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May 1993

**Final Report**

# **Final Report of a 1987 Ford Escort into a 50% Left Offset Barrier in Support of CRASH3 Damage Algorithm Reformulation**

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16. Abstract Four (4) 50% left offset barrier impact tests were conducted for research and development in support of the CRASH3 damage algorithm reformulation. These tests were conducted on a 1987 Ford Escort 3-door hatchback, VIN 2FAPP2099HB233234 at Transportation Research Center Inc. on April 23, 1993. The following four tests were conducted on the vehicle:				14. Sponsoring agency Code DOT/NHTSA/VRTC	
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TABLE OF CONTENTS

SECTION	TITLE	PAGE
1.0	PURPOSE AND TEST PROCEDURE	1-1
2.0	VEHICLE AND TEST DATA	2-1
3.0	TEST NO. 930423-1 SUMMARY	3-1
4.0	TEST NO. 930423-2 SUMMARY	4-1
5.0	TEST NO. 930423-3 SUMMARY	5-1
6.0	TEST NO. 930423-4 SUMMARY	6-1
APPENDIX A	PHOTOGRAPHS	A-1
APPENDIX B	DATA PLOTS	B-1
APPENDIX C	MISCELLANEOUS TEST INFORMATION	C-1

LIST OF TABLES

NUMBER	DESCRIPTION	PAGE
1	VEHICLE INFORMATION	2-2
2	PROFILE MEASUREMENTS AT VEHICLE BUMPER HEIGHT	2-5
3	TEST NO. 930423-1 TEST CONDITIONS	3-2
4	TEST NO. 930423-1 VEHICLE CRUSH AT VEHICLE BUMPER HEIGHT	3-3
5	TEST NO. 930423-1 VEHICLE MEASUREMENTS	3-5
6	TEST NO. 930423-1 VEHICLE ACCELEROMETER LOCATIONS AND DATA SUMMARY	3-6
7	TEST NO. 930423-1 CAMERA INFORMATION	3-7
8	TEST NO. 930423-2 TEST CONDITIONS	4-2
9	TEST NO. 930423-2 VEHICLE CRUSH AT VEHICLE BUMPER HEIGHT	4-3
10	TEST NO. 930423-2 VEHICLE MEASUREMENTS	4-5
11	TEST NO. 930423-2 VEHICLE ACCELEROMETER LOCATIONS AND DATA SUMMARY	4-6
12	TEST NO. 930423-2 CAMERA INFORMATION	4-7
13	TEST NO. 930423-3 TEST CONDITIONS	5-2
14	TEST NO. 930423-3 VEHICLE CRUSH AT VEHICLE BUMPER HEIGHT	5-3
15	TEST NO. 930423-3 VEHICLE MEASUREMENTS	5-5
16	TEST NO. 930423-3 VEHICLE ACCELEROMETER LOCATIONS AND DATA SUMMARY	5-6
17	TEST NO. 930423-3 CAMERA INFORMATION	5-7
18	TEST NO. 930423-4 TEST CONDITIONS	6-2
19	TEST NO. 930423-4 VEHICLE CRUSH AT VEHICLE BUMPER HEIGHT	6-3
20	TEST NO. 930423-4 VEHICLE MEASUREMENTS	6-5
21	TEST NO. 930423-4 VEHICLE ACCELEROMETER LOCATIONS AND DATA SUMMARY	6-6
22	TEST NO. 930423-4 CAMERA INFORMATION	6-7

LIST OF FIGURES

NUMBER	DESCRIPTION	PAGE
1	VEHICLE ACCELEROMETER PLACEMENT	2-10
2	CAMERA POSITIONS	2-11
3	TEST 1 - VEHICLE CRUSH PROFILE	3-4
4	TEST 2 - VEHICLE CRUSH PROFILE	4-4
5	TEST 3 - VEHICLE CRUSH PROFILE	5-4
6	TEST 4 - VEHICLE CRUSH PROFILE	6-4





SECTION 1.0

PURPOSE AND TEST PROCEDURE

## PURPOSE AND TEST PROCEDURE

The purpose of the four (4) 50% left offset barrier impact tests was for research and development in support of the CRASH3 damage algorithm reformulation.

The 1987 Ford Escort was equipped with a 1.9-liter, 4-cylinder, transverse, gasoline engine with a 4-speed manual transmission. The test weight of the vehicle was 2503 pounds.

The vehicle was instrumented with six (6) accelerometers to measure vehicel X-axis and Y-axis acceleration.

Each crash test event was recorded by two (2) high-speed motion picture cameras operating at approximately 1000 frames per second.

SECTION 2.0

VEHICLE AND TEST DATA

TABLE 1 TEST VEHICLE INFORMATION

VEHICLE MANUFACTURER: Ford Motor Co., Ltd.

MAKE/MODEL: Ford/Escort

VIN: 2FAPP2099HB233234

BODY STYLE: 3-door hatchback

MODEL YEAR: 1987

COLOR: Blue

ENGINE DATA: TYPE: transverse CYLINDERS: 4 DISPLACEMENT: 1.9 liters

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

DATE VEHICLE RECEIVED: 04/16/93

ODOMETER READING: 12,504

DEALER'S NAME AND ADDRESS: NA

ACCESSORIES:

POWER STEERING	Yes	AUTOMATIC TRANSMISSION	No
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	No
RADIO	No	ANTI-SKID BRAKE	No
CLOCK	No	REAR WINDOW DEFROSTER	No
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: Ford Motor Co., Ltd.

DATE OF MANUFACTURE: 04/87

VIN: 2FAPP2099HB233234

GVWR: 3165 LBS.

GAWR: FRONT: 1774 LBS., REAR: 1459 LBS.

TABLE 1 TEST VEHICLE INFORMATION, CONT'D.

TIRES ON VEHICLE (MFR., SIZE): Spectrum, P175/80R13

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

SPARE TIRE (MFR., LINE, SIZE): Firestone, P175/80R13

TYPE OF SEATS: FRONT: Bucket  
REAR: Bench

TYPE OF FRONT SEAT BACKS: Manually-adjustable

MAXIMUM WIDTH: 66.5 IN.

WHEELBASE: 94.0 IN.

LOCATION OF LABEL STATING TIRE DATA:

The label was located on the passenger's side B-pillar.

TIRE & CAPACITY DATA FROM VEHICLE'S LABEL:

RECOMMENDED TIRE SIZE: P175/80R13

RECOMMENDED COLD TIRE PRESSURE: FRONT: 35 PSI; REAR: 35 PSI

DESIGNATED SEATING CAPACITY: 2 FRONT 2 REAR 4 TOTAL

VEHICLE CAPACITY WEIGHT: 650 LBS.

TEST VEHICLE ATTITUDE (ALL MEASUREMENTS ARE IN INCHES):

DELIVERED ATTITUDE: LF 26.0; RF 27.4; LR 25.0; RR 25.8

PRE-TEST ATTITUDE: LF 30.7; RF 30.9; LR 26.4; RR 26.9

TABLE 1 TEST VEHICLE INFORMATION CONT'D

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

RIGHT FRONT	667 LBS.	RIGHT REAR	395 LBS.
LEFT FRONT	791 LBS.	LEFT REAR	372 LBS.
TOTAL FRONT WEIGHT	1458 LBS.	(65.5% OF TOTAL VEHICLE WEIGHT)	
TOTAL REAR WEIGHT	767 LBS.	(34.6% OF TOTAL VEHICLE WEIGHT)	
TOTAL DELIVERED WEIGHT	2225 LBS.		

WEIGHT OF TEST VEHICLE:

RIGHT FRONT	995 LBS. **	RIGHT REAR	261 LBS.
LEFT FRONT	970 LBS. **	LEFT REAR	277 LBS.
TOTAL FRONT WEIGHT	1965 LBS. *	(78.5% OF TOTAL VEHICLE WEIGHT)	
TOTAL REAR WEIGHT	538 LBS.	(21.5% OF TOTAL VEHICLE WEIGHT)	
TOTAL TEST WEIGHT	2503 LBS. *		

WEIGHT OF BALLAST SECURED IN VEHICLE CARGO AREA: 0 LBS.

COMPONENTS REMOVED TO MEET TARGET TEST WEIGHT: None

CG = 15.9 INCHES REARWARD OF THIRD AXLE CENTERLINE

\*Weight of third axle included in total test weight.

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

TABLE 2 PROFILE MEASUREMENTS AT VEHICLE BUMPER HEIGHT (25 1/2 INCHES)

LOCATION	0	1	2	3	4	5	6	7	8									
	X	Y	X	Y	X	Y	X	Y	X									
	Y		Y		Y		Y		Y									
PRE-TEST	124.1	28.9	121.1	28.6	118.1	28.8	115.2	28.8	112.2	28.7	109.1	28.6	106.2	28.6	103.1	28.6	100.1	28.9
POST-TEST 1	124.1	28.9	121.1	28.6	118.1	28.8	115.2	28.8	112.2	28.7	109.1	28.6	106.2	28.6	103.1	28.6	100.1	28.9
POST-TEST 2	124.4	29.0	121.4	28.9	118.5	28.9	115.6	28.9	112.4	28.6	109.5	28.8	106.5	28.9	103.6	28.8	100.8	28.9
POST-TEST 3	124.3	28.4	121.5	28.4	118.7	28.5	115.6	28.4	112.6	28.5	109.6	28.2	106.6	28.2	103.6	28.5	100.6	28.5
POST-TEST 4	134.2	30.9	132.5	27.2	129.6	26.4	126.5	25.9	123.5	25.1	120.8	24.9	117.8	25.0	114.9	25.1	111.9	25.1
LOCATION	9	10	11	12	13	14	15	16	17									
	X	Y	X	Y	X	Y	X	Y	X									
	Y		Y		Y		Y		Y									
PRE-TEST	97.0	28.5	94.0	28.8	91.1	28.5	88.1	28.5	85.2	28.8	82.2	28.8	79.1	28.4	76.1	28.6	73.2	28.7
POST-TEST 1	97.0	28.5	94.0	28.8	91.1	28.5	88.1	28.5	85.2	28.8	82.2	28.8	79.1	28.4	76.1	28.6	73.5	28.2
POST-TEST 2	97.8	28.9	94.8	29.0	91.8	29.0	88.8	28.9	85.8	29.1	82.8	29.1	79.8	29.1	76.8	29.1	74.6	29.4
POST-TEST 3	97.6	28.4	94.8	28.2	91.9	28.4	88.9	28.4	85.9	28.5	82.9	28.5	79.9	28.4	76.9	28.5	75.5	28.9
POST-TEST 4	109.0	24.8	106.1	24.8	103.5	24.5	101.6	24.2	97.8	24.5	94.8	24.2	91.9	24.5	87.9	25.2	86.8	26.8

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

All X-axis measurements taken from a reference plane 186.9 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.

TABLE 2 PROFILE MEASUREMENTS AT VEHICLE BUMPER HEIGHT (25 1/2 INCHES)

LOCATION	18	19	20	21	22	23	24	25	26									
	X	Y	X	Y	X	Y	X	Y	X									
PRE-TEST	70.4	28.8	67.3	28.1	63.8	27.6	61.3	27.6	58.2	27.6	55.4	27.8	52.3	27.9	49.4	28.1	46.4	28.5
POST-TEST 1	70.6	28.1	67.6	27.8	64.6	27.2	61.6	27.1	58.7	26.8	55.8	27.0	53.0	27.2	50.0	27.5	46.8	27.8
POST-TEST 2	71.8	29.2	68.8	28.4	66.2	27.1	63.4	26.1	60.4	25.0	58.0	24.4	55.0	23.2	52.5	23.9	50.1	25.0
POST-TEST 3	72.6	28.4	69.9	27.2	67.2	25.8	64.9	24.4	62.4	23.2	59.9	22.1	57.1	20.6	55.5	22.1	55.1	24.6
POST-TEST 4	85.0	26.0	83.9	23.1	82.9	19.8	81.8	17.4	80.4	14.8	77.5	14.0	74.6	13.2	74.0	15.9	75.6	18.5
LOCATION	27	28	29	30	31	32	33	34	35									
	X	Y	X	Y	X	Y	X	Y	X									
PRE-TEST	44.1	29.4	41.2	30.4	38.2	31.0	35.4	31.8	32.8	32.6	22.8	33.0	22.2	35.8	21.9	38.8	21.1	41.8
POST-TEST 1	44.0	28.1	41.2	29.6	38.1	30.5	35.5	31.5	33.0	32.4	25.3	33.2	25.1	36.4	25.1	39.4	25.0	42.2
POST-TEST 2	48.2	26.5	45.6	28.1	43.2	29.8	41.4	31.6	39.5	33.8	38.8	37.0	38.8	39.9	38.6	43.0	38.6	46.0
POST-TEST 3	54.9	27.2	53.8	29.4	51.2	29.5	49.4	30.9	47.4	32.6	46.8	35.2	46.5	38.1	46.2	41.2	46.1	44.0
POST-TEST 4	77.1	21.2	76.9	24.0	74.0	24.5	72.1	25.8	70.0	27.5	69.0	32.1	68.2	35.0	67.8	37.9	67.2	41.1

All measurements are in inches. Column readings are three inches apart from front to rear on vehicle.  
 All X-axis measurements taken from a reference plane 186.9 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.



TABLE 2 PROFILE MEASUREMENTS AT VEHICLE BUMPER HEIGHT ( 25 1/2 INCHES )

LOCATION	36	37	38	39	40	41	42	43	44							
	X	Y	X	Y	X	Y	X	Y	X							
PRE-TEST	21.1	44.8	20.5	47.8	20.3	50.8	20.2	53.9	20.2	56.8	20.2	62.9	20.3	65.8	20.3	68.9
POST-TEST 1	25.1	45.4	25.4	48.2	25.6	51.2	26.1	54.4	24.7	56.4	23.8	59.3	23.2	62.1	22.7	65.2
POST-TEST 2	38.6	48.8	38.9	51.8	38.9	54.8	39.2	58.0	36.8	58.9	34.4	60.5	32.3	62.2	30.4	65.0
POST-TEST 3	45.9	46.9	45.9	50.0	45.4	52.8	44.7	55.8	41.9	56.4	39.4	57.5	36.9	59.5	34.4	61.2
POST-TEST 4	67.2	43.8	66.9	46.5	63.9	48.6	62.0	50.6	59.1	49.2	56.1	48.6	53.1	48.9	50.2	48.2
LOCATION	45	46	47	48	49	50	51	52	53							
	X	Y	X	Y	X	Y	X	Y	X							
PRE-TEST	20.3	71.9	20.9	74.9	21.2	78.0	21.6	81.0	21.9	83.9	22.5	86.9	32.1	88.0	35.7	89.6
POST-TEST 1	21.9	71.1	21.6	74.1	21.5	77.2	21.2	80.4	21.2	82.2	21.3	86.4	32.1	88.8	34.8	89.8
POST-TEST 2	26.9	69.8	25.2	72.0	23.6	74.8	22.1	77.5	20.8	80.2	19.4	83.2	32.2	89.2	35.1	90.0
POST-TEST 3	29.9	65.5	27.7	67.4	25.6	69.8	23.6	72.1	21.6	74.5	19.8	76.5	32.8	85.0	35.4	86.1
POST-TEST 4	44.1	48.8	41.1	49.2	38.2	49.8	35.2	50.4	32.4	51.4	29.4	52.2	35.4	68.2	38.1	69.8

All measurements are in inches. Column readings are three inches apart from front to rear on vehicle.  
 All X-axis measurements taken from a reference plane 186.9 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.

TABLE 2 PROFILE MEASUREMENTS AT VEHICLE BUMPER HEIGHT (25 1/2 INCHES)

LOCATION	54	55	56	57	58	59	60	61	62									
	X	Y	X	Y	X	Y	X	Y	X									
PRE-TEST	41.0	91.0	43.4	92.0	46.5	92.0	49.5	92.1	52.5	92.1	55.7	92.3	58.6	92.0	61.4	92.2	64.6	92.1
POST-TEST 1	40.9	91.2	43.6	92.3	46.7	92.4	49.4	92.5	52.4	92.5	55.4	92.6	58.5	92.5	61.5	92.4	64.4	92.2
POST-TEST 2	41.2	91.6	43.8	92.9	46.9	93.0	49.9	92.9	52.9	92.9	55.8	92.9	58.7	92.9	61.8	93.0	64.8	92.9
POST-TEST 3	41.1	88.4	43.6	89.8	46.8	90.2	49.8	90.5	52.6	90.9	55.6	91.0	58.6	91.4	61.6	91.4	64.8	91.4
POST-TEST 4	42.9	73.5	44.9	75.6	47.7	77.4	50.2	78.8	53.1	80.1	55.9	81.8	58.8	82.5	61.6	83.2	64.6	84.0
LOCATION	63	64	65	66	67	68	69	70	71									
	X	Y	X	Y	X	Y	X	Y	X									
PRE-TEST	67.7	91.5	70.8	91.2	73.8	91.4	76.8	91.5	80.0	91.5	83.0	91.4	86.0	91.6	89.1	91.5	92.0	91.6
POST-TEST 1	67.5	91.9	70.6	91.4	73.9	91.5	76.8	91.5	80.0	91.5	83.0	91.4	86.0	91.6	89.1	91.5	92.0	91.6
POST-TEST 2	67.9	92.2	71.1	91.8	74.1	92.0	77.1	92.0	80.1	91.9	83.1	92.0	86.1	92.2	89.2	92.4	92.1	92.2
POST-TEST 3	67.8	91.1	71.2	90.8	74.2	91.2	77.2	91.5	80.1	91.5	83.2	91.4	86.2	91.5	89.2	91.8	92.2	91.6
POST-TEST 4	67.8	84.5	70.8	85.1	73.8	86.0	77.4	86.8	80.5	87.0	83.3	87.8	86.4	87.8	89.6	88.0	92.5	88.9

All measurements are in inches. Column readings are three inches apart from front to rear on vehicle. All X-axis measurements taken from a reference plane 186.9 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.

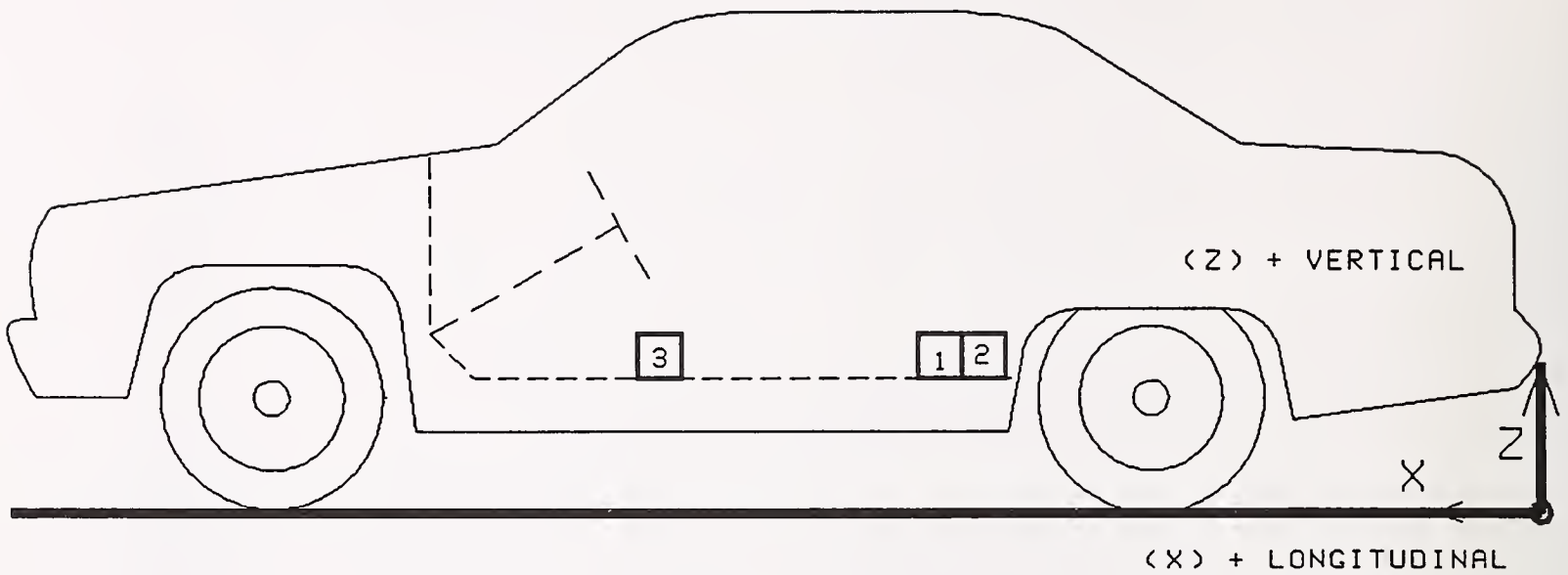
TABLE 2 PROFILE MEASUREMENTS AT VEHICLE BUMPER HEIGHT (25 1/2 INCHES)

LOCATION	72		73		74		75		76		77		78		79		80	
	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y
PRE-TEST	95.1	91.5	98.1	91.6	101.1	91.6	104.0	91.6	107.1	91.5	110.1	91.7	113.1	91.5	116.0	91.6	119.2	91.5
POST-TEST 1	95.1	91.5	98.1	91.6	101.1	91.6	104.0	91.6	107.1	91.5	110.1	91.7	113.1	91.5	116.0	91.6	119.2	91.5
POST-TEST 2	95.1	92.4	98.2	92.2	101.2	92.2	104.2	92.2	107.2	92.2	110.1	92.4	113.1	92.2	116.2	92.2	119.2	92.2
POST-TEST 3	95.2	91.8	98.3	91.9	101.3	91.5	104.3	91.8	107.4	91.6	110.4	91.5	113.1	91.8	116.2	91.8	119.2	91.6
POST-TEST 4	95.5	88.9	98.8	89.2	101.4	89.6	104.2	89.9	106.8	90.0	109.8	90.4	112.8	90.8	115.9	91.0	118.8	91.4
LOCATION	81		82															
	X	Y	X	Y														
PRE-TEST	122.2	91.6	125.2	91.2														
POST-TEST 1	122.2	91.6	125.2	91.2														
POST-TEST 2	122.2	92.2	125.2	92.0														
POST-TEST 3	122.2	91.6	125.2	91.6														
POST-TEST 4	121.8	91.5	125.5	91.2														

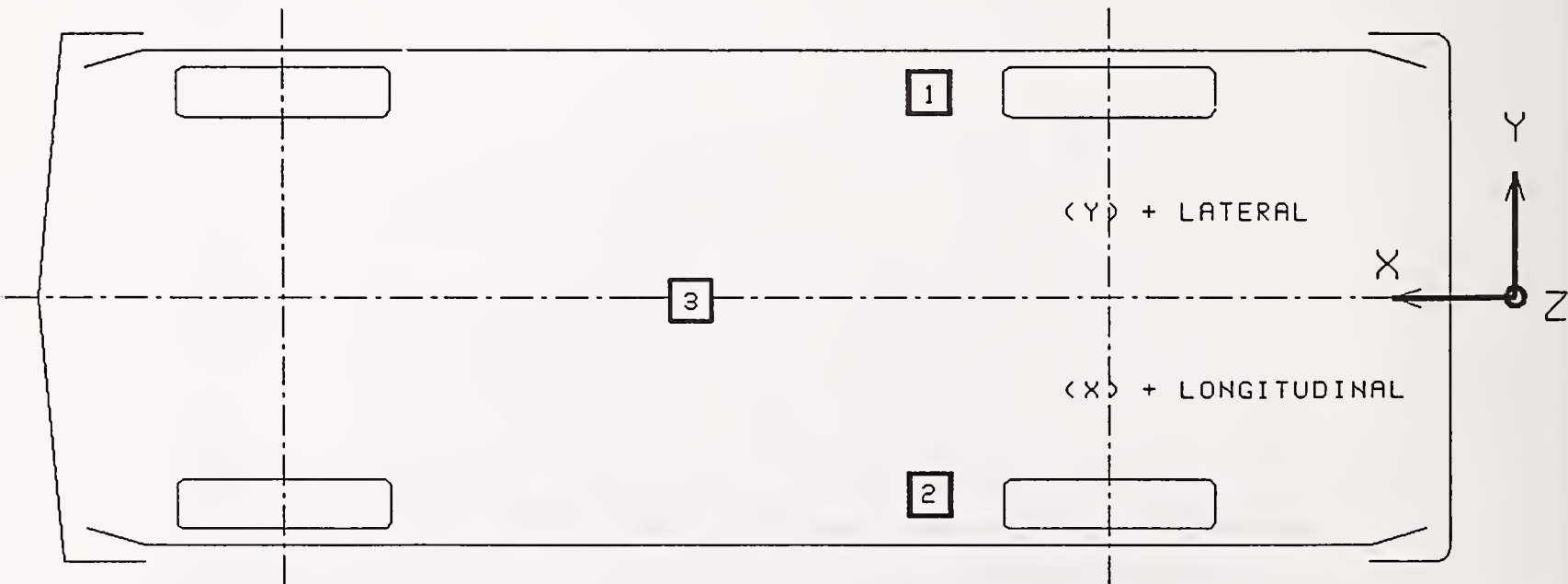
All measurements are in inches. Column readings are three inches apart from front to rear on vehicle.  
 All X-axis measurements taken from a reference plane 186.9 inches from and parallel to the rear bumper.  
 All Y-axis measurements taken from a reference plane 48 inches from and parallel to the vehicle longitudinal centerline.

FIGURE 1

VEHICLE ACCELEROMETER PLACEMENT

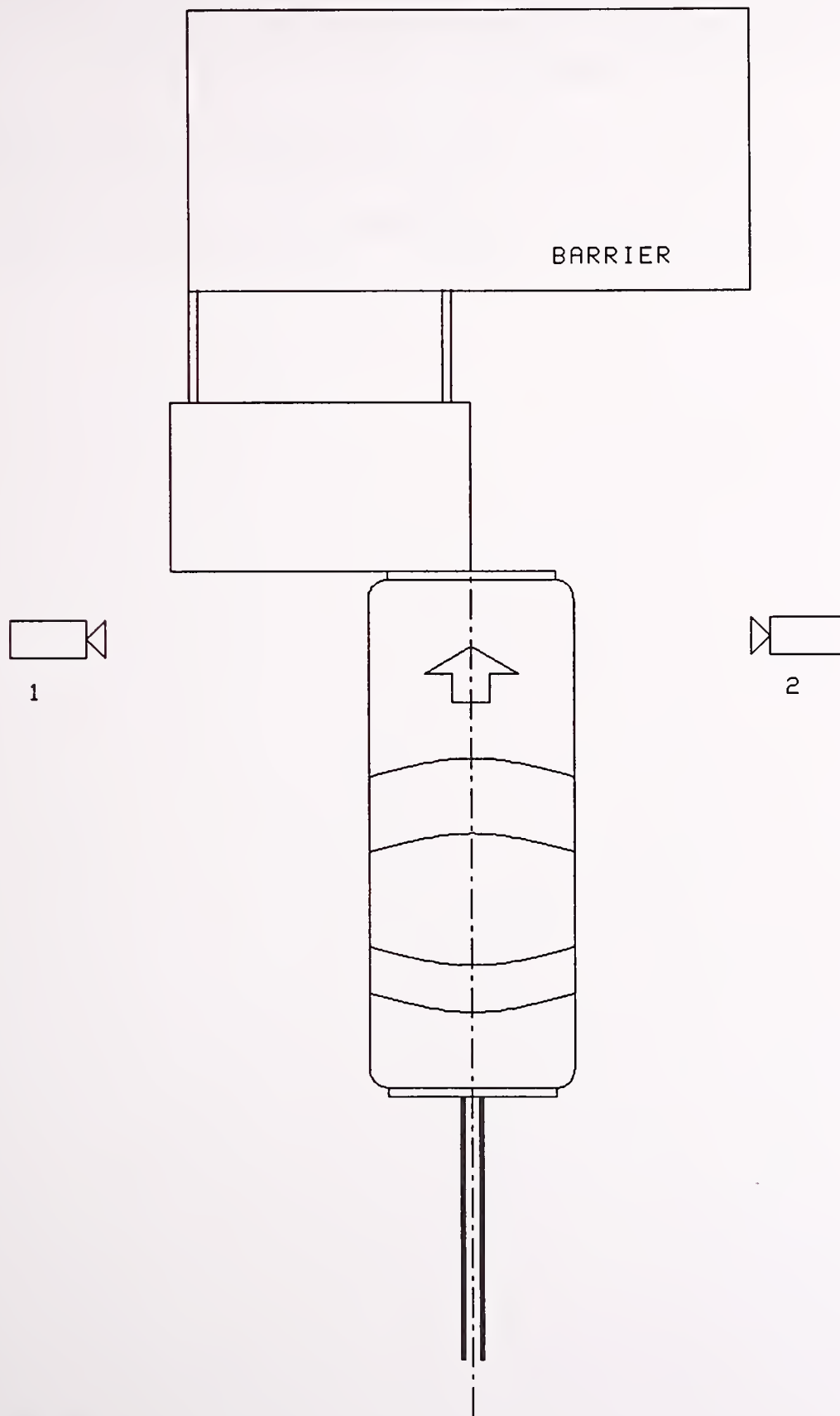


SIDE VIEW



BOTTOM VIEW

FIGURE 2  
CAMERA POSITIONS



## DATA ACQUISITION EXPLANATIONS

TEST NUMBER 930423-4

The vehicle's left rear sill X-axis accelerometer, LRSXG1, stopped obtaining data after 37 milliseconds because of vehicle crush cutting the accelerometer's cable. This affected the computation of the vehicle's left rear sill X-axis velocity and displacement after 37 milliseconds.

The vehicle's left rear sill Y-axis accelerometer, LRSYG1, exceeded its data channel full-scale output between 35 and 50 milliseconds and between 75 and 80 milliseconds. This affected the computation of the vehicle's left rear sill Y-axis velocity and displacement after 35 milliseconds.

SECTION 3.0

TEST 930423-1 SUMMARY

TABLE 3  
TEST NO. 930423-1 TEST CONDITIONS

DATE OF TEST: 04/23/93

TIME OF TEST: 1020

AMBIENT TEMPERATURE AT IMPACT AREA: 72° F

INTENDED IMPACT VELOCITY: 10.0 MPH

ACTUAL IMPACT VELOCITY: PRIMARY = 9.7 MPH  
SECONDARY = 9.7 MPH

SUBJECT VEHICLE DATA

LENGTH OF DIRECT CONTACT DAMAGE: 21.2 IN.

MAXIMUM CUMULATIVE CRUSH  
AT VEHICLE BUMPER HEIGHT: 5.9 IN.

VEHICLE ATTITUDES:

POST-TEST: LF: 30.0; RF: 30.8; LR: 25.7; RR: 26.8

All distance measurements are in inches.



TABLE 4  
TEST NO. 930423-1 VEHICLE CRUSH AT VEHICLE BUMPER HEIGHT

FL	<u>44.0</u>
C1	<u>2.5</u>
C2	<u>3.9</u>
C3	<u>5.3</u>
C4	<u>2.9</u>
C5	<u>1.3</u>
C6	<u>0.3</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.

FIGURE 3

TEST 1 -- VEHICLE CRUSH PROFILE

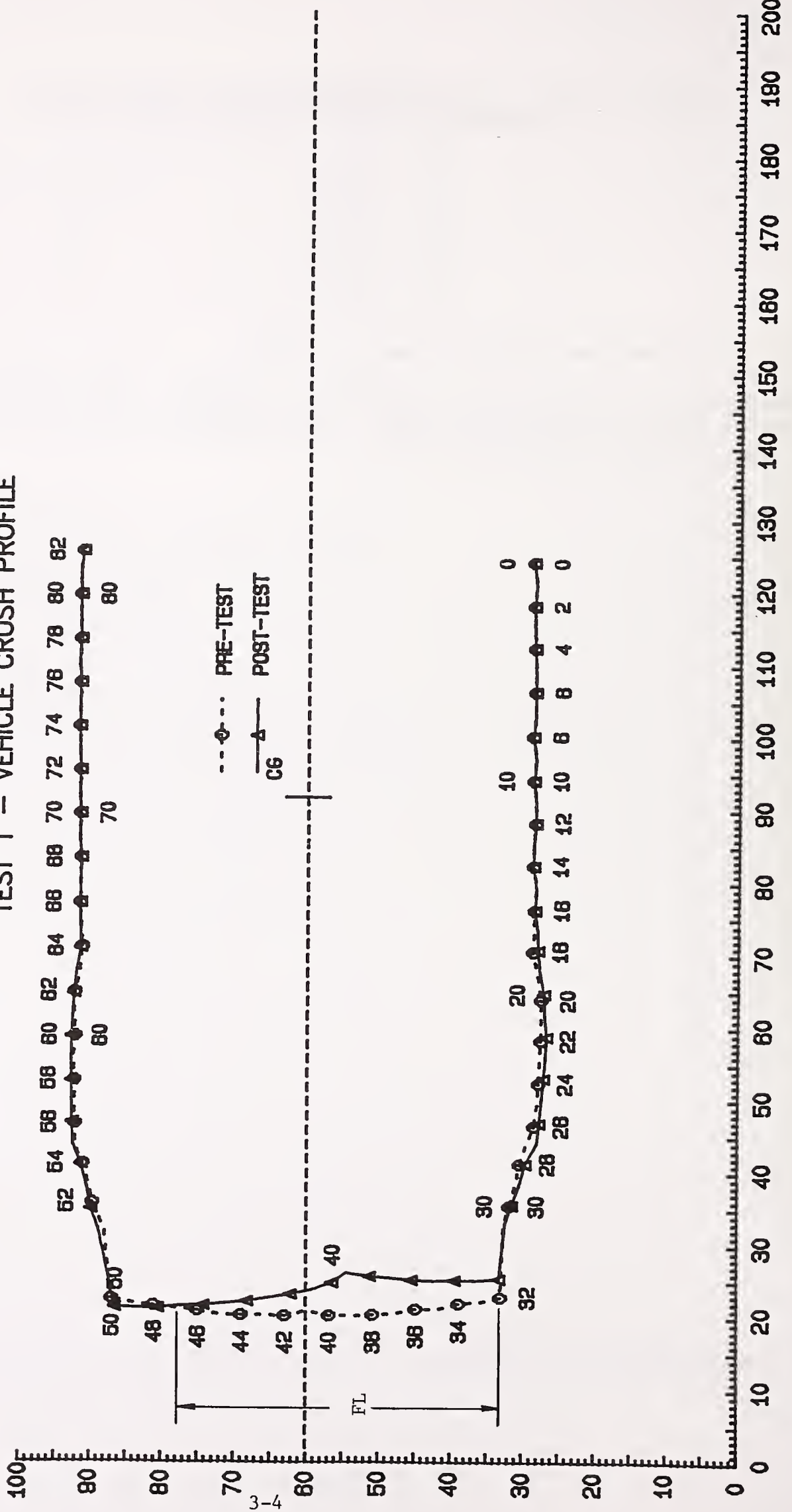


TABLE 5  
 TEST NO. 930423-1 VEHICLE MEASUREMENTS  
 VEHICLE MAKE/MODEL: Ford/Escort

NO.	TYPE OF MEASUREMENT	PRE-TEST	POST-TEST	DIFF.
X1	TOTAL LENGTH OF VEHICLE AT CENTERLINE	166.0	163.1	2.9
X2	REAR SURFACE OF VEHICLE TO FRONT OF ENGINE BLOCK	141.8	NA	NA
X3	REAR SURFACE OF VEHICLE TO FIREWALL	124.8	NA	NA
X4	REAR SURFACE OF VEHICLE TO UPPER LEADING EDGE OF RIGHT DOOR	108.2	108.9	-0.7
X5	REAR SURFACE OF VEHICLE TO UPPER LEADING EDGE OF LEFT DOOR	108.5	109.5	-1.0
X6	REAR SURFACE OF VEHICLE TO LOWER LEADING EDGE OF RIGHT DOOR	110.0	110.0	0.0
X7	REAR SURFACE OF VEHICLE TO LOWER LEADING EDGE OF LEFT DOOR	110.5	110.1	0.4
X8	REAR SURFACE OF VEHICLE TO UPPER TRAILING EDGE OF RIGHT DOOR	63.2	63.5	-0.3
X9	REAR SURFACE OF VEHICLE TO UPPER TRAILING EDGE OF LEFT DOOR	62.6	63.1	-0.5
X10	REAR SURFACE OF VEHICLE TO LOWER TRAILING EDGE OF RIGHT DOOR	63.6	63.3	0.3
X11	REAR SURFACE OF VEHICLE TO LOWER TRAILING EDGE OF LEFT DOOR	63.8	63.2	0.6
X12	REAR SURFACE OF VEHICLE TO BOTTOM OF "A" POST ON RIGHT SIDE	108.2	108.5	-0.3
X13	REAR SURFACE OF VEHICLE TO BOTTOM OF "A" POST ON LEFT SIDE	108.5	108.5	0.0
X14	REAR SURFACE OF VEHICLE TO FIREWALL - RIGHT SIDE	123.8	NA	NA
X15	REAR SURFACE OF VEHICLE TO FIREWALL - LEFT SIDE	124.0	NA	NA
X16	REAR SURFACE OF VEHICLE TO STEERING WHEEL CENTER	92.5	92.5	0.0
X17	CENTER OF STEERING COLUMN TO "A" POST	11.1	10.8	0.3
X18	CENTER OF STEERING COLUMN TO HEADLINER	17.0	17.1	-0.1
X19	REAR SURFACE OF VEHICLE TO RIGHT SIDE OF FRONT BUMPER	164.2	165.2	-1.0
X20	REAR SURFACE OF VEHICLE TO LEFT SIDE OF FRONT BUMPER	164.2	161.2	3.0
X21	LENGTH OF ENGINE BLOCK	18.0	18.0	0.0

All distance measurements are in inches.

TABLE 6

VEHICLE ACCELEROMETER LOCATIONS AND DATA SUMMARY

TEST NUMBER 930423-1

No. LOCATION	X*	Y*	Z*	POSITIVE DIRECTION MAX G MSEC	NEGATIVE DIRECTION MAX G MSEC
1 LEFT REAR SILL LONGITUDINAL LATERAL	67.0	24.3	14.8	0.6 183.9 2.6 24.9	9.7 63.6 3.8 57.4
2 RIGHT REAR SILL LONGITUDINAL LATERAL	65.8	-24.3	15.4	0.7 236.0 1.6 123.3	7.8 83.1 3.2 77.3
3 VEHICLE CENTER OF GRAVITY LONGITUDINAL LATERAL RESULTANT	90.5	0.0	15.8	1.0 295.1 2.6 58.8 10.0 60.9	9.9 61.3 1.5 75.1

\* 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

TABLE 7  
TEST NO. 930423-1 CAMERA INFORMATION

CAMERA NUMBER	LOCATION	TYPE	LENS (mm)	SPEED (fps)	PURPOSE OF CAMERA DATA
1	Left tight	Photosonic	25	1000	Impact overall
2	Right wide	Photosonic	13	1000	Impact overall



SECTION 4.0

TEST 930423-2 SUMMARY

TABLE 8

TEST NO. 930423-2 TEST CONDITIONS

DATE OF TEST: 04/23/93

TIME OF TEST: 1131

AMBIENT TEMPERATURE AT IMPACT AREA: 72° F

INTENDED IMPACT VELOCITY: 20.0 MPH

ACTUAL IMPACT VELOCITY: PRIMARY = 19.9 MPH  
SECONDARY = 19.9 MPH

SUBJECT VEHICLE DATA

LENGTH OF DIRECT CONTACT DAMAGE: 29.1 IN.

MAXIMUM CUMULATIVE CRUSH  
AT VEHICLE BUMPER HEIGHT: 19.0 IN.

VEHICLE ATTITUDES:

POST-TEST: LF: 31.2; RF: 30.5; LR: 26.1; RR: 26.5

All distance measurements are in inches.



TABLE 9  
TEST NO. 930423-2 VEHICLE CRUSH AT VEHICLE BUMPER HEIGHT

FL	<u>65.6</u>
C1	<u>2.6</u>
C2	<u>16.0</u>
C3	<u>18.4</u>
C4	<u>10.1</u>
C5	<u>0.5</u>
C6	<u>-0.6</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.

FIGURE 4

TEST 2 -- VEHICLE CRUSH PROFILE

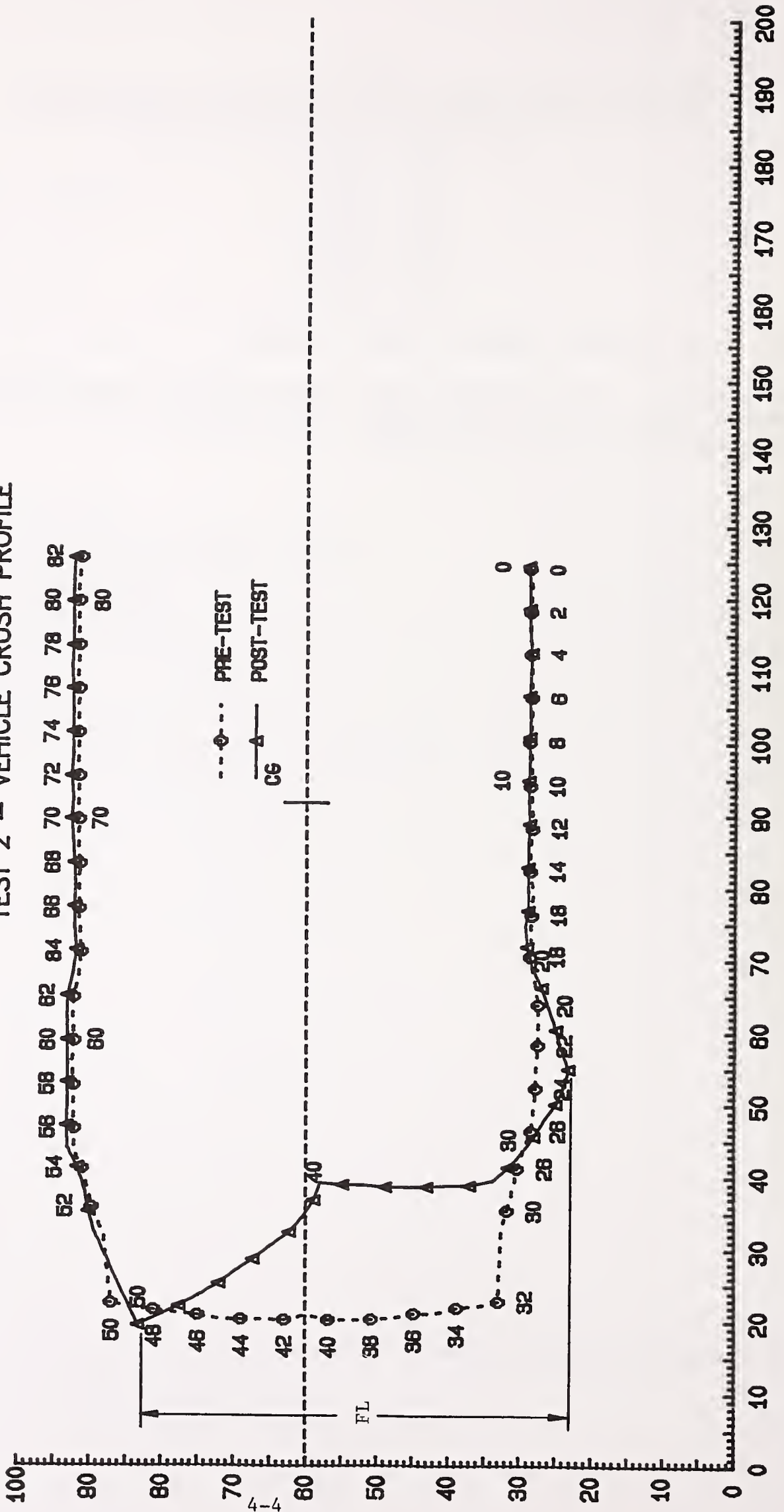


TABLE 10

## TEST NO. 930423-2 VEHICLE MEASUREMENTS

VEHICLE MAKE/MODEL: Ford/Escort

NO.	TYPE OF MEASUREMENT	PRE-TEST	POST-TEST	DIFF.
X1	TOTAL LENGTH OF VEHICLE AT CENTERLINE	163.1	152.5	10.6
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	108.9	108.9	0.0
X5	REAR SURFACE OF VEHICLE TO UPPER LEADING EDGE OF LEFT DOOR	109.5	109.2	0.3
X6	REAR SURFACE OF VEHICLE TO LOWER LEADING EDGE OF RIGHT DOOR	110.0	109.9	0.1
X7	REAR SURFACE OF VEHICLE TO LOWER LEADING EDGE OF LEFT DOOR	110.1	110.2	-0.1
X8	REAR SURFACE OF VEHICLE TO UPPER TRAILING EDGE OF RIGHT DOOR	63.5	63.9	-0.4
X9	REAR SURFACE OF VEHICLE TO UPPER TRAILING EDGE OF LEFT DOOR	63.1	63.2	-0.1
X10	REAR SURFACE OF VEHICLE TO LOWER TRAILING EDGE OF RIGHT DOOR	63.3	63.5	-0.2
X11	REAR SURFACE OF VEHICLE TO LOWER TRAILING EDGE OF LEFT DOOR	63.2	63.4	-0.2
X12	REAR SURFACE OF VEHICLE TO BOTTOM OF "A" POST ON RIGHT SIDE	108.5	108.6	-0.1
X13	REAR SURFACE OF VEHICLE TO BOTTOM OF "A" POST ON LEFT SIDE	108.5	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	92.5	92.5	0.0
X17	CENTER OF STEERING COLUMN TO "A" POST	10.8	8.8	2.0
X18	CENTER OF STEERING COLUMN TO HEADLINER	17.1	17.5	-0.4
X19	REAR SURFACE OF VEHICLE TO RIGHT SIDE OF FRONT BUMPER	165.2	168.1	-2.9
X20	REAR SURFACE OF VEHICLE TO LEFT SIDE OF FRONT BUMPER	161.2	148.2	13.0
X21	LENGTH OF ENGINE BLOCK	18.0	18.0	0.0

All distance measurements are in inches.

TABLE 11

VEHICLE ACCELEROMETER LOCATIONS AND DATA SUMMARY

TEST NUMBER 930423-2

No. LOCATION	X*	Y*	Z*	POSITIVE DIRECTION MAX G MSEC	NEGATIVE DIRECTION MAX G MSEC
1 LEFT REAR SILL LONGITUDINAL LATERAL	67.0	24.3	14.8	2.0 129.3 2.8 112.1	17.5 77.0 9.9 33.4
2 RIGHT REAR SILL LONGITUDINAL LATERAL	65.8	-24.3	15.4	1.8 137.0 2.8 114.3	17.1 70.0 5.1 40.8
3 VEHICLE CENTER OF GRAVITY LONGITUDINAL LATERAL RESULTANT	90.5	0.0	15.8	1.2 207.4 3.2 113.5 18.2 77.4	18.2 77.3 6.9 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

TABLE 12  
TEST NO. 930423-2 CAMERA INFORMATION

CAMERA NUMBER	LOCATION	TYPE	LENS (mm)	SPEED (fps)	PURPOSE OF CAMERA DATA
1	Left tight	Photosonic	25	1000	Impact overall
2	Right wide	Photosonic	13	1002	Impact overall



SECTION 5.0

TEST 930423-3 SUMMARY

TABLE 13

TEST NO. 930423-3 TEST CONDITIONS

DATE OF TEST: 04/23/93

TIME OF TEST: 1314

AMBIENT TEMPERATURE AT IMPACT AREA: 72° F

INTENDED IMPACT VELOCITY: 20.0 MPH

ACTUAL IMPACT VELOCITY: PRIMARY = 20.0 MPH  
SECONDARY = 20.0 MPH

SUBJECT VEHICLE DATA

LENGTH OF DIRECT CONTACT DAMAGE: 25.5 IN.

MAXIMUM CUMULATIVE CRUSH  
AT VEHICLE BUMPER HEIGHT: 25.4 IN.

VEHICLE ATTITUDES:

POST-TEST: LF: 32.2; RF: 30.2; LR: 26.1; RR: 25.3

All distance measurements are in inches.



TABLE 14  
TEST NO. 930423-3 VEHICLE CRUSH AT VEHICLE BUMPER HEIGHT

FL	<u>55.9</u>
C1	<u>4.8</u>
C2	<u>14.6</u>
C3	<u>25.0</u>
C4	<u>25.1</u>
C5	<u>9.6</u>
C6	<u>-2.7</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.

FIGURE 5

TEST 3 - VEHICLE CRUSH PROFILE

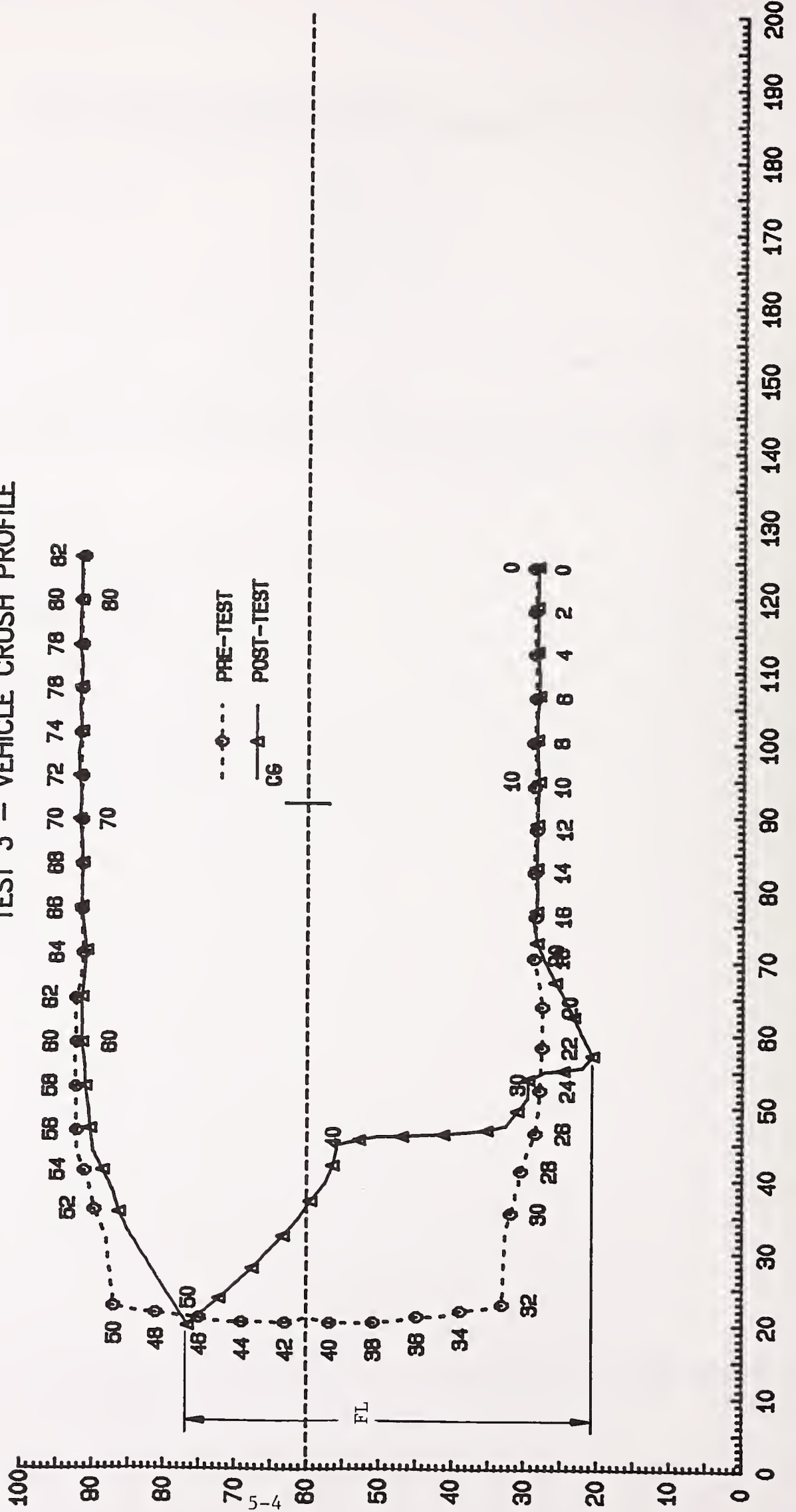


TABLE 15

## TEST NO. 930423-3 VEHICLE MEASUREMENTS

VEHICLE MAKE/MODEL: Ford/Escort

NO.	TYPE OF MEASUREMENT	PRE-TEST	POST-TEST	DIFF.
X1	TOTAL LENGTH OF VEHICLE AT CENTERLINE	152.5	147.5	5.0
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	108.9	109.0	-0.1
X5	REAR SURFACE OF VEHICLE TO UPPER LEADING EDGE OF LEFT DOOR	109.2	108.9	0.3
X6	REAR SURFACE OF VEHICLE TO LOWER LEADING EDGE OF RIGHT DOOR	109.9	109.1	0.8
X7	REAR SURFACE OF VEHICLE TO LOWER LEADING EDGE OF LEFT DOOR	110.2	109.9	0.3
X8	REAR SURFACE OF VEHICLE TO UPPER TRAILING EDGE OF RIGHT DOOR	63.9	63.9	0.0
X9	REAR SURFACE OF VEHICLE TO UPPER TRAILING EDGE OF LEFT DOOR	63.2	62.9	0.3
X10	REAR SURFACE OF VEHICLE TO LOWER TRAILING EDGE OF RIGHT DOOR	63.5	63.4	0.1
X11	REAR SURFACE OF VEHICLE TO LOWER TRAILING EDGE OF LEFT DOOR	63.4	63.2	0.2
X12	REAR SURFACE OF VEHICLE TO BOTTOM OF "A" POST ON RIGHT SIDE	108.6	108.5	0.1
X13	REAR SURFACE OF VEHICLE TO BOTTOM OF "A" POST ON LEFT SIDE	NA	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	92.5	91.8	0.7
X17	CENTER OF STEERING COLUMN TO "A" POST	8.8	8.9	-0.1
X18	CENTER OF STEERING COLUMN TO HEADLINER	17.5	17.6	-0.1
X19	REAR SURFACE OF VEHICLE TO RIGHT SIDE OF FRONT BUMPER	168.1	167.9	0.2
X20	REAR SURFACE OF VEHICLE TO LEFT SIDE OF FRONT BUMPER	148.2	139.6	8.6
X21	LENGTH OF ENGINE BLOCK	18.0	18.0	0.0

All distance measurements are in inches.

TABLE 16

VEHICLE ACCELEROMETER LOCATIONS AND DATA SUMMARY

TEST NUMBER 930423-3

No. LOCATION	X*	Y*	Z*	POSITIVE DIRECTION MAX G MSEC	NEGATIVE DIRECTION MAX G MSEC
1 LEFT REAR SILL LONGITUDINAL LATERAL	67.0	24.3	14.8	3.1 108.0 3.5 56.4	24.8 36.1 23.2 29.6
2 RIGHT REAR SILL LONGITUDINAL LATERAL	65.8	-24.3	15.4	2.3 115.1 3.0 13.3	25.8 31.8 19.5 120.4
3 VEHICLE CENTER OF GRAVITY LONGITUDINAL LATERAL RESULTANT	90.5	0.0	15.8	2.5 115.8 6.3 56.8 32.0 34.1	30.4 34.6 12.4 32.1

\* 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

TABLE 17  
TEST NO. 930423-3 CAMERA INFORMATION

CAMERA NUMBER	LOCATION	TYPE	LENS (mm)	SPEED (fps)	PURPOSE OF CAMERA DATA
1	Left tight	Photosonic	25	1000	Impact overall
2	Right wide	Photosonic	13	1002	Impact overall



SECTION 6.0

TEST 930423-4 SUMMARY

TABLE 18

TEST NO. 930423-4 TEST CONDITIONS

DATE OF TEST: 04/23/93

TIME OF TEST: 1434

AMBIENT TEMPERATURE AT IMPACT AREA: 72° F

INTENDED IMPACT VELOCITY: 35.0 MPH

ACTUAL IMPACT VELOCITY: PRIMARY = 35.1 MPH  
SECONDARY = 35.1 MPH

SUBJECT VEHICLE DATA

LENGTH OF DIRECT CONTACT DAMAGE: 24.1 IN.

MAXIMUM CUMULATIVE CRUSH  
AT VEHICLE BUMPER HEIGHT: 46.4 IN.

VEHICLE ATTITUDES:

POST-TEST: LF: 30.9; RF: 30.2; LR: 26.1; RR: 23.2

All distance measurements are in inches.



TABLE 19  
TEST NO. 930423-4 VEHICLE CRUSH AT VEHICLE BUMPER HEIGHT

FL	<u>55.0</u>
C1	<u>22.3</u>
C2	<u>35.7</u>
C3	<u>46.0</u>
C4	<u>46.4</u>
C5	<u>6.9</u>
C6	<u>3.3</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.

FIGURE 6

TEST 4 -- VEHICLE CRUSH PROFILE

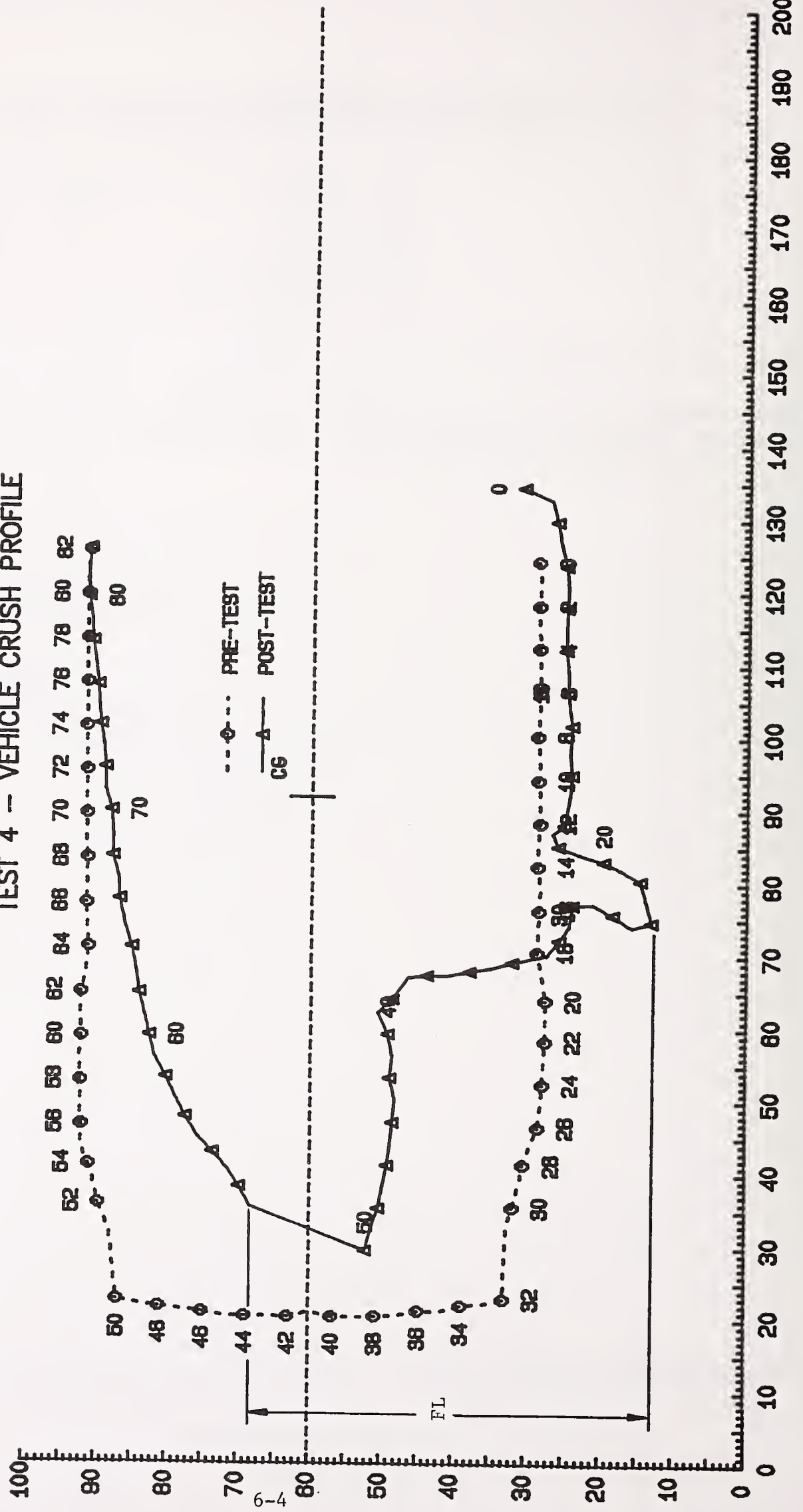


TABLE 20  
 TEST NO. 930423-4 VEHICLE MEASUREMENTS  
 VEHICLE MAKE/MODEL: Ford/Escort

NO.	TYPE OF MEASUREMENT	PRE-TEST	POST-TEST	DIFF.
X1	TOTAL LENGTH OF VEHICLE AT CENTERLINE	147.5	130.8	16.7
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	109.0	109.1	-0.1
X5	REAR SURFACE OF VEHICLE TO UPPER LEADING EDGE OF LEFT DOOR	108.9	95.9	13.0
X6	REAR SURFACE OF VEHICLE TO LOWER LEADING EDGE OF RIGHT DOOR	109.1	110.5	-1.4
X7	REAR SURFACE OF VEHICLE TO LOWER LEADING EDGE OF LEFT DOOR	109.9	99.1	10.8
X8	REAR SURFACE OF VEHICLE TO UPPER TRAILING EDGE OF RIGHT DOOR	63.9	64.3	-0.4
X9	REAR SURFACE OF VEHICLE TO UPPER TRAILING EDGE OF LEFT DOOR	62.9	51.5	11.4
X10	REAR SURFACE OF VEHICLE TO LOWER TRAILING EDGE OF RIGHT DOOR	63.4	64.2	-0.8
X11	REAR SURFACE OF VEHICLE TO LOWER TRAILING EDGE OF LEFT DOOR	63.2	55.6	7.6
X12	REAR SURFACE OF VEHICLE TO BOTTOM OF "A" POST ON RIGHT SIDE	108.5	109.0	-0.5
X13	REAR SURFACE OF VEHICLE TO BOTTOM OF "A" POST ON LEFT SIDE	NA	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	91.8	79.6	12.2
X17	CENTER OF STEERING COLUMN TO "A" POST	8.9	10.8	-1.9
X18	CENTER OF STEERING COLUMN TO HEADLINER	17.6	19.0	-1.4
X19	REAR SURFACE OF VEHICLE TO RIGHT SIDE OF FRONT BUMPER	167.9	159.1	8.8
X20	REAR SURFACE OF VEHICLE TO LEFT SIDE OF FRONT BUMPER	139.6	117.0	22.6
X21	LENGTH OF ENGINE BLOCK	18.0	18.0	0.0

All distance measurements are in inches.

TABLE 21

VEHICLE ACCELEROMETER LOCATIONS AND DATA SUMMARY

TEST NUMBER 930423-4

NO. LOCATION	X*	Y*	Z*	POSITIVE DIRECTION MAX G MSEC	NEGATIVE DIRECTION MAX G MSEC
1 LEFT REAR SILL LONGITUDINAL LATERAL	67.0	24.3	14.8	--- γ 77.5 γ 66.5	336.5 γ 144.1 γ 42.0
2 RIGHT REAR SILL LONGITUDINAL LATERAL	65.8	-24.3	15.4	1.5 213.6 8.5 76.8	33.1 22.0 24.5
3 VEHICLE CENTER OF GRAVITY LONGITUDINAL LATERAL RESULTANT	90.5	0.0	15.8	2.0 227.0 9.0 58.6 41.5 37.6	40.3 16.6 8.9

\* 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

γ See DATA ACQUISITION EXPLANATIONS

TABLE 22  
TEST NO. 930423-4 CAMERA INFORMATION

CAMERA NUMBER	LOCATION	TYPE	LENS (mm)	SPEED (fps)	PURPOSE OF CAMERA DATA
1	Left tight	Photosonic	25	1000	Impact overall
2	Right wide	Photosonic	13	1002	Impact overall



LIST OF PHOTOGRAPHS

TEST NO. 930423-1

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







Figure A-1. PRE-TEST RIGHT SIDE VIEW



Figure A-2. POST-TEST RIGHT SIDE VIEW



Figure A-3. PRE-TEST RIGHT FRONT THREE-QUARTER VIEW



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



Figure A-5. PRE-TEST FRONT VIEW



Figure A-6. POST-TEST FRONT VIEW



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 LEFT SIDE VIEW



Figure A-10. POST-TEST LEFT SIDE VIEW



Figure A-11. PRE-TEST REAR VIEW



Figure A-12. POST-TEST REAR VIEW

LIST OF PHOTOGRAPHS

TEST NO. 930423-2

- A-13. PRE-TEST RIGHT SIDE VIEW
- A-14. POST-TEST RIGHT SIDE VIEW
- A-15. PRE-TEST RIGHT FRONT THREE-QUARTER VIEW
- A-16. POST-TEST RIGHT FRONT THREE-QUARTER VIEW
- A-17. PRE-TEST FRONT VIEW
- A-18. POST-TEST FRONT VIEW
- A-19. PRE-TEST LEFT FRONT THREE-QUARTER VIEW
- A-20. POST-TEST LEFT FRONT THREE-QUARTER VIEW
- A-21. PRE-TEST LEFT SIDE VIEW
- A-22. POST-TEST LEFT SIDE VIEW







Figure A-13. PRE-TEST RIGHT SIDE VIEW



Figure A-14. POST-TEST RIGHT SIDE VIEW



Figure A-15. PRE-TEST RIGHT FRONT THREE-QUARTER VIEW



Figure A-16. POST-TEST RIGHT FRONT THREE-QUARTER VIEW

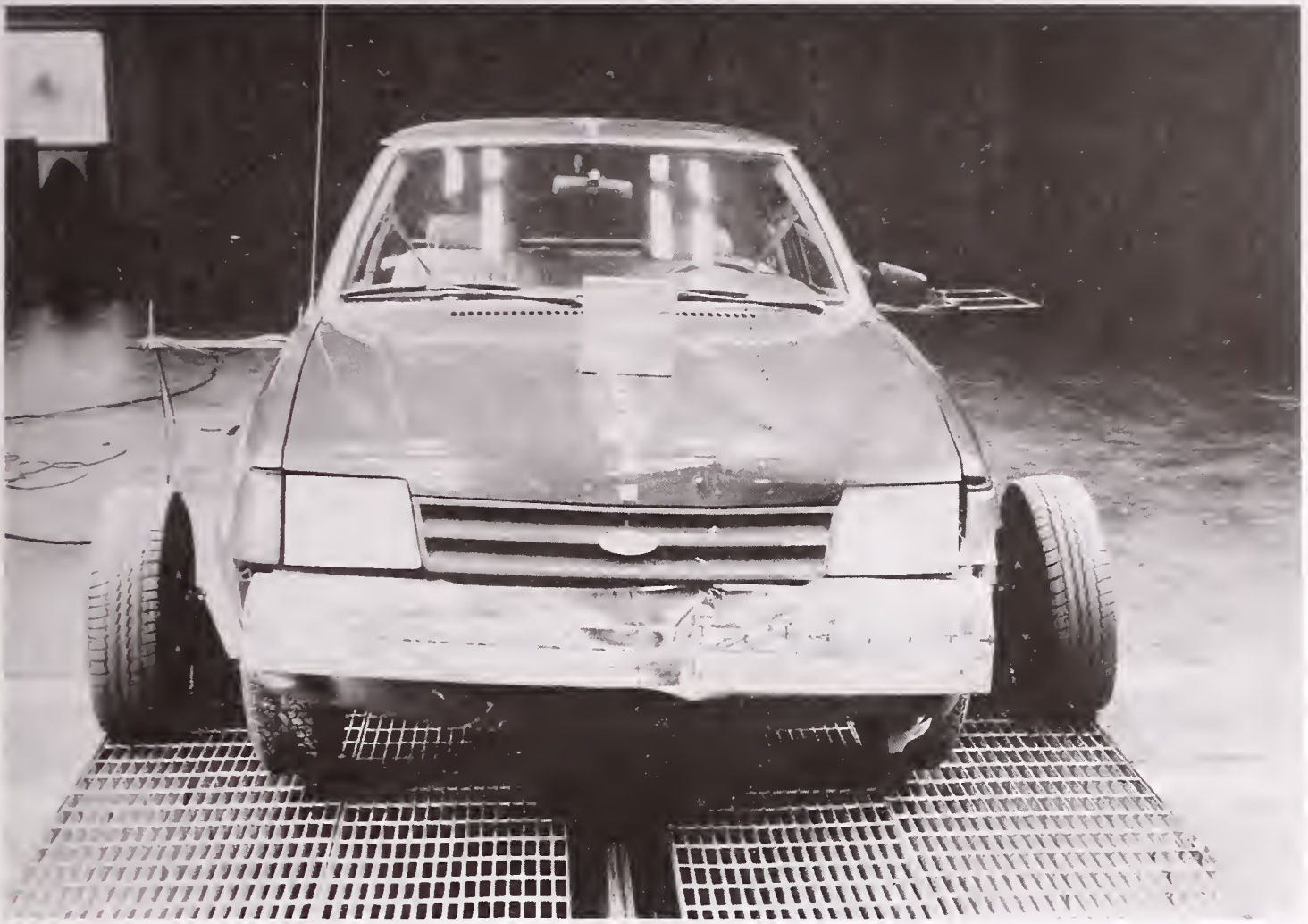


Figure A-17. PRE-TEST FRONT VIEW

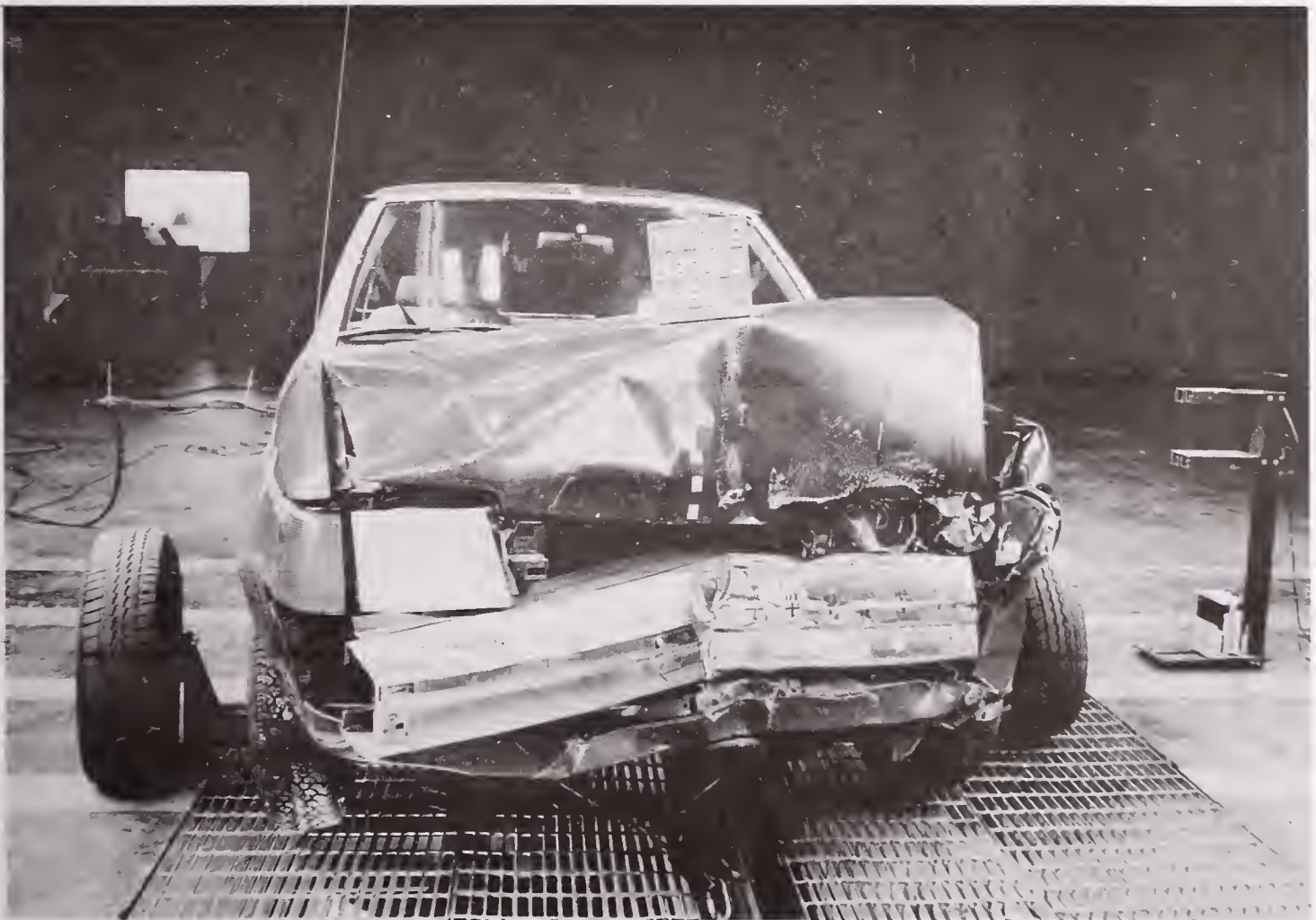


Figure A-18. POST-TEST FRONT VIEW

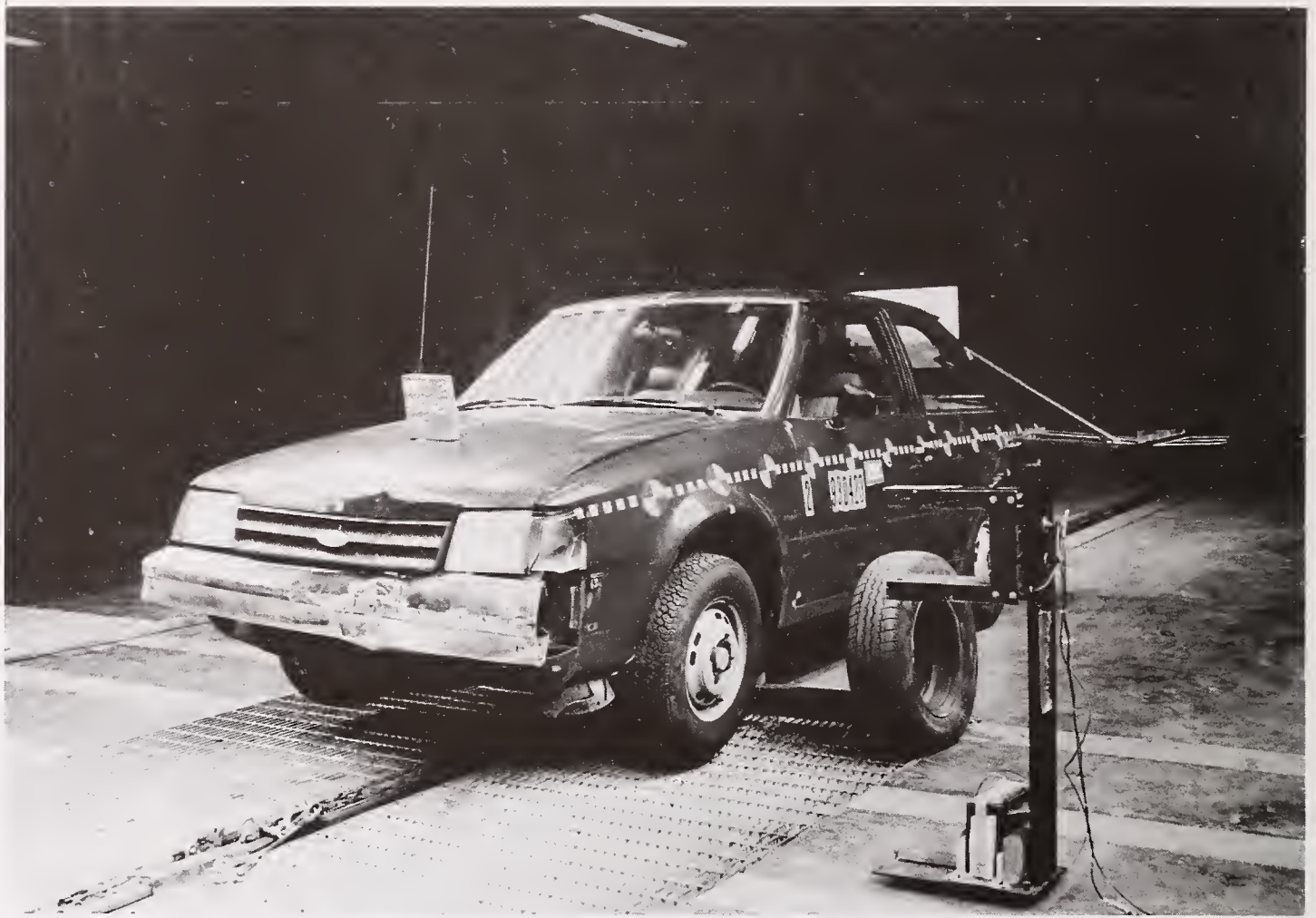


Figure A-19. PRE-TEST LEFT FRONT THREE-QUARTER VIEW



Figure A-20. POST-TEST LEFT FRONT THREE-QUARTER VIEW



Figure A-21. PRE-TEST LEFT SIDE VIEW



Figure A-22. POST-TEST LEFT SIDE VIEW



LIST OF PHOTOGRAPHS

TEST NO. 930423-3

- A-23. PRE-TEST RIGHT SIDE VIEW
- A-24. POST-TEST RIGHT SIDE VIEW
- A-25. PRE-TEST RIGHT FRONT THREE-QUARTER VIEW
- A-26. POST-TEST RIGHT FRONT THREE-QUARTER VIEW
- A-27. PRE-TEST FRONT VIEW
- A-28. POST-TEST FRONT VIEW
- A-29. PRE-TEST LEFT FRONT THREE-QUARTER VIEW
- A-30. POST-TEST LEFT FRONT THREE-QUARTER VIEW
- A-31. PRE-TEST LEFT SIDE VIEW
- A-32. POST-TEST LEFT SIDE VIEW







Figure A-23. PRE-TEST RIGHT SIDE VIEW



Figure A-24. POST-TEST RIGHT SIDE VIEW



Figure A-25. PRE-TEST RIGHT FRONT THREE-QUARTER VIEW

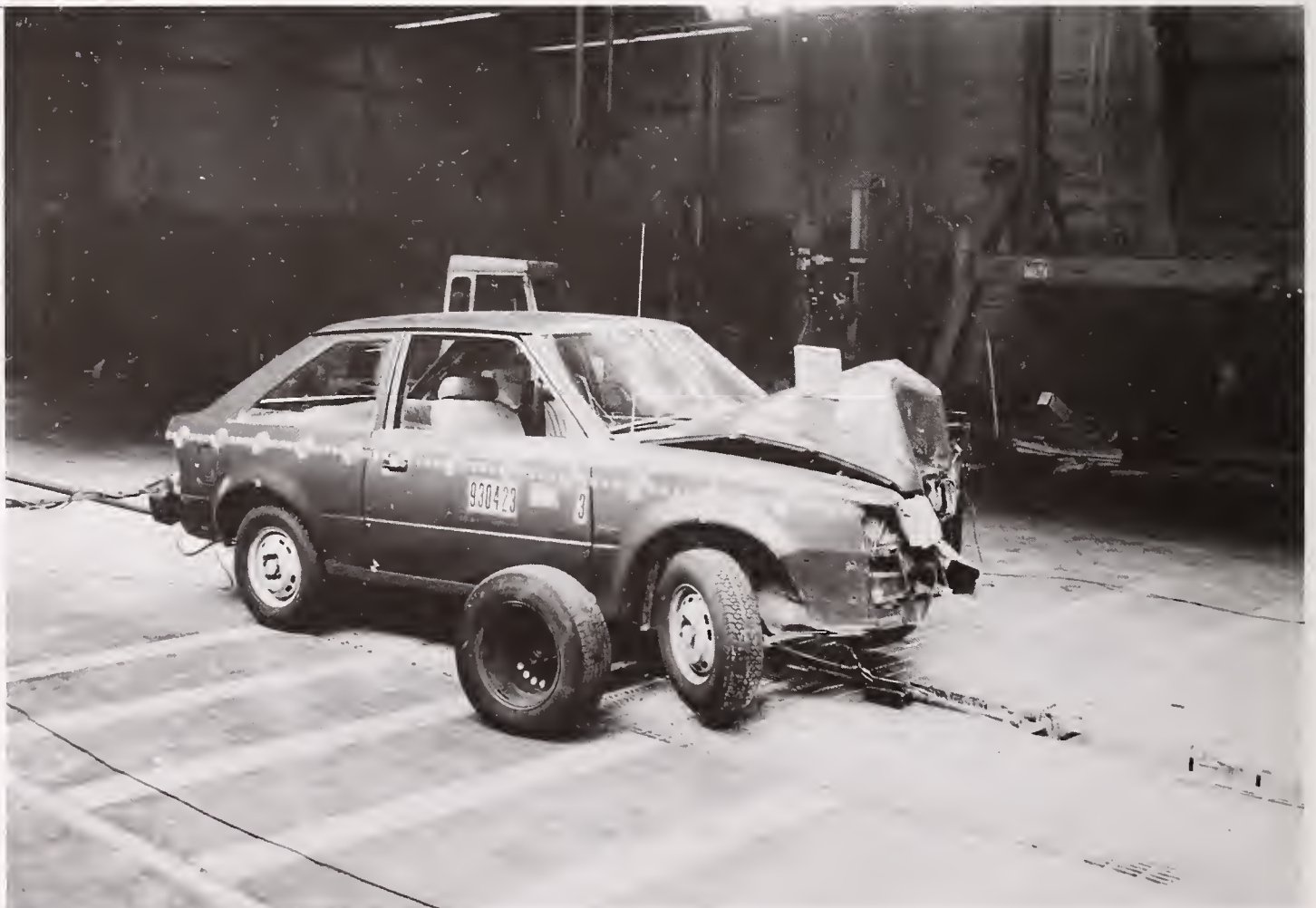


Figure A-26. POST-TEST RIGHT FRONT THREE-QUARTER VIEW



Figure A-27. PRE-TEST FRONT VIEW



Figure A-28. POST-TEST FRONT VIEW



Figure A-29. PRE-TEST LEFT FRONT THREE-QUARTER VIEW

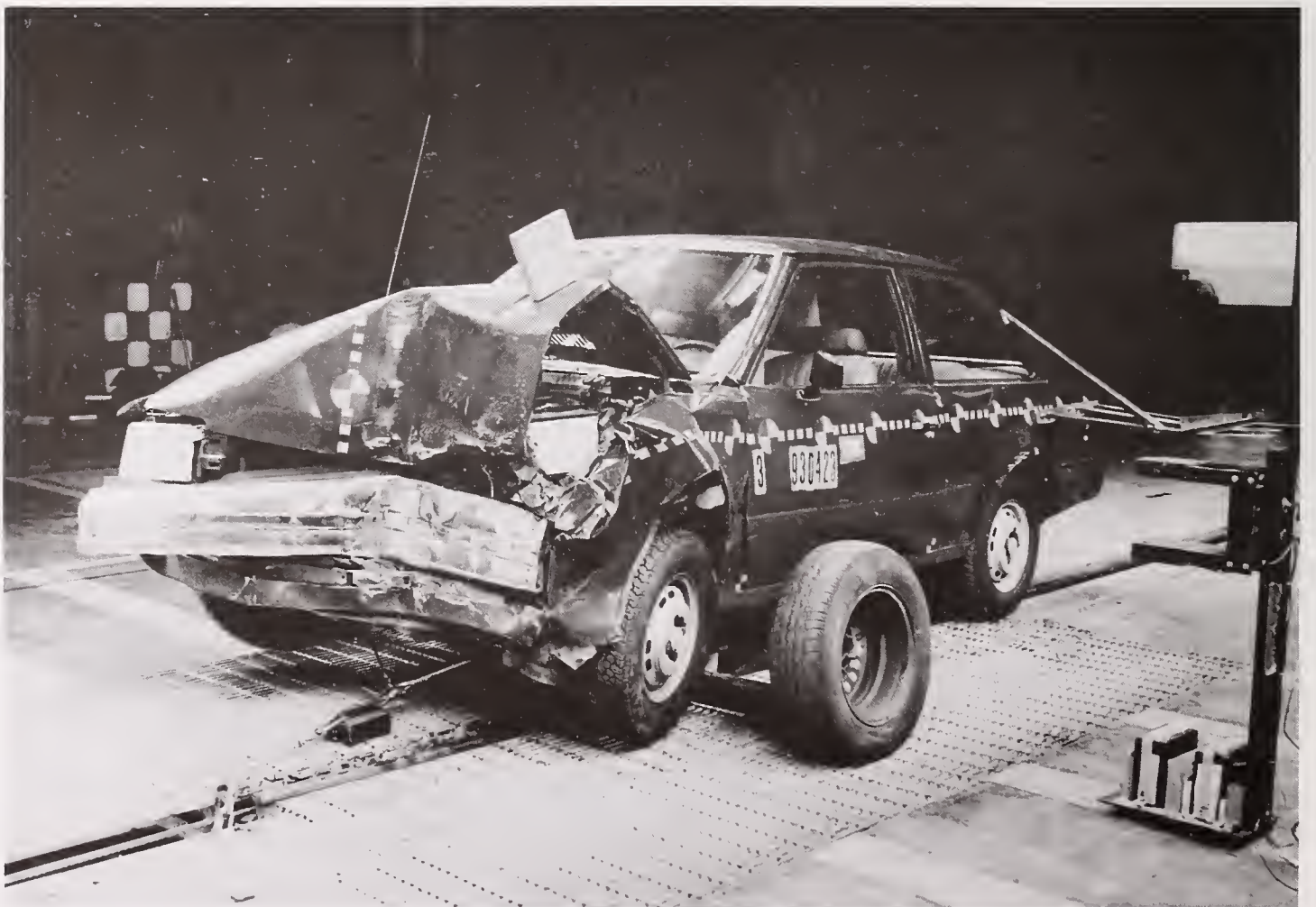


Figure A-30. POST-TEST LEFT FRONT THREE-QUARTER VIEW



Figure A-31. PRE-TEST LEFT SIDE VIEW



Figure A-32. POST-TEST LEFT SIDE VIEW



LIST OF PHOTOGRAPHS

TEST NO. 930423-4

- A-33. PRE-TEST RIGHT SIDE VIEW
- A-34. POST-TEST RIGHT SIDE VIEW
- A-35. PRE-TEST RIGHT FRONT THREE-QUARTER VIEW
- A-36. POST-TEST RIGHT FRONT THREE-QUARTER VIEW
- A-37. PRE-TEST FRONT VIEW
- A-38. POST-TEST FRONT VIEW
- A-39. PRE-TEST LEFT FRONT THREE-QUARTER VIEW
- A-40. POST-TEST LEFT FRONT THREE-QUARTER VIEW
- A-41. PRE-TEST LEFT SIDE VIEW
- A-42. POST-TEST LEFT SIDE VIEW
- A-43. PRE-TEST REAR VIEW
- A-44. POST-TEST REAR VIEW







Figure A-33. PRE-TEST RIGHT SIDE VIEW



Figure A-34. POST-TEST RIGHT SIDE VIEW



Figure A-35. PRE-TEST RIGHT FRONT THREE-QUARTER VIEW

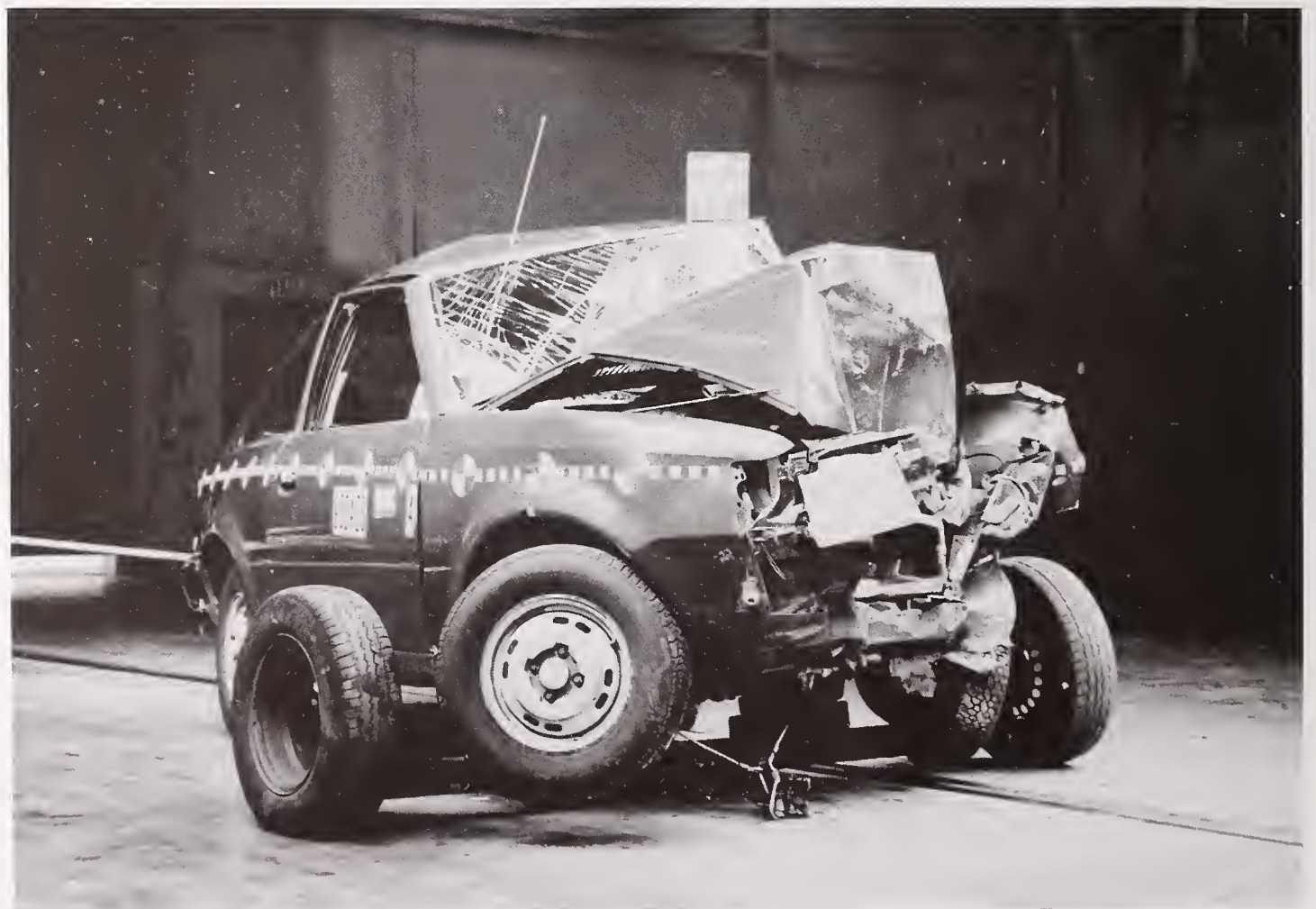


Figure A-36. POST-TEST RIGHT FRONT THREE-QUARTER VIEW



Figure A-37. PRE-TEST FRONT VIEW



Figure A-38. POST-TEST FRONT VIEW



Figure A-39. PRE-TEST LEFT FRONT THREE-QUARTER VIEW



Figure A-40. POST-TEST LEFT FRONT THREE-QUARTER VIEW



Figure A-41. PRE-TEST LEFT SIDE VIEW

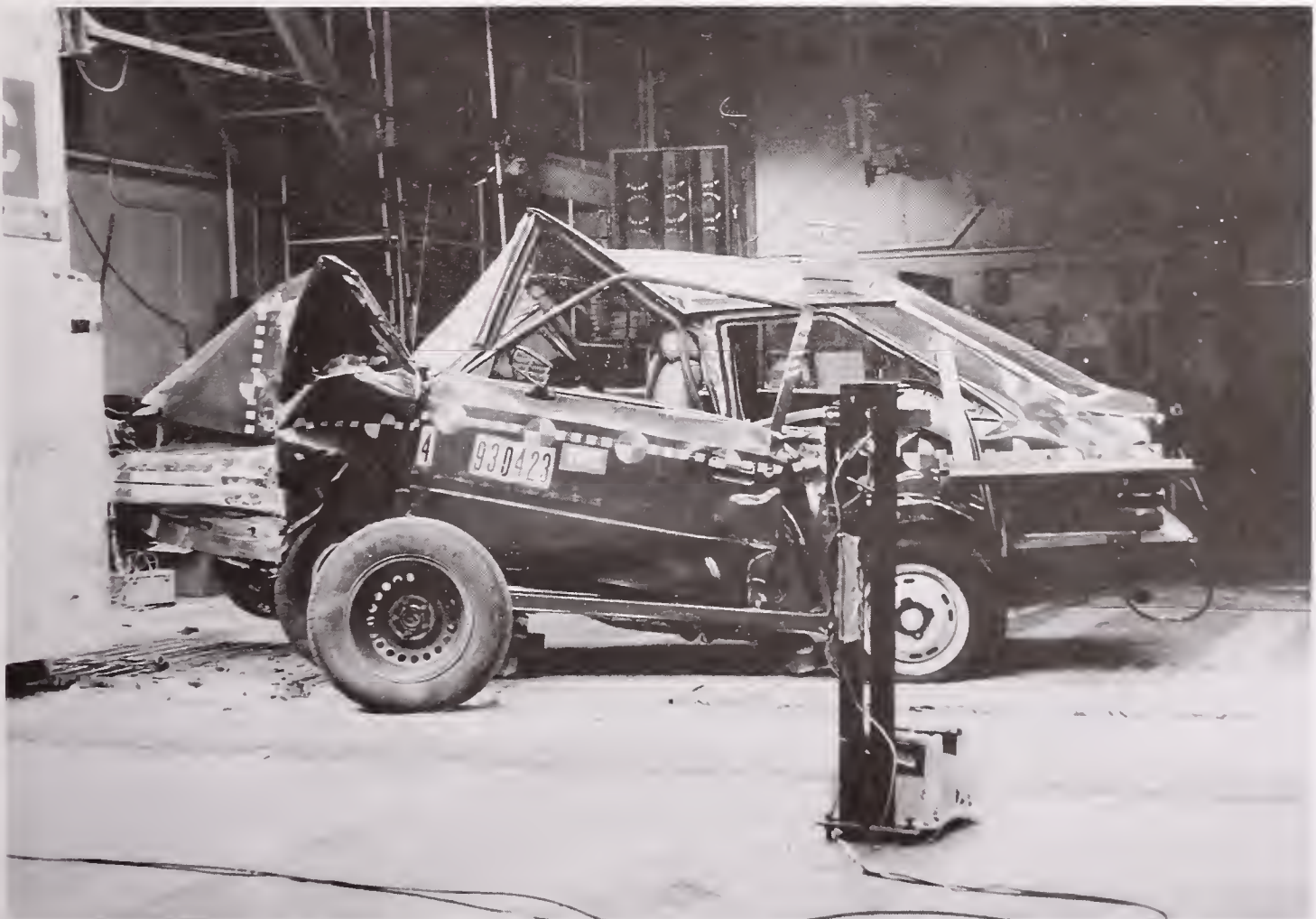


Figure A-42. POST-TEST LEFT SIDE VIEW



Figure A-43. PRE-TEST REAR VIEW



Figure A-44. POST-TEST REAR VIEW

DATA PLOTS

TEST NO. 930423-1

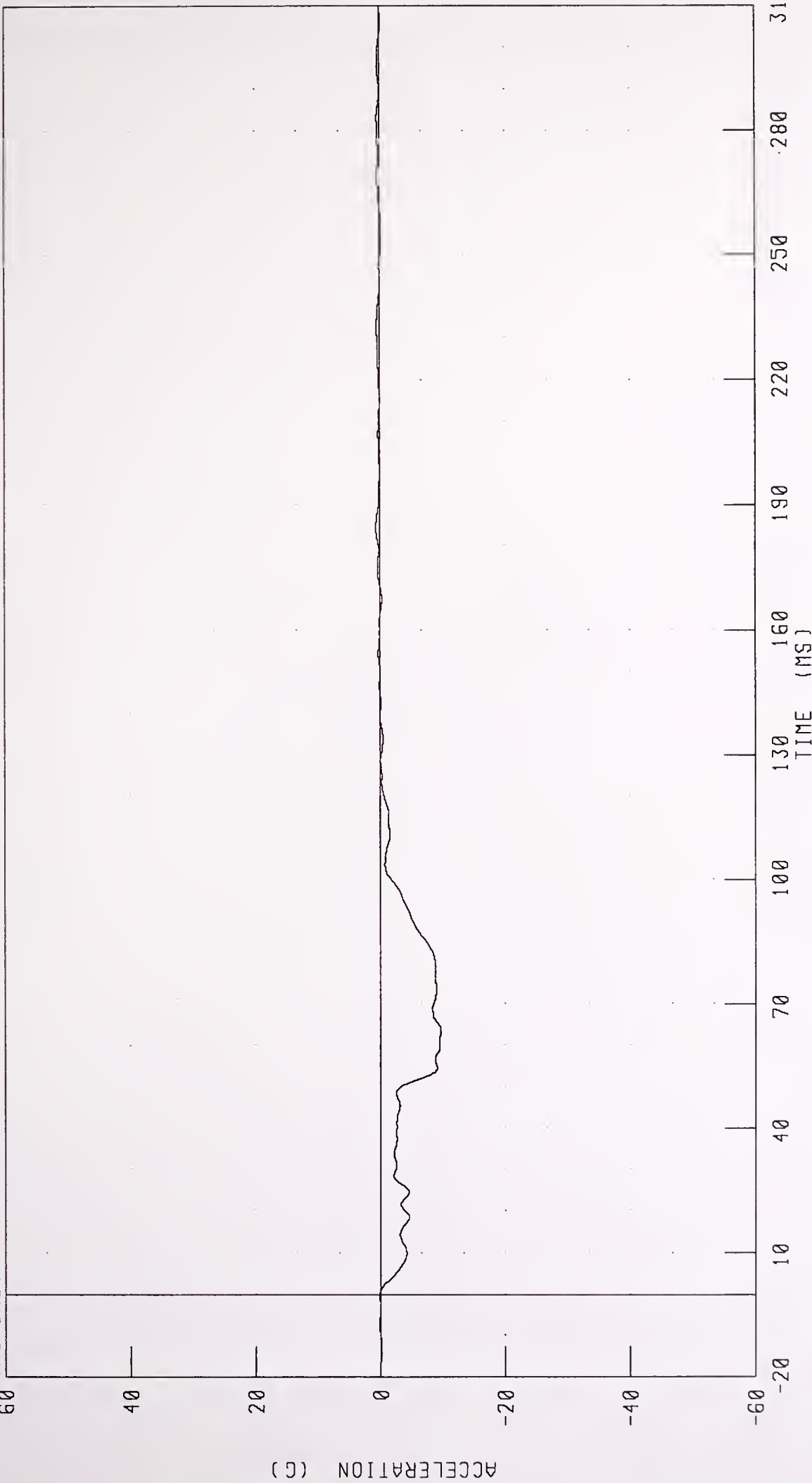




1987 FORD ESCORT INTO 50% OFFSET BARRIER AT 9 7 MPH TEST NO 1  
LEFT REAR SILL X-AXIS ACCELERATION  
ESCORT INTO OFFSET BARRIER

TEST NUMBER: 930423-1

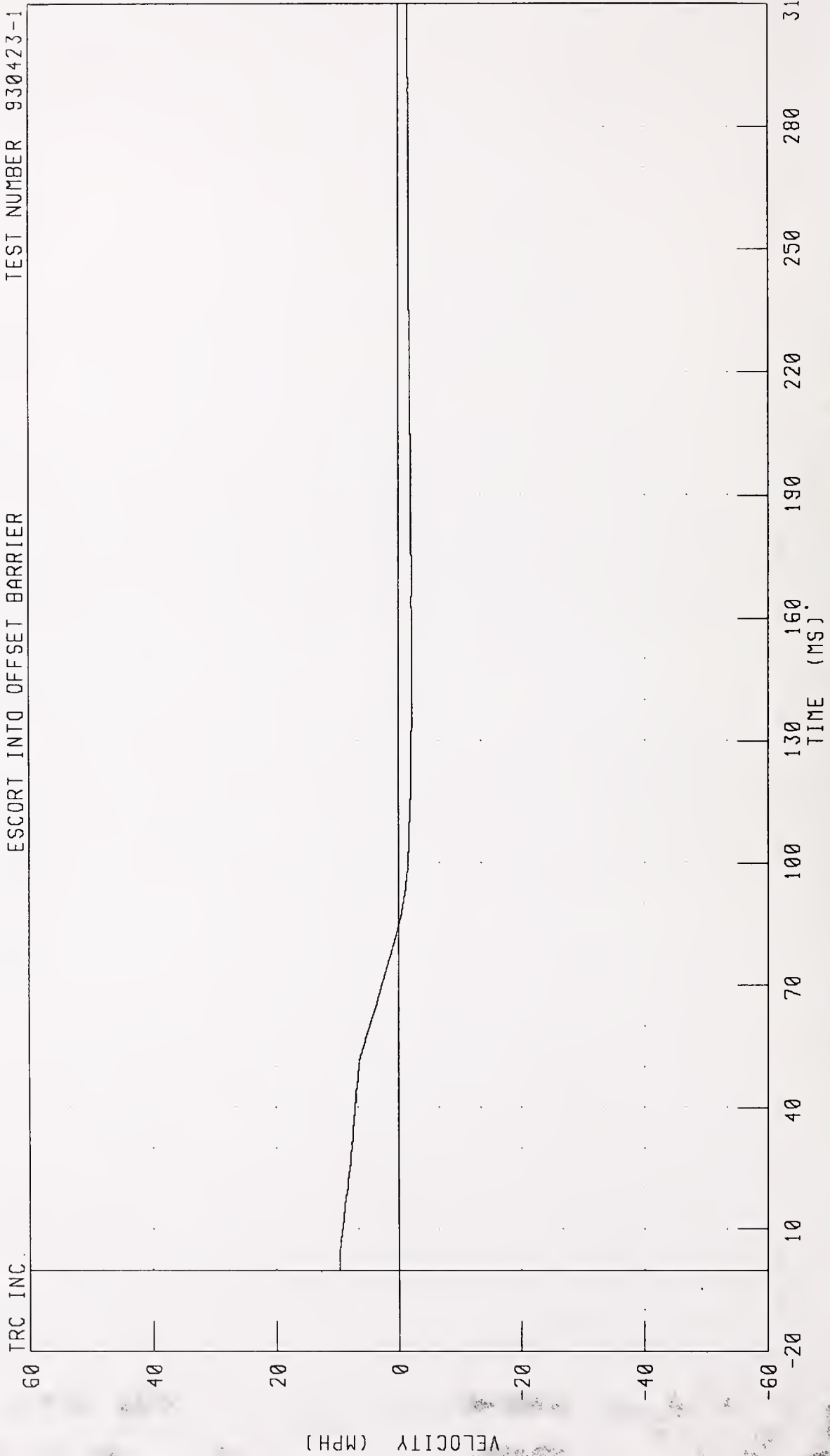
TRC INC



CHANNEL LRSXG1 FILTER CH CLASS 60 PEAK DATA 0.63 G @ 183.88 MS, -9.69 G @ 63.63 MS

1987 FORD ESCORT INTO 50% OFFSET BARRIER AT 9 7 MPH TEST NO 1  
LEFT REAR SILL X-AXIS VELOCITY  
ESCORT INTO OFFSET BARRIER

TEST NUMBER 930423-1



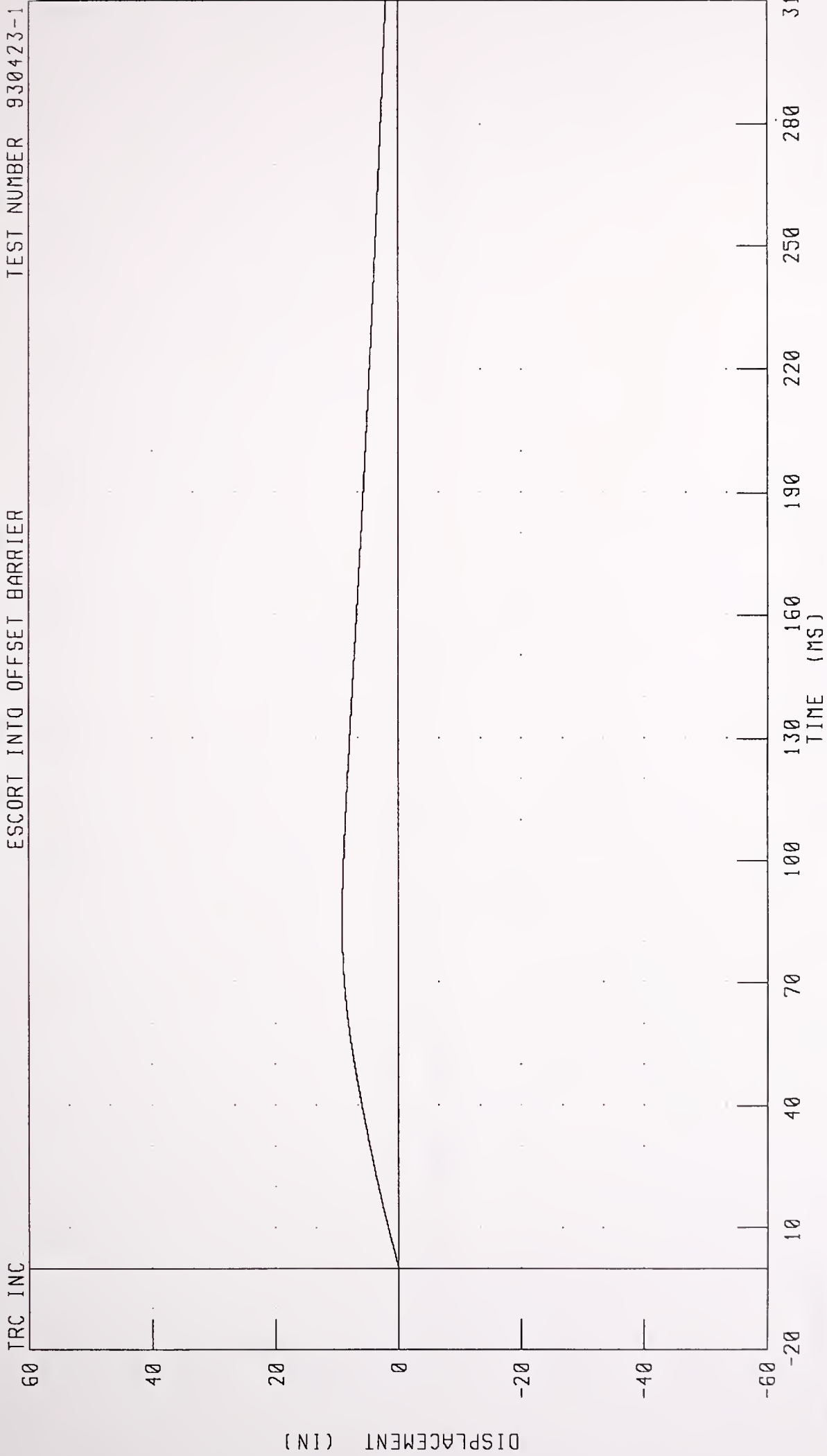
CHANNEL: LRSXV1 FILTER: CH CLASS 180

PEAK DATA: 9.71 MPH @ 2.25 MS, -2.16 MPH @ 144.00 MS

1987 FORD ESCORT INTO 50% OFFSET BARRIER AT 9.7 MPH TEST NO 1

LEFT REAR SILL X-AXIS DISPLACEMENT

ESCORT INTO OFFSET BARRIER TEST NUMBER 930423-1



CHANNEL LRSXD1 FILTER: CH. CLASS 180

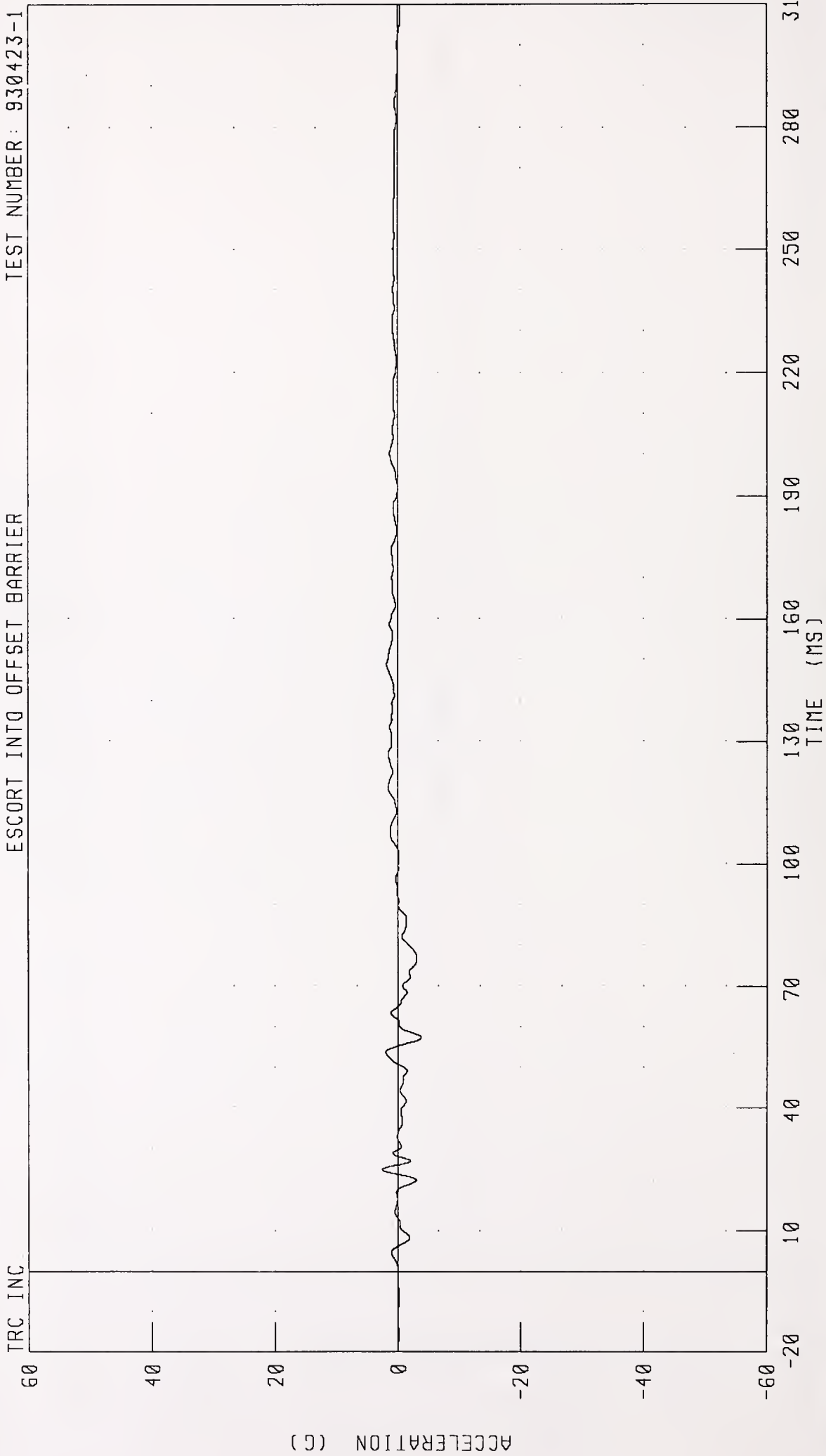
PEAK DATA: 9 16 IN @ 84 63 MS, 0 00 IN @ 0.00 MS

1987 FORD ESCORT INTO 50% OFFSET BARRIER AT 9.7 MPH TEST NO 1

LEFT REAR SILL Y-AXIS ACCELERATION

ESCORT INTO OFFSET BARRIER

TEST NUMBER: 930423-1



CHANNEL: LRSYG1 FILTER: CH CLASS 60

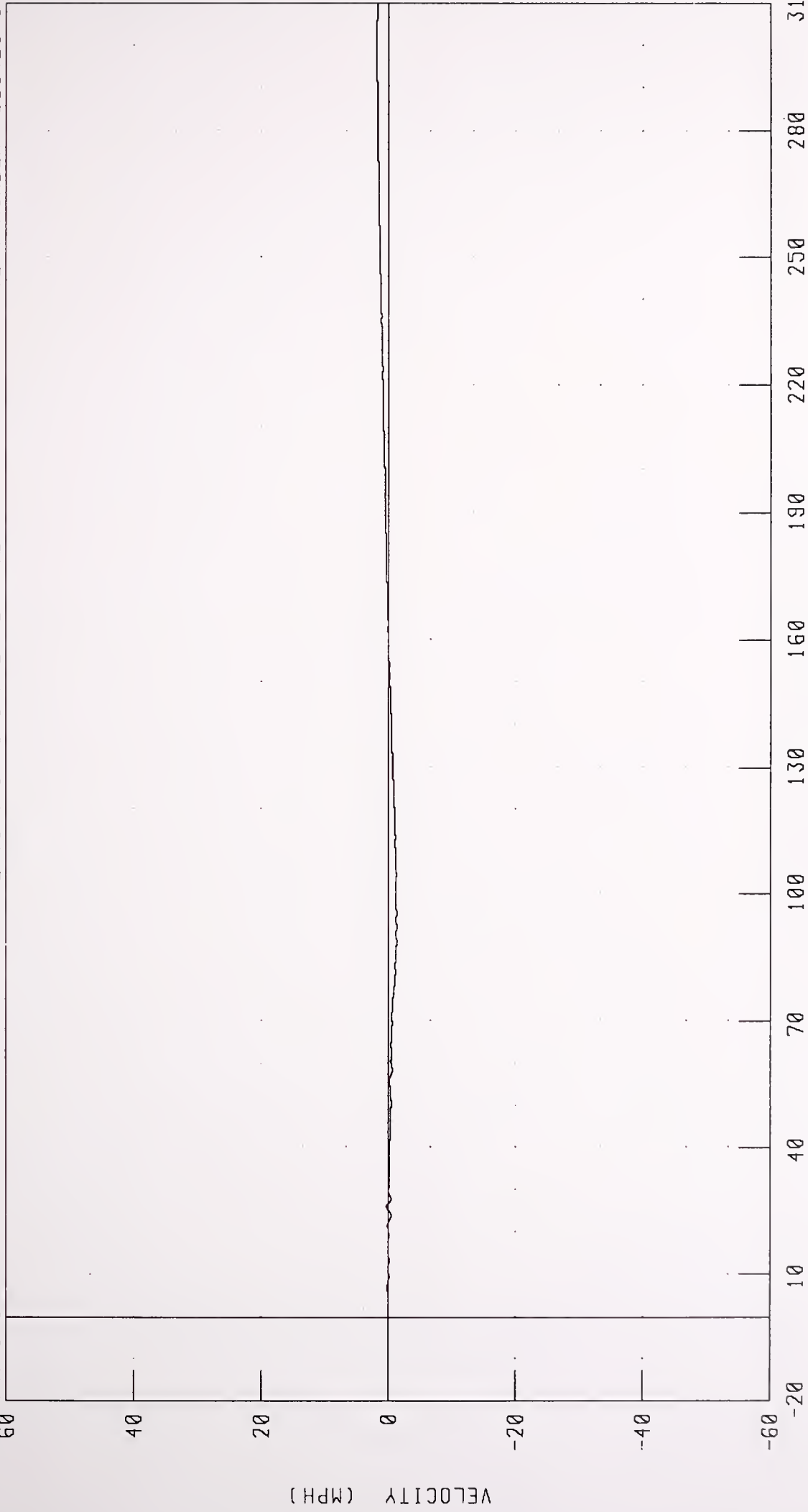
PEAK DATA 2.62 G @ 24.88 MS; -3.77 G @ 57.38 MS

1987 FORD ESCORT INTO 50% OFFSET BARRIER AT 9 7 MPH TEST NO 1

LEFT REAR SILL Y-AXIS VELOCITY

ESCORT INTO OFFSET BARRIER TEST NUMBER: 930423-1

TRC INC



CHANNEL: LRSYV1 FILTER: CH, CLASS 180

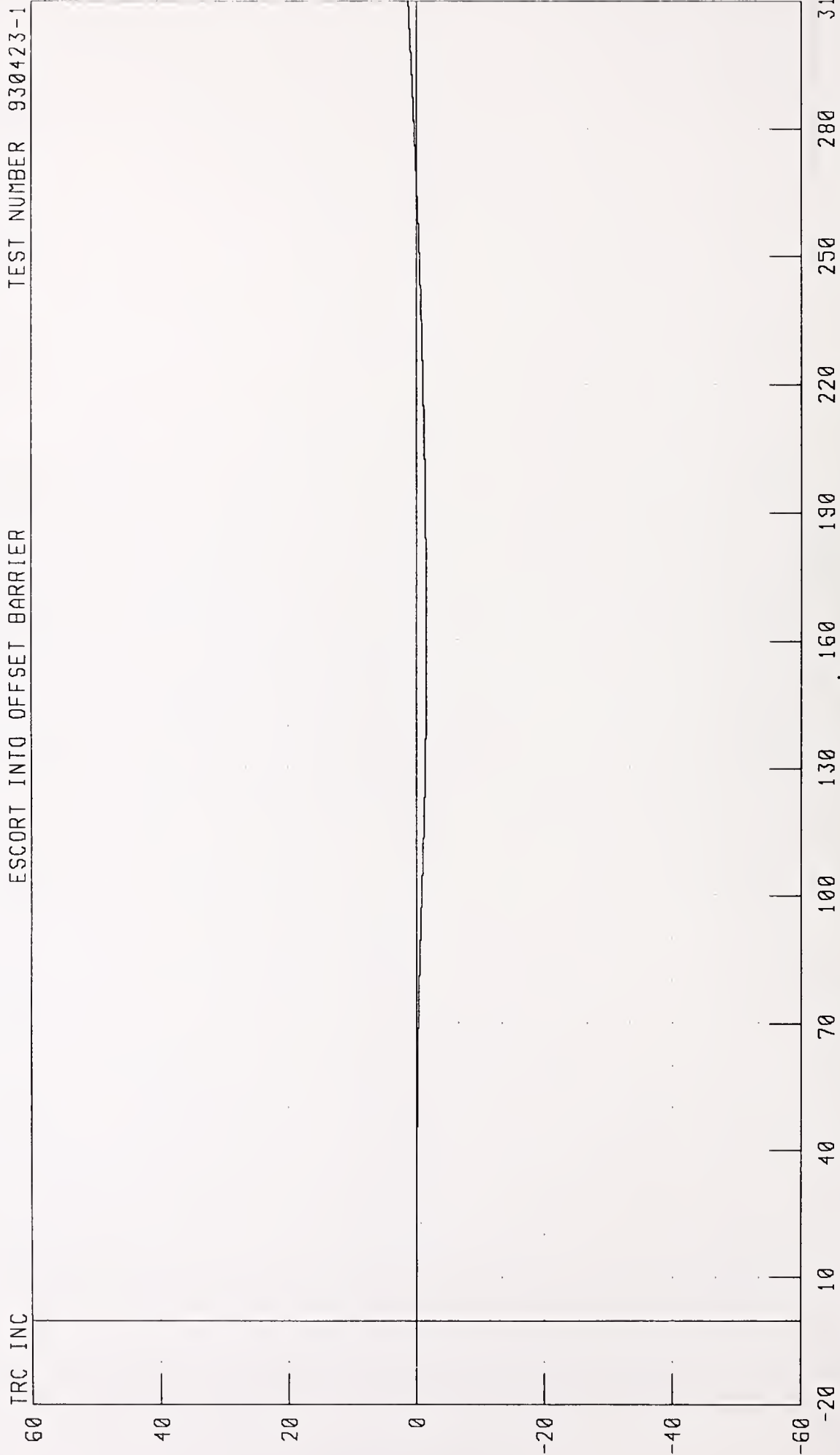
PEAK DATA 1 81 MPH @ 301 38 MS, -1 29 MPH @ 88 50 MS

1987 FORD ESCORT INTO 50% OFFSET BARRIER AT 9.7 MPH TEST NO 1

LEFT REAR SILL Y-AXIS DISPLACEMENT

ESCORT INTO OFFSET BARRIER

TEST NUMBER 930423-1

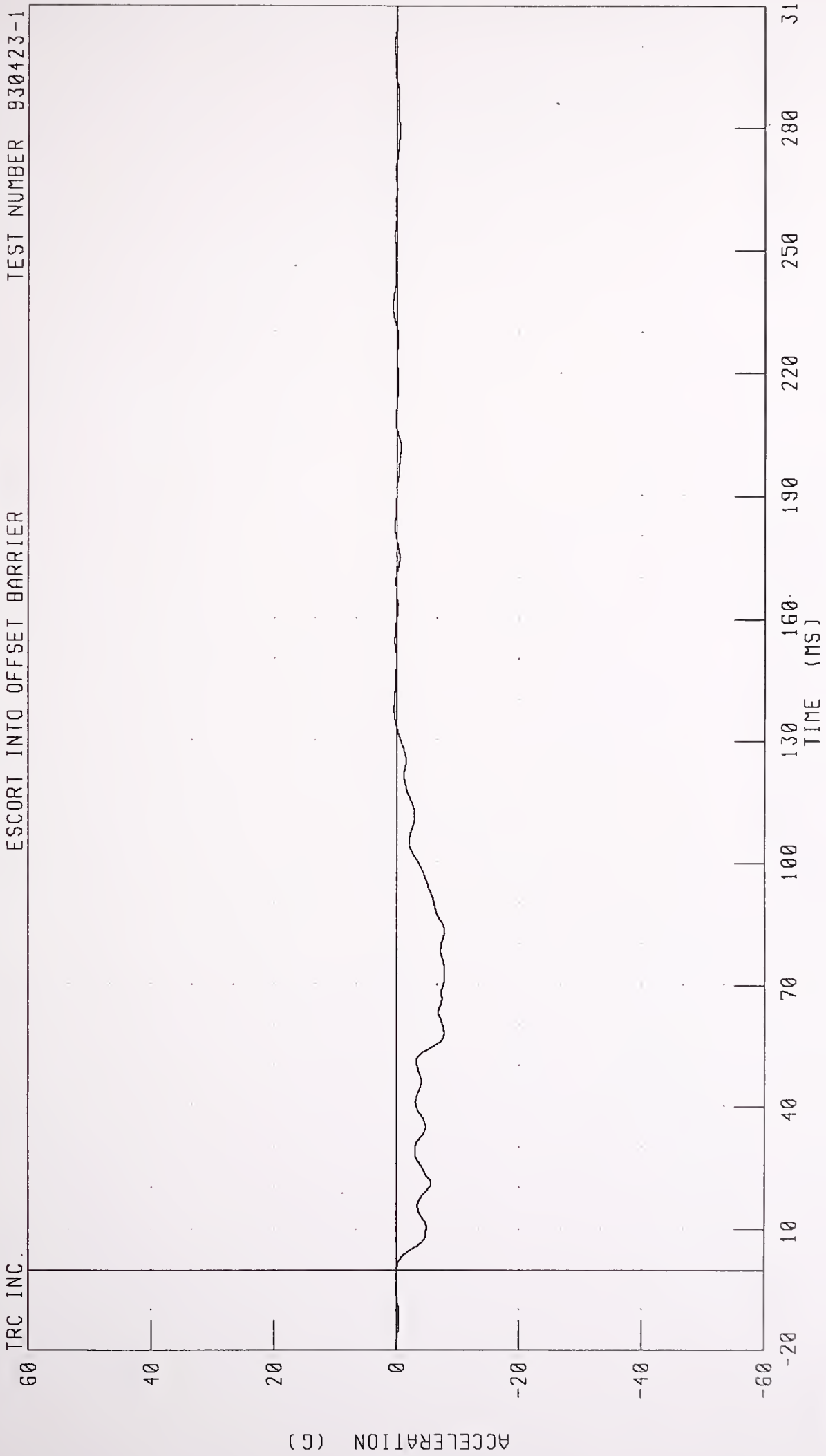


CHANNEL: LRSYD1 FILTER: CH CLASS 180

PEAK DATA: 1 32 IN @ 310.00 MS, -1 53 IN @ 158 38 MS

1987 FORD ESCORT INTO 50% OFFSET BARRIER AT 9.7 MPH TEST NO 1  
RIGHT REAR SILL X-AXIS ACCELERATION

ESCORT INTO OFFSET BARRIER TEST NUMBER 930423-1

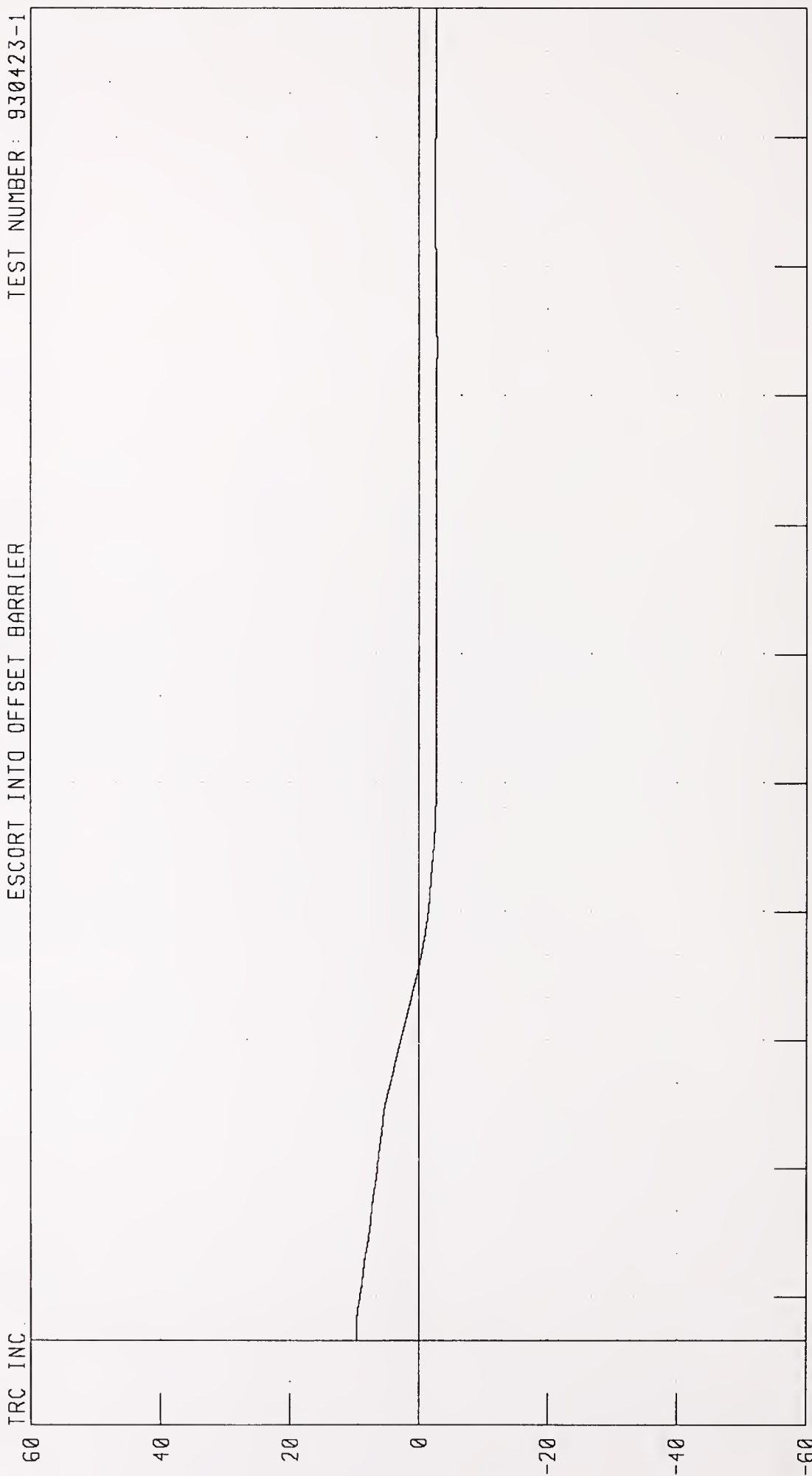


CHANNEL RRSXG1 FILTER CH CLASS 60

PEAK DATA: 0.67 G @ 236.00 MS, -7.83 G @ 83.13 MS

1987 FORD ESCORT INTO 50% OFFSET BARRIER AT 9.7 MPH TEST NO 1  
RIGHT REAR SILL X-AXIS VELOCITY  
ESCORT INTO OFFSET BARRIER

TEST NUMBER: 930423-1

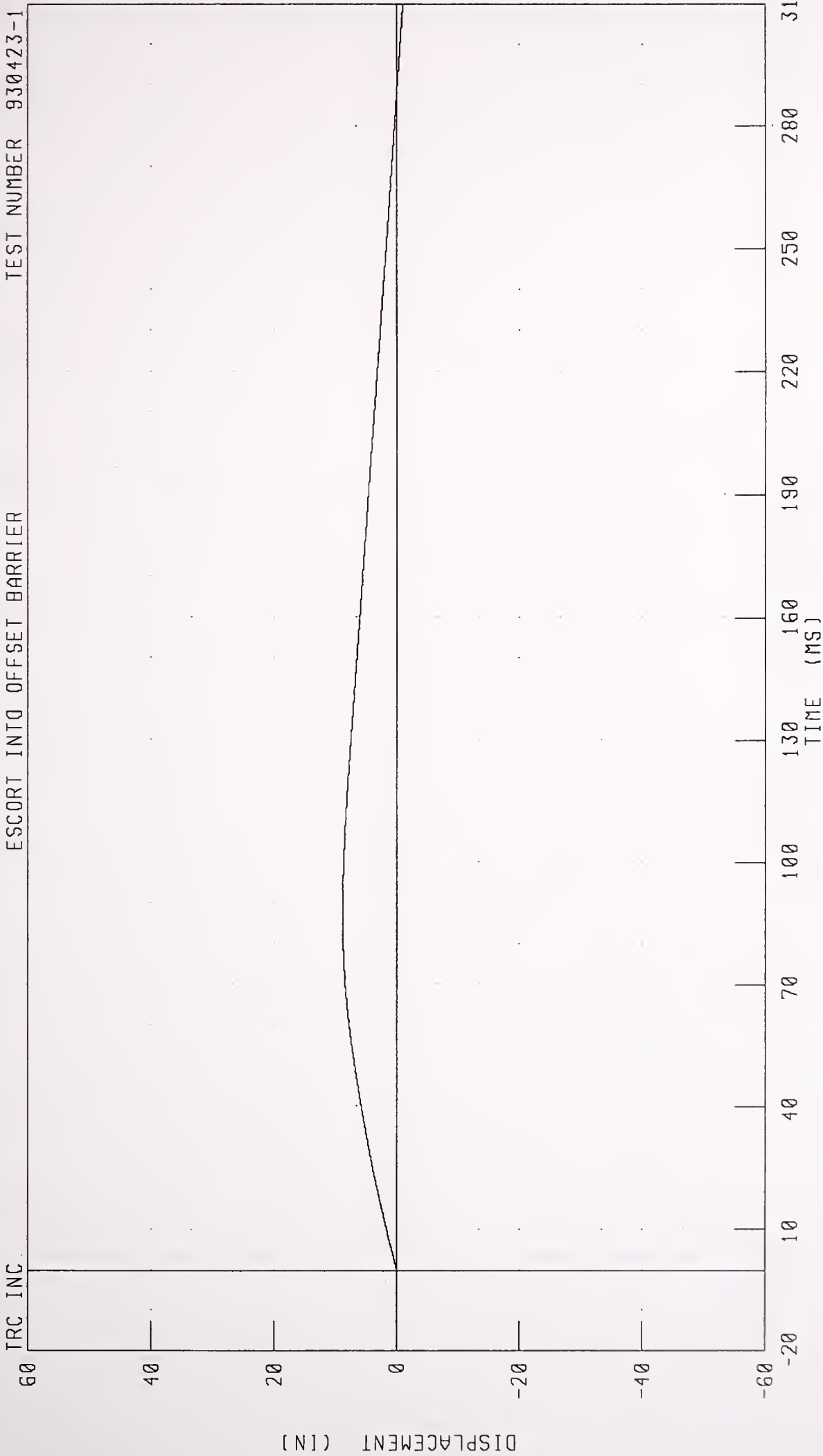


TRC INC. 60 40 20 0 -20 -40 -60  
-20 10 40 70 100 130 160 190 220 250 280 310  
TIME (MS)  
CHANNEL: RRSXV1 FILTER: CH CLASS 180  
PEAK DATA: 9.70 MPH @ 0.00 MS; -2.79 MPH @ 230.63 MS



1987 FORD ESCORT INTO 50% OFFSET BARRIER AT 9.7 MPH TEST NO 1  
RIGHT REAR SILL X-AXIS DISPLACEMENT

ESCORT INTO OFFSET BARRIER TEST NUMBER 930423-1



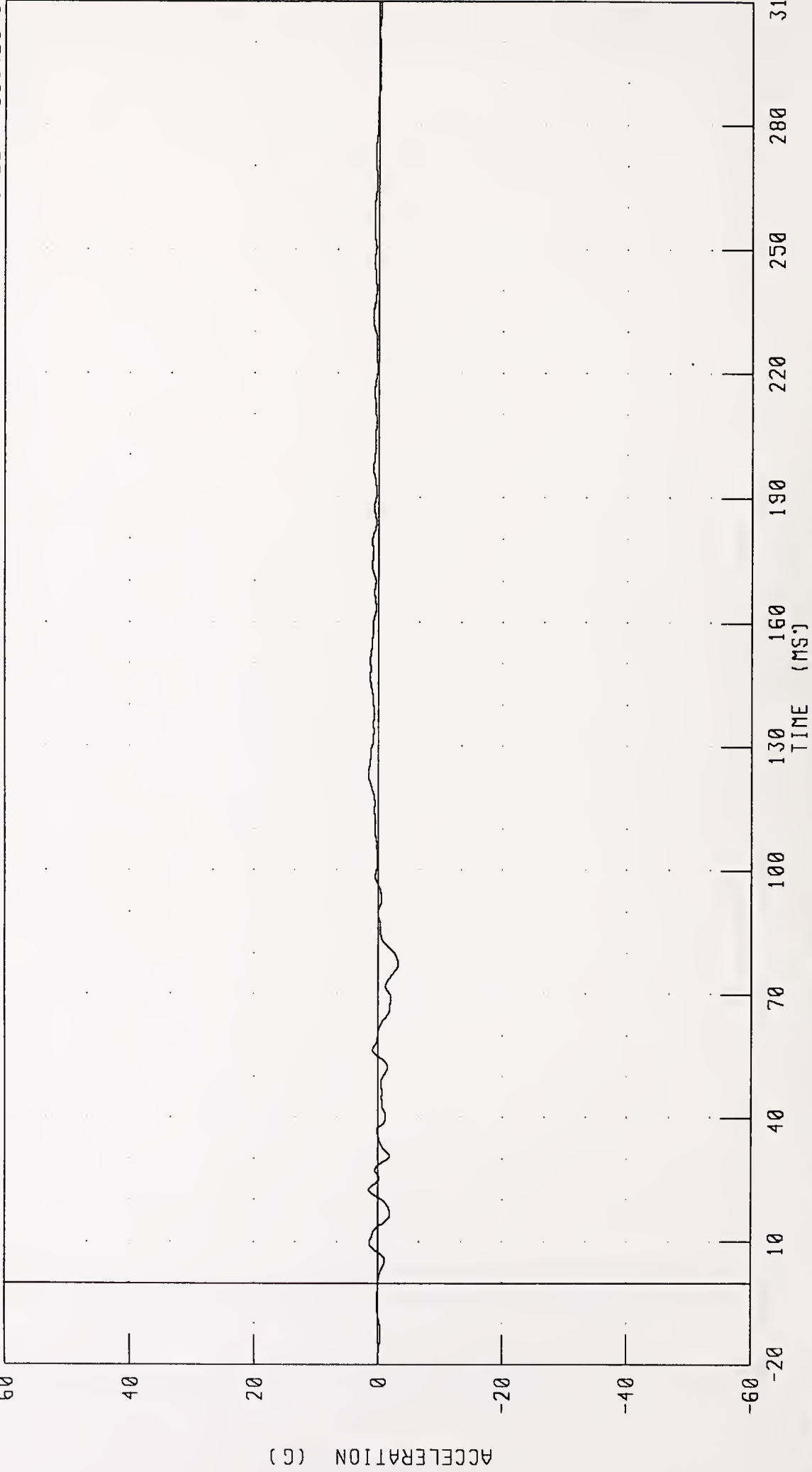
CHANNEL RRSXD1 FILTER CH CLASS 180  
PEAK DATA: 8.83 IN @ 87.25 MS, -1.02 IN @ 310.00 MS

1987 FORD ESCORT INTO 50% OFFSET BARRIER AT 9 7 MPH TEST NO. 1  
RIGHT REAR SILL Y-AXIS ACCELERATION

TEST NUMBER: 930423-1

ESCORT INTO OFFSET BARRIER

TRC INC.



CHANNEL: RRSYG1 FILTER: CH. CLASS 60

PEAK DATA: 1.56 G @ 123.25 MS; -3 20 G @ 77 25 MS

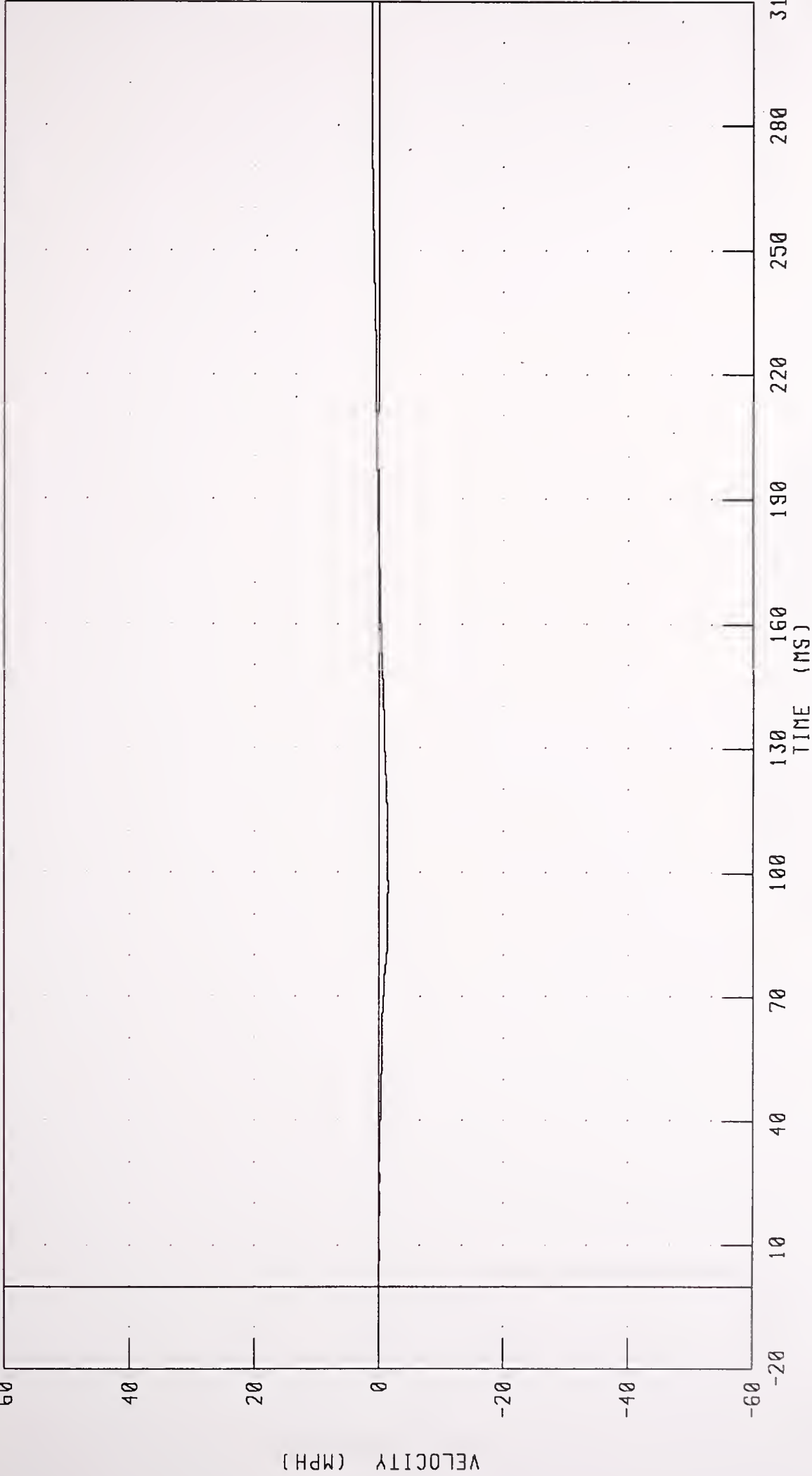
1987 FORD ESCORT INTO 50% OFFSET BARRIER AT 9 7 MPH TEST NO. 1

RIGHT REAR SILL Y-AXIS VELOCITY

ESCORT INTO OFFSET BARRIER

TEST NUMBER: 930423-1

TRC INC.

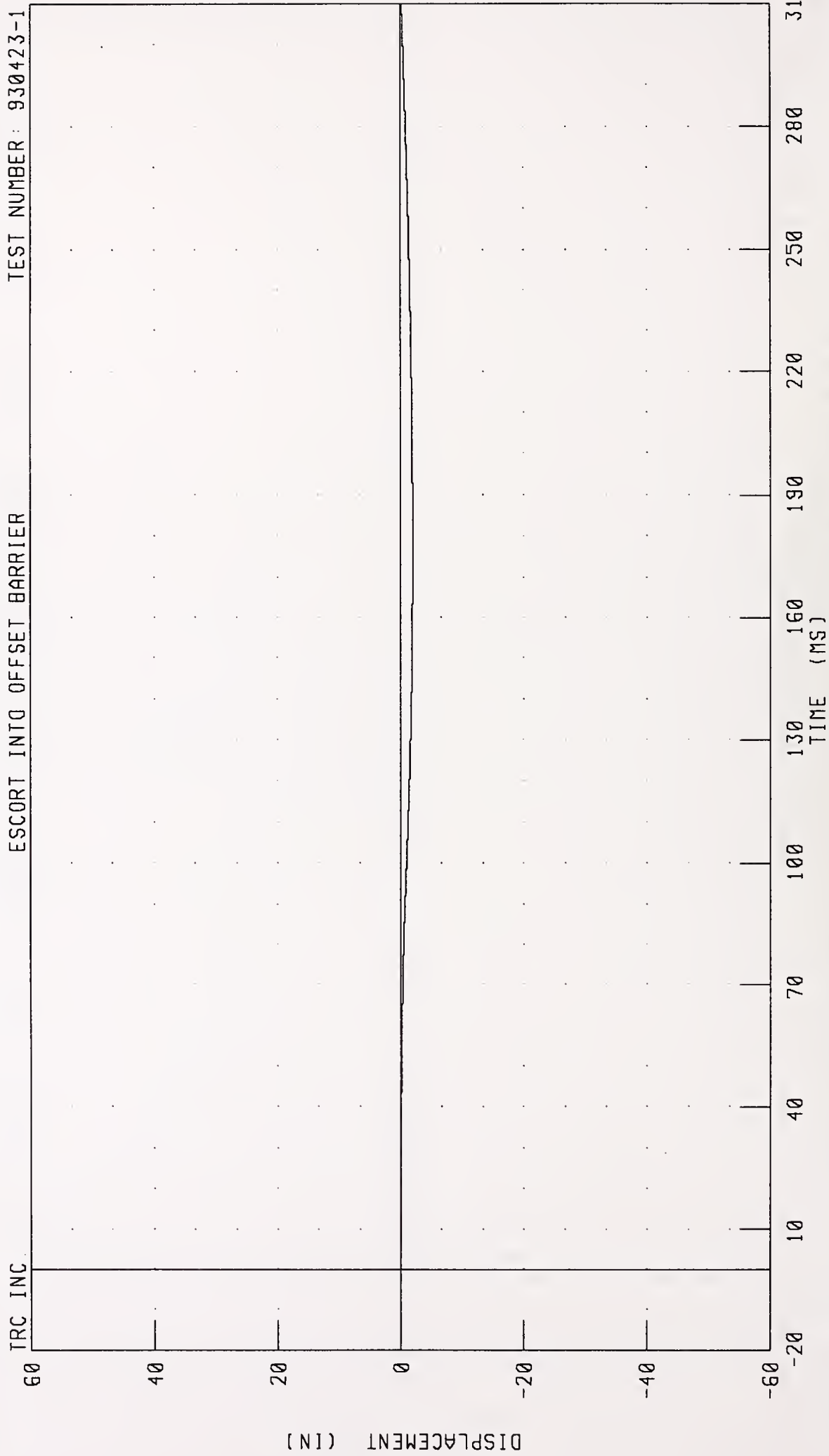


CHANNEL RRSYV1 FILTER CH CLASS 180

PEAK DATA: 1.24 MPH @ 288.25 MS; -1.45 MPH @ 97.13 MS

1987 FORD ESCORT INTO 50% OFFSET BARRIER AT 9.7 MPH TEST NO. 1  
RIGHT REAR SILL Y-AXIS DISPLACEMENT

ESCORT INTO OFFSET BARRIER TEST NUMBER: 930423-1



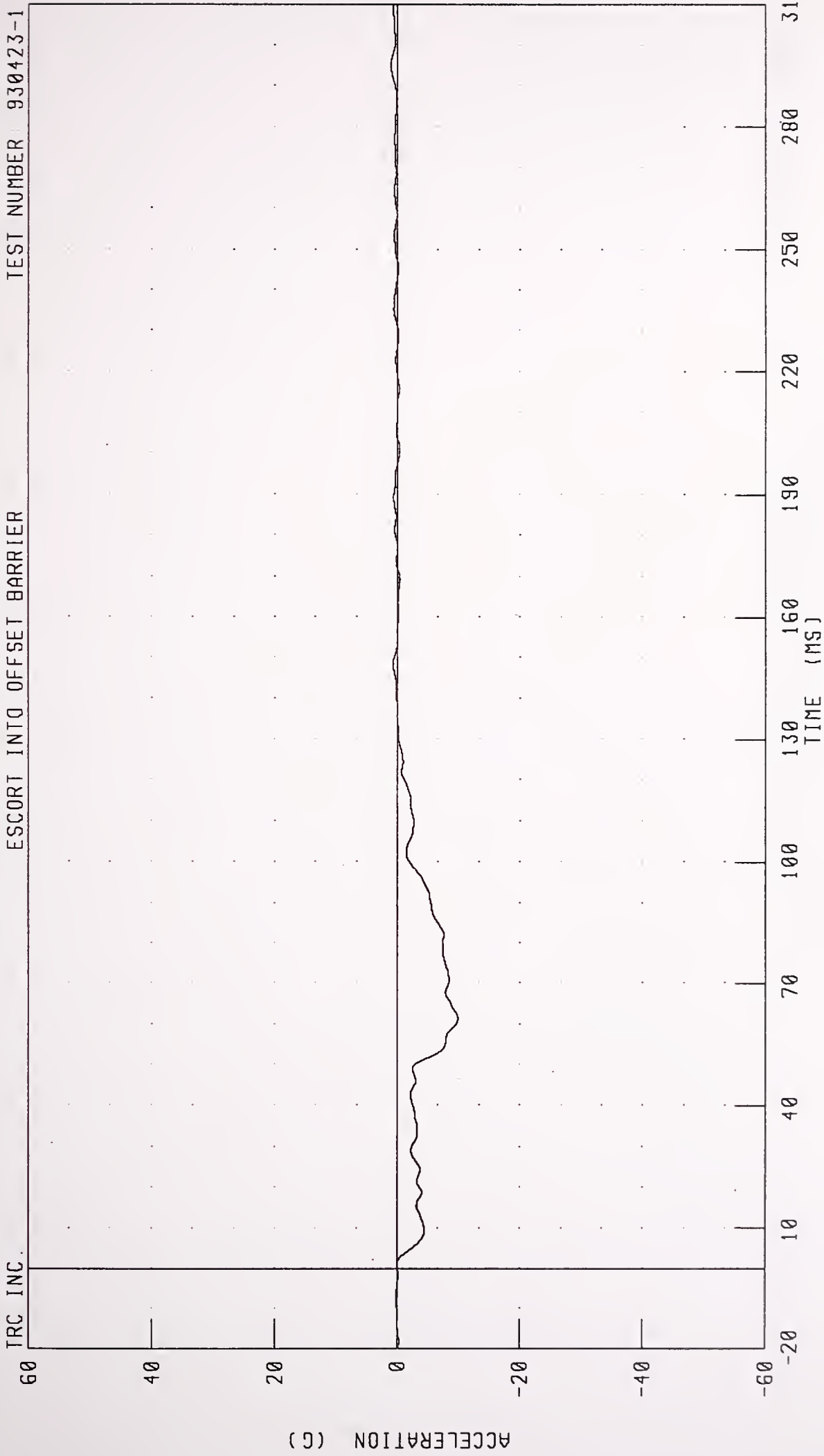
CHANNEL: RRSYD1 FILTER: CH. CLASS 180

PEAK DATA: 0.00 IN @ 0.00 MS; -1.97 IN @ 177.63 MS

1987 FORD ESCORT INTO 50% OFFSET BARRIER AT 9.7 MPH TEST NO. 1

VEHICLE CENTER OF GRAVITY X-AXIS ACCELERATION

ESCORT INTO OFFSET BARRIER TEST NUMBER 930423-1

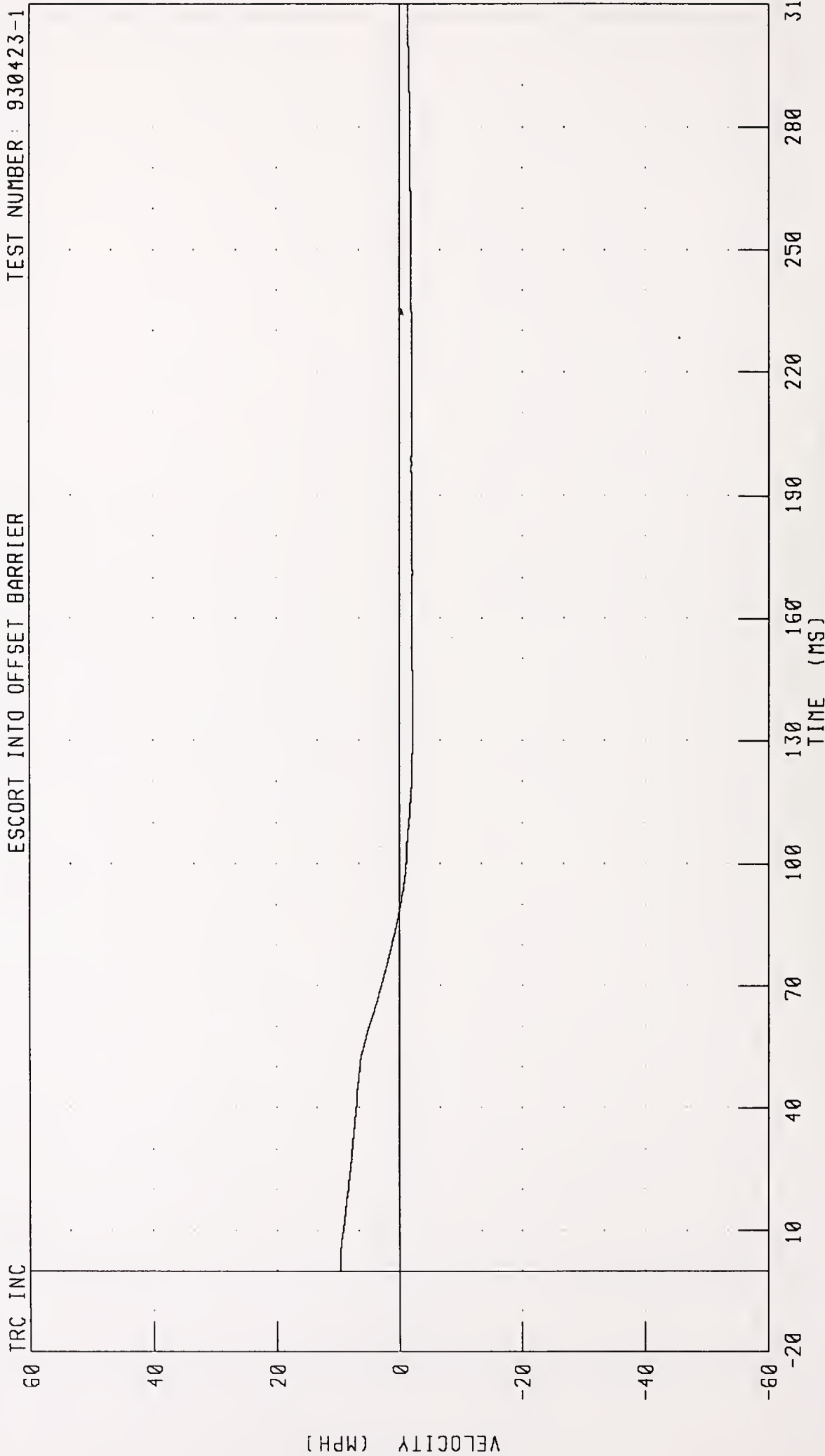


CHANNEL VCGXG1 FILTER: CH. CLASS 60

PEAK DATA: 1.03 G @ 295.13 MS; -9.91 G @ 61.25 MS

1987 FORD ESCORT INTO 50% OFFSET BARRIER AT 9.7 MPH TEST NO 1  
VEHICLE CENTER OF GRAVITY X-AXIS VELOCITY

ESCORT INTO OFFSET BARRIER TEST NUMBER: 930423-1

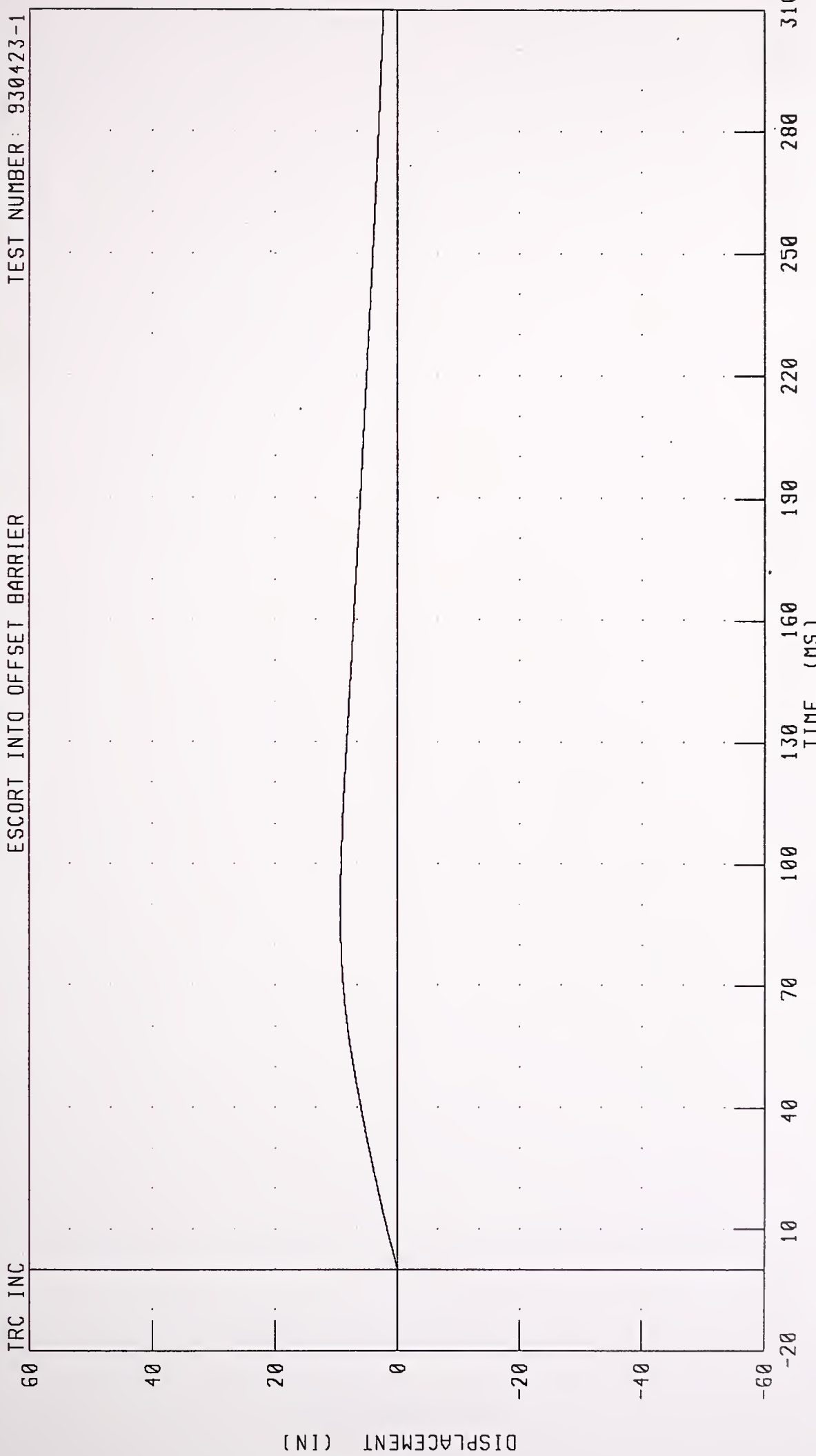


CHANNEL: VCGXV1 FILTER: CH. CLASS 180

PEAK DATA: 9.71 MPH @ 2.88 MS, -2.16 MPH @ 139.00 MS

1987 FORD ESCORT INTO 50% OFFSET BARRIER AT 9.7 MPH TEST NO. 1  
VEHICLE CENTER OF GRAVITY X-AXIS DISPLACEMENT

ESCORT INTO OFFSET BARRIER TEST NUMBER: 930423-1



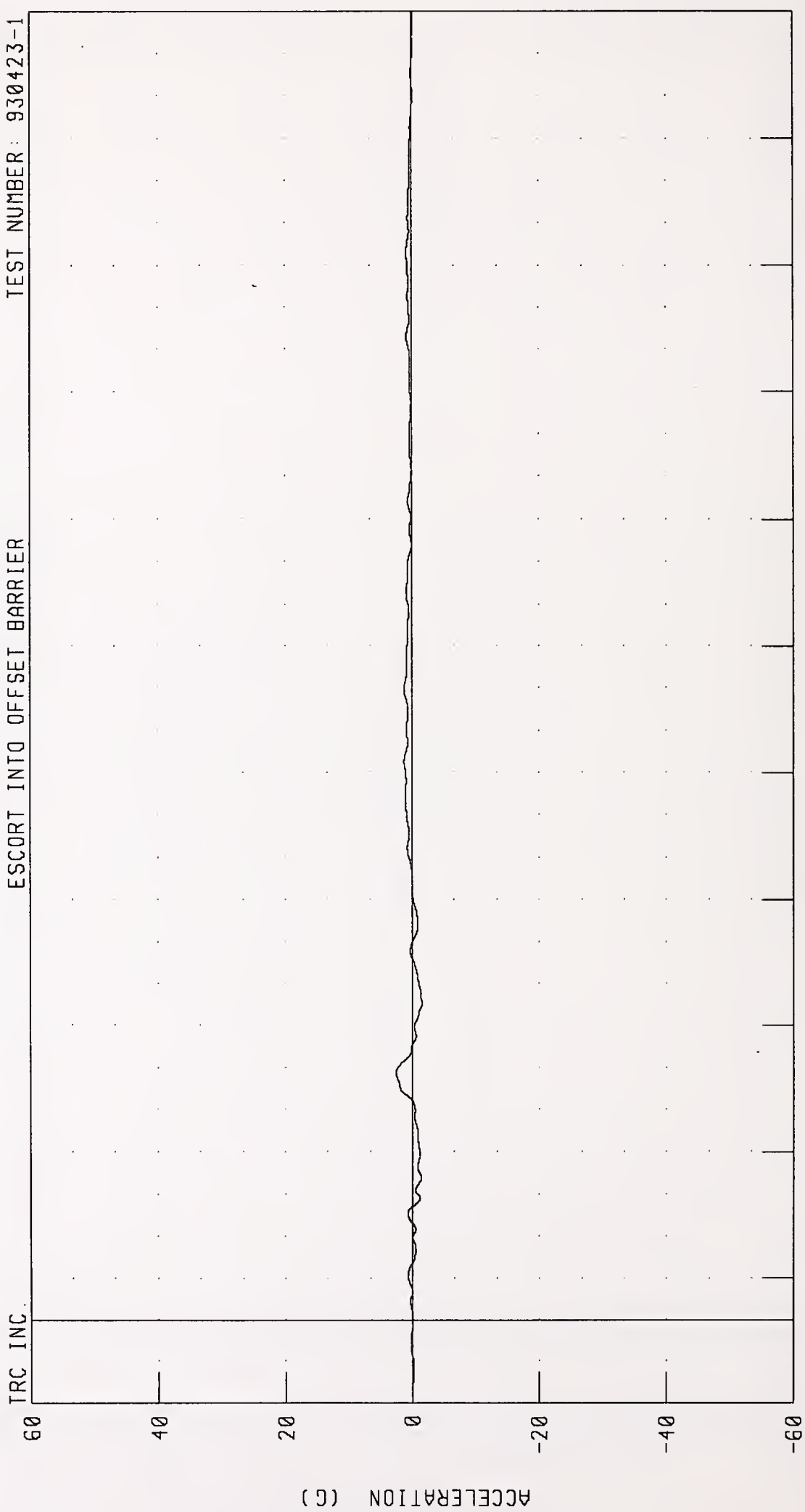
CHANNEL: VCGXD1 FILTER: CH. CLASS 180

PEAK DATA: 9.32 IN @ 88.63 MS; 0.00 IN @ 0.00 MS

1987 FORD ESCORT INTO 50% OFFSET BARRIER AT 9.7 MPH TEST NO. 1  
VEHICLE CENTER OF GRAVITY Y-AXIS ACCELERATION

TEST NUMBER: 930423-1

ESCORT INTO OFFSET BARRIER



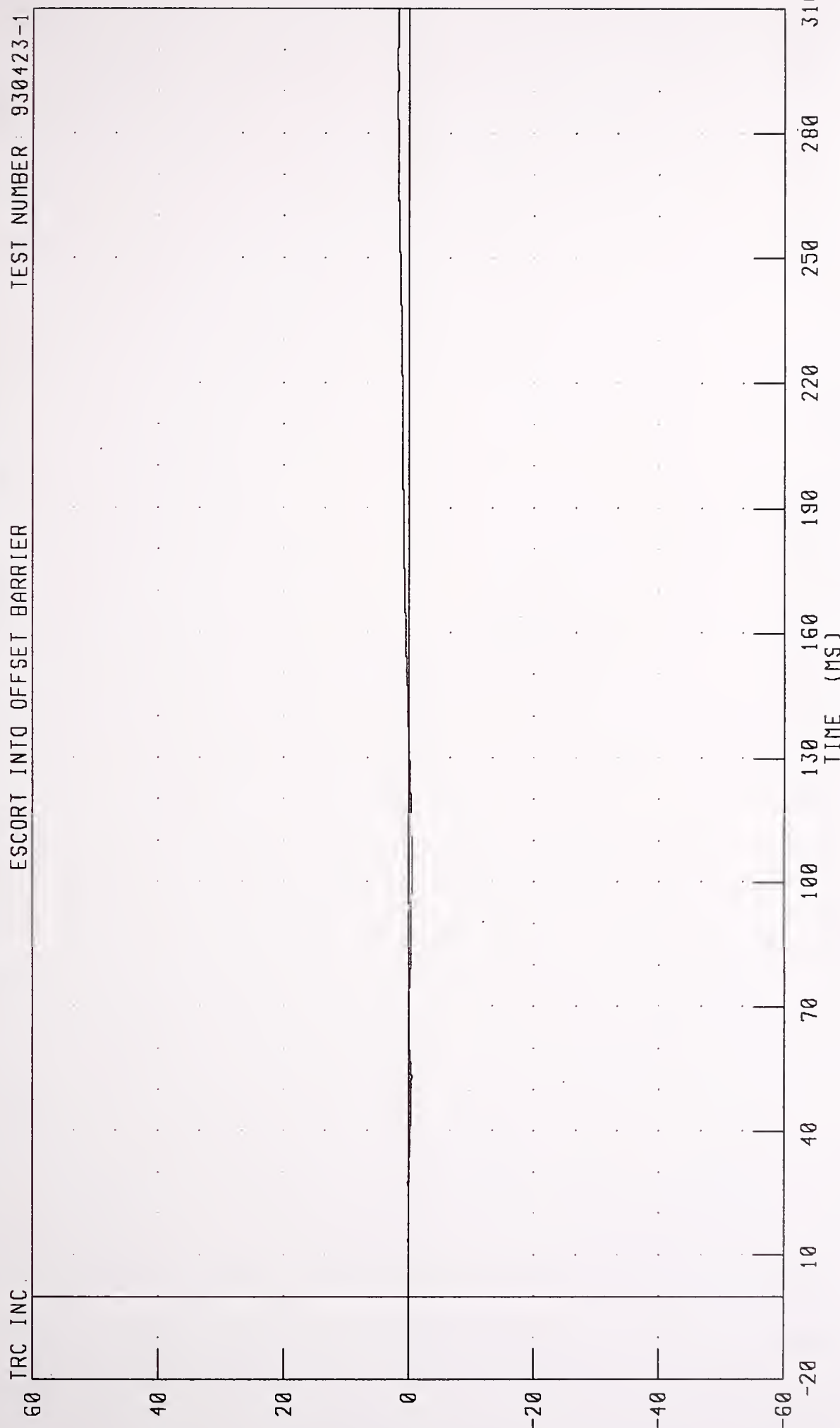
CHANNEL: VCGYG1 FILTER: CH. CLASS 60

PEAK DATA: 2.62 G @ 58.75 MS; -1.49 G @ 75.13 MS



1987 FORD ESCORT INTO 50% OFFSET BARRIER AT 9.7 MPH TEST NO 1  
VEHICLE CENTER OF GRAVITY Y-AXIS VELOCITY

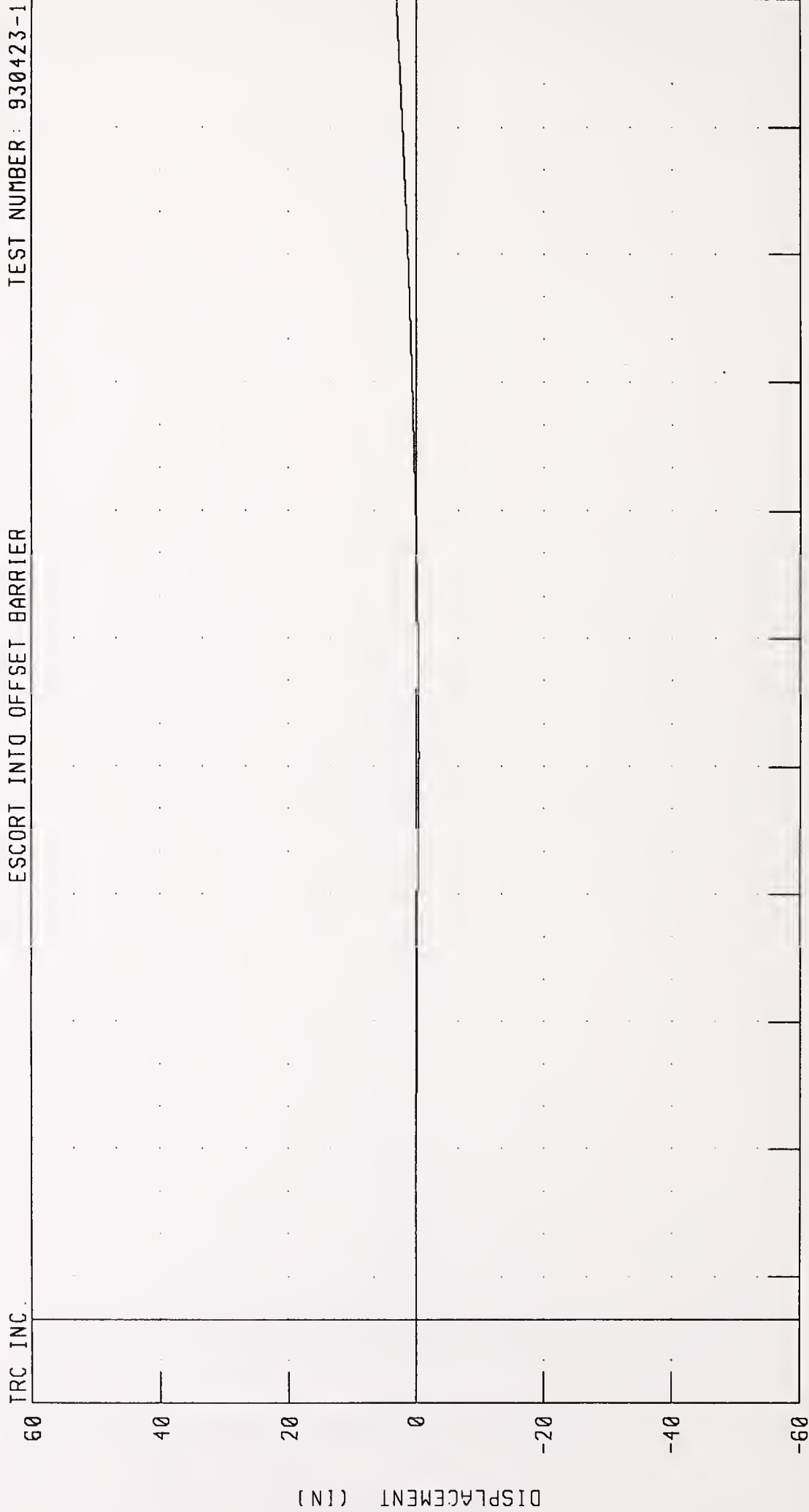
ESCORT INTO OFFSET BARRIER TEST NUMBER: 930423-1



CHANNEL: VCGYV1 FILTER: CH. CLASS 180 PEAK DATA: 1 80 MPH @ 288.75 MS; -0.45 MPH @ 103.13 MS

1987 FORD ESCORT INTO 50% OFFSET BARRIER AT 9.7 MPH TEST NO 1  
VEHICLE CENTER OF GRAVITY Y-AXIS DISPLACEMENT

ESCORT INTO OFFSET BARRIER TEST NUMBER: 930423-1

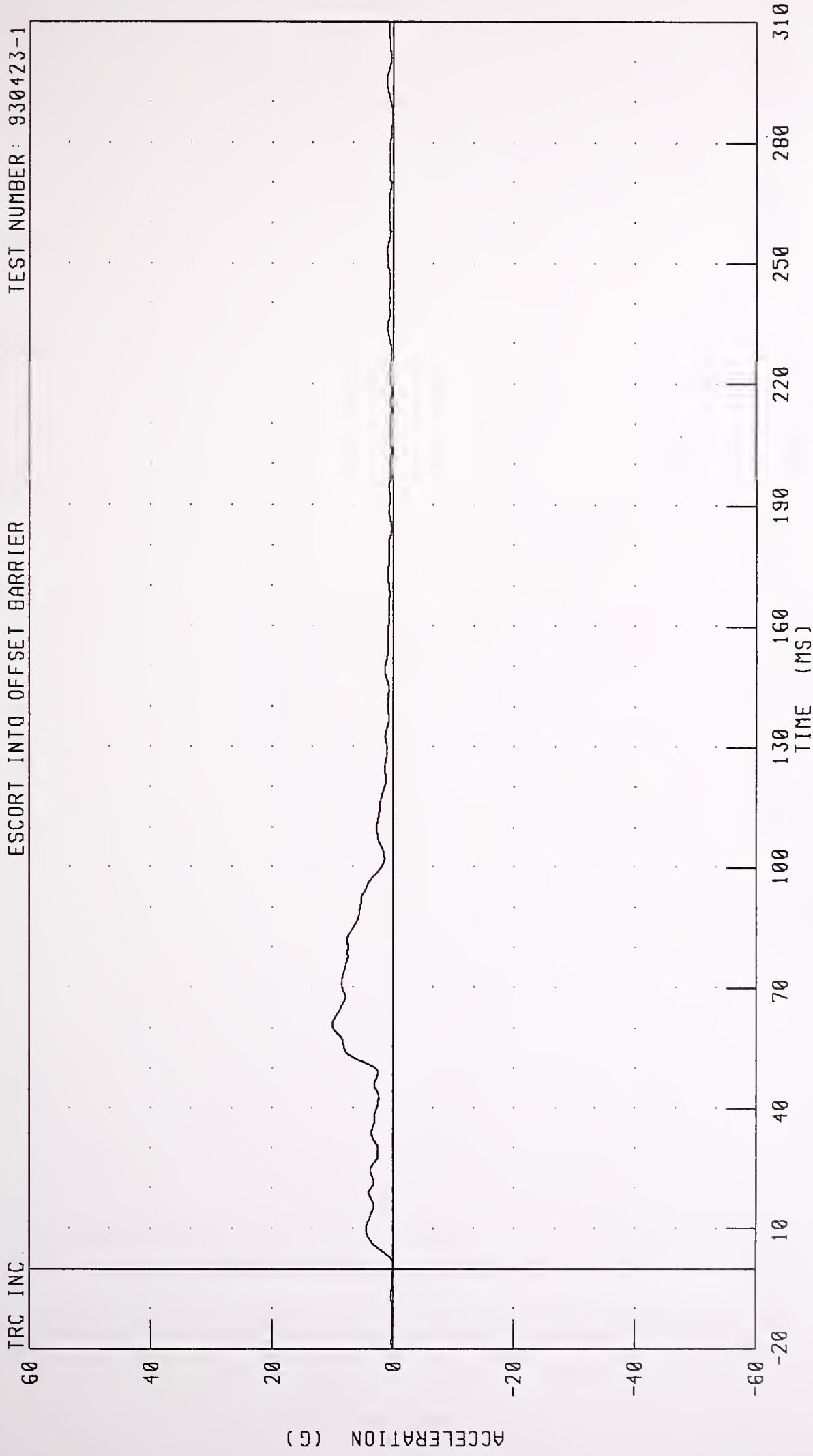


CHANNEL: VCGYD1 FILTER: CH. CLASS 180

PEAK DATA: 3.10 IN @ 310.00 MS; -0.41 IN @ 132.50 MS

1987 FORD ESCORT INTO 50% OFFSET BARRIER AT 9.7 MPH TEST NO 1  
VEHICLE CENTER OF GRAVITY RESULTANT ACCELERATION

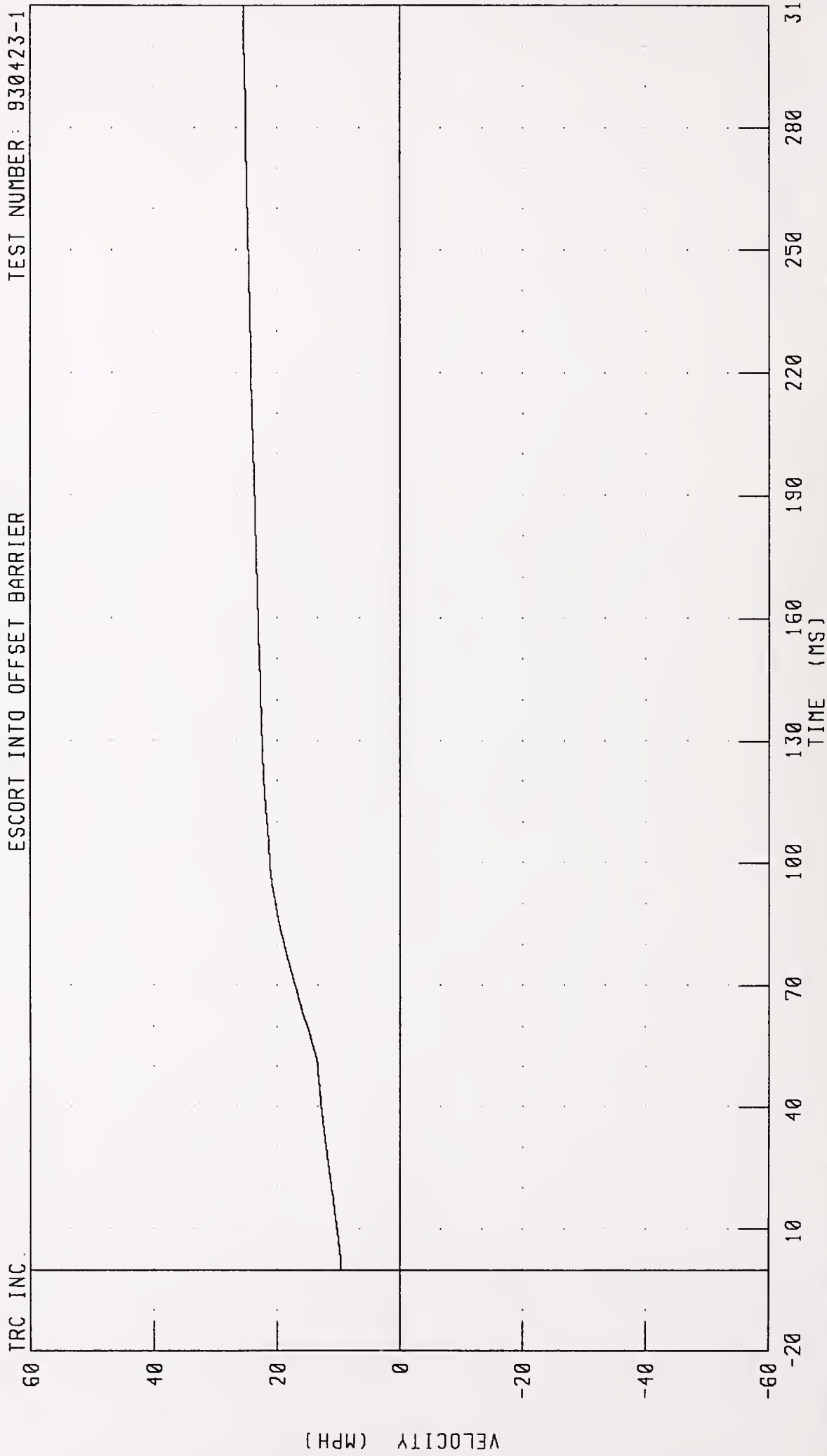
ESCORT INTO OFFSET BARRIER TEST NUMBER: 930423-1



CHANNEL: VCGRG1 FILTER: CH. CLASS 60 PEAK DATA: 10.05 G @ 60.88 MS; 0.01 G @ 1.25 MS

1987 FORD ESCORT INTO 50% OFFSET BARRIER AT 9.7 MPH TEST NO. 1  
VEHICLE CENTER OF GRAVITY RESULTANT VELOCITY

ESCORT INTO OFFSET BARRIER TEST NUMBER: 930423-1

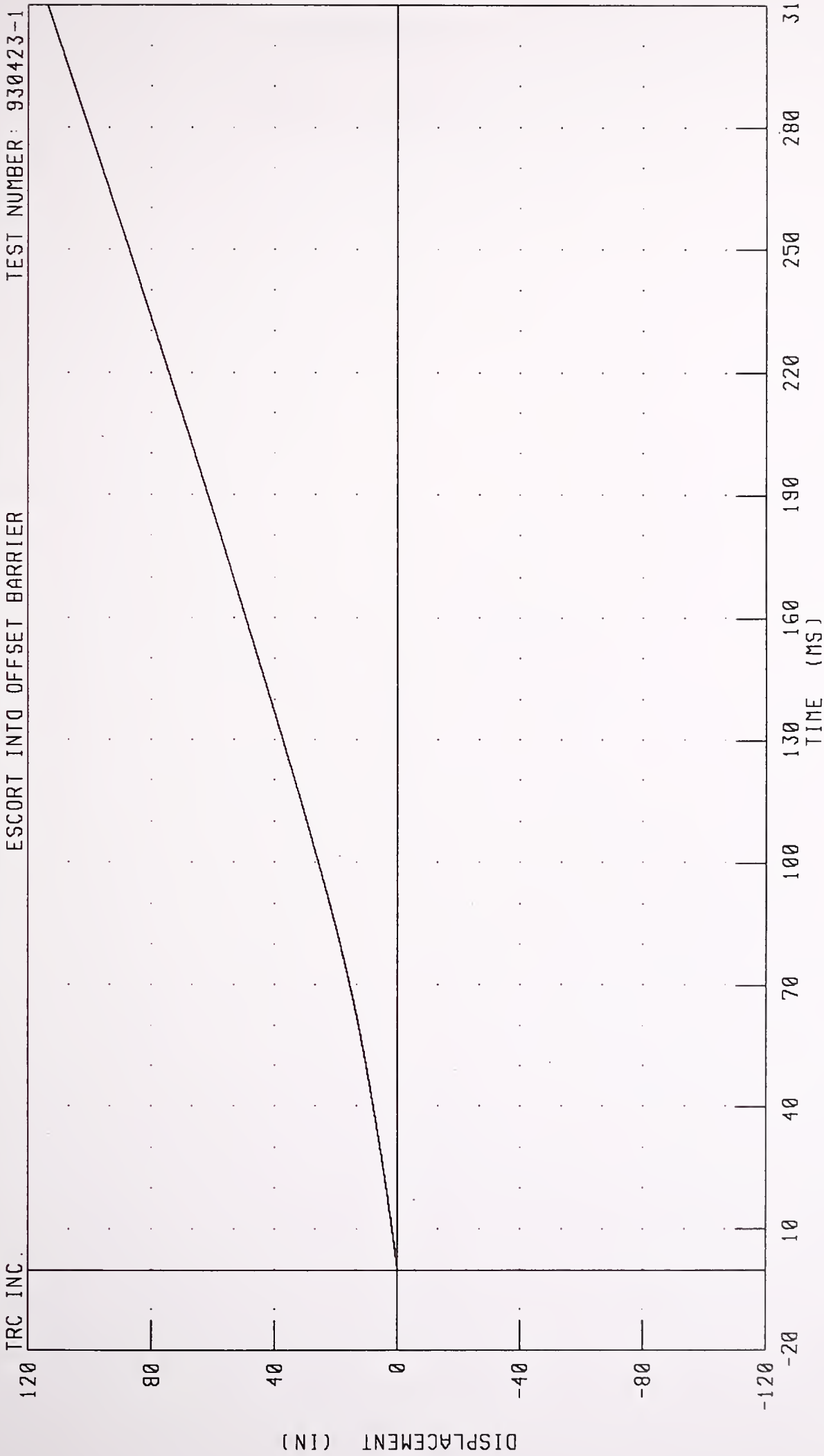


CHANNEL: VCGRV1 FILTER: CH. CLASS 180

PEAK DATA: 25.49 MPH @ 310.00 MS; 9.70 MPH @ 0.00 MS

1987 FORD ESCORT INTO 50% OFFSET BARRIER AT 9.7 MPH TEST NO. 1  
VEHICLE CENTER OF GRAVITY RESULTANT DISPLACEMENT

TRC INC. ESCORT INTO OFFSET BARRIER TEST NUMBER: 930423-1



CHANNEL: VCGRD1 FILTER: CH CLASS 180

PEAK DATA: 113.65 IN @ 310.00 MS; 0.00 IN @ 0.00 MS



DATA PLOTS

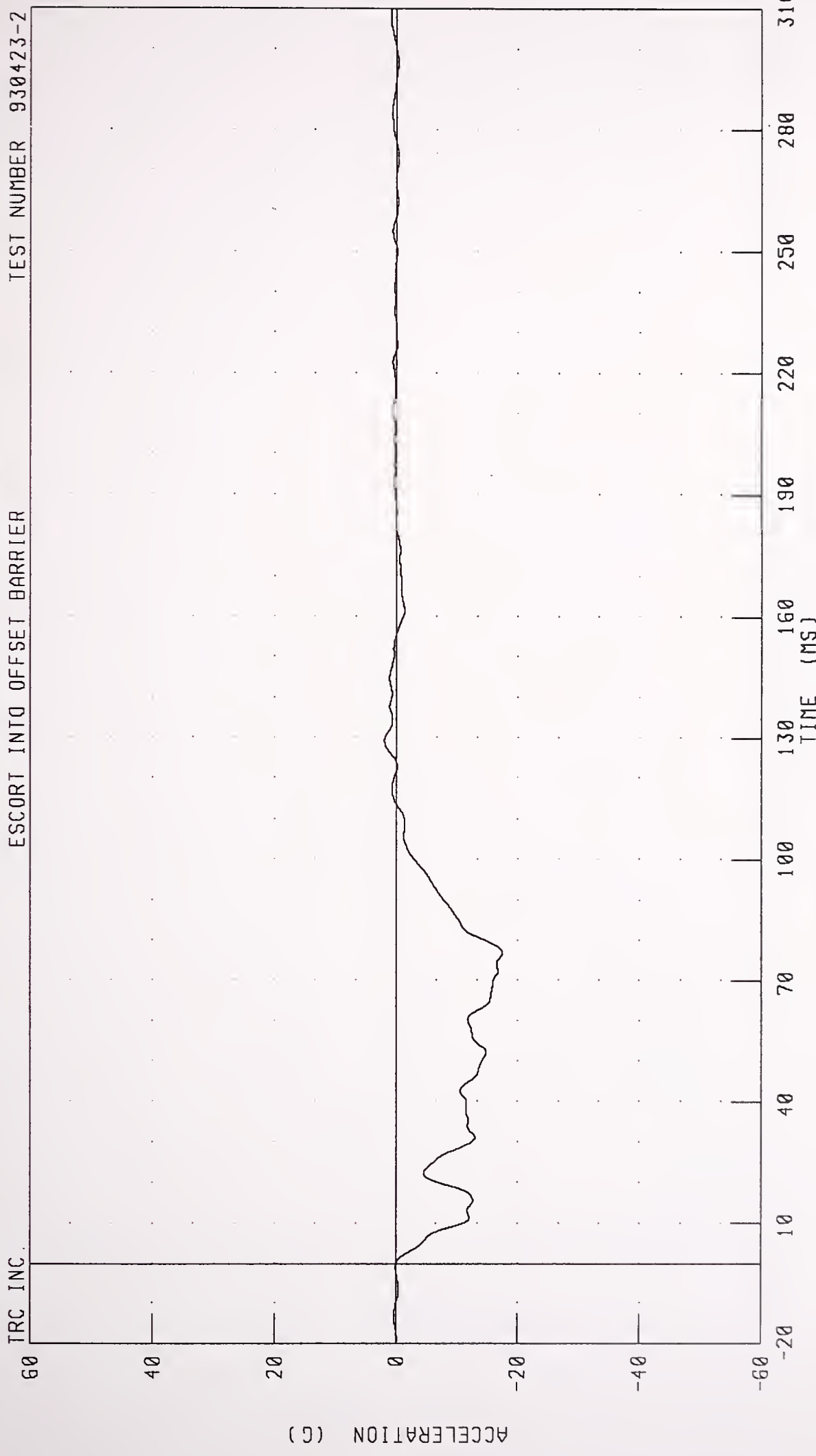
TEST NO. 93Q423-2





1987 FORD ESCORT INTO 50% OFFSET BARRIER AT 19.9 MPH TEST NO 2  
LEFT REAR SILL X-AXIS ACCELERATION

ESCORT INTO OFFSET BARRIER TEST NUMBER 930423-2

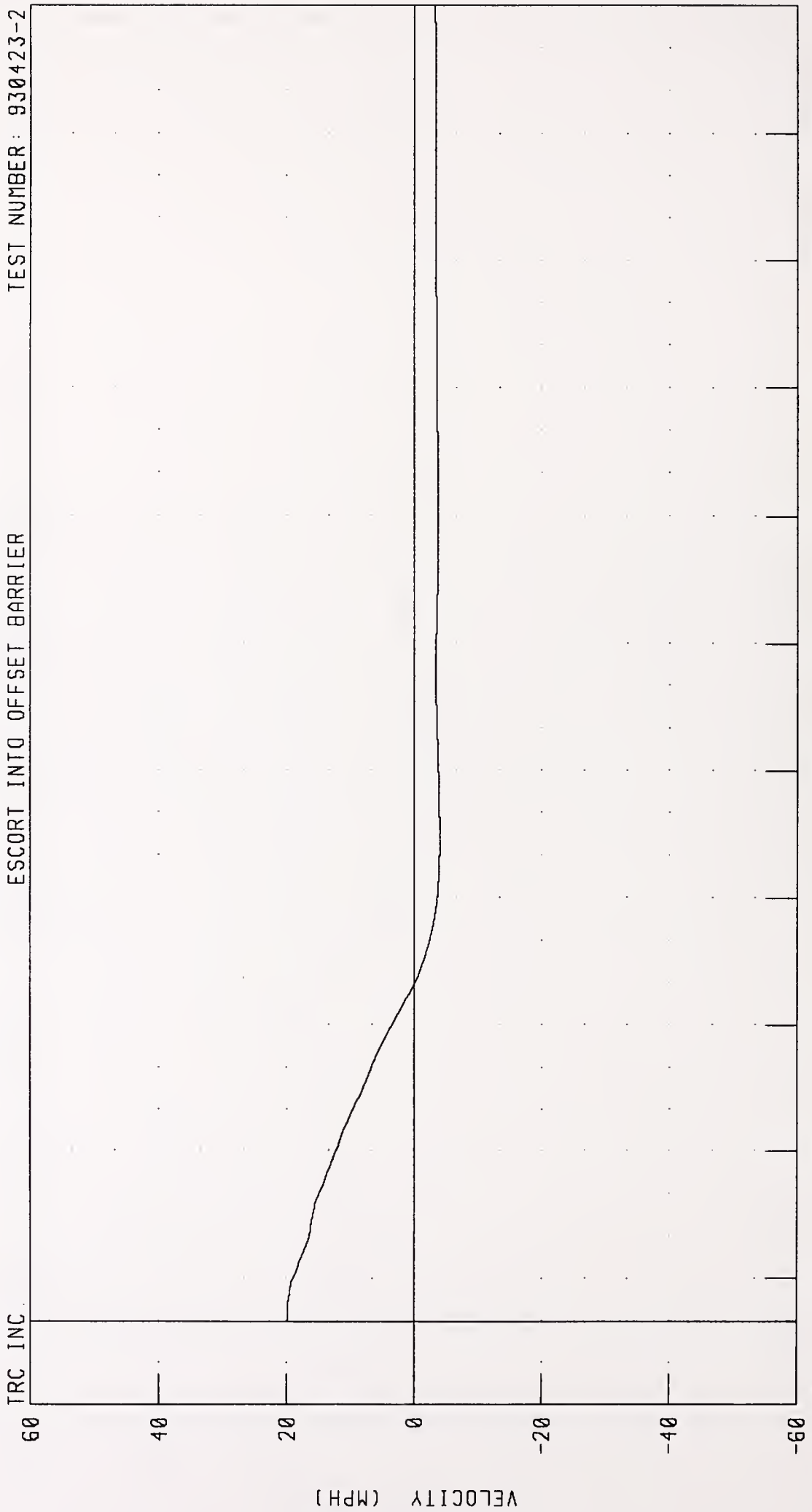


CHANNEL LRSXG1 FILTER: CH CLASS 60

PEAK DATA: 1.97 G @ 129.25 MS; -17.46 G @ 77.00 MS

1987 FORD ESCORT INTO 50% OFFSET BARRIER AT 19.9 MPH TEST NO. 2  
LEFT REAR SILL X-AXIS VELOCITY

ESCORT INTO OFFSET BARRIER TEST NUMBER: 930423-2

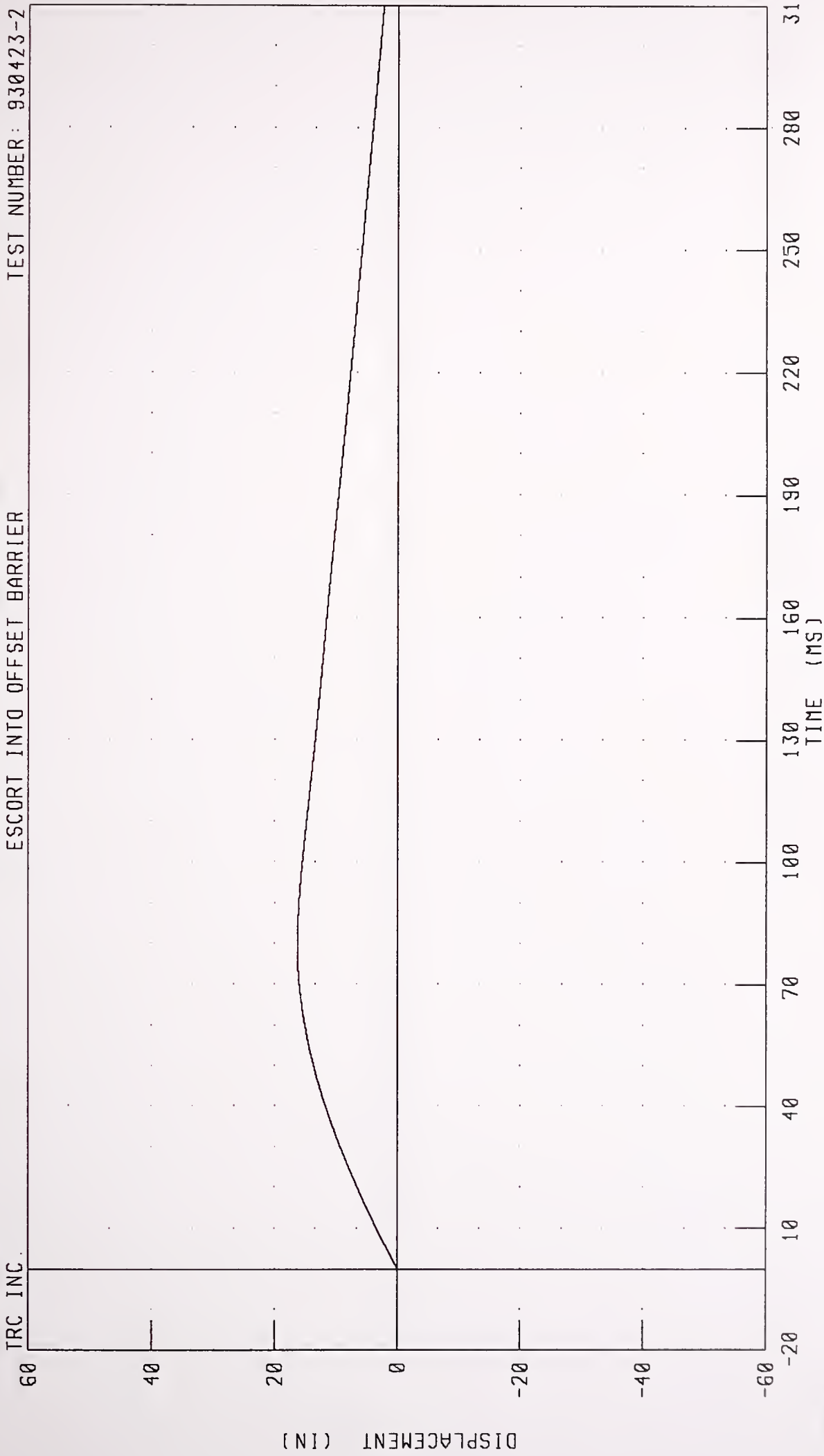


TRC INC. CHANNEL: LRSXV1 FILTER: CH. CLASS 180  
PEAK DATA: 19.90 MPH @ 0.88 MS; -4.04 MPH @ 112.63 MS  
TIME (MS)

1987 FORD ESCORT INTO 50% OFFSET BARRIER AT 19.9 MPH TEST NO. 2

LEFT REAR SILL X-AXIS DISPLACEMENT

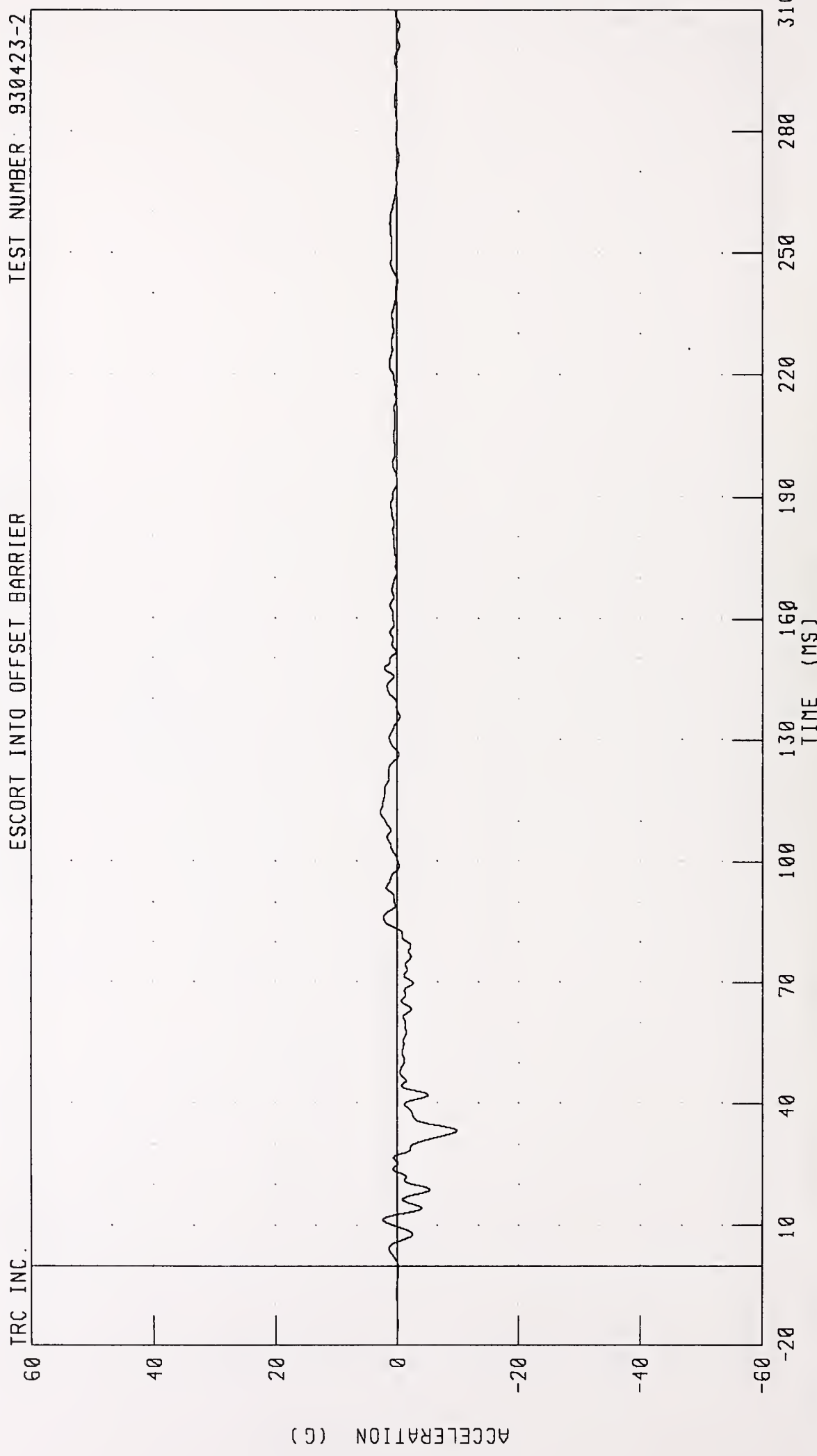
ESCORT INTO OFFSET BARRIER TEST NUMBER: 930423-2



CHANNEL: LRSXD1 FILTER CH. CLASS 180 PEAK DATA: 16.31 IN @ 79.50 MS; 0.00 IN @ 0.00 MS

1987 FORD ESCORT INTO 50% OFFSET BARRIER AT 19.9 MPH TEST NO. 2  
LEFT REAR SILL Y-AXIS ACCELERATION

ESCORT INTO OFFSET BARRIER TEST NUMBER: 930423-2



CHANNEL: LRSYG1 FILTER: CH. CLASS 60 PEAK DATA: 2.76 G @ 112.13 MS, -9.88 G @ 33.38 MS

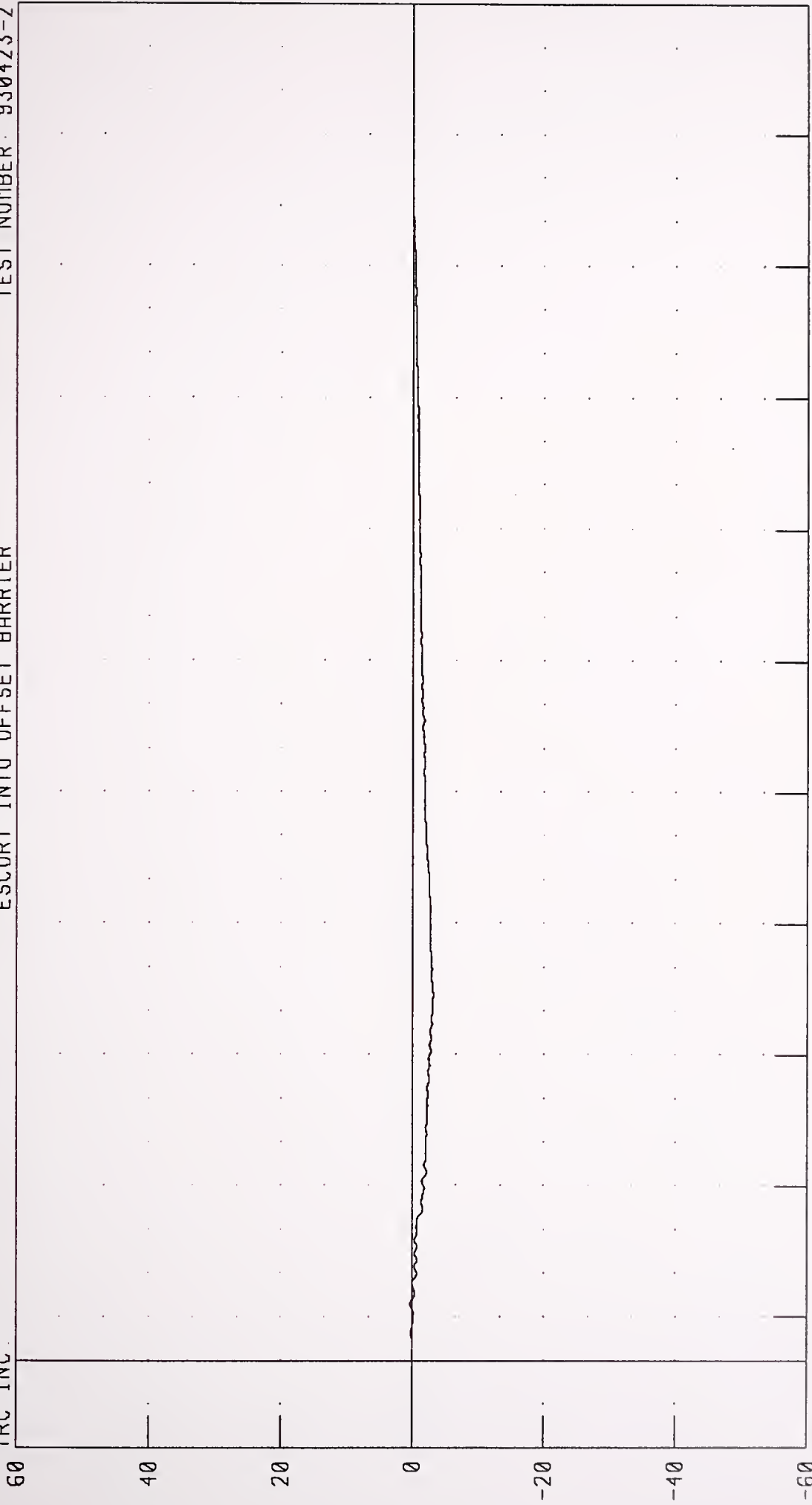
1987 FORD ESCORT INTO 50% OFFSET BARRIER AT 19.9 MPH TEST NO. 2

LEFT REAR SILL Y-AXIS VELOCITY

TEST NUMBER: 930423-2

ESCORT INTO OFFSET BARRIER

TRC INC



VELOCITY (MPH)

TIME (MS)

CHANNEL LRSYV1 FILTER: CH CLASS 180

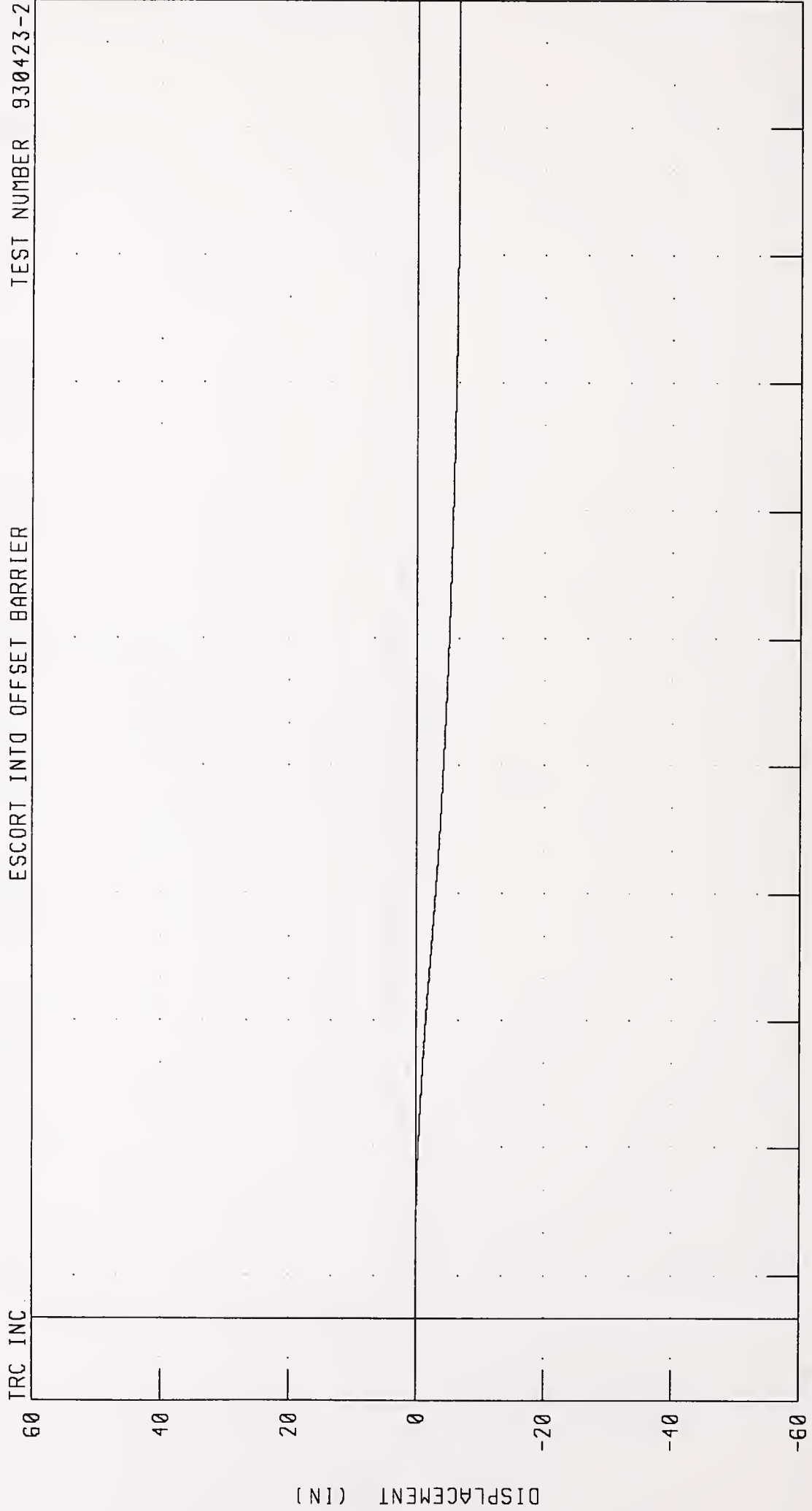
PEAK DATA: 0.32 MPH @ 12.88 MS; -3.16 MPH @ 83.63 MS

1987 FORD ESCORT INTO 50% OFFSET BARRIER AT 19.9 MPH TEST NO. 2

LEFT REAR SILL Y-AXIS DISPLACEMENT

ESCORT INTO OFFSET BARRIER

TEST NUMBER 930423-2



TRC INC

60  
40  
20  
0  
-20  
-40  
-60

10 40 70 100 130 160 190 220 250 280 310

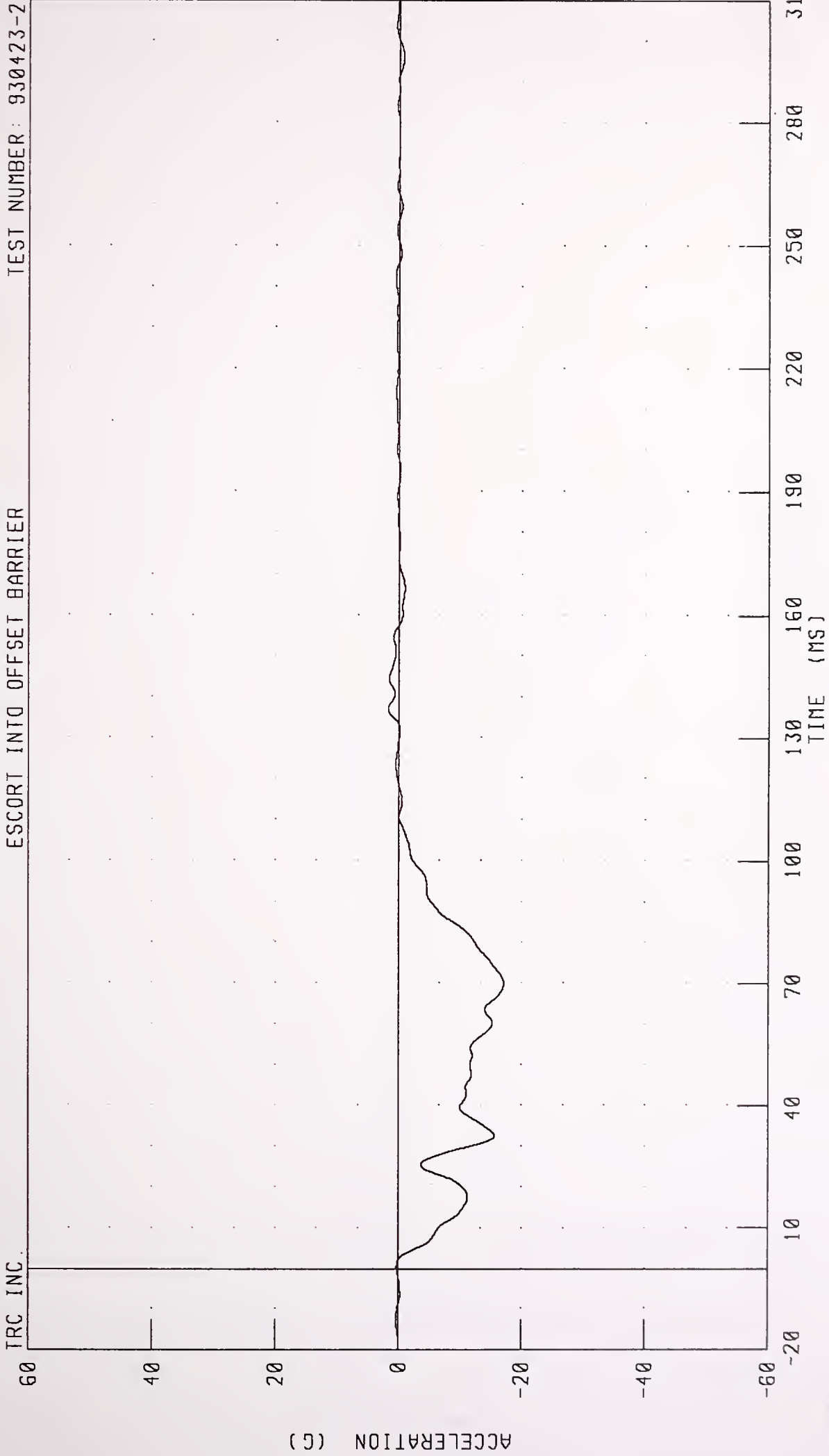
TIME (MS)

CHANNEL: LRSYD1 FILTER: CH. CLASS 180

PEAK DATA: 0.01 IN @ 13.88 MS; -6.41 IN @ 289.25 MS

1987 FORD ESCORT INTO 50% OFFSET BARRIER AT 19.9 MPH TEST NO. 2  
RIGHT REAR SILL X-AXIS ACCELERATION

ESCORT INTO OFFSET BARRIER TEST NUMBER: 930423-2



CHANNEL RRSXG1 FILTER: CH CLASS 60

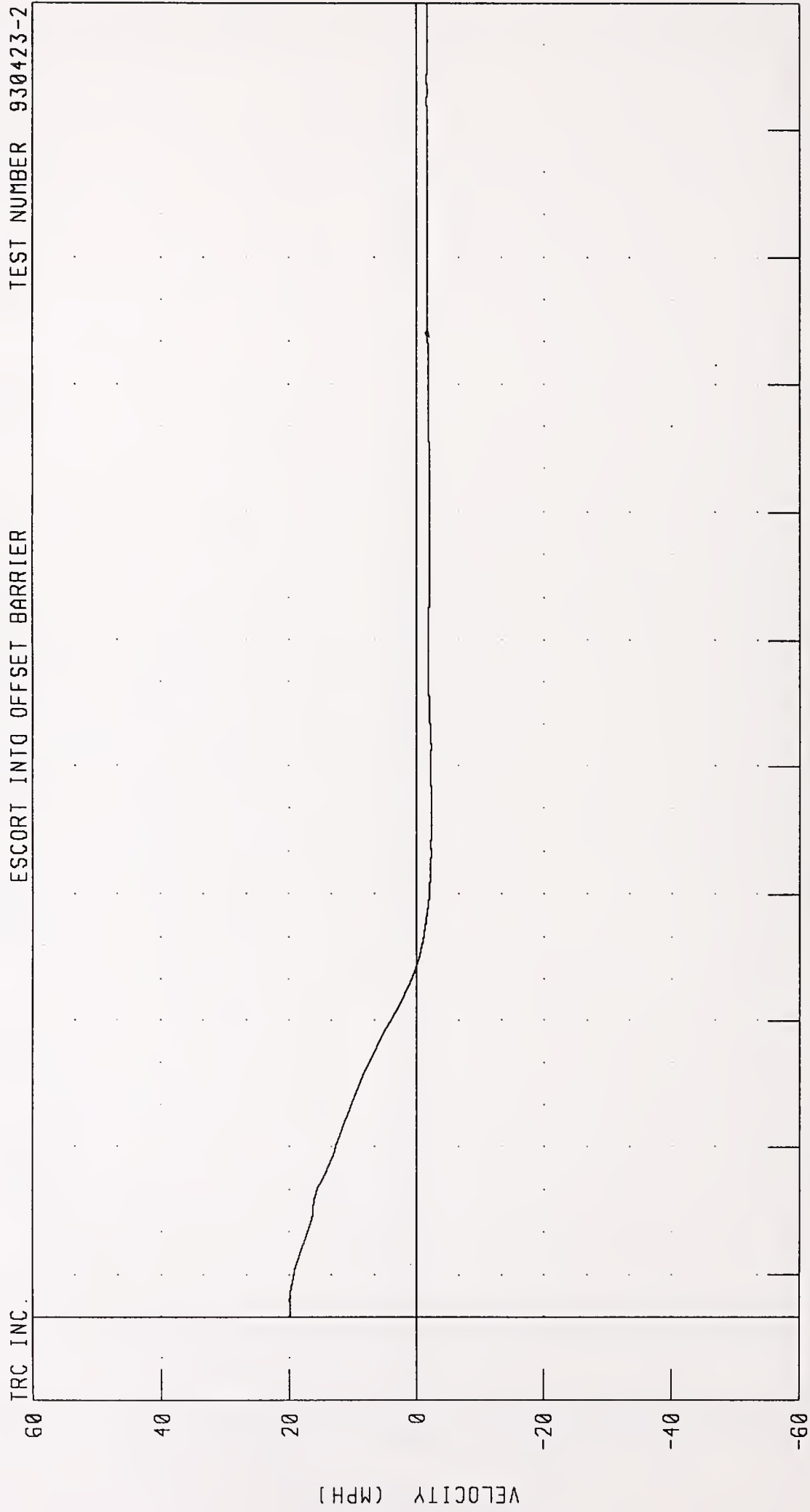
PEAK DATA: 1.77 G @ 137.00 MS, -17.07 G @ 70.00 MS

1987 FORD ESCORT INTO 50% OFFSET BARRIER AT 19.9 MPH TEST NO. 2

RIGHT REAR SILL X-AXIS VELOCITY

ESCORT INTO OFFSET BARRIER

TEST NUMBER 930423-2



TRC INC. 60 40 20 0 -20 -40 -60

TIME (MS) 10 40 70 100 130 160 190 220 250 280 310

CHANNEL RRSXV1 FILTER: CH. CLASS 180 PEAK DATA: 19.91 MPH @ 3.88 MS; -2.33 MPH @ 119.00 MS

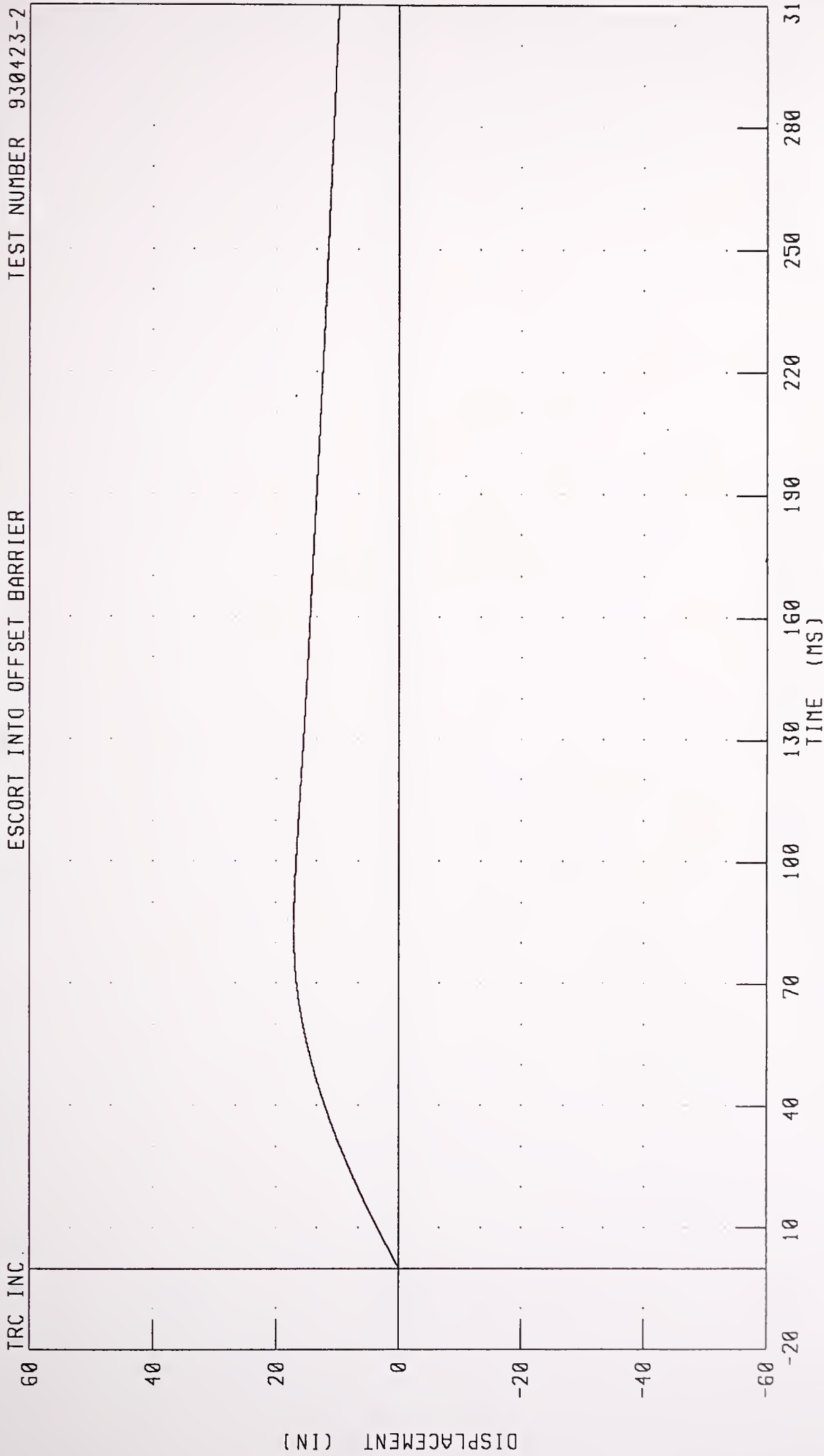


1987 FORD ESCORT INTO 50% OFFSET BARRIER AT 19.9 MPH TEST NO. 2

RIGHT REAR SILL X-AXIS DISPLACEMENT

ESCORT INTO OFFSET BARRIER

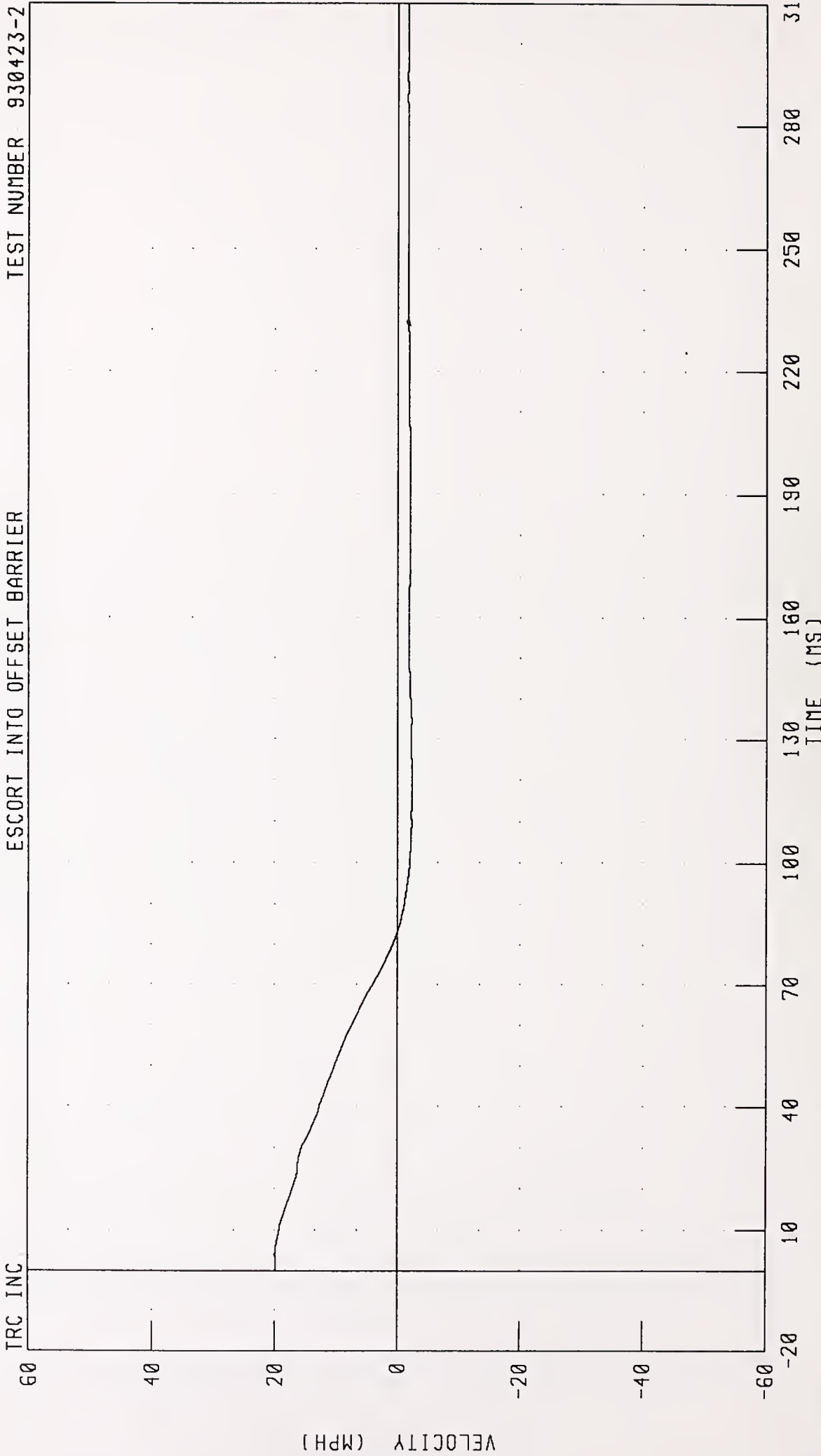
TEST NUMBER 930423-2



CHANNEL: RRSXD1 FILTER: CH. CLASS 180

PEAK DATA: 17.10 IN @ 83.25 MS; 0.00 IN @ 0.00 MS

1987 FORD ESCORT INTO 50% OFFSET BARRIER AT 19.9 MPH TEST NO. 2  
RIGHT REAR SILL X-AXIS VELOCITY  
ESCORT INTO OFFSET BARRIER



CHANNEL: RRSXV1 FILTER: CH. CLASS 180  
PEAK DATA: 19.91 MPH @ 3.88 MS; -2.33 MPH @ 119.00 MS

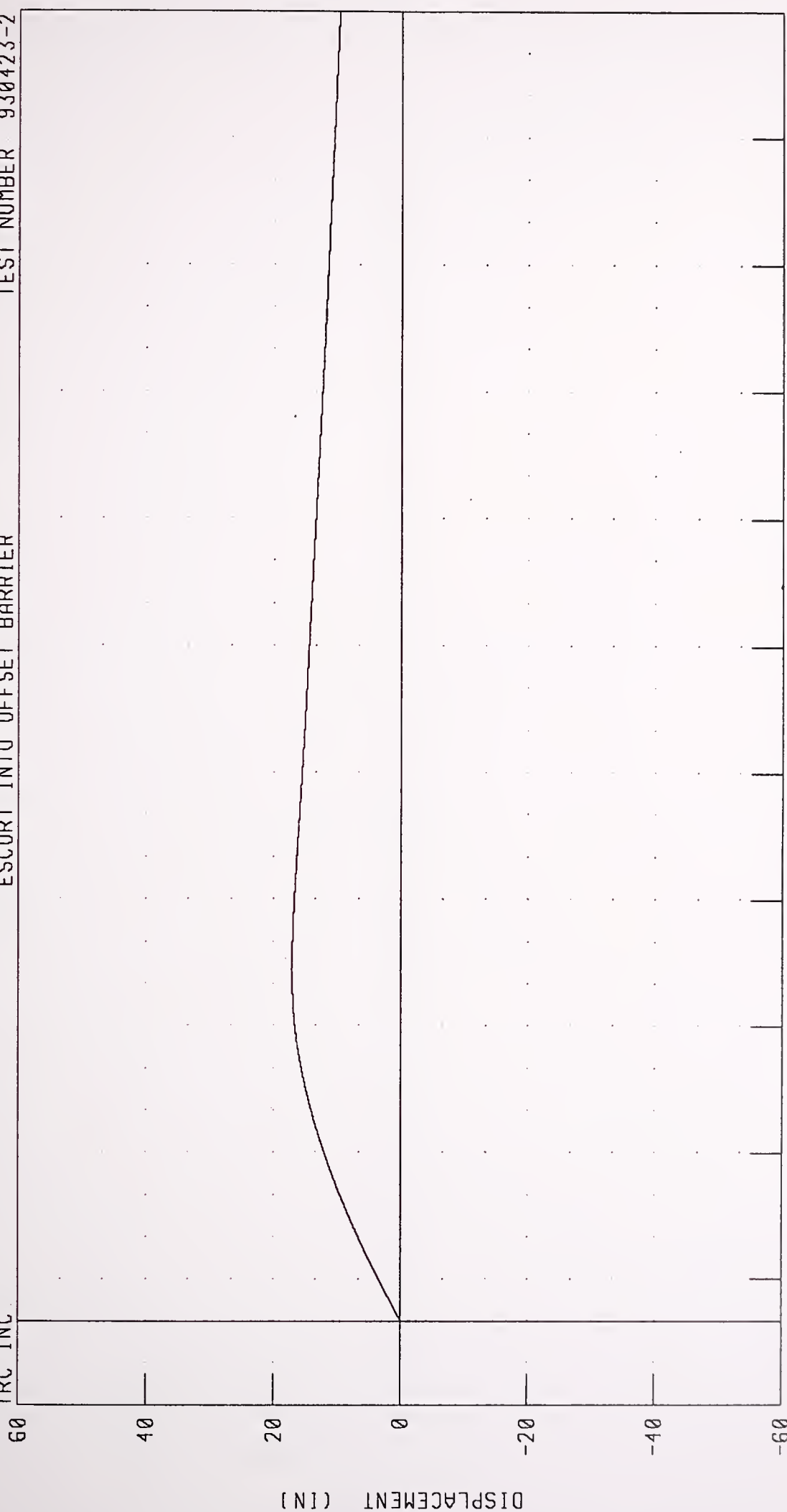
1987 FORD ESCORT INTO 50% OFFSET BARRIER AT 19.9 MPH TEST NO. 2

RIGHT REAR SILL X-AXIS DISPLACEMENT

ESCORT INTO OFFSET BARRIER

TEST NUMBER 930423-2

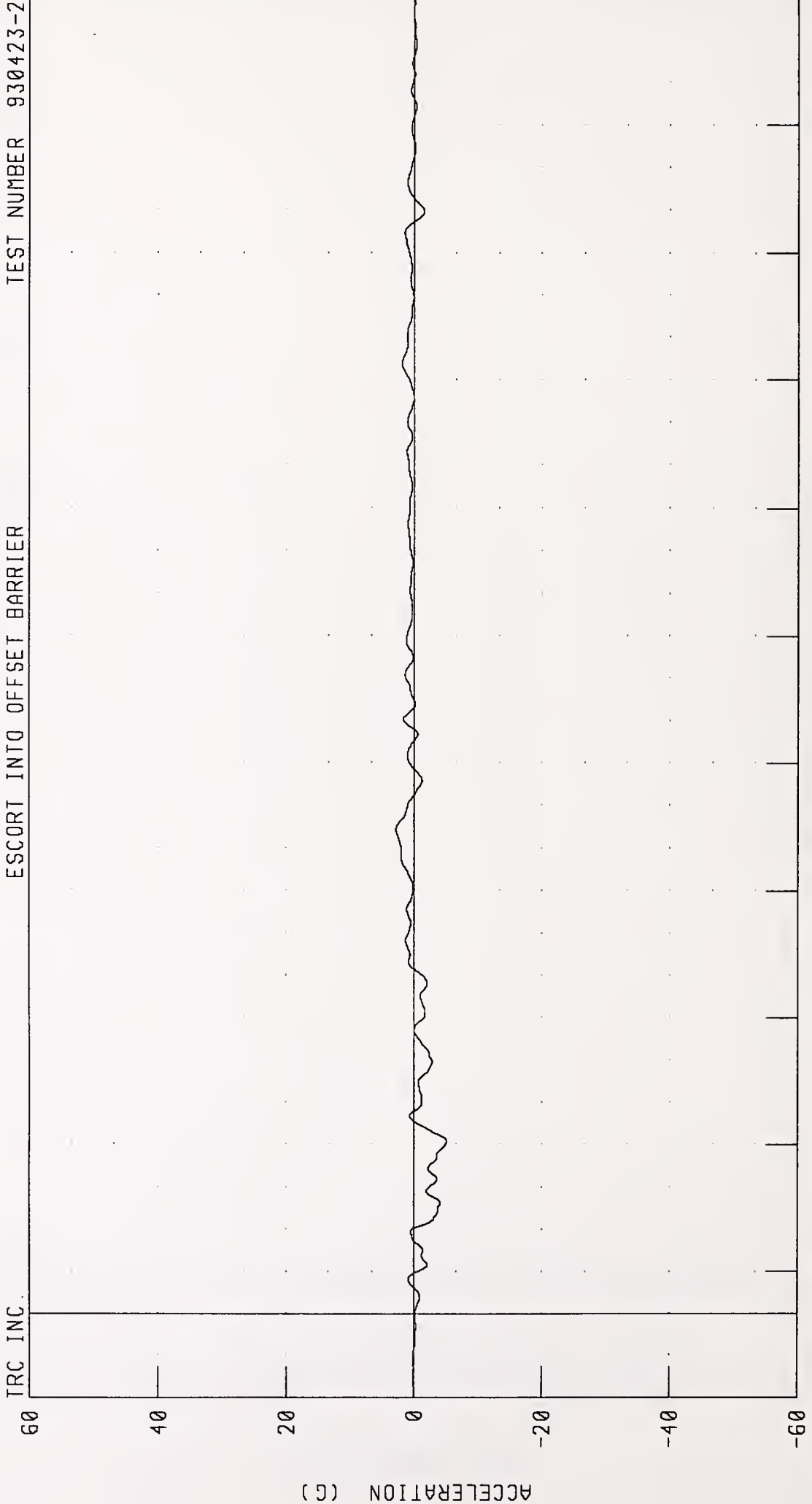
TRC INC



PEAK DATA: 17.10 IN @ 83.25 MS; 0.00 IN @ 0.00 MS

CHANNEL RRSXD1 FILTER: CH. CLASS 180

1987 FORD ESCORT INTO 50% OFFSET BARRIER AT 19.9 MPH TEST NO. 2  
RIGHT REAR SILL Y-AXIS ACCELERATION

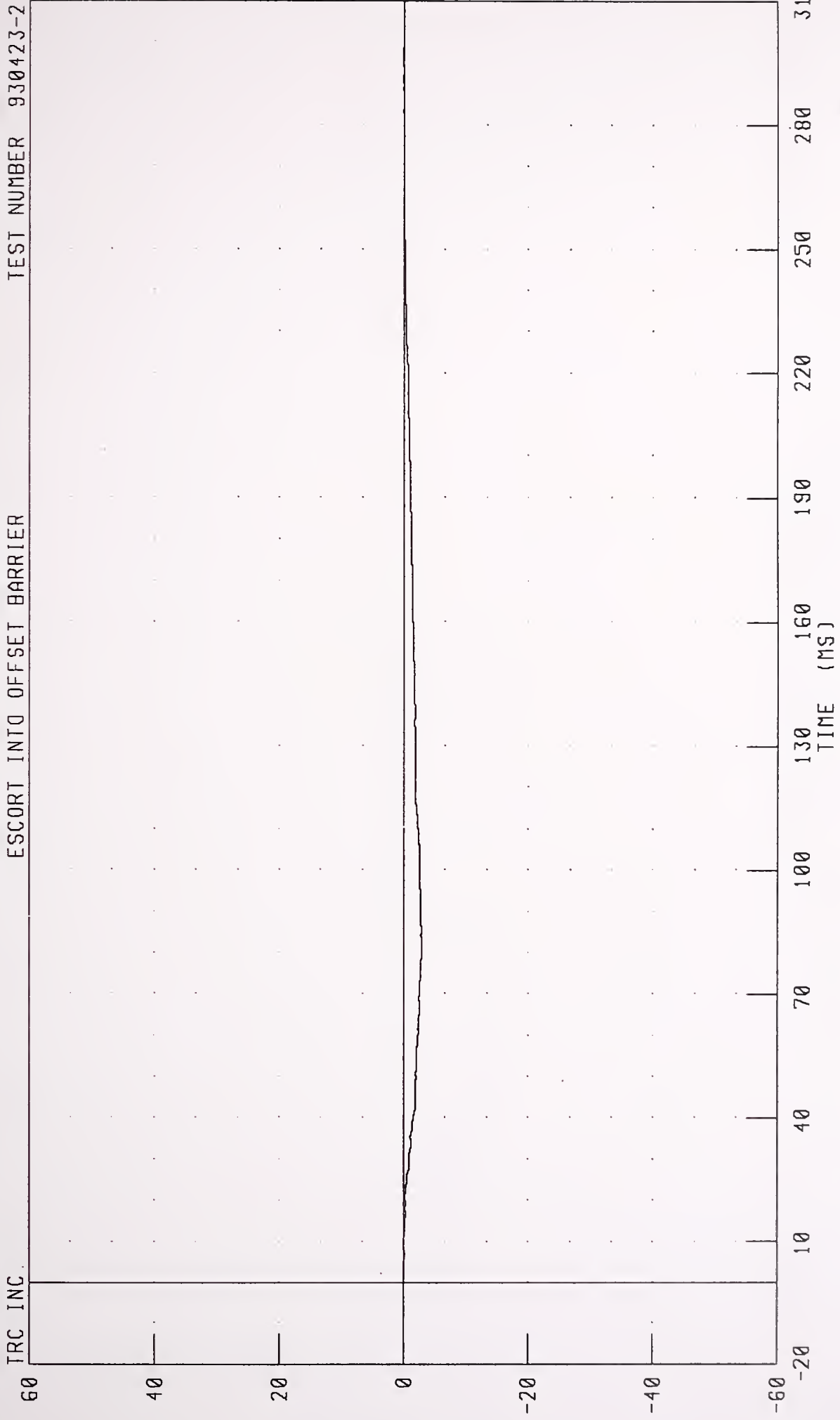


CHANNEL: RRSYG1 FILTER: CH. CLASS 60  
PEAK DATA: 2.82 G @ 114.25 MS; -5.08 G @ 40.75 MS

1987 FORD ESCORT INTO 50% OFFSET BARRIER AT 19.9 MPH TEST NO. 2

RIGHT REAR SILL Y-AXIS VELOCITY

ESCORT INTO OFFSET BARRIER TEST NUMBER 930423-2

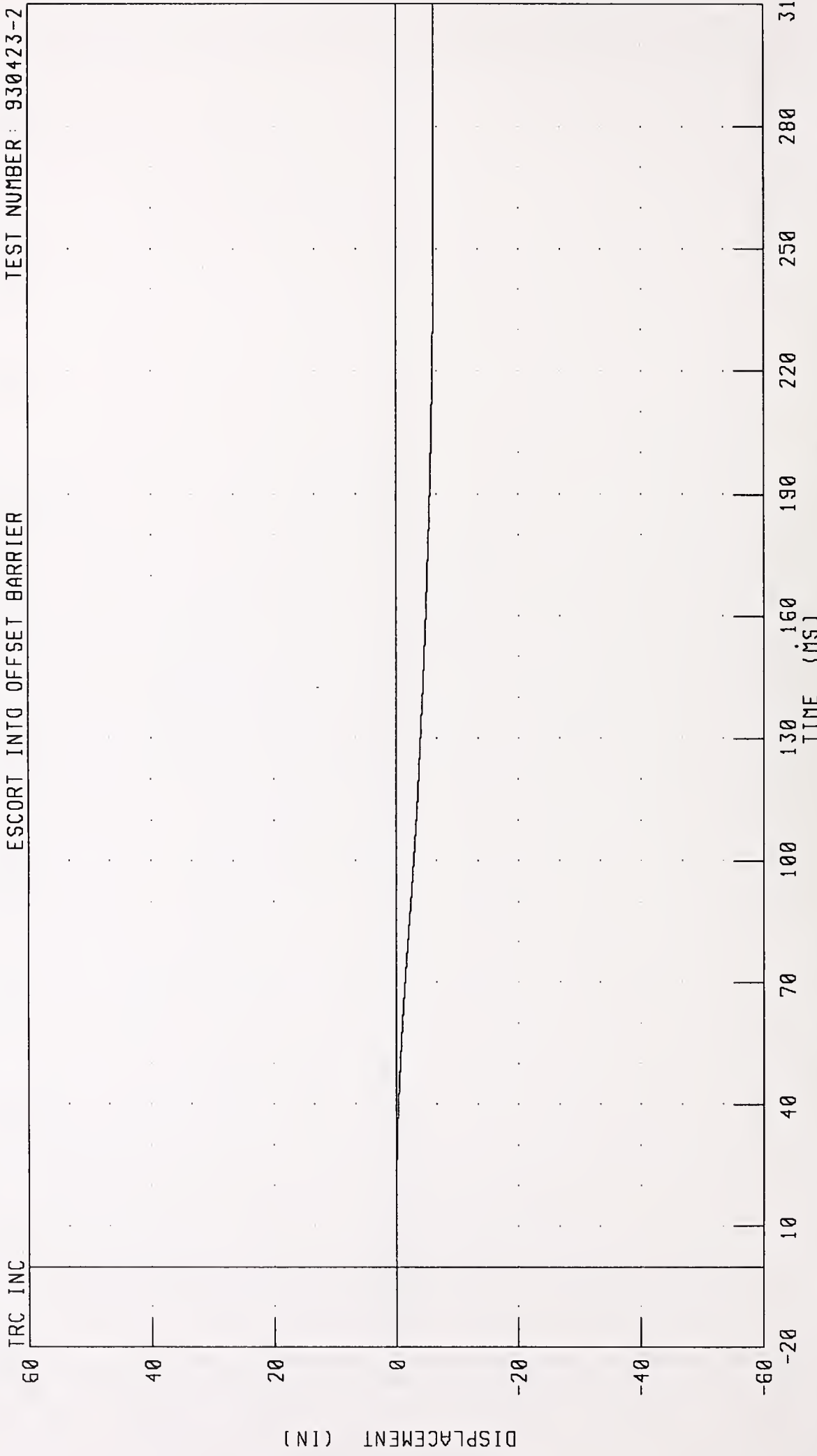


CHANNEL: RRSYV1 FILTER: CH, CLASS 180

PEAK DATA: 0.12 MPH @ 295.38 MS; -2.88 MPH @ 81.50 MS

1987 FORD ESCORT INTO 50% OFFSET BARRIER AT 19.9 MPH TEST NO. 2  
RIGHT REAR SILL Y-AXIS DISPLACEMENT

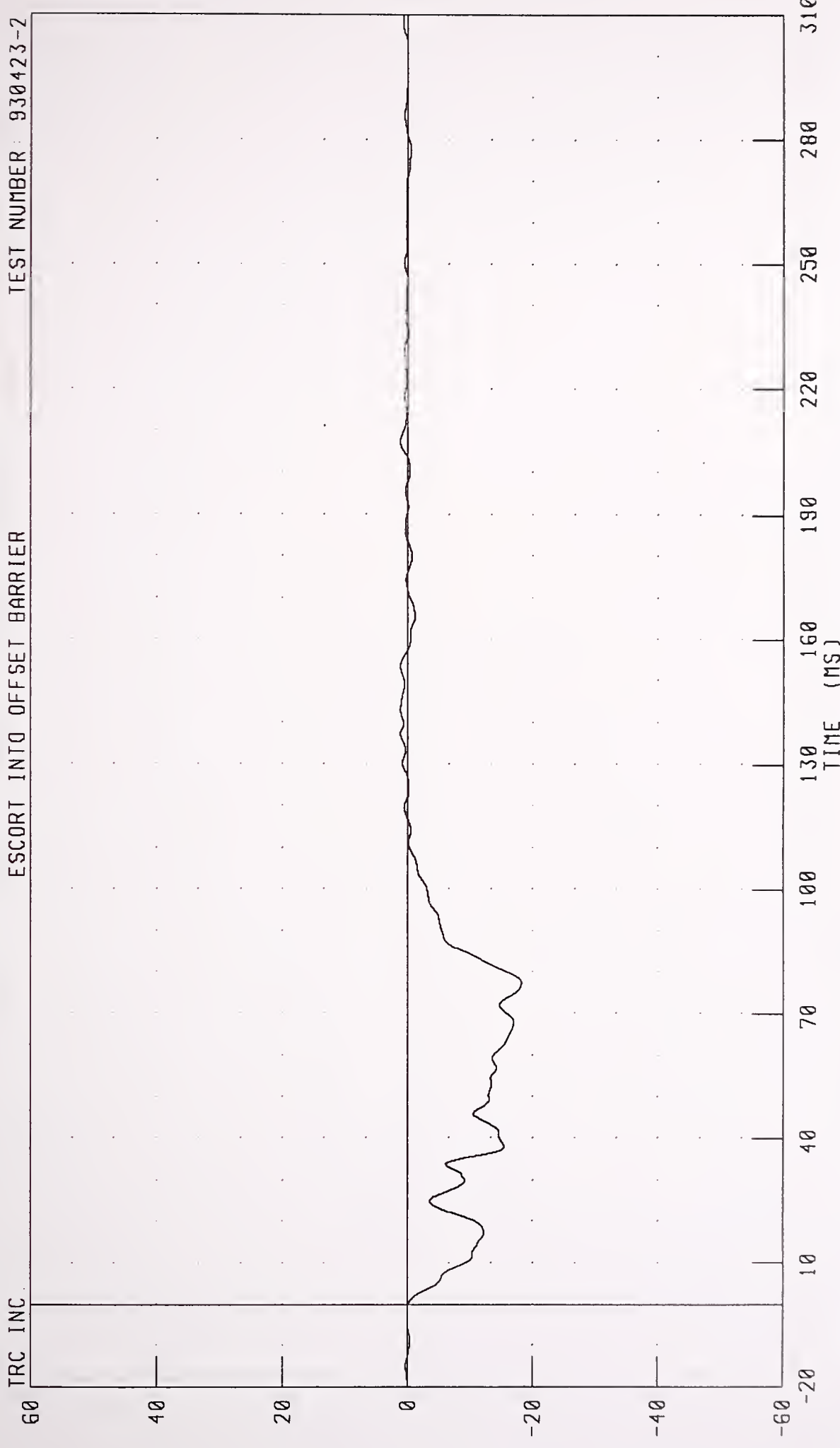
ESCORT INTO OFFSET BARRIER TEST NUMBER: 930423-2



CHANNEL: RRSYD1 FILTER: CH. CLASS 180 PEAK DATA: 0.00 IN @ 2.38 MS; -6.10 IN @ 267.00 MS

1987 FORD ESCORT INTO 50% OFFSET BARRIER AT 19.9 MPH TEST NO 2  
VEHICLE CENTER OF GRAVITY X-AXIS ACCELERATION

TRC INC. ESCORT INTO OFFSET BARRIER TEST NUMBER: 930423-2



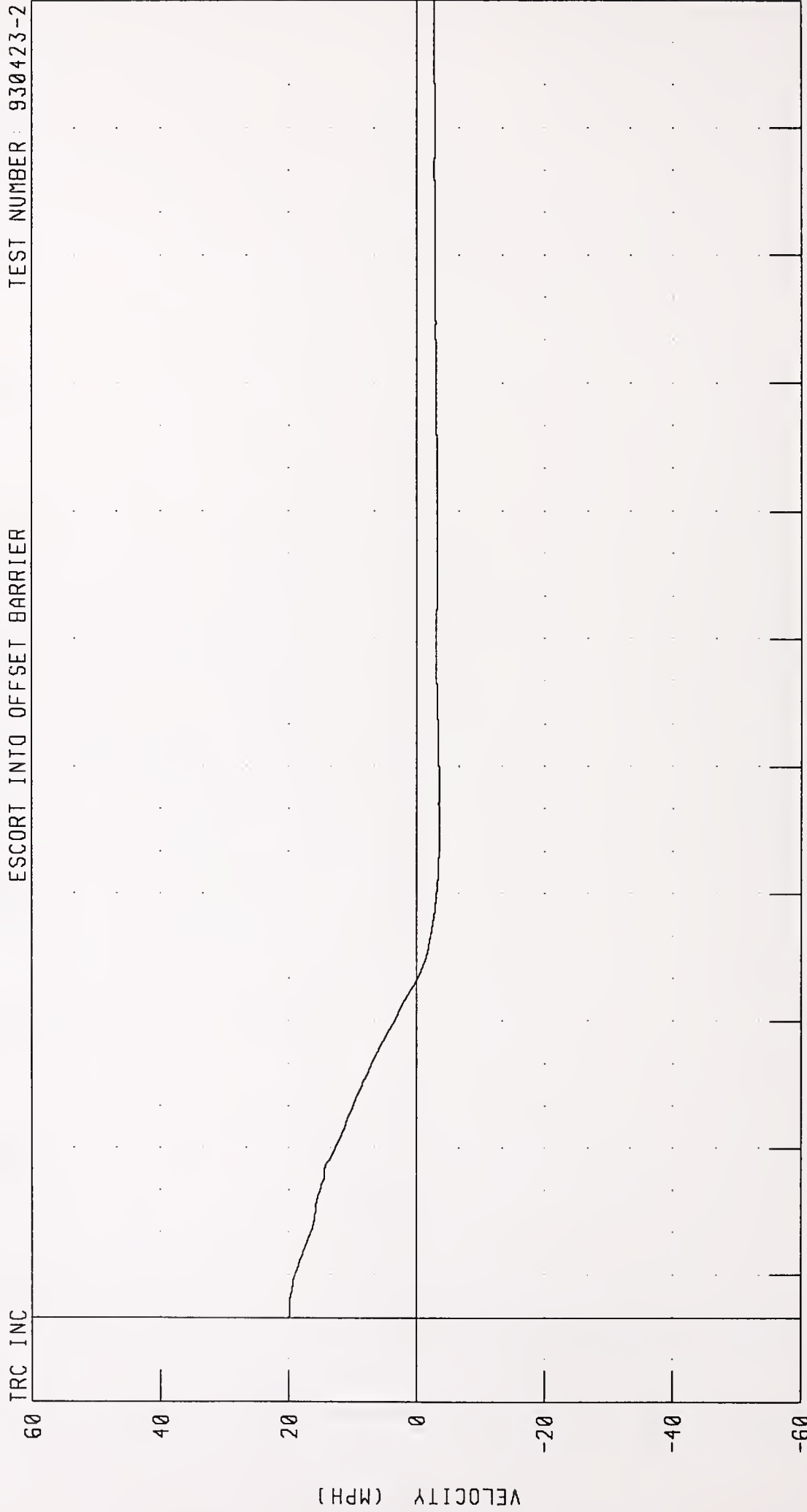
CHANNEL VCCXG1 FILTER: CH, CLASS 60 PEAK DATA: 1.18 G @ 207.38 MS; -18.22 G @ 18.22 MS

1987 FORD ESCORT INTO 50% OFFSET BARRIER AT 19.9 MPH TEST NO 2

VEHICLE CENTER OF GRAVITY X-AXIS VELOCITY

ESCORT INTO OFFSET BARRIER

TEST NUMBER: 930423-2



TRC INC

60

40

20

0

-20

-40

-60

10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160 170 180 190 200 210 220 230 240 250 260 270 280 290 300 310

VELOCITY (MPH)

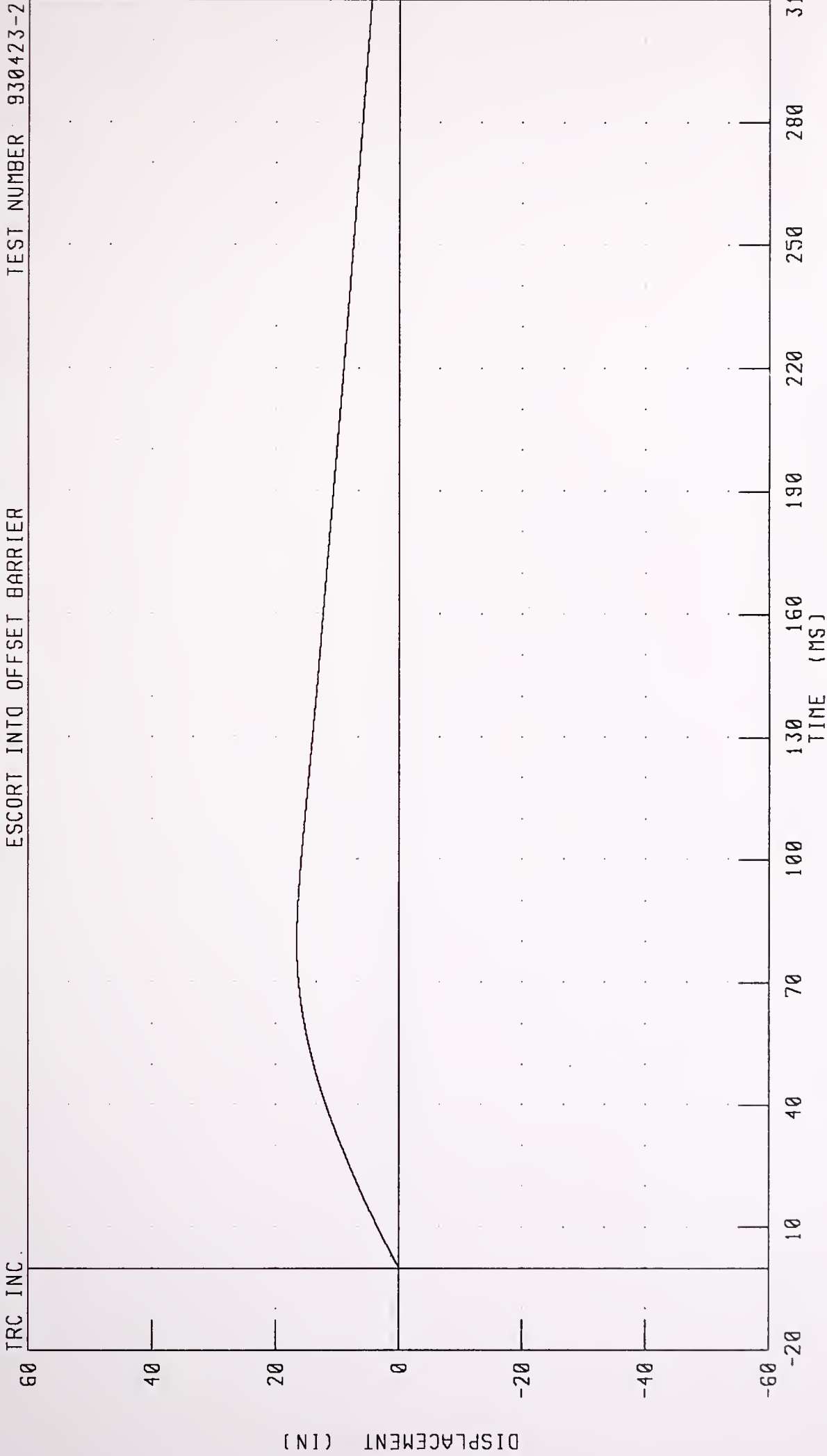
TIME (MS)

CHANNEL: VCGXV1 FILTER: CH. CLASS 180 PEAK DATA: 19.90 MPH @ 0.38 MS; -3.51 MPH @ 115.63 MS



1987 FORD ESCORT INTO 50% OFFSET BARRIER AT 19.9 MPH TEST NO. 2  
VEHICLE CENTER OF GRAVITY X-AXIS DISPLACEMENT

ESCORT INTO OFFSET BARRIER TEST NUMBER 930423-2

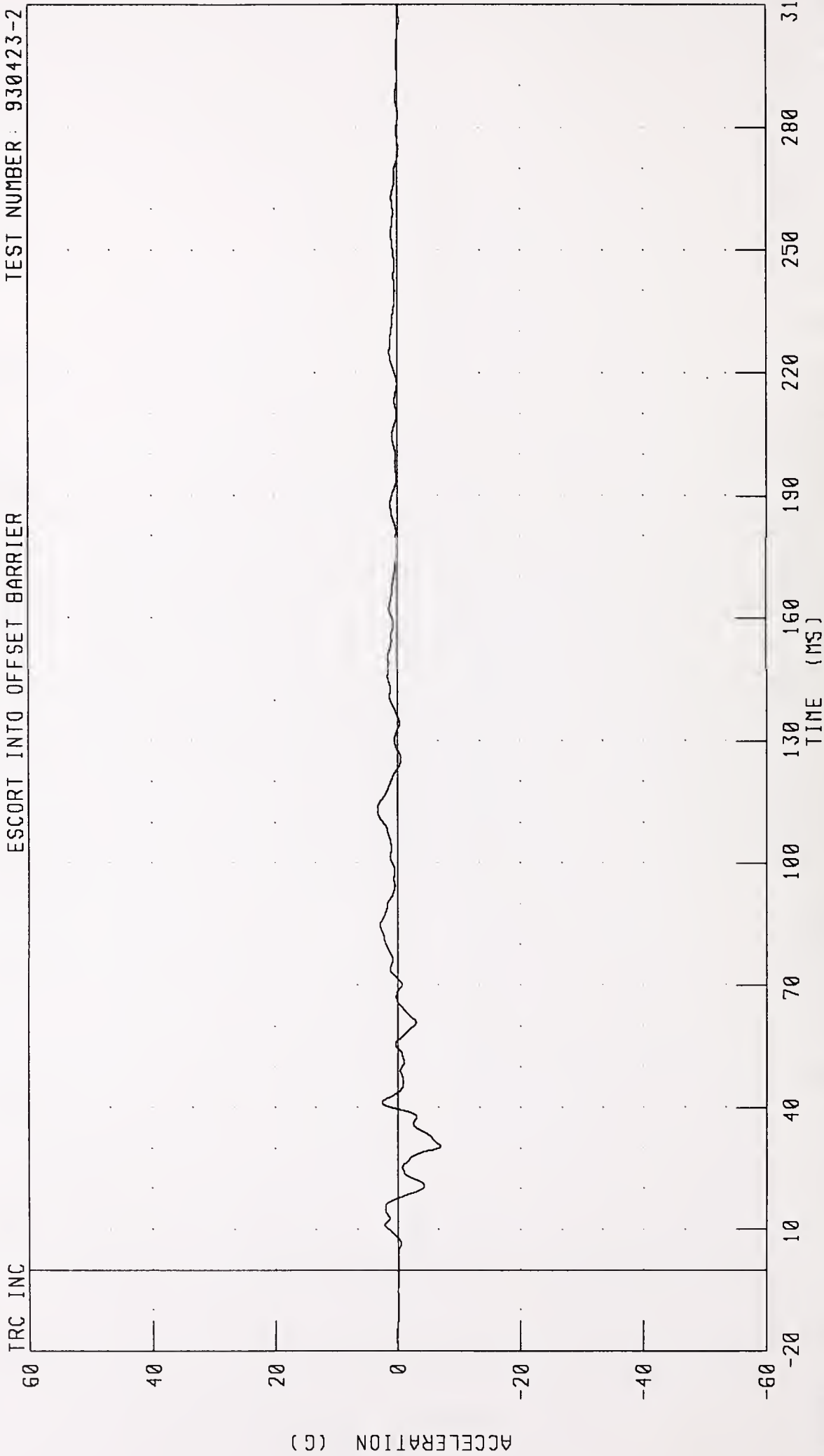


CHANNEL: VCGXD1 FILTER: CH CLASS 180

PEAK DATA: 16.59 IN @ 79.50 MS; 0.00 IN @ 0.00 MS

1987 FORD ESCORT INTO 50% OFFSET BARRIER AT 19.9 MPH TEST NO. 2  
VEHICLE CENTER OF GRAVITY Y-AXIS ACCELERATION

ESCORT INTO OFFSET BARRIER TEST NUMBER: 930423-2



CHANNEL: VCGYG1 FILTER: CH. CLASS 60

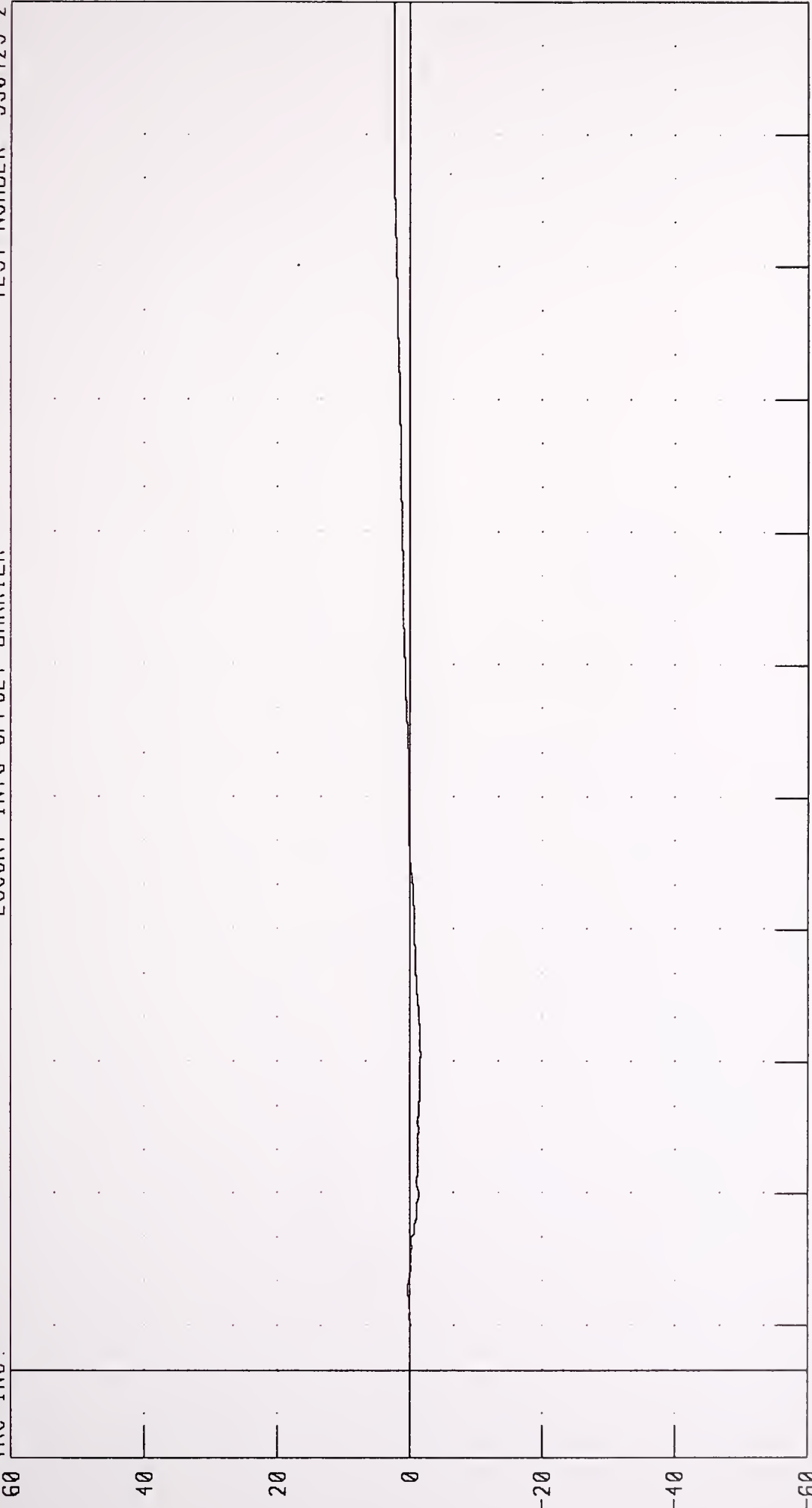
PEAK DATA: 3.24 G @ 113.50 MS; -6.92 G @ 30.63 MS

1987 FORD ESCORT INTO 50% OFFSET BARRIER AT 19.9 MPH TEST NO. 2  
VEHICLE CENTER OF GRAVITY Y-AXIS VELOCITY

TEST NUMBER: 930423-2

ESCORT INTO OFFSET BARRIER

TRC INC.



VELOCITY (MPH)

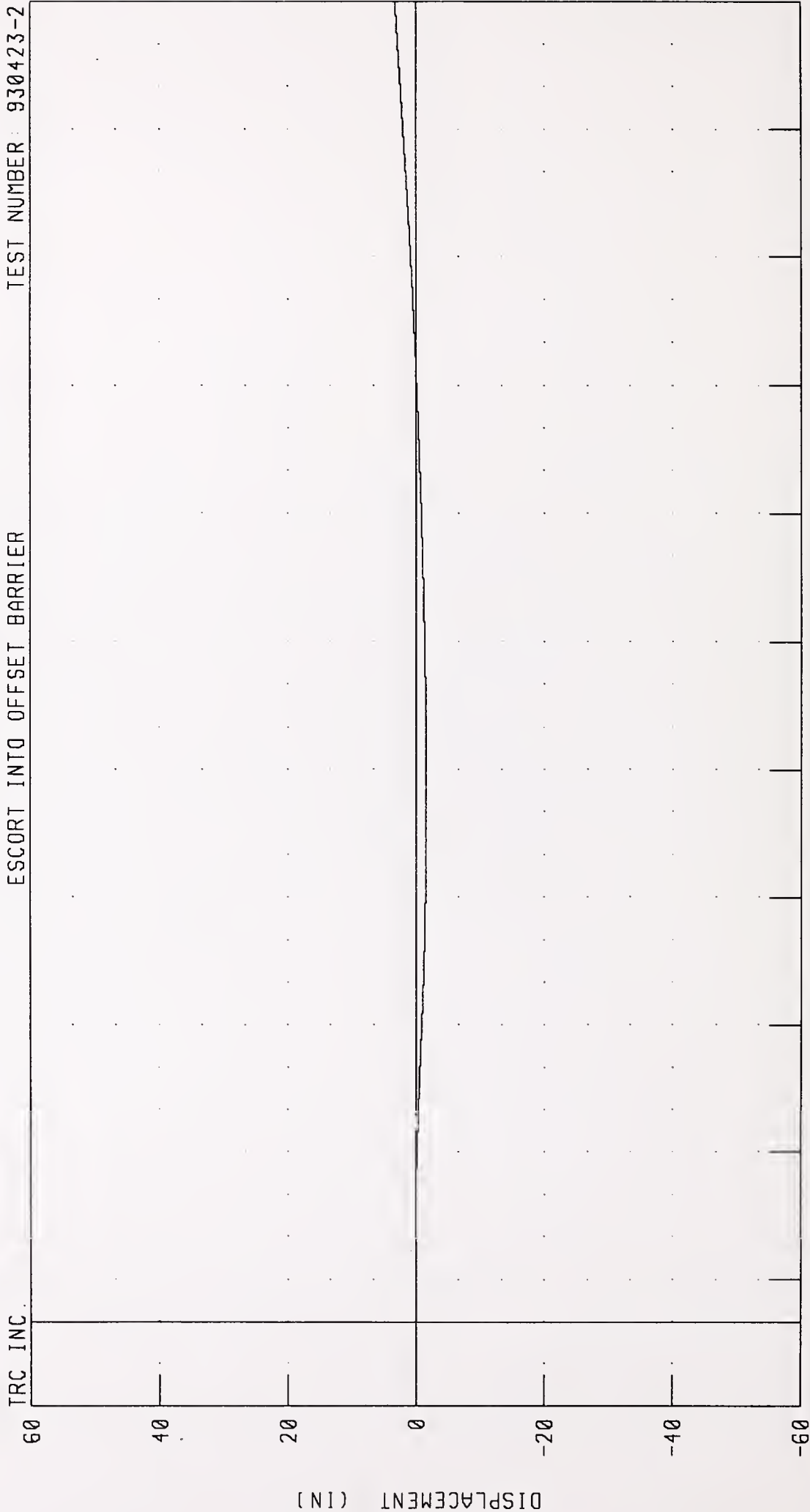
TIME (MS)

CHANNEL VCGYV1 FILTER: CH. CLASS 180

PEAK DATA: 2.42 MPH @ 304.13 MS; -1.62 MPH @ 71.63 MS

1987 FORD ESCORT INTO 50% OFFSET BARRIER AT 19.9 MPH TEST NO. 2  
VEHICLE CENTER OF GRAVITY Y-AXIS DISPLACEMENT

TRC INC. ESCORT INTO OFFSET BARRIER TEST NUMBER: 930423-2

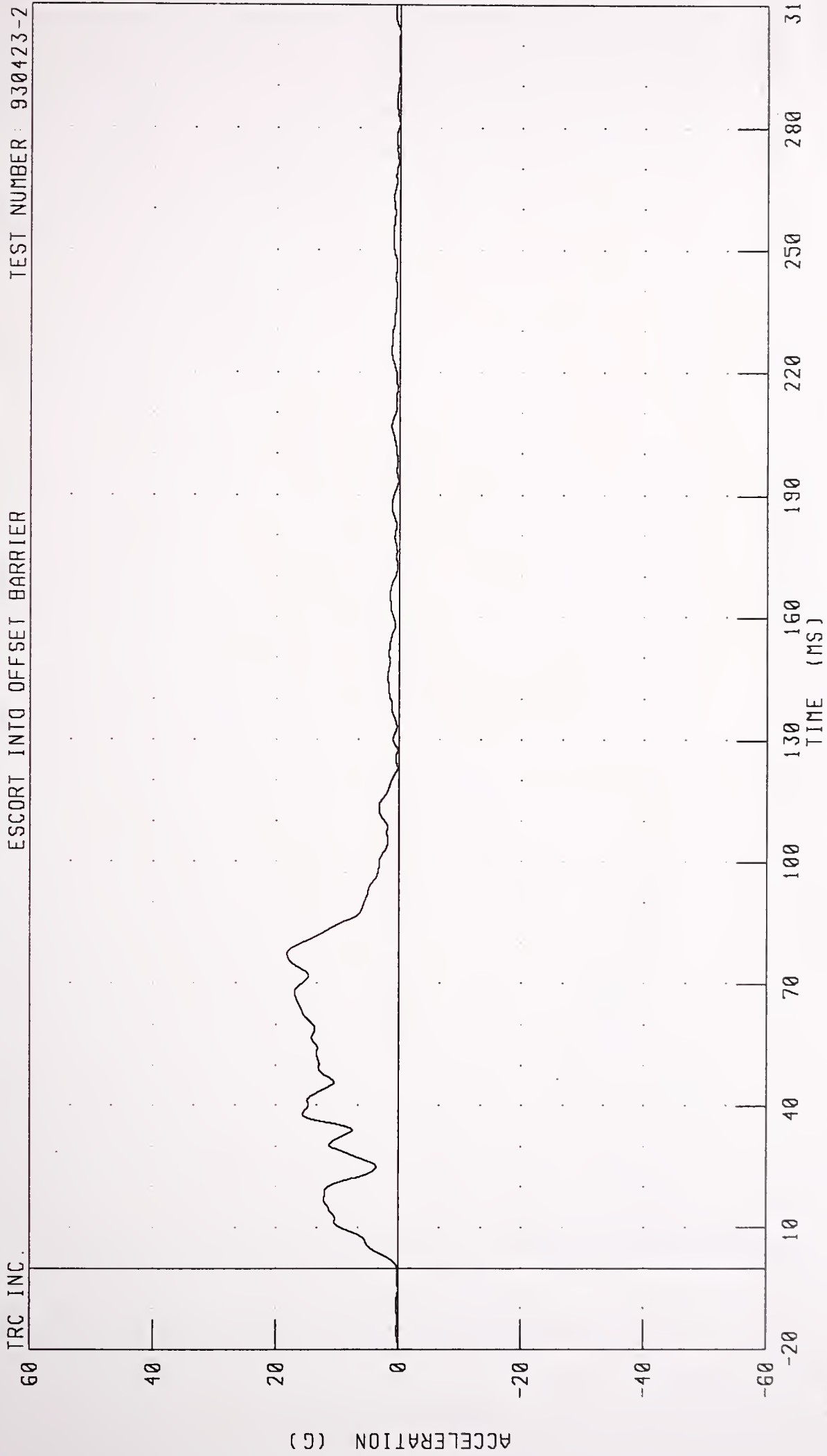


CHANNEL: YCGYD1 FILTER: CH. CLASS 180

PEAK DATA: 3.29 IN @ 310.00 MS, -1.57 IN @ 116.38 MS

1987 FORD ESCORT INTO 50% OFFSET BARRIER AT 19.9 MPH TEST NO. 2  
VEHICLE CENTER OF GRAVITY RESULTANT ACCELERATION

ESCORT INTO OFFSET BARRIER TEST NUMBER: 930423-2



CHANNEL VCGRG1 FILTER CH. CLASS 60

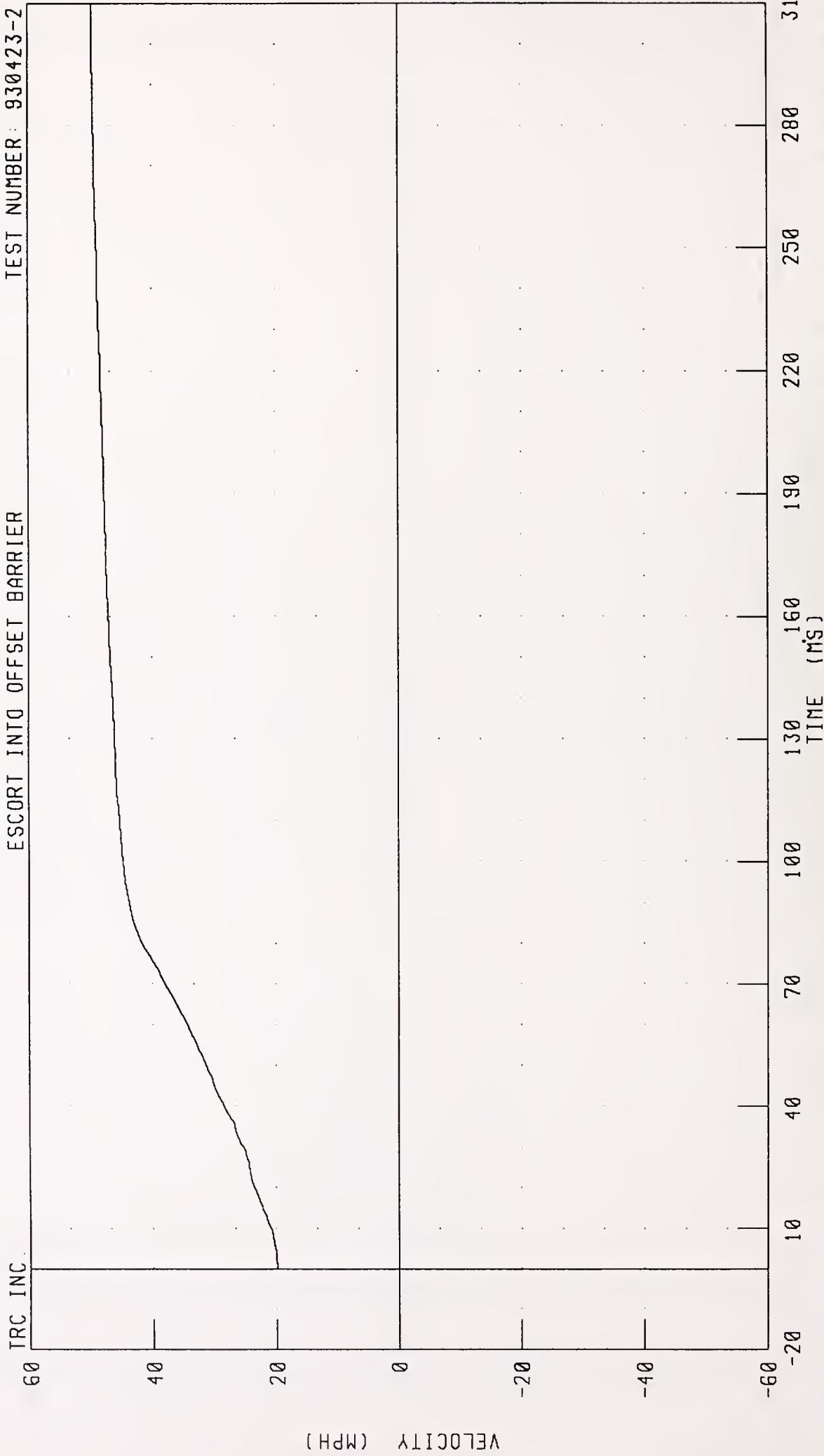
PEAK DATA: 18.25 G @ 77.38 MS; 0.01 G @ -19.38 MS

1987 FORD ESCORT INTO 50% OFFSET BARRIER AT 19.9 MPH TEST NO 2

VEHICLE CENTER OF GRAVITY RESULTANT VELOCITY

ESCORT INTO OFFSET BARRIER

TEST NUMBER: 930423-2



CHANNEL: VCGRV1 FILTER: CH. CLASS 180

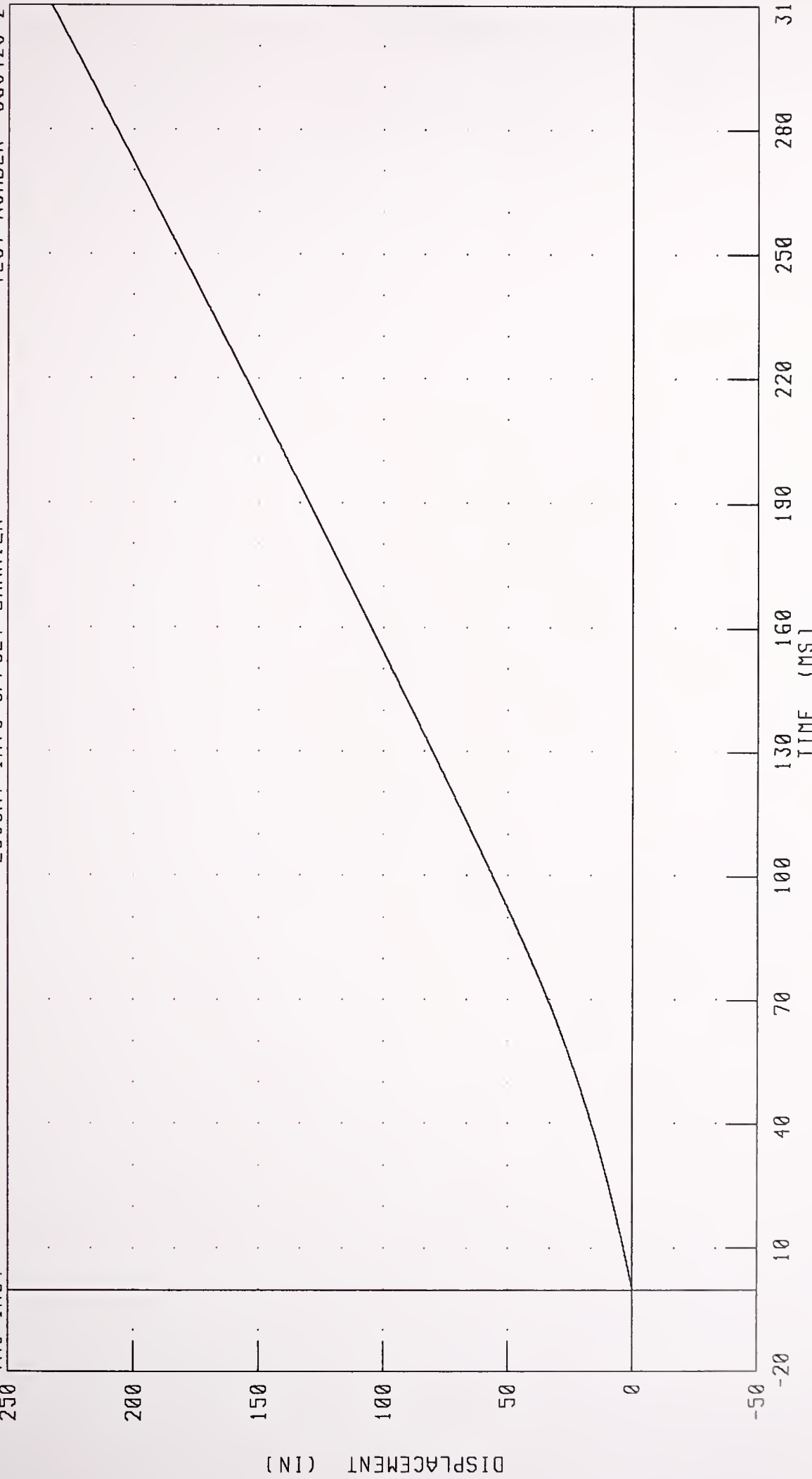
PEAK DATA: 49.71 MPH @ 310.00 MS; 19.90 MPH @ 0.00 MS

1987 FORD ESCORT INTO 50% OFFSET BARRIER AT 19.9 MPH TEST NO. 2  
VEHICLE CENTER OF GRAVITY RESULTANT DISPLACEMENT

TEST NUMBER: 930423-2

ESCORT INTO OFFSET BARRIER

TRC INC.



TIME (MS)

CHANNEL VCGRD1 FILTER CH CLASS 180

PEAK DATA: 232 95 IN @ 310 00 MS, 0 00 IN @ 0 00 MS





DATA PLOTS

TEST NO. 930423-3

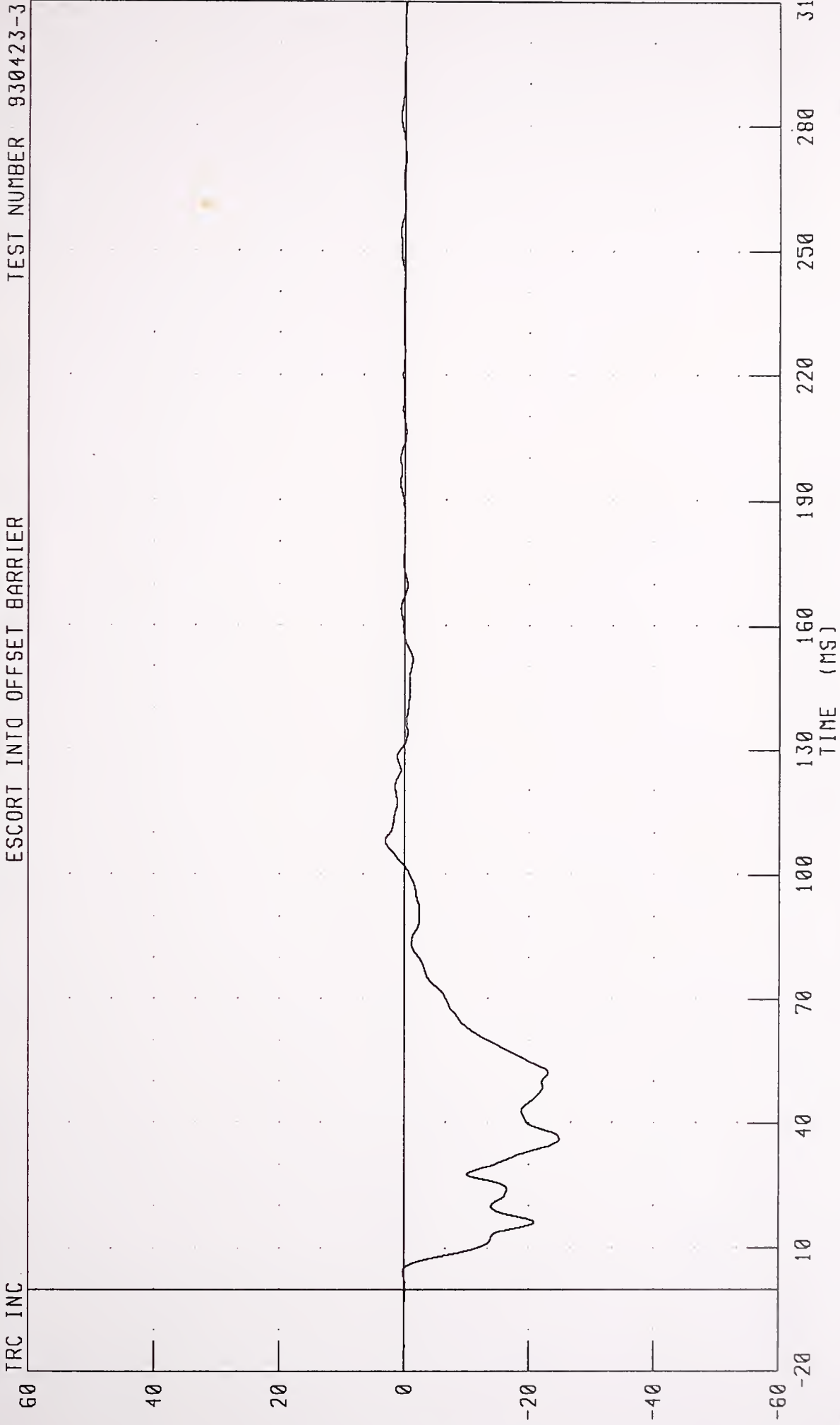


1987 FORD ESCORT INTO 50% OFFSET BARRIER AT 20 0 MPH TEST NO. 3

LEFT REAR SILL X-AXIS ACCELERATION

ESCORT INTO OFFSET BARRIER

TEST NUMBER 930423-3



CHANNEL LRSXG1 FILTER: CH, CLASS 60

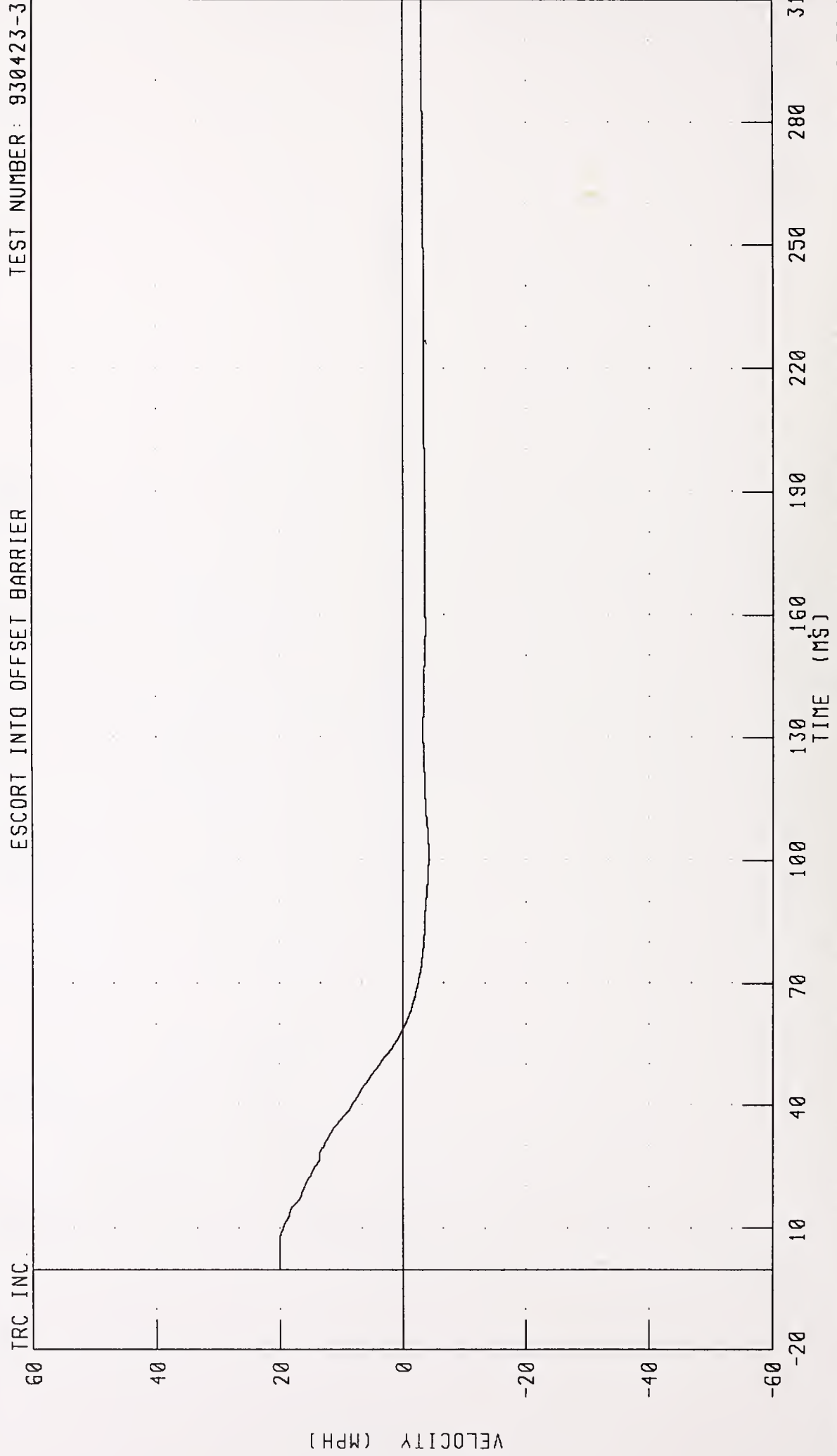
PEAK DATA: 3.11 G @ 108.00 MS; -24.82 G @ 36 13 MS

1987 FORD ESCORT INTO 50% OFFSET BARRIER AT 20.0 MPH TEST NO. 3

LEFT REAR SILL X-AXIS VELOCITY

ESCORT INTO OFFSET BARRIER

TEST NUMBER: 930423-3



CHANNEL: LRSXV1 FILTER: CH. CLASS 180

PEAK DATA: 20.00 MPH @ 0.00 MS; -4.19 MPH @ 102.50 MS

1987 FORD ESCORT INTO 50% OFFSET BARRIER AT 20 0 MPH TEST NO. 3

LEFT REAR SILL X-AXIS DISPLACEMENT

ESCORT INTO OFFSET BARRIER

TEST NUMBER 930423-3



60

40

20

0

-20

-40

-60

-20

10

40

70

100

130

160

190

220

250

280

310

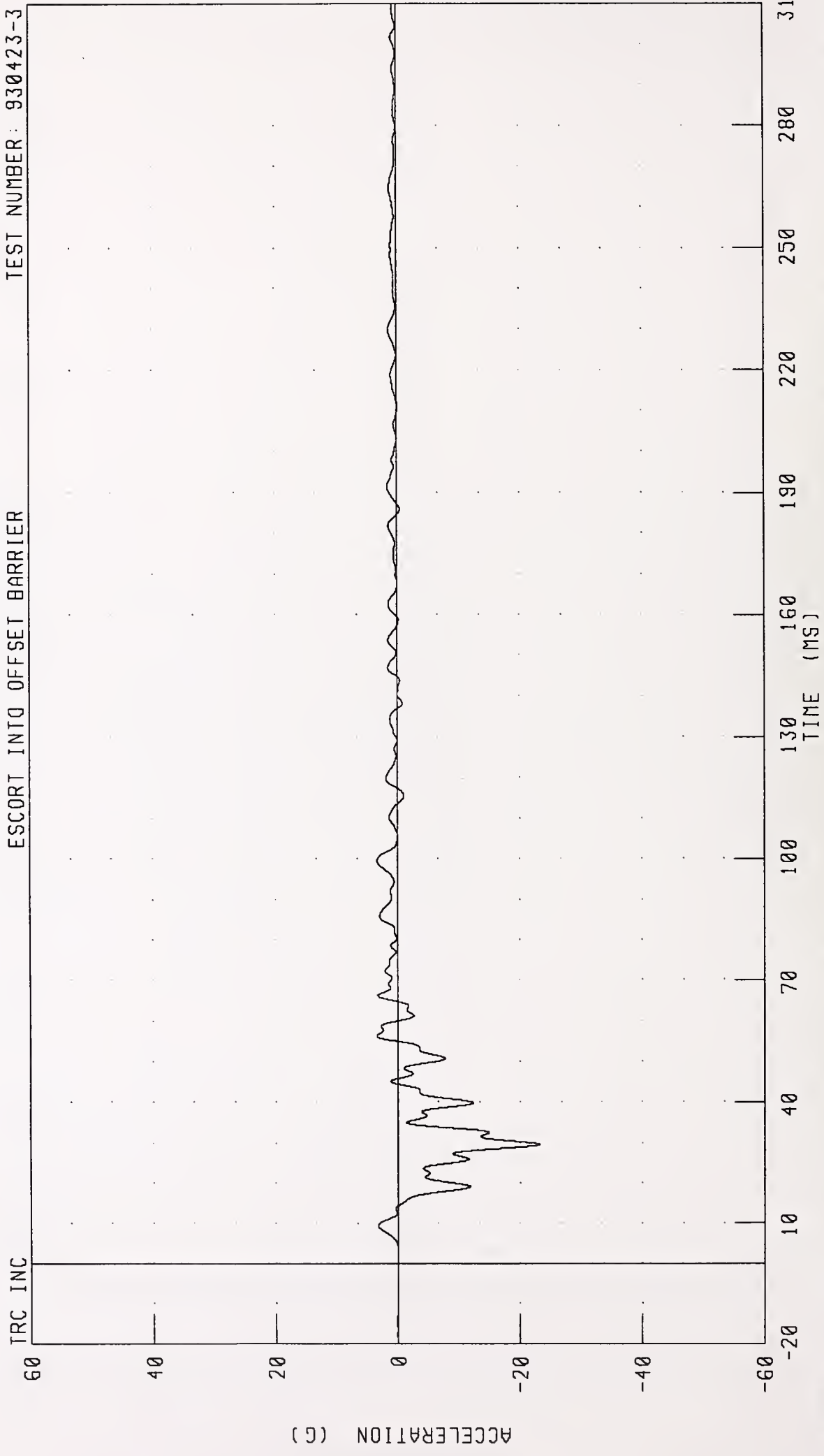
TIME (MS)

PEAK DATA: 12.40 IN @ 58.63 MS; -2.29 IN @ 310 00 MS

CHANNEL LRSXD1 FILTER CH CLASS 180

1987 FORD ESCORT INTO 50% OFFSET BARRIER AT 20.0 MPH TEST NO. 3  
LEFT REAR SILL Y-AXIS ACCELERATION  
ESCORT INTO OFFSET BARRIER

TEST NUMBER: 930423-3



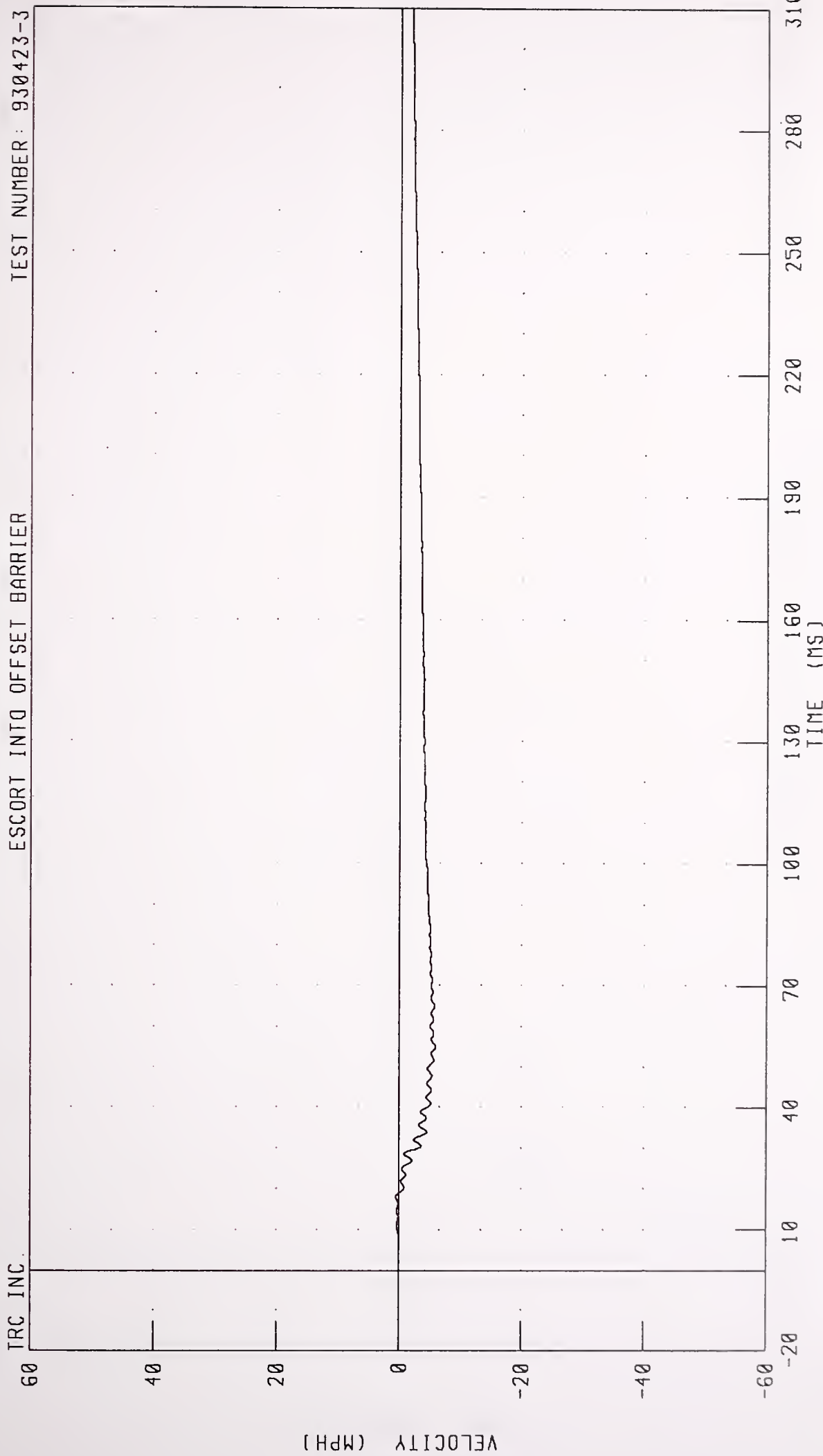
CHANNEL: LRSYG1 FILTER: CH. CLASS 60 PEAK DATA: 3.46 G @ 56.38 MS; -23.24 G @ 29.63 MS

1987 FORD ESCORT INTO 50% OFFSET BARRIER AT 20.0 MPH TEST NO. 3

LEFT REAR SILL Y-AXIS VELOCITY

ESCORT INTO OFFSET BARRIER

TEST NUMBER: 930423-3

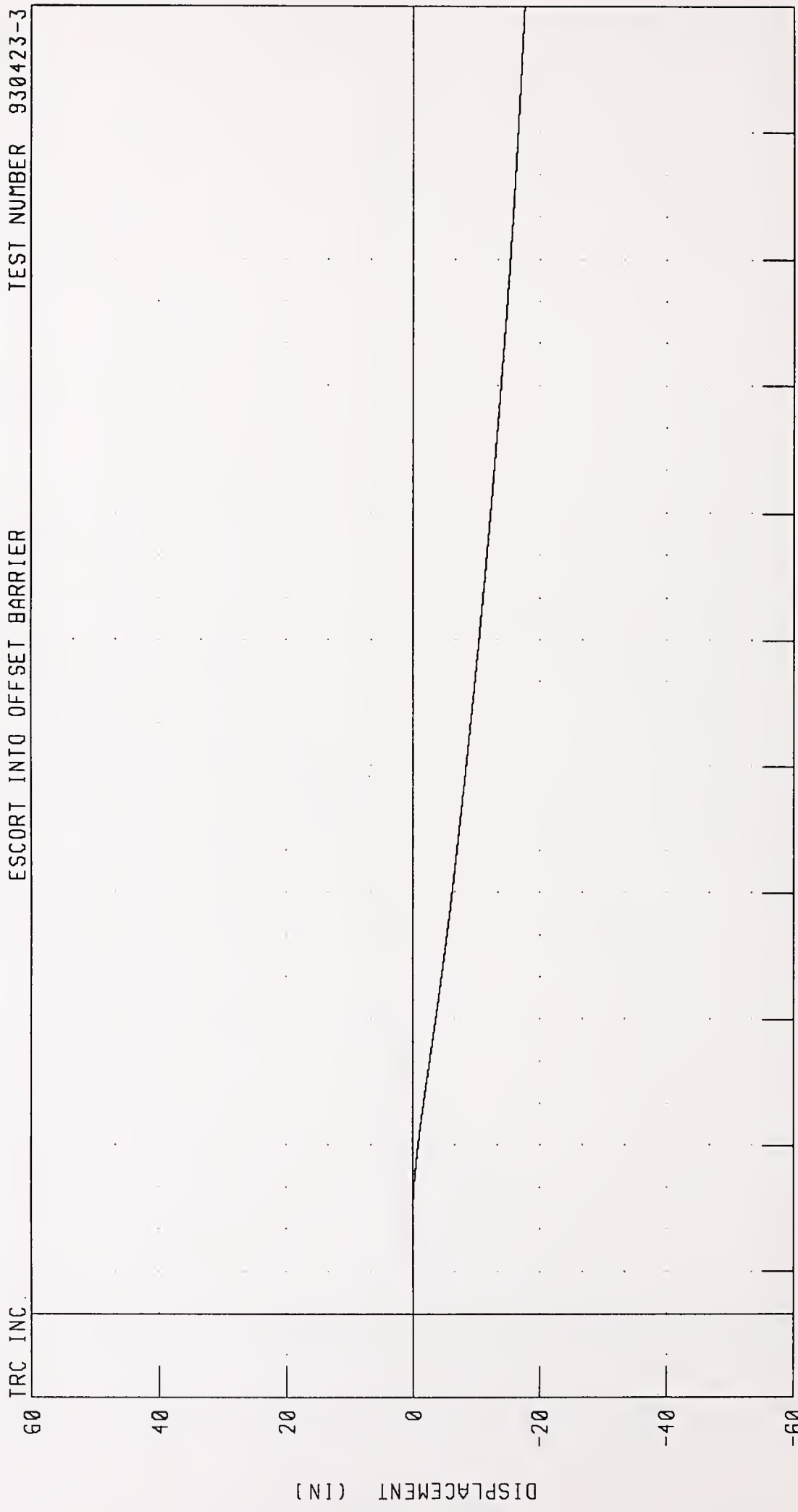


CHANNEL LRSYV1 FILTER: CH CLASS 180

PEAK DATA: 0.48 MPH @ 18.00 MS; -5.95 MPH @ 55.13 MS

1987 FORD ESCORT INTO 50% OFFSET BARRIER AT 20.0 MPH TEST NO. 3  
LEFT REAR SILL Y-AXIS DISPLACEMENT

ESCORT INTO OFFSET BARRIER TEST NUMBER 930423-3



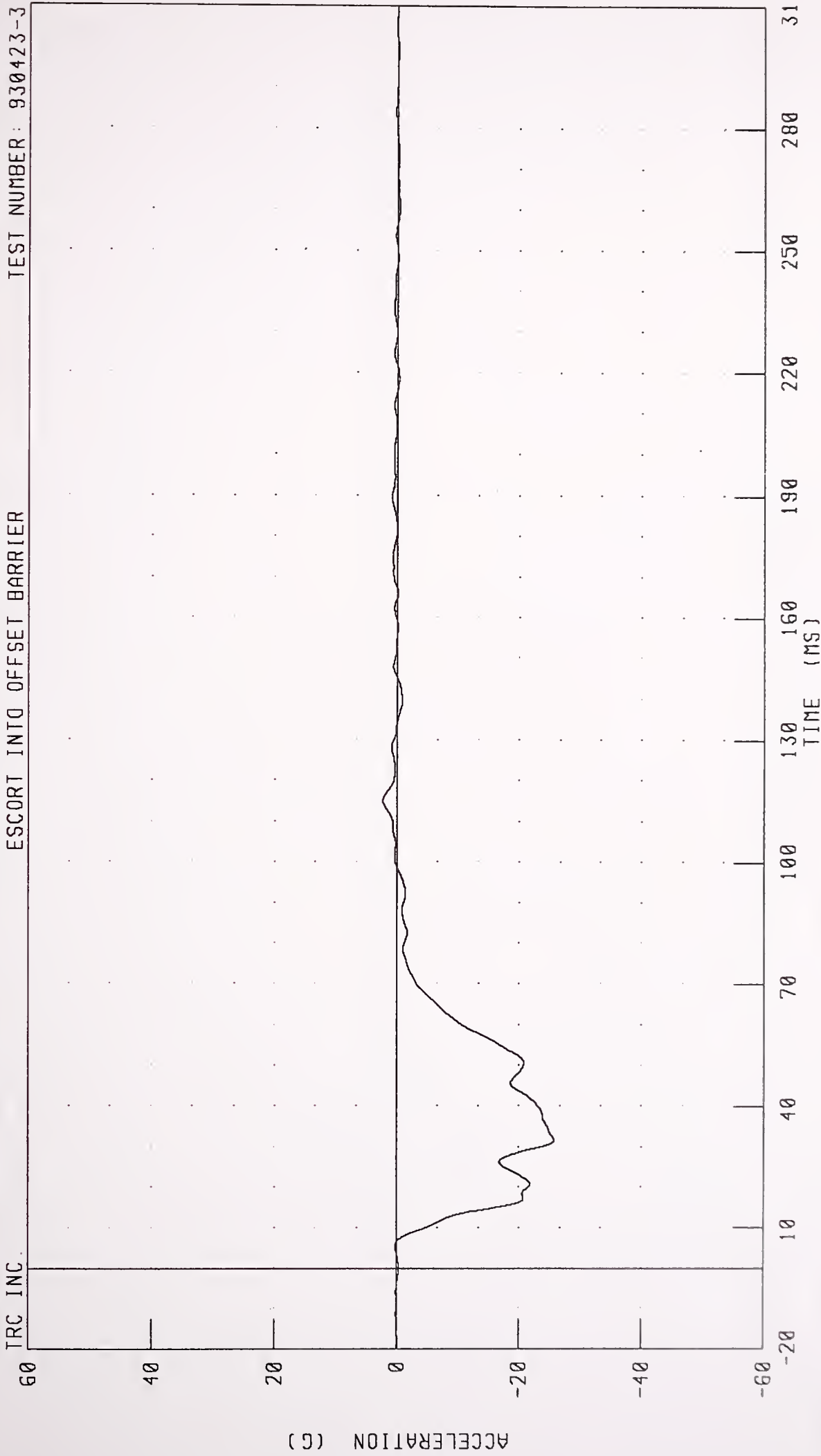
CHANNEL: LRSYD1 FILTER: CH. CLASS 180 PEAK DATA: 0.05 IN @ 19.00 MS; -17.55 IN @ 310.00 MS



1987 FORD ESCORT INTO 50% OFFSET BARRIER AT 20.0 MPH TEST NO. 3

RIGHT REAR SILL X-AXIS ACCELERATION

ESCORT INTO OFFSET BARRIER TEST NUMBER: 930423-3

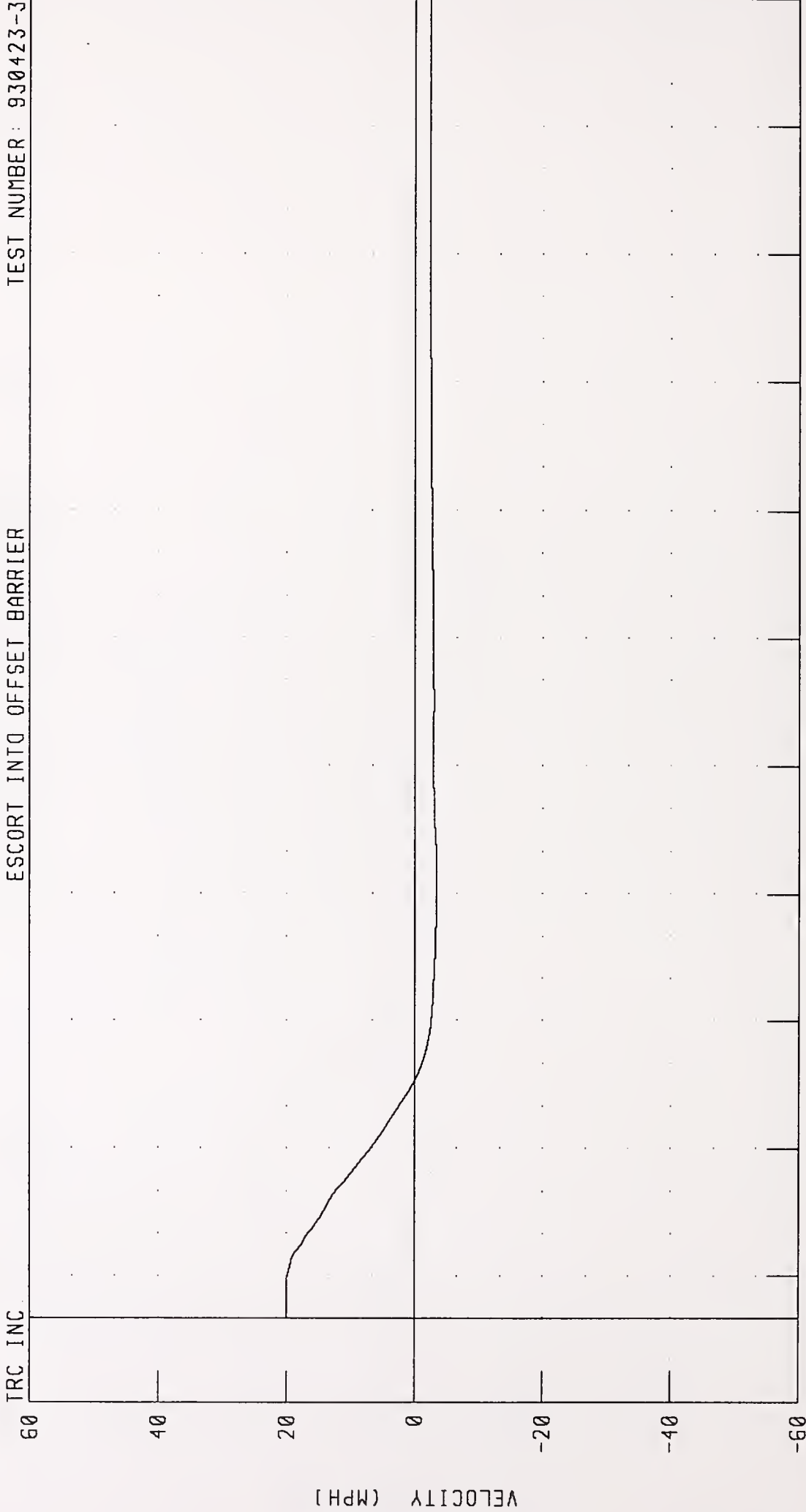


CHANNEL RRSXG1 FILTER CH CLASS 60

PEAK DATA: 2.32 G @ 115.13 MS, -25.76 G @ 31.75 MS

1987 FORD ESCORT INTO 50% OFFSET BARRIER AT 20.0 MPH TEST NO. 3  
RIGHT REAR SILL X-AXIS VELOCITY  
ESCORT INTO OFFSET BARRIER

TEST NUMBER: 930423-3

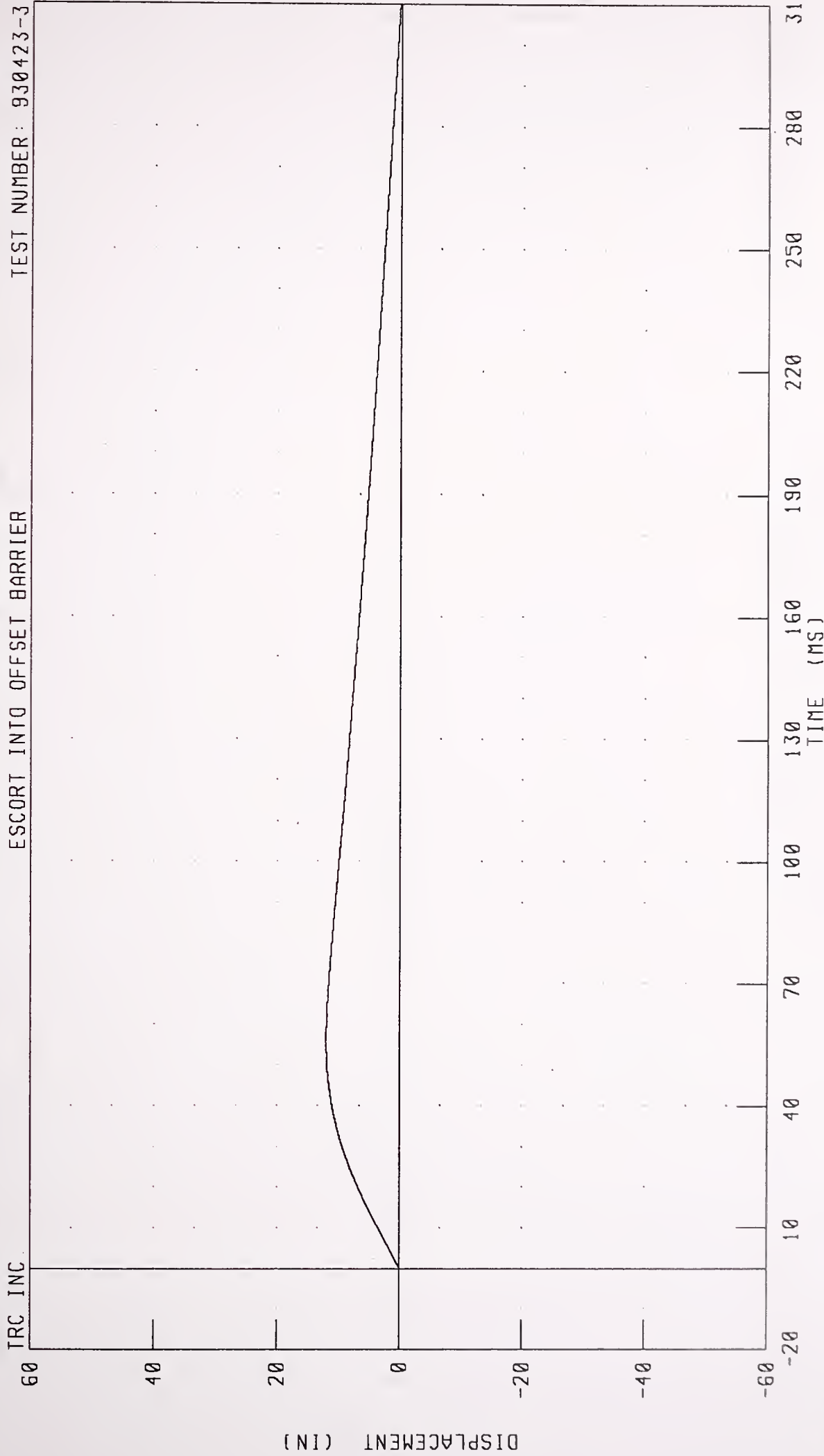


CHANNEL: RRSXV1 FILTER: CH CLASS 180

PEAK DATA: 20.00 MPH @ 0 00 MS; -3.43 MPH @ 98.63 MS

1987 FORD ESCORT INTO 50% OFFSET BARRIER AT 20.0 MPH TEST NO. 3  
RIGHT REAR SILL X-AXIS DISPLACEMENT

ESCORT INTO OFFSET BARRIER TEST NUMBER: 930423-3

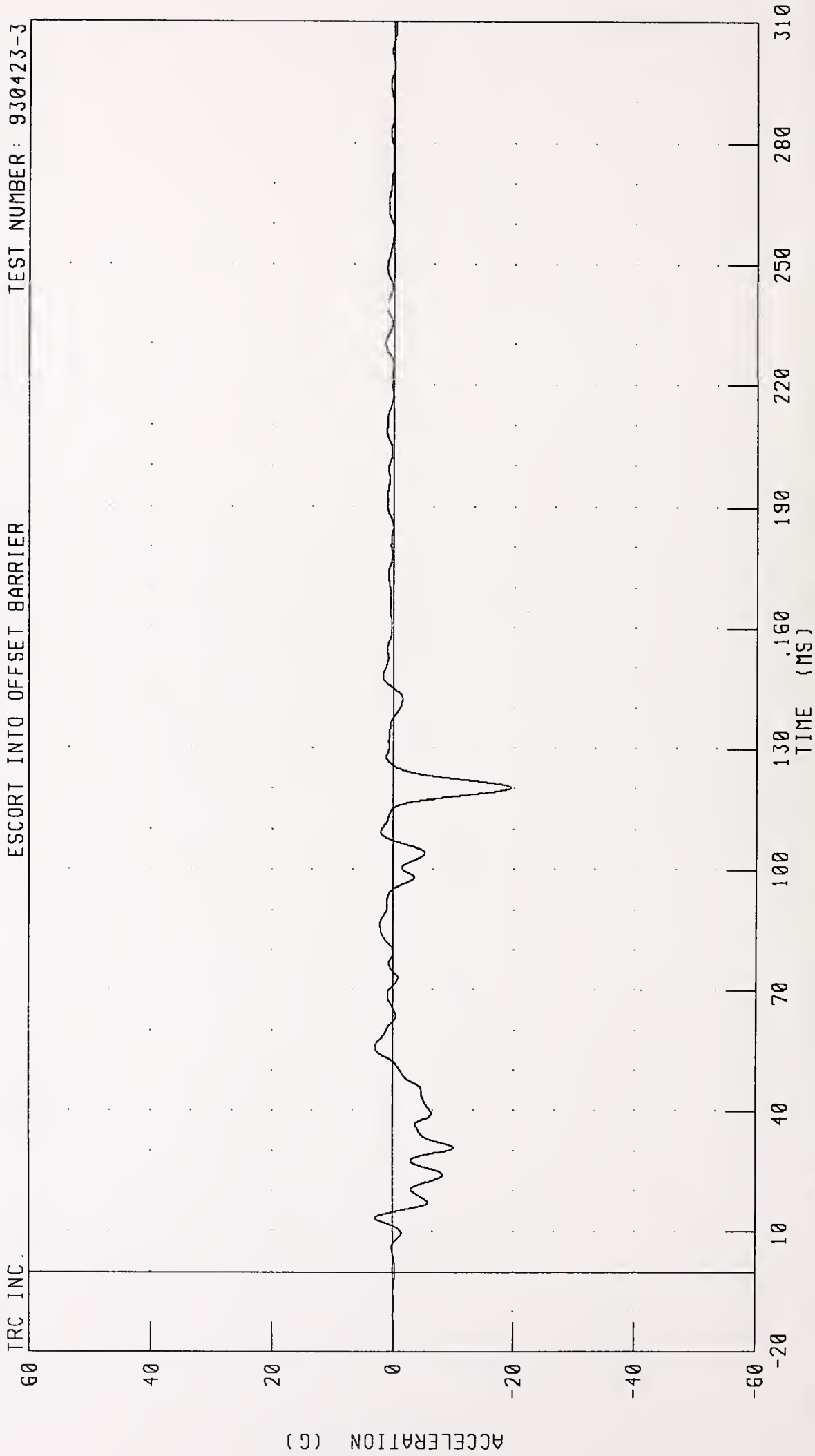


CHANNEL RRSX01 FILTER: CH CLASS 180

PEAK DATA: 11.98 IN @ 56.00 MS, 0.00 IN @ 0.00 MS

1987 FORD ESCORT INTO 50% OFFSET BARRIER AT 20.0 MPH TEST NO. 3  
RIGHT REAR SILL Y-AXIS ACCELERATION  
ESCORT INTO OFFSET BARRIER

TEST NUMBER: 930423-3

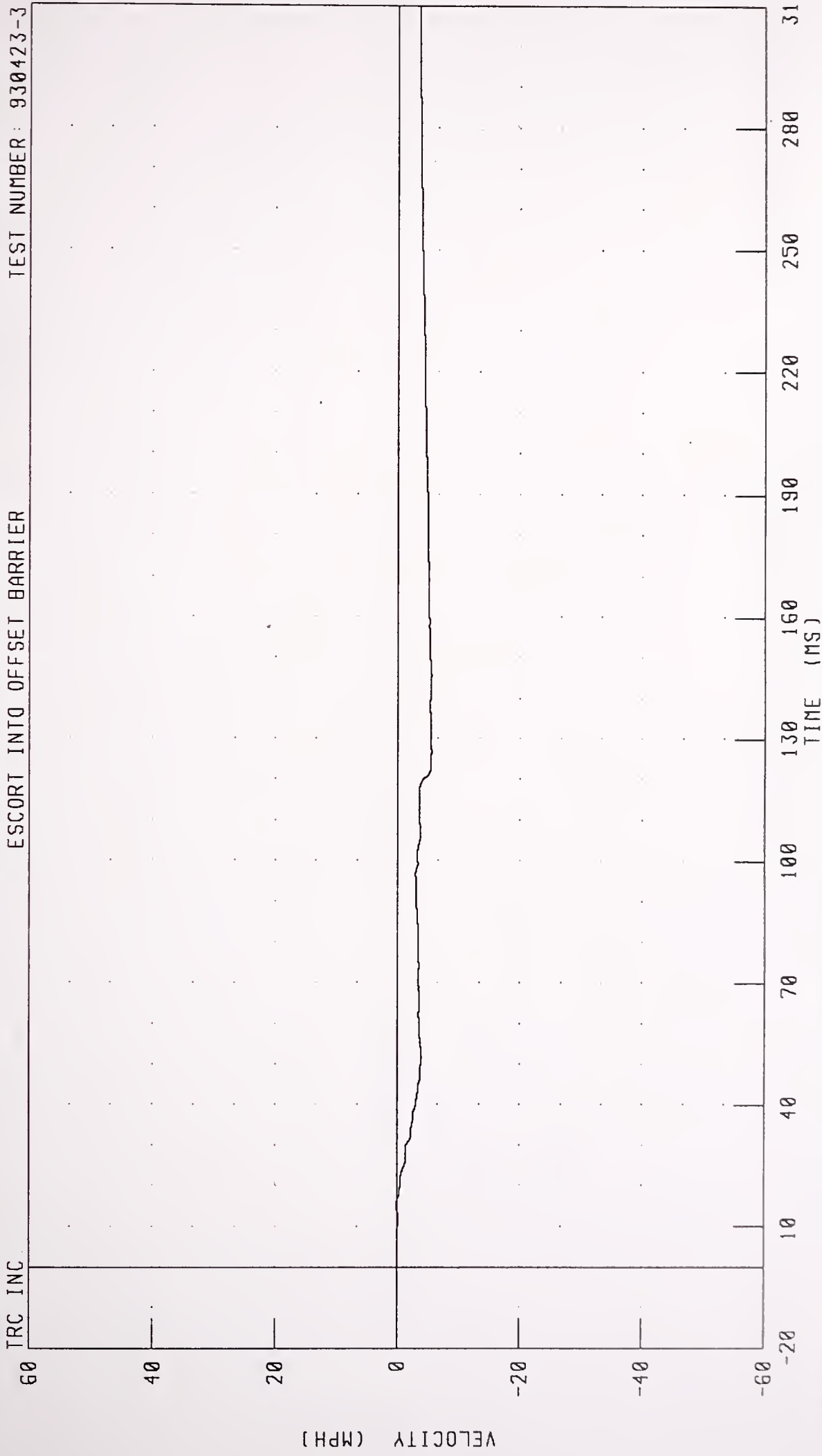


CHANNEL: RRSYG1 FILTER: CH. CLASS 60

PEAK DATA: 2.98 G @ 13.25 MS; -19.53 G @ 120.38 MS

1987 FORD ESCORT INTO 50% OFFSET BARRIER AT 20.0 MPH TEST NO 3  
RIGHT REAR SILL Y-AXIS VELOCITY

ESCORT INTO OFFSET BARRIER TEST NUMBER: 930423-3

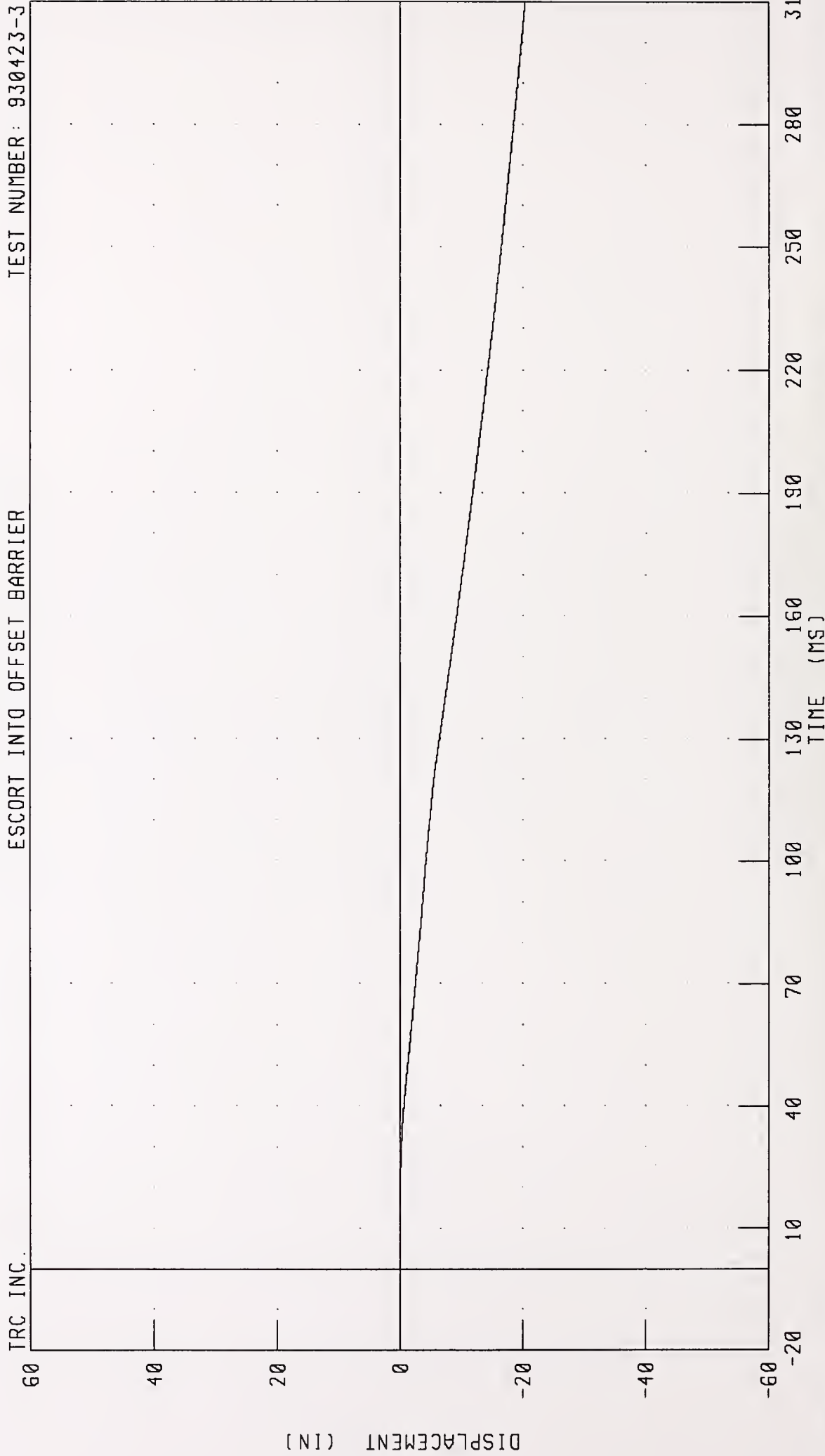


CHANNEL RRSYV1 FILTER CH. CLASS 180

PEAK DATA: 0.15 MPH @ 15.63 MS; -5.51 MPH @ 126.75 MS

1987 FORD ESCORT INTO 50% OFFSET BARRIER AT 20.0 MPH TEST NO 3  
RIGHT REAR SILL Y-AXIS DISPLACEMENT

ESCORT INTO OFFSET BARRIER TEST NUMBER: 930423-3



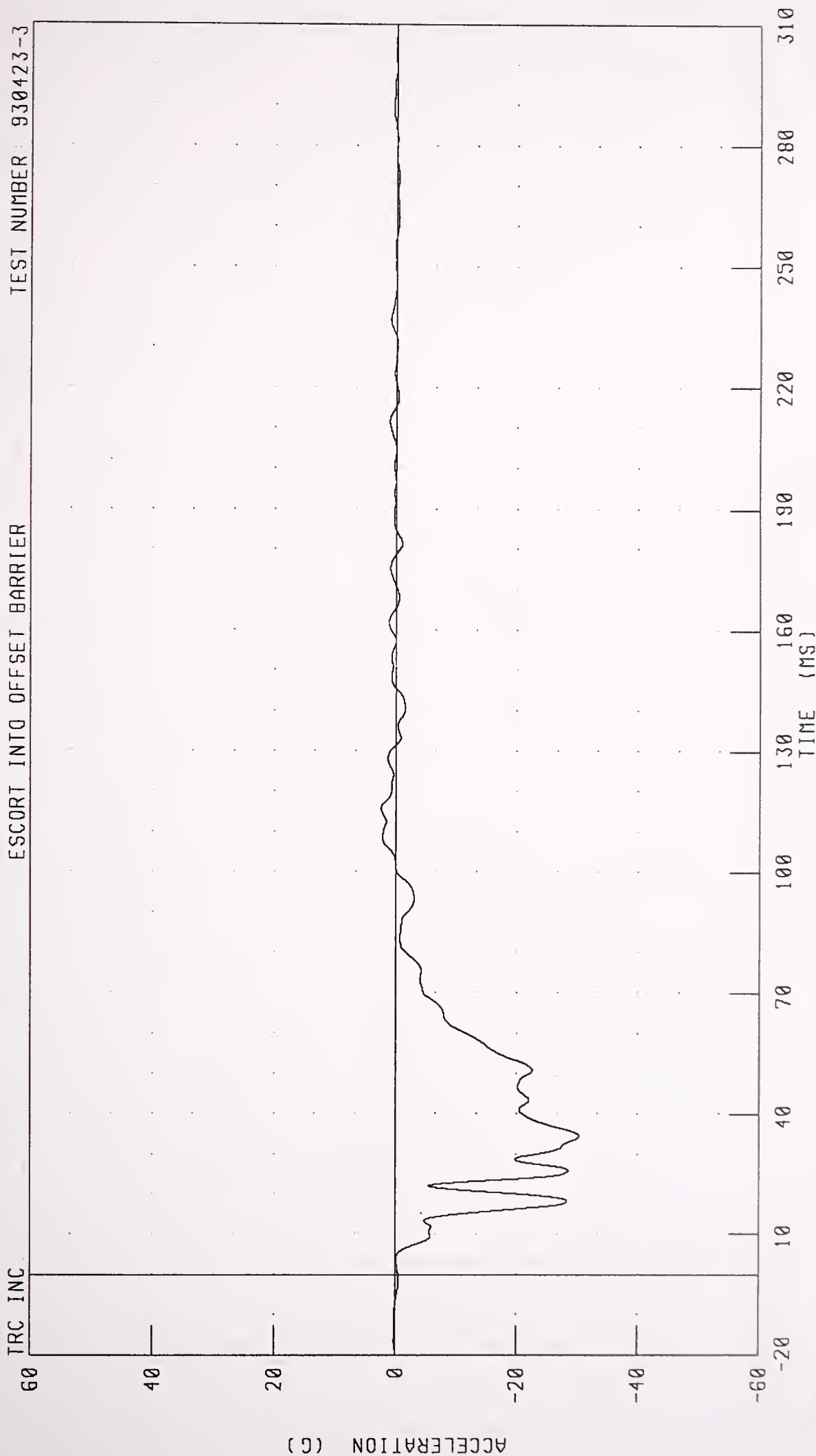
CHANNEL: RRSYD1 FILTER: CH. CLASS 180

PEAK DATA: 0.00 IN @ 0.00 MS, -20.37 IN @ 310.00 MS

1987 FORD ESCORT INTO 50% OFFSET BARRIER AT 20.0 MPH TEST NO 3  
VEHICLE CENTER OF GRAVITY X-AXIS ACCELERATION

TEST NUMBER: 930423-3

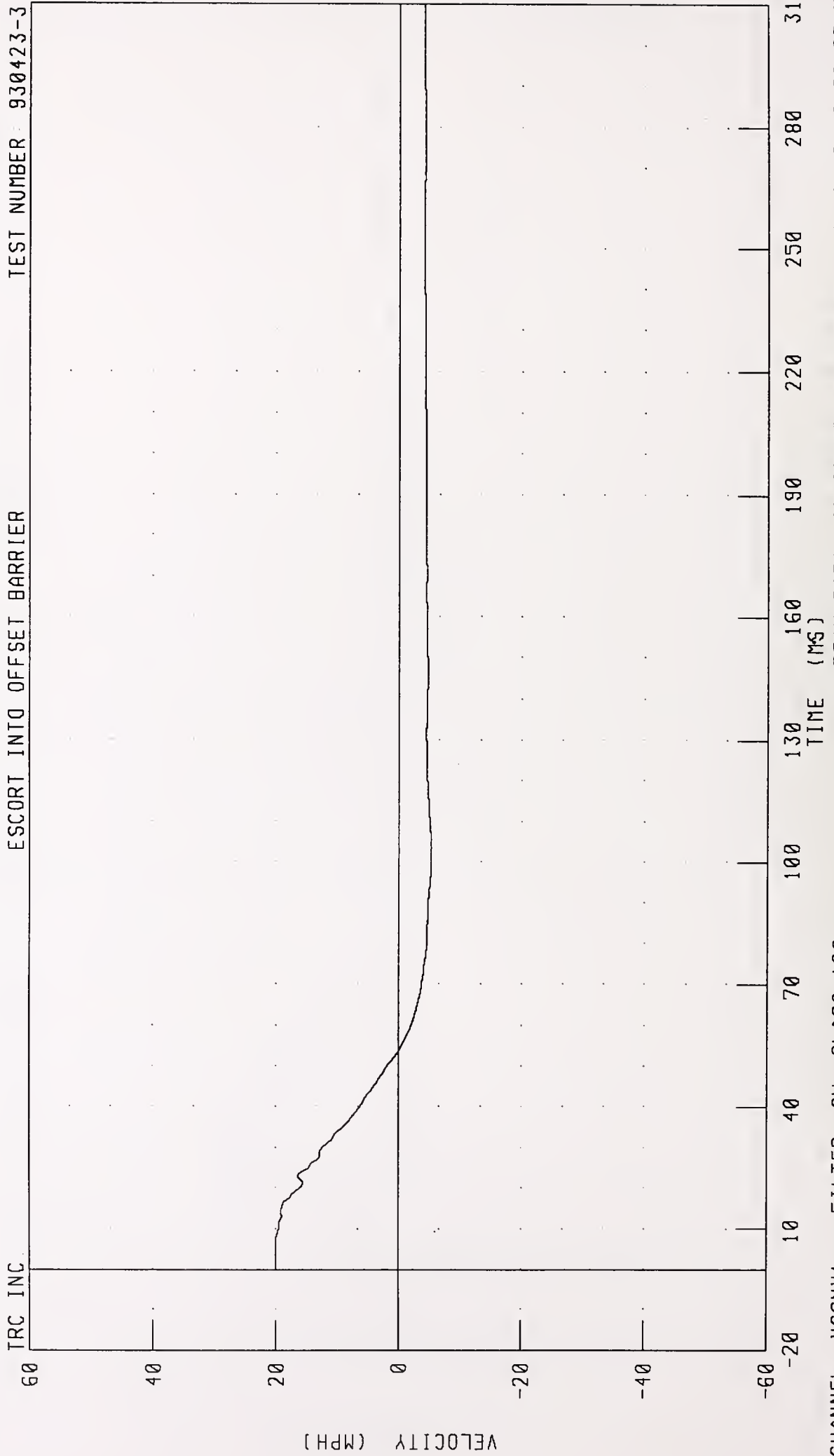
ESCORT INTO OFFSET BARRIER



CHANNEL VCGXG1 FILTER CH CLASS 60 PEAK DATA: 2.48 G @ 115.75 MS, -30.37 G @ 34.63 MS

1987 FORD ESCORT INTO 50% OFFSET BARRIER AT 20.0 MPH TEST NO 3  
VEHICLE CENTER OF GRAVITY X-AXIS VELOCITY

TRC INC ESCORT INTO OFFSET BARRIER TEST NUMBER 930423-3



CHANNEL: VCGXV1 FILTER: CH. CLASS 180

PEAK DATA: 20.00 MPH @ 0.00 MS; -5.27 MPH @ 98.63 MS

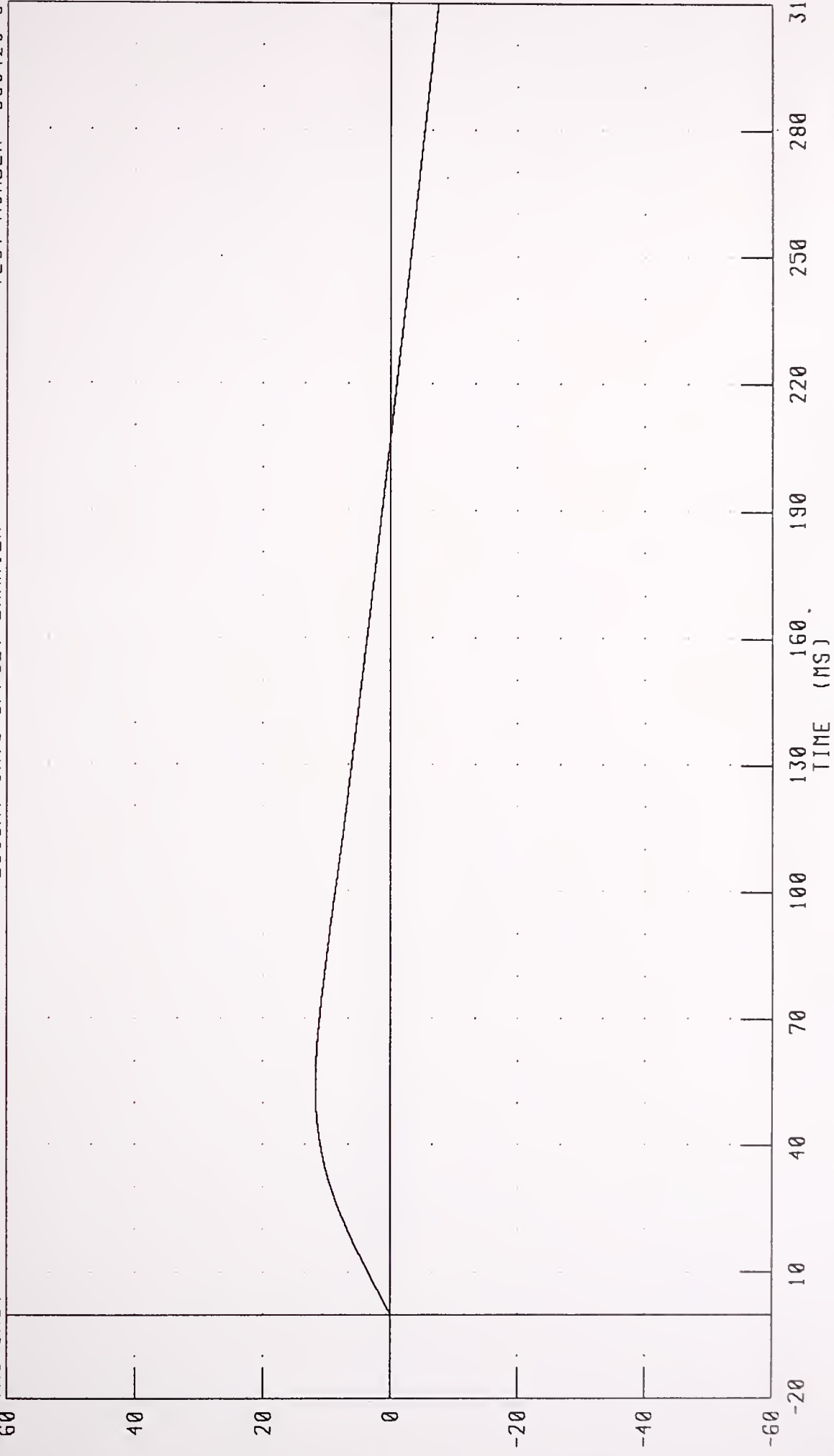


1987 FORD ESCORT INTO 50% OFFSET BARRIER AT 20 0 MPH TEST NO. 3  
VEHICLE CENTER OF GRAVITY X-AXIS DISPLACEMENT

TEST NUMBER: 930423-3

ESCORT INTO OFFSET BARRIER

TRC INC.



DISPLACEMENT (IN)

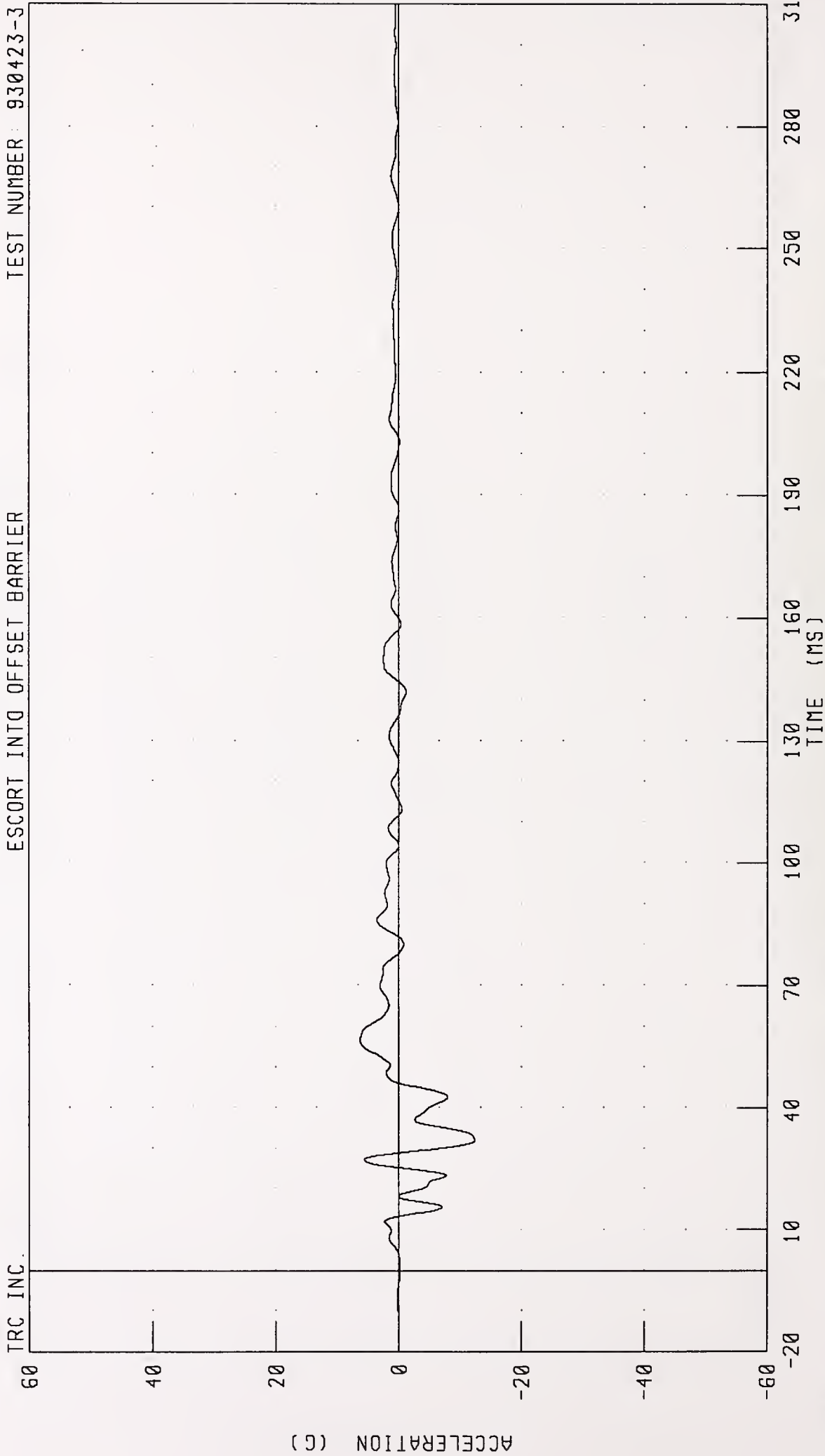
TIME (MS)

PEAK DATA: 11.76 IN @ 53.89 MS, -7.51 IN @ 310.00 MS

CHANNEL VCGX01 FILTER CH CLASS 180

1987 FORD ESCORT INTO 50% OFFSET BARRIER AT 20.0 MPH TEST NO 3  
VEHICLE CENTER OF GRAVITY Y-AXIS ACCELERATION

ESCORT INTO OFFSET BARRIER TEST NUMBER: 930423-3

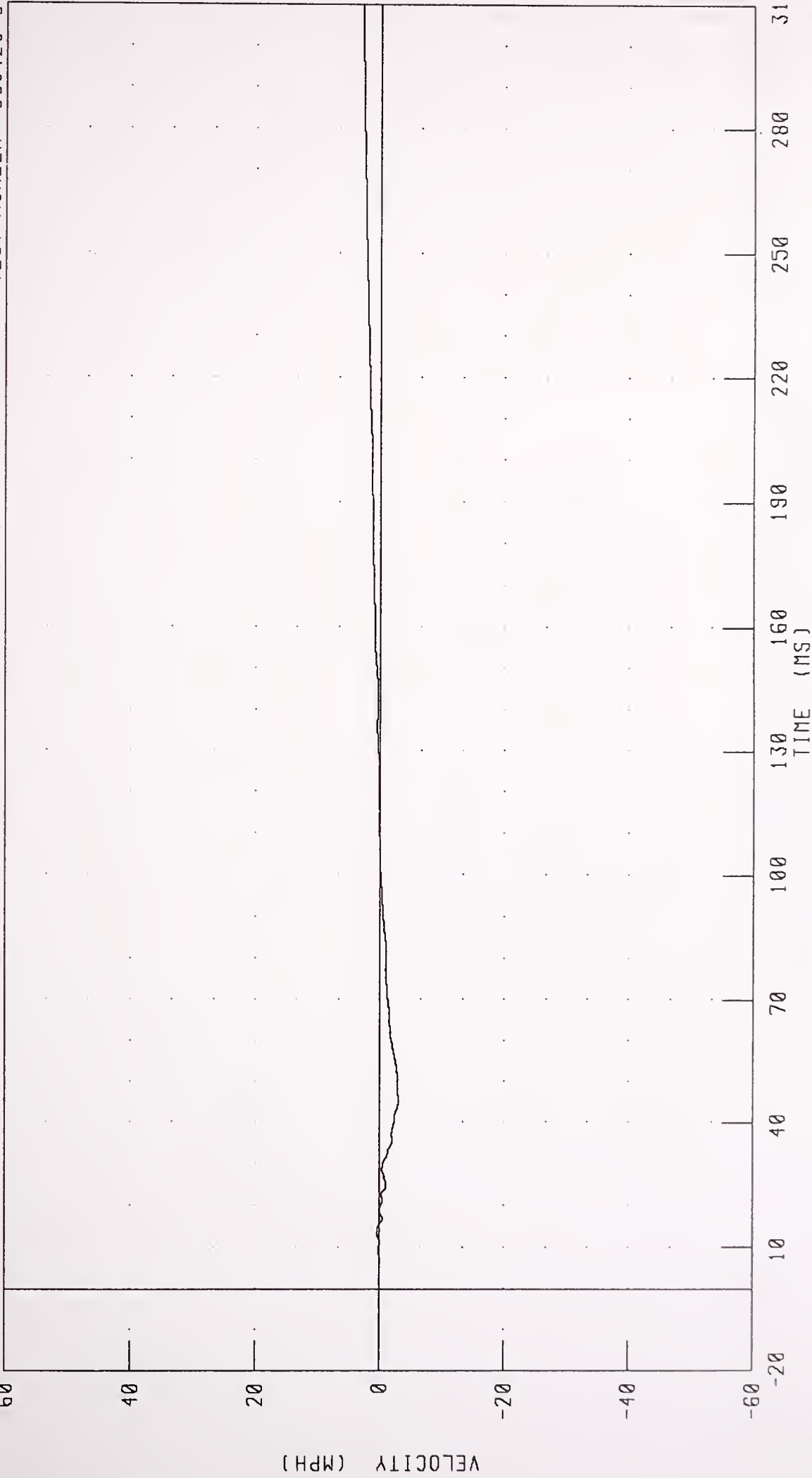


CHANNEL: VCGYG1 FILTER: CH. CLASS 60

PEAK DATA: 6.28 G @ 56.75 MS; -12.43 G @ 32.13 MS

1987 FORD ESCORT INTO 50% OFFSET BARRIER AT 20 0 MPH TEST NO. 3  
VEHICLE CENTER OF GRAVITY Y-AXIS VELOCITY

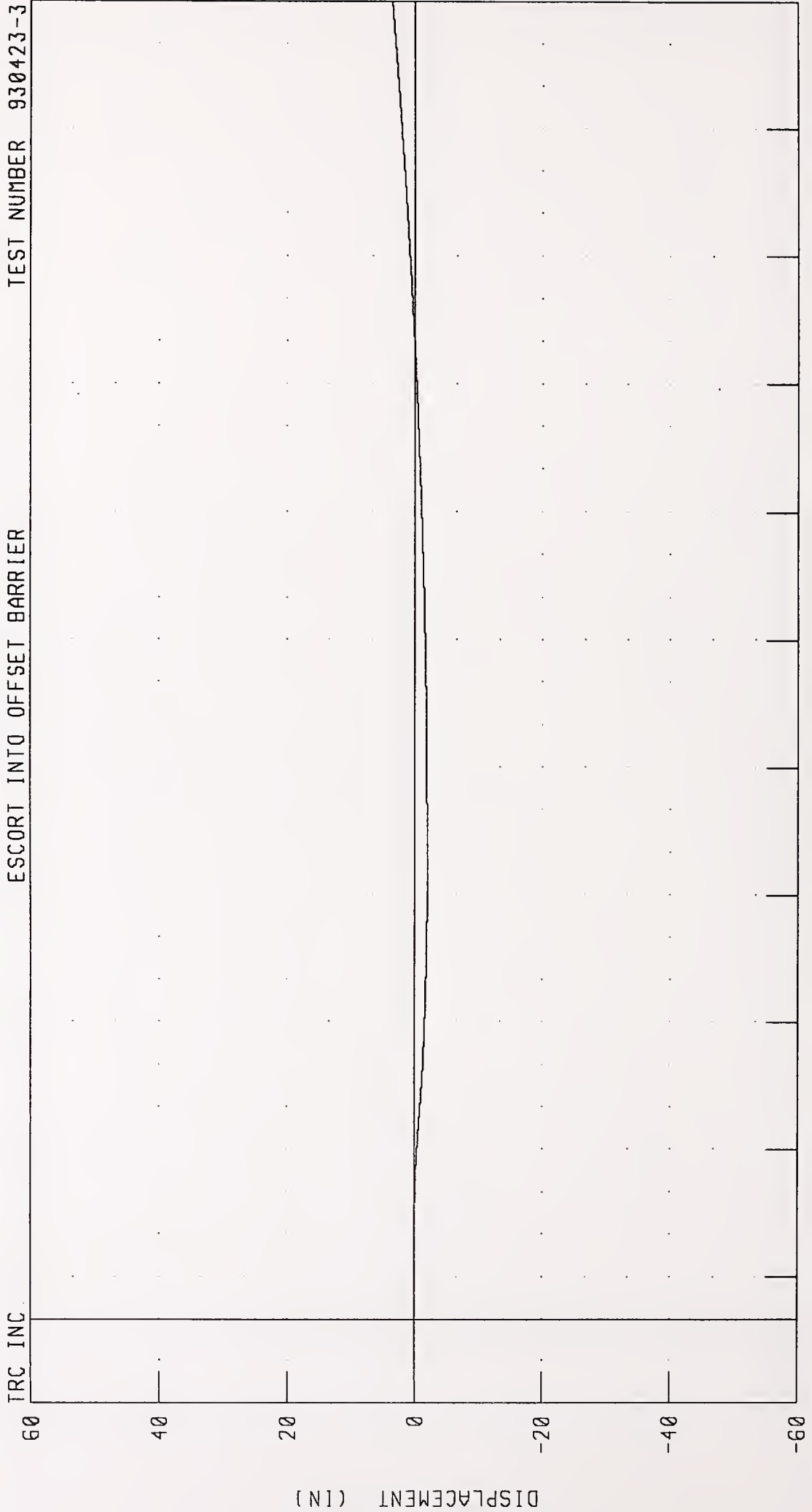
TRC INC. ESCORT INTO OFFSET BARRIER TEST NUMBER 930423-3



CHANNEL YCGYV1 FILTER CH CLASS 180 PEAK DATA: 2.98 MPH @ 310 00 MS; -3 07 MPH @ 45 38 MS

1987 FORD ESCORT INTO 50% OFFSET BARRIER AT 20 0 MPH TEST NO. 3  
VEHICLE CENTER OF GRAVITY Y-AXIS DISPLACEMENT

ESCORT INTO OFFSET BARRIER TEST NUMBER 930423-3



DISPLACEMENT (IN)

60  
40  
20  
0  
-20  
-40  
-60

10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160 170 180 190 200 210 220 230 240 250 260 270 280 290 300 310

TIME (MS)

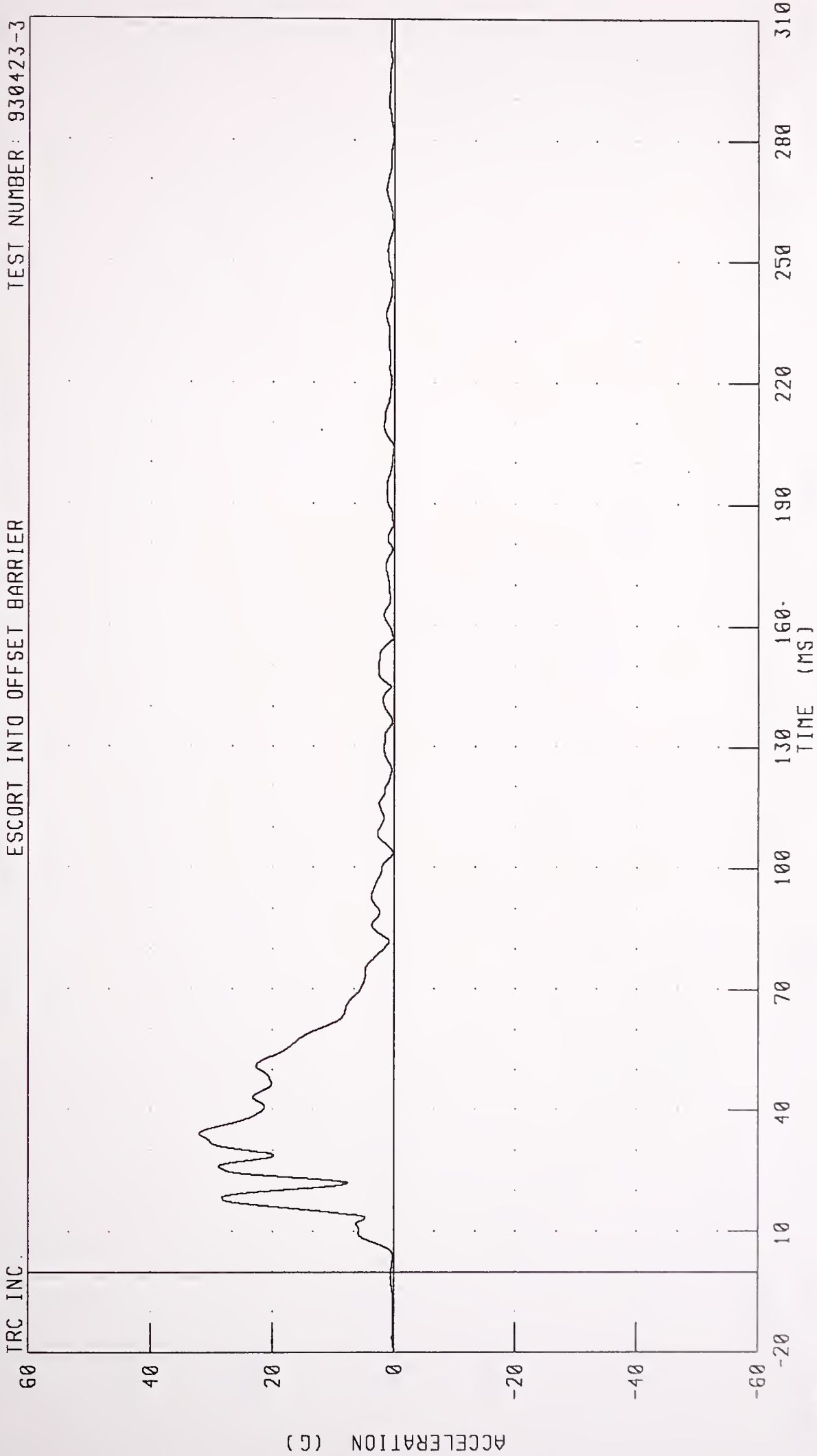
CHANNEL: VCGYD1 FILTER: CH CLASS 180

PEAK DATA: 3.54 IN @ 310.00 MS; -1.97 IN @ 107.00 MS

1987 FORD ESCORT INTO 50% OFFSET BARRIER AT 20.0 MPH TEST NO. 3  
VEHICLE CENTER OF GRAVITY RESULTANT ACCELERATION

TEST NUMBER: 930423-3

ESCORT INTO OFFSET BARRIER

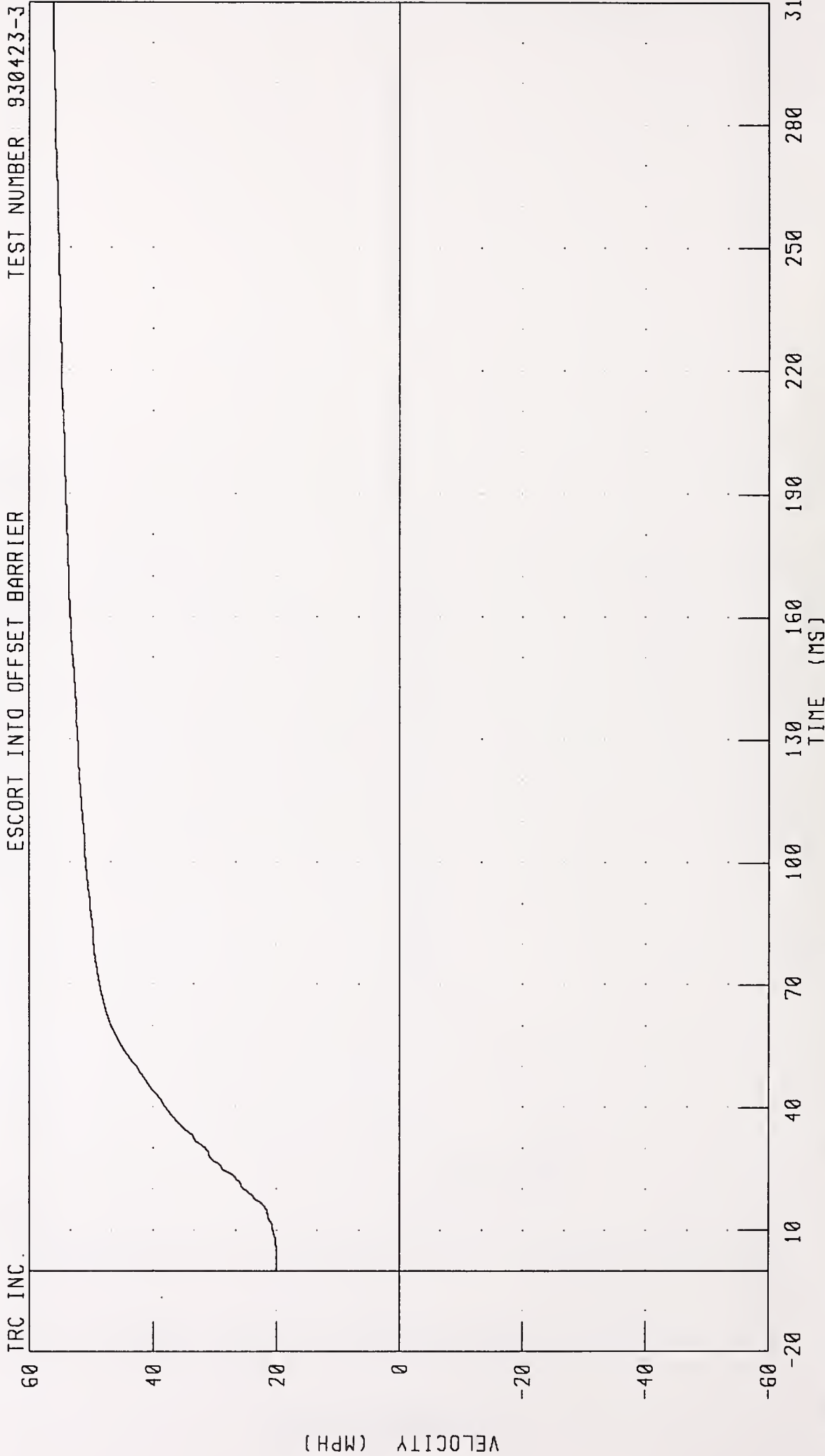


CHANNEL VCGRG1 FILTER CH CLASS 60

PEAK DATA: 31.98 G @ 34.13 MS; 0 01 G @ 157.13 MS

1987 FORD ESCORT INTO 50% OFFSET BARRIER AT 20.0 MPH TEST NO. 3  
VEHICLE CENTER OF GRAVITY RESULTANT VELOCITY

ESCORT INTO OFFSET BARRIER TEST NUMBER 930423-3



CHANNEL VCCR1 FILTER: CH. CLASS 180

PEAK DATA: 56.14 MPH @ 310.00 MS; 20.00 MPH @ 0.00 MS

1987 FORD ESCORT INTO 50% OFFSET BARRIER AT 20.0 MPH TEST NO. 3  
VEHICLE CENTER OF GRAVITY RESULTANT DISPLACEMENT

TRC INC. ESCORT INTO OFFSET BARRIER TEST NUMBER: 930423-3



CHANNEL VCGRD1 FILTER CH CLASS 180 PEAK DATA 268 15 IN @ 310.00 MS, 0.00 IN @ 0.00 MS





DATA PLOTS

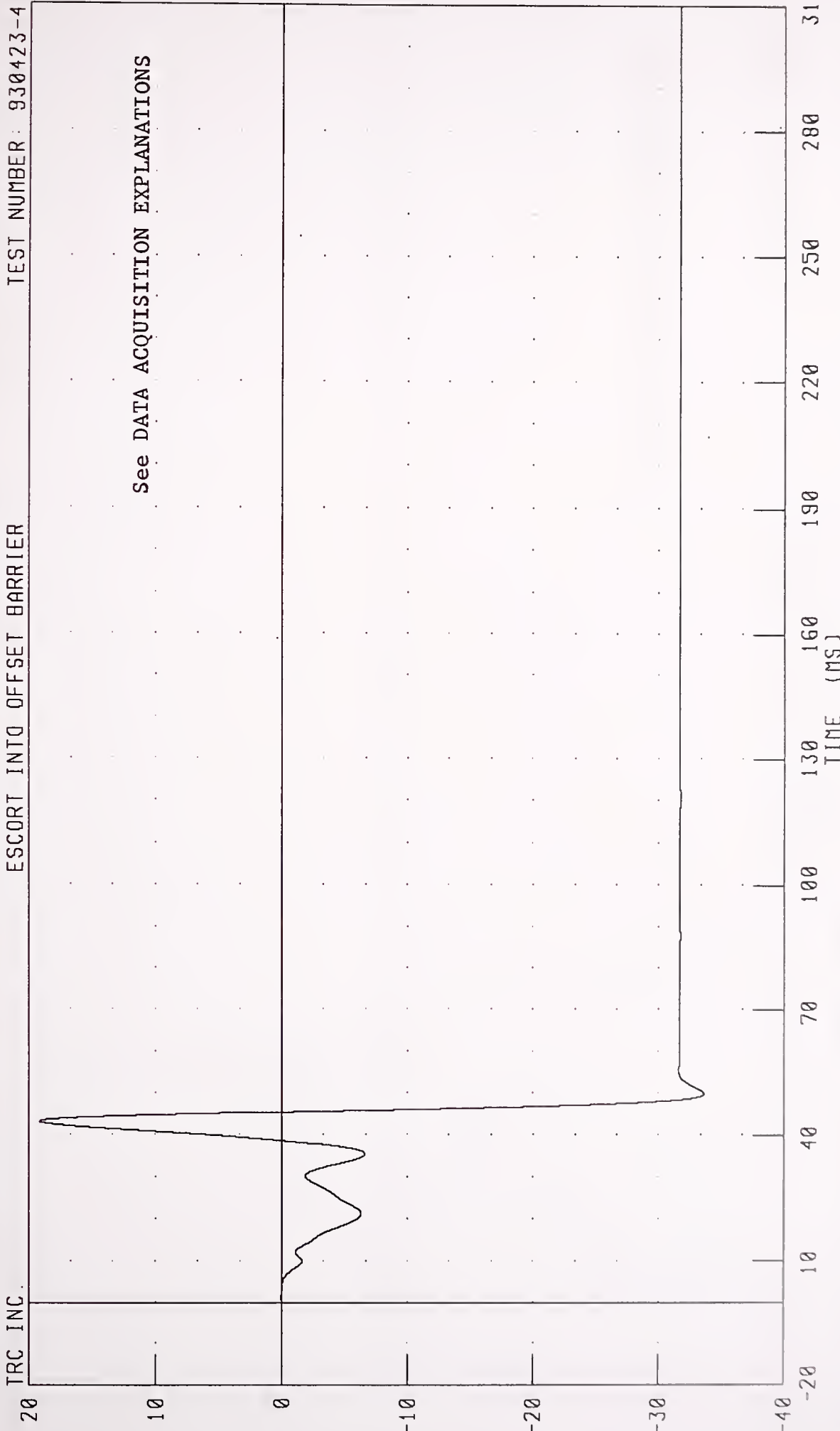
TEST NO. 93Q423-4



1987 FORD ESCORT INTO 50% OFFSET BARRIER AT 35.1 MPH TEST NO. 4  
LEFT REAR SILL X-AXIS ACCELERATION

ESCORT INTO OFFSET BARRIER

TEST NUMBER: 930423-4



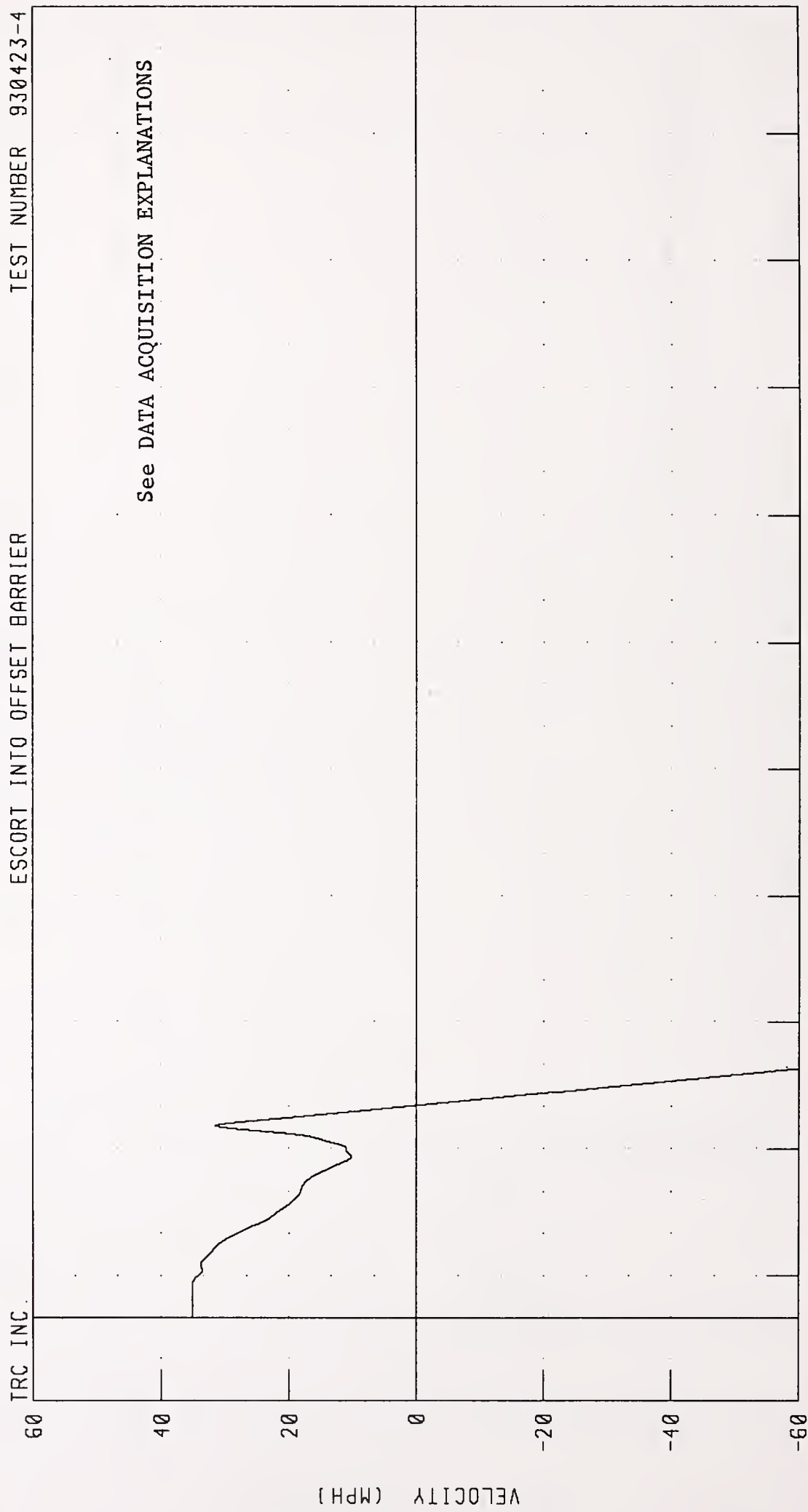
CHANNEL LRSXG1 FILTER CH CLASS 60

PEAK DATA 191 46 G @ 43 25 MS, -336.46 G @ 49 88 MS

1987 FORD ESCORT INTO 50% OFFSET BARRIER AT 35.1 MPH TEST NO 4

LEFT REAR SILL X-AXIS VELOCITY

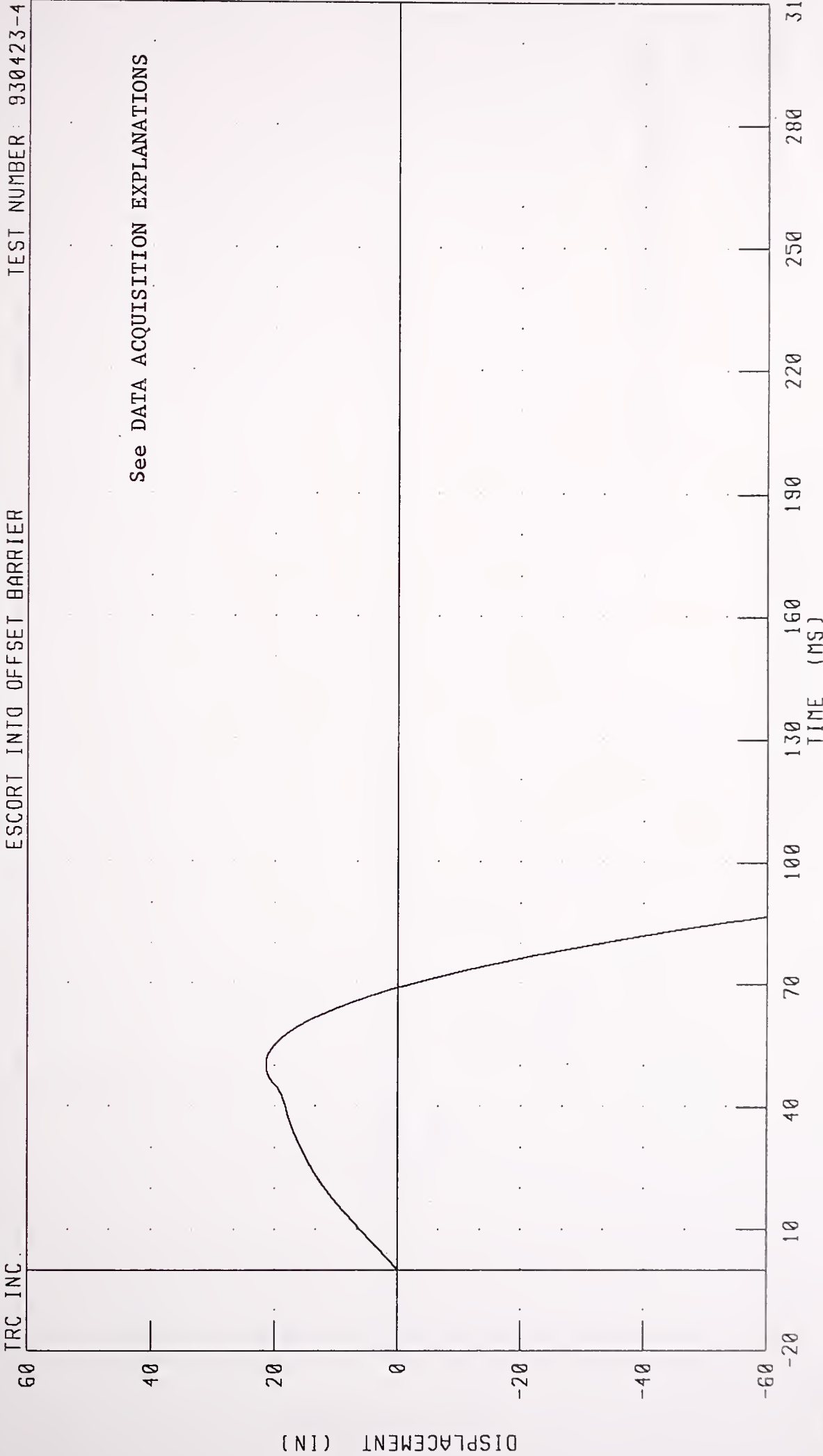
ESCORT INTO OFFSET BARRIER TEST NUMBER 930423-4



CHANNEL: LRSXV1 FILTER: CH. CLASS 180 PEAK DATA: 35.15 MPH @ 2.13 MS; -1805.41 MPH @ 310.00 MS

1987 FORD ESCORT INTO 50% OFFSET BARRIER AT 35.1 MPH TEST NO. 4  
LEFT REAR SILL X-AXIS DISPLACEMENT

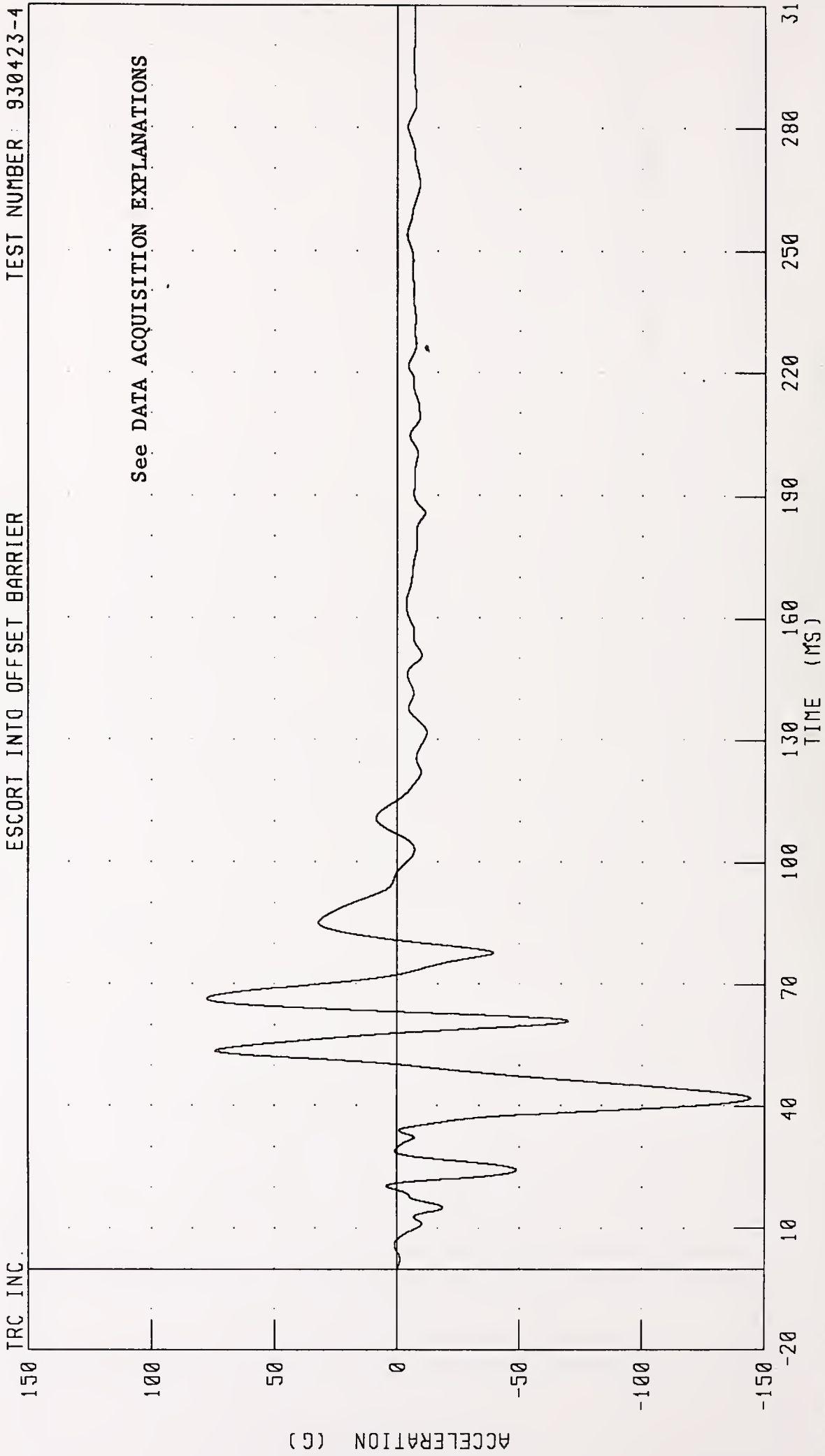
ESCORT INTO OFFSET BARRIER TEST NUMBER: 930423-4



CHANNEL LRSXD1 FILTER CH CLASS 180 PEAK DATA: 21.43 IN @ 50 25 MS; -4105.33 IN @ 310 00 MS

1987 FORD ESCORT INTO 50% OFFSET BARRIER AT 35.1 MPH TEST NO. 4  
LEFT REAR SILL Y-AXIS ACCELERATION  
ESCORT INTO OFFSET BARRIER

TRC INC. TEST NUMBER: 930423-4



CHANNEL: LRSYG1 FILTER: CH. CLASS 60 PEAK DATA: 77 55 G @ 66 50 MS; -144 13 G @ 42 00 MS

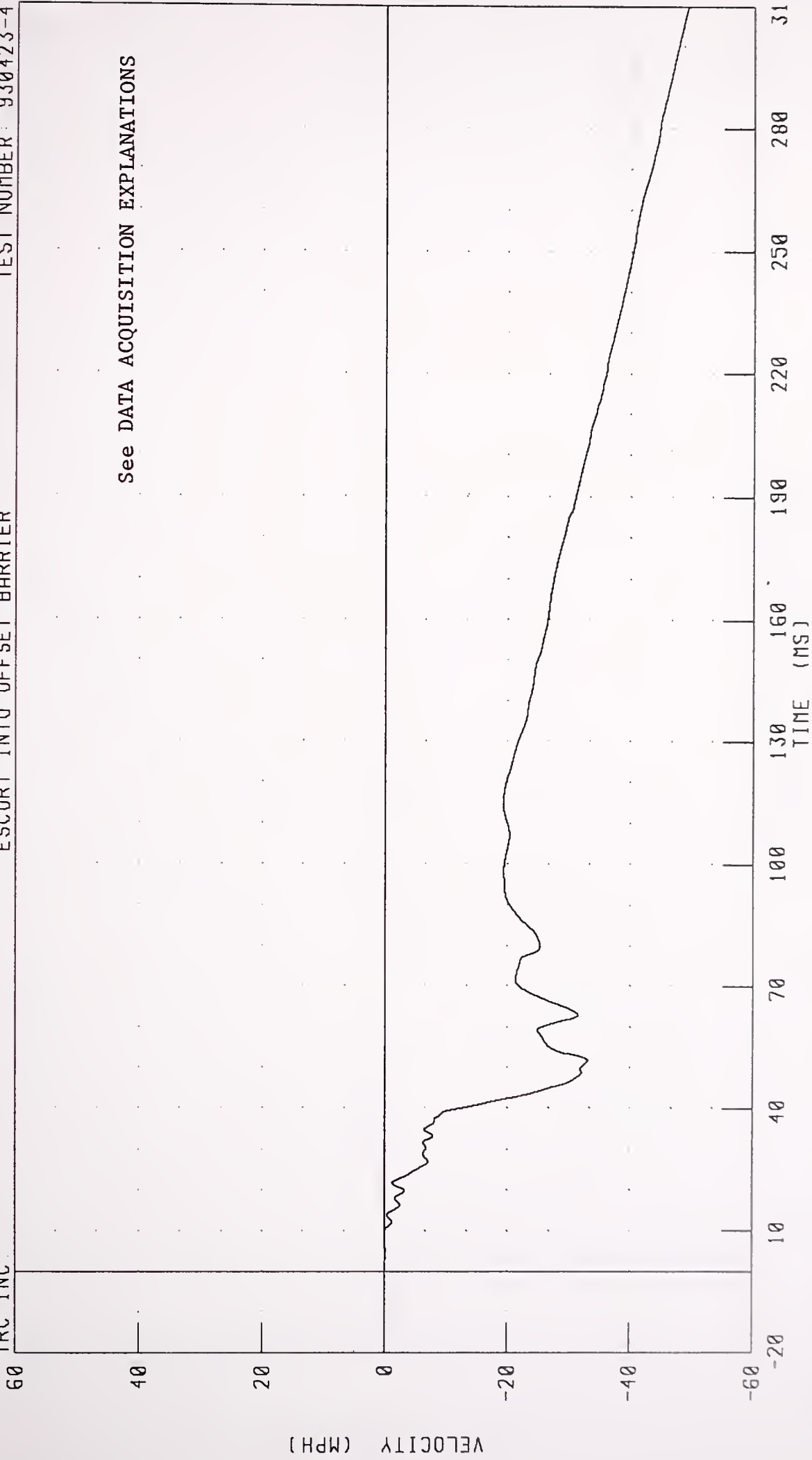
1987 FORD ESCORT INTO 50% OFFSET BARRIER AT 35.1 MPH TEST NO 4

LEFT REAR SILL Y-AXIS VELOCITY

ESCORT INTO OFFSET BARRIER

TEST NUMBER: 930423-4

TRC INC



See DATA ACQUISITION EXPLANATIONS

CHANNEL LRSYV1 FILTER CH. CLASS 180

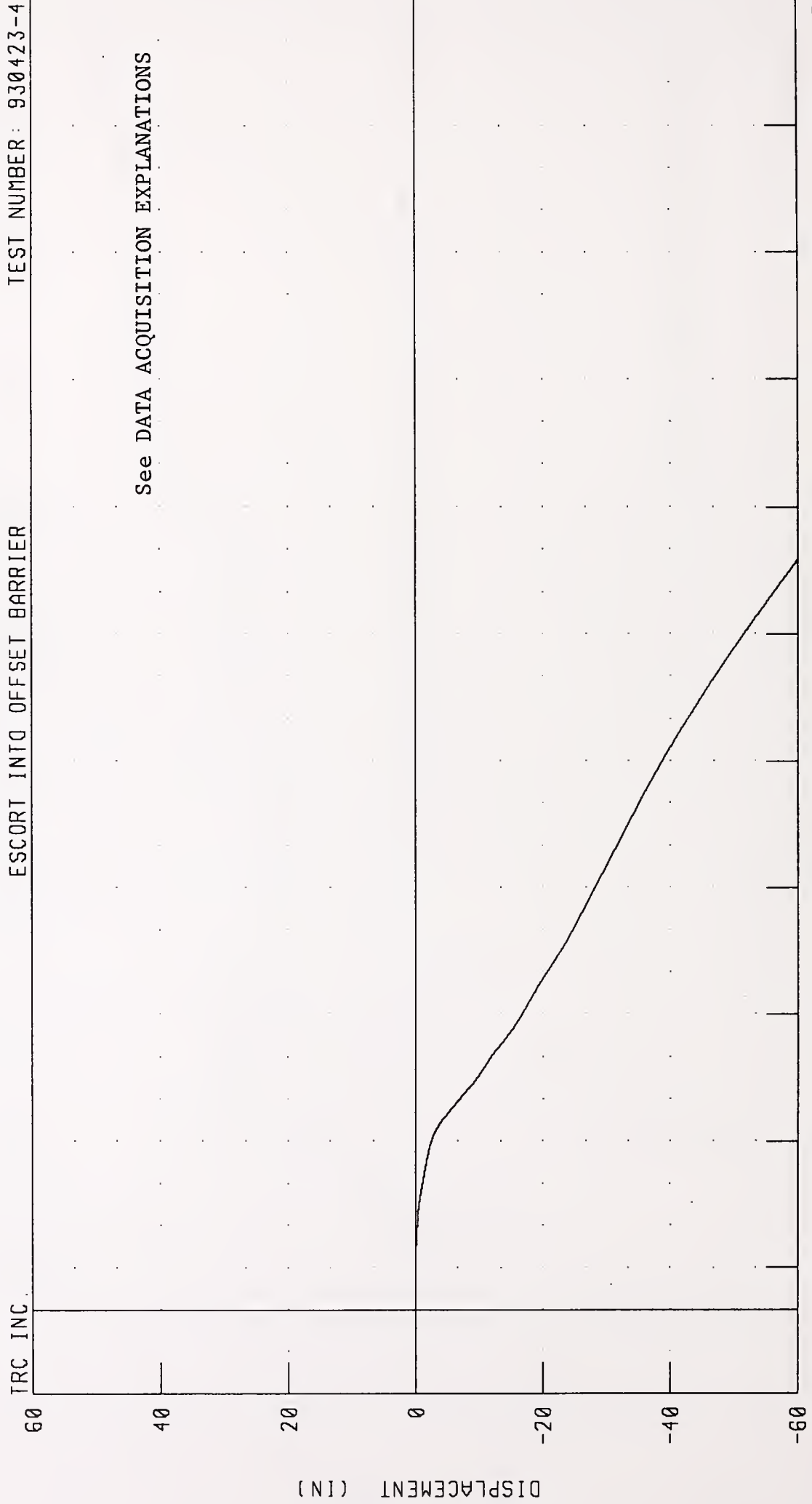
PEAK DATA 0.02 MPH @ 9.75 MS; -49.17 MPH @ 310.00 MS

1987 FORD ESCORT INTO 50% OFFSET BARRIER AT 35.1 MPH TEST NO 4

LEFT REAR SILL Y-AXIS DISPLACEMENT

ESCORT INTO OFFSET BARRIER

TEST NUMBER: 930423-4



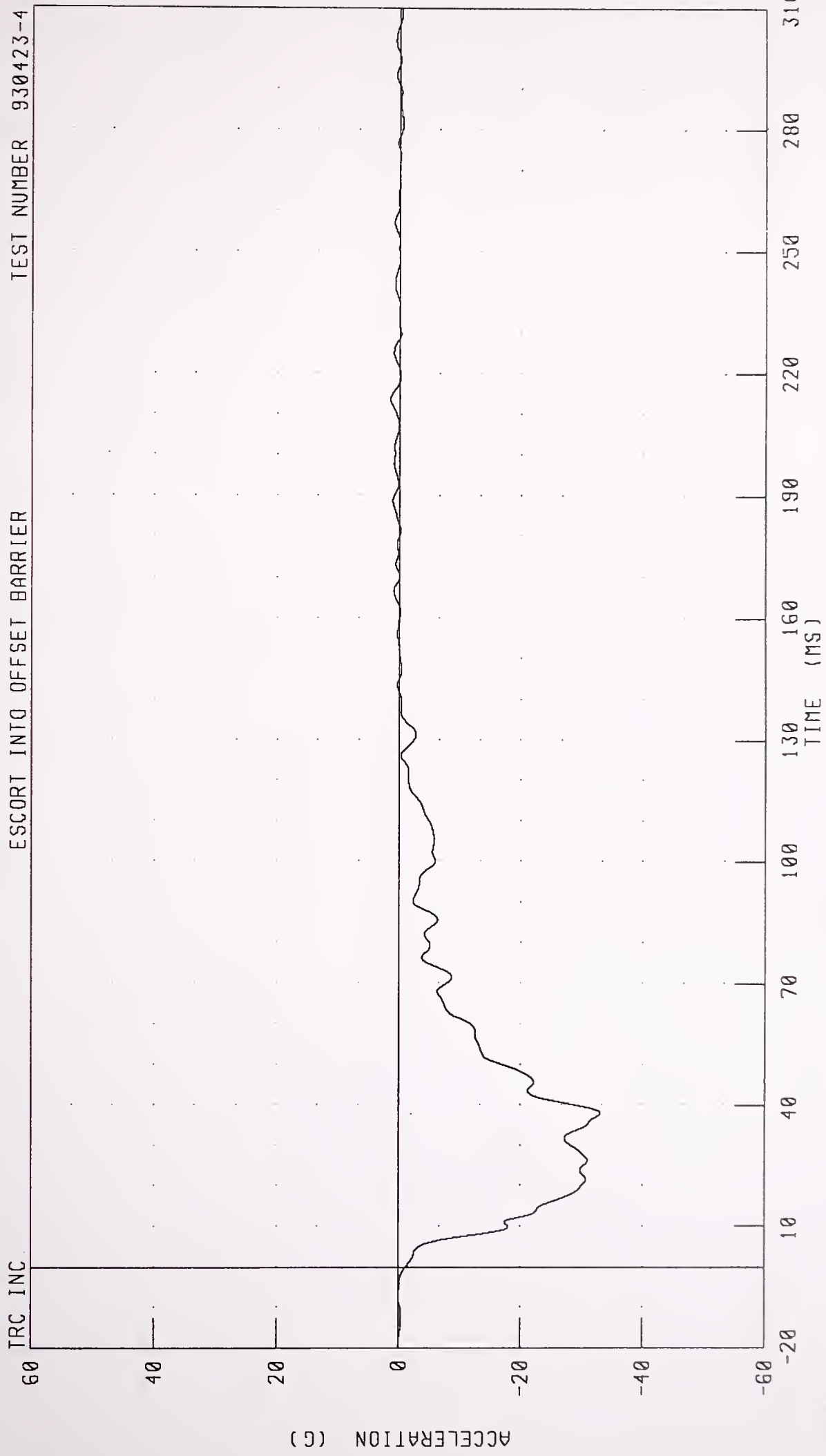
CHANNEL: LRSYD1 FILTER: CH. CLASS 180

PEAK DATA: 0.00 IN @ 2.00 MS, -151.26 IN @ 310.00 MS



1987 FORD ESCORT INTO 50% OFFSET BARRIER AT 35.1 MPH TEST NO. 4  
RIGHT REAR SILL X-AXIS ACCELERATION

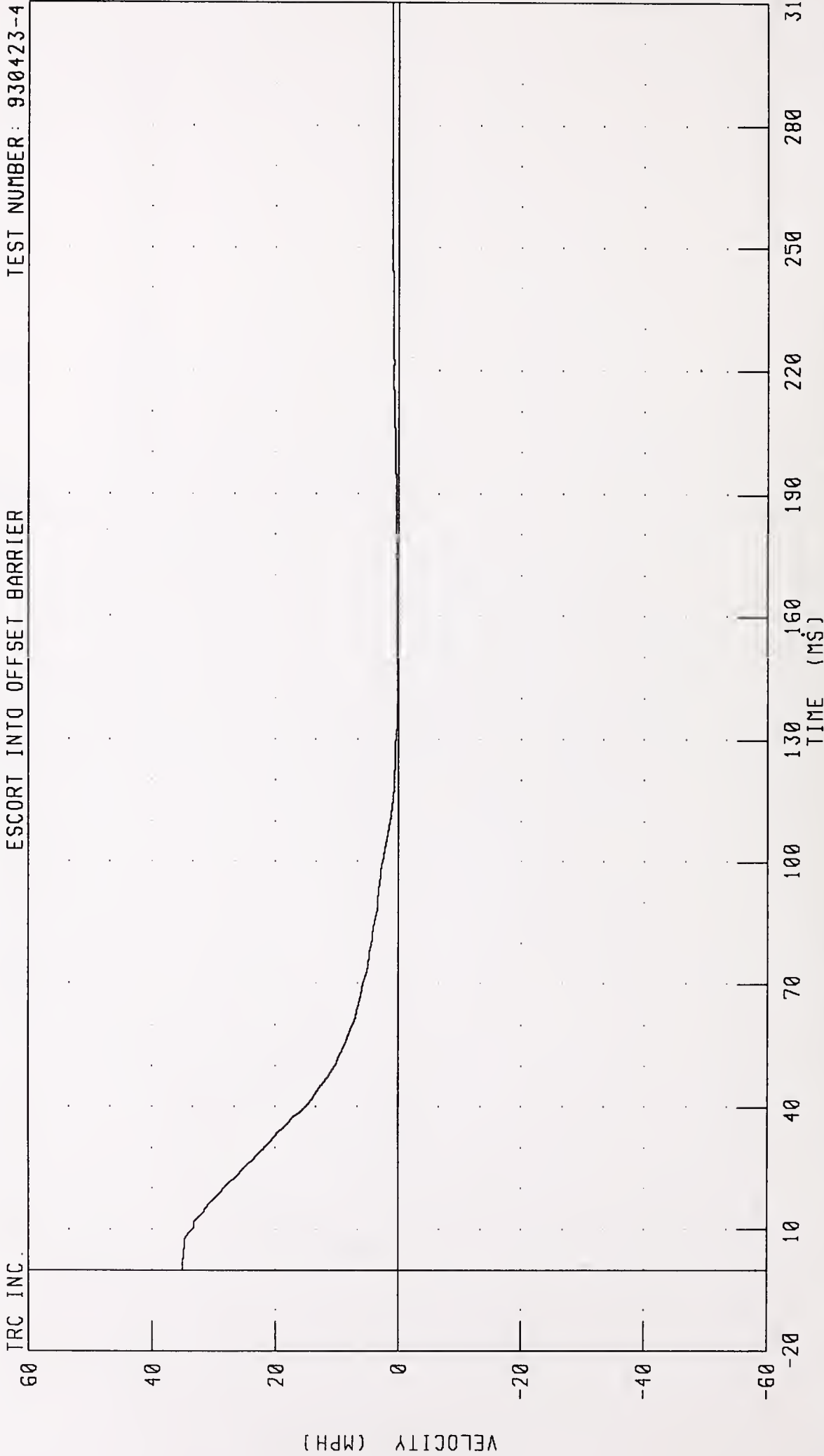
ESCORT INTO OFFSET BARRIER TEST NUMBER 930423-4



CHANNEL ARSXG1 FILTER CH. CLASS 60 PEAK DATA: 1.53 G @ 213.63 MS, -33.08 G @ 38.13 MS

1987 FORD ESCORT INTO 50% OFFSET BARRIER AT 35.1 MPH TEST NO 4  
RIGHT REAR SILL X-AXIS VELOCITY

TRC INC. ESCORT INTO OFFSET BARRIER TEST NUMBER: 930423-4

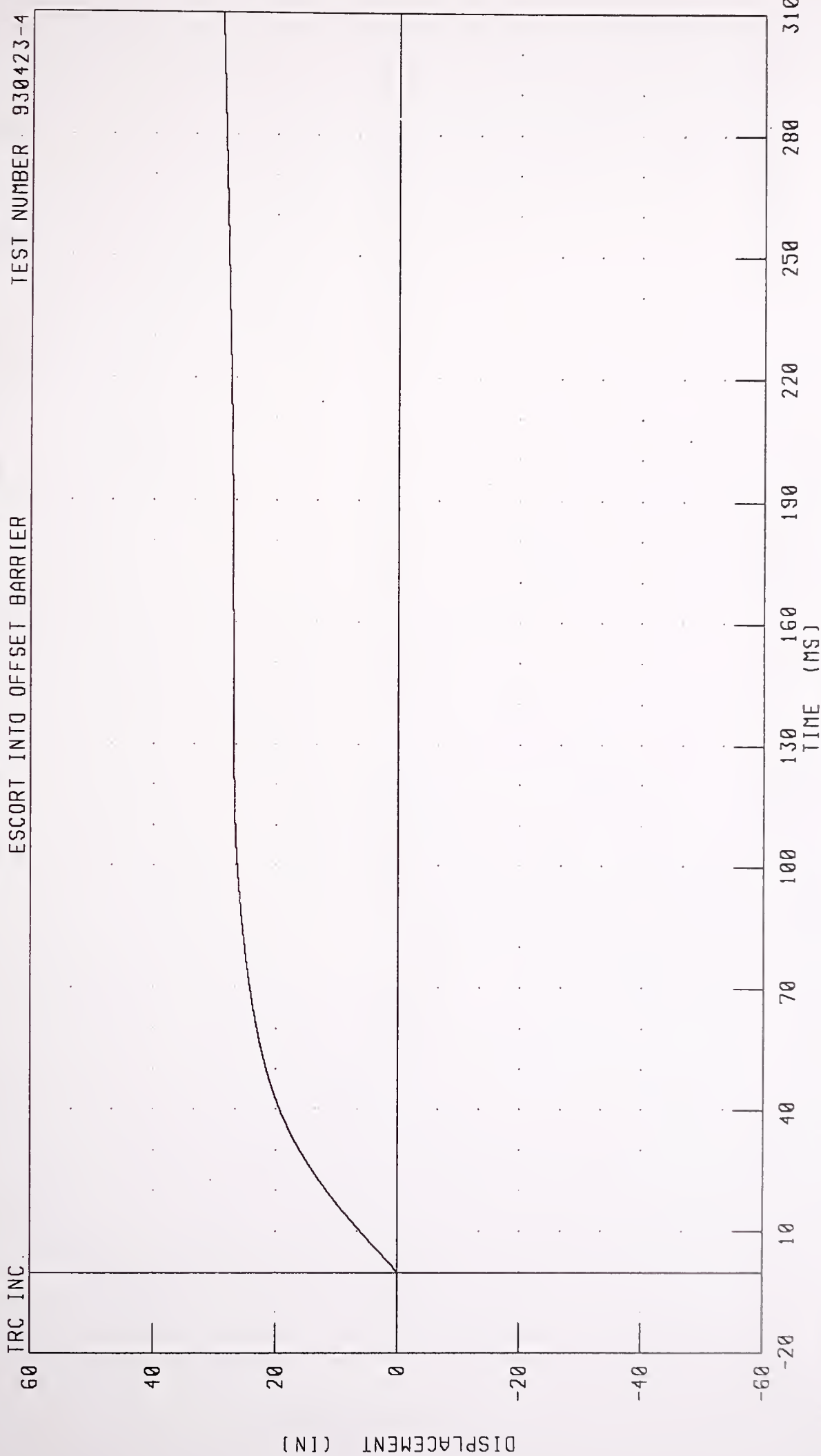


CHANNEL: RRSXV1 FILTER: CH. CLASS 180

PEAK DATA: 35.10 MPH @ 0.00 MS, 0.10 MPH @ 153.00 MS

1987 FORD ESCORT INTO 50% OFFSET BARRIER AT 35.1 MPH TEST NO 4  
RIGHT REAR SILL X-AXIS DISPLACEMENT

ESCORT INTO OFFSET BARRIER TEST NUMBER 930423-4

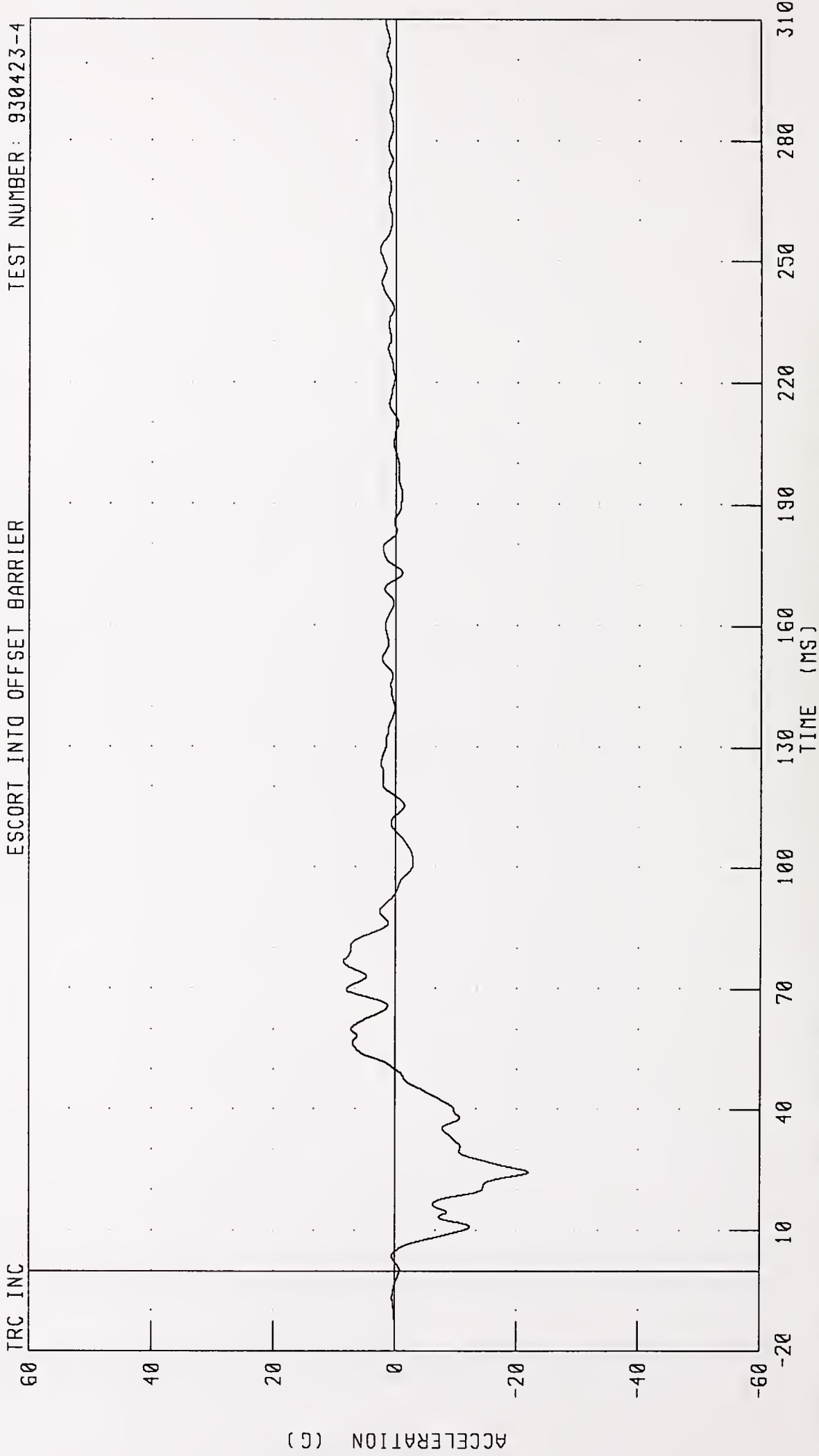


CHANNEL RRSXD1 FILTER CH CLASS 180

PEAK DATA: 28.99 IN @ 310.00 MS; 0 00 IN @ 0.00 MS

1987 FORD ESCORT INTO 50% OFFSET BARRIER AT 35.1 MPH TEST NO 4  
RIGHT REAR SILL Y-AXIS ACCELERATION

ESCORT INTO OFFSET BARRIER TEST NUMBER: 930423-4

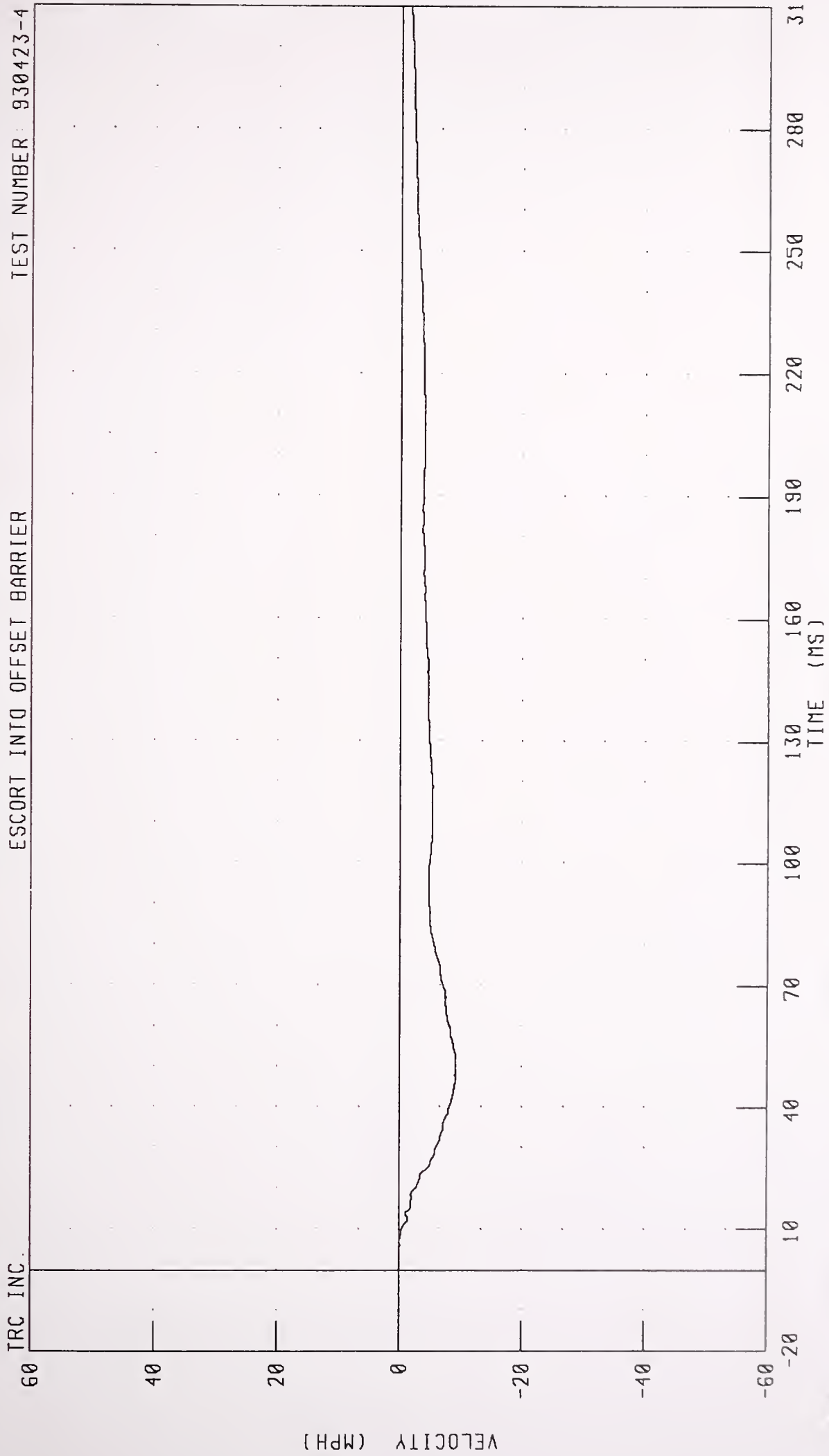


CHANNEL: RRSYG1 FILTER: CH. CLASS 60

PEAK DATA: 8.50 G @ 76.75 MS; -21.96 G @ 24.50 MS

1987 FORD ESCORT INTO 50% OFFSET BARRIER AT 35.1 MPH TEST NO. 4  
RIGHT REAR SILL Y-AXIS VELOCITY

TRC INC. ESCORT INTO OFFSET BARRIER TEST NUMBER: 930423-4

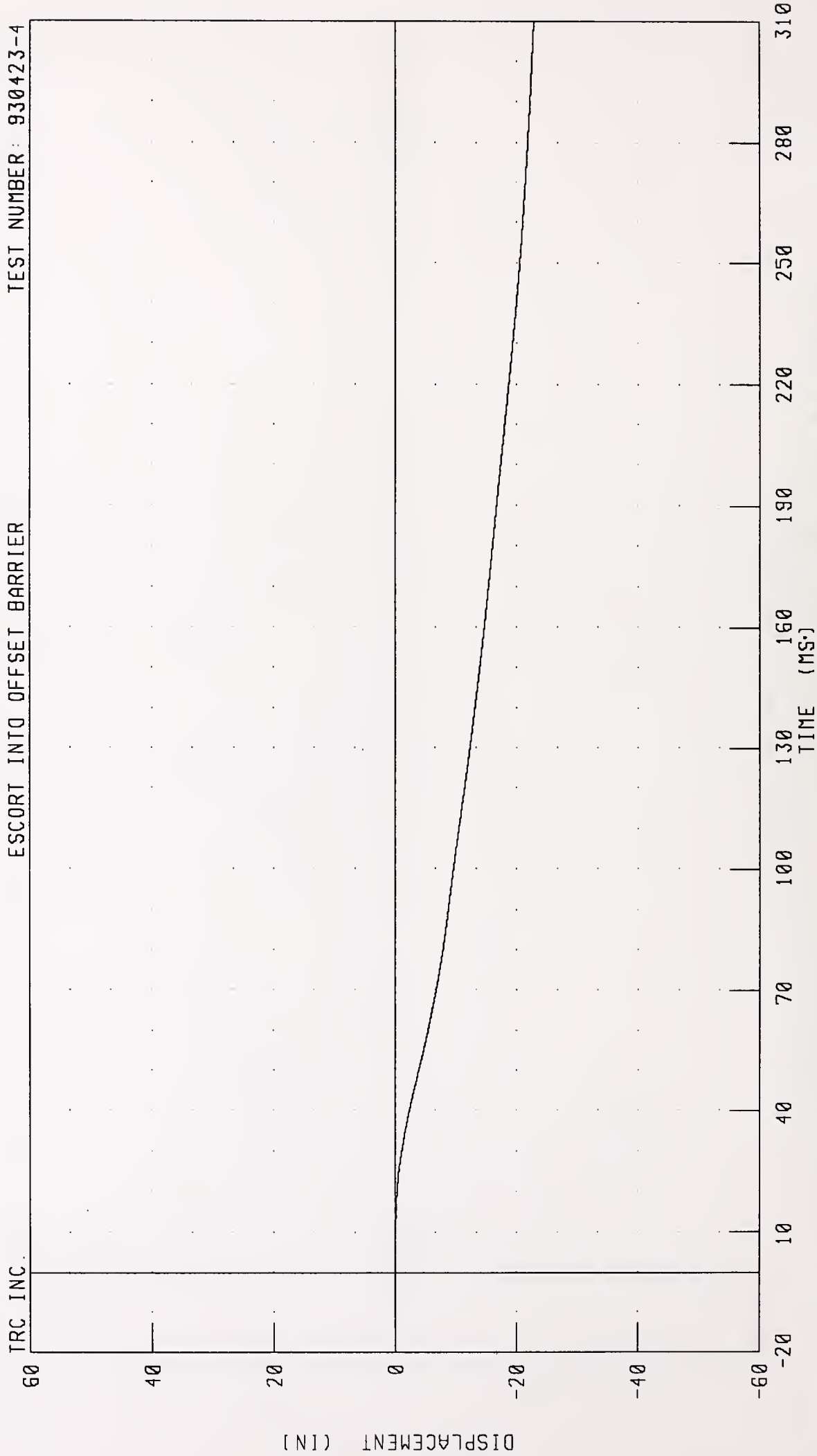


CHANNEL RRSYV1 FILTER CH CLASS 180

PEAK DATA 0 01 MPH @ 4.50 MS, -9.18 MPH @ 49.75 MS

1987 FORD ESCORT INTO 50% OFFSET BARRIER AT 35.1 MPH TEST NO. 4  
RIGHT REAR SILL Y-AXIS DISPLACEMENT

ESCORT INTO OFFSET BARRIER TEST NUMBER: 930423-4



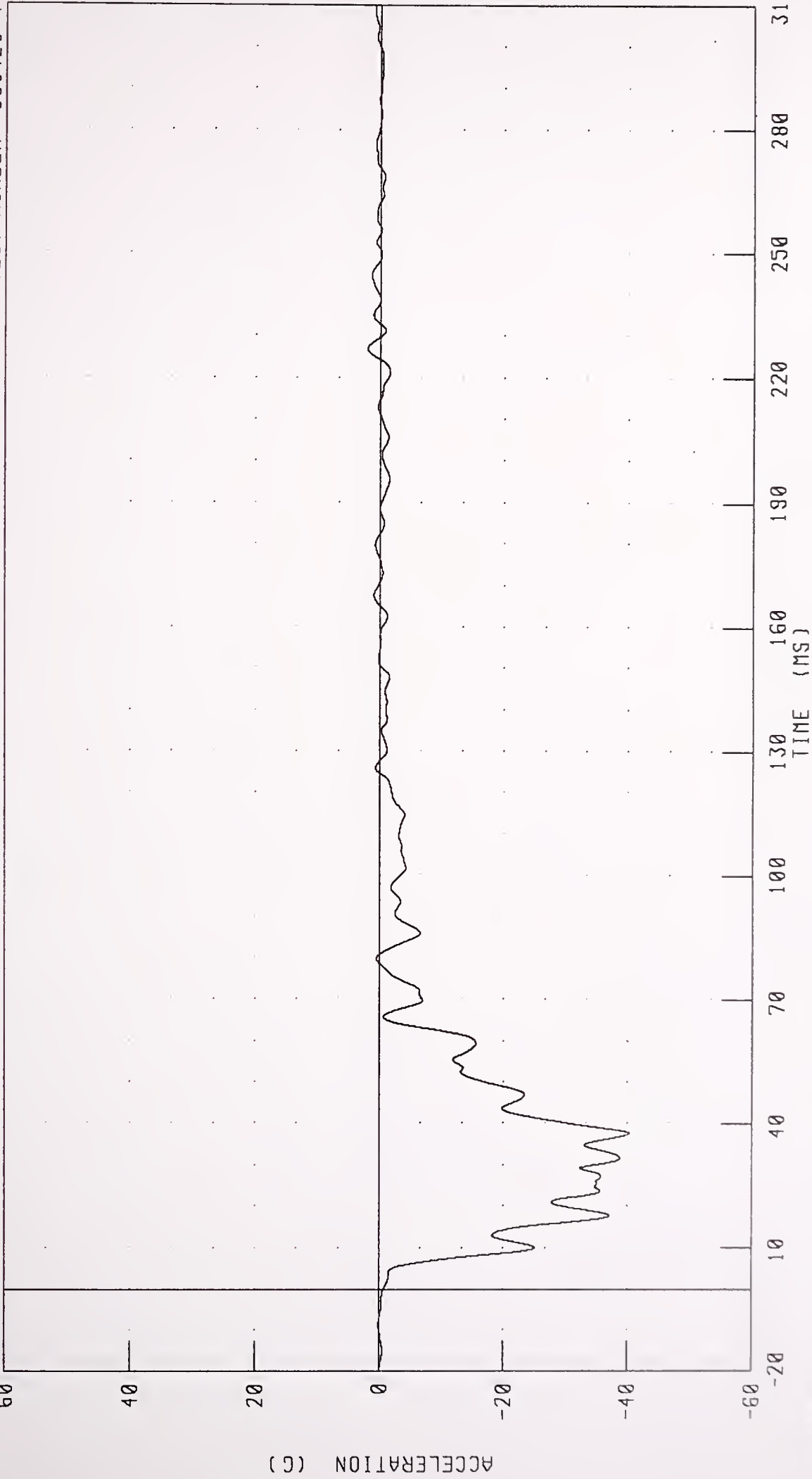
CHANNEL: RRSYD1 FILTER: CH. CLASS 180

PEAK DATA: 0.00 IN @ 0.00 MS; -22.83 IN @ 310.00 MS

1987 FORD ESCORT INTO 50% OFFSET BARRIER AT 35.1 MPH TEST NO. 4  
VEHICLE CENTER OF GRAVITY X-AXIS ACCELERATION

TEST NUMBER: 930423-4

TRC INC.

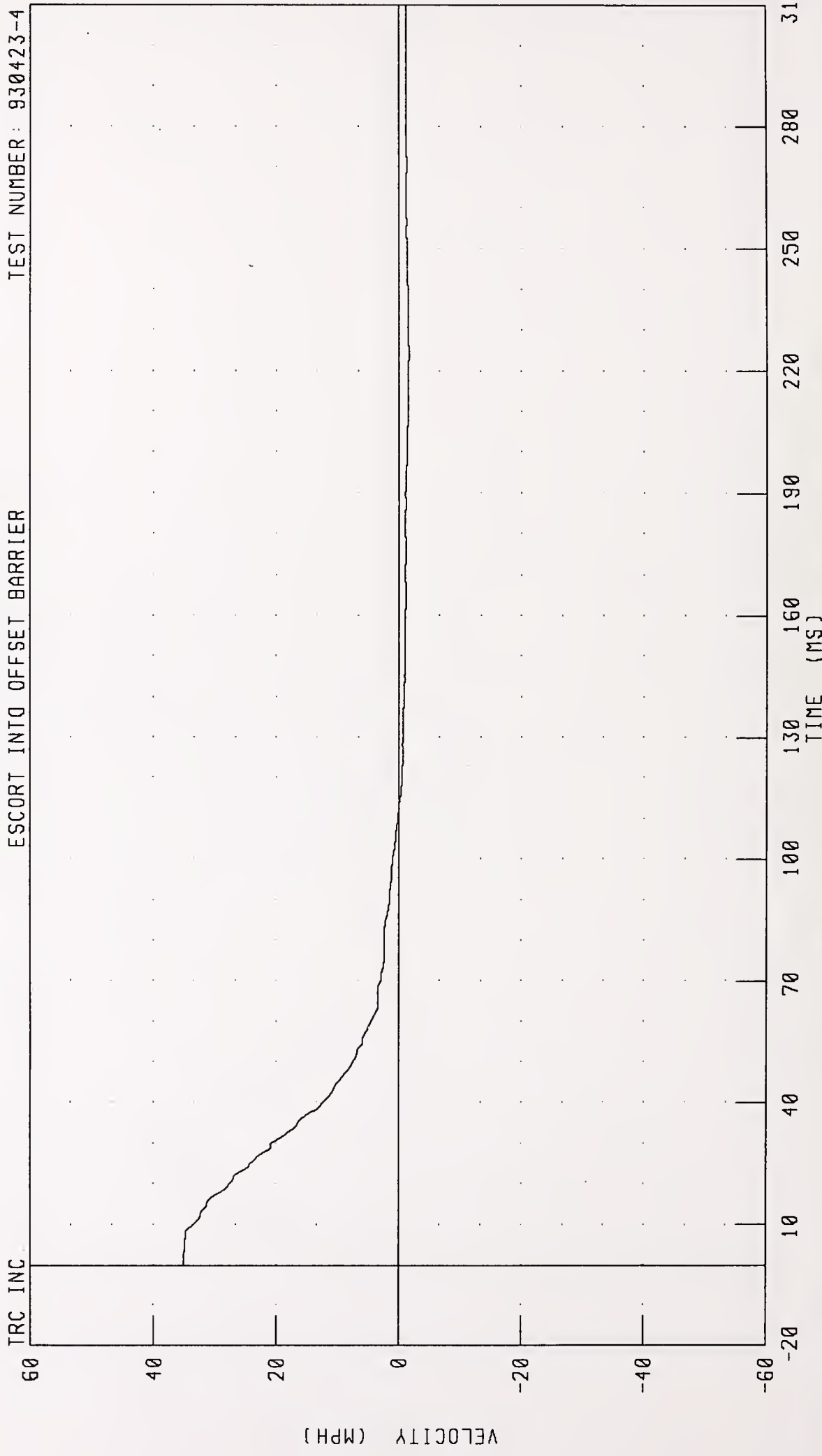


CHANNEL VCGXG1 FILTER CH CLASS 60

PEAK DATA: 2.03 G @ 227.00 MS, -40.30 G @ 37.63 MS

1987 FORD ESCORT INTO 50% OFFSET BARRIER AT 35.1 MPH TEST NO 4  
VEHICLE CENTER OF GRAVITY X-AXIS VELOCITY

ESCORT INTO OFFSET BARRIER TEST NUMBER: 930423-4

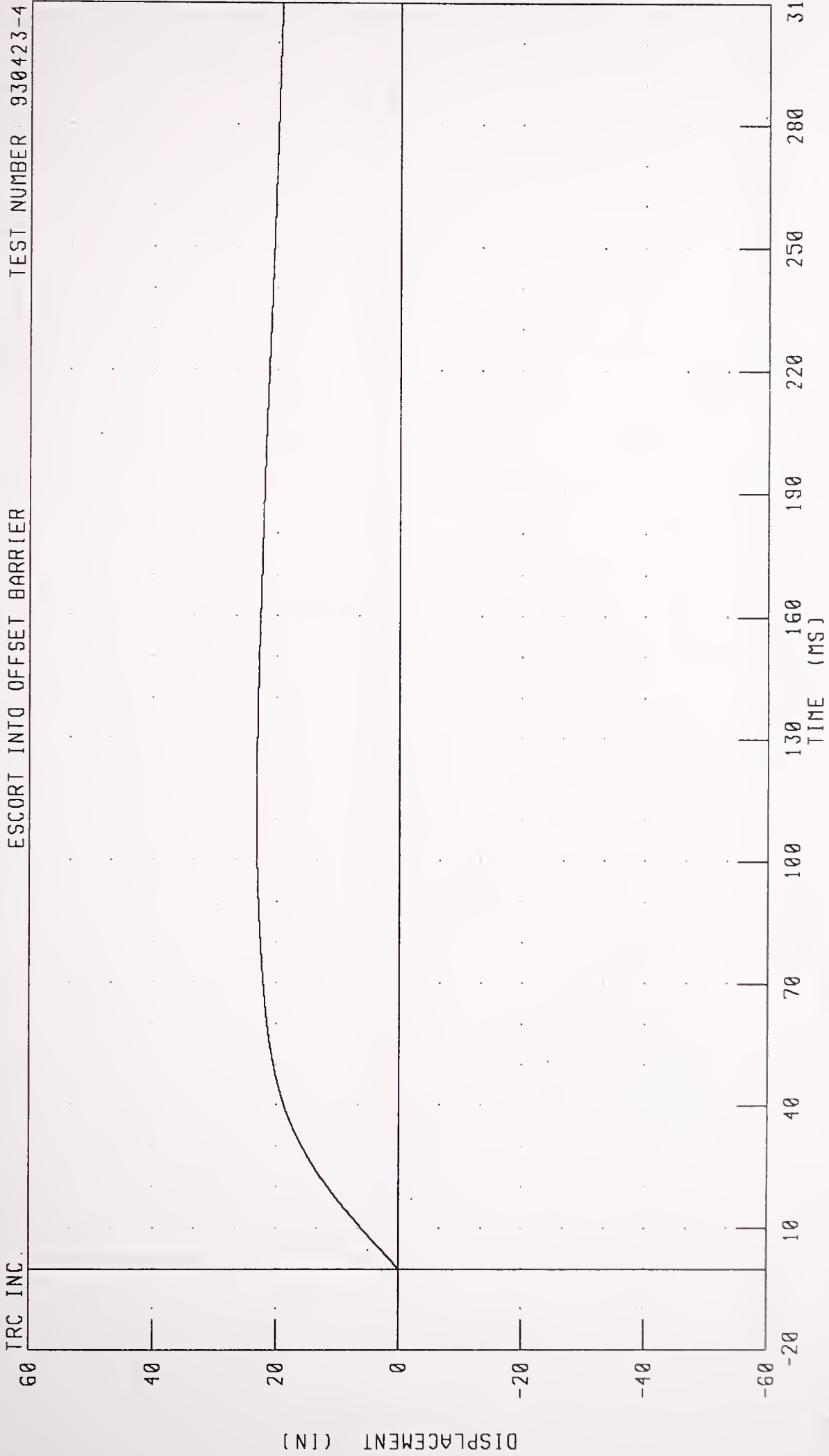


CHANNEL: VCGXV1 FILTER: CH. CLASS 180 PEAK DATA: 35.10 MPH @ 0.13 MS; -1.69 MPH @ 224.63 MS



1987 FORD ESCORT INTO 50% OFFSET BARRIER AT 35.1 MPH TEST NO 4  
VEHICLE CENTER OF GRAVITY X-AXIS DISPLACEMENT

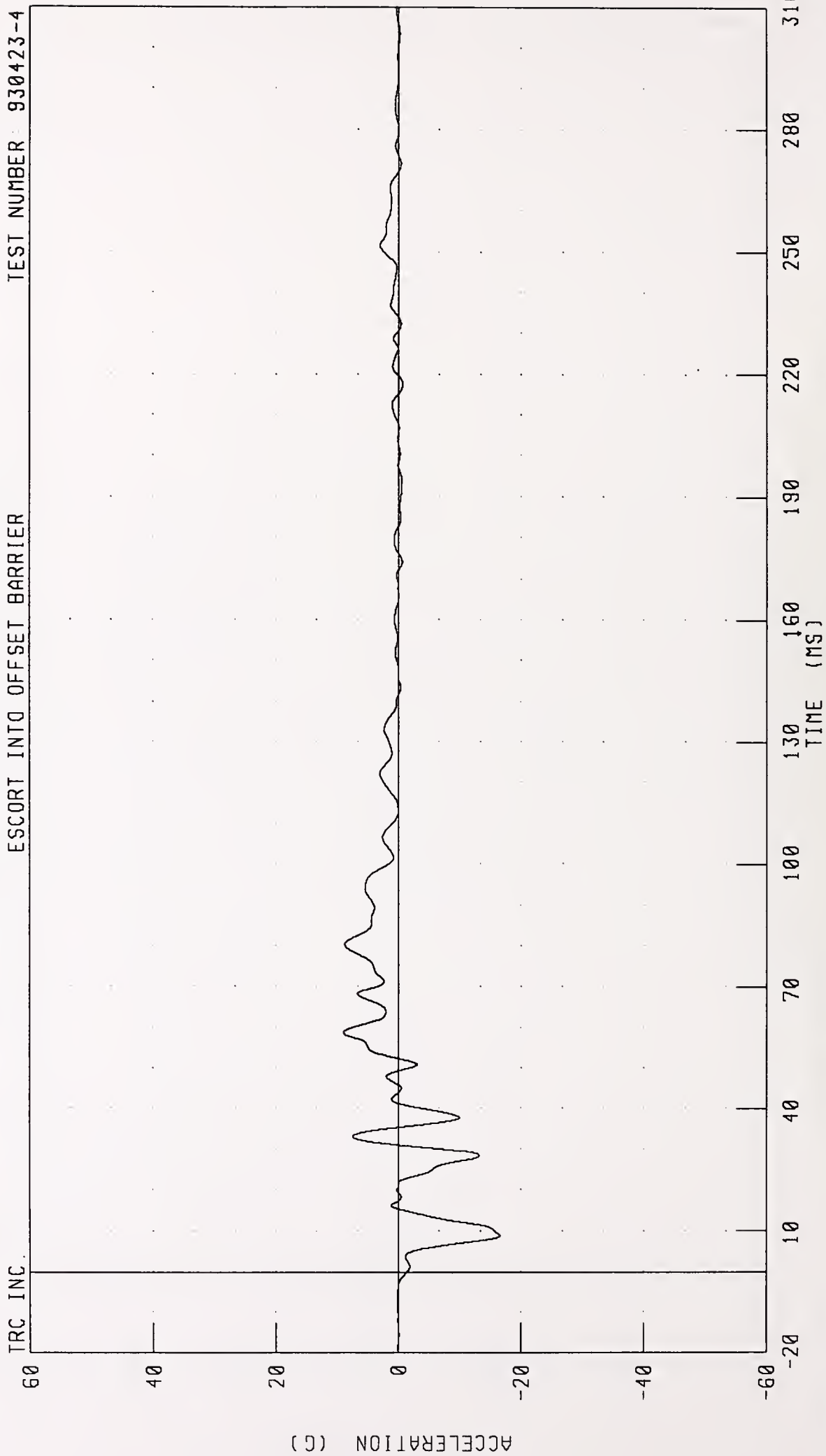
ESCORT INTO OFFSET BARRIER TEST NUMBER: 930423-4



CHANNEL VCGXD1 FILTER CH CLASS 180

PEAK DATA: 23.27 IN @ 112.88 MS, 0.00 IN @ 0.00 MS

1987 FORD ESCORT INTO 50% OFFSET BARRIER AT 35.1 MPH TEST NO 4  
VEHICLE CENTER OF GRAVITY Y-AXIS ACCELERATION  
ESCORT INTO OFFSET BARRIER TEST NUMBER 930423-4

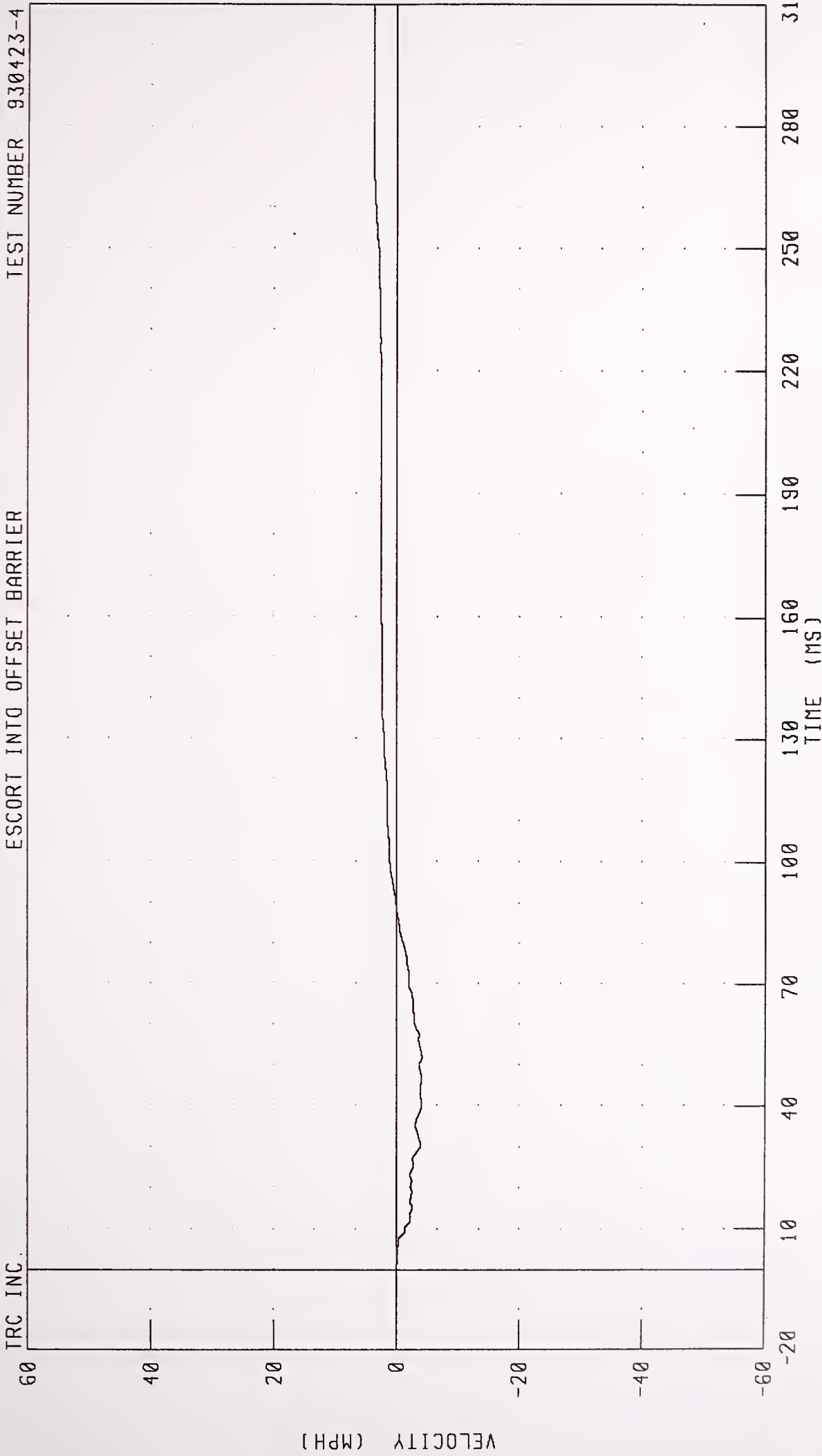


CHANNEL: VCGYG1 FILTER: CH. CLASS 60

PEAK DATA: 8.99 G @ 58.63 MS; -16.58 G @ 8.88 MS

1987 FORD ESCORT INTO 50% OFFSET BARRIER AT 35.1 MPH TEST NO. 4  
VEHICLE CENTER OF GRAVITY Y-AXIS VELOCITY

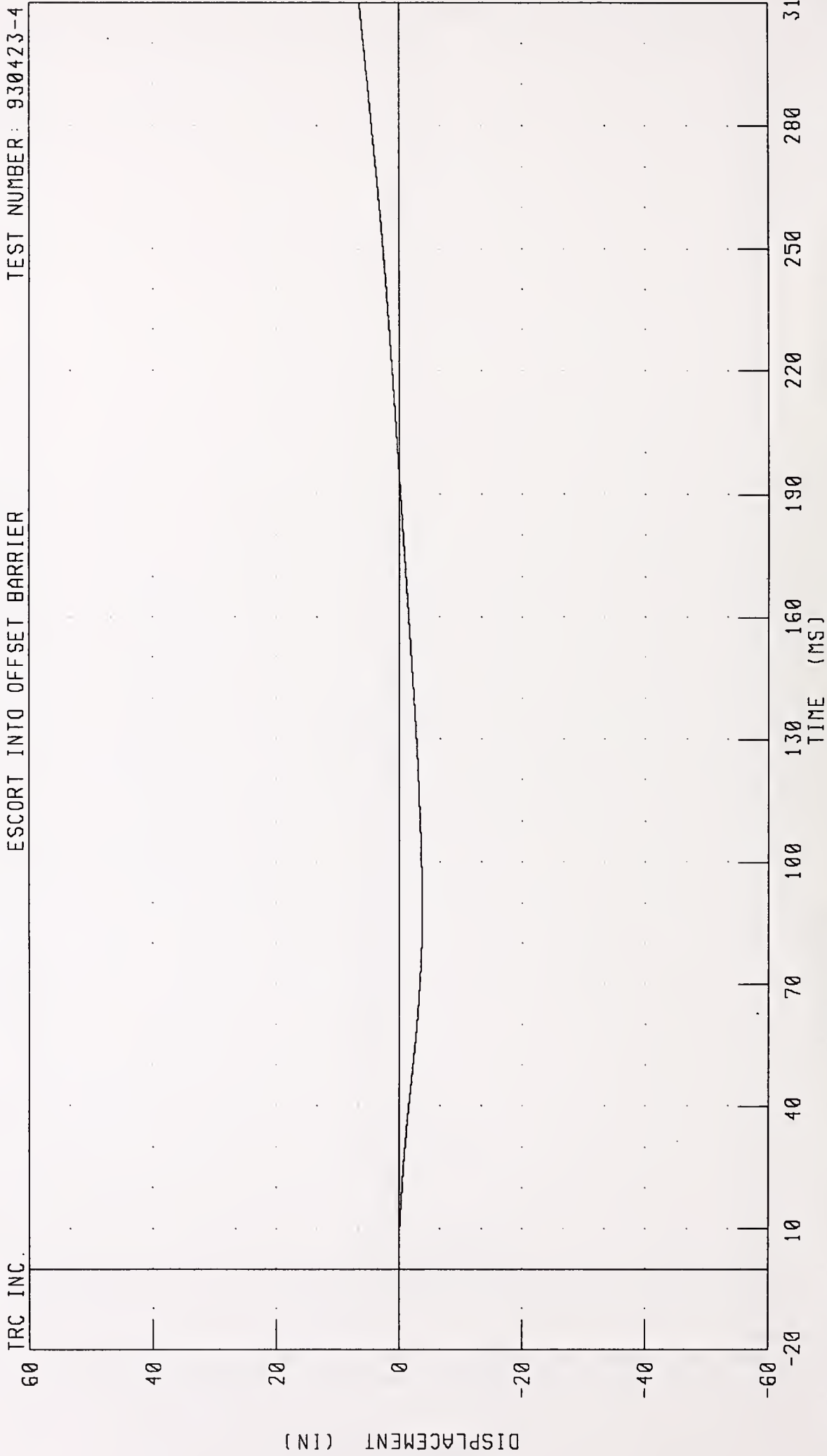
TRC INC. ESCORT INTO OFFSET BARRIER TEST NUMBER 930423-4



CHANNEL VCGYV1 FILTER: CH. CLASS 180 PEAK DATA: 3.81 MPH @ 310.00 MS, -4.15 MPH @ 51.75 MS

1987 FORD ESCORT INTO 50% OFFSET BARRIER AT 35.1 MPH TEST NO. 4  
VEHICLE CENTER OF GRAVITY Y-AXIS DISPLACEMENT

ESCORT INTO OFFSET BARRIER TEST NUMBER: 930423-4



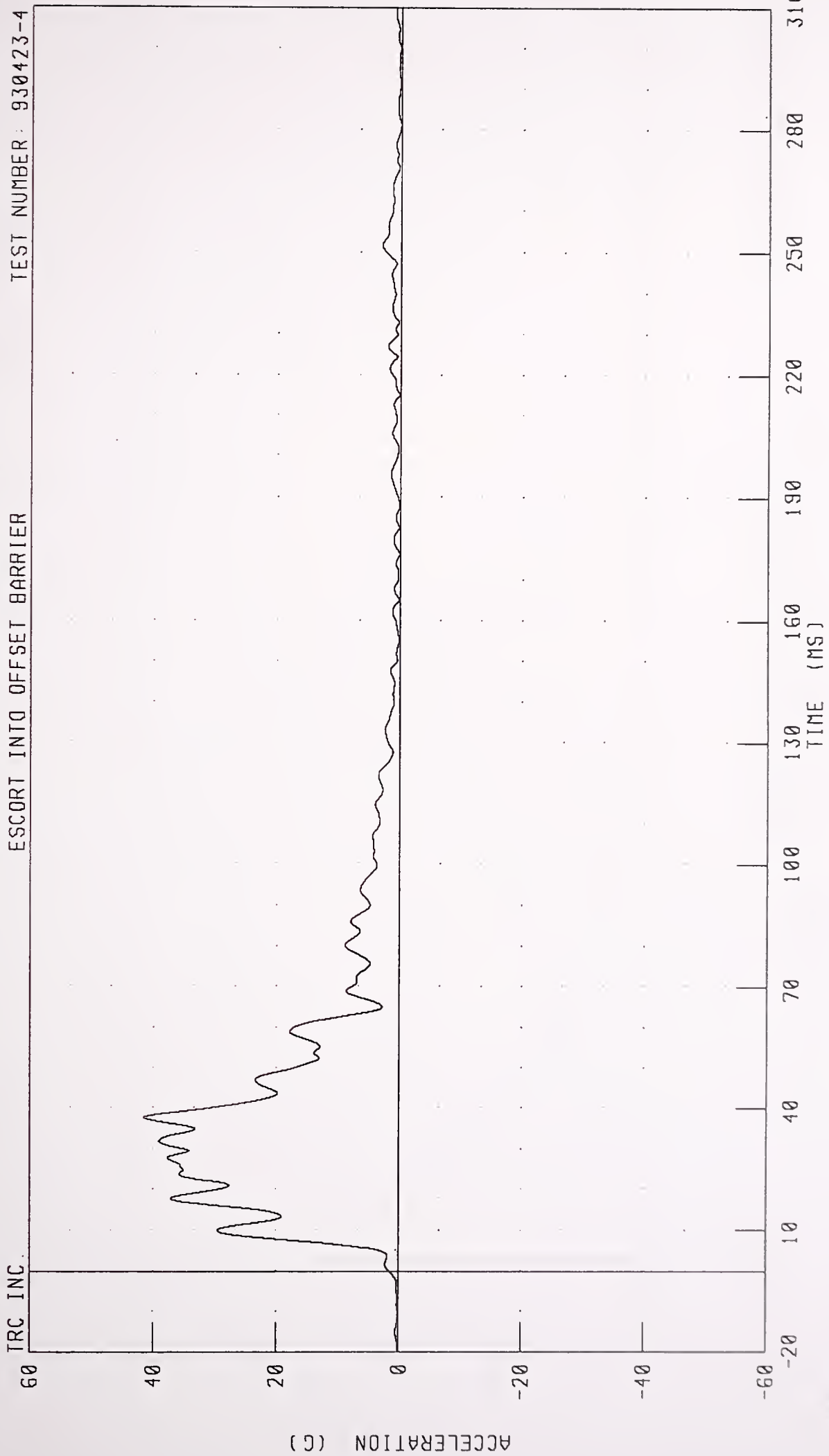
CHANNEL: VCGYD1 FILTER: CH. CLASS 180

PEAK DATA: 6.46 IN @ 310.00 MS; -3.72 IN @ 88.50 MS

1987 FORD ESCORT INTO 50% OFFSET BARRIER AT 35.1 MPH TEST NO. 4  
VEHICLE CENTER OF GRAVITY RESULTANT ACCELERATION

TEST NUMBER: 930423-4

ESCORT INTO OFFSET BARRIER



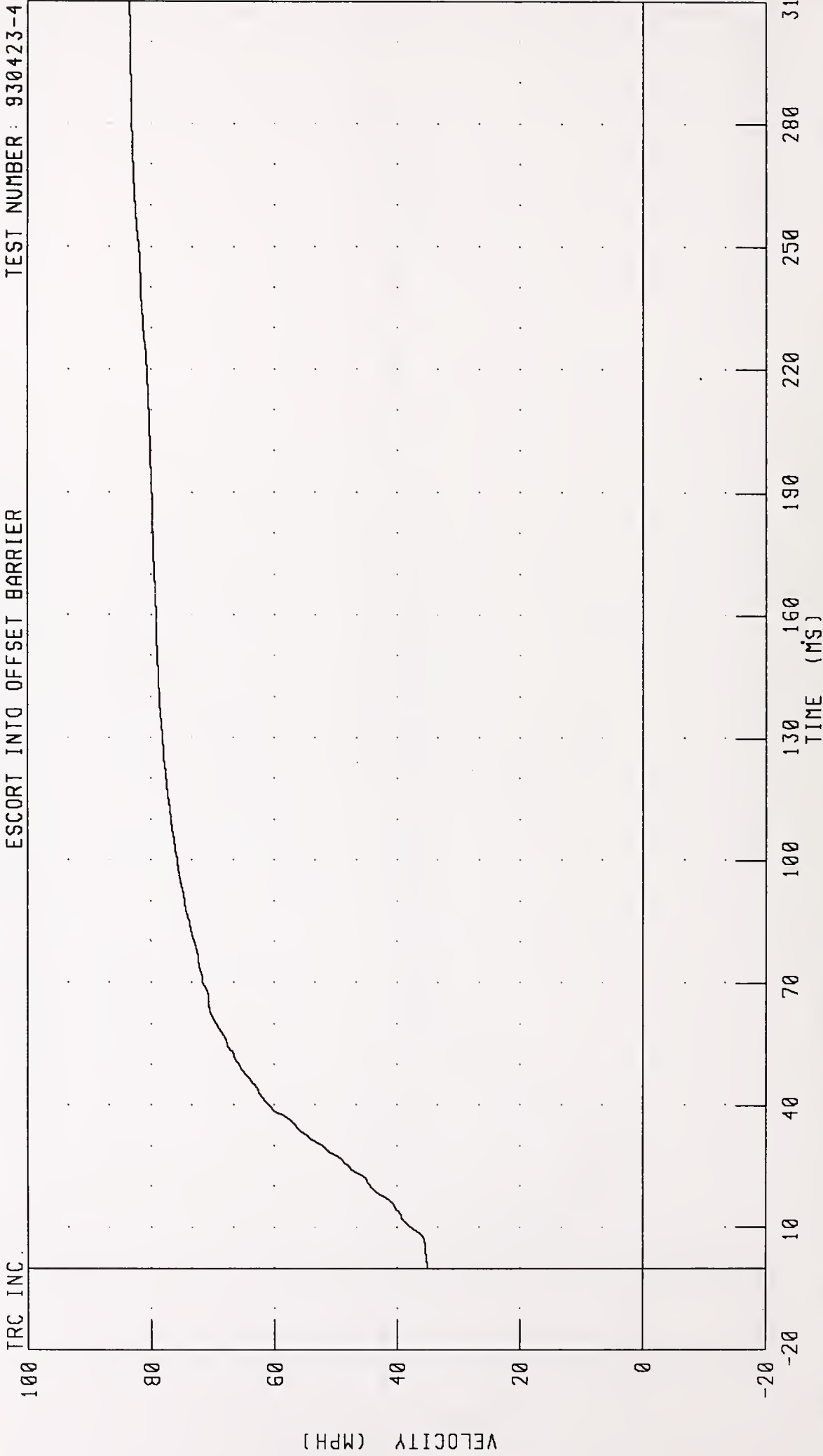
CHANNEL VCGRG1 FILTER CH CLASS 60

PEAK DATA: 41 49 G @ 37 63 MS, 0 03 G @ 299.88 MS

1987 FORD ESCORT INTO 50% OFFSET BARRIER AT 35.1 MPH TEST NO. 4  
VEHICLE CENTER OF GRAVITY RESULTANT VELOCITY

TEST NUMBER: 930423-4

ESCORT INTO OFFSET BARRIER



CHANNEL: VCGRV1 FILTER: CH. CLASS 180

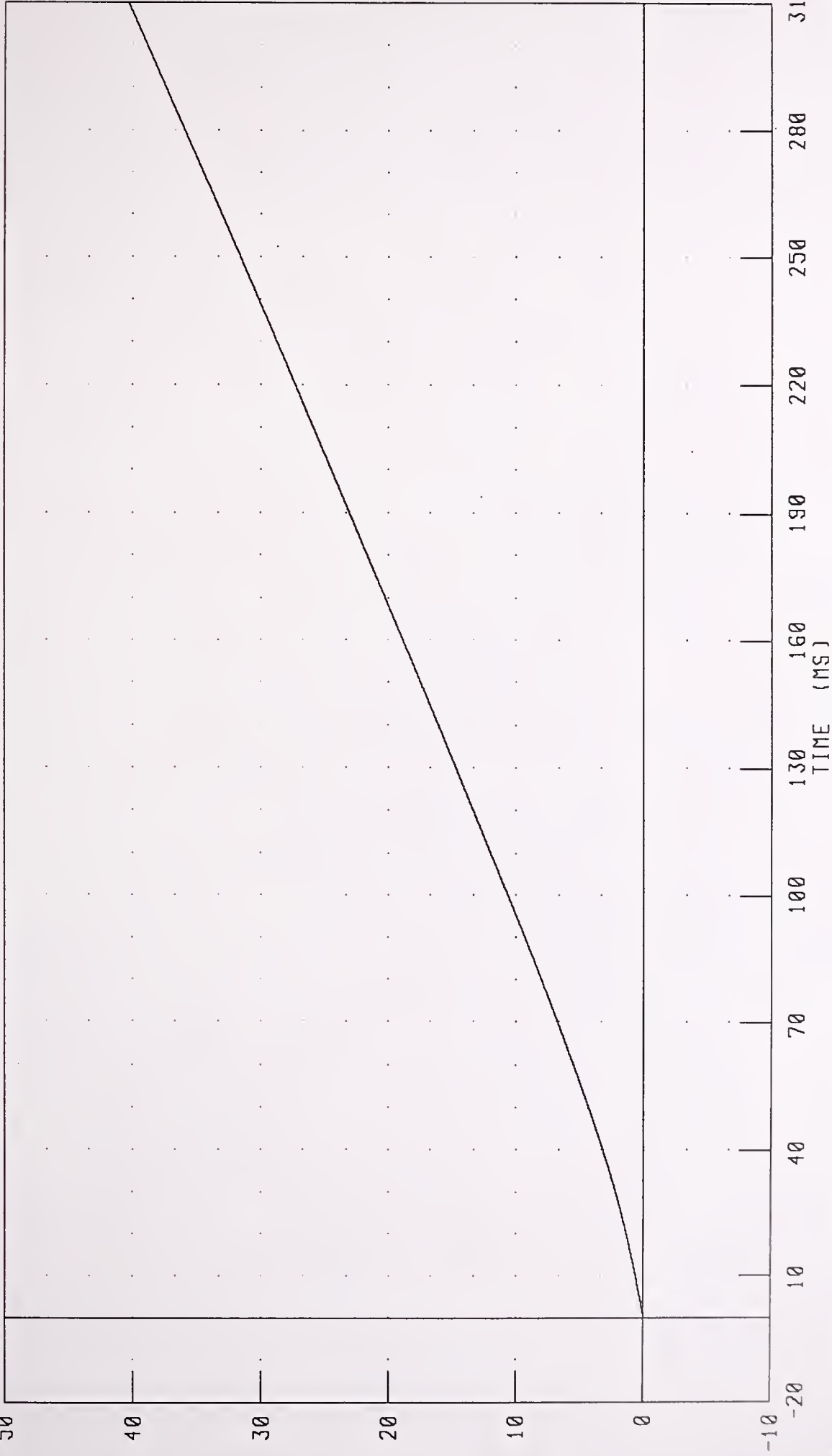
PEAK DATA: 83.53 MPH @ 310.00 MS; 35.10 MPH @ 0.00 MS

1987 FORD ESCORT INTO 50% OFFSET BARRIER AT 35.1 MPH TEST NO. 4  
VEHICLE CENTER OF GRAVITY RESULTANT DISPLACEMENT

TEST NUMBER: 930423-4

ESCORT INTO OFFSET BARRIER

TRC INC.



CHANNEL VCGRD1 FILTER: CH. CLASS 180

PEAK DATA: 403.56 IN @ 310.00 MS, 0.00 IN @ 0.00 MS





APPENDIX C

MISCELLANEOUS TEST INFORMATION



VEHICLE ACCELEROMETER INFORMATION

NO.	LOCATION	AXIS	MFR	MODEL	S/N	ORIENTATION (+ SENSING)
1	LEFT REAR SILL	X	ENDEVCO	2264	AS06	FRONT
	LEFT REAR SILL	Y	ENDEVCO	2264	AU09	RIGHT
2	RIGHT REAR SILL	X	ENDEVCO	2264	AR38	FRONT
	RIGHT REAR SILL	Y	ENDEVCO	2264	AY66	LEFT
3	VEHICLE CENTER OF GRAVITY	X	ENDEVCO	2264	AR49	FRONT
	VEHICLE CENTER OF GRAVITY	Y	ENDEVCO	2264	BA68	LEFT



SIGN CONVENTION

ALL DUMMY, BARRIER AND VEHICLE CHANNELS:

+X: FORWARD

+Y: LEFTWARD

+Z: UPWARD

+FORCE: TENSION











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