REPORT NO. CAL-89-N17 DOT 1353

NEW CAR ASSESSMENT PROGRAM (NCAP)
FRONTAL BARRIER IMPACT TEST

NISSAN MOTOR COMPANY

1989 NISSAN MAXIMA

4-DOOR SEDAN

NHTSA NO. MK5201

CALSPAN TEST NO. 7731-17

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

June 27, 1989

FINAL REPORT

Prepared for:

U.S. DEPARTMENT OF TRANSPORTATION

NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION

OFFICE OF MARKET INCENTIVES

400 SEVENTH STREET, S.W.

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WASHINGTON, DC 20590

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15. Supplementary Notes

16. Abstract

A frontal barrier impact test of a 1989 Nissan Maxima 4-Door Sedan was performed at the Calspan Advanced Technology Center crash test facility in Buffalo, New York on June 27, 1989.

The impact speed was 34.5 mph and the ambient temperature was 78°F. The maximum vehicle crush was 21.3 inches. The test vehicle was equipped with an automatic shoulder belt and a manual lap belt at both of the front outboard positions.

With regard to FMVSS 208 - "Occupant Crash Protection," injury criteria, both the driver and passenger appear to comply with the head, chest and femur requirement.

17. Key Words	18. Distribution Statement
35 mph Frontal Barrier Impact Test New Car Assessment Program (NCAP)	Copies of this report are available from: Technical Reference Division National Highway Traffic Safety Admin. Nassif Building, Room 5108 400 Seventh St., S.W., Washington, DC 20590

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Section 1

PURPOSE AND TEST PROCEDURE

This 35 mph frontal barrier impact test is part of the Composite FY 89 Vehicle Barrier Impact Testing Program sponsored by the National Highway Traffic Safety Administration (NHTSA) under Contract No. DTNH22-87-D-02012. The purpose of this test was to obtain vehicle crashworthiness and occupant restraint system performance data for an impact speed in excess of the current 30 mph requirements.

The 35 mph frontal barrier impact test was conducted in accordance with the Office of Market Incentives (OMI) Laboratory Indicant Test Procedure.

Section 2

SUMMARY OF TEST NUMBER MK5201

A load cell barrier consisting of 36 load cells was impacted by a 1989 Nissan Maxima 4-Door Sedan at a velocity of 34.5 mph. The test was performed at the Calspan Corporation Advanced Technology Center on June 27, 1989. Pre-test 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 the Laboratory Indicant Test Procedure.

Both ATDs were fully instrumented with head and chest triaxial accelerometers and left/right femur load cells. Seat belt load cells were also on the driver's and passenger's lap and shoulder belts to measure dummy torso and pelvic section loading. The driver ATD (Serial No. 1021) had been used in one previous test (MK0102) and the Injury Criteria Values were not exceeded in that test. The passenger ATD (Serial 320) was certified prior to the test. Certification details, along with the instrumentation calibration data, are found in Appendix C.

The 65 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 driver's HIC was 808.0. The maximum chest deceleration over 3 milliseconds was 51.1 g's and femur loads were 611.1 and 663.7 pounds.

The right front passenger's HIC was 736.0. The maximum chest deceleration over 3 milliseconds was 43.8 g's and femur loads were 1409.1 and 1042.6 pounds.

Table 1

GENERAL TEST AND VEHICLE DATA

VEHICLE YEAR/MAKE/MODEL/BODY STYLE: 1989 Nissan Maxima 4-Door Sedan

NHTSA NO.: MK5201 VIN.: JN1HJ01P2KT236374

BODY COLOR: White DATE OF MANUFACTURE: December 1988

Engine: 6 cylinders; 180.6 C.I.D.; - Liters; - CC
X Gas; - Diesel; - Turbocharged
- Longitudinal; X Transverse

Transmission: 4 Speed - Manual; X Automatic; X Overdrive
Final Drive: X Front Wheel; - Rear Wheel; - Four Wheel

Date Received: 2/24/89 Odometer Reading: 257
X A/C; X P/S; X P/B; X P/wdo.; X Tilt Wheel
- P/seats; X Cruise Control

Type of Occupant Restraint: Automatic shoulder belt/manual lap belt

DATA RECORDED FROM VEHICLE'S TIRE PLACARD:

Tire Pressure (at capacity): Front 29 psi, Rear 29 psi

Recommended Tire Size: P205/65R15 92H

Recommended Cold Tire Pressure: Front 29 psi, Rear 29 psi

Tires on Vehicle: P205/65R15 ; Manufacturer: Bridgestone

Number of Occupants: 2 Front; 3 Rear; - 3rd Seat; 5 TOTAL

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

Type of Front Seat Back: - Fixed; X Adj. With X Lever - Rot. Knob

Vehicle Capacity Weight (VCW) = 900 lbs. (A)

No. of Occupants x 150 lbs. = 750 lbs. (B)

Rated Cargo and Luggage Weight (RCLW) A-B = 150 lbs.

GVWR 4167 lbs. GAWR: Front 2315 lbs. Rear 2183 lbs.

Table 1

GENERAL TEST AND VEHICLE PARAMETER DATA (cont'd)

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

Right Front = 980 lbs. Right Rear = 580 lbs.

Left Front = 1010 lbs. Left Rear = 590 lbs.

TOTAL FRONT WEIGHT = 1990 lbs. (63 % of Total Vehicle Weight)

TOTAL REAR WEIGHT = 1170 lbs. (37 % of Total Vehicle Weight)

TOTAL DELIVERY WEIGHT = 3160 lbs.

CALCULATION FOR TARGET TEST WEIGHT:

UDW = Unloaded Delivered Weight (3160 lbs.)

VCW = Vehicle Capacity Weight (900 lbs.)

DSC = Designated Seating Capacity (5)

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

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

Target Test Weight = 3638 lbs.

WEIGHT OF TEST VEHICLE WITH REQUIRED DUMMIES AND 162 POUNDS CARGO:

Right Front = 1090 lbs. Right Rear = 760 lbs.

Left Front = 1080 lbs. Left Rear = 720 lbs.

TOTAL FRONT WEIGHT = 2170 lbs. (59 % of Total Vehicle Weight)

TOTAL REAR WEIGHT = 1480 lbs. (41 % of Total Vehicle Weight)

TOTAL TEST WEIGHT = 3650 lbs.

Weight of ballast secured in vehicle trunk area = 60 lbs.

VEHICLE ATTITUDE (all dimensions in inches):

Delivered Attitude: RF 28.1 LF 28.0 RR 28.0 LR 27.8

Test Attitude: RF 27.5 LF 27.5 RR 25.9 LR 26.1

Wheel Base: 104.5 in.; C.G. = 42.8 in. rearward of front wheel C/L

Remarks: _____

_____

Table 1

GENERAL TEST AND VEHICLE PARAMETER DATA (cont'd)

POST-IMPACT DATA:

Type of Test: Frontal Barrier Impact Angle: 0 °

Date of Test: 6/27/89 Time of Test: 12:15

Ambient Temperature: 78 °F at impact area

Temperature in Occupant Compartment: 68 °F.

Windshield Molding Temperature: 68 °F.

Required Impact Velocity Range: 34.5 to 35.5 mph

Impact Velocity: primary = 34.5 mph, secondary = 34.5 mph

Distance From Front Bumper to Barrier Face When Entering Speed Trap: 52 inches; Exiting Speed Trap: 12 inches

VEHICLE REBOUND AND CRUSH (inches):

Vehicle Length:							
Pre-test	= R	184.1	C_L	187.5	L	184.2
Post-test	= R	164.7	C_L	166.2	L	165.2
Crush	= R	19.4	C_L	21.3	L	19.0

Distance from front of test vehicle to point of impact:

R 27.5 in. C/L 27.5 in. L 28.0 in.

VISIBLE DUMMY CONTACT POINTS:

	Driver	Passenger
Head	Chest	No Contact
Chest	No Contact	No Contact
Abdomen	No Contact	No Contact
Left Knee	Dash Panel	Dash Panel
Right Knee	Dash Panel	Dash Panel

Table 1

GENERAL TEST AND VEHICLE PARAMETER DATA (cont'd)

	Front		Rear	
	Left	Right	Left	Right
Door Opening	Operable	Operable	Operable	Operable

Seat Movement	Front Left	Front Right
Seat Back Failure	None	None
Seat Shift (in.)	None	None

Glazing Damage

Backlight/Windshield Windshield sustained stress cracks but remained intact.

Section 3

OMI FINAL DATA

Occupant and Vehicle Information

I. OMI DATA

1. Dummy Injury Criteria Data Summary
2. Dummy Positioning Data
3. Seat Belt Positioning Data
4. Seat Belt Performance Assessment Data
5. Driver Dummy to Steering Column Dimensions
6. Camera Locations
7. Vehicle Target Locations

II. OVR DATA

1. Load Cell Barrier Data
2. Vehicle Accelerometer Data
3. Test Vehicle Measurements

Table 2

DUMMY INJURY CRITERIA VALUES

	MAXIMUM ACCELERATION ("G")							
	HEAD				CHEST			
	X	Y	Z	R	X	Y	Z	R*
DUMMY (1)	-39	-7	70	70.8	-54	-7	-15	51.1
DUMMY (2)	-44	-9	67	70.3	-46	-17	-17	43.8
DUMMY (3)								
DUMMY (4)								

	MAXIMUM FORCE - FEMUR LOAD (LBS)	
	LEFT FEMUR	RIGHT FEMUR
DUMMY (1)	611.1	663.7
DUMMY (2)	1409.1	1042.6
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)	2524.7	-	750.1
DUMMY (2)	2358.4	1179.1	-
DUMMY (3)			
DUMMY (4)			

	HEAD INJURY CRITERIA**			
		36 millisecond max.		AVE. ACC. (g)
	HIC	t_1 (SEC)	t_2 (SEC)	t_1 TO t_2
DUMMY (1)	808.0	.06323	.09922	55.0
DUMMY (2)	736.0	.06937	.10537	53.0
DUMMY (3)				
DUMMY (4)				

*DEFINED AS EXCEEDING 0.003 SEC. DURATION

**AS DEFINED IN FMVSS NO. 208

Figure 1

PART 572 DUMMY IN-VEHICLE POSITION

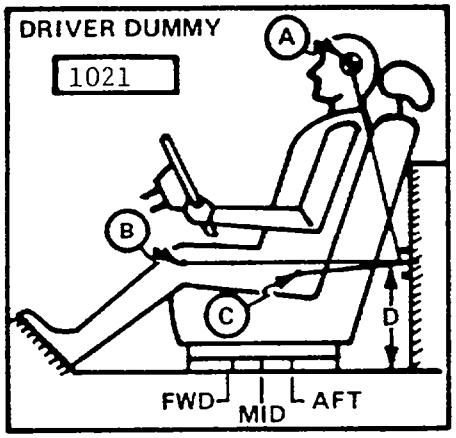
TEST NO.: MK5201

VEHICLE: 1989 Nissan Maxima 4-Door Sedan

SEAT TYPE:
- ____ Bench
- X Bucket
- ____ Split Bench

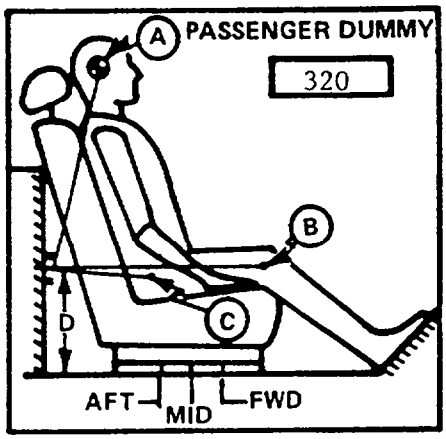
ADJUSTER TYPE:
- X Manual
- ____ Power

BUCKET SEAT BACK TYPE:
- ____ Fixed
- X Adjustable Reclining



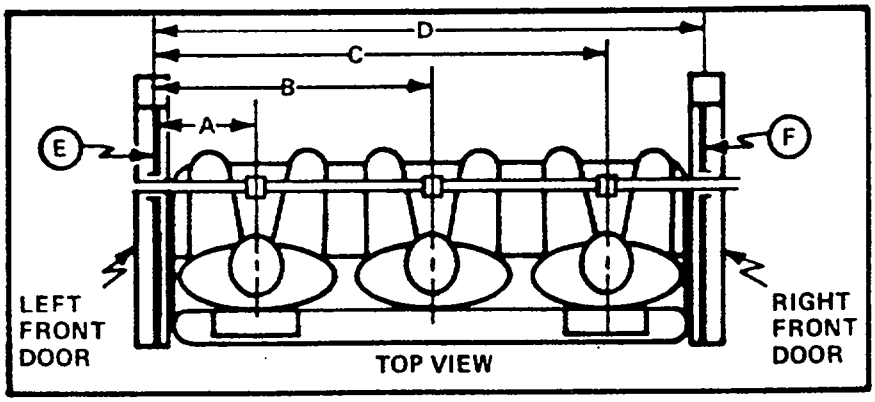
MEASUREMENT LOCATION

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



A =	21.5	in.	0.0	Degrees
B =	21.5	in.	97.0	Degrees
C =	8.6	in.	133.0	Degrees
D =	13.0	in.		

A =	21.3	in.	0.0	Degrees
B =	22.8	in.	96.0	Degrees
C =	8.5	in.	139.0	Degrees
D =	13.0	in.		

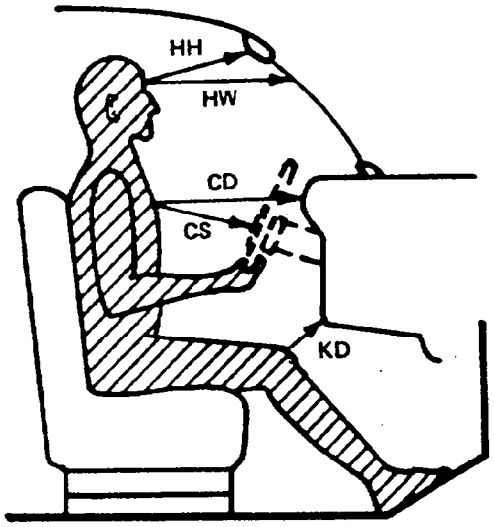


DUMMY ID	1021	320
A = Left Door to Driver Centerline	13.5 in.	
B = Left Door to Center Passenger Centerline	- in.	
C = Left Door to Right Passenger Centerline	41.6 in.	
D = Left Door to Right Door	54.6 in.	
E, F = Window Glass Height (Right and Left Must Be Equal)	11.0 in.	

Figure 2

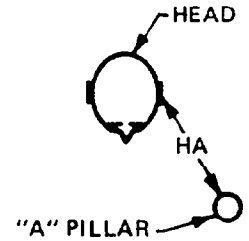
OCCUPANT CLEARANCE DIMENSIONS

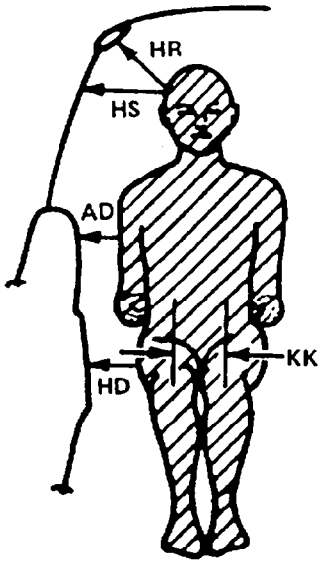
	DRIVER	PASSENGER
HH	16.1	16.4
HW	22.8	23.4
CD	24.8	24.9
CS	16.6	-
KDL	8.2	7.7
KDR	7.9	7.7
SA	see note	see note
TA	25°	26°



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



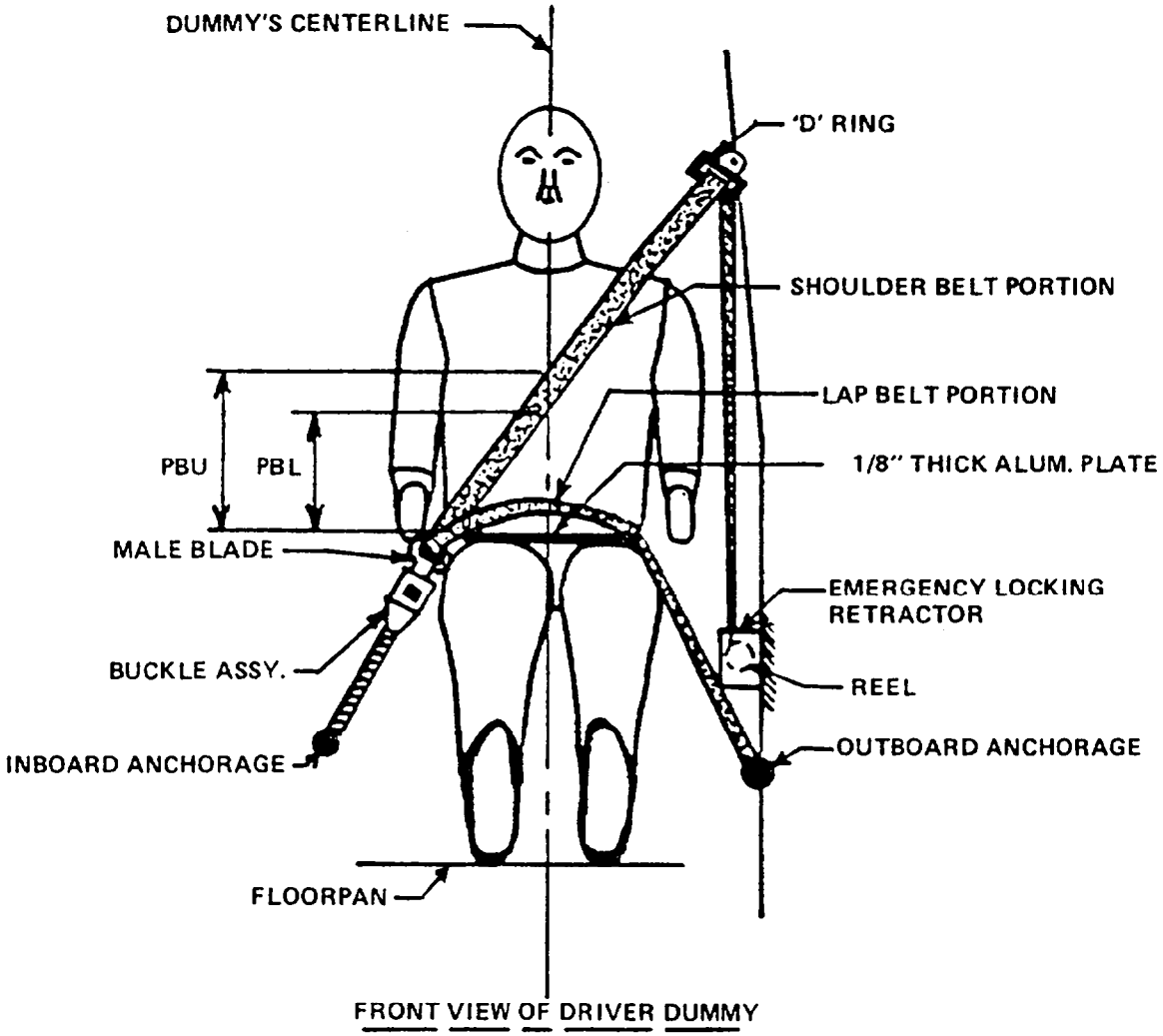


	DRIVER	PASSENGER
HR	6.3	6.1
HS	10.2	10.0
AD	4.7	4.8
HD	7.4	7.2
KK	10.5	8.7
HA	23.1	22.9

NOTE: Seat angle was positioned as recommended by manufacturer.

Figure 3

SEAT BELT POSITIONING DATA



	DRIVER DUMMY (inches)	PASSENGER DUMMY (inches)
PBU -- Top surface of alum. plate to upper edge	14.0	14.0
PBL -- Top surface of alum. plate to belt lower edge	11.0	11.0
LAP BELT TENSION	N/A	N/A
SHOULDER BELT TENSION	N/A	N/A

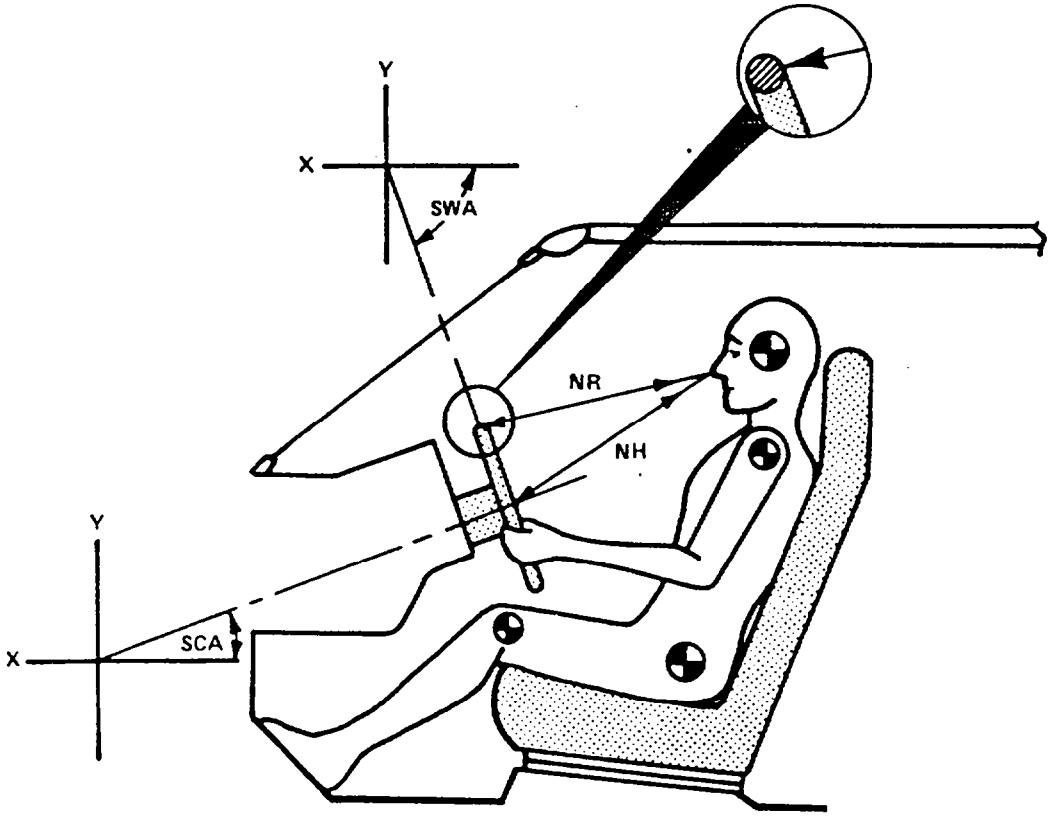
Table 3

SEAT BELT PERFORMANCE ASSESSMENT TEST DATA

BELT LENGTH DATA:	Driver	Passenger
Shoulder belt length as measured on Part 572 Dummy.	37.0"	37.0"
Lap belt length as measured on Part 572 Dummy.	33.0"	33.0"
BELT SPOOL-OFF DATA:		
As determined mechanically.	N/A	2.2"
BELT STRETCH DATA:		
Measured electronically between shoulder belt load cell and the "D" ring.	.82 in/ft	1.9 in/ft
Measured Mechanically	0.0 in/ft	0.6 in/ft

Figure 4

DRIVER DUMMY TO STEERING COLUMN/WHEEL ASSY. REFERENCE DIMENSIONS



LEFT SIDE VIEW

	MEASUREMENTS	
NR -- Distance from tip of dummy's nose to Top Rear surface of steering wheel rim	21.7	Inches
NH -- Distance from tip of dummy's nose to center of steering column hub	21.8	Inches
SCA -- Angle of steering column relative to the horizontal X axis	26.0	Degrees
SWA -- Angle of steering wheel relative to the horizontal X axis	64.0	Degrees

Figure 5

CAMERA POSITIONS FOR FRONTAL IMPACTS

NOTE: Camera Information Shown on Table 4

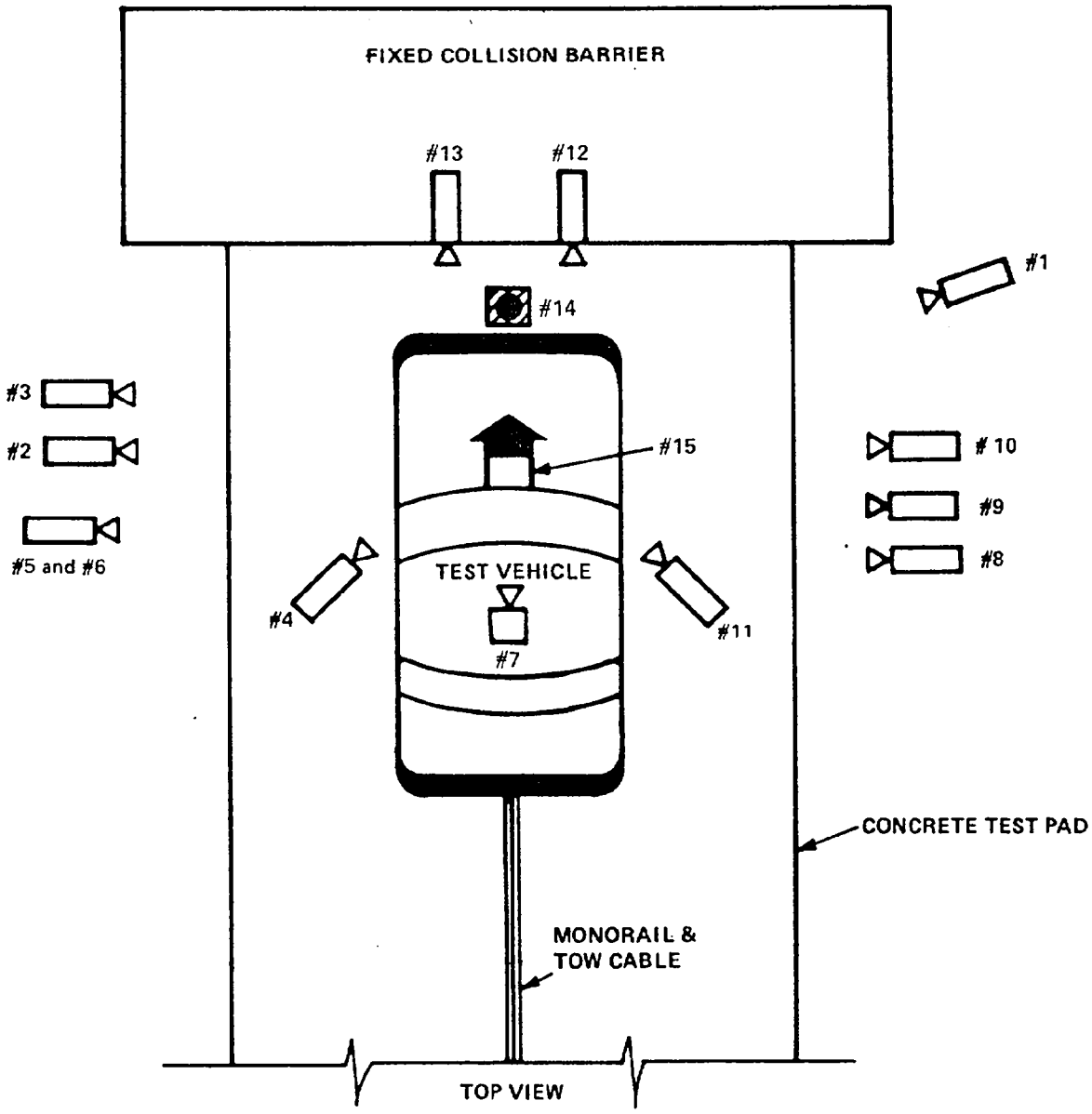


Table 4
HIGH-SPEED CAMERA LOCATIONS

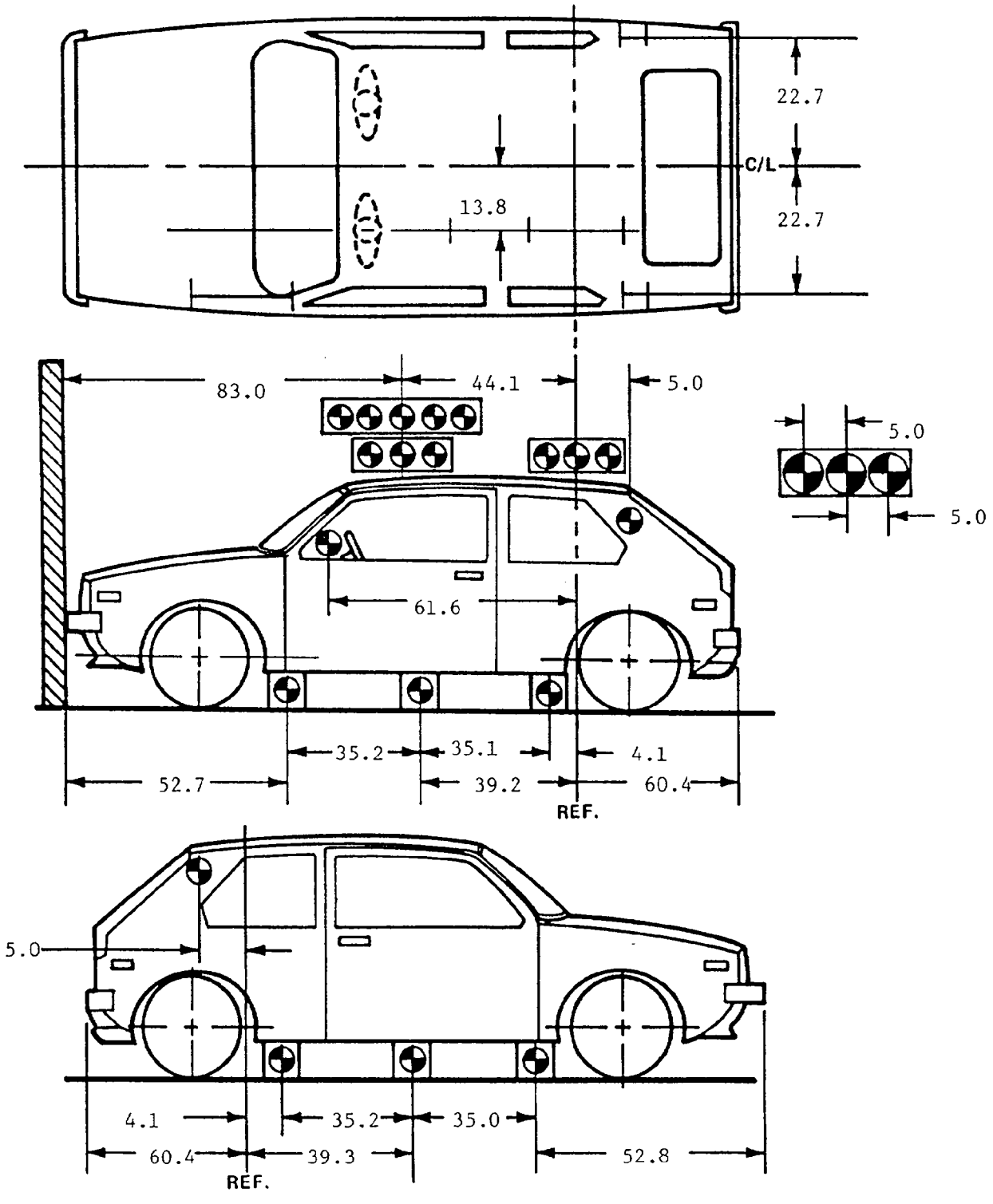
Test No. MK5201 Vehicle 1989 Nissan Maxima 4-Door Sedan

CAMERA NO.	VIEW	CAMERA POSITIONS (in)* X	Y	Z	ANGLE** (deg)	FILM PLANE TO HEAD TARGET	LENS (mm)	SPEED (fps)
1	Real-Time Camera	-	-	-	-	-	-	24
2	Overall Left Side	234	52	41	-4	217	13	530
3	Left Side View	316	29	41	-4	299	25	530
4	Driver and Interior View	103	107	67	-16	86	13	790
5	Steering Column (Bottom)	292	80	47	-4	275	25	530
6	Steering Column (Top)	292	80	70	-10	275	25	550
7	Left Belt and Right Belt	-	-	-	-	-	8	580
8	Overall Right Side	243	75	42	-4	226	13	no timing
9	Right Side View	319	57	41	-2	302	25	770
10	Right Passenger View	313	74	57	-2	296	35	710
11	Passenger and Interior View	106	110	69	-20	89	25	610
12	Passenger Front View	24	-5	73	-38	-	13	590
13	Driver Front View	24	-5	73	-38	-	13	560
14	Windshield View	0	0	126	-45	-	13	570
15	Pit View of Engine	0	32	-120	90	-	13	870

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

Figure 6

VEHICLE TARGET LOCATIONS



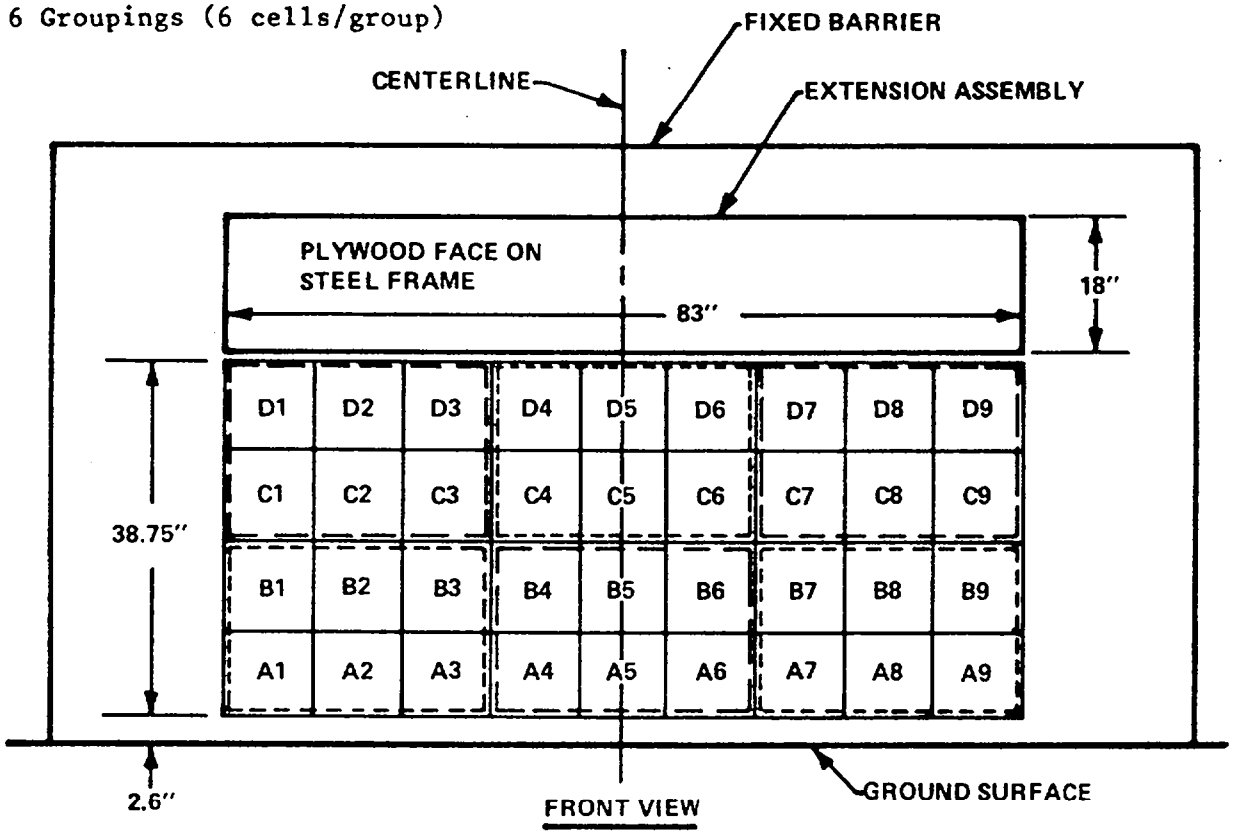
(DIMENSIONS IN INCHES)

7731-17

Figure 7

LOAD CELL LOCATIONS ON FIXED BARRIER

36 Load Cells
4 Rows
9 Columns
6 Groupings (6 cells/group)



6 GROUPS OF 6 LOAD CELLS EACH

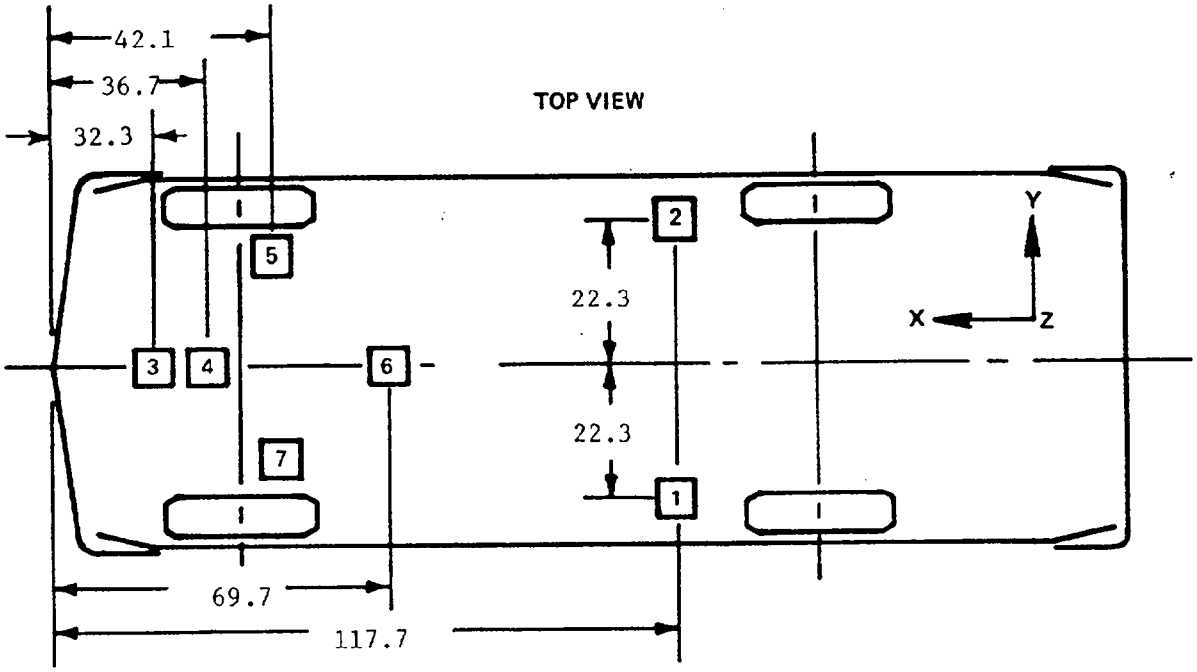
Group 4 C1 thru D3	Group 5 C4 thru D6	Group 6 C7 thru D9
Group 1 A1 thru B3	Group 2 A4 thru B6	Group 3 A7 thru B9

The following data is presented in Appendix B:

(1) Data from 36 individual load cells
(2) Total or Sum of 36 individual load cells
(3) Data from 6 Groupings shown above (6 cells/group)

Figure 8

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	Instrument Panel	X		
7	Left Disc Brake Caliper	X		

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

Figure 9

TEST VEHICLE MEASUREMENTS

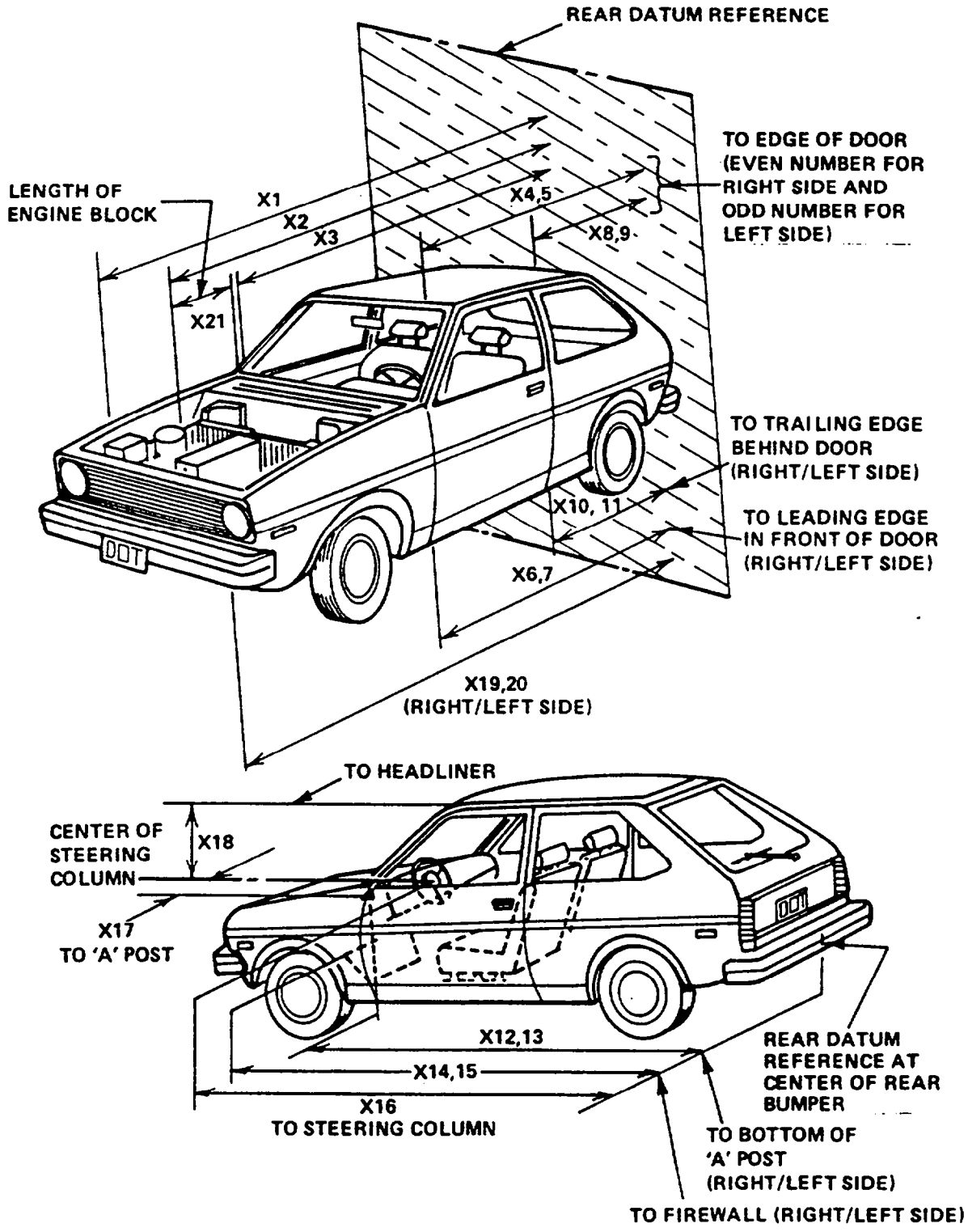


Table 5

VEHICLE MEASUREMENTS

No.		All Dimensions in Inches		
		Pre-Test	Post-Test	Differences
X1	Total Length of Vehicle at Centerline	187.5	166.2	21.3
X2	Rear Surface of Vehicle to Front of Engine	169.6	159.0	10.6
X3	Rear Surface of Vehicle to Firewall	137.7	135.3	2.4
X4	Rear Surface of Vehicle to Upper Leading Edge of Right Door	126.9	126.6	0.3
X5	Rear Surface of Vehicle to Upper Leading Edge of Left Door	127.4	126.5	0.9
X6	Rear Surface of Vehicle to Lower Leading Edge of Right Door	126.5	125.9	0.6
X7	Rear Surface of Vehicle to Lower Leading Edge of Left Door	126.5	125.6	-0.1
X8	Rear Surface of Vehicle to Upper Trailing Edge of Right Door	84.9	84.4	0.5
X9	Rear Surface of Vehicle to Upper Trailing Edge of Left Door	85.0	84.3	0.7
X10	Rear Surface of Vehicle to Lower Trailing Edge of Right Door	84.4	84.0	0.4
X11	Rear Surface of Vehicle to Lower Trailing Edge of Left Door	84.5	83.5	1.0
X12	Rear Surface of Vehicle to Bottom of "A" Post of Right Side	126.7	126.3	0.4
X13	Rear Surface of Vehicle to Bottom of "A" Post of Left Side	126.9	125.8	1.1
X14	Rear Surface of Vehicle to Firewall, Right Side	137.3	135.3	2.0
X15	Rear Surface of Vehicle to Firewall, Left Side	137.4	135.0	2.4
X16	Rear Surface of Vehicle to Steering Column	110.9	110.6	0.3
X17	Center of Steering Column to "A" Post	17.8	17.2	0.6
X18	Center of Steering Column to Headliner	18.8	17.2	1.6
X19	Rear Surface of Vehicle to Right Side of Front Bumper	184.1	164.7	19.4
X20	Rear Surface of Vehicle to Left Side of Front Bumper	184.2	165.2	19.0
X21	Length of Engine Block	23.5	23.5	0.0

Appendix A

PHOTOGRAPHS

Figure A-1 PRE-TEST FRONT VIEW

Figure A-2 POST-TEST FRONT VIEW

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Figure A-3 PRE-TEST LEFT SIDE VIEW

A-5

7731-17

Figure A-4 POST-TEST LEFT SIDE VIEW

Figure A-5 PRE-TEST RIGHT SIDE VIEW

A-7

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Figure A-6 POST-TEST RIGHT SIDE VIEW

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

A-9

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

A-10

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

A-11

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

Figure A-11 PRE-TEST WINDSHIELD VIEW

A-13

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Figure A-12 POST-TEST WINDSHIELD VIEW

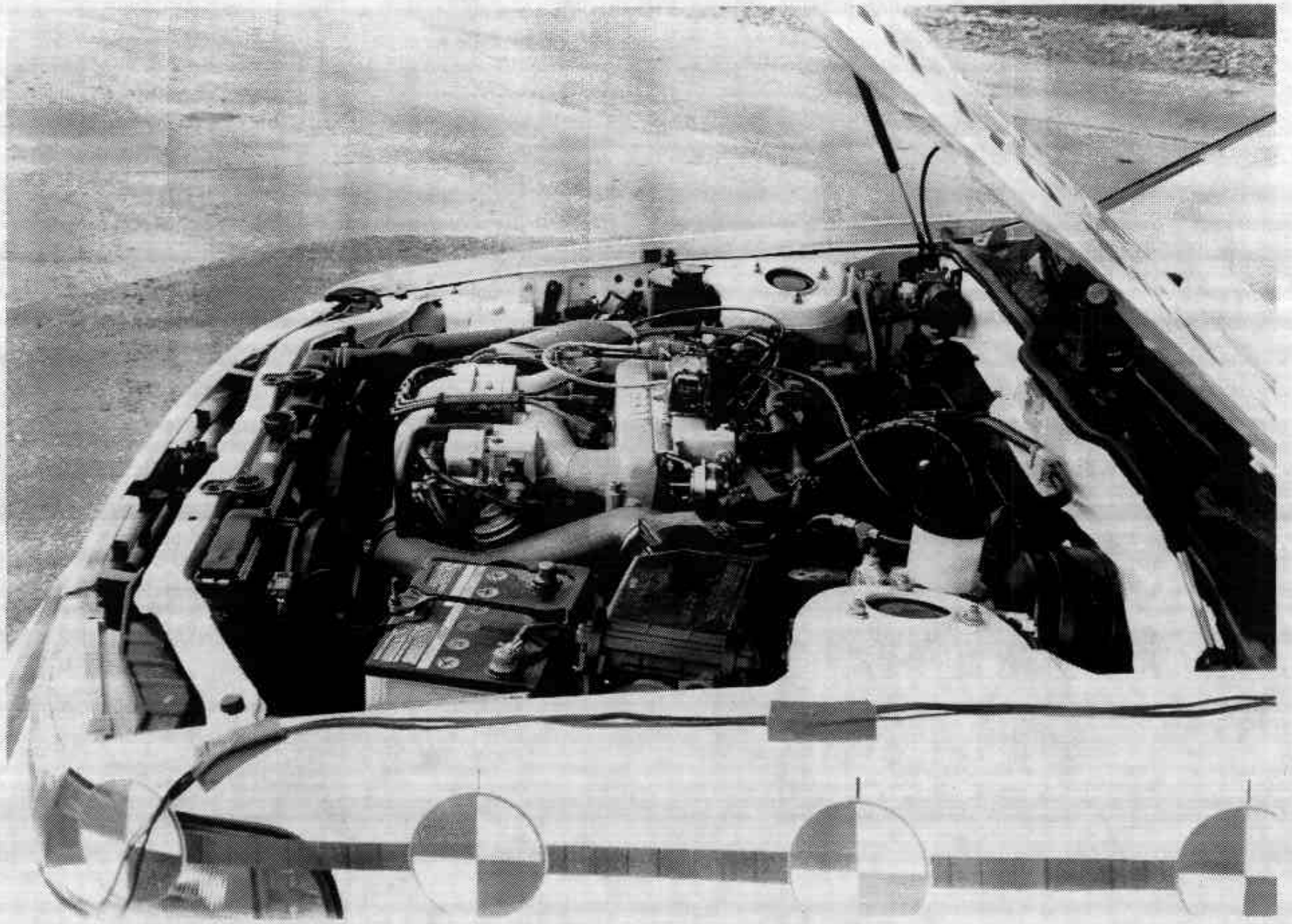

Figure A-13 PRE-TEST ENGINE COMPARTMENT VIEW

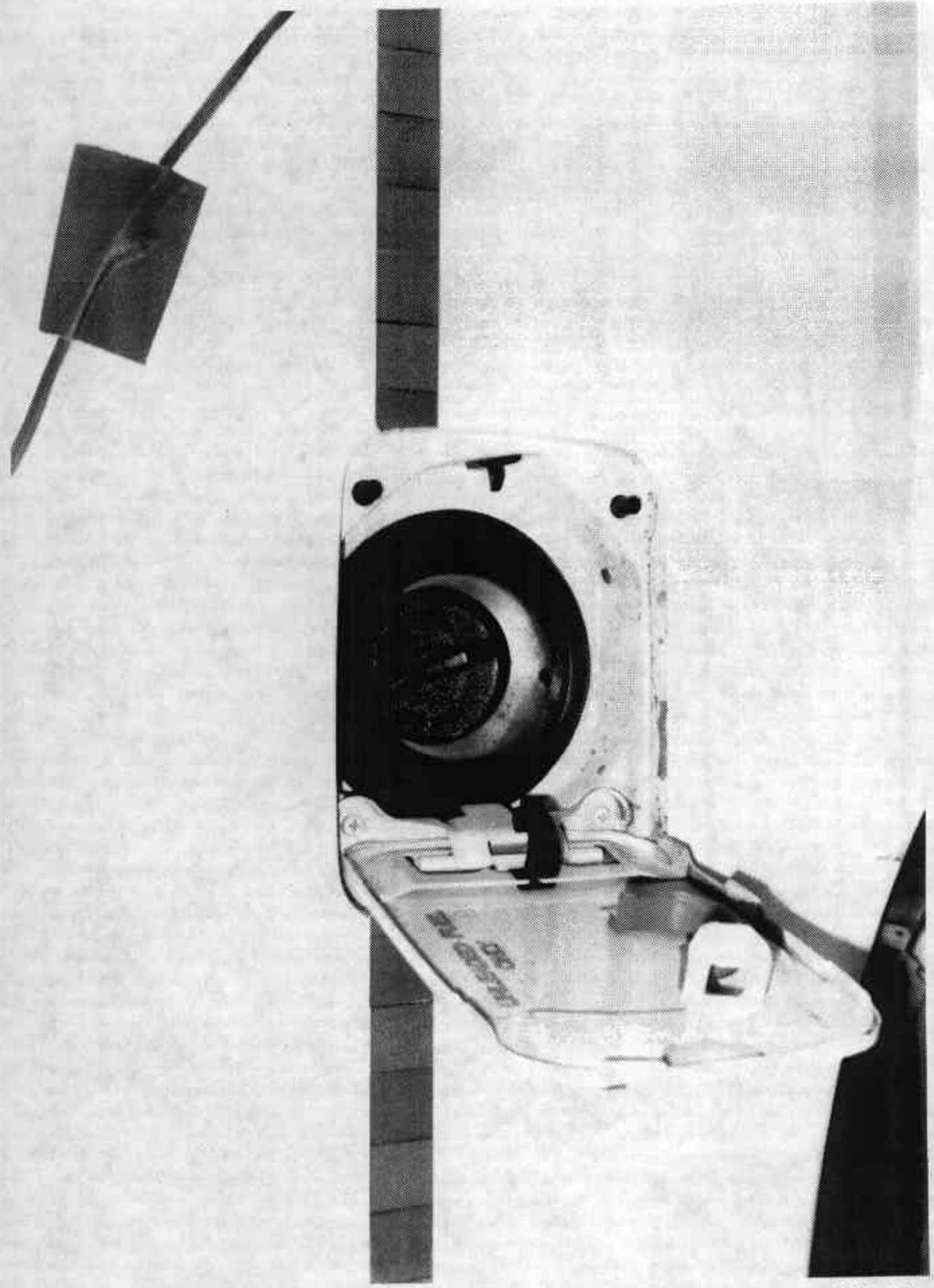

Figure A-14 PRE-TEST FUEL CAP VIEW

7731-17

Figure A-15 PRE-TEST FRONT UNDERBODY VIEW

Figure A-16 POST-TEST FRONT UNDERBODY VIEW

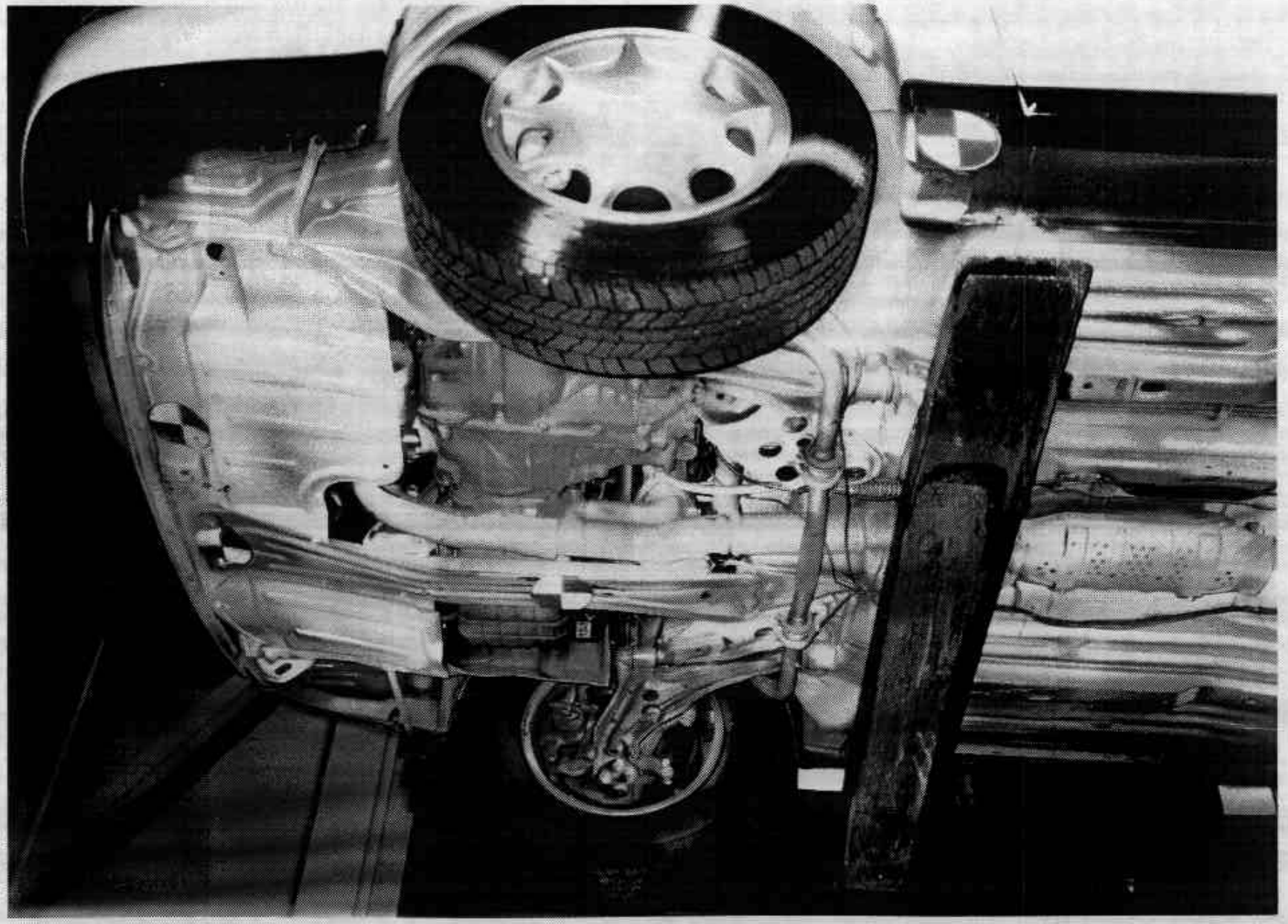

Figure A-17 PRE-TEST FRONT-SIDE UNDERBODY VIEW

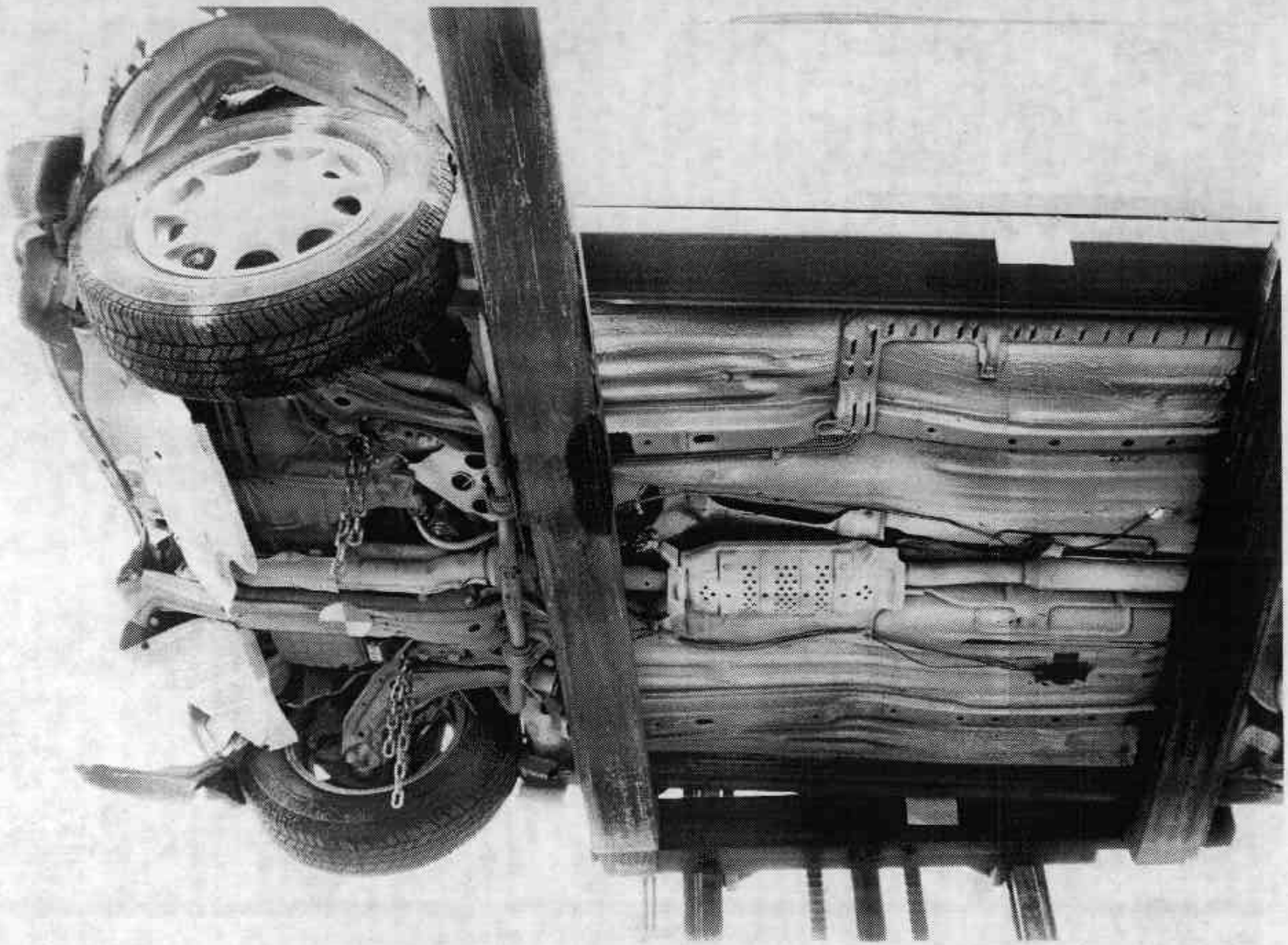

Figure A-18 POST-TEST FRONT-SIDE UNDERBODY VIEW

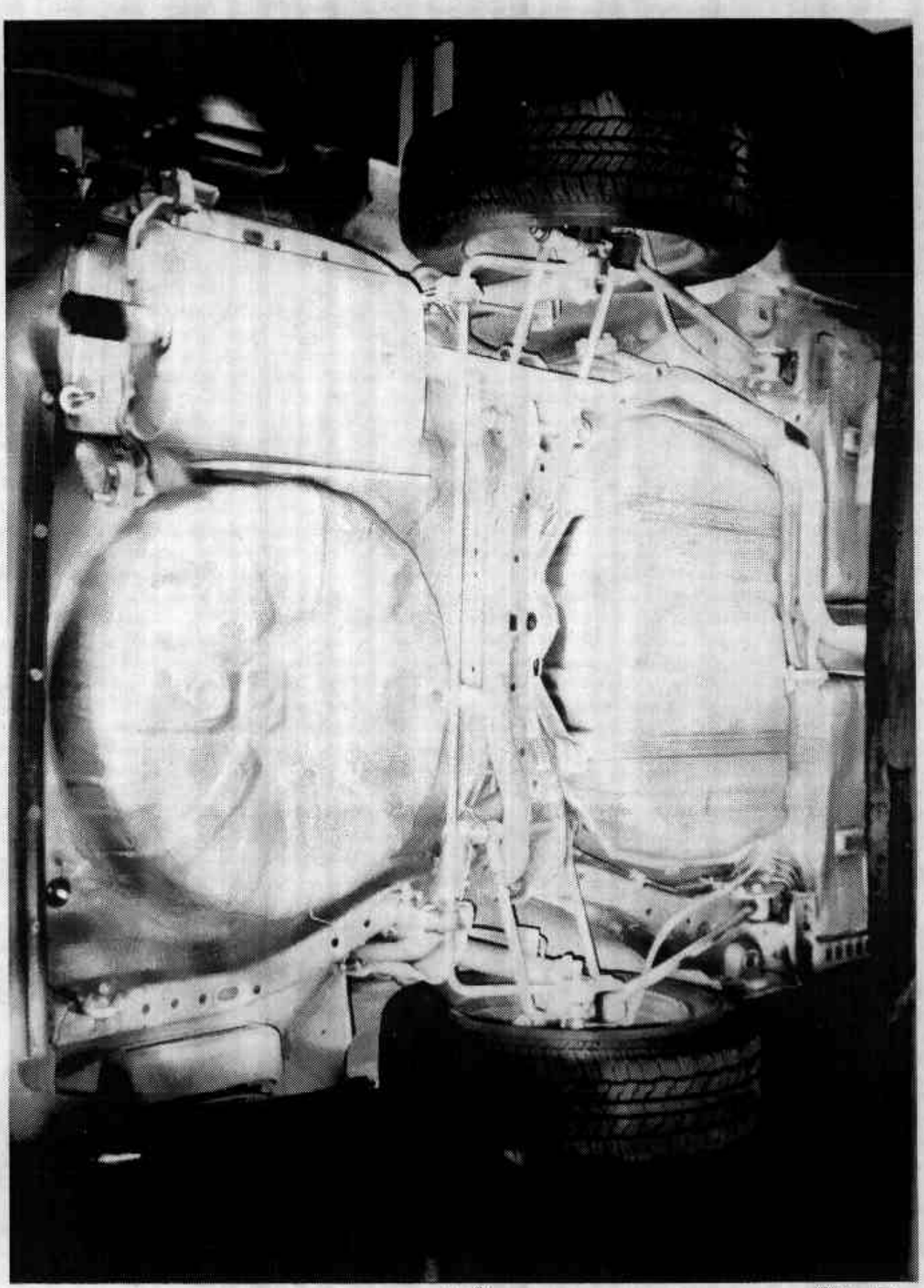

Figure A-19 PRE-TEST REAR UNDERBODY VIEW

Figure A-20 PRE-TEST DRIVER POSITION VIEW

Figure A-21 POST-TEST DRIVER POSITION VIEW

7731-17

A-23

7731-17

Figure A-22 PRE-TEST PASSENGER POSITION VIEW

Figure A-23 POST-TEST PASSENGER POSITION VIEW

7731-17

Figure A-24 PRE-TEST DRIVER AND INTERIOR VIEW

A-26

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Figure A-25 POST-TEST DRIVER AND INTERIOR VIEW

Figure A-26 PRE-TEST PASSENGER AND INTERIOR VIEW

A-28

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Figure A-27 POST-TEST PASSENGER AND INTERIOR VIEW

Appendix B

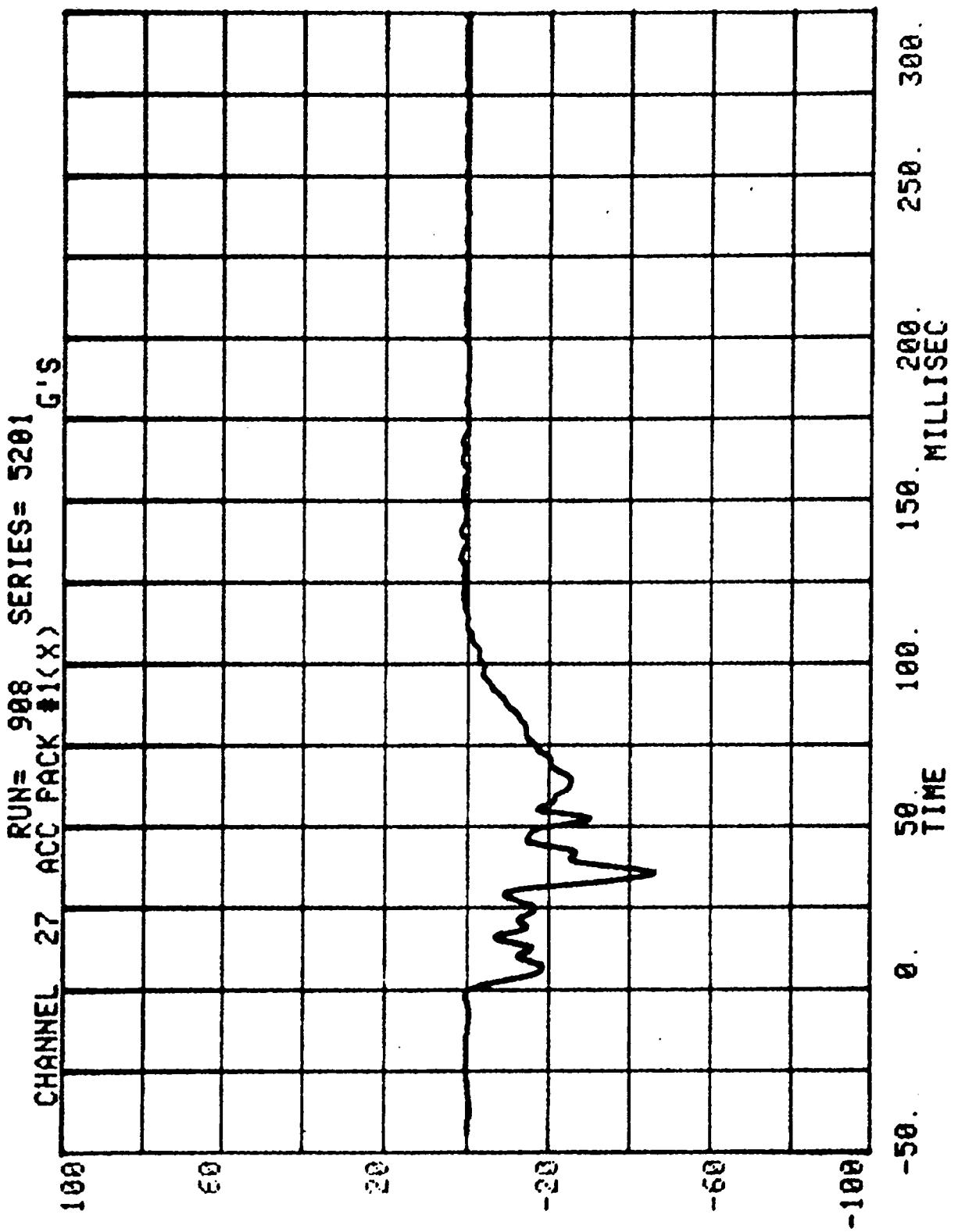
VEHICLE, LOAD CELL BARRIER AND DUMMY RESPONSE DATA

TEST NO. MK5201

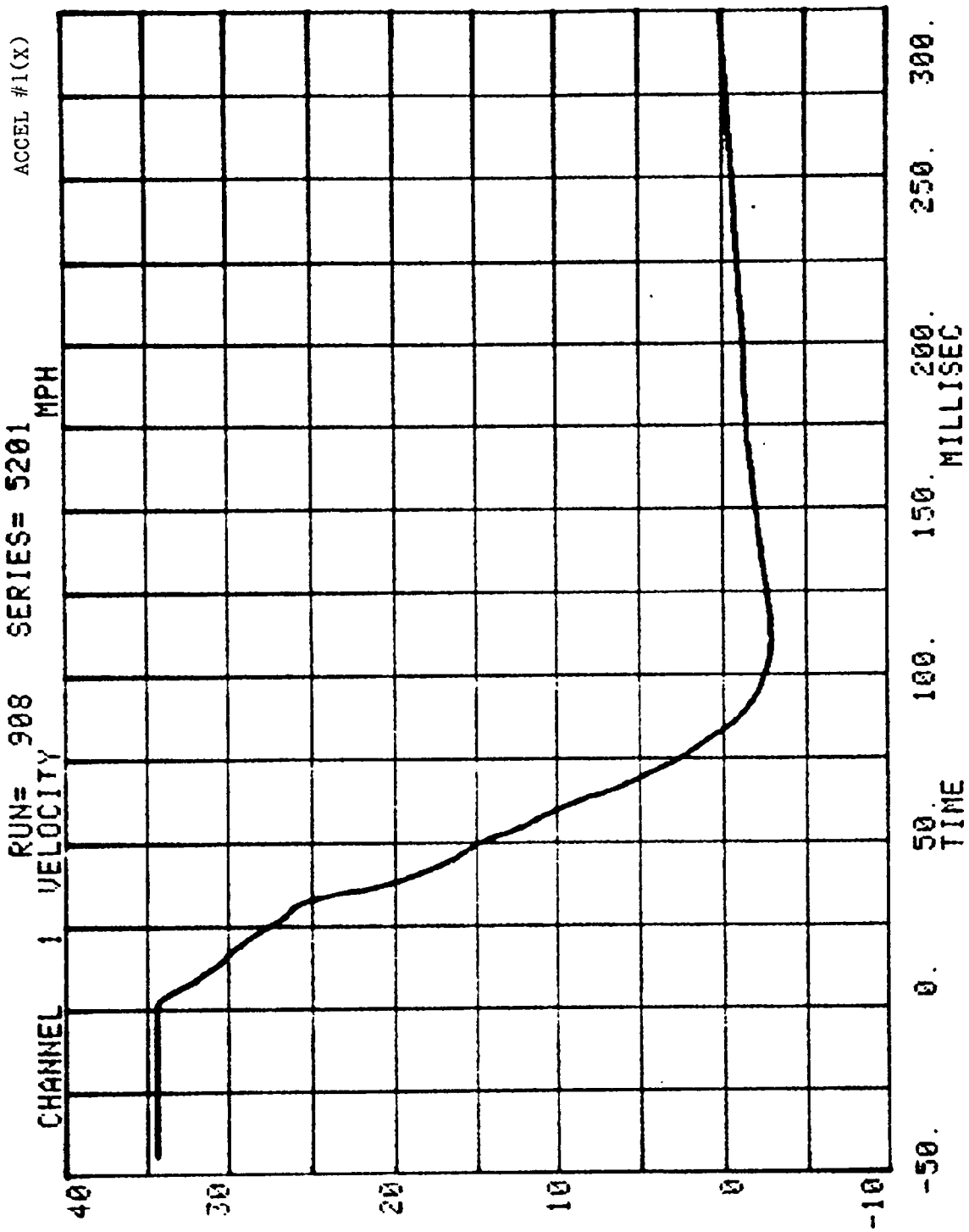
VEHICLE DATA

FILTER CHANNEL CLASS

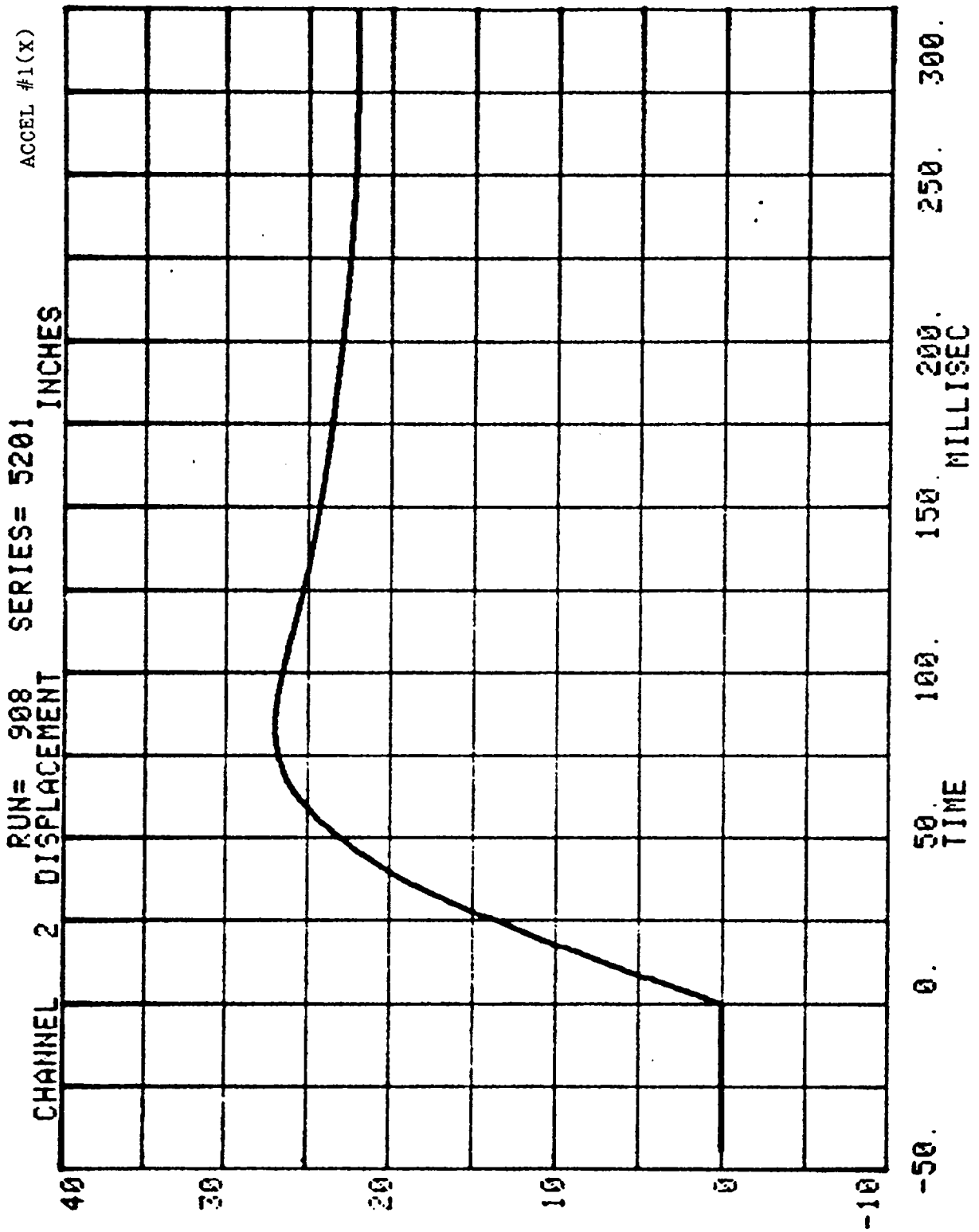
60


CHANNEL 27 ACC PACK #1(X)
RUN= 908 SERIES= 5201
G'S
100
60
20
-20
-60
-100
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

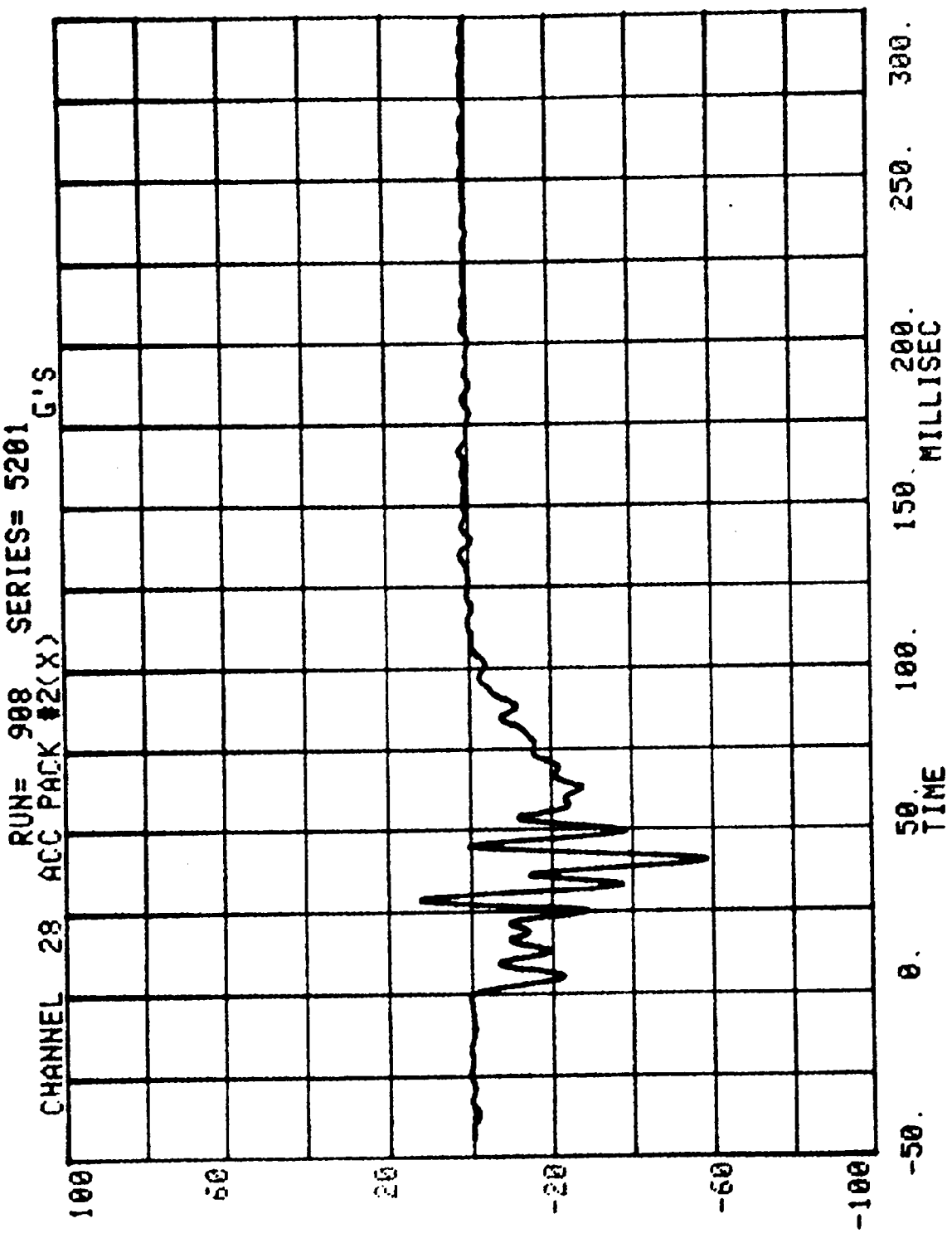
7731-17


ACCEL #1(X)
CHANNEL 1 VELOCITY
RUN= 908 SERIES= 5201
MPH
40
30
20
10
0
-10
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

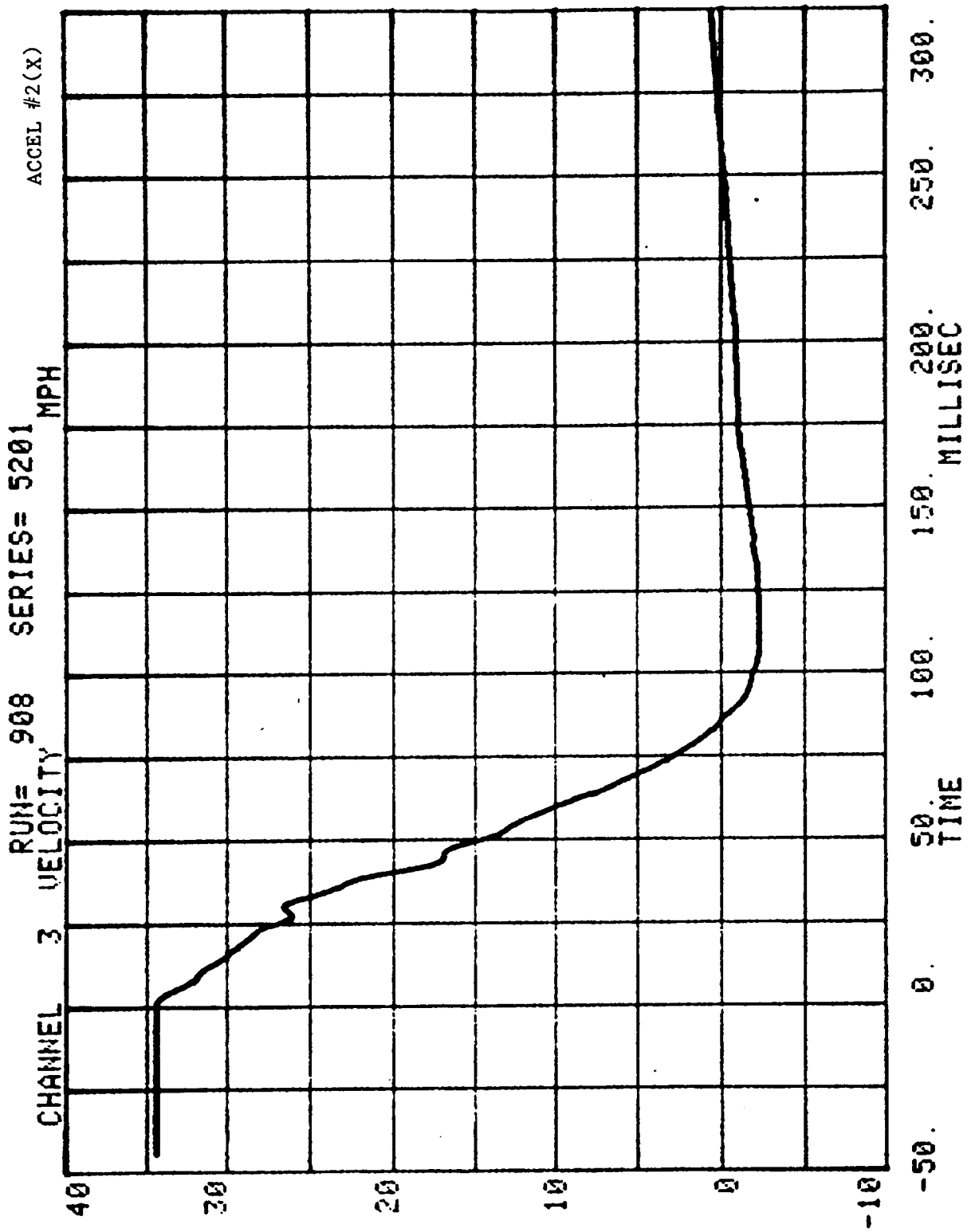
7731-17


ACCEL #1(X)
CHANNEL 2 DISPLACEMENT
RUN= 908 SERIES= 5201
INCHES
40
30
20
10
0
-10
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

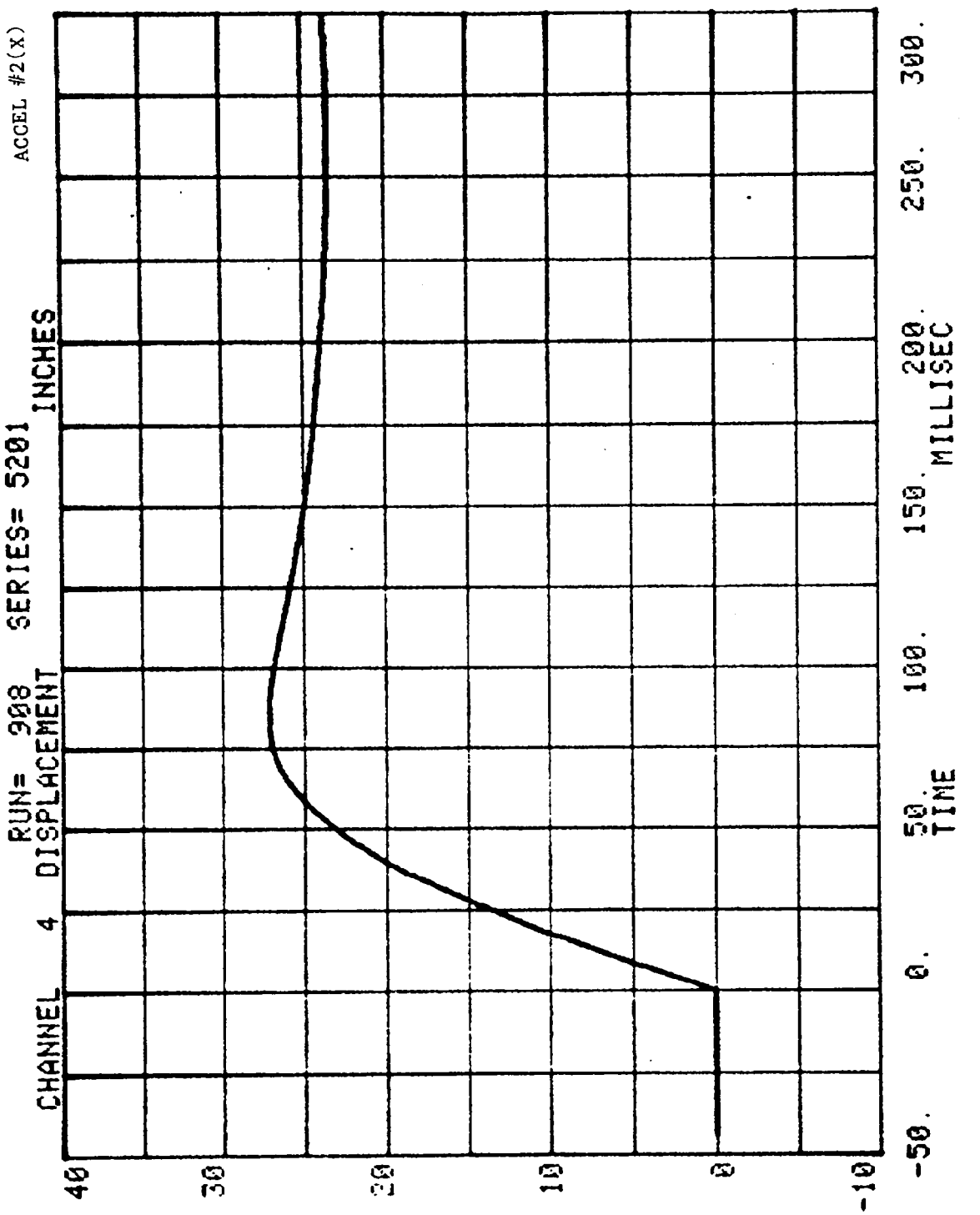
7731-17


RUN= 908 SERIES= 5201
CHANNEL 28 ACC PACK #2(X)
G'S
100
60
20
-20
-60
-100
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

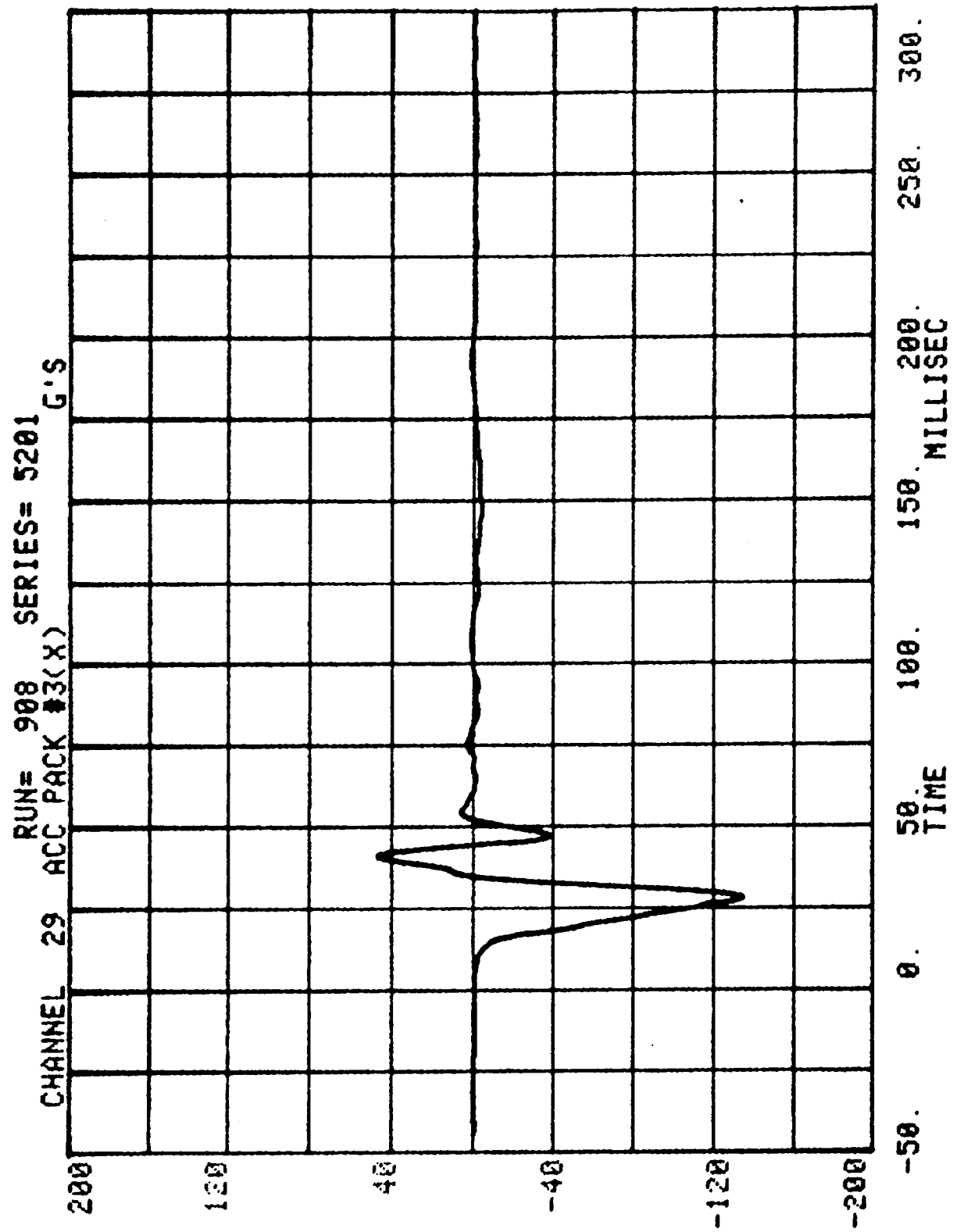
7731-17


ACCEL #2(X)
CHANNEL 3 VELOCITY
RUN= 908 SERIES= 5201
MPH
40
30
20
10
0
-10
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

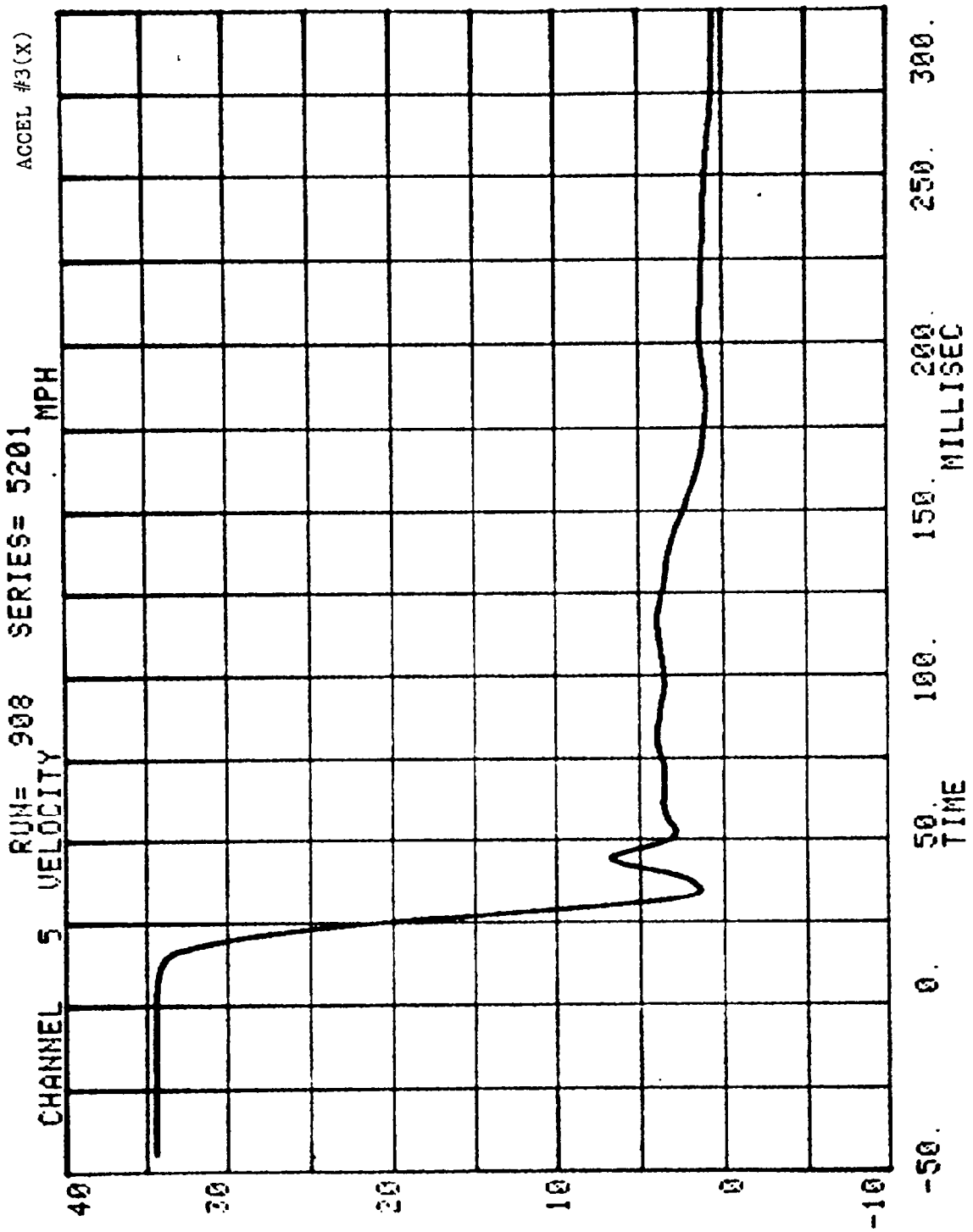
7731-17


ACCEL #2(X)
CHANNEL 4 DISPLACEMENT
RUN= 308 SERIES= 5201
INCHES
40
30
20
10
0
-10
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

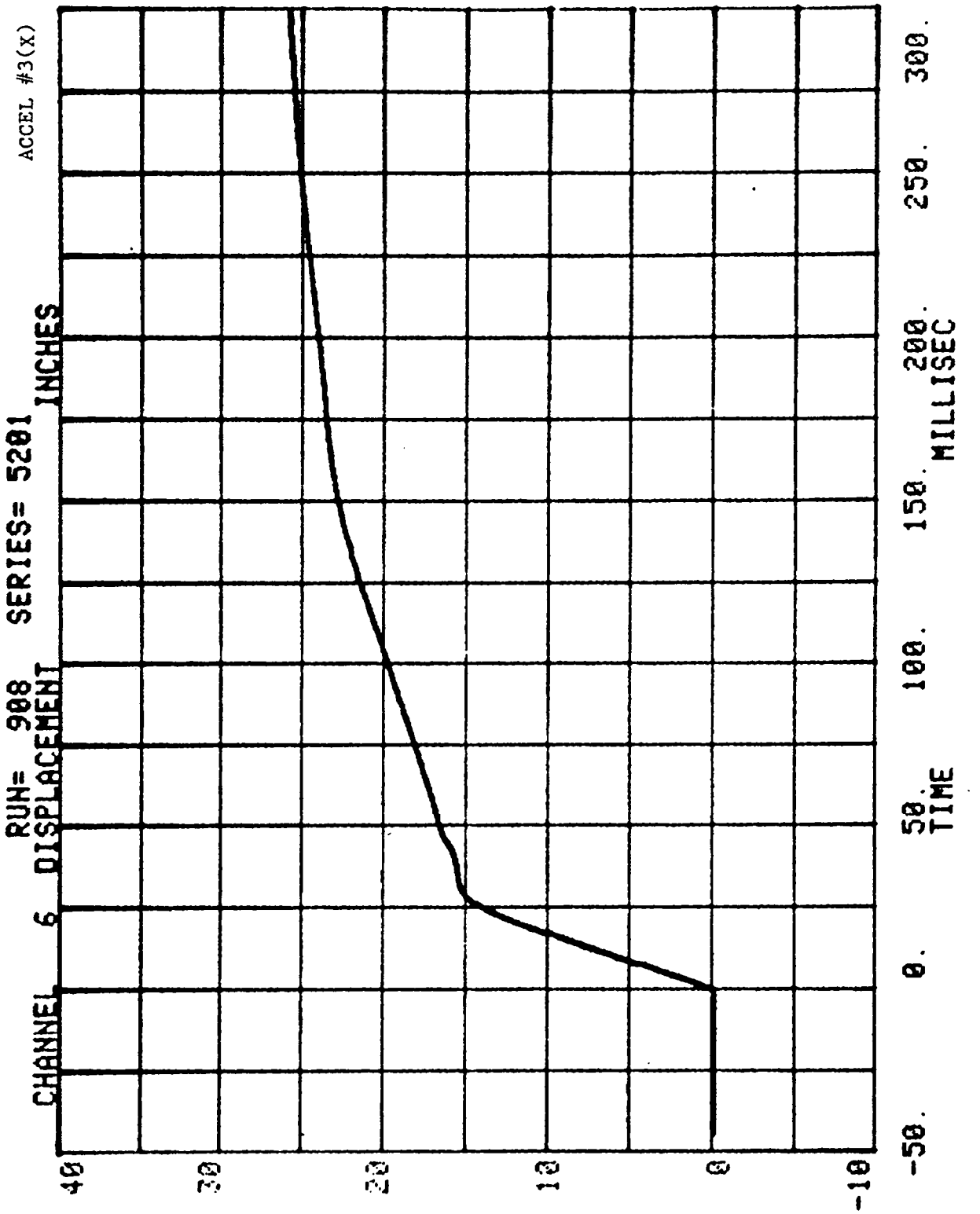
7731-17


CHANNEL 29 ACC PACK #3(X)
RUN= 908 SERIES= 5201
G'S
200
120
40
-40
-120
-200
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

7731-17


ACCEL #3(X)
CHANNEL 5 VELOCITY
RUN= 908 SERIES= 5201
MPH
40
30
20
10
0
-10
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

7731-17


ACCEL #3(X)
CHANNEL 6 DISPLACEMENT
RUN= 908 SERIES= 5201
INCHES
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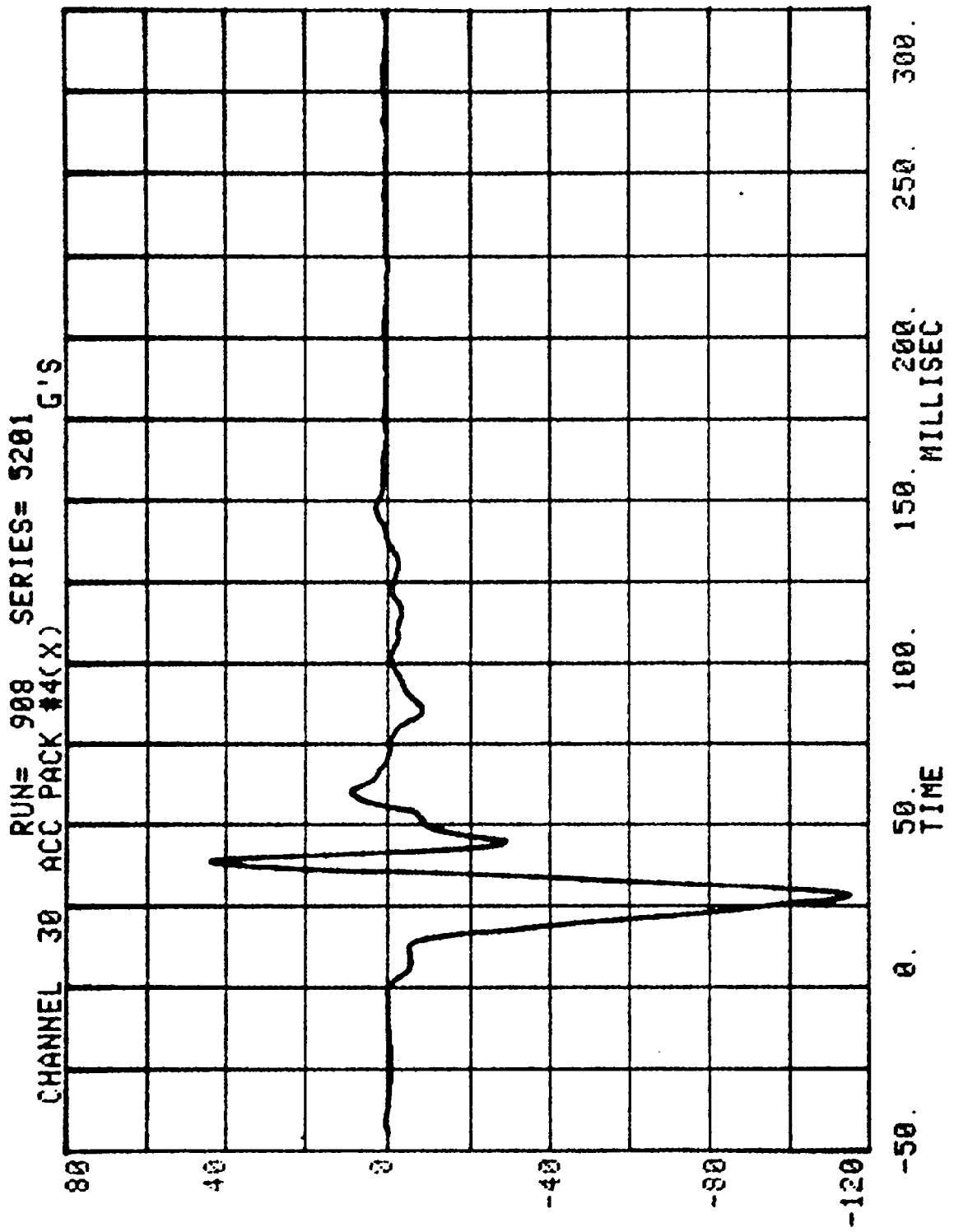
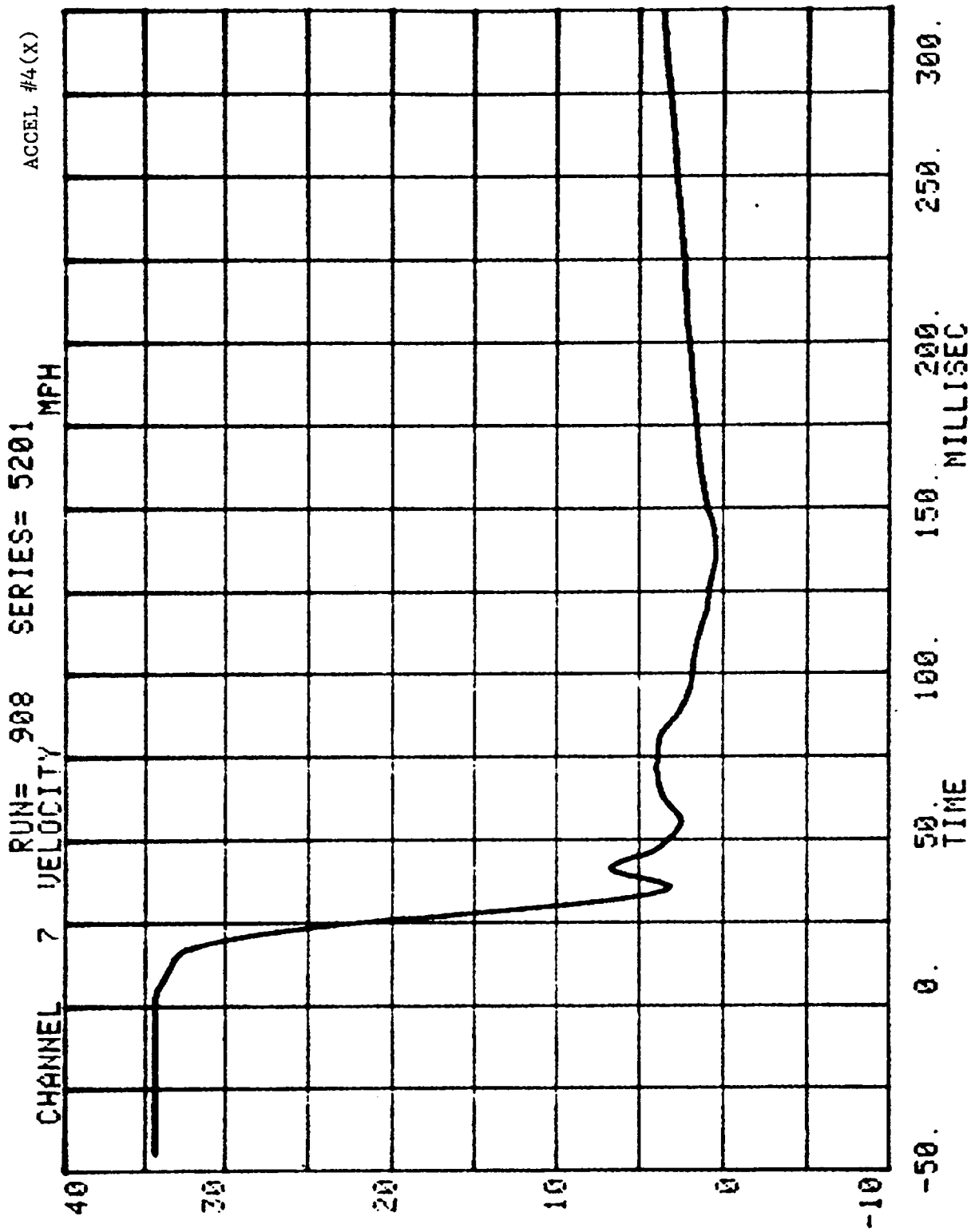
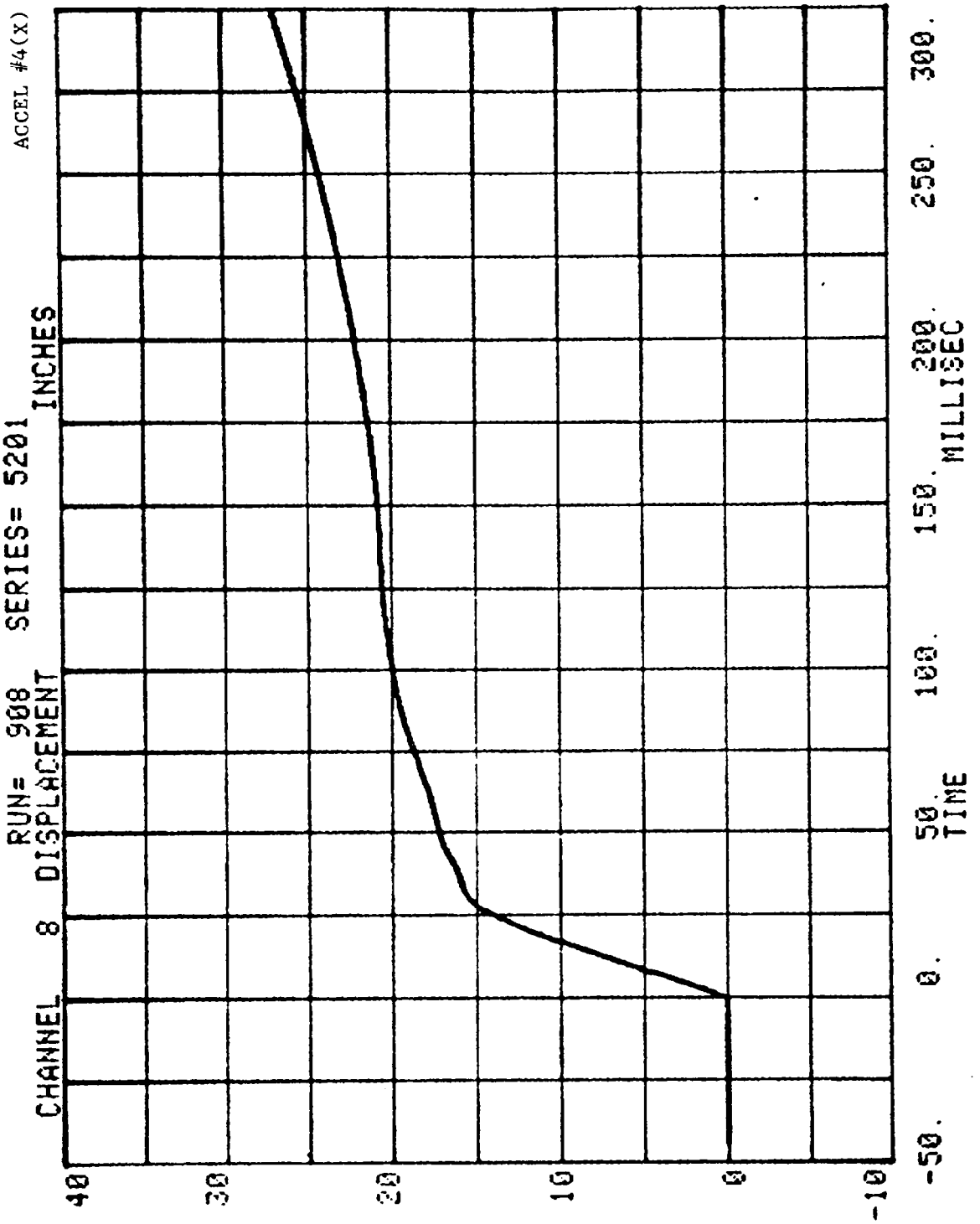
30
20
10
0
-10
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC


RUN= 908 SERIES= 5201
CHANNEL 30 ACC PACK #4(X)
G'S
80
40
0
-40
-80
-120
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

7731-17


ACCEL #4(X)
CHANNEL 7 VELOCITY
RUN= 908 SERIES= 5201
MPH
40
30
20
10
0
-10
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

7731-17


ACCEL #4(X)
CHANNEL 8 DISPLACEMENT
RUN= 908 SERIES= 5201
INCHES
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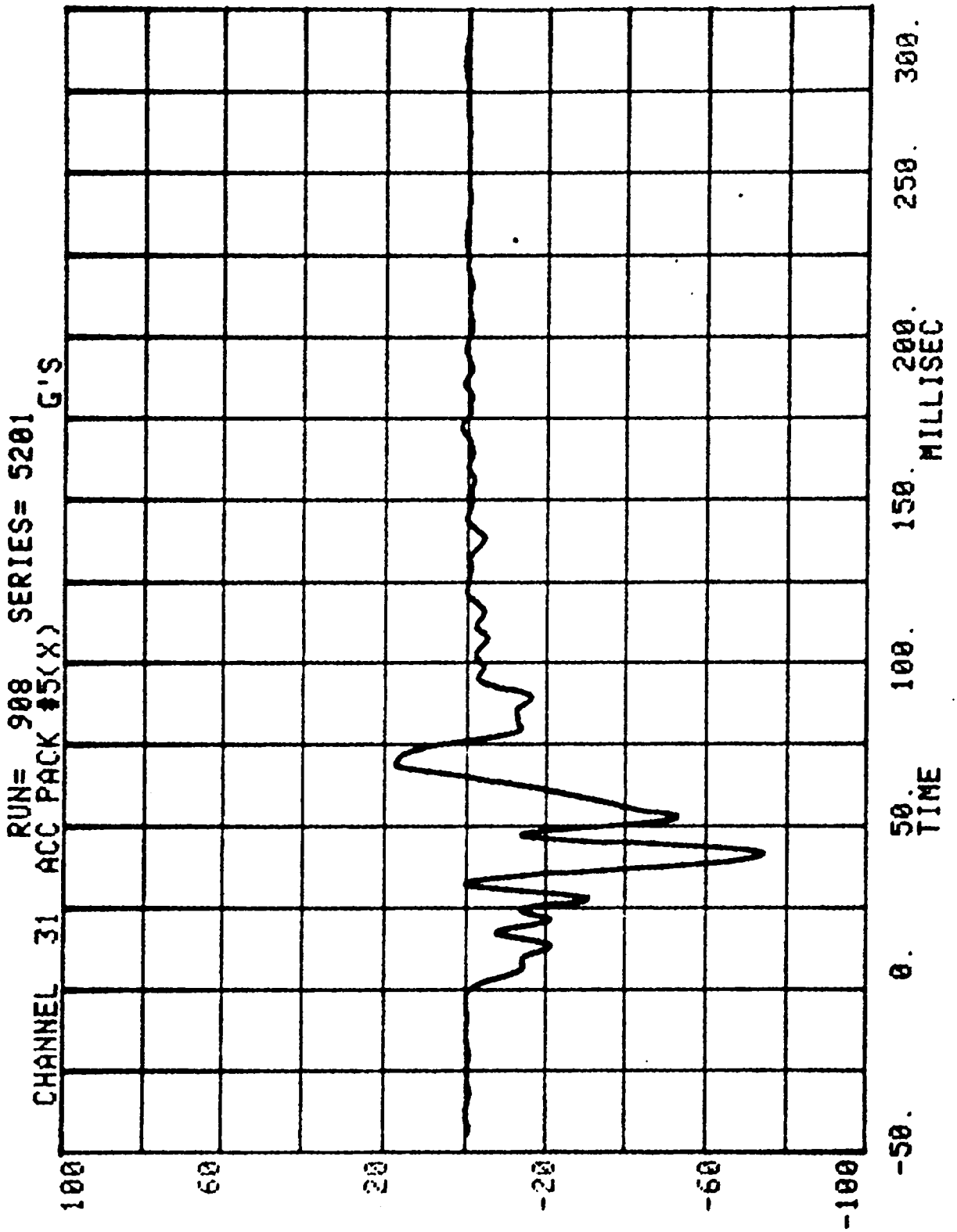
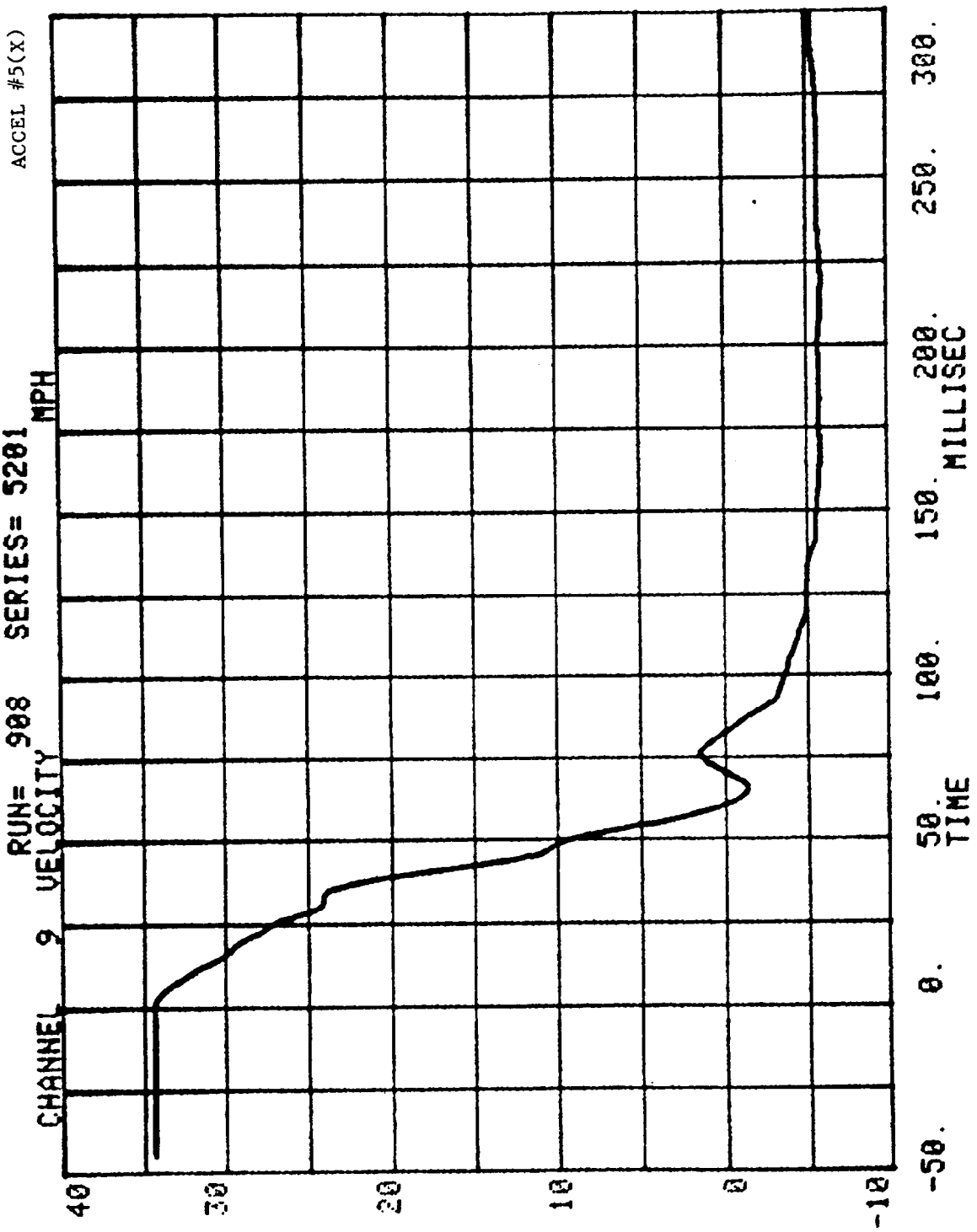
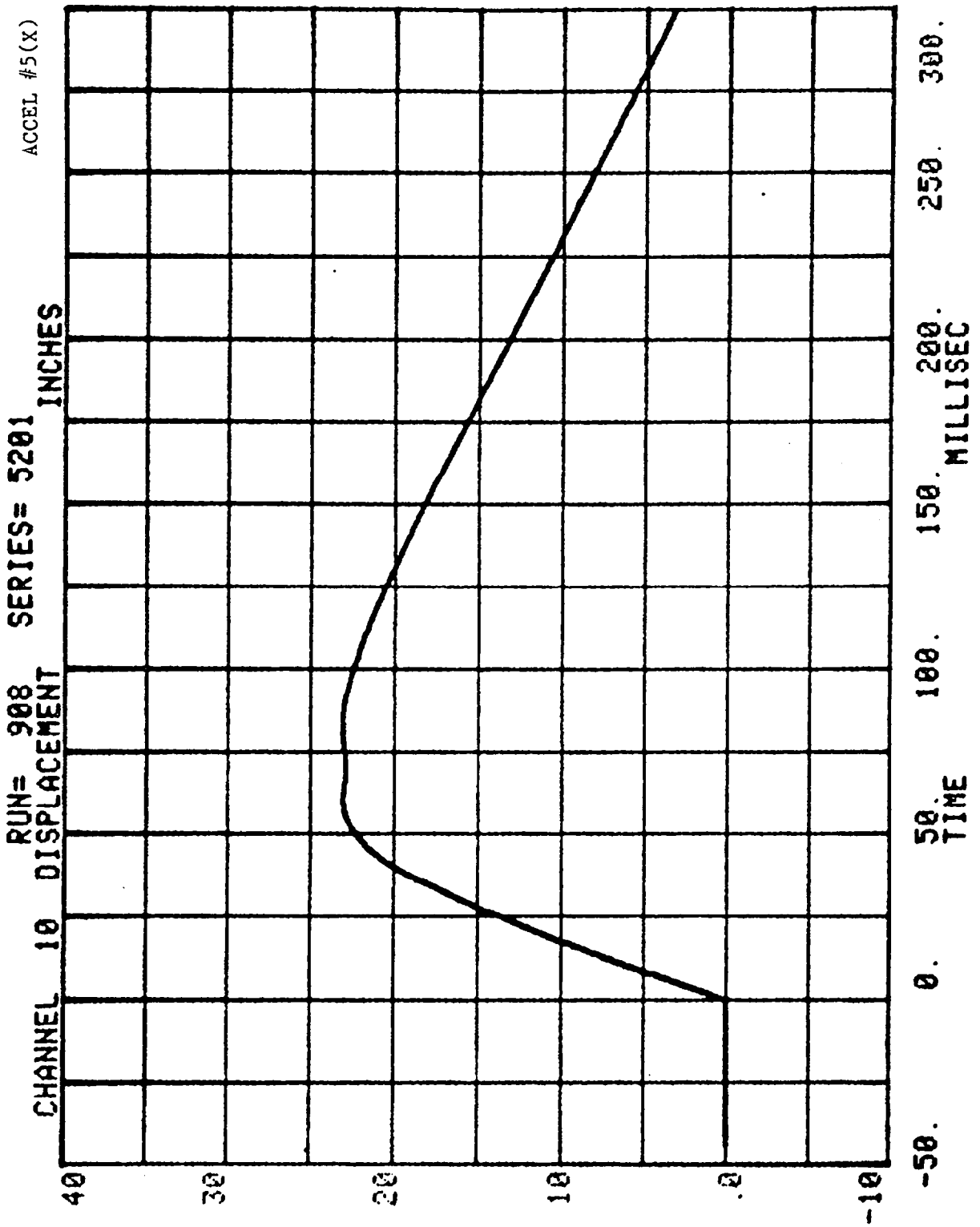
30
20
10
0
-10
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

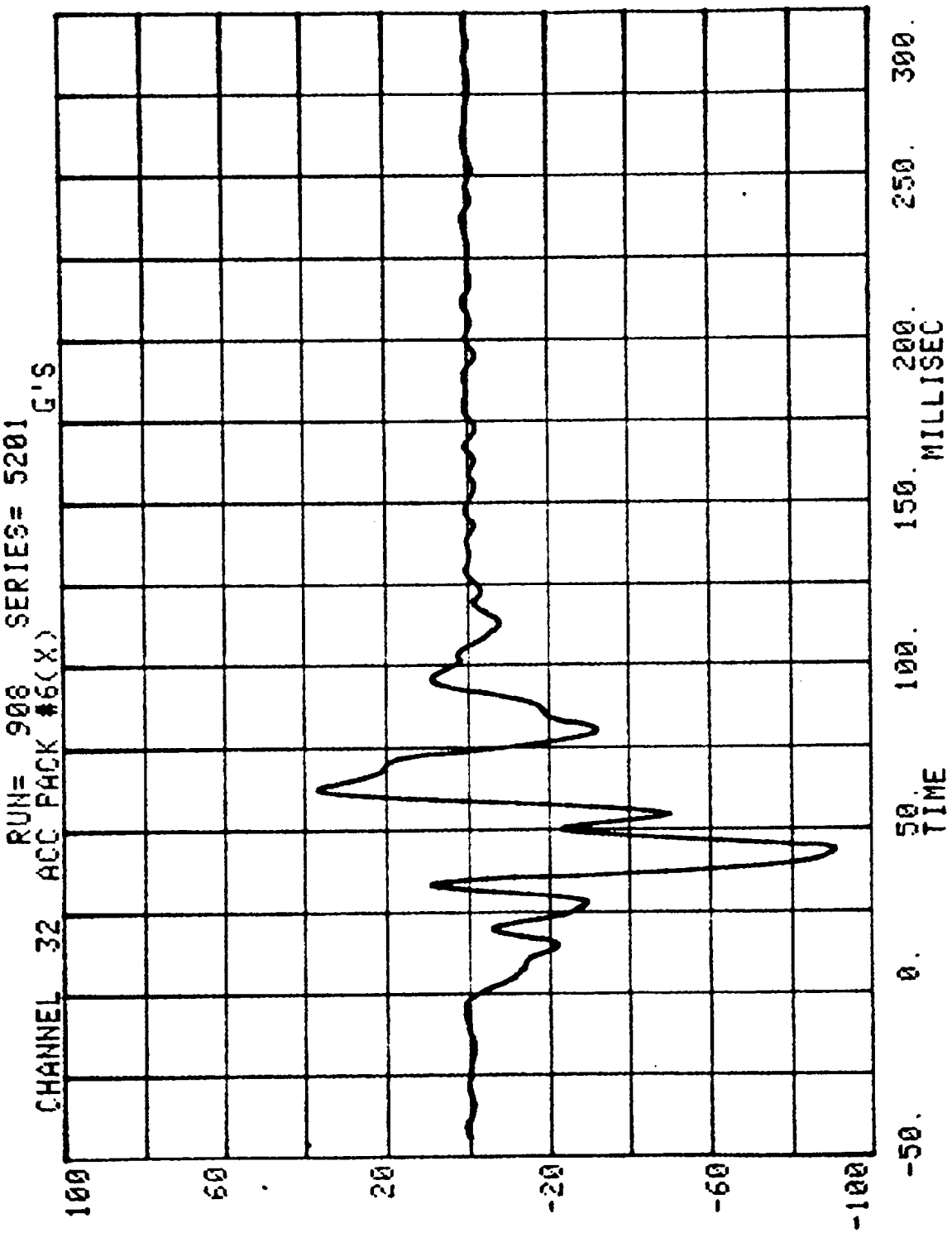

RUN= 908 SERIES= 5201
CHANNEL 31 ACC PACK #5(X)
G'S
100
60
20
-20
-60
-100
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

7731-17

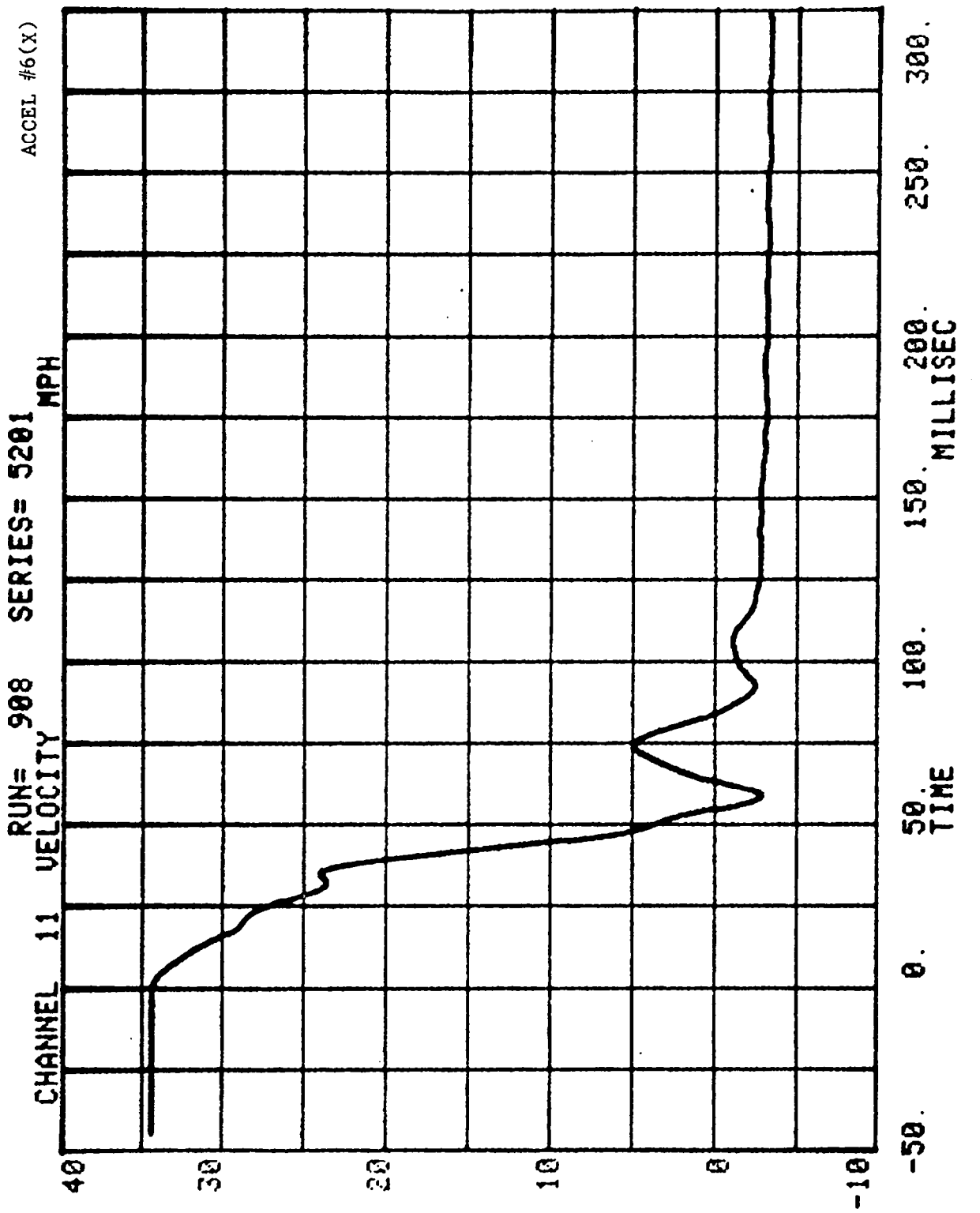

ACCEL #5(X)
CHANNEL 9 VELOCITY
RUN= 908 SERIES= 5201
MPH
40
30
20
10
0
-10
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

7731-17

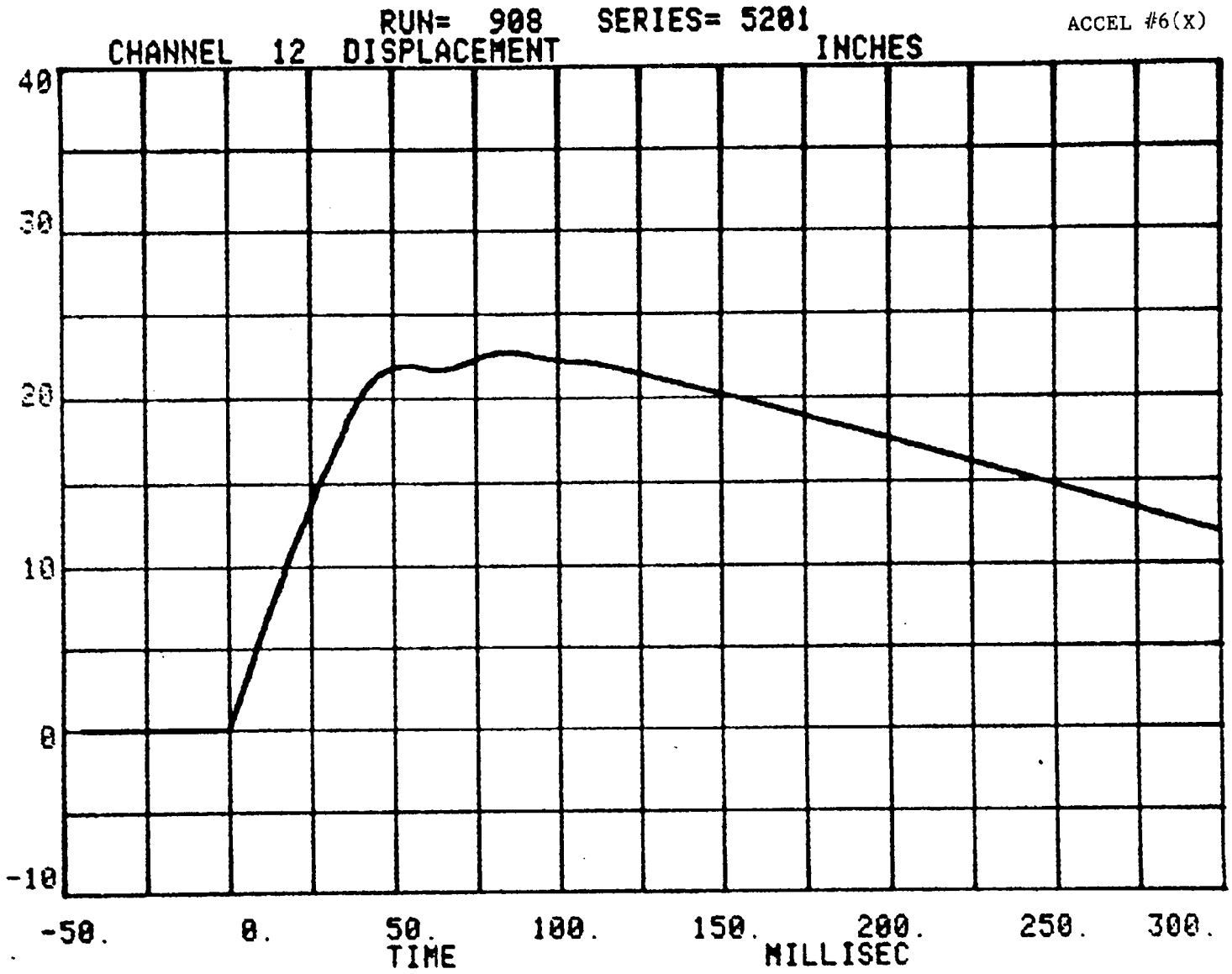

ACCEL #5(X)
CHANNEL 10 DISPLACEMENT
RUN= 908 SERIES= 5201
INCHES
40
30
20
10
0
-10
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

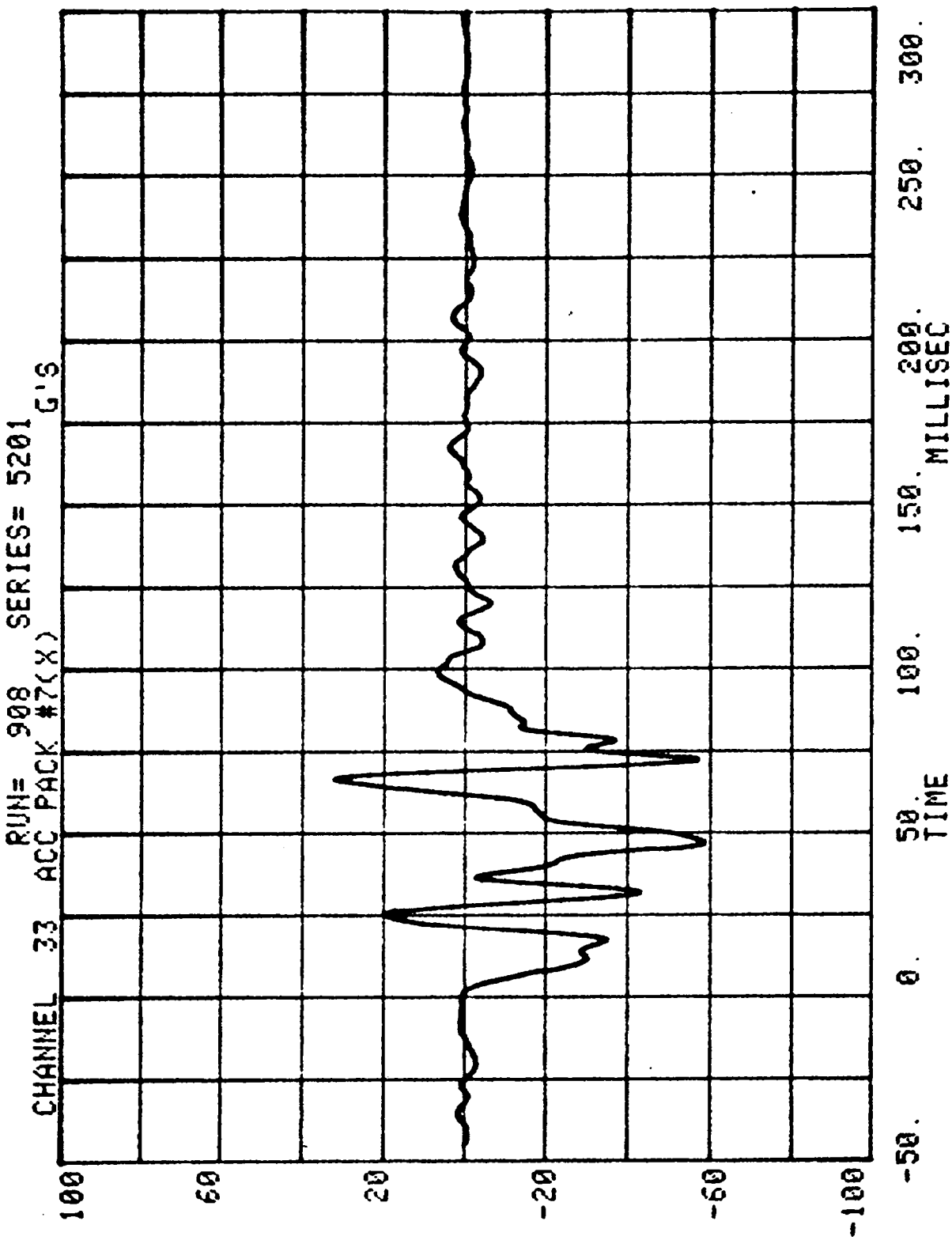

CHANNEL 32 ACC PACK #6(X)
RUN= 908 SERIES= 5201
G'S
100
60
20
-20
-60
-100
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

7731-17

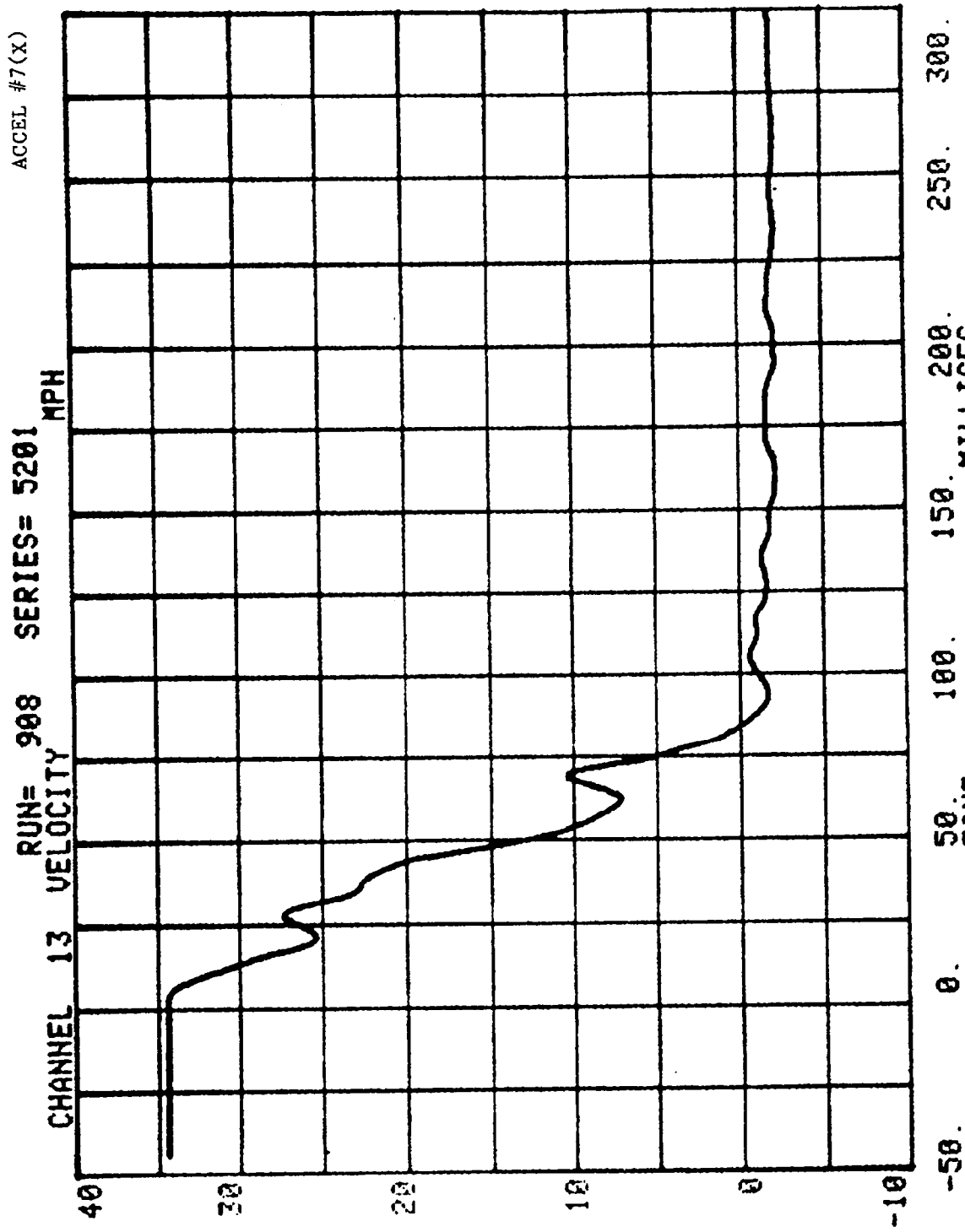

ACCEL #6(X)
CHANNEL 11 VELOCITY
RUN= 908 SERIES= 5201
MPH
40
30
20
10
0
-10
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

7731-17

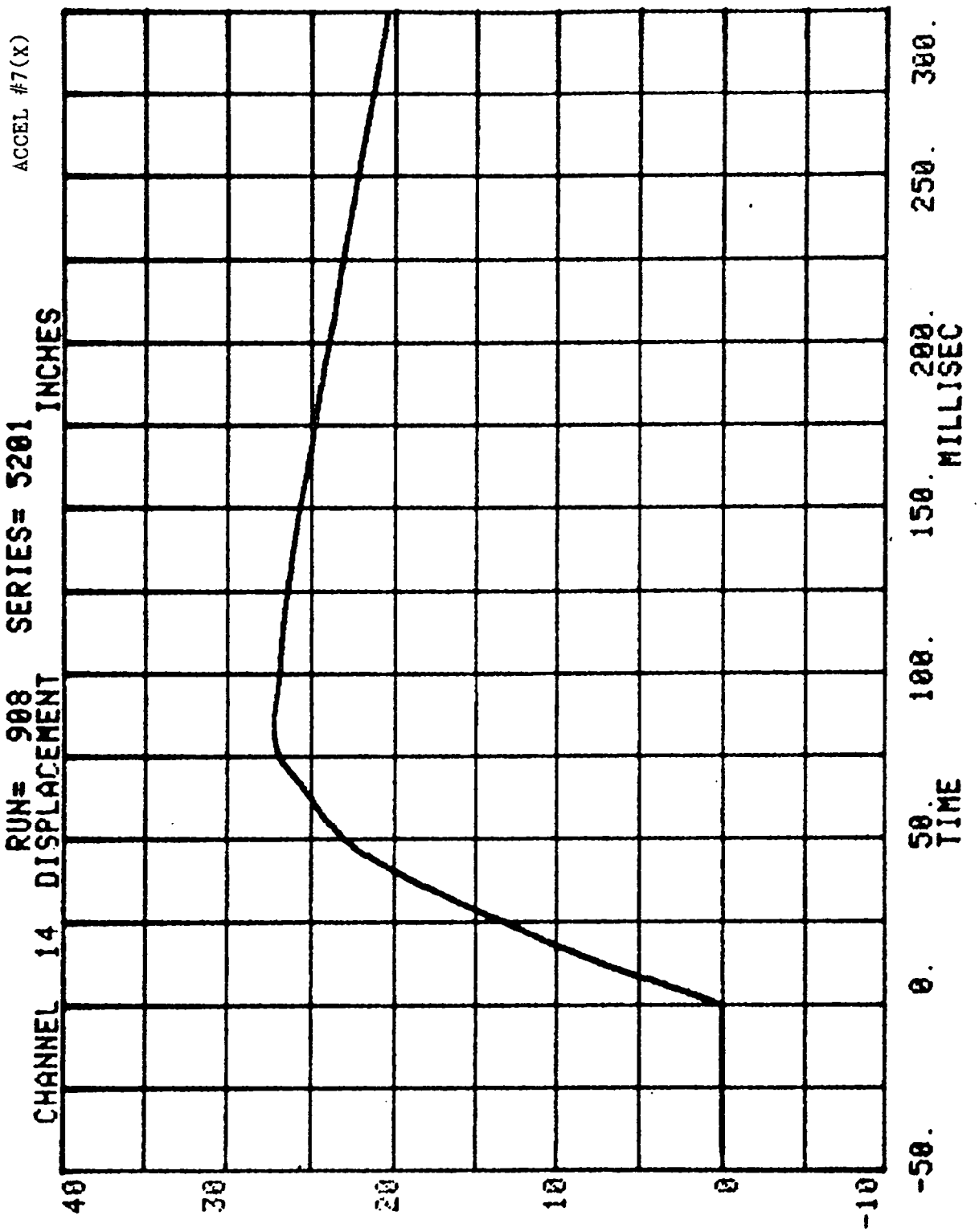

RUN= 908 SERIES= 5201
ACCEL #6(X)
CHANNEL 12 DISPLACEMENT
INCHES
40
30
20
10
0
-10
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC


CHANNEL 33 ACC PACK #7(X)
RUN= 908 SERIES= 5201
G'S
100
60
20
-20
-60
-100
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

7731-17


ACCEL #7(X)
CHANNEL 13 VELOCITY
RUN= 908 SERIES= 5201
MPH
40
30
20
10
0
-10
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

7731-17

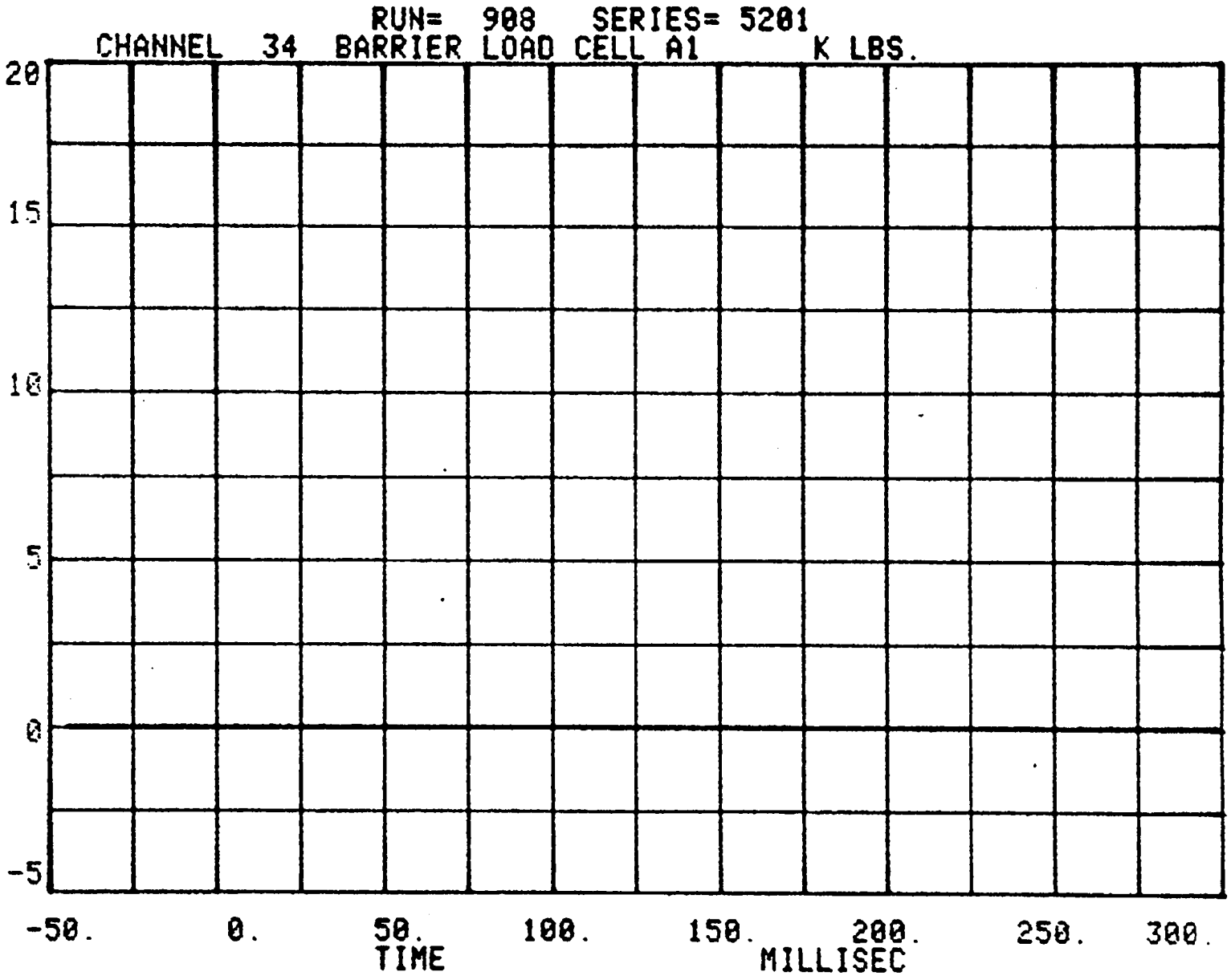

ACCEL #7(X)
CHANNEL 14 DISPLACEMENT
RUN= 908 SERIES= 5201
INCHES
40
30
20
10
0
-10
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

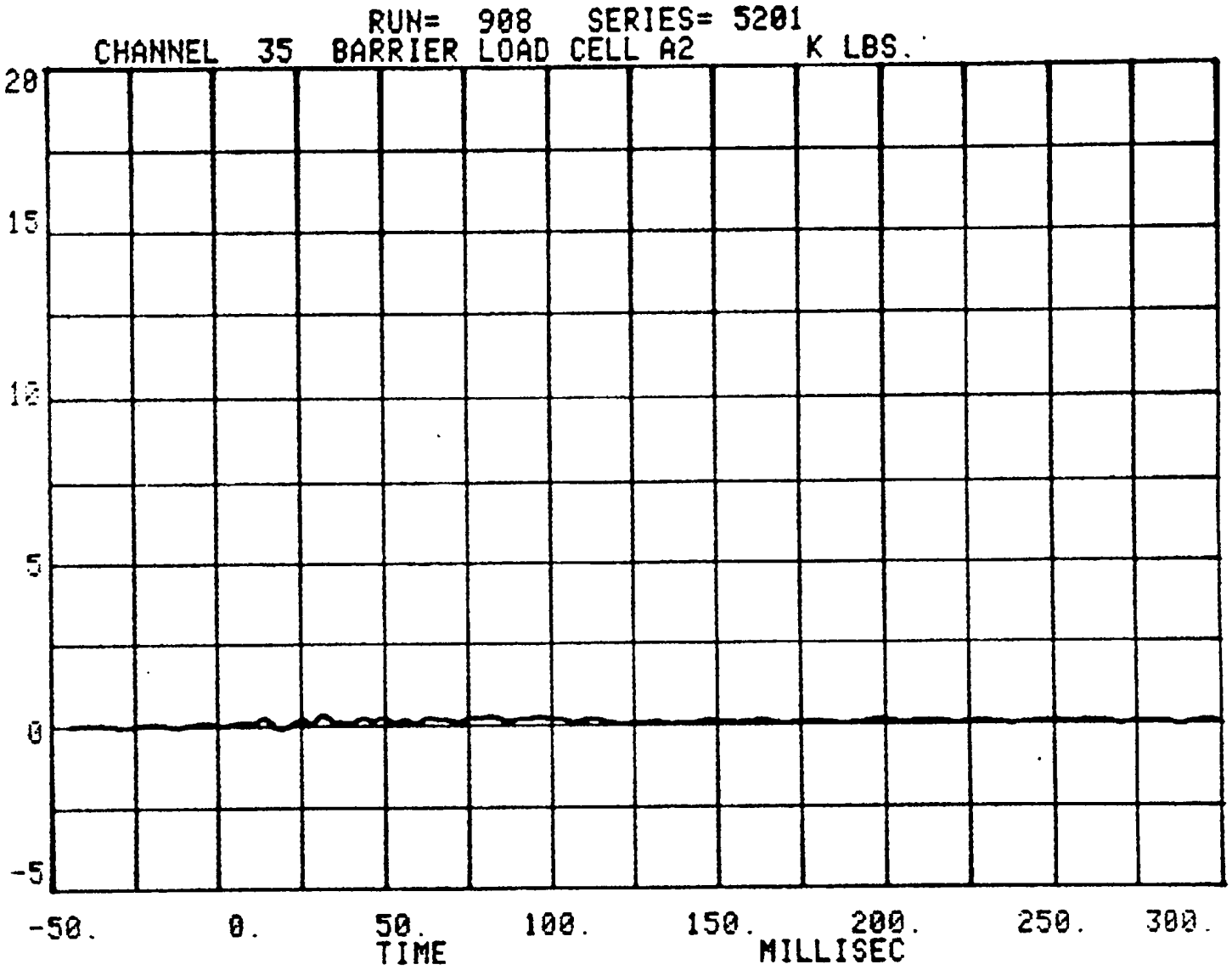
TEST NO. MK5201

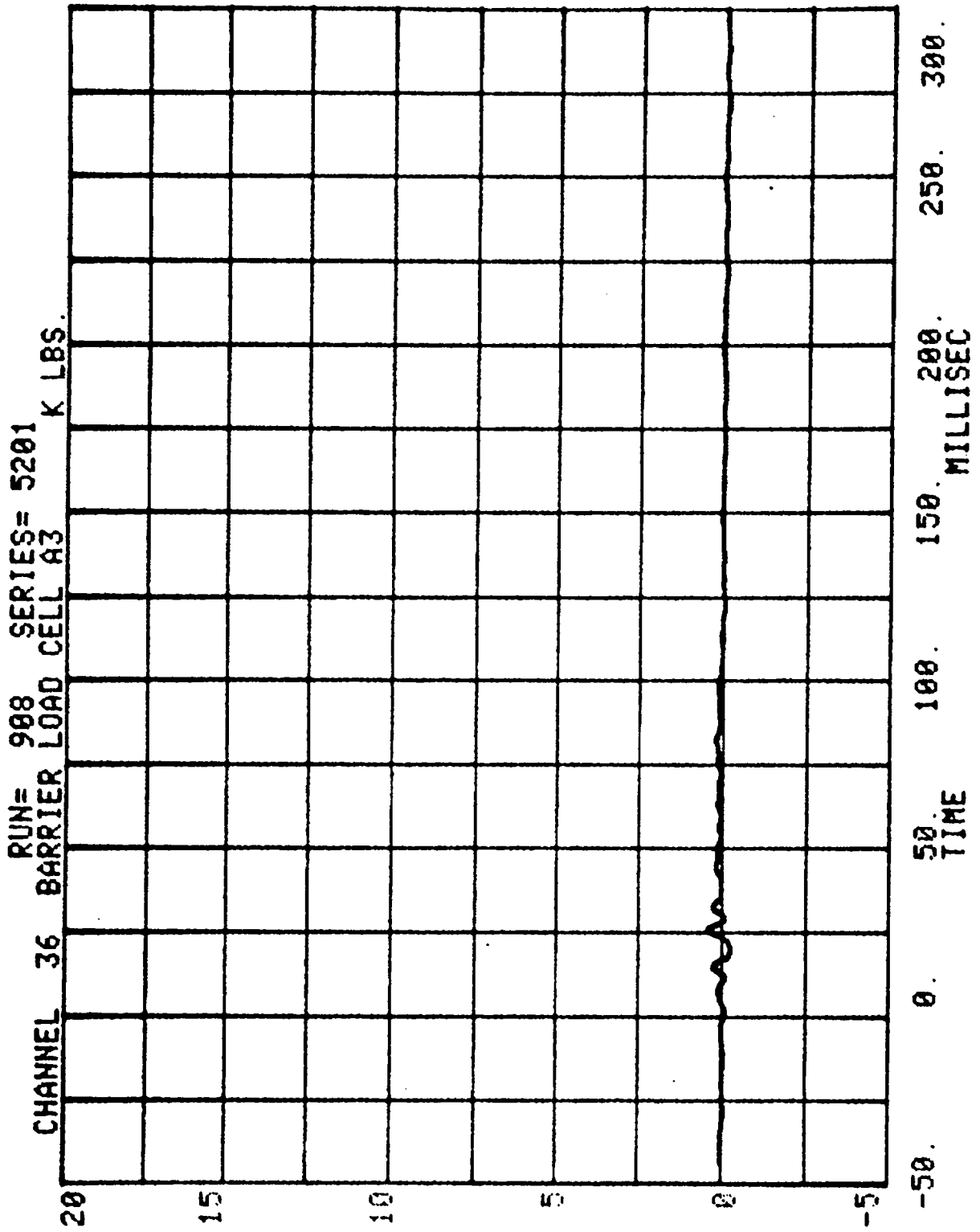
LOAD CELL BARRIER DATA

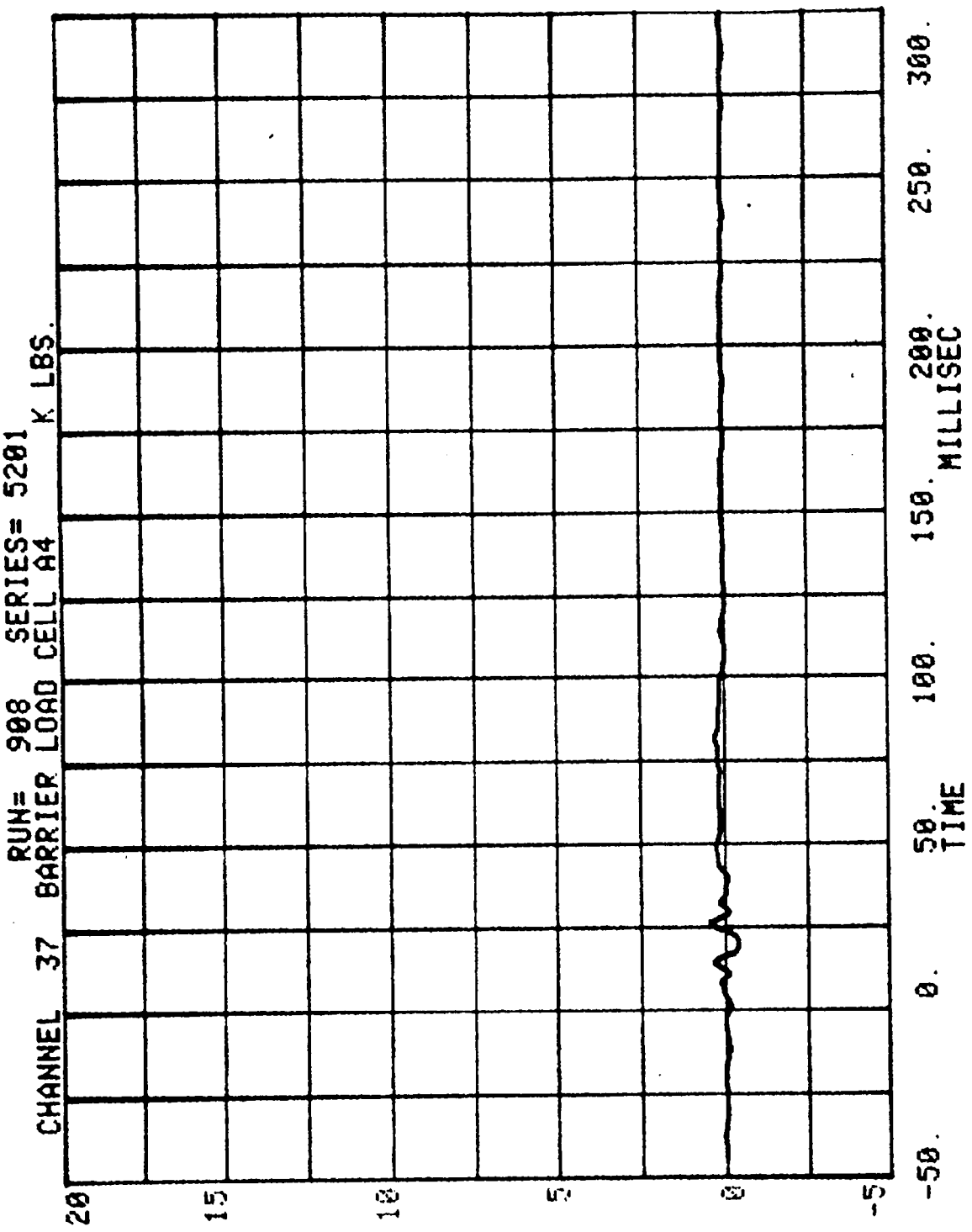
FILTER CHANNEL CLASS

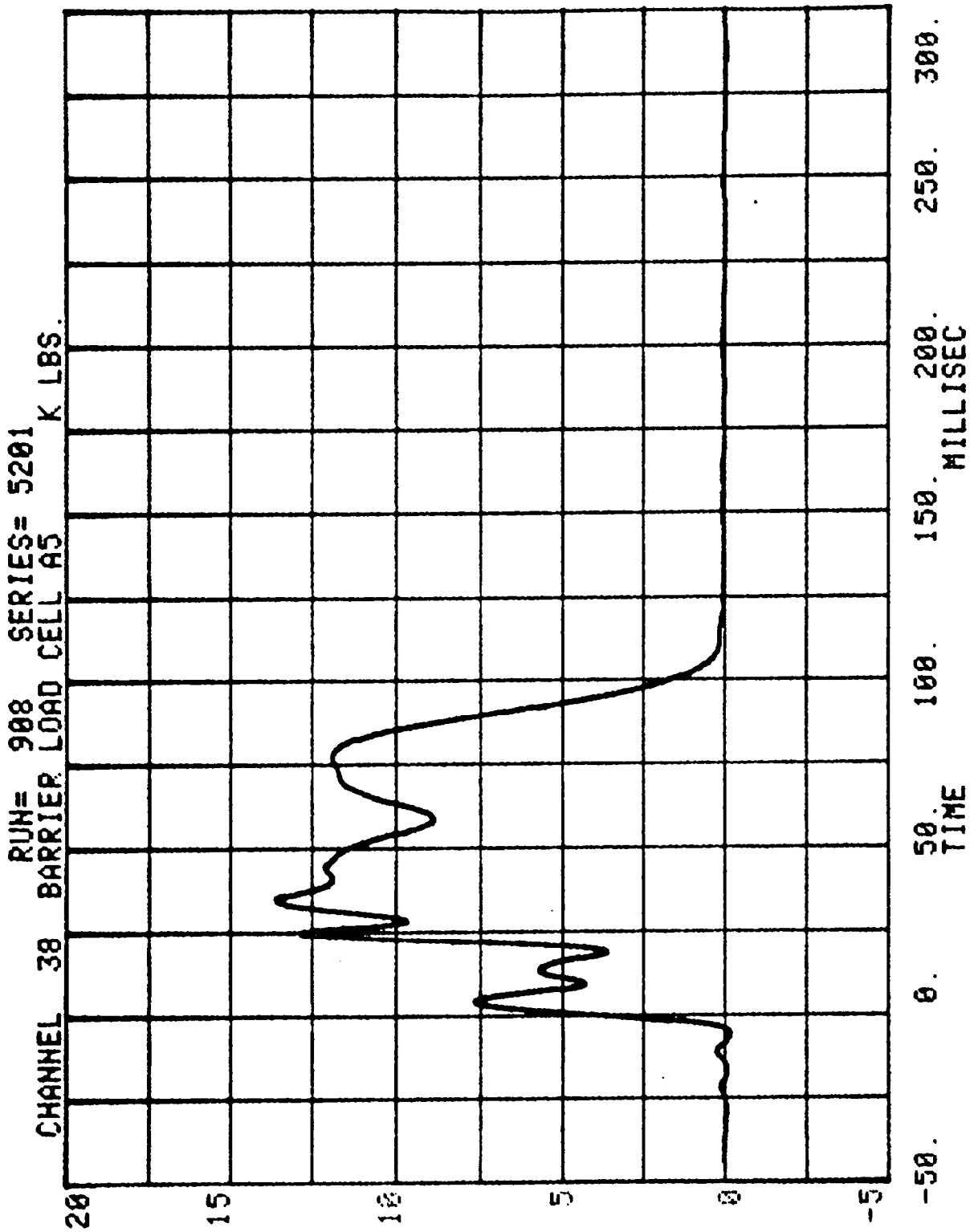
60

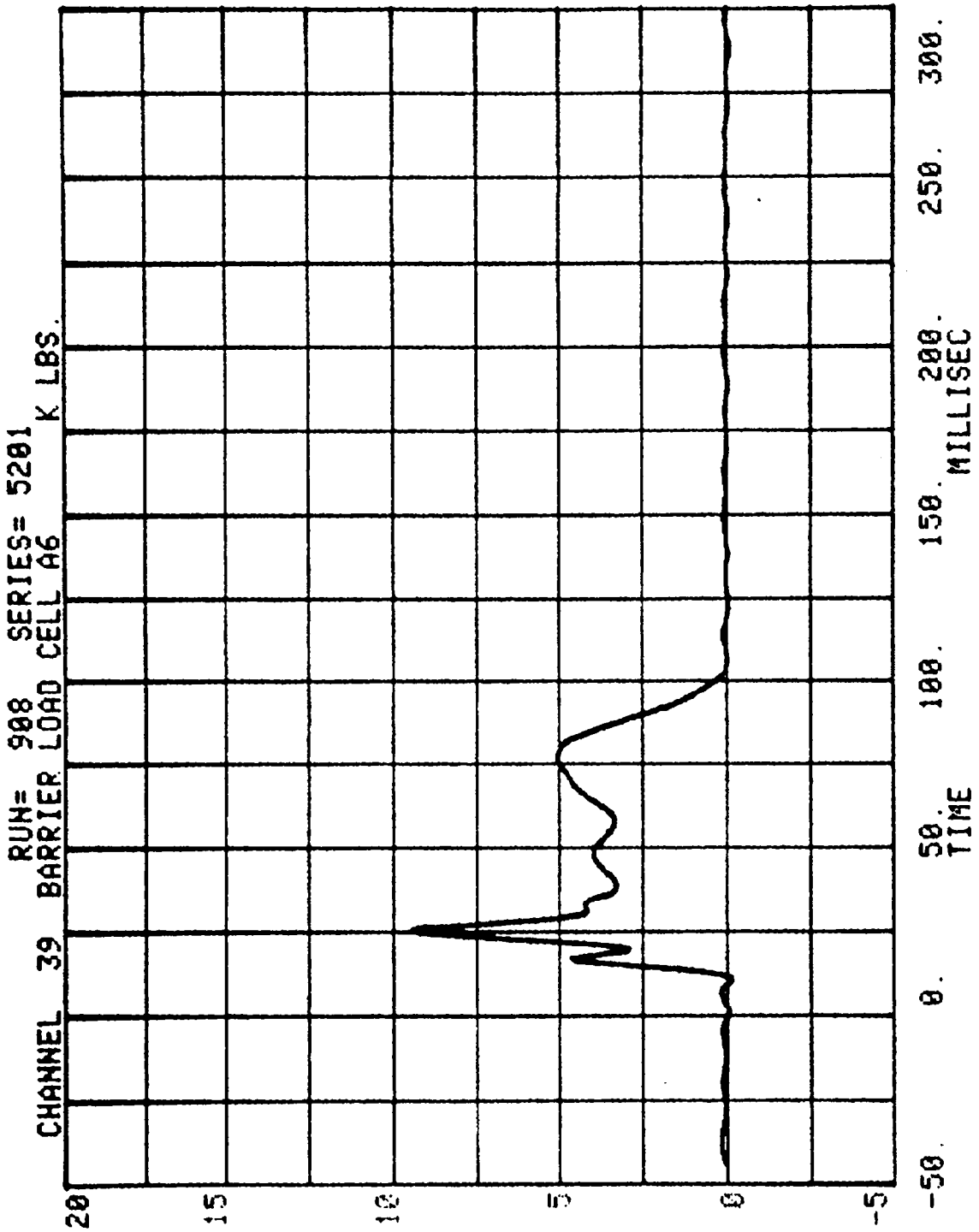

RUN= 908 SERIES= 5201
CHANNEL 34 BARRIER LOAD CELL A1 K LBS.
20
15
10
5
0
-5
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC


RUN= 908 SERIES= 5201
CHANNEL 35 BARRIER LOAD CELL A2
K LBS.
20
15
10
5
0
-5
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

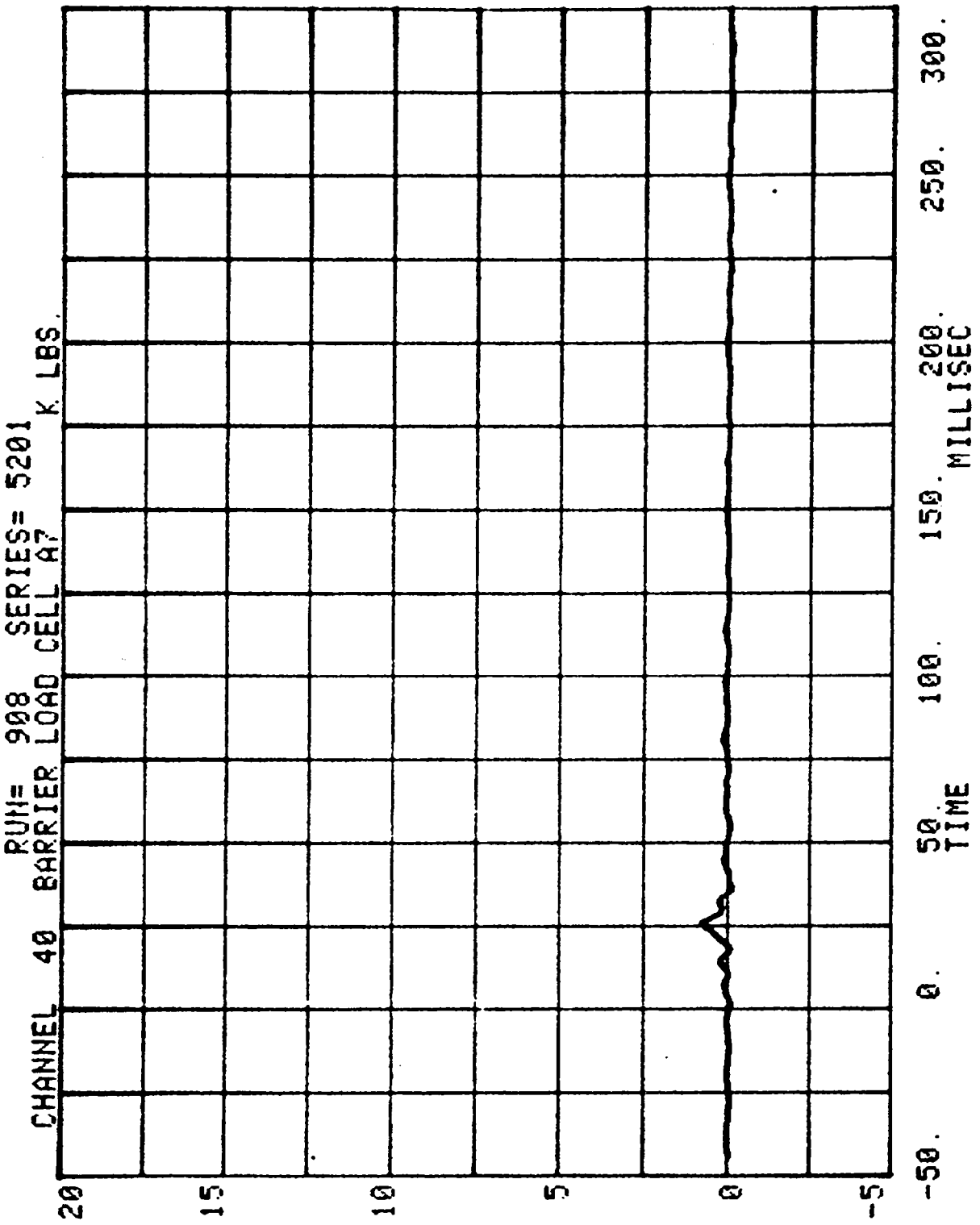

RUN= 908 SERIES= 5201
BARRIER LOAD CELL A3
CHANNEL 36
K LBS.
20
15
10
5
0
-5
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

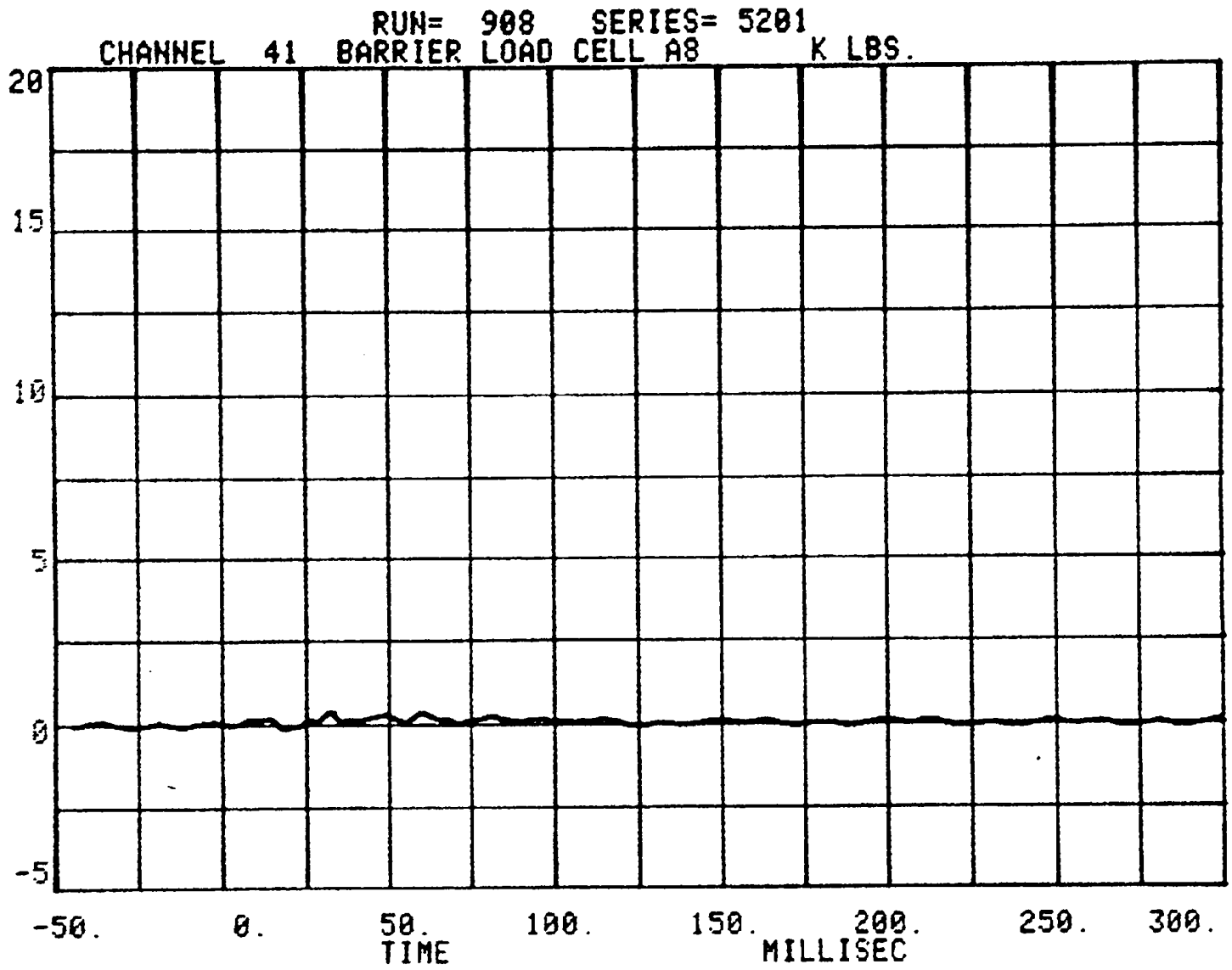

RUN= 908 SERIES= 5201
BARRIER LOAD CELL A4
CHANNEL 37
K LBS.
20
15
10
5
0
-5
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

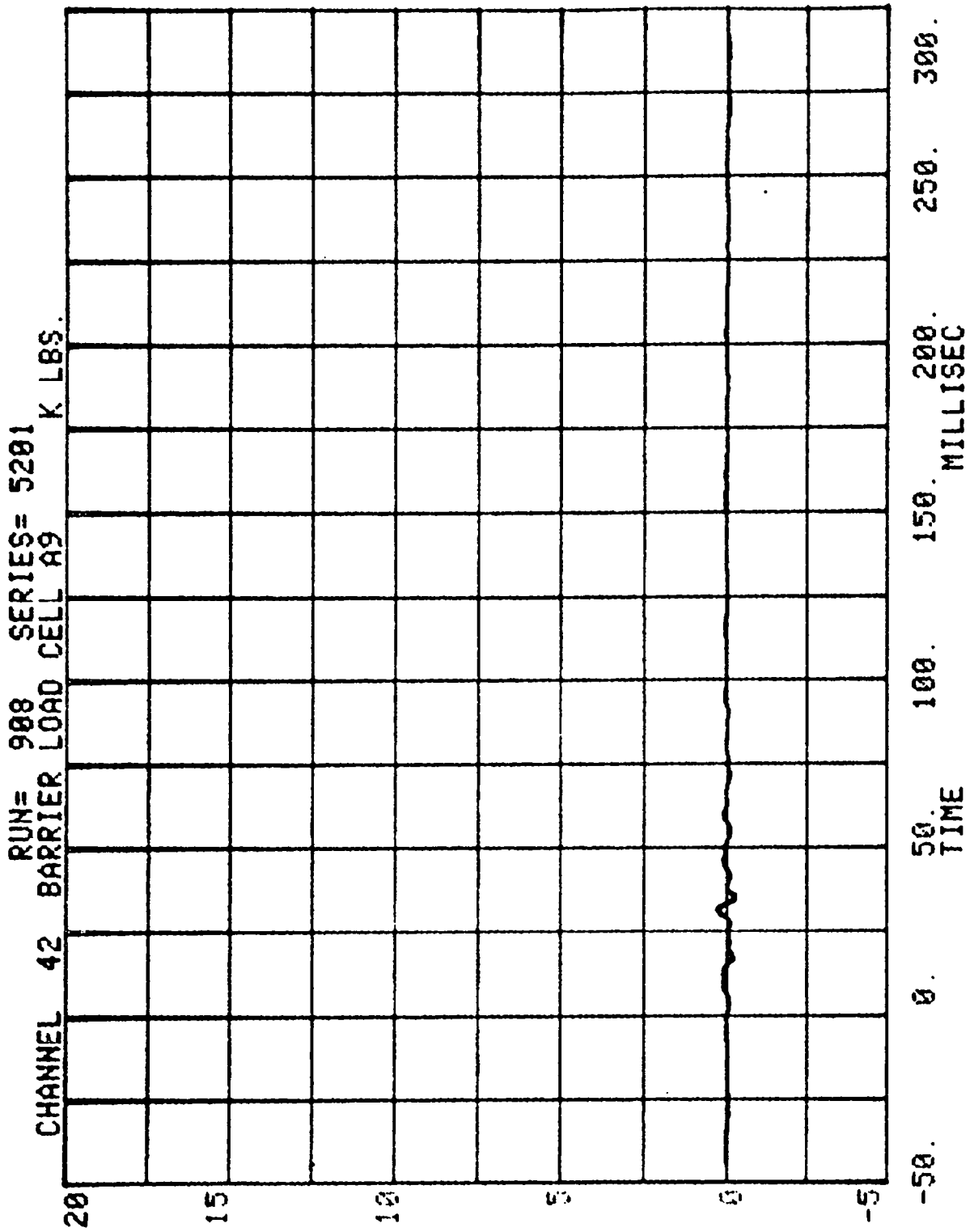

RUN= 908 SERIES= 5201
CHANNEL 38 BARRIER LOAD CELL A5 K LBS.
20
15
10
5
0
-5
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

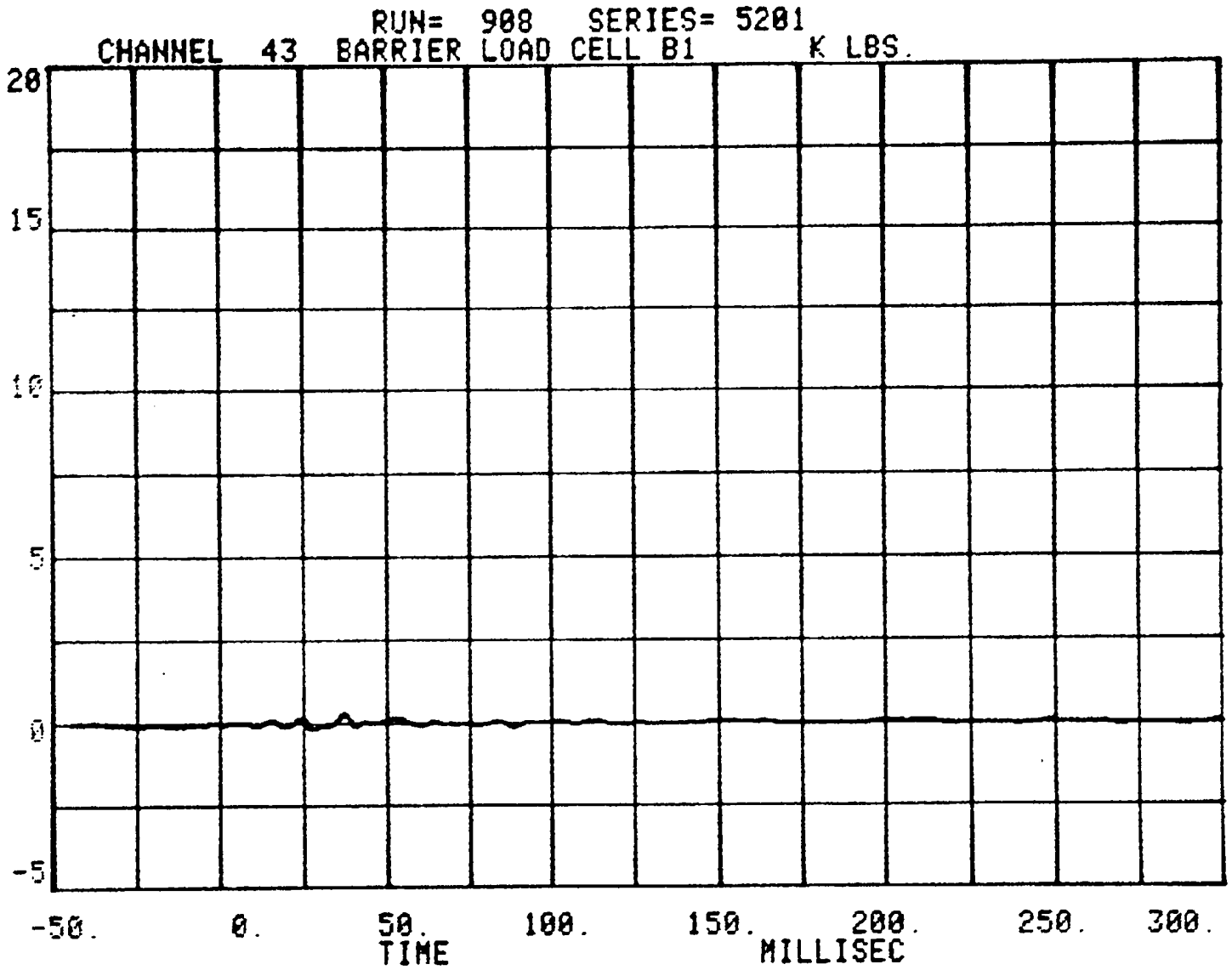

CHANNEL 39 BARRIER LOAD CELL A6
RUN= 908 SERIES= 5201
K LBS.
20
15
10
5
0
-5
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

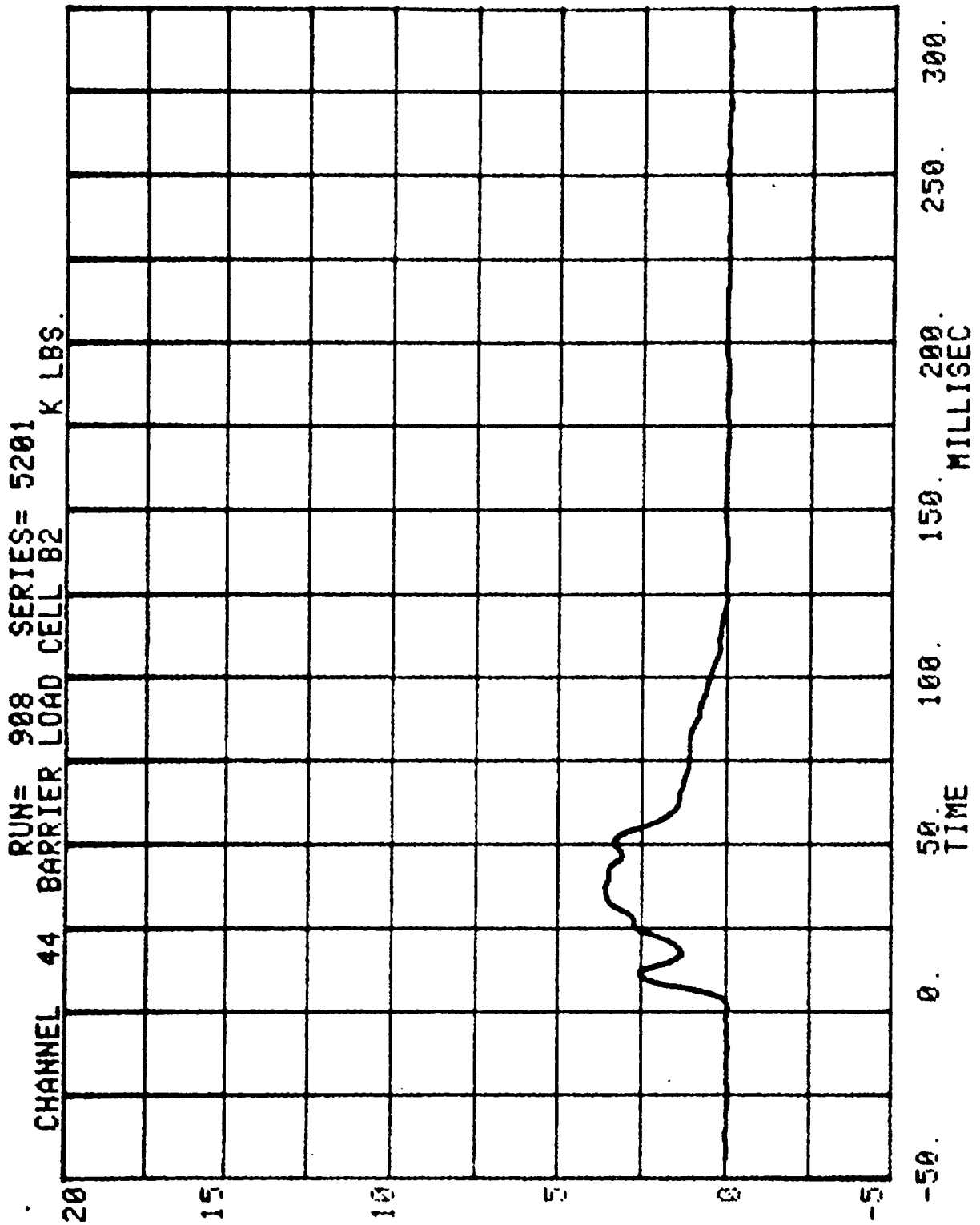
7731-17


RUN= 908 SERIES= 5201
BARRIER LOAD CELL A7
CHANNEL 40
K LBS.
20
15
10
5
0
-5
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

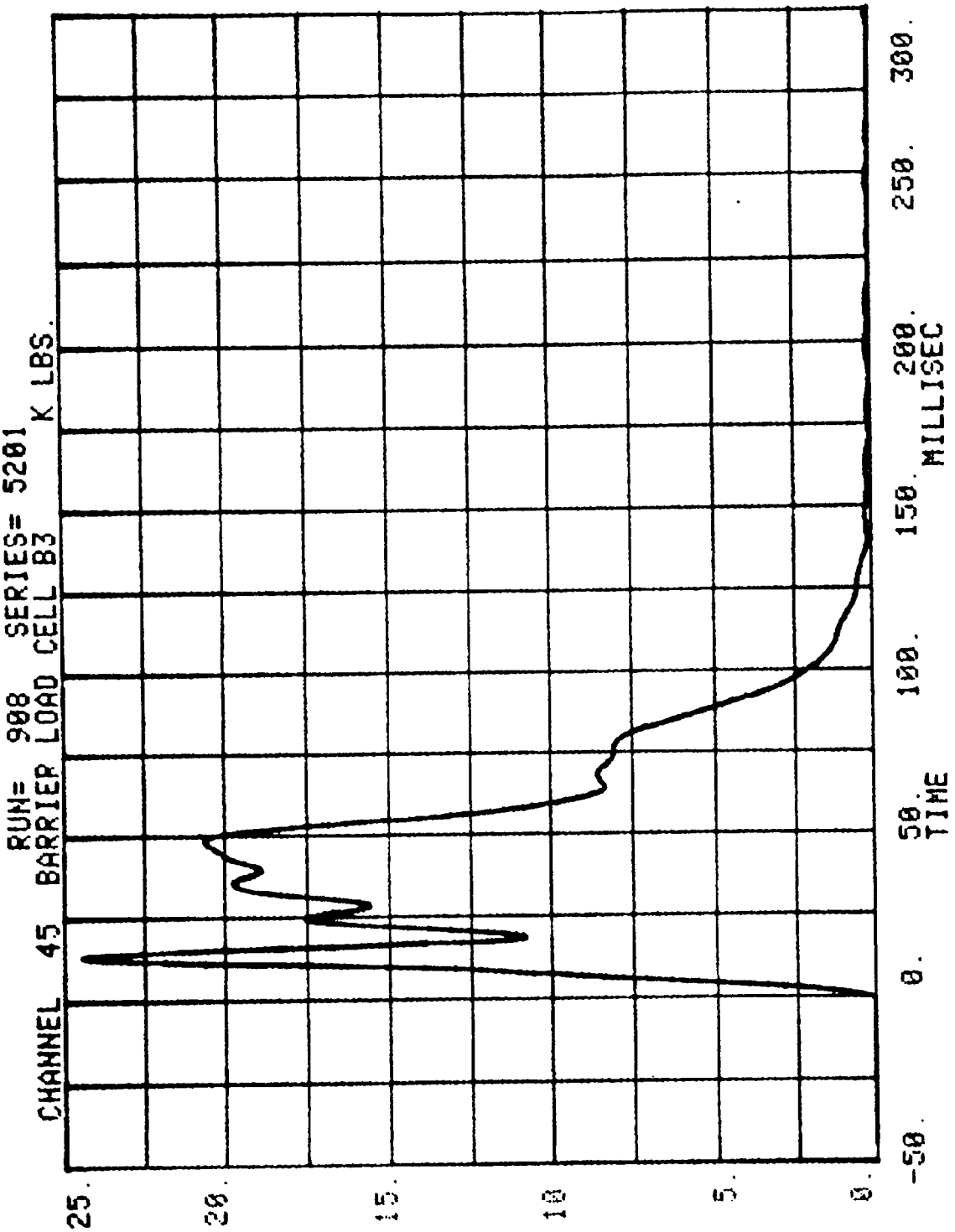

RUN= 908 SERIES= 5201
CHANNEL 41 BARRIER LOAD CELL A8 K LBS.
20
15
10
5
0
-5
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC


CHANNEL 42 BARRIER LOAD CELL A9
RUN= 908 SERIES= 5201
K LBS.
20
15
10
5
0
-5
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

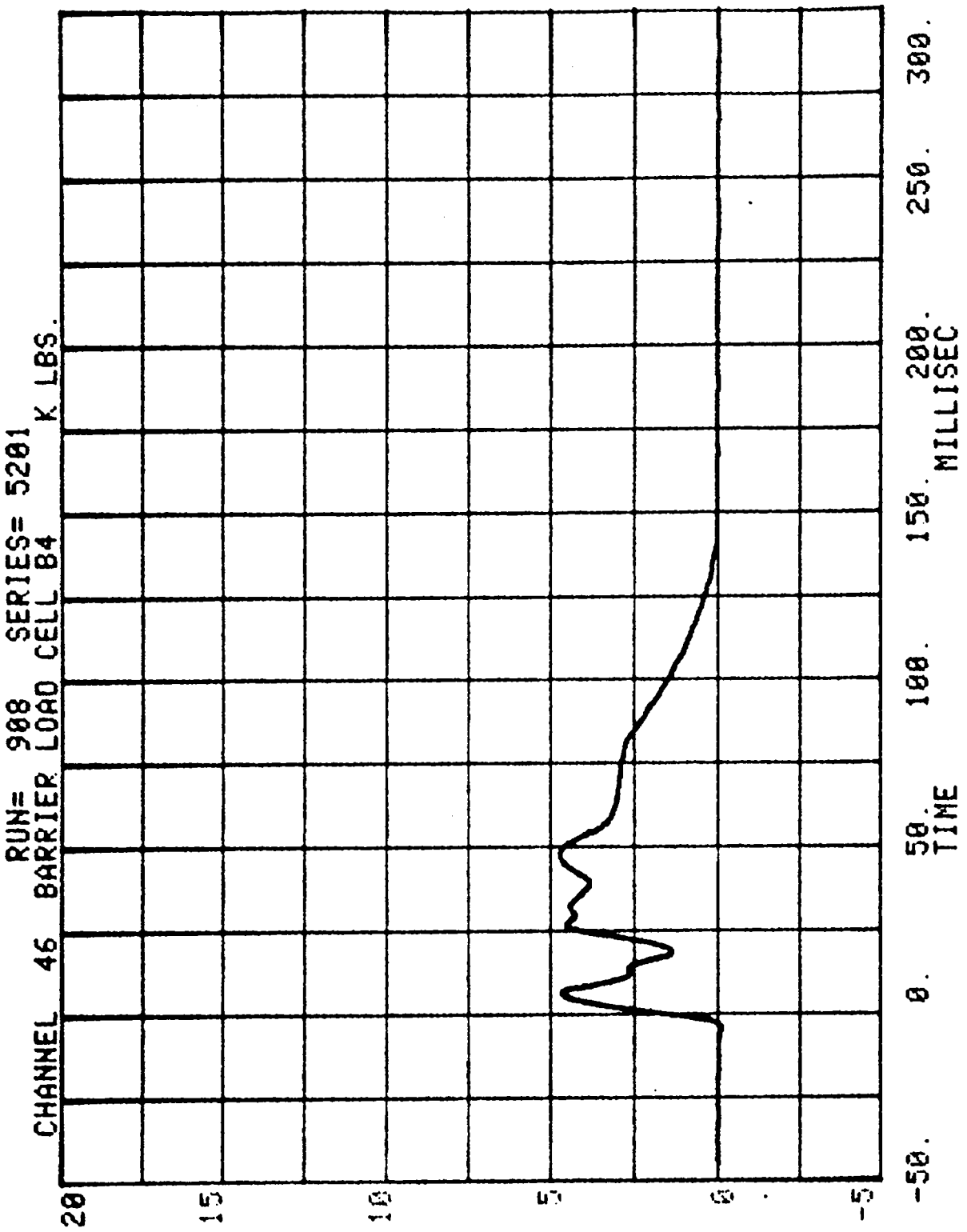

RUN= 908 SERIES= 5201
CHANNEL 43 BARRIER LOAD CELL B1 K LBS.
20
15
10
5
0
-5
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

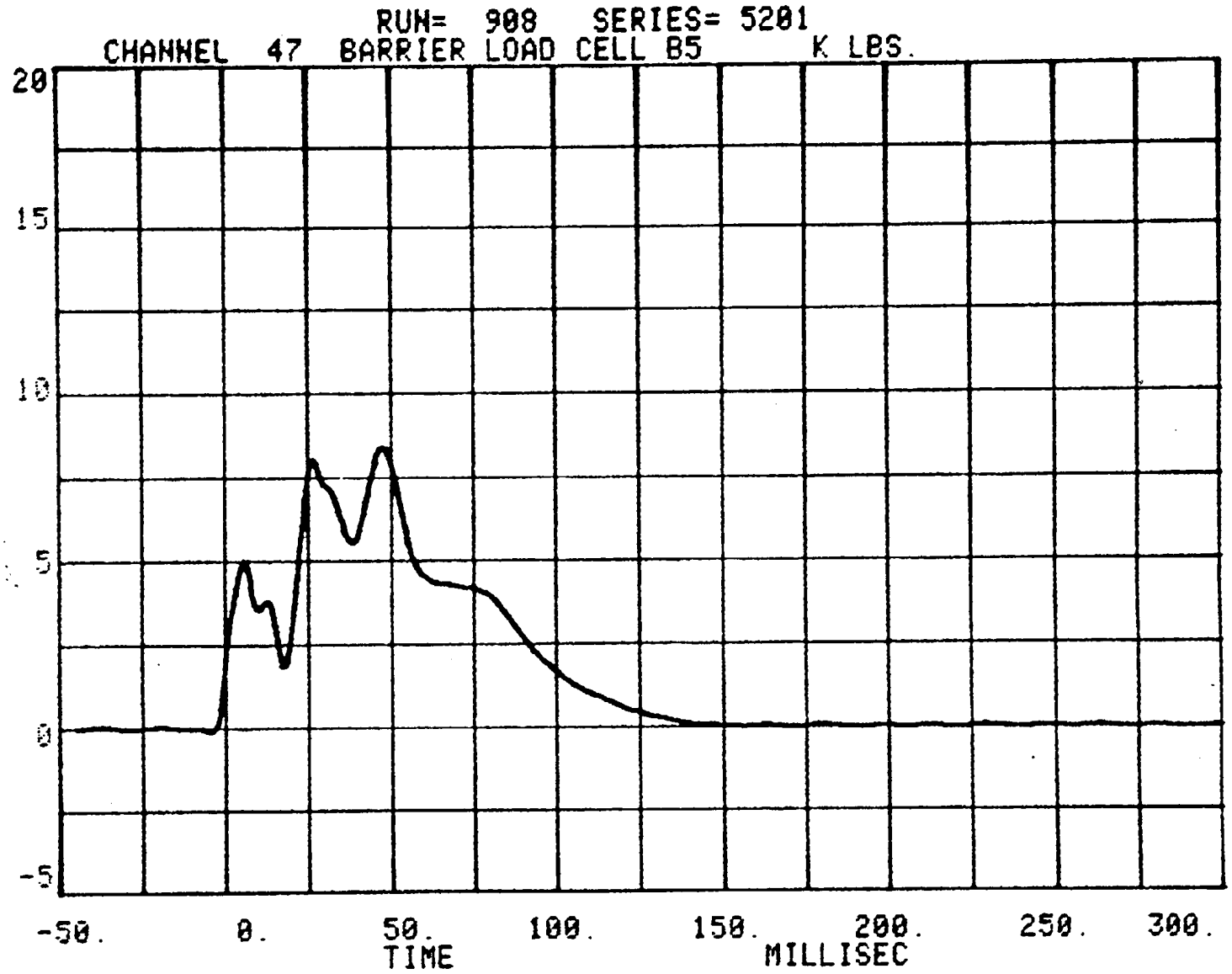

CHANNEL 44 BARRIER LOAD CELL B2
RUN= 908 SERIES= 5201
K LBS.
20
15
10
5
0
-5
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

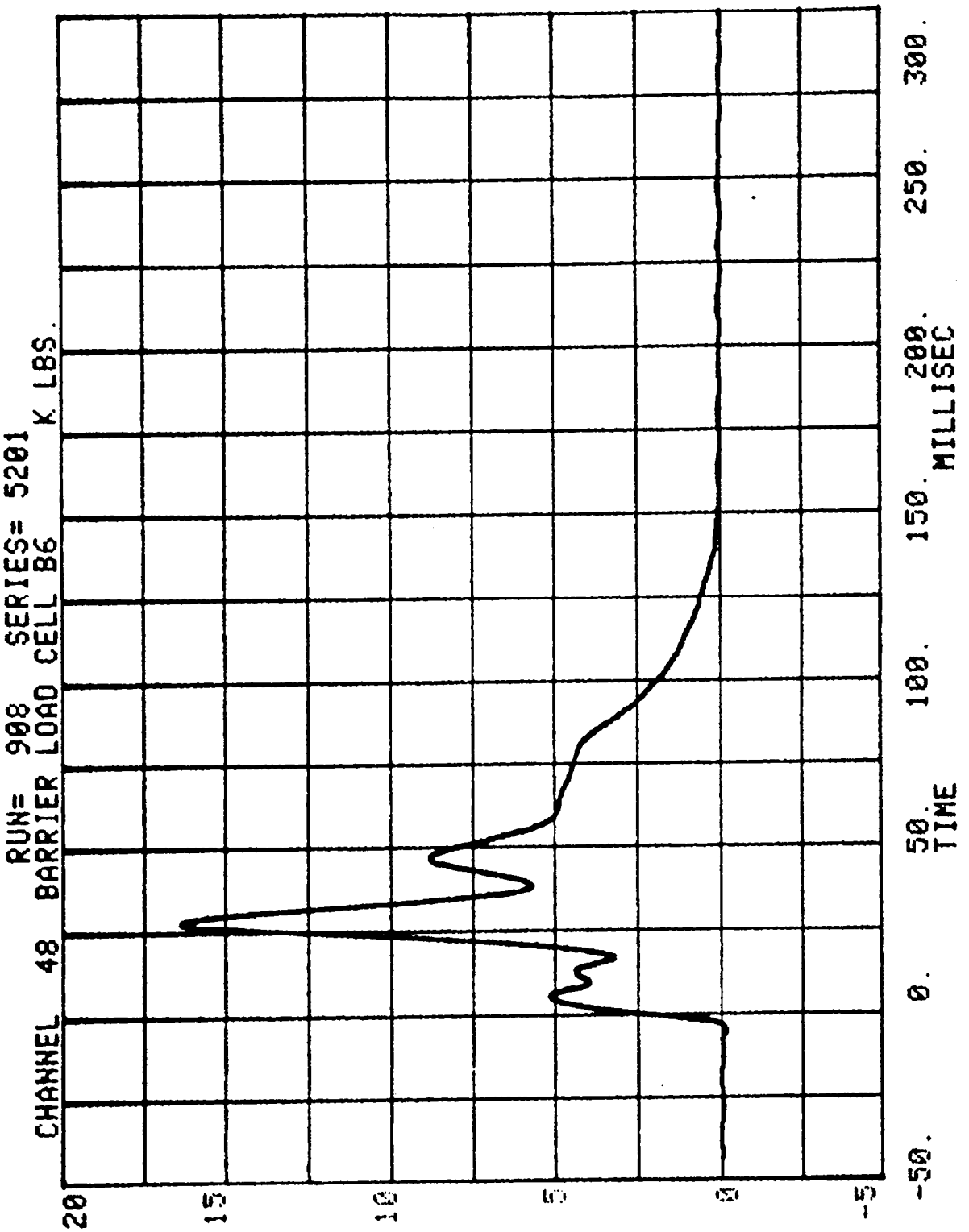
7731-17


CHANNEL 45 BARRIER LOAD CELL B3
RUN= 908 SERIES= 5201
K LBS.
25.
20.
15.
10.
5.
0.
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

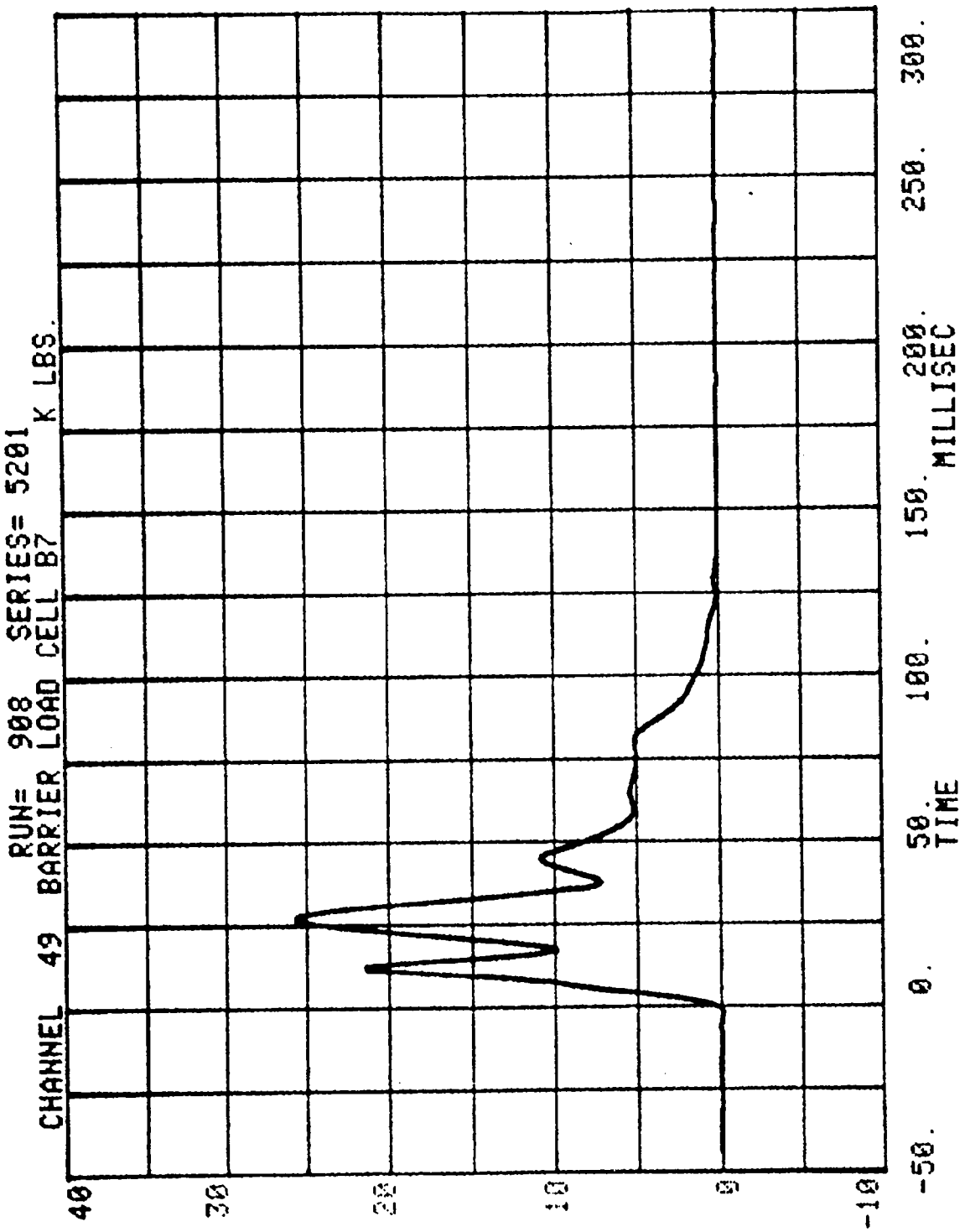
7731-17


RUN= 908 SERIES= 5201
CHANNEL 46 BARRIER LOAD CELL B4
K LBS.
20
15
10
5
0
-5
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

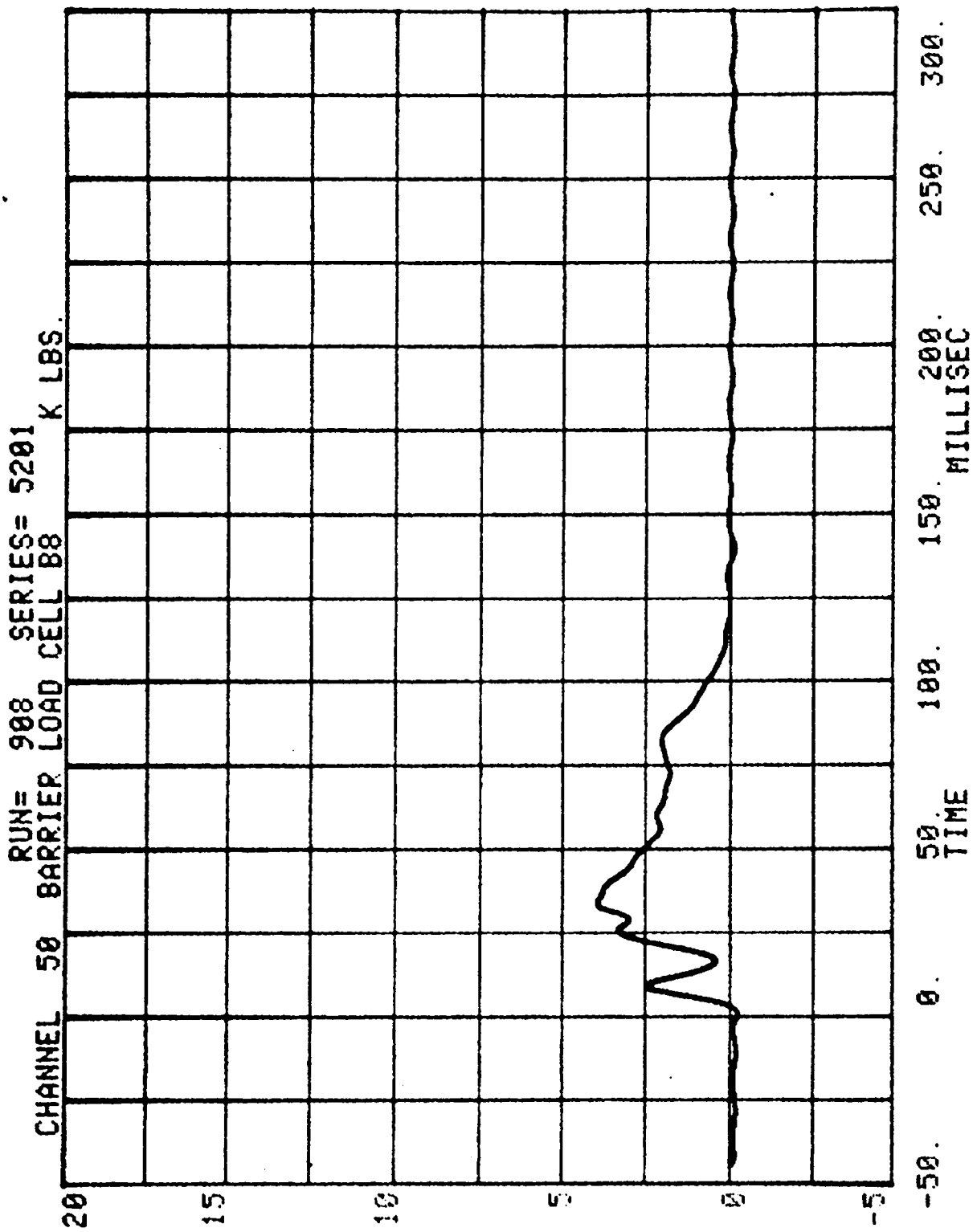

RUN= 908 SERIES= 5201
CHANNEL 47 BARRIER LOAD CELL B5
K LBS.
20
15
10
5
0
-5
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC


CHANNEL 48 BARRIER LOAD CELL B6
RUN= 908 SERIES= 5201
K LBS.
20
15
10
5
0
-5
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

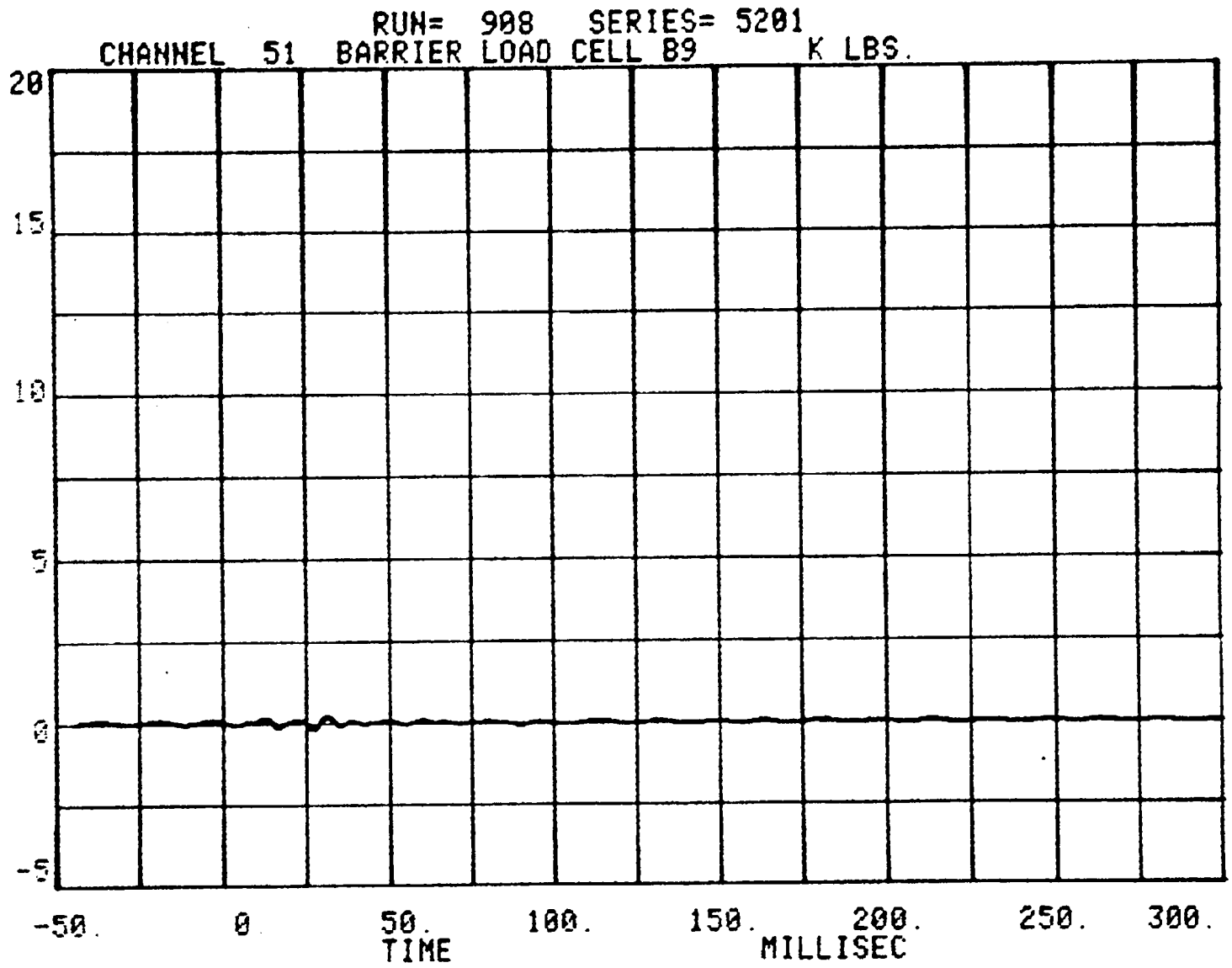
7731-17


CHANNEL 49 BARRIER LOAD CELL B7
RUN= 908 SERIES= 5201
K LBS.
40
30
20
10
0
-10
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

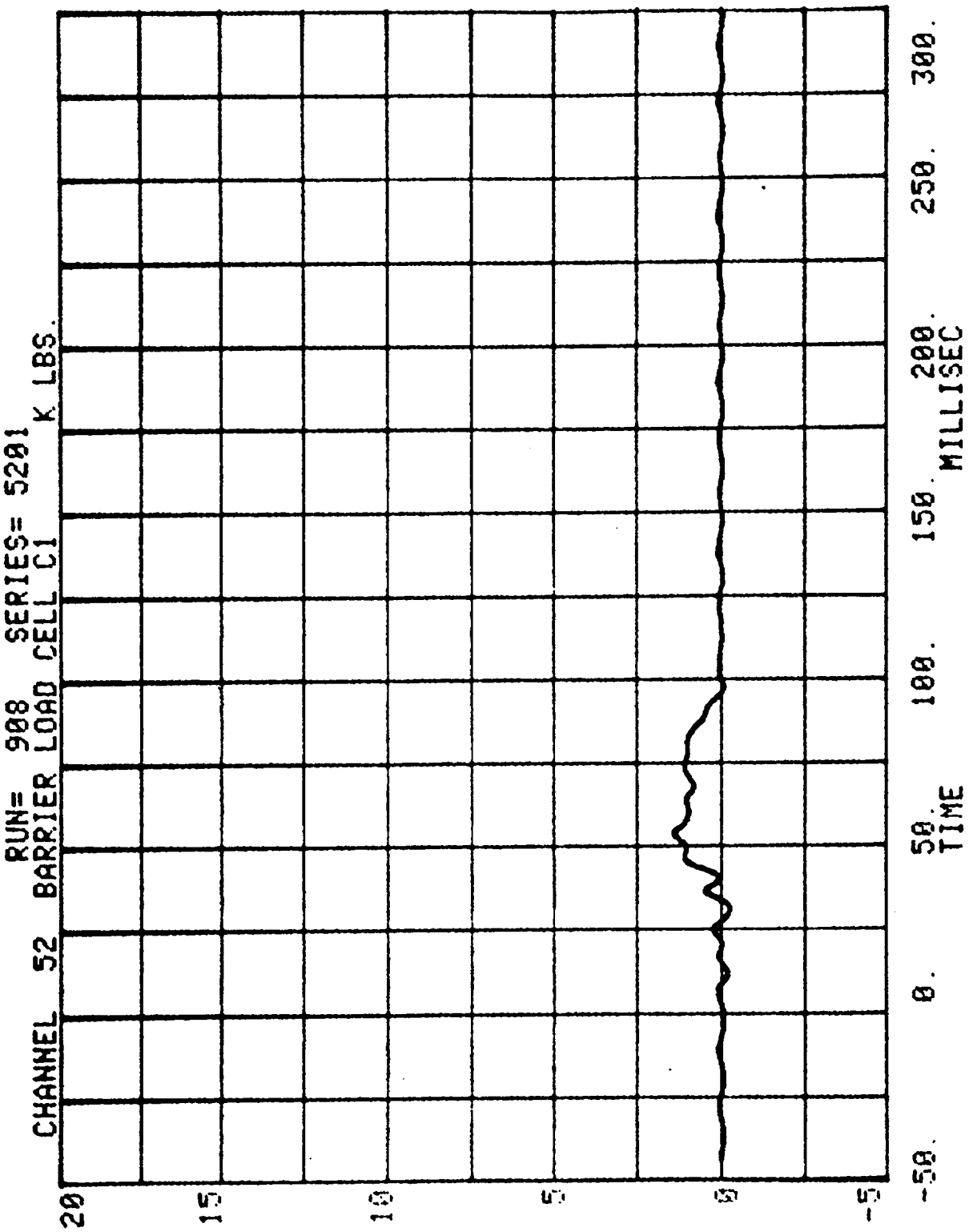
7731-17


CHANNEL 50 BARRIER LOAD CELL B8
RUN= 908 SERIES= 5201
K LBS.
20
15
10
5
0
-5
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

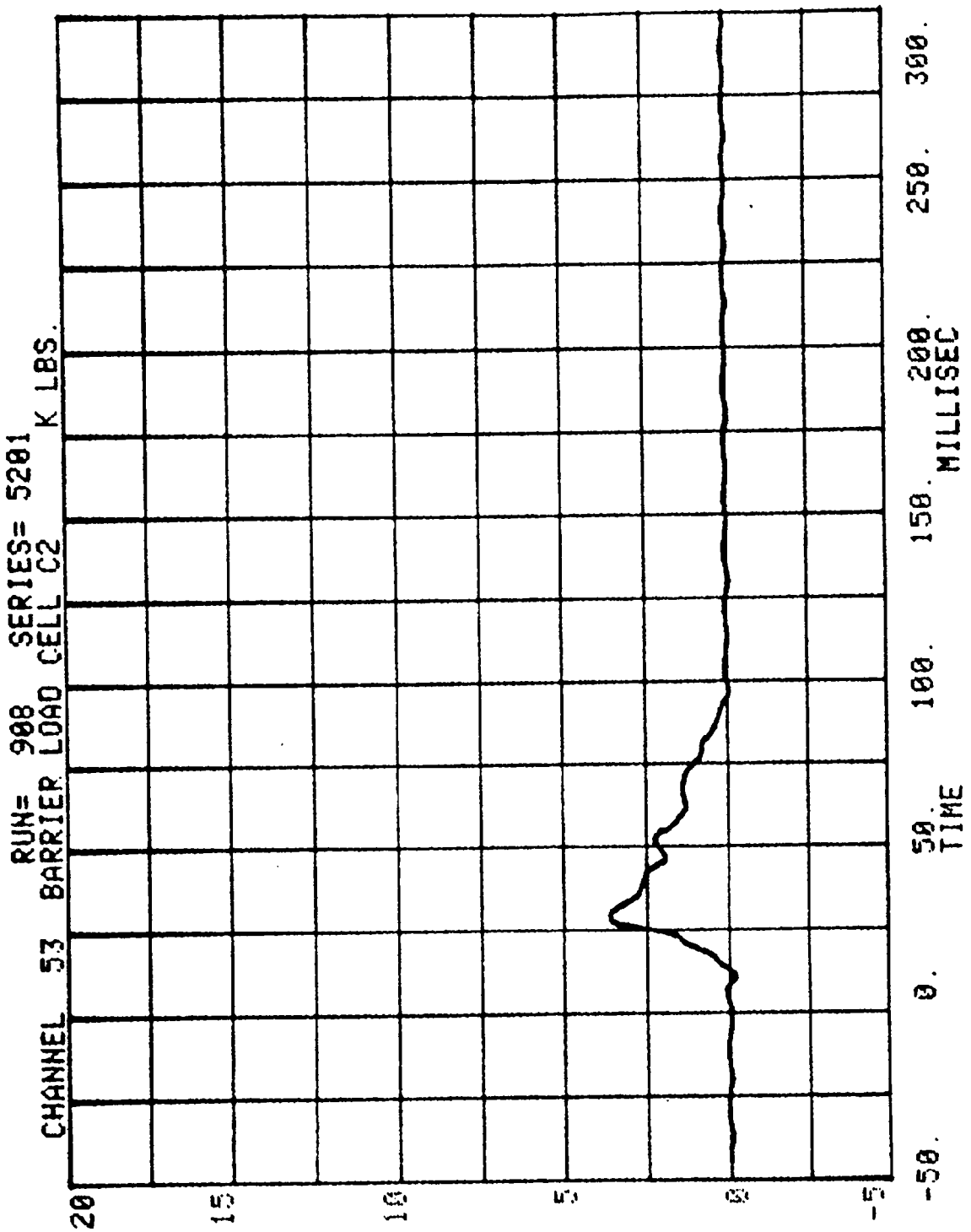
7731-17


RUN= 908 SERIES= 5201
CHANNEL 51 BARRIER LOAD CELL B9 K LBS.
20
15
10
5
0
-5
-50.
0
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

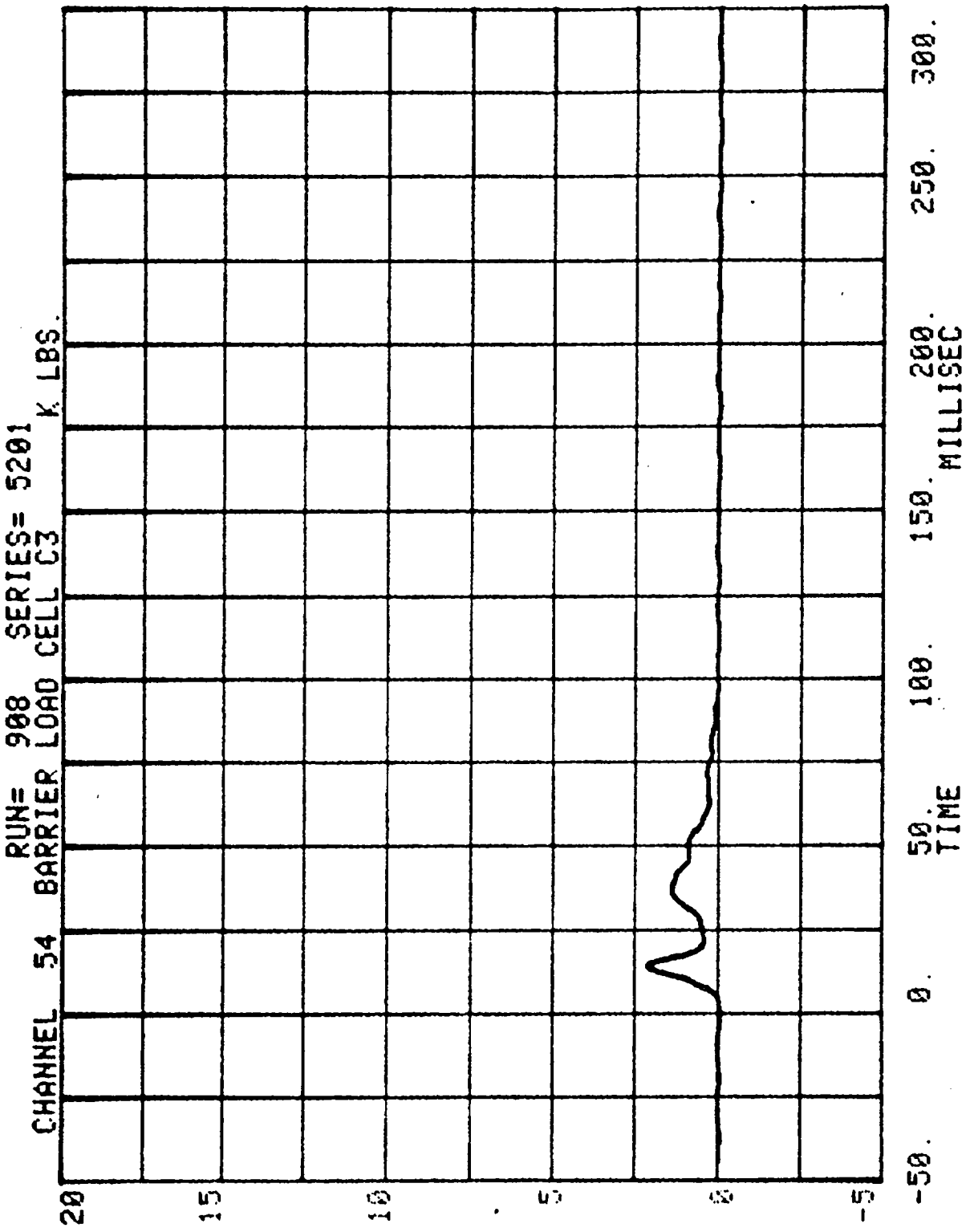
7731-17


CHANNEL 52 BARRIER LOAD CELL C1
RUN= 908 SERIES= 5201
K LBS.
20
15
10
5
0
-5
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

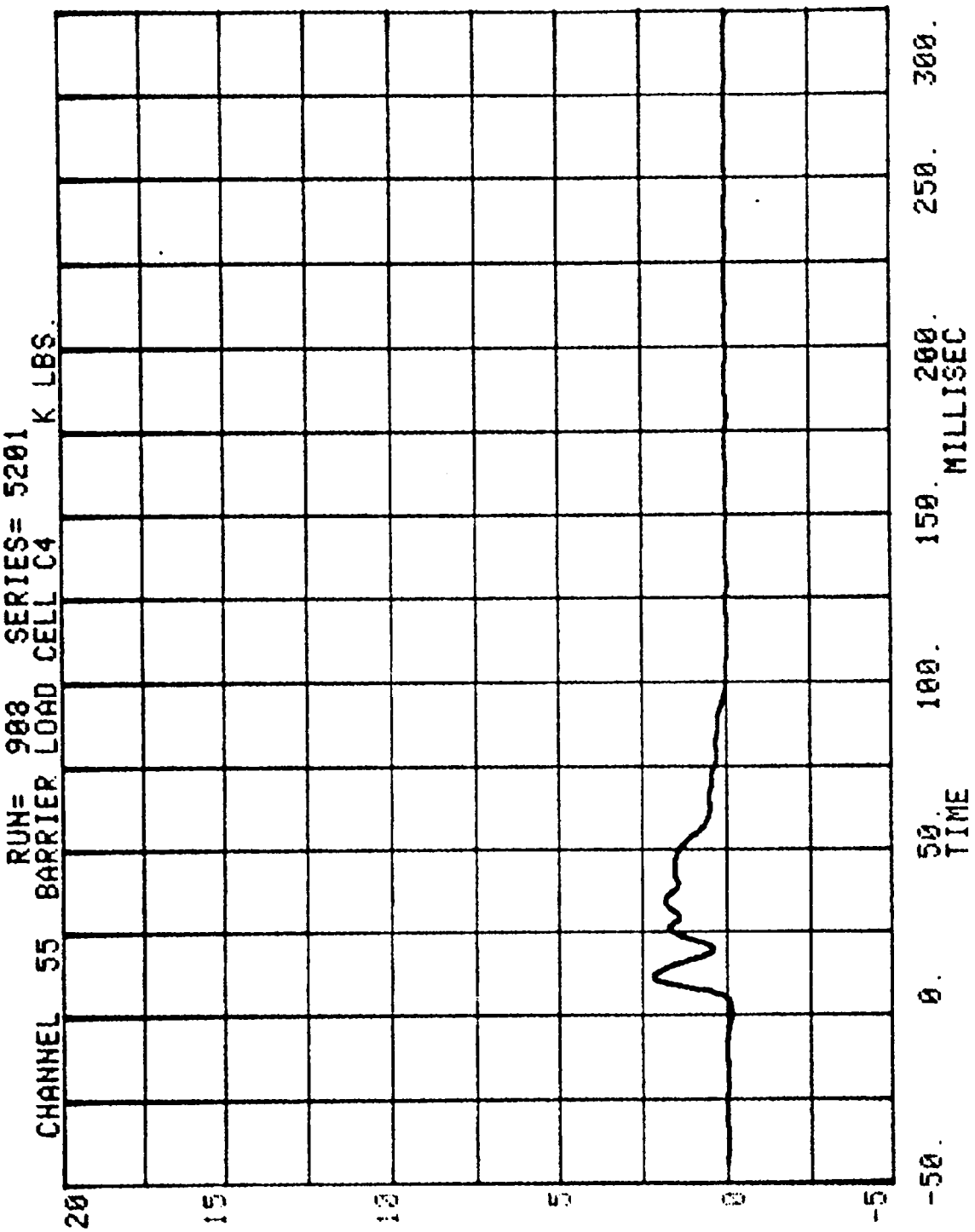
7731-17


RUN= 908 SERIES= 5201
CHANNEL 53 BARRIER LOAD CELL C2
K LBS.
20
15
10
5
0
-5
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

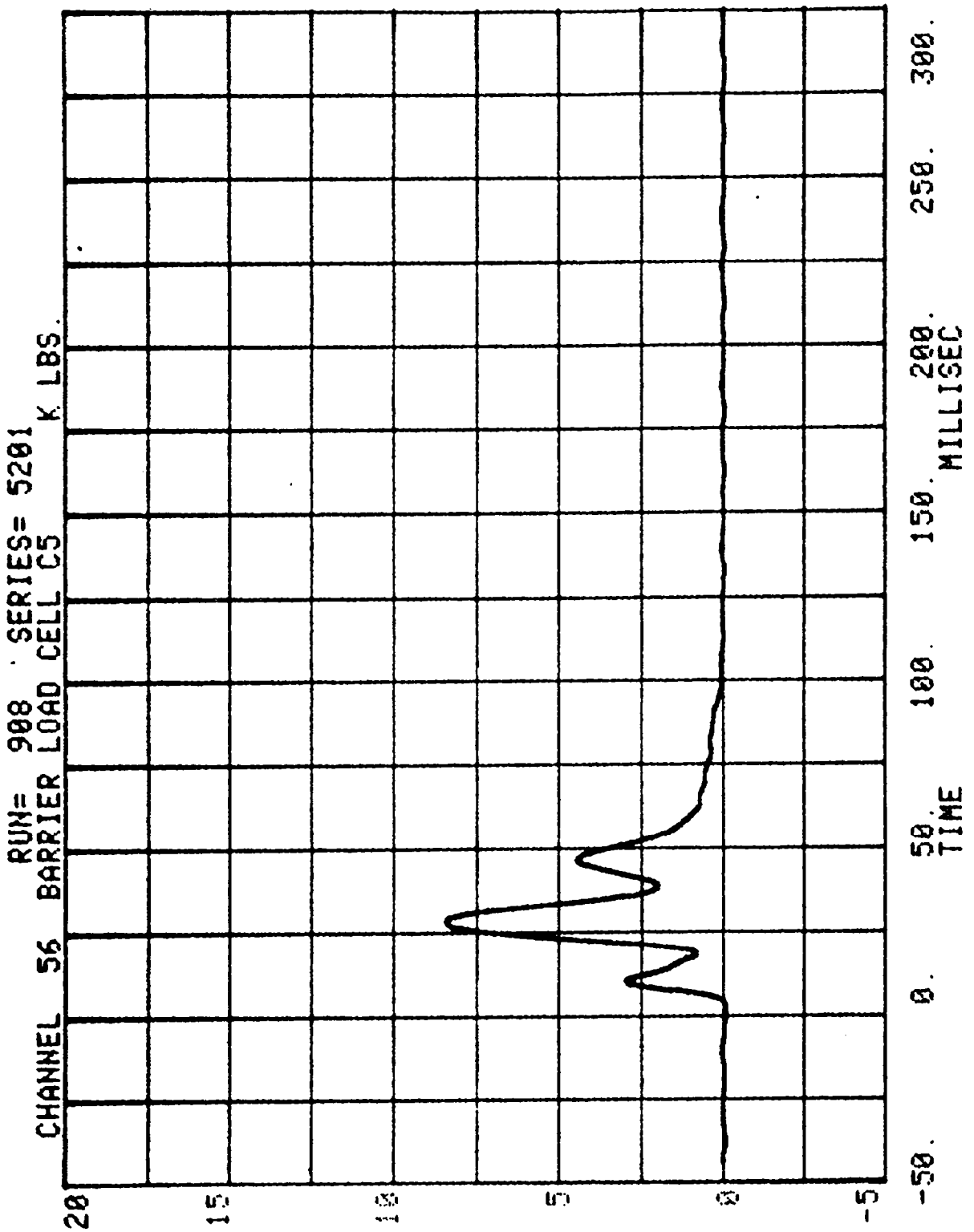
7731-17

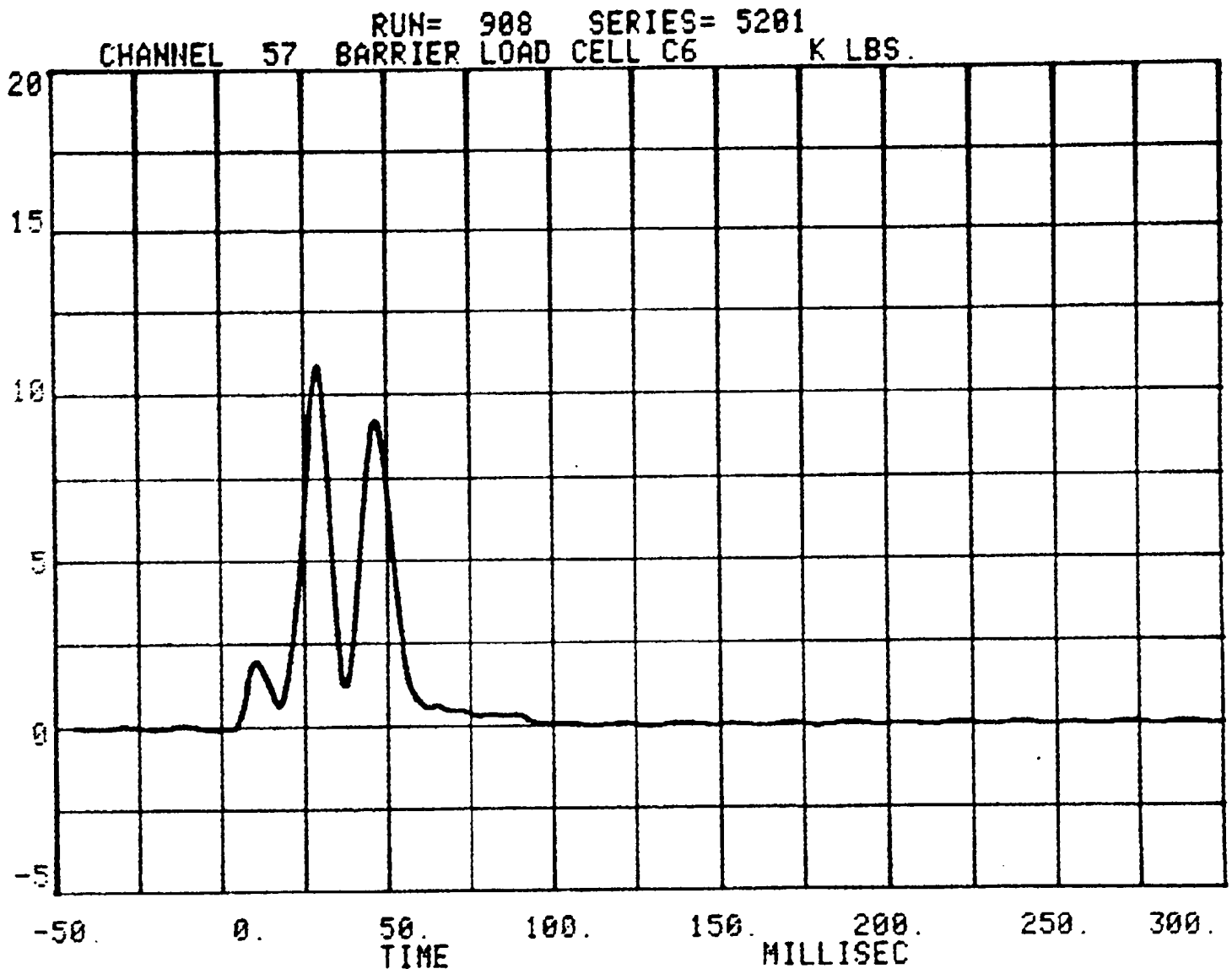

CHANNEL 54 BARRIER LOAD CELL C3
RUN= 908 SERIES= 5201
K LBS.
20
15
10
5
0
-5
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

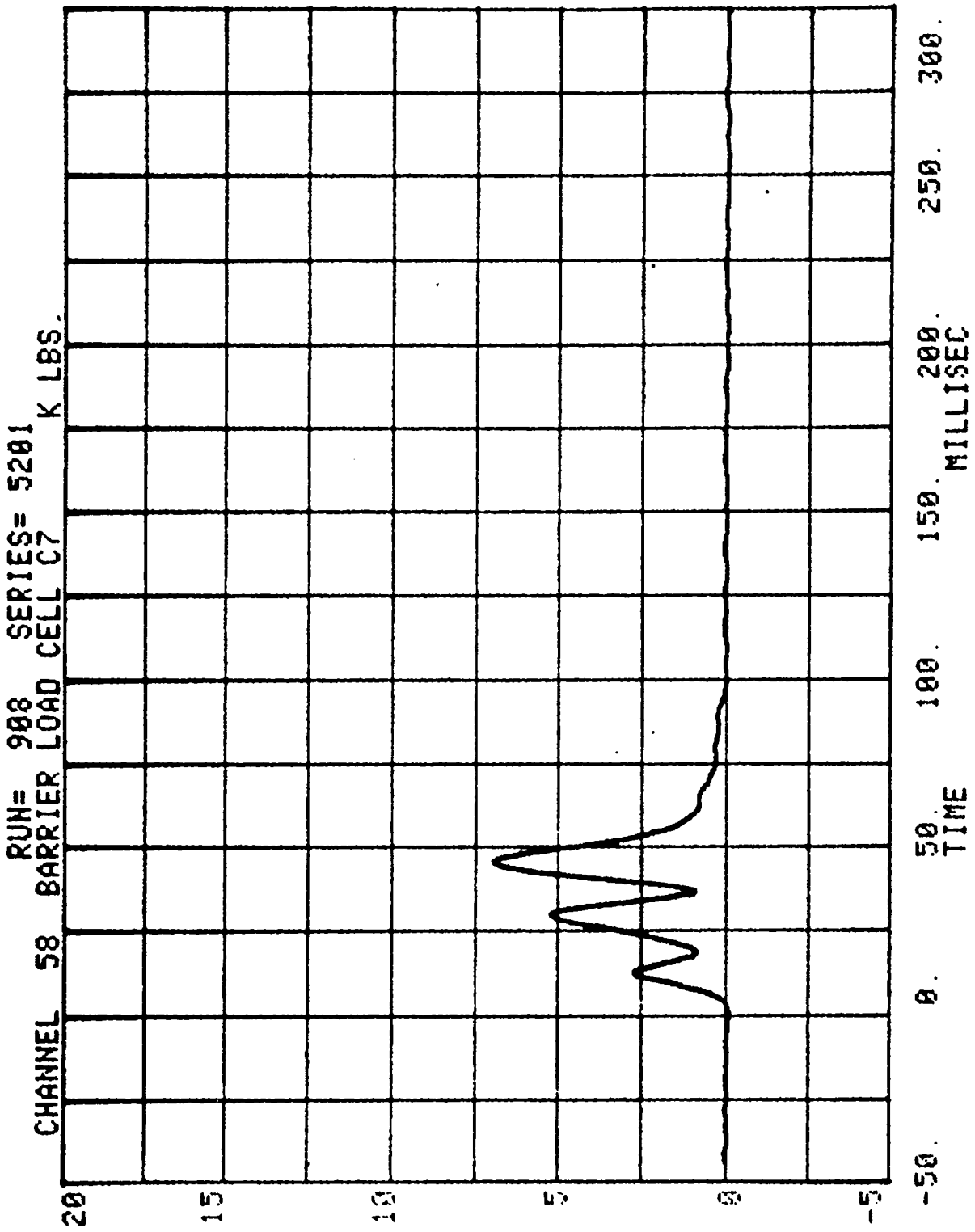
7731-17

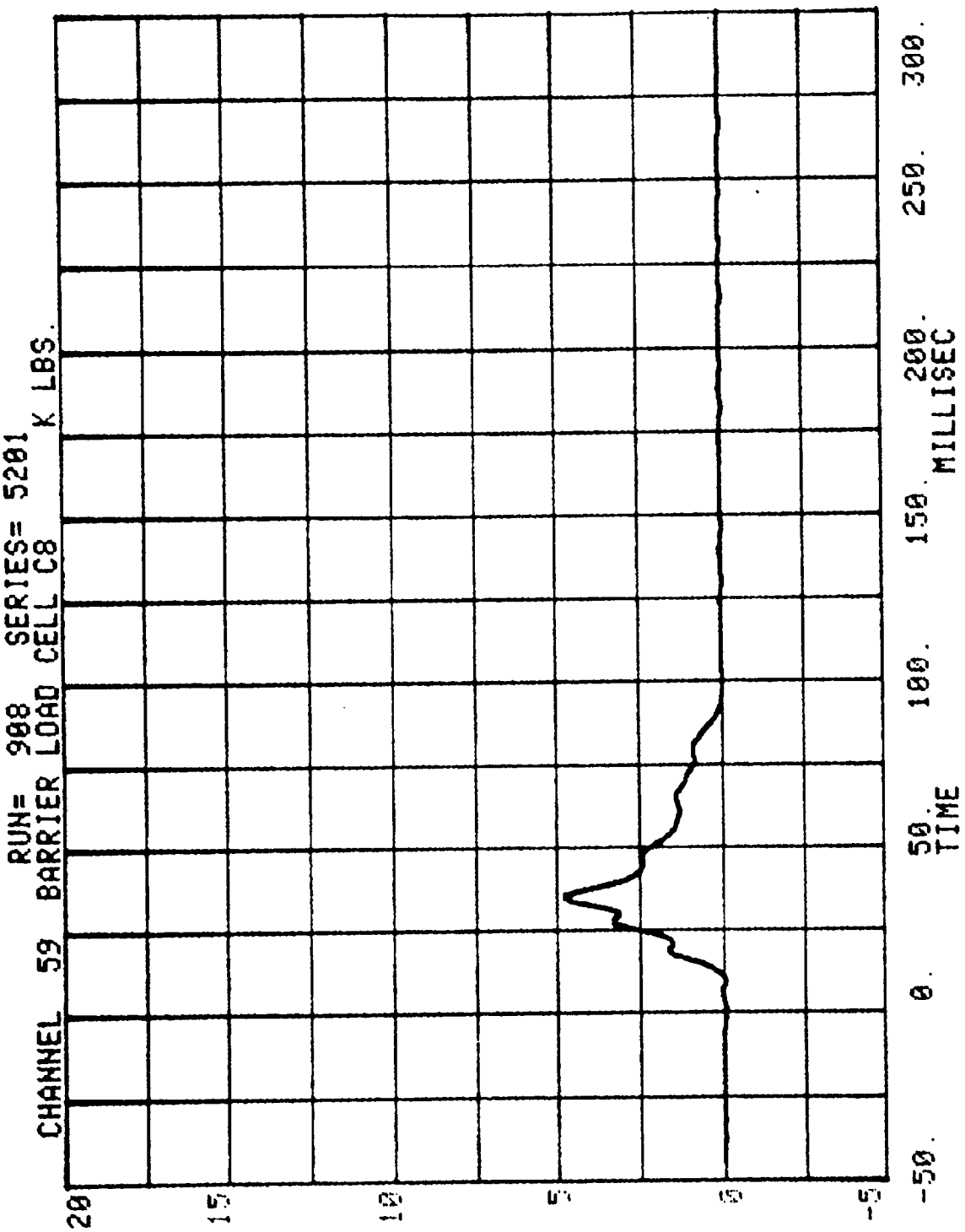

RUN= 903 SERIES= 5201
CHANNEL 55 BARRIER LOAD CELL C4
K LBS.
20
15
10
5
0
-5
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

7731-17

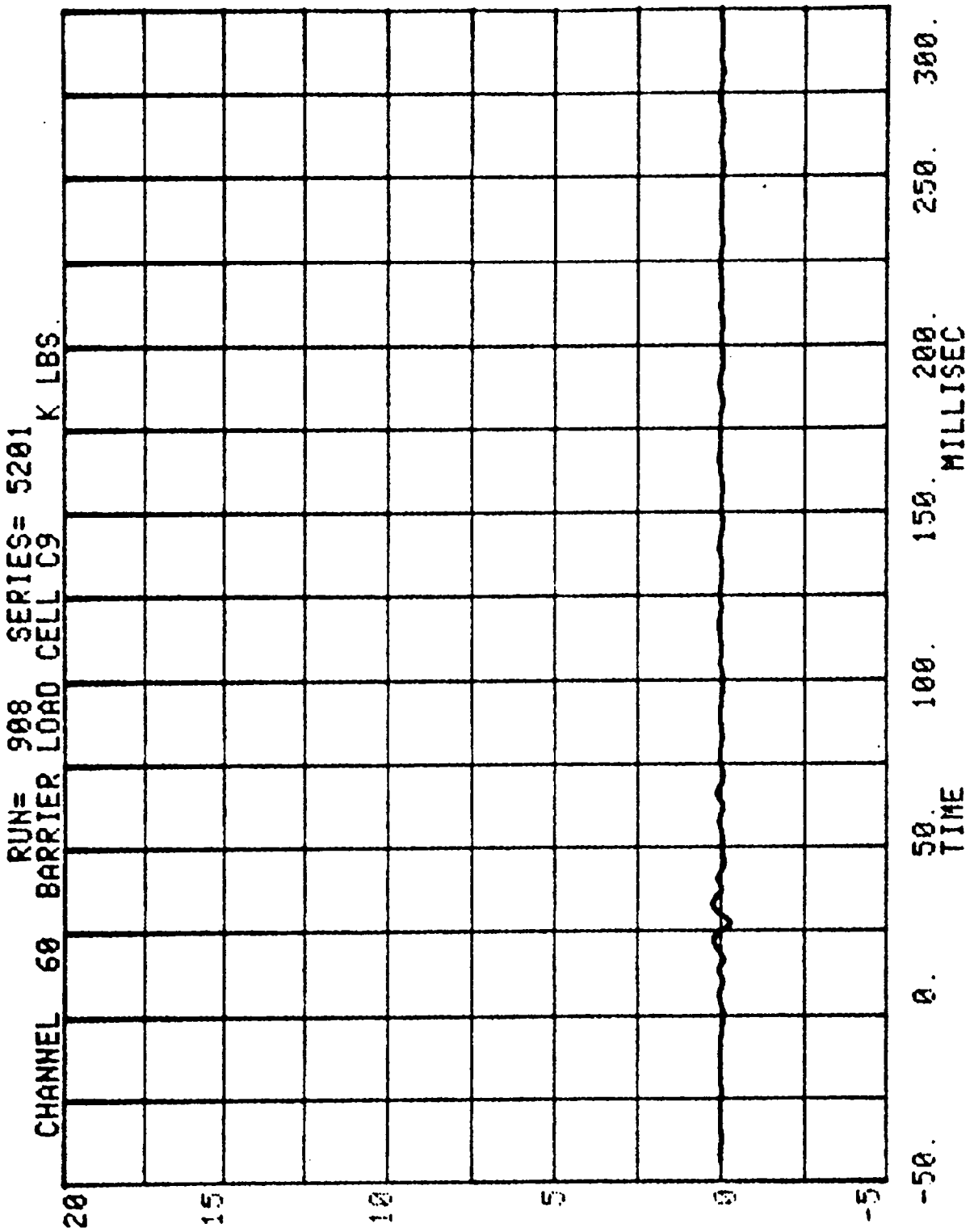

RUN= 908 SERIES= 5201
CHANNEL 56 BARRIER LOAD CELL C5
K LBS.
20
15
10
5
0
-5
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

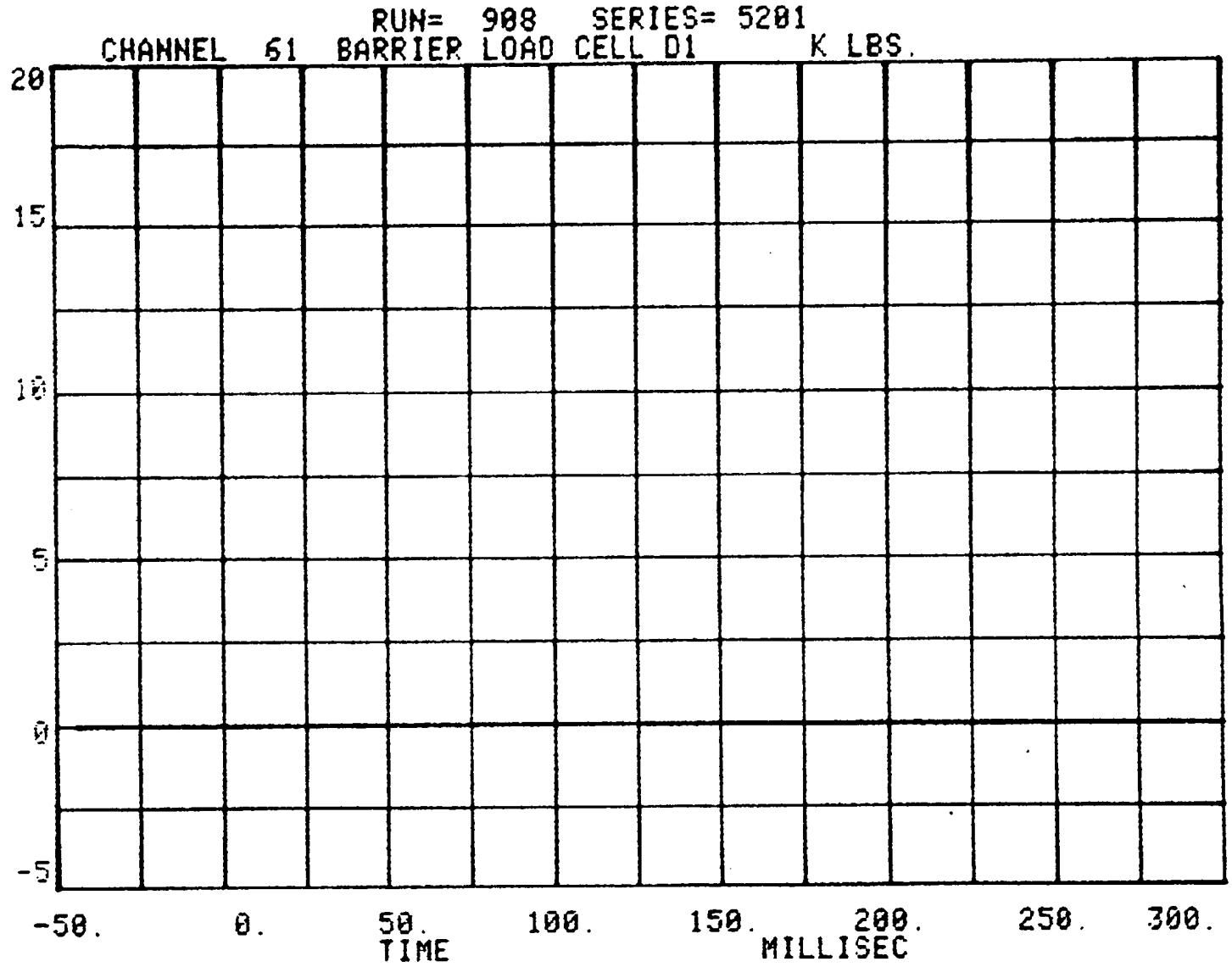

RUN= 908 SERIES= 5201
CHANNEL 57 BARRIER LOAD CELL C6 K LBS.
20
15
10
5
0
-5
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

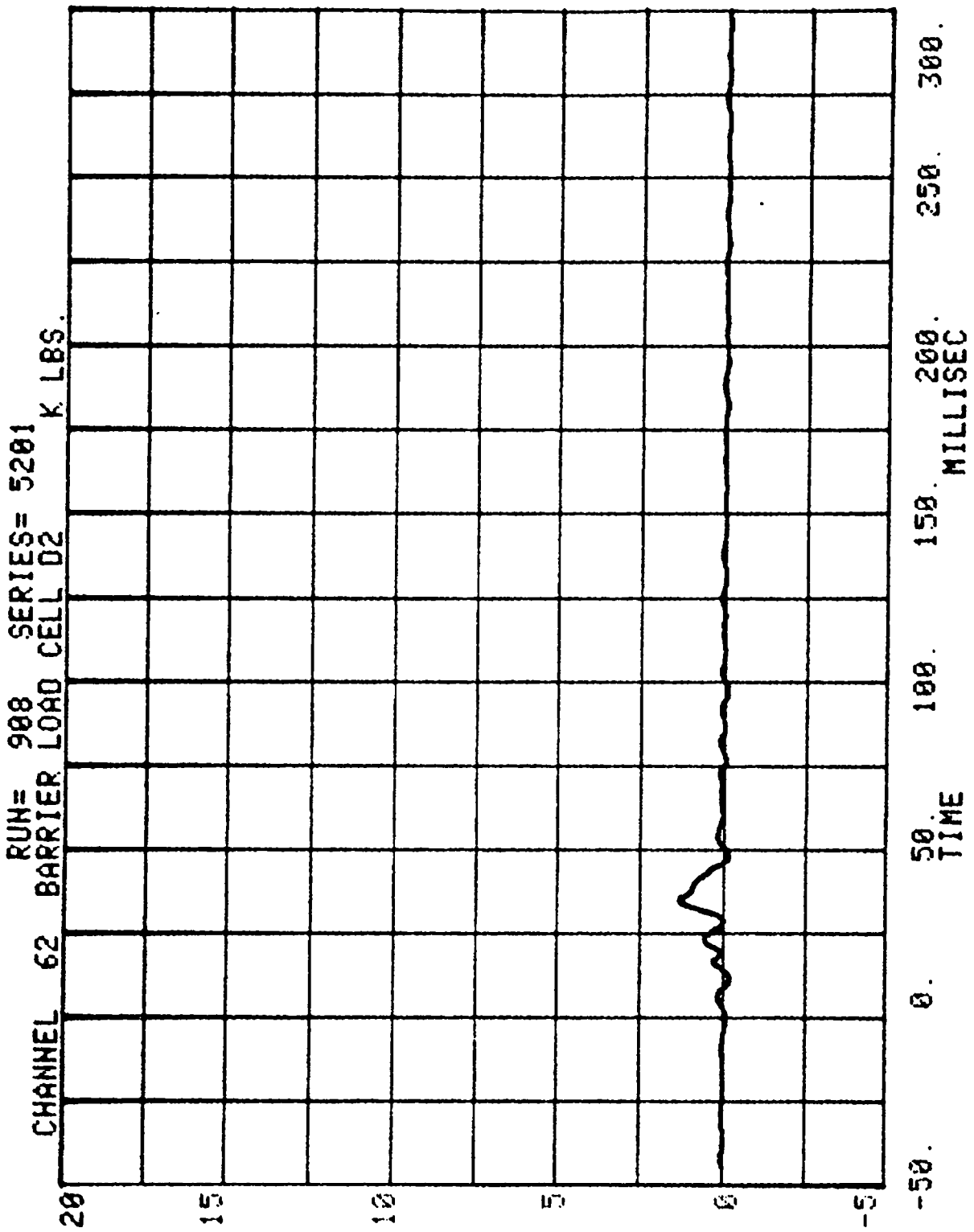

CHANNEL 58 BARRIER LOAD CELL C7
RUN= 908 SERIES= 5201
K LBS.
20
15
10
5
0
-5
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

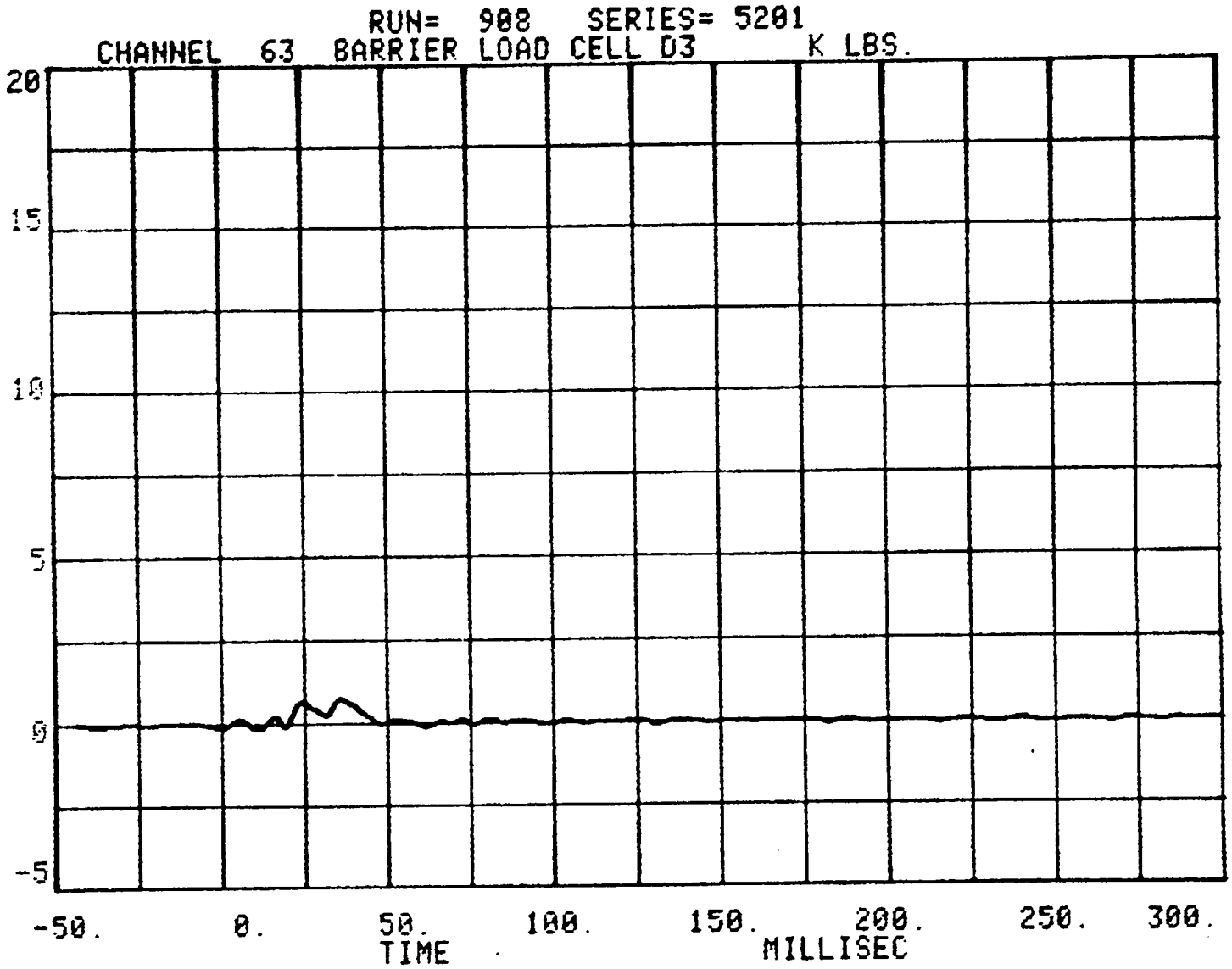

CHANNEL 59 BARRIER LOAD CELL C8
RUN= 908 SERIES= 5201
K LBS.
20
15
10
5
0
-5
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

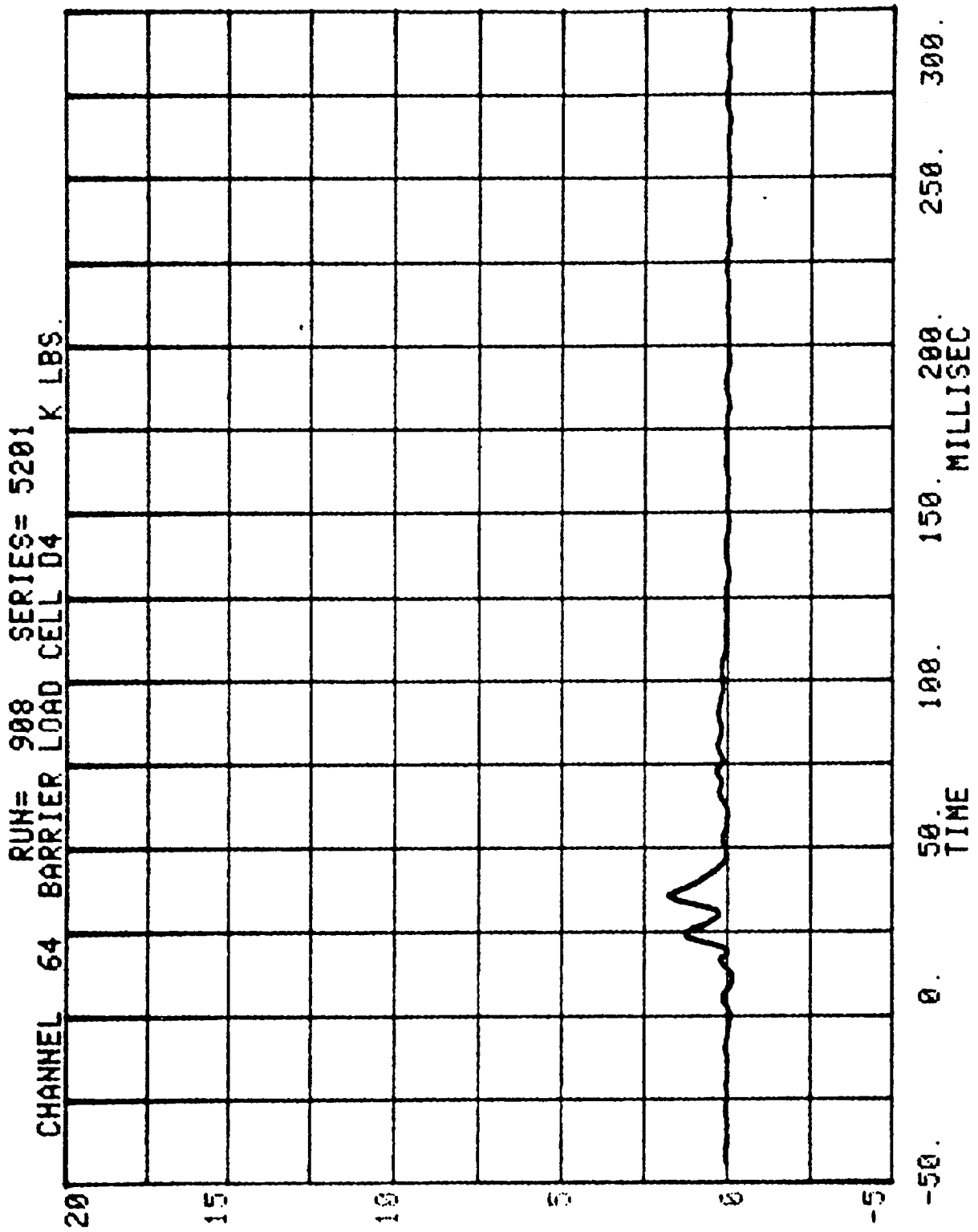
7731-17

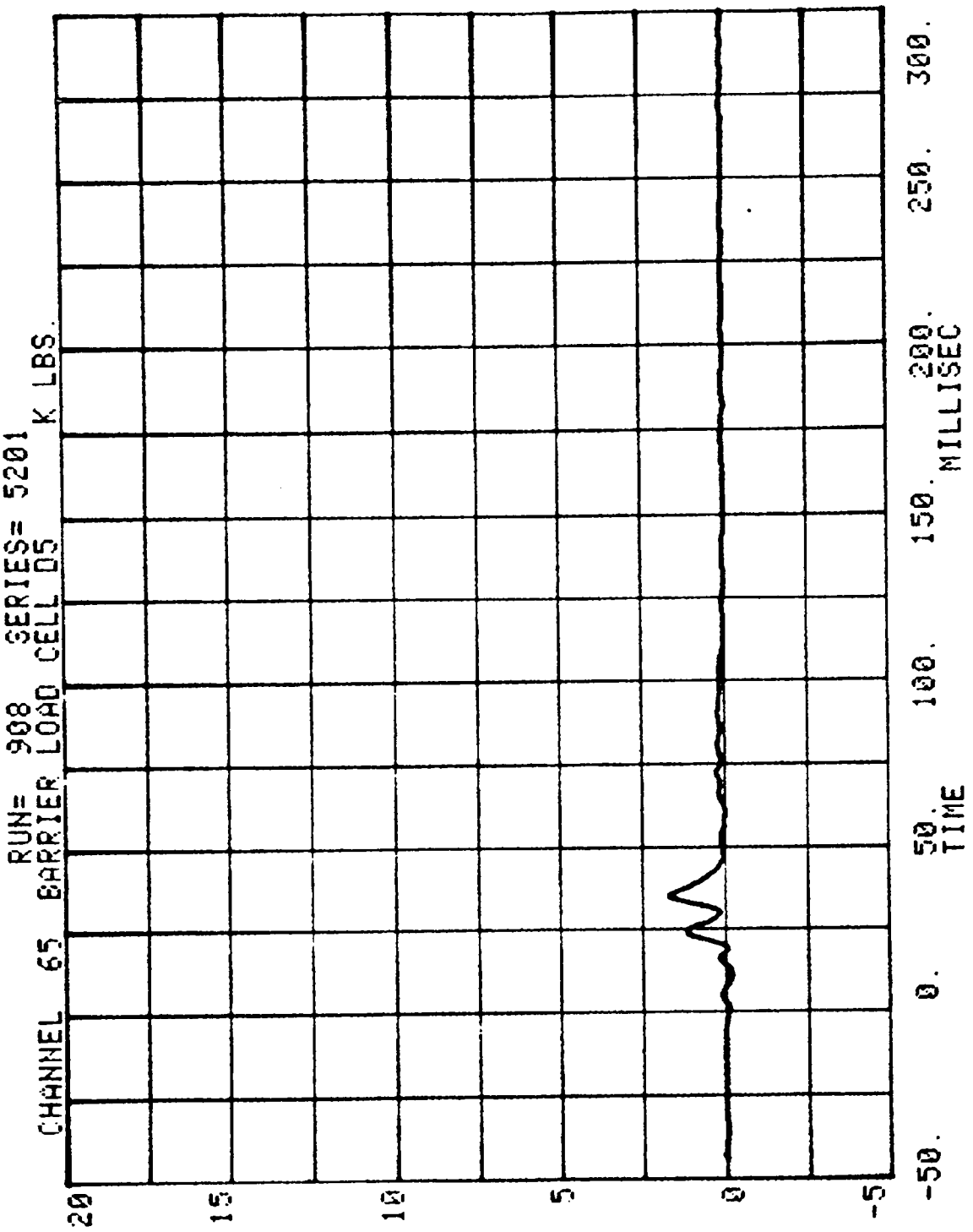

CHANNEL 60 BARRIER LOAD CELL C9
RUN= 908 SERIES= 5201
K LBS
20
15
10
5
0
-5
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC


RUN= 908 SERIES= 5201
CHANNEL 61 BARRIER LOAD CELL D1 K LBS.
20
15
10
5
0
-5
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

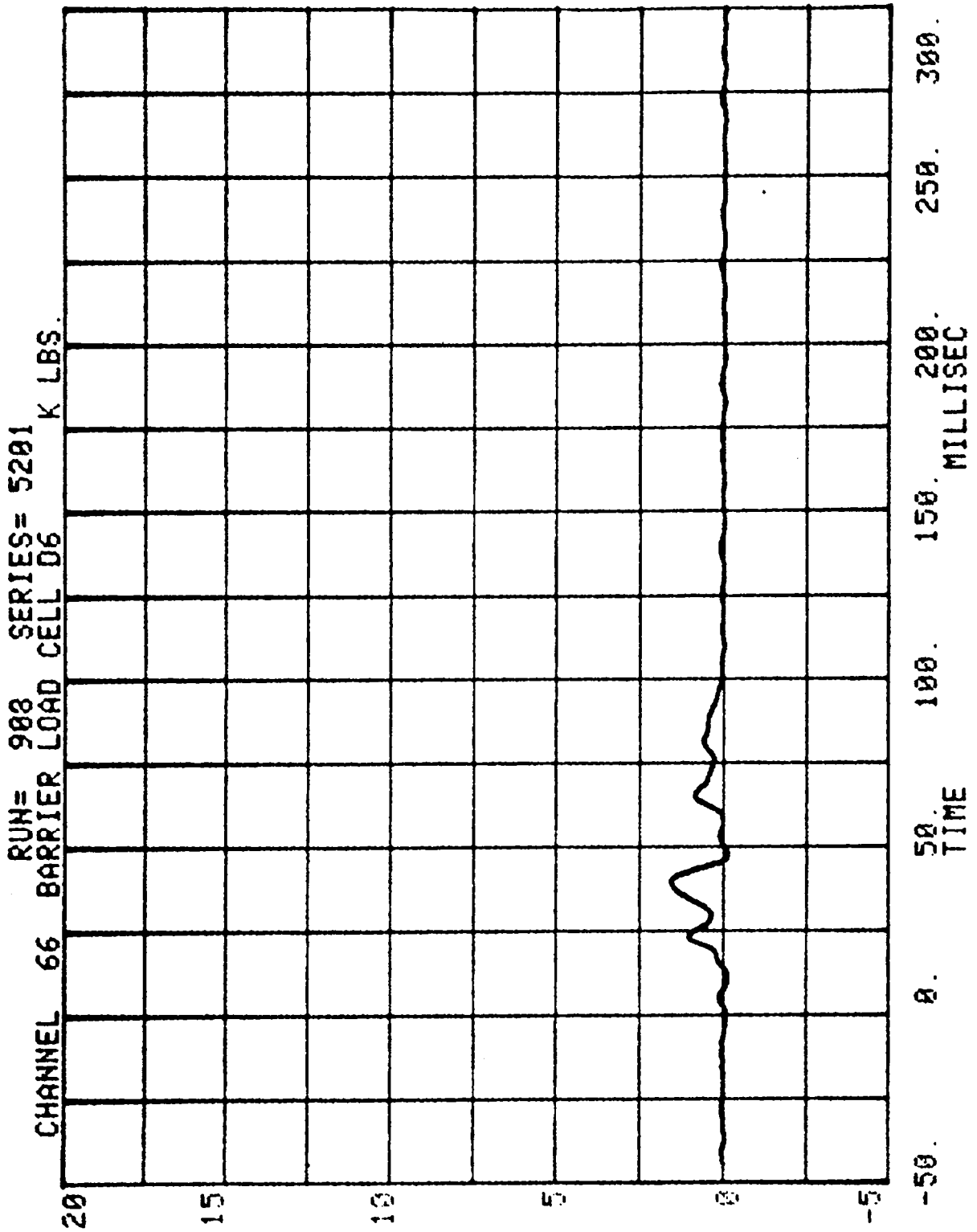

RUN= 908 SERIES= 5201
BARRIER LOAD CELL 02
CHANNEL 62
K LBS.
20
15
10
5
0
-5
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

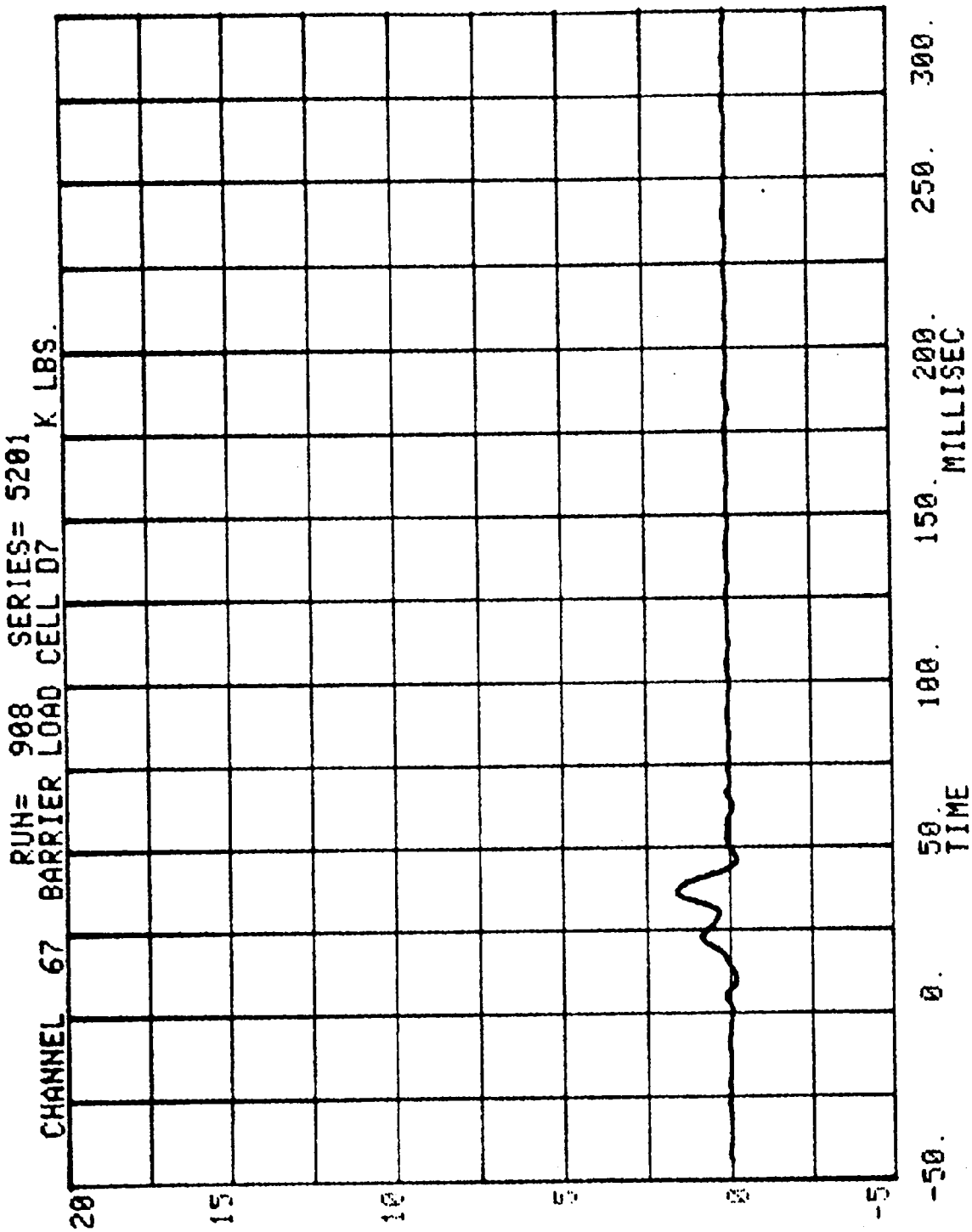

RUN= 908 SERIES= 5201
CHANNEL 63 BARRIER LOAD CELL 03 K LBS.
20
15
10
5
0
-5
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

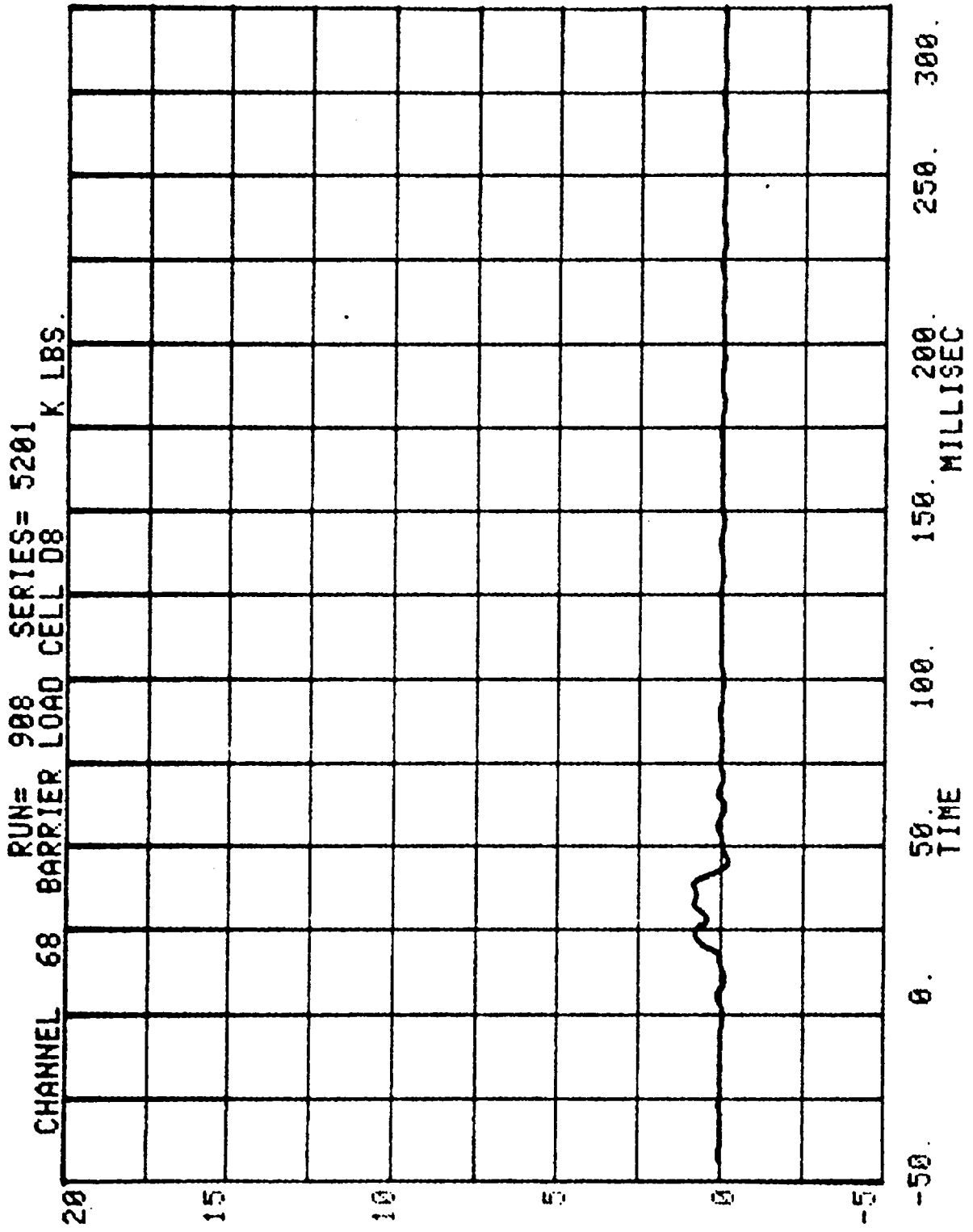

RUN= 908 SERIES= 5201
CHANNEL 64 BARRIER LOAD CELL D4
K LBS.
20
15
10
5
0
-5
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC


CHANNEL 65 BARRIER LOAD CELL D5
RUN= 908 SERIES= 5201
K LBS.
20
15
10
5
0
-5
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

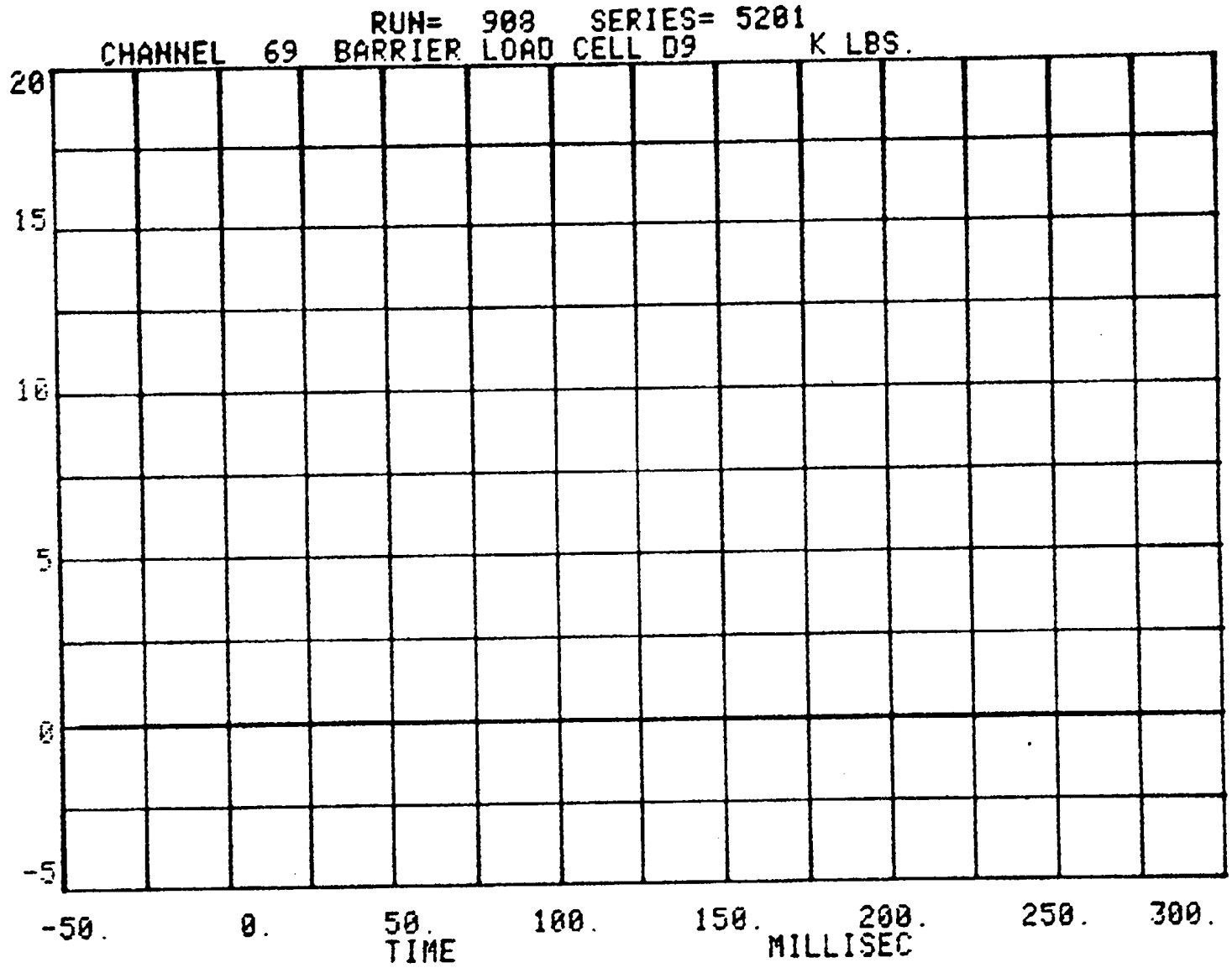
7731-17


RUN= 908 SERIES= 5201
BARRIER LOAD CELL 06
CHANNEL 66
K LBS.
20
15
10
5
0
-5
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC


CHANNEL 67 BARRIER LOAD CELL D7
RUN= 908 SERIES= 5201
K LBS.
20
15
10
5
0
-5
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC


CHANNEL 68 BARRIER LOAD CELL D8
RUN= 908 SERIES= 5201
K LBS.
20
15
10
5
0
-5
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

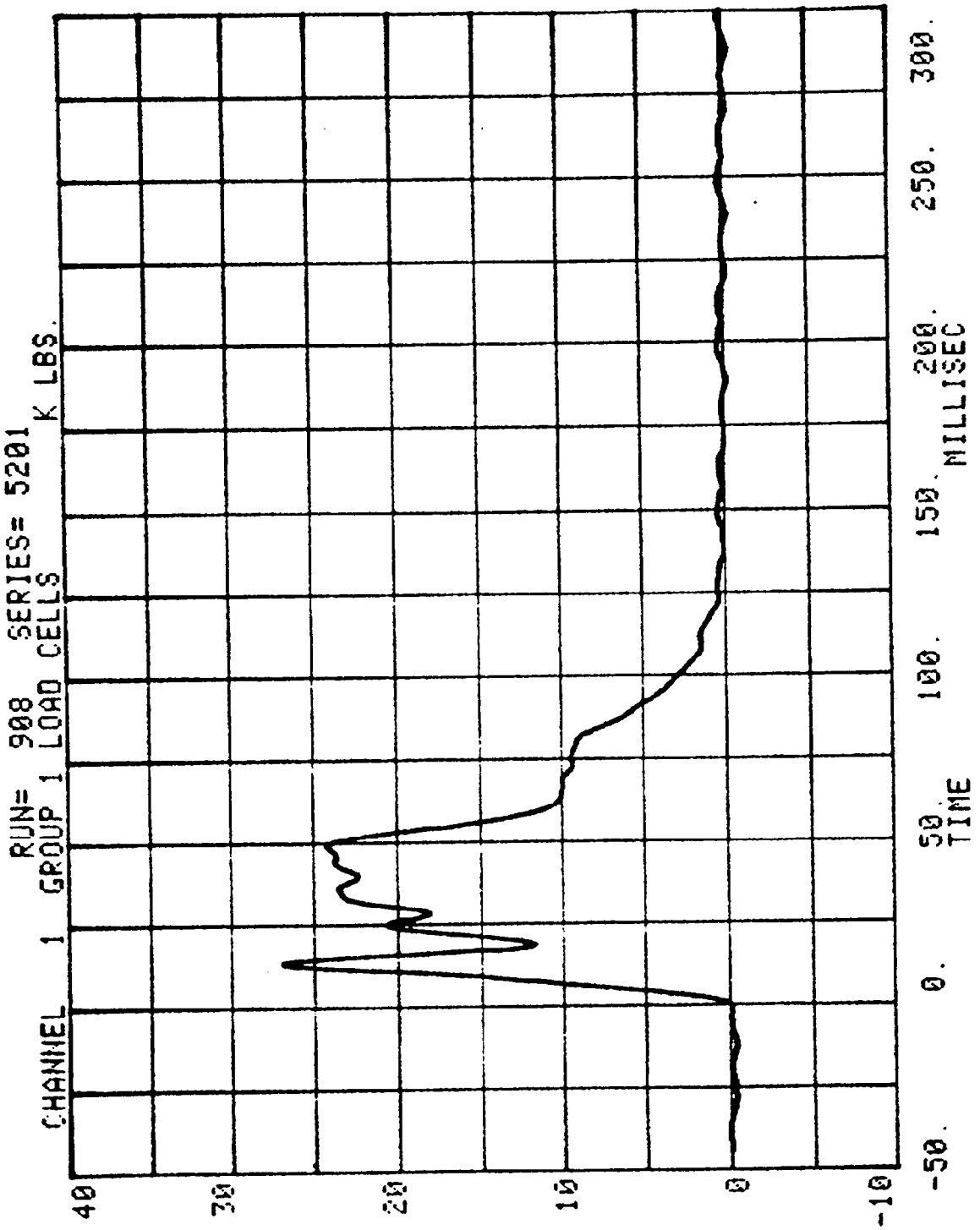
7731-17


RUN= 903 SERIES= 5201
CHANNEL 69 BARRIER LOAD CELL D9
K LBS.
20
15
10
5
0
-5
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

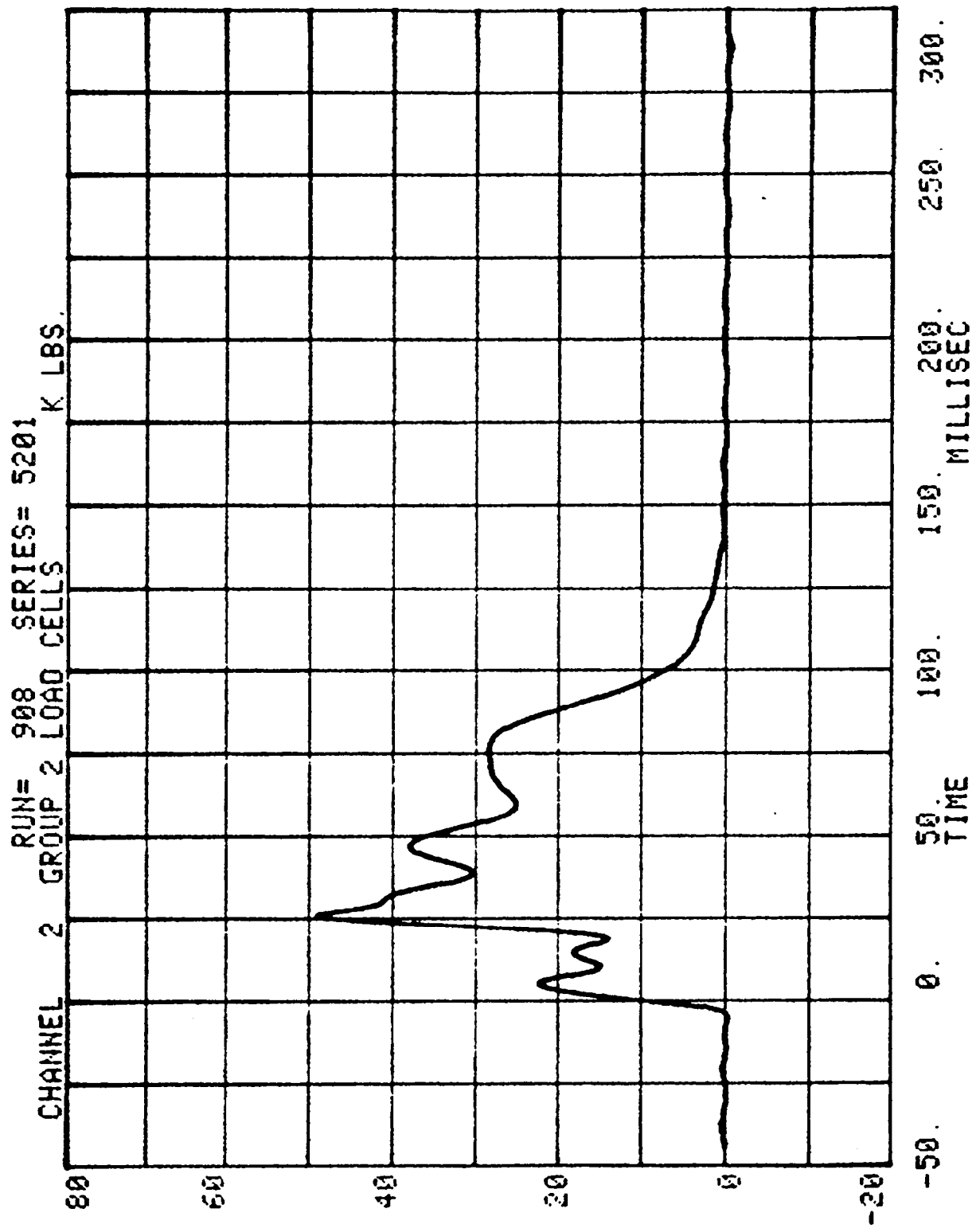
NEW CAR ASSESSMENT CRASH TEST - 1989

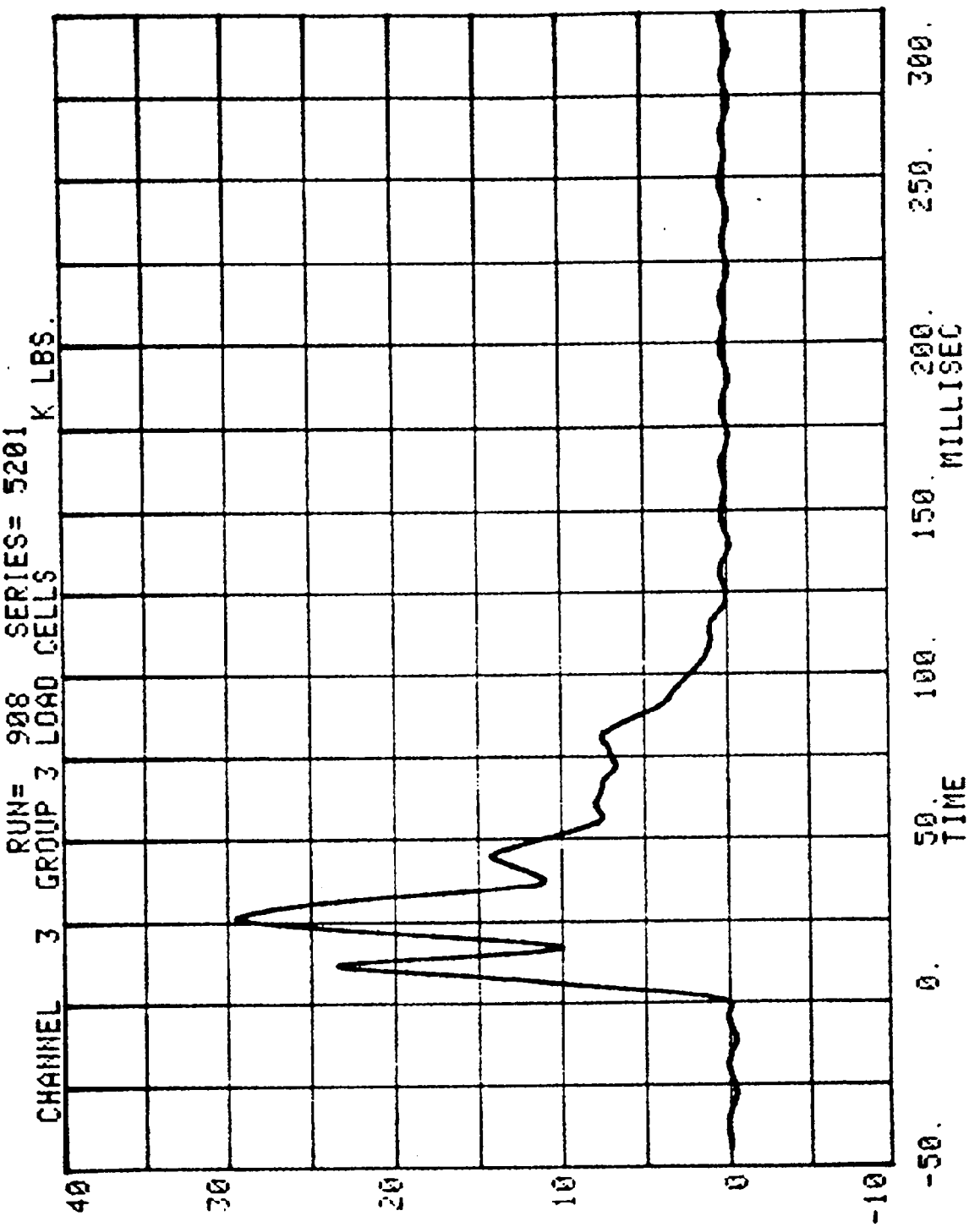
RUN # 908 SERIES # 5201

CHAN	TITLE	MINIMUM/MAXIMUM	AT	TIME
1	GROUP 1 LOAD CELLS	-.384 K LBS.		-12.08 MS.
		26.933 K LBS.		13.35 MS.
2	GROUP 2 LOAD CELLS	-.361 K LBS.		288.82 MS.
		49.097 K LBS.		25.87 MS.
3	GROUP 3 LOAD CELLS	-.366 K LBS.		-11.55 MS.
		29.548 K LBS		26.47 MS.
4	GROUP 4 LOAD CELLS	-.352 K LBS.		-.30 MS.
		6.593 K LBS.		35.77 MS.
5	GROUP 5 LOAD CELLS	-.538 K LBS.		.30 MS.
		21.837 K LBS.		28.42 MS.
6	GROUP 6 LOAD CELLS	-.361 K LBS.		.22 MS.
		9.709 K LBS.		32.40 MS.
7	TOTAL LOAD CELL SUM	-.556 K LBS.		-4.43 MS.
		131.400 K LBS.		26.25 MS.

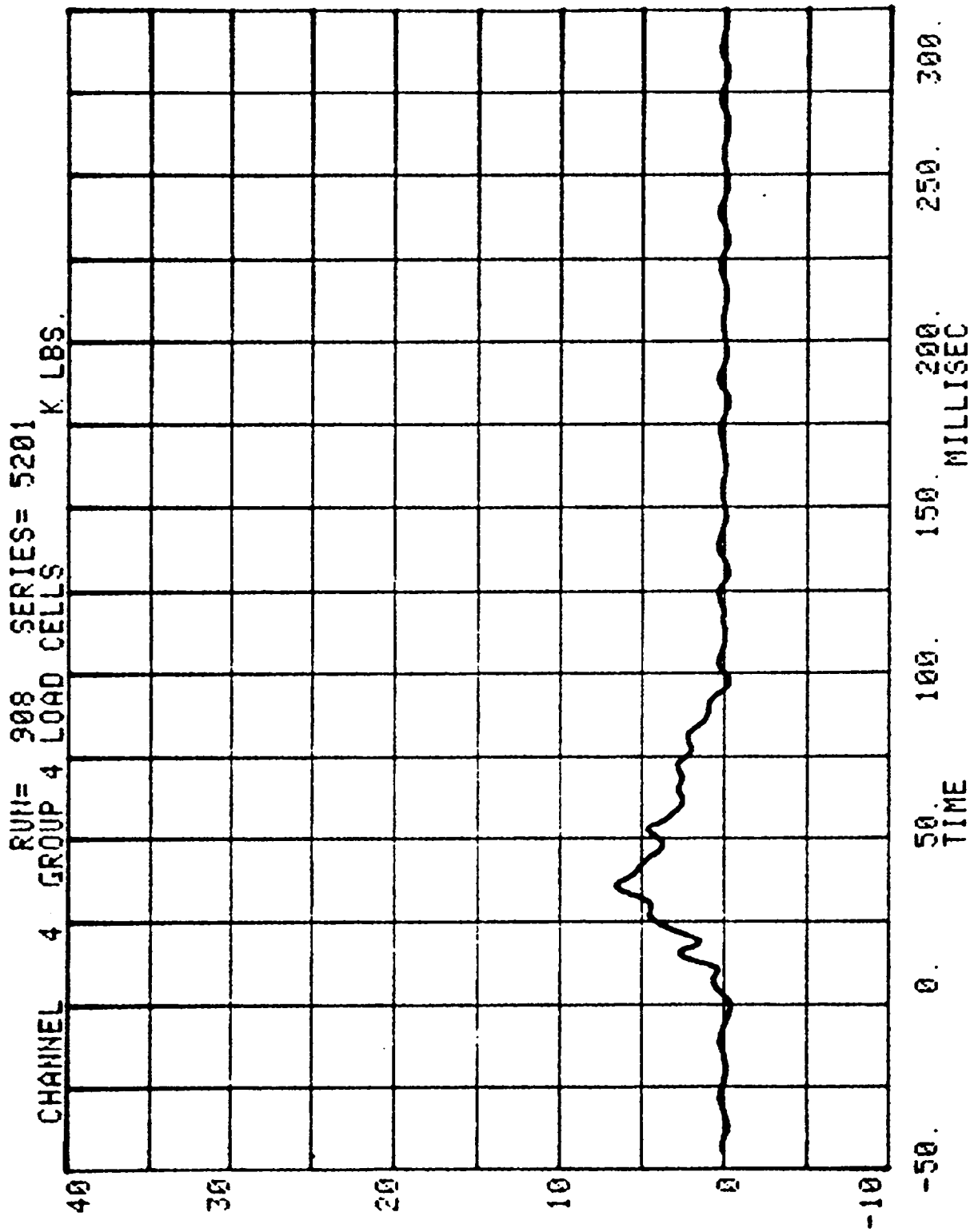

CHANNEL 1 GROUP 1 LOAD CELLS
RUN= 908 SERIES= 5201
K LBS.
40
30
20
10
0
-10
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

7731-17

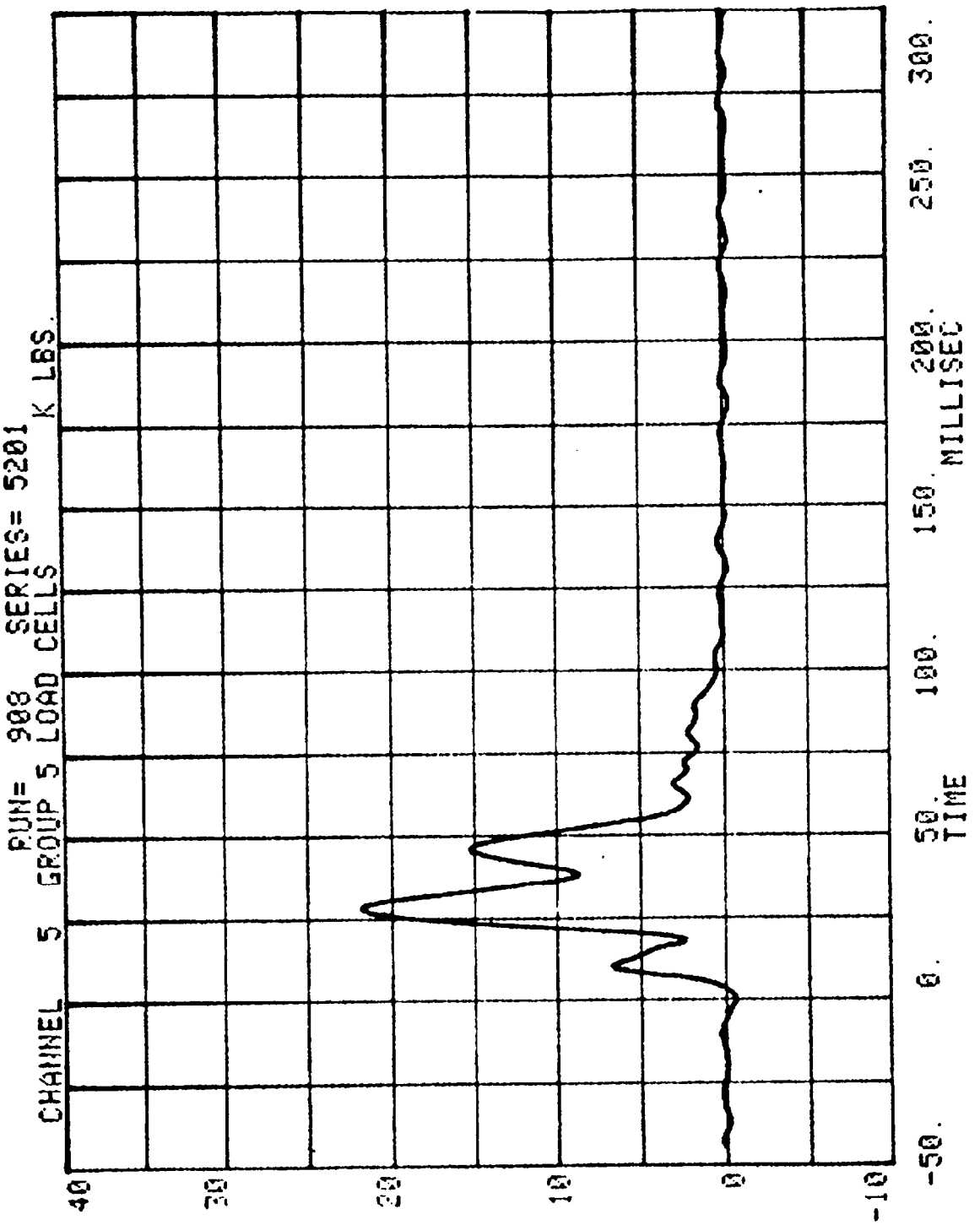

CHANNEL 2 GROUP 2 LOAD CELLS
RUN= 908 SERIES= 5201
K LBS.
80
60
40
20
0
-20
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

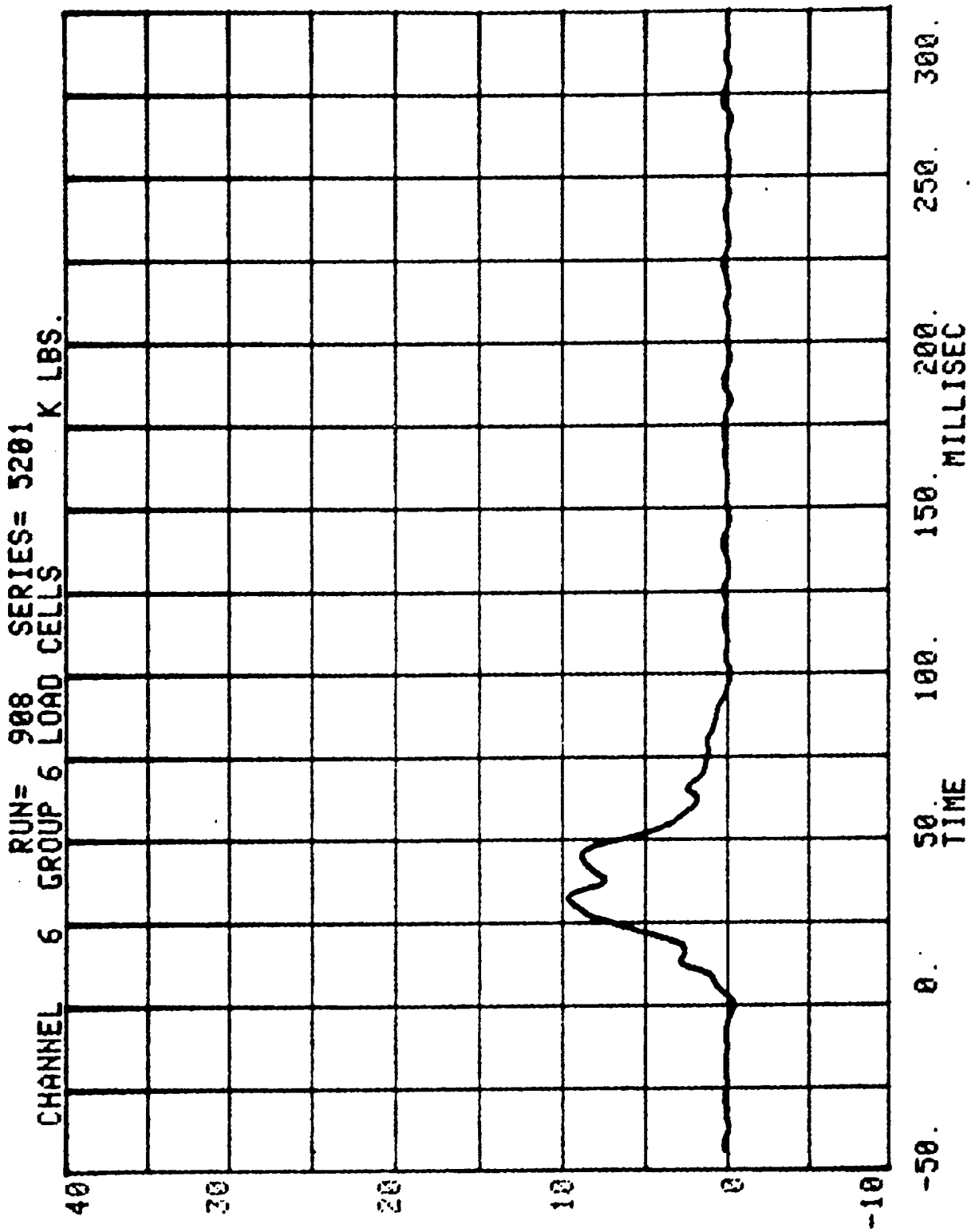

CHANNEL 3 GROUP 3 LOAD CELLS
RUN= 908 SERIES= 5201
K LBS.
40
30
20
10
0
-10
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

7731-17

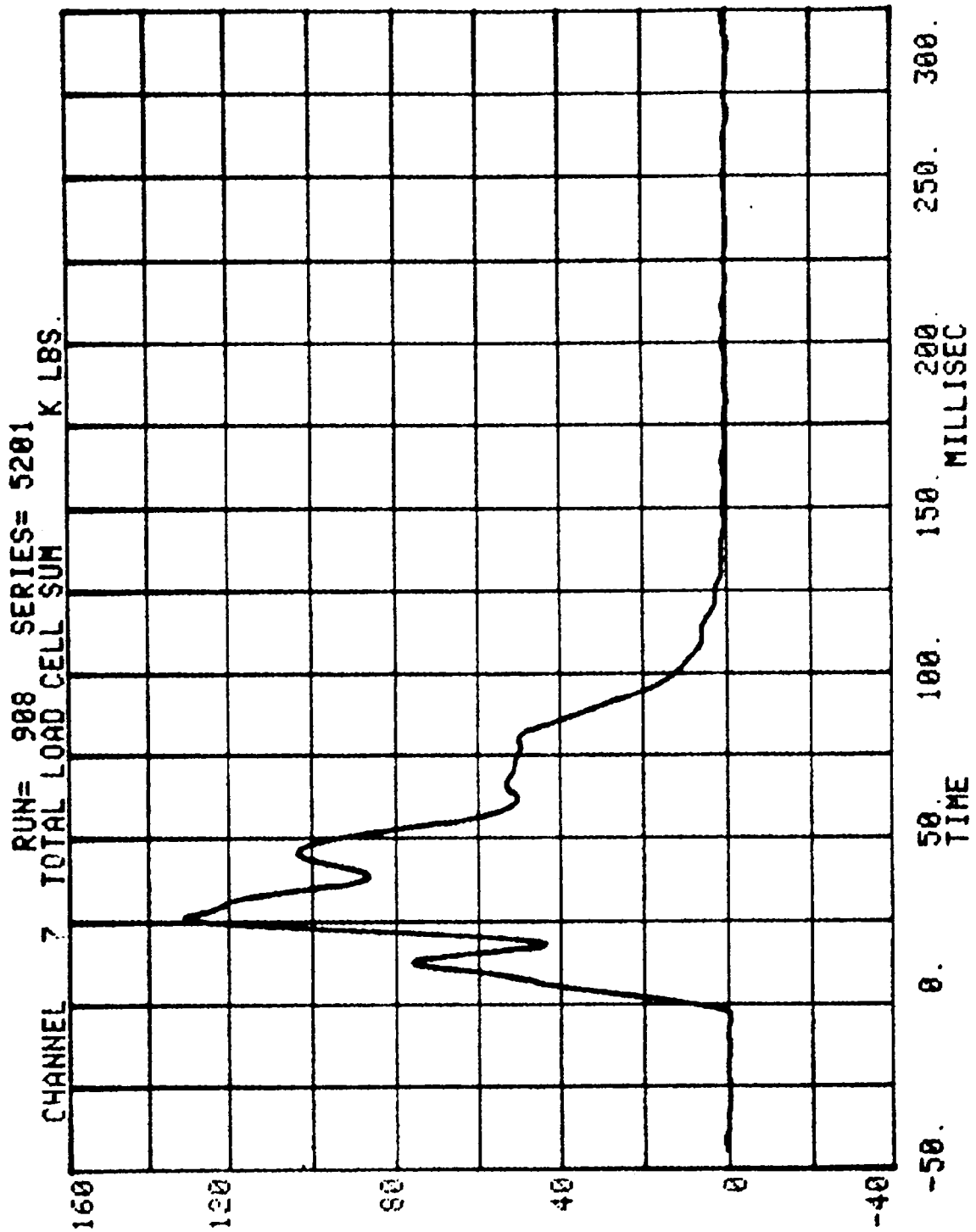

CHANNEL 4 GROUP 4 LOAD CELLS
RUN= 908 SERIES= 5201
K LBS.
40
30
20
10
0
-10
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

7731-17


CHANNEL 5 GROUP 5 LOAD CELLS
RUN= 908 SERIES= 5201
K LBS.
40
30
20
10
0
-10
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC


CHANNEL 6 GROUP 6 LOAD CELLS
RUN= 908 SERIES= 5201
K LBS.
40
30
20
10
0
-10
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

7731-17


RUN= 908 SERIES= 5201
CHANNEL 7 TOTAL LOAD CELL SUM K LBS.
160
120
80
40
0
-40
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

TEST NO. MK5201

DUMMY DATA

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

HEAD INJURY CRITERION
HEAD SEVERITY INDEX
36MS. MAXIMUM DURATION

NEW CAR ASSESSMENT CRASH TEST - 1989

RUN= 908

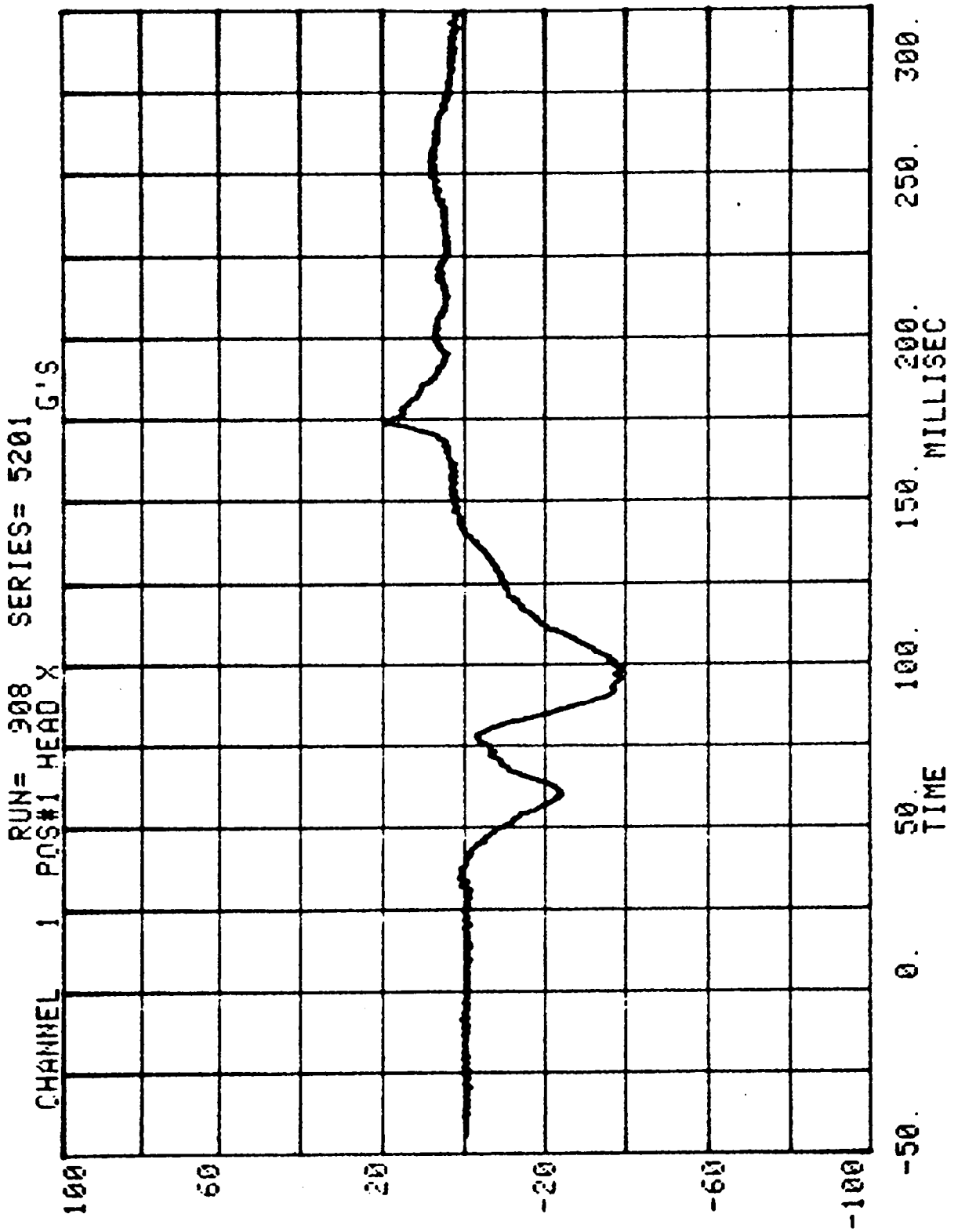
POS#1 HEAD R

HIC= 808.0 FROM T1= .06323 TO T2= .09922

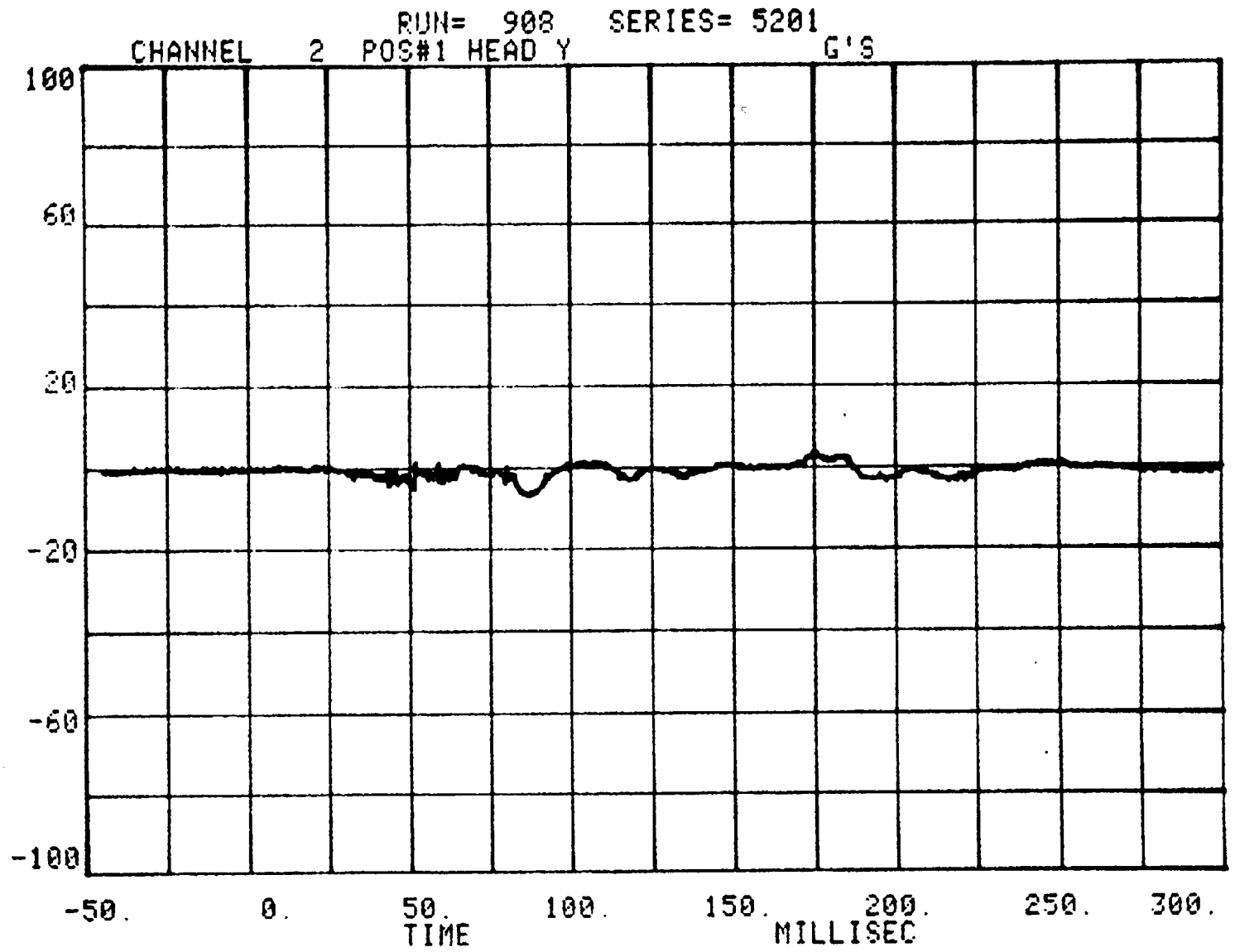
AVERAGE ACCELERATION BETWEEN T1 AND T2= 55.0G'S

EVENT TIME= 300.0 MSEC

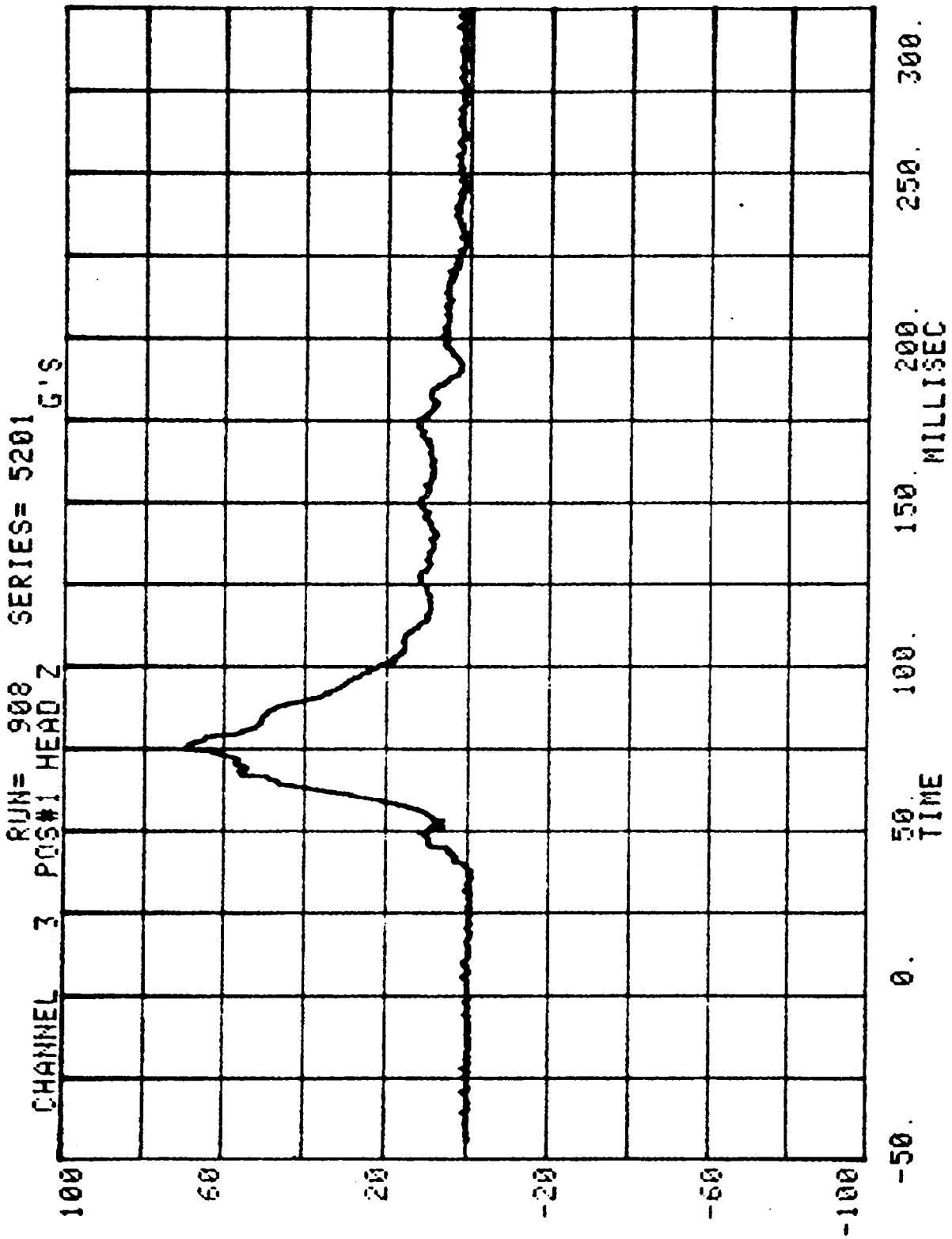
SEVERITY INDEX=1054.4


CHANNEL 1 POS#1 HEAD X
RUN= 308 SERIES= 5201
G'S
100
60
20
-20
-60
-100
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

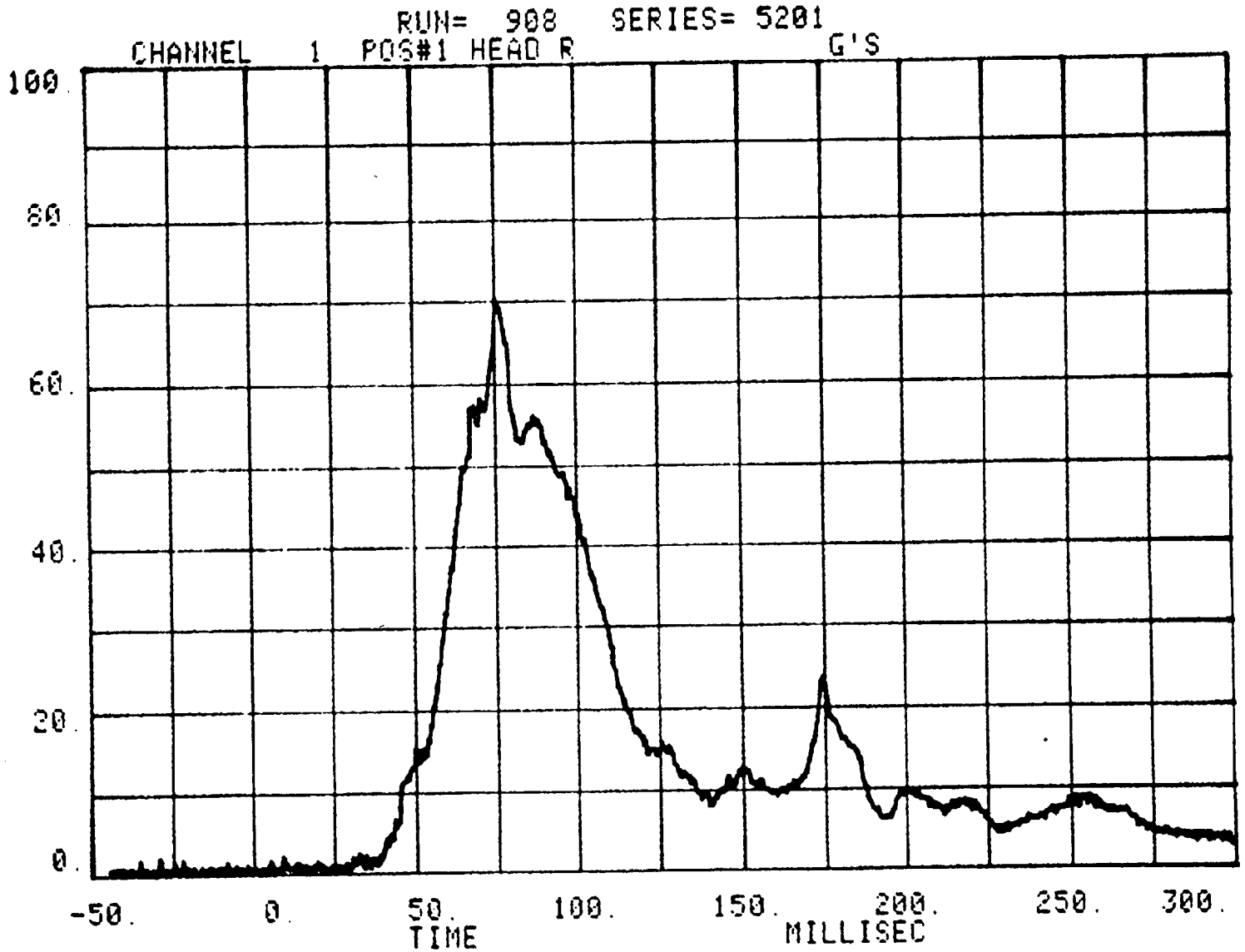
7731-17


RUN= 908 SERIES= 5201
CHANNEL 2 POS#1 HEAD Y
G'S
100
60
20
-20
-60
-100
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

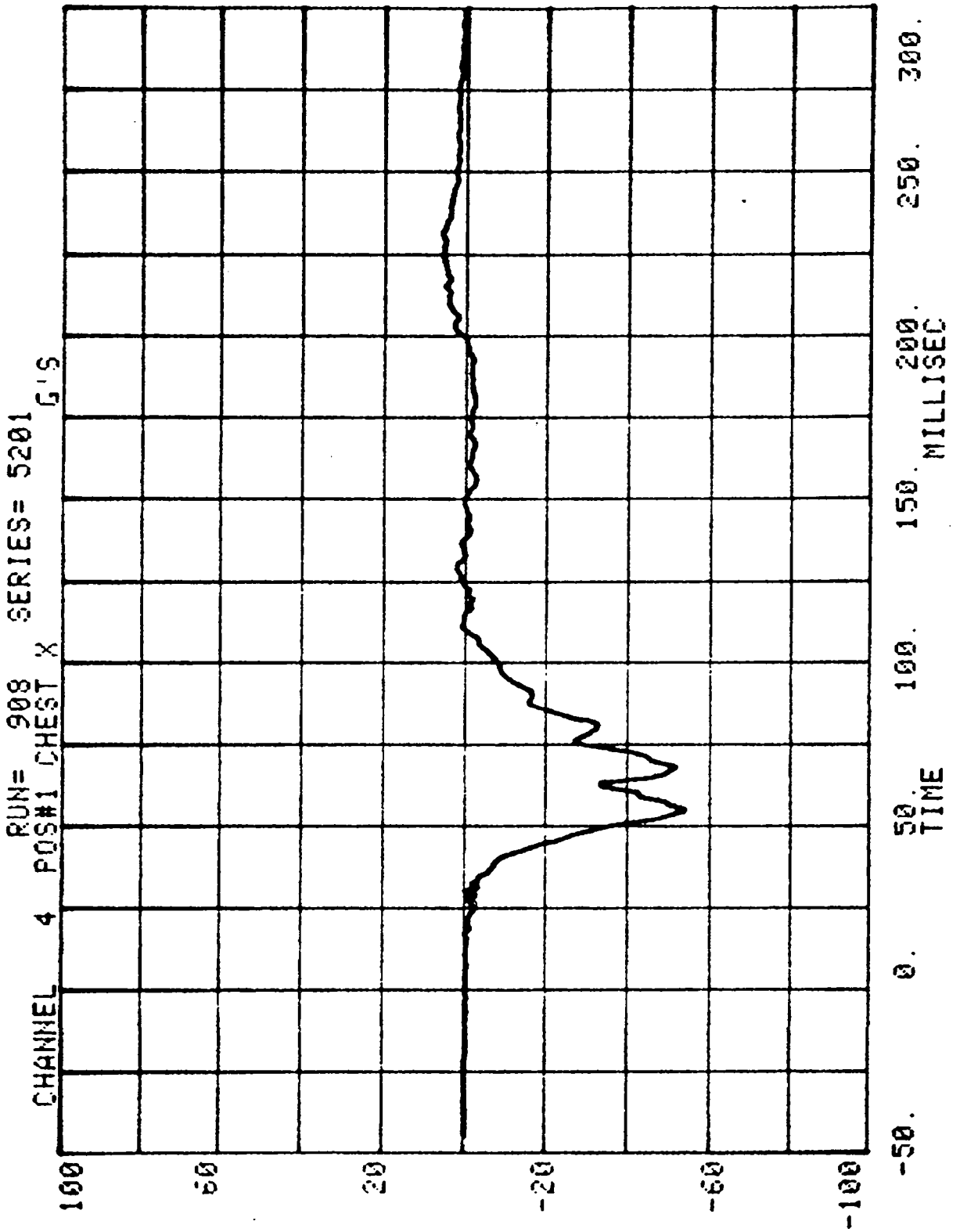
7731-17


CHANNEL 3 POS#1 HEAD Z
RUN= 908 SERIES= 5201
G'S
100
60
20
-20
-60
-100
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

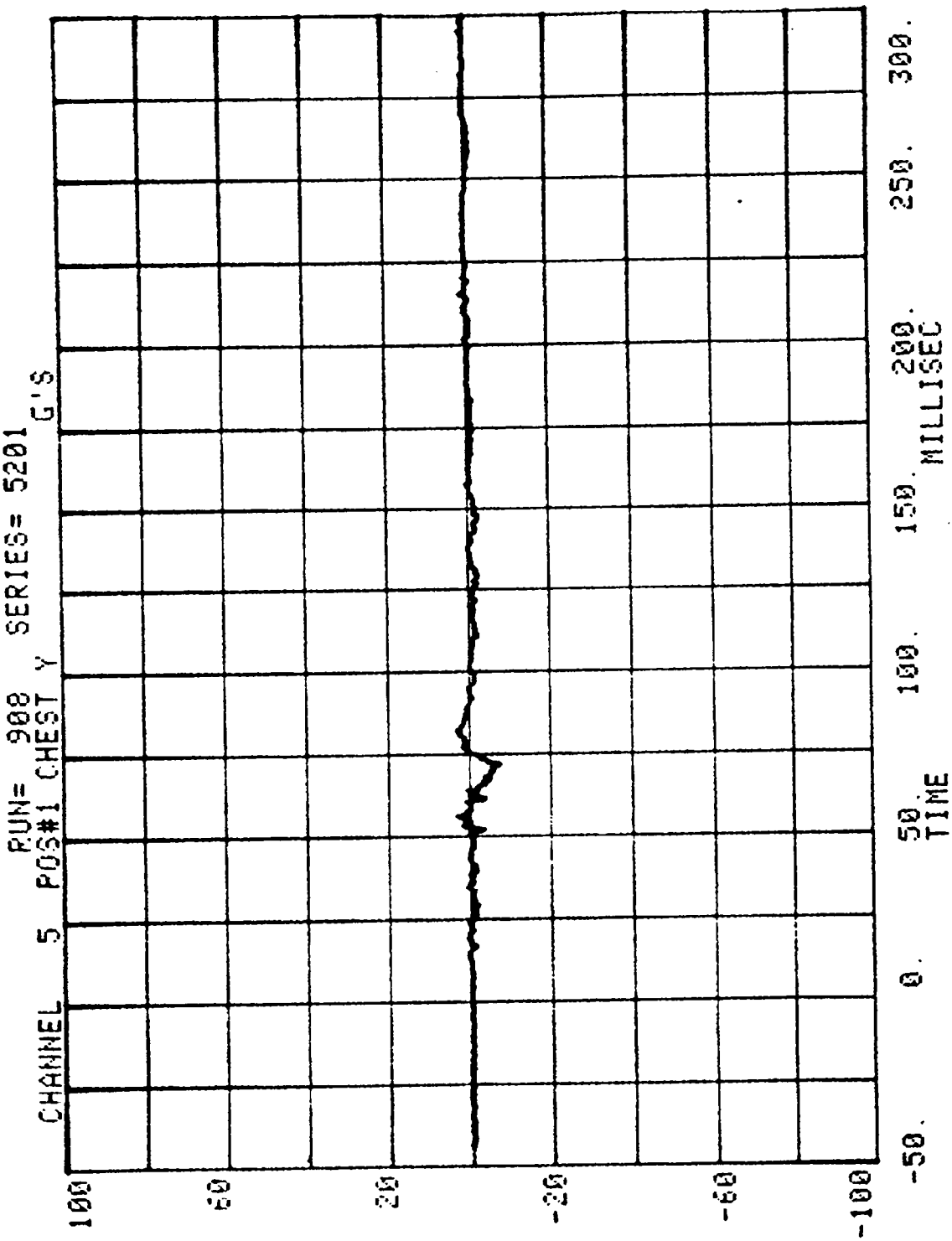
7731-17


RUN= 908 SERIES= 5201
CHANNEL 1 POS#1 HEAD R
G'S
100.
80.
60.
40.
20.
0.
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

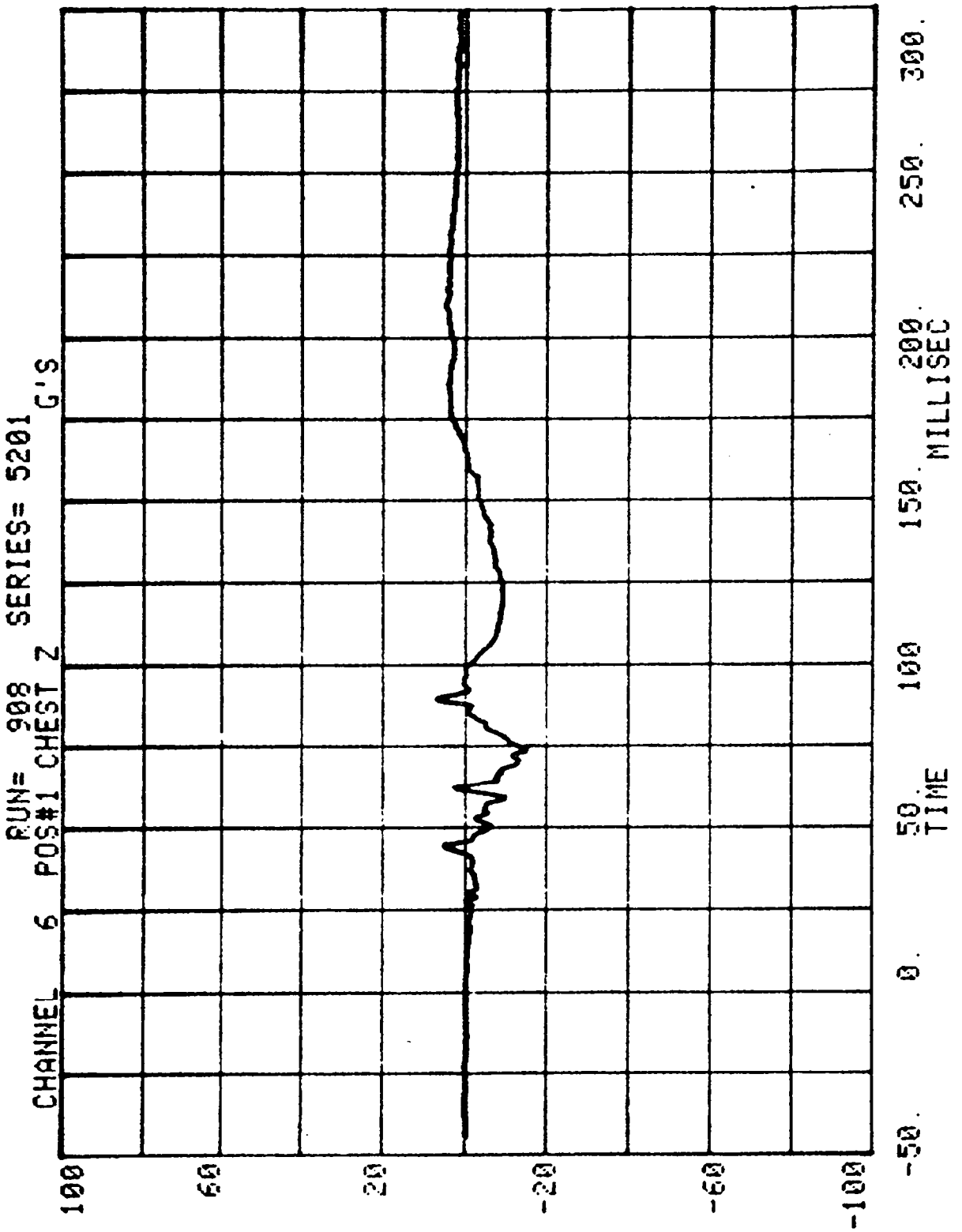
7731-17


CHANNEL 4 POS#1 CHEST X
RUN= 908 SERIES= 5201
G'S
100
50
20
-20
-50
-100
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

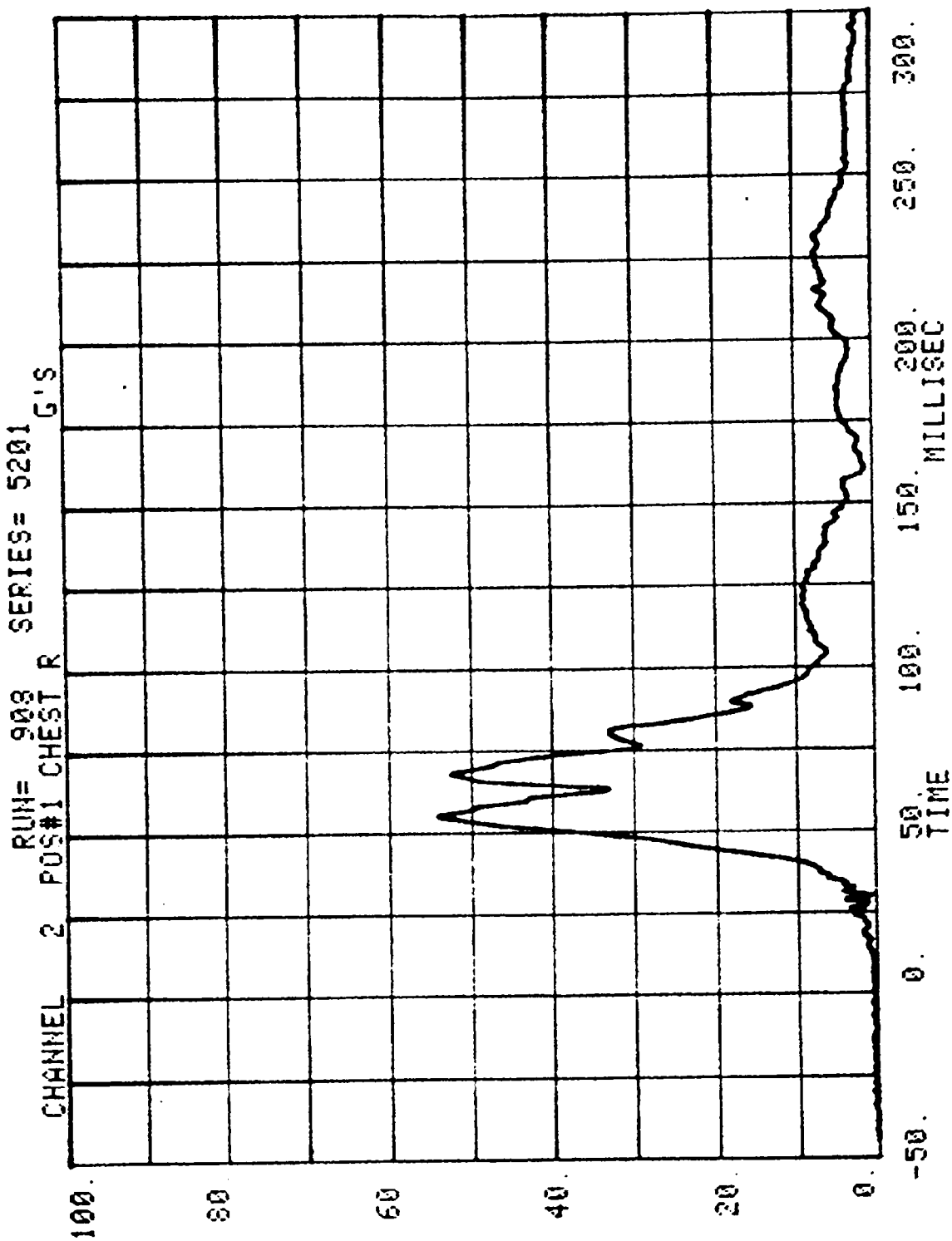
7731-17


CHANNEL 5 POS#1 CHEST Y
RUN= 908 SERIES= 5201
G'S
100
60
20
-20
-60
-100
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

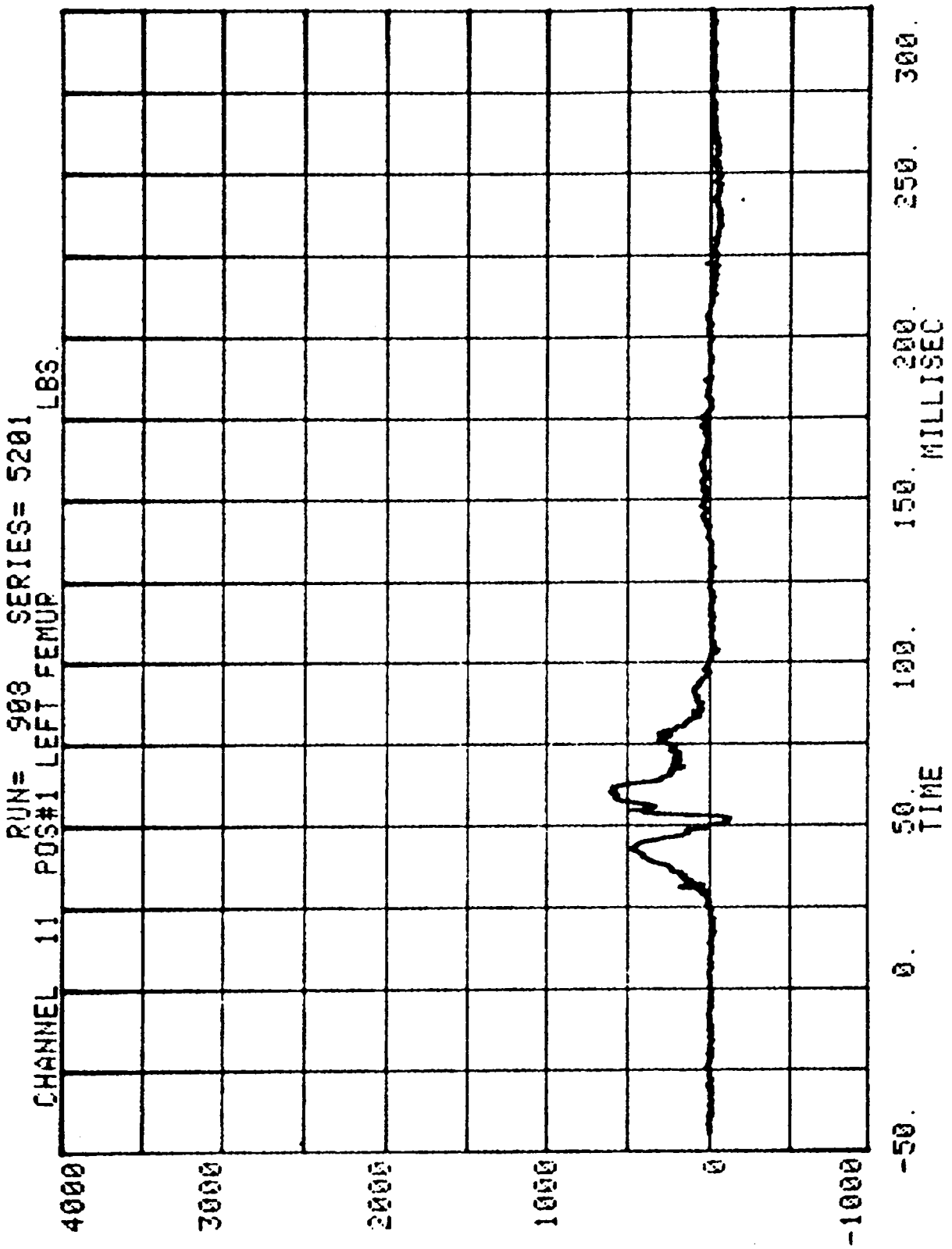
7731-17


CHANNEL 6 POS#1 CHEST Z
RUN= 908 SERIES= 5201
G'S
100
60
20
-20
-60
-100
-50.
0.
50.
100
150.
200.
250.
300.
TIME
MILLISEC

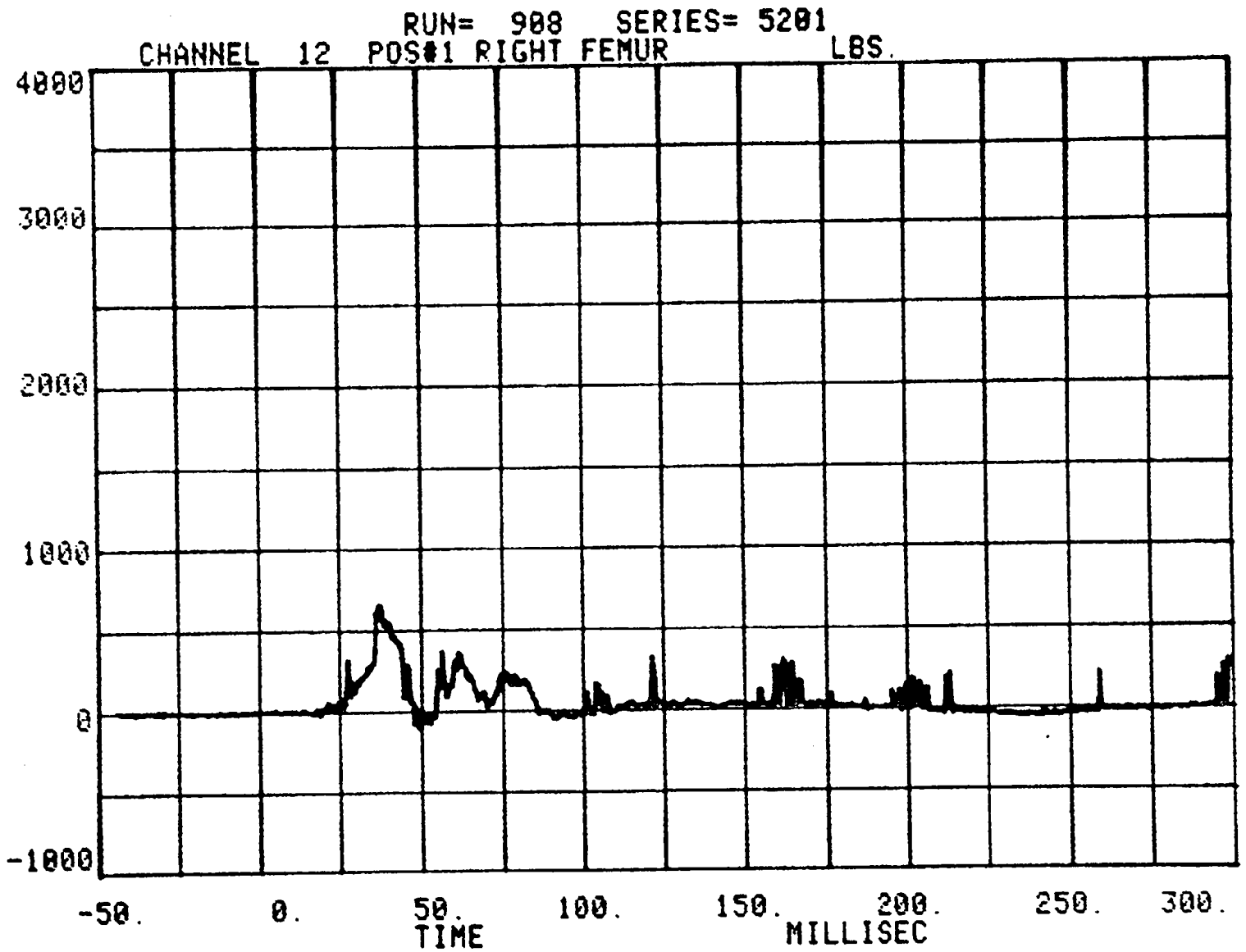
7731-17

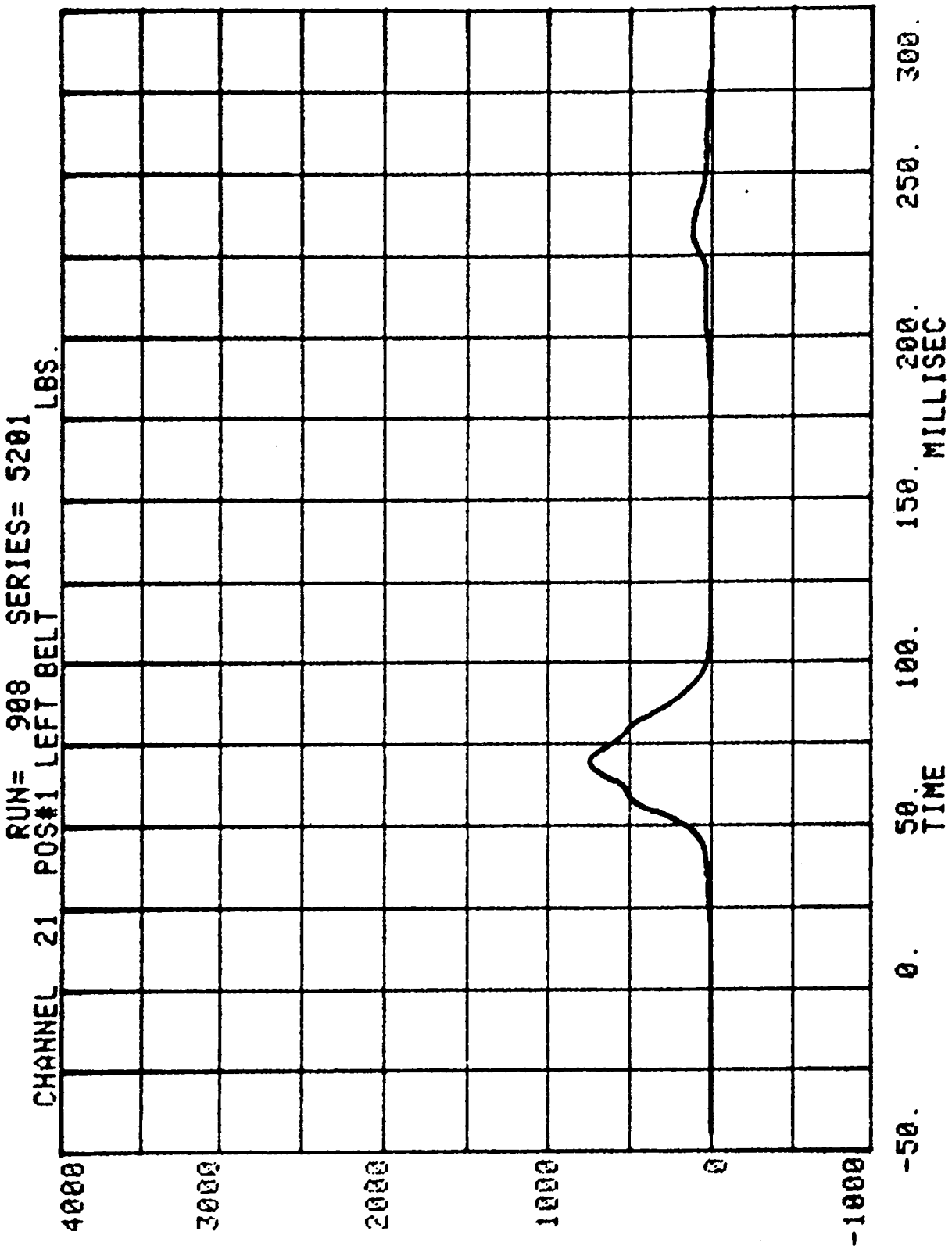

CHANNEL 2 RUN= 908 SERIES= 5201
POS#1 CHEST R G'S
100.
80.
60.
40.
20.
0.
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

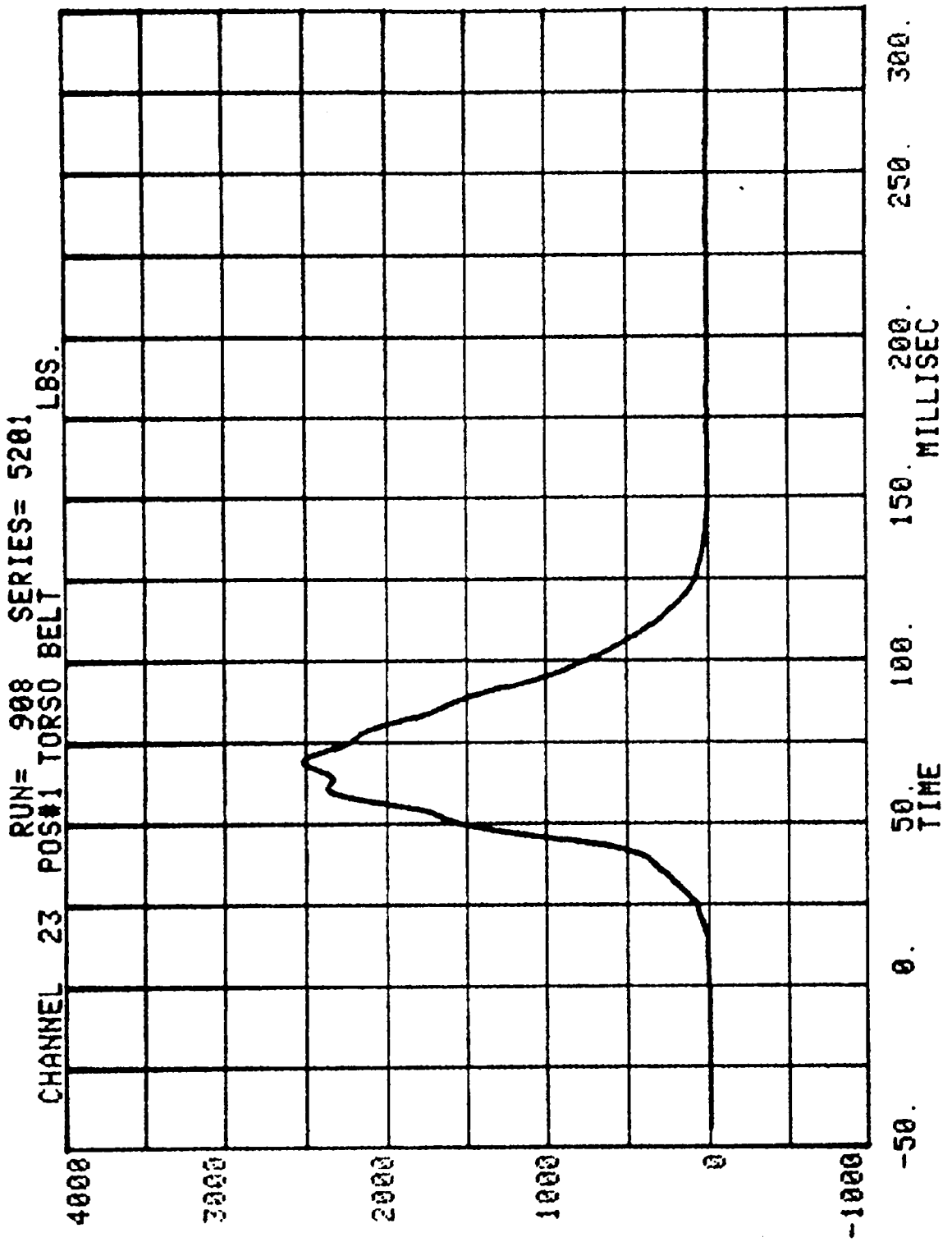
7731-17


RUN= 903 SERIES= 5201
CHANNEL 11 POS#1 LEFT FEMUR
LBS.
4000
3000
2000
1000
0
-1000
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

7731-17

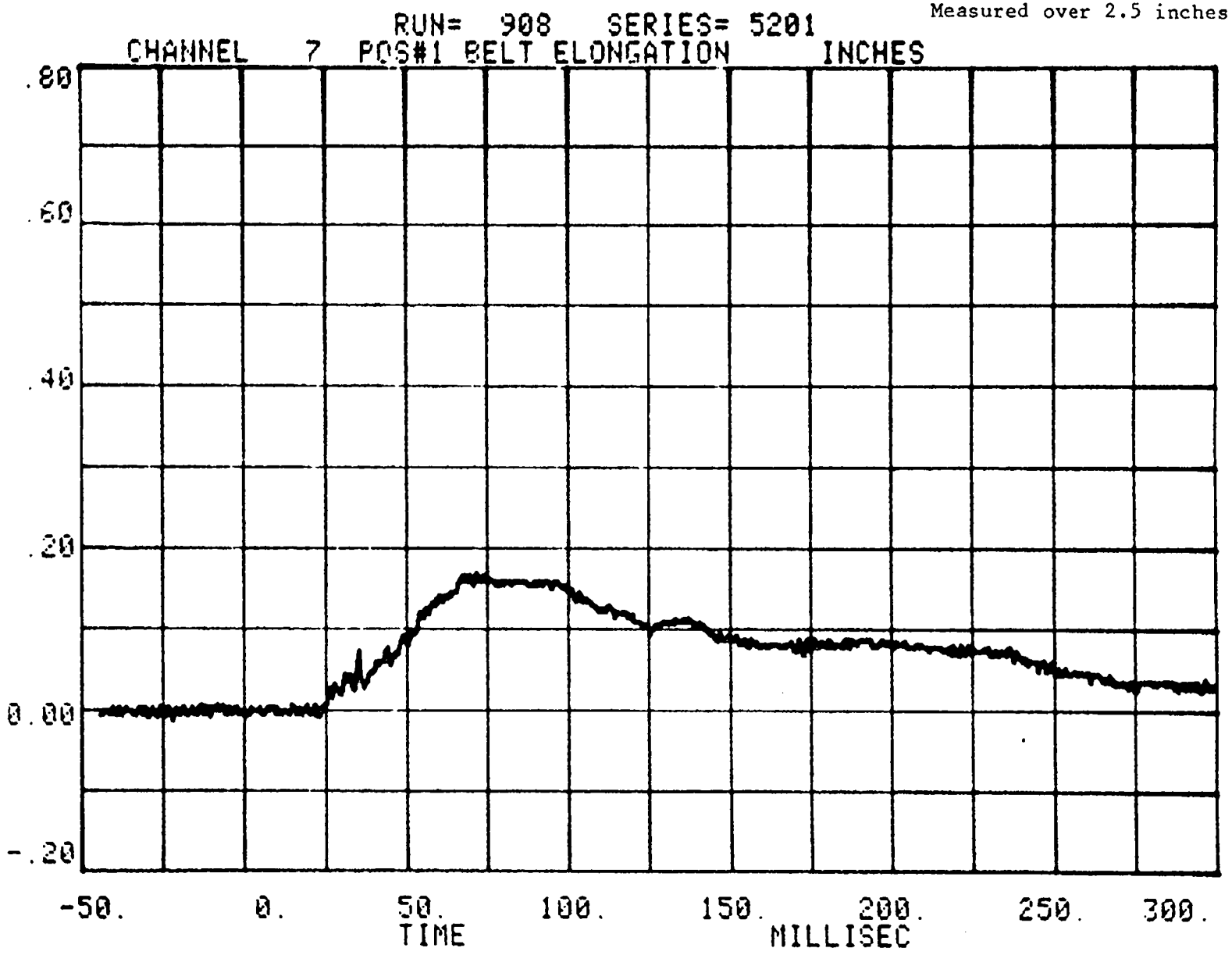

RUN= 908 SERIES= 5201
CHANNEL 12 POS#1 RIGHT FEMUR LBS.
4000
3000
2000
1000
0
-1000
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC


CHANNEL 21 POS#1 LEFT BELT
RUN= 908 SERIES= 5201
LBS.
4000
3000
2000
1000
0
-1000
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC


RUN= 908 SERIES= 5201
CHANNEL 23 POS#1 TORSO BELT
LBS.
4000
3000
2000
1000
0
-1000
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

7731-17

Measured over 2.5 inches



HEAD INJURY CRITERION
HEAD SEVERITY INDEX
36MS. MAXIMUM DURATION

NEW CAR ASSESSMENT CRASH TEST - 1989

RUN= 908

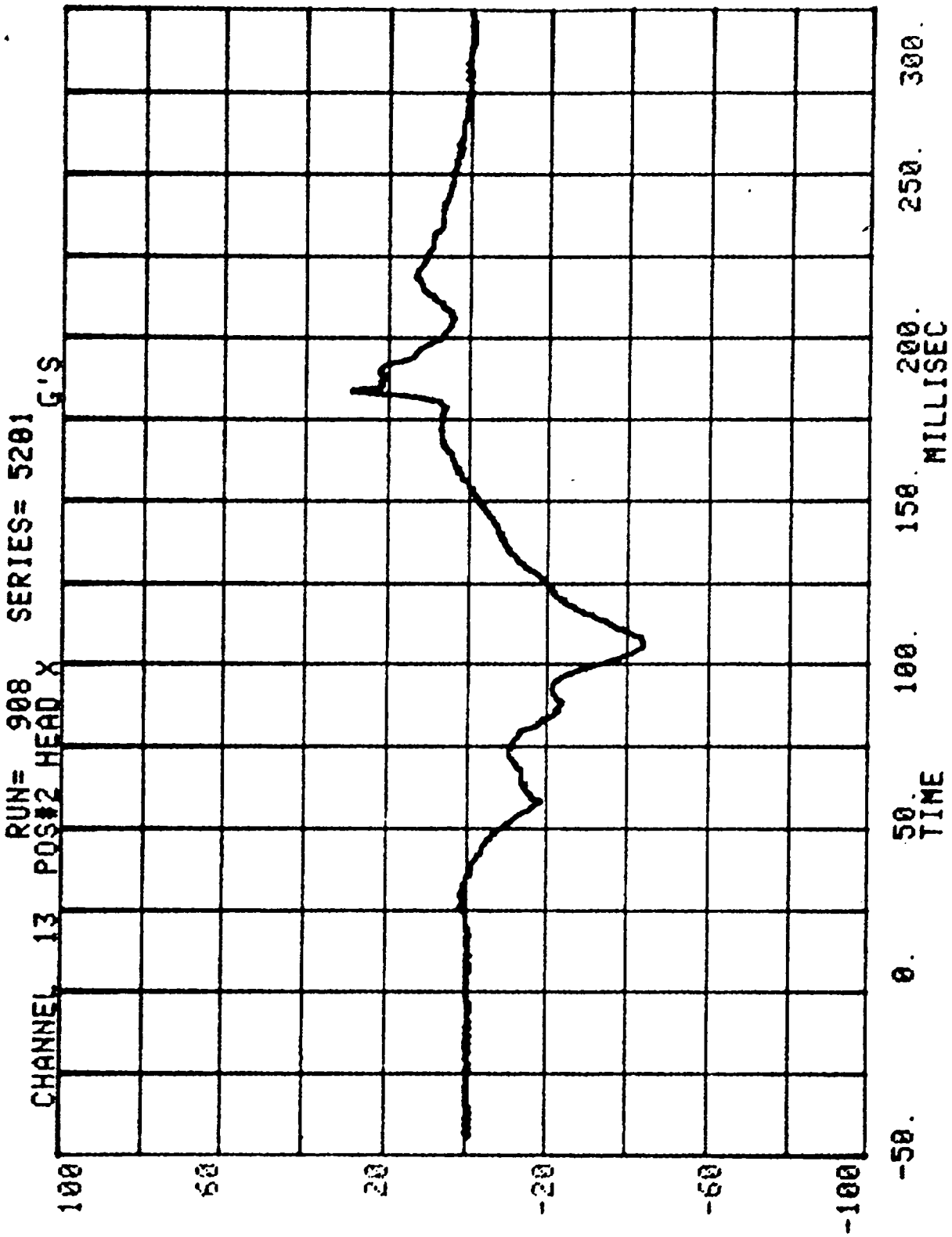
POS#2 HEAD R

HIC= 736.0 FROM T1= .06937 TO T2= .10537

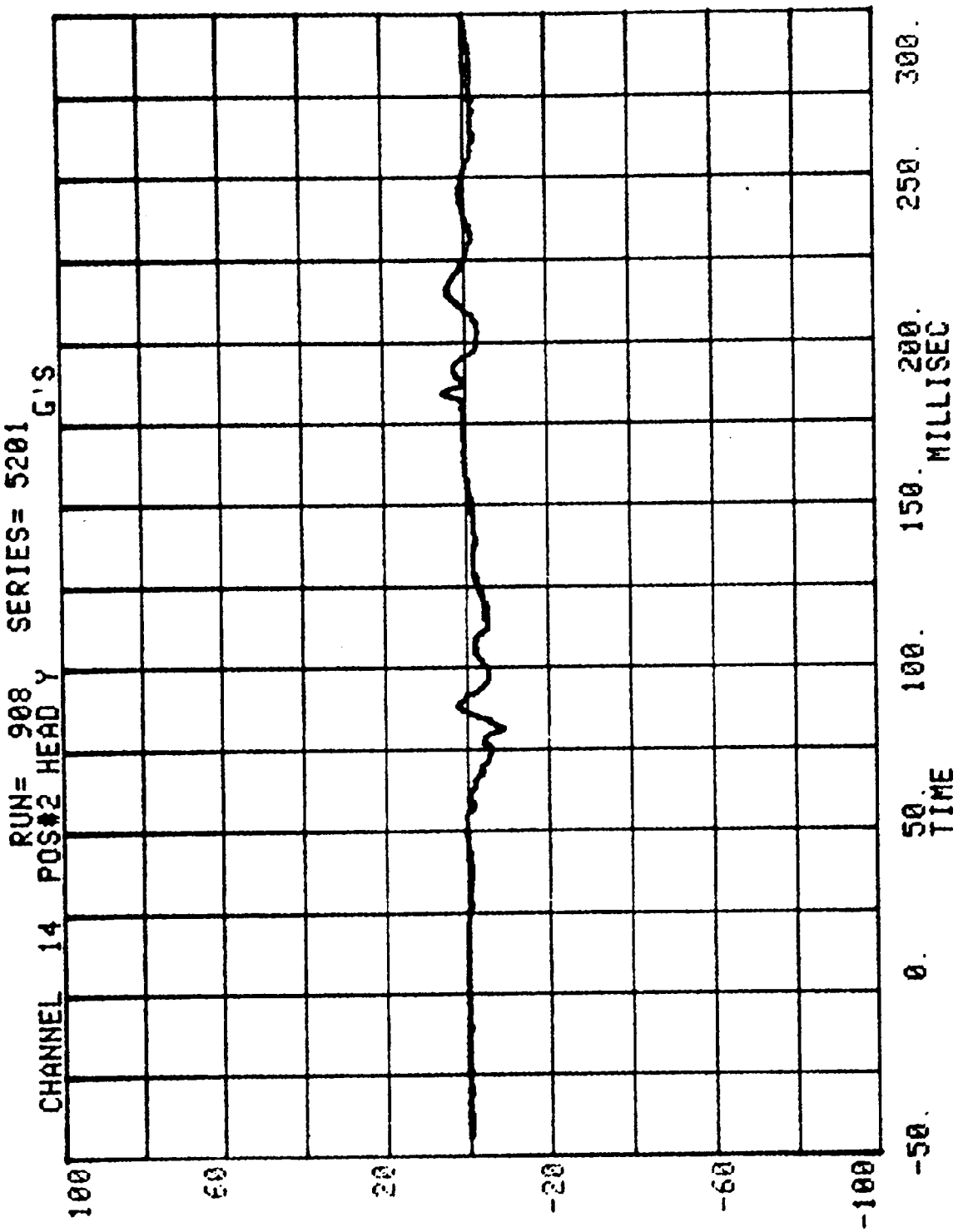
AVERAGE ACCELERATION BETWEEN T1 AND T2= 53.0G'S

EVENT TIME= 300.0 MSEC

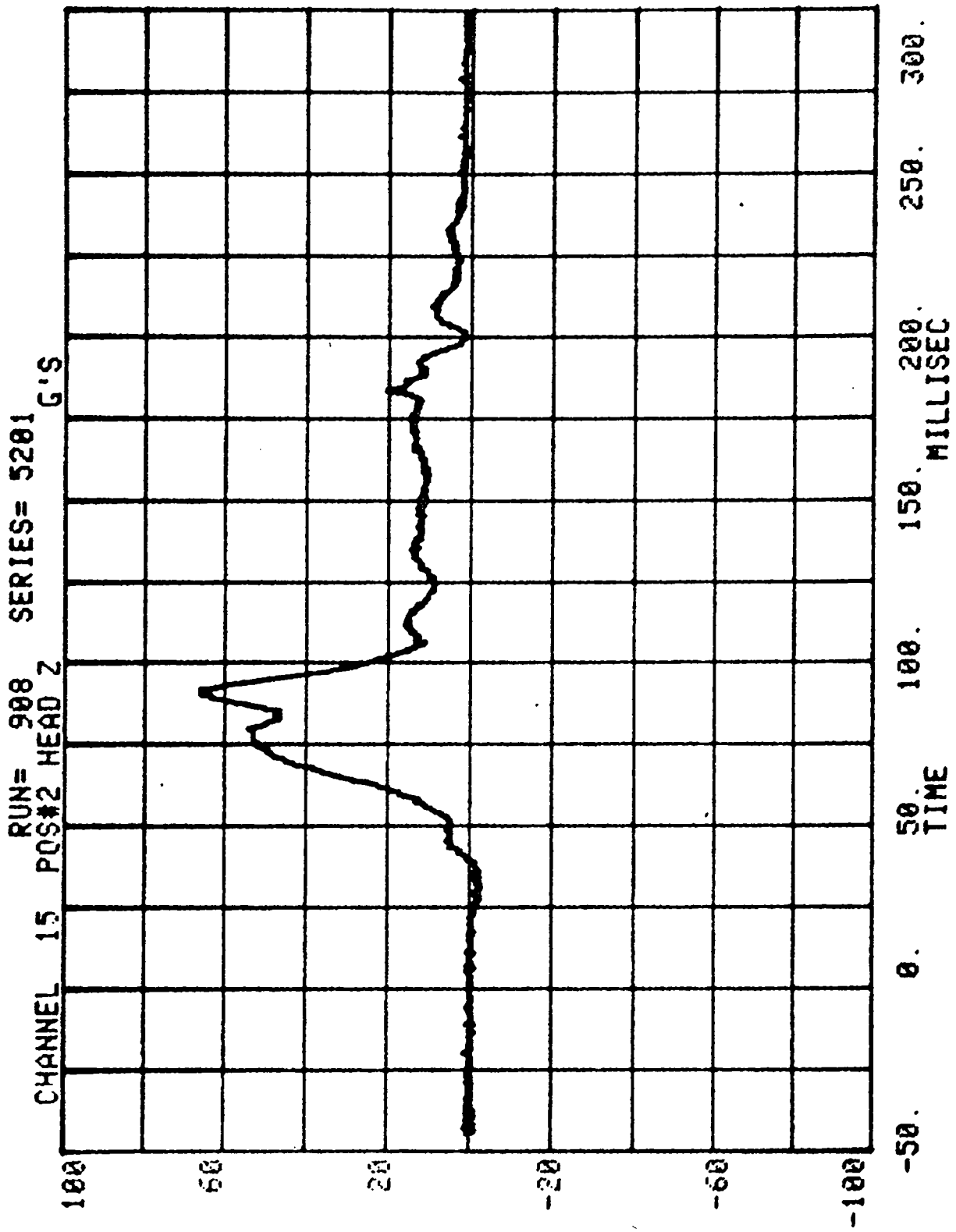
SEVERITY INDEX=1109.2


CHANNEL 13 POS#2 HEAD X
RUN= 908 SERIES= 5201
G'S
100
50
20
-20
-50
-100
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

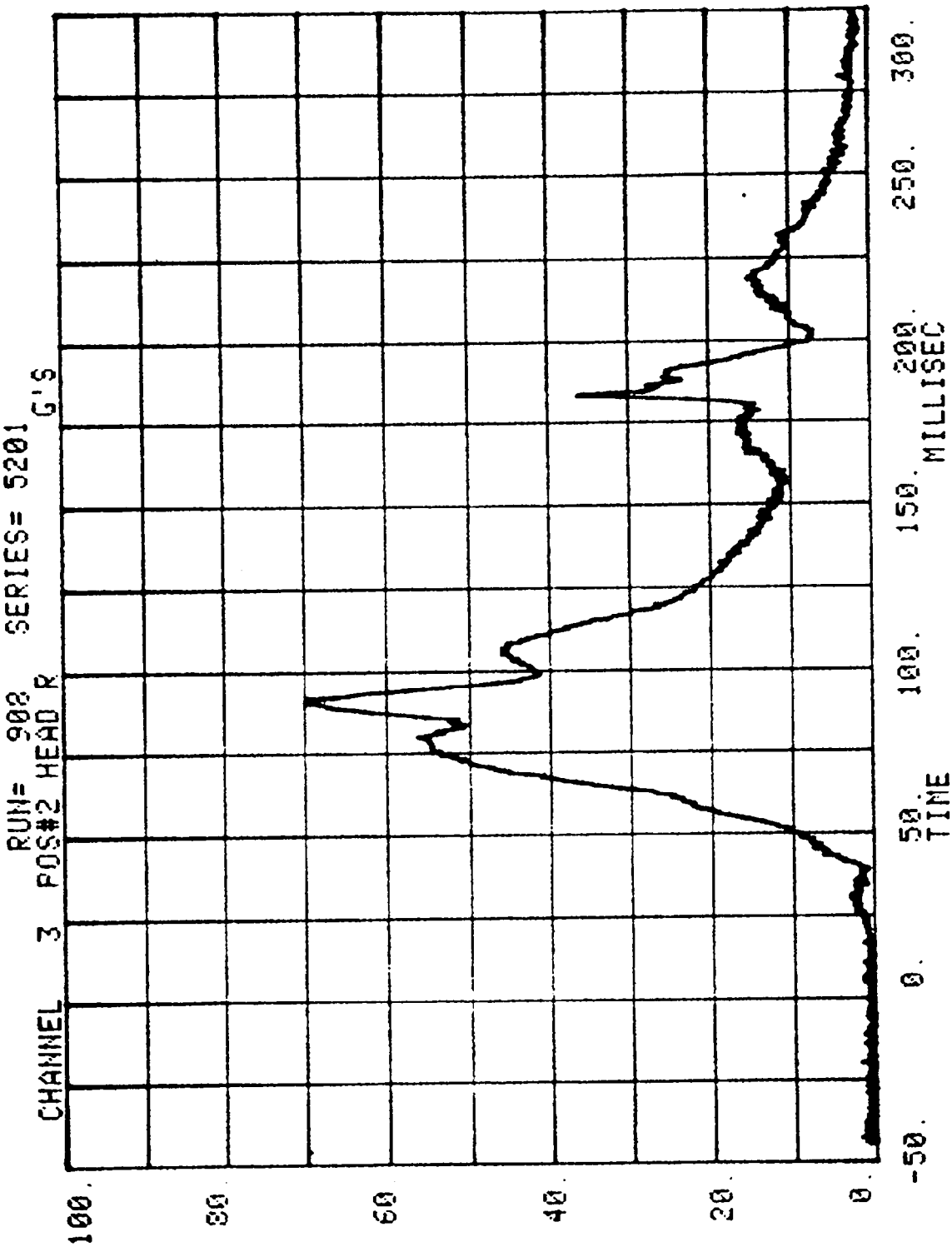
7731-17


CHANNEL 14 POS#2 HEAD Y
RUN= 908 SERIES= 5201
G'S
100
60
20
-20
-60
-100
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

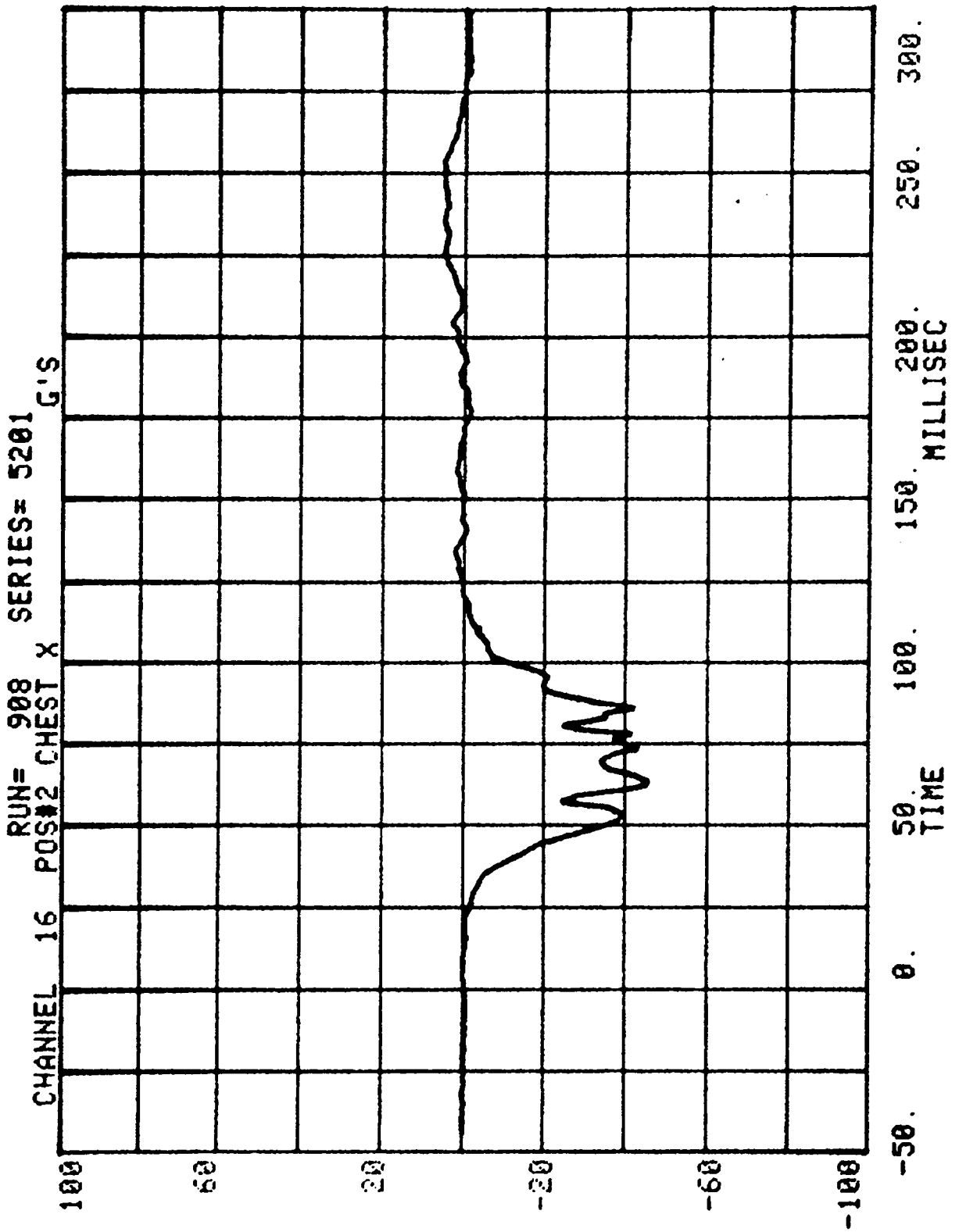
7731-17

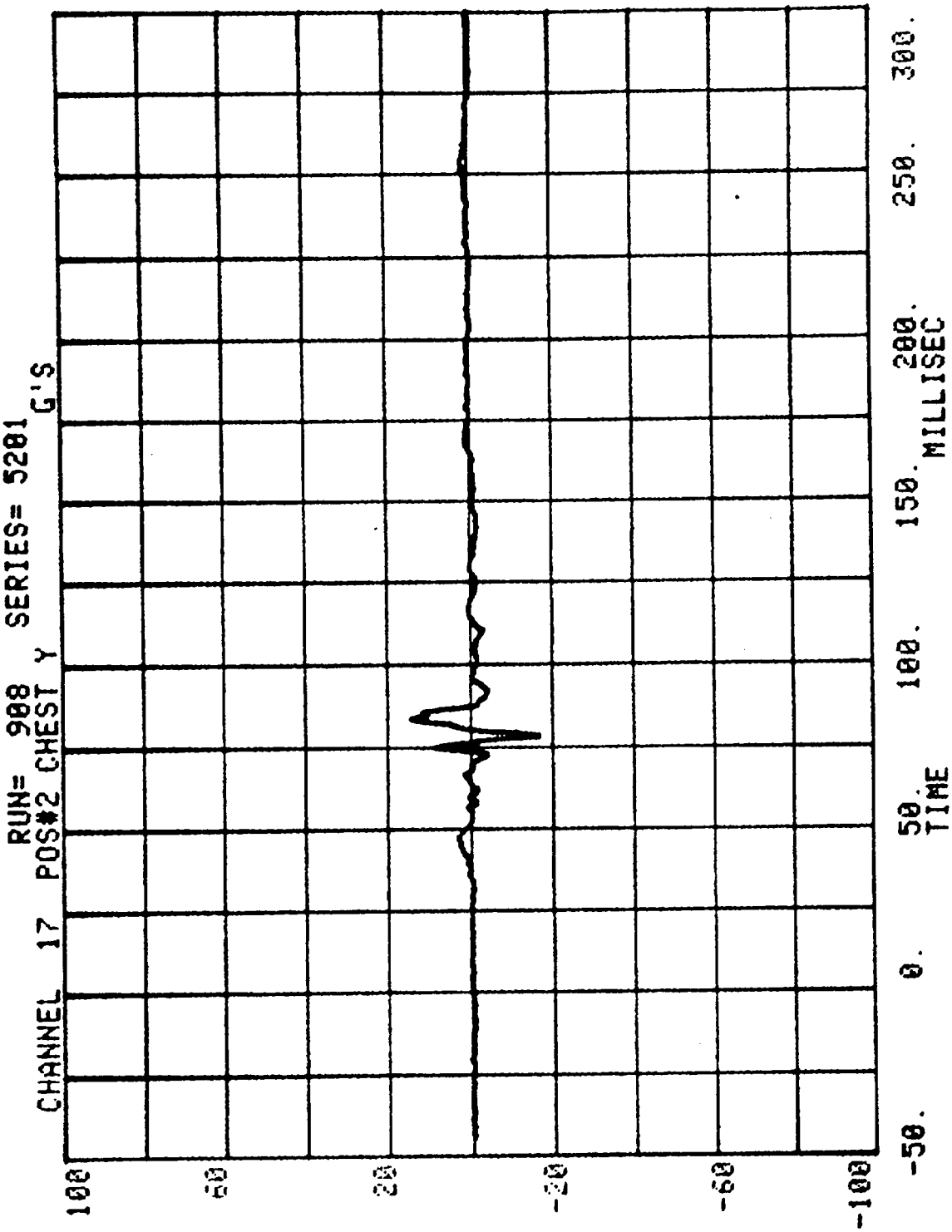

CHANNEL 15 POS#2 HEAD Z
RUN= 908 SERIES= 5201
G'S
100
60
20
-20
-60
-100
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

7731-17

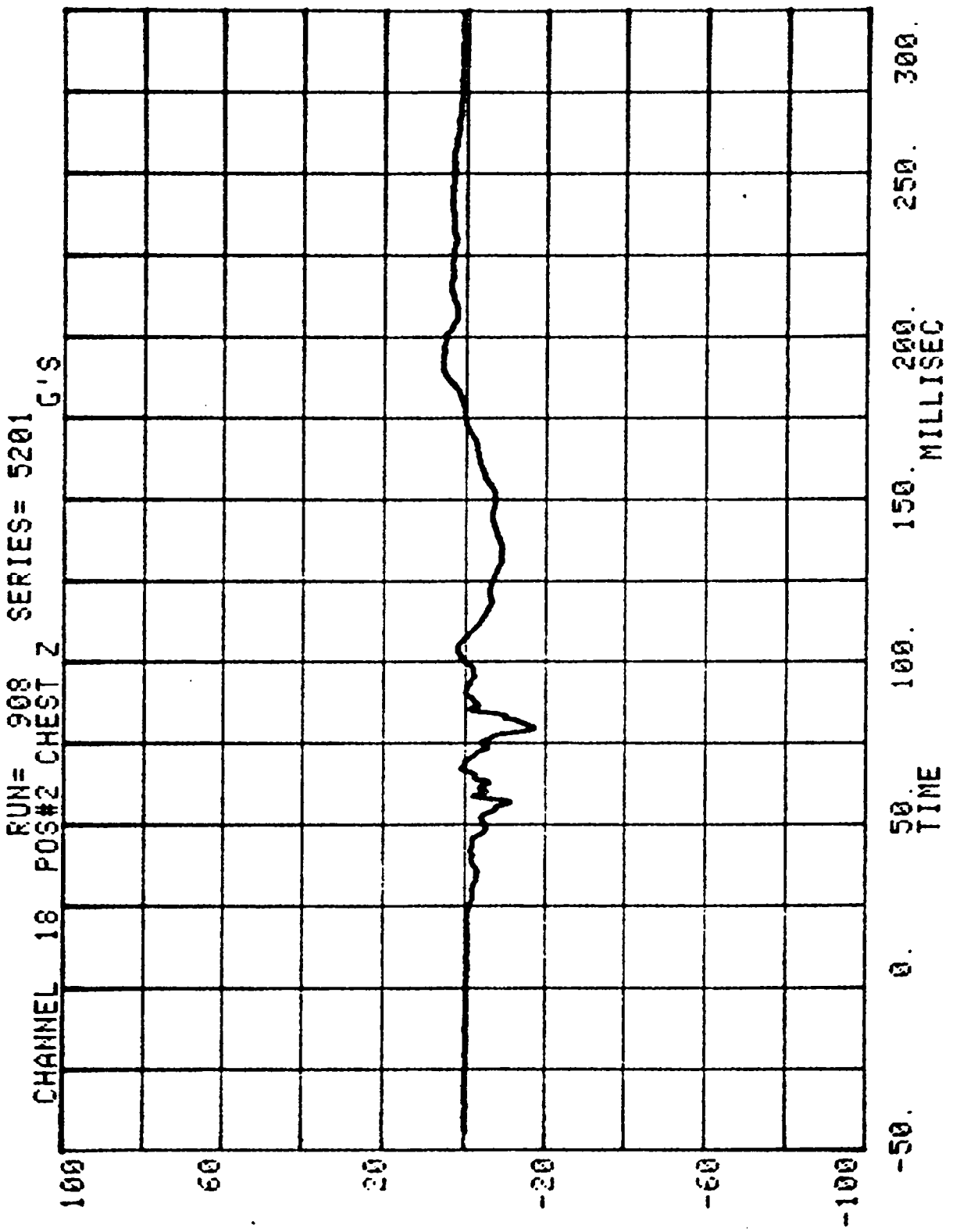

CHANNEL 3 POS#2 HEAD R
RUN= 902 SERIES= 5201
G'S
100.
80.
60.
40.
20.
0.
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

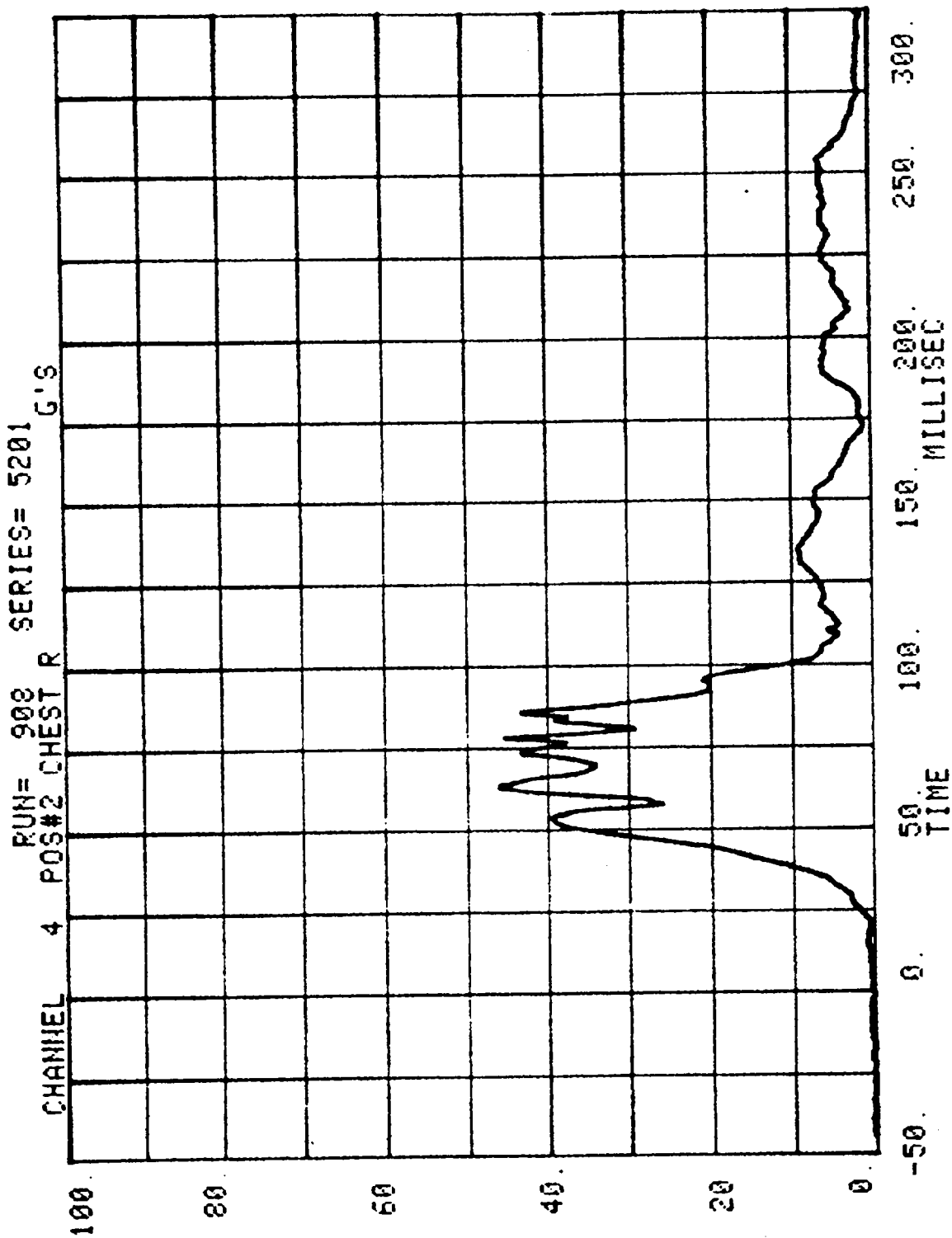
7731-17

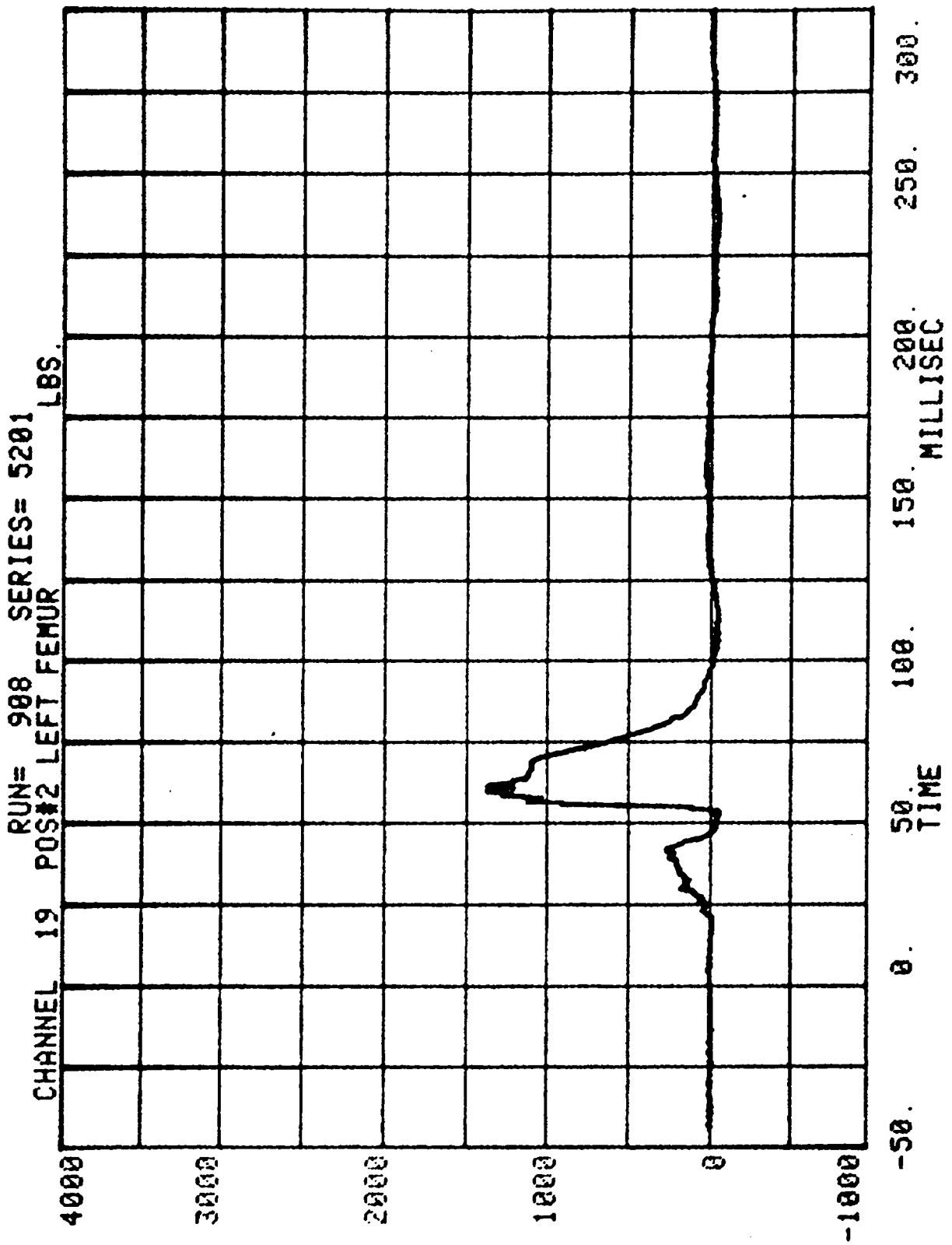

CHANNEL 16 POS#2 CHEST X
RUN= 908 SERIES= 5201
G'S
100
50
0
-50
-100
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC


CHANNEL 17 POS#2 CHEST Y
RUN= 908 SERIES= 5201
G'S
100
50
0
-50
-100
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

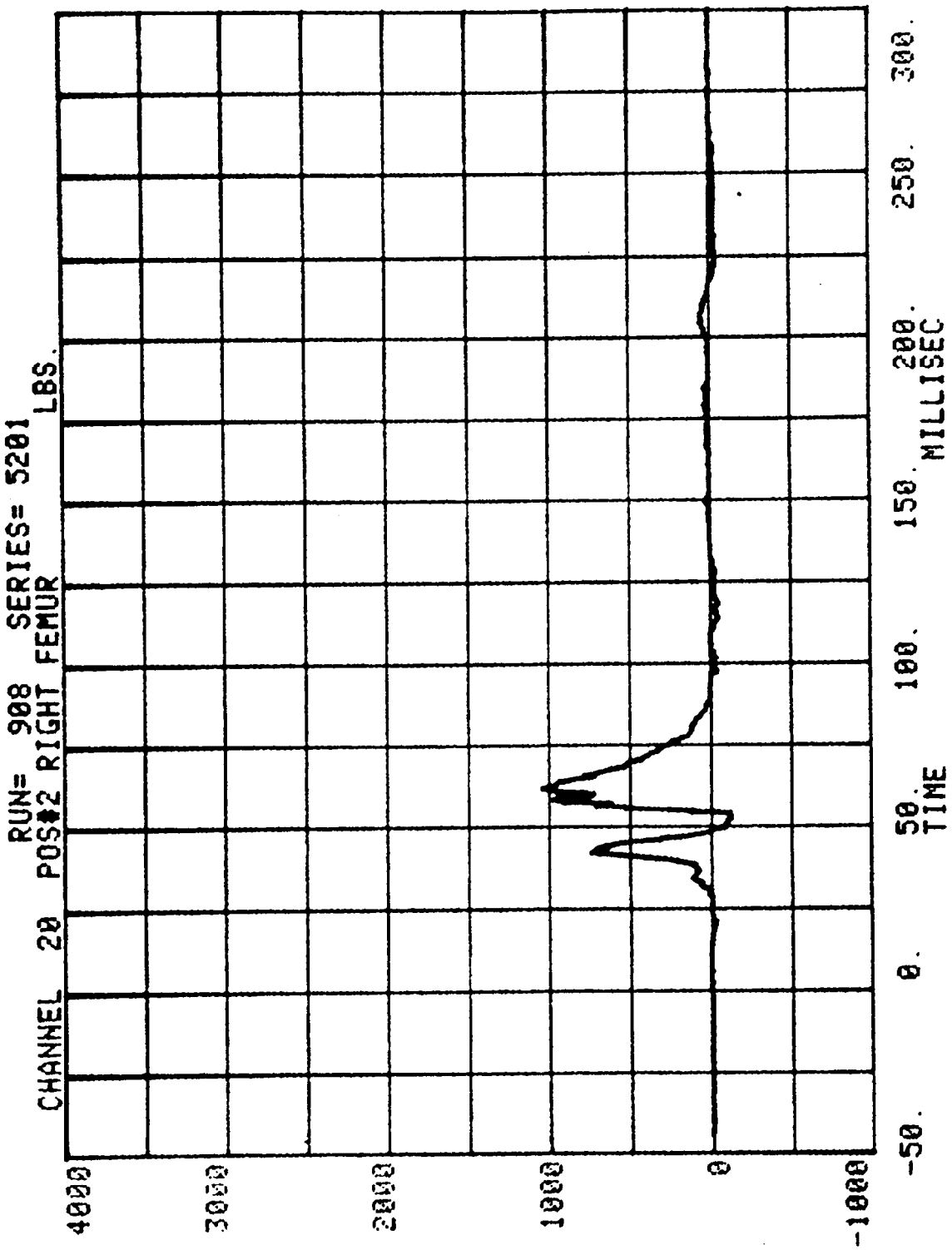
7731-17


CHANNEL 18 POS#2 CHEST Z
RUN= 908 SERIES= 5201
G'S
100
60
20
-20
-60
-100
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

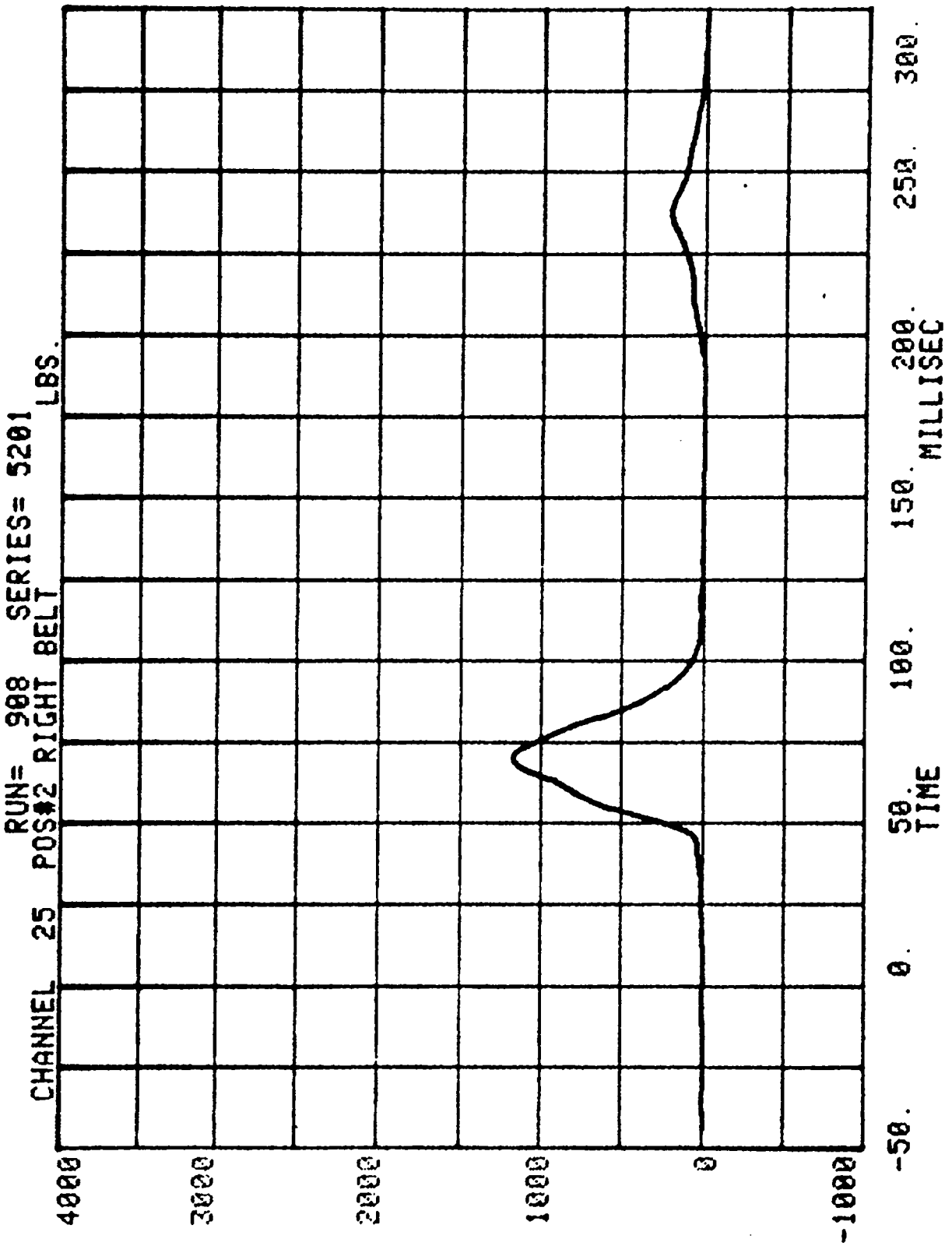

CHANNEL 4 POS#2 CHEST R
RUN= 908 SERIES= 5201
G'S
100.
80.
60.
40.
20.
0.
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC


CHANNEL 19 POS#2 LEFT FEMUR
RUN= 908 SERIES= 5201
LBS.
4000
3000
2000
1000
0
-1000
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

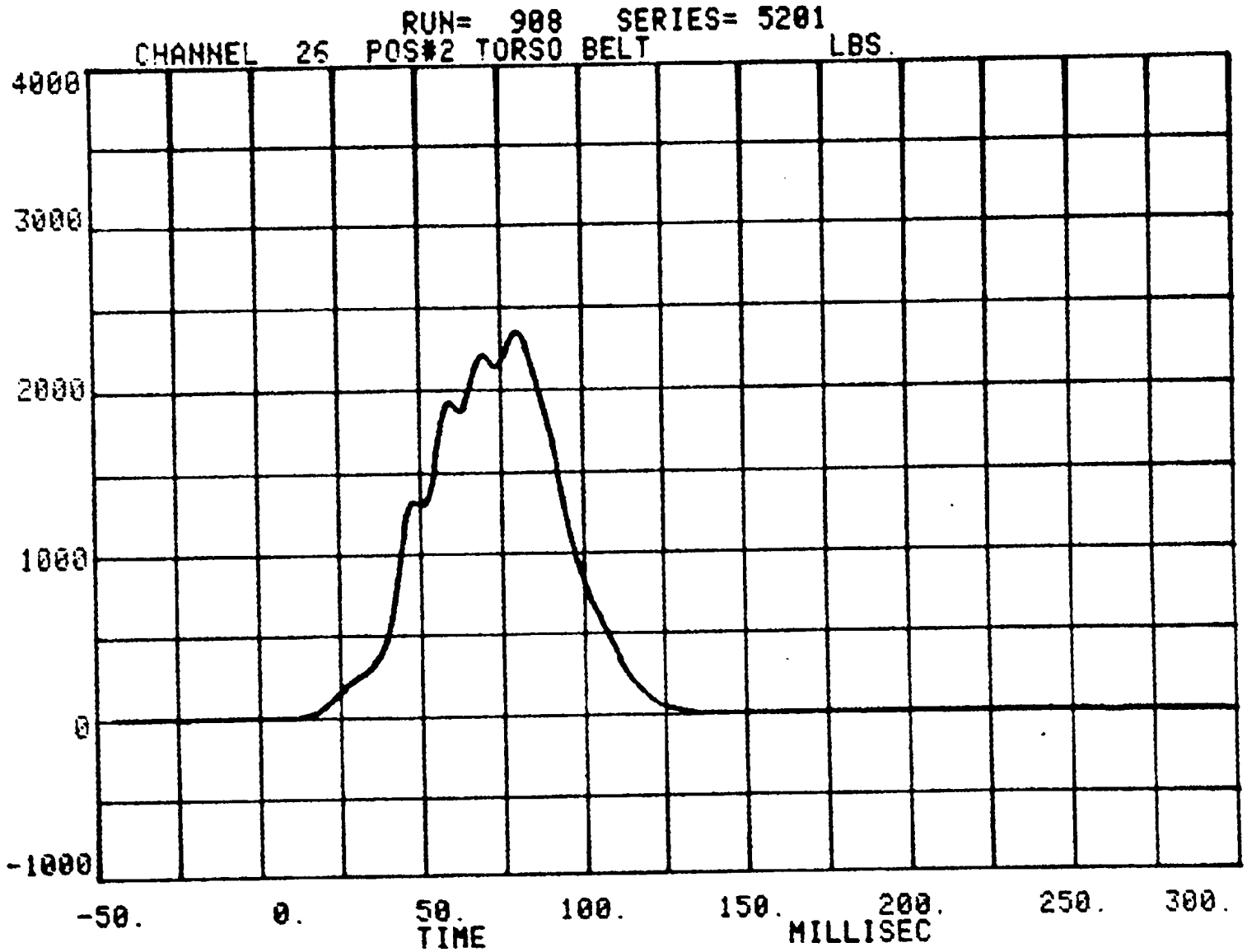
7731-17

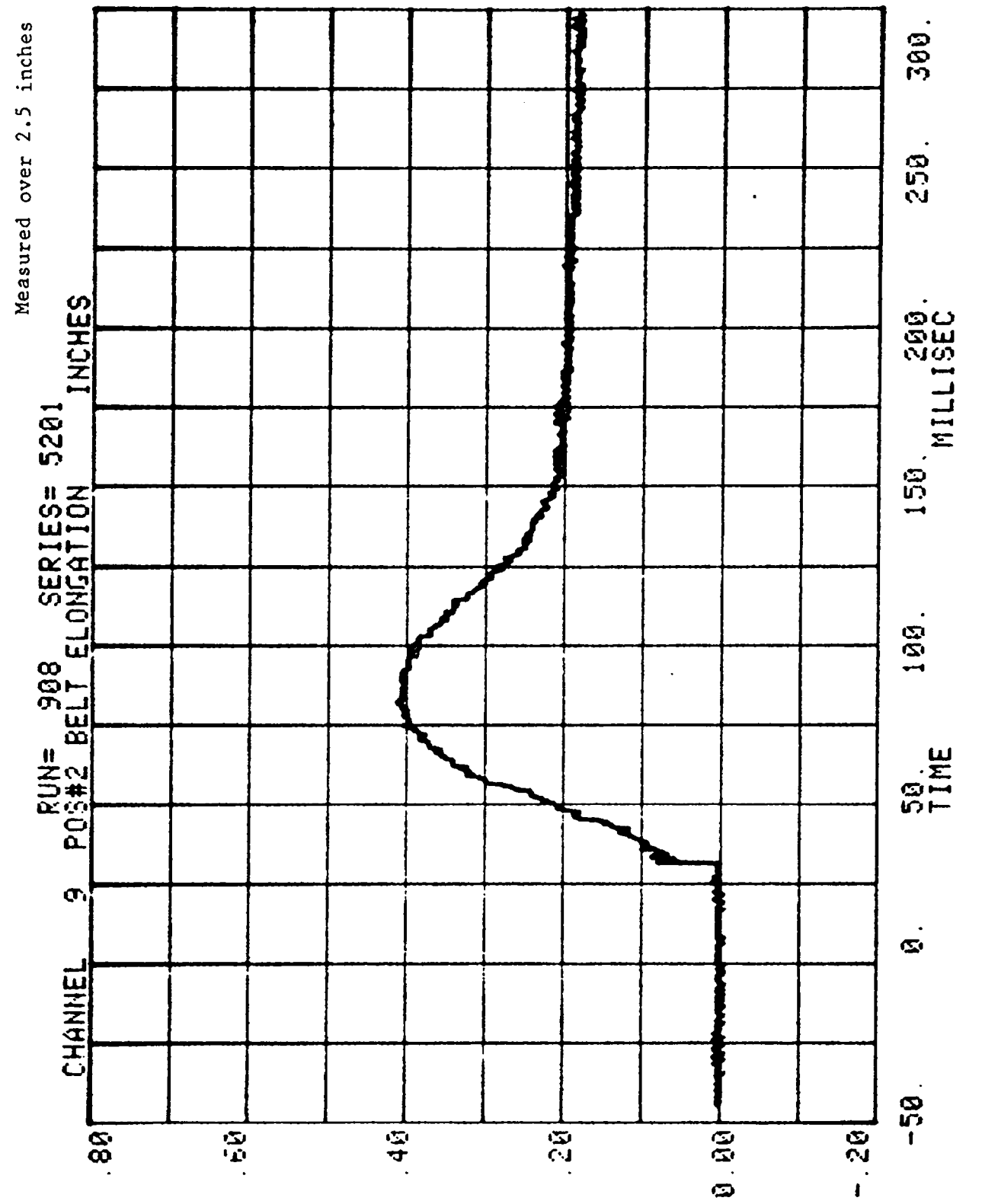

RUN= 908 SERIES= 5201
CHANNEL 20 POS#2 RIGHT FEMUR
LBS.
4000
3000
2000
1000
0
-1000
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

7731-17


CHANNEL 25 POS#2 RIGHT BELT
RUN= 908 SERIES= 5201
LBS.
4000
3000
2000
1000
0
-1000
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

7731-17


RUN= 908 SERIES= 5201
CHANNEL 26 POS#2 TORSO BELT LBS.
4000
3000
2000
1000
0
-1000
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC


Measured over 2.5 inches
CHANNEL 2 POS#2 BELT ELONGATION
RUN= 908 SERIES= 5201
INCHES
.80
.60
.40
.20
0.00
-.20
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

7731-17

Appendix C

DUMMY CERTIFICATION TESTS

Appendix C contains the results from certification tests performed on the 50th percentile male anthropomorphic 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.

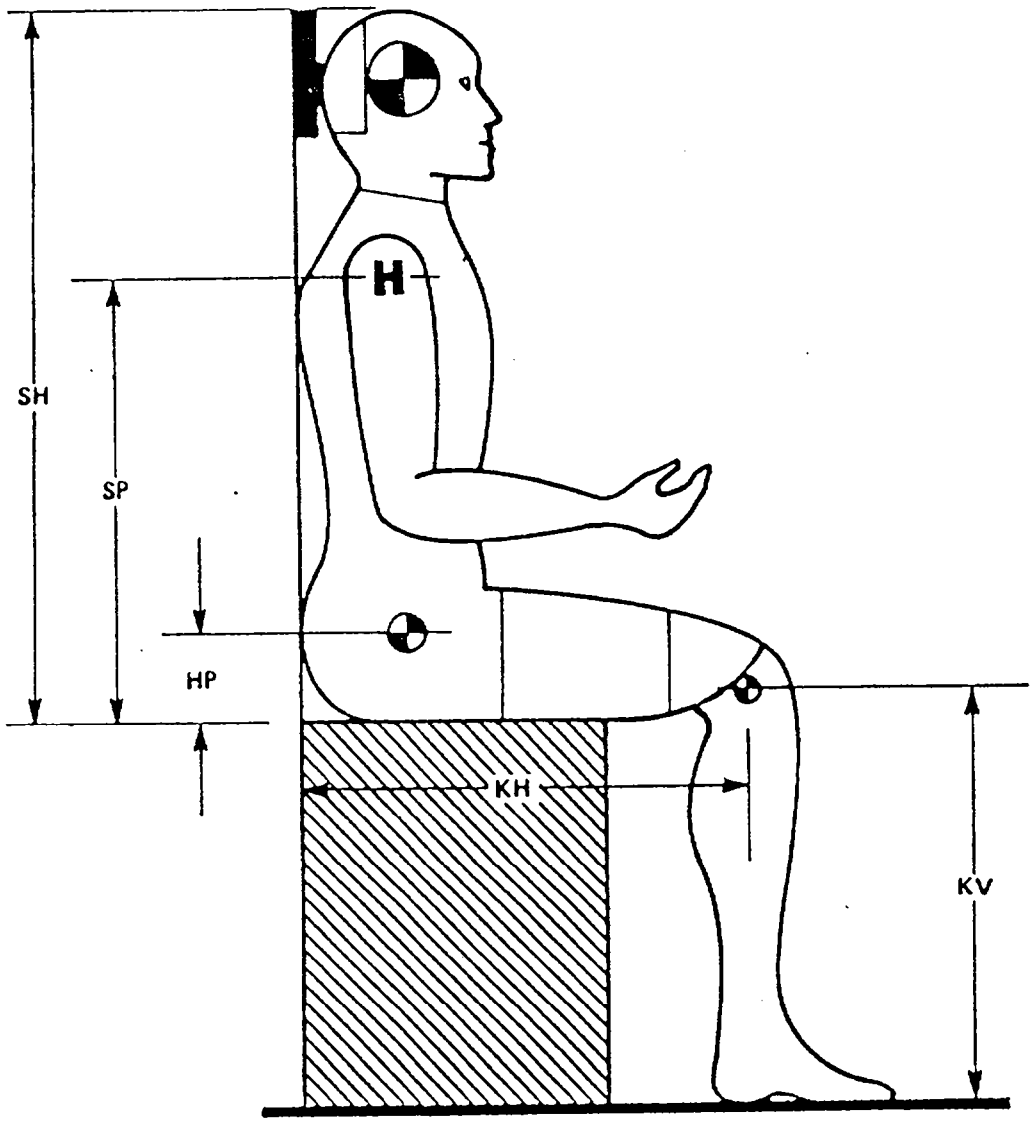
Dummy serial numbers and certification dates are:

Serial No.	Completion Date
1021	6-7-89
320	6-26-89

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.

Figure 10 DUMMY CONFIGURATION DIMENSIONS



PART 572 DUMMY CONFIGURATION AND PERFORMANCE VERIFICATION DATA

NHTSA DUMMY I.D. NUMBER.: 1021

I. CONFIGURATION VERIFICATION DATA

	P. 572 SPECIFICATION	PRE-TEST if required	POST-TEST if required
DATE OF CONFIGURATION VERIFICATION	XXXXXXXXXXXXX	6-7-89	
VERIFICATION NUMBER FOR DUMMY (*)	XXXXXXXXXXXXX	3	
SH - Seated Height	35.6 to 35.8"	35.7 "	"
SP - Shoulder Pivot Height	21.8 to 22.4"	21.9 "	"
HP - Hip Pivot Height	3.9" ref.	3.9 "	"
KH - Knee Pivot from Back Line	20.1 to 20.7"	20.4 "	"
KV - Knee Pivot from floor	19.3 to 19.9"	19.8 "	"
SW - Shoulder Width	17.8 to 18.4"	18.3 "	"
HW - Hip Width	14.0 to 15.4"	14.9 "	"

II. PERFORMANCE VERIFICATION DATA:

		PRE-TEST (if required)	POST-TEST (if required)
DATE OF PERFORMANCE VERIFICATION		6-7-89	
SEQUENTIAL VERIFICATION NUMBER FOR DUMMY (*)		3	
VERIFICATION LAB TEMPERATURE (66 to 78 deg.)		70-71 deg	deg
VERIFICATION LAB HUMIDITY (10 TO 70 %)		44-51 %	%
TEST PARAMETER	SPECIFICATION		
1. HEAD DROP TEST			
a. peak resultant accel.	210 to 260 G's	250 G's	G's
b. peak lateral accel.	<= 10 G's	2 G's	G's
c. Time above 100 G's	0.9 to 1.5 ms.	1.1 ms	ms

* Sequential number beginning with "1" at the start of each fiscal years's crash test program.

TECHNICIAN'S NAME: IVAN MINKEWICZ

II. PERFORMANCE VERIFICATION DATA (continued)

NHTSA DUMMY I.D. NUMBER: 1021

TEST PARAMETER		SPECIFICATION	PRE-TEST (if required)	POST-TEST (if required)
2. NECK BENDING TEST				
a. Pendulum Speed		21.5 to 25.5 fps.	22.2 fps	
b. Pend. Avg. Decel. over t3 to t2		20 to 24 G's	22 G's	
c. Peak Resultant Head Acceleration		26 G's max.	24.9 G's	
d. Pendulum Decel. (t2-t1)		<= 3 ms.	2.1 ms	
e. Pendulum Decel. (t3-t2)		25 to 30 ms.	25.1 ms	
f. Pendulum Decel. (t4-t3)		<= 10 ms.	4 ms	
g. Max. Head Rotation		63 to 73 deg.	72 deg	
h. Chordal Displacement				
HEAD ROTATION ANGLE				
0 deg.	Time	-2 to 2 ms.	0.0 ms	
	Displ.	-.5 to .5"	0.0 "	
30 deg.	Time	25.6 to 34.4 ms.	27 ms	
	Displ.	2.1 to 3.1"	2.4 "	
60 deg.	Time	40.3 to 51.7 ms.	41.1 ms	
	Displ.	4.3 to 5.3"	4.8 "	
Maximum	Time	53.2 to 66.8 ms.	54 ms	
	Displ.	5.0 to 6.0"	5.7 "	
60 deg.	Time	67.0 to 83.0 ms.	74.2 ms	
	Displ.	4.3 to 5.3"	4.7 "	
30 deg.	Time	85.4 to 104.6 ms.	89.1 ms	
	Displ.	2.1 to 3.1"	2.3 "	
0 deg.	Time	101.0 - 123.0 ms.	103.7 ms	
	Displ.	-.5 to 0.5"	0.0 "	

TECHNICIANS NAME: IVAN MINKEWICZ

II. PERFORMANCE VERIFICATION DATA (continued)

NHTSA DUMMY I.D. NUMBER: 1021

TEST PARAMETER	SPECIFICATION	PRE-TEST (if required)	POST-TEST (if required)
3. ABDOMINAL COMPRESSION			
TEST: (preload = 50 lbs.)			
a. Force @ 0.5"	23 to 36 lbs.	25 lbs	
b. Force @ 0.75"	36 to 50 lbs.	39 lbs	
c. Force @ 1.0"	50 to 63 lbs.	54.5 lbs	
d. Force @ 1.3"	73 to 88 lbs.	78 lbs	
4. LUMBAR FLEXION TEST:			
a. Force @ 20 deg.	22 to 34 lbs.	27 lbs	
b. Force @ 30 deg.	34 to 46 lbs.	39 lbs	
c. Force @ 40 deg.	46 to 58 lbs.	52.5 lbs	
d. Return Angle	12 deg. maximum	8.5 deg	
5. CHEST IMPACT TESTS:			
A.High Speed			
(1) Probe Speed	21.78-22.22 fps.	21.8 fps	
(2) Peak Deflection	1.7" maximum	1.41 "	
(3) Peak Resistive Force	2250 lbs maximum	2106 lbs	
(4) Internal Hysteresis	50 to 70%	52.8 %	
B. Low Speed			
(1) Probe Speed	13.86-14.14 fps.	13.9 fps	
(2) Peak Deflection	1.1" maximum	1.08 "	
(3) Peak Resistive Force	1450 lbs maximum	1248 lbs	
(4) Internal Hysteresis	50 to 70%	54.9 %	

TECHNICIAN'S NAME: IVAN MINKEWICZ

II. PERFORMANCE VERIFICATION DATA (continued)

NHTSA DUMMY I.D. NUMBER: 1021

TEST PARAMETER	SPECIFICATION	PRE-TEST (if required)	POST-TEST (if required)
6. KNEE IMPACT TEST			
A. Left Knee			
(1) Probe Speed	6.76 to 7.04 fps	7.0 fps	
(2) Maximum Force	1850 to 2500 lbs	2305 lbs	
(3) Time above 1000 lbs.	1.7 ms. minimum	1.8 ms	
B. Right Knee			
(1) Probe Speed	6.76 to 7.04 fps	6.9 fps	
(2) Maximum Force	1850 to 2500 lbs	2235 lbs	
(3) Time Above 1000 lbs.	1.7 ms. minimum	1.7 ms	

REMARKS:

TECHNICIAN'S NAME: IVAN MINKEWICZ

INSTRUMENT CALIBRATION INFORMATION

NHTSA DUMMY ID NUMBER ____1021_____

DUMMY INSTRUMENT--	MFG	SERIAL NUMBER	DATE LAST CALIBRATED	DATE OF NEXT CALIBRATION
1. HEAD ACCELEROMETER--				
HX LONGITUDINAL--	ENDEVCO	CX42	6-89	12-89
HY LATERAL--	ENDEVCO	CS41	5-89	11-89
HZ VERTICAL--	ENDEVCO	CH31	5-89	11-89
2. CHEST ACCELEROMETER-				
CX LONGITUDINAL--	CEC	A73	5-89	11-89
CY LATERAL--	ENDEVCO	CE06	5-89	11-89
CZ VERTICAL--	CEC	A44	5-89	11-89
3. FEMUR LOAD CELLS				
LEFT SIDE	GSE	551	6-89	12-89
RIGHT SIDE	GSE	552	6-89	12-89
CALIBRATION LABORATORY INSTRUMENTS--				
1. PENDULUM ACC.--	CEC	A144	3-89	9-89
2. TEST PROBE ACCELEROMETER--	CEC	A142	5-89	11-89
3. LUMBAR FLEXION TEST PUSH FORCE GAUGE--	TRANS-DUCER INC	20051	5-89	11-89
4. ABDOMINAL COMPRESS. TEST FORCE GAUGE--	BLH	72952	5-89	11-89
5. ABDOMINAL COMPRESS. TEST FORCE GAUGE--	CIC	567-11	5-89	11-89

NHTSA DUMMY I.D. NUMBER.: 320

I. CONFIGURATION VERIFICATION DATA

	P. 572 SPECIFICATION	PRE-TEST if required	POST-TEST if required
DATE OF CONFIGURATION VERIFICATION	XXXXXXXXXXXXX	6-26-89	
VERIFICATION NUMBER FOR DUMMY (*)	XXXXXXXXXXXXX	3	
SH - Seated Height	35.6 to 35.8"	35.7 "	"
SP - Shoulder Pivot Height	21.8 to 22.4"	22.0 "	"
HP - Hip Pivot Height	3.9" ref.	3.9 "	"
KH - Knee Pivot from Back Line	20.1 to 20.7"	20.4 "	"
KV - Knee Pivot from floor	19.3 to 19.9"	19.6 "	"
SW - Shoulder Width	17.8 to 18.4"	18.1 "	"
HW - Hip Width	14.0 to 15.4"	14.8 "	"

II. PERFORMANCE VERIFICATION DATA:

		PRE-TEST (if required)	POST-TEST (if required)
DATE OF PERFORMANCE VERIFICATION		6-26-89	
SEQUENTIAL VERIFICATION NUMBER FOR DUMMY (*)		3	
VERIFICATION LAB TEMPERATURE (66 to 78 deg.)		68-72 deg	deg
VERIFICATION LAB HUMIDITY (10 TO 70 %)		46-52 %	%
TEST PARAMETER	SPECIFICATION		
1. HEAD DROP TEST			
a. peak resultant accel.	210 to 260 G's	259 G's	G's
b. peak lateral accel.	<= 10 G's	6.6 G's	G's
c. Time above 100 G's	0.9 to 1.5 ms.	1.2 ms	ms

* Sequential number beginning with "1" at the start of each fiscal years's crash test program.

TECHNICIAN'S NAME: IVAN MINKEWICZ

II. PERFORMANCE VERIFICATION DATA (continued)

NHTSA DUMMY I.D. NUMBER: 320

TEST PARAMETER		SPECIFICATION	PRE-TEST (if required)	POST-TEST (if required)
2. NECK BENDING TEST				
a. Pendulum Speed		21.5 to 25.5 fps.	22.4 fps	
b. Pend. Avg. Decel. over t3 to t2		20 to 24 G's	23.4 G's	
c. Peak Resultant Head Acceleration		26 G's max.	24.7 G's	
d. Pendulum Decel. (t2-t1)		<= 3 ms.	2.3 ms	
e. Pendulum Decel. (t3-t2)		25 to 30 ms.	26.1 ms	
f. Pendulum Decel. (t4-t3)		<= 10 ms.	5.1 ms	
g. Max. Head Rotation		63 to 73 deg.	68 deg	
h. Chordal Displacement				
HEAD ROTATION ANGLE				
0 deg.	Time	-2 to 2 ms.	0.0 ms	
	Displ.	-.5 to .5"	0.0 "	
30 deg.	Time	25.6 to 34.4 ms.	28 ms	
	Displ.	2.1 to 3.1"	2.4 "	
60 deg.	Time	40.3 to 51.7 ms.	42.9 ms	
	Displ.	4.3 to 5.3"	4.8 "	
Maximum	Time	53.2 to 66.8 ms.	55 ms	
	Displ.	5.0 to 6.0"	5.6 "	
60 deg.	Time	67.0 to 83.0 ms.	67 ms	
	Displ.	4.3 to 5.3"	5.2 "	
30 deg.	Time	85.4 to 104.6 ms.	87.3 ms	
	Displ.	2.1 to 3.1"	2.2 "	
0 deg.	Time	101.0 - 123.0 ms.	102.9 ms	
	Displ.	-.5 to 0.5"	0.0 "	

TECHNICIANS NAME: IVAN MINKEWICZ

II. PERFORMANCE VERIFICATION DATA (continued)

NHTSA DUMMY I.D. NUMBER: 320

TEST PARAMETER	SPECIFICATION	PRE-TEST (if required)	POST-TEST (if required)
3. ABDOMINAL COMPRESSION			
TEST: (preload = 50 lbs.)			
a. Force @ 0.5"	23 to 36 lbs.	24 lbs	
b. Force @ 0.75"	36 to 50 lbs.	38.5 lbs	
c. Force @ 1.0"	50 to 63 lbs.	54 lbs	
d. Force @ 1.3"	73 to 88 lbs.	80 lbs	
4. LUMBAR FLEXION TEST:			
a. Force @ 20 deg.	22 to 34 lbs.	26.5 lbs	
b. Force @ 30 deg.	34 to 46 lbs.	40 lbs	
c. Force @ 40 deg.	46 to 58 lbs.	51.5 lbs	
d. Return Angle	12 deg. maximum	9 deg	
5. CHEST IMPACT TESTS:			
A.High Speed			
(1) Probe Speed	21.78-22.22 fps.	21.8 fps	
(2) Peak Deflection	1.7" maximum	1.5 "	
(3) Peak Resistive Force	2250 lbs maximum	2173 lbs	
(4) Internal Hysteresis	50 to 70%	51.2 %	
B. Low Speed			
(1) Probe Speed	13.86-14.14 fps.	14.1 fps	
(2) Peak Deflection	1.1" maximum	1.04 "	
(3) Peak Resistive Force	1450 lbs maximum	1357 lbs	
(4) Internal Hysteresis	50 to 70%	56.4 %	

TECHNICIAN'S NAME: IVAN MINKEWICZ

DUMMY CONFIGURATION AND PERFORMANCE VERIFICATION DATA (continued)

II. PERFORMANCE VERIFICATION DATA (continued)

NHTSA DUMMY I.D. NUMBER: 320

TEST PARAMETER	SPECIFICATION	PRE-TEST (if required)	POST-TEST (if required)
6. KNEE IMPACT TEST			
A. Left Knee			
(1) Probe Speed	6.76 to 7.04 fps	6.9 fps	
(2) Maximum Force	1850 to 2500 lbs	1960 lbs	
(3) Time above 1000 lbs.	1.7 ms. minimum	1.75 ms	
B. Right Knee			
(1) Probe Speed	6.76 to 7.04 fps	6.9 fps	
(2) Maximum Force	1850 to 2500 lbs	2010 lbs	
(3) Time Above 1000 lbs.	1.7 ms. minimum	1.75 ms	

REMARKS:

TECHNICIAN'S NAME: IVAN MINKEWICZ

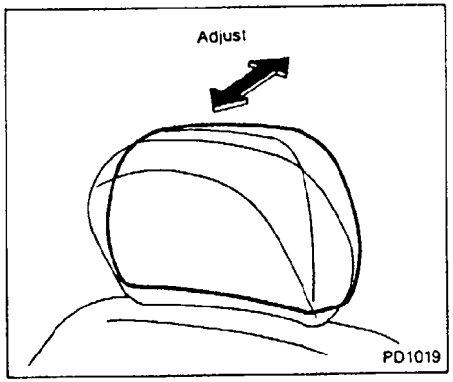
INSTRUMENT CALIBRATION INFORMATION

NHTSA DUMMY ID NUMBER ____320_____

DUMMY INSTRUMENT--	MFG	SERIAL NUMBER	DATE LAST CALIBRATED	DATE OF NEXT CALIBRATION
1. HEAD ACCELEROMETER--				
HX LONGITUDINAL--	ENDEVCO	FL12	4-89	10-89
HY LATERAL--	ENDEVCO	FL08	4-89	10-89
HZ VERTICAL--	ENDEVCO	FL06	4-89	10-89
2. CHEST ACCELEROMETER-				
CX LONGITUDINAL--	CEC	A74	3-89	9-89
CY LATERAL--	ENDEVCO	FL01	3-89	9-89
CZ VERTICAL--	CEC	A128	3-89	9-89
3. FEMUR LOAD CELLS				
RIGHT SIDE	GSE	75	6-89	12-89
LEFT SIDE	GSE	76	6-89	12-89
CALIBRATION LABORATORY INSTRUMENTS--				
1. PENDULUM ACC.--	CEC	A144	3-89	9-89
2. TEST PROBE ACCELEROMETER--	CEC	A142	5-89	11-89
3. LUMBAR FLEXION TEST PUSH FORCE GAUGE--	TRANS-DUCER INC	20051	5-89	11-89
4. ABDOMINAL COMPRESS. TEST FORCE GAUGE--	BLH	72952	5-89	11-89
5. ABDOMINAL COMPRESS. TEST FORCE GAUGE--	CIC	567-11	5-89	11-89

Appendix D

VEHICLE OWNER'S MANUAL OCCUPANT RESTRAINT SYSTEM INSTRUCTIONS



To adjust the head restraint, push it forward or rearward as shown (If so equipped).

PRECAUTIONS ON SEAT BELT USAGE

Your chances of being injured in an accident and/or the severity of injury may be greatly reduced if you are wearing your seat belt and it is properly adjusted. NISSAN strongly encourages you and all of your passengers to buckle up every time you drive.

Some states, provinces or territories require that seat belts be worn at all times when a vehicle is being driven.

WARNING:

- **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.**
- **All seat belt assemblies including retractors and attaching hardware should be inspected after any collision at your NISSAN dealer. NISSAN recommends that all seat belt assemblies in use during a collision be replaced unless the collision was minor and the belts show no damage and continue to operate properly. Seat belt assemblies not in use during a collision should also be inspected and replaced if either damage or improper operation is noted.**

Be sure to observe the following cautions when using seat belts. 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. Never run the belt under your arm.**
- **Position the lap belt as low as possible AROUND THE HIPS, NOT THE WAIST.**

Infant or small child

Nissan recommends that infants or small children be seated in a child restraint system. You should choose a child restraint system which fits your vehicle and always follow the manufacturer's instructions for installation and use.

Children

Children who are too large for child restraint systems should be seated and restrained by the seat belts which are provided.

Children seated in the front seat should wear both the lap and shoulder belts. If the shoulder belt contacts the neck or face due to the child's size, the child should sit in the rear seat and wear a lap belt.

Never let a child stand or kneel on any seat and do not allow a child in the cargo areas while the vehicle is moving.

Pregnant women

Nissan recommends that pregnant women use seat belts. Contact your doctor for specific recommendations. The lap belt should be worn snug and positioned as low as possible around the hips, not the waist.

Injured persons

Nissan recommends that injured persons use seat belts, depending on the injury. Check with your doctor for specific recommendations.

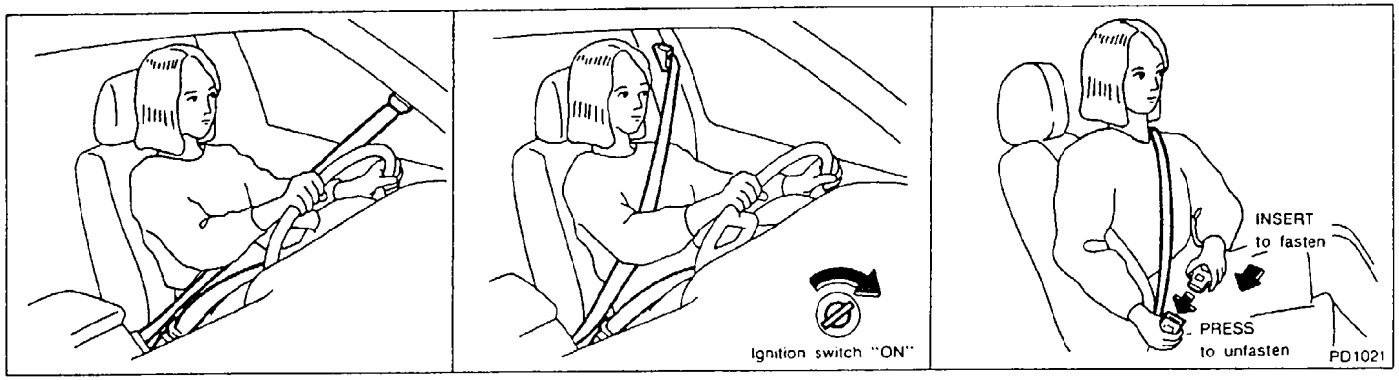
AUTOMATIC SEAT BELT SYSTEM (For U.S.A.)

The Automatic Seat Belt system consists of an automatic shoulder belt and a manual lap belt for the driver and front passenger seat positions. The shoulder belts automatically adjust to the body and seating positions when the door is closed and the ignition key is turned "ON".

- **For most effective protection, always fasten the manual lap belt in addition to the automatic shoulder belt.**
- **To properly operate the automatic seat belt system, the shoulder belt tongue should always remain inserted in the shoulder belt buckle, located in the rail of the door opening.**
- **NISSAN recommends that children be seated in the rear seats. See Precautions on Seat Belt Usage earlier in this Section.**

System malfunction

If, while the ignition switch is turned "ON" with either front door open, the warning light flickers and the chime sounds faster than usual for about 6 seconds, it may indicate a malfunction in the system. Have the system checked by your NISSAN dealer.



Fastening the belts

1. Open the door and make sure that the shoulder buckle is in the forward position. Then get into the vehicle and close the door.

If the ignition switch is in the "ON" position, the shoulder buckle will move to the rear position when closing the door.

2. Adjust the seat.

The seatback should not be in a reclining position any more than needed for comfort. Seat belts are most effective when the passenger sits well back and straight up in the seat.

3. Turn the ignition switch ON. The shoulder buckle will move to the rear position and will fit across your chest. Pull the shoulder belt toward the retractor to take up extra slack.

- **Never touch the door guide rail while the shoulder buckle is moving.**
- **Do not wear the shoulder belt across the neck or under your outer arm. The shoulder belt should be positioned midway over the shoulder for the most effective protection.**

4. Slowly pull the lap belt out of the retractor and insert the tongue into the lap buckle until it snaps. Position the lap belt **low on the hips** and pull the belt toward the retractor to take up extra slack.

- **Never wear the lap belt across the shoulder belt.**
- **The retractors are designed to lock during a sudden stop or on impact. A slow pulling motion will permit the belt to move, and allow you some freedom of movement in the seat.**

Unfastening the belts

1. To unfasten the lap belt, press the button on the lap buckle. The seat belt will automatically retract.
2. Open the door. The shoulder belt buckle will move to the forward position and the shoulder belt will move away from your chest.

- **Never touch the door guide rail while the shoulder buckle is moving.**
- **Do not unfasten the shoulder belt tongue from the buckle except in emergency. See "Operation in emergency" later in this Section.**

How the automatic shoulder belt works

While the ignition switch is on:

The shoulder buckle will move to the forward position when the door is opened, and it will move to the rear position when the door is closed.

While the ignition switch is off:

The shoulder buckle will remain or move to the front position when the door is opened, and it will remain in the front position when the door is closed until the ignition switch is turned "ON".

If the shoulder buckle operates abnormally, have the system checked by your NISSAN dealer.

Seat belt warning light " " and warning chime

When the ignition switch is turned on with the door open (the shoulder buckle is at the front position):

The chime will sound for about 6 seconds, and the warning light will flicker continuously. The warning light will go off when the door is closed and the shoulder buckle reaches the rear position.

When the ignition switch is turned on with the door closed:

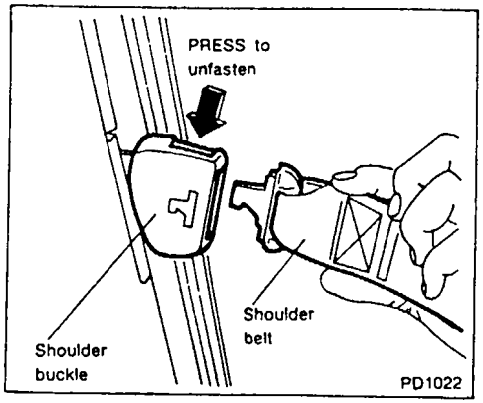
The chime will sound and the warning light will flicker until the shoulder buckle reaches the rear position. the warning light will come on for several seconds after the shoulder buckle reaches the rear position.

If the shoulder belt tongue is disconnected from the buckle:

When the ignition switch is turned on and the shoulder buckle reaches the rear position, the warning light will come on for about 100 seconds and the chime will sound for about 6 seconds until the shoulder belt is connected to the shoulder buckle. Insert the shoulder belt tongue into the shoulder buckle before driving.

If the driver side lap belt is not fastened:

When the ignition switch is turned ON and the shoulder buckle reaches the rear position, the warning light will come on for about 6 seconds and the chime will sound for about 6 seconds until the lap belt is fastened. Fasten the lap belt before driving.

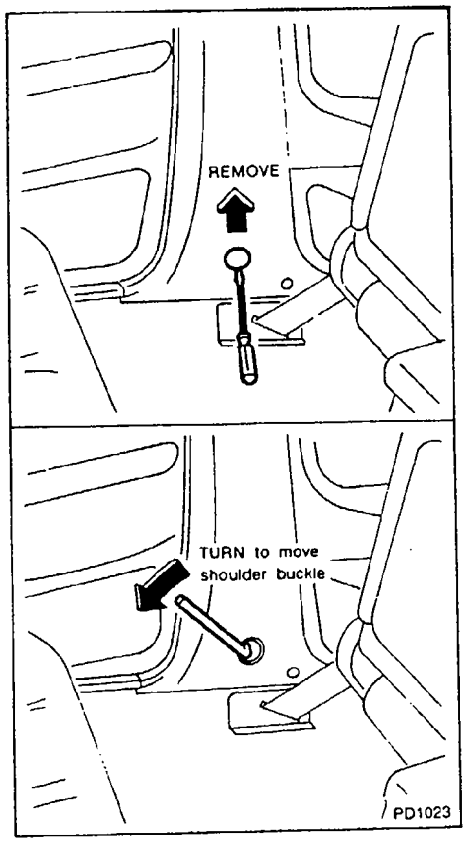


Operation in an accident

Emergency release

If you need to release the shoulder belt from the shoulder belt buckle in an emergency, press the buckle marked with "PRESS EMERGENCY". Use this feature only when the shoulder belt keeps you from leaving the vehicle in an accident.

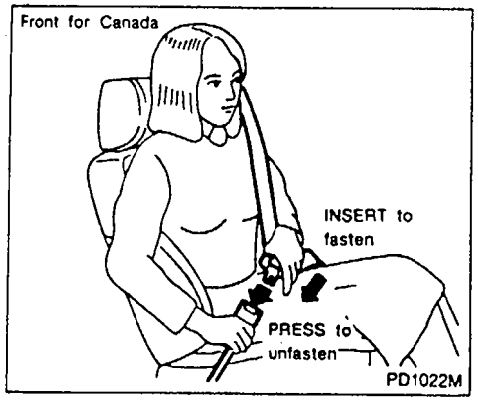
For normal use, the shoulder belt should always be connected to the buckle.

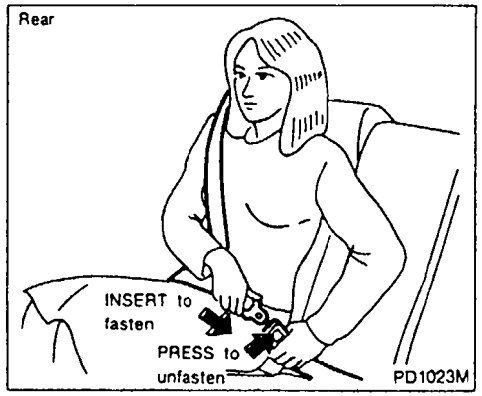


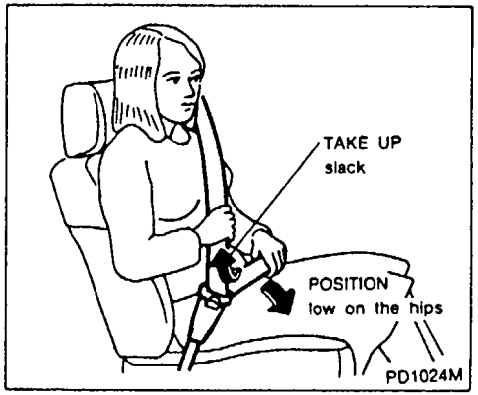
If either shoulder belt buckle does not operate

1. Slide the seat forward as far as possible.
2. Remove the blind cap in the lower portion of the center pillar with the screwdriver. The shaft end of the motor will be visible.
3. Using the wrench supplied in the tool bag, turn the shaft of the motor counterclockwise to move the shoulder buckle to the rear position.

Have the automatic seat belt system checked and repaired by your NISSAN dealer.







3-POINT TYPE WITH RETRACTOR

Every person who drives or rides in this vehicle should wear a seat belt at all times.

Fastening the belts

1. Adjust the seat.

The seatback should not be in a reclining position any more than needed for comfort. Seat belts are most effective when the passenger sits well back and straight up in the seat.

2. Slowly pull the seat belt out of the retractor and insert the tongue into the buckle until it snaps.

The retractor is designed to lock during a sudden stop or on impact. A slow pulling motion will permit the belt to move, and allow you some freedom of movement in the seat.

3. Position the lap belt portion **low on the hips** as shown.
4. Pull the shoulder belt portion toward the retractor to take up extra slack.

Unfastening the belts

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

Checking seat belt operation

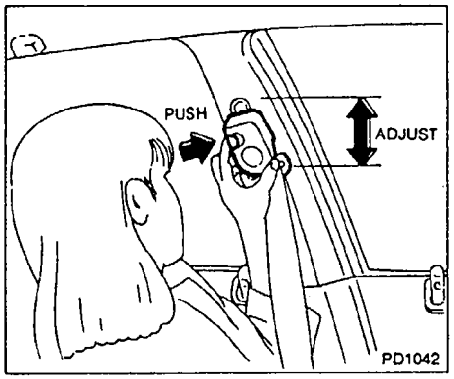
Your seat belt retractors are designed to lock belt movement by two separate methods:

1) When the belt is pulled quickly from the retractor.
2) When the vehicle slows down rapidly.

To increase your confidence in the belts, check the operation as follows:

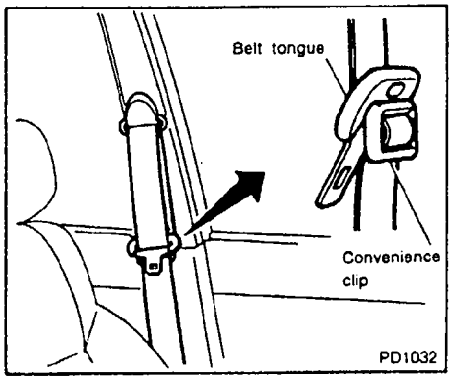
- Grasp the shoulder belt and pull quickly forward. The retractor should lock and restrict further belt movement.

If the retractor does not lock during this check or if you have any question about belt operation, see your NISSAN dealer.



Shoulder belt height adjustment (For front seats of Canada models)

The shoulder belt anchor height should be adjusted to the position best for you. To adjust, push the release button, then move it to the desired position, so that the belt passes over the shoulder.

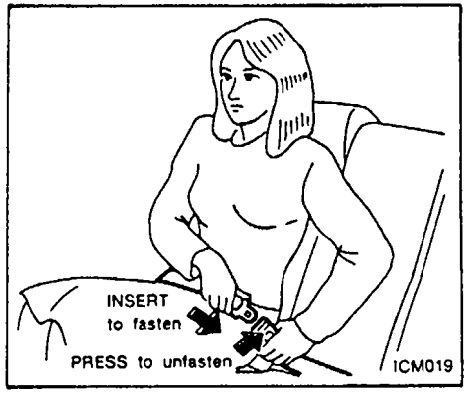


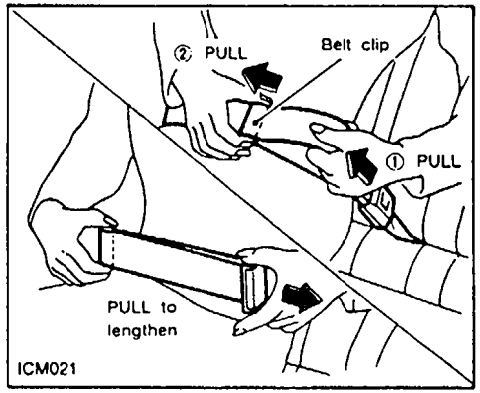
Convenience clip

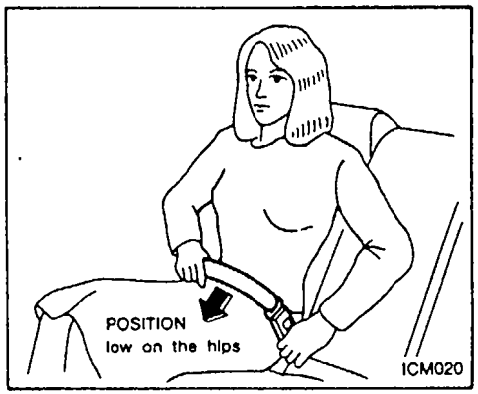
The convenience clip is provided to keep the belt tongue in an accessible position when not being used.

Slide the convenience clip down if the clip prevents the belt from being retracted into the retractor.

Slide it away from the buckle if the convenience clip contacts the belt tongue when the belt is in use.







2-POINT TYPE WITHOUT RETRACTOR

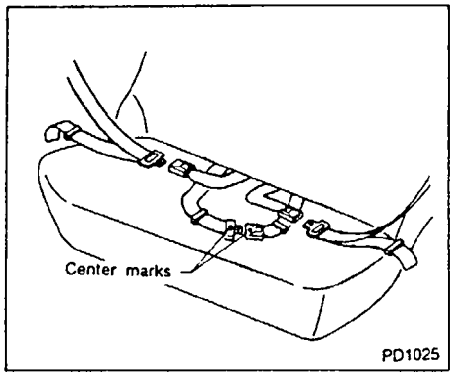
Fastening the belts

1. Insert the tongue into the buckle until it snaps.
2. To lengthen, hold the tongue at a right angle to the belt and pull on the belt. To shorten, pull the free end of the belt away from the tongue, then pull the belt clip to take up the slack.
3. Position the lap belt **low on the hips** as illustrated.

Unfastening the belts

To unfasten the belt, press the button on the buckle.

Fasten the seat belts when not in use to prevent them from being caught in the door.



Selecting correct set of belts

The center seat belt buckle and tongue are identified by the "CENTER" label. The center seat belt tongue can be fastened **only** into the center seat belt buckle.

SEAT BELT EXTENDERS
(Except for the automatic seat belt)

If, because of body size or driving position, it is not possible to properly fit the lap-shoulder belt and fasten it, an extender is available which is compatible with the installed seat belts. The extender adds approximately 8 inches (200 mm) of length and may be used for either the driver or front passenger seating position. See your NISSAN dealer for assistance if the extender is required.

WARNING:

- **Only NISSAN belt extenders, made by the same company which made the original equipment belts, should be used with NISSAN belts.**
- **Persons who can use the standard seat belt should not use an extender. Such unnecessary use could result in serious personal injury in the event of an accident.**

SEAT BELT MAINTENANCE

- **To clean the belt webbings,** apply a mild soap solution or any solution recommended for cleaning upholstery or carpets. Then brush it, wipe with a cloth and allow it to dry in the shade. Do not allow the belts to retract until they are completely dry.
- **Periodically check to see that the belt and the metal components** such as buckles, tongues, retractors, flexible wires and anchors work properly. If loose parts, deterioration, cuts or other damage on the webbing is found, the entire belt assembly should be replaced.