



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

**DOT HS 807 772
Final Report**

October 1990

Final Report of 315° Contoured Moving Barrier Impact Into a 1982 Audi 5000 4-Door Sedan in Support of Crash III Damage Algorithm Reformation

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16. Abstract <p>Four 315° contoured moving barrier impact tests were conducted for research and development in support of the crash III damage algorithm reformulation. These tests were conducted on a 1982 Audi 5000 4-door sedan, VIN, WAUGB043XCNO61065, at the Transportation Research Center of Ohio. The following four tests were conducted on one vehicle:</p> <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>900912-1</td> <td>9/12/90</td> <td>1330</td> <td>9.8</td> <td>5.0</td> </tr> <tr> <td>900912-2</td> <td>9/12/90</td> <td>1500</td> <td>19.7</td> <td>12.9</td> </tr> <tr> <td>900913-1</td> <td>9/13/90</td> <td>1431</td> <td>19.9</td> <td>20.2</td> </tr> <tr> <td>900913-2</td> <td>9/13/90</td> <td>1601</td> <td>45.0</td> <td>35.8</td> </tr> </tbody> </table>						TEST NO.	DATE	TIME	SPEED (mph)	MAXIMUM CUMULATIVE CRUSH (in.)	900912-1	9/12/90	1330	9.8	5.0	900912-2	9/12/90	1500	19.7	12.9	900913-1	9/13/90	1431	19.9	20.2	900913-2	9/13/90	1601	45.0	35.8
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SECTION 1.0
PURPOSE AND TEST SUMMARY

The purpose of the four 315° contoured moving barrier impact tests was research and development in support of the CRASH III damage algorithm reformulation.

The 1982 Audi 5000 was equipped with a 131 CID, 5-cylinder, longitudinal, gas engine with a 3-speed automatic transmission. The intended total test weight of the vehicle was 2723 pounds. The actual weight was 2724 pounds.

The contoured moving barrier actual weight was 2723 pounds, frontal width was 67.0 inches, barrier height was 31.5 inches, bumper width was 6.0 inches and height of the bumper centerline was 17.5 inches. The contoured moving barrier was intended to impact the driver's side of the vehicle at 315°. The leading edge of the contact was to be 17.1 inches rearward of the vehicle's front wheel centerline.

The test vehicle was equipped with center of gravity accelerometers oriented parallel and perpendicular to the line of impact and right front sill accelerometers oriented to measure vehicle X and Y-axis accelerations.

The moving barrier (impactor) was equipped with center of gravity accelerometers to measure X and Y-axis accelerations.

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

SECTION 2.0

VEHICLE INFORMATION

TEST VEHICLE INFORMATION

VEHICLE MANUFACTURER: Audi NSU Union AG West Germany

MAKE/MODEL: Audi 5000

VIN: WAUGB043XCN061065

BODY STYLE: 4-door sedan

MODEL YEAR: 1982

NHTSA NO.: NA

COLOR: Blue

ENGINE DATA: TYPE: inline CYLINDERS: 5 DISPLACEMENT: 131 CID

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

DATE VEHICLE RECEIVED: 9/06/90

ODOMETER READING: 53,455

DEALER'S NAME AND ADDRESS: NA

ACCESSORIES:

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

REMARKS:

1. IS THE VEHICLE STOCK THROUGHOUT? Yes
2. DOES VEHICLE SHOW EVIDENCE OF PRIOR ACCIDENT HISTORY? No
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: Audi NSU Union AG West Germany

DATE OF MANUFACTURE: 2/82

VIN: WAUGB043XCN061065

GVWR: 3847 LBS

GAWR: FRONT: 2116 LBS., REAR: 1829 LBS.

TEST VEHICLE INFORMATION CONT'D

TIRES ON VEHICLE (MFR., LINE, SIZE): Michelin MXL P185/70R14

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

SPARE TIRE (MFR., LINE, SIZE): NA

TYPE OF SEATS: FRONT: Bucket
REAR: Bench

TYPE OF FRONT SEAT BACKS: Non-adjustable

MAXIMUM WIDTH: 69.8 INCHES

WHEELBASE: 105.8 INCHES

LOCATION OF LABEL STATING TIRE & CAPACITY DATA: *

TIRE & CAPACITY DATA FROM VEHICLE'S LABEL: *

RECOMMENDED TIRE SIZE:

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

DESIGNATED SEATING CAPACITY: ___FRONT ___REAR ___TOTAL

VEHICLE CAPACITY WEIGHT: _____ LBS.

TEST VEHICLE ATTITUDE (ALL MEASUREMENTS ARE IN INCHES):

DELIVERED ATTITUDE: LF 26.4 ;RF 26.1 ;LR 26.3 ;RR 26.2

PRE-TEST ATTITUDE: LF 27.3 ;RF 27.1 ;LR 26.6 ;RR 26.4

*THE VEHICLE DID NOT CONTAIN A "RECOMMENDED TIRE PRESSURE" LABEL.

TEST VEHICLE INFORMATION CONT'D

WEIGHT OF TEST VEHICLE AS RECEIVED (WITHOUT MAXIMUM FLUIDS):

RIGHT FRONT	900 LBS.	RIGHT REAR	513 LBS.
LEFT FRONT	889 LBS.	LEFT REAR	523 LBS.
TOTAL FRONT WEIGHT	1789 LBS.	(63.3% OF TOTAL VEHICLE WEIGHT)	
TOTAL REAR WEIGHT	1036 LBS.	(36.7% OF TOTAL VEHICLE WEIGHT)	
TOTAL DELIVERED WEIGHT 2825 LBS.			

TEST VEHICLE'S TARGET TEST WEIGHT: *

TARGET TEST WEIGHT = 2723 LBS

WEIGHT OF TEST VEHICLE:

RIGHT FRONT	867 LBS.	RIGHT REAR	498 LBS.
LEFT FRONT	851 LBS.	LEFT REAR	508 LBS.
TOTAL FRONT WEIGHT	1718 LBS.	(63.1% OF TOTAL VEHICLE WEIGHT)	
TOTAL REAR WEIGHT	1006 LBS.	(36.4% OF TOTAL VEHICLE WEIGHT)	
TOTAL TEST WEIGHT	2724 LBS.	(1 POUND OVER TARGET TEST WEIGHT)	

WEIGHT OF BALLAST SECURED IN VEHICLE: 20 LBS.

COMPONENTS REMOVED TO MEET TARGET TEST WEIGHT: Rear seat

CG = 39.1 INCHES REARWARD OF FRONT WHEEL CENTERLINE

*VRTC requested that the vehicle test weight be set as close as possible to the moving barrier weight with the contoured barrier face.

VEHICLE FRONT CRUSH MEASUREMENTS AT VEHICLE BUMPER HEIGHT (20.5 INCHES)

LOCATION	0	1	2	3	4	5	6	7	8									
PRE-TEST	12.0	16.4	9.4	18.4	8.4	21.1	7.6	24.0	6.8	27.0	6.1	30.1	5.8	33.0	5.4	36.0	4.8	39
POST-TEST 1	12.0	16.4	9.5	18.3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
POST-TEST 2	12.4	17.5	10.6	19.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
POST-TEST 3	12.9	16.1	14.1	15.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
POST-TEST 4	22.8	3.8	14.1	15.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

LOCATION	9	10	11	12	13	14	15	16	17									
PRE-TEST	4.8	42.0	4.6	45.0	4.5	48.0	4.6	50.7	4.8	53.6	5.1	57.0	5.5	60.0	5.6	62.6	6.4	65
POST-TEST 1	NA	NA	NA	NA	NA	NA	4.6	50.4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
POST-TEST 2	NA	NA	NA	NA	NA	NA	5.1	51.7	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
POST-TEST 3	NA	NA	NA	NA	NA	NA	7.2	47.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
POST-TEST 4	NA	NA	NA	NA	NA	NA	10.8	36.2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

LOCATION	18	19	20	21	22	23						
PRE-TEST	7.4	68.5	8.0	71.3	8.6	74.4	9.8	77.3	11.5	80.0	NA	NA
POST-TEST 1	NA	NA	NA	NA	NA	NA	NA	NA	11.0	79.8	NA	NA
POST-TEST 2	NA	NA	NA	NA	NA	NA	NA	NA	10.8	80.8	NA	NA
POST-TEST 3	NA	NA	NA	NA	NA	NA	NA	NA	12.5	79.6	NA	NA
POST-TEST 4	NA	NA	NA	NA	NA	NA	NA	NA	11.5	66.0	NA	NA

All distances measured in inches. Column readings are three inches apart from left to right on vehicle.

All X-axis measurements taken from a reference plane 192 inches from and parallel to the rear bumper.

All Y-axis measurements taken from a reference plane 48 inches from and parallel to the vehicle longitudinal centerline.

VEHICLE LEFT SIDE CRUSH MEASUREMENTS AT MOVING BARRIER BUMPER HEIGHT (17.5 INCHES)

LOCATION	1	2	3	4	5	6	7	8	9									
PRE-TEST	14.6	16.1	17.6	16.0	20.6	15.2	23.6	15.1	26.6	15.0	29.6	15.5	32.6	14.8	35.4	13.4	38.2	13.9
POST-TEST 1	14.6	16.1	17.6	16.0	20.6	15.2	23.6	15.1	26.6	15.0	29.6	15.5	32.6	14.8	35.4	13.4	38.2	13.9
POST-TEST 2	15.4	17.2	18.4	17.0	21.4	16.4	24.4	16.2	27.1	16.0	30.7	16.4	33.3	15.8	35.9	15.1	39.4	14.9
POST-TEST 3	15.4	17.2	18.4	17.0	21.4	16.4	24.4	16.2	27.1	16.0	30.7	16.4	33.3	15.8	40.4	12.4	43.4	12.5
POST-TEST 4	25.8	4.6	28.4	4.0	31.9	5.1	34.4	5.6	37.2	6.1	41.6	7.9	45.2	7.6	48.2	9.1	50.5	10.8

LOCATION	10	11	12	13	14	15	16	17	18									
PRE-TEST	41.2	13.4	44.2	13.1	47.6	13.1	50.0	12.9	53.0	13.0	56.2	13.1	59.8	14.4	62.9	14.9	65.9	14.5
POST-TEST 1	41.2	13.4	44.4	13.1	47.5	13.1	50.4	12.8	53.1	13.2	56.2	13.9	59.2	14.8	62.4	14.6	65.5	14.6
POST-TEST 2	42.4	14.9	45.4	14.7	48.5	15.1	51.2	15.5	54.3	15.9	57.5	16.8	60.4	18.2	63.5	18.4	66.5	18.5
POST-TEST 3	46.6	12.6	49.4	13.1	52.7	13.5	55.5	13.4	58.4	14.4	61.5	15.8	64.4	17.8	67.9	18.2	70.5	18.0
POST-TEST 4	53.5	11.8	56.5	12.6	59.2	14.0	61.2	15.8	64.3	17.5	68.5	19.6	71.5	21.2	74.5	22.4	77.5	26.6

LOCATION	19	20	21	22	23	24	25	26	27									
PRE-TEST	68.9	14.3	71.9	14.3	74.9	14.2	77.9	14.2	80.9	14.1	83.9	14.2	86.9	14.1	89.9	14.1	92.9	14.2
POST-TEST 1	70.0	16.1	72.6	17.3	75.2	18.5	78.0	19.2	81.1	19.6	83.9	18.9	86.8	17.3	89.5	16.9	92.4	16.3
POST-TEST 2	72.2	21.8	74.5	23.8	76.2	25.2	79.2	26.3	82.2	27.9	85.2	29.1	88.4	29.9	90.4	30.1	93.4	29.9
POST-TEST 3	81.7	19.7	82.1	23.0	82.2	25.1	84.8	27.2	85.8	30.1	88.1	32.5	90.2	34.2	92.8	35.8	97.0	36.6
POST-TEST 4	80.5	32.5	83.5	34.0	86.5	35.4	89.5	46.1	92.5	48.0	95.5	28.0	98.5	26.6	109.9	49.5	NA	NA

All distances measured in inches. Column readings are three inches apart from front to rear on vehicle.

All X-axis measurements taken from a reference plane 192 inches from and parallel to the rear bumper.

All Y-axis measurements taken from a reference plane 48 inches from and parallel to the vehicle longitudinal centerline.

VEHICLE LEFT SIDE CRUSH MEASUREMENTS AT MOVING BARRIER BUMPER HEIGHT (17.5 INCHES) CONTINUED

LOCATION	28	29	30	31	32	33	34	35	36									
	X	Y	X	Y	X	Y	X	Y	X									
PRE-TEST	95.8	14.3	98.8	14.2	101.8	14.1	104.8	14.0	107.8	14.3	110.8	14.4	113.8	14.4	116.8	14.6	119.8	14
POST-TEST 1	95.4	16.0	98.5	15.3	101.5	15.0	104.5	14.8	107.5	14.6	110.4	14.6	113.8	14.6	116.7	14.8	119.8	14
POST-TEST 2	95.7	29.2	98.8	27.8	100.4	26.4	102.2	23.4	107.2	19.0	110.7	18.3	113.2	18.1	116.2	17.8	119.2	17
POST-TEST 3	99.3	36.6	102.1	35.8	104.1	34.0	106.1	32.4	109.6	27.4	112.0	26.2	115.7	24.0	117.9	22.1	120.4	20
POST-TEST 4	NA	NA	NA	NA	NA	NA	113.0	48.1	114.5	46.9	119.5	47.0	122.0	44.9	123.8	43.2	126.1	41

LOCATION	37	38	39	40	41	42	43	44	45									
	X	Y	X	Y	X	Y	X	Y	X									
PRE-TEST	122.8	14.6	125.8	14.8	128.8	14.8	131.8	14.9	134.8	15.1	137.8	14.2	140.5	13.7	143.5	13.5	146.8	13
POST-TEST 1	122.8	14.8	125.5	14.8	128.5	15.0	131.8	15.0	134.5	15.1	137.7	14.1	140.5	13.7	143.5	13.5	146.8	13
POST-TEST 2	122.2	16.9	125.2	16.5	128.1	16.2	131.2	15.8	134.2	15.9	137.1	15.4	140.5	14.9	143.4	14.5	146.6	14
POST-TEST 3	123.2	18.6	126.0	17.9	129.0	17.2	132.2	16.3	134.9	16.1	137.5	14.6	140.5	14.0	143.6	14.4	147.4	14
POST-TEST 4	127.5	39.2	130.5	37.0	131.4	34.9	133.2	34.0	135.0	31.3	139.5	28.5	142.0	20.4	143.8	20.8	145.9	20

LOCATION	46	47	48	49	50	51	52	53	54									
	X	Y	X	Y	X	Y	X	Y	X									
PRE-TEST	149.6	13.5	152.6	13.8	155.6	14.0	158.6	14.2	161.6	15.1	164.8	17.1	167.8	17.4	170.8	17.9	173.8	16
POST-TEST 1	149.6	13.5	152.6	13.8	155.6	14.0	158.6	14.2	161.6	15.1	164.8	17.1	167.8	17.4	170.8	17.9	173.8	16
POST-TEST 2	149.4	14.4	152.3	14.6	155.4	14.8	158.4	14.9	161.4	15.5	164.5	17.6	167.2	17.9	170.2	18.0	173.2	16
POST-TEST 3	150.2	14.4	153.1	14.6	155.4	14.8	158.4	14.9	161.4	15.5	164.5	17.6	167.2	17.9	170.2	18.0	173.2	16
POST-TEST 4	151.5	18.1	155.8	17.5	157.5	16.8	160.8	16.5	162.5	17.6	163.5	17.6	166.5	17.9	169.5	18.4	173.2	16

All distances measured in inches. Column readings are three inches apart from front to rear on vehicle.

All X-axis measurements taken from a reference plane 192 inches from and parallel to the rear bumper.

All Y-axis measurements taken from a reference plane 48 inches from and parallel to the vehicle longitudinal centerline

VEHICLE LEFT SIDE CRUSH MEASUREMENTS AT MOVING BARRIER BUMPER HEIGHT (17.5 INCHES) CONTINUED

LOCATION	55	56	57	58	59	60	61	62	63										
	X	Y	X	Y	X	Y	X	Y	X										
PRE-TEST	176.2	16.2	179.2	16.4	182.2	16.4	185.2	16.6	188.2	16.9	NA	NA	NA	NA	NA	NA	NA	NA	NA
POST-TEST 1	176.2	16.2	179.2	16.4	182.2	16.4	185.2	16.6	188.2	16.9	NA	NA	NA	NA	NA	NA	NA	NA	NA
POST-TEST 2	176.7	16.2	179.4	16.3	182.3	16.4	185.3	16.6	188.4	16.9	NA	NA	NA	NA	NA	NA	NA	NA	NA
POST-TEST 3	176.7	16.2	179.4	16.3	182.3	16.4	185.3	16.6	188.4	16.9	NA	NA	NA	NA	NA	NA	NA	NA	NA
POST-TEST 4	176.7	16.2	179.4	16.3	182.3	16.4	185.3	16.6	188.4	16.9	NA	NA	NA	NA	NA	NA	NA	NA	NA

LOCATION	64	65
	X	Y
PRE-TEST	NA	NA
POST-TEST 1	NA	NA
POST-TEST 2	NA	NA
POST-TEST 3	NA	NA
POST-TEST 4	NA	NA

All distances measured in inches. Column readings are three inches apart from front to rear on vehicle.
 All X-axis measurements taken from a reference plane 192 inches from and parallel to the rear bumper.
 All Y-axis measurements taken from a reference plane 48 inches from and parallel to the vehicle longitudinal centerline.

VEHICLE LEFT SIDE CRUSH MEASUREMENTS AT SILL HEIGHT (13.4 INCHES)

LOCATION	1	2	3	4	5	6	7	8	9
	X	Y	X	Y	X	Y	X	Y	X
PRE-TEST	NA	NA	NA	NA	NA	NA	NA	NA	NA
POST-TEST 1	NA	NA	NA	NA	NA	NA	NA	NA	NA
POST-TEST 2	NA	NA	NA	NA	NA	NA	NA	NA	NA
POST-TEST 3	NA	NA	NA	NA	NA	NA	NA	NA	NA
POST-TEST 4	NA	NA	NA	NA	NA	NA	NA	NA	NA

LOCATION	10	11	12	13	14	15	16	17	18
	X	Y	X	Y	X	Y	X	Y	X
PRE-TEST	NA	NA	NA	NA	NA	NA	NA	63.0	16.3
POST-TEST 1	NA	NA	NA	NA	NA	NA	NA	63.1	16.9
POST-TEST 2	NA	NA	NA	NA	NA	NA	NA	63.6	19.5
POST-TEST 3	NA	NA	NA	NA	NA	NA	NA	67.5	19.5
POST-TEST 4	NA	NA	NA	NA	NA	NA	NA	67.5	19.5

LOCATION	19	20	21	22	23	24	25	26	27
	X	Y	X	Y	X	Y	X	Y	X
PRE-TEST	69.0	16.3	72.0	16.2	75.0	16.2	78.0	16.1	81.0
POST-TEST 1	69.0	16.6	71.9	16.8	75.1	16.9	78.1	17.1	81.0
POST-TEST 2	69.9	19.6	72.8	20.2	76.8	20.2	78.7	21.9	81.2
POST-TEST 3	74.5	18.8	76.3	20.2	79.7	20.6	82.6	21.6	85.2
POST-TEST 4	72.5	23.2	75.5	25.5	78.5	30.9	81.5	32.8	84.5

All distances measured in inches. Column readings are three inches apart from front to rear on vehicle.
 All X-axis measurements taken from a reference plane 192 inches from and parallel to the rear bumper.
 All Y-axis measurements taken from a reference plane 48 inches from and parallel to the vehicle longitudinal centerline.

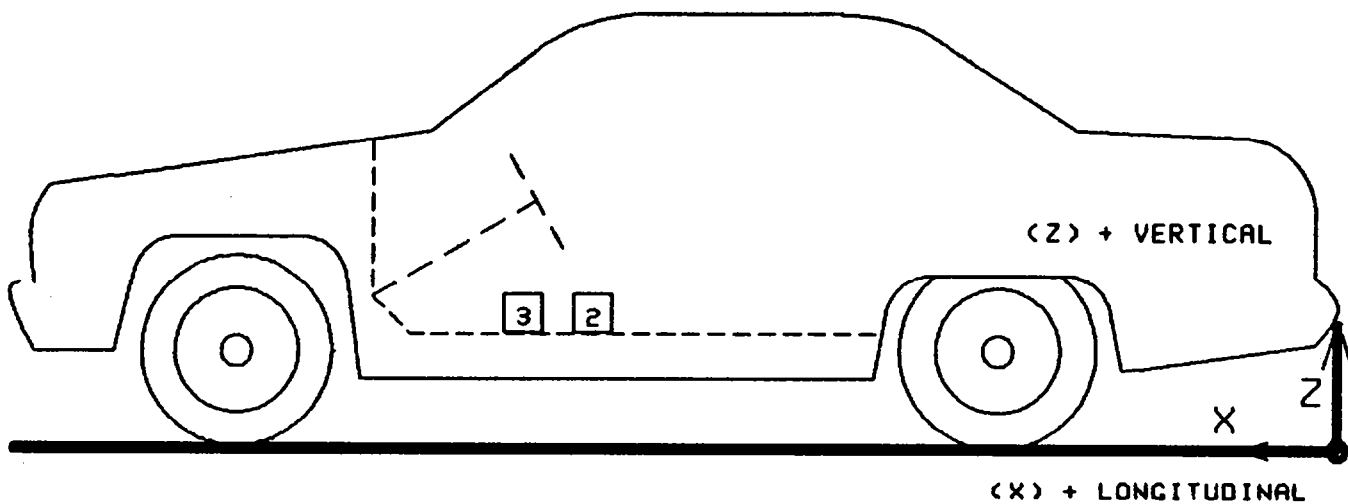
VEHICLE LEFT SIDE CRUSH MEASUREMENTS AT SILL HEIGHT (13.4 INCHES) CONTINUED

LOCATION	28	29	30	31	32	33	34	35	36									
	X	Y	X	Y	X	Y	X	Y	Y									
PRE-TEST	96.0	16.3	99.0	16.6	102.0	16.3	105.0	16.2	108.0	16.3	111.0	16.4	114.0	16.4	117.0	16.6	120.0	16.6
POST-TEST 1	95.7	17.0	98.7	16.9	101.6	16.8	104.6	16.7	108.0	16.8	110.6	16.8	114.0	16.4	117.0	16.6	120.0	16.6
POST-TEST 2	96.2	21.1	99.2	21.1	101.9	21.4	104.6	20.1	107.6	20.2	110.5	19.7	113.5	19.8	116.5	19.4	119.6	19.1
POST-TEST 3	100.1	24.4	103.1	25.0	106.0	25.9	107.0	25.4	110.5	26.4	112.2	25.9	115.0	24.6	117.5	22.8	120.5	21.2
POST-TEST 4	101.2	33.9	105.0	33.8	107.5	33.2	110.0	33.9	113.1	33.7	116.0	33.1	117.5	32.9	121.5	32.8	124.5	31.6

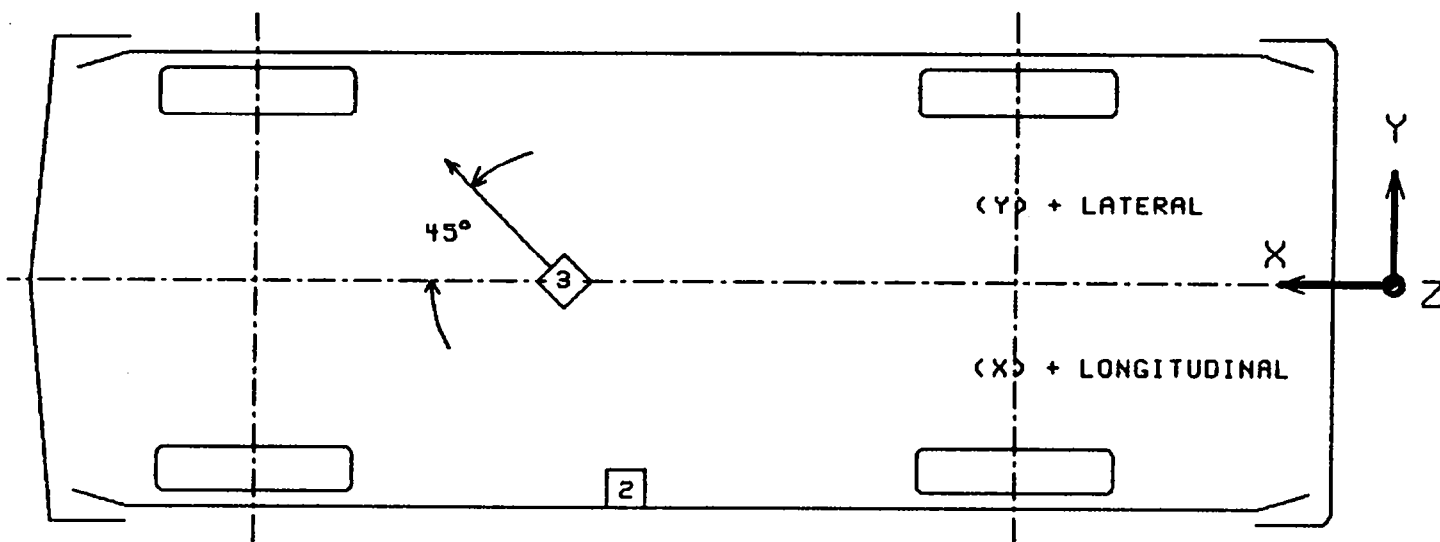
LOCATION	37	38	39	40	41	42	43	44	45									
	X	Y	X	Y	X	Y	X	Y	Y									
PRE-TEST	123.0	16.6	126.0	16.8	129.0	16.8	132.0	16.9	135.0	16.9	NA	NA	NA	NA	NA	NA	NA	NA
POST-TEST 1	123.0	16.6	126.0	16.8	129.0	16.8	132.0	16.9	135.0	16.9	NA	NA	NA	NA	NA	NA	NA	NA
POST-TEST 2	122.8	18.8	125.8	18.5	128.8	18.5	132.0	18.2	134.5	17.9	NA	NA	NA	NA	NA	NA	NA	NA
POST-TEST 3	123.0	20.0	126.0	19.1	129.5	18.8	132.0	18.4	135.0	18.2	NA	NA	NA	NA	NA	NA	NA	NA
POST-TEST 4	127.2	31.0	129.8	30.4	133.1	29.2	135.5	27.9	138.5	26.4	NA	NA	NA	NA	NA	NA	NA	NA

All distances measured in inches. Column readings are three inches apart from front to rear on vehicle.
 All X-axis measurements taken from a reference plane 192 inches from and parallel to the rear bumper.
 All Y-axis measurements taken from a reference plane 48 inches from and parallel to the vehicle longitudinal centerline.

VEHICLE ACCELEROMETER PLACEMENT

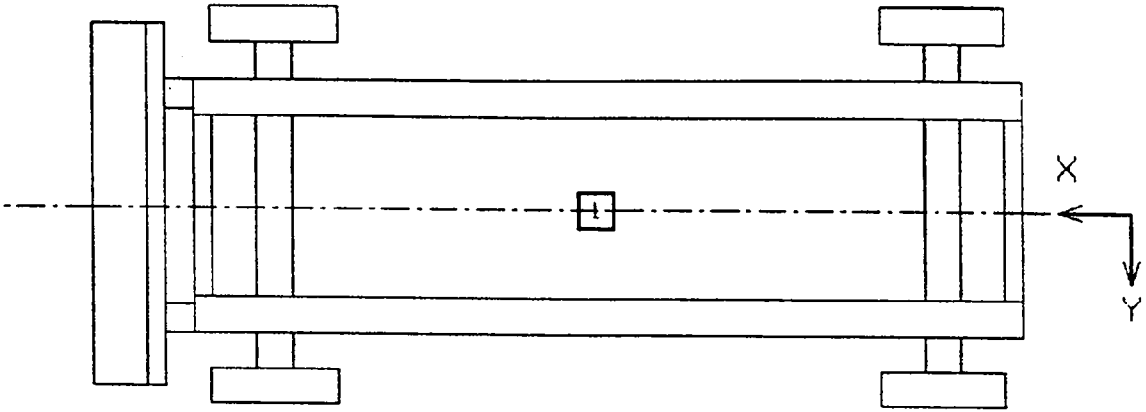


SIDE VIEW

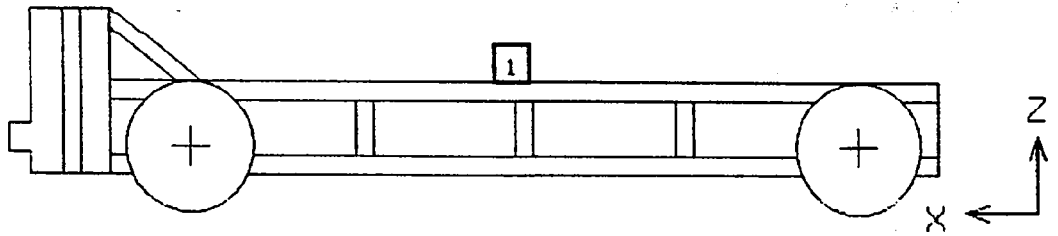


BOTTOM VIEW

MOVING BARRIER
ACCELEROMETER PLACEMENT

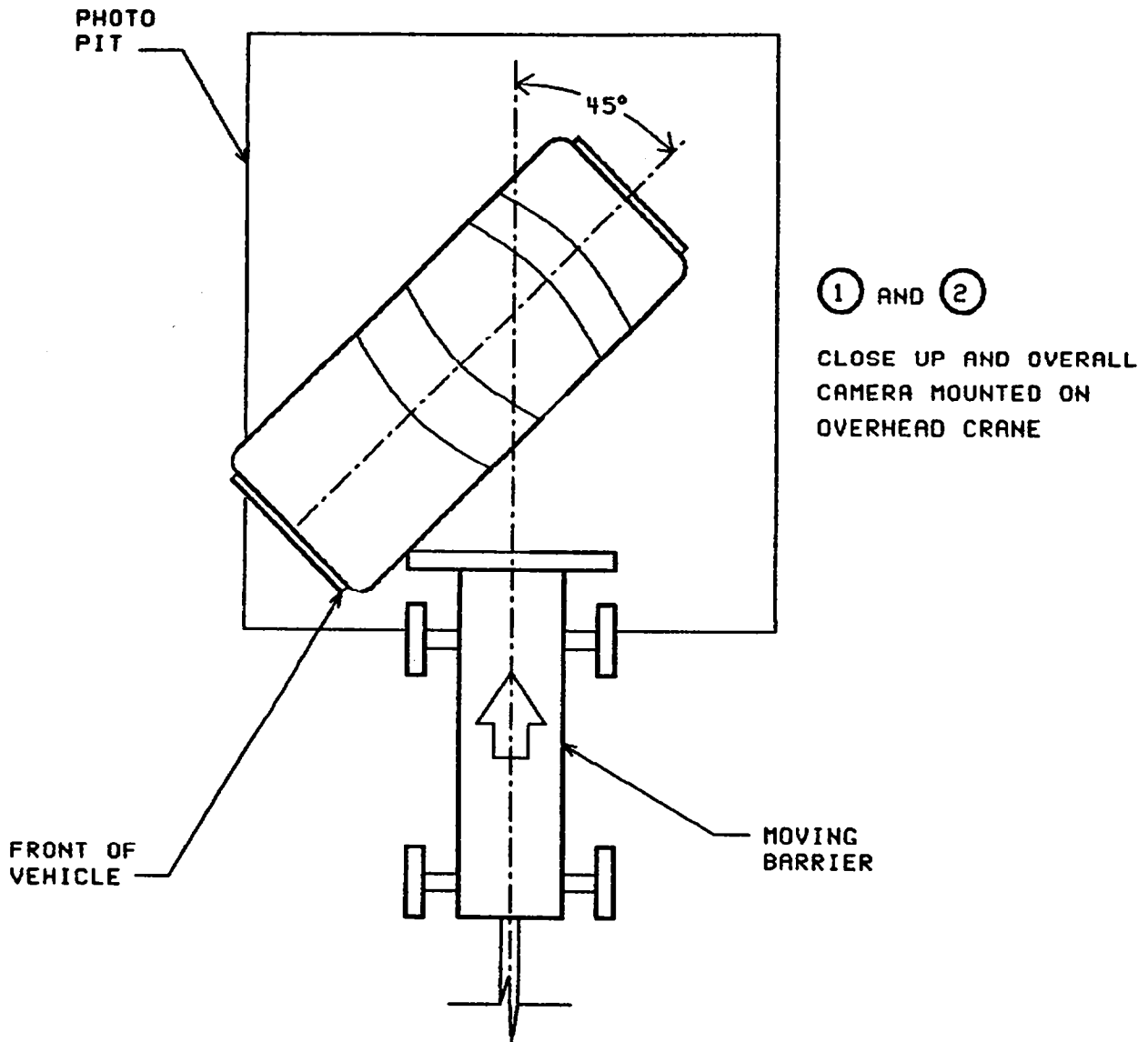


TOP VIEW



SIDE VIEW

CAMERA POSITIONS



TEST ANOMALIES

TEST NO.: 900913-2

The vehicle center of gravity Y-axis acceleration (perpendicular to impact direction) data was lost at 103 milliseconds due to the vehicle's crush pinching the accelerometer cable.

The above anomaly affected the vehicle center of gravity resultant acceleration, VCGRG1, vehicle center of gravity Y-axis (perpendicular to impact direction) velocity, VCGYV1, and vehicle center of gravity resultant velocity, VCGRV1.

SECTION 3.0

TEST 900912-1 SUMMARY

TEST CONDITIONS

TEST NUMBER: 900912-1

DATE OF TEST: 9/12/90

TIME OF TEST: 1330

AMBIENT TEMPERATURE AT IMPACT AREA: 72° F

INTENDED MOVING BARRIER VELOCITY: 10.0 MPH

ACTUAL MOVING BARRIER VELOCITY: 9.8 MPH

SUBJECT VEHICLE DATA

DIRECT CONTACT DAMAGE LENGTH 20.0

MAXIMUM CUMULATIVE CRUSH AT VEHICLE BUMPER HEIGHT 5.0

MAXIMUM CUMULATIVE CRUSH AT VEHICLE SILL HEIGHT 0.8

VEHICLE ATTITUDES:

POST-TEST: LF: 27.2; RF: 26.8; LR: 26.1; RR: 26.4

ALL DISTANCE MEASUREMENTS ARE IN INCHES.

IMPACTED VEHICLE MEASUREMENTS

VEHICLE MAKE/MODEL: Audi 5000

TEST NUMBER: 900912-1

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	189.0	189.0	0.0
X2	REAR SURFACE OF VEHICLE TO FRONT OF ENGINE BLOCK	176.5	176.5	0.0
X3	REAR SURFACE OF VEHICLE TO FIREWALL	149.0	149.0	0.0
X4	REAR SURFACE OF VEHICLE TO UPPER LEADING EDGE OF RIGHT DOOR	125.3	125.0	0.3
X5	REAR SURFACE OF VEHICLE TO UPPER LEADING EDGE OF LEFT DOOR	125.3	125.1	0.2
X6	REAR SURFACE OF VEHICLE TO LOWER LEADING EDGE OF RIGHT DOOR	126.7	126.2	0.5
X7	REAR SURFACE OF VEHICLE TO LOWER LEADING EDGE OF LEFT DOOR	126.5	124.9	1.6
X8	REAR SURFACE OF VEHICLE TO UPPER TRAILING EDGE OF RIGHT DOOR	85.6	85.5	1.1
X9	REAR SURFACE OF VEHICLE TO UPPER TRAILING EDGE OF LEFT DOOR	85.6	85.4	0.2
X10	REAR SURFACE OF VEHICLE TO LOWER TRAILING EDGE OF RIGHT DOOR	86.2	86.2	0.0
X11	REAR SURFACE OF VEHICLE TO LOWER TRAILING EDGE OF LEFT DOOR	86.6	86.3	0.3
X12	REAR SURFACE OF VEHICLE TO BOTTOM OF "A" POST ON RIGHT SIDE	126.0	126.0	0.0
X13	REAR SURFACE OF VEHICLE TO BOTTOM OF "A" POST ON LEFT SIDE	126.2	125.5	0.7
X14	REAR SURFACE OF VEHICLE TO FIREWALL - RIGHT SIDE	144.2	144.2	0.0
X15	REAR SURFACE OF VEHICLE TO FIREWALL - LEFT SIDE	144.2	144.1	0.1
X16	REAR SURFACE OF VEHICLE TO STEERING WHEEL CENTER	114.5	114.0	0.5
X17	CENTER OF STEERING COLUMN TO "A" POST	16.0	16.0	0.0
X18	CENTER OF STEERING COLUMN TO HEADLINER	18.2	18.2	0.0
X19	REAR SURFACE OF VEHICLE TO RIGHT SIDE OF FRONT BUMPER	183.6	183.6	0.0
X20	REAR SURFACE OF VEHICLE TO LEFT SIDE OF FRONT BUMPER	183.8	183.5	0.3
X21	LENGTH OF ENGINE BLOCK	22.5	22.5	0.0

VEHICLE CRUSH

TEST NO. 900912-1

AT MOVING BARRIER BUMPER HEIGHT

AT VEHICLE SILL HEIGHT

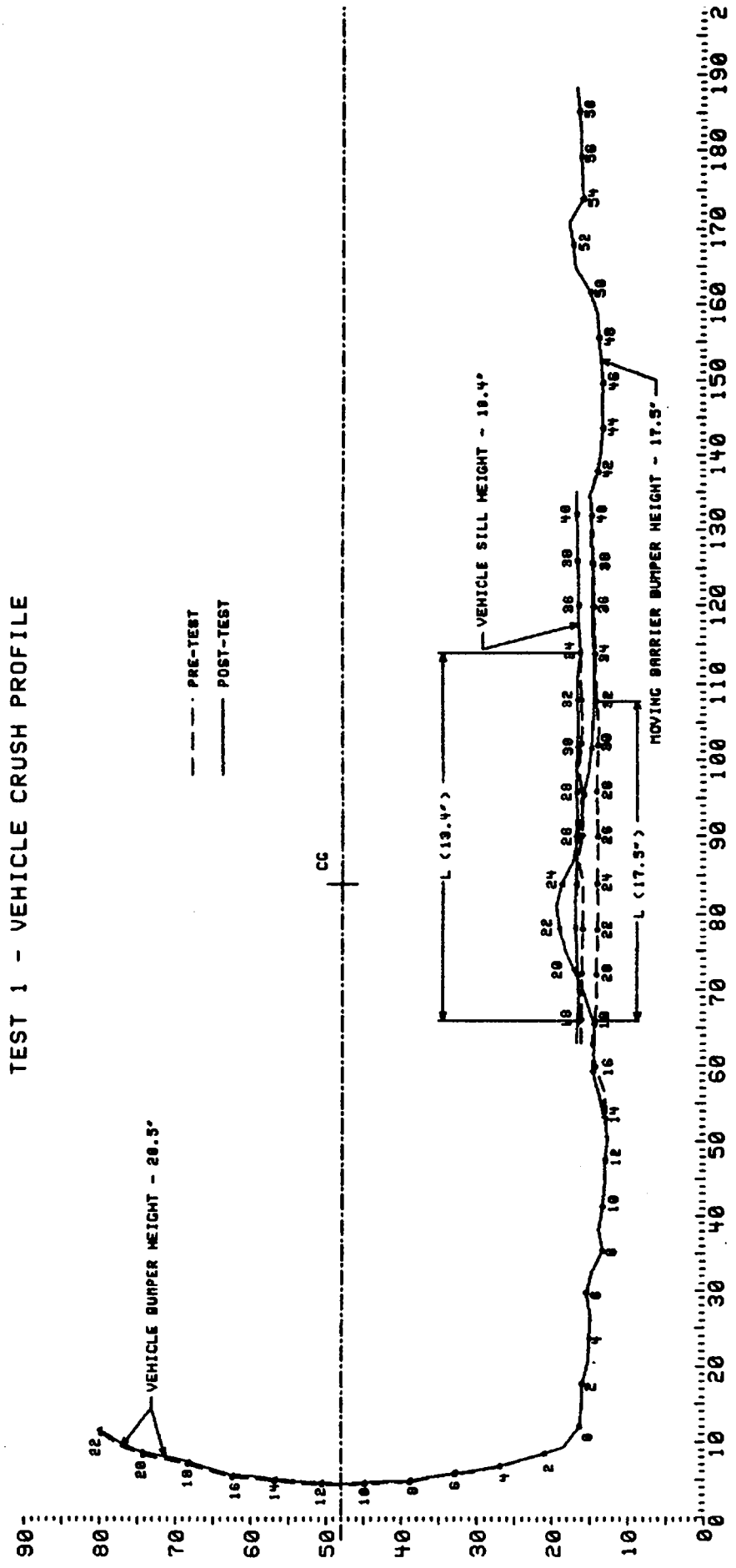
L	<u>41.7</u>	L	<u>47.5</u>
C1	<u>0.0</u>	S1	<u>0.0</u>
C2	<u>0.8</u>	S2	<u>0.4</u>
C3	<u>2.5</u>	S3	<u>0.8</u>
C4	<u>5.0</u>	S4	<u>0.6</u>
C5	<u>3.3</u>	S5	<u>0.4</u>
C6	<u>0.0</u>	S6	<u>0.0</u>

DETERMINATION OF VEHICLE CRUSH:

A reference line was constructed connecting the end points of the vehicle's damaged surface. Six equally spaced points were defined along the reference line and labeled C1 through C6 (or S1 through S6 for sill height crush) with the rearmost point of the damaged surface defined as C1 (or S1) and the forwardmost point defined as C6 (or S6). The actual crush distance is a measurement taken perpendicular to and from the reference line at each point (C1 through C6 or S1 through S6) to the vehicle's damaged surface.

NOTES: L is total length of damage surface
C1 through C6 and S1 through S6 are spaced equally apart
ALL DISTANCES ARE IN INCHES

TEST 1 - VEHICLE CRUSH PROFILE



NOTE: L INDICATES THE LENGTH OF THE DAMAGED SURFACE

VEHICLE ACCELEROMETER LOCATIONS AND DATA SUMMARY

TEST NUMBER 900912-1

No.	LOCATION	X*	Y*	Z*	POSITIVE DIRECTION		NEGATIVE DIRECTION	
					MAX G	MSEC	MAX G	MSEC
2	RIGHT FRONT SILL	88.0	-25.5	13.0				
	ACCELERATION							
	LONGITUDINAL				0.9	163.0	2.5	13.8
	LATERAL				1.7	23.8	3.7	13.9
	RESULTANT				4.5	13.9		
3	VEHICLE CG	106.5	0.0	15.4				
	ACCELERATION							
	PARALLEL TO IMPACT				1.3	18.8	4.2	13.3
	PERPENDICULAR TO IMPACT				1.5	40.6	2.8	22.6
	RESULTANT				4.5	13.3		

* 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

TEST NUMBER 900912-1

No.	LOCATION	X*	Y*	Z*	POSITIVE DIRECTION		NEGATIVE DIRECTION	
					MAX G	MSEC	MAX G	MSEC
1	MOVING BARRIER	75.2	0.0	12.3				
	CG ACCELERATION							
	LONGITUDINAL				---	---	2.4	97.6
	LATERAL				1.3	45.8	2.0	29.3
	RESULTANT				2.6	72.5		

* ALL MEASUREMENTS OF ACCELEROMETER LOCATIONS ARE IN INCHES.

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

* No positive value in the time frame of interest.

TEST #900912-1

CAMERA INFORMATION

CAMERA NO.	LOCATION	TYPE	LENS (MM)	SPEED (FPS)	PURPOSE OF CAMERA DATA
1	Overhead wide	Photosonic 1B	13	495	Impact overall
2	Overhead tight	Photosonic 1B	25	500	Impact close-up

SECTION 4.0

TEST 900912-2 SUMMARY

TEST CONDITIONS

TEST NUMBER: 900912-2

DATE OF TEST: 9/12/90

TIME OF TEST: 1500

AMBIENT TEMPERATURE AT IMPACT AREA: 72° F

INTENDED MOVING BARRIER VELOCITY: 20.0 MPH

ACTUAL MOVING BARRIER VELOCITY: 19.7 MPH

SUBJECT VEHICLE DATA

DIRECT CONTACT DAMAGE LENGTH 42.4

MAXIMUM CUMULATIVE CRUSH AT VEHICLE BUMPER HEIGHT 12.9

MAXIMUM CUMULATIVE CRUSH AT VEHICLE SILL HEIGHT 2.9

VEHICLE ATTITUDES:

POST-TEST: LF: 27.1; RF: 27.2; LR: 26.1; RR: 25.8

ALL DISTANCE MEASUREMENTS ARE IN INCHES.

IMPACTED VEHICLE MEASUREMENTS

VEHICLE MAKE/MODEL: Audi 5000

TEST NUMBER: 900912-2

ALL MEASUREMENTS ARE IN INCHES

NO.	TYPE OF MEASUREMENT	PRE-TEST*	POST-TEST	DIFF
X1	TOTAL LENGTH OF VEHICLE AT CENTERLINE	189.0	188.0	0.2
X2	REAR SURFACE OF VEHICLE TO FRONT OF ENGINE BLOCK	176.5	177.2	-0.7
X3	REAR SURFACE OF VEHICLE TO FIREWALL	149.0	148.3	0.7
X4	REAR SURFACE OF VEHICLE TO UPPER LEADING EDGE OF RIGHT DOOR	125.3	125.0	0.3
X5	REAR SURFACE OF VEHICLE TO UPPER LEADING EDGE OF LEFT DOOR	125.3	123.0	2.3
X6	REAR SURFACE OF VEHICLE TO LOWER LEADING EDGE OF RIGHT DOOR	126.7	127.0	-0.3
X7	REAR SURFACE OF VEHICLE TO LOWER LEADING EDGE OF LEFT DOOR	126.5	126.0	0.5
X8	REAR SURFACE OF VEHICLE TO UPPER TRAILING EDGE OF RIGHT DOOR	85.6	85.2	0.3
X9	REAR SURFACE OF VEHICLE TO UPPER TRAILING EDGE OF LEFT DOOR	85.6	84.8	0.8
X10	REAR SURFACE OF VEHICLE TO LOWER TRAILING EDGE OF RIGHT DOOR	86.2	86.8	-0.6
X11	REAR SURFACE OF VEHICLE TO LOWER TRAILING EDGE OF LEFT DOOR	86.6	86.8	-0.2
X12	REAR SURFACE OF VEHICLE TO BOTTOM OF "A" POST ON RIGHT SIDE	126.0	126.2	-0.2
X13	REAR SURFACE OF VEHICLE TO BOTTOM OF "A" POST ON LEFT SIDE	126.2	125.0	1.2
X14	REAR SURFACE OF VEHICLE TO FIREWALL - RIGHT SIDE	144.2	144.8	-0.6
X15	REAR SURFACE OF VEHICLE TO FIREWALL - LEFT SIDE	144.2	143.0	1.2
X16	REAR SURFACE OF VEHICLE TO STEERING WHEEL CENTER	114.5	110.6	3.9
X17	CENTER OF STEERING COLUMN TO "A" POST	16.0	15.9	0.1
X18	CENTER OF STEERING COLUMN TO HEADLINER	18.2	17.8	0.4
X19	REAR SURFACE OF VEHICLE TO RIGHT SIDE OF FRONT BUMPER	183.6	183.5	0.1
X20	REAR SURFACE OF VEHICLE TO LEFT SIDE OF FRONT BUMPER	183.8	182.8	1.0
X21	LENGTH OF ENGINE BLOCK	22.5	22.5	0.0

*PRE-TEST MEASUREMENTS ARE FOR THE UNDEFORMED VEHICLE

VEHICLE CRUSH

TEST NO. 900912-2

AT MOVING BARRIER BUMPER HEIGHT

AT VEHICLE SILL HEIGHT

L	<u>75.4</u>	L	<u>65.0</u>
C1	<u>0.0</u>	S1	<u>0.0</u>
C2	<u>0.8</u>	S2	<u>0.8</u>
C3	<u>2.5</u>	S3	<u>1.7</u>
C4	<u>12.9</u>	S4	<u>2.3</u>
C5	<u>7.5</u>	S5	<u>2.9</u>
C6	<u>0.0</u>	S6	<u>0.0</u>

DETERMINATION OF VEHICLE CRUSH:

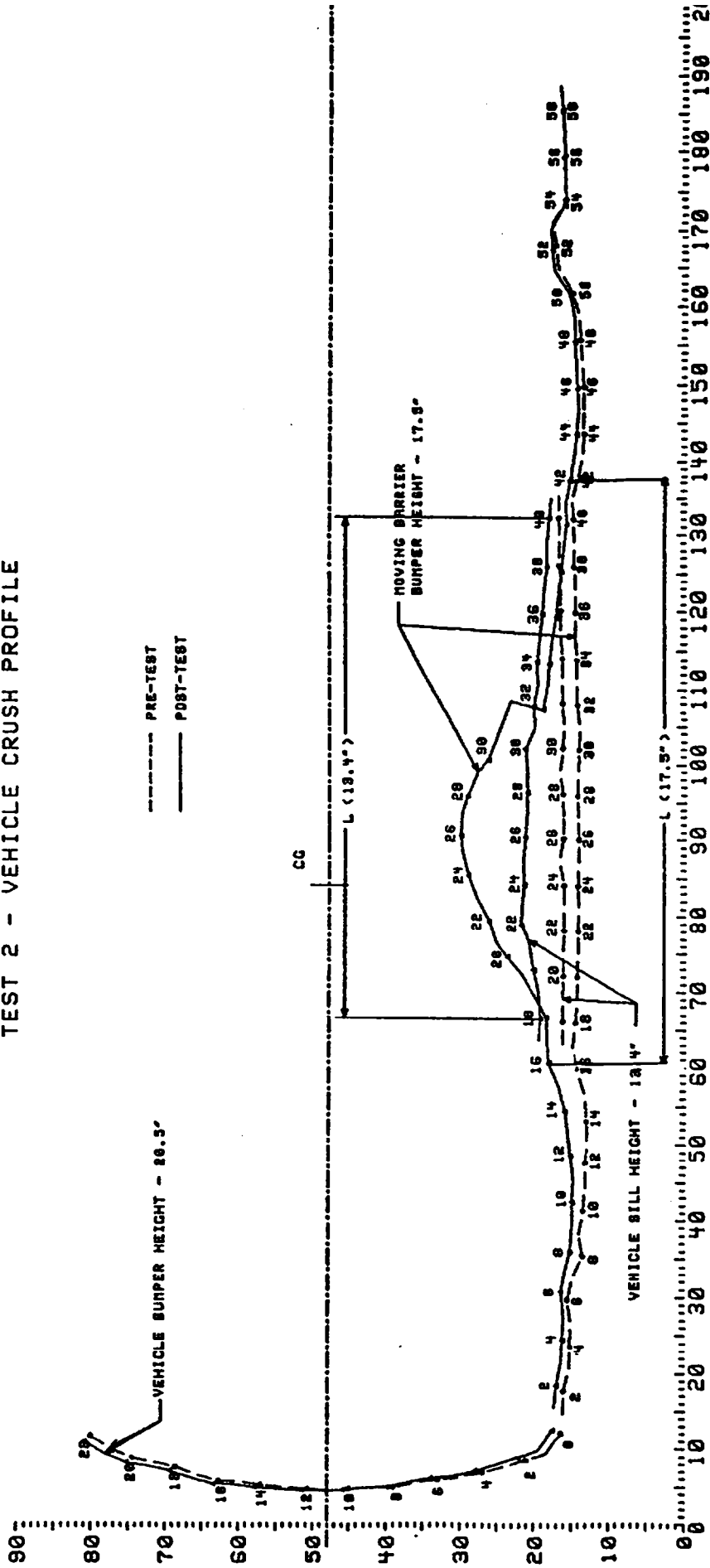
A reference line was constructed connecting the end points of the vehicle's damaged surface. Six equally spaced points were defined along the reference line and labeled C1 through C6 (or S1 through S6 for sill height crush) with the rearmost point of the damaged surface defined as C1 (or S1) and the forwardmost point defined as C6 (or S6). The actual crush distance is a measurement taken perpendicular to and from the reference line at each point (C1 through C6 or S1 through S6) to the vehicle's damaged surface.

NOTES: L is total length of damage surface

C1 through C6 and S1 through S6 are spaced equally apart

ALL DISTANCES ARE IN INCHES

TEST 2 - VEHICLE CRUSH PROFILE



NOTE: L INDICATES THE LENGTH OF THE DAMAGED SURFACE

VEHICLE ACCELEROMETER LOCATIONS AND DATA SUMMARY

TEST NUMBER 900912-2

No. LOCATION	X*	Y*	Z*	POSITIVE DIRECTION		NEGATIVE DIRECTION	
				MAX G	MSEC	MAX G	MSEC
2 RIGHT FRONT SILL	88.0	-25.5	13.0				
ACCELERATION							
LONGITUDINAL				1.6	246.8	5.0	88.4
LATERAL				1.9	40.0	3.7	13.8
RESULTANT				5.4	88.4		
3 VEHICLE CG	106.5	0.0	15.4				
ACCELERATION							
PARALLEL TO IMPACT				5.4	106.8	7.4	87.5
PERPENDICULAR TO IMPACT				6.8	106.5	5.2	22.4
RESULTANT				8.6	106.6		

* 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

MOVING BARRIER ACCELEROMETER LOCATIONS AND DATA SUMMARY

TEST NUMBER 900912-2

No.	LOCATION	X*	Y*	Z*	POSITIVE DIRECTION		NEGATIVE DIRECTION	
					MAX G	MSEC	MAX G	MSEC
1	MOVING BARRIER	75.2	0.0	12.3				
	CG ACCELERATION							
	LONGITUDINAL				0.4	281.9	4.6	85.8
	LATERAL				1.3	171.5	2.9	23.8
	RESULTANT				4.7	85.6		

* ALL MEASUREMENTS OF ACCELEROMETER LOCATIONS ARE IN INCHES.

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

TEST #900912-2

CAMERA INFORMATION

CAMERA NO.	LOCATION	TYPE	LENS (mm)	SPEED (fps)	PURPOSE OF CAMERA DATA
1	Overhead wide	Photosonic 1B	13	500	Impact overall
2	Overhead tight	Photosonic 1B	25	500	Impact close-up

SECTION 5.0

TEST 900913-1 SUMMARY

TEST CONDITIONS

TEST NUMBER: 900913-1

DATE OF TEST: 9/13/90

TIME OF TEST: 1431

AMBIENT TEMPERATURE AT IMPACT AREA: 72° F

INTENDED MOVING BARRIER VELOCITY: 20.0 MPH

ACTUAL MOVING BARRIER VELOCITY: 19.9 MPH

SUBJECT VEHICLE DATA

DIRECT CONTACT DAMAGE LENGTH 44.0

MAXIMUM CUMULATIVE CRUSH AT VEHICLE BUMPER HEIGHT 20.2

MAXIMUM CUMULATIVE CRUSH AT VEHICLE SILL HEIGHT 5.2

VEHICLE ATTITUDES:

POST-TEST: LF: 27.9; RF: 27.4; LR: 26.4; RR: 25.9

ALL DISTANCE MEASUREMENTS ARE IN INCHES.

IMPACTED VEHICLE MEASUREMENTS

VEHICLE MAKE/MODEL: Audi 5000 TEST NUMBER: 900913-1

ALL MEASUREMENTS ARE IN INCHES

NO.	TYPE OF MEASUREMENT	PRE-TEST*	POST-TEST	DIFF.
X1	TOTAL LENGTH OF VEHICLE AT CENTERLINE	189.0	186.6	2.4
X2	REAR SURFACE OF VEHICLE TO FRONT OF ENGINE BLOCK	176.5	NA	NA
X3	REAR SURFACE OF VEHICLE TO FIREWALL	149.0	NA	NA
X4	REAR SURFACE OF VEHICLE TO UPPER LEADING EDGE OF RIGHT DOOR	125.3	125.2	0.1
X5	REAR SURFACE OF VEHICLE TO UPPER LEADING EDGE OF LEFT DOOR	125.3	117.0	8.3
X6	REAR SURFACE OF VEHICLE TO LOWER LEADING EDGE OF RIGHT DOOR	126.7	126.5	0.2
X7	REAR SURFACE OF VEHICLE TO LOWER LEADING EDGE OF LEFT DOOR	126.5	111.0	15.5
X8	REAR SURFACE OF VEHICLE TO UPPER TRAILING EDGE OF RIGHT DOOR	85.6	85.4	0.2
X9	REAR SURFACE OF VEHICLE TO UPPER TRAILING EDGE OF LEFT DOOR	85.6	80.2	5.4
X10	REAR SURFACE OF VEHICLE TO LOWER TRAILING EDGE OF RIGHT DOOR	86.2	86.4	-0.2
X11	REAR SURFACE OF VEHICLE TO LOWER TRAILING EDGE OF LEFT DOOR	86.6	81.2	5.4
X12	REAR SURFACE OF VEHICLE TO BOTTOM OF "A" POST ON RIGHT SIDE	126.0	126.0	0.0
X13	REAR SURFACE OF VEHICLE TO BOTTOM OF "A" POST ON LEFT SIDE	126.2	121.2	5.0
X14	REAR SURFACE OF VEHICLE TO FIREWALL - RIGHT SIDE	144.2	NA	NA
X15	REAR SURFACE OF VEHICLE TO FIREWALL - LEFT SIDE	144.2	NA	NA
X16	REAR SURFACE OF VEHICLE TO STEERING WHEEL CENTER	114.5	110.8	3.7
X17	CENTER OF STEERING COLUMN TO "A" POST	16.0	16.8	-0.8
X18	CENTER OF STEERING COLUMN TO HEADLINER	18.2	18.2	0.0
X19	REAR SURFACE OF VEHICLE TO RIGHT SIDE OF FRONT BUMPER	183.6	183.9	-0.3
X20	REAR SURFACE OF VEHICLE TO LEFT SIDE OF FRONT BUMPER	183.8	179.5	4.3
X21	LENGTH OF ENGINE BLOCK	22.5	22.5	0.0

*PRE-TEST MEASUREMENTS ARE FOR THE UNDEFORMED VEHICLE

VEHICLE CRUSH

TEST NO. 900913-1

AT MOVING BARRIER BUMPER HEIGHT

AT VEHICLE SILL HEIGHT

L	<u>80.8</u>	L	<u>60.4</u>
C1	<u>0.0</u>	S1	<u>0.0</u>
C2	<u>3.1</u>	S2	<u>3.3</u>
C3	<u>12.1</u>	S3	<u>5.2</u>
C4	<u>20.2</u>	S4	<u>3.3</u>
C5	<u>3.3</u>	S5	<u>2.3</u>
C6	<u>0.0</u>	S6	<u>0.0</u>

DETERMINATION OF VEHICLE CRUSH:

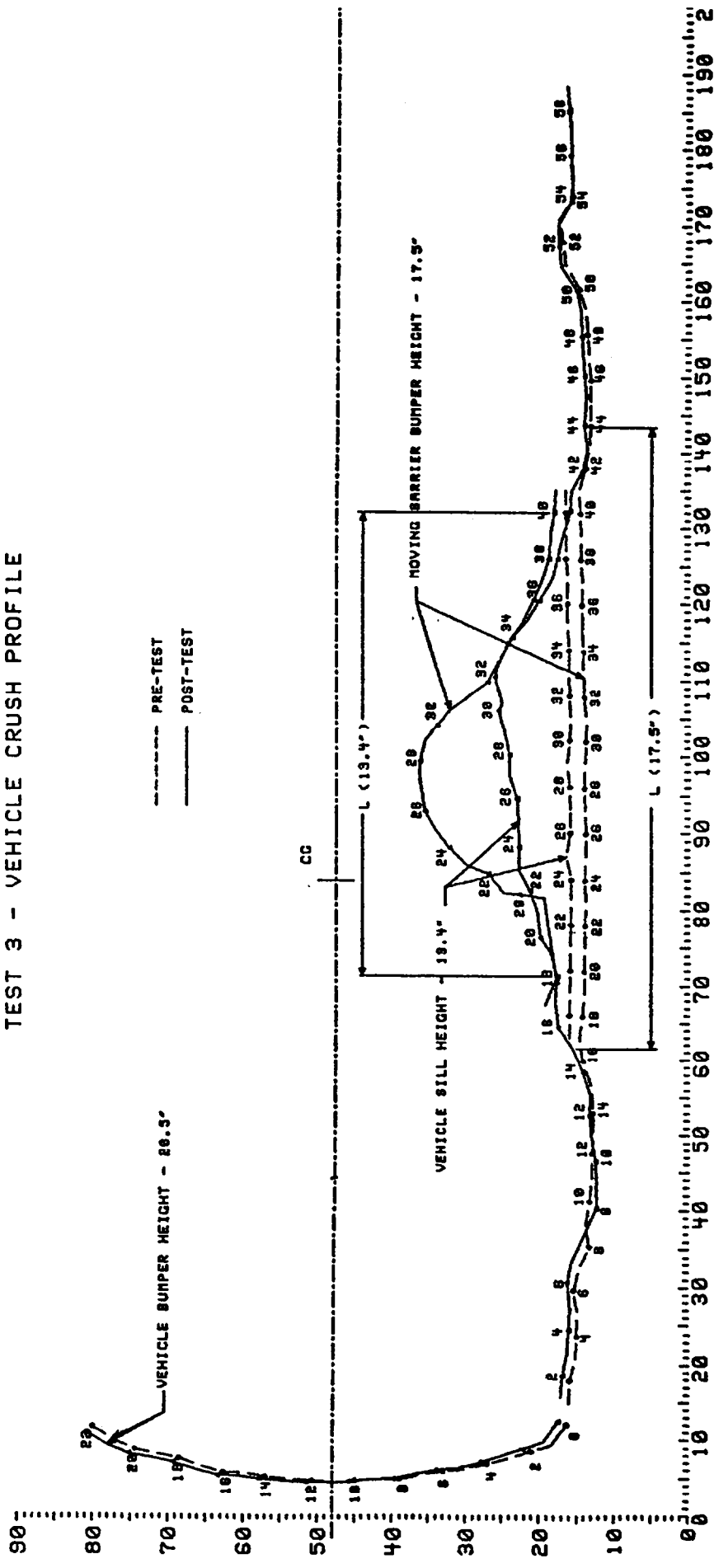
A reference line was constructed connecting the end points of the vehicle's damaged surface. Six equally spaced points were defined along the reference line and labeled C1 through C6 (or S1 through S6 for sill height crush) with the rearmost point of the damaged surface defined as C1 (or S1) and the forwardmost point defined as C6 (or S6). The actual crush distance is a measurement taken perpendicular to and from the reference line at each point (C1 through C6 or S1 through S6) to the vehicle's damaged surface.

NOTES: L is total length of damage surface

C1 through C6 and S1 through S6 are spaced equally apart

ALL DISTANCES ARE IN INCHES

TEST 3 - VEHICLE CRUSH PROFILE



NOTE: L INDICATES THE LENGTH OF THE DAMAGED SURFACE

VEHICLE ACCELEROMETER LOCATIONS AND DATA SUMMARY

TEST NUMBER 900913-1

No. LOCATION	X*	Y*	Z*	POSITIVE DIRECTION		NEGATIVE DIRECTION	
				MAX G	MSEC	MAX G	MSEC
2 RIGHT FRONT SILL	88.0	-25.5	13.0				
ACCELERATION							
LONGITUDINAL				2.4	55.3	5.8	8.9
LATERAL				1.0	129.9	3.5	33.4
RESULTANT				5.8	8.9		
3 VEHICLE CG	106.5	0.0	15.4				
ACCELERATION							
PARALLEL TO IMPACT				5.7	16.1	16.0	2.9
PERPENDICULAR TO IMPACT				5.6	16.8	11.0	3.0
RESULTANT				19.4	2.9		

* 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

TEST NUMBER 900913-1

No.	LOCATION	X*	Y*	Z*	POSITIVE DIRECTION		NEGATIVE DIRECTION	
					MAX G	MSEC	MAX G	MSEC
1	MOVING BARRIER	75.2	0.0	12.3				
	CG ACCELERATION							
	LONGITUDINAL				1.0	210.0	4.5	3.4
	LATERAL				1.8	260.6	1.0	0.0
	RESULTANT				4.5	3.5		

* ALL MEASUREMENTS OF ACCELEROMETER LOCATIONS ARE IN INCHES.

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

TEST #900913-1

CAMERA INFORMATION

CAMERA NO.	LOCATION	TYPE	LENS (MM)	SPEED (FPS)	PURPOSE OF CAMERA DATA
1	Overhead wide	Photostonic 1B	13	500	Impact overall
2	Overhead tight	Photostonic 1B	25	498	Impact close-up

SECTION 6.0

TEST 900913-2 SUMMARY

TEST CONDITIONS

TEST NUMBER: 900913-2

DATE OF TEST: 9/13/90

TIME OF TEST: 1601

AMBIENT TEMPERATURE AT IMPACT AREA: 72° F

INTENDED MOVING BARRIER VELOCITY: 45.0 MPH

ACTUAL MOVING BARRIER VELOCITY: 45.0 MPH

SUBJECT VEHICLE DATA

DIRECT CONTACT DAMAGE LENGTH 76.0

MAXIMUM CUMULATIVE CRUSH AT VEHICLE BUMPER HEIGHT 35.8

MAXIMUM CUMULATIVE CRUSH AT VEHICLE SILL HEIGHT 12.1

VEHICLE ATTITUDES:

POST-TEST: LF: 26.7; RF: 27.6; LR: 25.6; RR: 25.5

ALL DISTANCE MEASUREMENTS ARE IN INCHES.

IMPACTED VEHICLE MEASUREMENTS

VEHICLE MAKE/MODEL: Audi 5000

TEST NUMBER: 900913-2

ALL MEASUREMENTS ARE IN INCHES
PRE-TEST* POST-TEST DIFF.

NO.	TYPE OF MEASUREMENT	PRE-TEST*	POST-TEST	DIFF.
X1	TOTAL LENGTH OF VEHICLE AT CENTERLINE	189.0	183.4	5.6
X2	REAR SURFACE OF VEHICLE TO FRONT OF ENGINE BLOCK	176.5	171.4	5.1
X3	REAR SURFACE OF VEHICLE TO FIREWALL	149.0	143.2	5.8
X4	REAR SURFACE OF VEHICLE TO UPPER LEADING EDGE OF RIGHT DOOR	125.3	125.9	-0.6
X5	REAR SURFACE OF VEHICLE TO UPPER LEADING EDGE OF LEFT DOOR	125.3	92.5	32.8
X6	REAR SURFACE OF VEHICLE TO LOWER LEADING EDGE OF RIGHT DOOR	126.7	127.8	-1.1
X7	REAR SURFACE OF VEHICLE TO LOWER LEADING EDGE OF LEFT DOOR	126.5	84.2	42.3
X8	REAR SURFACE OF VEHICLE TO UPPER TRAILING EDGE OF RIGHT DOOR	85.6	86.2	-0.6
X9	REAR SURFACE OF VEHICLE TO UPPER TRAILING EDGE OF LEFT DOOR	85.6	70.9	14.7
X10	REAR SURFACE OF VEHICLE TO LOWER TRAILING EDGE OF RIGHT DOOR	86.2	87.0	-0.8
X11	REAR SURFACE OF VEHICLE TO LOWER TRAILING EDGE OF LEFT DOOR	86.6	80.0	6.6
X12	REAR SURFACE OF VEHICLE TO BOTTOM OF "A" POST ON RIGHT SIDE	126.0	126.5	-0.5
X13	REAR SURFACE OF VEHICLE TO BOTTOM OF "A" POST ON LEFT SIDE	126.2	115.5	10.7
X14	REAR SURFACE OF VEHICLE TO FIREWALL - RIGHT SIDE	144.2	145.5	-1.3
X15	REAR SURFACE OF VEHICLE TO FIREWALL - LEFT SIDE	144.2	131.9	12.3
X16	REAR SURFACE OF VEHICLE TO STEERING WHEEL CENTER	114.5	106.0	8.5
X17	CENTER OF STEERING COLUMN TO "A" POST	16.0	13.5	2.5
X18	CENTER OF STEERING COLUMN TO HEADLINER	18.2	19.2	-1.0
X19	REAR SURFACE OF VEHICLE TO RIGHT SIDE OF FRONT BUMPER	183.6	185.0	-1.4
X20	REAR SURFACE OF VEHICLE TO LEFT SIDE OF FRONT BUMPER	183.8	171.0	12.8
X21	LENGTH OF ENGINE BLOCK	22.5	22.5	0.0

*PRE-TEST MEASUREMENTS ARE FOR THE UNDEFORMED VEHICLE

VEHICLE CRUSH

TEST NO. 900913-2

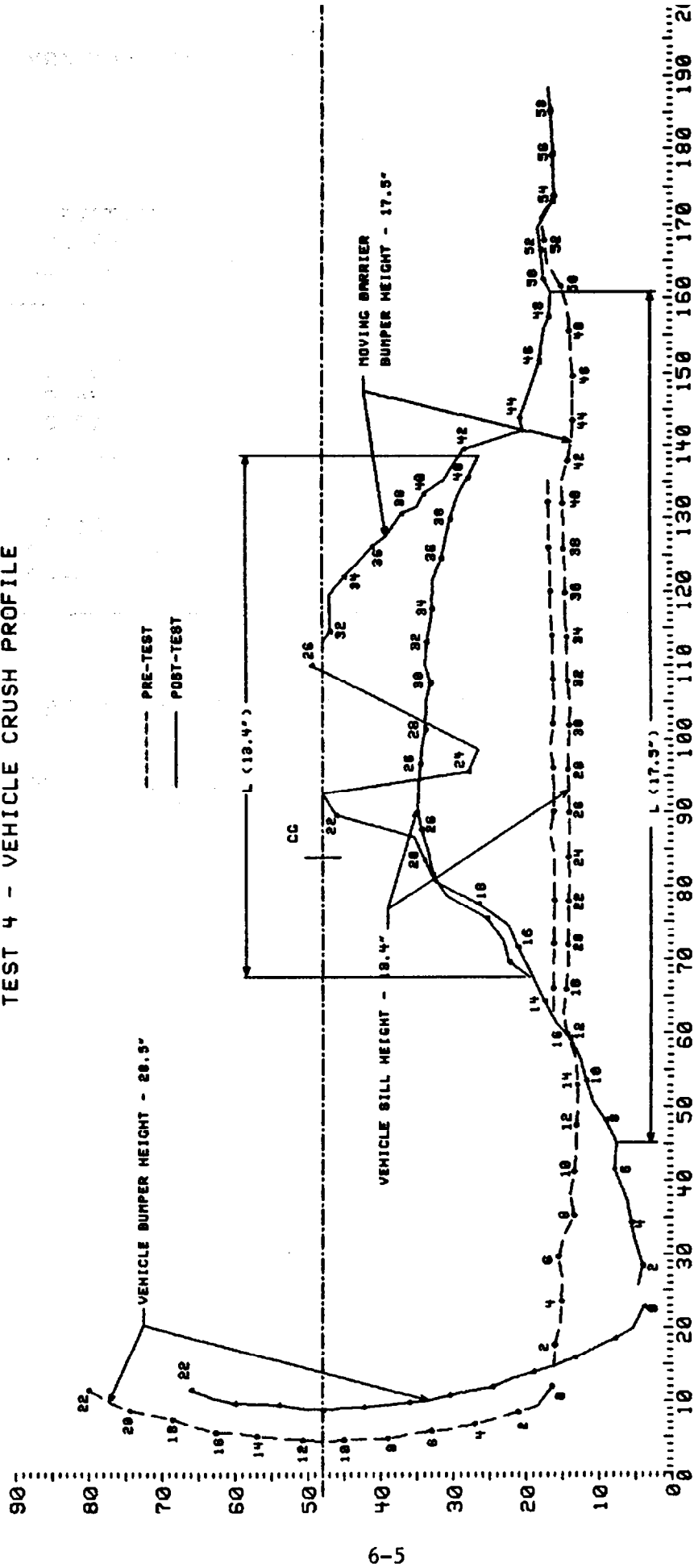
AT MOVING BARRIER BUMPER HEIGHT		AT VEHICLE SILL HEIGHT	
L	<u>114.2</u>	L	<u>70.0</u>
C1	<u>0.0</u>	S1	<u>0.0</u>
C2	<u>17.5</u>	S2	<u>6.7</u>
C3	<u>35.8</u>	S3	<u>9.8</u>
C4	<u>27.9</u>	S4	<u>12.1</u>
C5	<u>9.2</u>	S5	<u>11.2</u>
C6	<u>0.0</u>	S6	<u>0.0</u>

DETERMINATION OF VEHICLE CRUSH:

A reference line was constructed connecting the end points of the vehicle's damaged surface. Six equally spaced points were defined along the reference line and labeled C1 through C6 (or S1 through S6 for sill height crush) with the rearmost point of the damaged surface defined as C1 (or S1) and the forwardmost point defined as C6 (or S6). The actual crush distance is a measurement taken perpendicular to and from the reference line at each point (C1 through C6 or S1 through S6) to the vehicle's damaged surface.

NOTES: L is total length of damage surface
C1 through C6 and S1 through S6 are spaced equally apart
ALL DISTANCES ARE IN INCHES

TEST 4 - VEHICLE CRUSH PROFILE



NOTE: L INDICATES THE LENGTH OF THE DAMAGED SURFACE

VEHICLE ACCELEROMETER LOCATIONS AND DATA SUMMARY

TEST NUMBER 900913-2

No.	LOCATION	X*	Y*	Z*	POSITIVE DIRECTION MAX G MSEC	NEGATIVE DIRECTION MAX G MSEC
2	RIGHT FRONT SILL	88.0	-25.5	13.0		
	ACCELERATION					
	LONGITUDINAL				2.5 156.6	11.9 13.3
	LATERAL				2.9 34.8	10.9 90.5
	RESULTANT				13.2 13.0	
3	VEHICLE CG	106.5	0.0	15.4		
	ACCELERATION					
	PARALLEL TO IMPACT				16.1 81.3	25.9 57.9
	PERPENDICULAR TO IMPACT				--- ---Y	--- ---Y
	RESULTANT				--- ---Y	

* 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

Y See TEST ANOMALIES

TEST #900913-2

CAMERA INFORMATION

CAMERA NO.	LOCATION	TYPE	LENS (mm)	SPEED (fps)	PURPOSE OF CAMERA DATA
1	Overhead wide	Photosonic 1B	13	500	Impact overall
2	Overhead tight	Photosonic 1B	25	498	Impact close-up

APPENDIX A

PHOTOGRAPHS

TEST #900912-1
LIST OF PHOTOGRAPHS

- 1 PRE-TEST FRONT VIEW
2. POST-TEST FRONT VIEW
3. PRE-TEST LEFT SIDE VIEW
4. POST-TEST LEFT SIDE VIEW
5. POST-TEST LEFT SIDE CLOSEUP - VIEW 1
6. POST-TEST LEFT SIDE CLOSEUP - VIEW 2
7. PRE-TEST RIGHT SIDE VIEW
8. POST-TEST RIGHT SIDE VIEW
9. PRE-TEST LEFT REAR THREE-QUARTER VIEW
10. POST-TEST LEFT REAR THREE-QUARTER VIEW
11. PRE-TEST LEFT FRONT THREE-QUARTER - VIEW 1
12. PRE-TEST LEFT FRONT THREE-QUARTER - VIEW 2
13. POST-TEST LEFT FRONT THREE-QUARTER VIEW
14. POST-TEST RIGHT FRONT THREE-QUARTER VIEW
15. PRE-TEST REAR VIEW
16. POST-TEST REAR VIEW



Figure A-1. PRE-TEST FRONT VIEW



Figure A-2. POST-TEST FRONT VIEW



Figure A-3. PRE-TEST LEFT SIDE VIEW



Figure A-4. POST-TEST LEFT SIDE VIEW



Figure A-5. POST-TEST LEFT SIDE CLOSEUP - VIEW 1



Figure A-6. POST-TEST LEFT SIDE CLOSEUP - VIEW 2



Figure A-7. PRE-TEST RIGHT SIDE VIEW



Figure A-8. POST-TEST RIGHT SIDE VIEW



1-4877 - Figure A-9. PRE-TEST LEFT REAR THREE-QUARTER VIEW



1-4878 - Figure A-10. POST-TEST LEFT REAR THREE-QUARTER VIEW



Figure A-11. PRE-TEST LEFT FRONT THREE-QUARTER - VIEW 1



Figure A-12. PRE-TEST LEFT FRONT THREE-QUARTER - VIEW 2



Figure A-13. POST-TEST LEFT FRONT THREE-QUARTER VIEW



Figure A-14. POST-TEST RIGHT FRONT THREE-QUARTER VIEW



Figure A-15. PRE-TEST REAR VIEW



Figure A-16. POST-TEST REAR VIEW

TEST #900912-2
LIST OF PHOTOGRAPHS

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



Figure A-1. POST-TEST FRONT VIEW



Figure A-2. POST-TEST LEFT SIDE VIEW

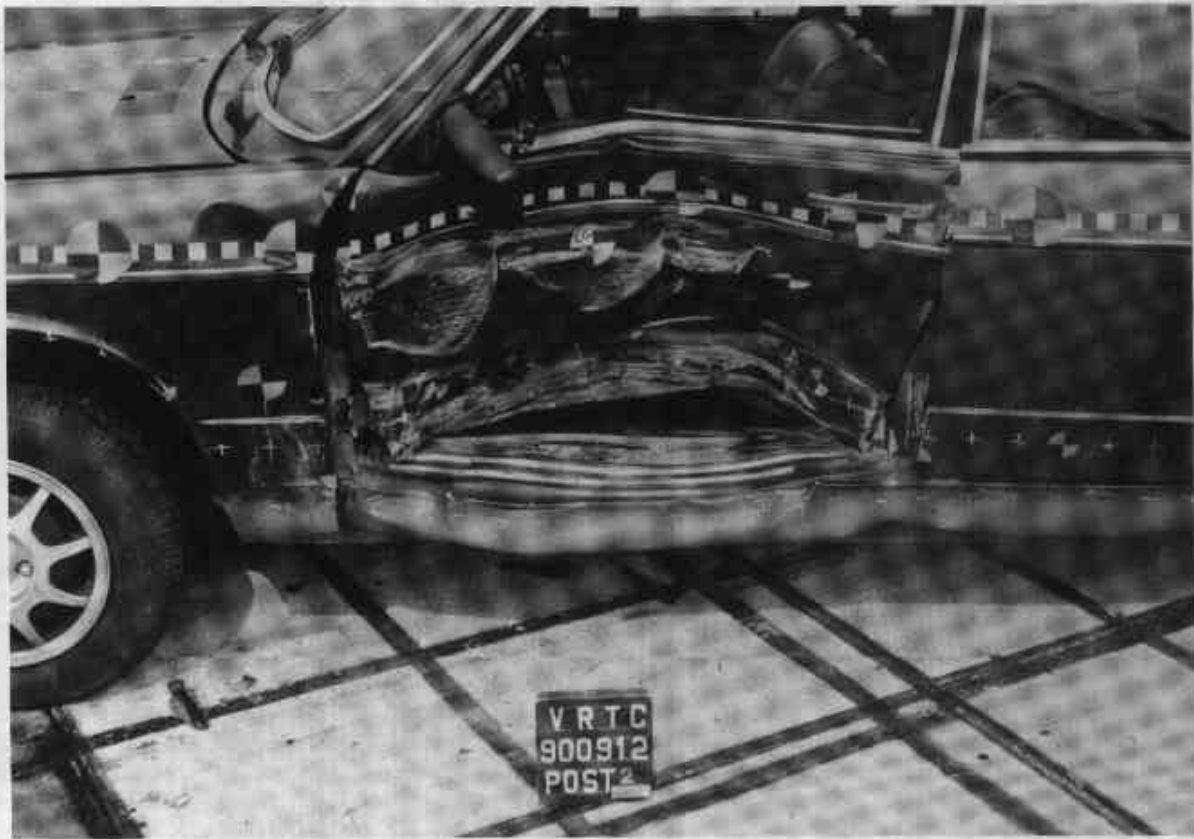


Figure A-3. POST-TEST LEFT SIDE CLOSEUP - VIEW 1



Figure A-4. POST-TEST LEFT SIDE CLOSEUP - VIEW 2



Figure A-5. POST-TEST RIGHT SIDE VIEW



Figure A-6. POST-TEST LEFT REAR THREE-QUARTER VIEW



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



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



Figure A-9. POST-TEST REAR VIEW

TEST #900913-1
LIST OF PHOTOGRAPHS

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



Figure A-1. POST-TEST FRONT VIEW



Figure A-2. POST-TEST LEFT SIDE VIEW



Figure A-3. POST-TEST LEFT SIDE CLOSEUP - VIEW 1

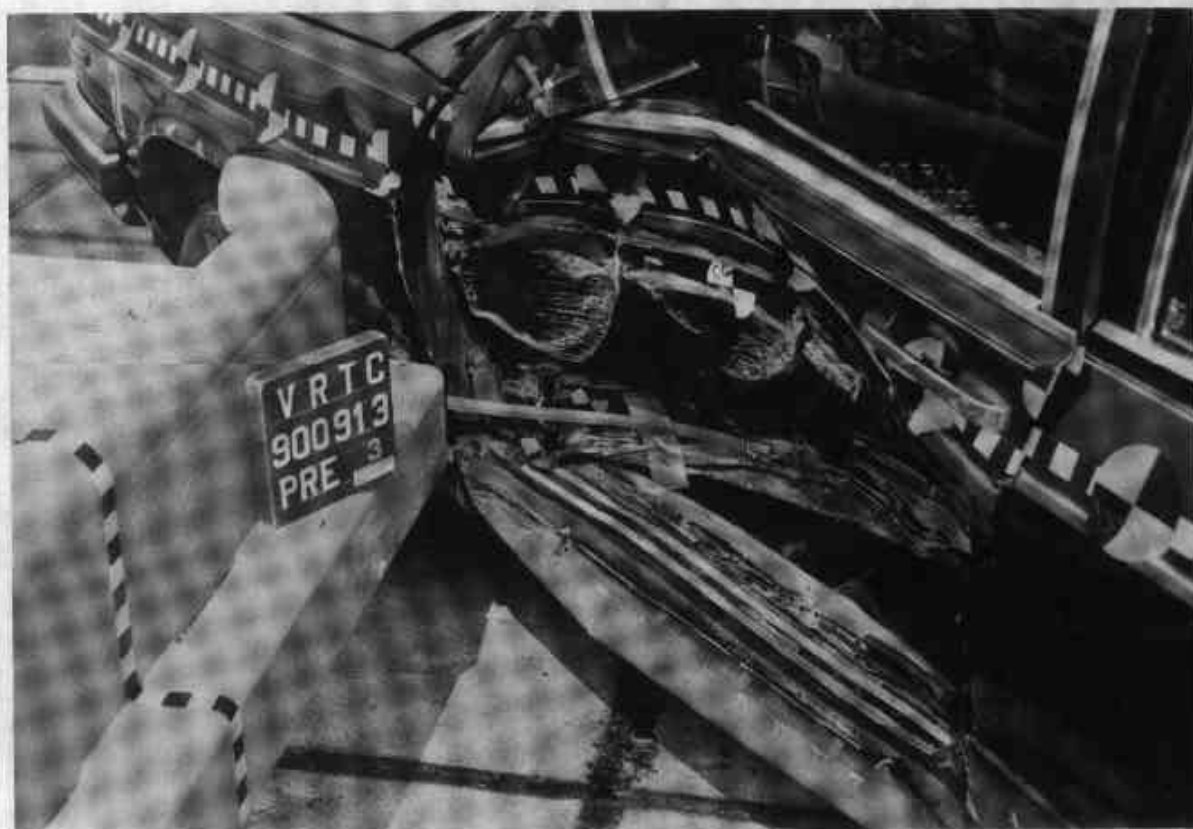


Figure A-4. POST-TEST LEFT SIDE CLOSEUP - VIEW 2



Figure A-5. POST-TEST RIGHT SIDE VIEW



Figure A-6. POST-TEST LEFT REAR THREE-QUARTER VIEW



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



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



Figure A-9. POST-TEST REAR VIEW

TEST #900913-2
LIST OF PHOTOGRAPHS

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



Figure A-1. POST-TEST FRONT VIEW



Figure A-2. POST-TEST LEFT SIDE VIEW



Figure A-3. POST-TEST LEFT SIDE CLOSEUP - VIEW 1



Figure A-4. POST-TEST LEFT SIDE CLOSEUP - VIEW 2



Figure A-5. POST-TEST RIGHT SIDE VIEW



Figure A-6. POST-TEST LEFT REAR THREE-QUARTER VIEW



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



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



Figure A-9. POST-TEST REAR VIEW

APPENDIX B

DATA PLOTS

TEST #900912-1

B2

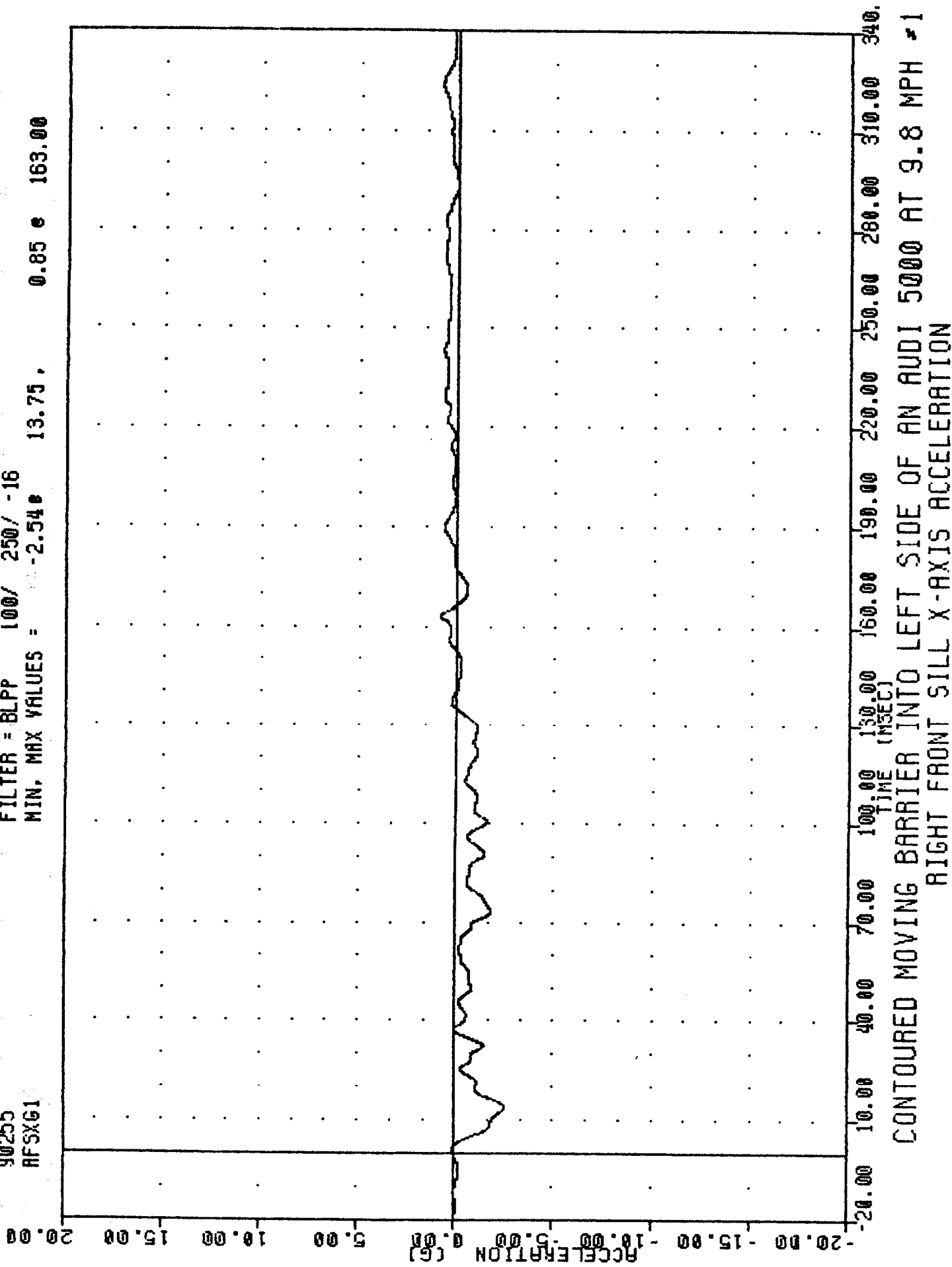
CRASH III DAMAGE ALGORITHM

90255

AFSXG1

FILTER = BLPP 100/ 250/ -16

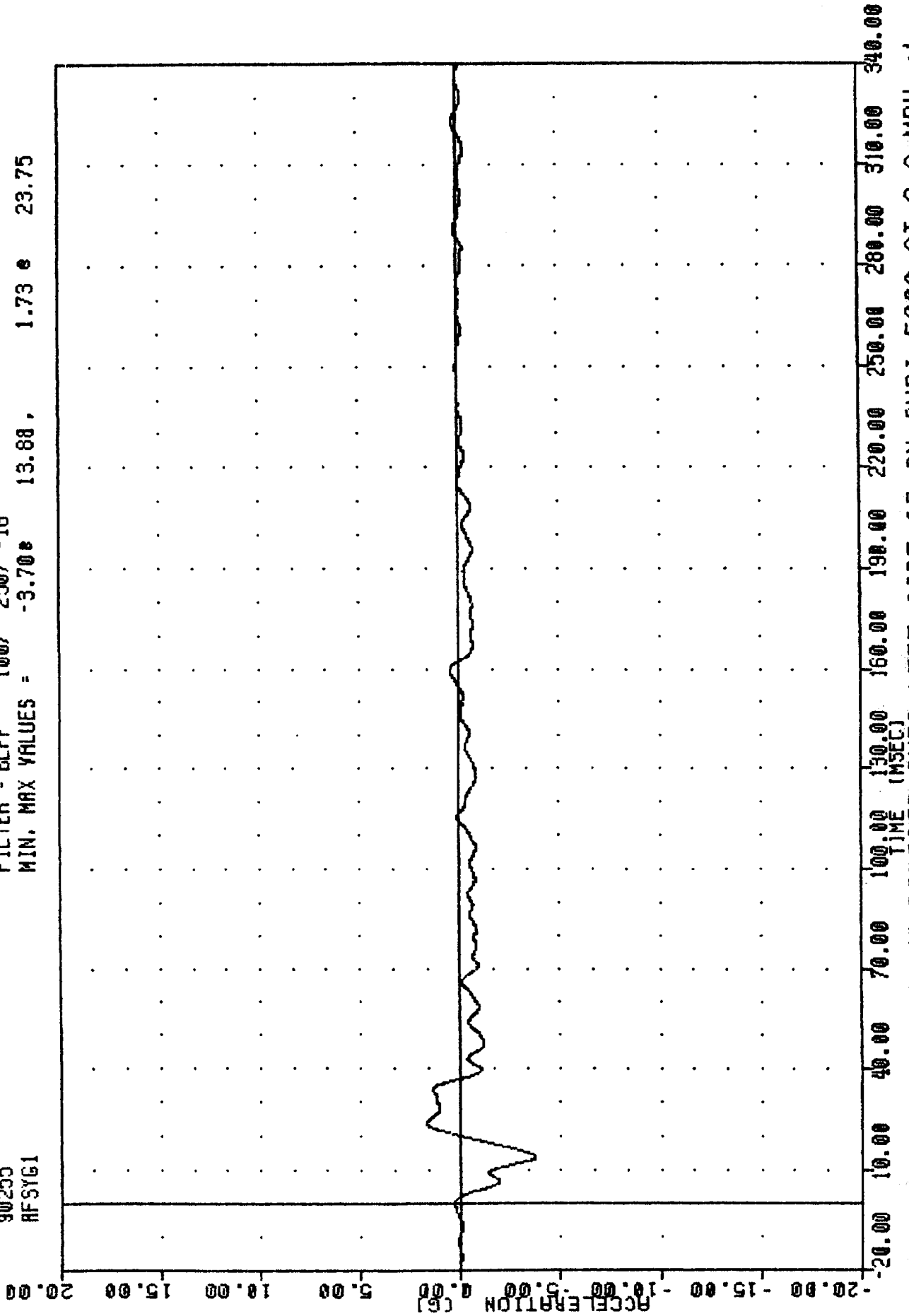
MIN, MAX VALUES = -2.54e 13.75, 0.85 e 163.00



CONTOURED MOVING BARRIER INTO LEFT SIDE OF AN AUDI 5000 AT 9.8 MPH #1
RIGHT FRONT SILL X-AXIS ACCELERATION

900912-1 , TRC
CRASH III DAMAGE ALGORITHM
90255
AFSYG1

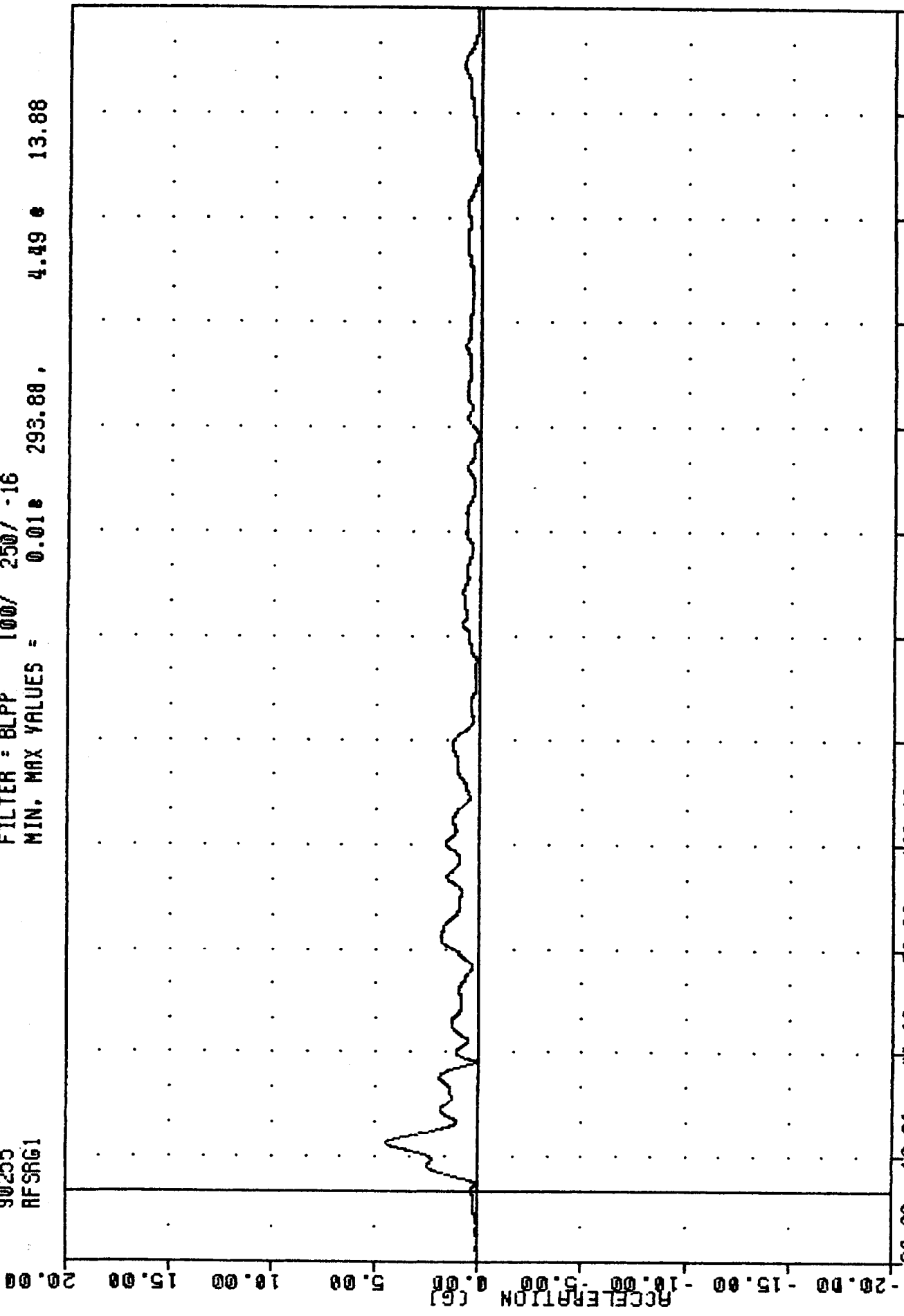
FILTER = BLPP 100/ 250/ -16
MIN. MAX VALUES = -3.70e 13.88, 1.73 e 23.75



CONTOURED MOVING BARRIER INTO LEFT SIDE OF AN AUDI 5000 AT 9.8 MPH *1
RIGHT FRONT SILL Y-AXIS ACCELERATION

CRASH III DAMAGE ALGORITHM
 90255
 RFSRG1

FILTER = BLPP 100/ 250/ -16
 MIN. MAX VALUES = 0.01 293.88, 4.49 13.88

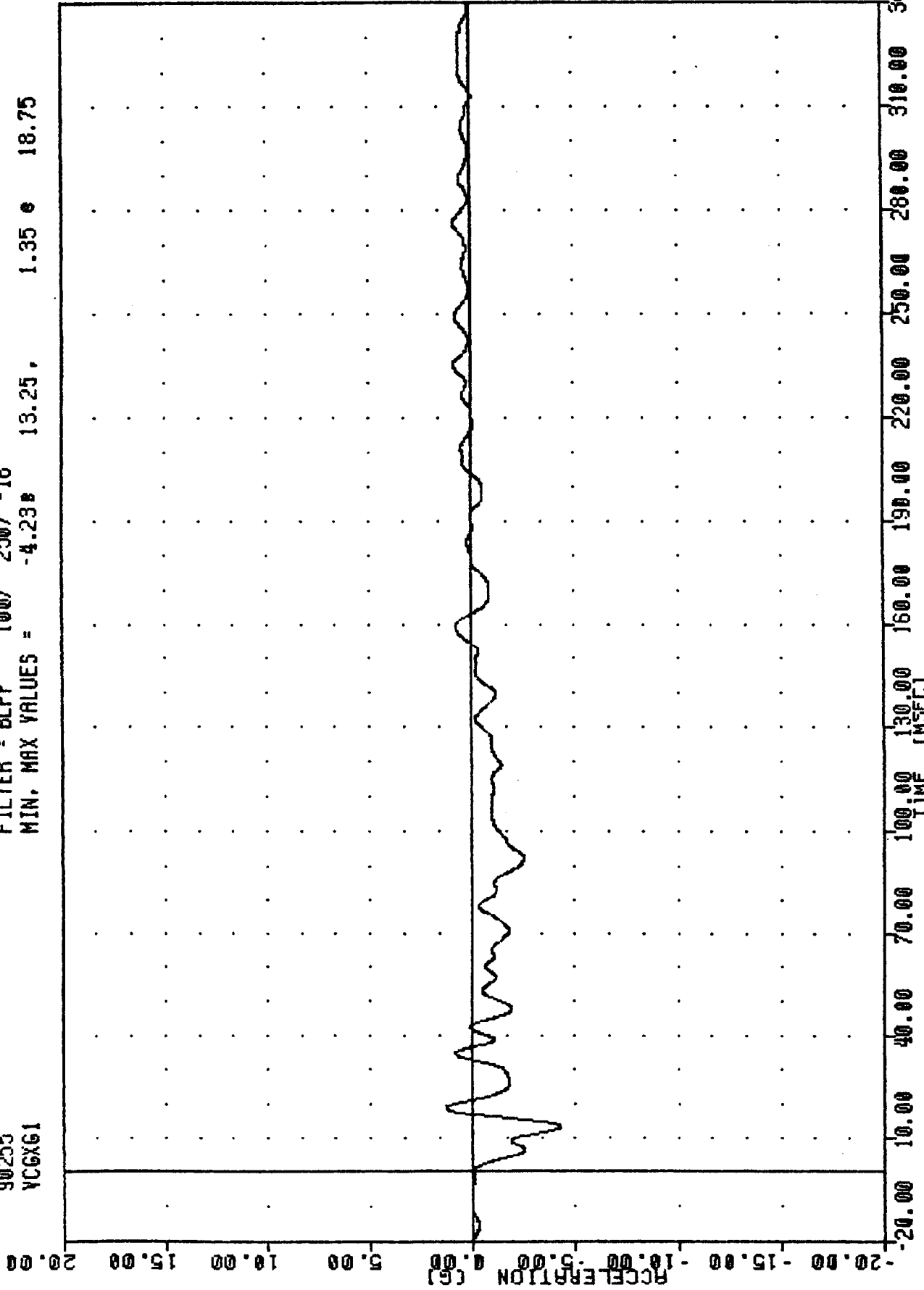


B5

-20.00 10.00 40.00 70.00 100.00 130.00 160.00 190.00 220.00 250.00 280.00 310.00 340.00
 TIME (MSEC)
 CONTOURED MOVING BARRIER INTO LEFT SIDE OF AN AUDI 5000 AT 9.8 MPH #1
 RIGHT FRONT SILL RESULTANT ACCELERATION

900912-1 . IRL
 CRASH III DAMAGE ALGORITHM
 90255
 YCGXG1

FILTER = BLPP 100/ 250/ -16
 MIN. MAX VALUES = -4.238 13.25, 1.35 e 18.75



CONTOURED MOVING BARRIER INTO LEFT SIDE OF AN AUDI 5000 AT 9.8 MPH #1
 VEHICLE CG X-AXIS ACCELERATION (IMPACT DIRECTION)

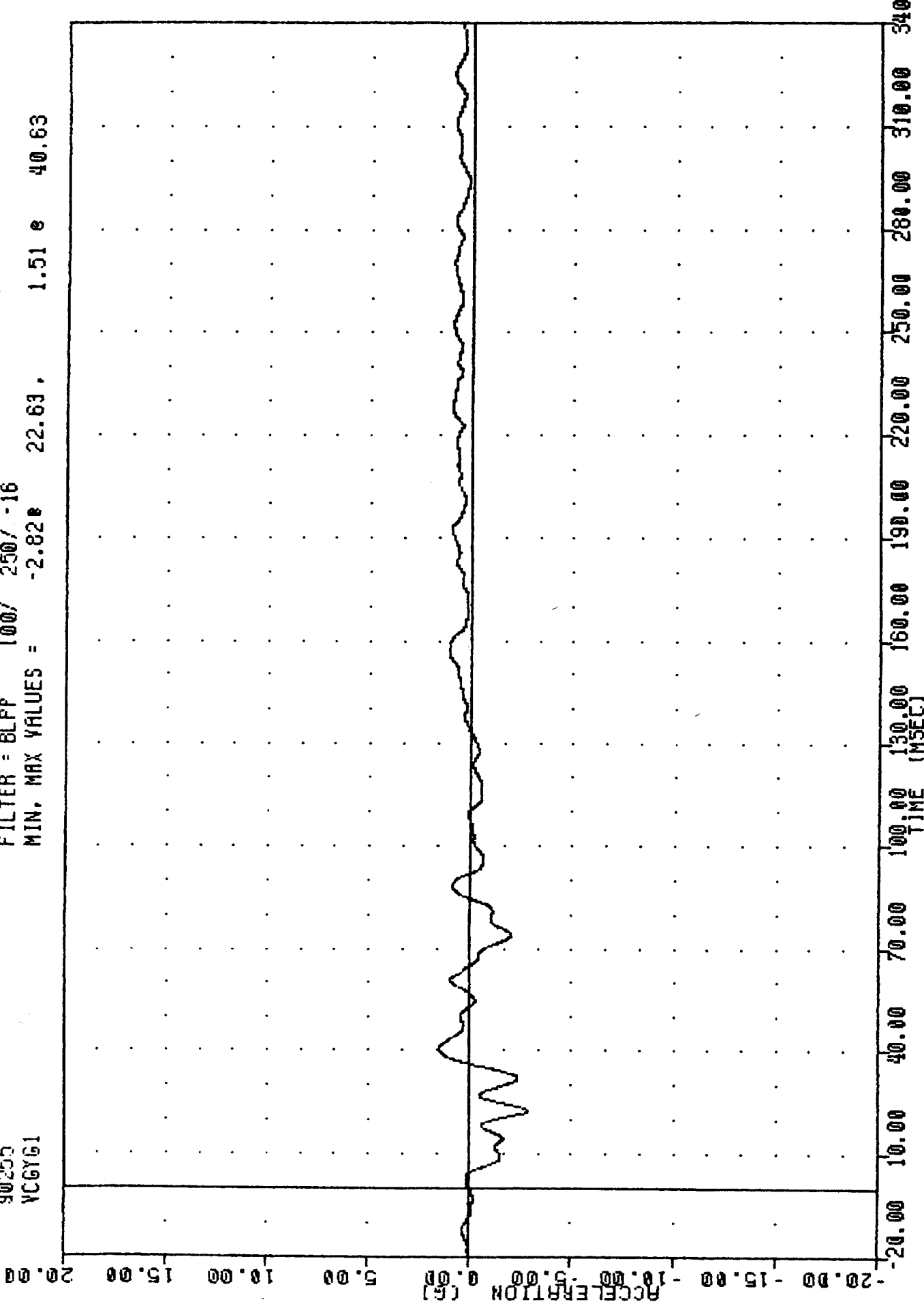
CRASH III DAMAGE ALGORITHM

90255

YCGY61

FILTER = BLPF 100/ 250/ -16

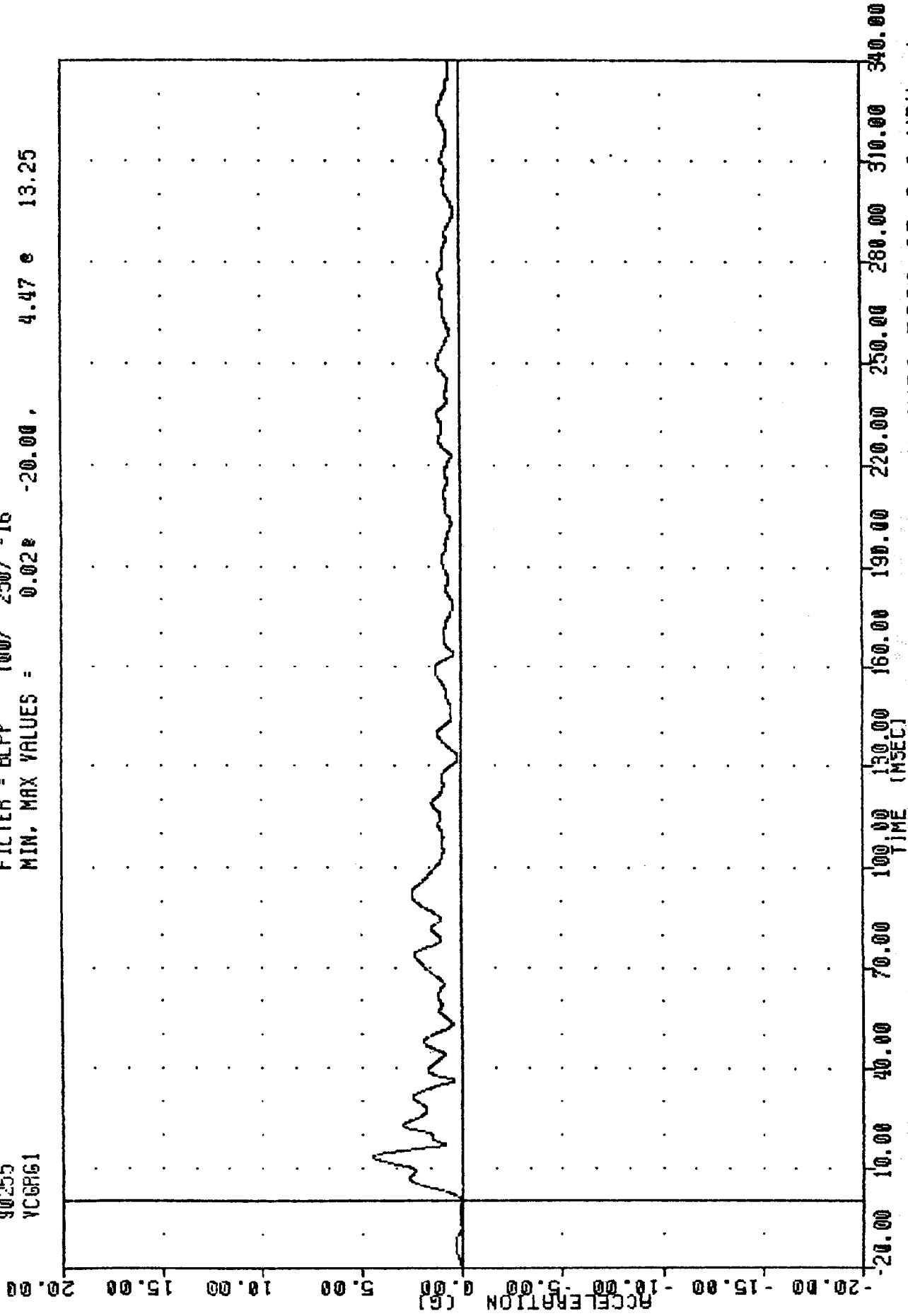
MIN. MAX VALUES = -2.82 e 22.63, 1.51 e 40.63



CONTOURED MOVING BARRIER INTO LEFT SIDE OF AN AUDI 5000 AT 9.8 MPH #1
VEHICLE CG Y-AXIS ACCELERATION (PERPENDICULAR TO IMPACT DIRECTION)

900412-1 , TRC
CRASH III DAMAGE ALGORITHM
90255
YCGR61

FILTER = BLPP 100/ 250/ -16
MIN. MAX VALUES = 0.02 e -20.00 , 4.47 e 13.25



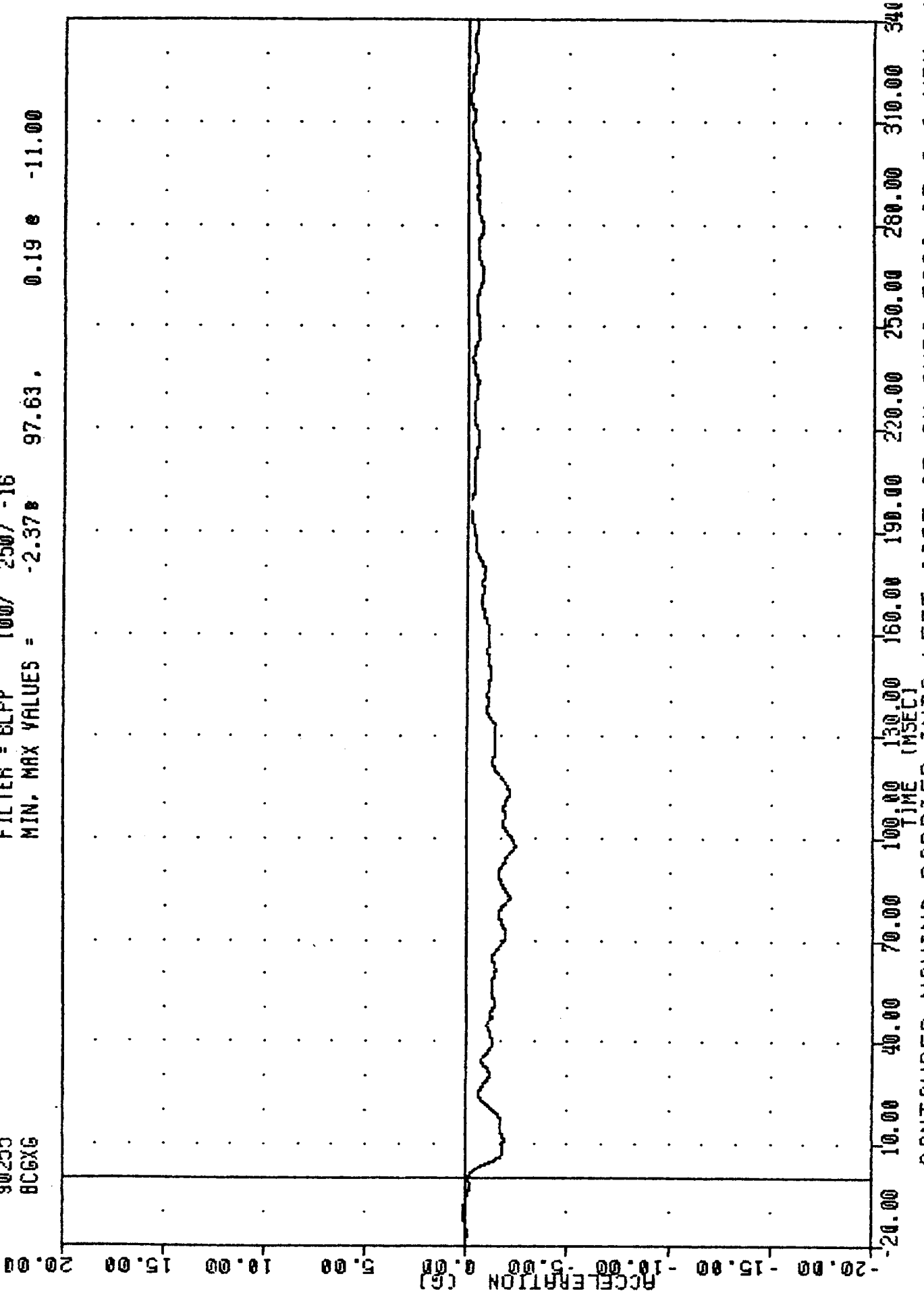
CONTOURED MOVING BARRIER INTO LEFT SIDE OF AN AUDI 5000 AT 9.8 MPH ±1
VEHICLE CG RESULTANT ACCELERATION

CRASH III DAMAGE ALGORITHM

90255
BCGXG

FILTER = BLPP 100/ 250/ -16
MIN. MAX VALUES = -2.378 97.63,

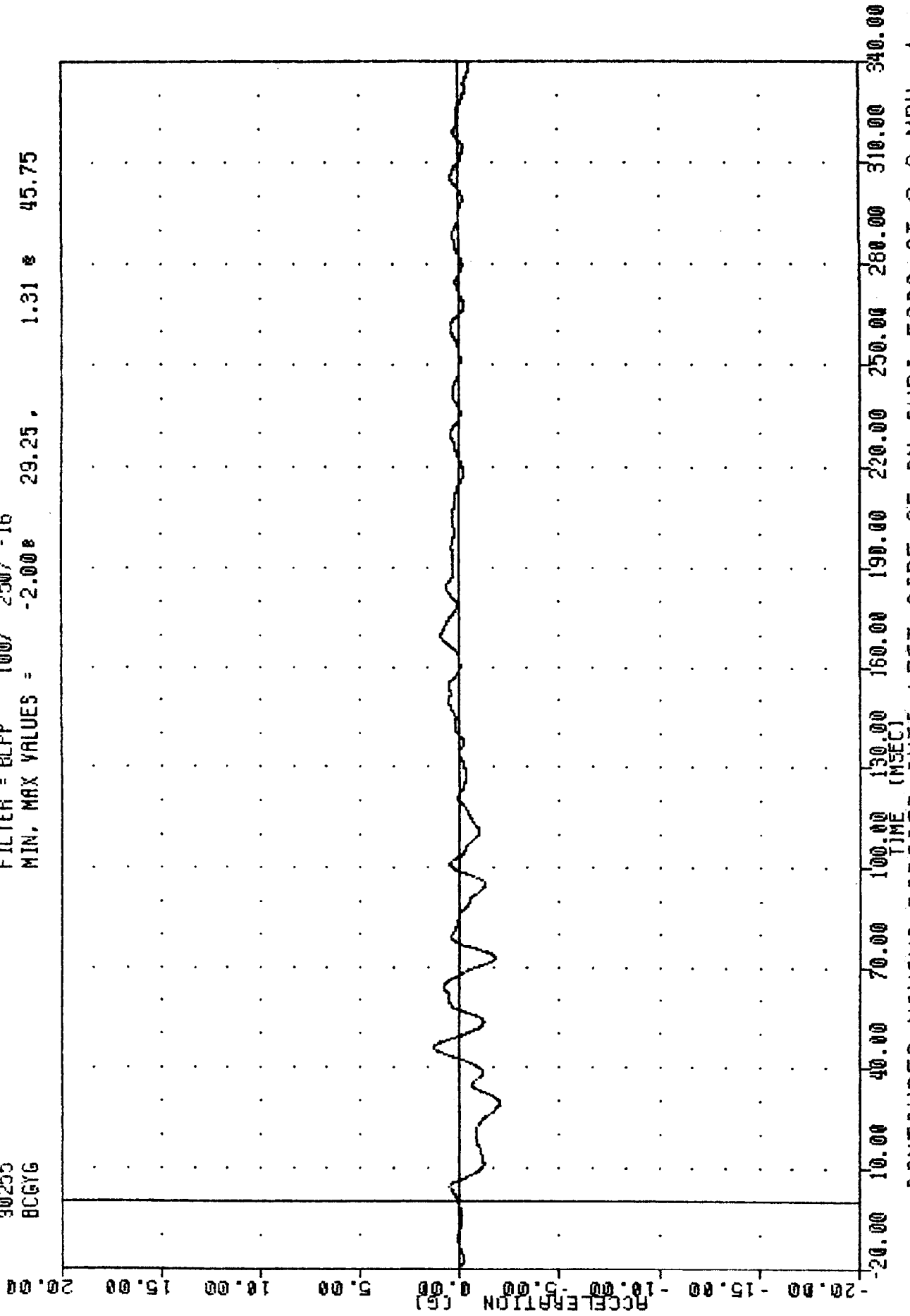
0.19 e -11.00



CONToured MOVING BARRIER INTO LEFT SIDE OF AN AUDI 5000 AT 9.8 MPH *1
MOVING BARRIER CENTER OF GRAVITY X-AXIS ACCELERATION

300012-1 , TRC
 CRASH III DAMAGE ALGORITHM
 30255
 BCGYG

FILTER = BLPP 100/ 250/ -16
 MIN, MAX VALUES = -2.00e 29.25, 1.31 e 45.75



B10

CONTOURED MOVING BARRIER INTO LEFT SIDE OF AN AUDI 5000 AT 9.8 MPH *1
 MOVING BARRIER CENTER OF GRAVITY Y-AXIS ACCELERATION

CHASH III DAMAGE ALGORITHM

90255

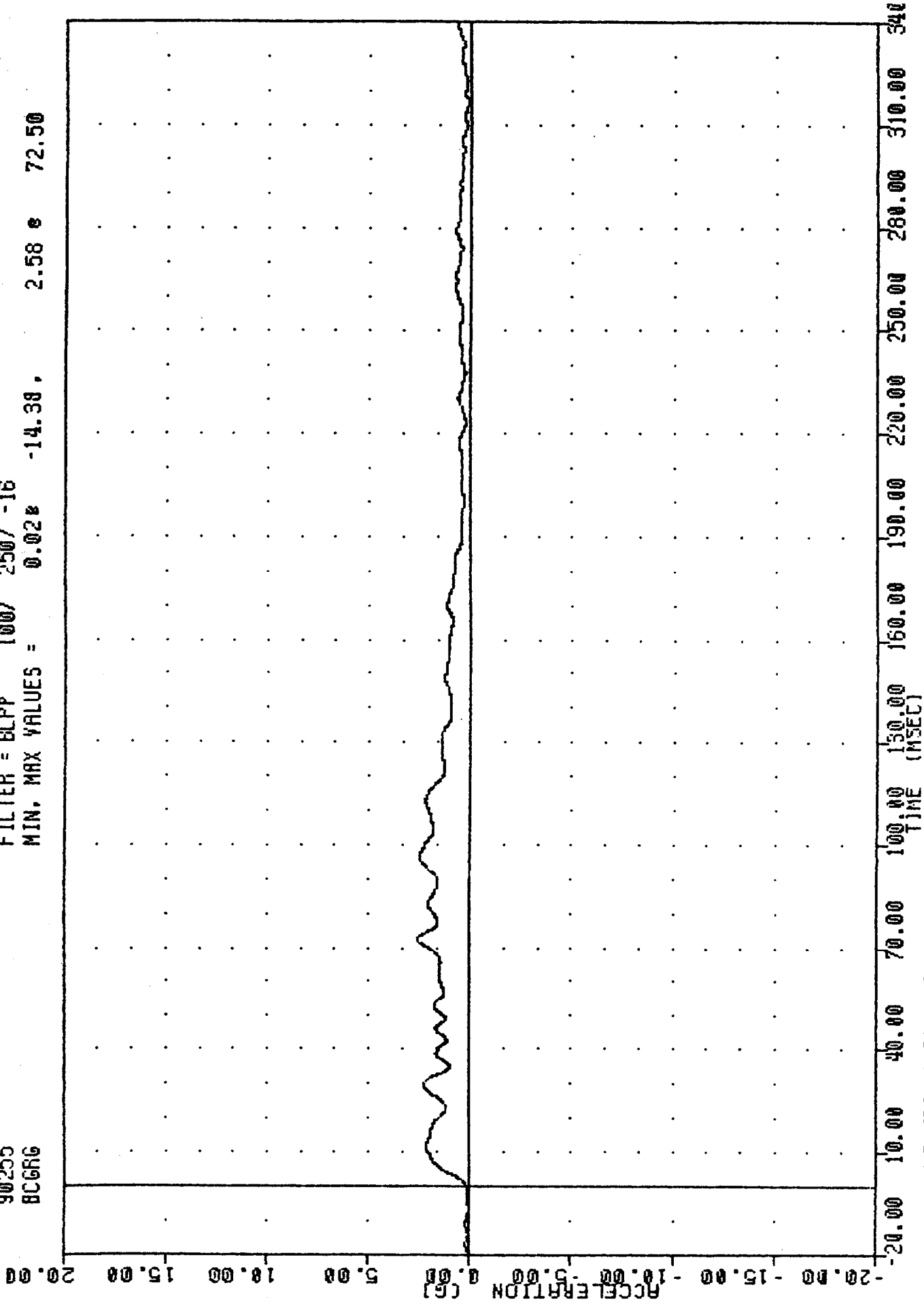
BCGRG

FILTER = BLPP 100/ 250/ -16

MIN. MAX VALUES = 0.028 -14.38

2.58

72.50

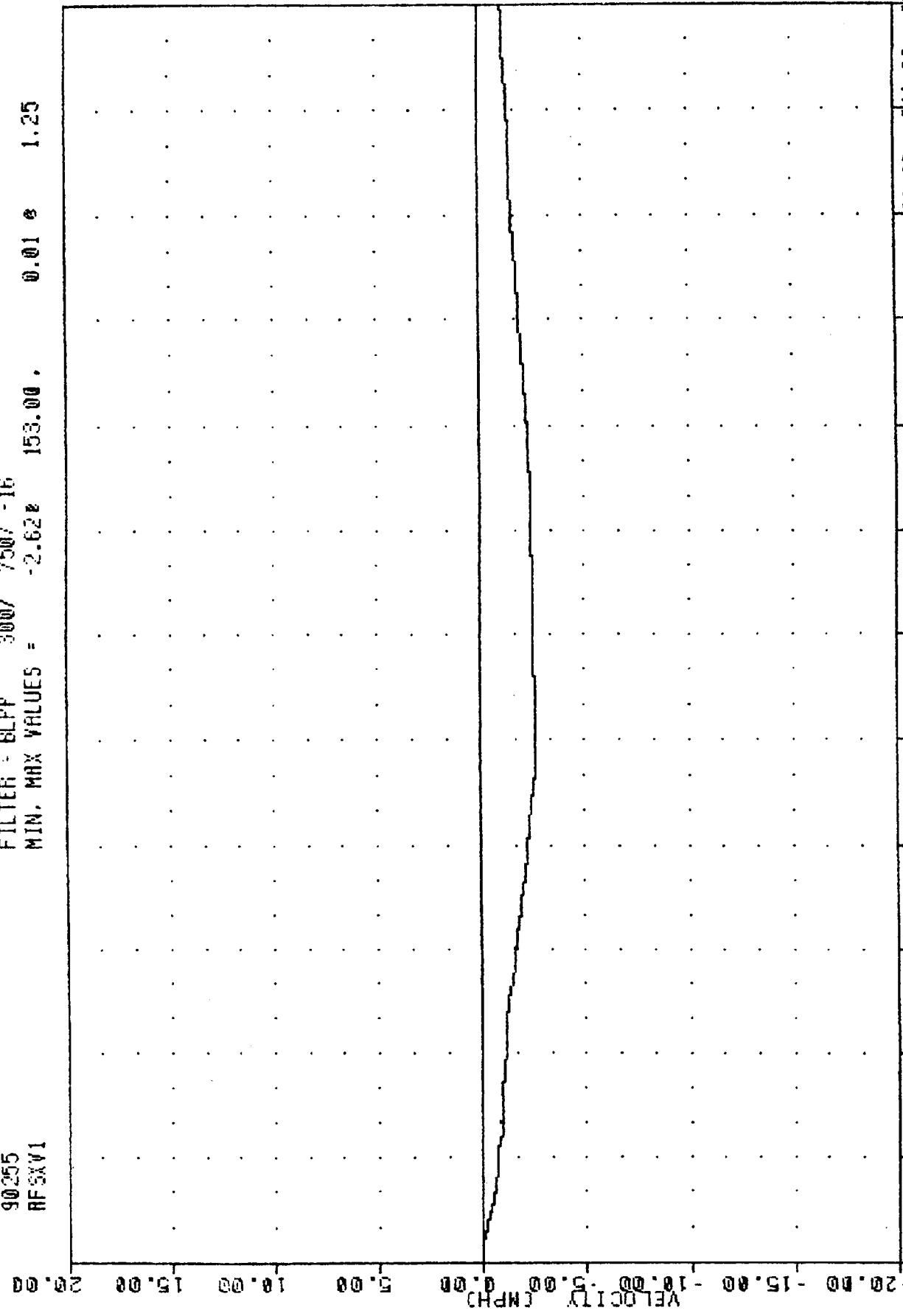


111

CONTOURED MOVING BARRIER INTO LEFT SIDE OF AN AUDI 5000 AT 9.8 MPH ±1
MOVING BARRIER CENTER OF GRAVITY RESULTANT ACCELERATION

900912-1 , TIC
 CRASH III DAMAGE ALGORITHM
 90255
 RFSXV1

FILTER - BLPF 300/ 750/ -16
 MIN. MAX VALUES = -2.62 153.00 , 0.01 e 1.25



CONTOURED MOVING BARRIER INTO LEFT SIDE OF AN AUDI 5000 AT 9.8 MPH *1
 RIGHT FRONT SILL X-AXIS VELOCITY

CRASH III DAMAGE ALGORITHM

90255

RFSYV1

FILTER = BLPP 300/ 750/ -16

MIN. MAX VALUES = -2.39e 340.00, 0.02 e 3.00

20.00

15.00

10.00

5.00

0.00

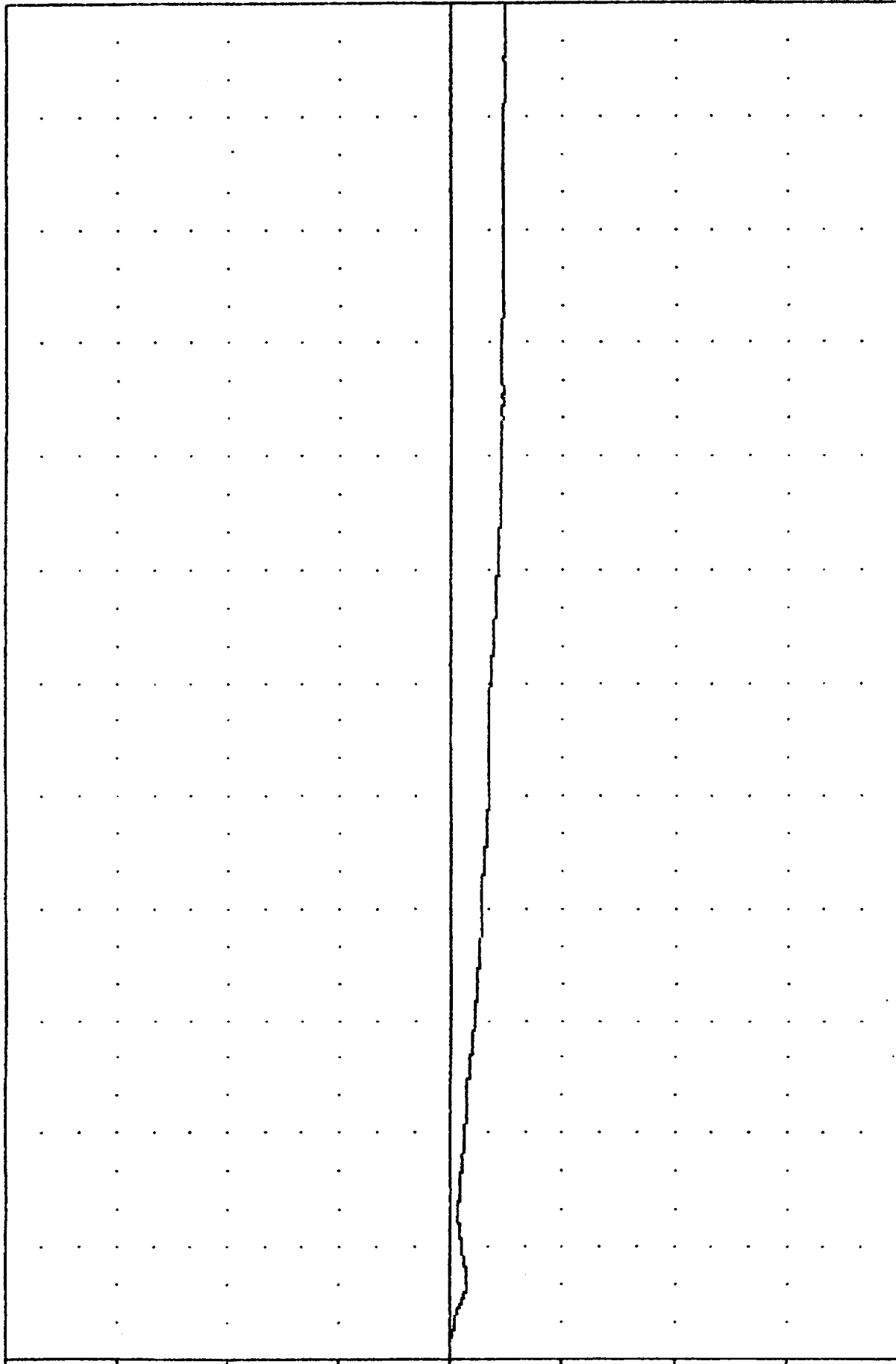
-5.00

-10.00

-15.00

-20.00

813



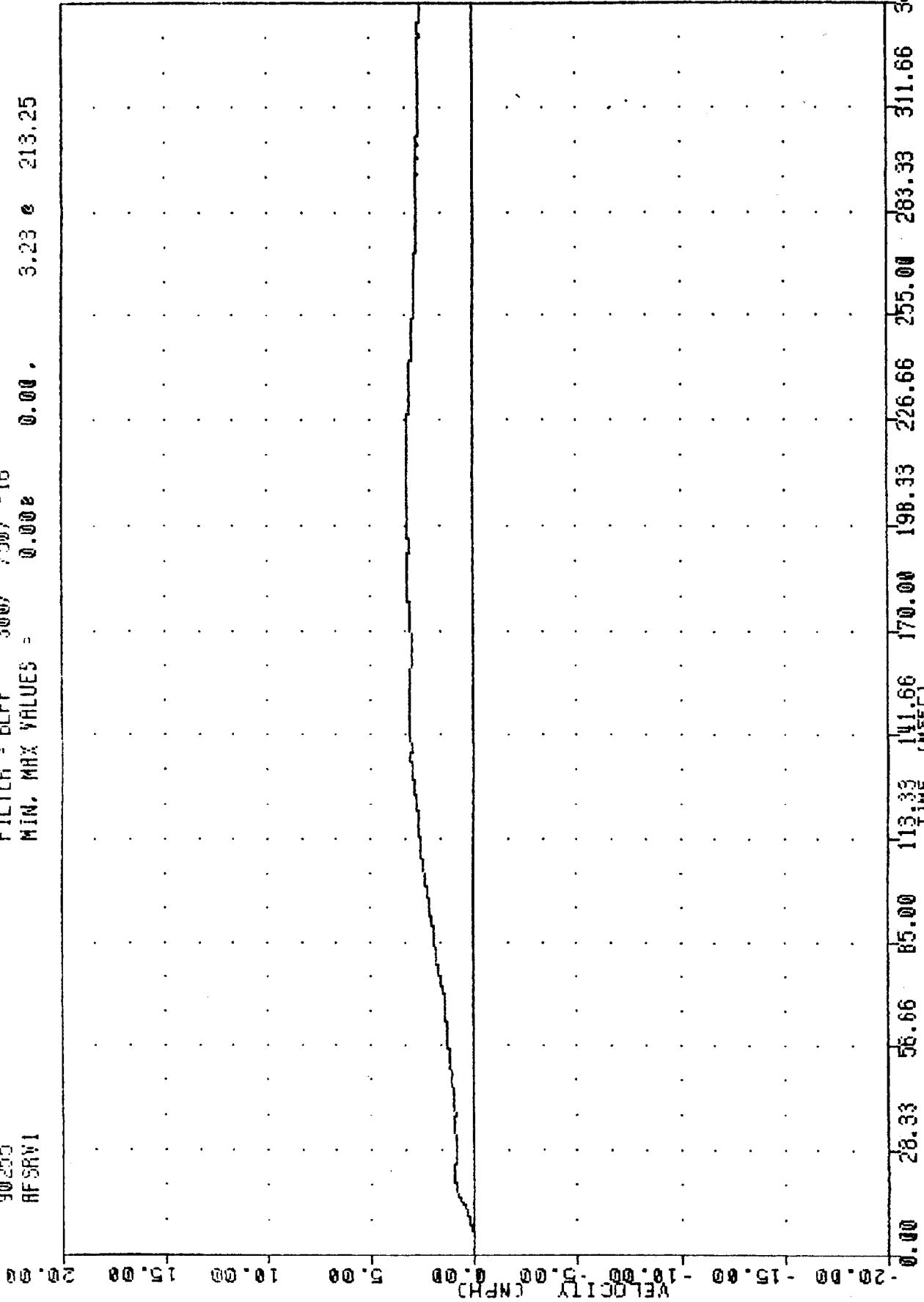
0.00 26.33 56.66 85.00 113.33 141.66 170.00 198.33 226.66 255.00 283.33 311.66 340.00

TIME (MSEC)

CONTOURED MOVING BARRIER INTO LEFT SIDE OF AN AUDI 5000 AT 9.8 MPH
 RIGHT FRONT SILL Y-AXIS VELOCITY

90012 I . THE
 CRASH III DAMAGE ALGORITHM
 90255
 RFSRVI

FILTER = BLPP 300/ 750/ -16
 MIN. MAX VALUES = 0.00 0.00 3.23 e 213.25



CONTOURED MOVING BARRIER INTO LEFT SIDE OF AN AUDI 5000 AT 9.8 MPH #1
 RIGHT FRONT SILL RESULTANT VELOCITY

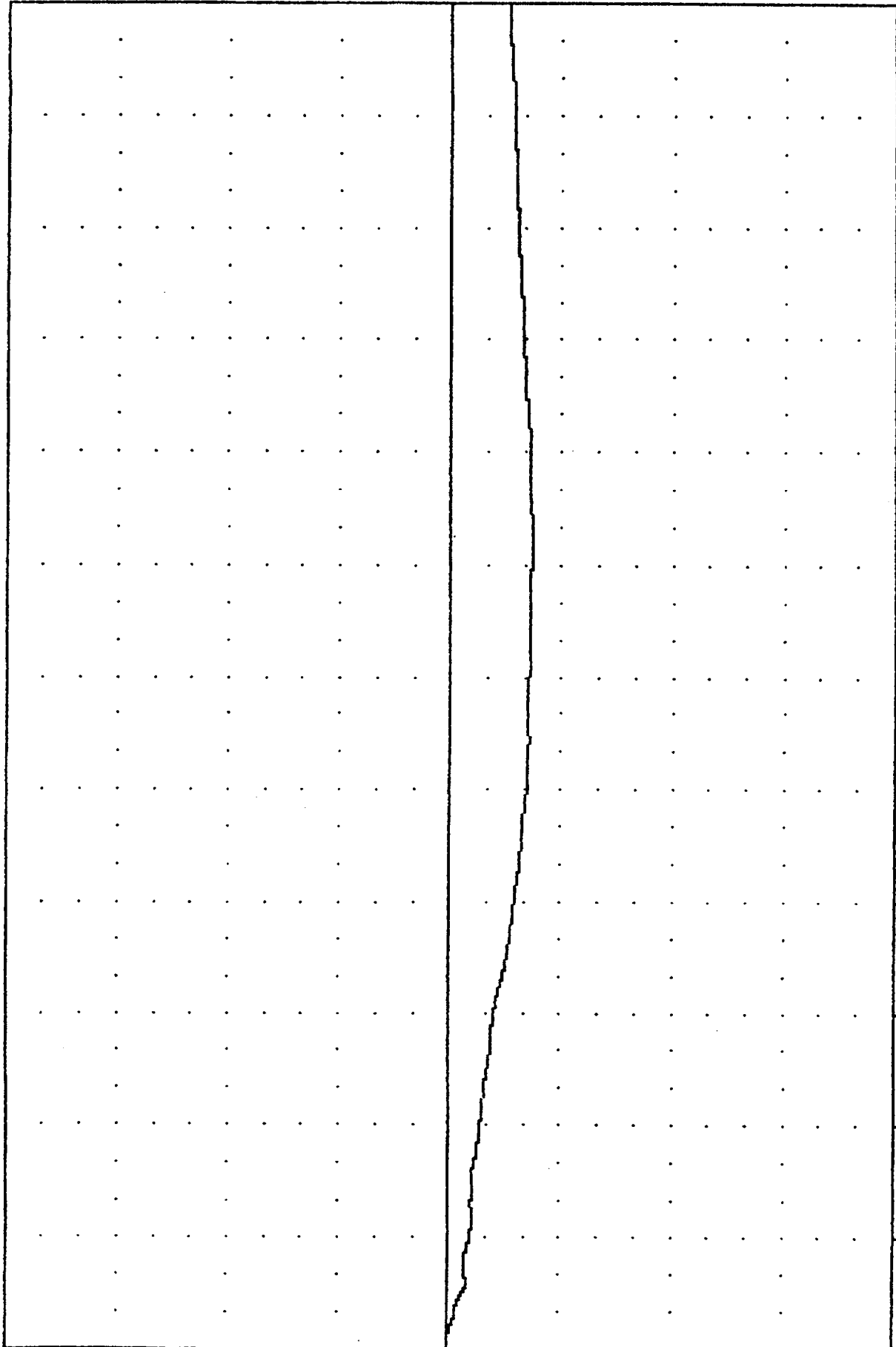
90255
VCGXV1

FILTER = BLPP 300/ 750/ -16

MIN. MAX VALUES = -3.69 204.13, 0.01 e 1.00

20.00
15.00
10.00
5.00
0.00
-5.00
-10.00
-15.00
-20.00

VELOCITY (MPH)

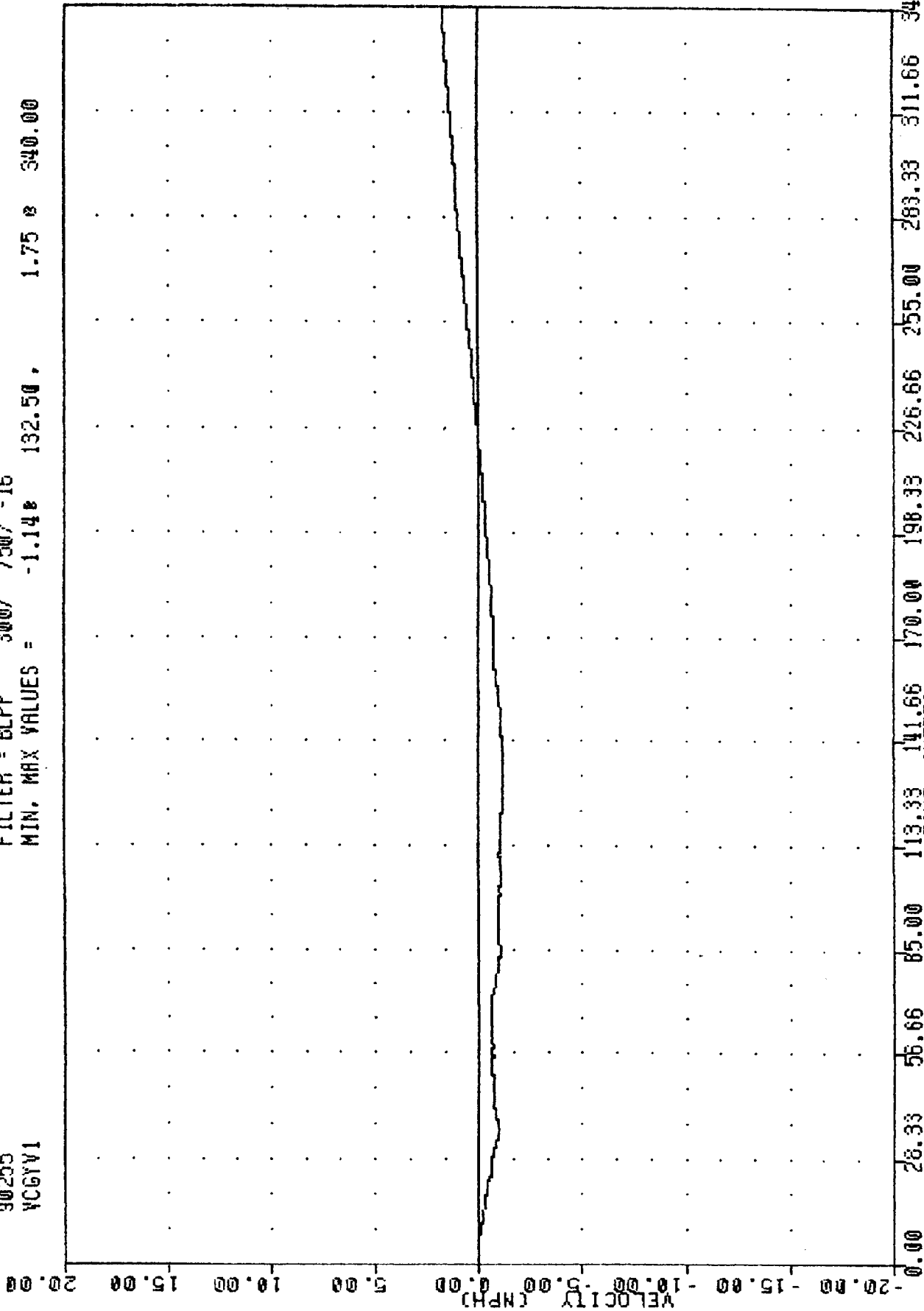


0.00 28.33 56.66 85.00 113.33 141.66 170.00 198.33 226.66 255.00 283.33 311.66 340.00

CONToured MOVING BARRIER INTO LEFT SIDE OF AN AUDI 5000 AT 9.8 MPH #1
VEHICLE CG X-AXIS VELOCITY (IMPACT DIRECTION)

900912-1 , TRC
 CRASH III DAMAGE ALGORITHM
 90255
 YCGYV1

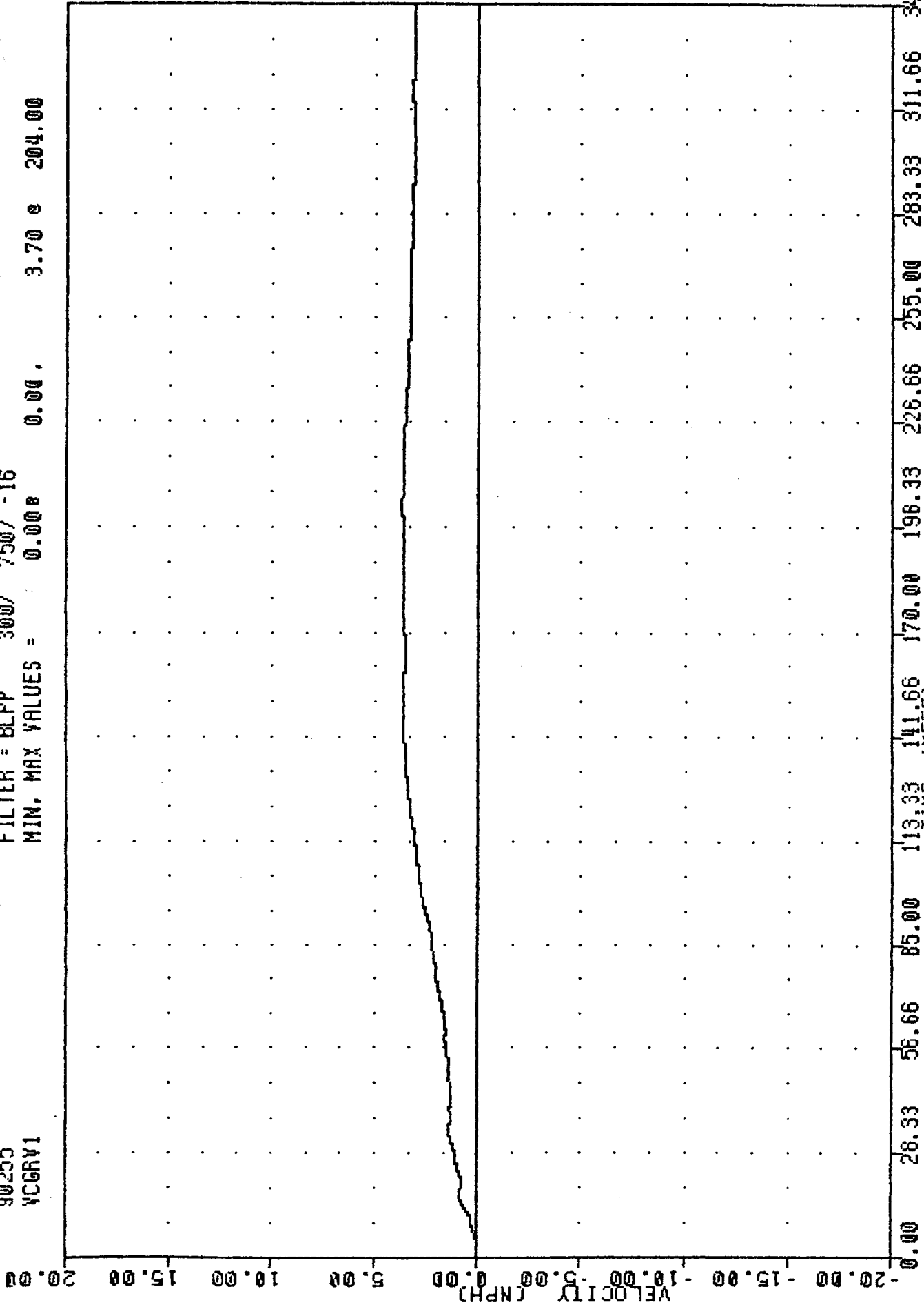
FILTER = BLPP 300/ 750/ -16
 MIN, MAX VALUES = -1.148 192.50 , 1.75 8 340.00



CONTOURED MOVING BARRIER INTO LEFT SIDE OF AN AUDI 5000 AT 9.8 MPH *1
 VEHICLE CG Y-AXIS VELOCITY (PERPENDICULAR TO IMPACT DIRECTION)

CRASH III DAMAGE ALGORITHM
 90255
 YCGRV1

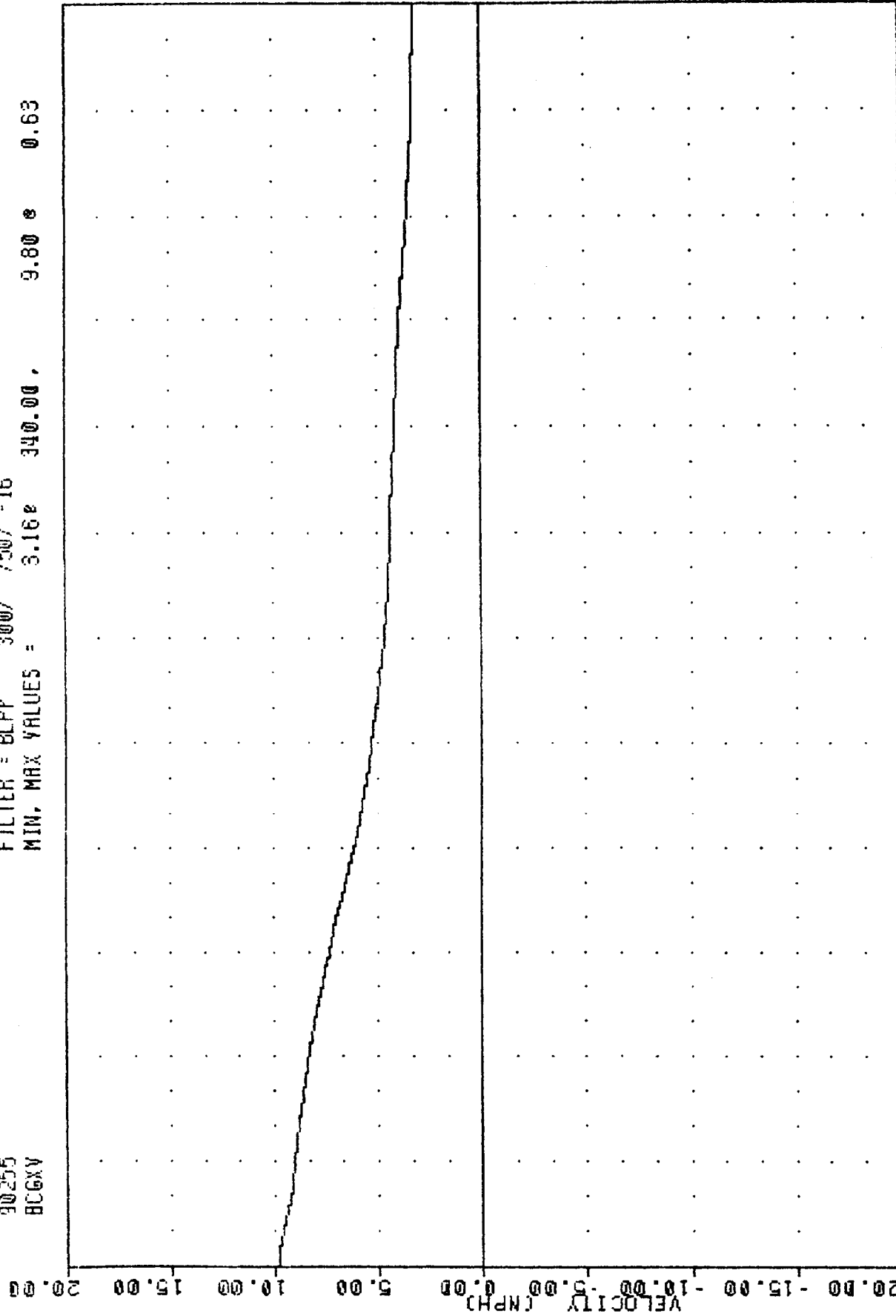
FILTER = BLPP 300/ 750/ -16
 MIN. MAX VALUES = 0.00e 0.00, 3.70 e 204.00



CONTOURED MOVING BARRIER INTO LEFT SIDE OF AN AUDI 5000 AT 9.8 MPH ±1
 VEHICLE CG RESULTANT VELOCITY

900912-1 , THE
 CRASH III DAMAGE ALGORITHM
 90255
 BCGXV

FILTER = BLFF 300/ 750/ -16
 MIN, MAX VALUES = 3.16e 9.80e 0.63



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)

CONTOURED MOVING BARRIER INTO LEFT SIDE OF AN AUDI 5000 AT 9.8 MPH ±1
 MOVING BARRIER CENTER OF GRAVITY X-AXIS VELOCITY

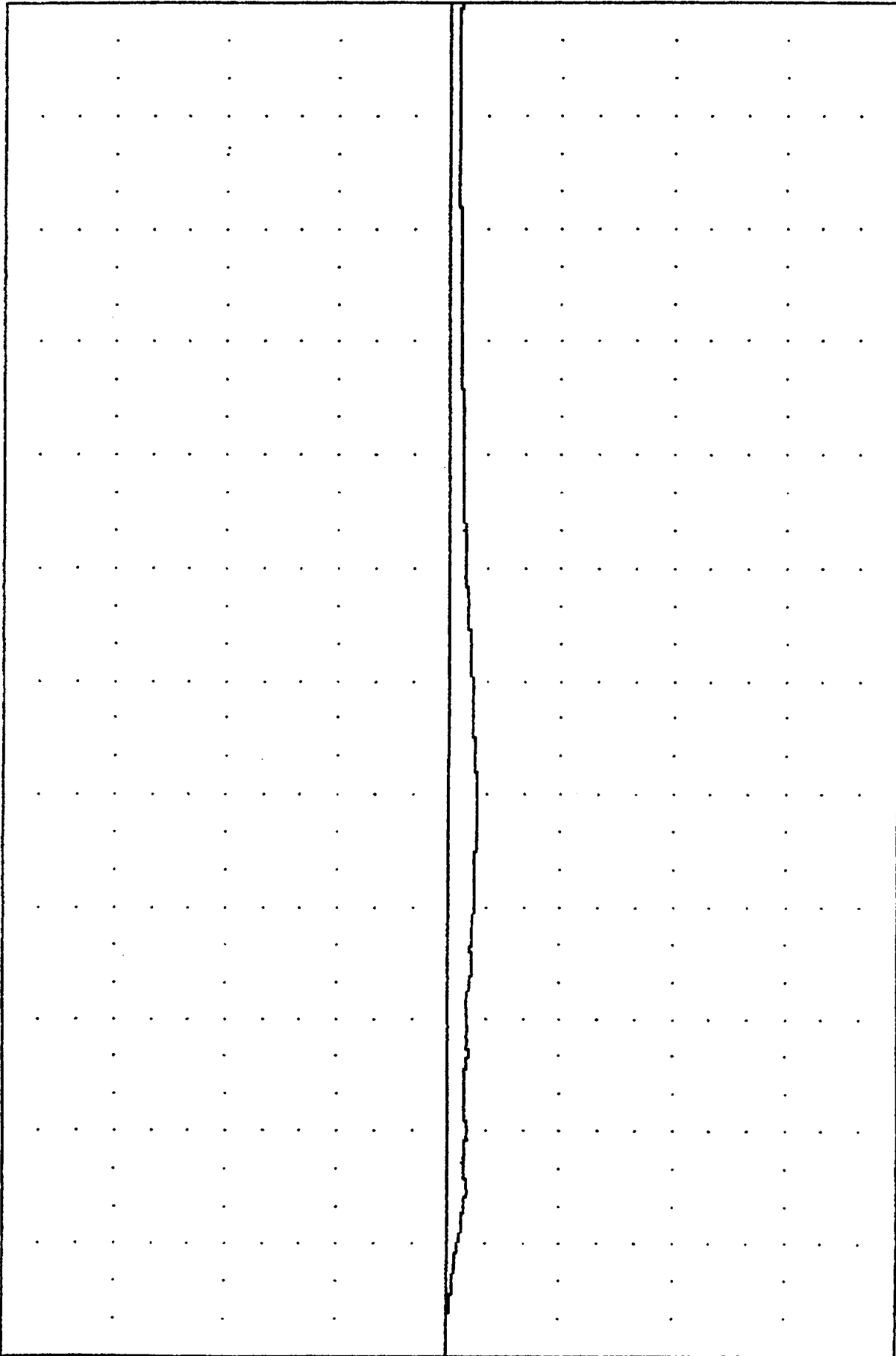
CRASH III DAMAGE ALGORITHM

90255
BCGYV

FILTER = BLPP 300/ 750/ -16

MIN. MAX VALUES = -1.24e 139.38, 0.06 e 6.38

20.00
15.00
10.00
5.00
0.00
-5.00
-10.00
-15.00
-20.00



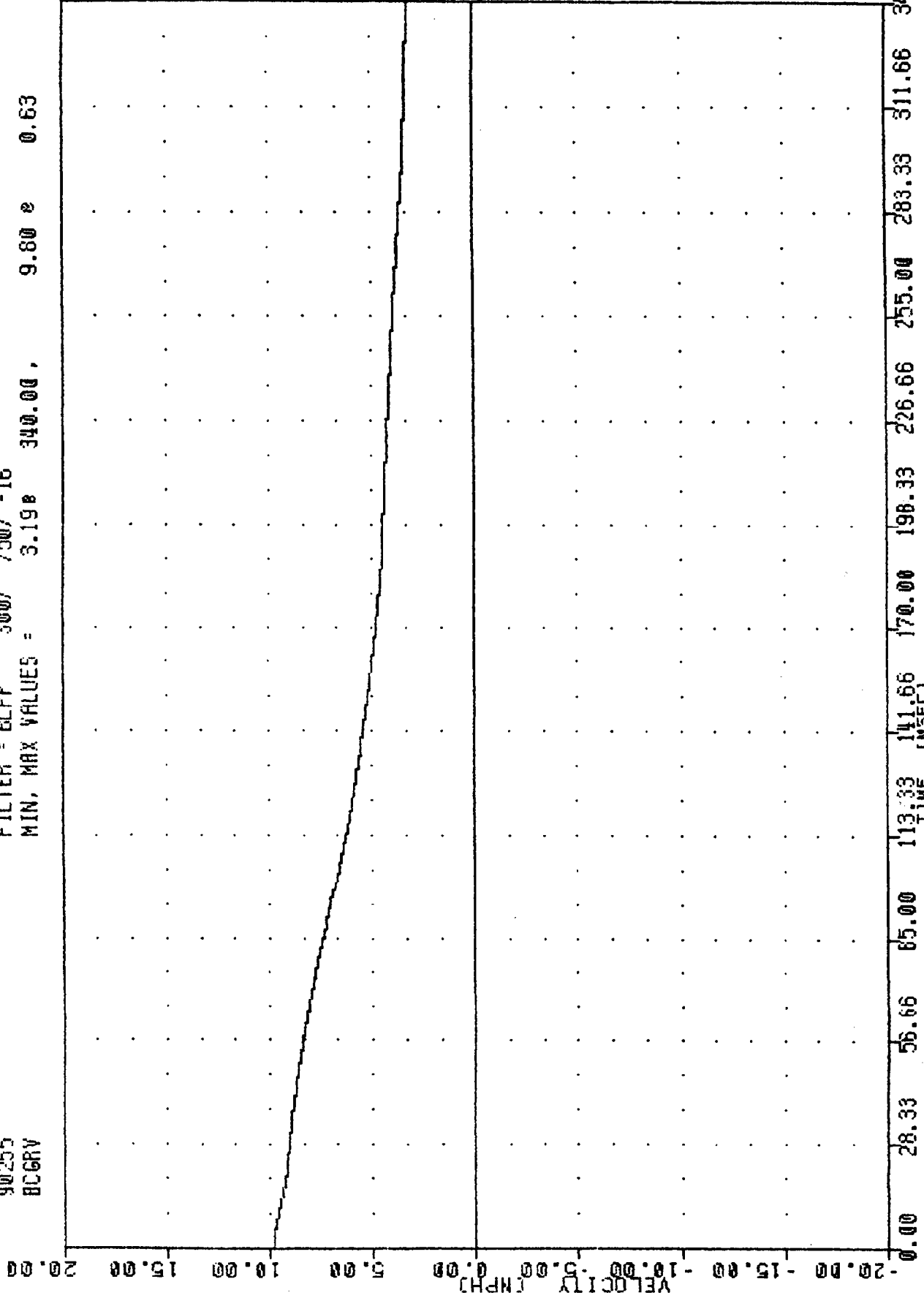
0.00 28.33 56.66 85.00 113.33 141.66 170.00 198.33 226.66 255.00 283.33 311.66 340

TIME (MSEC)

CONTOURED MOVING BARRIER INTO LEFT SIDE OF AN AUDI 5000 AT 9.8 MPH #1
MOVING BARRIER CENTER OF GRAVITY Y-AXIS VELOCITY

900912-1 , TRC
 CRASH III DAMAGE ALGORITHM
 90255
 BCGRV

FILTER = ELPP 300/ 750/ -16
 MIN, MAX VALUES = 3.198 340.00 , 9.80 e 0.63



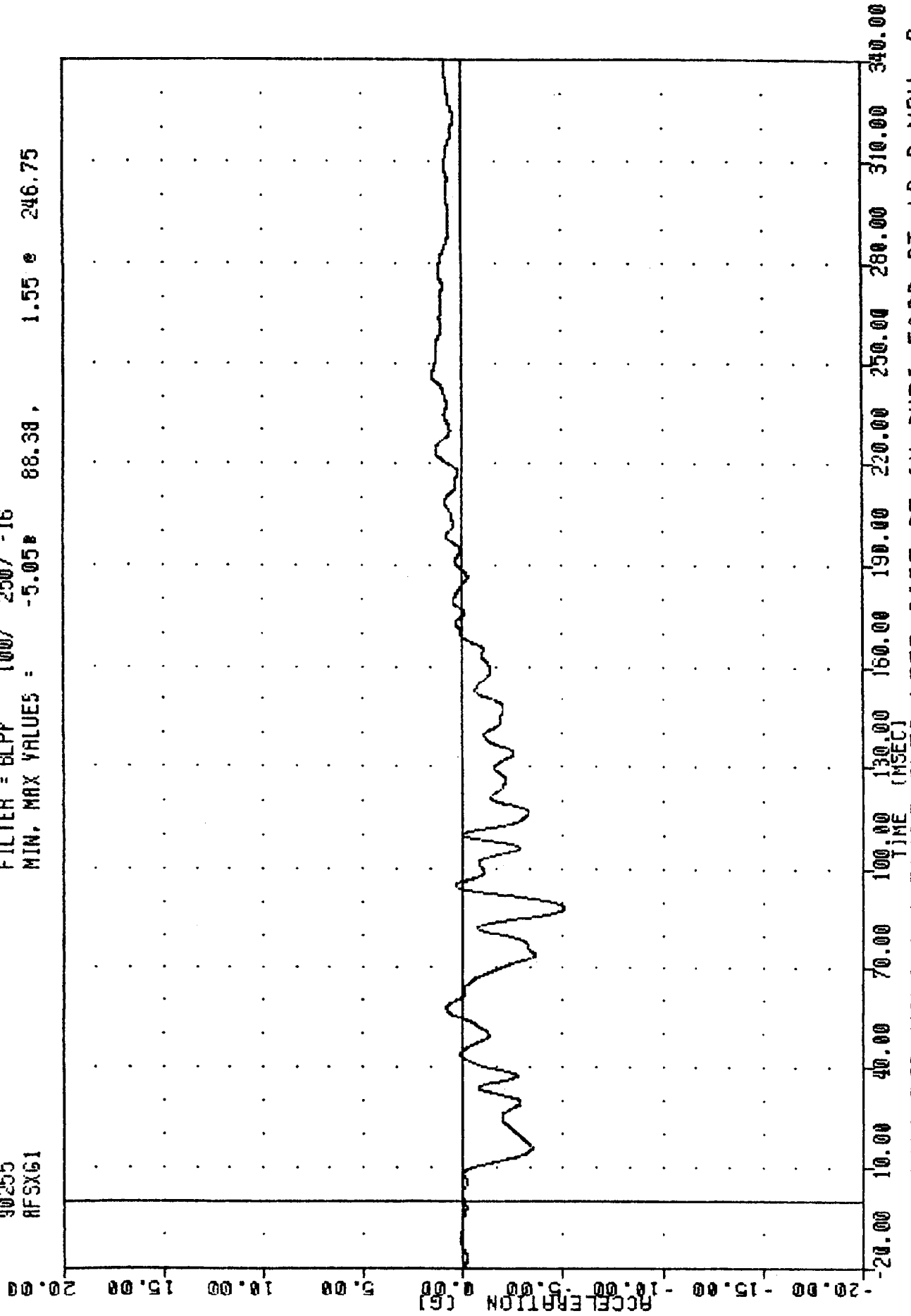
CONTOURED MOVING BARRIER INTO LEFT SIDE OF AN AUDI 5000 AT 9.8 MPH *1
 MOVING BARRIER CENTER OF GRAVITY RESULTANT VELOCITY

TEST #900912-2

B21

900912-2 , TRC
CRASH III DAMAGE ALGORITHM
90255
AFSXG1

FILTER = BLPP 100/ 250/ -16
MIN, MAX VALUES = -5.05 88.38 , 1.55 e 246.75



CONTOURED MOVING BARRIER INTO LEFT SIDE OF AN AUDI 5000 AT 19.8 MPH #2
RIGHT FRONT SILL X-AXIS ACCELERATION

UNASH III CHANGE ALGORITHM

90255

RFSYG1

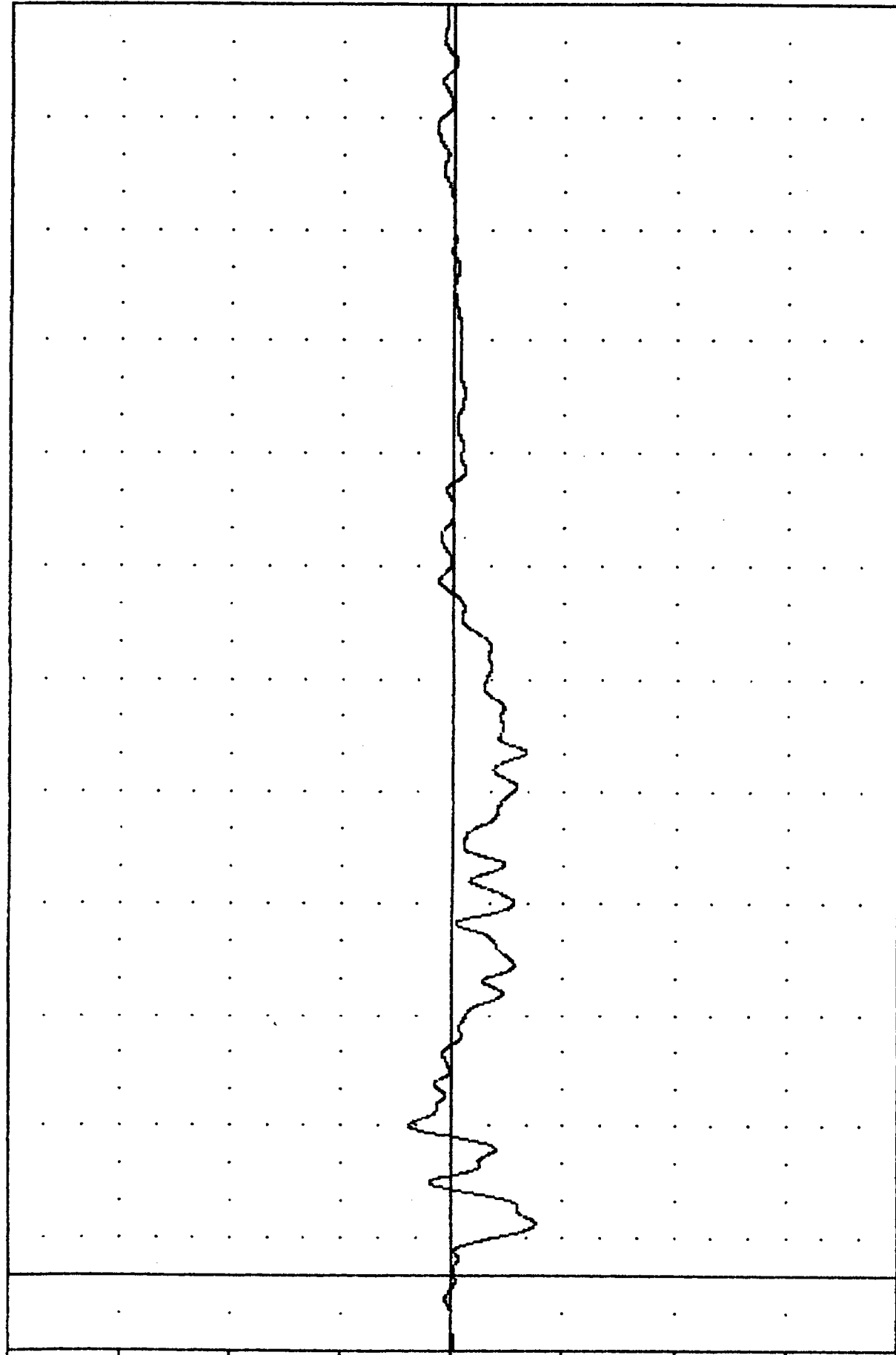
FILTER = BLPP 100/ 250/ -16

MIN. MAX VALUES = -3.75e 13.75,

1.93 e

40.00

ACCELERATION (G)

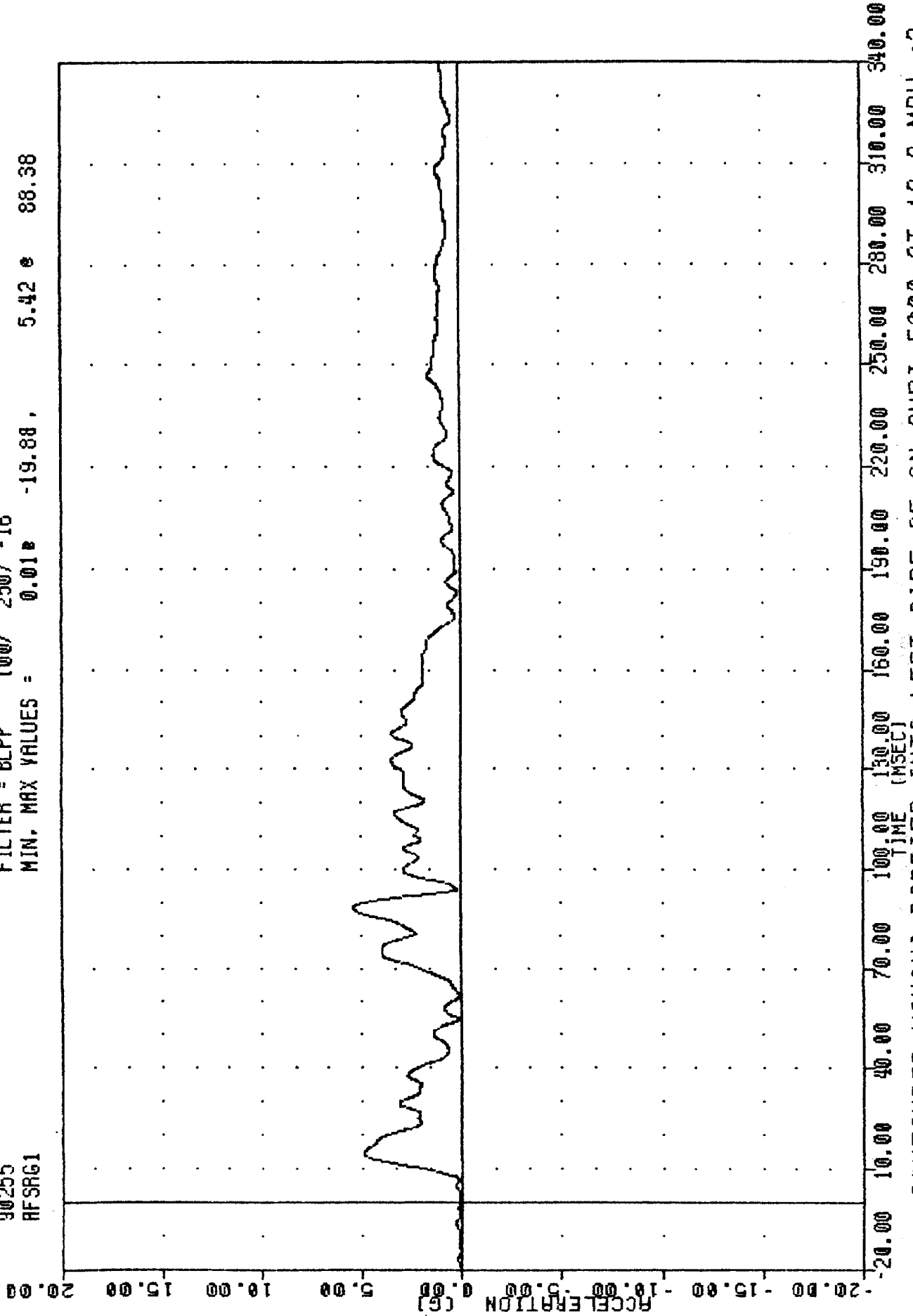


-20.00 10.00 40.00 70.00 100.00 130.00 160.00 190.00 220.00 250.00 280.00 310.00 340

CONToured MOVING BARRIER INTO LEFT SIDE OF AN AUDI 5000 AT 19.8 MPH *
RIGHT FRONT SILL Y-AXIS ACCELERATION

900912-2 , TRC
CRASH III DAMAGE ALGORITHM
90255
RFSRG1

FILTER = BLPP 100/ 250/ -16
MIN. MAX VALUES = 0.01e -19.88 , 5.42 e 88.38



B24

CONTOURED MOVING BARRIER INTO LEFT SIDE OF AN AUDI 5000 AT 19.8 MPH #2
RIGHT FRONT SILL RESULTANT ACCELERATION

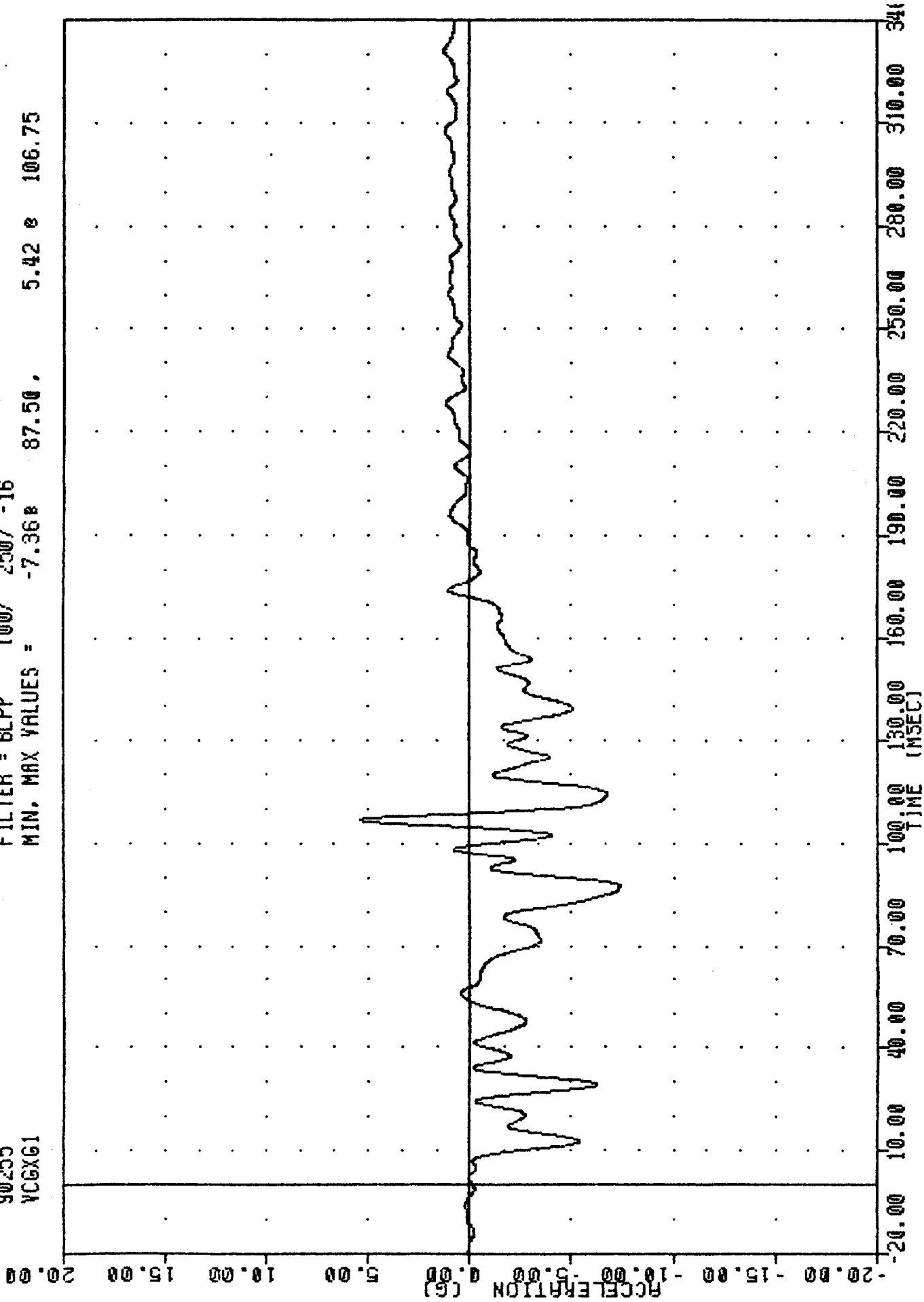
CRASH III DAMAGE ALGORITHM

90255

YCGXG1

FILTER = BLPP 100/ 250/ -16

MIN. MAX VALUES = -7.36 87.50 5.42 106.75

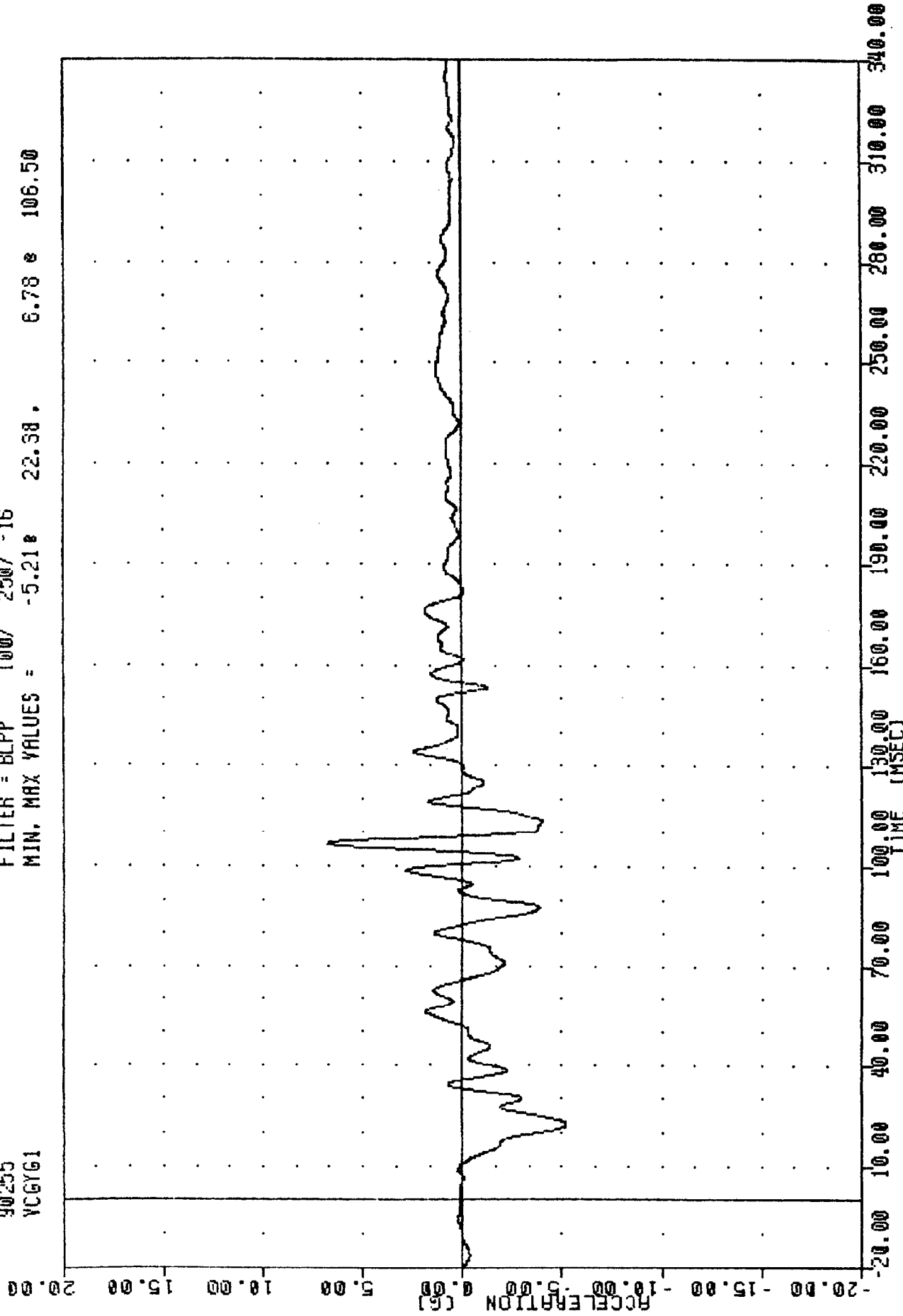


B25

CONTOURED MOVING BARRIER INTO LEFT SIDE OF AN AUDI 5000 AT 19.8 MPH *
VEHICLE CG X-AXIS ACCELERATION (IMPACT DIRECTION)

900912-2 , TRC
CRASH III DAMAGE ALGORITHM
90255
YCGY61

FILTER = BLPP 100/ 250/ -16
MIN. MAX VALUES = -5.21e 22.38 . 6.78 e 106.50

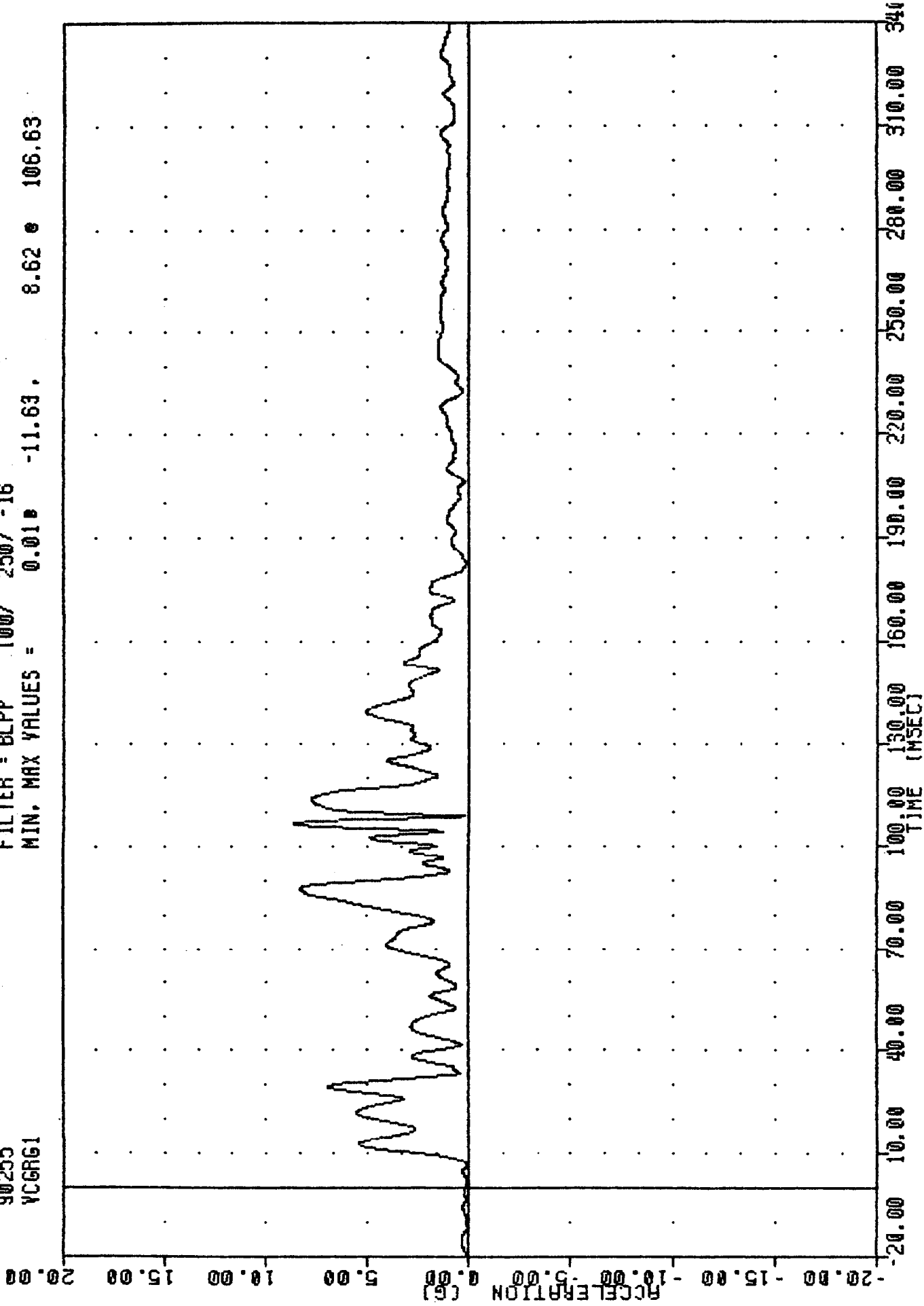


CONToured MOVING BARRIER INTO LEFT SIDE OF AN AUDI 5000 AT 19.8 MPH #2
VEHICLE CG Y-AXIS ACCELERATION (PERPENDICULAR TO IMPACT DIRECTION)

CRASH III DAMAGE ALGORITHM

90255
YCGRG1

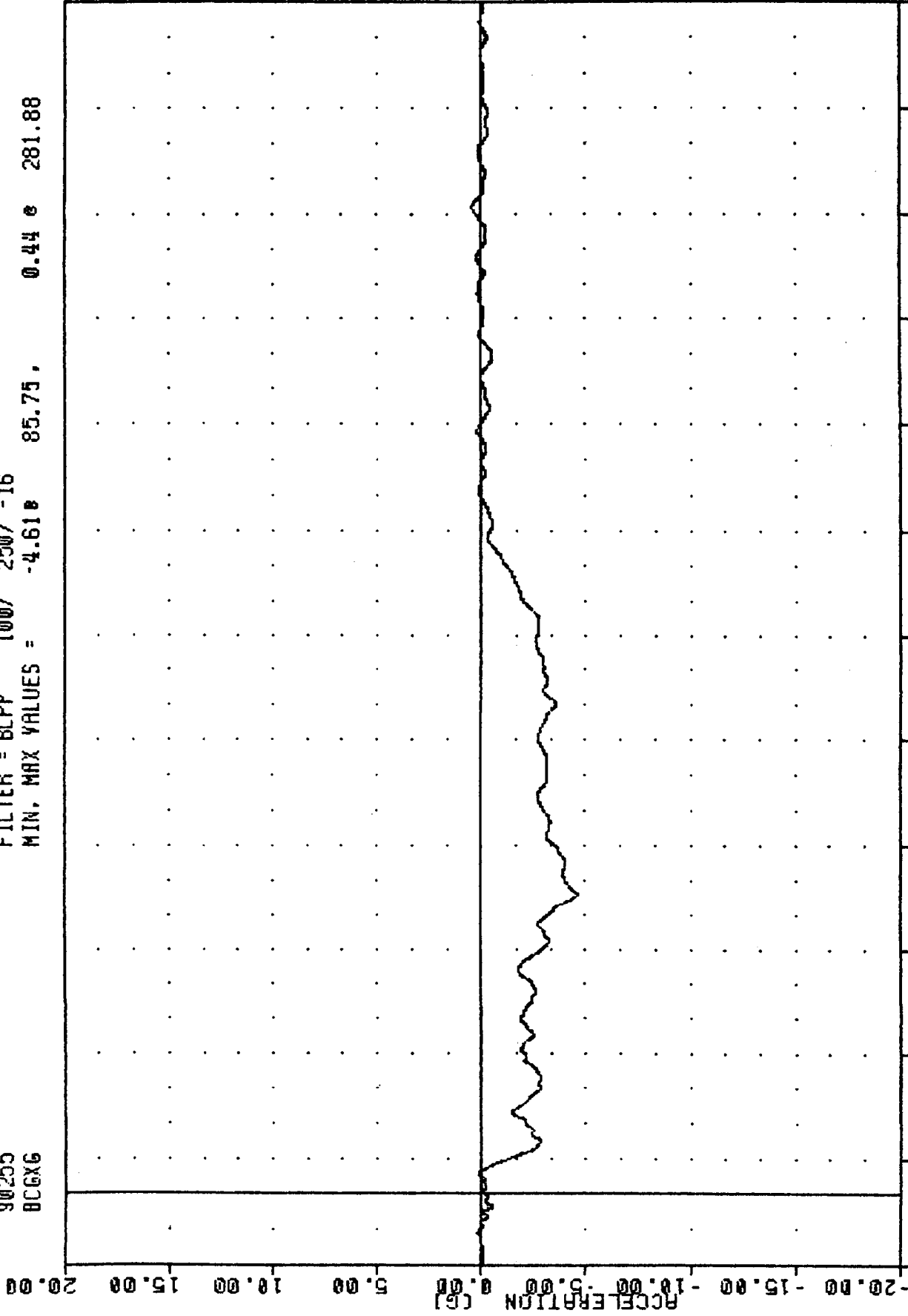
FILTER = BLPP 100/ 250/ -16
MIN. MAX VALUES = 0.01 8.62 106.63
-11.63



CONTOURED MOVING BARRIER INTO LEFT SIDE OF AN AUDI 5000 AT 19.8 MPH
VEHICLE CG RESULTANT ACCELERATION

900912-2 , TRC
 CRASH III DAMAGE ALGORITHM
 90255
 BCGXG

FILTER = BLPP 100/ 250/ -16
 MIN. MAX VALUES = -4.618 85.75 , 0.44 e 281.88



CONTOURED MOVING BARRIER INTO LEFT SIDE OF AN AUDI 5000 AT 19.8 MPH #2
 MOVING BARRIER CENTER OF GRAVITY X-AXIS ACCELERATION

CRASH III DAMAGE ALGORITHM

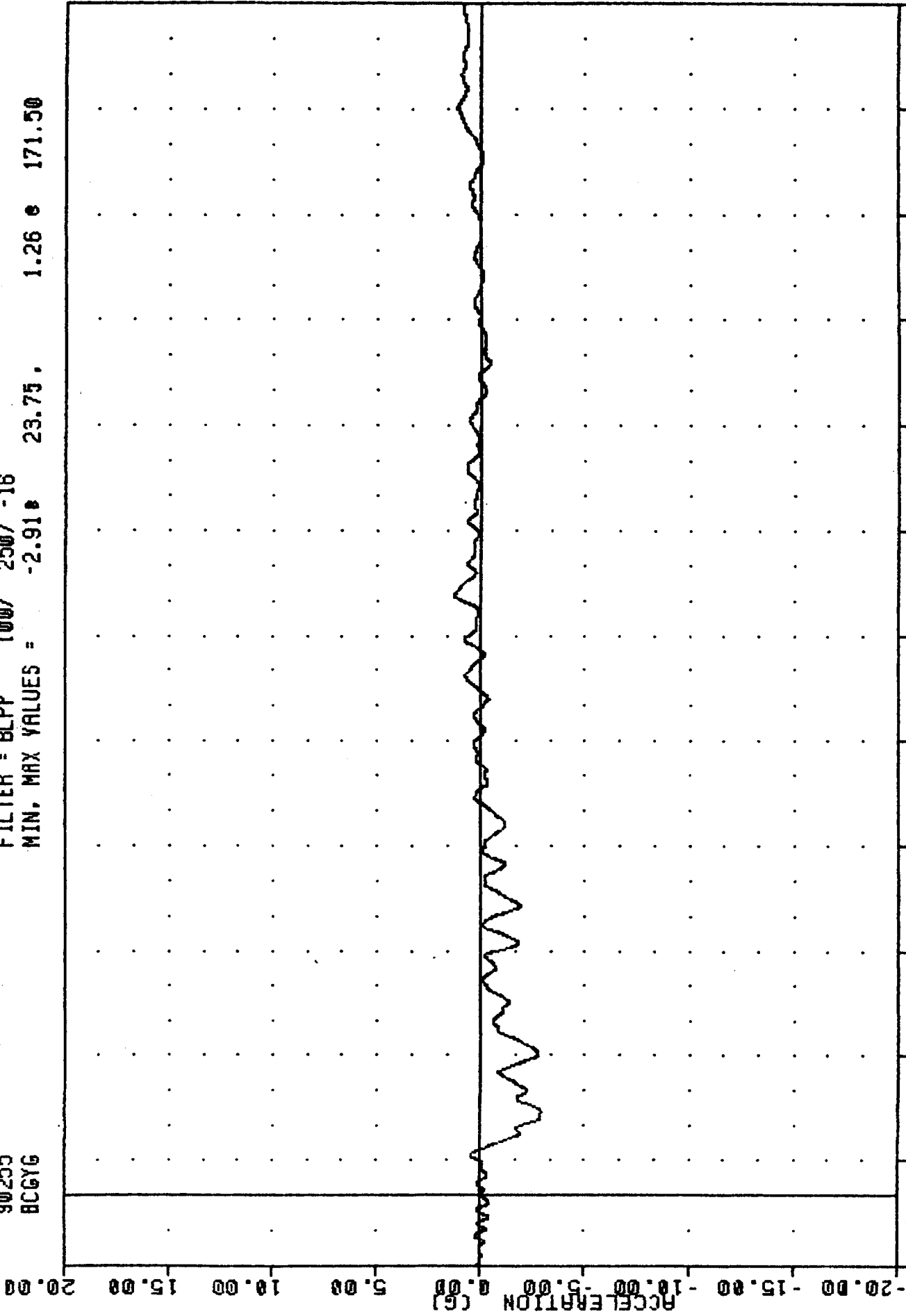
90255

BCGYG

FILTER = BLPP 100/ 250/ -16

MIN, MAX VALUES = -2.91 23.75

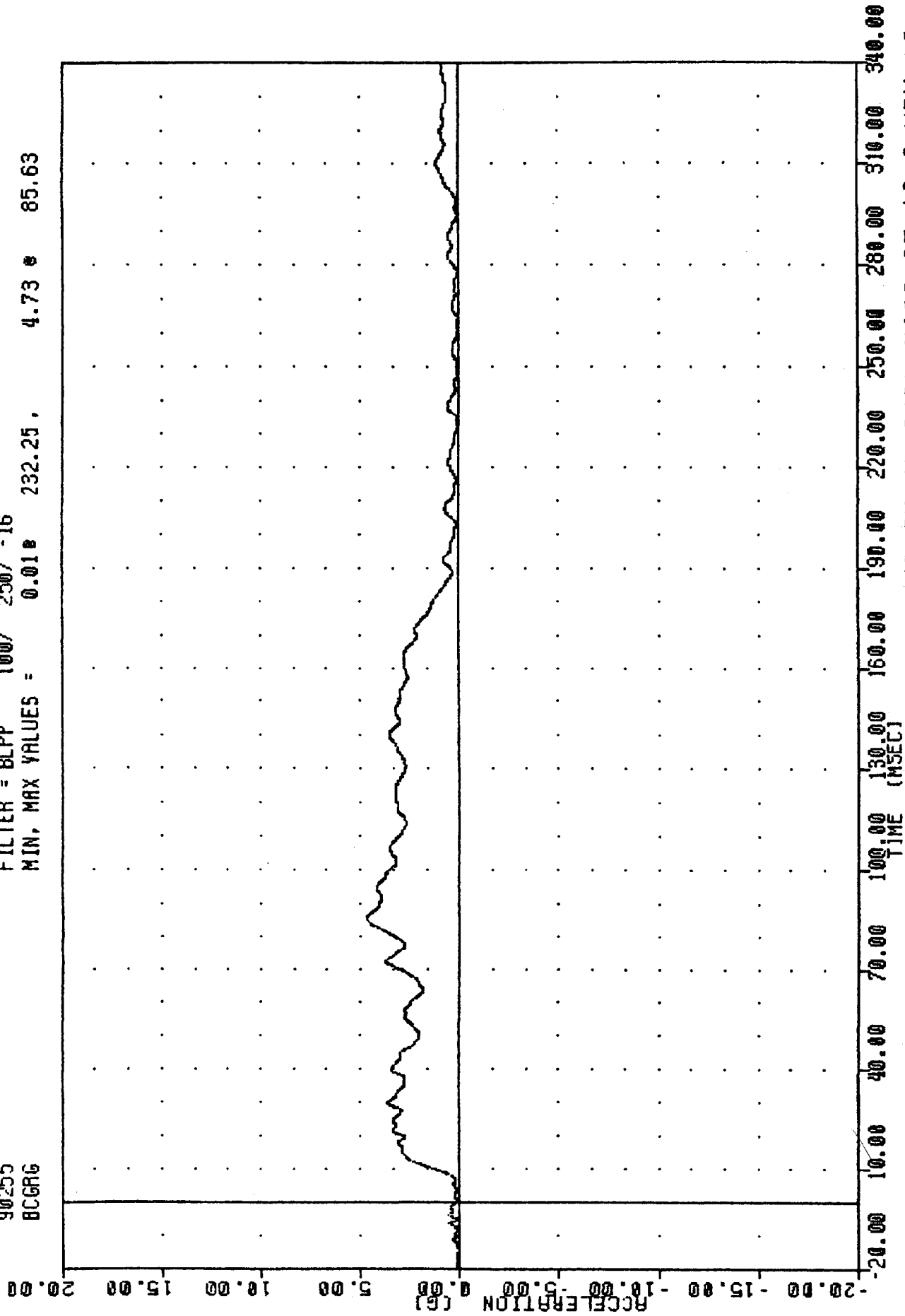
1.26 e 171.50



CONTOURED MOVING BARRIER INTO LEFT SIDE OF AN AUDI 5000 AT 19.8 MPH #1
MOVING BARRIER CENTER OF GRAVITY Y-AXIS ACCELERATION

900312-2 , TAC
 CRASH III DAMAGE ALGORITHM
 90255
 BCGRG

FILTER = BLPP 100/ 250/ -16
 MIN, MAX VALUES = 0.01 232.25 , 4.73 85.63



B30

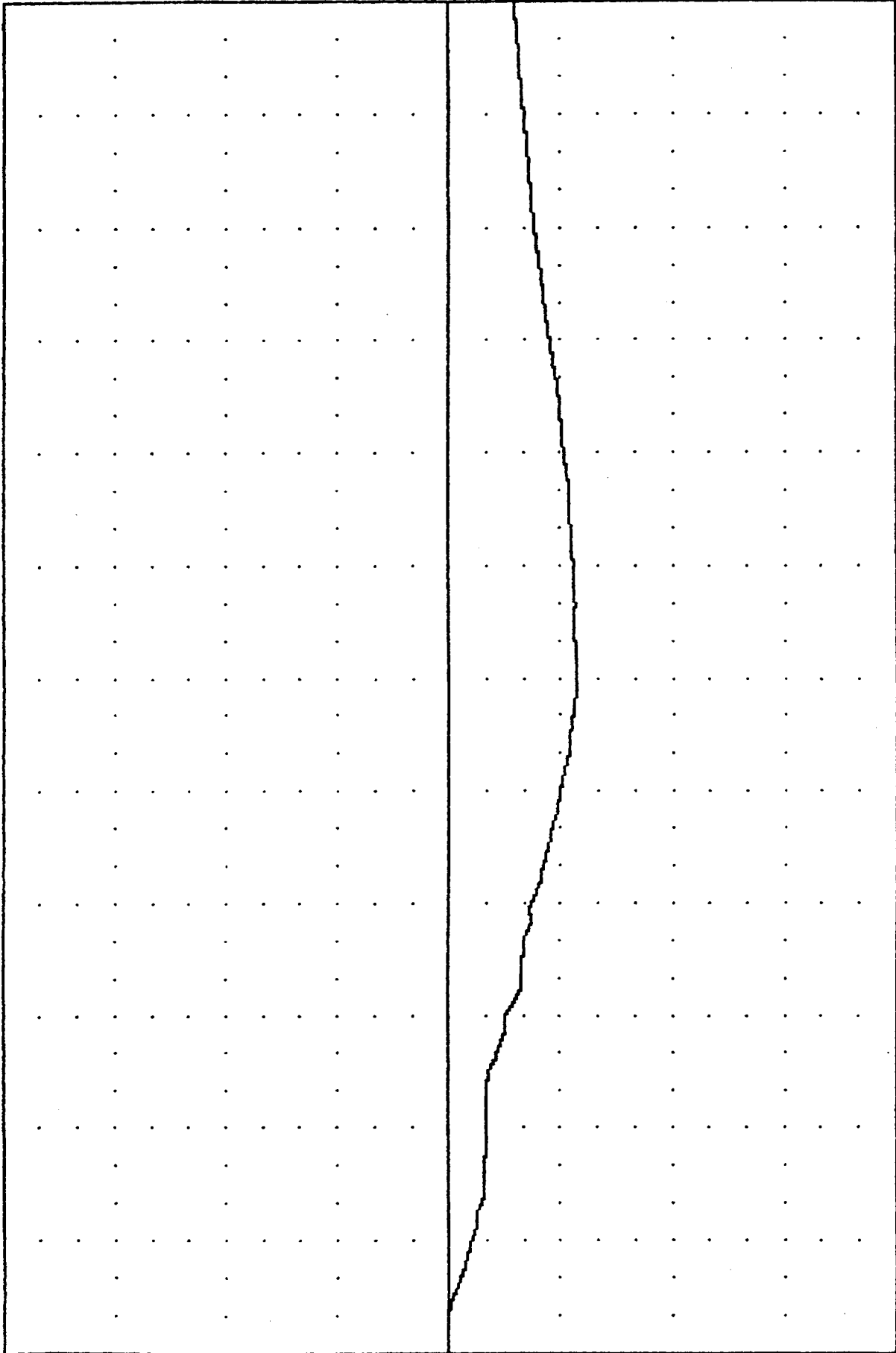
CONTOURED MOVING BARRIER INTO LEFT SIDE OF AN AUDI 5000 AT 19.8 MPH #2
 MOVING BARRIER CENTER OF GRAVITY RESULTANT ACCELERATION

CRASH III DAMAGE ALGORITHM

90255
RFSXV1

FILTER = BLPP 300/ 750/ -16
MIN. MAX VALUES = -5.70 167.13 0.01 e 4.13

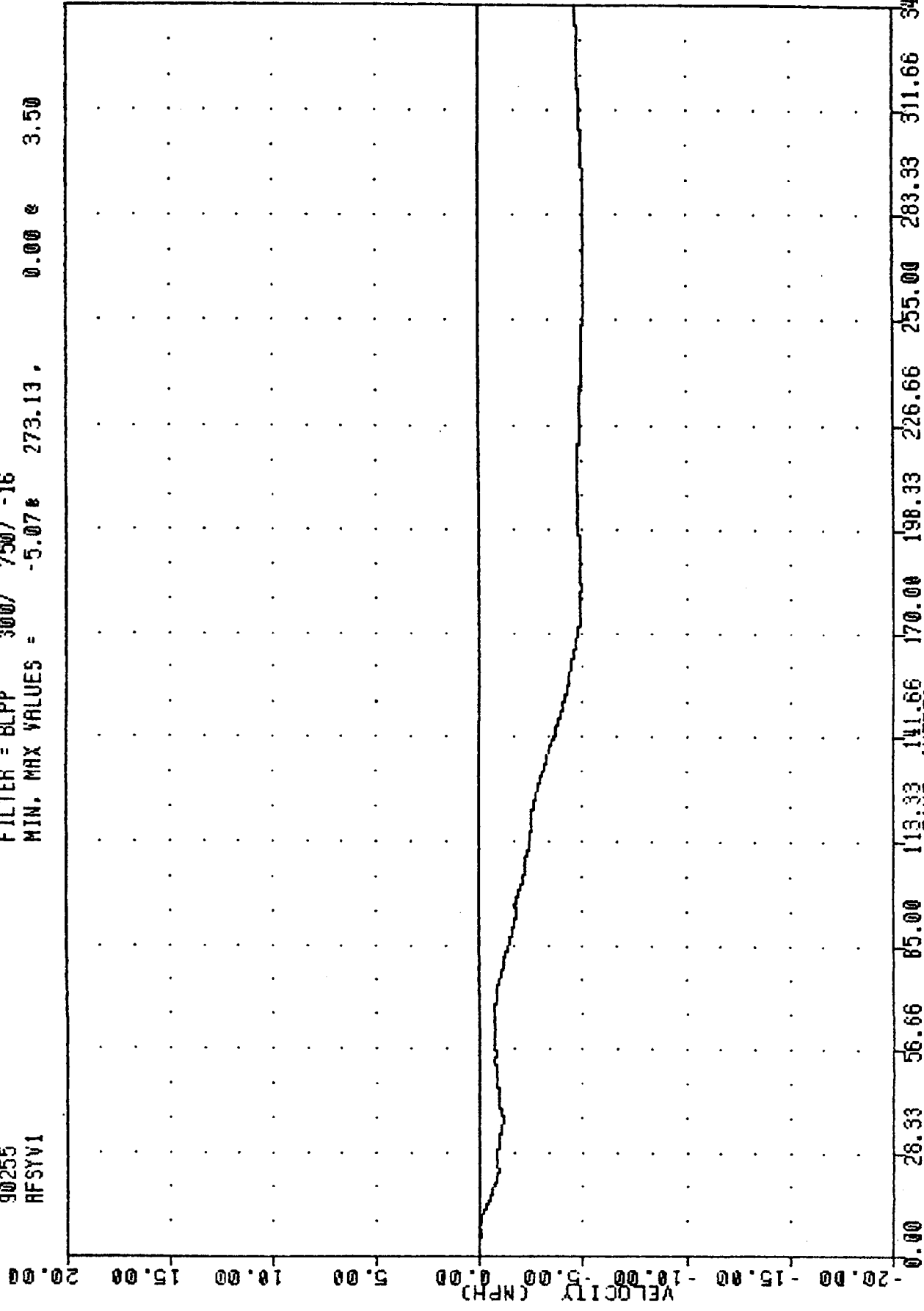
20.00 15.00 10.00 5.00 0.00 -5.00 -10.00 -15.00 -20.00



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)
CONTOURED MOVING BARRIER INTO LEFT SIDE OF AN AUDI 5000 AT 19.8 MPH
RIGHT FRONT SILL X-AXIS VELOCITY

900912-2 , TRC
 CRASH III DAMAGE ALGORITHM
 90255
 RFSYV1

FILTER = BLPP 300/ 750/ -16
 MIN. MAX VALUES = -5.07 273.13 0.00 e 3.50



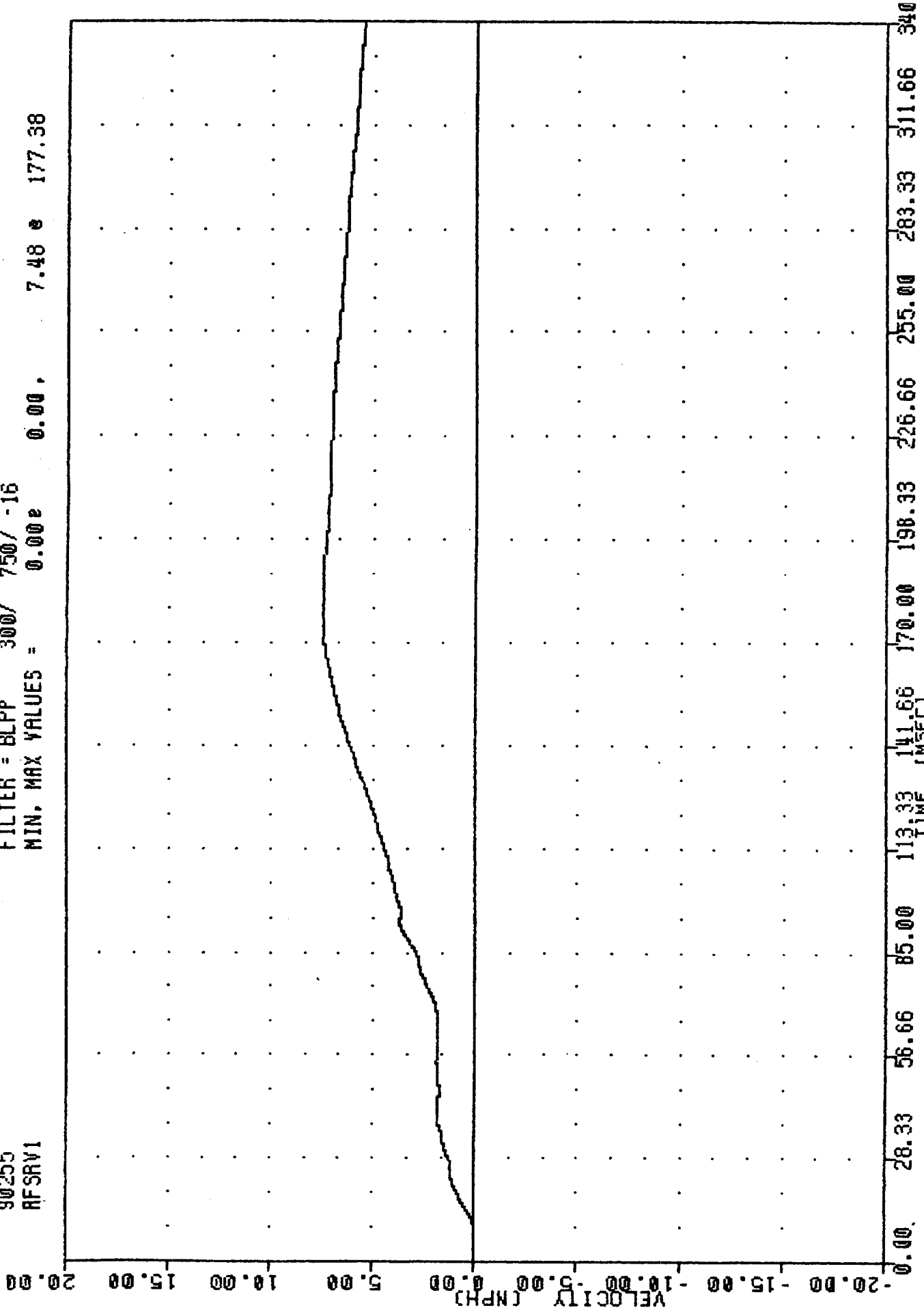
CONTOURED MOVING BARRIER INTO LEFT SIDE OF AN AUDI 5000 AT 19.8 MPH #2
 RIGHT FRONT SILL Y-AXIS VELOCITY

CRASH III DAMAGE ALGORITHM

90255
RFSRV1

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

7.48 e 177.38

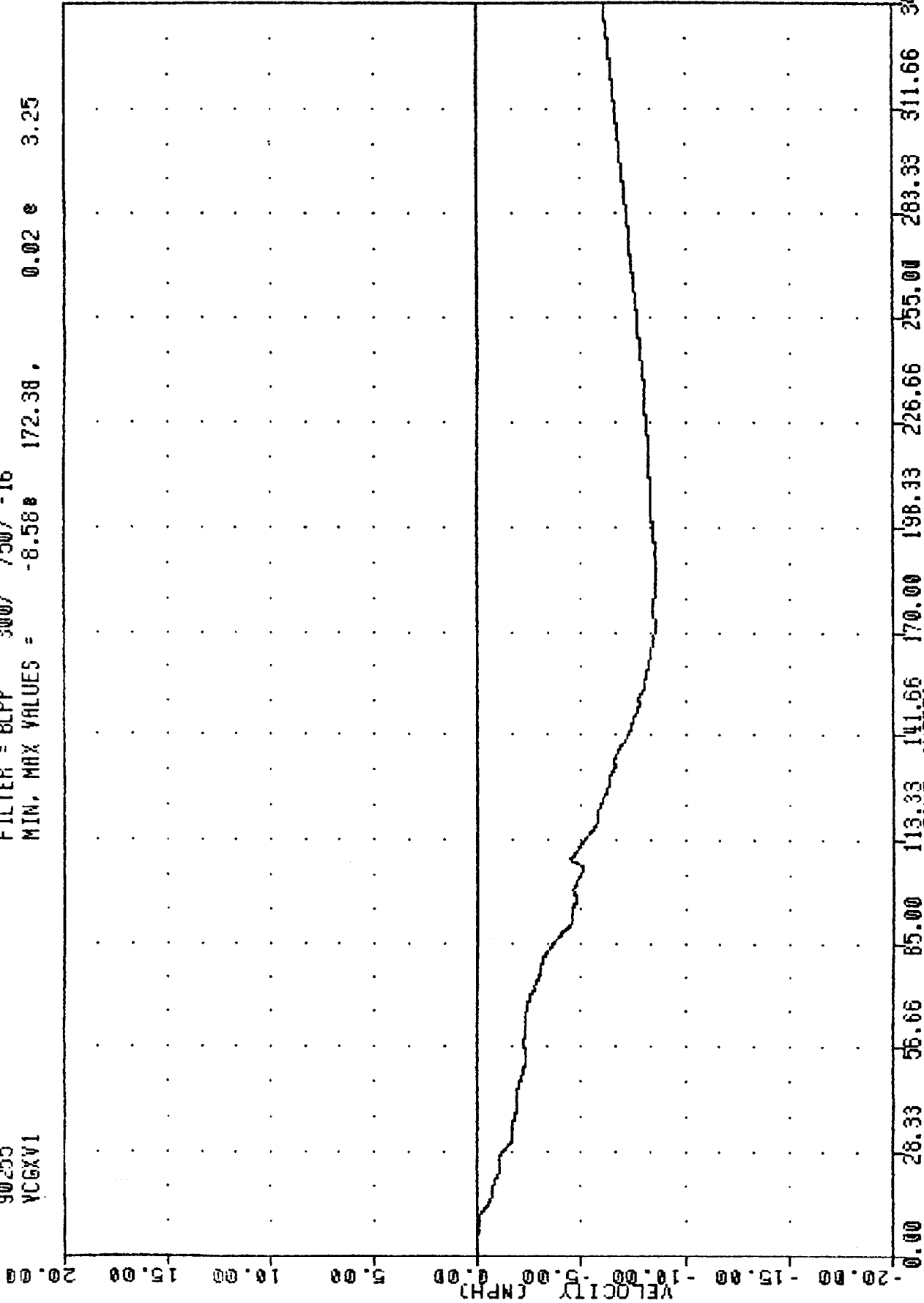


B33

CONTOURED MOVING BARRIER INTO LEFT SIDE OF AN AUDI 5000 AT 19.8 MPH *
RIGHT FRONT SILL RESULTANT VELOCITY

900912-2 .TRC
 CRASH III DAMAGE ALGORITHM
 90255
 YCGXV1

FILTER = BLPP 300/ 750/ -16
 MIN. MAX VALUES = -8.58 172.38 , 0.02 e 3.25



CONTOURED MOVING BARRIER INTO LEFT SIDE OF AN AUDI 5000 AT 19.8 MPH #2
 VEHICLE CG X-AXIS VELOCITY (IMPACT DIRECTION)

CRASH III DAMAGE ALGORITHM

90255

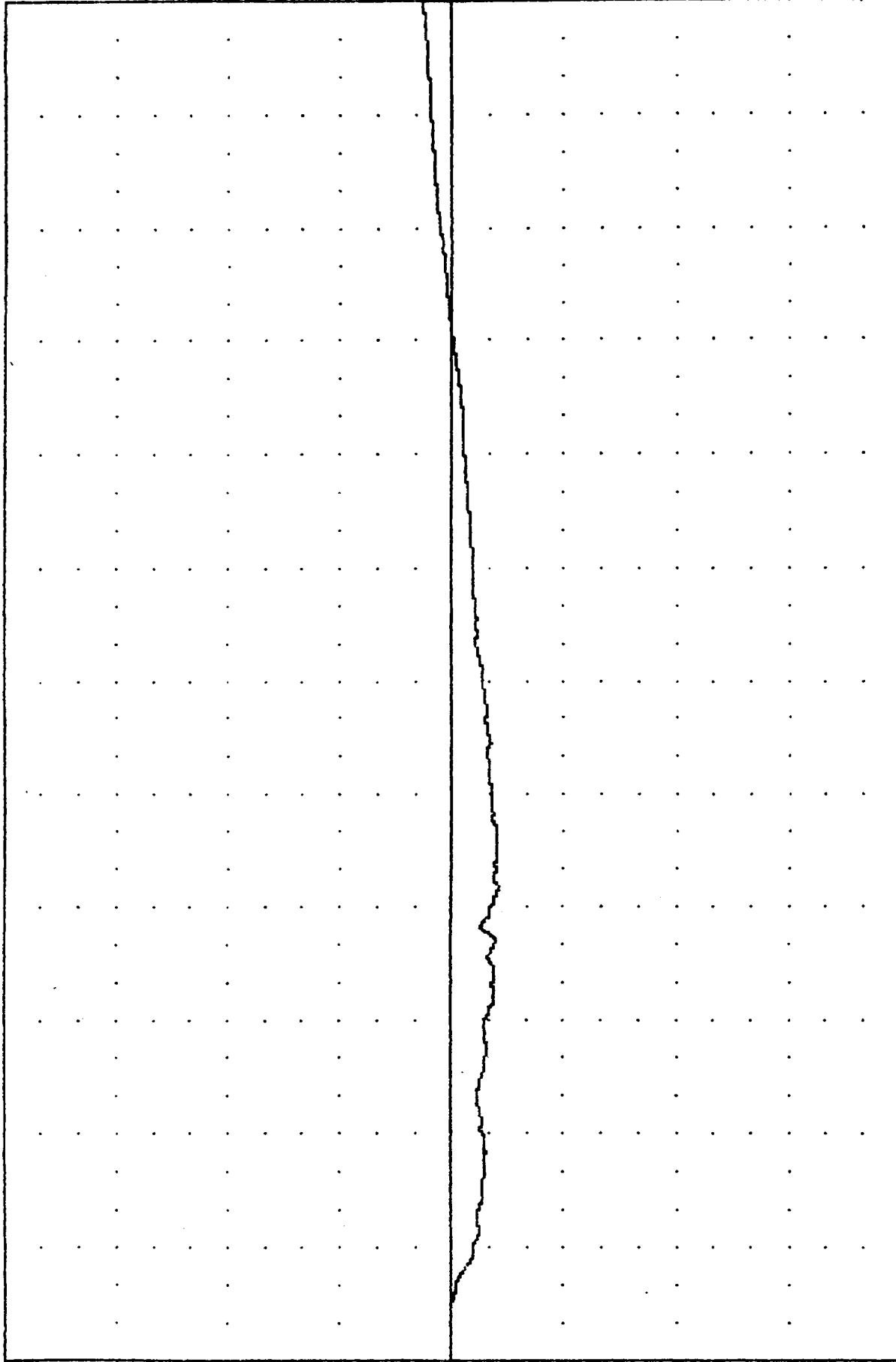
YCGYV1

FILTER = ELPP 300/ 750/ -16

MIN. MAX VALUES = -2.10E 118.00.

1.29 e 340.00

20.00
15.00
10.00
5.00
0.00
-5.00
-10.00
-15.00
-20.00

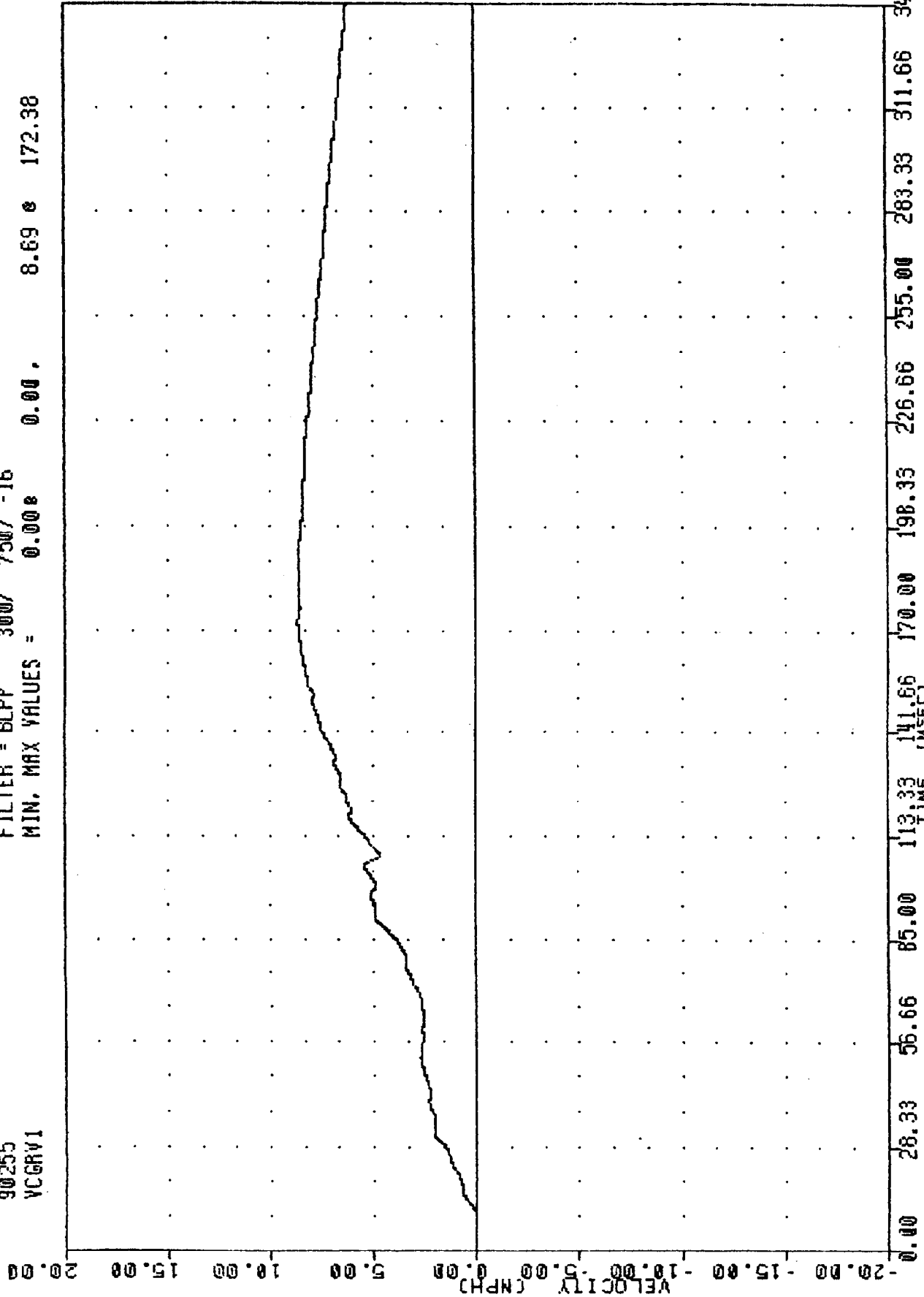


0.00 28.33 56.66 85.00 113.33 141.66 170.00 198.33 226.66 255.00 283.33 311.66 340

TIME (MSEC)
CONToured MOVING BARRIER INTO LEFT SIDE OF AN AUDI 5000 AT 19.8 MPH
VEHICLE CG Y-AXIS VELOCITY (PERPENDICULAR TO IMPACT DIRECTION)

900912-2 * TRC
 CRASH III DAMAGE ALGORITHM
 90255
 VCGRV1

FILTER = BLPP 300/ 750/ -16
 MIN. MAX VALUES = 0.00 0.00 8.69 172.38



CONTOURED MOVING BARRIER INTO LEFT SIDE OF AN AUDI 5000 AT 19.8 MPH *2
 VEHICLE CG RESULTANT VELOCITY

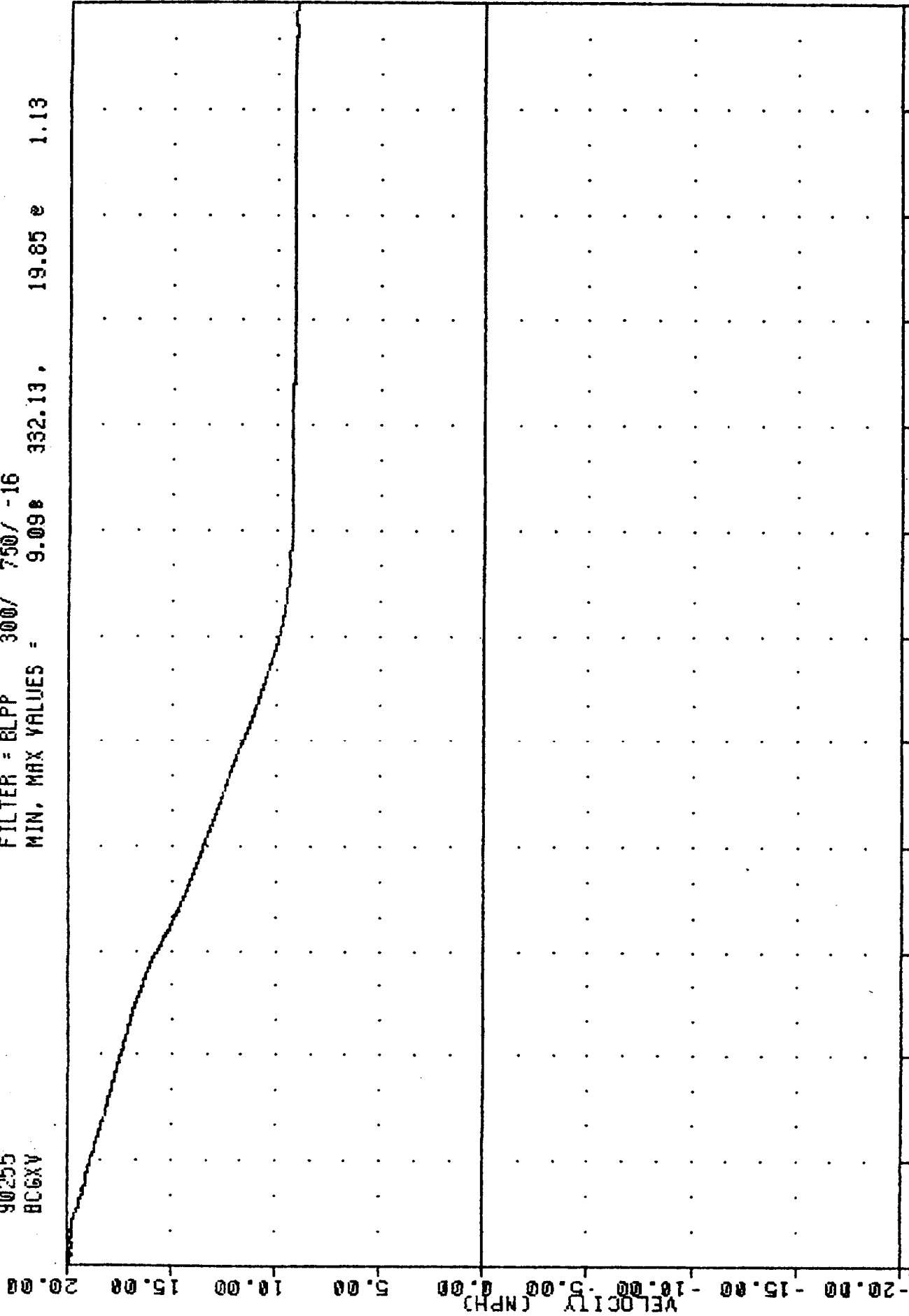
CRASH III DAMAGE ALGORITHM

90255

BCGXV

FILTER = BLPP 300/ 750/ -16

MIN, MAX VALUES = 9.09e 332.13, 19.85 e 1.13

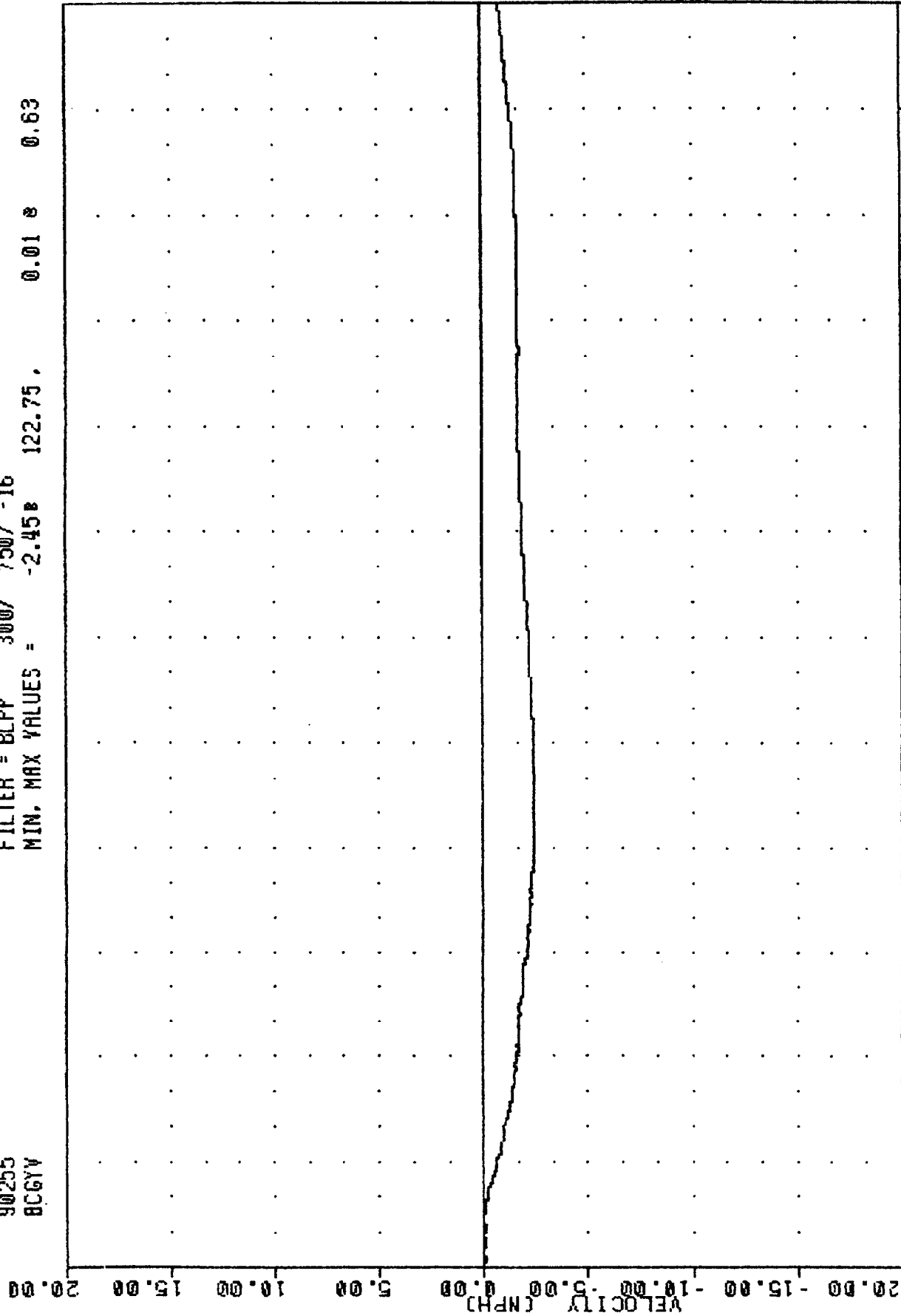


TIME (MSEC)	VELOCITY (MPH)
0.00	0.00
28.33	10.00
56.66	15.00
85.00	18.00
113.33	19.85
141.66	18.00
170.00	15.00
198.33	12.00
226.66	10.00
255.00	8.00
283.33	6.00
311.66	4.00
340.00	2.00

CONToured MOVING BARRIER INTO LEFT SIDE OF AN AUDI 5000 AT 19.8 MPH
MOVING BARRIER CENTER OF GRAVITY X-AXIS VELOCITY

900912-2 , TRC
 CRASH III DAMAGE ALGORITHM
 90255
 BCGYV

FILTER = BLPP 300/ 750/ -16
 MIN. MAX VALUES = -2.45B 122.75, 0.01 e 0.63



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)

CONTOURED MOVING BARRIER INTO LEFT SIDE OF AN AUDI 5000 AT 19.8 MPH #2
 MOVING BARRIER CENTER OF GRAVITY Y-AXIS VELOCITY

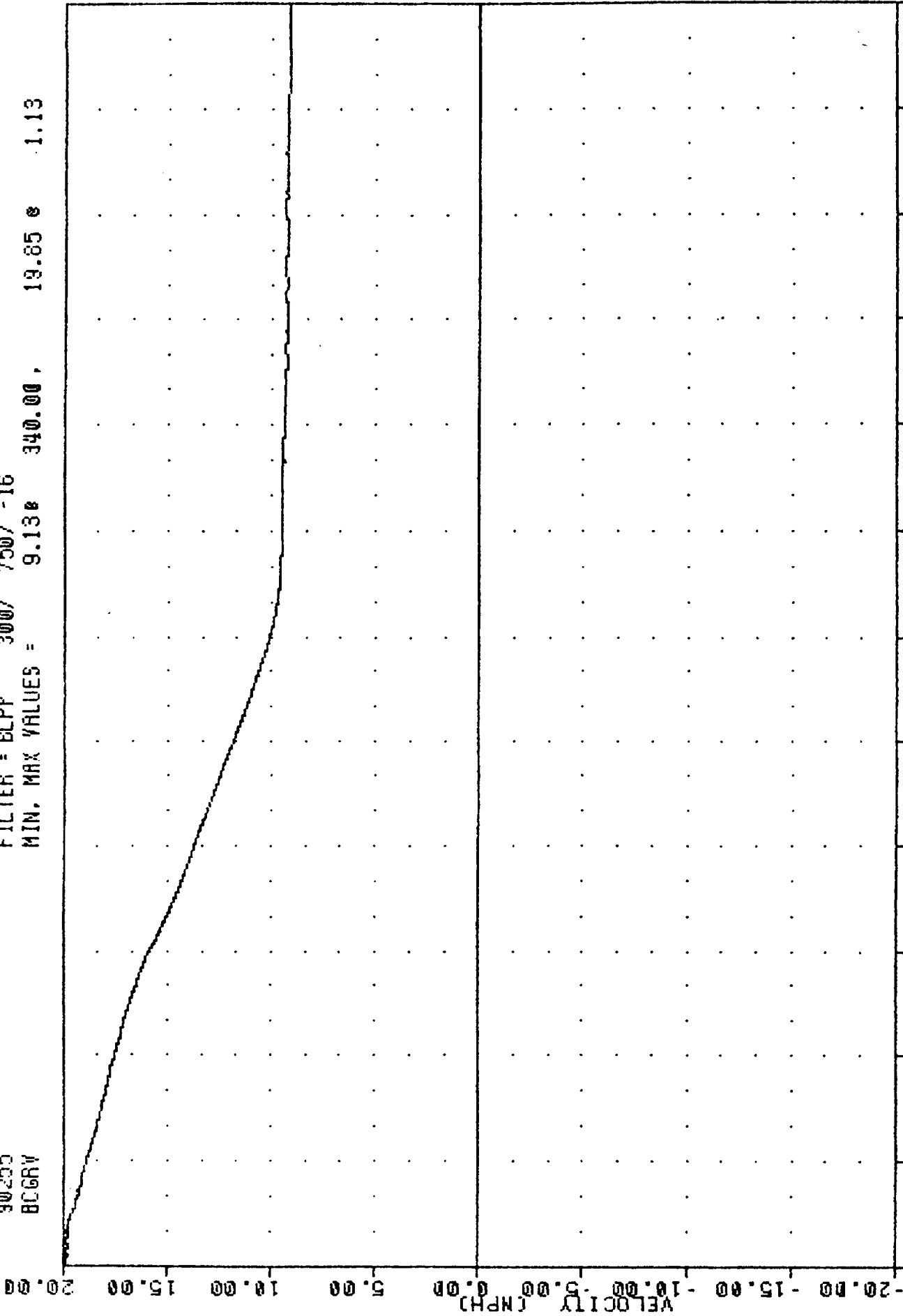
LANSH 111 UNMAGE ALGUMIIMD

90255

BCGRV

FILTER = BLPP 300/ 750/ -16

MIN. MAX VALUES = 9.13e 340.00, 19.85 e 1.13



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

VELOCITY (MPH)

20.00
15.00
10.00
5.00
0.00
-5.00
-10.00
-15.00
-20.00

TIME (MSEC)

CONTOURED MOVING BARRIER INTO LEFT SIDE OF AN AUDI 5000 AT 19.8 MPH
MOVING BARRIER CENTER OF GRAVITY RESULTANT VELOCITY

TEST #900913-1

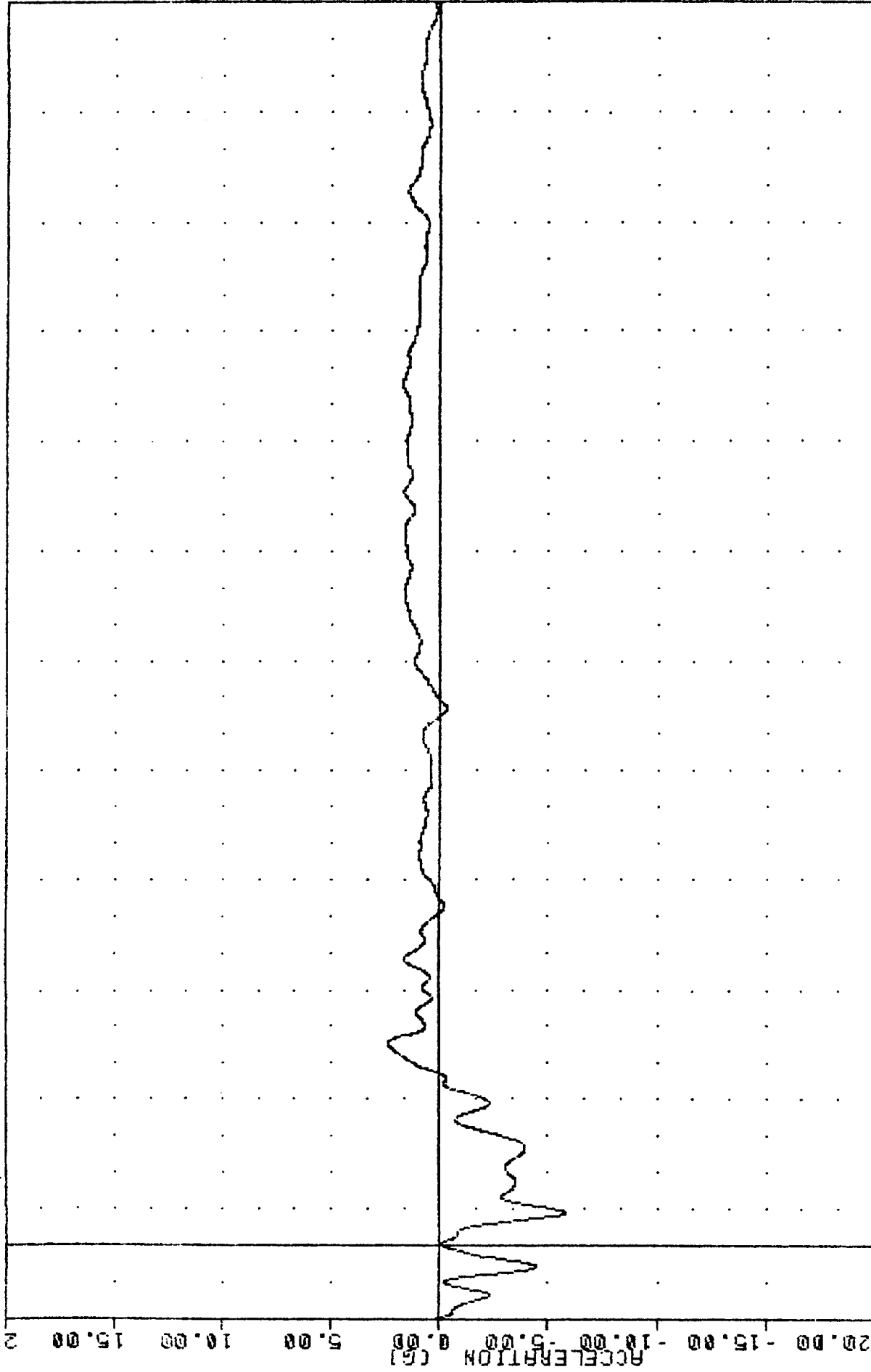
B40

CRASH III DAMAGE ALGORITHM

90256
RFSX61

FILTER = ELFP 100/ 250/ -16
MIN, MAX VALUES = -5.79% 8.88, 2.35 & 55.25

20.00
15.00
10.00
5.00
0.00
-5.00
-10.00
-15.00
-20.00

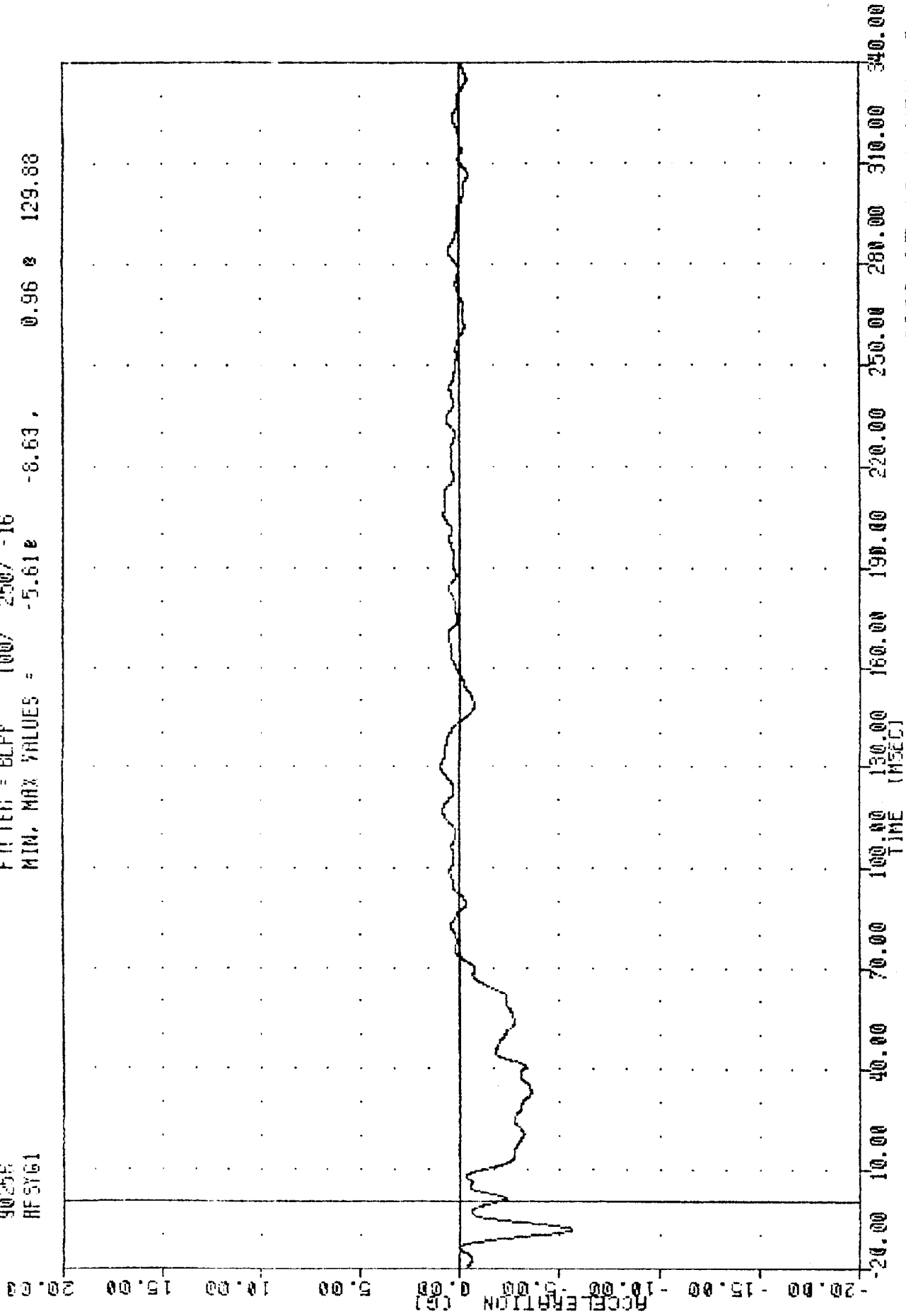


20.00 10.00 40.00 70.00 100.00 130.00 160.00 190.00 220.00 250.00 280.00 310.00 340

CONTOURED MOVING BARRIER INTO LEFT SIDE OF AN AUDI 5000 AT 19.9 MPH *
RIGHT FRONT SILL X-AXIS ACCELERATION

900911-3 , TRC
 CRASH III DAMAGE ALGORITHM
 90258
 RFSIG1

FILTER = BLPF 100/ 250/ -16
 MIN. MAX VALUES = -5.61e -8.63, 0.96 e 129.88



CONTOURED MOVING BARRIER INTO LEFT SIDE OF AN AUDI 5000 AT 19.9 MPH #3
 RIGHT FRONT SILL Y-AXIS ACCELERATION

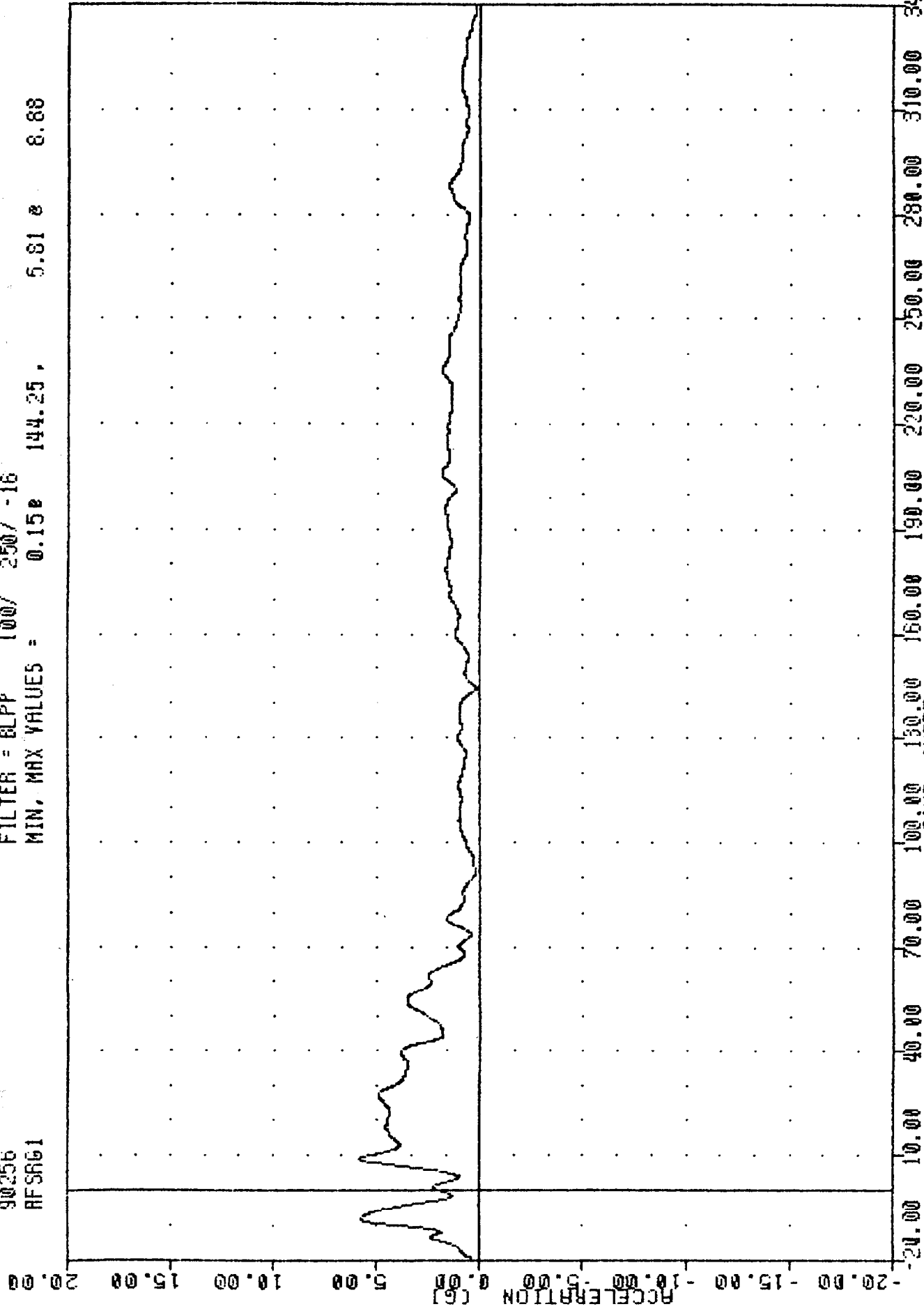
STATION 111 UNINSTRUMENTED

90256

RFSR61

FILTER = BLPP 100/ 250/ -16

MIN. MAX VALUES = 0.15e 144.25, 5.81 e 8.88

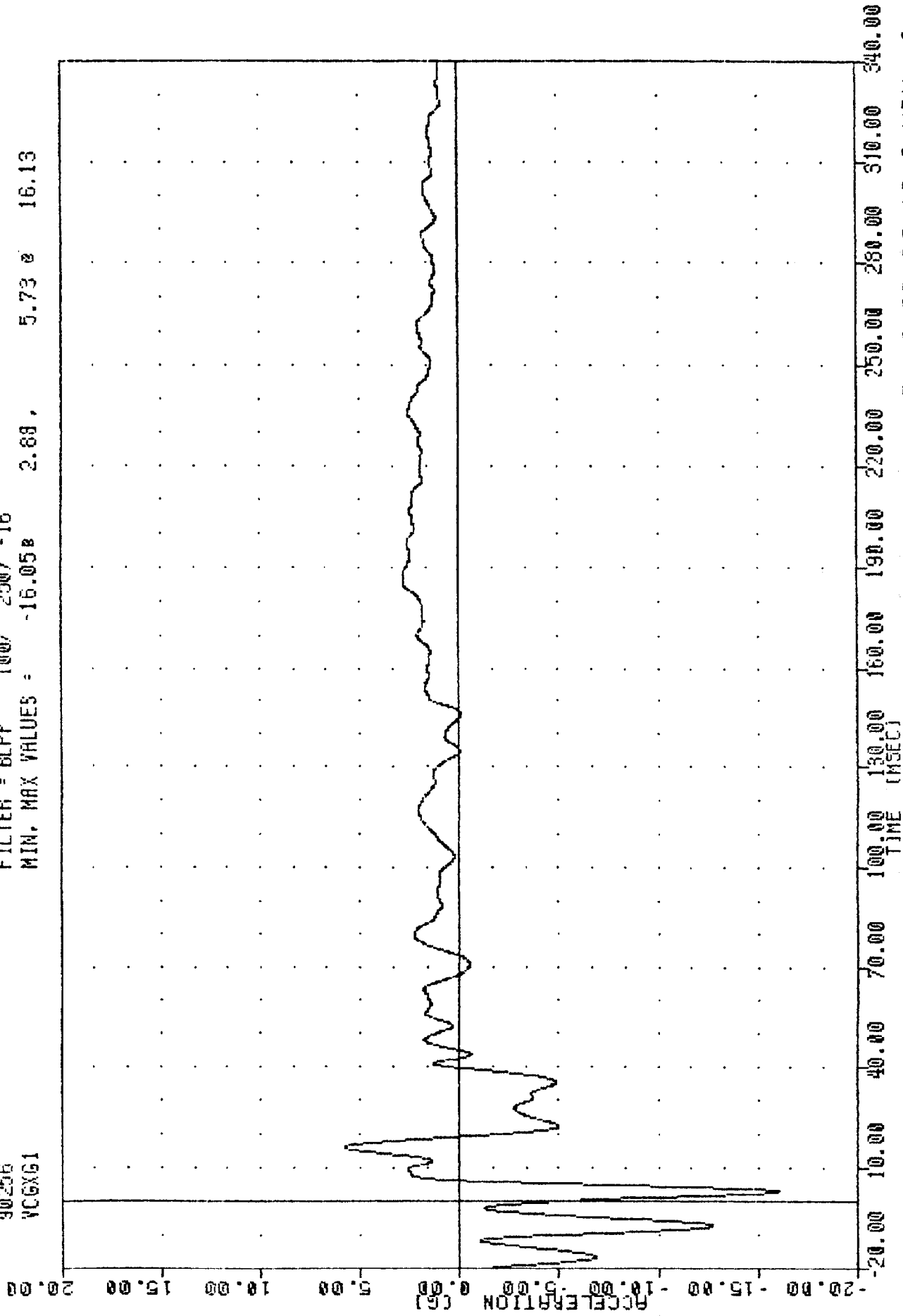


B43

CONTOURED MOVING BARRIER INTO LEFT SIDE OF AN AUDI 5000 AT 19.9 MPH #3
RIGHT FRONT SILL RESULTANT ACCELERATION

000913-3 , TRC
CRASH III DAMAGE ALGORITHM
90256
VCGXG1

FILTER = BLPP 100/ 250/ -16
MIN. MAX VALUES = -16.05e 2.68, 5.73 e 16.13

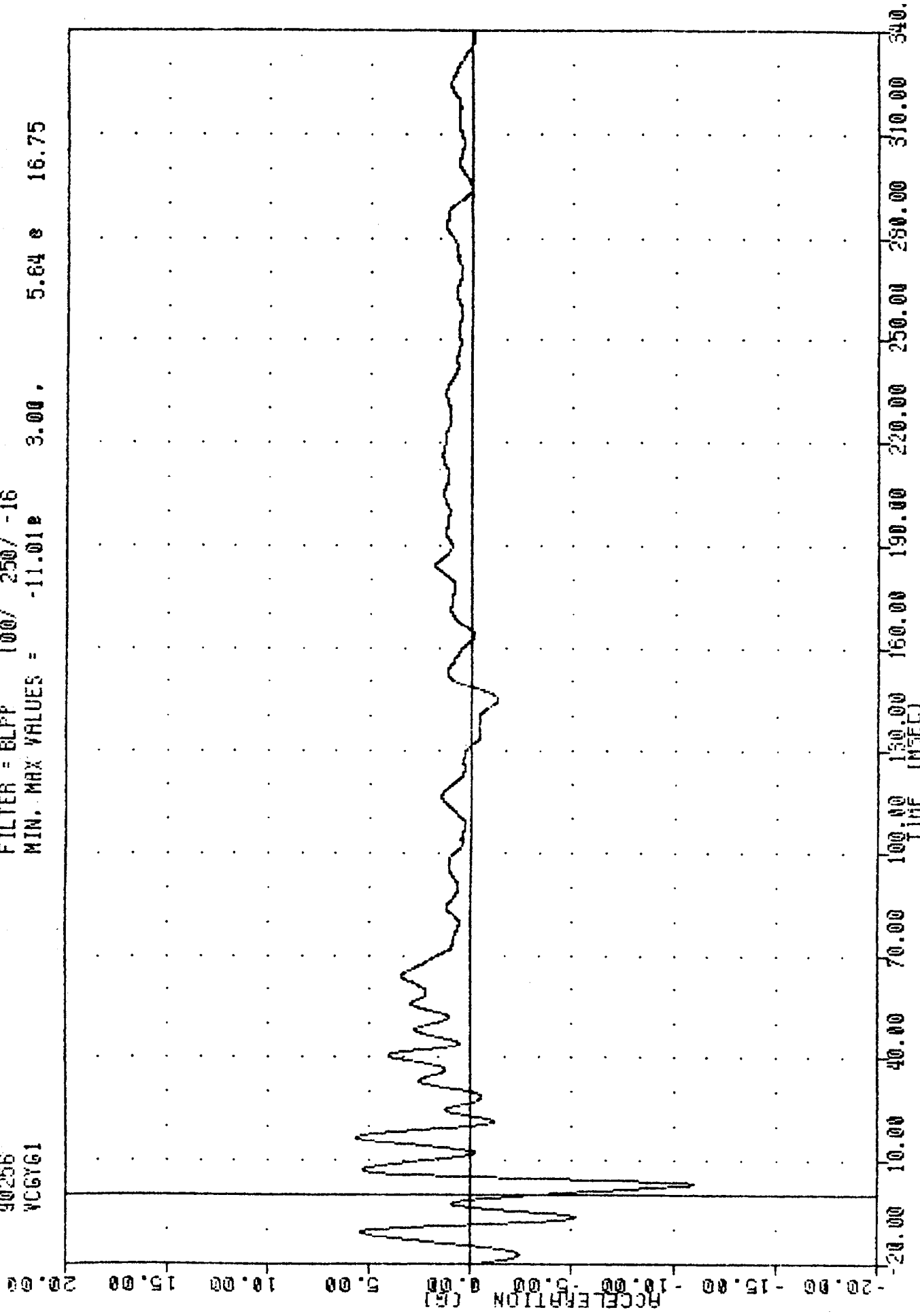


CONTOURED MOVING BARRIER INTO LEFT SIDE OF AN AUDI 5000 AT 19.9 MPH #3
VEHICLE CG X-AXIS ACCELERATION (IMPACT DIRECTION)

CRASH III DAMAGE ALGORITHM

90256
WCGY61

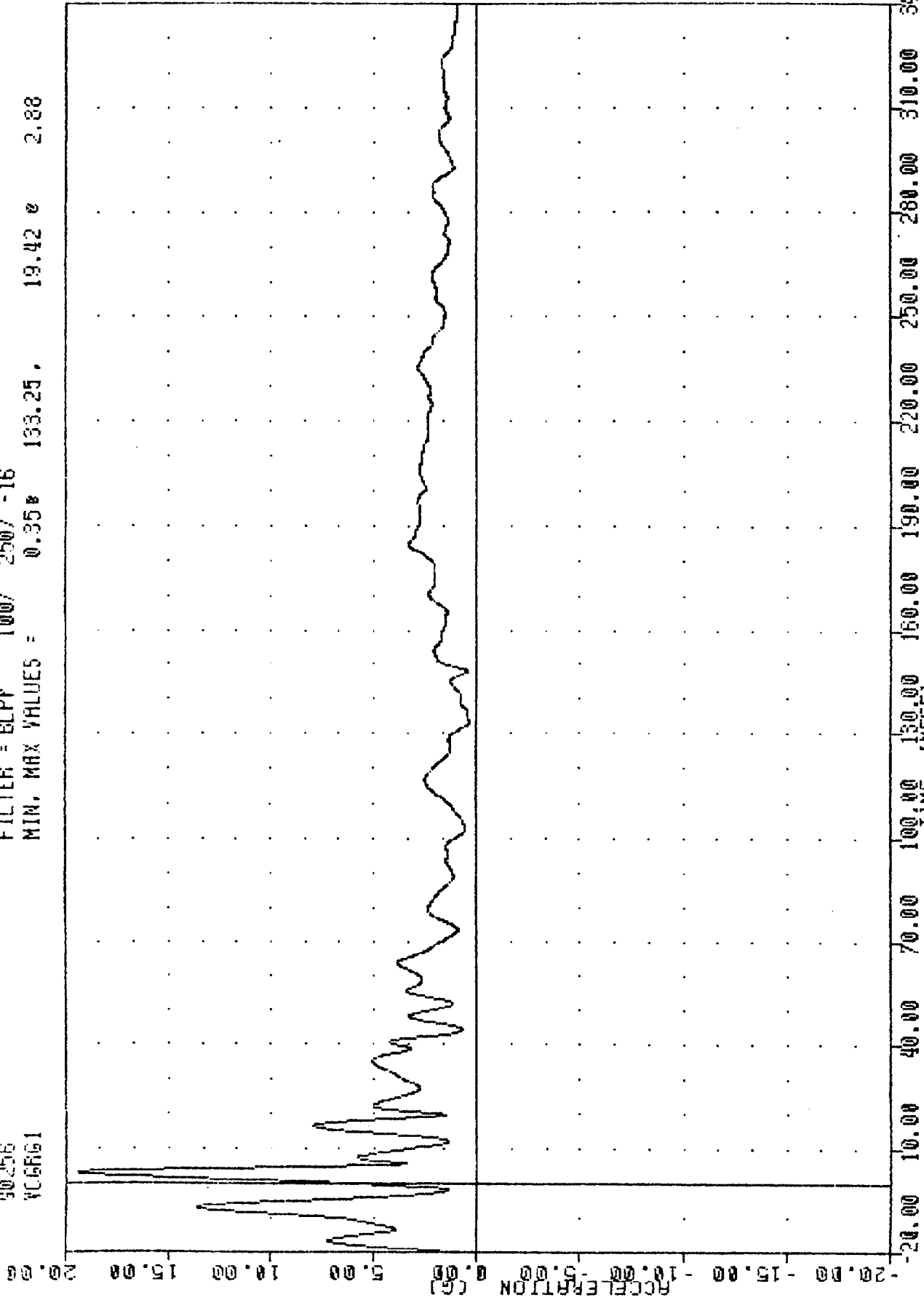
FILTER = BLPP 100/ 250/ -16
MIN. MAX VALUES = -11.018 3.00, 5.64 e 16.75



CONToured MOVING BARRIER INTO LEFT SIDE OF AN AUDI 5000 AT 19.9 MPH *S
VEHICLE CG Y-AXIS ACCELERATION (PERPENDICULAR TO IMPACT DIRECTION)

900913-3 , TIC
 CRASH III DAMAGE ALGORITHM
 90256
 YCGR61

FILTER = BLPF 100/ 250/ -16
 MIN. MAX VALUES = 0.35 133.25 19.42 2.88



CONTOURED MOVING BARRIER INTO LEFT SIDE OF AN AUDI 5000 AT 19.9 MPH #3
 VEHICLE CG RESULTANT ACCELERATION

UNITED STATES GOVERNMENT

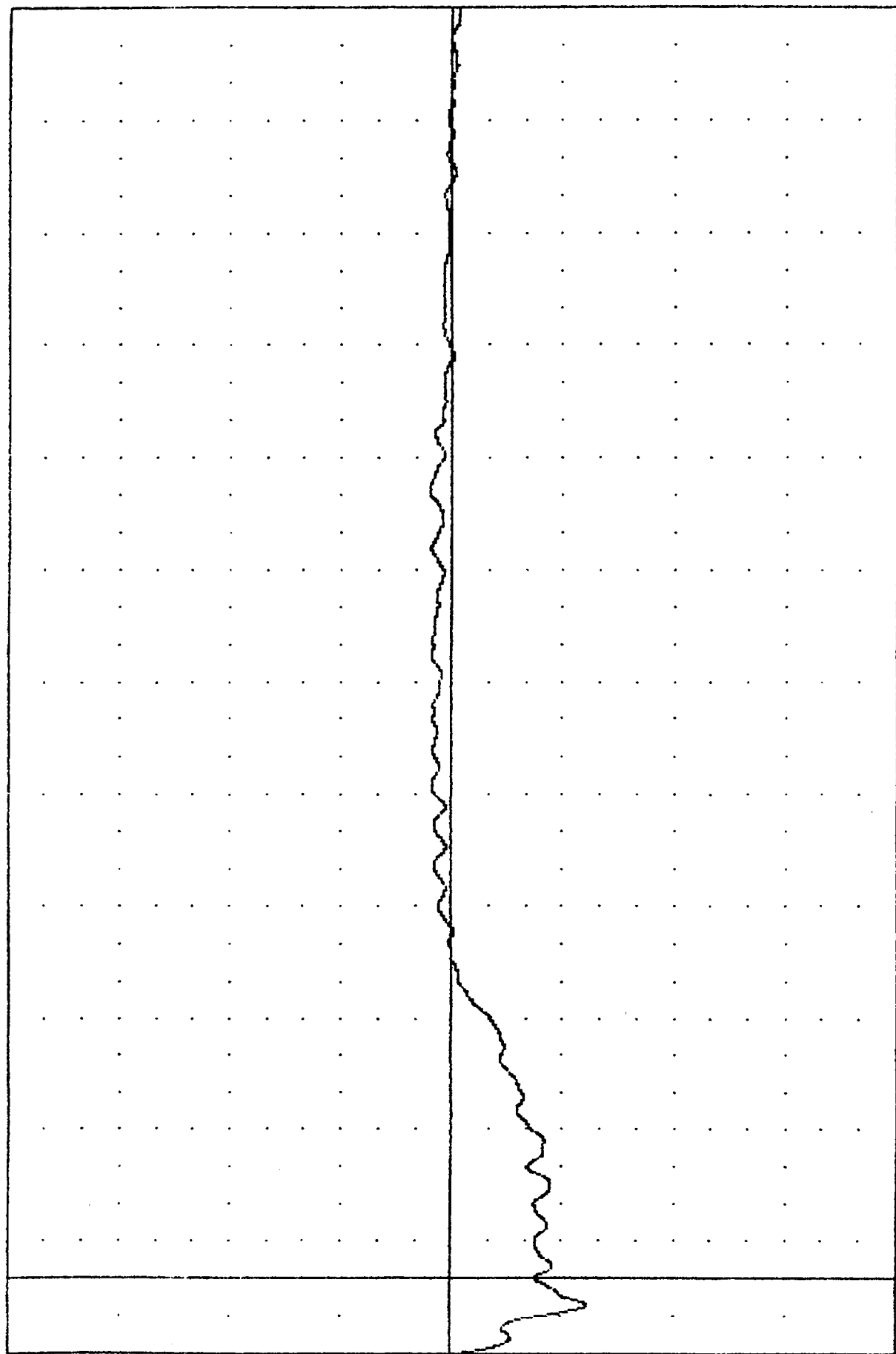
90256

BC6XG

FILTER = BLPF 100/ 250/ -18

MIN. MAX VALUES = -6.16e -7.25, 0.98 e 210.00

ACCELERATION (G)

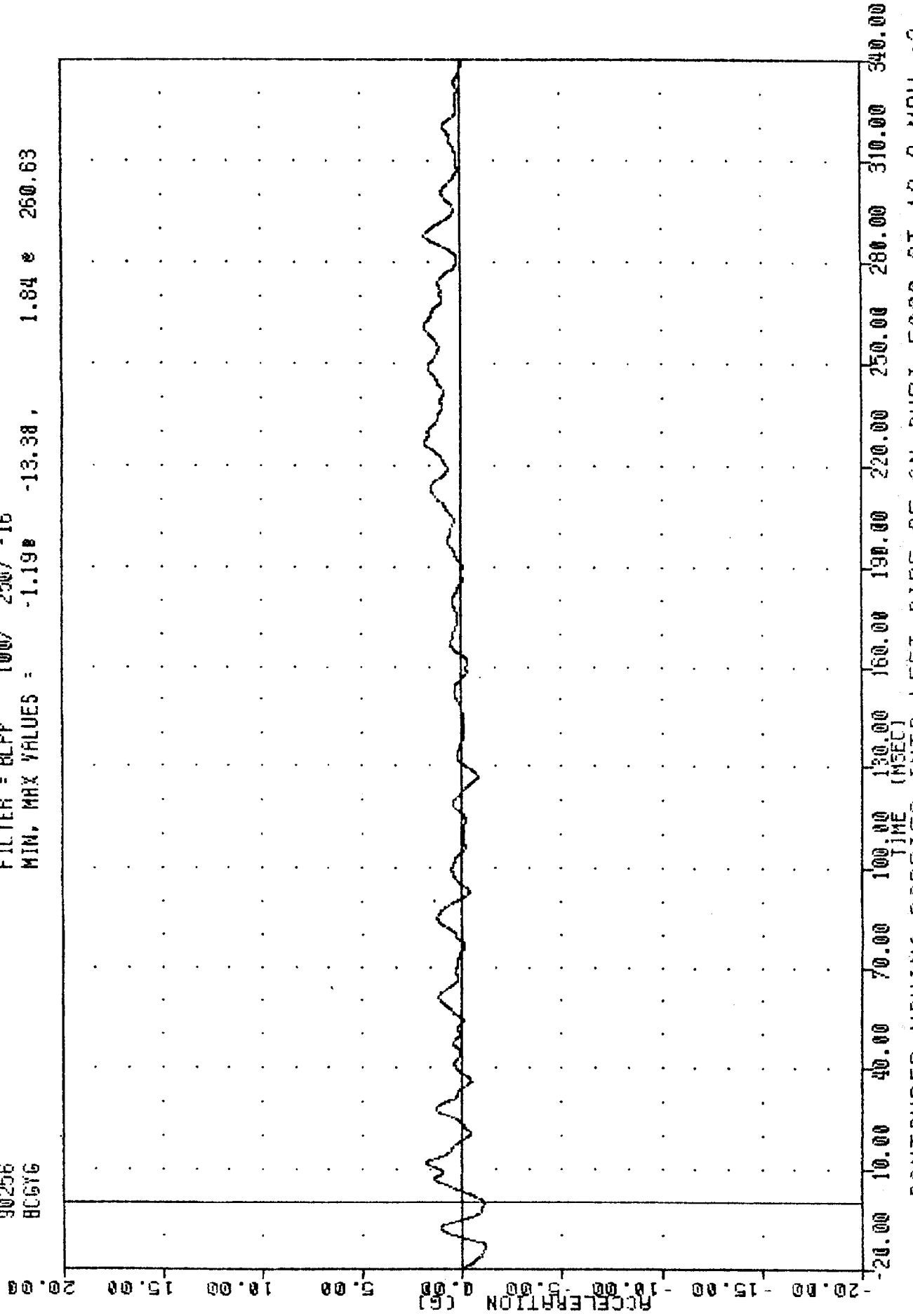


TIME (MSEC) 20.00 10.00 0.00 5.00 10.00 15.00 20.00 25.00 30.00 35.00 40.00 45.00 50.00 55.00 60.00 65.00 70.00 75.00 80.00 85.00 90.00 95.00 100.00 105.00 110.00 115.00 120.00 125.00 130.00 135.00 140.00 145.00 150.00 155.00 160.00 165.00 170.00 175.00 180.00 185.00 190.00 195.00 200.00 205.00 210.00 215.00 220.00 225.00 230.00 235.00 240.00 245.00 250.00 255.00 260.00 265.00 270.00 275.00 280.00 285.00 290.00 295.00 300.00 305.00 310.00 315.00 320.00 325.00 330.00 335.00 340.00

CONToured MOVING BARRIER INTO LEFT SIDE OF AN AUDI 5000 AT 19.9 MPH #3
MOVING BARRIER CENTER OF GRAVITY X-AXIS ACCELERATION

900913-3 . TRC
CRASH III DAMAGE ALGORITHM

FILTER = BLPP 100/ 250/ -16
MIN, MAX VALUES = -1.198 -13.38, 1.84 e 250.63

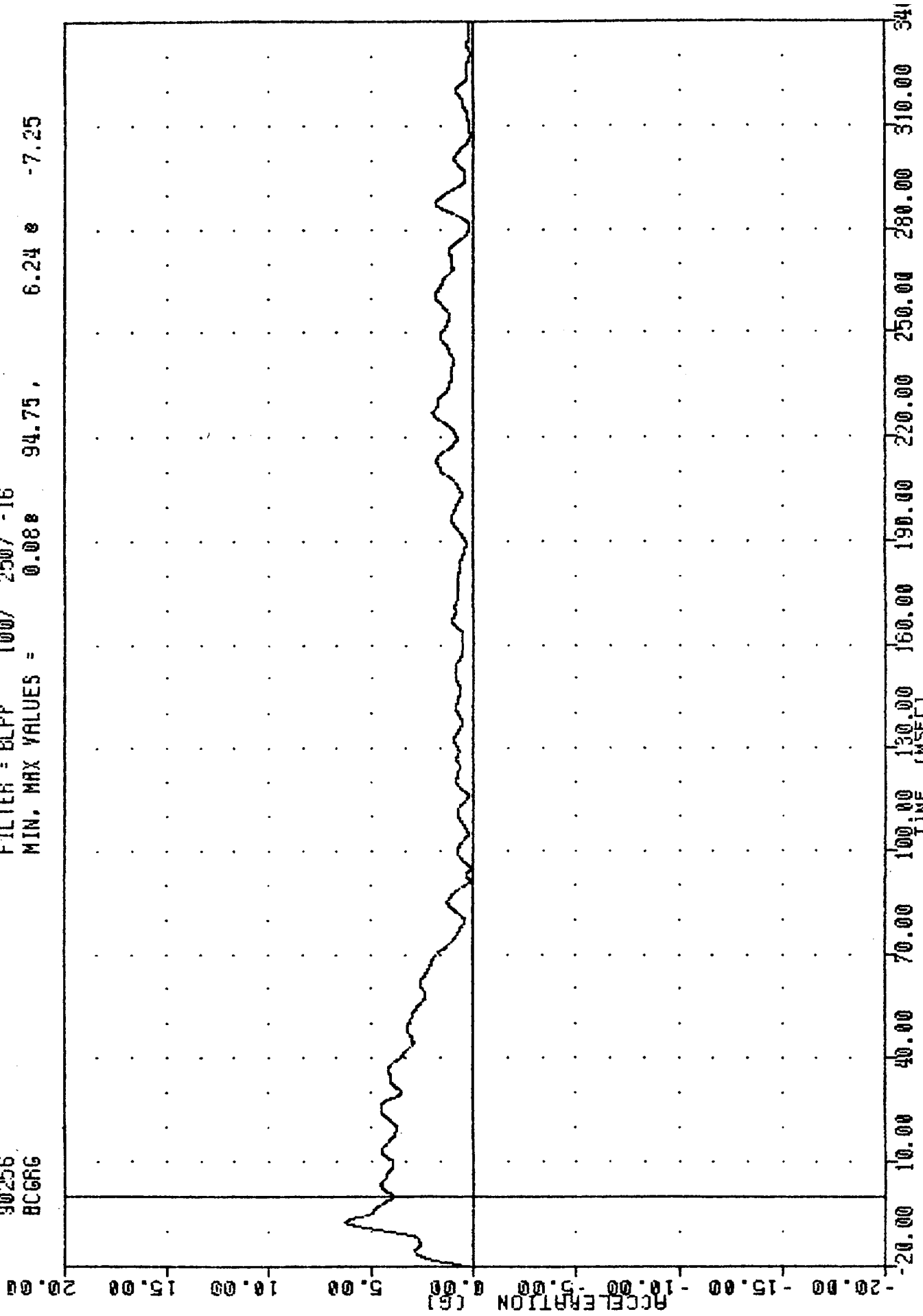


B48

CONTOURED MOVING BARRIER INTO LEFT SIDE OF AN AUDI 5000 AT 19.9 MPH #3
MOVING BARRIER CENTER OF GRAVITY Y-AXIS ACCELERATION

3000170 P. INC.
 CRASH III DAMAGE ALGORITHM
 90256
 BCGRG

FILTER = BLPP 100/ 250/ -16
 MIN. MAX VALUES = 0.088 94.75, 6.24 e -7.25

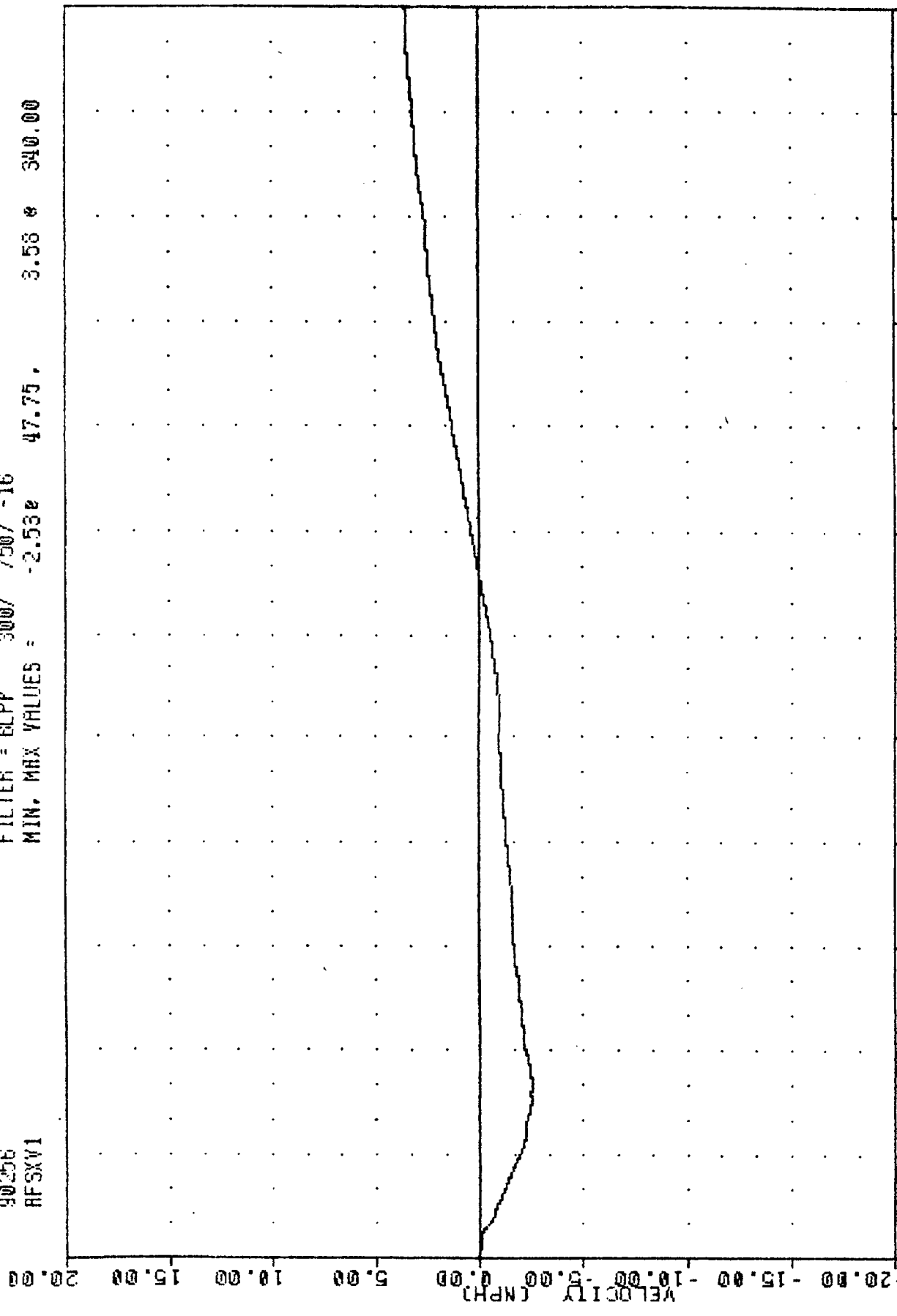


B49

CONTOURED MOVING BARRIER INTO LEFT SIDE OF AN AUDI 5000 AT 19.9 MPH *
 MOVING BARRIER CENTER OF GRAVITY RESULTANT ACCELERATION

900913-3 , THC
 CRASH III DAMAGE ALGORITHM
 90256
 RFSXV1

FILTER = 6LPP 300/ 750/ -16
 MIN, MAX VALUES = -2.53e 47.75, 3.56 e 340.00



CONTOURED MOVING BARRIER INTO LEFT SIDE OF AN AUDI 5000 AT 19.9 MPH *3
 RIGHT FRONT SILL X-AXIS VELOCITY

CRASH III DAMAGE ALGORITHM

90256

RFSYV1

FILTER = 6LPP 300/ 750/ -16

MIN, MAX VALUES = -3.57e 71.50, 0.00e 0.00

20.00

15.00

10.00

5.00

0.00

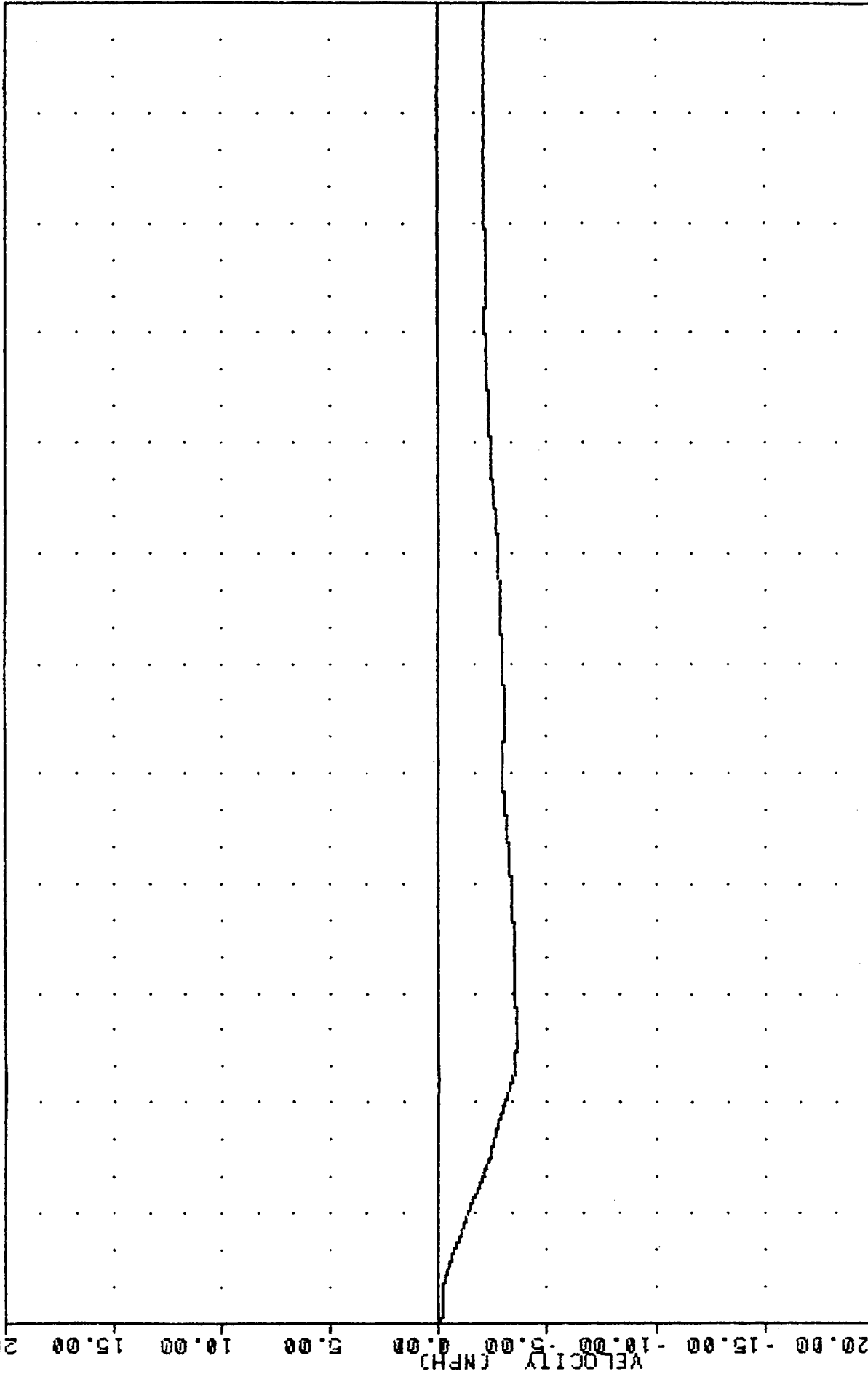
-5.00

-10.00

-15.00

-20.00

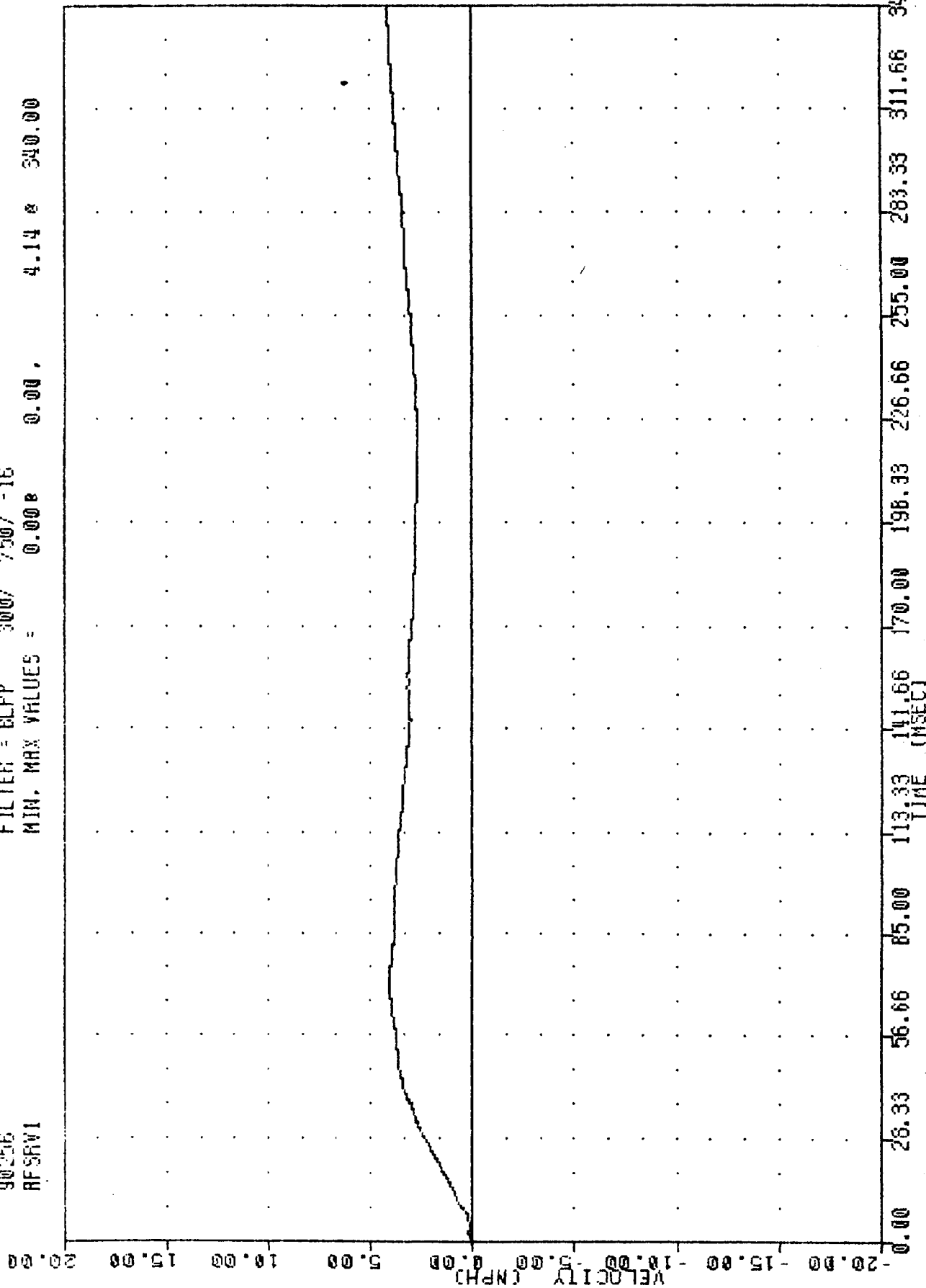
B51



CONTOURED MOVING BARRIER INTO LEFT SIDE OF AN AUDI 5000 AT 19.9 MPH
RIGHT FRONT SILL Y-AXIS VELOCITY

900913-3 , IRC
 CRASH III DAMAGE ALGORITHM
 90256
 RFSRV1

FILTER = BLPP 300/ 750/ -18
 MIN. MAX VALUES = 0.00 0.00 4.14 340.00



CONToured MOVING BARRIER INTO LEFT SIDE OF AN AUDI 5000 AT 19.9 MPH *3
 RIGHT FRONT SILL RESULTANT VELOCITY

CRASH III DAMAGE ALGORITHM

90256

VC6XV1

FILTER = BLFP 300/ 750/ -16

MIN. MAX VALUES = -2.148 40.00, 7.66 @ 340.00

20.00

15.00

10.00

5.00

0.00

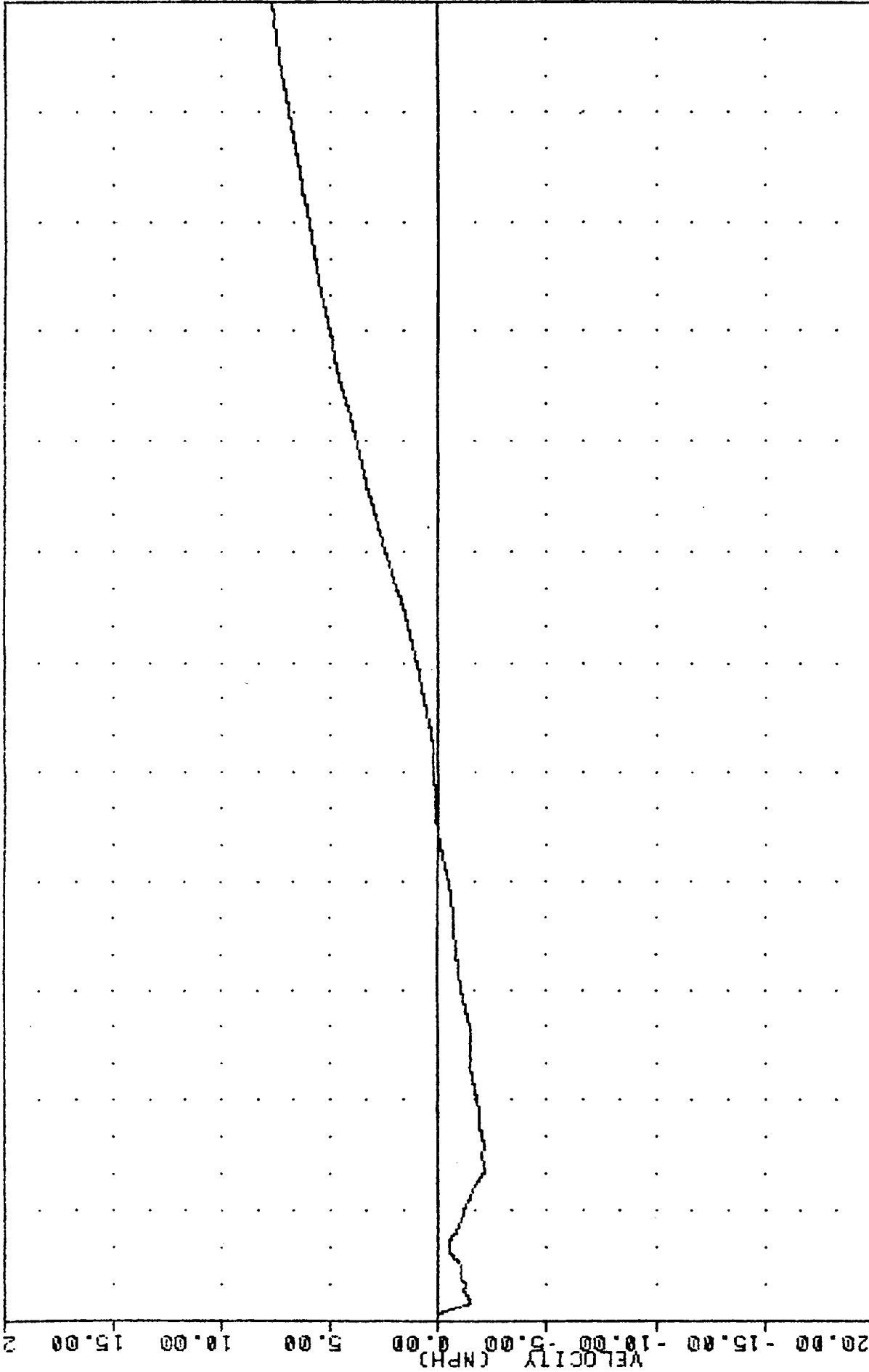
-5.00

-10.00

-15.00

-20.00

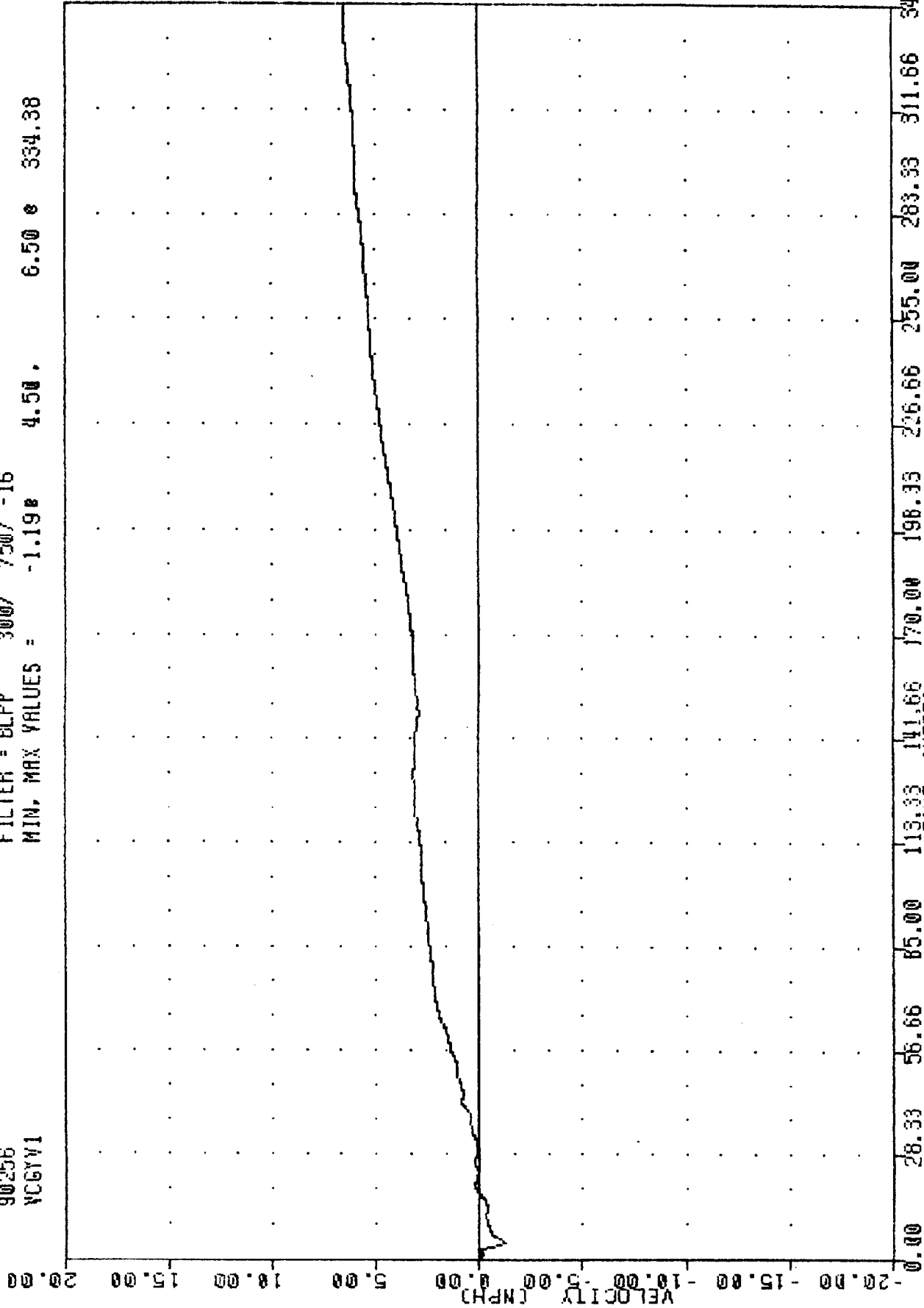
B53



CONToured MOVING BARRIER INTO LEFT SIDE OF AN AUDI 5000 AT 19.9 MPH
VEHICLE CG X-AXIS VELOCITY (IMPACT DIRECTION)

900913-3 , TRC
 CRASH III DAMAGE ALGORITHM
 90256
 YCGYV1

FILTER = BLPP 300/ 750/ -16
 MIN. MAX VALUES = -1.19E 4.50 . 6.50 e 334.38



B54

CONToured MOVING BARRIER INTO LEFT SIDE OF AN AUDI 5000 AT 19.9 MPH *3
 VEHICLE D6 Y-AXIS VELOCITY (PERPENDICULAR TO IMPACT DIRECTION)

CASH III DAMAGE ALGORITHM

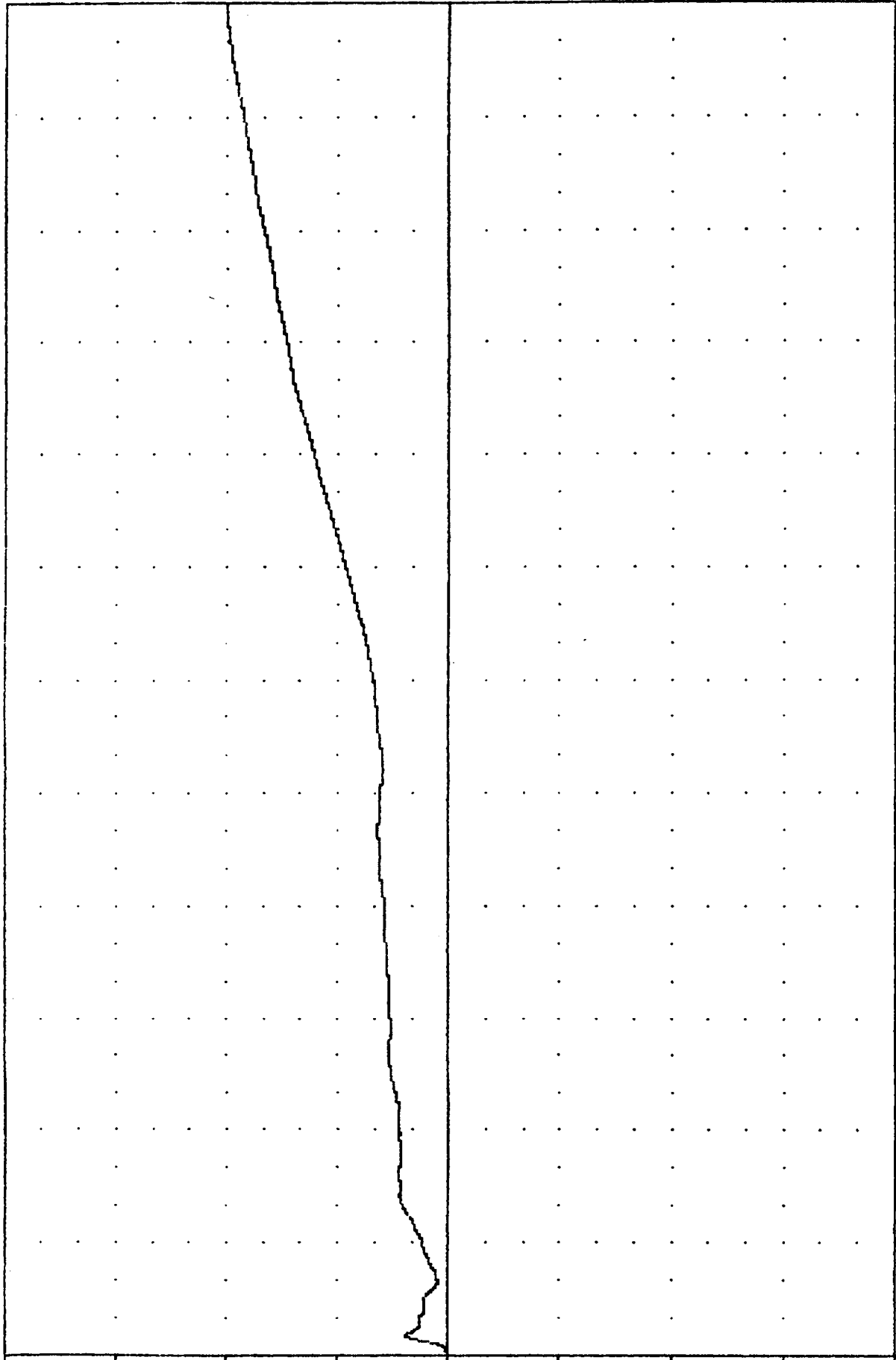
90256

YCGRV1

FILTER = BLPP 300/ 750/ -16

MIN. MAX VALUES = 0.00 10.04 * 340.00

20.00
15.00
10.00
5.00
0.00
-5.00
-10.00
-15.00
-20.00



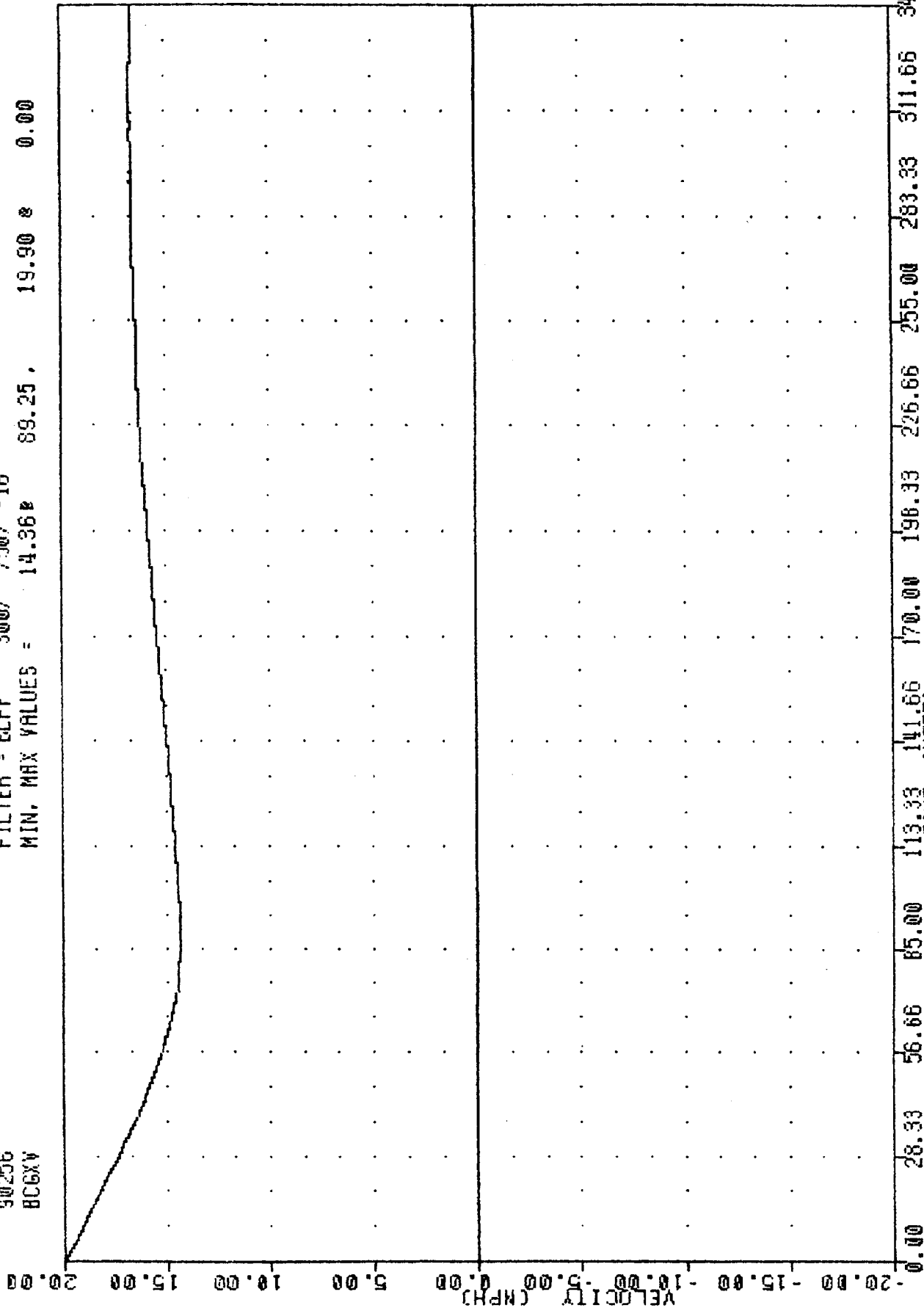
0.00 28.33 56.66 85.00 113.33 141.66 170.00 198.33 226.66 255.00 283.33 311.66 340

TIME (MSEC)
CONTOURED MOVING BARRIER INTO LEFT SIDE OF AN AUDI 5000 AT 19.9 MPH *
VEHICLE CG RESULTANT VELOCITY

900313-3 , TAC
 CRASH III DAMAGE ALGORITHM

90256
 BDC6XV

FILTER = ELPP 300/ 750/ -16
 MIN. MAX VALUES = 14.36 89.25 . 19.90 0.00



CONTOURED MOVING BARRIER INTO LEFT SIDE OF AN AUDI 5000 AT 19.9 MPH #3
 MOVING BARRIER CENTER OF GRAVITY X-AXIS VELOCITY

CRASH III DAMAGE ALGORITHM

90256

BCGY

FILTER = BLPP 300/ 750/ -16

MIN. MAX VALUES = -0.05 2.50

3.87 e 335.00

20.00

15.00

10.00

5.00

0.00

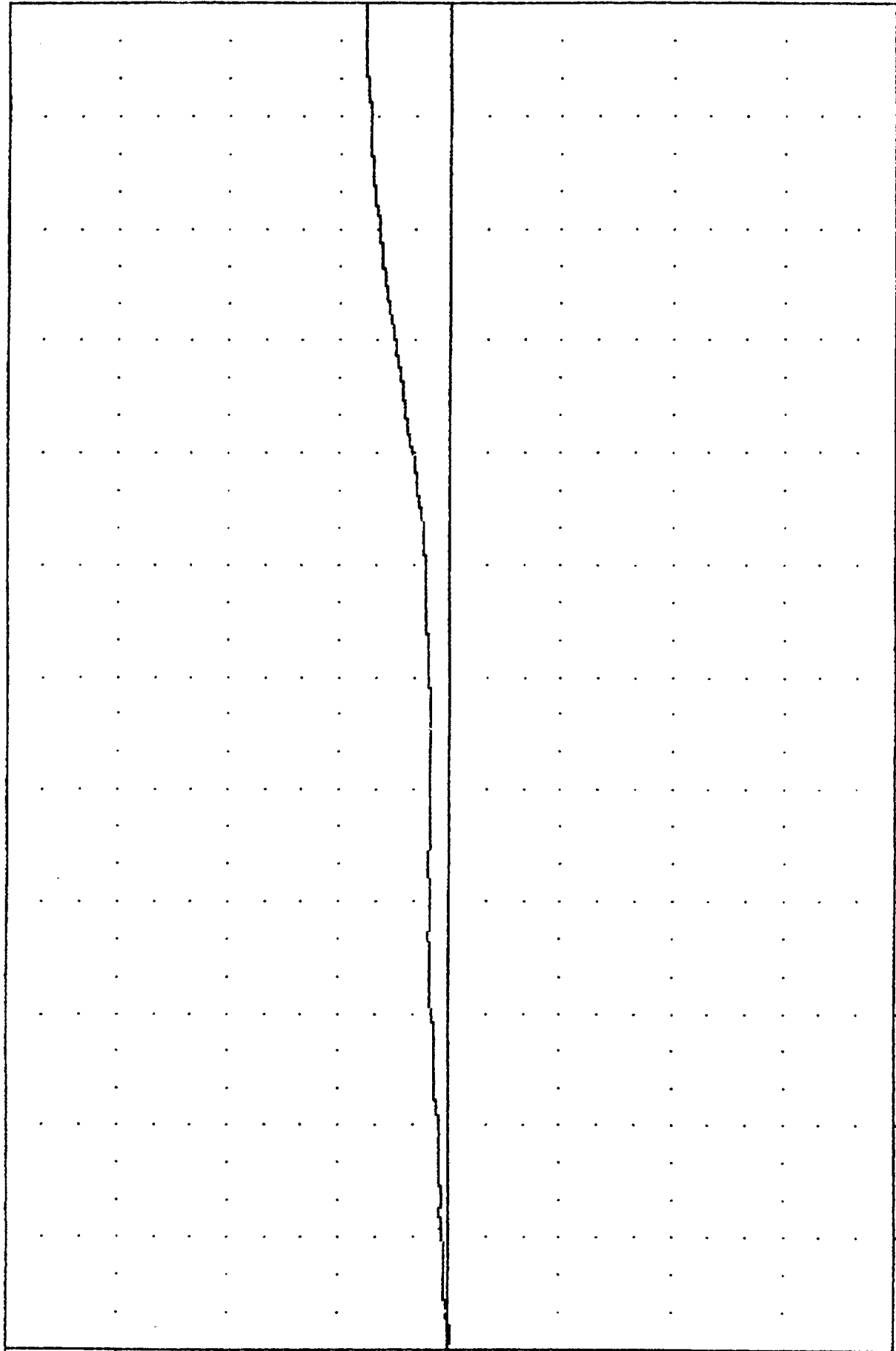
-5.00

-10.00

-15.00

-20.00

VELOCITY (MPH)

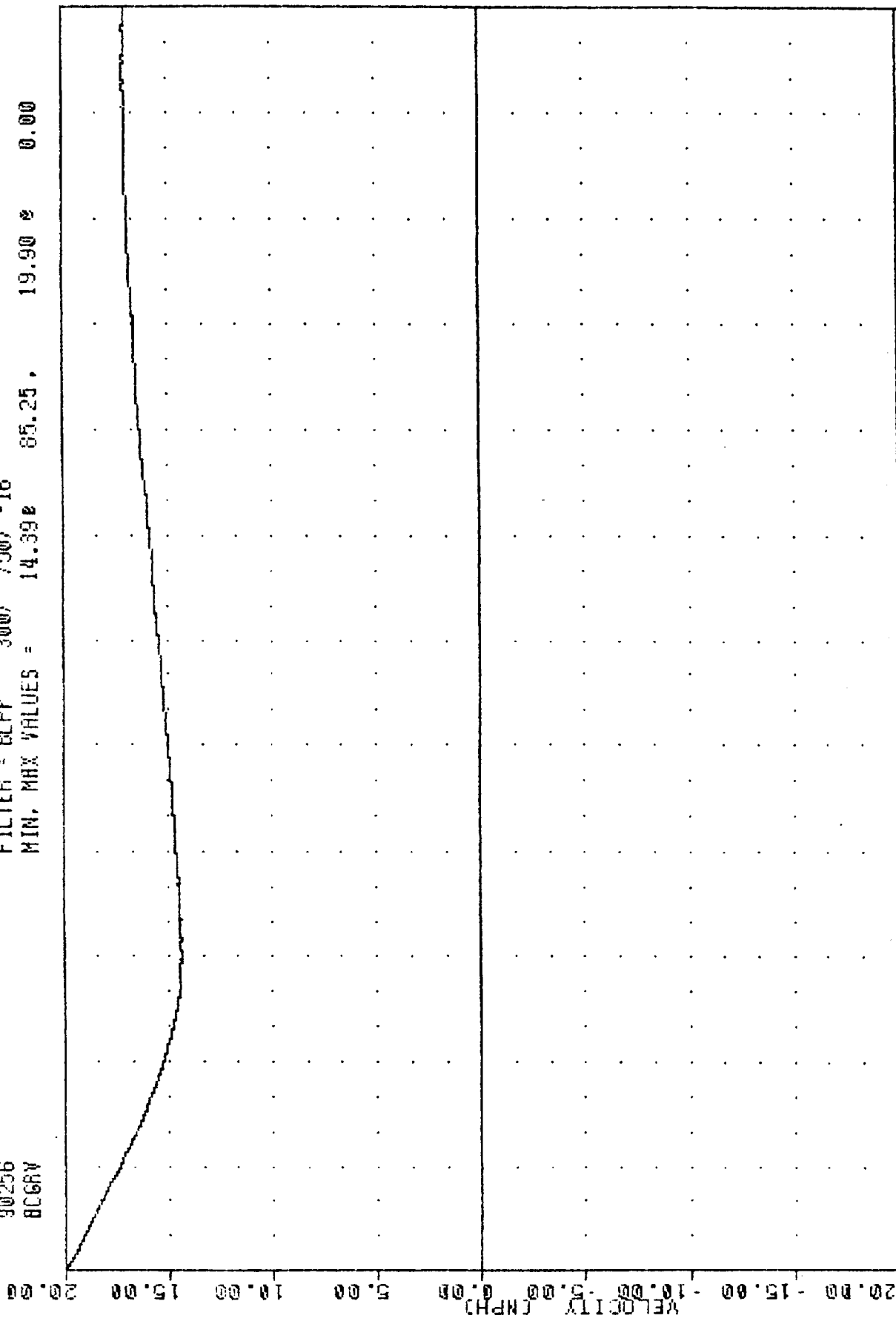


0.00 26.33 56.66 85.00 113.33 141.66 170.00 198.33 226.66 255.00 283.33 311.66 340

CONTOURED MOVING BARRIER INTO LEFT SIDE OF AN AUDI 5000 AT 19.9 MPH
MOVING BARRIER CENTER OF GRAVITY Y-AXIS VELOCITY

9000JJ-3 IRC
 CRASH III DAMAGE ALGORITHM
 90256
 BCGRY

FILTER = BLPF 300/ 750/ -16
 MIN. MAX VALUES = 14.39e 85.25, 19.90 e 0.00



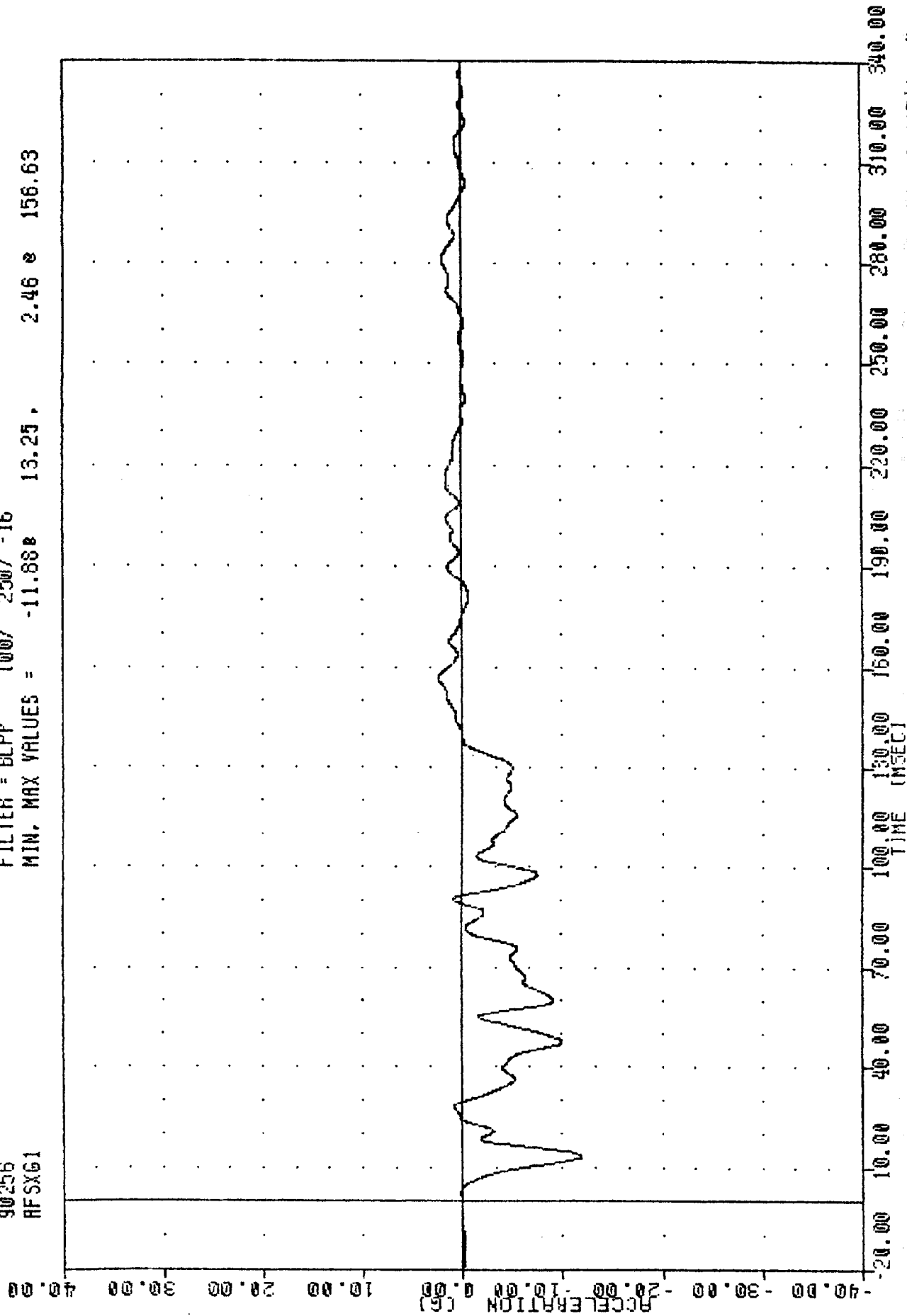
0.00	28.33	56.66	85.00	113.33	141.66	170.00	198.33	226.66	255.00	283.33	311.66	340.00
				TIME	(MSEC)							

CONTOURED MOVING BARRIER INTO LEFT SIDE OF AN AUDI 5000 AT 19.9 MPH #3
 MOVING BARRIER CENTER OF GRAVITY RESULTANT VELOCITY

TEST #900913-2

900913-4 . TRC
CRASH III DAMAGE ALGORITHM
90256
RFSXG1

FILTER = BLPP 100/ 250/ -16
MIN, MAX VALUES = -11.888 13.25 , 2.46 e 156.63



CONTOURED MOVING BARRIER INTO LEFT SIDE OF AN AUDI 5000 AT 45.0 MPH #4
RIGHT FRONT STILL X-AXIS ACCELERATION

CRASH III DAMAGE ALGORITHM

90256
RFSY61

FILTER = BLPP 100/ 250/ -16
MIN, MAX VALUES = -10.89 90.50

2.90 e 34.75

40.00

30.00

20.00

10.00

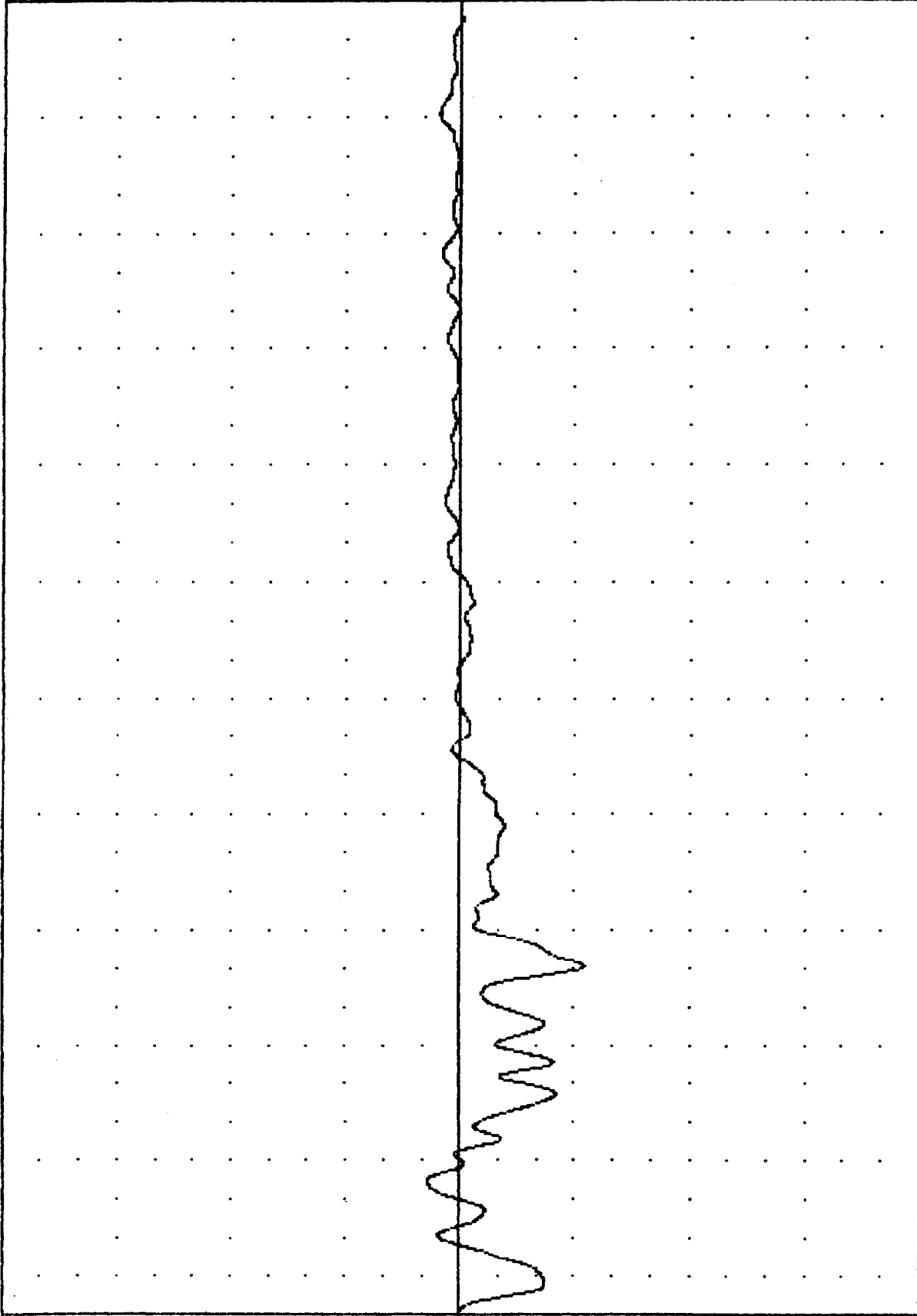
ACCELERATION (G)

-10.00

-20.00

-30.00

-40.00

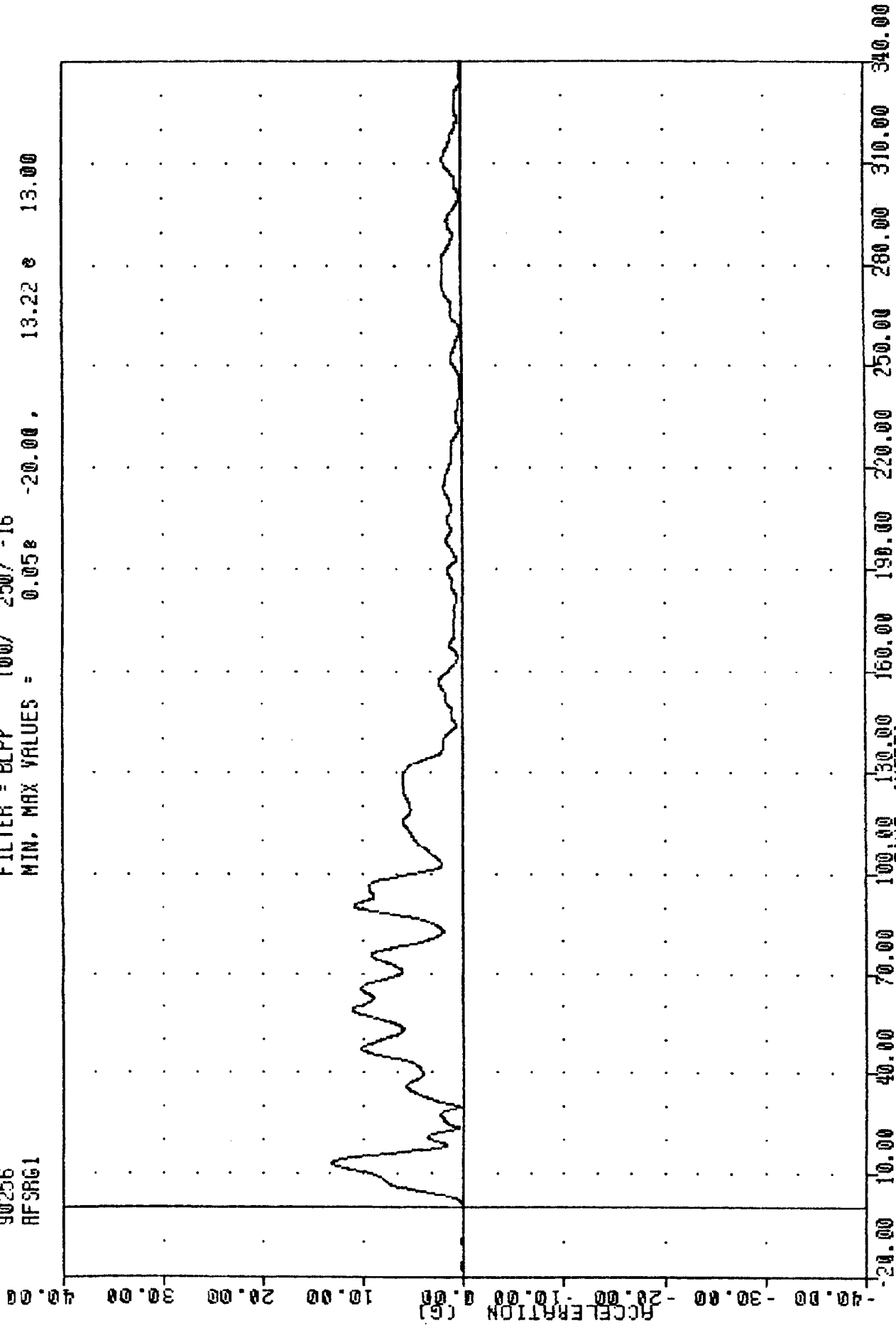


-20.00 10.00 40.00 70.00 100.00 130.00 160.00 190.00 220.00 250.00 280.00 310.00 340.00
TIME (MSEC)

CONTOURED MOVING BARRIER INTO LEFT SIDE OF AN AUDI 5000 AT 45.0 MPH
RIGHT FRONT SILL Y-AXIS ACCELERATION

900913-4 , Trc
 CRASH III DAMAGE ALGORITHM
 90256
 RFSRG1

FILTER = BLPP 100/ 250/ -16
 MIN, MAX VALUES = 0.05e -20.00, 13.22 e 13.00



CONTOURED MOVING BARRIER INTO LEFT SIDE OF AN AUDI 5000 AT 45.0 MPH #4
 RIGHT FRONT SILL RESULTANT ACCELERATION

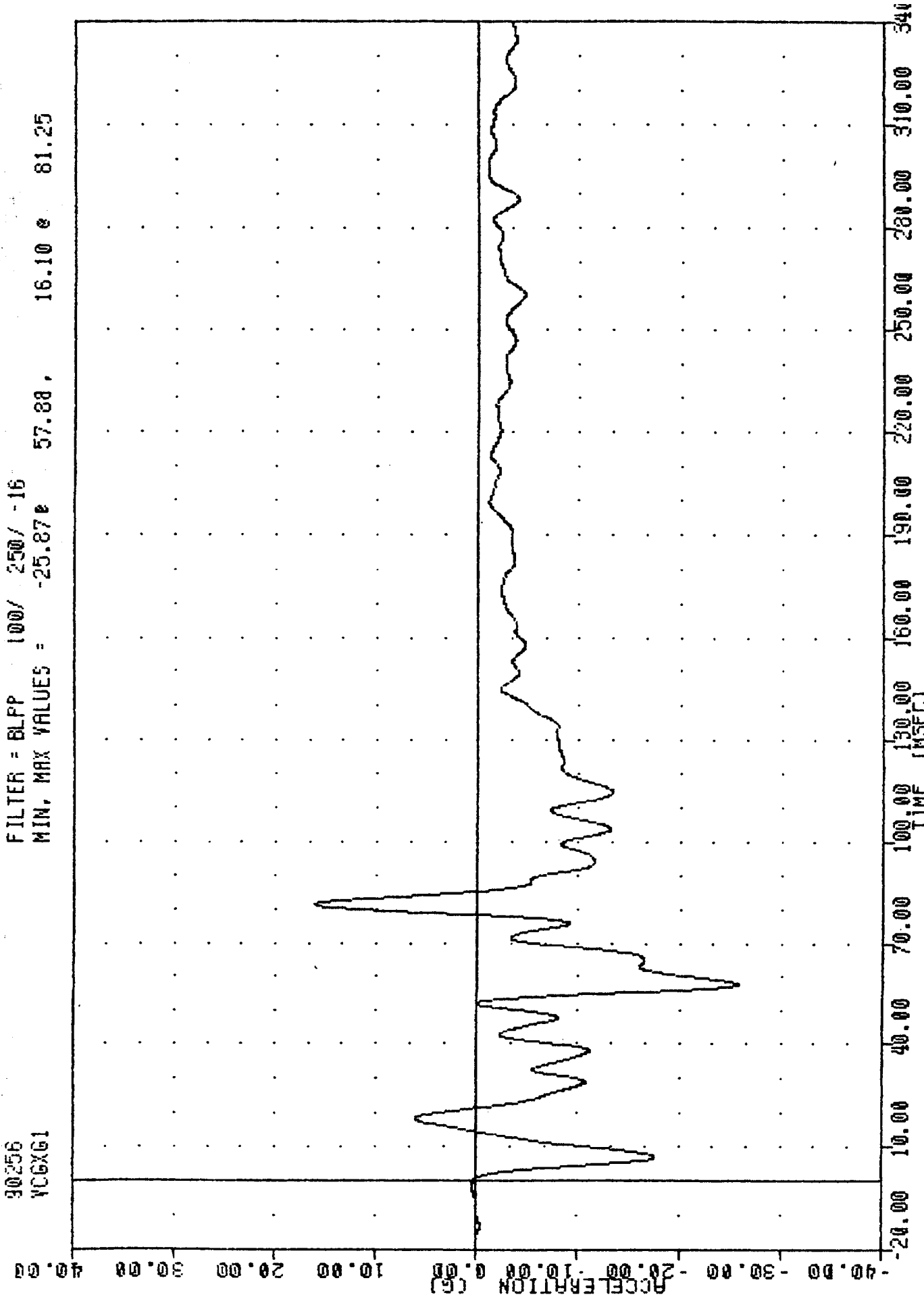
UNION ILL DAMAGE ALBUQUERQUE

30256

YCGXG1

FILTER = BLPP 100/ 250/ -16

MIN, MAX VALUES = -25.87e 57.88, 16.10 e 81.25

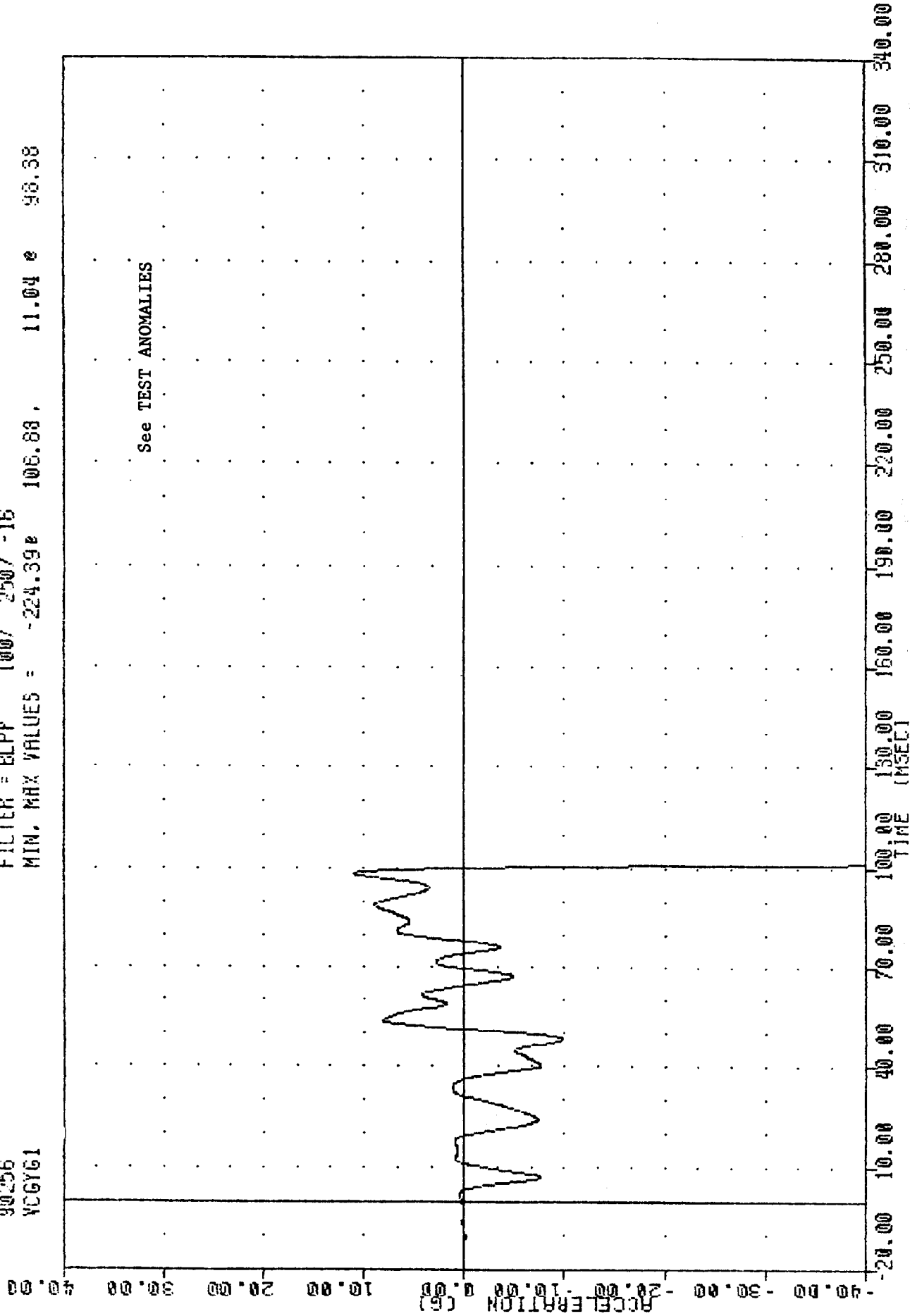


ACCELERATION (CG) -40.00 -30.00 -20.00 -10.00 0.00 10.00 20.00 30.00 40.00
TIME (MSEC) -20.00 10.00 40.00 70.00 100.00 130.00 160.00 190.00 220.00 250.00 280.00 310.00 340

CONTOURED MOVING BARRIER INTO LEFT SIDE OF AN AUDI 5000 AT 45.0 MPH ±
VEHICLE CG X-AXIS ACCELERATION (IMPACT DIRECTION)

100913-4 , TAC
 CRASH III DAMAGE ALGORITHM
 30256
 YCGY61

FILTER = BLPP 100/ 250/ -16
 MIN. MAX VALUES = -224.39 106.88, 11.04 e 98.38



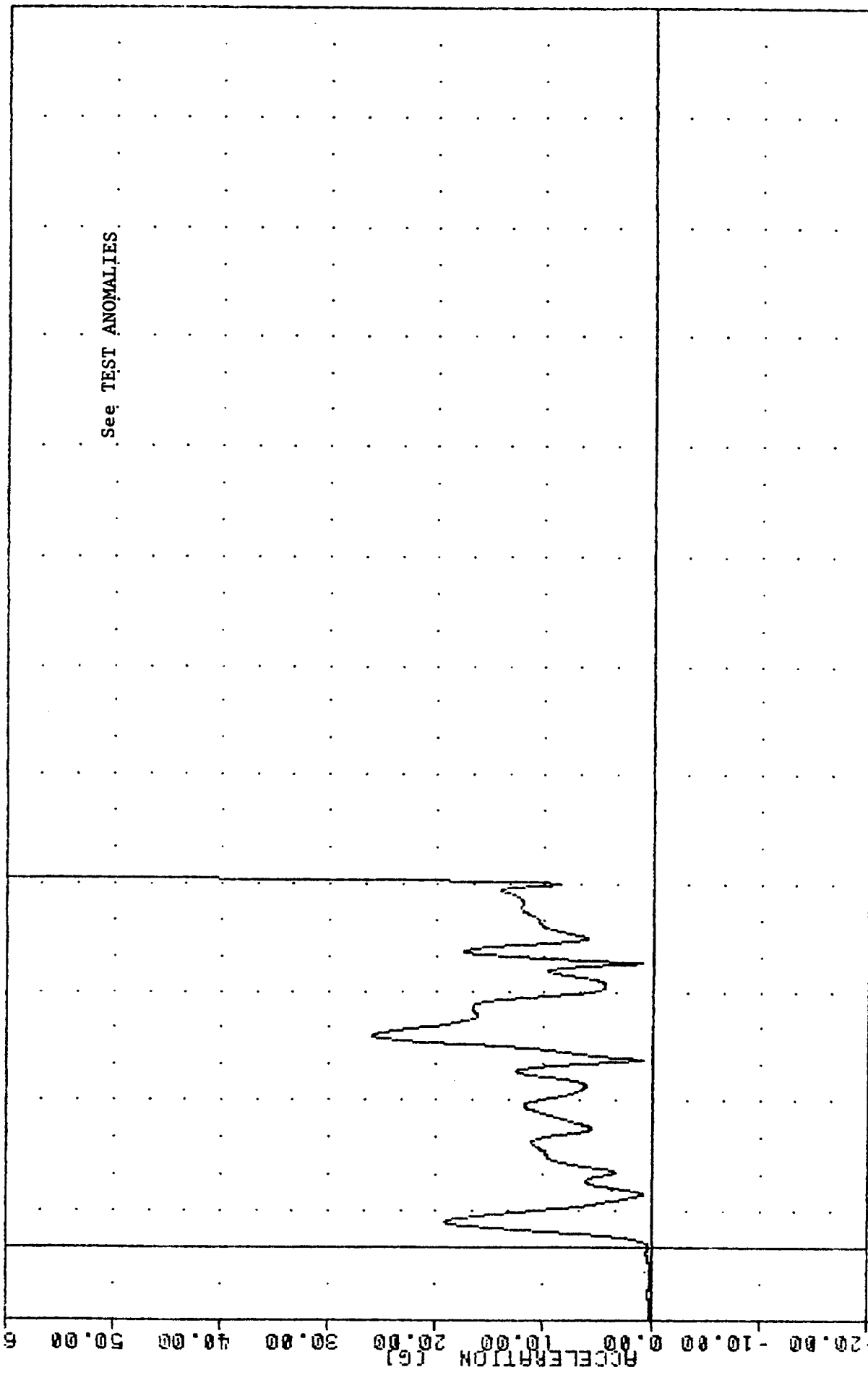
-20.00 10.00 40.00 70.00 100.00 150.00 160.00 190.00 220.00 250.00 280.00 310.00 340.00
 TIME (MSEC)

CONTOURED MOVING BARRIER INTO LEFT SIDE OF AN AUDI 5000 AT 45.0 MPH *4
 VEHICLE CG Y-AXIS ACCELERATION (PERPENDICULAR TO IMPACT DIRECTION)

CRASH III DAMAGE ALGORITHM

90256
YCGR61

FILTER = BLPF 100/ 250/ -16
MIN, MAX VALUES = 0.018 -19.25, 224.59 e 105.89



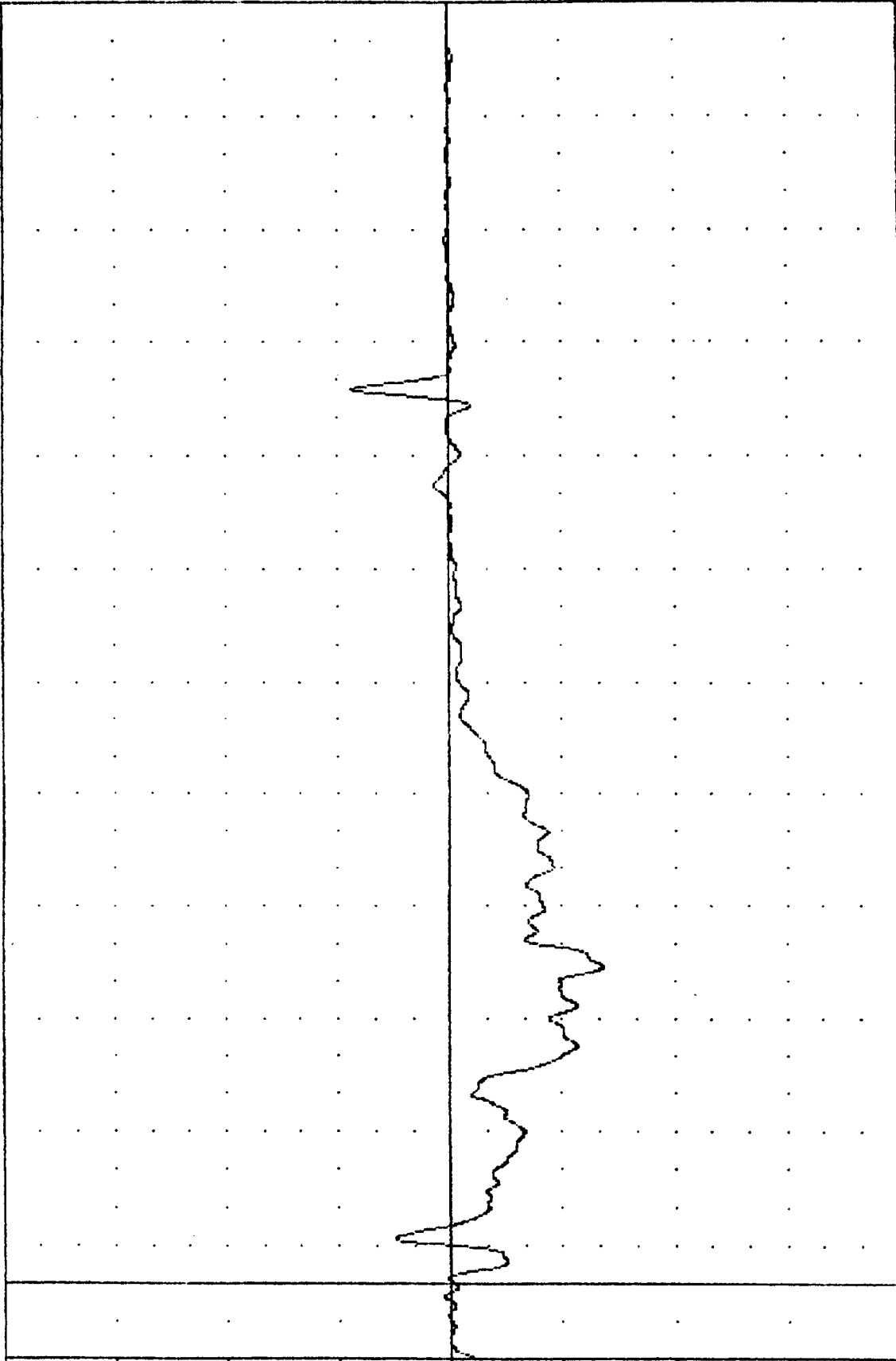
See TEST ANOMALIES

-20.00 10.00 20.00 30.00 40.00 50.00
-20.00 -10.00 0.00 10.00 20.00 30.00 40.00
100.00 120.00 130.00 140.00 150.00 160.00 170.00 180.00 190.00 200.00 210.00 220.00 230.00 240.00 250.00 260.00 270.00 280.00 290.00 300.00 310.00 320.00 330.00 340.00
CONToured MOVING BARRIER INTO LEFT SIDE OF AN AUDI 5000 AT 45.0 MPH
VEHICLE CG RESULTANT ACCELERATION

900713-4 THE
 CRASH III DAMAGE ALGORITHM
 90256
 BDCXG

FILTER = BLPP 100/ 250/ -16
 MIN. MAX VALUES = -13.64e 83.38. 8.66 e 237.50

40.00
30.00
20.00
10.00
0.00
-10.00
-20.00
-30.00
-40.00



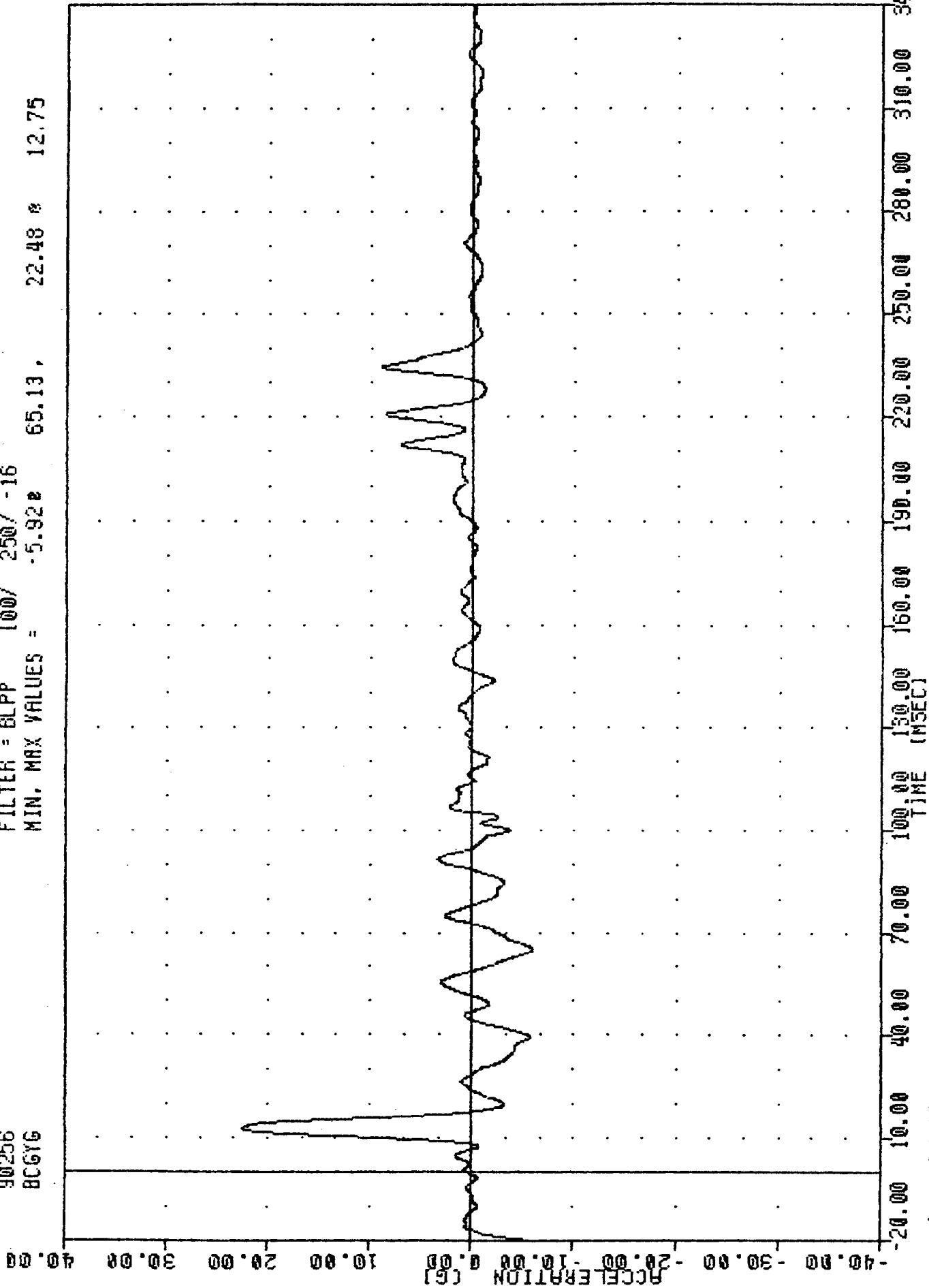
B66

-20.00 10.00 40.00 70.00 100.00 130.00 160.00 190.00 220.00 250.00 280.00 310.00 340.00
 TIME (MSEC)
 CONTOURED MOVING BARRIER INTO LEFT SIDE OF AN AUDI 5000 AT 45.0 MPH *4
 MOVING BARRIER CENTER OF GRAVITY X-AXIS ACCELERATION

CRASH III DAMAGE ALGORITHM

90256
BCGYG

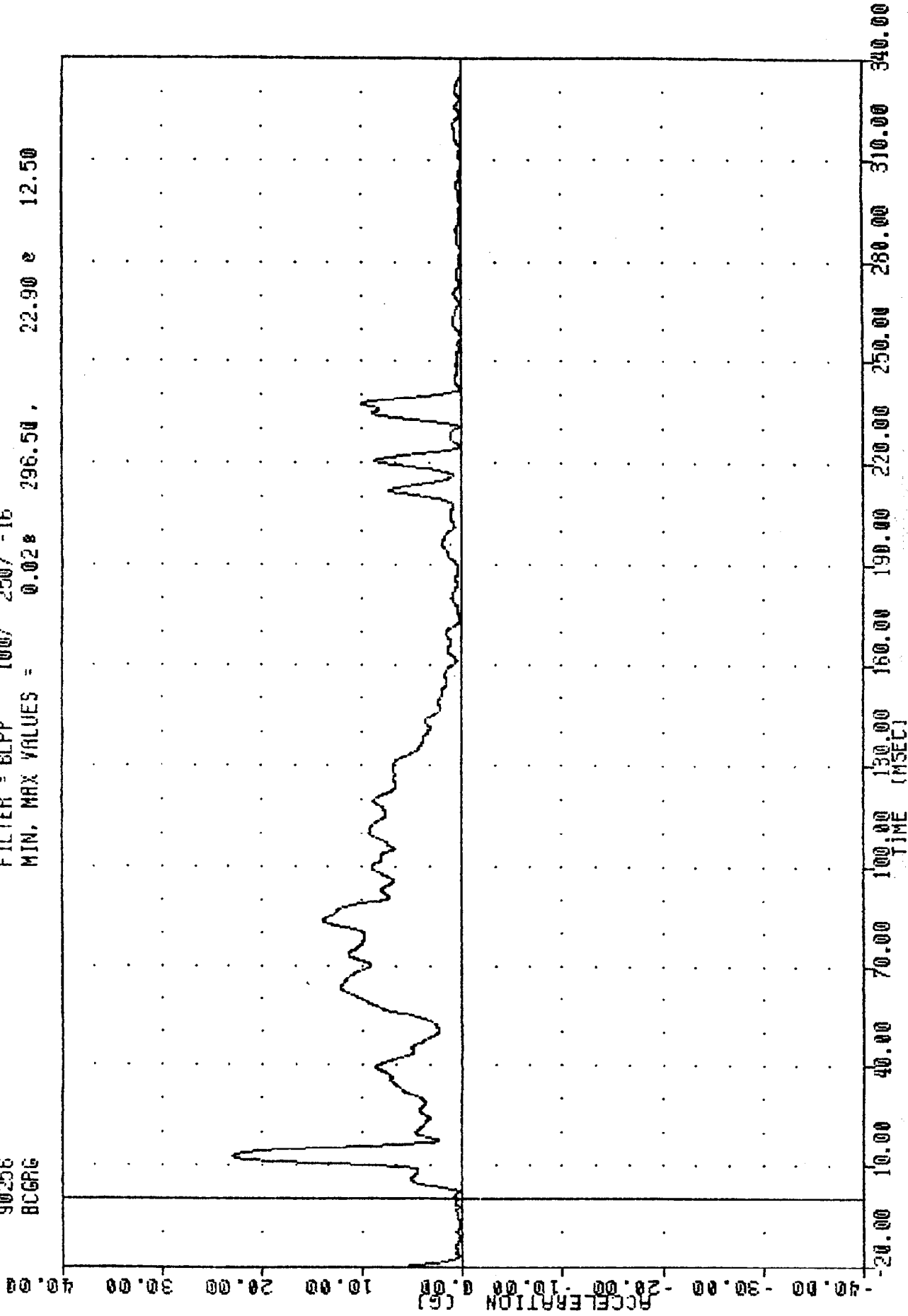
FILTER = BLPP 100/ 250/ -16
MIN, MAX VALUES = -5.92e 65.13, 22.48 e 12.75



CONTOURED MOVING BARRIER INTO LEFT SIDE OF AN AUDI 5000 AT 45.0 MPH #4
MOVING BARRIER CENTER OF GRAVITY Y-AXIS ACCELERATION

900913-4 , TRC
CRASH III DAMAGE ALGORITHM
90256
BCGRG

FILTER = BLPP 100/ 250/ -16
MIN, MAX VALUES = 0.028 296.50 , 22.90 e 12.50



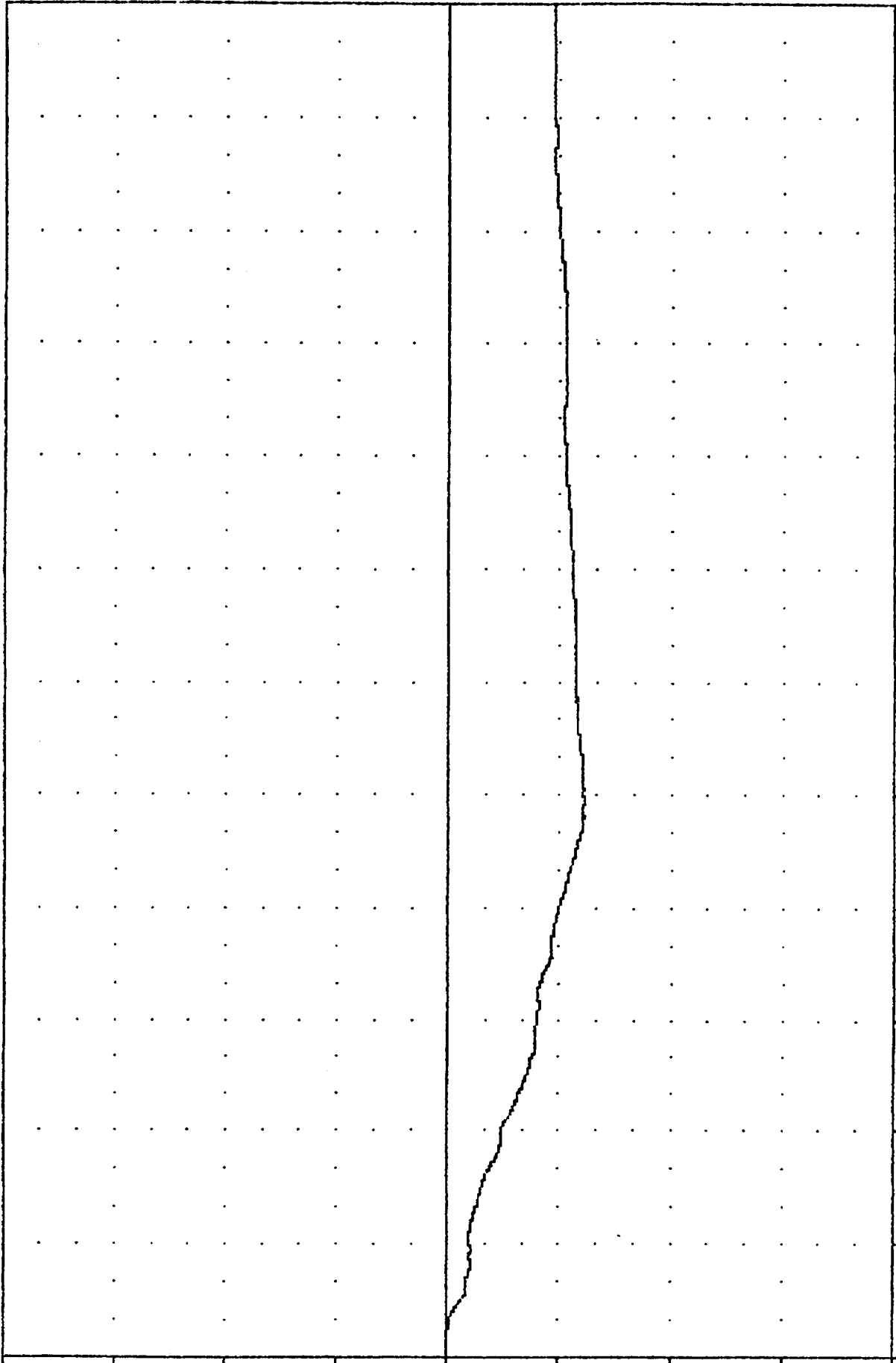
CONTOURED MOVING BARRIER INTO LEFT SIDE OF AN AUDI 5000 AT 45.0 MPH #4
MOVING BARRIER CENTER OF GRAVITY RESULTANT ACCELERATION

CRASH III DAMAGE ALGORITHM

90256
RFSXV1

FILTER = BLPP 300/ 750/ -16
MIN, MAX VALUES = -12.15 140.38, 0.01 e 4.38

40.00
30.00
20.00
10.00
0.00
-10.00
-20.00
-30.00
-40.00

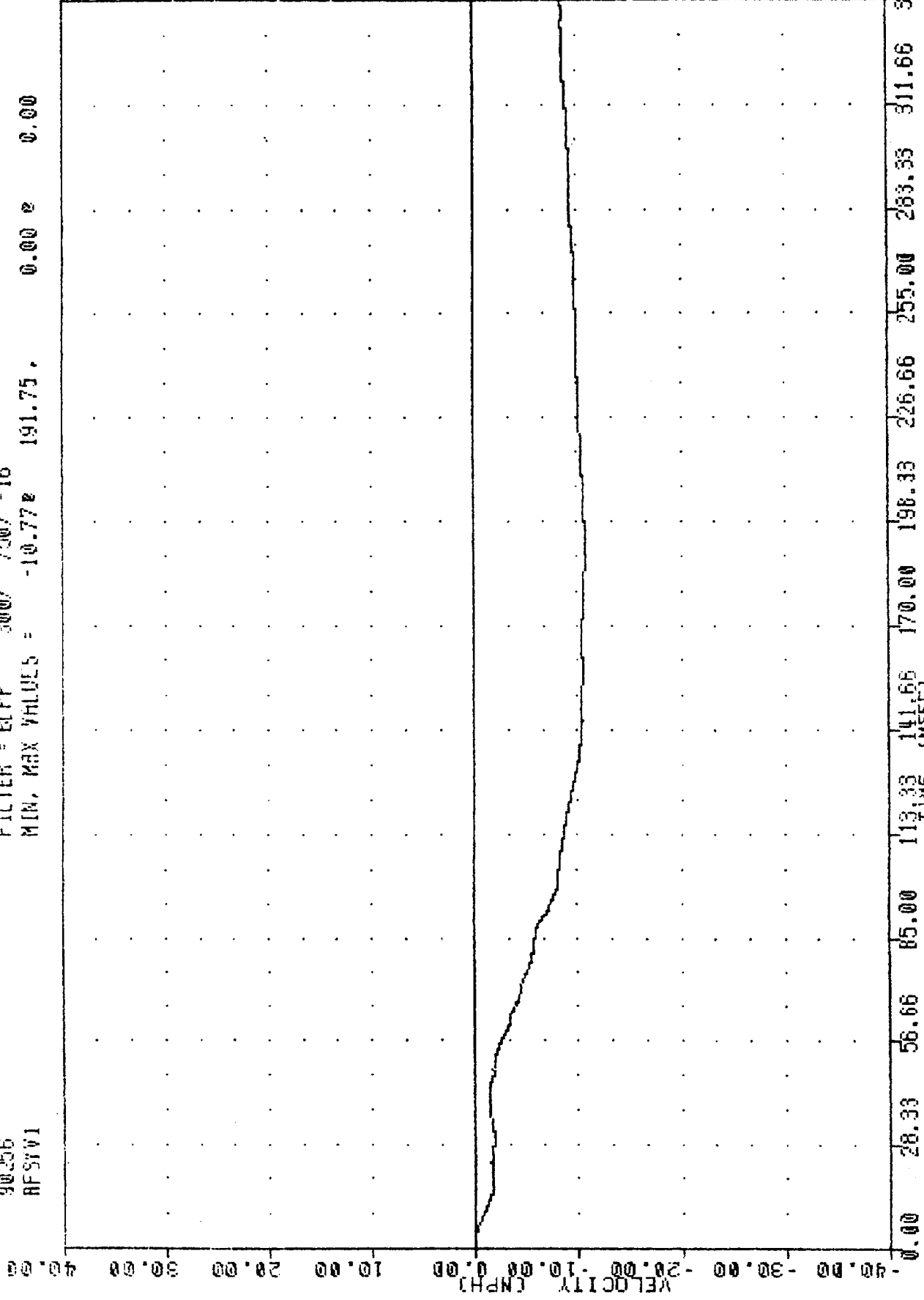


0.00 28.33 56.66 85.00 113.33 141.66 170.00 198.33 226.66 255.00 283.33 311.66 340.00
TIME (MSEC)

CONTOURED MOVING BARRIER INTO LEFT SIDE OF AN AUDI 5000 AT 45.0 MPH
RIGHT FRONT SILL X-AXIS VELOCITY

90011-2 , THE
 CRASH III DAMAGE ALGORITHM
 90256
 AFSYV1

FILTER = BLFF 300/ 750/ -16
 MIN. MAX VALUES = -10.77e 0.00 e 0.00



CONTOURED MOVING BARRIER INTO LEFT SIDE OF AN AUDI 5000 AT 45.0 MPH #4
 RIGHT FRONT SILL Y-AXIS VELOCITY

WASH 111 URBAN ALBUQUERQUE

90256

RFSRV1

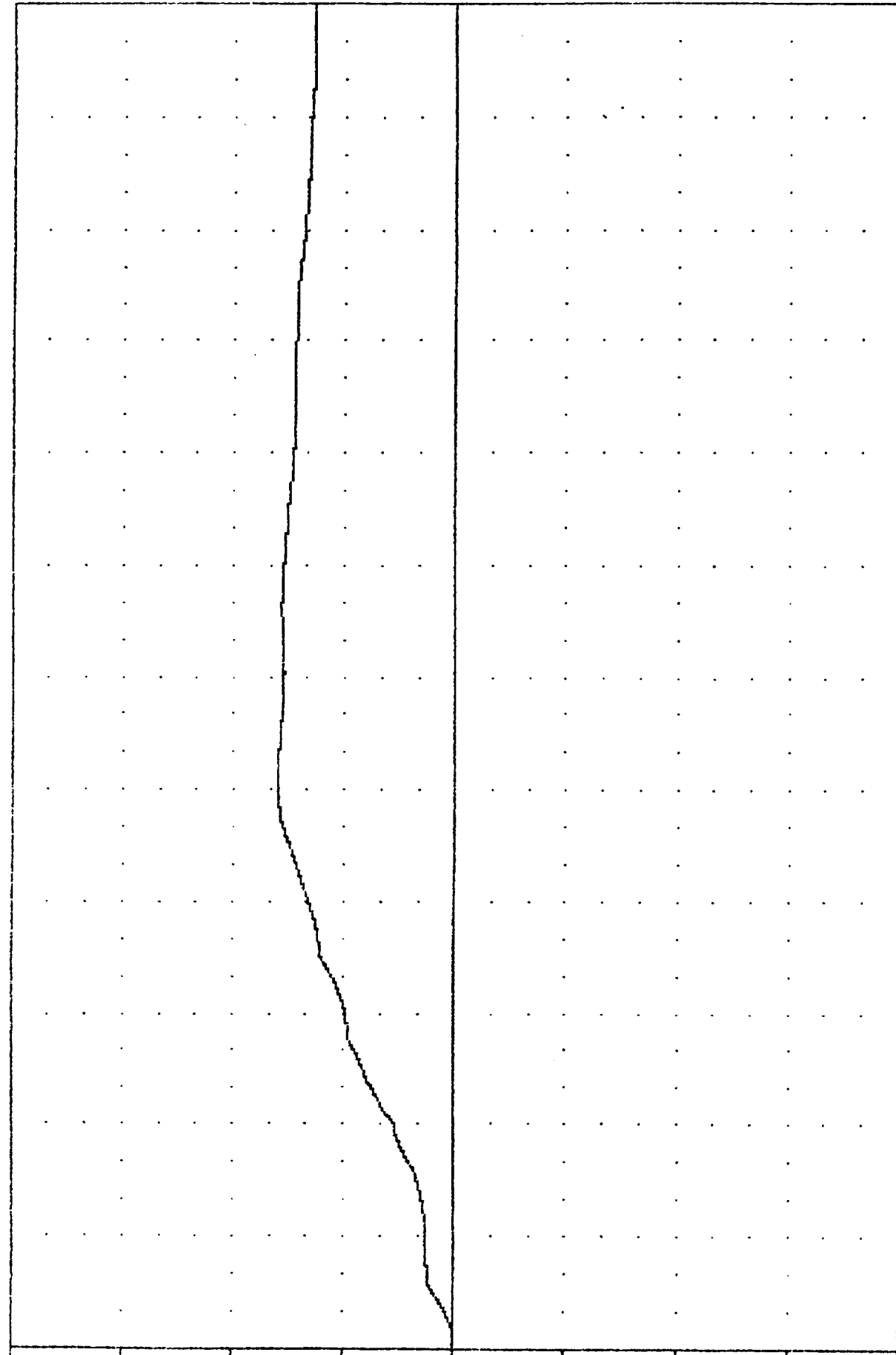
FILTER = BLPP 300/ 750/ -16

MIN. MAX VALUES = 0.00E 0.00E

16.01 @ 143.38

40.00
30.00
20.00
10.00
0.00
-10.00
-20.00
-30.00
-40.00

VELOCITY (MPH)

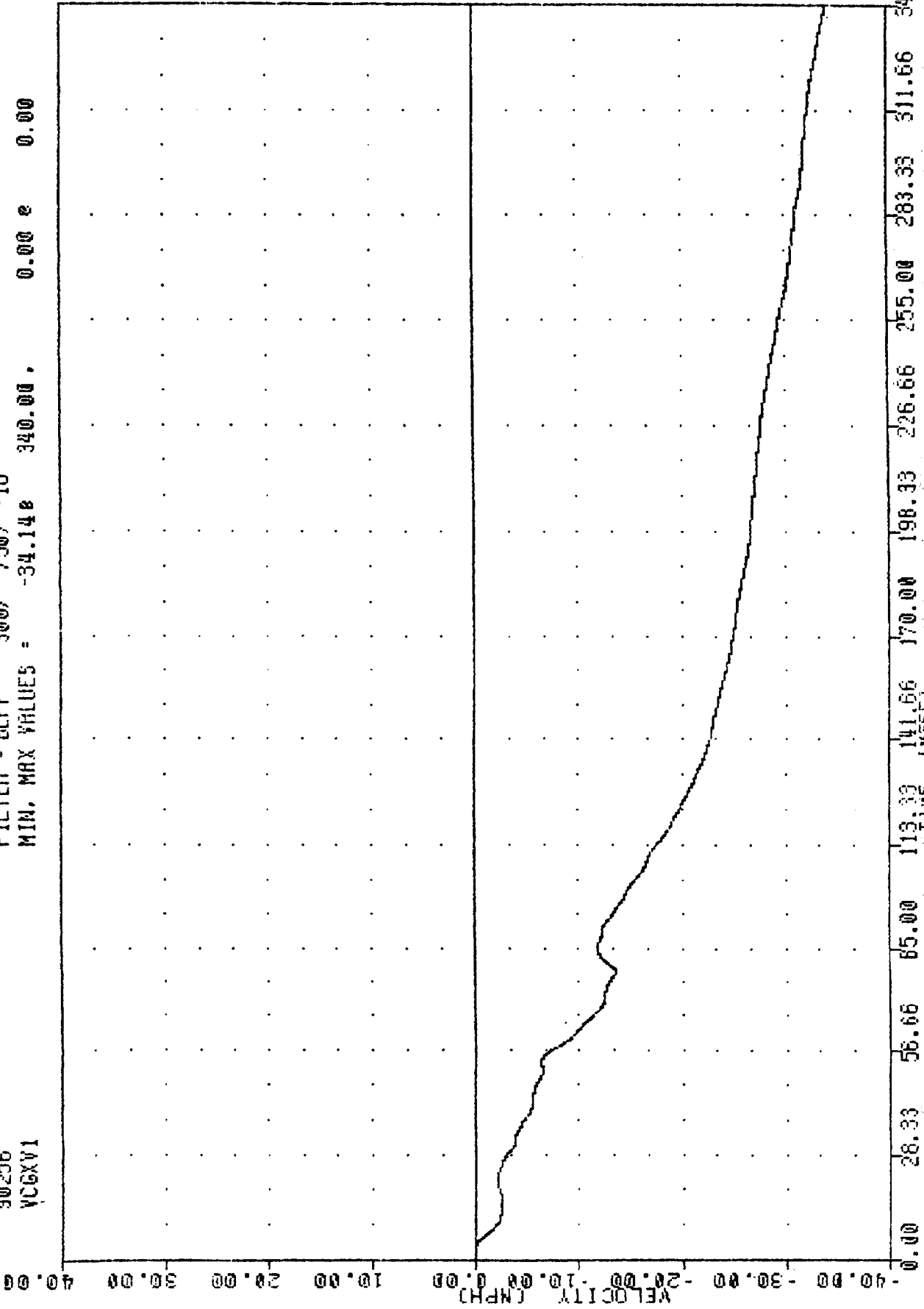


0.00 28.33 56.66 85.00 113.33 141.66 170.00 198.33 226.66 255.00 283.33 311.66 340.00

CONToured MOVING BARRIER INTO LEFT SIDE OF AN AUDI 5000 AT 45.0 MPH *
RIGHT FRONT SILL RESULTANT VELOCITY

900913-4 , TRC
 CRASH III DAMAGE ALGORITHM
 90256
 VCGXV1

FILTER = BLPP 300/ 750/ -16
 MIN. MAX VALUES = -34.148 340.00 , 0.00 e 0.00



CONTOURED MOVING BARRIER INTO LEFT SIDE OF AN AUDI 5000 AT 45.0 MPH *4
 , VEHICLE CG X-AXIS VELOCITY (IMPACT DIRECTION)

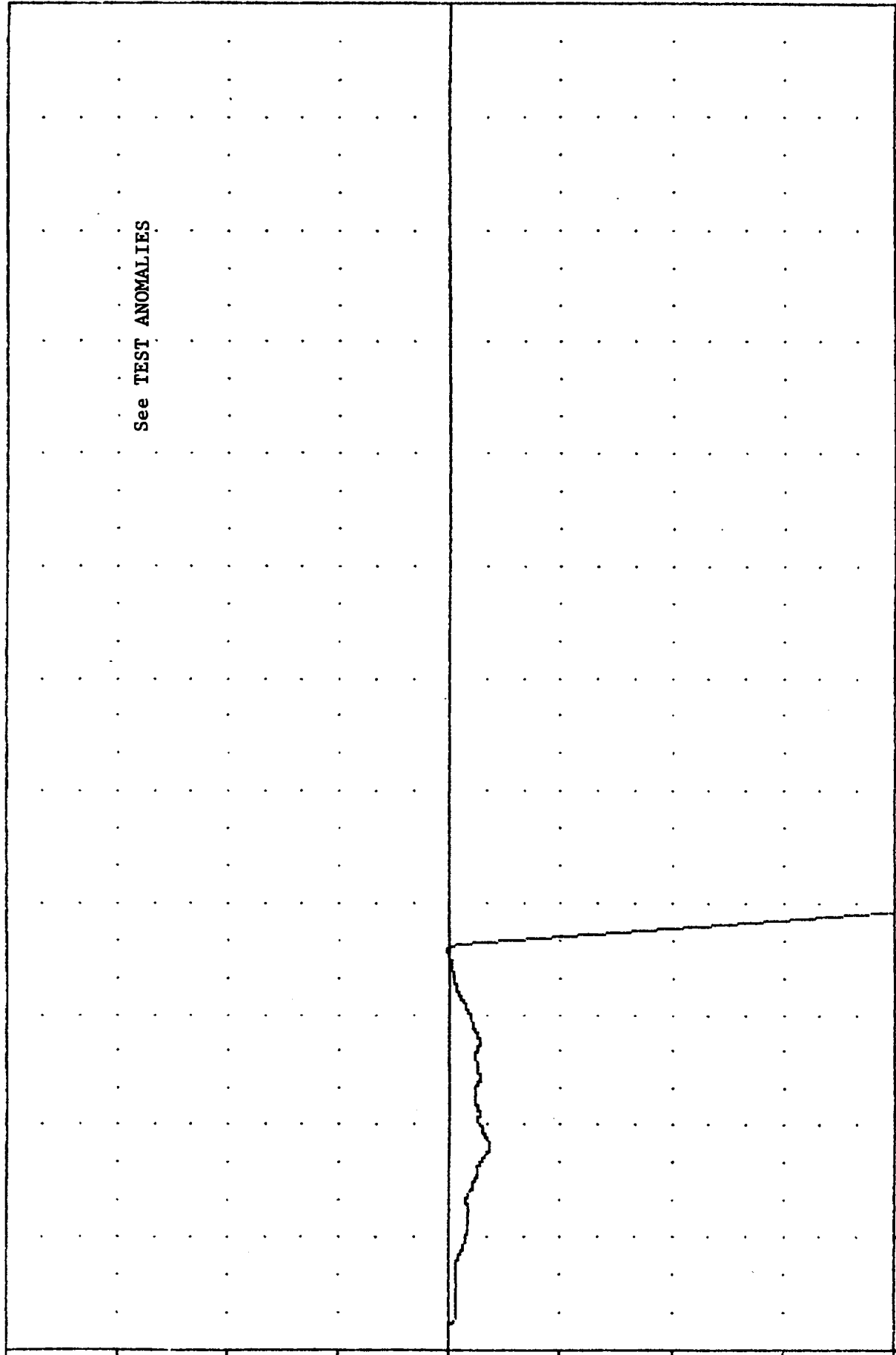
CRASH III DAMAGE ALGORITHM

90256
VCGYV1

FILTER = BLPP 300/ 750/ -16
MIN. MAX VALUES = -1150.01# 340.00#

0.25 e 101.63

40.00
30.00
20.00
10.00
0.00
-10.00
-20.00
-30.00
-40.00



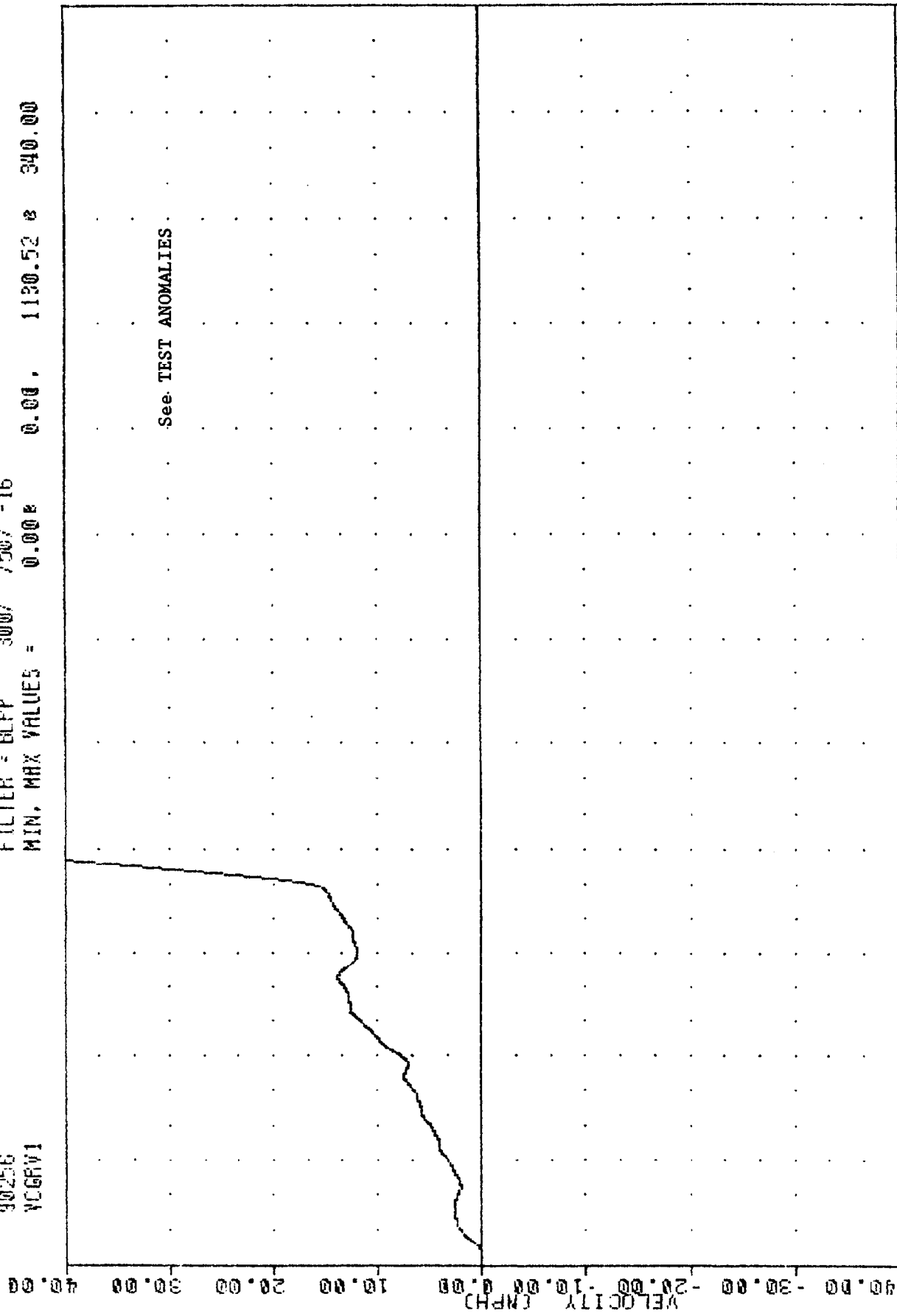
See TEST ANOMALIES

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

CONTOURED MOVING BARRIER INTO LEFT SIDE OF AN AUDI 5000 AT 45.0 MPH
VEHICLE CG Y-AXIS VELOCITY (PERPENDICULAR TO IMPACT DIRECTION)

100011-4 , TMC
 CRASH III DAMAGE ALGORITHM
 90256
 YCGRV1

FILTER = BLFP 300/ 750/ -16
 MIN. MAX VALUES = 0.00 1130.52 340.00



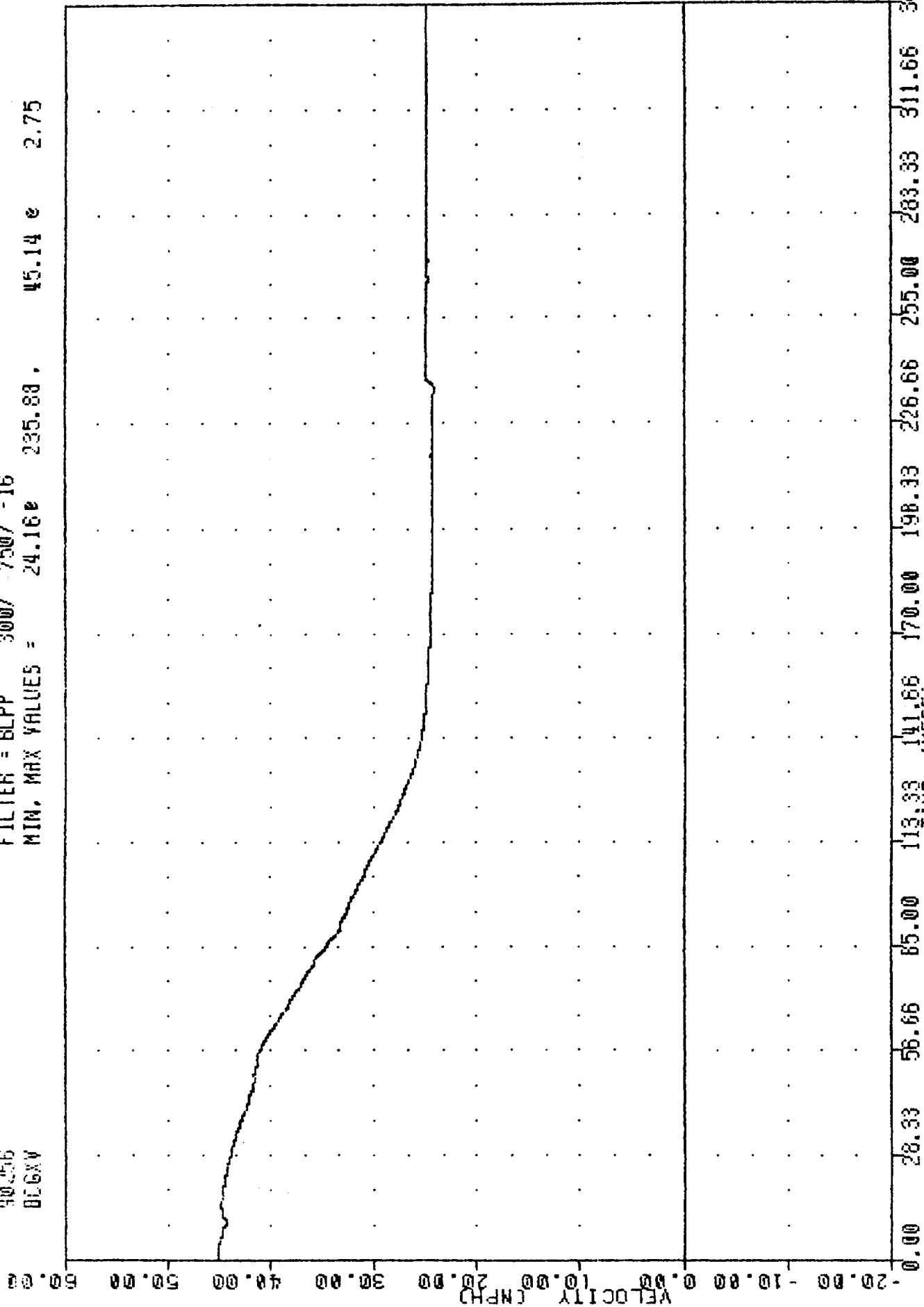
See TEST ANOMALIES .

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 (INSEC)
 CONTOURED MOVING BARRIER INTO LEFT SIDE OF AN AUDI 5000 AT 45.0 MPH
 VEHICLE CG RESULTANT VELOCITY

CRASH III DAMAGE ALGORITHM

90256
BEGXV

FILTER = BLPP 300/ 750/ -16
MIN. MAX VALUES = 24.16e 235.88 . 45.14 e 2.75



CONTOURED MOVING BARRIER INTO LEFT SIDE OF AN AUDI 5000 AT 45.0 MPH
MOVING BARRIER CENTER OF GRAVITY X-AXIS VELOCITY

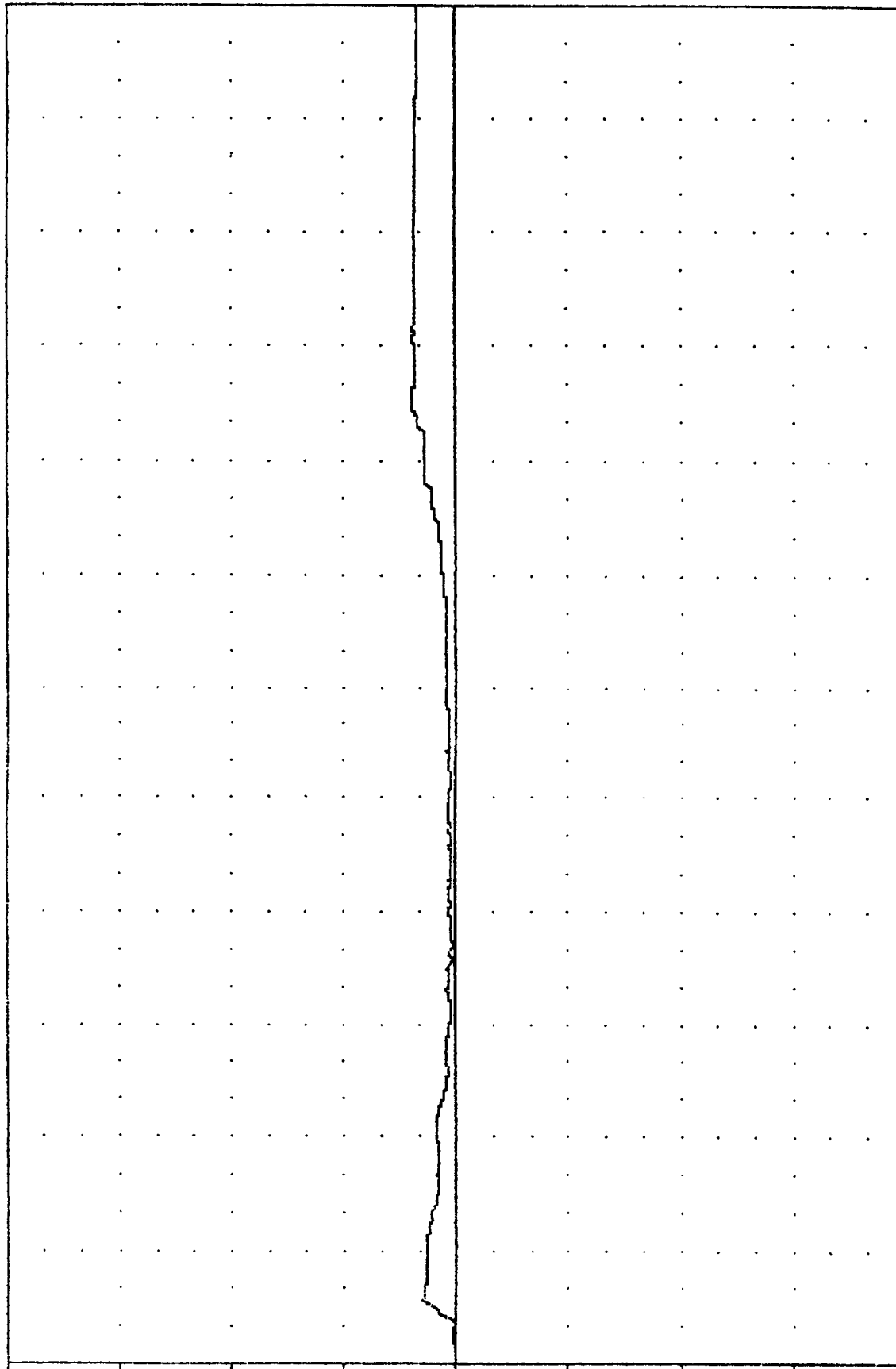
820513-4 , TRC
CRASH III DAMAGE ALGORITHM

90250
BCGIV

FILTER = BLFF 300/ 750/ -16

MIN. MAX VALUES = 0.00e 0.00, 3.82 e 242.88

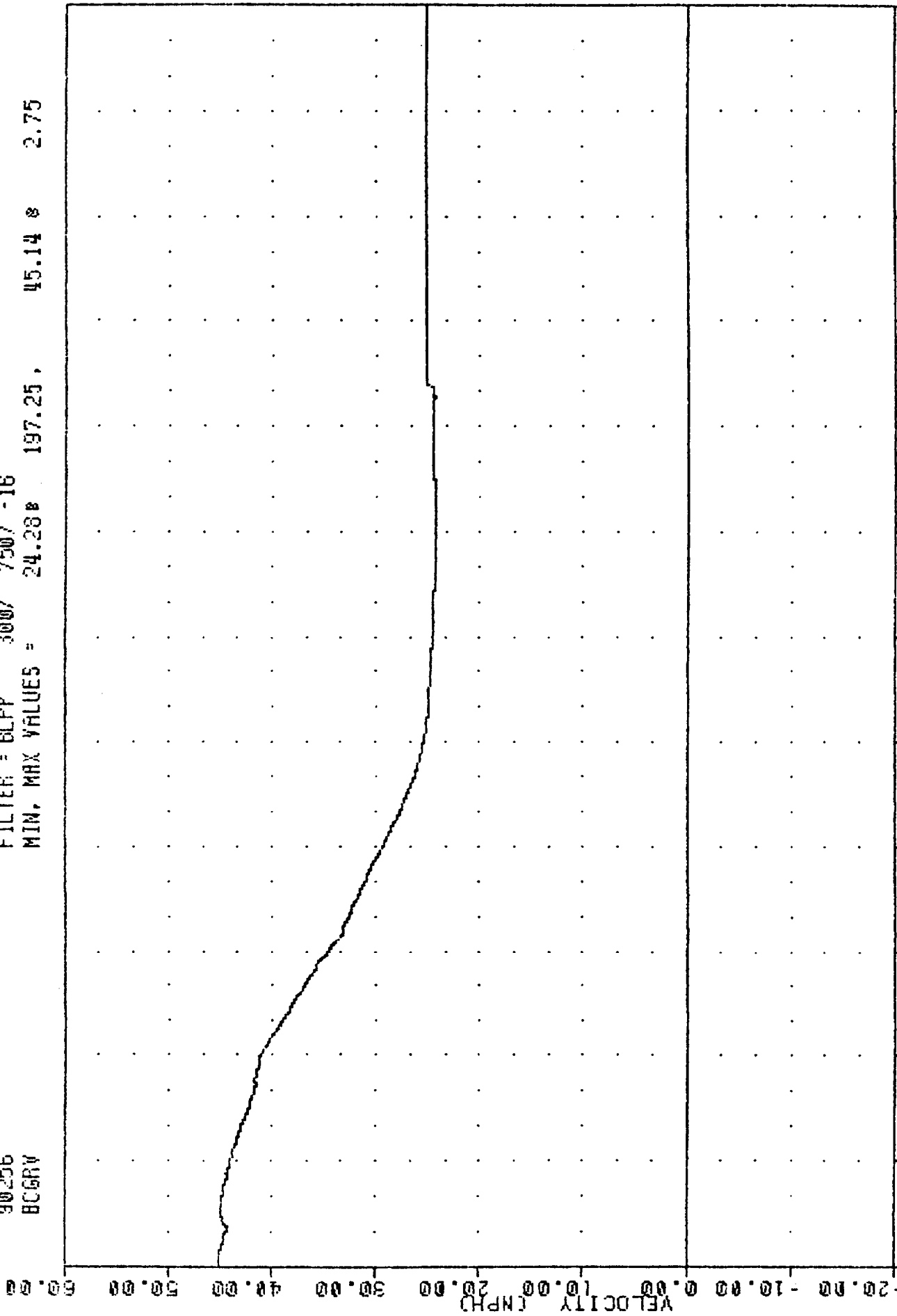
VELOCITY (MPH)



CONTOURED MOVING BARRIER INTO LEFT SIDE OF AN AUDI 5000 AT 45.0 MPH *4
MOVING BARRIER CENTER OF GRAVITY Y-AXIS VELOCITY

CRASH III DAMAGE ALGORITHM
 90256
 BCGRV

FILTER = BLPP 300/ 750/ -16
 MIN. MAX VALUES = 24.28 197.25 45.14 2.75



TIME (MSEC)	VELOCITY (MPH)
0.00	48.00
25.33	45.00
56.66	48.00
85.00	49.00
113.33	49.50
141.66	49.80
170.00	50.00
198.33	49.50
226.66	48.00
255.00	45.00
283.33	40.00
311.66	30.00
340.00	0.00

CONTOURED MOVING BARRIER INTO LEFT SIDE OF AN AUDI 5000 AT 45.0 MPH
 MOVING BARRIER CENTER OF GRAVITY RESULTANT VELOCITY

APPENDIX C

MISCELLANEOUS TEST INFORMATION

VEHICLE ACCELEROMETER INFORMATION

NO.	LOCATION	AXIS	MFR.	MODEL	S/N	ORIENTATION (+ SENSING)
2	RIGHT FRONT SILL	X	ENDEVCO	7264	BP34J	FORWARD
	RIGHT FRONT SILL	Y	ENDEVCO	7264	CC83H	LEFT
3	VEHICLE CENTER/GRAVITY	IMPACT DIRECTION		7264	CJ04H	FORWARD
	VEHICLE CENTER/GRAVITY	PERPENDICULAR TO IMPACT DIRECTION		7264	CL79H	LEFT

MOVING BARRIER ACCELEROMETER INFORMATION

NO.	LOCATION	AXIS	MFR	MODEL	S/N	ORIENTATION (+ SENSING)
1	MOVING BARRIER					
	CENTER OF GRAVITY	X	ENDEVCO	7264	CL73H	FORWARD
	MOVING BARRIER					
	CENTER OF GRAVITY	Y	ENDEVCO	7264	CJ34H	LEFT

SIGN CONVENTION

ALL DUMMY, BARRIER AND VEHICLE CHANNELS:

+X: FORWARD
+Y: LEFTWARD
+Z: UPWARD
+FORCE: TENSION