DOT 4722

REPORT NO. 212-CAL-84-018
301-CAL-84-018

NHTSA NEW VEHICLE ASSESSMENT AND STANDARDS ENFORCEMENT INDICANT TESTING

FMVSS 212 AND 301-75

NISSAN MOTOR COMPANY, LTD.
1984 NISSAN 200SX
2-DOOR SEDAN

NHTSA NO. CE5201
CALSPAN TEST NO. 7209-18

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

JUNE 1984

FINAL REPORT

Prepared for:

U. S. DEPARTMENT OF TRANSPORTATION
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
ENFORCEMENT
OFFICE OF VEHICLE SAFETY COMPLIANCE
400 SEVENTH STREET, S.W., NASSIF BUILDING
WASHINGTON, DC 20590

This Final Test Report was prepared for the U. S. Department of Transportation, National Highway Traffic Safety Administration, under Contract No. DTNH22-82-C-01140. 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 by: Walter E. Levan
W. E. Levan, Test Engineer

Approved by: A. L. Russo
A.L. Russo, Head
Transportation Research/
Physical Sciences Department

FINAL REPORT ACCEPTED BY:

Robert Krauss
Contract Technical Manager

7/20/84
Date of Report Acceptance

TECHNICAL REPORT STANDARD TITLE PAGE

1. Report No.	2. Government Accession No.	3. Recipient's Catalog No.
212-CAL-83-018 301-CAL-83-018		

4. Title and Subtitle	5. Report Date
NHTSA New Vehicle Assessment and Standards Enforcement Indicant Testing	June 1984
	6. Performing Organization Code
7. Author(s)	8. Performing Organization Report No.
9. Performing Organization Name and Address Calspan Advanced Technology Center P.O. Box 400 Buffalo, NY 14225	10. Work Unit No. 961 Series
	11. Contract or Grant No. DTNH22-82-C-01140
12. Sponsoring Agency Name and Address U. S. Department of Transportation National Highway Traffic Safety Administration Office of Vehicle Safety Compliance 400 Seventh Street, S.W., Washington, DC 20590	13. Type of Report and Period Covered Final Report May-June 1984
	14. Sponsoring Agency Code

15. Supplementary Notes

16. Abstract

A frontal load cell barrier test of a 1984 Nissan 200SX 2-door sedan was performed at Calspan Corporation, Advanced Technology Center, Transportation Research/Physical Sciences Department facility, for the New Car Assessment and Standards Enforcement Testing of FMVSS 212, "Windshield Mounting" and 301-75, "Fuel System Integrity" for the Office of Vehicle Safety Compliance, the Office of Market Incentives (OMI) and for Research and Development.

Impact speed was 34.66 mph. Ambient temperature on the test date was 53°F. The post-test vehicle crush was 22.9 inches and intrusion of the firewall into compartment was 5.2 inches.

The test vehicle appeared to comply with the following vehicle performance standards:

FMVSS 212 - Windshield Retention
FMVSS 301-75 - Fuel System Integrity

17. Key Words	18. Distribution Statement
Load Cell Barrier Frontal Impact FMVSS Compliance Testing FMVSS 212 FMVSS 301-75	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)	20. Security Classif. (of this page)	21. No. of Pages	22. Price
Unclassified	Unclassified		

Form DOT F 1700.7 (8-69)

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

SECTION 1
PURPOSE AND TEST PROCEDURE

This frontal barrier test is part of the Composite FY 84 Vehicle Barrier Impact Testing, sponsored by the National Highway Traffic Safety Administration (NHTSA) under Contract DTNH22-82-C-01140. The purpose of this test was to obtain crashworthiness and occupant restraint performance data for impact speeds in excess of the current FMVSS requirements.

The test was performed in accordance with the Office of Automotive Ratings Laboratory Procedure No. IP-212-02 dated April 4, 1980. Indicant test data for FMVSS 212, "Windshield Mounting," and FMVSS 301-75, "Fuel System Integrity," as well as occupant performance data for a nominally 35 mph impact are provided herein.

SECTION 2
SUMMARY OF TEST NUMBER CE5201

A load cell barrier consisting of 36 load cells (Figure 4) was impacted by a 1984 Nissan 200 SX 2-door sedan at a velocity of 34.66 mph. The test was performed at the Calspan Corporation Advanced Technology Center on May 10, 1984. Pre- and post-test photographs of the vehicle and occupants can be found in Appendix A. Table 1 presents pertinent crash test information.

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 procedures specified in Laboratory Procedure for Vehicle Assessment IP-212-02.

Both ATDs were fully instrumented with femur load cells and triaxial accelerometers in the head and chest areas. These ATDs had been certified prior to the test, and certification details, along with instrumentation calibration data, are found in Appendix C.

The crash event was recorded by one real-time camera and 17 high-speed cameras. Camera locations and other pertinent camera information are found in Section 4 of this report.

The 67 channels of data were recorded on six 14-channel FM tape recorders. Appendix B contains the vehicle, load cell barrier and dummy response data traces. The Injury Criteria Values are presented in Table 10.

Table 1

CRASH TEST SUMMARY

TEST NO. CE5201 PROJECT: FY84 New Car Assessment Program FMVSS Nos. 208/212/301-75

DATE: 5/10/84 TIME: 1358 hrs. TEMP: 53°F.

VEHICLE	1984 Nissan 200SX 2-door sedan
TEST WEIGHT (lbs)	2880
IMPACT ANGLE (deg)*	0
IMPACT VELOCITY (mph)**	34.66
MAX. CRUSH (in) static	22.9
MAX. INTRUSION (in)	5.2

DUMMIES

TYPE	Hybrid II Part 572	Hybrid II Part 572
LOCATION	LF (1) Serial 320	RF (2) Serial 749
RESTRAINT	Production 3-point belt system	Production 3-point belt system

NUMBER OF DATA CHANNELS 67

NUMBER OF HIGH SPEED CAMERAS 17 + 1 real time

*With respect to tow track Centerline

**Speed trap measurement (± .05% accuracy)

GENERAL COMMENTS

The 1984 Nissan 200SX 2-door sedan was equipped with a 120.0 cubic inch, 4-cylinder inline engine, five-speed manual transmission, power brakes and power steering. The total test weight with two 50th percentile male dummies, instrumentation and two on-board cameras was 2880 pounds.

The 1984 Nissan 200SX 2-door sedan which was involved in a frontal load cell barrier crash at a velocity of 34.66 mph appeared to comply with FMVSS Nos. 212, "Windshield Mounting;" and 301-75, "Fuel System Integrity." There was 100 percent windshield retention and no fuel leakage after impact or any phase of the rollover test.

The vehicle sustained 22.9 inches of static crush and approximately 28.2 inches of dynamic crush. Maximum load cell barrier force measured by the 36 load cells was 94,950 pounds at 43.75 milliseconds.

The driver's head struck the steering wheel rim and center hub and his HIC was 1992.1. The maximum chest deceleration over 3 milliseconds was 44.5 g's. Femur loads were 1070 and 510 pounds.

The right-front passenger's HIC was 581.7. The maximum chest deceleration over 3 milliseconds was 31.8 g's. Femur loads were 20 and 460 pounds.

The belt-related data for each occupant are presented in Table 11 of this report.

Table 2

GENERAL TEST AND VEHICLE PARAMETER DATA

TEST VEHICLE INFORMATION

Make/Model Nissan 200SX Body Style 2-door sedan

Model Year 1984 NHTSA No. CE5201 Color White

Engine Data: 4 cylinders, 120 cubic inches

Transmission Data: 5 speed, (X) manual ( ) automatic

Date Rec'd 3/13/84 Air Cond. _____ Pw. Str. yes Pw. Brks. yes

Dealer's Name & Address Super Sports Datsun, Amherst, New York 14226

Odometer Reading 391

DATA FROM CERTIFICATION LABEL ON LEFT DOOR REAR FACE OR "B" POST

Vehicle Manufactured by: Nissan Motor Co., Ltd.

Date of Manufacture 1/84 VIN JN1PS24S9EW610051

GVRW 3197 lbs., GAWR: front 1786 lbs., rear 1940 lbs.

DATA FROM "RECOMMENDED TIRE PRESSURE" LABEL ON DOOR, POST, GLOVE BOX, ETC.

Vehicle Load (up to capacity): front 28 psi

rear 28 psi

Recommended Tire Size 185/70SR14 Load Range X B ___ C ___ D

Recommended Cold Tire Pressure: front 28 psi, rear 28 psi

Tires on Vehicle 185/70SR14

Is Spare Tire a "Space Saver?" X yes ___ no

Is Spare Tire Standard Equipment? X yes ___ no

Vehicle Capacity: Types of Seats: ___ bench, X bucket, ___ split bench

Number of Occupants (Designated Seating Capacity): 2 front

2 rear

4 TOTAL

RCLW Cargo Load: 18 lbs.

VCW TOTAL = 618 lbs.

Table 2

GENERAL TEST AND VEHICLE PARAMETER DATA (cont'd)

WEIGHT OF TEST VEHICLE AS RECEIVED FROM DEALER (WITH MAXIMUM FLUIDS) = UDW

Right Front = 700 lbs. Right Rear = 590 lbs.

Left Front = 650 lbs. Left Rear = 580 lbs.

TOTAL FRONT WEIGHT = 1350 lbs. (53.6 % of Total Vehicle Weight)

TOTAL REAR WEIGHT = 1170 lbs. (46.4 % of Total Vehicle Weight)

TOTAL DELIVERY WEIGHT = 2520 lbs.

CALCULATION FOR TARGET TEST WEIGHT

RCLW = Rated Cargo and Luggage Weight

UDW = Unloaded Delivered Weight (2520 lbs.)

VCW = Vehicle Capacity Weight (618 lbs.)

DSC = Designated Seating Capacity (4)

RCLW = VCW - 150 (DSC) = 18 lbs.

Target Test Weight = UDW + RCLW + (2 dummies X 164 lbs./dummy)

Target Test Weight = 2866 lbs.

WEIGHT OF TEST VEHICLE WITH REQUIRED DUMMIES AND 32 POUNDS CARGO

Right Front = 730 lbs. Right Rear = 710 lbs.

Left Front = 710 lbs. Left Rear = 730 lbs.

TOTAL FRONT WEIGHT = 1440 lbs. (50 % of Total Vehicle Weight)

TOTAL REAR WEIGHT = 1440 lbs. (50 % of Total Vehicle Weight)

TOTAL TEST WEIGHT = 2880 lbs.

Weight of ballast secured in vehicle trunk area = 0 lbs.

VEHICLE ATTITUDE (all dimensions in inches)

Delivered Attitude: RF 28.6 LF 28.7 RR 27.5 LR 27.5

Test Attitude: RF 28.0 LF 28.0 RR 26.1 LR 25.9

Remarks: Wheelbase = 95.5 inches

CG = 47.7 inches rearward of front wheel C/L

Removed rear deck and trunk lid to reduce vehicle weight

Table 2
GENERAL TEST AND VEHICLE PARAMETER DATA (cont'd)

POST-IMPACT DATA

Type of Test Frontal Barrier Impact Angle 0 °
Date of Test 5/10/84 Time of Test 1358
Ambient Temperature 53 °F at impact area
Temperature in Occupant Compartment 70 °F
Windshield Molding Temperature 66 °F
Required Impact Velocity Range: 34.5 to 35.5 mph
Impact Velocity: primary = 34.66 mph, secondary 34.57 mph

VEHICLE REBOUND AND CRUSH (inches)

Vehicle Length: Pre-test =	R	171.8	℄	174.5	L	171.8
Post-test =	R	149.5	℄	151.6	L	152.5
Crush =	R	22.3	℄	22.9	L	19.3

Distance from front of test vehicle to point of impact:
R 11.1 C/L 10.2 L 11.7

VISIBLE DUMMY CONTACT POINTS

	Driver	Passenger
Head	Steering wheel rim & hub	None
Chest	None	None
Abdomen	None	None
Left Knee	Dash panel	None
Right Knee	Dash panel	None

Front

	Left	Right
Door Opening	Operable	Operable

Table 2 (cont'd)

GENERAL TEST AND VEHICLE PARAMETER DATA (cont'd)

	Front	
Seat Movement	Left	Right
Seat Back Failure	Intact	Intact
Seat Shift (in.)	1.2" forward	1.1" forward

Glazing Damage	
Backlight/Windshield	Windshield has stress cracks.

SECTION 3

SUMMARY OF RESULTS OF FMVSS NOS. 212 AND 301-75

- Summary of FMVSS 212 and 301 Data
- Post-Impact Data for FMVSS Nos. 212 and 301-75
- Windshield Retention, FMVSS No. 212 Data
- Fuel System Integrity, FMVSS No. 301-75 Data

Table 3

SUMMARY OF FMVSS 212 AND 301 DATA

PRE-IMPACT DATA

Make/Model: Nissan 200SX

Body Style: 2-door sedan Model Year: 1984

NHTSA No.: CE5201 Color: White

DATA FROM CERTIFICATION LABEL

Vehicle Manufacturer: Nissan Motor Co., Ltd.

Date of Manufacture: 1/84 VIN: JN1PS24S9EW610051

GVWR: 3197 lbs., GAWR: Front 1786 lbs., Rear 1940 lbs.

POST-IMPACT DATA

Type of Test: Frontal load cell barrier impact

Date of Test: 5/10/84 Time: 1358 Temp.: 53 °F

Required Impact Velocity Range: 34.5 to 35.5 mph

Impact Velocity: Primary = 34.66 mph, Secondary = 34.57 mph

Test Weight 2880 lbs., Static Crush Max. 22.9 in., Rebound 11.0 in.

FUEL SYSTEM DATA

Test Fluid Type: Red Stoddard Solvent #2 , Spec. Grav.: 0.764

Kinematic Viscosity 0.96 Centistokes

EPA Capacity* 13.36 gal.

Test Volume 12.4 gal. (93% of EPA Capacity)

Fuel System Capacity (data from Owner's Manual) 14.0 gal.

Electric Fuel Pump? X yes ____ no, Fuel Injection? X yes ____ no

Does electric fuel pump operate with ignition switch "on" and the engine not operating? ____ yes X no

Test vehicle fuel tank filled to 93% of "usable" capacity with Stoddard Solvent and with electric fuel pump operating (if it will operate without engine operation) until start of static roll.

*with entire fuel system filled from fuel tank through carburetor bowl

Table 3
SUMMARY OF FMVSS 212 AND 301 DATA (cont'd)

Details of fuel system: Fuel tank is aft of rear wheels and is held in place with two tank straps. Filler tube is located on the right side of vehicle and is sealed by a screw type cap which is concealed by a hinged door.

Table 4

POST-IMPACT DATA - FMVSS NOS. 212, AND 301-75

DATA SHEET

TYPE OF TEST __X__ Frontal (0°) Impact

_____ Oblique (____ °) Impact on _____ Left (Driver's) Side

_____ Right Side

_____ Lateral or Side Impact on _____ Left (Driver's) Side

_____ Right Side

_____ Rear Impact

DATE OF TEST 5/10/84 TIME 1358 hrs. TEMP 53 °F

VEHICLE NHTSA NO. CE5201 VIN JN1PS24S9EW610051

REQUIRED VEHICLE VELOCITY RANGE 34.5 to 35.5 mph

IMPACT VELOCITY (traps within 5 feet of impact event)

Trap No. 1 = 34.66 mph Trap No. 2 = 34.57 mph

Distance from the vehicle's front bumper to the barrier face entering the vehicle velocity measurement device = 58

exiting the vehicle velocity measurement device = 18

VEHICLE STATIC CRUSH (for frontal and rear impacts only)

Driver's Side = 19.3 in Passenger's Side = 22.3 in

C/L = 22.9 in. Average = 21.5 in.

Crush Details:

VEHICLE STATIC CRUSH (for side impacts only)

Amount of Crush = -- inches on -- side

Crush Details:

VEHICLE REBOUND (from rigid barrier only)

Driver's Side = 11.7 in Passenger's Side = 11.1 in

C/L = 10.2 in. Average = 11.0 in.

REMARKS

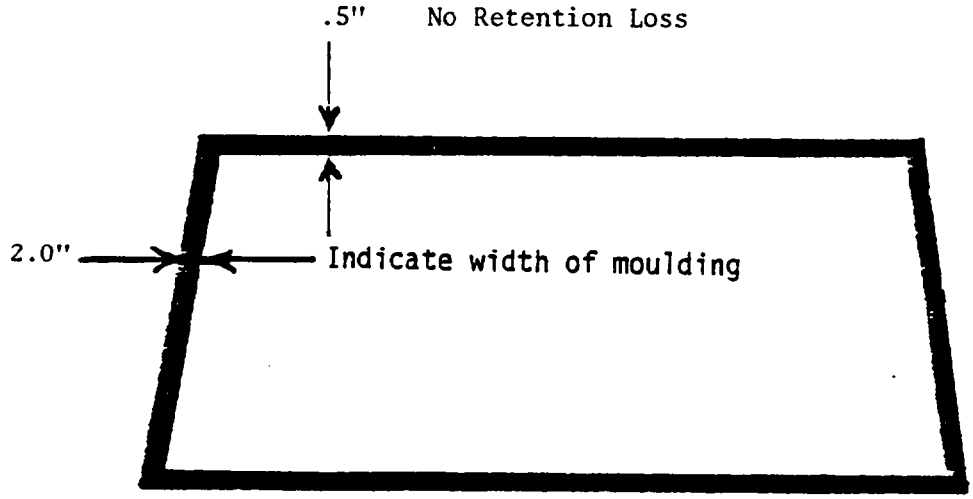
Details of windshield mounting (method of retention, type of trim, etc.):

Windshield is bonded in place and has a chrome trim strip along the top and sides.

	Windshield Periphery		
	Pre-Test (in.)	Post-Test (in.)	Retention %
Right Side	77.6	77.6	100%
Left Side	77.6	77.6	100%
TOTAL	155.2	155.2	100%

The standard requires that Post-Test be a minimum of 75 percent of the Pre-Test total periphery measurement for vehicle not equipped with occupant passive restraints and 50 percent for each side of the windshield for vehicles which are equipped with occupant passive restraints.

AREA OF RETENTION FAILURE



FRONT VIEW

Figure 1 WINDSHIELD RETENTION, FMVSS NO. 212 DATA

Table 5

"FUEL SYSTEM INTEGRITY" POST-IMPACT TEST DATA

FMVSS No. 301-75

TEST VEHICLE NHTSA NO. CE5201 Test Date 5/10/84

Vehicle Manufacture/Make/Model 1984 Nissan 200SX 2-door sedan

Test vehicle fuel tank filled to 92-94% of capacity with Stoddard Solvent 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

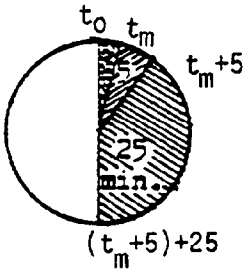
X Frontal (35 mph)

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

_____ Rear Moving Barrier (35 mph)

_____ Lateral Moving Barrier (20 mph)

FUEL SPILLAGE MEASUREMENT



	Actual	Max. Allow.
From impact until vehicle motion ceases	0	1 oz
For 5 min. period after vehicle motion ceases	0	5 oz
For next 25 min.	0	1 oz/1 min

SOLVENT SPILLAGE DETAILS

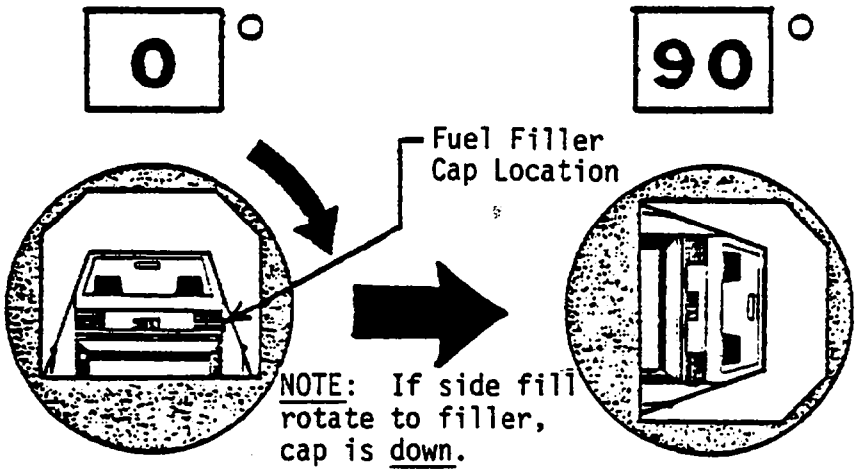
None

VEHICLE NHTSA ID NO. CE5201

Table 6

FMVSS NO. 301-75 STATIC ROLLOVER DATA SHEET

TEST PHASE



DETERMINATION OF SOLVENT COLLECTION TIME PERIOD

Rollover Fixture 90° Rotation Time (Spec. Range = 1 to 3 min.)	=	2	minutes	46 seconds
FMVSS 301-75 Position Hold Time	=	5	minutes	00 seconds
TOTAL	=	7	minutes	46 seconds
Next Whole Minute Interval	=	8	minutes	

FMVSS 301-75 REQUIREMENTS

Time Period

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

Maximum Allowable Solvent Spillage

5 ounces	1 ounce	1 ounce	1 ounce

ACTUAL TEST VEHICLE SOLVENT SPILLAGE

0	0	0	0

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

SOLVENT SPILLAGE LOCATION(S)

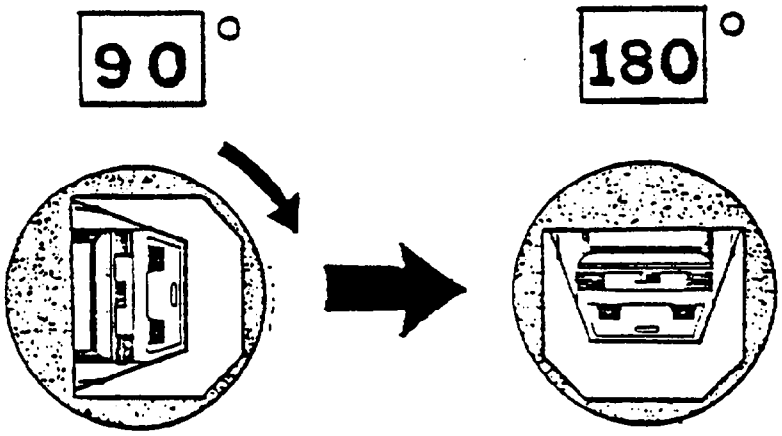
None

VEHICLE NHTSA ID NO. CE5201

Table 6 (cont'd)

FMVSS NO. 301-75 STATIC ROLLOVER DATA SHEET

TEST PHASE



DETERMINATION OF SOLVENT COLLECTION TIME PERIOD

Rollover Fixture 90° Rotation Time (Spec. Range = 1 to 3 min.)	=	2 minutes	52	seconds
FMVSS 301-75 Position Hold Time	=	5 minutes	00	seconds
TOTAL	=	7 minutes	52	seconds
Next Whole Minute Interval	=	8 minutes		

FMVSS 301-75 REQUIREMENTS

Time Period

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

Maximum Allowable Solvent Spillage

5 ounces	1 ounce	1 ounce	1 ounce

ACTUAL TEST VEHICLE SOLVENT SPILLAGE

0	0	0	0

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

SOLVENT SPILLAGE LOCATION(S)

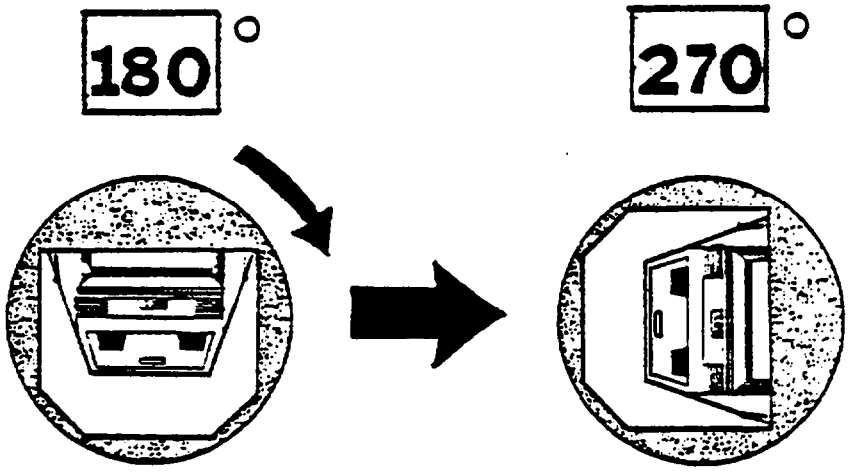
None

VEHICLE NHTSA ID NO. CE5201

Table 6 (cont'd)

FMVSS NO. 301-75 STATIC ROLLOVER DATA SHEET

TEST PHASE



DETERMINATION OF SOLVENT COLLECTION TIME PERIOD

Rollover Fixture 90° Rotation Time (Spec. Range = 1 to 3 min.)	=	2	minutes	55	seconds
FMVSS 301-75 Position Hold Time	=	5	minutes	00	seconds
TOTAL	=	7	minutes	55	seconds
Next Whole Minute Interval	=	8	minutes		

FMVSS 301-75 REQUIREMENTS

Time Period

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

Maximum Allowable Solvent Spillage

5 ounces	1 ounce	1 ounce	1 ounce

ACTUAL TEST VEHICLE SOLVENT SPILLAGE

0	0	0	0

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

SOLVENT SPILLAGE LOCATION(S)

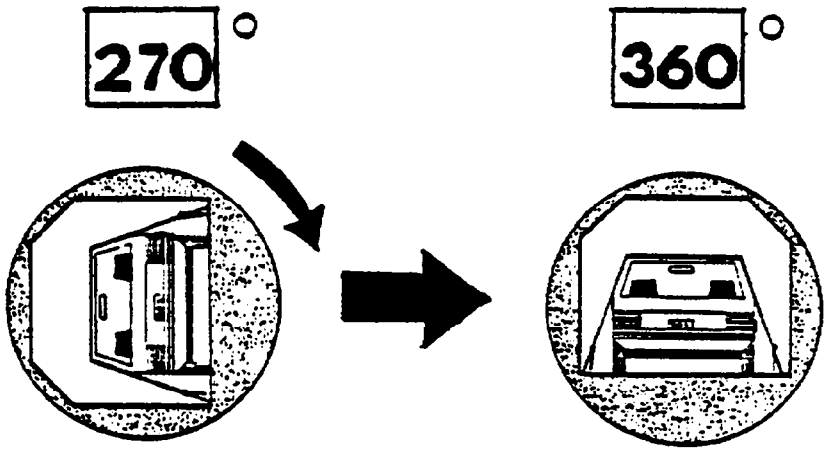
None

VEHICLE NHTSA ID NO. CE5201

Table 6 (cont'd)

FMVSS NO. 301-75 STATIC ROLLOVER DATA SHEET

TEST PHASE



DETERMINATION OF SOLVENT COLLECTION TIME PERIOD

Rollover Fixture 90° Rotation Time (Spec. Range = 1 to 3 min.)	=	2	minutes	56	seconds
FMVSS 301-75 Position Hold Time	=	5	minutes	00	seconds
TOTAL	=	7	minutes	56	seconds
Next Whole Minute Interval	=	8	minutes		

FMVSS 301-75 REQUIREMENTS

Time Period

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

Maximum Allowable Solvent Spillage

5 ounces	1 ounce	1 ounce	1 ounce

ACTUAL TEST VEHICLE SOLVENT SPILLAGE

0	0	0	0

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

SOLVENT SPILLAGE LOCATION(S)

None

SECTION 4

OCCUPANT AND VEHICLE INFORMATION (OMI AND AID DATA)

- Vehicle Measurements
- Vehicle Accelerometer Locations
- Load Cell Barrier-Load Cells Locations
- AID Data Summary
- Camera Positions and Locations
- Owner's Manual Seat Belt Instructions
- Dummy In-Vehicle Positioning
- Dummy Injury Criteria Values
- Belt Related Data
- Vehicle Target Locations

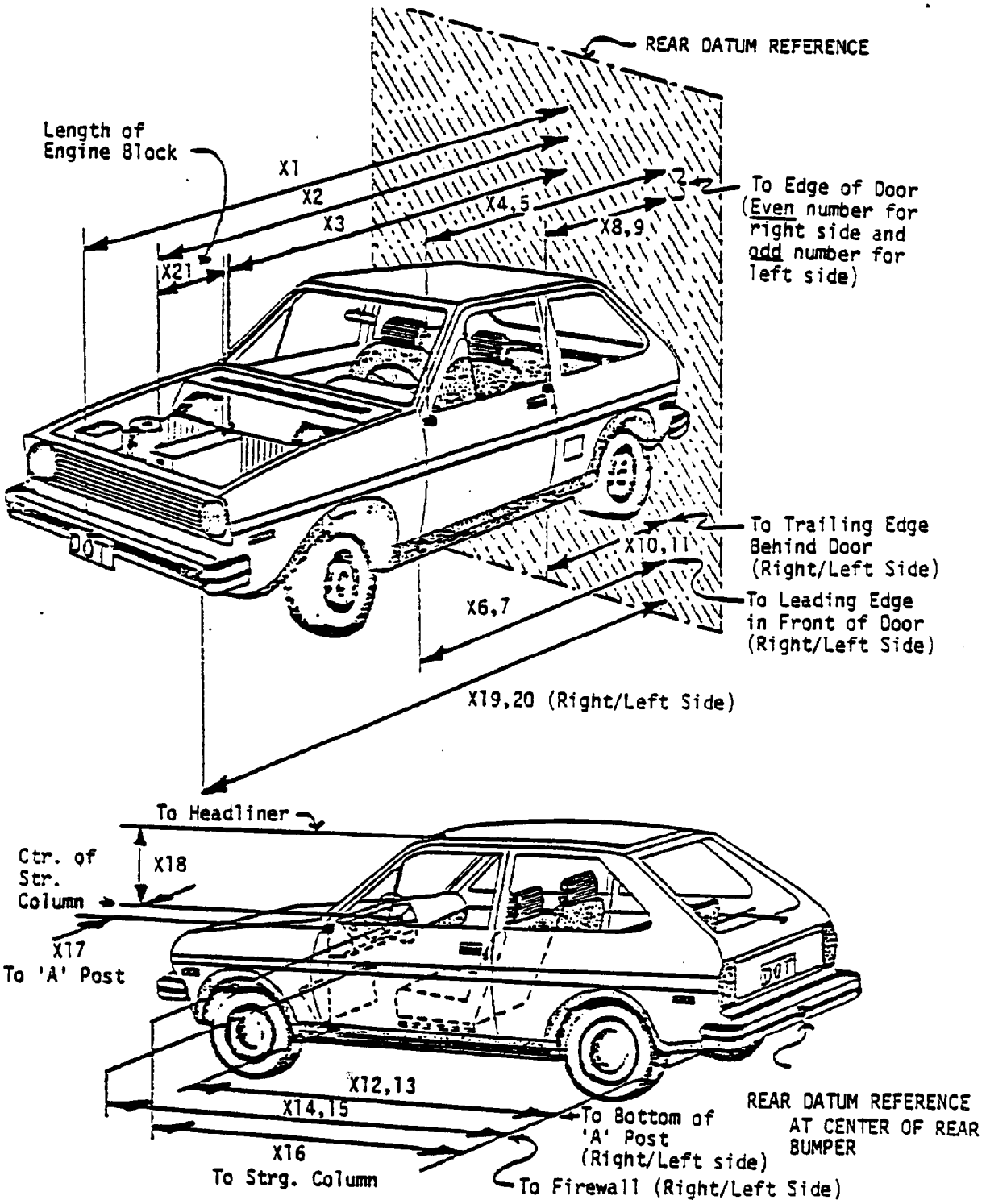


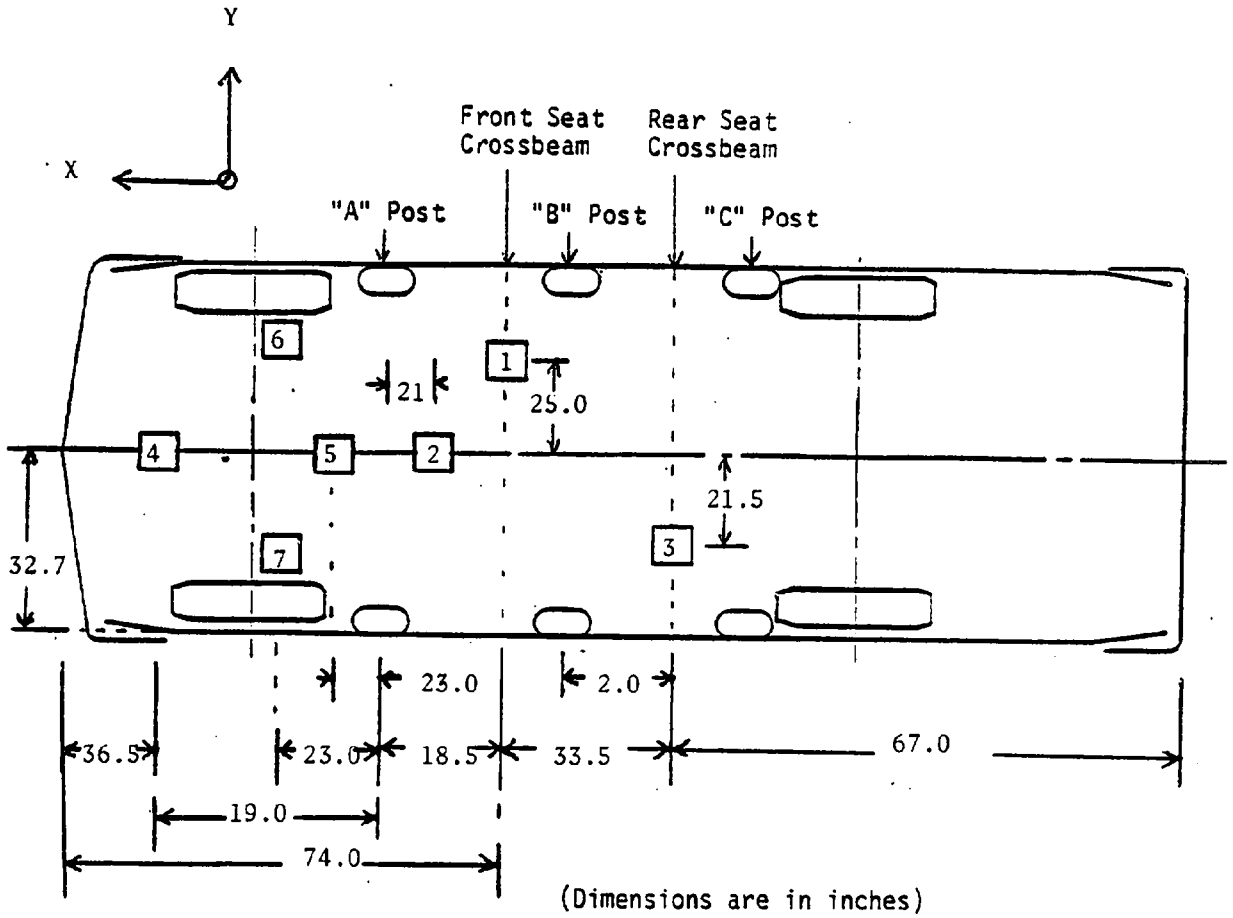
Figure 2 PRE- AND POST-TEST MEASUREMENT POINTS

Table 7

VEHICLE MEASUREMENTS

All Dimensions in Inches

No.		Pre-Test	Post-Test	Difference
X1	Total Length of Vehicle at Centerline	174.5	151.6	22.9
X2	Rear Surface of Vehicle to Front of Engine	145.0	139.0	6.0
X3	Rear Surface of Vehicle to Firewall	126.7	124.2	2.5
X4	Rear Surface of Vehicle to Upper Leading Edge of Right Door	116.2	114.9	1.3
X5	Rear Surface of Vehicle to Upper Leading Edge of Left Door	116.2	115.4	.8
X6	Rear Surface of Vehicle to Lower Leading Edge of Right Door	115.8	114.5	1.3
X7	Rear Surface of Vehicle to Lower Leading Edge of Left Door	115.7	114.6	1.1
X8	Rear Surface of Vehicle to Upper Trailing Edge of Right Door	66.6	65.7	.9
X9	Rear Surface of Vehicle to Upper Trailing Edge of Left Door	66.6	65.9	.7
X10	Rear Surface of Vehicle to Lower Trailing Edge of Right Door	67.0	65.7	1.3
X11	Rear Surface of Vehicle to Lower Trailing Edge of Left Door	67.1	66.0	1.1
X12	Rear Surface of Vehicle to Bottom of "A" Post of Right Side	116.0	114.8	1.2
X13	Rear Surface of Vehicle to Bottom of "A" Post of Left Side	116.0	114.9	1.1
X14	Rear Surface of Vehicle to Firewall, Right Side	122.9	117.7	5.2
X15	Rear Surface of Vehicle to Firewall, Left Side	122.2	120.2	2
X16	Rear Surface of Vehicle to Steering Column	96.5	96.5	--
X17	Center of Steering Column to "A" Post	15.3	15.0	.3
X18	Center of Steering Column to Headliner	16.4	15.7	.7
X19	Rear Surface of Vehicle to Right Side of Front Bumper	171.8	149.5	22.3
X20	Rear Surface of Vehicle to Left Side of Front Bumper	171.8	152.5	19.3
X21	Length of Engine Block	19.0	19.0	--



(Dimensions are in inches)

ACCELEROMETER NUMBER *	ACCELEROMETER LOCATION	DIRECTION		
		X	Y	Z
1	Front Seat Crossmember	X		
2	Vehicle C.G.	X		
3	Rear Seat Crossmember	X		
4	Top of Engine	X		
5	Bottom of Engine	X		
6	Right Front Brake Caliper	X		
7	Left Front Brake Caliper	X		

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

FIGURE 3 VEHICLE ACCELEROMETER LOCATIONS

36 LOAD CELLS
4 ROWS
9 COLUMNS

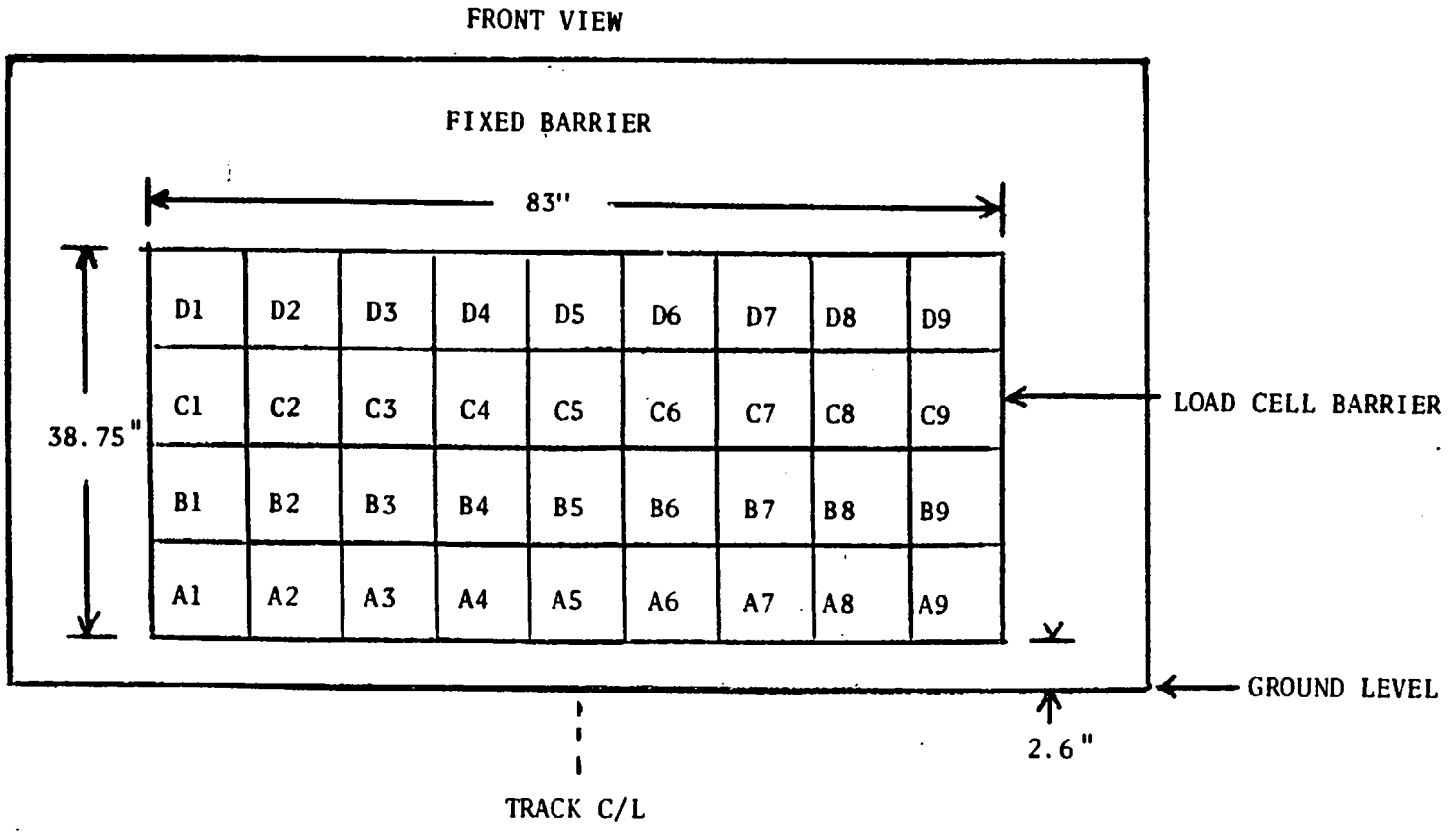


Figure 4 FIXED LOAD CELL BARRIER-LOAD CELL LOCATIONS

Table 8

ACCIDENT INVESTIGATION DIVISION

Data Summary

Test No. CE5201

Date 5/10/84

		Vehicle No. 1
Impact Description		Frontal load cell barrier
Make		Nissan 200SX
Model		2-door coupe
Year		1984
Size Category		Compact
Test Weight (lb.)		2880
Wheelbase (in.)		95.5
Front Overhang (in.)		32.1
Overall Width (in.)		65.4
Accelerometer Location		47.7 inches rearward of front wheel C/L
Calibration Procedure		Shaker table/least squares
Accelerometer Linearity		± 0.75%
Integration Algorithm		Hybrid Simpson-Newton 3/8
Impact Speed (mph)		34.66
Time of Separation (msec)		159.67
Velocity Change (mph)		38.68
CDC		12 FDEW3
Damage Length (in.)	L:	59.0
Crush Dimensions (in.)	C1:	24.25
	C2:	22.7
	C3:	23.3
	C4:	23.6
	C5:	22.3
	C6:	22.9
Midpoint of Damage	D:	0

National Accident Sampling System — Continuous Sampling Subsystem: Vehicle Data

FIELD MEASUREMENTS

1984 NISSAN 200SX

Complete When Applicable	
End Damage	**Side Damage**
Undeformed end width 59.0	Bowing: B1 _____ X1 _____
Corner shift: A1 _____	B2 _____ X2 _____
A2 _____	Bowing constant
End shift at frame (CDC) (check one)	$\frac{X1 + X2}{2}$ = _____
< 4 inches _____	
≥ 4 inches _____	

Note: Measure C1 to C6 from Driver to Passenger side in Front or Rear impacts--
Rear to Front in Side impacts.

12FDEW3

Specific Impact Number	Plane* of C-Measurements	Direct Damage Width** (CDC)	Direct Damage Max*** Crush	Field L**	C_1	C_2	C_3	C_4	C_5	C_6	±D
1	Bumper	59.0	C_1 27.75	59.0	27.75	24.3	23.3	23.6	23.9	26.4	0
	Free/Space		3.5		3.5	1.6	0	0	1.6	3.5	
	Actual Crush		24.25		24.25	22.7	23.3	23.6	22.3	22.9	

*Identify the plane at which the C-measurements are taken (e.g., at bumper, above bumper, at sill, above sill, at beltline, etc.) or label adjustments (e.g., free space).

Free space value is defined as the distance between the baseline and the original body contour taken at the individual C locations. This may include the following: bumper lead, bumper taper, side protrusion, side taper, etc. Record the value for each C-measurement and maximum crush.

**Measure and document on the vehicle diagram the beginning or end of the direct damage width and field L (e.g., side damage with respect to undamaged axle).

***Measure and document on the vehicle diagram the location of the maximum crush.

Note: Use as many lines/columns as necessary to describe each damage profile.

DAMAGE DESCRIPTION

Tire—Wheel Damage

a. Rotation physically restricted		b. Tire deflated	
RF	1	RF	2
LF	1	LF	2
RR	2	RR	2
LR	2	LR	2

(1) Yes, (2) No, (8) NA, (9) Unk.

TYPE OF TRANSMISSION

___Manual ___Automatic

Average Track: _____

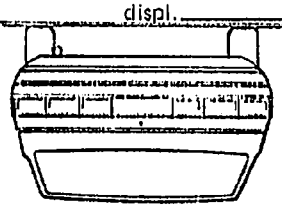
Maximum Width: _____

Curb Weight: _____

Overall Length: 174.4

Engine Size: cyl. 4

displ. _____



WHEEL STEER ANGLES

(For locked front wheels or displaced rear axles only)

RF ± 0 0 °

LF ± 0 0 °

RR ± 0 0 °

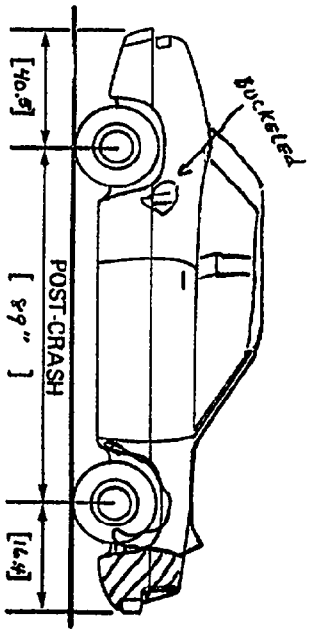
LR ± 0 0 °

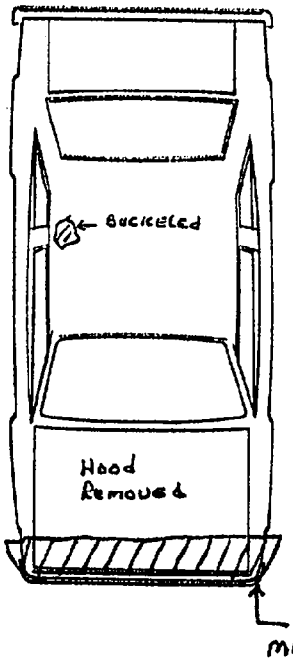
Within ± 5 degrees

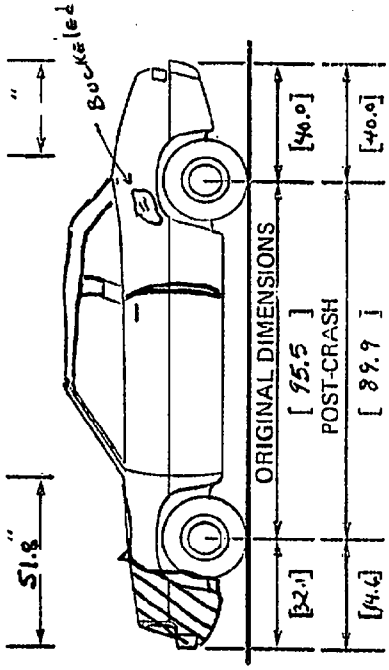
Vehicle No.: _____

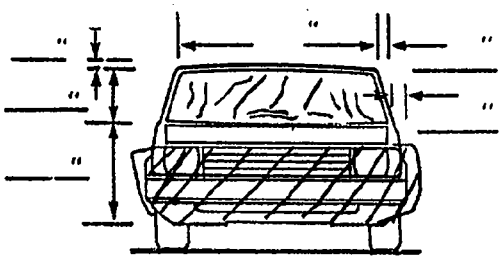
1984 NISSAN 200 SX

JNLPS24S9EW6100S1









Note: Sketch new perimeter and cross hatch direct damage and single hatch induced damage on all views. Annotate observations which might be useful in reconstructing the accident (e.g., grass in tire bead, direction of striations, scuff on sidewall, etc.)

If pulling trailer sketch type of trailer and damage received on reverse side.

Annotate any damage caused by extrication such as component removal by torching, prying or hydraulic shears.

Figure 5 TEST VEHICLE DAMAGE DETAILS

NOTE: Camera Information Shown on Table 9

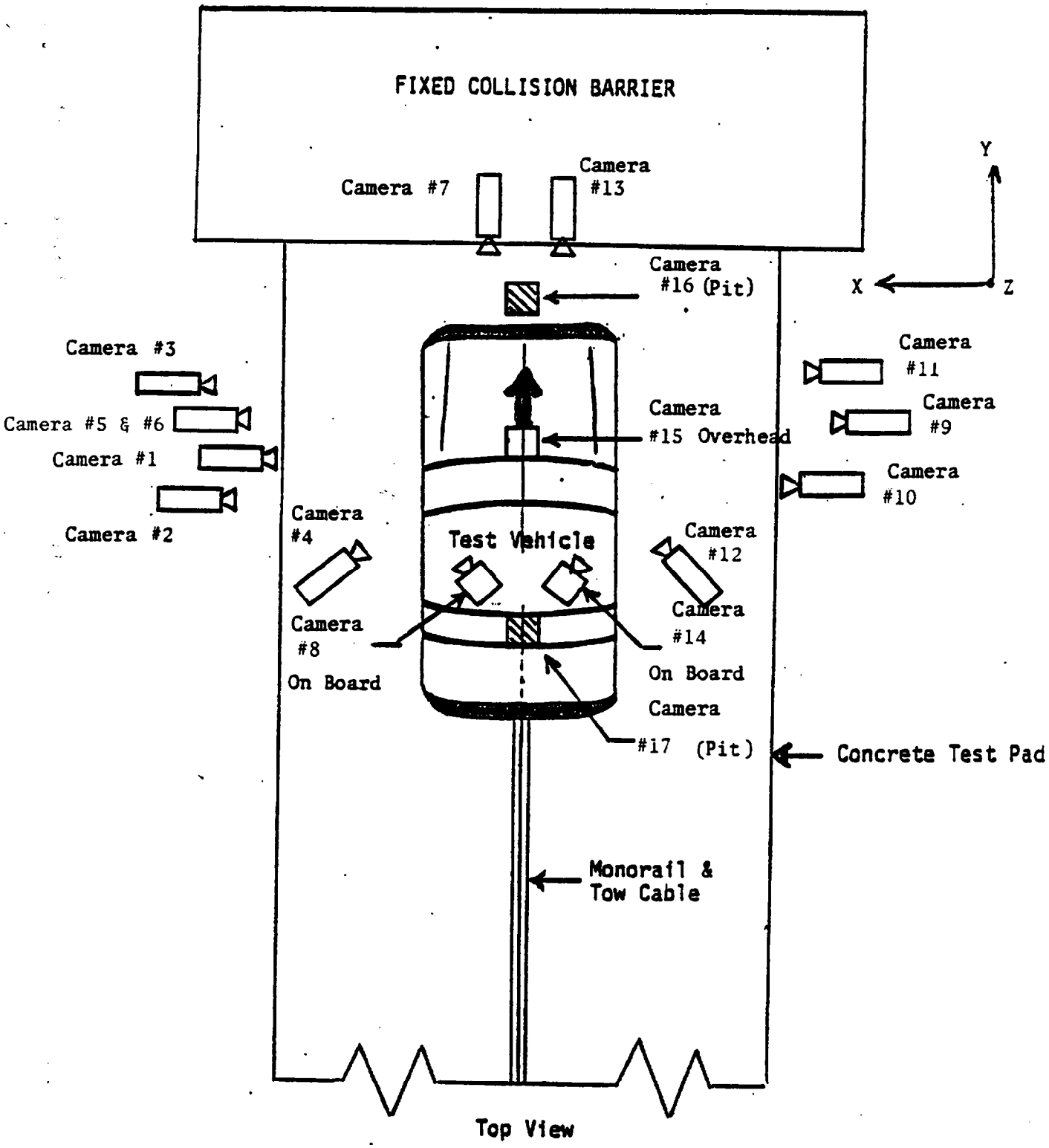


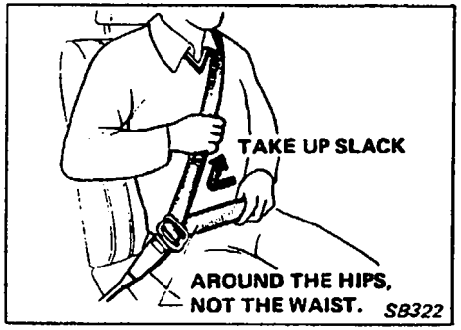
Figure 6 --CAMERA POSITION FOR FRONTAL IMPACTS

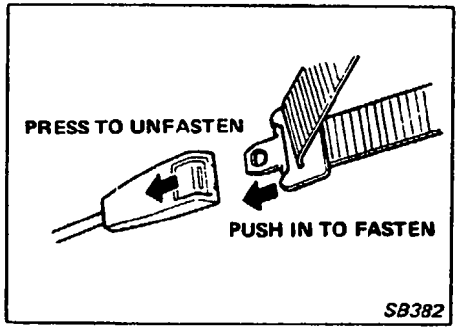
Table 9
HIGH-SPEED CAMERA LOCATIONS

Test No. CE5201 Vehicle 1984 Nissan 200SX 2-door sedan

CAMERA NO.	VIEW	CAMERA POSITIONS (in)* X	Y	Z	ANGLE ** (deg)	FILM PLANE TO HEAD TARGET	LENS (mm)	SPEED (fps)
1	Vehicle Left Side	198	41	42	-2	--	13	890
2	Driver	240	56	41	-3	226	35	1040
3	Driver	303	24	58	-4	289	50	900
4	Driver	169	95	75	-10	--	25	1000
5	Driver (top)	136	80	70	-21	124	13	890
6	Driver (bottom)	136	80	46	-10	122	13	900
7	Driver (barrier)	21	0	69	-28	101	13	890
8	Left Belt Retractor	--	--	--	--	--	8	720
9	Vehicle Right Side	280	40	48	-7	--	13	NO TIMING
10	Passenger	270	65	45	-2	256	35	890
11	Passenger	228	24	45	-3	214	50	770
12	Passenger	132	132	74	-13	--	25	1000
13	Passenger (barrier)	21	0	69	-28	101	13	900
14	Right Belt Retractor	--	--	--	--	--	8	840
15	Overhead	0	40	216	-90	--	25	NO TIMING
16	Engine (Pit)	0	36	-120	90	--	25	720
17	Fuel Tank (Pit)	0	145	-120	90	--	25	760

* X = film plane to monorail centerline
Y = film plane to impact location
Z = film plane to ground
** = referenced to horizontal plane





FRONT SEAT BELTS

1. Adjust the seat forward or back to the preferred driving position. Adjust the seat back to a comfortable **upright** position, the seat belts will be less effective if the seat is reclined. Sit upright and well back in the seat; your seat belts are more effective when you sit up and face forward.
2. Take hold of the tongue and slowly pull out the lap-shoulder belt. Remove any twists in the belt and insert the tongue into the buckle until you hear a snapping sound.
3. Position the lap portion of the belt across the lap as low on the hips as possible.
4. If the lap-shoulder belt is slack after you have buckled it, pull the shoulder belt portion toward the retractor to take up the slack.

The front seat belts have an emergency locking retractor which is designed to lock during a sudden stop or in certain kinds of accidents. Under normal circumstances the belt retractor permits the belt to move, allowing you some freedom of movement in the seat.

5. To unfasten the belt, press the button of the buckle. The seat belt will automatically retract.

CAUTION:

Be sure to observe the following cautions. Failure to do so could increase the chance and/or severity of injury in an accident.

- **Always pass the shoulder belt over your shoulder and across your chest as shown in the illustration. Never run the belt under your arm.**
- **Position the lap belt as low as possible AROUND THE HIPS, NOT THE WAIST.**
- **The belt should be adjusted to a snug fit. Slack in the lap-shoulder belt will reduce the effectiveness of the entire restraint system.**
- **Never wear the belt inside out or twisted.**
- **Do not allow more than one person to use the same belt at the same time.**

Figure 7 OWNER'S MANUAL SEAT BELT INSTRUCTIONS

Figure 8

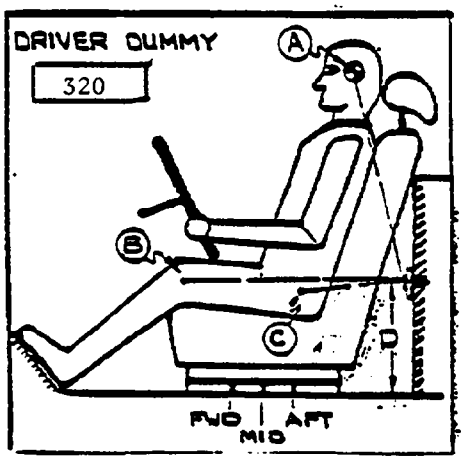
PART 572 DUMMY IN-VEHICLE POSITION

Test No. CE5201 Vehicle 1984 Nissan 200SX 2-door sedan

SEAT TYPE:
___ Bench
_X_ Bucket
___ Split Bench

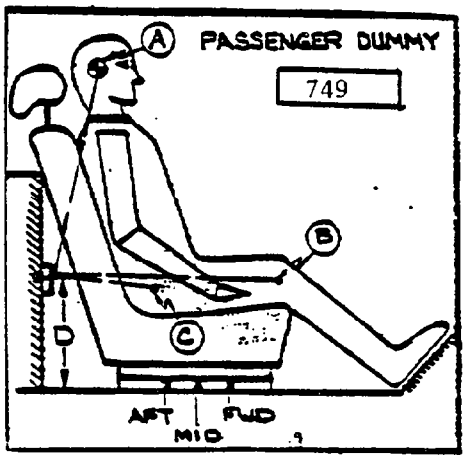
ADJUSTER TYPE:
_X_ Manual
___ Power

BUCKET SEAT BACK TYPE:
___ Fixed
_X_ Adjustable Reclining



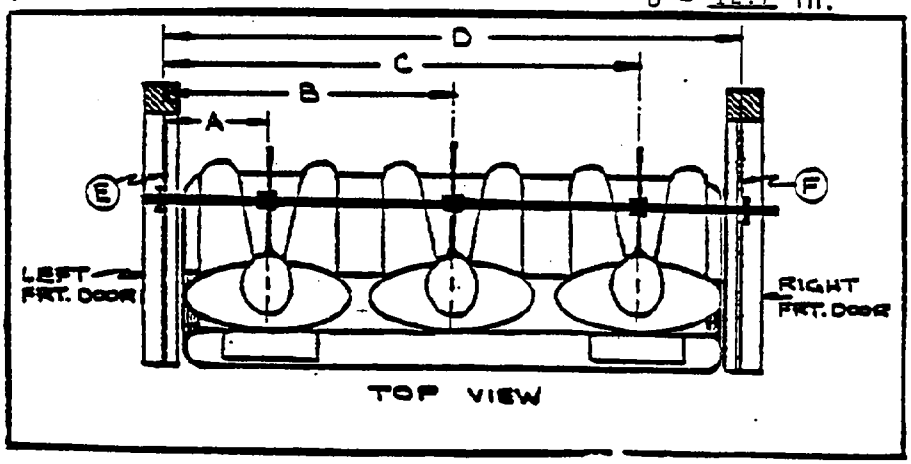
MEASUREMENT LOCATION

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



A = 21.4 in. 18.0 Degrees
B = 28.6 in. 100 Degrees
C = 14.0 in. 121 Degrees
D = 12.7 in.

A = 21.3 in. 18.0 Degrees
B = 28.5 in. 99.0 Degrees
C = 14.0 in. 120 Degrees
D = 12.7 in.



DUMMY ID

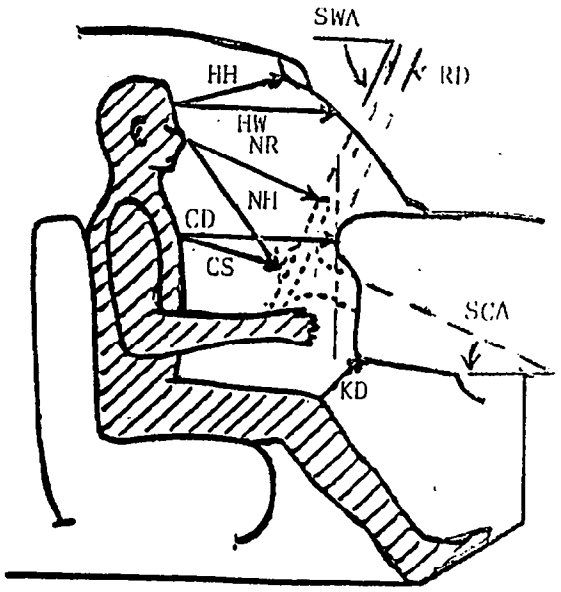
320		749

A	=	Left Door to Driver Centerline	11.0 in.
B	=	Left Door to Center Passenger Centerline	-- in.
C	=	Left Door to Right Passenger Centerline	39.0 in.
D	=	Left Door to Right Door	50.0 in.
E, F	=	Window Glass Height (Right and Left Must be Equal)	11.0 in.

NR	19.2"
NH	19.6"
SCA	23°
SWA	67°
RD	5.6"

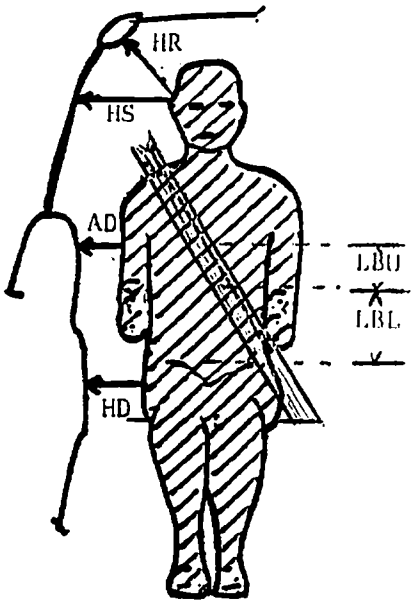
NR = Nose to Rim
NH = Nose to Hub
SCA = Steering Column Angle
SWA = Steering Wheel Rim Angle
RD = Rim to Dash

	Passenger
15.3"	15.4"
23.2"	23.2"
25.0"	24.7"
16.6"	--
10.0"	9.0"
10.0"	9.0"
--	--
25°	25°



HH = Head to Windshield Header
HW = Head to Windshield
CD = Chest to Dash
CS = Chest to Steering Wheel
KD = Knee to Dash
SA = Seat Back Angle
TA = Torso Angle

HR = Head to Side Roof
HS = Head to Side Window
AD = Arm to Door
HD = Hip to Door



	Driver	Passenger
LBU	15.4"	15.4"
LBL	12.2"	12.2"
LBT	*	*
SBT	*	*
HR	4.6"	4.7"
HS	7.7"	7.6"
AD	3.0"	3.6"
HD	6.0"	5.7"

LBU = Lap to Belt Upper Edge
LBL = Lap to Belt Lower Edge
LBT = Lap Belt Tension
SBT = Shoulder Belt Tension

* Retractor Force

Figure 9 OCCUPANT CLEARANCE DIMENSIONS

Table 10

DUMMY INJURY CRITERIA VALUES

	MAXIMUM ACCELERATION ("G")							
	HEAD				CHEST			
	X	Y	Z	R	X	Y	Z	R *
DUMMY (1)	-233	-79	168	293	-53	9.8	13.3	44.5
DUMMY (2)	-20	18.5	60	62	-34	13	12	31.8
DUMMY (3)								
DUMMY (4)								

	MAXIMUM FORCE-FEMUR LOAD (LBS)	
	RIGHT FEMUR	LEFT FEMUR
DUMMY (1)	1070	510
DUMMY (2)	20	460
DUMMY (3)		
DUMMY (4)		

	MAXIMUM FORCE-SEAT BELTS LOADS (LBS)		
	SHOULDER STRAP UPPER BELT LOAD	LAP STRAP RIGHT BELT LOAD	LAP STRAP LEFT BELT LOAD
DUMMY (1)	1335	--	1009
DUMMY (2)	1540	1410	--
DUMMY (3)			
DUMMY (4)			

	HEAD INJURY CRITERIA**				SEVERITY INDEX
	HIC	t_1 (SEC)	t_2 (SEC)	AVE. ACC. (g) t_1 TO t_2	HEAD
DUMMY (1)	1992.1	.07995	.08602	160.8	2728.7
DUMMY (2)	581.7	.05880	.13665	35.4	740.6
DUMMY (3)					
DUMMY (4)					

*DEFINED AS EXCEEDING 0.003 SEC. DURATION

**AS DEFINED IN FMVSS NO. 208

Table 11
BELT RELATED DATA

	Driver	Passenger
Belt Spool-off (in.)		
film	5.2	4.3
electronic	5.6	4.5
Belt Strain[1]	.8" per ft.	1.0" per ft.
Belt Length Data (in.)		
total length [2]	covered	covered
retractor to "D" ring [2]	covered	covered
torso belt [3]	31.0	31.2
lap belt [3]	31.5	31.5
remainder on spool	26.5	27.0

---

[1] as measured between retractor and "D" ring

[2] retractor spool to bolt hole anchor point for unibelts

[3] as measured on Part 572 dummy

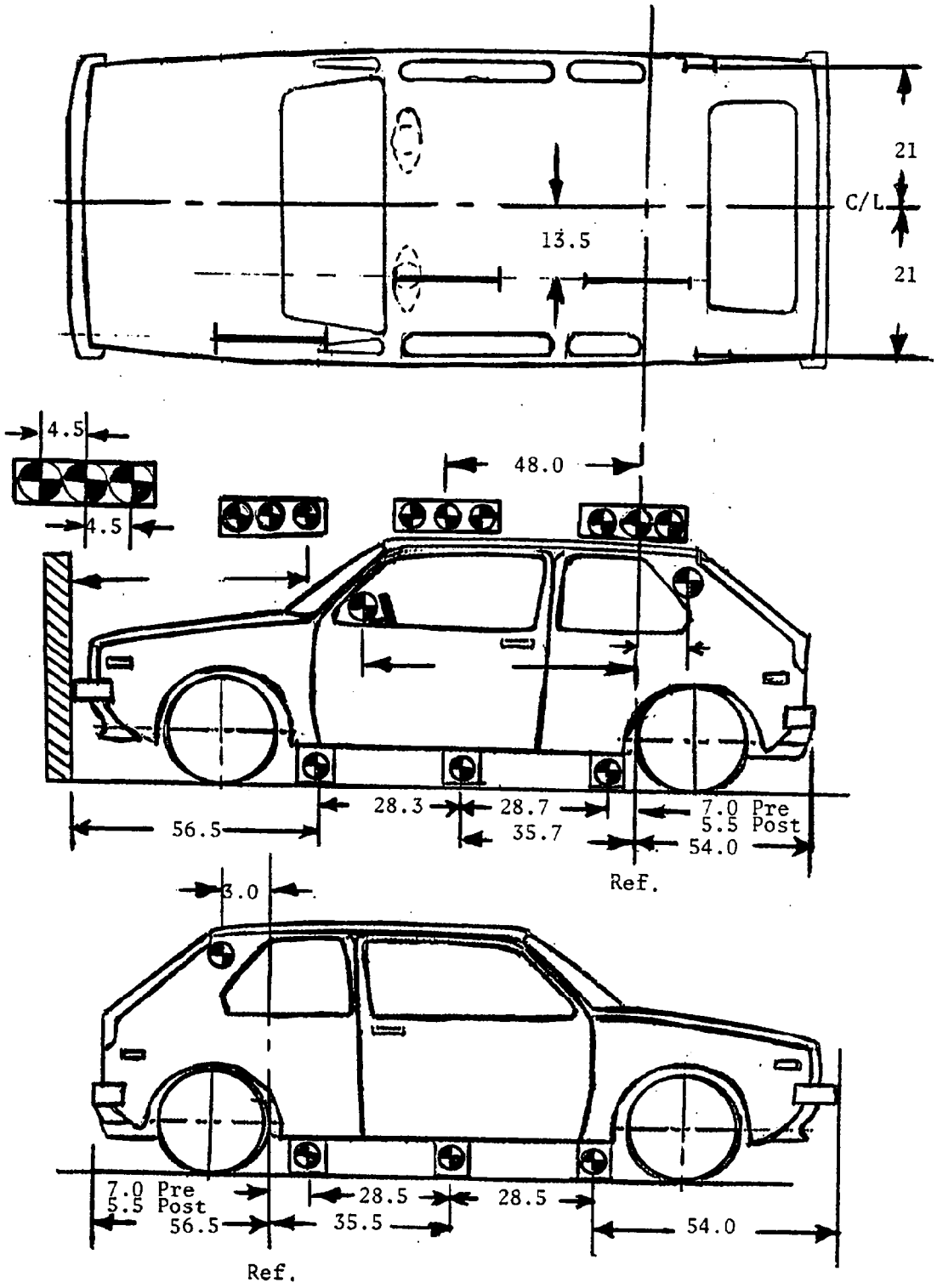
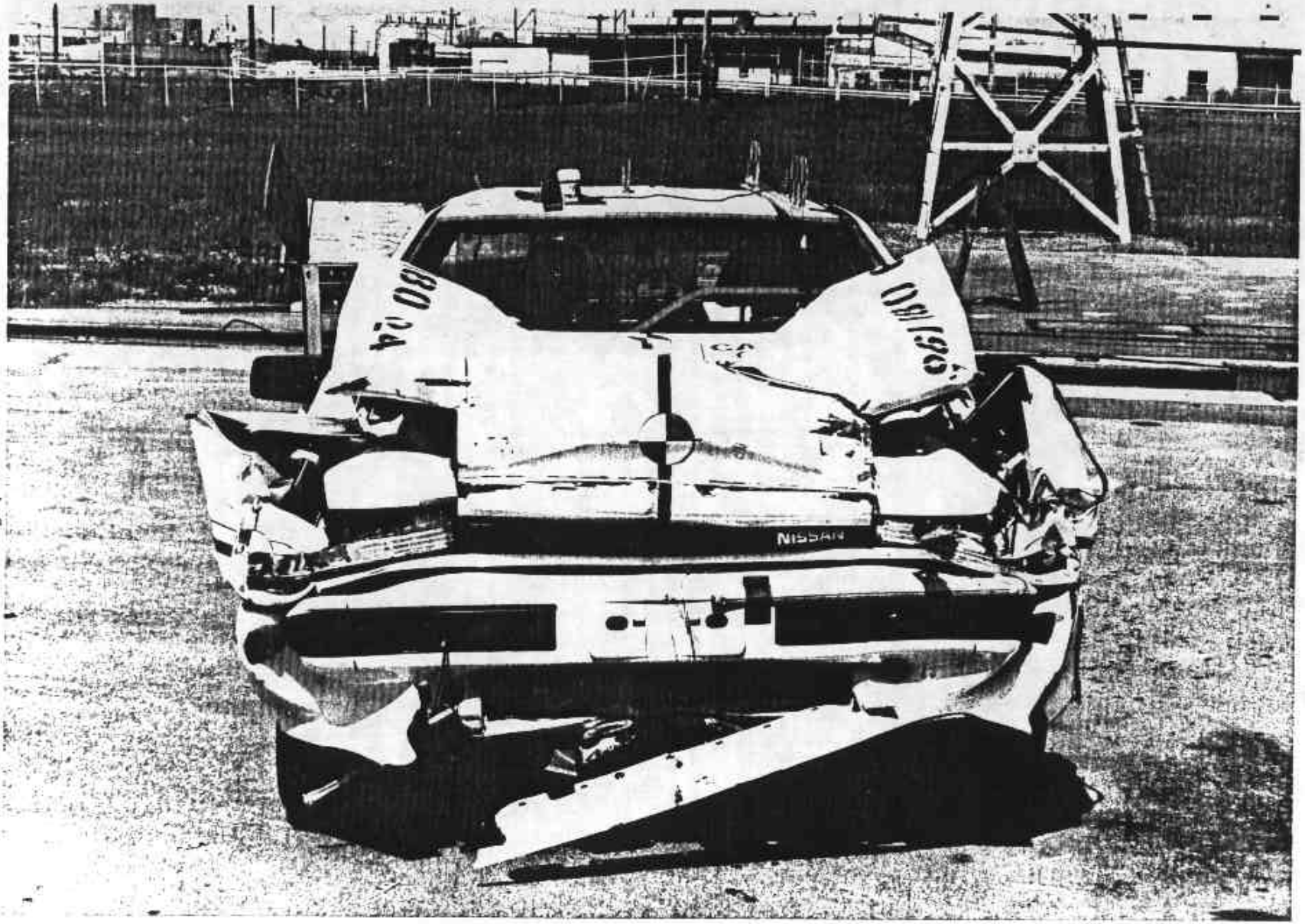


Figure 10 VEHICLE TARGET LOCATIONS

APPENDIX A

PHOTOGRAPHS

Figure A-1 PRE-TEST FRONT VIEW



7209-18

Figure A-2 POST-TEST FRONT VIEW

Figure A-3 PRE-TEST LEFT SIDE VIEW

7209-18

Figure A-4 POST-TEST LEFT SIDE VIEW

7209-18

Figure A-5 PRE-TEST RIGHT SIDE VIEW

7209-18

Figure A-6 POST-TEST RIGHT SIDE VIEW

7209-18

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

7209-18

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

A-10

7209-18

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

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

7209-18

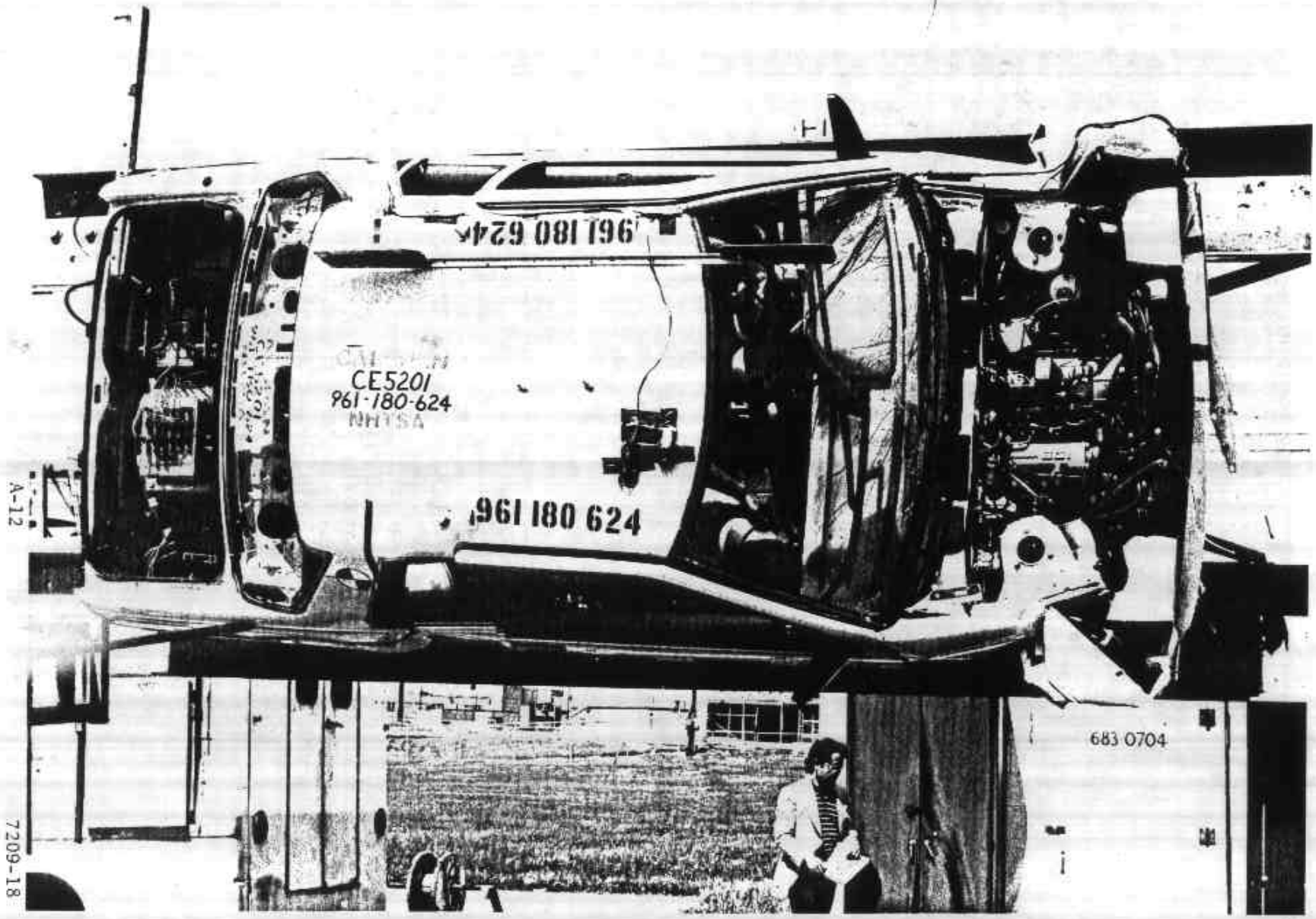


Figure A-11 POST-TEST TOP VIEW

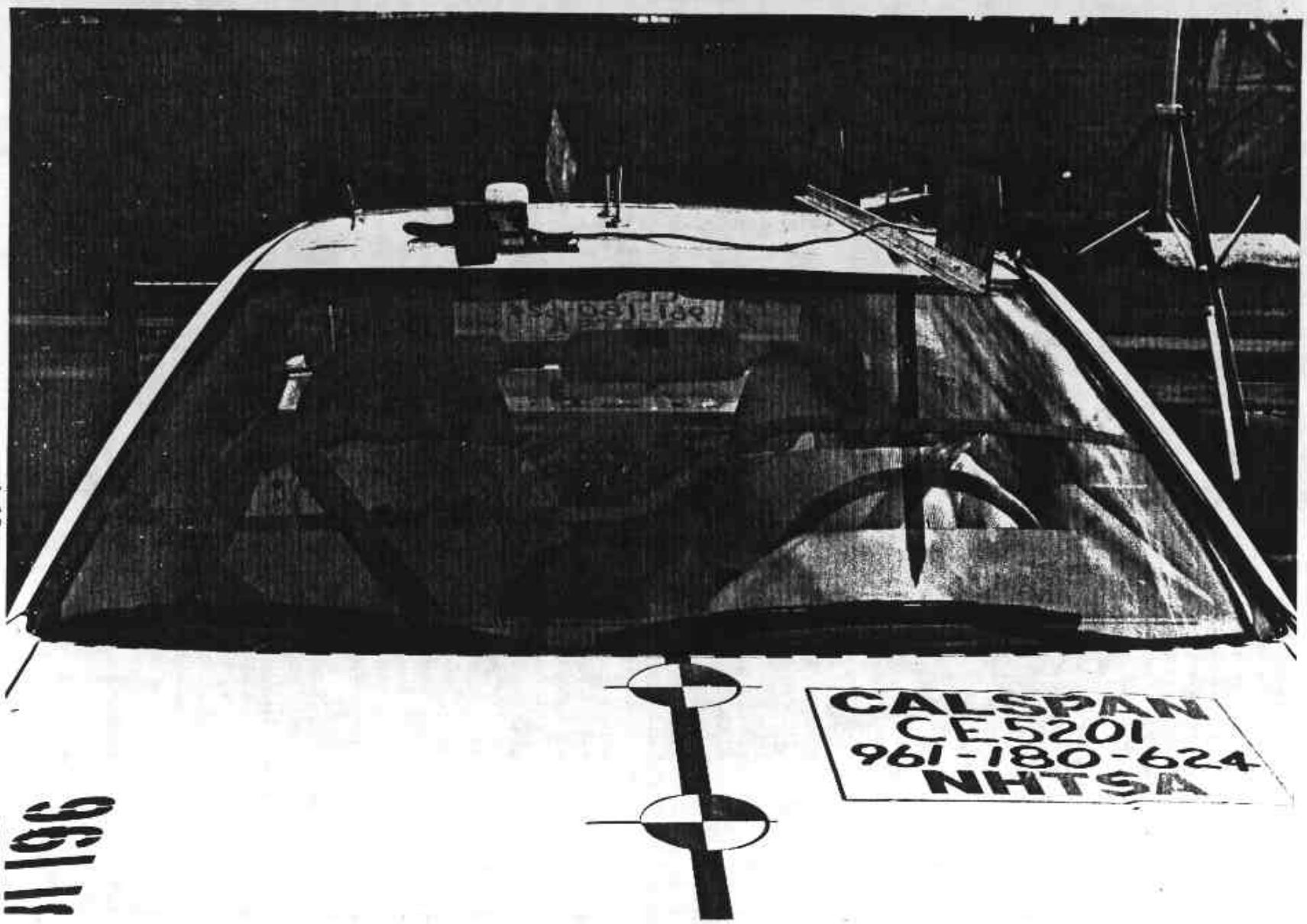
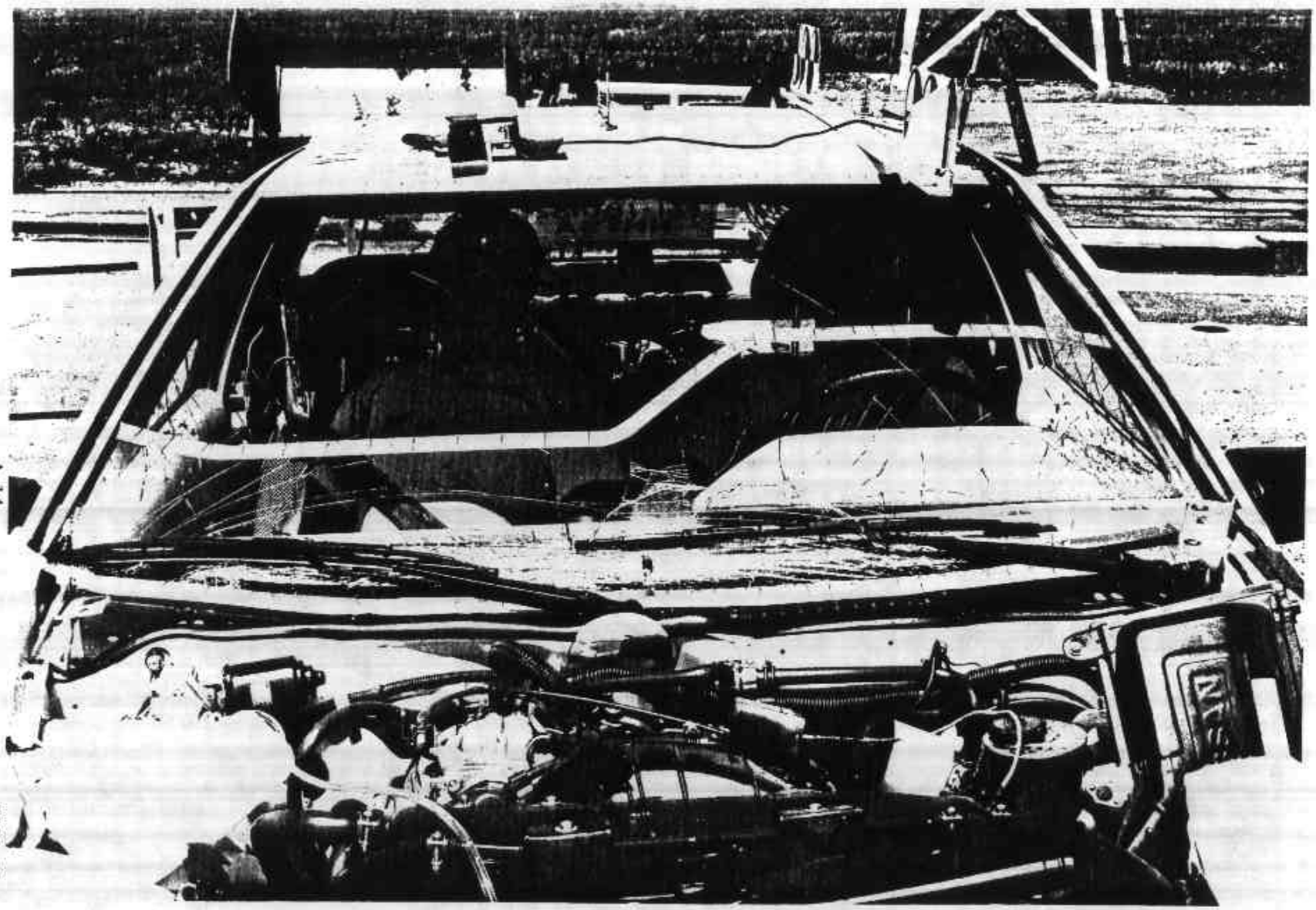


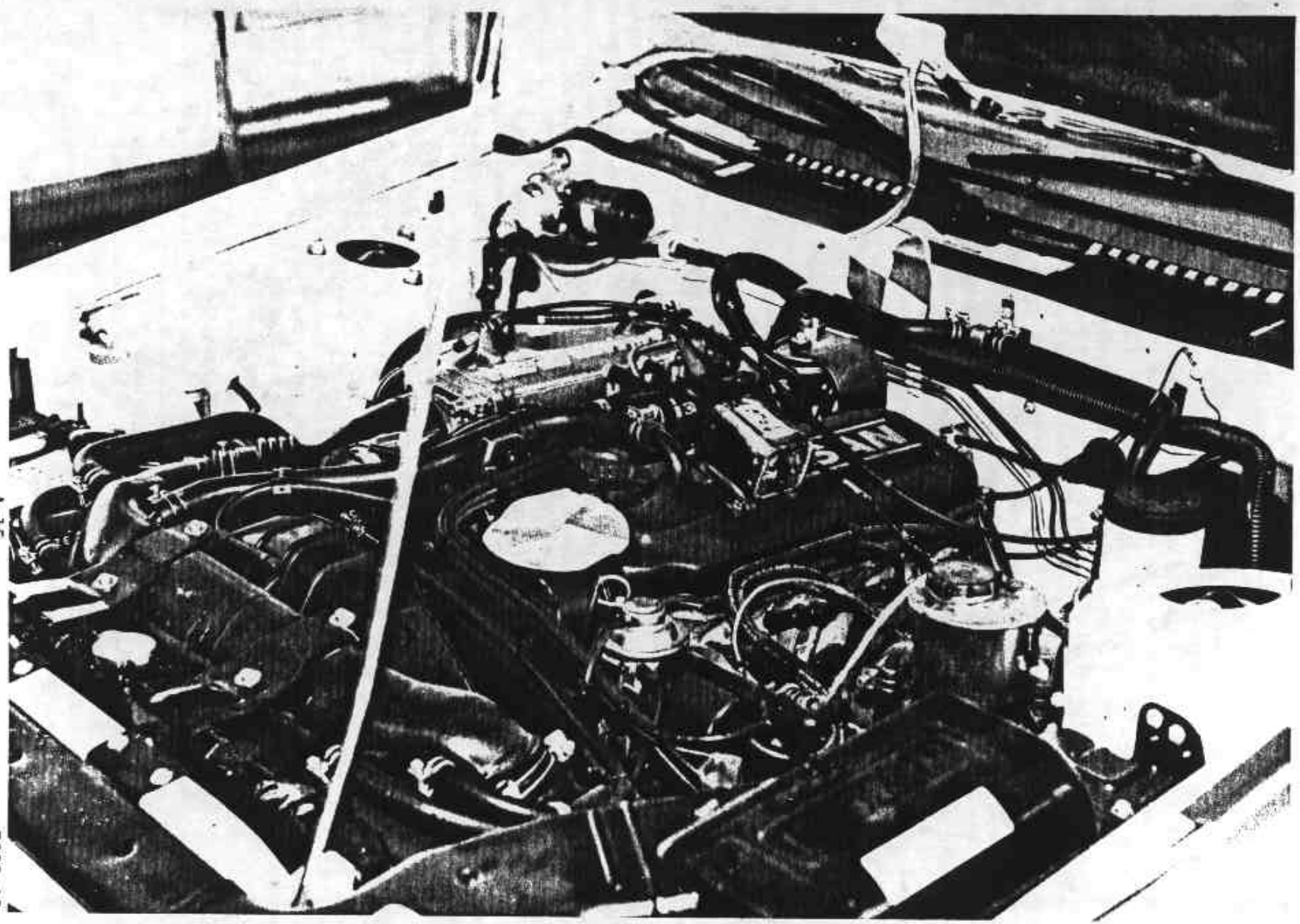
Figure A-12 PRE-TEST WINDSHIELD VIEW



A-14

7209-18

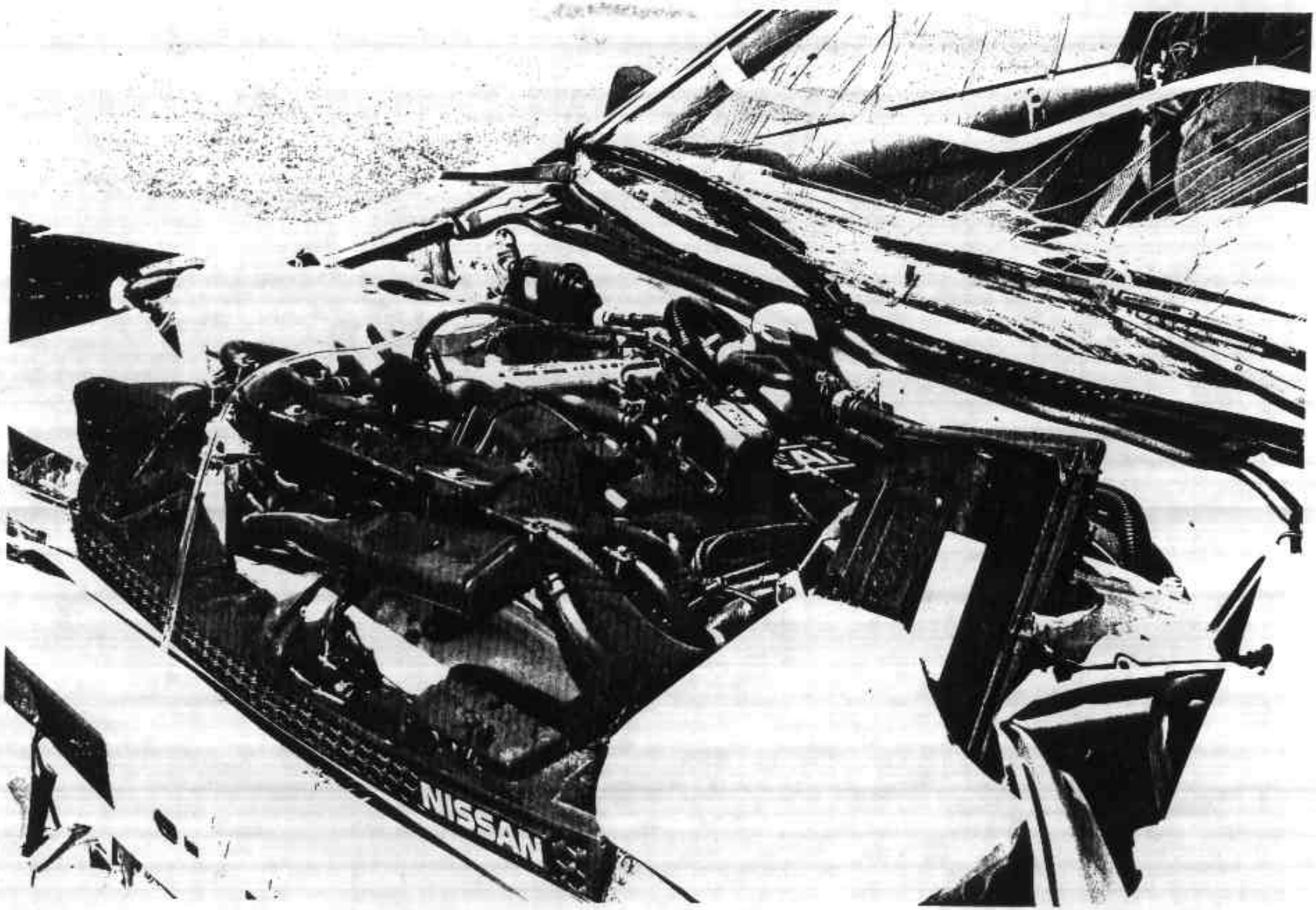
Figure A-13 POST TEST WINDSHIELD VIEW



A-15

7209-18

Figure A-14 PRE-TEST ENGINE COMPARTMENT VIEW



A-16

7209-18

Figure A-15 POST-TEST ENGINE COMPARTMENT VIEW

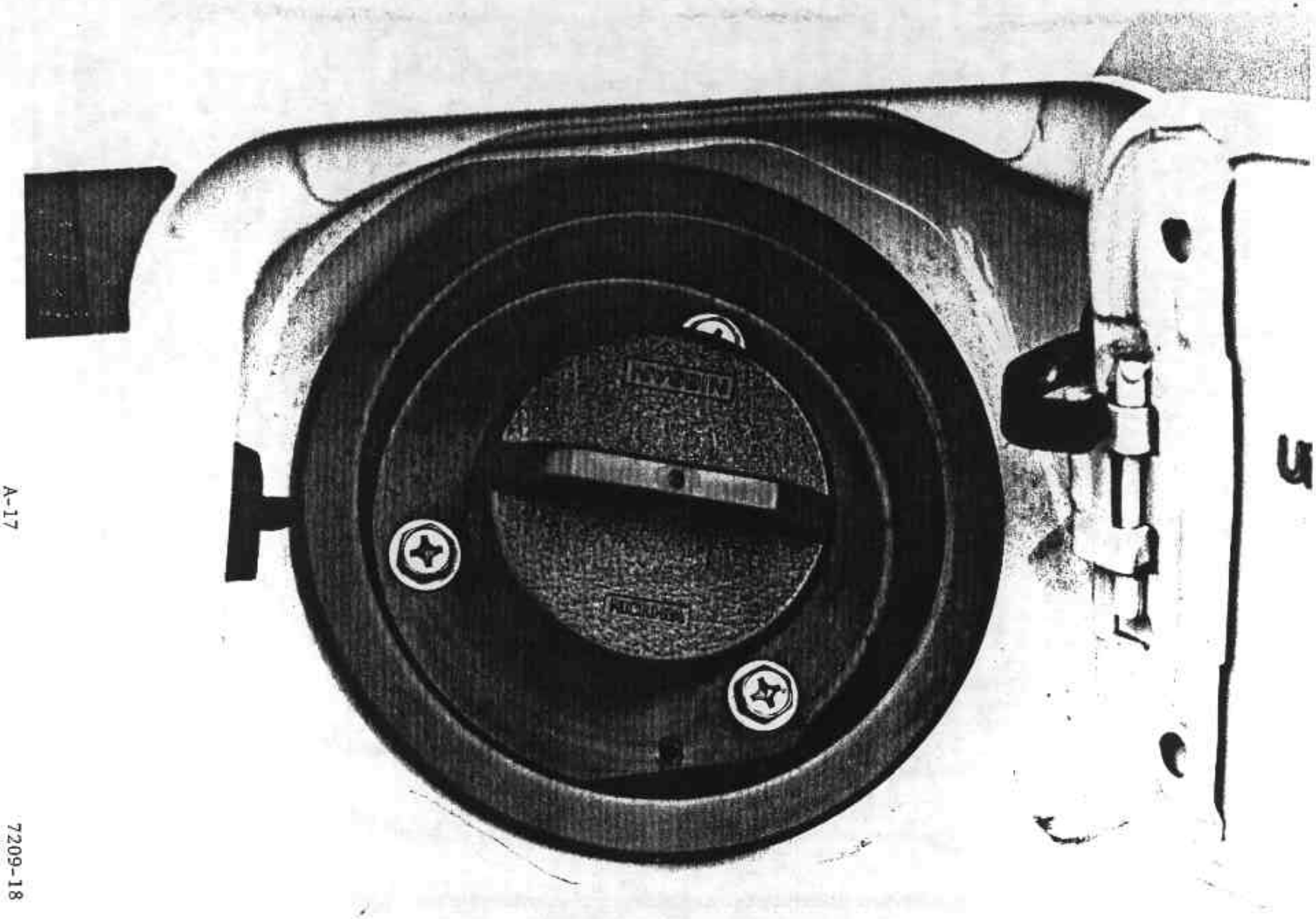
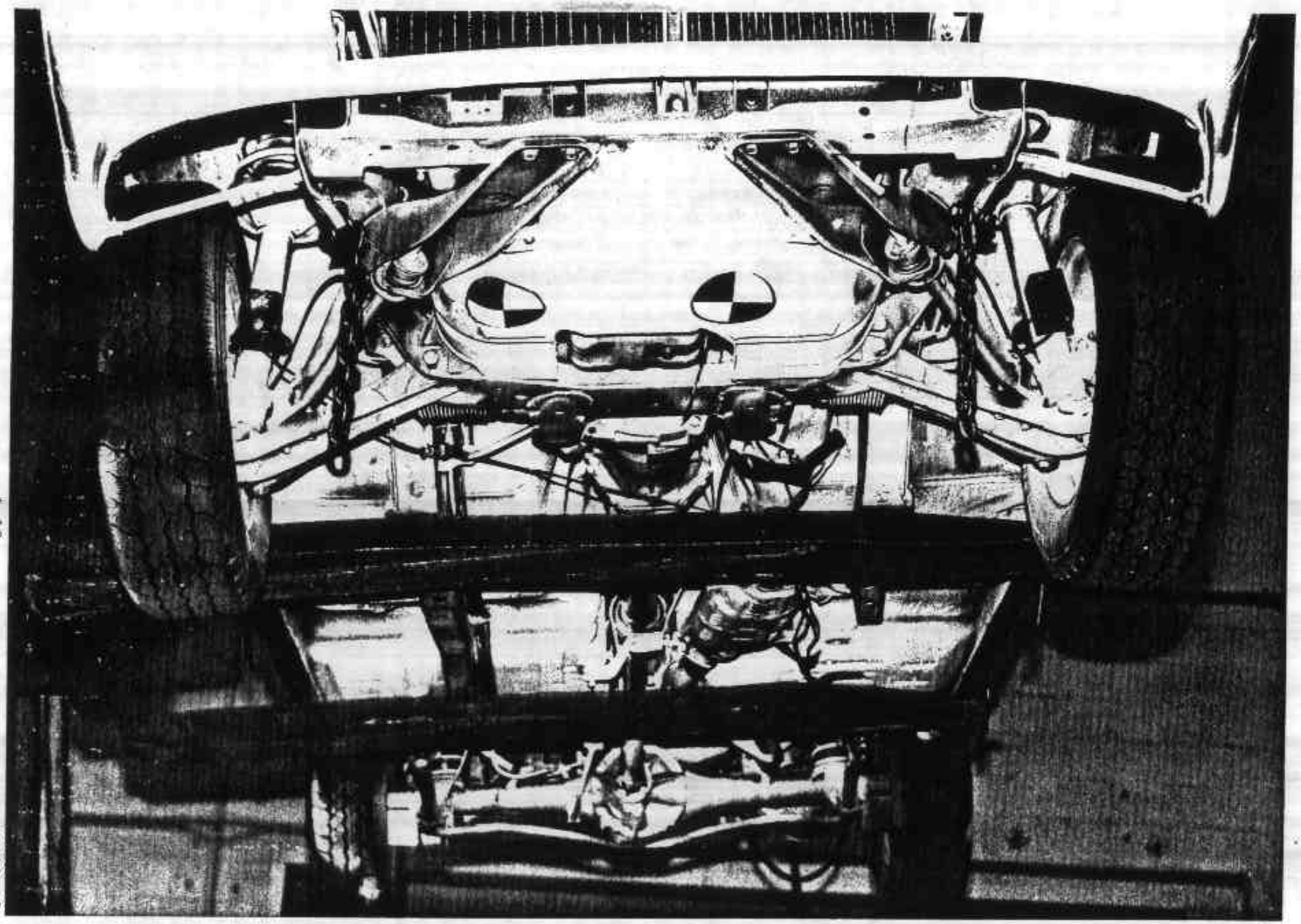
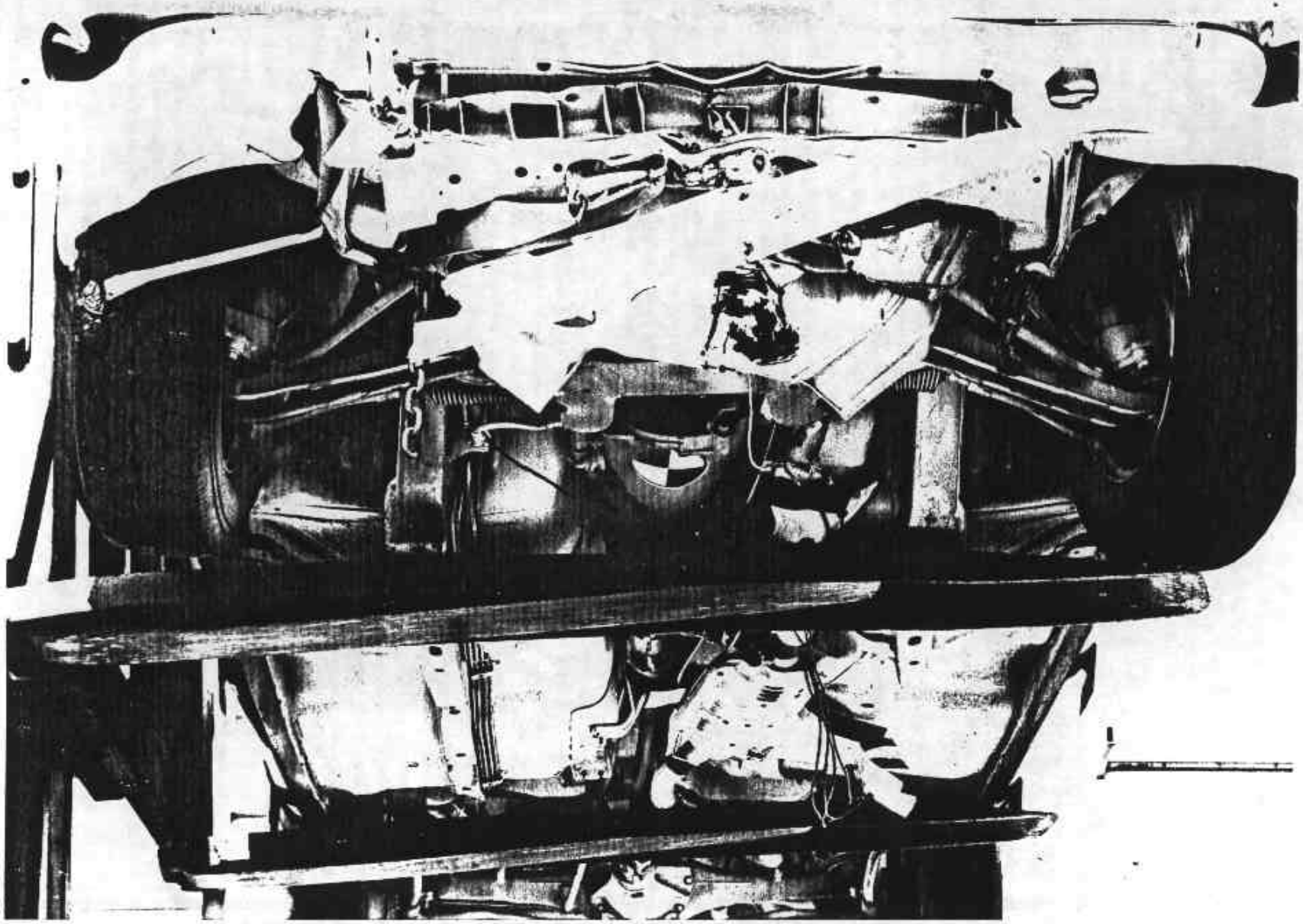


Figure A-16 PRE-TEST FILLER CAP VIEW



7209-18

Figure A-17 PRE-TEST FRONT UNDERBODY VIEW



A-19

7209-18

Figure A-18 POST-TEST FRONT UNDERBODY VIEW

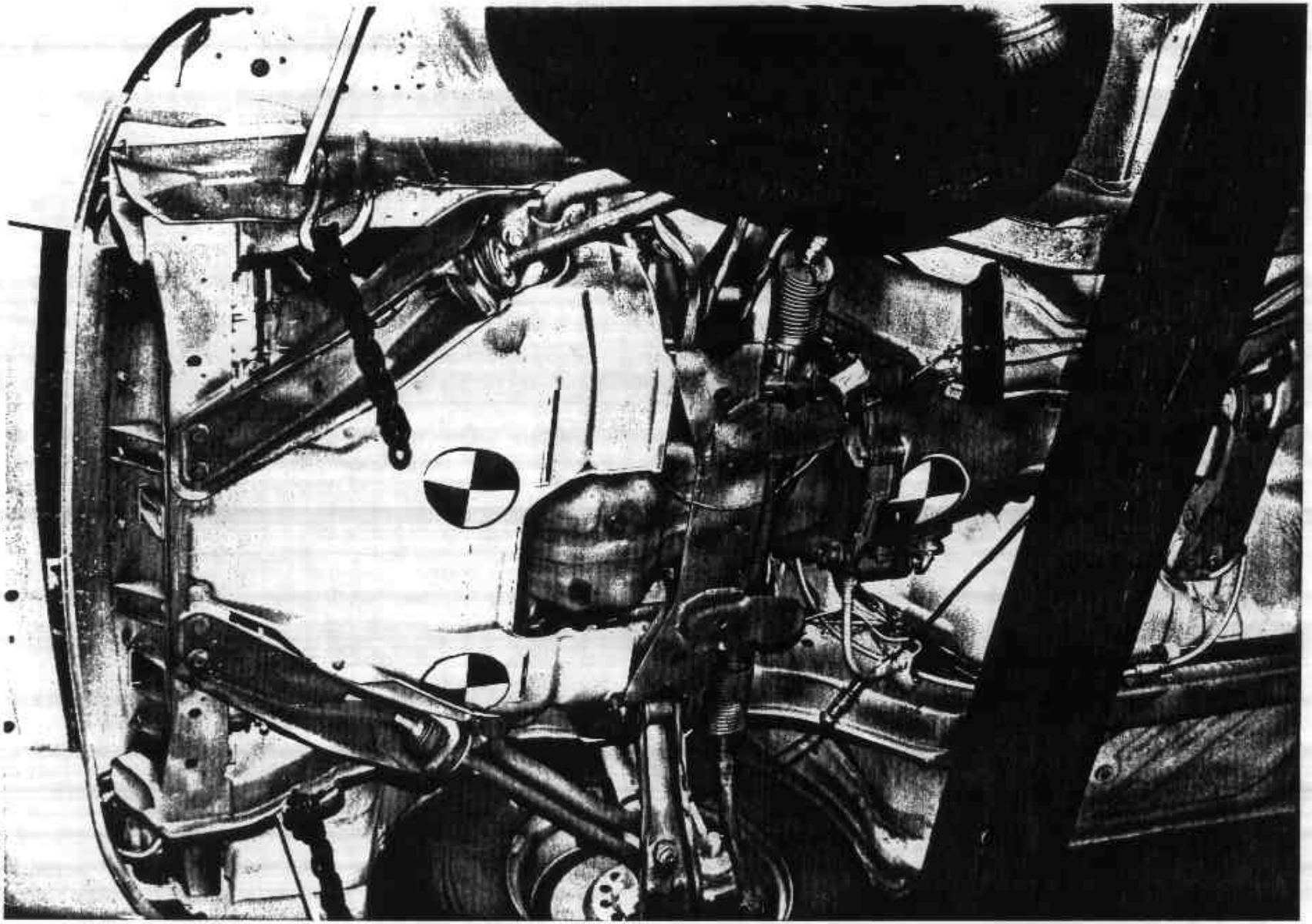


Figure A-19 PRE-TEST FRONT UNDERBODY SIDE VIEW

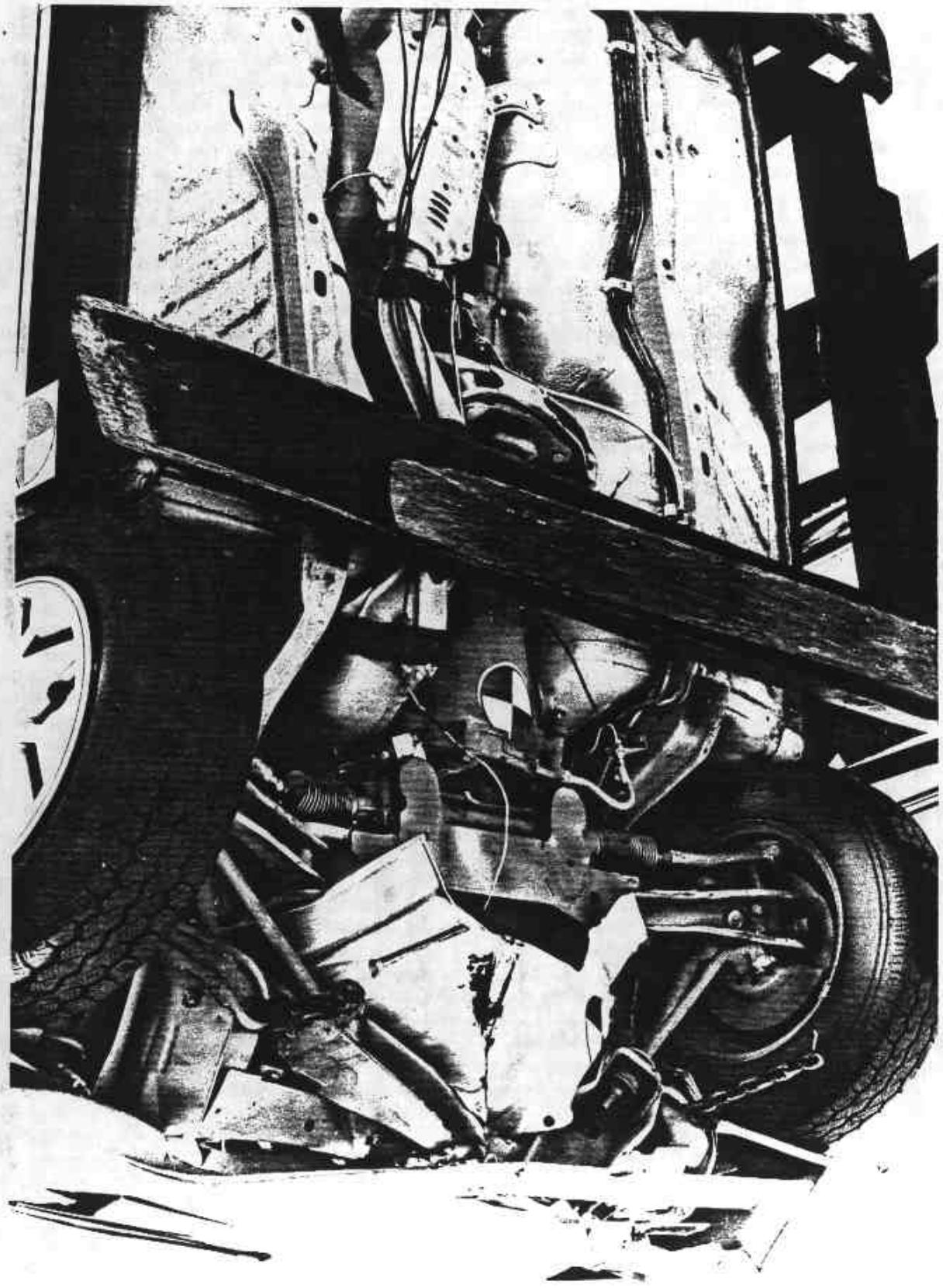


Figure A-20 POST-TEST FRONT UNDERBODY SIDE VIEW

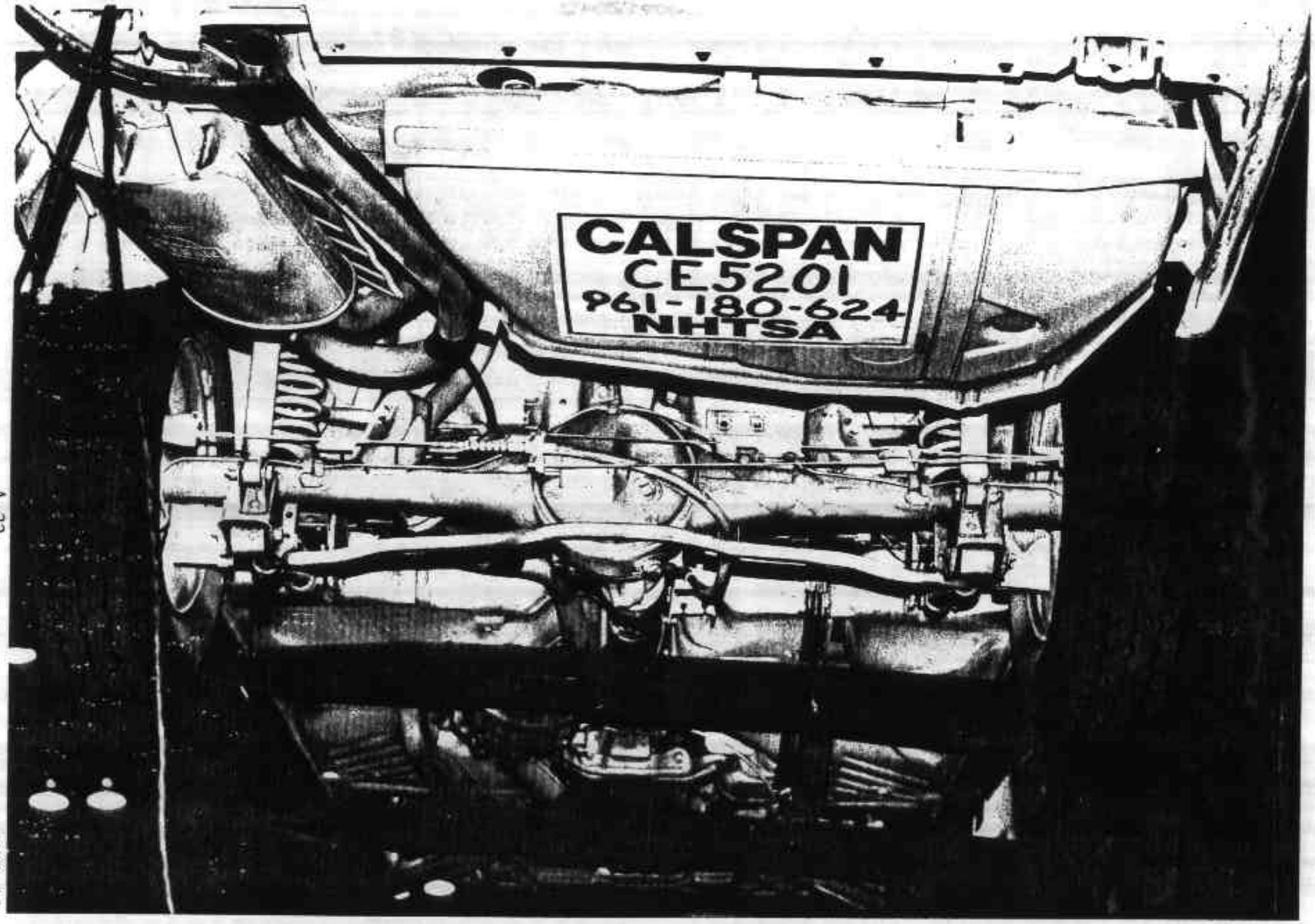


Figure A-21 PRE-TEST REAR UNDERBODY VIEW

7209-18

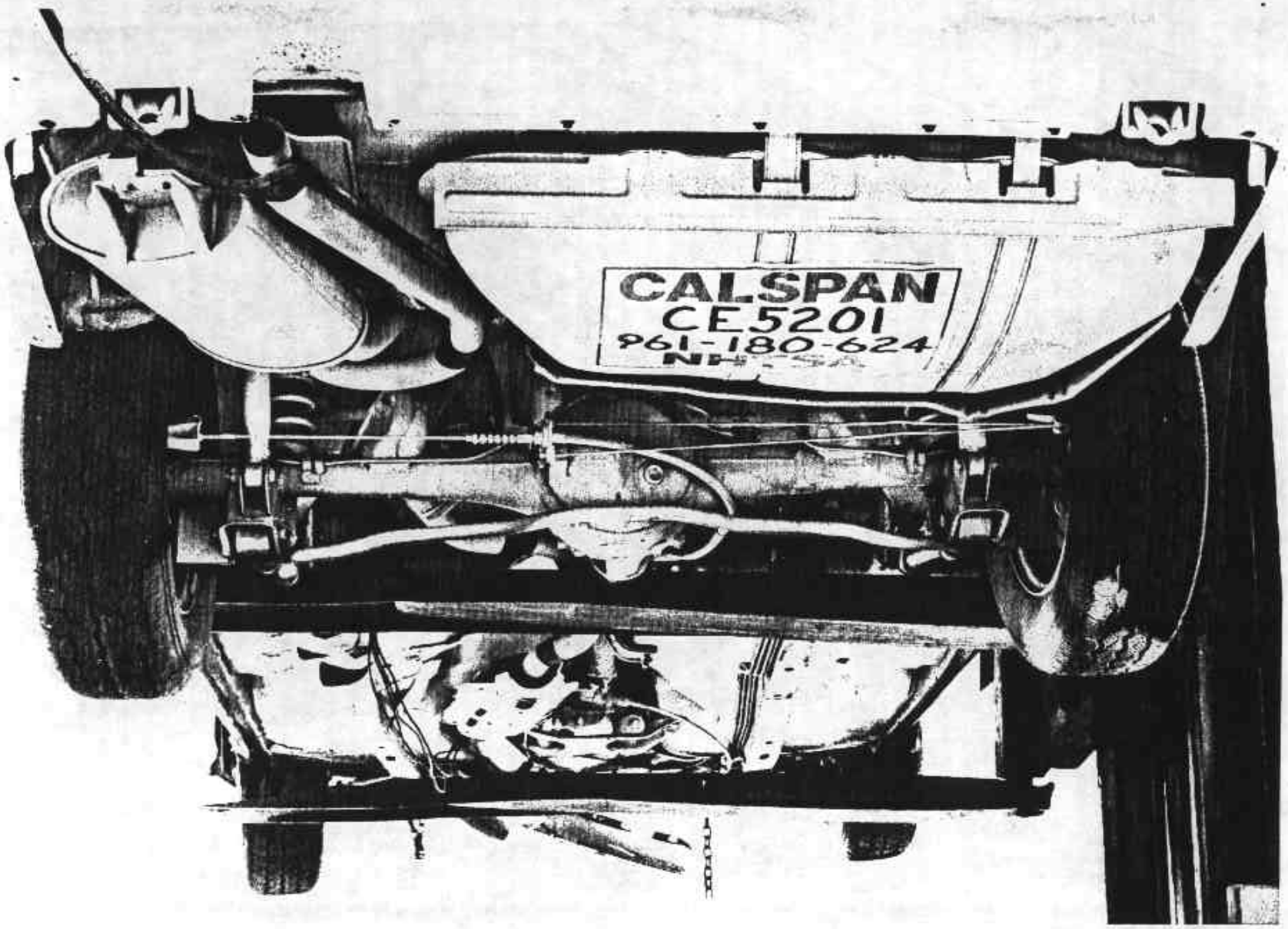


Figure A-22 POST-TEST REAR UNDERBODY VIEW

A-24

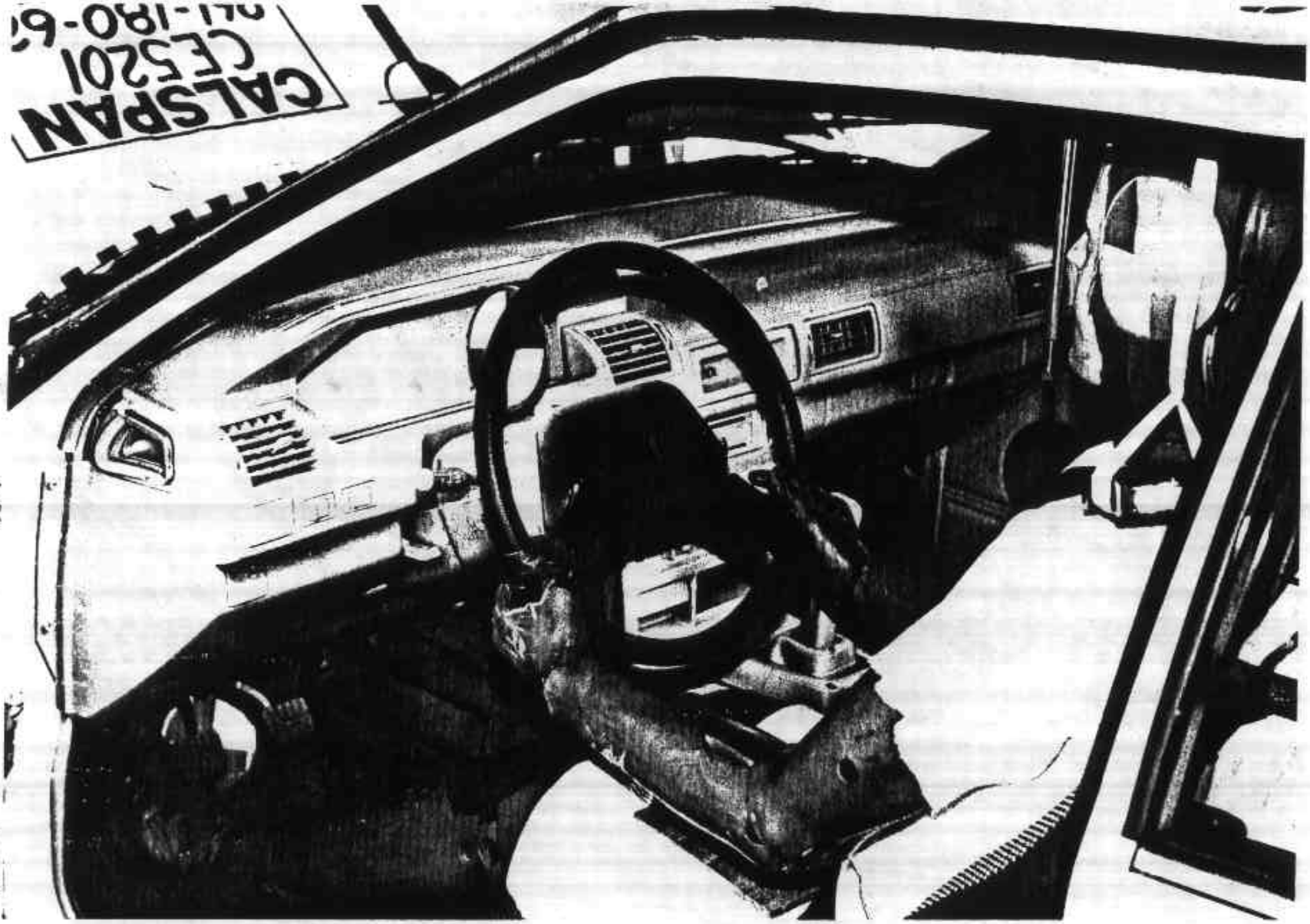
7209-18

Figure A-23 PRE-TEST DRIVER POSITION VIEW

A-25

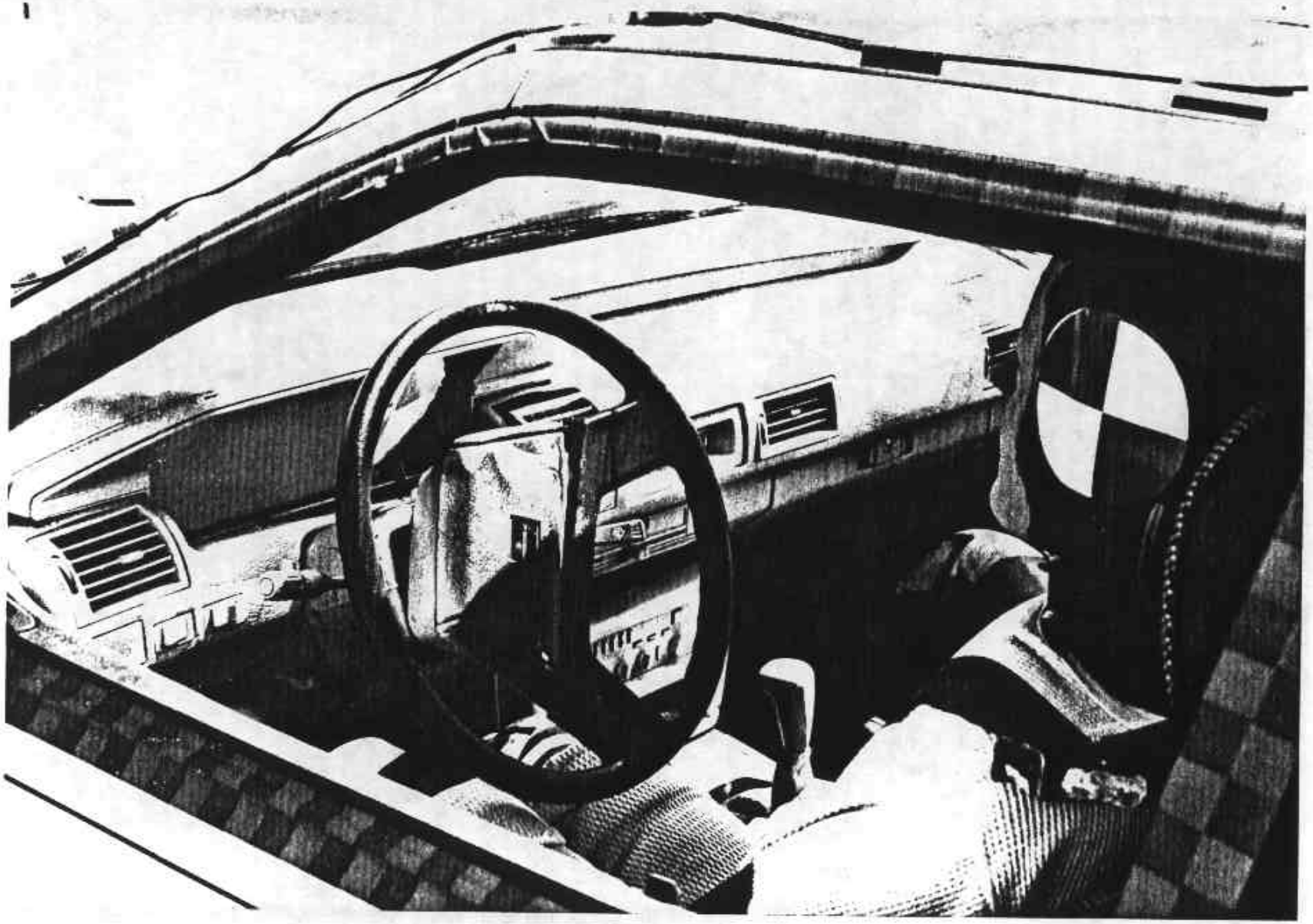
7209-18

Figure A-24 POST-TEST DRIVER POSITION VIEW



7209-18

Figure A-25 PRE-TEST DRIVER AND INTERIOR VIEW



A-27

7209-18

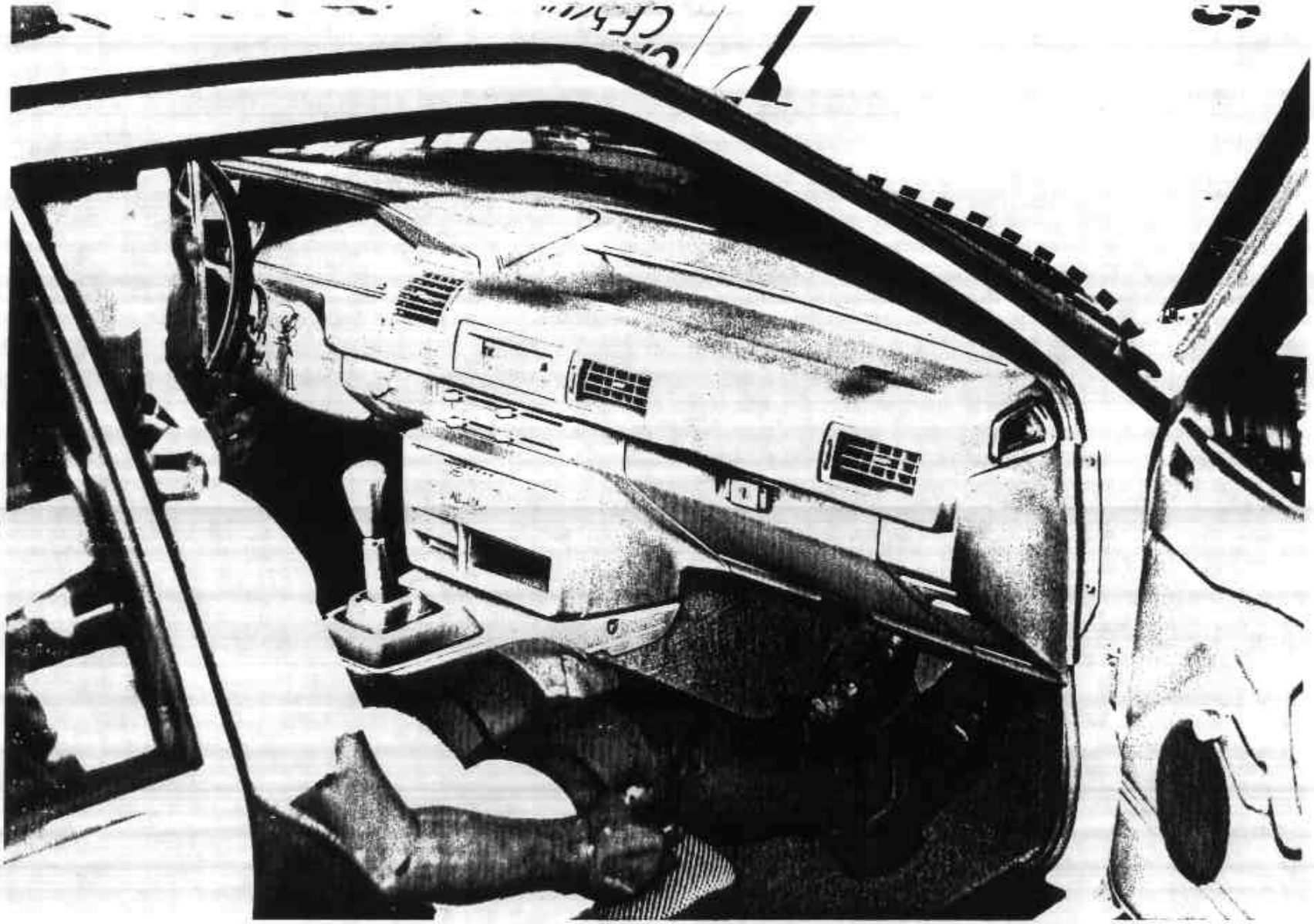
Figure A-26 POST-TEST DRIVER AND INTERIOR VIEW

Figure A-27 PRE-TEST PASSENGER POSITION VIEW

7209-18

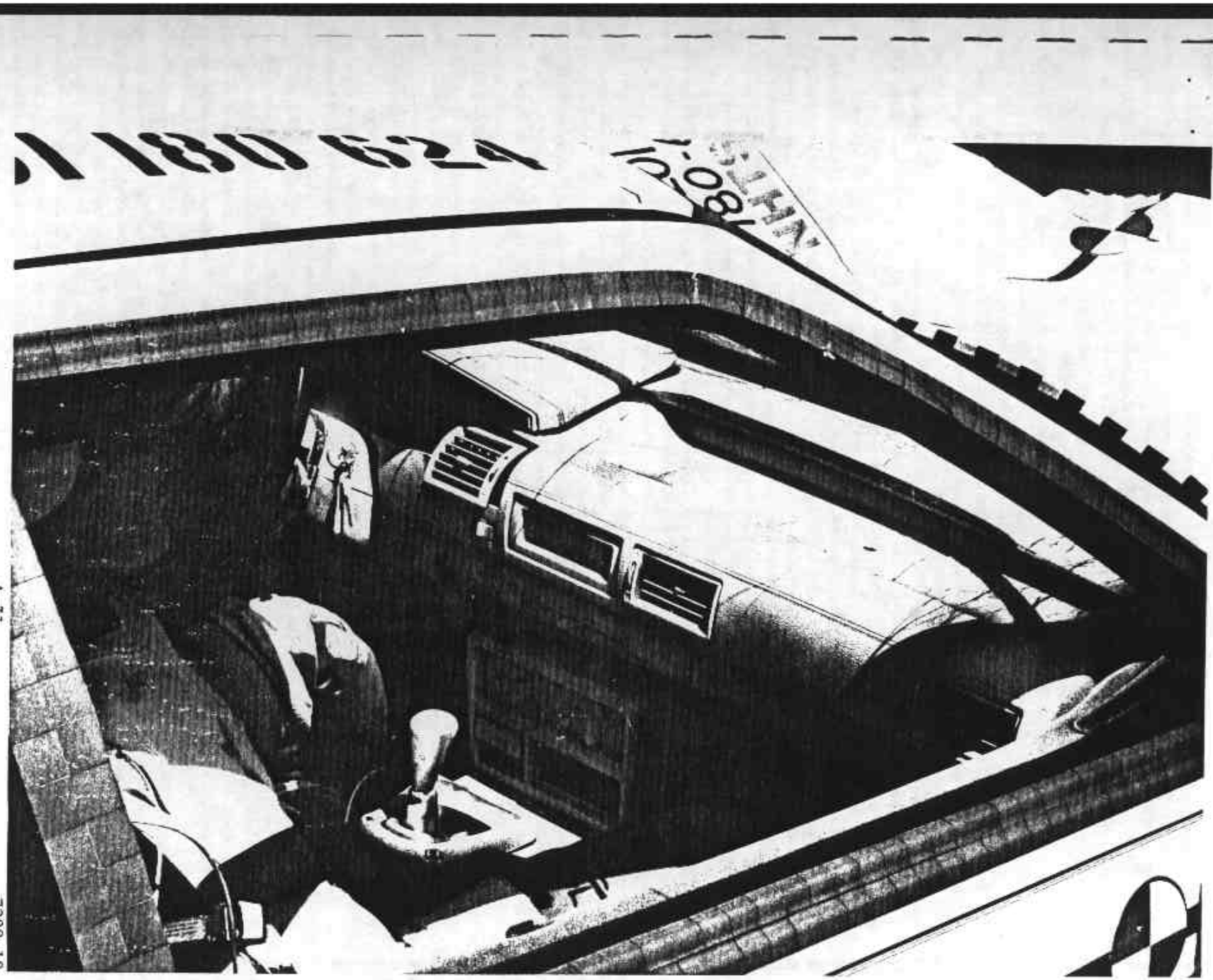
Figure A-28 POST-TEST PASSENGER POSITION VIEW

7209-18



7209-18

Figure A-29 PRE-TEST PASSENGER AND INTERIOR VIEW



A-31

7209-18

Figure A-30 POST-TEST PASSENGER AND INTERIOR VIEW

APPENDIX B

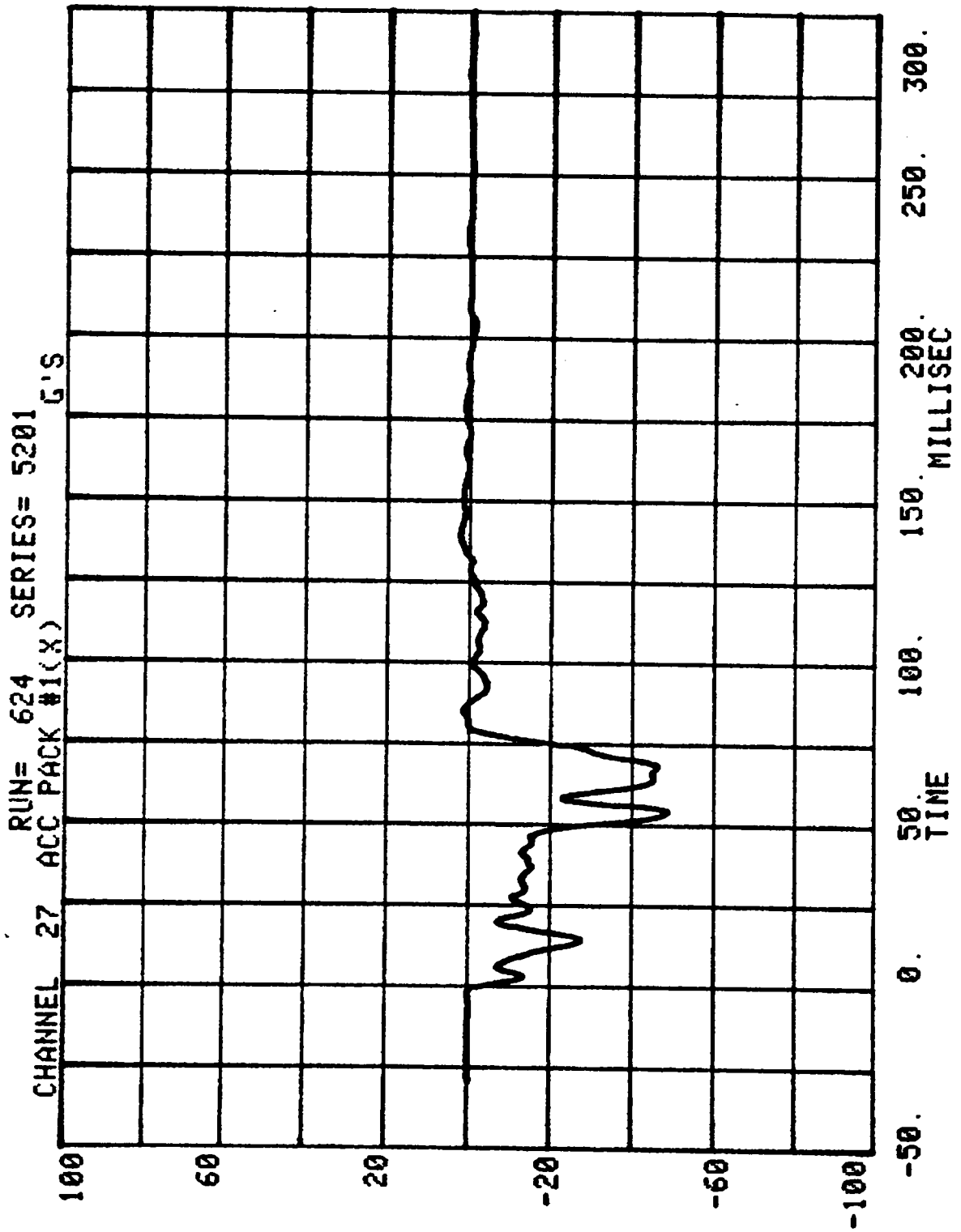
VEHICLE AND DUMMY RESPONSE DATA

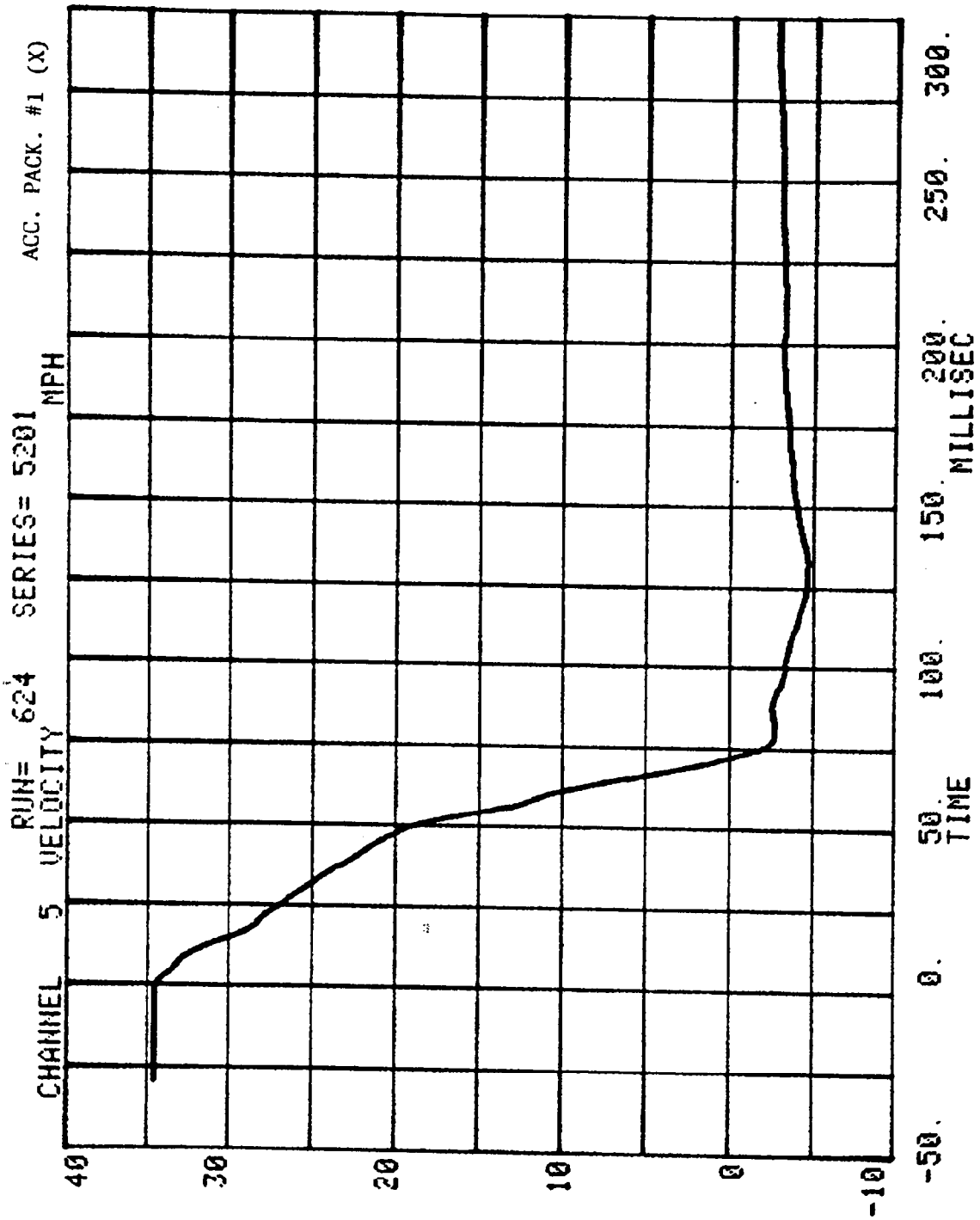
TEST NO. CE5201

VEHICLE DATA

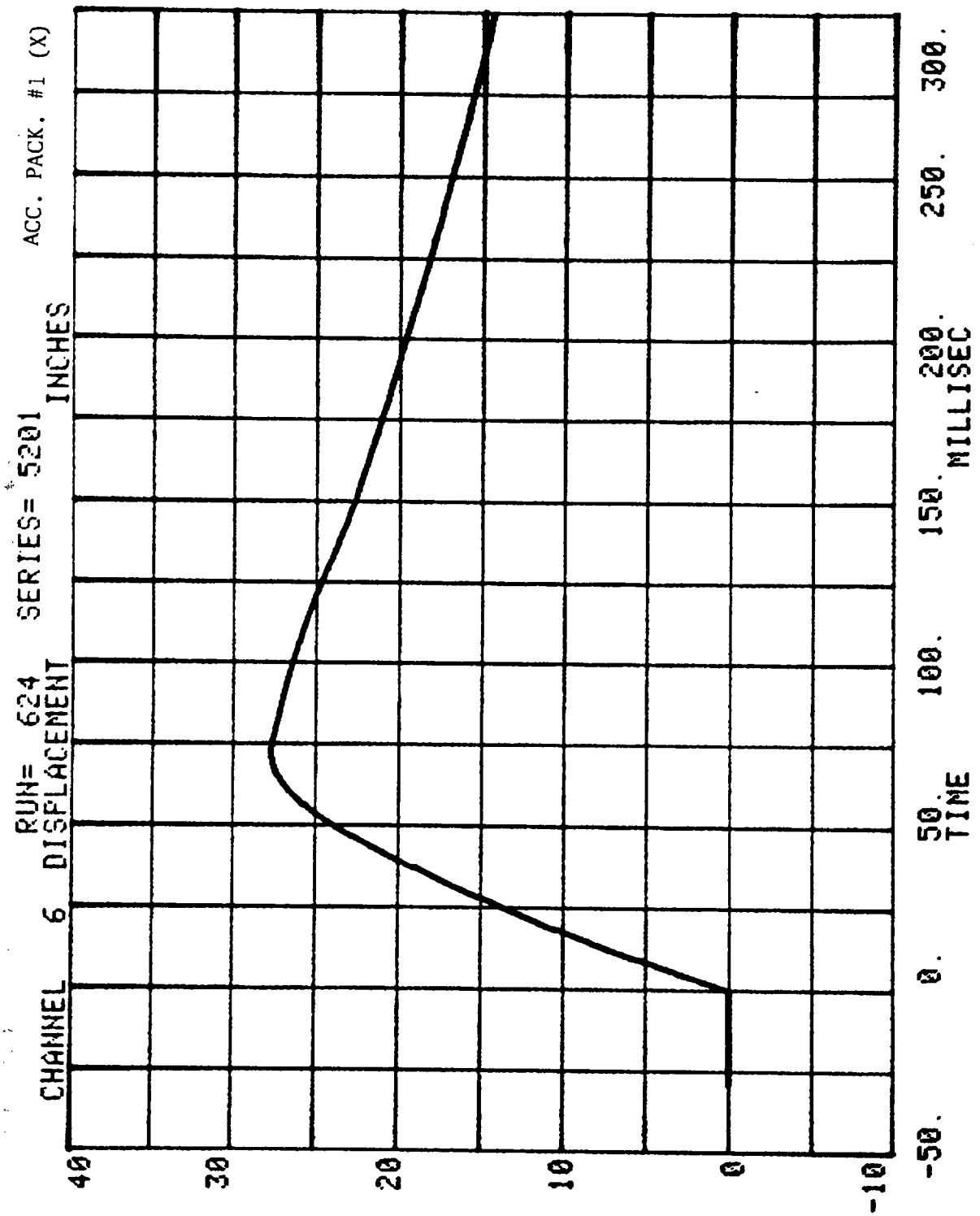
FILTER CHANNEL CLASS

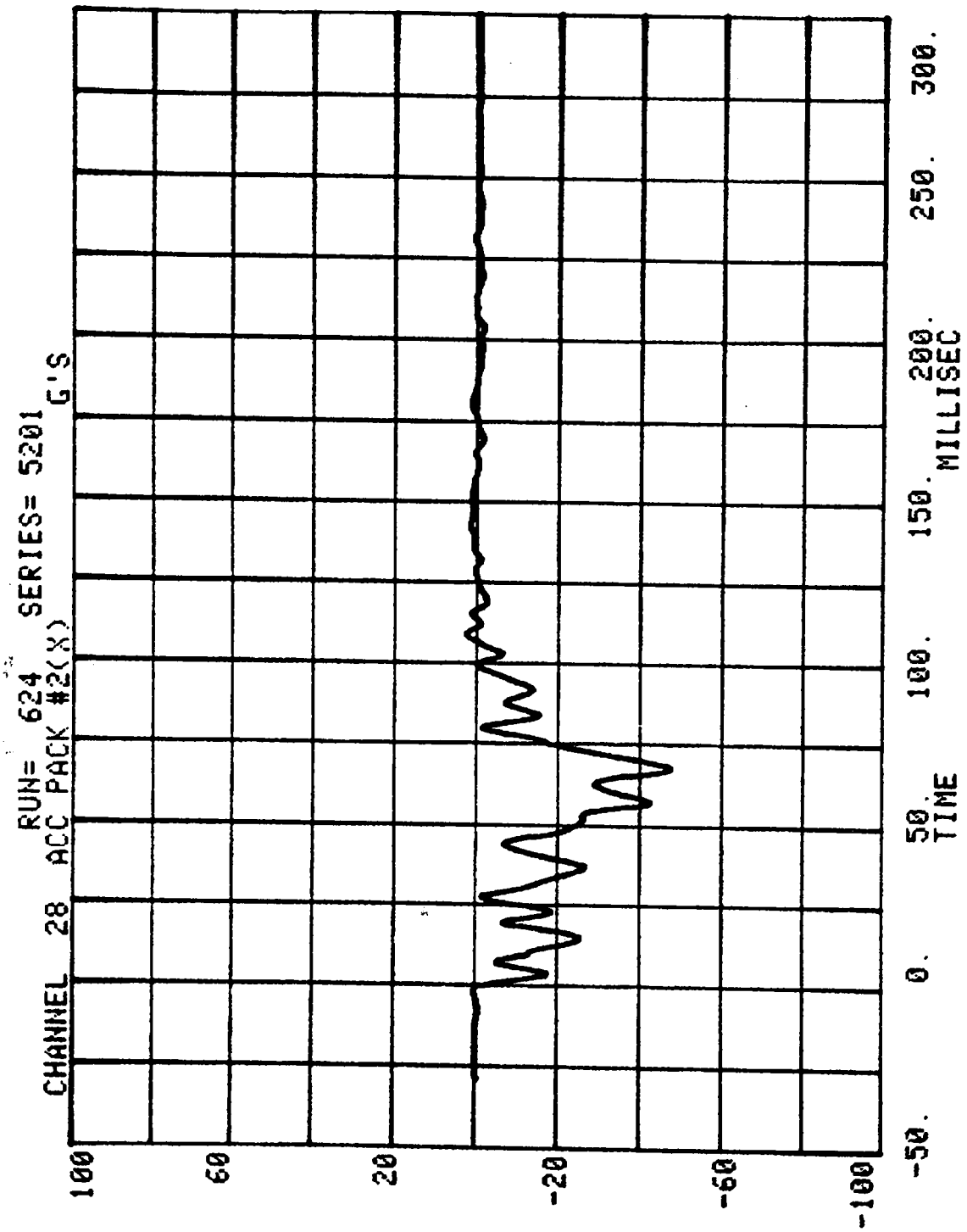
60


CHANNEL 27 ACC PACK #1(X)
RUN= 624 SERIES= 5201
G'S
100
60
20
-20
-60
-100
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

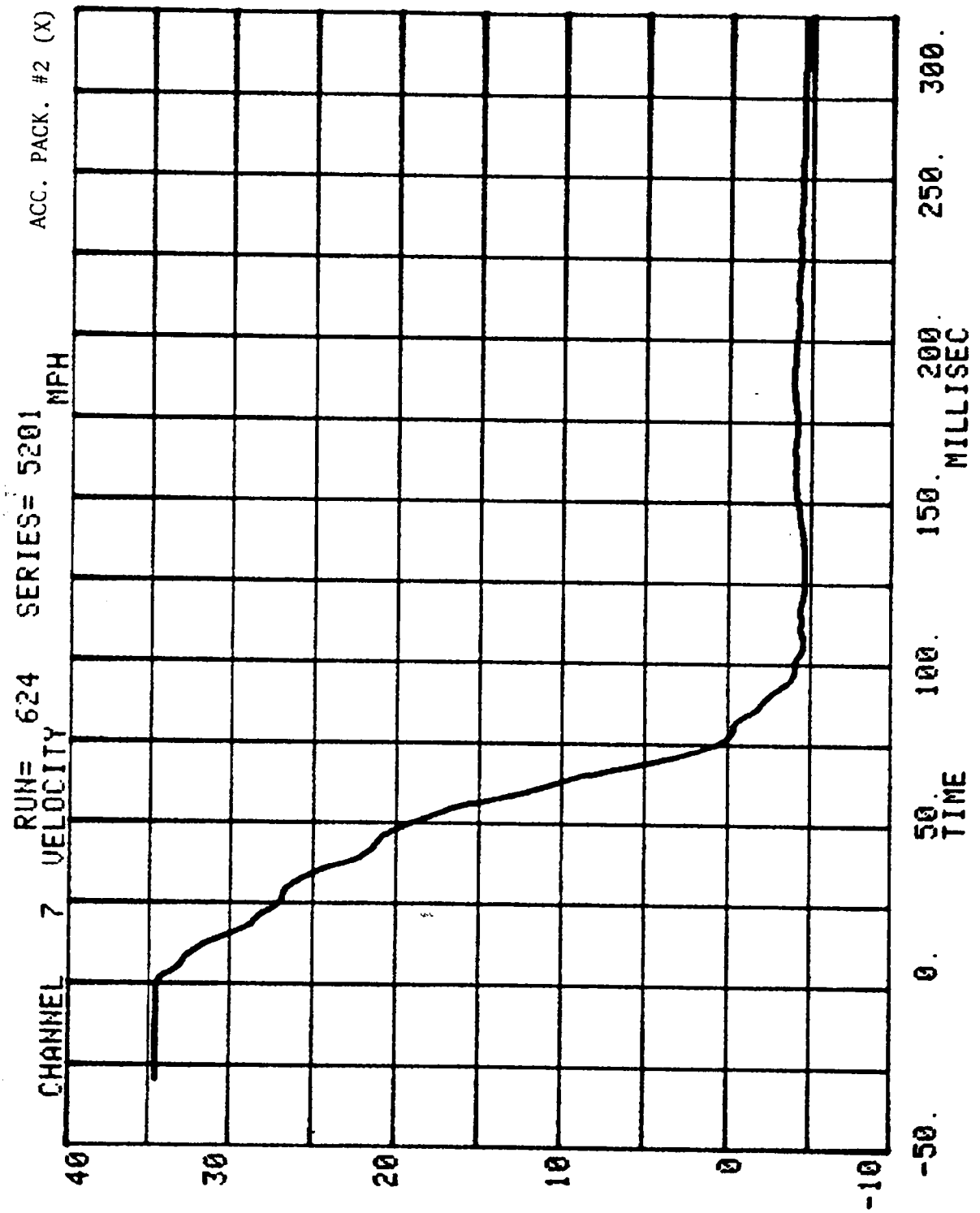

CHANNEL 5 VELOCITY
RUN= 624 SERIES= 5201
ACC. PACK. #1 (X)
MPH
40
30
20
10
0
-10
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

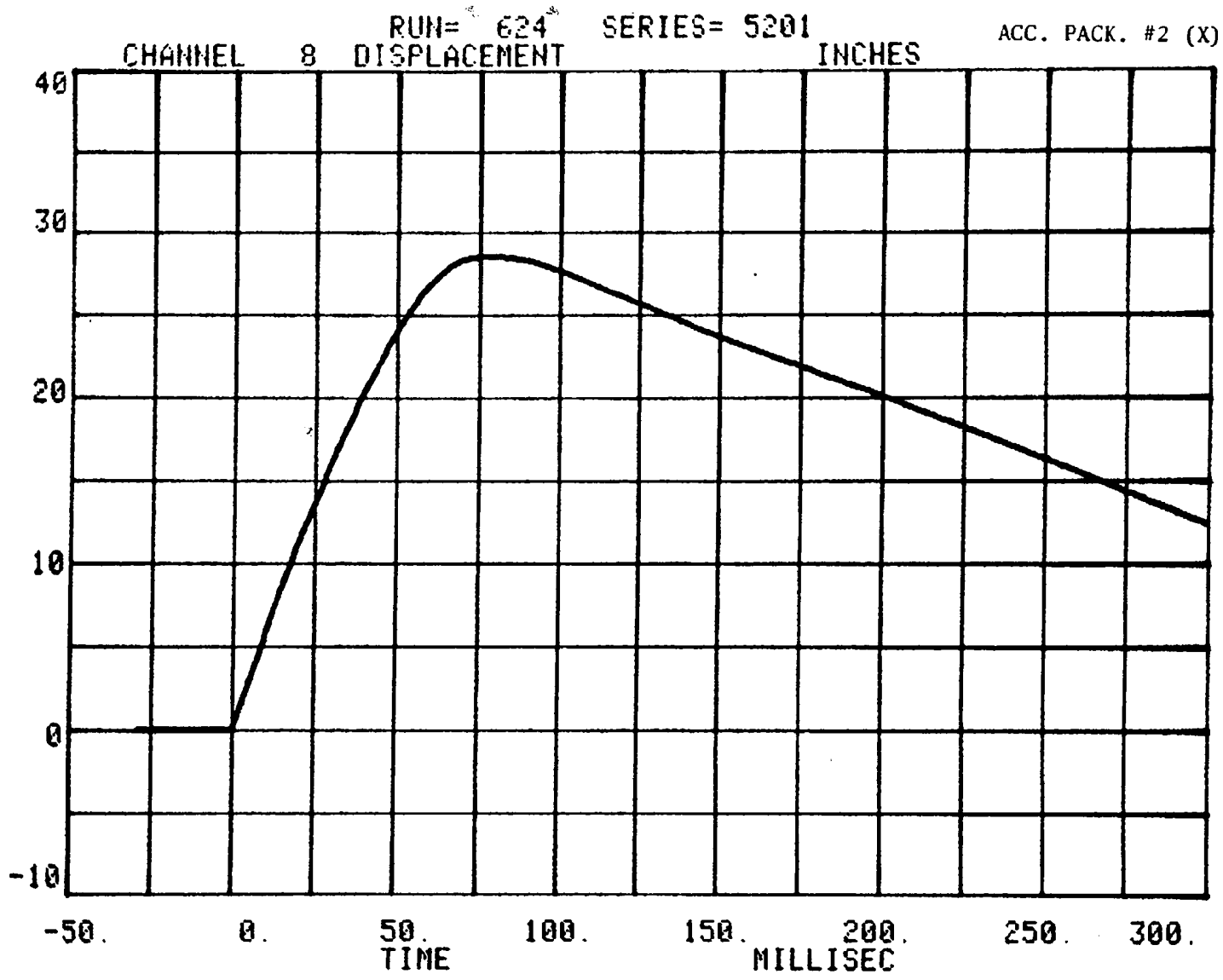
7209-18

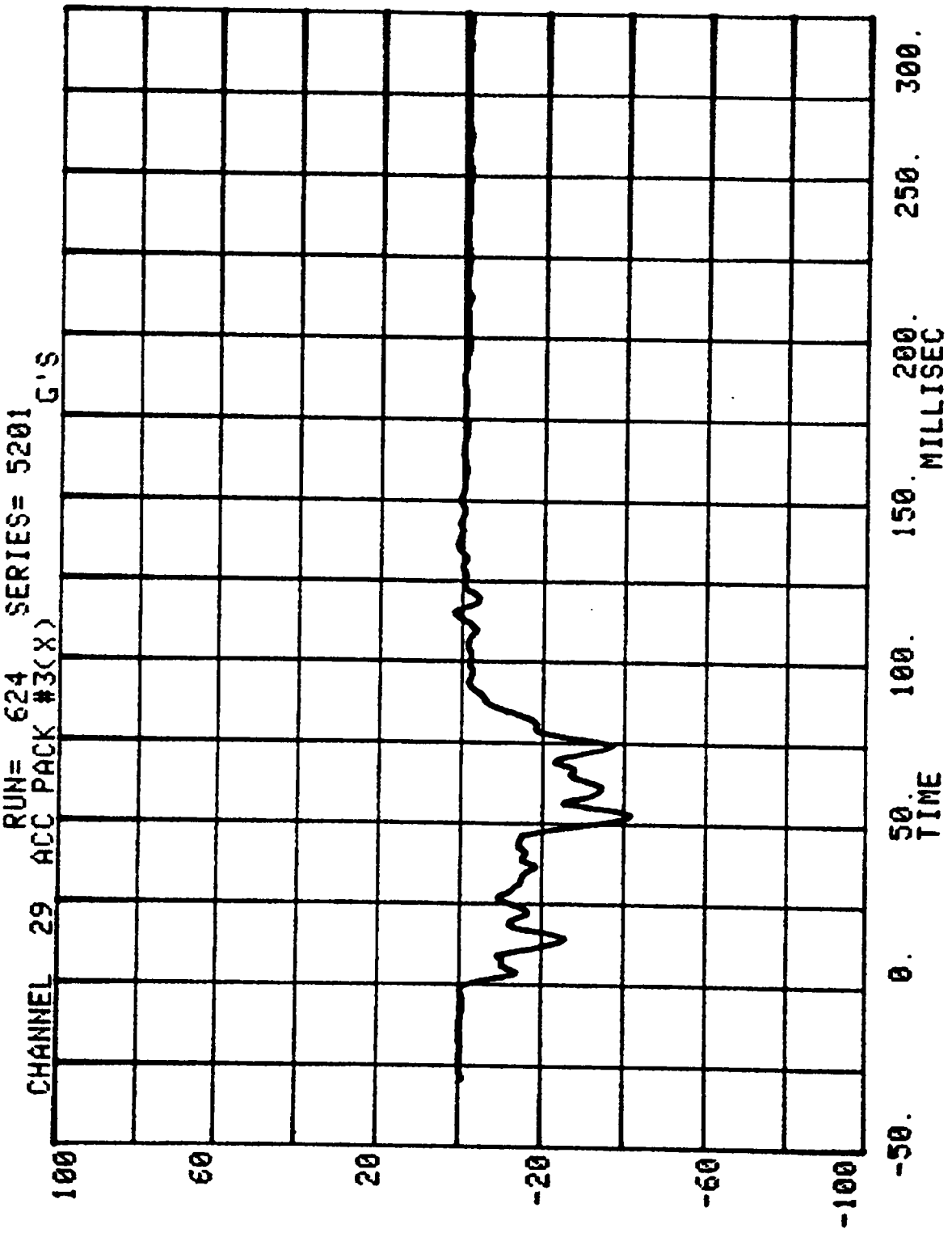

ACC. PACK. #1 (X)
SERIES= 5201
RUN= 624
CHANNEL 6 DISPLACEMENT
INCHES
40
30
20
10
0
-10
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

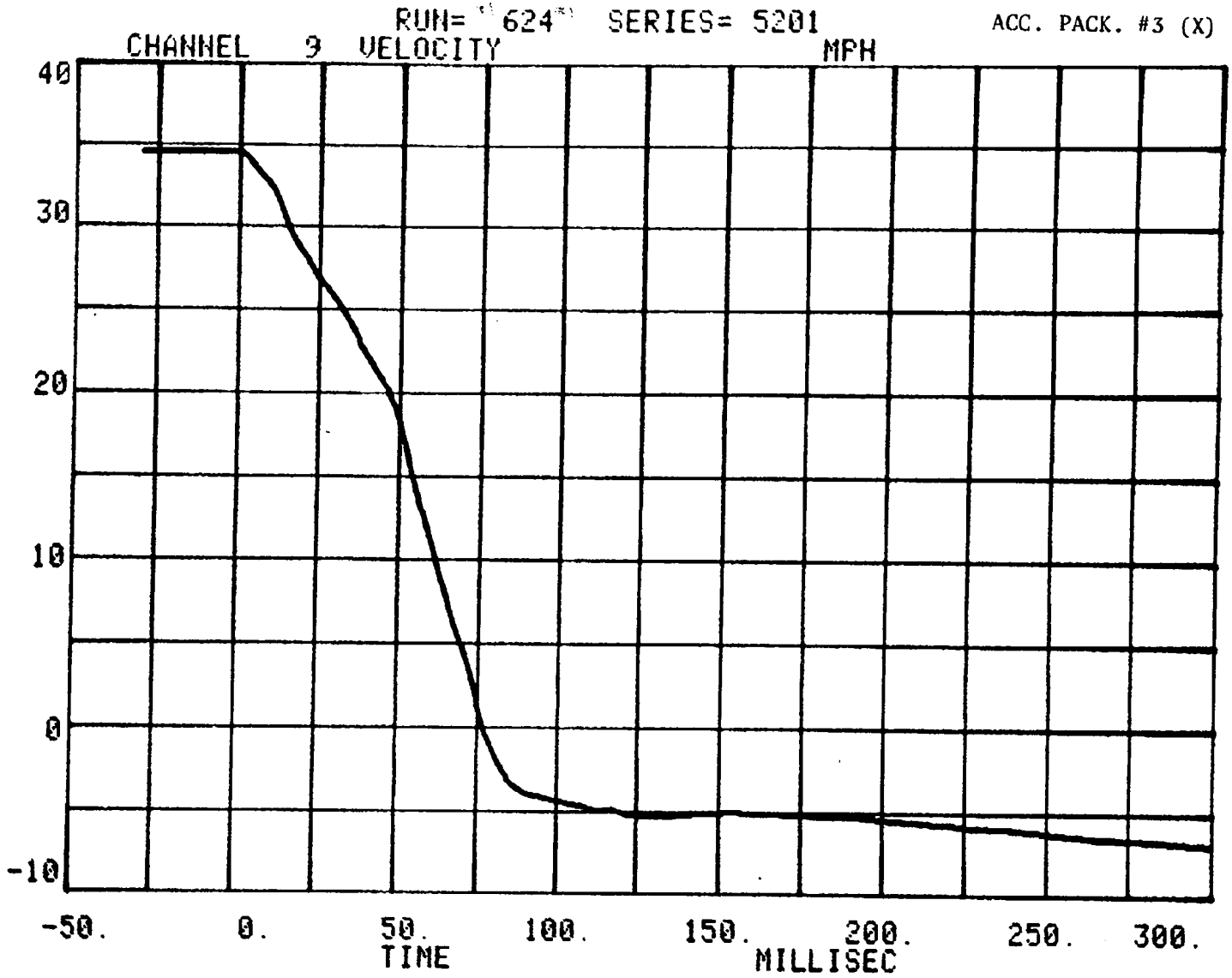

CHANNEL 28 ACC PACK #2(X)
RUN= 624 SERIES= 5201
G'S
100
60
20
-20
-60
-100
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

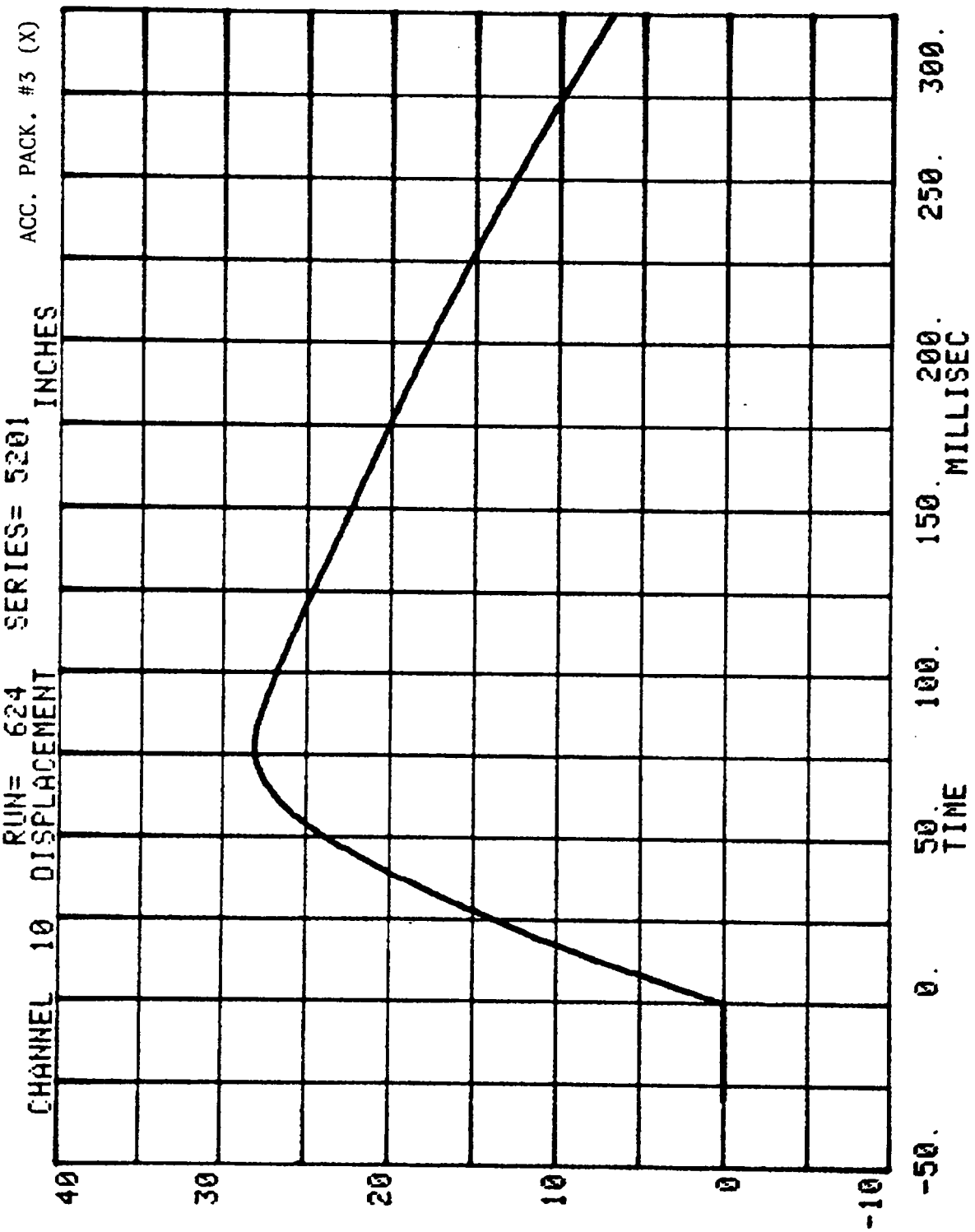
7209-18


ACC. PACK. #2 (X)
RUN= 624 SERIES= 5201
CHANNEL 7 VELOCITY
MPH
40
30
20
10
0
-10
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

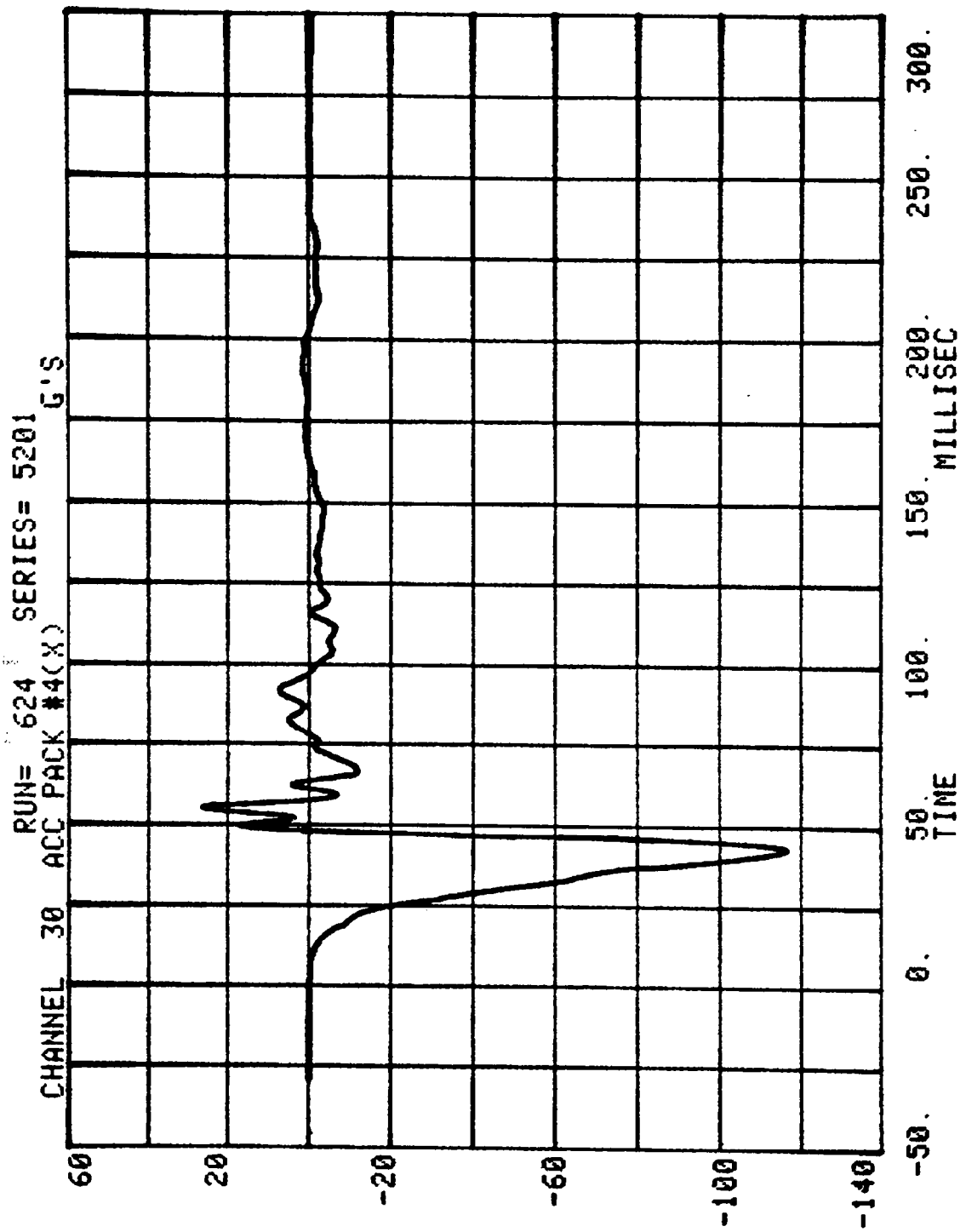

RUN= 624 SERIES= 5201
ACC. PACK. #2 (X)
CHANNEL 8 DISPLACEMENT INCHES
40
30
20
10
0
-10
-50.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISEC

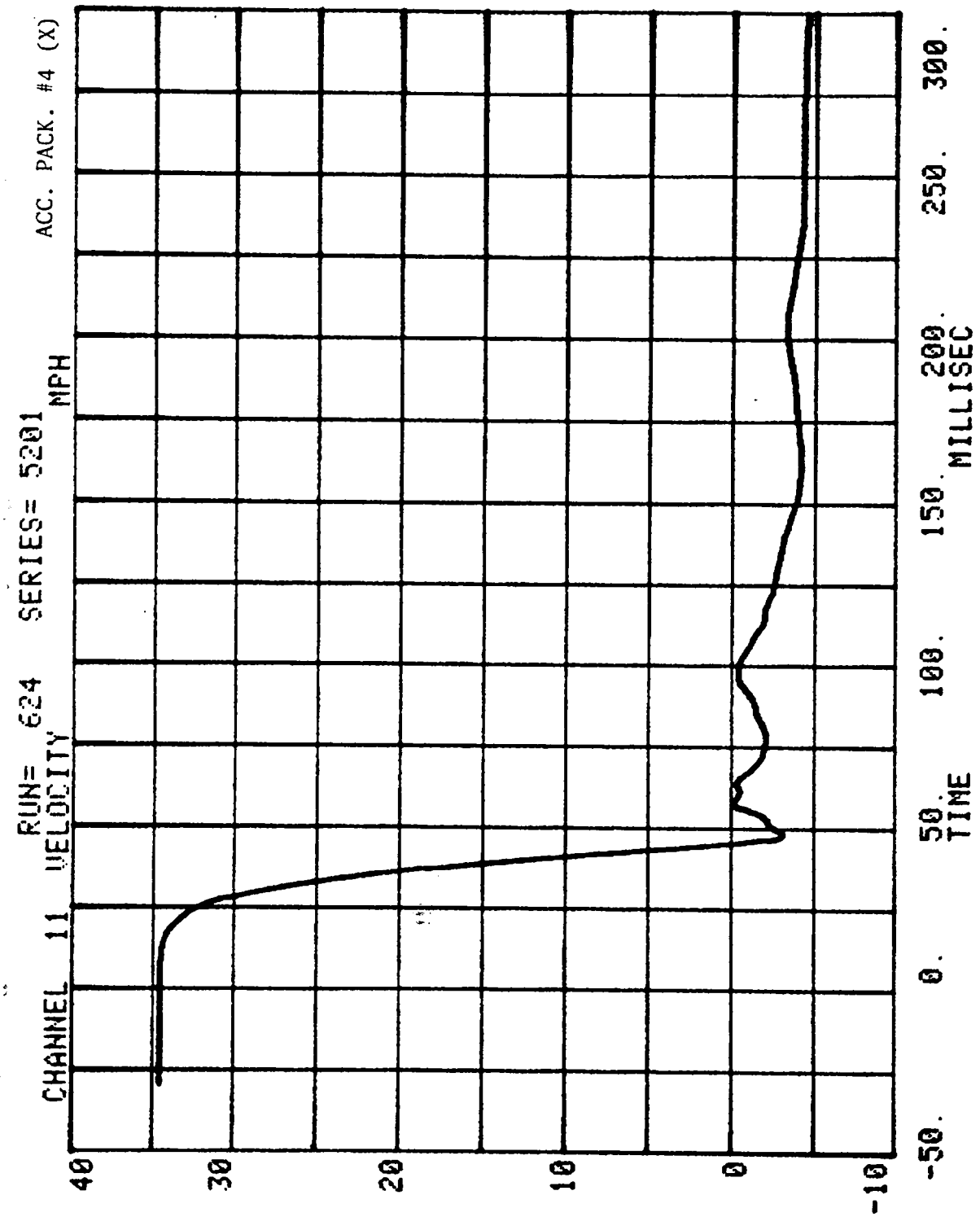

CHANNEL 29 ACC PACK #3(X)
RUN= 624 SERIES= 5201
G'S
100
60
20
-20
-60
-100
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

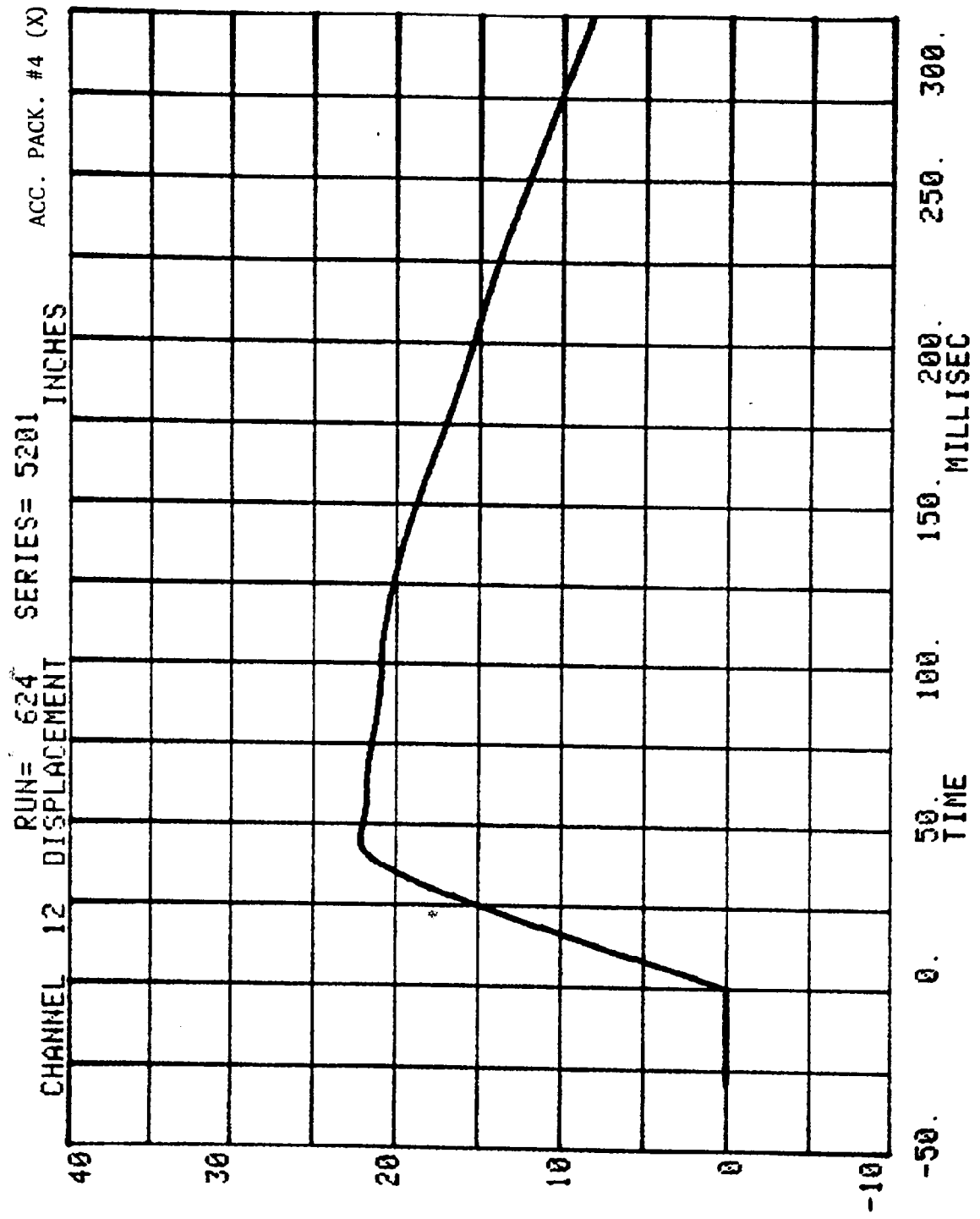

RUN= 624 SERIES= 5201
ACC. PACK. #3 (X)
CHANNEL 3 VELOCITY
MPH
40
30
20
10
0
-10
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

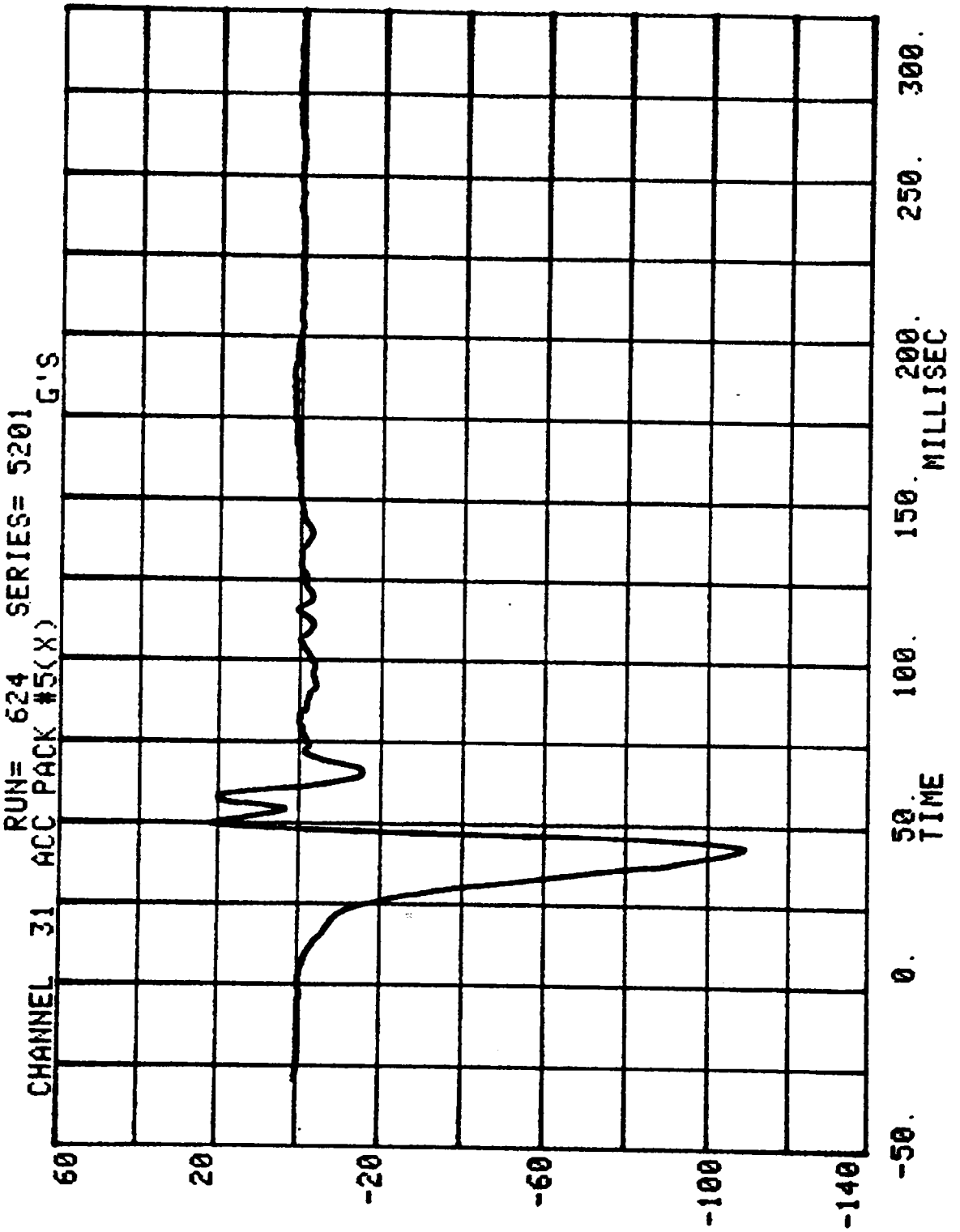

CHANNEL 10 DISPLACEMENT
RUN= 624 SERIES= 5201
ACC. PACK. #3 (X)
INCHES
40
30
20
10
0
-10
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

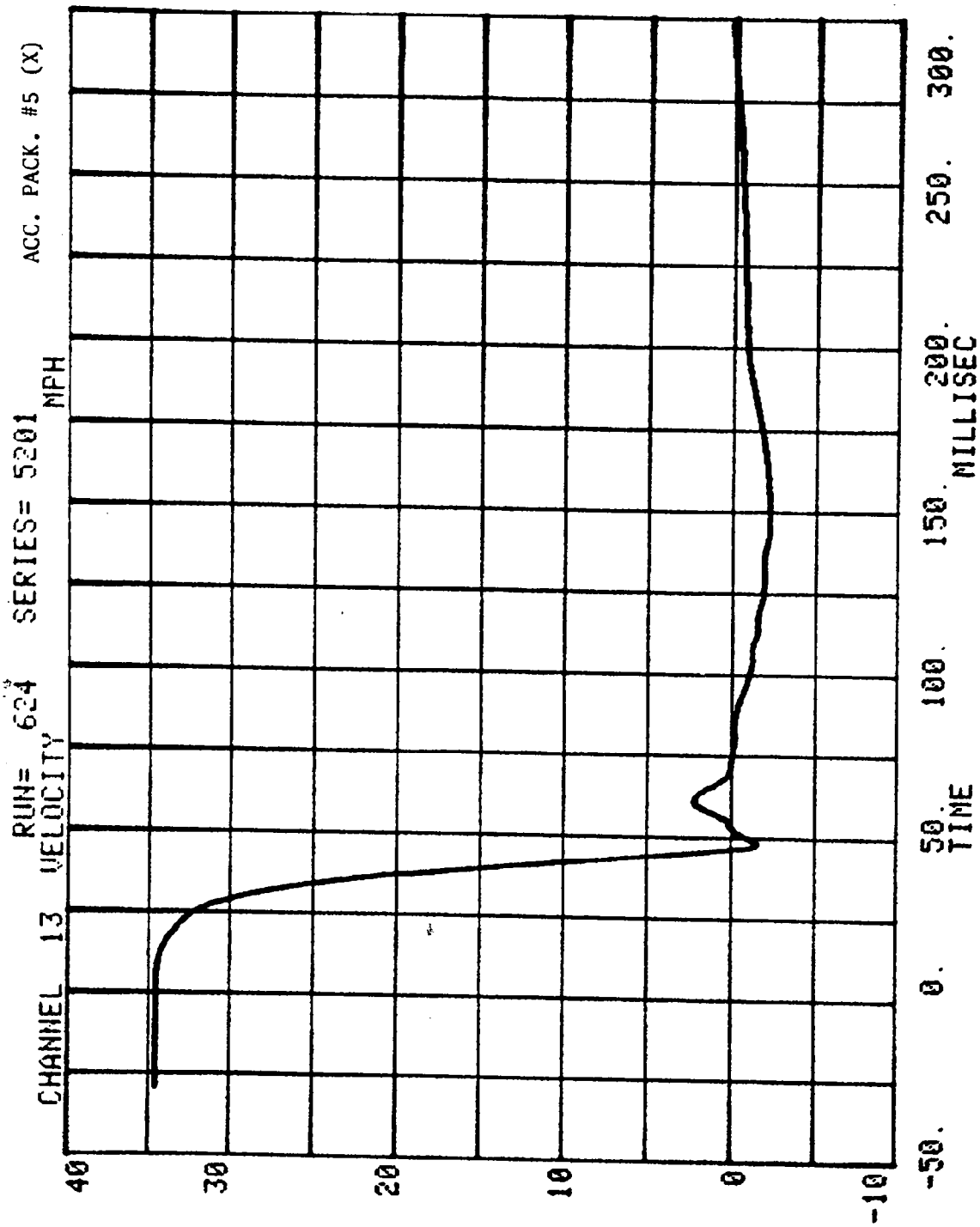
7209-18

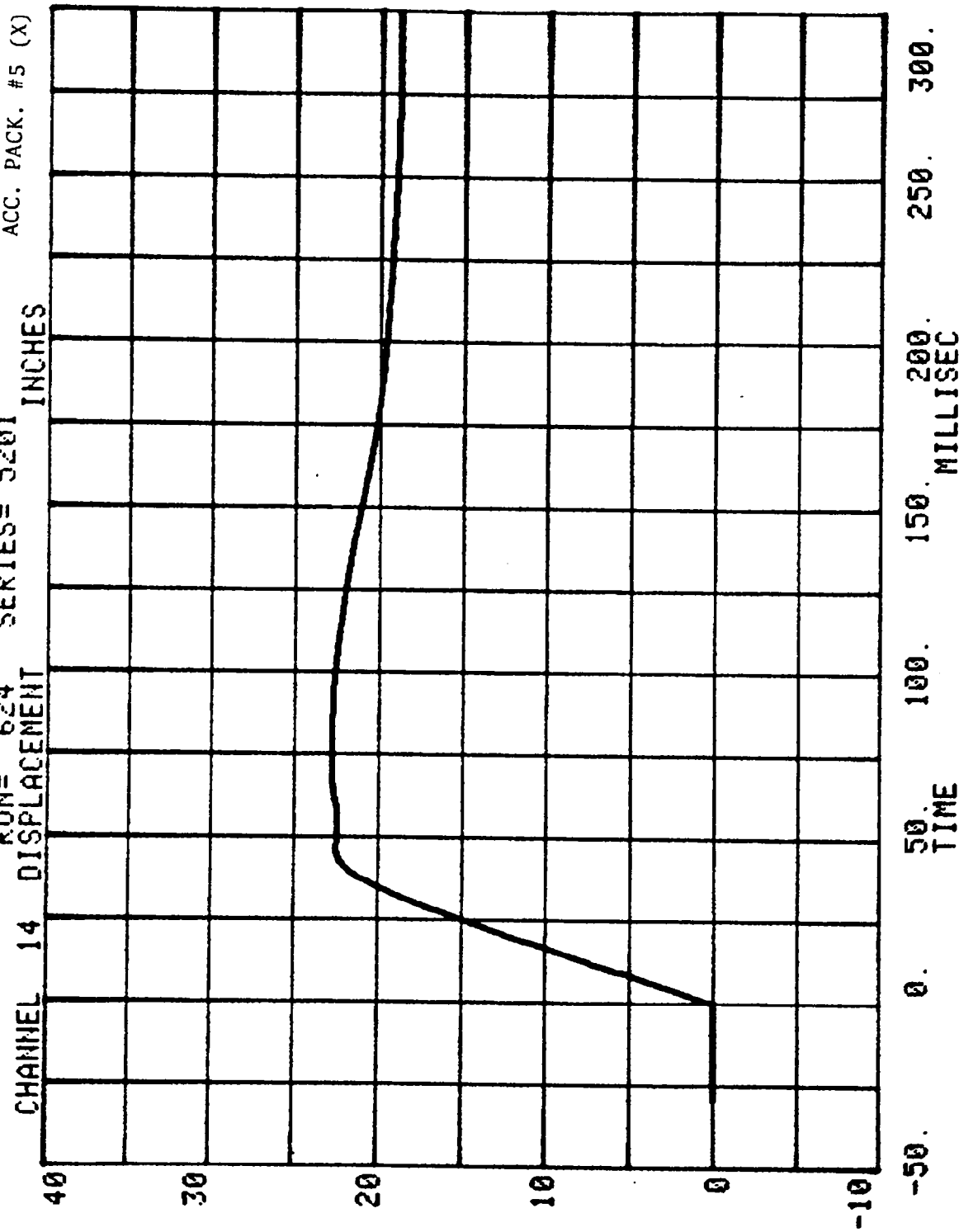

CHANNEL 30 ACC PACK #4(X)
RUN= 624 SERIES= 5201
G'S
60
20
-20
-60
-100
-140
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

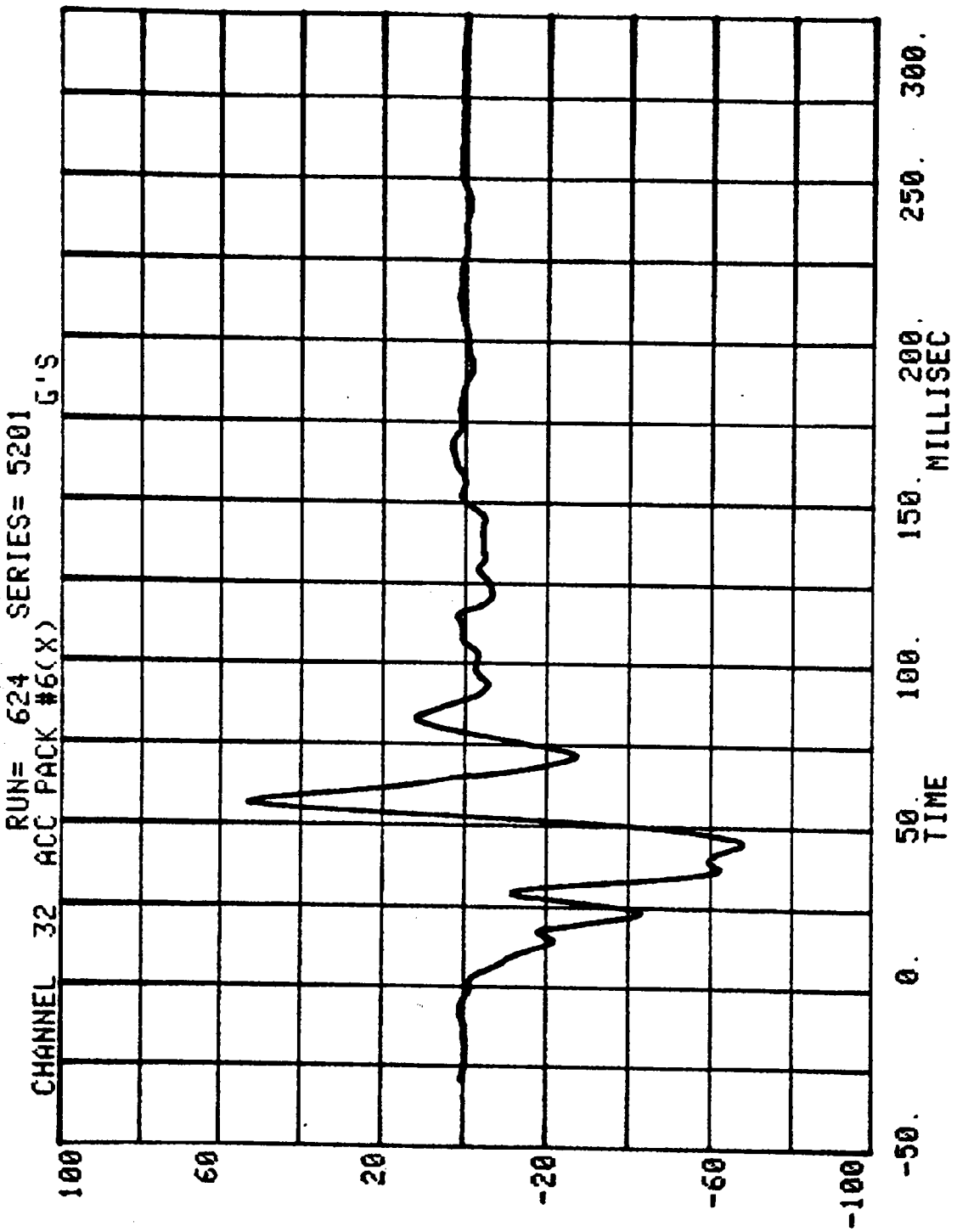

ACC. PACK. #4 (X)
CHANNEL 11 VELOCITY
RUN= 624 SERIES= 5201
MPH
40
30
20
10
0
-10
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

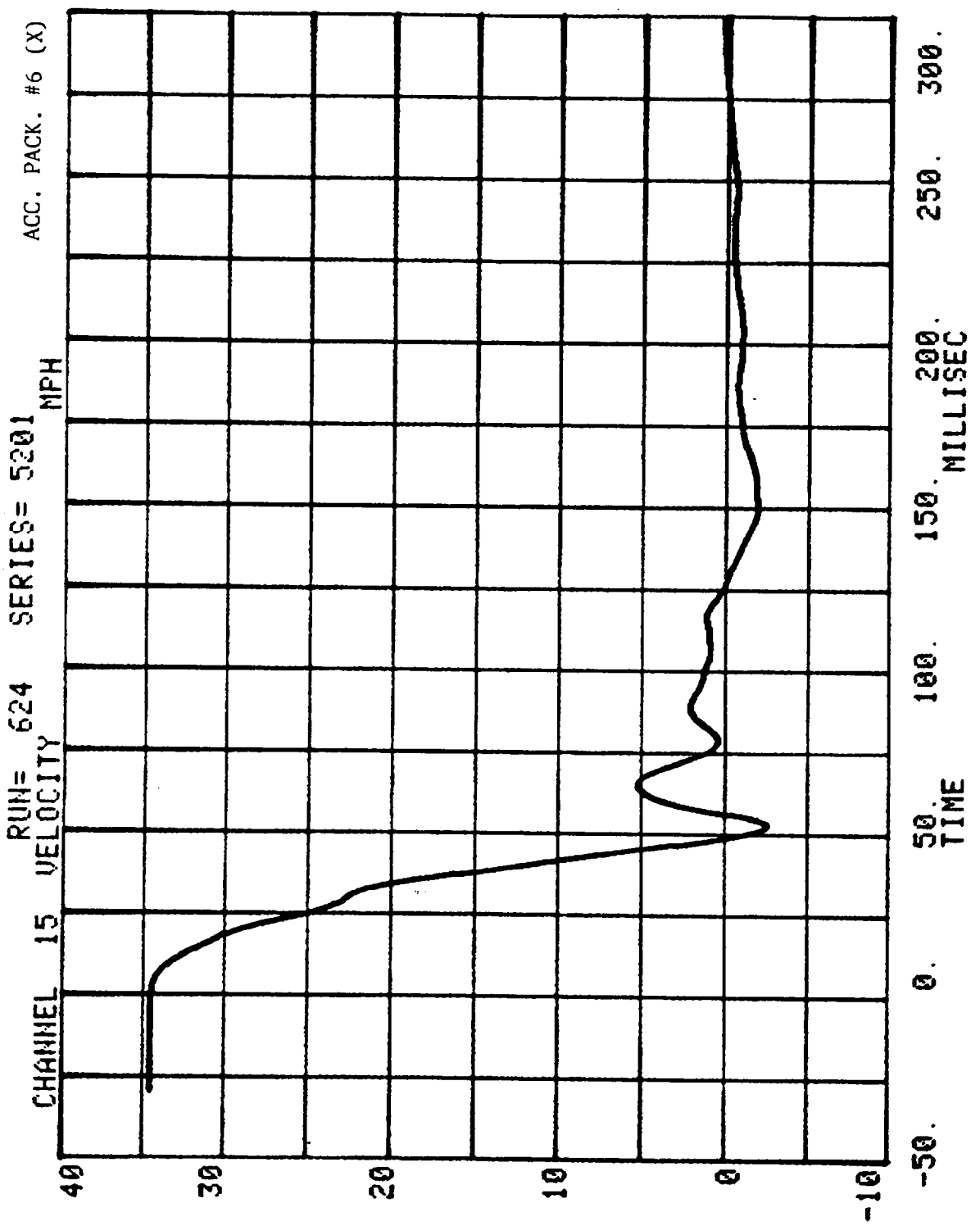

ACC. PACK. #4 (X)
SERIES= 5201
INCHES
RUN= 624
DISPLACEMENT
CHANNEL 12
40
30
20
10
0
-10
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

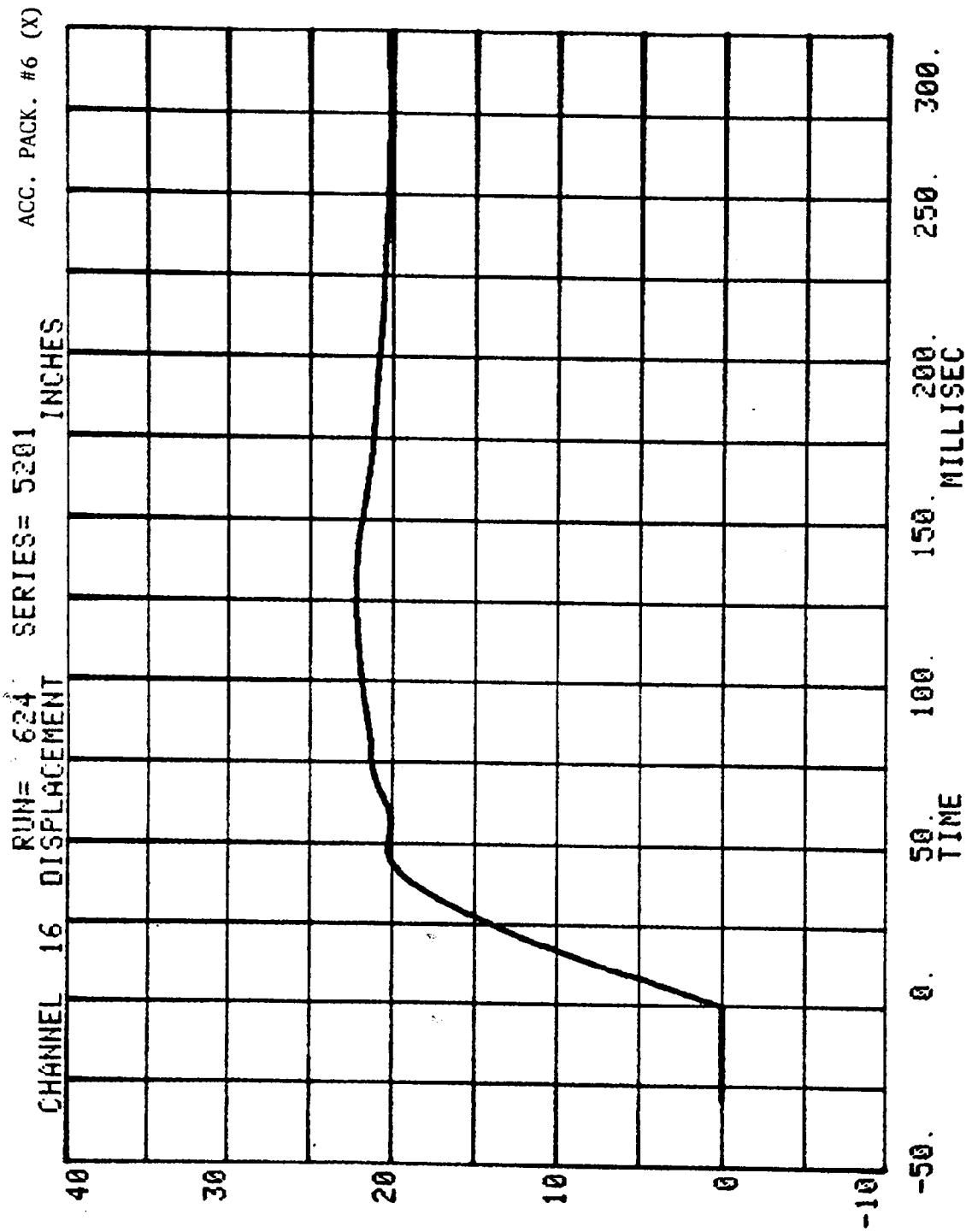

CHANNEL 31 ACC PACK #5(X)
RUN= 624 SERIES= 5201
G'S
60
20
-20
-60
-100
-140
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC


CHANNEL 13 VELOCITY
RUN= 624 SERIES= 5201
ACC. PACK. #5 (X)
MPH
40
30
20
10
0
-10
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

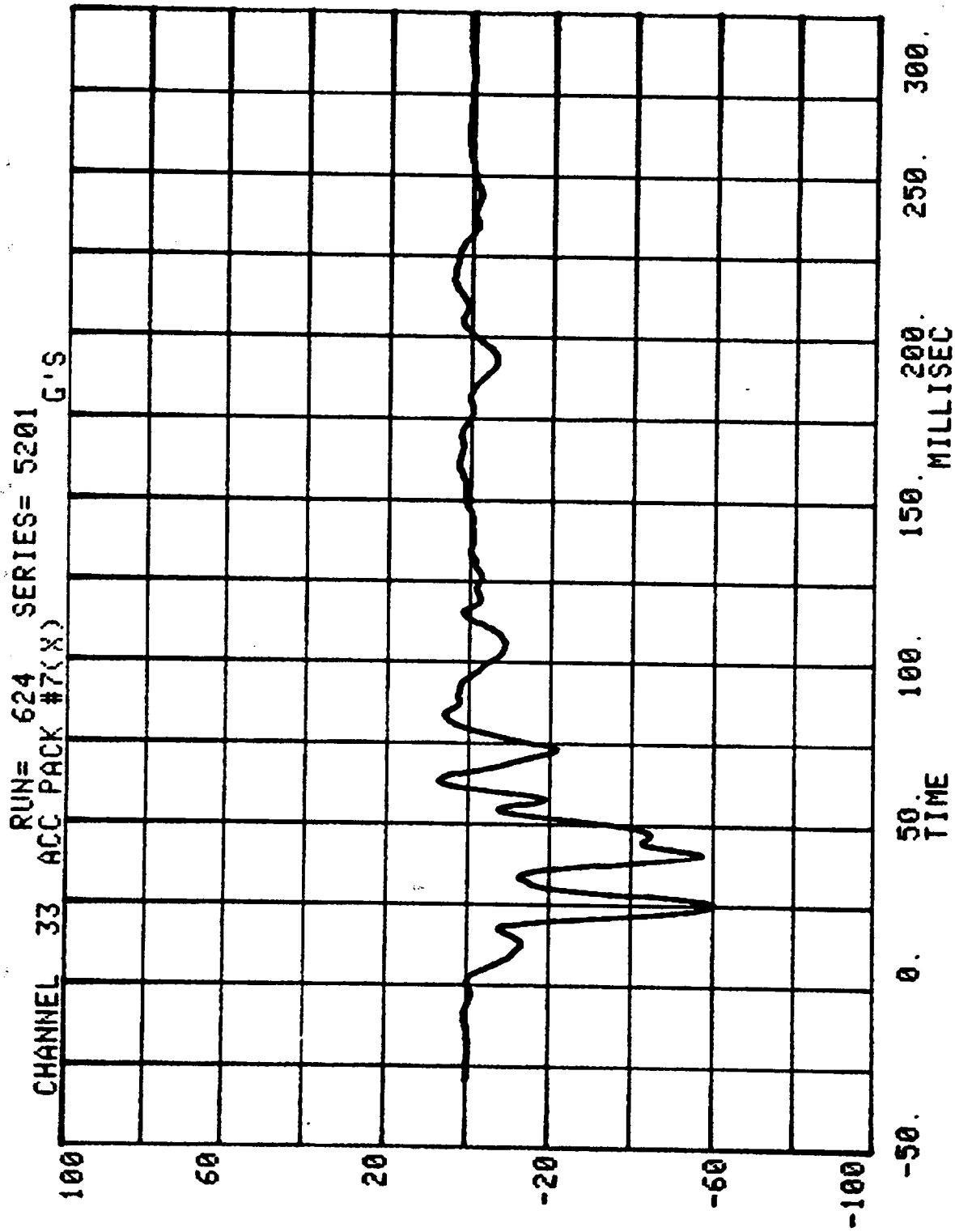

CHANNEL 14 DISPLACEMENT
RUN= 624 SERIES= 5201
INCHES
ACC. PACK. #5 (X)
40
30
20
10
0
-10
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

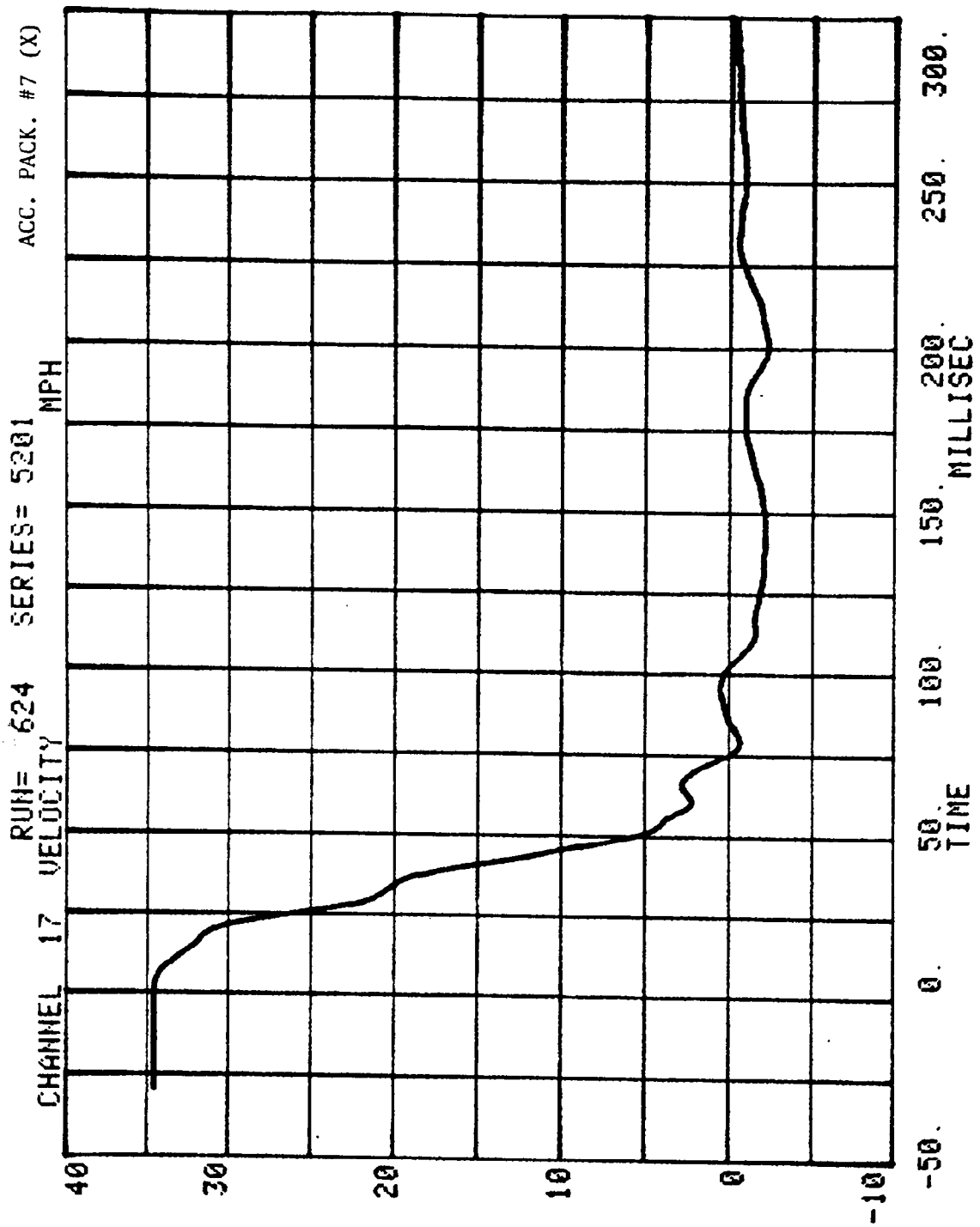

CHANNEL 32 ACC PACK #6(X)
RUN= 624 SERIES= 5201
G'S
100
60
20
-20
-60
-100
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

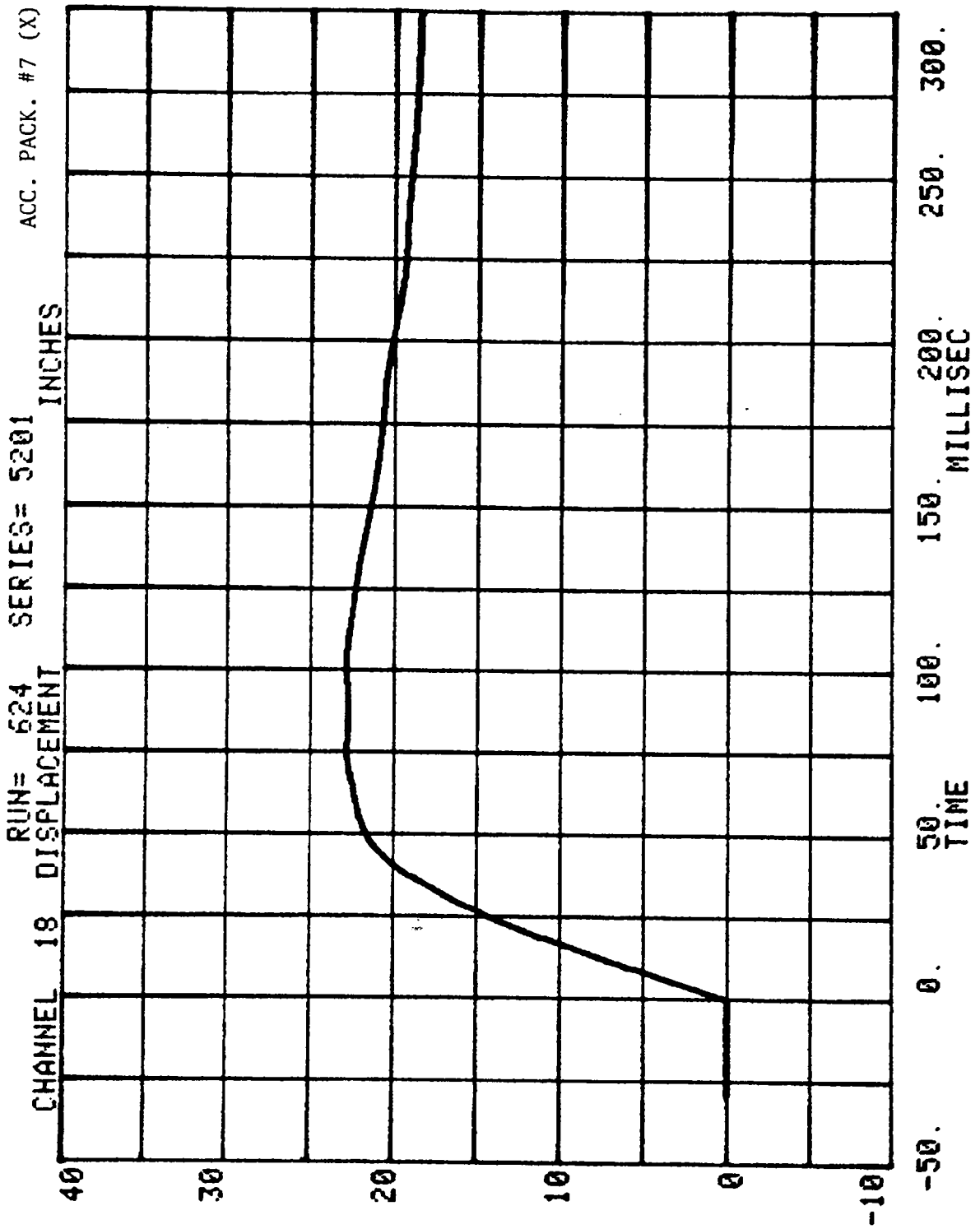

ACC. PACK. #6 (X)
RUN= 624 SERIES= 5201
CHANNEL 15 VELOCITY
MPH
40
30
20
10
0
-10
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC


ACC. PACK. #6 (X)
CHANNEL 16 DISPLACEMENT
RUN= 624 SERIES= 5201
INCHES
40
30
20
10
0
-10
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

7209-18


CHANNEL 33 ACC PACK #7(X)
RUN= 624 SERIES= 5201
G'S
100
60
20
-20
-60
-100
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

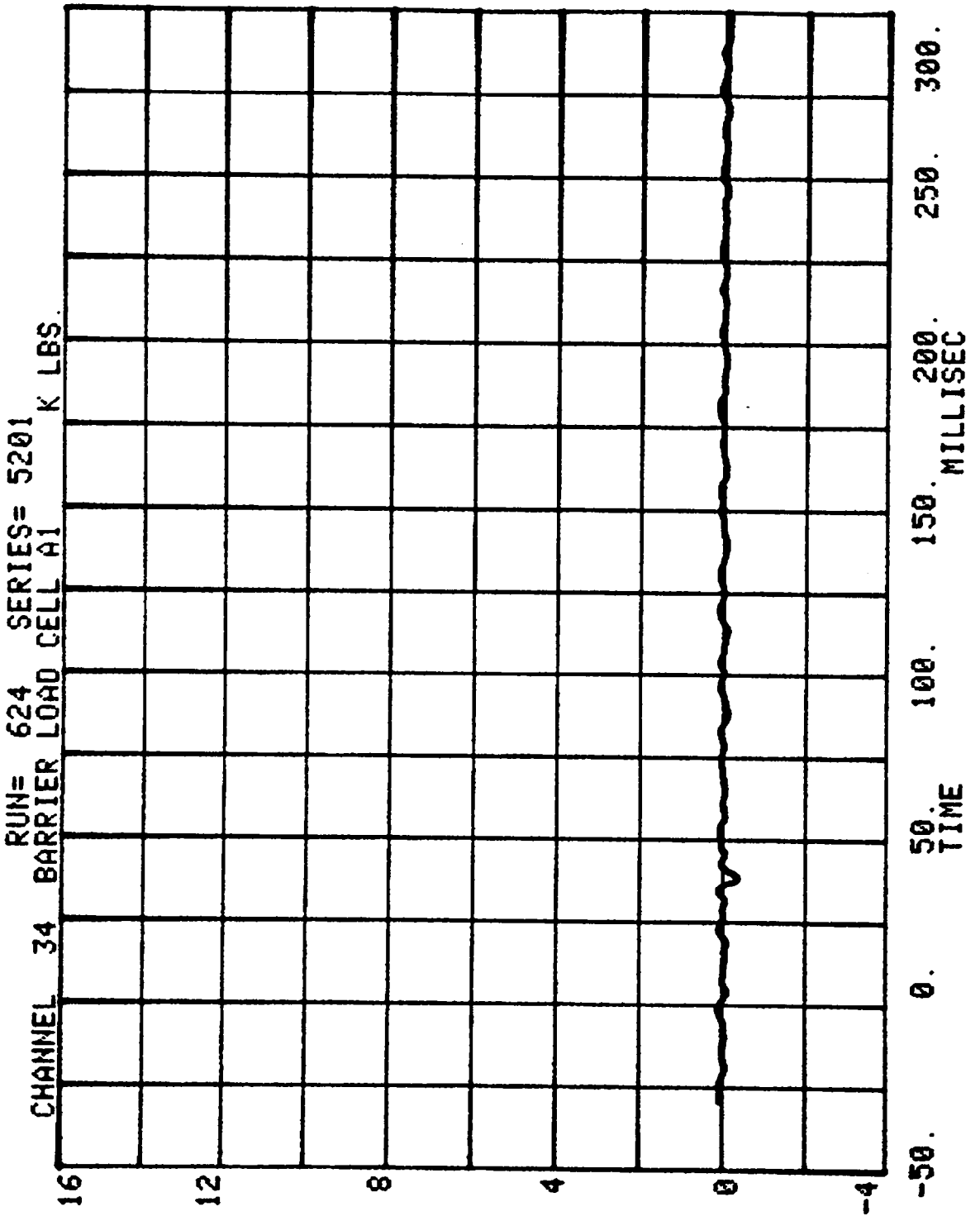

ACC. PACK. #7 (X)
SERIES= 5201
RUN= 624
CHANNEL 17 VELOCITY
MPH
40
30
20
10
0
-10
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

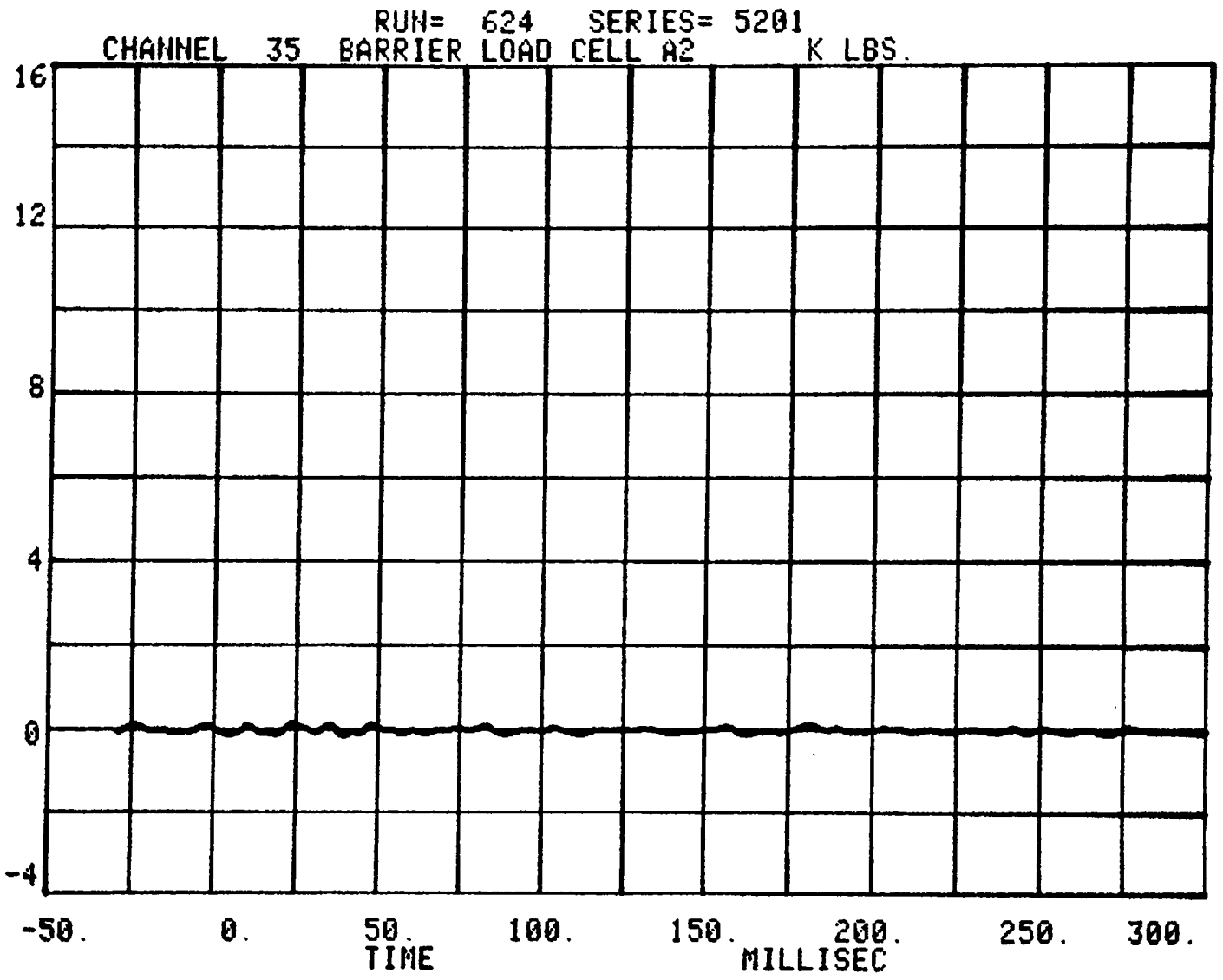

ACC. PACK. #7 (X)
CHANNEL 18 DISPLACEMENT
RUN= 624 SERIES= 5201
INCHES
40
30
20
10
0
-10
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

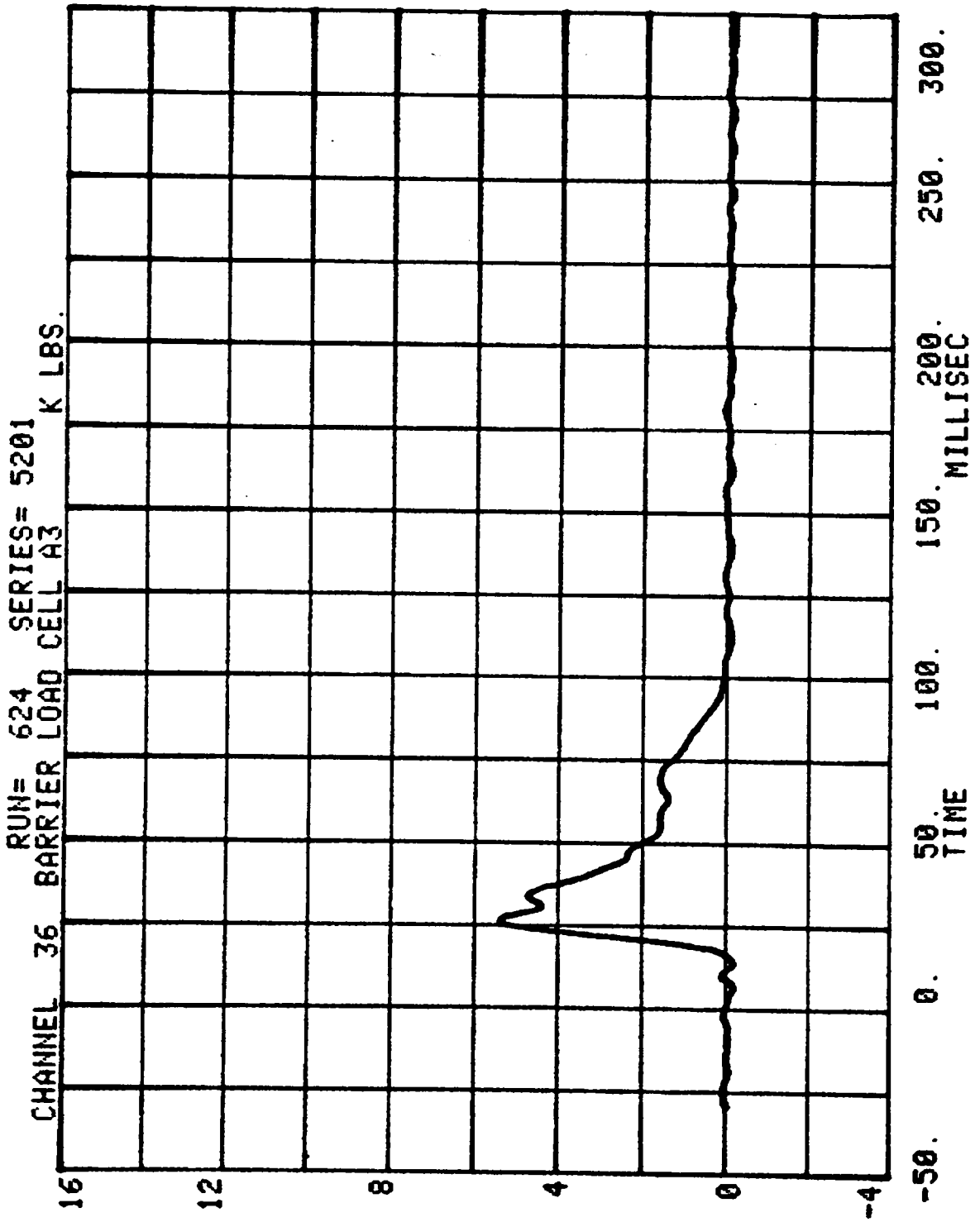
TEST NO. CE5201

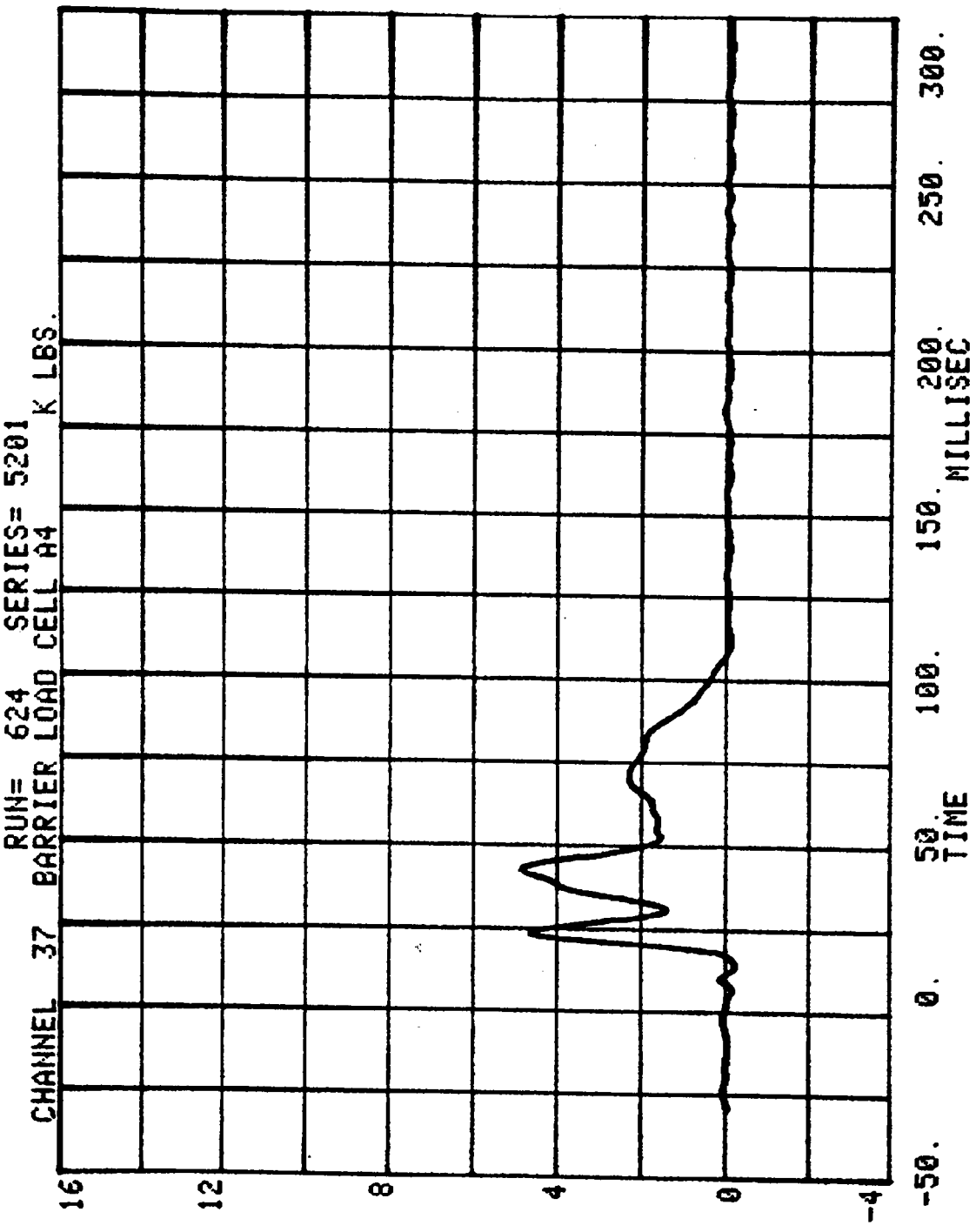
LOAD CELL BARRIER DATA
FILTER CHANNEL CLASS

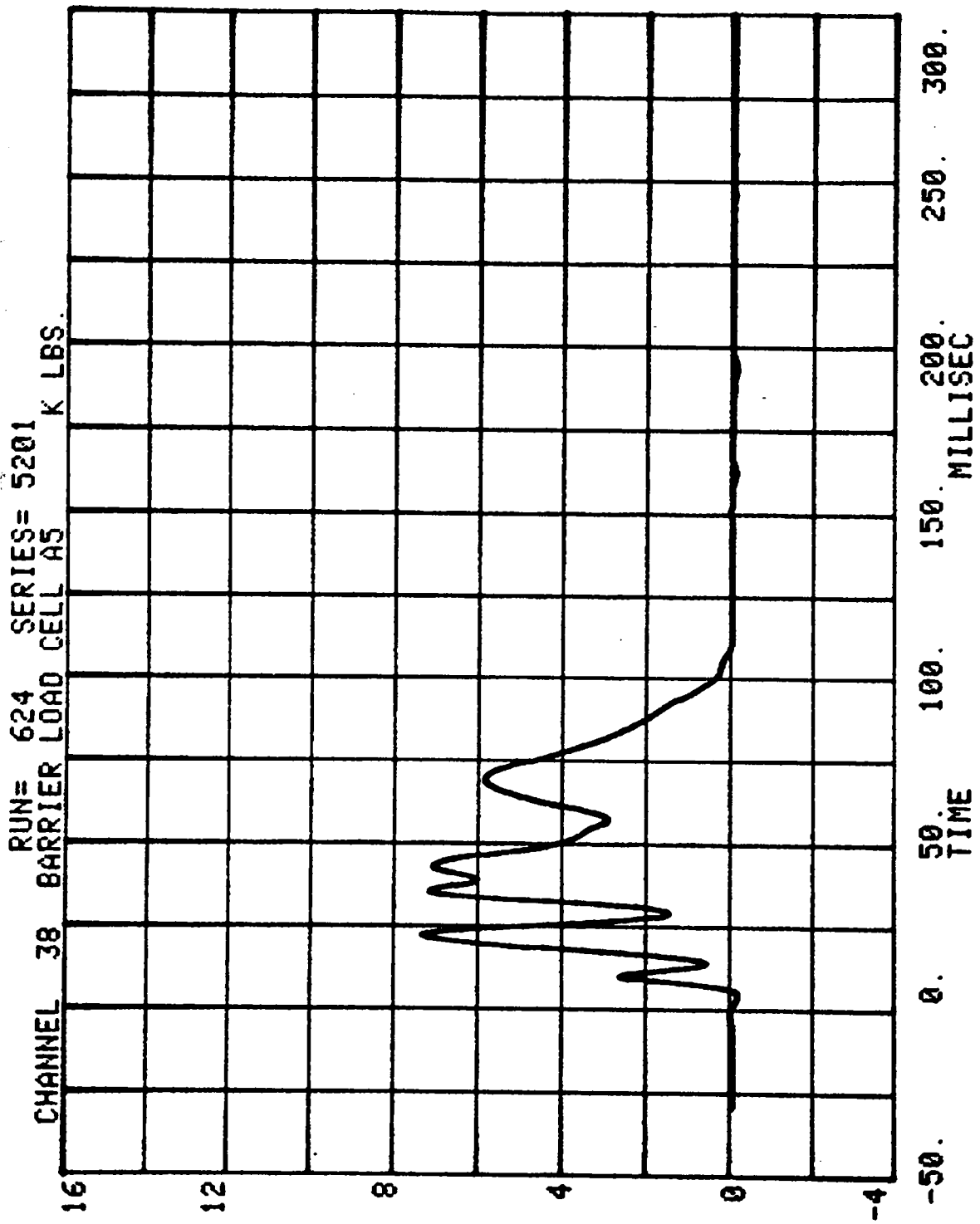
60

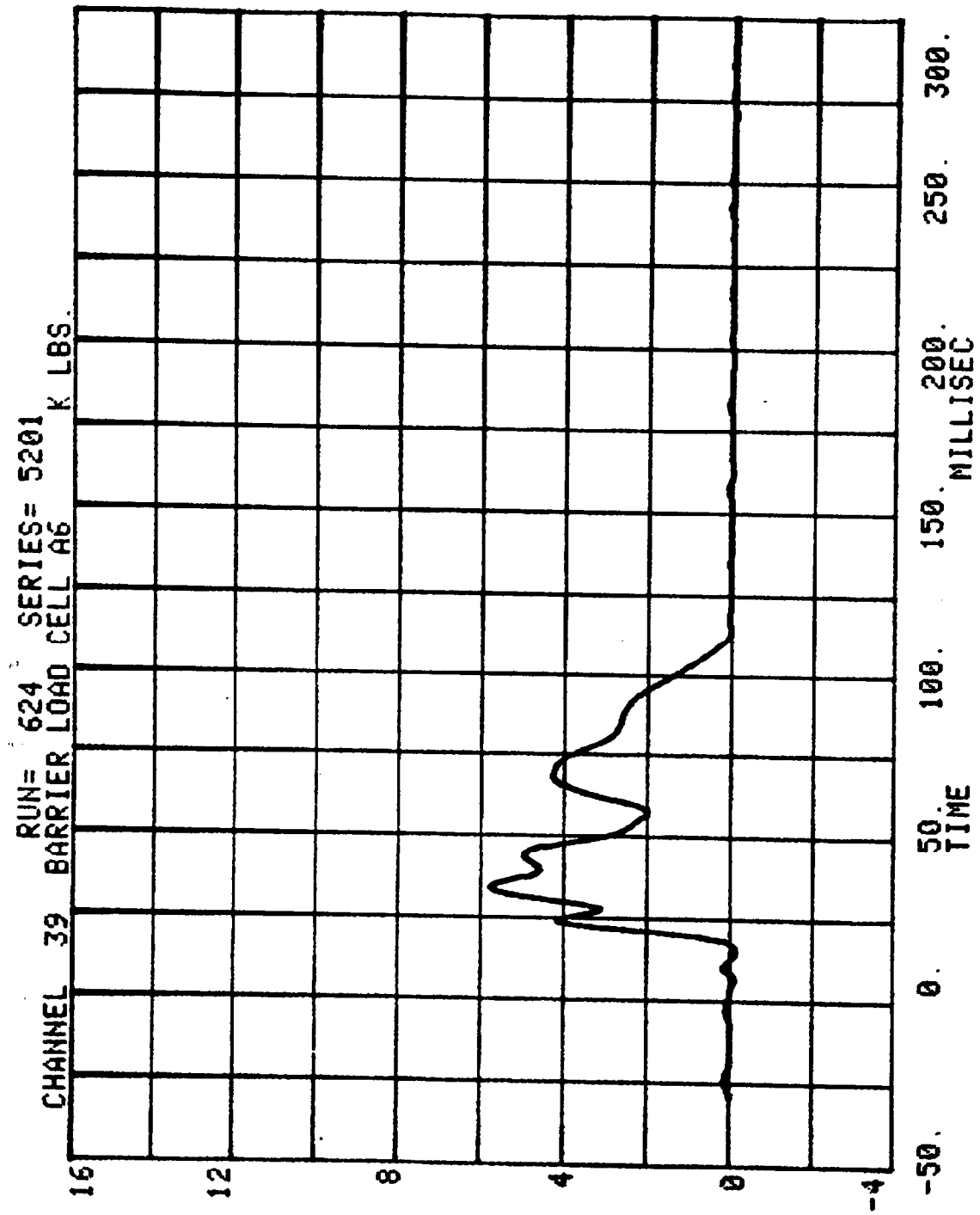

CHANNEL 34 BARRIER LOAD CELL A1
RUN= 624 SERIES= 5201
K LBS.
16
12
8
4
0
-4
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

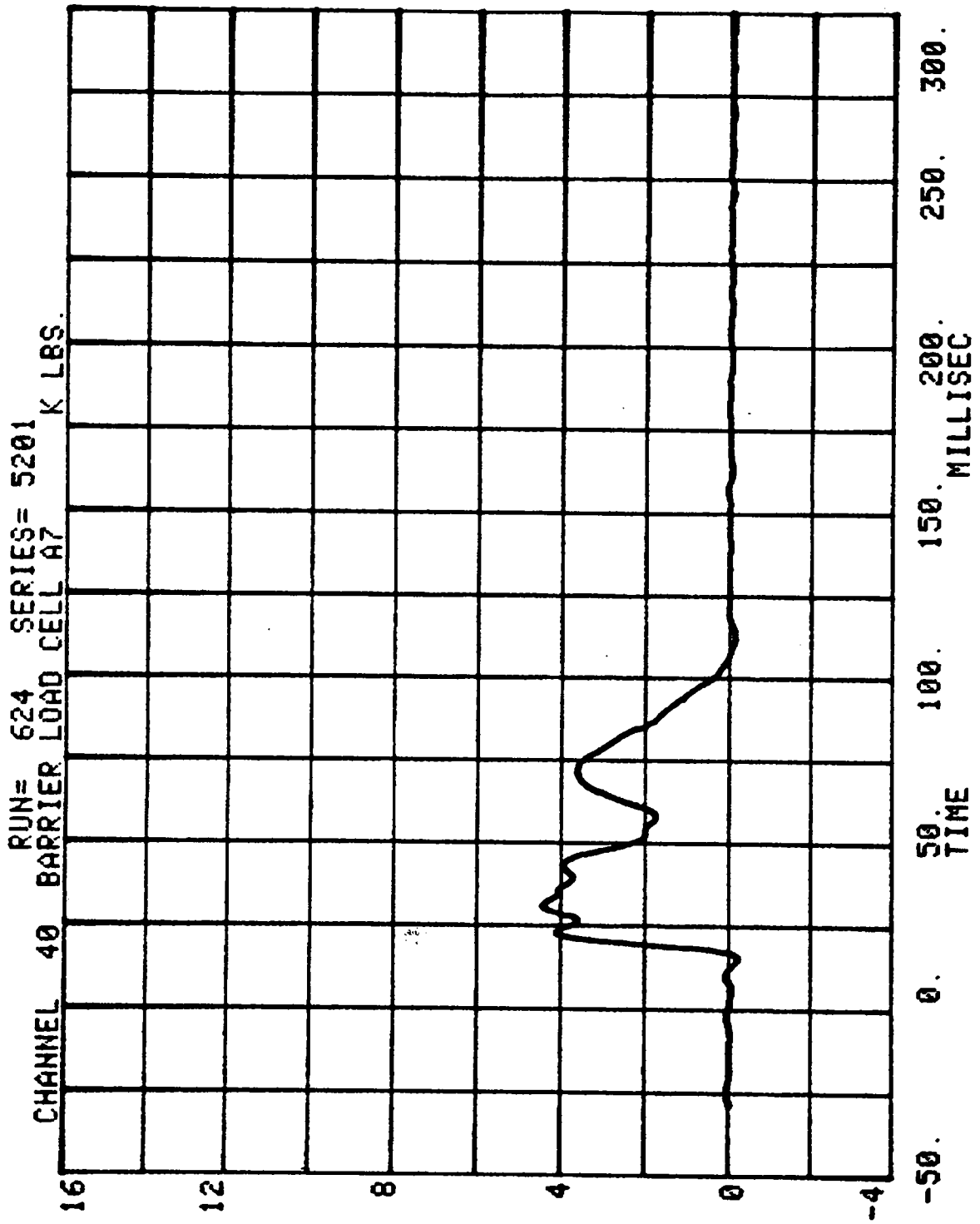

RUN= 624 SERIES= 5201
CHANNEL 35 BARRIER LOAD CELL A2
K LBS.
16
12
8
4
0
-4
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

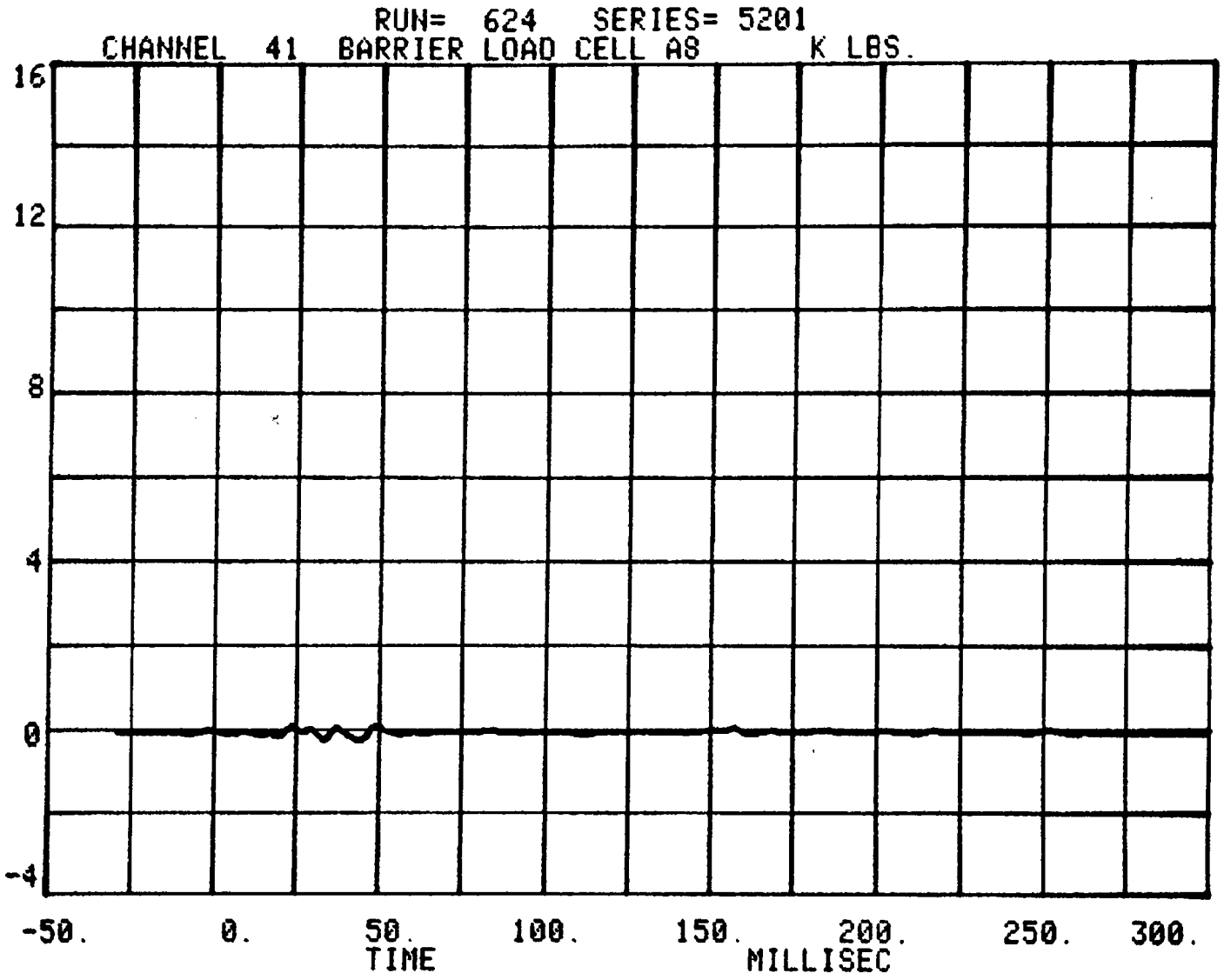

CHANNEL 36 BARRIER LOAD CELL A3
RUN= 624 SERIES= 5201
K LBS.
16
12
8
4
0
-4
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

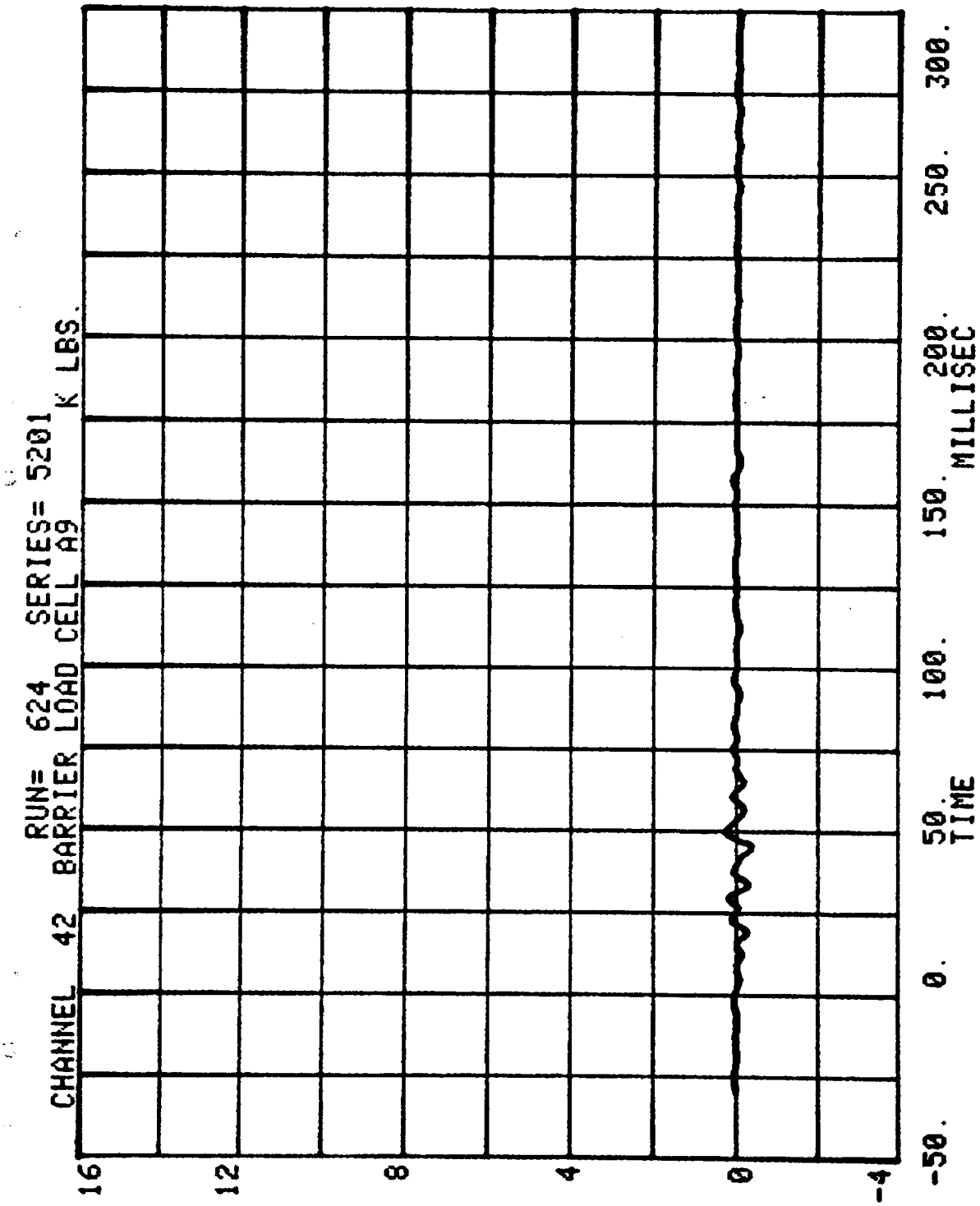

CHANNEL 37 BARRIER LOAD CELL A4
RUN= 624 SERIES= 5201
K LBS.
16
12
8
4
0
-4
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

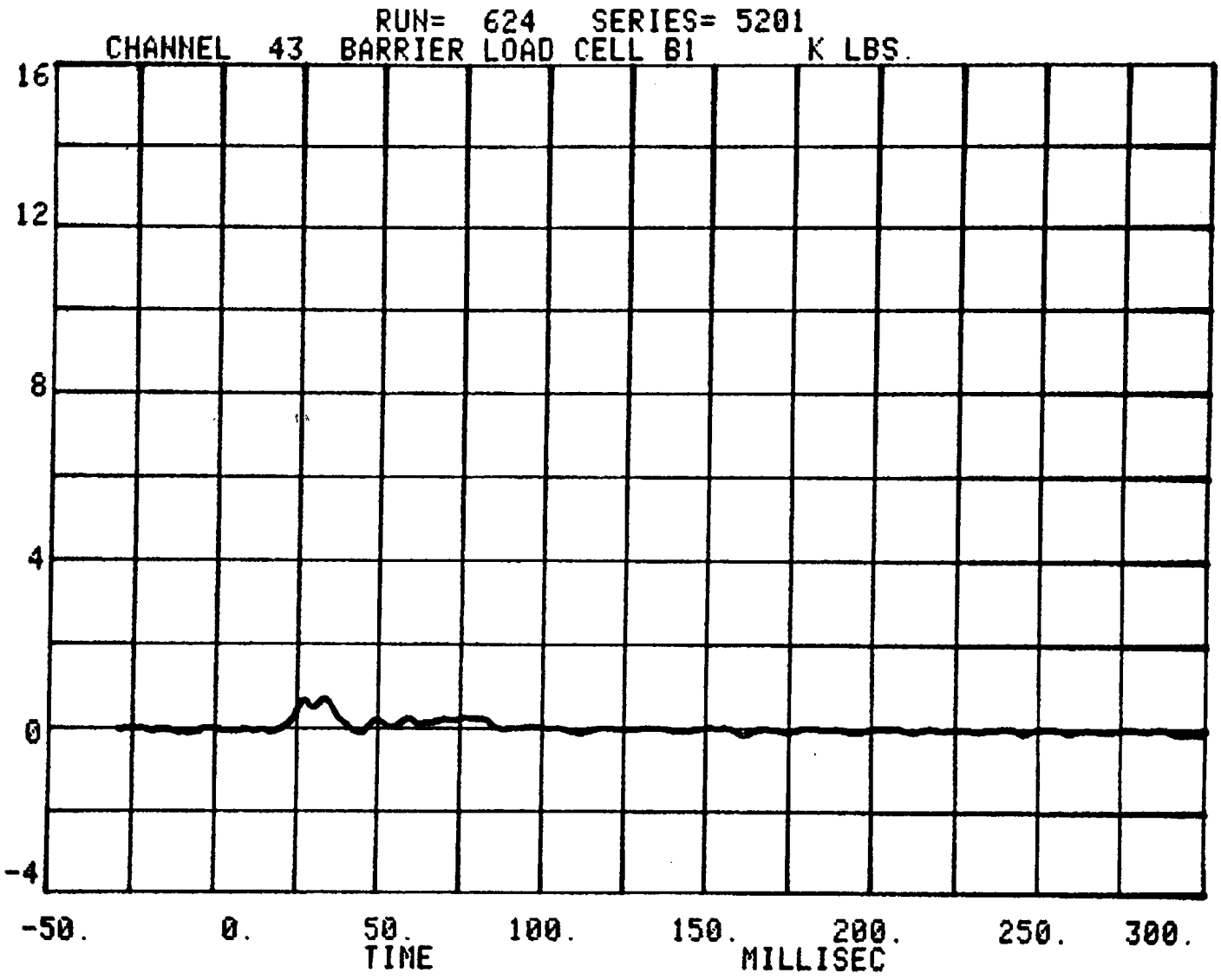

CHANNEL 38 BARRIER LOAD CELL A5
RUN= 624 SERIES= 5201
K LBS.
16
12
8
4
0
-4
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

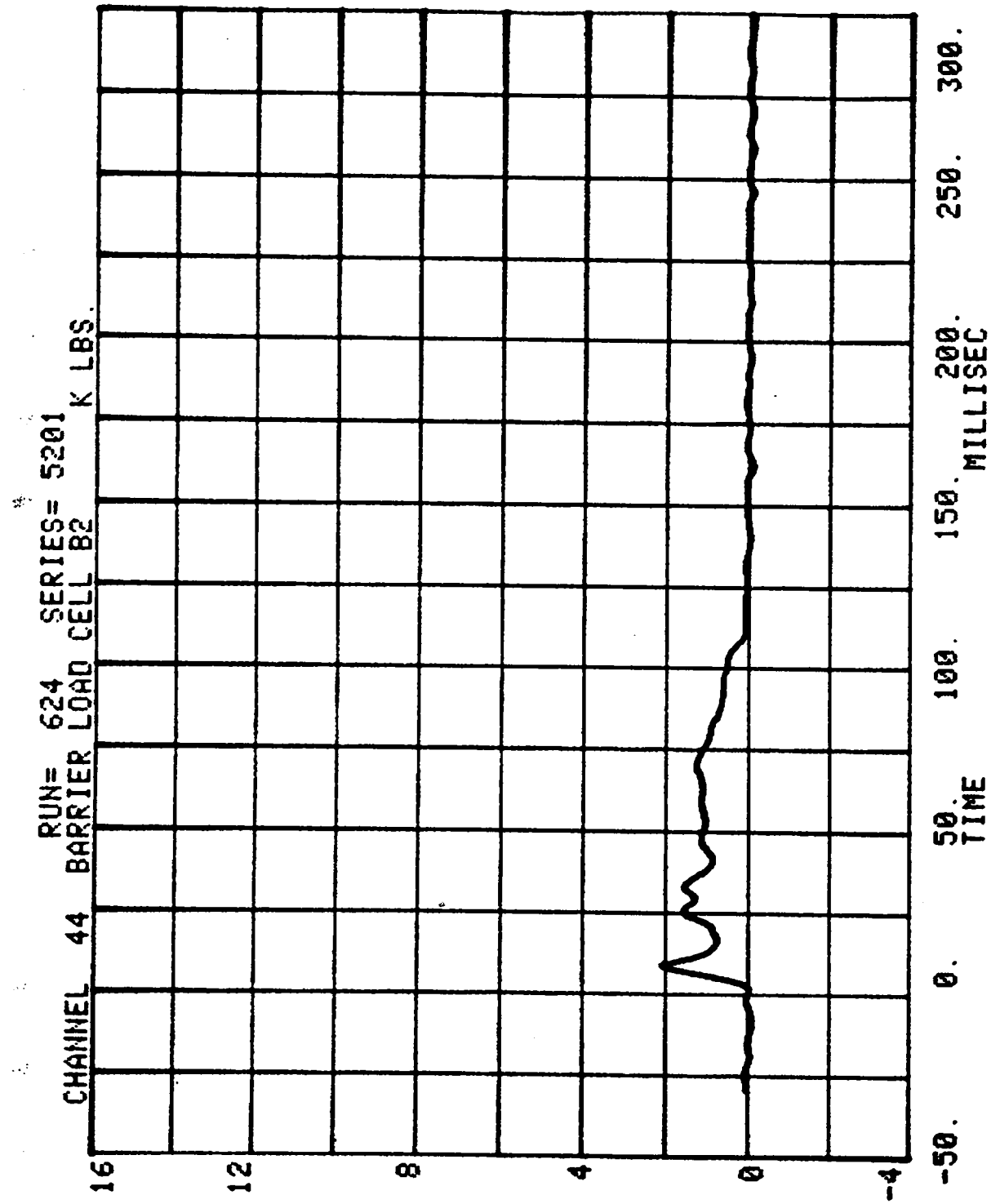

CHANNEL 39 BARRIER LOAD CELL A6
RUN= 624 SERIES= 5201
K LBS.
16
12
8
4
0
-4
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

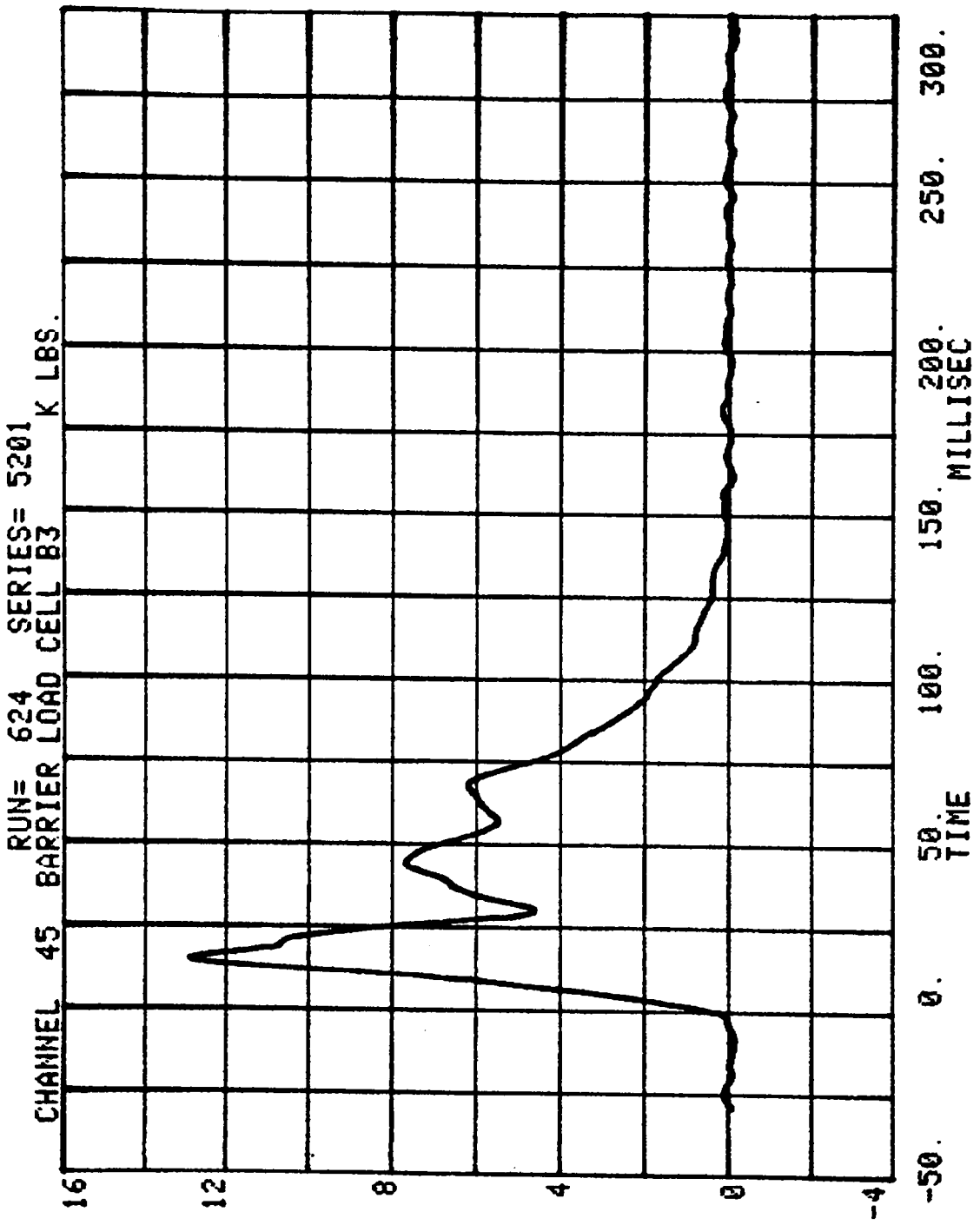

CHANNEL 40 BARRIER LOAD CELL A7
RUN= 624 SERIES= 5201
K LBS.
16
12
8
4
0
-4
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

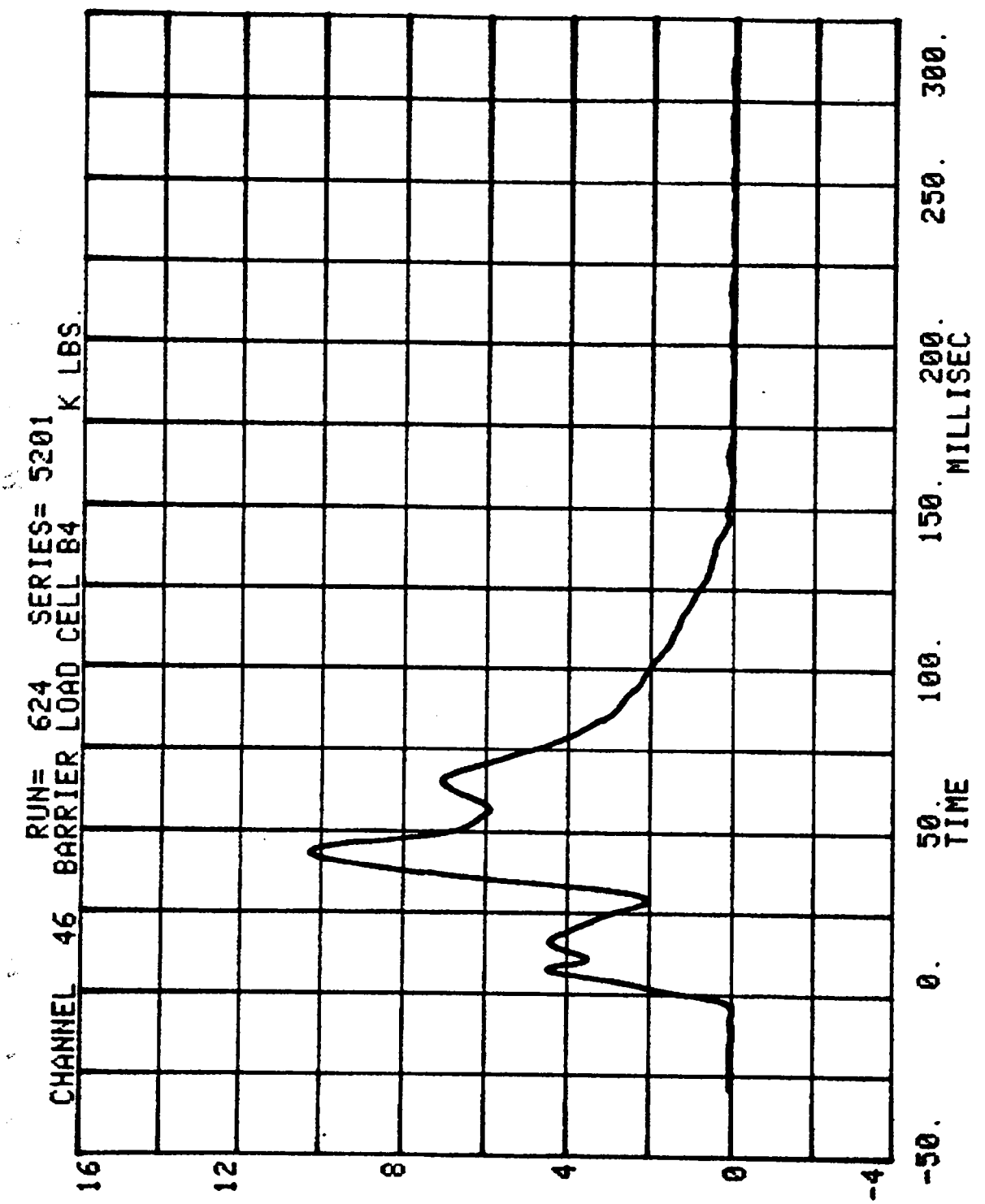

RUN= 624 SERIES= 5201
CHANNEL 41 BARRIER LOAD CELL A8 K LBS.
16
12
8
4
0
-4
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

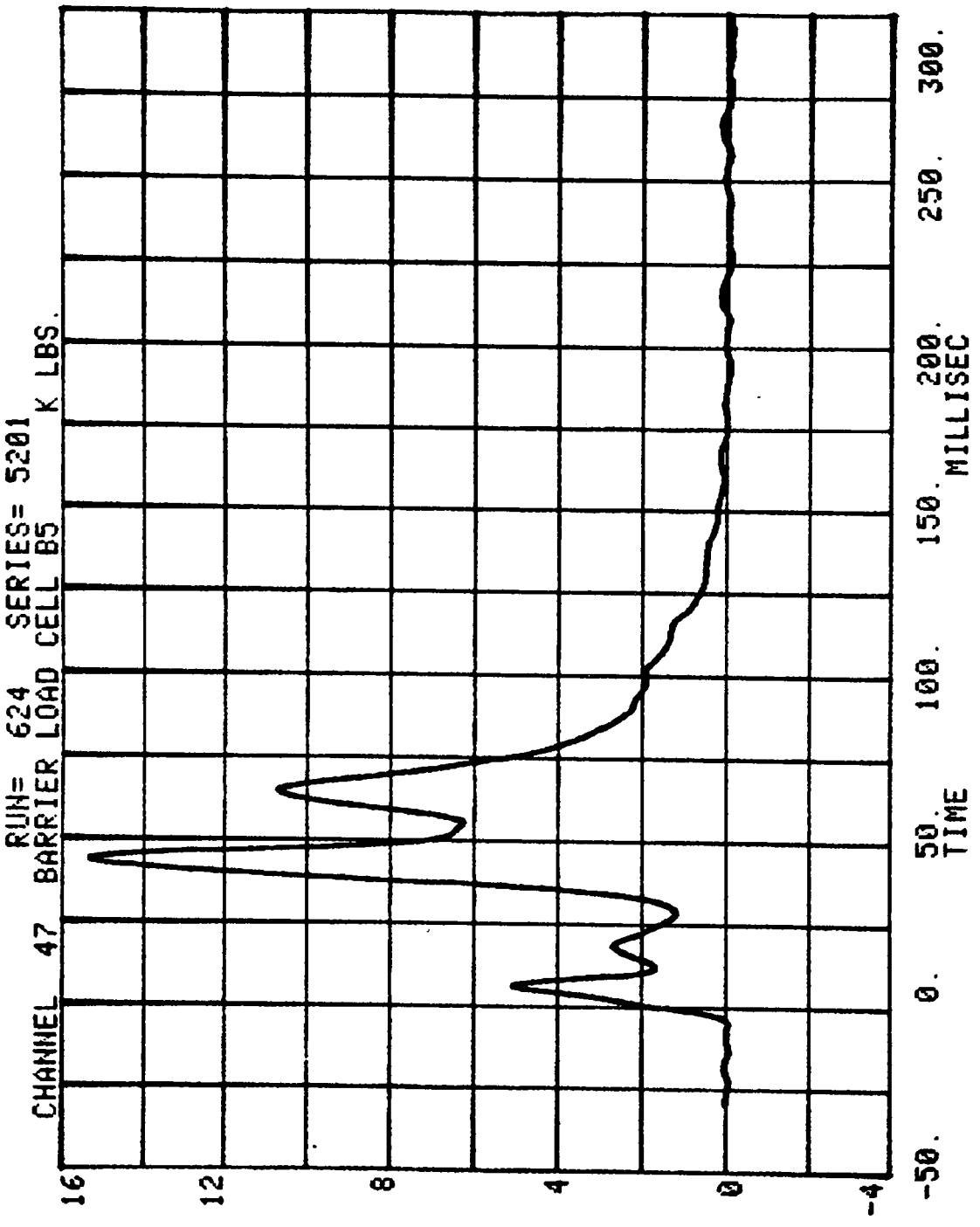

CHANNEL 42 BARRIER LOAD CELL A9
RUN= 624 SERIES= 5201
K LBS.
16
12
8
4
0
-4
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC


RUN= 624 SERIES= 5201
CHANNEL 43 BARRIER LOAD CELL B1 K LBS.
16
12
8
4
0
-4
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

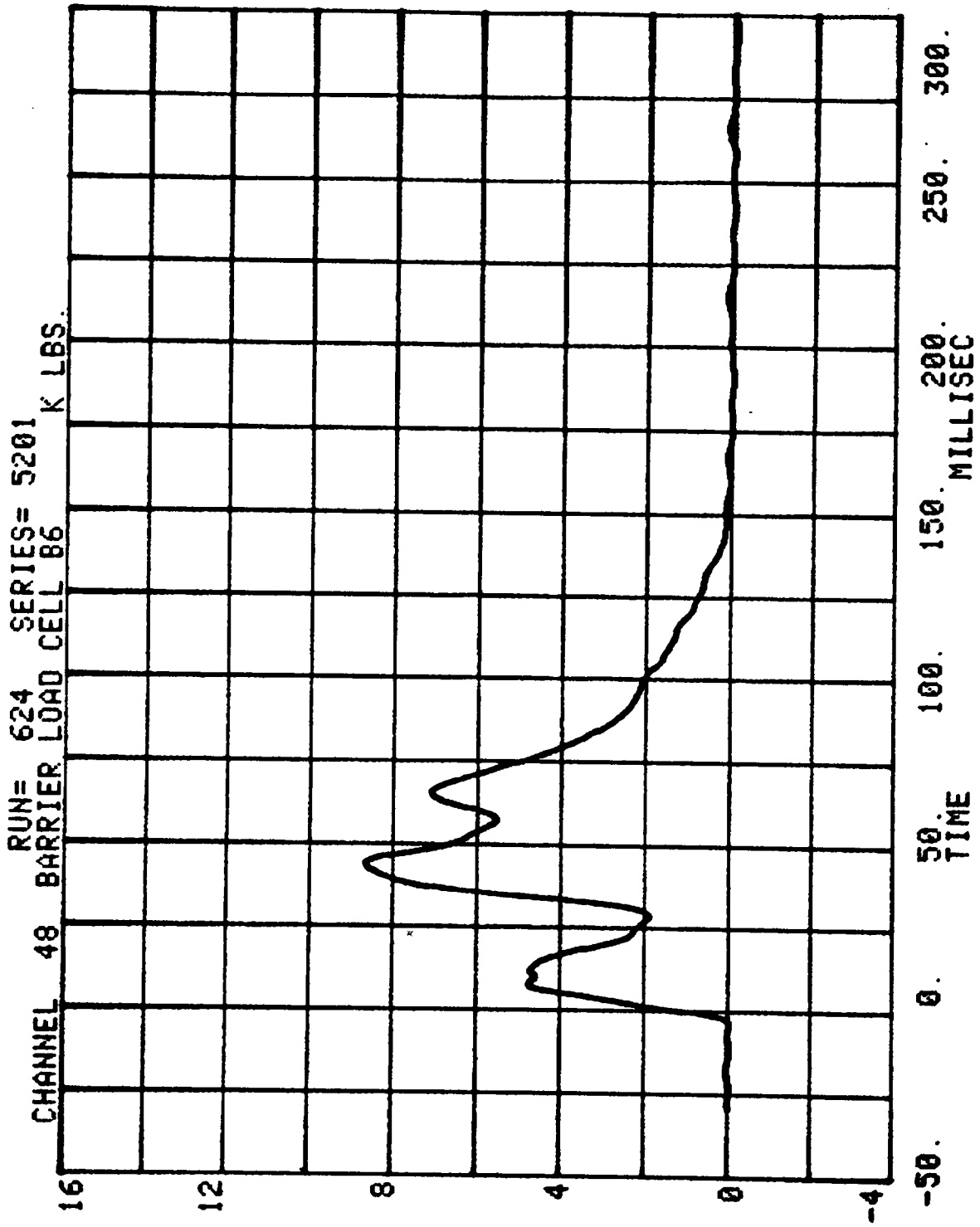

CHANNEL 44 BARRIER LOAD CELL B2
RUN= 624 SERIES= 5201
K LBS.
16
12
8
4
0
-4
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

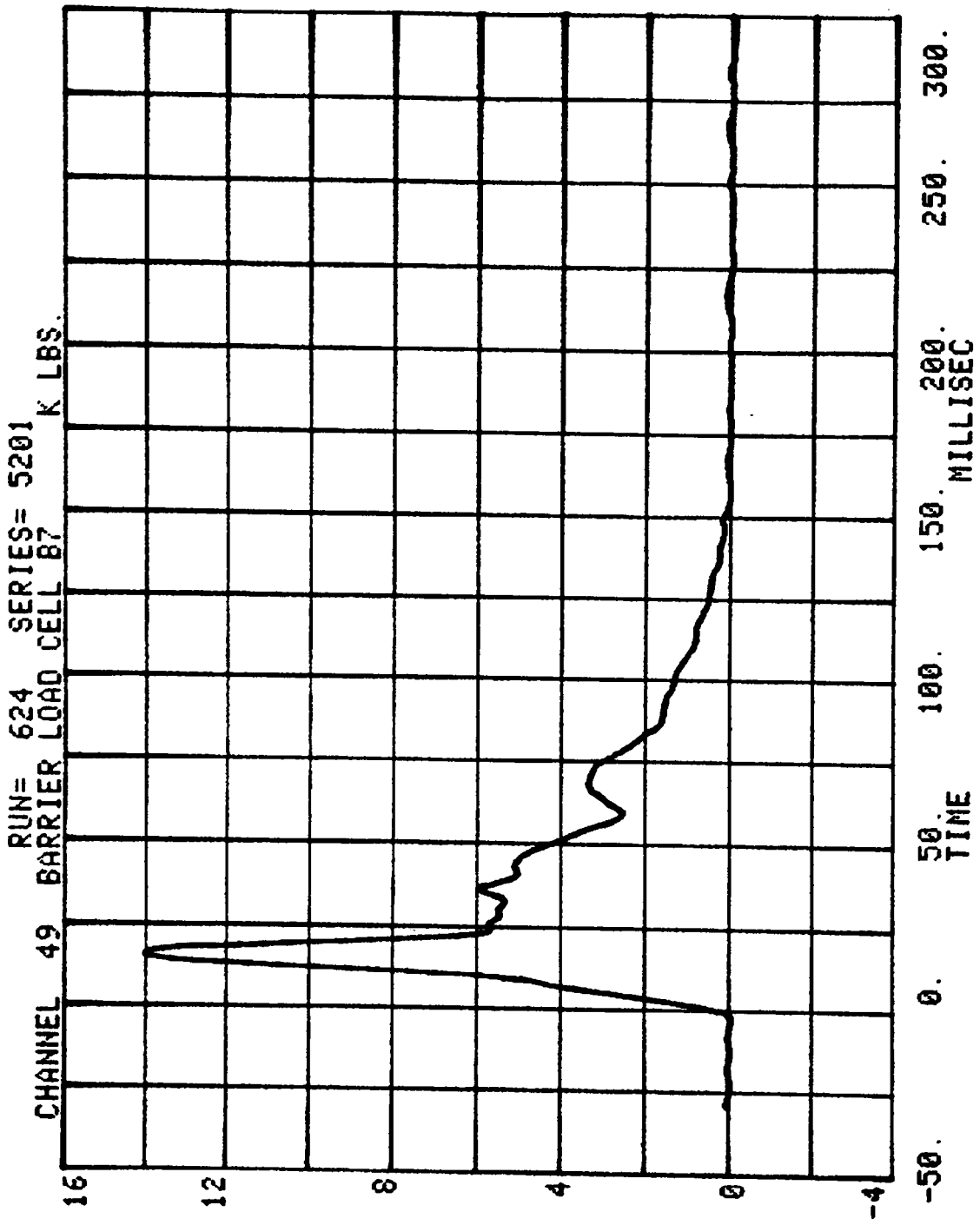

CHANNEL 45 BARRIER LOAD CELL B3
RUN= 624 SERIES= 5201
K LBS.
16
12
8
4
0
-4
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

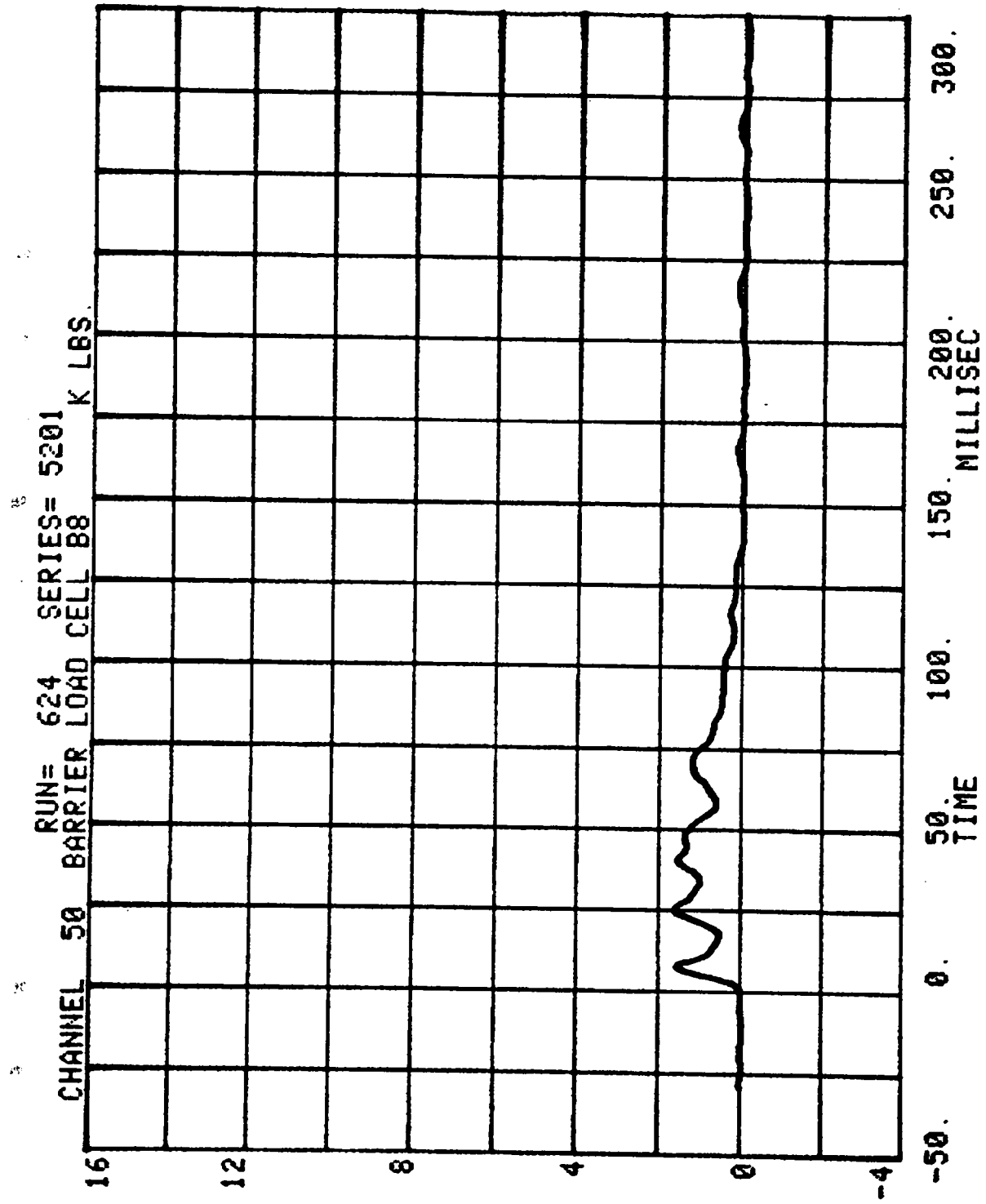

CHANNEL 46 BARRIER LOAD CELL B4
RUN= 624 SERIES= 5201
K LBS.
16
12
8
4
0
-4
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

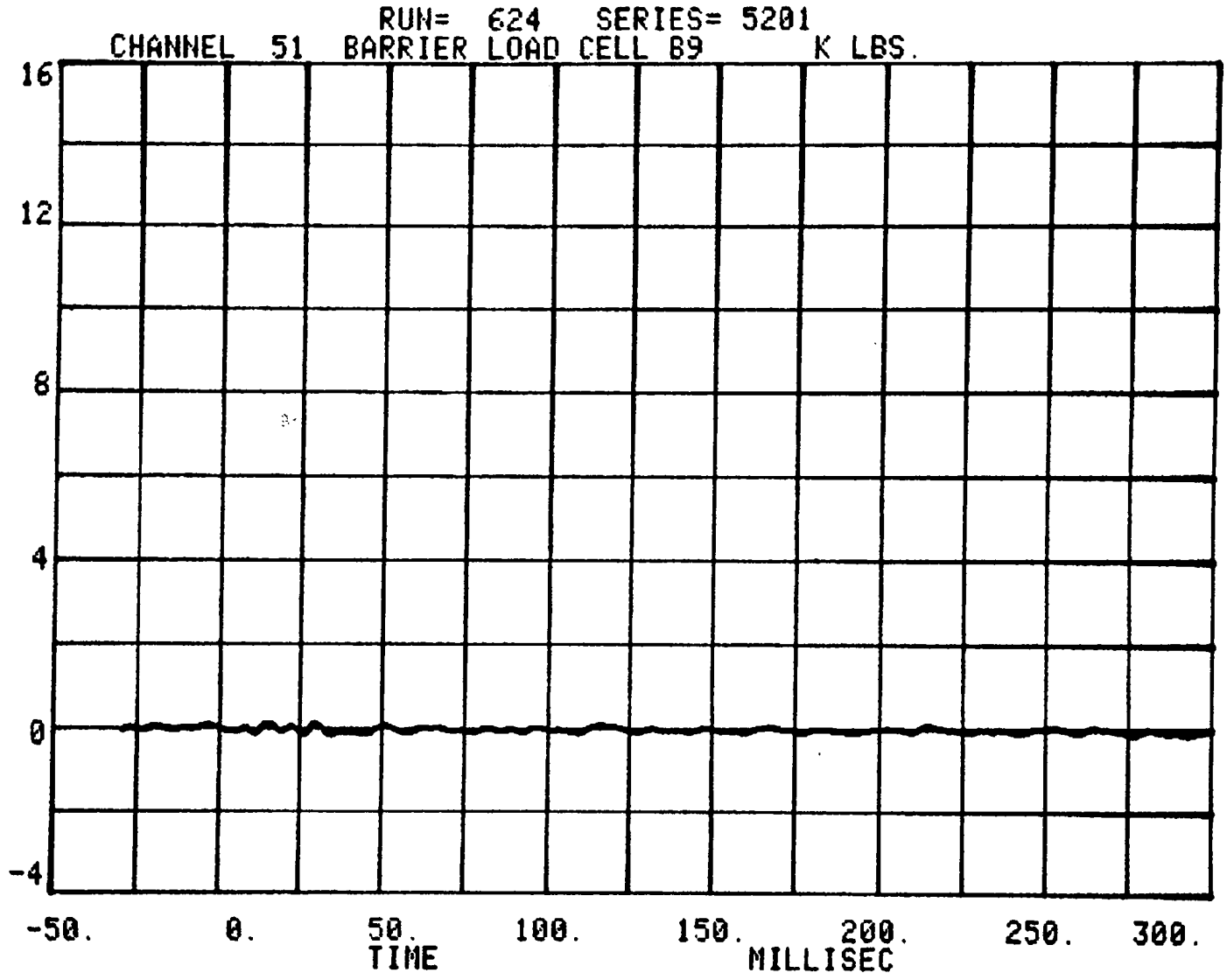

CHANNEL 47 BARRIER LOAD CELL B5
RUN= 624 SERIES= 5201
K LBS.
16
12
8
4
0
-4
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

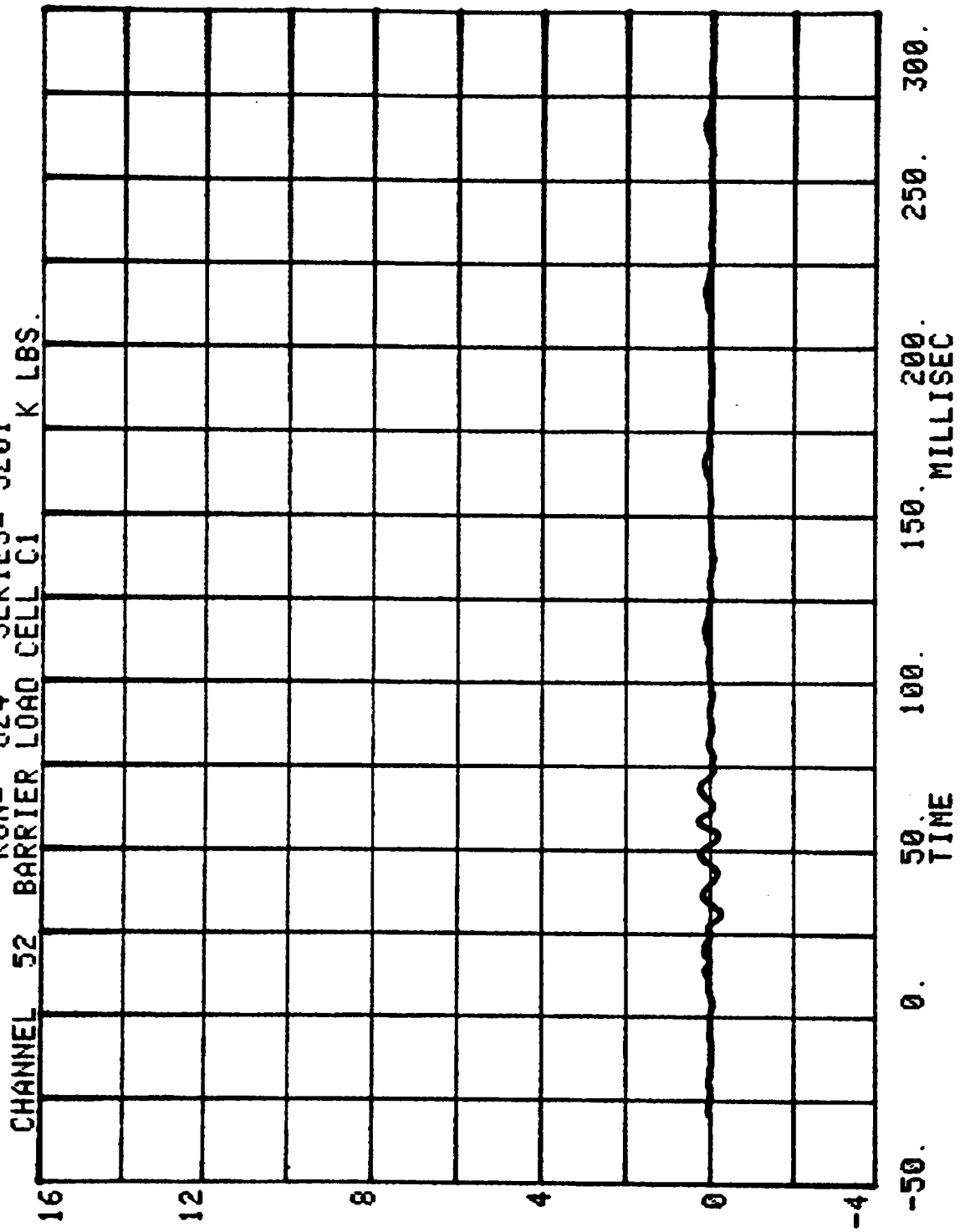
7209-18

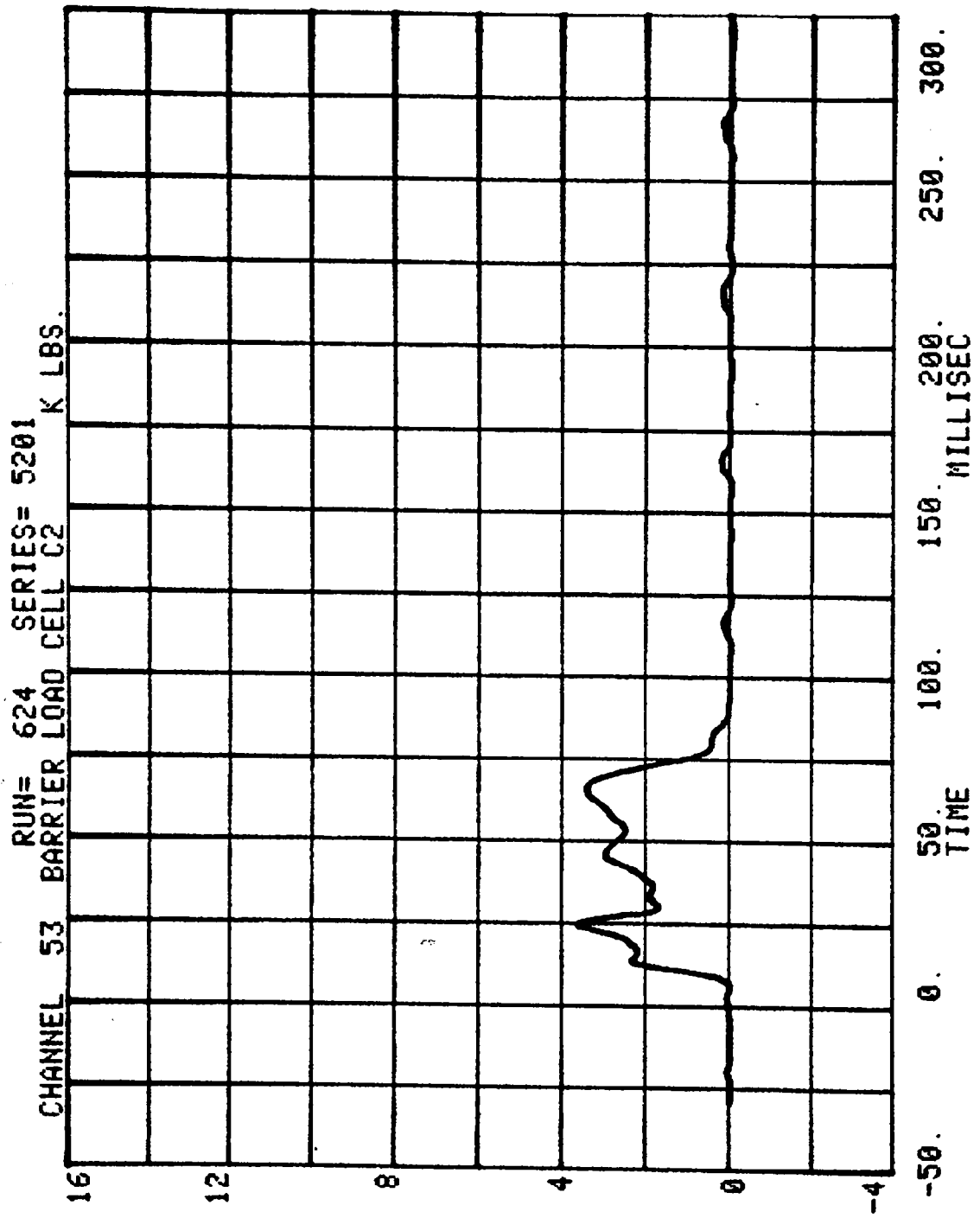

CHANNEL 48 BARRIER LOAD CELL 86
RUN= 624 SERIES= 5201
K LBS.
16
12
8
4
0
-4
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

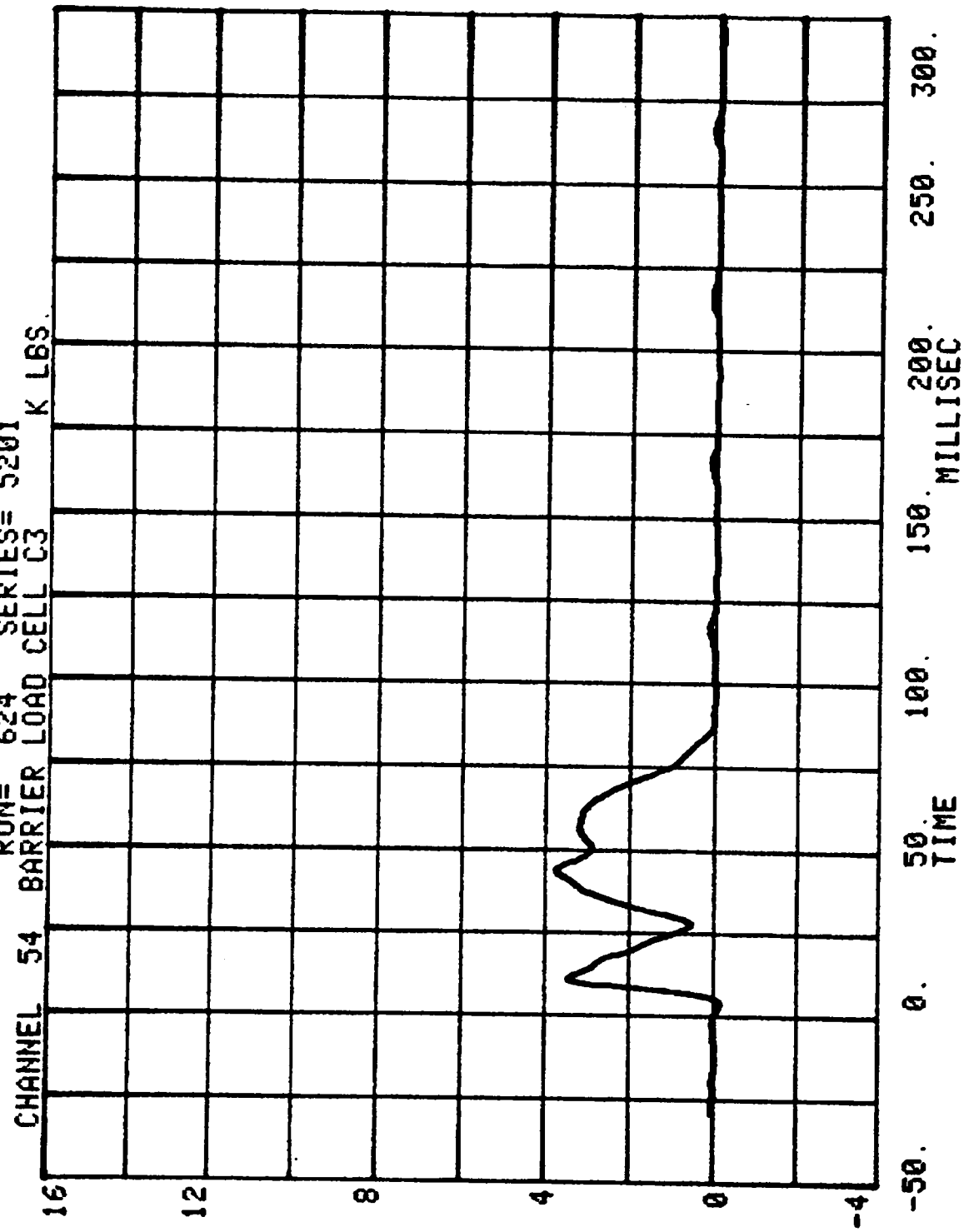

CHANNEL 49 BARRIER LOAD CELL 87
RUN= 624 SERIES= 5201
K LBS.
16
12
8
4
0
-4
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC


CHANNEL 50 RUN= 624 SERIES= 5201
BARRIER LOAD CELL B8
K LBS.
16
12
8
4
0
-4
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

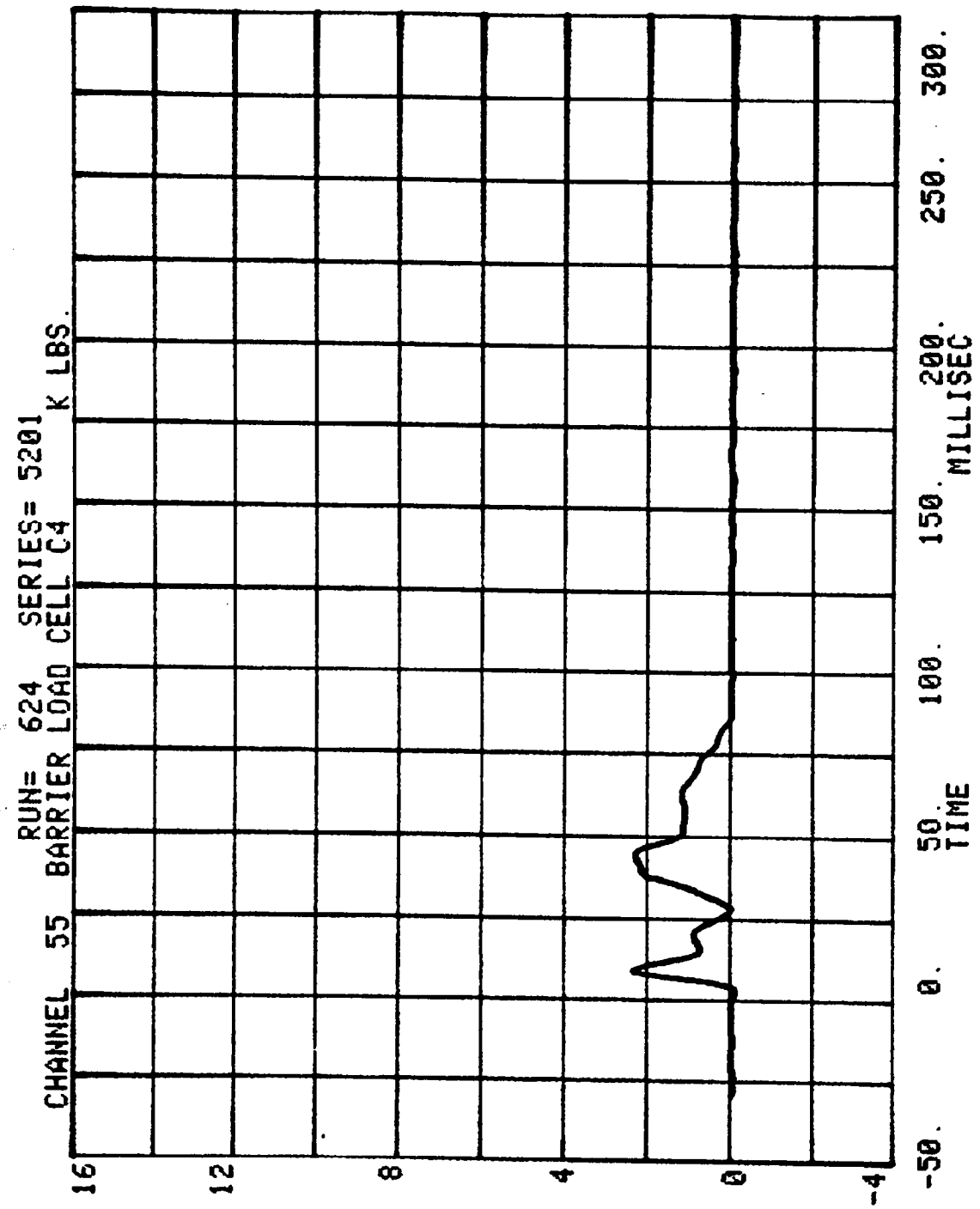

RUN= 624 SERIES= 5201
CHANNEL 51 BARRIER LOAD CELL 89 K LBS.
16
12
8
4
0
-4
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

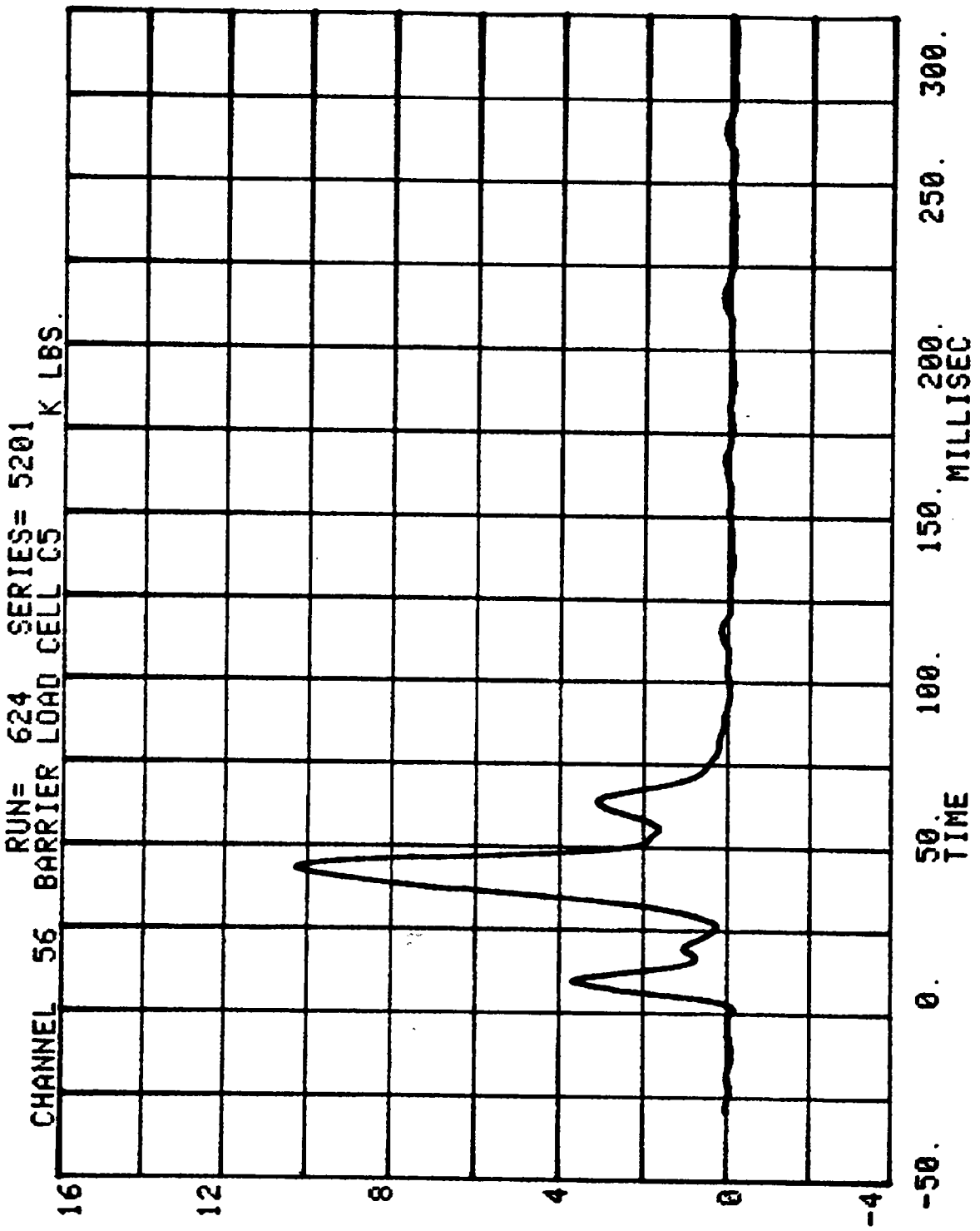

CHANNEL 52 BARRIER LOAD CELL C1
RUN= 624 SERIES= 5201
K LBS.
16
12
8
4
0
-4
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

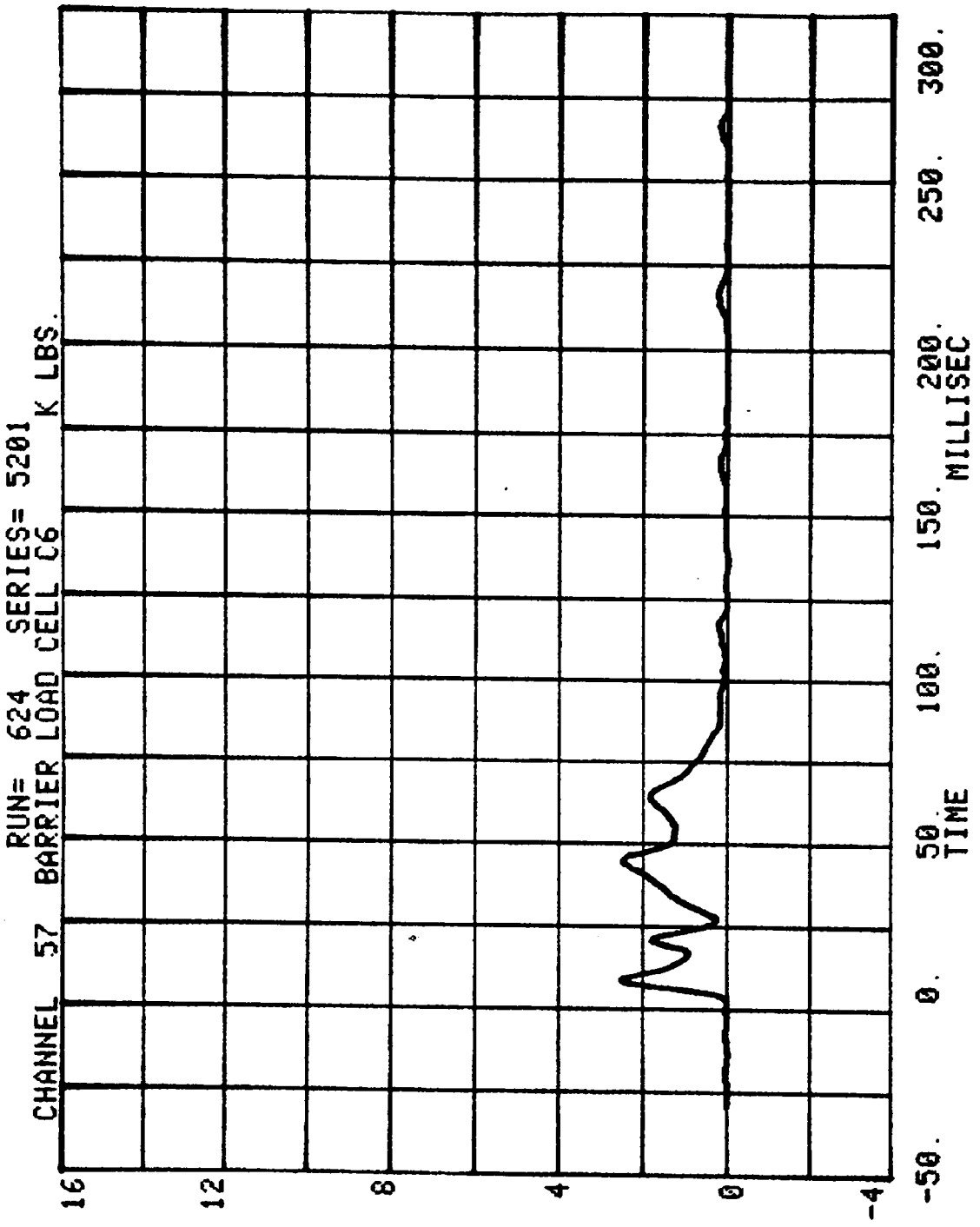

CHANNEL 53 BARRIER LOAD CELL C2
RUN= 624 SERIES= 5201
K LBS.
16
12
8
4
0
-4
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

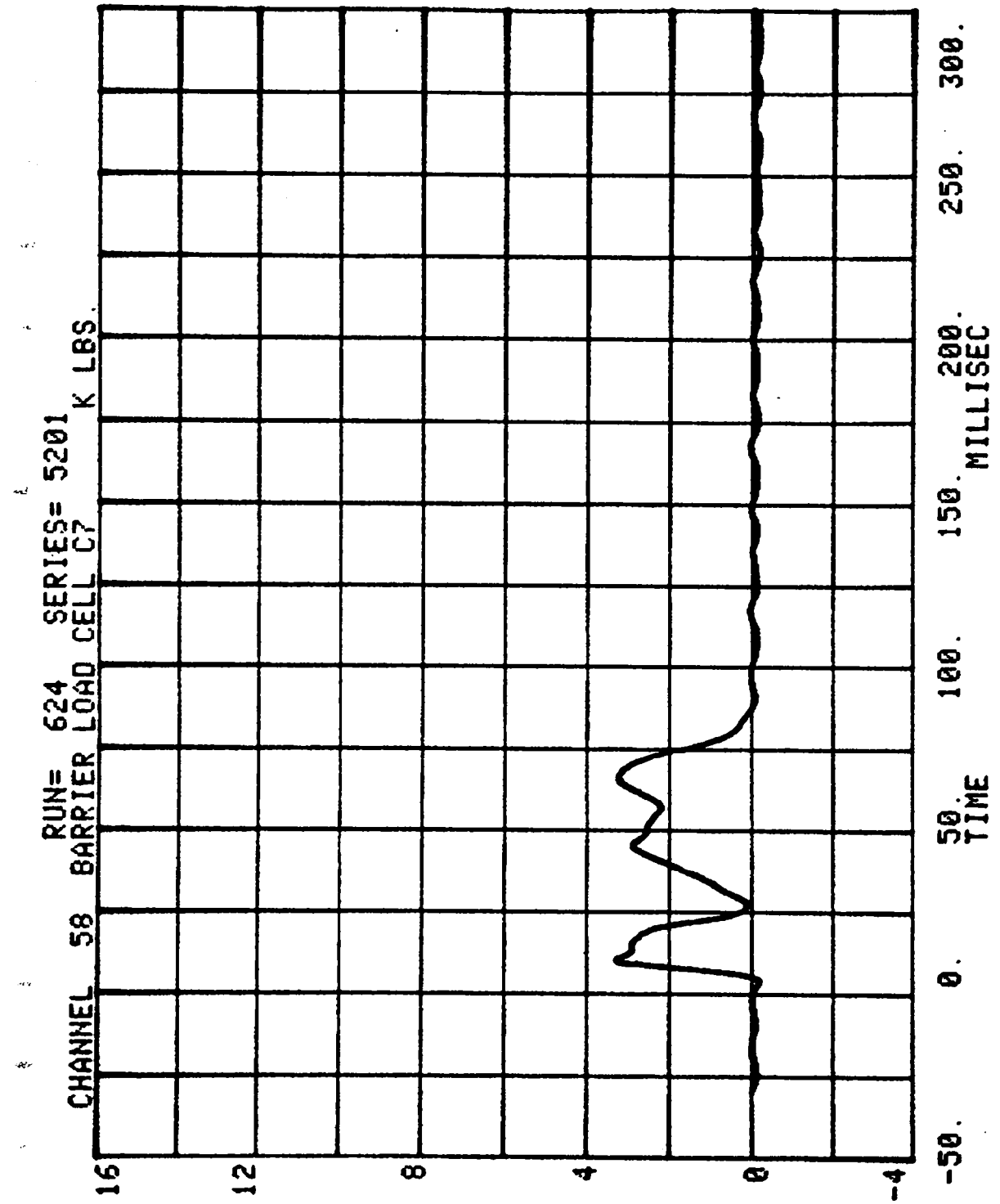

CHANNEL 54 BARRIER LOAD CELL C3
RUN= 624 SERIES= 5201
K LBS.
16
12
8
4
0
-4
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

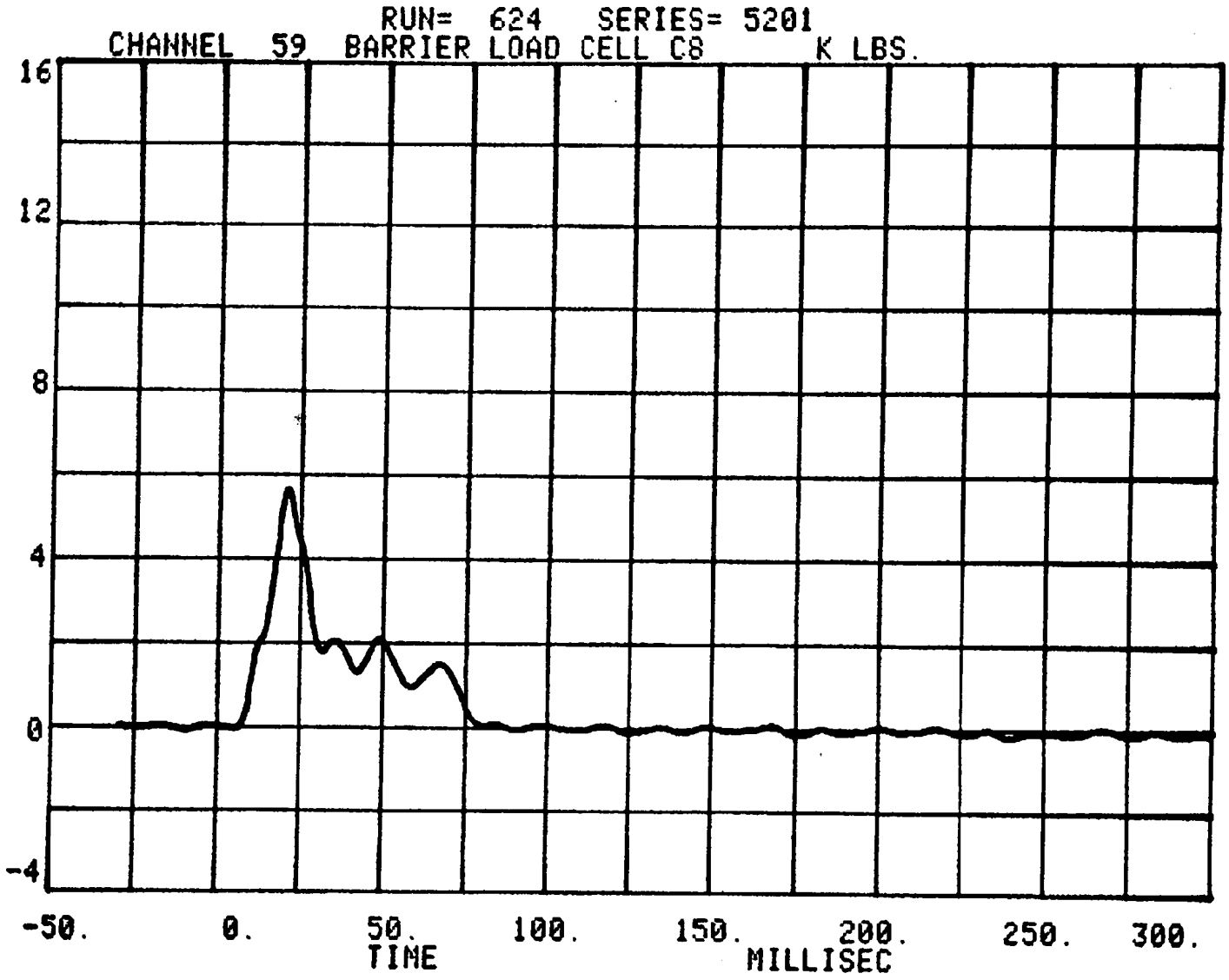
7209-18

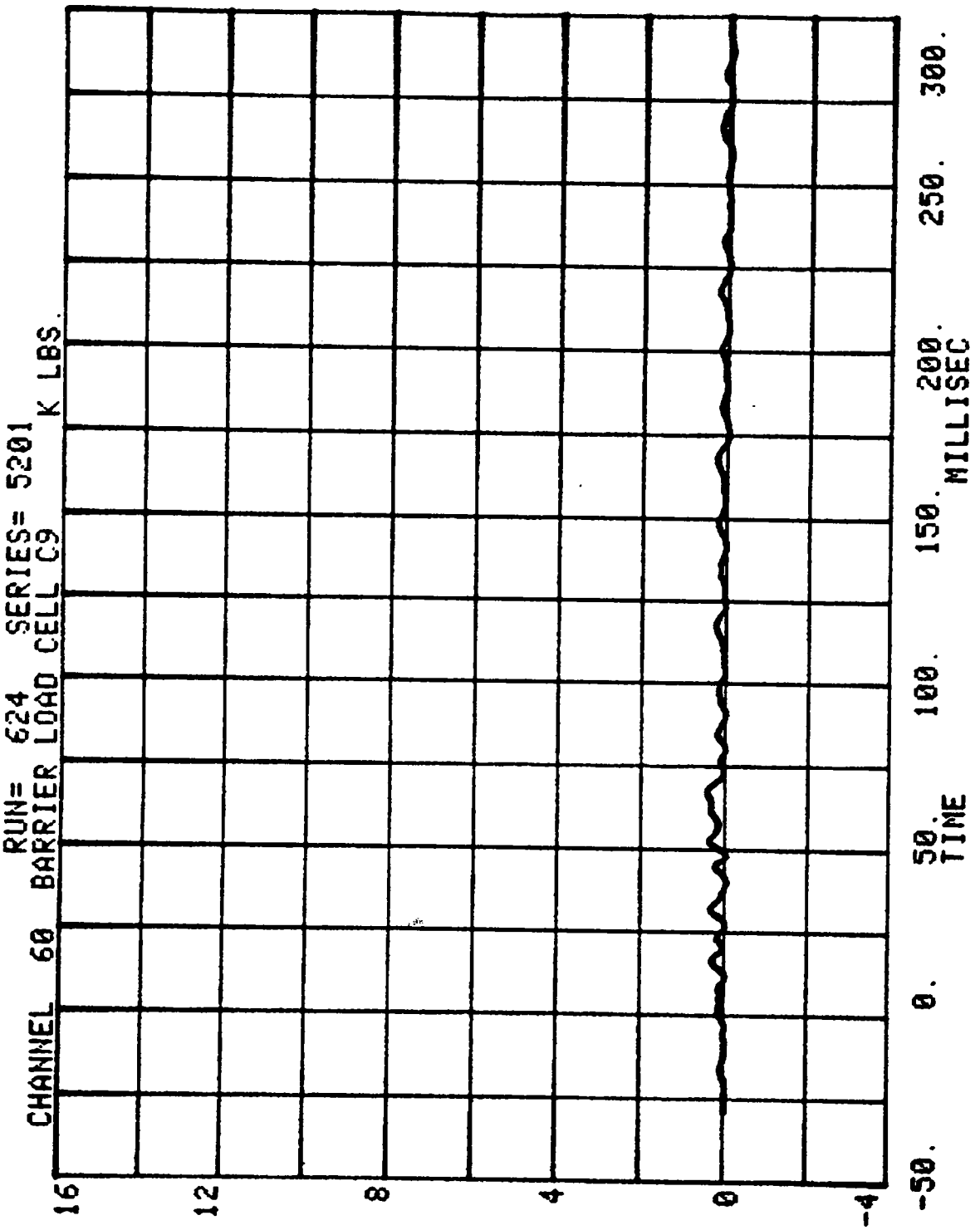

CHANNEL 55 BARRIER LOAD CELL C4
RUN= 624 SERIES= 5201
K LBS.
16
12
8
4
0
-4
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

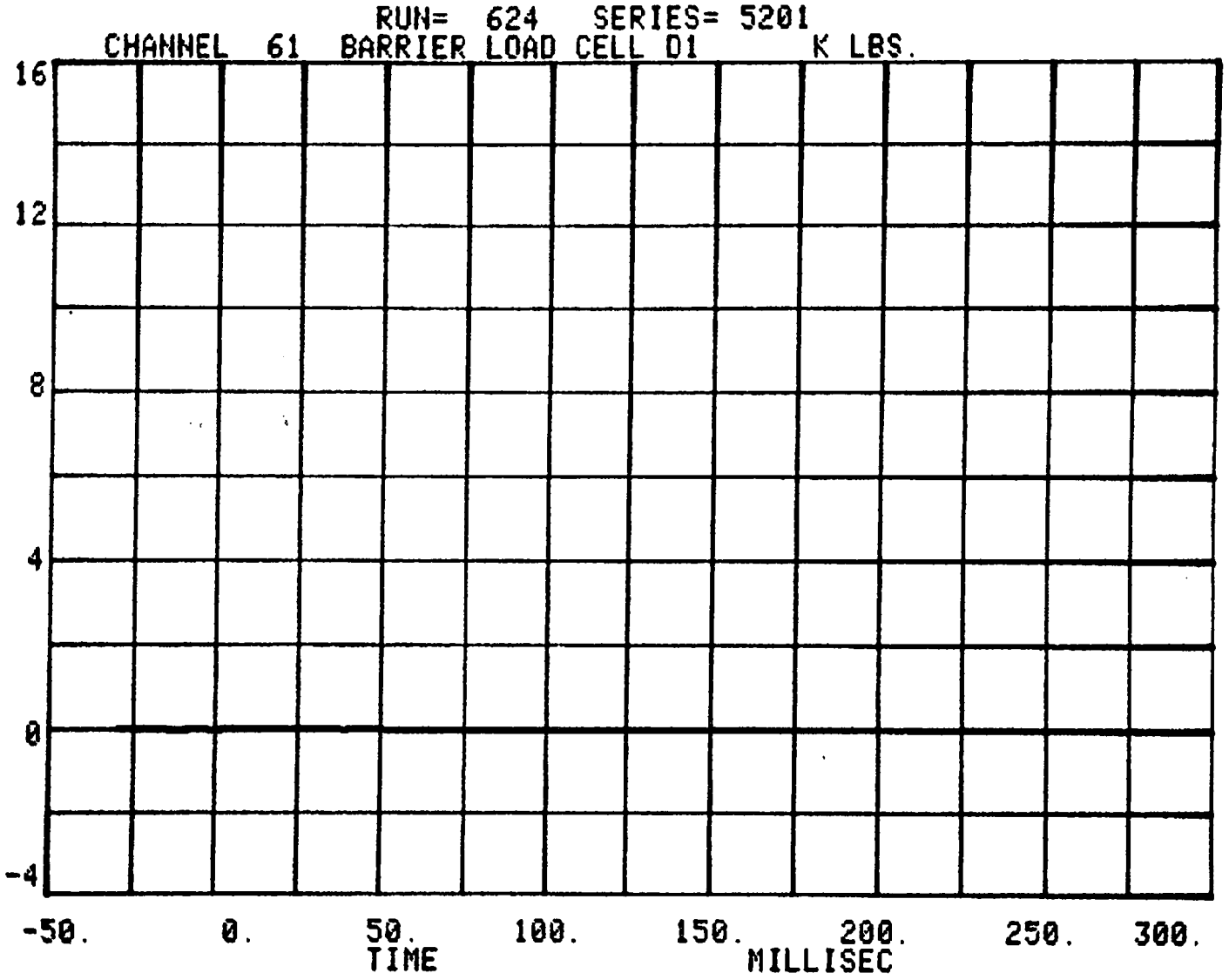

CHANNEL 56 BARRIER LOAD CELL C5
RUN= 624 SERIES= 5201
K LBS.
16
12
8
4
0
-4
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

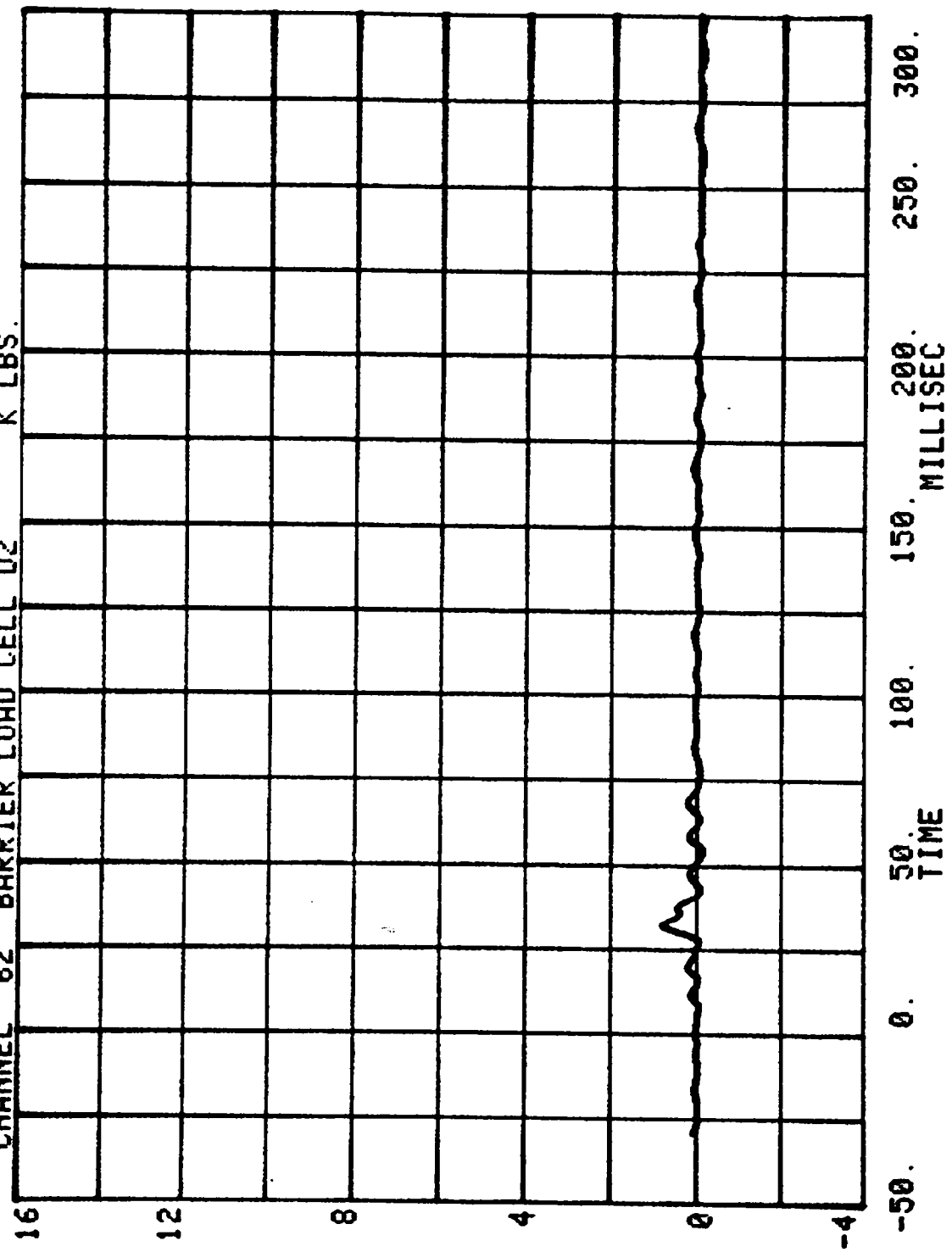

CHANNEL 57 BARRIER LOAD CELL C6
RUN= 624 SERIES= 5201
K LBS.
16
12
8
4
0
-4
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

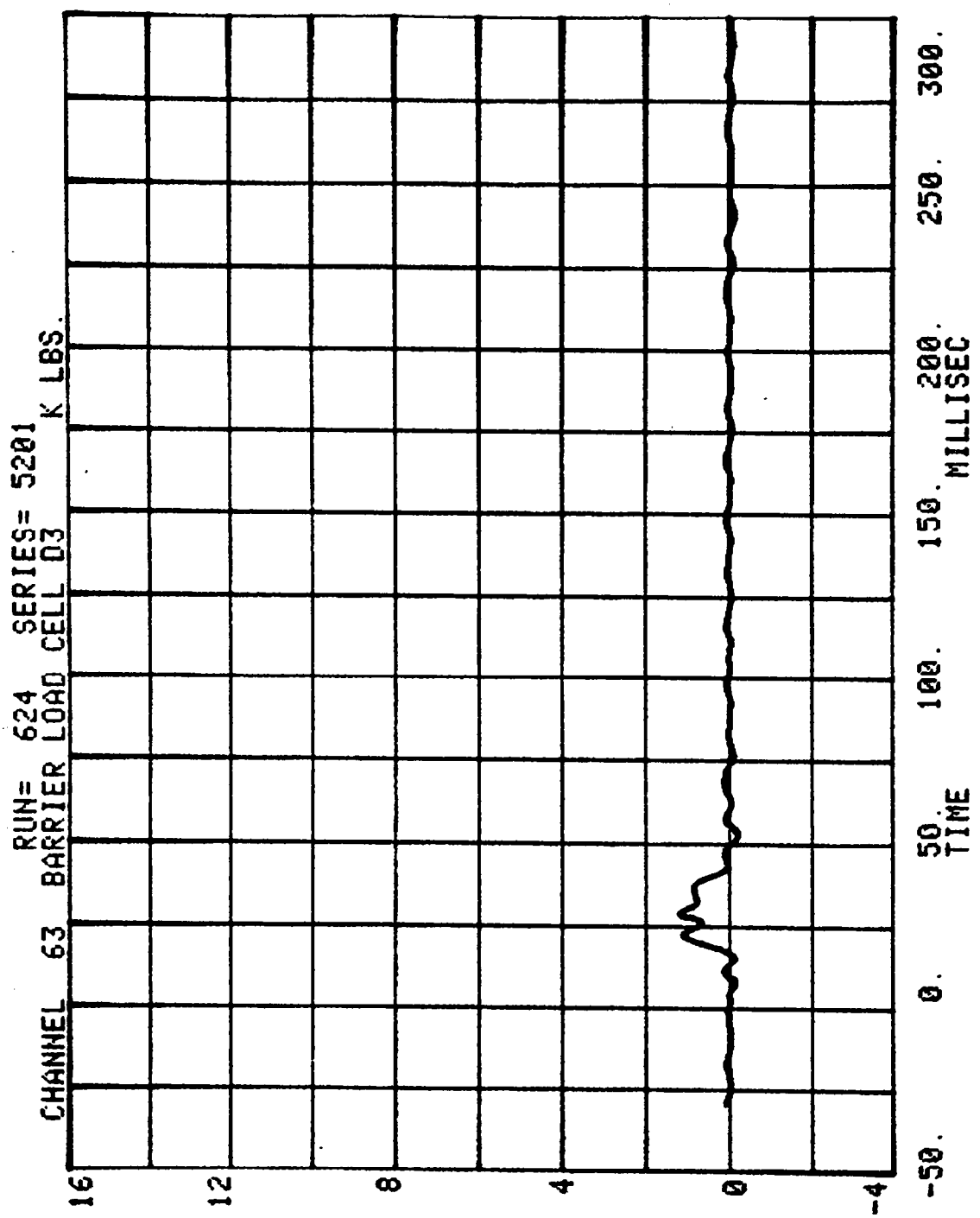

CHANNEL 58 BARRIER LOAD CELL C7
RUN= 624 SERIES= 5201
K LBS.
16
12
8
4
0
-4
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

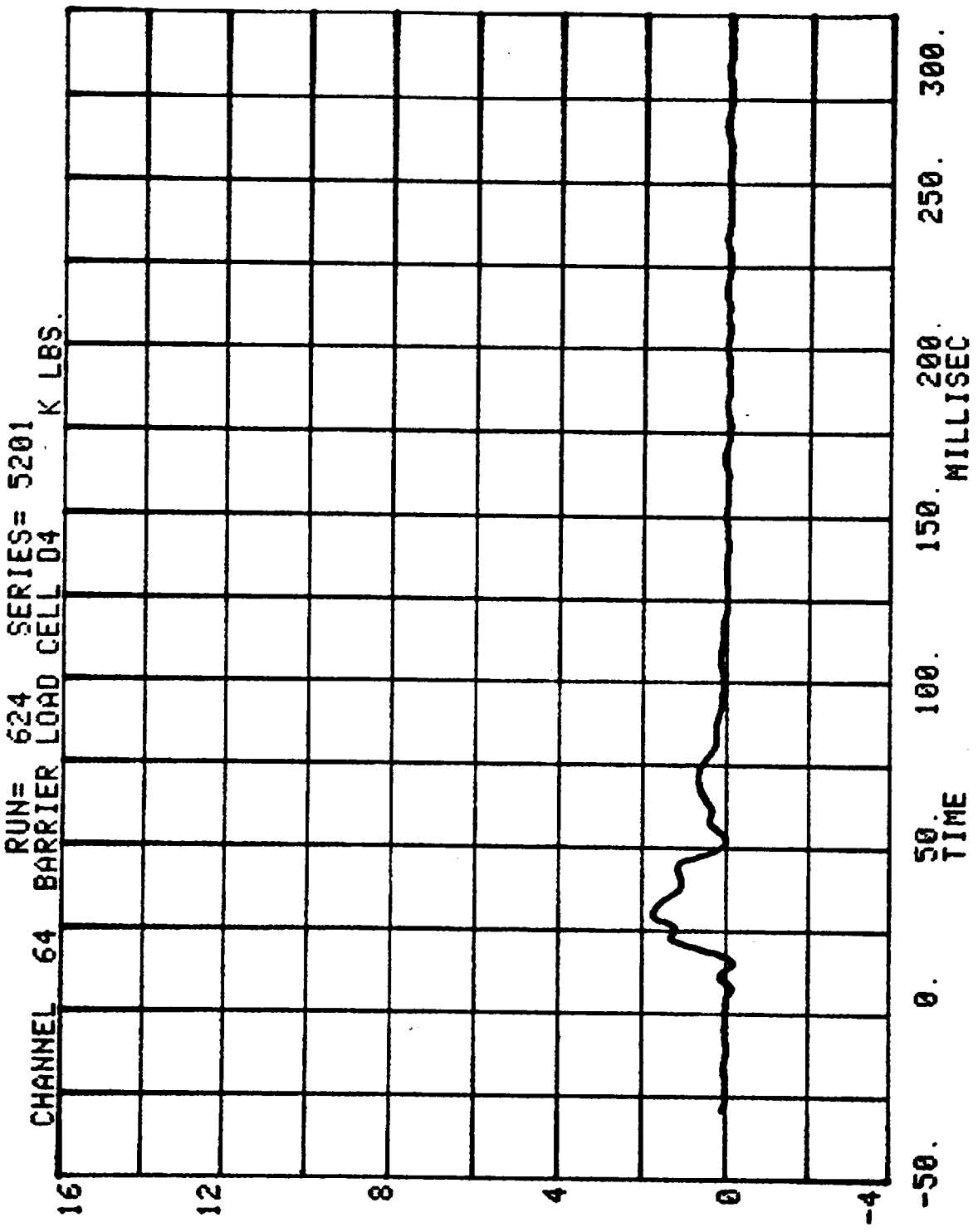

RUN= 624 SERIES= 5201
CHANNEL 59 BARRIER LOAD CELL C8 K LBS.
16
12
8
4
0
-4
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

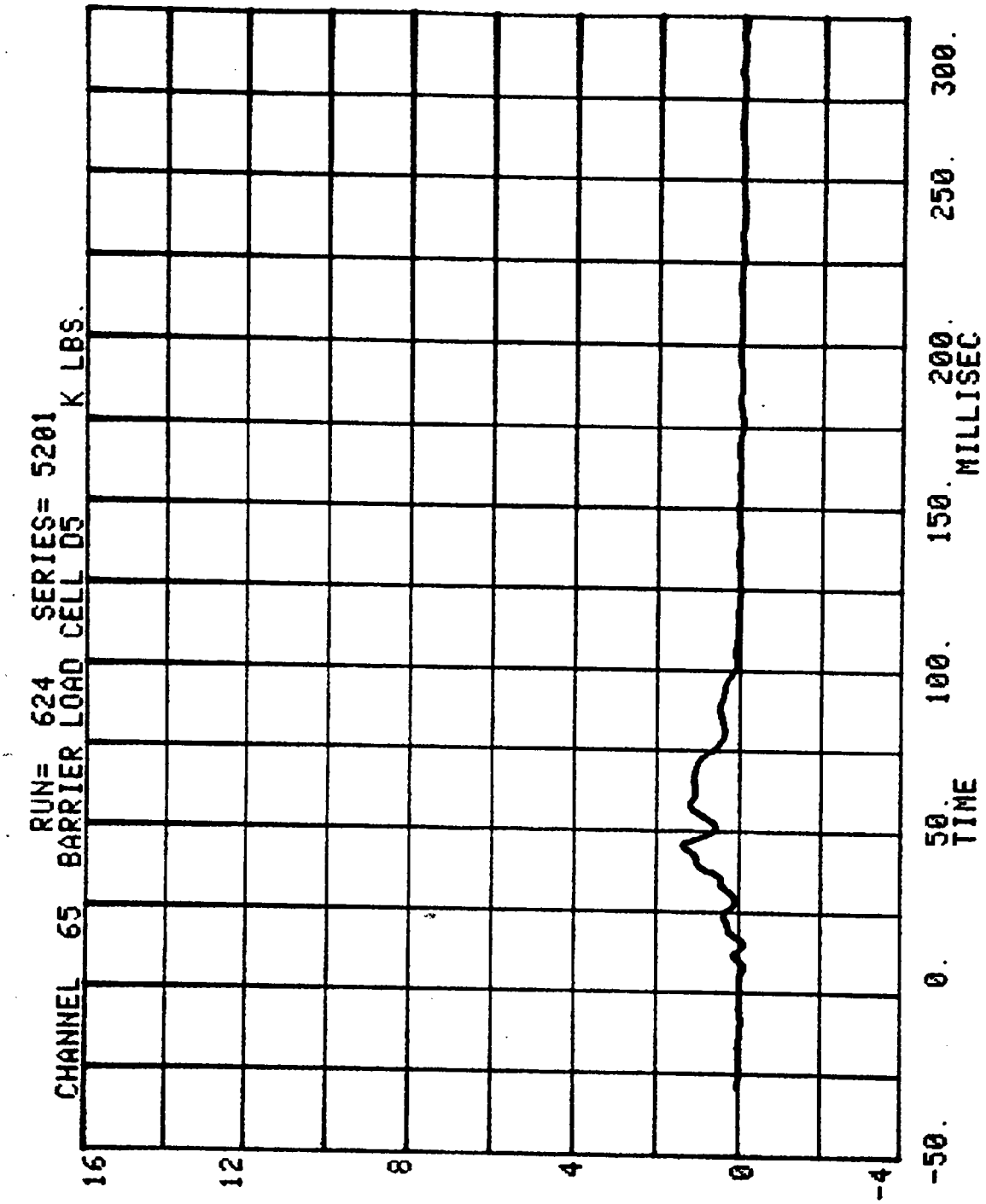

CHANNEL 60 BARRIER LOAD CELL C9
RUN= 624 SERIES= 5201
K LBS.
16
12
8
4
0
-4
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

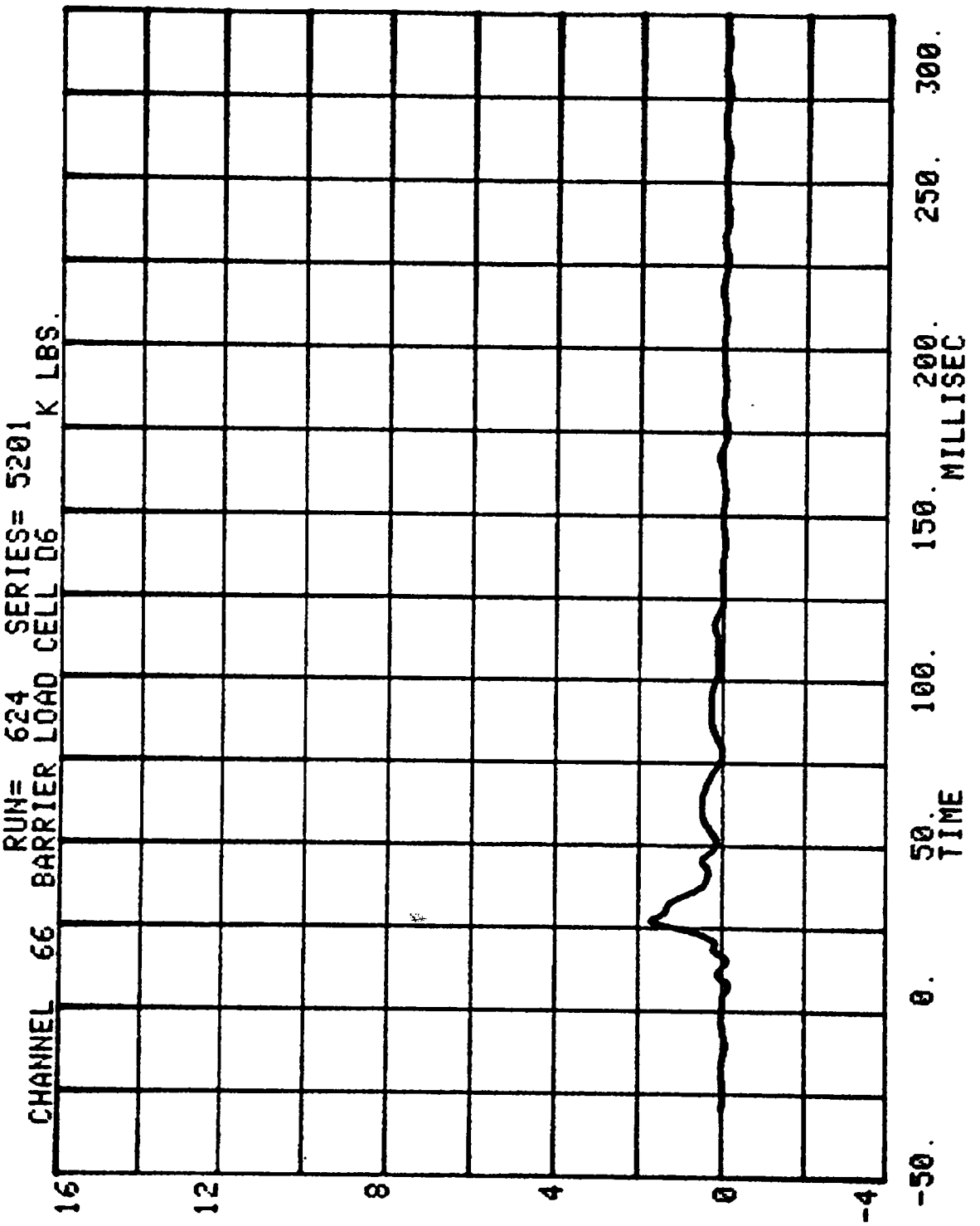

RUN= 624 SERIES= 5201
CHANNEL 61 BARRIER LOAD CELL D1 K LBS.
16
12
8
4
0
-4
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

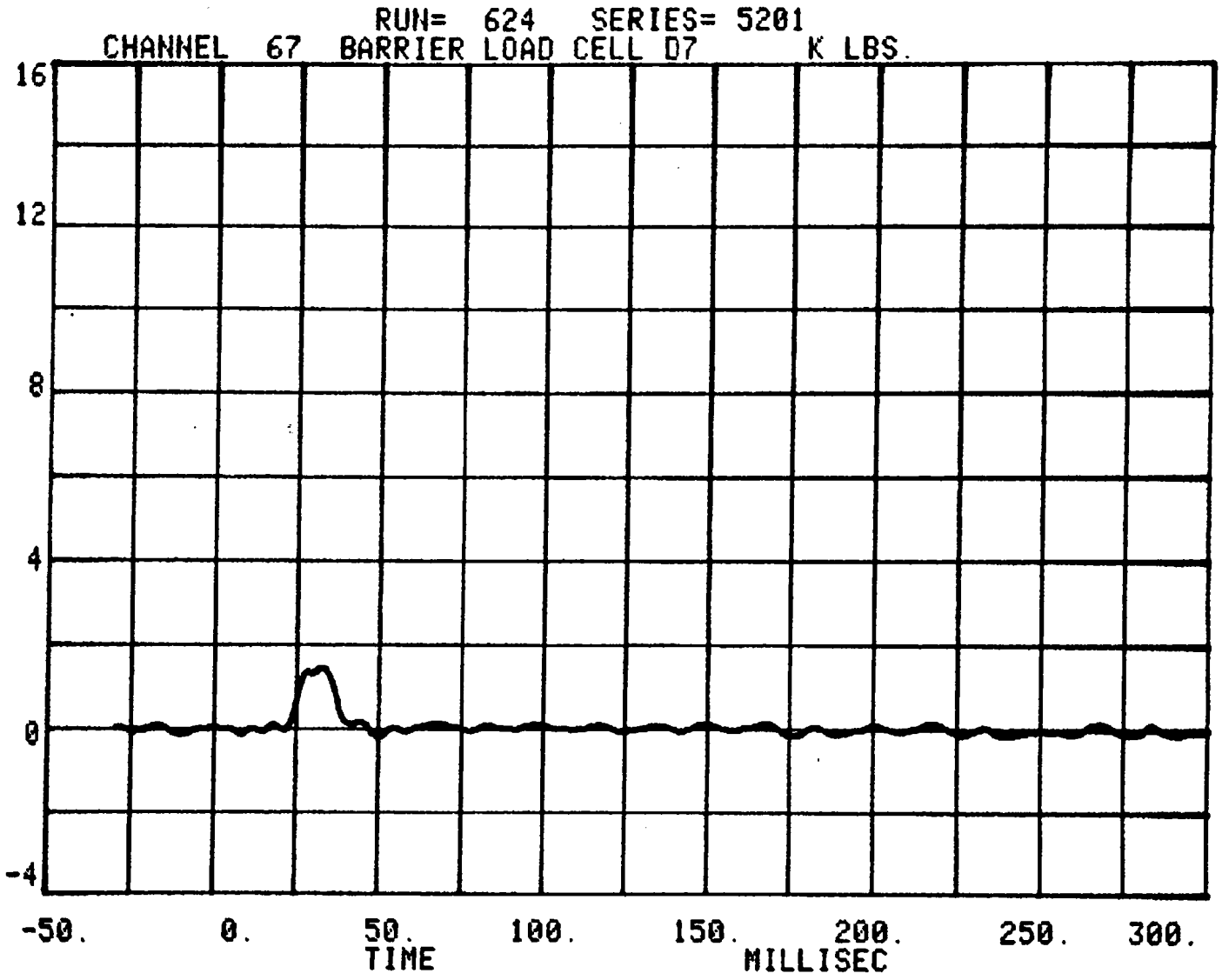

CHANNEL 62 BARRIER LOAD CELL D2
RUN= 624 SERIES= 5201
K LBS.
16
12
8
4
0
-4
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

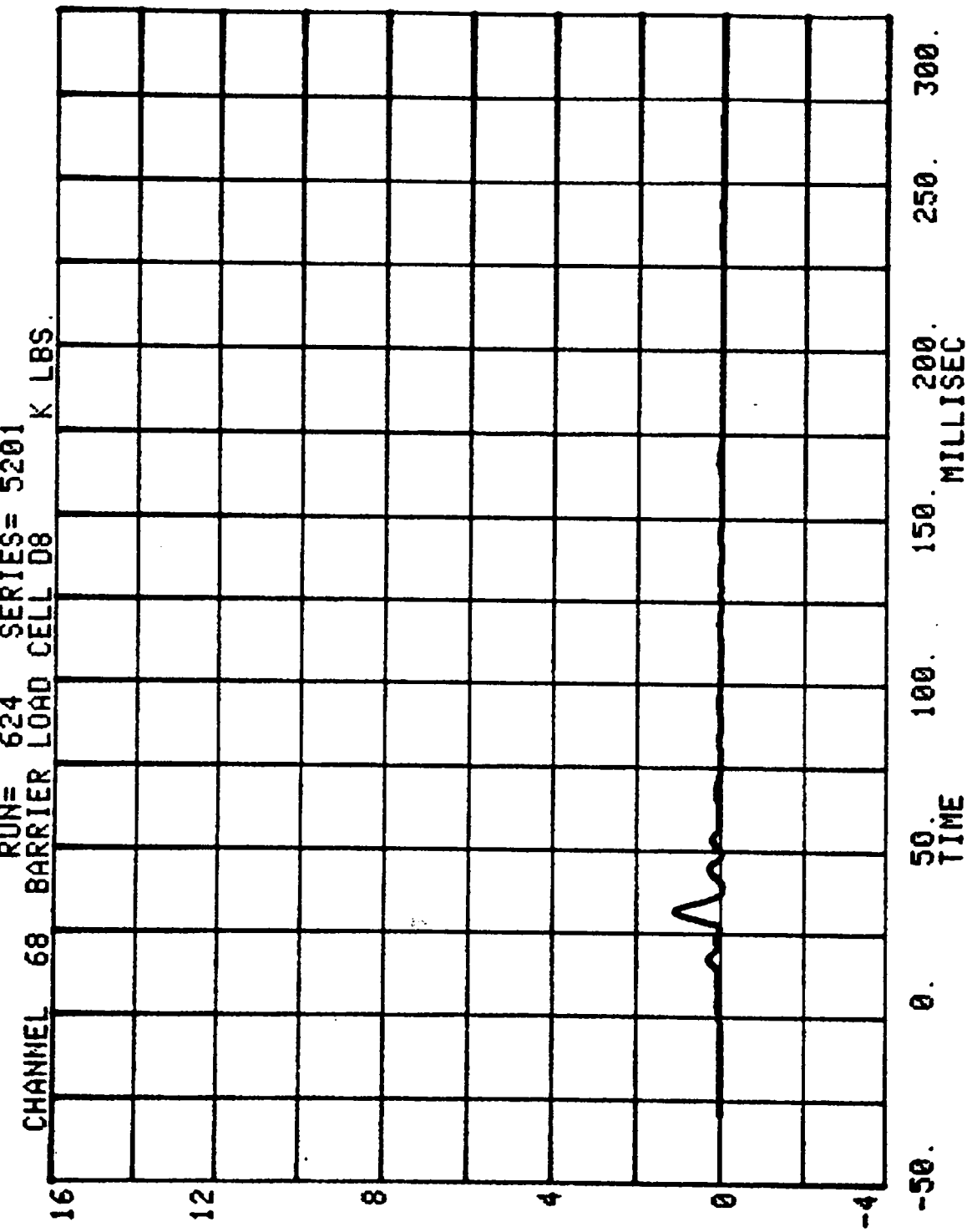

CHANNEL 63 BARRIER LOAD CELL 03
RUN= 624 SERIES= 5201
K LBS.
16
12
8
4
0
-4
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

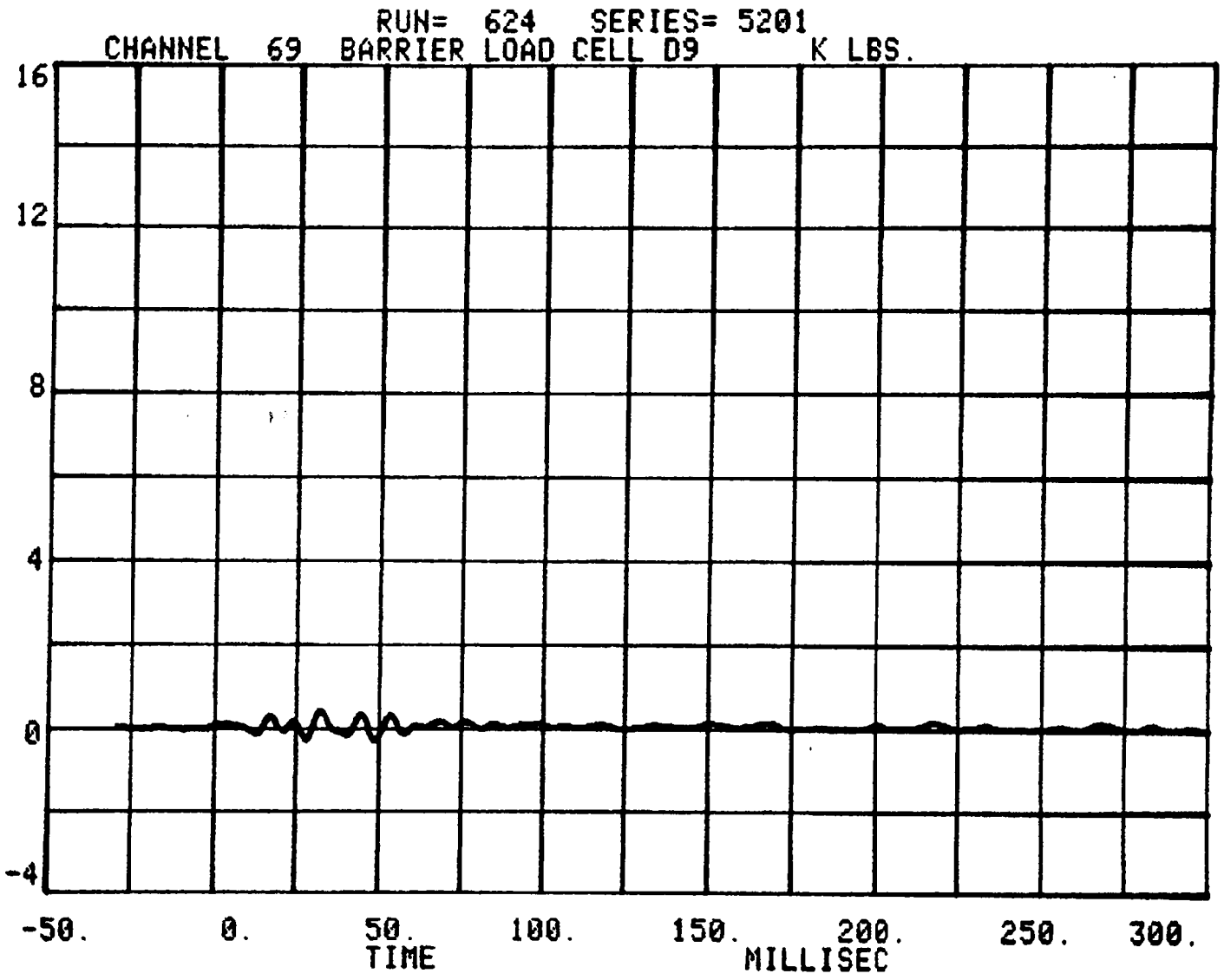

CHANNEL 64 BARRIER LOAD CELL 04
RUN= 624 SERIES= 5201
K LBS.
16
12
8
4
0
-4
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

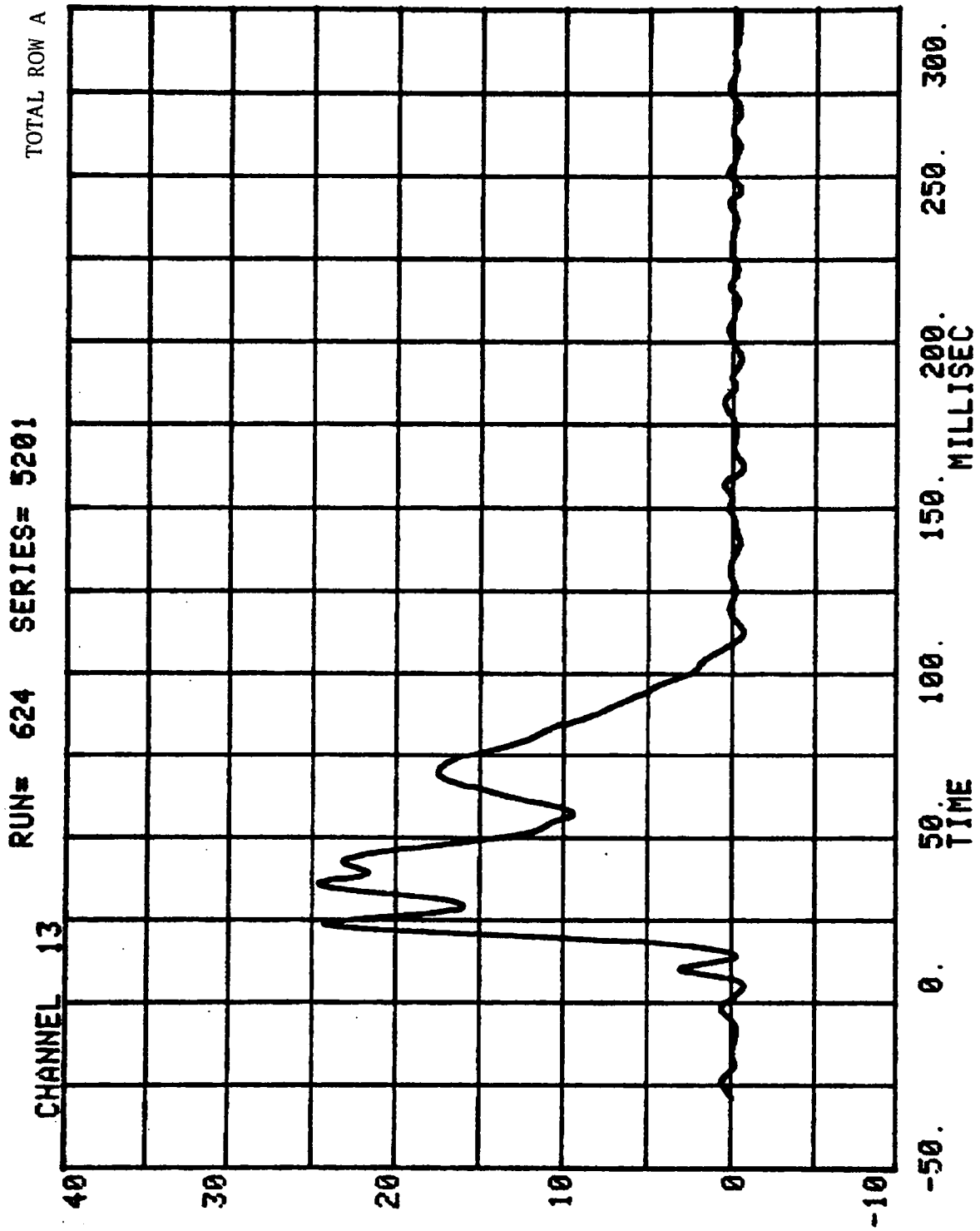

CHANNEL 65 BARRIER LOAD CELL D5
RUN= 624 SERIES= 5201
K LBS.
16
12
8
4
0
-4
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

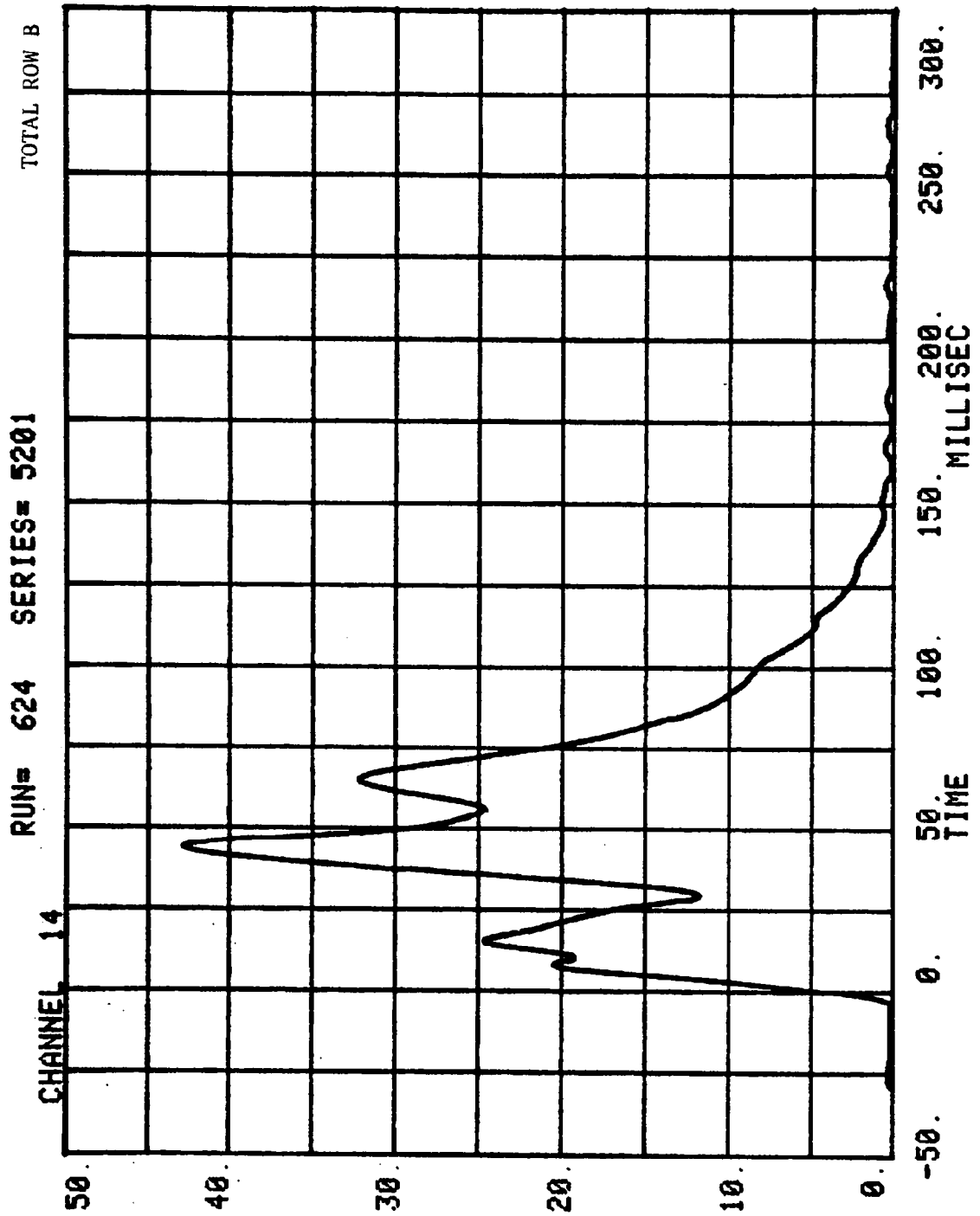

CHANNEL 66 BARRIER LOAD CELL 06
RUN= 624 SERIES= 5201
K LBS.
16
12
8
4
0
-4
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC


RUN= 624 SERIES= 5201
CHANNEL 67 BARRIER LOAD CELL D7 K LBS.
16
12
8
4
0
-4
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

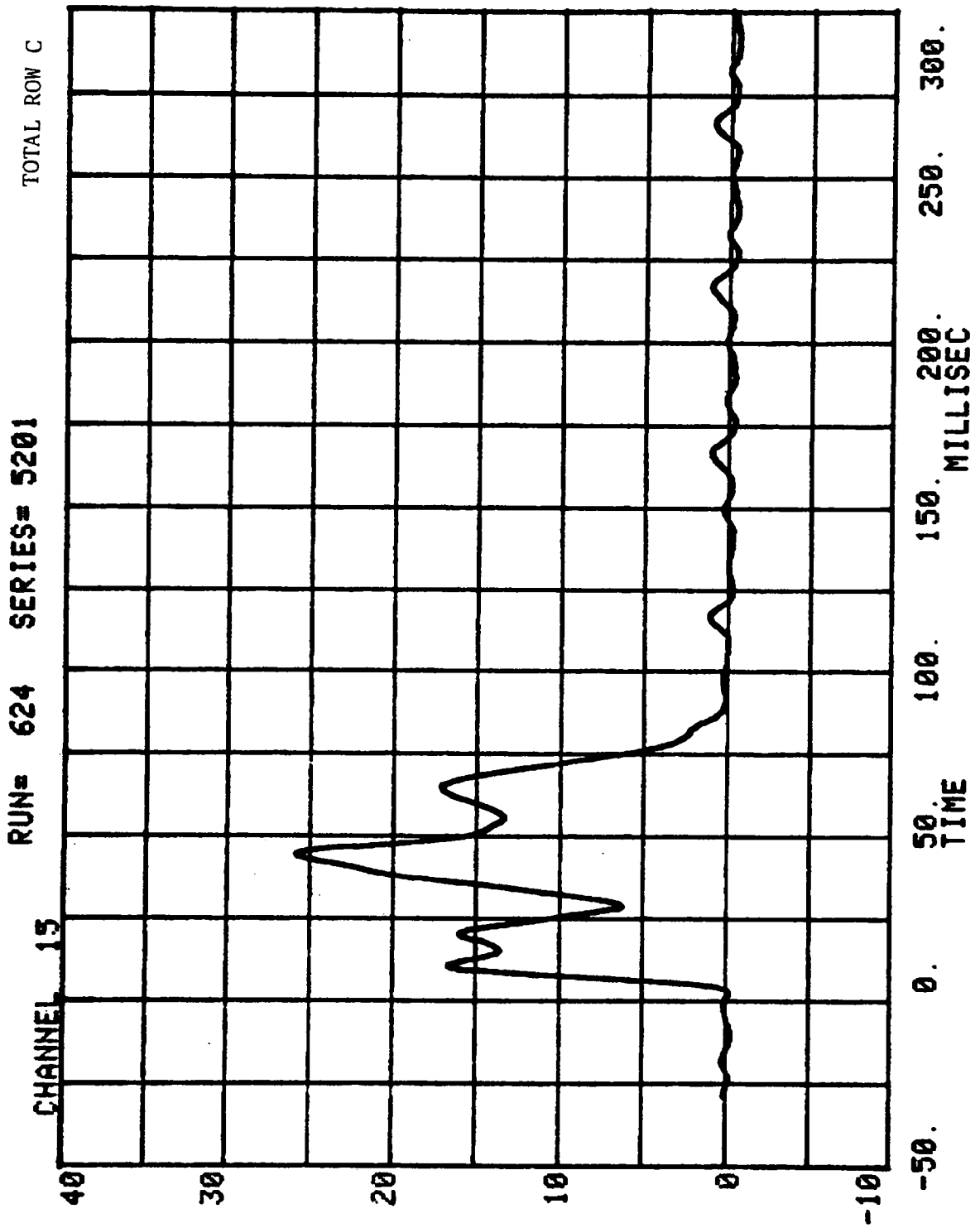

CHANNEL 68 BARRIER LOAD CELL D8
RUN= 624 SERIES= 5201
K LBS.
16
12
8
4
0
-4
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

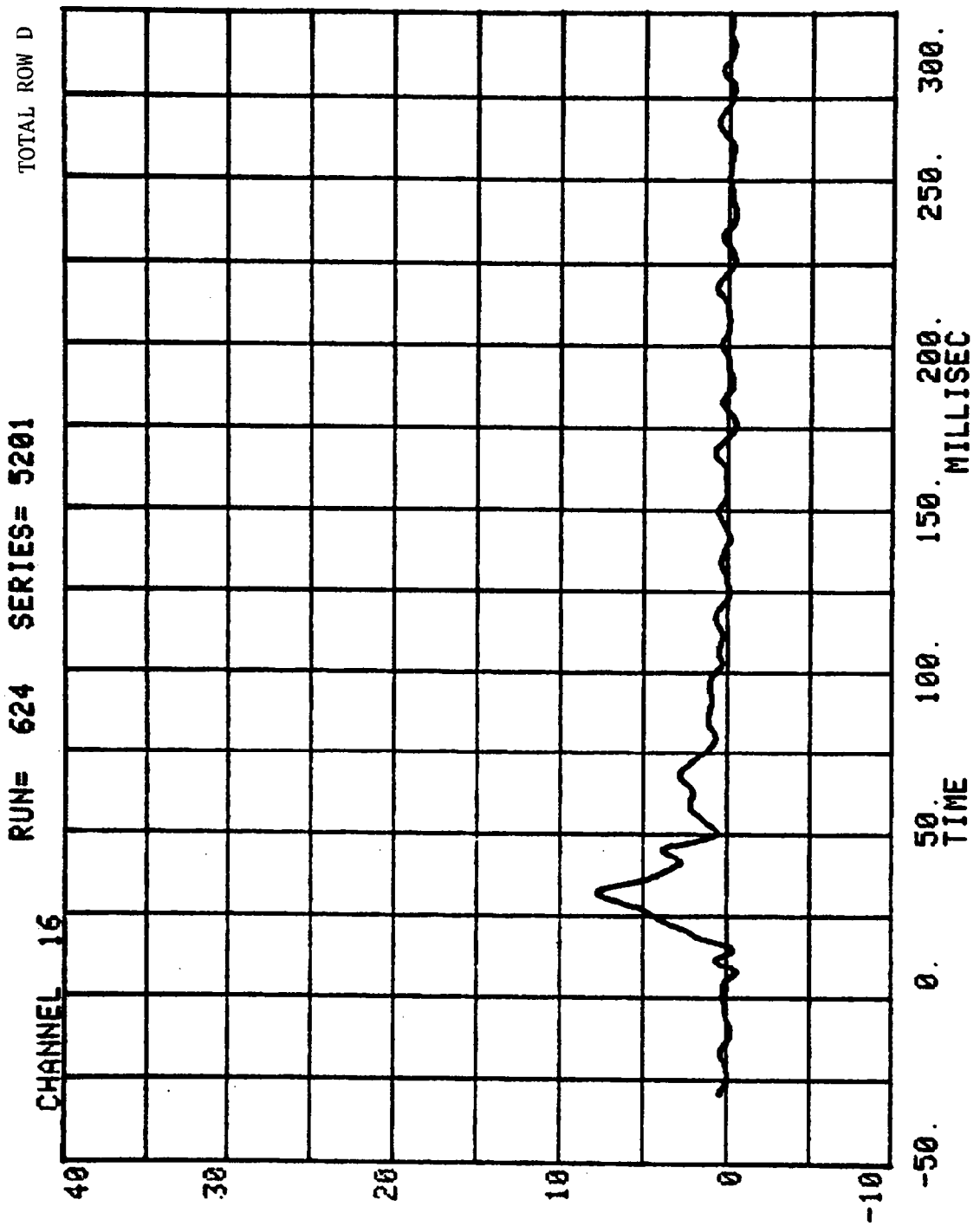

RUN= 624 SERIES= 5201
CHANNEL 69 BARRIER LOAD CELL D9 K LBS.
16
12
8
4
0
-4
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

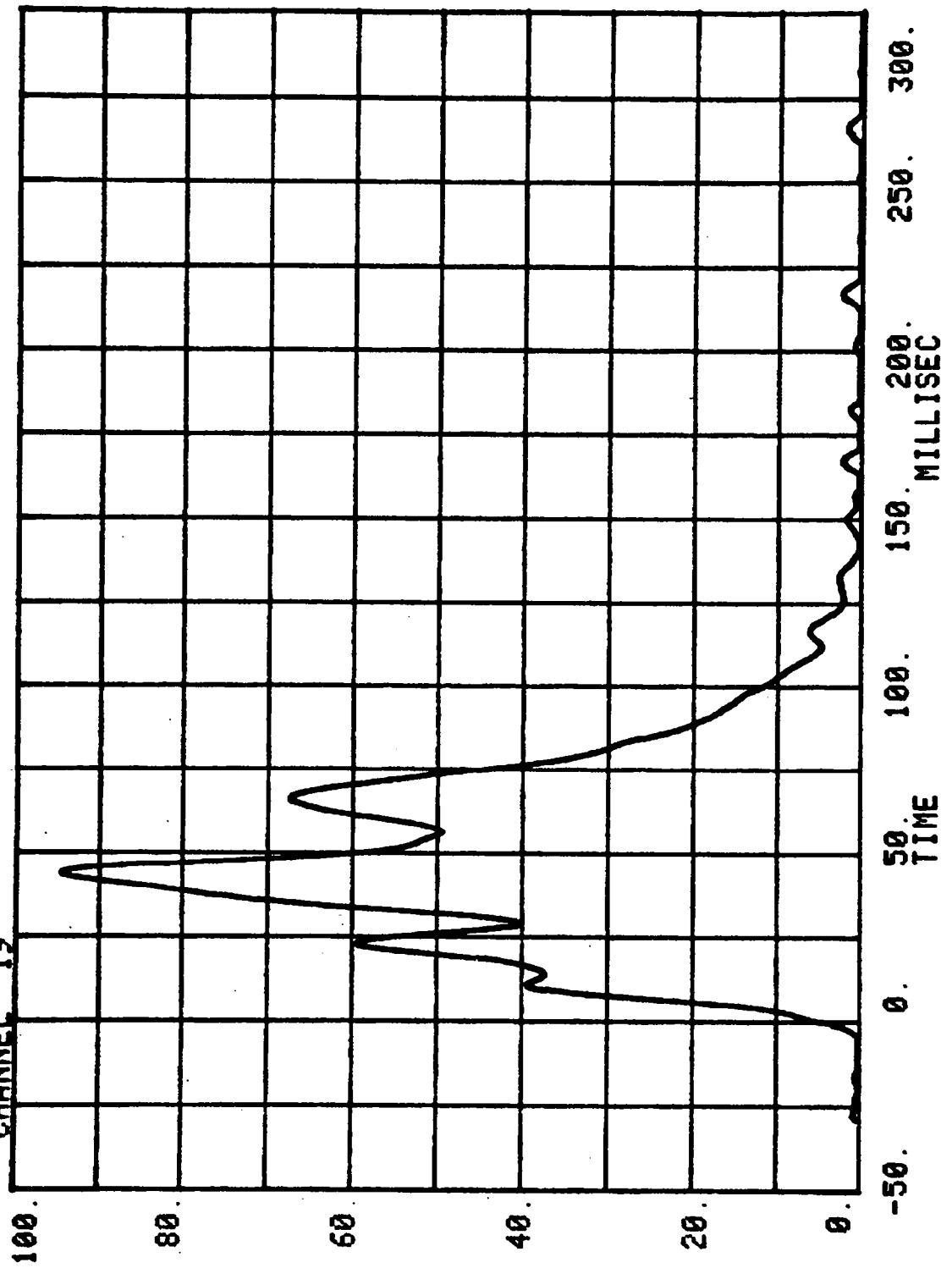

TOTAL ROW A
RUN= 624 SERIES= 5201
CHANNEL 13
40
30
20
10
0
-10
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC


TOTAL ROW B
CHANNEL 14
RUN= 624 SERIES= 5201
50.
40.
30.
20.
10.
0.
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

7209-18


TOTAL ROW C
CHANNEL 15
RUN= 624 SERIES= 5201
40
30
20
10
0
-10
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC


TOTAL ROW D
RUN= 624 SERIES= 5201
CHANNEL 16
40
30
20
10
0
-10
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC


TOTAL ROW A+B+C+D
CHANNEL 19
RUN= 624 SERIES= 5201
100.
80.
60.
40.
20.
0.
-50.
0.
50.
TIME
100.
150.
200.
MILLISEC
250.
300.

7209-18

TEST NO. CE5201

DUMMY DATA

	FILTER CHANNEL CLASS
HEAD ACCELERATIONS	1000
CHEST ACCELERATIONS	180
FEMUR FORCES	600
BELT LOADS	60

HEAD INJURY CRITERION
HEAD SEVERITY INDEX

CAR-TO-BARRIER TEST

RUN= 624

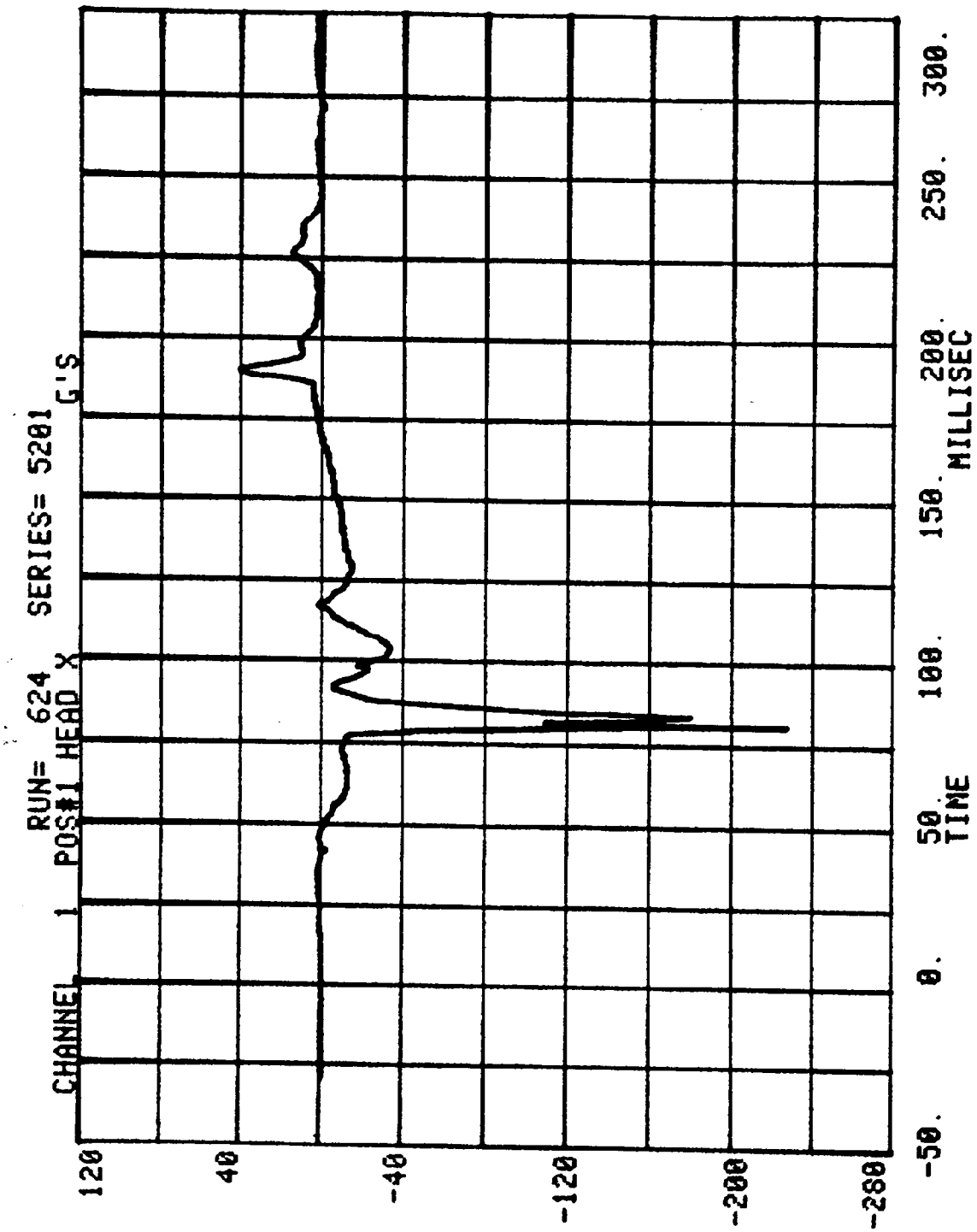
POS#1 HEAD RESULTANT

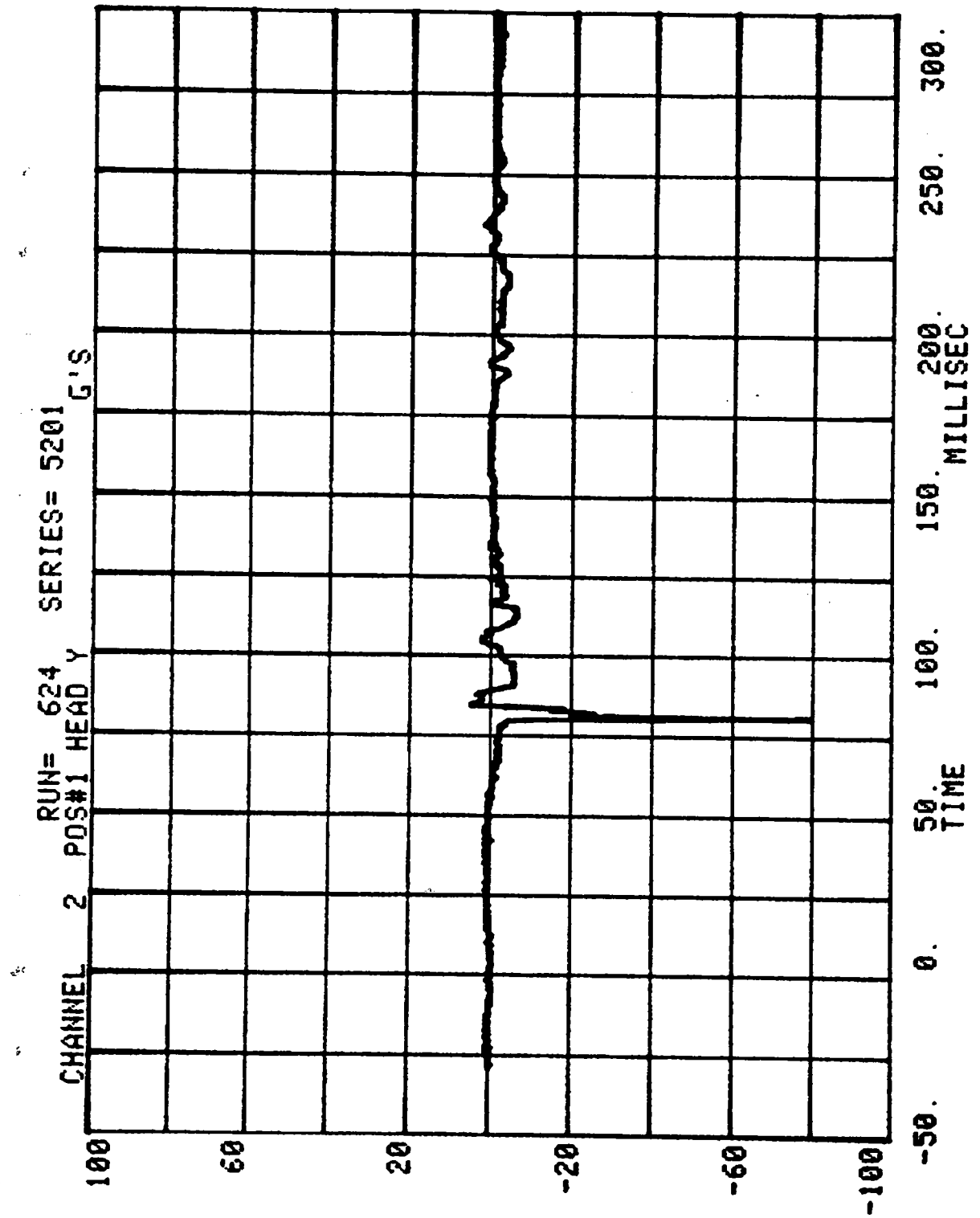
HIC=1992.1 FROM T1= .07995 TO T2= .08602

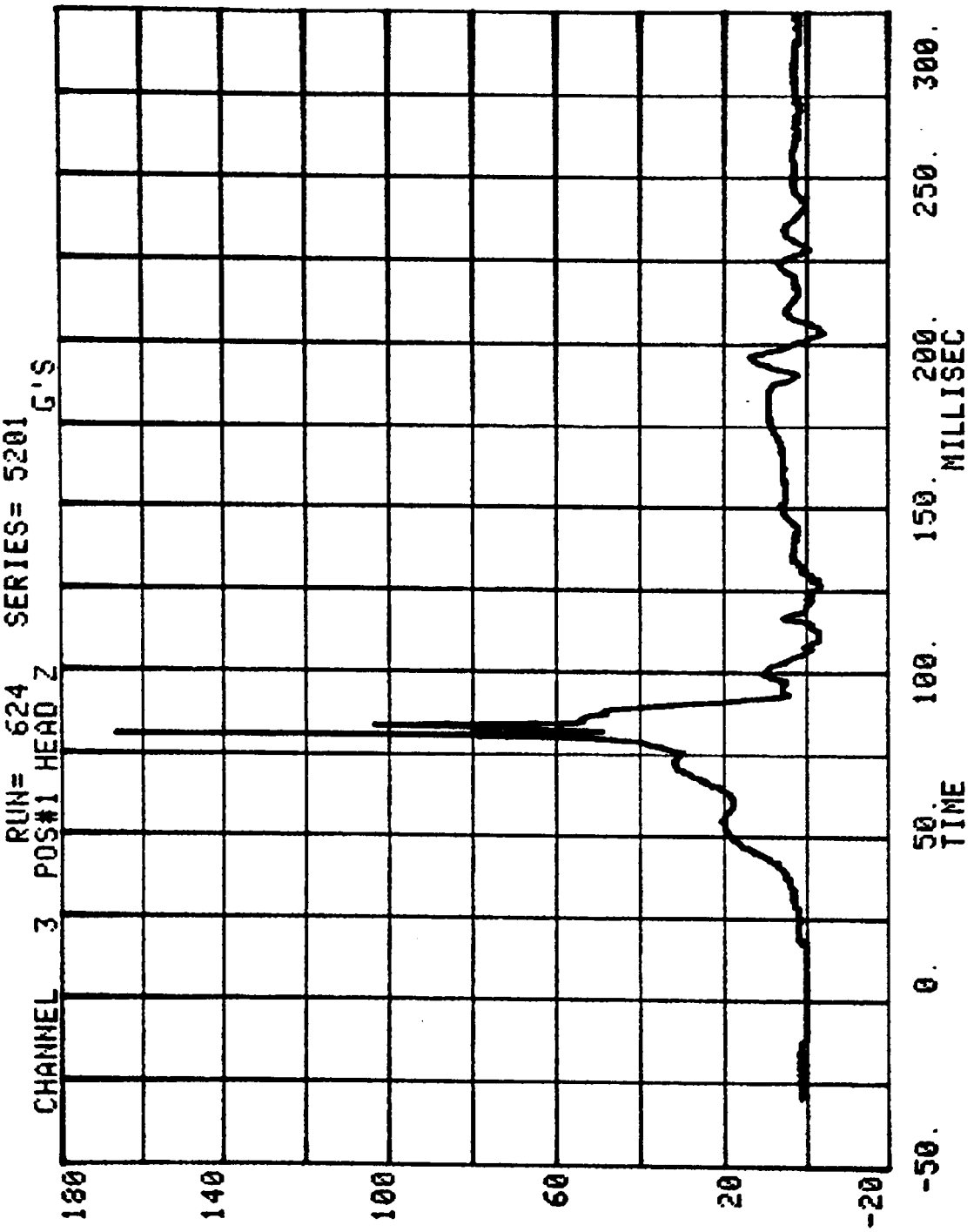
AVERAGE ACCELERATION BETWEEN T1 AND T2= 160.8G'S

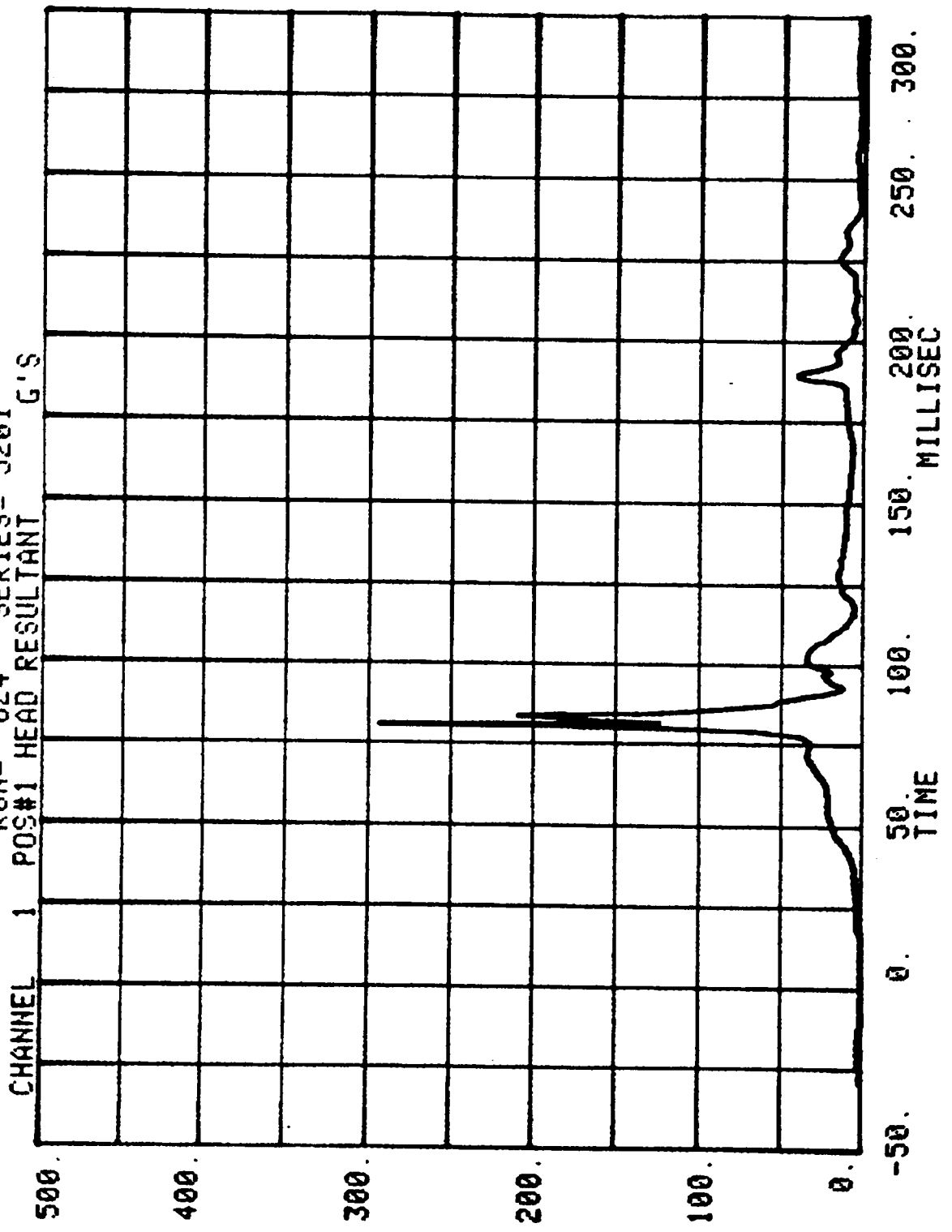
EVENT TIME= 300.0 MSEC

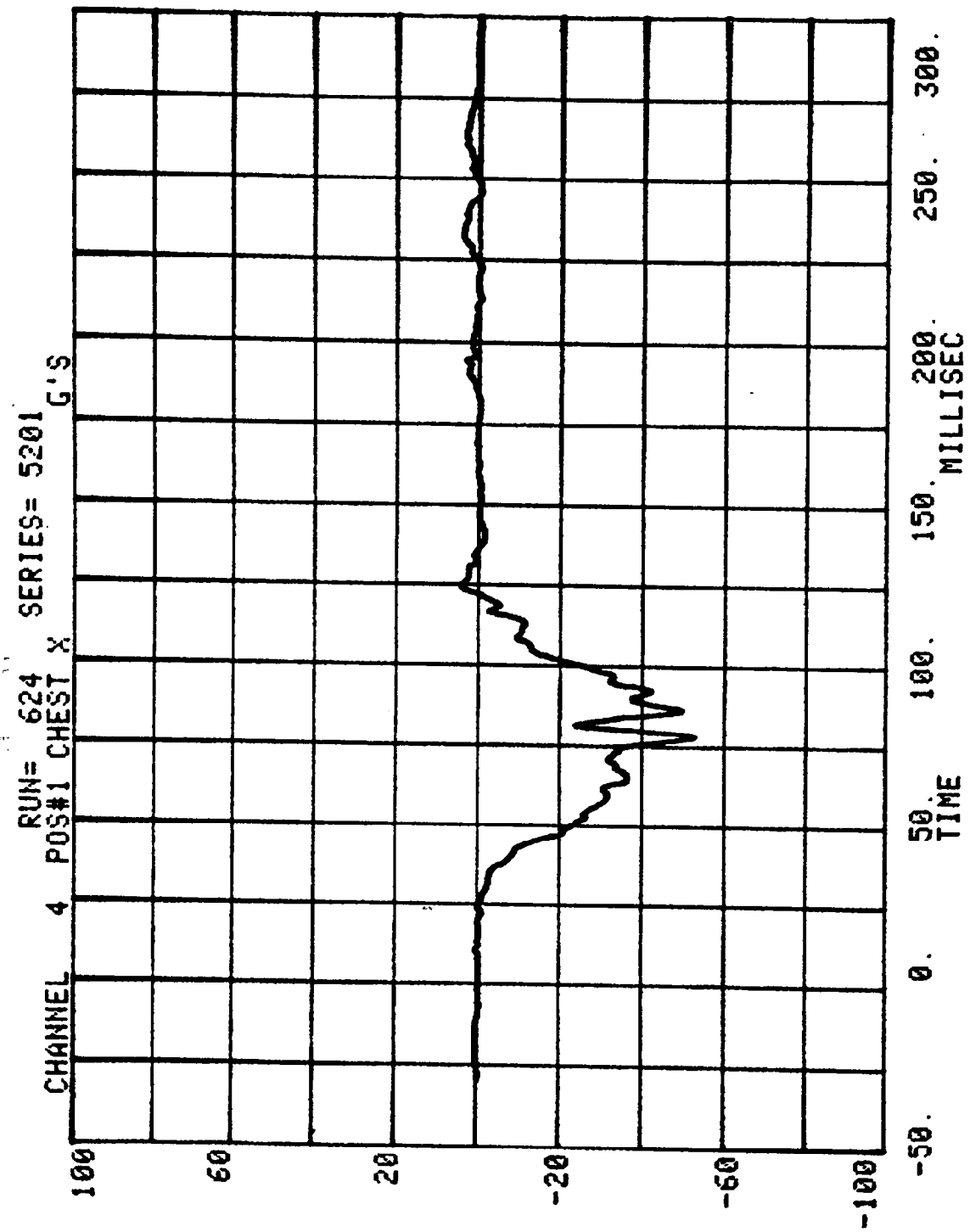
SEVERITY INDEX=2728.7

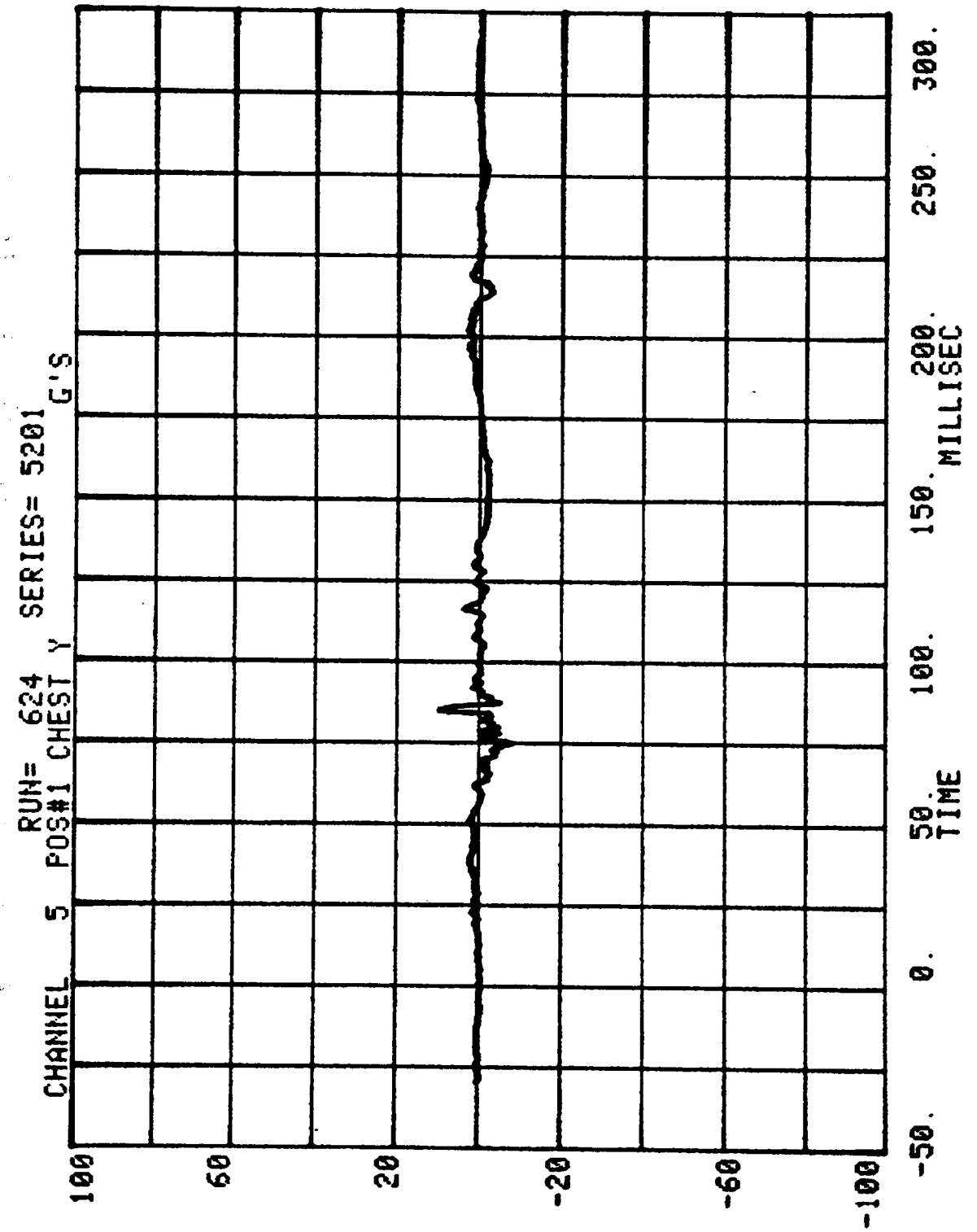

CHANNEL 1 POS#1 HEAD X
RUN= 624 SERIES= 5201
G'S
120
40
-40
-120
-200
-280
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

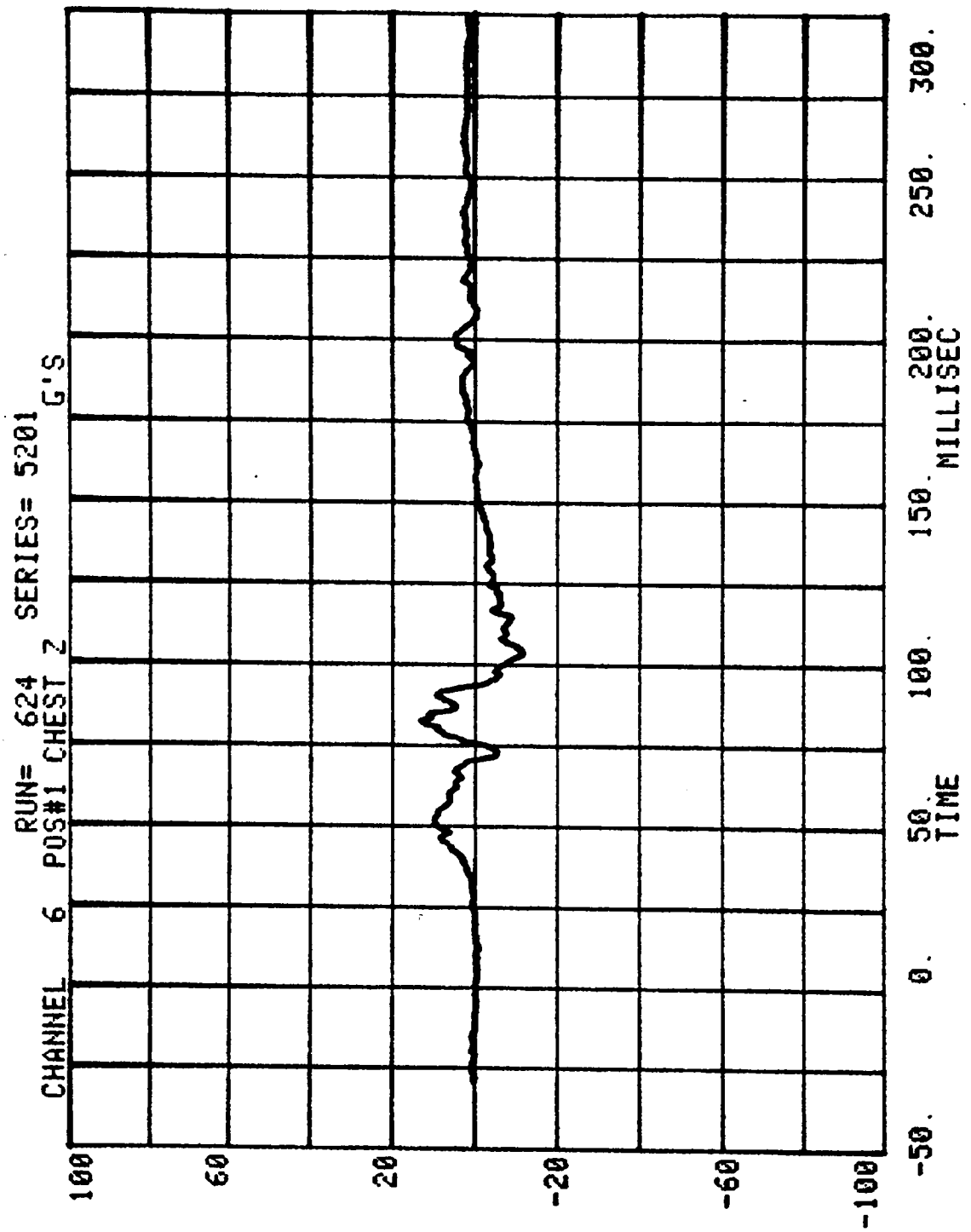

CHANNEL 2 POS#1 HEAD Y
RUN= 624 SERIES= 5201
G'S
100
60
20
-20
-60
-100
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

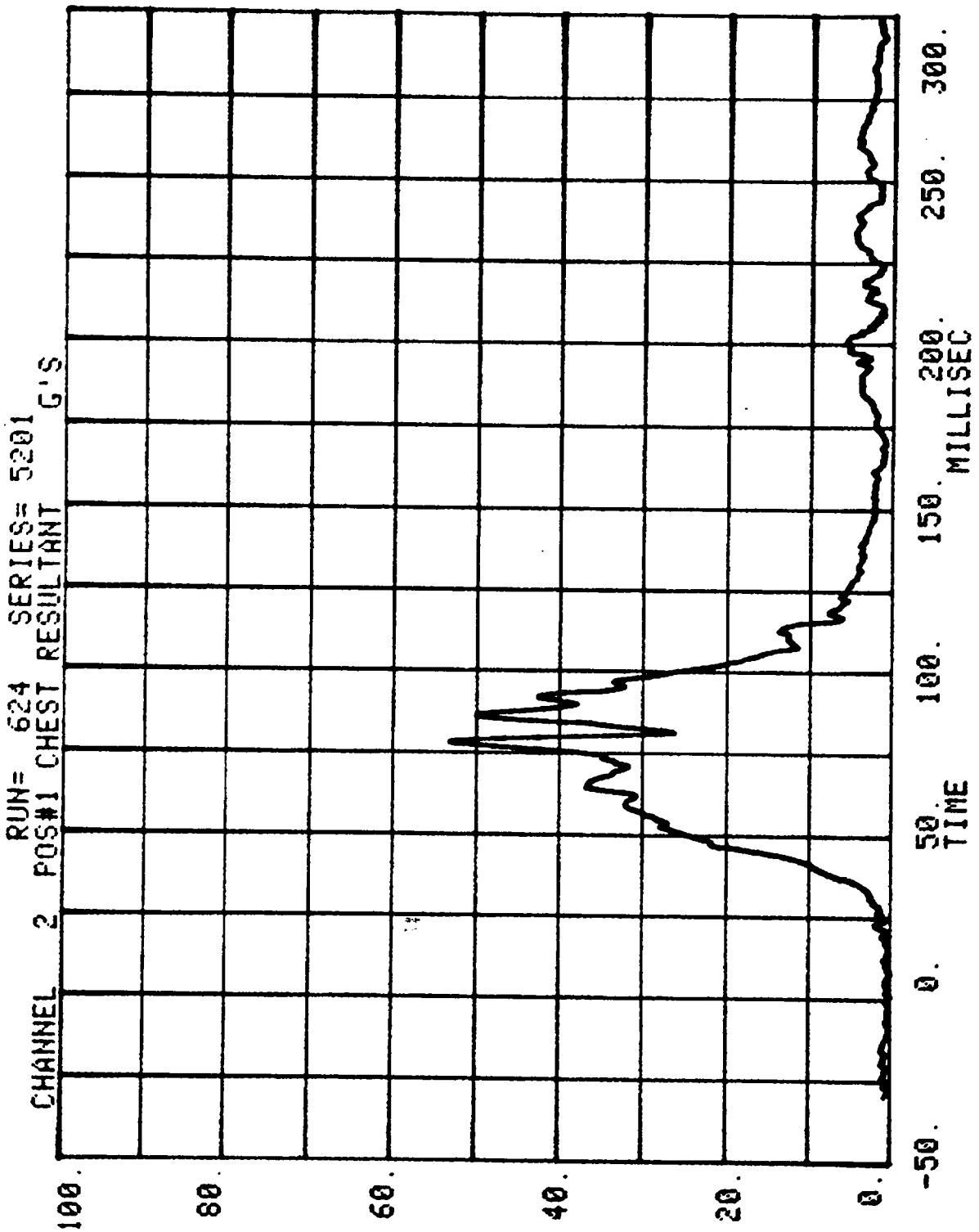

CHANNEL 3 POS#1 HEAD Z
RUN= 624 SERIES= 5201
G'S
180
140
100
60
20
-20
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC


CHANNEL 1 RUN= 624 SERIES= 5201
POS#1 HEAD RESULTANT G'S
500.
400.
300.
200.
100.
0.
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

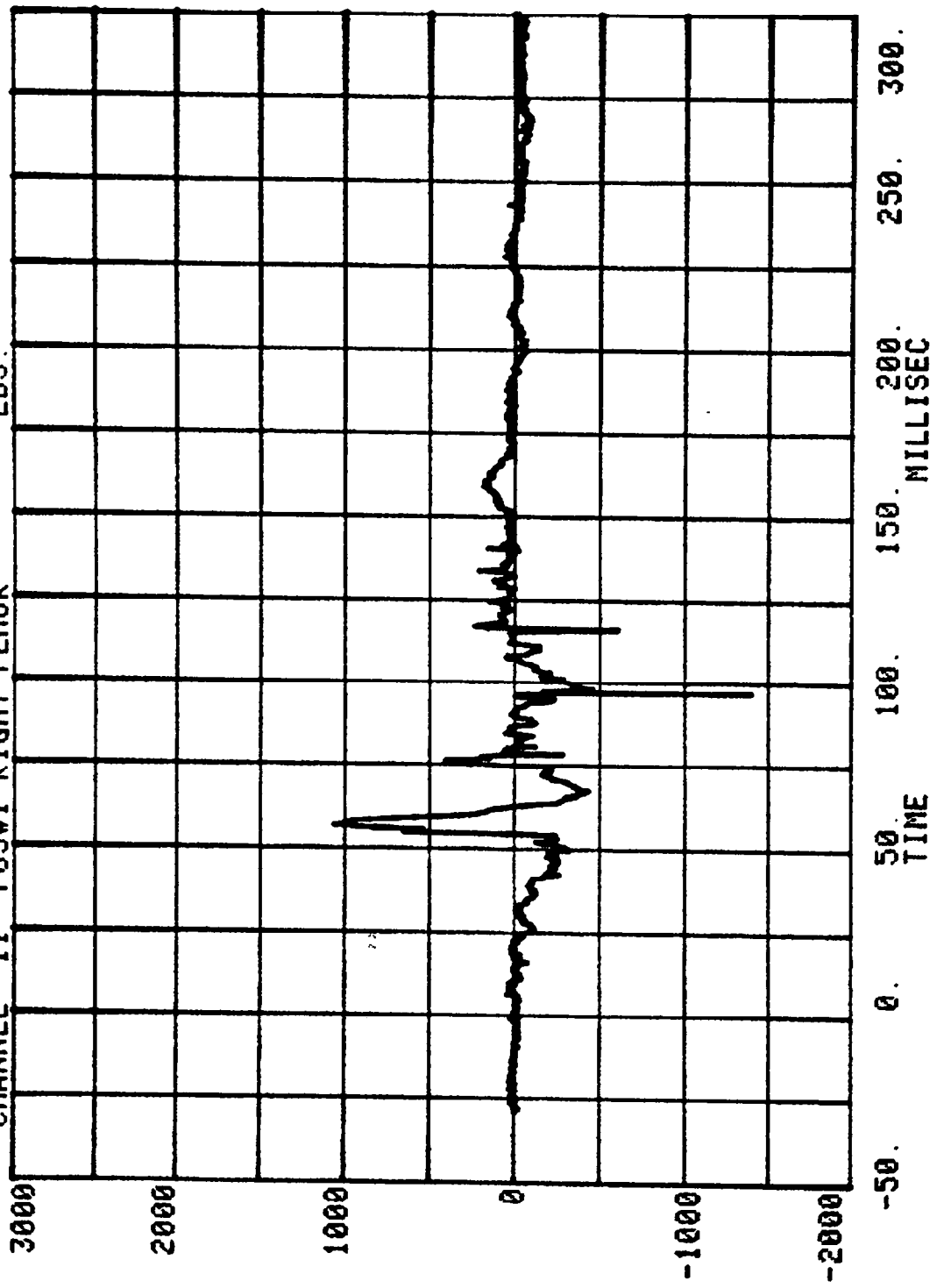

CHANNEL 4 RUN= 624 SERIES= 5201
POS#1 CHEST X G'S
100
60
20
-20
-60
-100
-50.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISEC


CHANNEL 5 POS#1 CHEST Y
RUN= 624
SERIES= 5201
G'S
100
60
20
-20
-60
-100
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

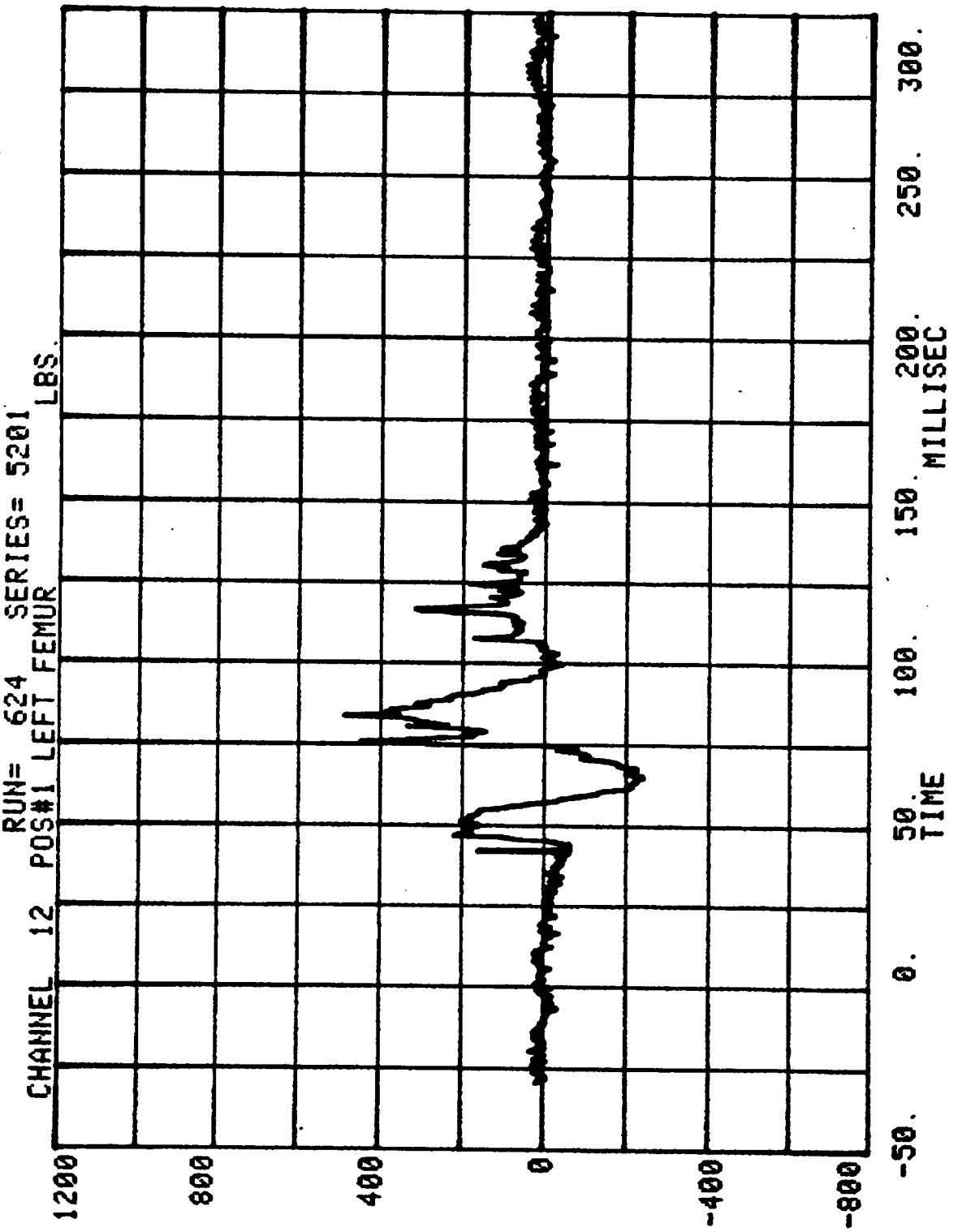

CHANNEL 6 RUN= 624 SERIES= 5201
POS#1 CHEST Z
G'S
100
60
20
-20
-60
-100
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

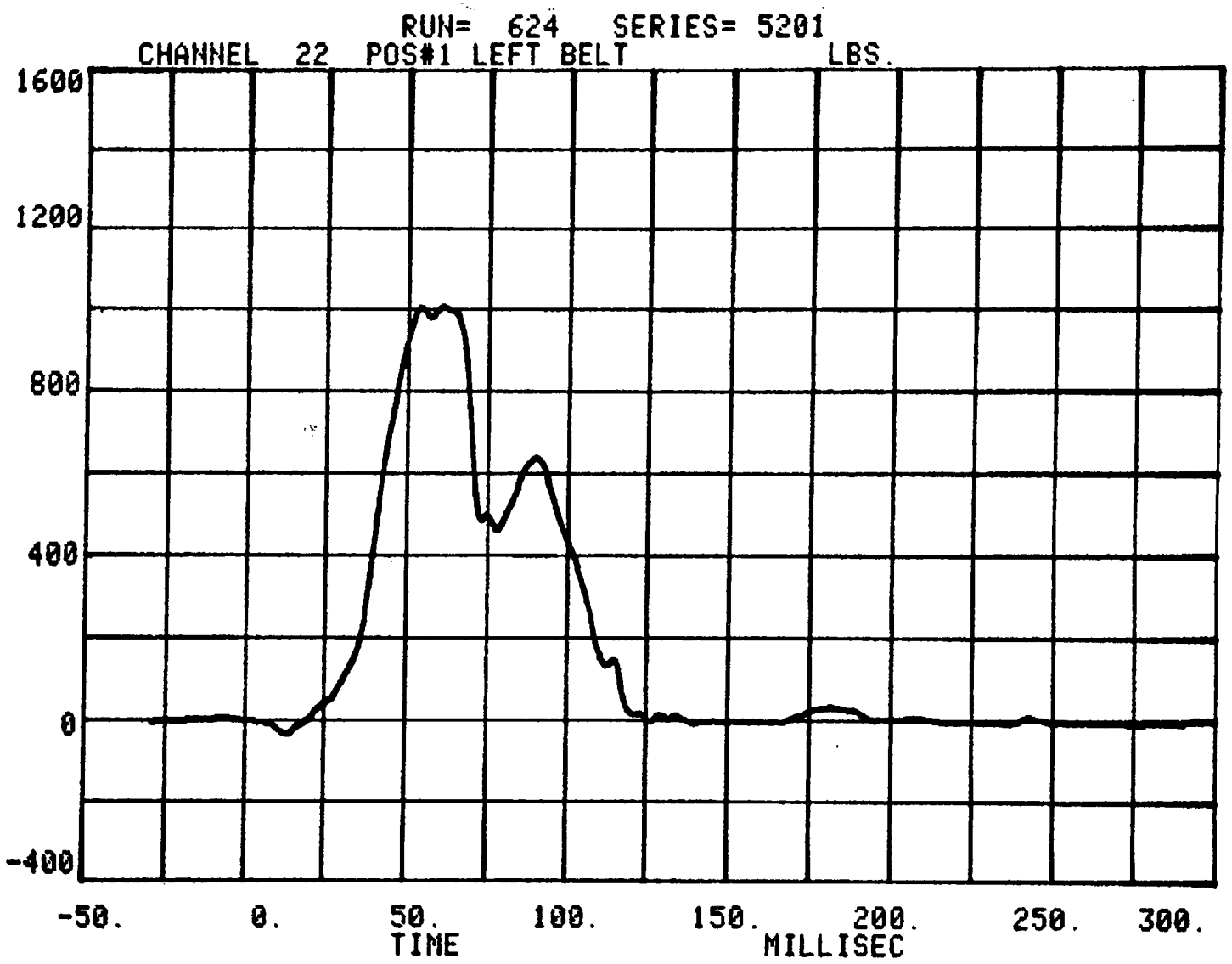

CHANNEL 2 RUN= 624 SERIES= 5201
POS#1 CHEST RESULTANT G'S
100.
80.
60.
40.
20.
0.
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

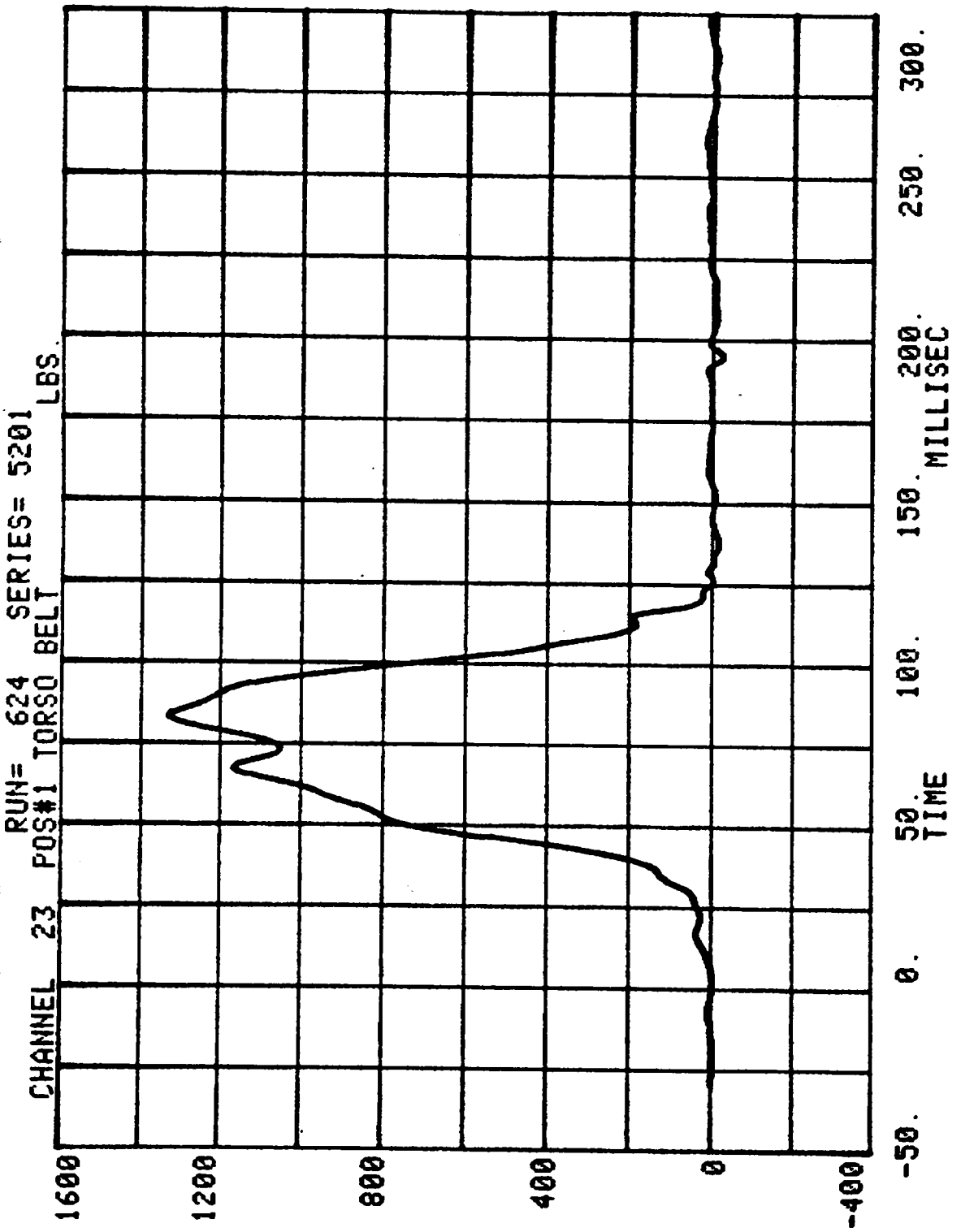
7209-18

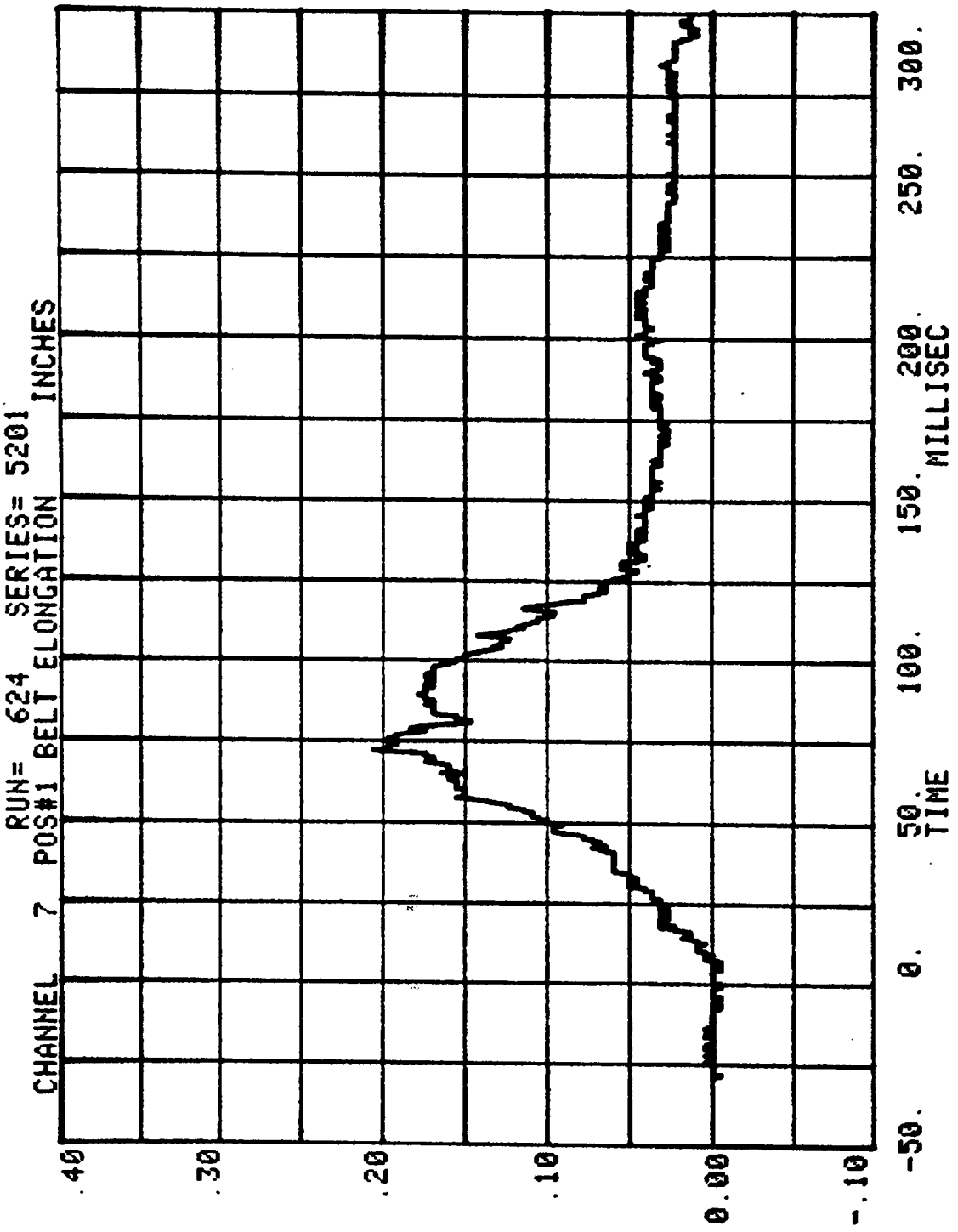

CHANNEL 11 POS#1 RIGHT FEMUR
RUN= 624 SERIES= 5201
LBS.
3000
2000
1000
0
-1000
-2000
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

7209-18

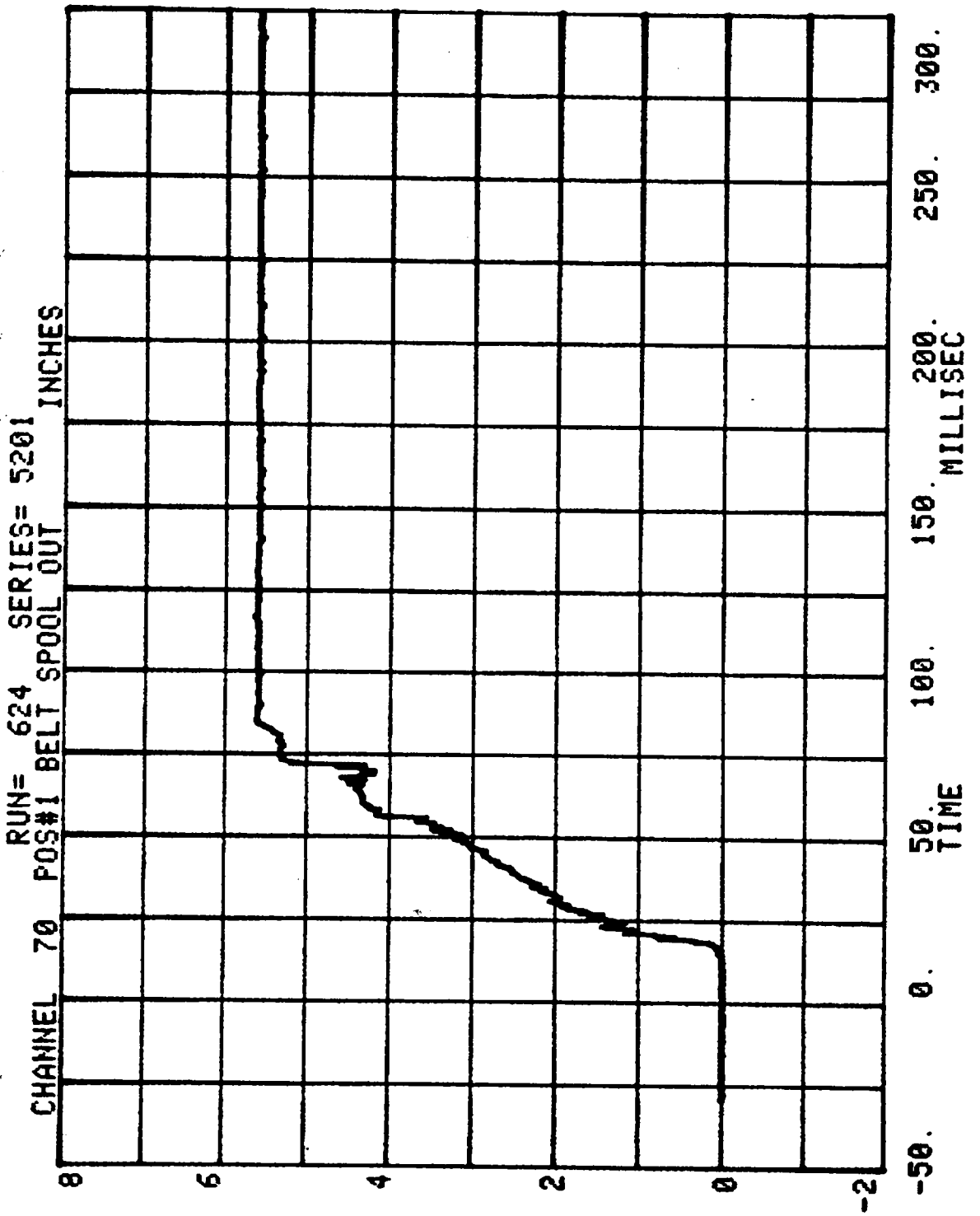

CHANNEL 12 POS#1 LEFT FEMUR
RUN= 624 SERIES= 5201
LBS.
1200
800
400
0
-400
-800
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC


RUN= 624 SERIES= 5201
CHANNEL 22 POS#1 LEFT BELT LBS.
1600
1200
800
400
0
-400
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC


CHANNEL 23 POS#1 TORSO BELT
RUN= 624 SERIES= 5201
LBS.
1600
1200
800
400
0
-400
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC


CHANNEL 7 RUN= 624 SERIES= 5201
POS#1 BELT ELONGATION INCHES
.40
.30
.20
.10
0.00
-.10
-50.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISEC

7209-18


CHANNEL 70 POS#1 BELT SPOOL OUT
RUN= 624 SERIES= 5201
INCHES
8
6
4
2
0
-2
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

HEAD INJURY CRITERION
HEAD SEVERITY INDEX

CAR-TO-BARRIER TEST

RUN= 624

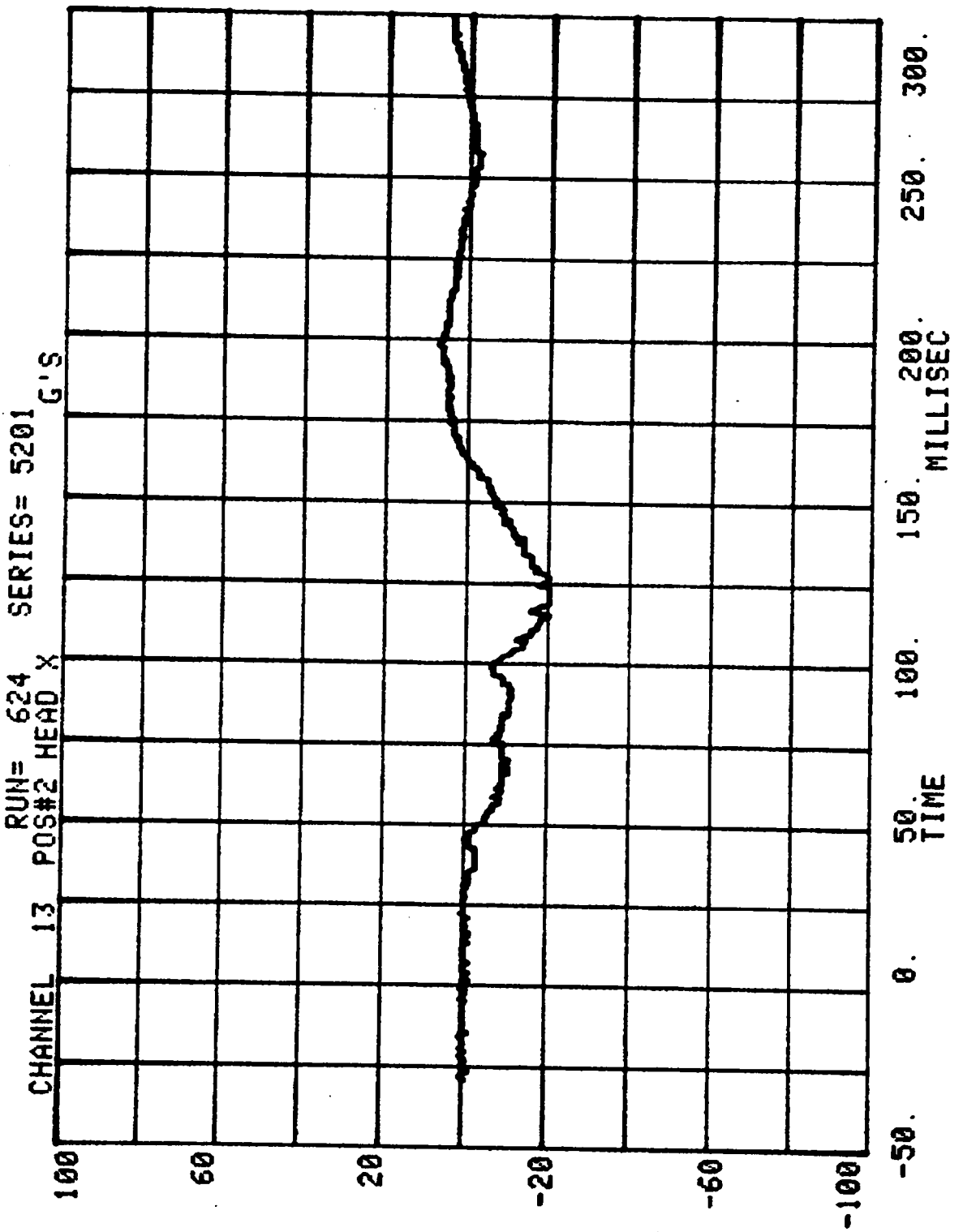
POS#2 HEAD RESULTANT

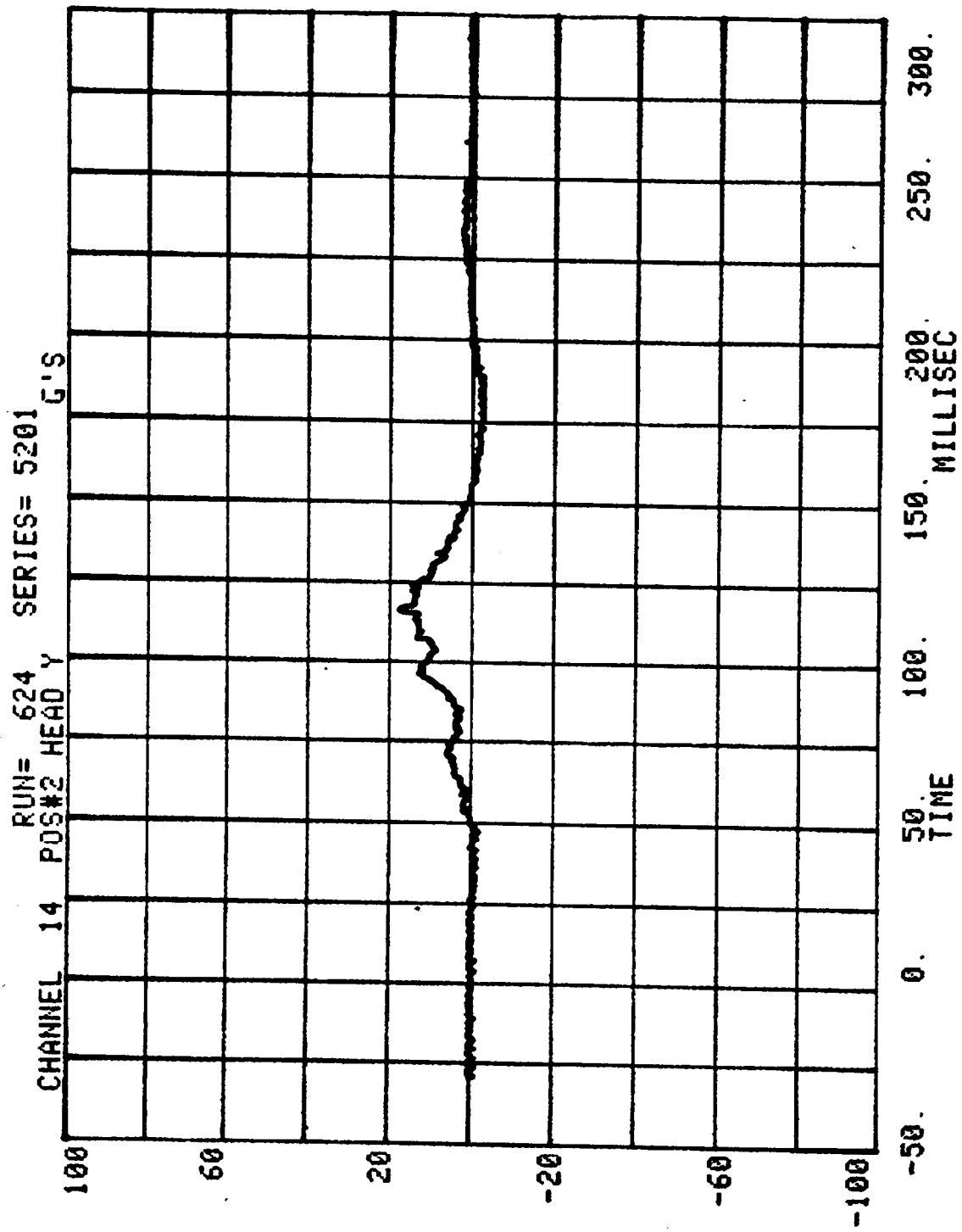
HIC= 581.7 FROM T1= .05880 TO T2= .13665

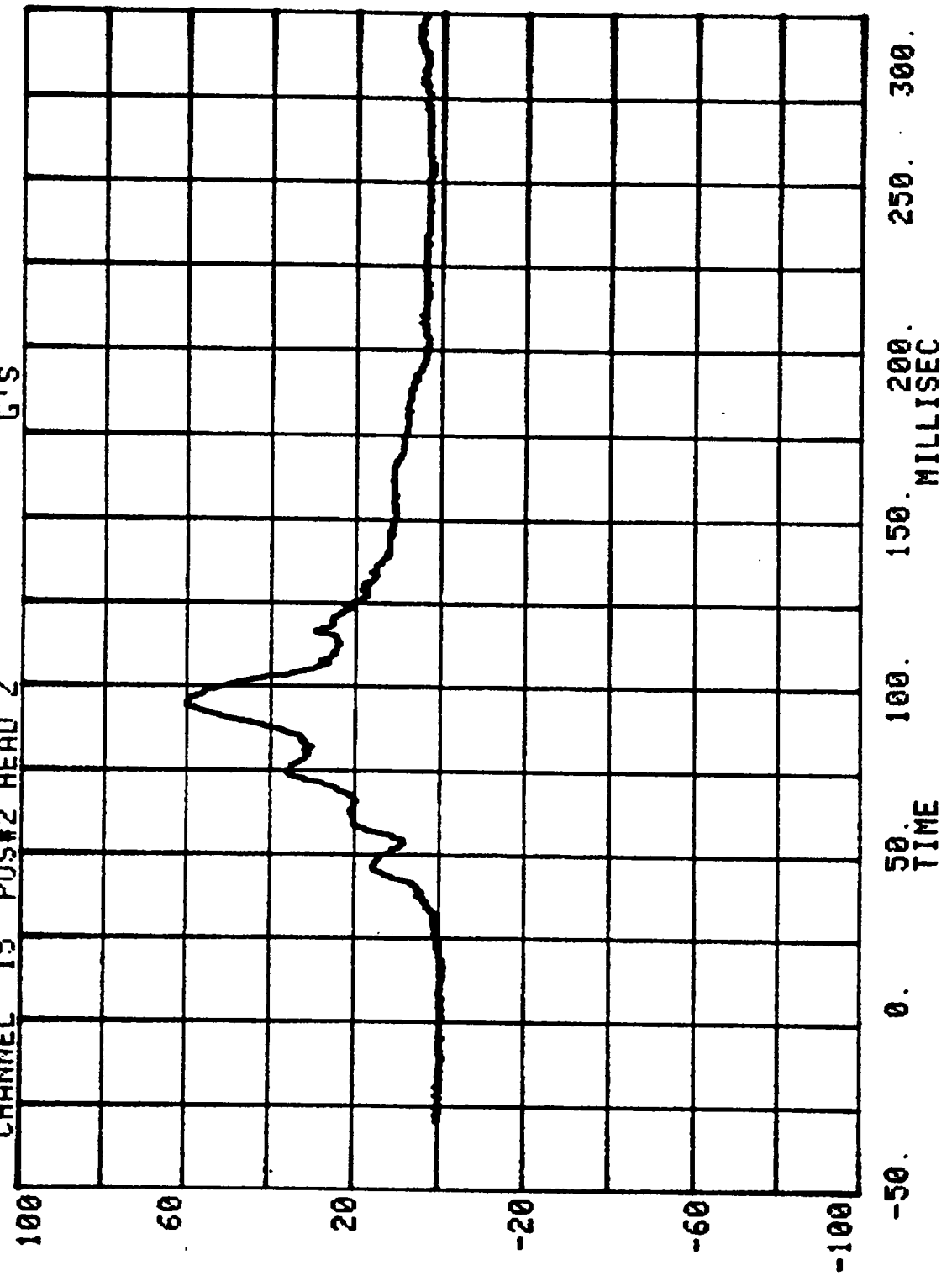
AVERAGE ACCELERATION BETWEEN T1 AND T2= 35.4G'S

EVENT TIME= 300.0 MSEC

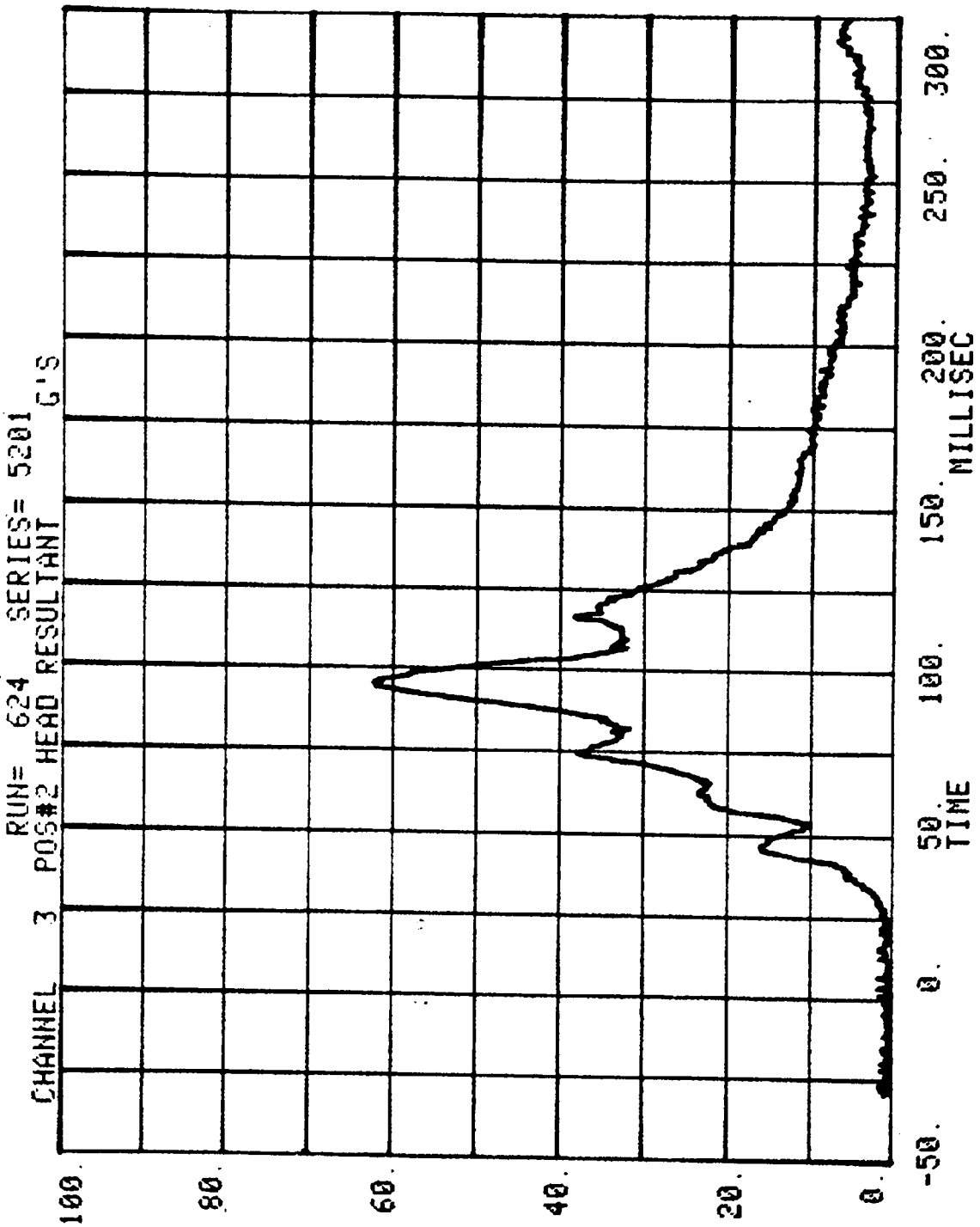
SEVERITY INDEX= 740.6

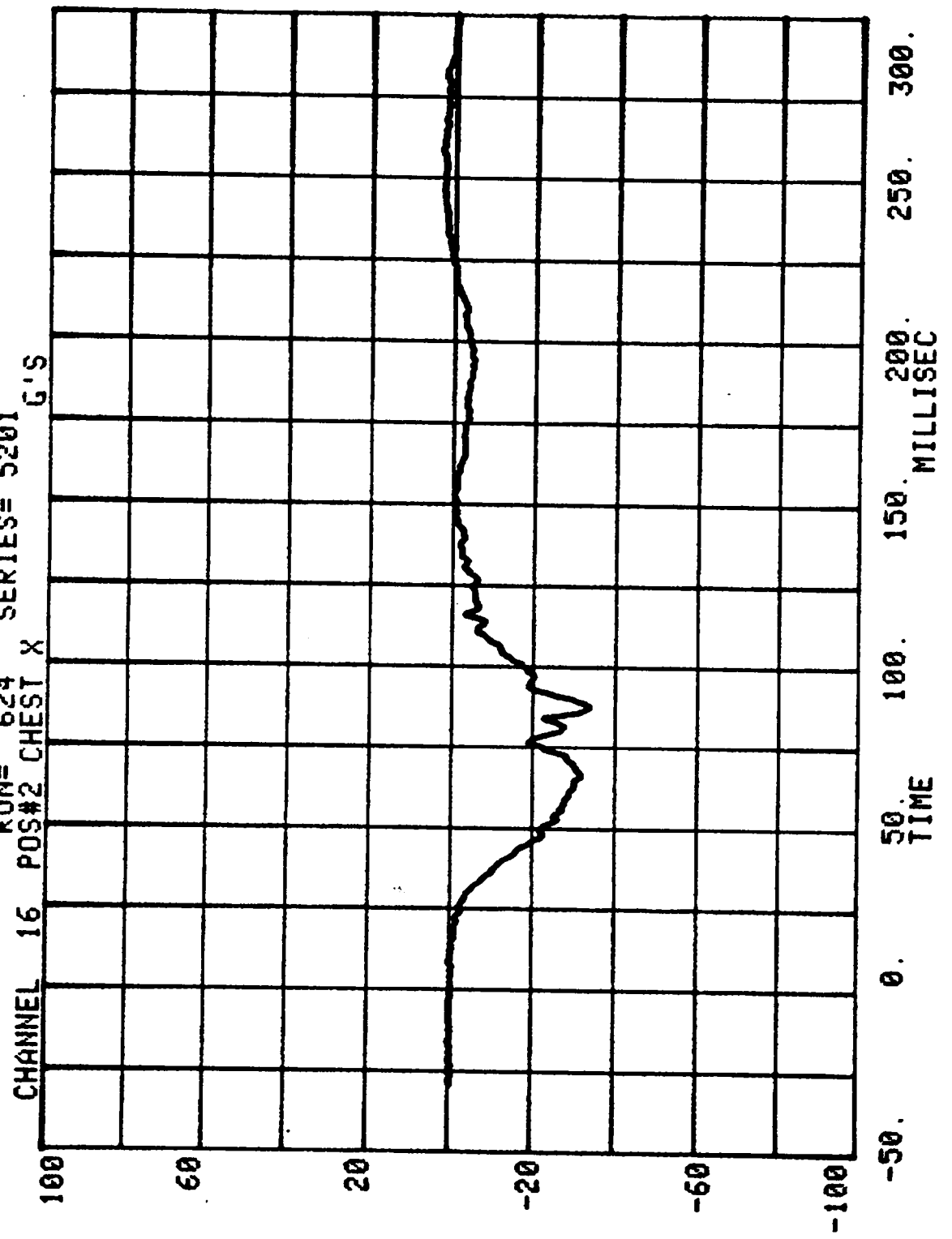

CHANNEL 13 POS#2 HEAD X
RUN= 624 SERIES= 5201
G'S
100
60
20
-20
-60
-100
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

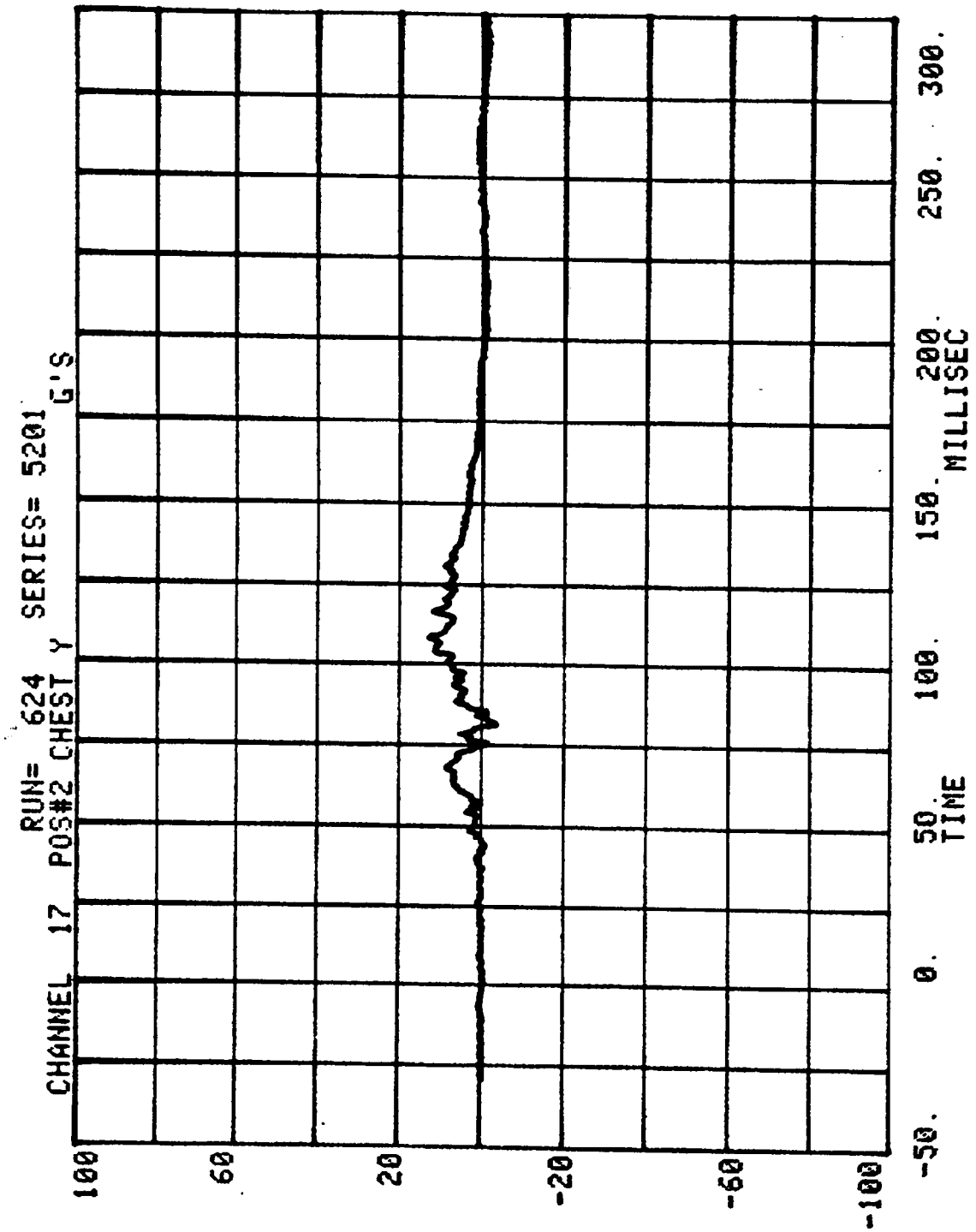

CHANNEL 14 RUN= 624 SERIES= 5201
POS#2 HEAD Y G'S
100
60
20
-20
-60
-100
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

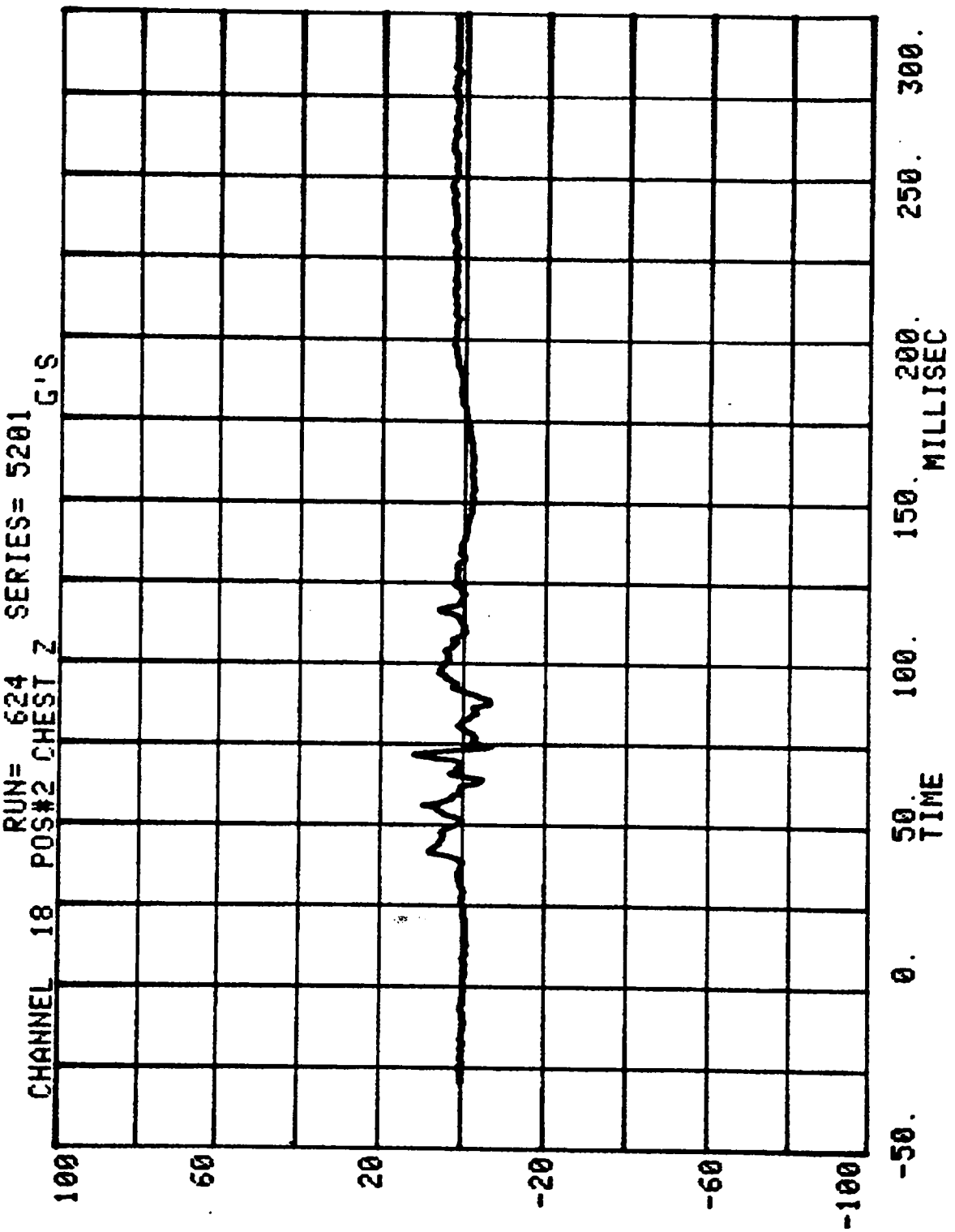

CHANNEL 15 POS#2 HEAD 2
RUN= 624 SERIES= 5201
G'S
100
60
20
-20
-60
-100
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

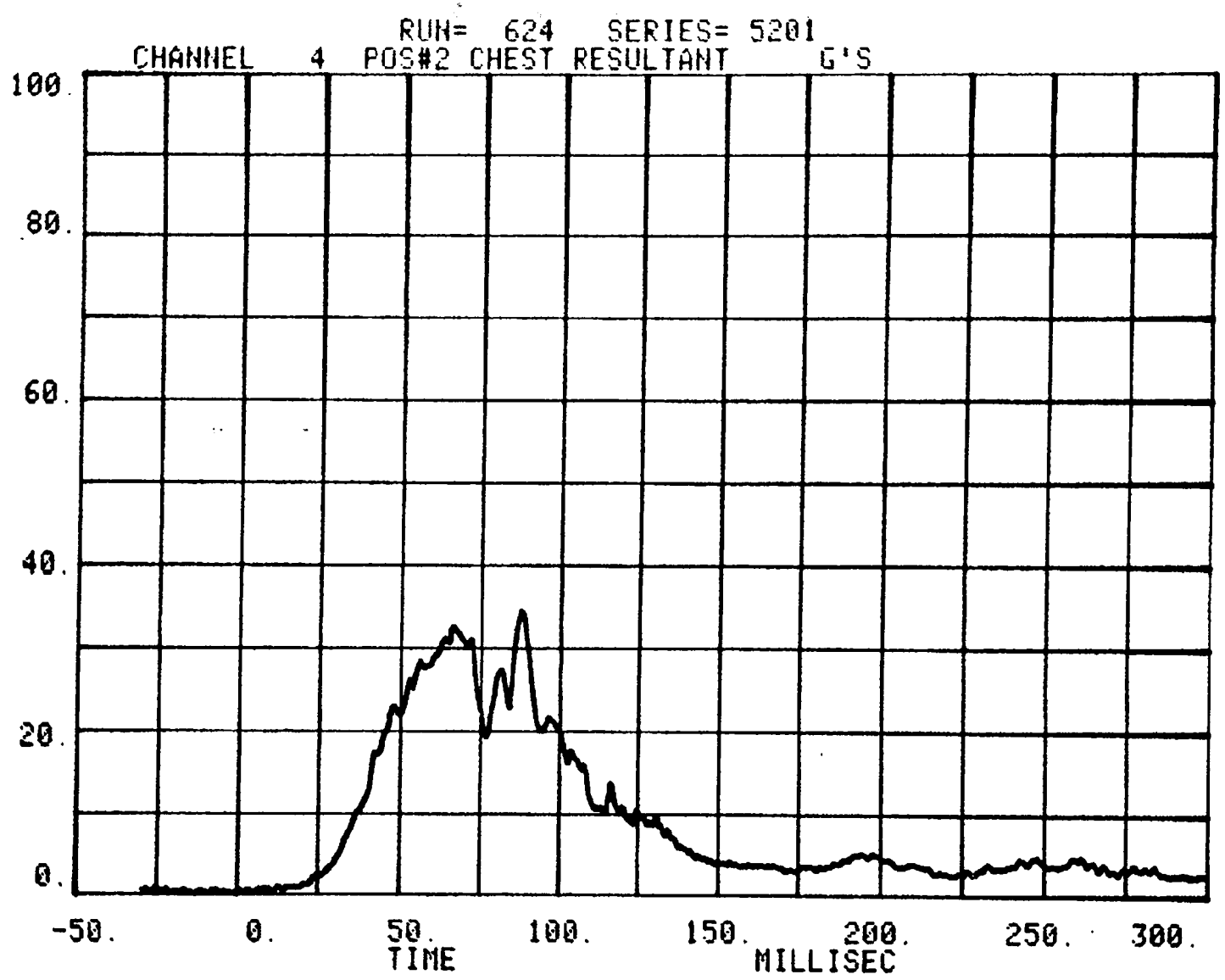
7209-18

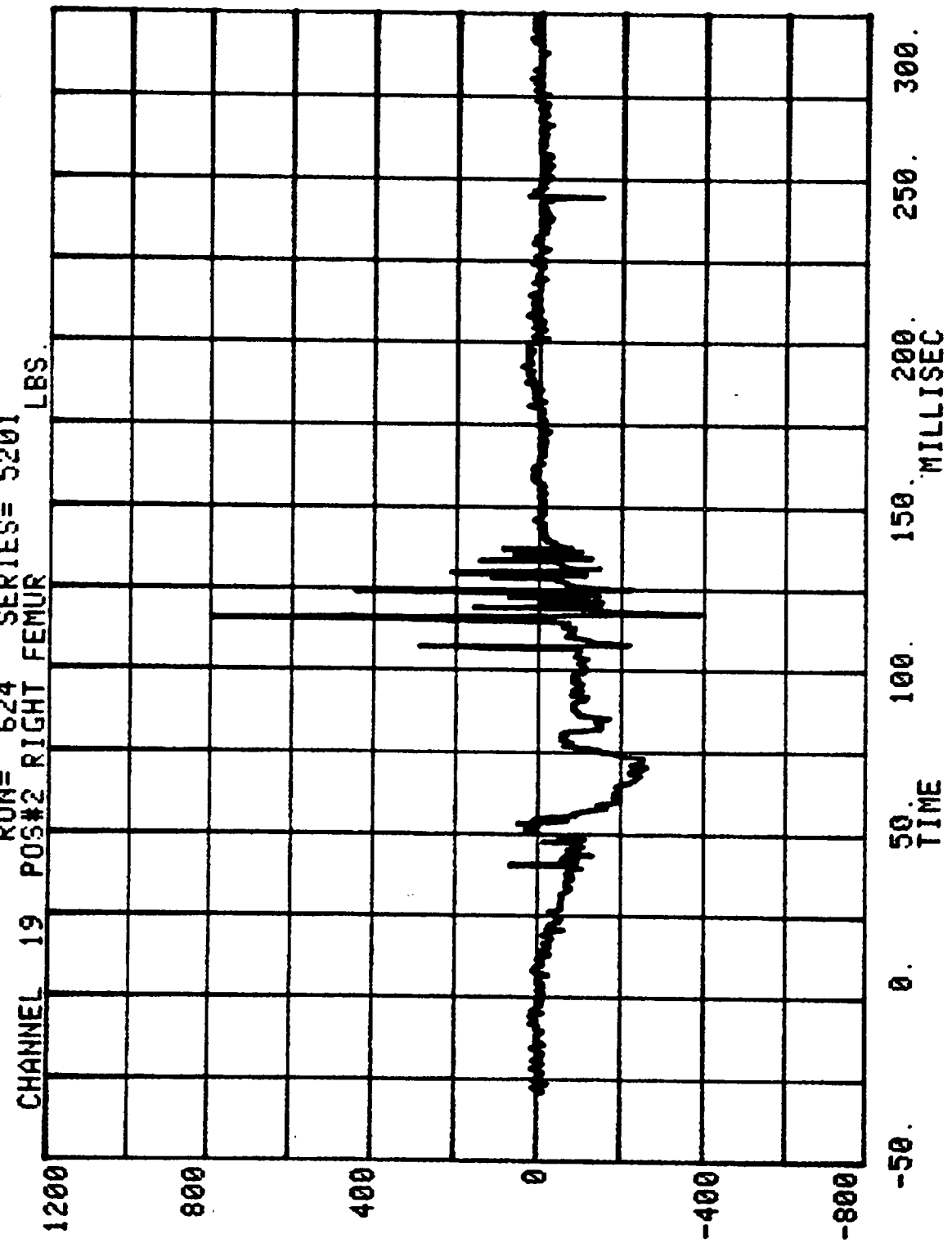

CHANNEL 3 POS#2 HEAD RESULTANT
RUN= 624 SERIES= 5201
G'S
100.
80.
60.
40.
20.
0.
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

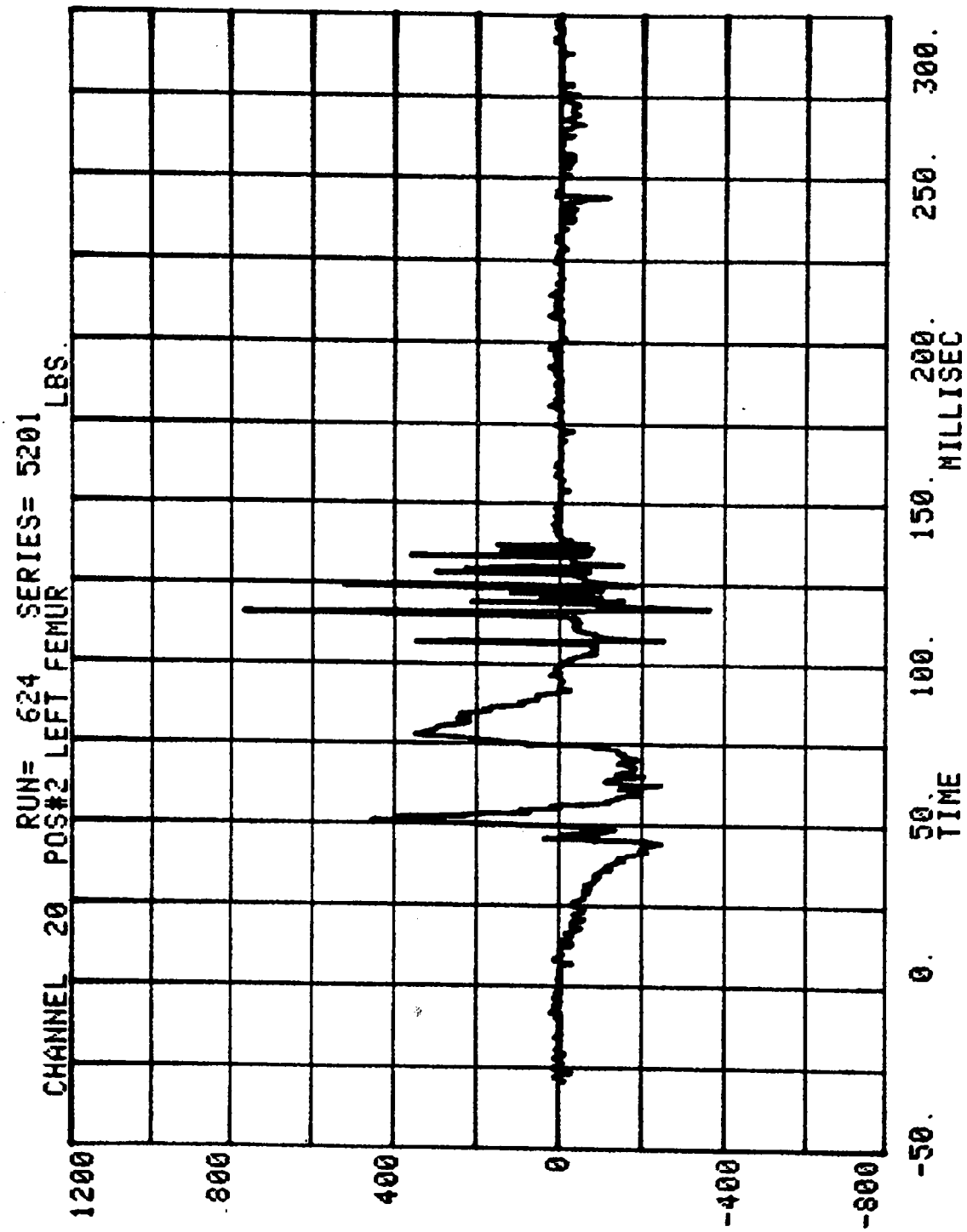

CHANNEL 16 RUN= 624 SERIES= 5201
POS#2 CHEST X
G'S
100
60
20
-20
-60
-100
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC


CHANNEL 17 POS#2 CHEST Y
RUN= 624 SERIES= 5201
G'S
100
60
20
-20
-60
-100
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

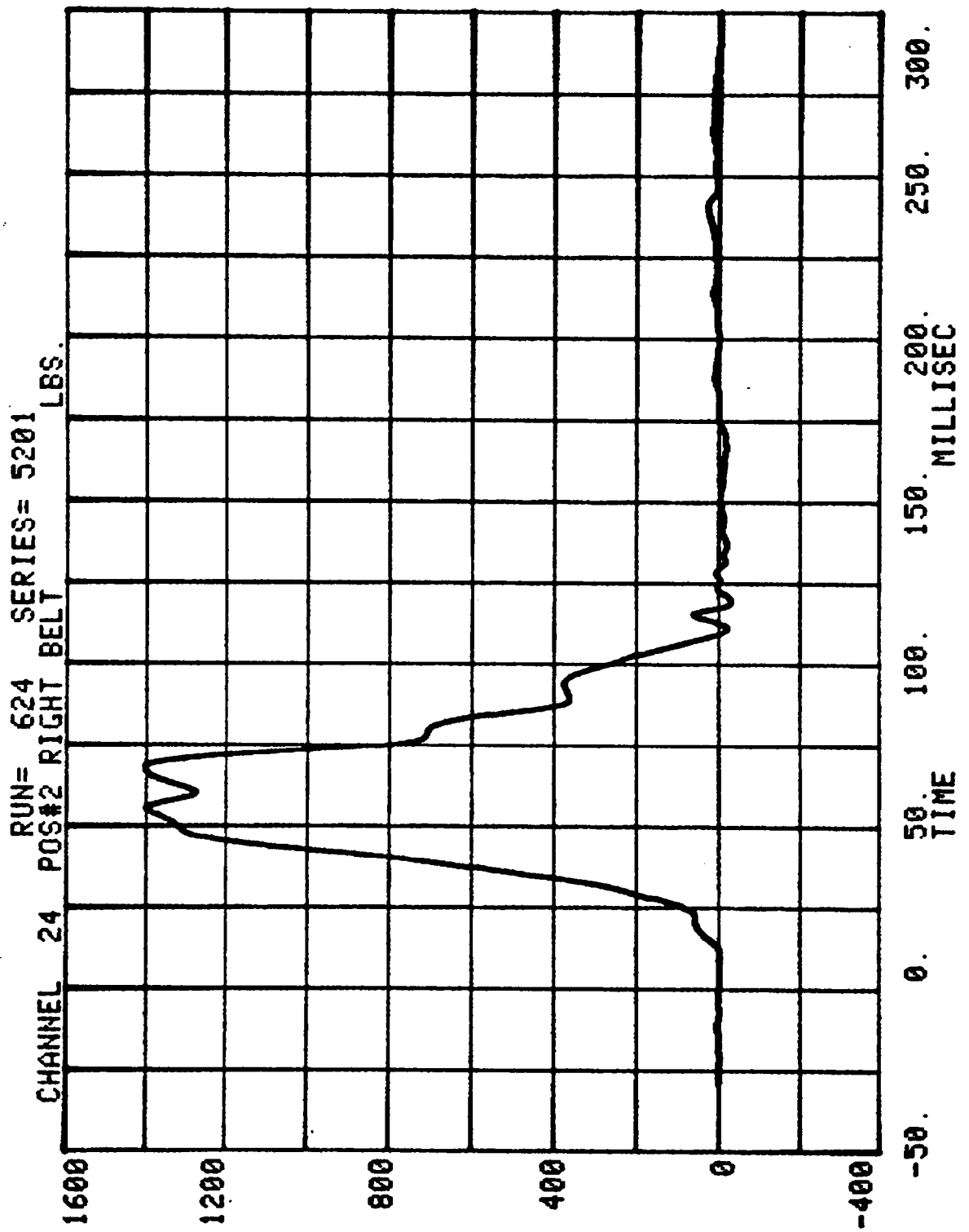

CHANNEL 18 POS#2 CHEST Z
RUN= 624 SERIES= 5201
G'S
100
60
20
-20
-60
-100
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

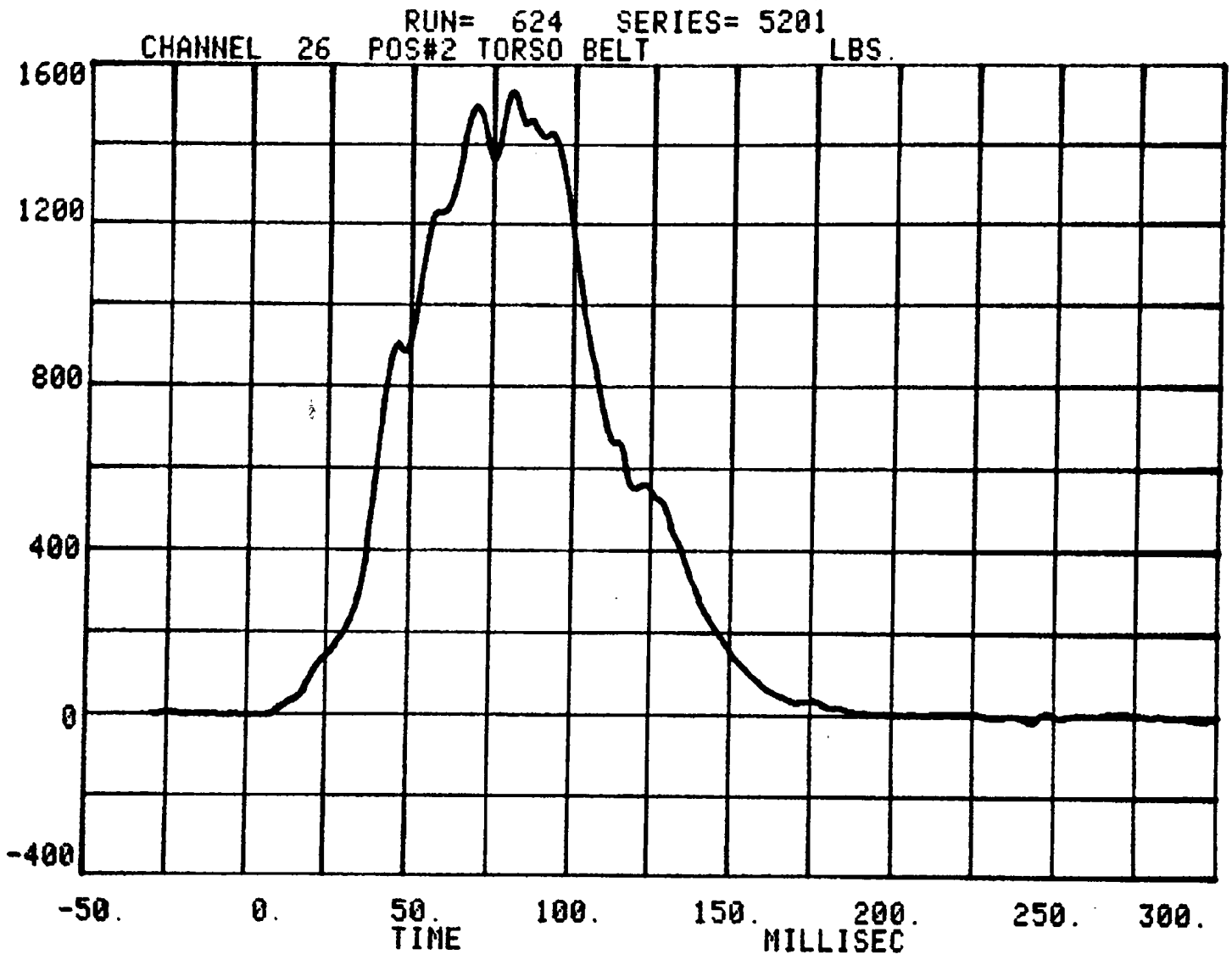

RUN= 624 SERIES= 5201
CHANNEL 4 POS#2 CHEST RESULTANT G'S
100.
80.
60.
40.
20.
0.
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

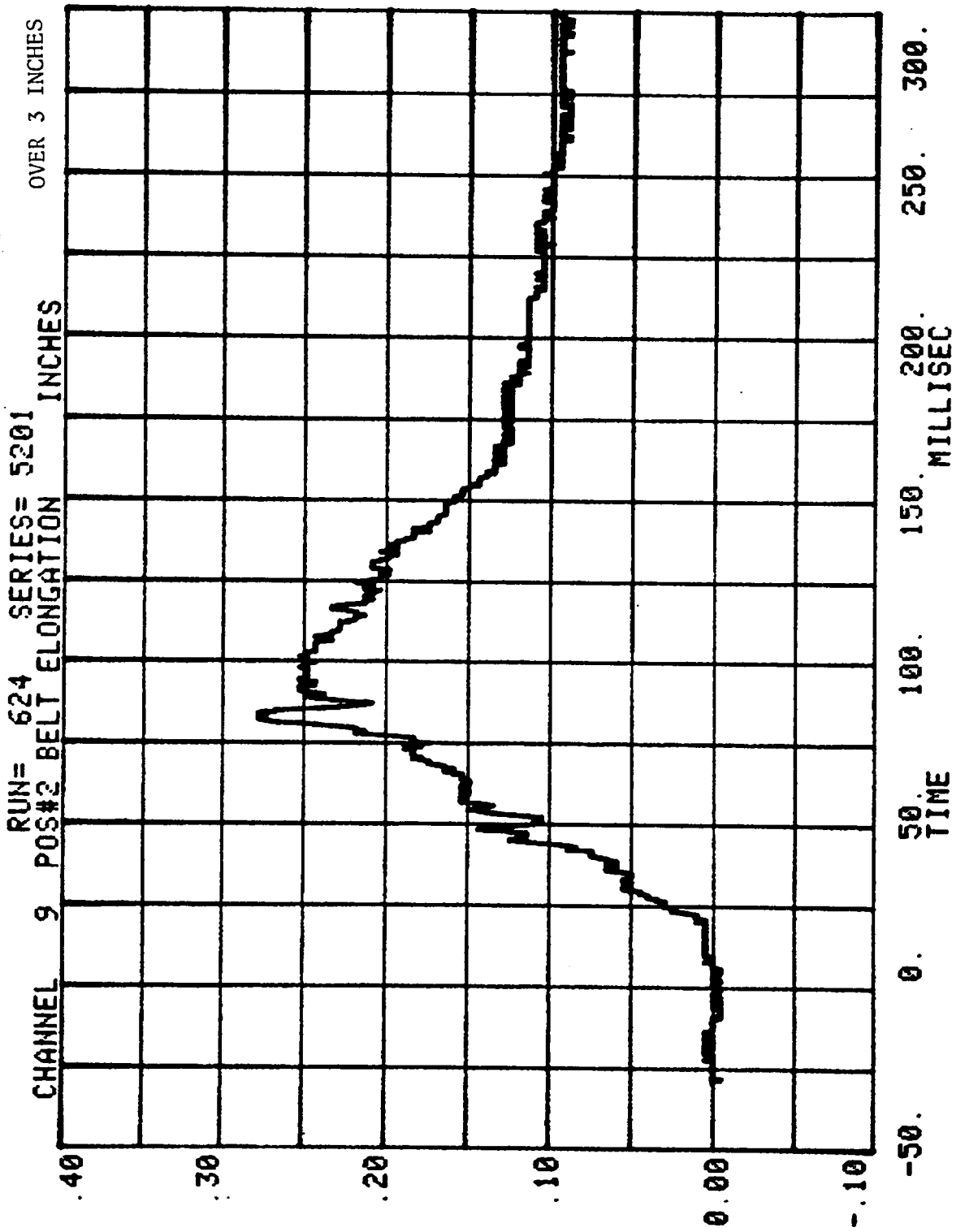

CHANNEL 19 RUN= 624 SERIES= 5201
POS#2 RIGHT FEMUR
LBS.
1200
800
400
0
-400
-800
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC


CHANNEL 20 RUN= 624 SERIES= 5201
POS#2 LEFT FEMUR
LBS.
1200
800
400
0
-400
-800
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

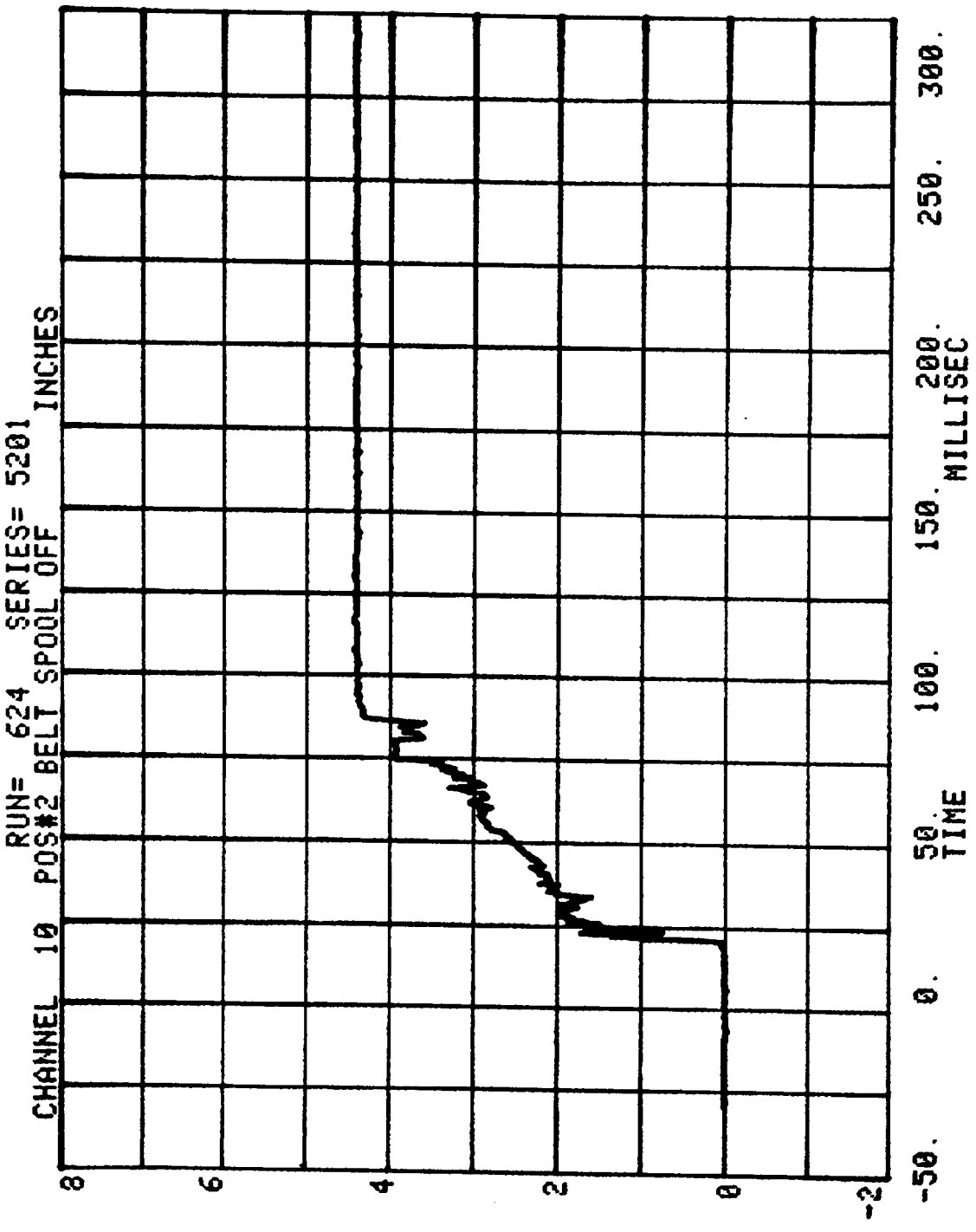
7209-18


CHANNEL 24 POS#2 RIGHT BELT
RUN= 624 SERIES= 5201
LBS.
1600
1200
800
400
0
-400
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC


RUN= 624 SERIES= 5201
CHANNEL 26 POS#2 TORSO BELT LBS.
1600
1200
800
400
0
-400
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC


CHANNEL 9 POS#2 BELT ELONGATION
RUN= 624 SERIES= 5201
OVER 3 INCHES
INCHES
.40
.30
.20
.10
0.00
-.10
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

7209-18


CHANNEL 10 POS#2 BELT SPOOL OFF
RUN= 624 SERIES= 5201
INCHES
8
6
4
2
0
-2
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

7209-18

APPENDIX C

DUMMY CERTIFICATION TESTS

Appendix C contains the results from certification tests performed on the 50th percentile male anthropometric test devices utilized for this crash test. The results indicate that the dummies meet all of the performance requirements of the six standard tests as specified in 49 CFR Part 572, Federal Register, Volume 42, No. 25, dated February 7, 1977.

The tests were conducted at the Dummy Certification Test Facility of Calspan Corporation, Advanced Technology Center. A summary of the test results, Part 572 specifications and instrument calibration information is included in this Appendix.

Dummy serial numbers and certification dates are:

Serial No.	Completion Date
320	5/4/84
749	5/4/84

Electronic Test Equipment

The complement of signal conditioning recording and display equipment in conjunction with dummy certification testing can be found in New Car Assessment and Standards Indicant Testing Final Report, Report No. 6525-V-1.

P.572 DUMMY CALIBRATION TEST DATA

NHTSA DUMMY ID NO. 320

LABORATORY TECHNICIAN: G. R. Gestwick

APPROVED BY: D Cleveland

			Pre-Test Calibration	Post-Test Calibration
Date of Dummy Calibration - - - - - - - - - - - -			5/1/84-5/4/84	
Calibration Sequential Number for Dummy - - - -			19	
Temperature in Lab. (Spec. = 66 to 78°F)- - - -			68° to 70°F	
Relative Humidity in Lab. (Spec. = 10 to 70%) -			18%-26%	
TEST PARAMETER		SPECIFICATION		
1. HEAD DROP TEST:				
a. Peak Resultant Accel. -		210 to 260G	230 g	
b. Peak Lateral Accel. - -		≤10G	6g	
c. Time above 100G - - - -		0.9 to 1.5 ms	1.2 ms.	
2. NECK BENDING TEST:				
a. Pendulum Speed - - - -		21.5 to 25.5 fps	23.0 fps	
b. Pendulum Avg. Decel. (over $t_3 - t_2$) - - - -		20 to 24G	23g	
c. Peak Resultant Head Acceleration - - - -		26G maximum	24g	
d. Pendulum Decel. (t_2-t_1)		≤3 ms	2.8 ms.	
e. Pendulum Decel. (t_3-t_2)		25 to 30 ms	26.3 ms.	
f. Pendulum Decel. (t_4-t_3)		≤10 ms	6.3 ms.	
g. Pendulum Direction Reversal Time - - - -			113 ms.	
h. Max. Head Rotation - -		63 to 73°	65°	
i. Chordal Displacement:				
Head Rotation Angle - -				
0°	Time	-2 to 2 ms	0 ms.	
	Displ.	-.5 to .5 in	0.0 in.	
30°	Time	25.6 to 34.4 ms	31.5 ms.	
	Displ.	2.1 to 3.1 in.	3.1 in.	
60°	Time	40.3 to 51.7 ms	47.5 ms.	
	Displ.	4.3 to 5.3 in.	4.9 in.	
Maximum (65 °)	Time	53.2 to 66.8 ms	57 ms.	
	Displ.	5.0 to 6.0 in.	5.2 in.	

Continued

P, 572 DUMMY CALIBRATION TEST DATA .... Continued:

NHTSA DUMMY ID NO. 320

TEST PARAMETER		SPECIFICATION	Pre-Test Calibration	Post-Test Calibration
2. NECK BENDING TEST .... Continued				
i. Chordal Displacement:				
Head Rotation Angle --				
60°	Time	67.0 to 83.0 ms	67 ms.	
	Displ.	4.3 to 5.3 in.	4.9 in.	
30°	Time	85.4 to 104.6 ms	85.5 ms.	
	Displ.	2.1 to 3.1 in.	2.6 in.	
0°	Time	101.0 to 123.0 ms	104 ms.	
	Displ.	-.5 to 0.5 in.	0.2 in.	
3. ABDOMINAL COMPRESSION TEST:				
(Preload = 10 pounds)				
a. Force @ 1" - - - - -		50 to 63 lbs.	52 lbs.	
b. Force @ 1.3" - - - -		73 to 88 lbs.	85 lbs.	
4. LUMBAR FLEXION TEST:				
a. Force @ 20° - - - -		22 to 34 lbs.	30 lbs.	
b. Force @ 30° - - - -		34 to 46 lbs.	40 lbs.	
c. Force @ 40° - - - -		46 to 58 lbs.	51 lbs.	
d. Return Angle - - -		12° maximum	7°	
5. CHEST IMPACT TESTS:				
a. High Speed				
(1) Probe Speed - -		21.78-22.22 fps	21.91 fps	
(2) Peak Delfection -		1.7" maximum	1.64 in.	
(3) Peak Resistive Force - - - - - -		2250 lbs. maximum	2000 lbs.	
(4) Internal - - - - Hysteresis		50 to 70%	54.6%	
b. Low Speed				
(1) Probe Speed - - -		13.86-14.14 fps	14.10 fps	
(2) Peak Deflection -		1.1" maximum	1.08 in.	
(3) Peak Resistive Force - - - - - -		1450 lbs. maximum	1340 lbs.	
(4) Internal Hysteresis- - - -		50 to 70%	59.1%	

P.572 DUMMY CALIBRATION TEST DATA .....Continued:

NHTSA DUMMY ID NO. 320

TEST PARAMETER	SPECIFICATION	Pre-Test Calibration	Post-Test Calibration
6. KNEE IMPACT TESTS:			
a. Right Side --			
(1) Probe Speed - - -	6.76 to 7.04 fps	7.03 fps	
(2) Maximum Force - -	1850 to 2500 lbs	2350 lbs.	
(3) Time Above 1000#	1.7 ms minimum	1.76 ms.	
b. Left Side --			
(1) Probe Speed - - -	6.76 to 7.04 fps	6.99 fps	
(2) Maximum Force - -	1850 to 2500 lbs.	1950 lbs.	
(3) Time Above 1000#	1.7 ms minimum	1.92 ms.	

INSTRUMENT CALIBRATION INFORMATION

NHTSA DUMMY ID NO. 320 CALIB. SEQ. NOS. FOR DUMMY: 19 & _____

	MANUFACTURER	SERIAL NUMBER	DATE LAST CALIBRATED	DATE OF NEXT CALIBRATION
A. DUMMY INSTRUMENTS:				
1. Head Accelerometers--				
a. Triaxial unit - - - - -				
b. Uniaxial units				
(1) Longitudinal (A_x) -	ENDEVCO	DB47	1/84	7/84
(2) Lateral (A_y) - - -	ENDEVCO	CX05	1/84	7/84
(3) Vertical (A_z) - - -	ENDEVCO	CJ54	1/84	7/84
2. Chest Accelerometers-- (Vehicle Crash Test Usage)				
a. Triaxial unit - - - - -				
b. Uniaxial units				
(1) Longitudinal (A_x) -				
(2) Lateral (A_y) - - -				
(3) Vertical (A_z) - - -				
3. Chest Potentiometer - - -				
4. Femur Load Cells--				
a. Right Side - - - - - -	GSE	312	1/84	7/84
b. Left Side	GSE	311	1/84	7/84
B. CALIB. LAB. INSTRUMENTS:				
1. Pendulum Accelerometer - -	CEC	22707	1/84	7/84
2. Test Probe Accelerometer -	CEC	22958	1/84	7/84
3. Lumbar Flexion Test Push Force Gauge - - - - - - -	TRANSDUCER INC	20051	1/84	7/84
4. Abdominal Compression Test Force Gauge - - - - - - -	BLH	72952	1/84	7/84
5. Abdominal Compression Test Displacement Gauge - - - -	CIC	567-11	1/84	7/84

P.572 DUMMY CALIBRATION TEST DATA

NHTSA DUMMY ID NO. 749

LABORATORY TECHNICIAN: G. R. Gestwick

APPROVED BY: N. Colemello

		Pre-Test Calibration	Post-Test Calibration
Date of Dummy Calibration - - - - - - - - - - - -		5/1/84-5/4/84	
Calibration Sequential Number for Dummy - - - -		5	
Temperature in Lab. (Spec. = 66 to 78°F)- - - -		68° to 70°F	
Relative Humidity in Lab. (Spec. = 10 to 70%) -		18% to 26%	
TEST PARAMETER	**SPECIFICATION**		
1. HEAD DROP TEST:			
a. Peak Resultant Accel. -	210 to 260G	220g	
b. Peak Lateral Accel. - -	≤10G	5g	
c. Time above 100G - - - -	0.9 to 1.5 ms	1.2 ms.	
2. NECK BENDING TEST:			
a. Pendulum Speed - - - -	21.5 to 25.5 fps	23.6 fps	
b. Pendulum Avg. Decel. (over $t_3 - t_2$) - - - -	20 to 24G	24g	
c. Peak Resultant Head Acceleration - - - -	26G maximum	22g	
d. Pendulum Decel. (t_2-t_1)	≤3 ms	3 ms.	
e. Pendulum Decel. (t_3-t_2)	25 to 30 ms	26.3 ms.	
f. Pendulum Decel. (t_4-t_3)	≤10 ms	9.4 ms.	
g. Pendulum Direction Reversal Time - - - -		110 ms.	
h. Max. Head Rotation - -	63 to 73°	67°	
i. Chordal Displacement:			
Head Rotation Angle - -			
0° Time	-2 to 2 ms	0 ms.	
0° Displ.	-.5 to .5 in	0.0 in.	
30° Time	25.6 to 34.4 ms	31 ms.	
30° Displ.	2.1 to 3.1 in.	2.9 in.	
60° Time	40.3 to 51.7 ms	47 ms.	
60° Displ.	4.3 to 5.3 in.	4.6 in.	
Maximum (67°) Time	53.2 to 66.8 ms	56.5 ms.	
Maximum (67°) Displ.	5.0 to 6.0 in.	5.0 in.	

Continued

P. 572 DUMMY CALIBRATION TEST DATA .... Continued:

NHTSA DUMMY ID NO. 749

TEST PARAMETER		SPECIFICATION	Pre-Test Calibration	Post-Test Calibration
2. NECK BENDING TEST .... Continued				
i. Chordal Displacement:				
Head Rotation Angle --				
60°	Time	67.0 to 83.0 ms	69.5 ms.	
	Displ.	4.3 to 5.3 in.	4.4 in.	
30°	Time	85.4 to 104.6 ms	86.5 ms.	
	Displ.	2.1 to 3.1 in.	2.2 in.	
0°	Time	101.0 to 123.0 ms	101 ms.	
	Displ.	-.5 to 0.5 in.	0.0 in.	
3. ABDOMINAL COMPRESSION TEST:				
(Preload = 10 pounds)				
a. Force @ 1" - - - - -		50 to 63 lbs.	54 lbs.	
b. Force @ 1.3" - - - -		73 to 88 lbs.	79 lbs.	
4. LUMBAR FLEXION TEST:				
a. Force @ 20° - - - -		22 to 34 lbs.	32.5 lbs.	
b. Force @ 30° - - - -		34 to 46 lbs.	42.0 lbs.	
c. Force @ 40° - - - -		46 to 58 lbs.	52.5 lbs.	
d. Return Angle - - -		12° maximum	3°	
5. CHEST IMPACT TESTS:				
a. High Speed				
(1) Probe Speed - -		21.78-22.22 fps	21.86 fps	
(2) Peak Delfection -		1.7" maximum	1.52 in.	
(3) Peak Resistive Force - - - - - -		2250 lbs. maximum	2080 lbs.	
(4) Internal Hysteresis - - - -		50 to 70%	51.6%	
b. Low Speed				
(1) Probe Speed - - -		13.86-14.14 fps	13.92 fps	
(2) Peak Deflection -		1.1" maximum	.92 in.	
(3) Peak Resistive Force - - - - - -		1450 lbs. maximum	1400 lbs.	
(4) Internal Hysteresis- - - -		50 to 70%	57.6%	

P.572 DUMMY CALIBRATION TEST DATA .....Continued:

NHTSA DUMMY ID NO. 749

TEST PARAMETER	SPECIFICATION	Pre-Test Calibration	Post-Test Calibration
6. KNEE IMPACT TESTS:			
a. Right Side --			
(1) Probe Speed - - -	6.76 to 7.04 fps	6.86 fps	
(2) Maximum Force - -	1850 to 2500 lbs	2200 lbs.	
(3) Time Above 1000#	1.7 ms minimum	1.76 ms.	
b. Left Side --			
(1) Probe Speed - - -	6.76 to 7.04 fps	6.97 fps	
(2) Maximum Force - -	1850 to 2500 lbs.	2400 lbs.	
(3) Time Above 1000#	1.7 ms minimum	1.76 ms.	

INSTRUMENT CALIBRATION INFORMATION

NHTSA DUMMY ID NO. 749 CALIB. SEQ. NOS. FOR DUMMY: 5 & _____

	MANUFACTURER	SERIAL NUMBER	DATE LAST CALIBRATED	DATE OF NEXT CALIBRATION
A. DUMMY INSTRUMENTS:				
1. Head Accelerometers--				
a. Triaxial unit - - - - -				
b. Uniaxial units				
(1) Longitudinal (A_x) -	ENDEVCO	DB47	1/84	7/84
(2) Lateral (A_y) - - -	ENDEVCO	CX05	1/84	7/84
(3) Vertical (A_z) - - -	ENDEVCO	CJ54	1/84	7/84
2. Chest Accelerometers-- (Vehicle Crash Test Usage)				
a. Triaxial unit - - - - -				
b. Uniaxial units				
(1) Longitudinal (A_x) -				
(2) Lateral (A_y) - - -				
(3) Vertical (A_z) - - -				
3. Chest Potentiometer - - -				
4. Femur Load Cells--				
a. Right Side - - - - - -	GSE	312	1/84	7/84
b. Left Side	GSE	311	1/84	7/84
B. CALIB. LAB. INSTRUMENTS:				
1. Pendulum Accelerometer - -	CEC	22707	1/84	7/84
2. Test Probe Accelerometer -	CEC	22958	1/84	7/84
3. Lumbar Flexion Test Push Force Gauge - - - - - - -	TRANSDUCER INC	20051	1/84	7/84
4. Abdominal Compression Test Force Gauge - - - - - - -	BLH	72952	1/84	7/84
5. Abdominal Compression Test Displacement Gauge - - - -	CIC	567-11	1/84	7/84