

V1846 - V1850



U.S. Department
of Transportation
**National Highway
Traffic Safety
Administration**

DOT HS 807 915
Final Report

April 1992

Final Report of a 1985 Ford Tempo 4-Door Sedan Into a Pole Barrier in Support of Crash III Damage Algorithm Reformulation

V1846 - V1850



U.S. Department
of Transportation
**National Highway
Traffic Safety
Administration**

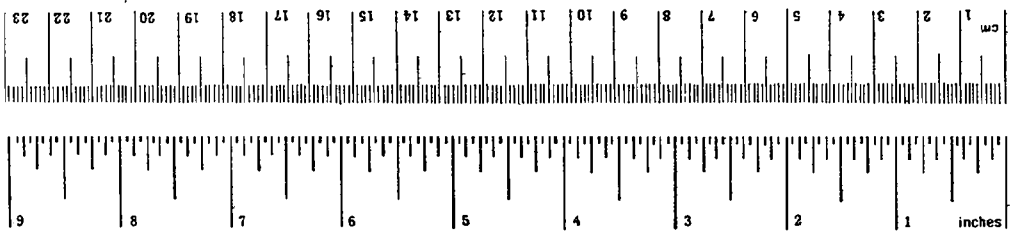
DOT HS 807 915
Final Report

April 1992

Final Report of a 1985 Ford Tempo 4-Door Sedan Into a Pole Barrier in Support of Crash III Damage Algorithm Reformulation

METRIC CONVERSION FACTORS

Approximate Conversions to Metric Measures			Approximate Conversions from Metric Measures					
Symbol	When You Know	Multiply by	To Find	Symbol	When You Know	Multiply by	To Find	Symbol
LENGTH								
in	inches	2.5	centimeters	mm	millimeters	0.04	inches	in
ft	feet	30	centimeters	cm	centimeters	0.4	inches	in
yd	yards	0.9	meters	m	meters	3.3	feet	ft
mi	miles	1.6	kilometers	km	kilometers	1.1	yards	yd
						0.6	miles	mi
AREA								
in ²	square inches	6.5	square centimeters	cm ²	square centimeters	0.16	square inches	in ²
ft ²	square feet	0.09	square meters	m ²	square meters	1.2	square yards	yd ²
yd ²	square yards	0.8	square meters	m ²	square kilometers	0.4	square miles	mi ²
mi ²	square miles	2.6	square kilometers	km ²	hectares (10,000 m ²)	2.5	acres	ac
	acres	0.4	hectares	ha				
MASS (weight)								
oz	ounces	28	grams	g	grams	0.035	ounces	oz
lb	pounds	0.45	kilograms	kg	kilograms	2.2	pounds	lb
	short tons (2000 lb)	0.9	tonnes	t	tonnes (1000 kg)	1.1	short tons	st
VOLUME								
tsp	teaspoons	5	milliliters	ml	milliliters	0.03	fluid ounces	fl oz
Tbsp	tablespoons	15	milliliters	ml	liters	2.1	pints	pt
fl oz	fluid ounces	30	milliliters	ml	liters	1.06	quarts	qt
c	cups	0.24	liters	l	liters	0.26	gallons	gal
pt	pints	0.47	liters	l	cubic meters	35	cubic feet	ft ³
qt	quarts	0.95	liters	l	cubic meters	1.3	cubic yards	yd ³
gal	gallons	3.8	cubic meters	m ³				
ft ³	cubic feet	0.03	cubic meters	m ³				
yd ³	cubic yards	0.76						
TEMPERATURE (exact)								
°F	Fahrenheit temperature	5/9 (after subtracting 32)	Celsius temperature	°C	Celsius temperature	9/5 (then add 32)	Fahrenheit temperature	°F



* 1 qt = 2.54 (exact). For other exact conversions and more detailed tables, see NBS Misc. Publ. 286, Units of Weights and Measures, Price \$2.25, SD Catalog No. C13.10.286.

1. Report No. DOT HS 807 915		2. Government Accession No.		3. Recipient's Catalog No.																															
4. Title and Subtitle FINAL REPORT OF A 1985 FORD TEMPO 4-DOOR SEDAN INTO A POLE BARRIER IN SUPPORT OF CRASH III DAMAGE ALGORITHM REFORMULATION				5. Report Date MARCH - APRIL 1992																															
				6. Performing Organization Code																															
7. Author(s) S. A. Johnston, Project Engineer, TRC				8. Performing Organization Report No. 920312																															
9. Performing Organization Name and Address Vehicle Research and Test Center 10820 State Route 347 East Liberty, Ohio 43319				10. Work Unit No. (TRAIS)																															
				11. Contract or Grant No. DTNH22-88-C-07292																															
12. Sponsoring Agency Name and Address U.S. Department of Transportation National Highway Traffic Safety Administration 400 Seventh St., S.W. Washington, D.C. 20590				13. Type of Report and Period Covered FINAL REPORT MARCH - APRIL 1992																															
				14. Sponsoring Agency Code DOT/NHTSA/VRTC																															
15. Supplementary Notes																																			
16. Abstract Five (5) 0° pole barrier impact tests were conducted for research and development in support of the CRASH III damage algorithm reformulation. These tests were conducted on a 1985 Ford Tempo 4-door sedan, VIN 2FABP22X6FB288811, at the Transportation Research Center Inc. The following five tests were conducted on the vehicle:																																			
<table border="1"> <thead> <tr> <th>TEST NO.</th> <th>DATE</th> <th>TIME</th> <th>SPEED (mph)</th> <th>MAXIMUM CUMULATIVE CRUSH (in.)</th> </tr> </thead> <tbody> <tr> <td>920312-1</td> <td>03/12/92</td> <td>0933</td> <td>9.6</td> <td>13.0</td> </tr> <tr> <td>920312-2</td> <td>03/12/92</td> <td>1040</td> <td>9.6</td> <td>16.0</td> </tr> <tr> <td>920312-3</td> <td>03/12/92</td> <td>1141</td> <td>14.8</td> <td>18.0</td> </tr> <tr> <td>920312-4</td> <td>03/12/92</td> <td>1253</td> <td>20.0</td> <td>27.0</td> </tr> <tr> <td>920312-5</td> <td>03/12/92</td> <td>1359</td> <td>35.1</td> <td>39.0</td> </tr> </tbody> </table>						TEST NO.	DATE	TIME	SPEED (mph)	MAXIMUM CUMULATIVE CRUSH (in.)	920312-1	03/12/92	0933	9.6	13.0	920312-2	03/12/92	1040	9.6	16.0	920312-3	03/12/92	1141	14.8	18.0	920312-4	03/12/92	1253	20.0	27.0	920312-5	03/12/92	1359	35.1	39.0
TEST NO.	DATE	TIME	SPEED (mph)	MAXIMUM CUMULATIVE CRUSH (in.)																															
920312-1	03/12/92	0933	9.6	13.0																															
920312-2	03/12/92	1040	9.6	16.0																															
920312-3	03/12/92	1141	14.8	18.0																															
920312-4	03/12/92	1253	20.0	27.0																															
920312-5	03/12/92	1359	35.1	39.0																															
17. Key Words 0° Frontal Pole Barrier Impact Crash III Damage Algorithm Reformulation.			18. Distribution Statement Document is available to the public from the National Technical Information Service, Springfield, VA 22161																																
19. Security Classif. (of this report) Unclassified		20. Security Classif. (of this page) Unclassified		21. No. of Pages 161	22. Price																														

TABLE OF CONTENTS

SECTION	TITLE	PAGE
1.0	PURPOSE AND TEST SUMMARY	1-1
2.0	VEHICLE AND TEST DATA	2-1
3.0	TEST NO. 920312-1 SUMMARY	3-1
4.0	TEST NO. 920312-2 SUMMARY	4-1
5.0	TEST NO. 920312-3 SUMMARY	5-1
6.0	TEST NO. 920312-4 SUMMARY	6-1
7.0	TEST NO. 920312-5 SUMMARY	7-1
APPENDIX A	PHOTOGRAPHS	A-1
APPENDIX B	DATA PLOTS	B-1
APPENDIX C	MISCELLANEOUS TEST INFORMATION	C-1

SECTION 1.0

PURPOSE AND TEST SUMMARY

The purpose of the five (5) 0° pole barrier impact tests was for research and development in support of the CRASH III damage algorithm reformulation.

The 1985 Ford Tempo was equipped with a 2.3 liter, 4-cylinder, transverse, gasoline engine with a 3-speed automatic transmission. The test weight of the vehicle was 2823 pounds.

The vehicle impacted a vertical steel cylinder 12 inches in diameter. The vehicle's intended impact point was the front of the vehicle at its longitudinal centerline.

The vehicle was instrumented with four (4) accelerometers to measure vehicle X-axis and Y-axis acceleration.

The crash test event was recorded by two (2) high-speed motion picture cameras.

TEST VEHICLE INFORMATION

VEHICLE MANUFACTURER: Ford Motor Company of Canada, Ltd.

MAKE/MODEL: Ford/Tempo GL

VIN: 2FABP22X6FB288811

BODY STYLE: 4-door sedan

MODEL YEAR: 1985

COLOR: Blue

ENGINE DATA: TYPE: transverse CYLINDERS: 4 DISPLACEMENT: 2.3 liter

TRANSMISSION DATA: 3 SPEED, MANUAL, X AUTOMATIC, X FWD, RWD, 4WD

DATE VEHICLE RECEIVED: 03/05/92

ODOMETER READING: 93,294.0

DEALER'S NAME AND ADDRESS: NA

ACCESSORIES:

POWER STEERING	Yes	AUTOMATIC TRANSMISSION	Yes
POWER BRAKES	Yes	AUTOMATIC SPEED CONTROL	No
POWER SEATS	No	TILTING STEERING WHEEL	No
POWER WINDOWS	No	TELESCOPING STEERING WHEEL	No
TINTED GLASS	Yes	AIR CONDITIONING	Yes
RADIO	Yes	ANTI-SKID BRAKE	No
CLOCK	Yes	REAR WINDOW DEFROSTER	No
OTHER	None		

REMARKS:

1. IS THE VEHICLE STOCK THROUGHOUT? Yes
2. DOES VEHICLE SHOW EVIDENCE OF PRIOR ACCIDENT HISTORY? Cracked windshield
3. DOES VEHICLE SHOW ANY SIGNIFICANT CORROSION? No
4. CONDITION OF THE FRONT/REAR BUMPER AND FRAME: Good

CERTIFICATION DATA FROM VEHICLE'S LABEL:

VEHICLE MANUFACTURED BY: Ford Motor Company of Canada, Ltd.

DATE OF MANUFACTURE: 08/85

VIN: 2FABP22X6FB288811

GVWR: 3660 LBS

GAWR: FRONT: 1954 LBS., REAR: 1795 LBS.

SECTION 2.0

VEHICLE INFORMATION

TEST VEHICLE INFORMATION, CONT'D.

WEIGHT OF TEST VEHICLE AS RECEIVED (WITH MAXIMUM FLUIDS):

RIGHT FRONT	817 LBS.	RIGHT REAR	466 LBS.
LEFT FRONT	798 LBS.	LEFT REAR	454 LBS.
TOTAL FRONT WEIGHT	1615 LBS.	(63.7% OF TOTAL VEHICLE WEIGHT)	
TOTAL REAR WEIGHT	920 LBS.	(36.3% OF TOTAL VEHICLE WEIGHT)	
TOTAL DELIVERED WEIGHT 2535 LBS.			

WEIGHT OF TEST VEHICLE:

RIGHT FRONT	1125 LBS **	RIGHT REAR	266 LBS.
LEFT FRONT	1159 LBS **	LEFT REAR	273 LBS.
TOTAL FRONT WEIGHT	2284 LBS.	(80.9% OF TOTAL VEHICLE WEIGHT)	
TOTAL REAR WEIGHT	539 LBS.	(19.1% OF TOTAL VEHICLE WEIGHT)	
TOTAL TEST WEIGHT 2823 LBS *			

WEIGHT OF BALLAST SECURED IN VEHICLE: 0 LBS.

COMPONENTS REMOVED TO MEET TARGET TEST WEIGHT: None

CG = 36.2 INCHES REARWARD OF THE THIRD AXLE CENTERLINE

*The total test weight includes the weight of the third axle.

**The front wheel weights are for third axle wheels.

TEST VEHICLE INFORMATION, CONT'D.

TIRES ON VEHICLE (MFR., LINE, SIZE): Goodyear, Arriva, P175/80R13

TIRE PRESSURE WITH MAXIMUM CAPACITY VEHICLE LOAD: FRONT: 35 PSI
REAR: 35 PSI

SPARE TIRE (MFR., LINE, SIZE): Goodyear, T125/80D13

TYPE OF SEATS: FRONT: Bucket
REAR: Bench

TYPE OF FRONT SEAT BACKS: Manually adjustable

MAXIMUM WIDTH: 68.4 INCHES

WHEELBASE: 99.8 INCHES

LOCATION OF LABEL STATING TIRE & CAPACITY DATA: The label was located on the right side rear passenger door.

TIRE & CAPACITY DATA FROM VEHICLE'S LABEL:

RECOMMENDED TIRE SIZE: P185/70R14

RECOMMENDED COLD TIRE PRESSURE: FRONT: 30 PSI; REAR: 30 PSI

DESIGNATED SEATING CAPACITY: 2 FRONT 3 REAR 5 TOTAL

VEHICLE CAPACITY WEIGHT: 850 LBS.

TEST VEHICLE ATTITUDE (ALL MEASUREMENTS ARE IN INCHES):

DELIVERED ATTITUDE: LF 25.6; RF 25.7; LR 25.3; RR 25.6

PRE-TEST ATTITUDE: LF 30.4; RF 30.3; LR 26.7; RR 26.6

CRUSH MEASUREMENTS AT VEHICLE BUMPER HEIGHT

LOCATION	18		19		20		21		22		23		24		25		26	
	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y
PRE-TEST	57.2	27.1	54.2	27.1	51.2	27.3	48.2	27.6	45.2	28.0	42.2	28.6	39.2	29.0	36.1	29.6	33.2	29.8
POST-TEST 1	57.2	26.8	54.1	26.8	51.1	26.9	48.1	27.4	45.1	27.7	42.0	28.1	39.0	28.8	36.0	29.4	32.9	29.8
POST-TEST 2	57.6	26.7	54.6	26.8	51.6	27.0	48.6	27.3	45.6	27.8	42.5	28.2	39.5	29.0	36.4	29.5	33.2	29.6
POST-TEST 3	56.8	26.4	53.8	26.7	50.8	26.6	47.8	27.5	44.8	27.5	41.8	28.2	38.6	29.1	35.6	29.6	32.6	29.6
POST-TEST 4	56.8	27.1	53.8	27.1	50.8	27.2	47.7	27.6	44.8	28.0	41.7	28.4	38.6	29.2	35.2	30.0	32.5	30.1
POST-TEST 5	58.4	24.6	55.5	25.0	52.8	25.5	49.8	26.6	47.1	27.4	44.5	28.4	42.0	29.8	39.4	31.1	36.4	32.8
LOCATION	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y
PRE-TEST	30.2	30.5	27.1	31.6	24.2	31.7	21.7	32.9	21.3	35.8	21.2	38.9	20.8	41.9	20.5	44.9	20.2	47.9
POST-TEST 1	29.9	30.6	22.7	32.5	20.6	34.6	19.2	37.0	20.9	39.2	22.1	41.8	23.4	45.1	24.8	47.3	26.4	50.2
POST-TEST 2	30.5	30.2	22.9	34.6	21.1	37.0	20.1	39.5	22.2	42.0	24.0	44.3	25.8	46.6	27.6	49.0	29.8	51.2
POST-TEST 3	29.8	30.0	21.9	37.0	20.5	39.8	20.1	42.6	22.9	44.3	25.0	46.3	27.5	48.2	29.6	50.1	32.5	51.8
POST-TEST 4	29.6	30.8	25.0	39.0	24.0	41.4	23.8	44.4	26.9	46.1	29.4	47.5	31.9	50.6	34.6	50.8	37.5	51.2
POST-TEST 5	33.4	33.8	36.6	41.4	36.9	45.2	37.8	46.1	41.1	46.7	43.9	48.0	46.9	48.8	49.8	48.6	52.8	48.4

All measurements are in inches. Column readings are three inches apart starting from the left B-pillar and continue around the front of the vehicle to the right B-pillar.
 All X-axis measurements taken from a reference plane 195 inches from and parallel to the rear bumper.
 All Y-axis measurements taken from a reference plane 60 inches from and parallel to the vehicle longitudinal centerline.

CRUSH MEASUREMENTS AT VEHICLE BUMPER HEIGHT

LOCATION	0		1		2		3		4		5		6		7		8	
	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y
PRE-TEST	111.4	26.8	108.1	26.6	105.0	26.6	102.1	26.6	99.1	26.6	96.1	26.7	93.1	26.8	90.0	26.8	87.0	26.8
POST-TEST 1	111.4	26.8	108.1	26.6	105.0	26.6	102.0	26.6	99.0	26.6	96.0	26.6	93.0	26.6	89.9	26.7	87.6	26.8
POST-TEST 2	112.0	27.0	108.8	26.9	105.6	26.8	102.6	26.8	99.6	26.8	96.6	26.8	93.6	26.8	90.6	26.8	87.6	26.8
POST-TEST 3	111.4	26.6	107.9	26.4	104.9	26.4	102.0	26.3	98.9	26.3	95.9	26.3	92.9	26.2	89.8	26.2	86.8	26.4
POST-TEST 4	110.9	26.7	107.6	26.6	104.6	26.6	101.6	26.6	98.6	26.6	95.6	26.6	92.7	26.7	89.6	26.5	86.6	26.6
POST-TEST 5	110.7	25.5	108.6	25.6	105.6	25.4	103.8	25.2	99.8	25.0	96.7	24.8	93.8	24.6	90.6	24.5	87.6	24.3
LOCATION	9	10	11	12	13	14	15	16	17									
	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y
PRE-TEST	84.1	26.9	81.1	27.1	78.0	27.2	74.9	27.4	72.0	27.5	69.8	27.6	66.2	27.6	63.0	27.2	66.1	27.2
POST-TEST 1	84.0	26.8	81.0	26.9	78.0	27.0	75.0	27.2	72.2	27.8	69.1	27.1	66.2	27.2	63.0	26.8	60.1	26.7
POST-TEST 2	84.8	26.9	81.8	27.0	78.8	27.1	75.6	27.1	72.5	27.1	69.5	27.2	66.6	27.2	63.8	26.7	60.5	26.7
POST-TEST 3	83.9	26.4	80.8	26.4	77.9	26.9	74.8	26.8	71.6	26.5	68.5	26.8	65.9	26.8	62.8	26.3	59.8	26.4
POST-TEST 4	83.6	26.6	80.6	26.6	77.6	26.6	74.6	26.6	71.5	27.1	68.5	27.2	65.8	27.4	62.6	27.0	59.8	27.0
POST-TEST 5	84.8	24.2	81.8	24.3	78.7	24.2	75.6	24.1	73.7	24.9	71.1	25.0	68.2	25.0	64.6	24.6	61.4	24.4

All measurements are in inches. Column readings are three inches apart starting from the left B-pillar and continue around the front of the vehicle to the right B-pillar. All X-axis measurements taken from a reference plane 195 inches from and parallel to the rear bumper. All Y-axis measurements taken from a reference plane 60 inches from and parallel to the vehicle longitudinal centerline.

CRUSH MEASUREMENTS AT VEHICLE BUMPER HEIGHT

LOCATION	54		55		56		57		58		59		60		61		62	
	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y
PRE-TEST	38.9	91.0	41.5	91.5	44.5	92.0	47.5	92.3	50.8	92.7	53.7	92.8	56.5	92.9	59.4	92.9	62.6	92.8
POST-TEST 1	38.7	91.0	41.6	91.5	44.7	92.0	47.7	92.3	50.9	92.7	53.9	92.8	56.7	92.9	59.5	92.9	62.6	92.8
POST-TEST 2	38.9	91.0	41.8	91.5	44.8	92.0	47.8	92.3	51.0	92.7	54.0	92.8	56.8	92.9	59.6	92.9	62.9	92.8
POST-TEST 3	38.4	89.4	41.2	90.0	44.3	90.6	47.4	91.1	51.1	91.3	53.1	91.6	56.1	91.8	59.1	91.9	62.4	91.8
POST-TEST 4	38.3	88.2	41.0	89.2	44.1	90.0	47.1	90.6	51.2	91.1	53.2	91.4	56.0	91.5	59.0	91.8	62.1	91.9
POST-TEST 5	42.0	84.4	44.8	86.9	48.0	88.0	50.9	89.9	54.1	90.6	57.0	91.8	59.9	92.0	62.6	92.8	65.5	93.5
LOCATION	63	Y	64	Y	65	Y	66	Y	67	Y	68	Y	69	Y	70	Y	71	Y
PRE-TEST	65.4	92.4	68.5	92.3	71.5	92.4	74.5	92.4	77.4	92.7	80.4	92.8	83.4	92.8	86.4	93.1	89.5	93.1
POST-TEST 1	65.6	92.4	68.6	92.3	71.6	92.4	74.6	92.4	77.6	92.6	80.6	92.6	83.6	92.8	86.6	92.8	89.8	93.0
POST-TEST 2	65.8	92.4	68.8	92.3	71.9	92.4	74.9	91.9	77.9	92.1	80.8	92.2	83.7	92.3	86.8	92.4	89.9	92.5
POST-TEST 3	65.4	91.6	68.5	91.7	71.3	91.9	74.3	92.0	77.4	92.1	80.4	92.3	83.4	92.4	86.4	92.5	89.6	92.6
POST-TEST 4	65.0	92.6	68.0	91.8	71.1	92.0	74.3	92.0	77.1	92.2	80.2	92.3	83.1	92.4	86.2	92.5	89.2	92.6
POST-TEST 5	67.0	93.8	69.8	91.9	71.5	90.8	73.5	90.9	76.5	91.4	80.5	91.5	82.5	91.8	85.5	91.9	88.6	93.0

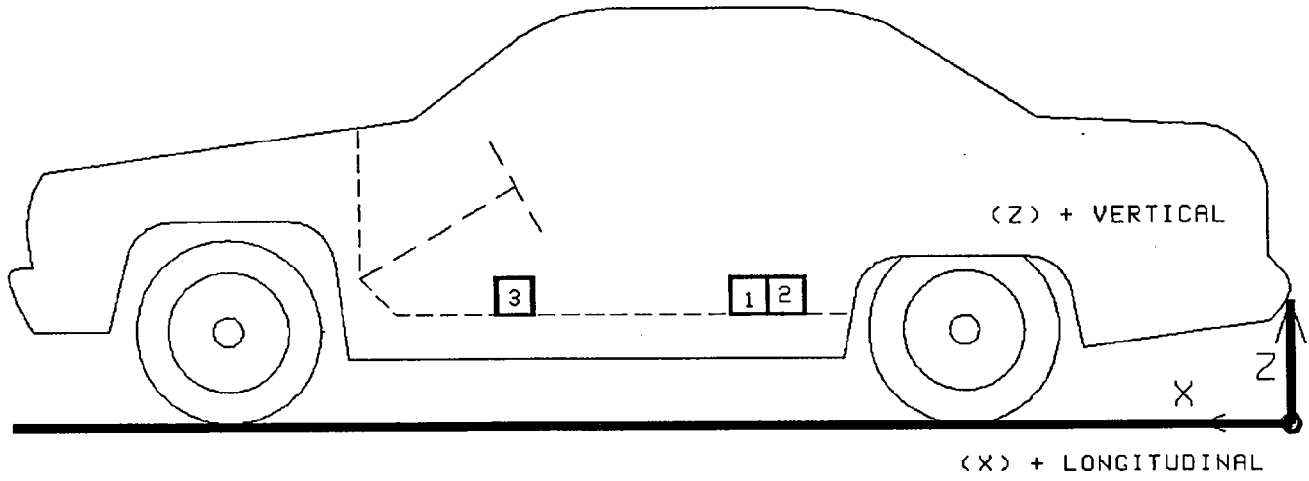
All measurements are in inches. Column readings are three inches apart starting from the left B-pillar and continue around the front of the vehicle to the right B-pillar, then three inches from and parallel to the rear bumper, then three inches from and parallel to the vehicle longitudinal centerline. All X-axis measurements taken from a reference plane 195 inches from and parallel to the vehicle longitudinal centerline. All Y-axis measurements taken from a reference plane 60 inches from and parallel to the vehicle longitudinal centerline.

CRUSH MEASUREMENTS AT VEHICLE BUMPER HEIGHT

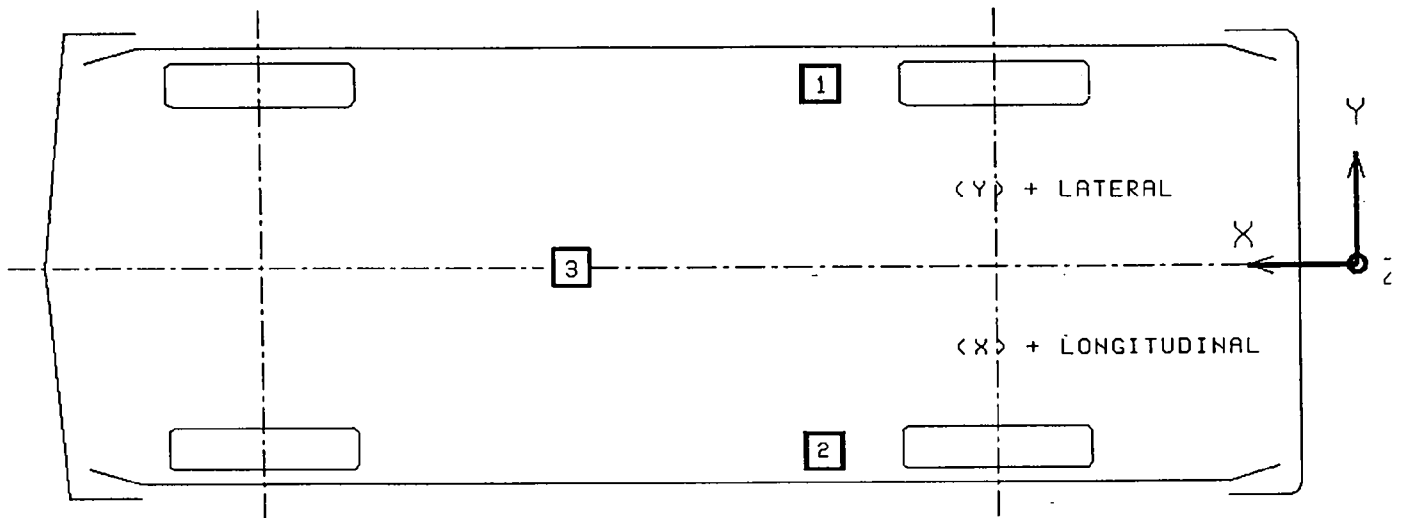
LOCATION	36		37		38		39		40		41		42		43		44	
	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y
PRE-TEST	20.1	50.8	19.9	53.8	19.8	56.9	19.8	59.7	19.8	62.2	19.8	65.6	19.9	68.6	20.1	71.6	20.2	74.6
POST-TEST 1	27.8	53.1	29.4	55.8	31.2	57.8	32.4	58.5	29.8	60.0	28.4	63.0	27.0	65.3	25.7	68.2	24.3	70.8
POST-TEST 2	32.0	53.1	33.5	55.5	35.1	58.0	36.1	58.2	33.9	59.9	32.5	62.4	30.2	64.5	28.5	66.9	26.0	69.5
POST-TEST 3	34.9	53.2	36.7	53.9	37.9	58.2	36.9	58.8	35.7	60.1	33.2	62.4	30.9	63.8	30.9	65.1	28.6	67.0
POST-TEST 4	40.2	52.3	42.2	54.5	43.2	57.1	44.5	57.2	42.8	59.2	41.4	62.0	39.1	63.9	36.2	64.5	33.2	64.9
POST-TEST 5	55.2	49.2	57.2	51.6	57.9	54.5	58.5	57.5	56.9	59.0	55.0	61.2	52.2	62.2	49.4	61.4	46.2	60.8
LOCATION	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y
PRE-TEST	20.5	77.6	20.8	80.6	21.1	83.6	21.2	86.4	23.9	88.2	26.9	88.7	29.8	89.2	32.9	90.2	35.9	90.4
POST-TEST 1	23.1	74.0	22.1	77.0	21.0	79.8	19.8	82.0	21.3	84.4	24.0	88.2	28.5	88.6	33.2	90.1	35.9	90.4
POST-TEST 2	25.0	71.6	23.3	74.0	21.1	76.5	20.0	78.9	21.3	81.5	23.4	83.5	27.9	86.3	32.5	89.0	36.0	89.5
POST-TEST 3	26.6	69.4	24.6	72.5	22.4	73.8	20.1	75.9	21.3	78.7	23.2	81.0	27.7	84.0	32.2	87.9	35.6	88.0
POST-TEST 4	30.6	66.7	28.2	68.2	25.6	69.8	22.8	71.6	23.4	74.2	25.0	79.2	28.6	81.2	32.5	85.8	35.6	87.0
POST-TEST 5	43.2	61.2	40.2	61.7	37.2	62.0	34.2	62.5	33.8	64.9	34.2	68.1	35.5	73.9	36.9	79.1	40.1	82.5

All measurements are in inches. Column readings are three inches apart starting from the left B-pillar and continue around the front of the vehicle to the right B-pillar, All X-axis measurements taken from a reference plane 195 inches from and parallel to the rear bumper. All Y-axis measurements taken from a reference plane 60 inches from and parallel to the vehicle longitudinal centerline.

VEHICLE ACCELEROMETER PLACEMENT



SIDE VIEW



BOTTOM VIEW

CRUSH MEASUREMENTS AT VEHICLE BUMPER HEIGHT

LOCATION	72		73		74		75		76		77		78		79	
	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y
PRE-TEST	92.5	93.3	95.4	93.4	98.5	93.3	101.6	93.3	104.2	93.4	107.5	93.3	110.4	93.2	111.1	93.2
POST-TEST 1	92.8	93.0	95.7	93.0	98.8	93.1	101.8	93.1	104.7	93.0	107.7	93.0	110.6	93.0	111.3	93.0
POST-TEST 2	92.9	92.6	95.8	92.6	98.9	92.7	101.9	92.7	104.8	92.7	107.8	92.7	110.8	92.6	111.5	92.6
POST-TEST 3	92.5	92.7	95.4	92.8	98.5	92.8	101.6	92.8	104.4	92.9	107.4	92.9	110.4	92.9	111.1	92.9
POST-TEST 4	92.2	92.7	95.2	92.8	98.2	92.8	101.4	92.8	104.2	92.8	107.1	92.8	110.1	92.8	110.9	92.8
POST-TEST 5	91.6	92.2	94.6	92.6	97.6	92.6	100.6	92.8	103.6	92.8	106.5	92.9	109.4	93.0	110.1	93.1

All measurements are in inches. Column readings are three inches apart starting from the left B-pillar and continue around the front of the vehicle to the right B-pillar.
 All X-axis measurements taken from a reference plane 195 inches from and parallel to the rear bumper.
 All Y-axis measurements taken from a reference plane 60 inches from and parallel to the vehicle longitudinal centerline.

TEST ANOMALIES

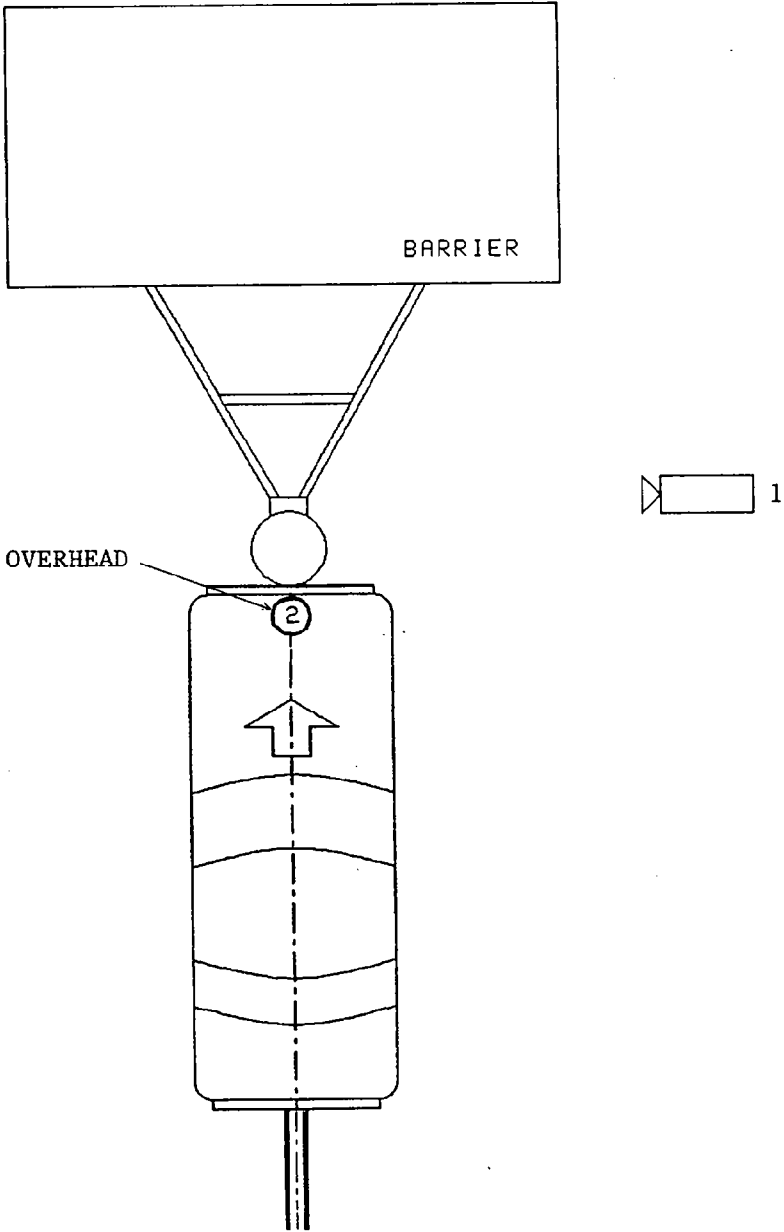
TEST NO. 920312-3:

The left rear sill X-axis accelerometer, LRSXG1, data was lost at 100 milliseconds when the cable was cut.

The left rear sill X-axis velocity, LRSXV1, calculation was affected by the above anomaly.

The left rear sill X-axis displacement, LRSXD1, calculation was affected by the above anomaly.

CAMERA POSITIONS



TEST CONDITIONS

TEST NUMBER: 920312-1

DATE OF TEST: 03/12/92

TIME OF TEST: 0933

AMBIENT TEMPERATURE AT IMPACT AREA: 70° F

VEHICLE VELOCITY: 9.6 MPH

SUBJECT VEHICLE DATA

LENGTH OF DIRECT CONTACT DAMAGE: 7.0

MAXIMUM CUMULATIVE CRUSH
AT VEHICLE BUMPER HEIGHT: 13.0

VEHICLE ATTITUDES:

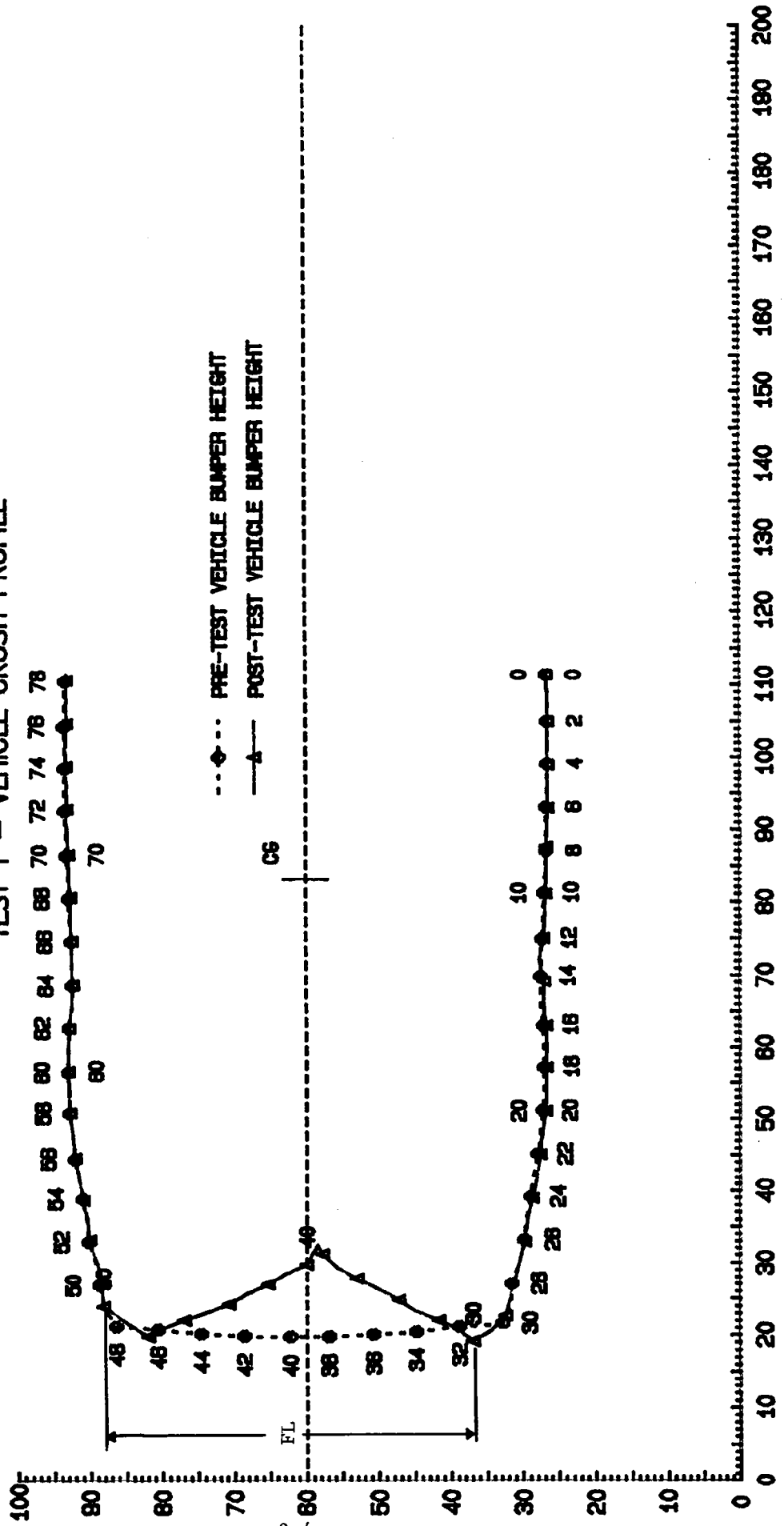
POST-TEST: LF: 28.6 RF: 29.3 LR: 26.6 RR: 26.4

ALL DISTANCE MEASUREMENTS ARE IN INCHES.

SECTION 3.0

TEST 920312-1 SUMMARY

TEST 1 - VEHICLE CRUSH PROFILE



VEHICLE CRUSH AT VEHICLE BUMPER HEIGHT

TEST NO. 920312-1

FL	<u>54.0</u>
C1	<u>0.0</u>
C2	<u>6.0</u>
C3	<u>11.0</u>
C4	<u>9.0</u>
C5	<u>4.4</u>
C6	<u>0.0</u>

NOTE: FL is post-test length of damage surface

Measurements C1 - C6 were spaced equally apart over the post-impact corner to corner length of the vehicle front. This distance is defined as length "FL" on the vehicle crush profile plot.

ALL MEASUREMENTS ARE IN INCHES

VEHICLE ACCELEROMETER LOCATIONS AND DATA SUMMARY

TEST NUMBER 920312-1

No.	LOCATION	X*	Y*	Z*	POSITIVE DIRECTION		NEGATIVE DIRECTION	
					MAX G	MSEC	MAX G	MSEC
1	VEHICLE CG	105.1	0.0	17.0				
	LONGITUDINAL				0.5	246.0	6.4	109.4
	LATERAL				1.5	88.8	1.4	137.0
	RESULTANT				6.4	109.4		
2	LEFT REAR SILL	77.0	24.1	15.8				
	LONGITUDINAL				1.0	194.9	6.3	89.0
3	RIGHT REAR SILL	77.2	-24.1	15.6				
	LONGITUDINAL				0.8	271.4	6.4	118.1

* ALL MEASUREMENTS OF ACCELEROMETER LOCATIONS ARE IN INCHES.

REFERENCE: X: + FORWARD FROM VEHICLE'S REAR BUMPER
 Y: + LEFTWARD FROM VEHICLE'S LONGITUDINAL CENTERLINE
 Z: + UPWARD FROM GROUND LEVEL

IMPACTED VEHICLE MEASUREMENTS

VEHICLE MAKE/MODEL: Ford/Tempo

TEST NUMBER: 920312-1

NO.	TYPE OF MEASUREMENT	ALL MEASUREMENTS ARE IN INCHES		
		PRE-TEST	POST-TEST	DIFF.
X1	TOTAL LENGTH OF VEHICLE AT CENTERLINE	175.9	163.8	12.1
X2	REAR SURFACE OF VEHICLE TO FRONT OF ENGINE BLOCK	151.6	NA	NA
X3	REAR SURFACE OF VEHICLE TO FIREWALL	134.6	NA	NA
X4	REAR SURFACE OF VEHICLE TO UPPER LEADING EDGE OF RIGHT DOOR	122.6	122.8	-0.2
X5	REAR SURFACE OF VEHICLE TO UPPER LEADING EDGE OF LEFT DOOR	123.1	122.1	1.0
X6	REAR SURFACE OF VEHICLE TO LOWER LEADING EDGE OF RIGHT DOOR	121.7	121.5	0.2
X7	REAR SURFACE OF VEHICLE TO LOWER LEADING EDGE OF LEFT DOOR	121.9	121.8	0.1
X8	REAR SURFACE OF VEHICLE TO UPPER TRAILING EDGE OF RIGHT DOOR	82.6	82.8	-0.2
X9	REAR SURFACE OF VEHICLE TO UPPER TRAILING EDGE OF LEFT DOOR	82.9	83.0	-0.1
X10	REAR SURFACE OF VEHICLE TO LOWER TRAILING EDGE OF RIGHT DOOR	84.0	83.9	0.1
X11	REAR SURFACE OF VEHICLE TO LOWER TRAILING EDGE OF LEFT DOOR	84.1	84.1	0.0
X12	REAR SURFACE OF VEHICLE TO BOTTOM OF "A" POST ON RIGHT SIDE	120.9	120.8	0.1
X13	REAR SURFACE OF VEHICLE TO BOTTOM OF "A" POST ON LEFT SIDE	120.8	121.2	-0.4
X14	REAR SURFACE OF VEHICLE TO FIREWALL - RIGHT SIDE	136.9	NA	NA
X15	REAR SURFACE OF VEHICLE TO FIREWALL - LEFT SIDE	136.6	NA	NA
X16	REAR SURFACE OF VEHICLE TO STEERING WHEEL CENTER	107.0	107.6	-0.6
X17	CENTER OF STEERING COLUMN TO "A" POST	11.1	11.4	-0.3
X18	CENTER OF STEERING COLUMN TO HEADLINER	16.5	16.2	0.3
X19	REAR SURFACE OF VEHICLE TO RIGHT SIDE OF FRONT BUMPER	174.8	176.2	-1.4
X20	REAR SURFACE OF VEHICLE TO LEFT SIDE OF FRONT BUMPER	174.1	174.8	-0.7
X21	LENGTH OF ENGINE BLOCK	17.0	17.0	0.0

CAMERA INFORMATION

TEST NO. 920312-1

CAMERA NUMBER	LOCATION	TYPE	LENS (mm)	SPEED (fps)	PURPOSE OF CAMERA DATA
1	Right wide	Photosonic 1B	25	NA *	Vehicle crush
2	Overhead wide	Photosonic 1B	17	498	Vehicle crush

*Camera did not run during the test.

TEST CONDITIONS

TEST NUMBER: 920312-2

DATE OF TEST: 03/12/92

TIME OF TEST: 1040

AMBIENT TEMPERATURE AT IMPACT AREA: 70° F

VEHICLE VELOCITY: 9.6 MPH

SUBJECT VEHICLE DATA

LENGTH OF DIRECT CONTACT DAMAGE: 9.0

MAXIMUM CUMULATIVE CRUSH
AT VEHICLE BUMPER HEIGHT: 16.0

VEHICLE ATTITUDES:

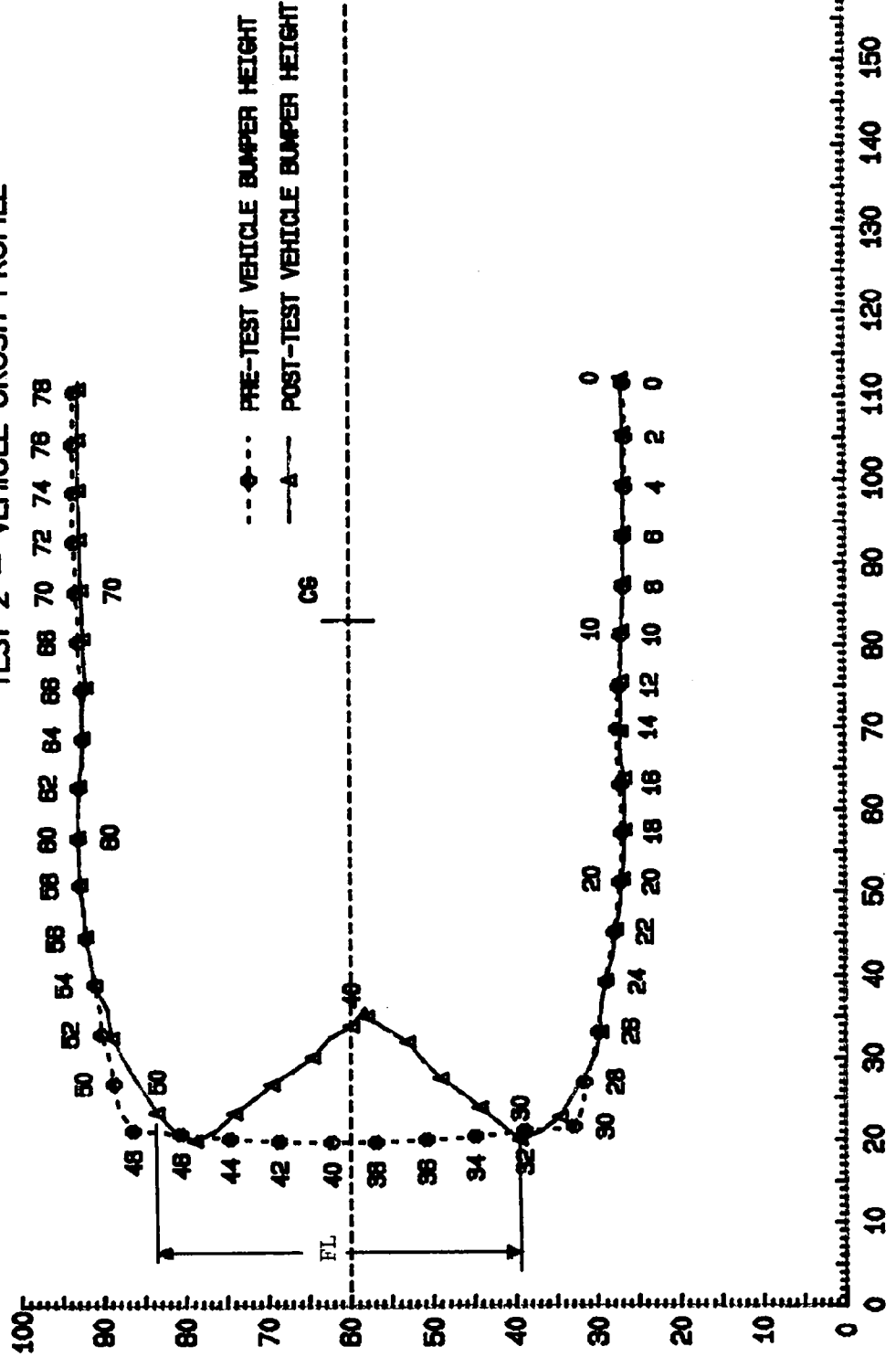
POST-TEST: LF: 28.8 RF: 29.6 LR: 26.5 RR: 26.6

ALL DISTANCE MEASUREMENTS ARE IN INCHES.

SECTION 4.0

TEST 920312-2 SUMMARY

TEST 2 -- VEHICLE CRUSH PROFILE



VEHICLE CRUSH AT VEHICLE BUMPER HEIGHT

TEST NO. 920312-2

FL	<u>40.0</u>
C1	<u>0.0</u>
C2	<u>8.8</u>
C3	<u>13.0</u>
C4	<u>12.0</u>
C5	<u>5.0</u>
C6	<u>0.0</u>

NOTE: FL is post-test length of damage surface

Measurements C1 - C6 were spaced equally apart over the post-impact corner to corner length of the vehicle front. This distance is defined as length "FL" on the vehicle crush profile plot.

ALL MEASUREMENTS ARE IN INCHES

VEHICLE ACCELEROMETER LOCATIONS AND DATA SUMMARY

TEST NUMBER 920312-2

No.	LOCATION	X*	Y*	Z*	POSITIVE DIRECTION		NEGATIVE DIRECTION	
					MAX G	MSEC	MAX G	MSEC
1	VEHICLE CG	105.1	0.0	17.0				
	LONGITUDINAL				1.2	156.8	11.5	84.9
	LATERAL				1.6	91.0	2.2	106.3
	RESULTANT				11.5	84.8		
2	LEFT REAR SILL	77.0	24.1	15.8				
	LONGITUDINAL				1.6	156.3	12.2	84.9
3	RIGHT REAR SILL	77.2	-24.1	15.6				
	LONGITUDINAL				0.9	231.9	12.0	85.5

* ALL MEASUREMENTS OF ACCELEROMETER LOCATIONS ARE IN INCHES.

REFERENCE: X: + FORWARD FROM VEHICLE'S REAR BUMPER
 Y: + LEFTWARD FROM VEHICLE'S LONGITUDINAL CENTERLINE
 Z: + UPWARD FROM GROUND LEVEL

IMPACTED VEHICLE MEASUREMENTS

VEHICLE MAKE/MODEL: Ford/Tempo

TEST NUMBER: 920312-2

ALL MEASUREMENTS ARE IN INCHES

<u>NO.</u>	<u>TYPE OF MEASUREMENT</u>	<u>PRE-TEST</u>	<u>POST-TEST</u>	<u>DIFF.</u>
X1	TOTAL LENGTH OF VEHICLE AT CENTERLINE	163.8	163.1	0.7
X2	REAR SURFACE OF VEHICLE TO FRONT OF ENGINE BLOCK	NA	NA	NA
X3	REAR SURFACE OF VEHICLE TO FIREWALL	NA	NA	NA
X4	REAR SURFACE OF VEHICLE TO UPPER LEADING EDGE OF RIGHT DOOR	122.8	122.9	-0.1
X5	REAR SURFACE OF VEHICLE TO UPPER LEADING EDGE OF LEFT DOOR	122.1	122.9	-0.8
X6	REAR SURFACE OF VEHICLE TO LOWER LEADING EDGE OF RIGHT DOOR	121.5	121.5	0.0
X7	REAR SURFACE OF VEHICLE TO LOWER LEADING EDGE OF LEFT DOOR	121.8	121.6	0.2
X8	REAR SURFACE OF VEHICLE TO UPPER TRAILING EDGE OF RIGHT DOOR	82.8	82.9	-0.1
X9	REAR SURFACE OF VEHICLE TO UPPER TRAILING EDGE OF LEFT DOOR	83.0	82.9	0.1
X10	REAR SURFACE OF VEHICLE TO LOWER TRAILING EDGE OF RIGHT DOOR	83.9	84.0	-0.1
X11	REAR SURFACE OF VEHICLE TO LOWER TRAILING EDGE OF LEFT DOOR	84.1	84.0	0.1
X12	REAR SURFACE OF VEHICLE TO BOTTOM OF "A" POST ON RIGHT SIDE	120.8	121.0	-0.2
X13	REAR SURFACE OF VEHICLE TO BOTTOM OF "A" POST ON LEFT SIDE	121.2	120.8	0.4
X14	REAR SURFACE OF VEHICLE TO FIREWALL - RIGHT SIDE	NA	NA	NA
X15	REAR SURFACE OF VEHICLE TO FIREWALL - LEFT SIDE	NA	NA	NA
X16	REAR SURFACE OF VEHICLE TO STEERING WHEEL CENTER	107.6	106.8	0.8
X17	CENTER OF STEERING COLUMN TO "A" POST	11.4	11.8	-0.4
X18	CENTER OF STEERING COLUMN TO HEADLINER	16.2	16.6	-0.4
X19	REAR SURFACE OF VEHICLE TO RIGHT SIDE OF FRONT BUMPER	176.2	179.6	-3.4
X20	REAR SURFACE OF VEHICLE TO LEFT SIDE OF FRONT BUMPER	174.8	179.6	-4.8
X21	LENGTH OF ENGINE BLOCK	17.0	17.0	0.0

CAMERA INFORMATION

TEST NO. 920312-2

CAMERA NUMBER	LOCATION	TYPE	LENS (mm)	SPEED (fps)	PURPOSE OF CAMERA DATA
1	Right wide	Photosonic 1B	25	492	Vehicle crush
2	Overhead wide	Photosonic 1B	17	498	Vehicle crush

TEST CONDITIONS

TEST NUMBER: 920312-3

DATE OF TEST: 03/12/92

TIME OF TEST: 1141

AMBIENT TEMPERATURE AT IMPACT AREA: 70° F

VEHICLE VELOCITY: 14.8 MPH

SUBJECT VEHICLE DATA

LENGTH OF DIRECT CONTACT DAMAGE: 11.0

MAXIMUM CUMULATIVE CRUSH
AT VEHICLE BUMPER HEIGHT: 18.0

VEHICLE ATTITUDES:

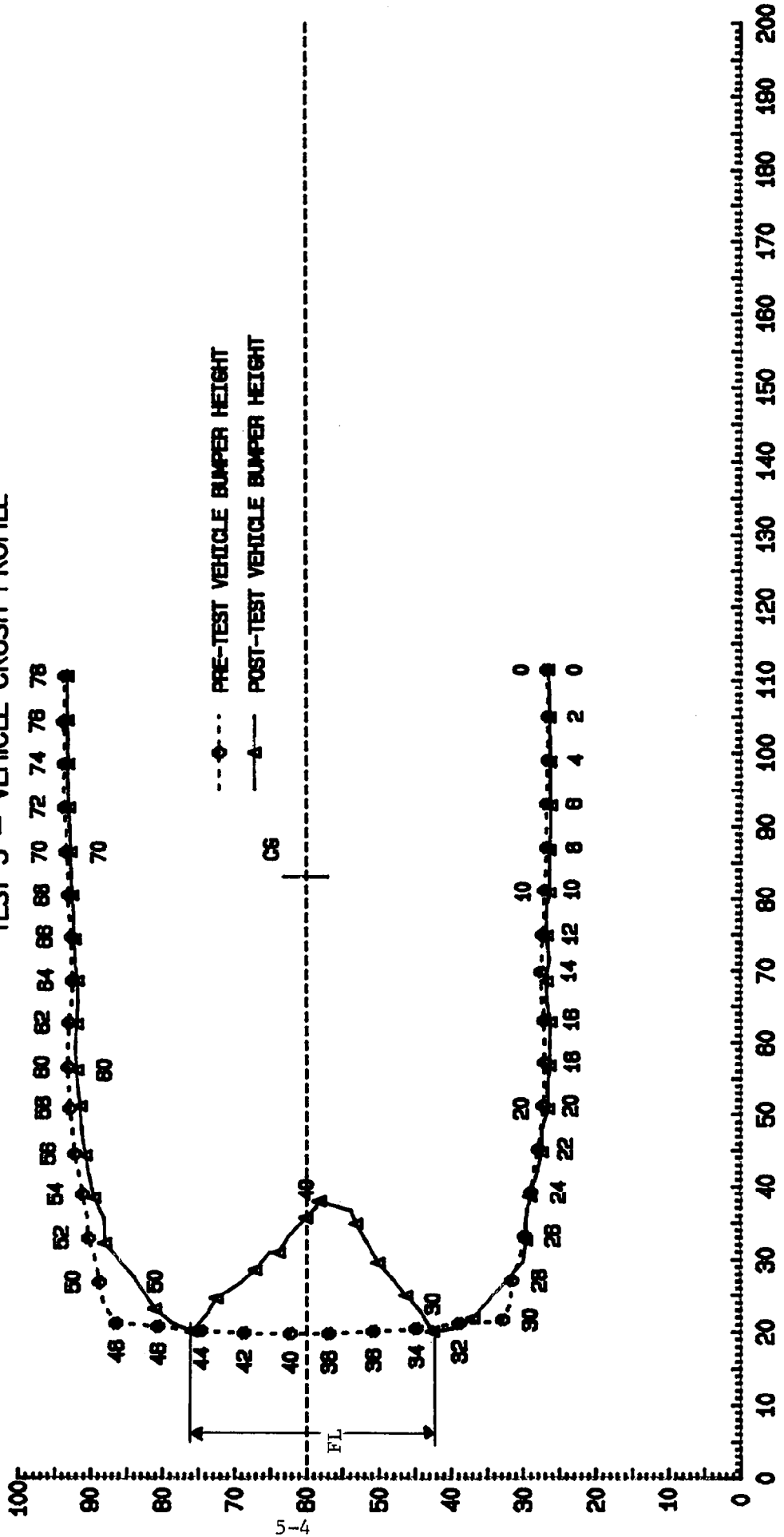
POST-TEST: LF: 29.0 RF: 29.7 LR: 26.8 RR: 26.9

ALL DISTANCE MEASUREMENTS ARE IN INCHES.

SECTION 5.0

TEST 920312-3 SUMMARY

TEST 3 - VEHICLE CRUSH PROFILE



VEHICLE CRUSH AT VEHICLE BUMPER HEIGHT

TEST NO. 920312-3

FL	<u>40.1</u>
C1	<u>0.0</u>
C2	<u>6.4</u>
C3	<u>17.0</u>
C4	<u>13.0</u>
C5	<u>7.0</u>
C6	<u>1.2</u>

NOTE: FL is post-test length of damage surface

Measurements C1 - C6 were spaced equally apart over the post-impact corner to corner length of the vehicle front. This distance is defined as length "FL" on the vehicle crush profile plot.

ALL MEASUREMENTS ARE IN INCHES

VEHICLE ACCELEROMETER LOCATIONS AND DATA SUMMARY

TEST NUMBER 920312-3

No.	LOCATION	X*	Y*	Z*	POSITIVE DIRECTION		NEGATIVE DIRECTION	
					MAX G	MSEC	MAX G	MSEC
1	VEHICLE CG	105.1	0.0	17.0				
	LONGITUDINAL				3.0	158.1	24.0	62.6
	LATERAL				6.2	68.6	4.7	98.9
	RESULTANT				24.0	62.6		
2	LEFT REAR SILL	77.0	24.1	15.8				
	LONGITUDINAL				---	---	25.8	62.8
3	RIGHT REAR SILL	77.2	-24.1	15.6				
	LONGITUDINAL				2.4	158.0	21.4	67.4

* ALL MEASUREMENTS OF ACCELEROMETER LOCATIONS ARE IN INCHES.

REFERENCE: X: + FORWARD FROM VEHICLE'S REAR BUMPER
 Y: + LEFTWARD FROM VEHICLE'S LONGITUDINAL CENTERLINE
 Z: + UPWARD FROM GROUND LEVEL

See TEST ANOMALIES

IMPACTED VEHICLE MEASUREMENTS

VEHICLE MAKE/MODEL: Ford/Tempo

TEST NUMBER: 920312-3

ALL MEASUREMENTS ARE IN INCHES

NO.	TYPE OF MEASUREMENT	PRE-TEST	POST-TEST	DIFF.
X1	TOTAL LENGTH OF VEHICLE AT CENTERLINE	163.1	156.8	6.3
X2	REAR SURFACE OF VEHICLE TO FRONT OF ENGINE BLOCK	NA	NA	NA
X3	REAR SURFACE OF VEHICLE TO FIREWALL	NA	NA	NA
X4	REAR SURFACE OF VEHICLE TO UPPER LEADING EDGE OF RIGHT DOOR	122.9	122.9	0.0
X5	REAR SURFACE OF VEHICLE TO UPPER LEADING EDGE OF LEFT DOOR	122.9	122.9	0.0
X6	REAR SURFACE OF VEHICLE TO LOWER LEADING EDGE OF RIGHT DOOR	121.5	121.8	-0.3
X7	REAR SURFACE OF VEHICLE TO LOWER LEADING EDGE OF LEFT DOOR	121.6	121.8	-0.2
X8	REAR SURFACE OF VEHICLE TO UPPER TRAILING EDGE OF RIGHT DOOR	82.9	83.0	-0.1
X9	REAR SURFACE OF VEHICLE TO UPPER TRAILING EDGE OF LEFT DOOR	82.9	82.8	0.1
X10	REAR SURFACE OF VEHICLE TO LOWER TRAILING EDGE OF RIGHT DOOR	84.0	84.1	-0.1
X11	REAR SURFACE OF VEHICLE TO LOWER TRAILING EDGE OF LEFT DOOR	84.0	84.1	-0.1
X12	REAR SURFACE OF VEHICLE TO BOTTOM OF "A" POST ON RIGHT SIDE	121.0	121.2	-0.2
X13	REAR SURFACE OF VEHICLE TO BOTTOM OF "A" POST ON LEFT SIDE	120.8	120.3	0.5
X14	REAR SURFACE OF VEHICLE TO FIREWALL - RIGHT SIDE	NA	NA	NA
X15	REAR SURFACE OF VEHICLE TO FIREWALL - LEFT SIDE	NA	NA	NA
X16	REAR SURFACE OF VEHICLE TO STEERING WHEEL CENTER	106.8	106.0	0.8
X17	CENTER OF STEERING COLUMN TO "A" POST	11.8	11.3	0.5
X18	CENTER OF STEERING COLUMN TO HEADLINER	16.6	16.5	0.1
X19	REAR SURFACE OF VEHICLE TO RIGHT SIDE OF FRONT BUMPER	179.6	176.4	3.2
X20	REAR SURFACE OF VEHICLE TO LEFT SIDE OF FRONT BUMPER	179.6	176.8	2.8
X21	LENGTH OF ENGINE BLOCK	17.0	17.0	0.0

CAMERA INFORMATION

TEST NO. 920312-3

CAMERA NUMBER	LOCATION	TYPE	LENS (mm)	SPEED (fps)	PURPOSE OF CAMERA DATA
1	Right wide	Photosonic 1B	25	492	Vehicle crush
2	Overhead wide	Photosonic 1B	17	498	Vehicle crush

TEST CONDITIONS

TEST NUMBER: 920312-4

DATE OF TEST: 03/12/92

TIME OF TEST: 1253

AMBIENT TEMPERATURE AT IMPACT AREA: 70° F

VEHICLE VELOCITY: 20.0 MPH

SUBJECT VEHICLE DATA

LENGTH OF DIRECT CONTACT DAMAGE: 12.0

MAXIMUM CUMULATIVE CRUSH
AT VEHICLE BUMPER HEIGHT: 27.0

VEHICLE ATTITUDES:

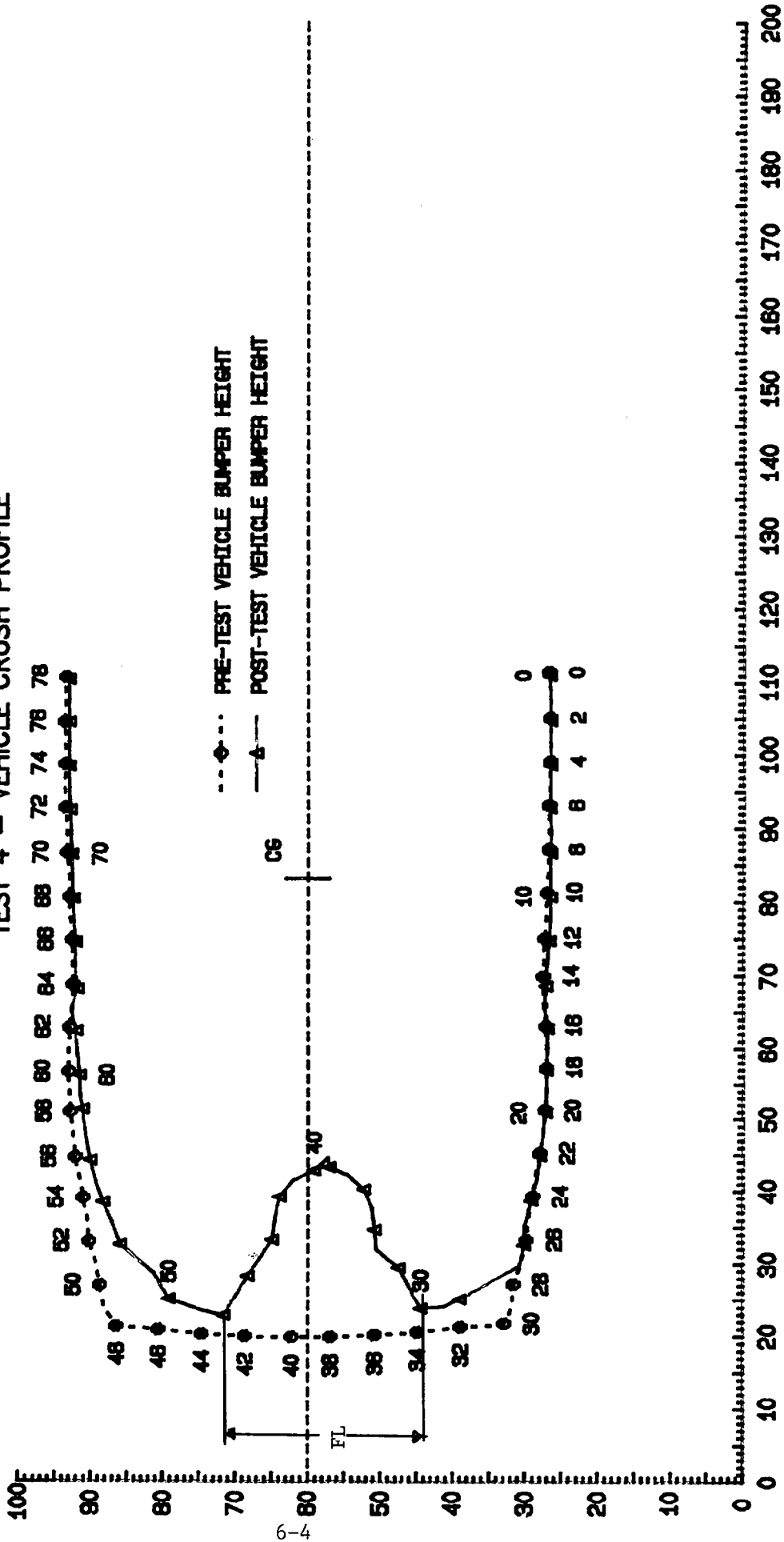
POST-TEST: LF: 30.0 RF: 30.0 LR: 26.4 RR: 26.8

ALL DISTANCE MEASUREMENTS ARE IN INCHES.

SECTION 6.0

TEST 920312-4 SUMMARY

TEST 4 - VEHICLE CRUSH PROFILE



VEHICLE CRUSH AT VEHICLE BUMPER HEIGHT

TEST NO. 920312-4

FL	<u>32.2</u>
C1	<u>3.0</u>
C2	<u>11.0</u>
C3	<u>23.0</u>
C4	<u>21.0</u>
C5	<u>3.0</u>
C6	<u>0.0</u>

NOTE: FL is post-test length of damage surface

Measurements C1 - C6 were spaced equally apart over the post-impact corner to corner length of the vehicle front. This distance is defined as length "FL" on the vehicle crush profile plot.

ALL MEASUREMENTS ARE IN INCHES

VEHICLE ACCELEROMETER LOCATIONS AND DATA SUMMARY

TEST NUMBER 920312-4

No.	LOCATION	X*	Y*	Z*	POSITIVE DIRECTION		NEGATIVE DIRECTION	
					MAX G	MSEC	MAX G	MSEC
1	VEHICLE CG	105.1	0.0	17.0				
	LONGITUDINAL				2.3	113.6	43.2	25.5
	LATERAL				15.5	19.8	17.0	11.6
	RESULTANT				44.2	25.6		
2	LEFT REAR SILL	77.0	24.1	15.8				
	LONGITUDINAL				1.5	112.5	29.8	31.0
3	RIGHT REAR SILL	77.2	-24.1	15.6				
	LONGITUDINAL				1.8	103.6	30.2	30.6

* ALL MEASUREMENTS OF ACCELEROMETER LOCATIONS ARE IN INCHES.

REFERENCE: X: + FORWARD FROM VEHICLE'S REAR BUMPER
 Y: + LEFTWARD FROM VEHICLE'S LONGITUDINAL CENTERLINE
 Z: + UPWARD FROM GROUND LEVEL

IMPACTED VEHICLE MEASUREMENTS

VEHICLE MAKE/MODEL: Ford/Tempo TEST NUMBER: 920312-4

NO.	TYPE OF MEASUREMENT	ALL MEASUREMENTS ARE IN INCHES		
		PRE-TEST	POST-TEST	DIFF.
X1	TOTAL LENGTH OF VEHICLE AT CENTERLINE	156.8	151.1	5.7
X2	REAR SURFACE OF VEHICLE TO FRONT OF ENGINE BLOCK	NA	NA	NA
X3	REAR SURFACE OF VEHICLE TO FIREWALL	NA	NA	NA
X4	REAR SURFACE OF VEHICLE TO UPPER LEADING EDGE OF RIGHT DOOR	122.9	122.6	0.3
X5	REAR SURFACE OF VEHICLE TO UPPER LEADING EDGE OF LEFT DOOR	122.9	123.0	-0.1
X6	REAR SURFACE OF VEHICLE TO LOWER LEADING EDGE OF RIGHT DOOR	121.8	121.7	0.1
X7	REAR SURFACE OF VEHICLE TO LOWER LEADING EDGE OF LEFT DOOR	121.8	121.8	0.0
X8	REAR SURFACE OF VEHICLE TO UPPER TRAILING EDGE OF RIGHT DOOR	83.0	82.9	0.1
X9	REAR SURFACE OF VEHICLE TO UPPER TRAILING EDGE OF LEFT DOOR	82.8	83.1	-0.3
X10	REAR SURFACE OF VEHICLE TO LOWER TRAILING EDGE OF RIGHT DOOR	84.1	84.0	0.1
X11	REAR SURFACE OF VEHICLE TO LOWER TRAILING EDGE OF LEFT DOOR	84.1	84.2	-0.1
X12	REAR SURFACE OF VEHICLE TO BOTTOM OF "A" POST ON RIGHT SIDE	121.2	120.9	0.3
X13	REAR SURFACE OF VEHICLE TO BOTTOM OF "A" POST ON LEFT SIDE	120.3	120.8	-0.5
X14	REAR SURFACE OF VEHICLE TO FIREWALL - RIGHT SIDE	NA	NA	NA
X15	REAR SURFACE OF VEHICLE TO FIREWALL - LEFT SIDE	NA	NA	NA
X16	REAR SURFACE OF VEHICLE TO STEERING WHEEL CENTER	106.0	108.6	-2.6
X17	CENTER OF STEERING COLUMN TO "A" POST	11.3	10.9	0.4
X18	CENTER OF STEERING COLUMN TO HEADLINER	16.5	16.5	0.0
X19	REAR SURFACE OF VEHICLE TO RIGHT SIDE OF FRONT BUMPER	176.4	170.9	5.5
X20	REAR SURFACE OF VEHICLE TO LEFT SIDE OF FRONT BUMPER	176.8	171.2	5.6
X21	LENGTH OF ENGINE BLOCK	17.0	17.0	0.0

CAMERA INFORMATION

TEST NO. 920312-4

CAMERA NUMBER	LOCATION	TYPE	LENS (mm)	SPEED (fps)	PURPOSE OF CAMERA DATA
1	Right wide	Photosonic 1B	25	492	Vehicle crush
2	Overhead wide	Photosonic 1B	17	495	Vehicle crush

TEST CONDITIONS

TEST NUMBER: 920312-5

DATE OF TEST: 03/12/92

TIME OF TEST: 1359

AMBIENT TEMPERATURE AT IMPACT AREA: 70° F

VEHICLE VELOCITY: 35.1 MPH

SUBJECT VEHICLE DATA

LENGTH OF DIRECT CONTACT DAMAGE: 12.0

MAXIMUM CUMULATIVE CRUSH
AT VEHICLE BUMPER HEIGHT: 39.0

VEHICLE ATTITUDES:

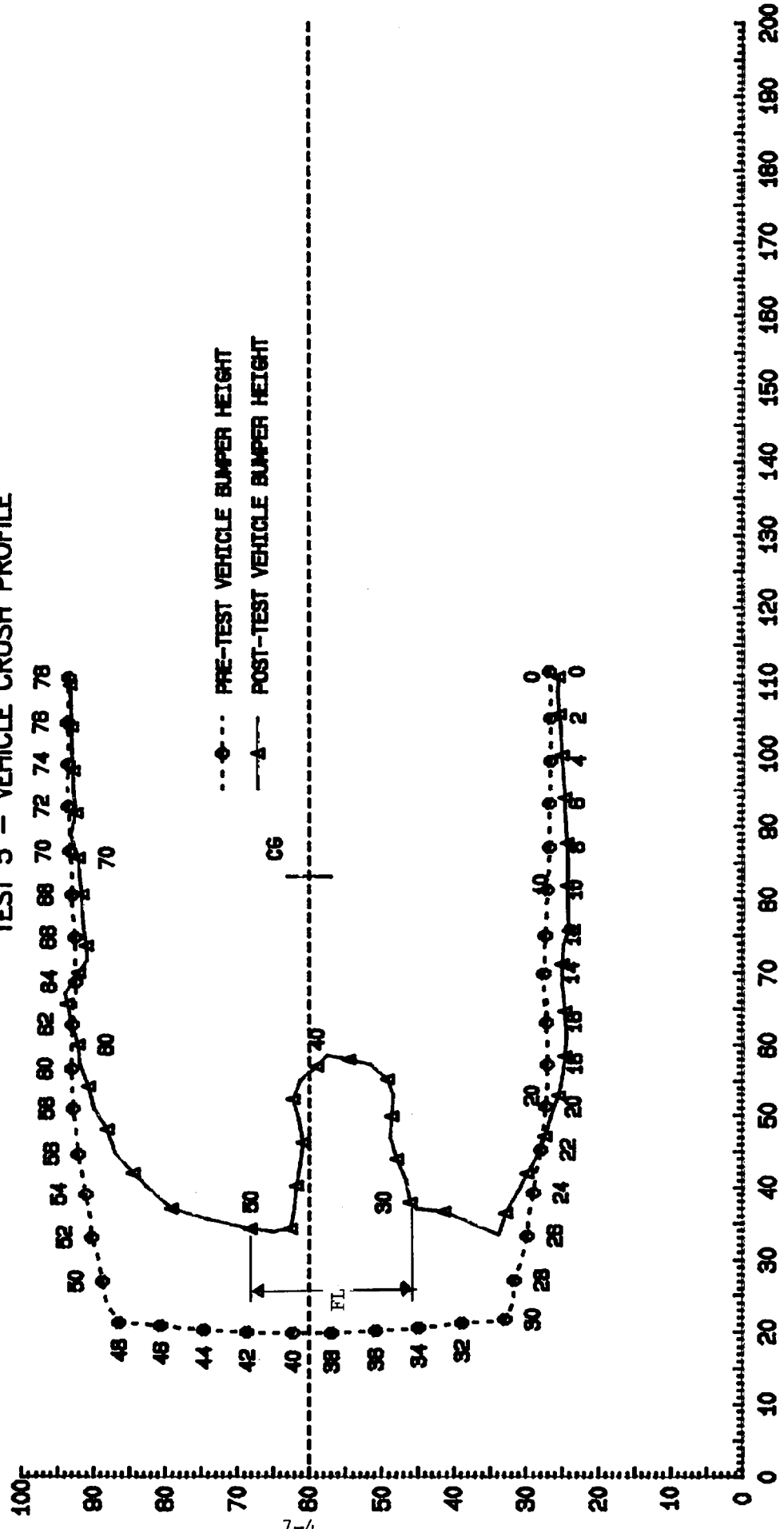
POST-TEST: LF: 29.5 RF: 31.0 LR: 26.0 RR: 25.0

ALL DISTANCE MEASUREMENTS ARE IN INCHES.

SECTION 7.0

TEST 920312-5 SUMMARY

TEST 5 - VEHICLE CRUSH PROFILE



VEHICLE CRUSH AT VEHICLE BUMPER HEIGHT

TEST NO. 920312-5

FL	<u>16.0</u>
C1	<u>16.0</u>
C2	<u>22.0</u>
C3	<u>36.4</u>
C4	<u>36.0</u>
C5	<u>16.0</u>
C6	<u>15.7</u>

NOTE: FL is post-test length of damage surface

Measurements C1 - C6 were spaced equally apart over the post-impact corner to corner length of the vehicle front. This distance is defined as length "FL" on the vehicle crush profile plot.

ALL MEASUREMENTS ARE IN INCHES

VEHICLE ACCELEROMETER LOCATIONS AND DATA SUMMARY

TEST NUMBER 920312-5

No.	LOCATION	X*	Y*	Z*	POSITIVE DIRECTION		NEGATIVE DIRECTION	
					MAX G	MSEC	MAX G	MSEC
1	VEHICLE CG	105.1	0.0	17.0				
	LONGITUDINAL				3.2	162.4	39.7	30.0
	LATERAL				9.0	35.5	11.9	53.8
	RESULTANT				40.7	30.1		
2	LEFT REAR SILL	77.0	24.1	15.8				
	LONGITUDINAL				2.2	130.5	38.1	21.4
3	RIGHT REAR SILL	77.2	-24.1	15.6				
	LONGITUDINAL				2.1	115.1	34.9	28.5

* ALL MEASUREMENTS OF ACCELEROMETER LOCATIONS ARE IN INCHES.

REFERENCE: X: + FORWARD FROM VEHICLE'S REAR BUMPER
 Y: + LEFTWARD FROM VEHICLE'S LONGITUDINAL CENTERLINE
 Z: + UPWARD FROM GROUND LEVEL

IMPACTED VEHICLE MEASUREMENTS

VEHICLE MAKE/MODEL: Ford/Tempo

TEST NUMBER: 920312-5

ALL MEASUREMENTS ARE IN INCHES

NO.	TYPE OF MEASUREMENT	PRE-TEST	POST-TEST	DIFF.
X1	TOTAL LENGTH OF VEHICLE AT CENTERLINE	151.1	136.9	14.2
X2	REAR SURFACE OF VEHICLE TO FRONT OF ENGINE BLOCK	NA	NA	NA
X3	REAR SURFACE OF VEHICLE TO FIREWALL	NA	NA	NA
X4	REAR SURFACE OF VEHICLE TO UPPER LEADING EDGE OF RIGHT DOOR	122.6	122.0	0.6
X5	REAR SURFACE OF VEHICLE TO UPPER LEADING EDGE OF LEFT DOOR	123.0	121.5	1.5
X6	REAR SURFACE OF VEHICLE TO LOWER LEADING EDGE OF RIGHT DOOR	121.7	121.0	0.7
X7	REAR SURFACE OF VEHICLE TO LOWER LEADING EDGE OF LEFT DOOR	121.8	120.6	1.2
X8	REAR SURFACE OF VEHICLE TO UPPER TRAILING EDGE OF RIGHT DOOR	82.9	82.5	0.4
X9	REAR SURFACE OF VEHICLE TO UPPER TRAILING EDGE OF LEFT DOOR	83.1	81.3	1.8
X10	REAR SURFACE OF VEHICLE TO LOWER TRAILING EDGE OF RIGHT DOOR	84.0	84.0	0.0
X11	REAR SURFACE OF VEHICLE TO LOWER TRAILING EDGE OF LEFT DOOR	84.2	84.2	0.0
X12	REAR SURFACE OF VEHICLE TO BOTTOM OF "A" POST ON RIGHT SIDE	120.9	120.4	0.5
X13	REAR SURFACE OF VEHICLE TO BOTTOM OF "A" POST ON LEFT SIDE	120.8	NA	NA
X14	REAR SURFACE OF VEHICLE TO FIREWALL - RIGHT SIDE	NA	NA	NA
X15	REAR SURFACE OF VEHICLE TO FIREWALL - LEFT SIDE	NA	NA	NA
X16	REAR SURFACE OF VEHICLE TO STEERING WHEEL CENTER	108.6	108.5	0.1
X17	CENTER OF STEERING COLUMN TO "A" POST	10.9	NA	NA
X18	CENTER OF STEERING COLUMN TO HEADLINER	16.5	15.6	0.9
X19	REAR SURFACE OF VEHICLE TO RIGHT SIDE OF FRONT BUMPER	170.9	159.5	11.4
X20	REAR SURFACE OF VEHICLE TO LEFT SIDE OF FRONT BUMPER	171.2	156.0	15.2
X21	LENGTH OF ENGINE BLOCK	17.0	17.0	0.0

CAMERA INFORMATION

TEST NO. 920312-5

CAMERA NUMBER	LOCATION	TYPE	LENS (mm)	SPEED (fps)	PURPOSE OF CAMERA DATA
1	Right wide	Photosonic 1B	25	495	Vehicle crush
2	Overhead wide	Photosonic 1B	17	495	Vehicle crush

LIST OF PHOTOGRAPHS

TEST NO. 920312-1

1. PRE-TEST FRONT VIEW
2. POST-TEST FRONT VIEW
3. PRE-TEST LEFT SIDE VIEW
4. POST-TEST LEFT SIDE VIEW
5. PRE-TEST RIGHT SIDE VIEW
6. POST-TEST RIGHT SIDE VIEW
7. PRE-TEST LEFT FRONT THREE-QUARTER VIEW
8. POST-TEST LEFT FRONT THREE-QUARTER VIEW
9. PRE-TEST RIGHT FRONT THREE-QUARTER VIEW
10. POST-TEST RIGHT FRONT THREE-QUARTER VIEW



Figure A-1. PRE-TEST FRONT VIEW



Figure A-2. POST-TEST FRONT VIEW
A-3



Figure A-3. PRE-TEST LEFT SIDE VIEW



Figure A-4. POST-TEST LEFT SIDE VIEW



Figure A-5. PRE-TEST RIGHT SIDE VIEW



Figure A-6. POST-TEST RIGHT SIDE VIEW
A-5



Figure A-7. PRE-TEST LEFT FRONT THREE-QUARTER VIEW



Figure A-8. POST-TEST LEFT FRONT THREE-QUARTER VIEW



Figure A-9. PRE-TEST RIGHT FRONT THREE-QUARTER VIEW



Figure A-10. POST-TEST RIGHT FRONT THREE-QUARTER VIEW
A-7

LIST OF PHOTOGRAPHS

TEST NO. 920312-2

1. POST-TEST FRONT VIEW
2. POST-TEST LEFT SIDE VIEW
3. POST-TEST RIGHT SIDE VIEW
4. POST-TEST LEFT FRONT THREE-QUARTER VIEW
5. POST-TEST RIGHT FRONT THREE-QUARTER VIEW



Figure A-1. POST-TEST FRONT VIEW



Figure A-2. POST-TEST LEFT SIDE VIEW



Figure A-3. POST-TEST RIGHT SIDE VIEW



Figure A-4. POST-TEST LEFT FRONT THREE-QUARTER VIEW
A-10



Figure A-5. POST-TEST RIGHT FRONT THREE-QUARTER VIEW

LIST OF PHOTOGRAPHS

TEST NO. 920312-3

1. POST-TEST FRONT VIEW
2. POST-TEST LEFT SIDE VIEW
3. POST-TEST RIGHT SIDE VIEW
4. POST-TEST LEFT FRONT THREE-QUARTER VIEW
5. POST-TEST RIGHT FRONT THREE-QUARTER VIEW



Figure A-1. POST-TEST FRONT VIEW



Figure A-2. POST-TEST LEFT SIDE VIEW
A-13



Figure A-3. POST-TEST RIGHT SIDE VIEW



Figure A-4. POST-TEST LEFT FRONT THREE-QUARTER VIEW



Figure A-5. POST-TEST RIGHT FRONT THREE-QUARTER VIEW

LIST OF PHOTOGRAPHS

TEST NO. 920312-4

1. POST-TEST FRONT VIEW
2. POST-TEST LEFT SIDE VIEW
3. POST-TEST RIGHT SIDE VIEW
4. POST-TEST LEFT FRONT THREE-QUARTER VIEW
5. POST-TEST RIGHT FRONT THREE-QUARTER VIEW

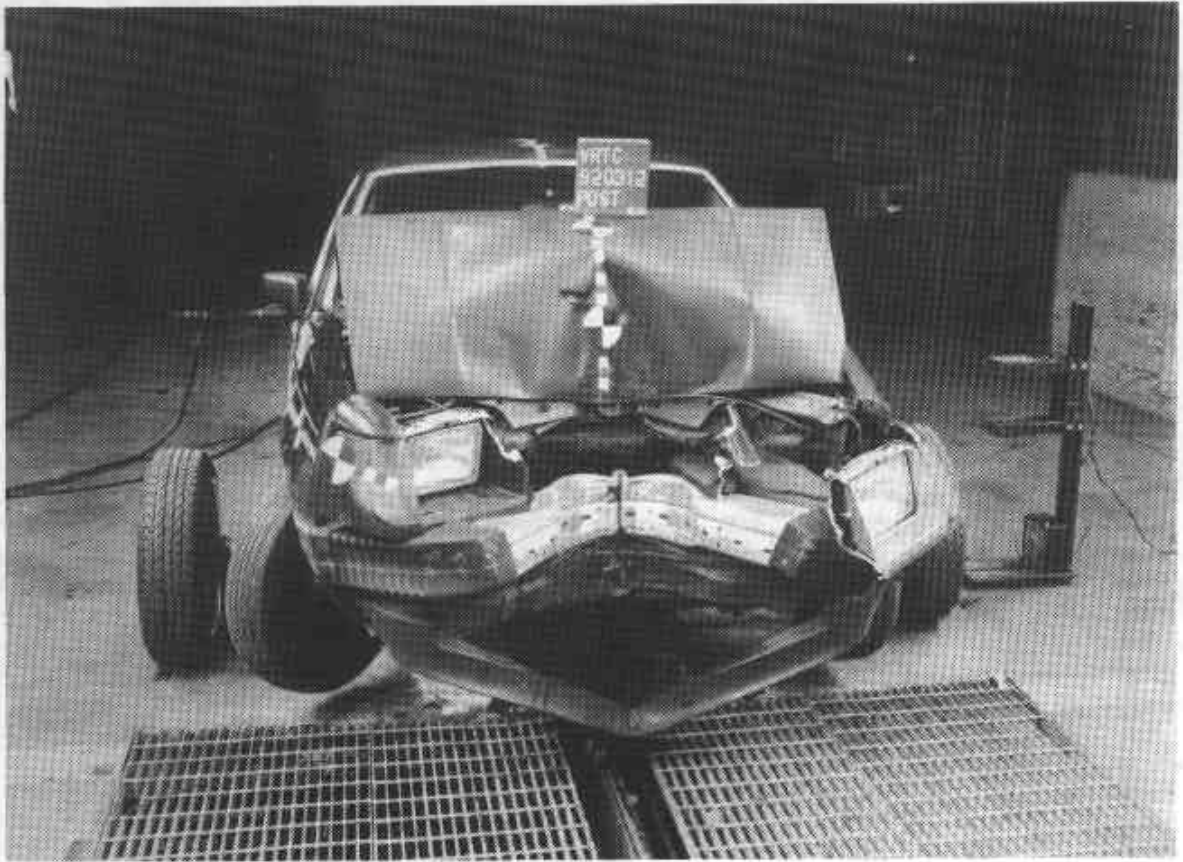


Figure A-1. POST-TEST FRONT VIEW



Figure A-2. POST-TEST LEFT SIDE VIEW
A-17



Figure A-3. POST-TEST RIGHT SIDE VIEW



Figure A-4. POST-TEST LEFT FRONT THREE-QUARTER VIEW
A-18



Figure A-5. POST-TEST RIGHT FRONT THREE-QUARTER VIEW

LIST OF PHOTOGRAPHS

TEST NO. 920312-5

1. POST-TEST FRONT VIEW
2. POST-TEST LEFT SIDE VIEW
3. POST-TEST RIGHT SIDE VIEW
4. POST-TEST LEFT FRONT THREE-QUARTER VIEW
5. POST-TEST RIGHT FRONT THREE-QUARTER VIEW



Figure A-1. POST-TEST FRONT VIEW



Figure A-2. POST-TEST LEFT SIDE VIEW
A-21



Figure A-3. POST-TEST RIGHT SIDE VIEW



Figure A-4. POST-TEST LEFT FRONT THREE-QUARTER VIEW



Figure A-5. POST-TEST RIGHT FRONT THREE-QUARTER VIEW

APPENDIX B

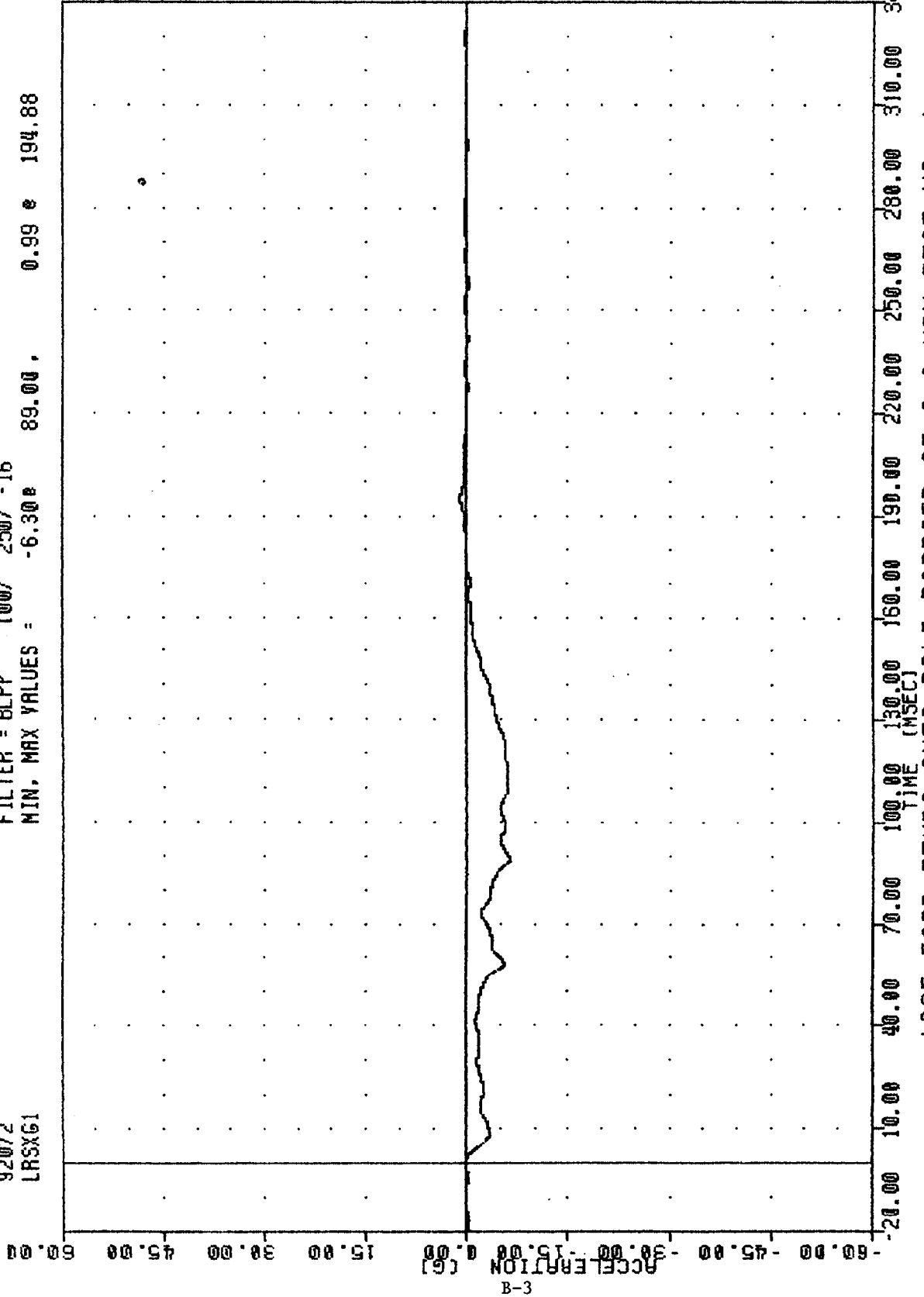
DATA PLOTS

DATA PLOTS

TEST NO. 920312-1

TRC , 920312-1
CRASH III DAMAGE ALGORITHM
92072
LRSXG1

FILTER = BLPP 100/ 250/ -16
MIN. MAX VALUES = -6.30e 89.00 , 0.99 e 194.88

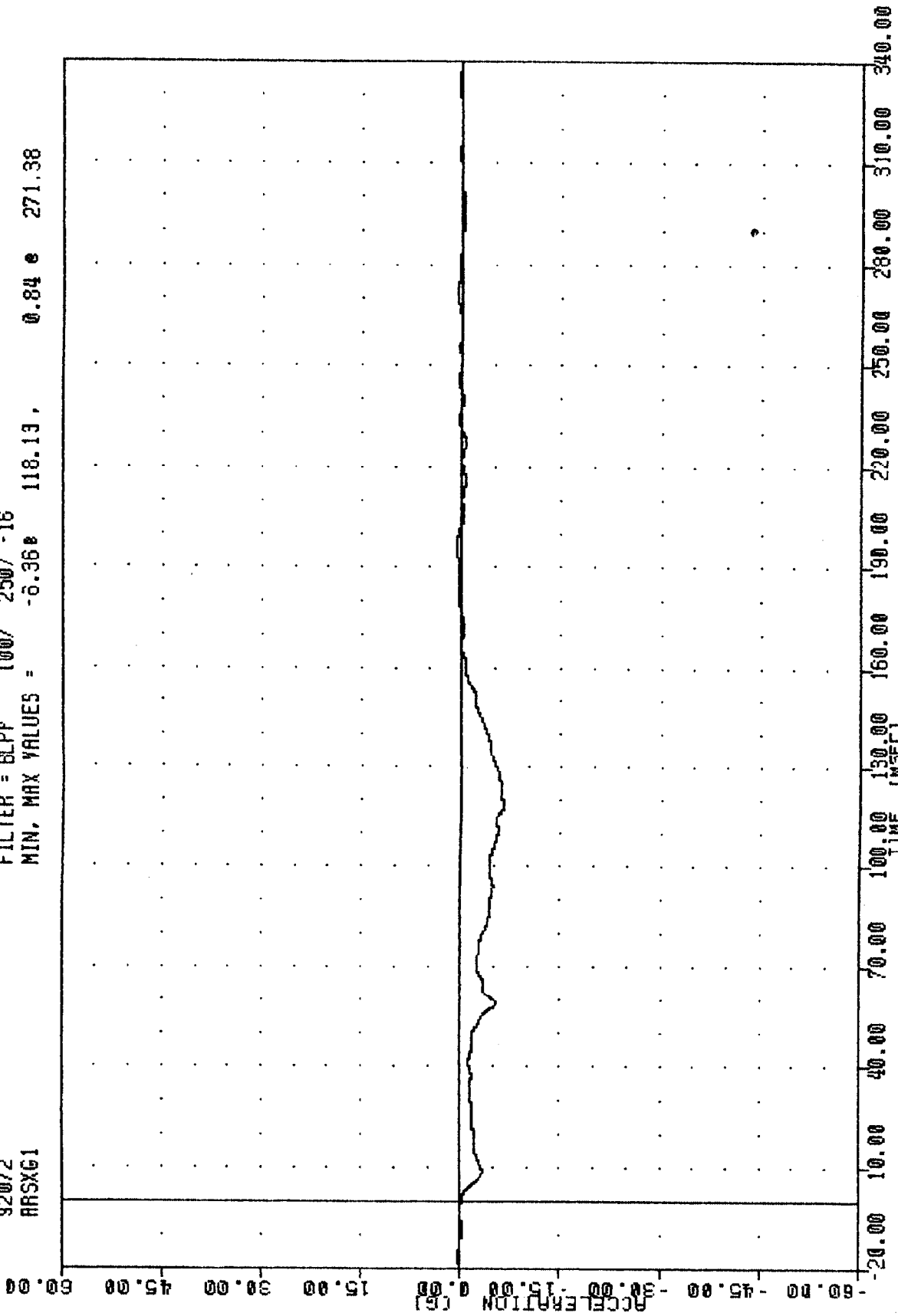


1985 FORD TEMPO INTO POLE BARRIER AT 9.6 MPH TEST NO. 1
LEFT REAR SILL X-AXIS ACCELERATION

TRC
CRASH III DAMAGE ALGORITHM
92072
ARSXG1

920312-1

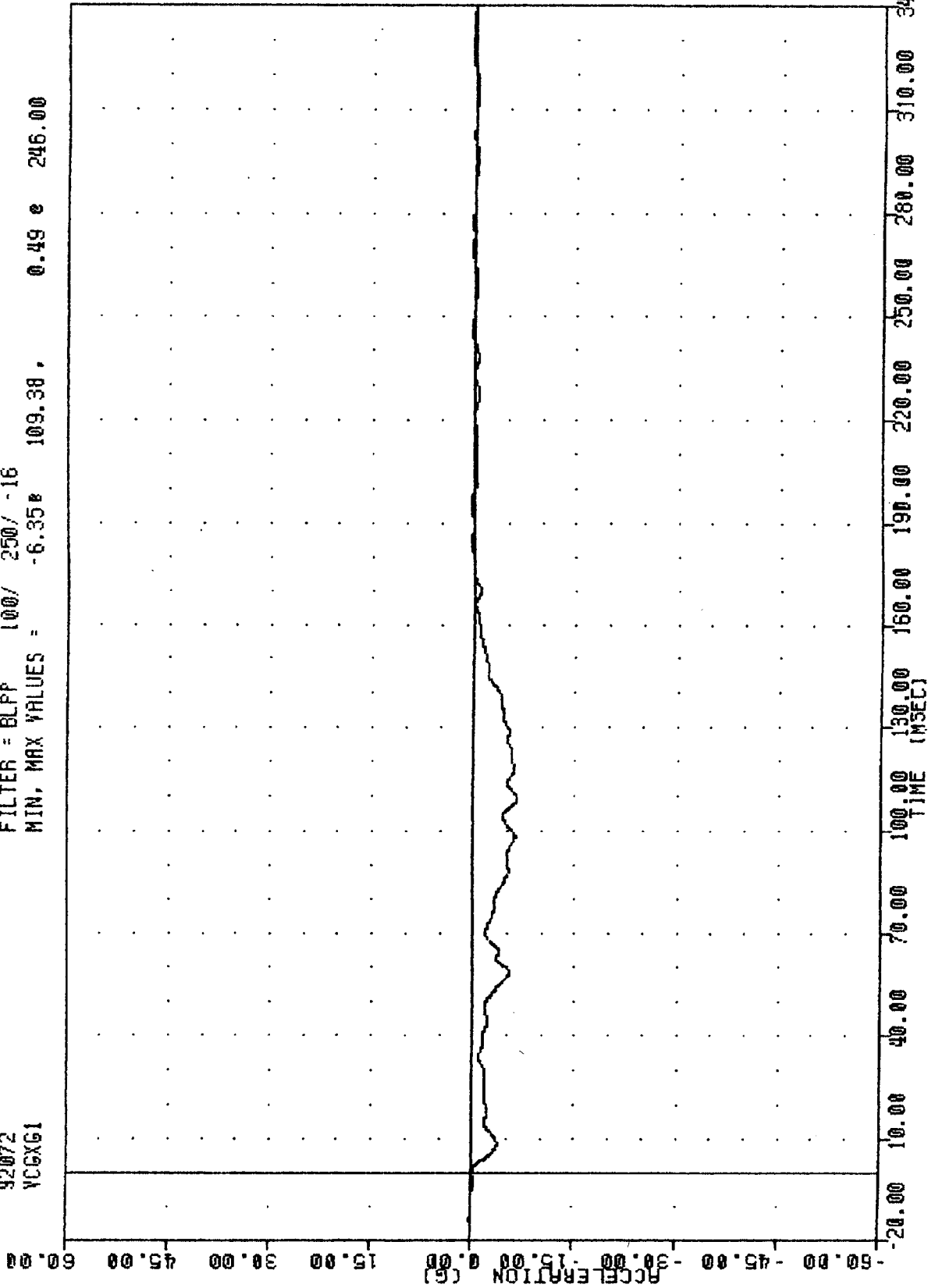
FILTER = BLPP 100/ 250/ -16
MIN. MAX VALUES = -0.36 118.13 0.84 271.38



1985 FORD TEMPO INTO POLE BARRIER AT 9.6 MPH TEST NO. 1
RIGHT REAR SILL X-AXIS ACCELERATION

TFC
CRASH III DAMAGE ALGORITHM
92072
YCCXG1

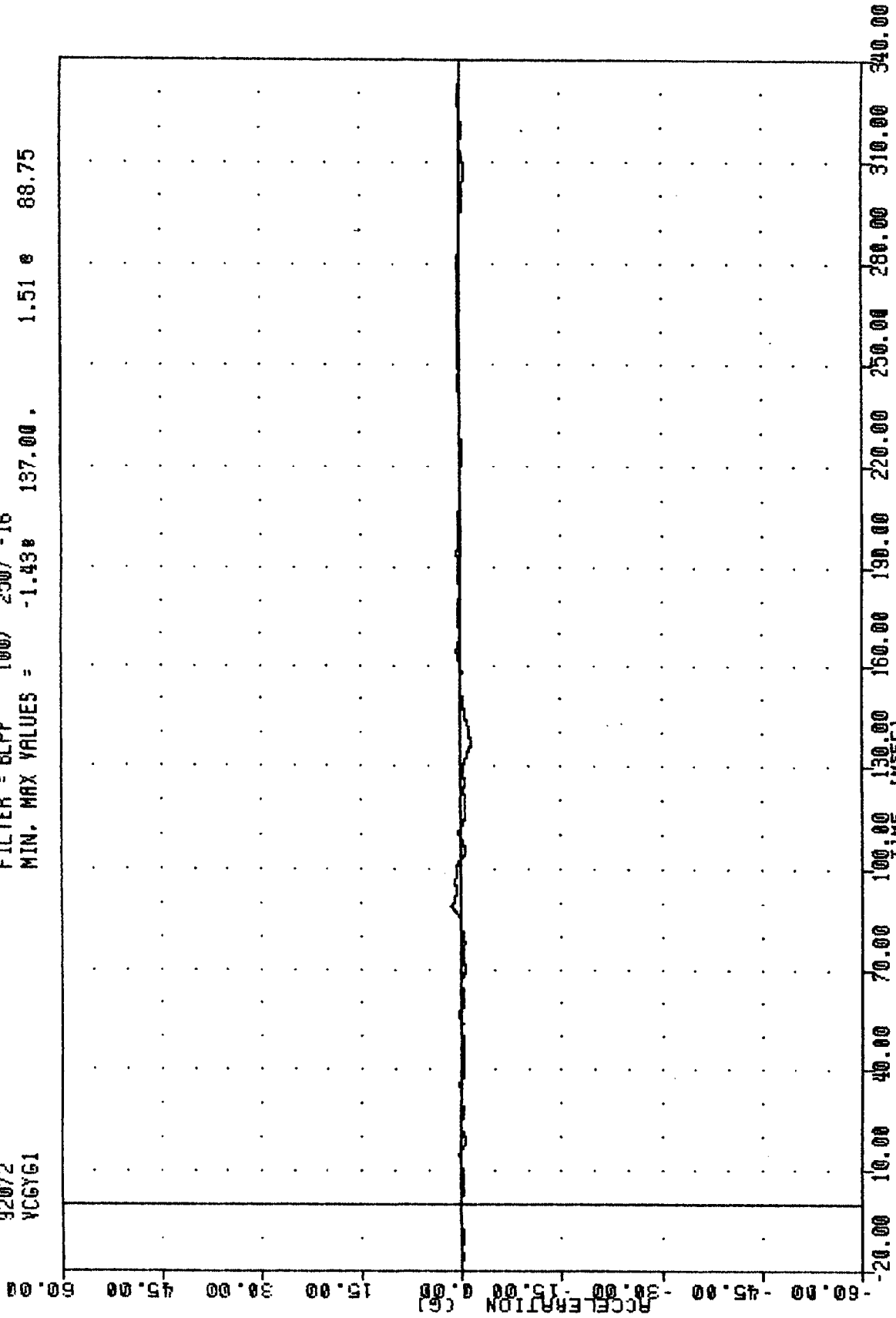
FILTER = BLPP 100/ 250/ -16
MIN, MAX VALUES = -6.35 109.38, 0.49 e 246.00



1985 FORD TEMPO INTO POLE BARRIER AT 9.6 MPH TEST NO. 1
VEHICLE CG X-AXIS ACCELERATION

TRC , 920312-1
 CRASH III DAMAGE ALGORITHM
 92072
 YCGY61

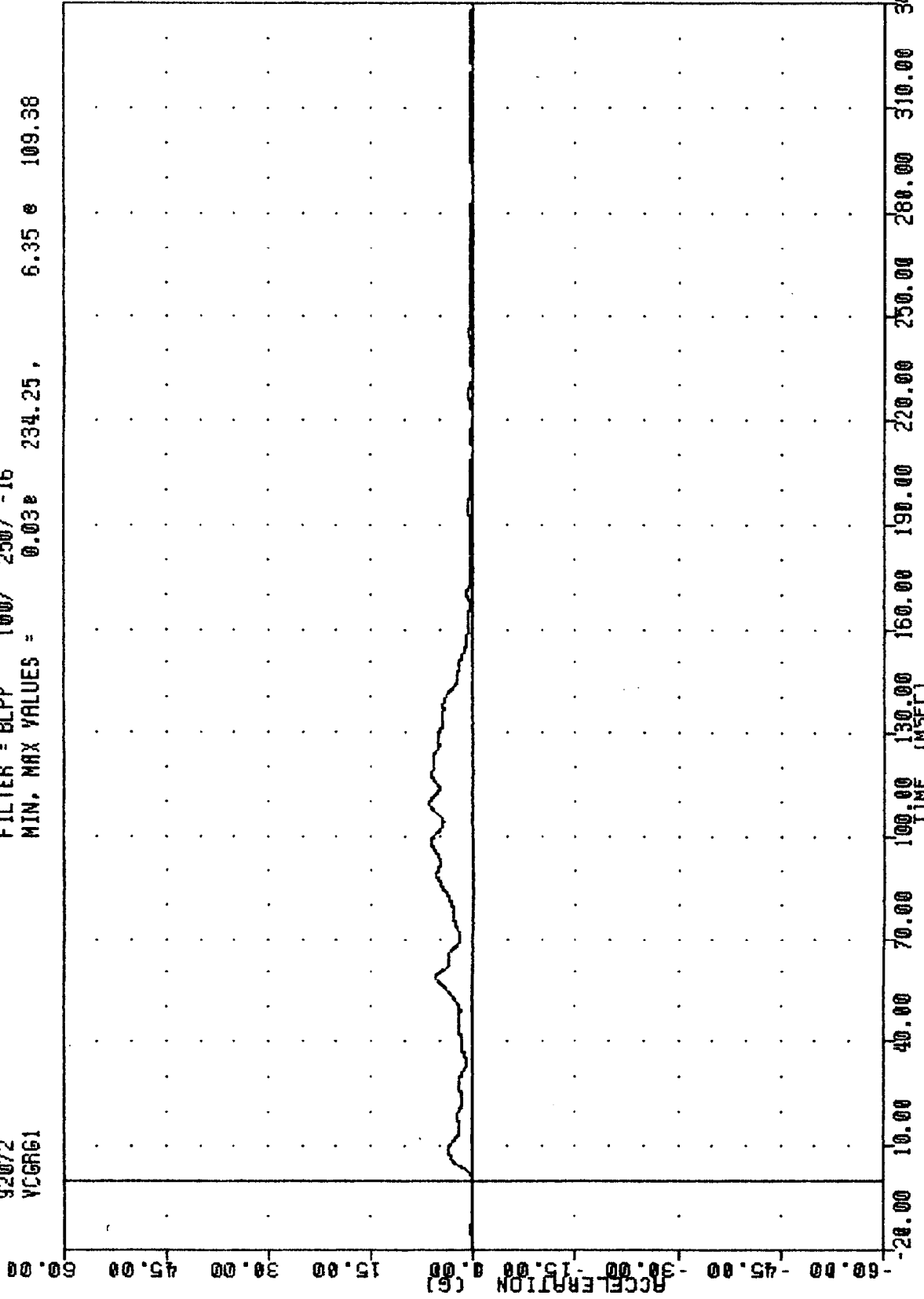
FILTER = BLPP 100/ 250/ -16
 MIN. MAX VALUES = -1.43e 137.00 . 1.51 e 88.75



1985 FORD TEMPO INTO POLE BARRIER AT 9.6 MPH TEST NO. 1
 VEHICLE CG Y-AXIS ACCELERATION

TRC , 920312-1
CRASH III DAMAGE ALGORITHM
92072
VCGR61

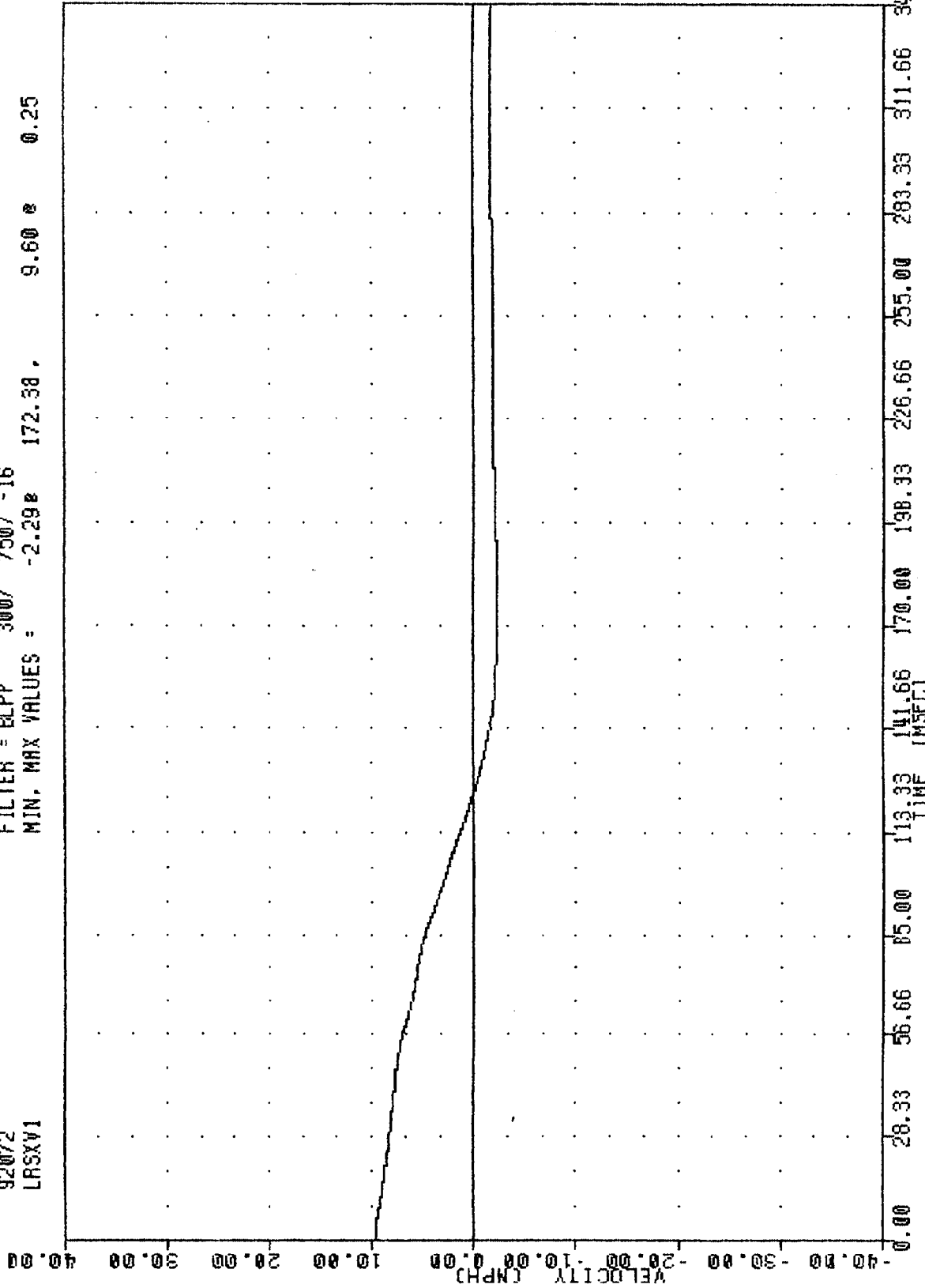
FILTER = BLPP 100/ 250/ -16
MIN, MAX VALUES = 0.03e 234.25, 6.35 e 109.38



1985 FORD TEMPO INTO POLE BARRIER AT 9.6 MPH TEST NO. 1
VEHICLE CG RESULTANT ACCELERATION

TRC , 920312-1
 CRASH III DAMAGE ALGORITHM
 92072
 LRSXV1

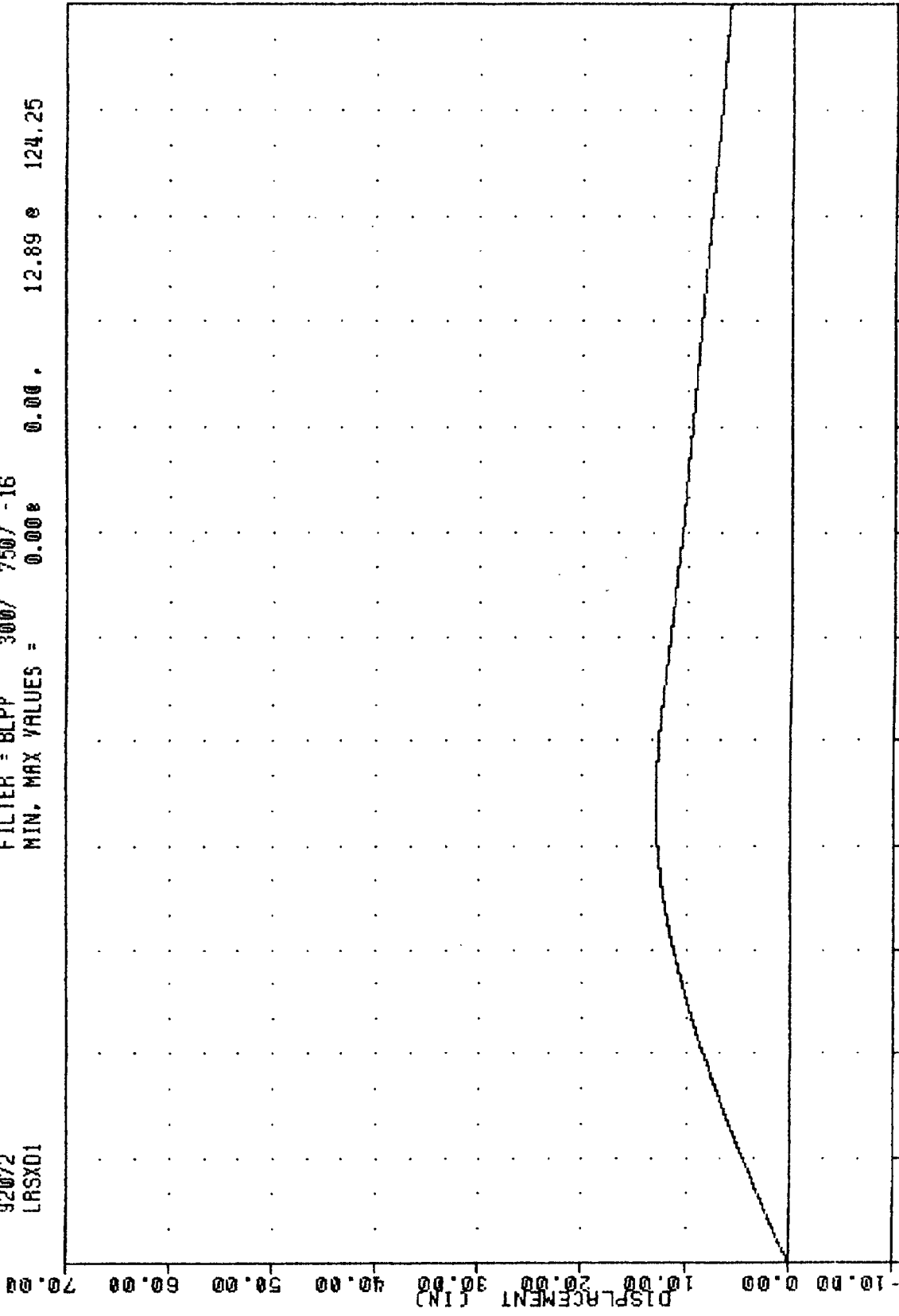
FILTER = BLPP 300/ 750/ -16
 MIN, MAX VALUES : -2.29E 172.38, 9.60 E 0.25



1985 FORD TEMPO INTO POLE BARRIER AT 9.6 MPH TEST NO. 1
 LEFT REAR SILL X-AXIS VELOCITY

TRC , 920312-1
 CRASH III DAMAGE ALGORITHM
 92072
 LRSXD1

FILTER = BLPP 300/ 750/ -16
 MIN. MAX VALUES = 0.00e 0.00. 12.89 e 124.25

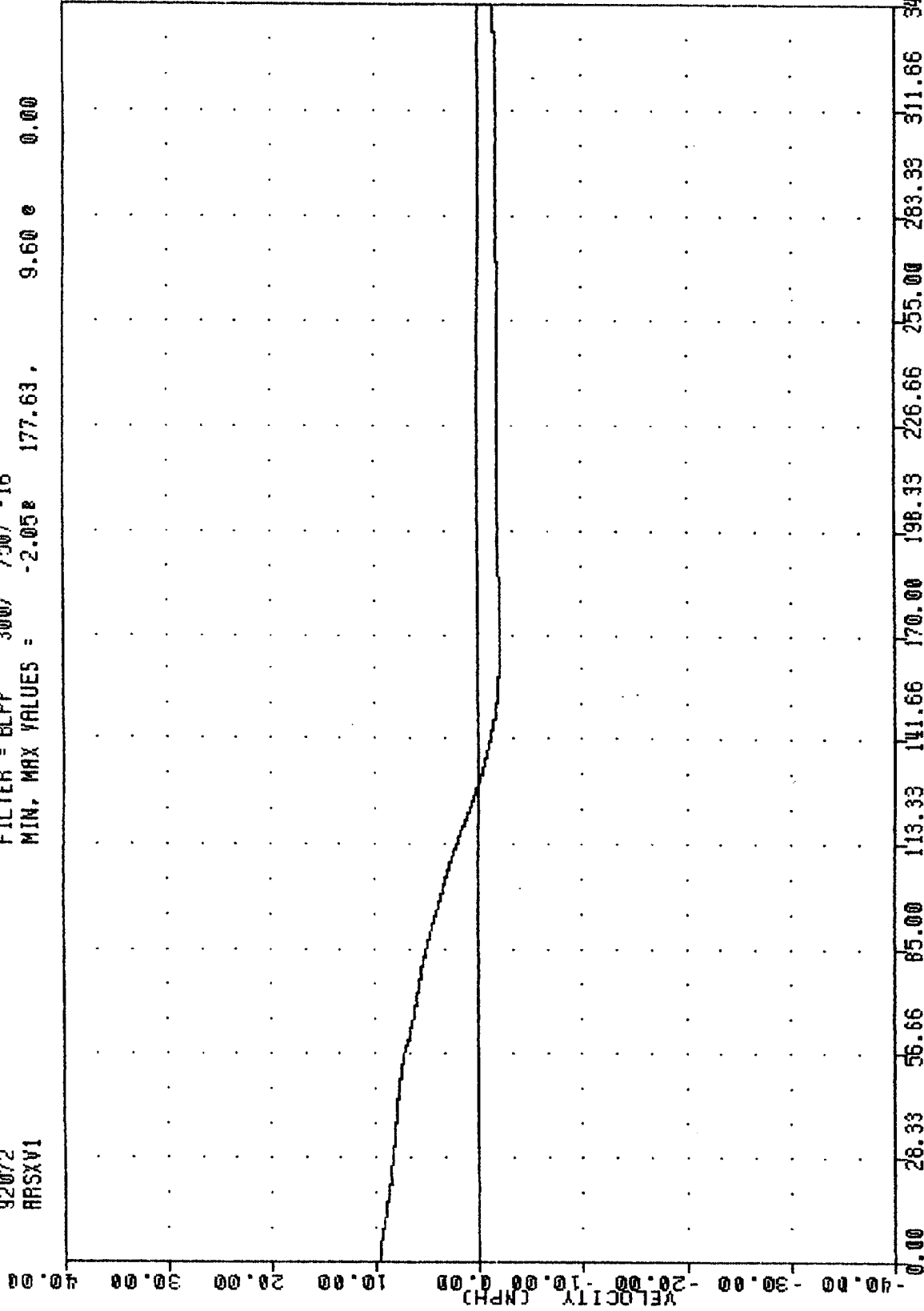


6-9

1985 FORD TEMPO INTO POLE BARRIER AT 9.6 MPH TEST NO. 1
 LEFT REAR SILL X-AXIS DISPLACEMENT

TRC 920312-1
 CRASH III DAMAGE ALGORITHM
 92072
 ARSXV1

FILTER = BLPP 300/ 750/ -16
 MIN. MAX VALUES = -2.05B 177.63, 9.60 e 0.00



1985 FORD TEMPO INTO POLE BARRIER AT 9.6 MPH TEST NO. 1
 RIGHT REAR SILL X-AXIS VELOCITY

TRC
 CRASH III DAMAGE ALGORITHM
 92072
 ARSXD1

, 920312-1

FILTER = BLPP 300/ 750/ -16
 MIN. MAX VALUES = 0.00 0.00 13.51 e 129.50

DISPLACEMENT (IN)

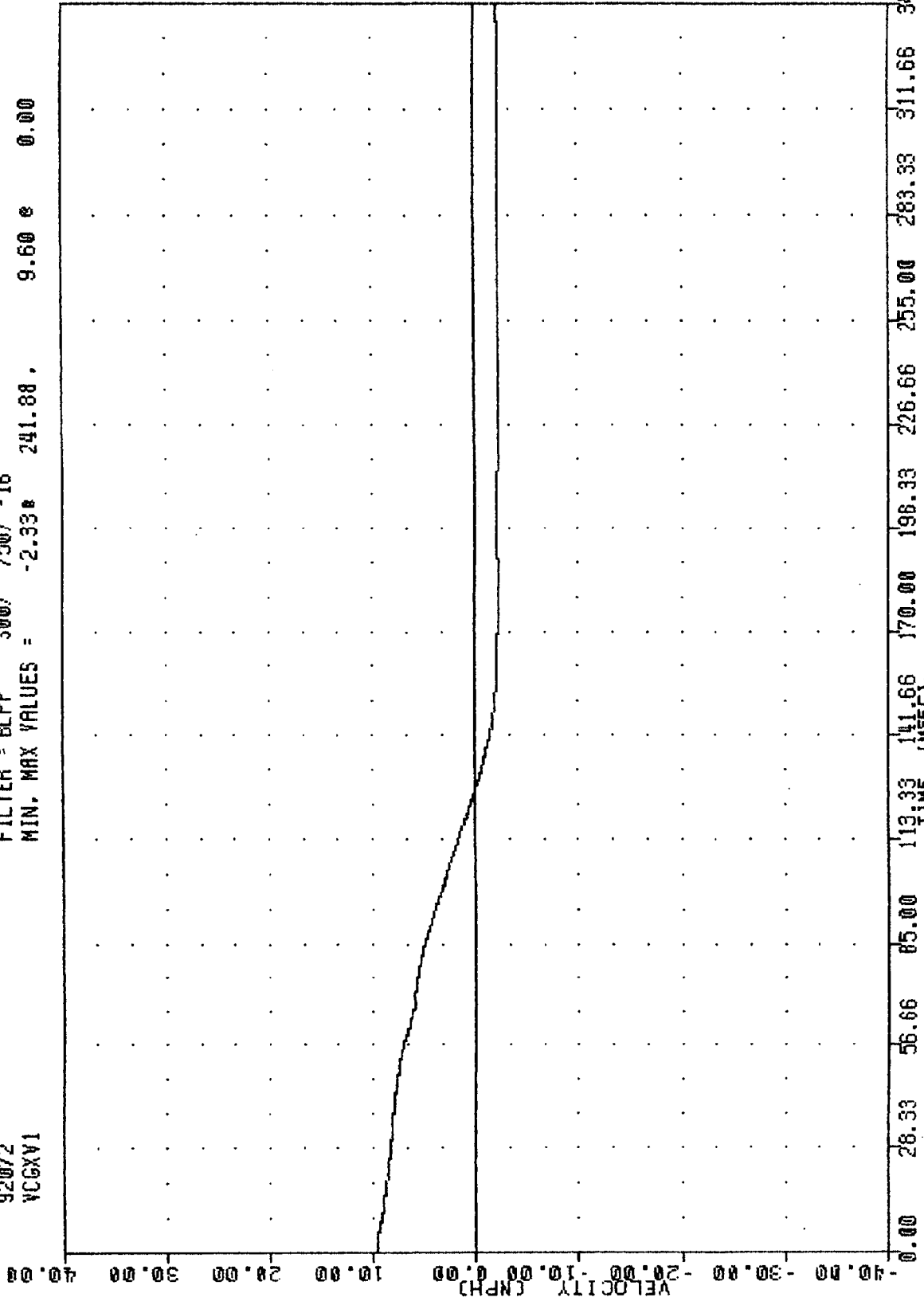


11-B

1985 FORD TEMPO INTO POLE BARRIER AT 9.6 MPH TEST NO. 1
 RIGHT REAR SILL X-AXIS DISPLACEMENT

TRC , 920312-1
 CRASH III DAMAGE ALGORITHM
 92072
 VCGXV1

FILTER = BLPP 300/ 750/ -16
 MIN. MAX VALUES = -2.33# 241.88, 9.60 # 0.00

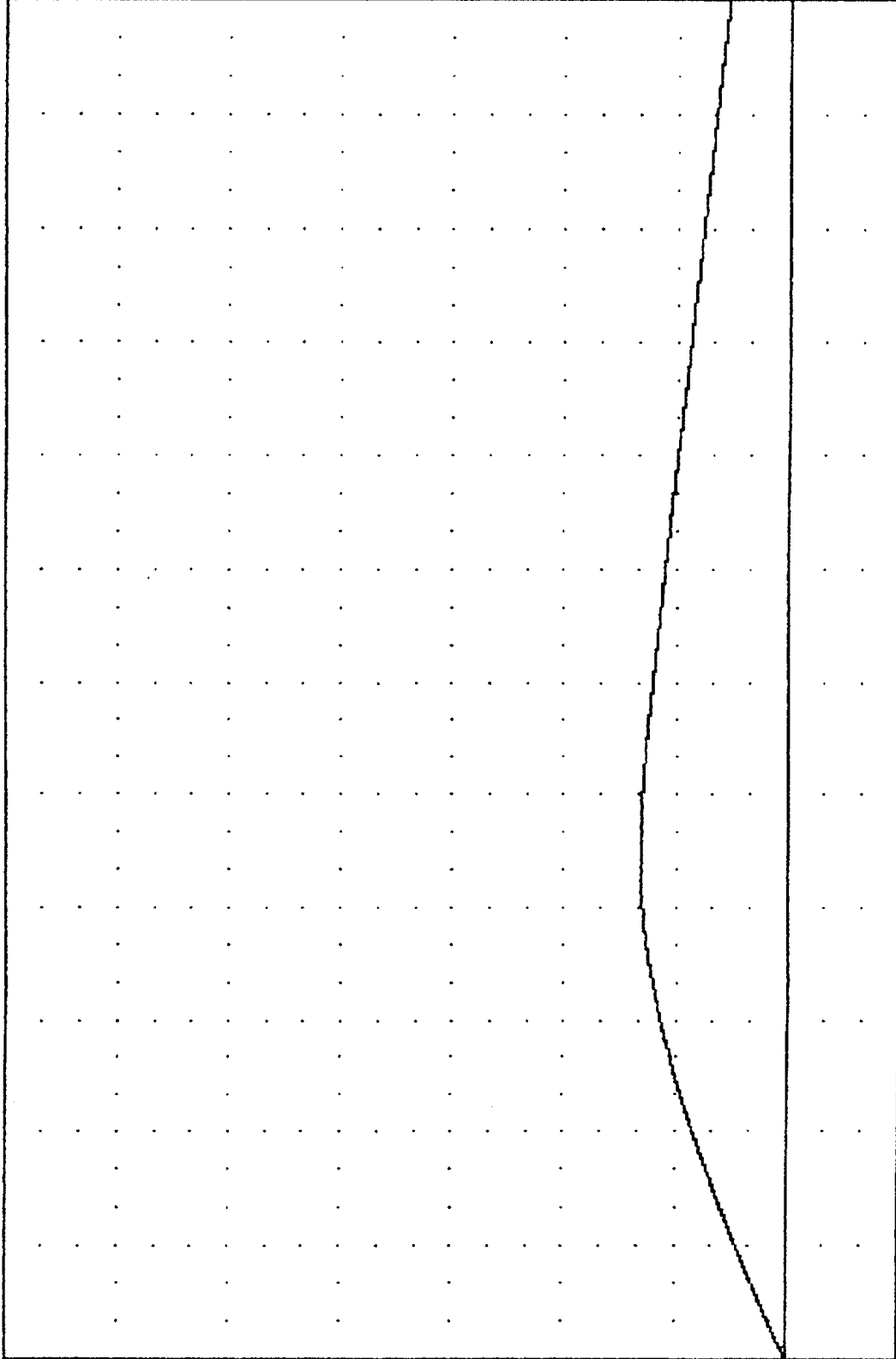


1985 FORD TEMPO INTO POLE BARRIER AT 9.6 MPH TEST NO. 1
 VEHICLE CG X-AXIS VELOCITY

TRC , 920312-1
 CRASH III DAMAGE ALGORITHM
 92072
 VCCXD1

FILTER = BLPP 300/ 750/ -16
 MIN. MAX VALUES = 0.00e 0.00. 13.19 e 127.25

DISPLACEMENT (IN) 70.00
 60.00
 50.00
 40.00
 30.00
 20.00
 10.00
 0.00
 -10.00

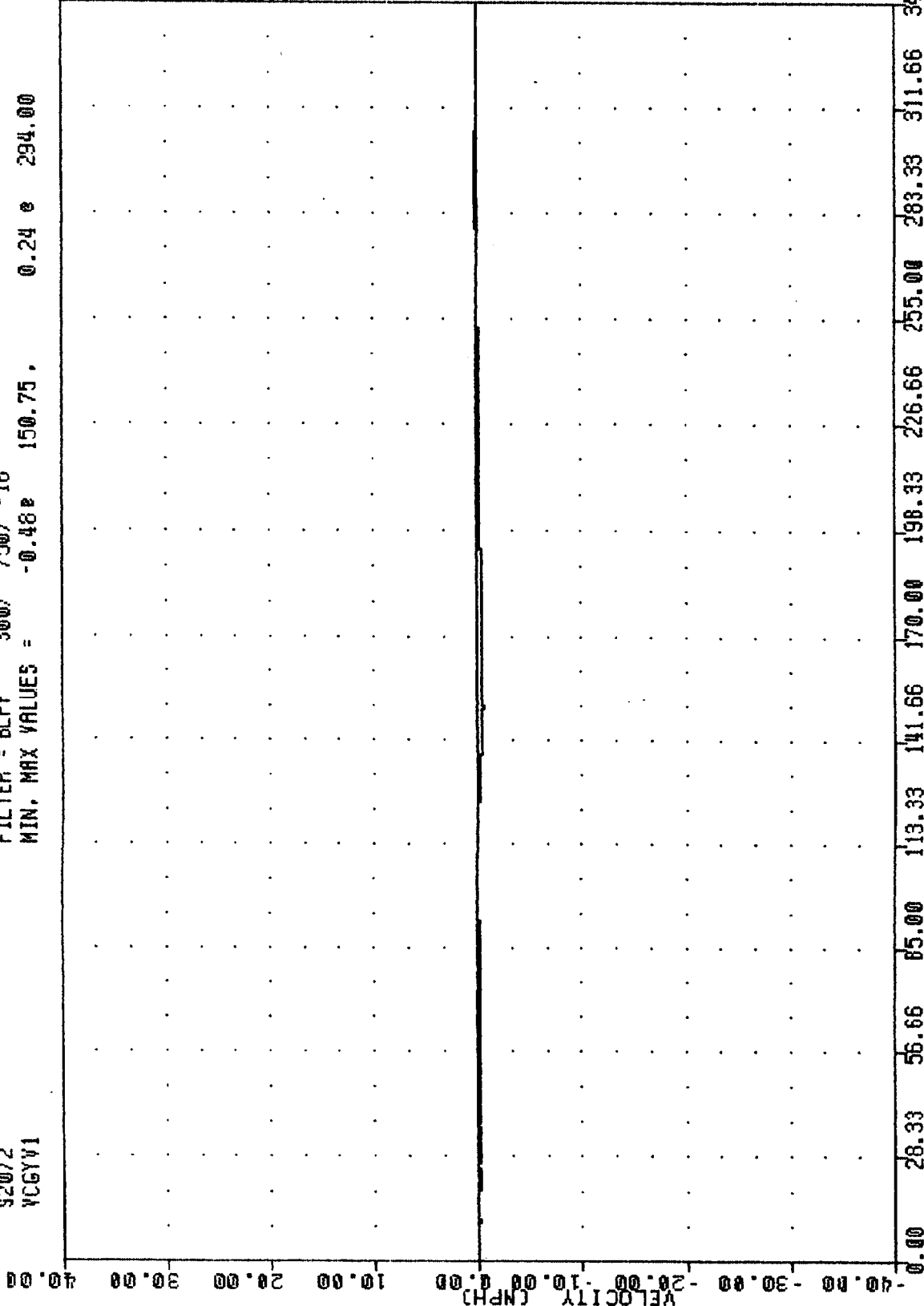


0.00 28.33 56.66 85.00 113.33 141.66 170.00 198.33 226.66 255.00 283.33 311.66 340.00
 TIME (MSEC)

1985 FORD TEMPO INTO POLE BARRIER AT 9.6 MPH TEST NO. 1
 VEHICLE CG X-AXIS DISPLACEMENT

TRC , 920312-1
 CRASH III DAMAGE ALGORITHM
 92072
 YCGYV1

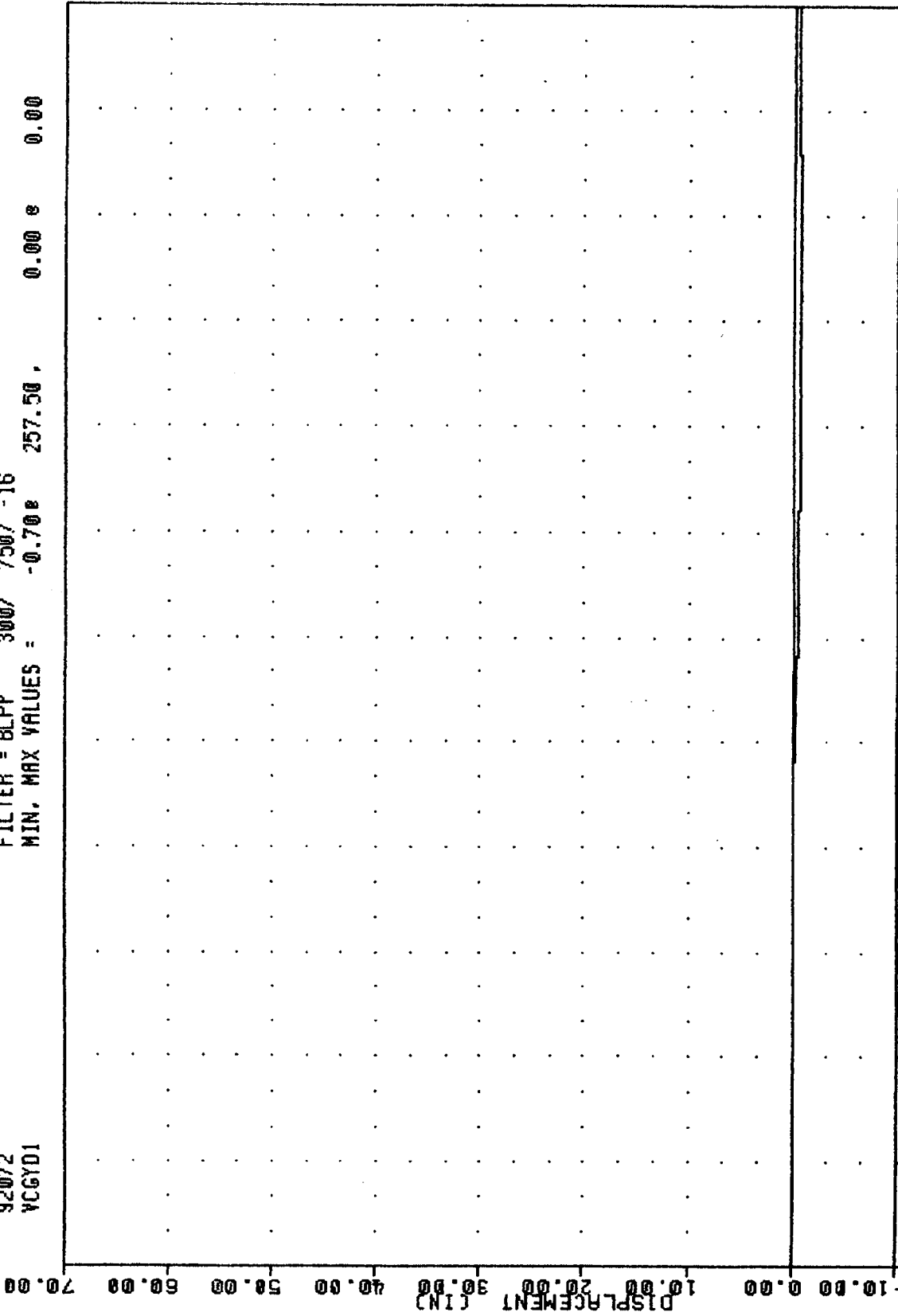
FILTER = BLPP 300/ 750/ -16
 MIN. MAX VALUES = -0.48 150.75 , 0.24 294.00



1985 FORD TEMPO INTO POLE BARRIER AT 9.6 MPH TEST NO. 1
 VEHICLE CG Y-AXIS VELOCITY

TRC
 CRASH III DAMAGE ALGORITHM
 92072
 VCCYD1

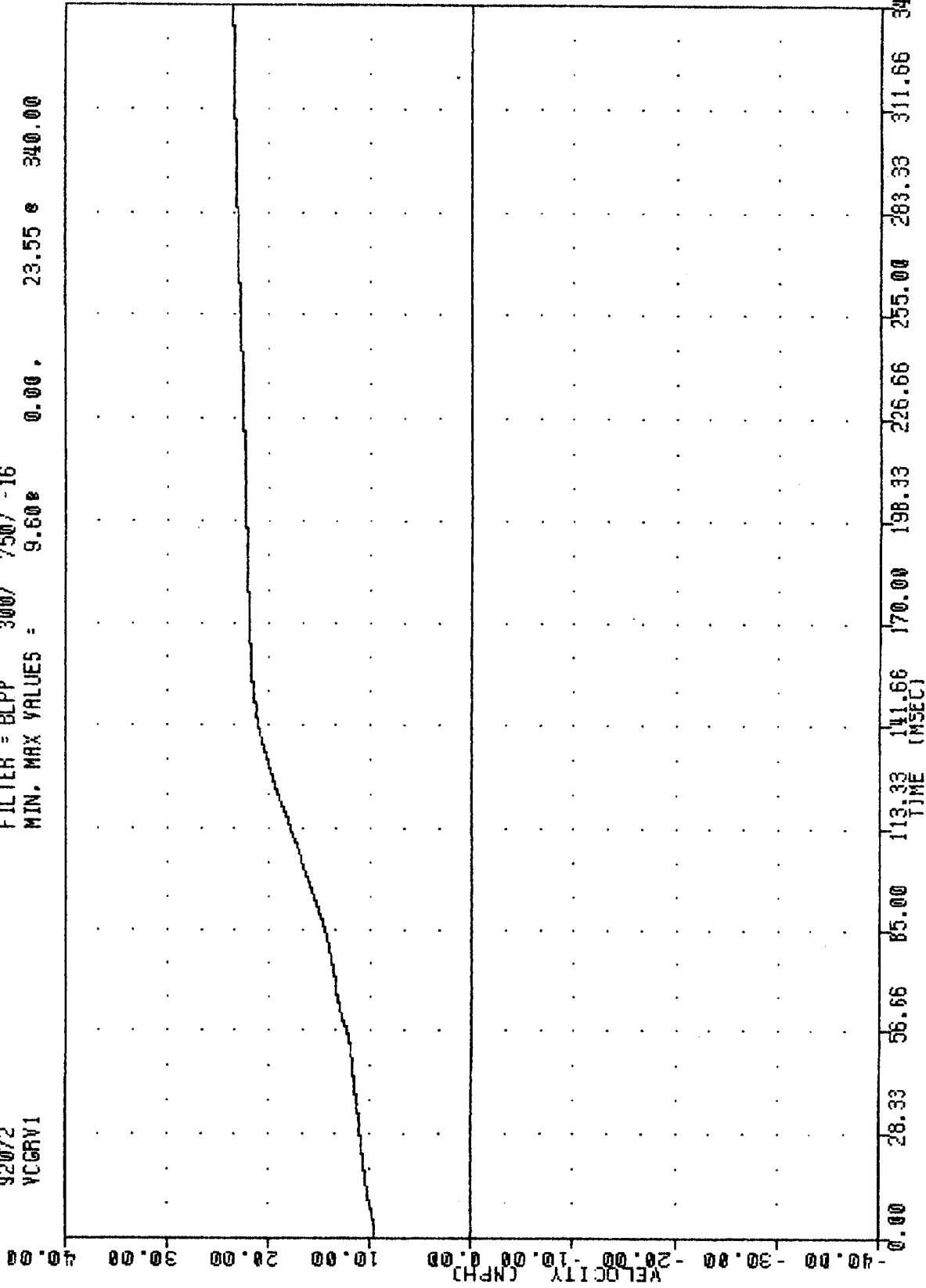
FILTER = BLPP 300/ 750/ -16
 MIN, MAX VALUES = -0.70e 0.00 e 0.00



1985 FORD TEMPO INTO POLE BARRIER AT 9.6 MPH TEST NO. 1
 VEHICLE CG Y-AXIS DISPLACEMENT

TRC , 920312-1
 CRASH III DAMAGE ALGORITHM
 92072
 YCGRY1

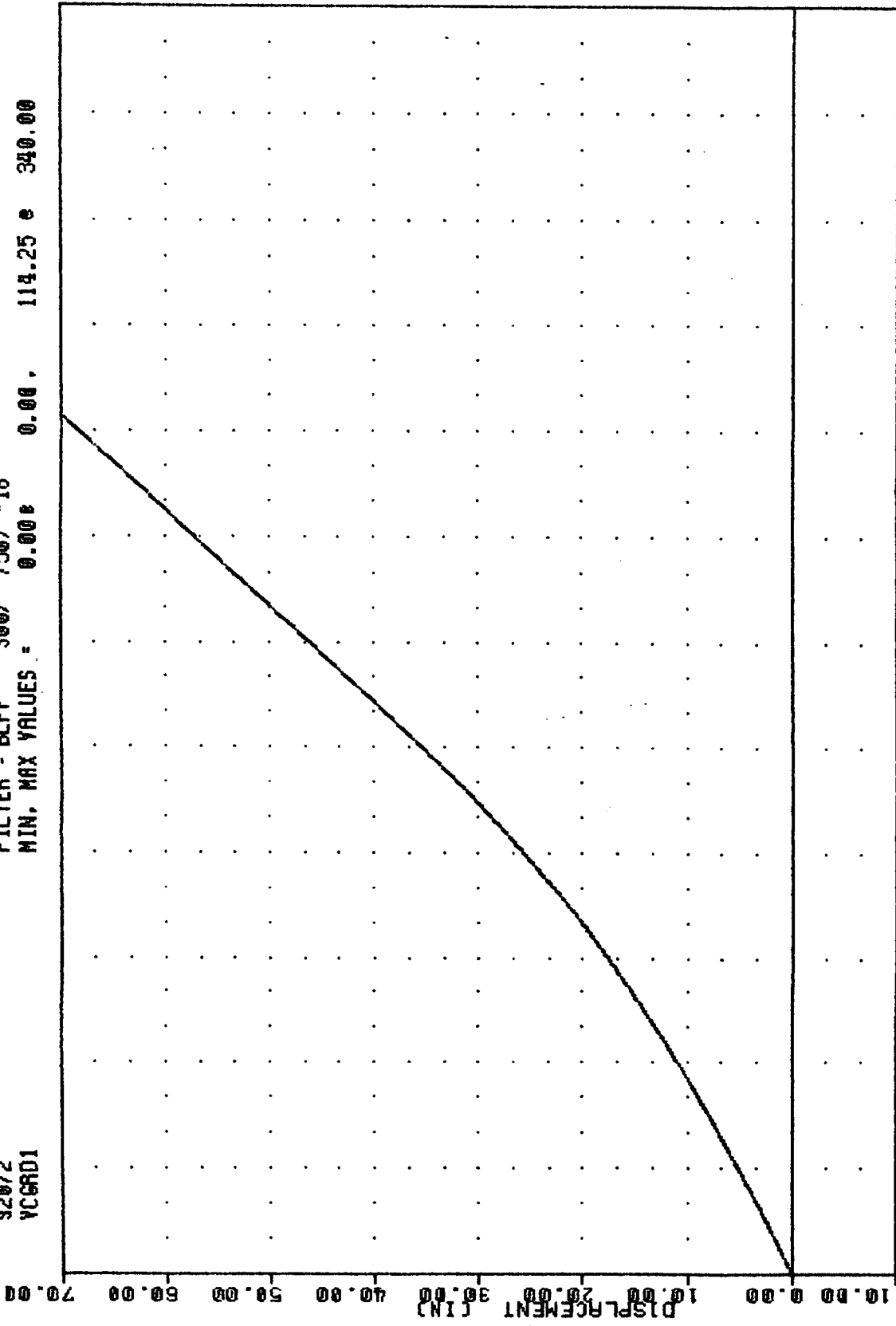
FILTER = BLPP 300/ 750/ -16
 MIN. MAX VALUES = 0.00 , 23.55 e 340.00



1985 FORD TEMPO INTO POLE BARRIER AT 9.6 MPH TEST NO. 1
 VEHICLE CG RESULTANT VELOCITY

TRC
 CRASH III DAMAGE ALGORITHM
 92072
 YCGRD1

FILTER = BLPP 300/ 750/ -16
 MIN. MAX VALUES = 0.00 e 0.00 . 114.25 e 340.00



B-17

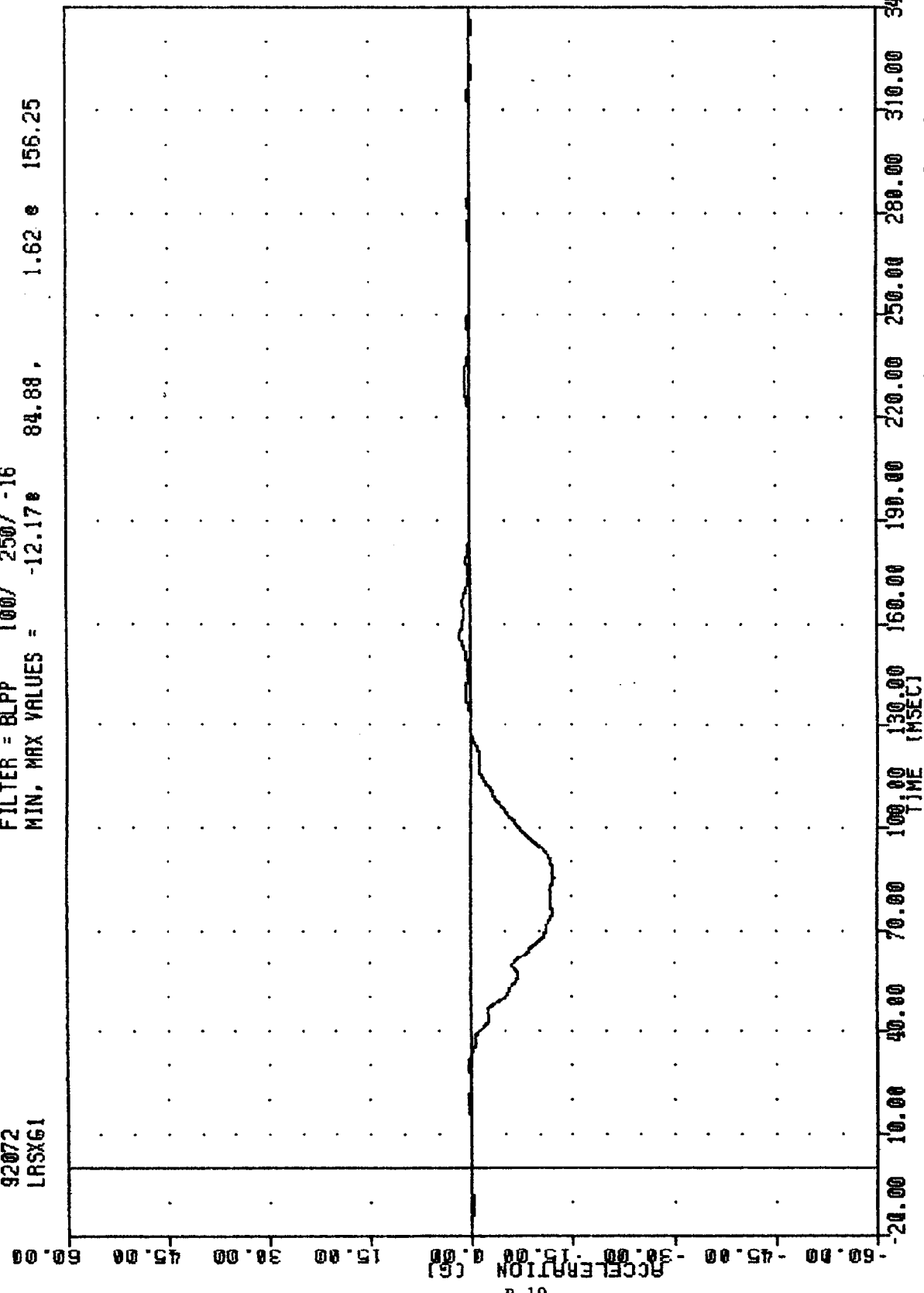
0.00 28.33 56.66 85.00 113.33 141.66 170.00 198.33 226.66 255.00 283.33 311.66 340.00
 TIME (MSEC)
 1985 FORD TEMPO INTO POLE BARRIER AT 9.6 MPH TEST NO. 1
 VEHICLE CG RESULTANT DISPLACEMENT

DATA PLOTS

TEST NO. 920312-2

TRC
 CRASH III DAMAGE ALGORITHM
 92072
 LRSX61

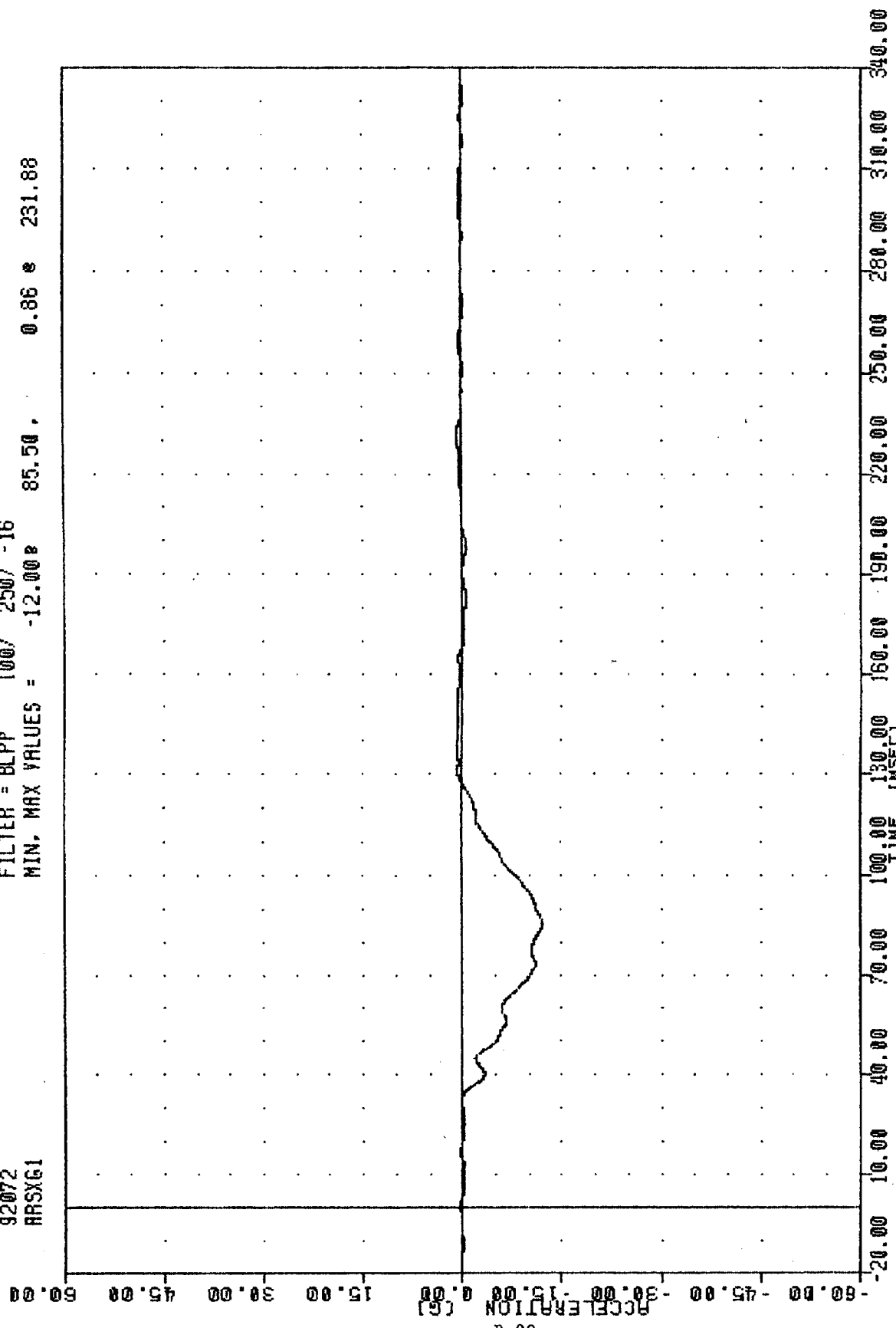
FILTER = BLPP 100/ 250/ -16
 MIN. MAX VALUES = -12.17e 84.88. 1.62 e 156.25



1985 FORD TEMPO INTO POLE BARRIER AT 9.6 MPH TEST NO. 2
 LEFT REAR SILL X-AXIS ACCELERATION

TRC
CRASH III DAMAGE ALGORITHM
92072
ARSXG1

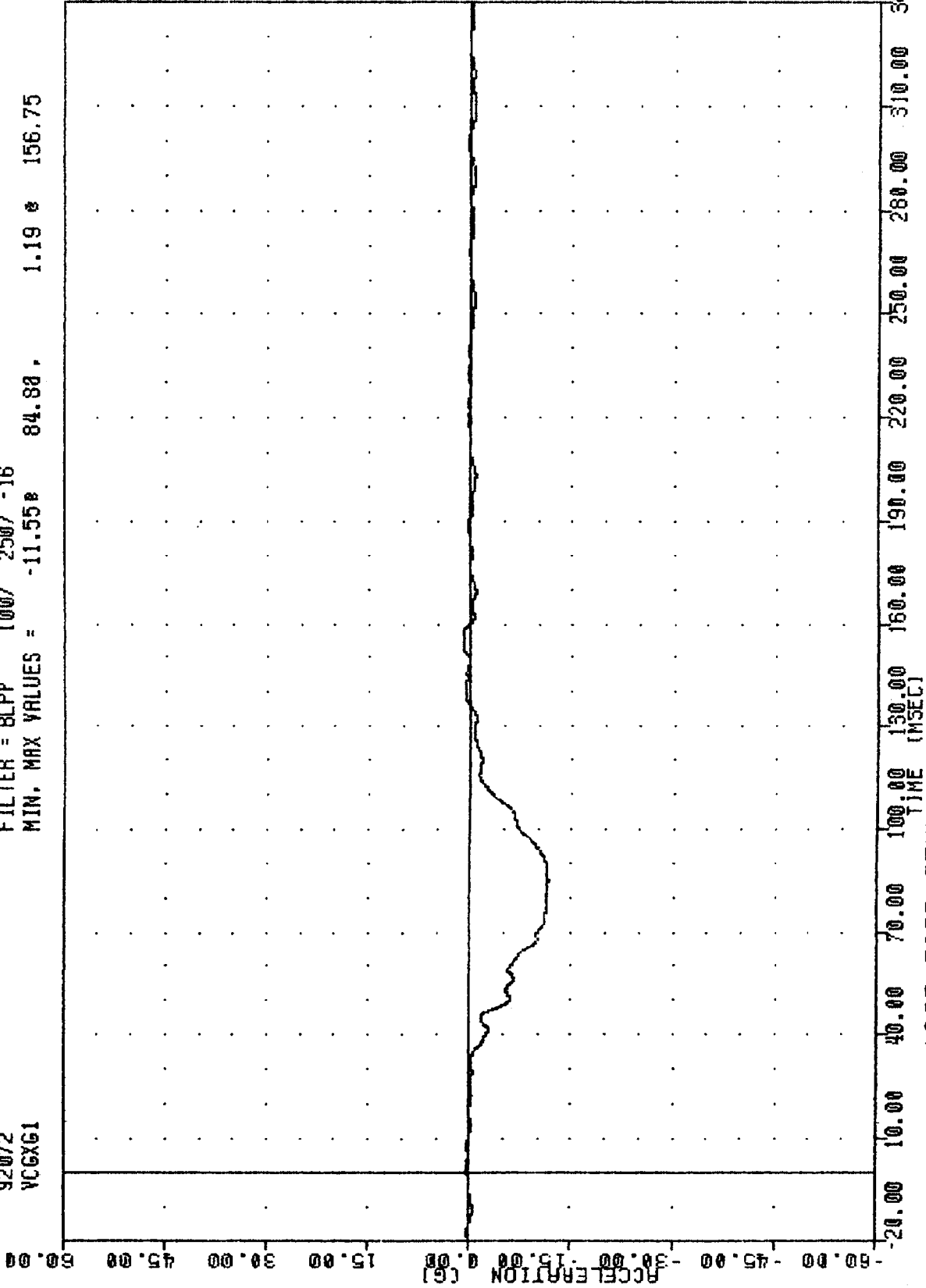
FILTER = BLPP 100/ 250/ -16
MIN. MAX VALUES = -12.00 85.50 0.86 e 231.88



1985 FORD TEMPO INTO POLE BARRIER AT 9.6 MPH TEST NO. 2
RIGHT REAR SILL X-AXIS ACCELERATION

TRC , 920312-2
CRASH III DAMAGE ALGORITHM
92072
VCGXG1

FILTER = BLPP 100/ 250/ -16
MIN, MAX VALUES = -11.55 84.88, 1.19 156.75



B-21

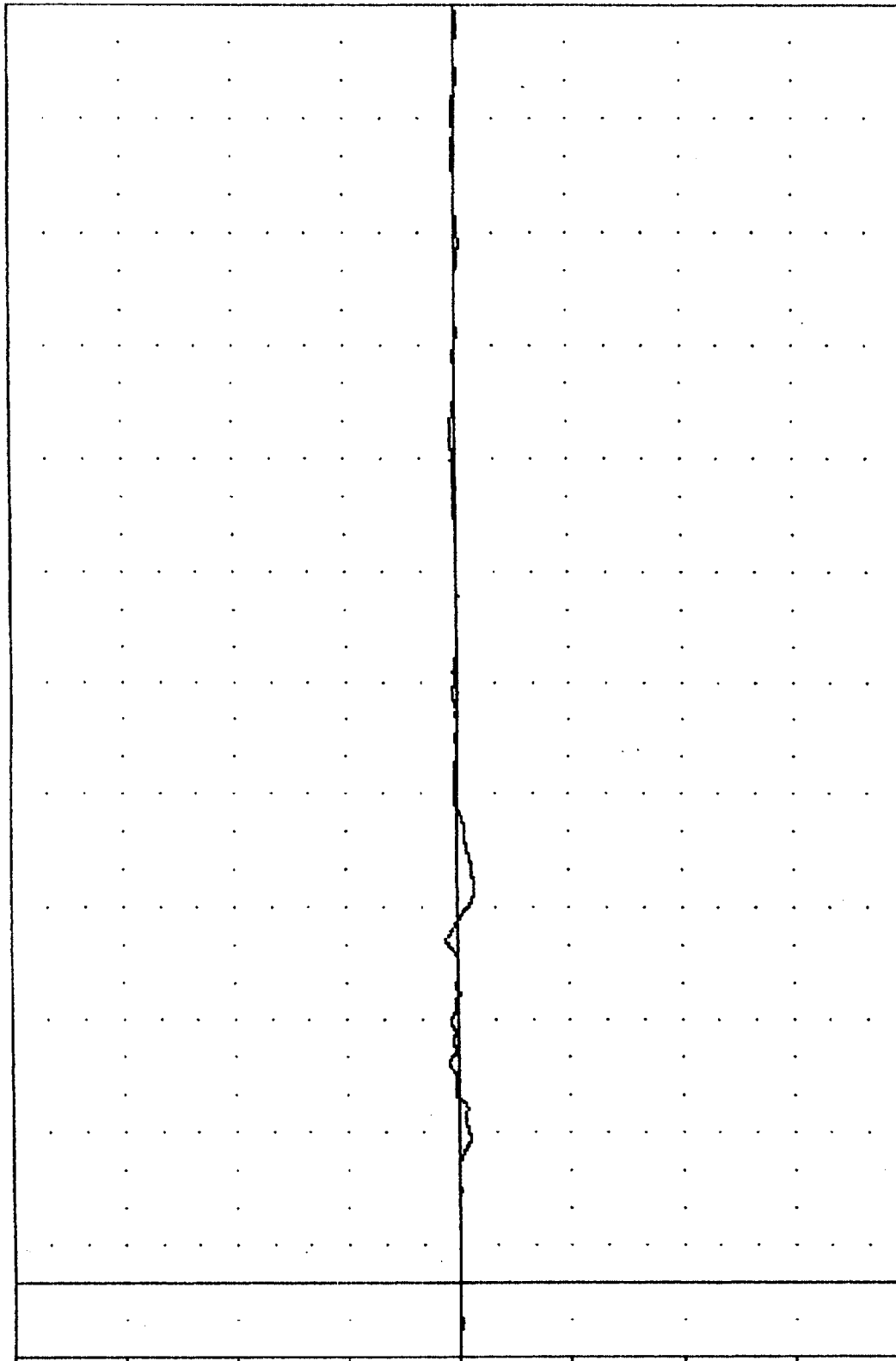
1985 FORD TEMPO INTO POLE BARRIER AT 9.6 MPH TEST NO. 2
VEHICLE CG X-AXIS ACCELERATION

TRC
 CRASH III DAMAGE ALGORITHM
 92072
 VCGYG1

, 920312-2

FILTER = BLPP 100/ 250/ -16
 MIN, MAX VALUES = -2.16e 106.25, 1.60 e 91.00

ACCELERATION (G)
 50.00
 45.00
 40.00
 35.00
 30.00
 25.00
 20.00
 15.00
 10.00
 5.00
 0.00
 -5.00
 -10.00
 -15.00
 -20.00

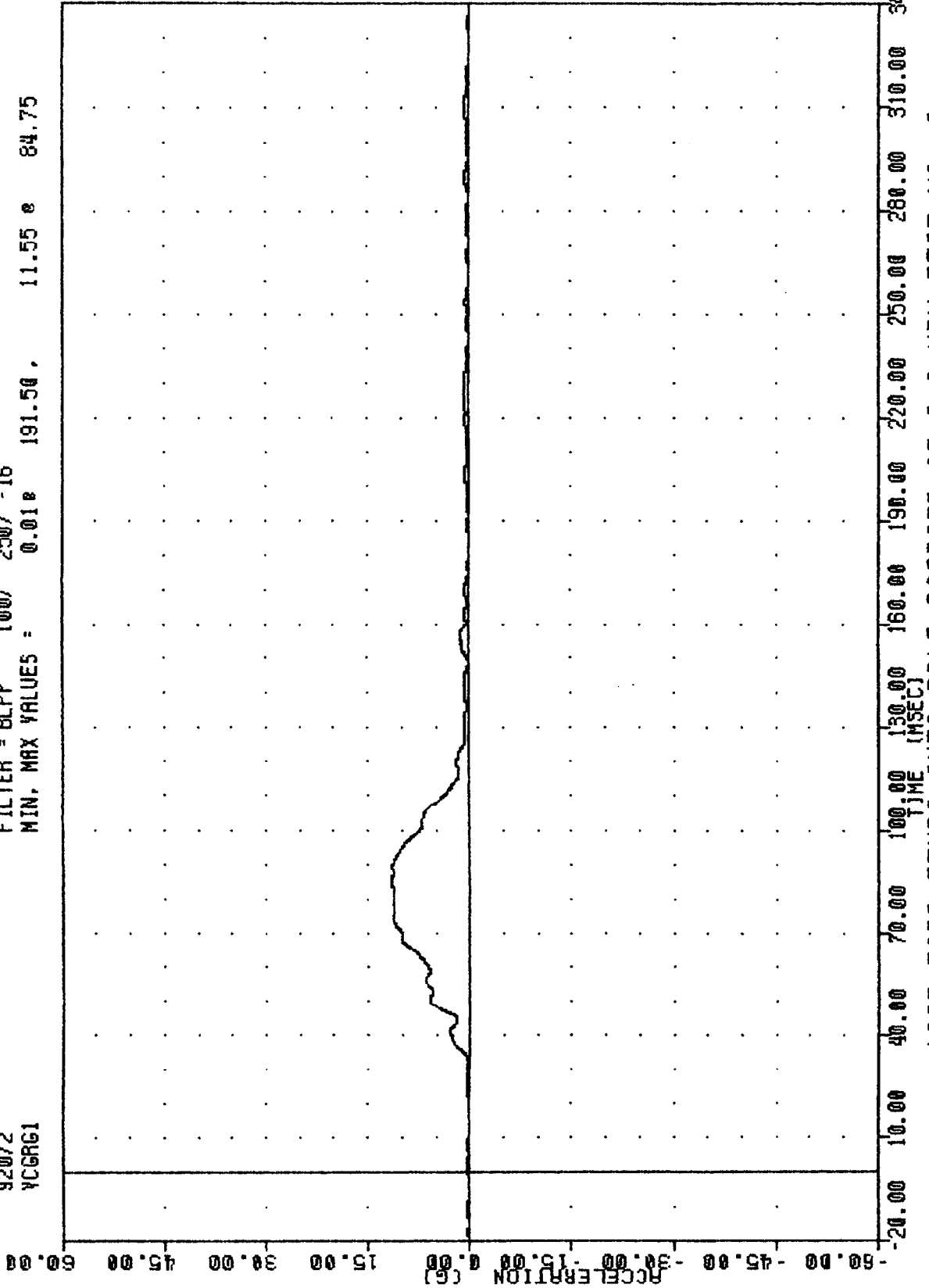


100.00 130.00 150.00 160.00 190.00 220.00 250.00 280.00 310.00 340.00
 TIME (MSEC)

1985 FORD TEMPO INTO POLE BARRIER AT 9.6 MPH TEST NO. 2
 VEHICLE CG Y-AXIS ACCELERATION

TFC
 CRASH III DAMAGE ALGORITHM
 92072
 YCGG1

FILTER = BLPP 100/ 250/ -16
 MIN. MAX VALUES = 0.01E 191.50, 11.55 e 84.75



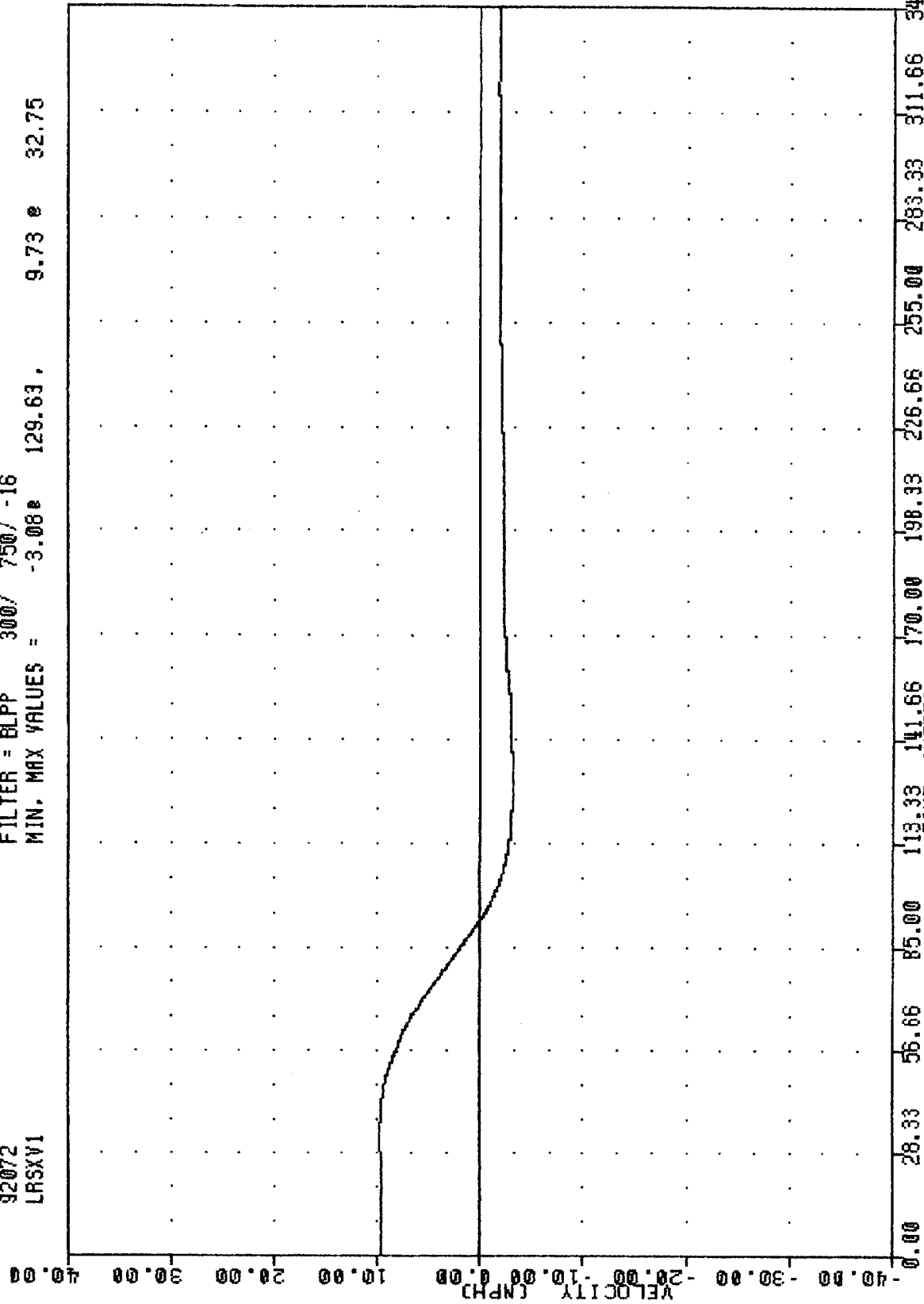
B-23

1985 FORD TEMPO INTO POLE BARRIER AT 9.6 MPH TEST NO. 2
 VEHICLE CG RESULTANT ACCELERATION

TRC
 CRASH III DAMAGE ALGORITHM
 92072
 LRSXV1

920312-2

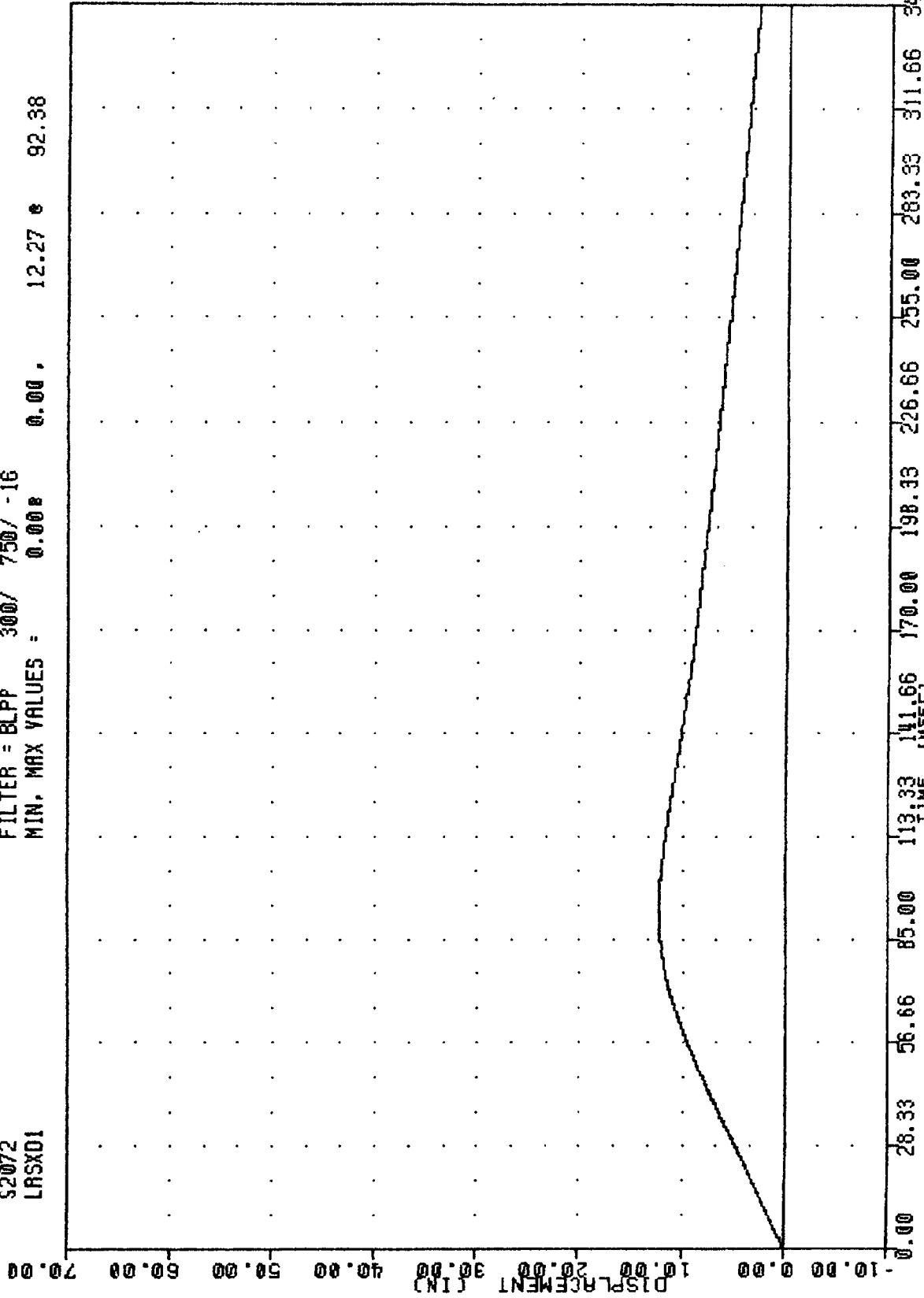
FILTER = BLPP 300/ 750/ -16
 MIN. MAX VALUES = -3.08e 129.63, 9.73 e 32.75



1985 FORD TEMPO INTO POLE BARRIER AT 9.6 MPH TEST NO. 2
 LEFT REAR SILL X-AXIS VELOCITY

TRC
 CRASH III DAMAGE ALGORITHM
 52072
 LASX01

FILTER = BLPP 300/ 750/ -16
 MIN. MAX VALUES = 0.00 12.27 92.38

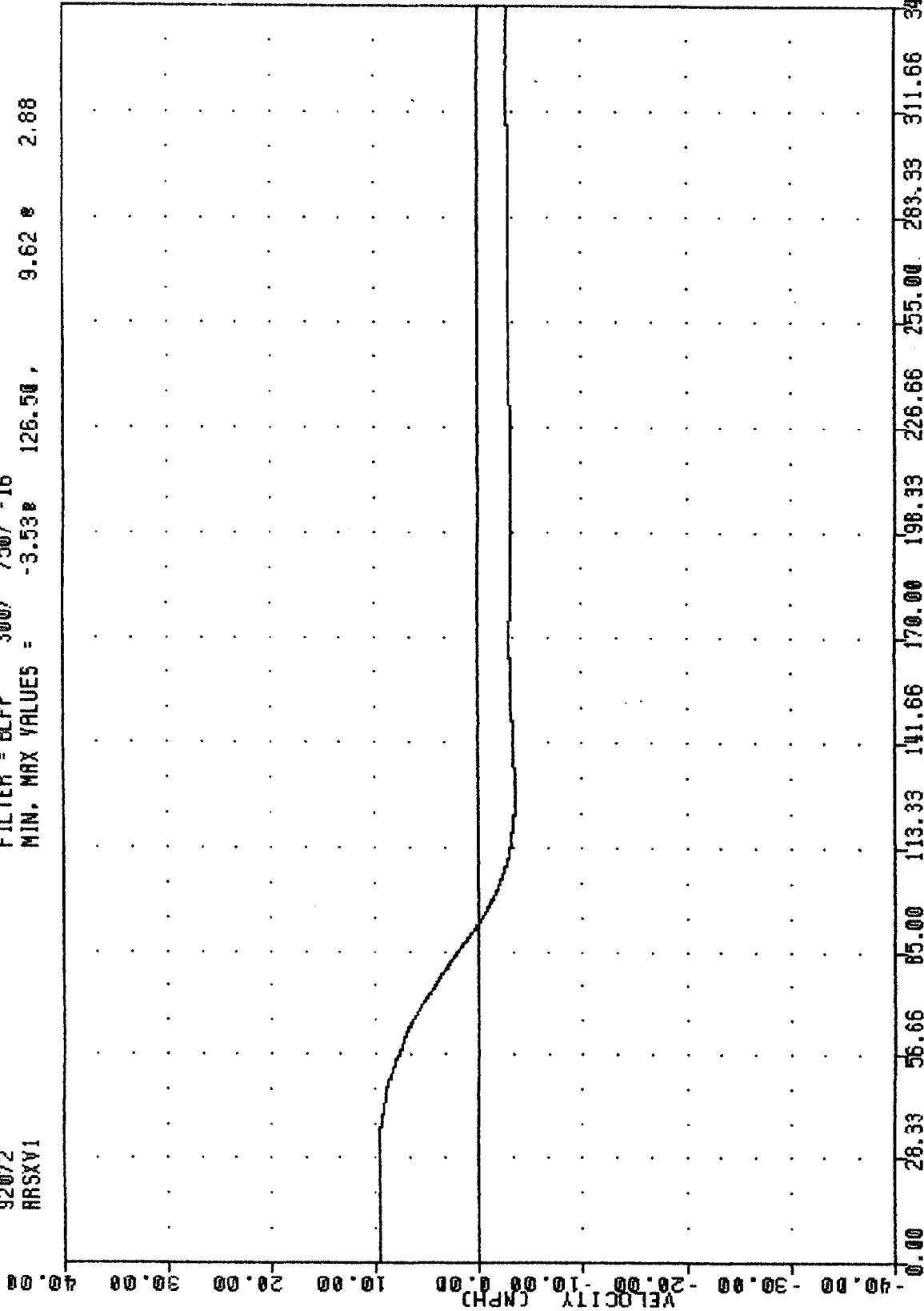


B-25

1985 FORD TEMPO INTO POLE BARRIER AT 9.6 MPH TEST NO. 2
 OFFSET REAR STIFF Y-AXIS DISPLACEMENT

TRC , 920312-2
 CRASH III DAMAGE ALGORITHM
 92072
 RRSXV1

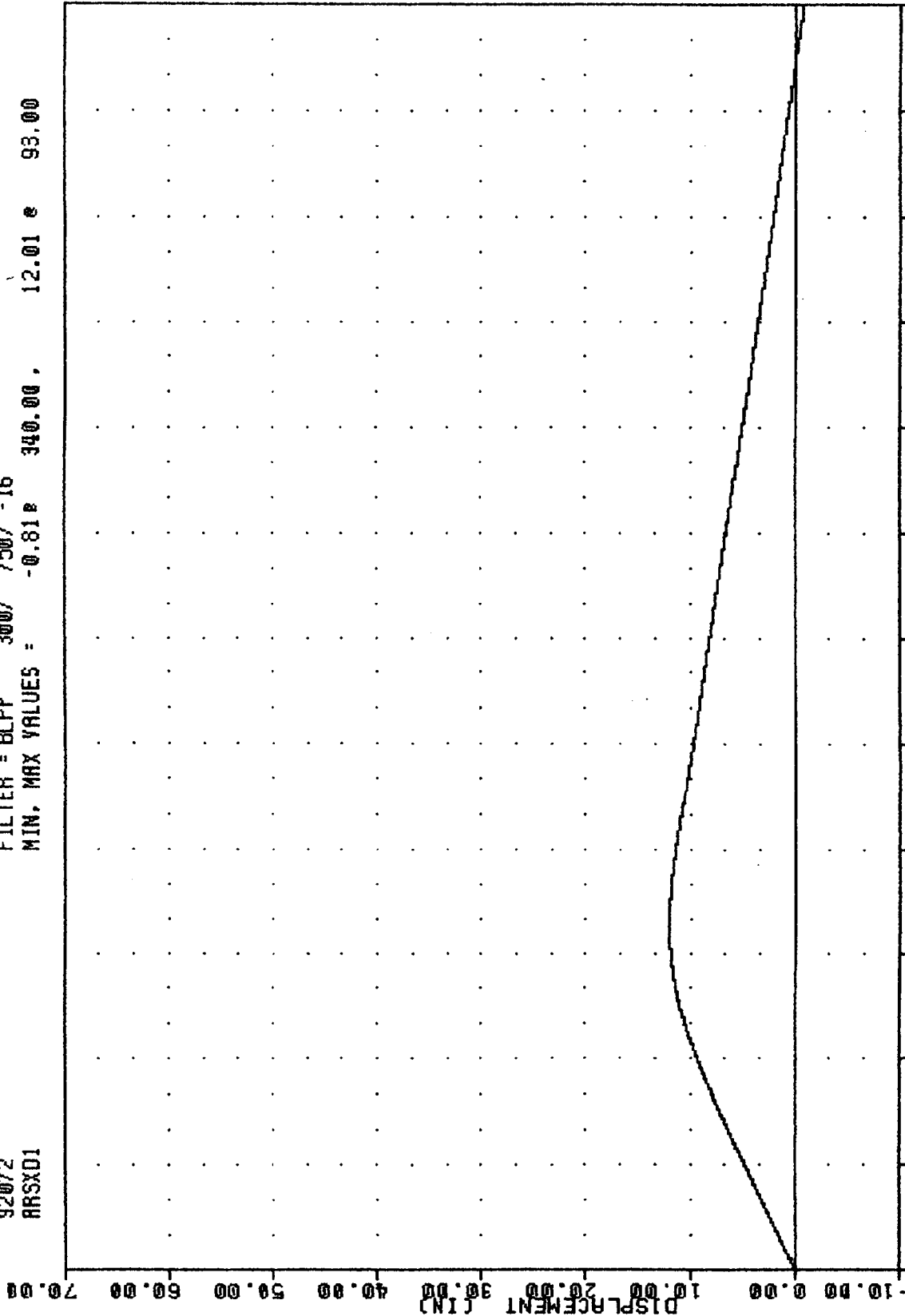
FILTER = BLPP 300/ 750/ -16
 MIN. MAX VALUES = -3.53 126.50 , 9.62 2.88



1985 FORD TEMPO INTO POLE BARRIER AT 9.6 MPH TEST NO. 2
 RIGHT REAR SILL X-AXIS VELOCITY

TRC .920312-2
 CRASH III DAMAGE ALGORITHM
 92072
 RRSXD1

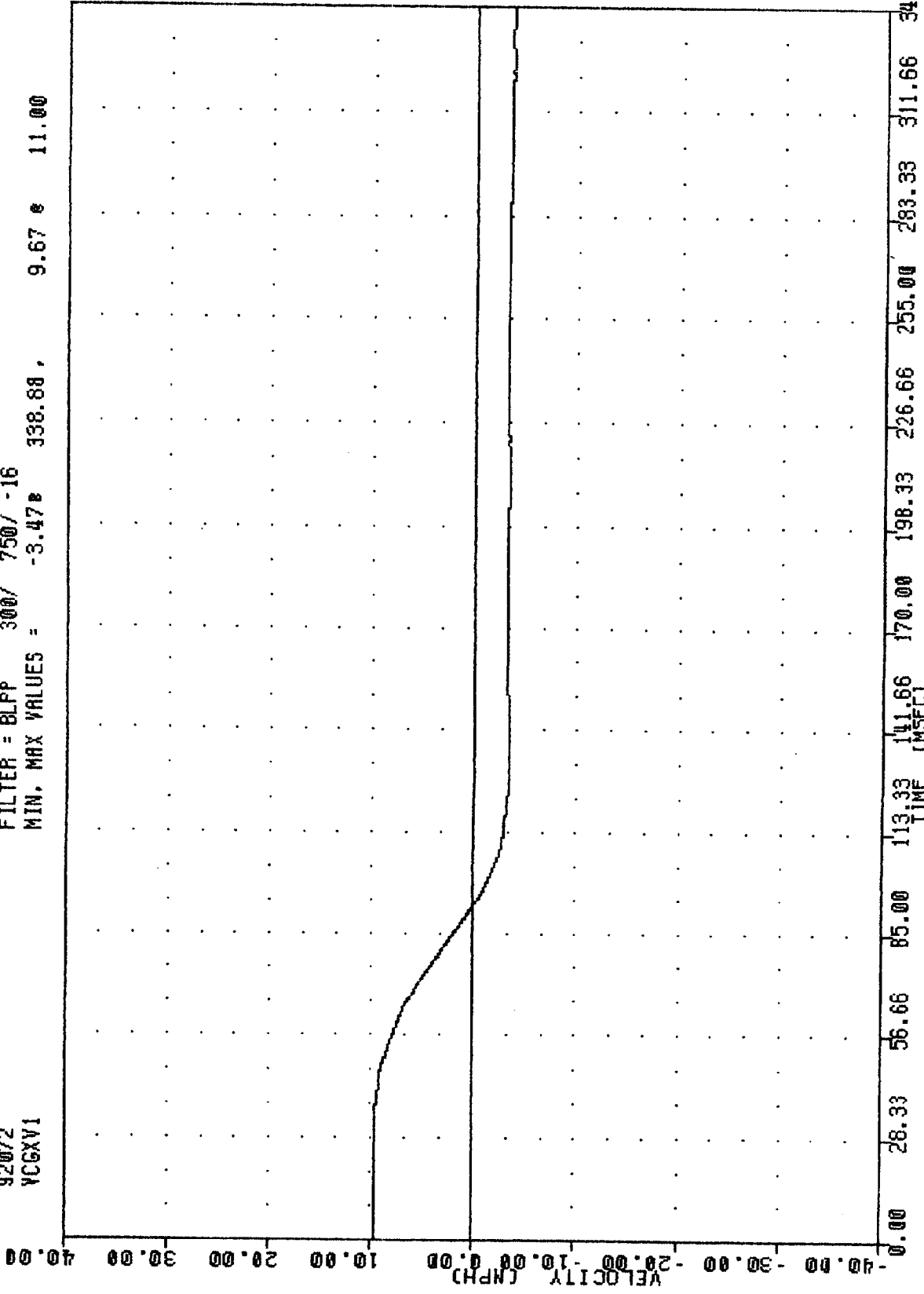
FILTER = BLPP 300/ 750/ -16
 MIN. MAX VALUES = -0.81B 340.00 . 12.01 e 93.00



1985 FORD TEMPO INTO POLE BARRIER AT 9.6 MPH TEST NO. 2
 RIGHT REAR SILL X-AXIS DISPLACEMENT

TRC , 920312-2
 CRASH III DAMAGE ALGORITHM
 92072
 YCGXVI

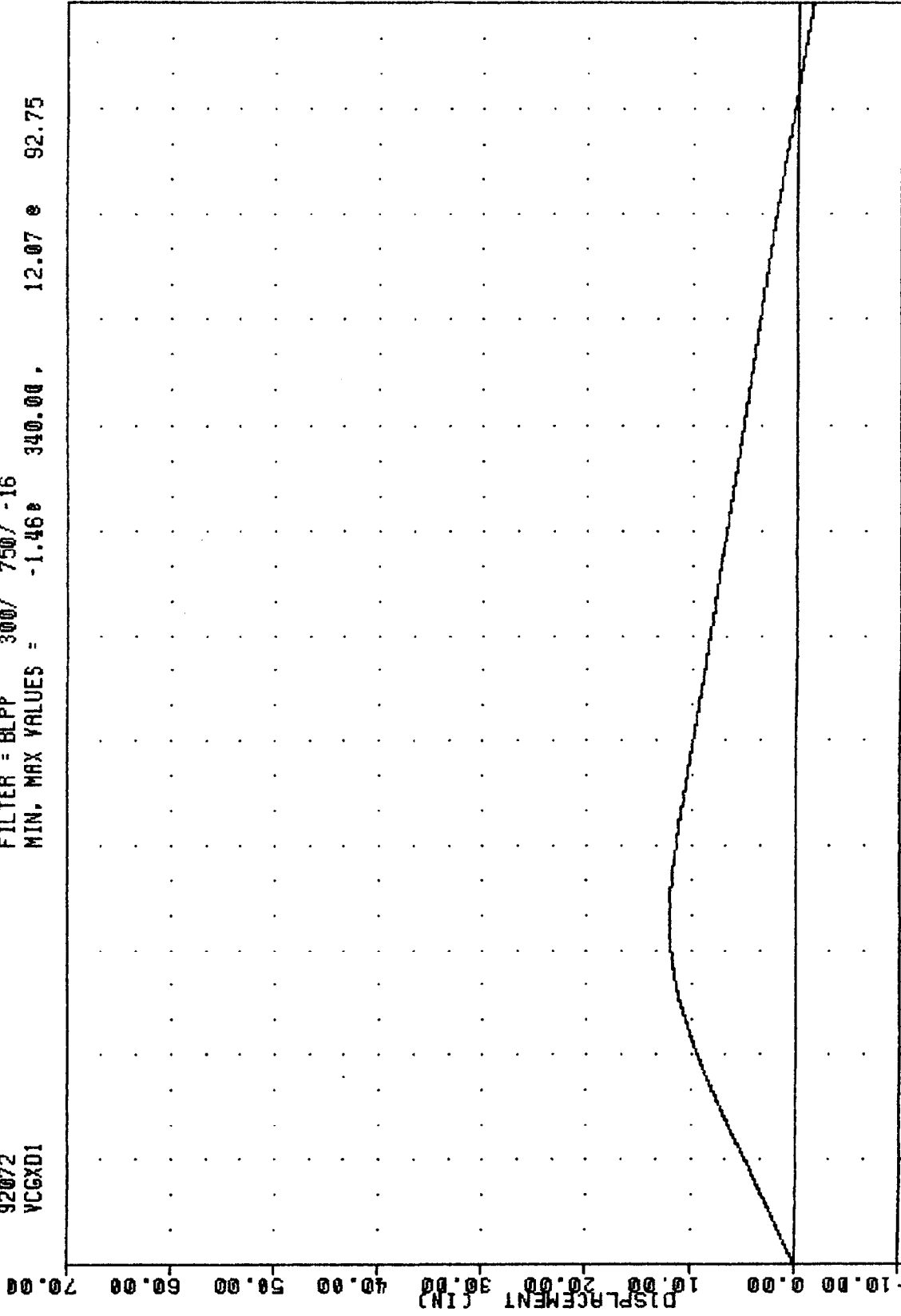
FILTER = BLPP 300/ 750/ -16
 MIN. MAX VALUES = -3.47 9.67 * 11.00



1985 FORD TEMPO INTO POLE BARRIER AT 9.6 MPH TEST NO. 2
 VEHICLE CG X-AXIS VELOCITY

TRC
 CRASH III DAMAGE ALGORITHM
 92072
 VCGXD1

FILTER = BLPP 300/ 750/ -16
 MIN. MAX VALUES = -1.46e 340.00 12.07 e 92.75

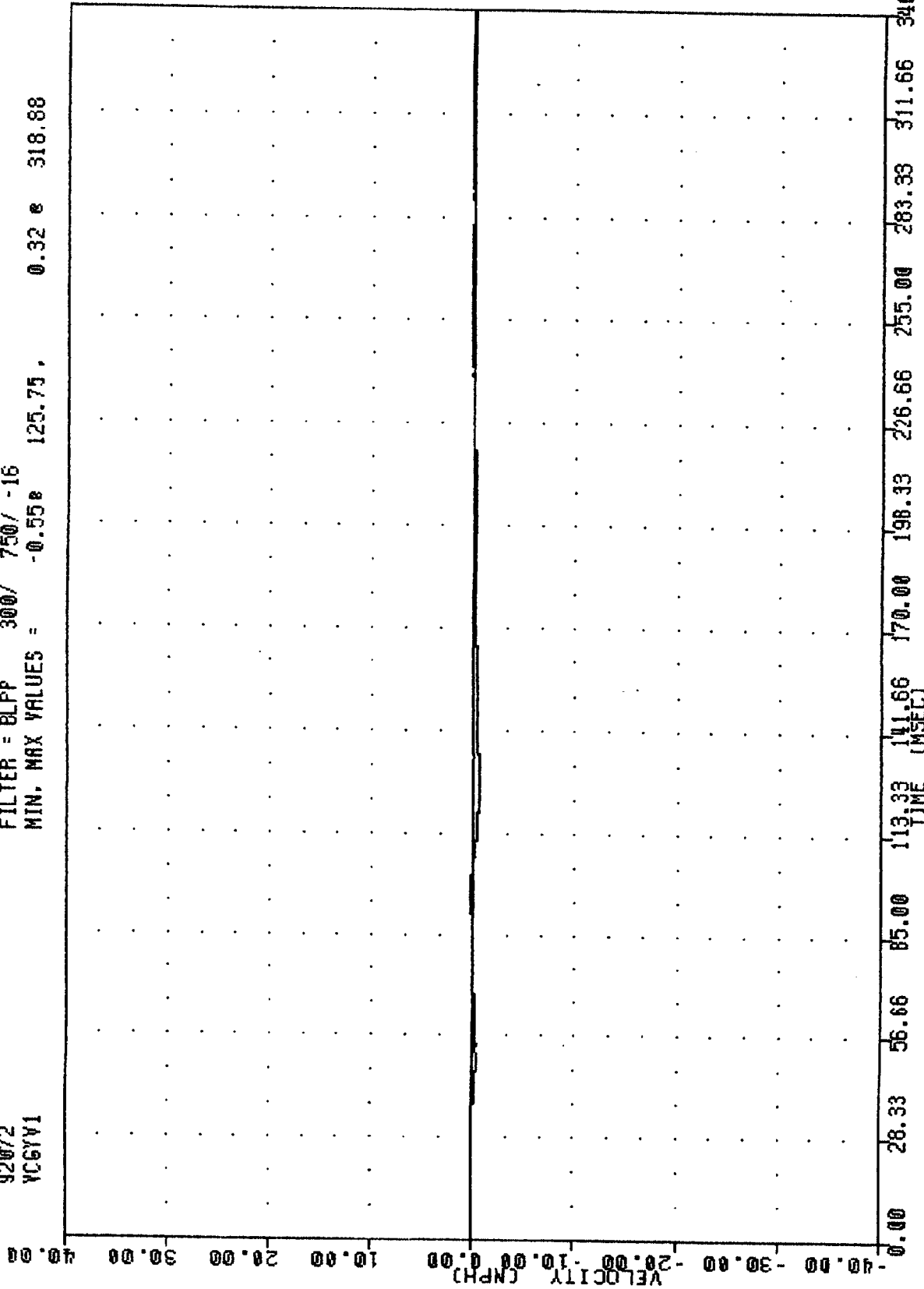


B-29

1985 FORD TEMPO INTO POLE BARRIER AT 9.6 MPH TEST NO. 2
 VEHICLE CG X-AXIS DISPLACEMENT

TRC
 CRASH III DAMAGE ALGORITHM
 92072
 YCGYV1

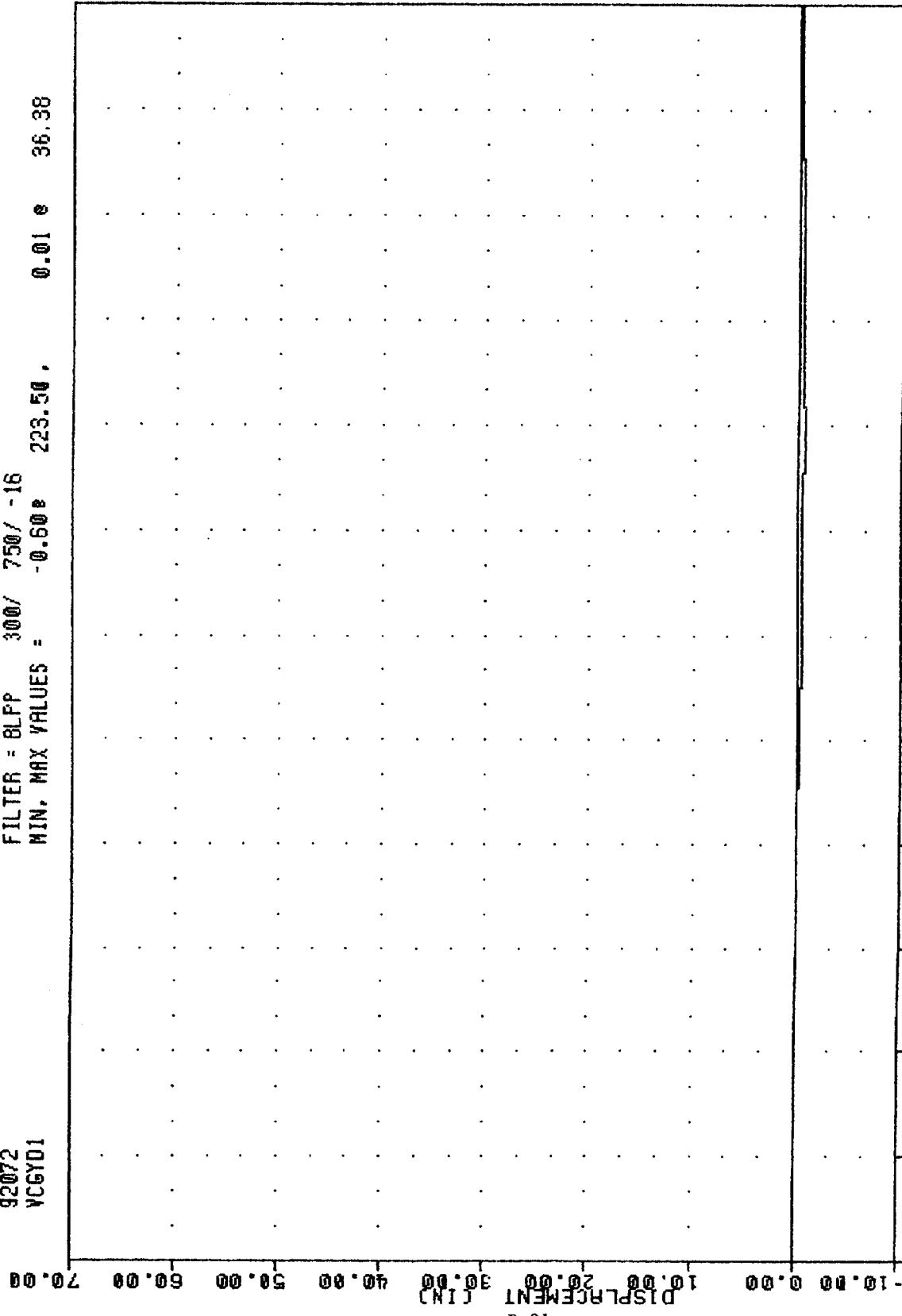
FILTER = BLPP 300/ 750/ -16
 MIN. MAX VALUES = -0.55e 125.75, 0.32 e 318.88



1985 FORD TEMPO INTO POLE BARRIER AT 9.6 MPH TEST NO. 2
 VEHICLE CG Y-AXIS VELOCITY

TRC
 CRASH III DAMAGE ALGORITHM
 92072
 VCCYD1

FILTER = BLFP 300/ 750/ -16
 MIN. MAX VALUES = -0.60 223.50 0.01 36.38

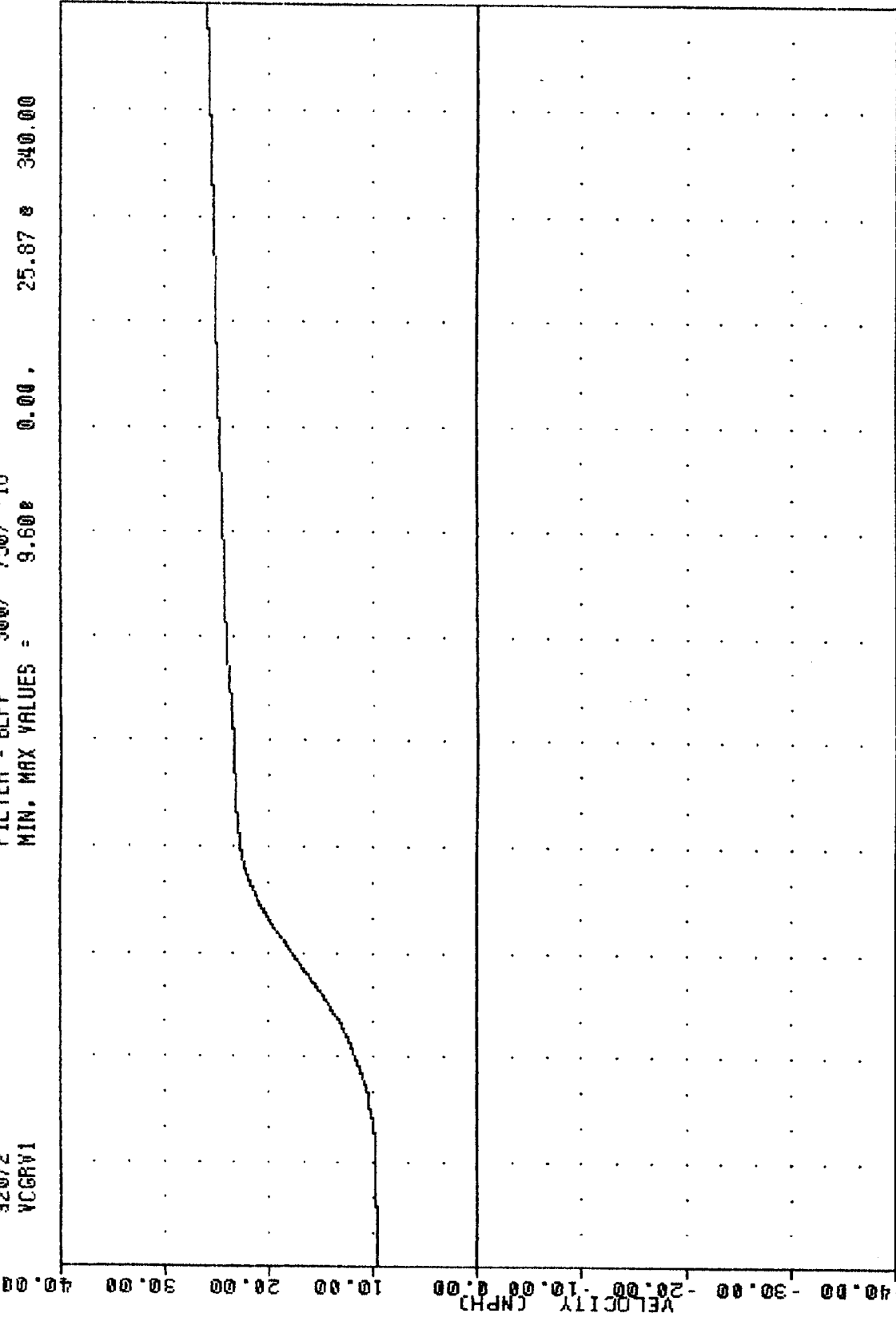


TIME (MSEC)	DISPLACEMENT (IN)
0.00	0.00
28.33	0.00
56.66	0.00
85.00	0.00
113.33	0.00
141.66	0.00
170.00	0.00
198.33	0.00
226.66	0.00
255.00	0.00
283.33	0.00
311.66	0.00
340.00	0.00

1985 FORD TEMPO INTO POLE BARRIER AT 9.6 MPH TEST NO. 2
 VEHICLE CG Y-AXIS DISPLACEMENT

TRC , 920312-2
 CRASH III DAMAGE ALGORITHM
 92072
 VCGRV1

FILTER = BLPP 300/ 750/ -16
 MIN. MAX VALUES = 0.00, 25.87 @ 340.00

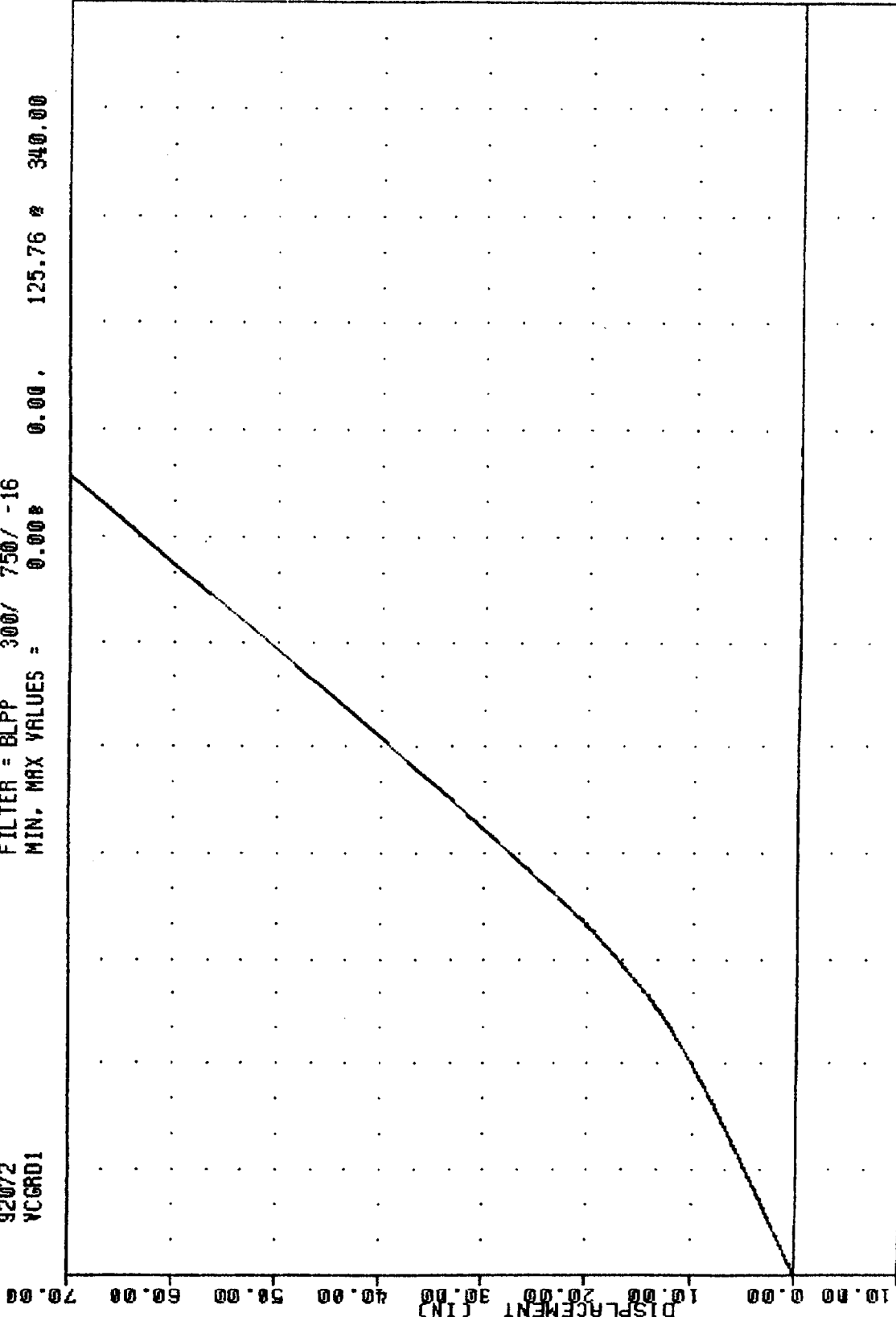


B-32

1985 FORD TEMPO INTO POLE BARRIER AT 9.6 MPH TEST NO. 2
 VEHICLE CG RESULTANT VELOCITY

TRC . 920312-2
 CRASH III DAMAGE ALGORITHM
 92072
 YCGRD1

FILTER = BLPP 300/ 750/ -16
 MIN. MAX VALUES = 0.00 0.00 125.76 340.00



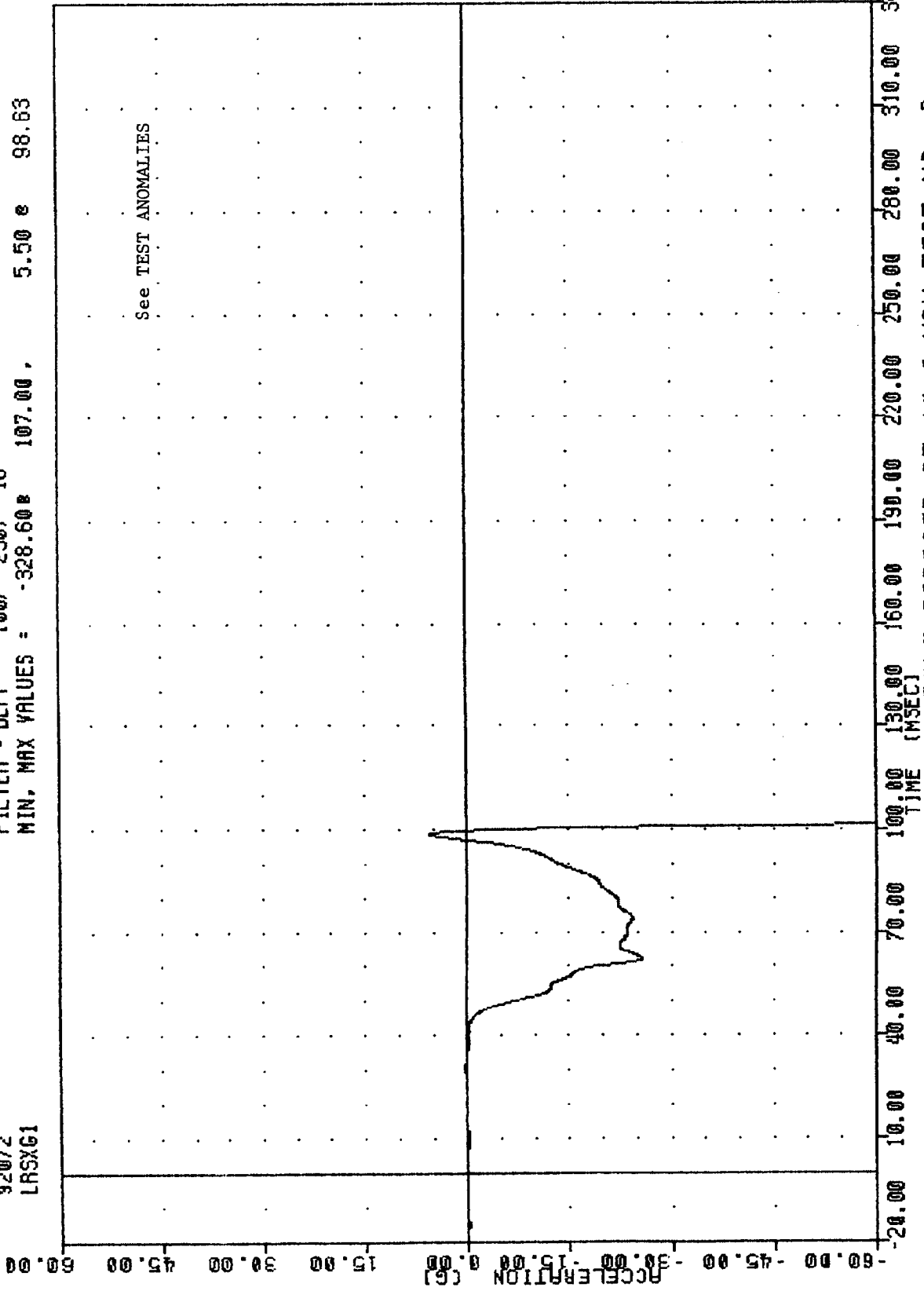
0.00 26.33 56.66 85.00 113.33 141.66 170.00 198.33 226.66 255.00 283.33 311.66 340.00
 TIME (MSEC)
 1985 FORD TEMPO INTO POLE BARRIER AT 9.6 MPH TEST NO. 2
 VEHICLE CG RESULTANT DISPLACEMENT

DATA PLOTS

TEST NO. 920312-3

TRC , 920312-3
CRASH III DAMAGE ALGORITHM
92072
LRSXG1

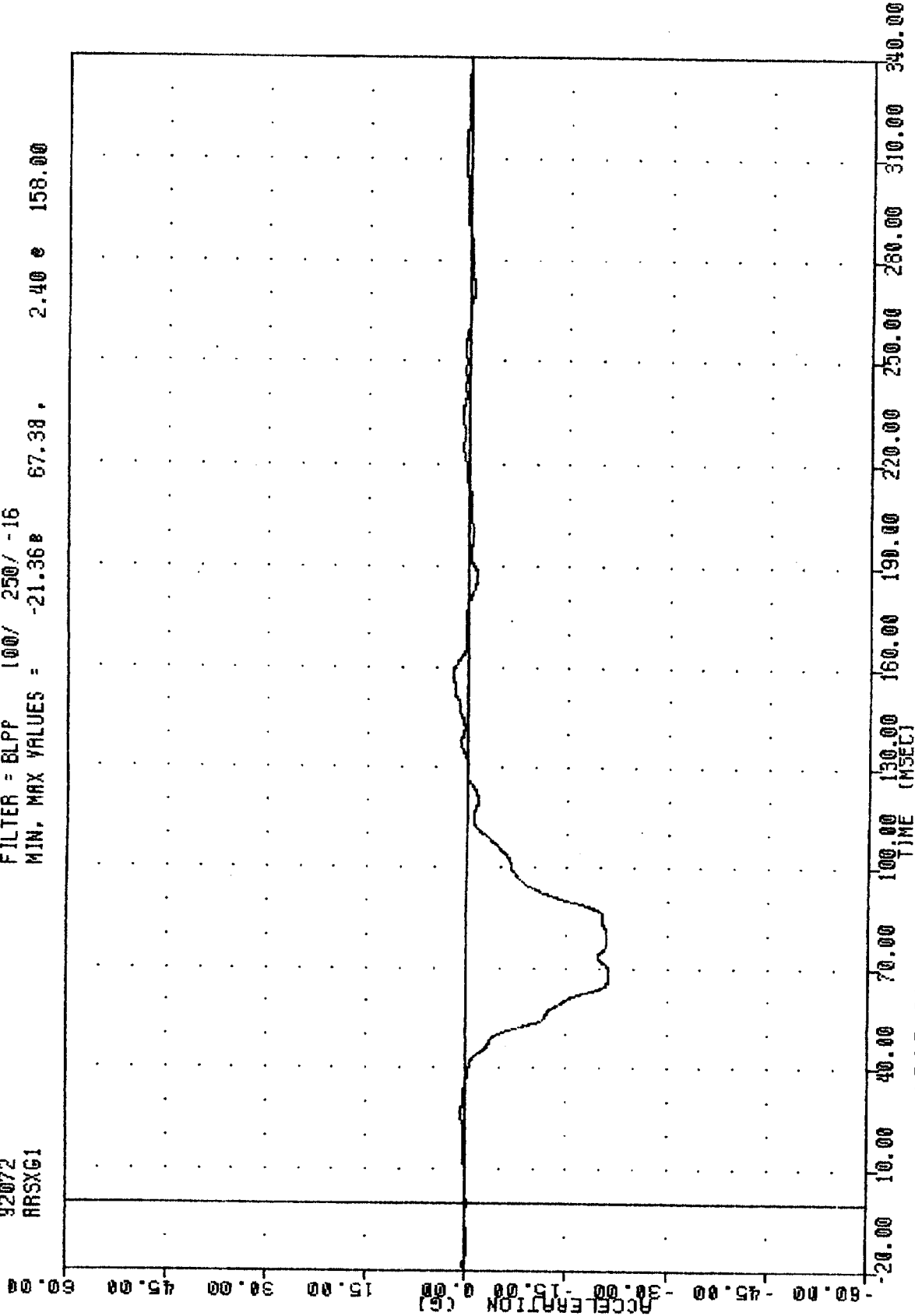
FILTER = BLPP 100/ 250/ -16
MIN, MAX VALUES = -328.60 107.00 , 5.50 e 98.63



1985 FORD TEMPO INTO POLE BARRIER AT 14.8 MPH TEST NO. 3
LEFT REAR SILL X-AXIS ACCELERATION

TRC , 920312-3
CRASH III DAMAGE ALGORITHM
92072
ARSXG1

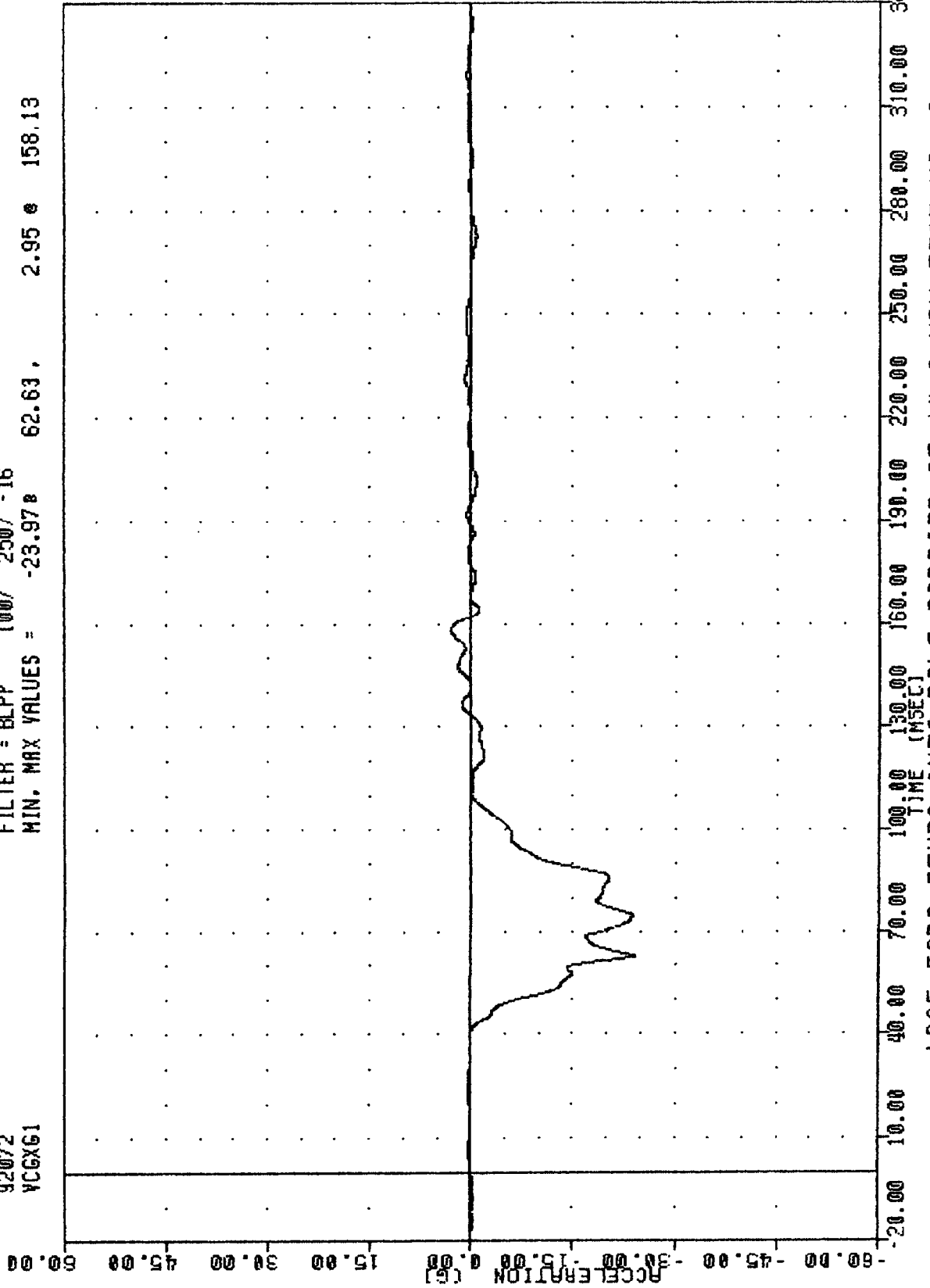
FILTER = BLPP 100/ 250/ -16
MIN, MAX VALUES = -21.36 67.38 2.40 e 158.00



1985 FORD TEMPO INTO POLE BARRIER AT 14.8 MPH TEST NO. 3
RIGHT REAR SILL X-AXIS ACCELERATION

TRC 920312-3
 CRASH III DAMAGE ALGORITHM
 92072
 YCGX61

FILTER = BLPP 100/ 250/ -16
 MIN. MAX VALUES = -23.978 62.63, 2.95 158.13

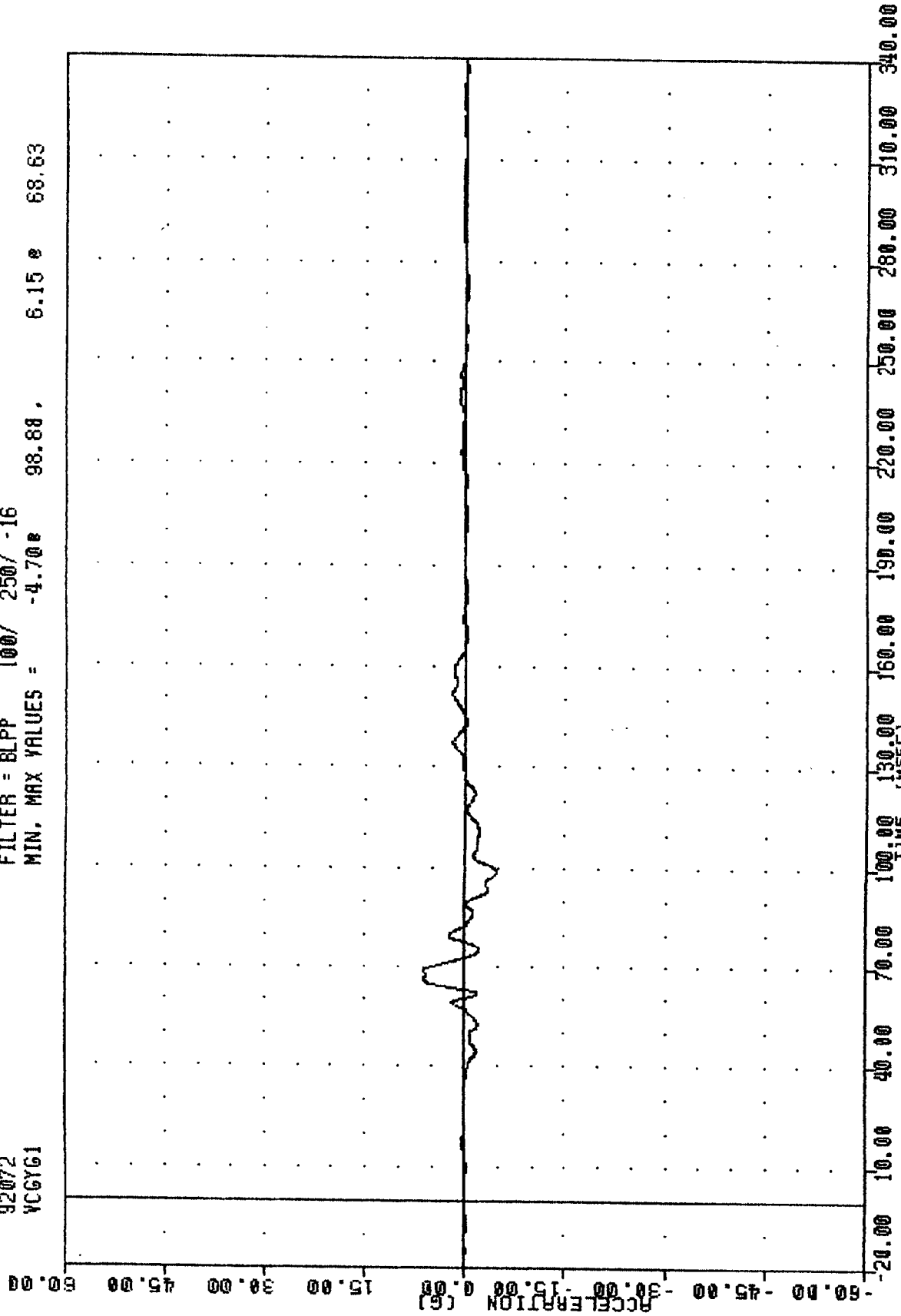


B-37

1985 FORD TEMPO INTO POLE BARRIER AT 14.8 MPH TEST NO. 3
 VERTICAL CG X-AXIS ACCELERATION

TRC , 920312-3
CRASH III DAMAGE ALGORITHM
92072
VCCYG1

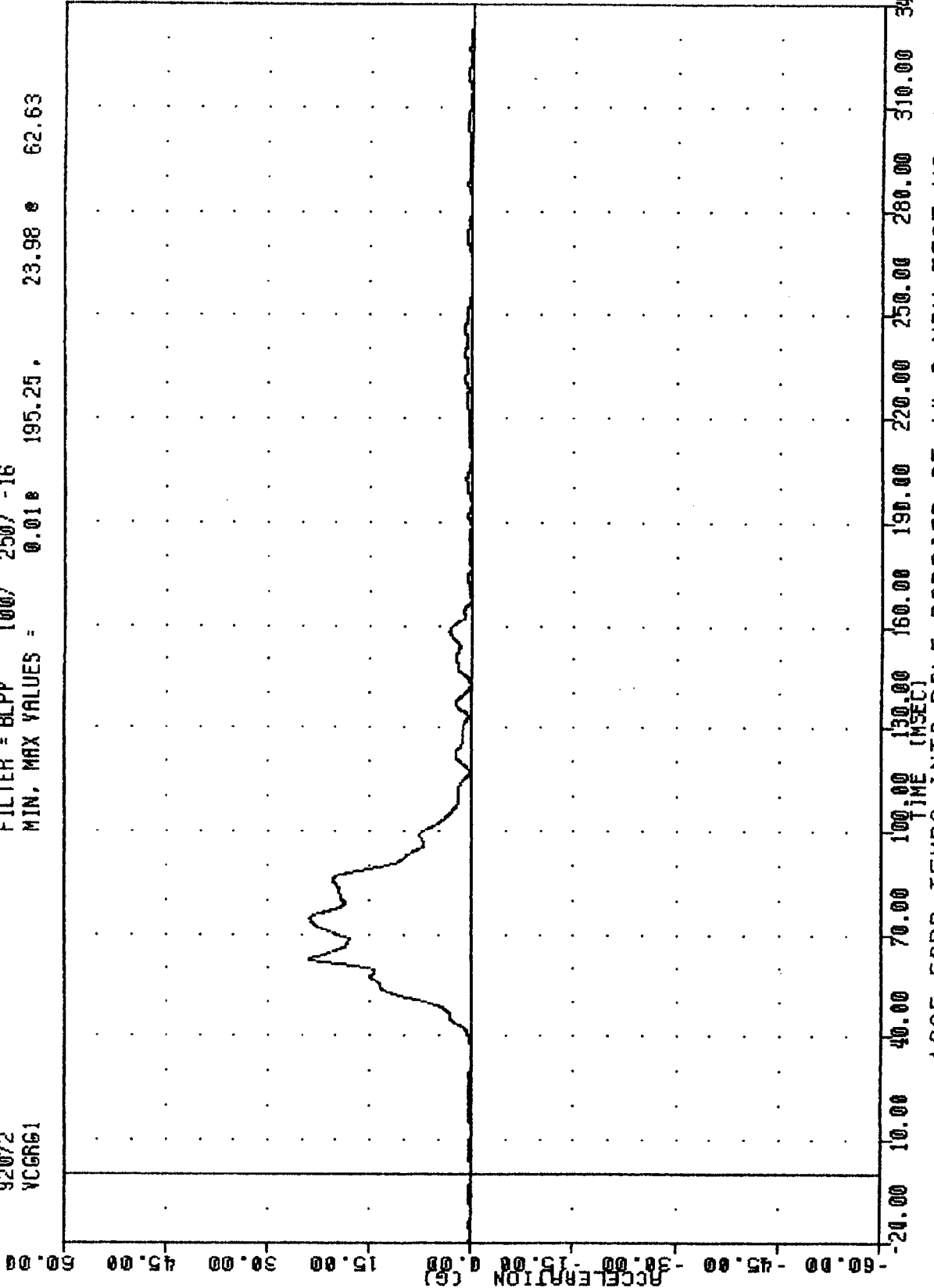
FILTER = BLPP 100/ 250/ -16
MIN. MAX VALUES = -4.70e 98.88 , 6.15 e 68.63



1985 FORD TEMPO INTO POLE BARRIER AT 14.8 MPH TEST NO. 3
VEHICLE CG Y-AXIS ACCELERATION

TRC
 CRASH III DAMAGE ALGORITHM
 92072
 YCGR61

, 920312-3
 FILTER = BLPP 100/ 250/ -16
 MIN. MAX VALUES = 0.018 195.25, 23.98 e 62.63

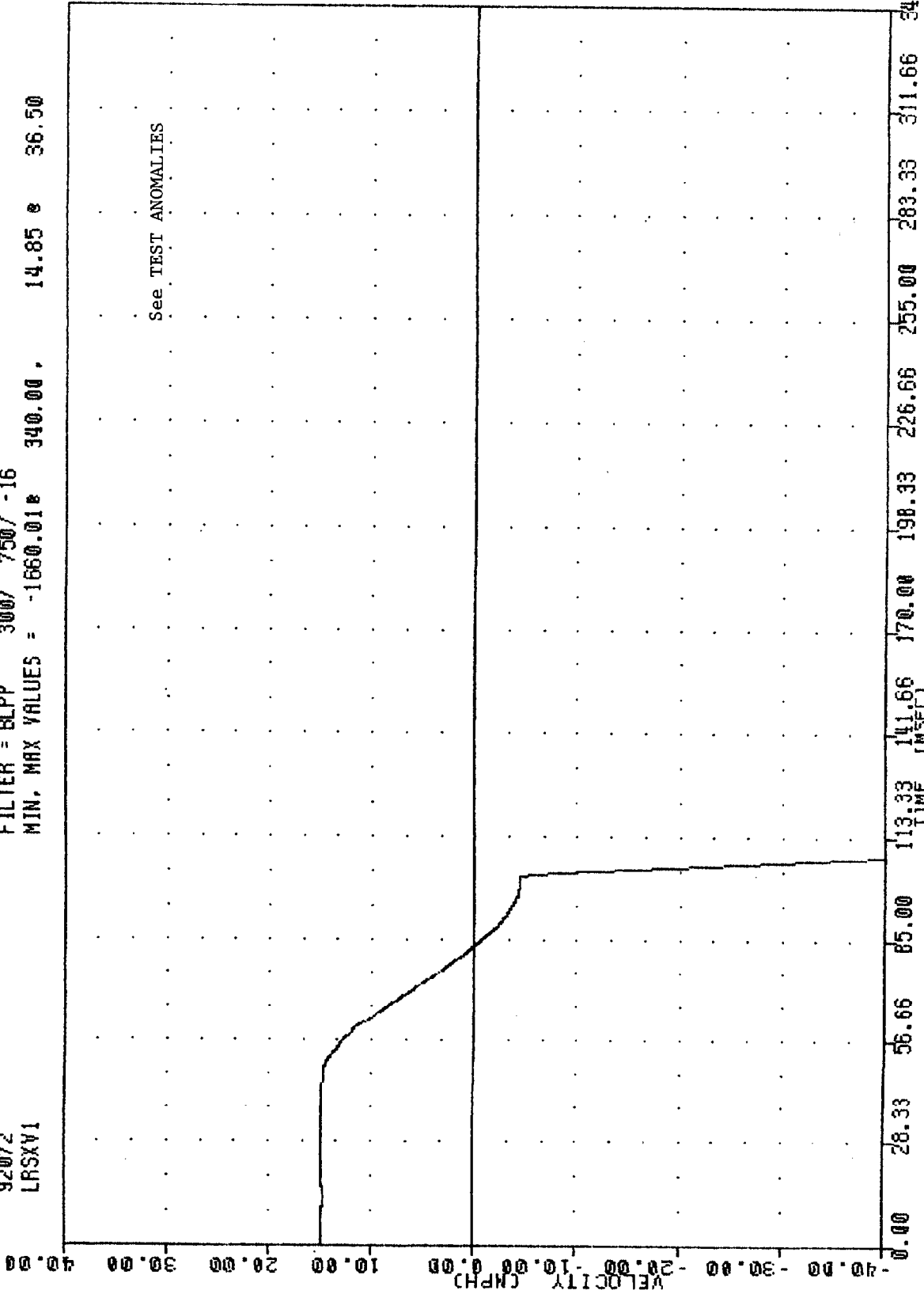


B-39

1985 FORD TEMPO INTO POLE BARRIER AT 14.8 MPH TEST NO. 3
 VEHICLE CG RESULTANT ACCELERATION

TRC
 CRASH III DAMAGE ALGORITHM
 92072
 LRSXV1

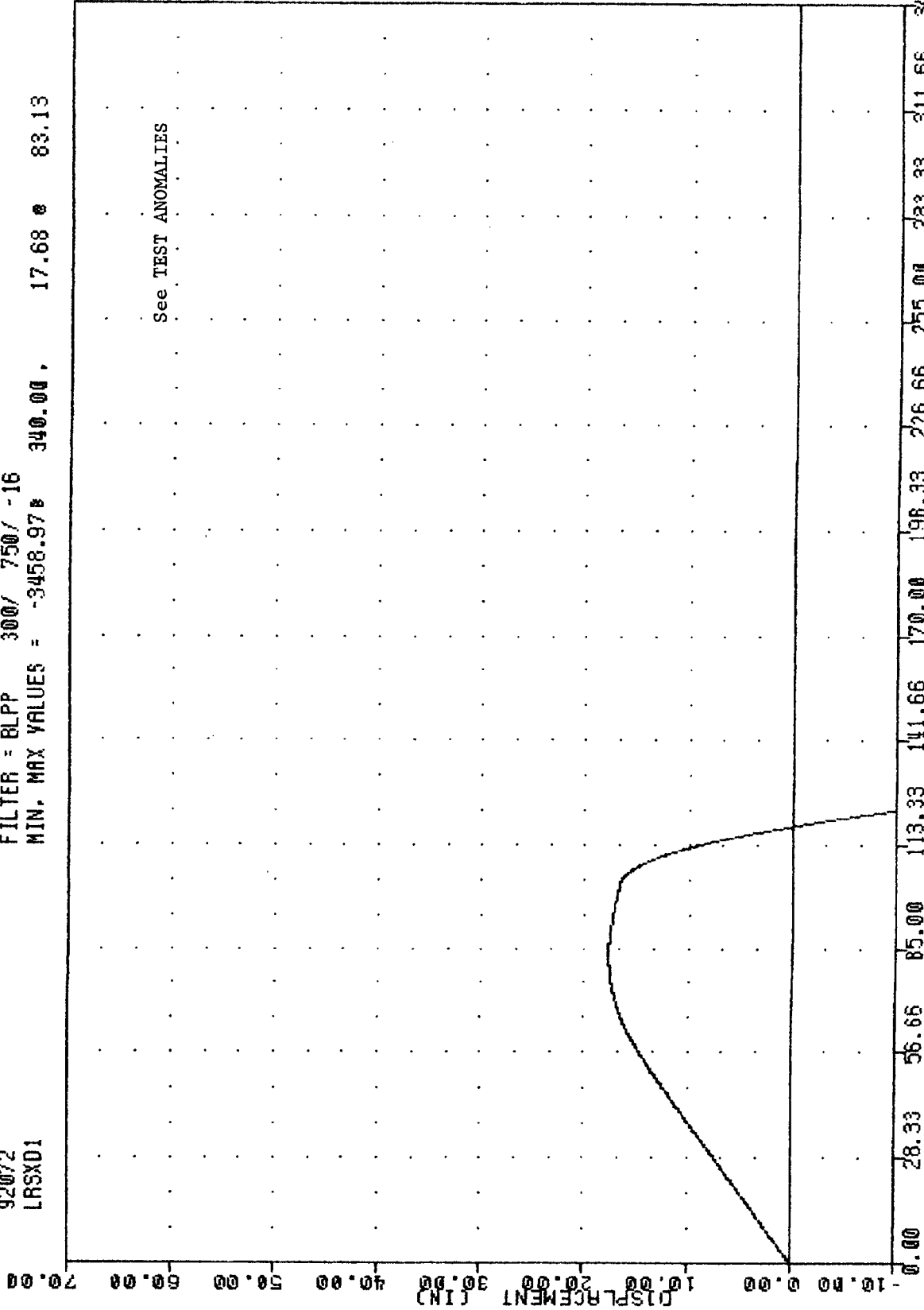
FILTER = BLPP 300/ 750/ -16
 MIN. MAX VALUES = -1660.01 340.00 14.85 36.50



1985 FORD TEMPO INTO POLE BARRIER AT 14.8 MPH TEST NO. 3
 LEFT REAR SILL X-AXIS VELOCITY

TRC , 920312-3
 CRASH III DAMAGE ALGORITHM
 92072
 LRSXD1

FILTER = BLPP 300/ 750/ -16
 MIN. MAX VALUES = -3458.97# 340.00 , 17.68 # 83.13

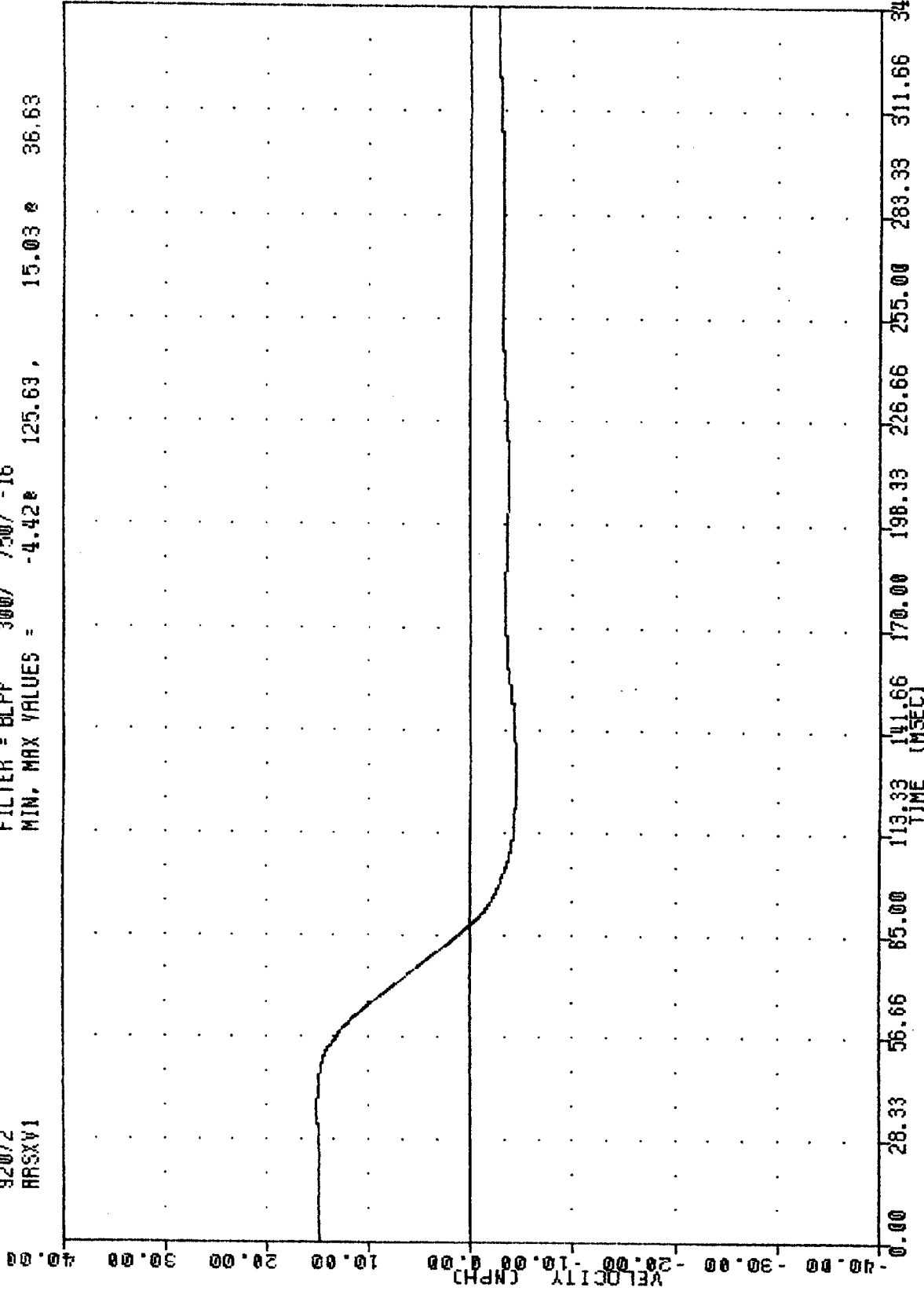


TIME (MSEC)	DISPLACEMENT (IN)
0.00	0.00
28.33	5.00
56.66	10.00
85.00	13.00
113.33	15.00
141.66	14.00
170.00	13.00
198.33	12.00
226.66	11.00
255.00	10.00
283.33	9.00
311.66	8.00
340.00	7.00

1985 FORD TEMPO INTO POLE BARRIER AT 14.8 MPH TEST NO. 3
 LEFT REAR SILL X-AXIS DISPLACEMENT

TRC . 920312-3
 CRASH III DAMAGE ALGORITHM
 92072
 ARSXV1

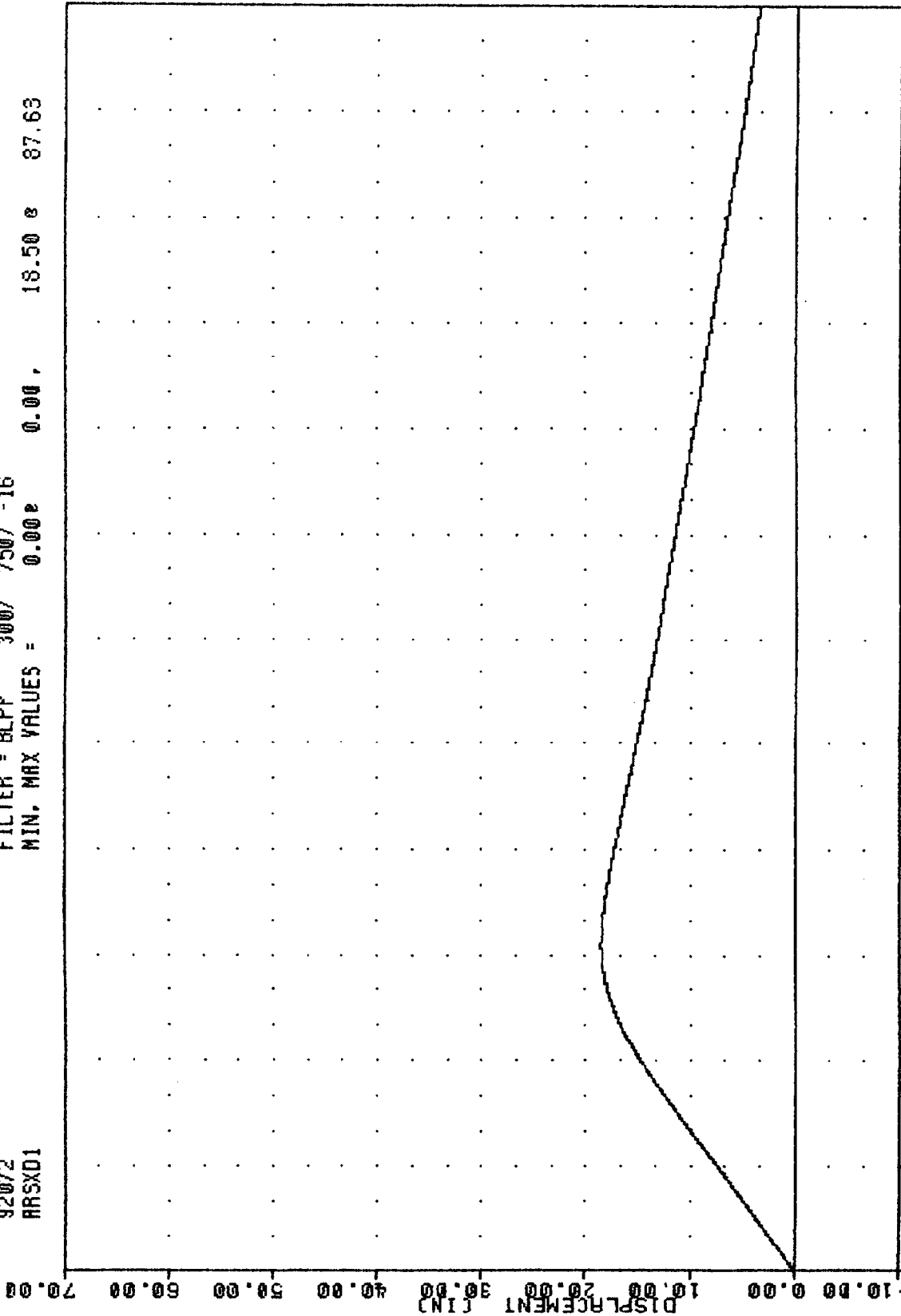
FILTER = BLPP 300/ 750/ -16
 MIN. MAX VALUES = -4.42e 125.63, 15.03 e 36.63



1985 FORD TEMPO INTO POLE BARRIER AT 14.8 MPH TEST NO. 3
 RIGHT REAR SILL X-AXIS VELOCITY

TRC 920312-3
 CRASH III DAMAGE ALGORITHM
 92072
 ARSXD1

FILTER = BLPF 300/ 750/ -16
 MIN. MAX VALUES = 0.00e 0.00, 18.50 e 87.63



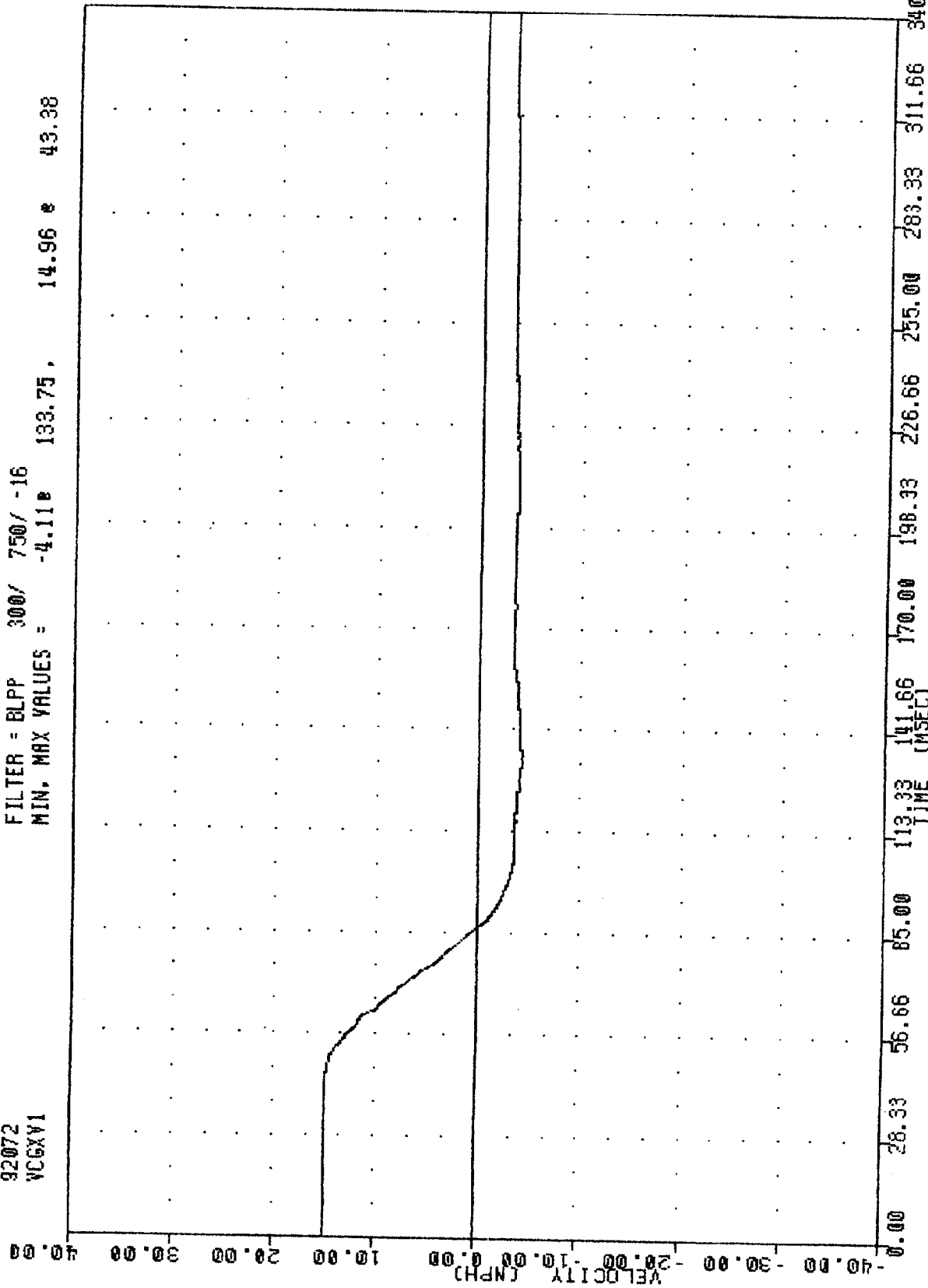
0.00 28.33 56.66 85.00 113.33 141.66 170.00 198.33 226.66 255.00 283.33 311.66 340.00
 TIME (MSEC)

1985 FORD TEMPO INTO POLE BARRIER AT 14.8 MPH TEST NO. 3
 RIGHT REAR SILL X-AXIS DISPLACEMENT

TAC
 CRASH III DAMAGE ALGORITHM
 92072
 VCGXV1

920312-3

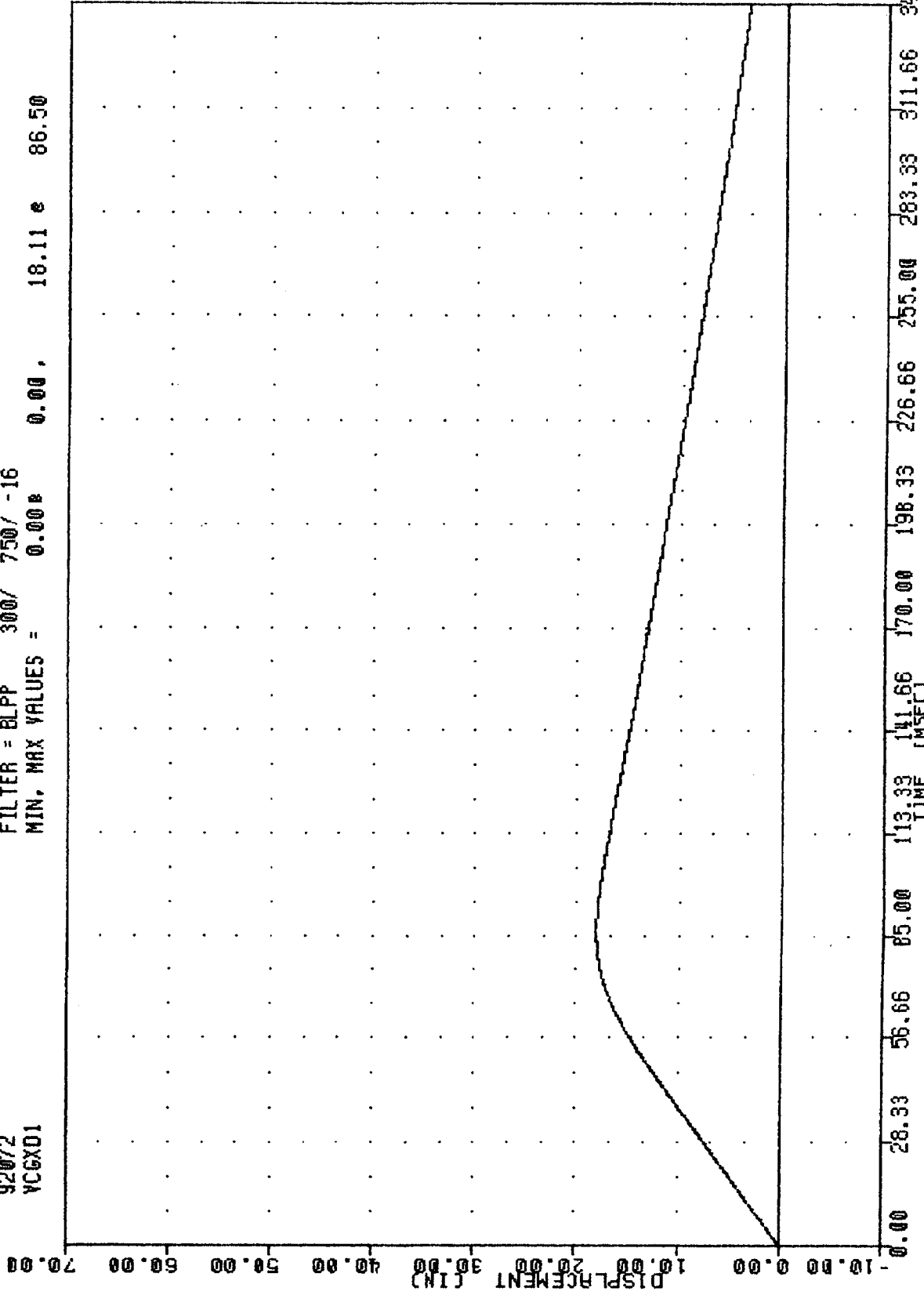
FILTER = BLPP 300/ 750/ -16
 MIN. MAX VALUES = -4.11e 133.75, 14.96 e 43.38



1985 FORD TEMPO INTO POLE BARRIER AT 14.8 MPH TEST NO. 3
 VEHICLE CG X-AXIS VELOCITY

TRC .920312-3
 CRASH III DAMAGE ALGORITHM
 92072
 YCGXD1

FILTER = BLPP 300/ 750/ -16
 MIN. MAX VALUES = 0.00e 0.00, 18.11 e 86.50

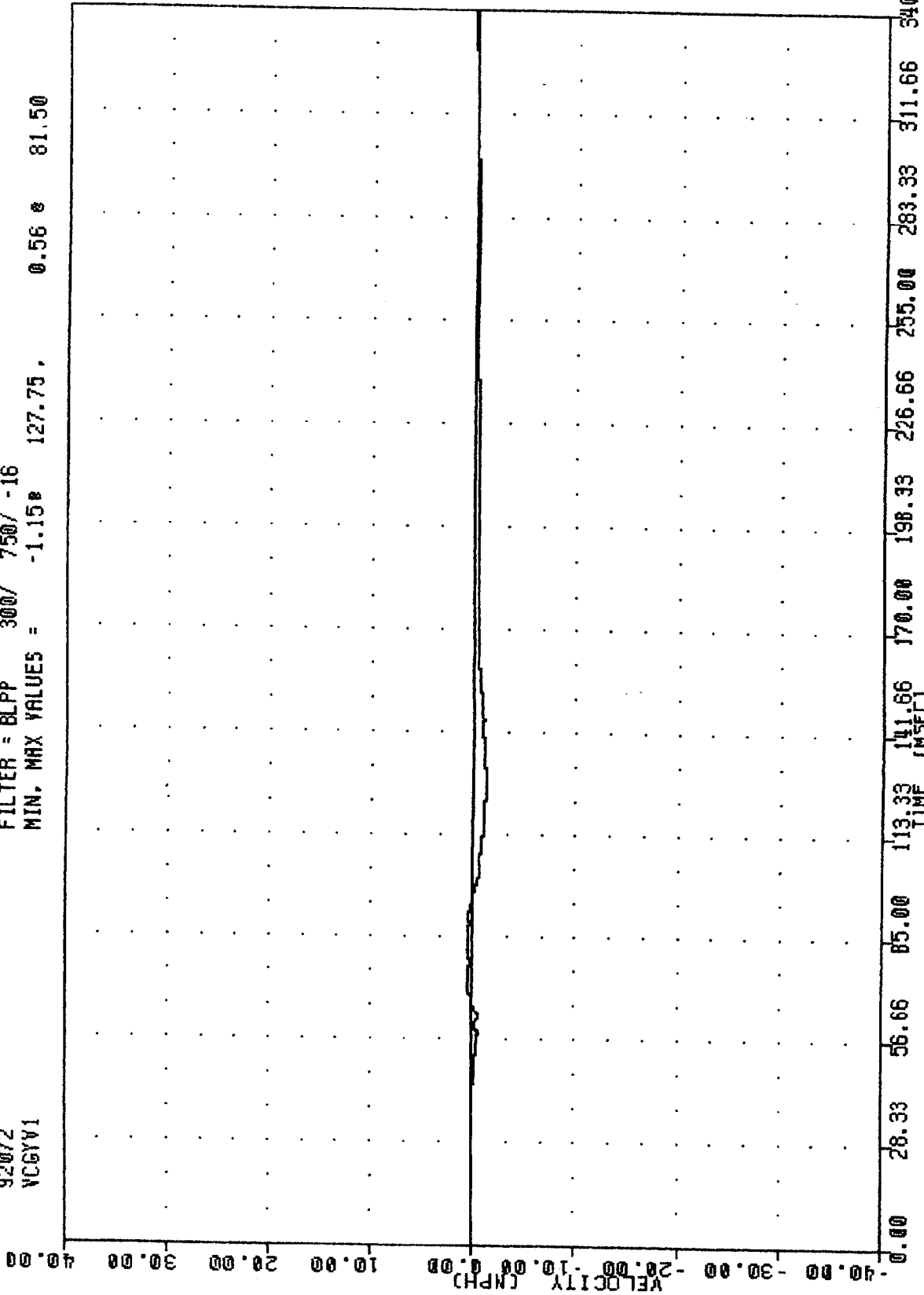


B-45

1985 FORD TEMPO INTO POLE BARRIER AT 14.8 MPH TEST NO. 3
 VEHICLE CG X-AXIS DISPLACEMENT

TRC , 920312-3
 CRASH III DAMAGE ALGORITHM
 92072
 VCGYV1

FILTER = BLPP 300/ 750/ -16
 MIN. MAX VALUES = -1.15e 127.75, 0.56 e 81.50

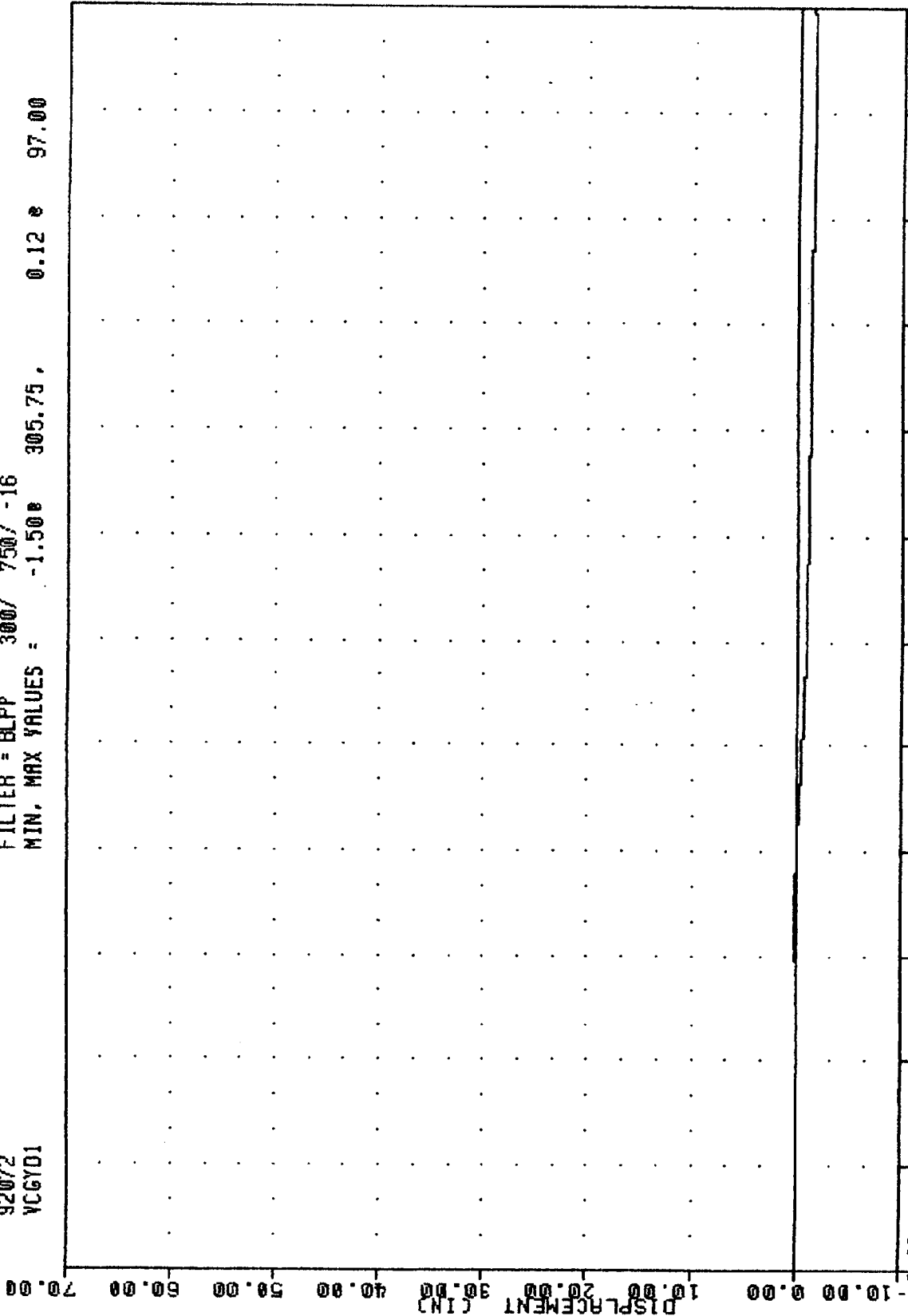


B-46

1985 FORD TEMPO INTO POLE BARRIER AT 14.8 MPH TEST NO. 3
 VEHICLE CG Y-AXIS VELOCITY

TRC
 CRASH III DAMAGE ALGORITHM
 92072
 YC6YD1

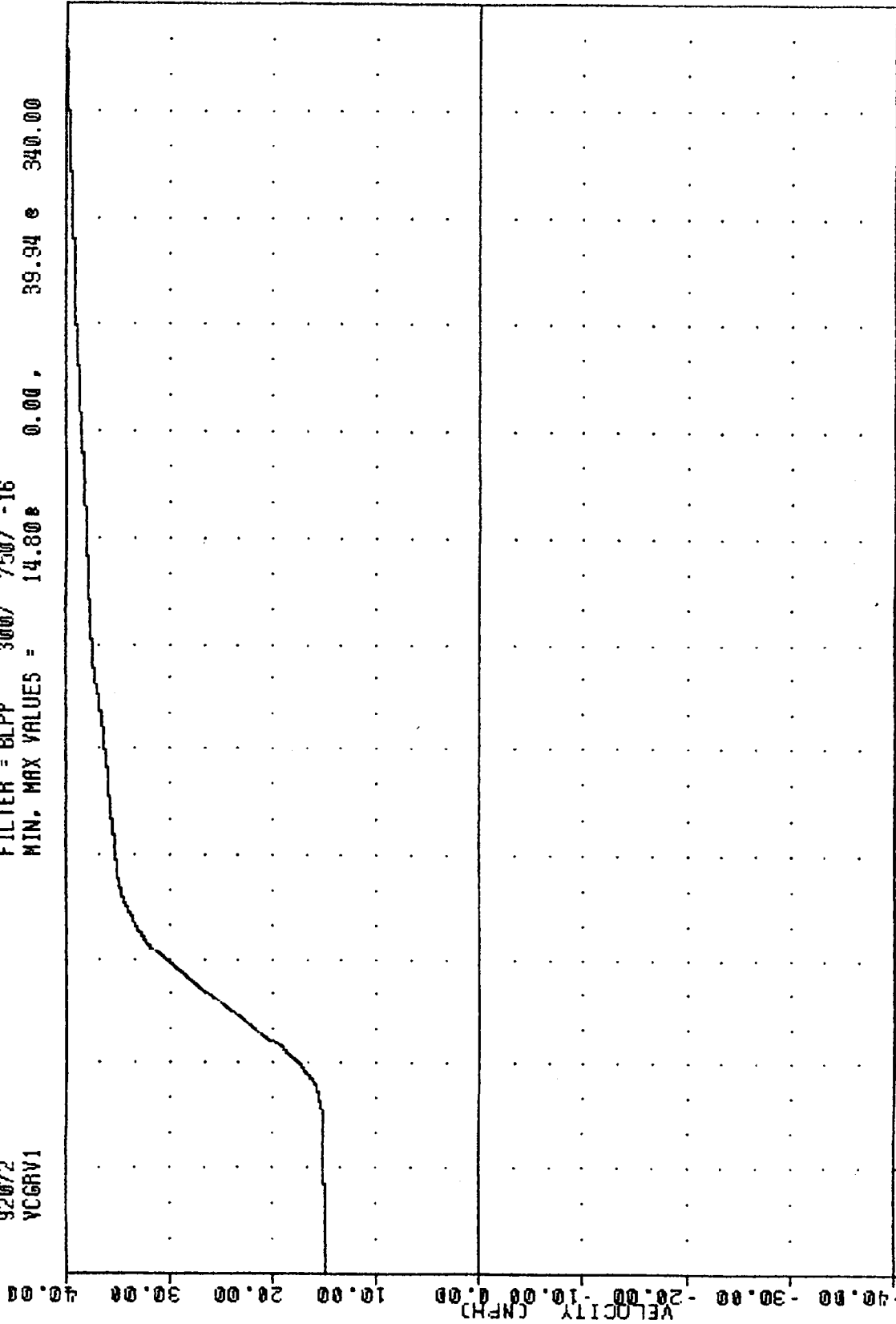
FILTER = BLPP 300/ 750/ -16
 MIN. MAX VALUES = -1.500 305.75, 0.12 e 97.00



1985 FORD TEMPO INTO POLE BARRIER AT 14.8 MPH TEST NO. 3
 VEHICLE CG Y-AXIS DISPLACEMENT

TRC , 920312-3
 CRASH III DAMAGE ALGORITHM
 92072
 YCGRV1

FILTER = BLPP 300/ 750/ -16
 MIN. MAX VALUES = 0.00 , 39.94 e 340.00



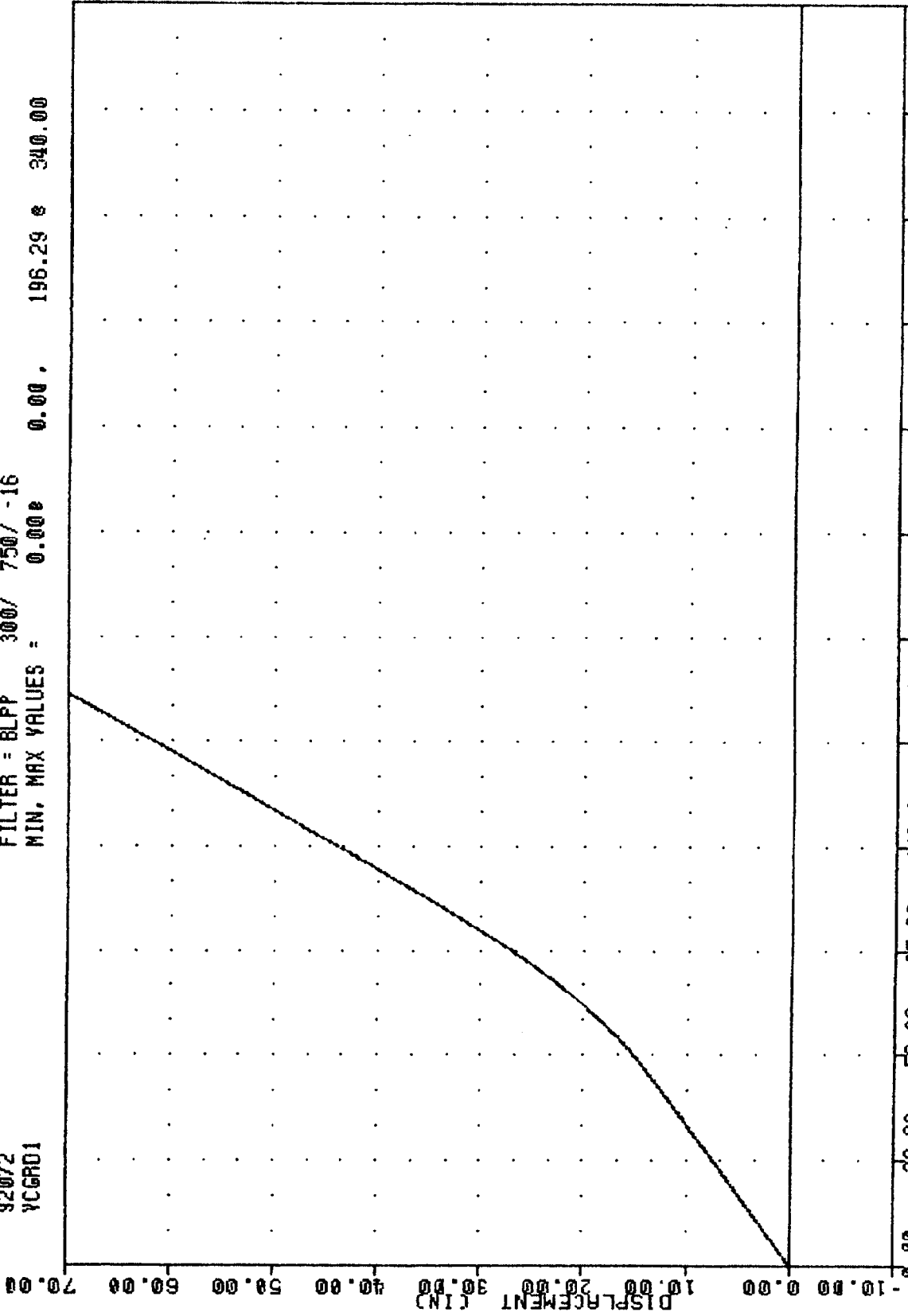
B-48

0.00 28.33 55.66 85.00 113.33 141.66 170.00 198.33 226.66 255.00 283.33 311.66 340.00

1985 FORD TEMPO INTO POLE BARRIER AT 14.8 MPH TEST NO. 3
 VEHICLE CG RESULTANT VELOCITY

TRC
 CRASH III DAMAGE ALGORITHM
 92072
 YCGRD1

FILTER = BLPP 300/ 750/ -16
 MIN, MAX VALUES = 0.000 0.00, 196.29 e 340.00



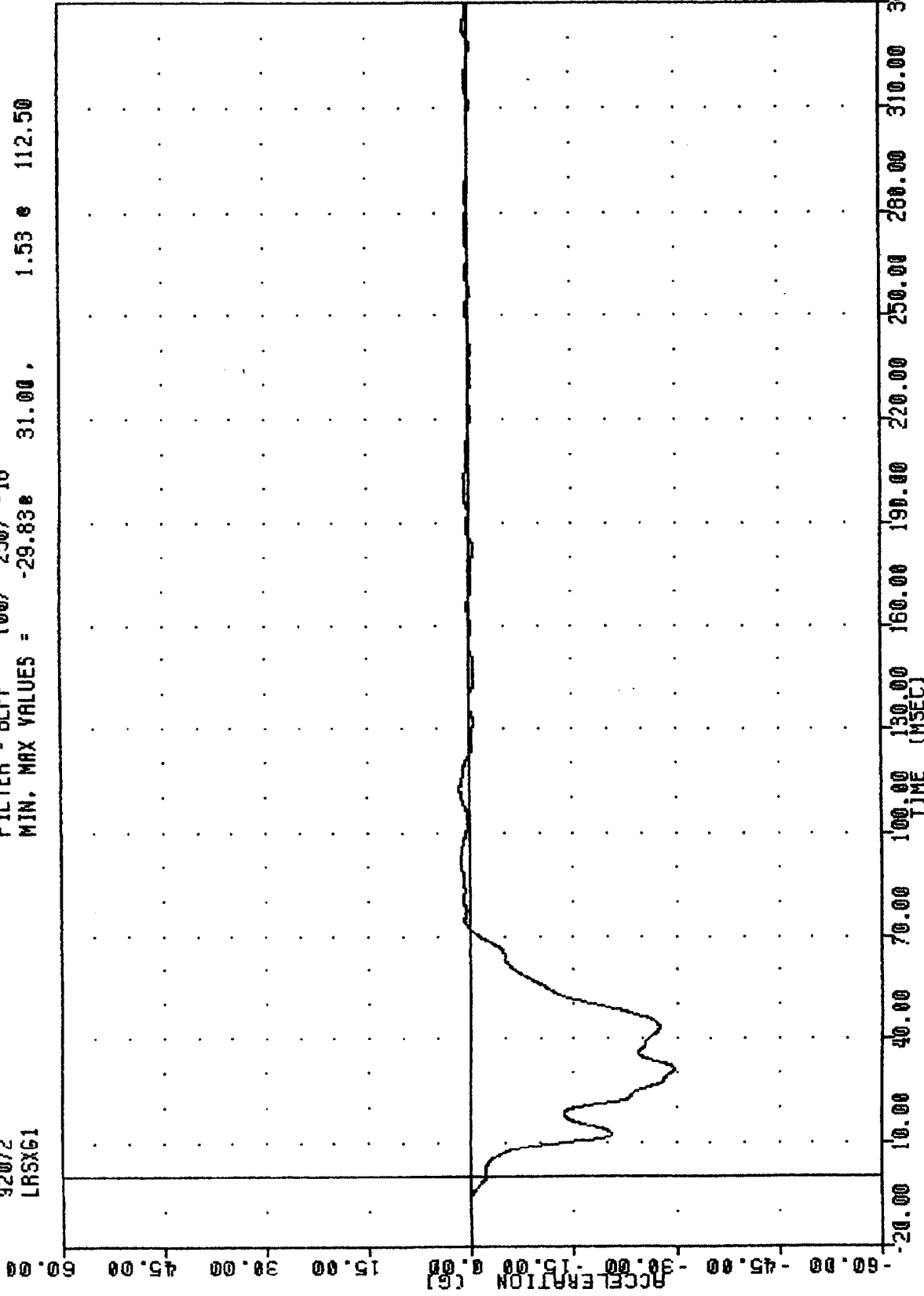
1985 FORD TEMPO INTO POLE BARRIER AT 14.8 MPH TEST NO. 3
 VEHICLE CG RESULTANT DISPLACEMENT

DATA PLOTS

TEST NO. 920312-4

TRC , 920312-4
CRASH III DAMAGE ALGORITHM
92072
LRSXG1

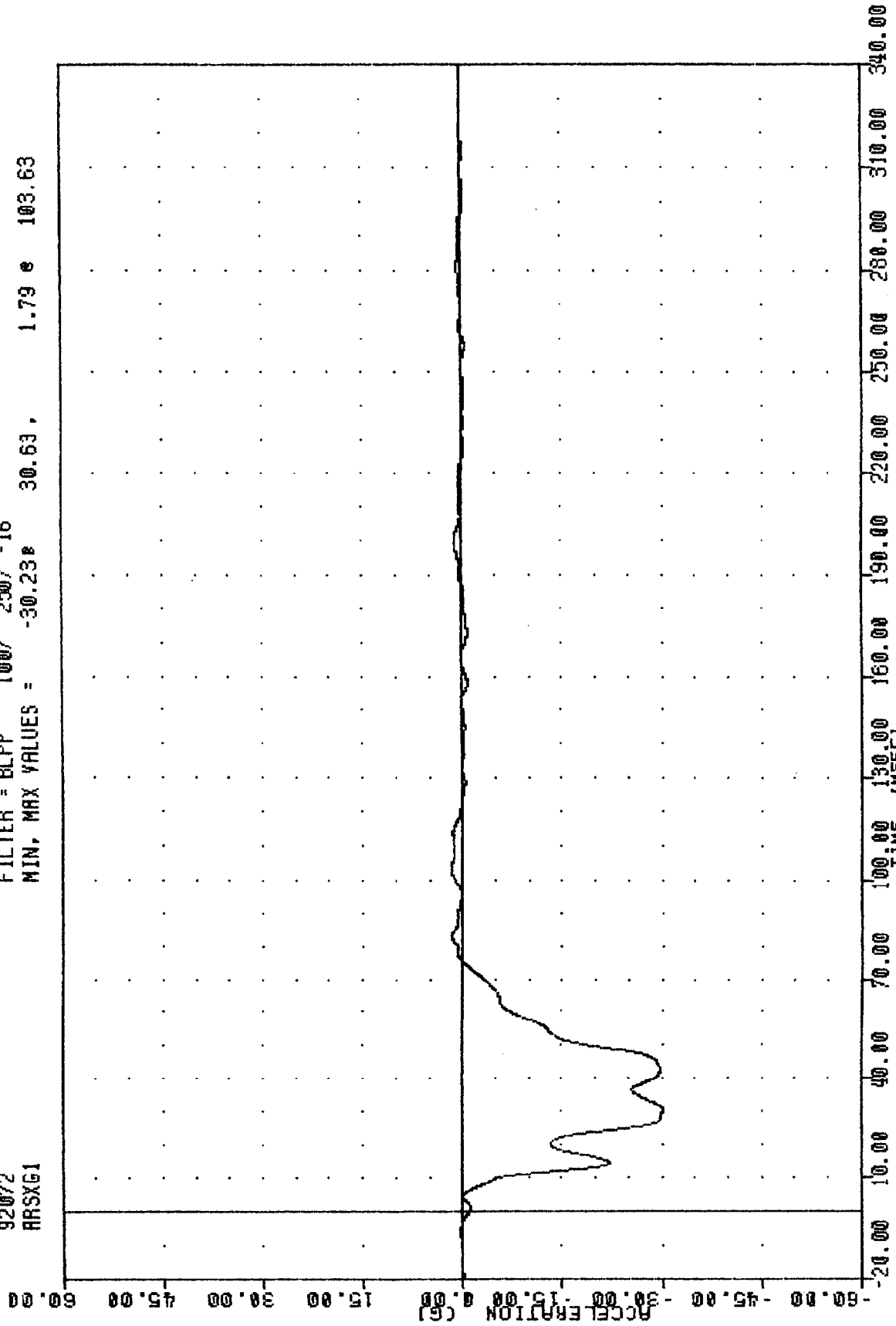
FILTER = BLPP 100/ 250/ -16
MIN. MAX VALUES = 31.00, 1.53 e 112.50



1985 FORD TEMPO INTO POLE BARRIER AT 20.0 MPH TEST NO. 4
LEFT REAR SILL X-AXIS ACCELERATION

TFC
CRASH III DAMAGE ALGORITHM
92072
ARSXG1

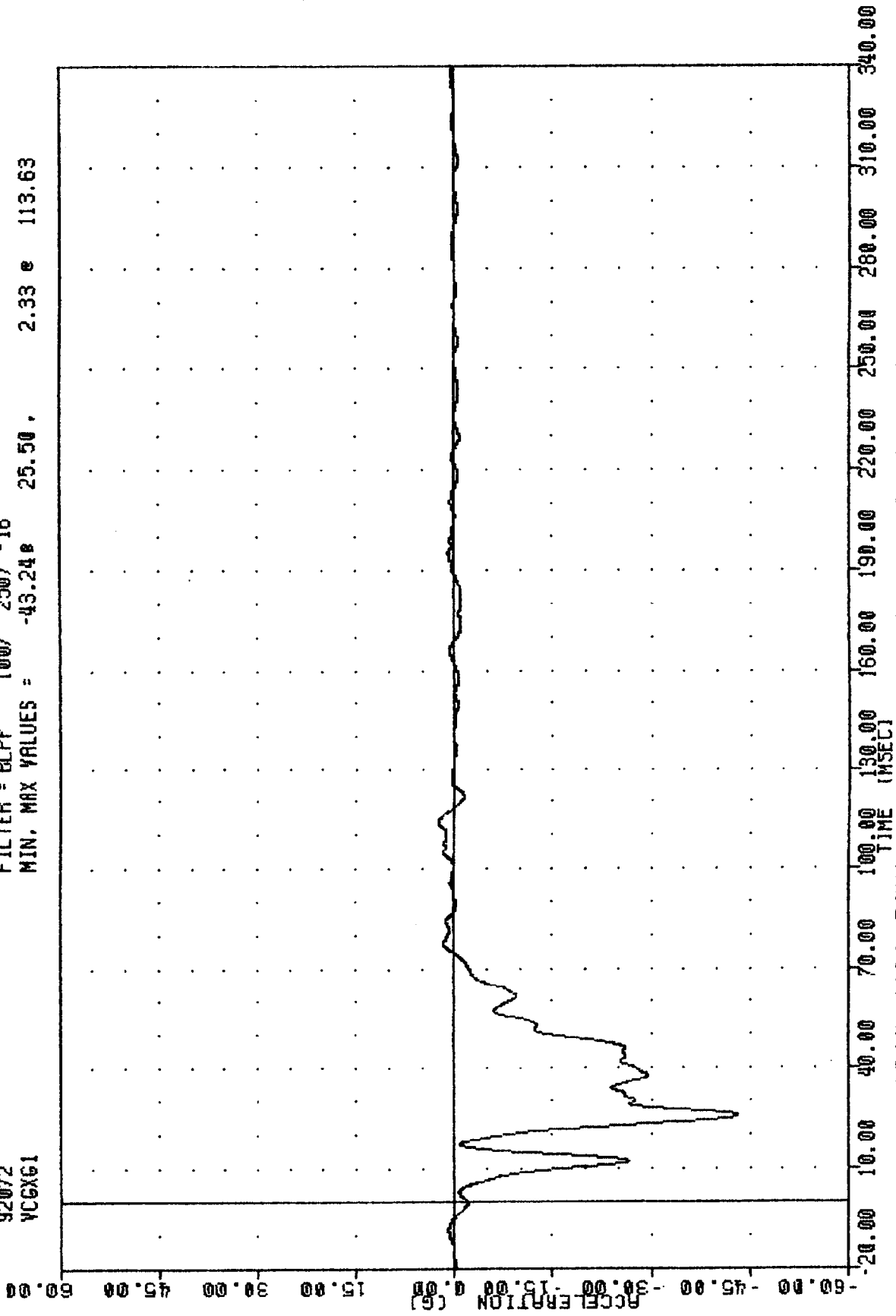
FILTER = BLPP 100/ 250/ -16
MIN, MAX VALUES = -30.23 30.63, 1.79 e 103.63



1985 FORD TEMPO INTO POLE BARRIER AT 20.0 MPH TEST NO. 4
RIGHT REAR SILL X-AXIS ACCELERATION

TRC , 920312-4
CRASH III DAMAGE ALGORITHM
92072
VCCXG1

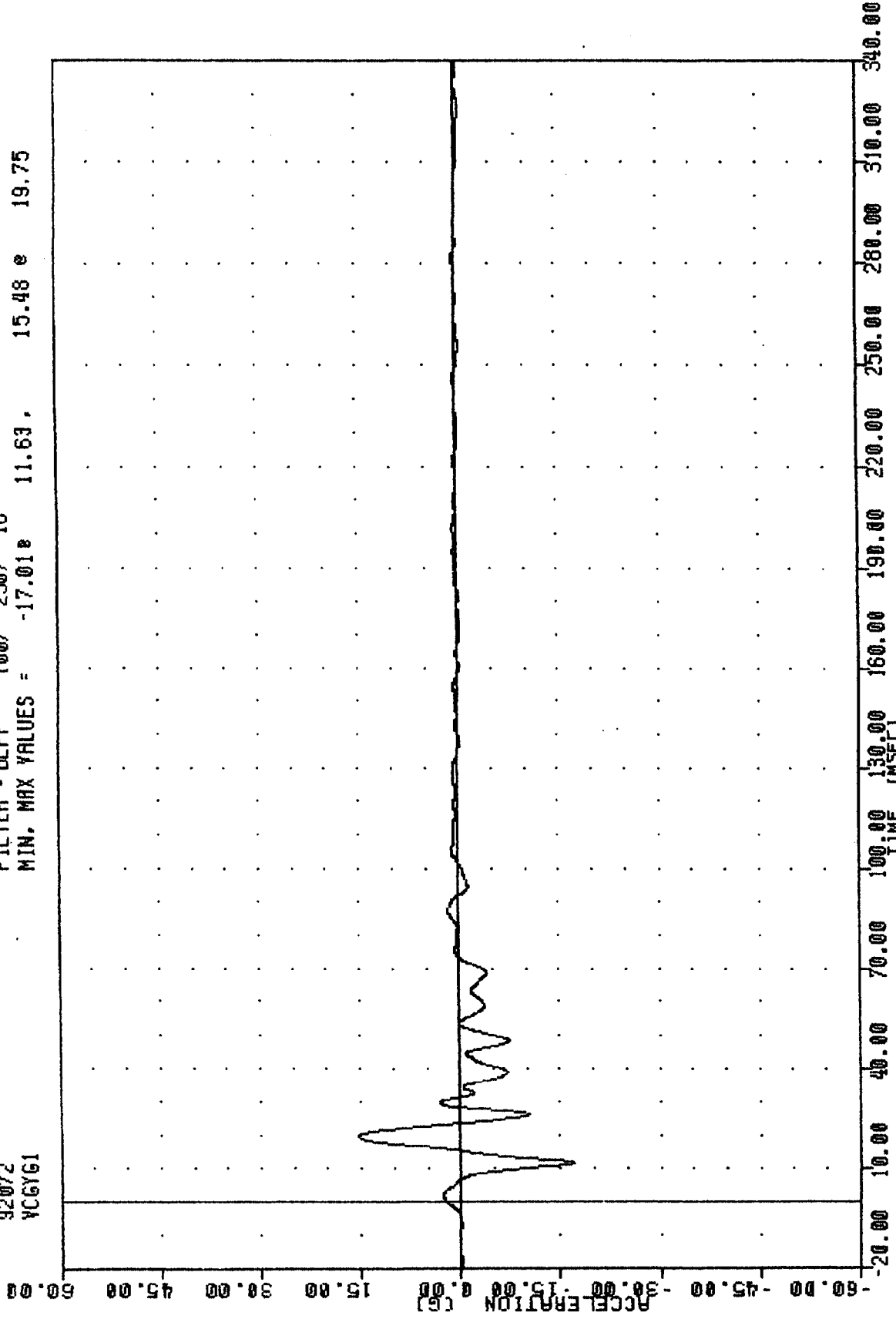
FILTER = BLPF 100/ 250/ -16
MIN, MAX VALUES = -43.248 25.50 , 2.33 e 113.63



1985 FORD TEMPO INTO POLE BARRIER AT 20.0 MPH TEST NO. 4
VEHICLE CG X-AXIS ACCELERATION

TRC , 920312-4
CRASH III DAMAGE ALGORITHM
92072
YCGY61

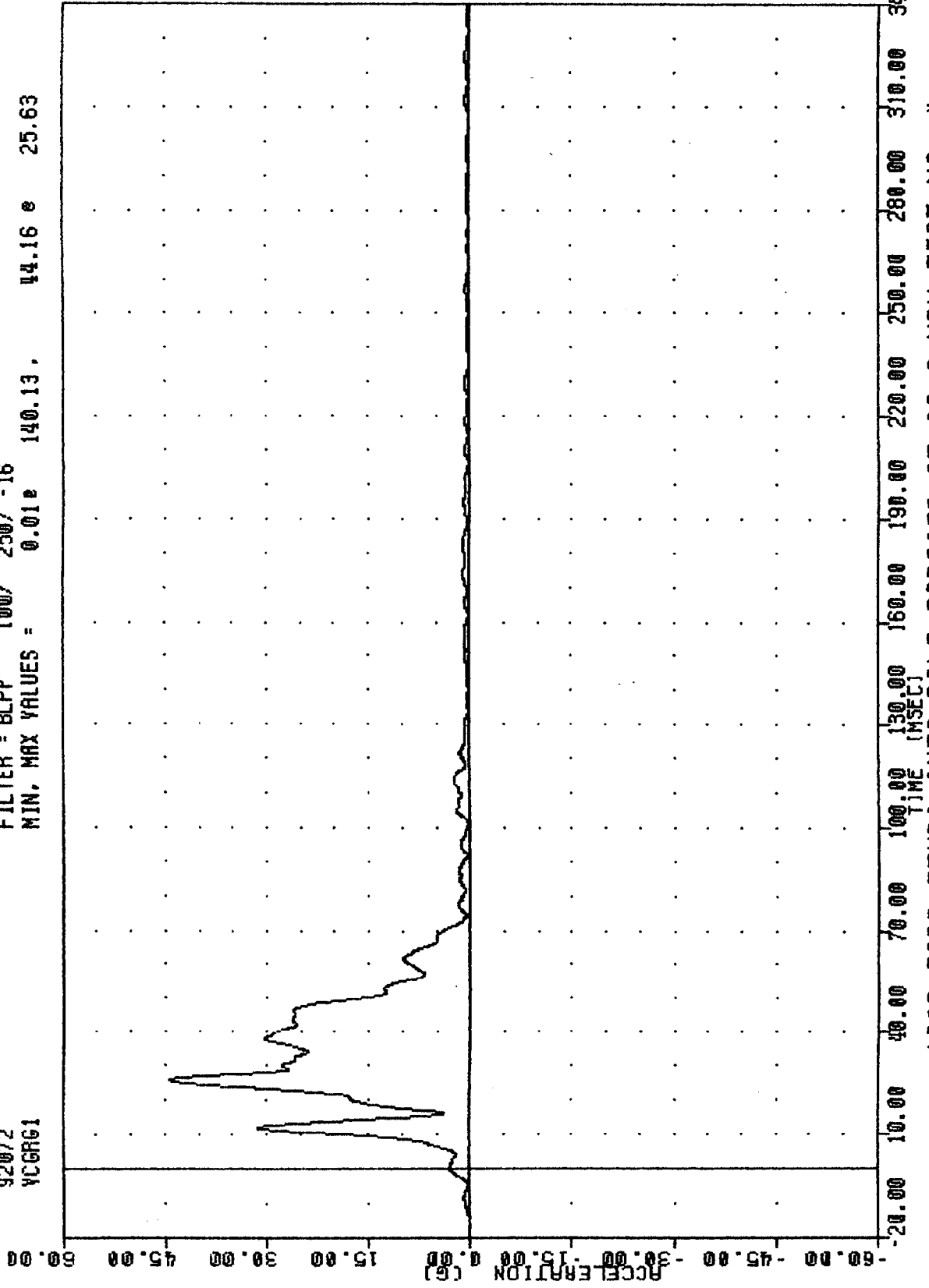
FILTER = BLPP 100/ 250/ -16
MIN, MAX VALUES = -17.018 11.63, 15.48 e 19.75



1985 FORD TEMPO INTO POLE BARRIER AT 20.0 MPH TEST NO. 4
VEHICLE CG Y-AXIS ACCELERATION

TRC 920312.4
CRASH III DAMAGE ALGORITHM
92072
VCGR61

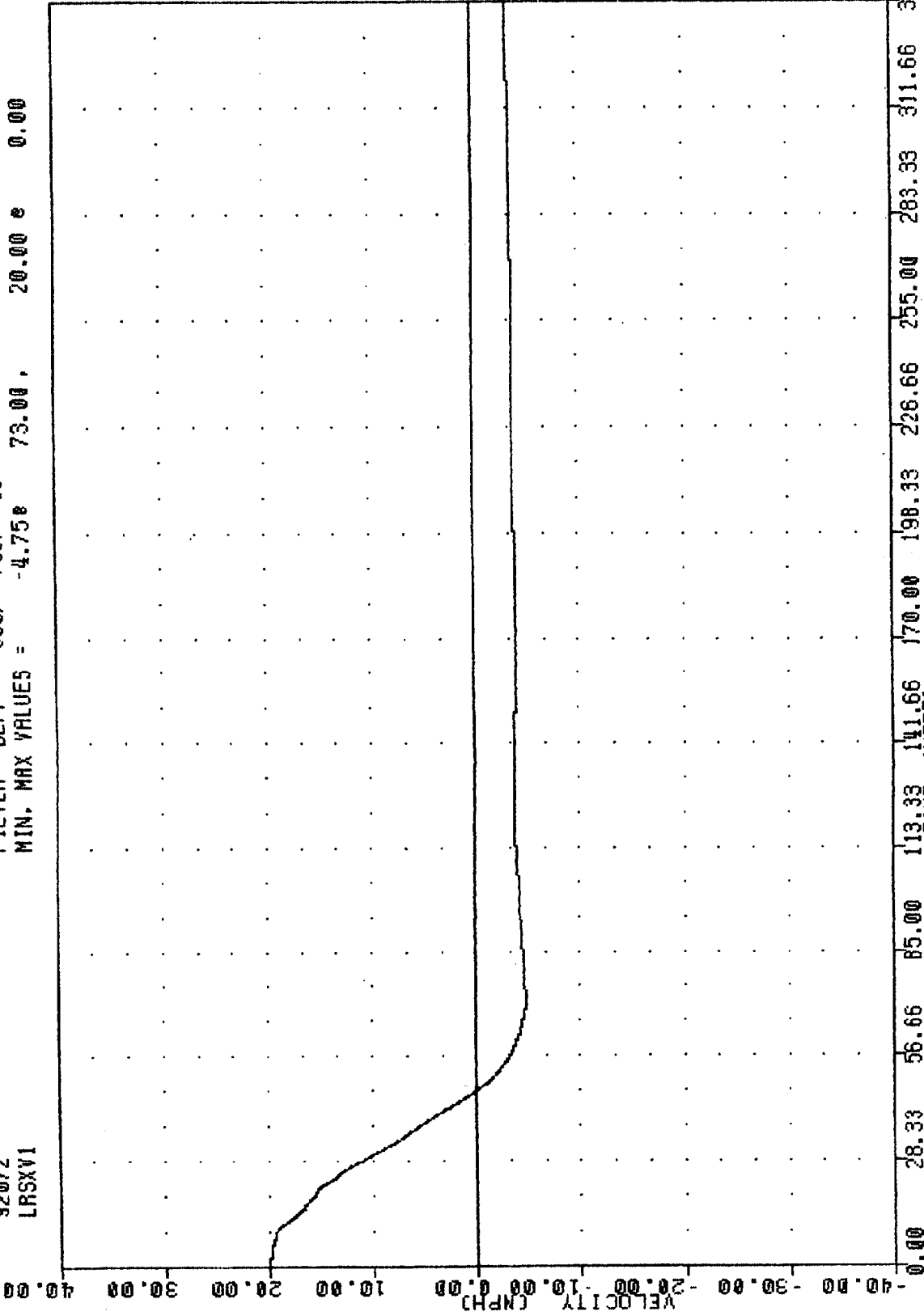
FILTER = BLPP 100/ 250/ -16
MIN, MAX VALUES = 0.01e 140.13, 44.16 e 25.63



1985 FORD TEMPO INTO POLE BARRIER AT 20.0 MPH TEST NO. 4
VEHICLE CG RESULTANT ACCELERATION

TRC , 920312-4
 CRASH III DAMAGE ALGORITHM
 92072
 LRSXV1

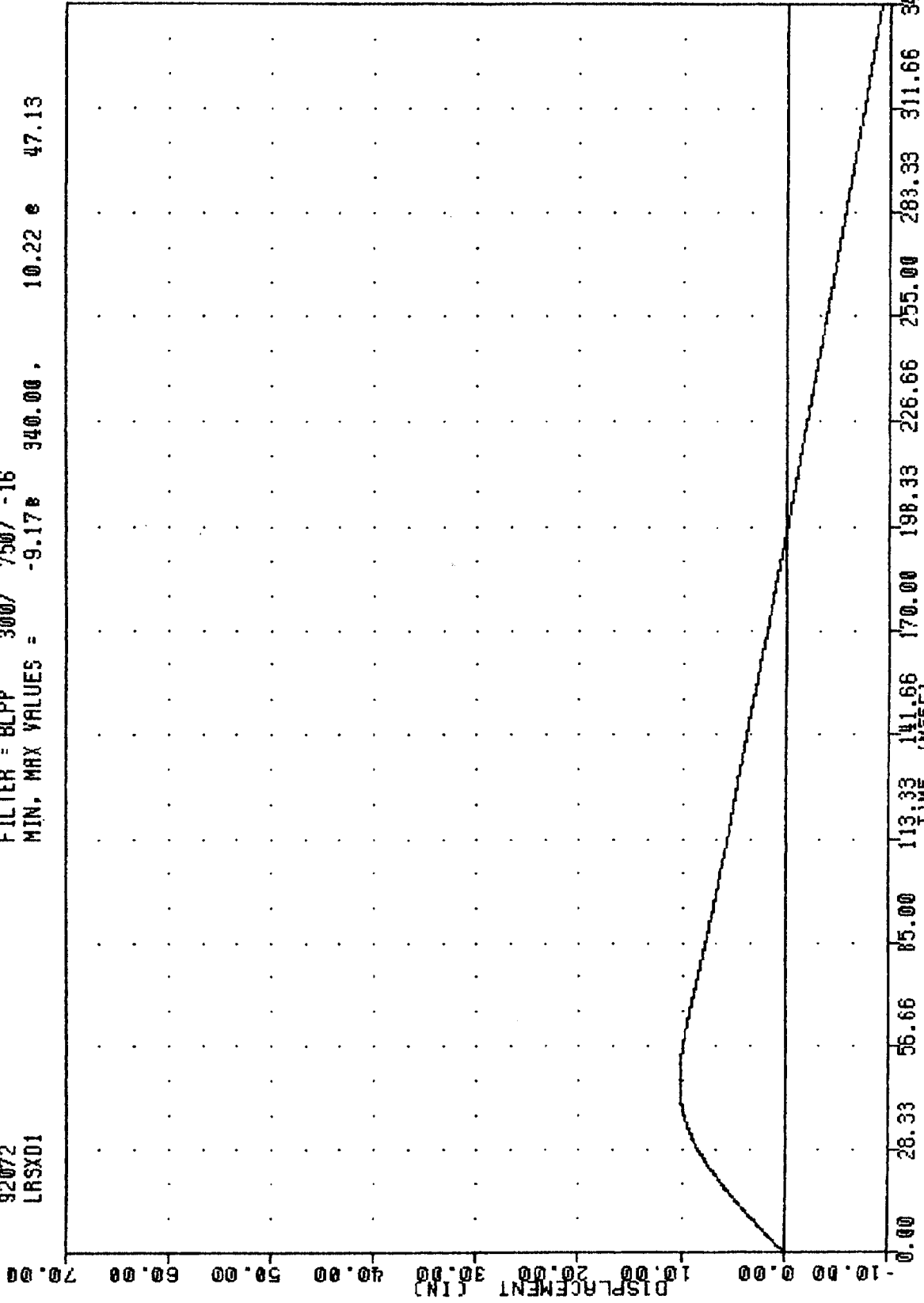
FILTER = BLPP 300/ 750/ -16
 MIN. MAX VALUES = -4.75e 73.00 , 20.00 e 0.00



1985 FORD TEMPO INTO POLE BARRIER AT 20.0 MPH TEST NO. 4
 LEFT REAR SILL X-AXIS VELOCITY

TRC , 920312-4
CRASH III DAMAGE ALGORITHM
92072
LRSD1

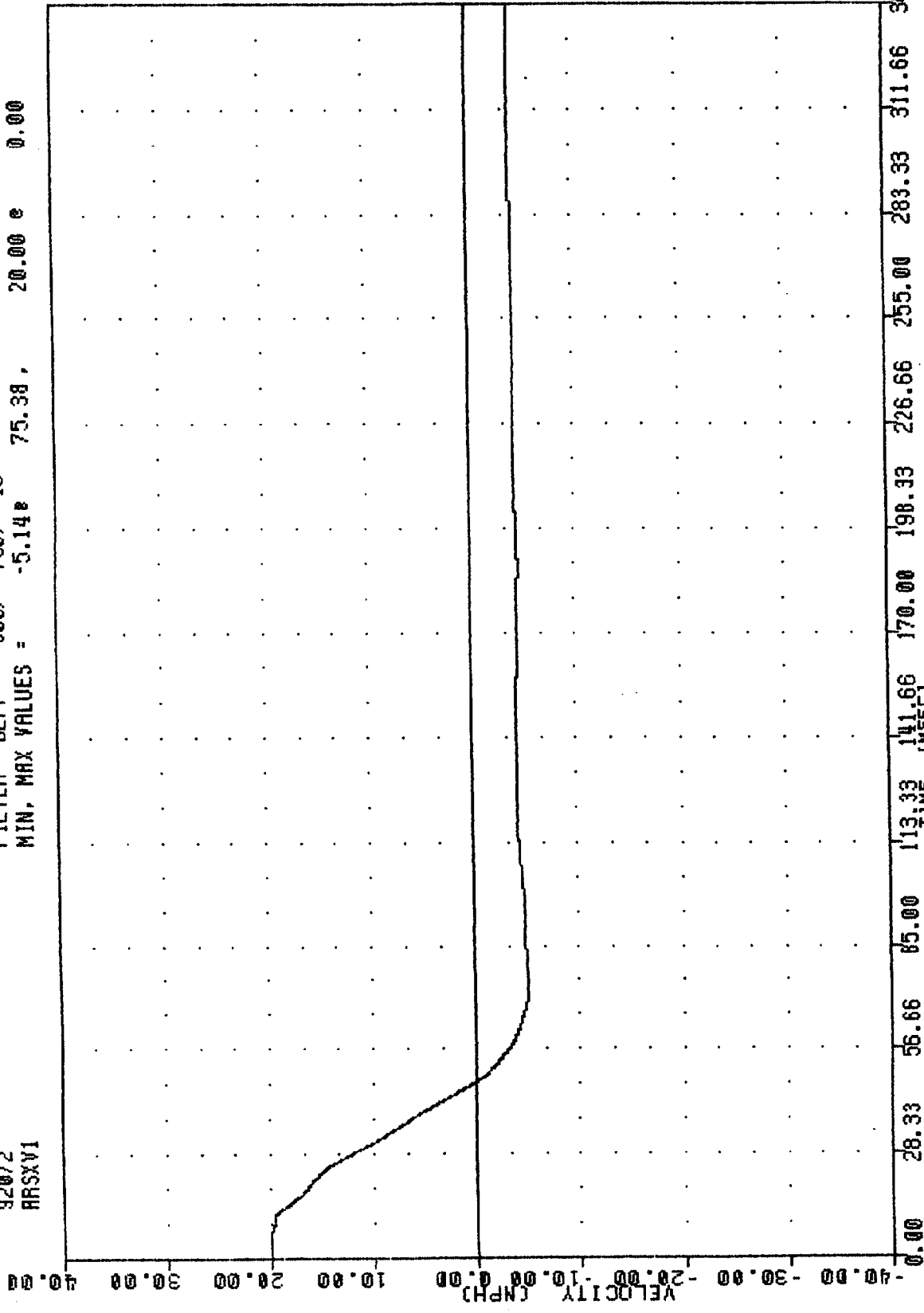
FILTER = BLPP 300/ 750/ -16
MIN. MAX VALUES = -9.17 340.00 10.22 47.13



1985 FORD TEMPO INTO POLE BARRIER AT 20.0 MPH TEST NO. 4
LEFT REAR SILL X-AXIS DISPLACEMENT

TRC , 920312-4
 CRASH III DAMAGE ALGORITHM
 92072
 RRSXV1

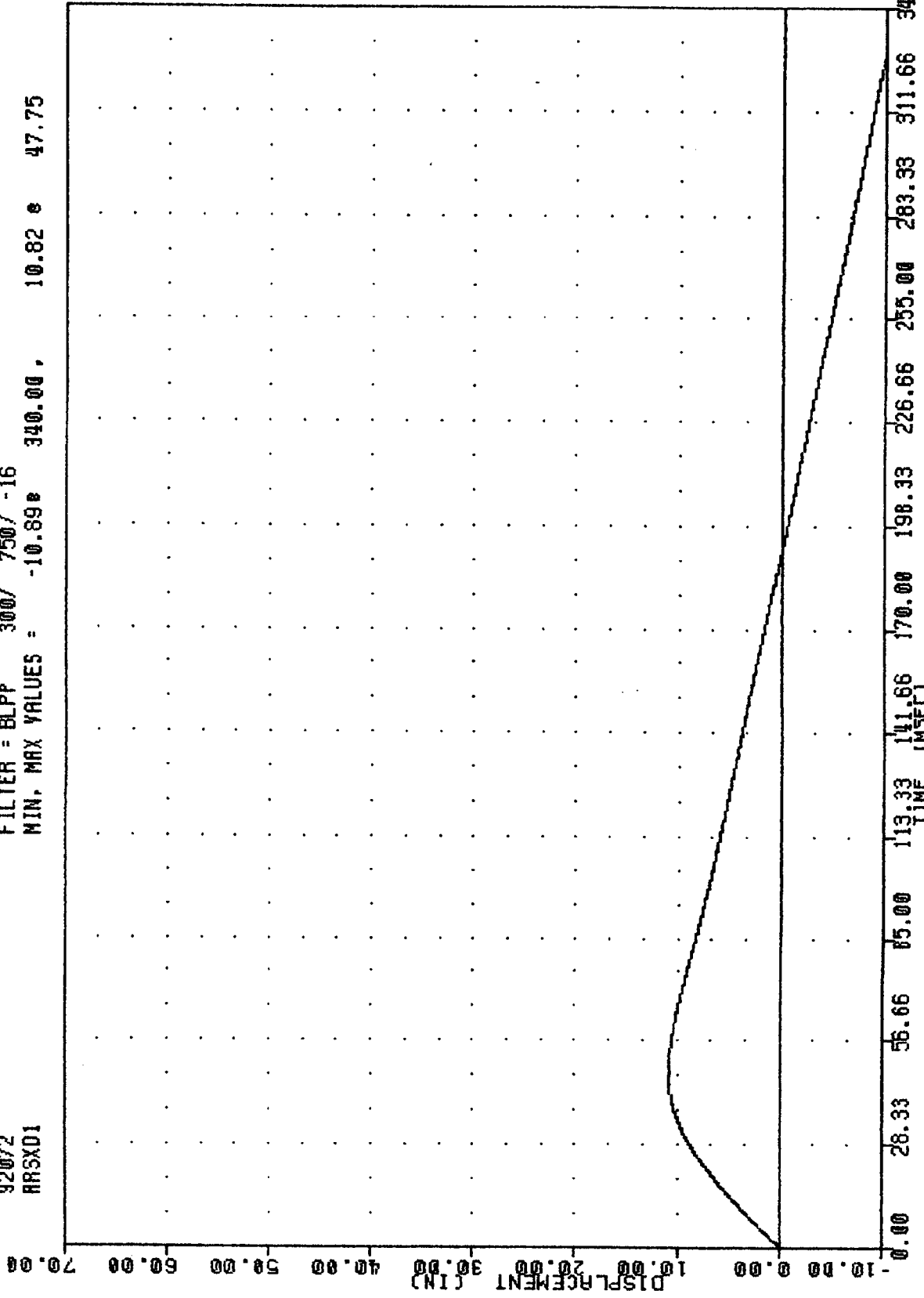
FILTER = BLPP 300/ 750/ -16
 MIN. MAX VALUES = -5.14e 20.00 e 0.00



1985 FORD TEMPO INTO POLE BARRIER AT 20.0 MPH TEST NO. 4
 RIGHT REAR SILL X-AXIS VELOCITY

TRC .920312-4
 CRASH III DAMAGE ALGORITHM
 92072
 RRSXD1

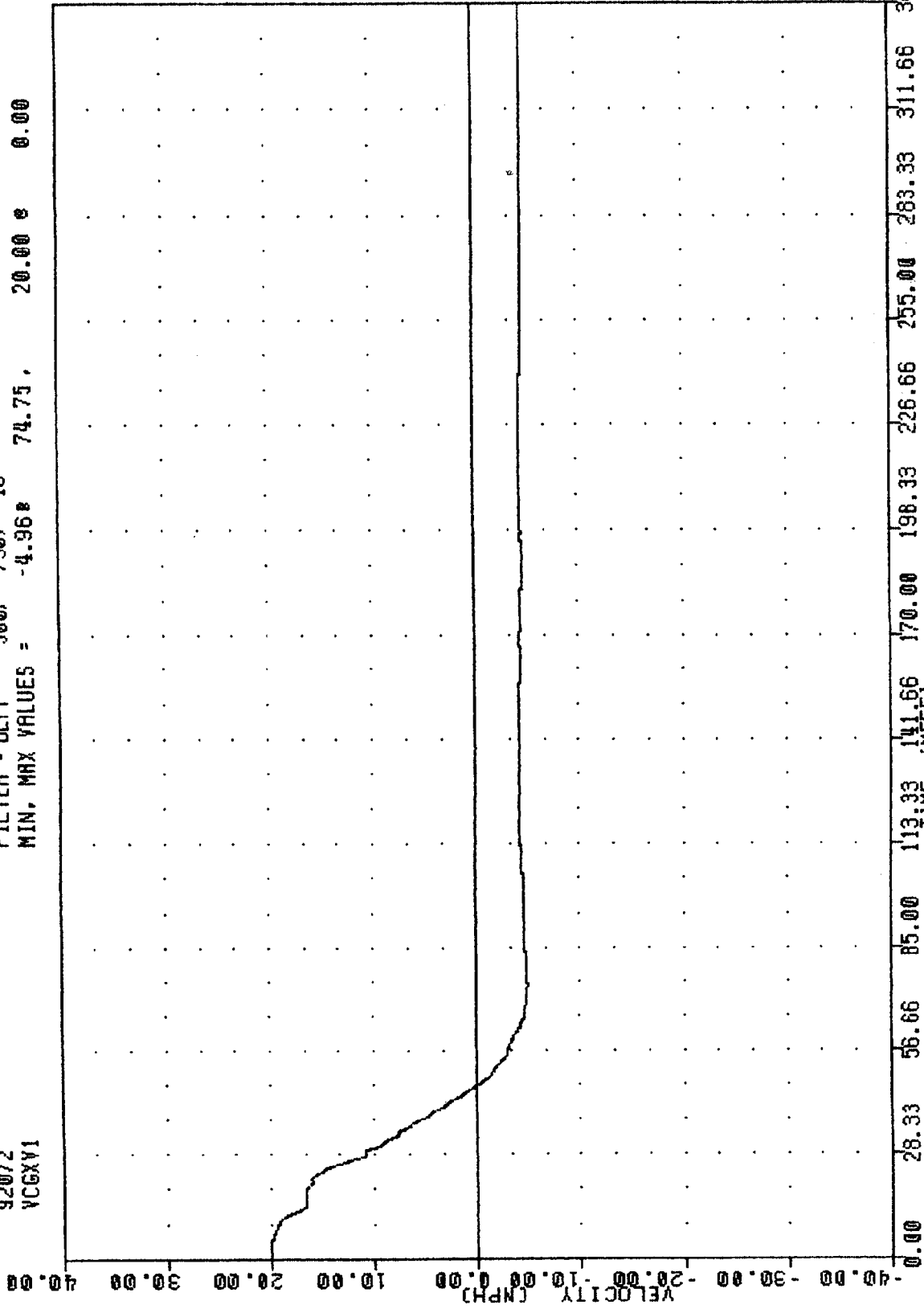
FILTER = BLPP 300/ 750/ -16
 MIN. MAX VALUES = -10.89e 340.00, 10.82 e 47.75



1985 FORD TEMPO INTO POLE BARRIER AT 20.0 MPH TEST NO. 4
 RIGHT REAR SILL X-AXIS DISPLACEMENT

TRC , 920312-4
 CRASH III DAMAGE ALGORITHM
 92072
 VCGXV1

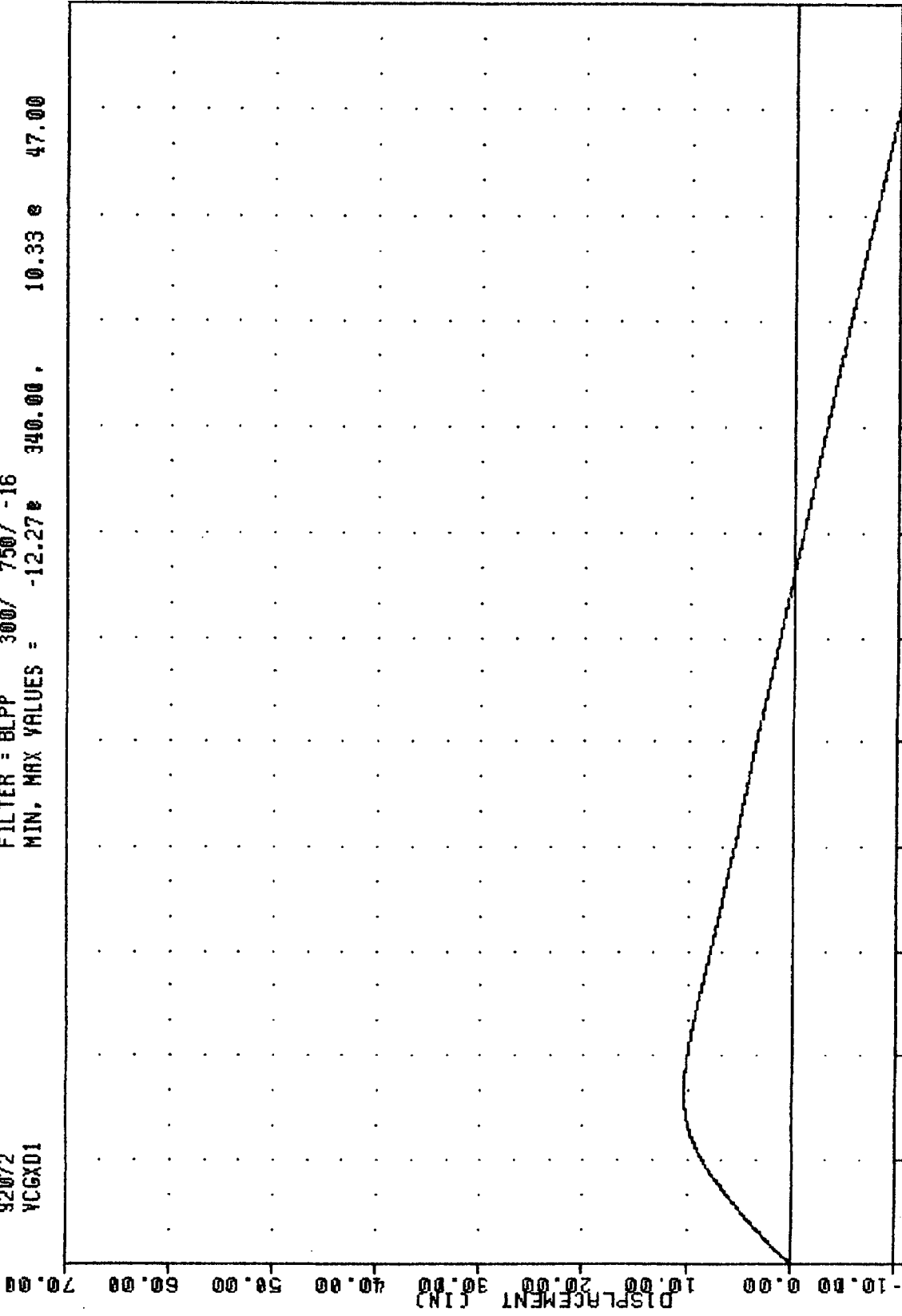
FILTER = BLPP 300/ 750/ -16
 MIN, MAX VALUES = -4.96 74.75 20.00 0.00



1985 FORD TEMPO INTO POLE BARRIER AT 20.0 MPH TEST NO. 4
 VEHICLE CG X-AXIS VELOCITY

TRC
 CRASH III DAMAGE ALGORITHM
 92072
 YCGXD1

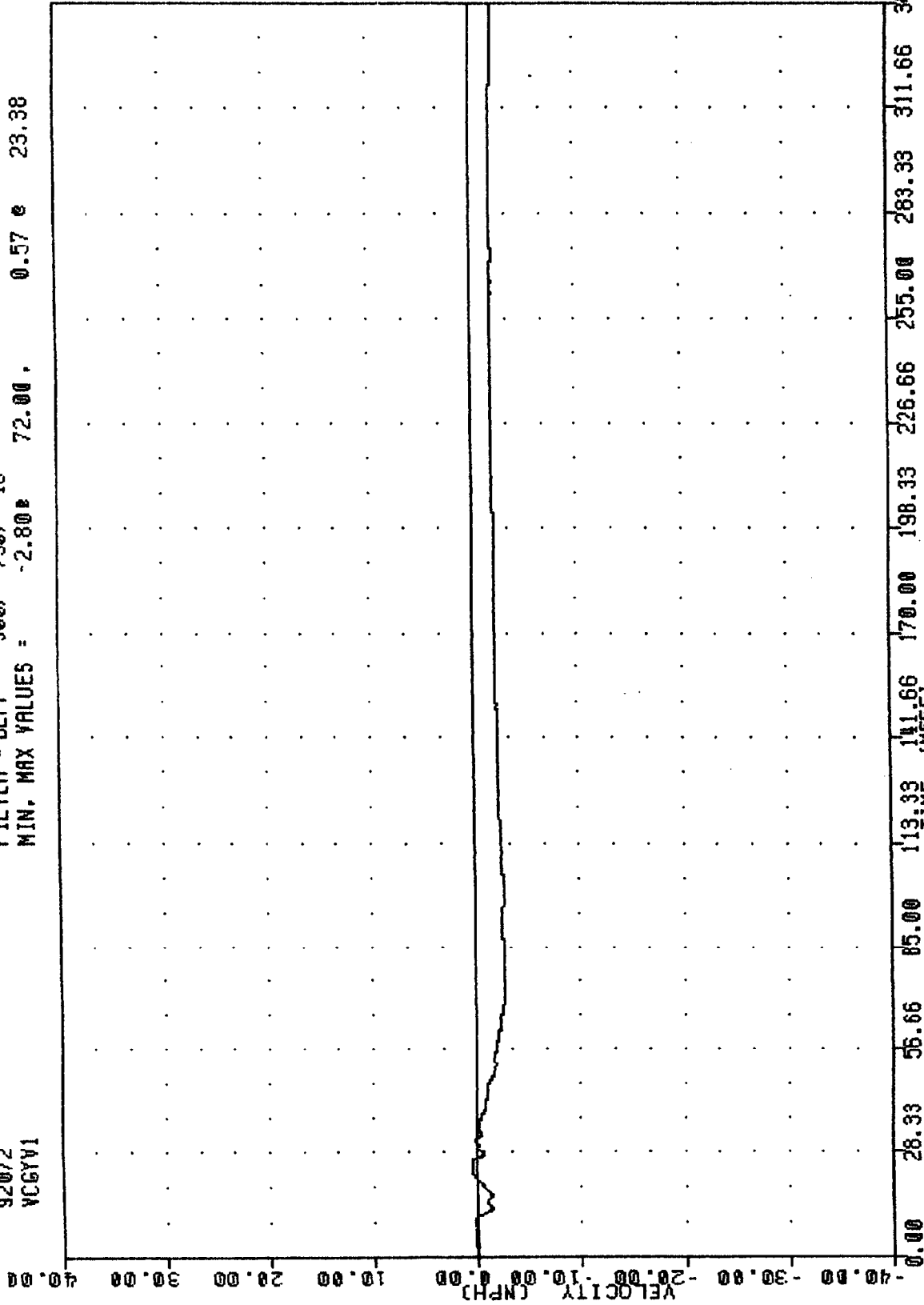
FILTER = BLPP 300/ 750/ -16
 MIN, MAX VALUES = -12.27 e 340.00, 10.33 e 47.00



1985 FORD TEMPO INTO POLE BARRIER AT 20.0 MPH TEST NO. 4
 VEHICLE CG X-AXIS DISPLACEMENT

TRC , 920312-4
 CRASH III DAMAGE ALGORITHM
 92072
 VCGYV1

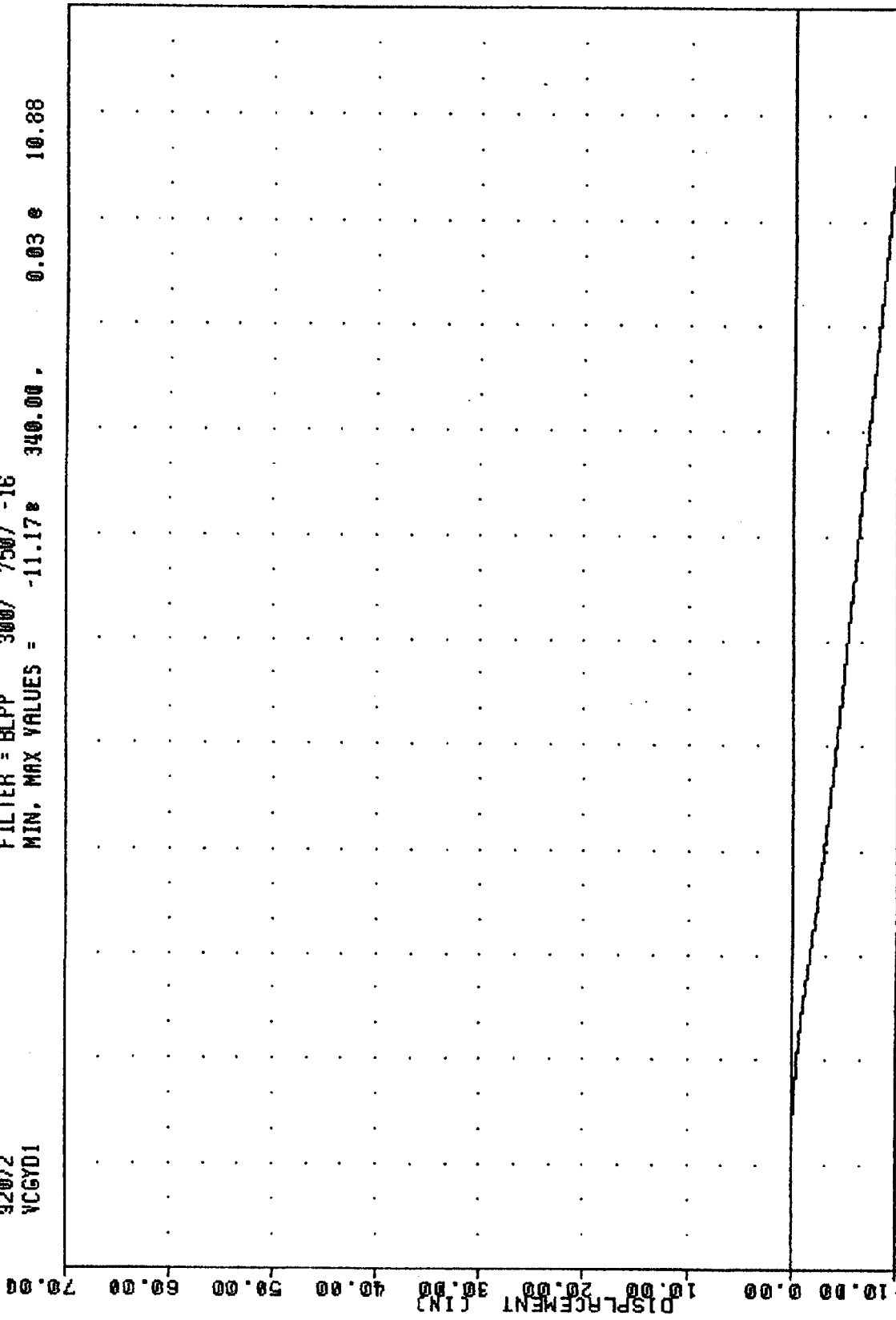
FILTER = BLPP 300/ 750/ -16
 MIN, MAX VALUES = -2.80 72.00 0.57 e 23.38



1985 FORD TEMPO INTO POLE BARRIER AT 20.0 MPH TEST NO. 4
 VEHICLE CG Y-AXIS VELOCITY

TRC 920312-4
 CRASH III DAMAGE ALGORITHM
 92072
 VCCYD1

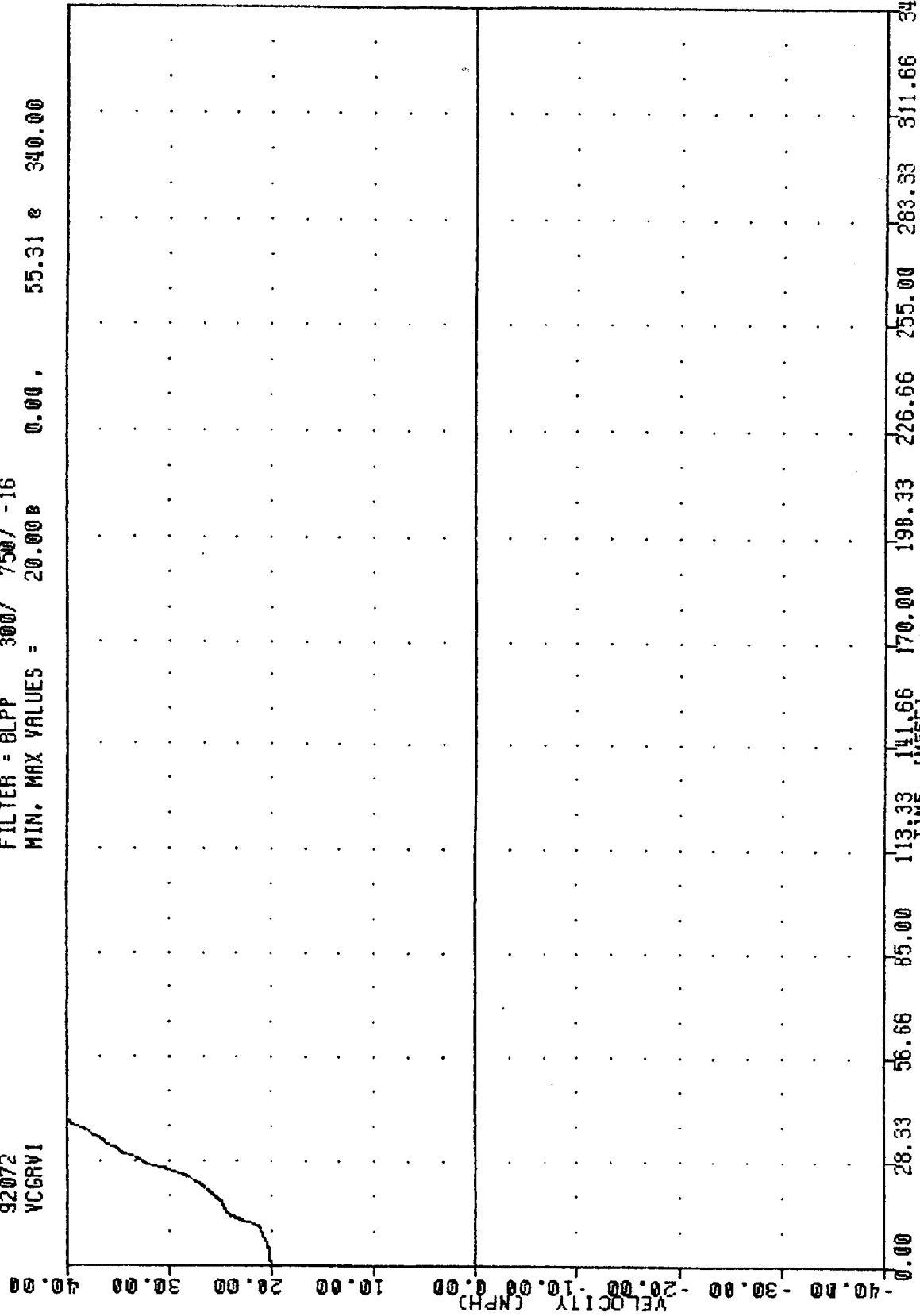
FILTER = BLPP 300/ 750/ -16
 MIN. MAX VALUES = -11.17e 340.00 . 0.03 e 10.88



DISPLACEMENT (IN)
 TIME (MSEC)
 1985 FORD TEMPO INTO POLE BARRIER AT 20.0 MPH TEST NO. 4
 VEHICLE CG Y-AXIS DISPLACEMENT

TRC , 920312-4
 CRASH III DAMAGE ALGORITHM
 92072
 VCGRV1

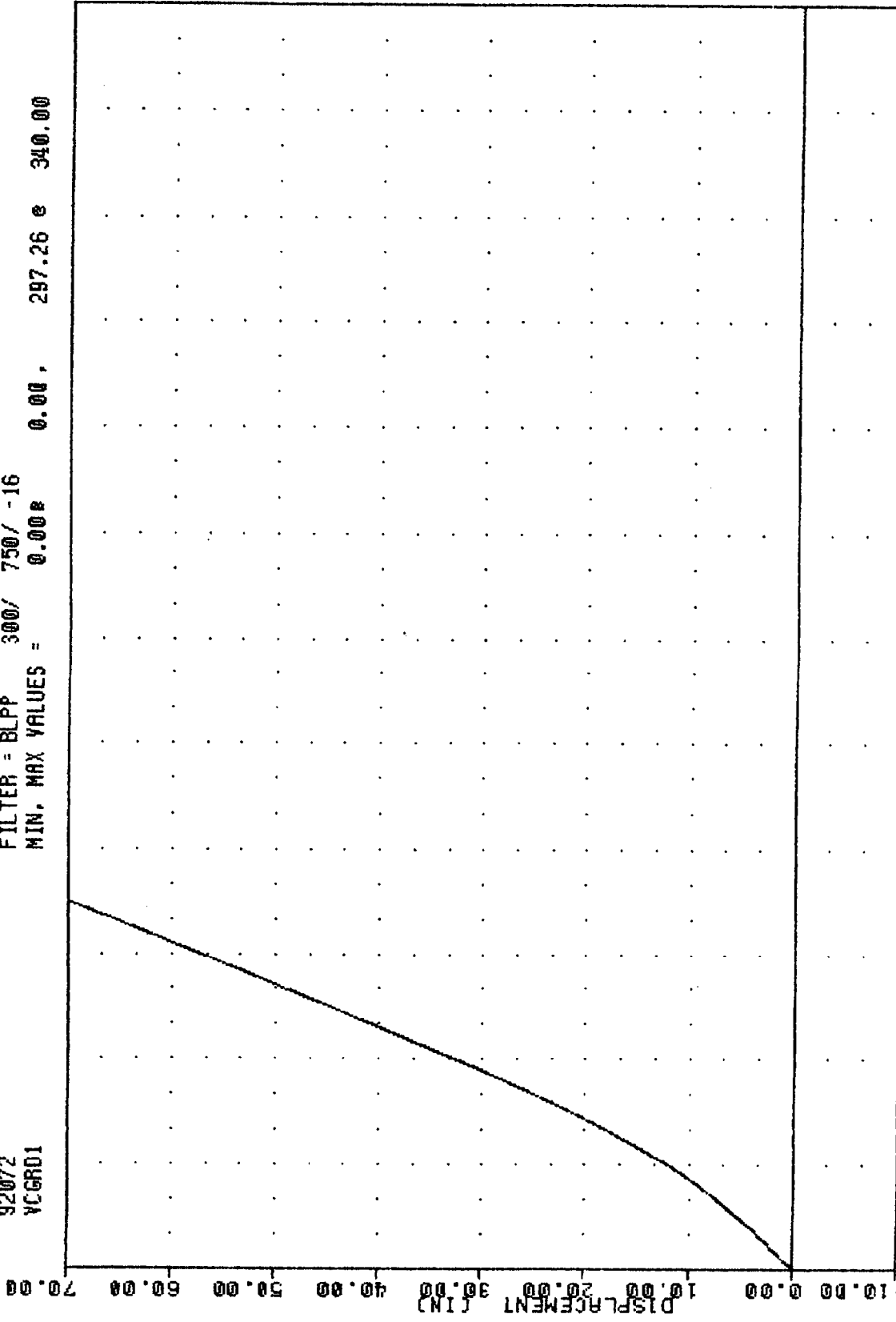
FILTER = BLPP 300/ 750/ -16
 MIN, MAX VALUES = 20.00B 0.00 , 55.31 e 340.00



1985 FORD TEMPO INTO POLE BARRIER AT 20.0 MPH TEST NO. 4
 VEHICLE CG RESULTANT VELOCITY

TRC , 920312-4
 CRASH III DAMAGE ALGORITHM
 92072
 YCGRD1

FILTER = BLPP 300/ 750/ -16
 MIN, MAX VALUES = 0.00e 0.00e 297.26 e 340.00



B-65

0.00 28.33 56.66 85.00 113.33 141.66 170.00 198.33 226.66 255.00 283.33 311.66 340.00
 TIME (MSEC)
 1985 FORD TEMPO INTO POLE BARRIER AT 20.0 MPH TEST NO. 4
 VEHICLE CG RESULTANT DISPLACEMENT

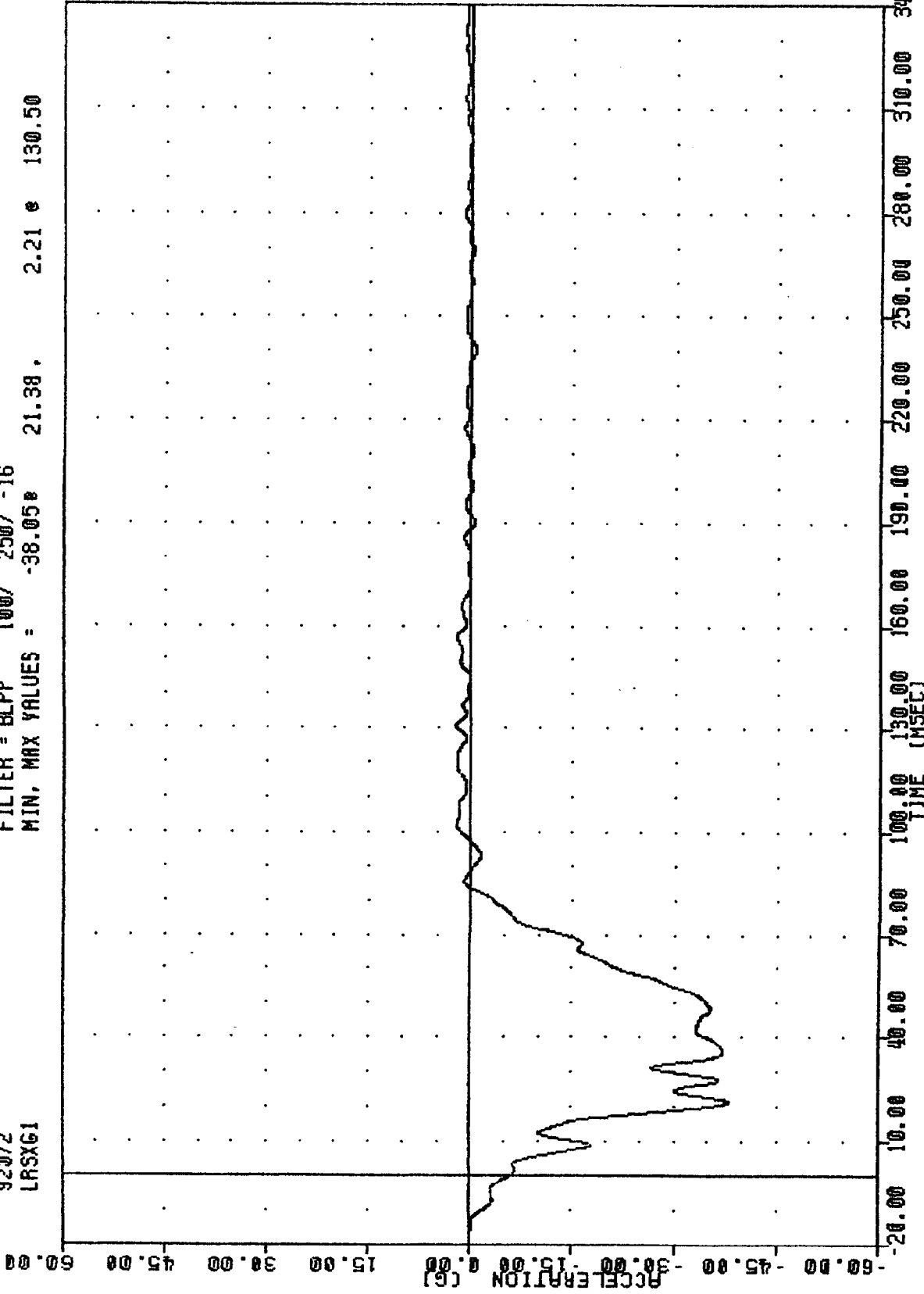
DATA PLOTS

TEST NO. 920312-5

TRC
CRASH III DAMAGE ALGORITHM
92072
LRSXG1

920312.5

FILTER = BLPP 100/ 250/ -16
MIN, MAX VALUES = -38.058 21.38, 2.21 @ 130.50

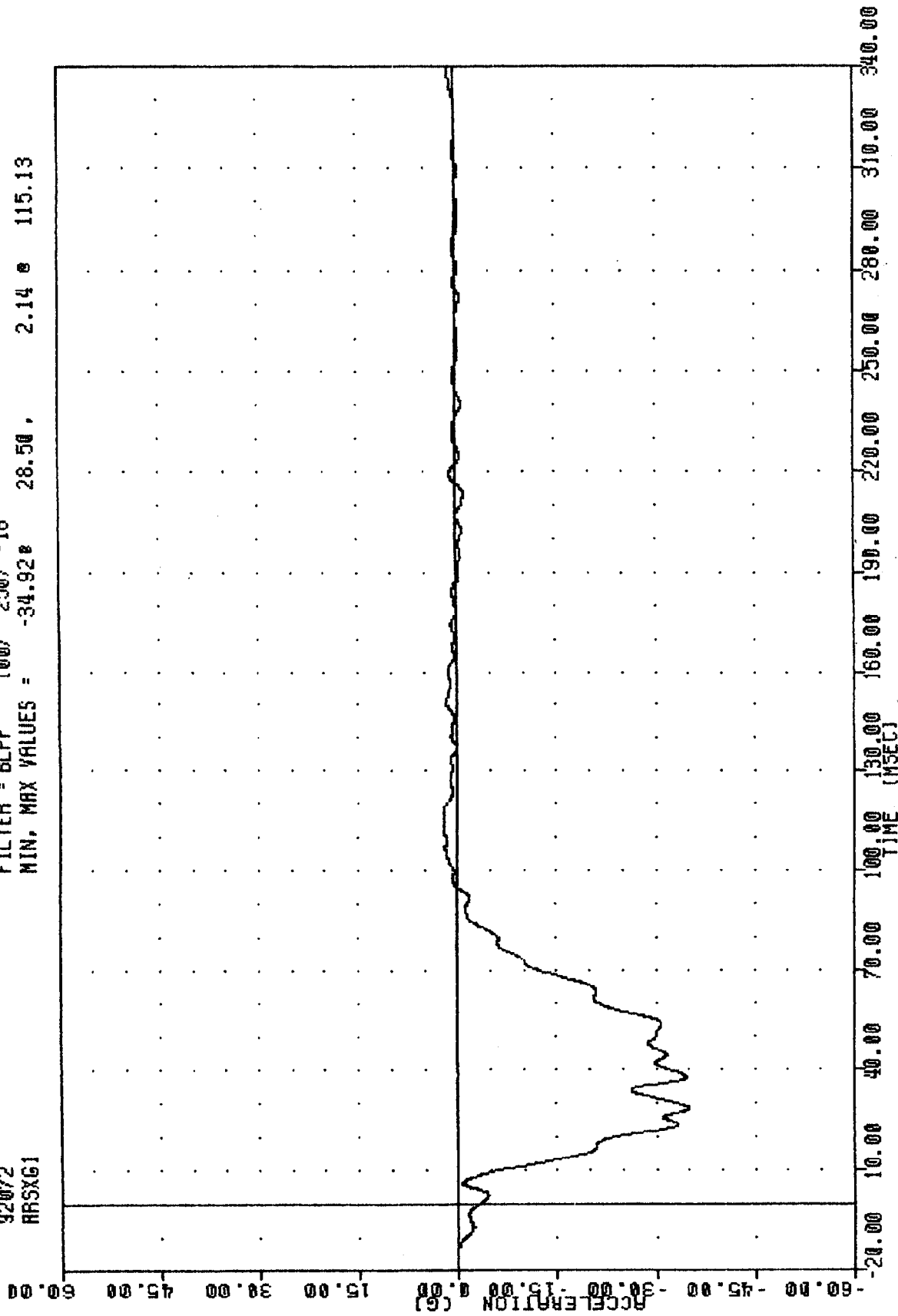


B-67

1985 FORD TEMPO INTO POLE BARRIER AT 35.1 MPH TEST NO. 5
LEFT REAR SILL X-AXIS ACCELERATION

TRC 920312-5
CRASH III DAMAGE ALGORITHM
92072
ARSXG1

FILTER = BLPP 100/ 250/ -16
MIN, MAX VALUES = -34.92e 28.50, 2.14 e 115.13

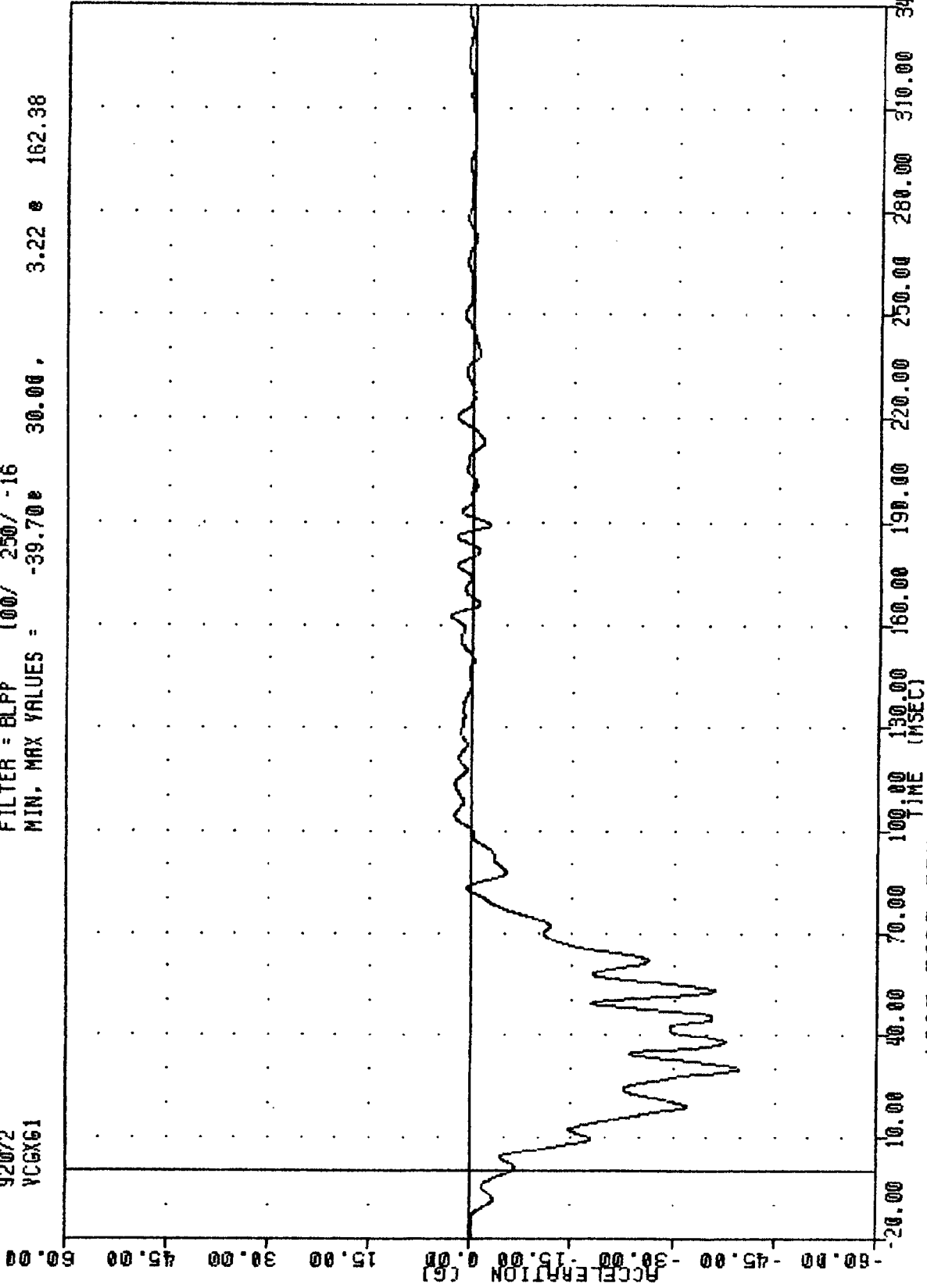


B-68

1985 FORD TEMPO INTO POLE BARRIER AT 35.1 MPH TEST NO. 5
RIGHT REAR SILL X-AXIS ACCELERATION

TAC , 920312-5
CRASH III DAMAGE ALGORITHM
92072
YCGX61

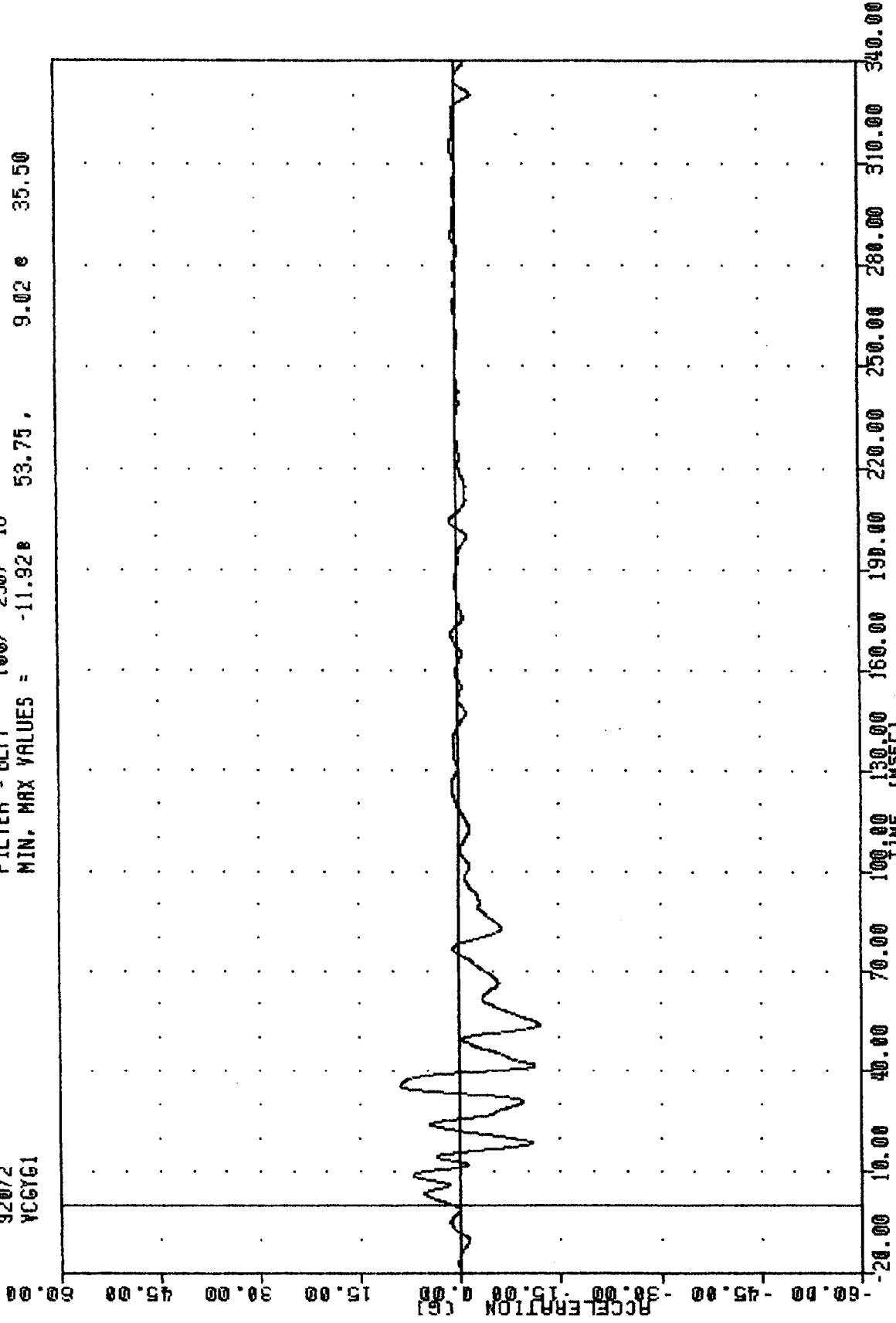
FILTER = BLPP 100/ 250/ -16
MIN. MAX VALUES = -39.70e 30.00, 3.22 e 162.38



1985 FORD TEMPO INTO POLE BARRIER AT 35.1 MPH TEST NO. 5
VEHICLE CG X-AXIS ACCELERATION

TRC , 920312-5
CRASH III DAMAGE ALGORITHM
92072
YCGY61

FILTER = BLPP 100/ 250/ -16
MIN. MAX VALUES = -11.928 53.75, 9.02 e 35.50

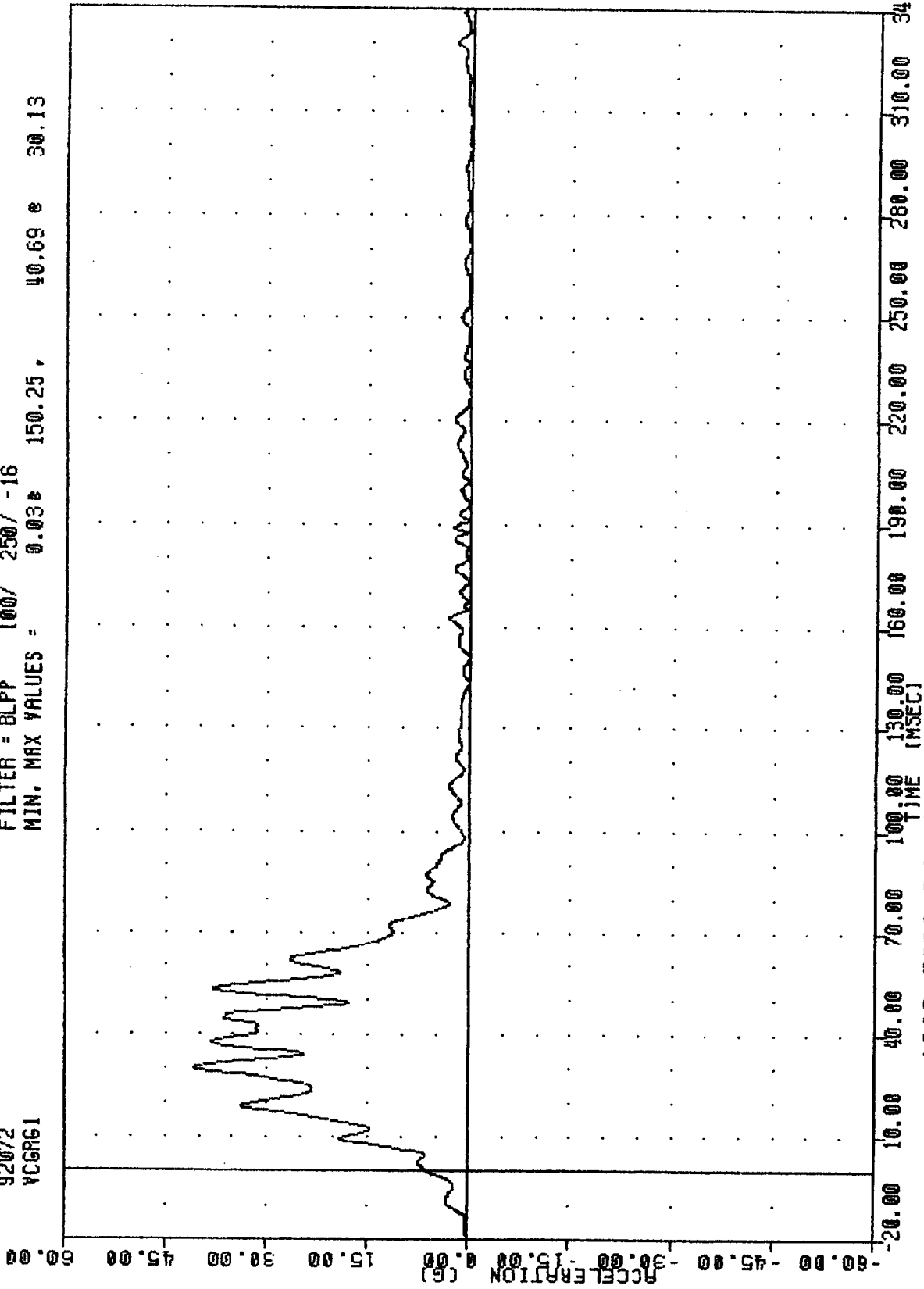


B-70

1985 FORD TEMPO INTO POLE BARRIER AT 35.1 MPH TEST NO. 5
VEHICLE CG Y-AXIS ACCELERATION

TRC
CRASH III DAMAGE ALGORITHM
92072
VCGR61

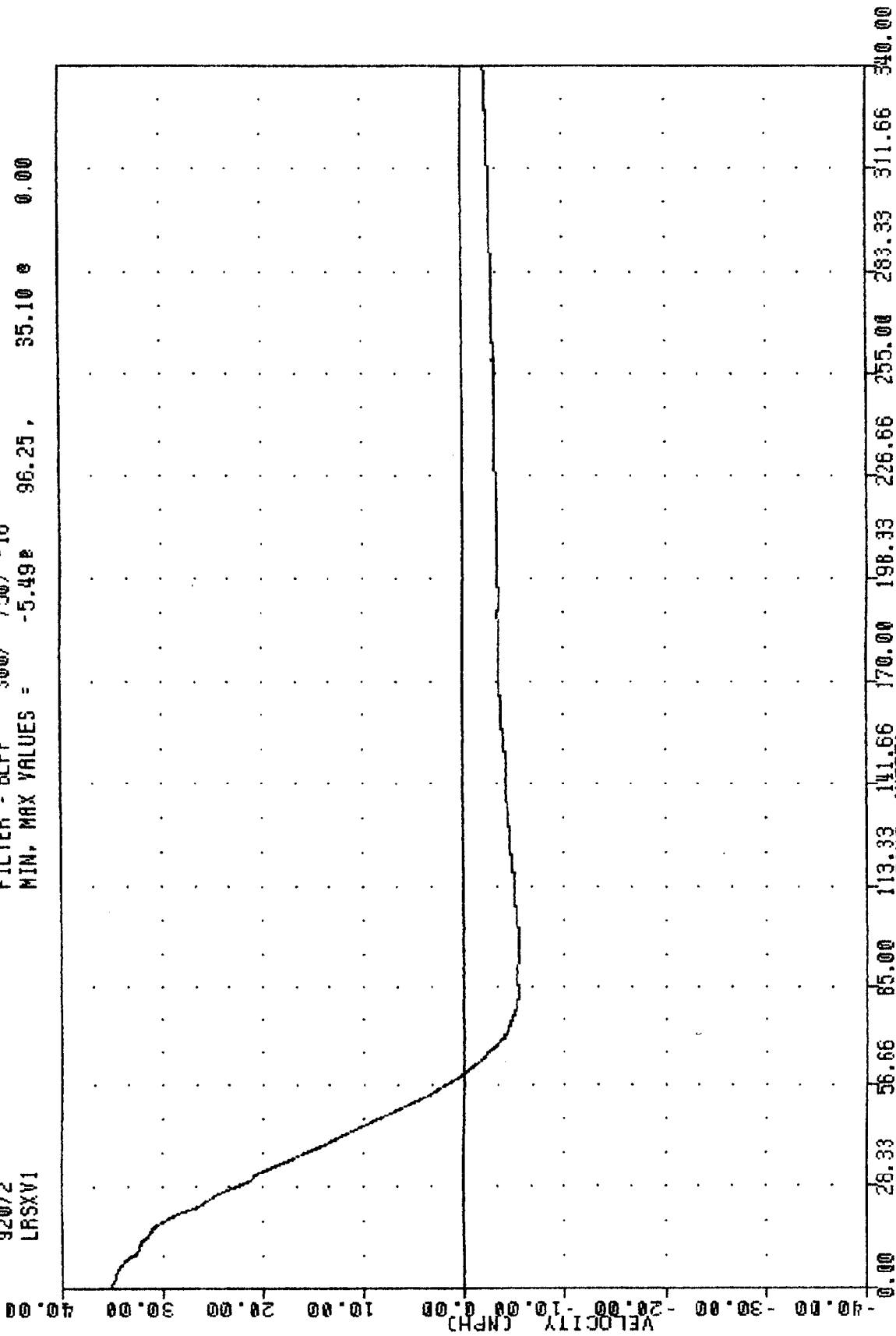
FILTER = BLPP 100/ 250/ -16
MIN. MAX VALUES = 0.03 150.25, 40.69 30.13



1985 FORD TEMPO INTO POLE BARRIER AT 35.1 MPH TEST NO. 5
VEHICLE C6 RESULTANT ACCELERATION

TRC .920312-5
 CRASH III DAMAGE ALGORITHM
 92072
 LRSXV1

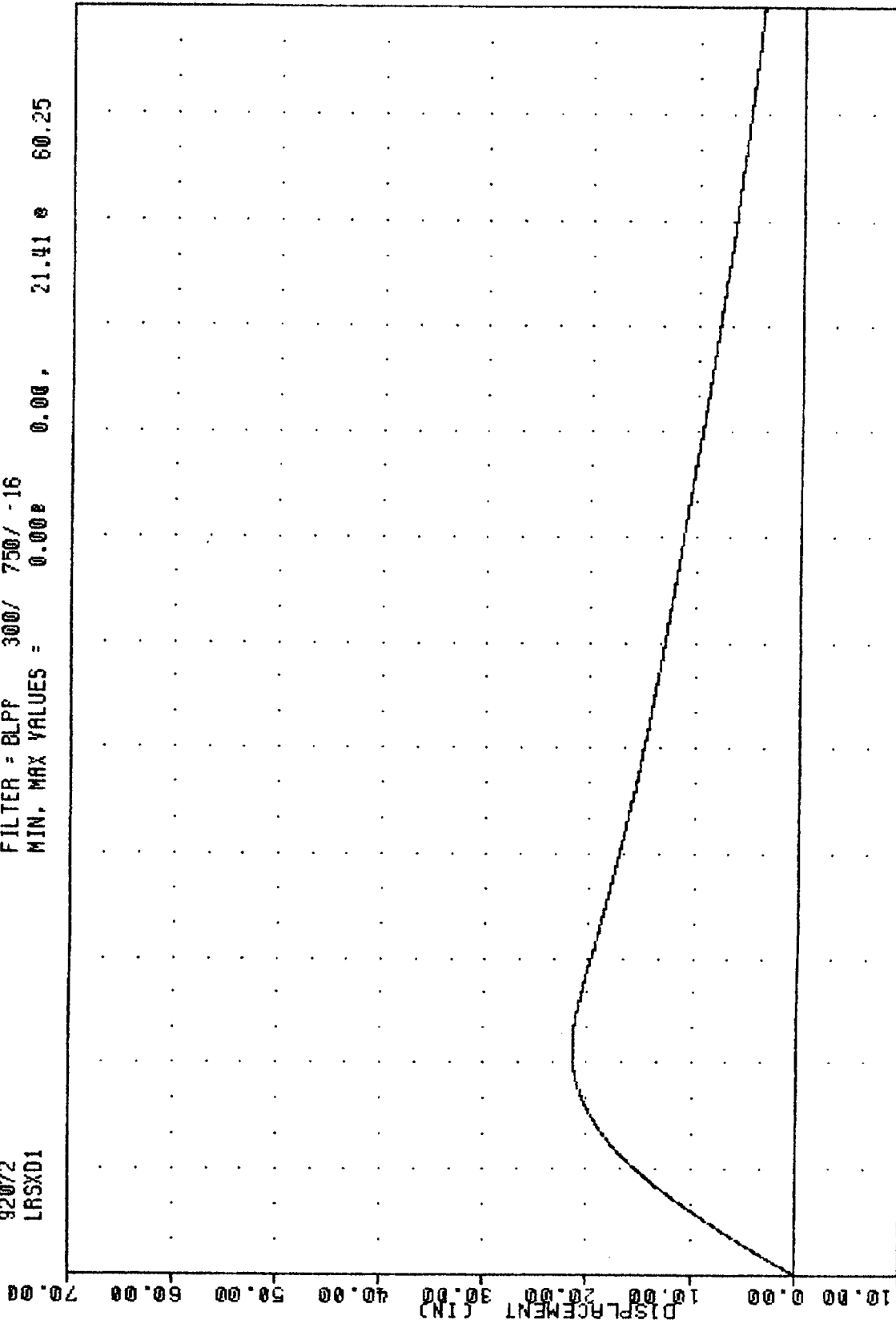
FILTER = BLPP 300/ 750/ -16
 MIN. MAX VALUES = -5.49e 96.25, 35.10 e 0.00



1985 FORD TEMPO INTO POLE BARRIER AT 35.1 MPH TEST NO. 5
 LEFT REAR SILL X-AXIS VELOCITY

TRC , 920312.5
 CRASH III DAMAGE ALGORITHM
 92072
 LRSXD1

FILTER = BLPP 300/ 750/ -16
 MIN. MAX VALUES = 0.00P 0.00, 21.41 @ 60.25



1985 FORD TEMPO INTO POLE BARRIER AT 35.1 MPH TEST NO. 5
 LEFT REAR SILL X-AXIS DISPLACEMENT

TRC
 CRASH III DAMAGE ALGORITHM
 92072
 ARSXY1

920312-5

FILTER = BLPP 300/ 750/ -16
 MIN, MAX VALUES = -2.56e 93.75, 35.10e 0.00

40.00

30.00

20.00

10.00

0.00

-10.00

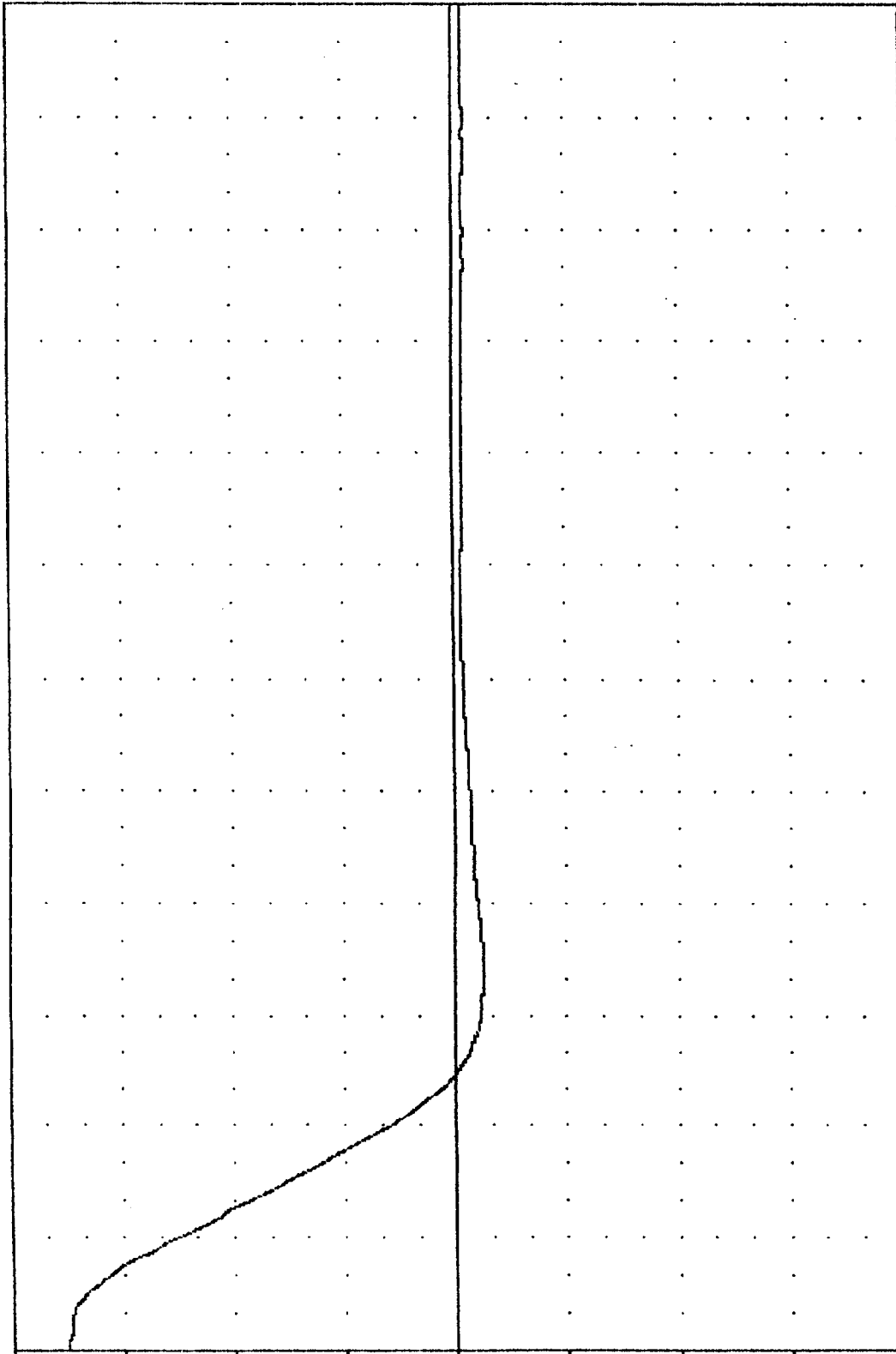
-20.00

-30.00

-40.00

VELOCITY (MPH)

B-74



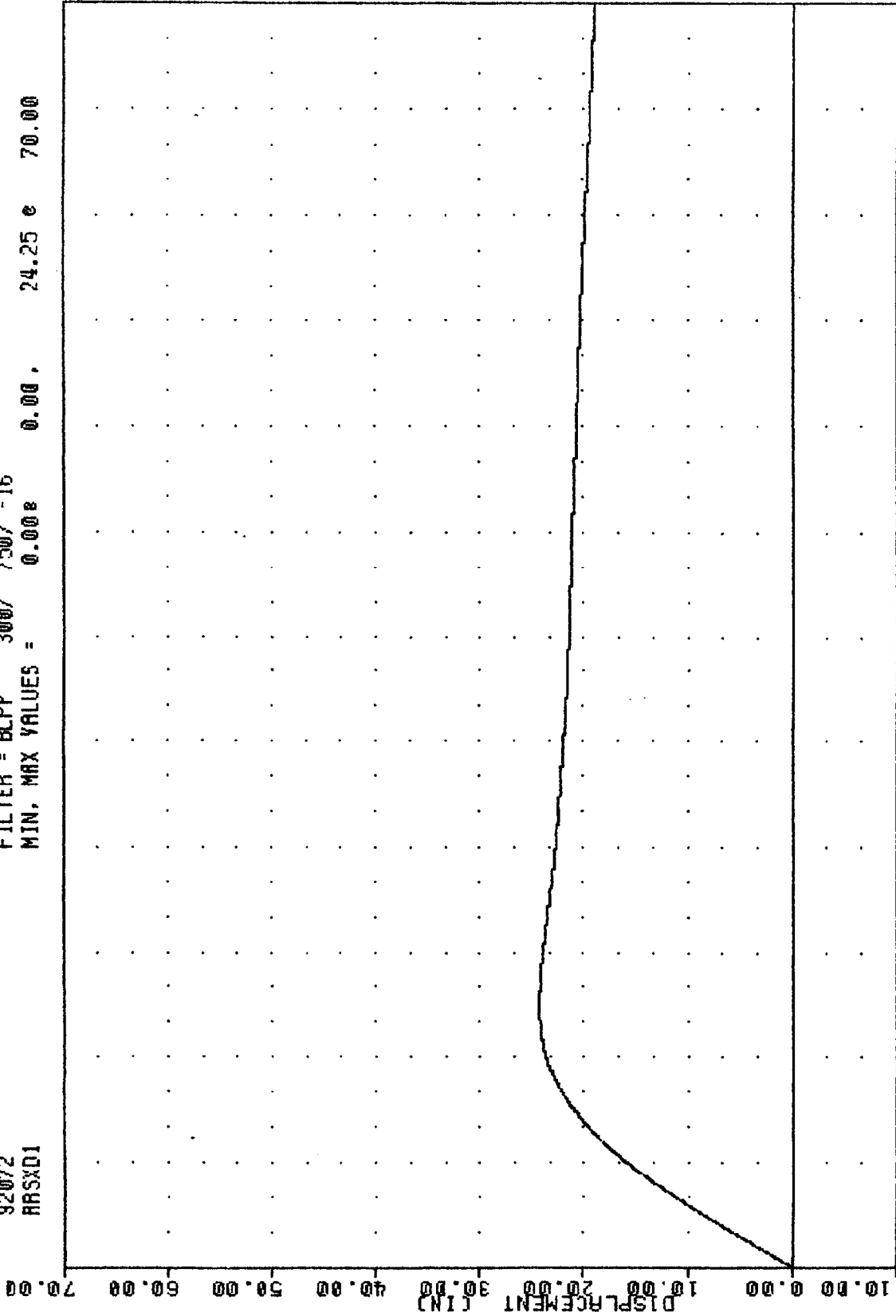
0.00 26.33 56.66 85.00 113.33 141.66 170.00 198.33 226.66 255.00 283.33 311.66 340.00

1985 FORD TEMPO INTO POLE BARRIER AT 35.1 MPH TEST NO. 5

RIGHT REAR SILL X-AXIS VELOCITY

TRC , 920512-5
 CRASH III DAMAGE ALGORITHM
 92072
 ARSXD1

FILTER = BLPP 300/ 750/ -16
 MIN, MAX VALUES = 0.008 0.00, 24.25 e 70.00

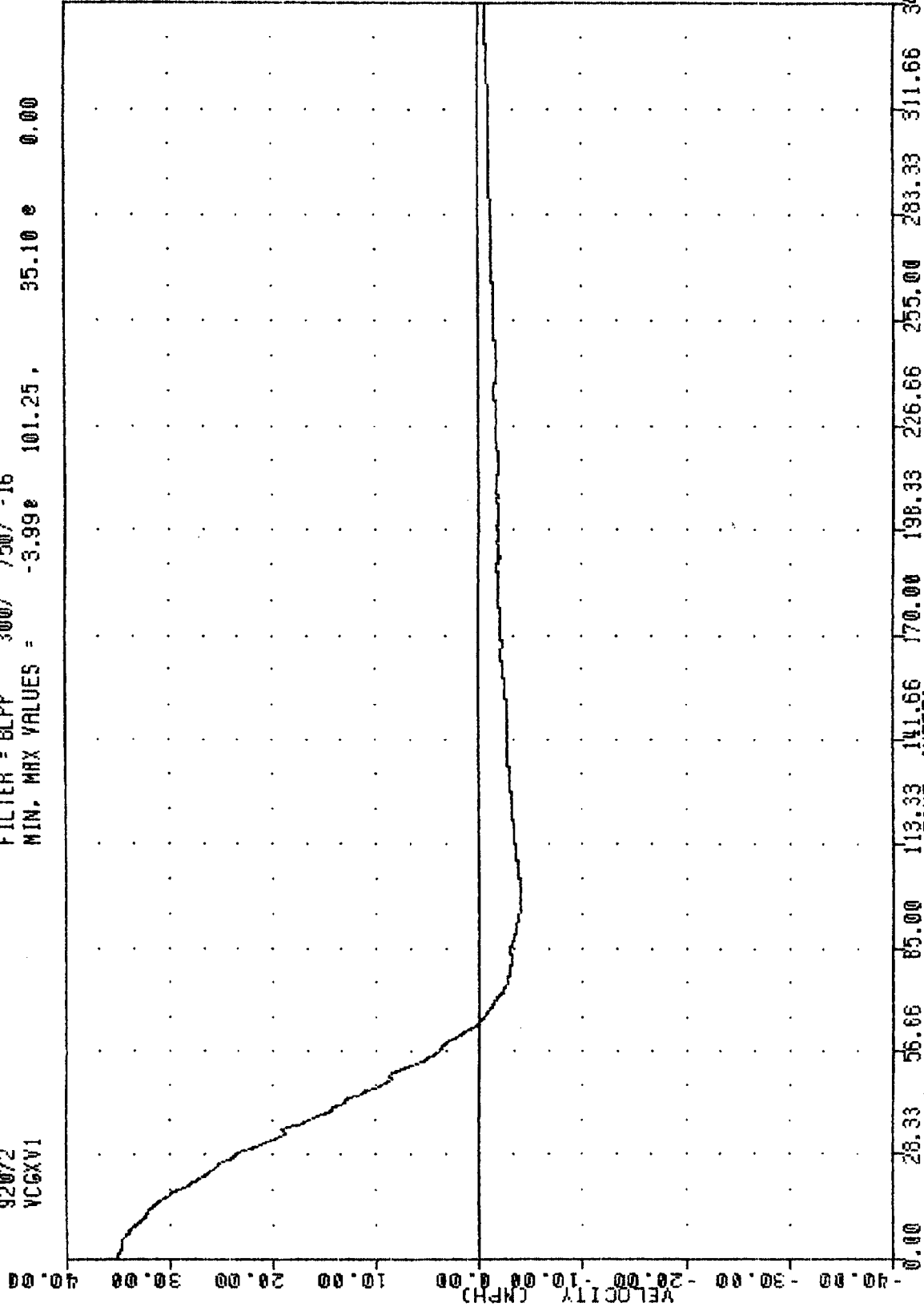


B-75

1985 FORD TEMPO INTO POLE BARRIER AT 35.1 MPH TEST NO. 5
 RIGHT REAR SILL X-AXIS DISPLACEMENT

TRC
 CRASH III DAMAGE ALGORITHM
 92072
 VCCXV1

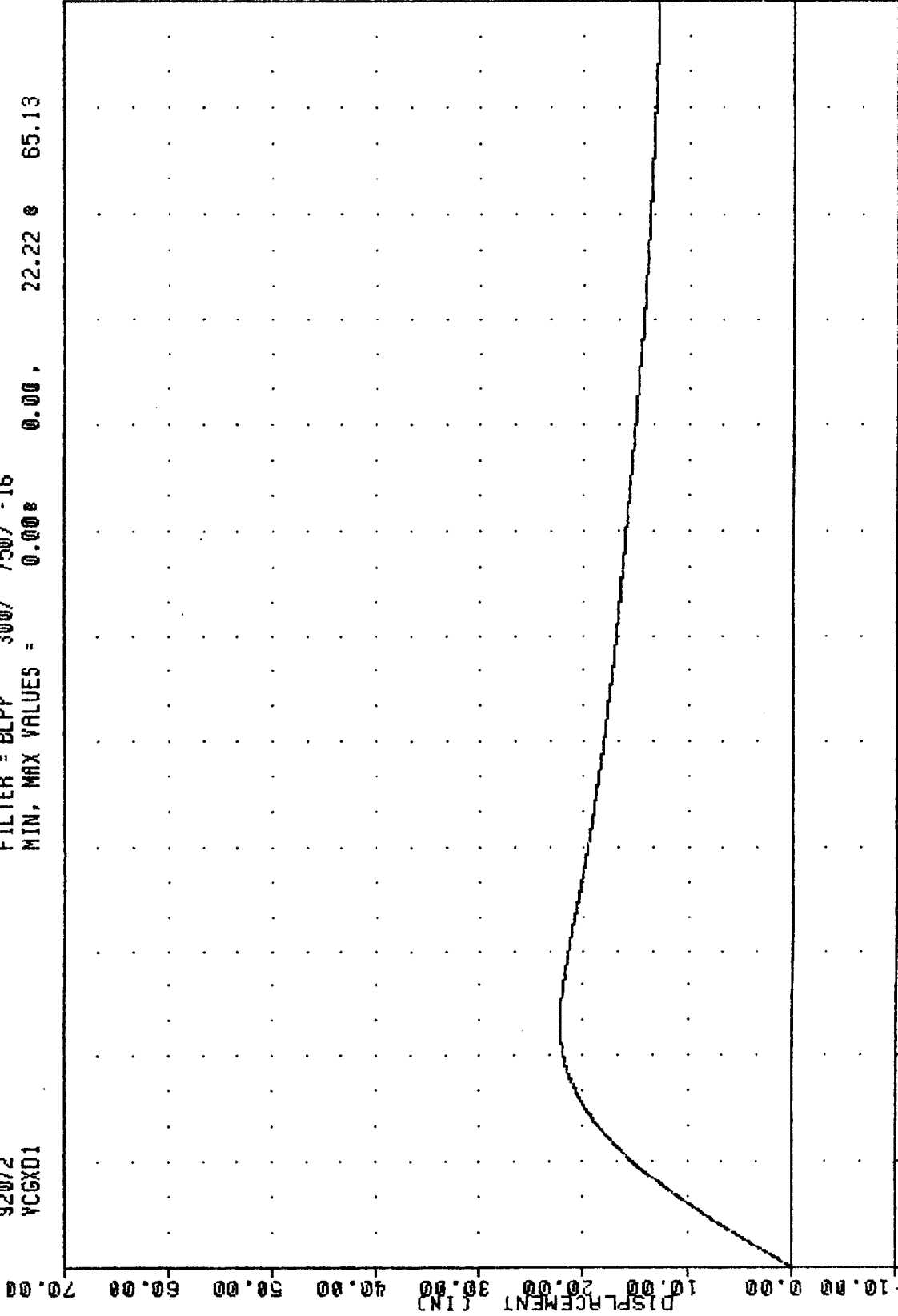
FILTER = BLPP 300/ 750/ -16
 MIN, MAX VALUES = -3.99e 101.25, 35.10 e 0.00



1985 FORD TEMPO INTO POLE BARRIER AT 35.1 MPH TEST NO. 5
 VEHICLE CG X-AXIS VELOCITY

TRC , 920312-5
 CRASH III DAMAGE ALGORITHM
 92072
 YCGXD1

FILTER = BLPP 300/ 750/ -16
 MIN, MAX VALUES = 0.00e 0.00 . 22.22 e 65.13

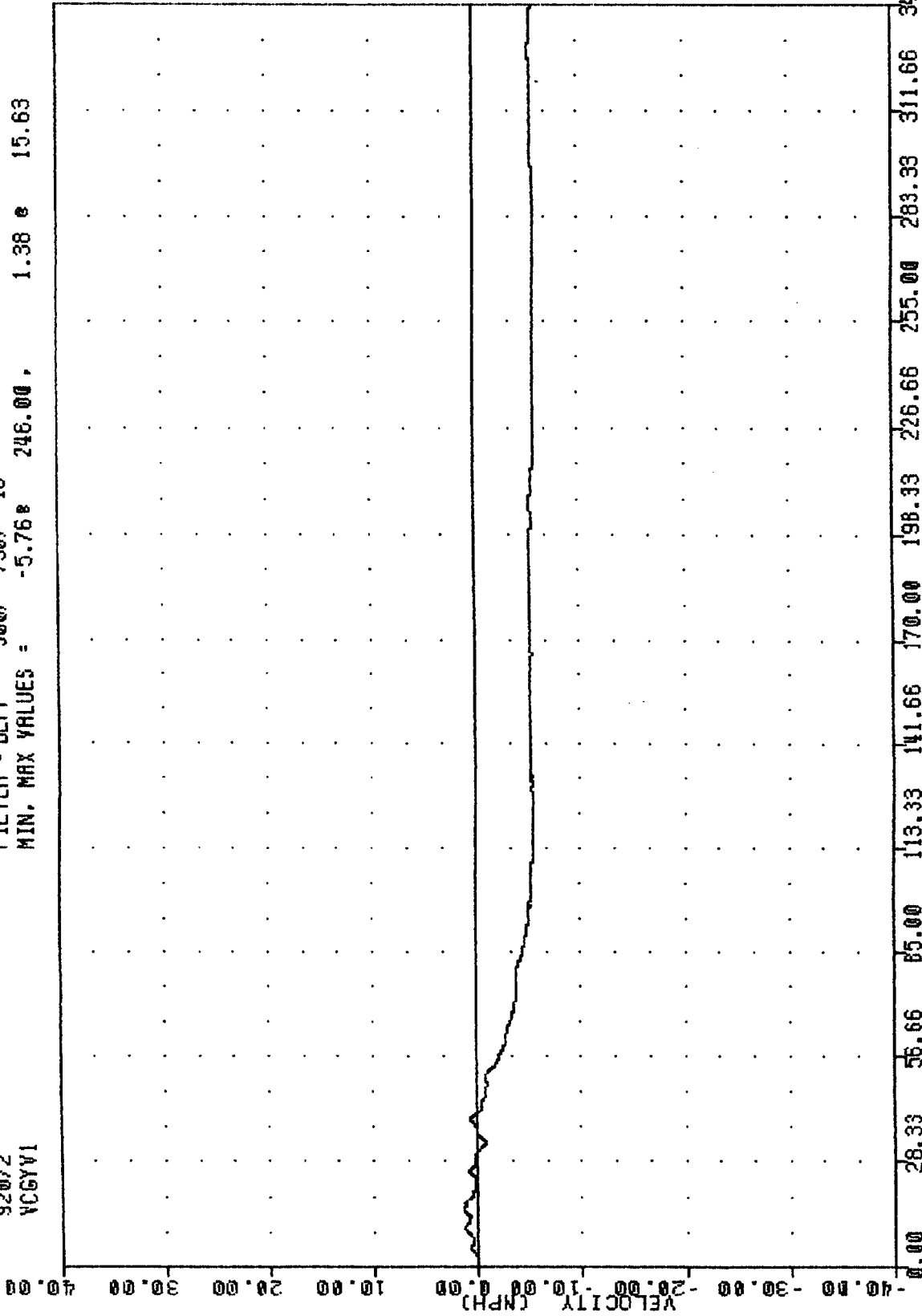


B-77

1985 FORD TEMPO INTO POLE BARRIER AT 35.1 MPH TEST NO. 5
 VEHICLE CG X-AXIS DISPLACEMENT

TRC , 920312-5
 CRASH III DAMAGE ALGORITHM
 92072
 WCGYV1

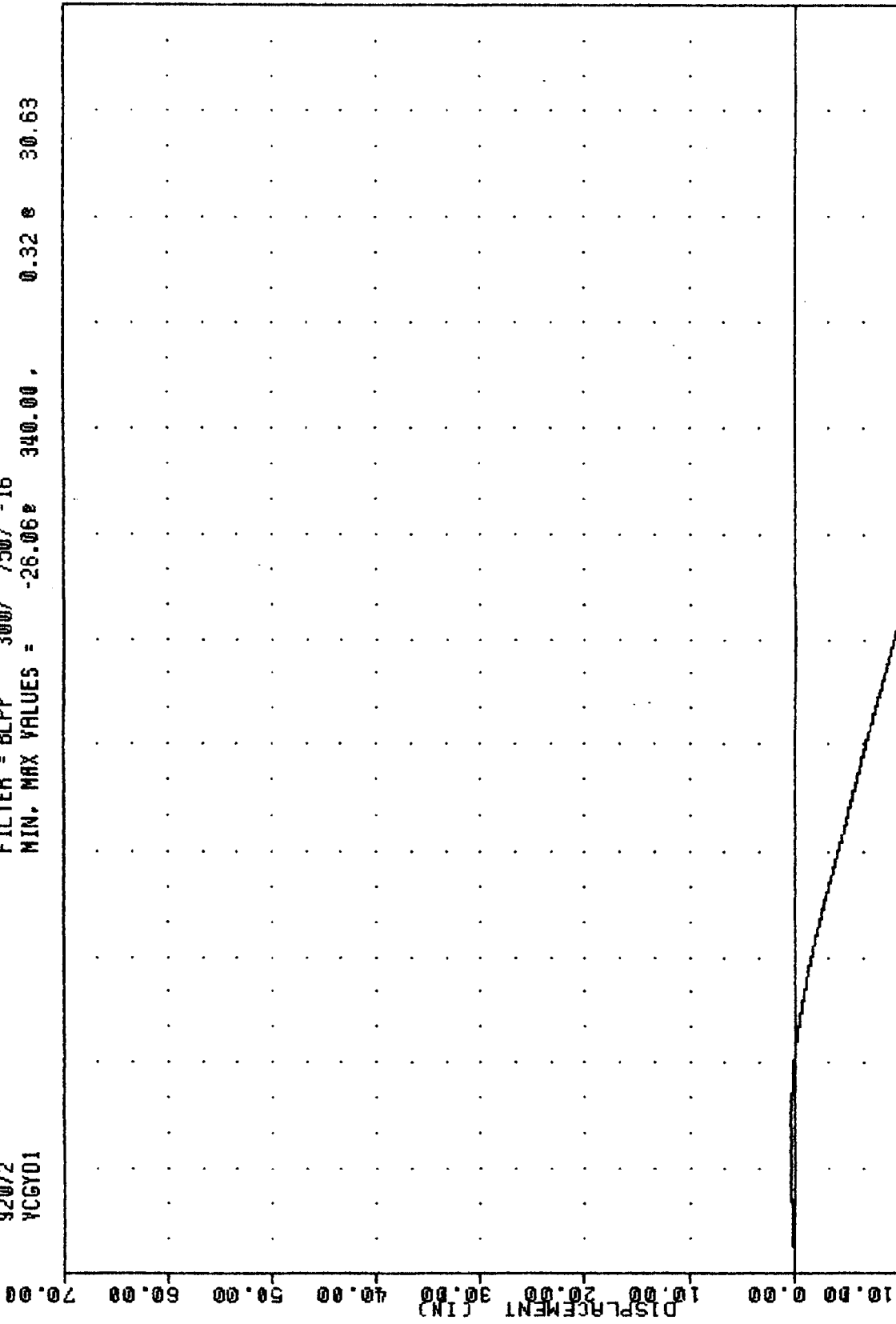
FILTER = BLPP 300/ 750/ -16
 MIN, MAX VALUES = -5.76e 246.00 , 1.38 e 15.63



1985 FORD TEMPO INTO POLE BARRIER AT 35.1 MPH TEST NO. 5
 VEHICLE CG Y-AXIS VELOCITY

TRC , 920312-5
 CRASH III DAMAGE ALGORITHM
 92072
 YCGY01

FILTER = BLPP 300/ 750/ -16
 MIN. MAX VALUES = -26.06 340.00 , 0.32 30.63

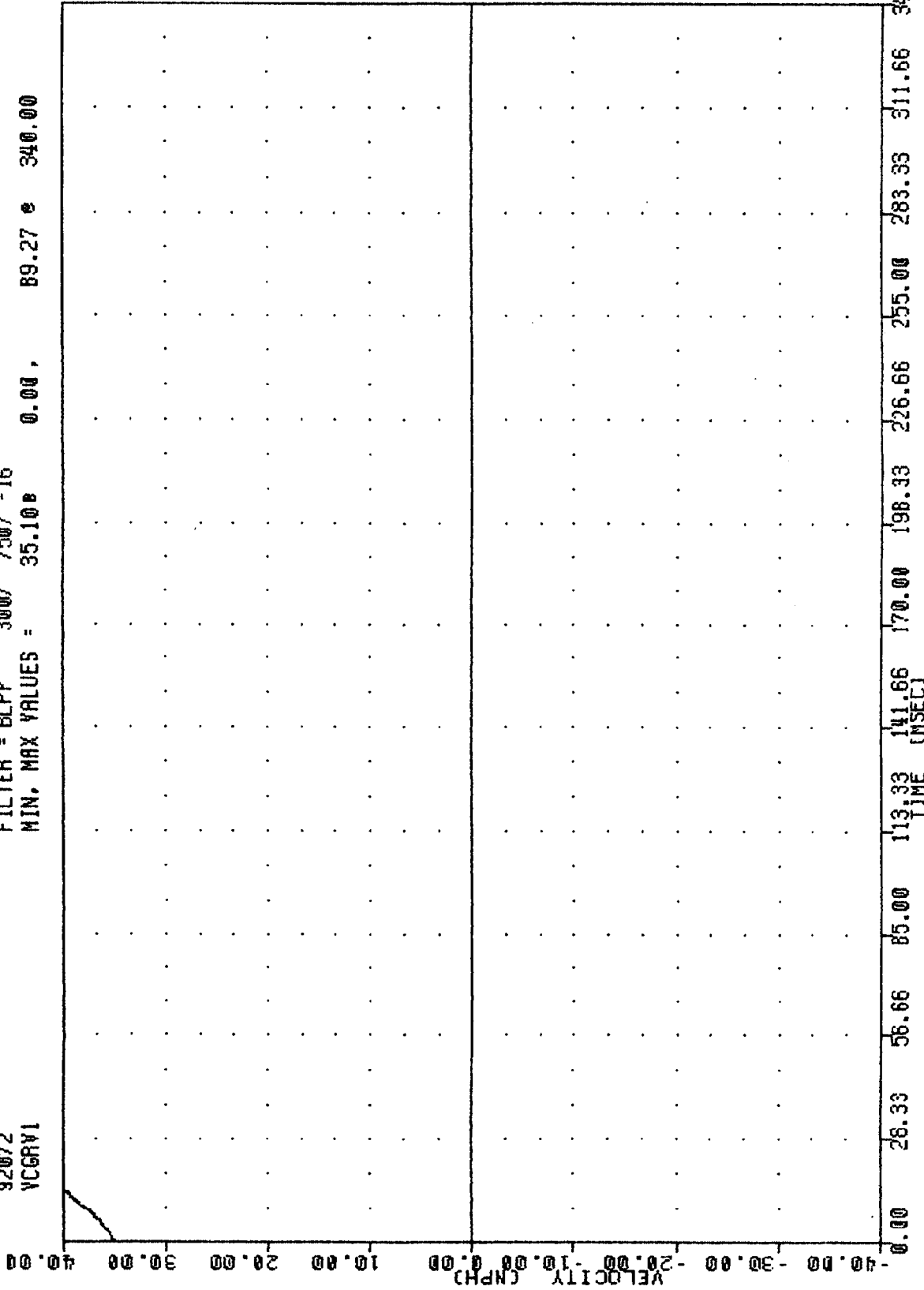


1985 FORD TEMPO INTO POLE BARRIER AT 35.1 MPH TEST NO. 5
 VEHICLE CG Y-AXIS DISPLACEMENT

TRC
 CRASH III DAMAGE ALGORITHM
 92072
 VCGRVI

920312-5

FILTER = BLPP 300/ 750/ -16
 MIN. MAX VALUES = 35.10 0.00, 89.27 e 340.00

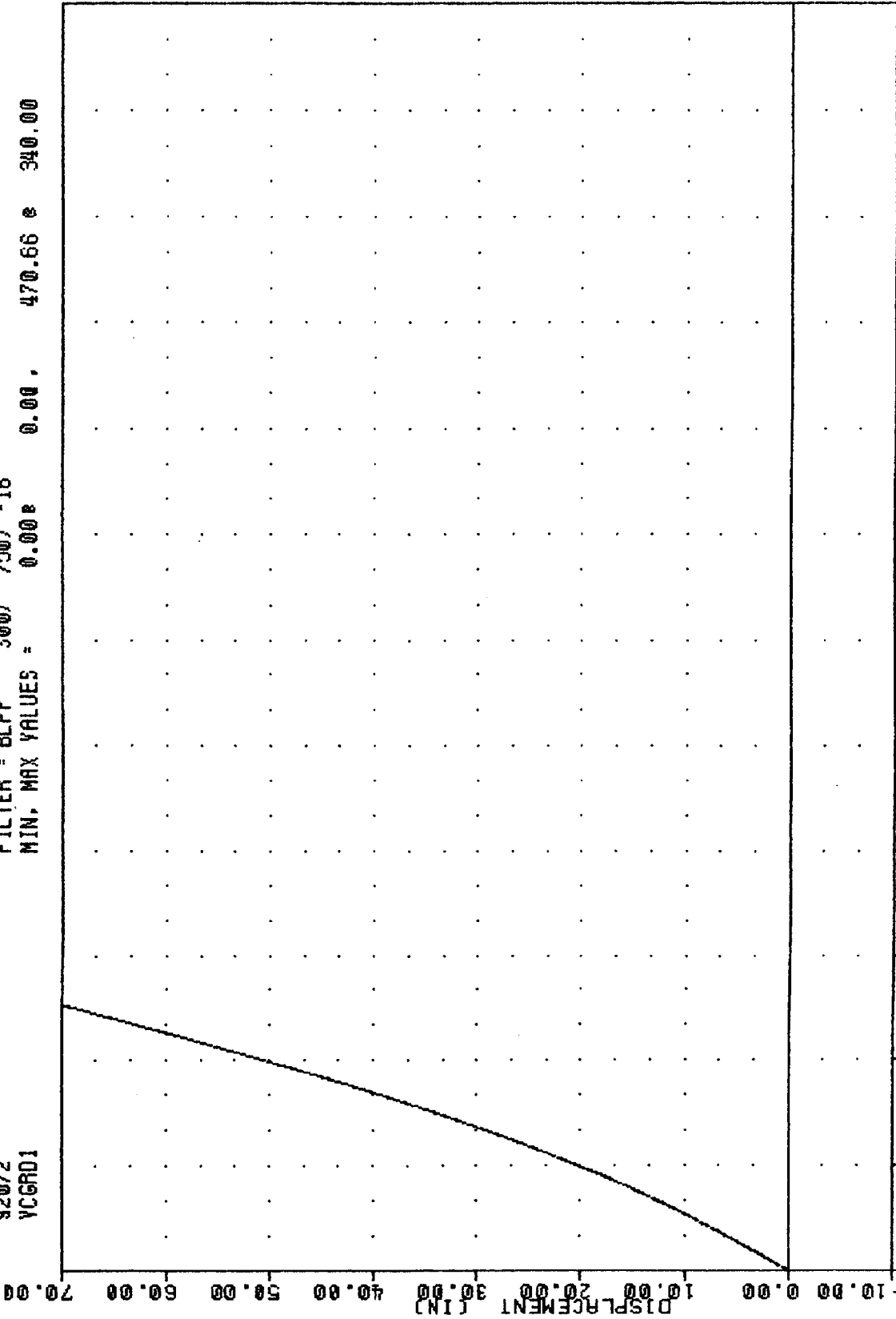


B-80

1985 FORD TEMPO INTO POLE BARRIER AT 35.1 MPH TEST NO. 5
 VEHICLE CG RESULTANT VELOCITY

TRC , 920312-5
 CRASH III DAMAGE ALGORITHM
 92072
 YCGRD1

FILTER = BLPP 300/ 750/ -16
 MIN. MAX VALUES = 0.00 0.00 470.66 e 340.00



0.00 28.33 56.66 85.00 113.33 141.66 170.00 198.33 226.66 255.00 283.33 311.66 340.00
 TIME (MSEC)
 1985 FORD TEMPO INTO POLE BARRIER AT 35.1 MPH TEST NO. 5
 VEHICLE CG RESULTANT DISPLACEMENT

APPENDIX C

MISCELLANEOUS TEST INFORMATION

VEHICLE ACCELEROMETER INFORMATION

TESTS 920312-1, 2, and 3

NO.	LOCATION	AXIS	MFR	MODEL	S/N	ORIENTATION (+ SENSING)
1	LEFT REAR SILL	X	ENDEVCO	7264	CW62H	REAR
2	RIGHT REAR SILL	X	ENDEVCO	7264	CY12H	REAR
3	VEHICLE CENTER OF GRAVITY	X	ENDEVCO	7264	CY78H	REAR
	VEHICLE CENTER OF GRAVITY	Y	ENDEVCO	7264	CJ81H	RIGHT

VEHICLE ACCELEROMETER INFORMATION

TESTS 920312-4 and 5

NO.	LOCATION	AXIS	MFR	MODEL	S/N	ORIENTATION (+ SENSING)
1	LEFT REAR SILL	X	ENDEVCO	7264	DA97	REAR
2	RIGHT REAR SILL	X	ENDEVCO	7264	CY12H	REAR
3	VEHICLE CENTER OF GRAVITY	X	ENDEVCO	7264	CY78H	REAR
	VEHICLE CENTER OF GRAVITY	Y	ENDEVCO	7264	CJ81H	RIGHT

SIGN CONVENTION

ALL DUMMY, BARRIER AND VEHICLE CHANNELS:

+X: FORWARD

+Y: LEFTWARD

+Z: UPWARD

+FORCE: TENSION