REPORT NOS. 301-CAL-84-060

NHTSA NEW VEHICLE ASSESSMENT AND STANDARDS ENFORCEMENT INDICANT TESTING

FMVSS 301-75

AMERICAN MOTORS CORPORATION

1984 JEEP CJ-7

2 DOOR

NHTSA NO. CE1301

CALSPAN TEST NO. 7209-6

CALSPAN CORPORATION

ADVANCED TECHNOLOGY CENTER

P. O. BOX 400

BUFFALO, NEW YORK 14225

DECEMBER 1983

FINAL REPORT

Prepared for:

U. S. DEPARTMENT OF TRANSPORTATION

NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION

ENFORCEMENT

OFFICE OF VEHICLE SAFETY COMPLIANCE

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WASHINGTON, DC 20590

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16. Abstract

A frontal load cell barrier test of a 1984 Jeep CJ-7 2-door 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 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 35.09 mph. Ambient temperature on the test date was 58°F. The post-test vehicle crush was 20.3 inches and intrusion of the firewall into compartment was 2.0 inches.

The test vehicle did appear to comply with FMVSS 301-75, "Fuel System Integrity".

With regard to occupant restraint performance (FMVSS 208 Injury Criteria), the driver and passenger position Part 572 test devices satisfied the criteria.

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Load Cell Barrier Frontal Impact FMVSS Compliance Testing 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

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SECTION 1
PURPOSE AND TEST PROCEDURE

This frontal barrier test is part of the Composite FY 83 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 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 CE1301

A load cell barrier consisting of 36 load cells (Figure 4) was impacted by a 1984 Jeep CJ-7 at a velocity of 35.09 mph. The test was performed at the Calspan Corporation Advanced Technology Center on November 10, 1983. 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 (ATD's) 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.

The occupant dummies were instrumented with head and chest triaxial accelerometers and femur load cells. Load cells were also placed on the lap and shoulder belts to measure dummy torso and lap loading. The driver ATD (Serial No. 749) and the right-front passenger ATD (Serial No. 162) had been certified prior to this test; verification details along with instrumentation calibration data are found in Appendix C of this report.

The crash test was recorded by one real time camera and 15 high-speed cameras. Both on-board belt cameras failed (Camera #6 jammed and Camera #12 was underexposed). Barrier Camera #11 (right-front passenger) also failed due to film breakage. Camera locations and other pertinent camera information are found in Section 4.

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. CE1301 PROJECT: FY-84 New Car Assessment Program FMVSS No. 208/301-75

DATE: 11/10/83 TIME: 1134 hrs. TEMP: 58°F.

VEHICLE	AMC Jeep CJ-7
TEST WEIGHT (lbs)	3180
IMPACT ANGLE (deg)*	0
IMPACT VELOCITY (mph)**	35.09
MAX. CRUSH (in) static	20.3
MAX. INTRUSION (in)	2.0

DUMMIES

TYPE	Hybrid II Part 572	Hybrid II Part 572
LOCATION	LF (1) Serial 749	RF (2) Serial 162
RESTRAINT	production 3-point belt system	production 3-point belt system

NUMBER OF DATA CHANNELS 67

NUMBER OF HIGH SPEED CAMERAS 15 + 1 real time

*With respect to tow track Centerline

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

GENERAL COMMENTS

The 1984 Jeep CJ-7 was equipped with a 4-cylinder engine, four-speed manual transmission and power steering. The total test weight with two 50th percentile male dummies, instrumentation and two on-board cameras was 3180 pounds.

The 1984 Jeep CJ-7 was involved in a frontal load cell barrier crash at a velocity of 35.09 mph. The vehicle did comply with FMVSS 301-75, "Fuel System Integrity;" there was no fuel leakage after impact or during any phase of the rollover test.

The vehicle sustained 20.3 inches of static crush and approximately 22.2 inches of dynamic crush. Maximum post-test firewall intrusion into the occupant compartment was 2.0 inches. The maximum load cell barrier force, measured at the 36 load cells, was 98,000 pounds at 5 milliseconds.

The driver's head struck the steering wheel rim. The femurs contacted the underside of the dash panel. The driver met all FMVSS 208, "Injury Criteria" with a HIC 460.1, maximum chest deceleration over 3 milliseconds of 46.5 g's, and femur loads of 860 and 1730 pounds.

The right-front passenger head struck the dash panel and the femurs contacted the lower dash panel. The right-front passenger satisfied all FMVSS 208, "Injury Criteria" with a HIC of 439.7, maximum chest deceleration over 3 milliseconds of 44.3 g's and femur loads of 750 and 520 pounds.

Table 2

GENERAL TEST AND VEHICLE PARAMETER DATA

TEST VEHICLE INFORMATION

Make/Model Jeep CJ-7 Body Style 2 Door

Model Year 1984 NHTSA No. CE1301 Color green

Engine Data: 4 cylinders, 150 cubic inches

Transmission Data: 4 speed, (X) manual ( ) automatic

Date Rec'd 9/28/83 Air Cond. no Pw. Str. yes Pw. Brks. no

Dealer's Name & Address Towne Lincoln-Mercury Inc.

Odometer Reading 17

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

Vehicle Manufactured by: American Motors Corporation

Date of Manufacture 8/83 VIN 1JCUM87E3ET011004

GVRW 4150 lbs., GAWR: front 2200 lbs., rear 2700 lbs.

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

Vehicle Load (up to capacity): front 30 psi

rear 30 psi

Recommended Tire Size P205/75R15 Load Range X B ___ C ___ D

Recommended Cold Tire Pressure: front 30 psi, rear 30 psi

Tires on Vehicle Goodyear Arriva

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

Is Spare Tire Standard Equipment? ___ yes X no

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

Number of Occupants (Designated Seating Capacity): 2 front

2 rear

4 TOTAL

RCLW Cargo Load: 300 lbs.

VCW TOTAL = 900 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 = 730 lbs. Right Rear = 650 lbs.

Left Front = 720 lbs. Left Rear = 650 lbs.

TOTAL FRONT WEIGHT = 1450 lbs. (52.7 % of Total Vehicle Weight)

TOTAL REAR WEIGHT = 1300 lbs. (43.7 % of Total Vehicle Weight)

TOTAL DELIVERY WEIGHT = 2750 lbs.

CALCULATION FOR TARGET TEST WEIGHT

RCLW = Rated Cargo and Luggage Weight

UDW = Unloaded Delivered Weight (2750 lbs.)

VCW = Vehicle Capacity Weight (900 lbs.)

DSC = Designated Seating Capacity (4)

RCLW = VCW - 150 (DSC) = 300 lbs.

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

Target Test Weight = 3378 lbs.

WEIGHT OF TEST VEHICLE WITH REQUIRED DUMMIES AND 102 POUNDS CARGO

Right Front = 760 lbs. Right Rear = 850 lbs.

Left Front = 730 lbs. Left Rear = 840 lbs.

TOTAL FRONT WEIGHT = 1490 lbs. (46.9 % of Total Vehicle Weight)

TOTAL REAR WEIGHT = 1690 lbs. (53.1 % of Total Vehicle Weight)

TOTAL TEST WEIGHT = 3180 lbs.

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

The test weight was approved by the CTM, prior to testing.

VEHICLE ATTITUDE (all dimensions in inches)

Delivered Attitude: RF 31.4 LF 31.2 RR 34.5 LR 34.5

Test Attitude: RF 31.2 LF 31.0 RR 33.5 LR 33.9

Remarks: Wheelbase = 93.5

CG = 49.7 inches rearward of front wheel C/L.

Table 2

GENERAL TEST AND VEHICLE PARAMETER DATA (cont'd)

POST-IMPACT DATA

Type of Test Frontal Impact Impact Angle 0 °

Date of Test 11/10/83 Time of Test 1134

Ambient Temperature 58 °F at impact area

Temperature in Occupant Compartment 72 °F

Windshield Molding Temperature 61 °F

Required Impact Velocity Range: 34.5 to 35.5 mph

Impact Velocity: primary = 35.09 mph, secondary 35.11 mph

VEHICLE REBOUND AND CRUSH (inches)

	R	℄	L
Vehicle Length: Pre-test =	142.0	142.2	141.9
Post-test =	122.8	123.2	121.6
Crush =	19.2	19.0	20.3

Distance from front of test vehicle to point of impact:

R 26.5 C/L 26.2 L 26.0

VISIBLE DUMMY CONTACT POINTS

	Driver	Passenger
Head	steering wheel rim	upper dash
Chest	none	none
Abdomen	none	none
Left Knee	headlight switch and dash	lower dash
Right Knee	wiper switch and dash	lower dash

	Front	
	Left	Right
Door Opening	no door	no door

Table 2 (cont'd)

GENERAL TEST AND VEHICLE PARAMETER DATA (cont'd)

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

Glazing Damage

Backlight/Windshield: Windshield retention loss on right side

Other notable impact effects: none

SECTION 3

SUMMARY OF RESULTS OF FMVSS No. 301-75

- Summary of FMVSS 301 Data
- Post-Impact Data for FMVSS No. 301-75
- Fuel System Integrity, FMVSS No. 301-75 Data

Table 3

SUMMARY OF FMVSS 301 DATA

PRE-IMPACT DATA

Make/Model: American Motors Jeep CJ-7

Body Style: 2 Door Model Year: 1984

NHTSA No.: CE1301 Color: Green

DATA FROM CERTIFICATION LABEL

Vehicle Manufacturer: American Motors Corporation

Date of Manufacture: 8/83 VIN: 1JCUM87E3ET01104

GVWR: 4150 lbs., GAWR: Front 2200 lbs., Rear 2700 lbs.

POST-IMPACT DATA

Type of Test: Frontal Load Cell Barrier Impact

Date of Test: 11/10/83 Time: 1134 hrs. Temp.: 58 °F

Required Impact Velocity Range: 34.5 to 35.5 mph

Impact Velocity: Primary = 35.09 mph, Secondary = 35.11 mph

Test Weight 3180 lbs., Static Crush Max. 20.3 in., Rebound 26.2 in.

FUEL SYSTEM DATA

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

Kinematic Viscosity 0.96 Centistokes

EPA Capacity* 14.8 gal.

Test Volume 13.7 gal. (93% of EPA Capacity)

Fuel System Capacity (data from Owner's Manual) 14.8 gal.

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

Does electric fuel pump operate with ignition switch "on" and the engine not operating? N/A yes N/A 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 301 DATA (cont'd)

Details of fuel system: Fuel tank is located aft of rear wheels and held in place with straps and bolts. Filler tube is located on right rear of vehicle and has a twist type cap.

Table 4

POST-IMPACT DATA - FMVSS NO. 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 11/10/83 TIME 1134 hrs. TEMP 58 °F

VEHICLE NHTSA NO. CE1301 VIN 1JCUM87E3ET011004

REQUIRED VEHICLE VELOCITY RANGE 34.5 to 35.5 mph

IMPACT VELOCITY (traps within 5 feet of impact event) _____

Trap No. 1 = 35.09 mph Trap No. 2 = 35.11 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 = 20.3 in Passenger's Side = 19.2 in

C/L = 19.0 in. Average = 19.5 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 = 26.0 in Passenger's Side = 26.5 in

C/L = 26.2 in. Average = 26.2 in.

REMARKS

Table 5

"FUEL SYSTEM INTEGRITY" POST-IMPACT TEST DATA

FMVSS No. 301-75

TEST VEHICLE NHTSA NO. CE1301 Test Date 11/10/83

Vehicle Manufacture/Make/Model American Motors Jeep CJ-7

Test vehicle fuel tank filled to 90-91% 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

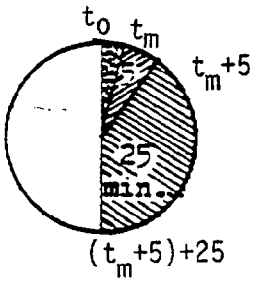
__X__ Frontal (35 mph)

_____ 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

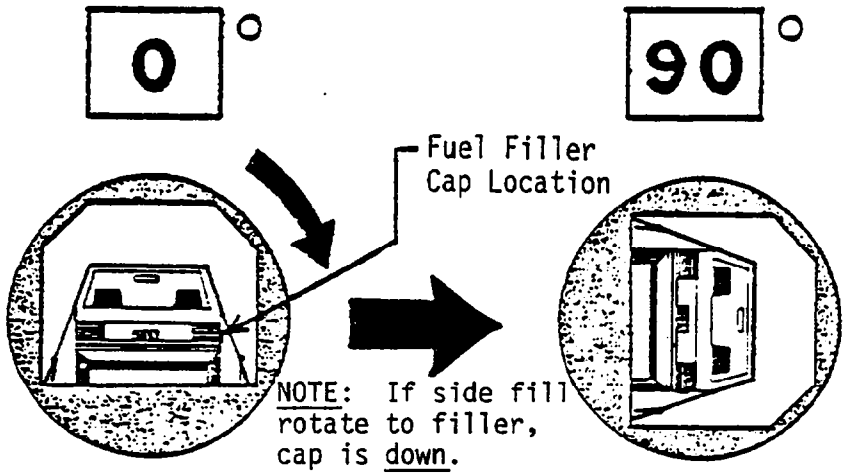
None

VEHICLE NHTSA ID NO. CE1301

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	40 seconds
FMVSS 301-75 Position Hold Time	=	5	minutes	00 seconds
TOTAL	=	7	minutes	40 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)

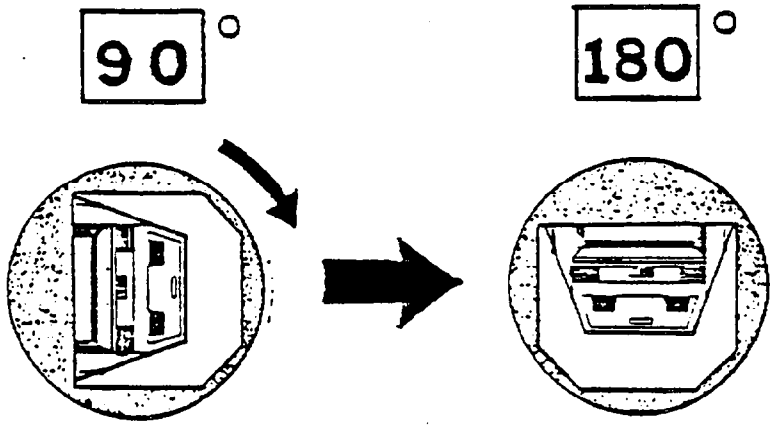
None

VEHICLE NHTSA ID NO. CE1301

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	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)

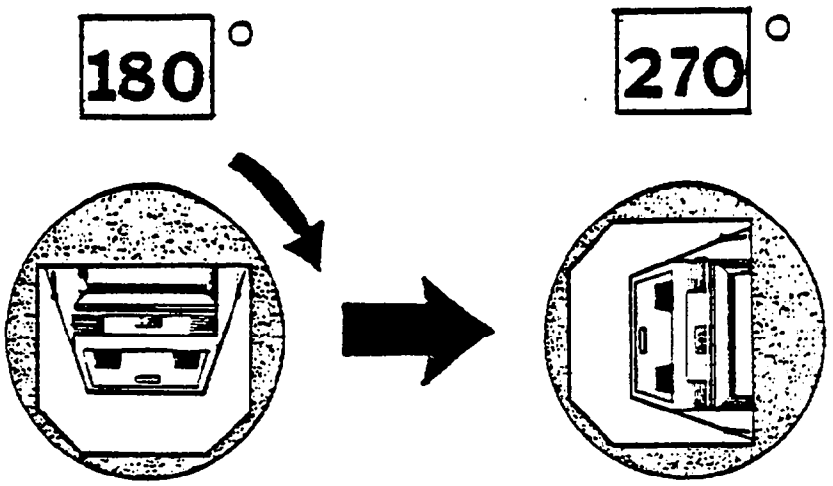
None

VEHICLE NHTSA ID NO. CE1301

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	50	seconds
FMVSS 301-75 Position Hold Time	=	5 minutes	00	seconds
TOTAL	=	7 minutes	50	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)

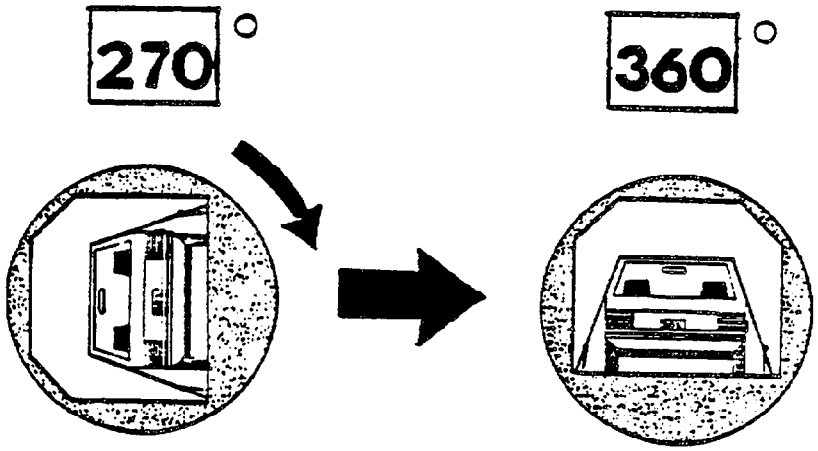
None

VEHICLE NHTSA ID NO. CE1301

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	57 seconds
FMVSS 301-75 Position Hold Time	=	5	minutes	00 seconds
TOTAL	=	7	minutes	57 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

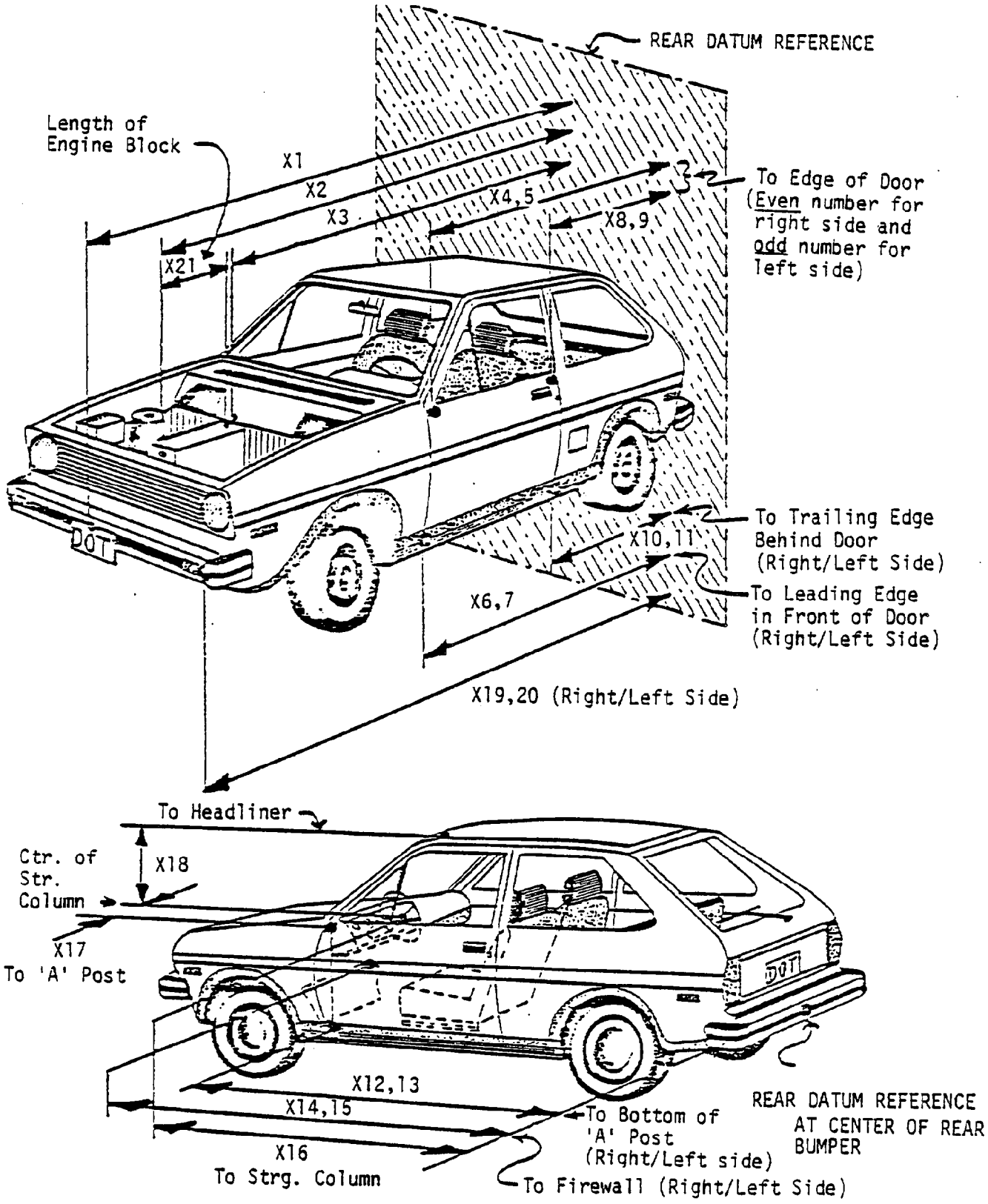


Figure 2 PRE- AND POST-TEST MEASUREMENT POINTS

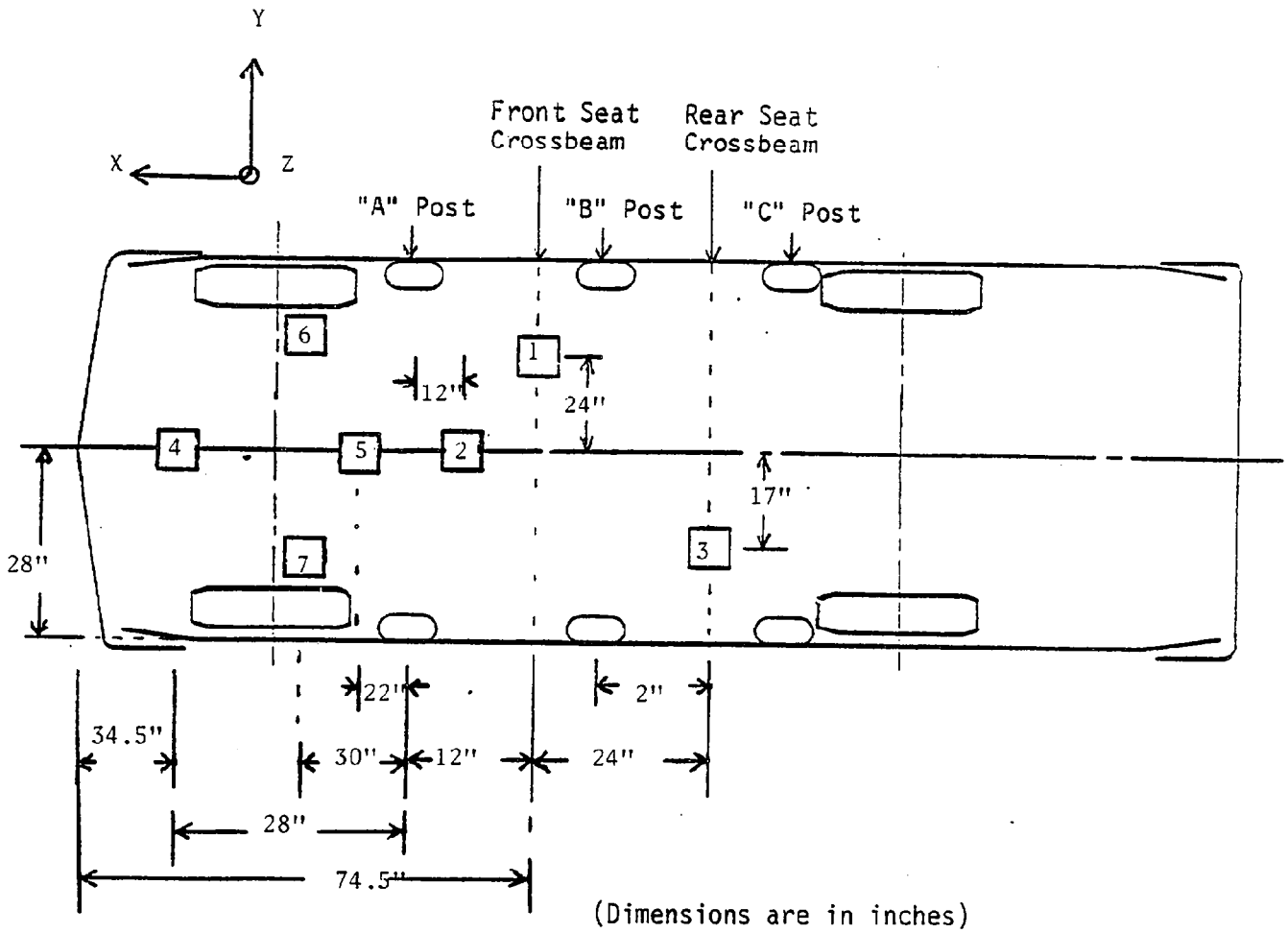
Table 7

VEHICLE MEASUREMENTS

All Dimensions in Inches

	No.		Pre-Test	Post-Test	Difference
	X1	Total Length of Vehicle at Centerline	142.2	123.2	19.0
	X2	Rear Surface of Vehicle to Front of Engine	112.2	108.7	3.5
	X3	Rear Surface of Vehicle to Firewall	92.0	90.7	1.3
*	X4	Rear Surface of Vehicle to Upper Leading Edge of Right Door	81.0	83.4	-2.4
*	X5	Rear Surface of Vehicle to Upper Leading Edge of Left Door	81.0	82.9	-1.9
*	X6	Rear Surface of Vehicle to Lower Leading Edge of Right Door	79.7	80.1	-0.4
*	X7	Rear Surface of Vehicle to Lower Leading Edge of Left Door	79.0	80.7	-1.7
*	X8	Rear Surface of Vehicle to Upper Trailing Edge of Right Door	45.0	47.4	-2.4
*	X9	Rear Surface of Vehicle to Upper Trailing Edge of Left Door	44.8	47.4	-2.6
*	X10	Rear Surface of Vehicle to Lower Trailing Edge of Right Door	49.3	50.2	-0.9
*	X11	Rear Surface of Vehicle to Lower Trailing Edge of Left Door	49.3	50.3	-1.0
*	X12	Rear Surface of Vehicle to Bottom of "A" Post of Right Side	81.2	82.1	-1.1
*	X13	Rear Surface of Vehicle to Bottom of "A" Post of Left Side	81.1	81.9	-0.8
	X14	Rear Surface of Vehicle to Firewall, Right Side	91.5	92.5	-1.0
	X15	Rear Surface of Vehicle to Firewall, Left Side	93.5	91.5	2.0
	X16	Rear Surface of Vehicle to Steering Column	67.9	68.9	-1.0
	X17	Center of Steering Column to "A" Post	12.5	13.0	-0.5
	X18	Center of Steering Column to Headliner	19.5	19.5	0
	X19	Rear Surface of Vehicle to Right Side of Front Bumper	142.0	122.8	19.2
	X20	Rear Surface of Vehicle to Left Side of Front Bumper	141.9	121.6	20.3
	X21	Length of Engine Block	17.5	17.5	0

* Since doors were not present on the vehicle, dimensions X4 to X13 were measured to the vehicle door "frames".



(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

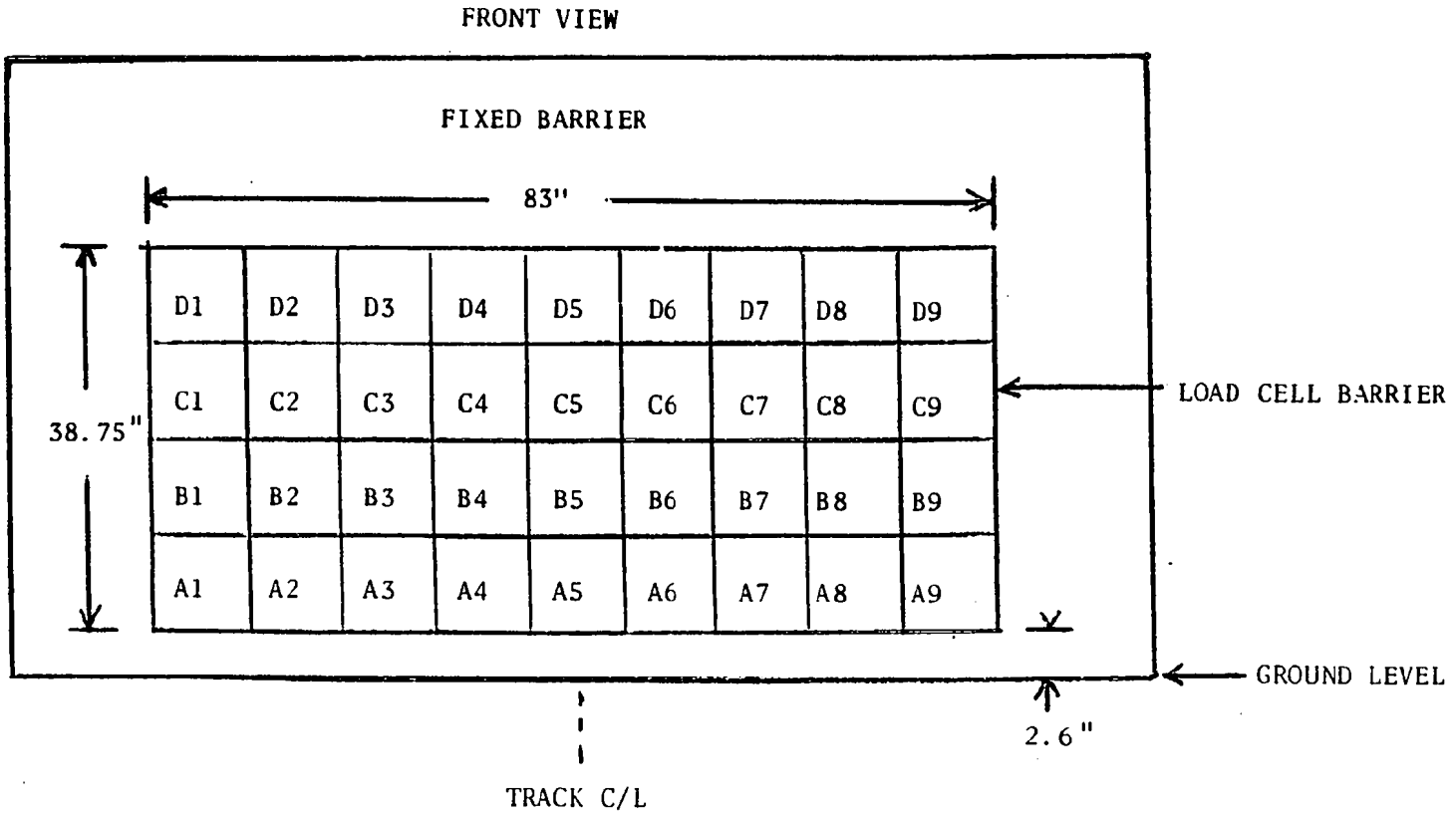


Figure 4 FIXED LOAD CELL BARRIER-LOAD CELL LOCATIONS

Table 8

ACCIDENT INVESTIGATION DIVISION

Data Summary

Test No. CE1301

Date 11/10/83

		Vehicle No. 1
Impact Description		Frontal Load Cell Barrier
Make		AMC Jeep CJ-7
Model		2 door
Year		1984
Size Category		full-size
Test Weight (lb.)		3180
Wheelbase (in.)		93.5
Front Overhang (in.)		23.5
Overall Width (in.)		59.9
Accelerometer Location		49.7 inches rearward of front wheel C/L
Calibration Procedure		Shaker table least squares
Accelerometer Linearity		$\pm$ 0.75%
Integration Algorithm		Hybrid Simpson-Newton 3/8
Impact Speed (mph)		35.09 mph
Time of Separation (msec)		116.4
Velocity Change (mph)		42.55 mph
CDC		12 FDEW2
Damage Length (in.)	L:	54.1
Crush Dimensions (in.)	C1:	21.1
	C2:	19.5
	C3:	19.25
	C4:	19.2
	C5:	18.6
	C6:	19.45
Midpoint of Damage	D:	0

National Accident Sampling System — Continuous Sampling Subsystem: Vehicle Data

FIELD MEASUREMENTS

1984 AMC/Jeep CJ7 961-060-600

Complete When Applicable

End Damage	Side Damage
Undeformed end width 54.15	Bowing: B1 _____ X1 _____
Corner shift: A1 _____	B2 _____ X2 _____
A2 _____	Bowing constant N A
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.

12FDEW2

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	54.15	21.25 C4	54.15	21.25	19.5	19.25	19.2	18.6	19.6	0
	Free/Space		.15		-.15	0	0	0	0	.15	
	ACTUAL CRUSH	54.15	21.1		21.1	19.5	19.25	19.2	18.6	19.45	0

*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

RF 1
LF 1
RR 2
LR 2

b. Tire deflated

Rim Damage → RF 1
LF 2
RR 2
LR 2

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

TYPE OF TRANSMISSION

4spd 4WD
✓ Manual ___ Automatic

Average Track: N/A
Maximum Width: 59.9
~~Test~~ Curb Weight:
Overall Length: 142.25

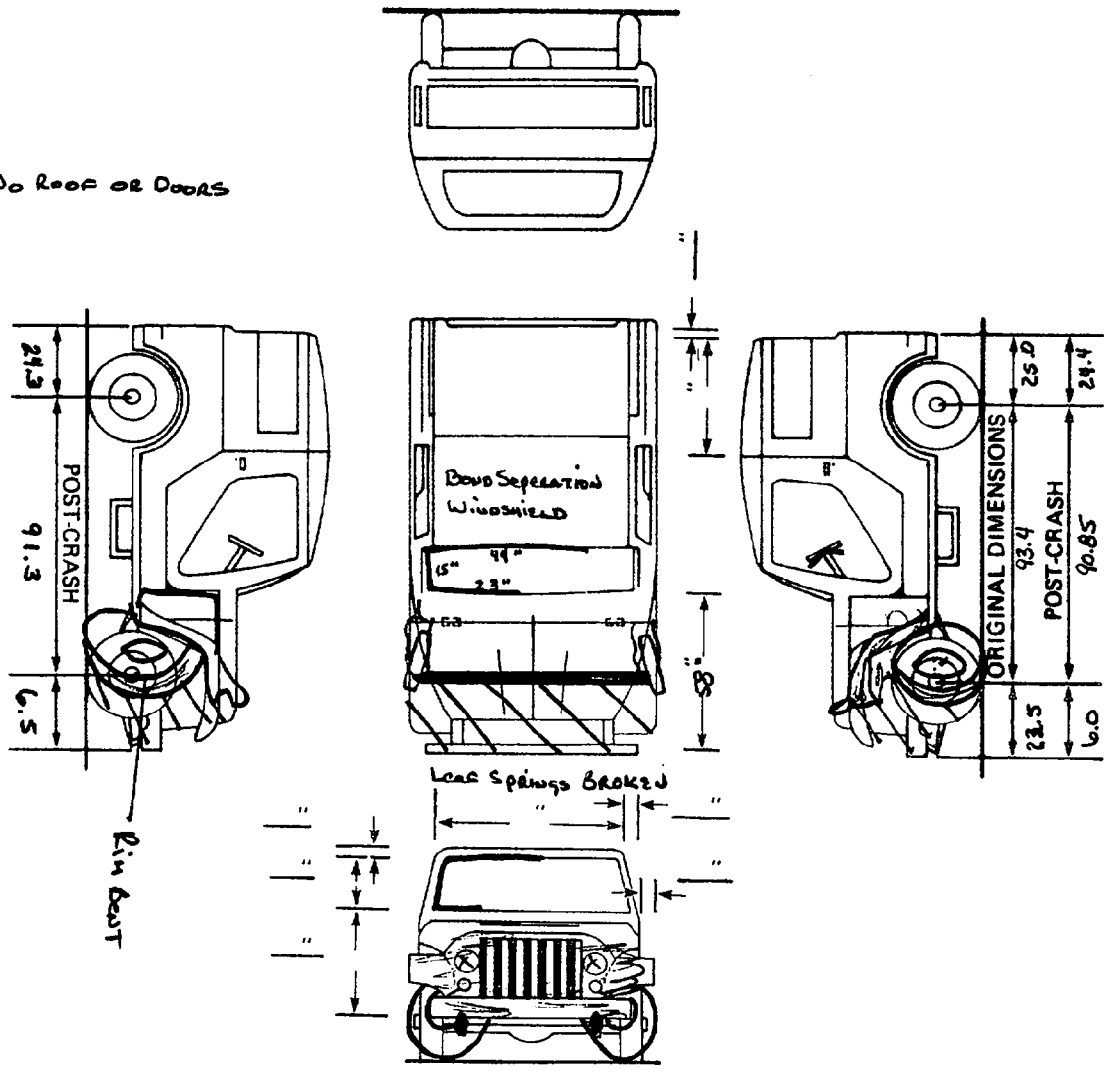
WHEEL STEER ANGLES

(For locked front wheels or displaced rear axles only)

RF Φ 40 °
LF δ 47 °
RR ± N/A °
LR ± N/A °
Within ± 5 degrees

1JCUM87E36T011004
(VIN)

NOTE: No Roof or Doors



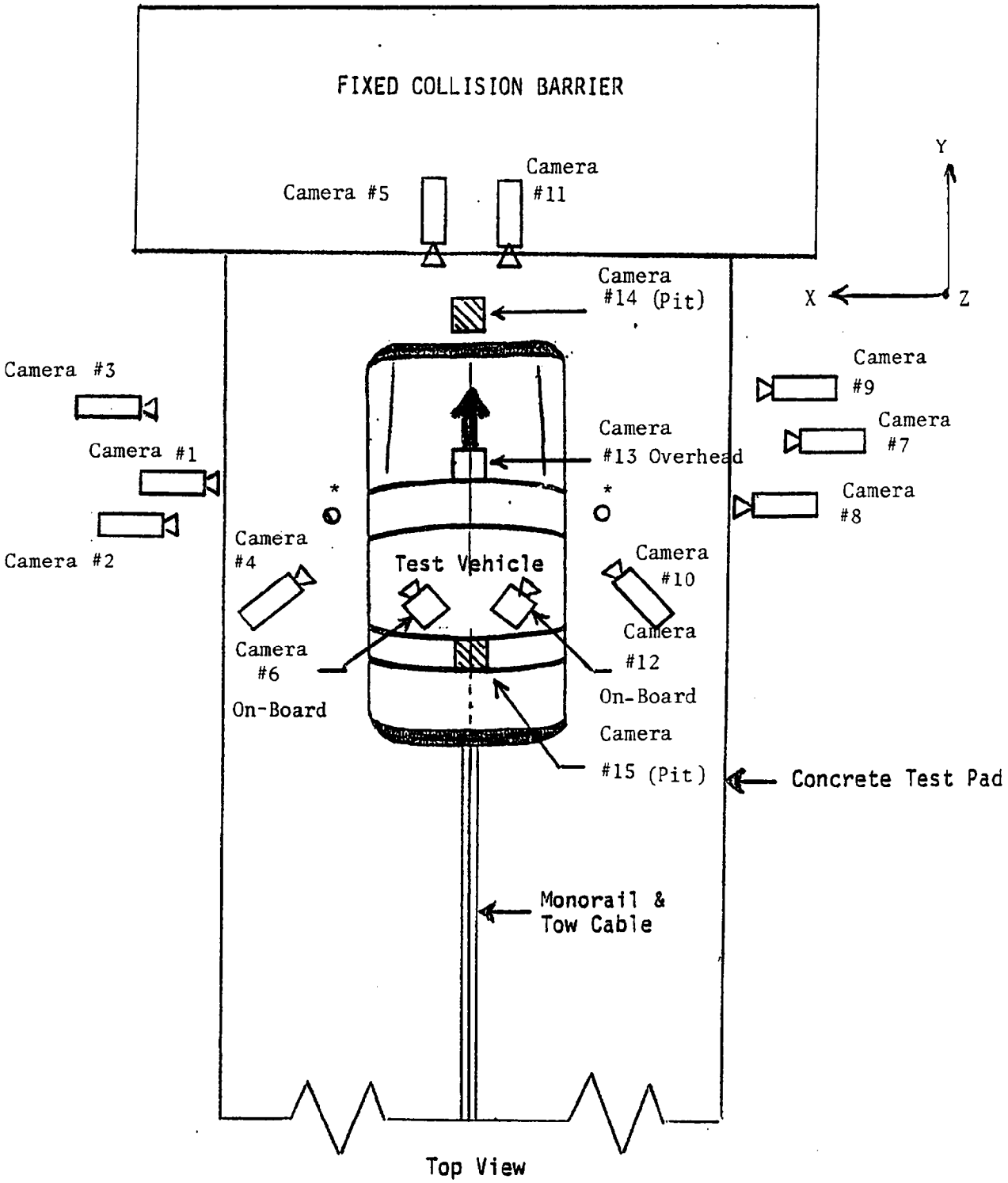
Note: Sketch new perimeter and cross hatch direct damage and single hatch induced damage on all views. Annotate observations which might be useful in reconstructing the accident (e.g., grass in tire bead, direction of striations, scuff on sidewall, etc.)

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



* Stadia Pole 72 inches from Barrier Face

Figure 6 -- CAMERA POSITION FOR FRONTAL IMPACTS

Table 9

HIGH-SPEED CAMERA LOCATIONS

Test No. CE1301 Vehicle 1984 AMC Jeep CJ-7

CAMERA NO.	VIEW	CAMERA POSITIONS (in)* X	Y	Z	ANGLE** (deg)	FILM PLANE TO HEAD TARGET	LENS (mm)	SPEED (fps)
1	Vehicle Left Side	230	54	56	-4	-	13	880
2	Driver	282	72	48	-1	246	35	890
3	Driver	315	26	59	-3	277	50	890
4	Driver	90	108	72	-16	--	13	No Timing
5	Driver (Barrier)	20	0	70	-20	85	13	850
6	Left Belt Retractor	--	--	CAMERA JAMMED		--	--	--
7	Vehicle Right Side	281	41	48	-4	--	13	890
8	Passenger	304	66	45	-1	268	35	1030
9	Passenger	228	24	44	-2	274	50	1020
10	Passenger	90	104	69	-18	--	13	880
11	Passenger (Barrier)	--	--	FILM BROKE		--	--	--
12	Right Belt Retractor	-	-	UNDER EXPOSED		--	--	--
13	Overhead	0	40	216	-90	-	25	990
14	Engine (Pit)	0	36	-120	90	-	25	880
15	Fuel Tank (Pit)	0	140	-120	90	-	25	830

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

Seat Belts

Seat belts are provided for protection of the driver and occupants. Continuous and proper use of seat belts is a wise precaution and in some Canadian provinces required by law. Make it a habit to wear belts properly and ensure that passengers follow your example.

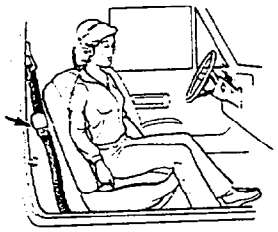
The system used at the front out-board seat positions on all models employs a one-piece combination lap/shoulder belt with a connector tongue that slides up and down the belt for proper fit. **This continuous loop system has a single retractor reel which locks upon deceleration of the vehicle.** Follow the instructions within *To "Buckle-Up"* for proper belt adjustment.

The rear seats are equipped with manual-adjusting lap belts.

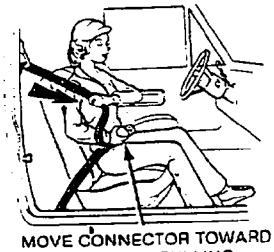
To "Buckle-Up"

Front Seat Lap/Shoulder Belt

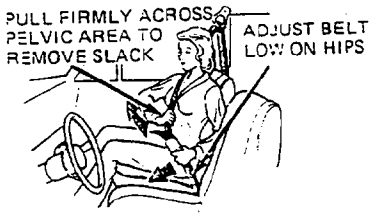
- Adjust front seat to the satisfaction of driver. Sit up straight and well back in seat.
- Grasp the connector and slide it as far up or down as necessary for the belt to go around your lap. Move the connector toward the buckle, pulling the belt from the retractor as you proceed. The retractor will not lockup if you stop or hesitate when pulling the belt. Insert the connector into the buckle until you hear a "click" and feel it latch. Position the lap portion of the belt across the hips **as low as possible. Grasp the shoulder portion of the belt near the connector and pull firmly across the pelvis area. This will ensure a snug fit on the lap portion of the belt.**



Location of Lap/Shoulder Belt Connector



Connecting Lap/ Shoulder Belt



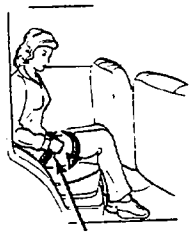
Adjusting For Correct Belt Fit

WARNING: *Do not operate the vehicle unless all seat belts are adjusted low and snug on hips. Do not position shoulder straps under the arms. Wearing seat belts improperly may result in unnecessary injuries in the event of an accident.*

Rear Seat Lap Belts — All Models Except Scrambler

NOTE: *Ensure that the rear seat belts are removed from their plastic shipping bags and properly positioned on the seat.*

- For rear seats, insert the metal latch plate into the buckle latch until a "click" is heard. Position the belt low across hips and pull free end of webbing at the latch side of the belt to provide a snug fit.



Outboard Position

Figure 7 OWNER'S MANUAL SEAT BELT INSTRUCTIONS

Figure 8

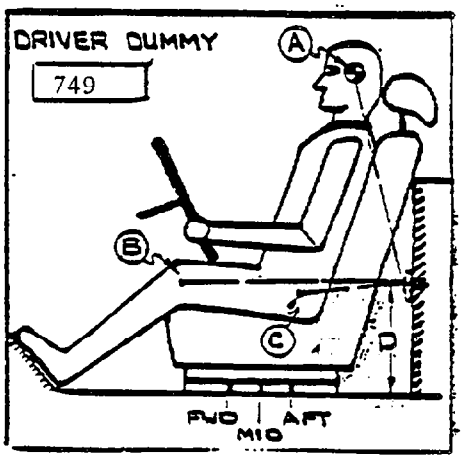
PART 572 DUMMY IN-VEHICLE POSITION

Test No. CE1301 Vehicle 1984 Jeep CJ-7

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

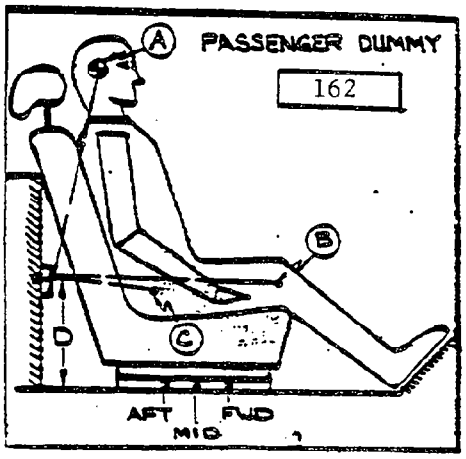
ADJUSTER TYPE:
- X Manual
- ___ Power

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



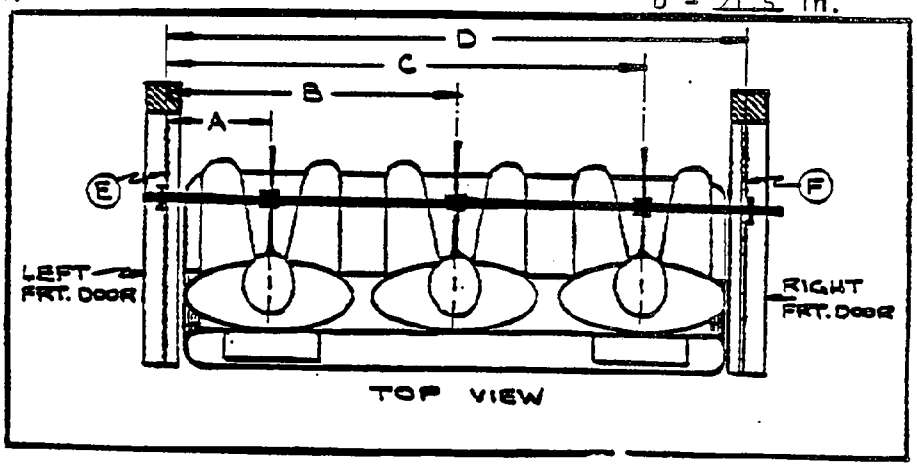
MEASUREMENT LOCATION

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



A = 20.5 in. 9 Degrees
B = 22.5 in. 104 Degrees
C = 9.2 in. 140 Degrees
D = 21.5 in.

A = 20.9 in. 10 Degrees
B = 23.6 in. 103 Degrees
C = 10 in. 130 Degrees
D = 21.5 in.



DUMMY ID

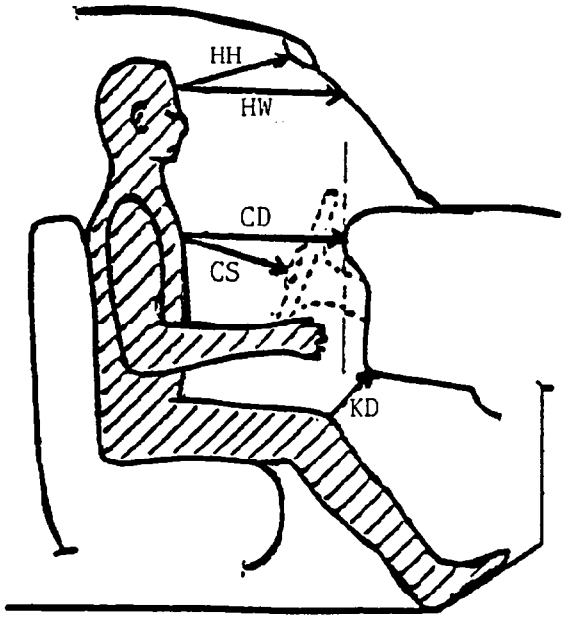
749	--	162

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

NO DOORS

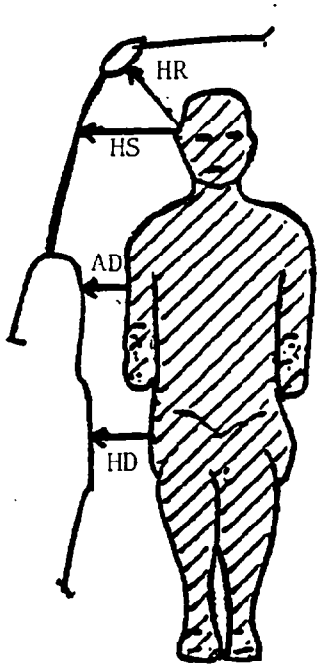
C-A = 21.5 in.

	DRIVER	PASSENGER
HH	20.5"	18.5"
HW	23.2"	21.2"
CD	21.2"	20.0"
CS	15.0"	--
KDL	8.0"	6.4"
KDR	8.0"	6.4"
SA	22°	22°
TA	22°	22°



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
HR	--	--
HS	--	--
AD	--	--
HD	--	--

NO DOORS OR ROOF

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)	-62	-33	37	79	-43	-39	-17	46.5
DUMMY (2)	-49	37	37	65	-31	54	13	44.3
DUMMY (3)								
DUMMY (4)								

	MAXIMUM FORCE-FEMUR LOAD (LBS)	
	RIGHT FEMUR	LEFT FEMUR
DUMMY (1)	860	1730
DUMMY (2)	750	520
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)	1315	--	975
DUMMY (2)	1745	2000	--
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)	460.1	.07560	.10770	46.0	588.2
DUMMY (2)	439.7	.08175	.11625	43.9	589.1
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	camera jammed	underexposed film
electronic	1.5"	2.5"
Belt Strain[1]	.15" per ft.	.7" per ft.
Belt Length Data (in.)		
total length [2]	125.4	125.1
retractor to "D" ring [3]	31.5	31.5
torso belt [3]	38	38.5
lap belt [3]	38	38.5
remainder on spool	17.9	16.6

---

[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

APPENDIX A

PHOTOGRAPHS

Figure A-1 PRE-TEST FRONT VIEW

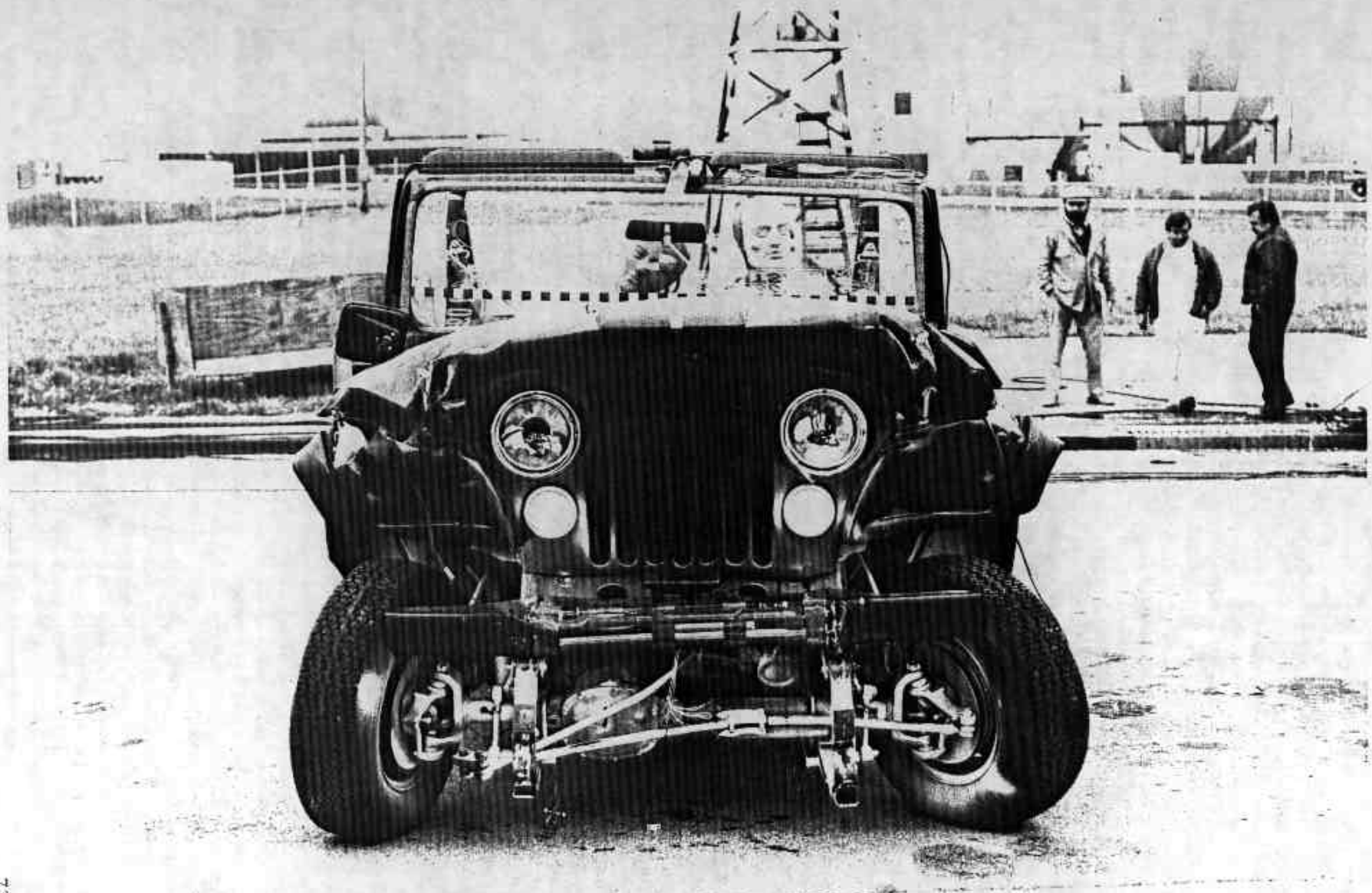


Figure A-2 POST-TEST FRONT VIEW

Figure A-3 PRE-TEST LEFT SIDE VIEW

A-5

7209-6

Figure A-4 POST-TEST LEFT SIDE VIEW

Figure A-5 PRE-TEST RIGHT SIDE VIEW

7209-6

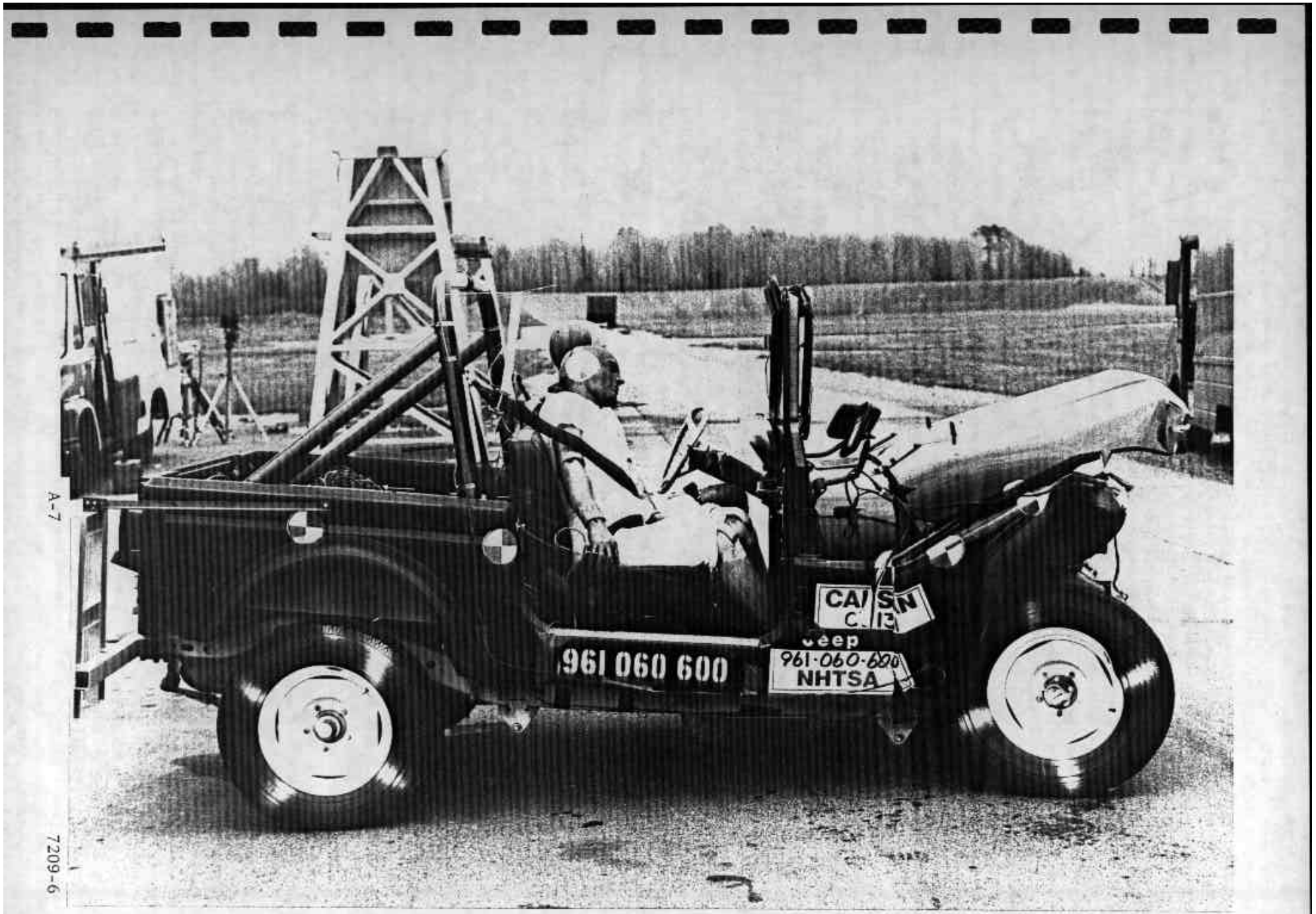
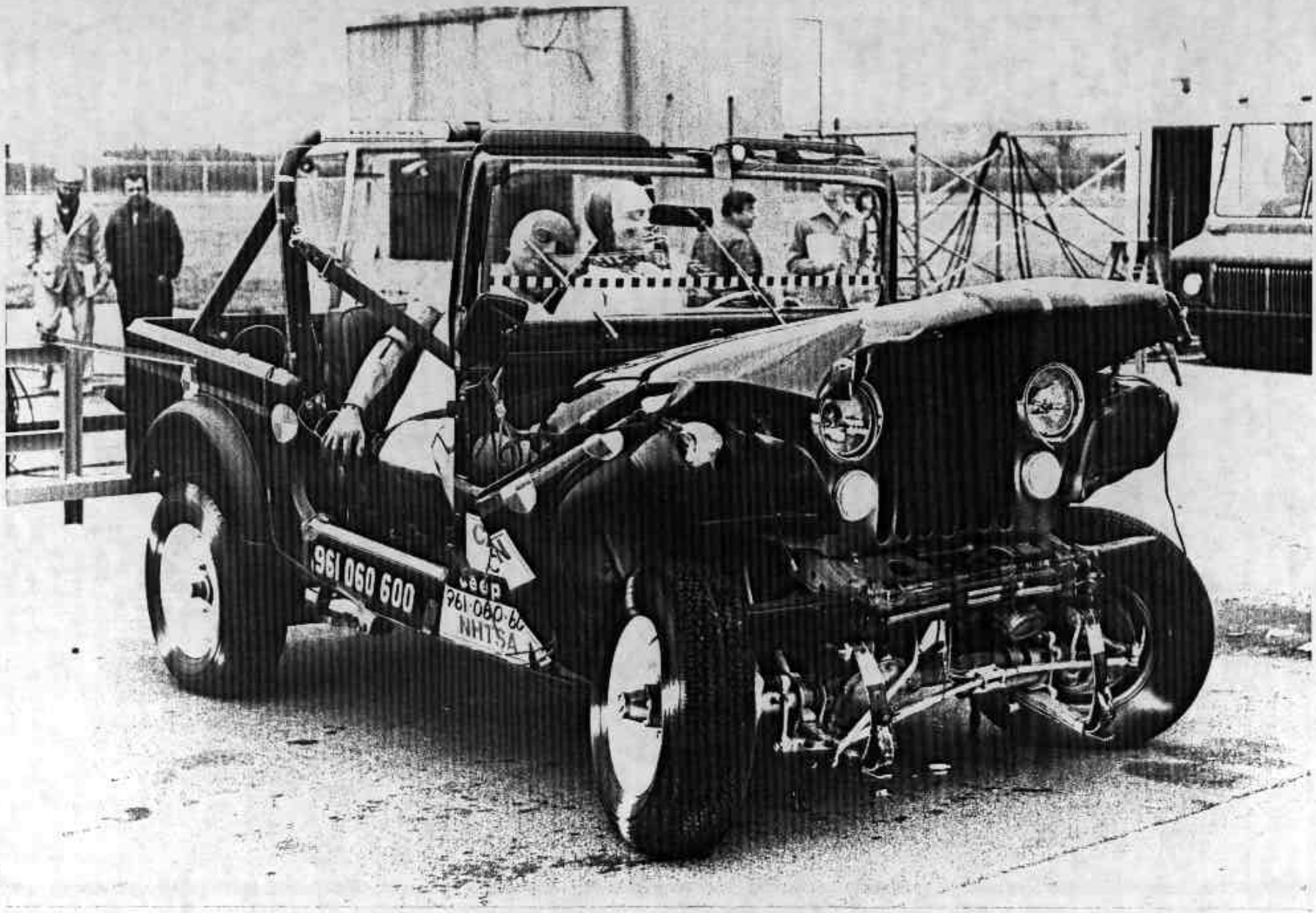


Figure A-6 POST-TEST RIGHT SIDE VIEW

A-8

7209-6

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



A-9

7209-6

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

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

A-11

7209-6

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

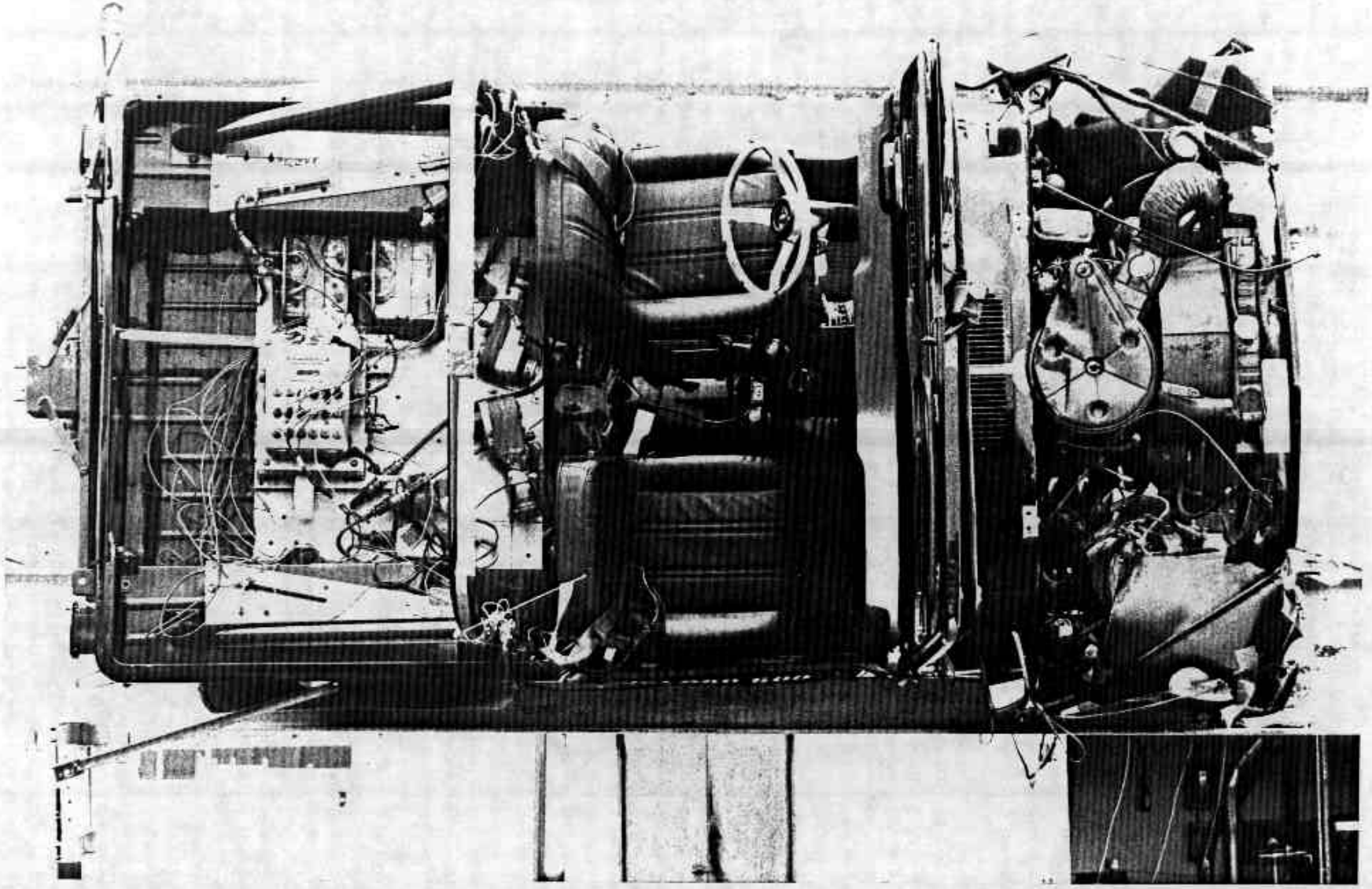


Figure A-11 POST-TEST TOP VIEW

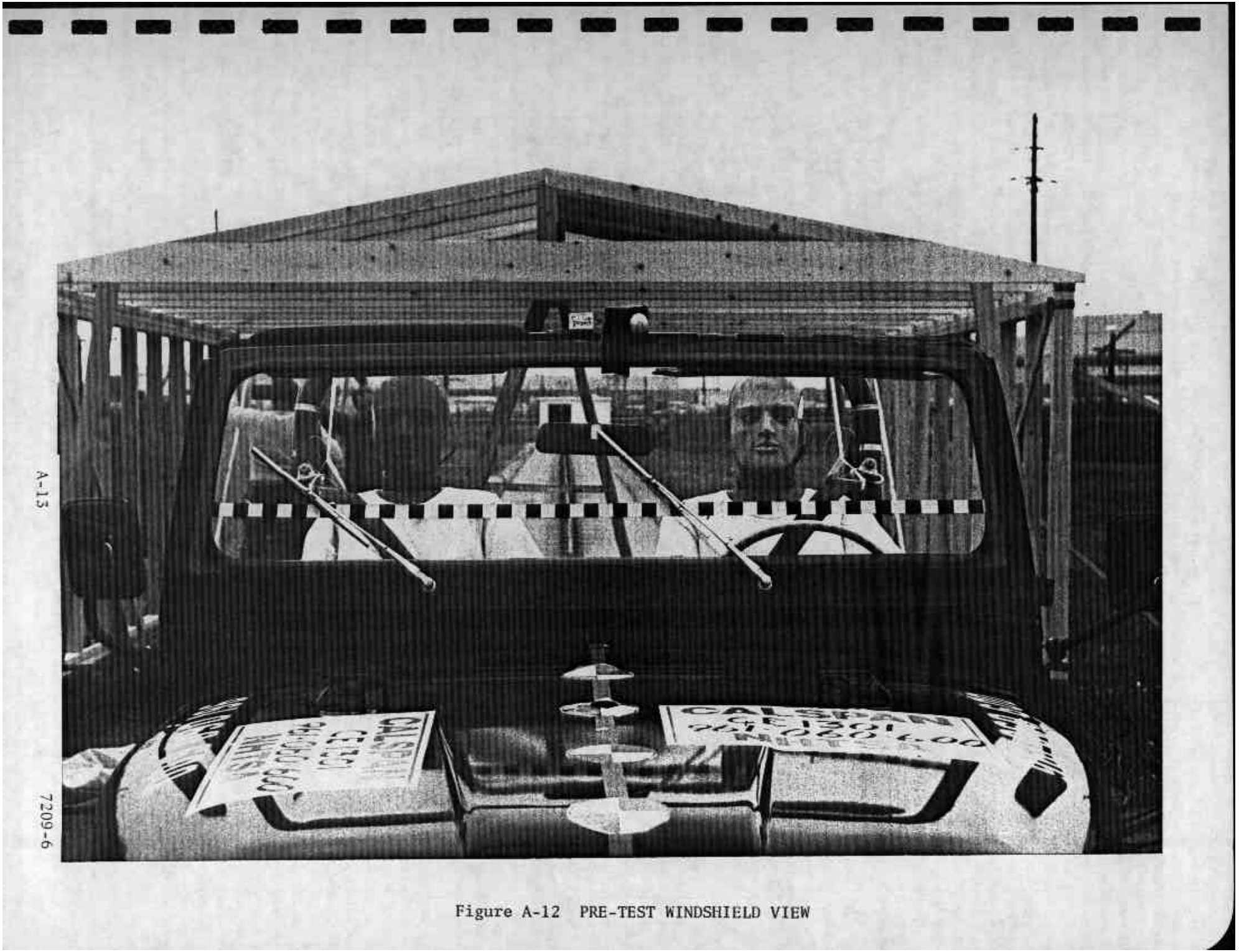


Figure A-12 PRE-TEST WINDSHIELD VIEW

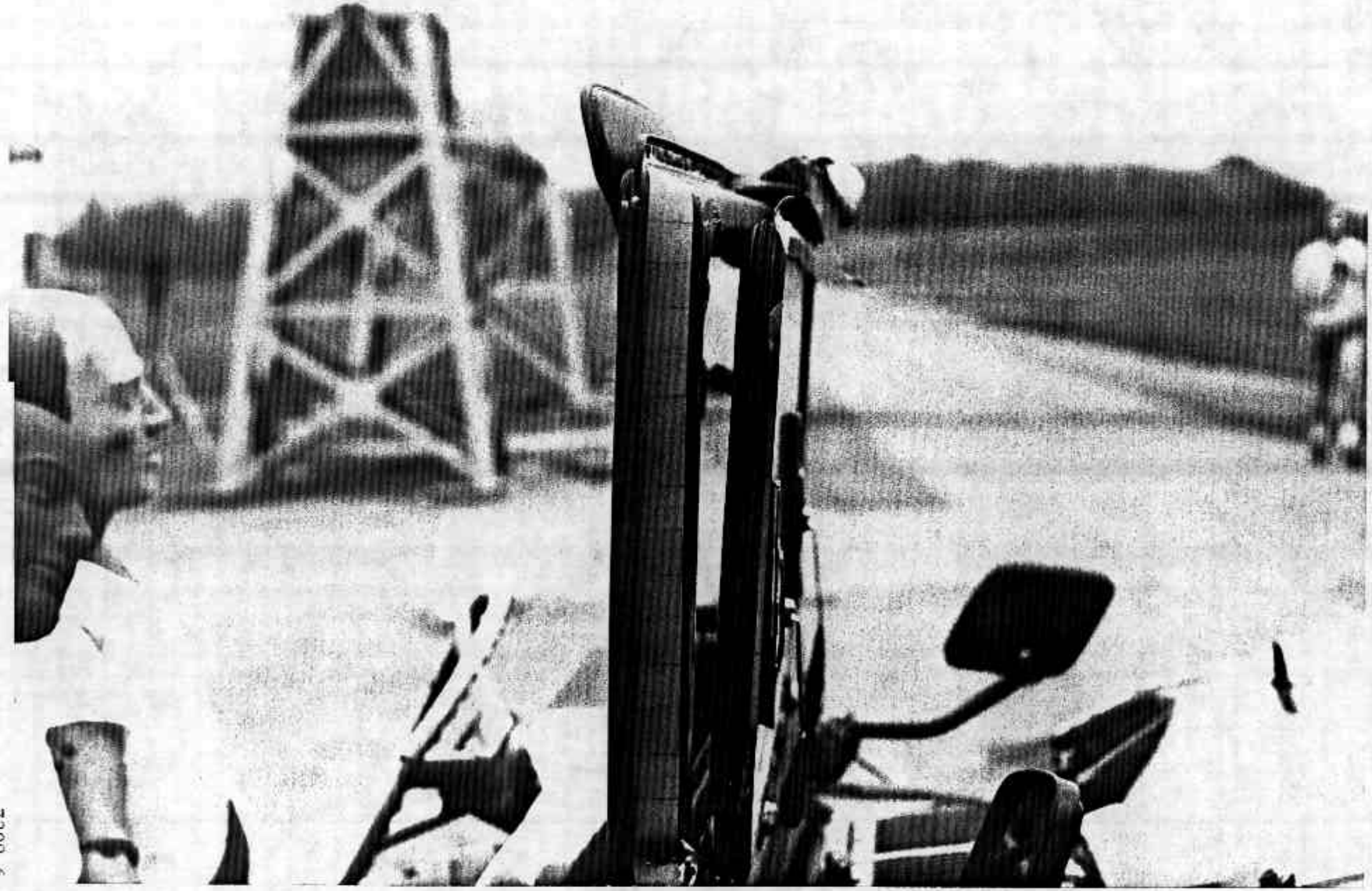
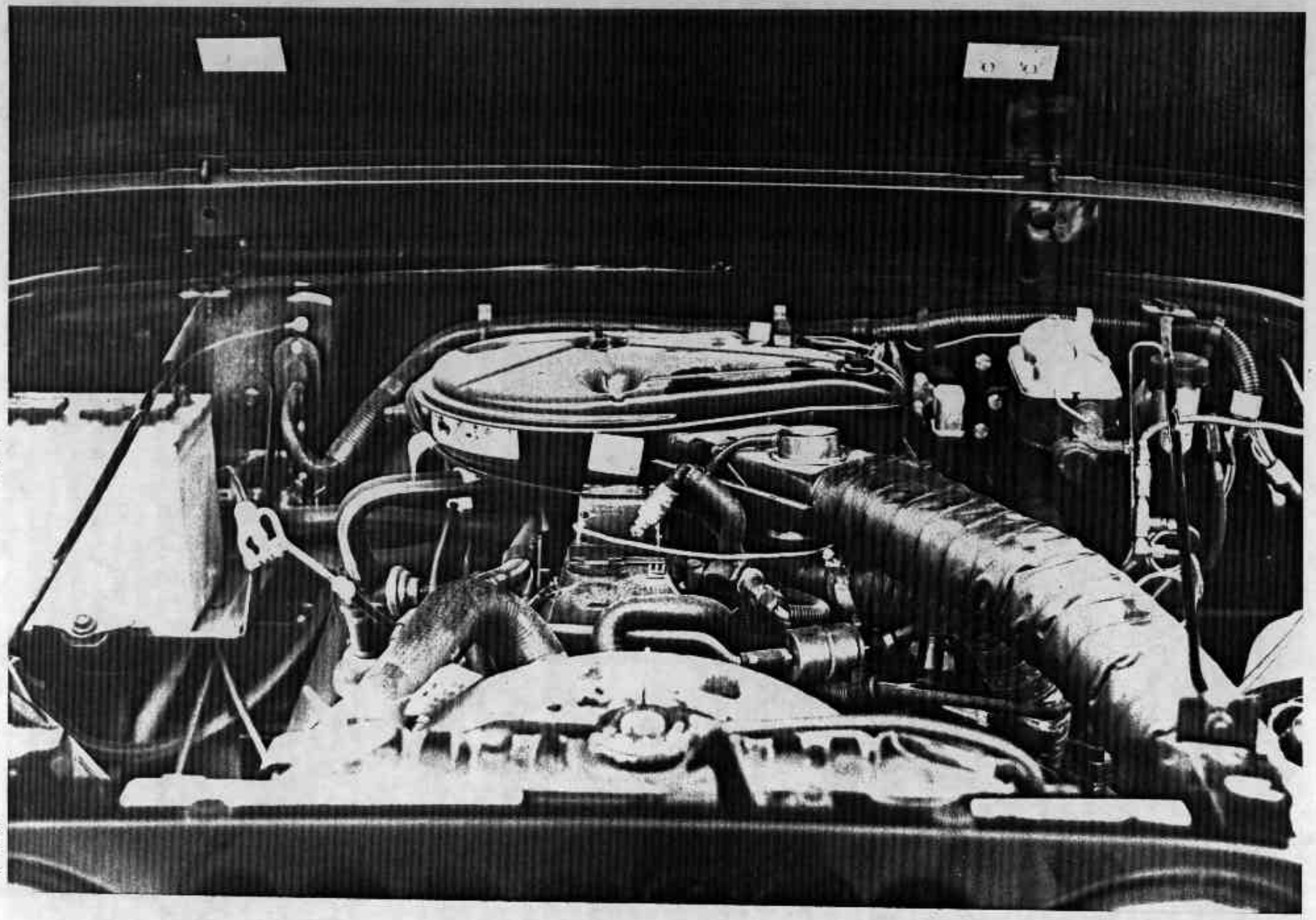


Figure A-13 POST-TEST WINDSHIELD RETENTION LOSS

7209-6



A-15

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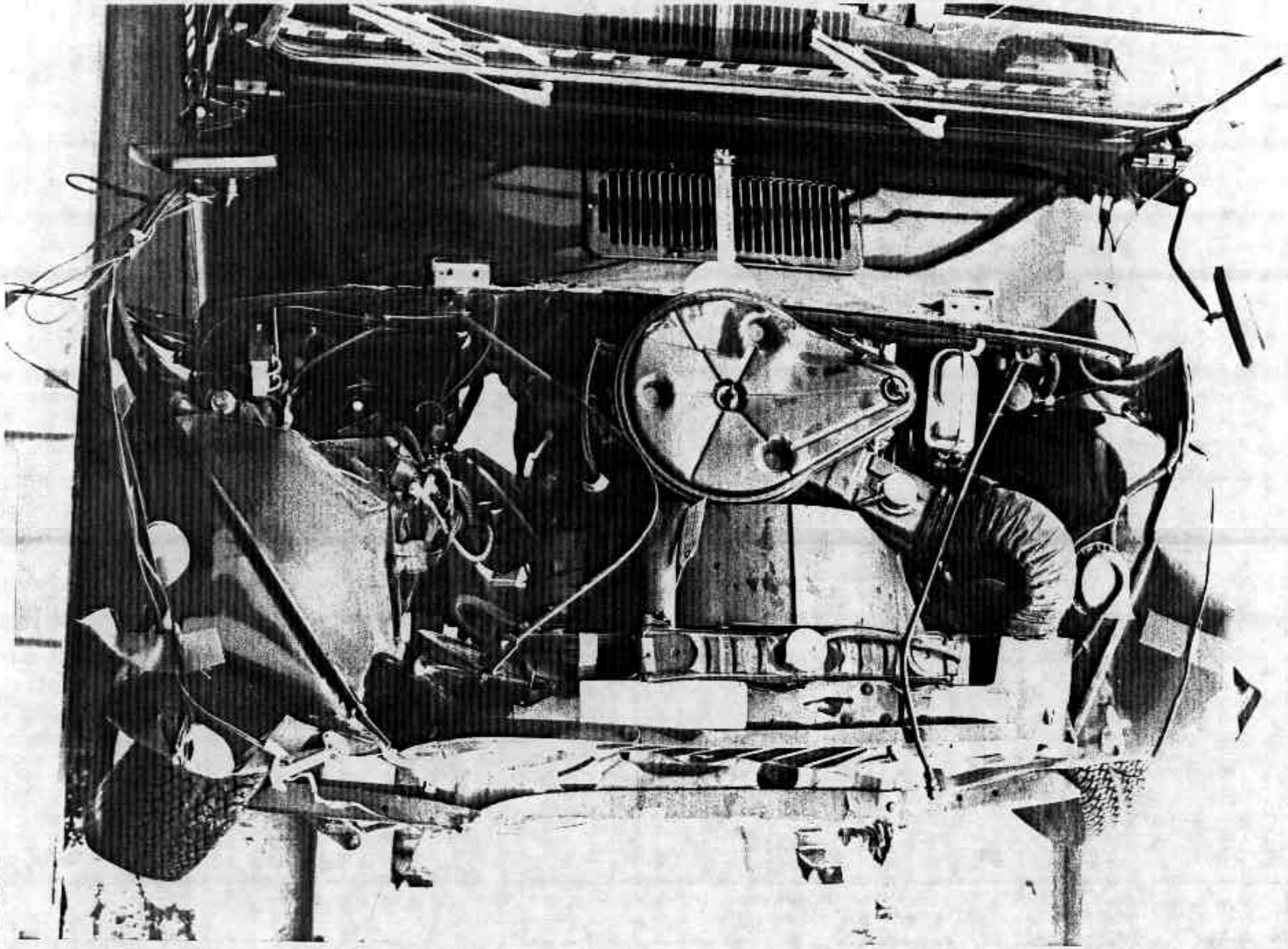
Figure A-14 PRE-TEST ENGINE COMPARTMENT VIEW



A-16

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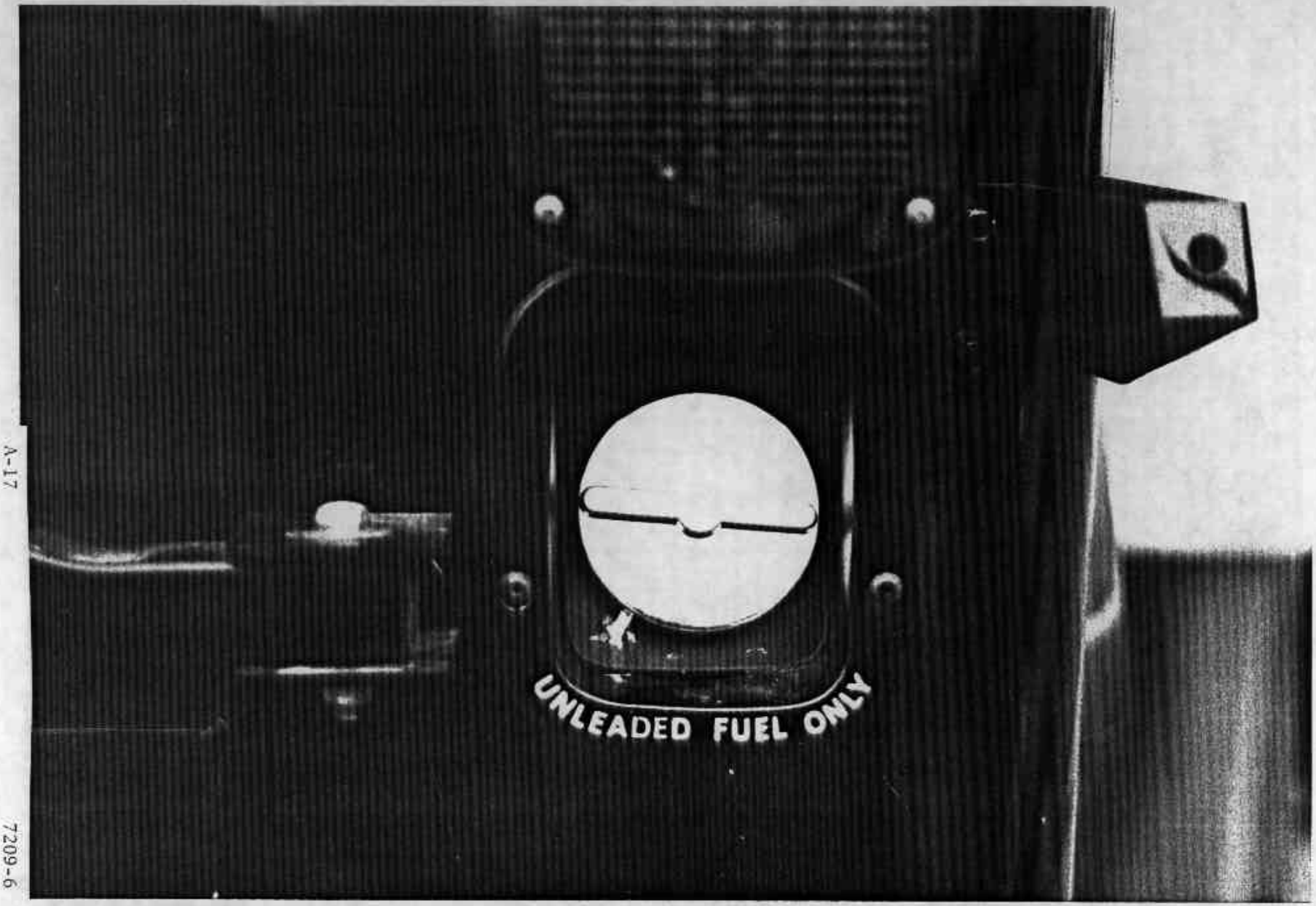
Figure A-15 POST-TEST ENGINE COMPARTMENT VIEW



A-17

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Figure A-16 PRE-TEST FUEL CAP VIEW

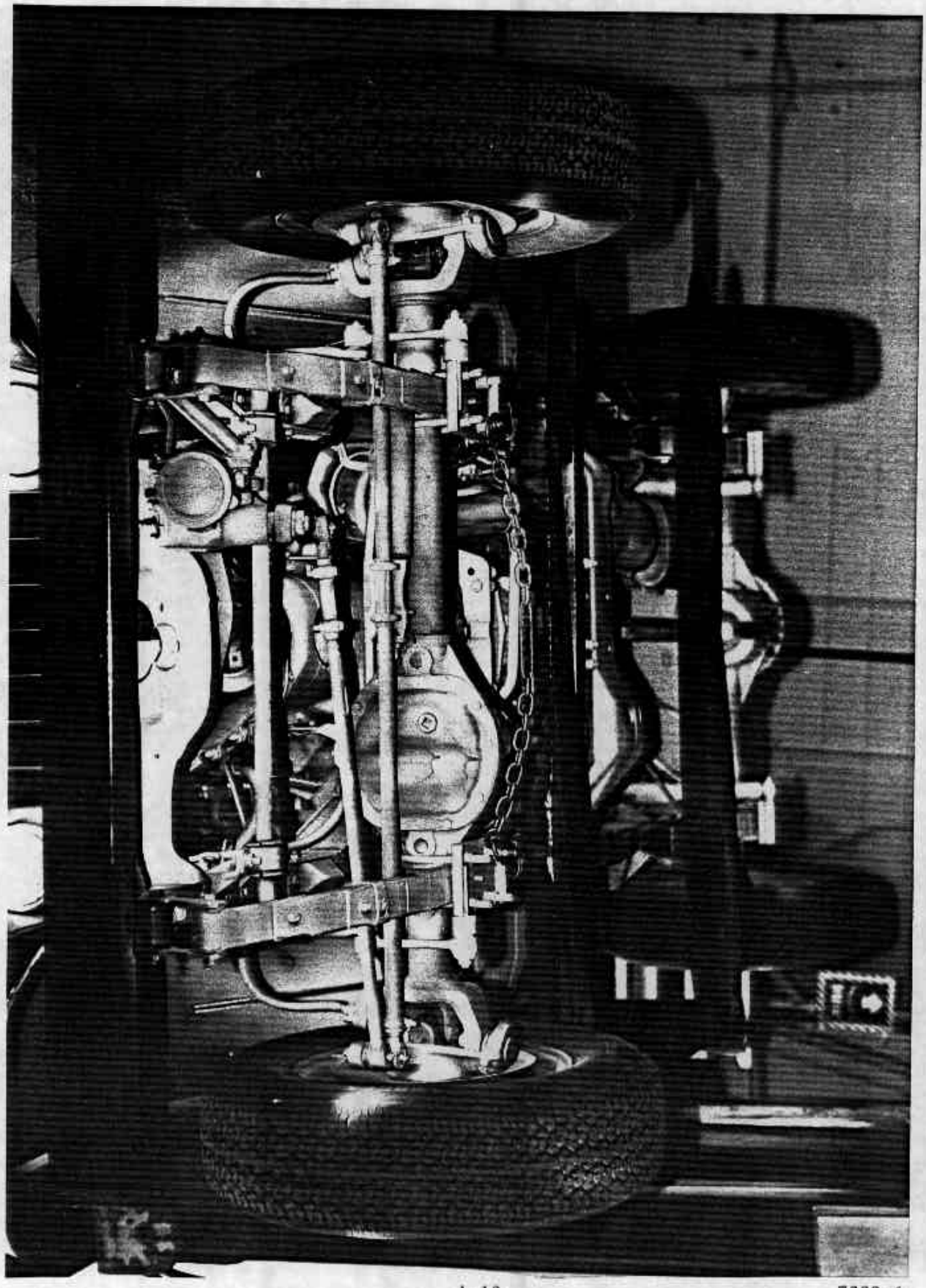

Figure A-17 PRE-TEST FRONT UNDERBODY VIEW

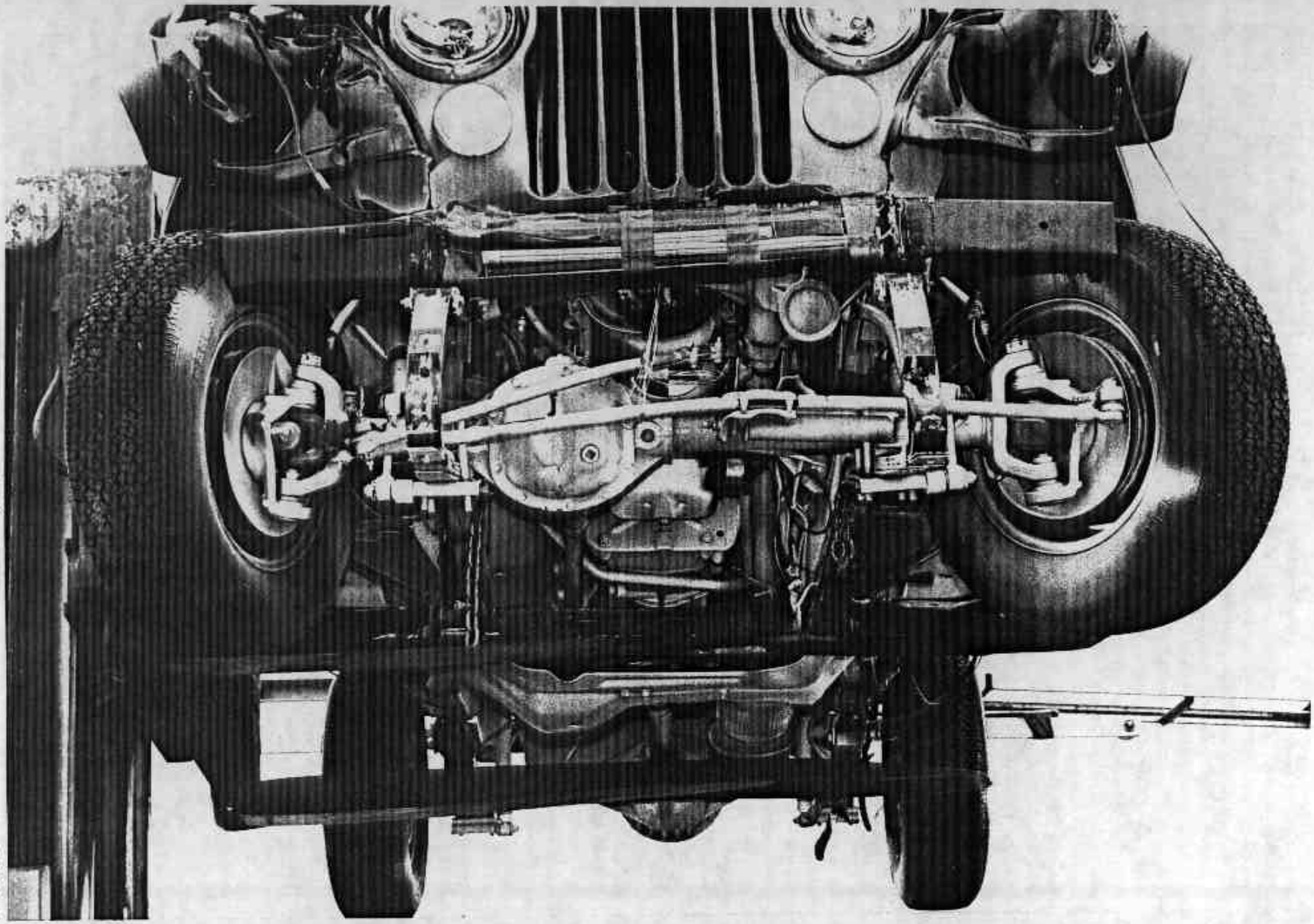

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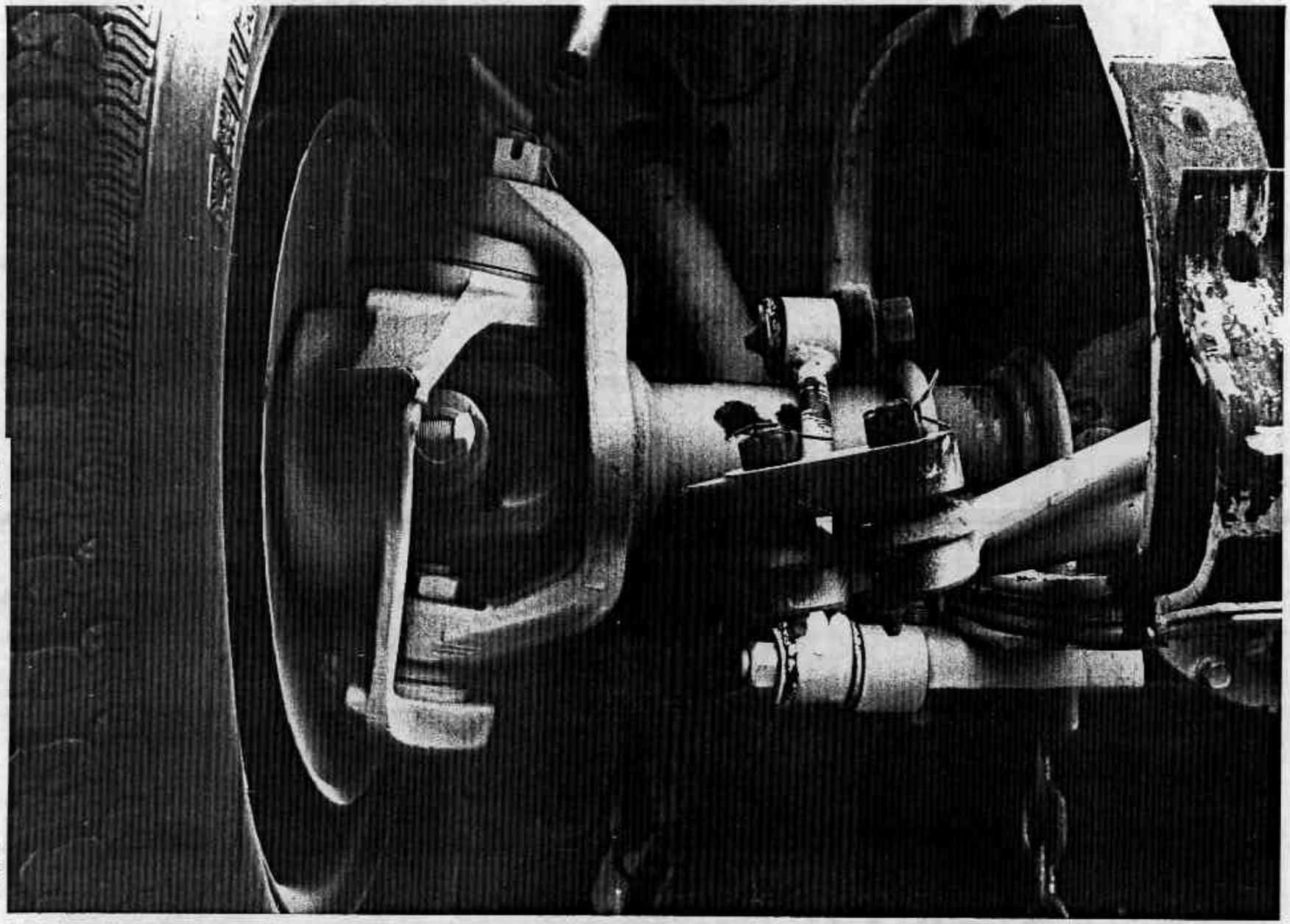
Figure A-18 POST-TEST FRONT UNDERBODY VIEW



A-20

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Figure A-19 POST-TEST BROKEN WHEEL CARRIER STEERING WHEEL LEAKAGE VIEW

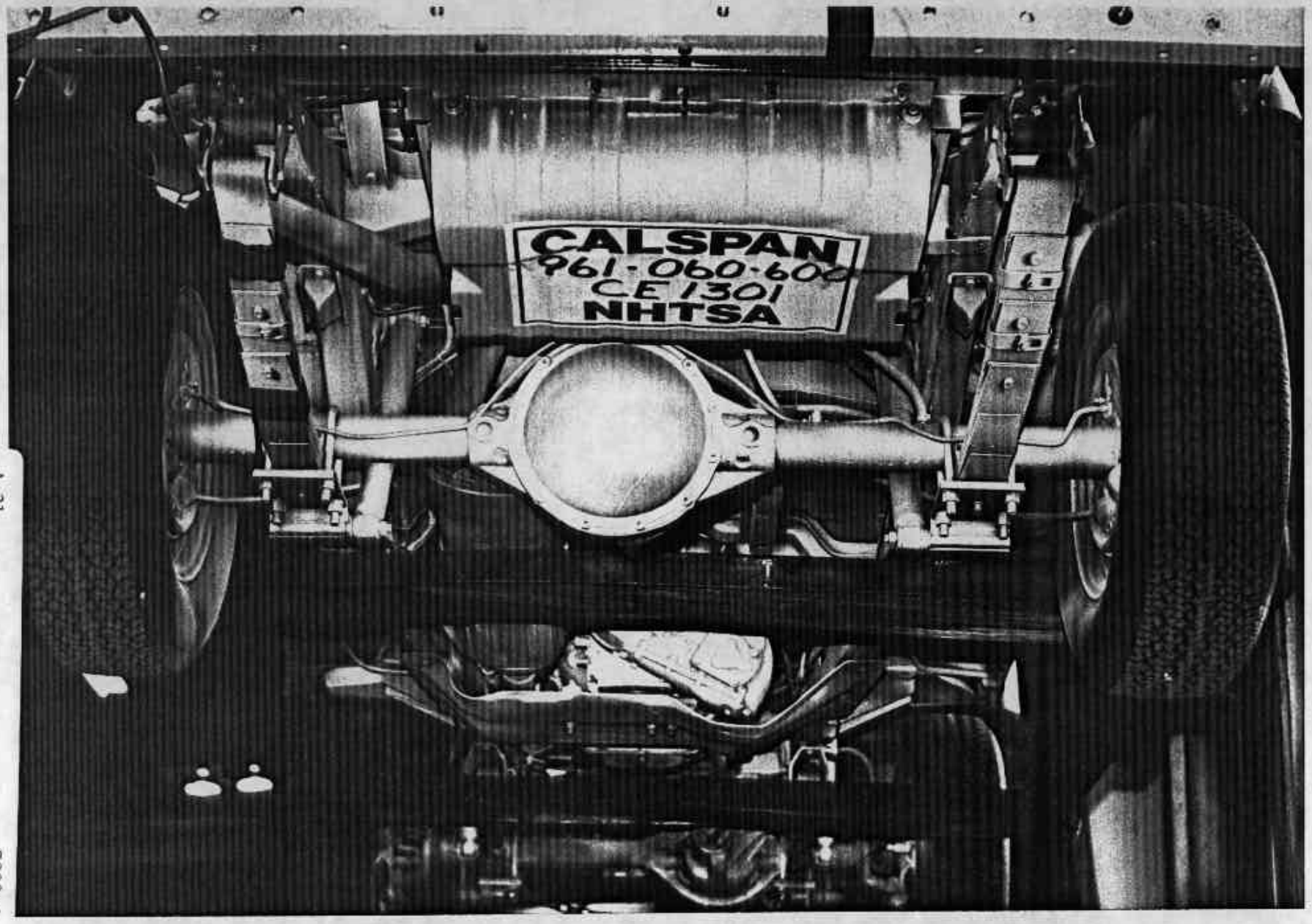

Figure A-20 PRE-TEST REAR UNDERBODY VIEW

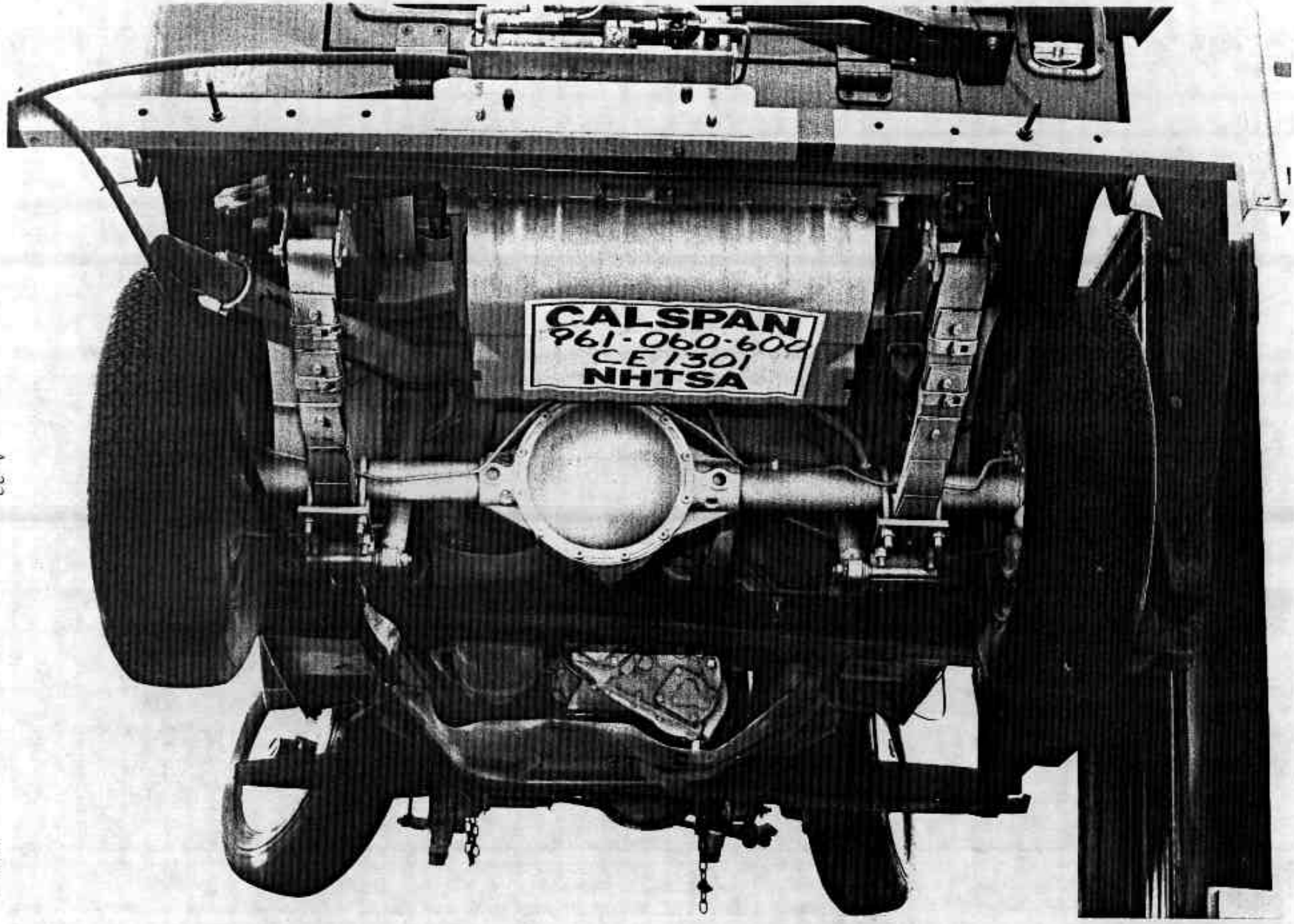

Figure A-21 POST-TEST REAR UNDERBODY VIEW

A-23

7209-6

Figure A-22 PRE-TEST DRIVER POSITION VIEW

A-24

7209-6

Figure A-23 POST-TEST DRIVER POSITION VIEW

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7209-6

Figure A-24 PRE-TEST DRIVER AND INTERIOR VIEW

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Figure A-25 POST-TEST DRIVER AND INTERIOR VIEW

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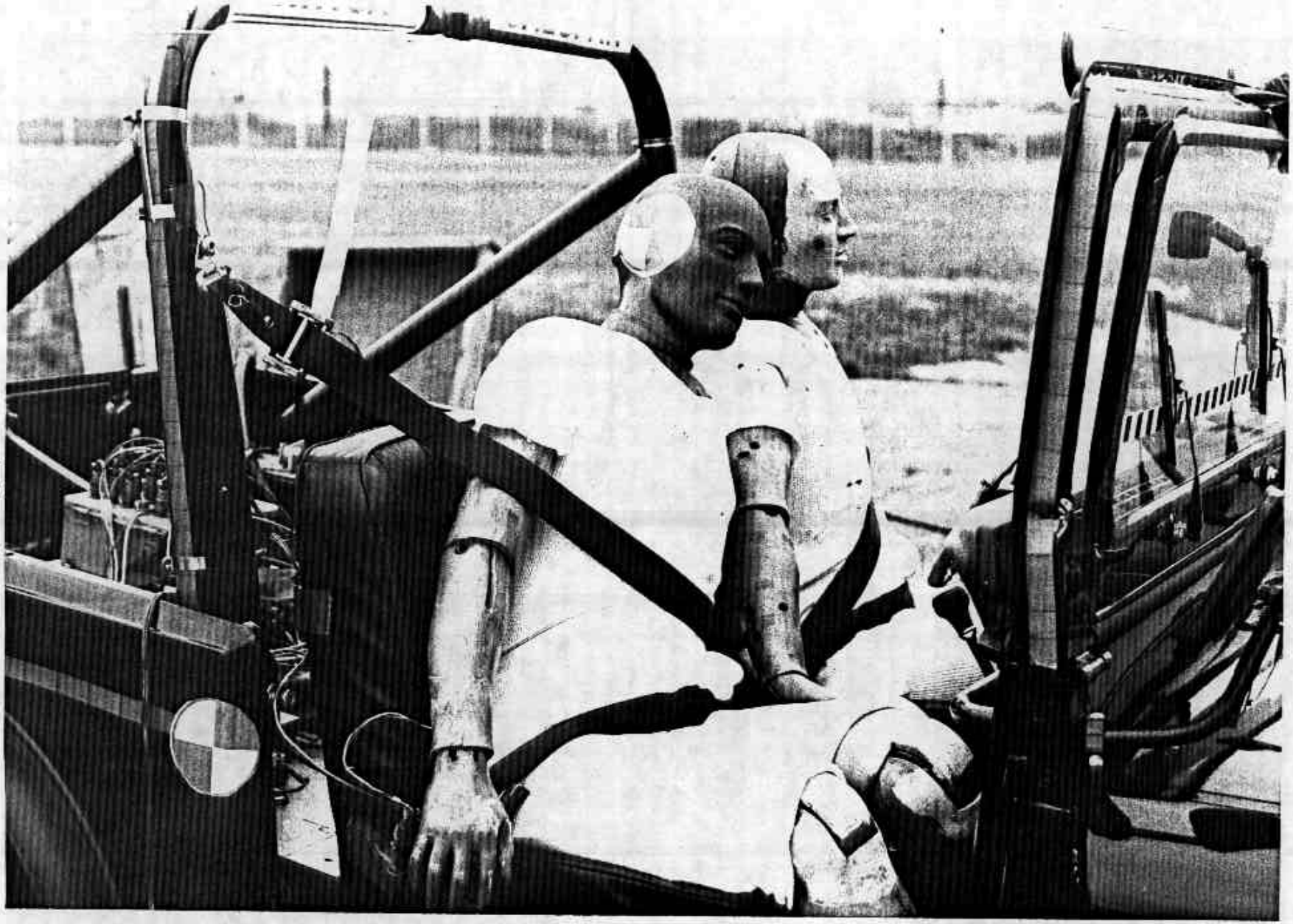
7209-6

Figure A-26 PRE-TEST PASSENGER POSITION VIEW



A-28

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Figure A-27 POST-TEST PASSENGER POSITION VIEW

Figure A-28 PRE-TEST PASSENGER AND INTERIOR VIEW

7209-6

Figure A-29 POST-TEST PASSENGER AND INTERIOR VIEW

APPENDIX B

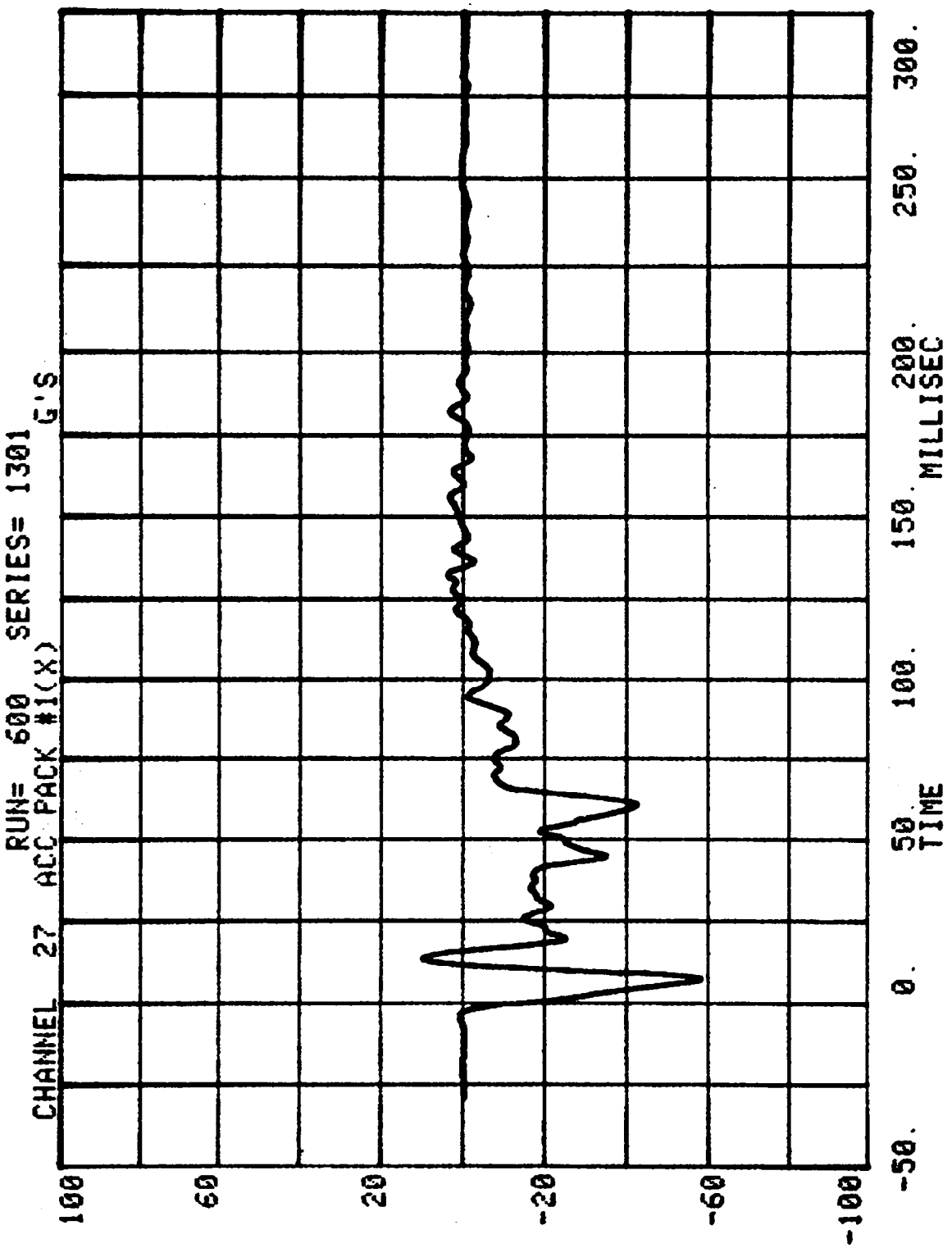
VEHICLE AND DUMMY RESPONSE DATA

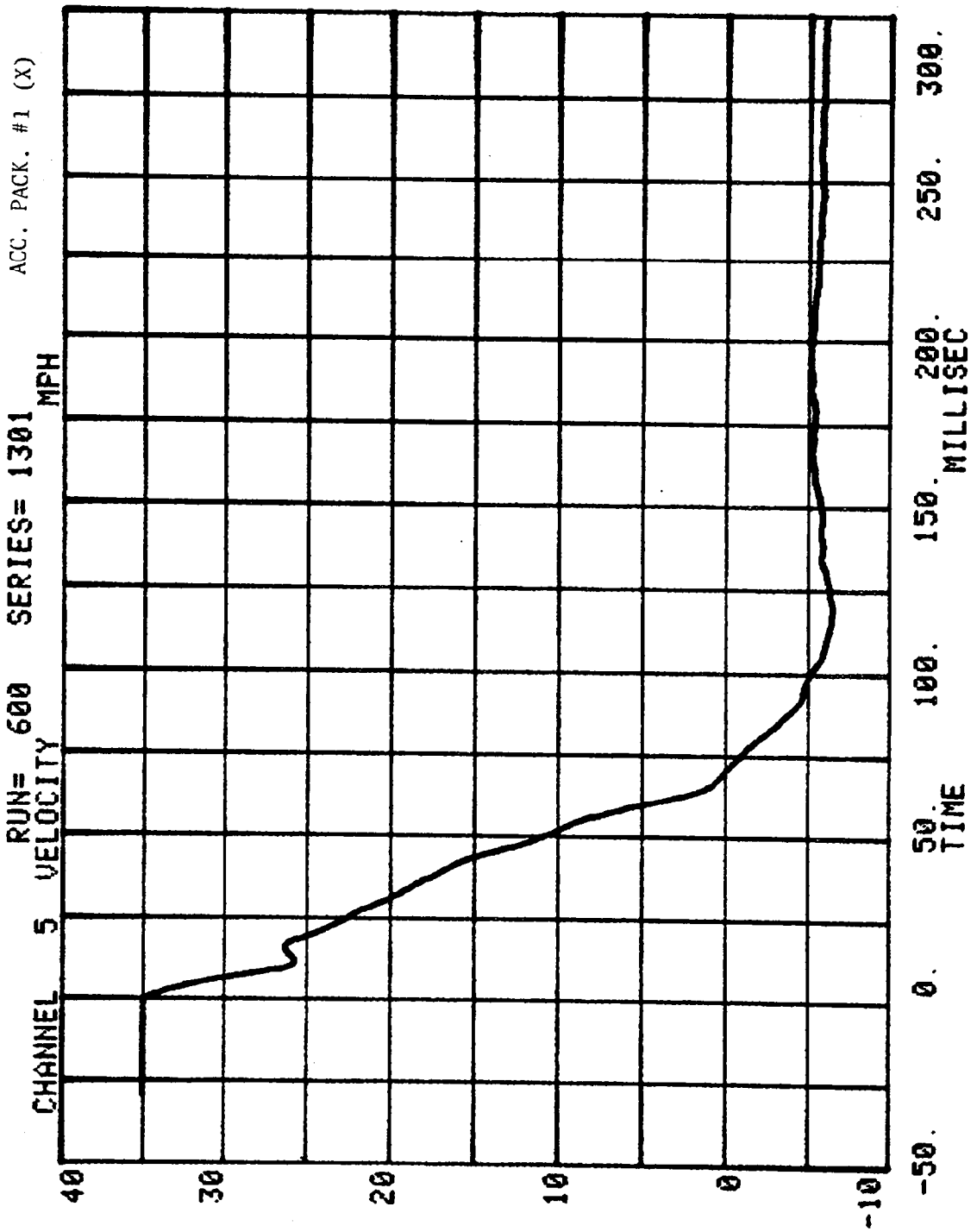
TEST NO. CE1301

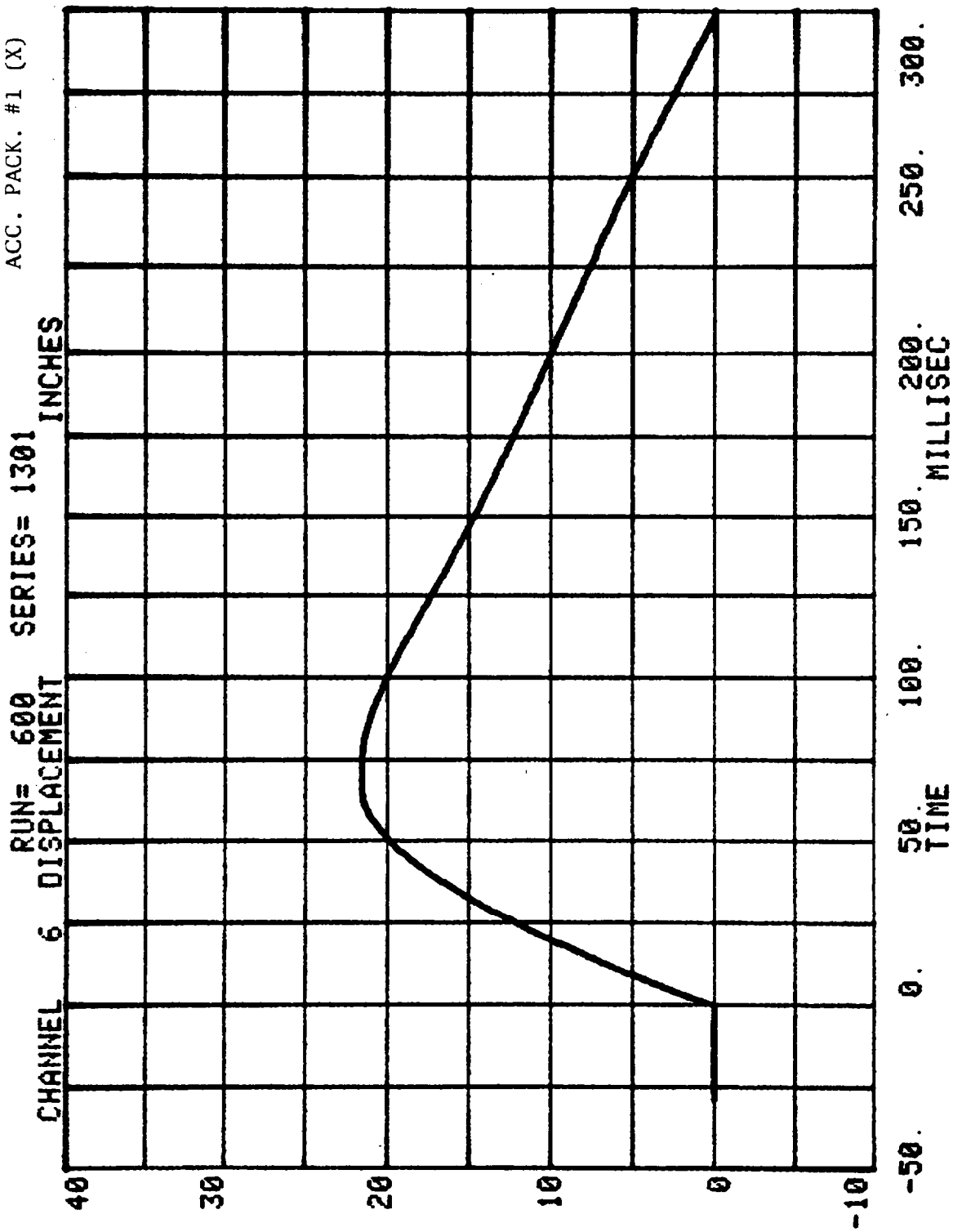
VEHICLE DATA

FILTER CHANNEL CLASS

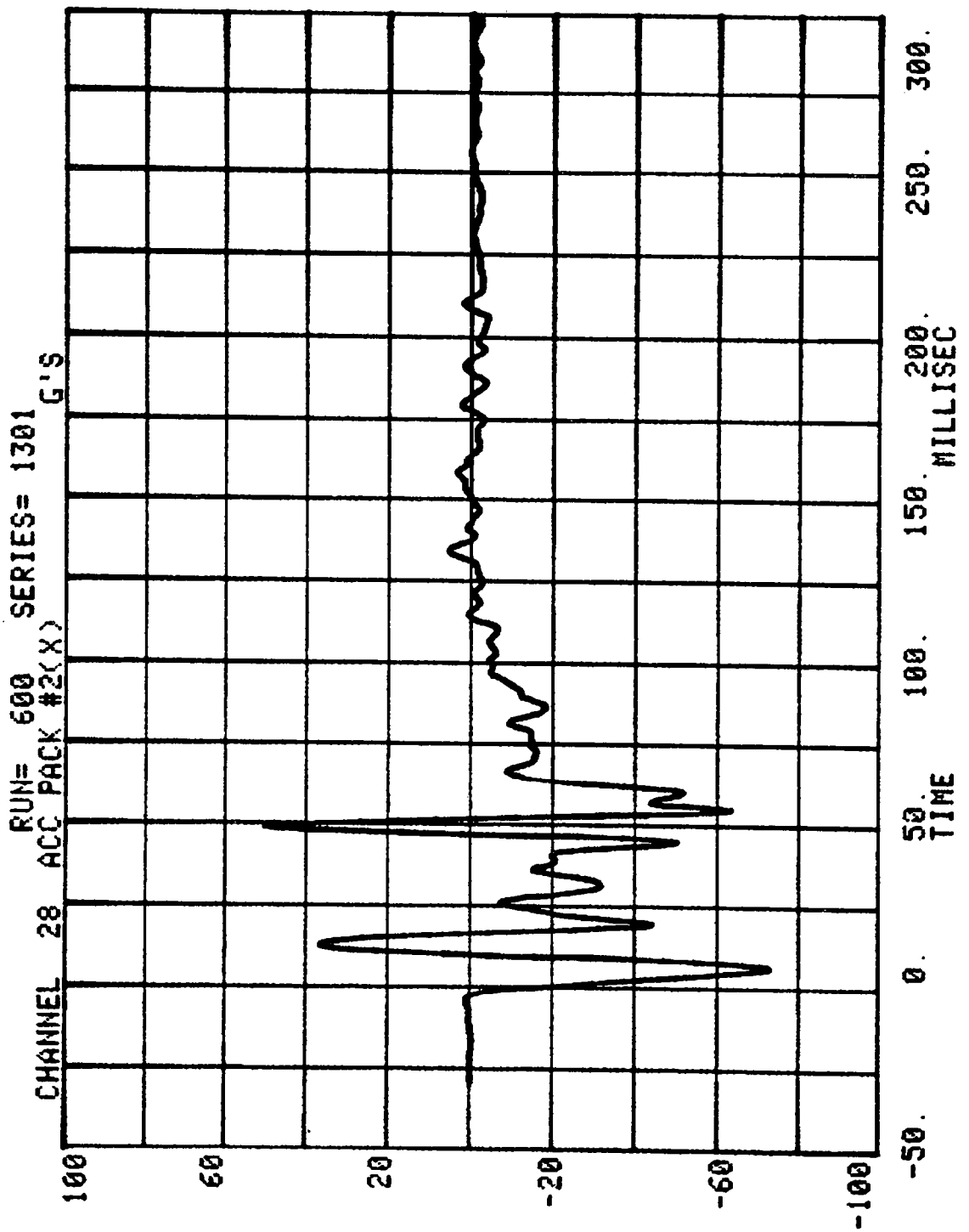
60

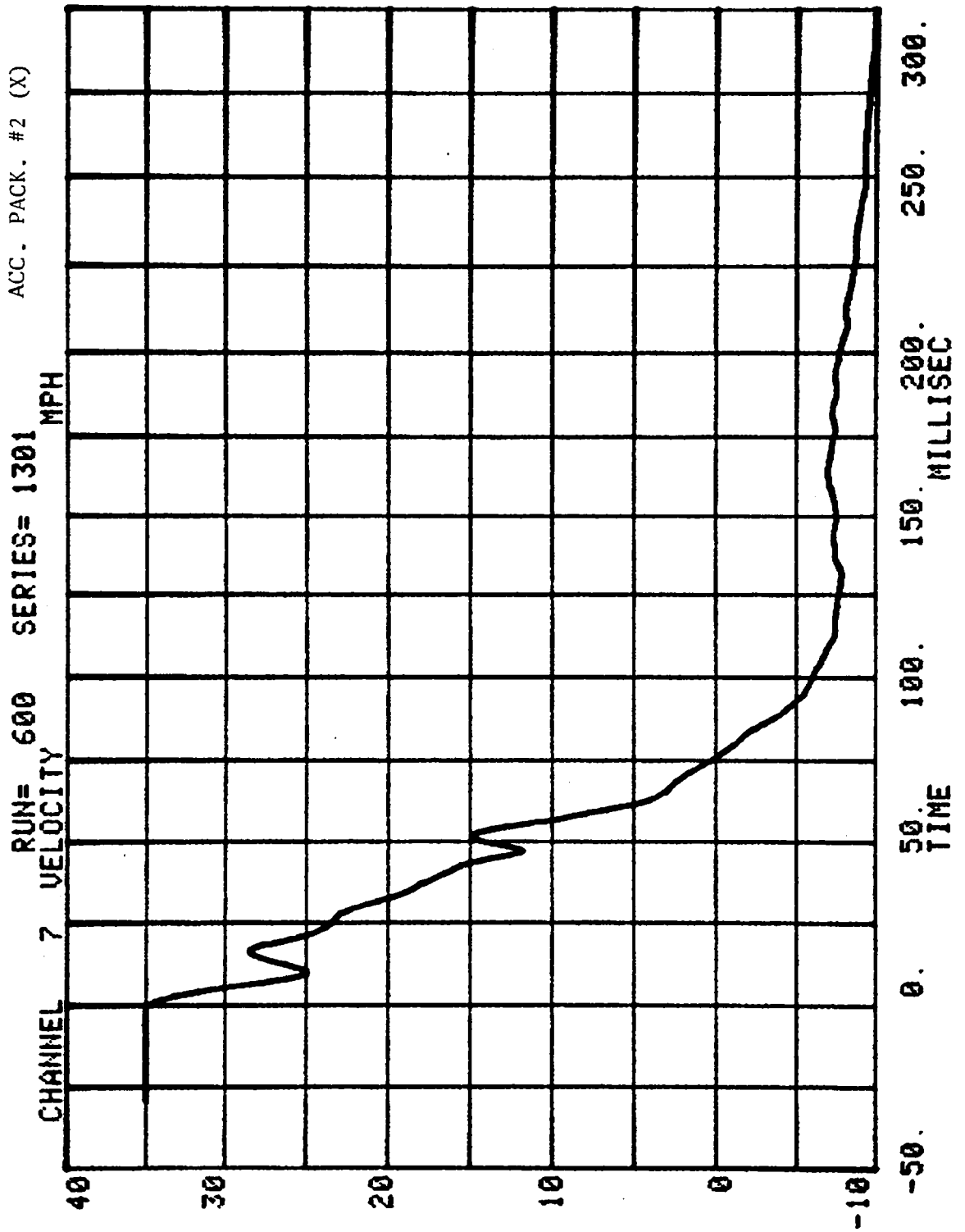

CHANNEL 27 ACC PACK #1(X)
RUN= 600 SERIES= 1301
G'S
100
60
20
-20
-60
-100
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

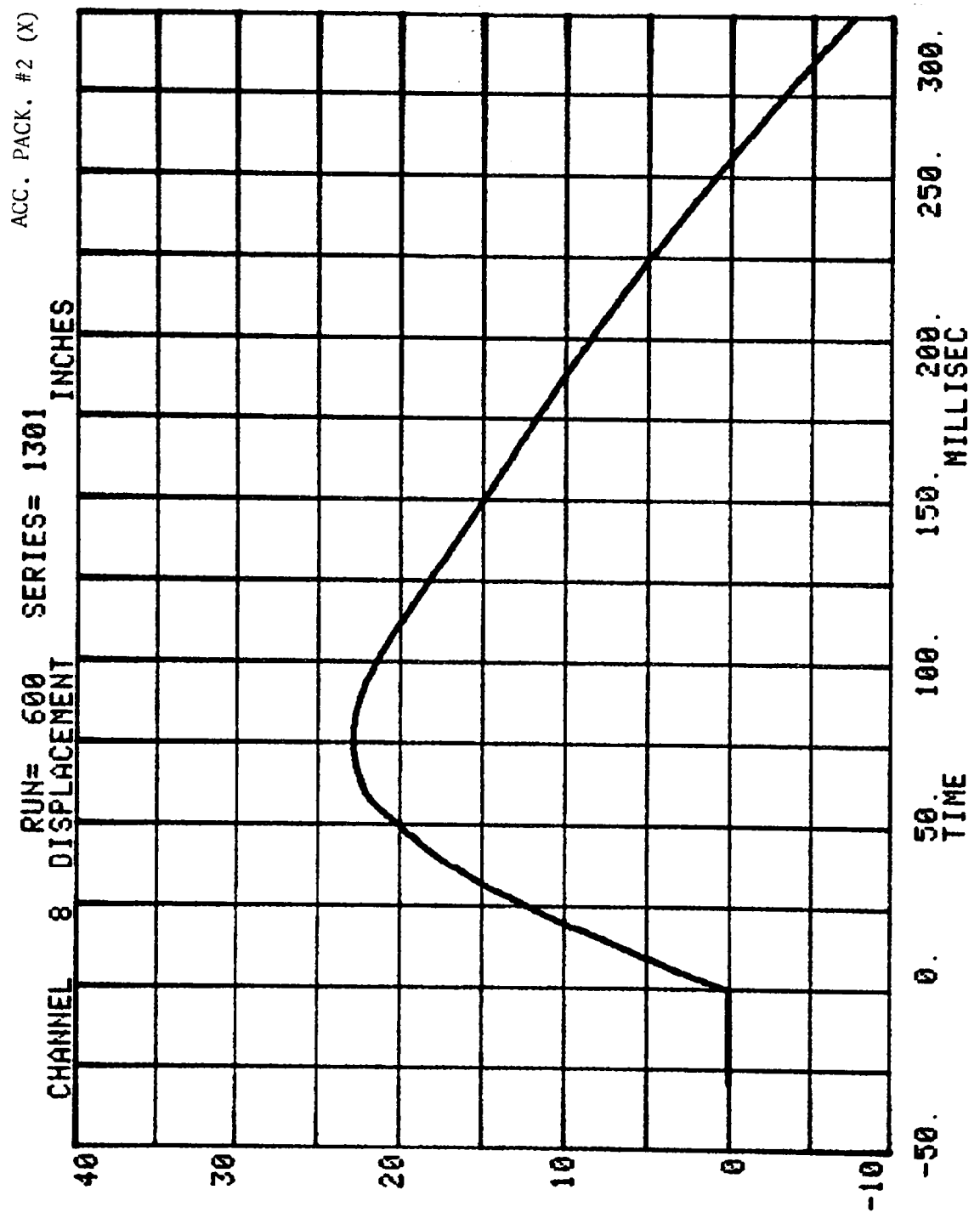

ACC. PACK. #1 (X)
CHANNEL 5 VELOCITY
RUN= 600 SERIES= 1301
MPH
40
30
20
10
0
-10
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

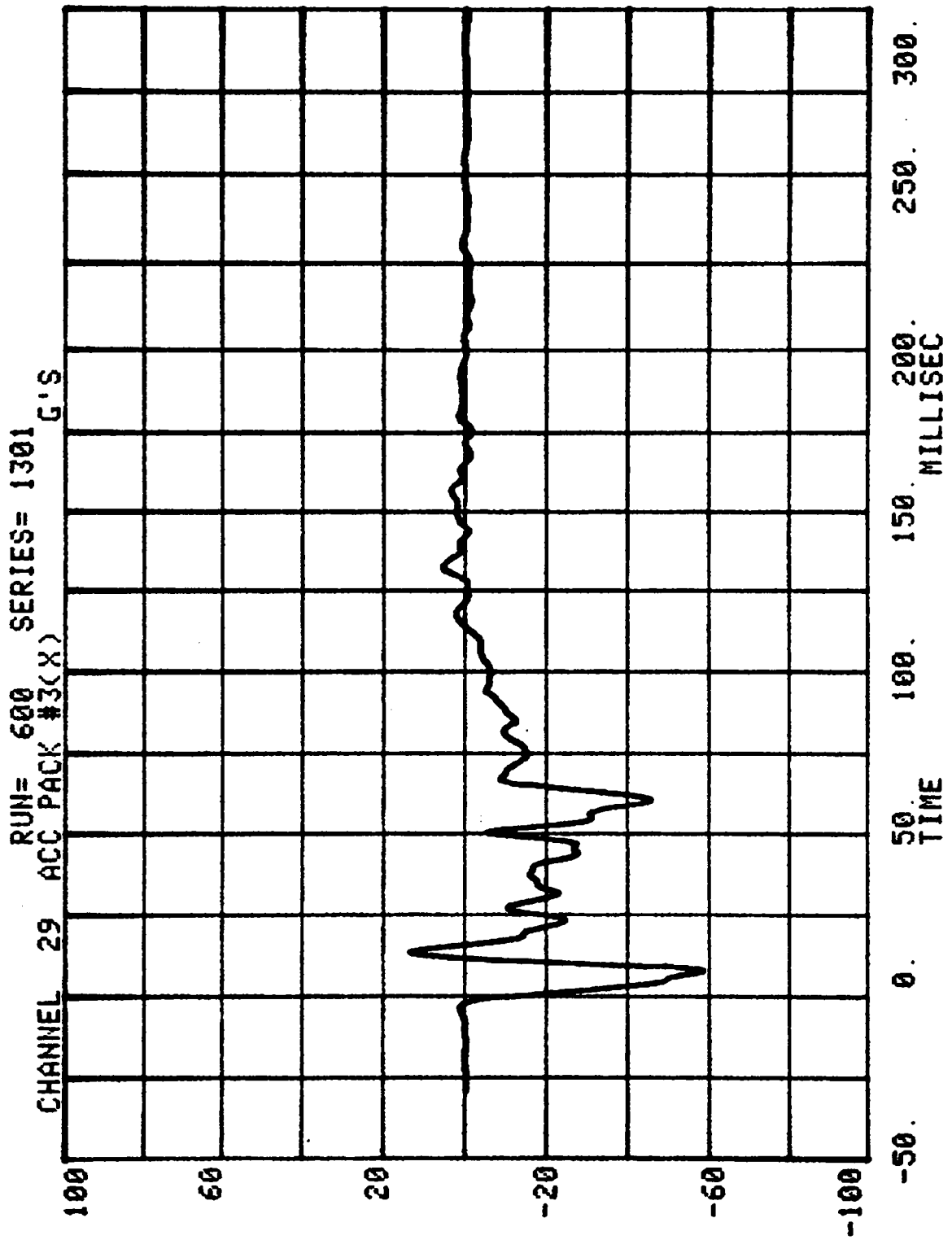

ACC. PACK. #1 (X)
CHANNEL 6 DISPLACEMENT
RUN= 600 SERIES= 1301
INCHES
40
30
20
10
0
-10
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

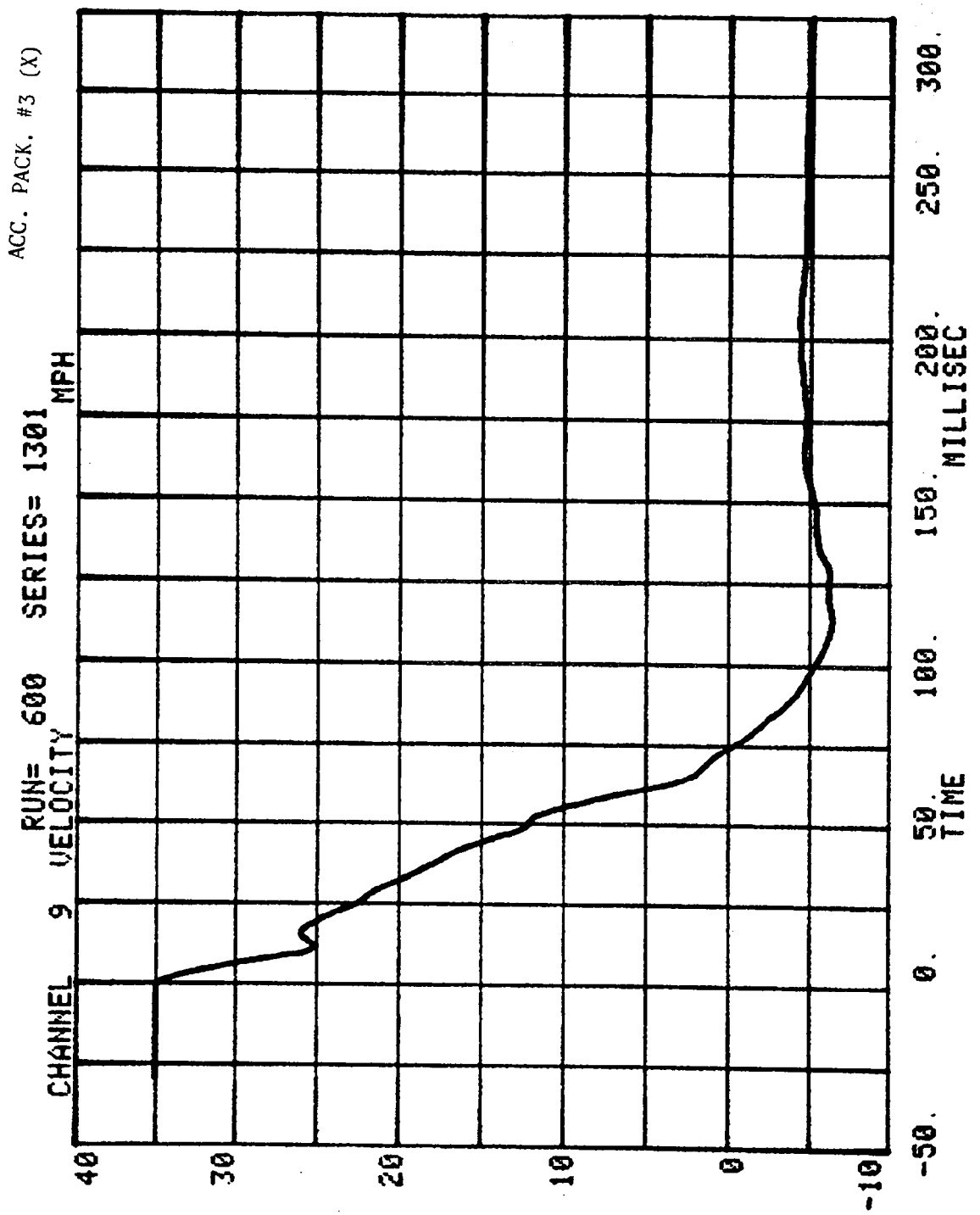
7209-6

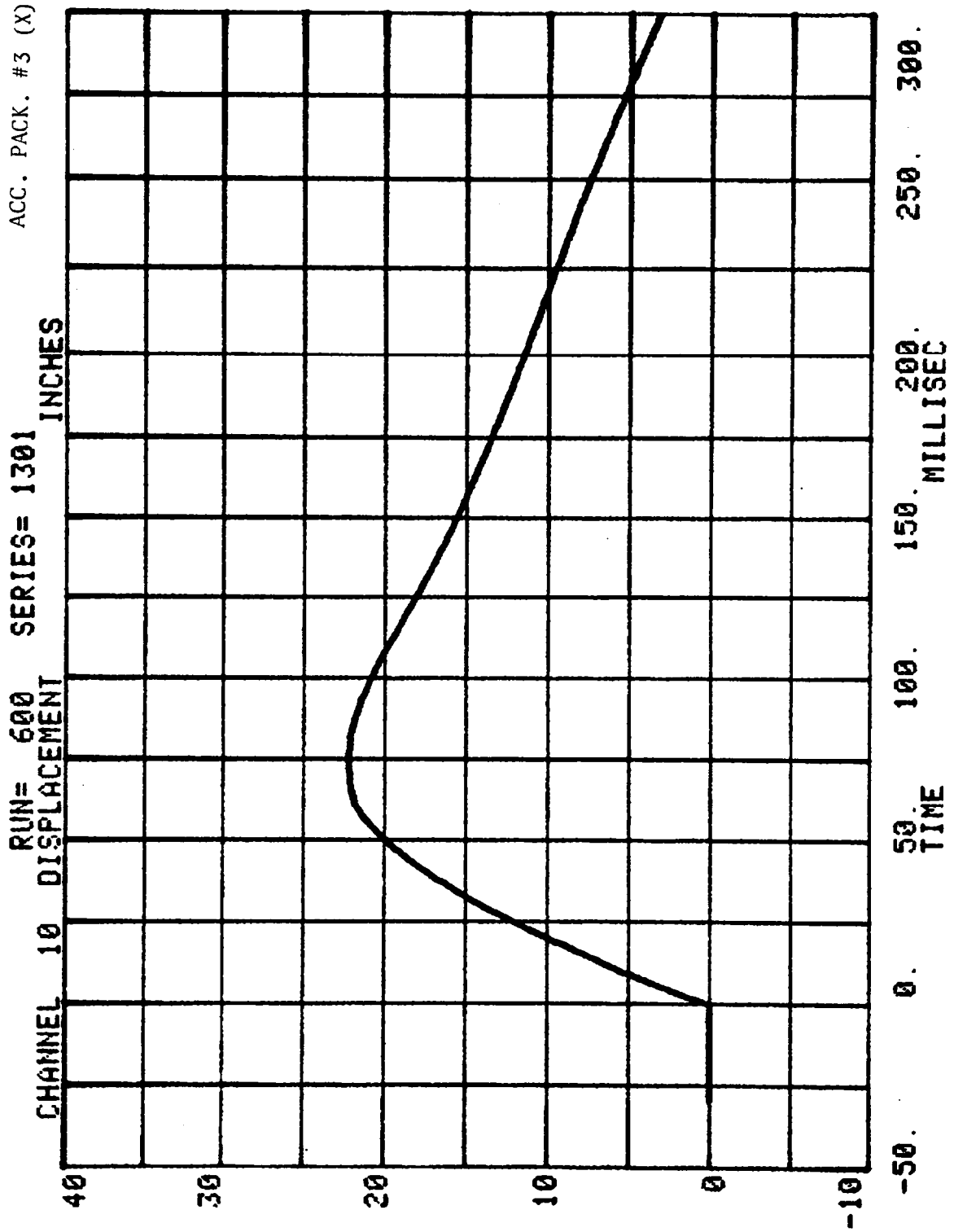

CHANNEL 28 ACC PACK #2(X)
RUN= 600 SERIES= 1301
G'S
100
60
20
-20
-60
-100
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

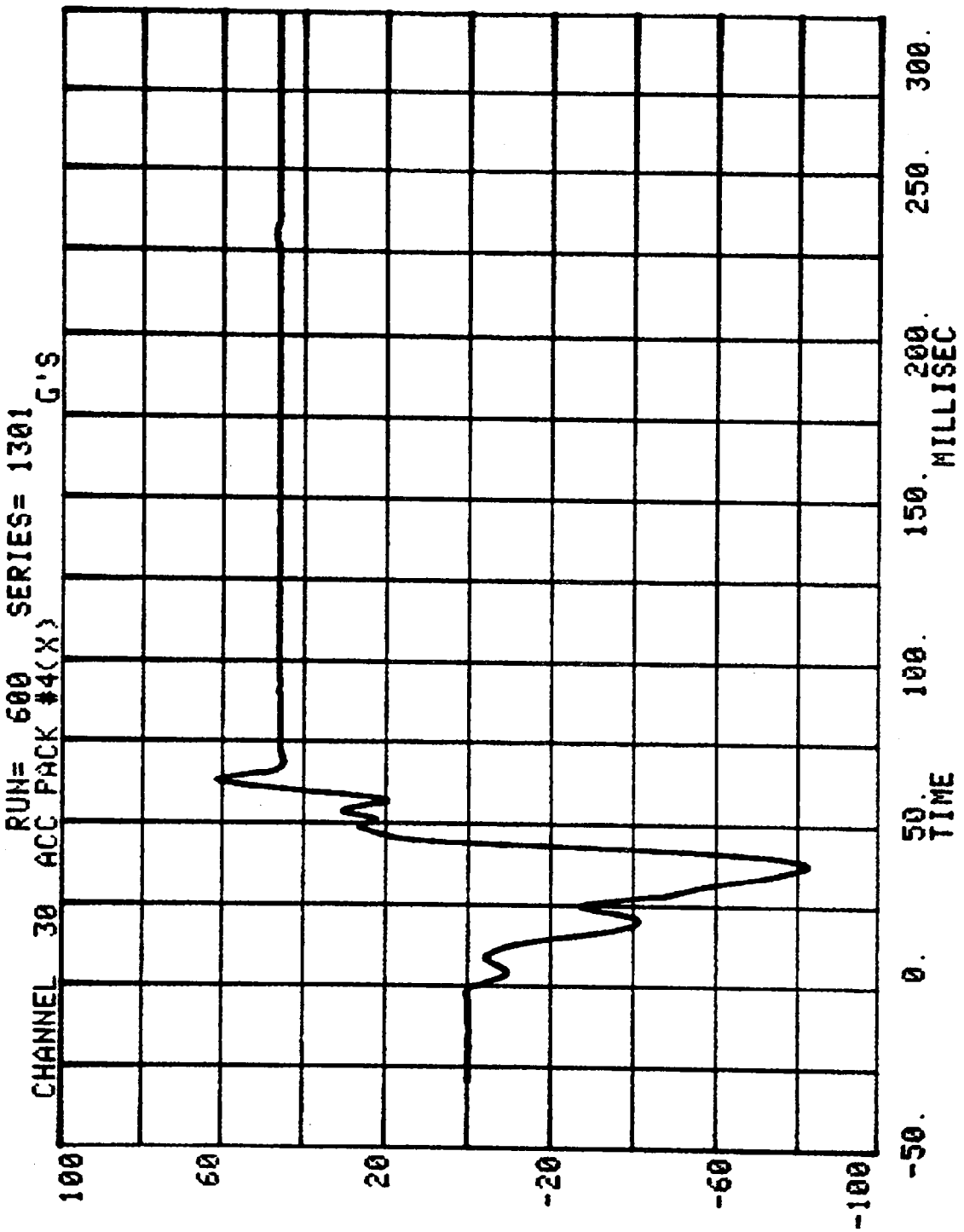

ACC. PACK. #2 (X)
CHANNEL 7 VELOCITY
RUN= 600 SERIES= 1301
MPH
40
30
20
10
0
-10
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

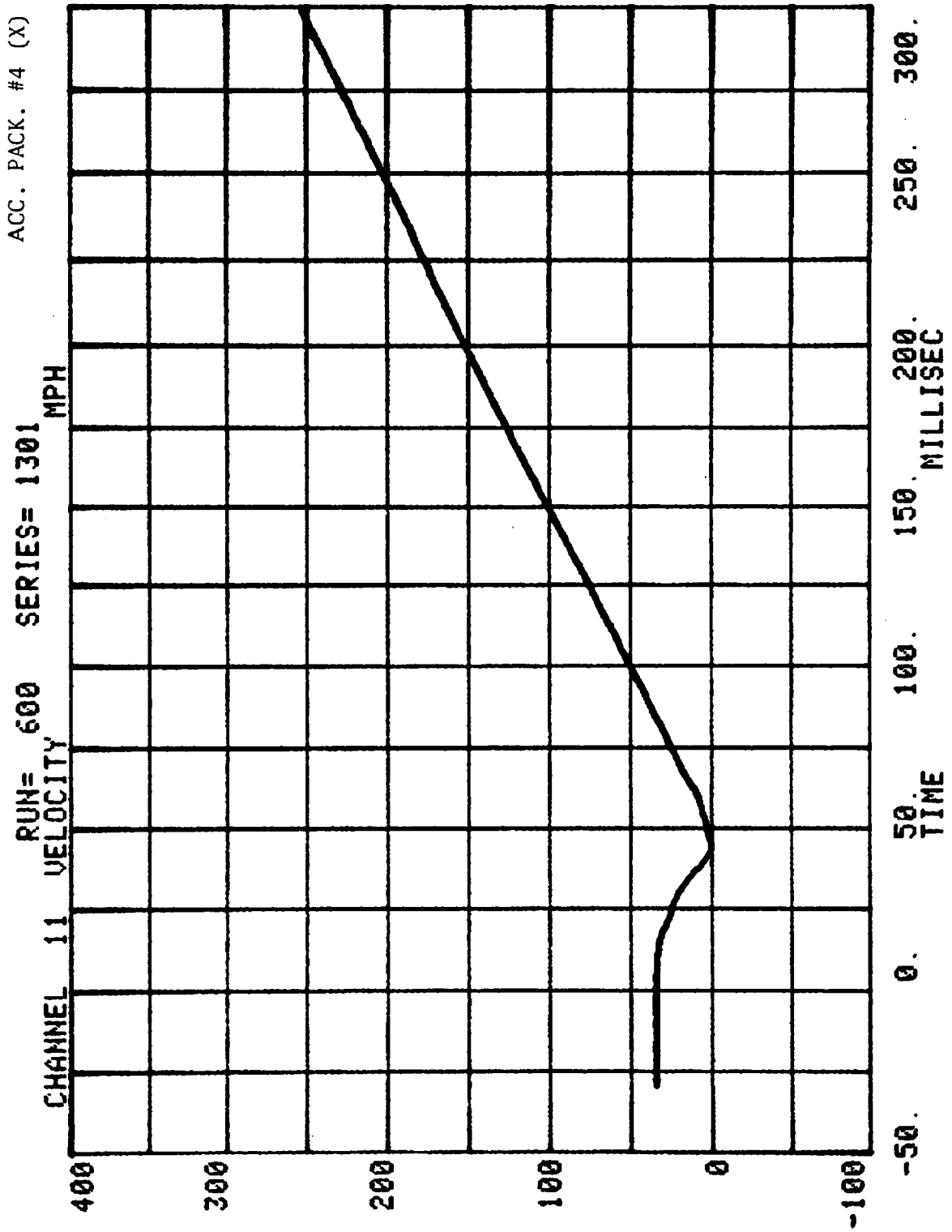

ACC. PACK. #2 (X)
CHANNEL 8 DISPLACEMENT
RUN= 600 SERIES= 1301 INCHES
40
30
20
10
0
-10
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

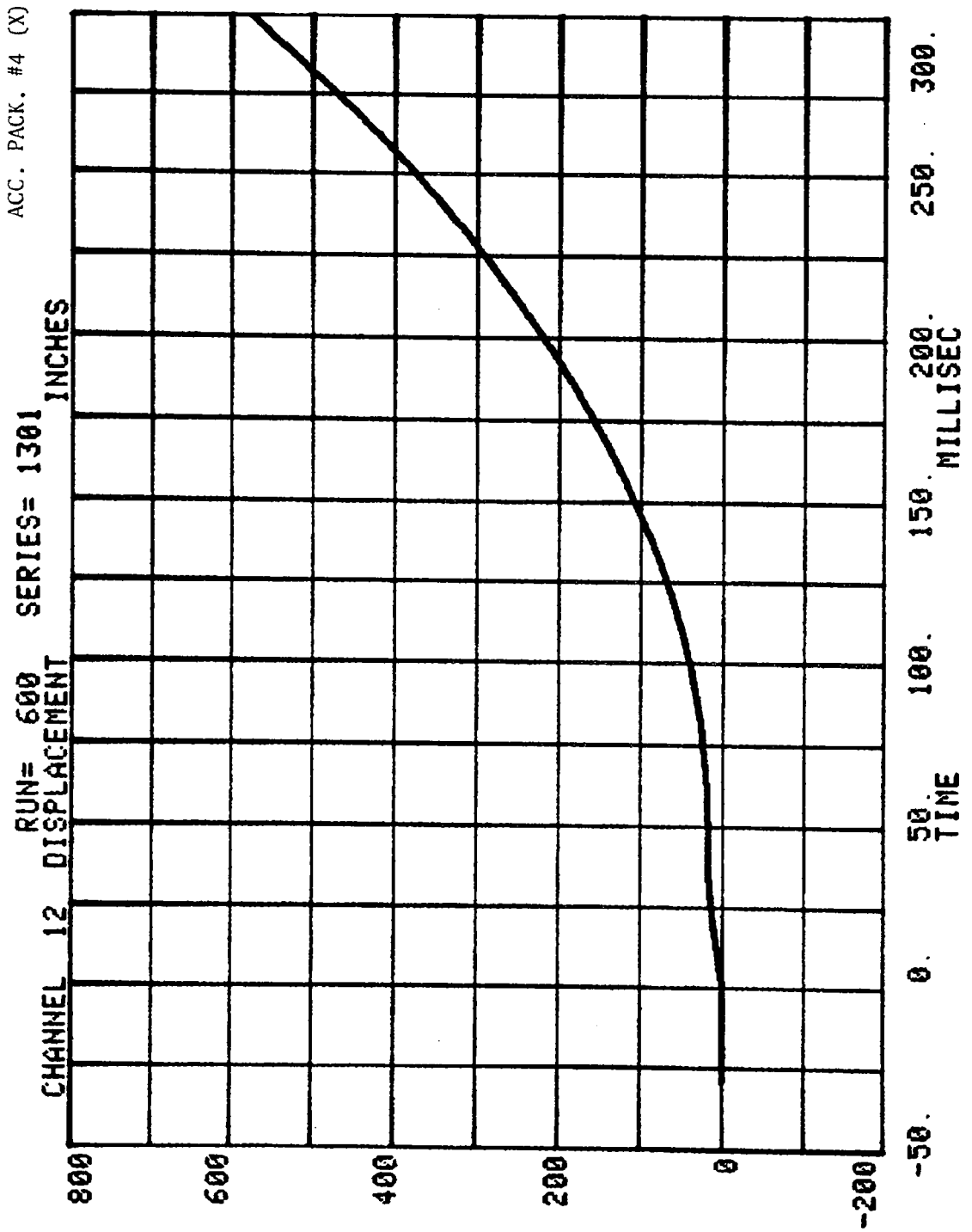

CHANNEL 29 ACC PACK #3(X)
RUN= 600 SERIES= 1301
G'S
100
60
20
-20
-60
-100
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

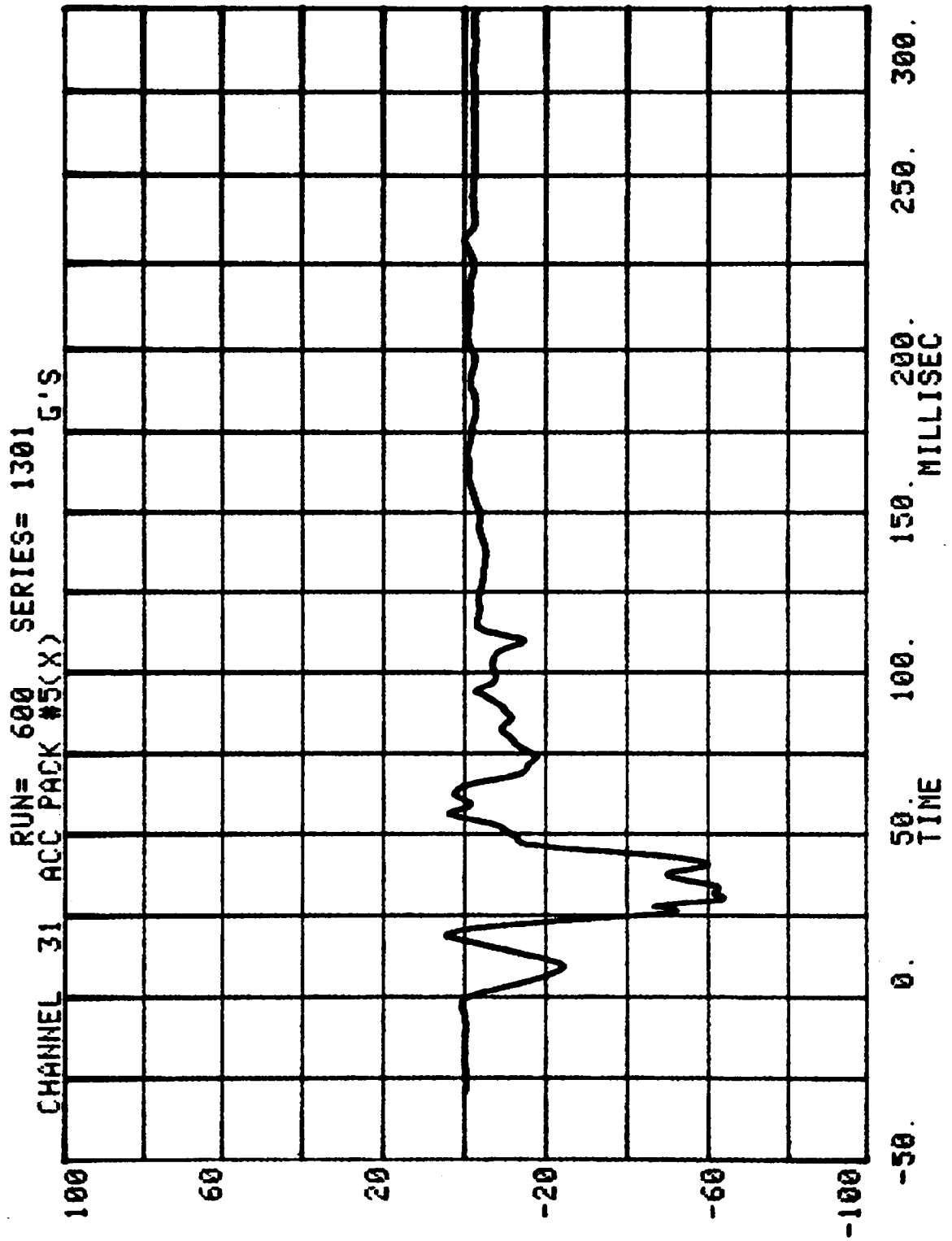

ACC. PACK. #3 (X)
CHANNEL 9 VELOCITY
RUN= 600 SERIES= 1301
MPH
40
30
20
10
0
-10
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

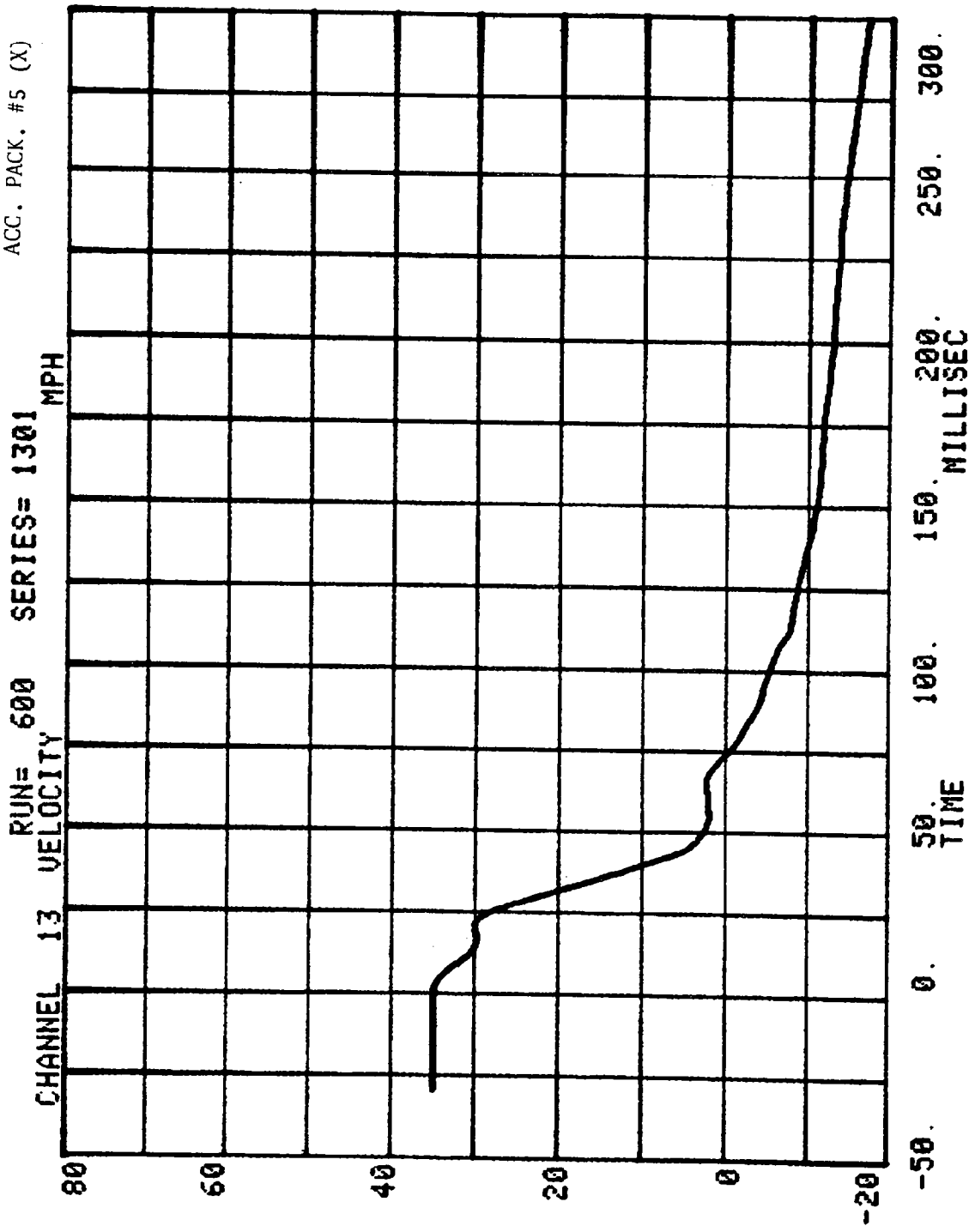

ACC. PACK. #3 (X)
CHANNEL 10 DISPLACEMENT
RUN= 600 SERIES= 1301
INCHES
40
30
20
10
0
-10
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

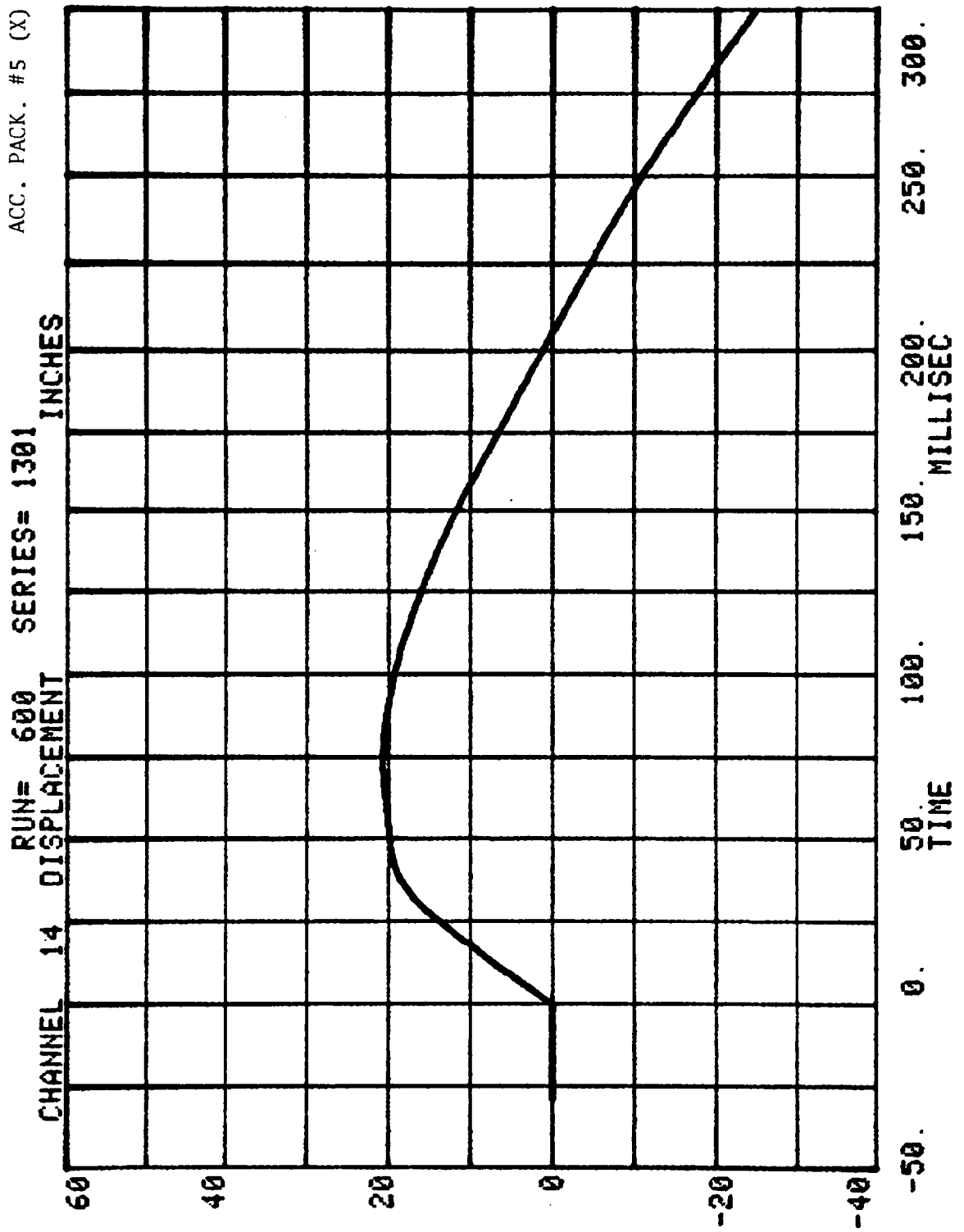

CHANNEL 30 ACC PACK #4(X)
RUN= 600 SERIES= 1301
G'S
100
60
20
-20
-60
-100
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

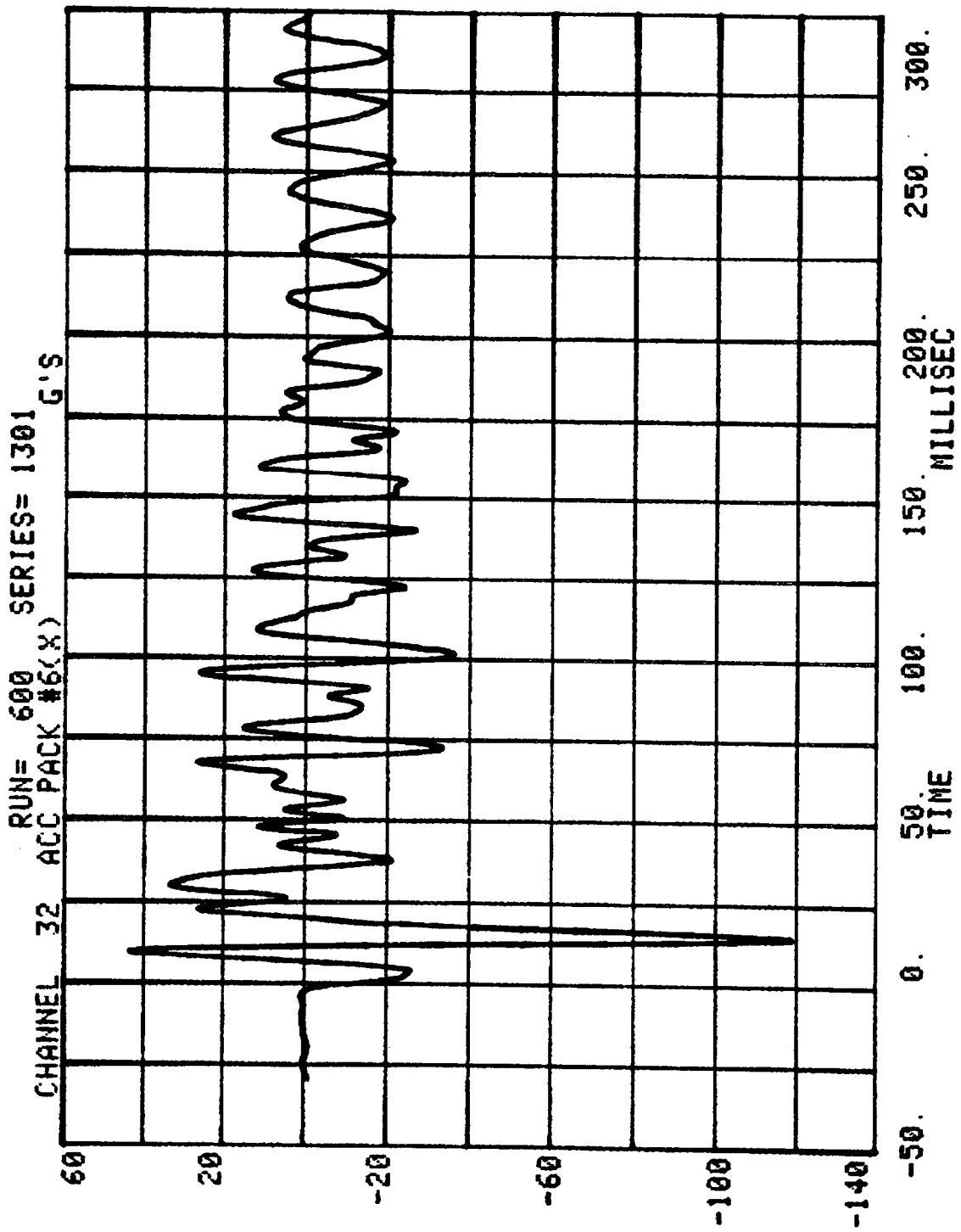

ACC. PACK. #4 (X)
CHANNEL 11 VELOCITY
RUN= 600 SERIES= 1301
MPH
400
300
200
100
0
-100
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

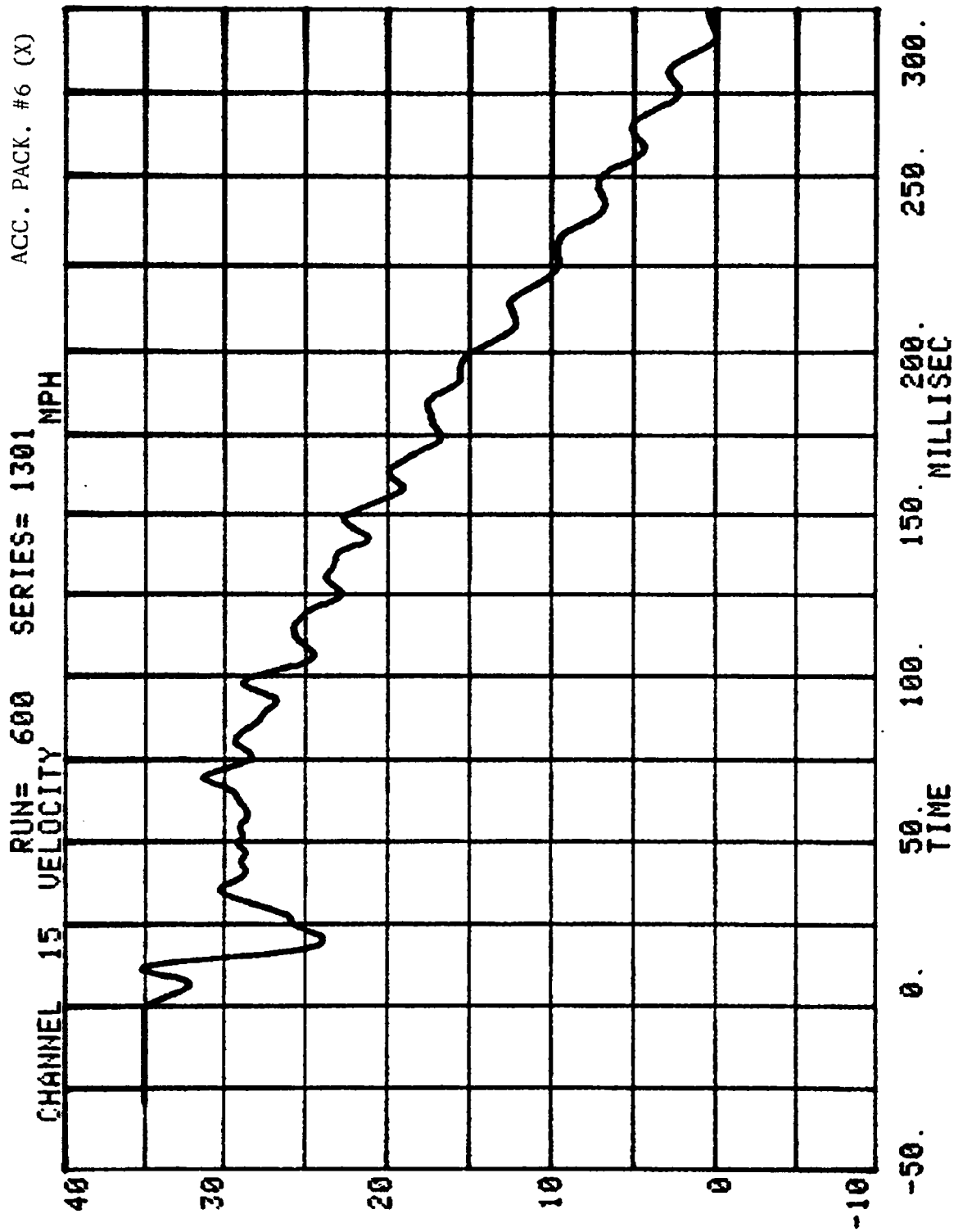

ACC. PACK. #4 (X)
CHANNEL 12 DISPLACEMENT
RUN= 600 SERIES= 1301
INCHES
800
600
400
200
0
-200
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

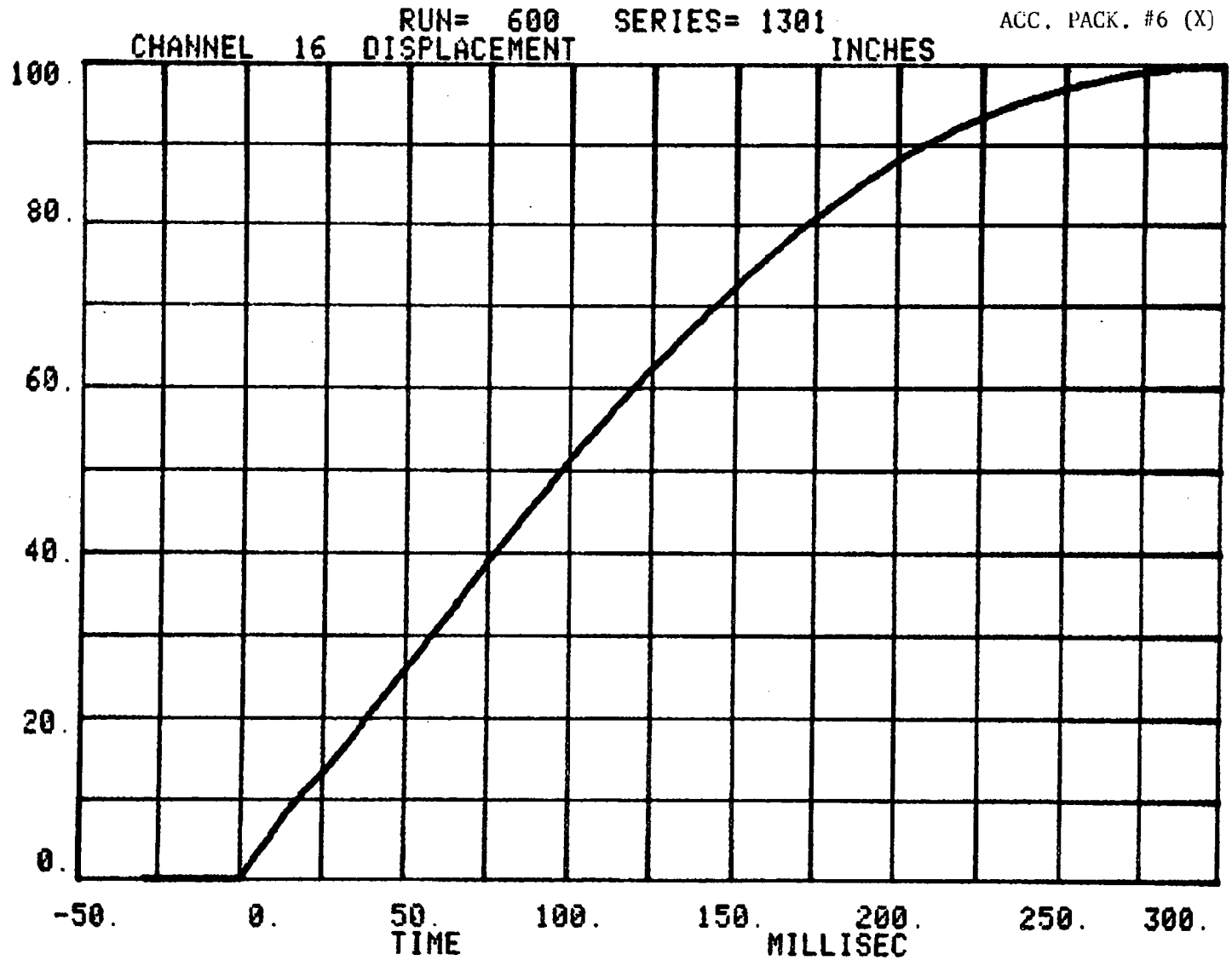

CHANNEL 31 ACC PACK #5(X)
RUN= 600 SERIES= 1301
G'S
100
60
20
-20
-60
-100
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

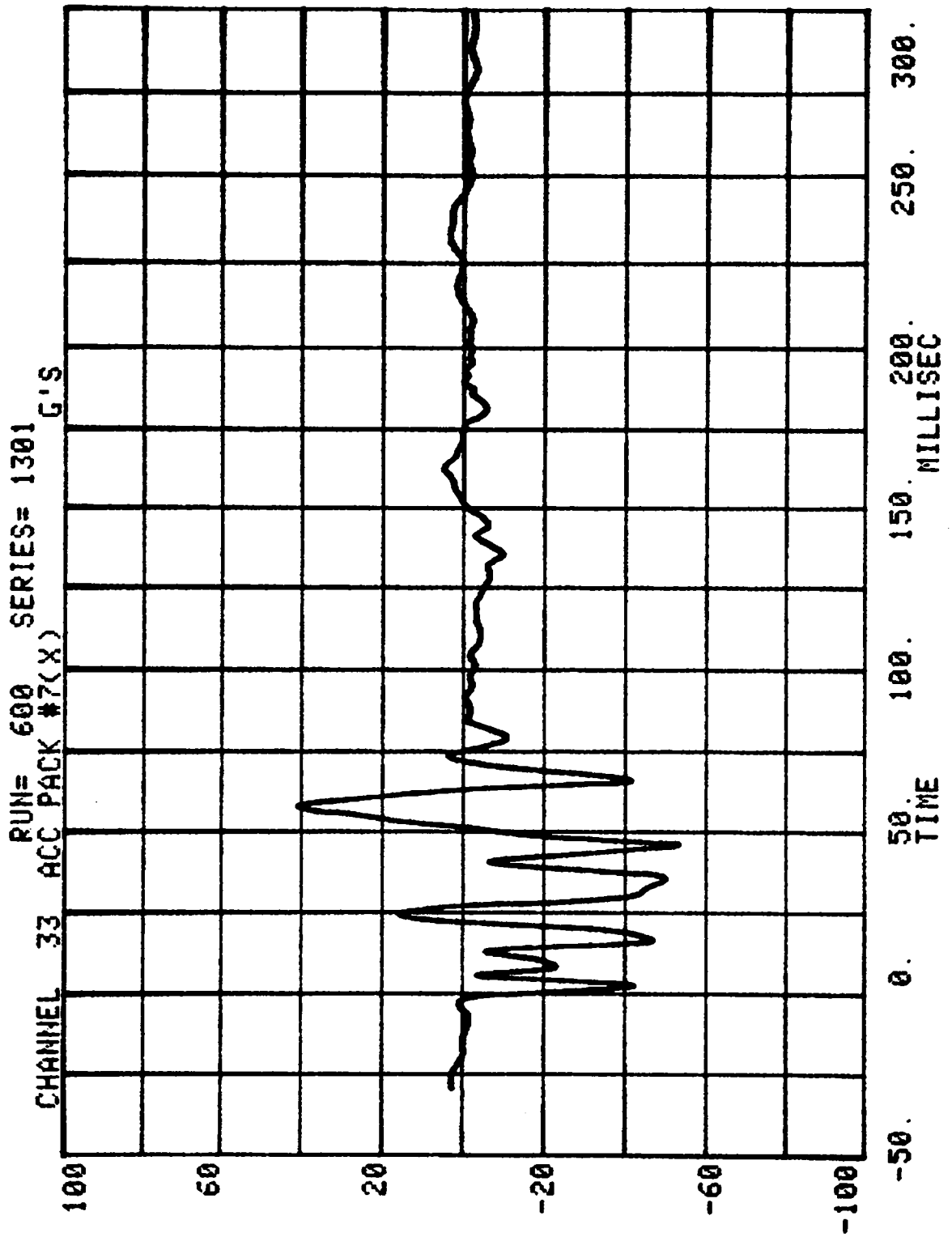

ACC. PACK. #5 (X)
CHANNEL 13 VELOCITY
RUN= 600 SERIES= 1301
MPH
80
60
40
20
0
-20
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

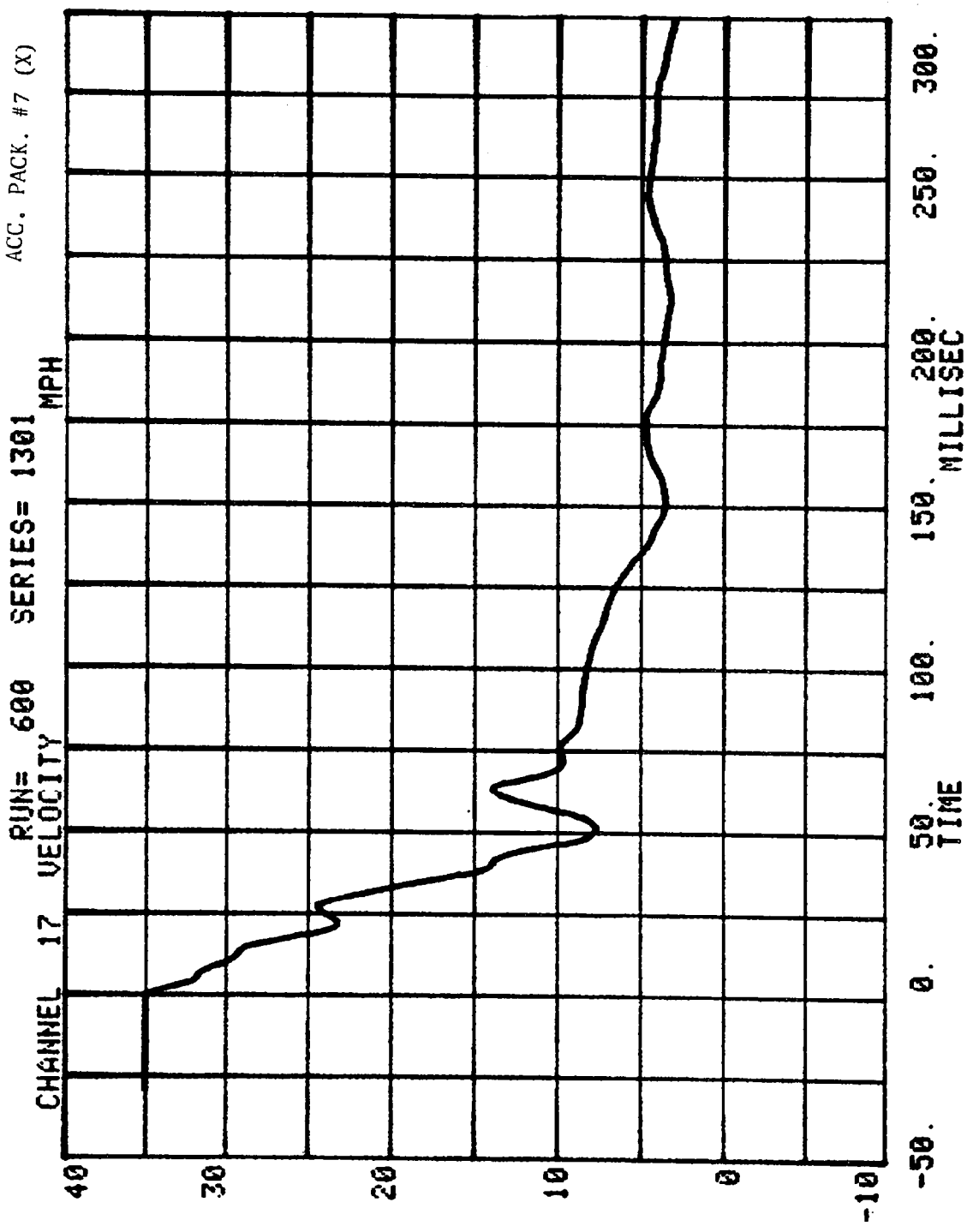

ACC. PACK. #5 (X)
CHANNEL 14 DISPLACEMENT
RUN= 600 SERIES= 1301 INCHES
60
40
20
0
-20
-40
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

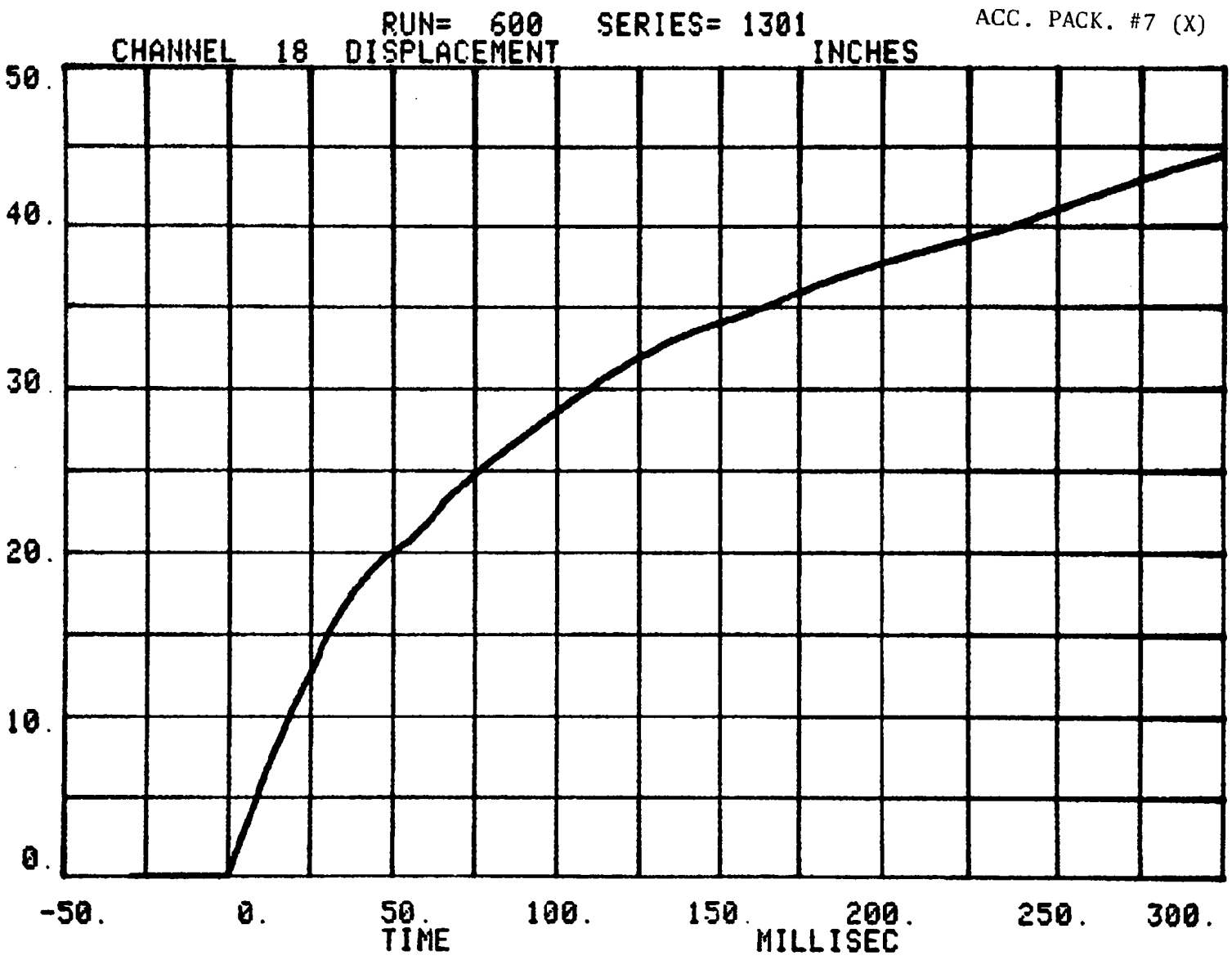

CHANNEL 32 ACC PACK #6(X)
RUN= 600 SERIES= 1301
G'S
60
20
-20
-60
-100
-140
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC


ACC. PACK. #6 (X)
CHANNEL 15 VELOCITY
RUN= 600 SERIES= 1301
MPH
40
30
20
10
0
-10
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC


RUN= 600 SERIES= 1301
ACC. PACK. #6 (X)
CHANNEL 16 DISPLACEMENT
INCHES
100.
80.
60.
40.
20.
0.
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC


CHANNEL 33 ACC PACK #7(X)
RUN= 600 SERIES= 1301
G'S
100
60
20
-20
-60
-100
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

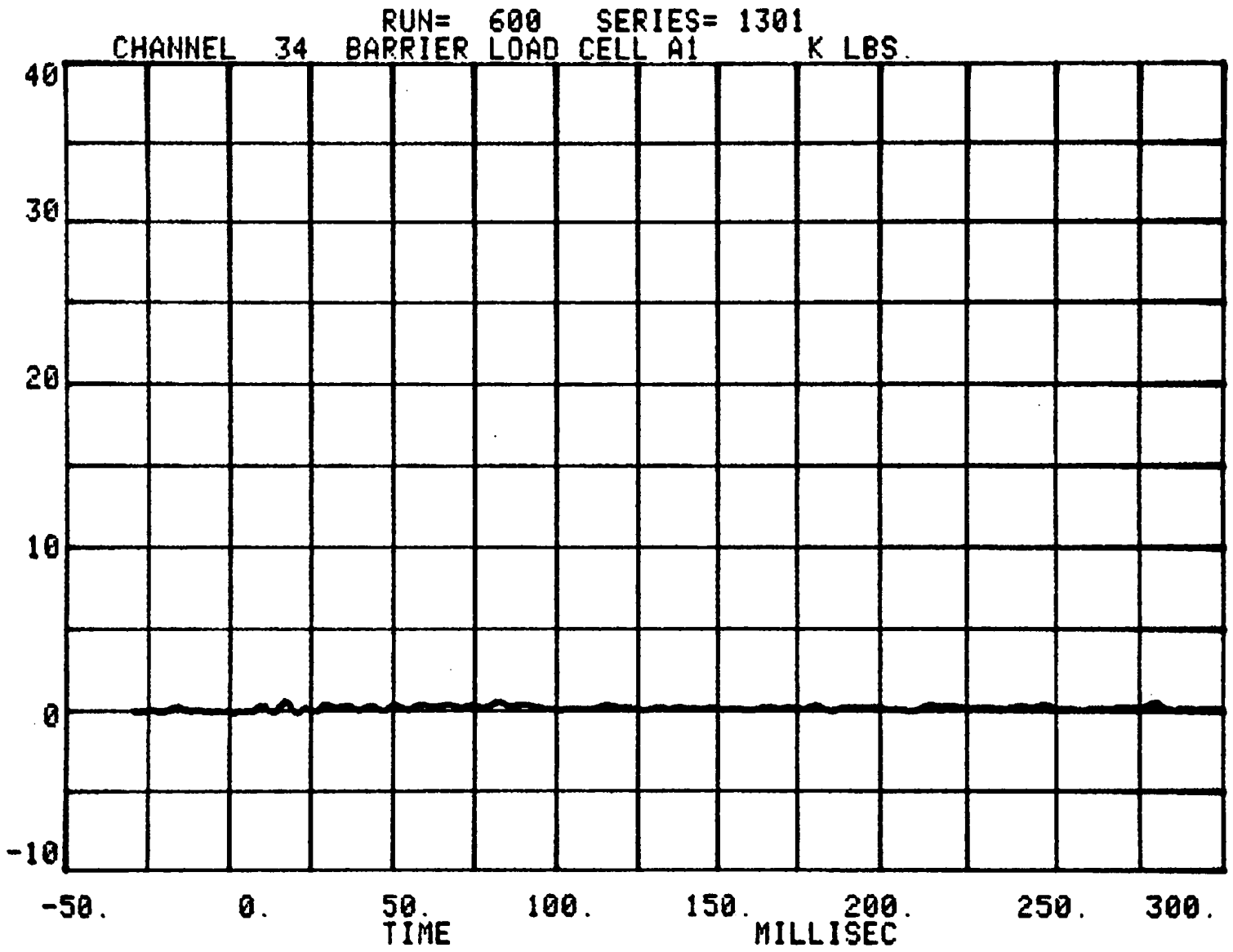

ACC. PACK. #7 (X)
CHANNEL 17 VELOCITY
RUN= 600 SERIES= 1301 MPH
40
30
20
10
0
-10
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

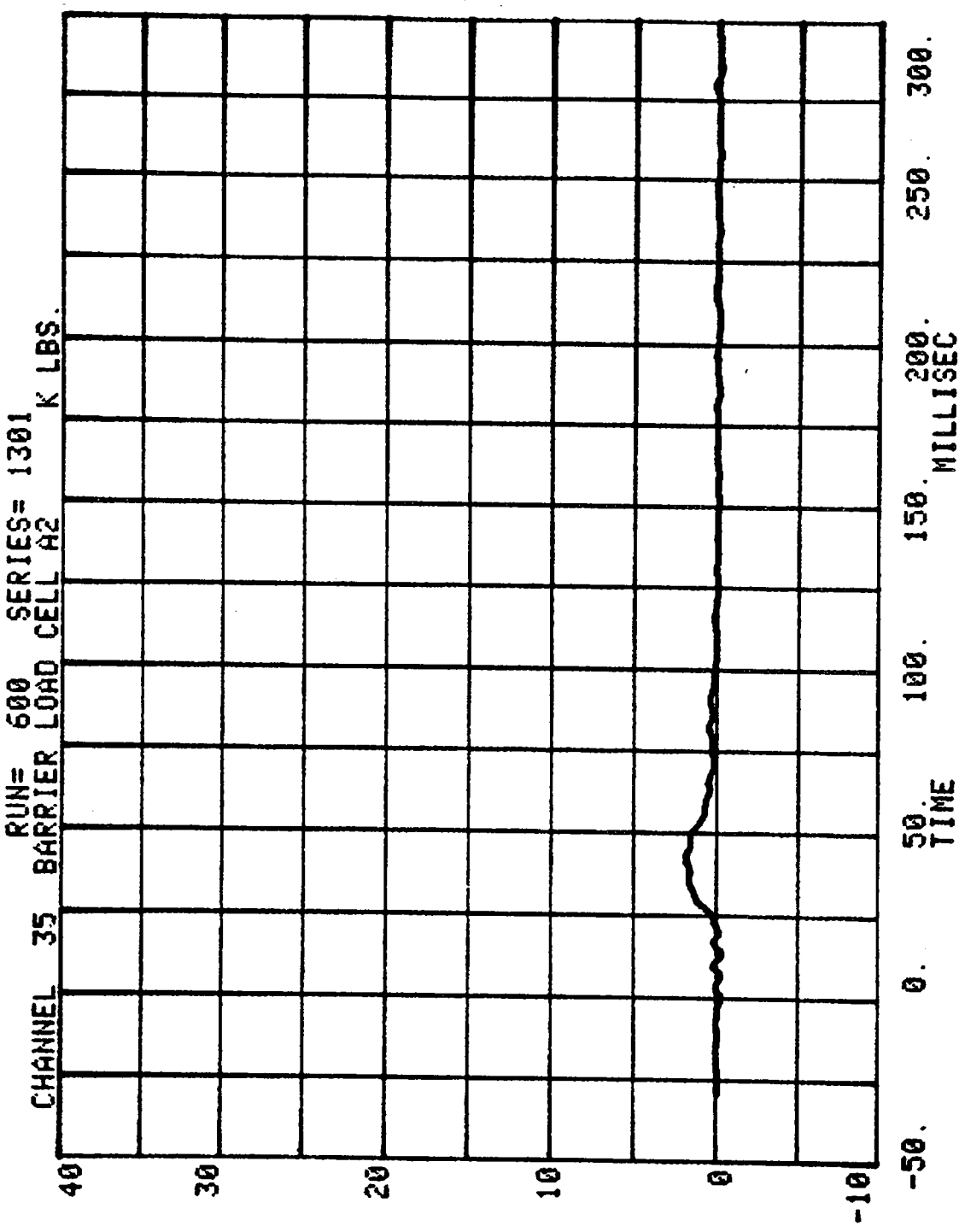

RUN= 600 SERIES= 1301
ACC. PACK. #7 (X)
CHANNEL 18 DISPLACEMENT INCHES
50.
40.
30.
20.
10.
0.
-50.
0.
50.
100.
150.
200.
250.
300.
TIME MILLISEC

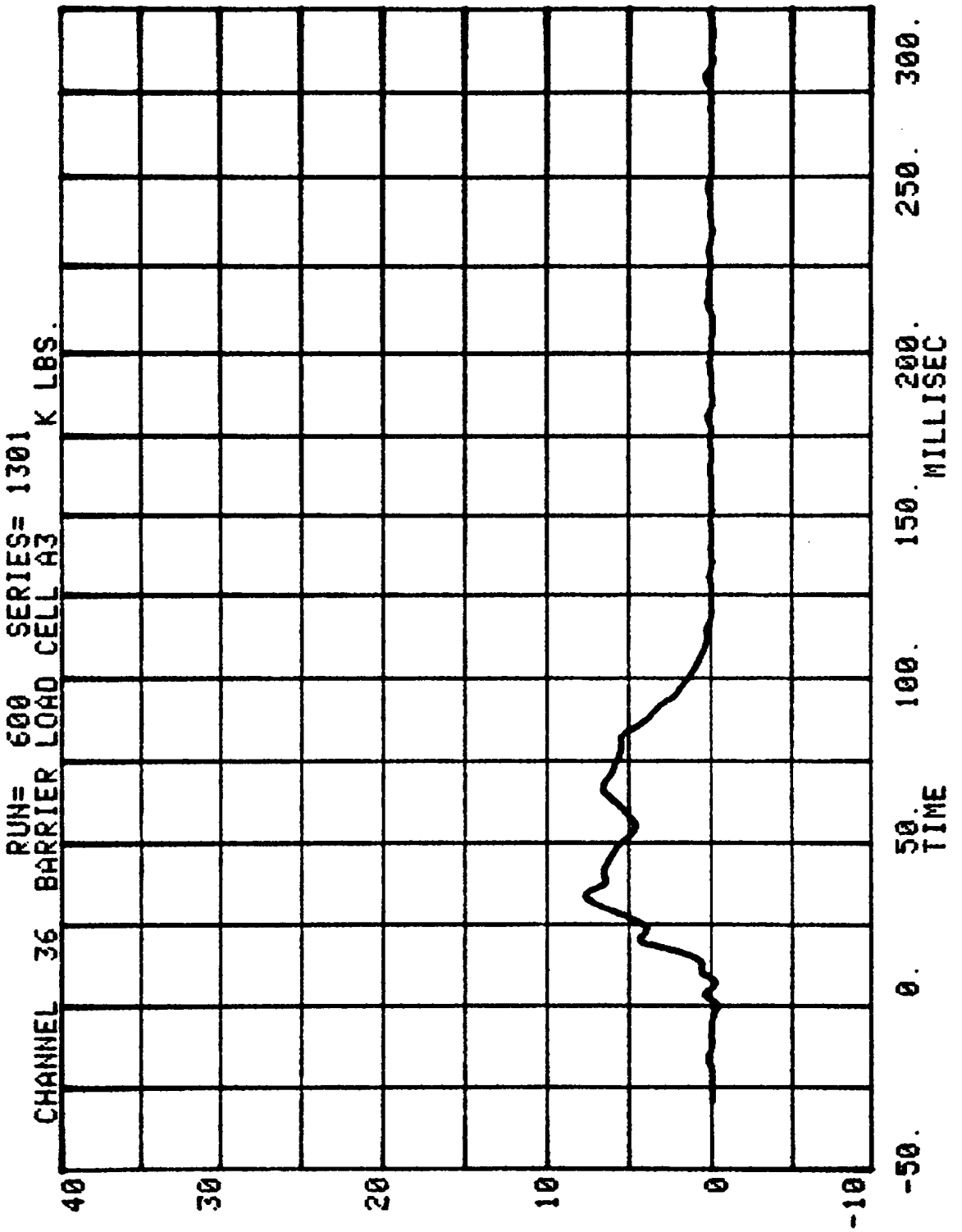
TEST NO. CE1301

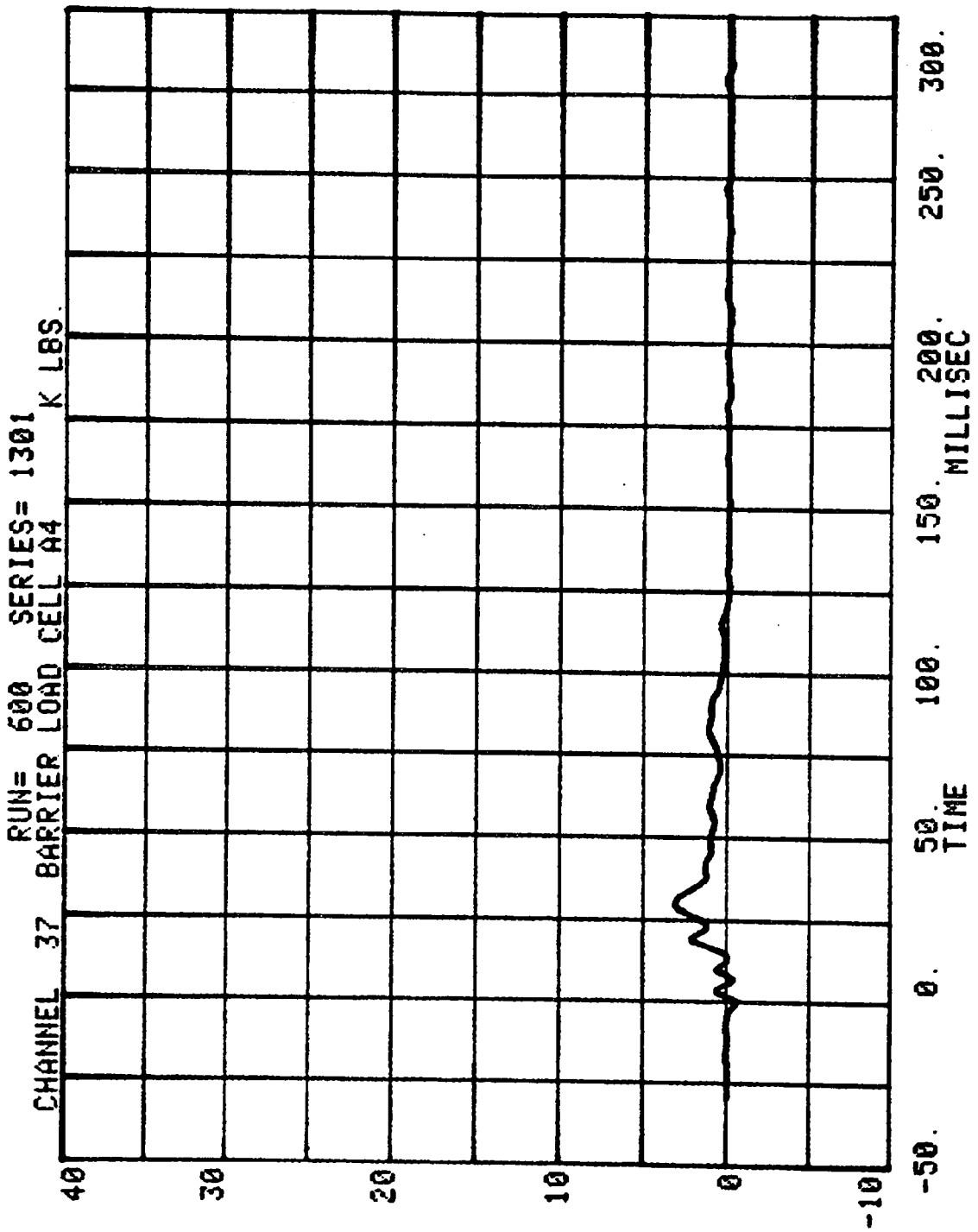
LOAD CELL BARRIER DATA
FILTER CHANNEL CLASS

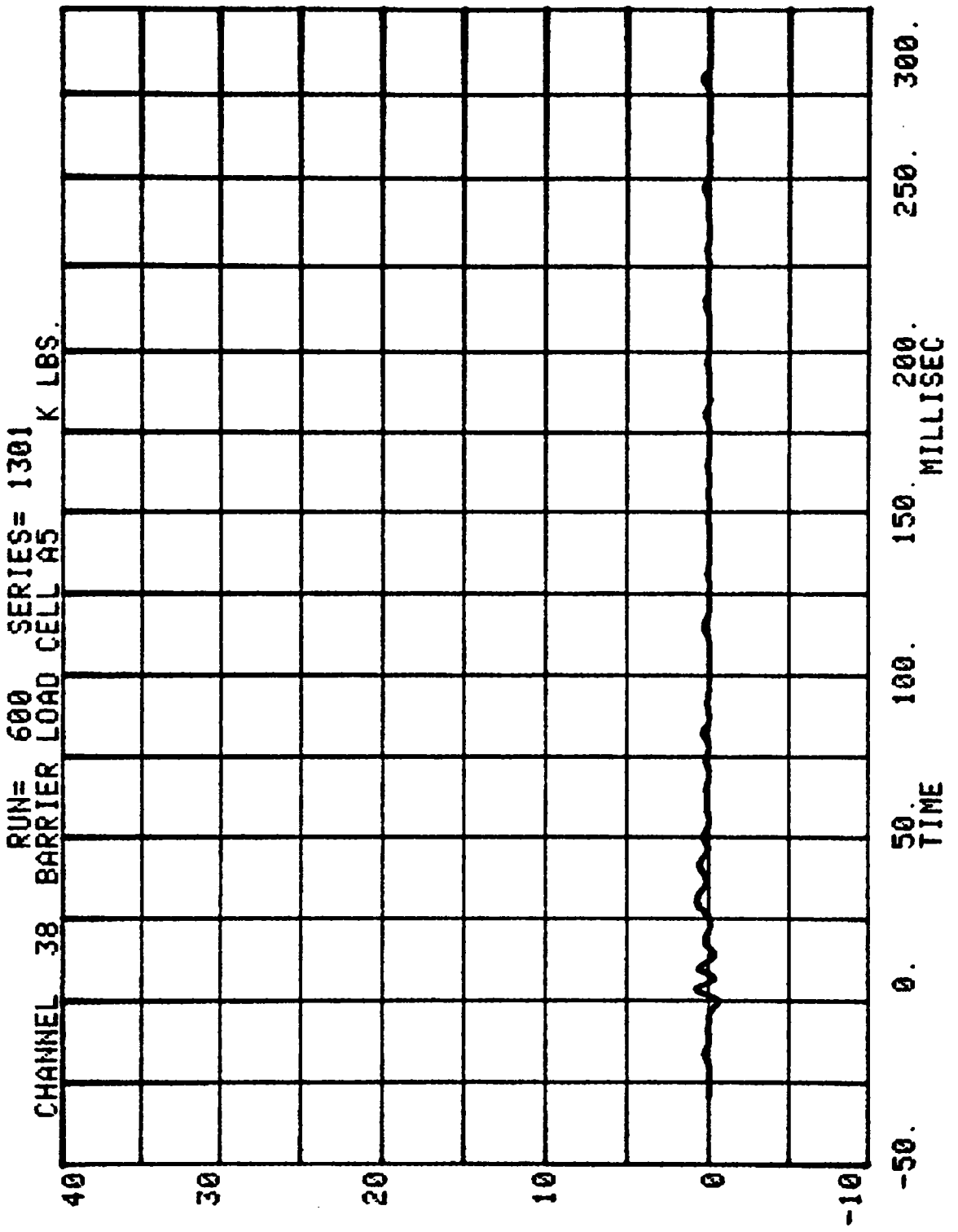
60

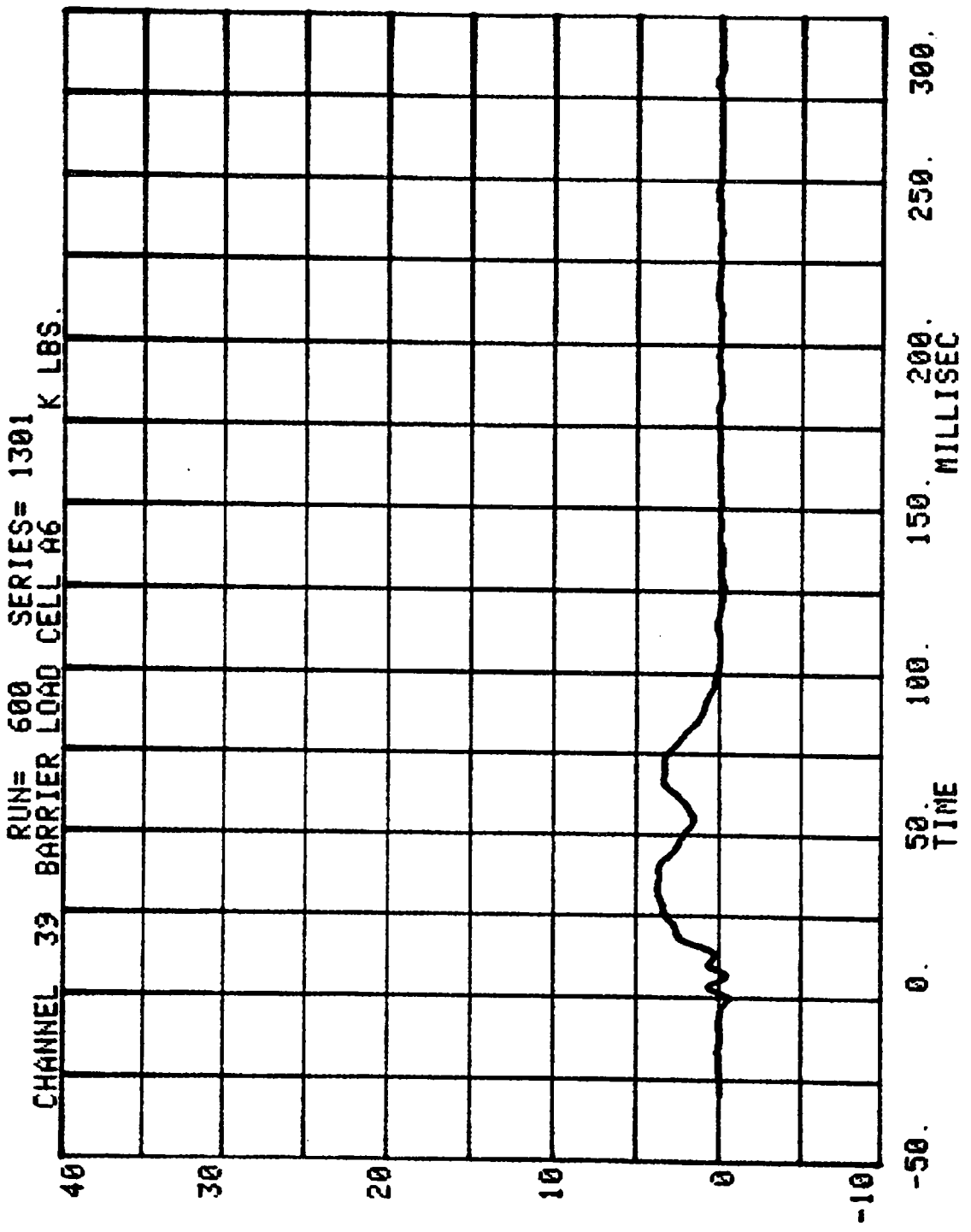

RUN= 600 SERIES= 1301
CHANNEL 34 BARRIER LOAD CELL A1 K LBS.
40
30
20
10
0
-10
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

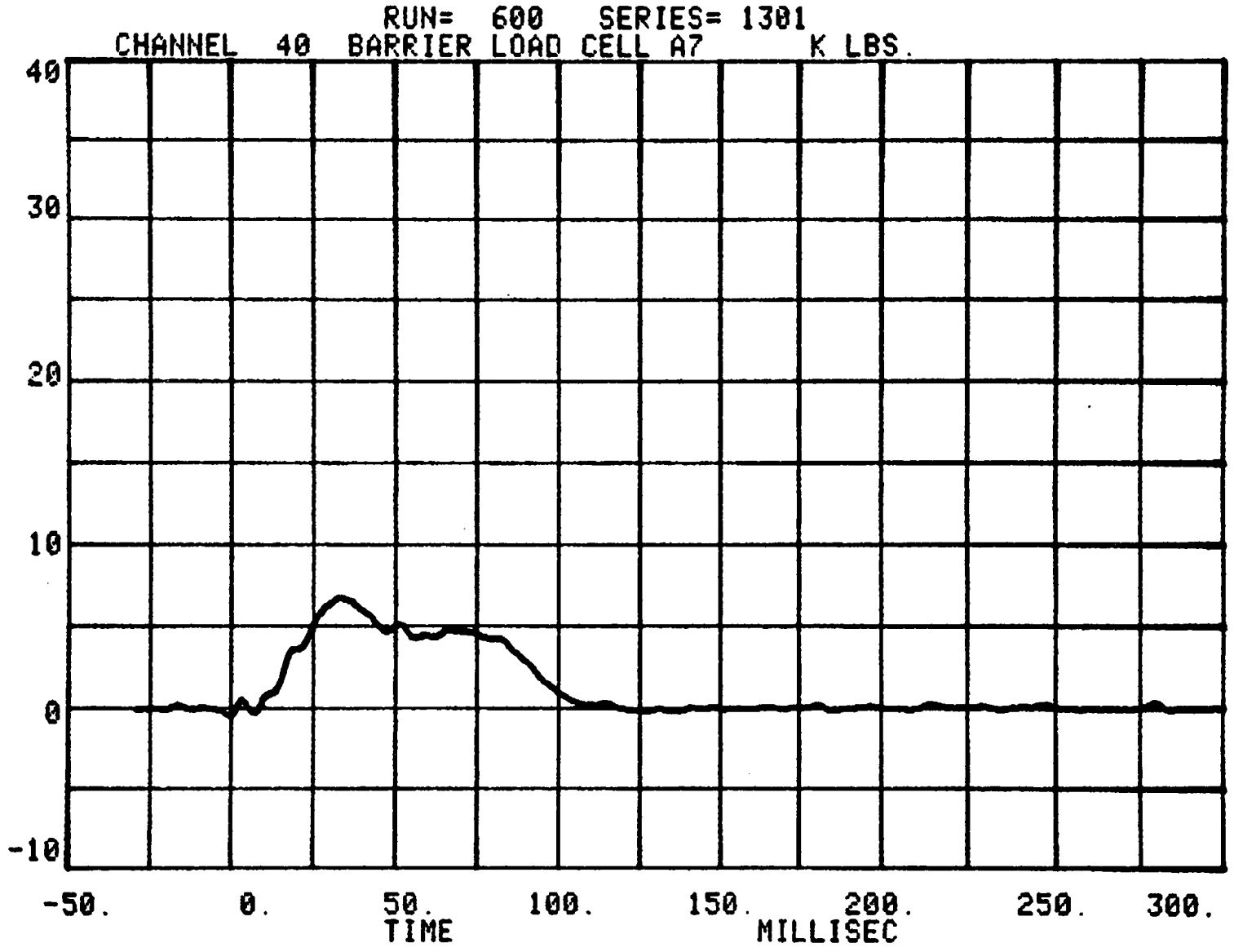

CHANNEL 35 BARRIER LOAD CELL A2
RUN= 600 SERIES= 1301
K LBS.
40
30
20
10
0
-10
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

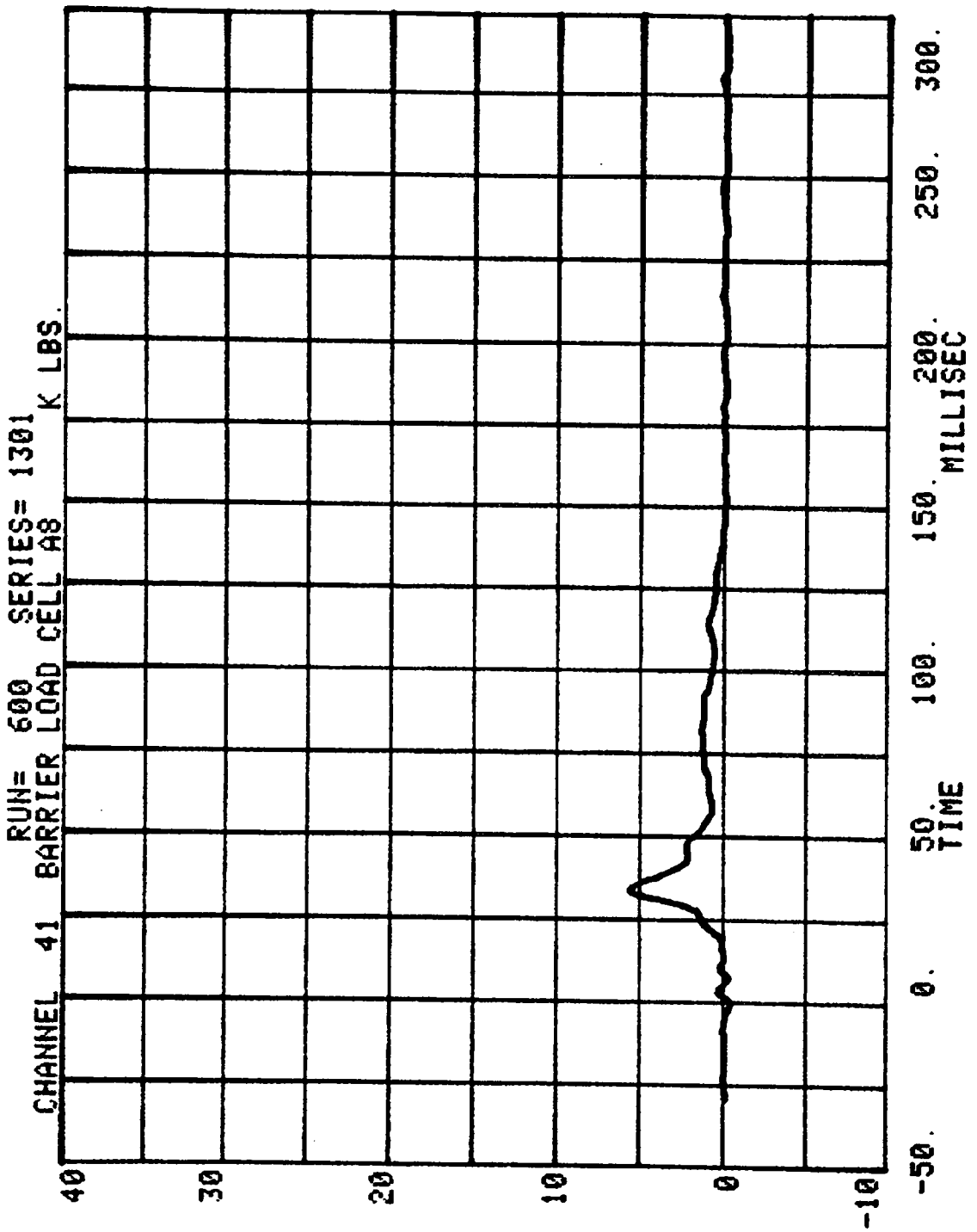

CHANNEL 36 BARRIER LOAD CELL A3
RUN= 600 SERIES= 1301
K LBS.
40
30
20
10
0
-10
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

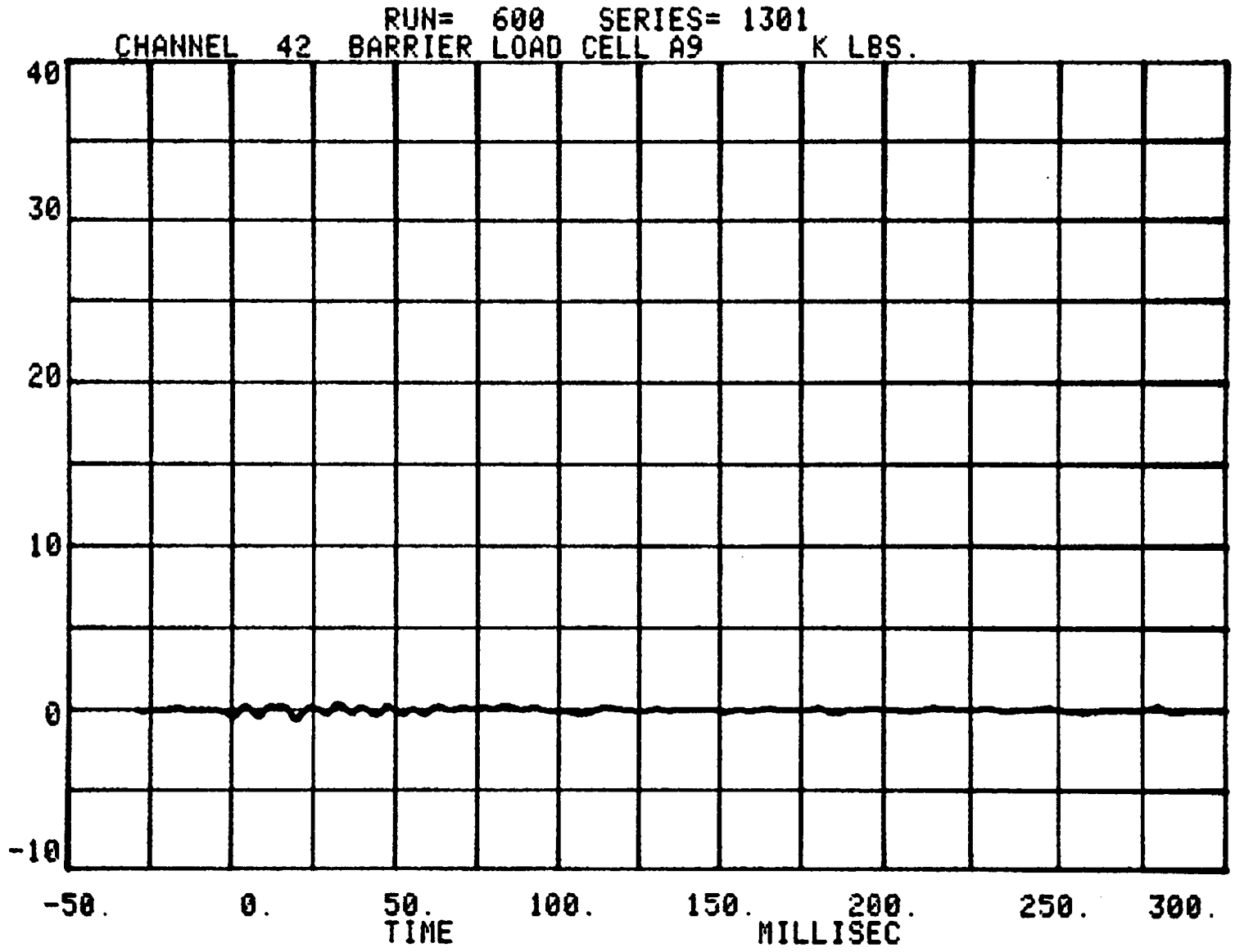

CHANNEL 37 BARRIER LOAD CELL A4
RUN= 600 SERIES= 1301
K LBS.
40
30
20
10
0
-10
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

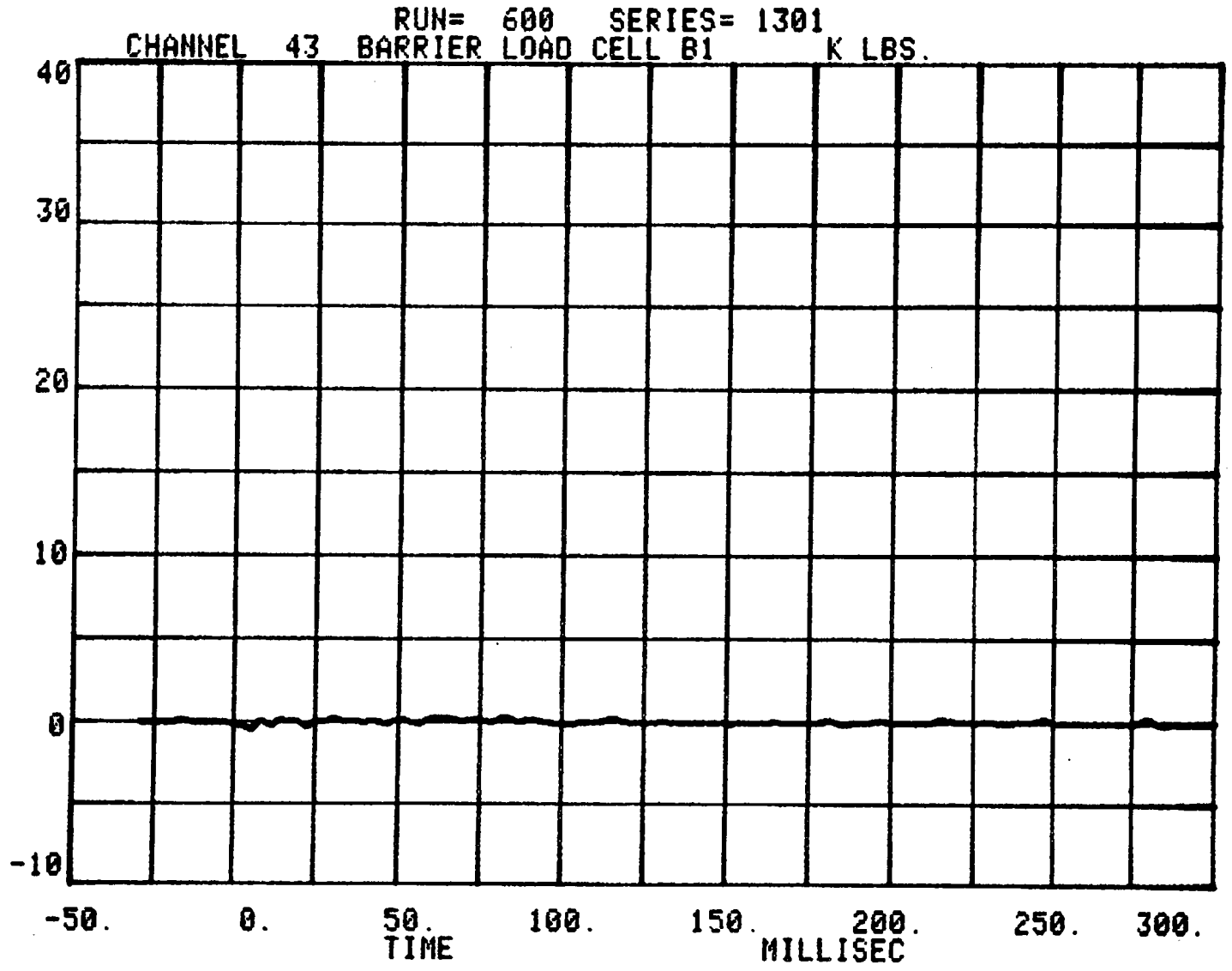

CHANNEL 38 BARRIER LOAD CELL A5
RUN= 600 SERIES= 1301
K LBS.
40
30
20
10
0
-10
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

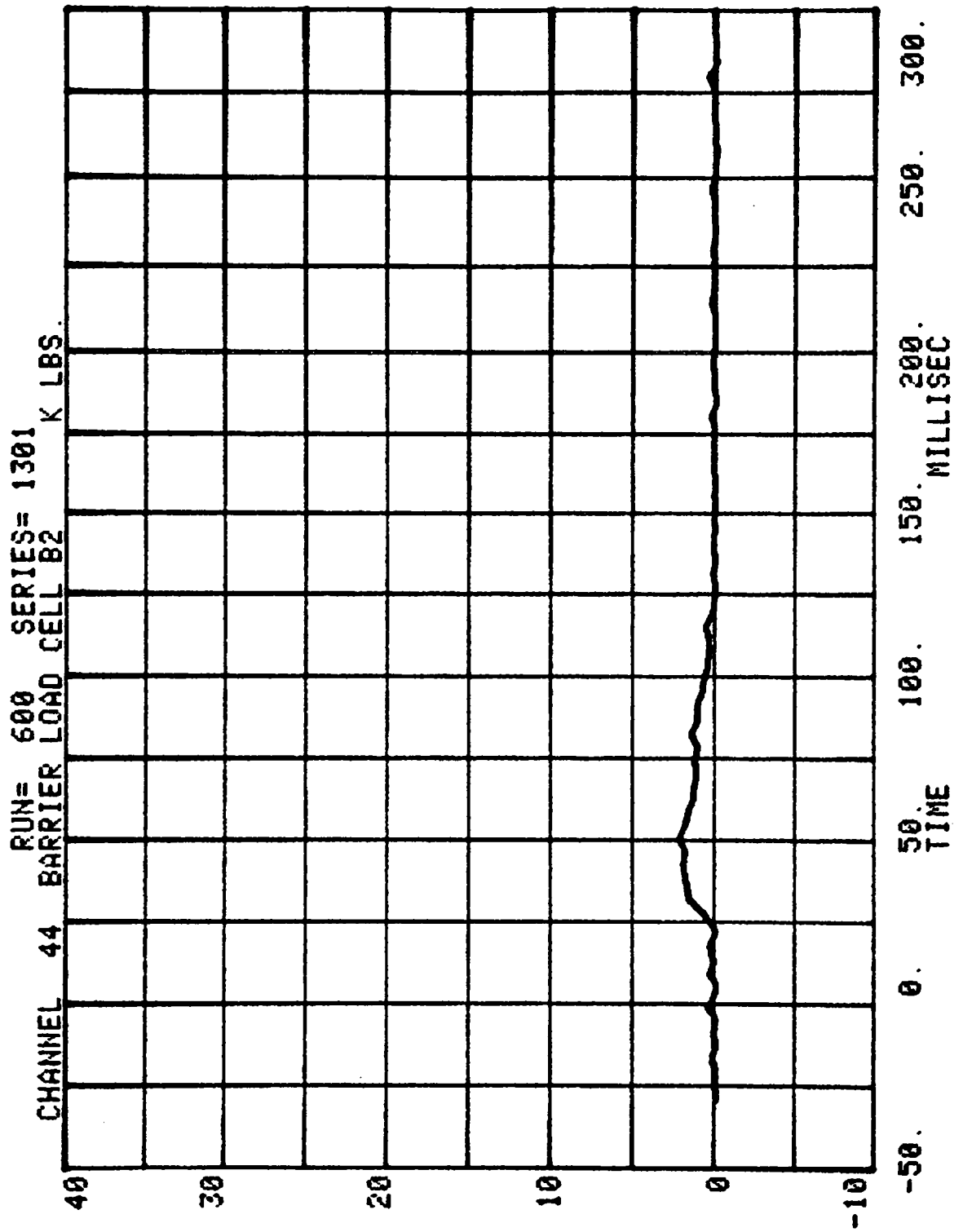

CHANNEL 39 RUN= 600 SERIES= 1301
BARRIER LOAD CELL A6
K LBS.
40
30
20
10
0
-10
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

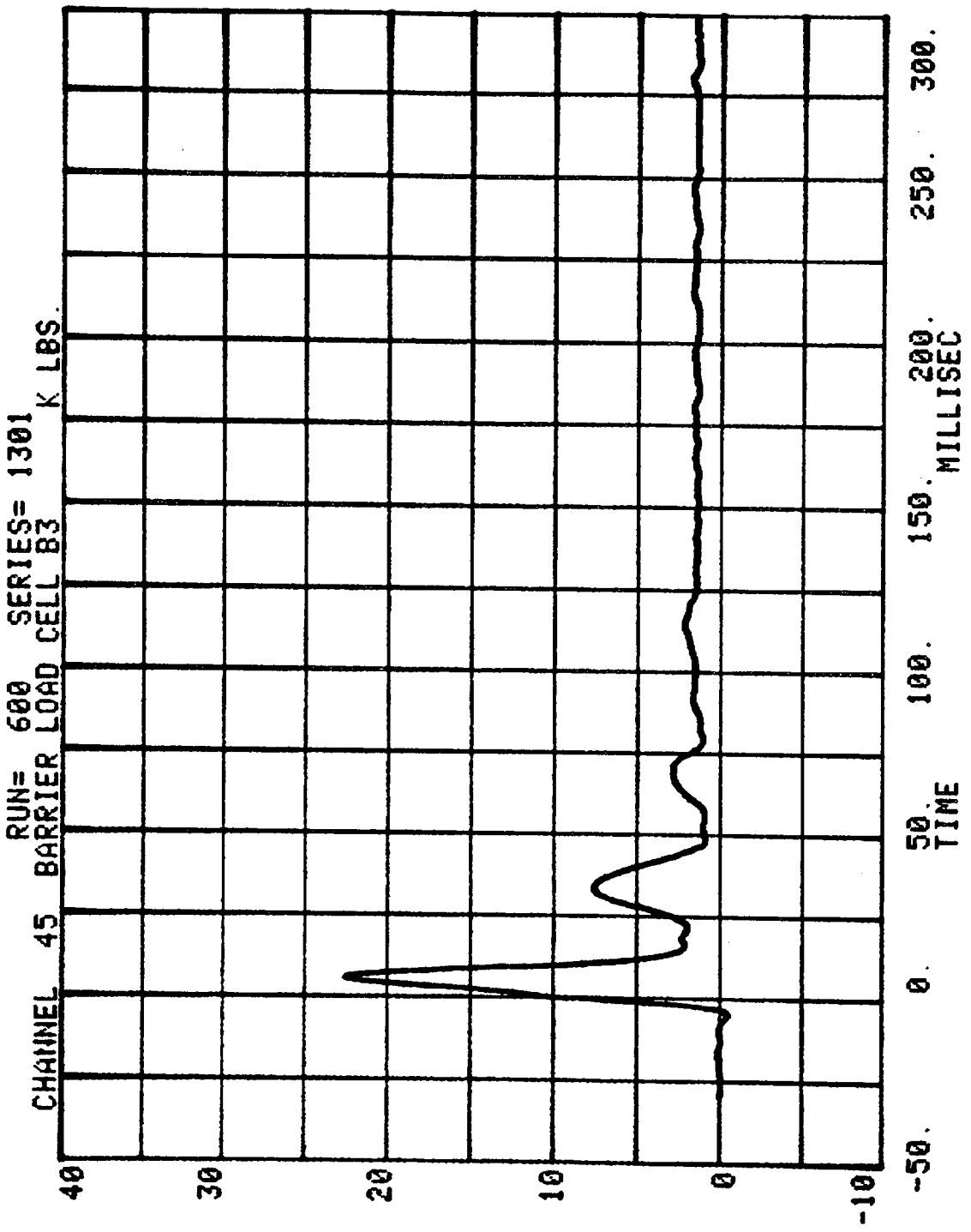

RUN= 600 SERIES= 1301
CHANNEL 40 BARRIER LOAD CELL A7 K LBS.
40
30
20
10
0
-10
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

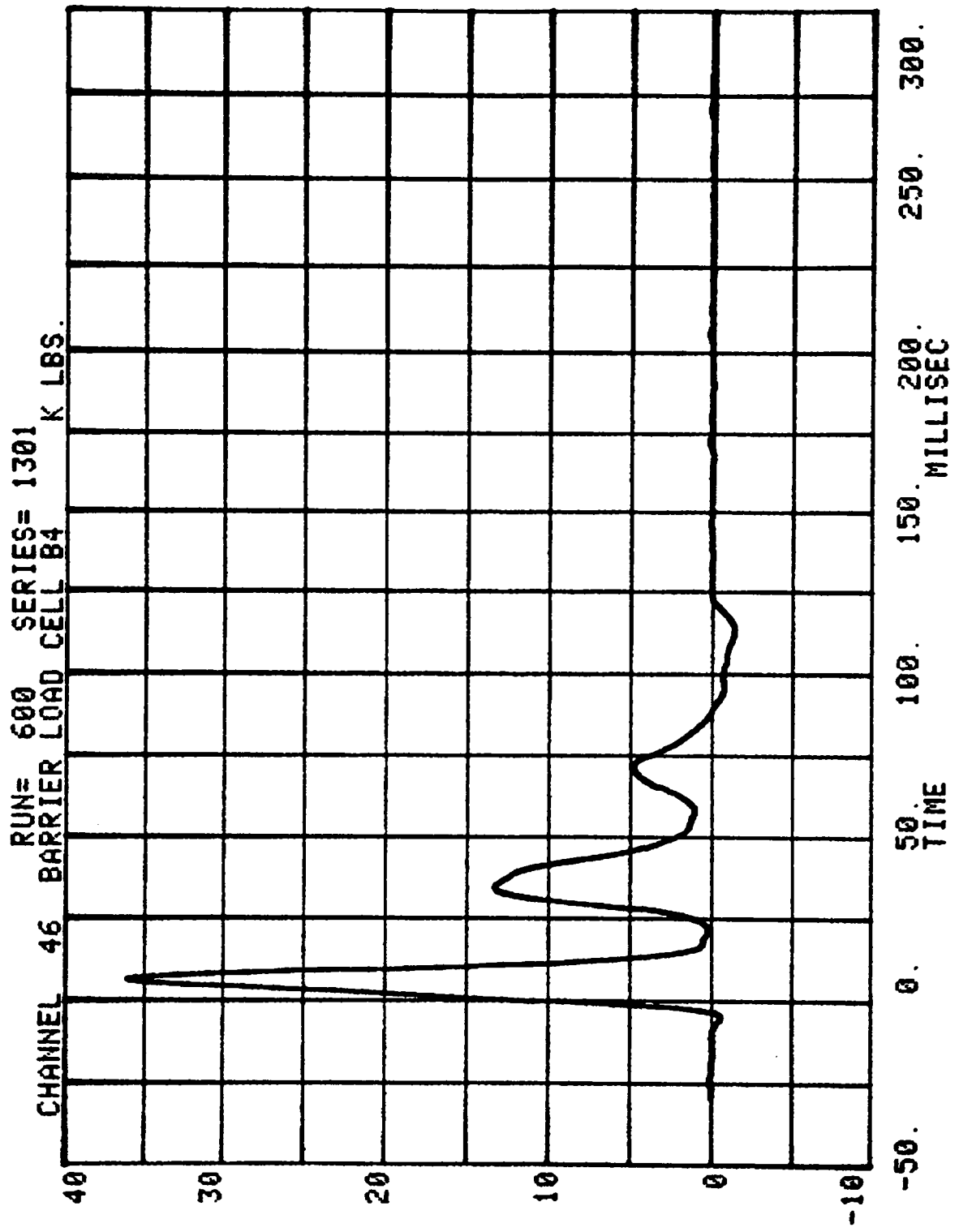

CHANNEL 41 BARRIER LOAD CELL A8
RUN= 600 SERIES= 1301
K LBS.
40
30
20
10
0
-10
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

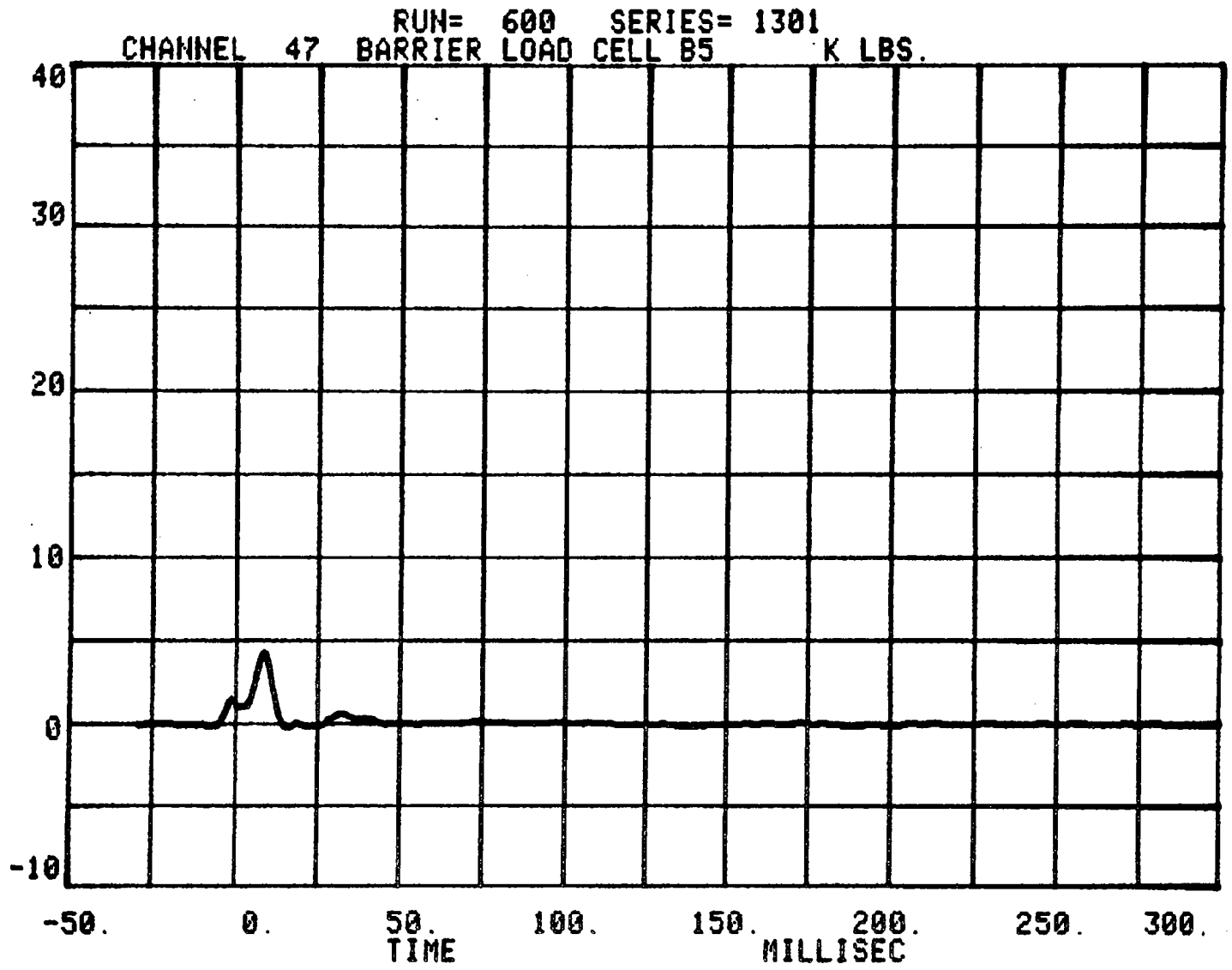

RUN= 600 SERIES= 1301
CHANNEL 42 BARRIER LOAD CELL A9 K LBS.
40
30
20
10
0
-10
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

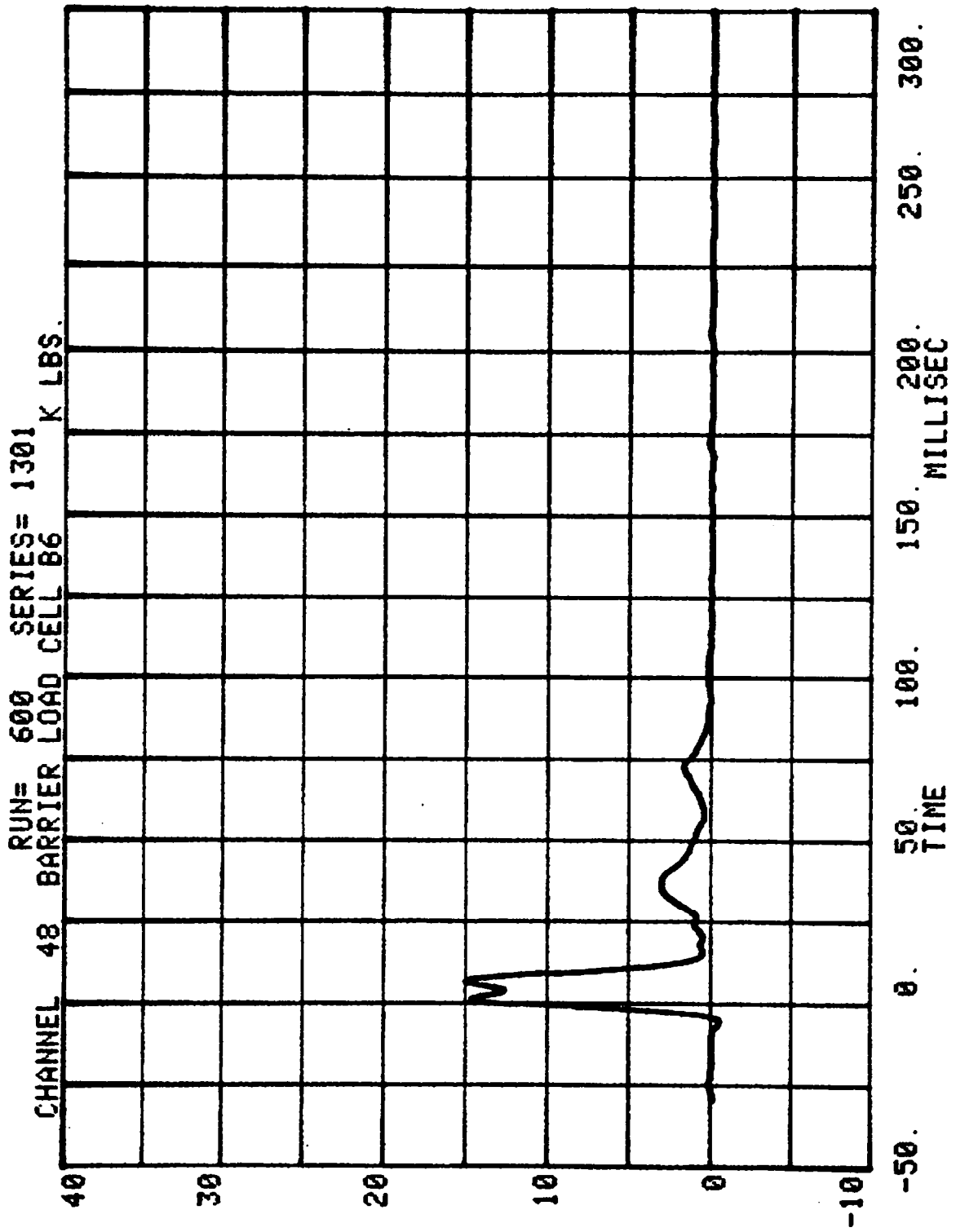

RUN= 600 SERIES= 1301
CHANNEL 43 BARRIER LOAD CELL B1 K LBS.
40
30
20
10
0
-10
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

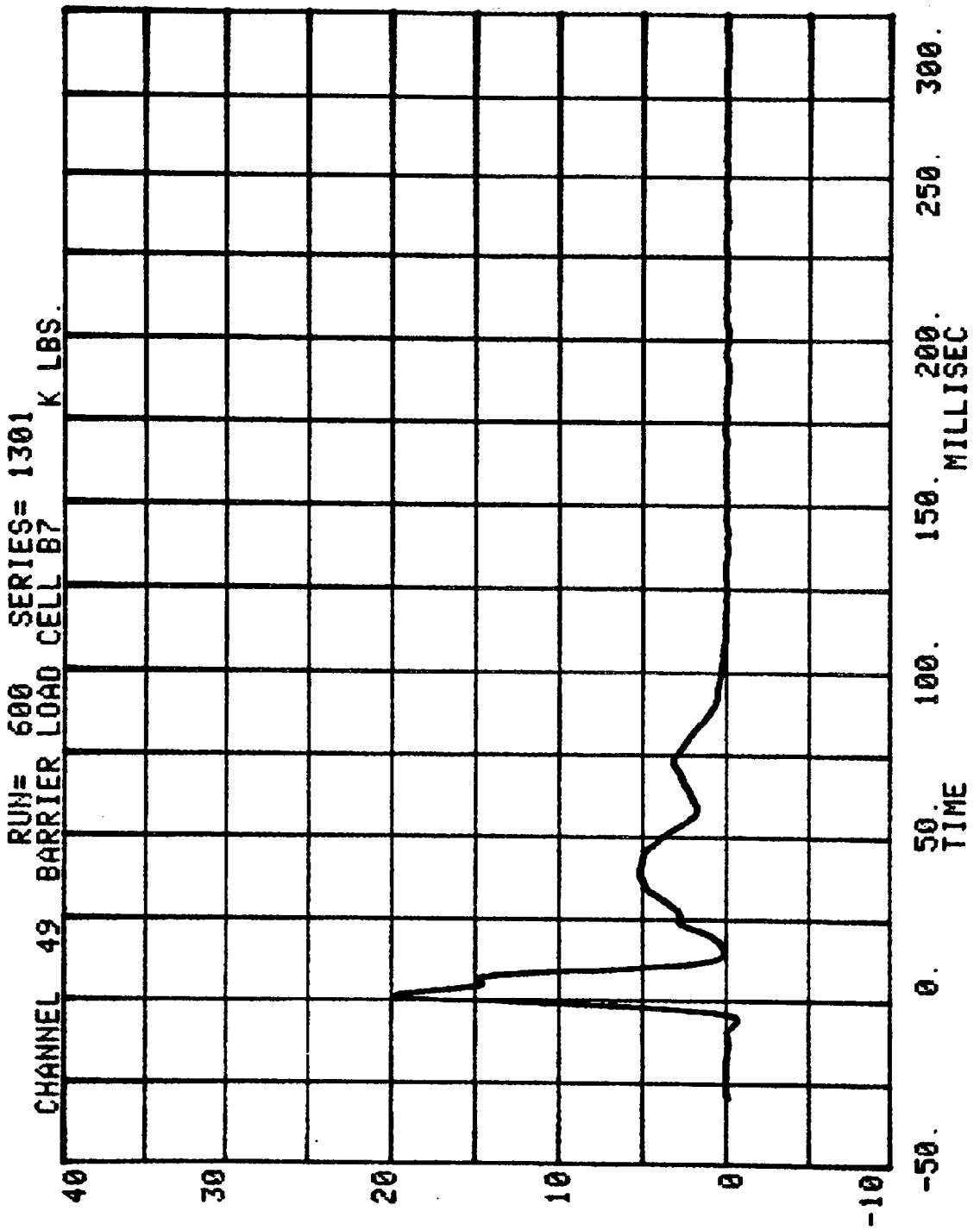

CHANNEL 44 BARRIER LOAD CELL B2
RUN= 600 SERIES= 1301
K LBS.
40
30
20
10
0
-10
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC


CHANNEL 45 BARRIER LOAD CELL B3
RUN= 600 SERIES= 1301
K LBS.
40
30
20
10
0
-10
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

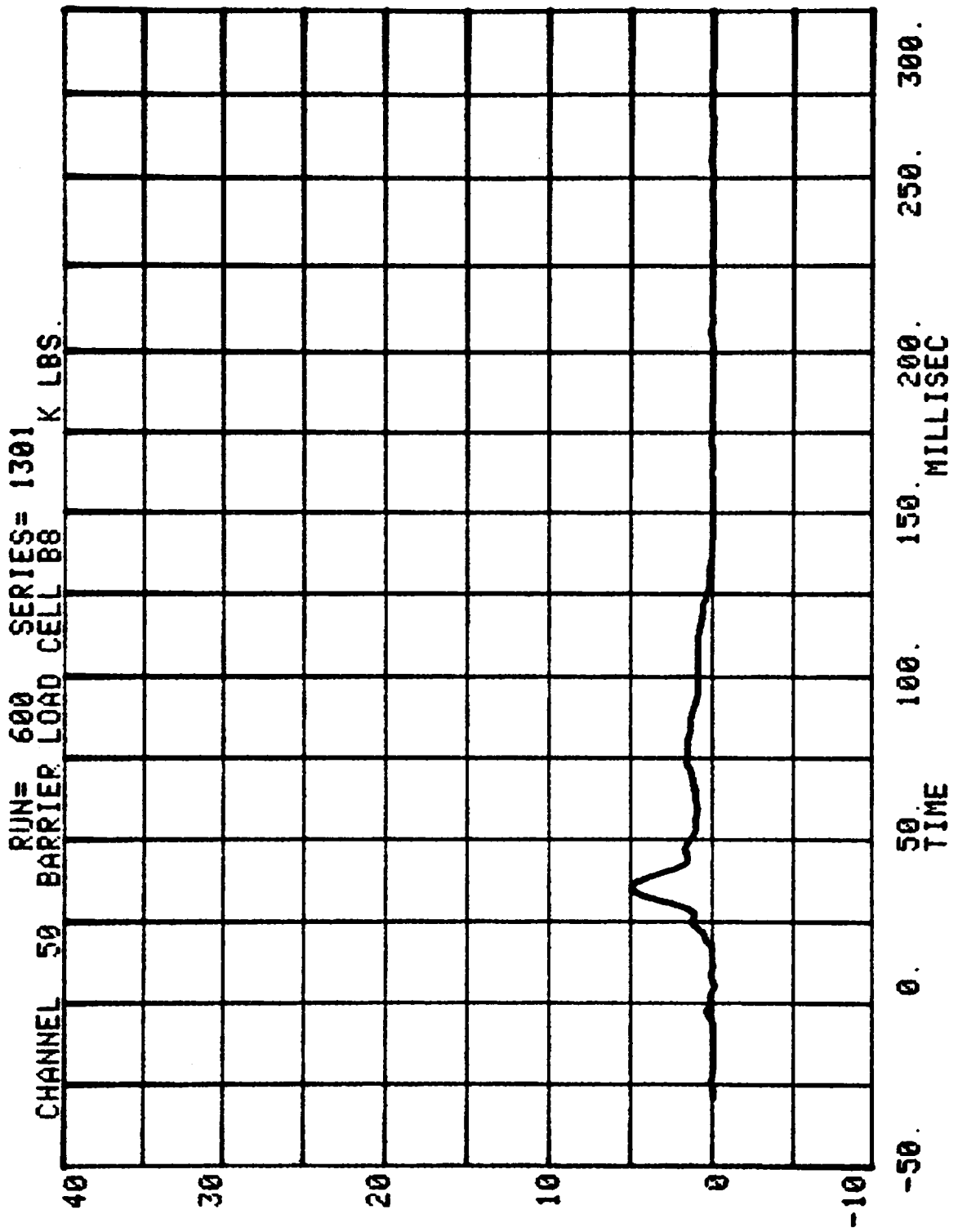

CHANNEL 46 BARRIER LOAD CELL B4
RUN= 600 SERIES= 1301
K LBS.
40
30
20
10
0
-10
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

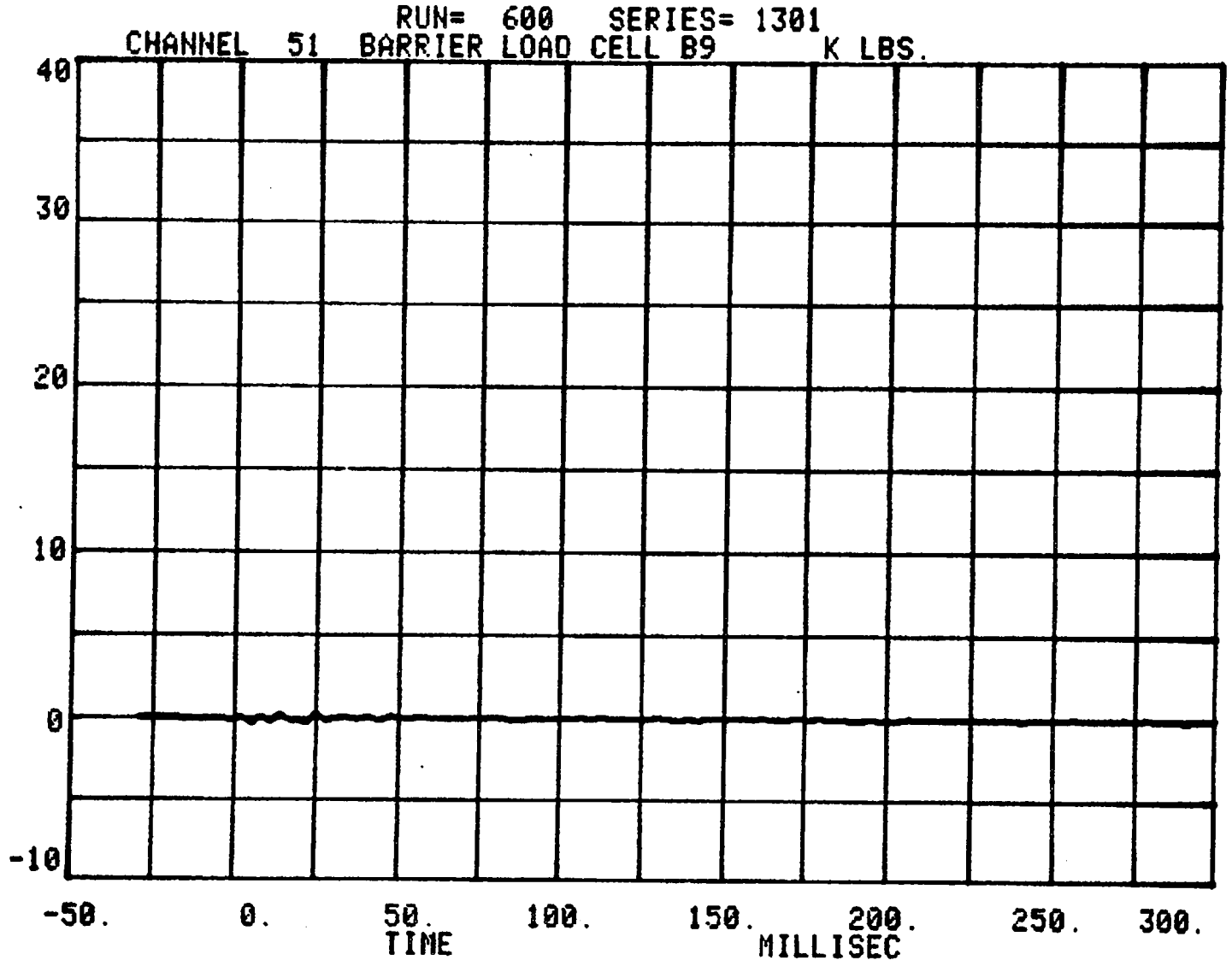

RUN= 600 SERIES= 1301
CHANNEL 47 BARRIER LOAD CELL B5 K LBS.
40
30
20
10
0
-10
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

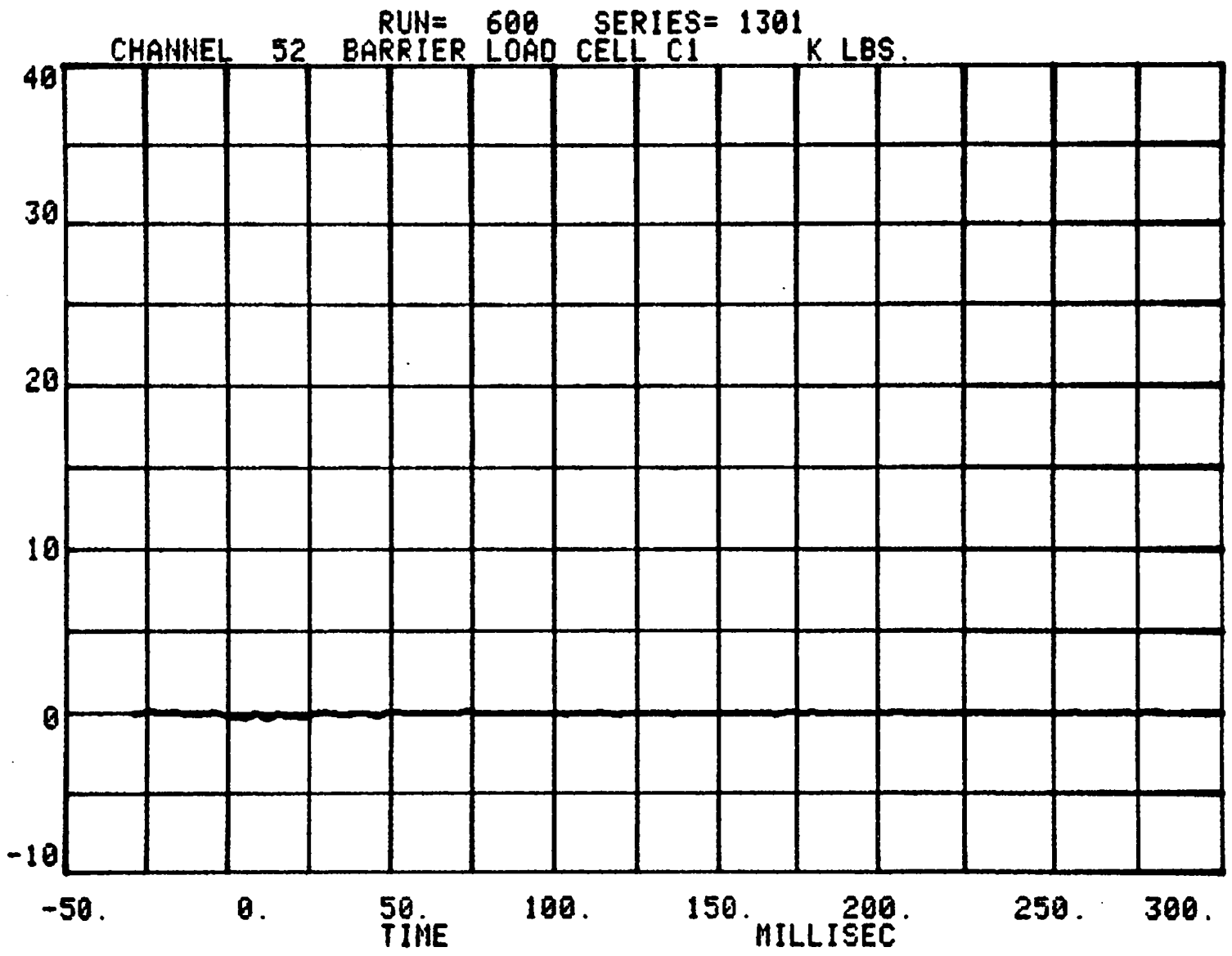

RUN= 600 SERIES= 1301
BARRIER LOAD CELL B6
CHANNEL 48
K LBS.
40
30
20
10
0
-10
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

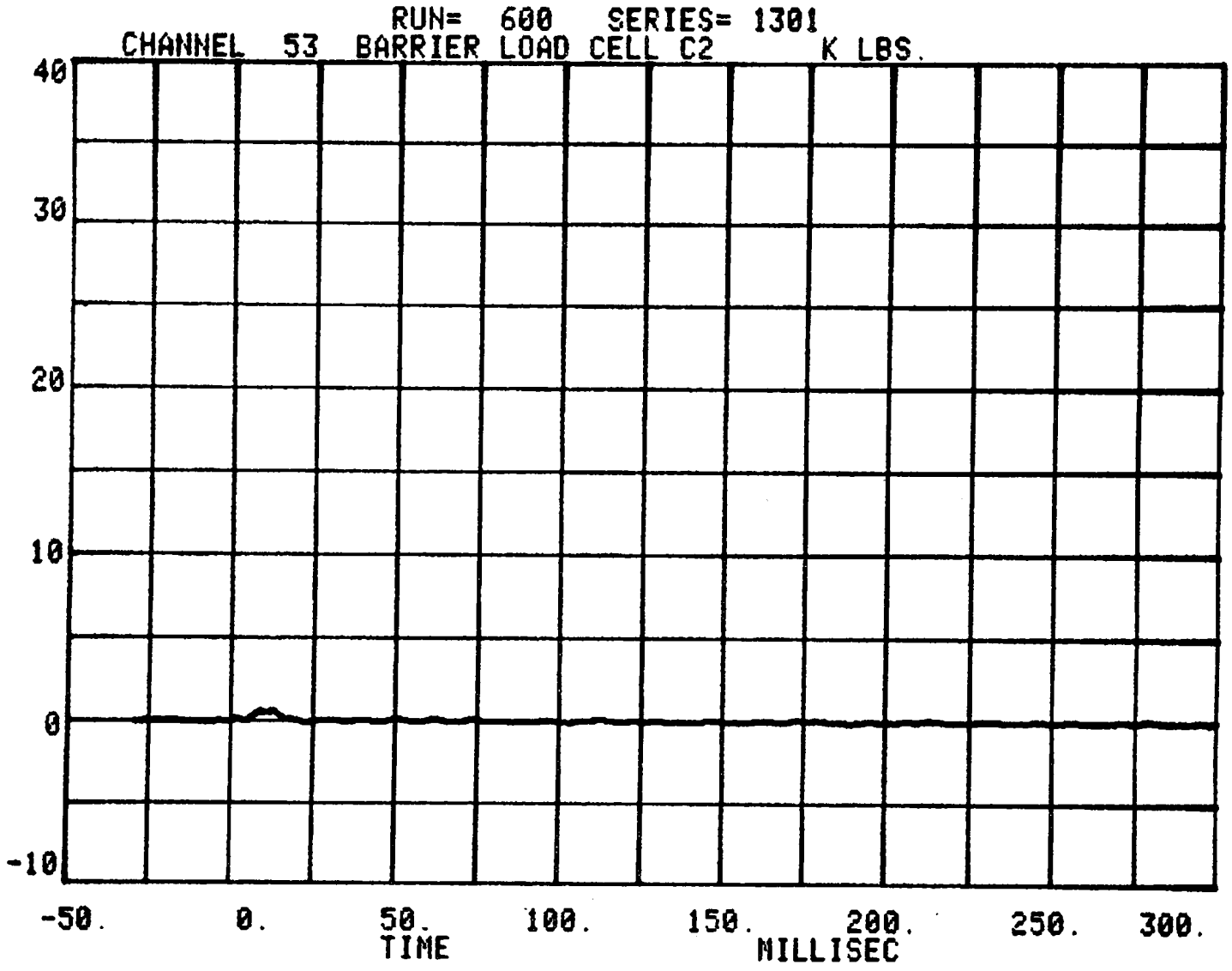

RUN= 600 SERIES= 1301
BARRIER LOAD CELL B7 K LBS.
CHANNEL 49
40
30
20
10
0
-10
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

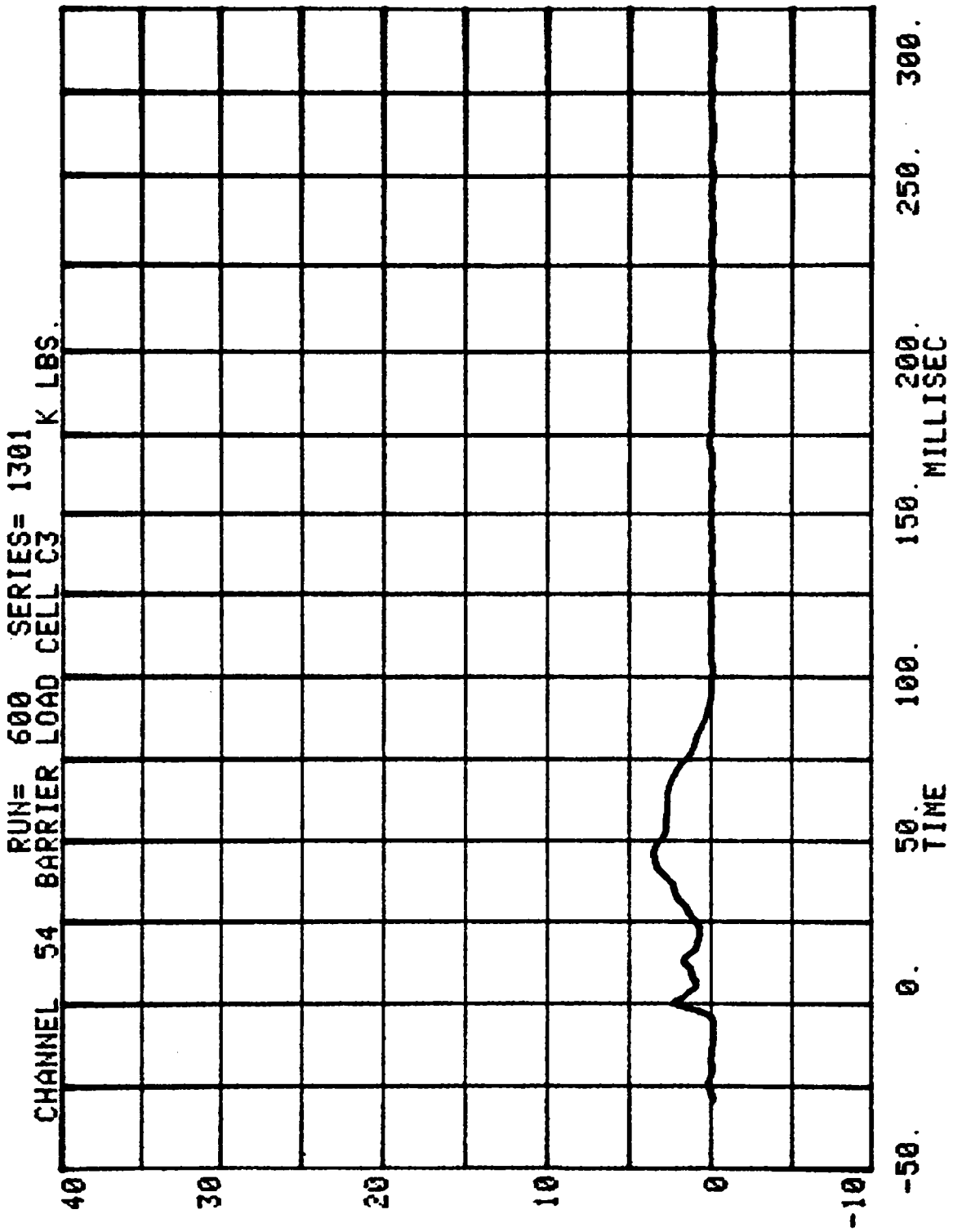
7209-6

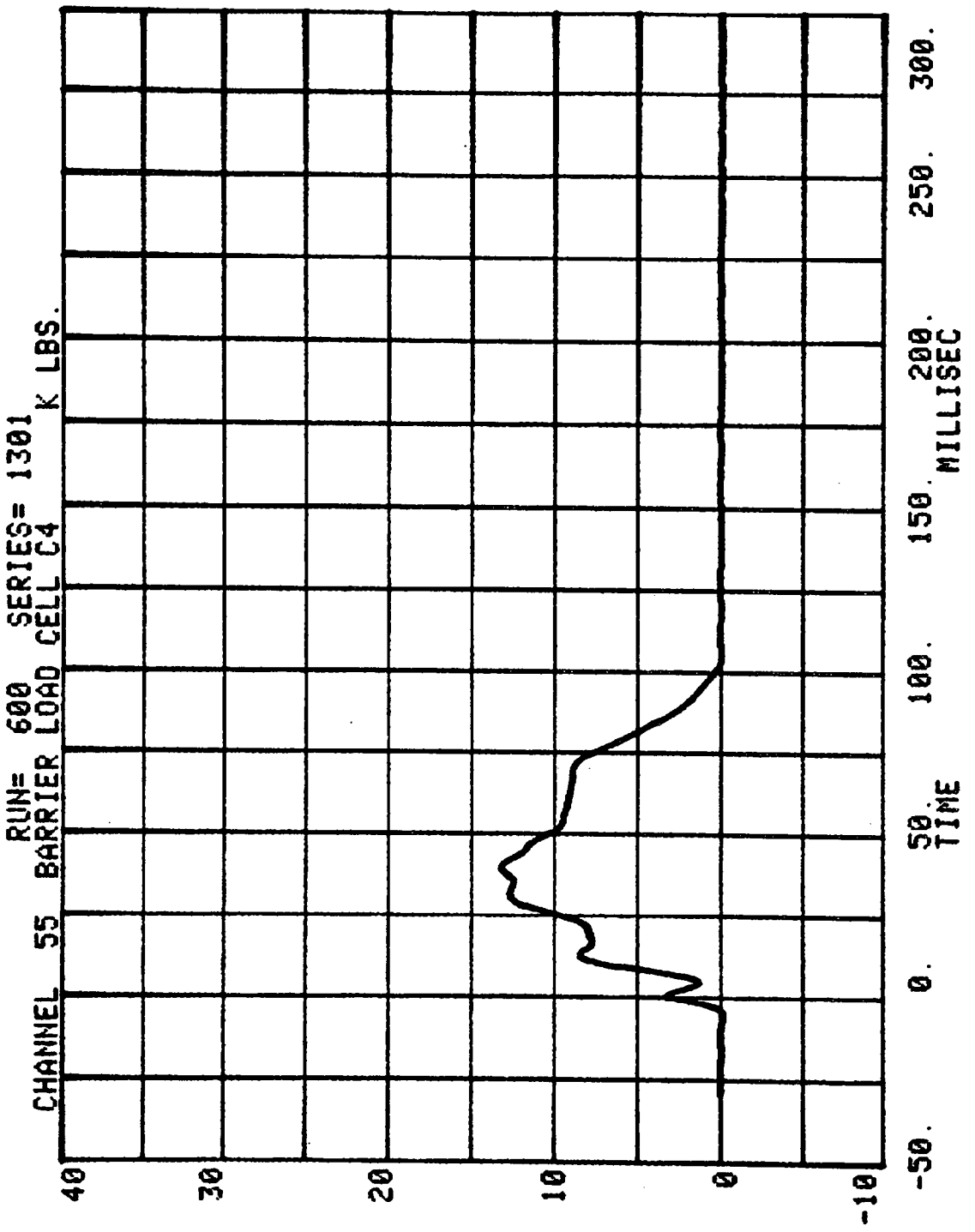

CHANNEL 50 BARRIER LOAD CELL B8
RUN= 600 SERIES= 1301 K LBS.
40
30
20
10
0
-10
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

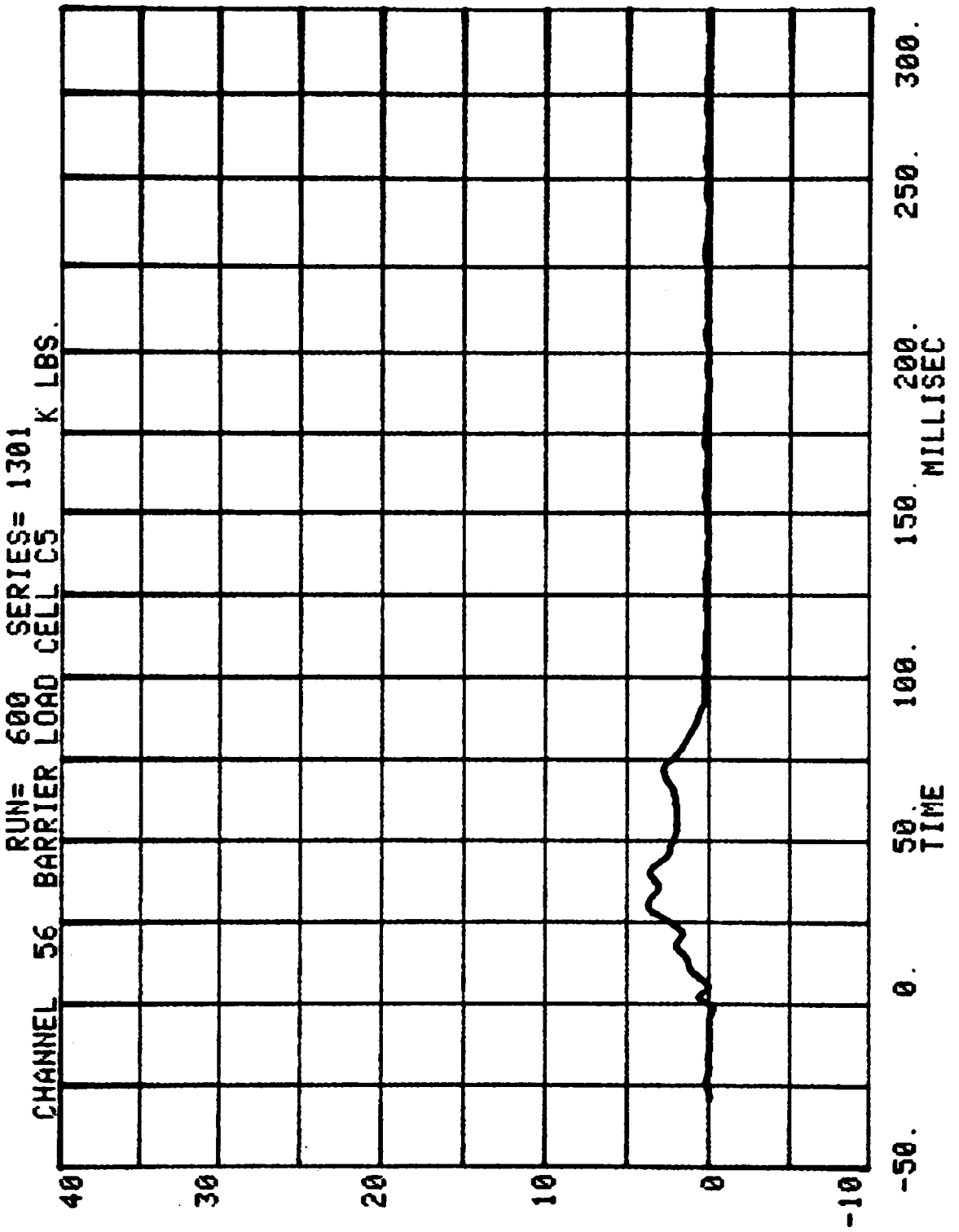

RUN= 600 SERIES= 1301
CHANNEL 51 BARRIER LOAD CELL B9 K LBS.
40
30
20
10
0
-10
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

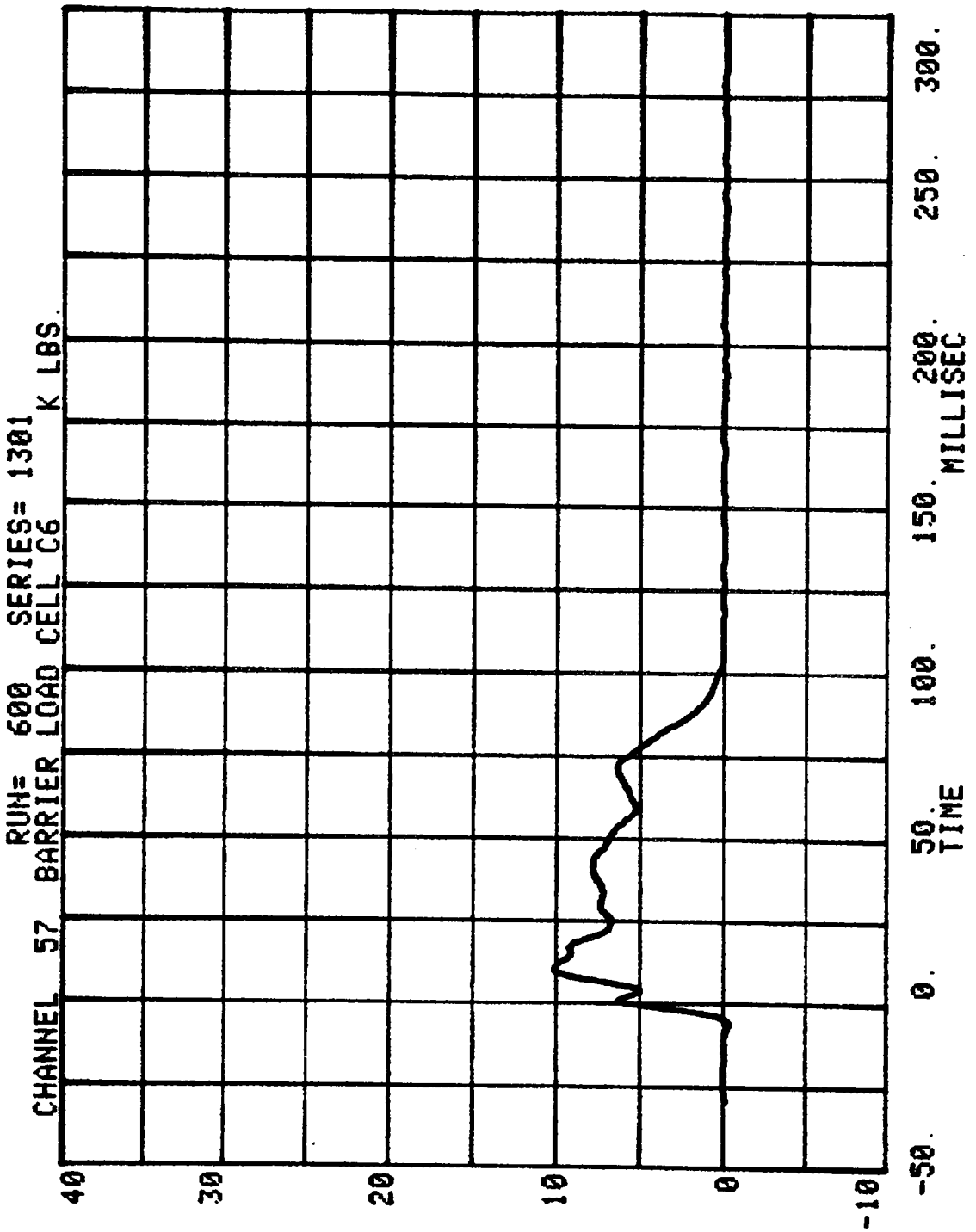

RUN= 600 SERIES= 1301
CHANNEL 52 BARRIER LOAD CELL C1 K LBS.
40
30
20
10
0
-10
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

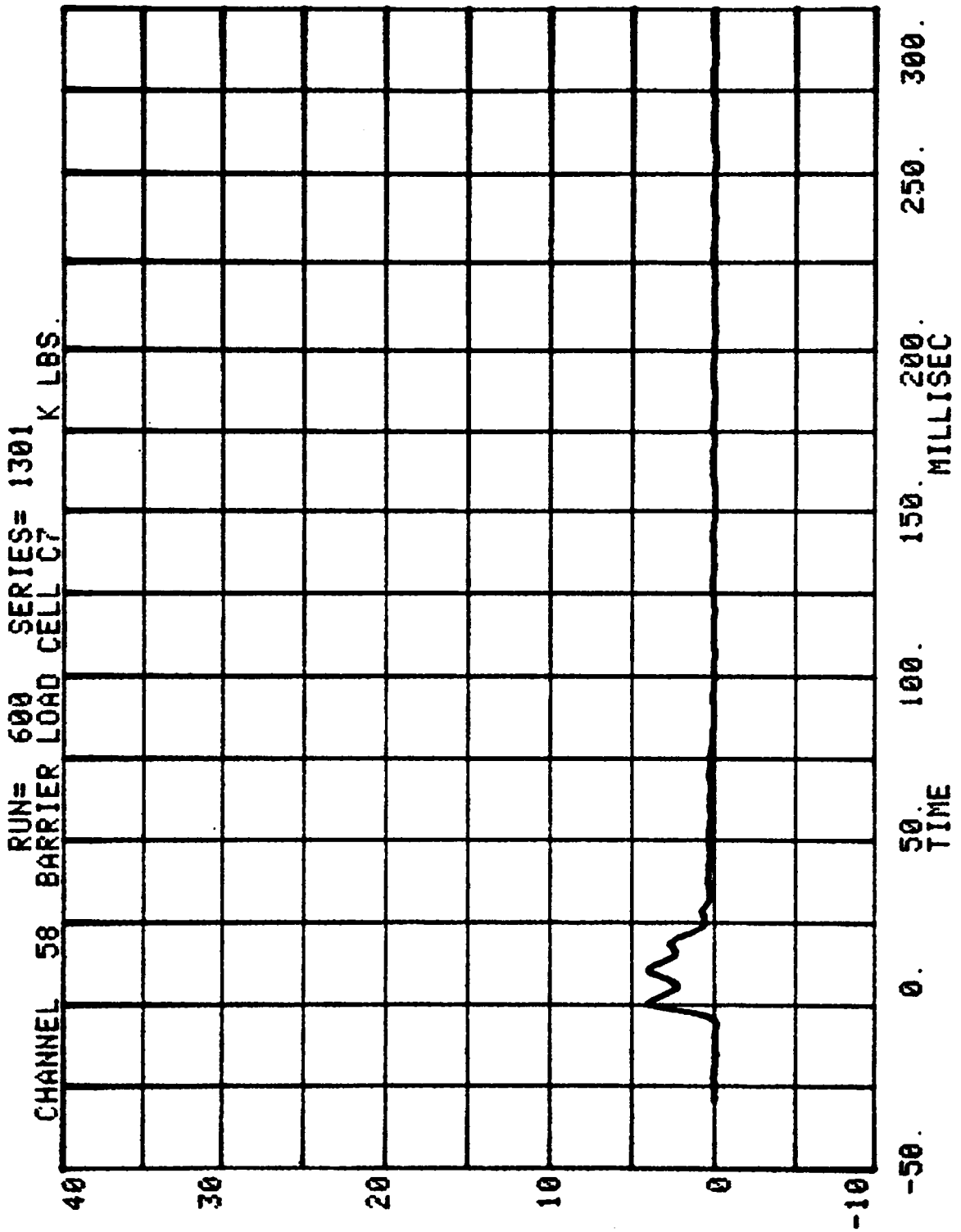

RUN= 600 SERIES= 1301
CHANNEL 53 BARRIER LOAD CELL C2 K LBS.
40
30
20
10
0
-10
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

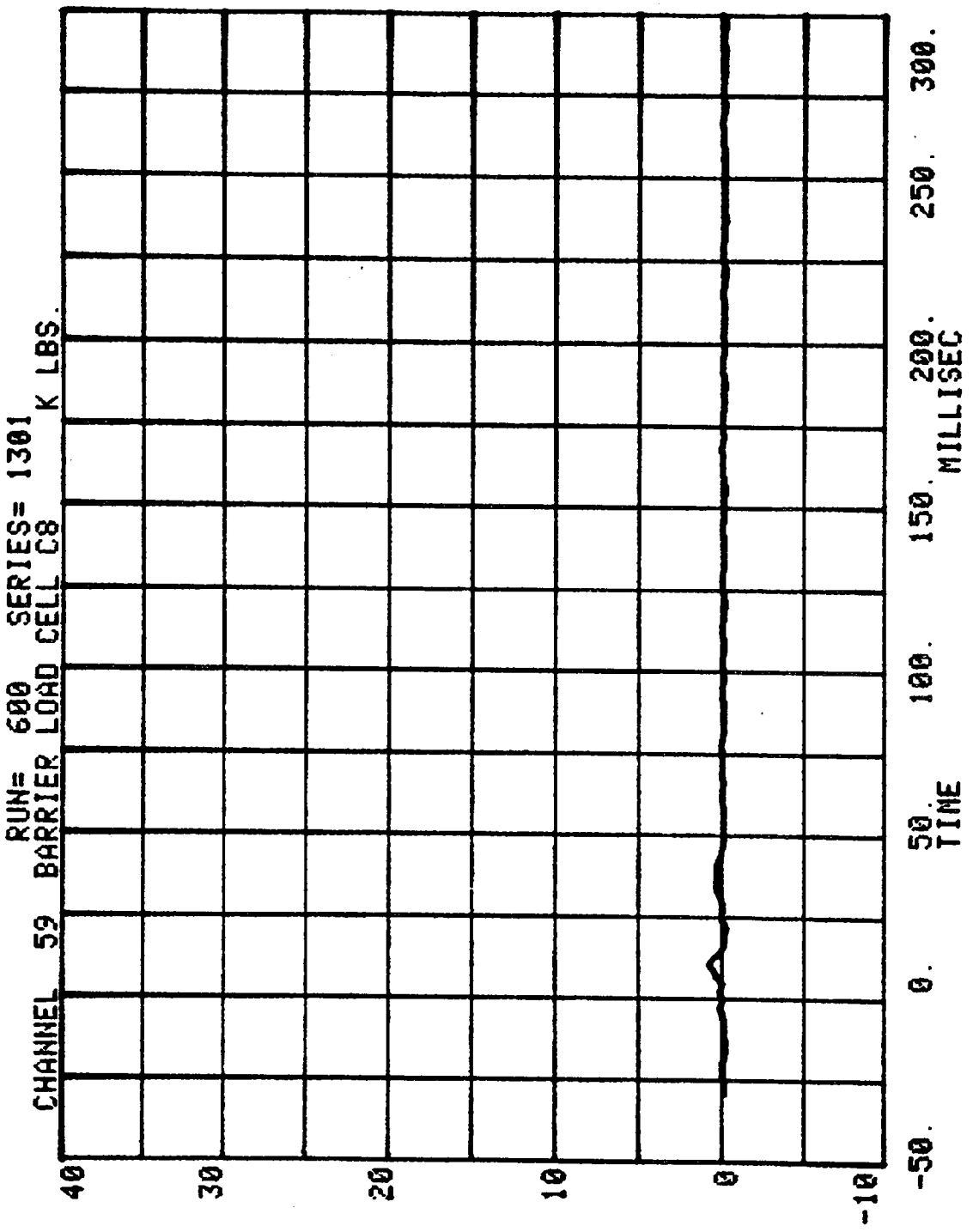

CHANNEL 54 BARRIER LOAD CELL C3
RUN= 600 SERIES= 1301
K LBS.
40
30
20
10
0
-10
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

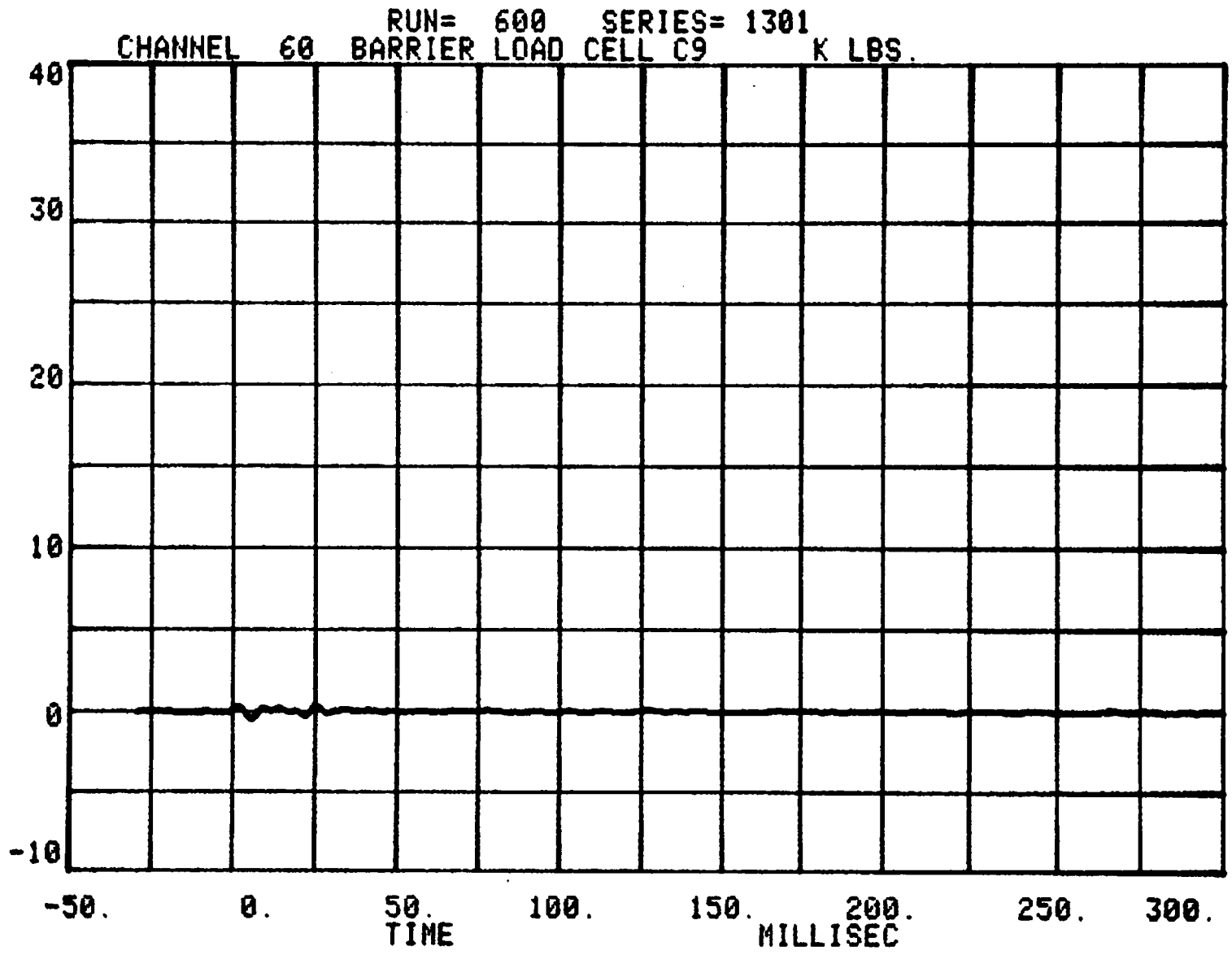

CHANNEL 55 BARRIER LOAD CELL C4
RUN= 600 SERIES= 1301
K LBS.
40
30
20
10
0
-10
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

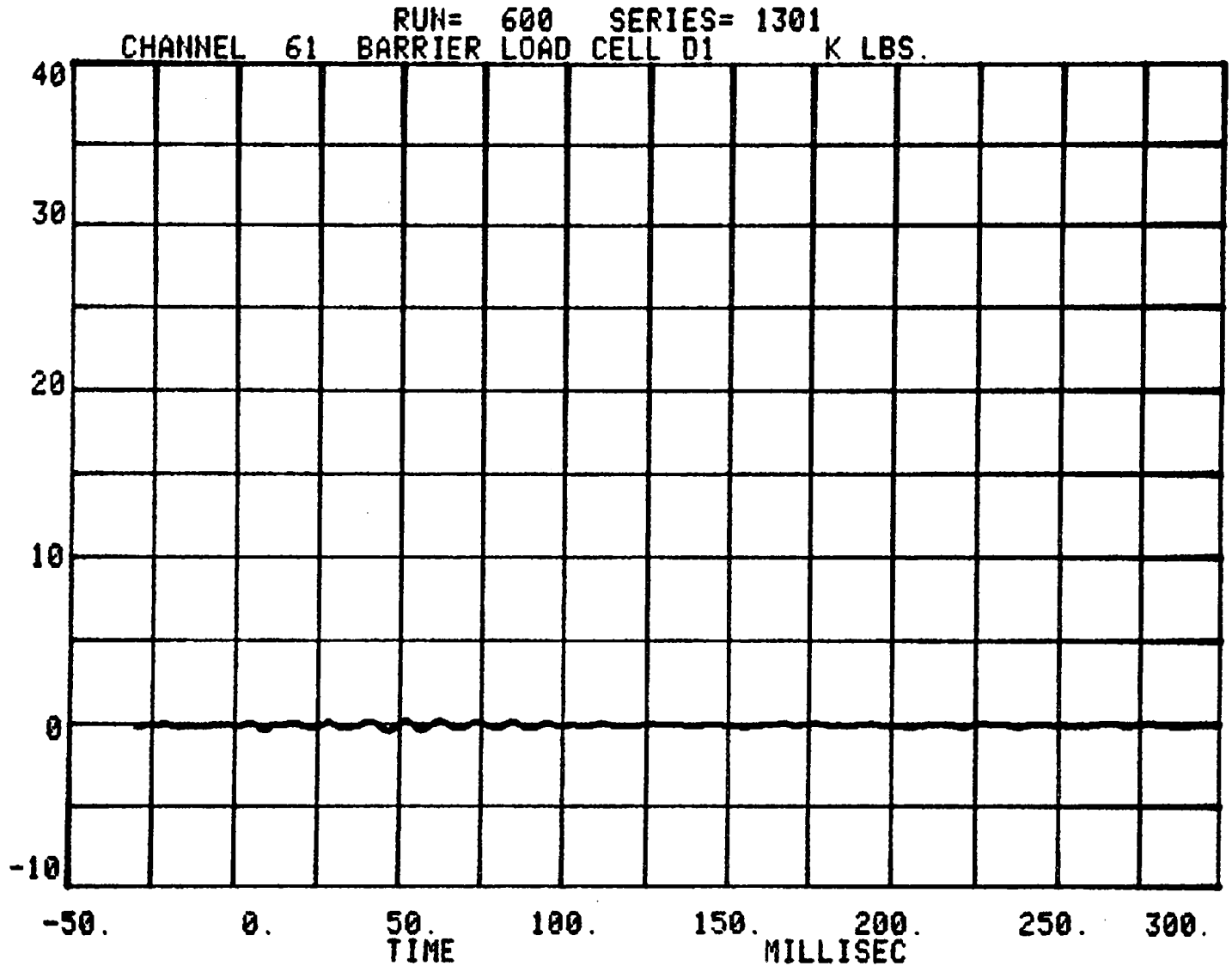

CHANNEL 56 BARRIER LOAD CELL CS
RUN= 600 SERIES= 1301
K LBS.
40
30
20
10
0
-10
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC


CHANNEL 57 BARRIER LOAD CELL C6
RUN= 600 SERIES= 1301
K LBS.
40
30
20
10
0
-10
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

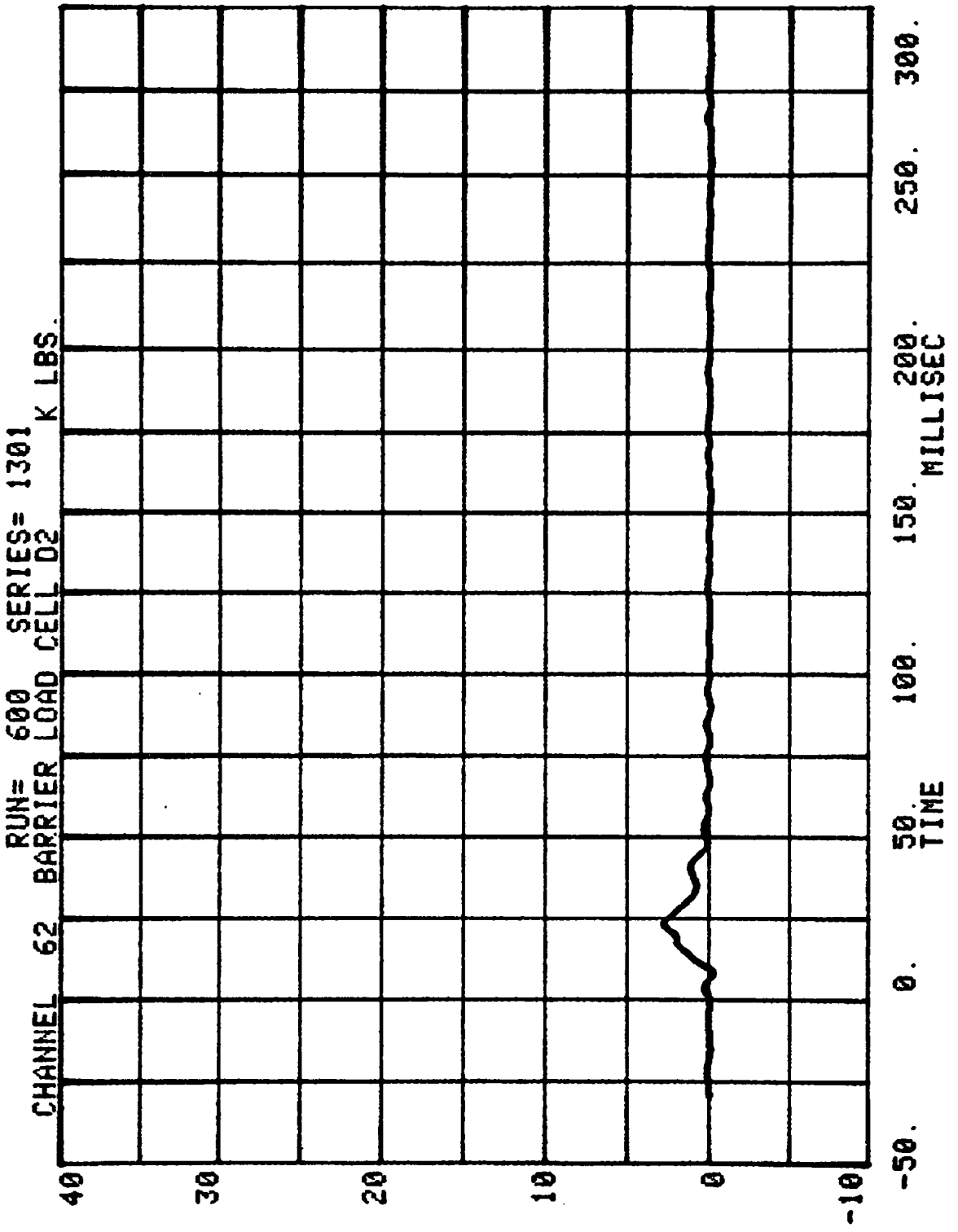

CHANNEL 58 BARRIER LOAD CELL C7
RUN= 600 SERIES= 1301
K LBS.
40
30
20
10
0
-10
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

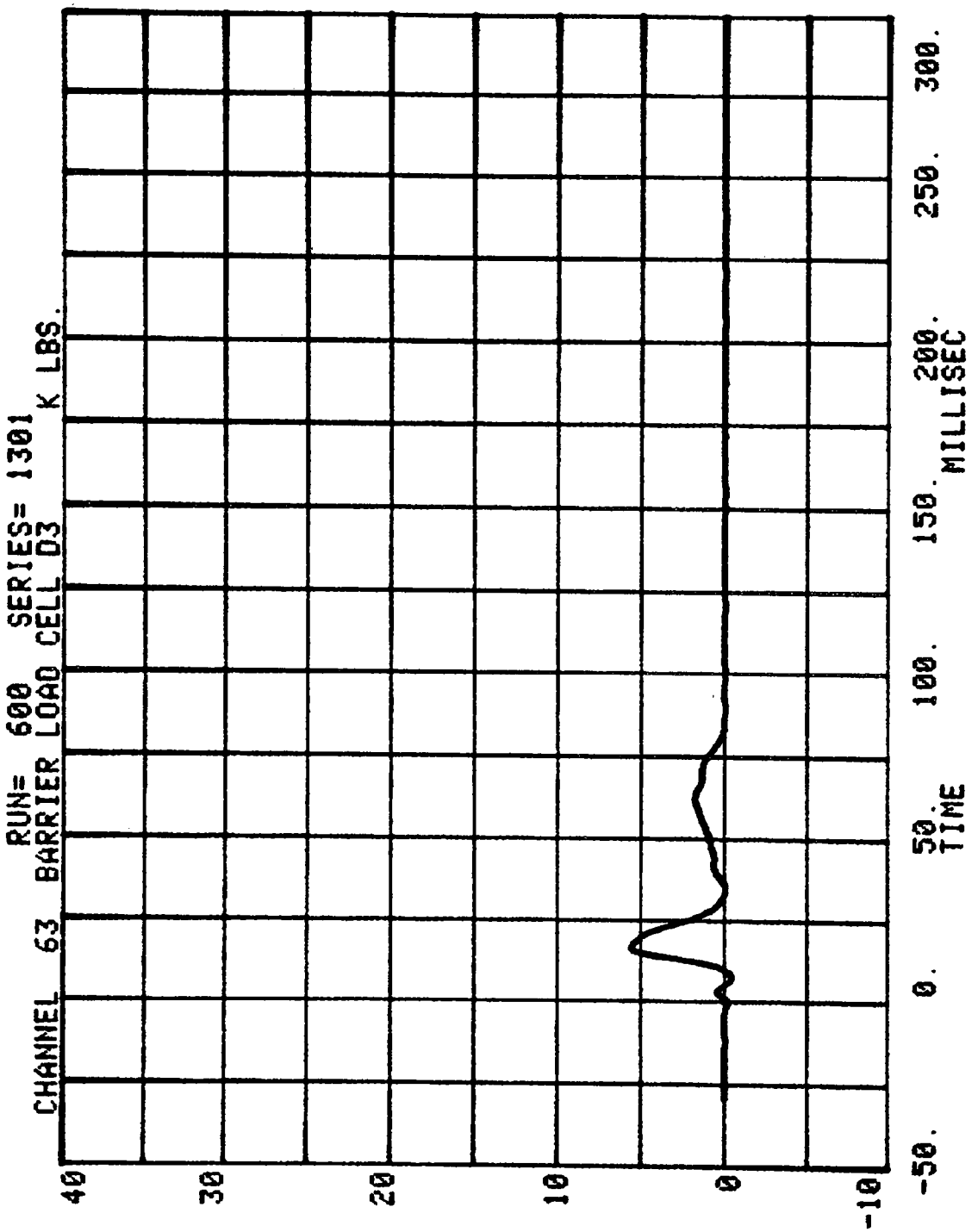

CHANNEL 59 BARRIER LOAD CELL C8
RUN= 600 SERIES= 1301
K LBS.
40
30
20
10
0
-10
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

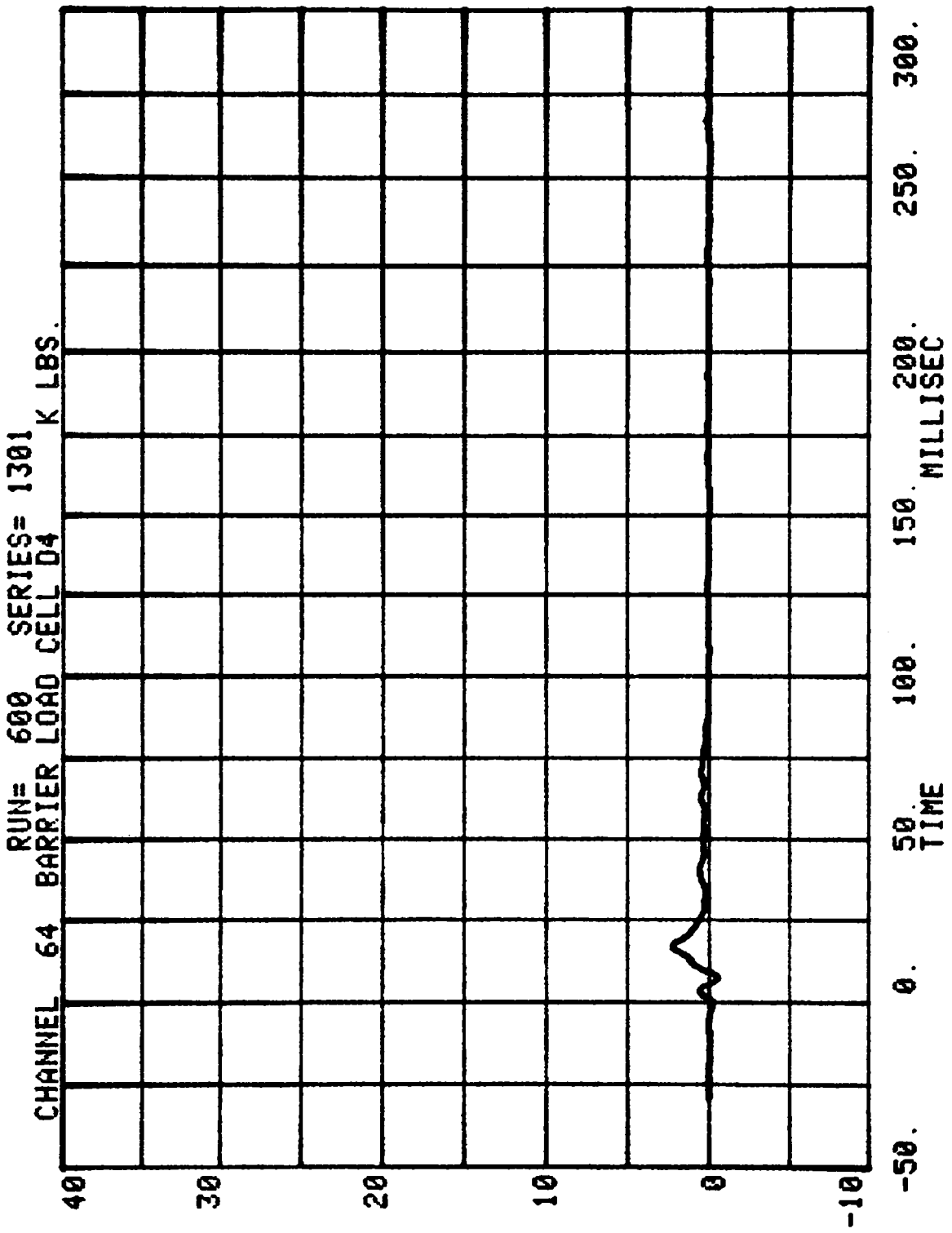

RUN= 600 SERIES= 1301
CHANNEL 60 BARRIER LOAD CELL C9 K LBS.
40
30
20
10
0
-10
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

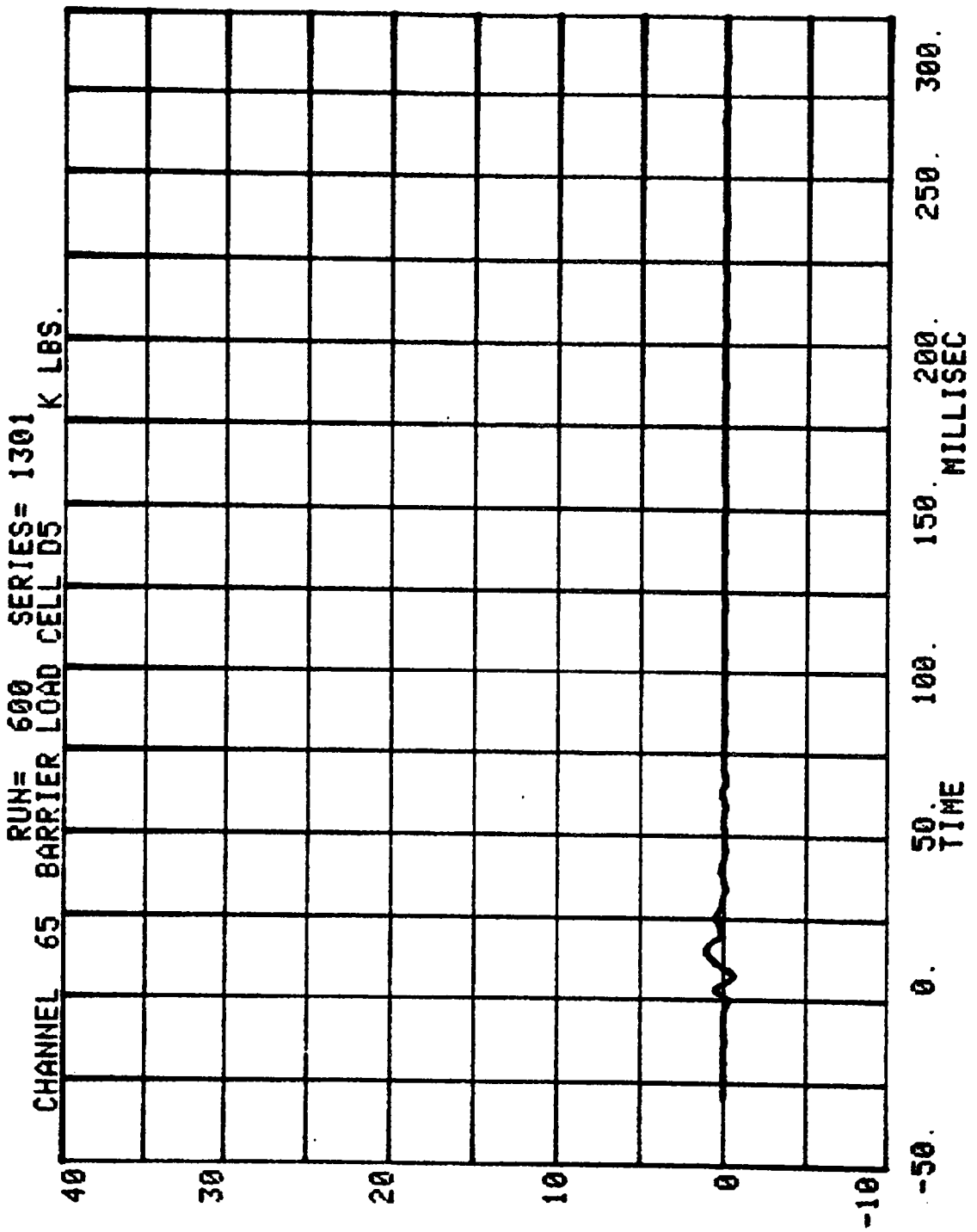

RUN= 600 SERIES= 1301
CHANNEL 61 BARRIER LOAD CELL D1 K LBS.
40
30
20
10
0
-10
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

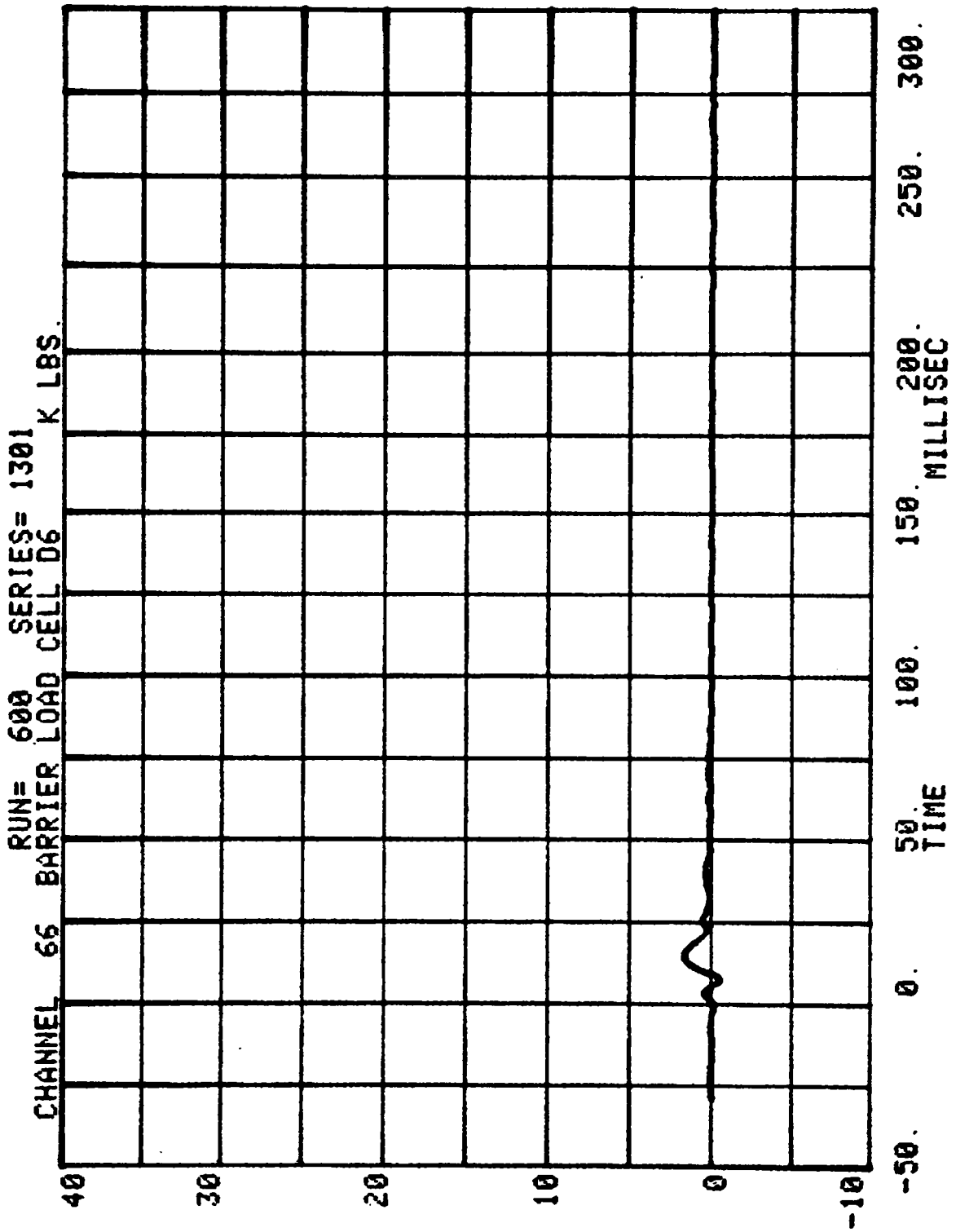
7209-6

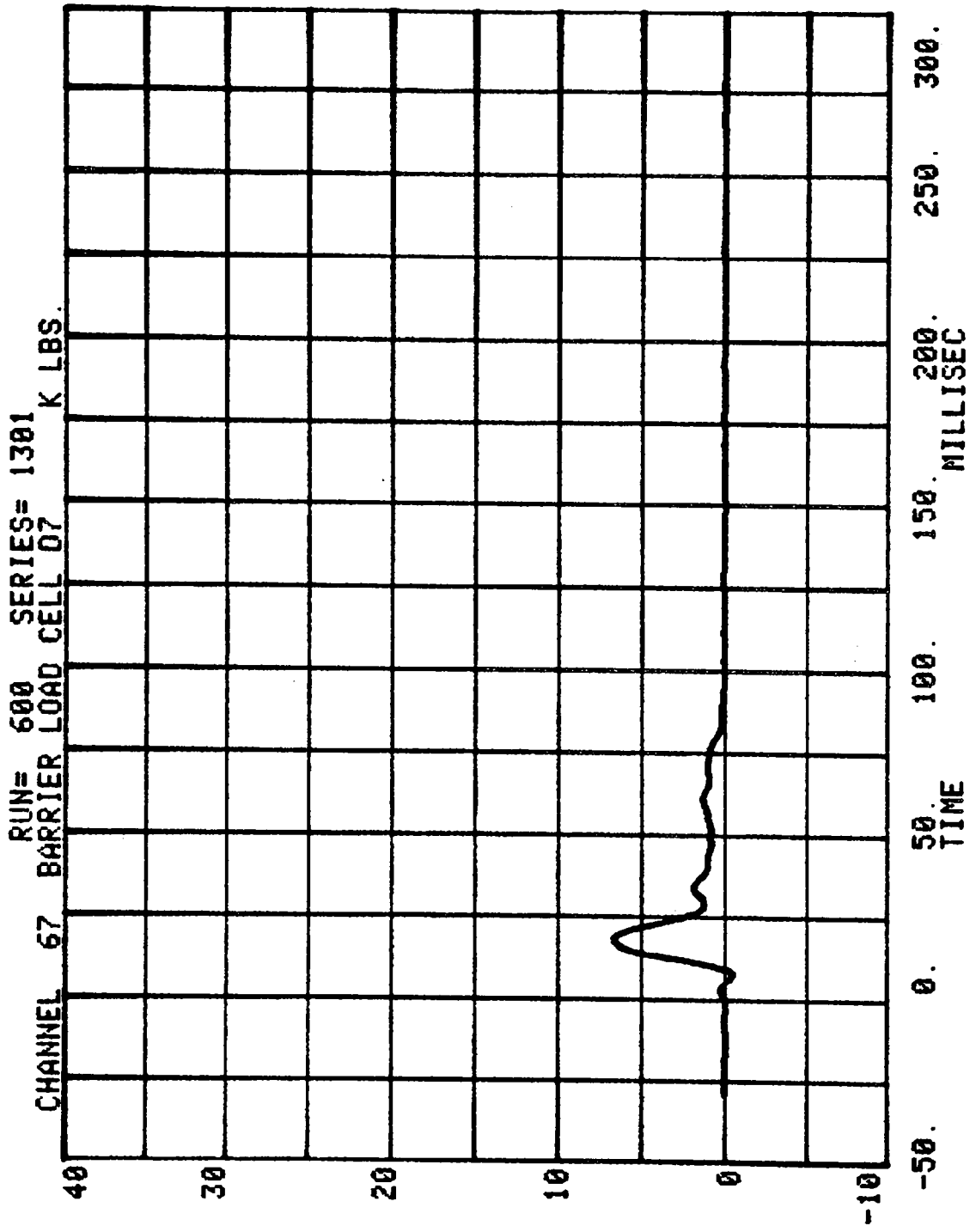

CHANNEL 62 BARRIER LOAD CELL 02
RUN= 600 SERIES= 1301
K LBS.
40
30
20
10
0
-10
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

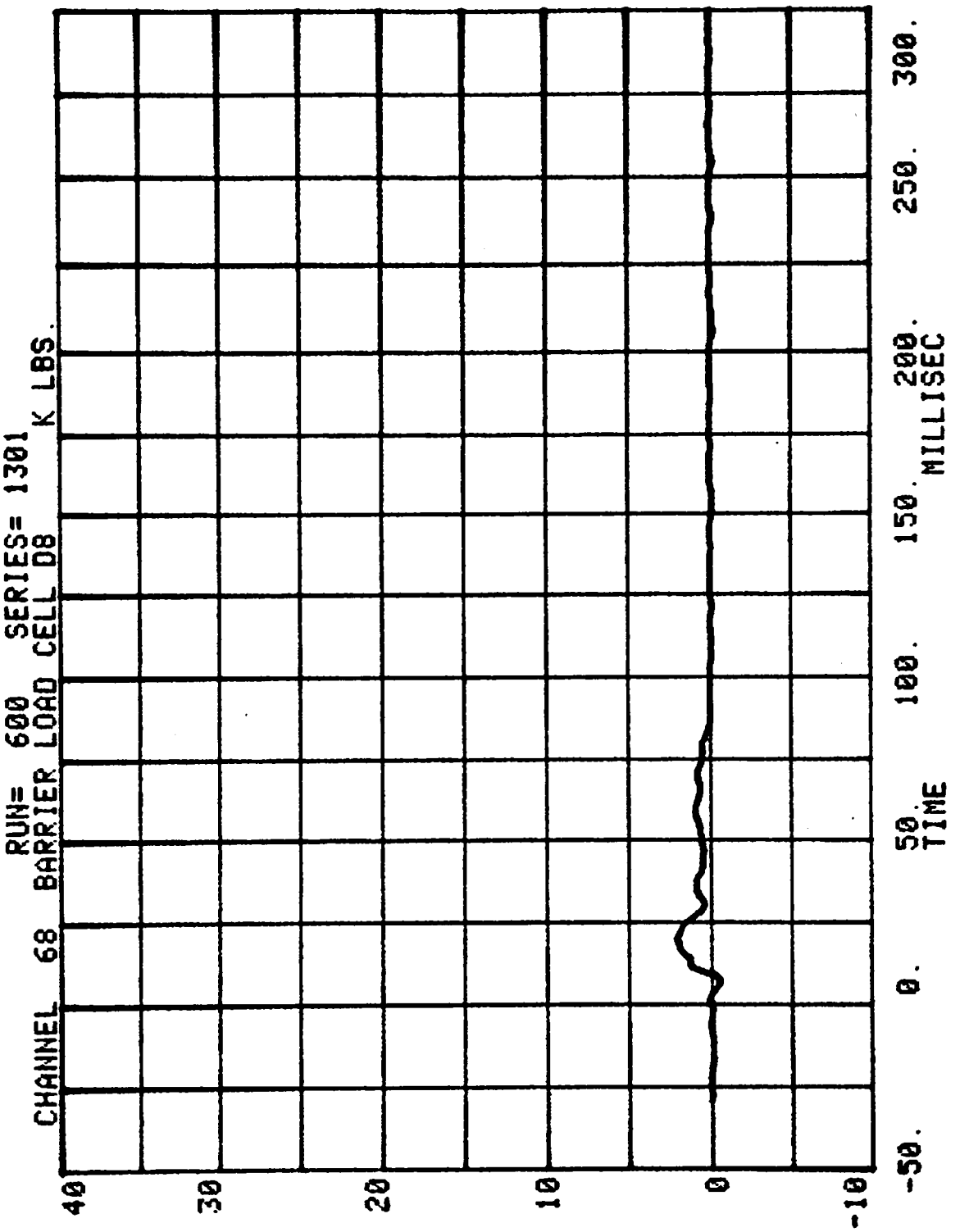

CHANNEL 63 BARRIER LOAD CELL D3
RUN= 600 SERIES= 1301
K LBS.
40
30
20
10
0
-10
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

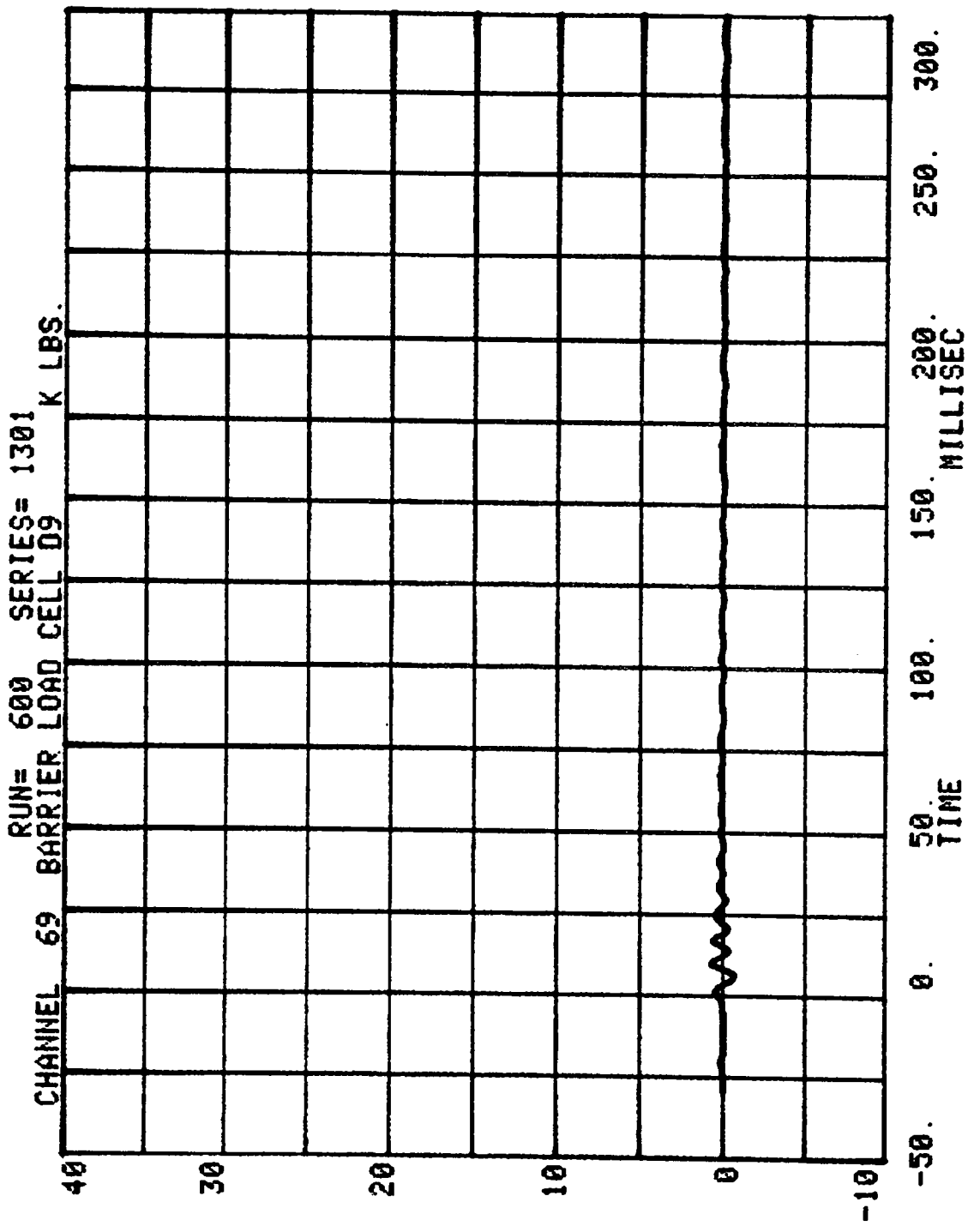

CHANNEL 64 BARRIER LOAD CELL D4
RUN= 600 SERIES= 1301
K LBS.
40
30
20
10
0
-10
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

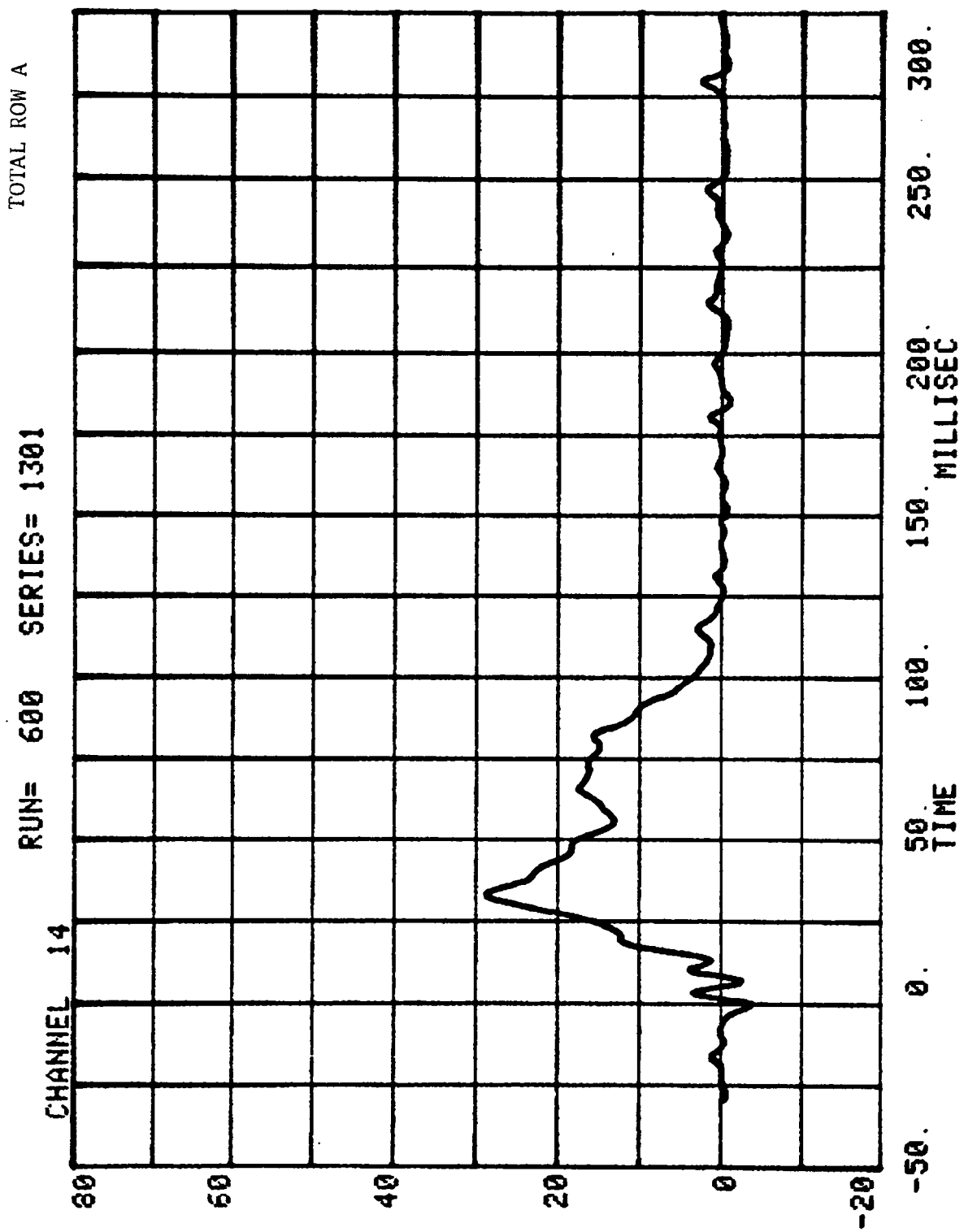

CHANNEL 65 BARRIER LOAD CELL D5
RUN= 600 SERIES= 1301
K LBS.
40
30
20
10
0
-10
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

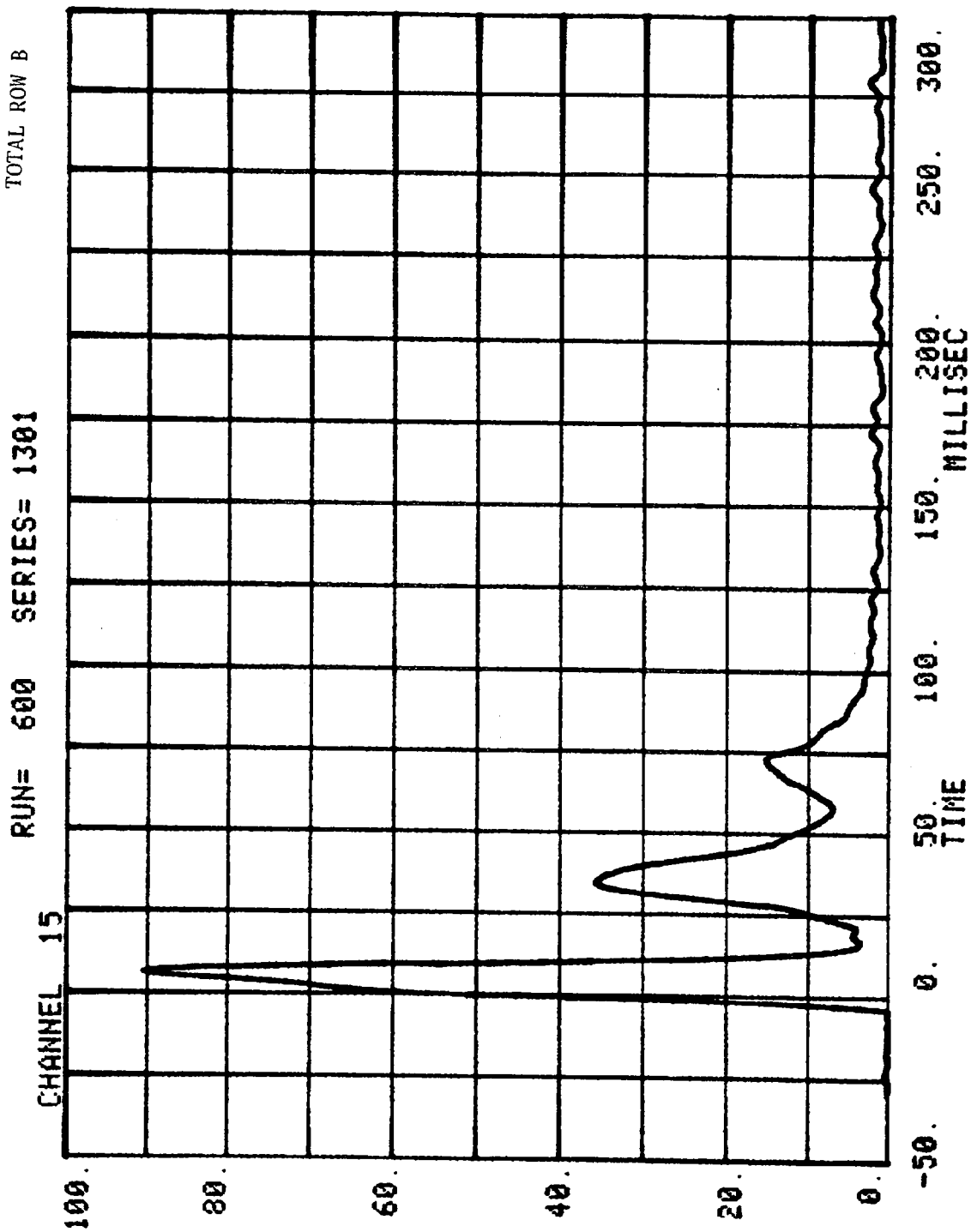

CHANNEL 66 BARRIER LOAD CELL D6
RUN= 600 SERIES= 1301
K LBS.
40
30
20
10
0
-10
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

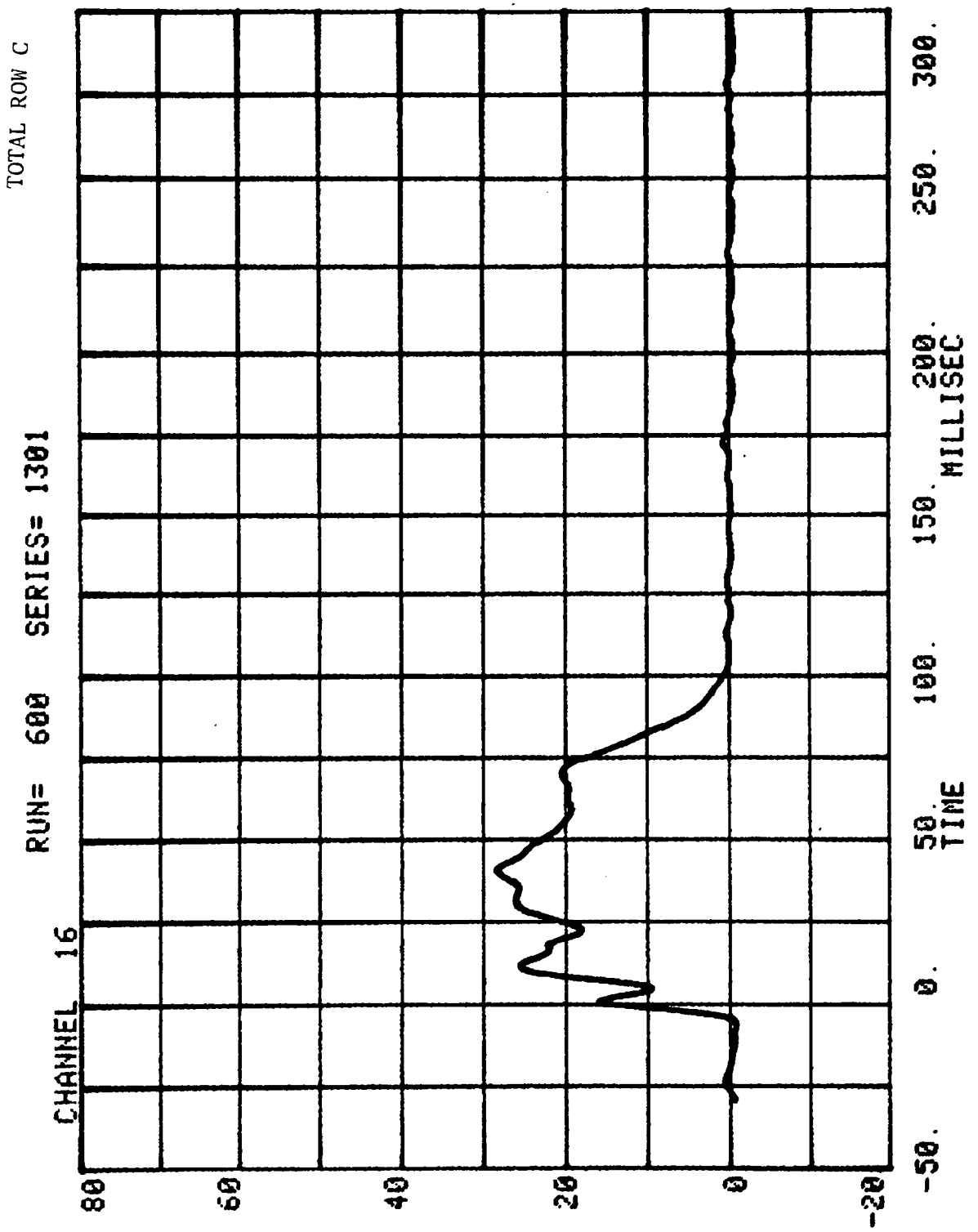

CHANNEL 67 BARRIER LOAD CELL 07
RUN= 600 SERIES= 1301
K LBS.
40
30
20
10
0
-10
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC


CHANNEL 68 BARRIER LOAD CELL D8
RUN= 600 SERIES= 1301
K LBS.
40
30
20
10
0
-10
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

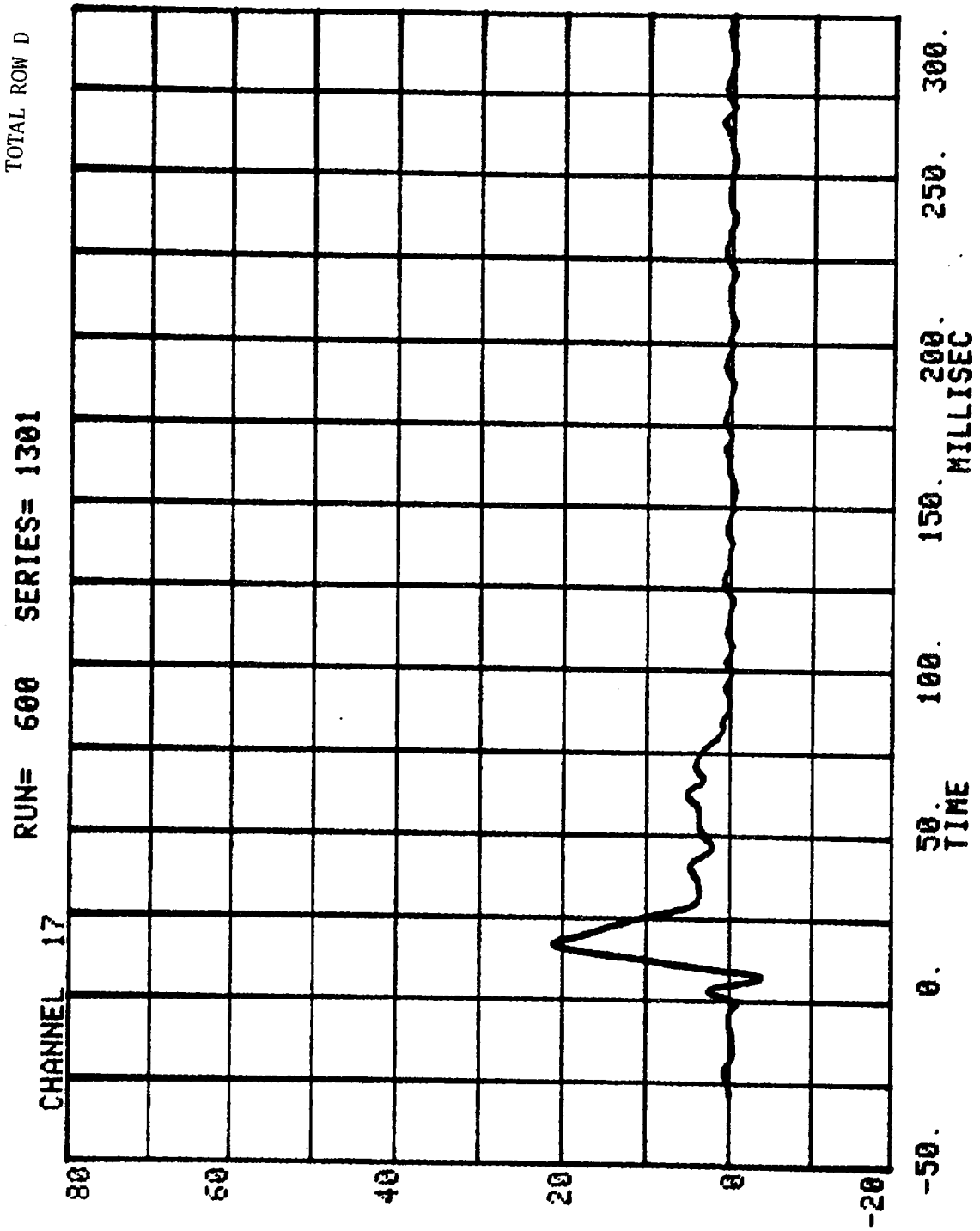

CHANNEL 69 BARRIER LOAD CELL 09
RUN= 600 SERIES= 1301
K LBS.
40
30
20
10
0
-10
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

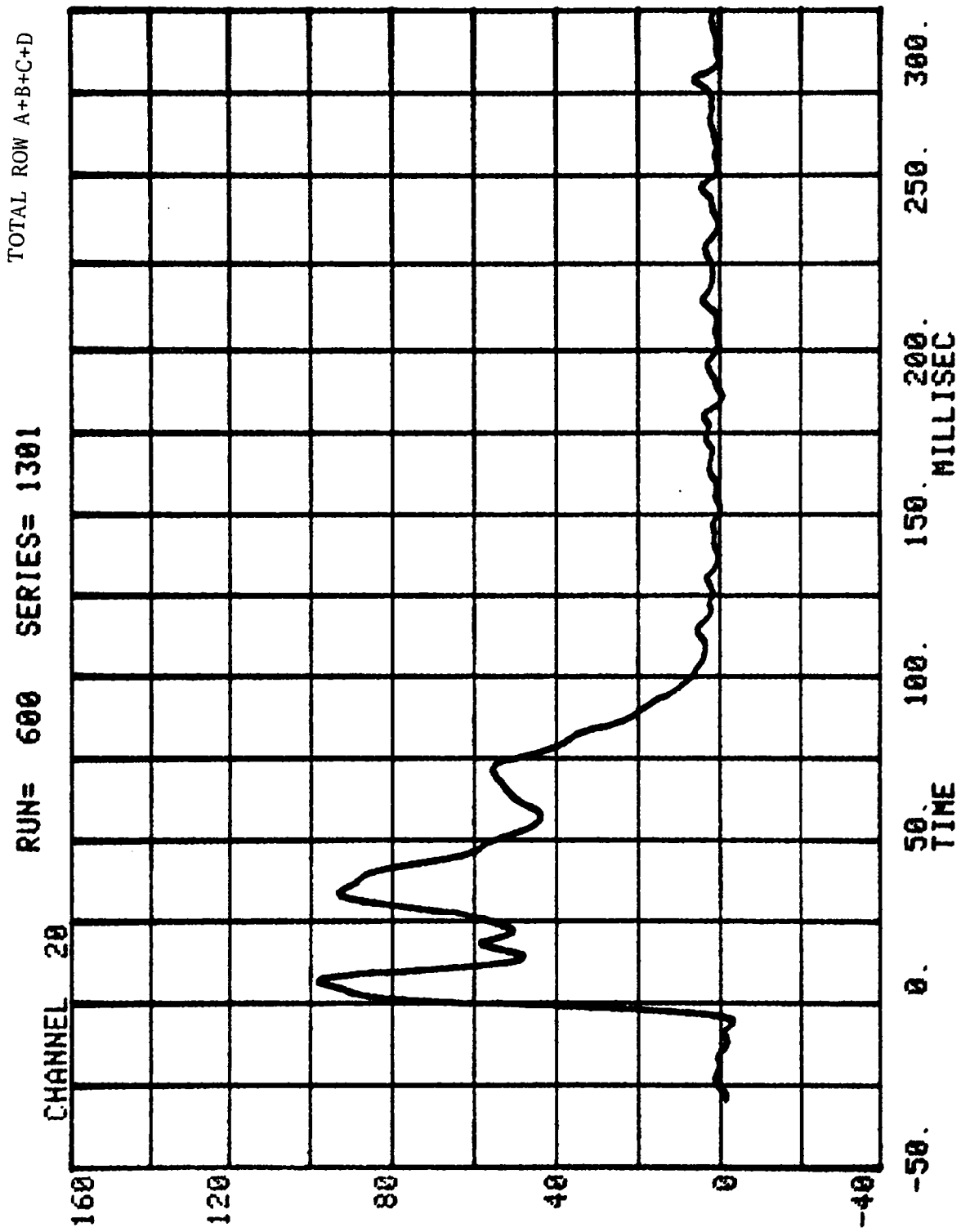

TOTAL ROW A
CHANNEL 14
RUN= 600 SERIES= 1301
80
60
40
20
0
-20
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC


TOTAL ROW B
RUN= 600 SERIES= 1301
CHANNEL 15
100.
80.
60.
40.
20.
0.
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC


TOTAL ROW C
CHANNEL 16
RUN= 600 SERIES= 1301
80
60
40
20
0
-20
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

7209-6


TOTAL ROW D
RUN= 600 SERIES= 1301
CHANNEL 17
80
60
40
20
0
-20
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC


TOTAL ROW A+B+C+D
RUN= 600 SERIES= 1301
CHANNEL 20
160
120
80
40
0
-40
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

TEST NO. CE1301

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 LOAD CELL BARRIER

RUN= 600

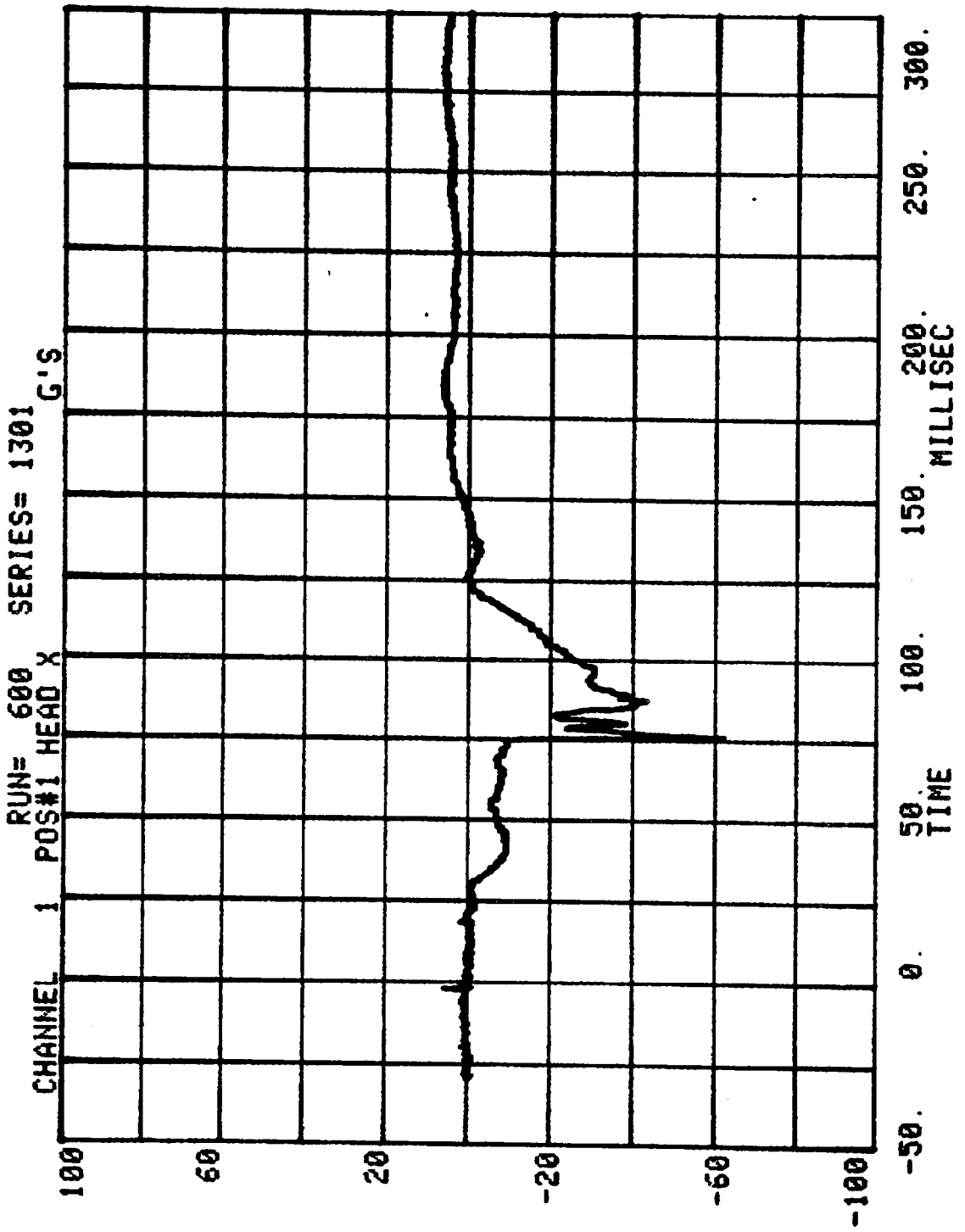
POS#1 HEAD RESULTANT

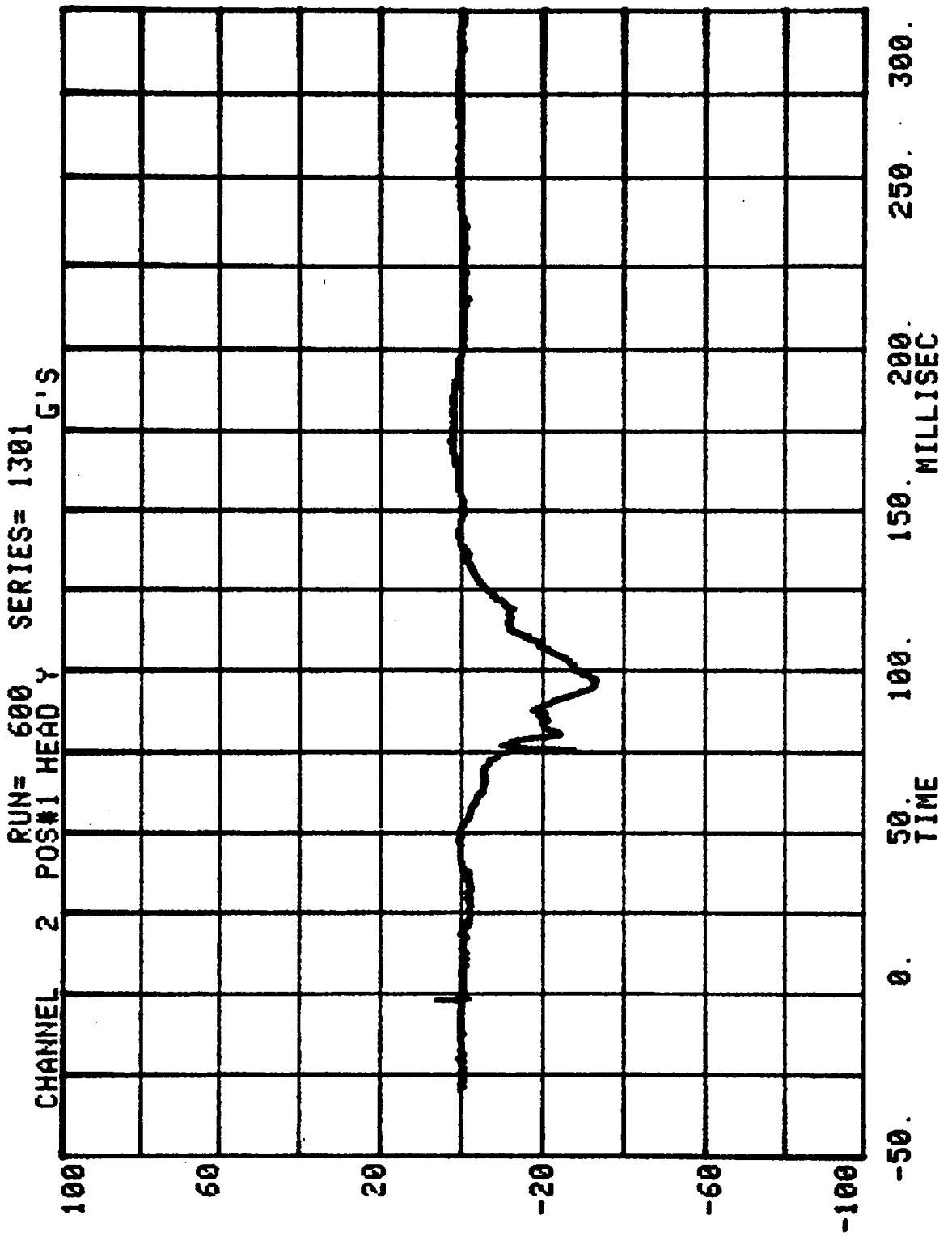
HIC= 460.1 FROM T1= .07560 TO T2= .10770

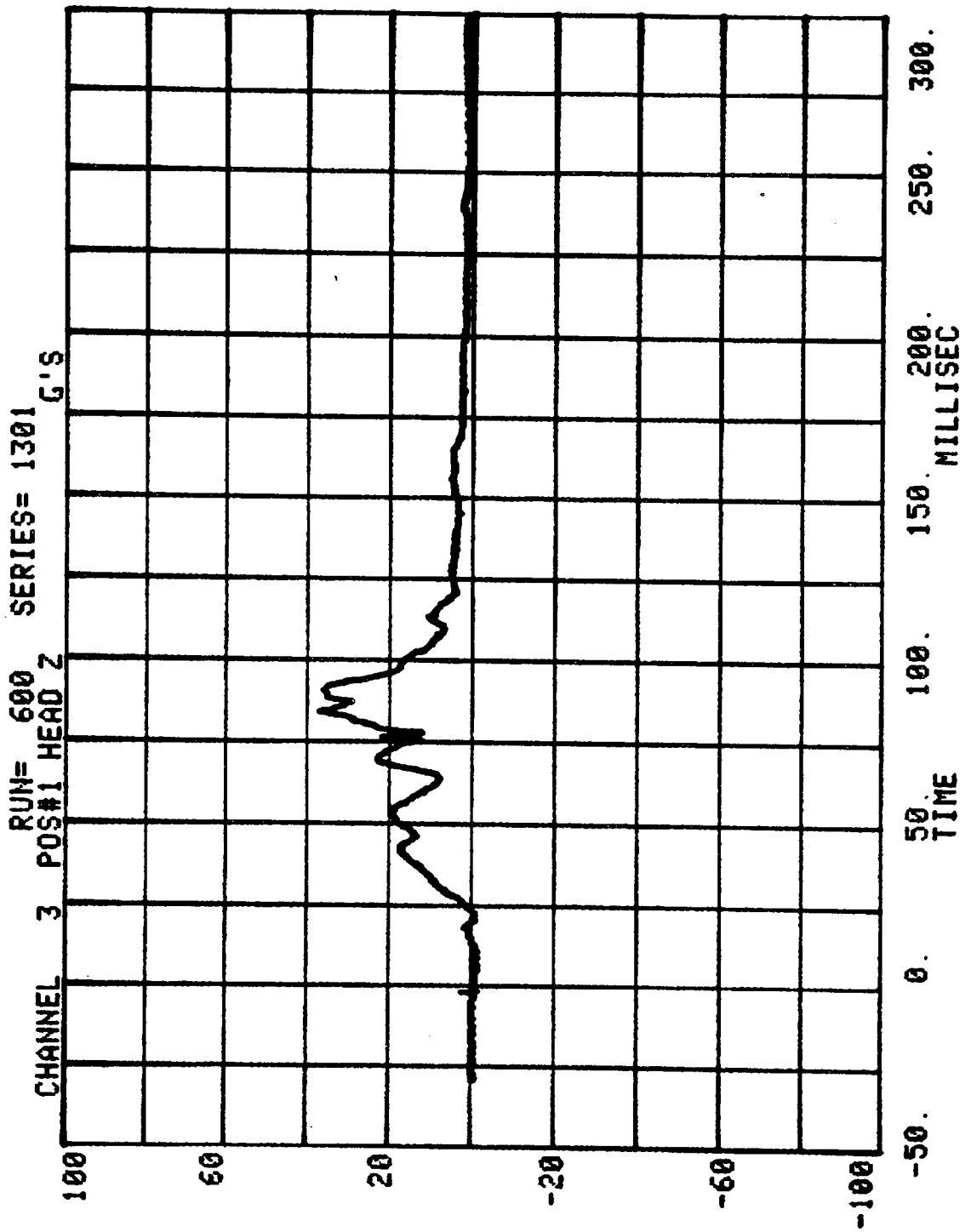
AVERAGE ACCELERATION BETWEEN T1 AND T2= 46.0G'S

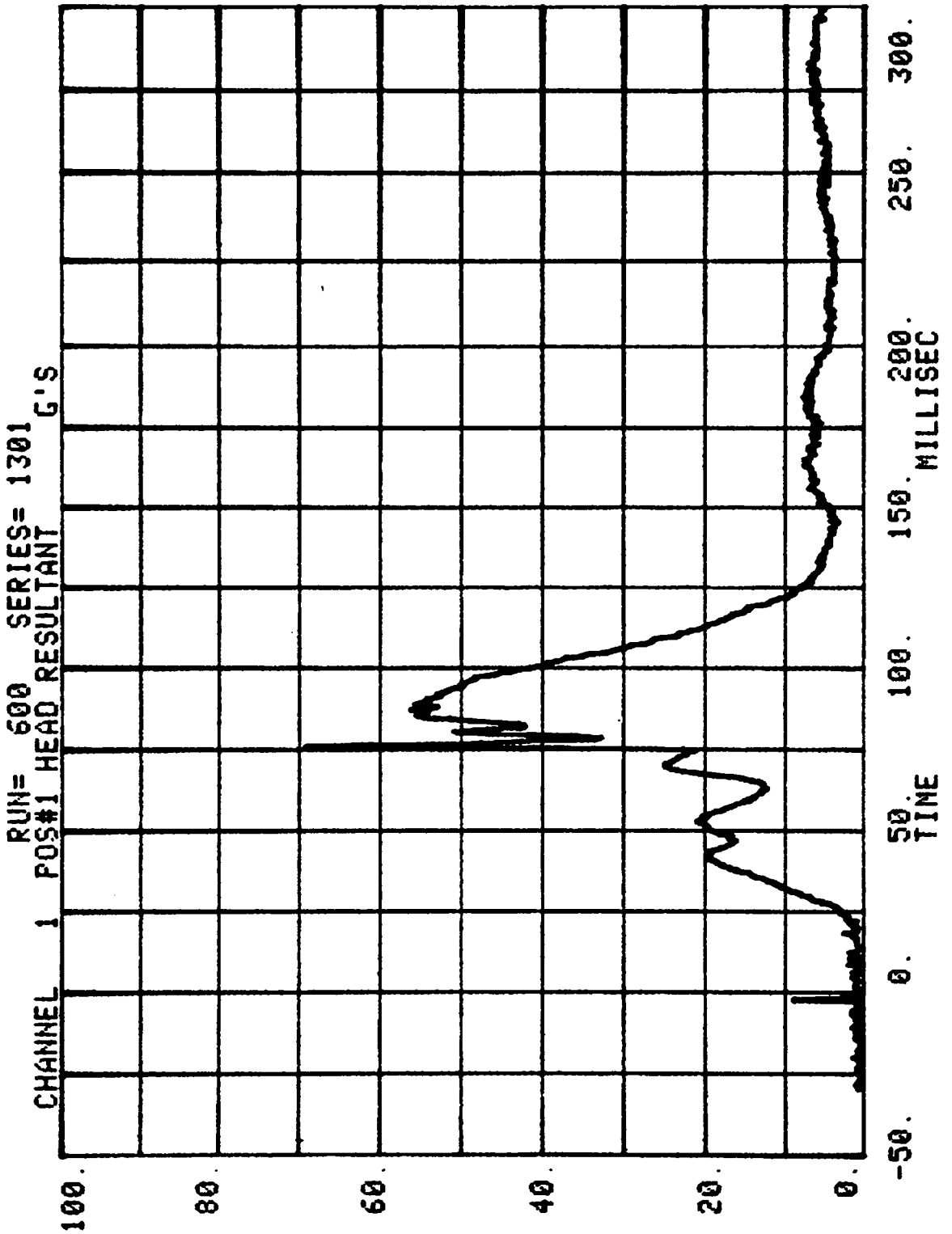
EVENT TIME= 300.0 MSEC

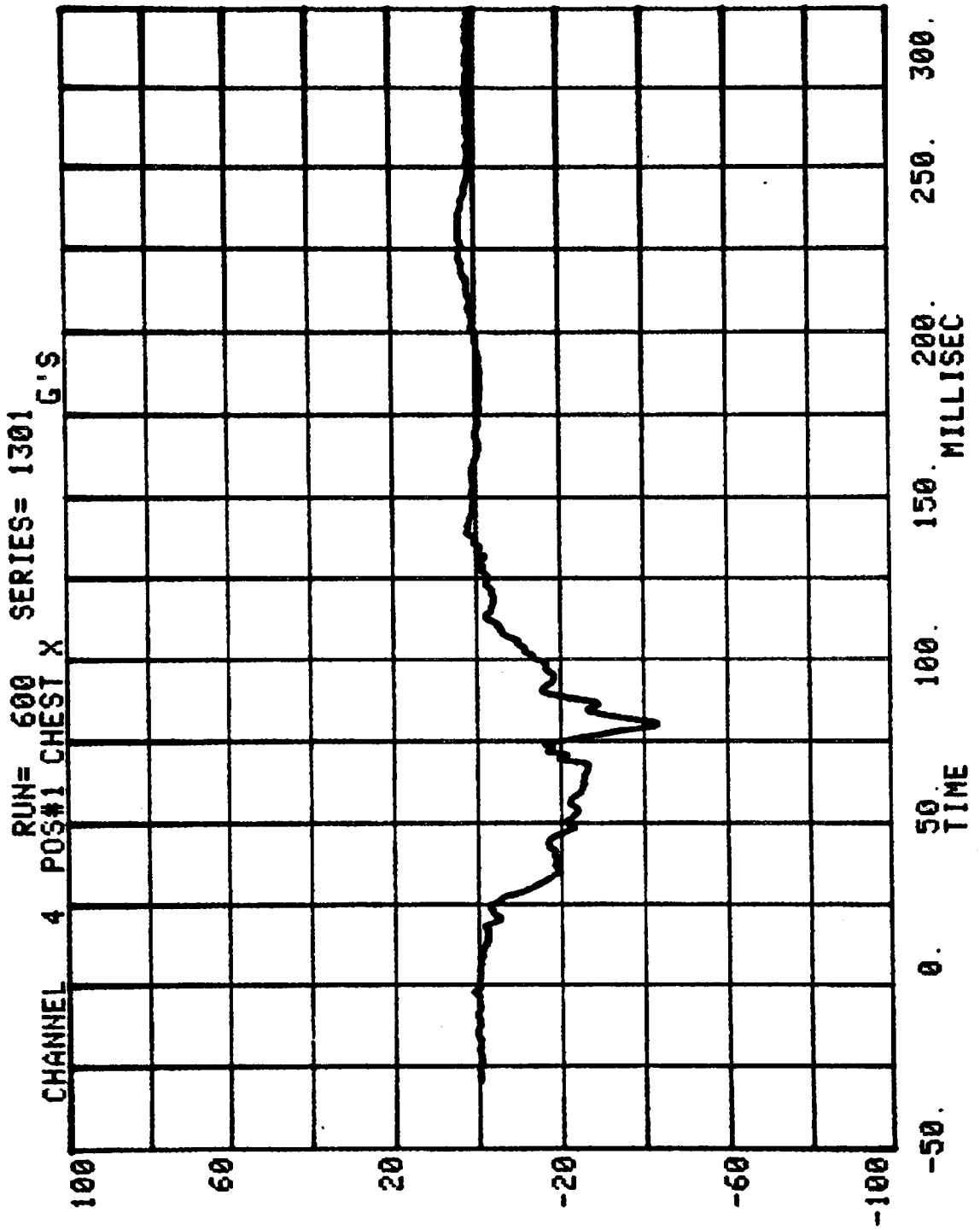
SEVERITY INDEX= 588.2

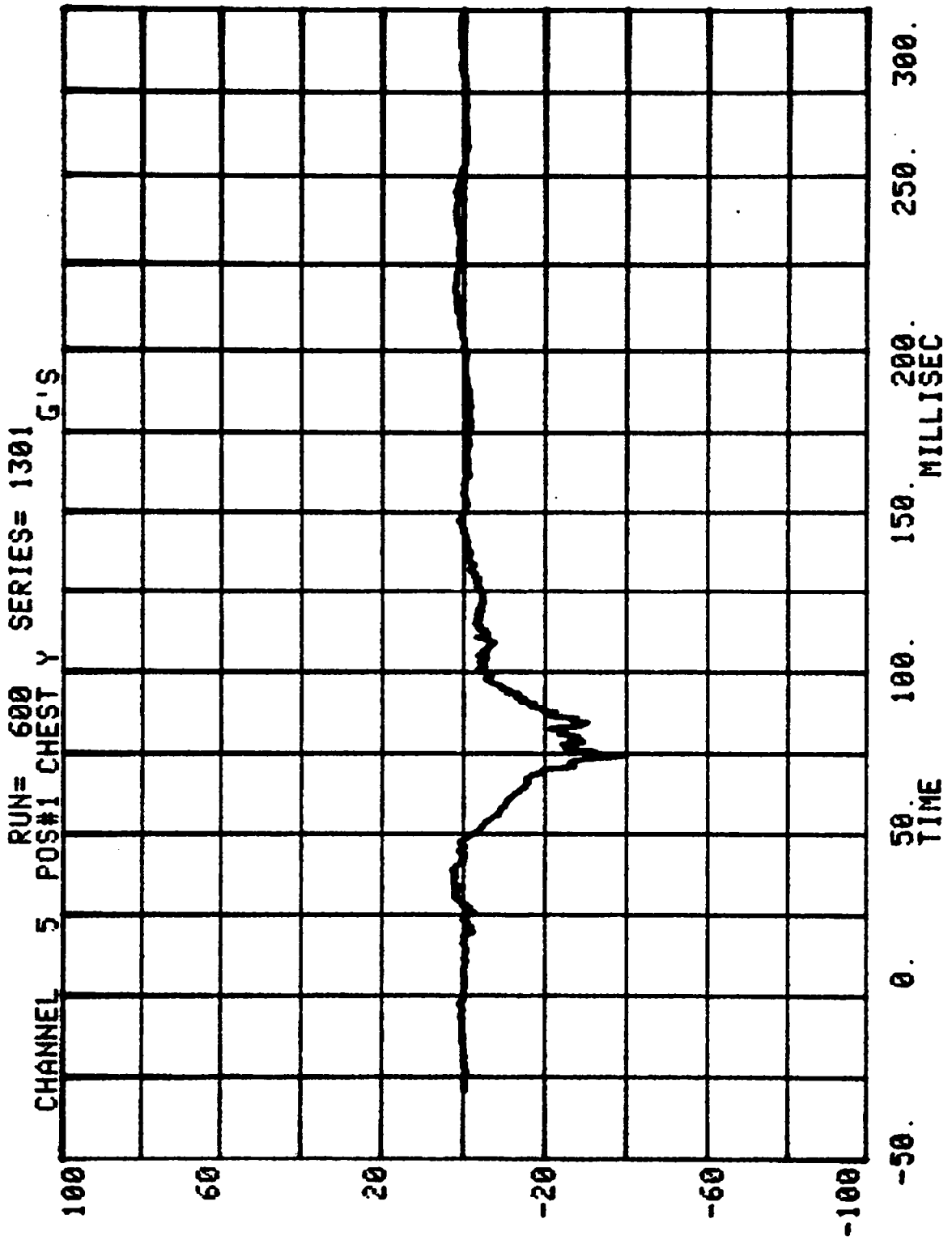

CHANNEL 1 POS#1 HEAD X
RUN= 600 SERIES= 1301
G'S
100
60
20
-20
-60
-100
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

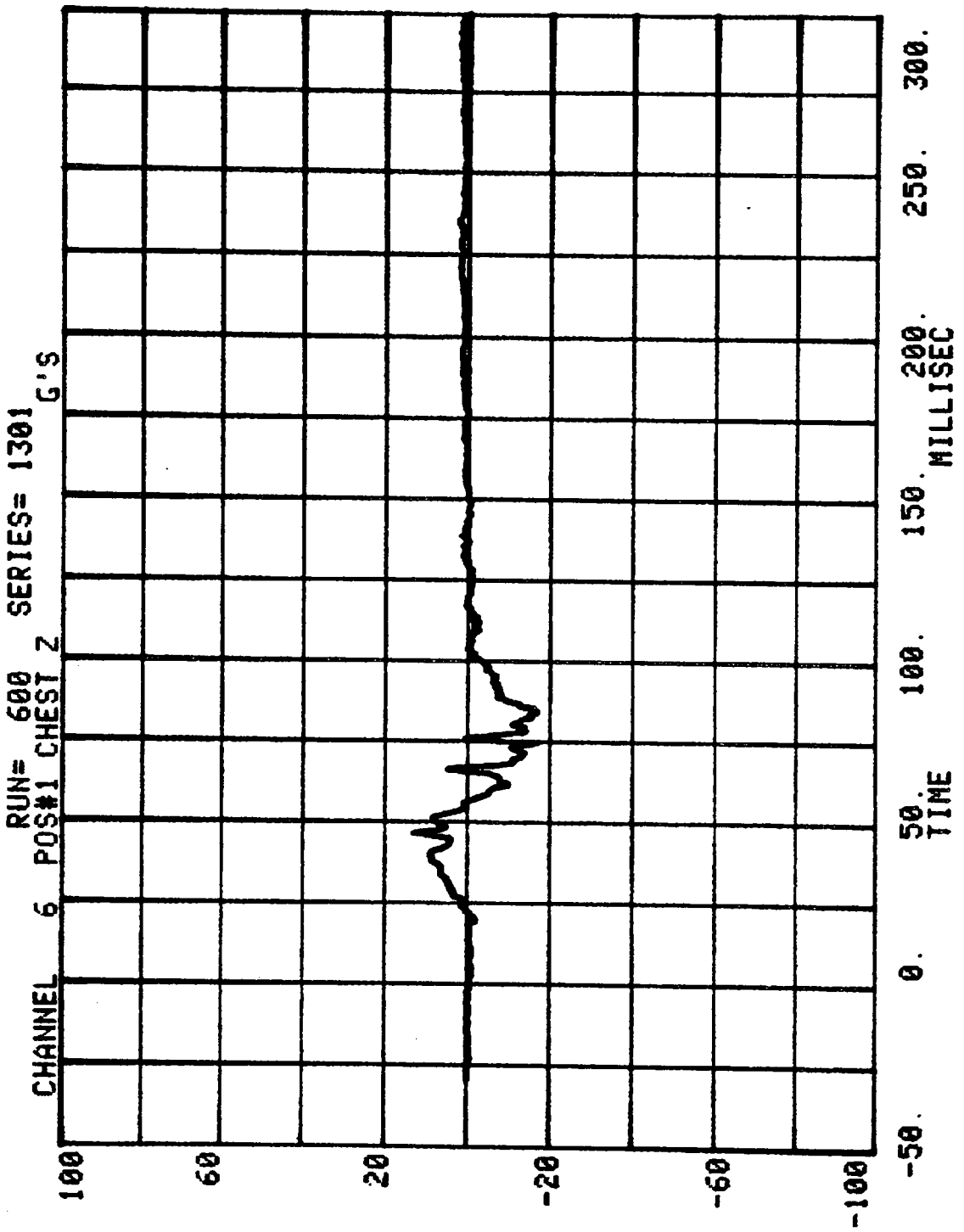

CHANNEL 2 POS#1 HEAD Y
RUN= 600 SERIES= 1301
G'S
100
60
20
-20
-60
-100
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

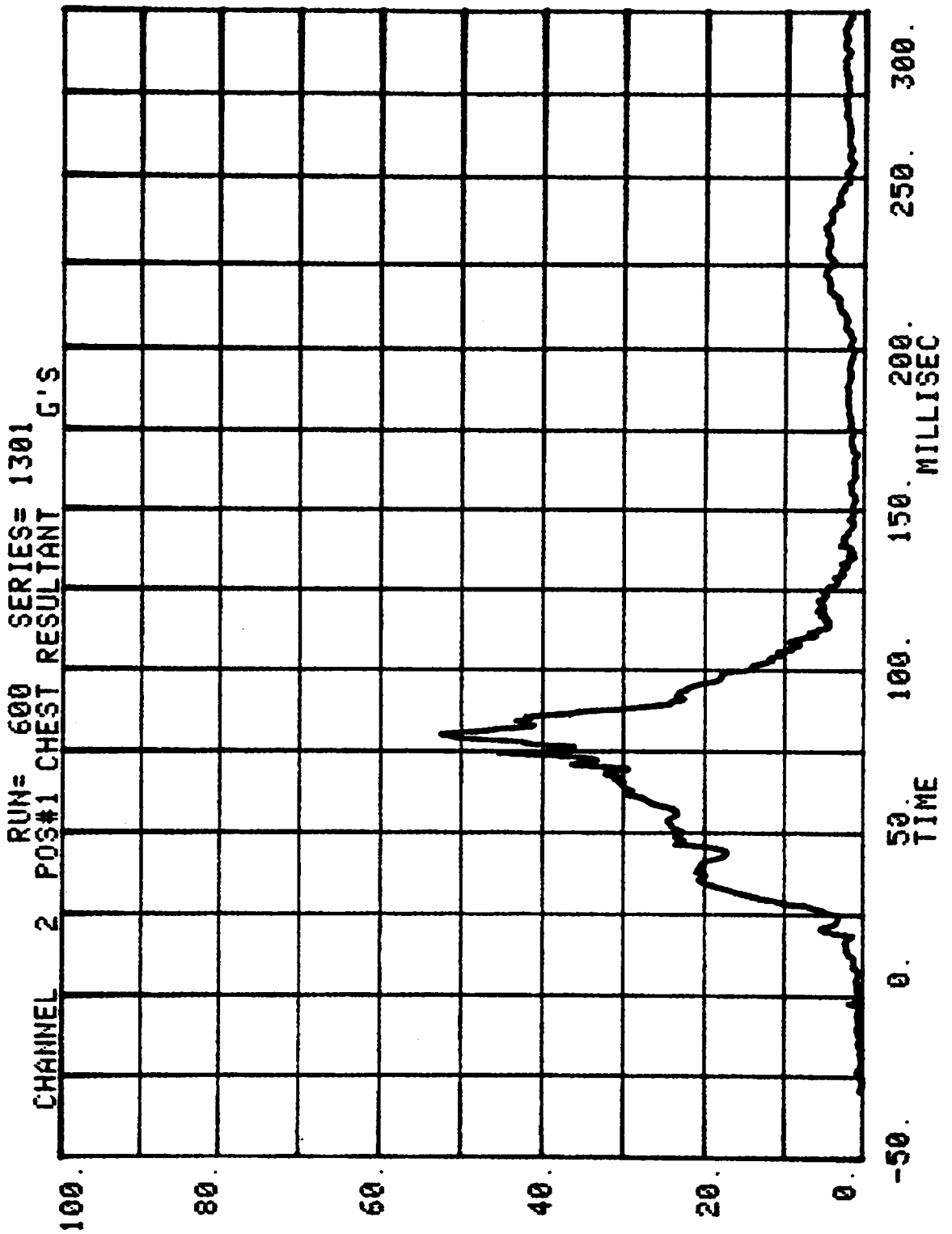

CHANNEL 3 POS#1 HEAD Z
RUN= 600 SERIES= 1301
G'S
100
60
20
-20
-60
-100
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

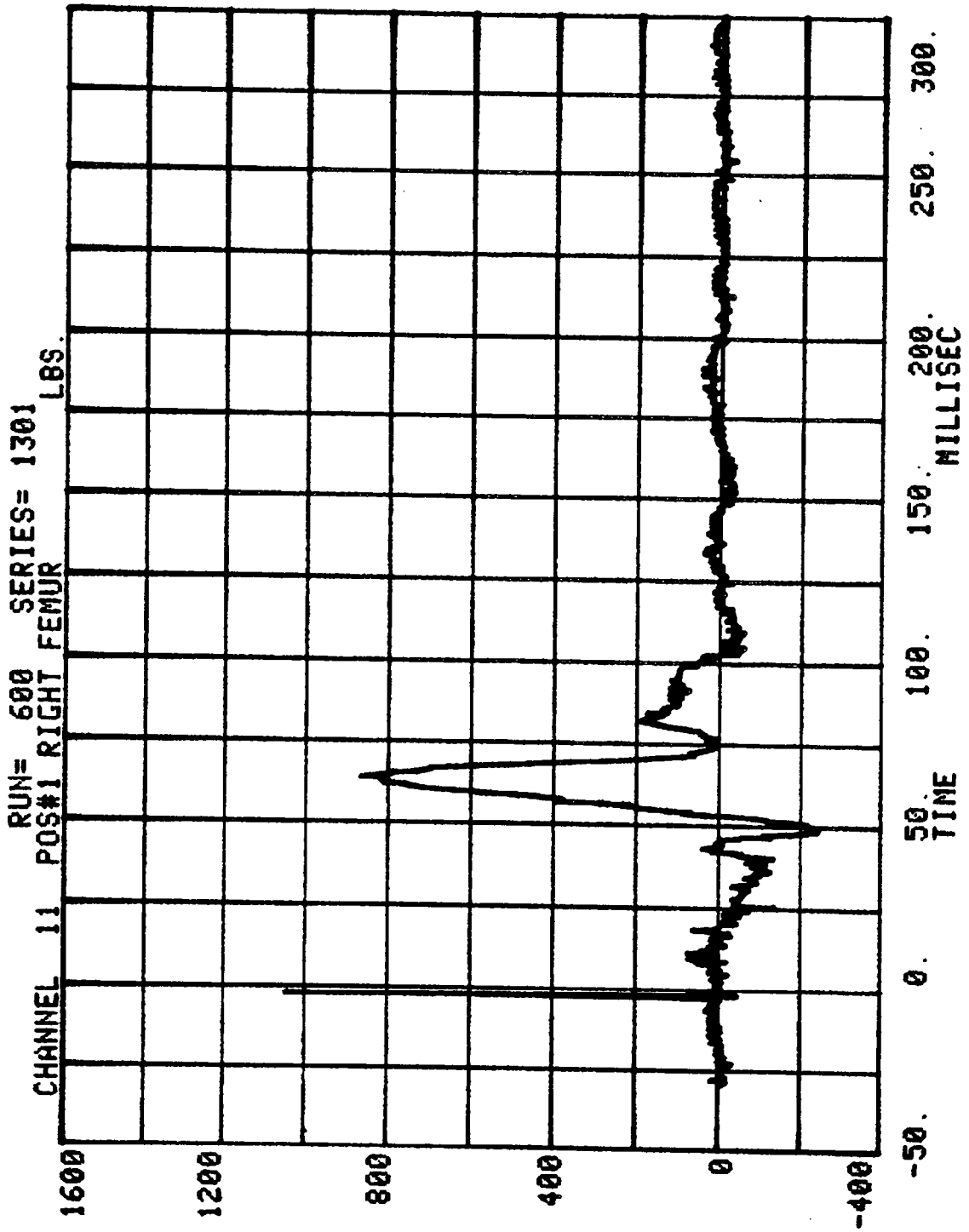

CHANNEL 1 POS#1 HEAD RESULTANT
RUN= 600 SERIES= 1301
G'S
100.
80.
60.
40.
20.
0.
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

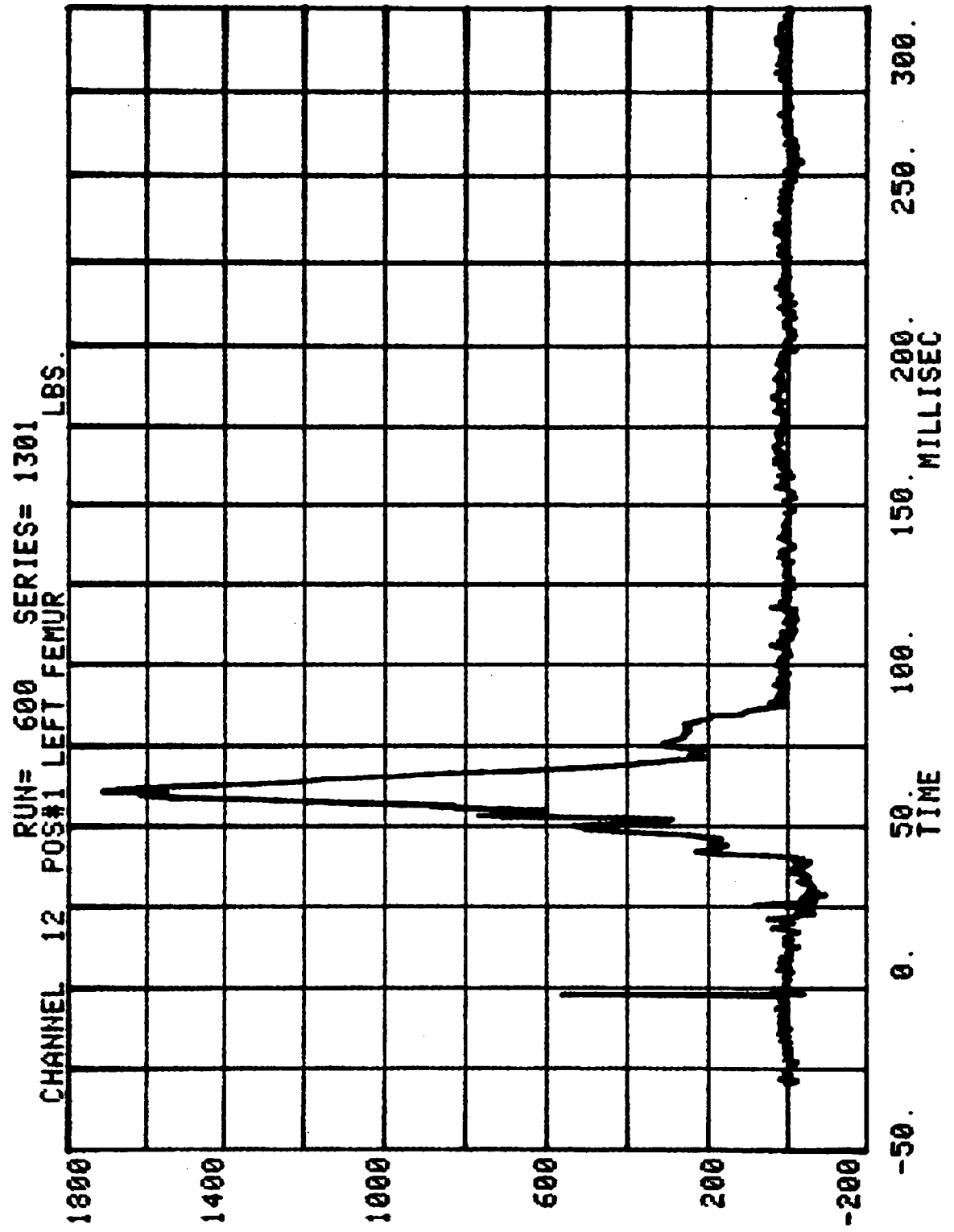

CHANNEL 4 POS#1 CHEST X
RUN= 600 SERIES= 1301
G'S
100
60
20
-20
-60
-100
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

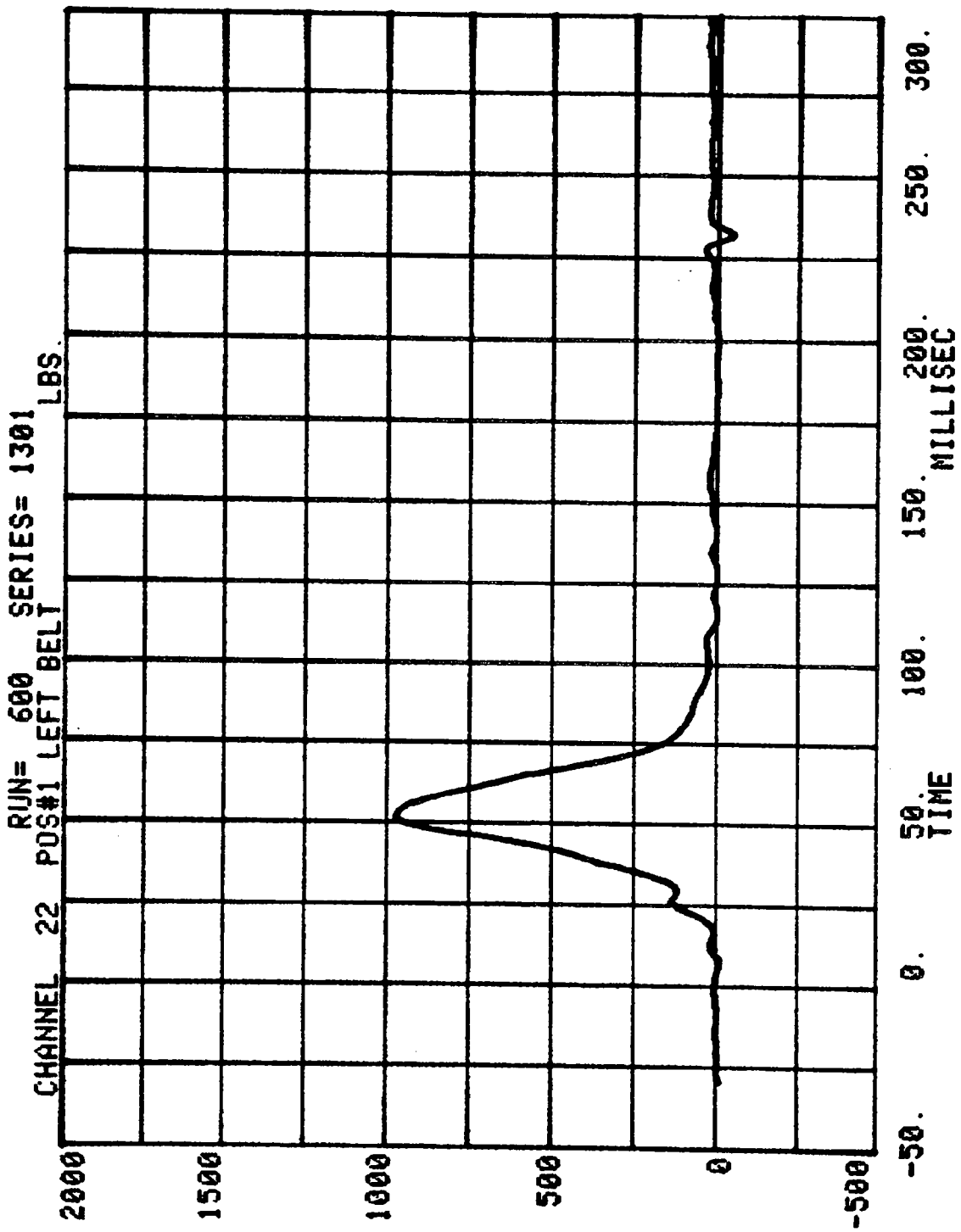

CHANNEL 5 POS#1 CHEST Y
RUN= 600 SERIES= 1301
G'S
100
60
20
-20
-60
-100
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

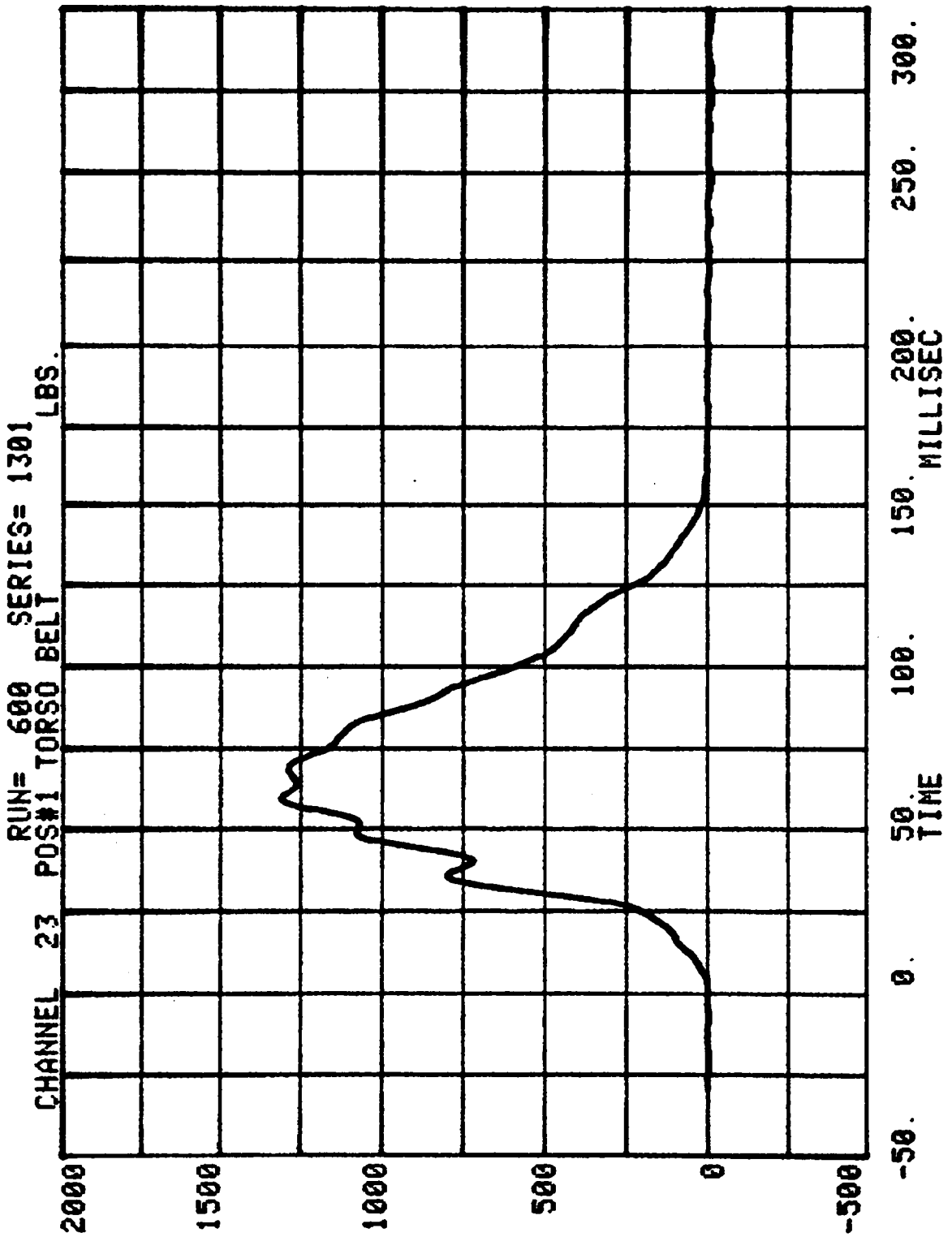

CHANNEL 6 POS#1 CHEST Z
RUN= 600 SERIES= 1301
G'S
100
60
20
-20
-60
-100
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

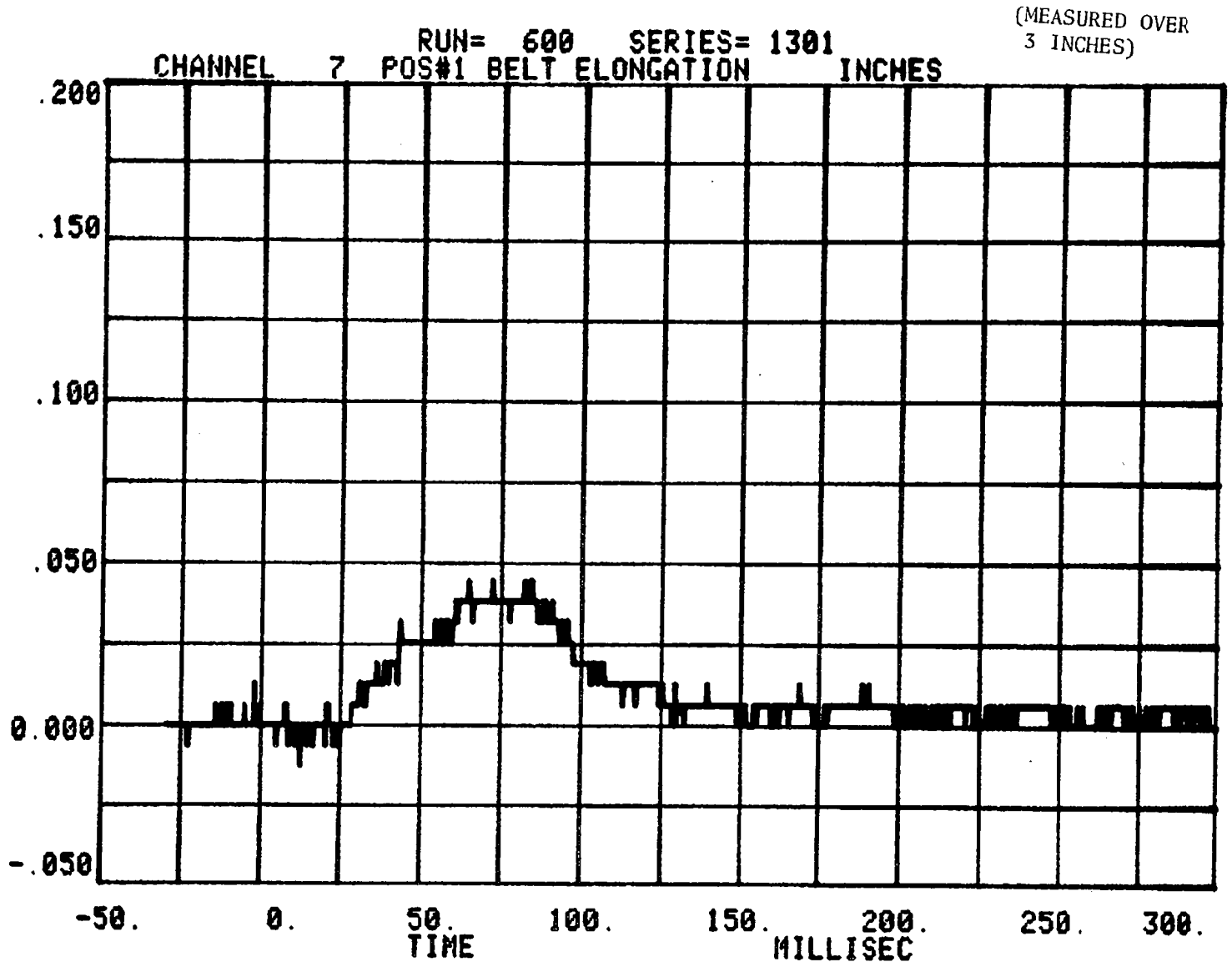

CHANNEL 2 RUN= 600 SERIES= 1301
POS#1 CHEST RESULTANT G'S
100.
80.
60.
40.
20.
0.
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

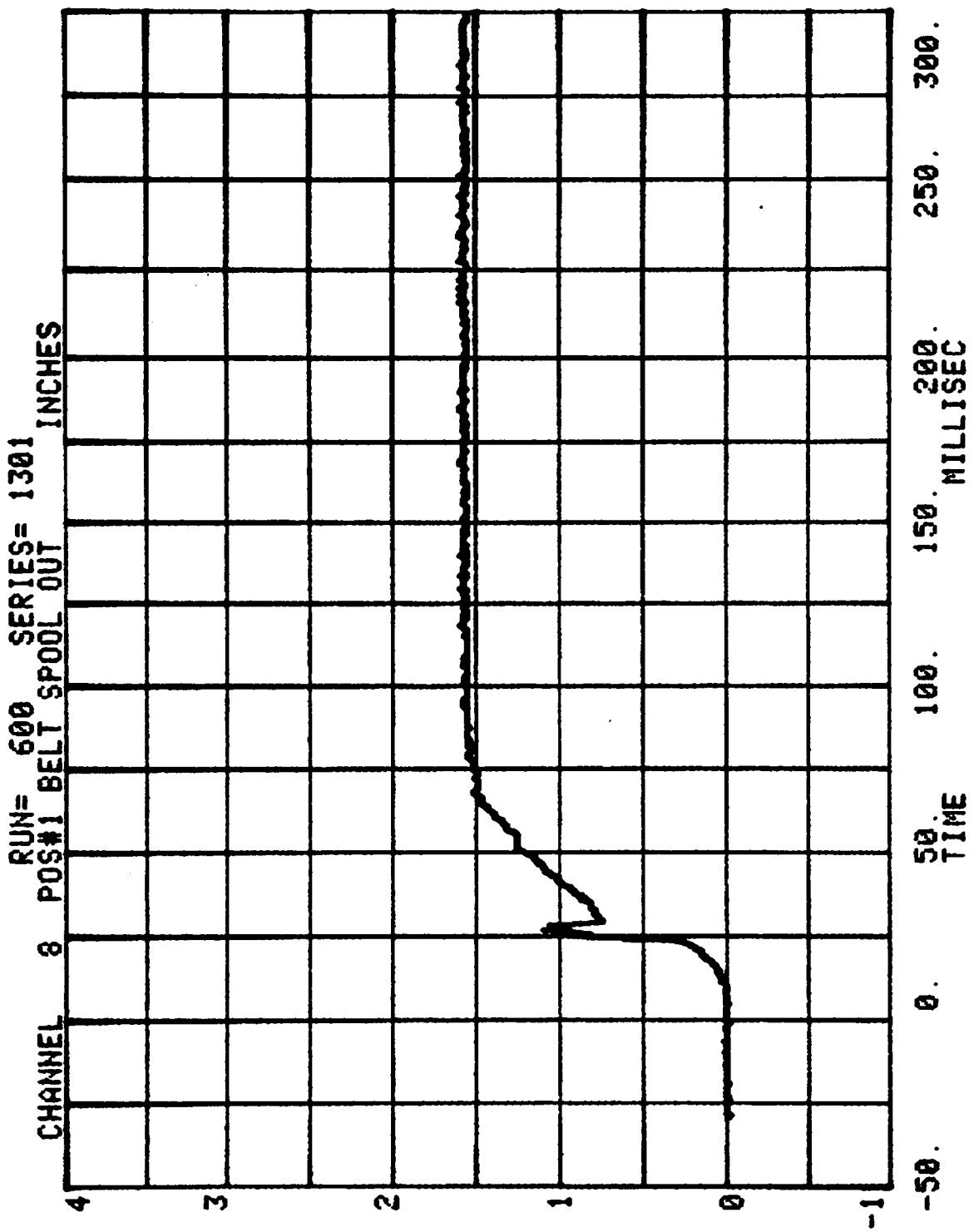

CHANNEL 11 POS#1 RIGHT FEMUR
RUN= 600 SERIES= 1301
LBS.
1600
1200
800
400
0
-400
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC


CHANNEL 12 POS#1 LEFT FEMUR
RUN= 600 SERIES= 1301
LBS.
1800
1400
1000
600
200
-200
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC


CHANNEL 22 POS#1 LEFT BELT
RUN= 600 SERIES= 1301
LBS.
2000
1500
1000
500
0
-500
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC


CHANNEL 23 POS#1 TORSO BELT
RUN= 600 SERIES= 1301
LBS.
2000
1500
1000
500
0
-500
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC


RUN= 600 SERIES= 1301
CHANNEL 7 POS#1 BELT ELONGATION INCHES
(MEASURED OVER 3 INCHES)
.200
.150
.100
.050
0.000
-.050
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC


CHANNEL 8 POS#1 BELT SPOOL OUT
RUN= 600 SERIES= 1301
INCHES
4
3
2
1
0
-1
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

HEAD INJURY CRITERION
HEAD SEVERITY INDEX

CAR TO LOAD CELL BARRIER

RUN= 600

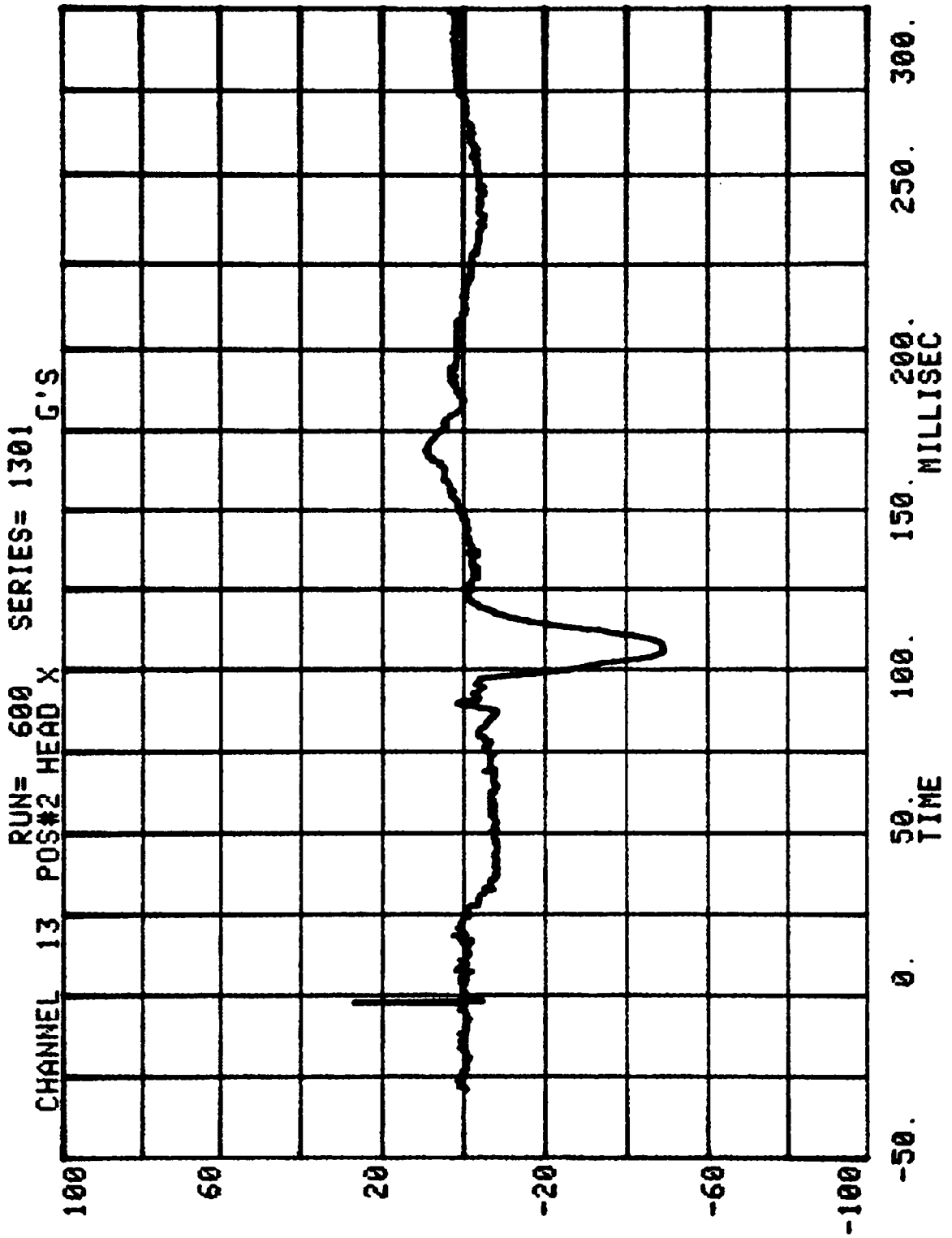
POS#2 HEAD RESULTANT

HIC= 439.7 FROM T1= .08175 TO T2= .11625

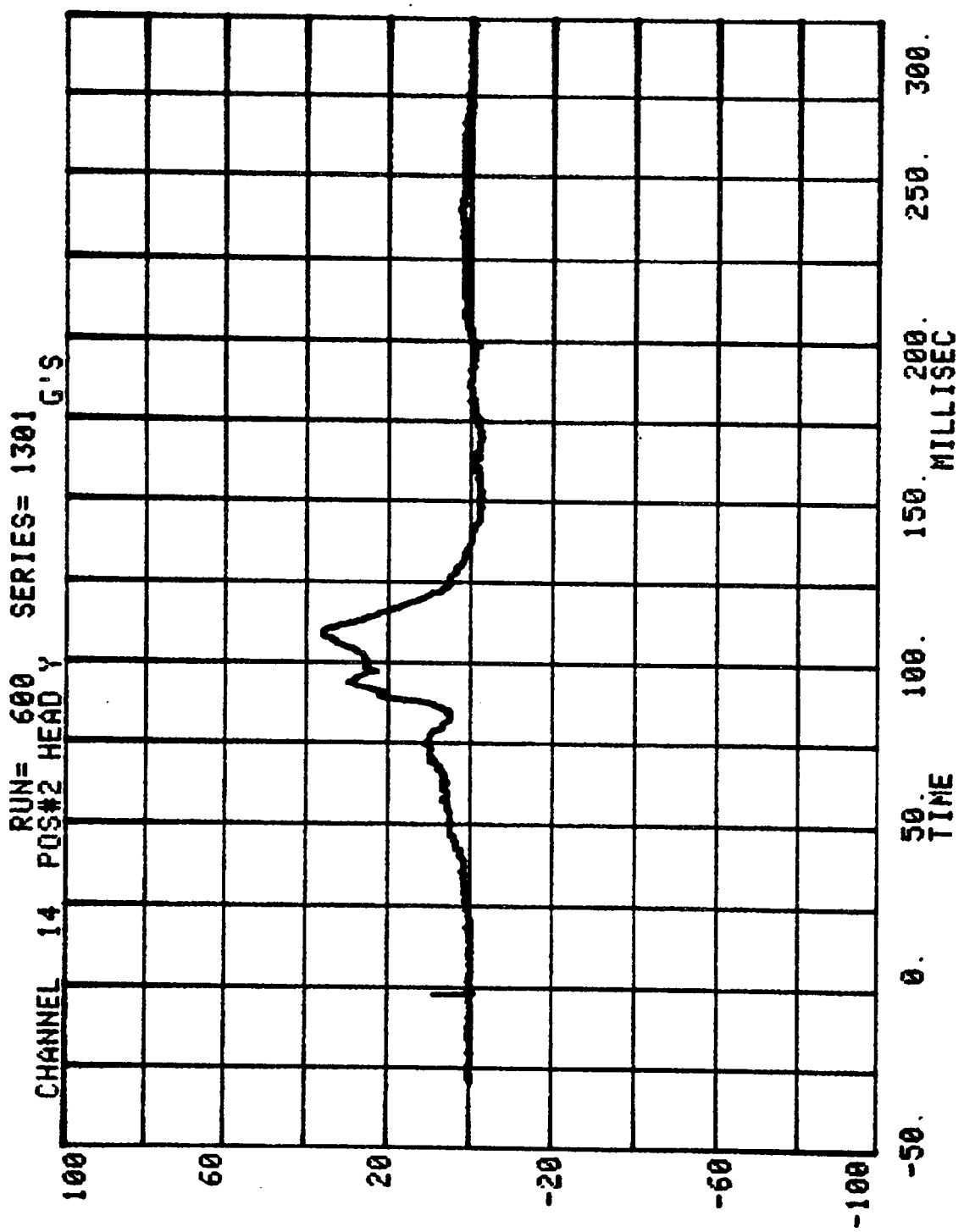
AVERAGE ACCELERATION BETWEEN T1 AND T2= 43.9G'S

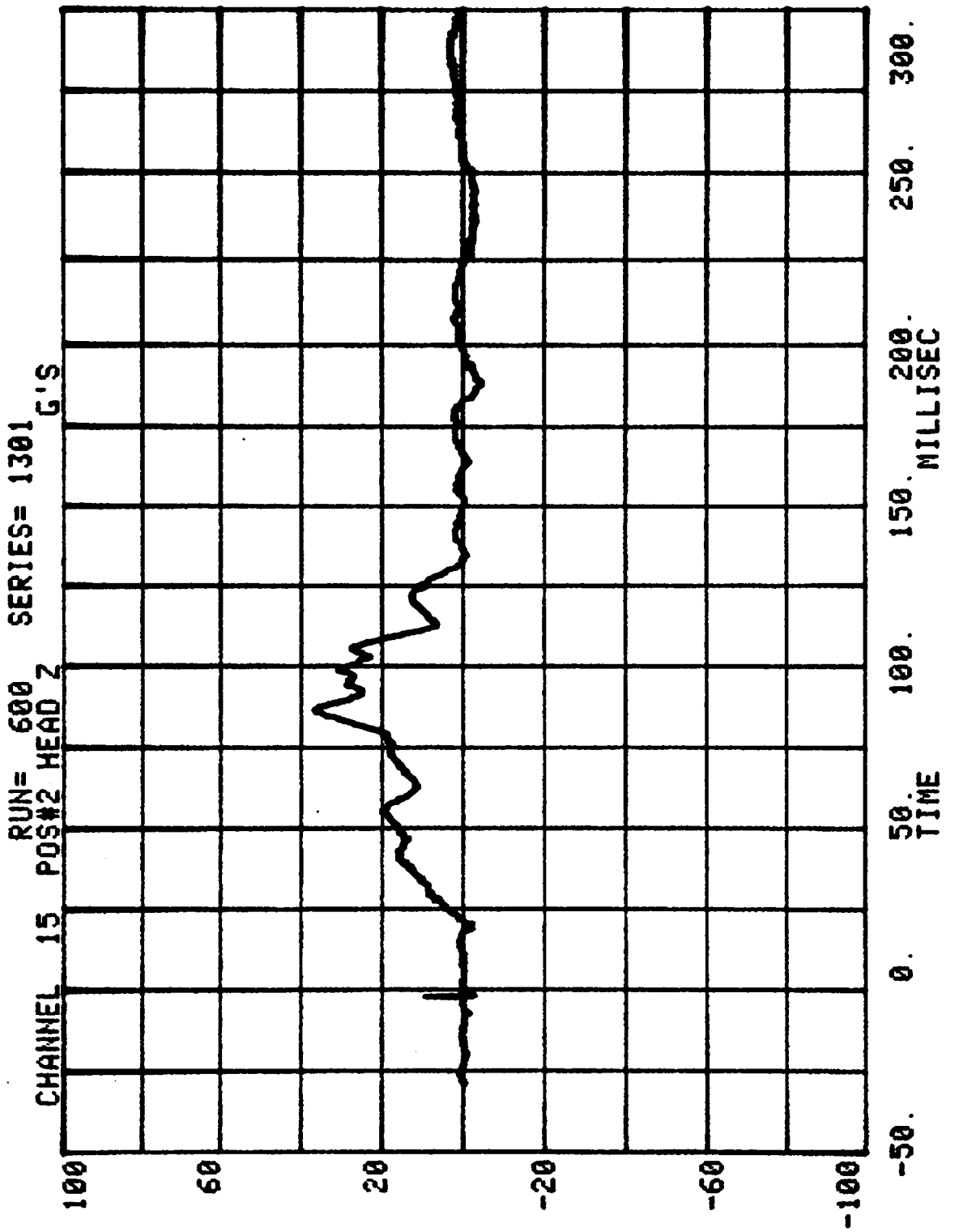
EVENT TIME= 300.0 MSEC

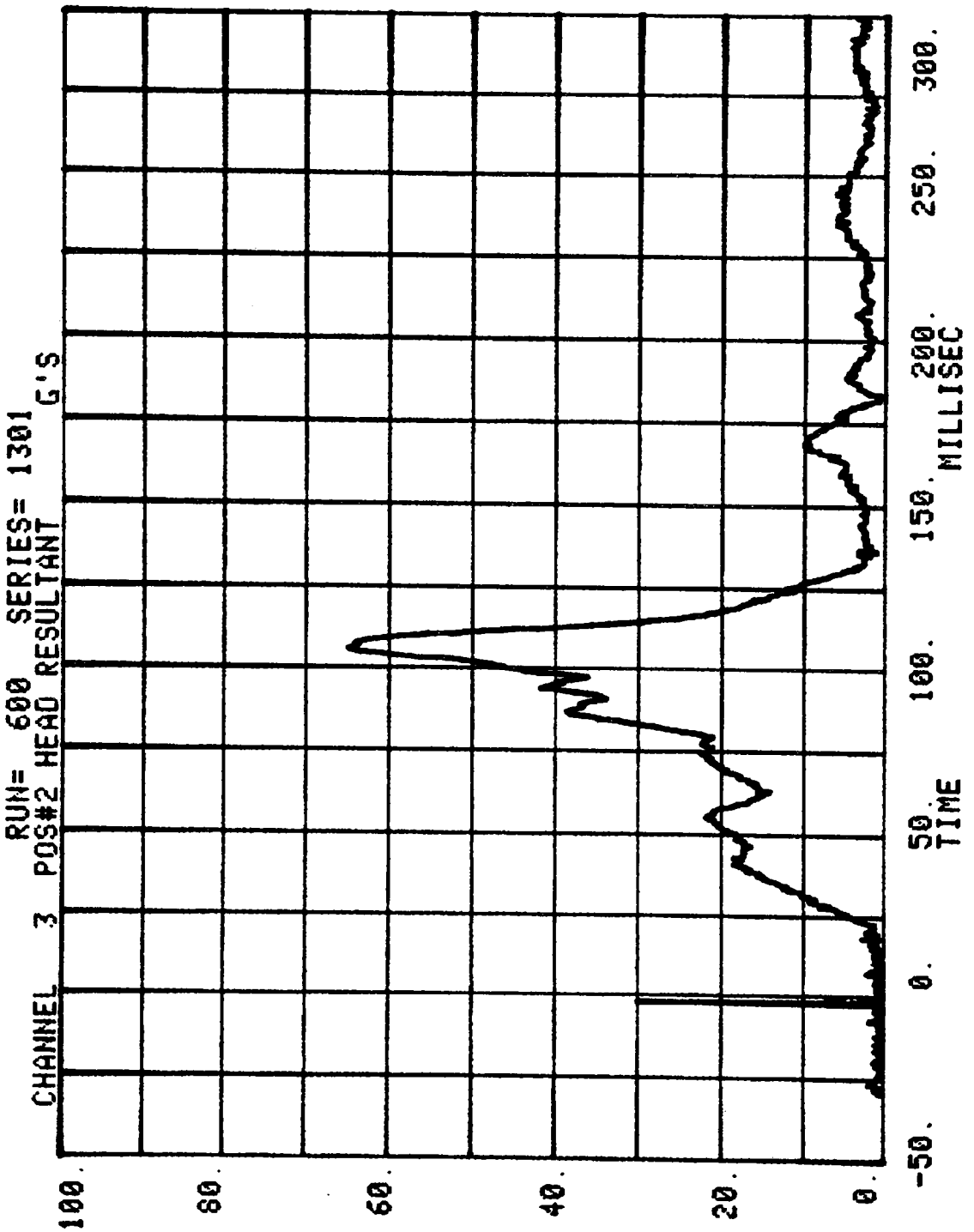
SEVERITY INDEX= 589.1

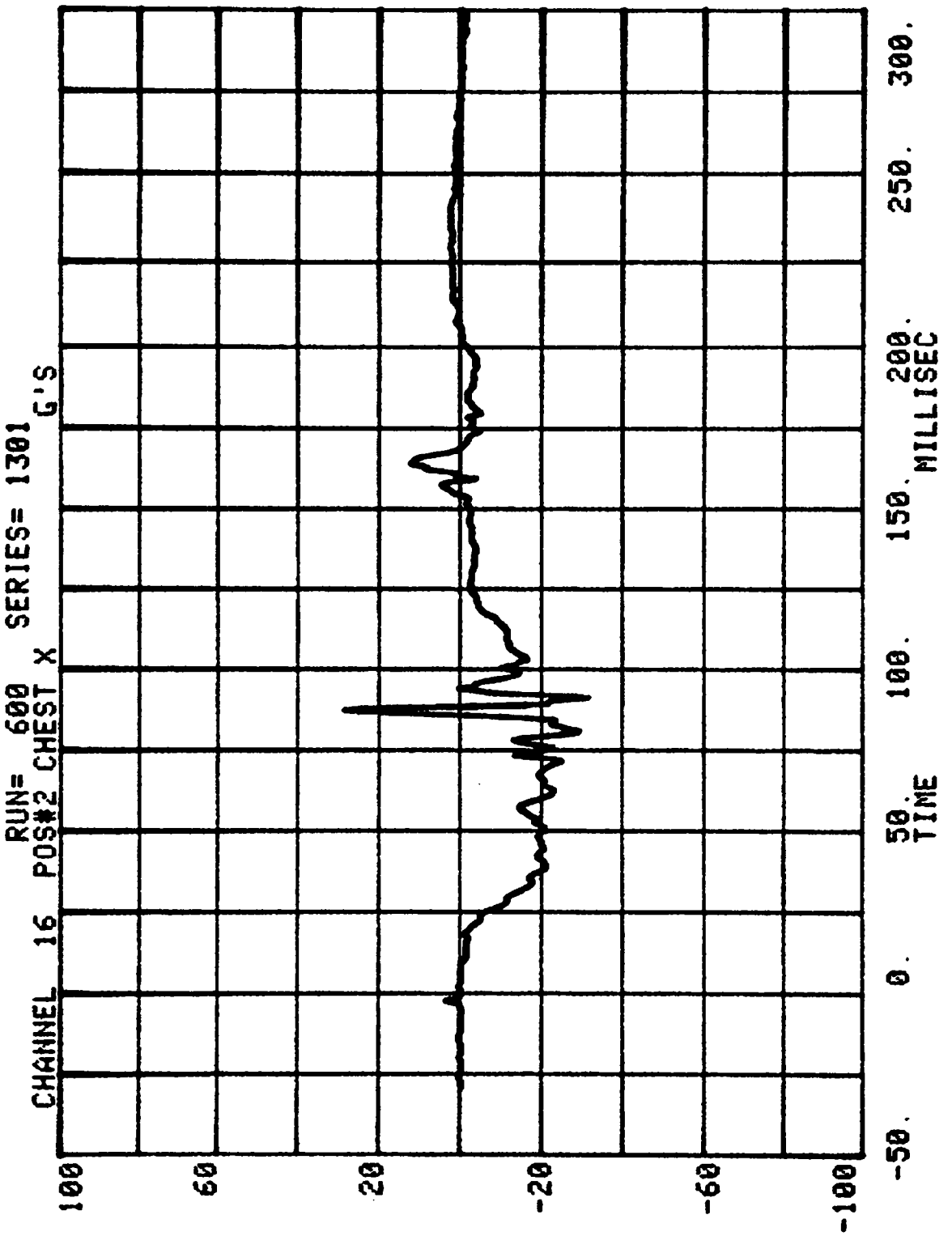

CHANNEL 13 POS#2 HEAD X
RUN= 600 SERIES= 1301
G'S
100
60
20
-20
-60
-100
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

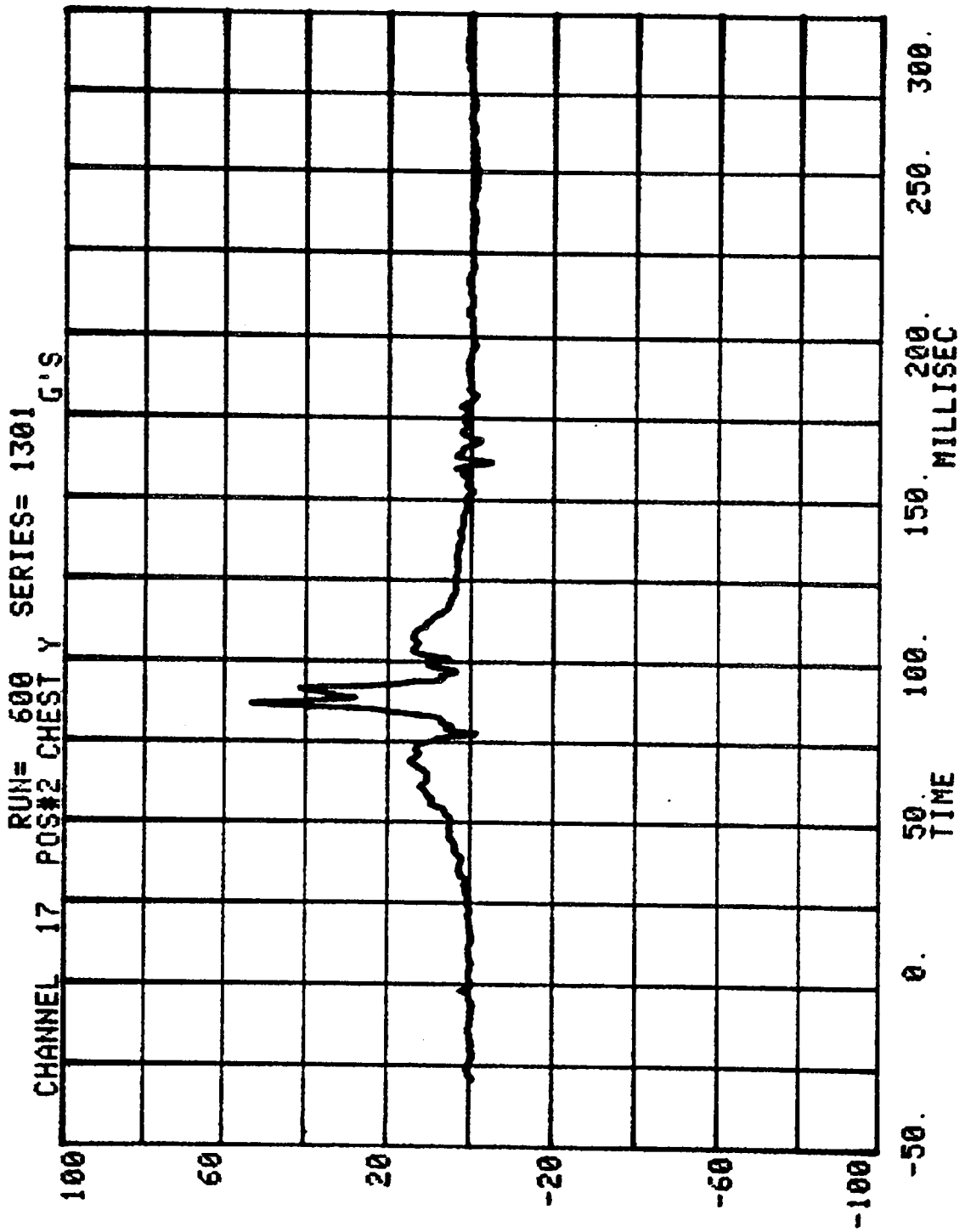
7209-6

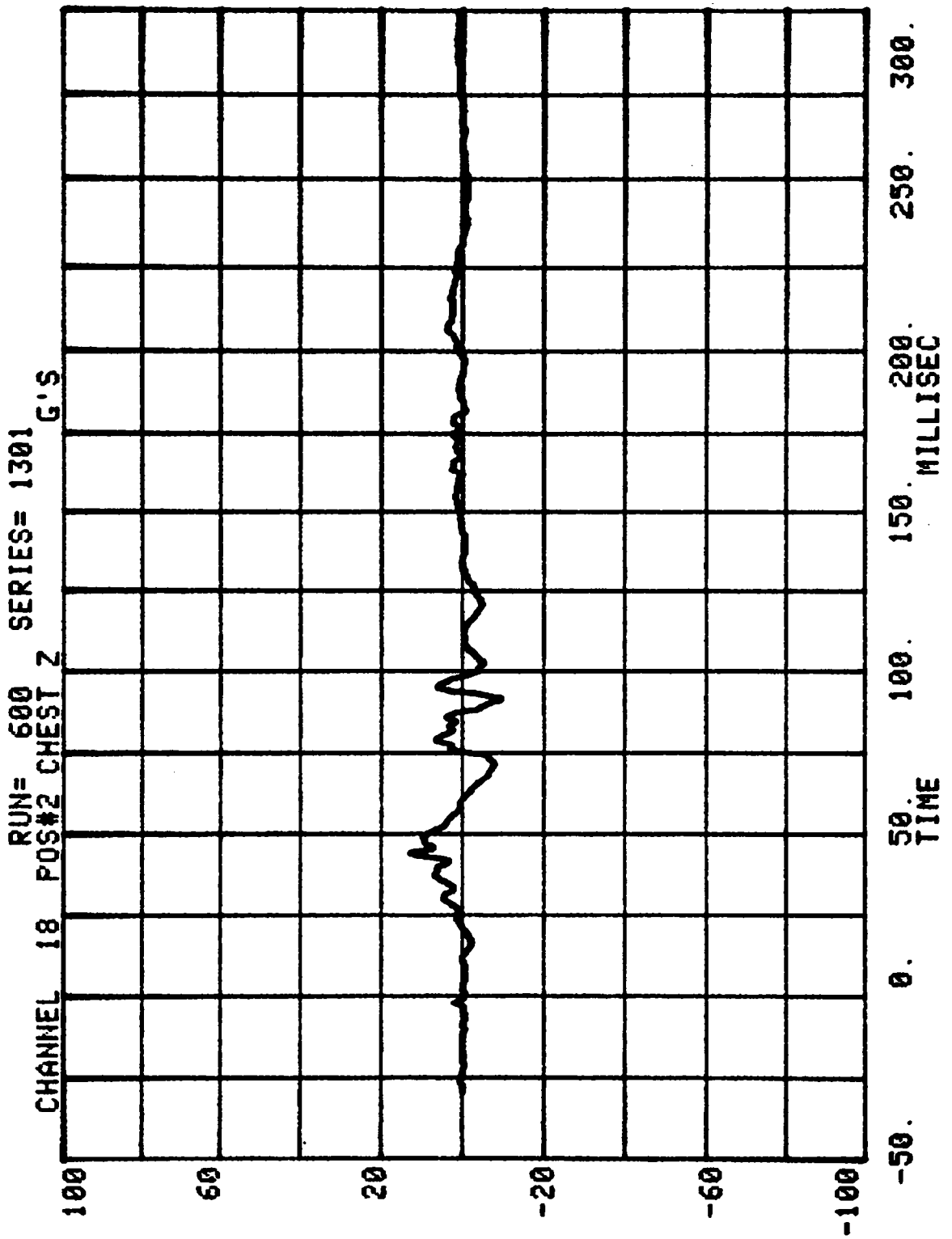

CHANNEL 14 POS#2 HEAD Y
RUN= 600 SERIES= 1301
G'S
100
60
20
-20
-60
-100
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

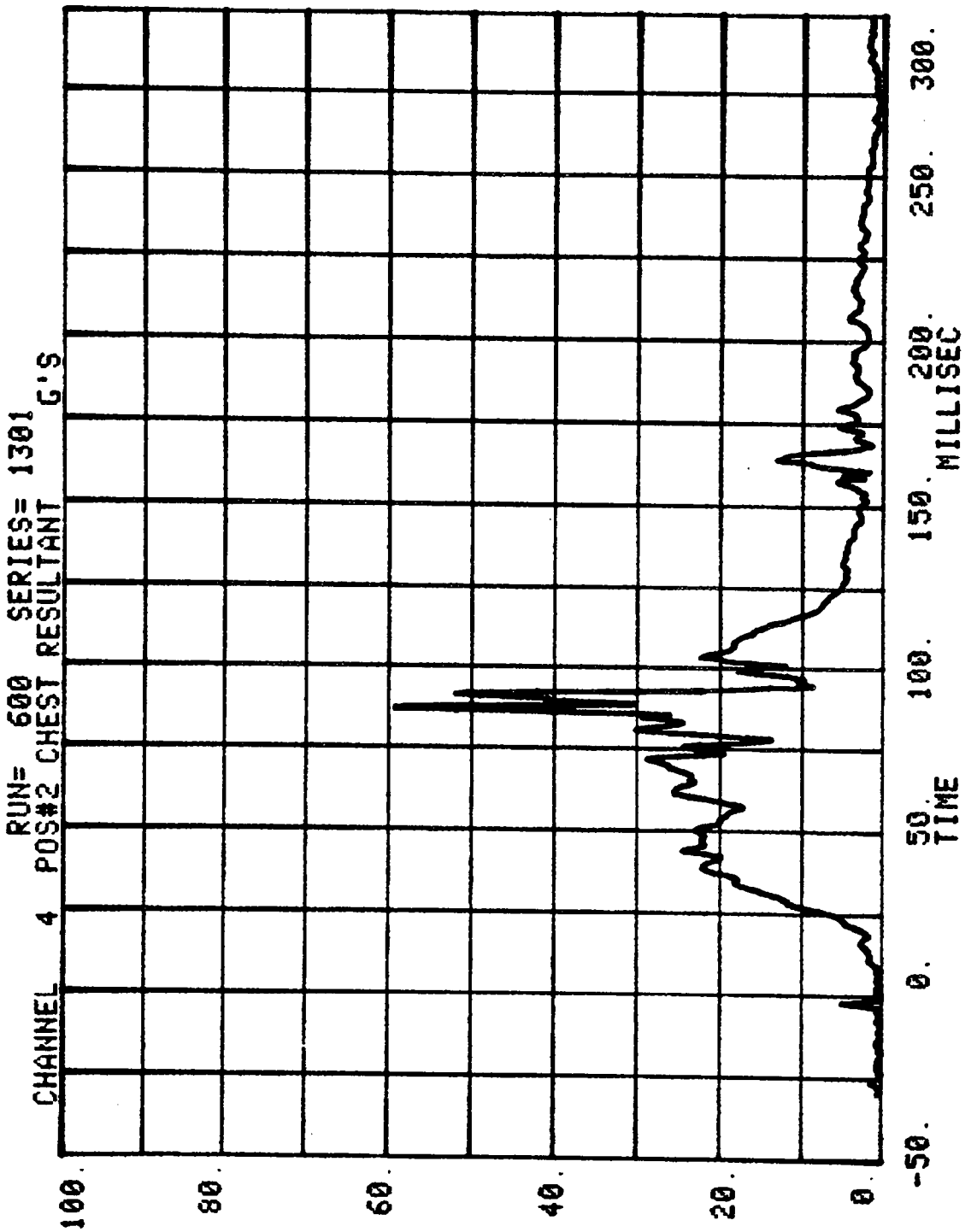

CHANNEL 15 POS#2 HEAD 2
RUN= 600 SERIES= 1301
G'S
100
60
20
-20
-60
-100
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

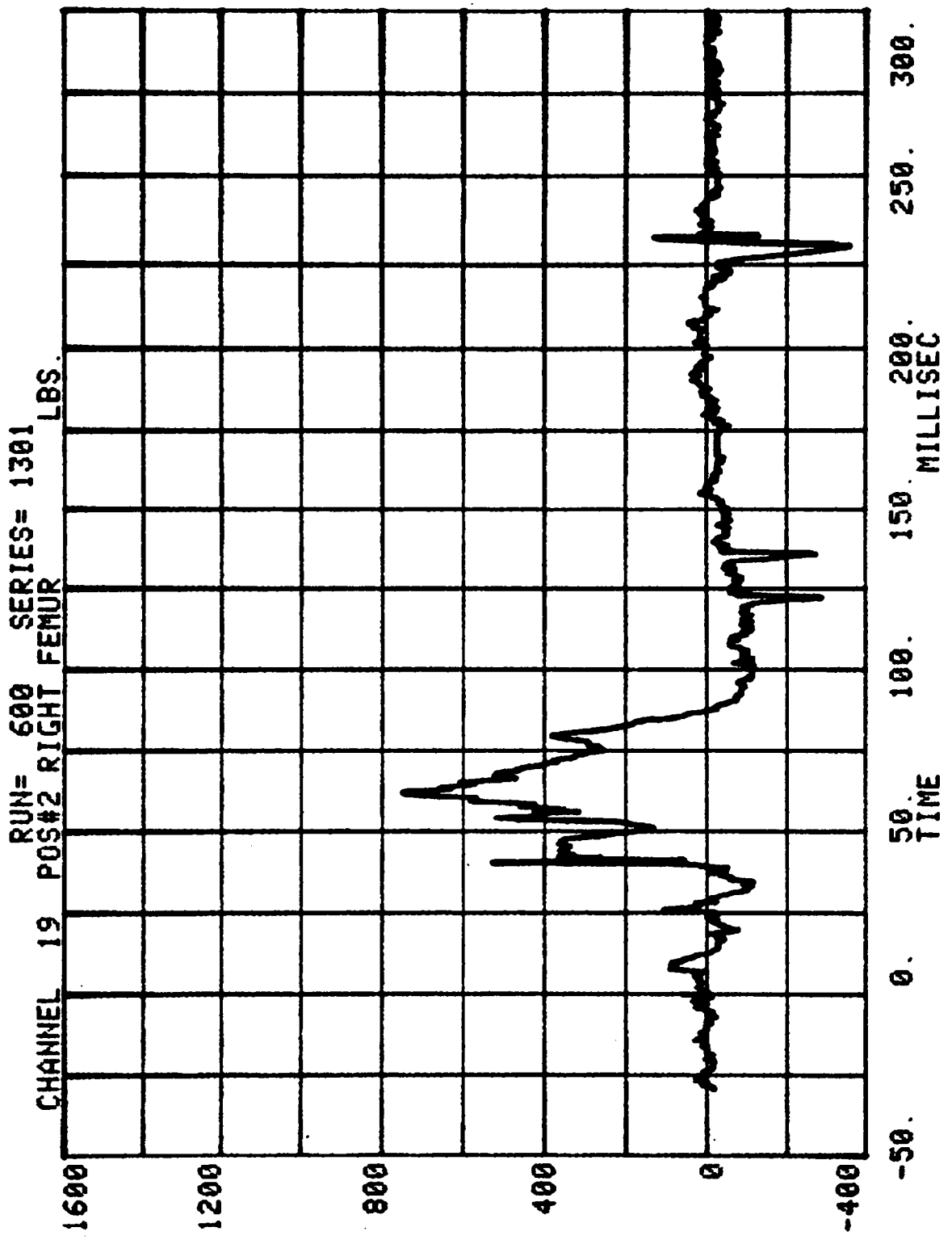

CHANNEL 3 POS#2 HEAD RESULTANT
RUN= 600 SERIES= 1301
G'S
100.
80.
60.
40.
20.
0.
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

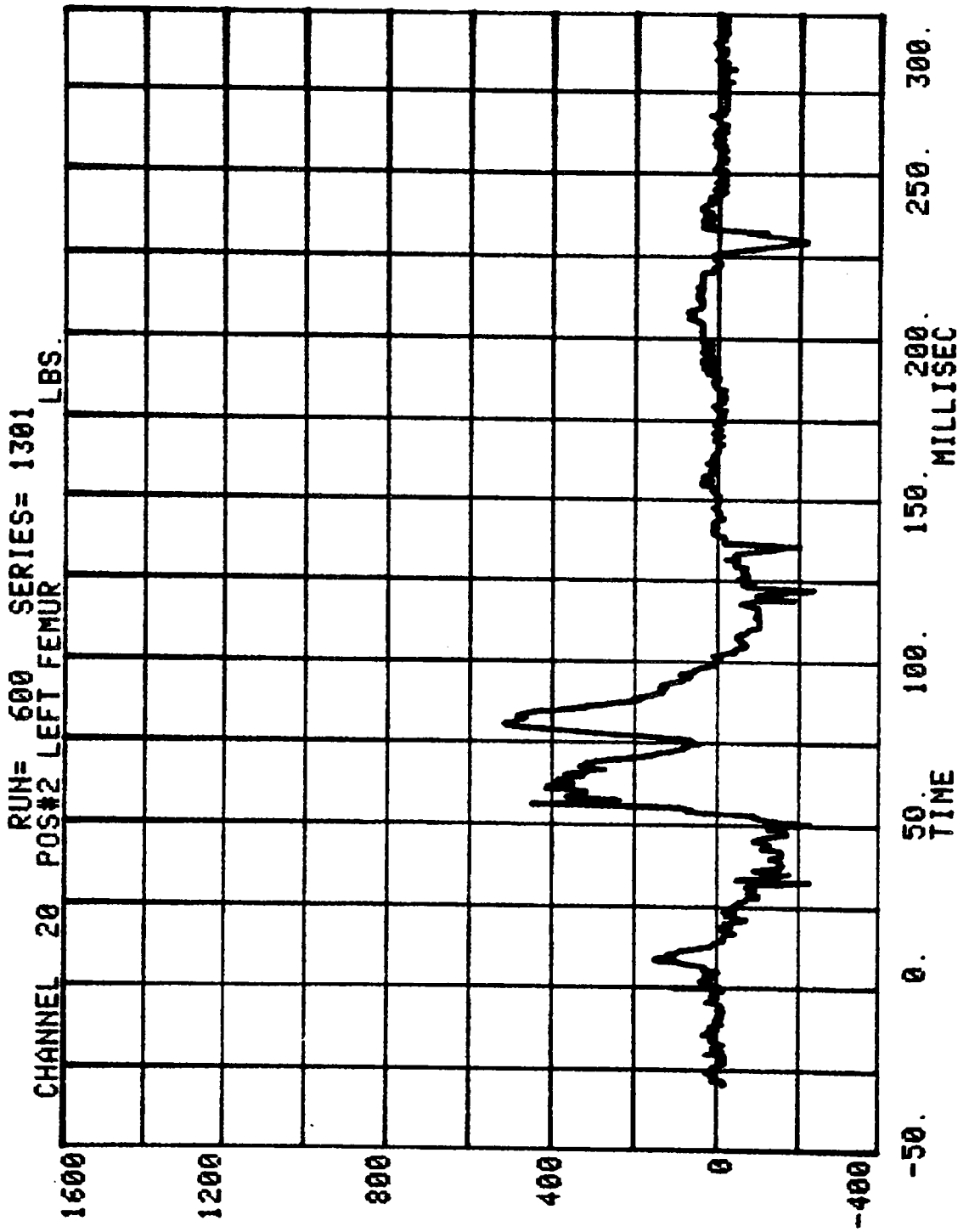

CHANNEL 16 POS#2 CHEST X
RUN= 600 SERIES= 1301
G'S
100
60
20
-20
-60
-100
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

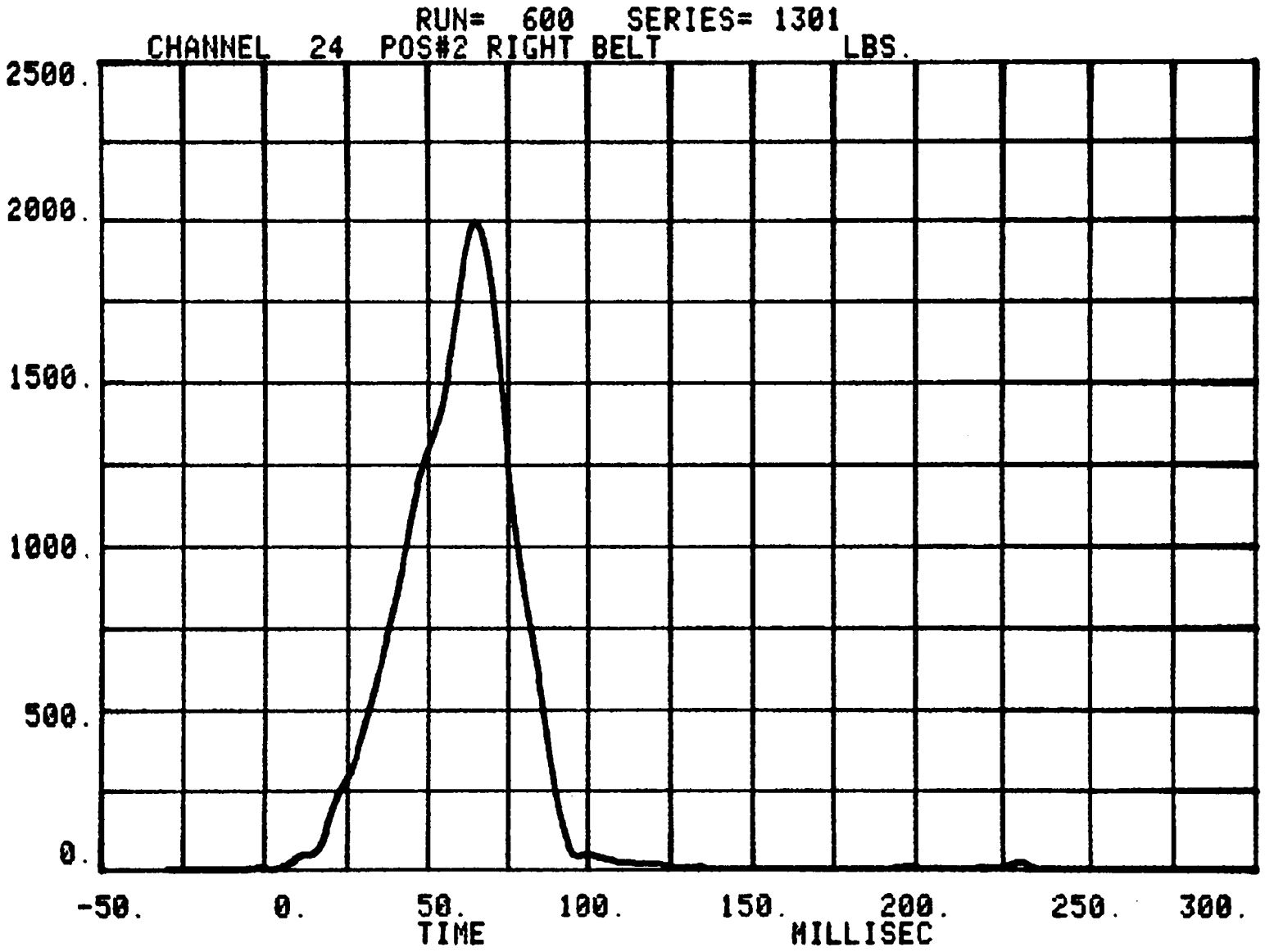

CHANNEL 17 POS#2 CHEST Y
RUN= 600 SERIES= 1301
G'S
100
60
20
-20
-60
-100
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

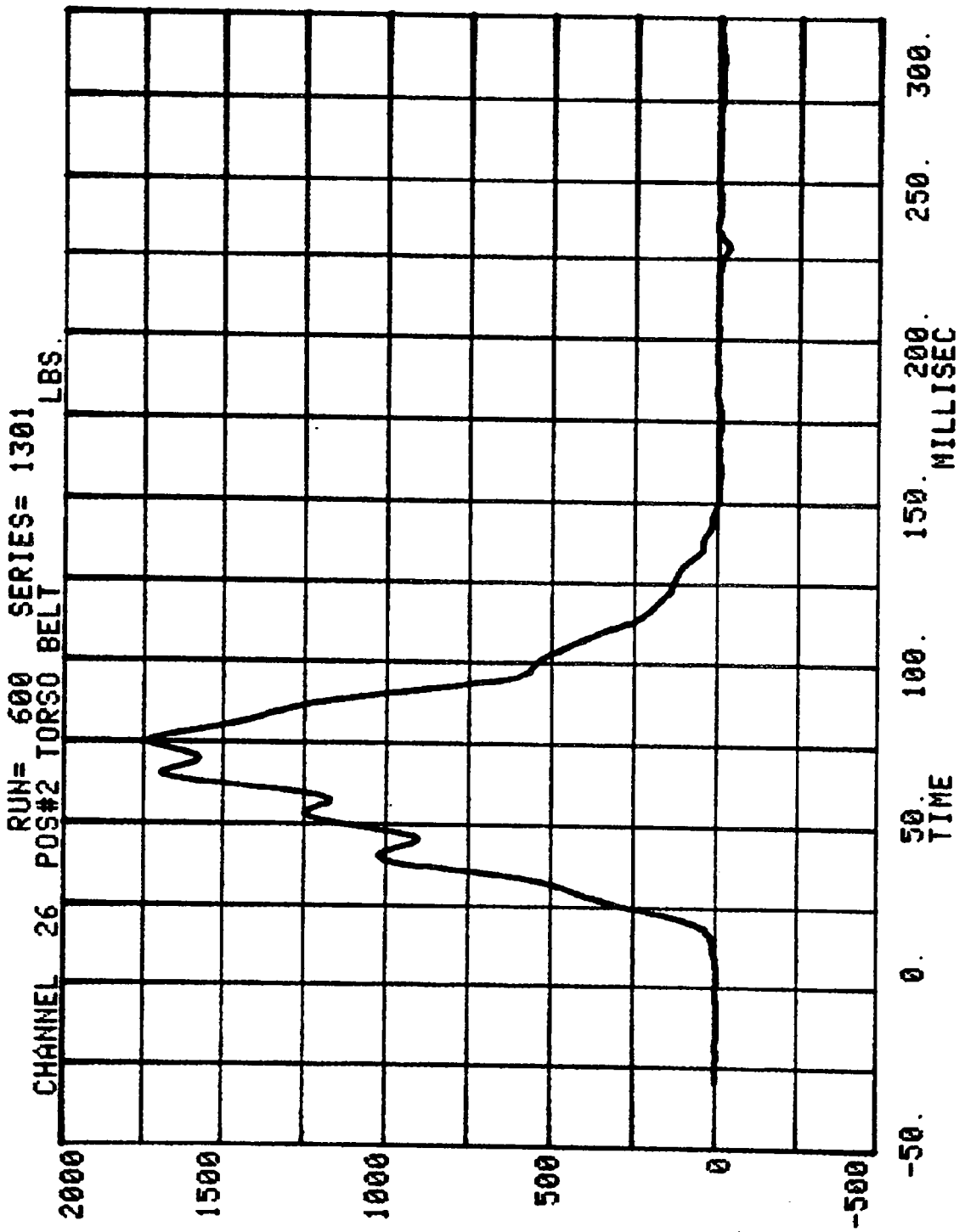

CHANNEL 18 POS#2 CHEST Z
RUN= 600 SERIES= 1301
G'S
100
60
20
-20
-60
-100
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

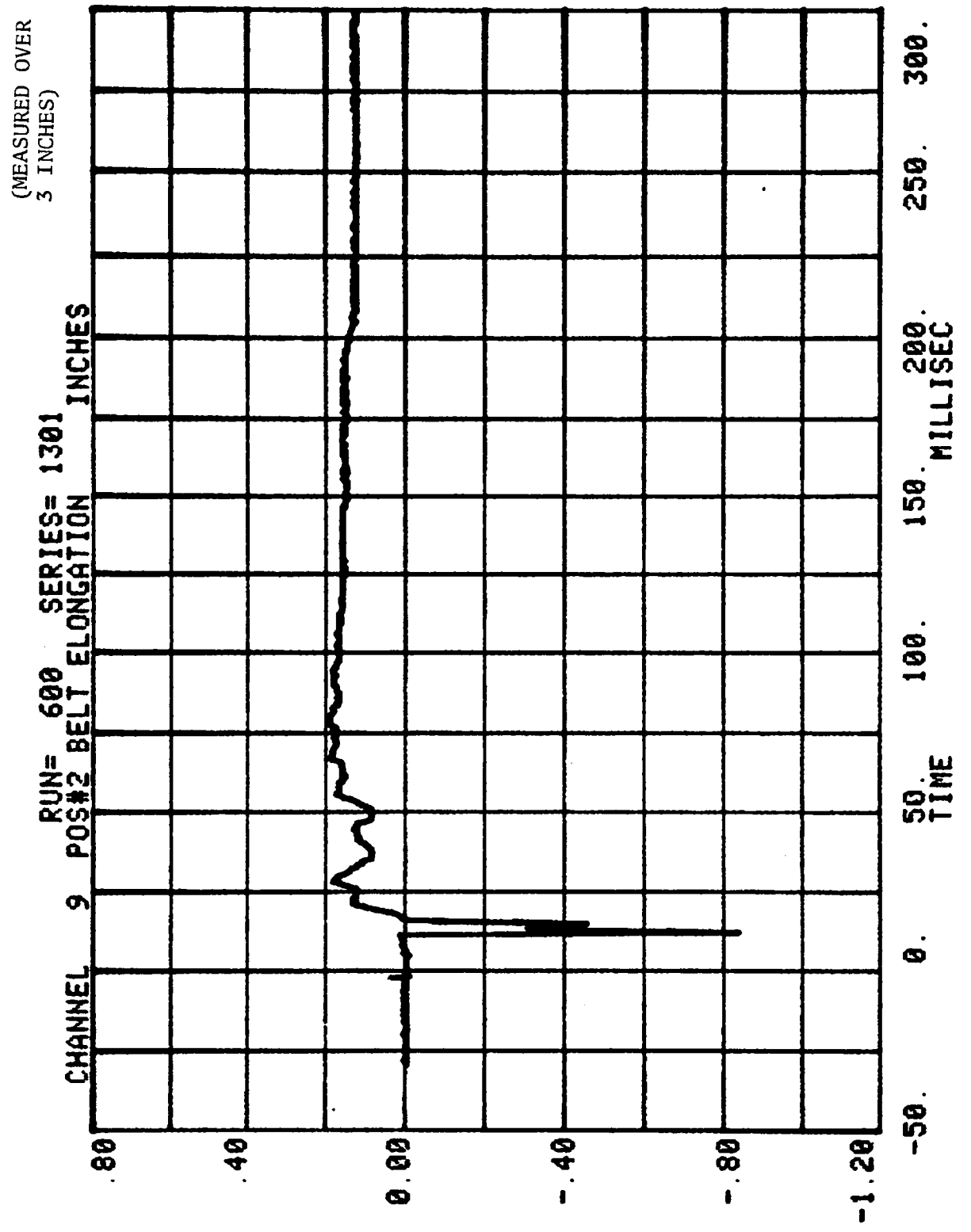

CHANNEL 4 POS#2 CHEST RESULTANT
RUN= 600 SERIES= 1301
G'S
100.
80.
60.
40.
20.
0.
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

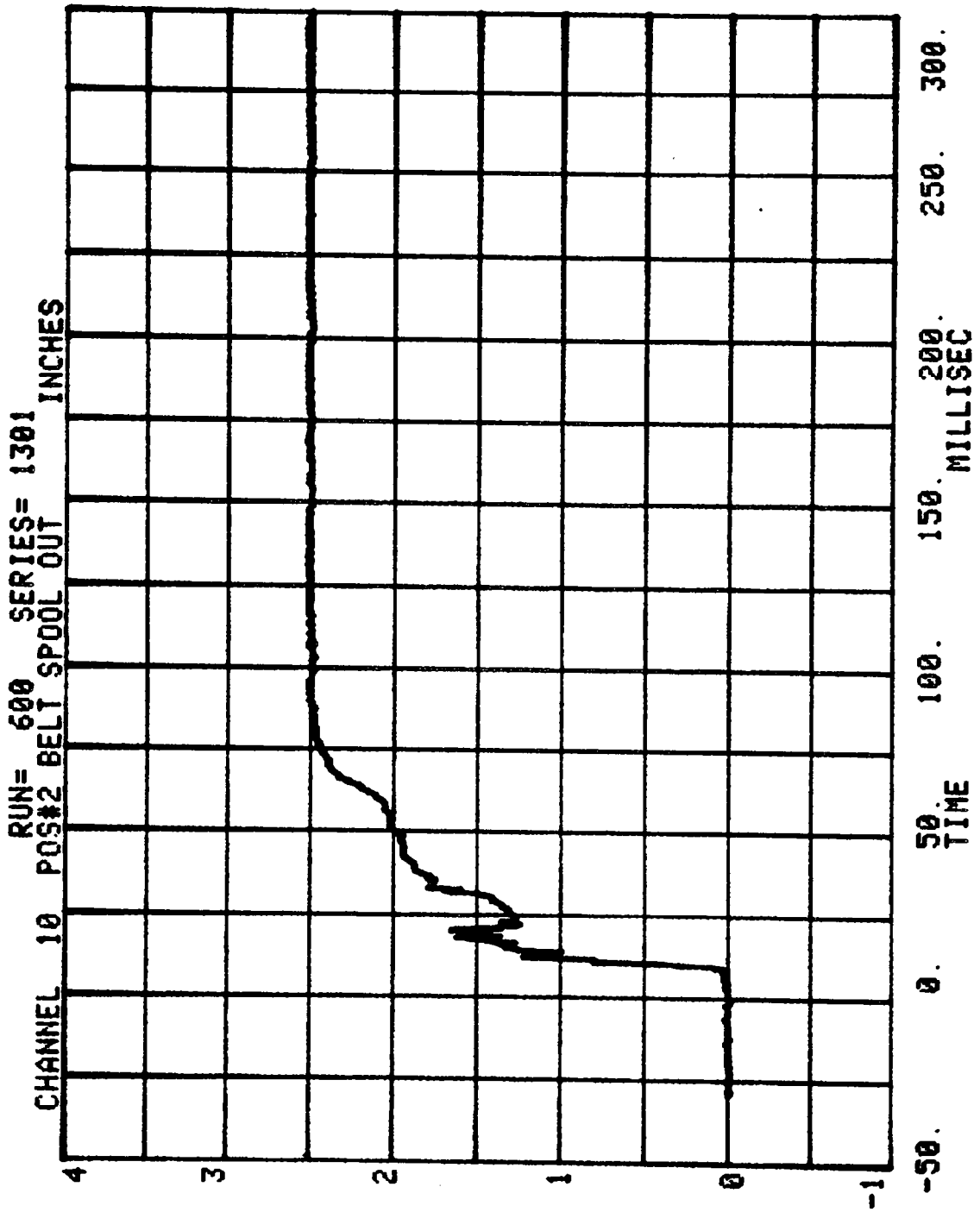

CHANNEL 19 POS#2 RIGHT FEMUR
RUN= 600 SERIES= 1301
LBS.
1600
1200
800
400
0
-400
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC


CHANNEL 20 RUN= 600 SERIES= 1301
POS#2 LEFT FEMUR
LBS.
1600
1200
800
400
0
-400
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC


RUN= 600 SERIES= 1301
CHANNEL 24 POS#2 RIGHT BELT LBS.
2500.
2000.
1500.
1000.
500.
0.
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC


CHANNEL 26 POS#2 TORSO BELT
RUN= 600 SERIES= 1301
LBS.
2000
1500
1000
500
0
-500
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC


(MEASURED OVER
3 INCHES)
CHANNEL 9 POS#2 BELT ELONGATION
RUN= 600 SERIES= 1301
INCHES
.80
.40
0.00
-.40
-.80
-1.20
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC


CHANNEL 10 POS#2 BELT SPOOL OUT
RUN= 600 SERIES= 1301
INCHES
4
3
2
1
0
-1
-50.
0.
50.
100.
150.
200.
250.
300.
TIME
MILLISEC

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
162	11/9/83
749	11/1/83

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. 162

LABORATORY TECHNICIAN: Gary Gestwick

APPROVED BY: D. Alexander

		Pre-Test Calibration	Post-Test Calibration
Date of Dummy Calibration - - - - - - - - - - - -		11/7/83-11/9/83	
Calibration Sequential Number for Dummy - - - -		10	
Temperature in Lab. (Spec. = 66 to 78°F)- - - -		72° - 76°	
Relative Humidity in Lab. (Spec. = 10 to 70%) -		34% - 45%	
TEST PARAMETER	SPECIFICATION		
1. HEAD DROP TEST:			
a. Peak Resultant Accel. -	210 to 260G	245 g	
b. Peak Lateral Accel. - -	≤10G	5 g	
c. Time above 100G - - - -	0.9 to 1.5 ms	1.25 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	22.5	
c. Peak Resultant Head Acceleration - - - -	26G maximum	22	
d. Pendulum Decel. (t_2-t_1)	≤3 ms	2.8 ms	
e. Pendulum Decel. (t_3-t_2)	25 to 30 ms	26.9 ms	
f. Pendulum Decel. (t_4-t_3)	≤10 ms	6.6 ms	
g. Pendulum Direction Reversal Time - - - -		104 ms	
h. Max. Head Rotation - -	63 to 73°	64°	
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	30 ms	
30° Displ.	2.1 to 3.1 in.	2.7 in	
60° Time	40.3 to 51.7 ms	47 ms	
60° Displ.	4.3 to 5.3 in.	4.7 in	
Maximum (64°) Time	53.2 to 66.8 ms	55.5 ms	
Maximum (64°) Displ.	5.0 to 6.0 in.	5.1 in	

Continued

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

NHTSA DUMMY ID NO. 162

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.	4.6 in	
30°	Time	85.4 to 104.6 ms	86.5 ms	
	Displ.	2.1 to 3.1 in.	2.4 in	
0°	Time	101.0 to 123.0 ms	101 ms	
	Displ.	-.5 to 0.5 in.		
3. ABDOMINAL COMPRESSION TEST:				
(Preload = 10 pounds)				
a. Force @ 1" - - - - -		50 to 63 lbs.	55 lbs.	
b. Force @ 1.3" - - - -		73 to 88 lbs.	87 lbs.	
4. LUMBAR FLEXION TEST:				
a. Force @ 20° - - - -		22 to 34 lbs.	32 lbs.	
b. Force @ 30° - - - -		34 to 46 lbs.	43 lbs.	
c. Force @ 40° - - - -		46 to 58 lbs.	54 lbs.	
d. Return Angle - - -		12° maximum	3°	
5. CHEST IMPACT TESTS:				
a. High Speed				
(1) Probe Speed - -		21.78-22.22 fps	21.98 fps	
(2) Peak Delfection -		1.7" maximum	1.65 in	
(3) Peak Resistive Force - - - - - -		2250 lbs. maximum	1945 lbs.	
(4) Internal - - - - Hysteresis		50 to 70%	54.8%	
b. Low Speed				
(1) Probe Speed - - -		13.86-14.14 fps	14.01 fps	
(2) Peak Deflection -		1.1" maximum	.97 in	
(3) Peak Resistive Force - - - - - -		1450 lbs. maximum	1220 lbs.	
(4) Internal Hysteresis- - - -		50 to 70%	52.4%	

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

NHTSA DUMMY ID NO. 162

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	6.93 fps	
(2) Maximum Force - -	1850 to 2500 lbs	2350 lbs.	
(3) Time Above 1000#	1.7 ms minimum	1.84 ms	
b. Left Side --			
(1) Probe Speed - - -	6.76 to 7.04 fps	6.90 fps	
(2) Maximum Force - -	1850 to 2500 lbs.	1900 lbs.	
(3) Time Above 1000#	1.7 ms minimum	2.0 ms	

INSTRUMENT CALIBRATION INFORMATION

NHTSA DUMMY ID NO. 162 CALIB. SEQ. NOS. FOR DUMMY: 10 & _____

	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	7/83	1/84
(2) Lateral (A_y) - - -	ENDEVCO	CX05	7/83	1/84
(3) Vertical (A_z) - - -	ENDEVCO	CJ54	7/83	1/84
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	7/83	1/84
b. Left Side	GSE	311	7/83	1/84
B. CALIB. LAB. INSTRUMENTS:				
1. Pendulum Accelerometer - -	CEC	22707	7/83	1/84
2. Test Probe Accelerometer -	CEC	22958	7/83	1/84
3. Lumbar Flexion Test Push Force Gauge - - - - - - -	TRANSDUCER INC.	20051	7/83	1/84
4. Abdominal Compression Test Force Gauge - - - - - - -	BLH	72952	7/83	1/84
5. Abdominal Compression Test Displacement Gauge - - - -	CIC	567-11	7/83	1/84

P.572 DUMMY CALIBRATION TEST DATA

NHTSA DUMMY ID NO. 749

LABORATORY TECHNICIAN: Gary Gestwick

APPROVED BY: L Williams

	Pre-Test Calibration	Post-Test Calibration
Date of Dummy Calibration - - - - - - - - - - - -	10/31/83-11/1/83	
Calibration Sequential Number for Dummy - - - -	3	
Temperature in Lab. (Spec. = 66 to 78°F)- - - -	70° - 74°	
Relative Humidity in Lab. (Spec. = 10 to 70%) -	26% - 32%	

TEST PARAMETER		SPECIFICATION		
1. HEAD DROP TEST:				
a. Peak Resultant Accel. -		210 to 260 g	230g	
b. Peak Lateral Accel. - -		≤10 g	4g	
c. Time above 100G - - - -		0.9 to 1.5 ms	1.05 ms	
2. NECK BENDING TEST:				
a. Pendulum Speed - - - -		21.5 to 25.5 fps	23.29 fps	
b. Pendulum Avg. Decel. (over t_3 - t_2) - - - -		20 to 24 g	23g	
c. Peak Resultant Head Acceleration - - - -		26G maximum	21g	
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	7.2 ms	
g. Pendulum Direction Reversal Time - - - -			108 ms	
h. Max. Head Rotation - -		63 to 73°	73°	
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	29 ms	
	Displ.	2.1 to 3.1 in.	2.8 in.	
60°	Time	40.3 to 51.7 ms	43.5 ms	
	Displ.	4.3 to 5.3 in.	4.6 in.	
Maximum (73°)	Time	53.2 to 66.8 ms	54 ms	
	Displ.	5.0 to 6.0 in.	5.1 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	72 ms	
	Displ.	4.3 to 5.3 in.	4.4 in.	
30°	Time	85.4 to 104.6 ms	88 ms	
	Displ.	2.1 to 3.1 in.	2.2 in.	
0°	Time	101.0 to 123.0 ms	101.5 ms	
	Displ.	-.5 to 0.5 in.	0.0 in.	
3. ABDOMINAL COMPRESSION TEST: (Preload = 10 pounds)				
a. Force @ 1" - - - - -		50 to 63 lbs.	51 lbs.	
b. Force @ 1.3" - - - -		73 to 88 lbs.	74 lbs.	
4. LUMBAR FLEXION TEST:				
a. Force @ 20° - - - -		22 to 34 lbs.	32.0 lbs.	
b. Force @ 30° - - - -		34 to 46 lbs.	41.5 lbs.	
c. Force @ 40° - - - -		46 to 58 lbs.	50.0 lbs.	
d. Return Angle - - -		12° maximum	9°	
5. CHEST IMPACT TESTS:				
a. High Speed				
(1) Probe Speed - -		21.78-22.22 fps	21.9 fps	
(2) Peak Delfection -		1.7" maximum	1.64 in.	
(3) Peak Resistive Force - - - - - -		2250 lbs. maximum	1900 lbs.	
(4) Internal Hysteresis - - - -		50 to 70%	50.5%	
b. Low Speed				
(1) Probe Speed - - -		13.86-14.14 fps	14.00 fps	
(2) Peak Deflection -		1.1" maximum	1.07 in.	
(3) Peak Resistive Force - - - - - -		1450 lbs. maximum	1240 lbs.	
(4) Internal Hysteresis- - - -		50 to 70%	50.8%	

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	6.99 fps	
(2) Maximum Force - -	1850 to 2500 lbs.	2475 lbs.	
(3) Time Above 1000#	1.7 ms minimum	1.76 ms	
b. Left Side --			
(1) Probe Speed - - -	6.76 to 7.04 fps	6.94 fps	
(2) Maximum Force - -	1850 to 2500 lbs.	2050 lbs.	
(3) Time Above 1000#	1.7 ms minimum	2.08 ms	

INSTRUMENT CALIBRATION INFORMATION

NHTSA DUMMY ID NO. 749 CALIB. SEQ. NOS. FOR DUMMY: 3 & _____

	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	7/83	1/84
(2) Lateral (A_y) - - -	ENDEVCO	CX05	7/83	1/84
(3) Vertical (A_z) - - -	ENDEVCO	CJ54	7/83	1/84
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	7/83	1/84
b. Left Side	GSE	311	7/83	1/84
B. CALIB. LAB. INSTRUMENTS:				
1. Pendulum Accelerometer - -	CEC	22707	7/83	1/84
2. Test Probe Accelerometer -	CEC	22958	7/83	1/84
3. Lumbar Flexion Test Push Force Gauge - - - - - - -	TRANSDUCER INC	20051	7/83	1/84
4. Abdominal Compression Test Force Gauge - - - - - - -	BLH	72952	7/83	1/84
5. Abdominal Compression Test Displacement Gauge - - - -	CIC	567-11	7/83	1/84