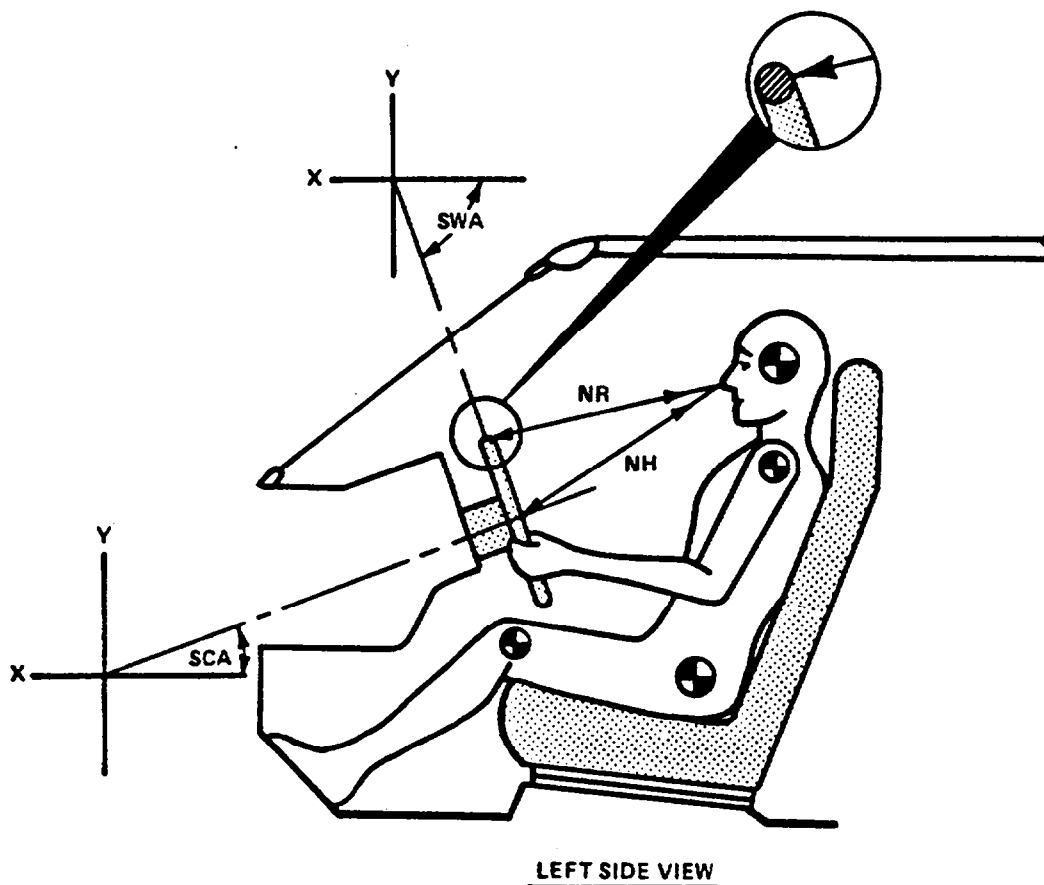
HH = Head to Windshield Header
 HW = Head to Windshield
 CD = Chest to Dash
 CS = Chest to Steering Wheel
 KD(L/R) = Knee to Dash (Left/Right)
 SA = Seat Back Angle
 TA = Torso Angle

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



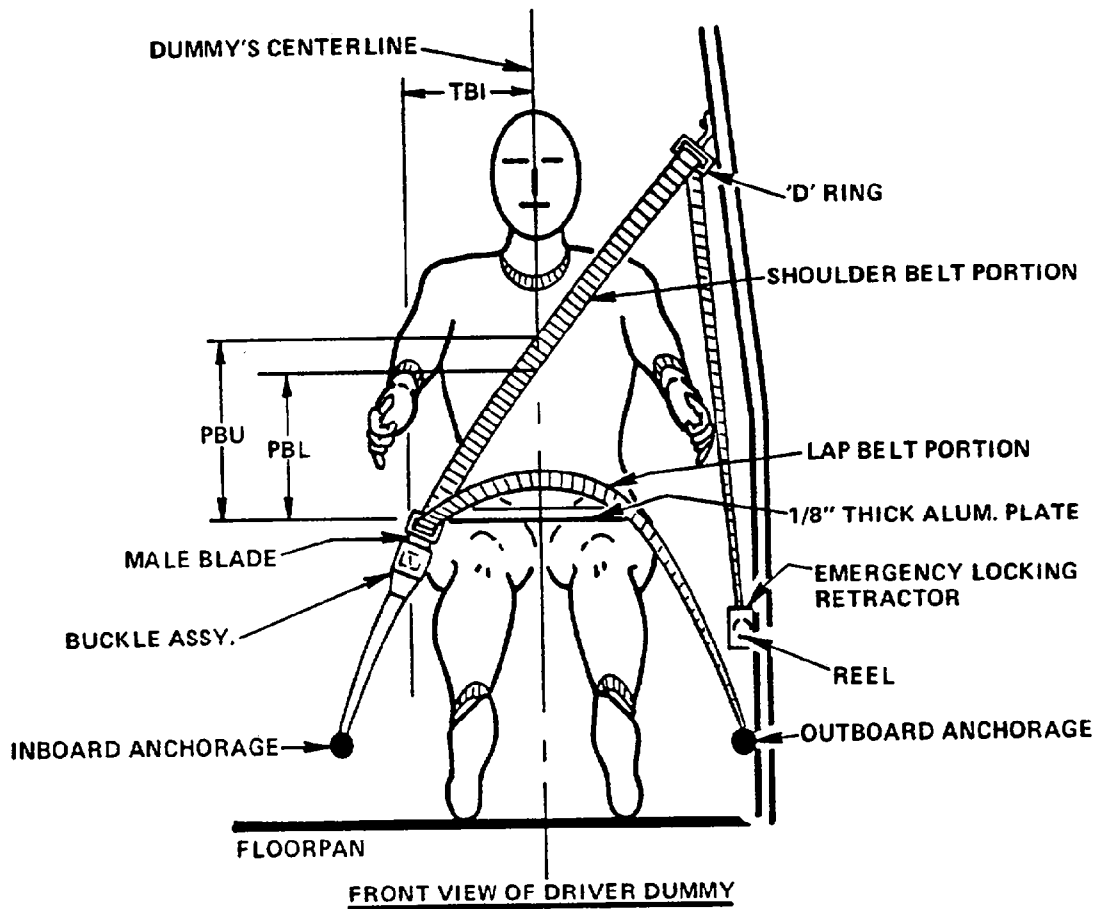
	DRIVER	PASSENGER
HR	4.2	4.2
HS	9.4	9.1
AD	4.4	5.1
HD	6.7	6.7
KK	9.8	7.5
HA	12.7	12.2

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



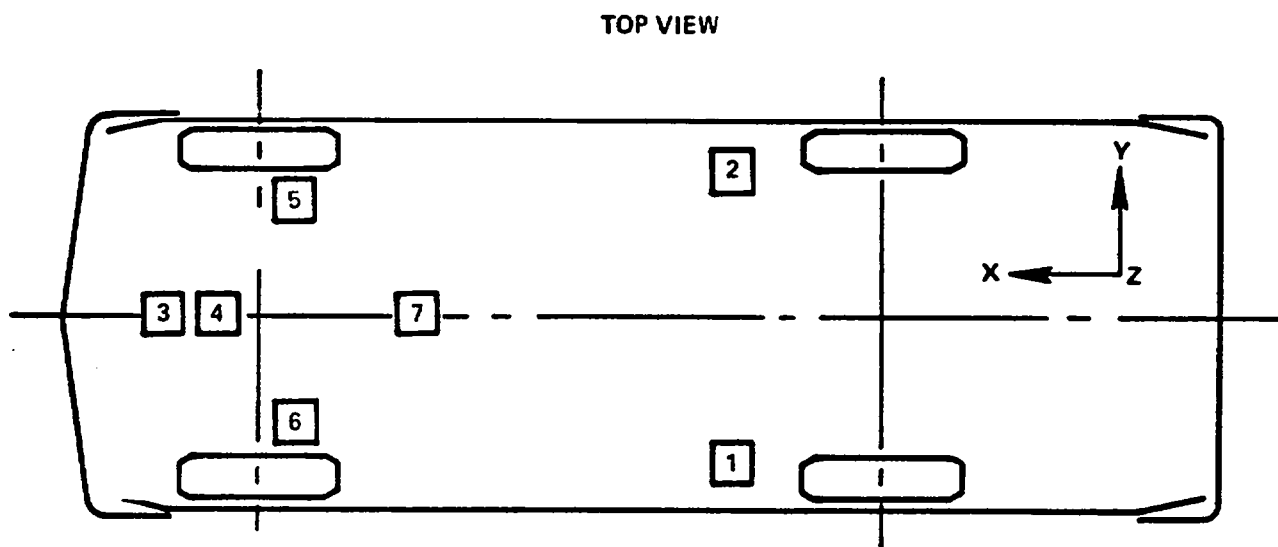
MEASUREMENTS		
<u>NR</u> -- Distance from tip of dummy's nose to Top Rear surface of steering wheel rim	15.1	Inches
<u>NH</u> -- Distance from tip of dummy's nose to center of steering column hub	17.0	Inches
<u>SCA</u> -- Angle of steering column relative to the horizontal X axis	21	Degrees
<u>SWA</u> -- Angle of steering wheel relative to the horizontal X axis	-69	Degrees

Figure 5
SEAT BELT POSITIONING DATA



	DRIVER DUMMY (inches)	PASSENGER DUMMY (inches)
<u>PBU</u> -- Top surface of alum. plate to upper edge	N/A	12.3
<u>PBL</u> -- Top surface of alum. plate to belt lower edge	N/A	9.5
<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 LONGITUDINAL FORCE	PRE: 60.7	22.0	13.0				
		POST: 60.7	22.0	14.5				
					1.7	179	-23	57
2	REAR SEAT X-MEMBER AT RIGHT SIDE LONGITUDINAL FORCE	PRE: 60.7	-22.0	13.0				
		POST: 60.7	-21.5	11.0				
					1.6	184	-26	57
3	TOP OF ENGINE BLOCK LONGITUDINAL FORCE	PRE: 140.7	0.0	33.5				
		POST: 137.2	-4.2	31.3				
					30	53	-76	43
4	BOTTOM OF ENGINE BLOCK LONGITUDINAL FORCE	PRE: 142.7	0.0	7.0				
		POST: 133.5	-4.0	7.3				
					39	59	-76	39
5	BRAKE CALIPER AT RIGHT SIDE LONGITUDINAL FORCE	PRE: 132.9	-31.0	20.0				
		POST: 126.5	-31.0	22.0				
					25	91	-63	64
6	BRAKE CALIPER AT LEFT SIDE LONGITUDINAL FORCE	PRE: 132.9	31.0	20.0				
		POST: 125.8	31.0	21.5				
					16	93	-48	66
7	DASH PANEL LONGITUDINAL FORCE	PRE: 105.5	0.0	33.0				
		POST: 106.0	0.0	32.0				
					40	72	-53	91

**

POSITIVE

NEGATIVE

*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

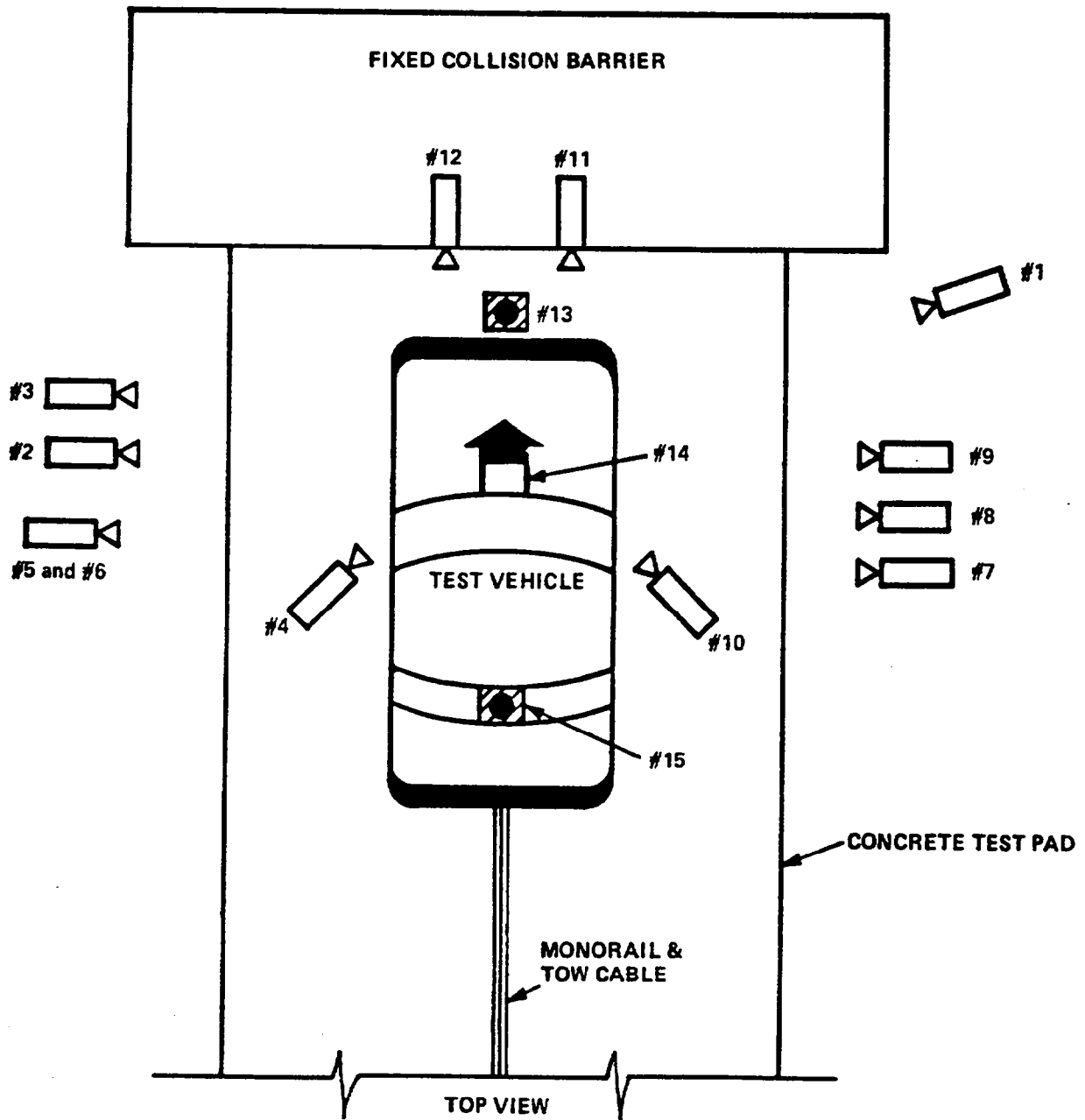


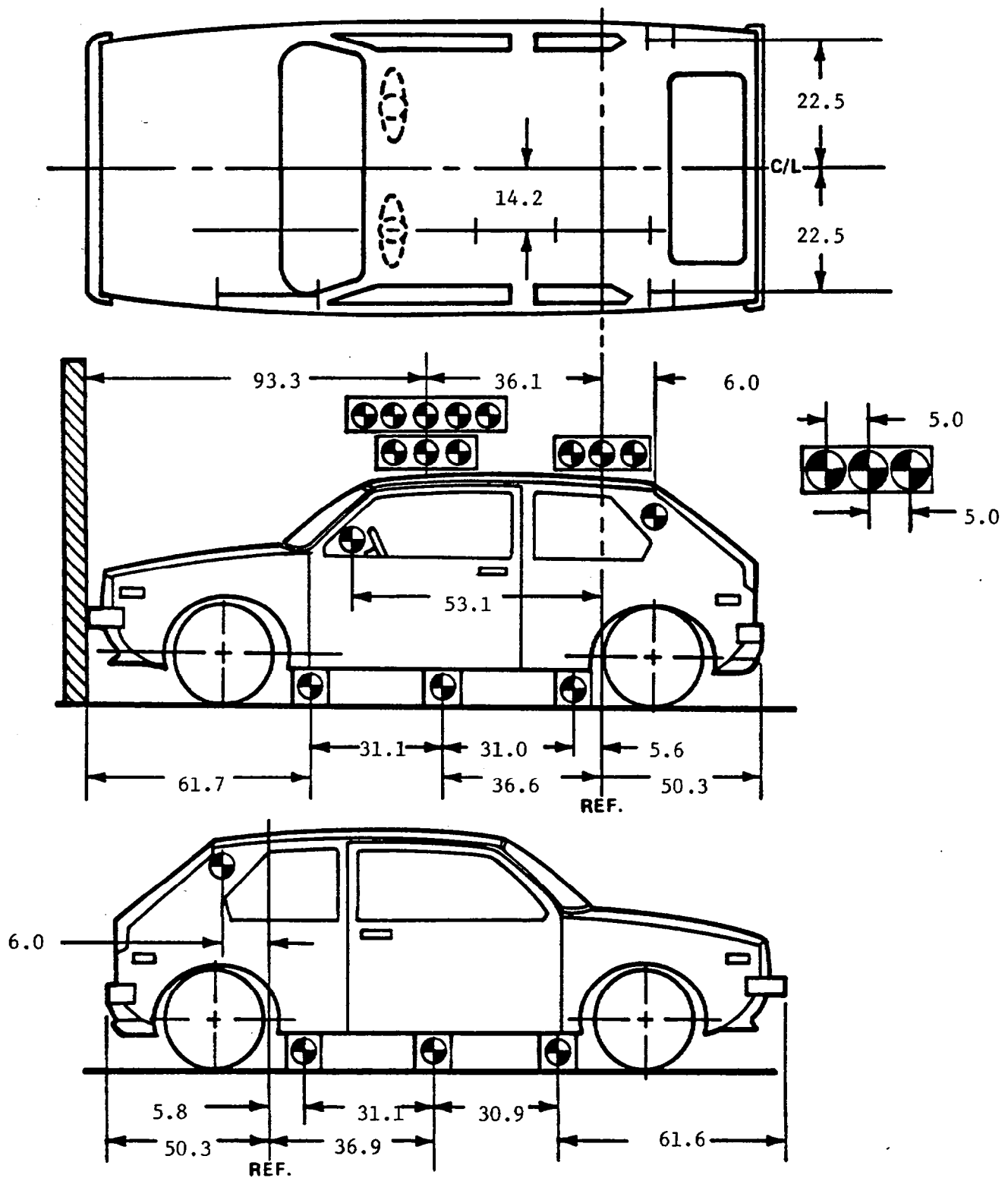
TABLE 5
HIGH-SPEED CAMERA LOCATIONS

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	204	53	41.5	-1	187.5	13	530
3	Left Side View	166	38	42.0	-4	149.5	25	530
4	Driver and Interior View	81	117	72.0	-18	-	13	640
5	Steering Column (bottom)	272	74	46.0	-5	255.5	25	530
6	Steering Column (top)	272	74	70.5	-10	255.5	25	540
7	Overall Right Side	235	79	42.0	-4	218.5	13	800
8	Right Passenger View	263	62	41.0	+2	246.5	35	800
9	Right Side View	290	72	58.5	-3	273.5	25	740
10	Passenger and Interior View	68	128	70.5	-20	-	25	600
11	Passenger Front View	46	13	73.5	-24	-	13	540
12	Driver Front View	56	16	66.0	-19	-	13	540
13	Windshield View	0	0	126	-52	-	13	530
14	Pit View of Engine	0	36	-120	90	-	13	830
15	Pit View of Fuel Tank	0	130	-120	90	-	13	800

* 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

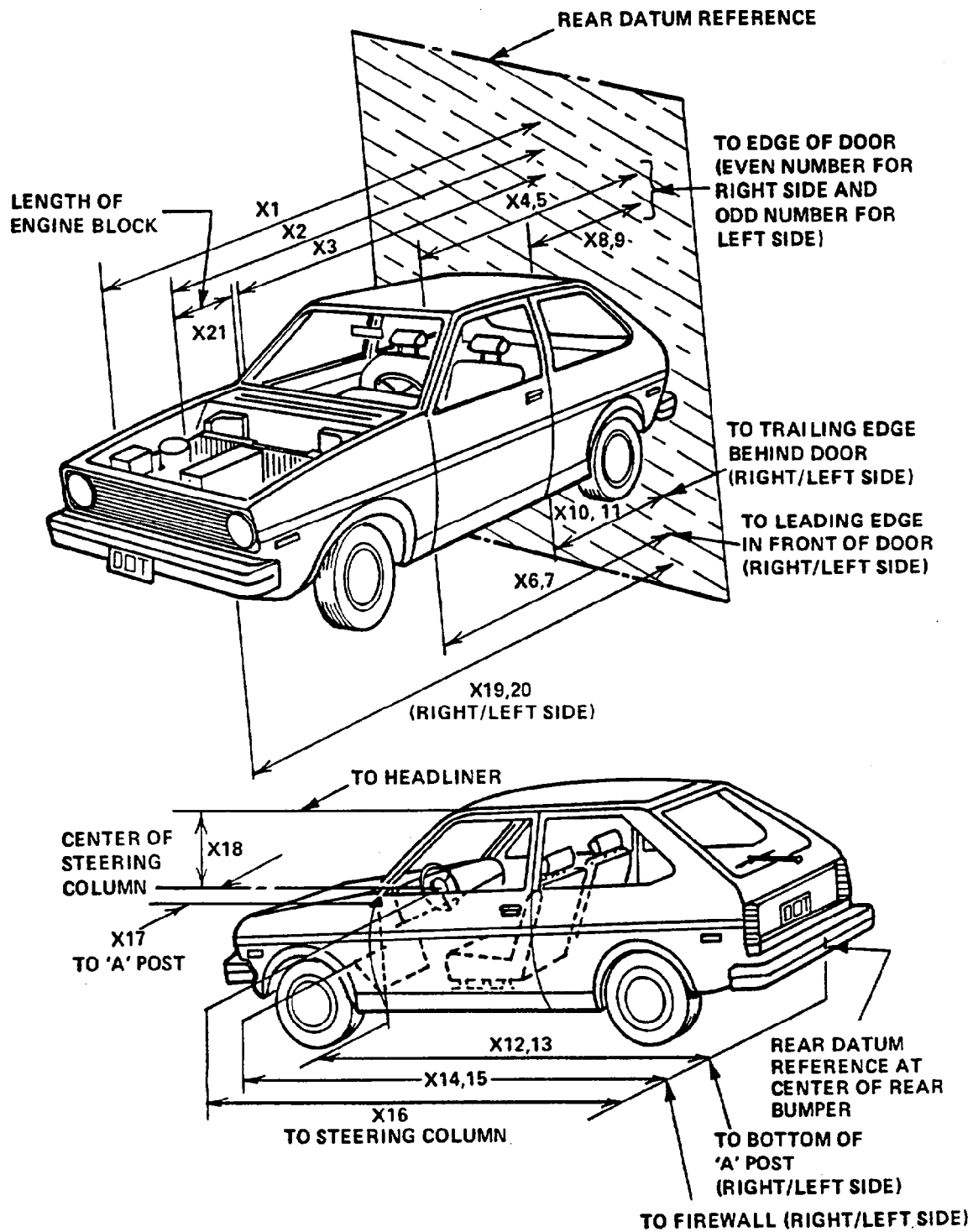
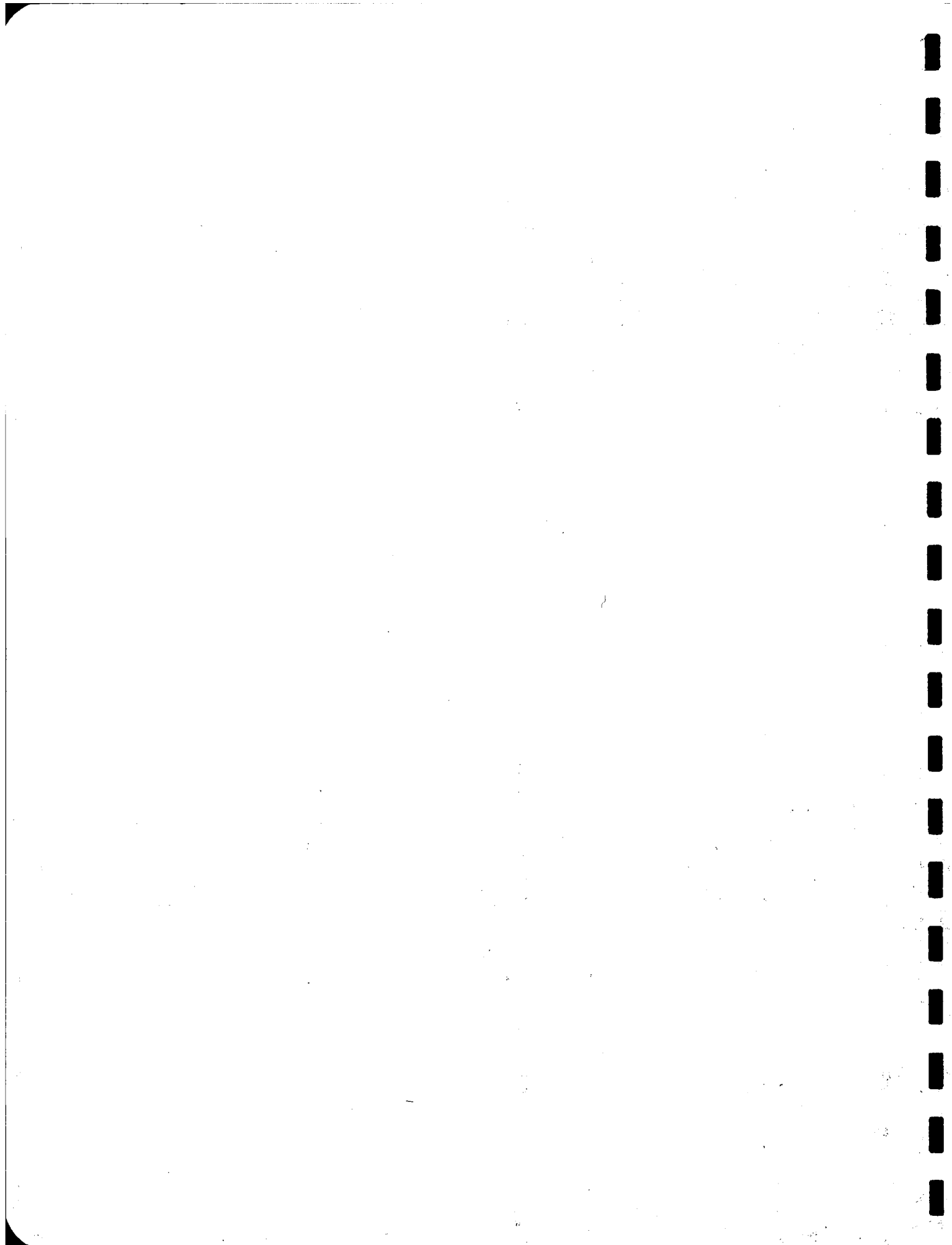


TABLE 6
VEHICLE MEASUREMENTS

No.		All Dimensions in Inches		
		Pre-Test	Post-Test	Differences
X1	Total Length of Vehicle at Centerline	179.7	155.5	24.2
X2	Rear Surface of Vehicle to Front of Engine	151.0	143.7	7.3
X3	✓Rear Surface of Vehicle to Firewall	127.9	125.9	2.0
X4	Rear Surface of Vehicle to Upper Leading Edge of Right Door	115.0	115.2	-0.2
X5	Rear Surface of Vehicle to Upper Leading Edge of Left Door	115.0	114.6	0.4
X6	Rear Surface of Vehicle to Lower Leading Edge of Right Door	113.6	113.5	0.1
X7	Rear Surface of Vehicle to Lower Leading Edge of Left Door	113.5	113.1	0.4
X8	Rear Surface of Vehicle to Upper Trailing Edge of Right Door	60.0	60.3	-0.3
X9	Rear Surface of Vehicle to Upper Trailing Edge of Left Door	60.3	59.6	0.7
X10	Rear Surface of Vehicle to Lower Trailing Edge of Right Door	66.6	66.6	0.0
X11	Rear Surface of Vehicle to Lower Trailing Edge of Left Door	67.1	66.5	0.6
X12	Rear Surface of Vehicle to Bottom of "A" Post of Right Side	113.4	113.0	0.4
X13	Rear Surface of Vehicle to Bottom of "A" Post of Left Side	113.3	113.0	0.3
X14	Rear Surface of Vehicle to Firewall, Right Side	128.2	125.1	3.1
X15	Rear Surface of Vehicle to Firewall, Left Side	127.6	125.8	1.8
X16	Rear Surface of Vehicle to Steering Column	98.6	98.6	0.0
X17	Center of Steering Column to "A" Post	15.8	15.7	0.1
X18	Center of Steering Column to Headliner	17.4	15.1	2.3
X19	Rear Surface of Vehicle to Right Side of Front Bumper	175.3	155.7	19.6
X20	Rear Surface of Vehicle to Left Side of Front Bumper	175.3	155.0	20.3
X21	Length of Engine Block	15.5	15.5	0.0



Section 4

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

- "Occupant Crash Protection," FMVSS No. 208 Data
- "Windshield Mounting," FMVSS No. 212 Data
- "Windshield Zone Intrusion," FMVSS No. 219 (Partial) Data
- "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)	-36	-5	18	40	-27	-5	-11	28
DUMMY (2)	-21	11	42	42	-28	-12	-6	28

	MAXIMUM FORCE - FEMUR LOAD (LBS)	
	Right Femur	Left Femur
DUMMY (1)	1439	677
DUMMY (2)	825	991

	HEAD INJURY CRITERIA **			
	HIC	36 millisecond Maximum		AVE. ACC. (g) t ₁ TO t ₂
		t ₁ (SEC)	t ₂ (SEC)	
DUMMY (1)	194	.07275	.10447	32.7
DUMMY (2)	319	.08332	.11932	37.9

*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 = 6.2 sec.

Log time duration of reminder light operation = 0.0 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 sec.
(audible warning should not operate)

Log time duration of reminder light operation = 6.1 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: glove box

The manufacturers recommended schedule is to examine system by 30,000 miles or after time interval of 3 years.

Were appropriate instructions concerning maintenance and/or replacement of this system provided? YES X NO

Was a description of the functional operation of the system provided? YES X NO

Is there a reference to the instructions and description of the system on the label? YES X NO

Was an owner's manual provided? YES X NO

Did the owner's manual contain appropriate information concerning maintenance and/or replacement and a description of the functional operation of the systems? YES X NO

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 _____ NO X

Describe the location of the readiness indicator: Left side
Instrument Panel

Is the readiness indicator clearly visible to the driver?

YES X NO _____

Is a list of the elements in the occupant restraint system, being monitored by the readiness indicator, provided?

YES X NO _____

TABLE 11

FMVSS NO. 208 - COMFORT AND CONVENIENCE TEST SUMMARY

Test Vehicle NHTSA No.:	<u>CJ0302</u>
Make/Model:	<u>Dodge Daytona</u>
Date of Comfort/Convenience Check:	<u>7-7-88</u>
Technician Performing Check:	<u>DWH</u>
GVWR:	<u>3527</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

2. Manual seat belts* YES No

- a. The seat belts, other than Type 2 lap/shoulder belts, are located in the front outboard seating positions of a passenger automobile.

YES NO
(Go to requirements D3, D4, D5, and D6)

- b. The seat belt system is Type 2 lap/shoulder belt in the front outboard seating positions or the seat belts are located in a walk-in van.

stop

*If the seat belts are voluntarily installed by the manufacturer they do not have to comply.

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 toros 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 .25 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.:

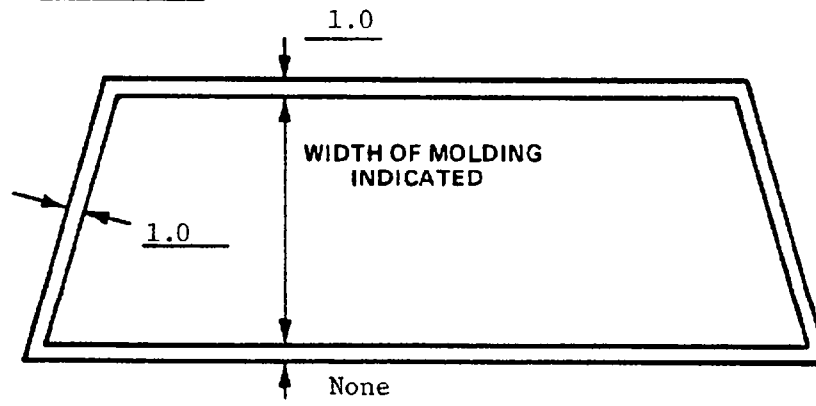
Windshield is bonded in place. Top and side edges of windshield are covered with 1.0" molding.

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 PERIPHERY		
	PRE-TEST (in.)	POST-TEST (in.)	PERCENT RETENTION
RIGHT SIDE	81.0	81.0	100%
LEFT SIDE	81.0	81.0	100%
TOTAL	162.0	162.0	100%

AREA OF RETENTION FAILURE:



FRONT VIEW

FAILURE DETAILS:

NONE

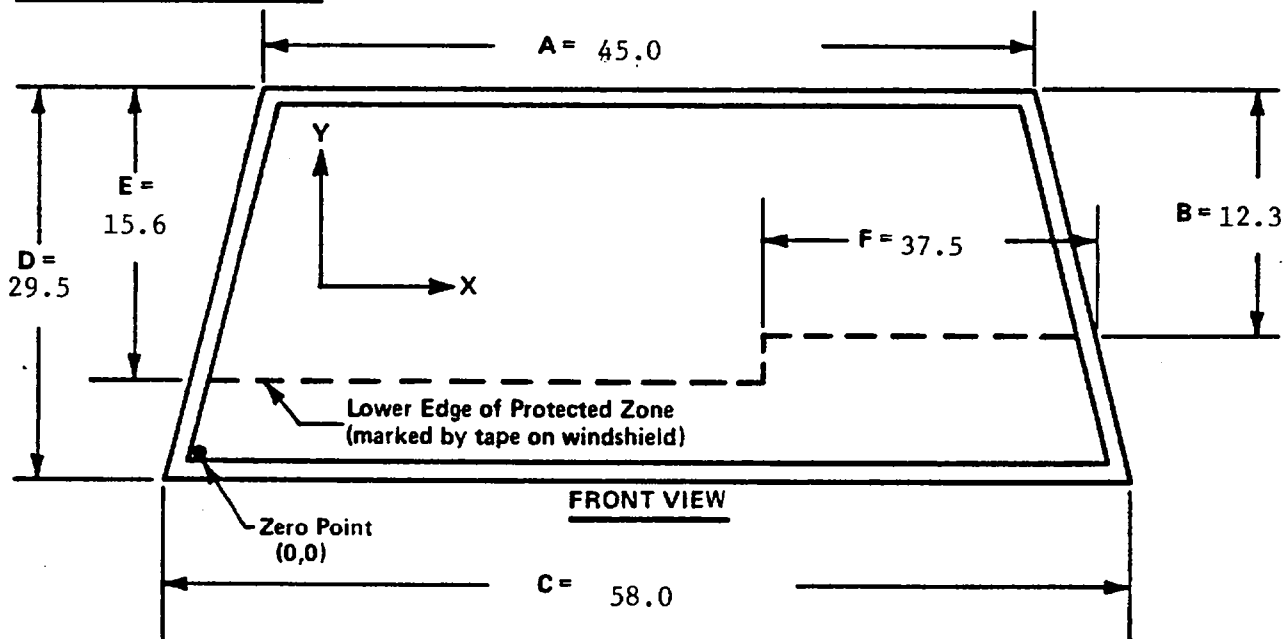
Figure 11

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)

NONE

COORDINATES		
	X	Y
1.		
2.		
3.		
4.		

FUEL SYSTEM INTEGRITY POST IMPACT TEST DATA

TEST VEHICLE NHTSA NO.:

C	J	0	3	0	2
---	---	---	---	---	---

TEST DATE: July 20, 1988

Vehicle Mfr/Make/Model: 1988 Dodge Daytona Coupe

* * * * *

TEST VEHICLE IMPACT TYPE

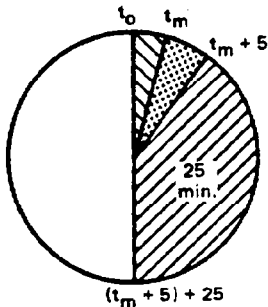
X Frontal (30 mph)

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

- Rear Moving Barrier (30 mph)

- **Lateral Moving Barrier (20 mph)**

FUEL SPILLAGE MEASUREMENT



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
1	0	5 oz
s	0	1 oz/1 min

SOLVENT SPILLAGE DETAILS

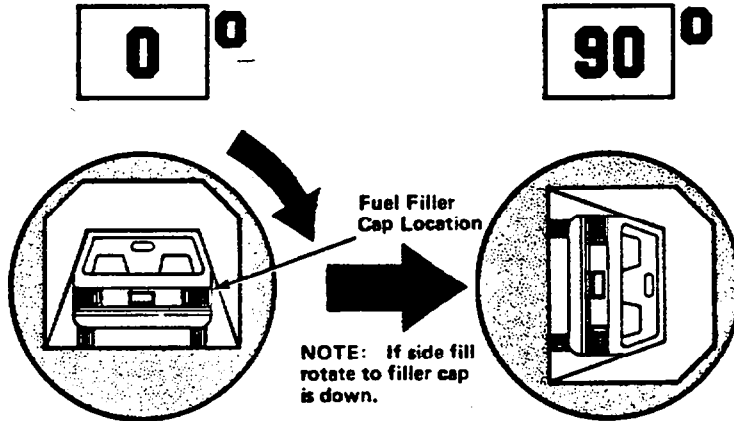
None

FMVSS NO. 301 STATIC ROLLOVER DATA SHEET

Veh. NHTSA ID No.:

CJ0302

TEST PHASE:



I. DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:

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

2 minutes 50 seconds

FMVSS 301 Position Hold Time +

05 minutes 00 seconds

TOTAL

7 minutes 50 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.

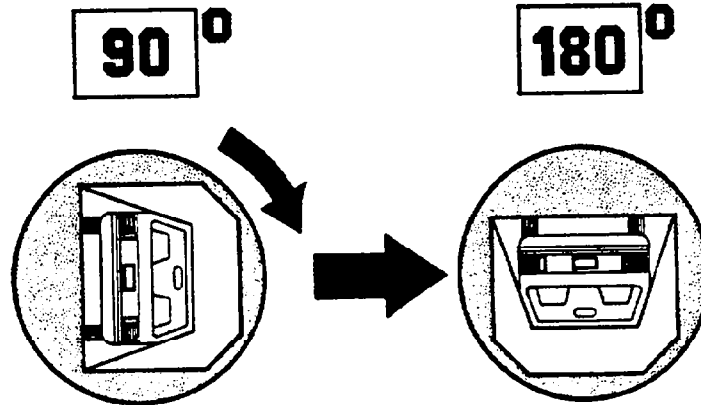
IV. SOLVENT SPILLAGE LOCATION(S):

NONE

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

Veh. NHTSA ID No.:
 CJ0302

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 9 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):

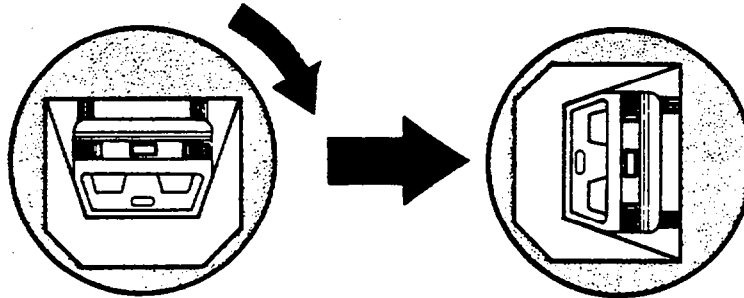
NONE

SECRET

CJ0302

180 0

270



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

2 minutes 55 seconds

05 minutes 00 seconds

7 minutes 55 seconds

8 minutes

(1) Time Period

(2) Maximum Allowable Solvent Spillage

III. ACTUAL TEST VEHICLE SOLVENT SPILLAGE:

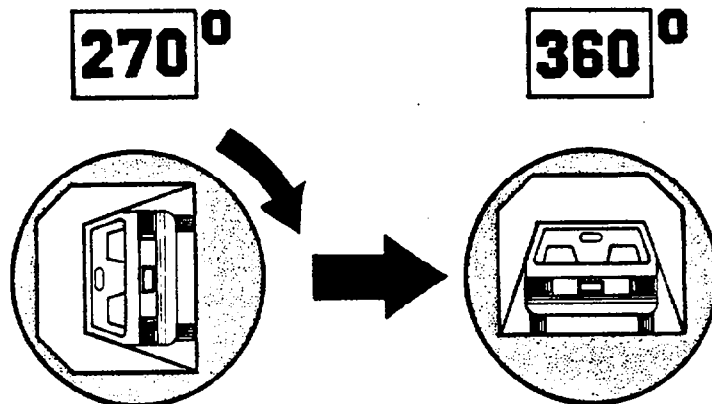
Note: Record spillage for whole minute intervals only as determined above.

NONE

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

Veh. NHTSA ID No.:
CJ0302

TEST PHASE:



I. DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:

Rollover Fixture 90° Rotation Time (Spec. Range = 1 to 3 minutes)	<u>2</u> minutes <u>55</u> seconds
FMVSS 301 Position Hold Time +	<u>05</u> minutes <u>00</u> seconds
TOTAL	<u>7</u> minutes <u>55</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 NOTICE

NHTSA CONTRACT LAB: Calspan Advanced Technology Center

LAB. PROJECT MANAGER & TELEPHONE NO.: Walter E. Levan (716) 632-7500

DATE OF TEST: July 20, 1988 VEH. NHTSA No. CJ0302

VEHICLE MANUFACTURER: Chrysler Corporation

Model Year 1988 VIN: 1B3YA44K0JG436327

Body Style: Hatchback Build Date: 6-88

DUMMY STABILIZED TEMPERATURE AT TIME OF TEST: 70 °F (Spec. = 66-78°F)

IMPACT VELOCITY: 29.5 mph TIME OF TEST: 11:30

TYPE OF AUTOMATIC RESTRAINT SYSTEM: Driver Airbag and Passenger Torso Belt

FAILURE DETAILS: Vehicle appears to comply with the requirement of
FMVSS NOs 208, 212, 219 (partial) and 301.

Approximate date that final test report will be made available to CTM:

August 1988

Appendix A

PHOTOGRAPHS

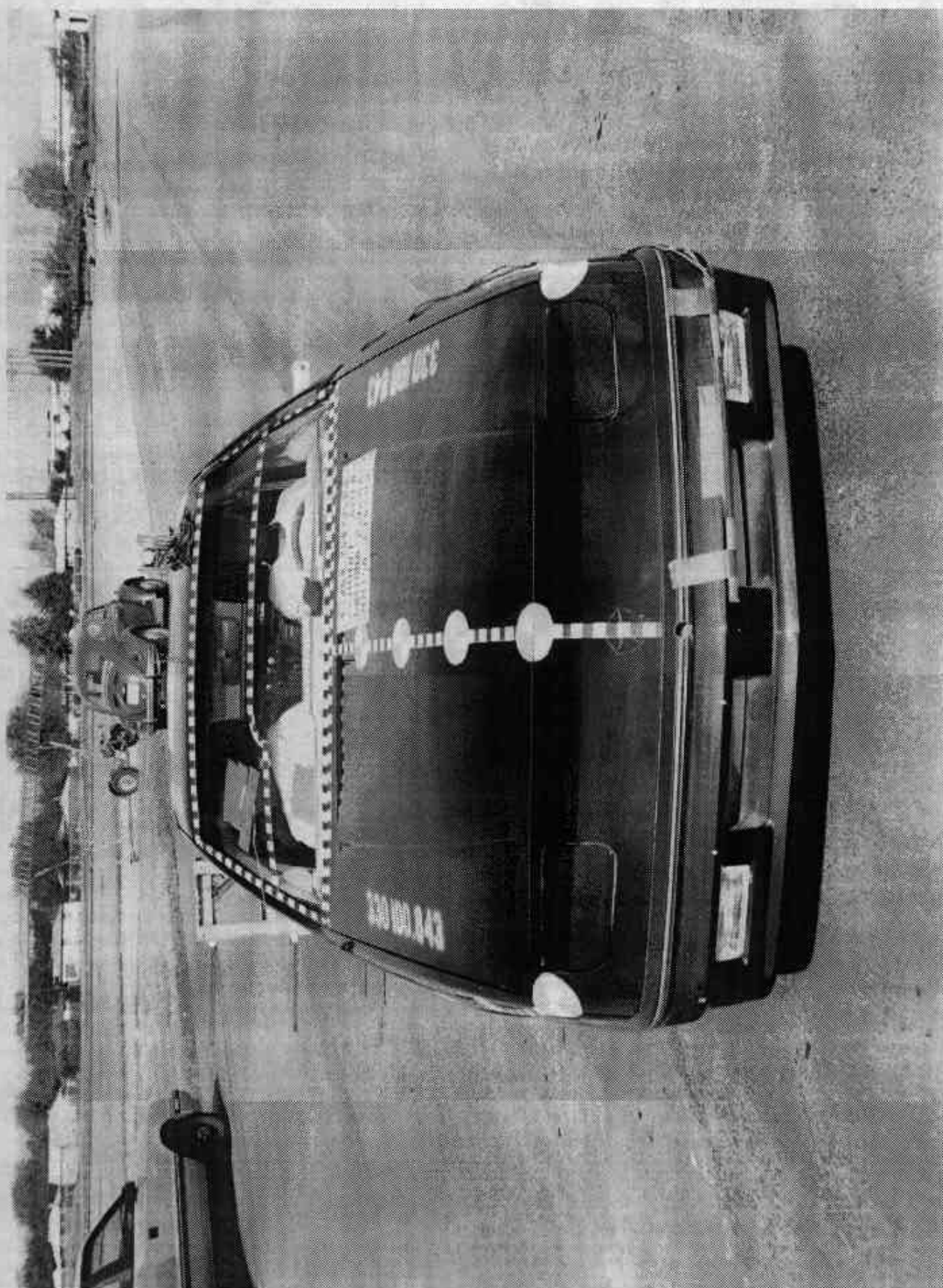


Figure A-1 PRE-TEST FRONT VIEW

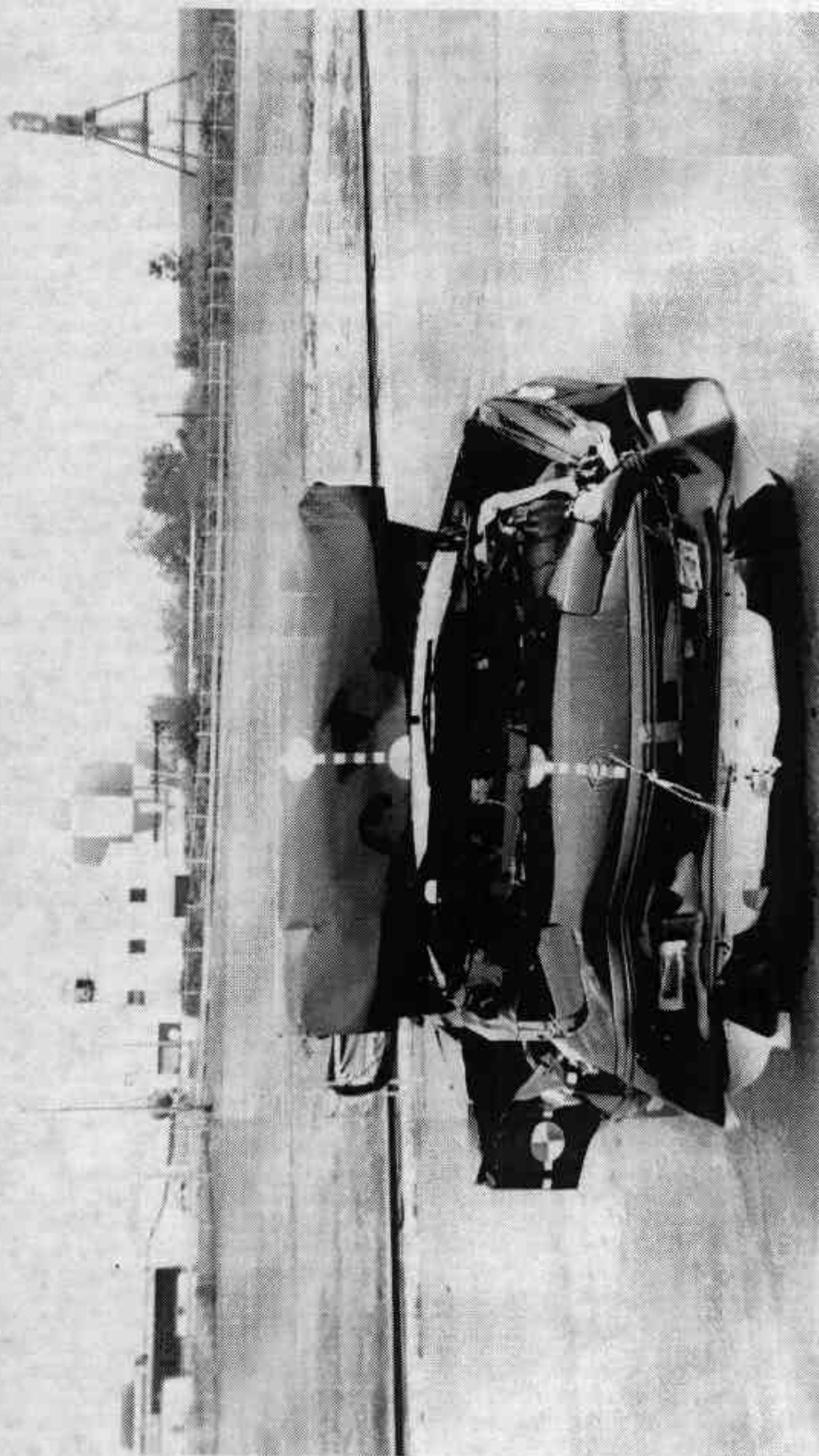


Figure A-2 POST-TEST FRONT VIEW

A-3

7669-2

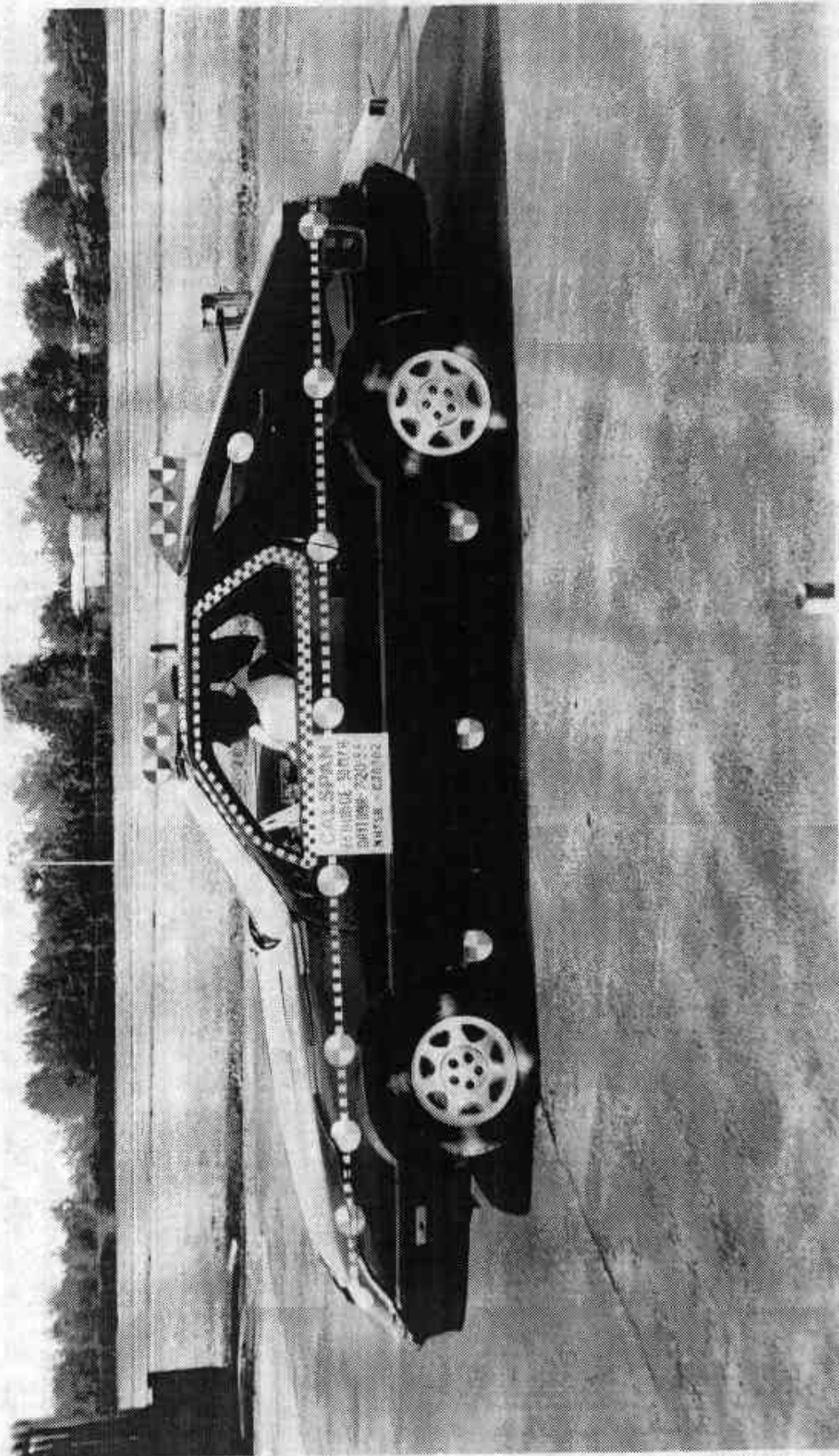


Figure A-3 PRE-TEST LEFT SIDE VIEW

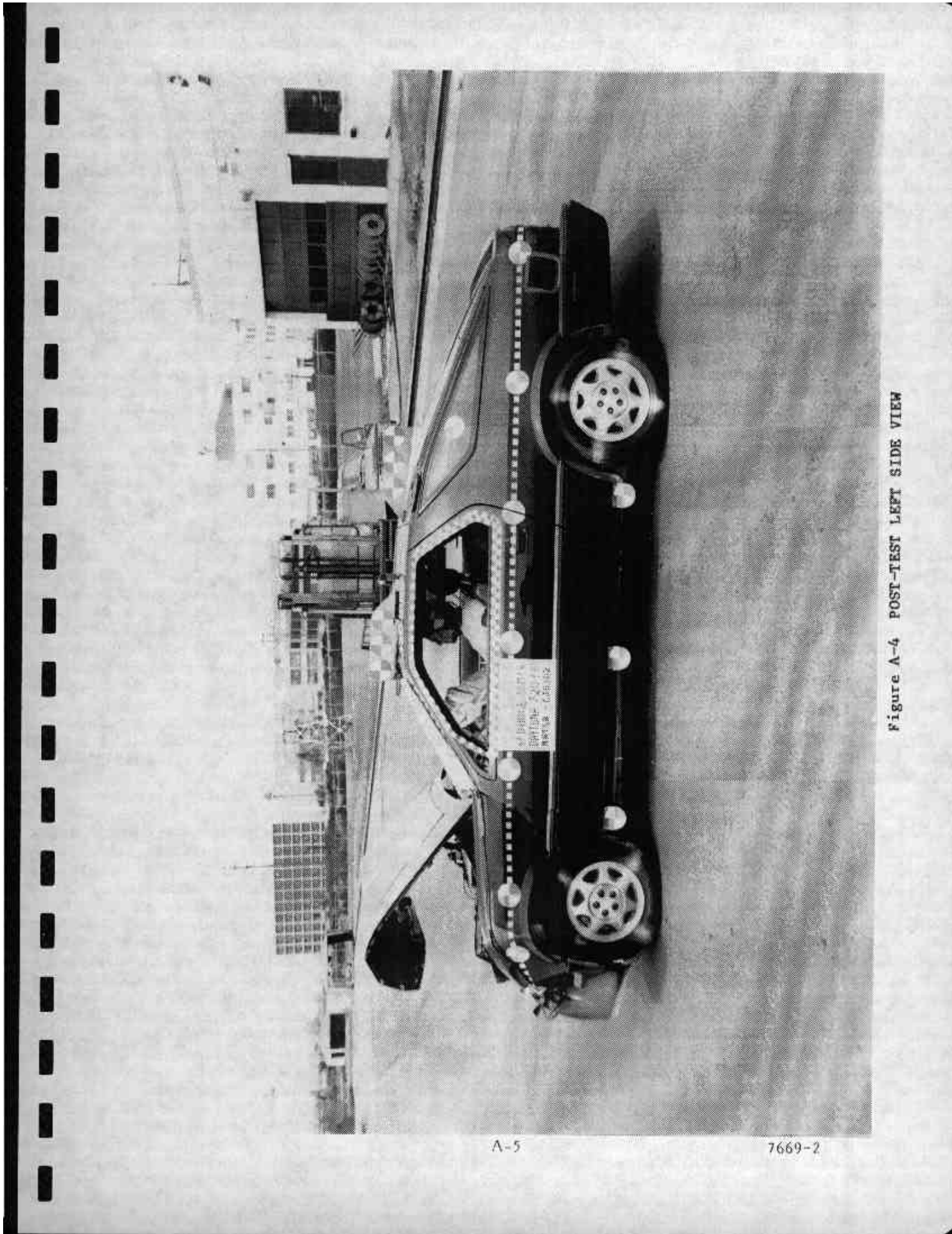


Figure A-4 POST-TEST LEFT SIDE VIEW

A-5

7669-2

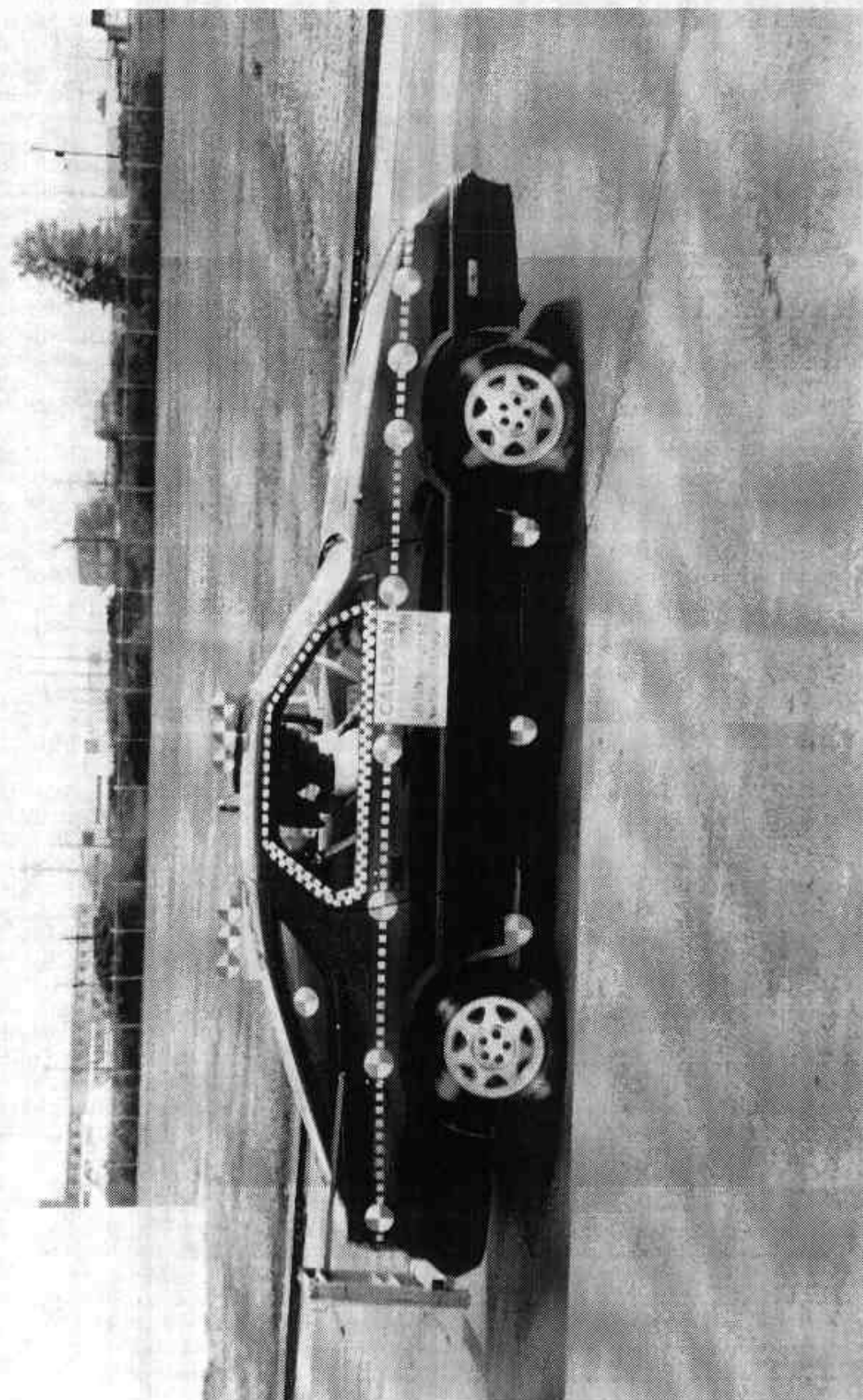


Figure A-5 PRE-TEST RIGHT SIDE VIEW

A-6

7669-2

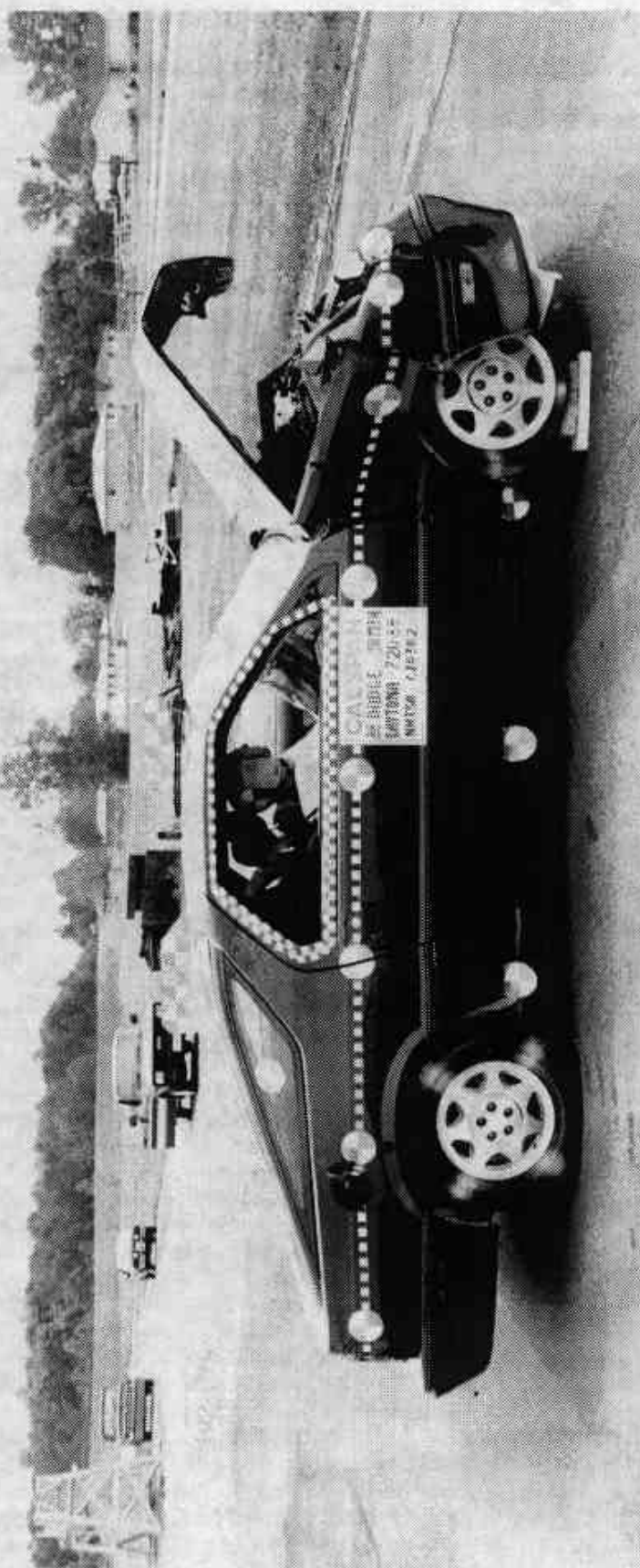


Figure A-6 POST-TEST RIGHT SIDE VIEW

A-7

7669-2

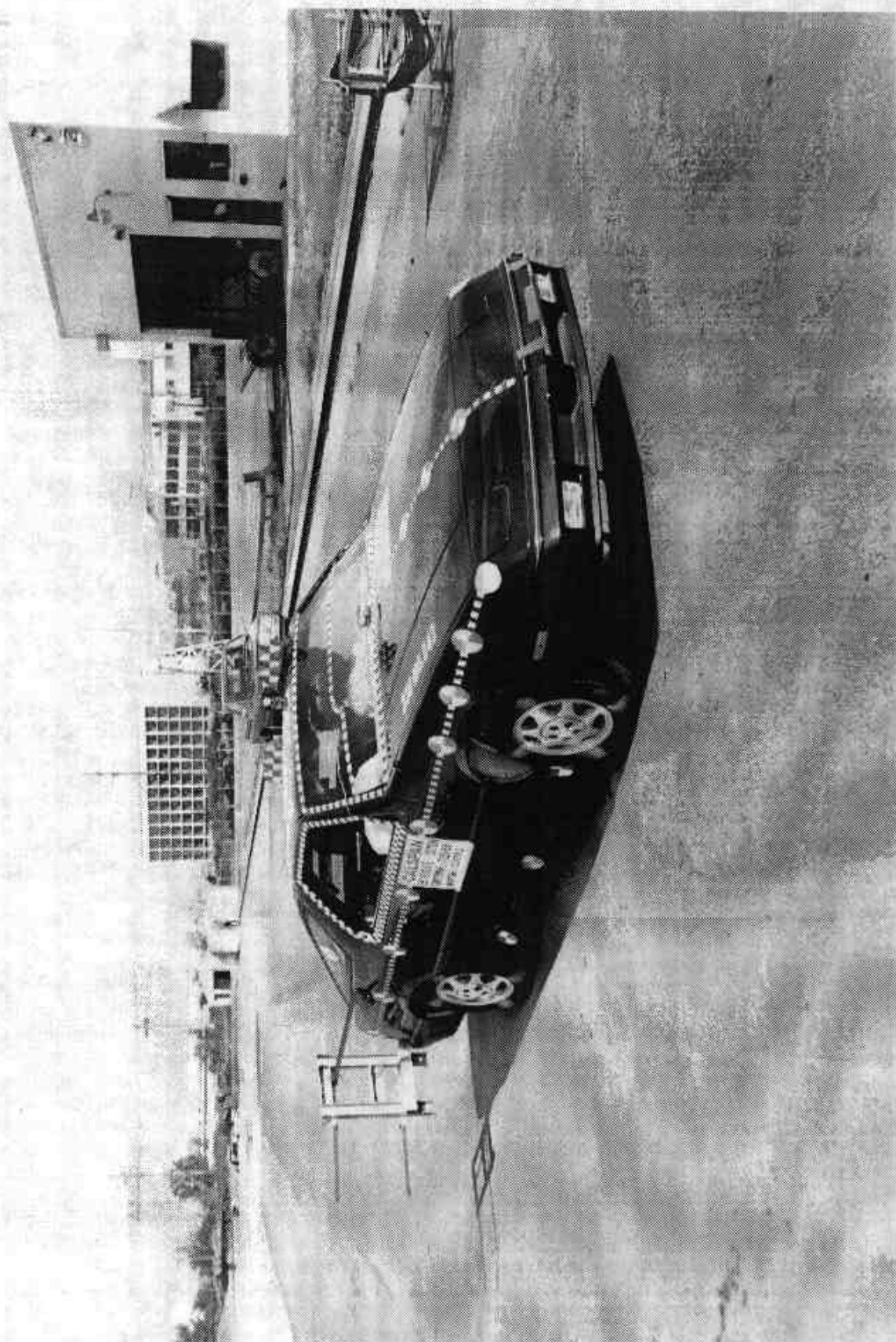


Figure A-7 PRE-TEST RIGHT FRONT THREE-QUARTER VIEW

A-8

7669-2

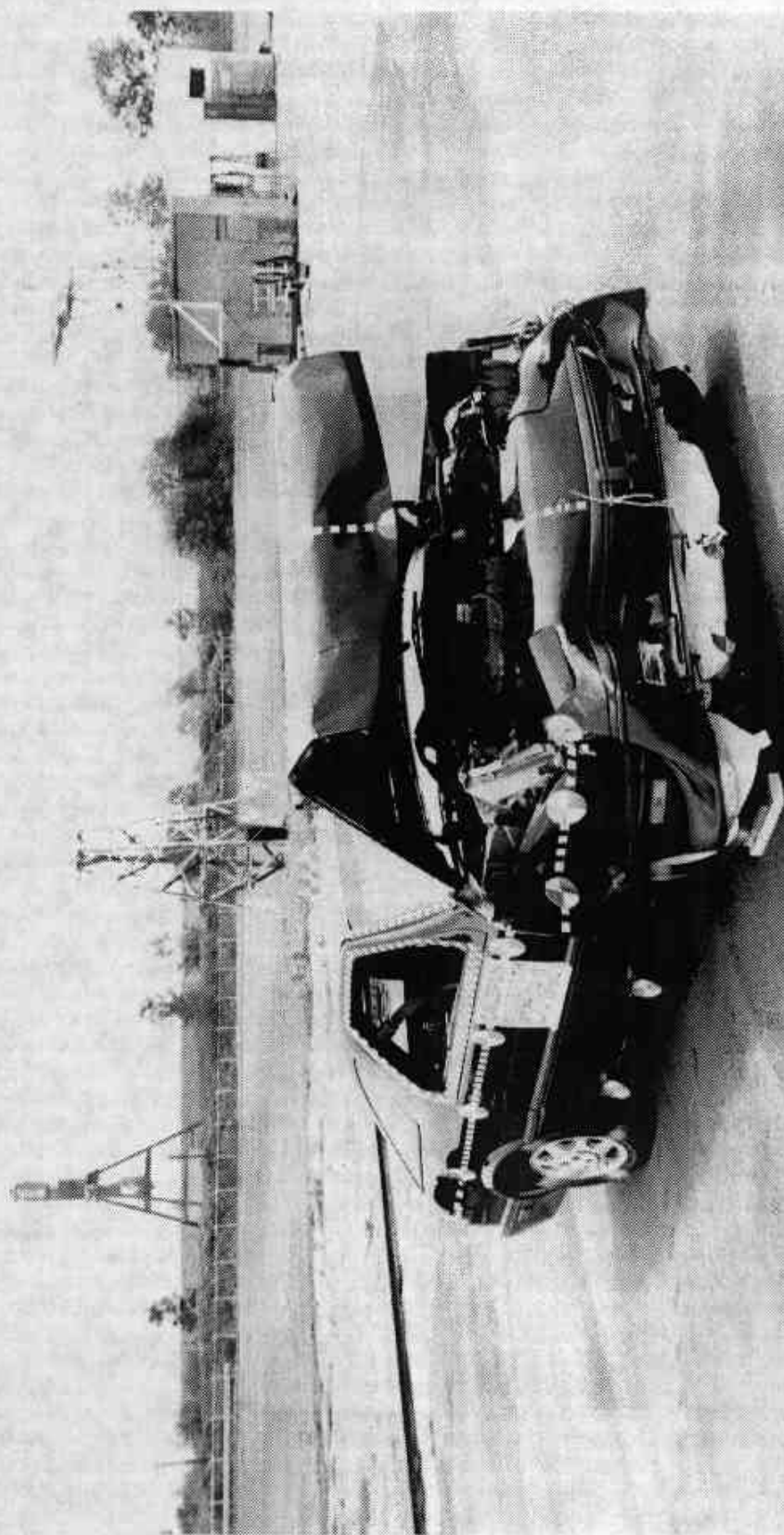


Figure A-8 POST-TEST RIGHT FRONT THREE-QUARTER VIEW

A-9

7669-2



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

A-10

7669-2



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

A-11

7669-2

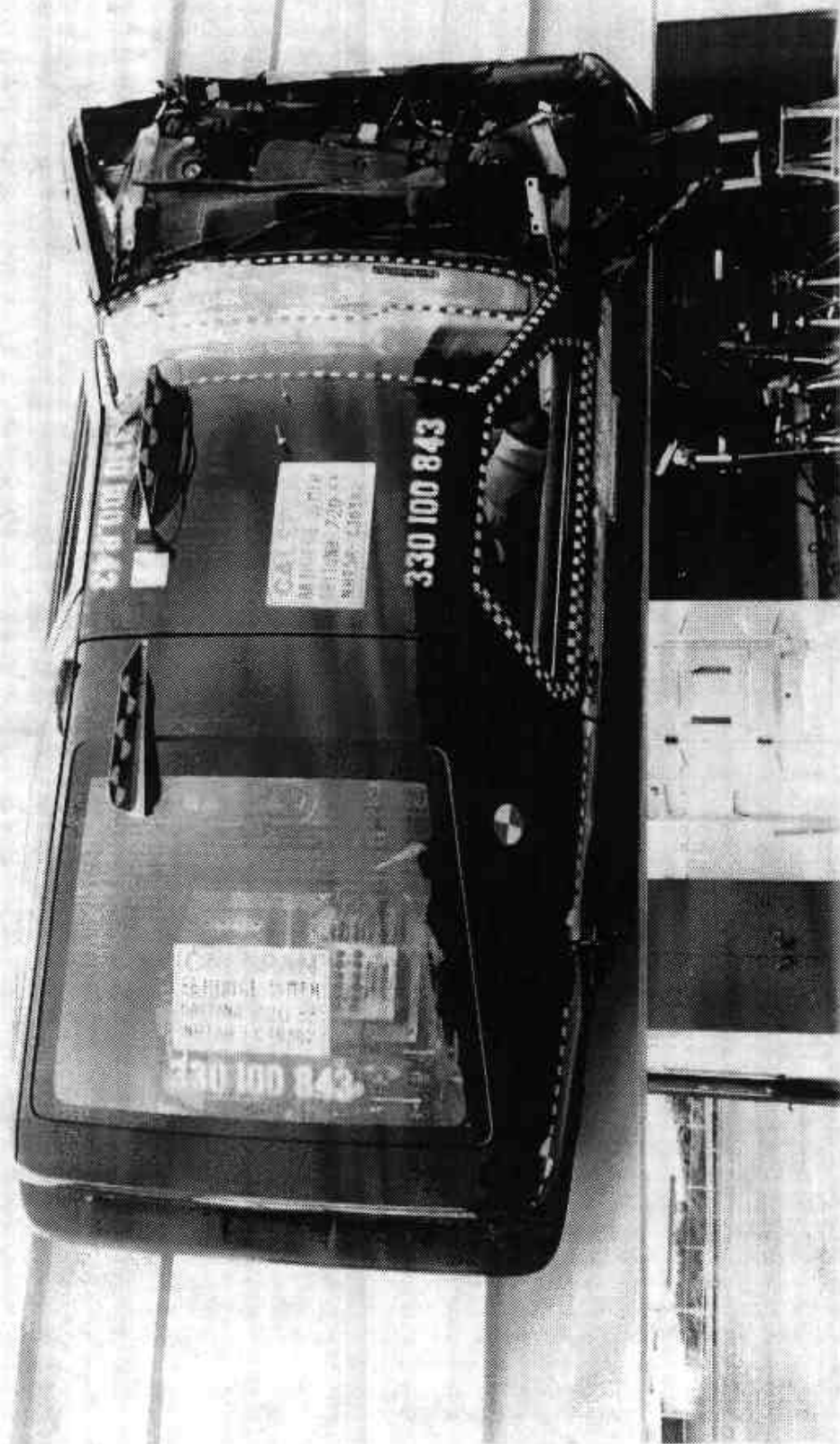


Figure A-11 POST-TEST TOP VIEW

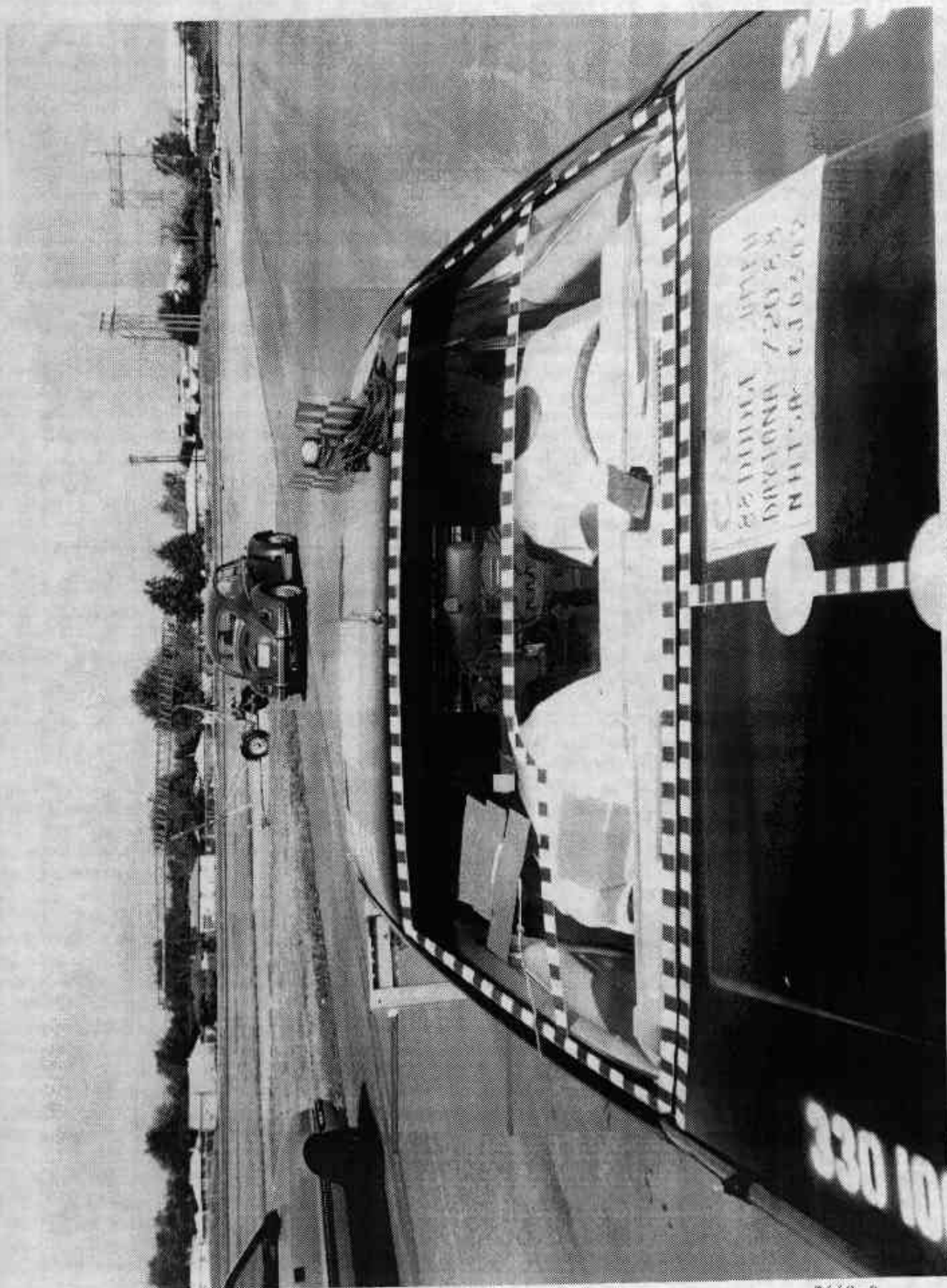


Figure A-12 PRE-TEST WINDSHIELD VIEW

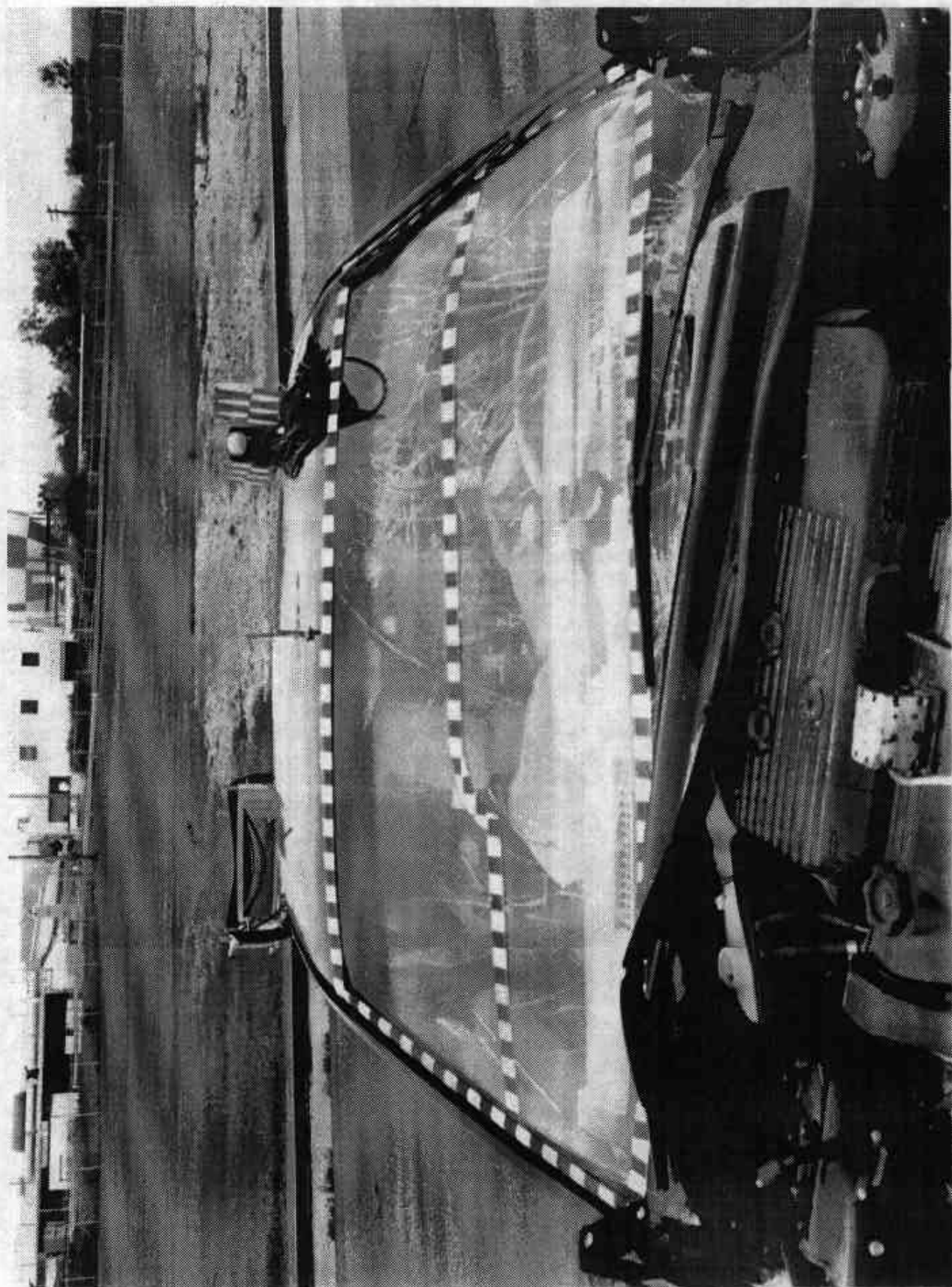


Figure A-13 POST-TEST WINDSHIELD VIEW

A-14

7669-2

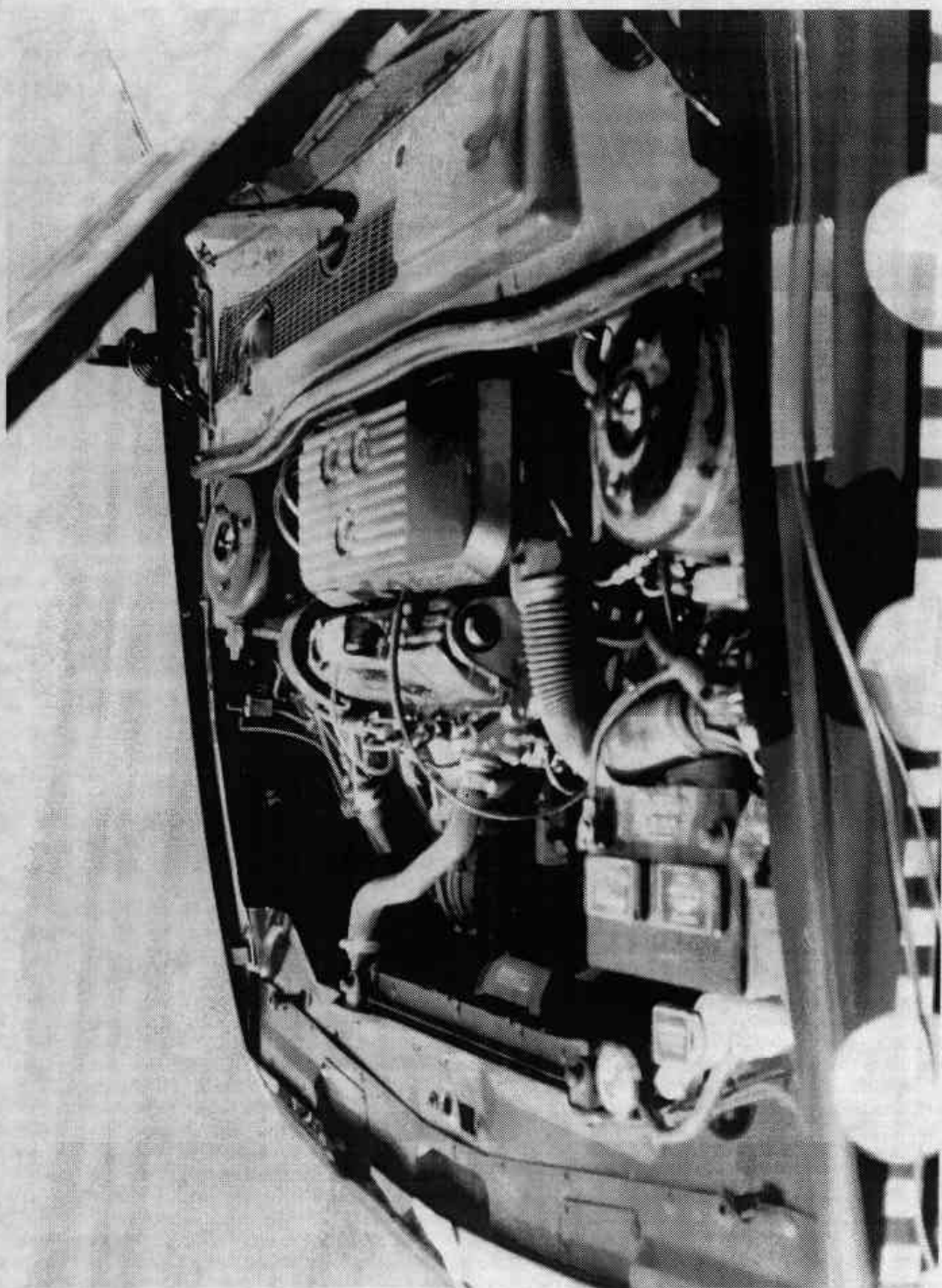


Figure A-14 PRE-TEST ENGINE COMPARTMENT VIEW

A-15

7669-2

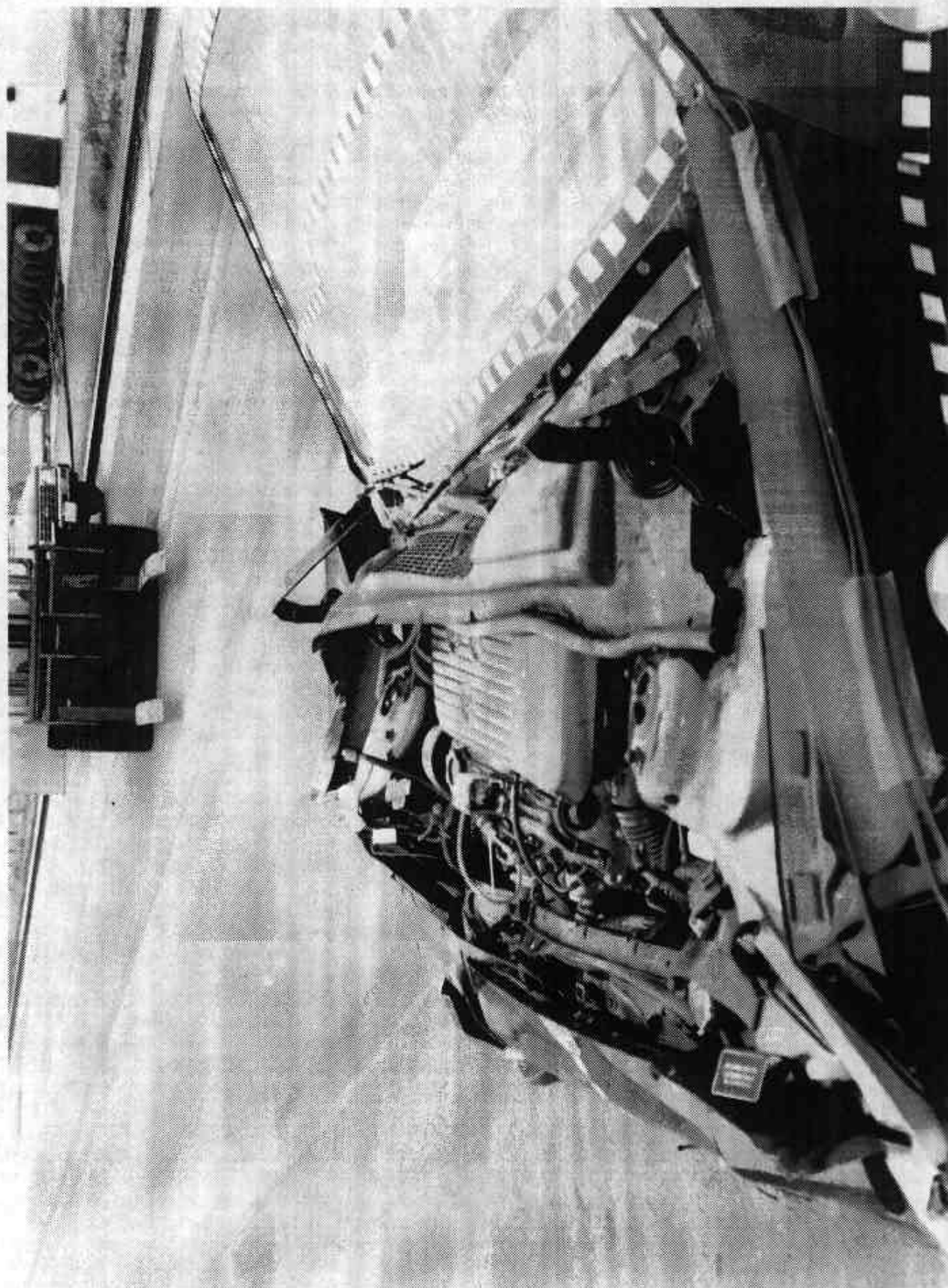


Figure A-15 POST-TEST ENGINE COMPARTMENT VIEW

A-16

7669-2



Figure A-16 PRE-TEST FUEL FILLER CAP VIEW

A-17

7669-2

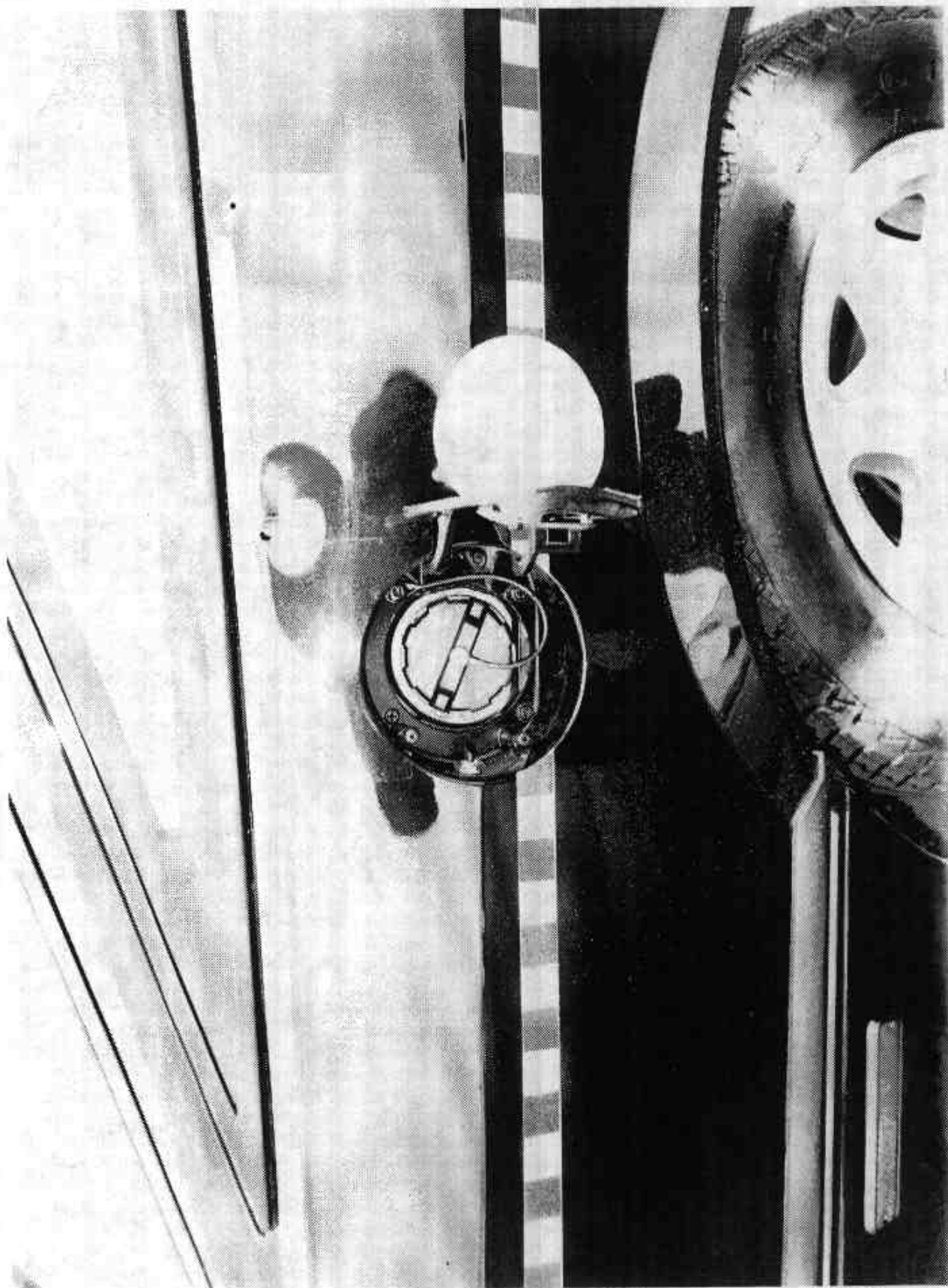


Figure A-17 POST-TEST FUEL FILLER CAP VIEW

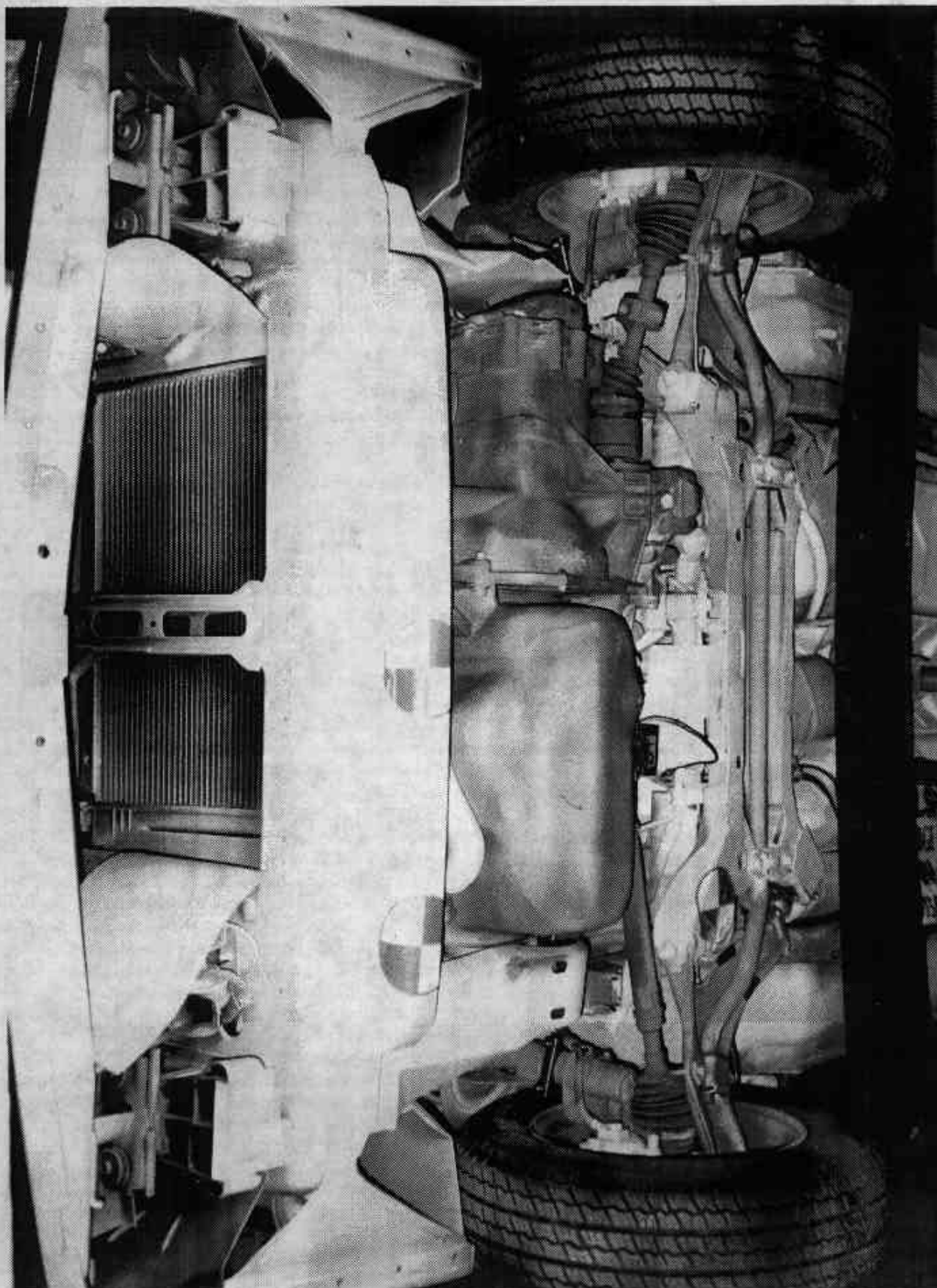


Figure A-18 PRE-TEST FRONT UNDERBODY VIEW

A-19

7669-2



Figure A-19 POST-TEST FRONT UNDERBODY VIEW

A-20

7669-2



Figure A-20 PRE-TEST FRONT SIDE UNDERBODY VIEW

A-21

7669-2

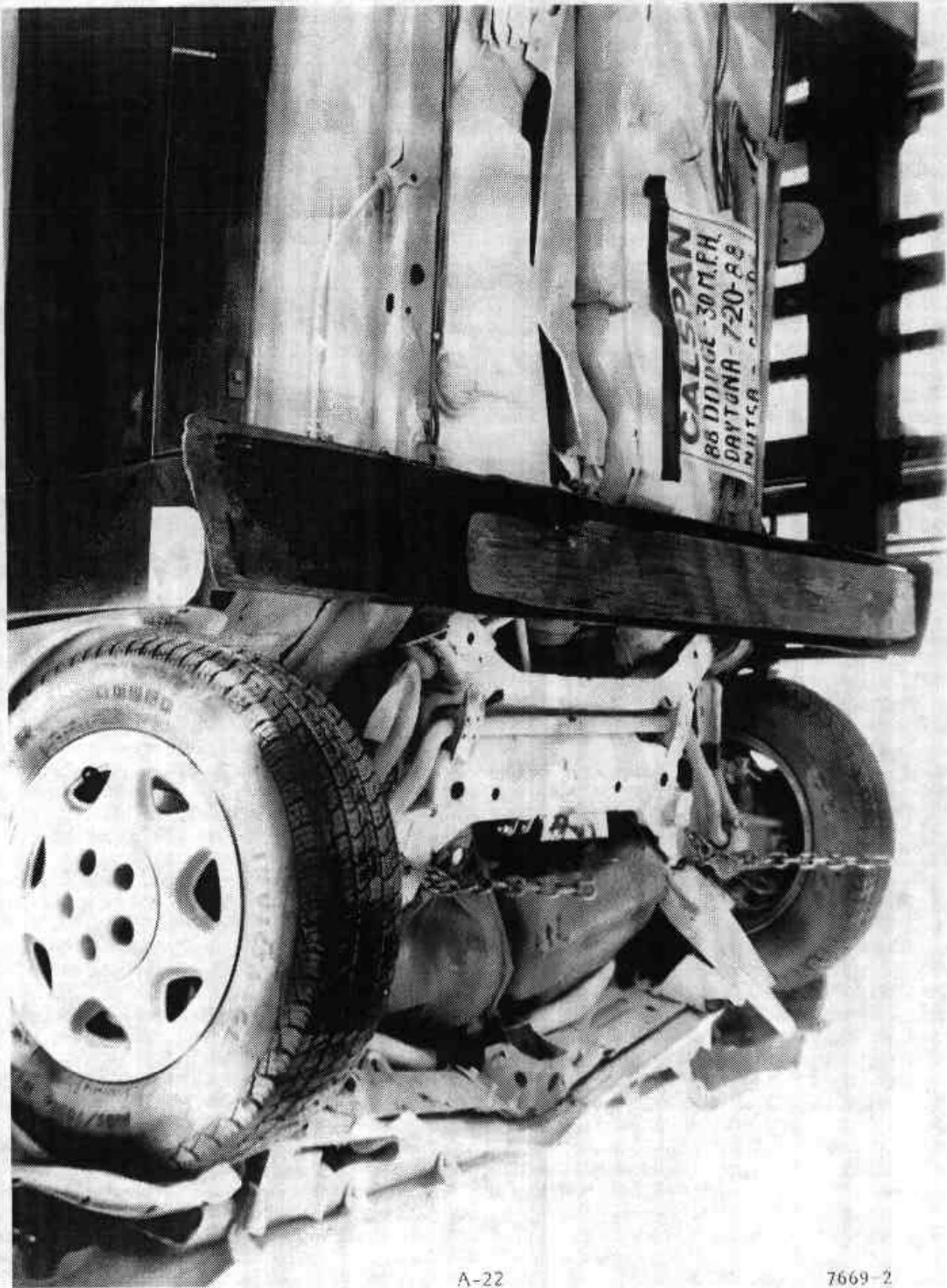


Figure A-21 POST-TEST FRONT SIDE UNDERBODY VIEW

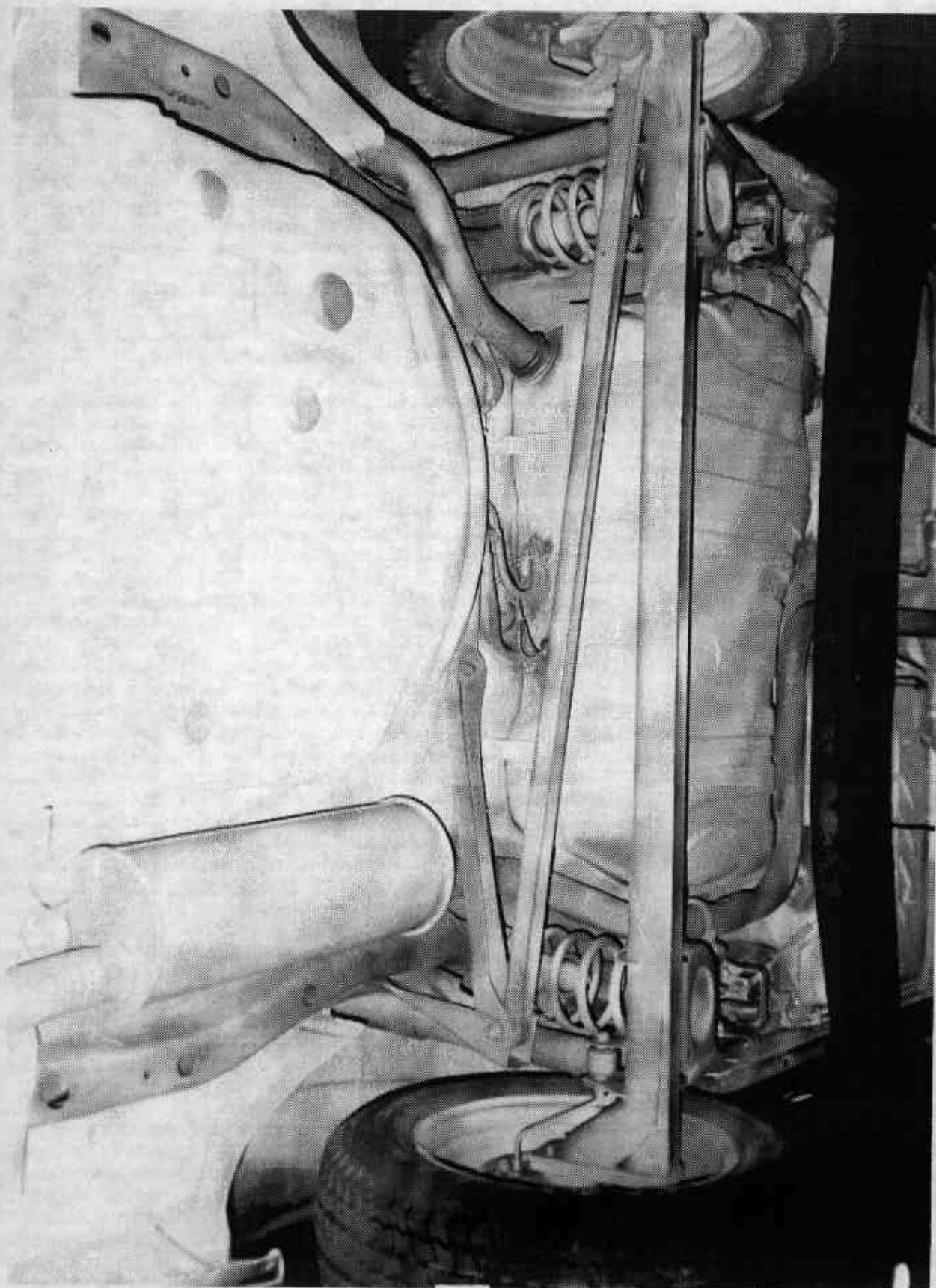


Figure A-22 PRE-TEST REAR UNDERBODY VIEW

A-23

7669-2

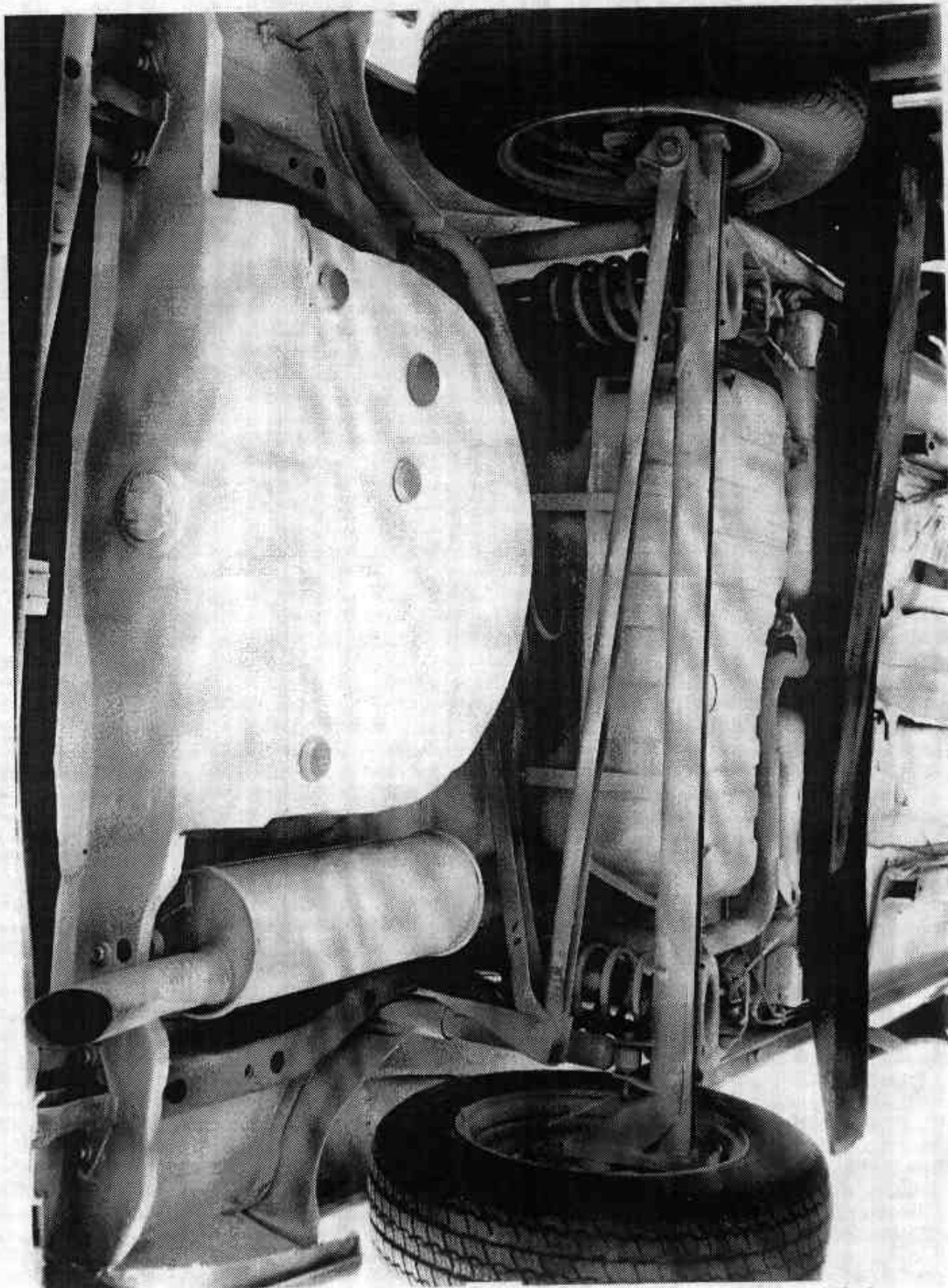


Figure A-23 POST-TEST REAR UNDERBODY VIEW

A-24

7669-2

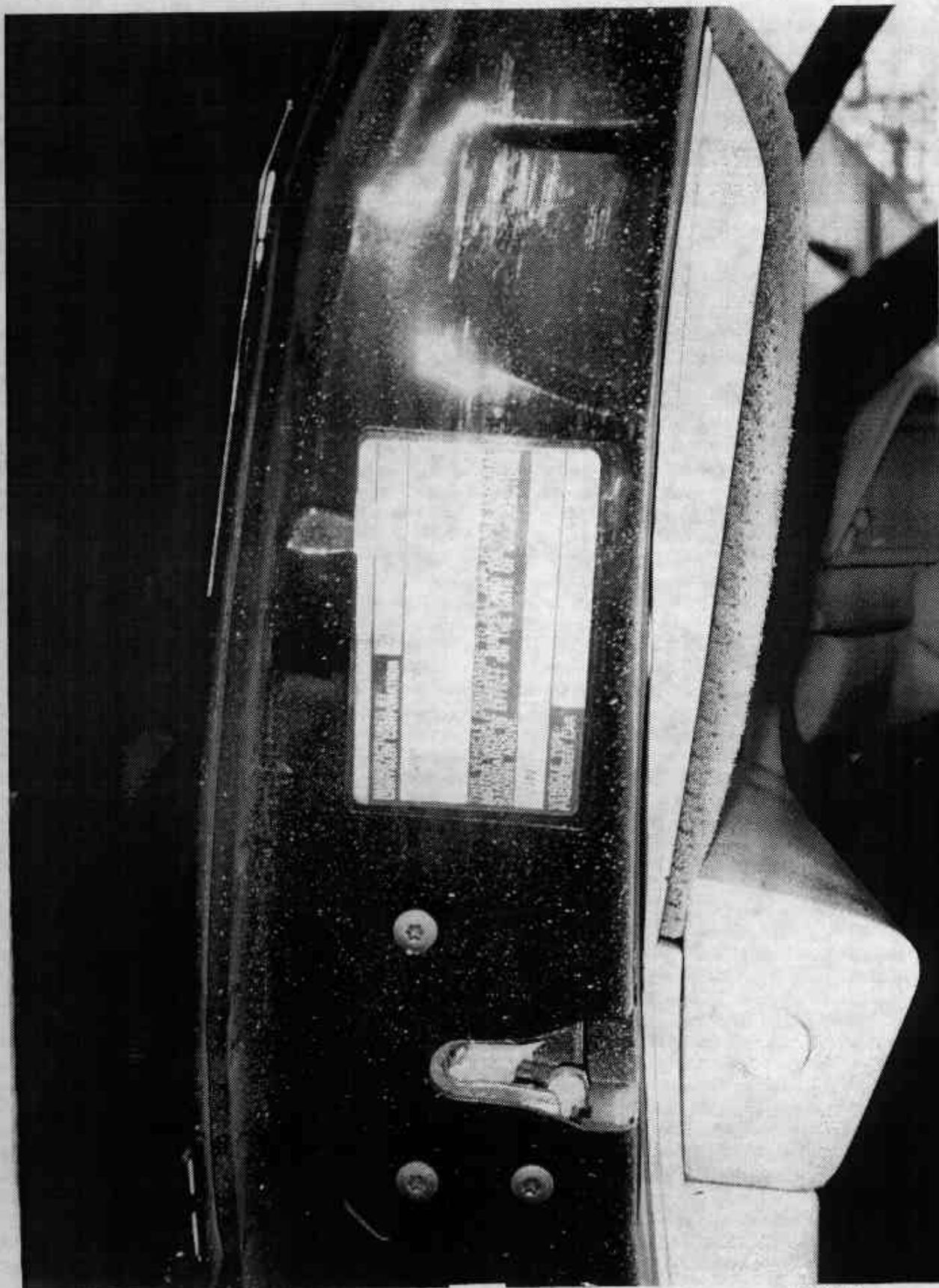


Figure A-24 CERTIFICATION LABEL

A-25

7669-2

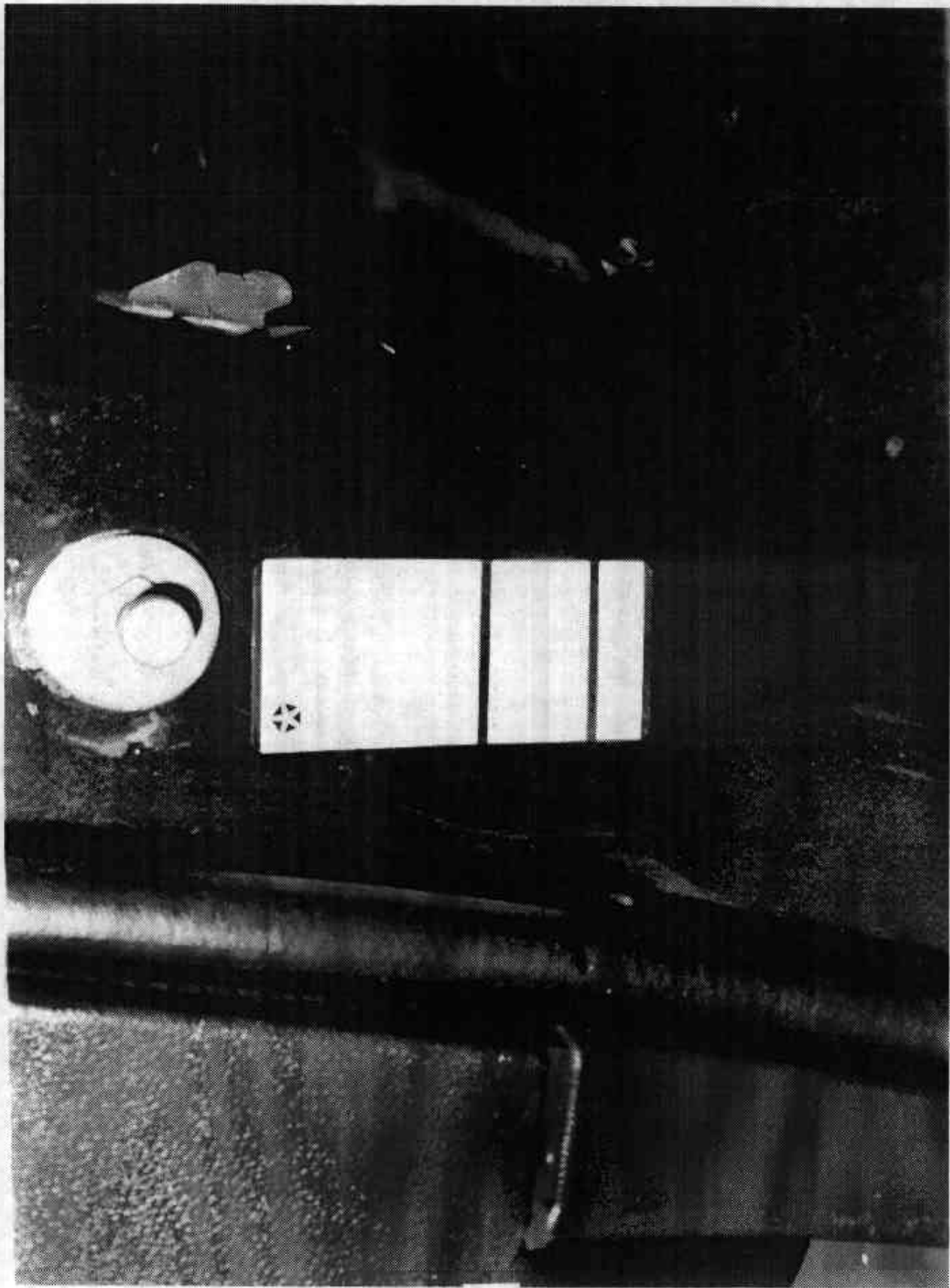


Figure A-25 TIRE PLACARD

A-26

7669-2

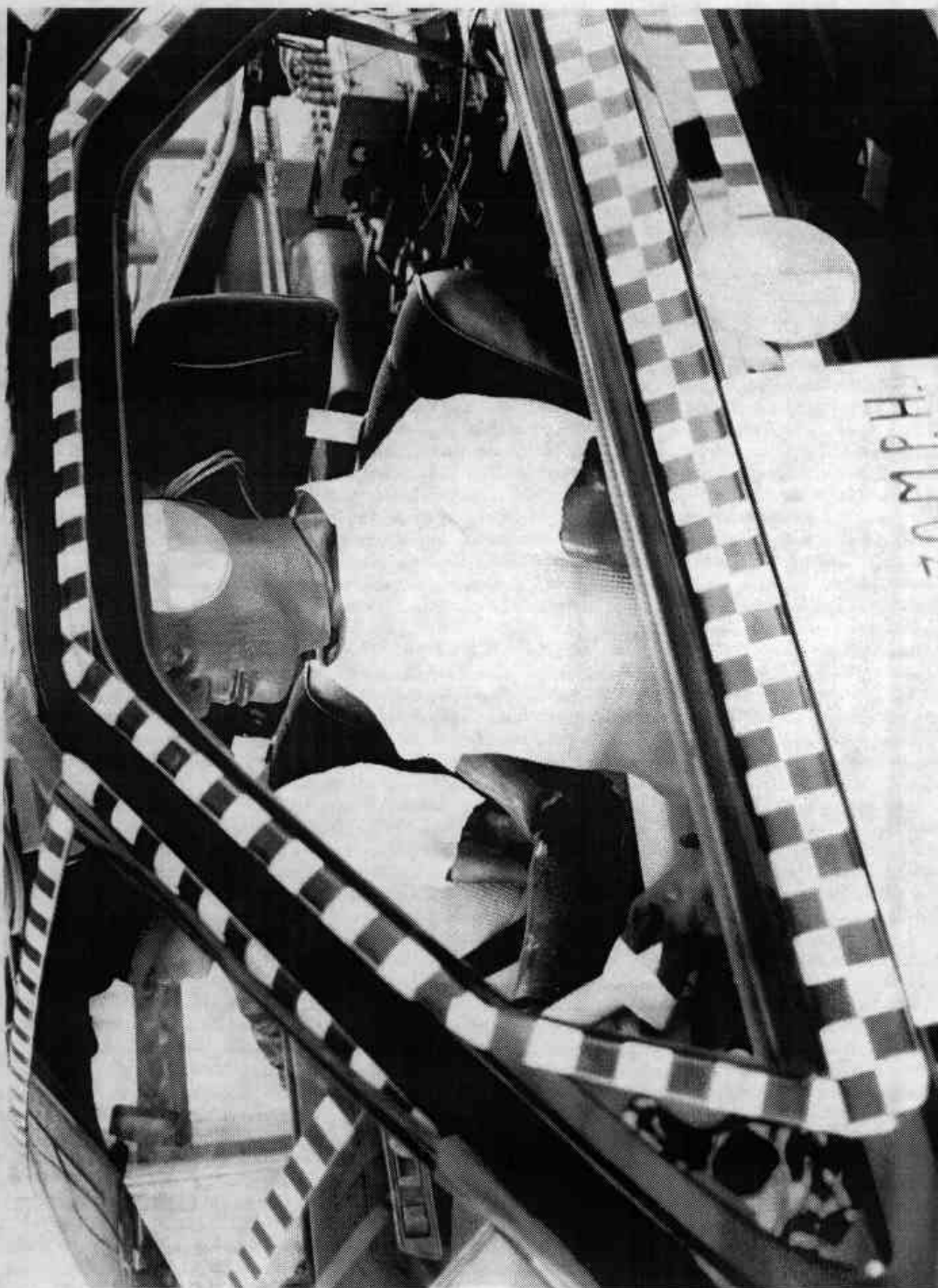


Figure A-26 PRE-TEST DRIVER DUMMY POSITION



Figure A-27 POST-TEST DRIVER DUMMY POSITION

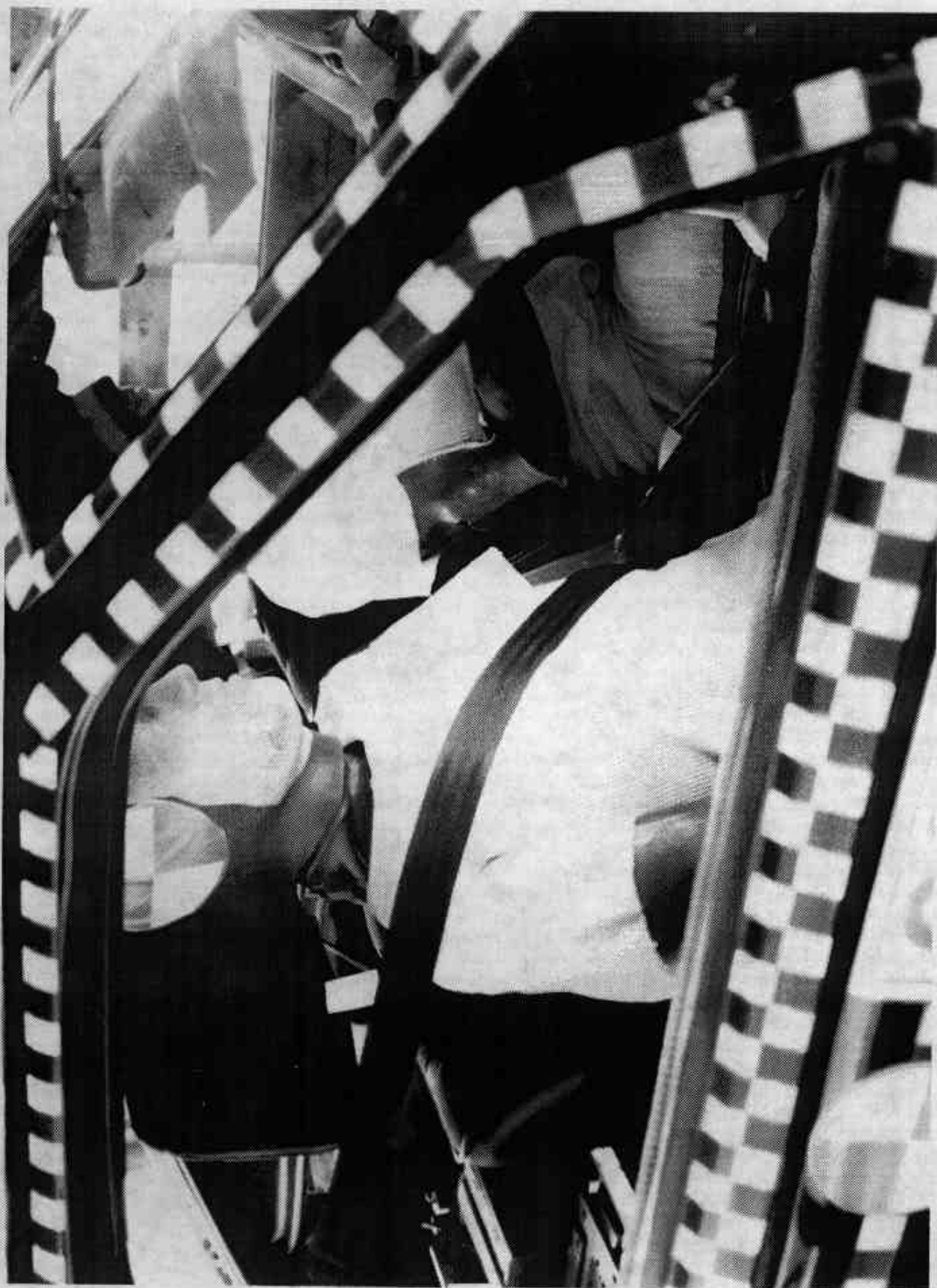


Figure A-28 PRE-TEST PASSENGER DUMMY POSITION

A-29

7669-2



Figure A-29 POST-TEST PASSENGER DUMMY POSITION

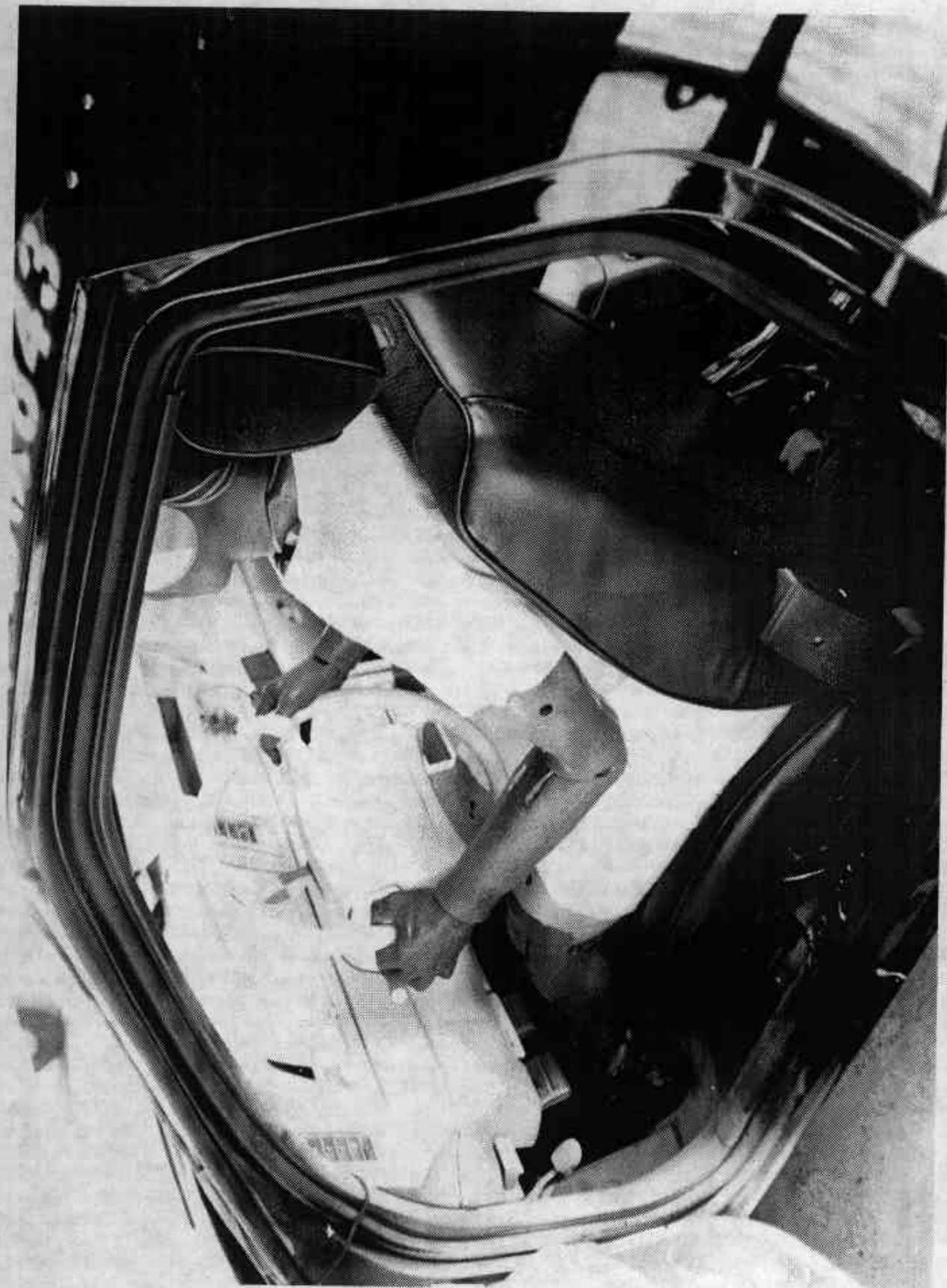


Figure A-30 PRE-TEST DRIVER DUMMY AND INTERIOR VIEW

A-31

7669-2



Figure A-31 POST-TEST DRIVER DUMMY AND INTERIOR VIEW



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

A-33

7669-2

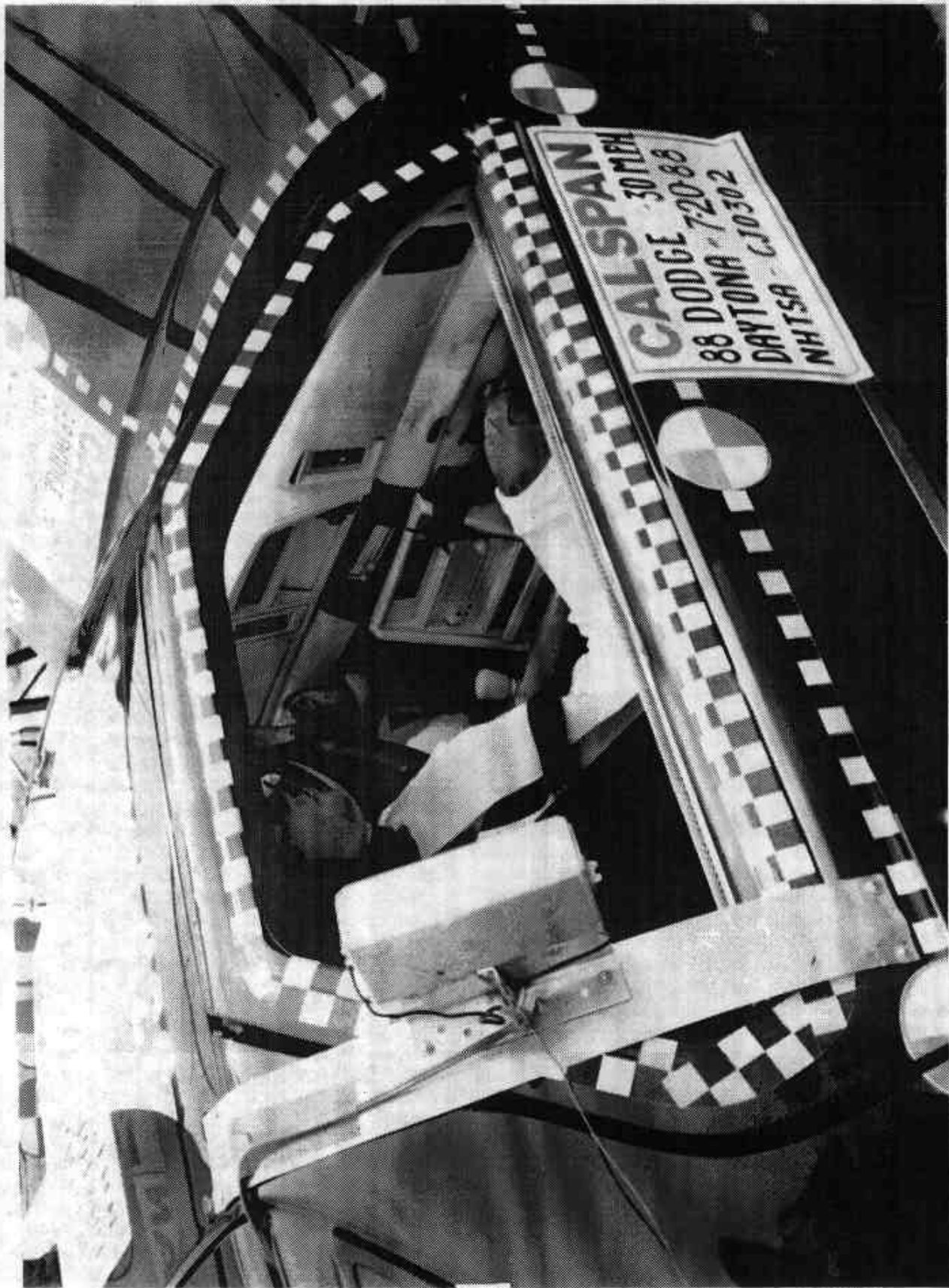


Figure A-33 POST-TEST PASSENGER DUMMY AND INTERIOR VIEW

Appendix B

VEHICLE AND DUMMY RESPONSE DATA

TEST NO. CJ0302

VEHICLE DATA

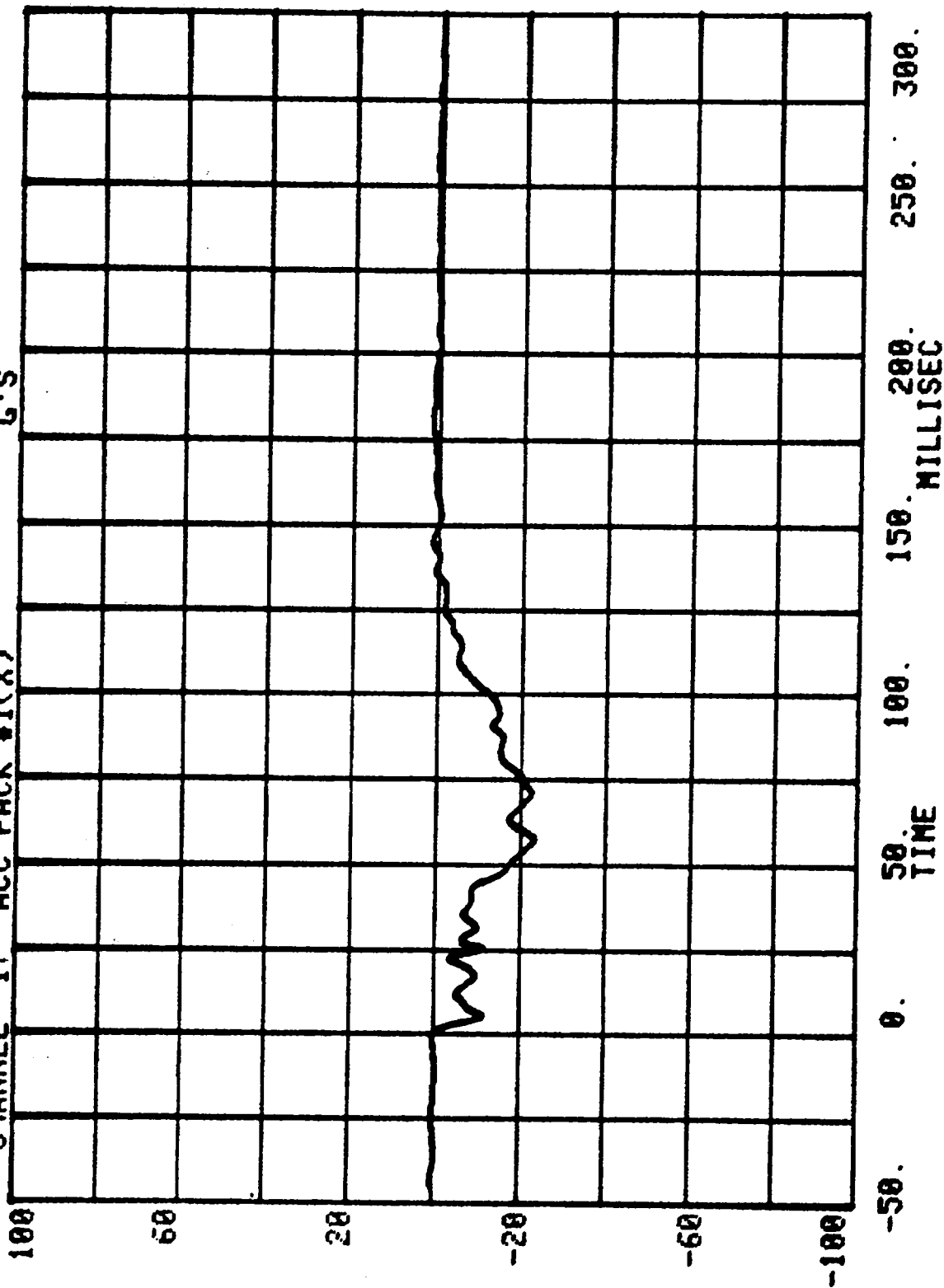
FILTER CHANNEL CLASS

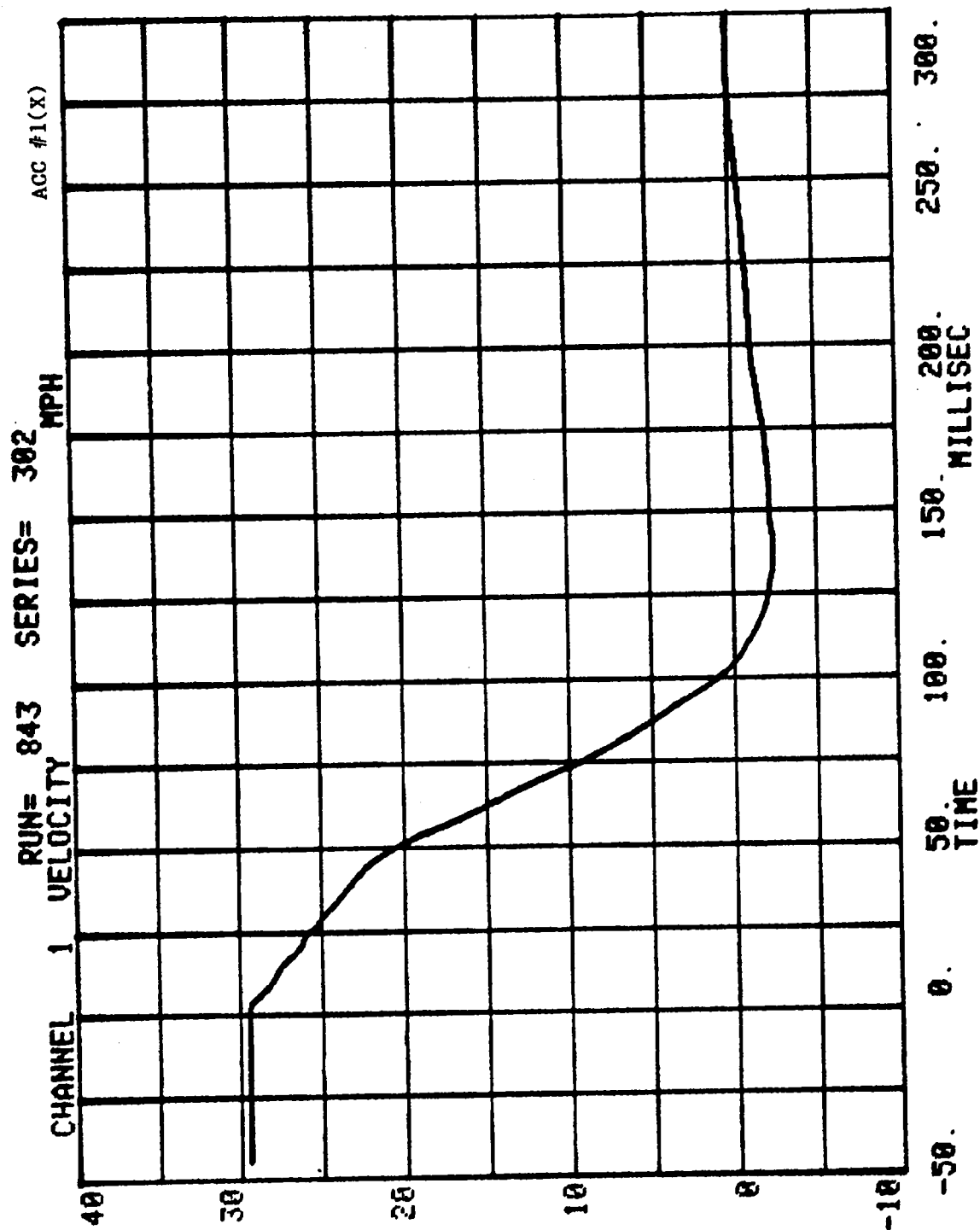
60

B-2

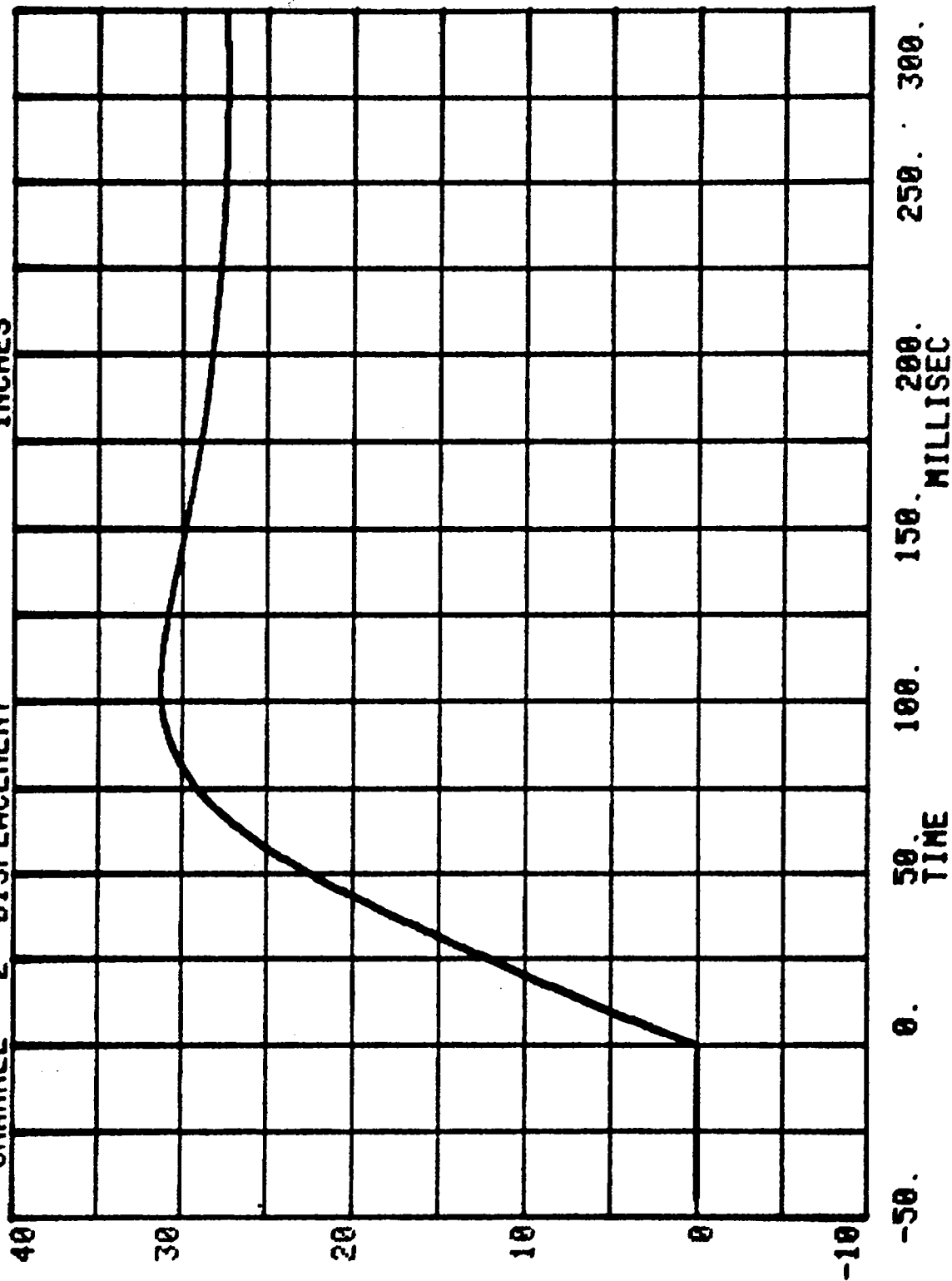
7669-2

RUN= 843 SERIES= 302
CHANNEL 17 ACC PACK #1(X) G'S

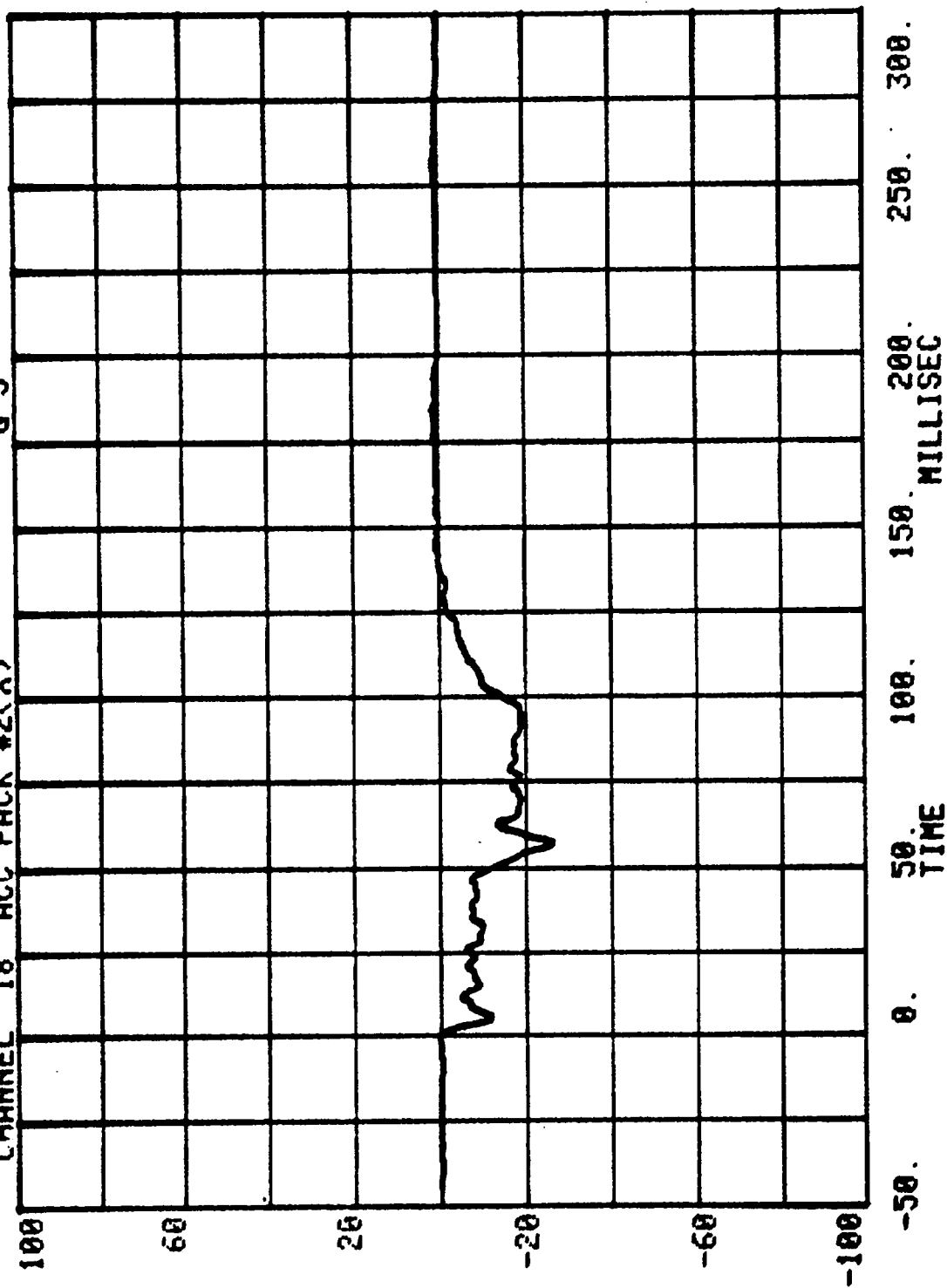




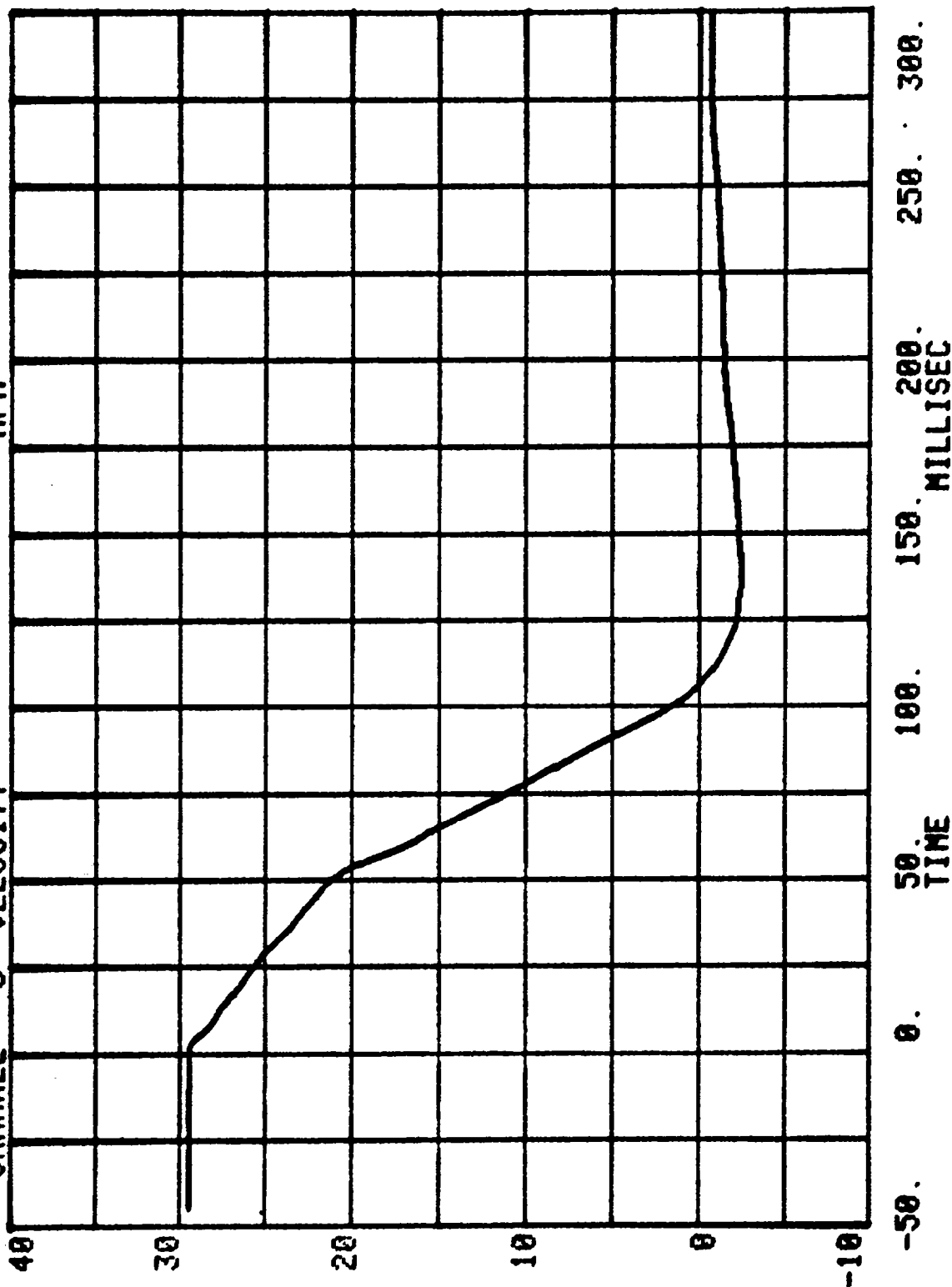
CHANNEL 2 DISPLACEMENT RUN= 843 SERIES= 302 ACC #1(X)

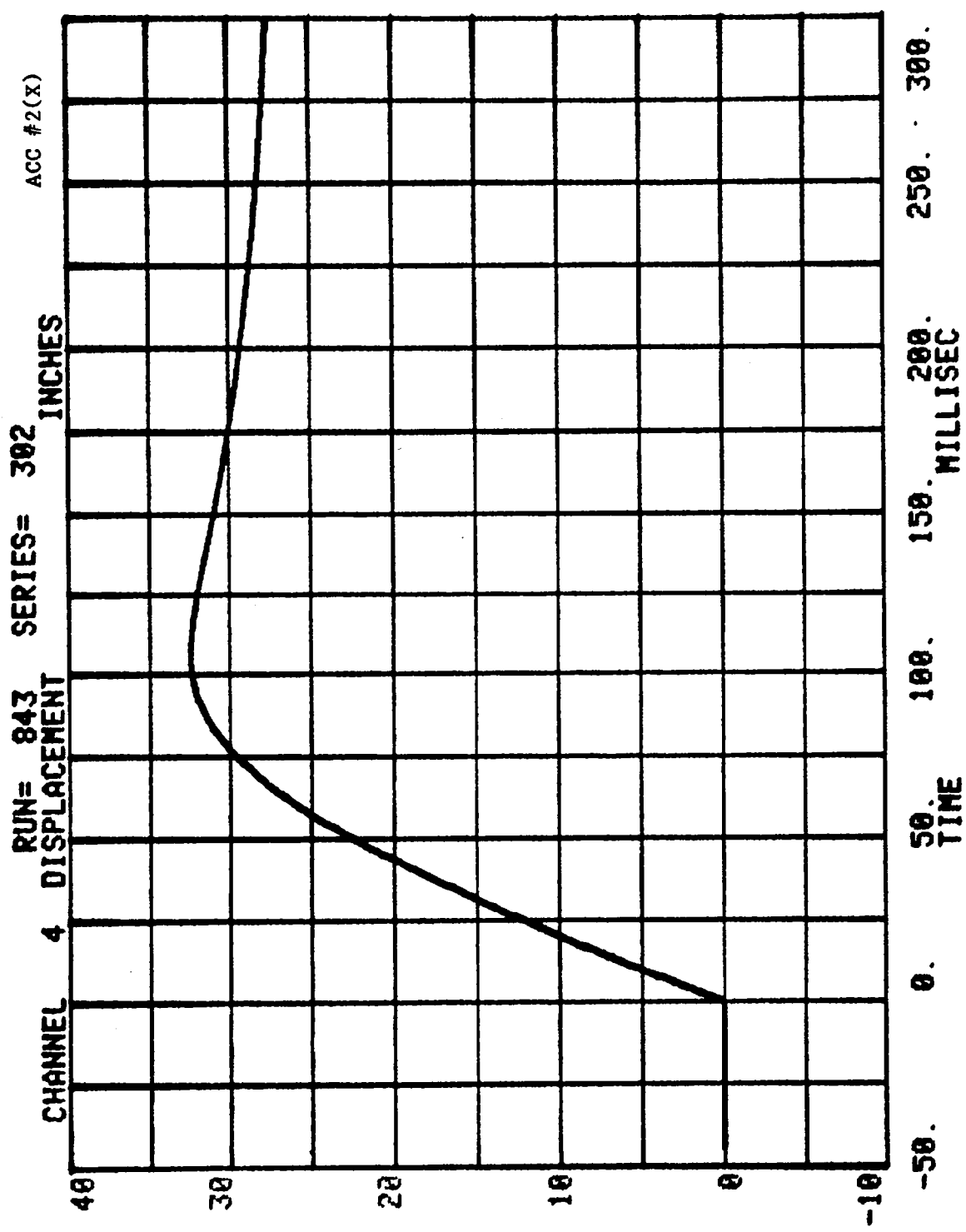


CHANNEL 18 ACC PACK #2(X) RUN= 843 SERIES= 302 G'S

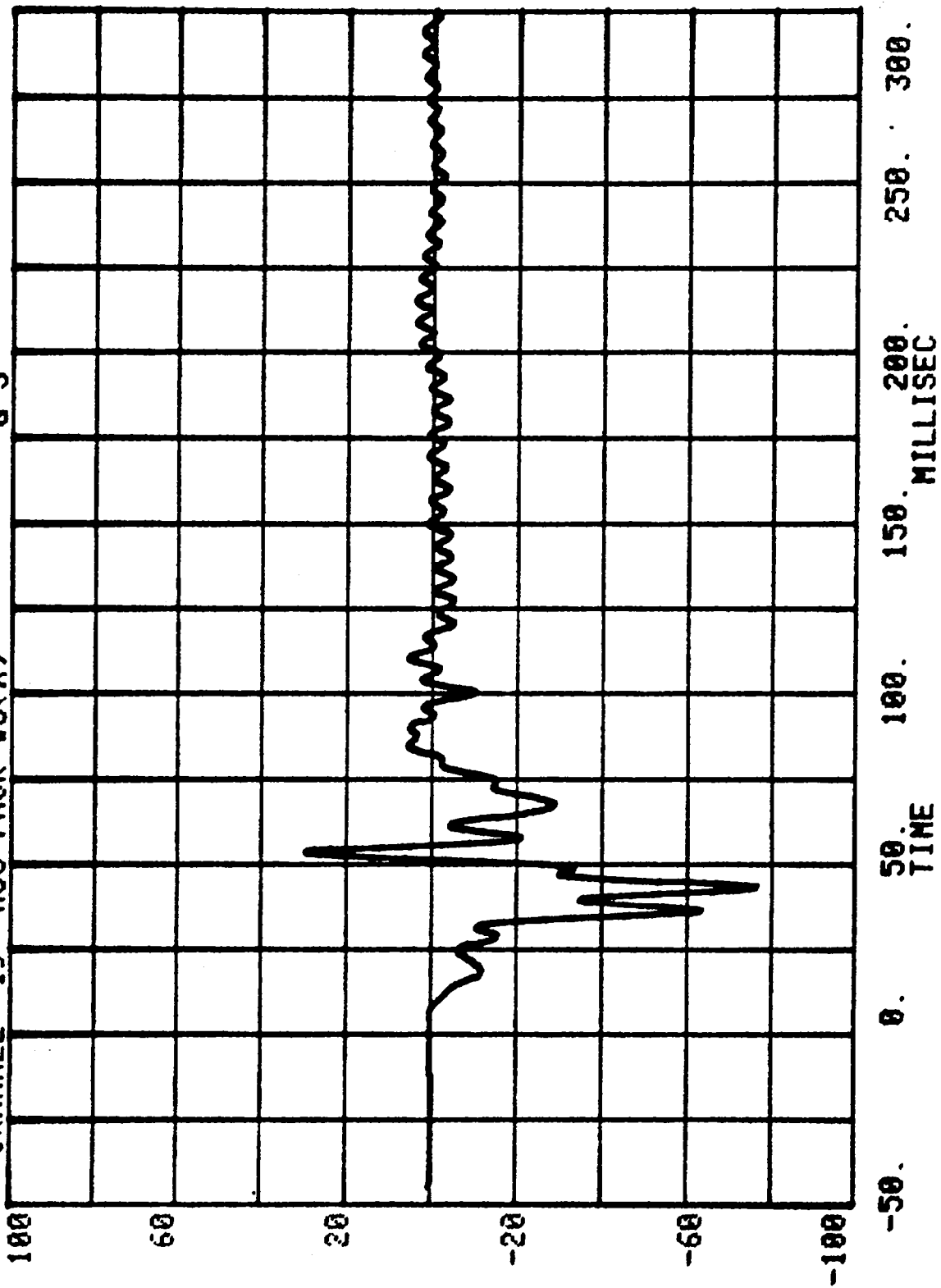


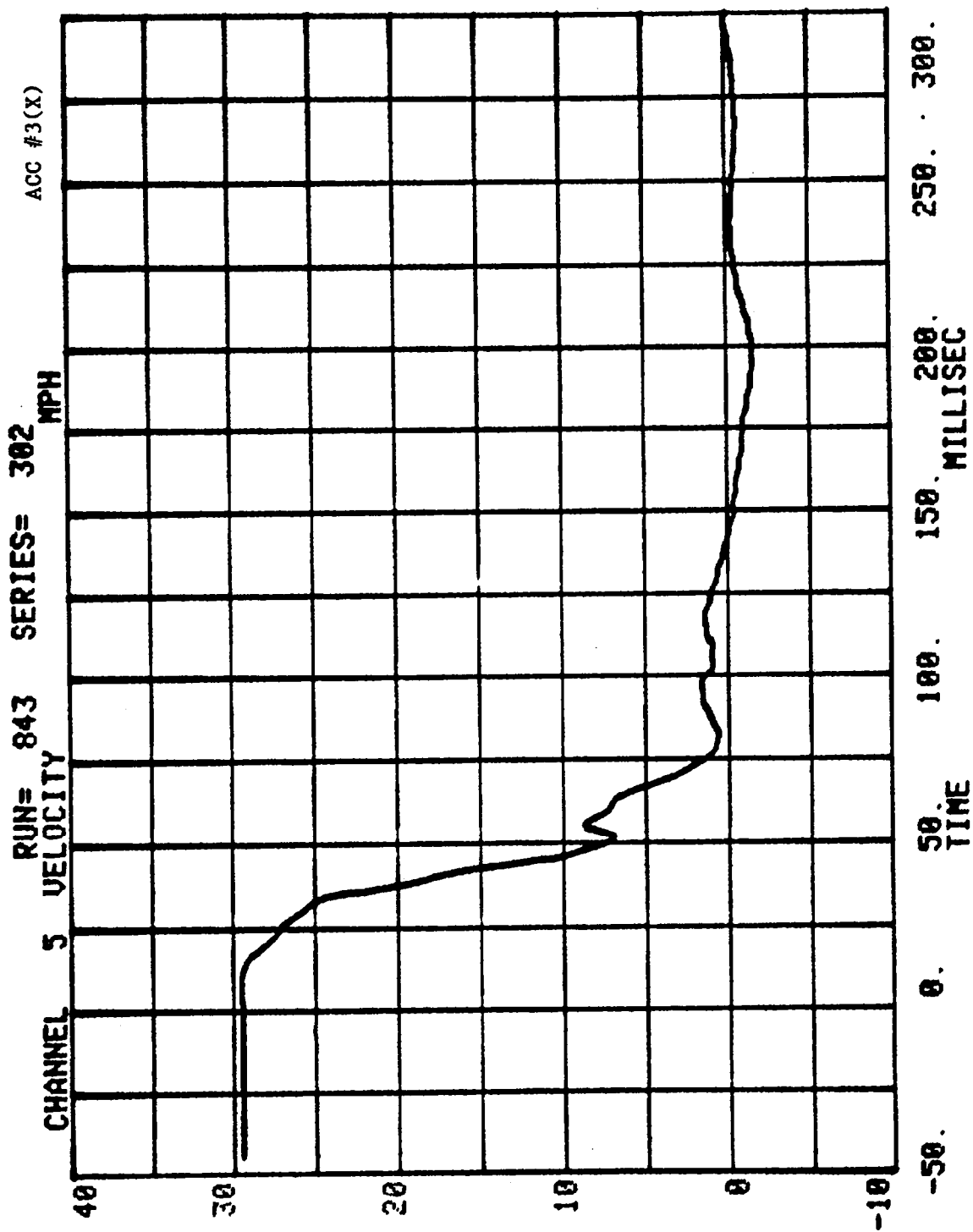
CHANNEL 3 VELOCITY RUN= 843 SERIES= 302 MPH ACC #2(X)



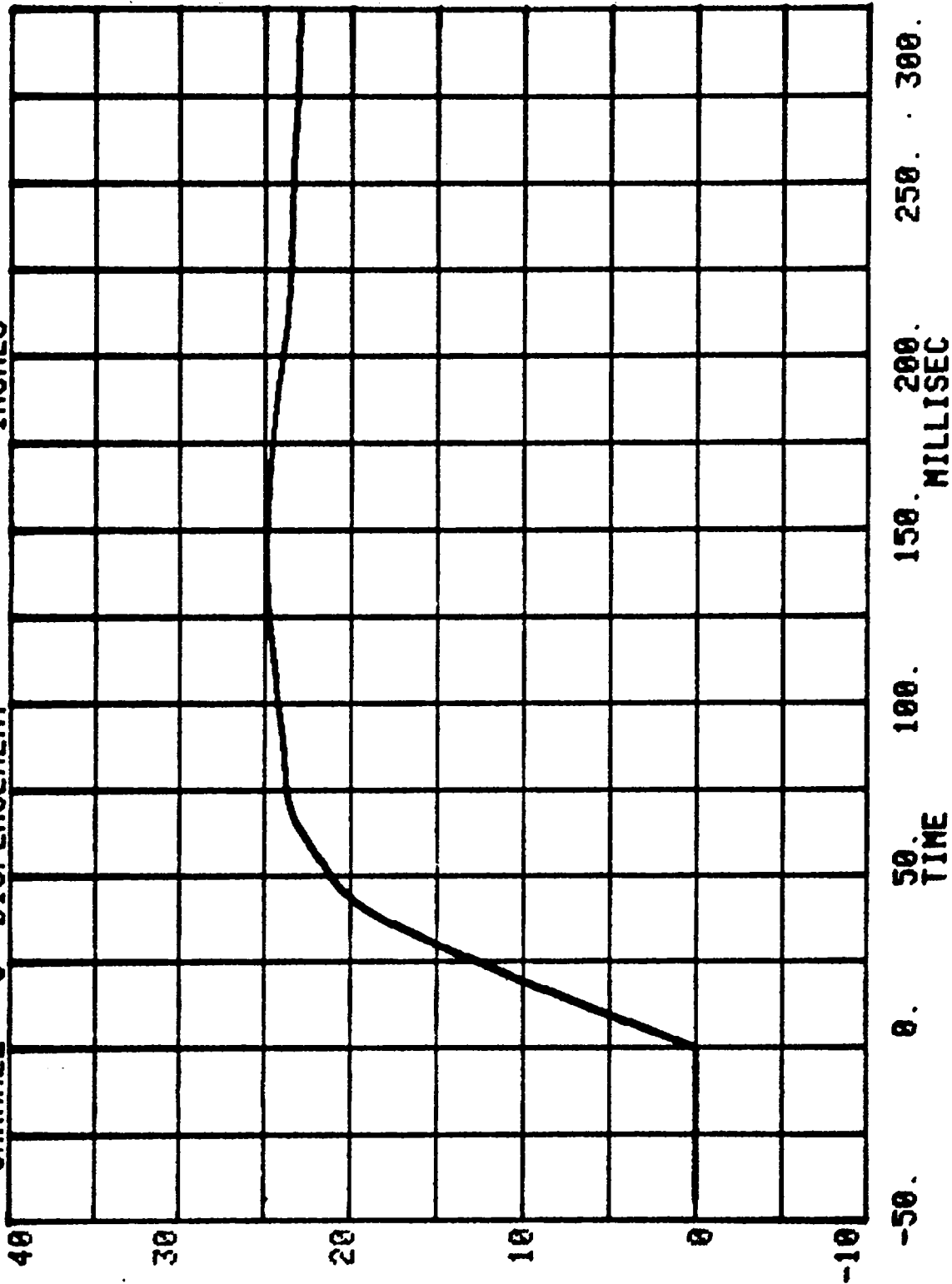


RUN= 843 SERIES= 302
CHANNEL 19 ACC PACK #3(X) G'S

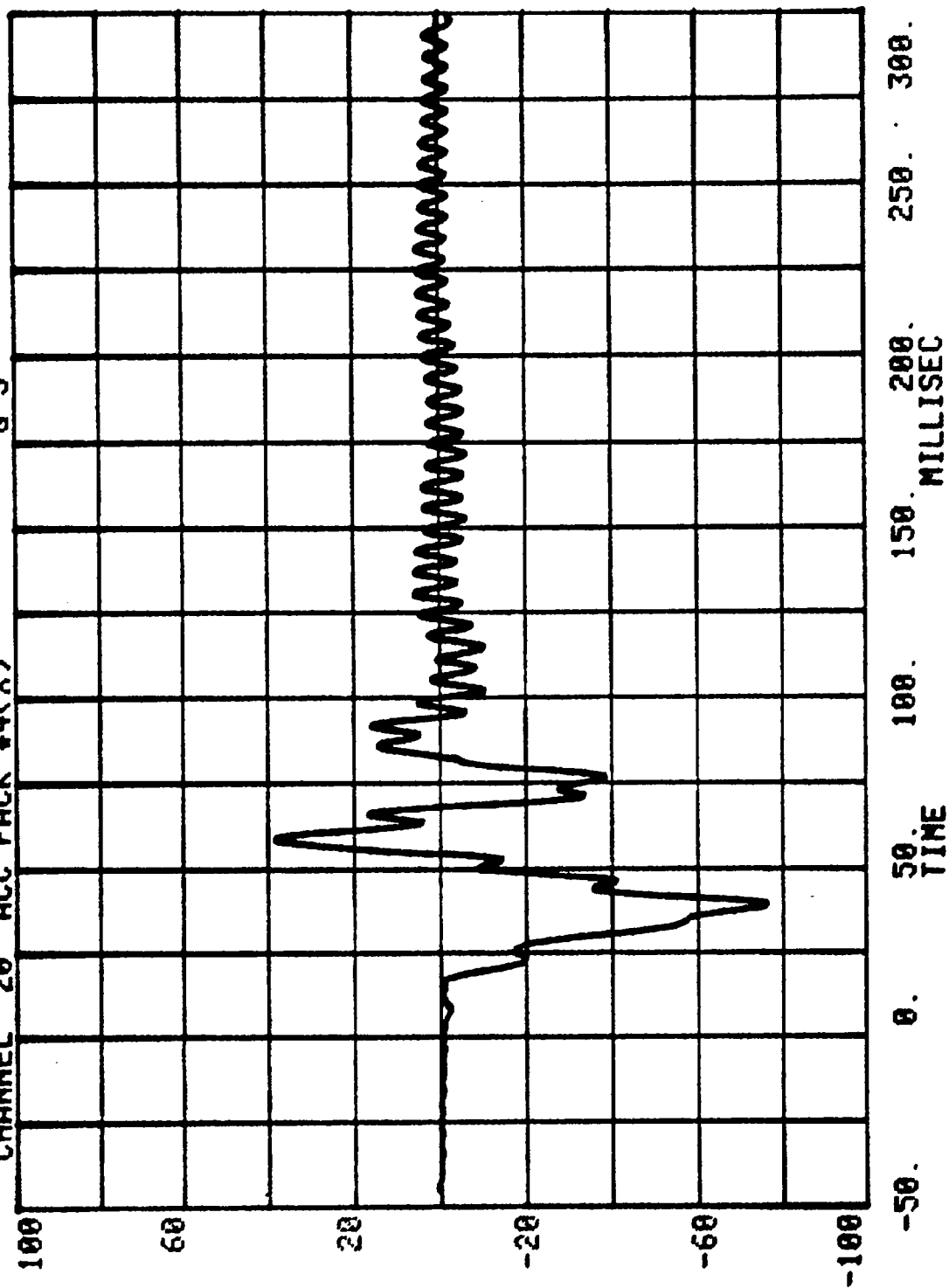




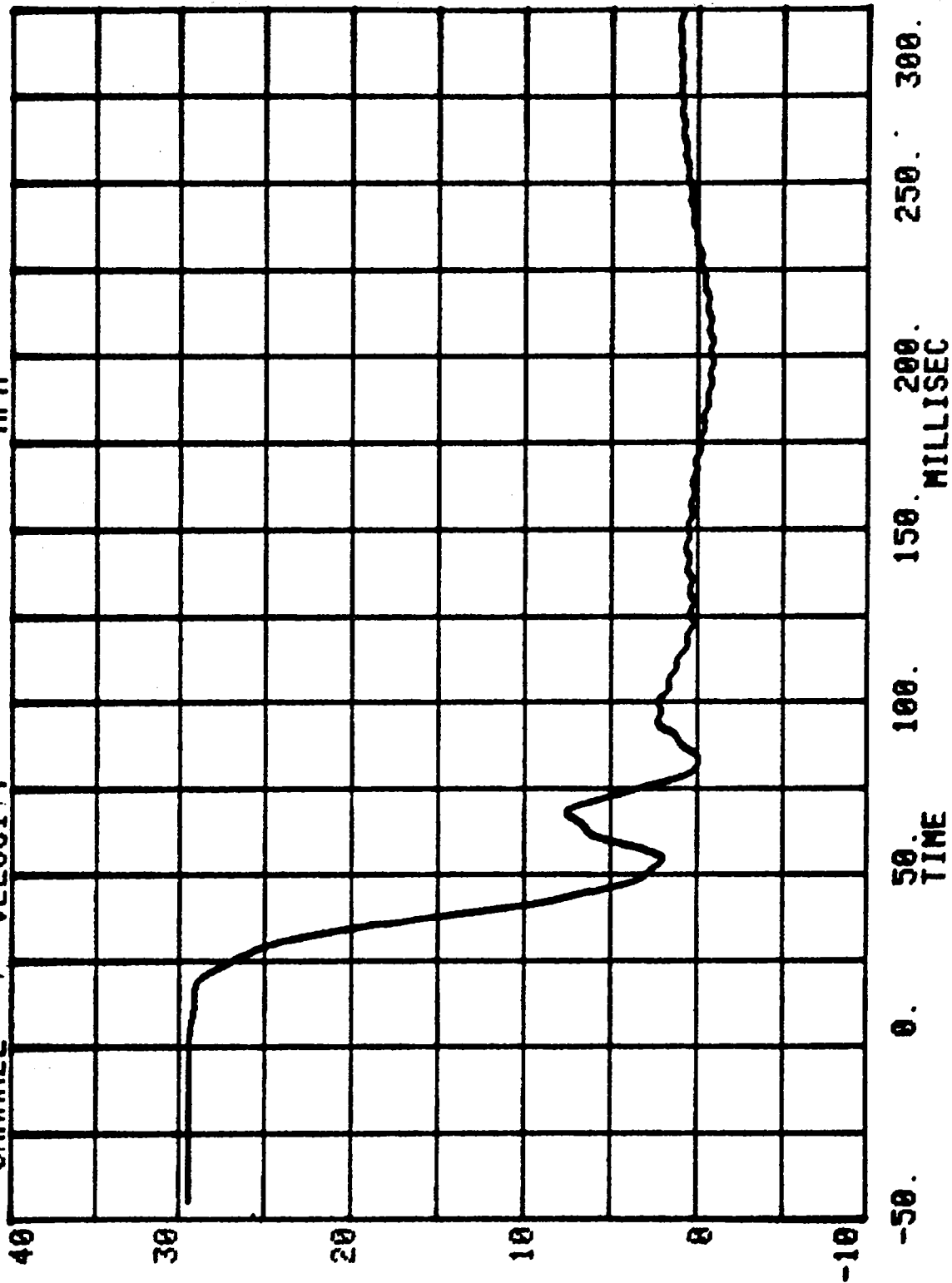
CHANNEL 6 DISPLACEMENT RUN= 843 SERIES= 302 INCHES ACC #3(X)

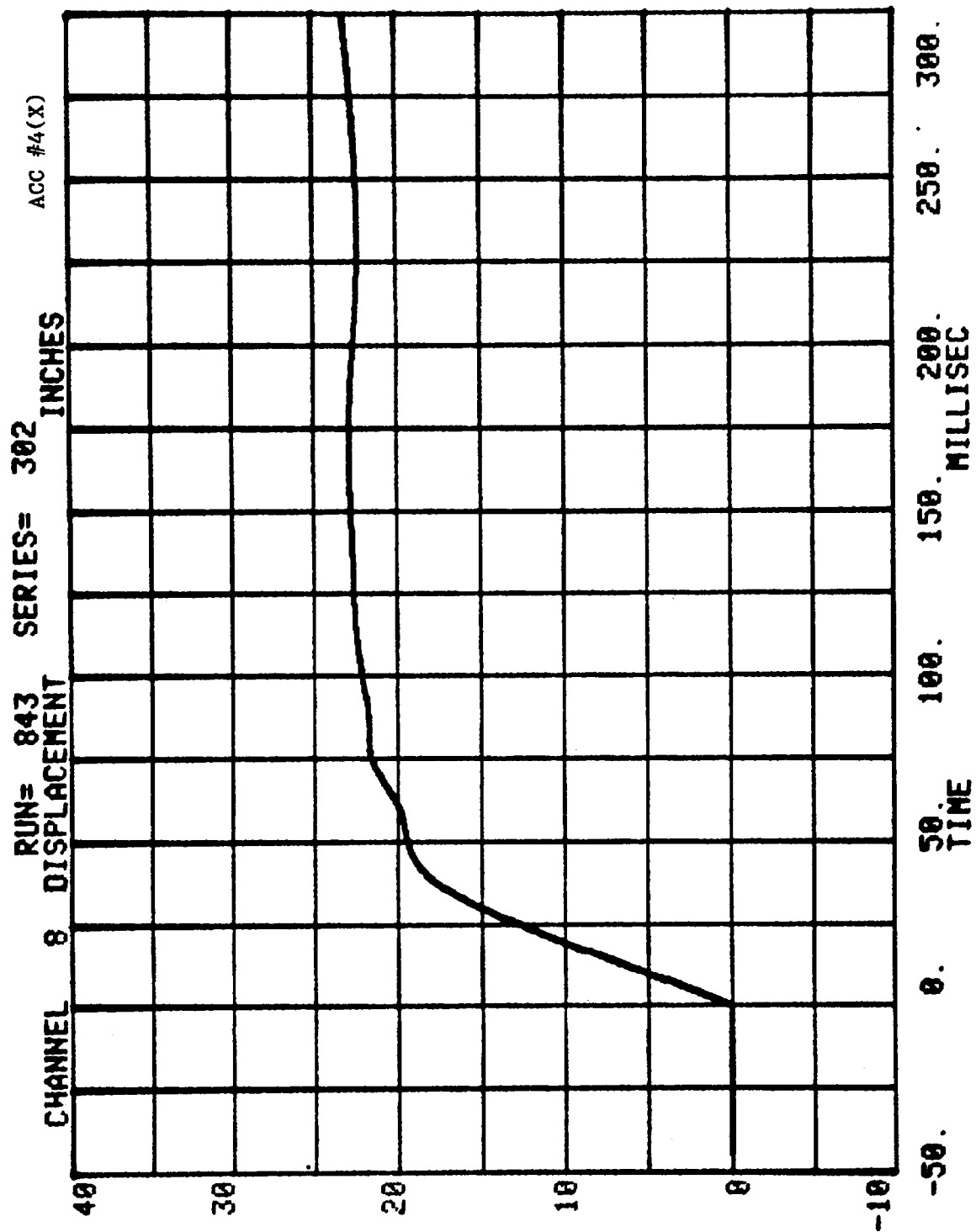


RUN= 843 SERIES= 302 G'S
CHANNEL 20 ACC PACK #4(X)

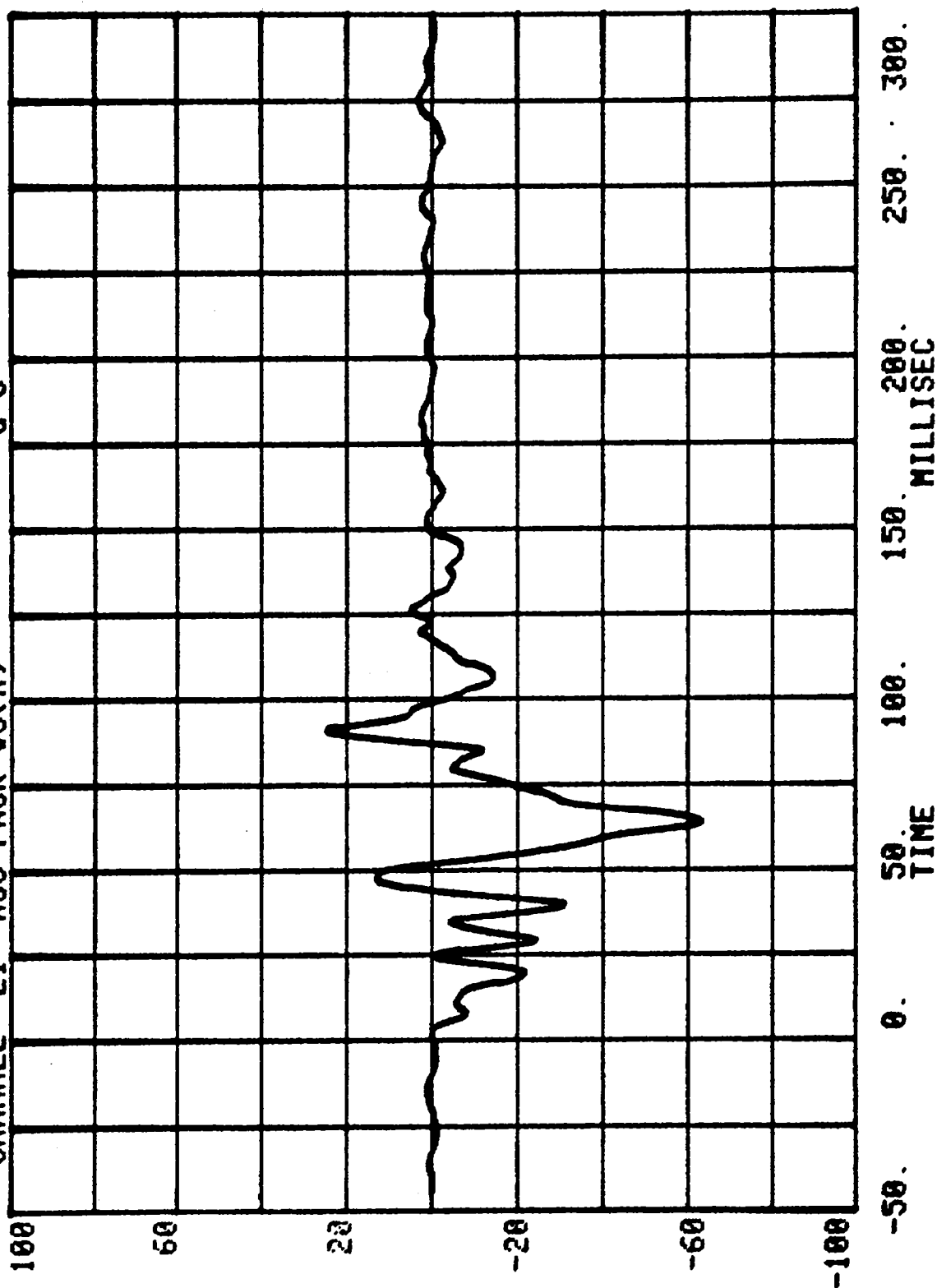


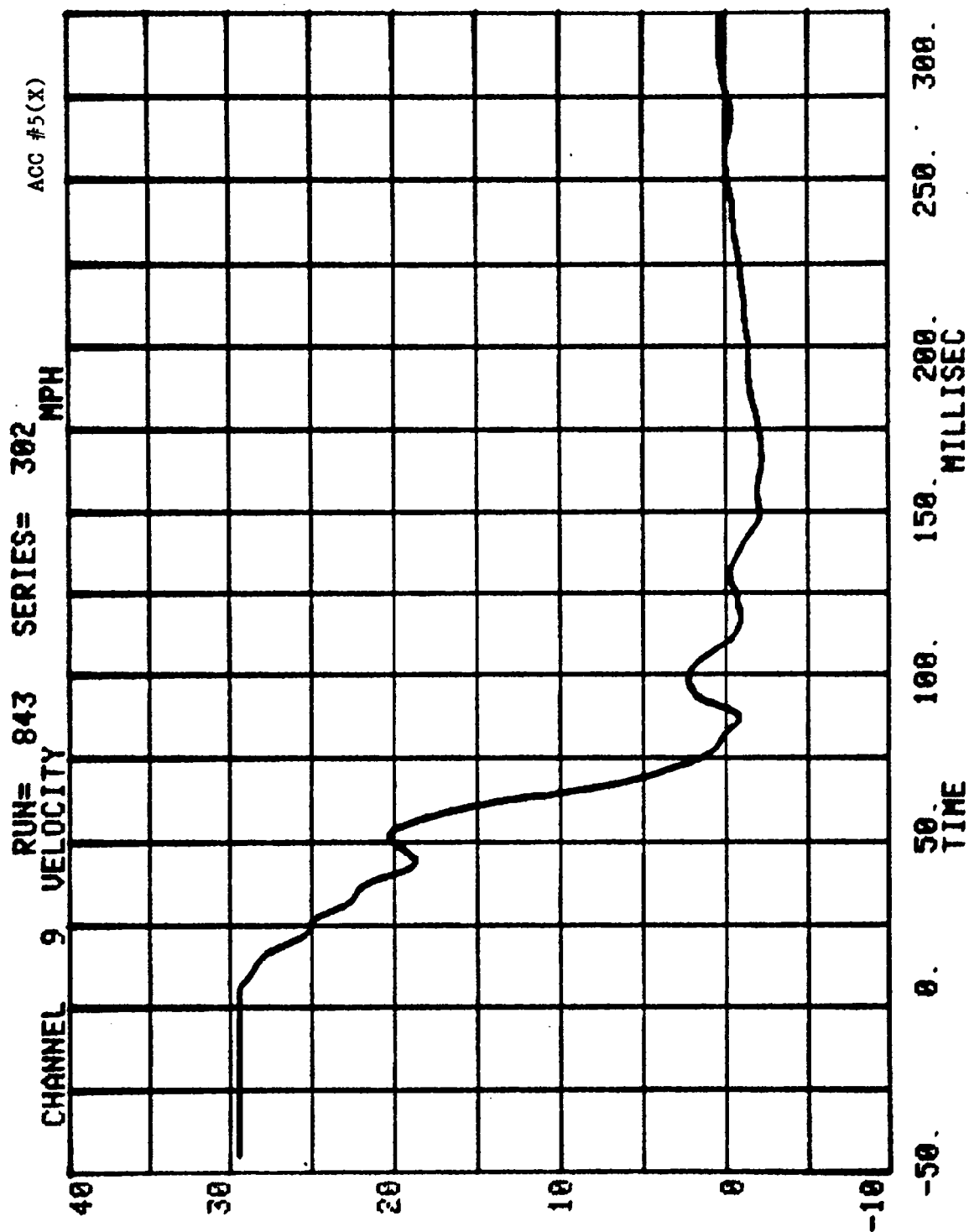
CHANNEL 7 VELOCITY
RUN= 843 SERIES= 302 MPH
ACC #4(X)



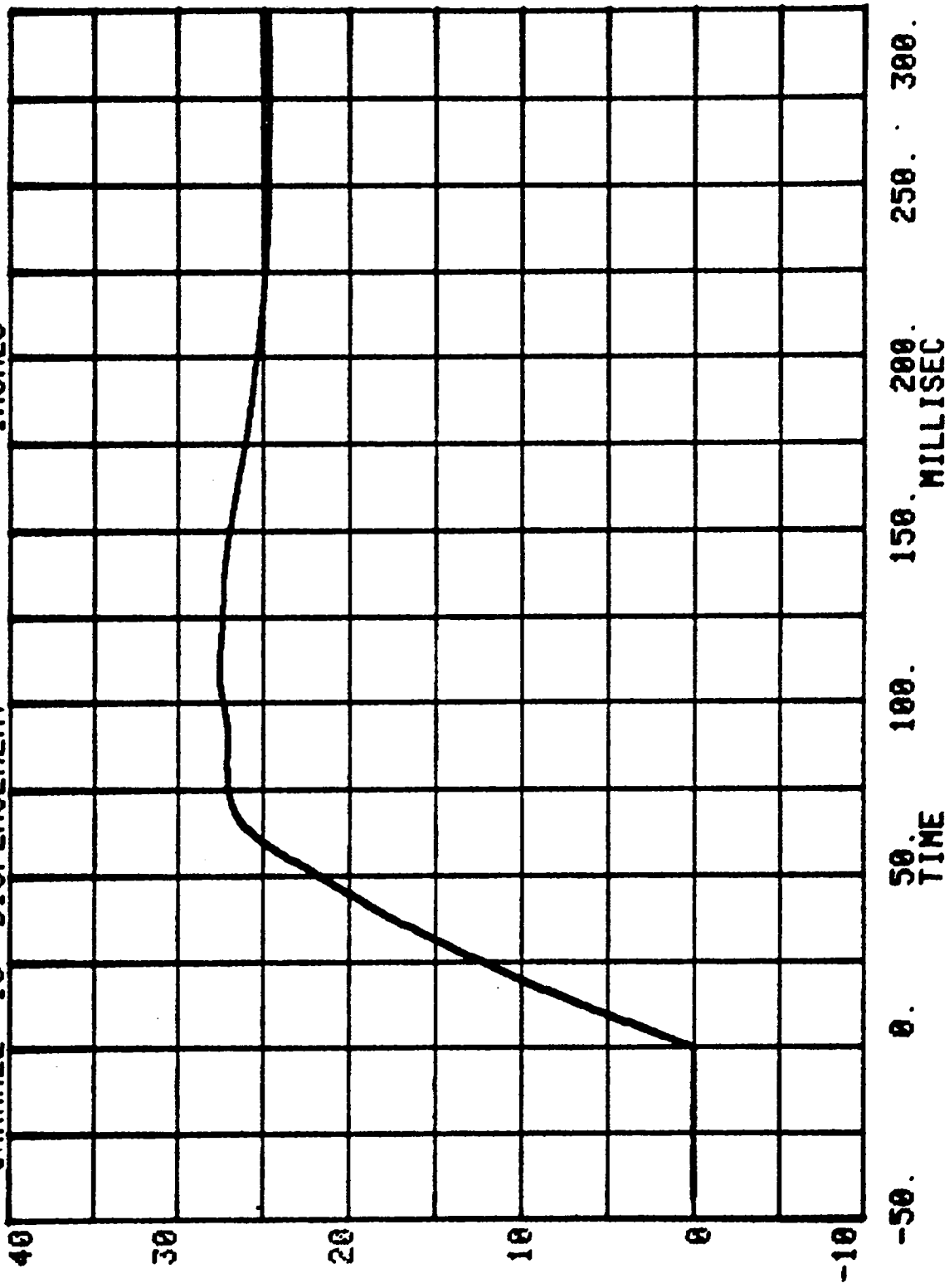


RUN= 843 SERIES= 302 G'S
CHANNEL 21 ACC PACK #5(X)

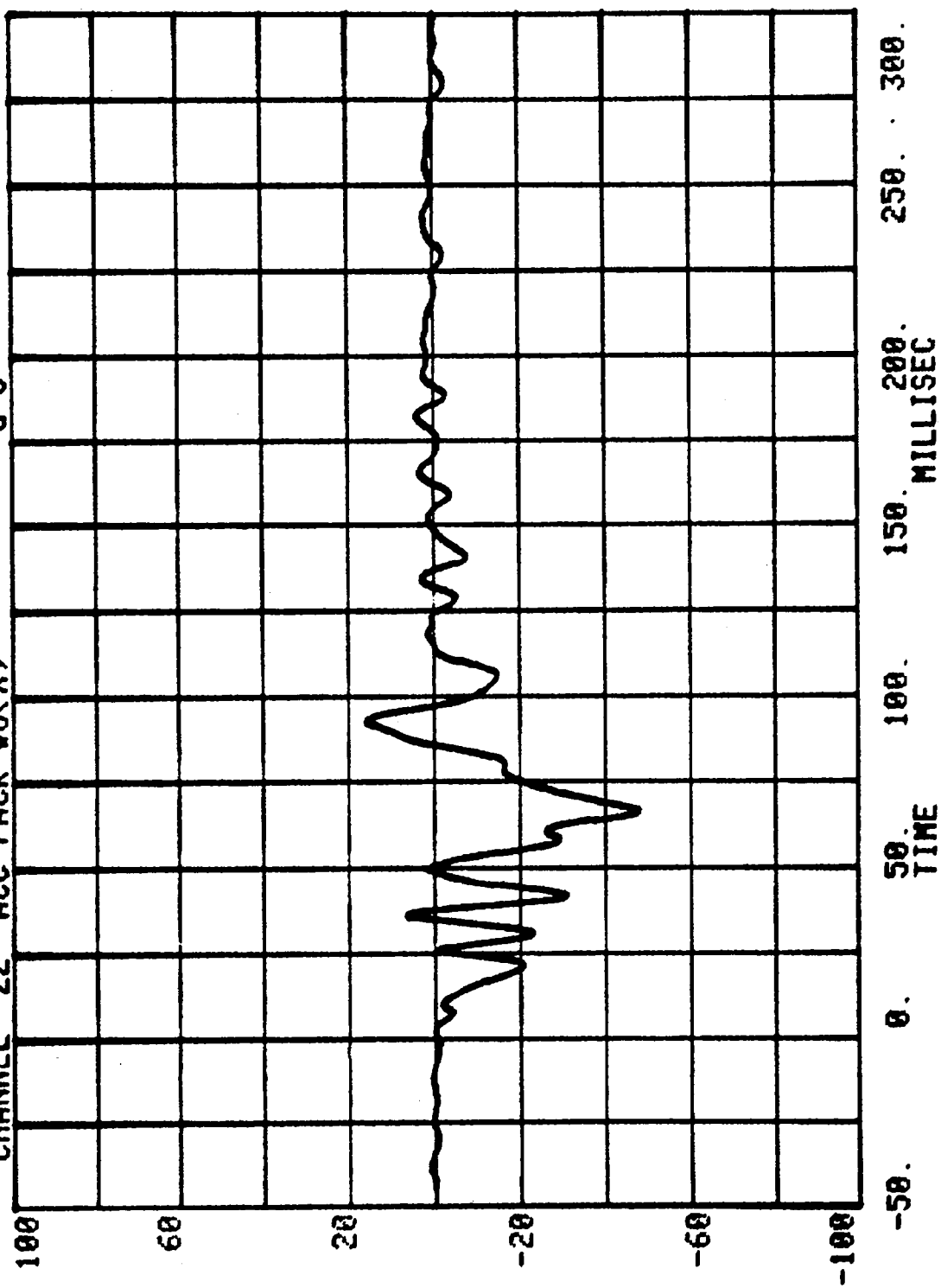




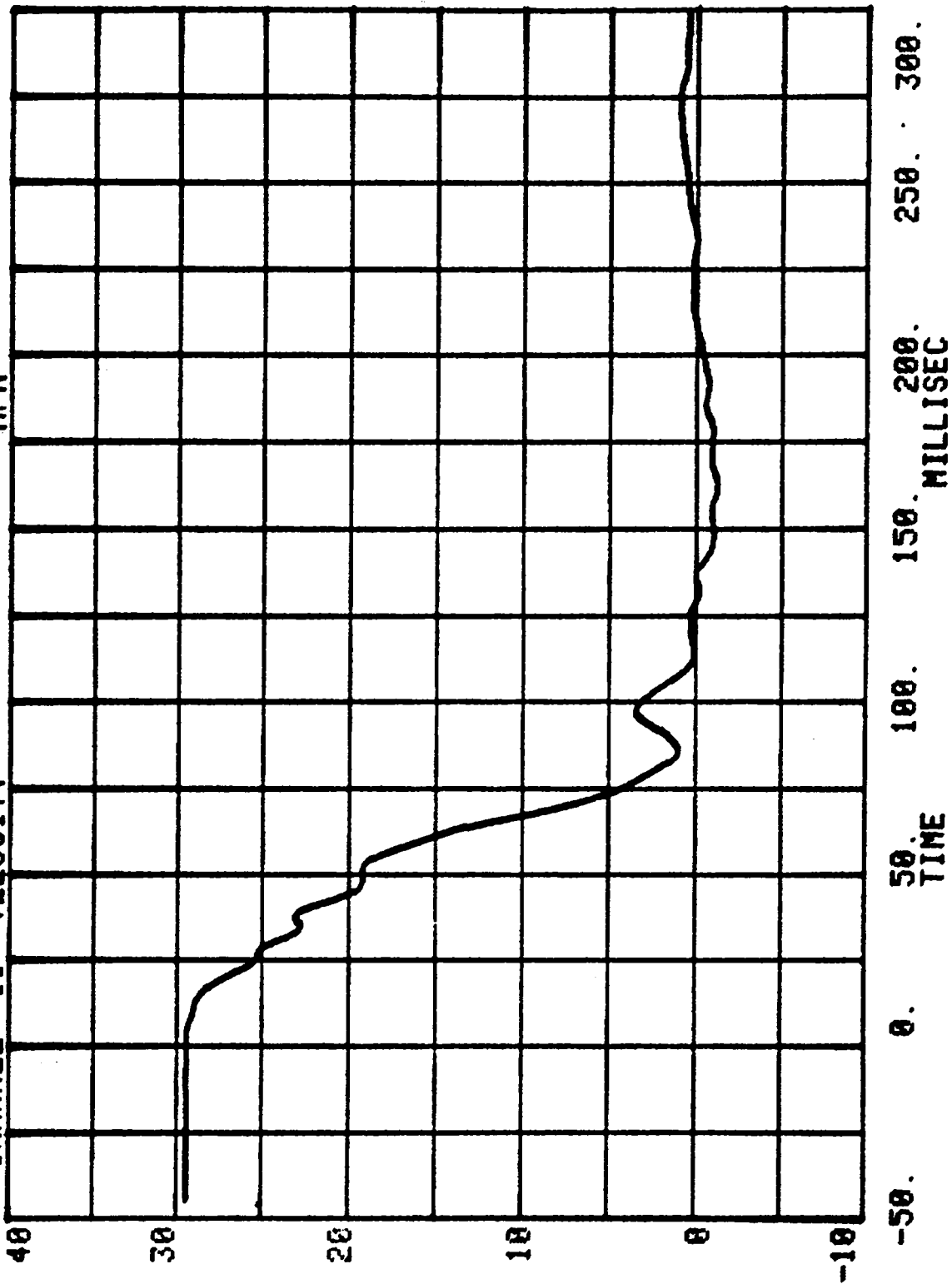
CHANNEL 10 DISPLACEMENT RUN= 843 SERIES= 302 ACC #5(X)

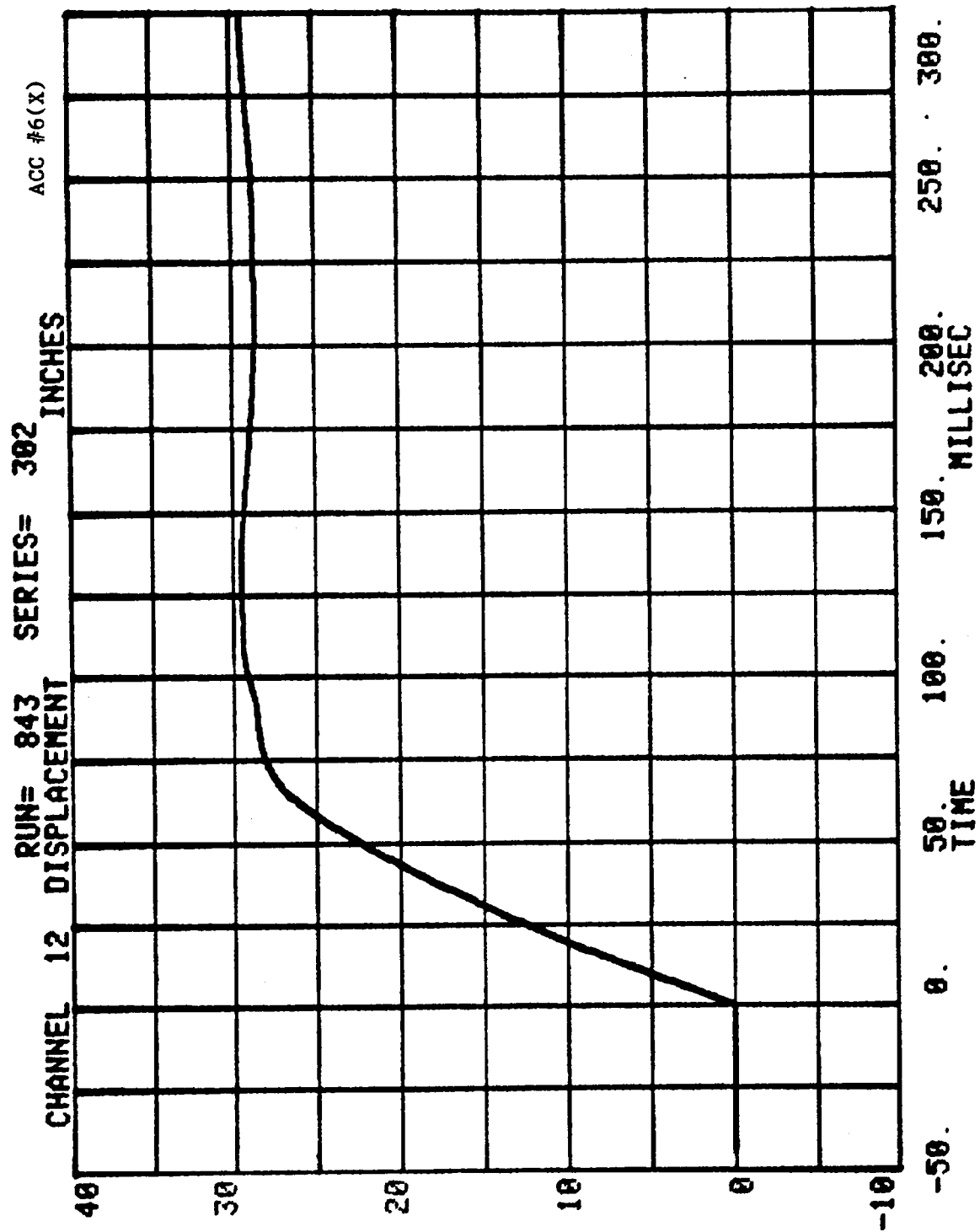


CHANNEL 22 ACC PACK #6(X) RUN= 843 SERIES= 302 G'S

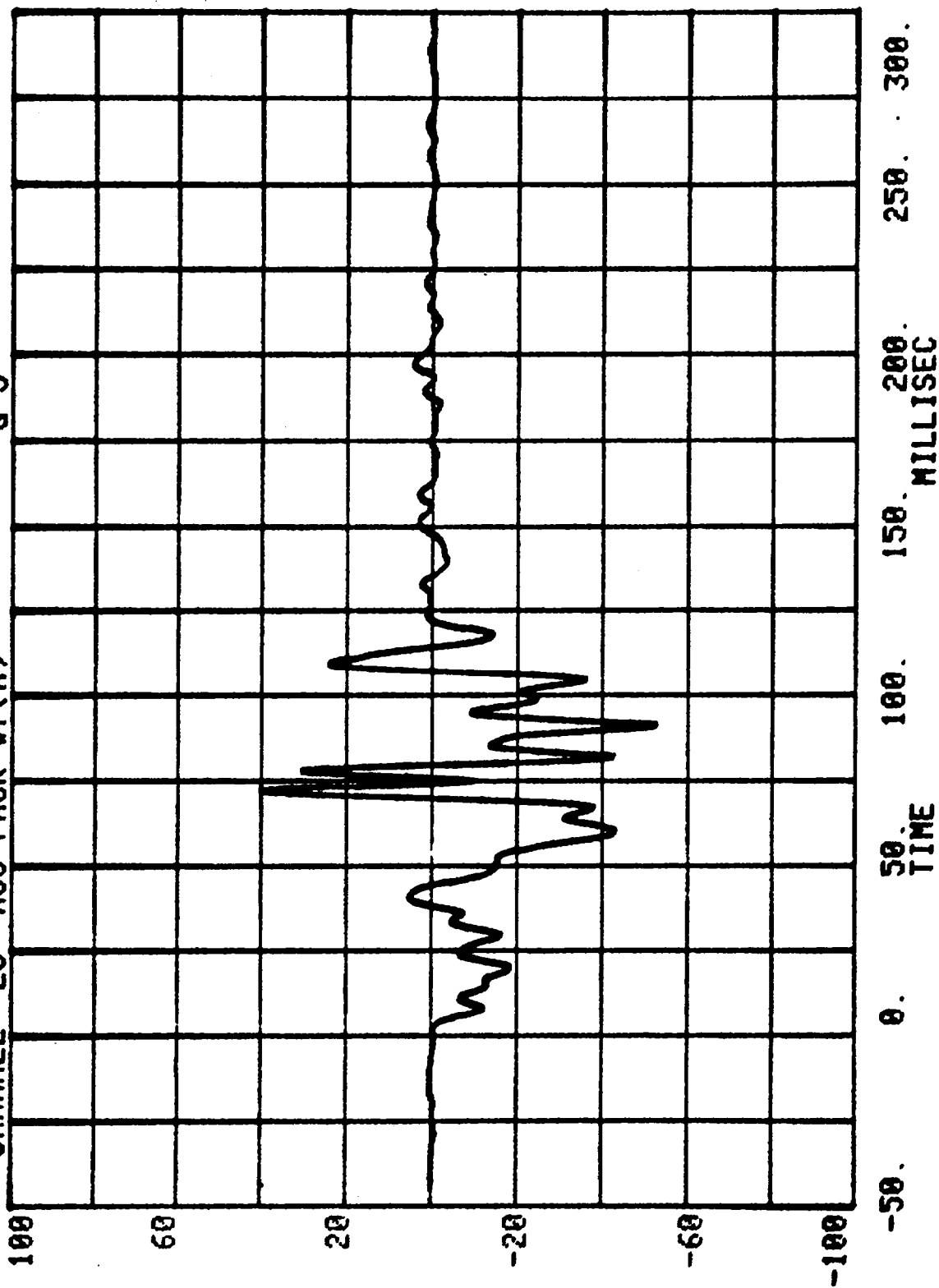


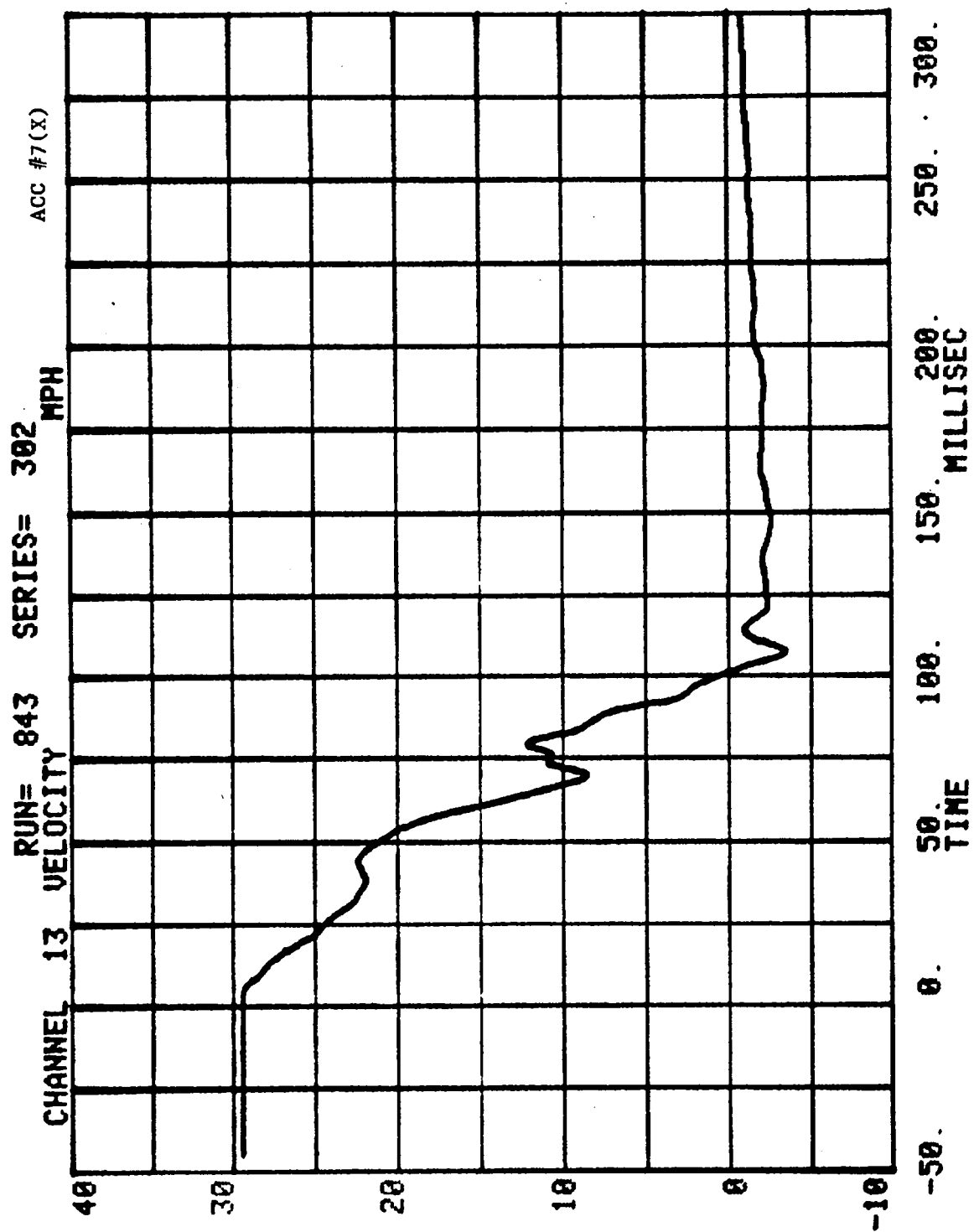
CHANNEL 11 VELOCITY
RUN= 843 SERIES= 302 MPH
ACC #6(X)



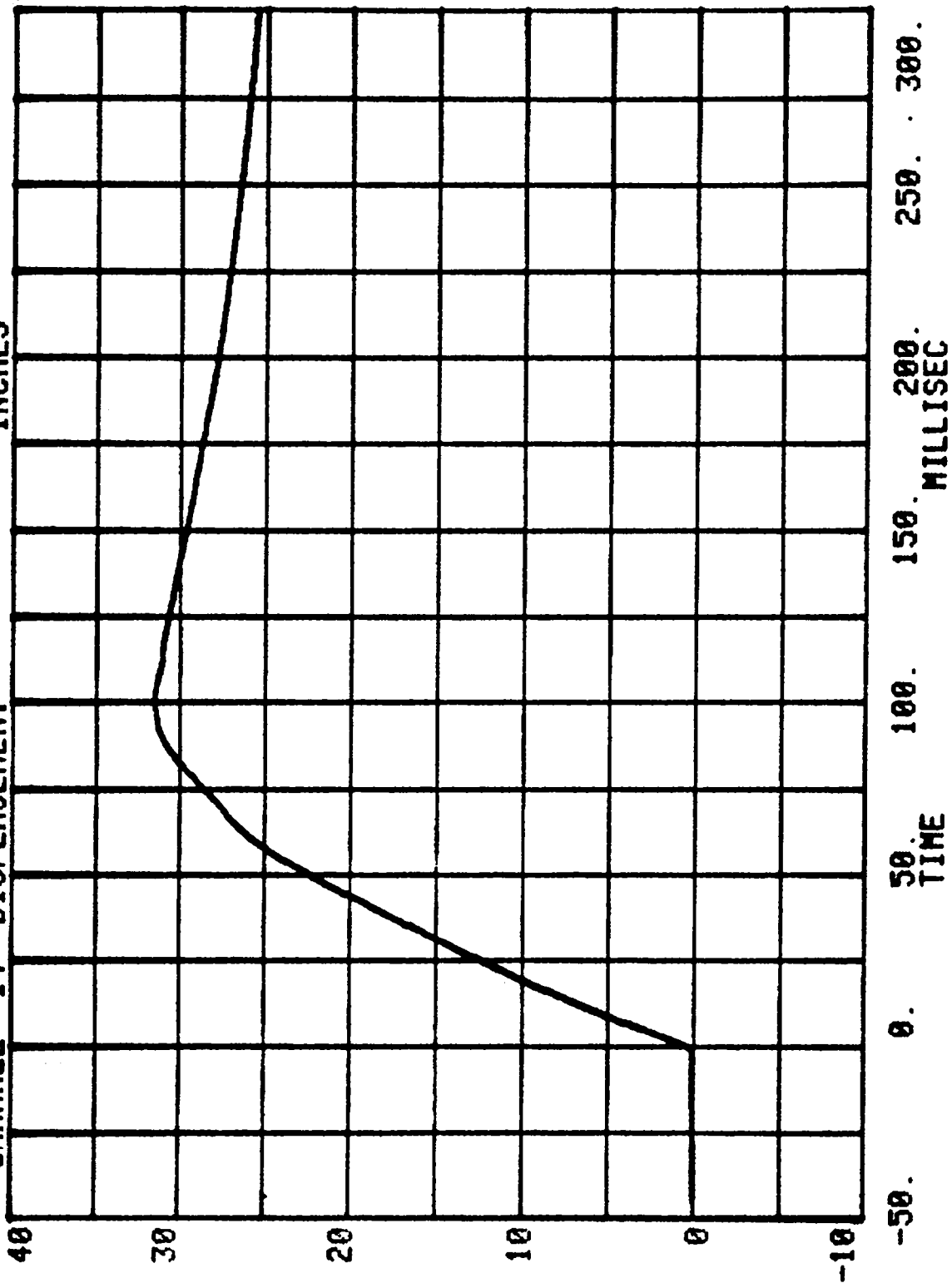


RUN= 843 SERIES= 302
CHANNEL 23 ACC PACK #7(X) G'S





CHANNEL 14 DISPLACEMENT RUN= 843 SERIES= 302 INCHES ACC #7(X)



TEST NO. CJ0302

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

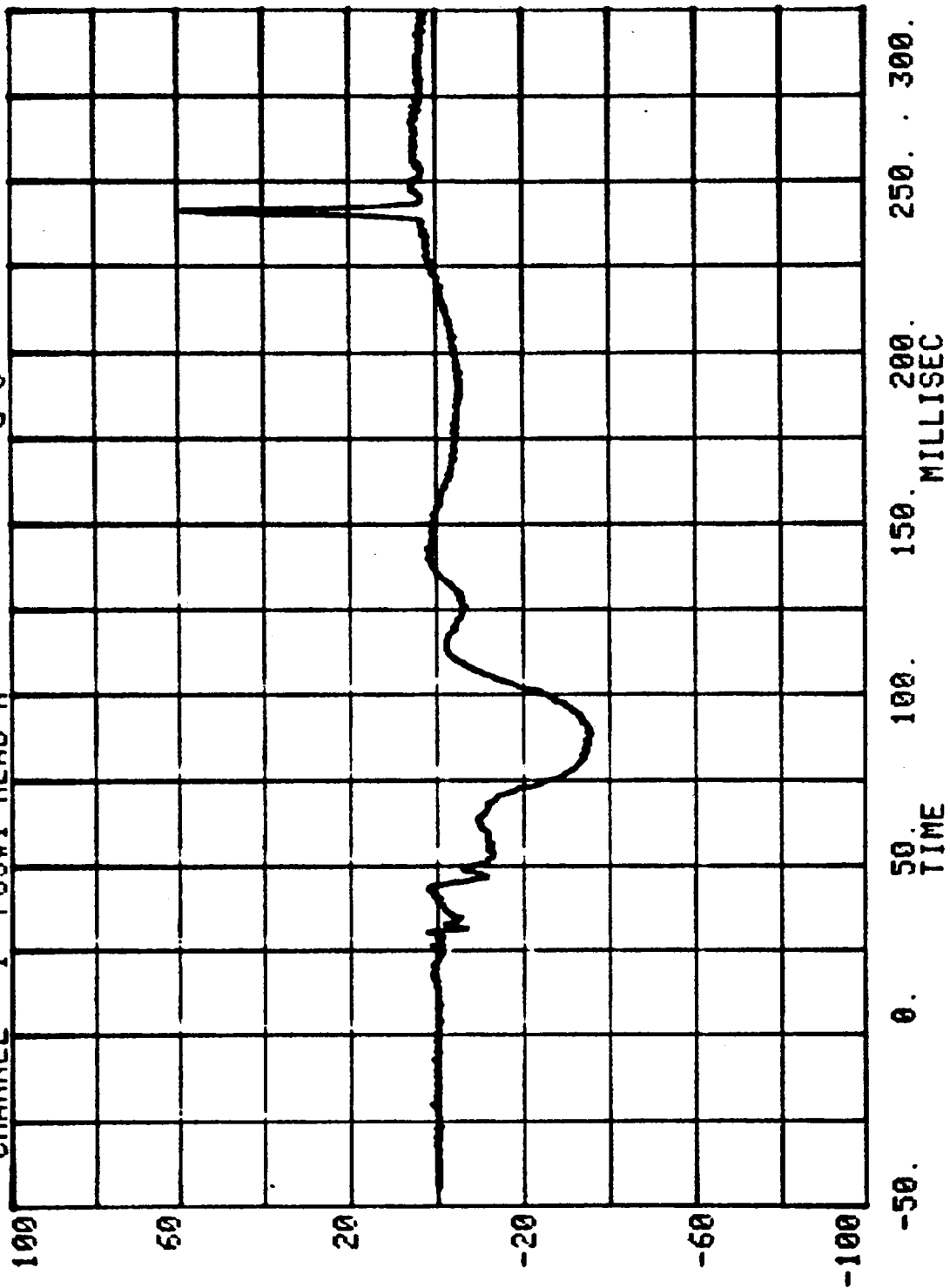
NHTSA CRASH TEST - PROC. 208

RUN= 843

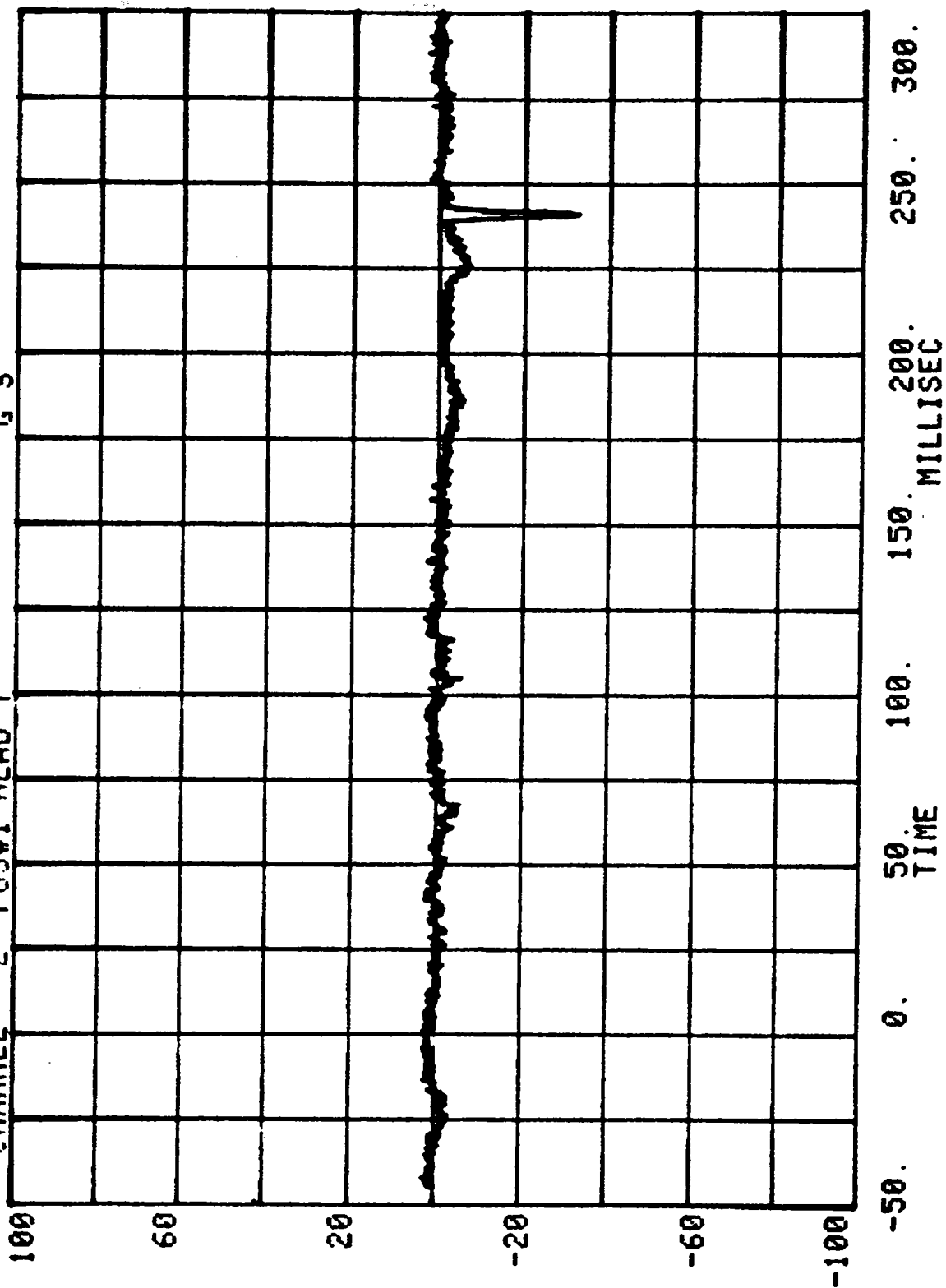
POS#1 HEAD R

HIC= 193.5 FROM T1= .07275 TO T2= .10447
AVERAGE ACCELERATION BETWEEN T1 AND T2= 32.7G'S
EVENT TIME= 300.0 MSEC
SEVERITY INDEX= 303.2

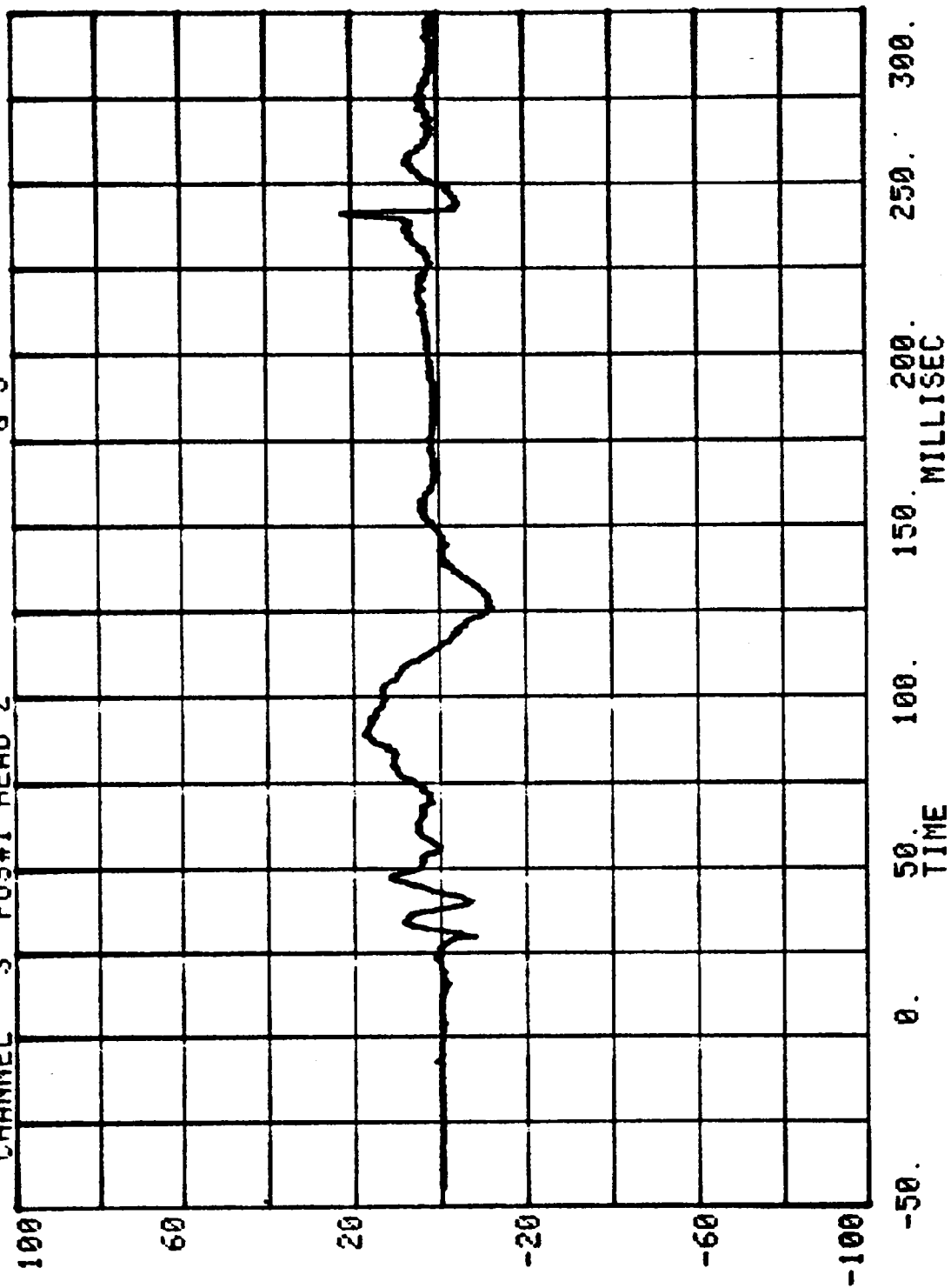
CHANNEL 1 POS#1 HEAD X RUN= 843 SERIES= 302 G'S



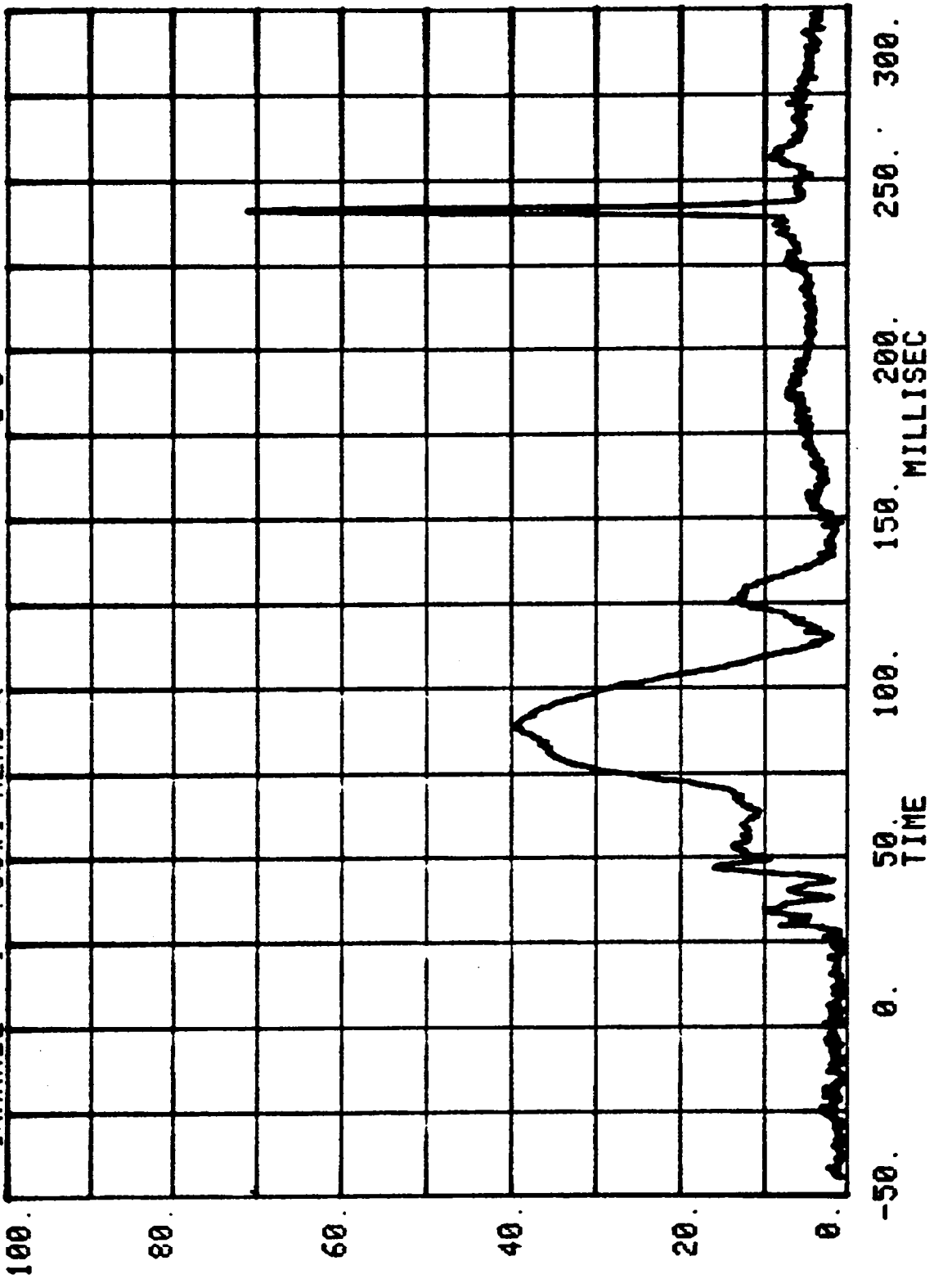
CHANNEL 2 POS#1 HEAD Y
RUN= 843 SERIES= 302 G'S



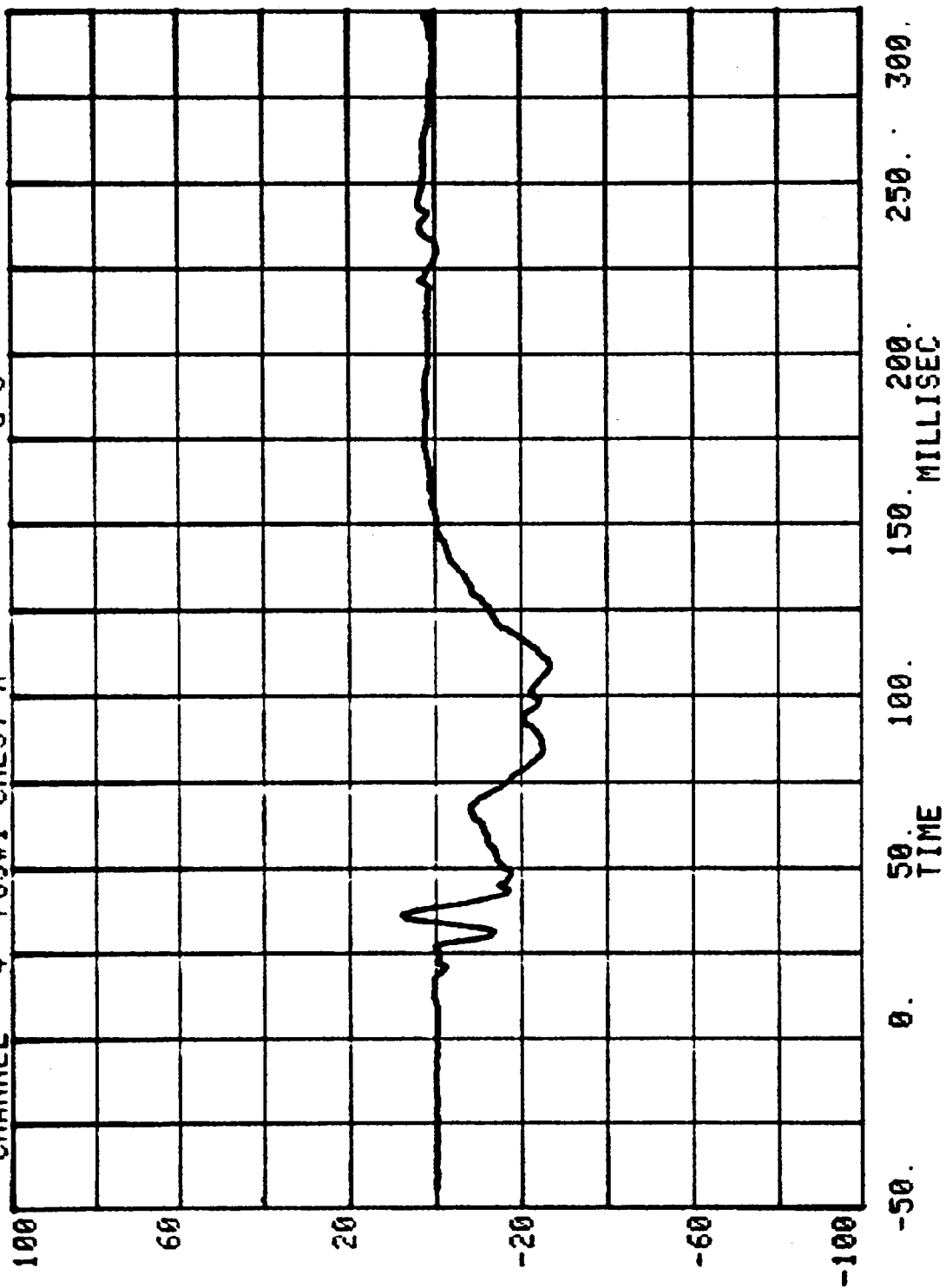
CHANNEL 3 POS#1 HEAD 2 RUN= 843 SERIES= 302 G'S



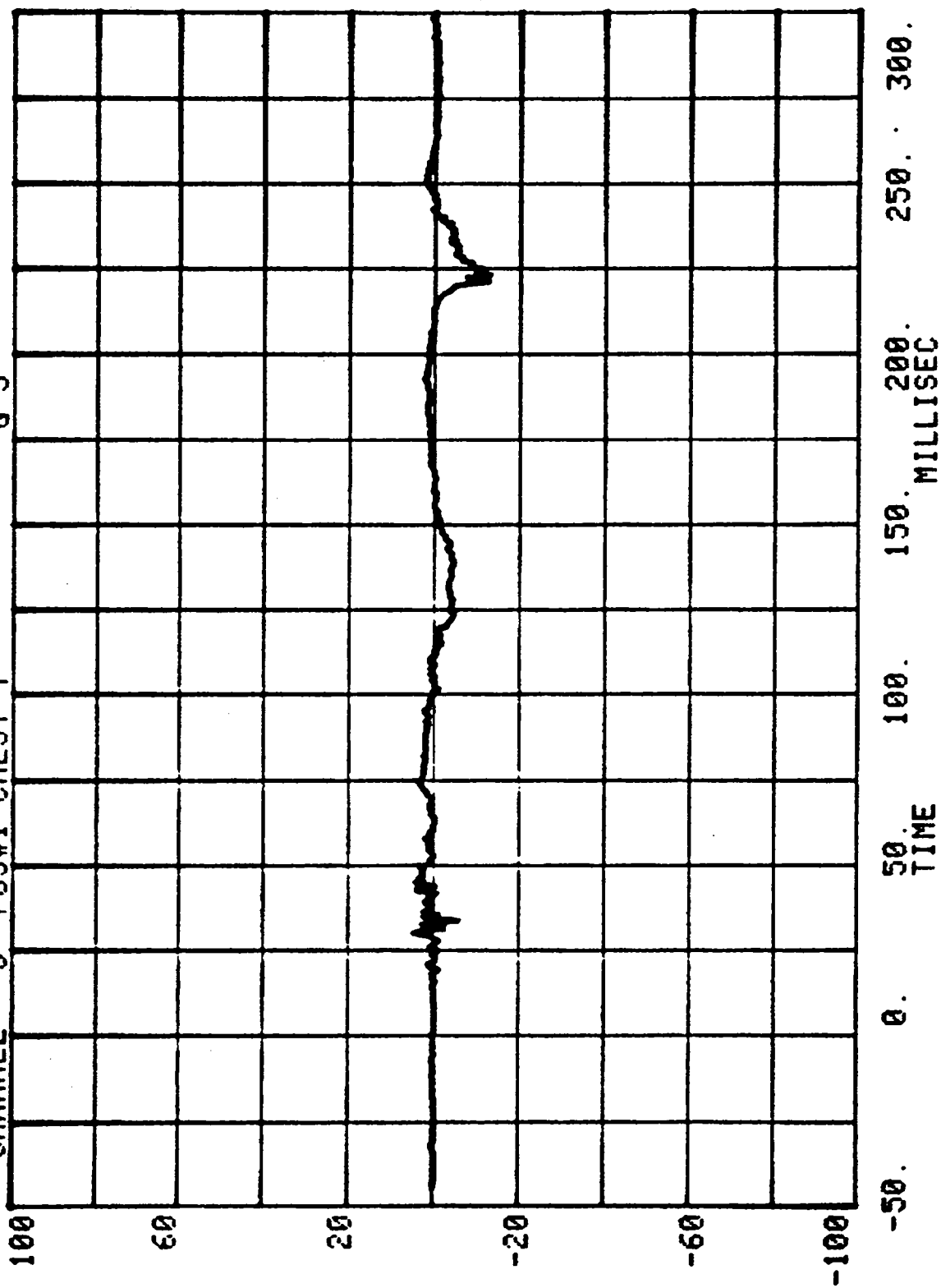
CHANNEL 1 POS#1 HEAD R RUN= 843 SERIES= 302 G'S



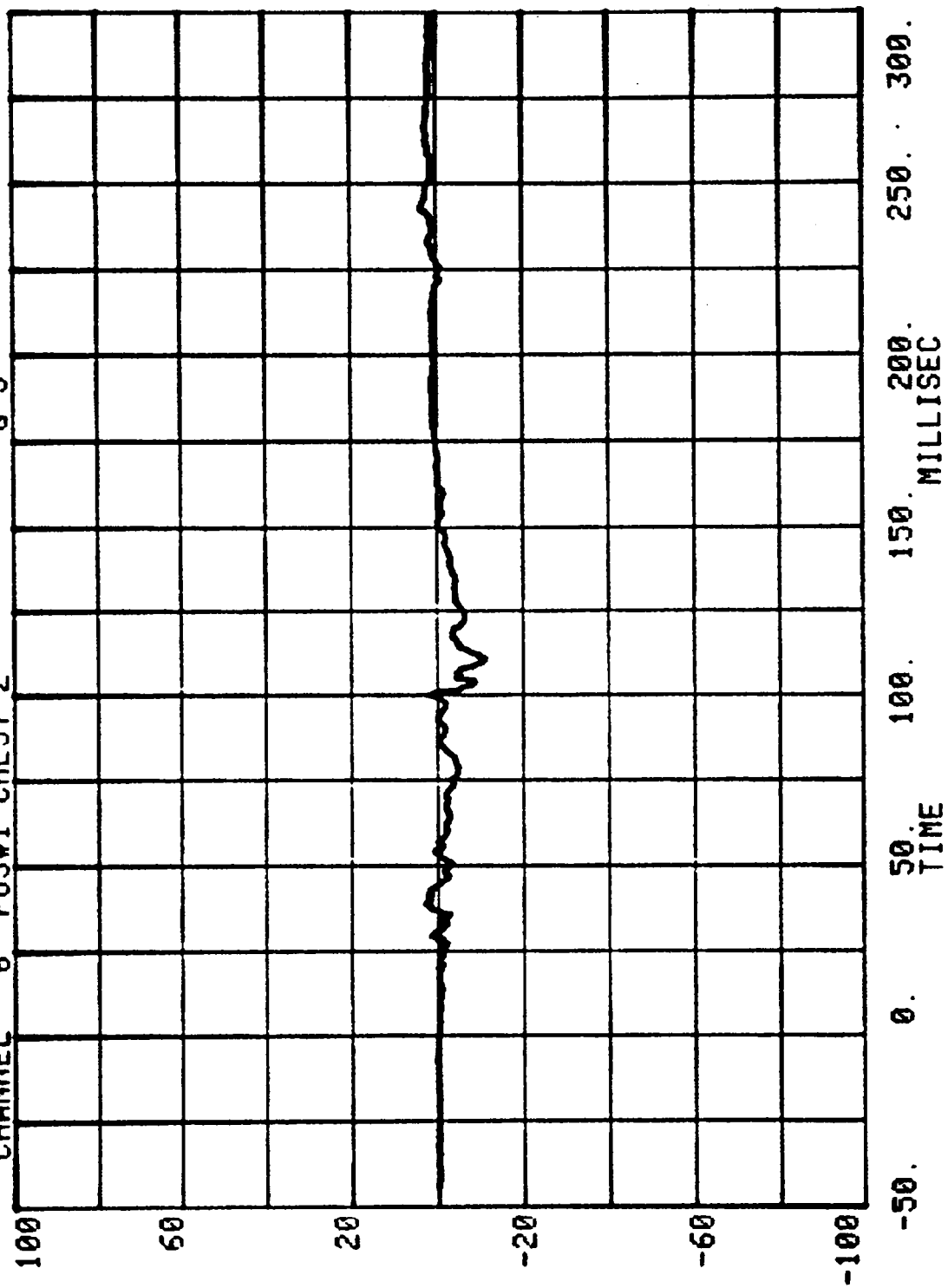
CHANNEL 4 POS#1 CHEST X
RUN= 843 SERIES= 302 G'S



CHANNEL 5 POS#1 CHEST Y
RUN= 843 SERIES= 302 G'S

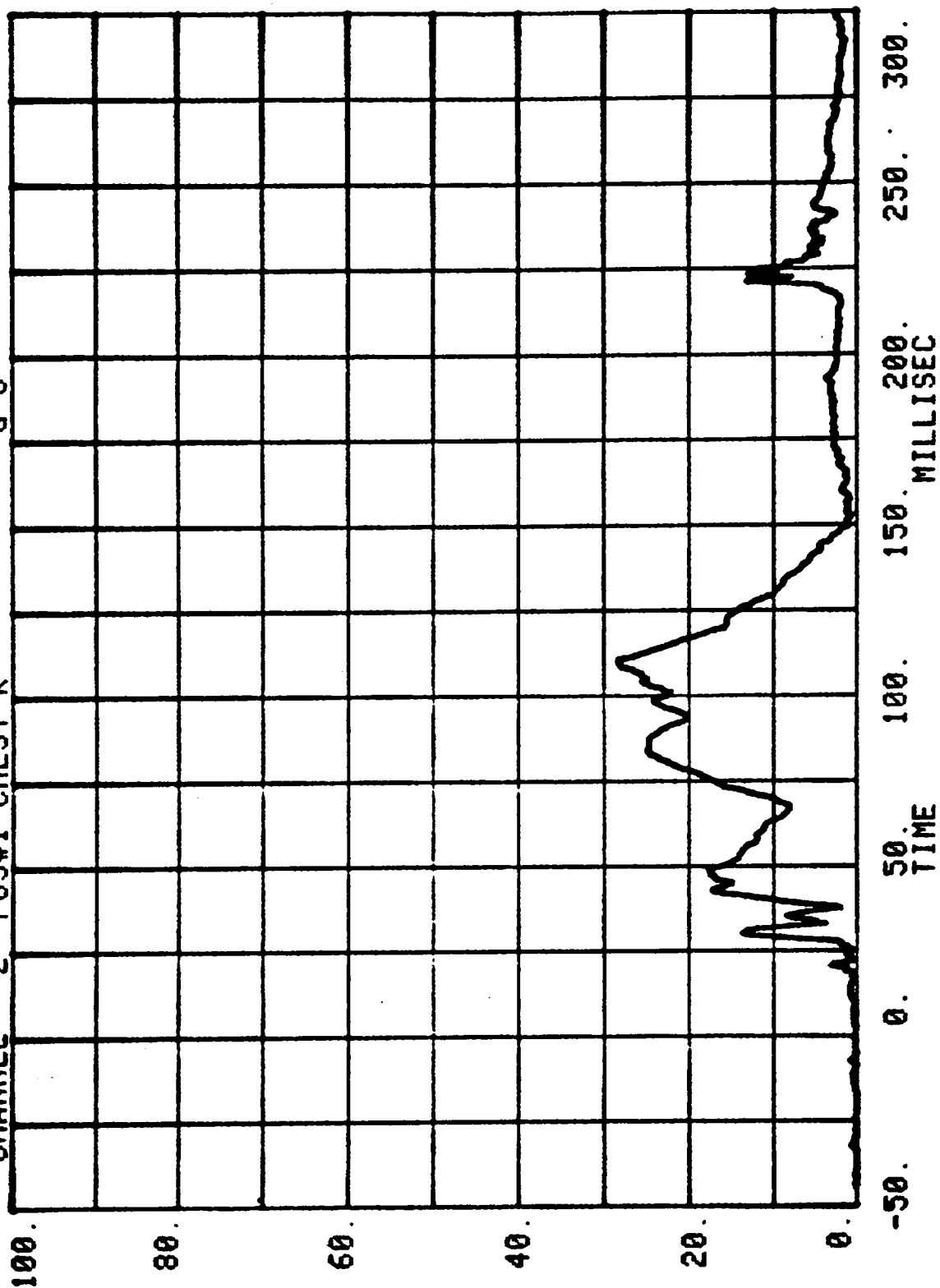


RUN= 843 SERIES= 302 G'S
CHANNEL 6 POS#1 CHEST Z



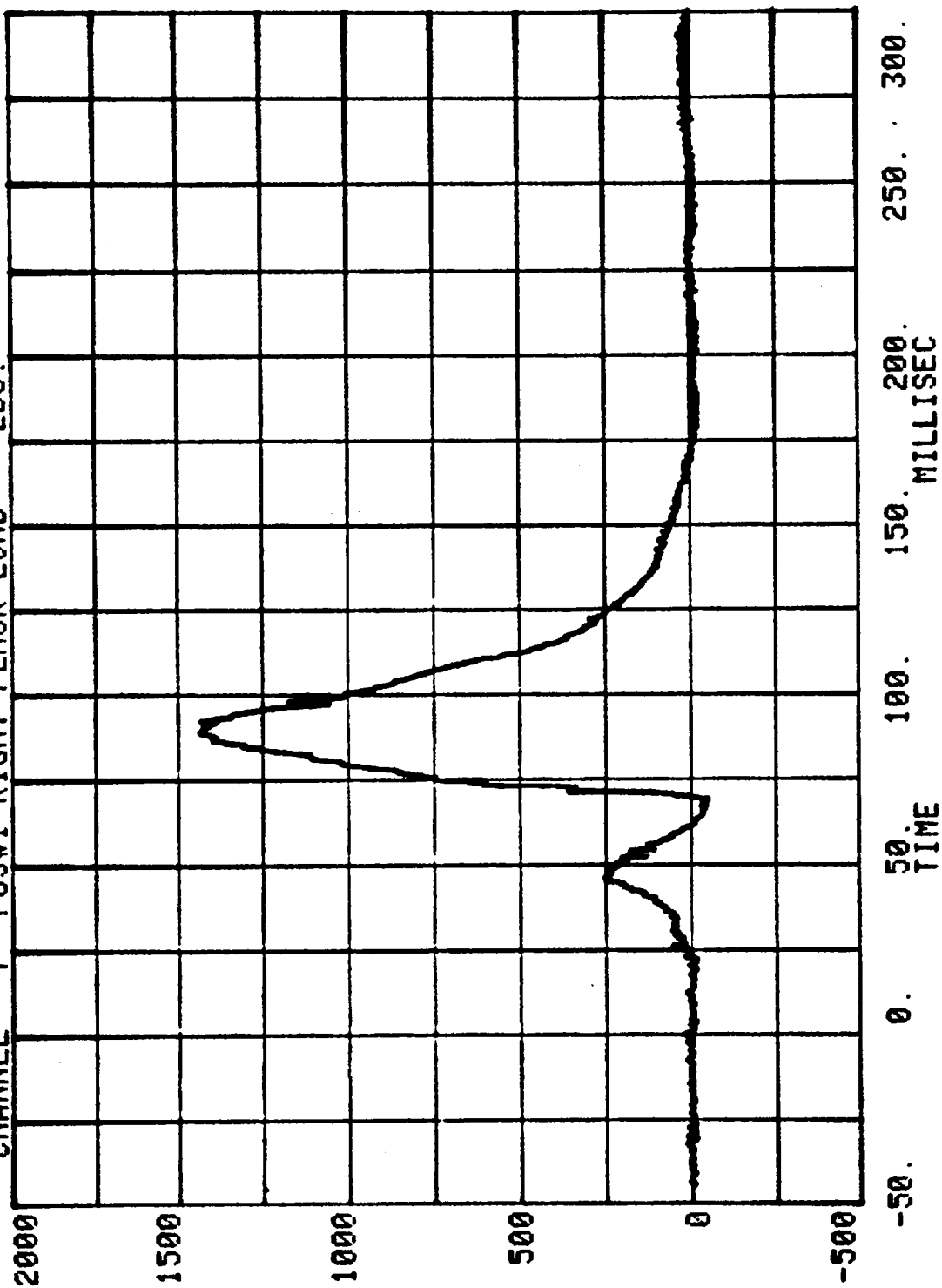
CHANNEL 2 POS#1 CHEST R G'S

RUN= 843 SERIES= 302



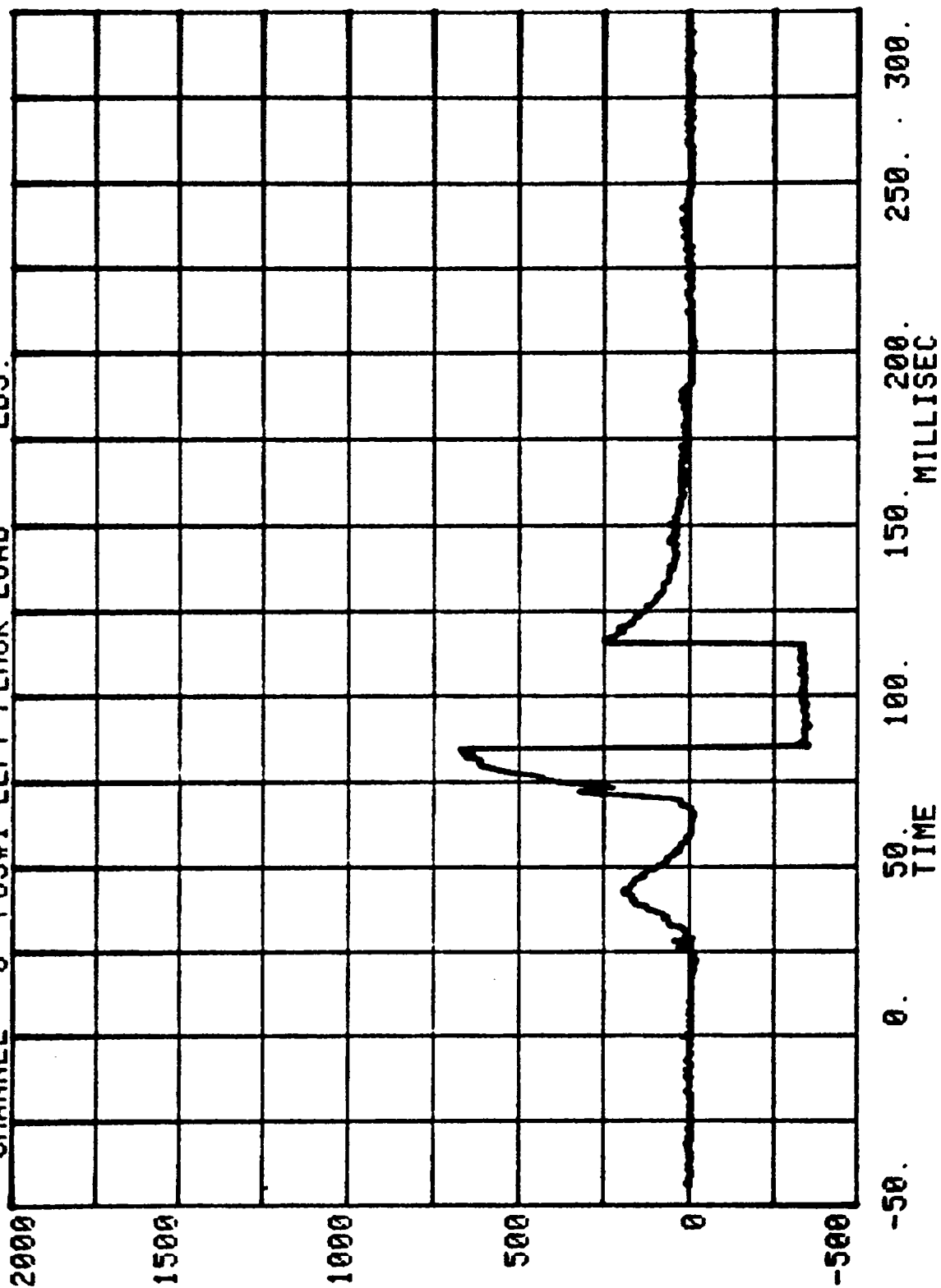
CHANNEL 7 POS#1 RIGHT FEMUR LOAD LBS.

RUN= 843 SERIES= 302



CHANNEL 8 POS#1 LEFT FEMUR LOAD LBS.

RUN= 843 SERIES= 302



HEAD INJURY CRITERION
HEAD SEVERITY INDEX
36MS. MAXIMUM DURATION

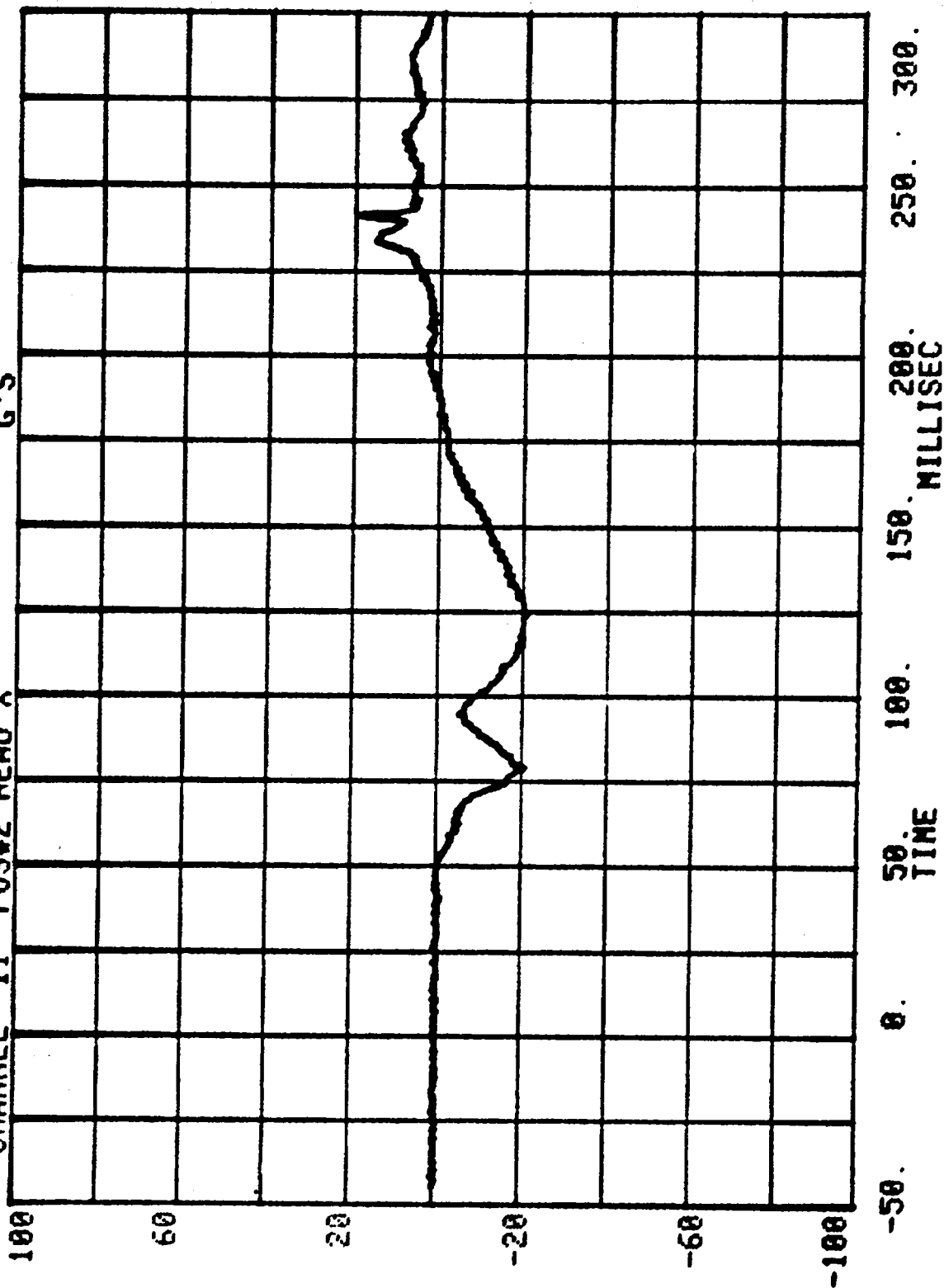
NHTSA CRASH TEST - PROC. 208

RUN= 943

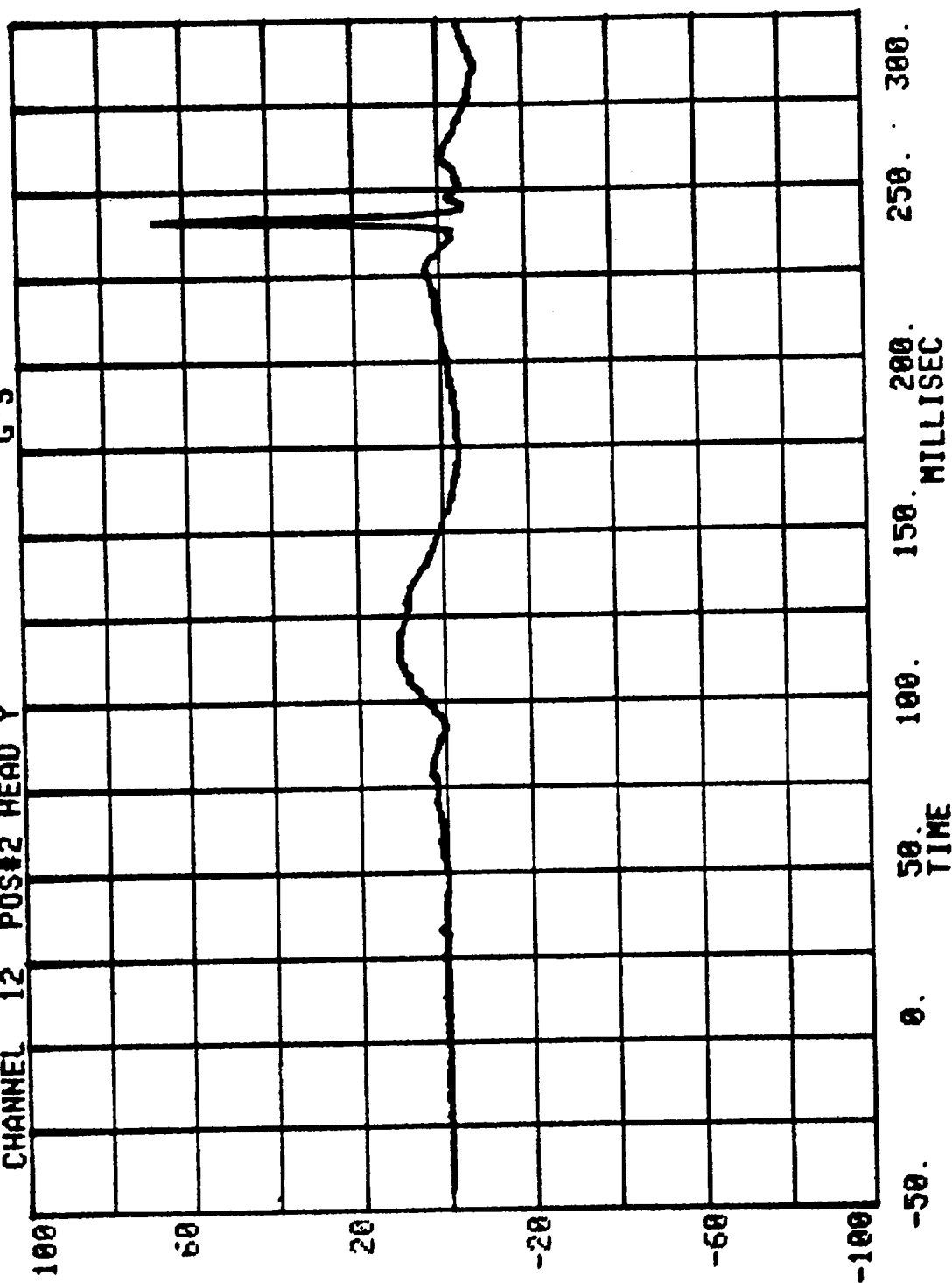
POS#2 HEAD R

HIC= 319.0 FROM T1= .08332 TO T2= .11932
AVERAGE ACCELERATION BETWEEN T1 AND T2= 37.9G'S
EVENT TIME= 300.0 MSEC
SEVERITY INDEX= 543.8

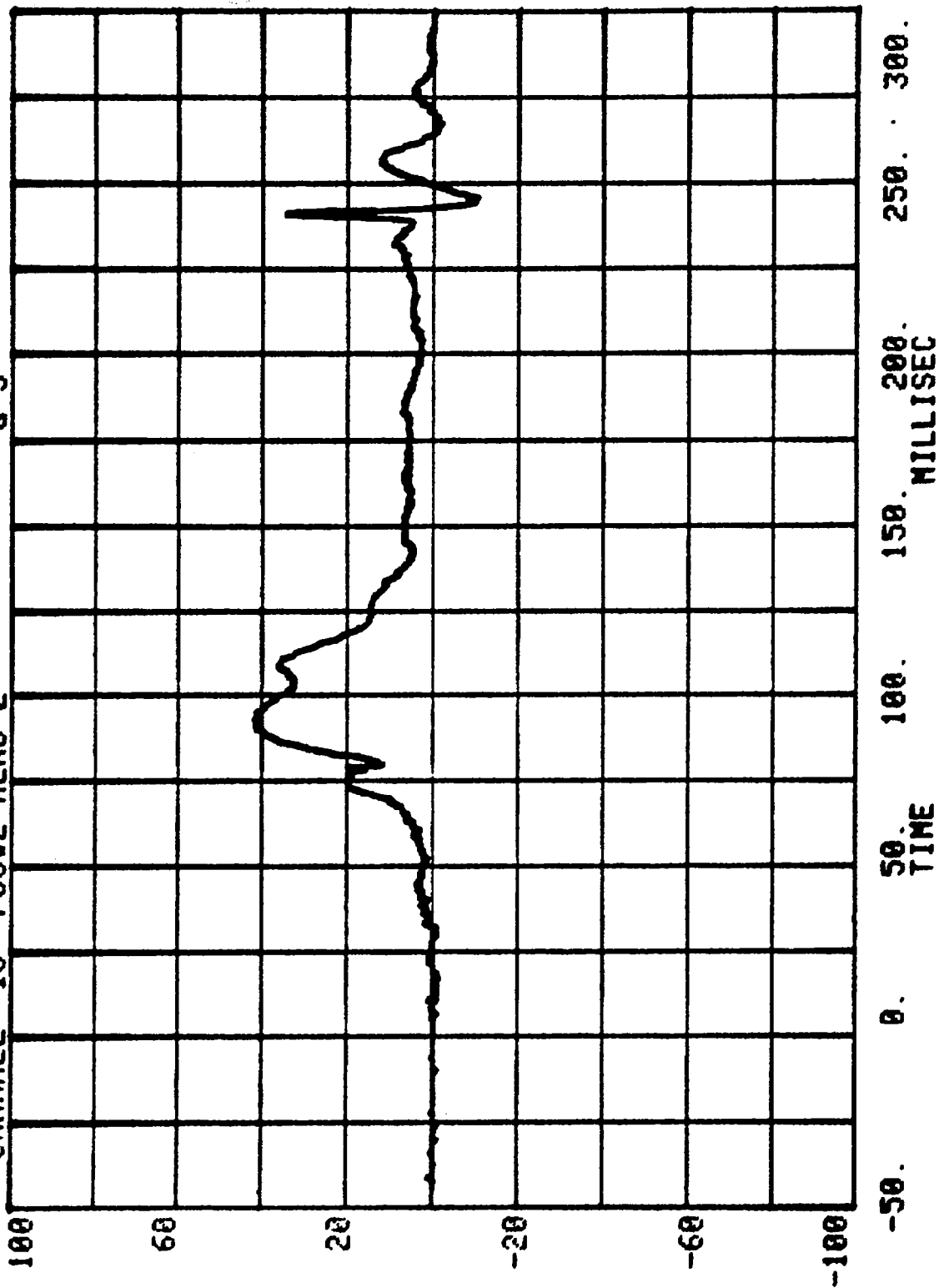
CHANNEL 11 POS#2 HEAD X
RUN= 843 SERIES= 302 G'S



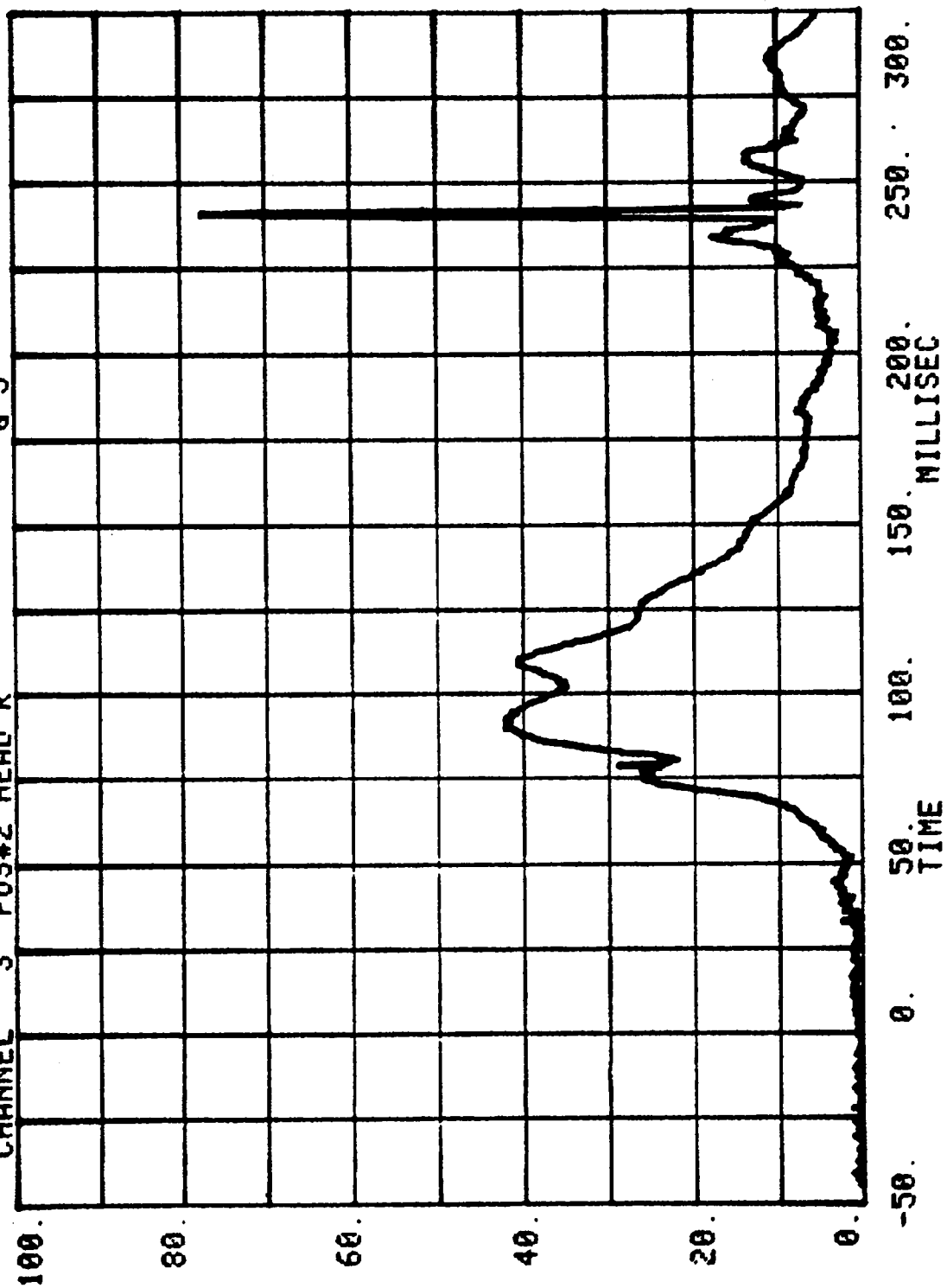
CHANNEL 12 POS#2 HEAD Y RUN= 843 SERIES= 302 G'S



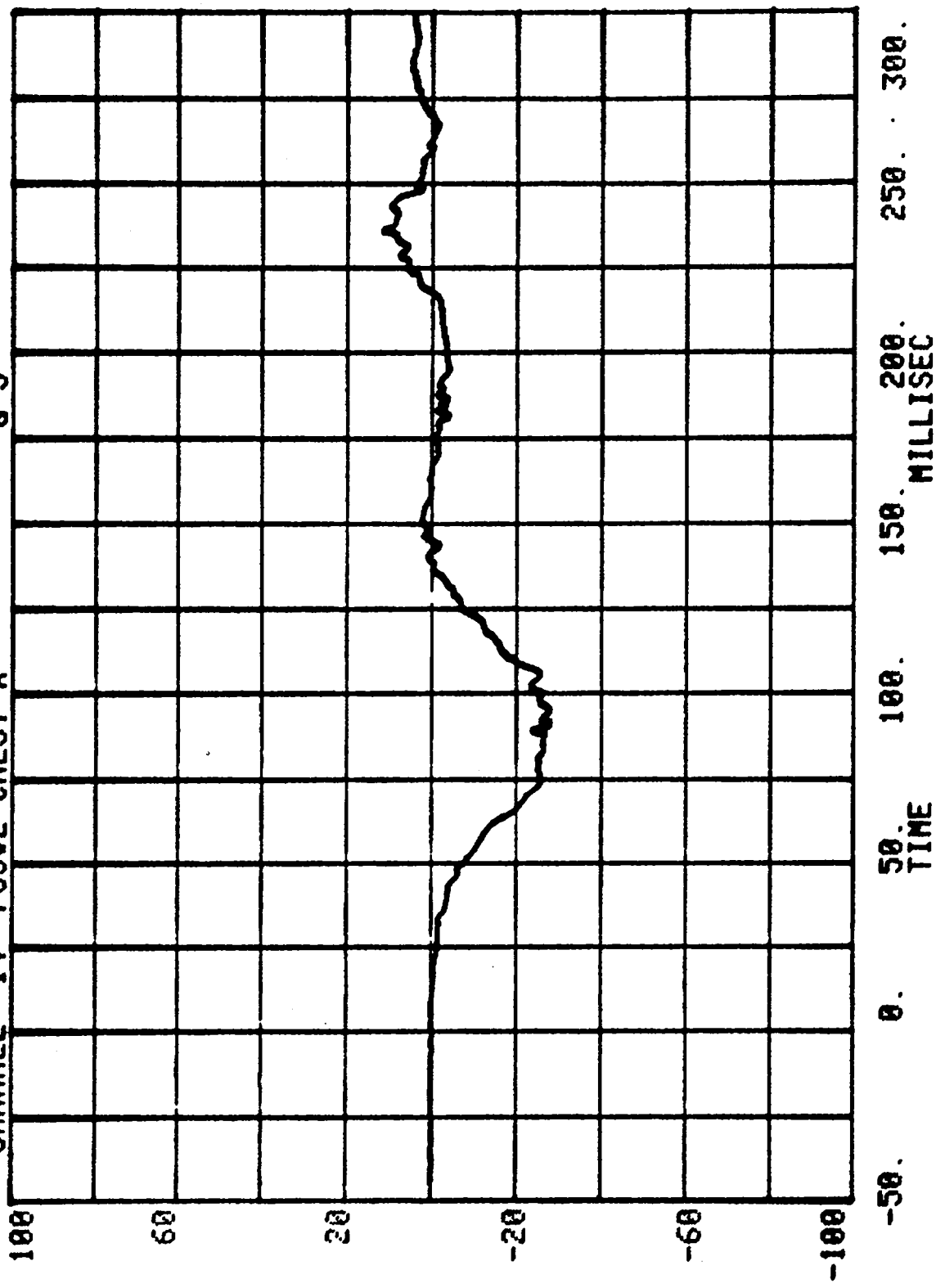
CHANNEL 13 POS#2 HEAD 2 RUN= 843 SERIES= 302 G'S



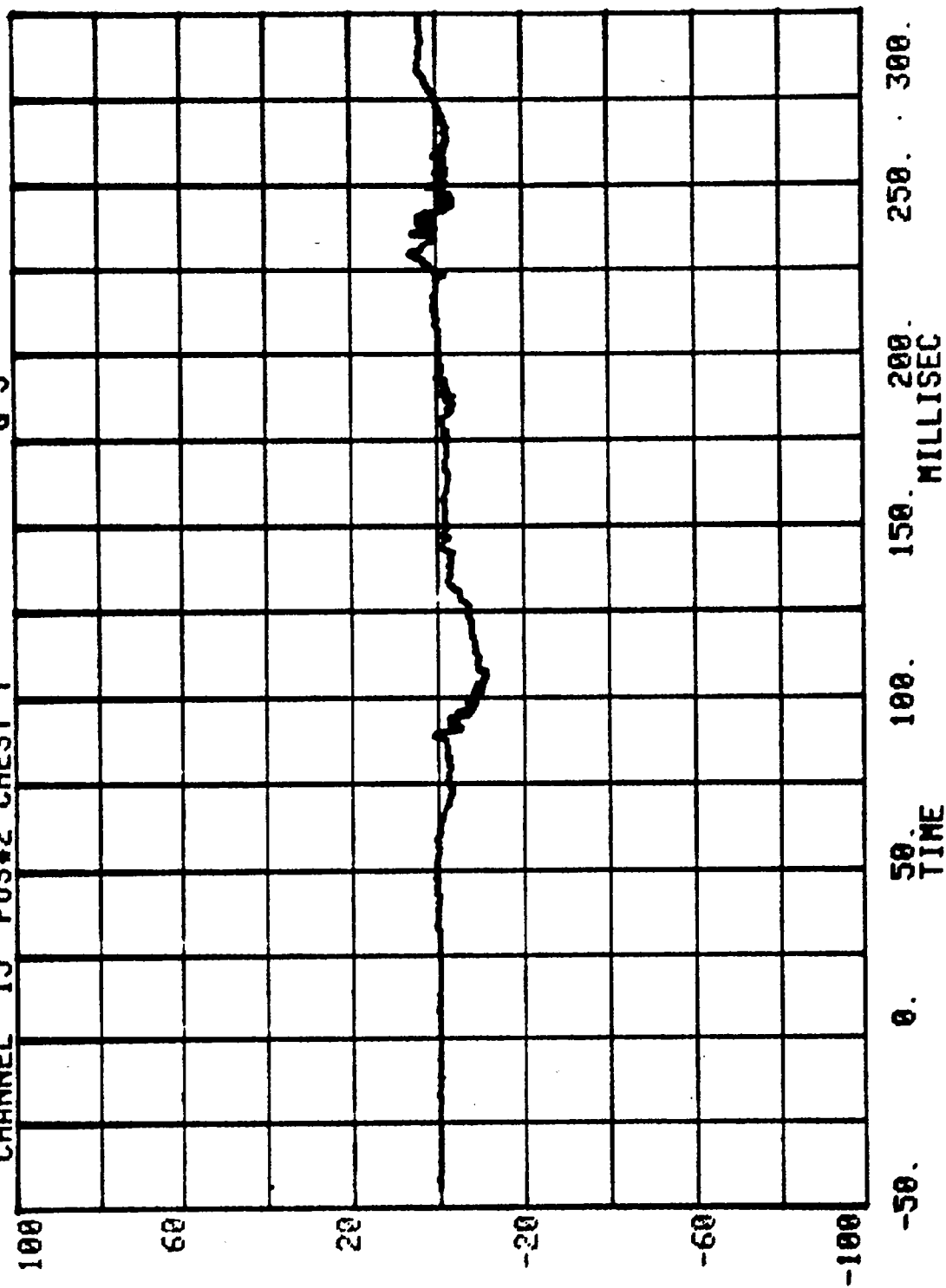
CHANNEL 3 POS#2 HEAD R RUN= 843 SERIES= 302 G'S



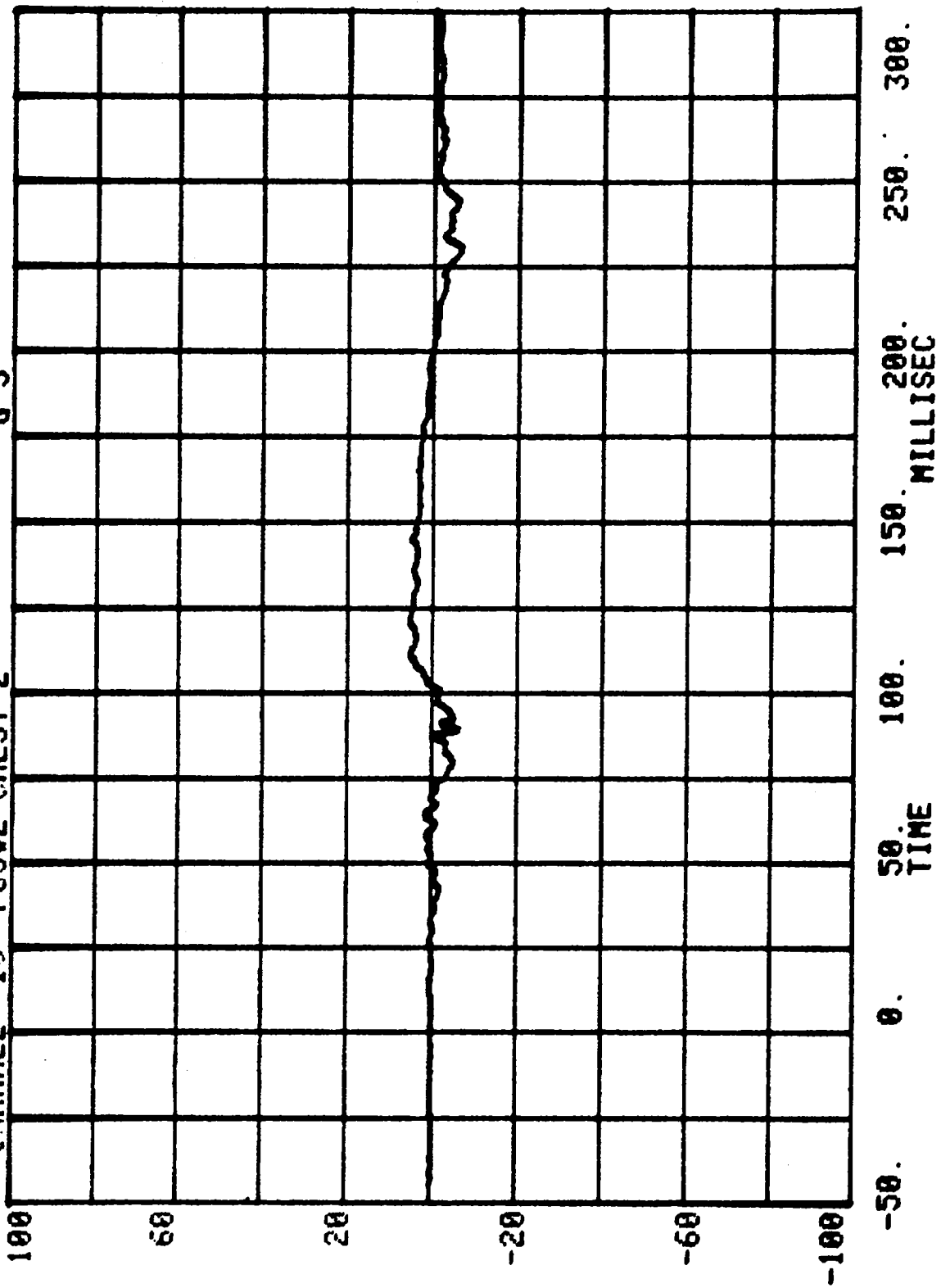
CHANNEL 14 POS#2 CHEST X
RUN= 843 SERIES= 302 G'S



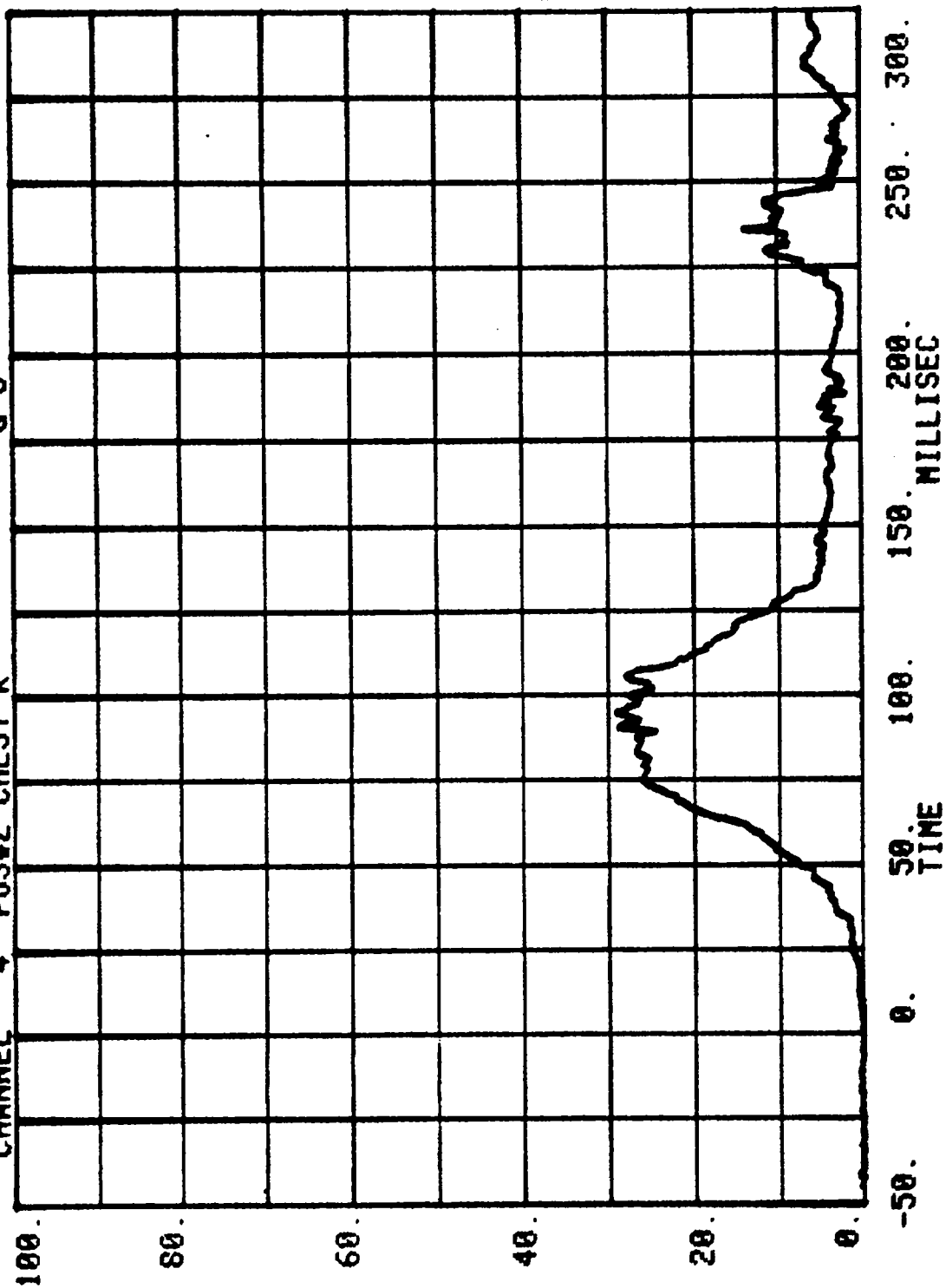
RUN= 843 SERIES= 302
CHANNEL 15 POS#2 CHEST Y G'S



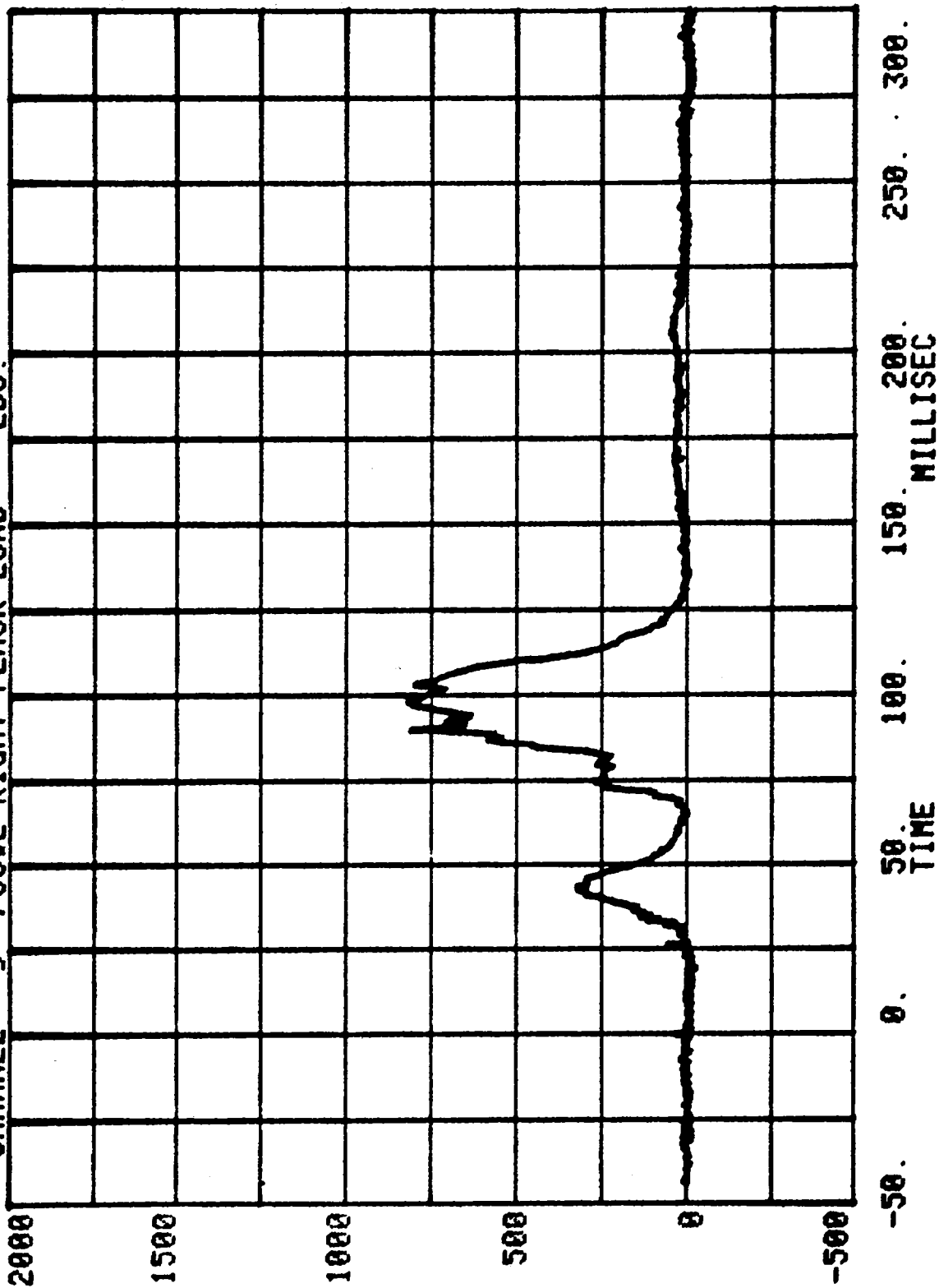
CHANNEL 15 POS#2 CHEST Z RUN= 843 SERIES= 302 G'S



CHANNEL 4 POS#2 CHEST R SERIES= 302 G'S

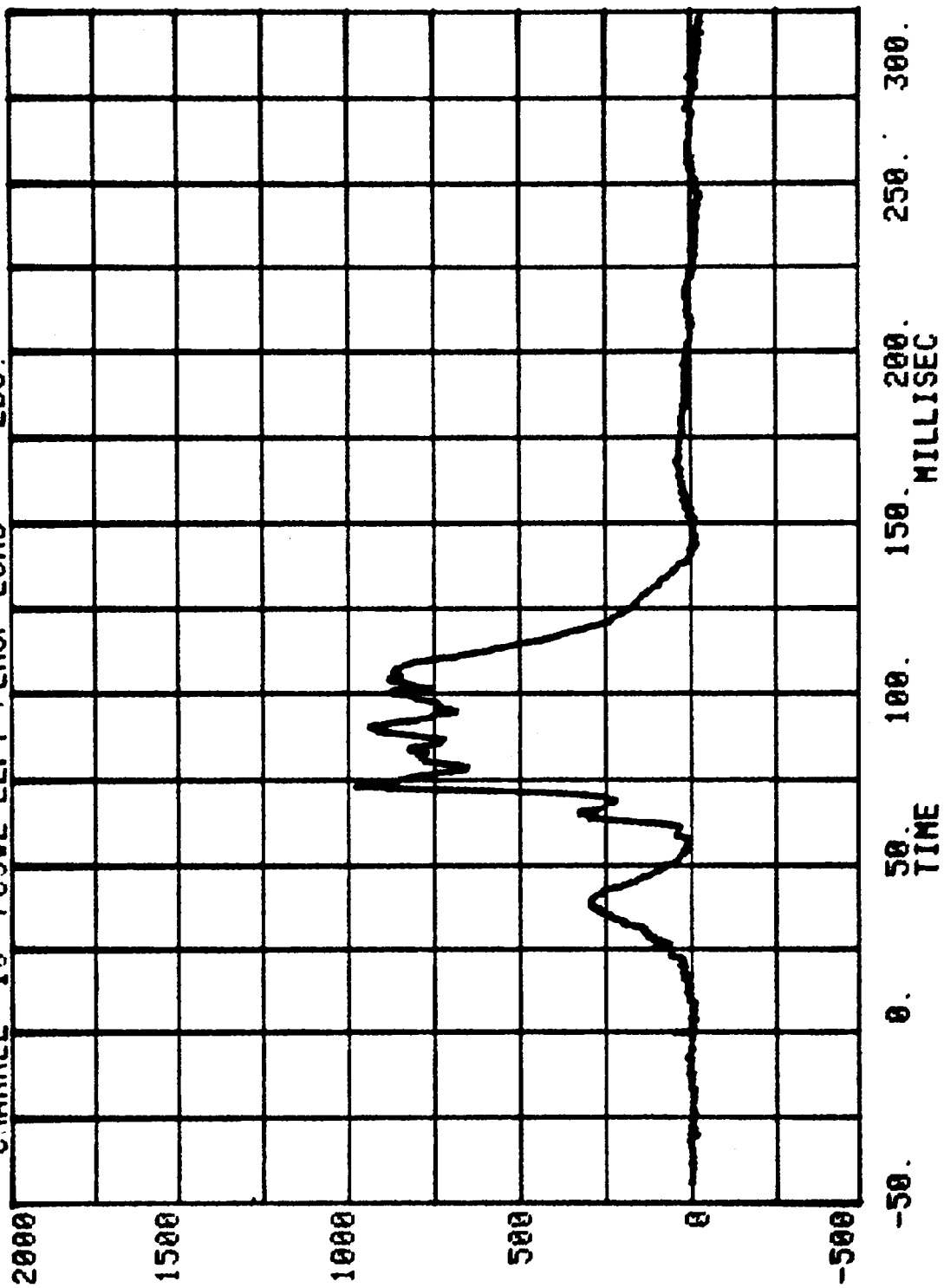


RUN= 843 SERIES= 302
CHANNEL 9 POS#2 RIGHT FEMUR LOAD LBS.



CHANNEL 10 POS#2 LEFT FENUP LOAD LBS.

RUN= 843 SERIES= 302



Appendix C

VEHICLE OWNERS MANUAL OCCUPANT RESTRAINT SYSTEM INSTRUCTIONS

Safety belts provide protection against being thrown from the vehicle as well as reducing the risk of an injury caused by striking the interior of the vehicle.

Front Seats

Your vehicle is equipped with either the Automatic Belt System or the Unibelt System. Use the instructions for the system installed in your vehicle.

Automatic Belt System

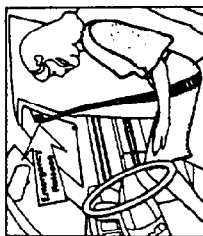
Automatic (passive) seat belts are installed for the driver and right front seat passenger. Automatic seat belts move out of the way when the door is opened and eliminated the need to buckle and unbuckle the shoulder belt. An emergency release is located at the upper door frame, should the need arise to manually release the shoulder belt.

A manual lap belt is also provided at these seating positions. The lap belt must be worn in addition to the automatic shoulder belt in order to obtain the maximum amount of protection afforded by seat belts.

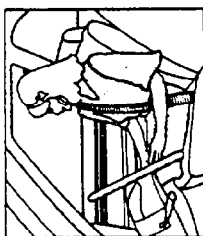
Both the automatic shoulder belt and manual lap belt incorporate an inertia sensitive belt webbing retractor which is designed to lock during very sudden stops or impacts. This feature allows the belt to move freely with the wearer under normal conditions, and locks the retractor only when the whole vehicle is tipped or jolted. These belts will also lock if the webbing is jerked or pulled rapidly from the retractor, allowing you to test the locking function.

Automatic Belt Operating Instructions

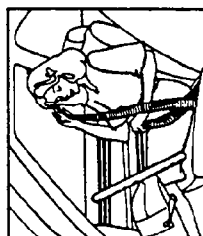
When the vehicle door is opened, the upper portion of the shoulder belt will swing out with the door.



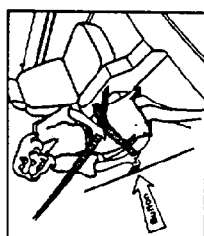
1. Enter the vehicle, sit behind the shoulder belt, and close the door. Sit well back and erect and adjust the seat. The shoulder belt will be automatically positioned when the door is closed.



2. Adjust the shoulder belt, if necessary, so that it is comfortably and properly positioned across your chest and shoulder, as shown in the illustration. If the belt is too loose, pull it toward the console and the retractor will take up the excess belt webbing.



3. Grasp the metal tip of the lap belt and pull the belt toward the buckle. Insert the metal tip into the buckle until a "click" is heard. Snug the belt against your hips and ensure that it is not twisted. If the belt is too loose, pull it toward the console and the retractor will take up the excess belt webbing.



4. To release the lap belt, press the red button marked "Press" on the buckle. The belt will automatically retract to its stowed position when the button is pressed.

WARNING

The lap belt must be used in addition to the automatic shoulder belt to provide full occupant restraint. Both belts must be worn properly for maximum effectiveness. The automatic torso belt must be positioned midway on the shoulder and should not touch or cross the neck. The lap belt should be positioned across the hips, not across the stomach. Never use these belts for more than one person at a time.

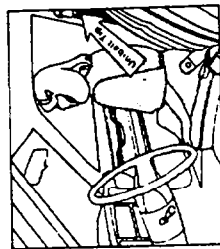
Failure to follow these instructions could increase the chance of severe or fatal injury in the event of an accident.

Unibelt System

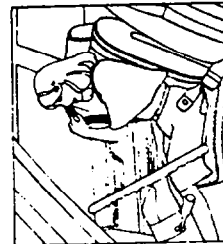
The "UNIBELT", or single continuous belt restraint system, is installed for the driver and front seat passenger. The unibelt system incorporates an inertia sensitive belt webbing retractor which is designed to lock (i.e., prevent belt travel) *only during very sudden stops or impacts*. This feature allows the shoulder belt to move freely with the wearer under normal conditions. *The retractor will not lock by jerking or pulling the webbing rapidly by hand.*

Unibelt Operating Instructions

1. Enter the vehicle and close the door. Sit well back and erect and adjust the seat. Note the metal tip of the unibelt in its stowed position.



2. Grasp the metal tip and slide it up the webbing as far as necessary to go around your lap as you pull out the webbing. A couple of tries and this will become an automatic one-handed operation.



3. As you pull the webbing across your lap and over your shoulder, move the metal tip toward the buckle.

Insert the tip into the buckle until a "click" is heard.

Do not wear the shoulder belt under your arm or otherwise out of position. Such use could increase the chance of severe or fatal injury in an accident.

4. Position the lap belt with the upper edge of the belt drawn across the

thighs and snug against the hips. Slack will automatically be removed due to tension created by the retractor. If a snug fit in the lap belt portion is desired, pull up on the shoulder belt as shown. A snug belt reduces the risk of sliding under the belt in a collision.



5. Position the shoulder belt on your chest so that it is comfortable and not resting on your neck. Any slack in the belt will be withdrawn automatically by the retractor.

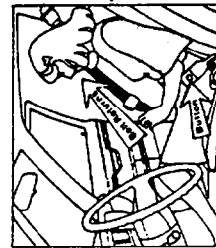


If the shoulder belt feels too tight, pull about an inch of webbing from the retractor; just enough to allow your closed fist to fit between the belt and your chest. This small amount of slack will be retained by the retractor.



The amount of slack in the shoulder belt should be kept to a minimum. Too much slack may prevent the belt from properly restraining you in the event of an accident.

If the slack is not retained, pull out 6 to 8 inches of webbing, let it return to your chest, and repeat the procedure.



The shoulder belt will allow unrestricted movement of the upper body under normal conditions. Extreme movements will probably require resetting the slack. The retractor will lock in the event of an accident.

6. To release the belt, push the button on the buckle. The belt will automatically retract to its stowed position when the door is opened.

If needed, slide the tip down the webbing to allow the belt to fully retract.

Rear Seats

Lap Belts

Both rear seats are equipped with lap belts. The belts should be worn with the upper edge of the belt drawn across the thighs and snug against the hips. To reduce the risk of sliding under the belt in a collision, it should be adjusted as tight as comfort will allow, **WHILE SITTING WELL BACK AND ERECT IN THE SEAT.**

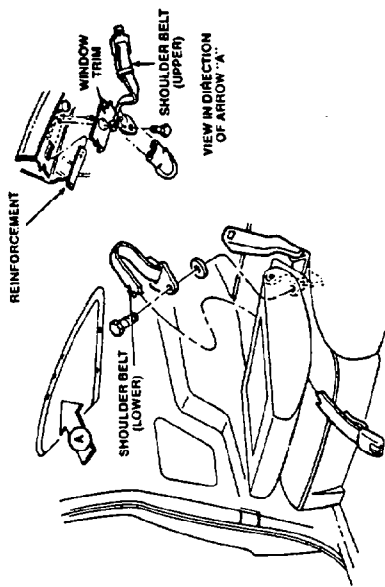
The rear seat positions are equipped with automatic locking retractors. These retractors will lock if the webbing is pulled or jerked after withdrawal from the retractor. To don the safety belt, withdraw the belt from the retractor in a continuous motion, forward and upward away from the seat, until the belt is extended as far as possible. Bring the belt across the body and insert the latch plate in the buckle until a "click" is heard. If the belt has not been pulled out far enough to reach the buckle, return the belt to its stowed position. This will unlock the retractor so that the belt can be pulled out a greater amount. Tighten the belt by pulling the webbing back toward and into the retractor until the belt fits snugly on the hips.

Never use the same lap belt on more than one person at a time.

Optional Rear Shoulder Belts

If you carry rear seat passengers in your vehicle, shoulder belts can be installed in the rear outboard seat positions by your dealer. The use of shoulder belts in addition to lap belts may increase occupant protection in some types of accidents.

The following graphic shows the location of the shoulder belt anchorages for the right and left rear seat positions. Special reinforcing hardware must be added at the upper anchorages when shoulder belts are installed. Rear seat shoulder belts can be purchased from your dealer.



Chrysler Motors recommends that these belts be installed by your dealer.

Rear Shoulder Belt Use

To use the optional shoulder belt, first buckle the lap seat belt. Sit erect and place the lap belt as low on the hips as practical. Do not wear the lap belt high on the stomach. Next, grasp the metal tip of the shoulder belt and tilt it to lengthen the webbing. Insert the metal tip into the buckle. Pull on the loose end of the webbing to shorten the belt to fit your body.

Use Of Seat Belts During Pregnancy

Chrysler Motors recommends that pregnant women use the available safety belts. This will reduce the likelihood of injury to both the woman and the unborn child. The lap belt should be worn across the thighs and as snug against the hips as possible, *but not across the waist.*

Safety Belt Extender

If the safety belt is too short, even when fully extended, a safety belt extender can be purchased from your dealer. This extender should only be used if the existing belt is not long enough. When not required, it must be removed and stowed because the use of the extender when not required may deactivate the seat belt locking mechanism.