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

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DOT HS 808 230

June 1994

Final Report

# **Final Report of a 1987 Ford Taurus into a 30.5 CM Diameter Pole Barrier in Support of Crash3 Damage Algorithm Reformulation**

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16. Abstract Five (5) 30.5cm pole 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 Taurus 4-door sedan, VIN 1FABP52U9HA186554 at Transportation Research Center Inc. on May 9, 1994. The following five tests were conducted on the vehicle:																																			
<table border="1"> <thead> <tr> <th>TEST NO.</th> <th>DATE</th> <th>TIME</th> <th>SPEED (KPH)</th> <th>MAXIMUM CUMULATIVE CRUSH (MM)</th> </tr> </thead> <tbody> <tr> <td>940509-1</td> <td>05/09/94</td> <td>1016</td> <td>7.9</td> <td>57</td> </tr> <tr> <td>940509-2</td> <td>05/09/94</td> <td>1114</td> <td>15.9</td> <td>373</td> </tr> <tr> <td>940509-3</td> <td>05/09/94</td> <td>1317</td> <td>15.9</td> <td>462</td> </tr> <tr> <td>940509-4</td> <td>05/09/94</td> <td>1446</td> <td>32.0</td> <td>659</td> </tr> <tr> <td>940509-5</td> <td>05/09/94</td> <td>1604</td> <td>56.2</td> <td>1073</td> </tr> </tbody> </table>						TEST NO.	DATE	TIME	SPEED (KPH)	MAXIMUM CUMULATIVE CRUSH (MM)	940509-1	05/09/94	1016	7.9	57	940509-2	05/09/94	1114	15.9	373	940509-3	05/09/94	1317	15.9	462	940509-4	05/09/94	1446	32.0	659	940509-5	05/09/94	1604	56.2	1073
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17. Key Words 30.5 CM Pole Barrier Impact Tests CRASH3 Damage Algorithm Reformulation			18. Distribution Statement Document is available to the public from the National Technical Information Service, Springfield, VA 22161																																
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# METRIC CONVERSION FACTORS

## Approximate Conversions to Metric Measures

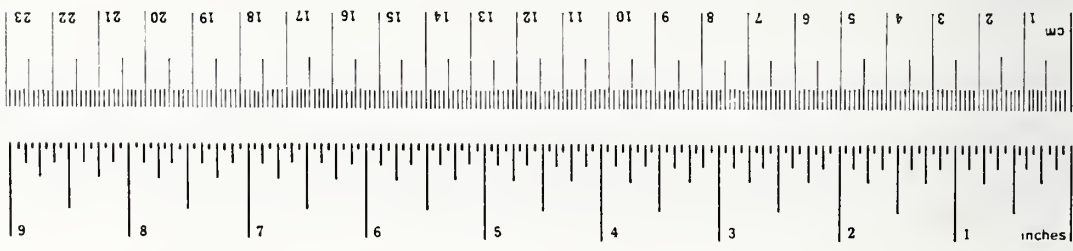
Symbol	When You Know	Multiply by	To Find	Symbol
<b>LENGTH</b>				
in	inches	*2.5	centimeters	cm
ft	feet	30	centimeters	cm
yd	yards	0.9	meters	m
mi	miles	1.6	kilometers	km
<b>AREA</b>				
m <sup>2</sup>	square inches	6.5	square centimeters	cm <sup>2</sup>
ft <sup>2</sup>	square feet	0.09	square meters	m <sup>2</sup>
yd <sup>2</sup>	square yards	0.8	square meters	m <sup>2</sup>
mi <sup>2</sup>	square miles	2.6	square kilometers	km <sup>2</sup>
	acres	0.4	hectares	ha
<b>MASS (weight)</b>				
oz	ounces	28	grams	g
lb	pounds	0.45	kilograms	kg
	short tons	0.9	tonnes	t
	(2000 lb)			
<b>VOLUME</b>				
tsp	teaspoons	5	milliliters	ml
Tbsp	tablespoons	15	milliliters	ml
fl oz	fluid ounces	30	milliliters	ml
c	Cups	0.24	liters	l
pt	pints	0.47	liters	l
qt	quarts	0.95	liters	l
gal	gallons	3.8	liters	l
ft <sup>3</sup>	Cubic feet	0.03	Cubic meters	m <sup>3</sup>
yd <sup>3</sup>	Cubic yards	0.76	Cubic meters	m <sup>3</sup>

### TEMPERATURE (exact)

°F	Fahrenheit temperature	5/9 (after subtracting 32)	°C	Celsius temperature
----	------------------------	----------------------------	----	---------------------

## Approximate Conversions from Metric Measures

Symbol	When You Know	Multiply by	To Find	Symbol
<b>LENGTH</b>				
mm	millimeters	0.04	inches	in
cm	centimeters	0.4	inches	in
m	meters	3.3	feet	ft
m	meters	1.1	yards	yd
km	kilometers	0.6	miles	mi
<b>AREA</b>				
cm <sup>2</sup>	square centimeters	0.16	square inches	in <sup>2</sup>
m <sup>2</sup>	square meters	1.2	square yards	yd <sup>2</sup>
km <sup>2</sup>	square kilometers	0.4	square miles	mi <sup>2</sup>
ha	hectares (10,000 m <sup>2</sup> )	2.5	acres	
<b>MASS (weight)</b>				
g	grams	0.035	ounces	oz
kg	kilograms	2.2	pounds	lb
t	tonnes (1000 kg)	1.1	short tons	
<b>VOLUME</b>				
ml	milliliters	0.03	fluid ounces	fl oz
l	liters	2.1	pints	pt
l	liters	1.06	quarts	qt
l	liters	0.26	gallons	gal
m <sup>3</sup>	Cubic meters	35	Cubic feet	ft <sup>3</sup>
m <sup>3</sup>	Cubic meters	1.3	Cubic yards	yd <sup>3</sup>
<b>TEMPERATURE (exact)</b>				
°C	Celsius temperature	9/5 (then add 32)	Fahrenheit temperature	°F



\* Unit 2-254 (rev. 10-11). For other exact conversions and more detailed tables, see BHS Mass., Prod. 286, Units of Weights and Measures, Price \$2.25, SO Catalog No. C13,10,286.

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## SECTION 1.0

### PURPOSE AND TEST PROCEDURE

The purpose of the five (5) 30.5 cm diameter pole barrier impact tests was for research and development in support of the CRASH3 damage algorithm reformulation.

The 1987 Ford Taurus was equipped with a 3-liter, 6-cylinder, transverse, gasoline engine with a 3-speed automatic transmission. The test weight of the vehicle was 1619 kilograms.

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

Each crash test event was recorded by three (3) 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/Taurus                      VIN: 1FABP52U9HA186554

BODY STYLE: 4-door sedan                      MODEL YEAR: 1987

COLOR: Blue

ENGINE DATA: TYPE: transverse    CYLINDERS: 6    DISPLACEMENT: 3-liter

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

DATE VEHICLE RECEIVED: 05/04/94              ODOMETER READING: 83,888

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	No	TELESCOPING STEERING WHEEL	No
TINTED GLASS	Yes	AIR CONDITIONING	Yes
RADIO	Yes	ANTI-SKID BRAKE	No
CLOCK	Yes	REAR WINDOW DEFROSTER	No
OTHER	None		

REMARKS:

1. IS THE VEHICLE STOCK THROUGHOUT? Yes
2. DOES VEHICLE SHOW EVIDENCE OF PRIOR ACCIDENT HISTORY? 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: 02/87    VIN: 1FABP52U9HA186554

GVWR: 4595 LBS.

GAWR: FRONT: 2507 LBS., REAR: 2133 LBS.

TABLE 1 TEST VEHICLE INFORMATION, CONT'D.

TIRES ON VEHICLE (MFR., LINE, SIZE): Uniroyal, Tiger Paw, P195/70R14

TIRE PRESSURE WITH MAXIMUM CAPACITY VEHICLE LOAD: FRONT: 241 kPa  
REAR: 241 kPa

SPARE TIRE (MFR., LINE, SIZE): Michelin T-135/80R14

TYPE OF SEATS: FRONT: Split bench  
REAR: Bench

TYPE OF FRONT SEAT BACKS: Manually-adjustable

MAXIMUM WIDTH: 1813 mm

WHEELBASE: 2690 mm

LOCATION OF LABEL STATING TIRE DATA:

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

TIRE & CAPACITY DATA FROM VEHICLE'S LABEL:

RECOMMENDED TIRE SIZE: P195/70R14

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

DESIGNATED SEATING CAPACITY: 3 FRONT 3 REAR 6 TOTAL

VEHICLE CAPACITY WEIGHT: 1100 LBS.

TEST VEHICLE ATTITUDE (ALL MEASUREMENTS ARE IN MILLIMETERS):

DELIVERED ATTITUDE: LF 700, RF 700, LR 642, RR 653

PRE-TEST ATTITUDE<sup>1</sup>: LF 745, RF 765, LR 688, RR 709

<sup>1</sup>Pre-test attitude measured with third axle installed.

TABLE 1 TEST VEHICLE INFORMATION, CONT'D.

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

RIGHT FRONT	452 KG	RIGHT REAR	232 KG
LEFT FRONT	449 KG	LEFT REAR	240 KG
TOTAL FRONT WEIGHT	901 KG	(65.6% OF TOTAL VEHICLE WEIGHT)	
TOTAL REAR WEIGHT	472 KG	(34.4% OF TOTAL VEHICLE WEIGHT)	
TOTAL DELIVERED WEIGHT	1373 KG		

WEIGHT OF TEST VEHICLE<sup>1</sup>:

RIGHT FRONT <sup>2</sup>	709 KG	RIGHT REAR	86 KG
LEFT FRONT <sup>2</sup>	679 KG	LEFT REAR	145 KG
TOTAL FRONT WEIGHT <sup>2</sup>	1388 KG	(85.7% OF TOTAL VEHICLE WEIGHT)	
TOTAL REAR WEIGHT	231 KG	(14.3% OF TOTAL VEHICLE WEIGHT)	
TOTAL TEST WEIGHT <sup>1</sup>	1619 KG		

WEIGHT OF BALLAST SECURED IN VEHICLE CARGO AREA: 68 KG

COMPONENTS REMOVED TO MEET TARGET TEST WEIGHT: None

CG = 273 MM REARWARD OF THIRD AXLE CENTERLINE

<sup>1</sup>Weight of third axle included in total test weight.

<sup>2</sup>The front wheel weights are for third axle wheels.

TABLE 2  
PROFILE MEASUREMENTS AT VEHICLE BUMPER HEIGHT 615 MM

LOCATION	0		1		2		3		4		5		6		7	
	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y
PRE-TEST	2733	488	2667	487	2592	491	2517	492	2441	490	2368	492	2290	491	2215	490
POST-TEST 1	2733	488	2667	487	2592	491	2517	492	2441	490	2368	492	2290	491	2215	490
POST-TEST 2	2733	488	2667	487	2592	491	2517	492	2441	490	2368	492	2290	491	2215	490
POST-TEST 3	2733	488	2667	487	2592	491	2517	492	2441	490	2368	492	2290	491	2215	490
POST-TEST 4	2745	507	2678	510	2604	504	2530	503	2456	504	2385	503	2310	503	2234	504
POST-TEST 5	2786	468	2722	468	2648	458	2574	458	2495	458	2422	455	2342	455	2268	454

LOCATION	8		9		10		11		12		13		14		15	
	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y
PRE-TEST	2139	491	2068	495	1993	492	1993	492	1842	496	1767	502	1690	498	1613	497
POST-TEST 1	2139	491	2068	495	1993	492	1918	492	1842	496	1767	502	1690	498	1613	497
POST-TEST 2	2139	491	2068	495	1993	494	1918	492	1840	495	1763	493	1690	496	1610	495
POST-TEST 3	2139	491	2068	495	1990	495	1915	496	1838	500	1762	500	1688	504	1608	504
POST-TEST 4	2158	503	2088	503	2004	502	1930	503	1854	505	1779	510	1706	508	1621	508
POST-TEST 5	2192	448	2121	446	2045	443	1969	442	1894	445	1818	450	1746	452	1696	517

LOCATION	16		17		18		19		20		21		22		23	
	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y
PRE-TEST	1541	494	1472	494	1398	492	1320	490	1251	493	1177	494	1101	504	1022	504
POST-TEST 1	1541	494	1472	494	1398	492	1320	490	1251	493	1177	494	1101	504	1022	504
POST-TEST 2	1538	498	1468	493	1395	496	1320	496	1248	495	1172	497	1095	498	1018	511
POST-TEST 3	1538	505	1468	496	1402	498	1322	498	1250	500	1173	500	1098	505	1022	507
POST-TEST 4	1548	506	1475	506	1400	513	1326	510	1253	517	1180	521	1102	522	1025	523
POST-TEST 5	1630	545	1566	563	1492	574	1420	591	1346	603	1275	609	1208	608	1122	605

All measurements are in millimeters. Column readings are 75 millimeters apart starting on the left side of the vehicle.

All X-axis measurements taken from a reference plane 4969 millimeters from and parallel to the rear bumper.

All Y-axis measurements taken from a reference plane 1400 millimeters from and parallel to the vehicle's longitudinal centerline

TABLE 2, CONT'D.

## PROFILE MEASUREMENTS AT VEHICLE BUMPER HEIGHT 615 MM

LOCATION	24	25	26	27	28	29	30	31
	X	Y	X	Y	X	Y	X	Y
PRE-TEST	945	512	868	517	791	530	720	546
POST-TEST 1	945	512	862	528	790	536	716	543
POST-TEST 2	940	513	861	520	788	528	714	548
POST-TEST 3	944	513	866	523	793	537	718	548
POST-TEST 4	946	520	868	530	800	554	738	587
POST-TEST 5	1038	594	960	588	900	633	862	691
	X	Y	X	Y	X	Y	X	Y
PRE-TEST	945	512	868	517	791	530	720	546
POST-TEST 1	945	512	862	528	790	536	716	543
POST-TEST 2	940	513	861	520	788	528	714	548
POST-TEST 3	944	513	866	523	793	537	718	548
POST-TEST 4	946	520	868	530	800	554	738	587
POST-TEST 5	1038	594	960	588	900	633	862	691

LOCATION	32	33	34	35	36	37	38	39
	X	Y	X	Y	X	Y	X	Y
PRE-TEST	358	606	317	676	291	738	266	806
POST-TEST 1	337	605	301	672	282	741	262	813
POST-TEST 2	235	632	233	766	250	840	275	905
POST-TEST 3	228	738	233	818	261	884	287	952
POST-TEST 4	266	961	306	1023	367	1064	426	1122
POST-TEST 5	642	1185	709	1208	782	1220	860	1226
	X	Y	X	Y	X	Y	X	Y
PRE-TEST	358	606	317	676	291	738	266	806
POST-TEST 1	337	605	301	672	282	741	262	813
POST-TEST 2	235	632	233	766	250	840	275	905
POST-TEST 3	228	738	233	818	261	884	287	952
POST-TEST 4	266	961	306	1023	367	1064	426	1122
POST-TEST 5	642	1185	709	1208	782	1220	860	1226

LOCATION	40	41	42	43	44	45	46	47
	X	Y	X	Y	X	Y	X	Y
PRE-TEST	199	1179	201	1252	195	1226	191	1402
POST-TEST 1	225	1187	223	1261	228	1336	248	1409
POST-TEST 2	425	1260	462	1330	507	1395	564	1443
POST-TEST 3	497	1278	545	1328	591	1372	653	1421
POST-TEST 4	767	1281	821	1334	831	1390	850	1415
POST-TEST 5	1221	1237	1257	1312	1261	1382	1264	1432
	X	Y	X	Y	X	Y	X	Y
PRE-TEST	199	1179	201	1252	195	1226	191	1402
POST-TEST 1	225	1187	223	1261	228	1336	248	1409
POST-TEST 2	425	1260	462	1330	507	1395	564	1443
POST-TEST 3	497	1278	545	1328	591	1372	653	1421
POST-TEST 4	767	1281	821	1334	831	1390	850	1415
POST-TEST 5	1221	1237	1257	1312	1261	1382	1264	1432

All measurements are in millimeters. Column readings are 75 millimeters apart starting on the left side of the vehicle.

All X-axis measurements taken from a reference plane 4969 millimeters from and parallel to the rear bumper.

All Y-axis measurements taken from a reference plane 1400 millimeters from and parallel to the vehicle's longitudinal centerline



TABLE 2, CONT'D.  
PROFILE MEASUREMENTS AT VEHICLE BUMPER HEIGHT 615 MM

LOCATION	48	49	50	51	52	53	54	55								
	X	Y	X	Y	X	Y	X	Y								
R E-TEST	229	1772	236	1851	251	1923	266	1990	297	2056	329	2122	391	2180	458	2196
ROST-TEST 1	233	1757	241	1833	255	1902	270	1976	287	2051	313	2115	365	2169	440	2193
ROST-TEST 2	350	1678	315	1742	313	1810	285	1880	250	1965	236	2038	266	2108	310	2168
ROST-TEST 3	383	1642	347	1704	312	1768	280	1836	256	1900	234	1969	244	2035	285	2100
ROST-TEST 4	538	1523	476	1571	418	1623	372	1677	317	1735	273	1807	266	1873	288	1944
ROST-TEST 5	940	1443	866	1476	794	1514	725	1552	660	1576	602	1614	654	1687	558	1764

LOCATION	56	57	58	59	60	61	62	63								
	X	Y	X	Y	X	Y	X	Y								
R E-TEST	536	2193	607	2200	684	2217	756	2236	826	2250	899	2248	977	2268	1058	2274
ROST-TEST 1	536	2175	606	2197	680	2208	752	2217	830	2224	900	2241	977	2268	1058	2274
ROST-TEST 2	540	2190	614	2206	690	2221	763	2234	832	2243	907	2258	981	2263	1050	2266
ROST-TEST 3	538	2170	608	2183	682	2202	757	2216	835	2232	905	2249	983	2250	1060	2257
ROST-TEST 4	560	2107	635	2131	709	2159	780	2183	854	2208	925	2225	1000	2232	1072	2245
ROST-TEST 5	794	1960	842	2020	890	2076	931	2128	983	2183	1026	2215	1118	2208	1194	2204

LOCATION	64	65	66	67	68	69	70	71								
	X	Y	X	Y	X	Y	X	Y								
R E-TEST	1130	2268	1208	2276	1286	2275	1347	2272	1426	2281	1500	2269	1577	2273	1652	2273
ROST-TEST 1	1130	2268	1208	2276	1286	2275	1347	2272	1426	2281	1500	2269	1577	2273	1652	2273
ROST-TEST 2	1130	2267	1207	2272	1285	2278	1350	2273	1430	2281	1505	2277	1575	2275	1650	2283
ROST-TEST 3	1134	2261	1212	2263	1284	2274	1354	2275	1431	2274	1504	2269	1580	2273	1650	2274
ROST-TEST 4	1144	2260	1220	2260	1295	2268	1366	2273	1442	2279	1518	2275	1594	2282	1668	2286
ROST-TEST 5	1265	2196	1338	2190	1397	2113	1459	2240	1528	2262	1595	2283	1647	2324	1702	2368

All measurements are in millimeters. Column readings are 75 millimeters apart starting on the left side of the vehicle.

All X-axis measurements taken from a reference plane 4969 millimeters from and parallel to the rear bumper.

All Y-axis measurements taken from a reference plane 1400 millimeters from and parallel to the vehicle's longitudinal centerline

TABLE 2, CONT'D.

## PROFILE MEASUREMENTS AT VEHICLE BUMPER HEIGHT 615 MM

LOCATION	72	73	74	75	76	77	78	79
PRE-TEST	X	Y	X	Y	X	X	Y	X
POST-TEST 1	1732	2278	1800	2279	1872	2282	1953	2279
POST-TEST 2	1732	2278	1800	2279	1872	2282	1953	2279
POST-TEST 3	1729	2277	1802	2283	1880	2285	1951	2284
POST-TEST 4	1732	2280	1805	2281	1882	2286	1955	2282
POST-TEST 5	1751	2288	1827	2288	1901	2295	1980	2298
POST-TEST 5	1762	2354	1835	2357	1911	2357	1984	2357

LOCATION	80	81	82	83	84	85	86	87
PRE-TEST	X	Y	X	Y	X	Y	X	Y
POST-TEST 1	2328	2288	2405	2293	2480	2287	2559	2299
POST-TEST 2	2328	2288	2405	2293	2480	2287	2559	2299
POST-TEST 3	2328	2288	2405	2293	2480	2287	2559	2299
POST-TEST 4	2357	2296	2432	2296	2508	2295	2583	2302
POST-TEST 5	2360	2354	2437	2354	2509	2353	2586	2351

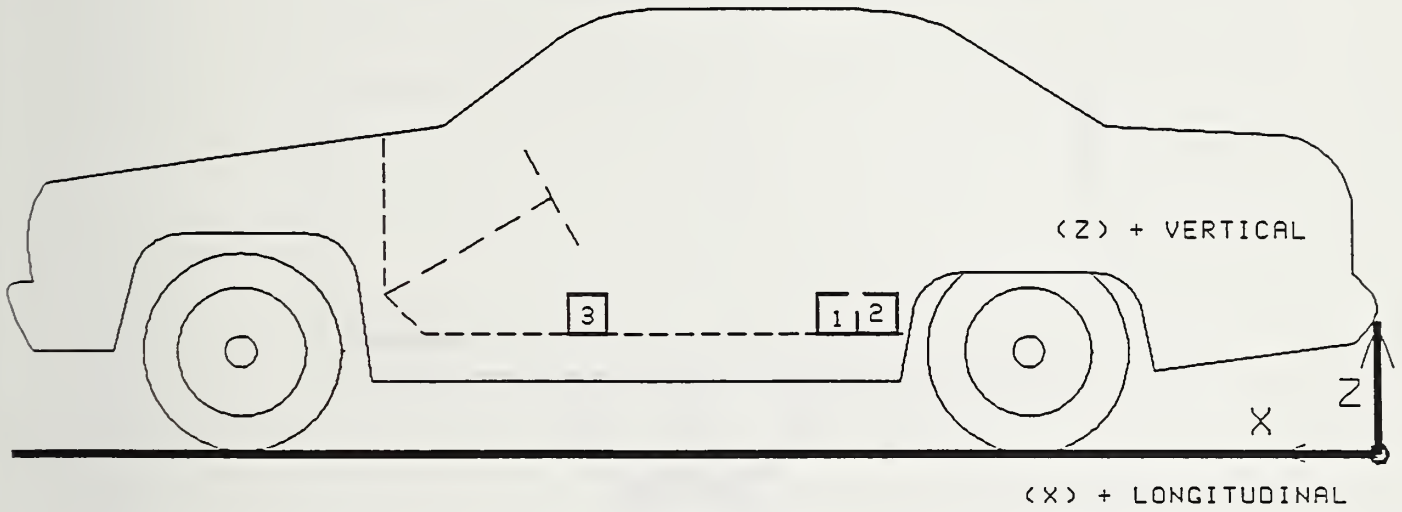
LOCATION	88	89	90	91	92	93	94	95
PRE-TEST	X	Y	X	Y	X	Y	X	Y
POST-TEST 1								
POST-TEST 2								
POST-TEST 3								
POST-TEST 4								
POST-TEST 5								

All measurements are in millimeters. Column readings are 75 millimeters apart starting on the left side of the vehicle.

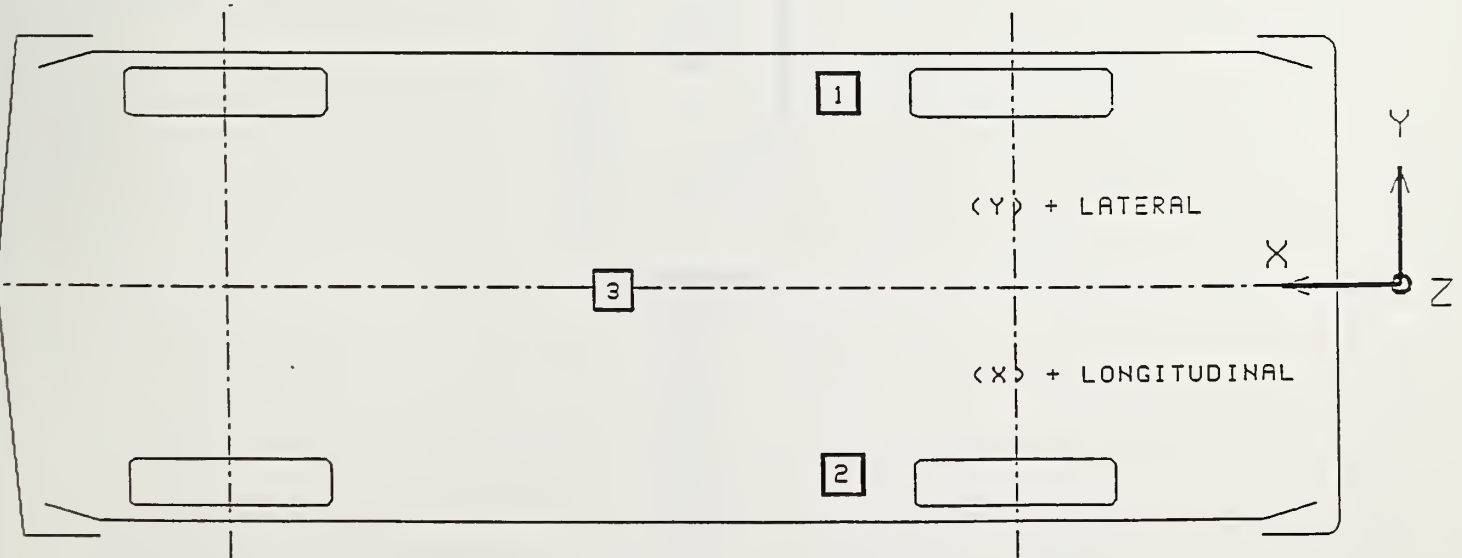
All X-axis measurements taken from a reference plane 4969 millimeters from and parallel to the rear bumper.

All Y-axis measurements taken from a reference plane 1400 millimeters from and parallel to the vehicle's longitudinal centerline

FIGURE 1 VEHICLE ACCELEROMETER PLACEMENT

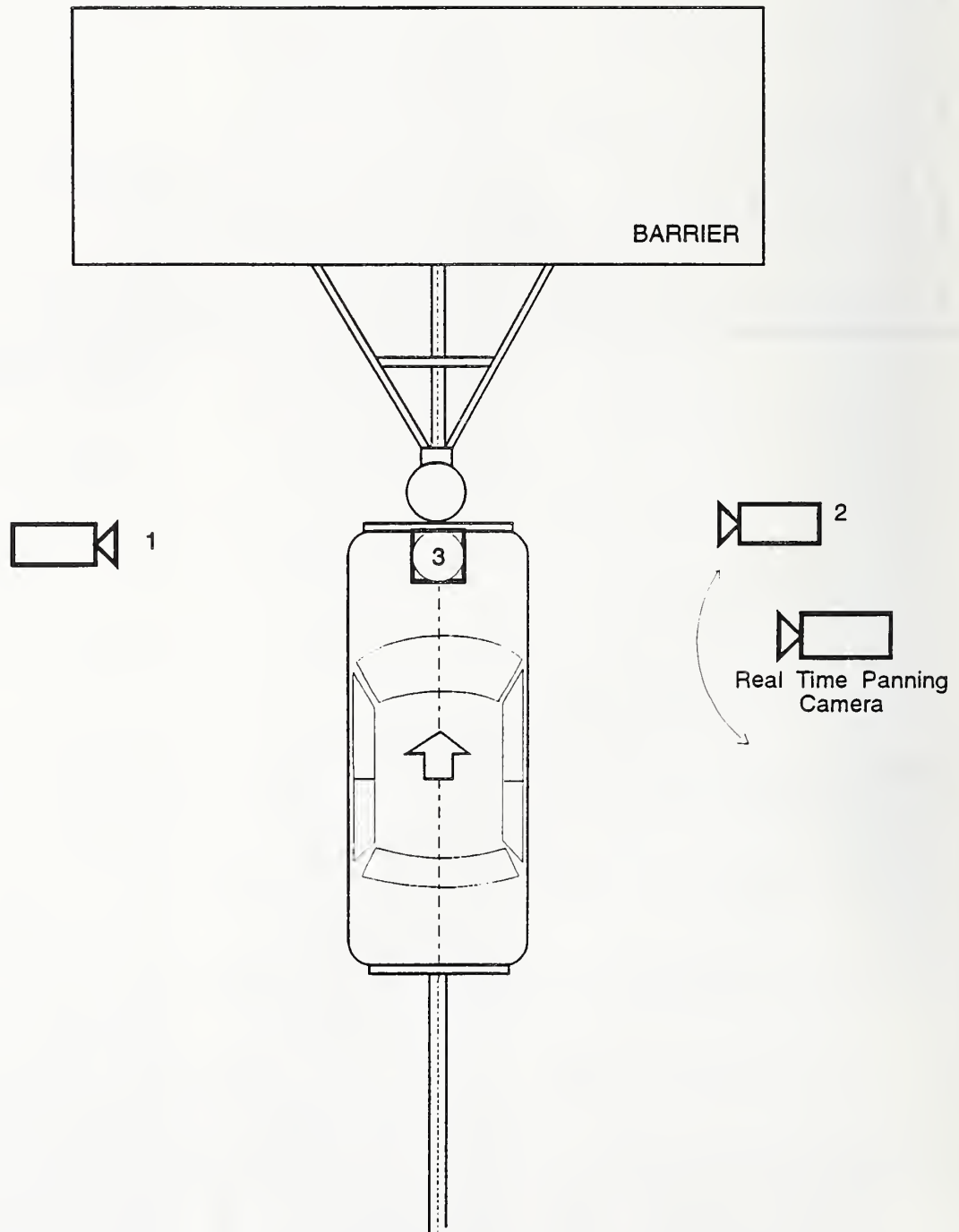


SIDE VIEW



BOTTOM VIEW

FIGURE 2 CAMERA POSITIONS



SECTION 3.0

TEST 940509-1 SUMMARY

TABLE 3 TEST CONDITIONS

TEST NO. 940509-1

DATE OF TEST: 05/09/94

TIME OF TEST: 10:16

AMBIENT TEMPERATURE AT IMPACT AREA: 20° C

INTENDED IMPACT VELOCITY: 8.0 KPH

ACTUAL IMPACT VELOCITY: PRIMARY = 7.9 KPH  
SECONDARY = 7.9 KPH

SUBJECT VEHICLE DATA

LENGTH OF DIRECT CONTACT DAMAGE: 228 MM

MAXIMUM CUMULATIVE CRUSH  
AT VEHICLE BUMPER HEIGHT: 57 MM

VEHICLE ATTITUDES:

POST-TEST: LF: 745; RF: 767; LR: 689; RR: 708

All distance measurements are in millimeters.

TABLE 4 VEHICLE CRUSH AT VEHICLE BUMPER HEIGHT

TEST NO. 940509-1

$$FL = \underline{722}$$

$$C1 = \underline{12}$$

$$C2 = \underline{22}$$

$$C3 = \underline{23}$$

$$C4 = \underline{52}$$

$$C5 = \underline{23}$$

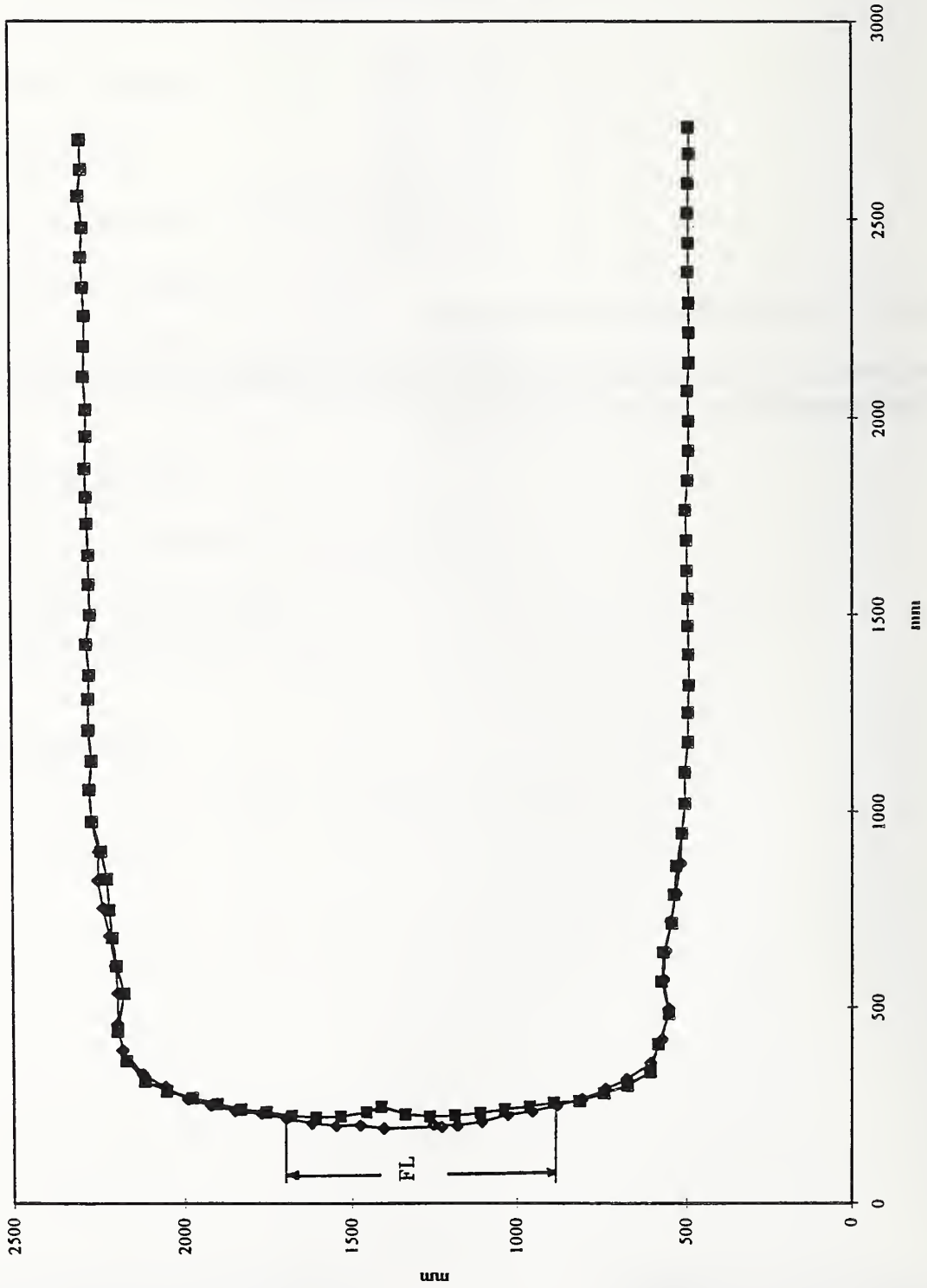
$$C6 = \underline{8}$$

NOTE: FL is the post-test length of the damaged surface.

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

All measurements are in millimeters.

FIGURE 3  
TEST 1 - VEHICLE CRUSH PROFILE



◆ pre-test  
■ post-test



TABLE 5 VEHICLE MEASUREMENTS

TEST NO. 940509-1 VEHICLE MAKE/MODEL: Ford/Taurus

NO.	TYPE OF MEASUREMENT	PRE-TEST	POST-TEST	DIFF.
X1	TOTAL LENGTH OF VEHICLE AT CENTERLINE	4790	4747	43
X2	REAR SURFACE OF VEHICLE TO FRONT OF ENGINE BLOCK	4230	4230	0
X3	REAR SURFACE OF VEHICLE TO FIREWALL	3595	3595	0
X4	REAR SURFACE OF VEHICLE TO UPPER LEADING EDGE OF RIGHT DOOR	3309	3309	0
X5	REAR SURFACE OF VEHICLE TO UPPER LEADING EDGE OF LEFT DOOR	3309	3309	0
X6	REAR SURFACE OF VEHICLE TO LOWER LEADING EDGE OF RIGHT DOOR	3246	3246	0
X7	REAR SURFACE OF VEHICLE TO LOWER LEADING EDGE OF LEFT DOOR	3248	3248	0
X8	REAR SURFACE OF VEHICLE TO UPPER TRAILING EDGE OF RIGHT DOOR	2223	2223	0
X9	REAR SURFACE OF VEHICLE TO UPPER TRAILING EDGE OF LEFT DOOR	2225	2225	0
X10	REAR SURFACE OF VEHICLE TO LOWER TRAILING EDGE OF RIGHT DOOR	2200	2200	0
X11	REAR SURFACE OF VEHICLE TO LOWER TRAILING EDGE OF LEFT DOOR	2201	2201	0
X12	REAR SURFACE OF VEHICLE TO BOTTOM OF "A" POST ON RIGHT SIDE	3230	3230	0
X13	REAR SURFACE OF VEHICLE TO BOTTOM OF "A" POST ON LEFT SIDE	3227	3227	0
X14	REAR SURFACE OF VEHICLE TO FIREWALL - RIGHT SIDE	3568	3568	0
X15	REAR SURFACE OF VEHICLE TO FIREWALL - LEFT SIDE	3564	3564	0
X16	REAR SURFACE OF VEHICLE TO STEERING WHEEL CENTER	2859	2859	0
X17	CENTER OF STEERING COLUMN TO "A" POST	284	284	0
X18	CENTER OF STEERING COLUMN TO HEADLINER	420	420	0
X19	REAR SURFACE OF VEHICLE TO RIGHT SIDE OF FRONT BUMPER	4678	4693	-15
X20	REAR SURFACE OF VEHICLE TO LEFT SIDE OF FRONT BUMPER	4666	4665	1
X21	LENGTH OF ENGINE BLOCK	420	420	0

All distance measurements are in millimeters.

TABLE 6 VEHICLE ACCELEROMETER LOCATIONS AND DATA SUMMARY

TEST NO. 940509-1

TEST NUMBER: 940509-1  
No. LOCATION

POSITIVE DIRECTION  
NEGATIVE DIRECTION

	X	Y	Z		
1 LEFT REAR SEAT CROSSMEMBER LONGITUDINAL LATERAL	2048 mm	694 mm	267 mm	0.3 g @ 303.0 ms 1.0 g @ 36.5 ms	1.8 g @ 110.4 ms 0.8 g @ 39.1 ms
2 RIGHT REAR SEAT CROSSMEMBER LONGITUDINAL LATERAL	2105 mm	-694 mm	267 mm	0.3 g @ 304.6 ms 0.7 g @ 26.8 ms	1.9 g @ 132.7 ms 1.0 g @ 35.8 ms
3 VEHICLE CENTER OF GRAVITY LONGITUDINAL LATERAL	2810 mm	0 mm	470 mm	0.2 g @ 294.6 ms 0.3 g @ 158.4 ms	2.0 g @ 121.1 ms 0.2 g @ 38.3 ms

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

TABLE 7 CAMERA INFORMATION

TEST NO. 940509-1

<u>CAMERA NUMBER</u>	<u>LOCATION</u>	<u>TYPE</u>	<u>LENS (mm)</u>	<u>SPEED (fps)</u>	<u>PURPOSE OF CAMERA DATA</u>
1	Left tight	Stalex	25	998	Impact overall
2	Right tight	Stalex	25	995	Impact overall
3	Overhead	Photosonic	13	1005	Impact overall



SECTION 4.0

TEST 940509-2 SUMMARY

TABLE 8 TEST CONDITIONS

TEST NO. 940509-2

DATE OF TEST: 05/09/94

TIME OF TEST: 11:14

AMBIENT TEMPERATURE AT IMPACT AREA: 20° C

INTENDED IMPACT VELOCITY: 16.1 KPH

ACTUAL IMPACT VELOCITY: PRIMARY = 15.9 KPH  
SECONDARY = 15.9 KPH

SUBJECT VEHICLE DATA

LENGTH OF DIRECT CONTACT DAMAGE: 473 MM

MAXIMUM CUMULATIVE CRUSH  
AT VEHICLE BUMPER HEIGHT: 373 MM

VEHICLE ATTITUDES:

POST-TEST: LF: 747; RF: 767; LR: 687; RR: 706

All distance measurements are in millimeters.

TABLE 9. VEHICLE CRUSH AT VEHICLE BUMPER HEIGHT  
TEST NO. 940509-2

FL = 1916  
C1 = -171  
C2 = 35  
C3 = 269  
C4 = 91  
C5 = -124  
C6 = -148

NOTE: FL is the post-test length of the damaged surface.

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

All measurements are in millimeters

FIGURE 4  
TEST 2 - VEHICLE CRUSH PROFILE

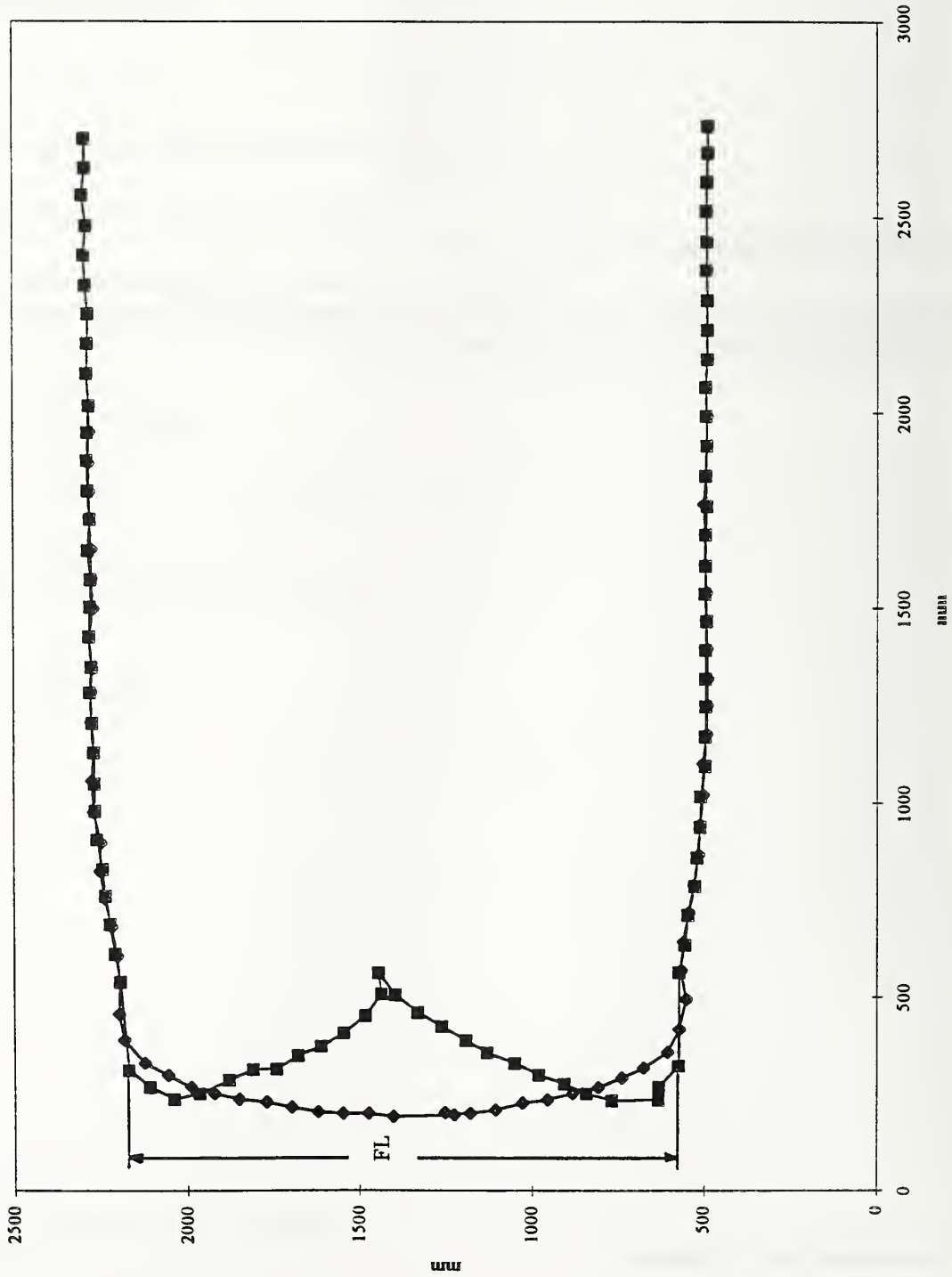




TABLE 10 VEHICLE MEASUREMENTS

TEST NO. 940509-2 VEHICLE MAKE/MODEL: Ford/Taurus

NO.	TYPE OF MEASUREMENT	PRE-TEST	POST-TEST	DIFF.
X1	TOTAL LENGTH OF VEHICLE AT CENTERLINE	4747	4405	342
X2	REAR SURFACE OF VEHICLE TO FRONT OF ENGINE BLOCK	4230	NA <sup>1</sup>	NA <sup>1</sup>
X3	REAR SURFACE OF VEHICLE TO FIREWALL	3595	NA <sup>1</sup>	NA <sup>1</sup>
X4	REAR SURFACE OF VEHICLE TO UPPER LEADING EDGE OF RIGHT DOOR	3309	3302	7
X5	REAR SURFACE OF VEHICLE TO UPPER LEADING EDGE OF LEFT DOOR	3309	3305	4
X6	REAR SURFACE OF VEHICLE TO LOWER LEADING EDGE OF RIGHT DOOR	3246	3247	-1
X7	REAR SURFACE OF VEHICLE TO LOWER LEADING EDGE OF LEFT DOOR	3248	3243	5
X8	REAR SURFACE OF VEHICLE TO UPPER TRAILING EDGE OF RIGHT DOOR	2223	2221	2
X9	REAR SURFACE OF VEHICLE TO UPPER TRAILING EDGE OF LEFT DOOR	2225	2221	4
X10	REAR SURFACE OF VEHICLE TO LOWER TRAILING EDGE OF RIGHT DOOR	2200	2204	-4
X11	REAR SURFACE OF VEHICLE TO LOWER TRAILING EDGE OF LEFT DOOR	2201	2201	0
X12	REAR SURFACE OF VEHICLE TO BOTTOM OF "A" POST ON RIGHT SIDE	3230	3233	-3
X13	REAR SURFACE OF VEHICLE TO BOTTOM OF "A" POST ON LEFT SIDE	3227	3217	10
X14	REAR SURFACE OF VEHICLE TO FIREWALL - RIGHT SIDE	3568	NA <sup>1</sup>	NA <sup>1</sup>
X15	REAR SURFACE OF VEHICLE TO FIREWALL - LEFT SIDE	3564	NA <sup>1</sup>	NA <sup>1</sup>
X16	REAR SURFACE OF VEHICLE TO STEERING WHEEL CENTER	2859	2859	0
X17	CENTER OF STEERING COLUMN TO "A" POST	284	284	0
X18	CENTER OF STEERING COLUMN TO HEADLINER	420	426	-6
X19	REAR SURFACE OF VEHICLE TO RIGHT SIDE OF FRONT BUMPER	4693	4747	-54
X20	REAR SURFACE OF VEHICLE TO LEFT SIDE OF FRONT BUMPER	4665	4744	-79
X21	LENGTH OF ENGINE BLOCK	420	NA <sup>1</sup>	NA <sup>1</sup>

<sup>1</sup>Vehicle crush obstructed measurement.

All distance measurements are in millimeters

TABLE 11 VEHICLE ACCELEROMETER LOCATIONS AND DATA SUMMARY

TEST NO. 940509-2

TEST NUMBER: No. LOCATION	X	Y	Z	POSITIVE DIRECTION	NEGATIVE DIRECTION
1 LEFT REAR SEAT CROSSMEMBER LONGITUDINAL LATERAL	2048 mm	694 mm	267 mm	0.9 g @ 207.4 ms 1.2 g @ 63.0 ms	6.9 g @ 130.6 ms 1.5 g @ 59.5 ms
2 RIGHT REAR SEAT CROSSMEMBER LONGITUDINAL LATERAL	2105 mm	-694 mm	267 mm	0.8 g @ 204.6 ms 1.3 g @ 19.1 ms	7.8 g @ 128.3 ms 1.8 g @ 60.9 ms
3 VEHICLE CENTER OF GRAVITY LONGITUDINAL LATERAL	2810 mm	0 mm	470 mm	0.6 g @ 189.1 ms 1.6 g @ 25.4 ms	7.4 g @ 128.9 ms 0.8 g @ 53.5 ms

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

TABLE 7 CAMERA INFORMATION

TEST NO. 940509-2

<u>CAMERA NUMBER</u>	<u>LOCATION</u>	<u>TYPE</u>	<u>LENS (mm)</u>	<u>SPEED (fps)</u>	<u>PURPOSE OF CAMERA DATA</u>
1	Left tight	Stalox	25	1000	Impact overall
2	Right tight	Stalox	25	993	Impact overall
3	Overhead	Photosonic	13	1008	Impact overall



SECTION 5.0

TEST 940509-3 SUMMARY

TABLE 13 TEST CONDITIONS

TEST NO. 940509-3

DATE OF TEST: 05/09/94

TIME OF TEST: 13:17

AMBIENT TEMPERATURE AT IMPACT AREA: 20° C

INTENDED IMPACT VELOCITY: 16.1 KPH

ACTUAL IMPACT VELOCITY: PRIMARY = 15.9 KPH  
SECONDARY = 15.8 KPH

SUBJECT VEHICLE DATA

LENGTH OF DIRECT CONTACT DAMAGE: 492 MM

MAXIMUM CUMULATIVE CRUSH  
AT VEHICLE BUMPER HEIGHT: 462 MM

VEHICLE ATTITUDES:

POST-TEST: LF: 739; RF: 759; LR: 682; RR: 708

All distance measurements are in millimeters.

TABLE 14 VEHICLE CRUSH AT VEHICLE BUMPER HEIGHT

TEST NO. 940509-3

$$FL = \underline{1483}$$

$$C1 = \underline{-199}$$

$$C2 = \underline{-8}$$

$$C3 = \underline{231}$$

$$C4 = \underline{280}$$

$$C5 = \underline{37}$$

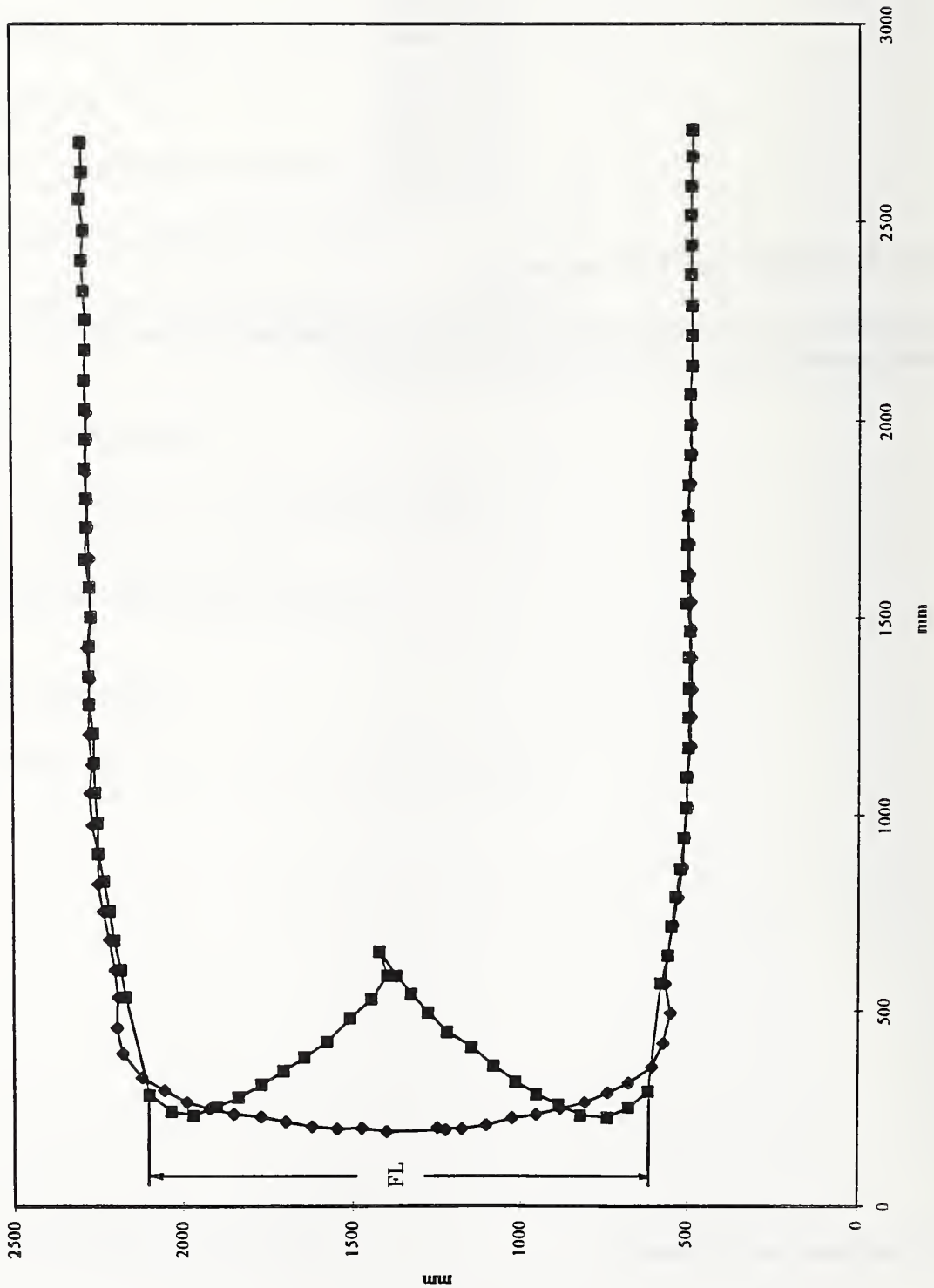
$$C6 = \underline{-173}$$

NOTE: FL is post-test length of damaged surface.

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

All measurements are in millimeters.

FIGURE 5  
TEST 3 - VEHICLE CRUSH PROFILE



◆ pre-test  
■ post-test



TABLE 15 VEHICLE MEASUREMENTS

TEST NO. 940509-3 VEHICLE MAKE/MODEL: Ford/Taurus

NO.	TYPE OF MEASUREMENT	PRE-TEST	POST-TEST	DIFF.
X1	TOTAL LENGTH OF VEHICLE AT CENTERLINE	4405	4316	89
X2	REAR SURFACE OF VEHICLE TO FRONT OF ENGINE BLOCK	NA <sup>1</sup>	NA <sup>1</sup>	NA <sup>1</sup>
X3	REAR SURFACE OF VEHICLE TO FIREWALL	NA <sup>1</sup>	NA <sup>1</sup>	NA <sup>1</sup>
X4	REAR SURFACE OF VEHICLE TO UPPER LEADING EDGE OF RIGHT DOOR	3302	3307	-5
X5	REAR SURFACE OF VEHICLE TO UPPER LEADING EDGE OF LEFT DOOR	3305	3295	10
X6	REAR SURFACE OF VEHICLE TO LOWER LEADING EDGE OF RIGHT DOOR	3247	3253	-6
X7	REAR SURFACE OF VEHICLE TO LOWER LEADING EDGE OF LEFT DOOR	3243	3244	-1
X8	REAR SURFACE OF VEHICLE TO UPPER TRAILING EDGE OF RIGHT DOOR	2221	2221	0
X9	REAR SURFACE OF VEHICLE TO UPPER TRAILING EDGE OF LEFT DOOR	2221	2221	0
X10	REAR SURFACE OF VEHICLE TO LOWER TRAILING EDGE OF RIGHT DOOR	2204	2207	-3
X11	REAR SURFACE OF VEHICLE TO LOWER TRAILING EDGE OF LEFT DOOR	2201	2201	0
X12	REAR SURFACE OF VEHICLE TO BOTTOM OF "A" POST ON RIGHT SIDE	3233	3234	-1
X13	REAR SURFACE OF VEHICLE TO BOTTOM OF "A" POST ON LEFT SIDE	3217	3214	3
X14	REAR SURFACE OF VEHICLE TO FIREWALL - RIGHT SIDE	NA <sup>1</sup>	NA <sup>1</sup>	NA <sup>1</sup>
X15	REAR SURFACE OF VEHICLE TO FIREWALL - LEFT SIDE	NA <sup>1</sup>	NA <sup>1</sup>	NA <sup>1</sup>
X16	REAR SURFACE OF VEHICLE TO STEERING WHEEL CENTER	2859	2859	0
X17	CENTER OF STEERING COLUMN TO "A" POST	284	284	0
X18	CENTER OF STEERING COLUMN TO HEADLINER	426	426	0
X19	REAR SURFACE OF VEHICLE TO RIGHT SIDE OF FRONT BUMPER	4647	4735	12
X20	REAR SURFACE OF VEHICLE TO LEFT SIDE OF FRONT BUMPER	4744	4741	3
X21	LENGTH OF ENGINE BLOCK	NA <sup>1</sup>	NA <sup>1</sup>	NA <sup>1</sup>

<sup>1</sup>Vehicle crush obstructed measurement.

All distance measurements are in millimeters

TABLE 16 VEHICLE ACCELEROMETER LOCATIONS AND DATA SUMMARY

TEST NO. 940509-3

TEST NUMBER: 940509-3  
No. LOCATION

	X	Y	Z	POSITIVE DIRECTION	NEGATIVE DIRECTION
1 LEFT REAR SEAT CROSSMEMBER LONGITUDINAL LATERAL	2048 mm	694 mm	267 mm	0.7 g @ 167.1 ms 2.3 g @ 87.1 ms	10.8 g @ 70.0 ms 4.5 g @ 74.0 ms
2 RIGHT REAR SEAT CROSSMEMBER LONGITUDINAL LATERAL	2105 mm	-694 mm	267 mm	0.7 g @ 167.4 ms 1.5 g @ 29.1 ms	13.0 g @ 63.4 ms 4.7 g @ 69.8 ms
3 VEHICLE CENTER OF GRAVITY LONGITUDINAL LATERAL	2810 mm	0 mm	470 mm	0.8 g @ 160.8 ms 2.1 g @ 36.4 ms	12.5 g @ 63.3 ms 2.6 g @ 67.9 ms

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

TABLE 7 CAMERA INFORMATION

TEST NO. 940509-3

<u>CAMERA NUMBER</u>	<u>LOCATION</u>	<u>TYPE</u>	<u>LENS (mm)</u>	<u>SPEED (fps)</u>	<u>PURPOSE OF CAMERA DATA</u>
1	Left tight	Stalex	25	1000	Impact overall
2	Right tight	Stalex	25	998	Impact overall
3	Overhead	Photosonic	13	1008	Impact overall



SECTION 6.0

TEST 940509-4 SUMMARY

TABLE 18 TEST CONDITIONS

TEST NO. 940509-4

DATE OF TEST: 05/09/94

TIME OF TEST: 14:46

AMBIENT TEMPERATURE AT IMPACT AREA: 20° C

INTENDED IMPACT VELOCITY: 32.0 KPH

ACTUAL IMPACT VELOCITY: PRIMARY = 32.0 KPH  
SECONDARY = 32.0 KPH

SUBJECT VEHICLE DATA

LENGTH OF DIRECT CONTACT DAMAGE: 488 MM

MAXIMUM CUMULATIVE CRUSH  
AT VEHICLE BUMPER HEIGHT: 659 MM

VEHICLE ATTITUDES:

POST-TEST: LF: 721; RF: 731; LR: 662; RR: 670

All distance measurements are in millimeters.

TABLE 19 VEHICLE CRUSH AT VEHICLE BUMPER HEIGHT

TEST NO. 940509-4

$$FL = \underline{1520}$$

$$C1 = \underline{18}$$

$$C2 = \underline{-162}$$

$$C3 = \underline{309}$$

$$C4 = \underline{350}$$

$$C5 = \underline{-52}$$

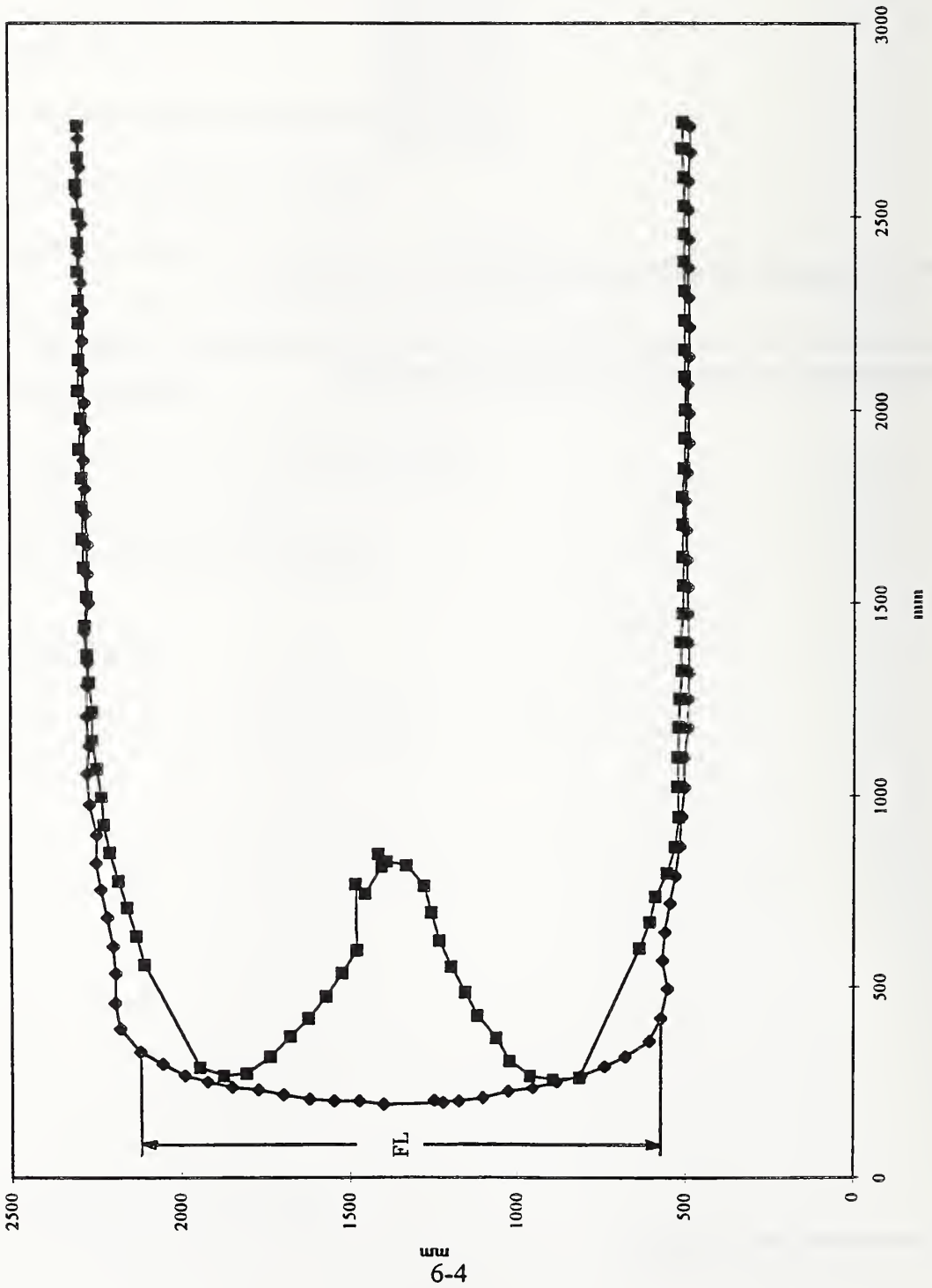
$$C6 = \underline{24}$$

NOTE: FL is post-test length of damaged surface.

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

All measurements are in millimeters.

FIGURE 6  
TEST 4 - VEHICLE CRUSH PROFILE



◆ pre-test  
■ post-test



TABLE 20 VEHICLE MEASUREMENTS

TEST NO. 940509-4 VEHICLE MAKE/MODEL: Ford/Taurus

NO.	TYPE OF MEASUREMENT	PRE-TEST	POST-TEST	DIFF.
X1	TOTAL LENGTH OF VEHICLE AT CENTERLINE	4316	4162	154
X2	REAR SURFACE OF VEHICLE TO FRONT OF ENGINE BLOCK	NA <sup>1</sup>	NA <sup>1</sup>	NA <sup>1</sup>
X3	REAR SURFACE OF VEHICLE TO FIREWALL	NA <sup>1</sup>	NA <sup>1</sup>	NA <sup>1</sup>
X4	REAR SURFACE OF VEHICLE TO UPPER LEADING EDGE OF RIGHT DOOR	3307	3297	10
X5	REAR SURFACE OF VEHICLE TO UPPER LEADING EDGE OF LEFT DOOR	3295	3289	6
X6	REAR SURFACE OF VEHICLE TO LOWER LEADING EDGE OF RIGHT DOOR	3253	3229	24
X7	REAR SURFACE OF VEHICLE TO LOWER LEADING EDGE OF LEFT DOOR	3244	3226	18
X8	REAR SURFACE OF VEHICLE TO UPPER TRAILING EDGE OF RIGHT DOOR	2221	2207	14
X9	REAR SURFACE OF VEHICLE TO UPPER TRAILING EDGE OF LEFT DOOR	2221	2200	21
X10	REAR SURFACE OF VEHICLE TO LOWER TRAILING EDGE OF RIGHT DOOR	2207	2184	23
X11	REAR SURFACE OF VEHICLE TO LOWER TRAILING EDGE OF LEFT DOOR	2201	2181	20
X12	REAR SURFACE OF VEHICLE TO BOTTOM OF "A" POST ON RIGHT SIDE	3234	3206	28
X13	REAR SURFACE OF VEHICLE TO BOTTOM OF "A" POST ON LEFT SIDE	3214	3213	1
X14	REAR SURFACE OF VEHICLE TO FIREWALL - RIGHT SIDE	NA <sup>1</sup>	NA <sup>1</sup>	NA <sup>1</sup>
X15	REAR SURFACE OF VEHICLE TO FIREWALL - LEFT SIDE	NA <sup>1</sup>	NA <sup>1</sup>	NA <sup>1</sup>
X16	REAR SURFACE OF VEHICLE TO STEERING WHEEL CENTER	2859	2859	0
X17	CENTER OF STEERING COLUMN TO "A" POST	284	284	0
X18	CENTER OF STEERING COLUMN TO HEADLINER	426	426	0
X19	REAR SURFACE OF VEHICLE TO RIGHT SIDE OF FRONT BUMPER	4735	4696	39
X20	REAR SURFACE OF VEHICLE TO LEFT SIDE OF FRONT BUMPER	4741	4703	38
X21	LENGTH OF ENGINE BLOCK	NA <sup>1</sup>	NA <sup>1</sup>	NA <sup>1</sup>

<sup>1</sup>Vehicle crush obstructed measurement.

All distance measurements are in millimeters

TABLE 21 VEHICLE ACCELEROMETER LOCATIONS AND DATA SUMMARY

TEST NO. 940509-4

TEST NUMBER: 940509-4  
No. LOCATION

	X	Y	Z	POSITIVE DIRECTION	NEGATIVE DIRECTION
1 LEFT REAR SEAT CROSSMEMBER LONGITUDINAL LATERAL	2048 mm	694 mm	267 mm	1.1 g @ 95.1 ms 4.4 g @ 20.5 ms	23.2 g @ 52.1 ms 9.5 g @ 35.2 ms
2 RIGHT REAR SEAT CROSSMEMBER LONGITUDINAL LATERAL	2105 mm	-694 mm	267 mm	1.2 g @ 131.4 ms 3.9 g @ 50.3 ms	21.9 g @ 61.2 ms 5.1 g @ 35.0 ms
3 VEHICLE CENTER OF GRAVITY LONGITUDINAL LATERAL	2810 mm	0 mm	470 mm	1.5 g @ 104.8 ms 4.4 g @ 59.3 ms	31.9 g @ 36.6 ms 4.6 g @ 35.1 ms

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

TABLE 22 CAMERA INFORMATION

TEST NO. 940509-4

CAMERA NUMBER	LOCATION	TYPE	LENS (mm)	SPEED (fps)	PURPOSE OF CAMERA DATA
1	Left tight	Stalex	25	1000	Impact overall
2	Right tight	Stalex	25	998	Impact overall
3	Overhead	Photosonic	13	1005	Impact overall



SECTION 7.0

TEST 940509-5 SUMMARY

TABLE 23 TEST CONDITIONS

TEST NO. 940509-5

DATE OF TEST: 05/09/94

TIME OF TEST: 16:04

AMBIENT TEMPERATURE AT IMPACT AREA: 20° C

INTENDED IMPACT VELOCITY: 56.3 KPH

ACTUAL IMPACT VELOCITY: PRIMARY = 56.2 KPH  
SECONDARY = 56.2 KPH

SUBJECT VEHICLE DATA

LENGTH OF DIRECT CONTACT DAMAGE: 470 MM

MAXIMUM CUMULATIVE CRUSH  
AT VEHICLE BUMPER HEIGHT: 1073 MM

VEHICLE ATTITUDES:

POST-TEST: LF: 664; RF: 697; LR: 598; RR: 609

All distance measurements are in millimeters.

TABLE 24 VEHICLE CRUSH AT VEHICLE BUMPER HEIGHT

TEST NO. 940509-5

$$FL = \underline{1627}$$

$$C1 = \underline{92}$$

$$C2 = \underline{162}$$

$$C3 = \underline{1023}$$

$$C4 = \underline{410}$$

$$C5 = \underline{201}$$

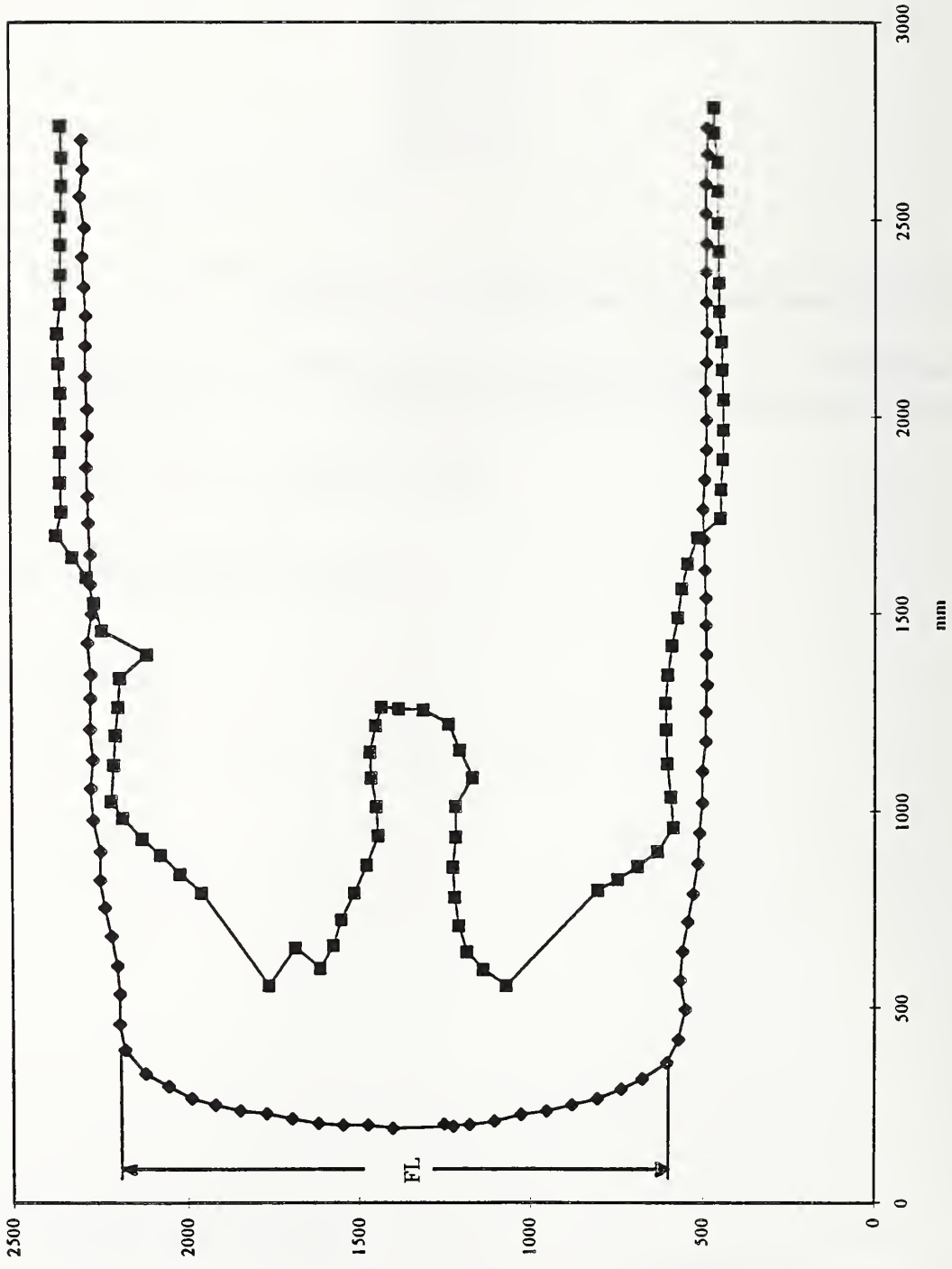
$$C6 = \underline{127}$$

NOTE: FL is post-test length of damaged surface.

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

All measurements are in millimeters.

FIGURE 7  
TEST 5 - VEHICLE CRUSH PROFILE



pre-test  
post-test



TABLE 25 VEHICLE MEASUREMENTS

TEST NO. 940509-5 VEHICLE MAKE/MODEL: Ford/Taurus

NO.	TYPE OF MEASUREMENT	PRE-TEST	POST-TEST	DIFF.
X1	TOTAL LENGTH OF VEHICLE AT CENTERLINE	4162	3539	623
X2	REAR SURFACE OF VEHICLE TO FRONT OF ENGINE BLOCK	NA <sup>1</sup>	3446	NA <sup>1</sup>
X3	REAR SURFACE OF VEHICLE TO FIREWALL	NA <sup>1</sup>	2929	NA <sup>1</sup>
X4	REAR SURFACE OF VEHICLE TO UPPER LEADING EDGE OF RIGHT DOOR	3297	3047	250
X5	REAR SURFACE OF VEHICLE TO UPPER LEADING EDGE OF LEFT DOOR	3289	3068	221
X6	REAR SURFACE OF VEHICLE TO LOWER LEADING EDGE OF RIGHT DOOR	3229	3038	191
X7	REAR SURFACE OF VEHICLE TO LOWER LEADING EDGE OF LEFT DOOR	3226	3004	222
X8	REAR SURFACE OF VEHICLE TO UPPER TRAILING EDGE OF RIGHT DOOR	2207	2052	155
X9	REAR SURFACE OF VEHICLE TO UPPER TRAILING EDGE OF LEFT DOOR	2200	2036	164
X10	REAR SURFACE OF VEHICLE TO LOWER TRAILING EDGE OF RIGHT DOOR	2184	1994	190
X11	REAR SURFACE OF VEHICLE TO LOWER TRAILING EDGE OF LEFT DOOR	2181	1967	214
X12	REAR SURFACE OF VEHICLE TO BOTTOM OF "A" POST ON RIGHT SIDE	NA <sup>1</sup>	NA <sup>1</sup>	NA <sup>1</sup>
X13	REAR SURFACE OF VEHICLE TO BOTTOM OF "A" POST ON LEFT SIDE	NA <sup>1</sup>	NA <sup>1</sup>	NA <sup>1</sup>
X14	REAR SURFACE OF VEHICLE TO FIREWALL - RIGHT SIDE	NA <sup>1</sup>	3210	NA <sup>1</sup>
X15	REAR SURFACE OF VEHICLE TO FIREWALL - LEFT SIDE	NA <sup>1</sup>	3232	NA <sup>1</sup>
X16	REAR SURFACE OF VEHICLE TO STEERING WHEEL CENTER	2859	2380	479
X17	CENTER OF STEERING COLUMN TO "A" POST	284	143	141
X18	CENTER OF STEERING COLUMN TO HEADLINER	426	433	-7
X19	REAR SURFACE OF VEHICLE TO RIGHT SIDE OF FRONT BUMPER	4696	4198	498
X20	REAR SURFACE OF VEHICLE TO LEFT SIDE OF FRONT BUMPER	4703	4091	612
X21	LENGTH OF ENGINE BLOCK	NA <sup>1</sup>	420	NA <sup>1</sup>

<sup>1</sup>Vehicle crush obstructed measurement.

All distance measurements are in millimeters

TABLE 26 VEHICLE ACCELEROMETER LOCATIONS AND DATA SUMMARY

TEST NO. 940509-5

TEST NUMBER: No. LOCATION	X	Y	Z	POSITIVE DIRECTION	NEGATIVE DIRECTION
1 LEFT REAR SEAT CROSSMEMBER LONGITUDINAL LATERAL	2048 mm	694 mm	267 mm	1.3 g @ 199.8 ms 12.4 g @ 70.1 ms	34.6 g @ 52.8 ms 10.3 g @ 43.8 ms
2 RIGHT REAR SEAT CROSSMEMBER LONGITUDINAL LATERAL	2105 mm	-694 mm	267 mm	2.2 g @ 145.8 ms 8.2 g @ 70.0 ms	35.0 g @ 53.4 ms 13.0 g @ 45.4 ms
3 VEHICLE CENTER OF GRAVITY LONGITUDINAL LATERAL	2810 mm	0 mm	470 mm	6.3 g @ 134.5 ms 9.9 g @ 39.6 ms	37.4 g @ 53.2 ms 9.6 g @ 45.3 ms

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

TABLE 27. CAMERA INFORMATION

TEST NO. 940509-5

CAMERA NUMBER	LOCATION	TYPE	LENS (mm)	SPEED (fps)	PURPOSE OF CAMERA DATA
1	Left tight	Stalex	25	1000	Impact overall
2	Right tight	Stalex	25	985	Impact overall
3	Overhead	Photosonic	13	1005	Impact overall



APPENDIX A  
PHOTOGRAPHS



LIST OF PHOTOGRAPHS

TEST NO. 940509-1

- 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







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



LIST OF PHOTOGRAPHS

TEST NO. 940509-2

- A-11. POST-TEST RIGHT SIDE VIEW
- A-12. POST-TEST RIGHT FRONT THREE-QUARTER VIEW
- A-13. POST-TEST FRONT VIEW
- A-14. POST-TEST LEFT FRONT THREE-QUARTER VIEW
- A-15. POST-TEST LEFT SIDE VIEW







Figure A-11 Post-Test Right Side View



Figure A-12 Post-Test Right Front Three-Quarter View



Figure A-13 Post-Test Front View



Figure A-14 Post-Test Left Front Three-Quarter View



Figure A-15 Post-Test Left Side View



LIST OF PHOTOGRAPHS

TEST NO. 940509-3

A-16. POST-TEST RIGHT SIDE VIEW

A-17. POST-TEST RIGHT FRONT THREE-QUARTER VIEW

A-18. POST-TEST FRONT VIEW

A-19. POST-TEST LEFT FRONT THREE-QUARTER VIEW

A-20. POST-TEST LEFT SIDE VIEW





Figure A-16 Post-Test Right Side View



Figure A-17 Post-Test Right Front Three-Quarter View



Figure A-18 Post-Test Front View



Figure A-19 Post-Test Left Front Three-Quarter View





Figure A-20 Post-Test Left Side View



LIST OF PHOTOGRAPHS

TEST NO. 940509-4

- A-21. POST-TEST RIGHT SIDE VIEW
- A-22. POST-TEST RIGHT FRONT THREE-QUARTER VIEW
- A-23. POST-TEST FRONT VIEW
- A-24. POST-TEST LEFT FRONT THREE-QUARTER VIEW
- A-25. POST-TEST LEFT SIDE VIEW





Figure A-21 Post-Test Right Side View



Figure A-22 Post-Test Right Front Three-Quarter View



Figure A-23 Post-Test Front View



Figure A-24 Post-Test Left Front Three-Quarter View



Figure A-25 Post-Test Left Side View





LIST OF PHOTOGRAPHS

TEST NO. 940509-5

- A-26. POST-TEST RIGHT SIDE VIEW
- A-27. POST-TEST RIGHT FRONT THREE-QUARTER VIEW
- A-28. POST-TEST FRONT VIEW
- A-29. POST-TEST LEFT FRONT THREE-QUARTER VIEW
- A-30. POST-TEST LEFT SIDE VIEW





Figure A-26 Post-Test Right Side View



Figure A-27 Post-Test Right Front Three-Quarter View



Figure A-28 Post-Test Front View



Figure A-29 Post-Test Left Front Three-Quarter View



Figure A-30 Post-Test Left Side View



APPENDIX B

DATA PLOTS

DATA PLOTS

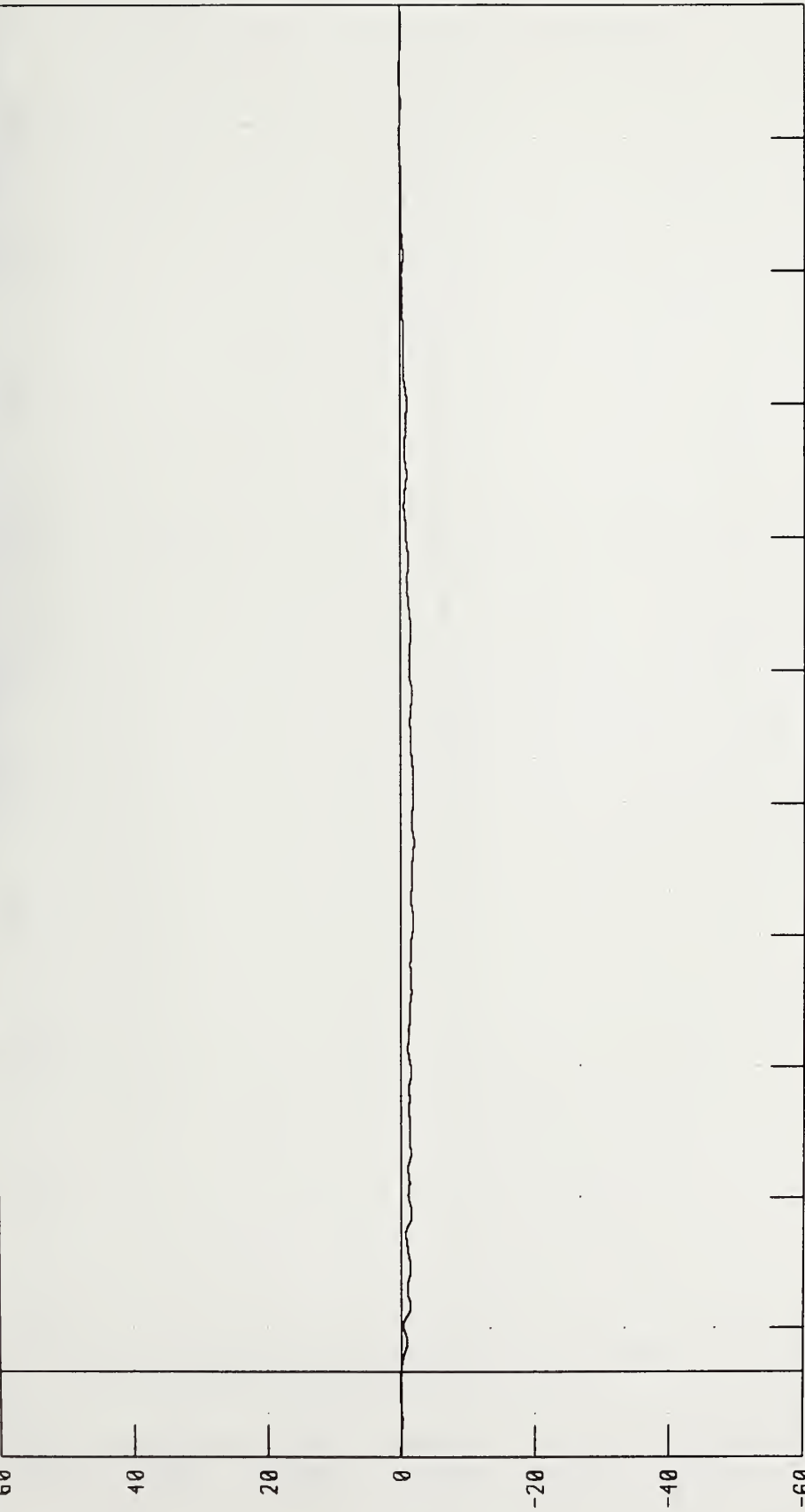
TEST NO. 940509-1



1987 FORD TAURUS INTO 30 5 CM POLE BARRIER AT 7 9 KPH  
VEHICLE CG X-AXIS ACCELERATION

IMPACT NO 1 TEST NUMBER 940509

TRC INC



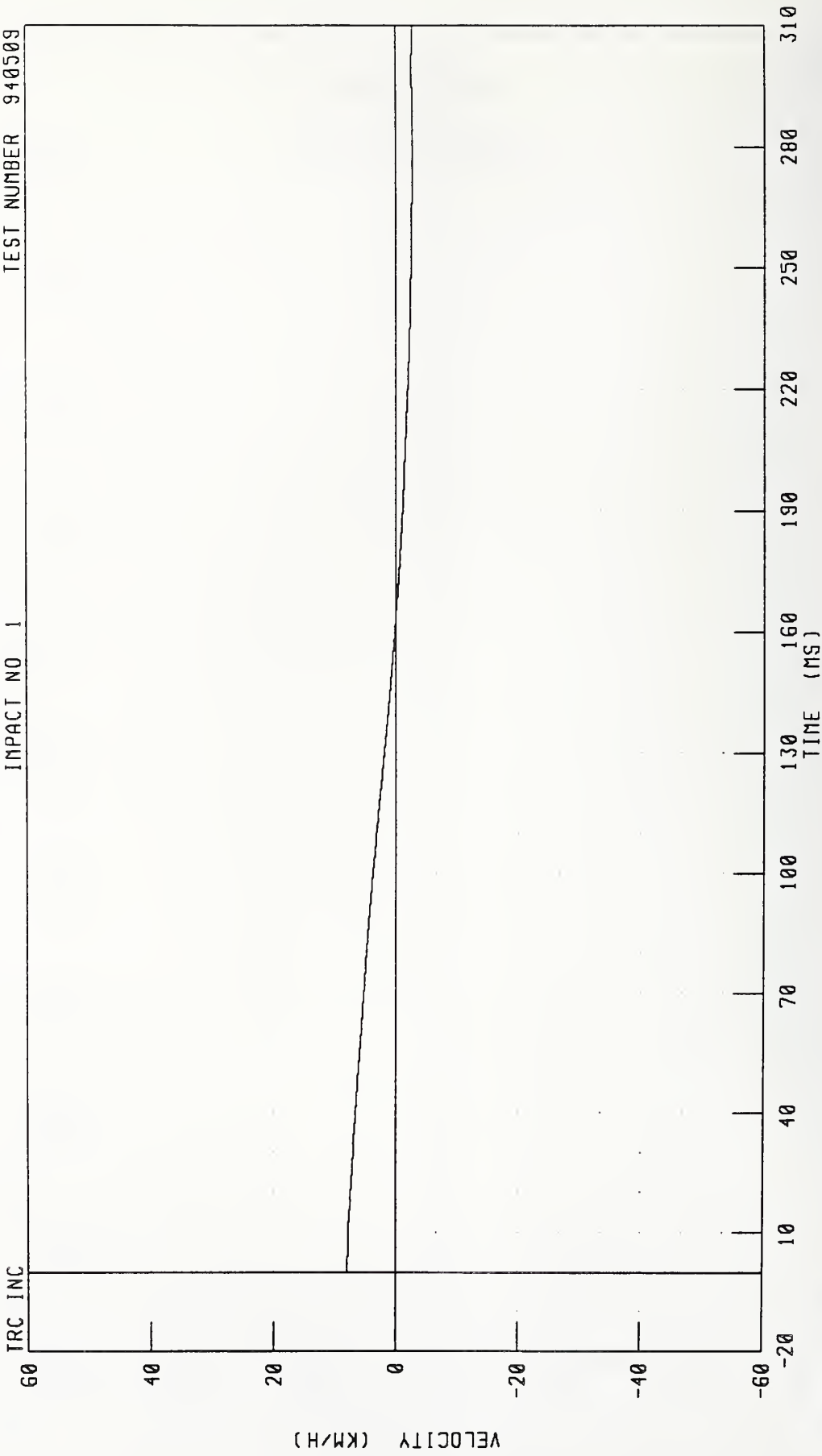
CHANNEL: VCGXG1 FILTER: CH. CLASS 60  
PEAK DATA: 0 22 G @ 294 56 MS, -1 97 G @ 121 12 MS

1987 FORD TAURUS INTO 30 5 CM POLE BARRIER AT 7 9 KPH

VEHICLE CC X-AXIS VELOCITY

IMPACT NO 1

TEST NUMBER 940509

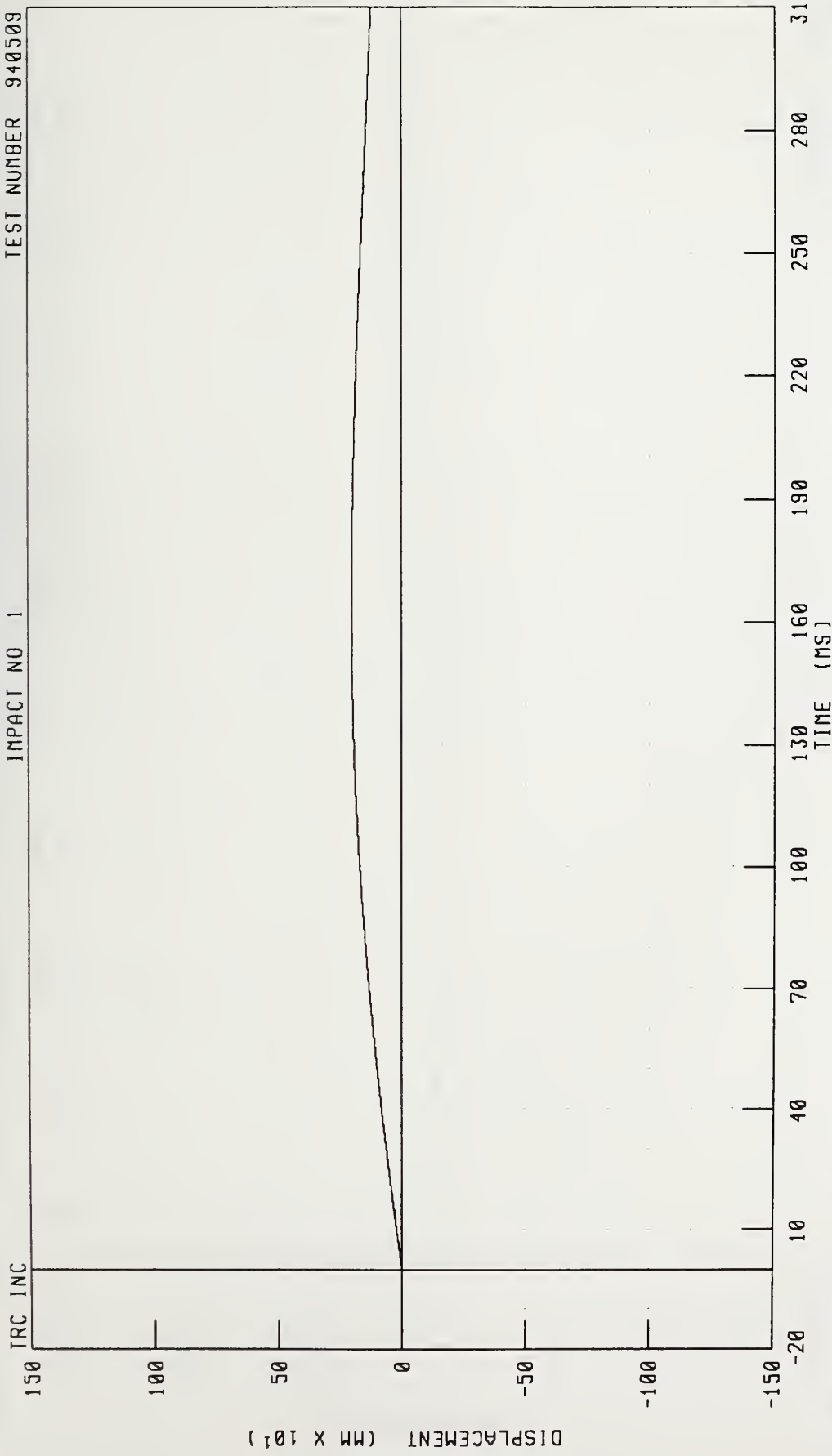


CHANNEL VCGXV1 FILTER CH. CLASS 180

PEAK DATA 7 90 KN/H @ 0 72 MS, -2 67 KM/H @ 274 64 MS

1987 FORD TAURUS INTO 30.5 CM POLE BARRIER AT 7.9 KPH  
VEHICLE CG X-AXIS DISPLACEMENT

IMPACT NO 1 TEST NUMBER 940509

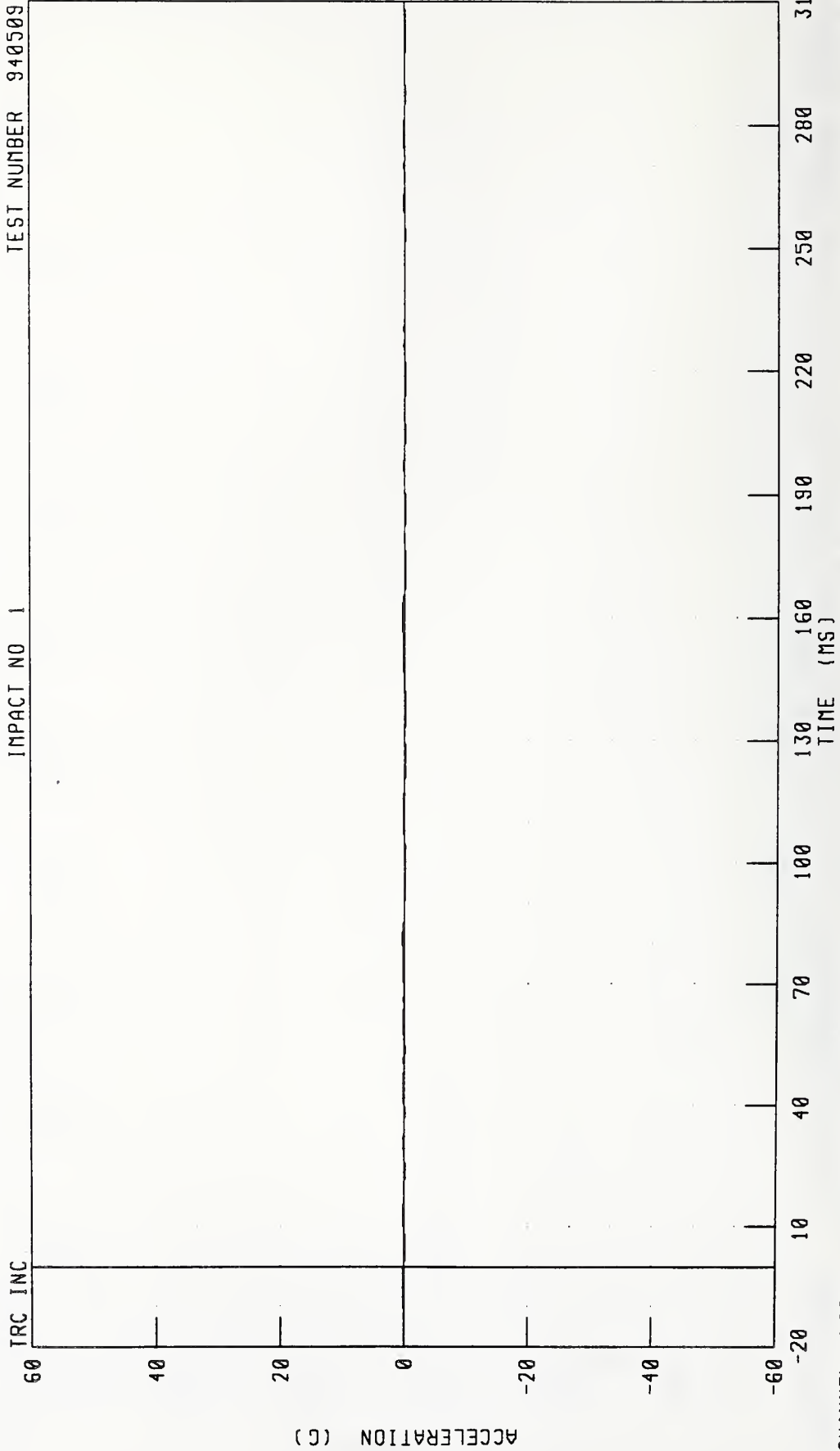


CHANNEL: VCGXD1 FILTER: CH CLASS 180 PEAK DATA: 200.69 MM @ 163.76 MS, 0.00 MM @ 0.00 MS

1987 FORD TAURUS INTO 30 5 CM POLE BARRIER AT 7 9 KPH  
VEHICLE CG Y-AXIS ACCELERATION

TEST NUMBER 940509

IMPACT NO 1



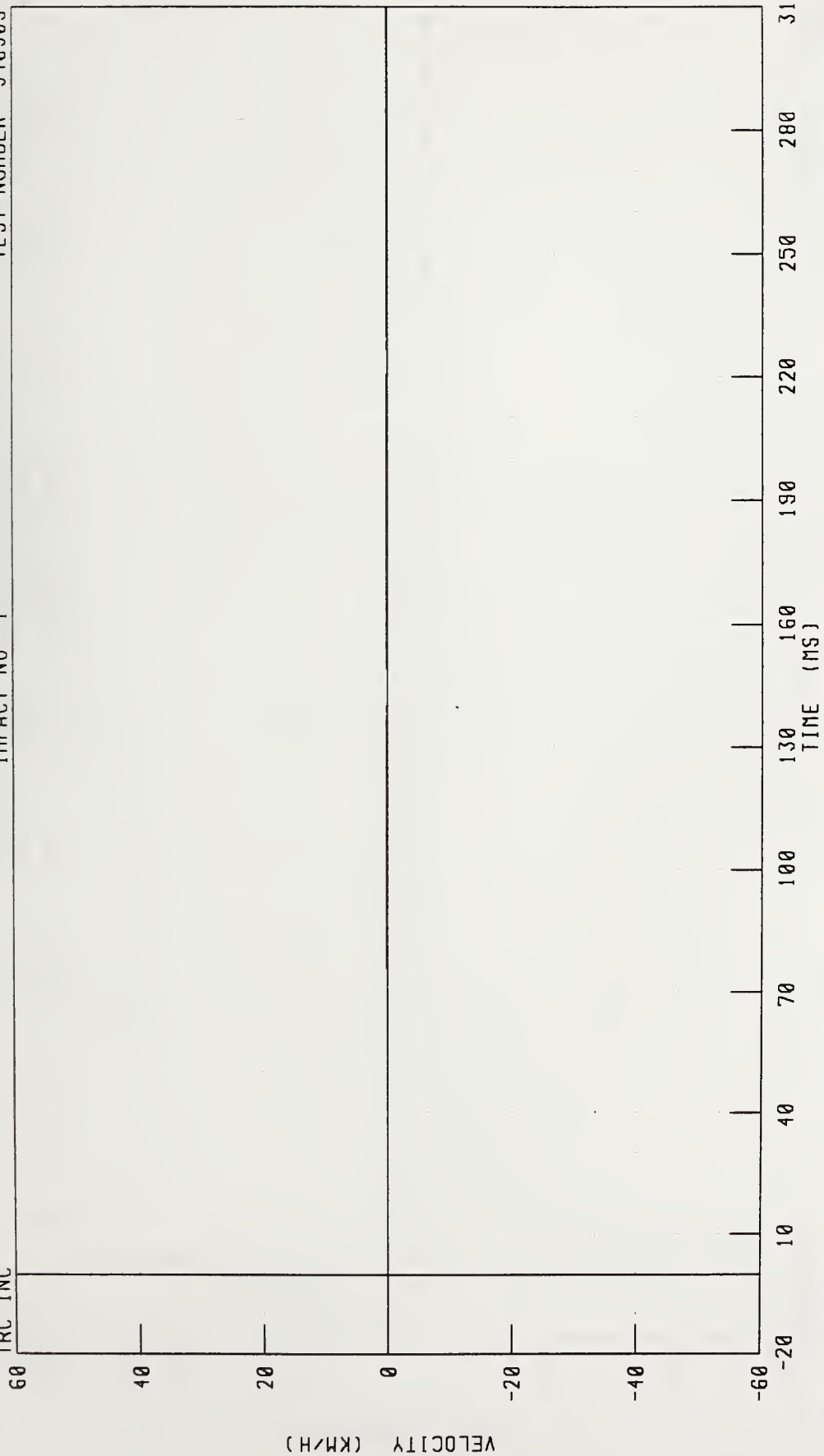
CHANNEL: VCCYG1 FILTER: CH. CLASS 60

PEAK DATA: 0 33 G @ 158.40 MS, -0.24 G @ 38 32 MS

1987 FORD TAURUS INTO 30 5 CM POLE BARRIER AT 7 9 KPH  
VEHICLE CC Y-AXIS VELOCITY

IMPACT NO 1 TEST NUMBER 940509

TRC INC



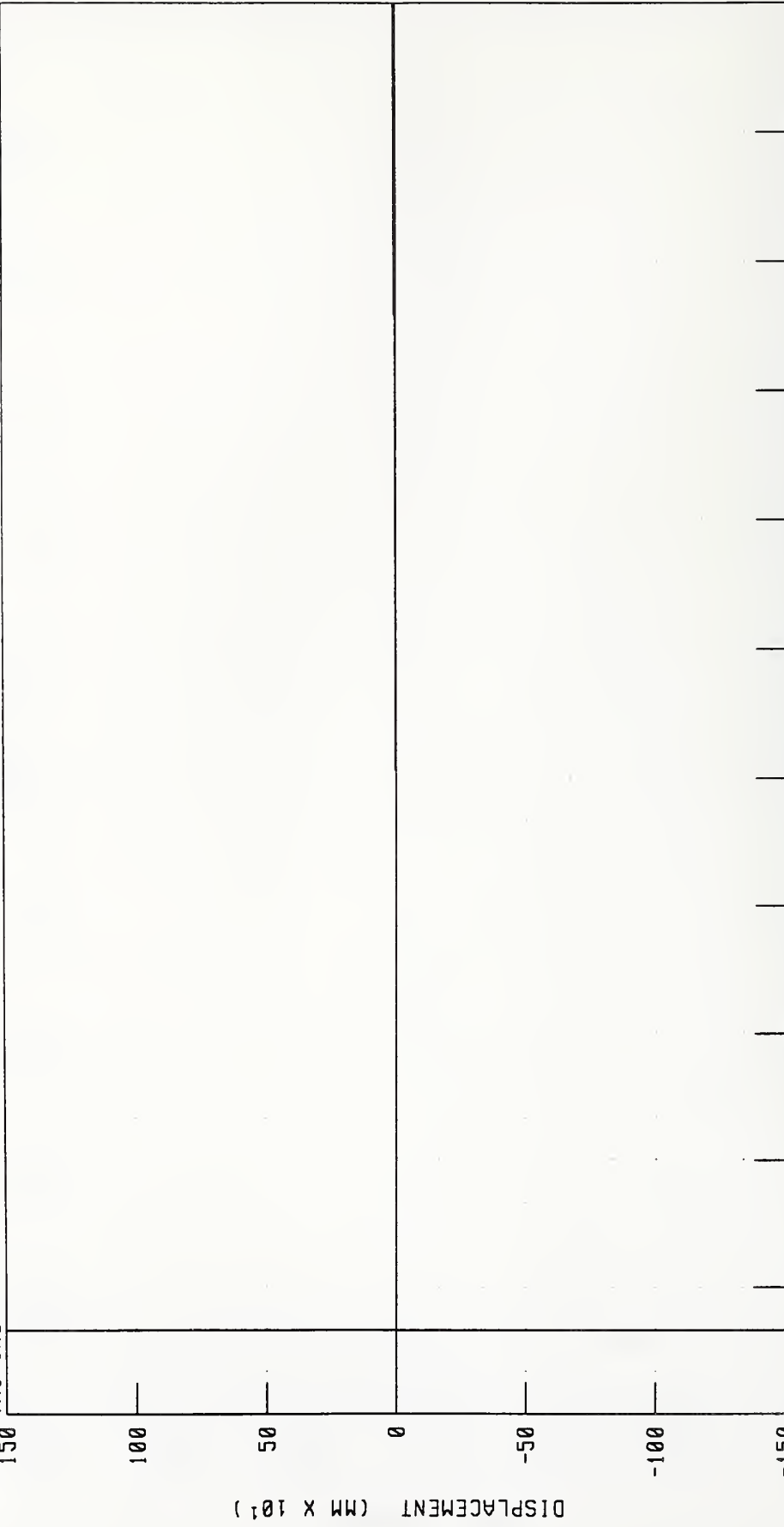
CHANNEL: VCGYV1 FILTER: CH CLASS 180 PEAK DATA 0.24 KM/H @ 166.96 MS, -0.05 KM/H @ 800 MS

1987 FORD TAURUS INTO 30 5 CM POLE BARRIER AT 7 9 KPH  
VEHICLE CG Y-AXIS DISPLACEMENT

TEST NUMBER 940509

IMPACT NO 1

TRC INC



DISPLACEMENT (MM X 10<sup>1</sup>)

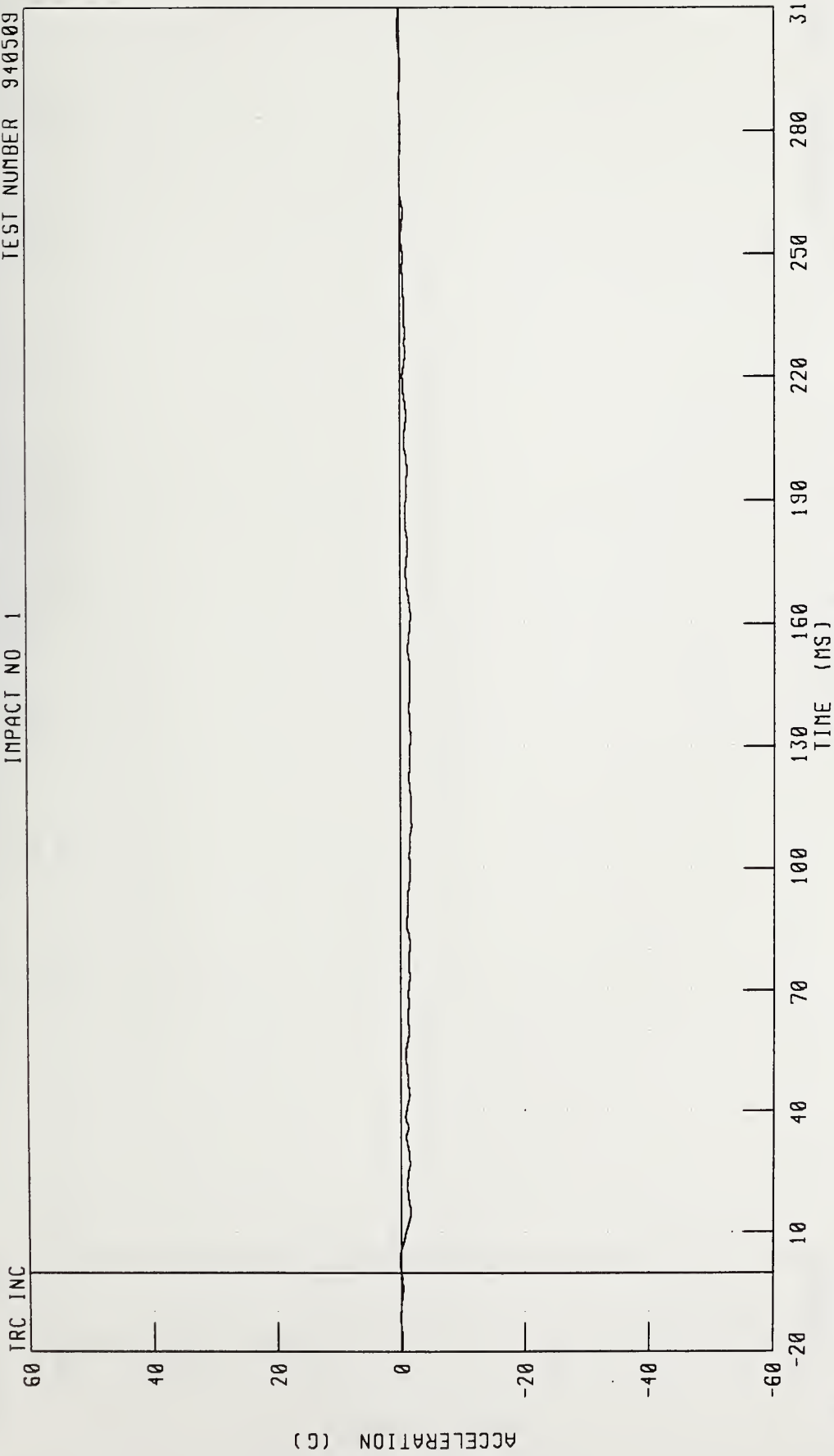
TIME (MS) 130 160 190 220 250 280 310

CHANNEL: VCGYDI FILTER: CH CLASS 180

PEAK DATA: 9 77 MM @ 310 00 MS; -0 20 MM @ 44 00 MS

1987 FORD TAURUS INTO 30 5 CM POLE BARRIER AT 7 9 KPH  
LEFT REAR SILL X-AXIS ACCELERATION

IMPACT NO 1 TEST NUMBER 940509

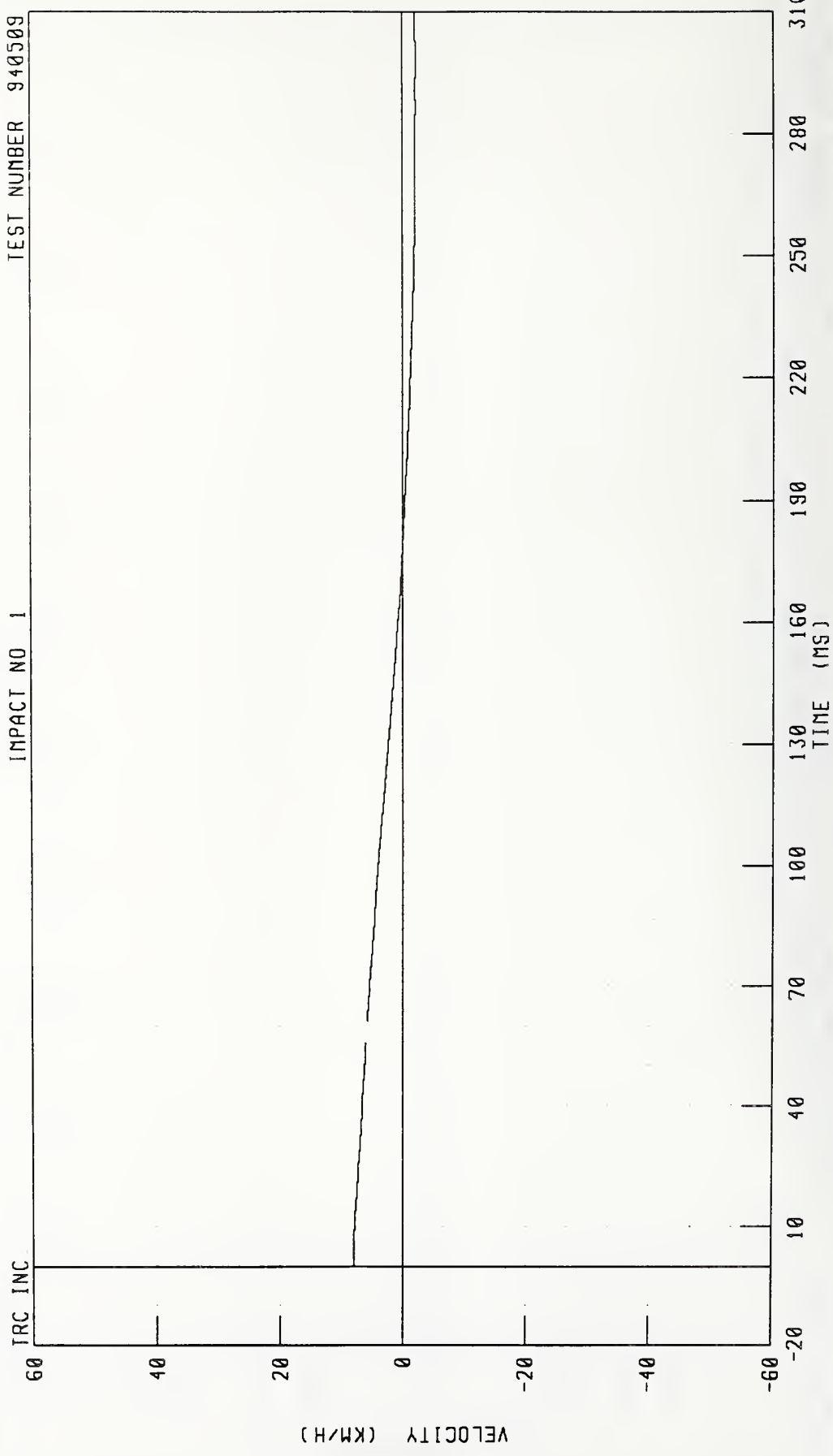


CHANNEL: LRSXG1 FILTER: CH CLASS 60 PEAK DATA: 0.32 G @ 303.04 MS, -1.78 G @ 110.40 MS

1987 FORD TAURUS INTO 30 5 CM POLE BARRIER AT 7 9 KPH  
LEFT REAR SILL X-AXIS VELOCITY

TEST NUMBER 940509

IMPACT NO 1



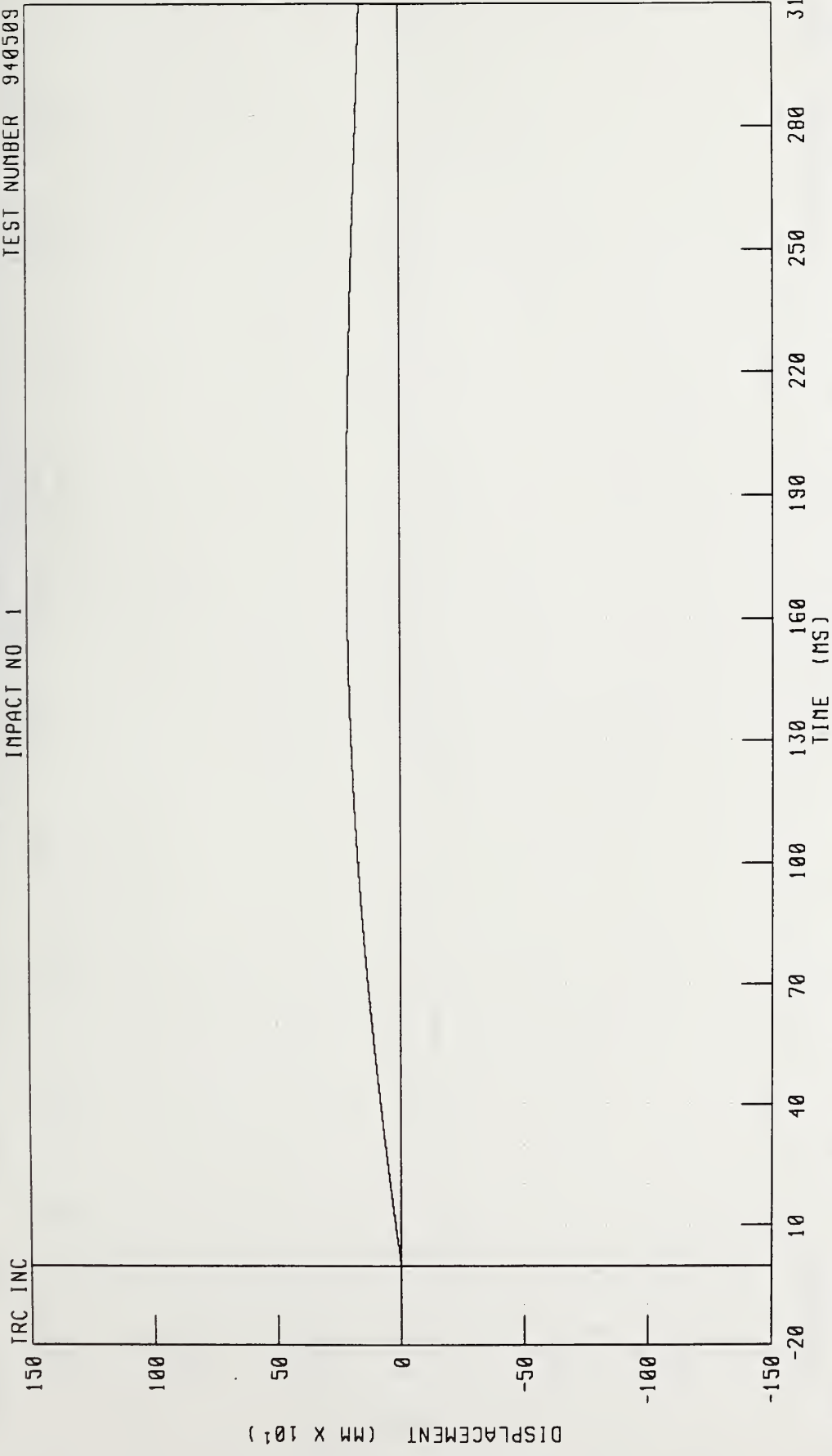
CHANNEL: LRSXV1 FILTER: CH. CLASS 180

PEAK DATA: 7 93 KM/H @ 5 20 MS, -2 14 KM/H @ 297 68 MS



1987 FORD TAURUS INTO 30 5 CM POLE BARRIER AT 7 9 KPH  
LEFT REAR SILL X-AXIS DISPLACEMENT

IMPACT NO 1 TEST NUMBER 940509

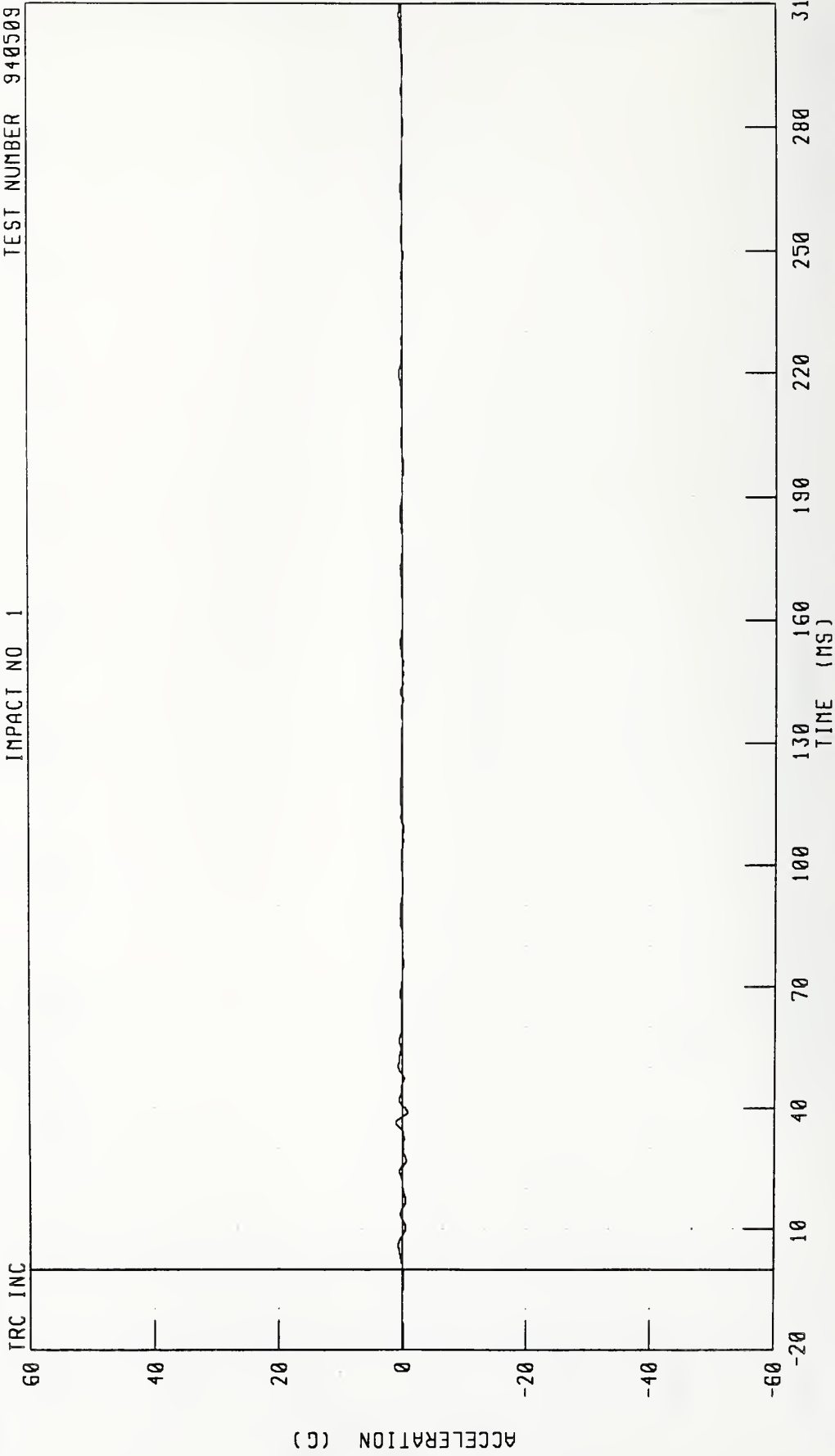


CHANNEL: LRSXD1 FILTER: CH CLASS 180 PEAK DATA: 213 07 MM @ 178 88 MS, 0 00 MM @ 0 00 MS

1987 FORD TAURUS INTO 30.5 CM POLE BARRIER AT 7.9 KPH  
LEFT REAR SILL Y-AXIS ACCELERATION

TEST NUMBER 940509

IMPACT NO 1



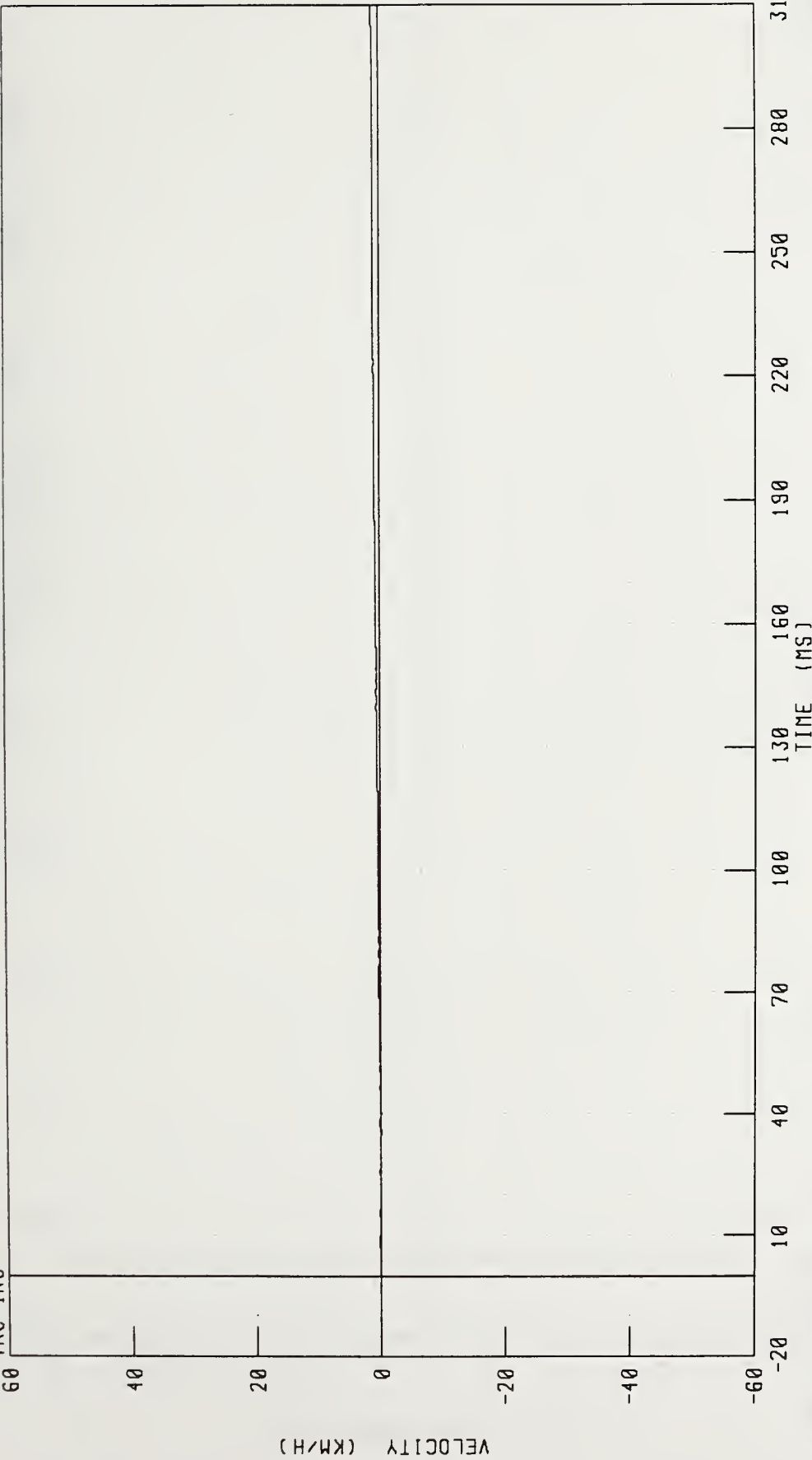
CHANNEL: LRSYG1 FILTER: CH CLASS 60

PEAK DATA: 1.05 G @ 36.48 MS, -0.80 G @ 39.12 MS

1987 FORD TAURUS INTO 30 5 CM POLE BARRIER AT 7 9 KPH  
LEFT REAR SILL Y-AXIS VELOCITY

IMPACT NO 1 TEST NUMBER 940509

TRC INC

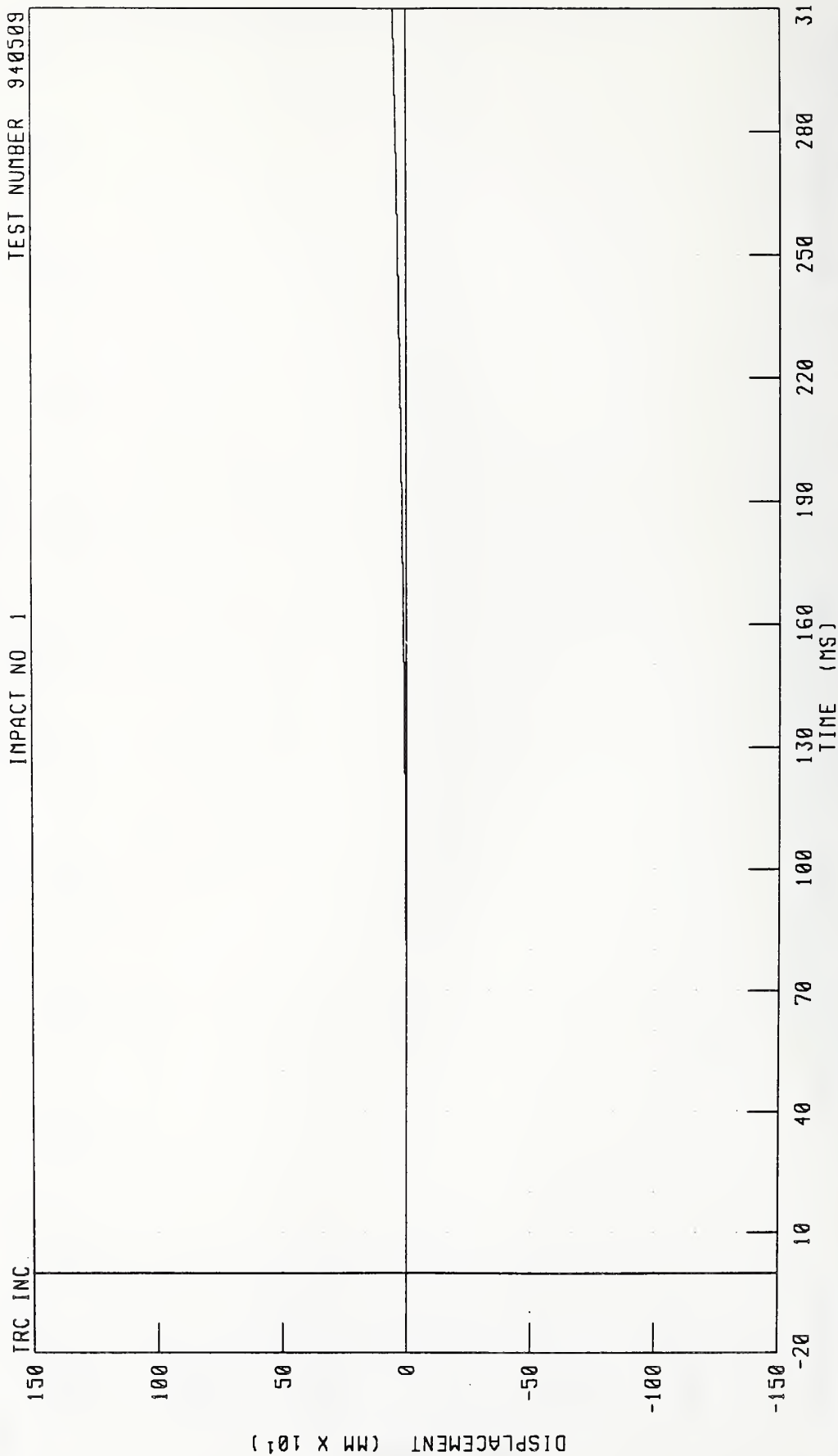


CHANNEL: LRSYV1 FILTER: CH CLASS 180 PEAK DATA: 1 17 KM/H @ 310 00 MS, -0.11 KM/H @ 35 60 MS

1987 FORD TAURUS INTO 30 5 CM POLE BARRIER AT 7 9 KPH  
LEFT REAR SILL Y-AXIS DISPLACEMENT

TEST NUMBER 940509

IMPACT NO 1



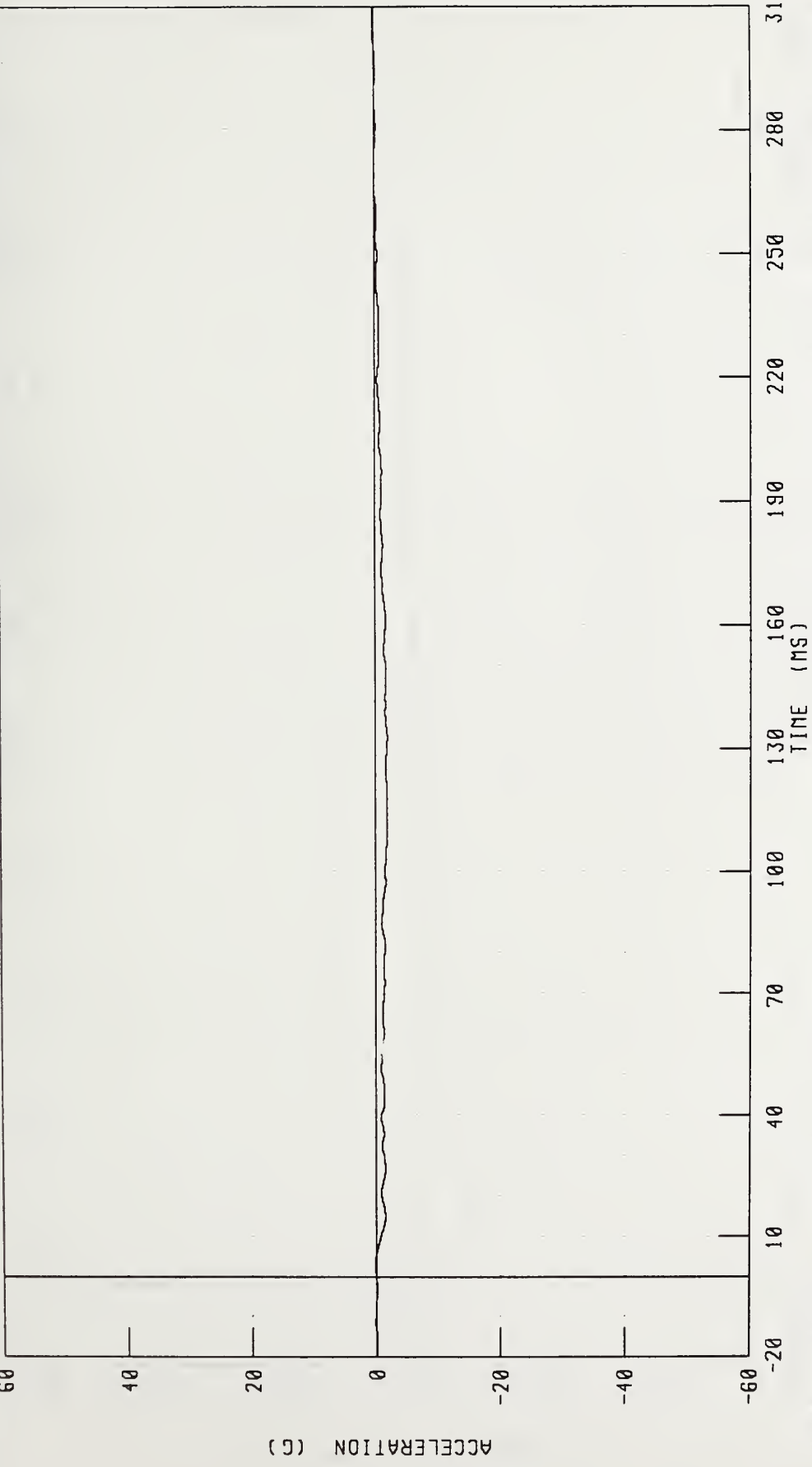
CHANNEL: LRSYDI FILTER: CH CLASS 180

PEAK DATA: 51.13 MM @ 310 00 MS; 0 00 MM @ 2 00 MS

1987 FORD TAURUS INTO 30 5 CM POLE BARRIER AT 7 9 KPH  
RIGHT REAR SILL X-AXIS ACCELERATION  
IMPACT NO 1

TEST NUMBER 940509

TRC INC

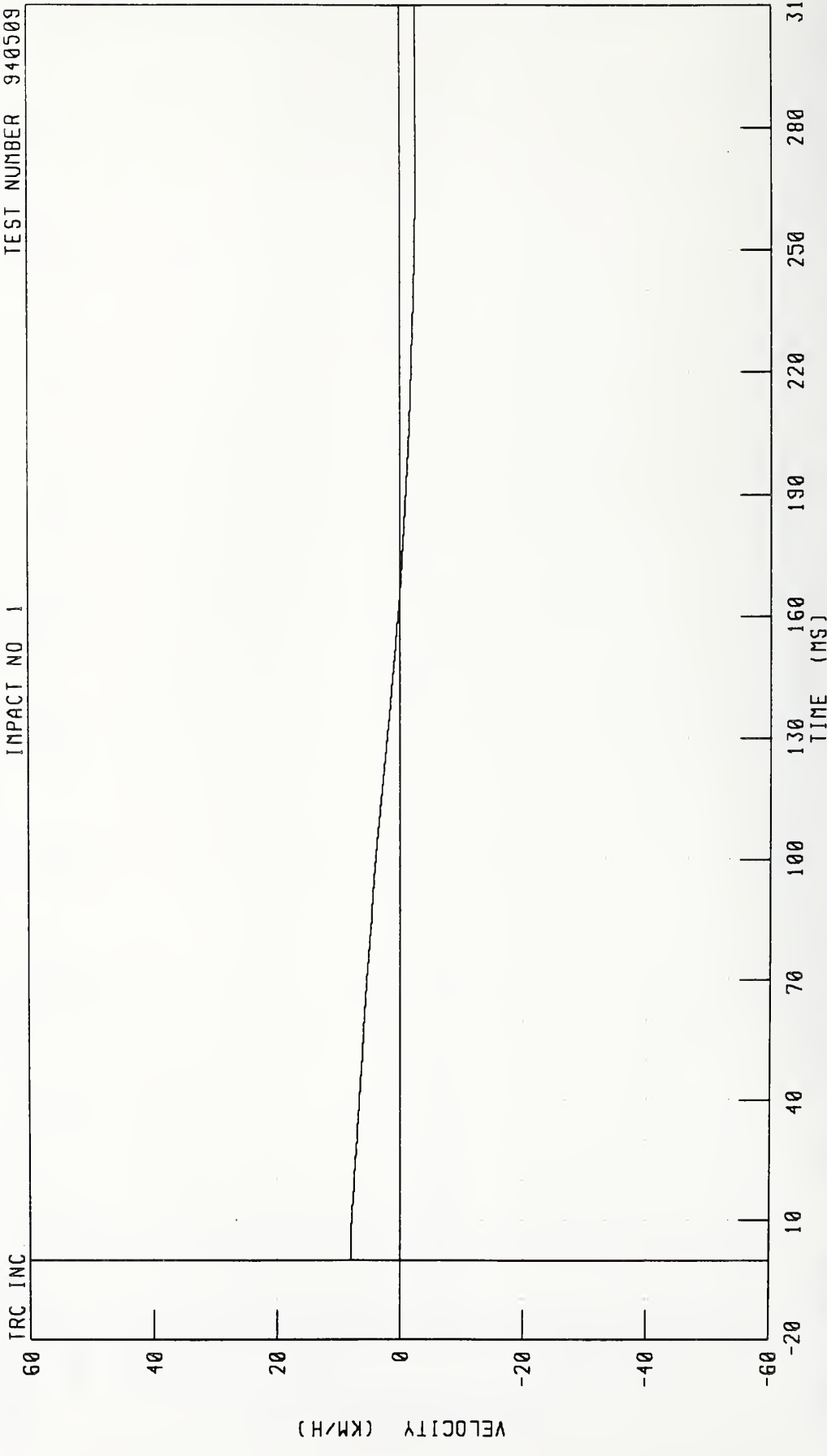


CHANNEL: RRSXG1 FILTER: CH CLASS 60

PEAK DATA: 0 26 G @ 304 64 MS, -1 95 G @ 132 72 MS

1987 FORD TAURUS INTO 30.5 CM POLE BARRIER AT 7.9 KPH  
RIGHT REAR SILL X-AXIS VELOCITY

IMPACT NO 1 TEST NUMBER 940509

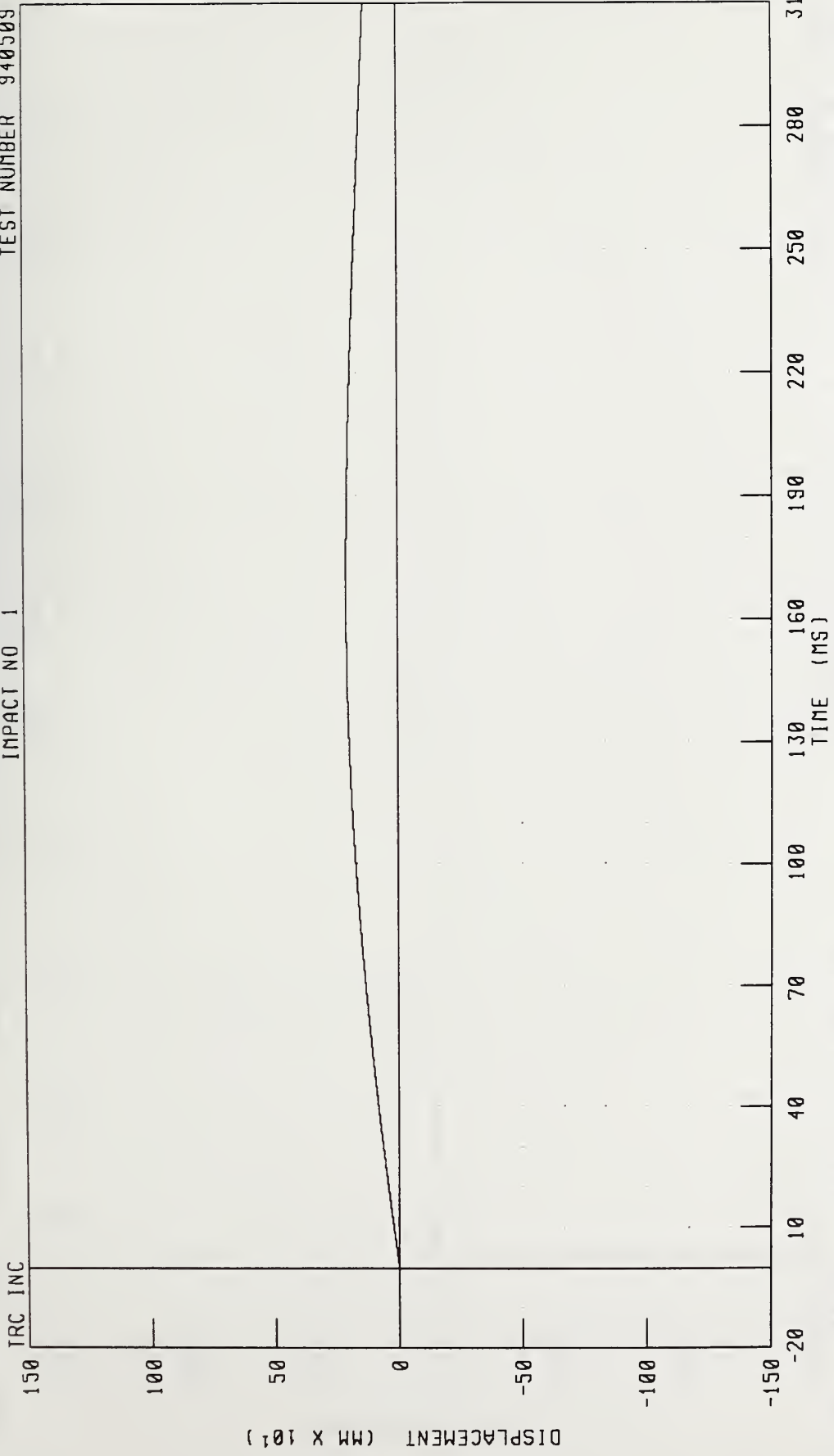


CHANNEL: RRSXV1 FILTER: CH. CLASS 180

PEAK DATA: 7.93 KM/H @ 4.88 MS, -2.59 KM/H @ 300.48 MS

1987 FORD TAURUS INTO 30 5 CM POLE BARRIER AT 7 9 KPH  
RIGHT REAR SILL X-AXIS DISPLACEMENT  
IMPACT NO 1

TEST NUMBER 940509

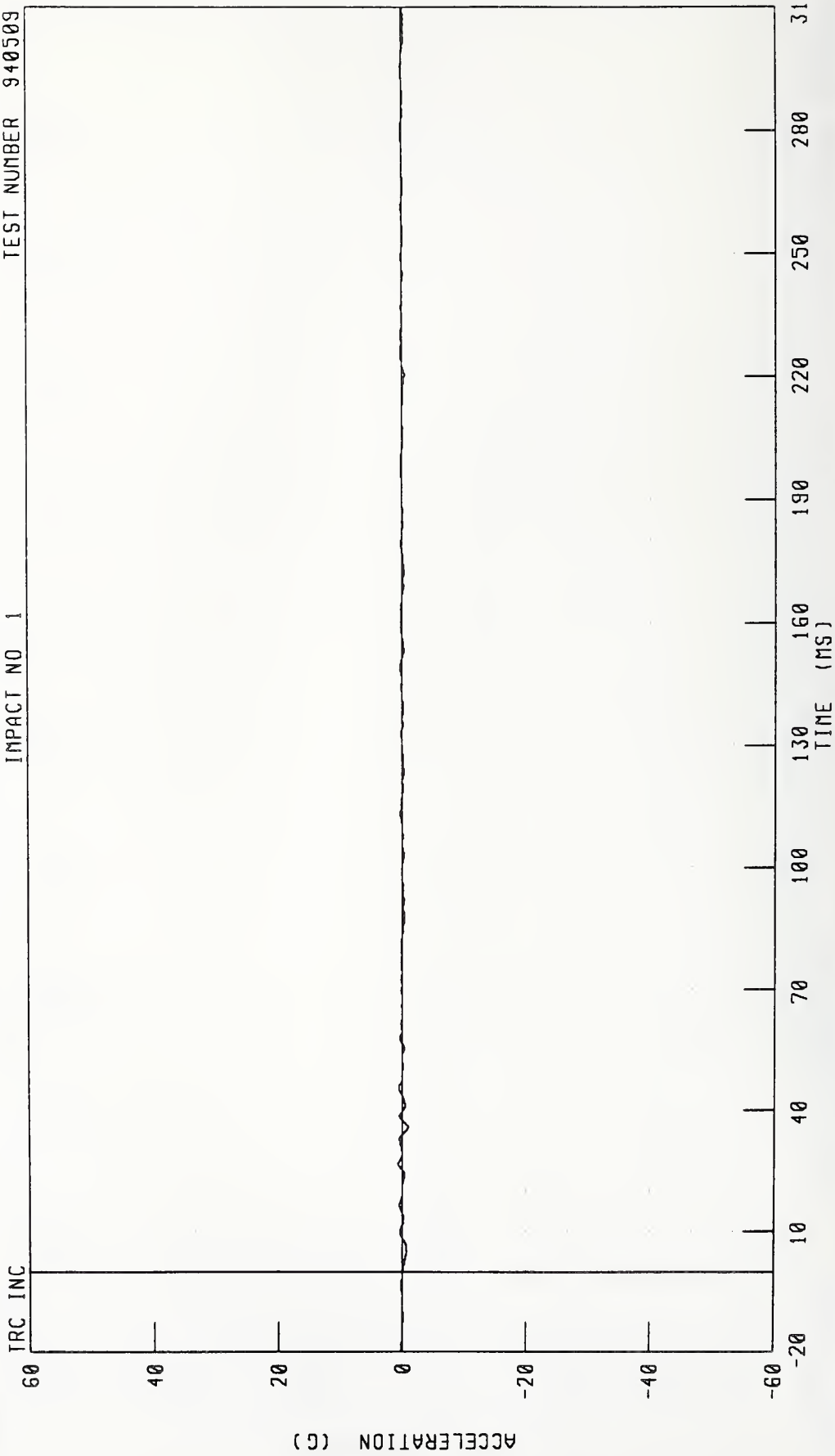


CHANNEL: RRSX01 FILTER: CH. CLASS 180

PEAK DATA: 206 61 MM @ 165 92 MS, 0 00 MM @ 0 00 MS

1987 FORD TAURUS INTO 30 5 CM POLE BARRIER AT 7 9 KPH  
RIGHT REAR SILL Y-AXIS ACCELERATION

IMPACT NO 1 TEST NUMBER 940509



CHANNEL RRSYG1 FILTER CH CLASS 60

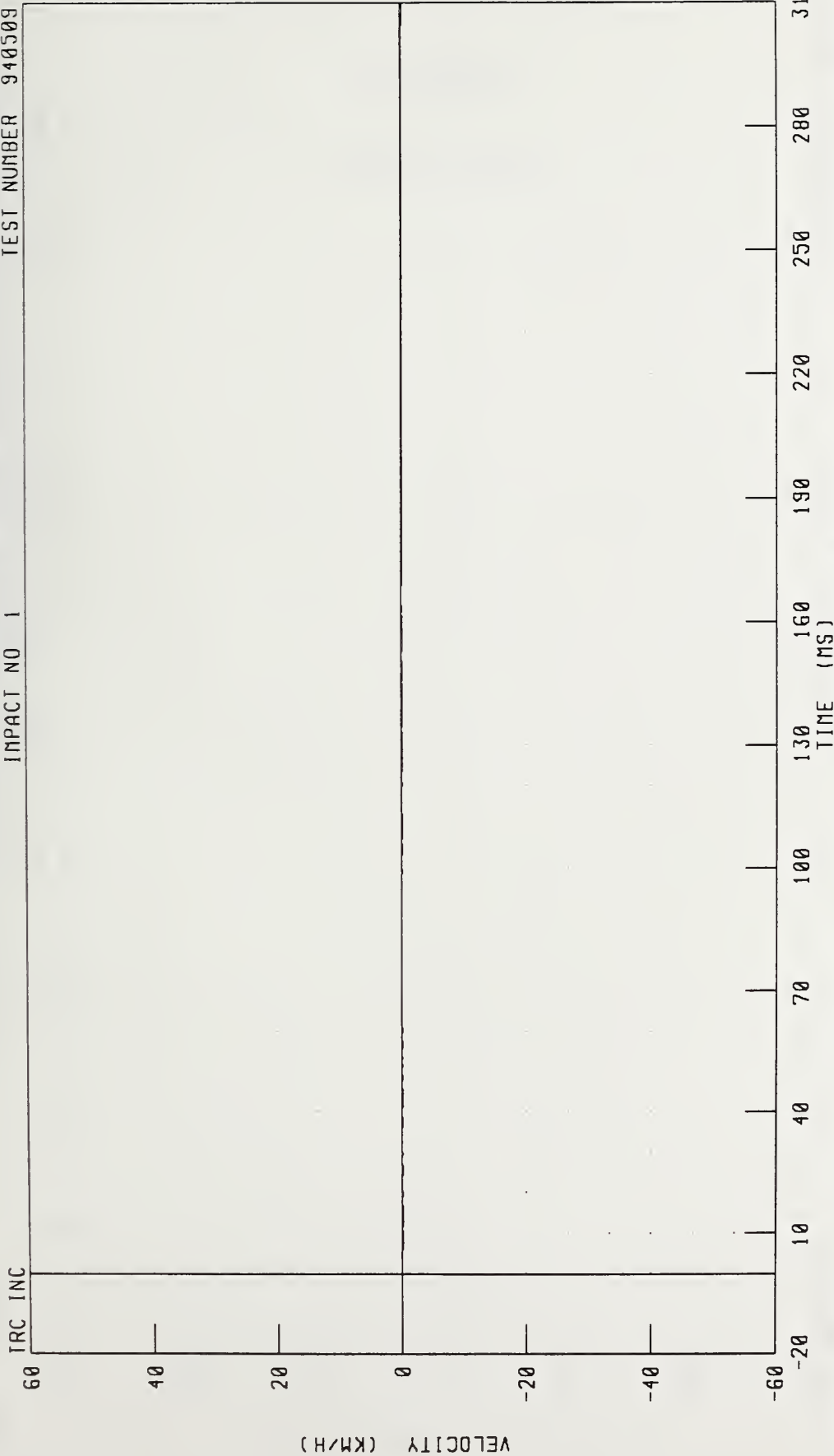
PEAK DATA 0 66 G @ 26 80 MS, -0 96 G @ 35 84 MS



1987 FORD TAURUS INTO 30.5 CM POLE BARRIER AT 7.9 KPH  
RIGHT REAR SILL Y-AXIS VELOCITY

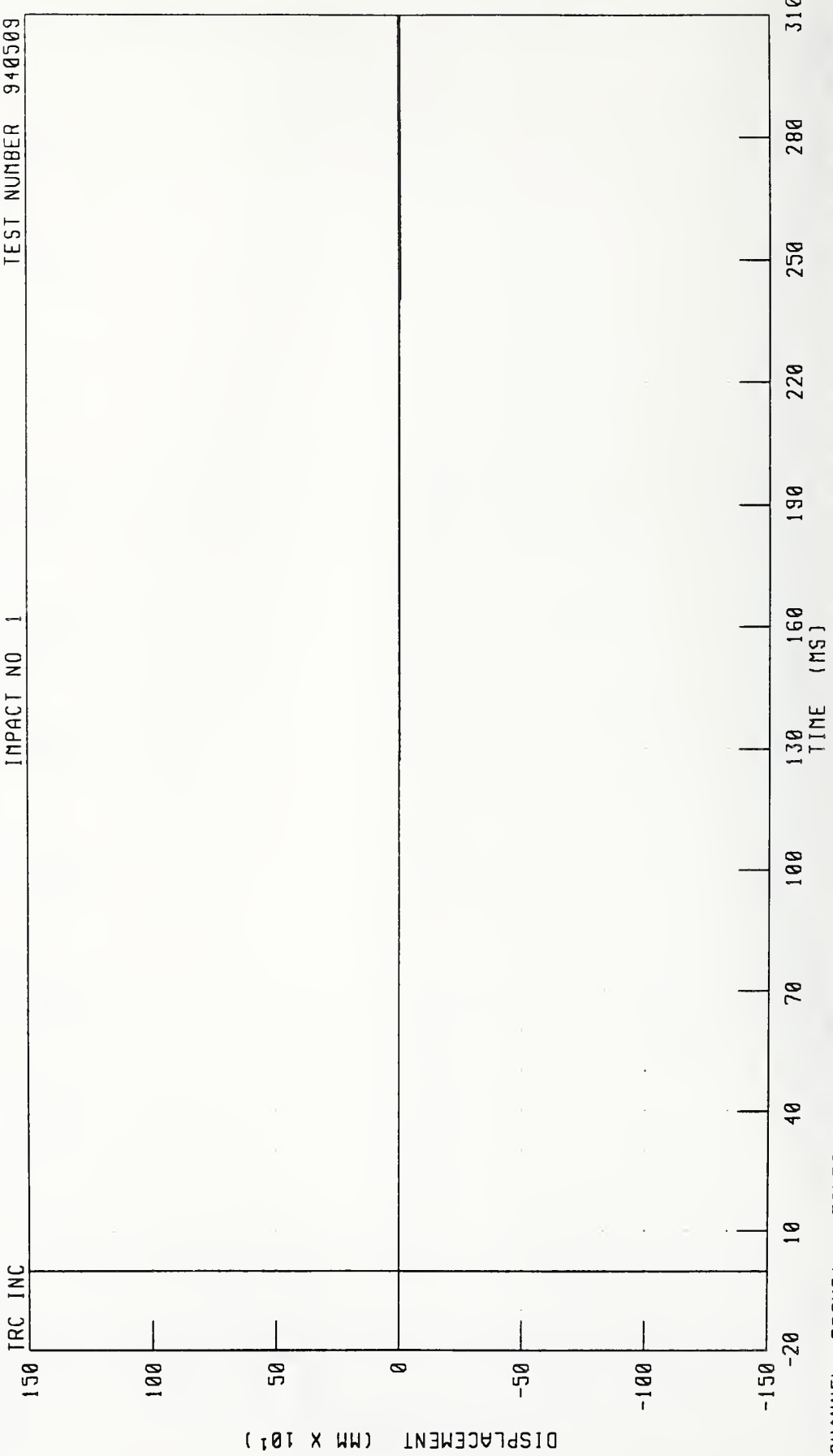
TEST NUMBER 940509

IMPACT NO 1



1987 FORD TAURUS INTO 30 5 CM POLE BARRIER AT 7 9 KPH  
RIGHT REAR SILL Y-AXIS DISPLACEMENT

IMPACT NO 1 TEST NUMBER 940509



CHANNEL: RRSYD1 FILTER: CH. CLASS 180

PEAK DATA: 0 00 MM @ 0.24 MS; -9.96 MM @ 310 00 MS

DATA PLOTS

TEST NO. 940509-2

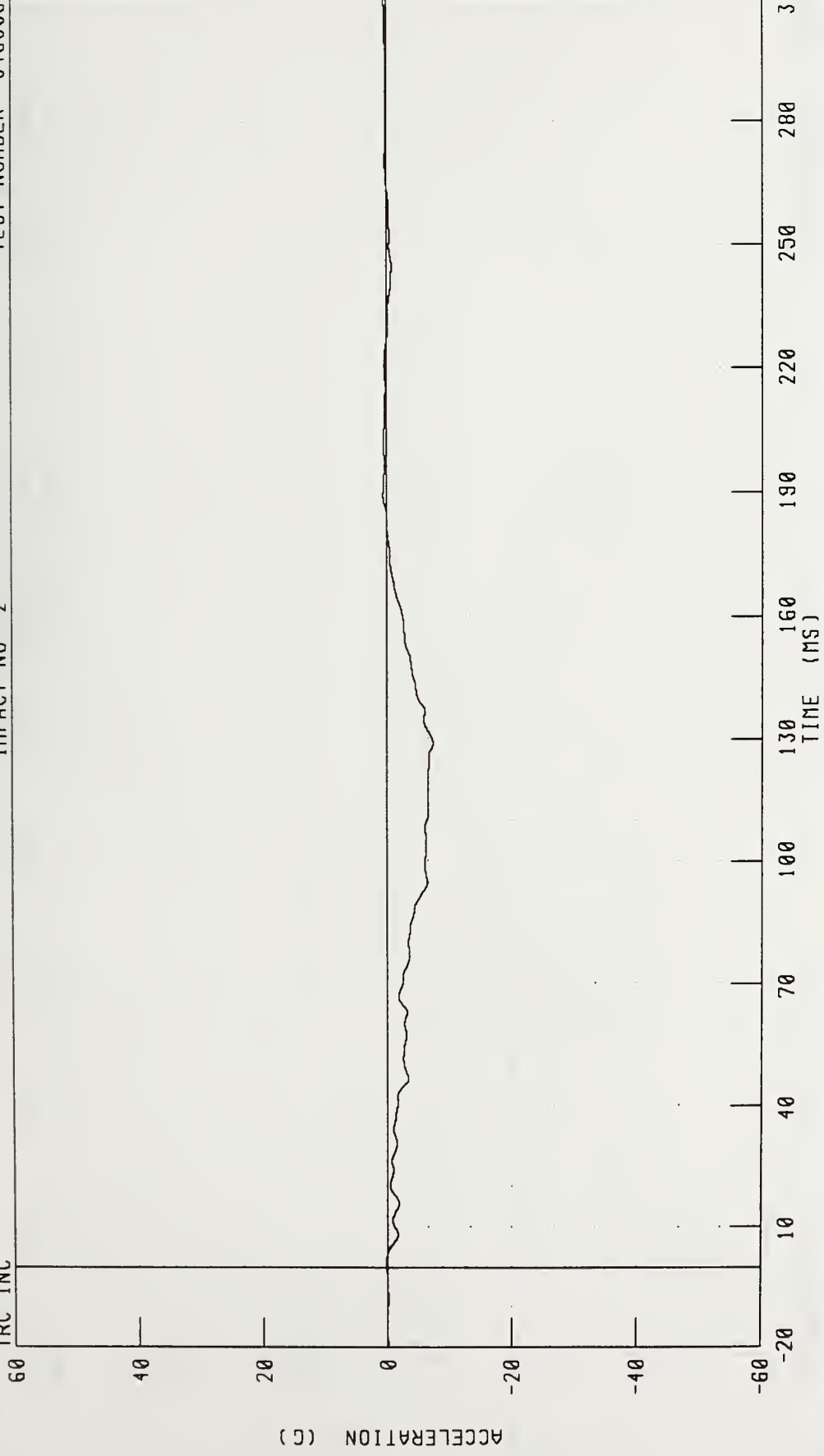


1987 FORD TAURUS INTO 30 5 CM POLE BARRIER AT 15 9 KPH  
VEHICLE CC X-AXIS ACCELERATION

TEST NUMBER 940509

IMPACT NO 2

TRC INC



CHANNEL VCGXG1 FILTER CH CLASS 60

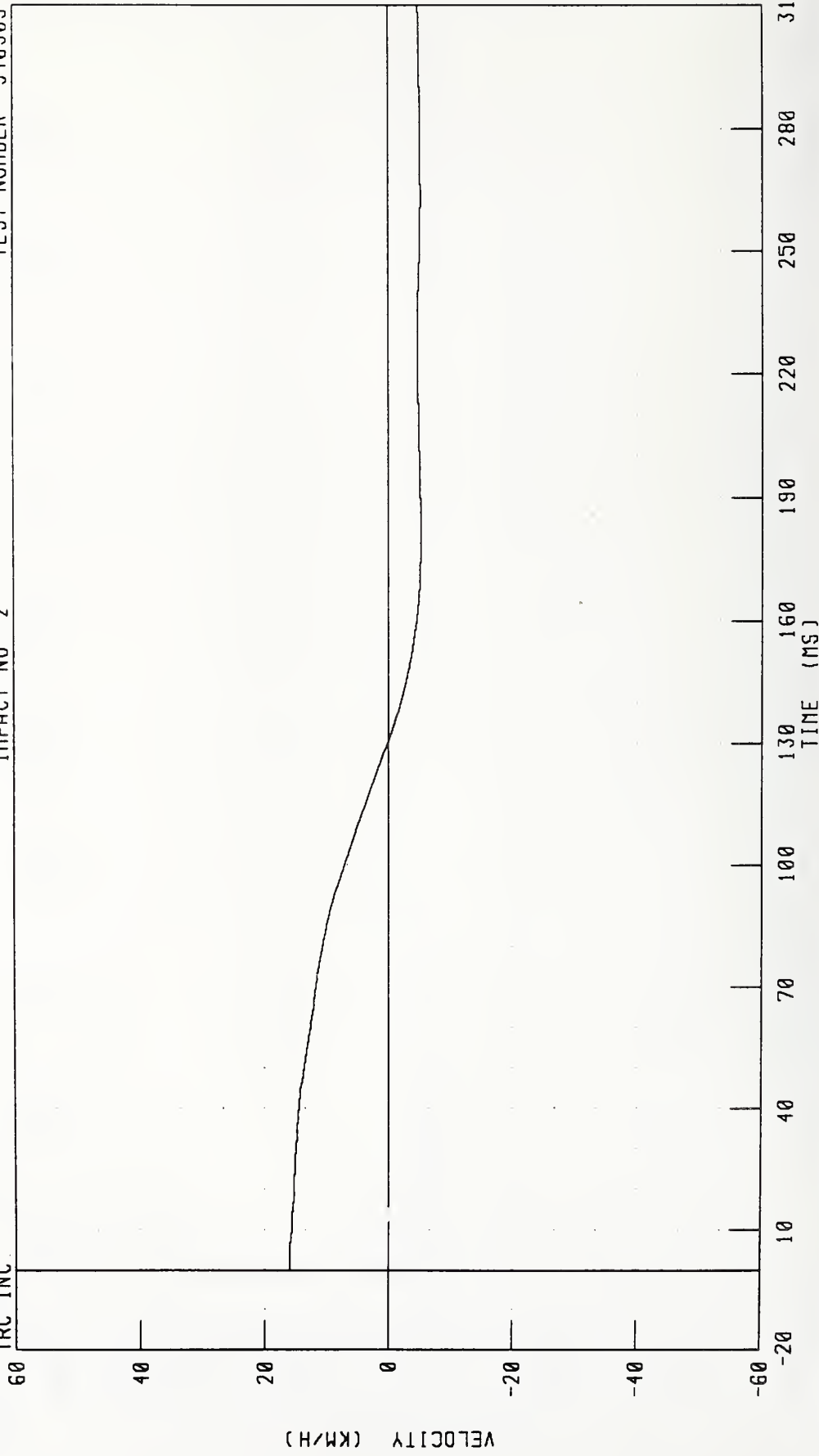
PEAK DATA 0 62 G @ 189.12 MS, -7 40 G @ 128.88 MS

1987 FORD TAURUS INTO 30 5 CM POLE BARRIER AT 15 9 KPH  
VEHICLE CG X-AXIS VELOCITY

TEST NUMBER 940509

IMPACT NO 2

TRC INC



CHANNEL: VCGXV1 FILTER: CH CLASS 180

PEAK DATA: 15 91 KM/H @ 5 04 MS, -5 24 KM/H @ 180 96 MS

1987 FORD TAURUS INTO 30 5 CM POLE BARRIER AT 15 9 KPH  
VEHICLE CG X-AXIS DISPLACEMENT

IMPACT NO 2 TEST NUMBER 940509

TRC INC

150

100

50

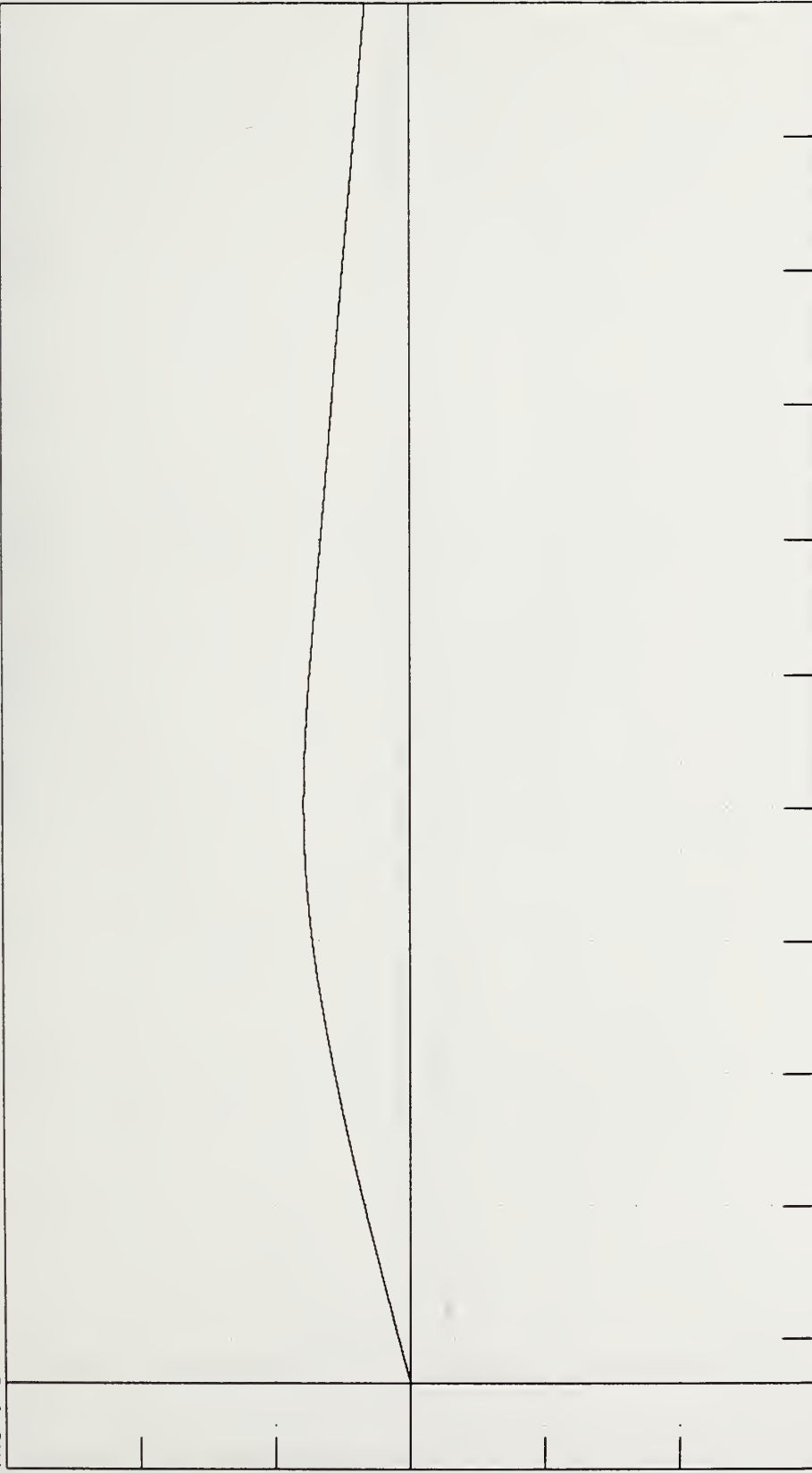
0

-50

-100

-150

DISPLACEMENT (MM X 10<sup>1</sup>)



310 280 250 220 190 160 130 100 70 40 10

TIME (MS)

CHANNEL: VCGX01 FILTER: CH C' ASS 180

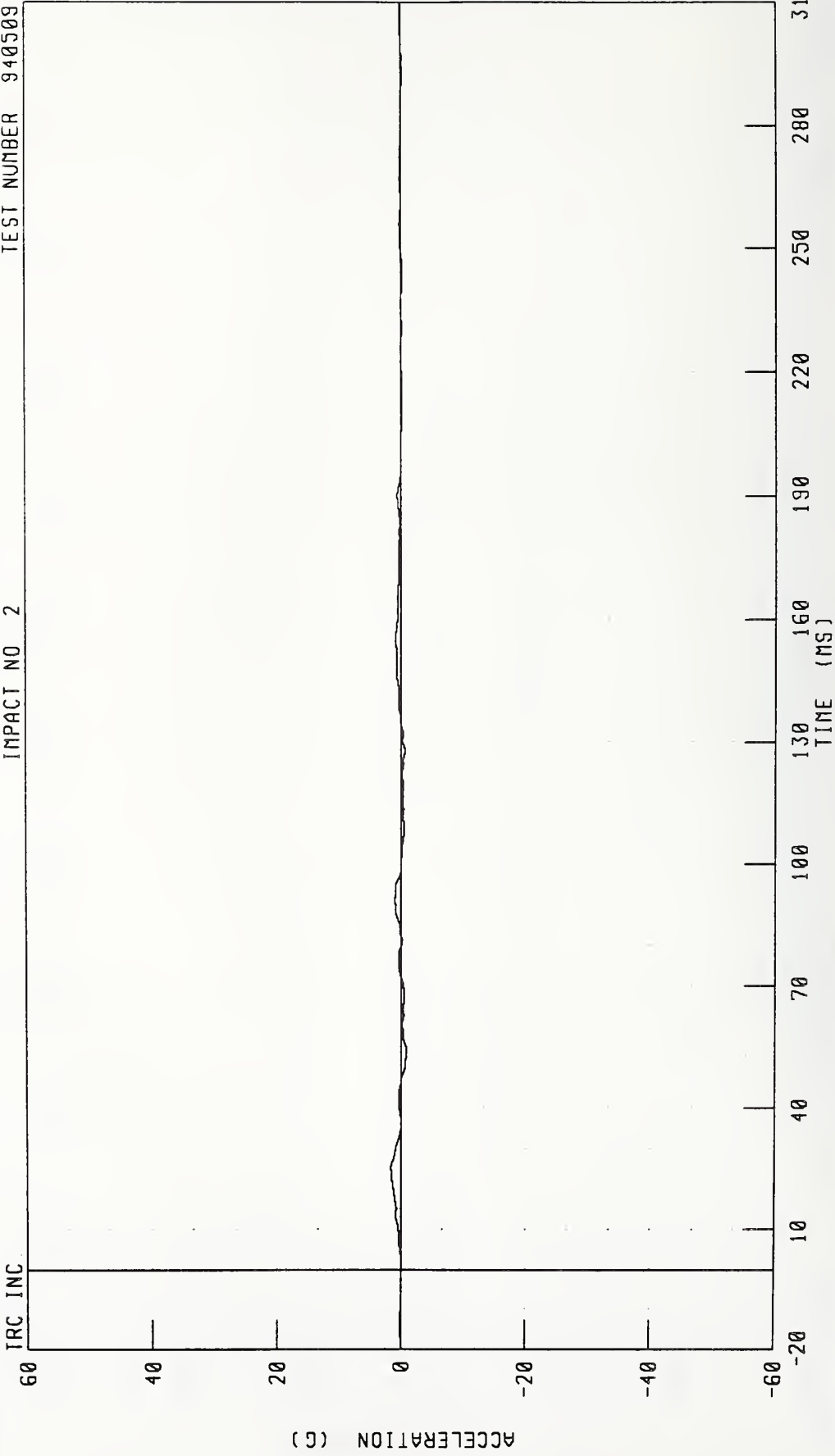
PEAK DATA: 391 97 MM @ 130 72 MS, 0 00 MM @ 0 00 MS

1987 FORD TAURUS INTO 30 5 CM POLE BARRIER AT 15 9 KPH  
VEHICLE CG Y-AXIS ACCELERATION

TEST NUMBER 940509

IMPACT NO 2

TRC INC



CHANNEL: VCGY01 FILTER: CH. CLASS 60

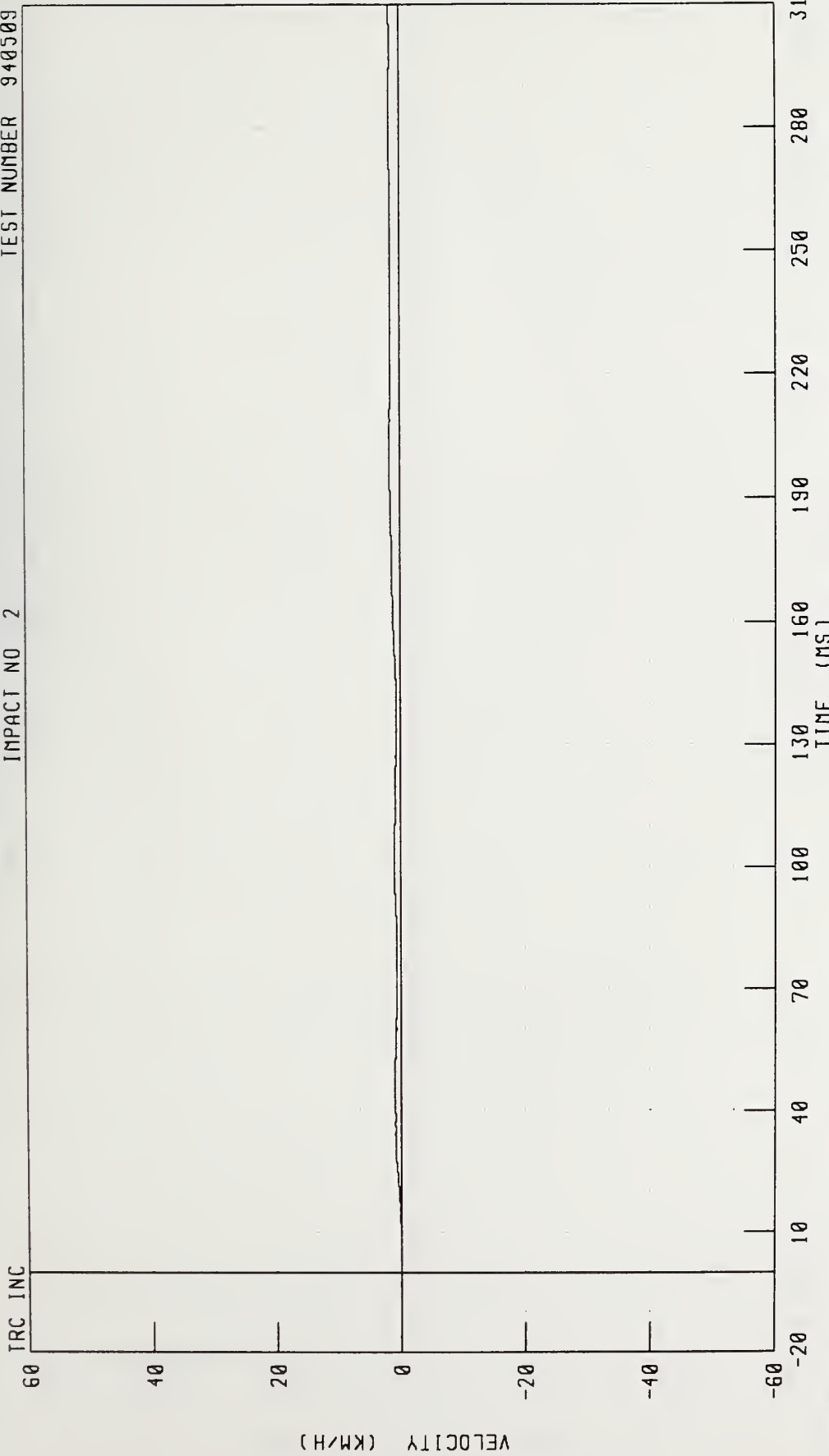
PEAK DATA 1 64 G @ 25.36 MS, -0 84 G @ 53 52 MS



1987 FORD TAURUS INTO 30 5 CM POLE BARRIER AT 15 9 KPH  
VEHICLE CC Y-AXIS VELOCITY

TEST NUMBER 940509

IMPACT NO 2



CHANNEL: VCGYV1 FILTER CH CLASS 180

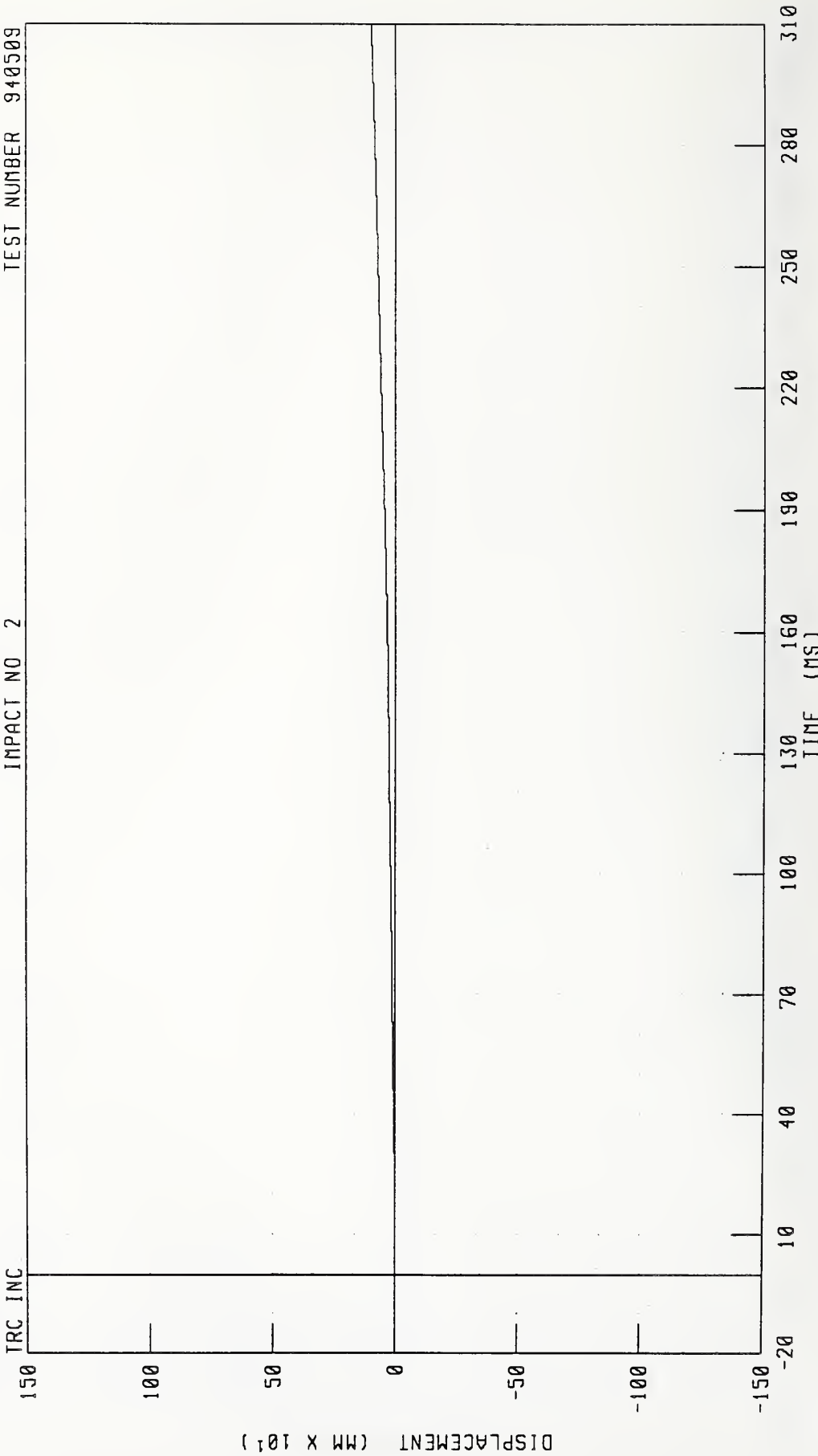
PEAK DATA 1 66 KM/H @ 281 76 MS, 0 00 KM/H @ 3 60 MS

1987 FORD TAURUS INTO 30.5 CM POLE BARRIER AT 15.9 KPH  
VEHICLE CG Y-AXIS DISPLACEMENT

TEST NUMBER 940509

IMPACT NO 2

TRC INC

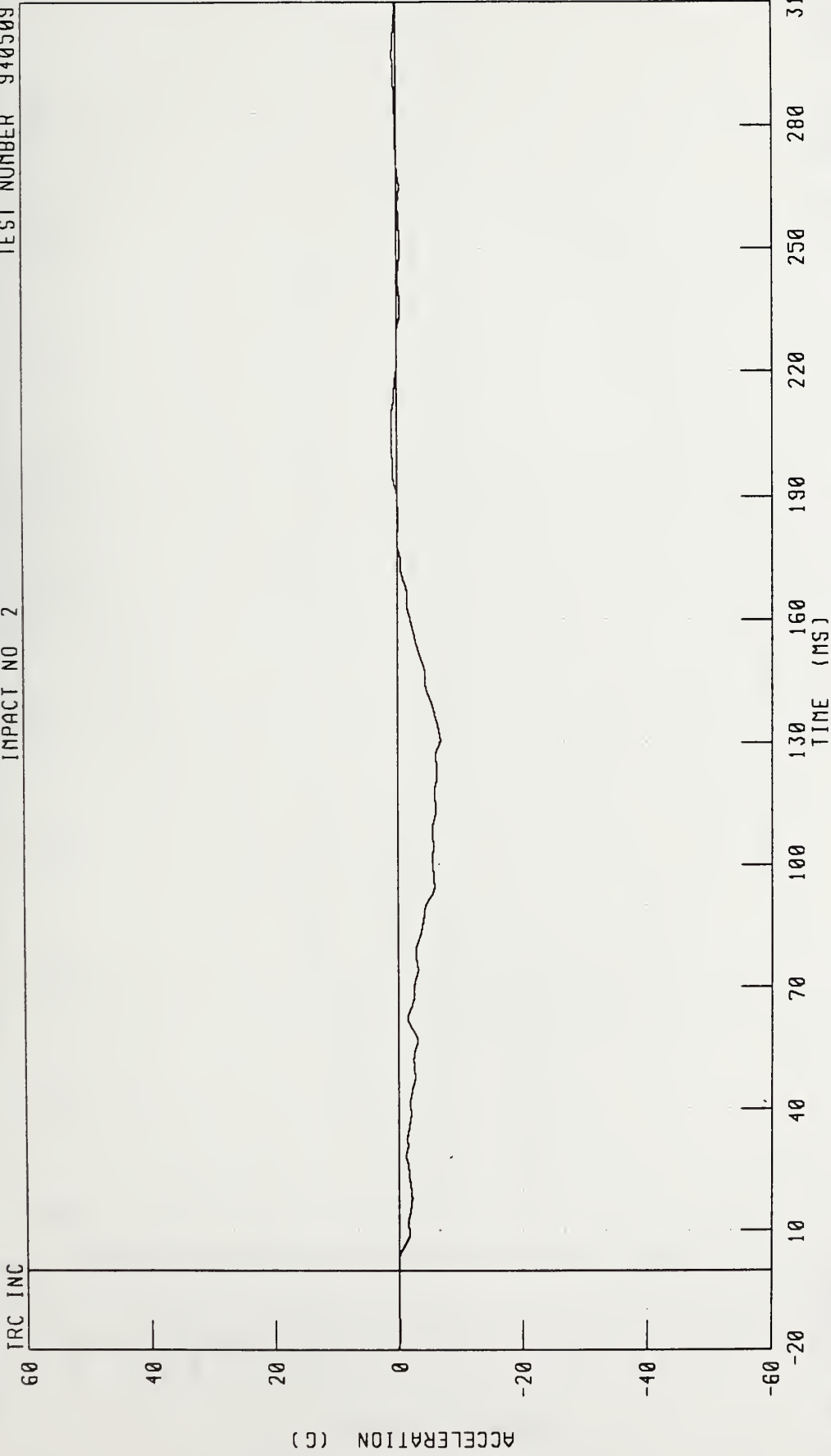


CHANNEL: VCGYD1 FILTER: CH. CLASS 180

PEAK DATA: 97.86 MM @ 310.00 MS, 0.00 MM @ 4.40 MS

1987 FORD TAURUS INTO 30 5 CM POLE BARRIER AT 15 9 KPH  
LEFT REAR SILL X-AXIS ACCELERATION

IMPACT NO 2 TEST NUMBER 940509



CHANNEL LRSXG1 FILTER CH CLASS 60

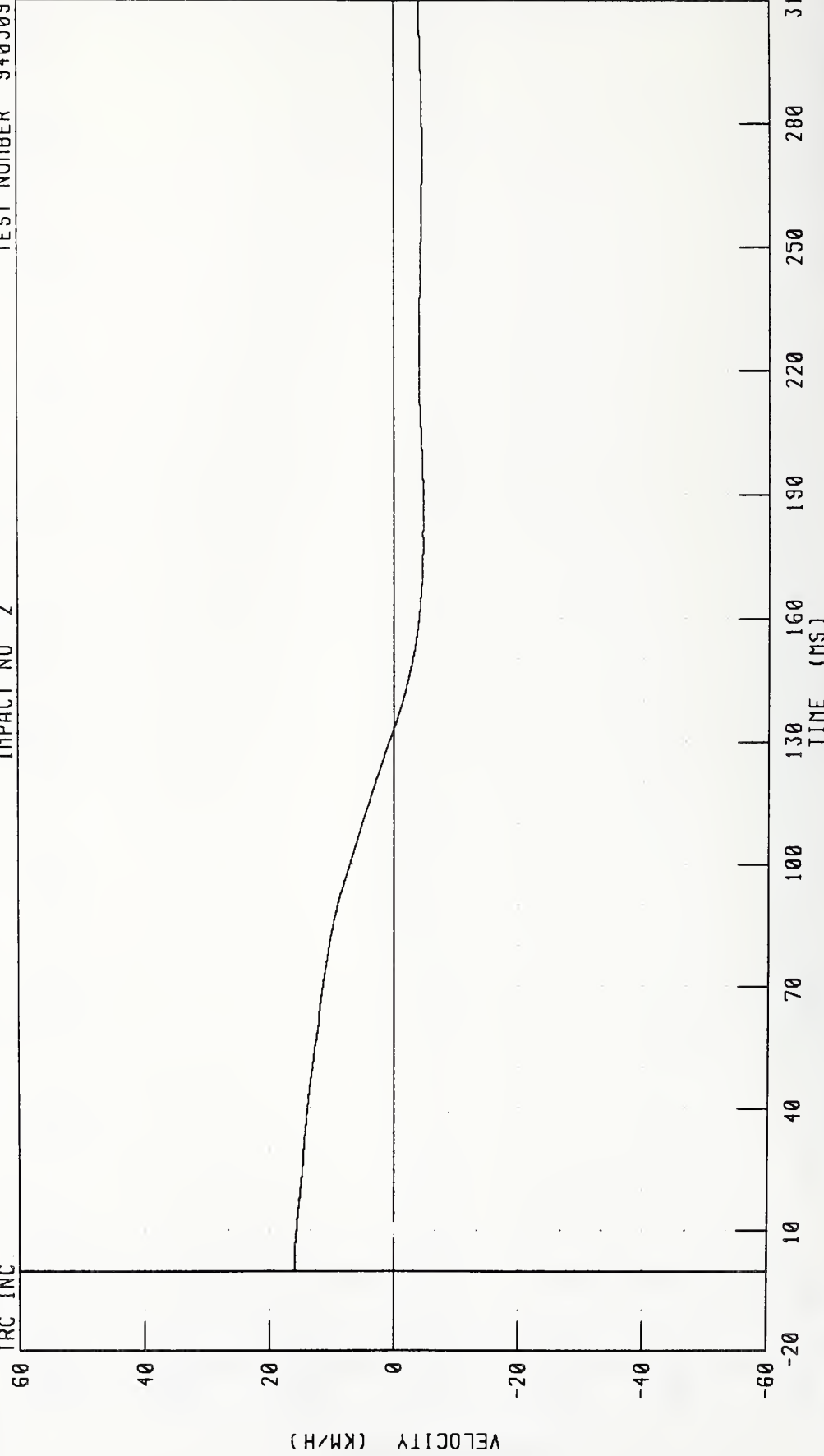
PEAK DATA 0 87 G @ 207 36 MS, -6 86 G @ 130 56 MS

1987 FORD TAURUS INTO 30 5 CM POLE BARRIER AT 15 9 KPH  
LEFT REAR SILL X-AXIS VELOCITY

TEST NUMBER 940509

IMPACT NO 2

TRC INC

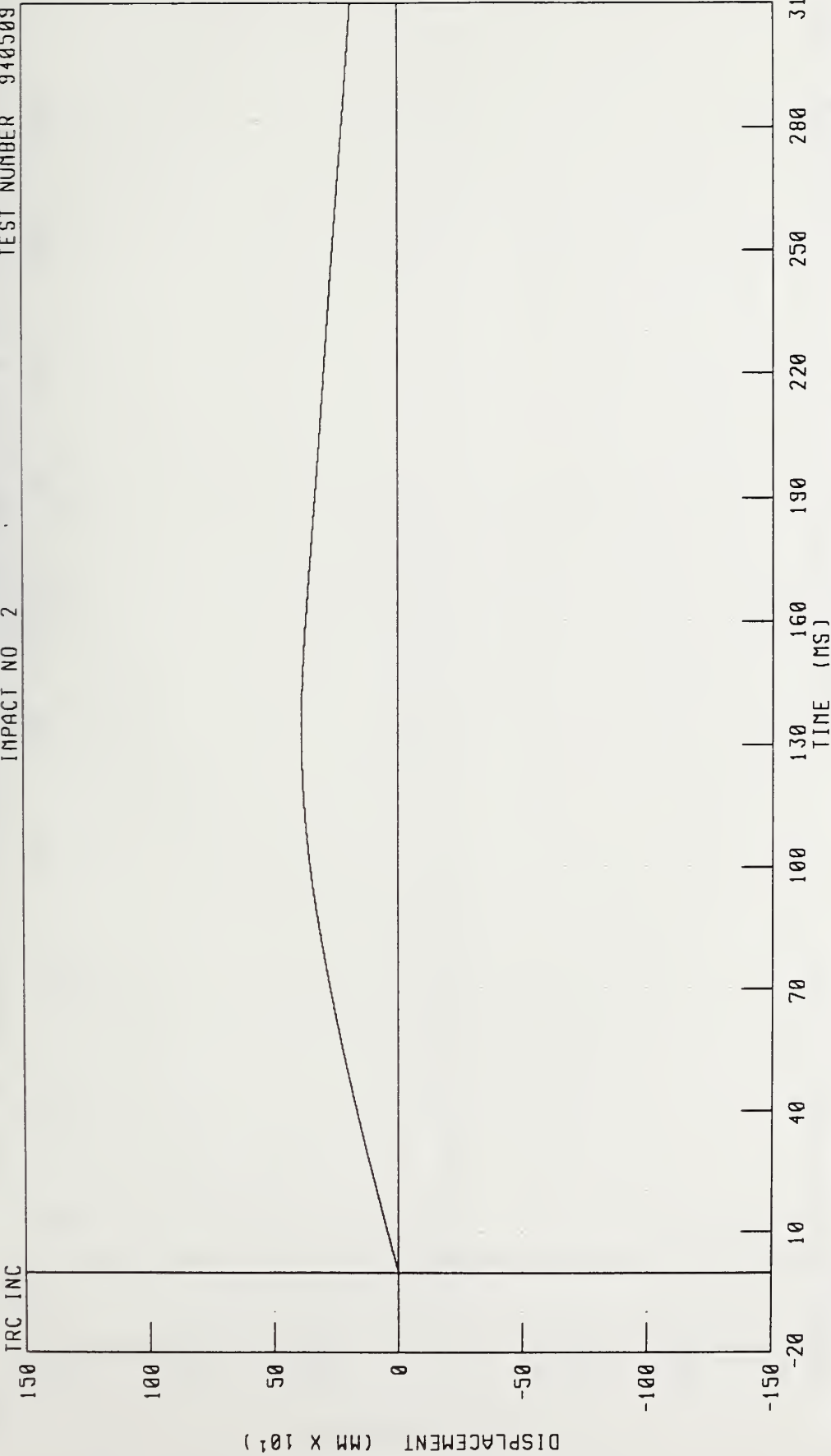


CHANNEL: LRSXV1 FILTER: CH CLASS 180

PEAK DATA: 15 91 KM/H @ 4 16 MS, -4 69 KM/H @ 190 96 MS

1987 FORD TAURUS INTO 30 5 CM POLE BARRIER AT 15 9 KPH  
LEFT REAR SILL X-AXIS DISPLACEMENT

IMPACT NO 2 TEST NUMBER 940509



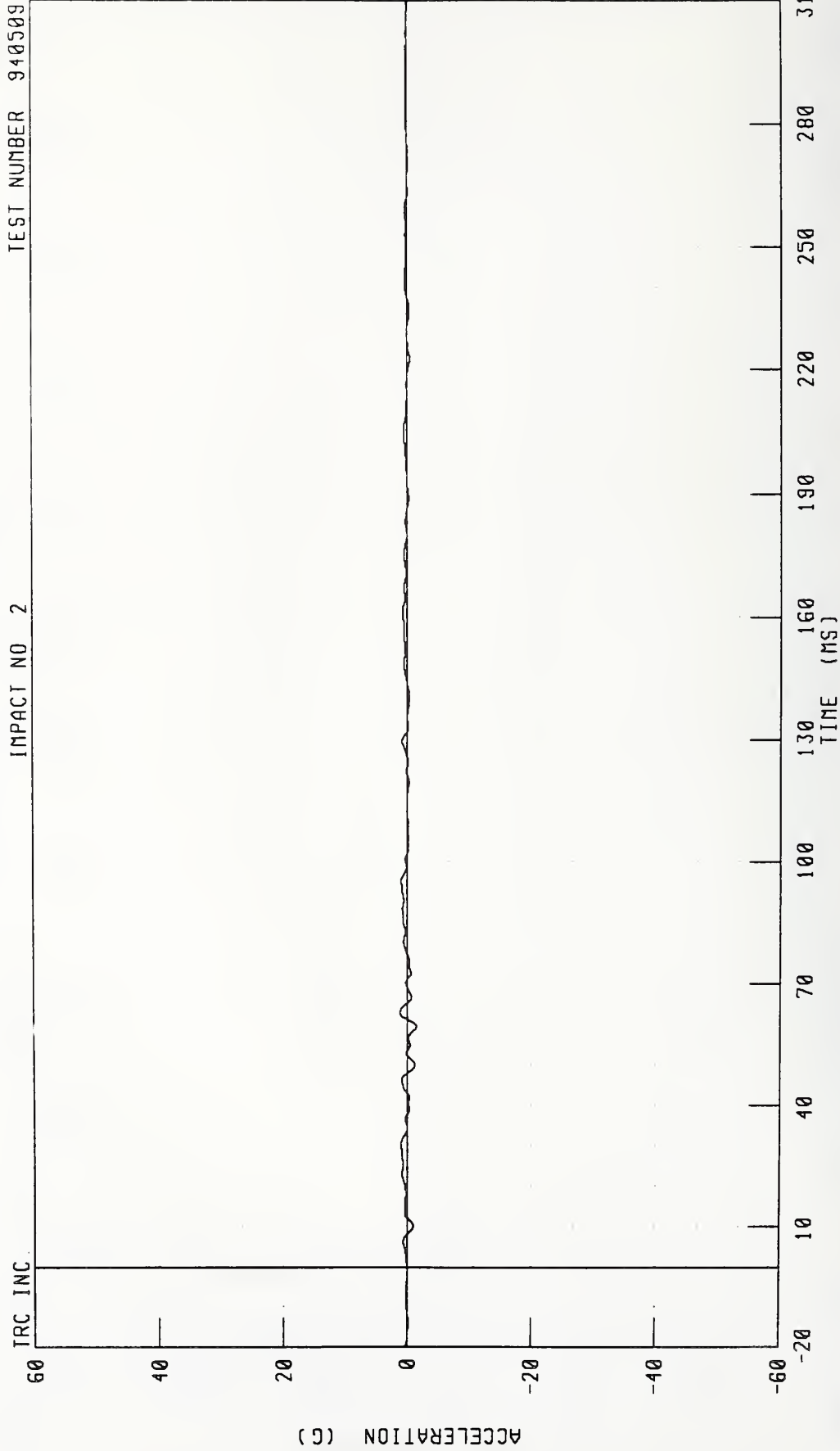
CHANNEL: LRSXD1 FILTER: CH CLASS 180

PEAK DATA: 386 22 MM @ 133 36 MS, 0 00 MM @ 0 00 MS

1987 FORD TAURUS INTO 30 5 CM POLE BARRIER AT 15 9 KPH  
LEFT REAR SILL Y-AXIS ACCELERATION

TEST NUMBER 940509

IMPACT NO 2

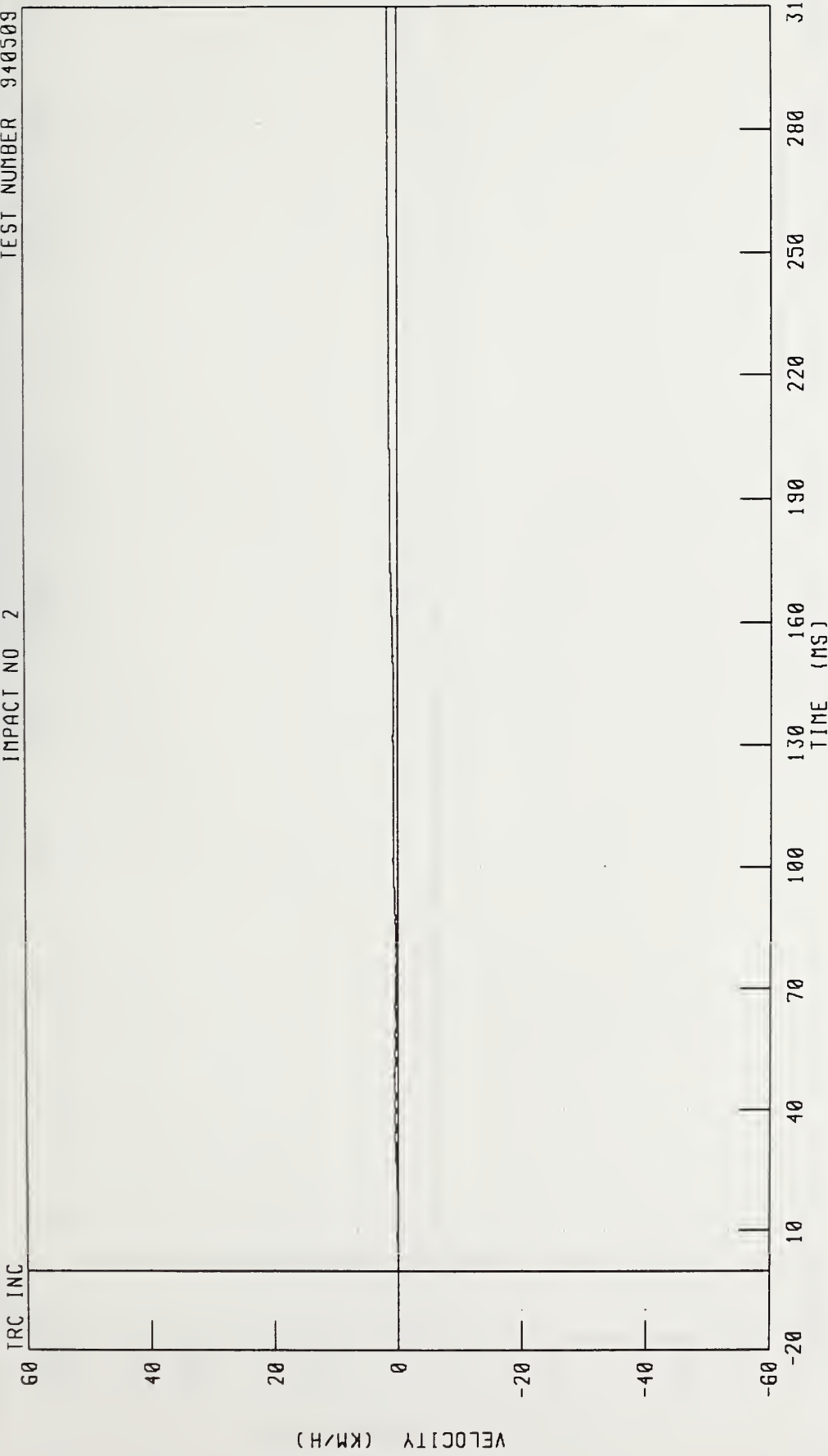


CHANNEL: LRSYG1 FILTER: CH CLASS 60

PEAK DATA: 1.18 G @ 62.96 MS, -1.46 G @ 59.52 MS

1987 FORD TAURUS INTO 30.5 CM POLE BARRIER AT 15.9 KPH  
LEFT REAR SILL Y-AXIS VELOCITY

IMPACT NO 2 TEST NUMBER 940509

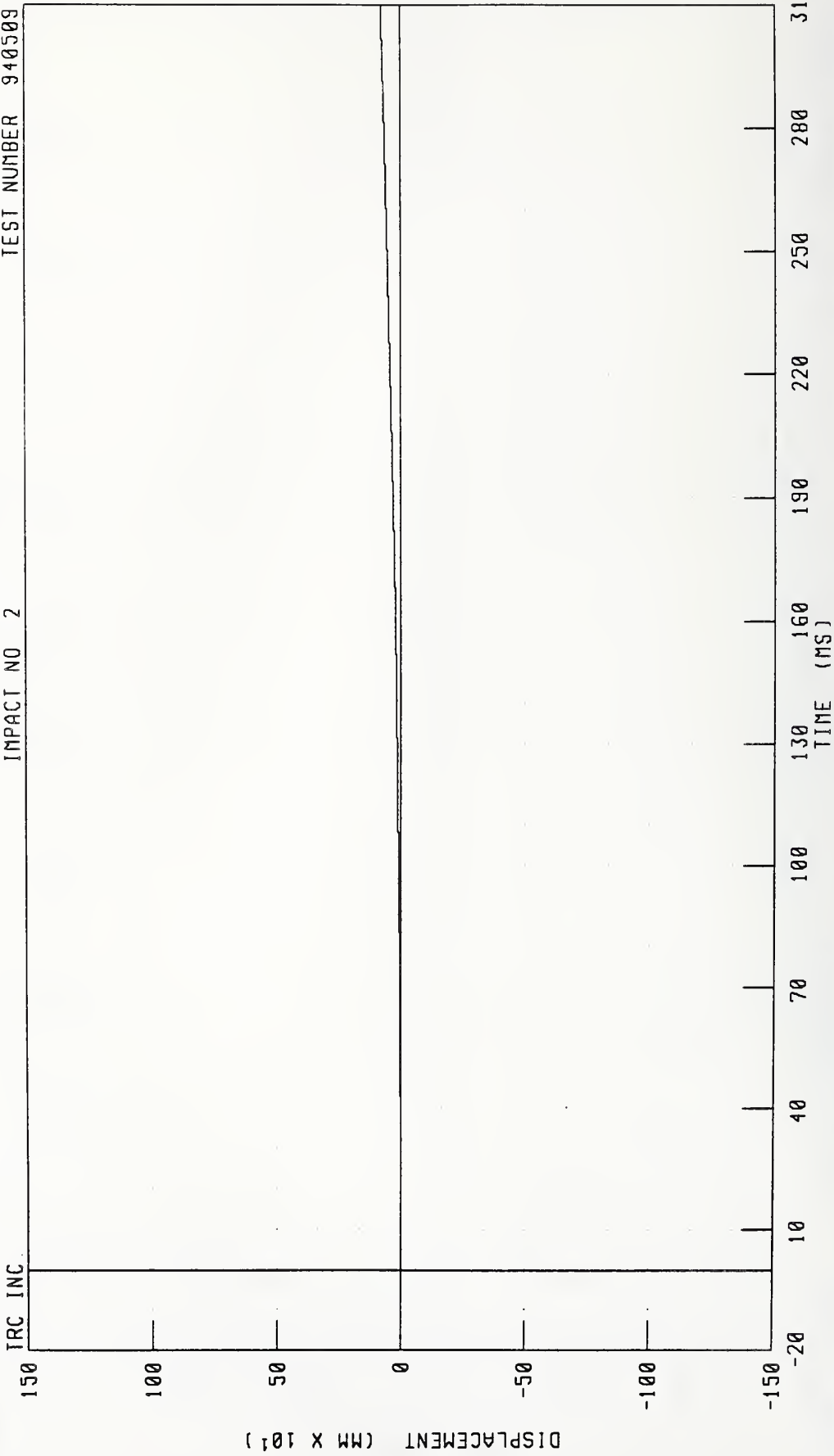


CHANNEL: LRSYV1 FILTER: CH CLASS 180

PEAK DATA 1 59 KM/H @ 304.00 MS; -0.05 KM/H @ 1160 MS

1987 FORD TAURUS INTO 30 5 CM POLE BARRIER AT 15 9 KPH  
LEFT REAR SILL Y-AXIS DISPLACEMENT

IMPACT NO 2 TEST NUMBER 940509



CHANNEL: LRSYD1 FILTER: CH. CLASS 180

PEAK DATA: 78.16 MM @ 310.00 MS; 0 00 MM @ 0 00 MS



1987 FORD TAURUS INTO 30 5 CM POLE BARRIER AT 15 9 KPH  
RIGHT REAR SILL X-AXIS ACCELERATION

TEST NUMBER 940509

IMPACT NO 2

TRC INC

60

40

20

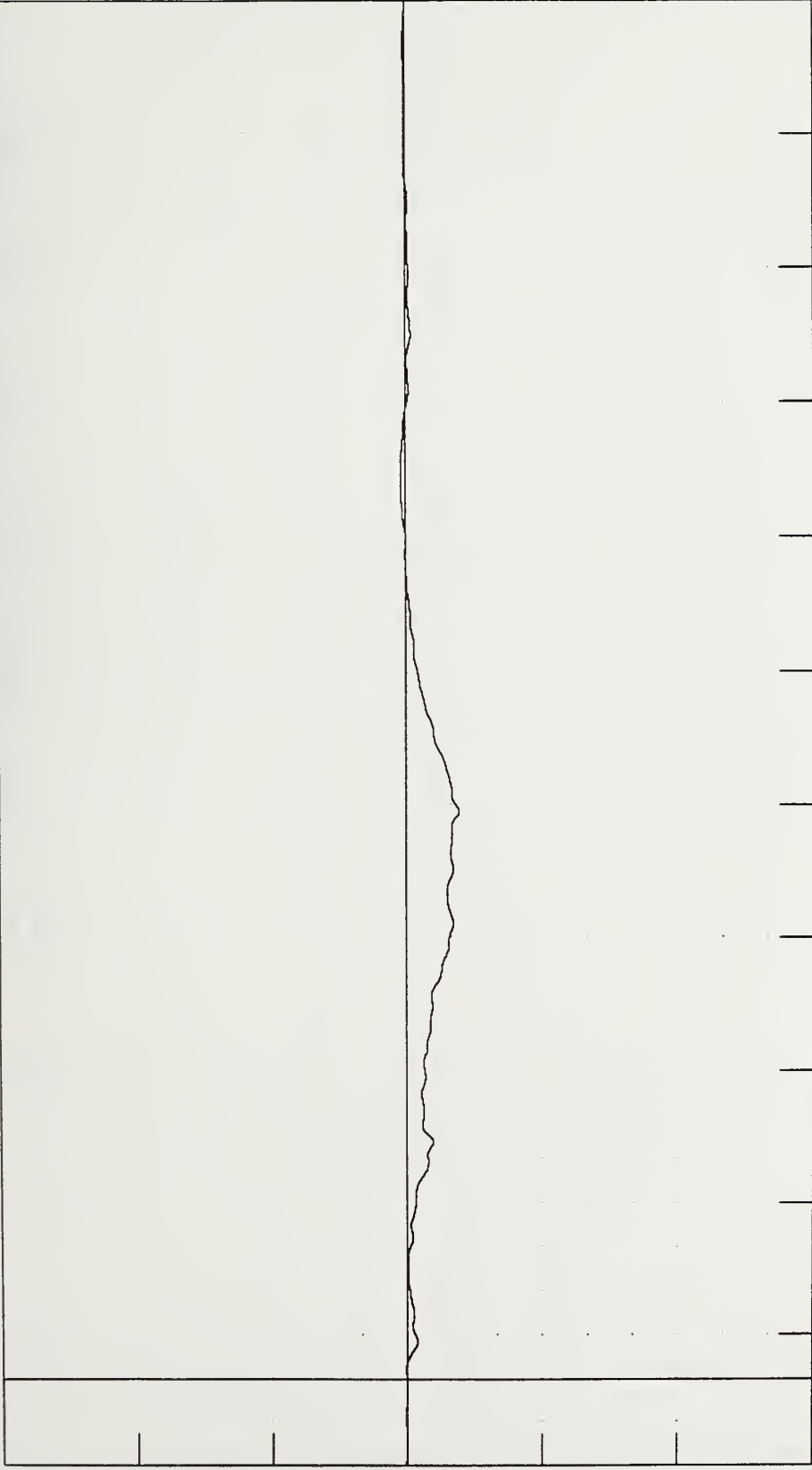
0

-20

-40

-60

ACCELERATION (G)



310

280

250

220

190

160

130

100

70

40

10

-20

TIME (MS)

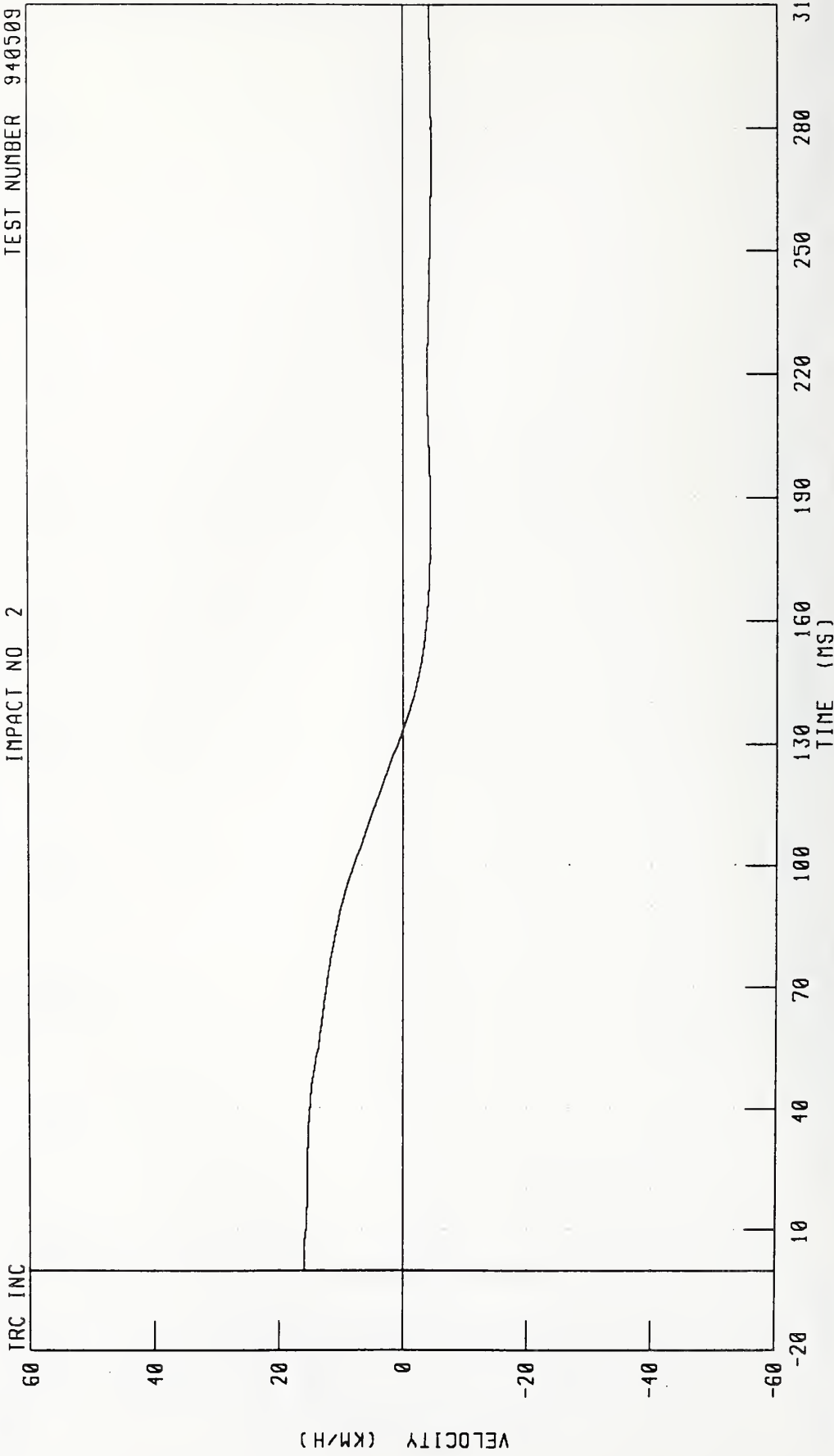
CHANNEL: RRSXG1 FILTER: CH CLASS 60

PEAK DATA: 0 77 G @ 204 64 MS; -7 84 G @ 128 32 MS

1987 FORD TAURUS INTO 30.5 CM POLE BARRIER AT 15.9 KPH  
RIGHT REAR SILL X-AXIS VELOCITY

TEST NUMBER 940509

IMPACT NO 2

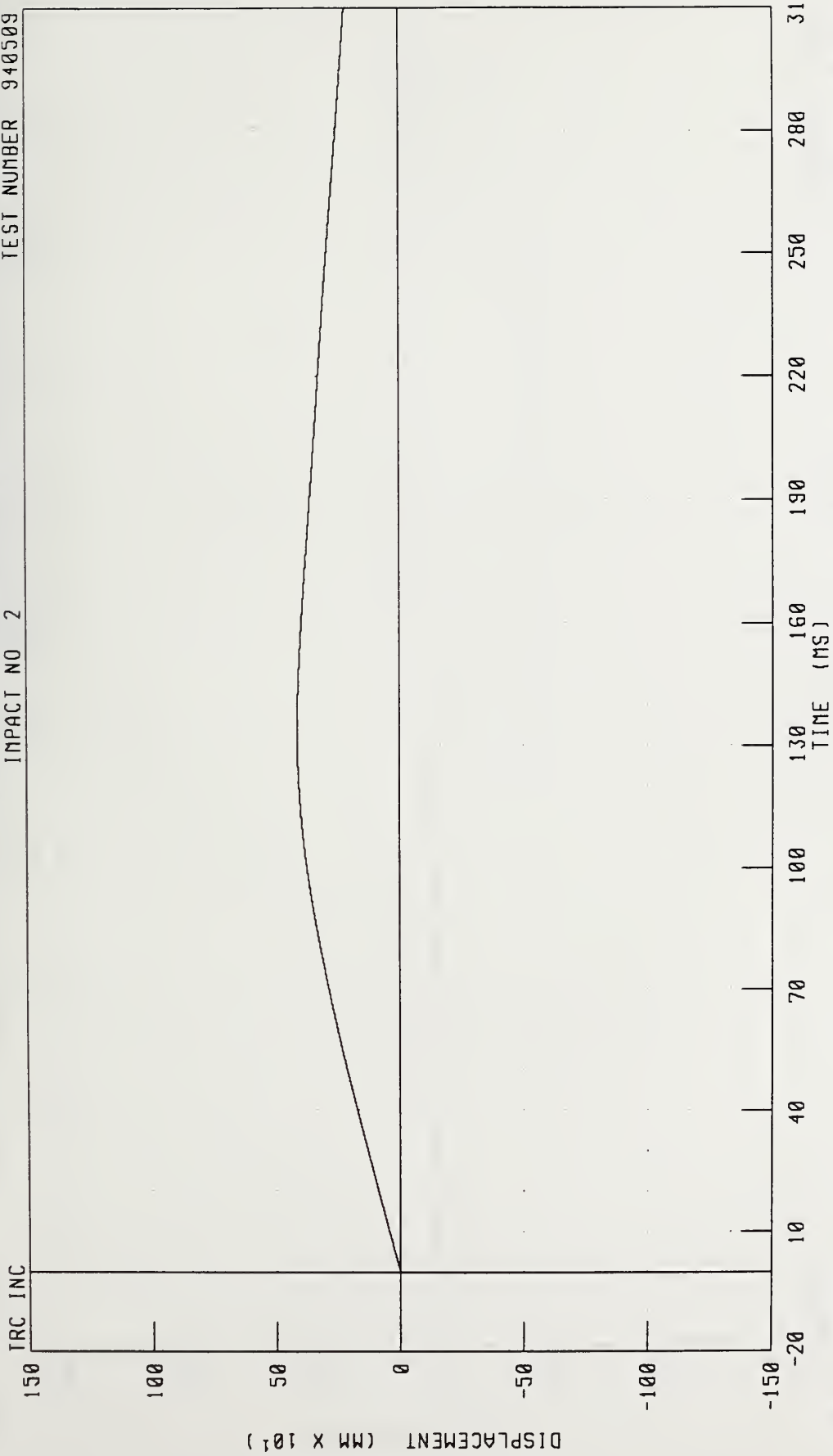


CHANNEL: RRSXV1 FILTER: CH CLASS 180

PEAK DATA 15.92 KM/H @ 269.92 MS, -4.54 KM/H @ 269.92 MS

1987 FORD TAURUS INTO 30 5 CM POLE BARRIER AT 15 9 KPH  
RIGHT REAR SILL X-AXIS DISPLACEMENT

IMPACT NO 2 TEST NUMBER 940509



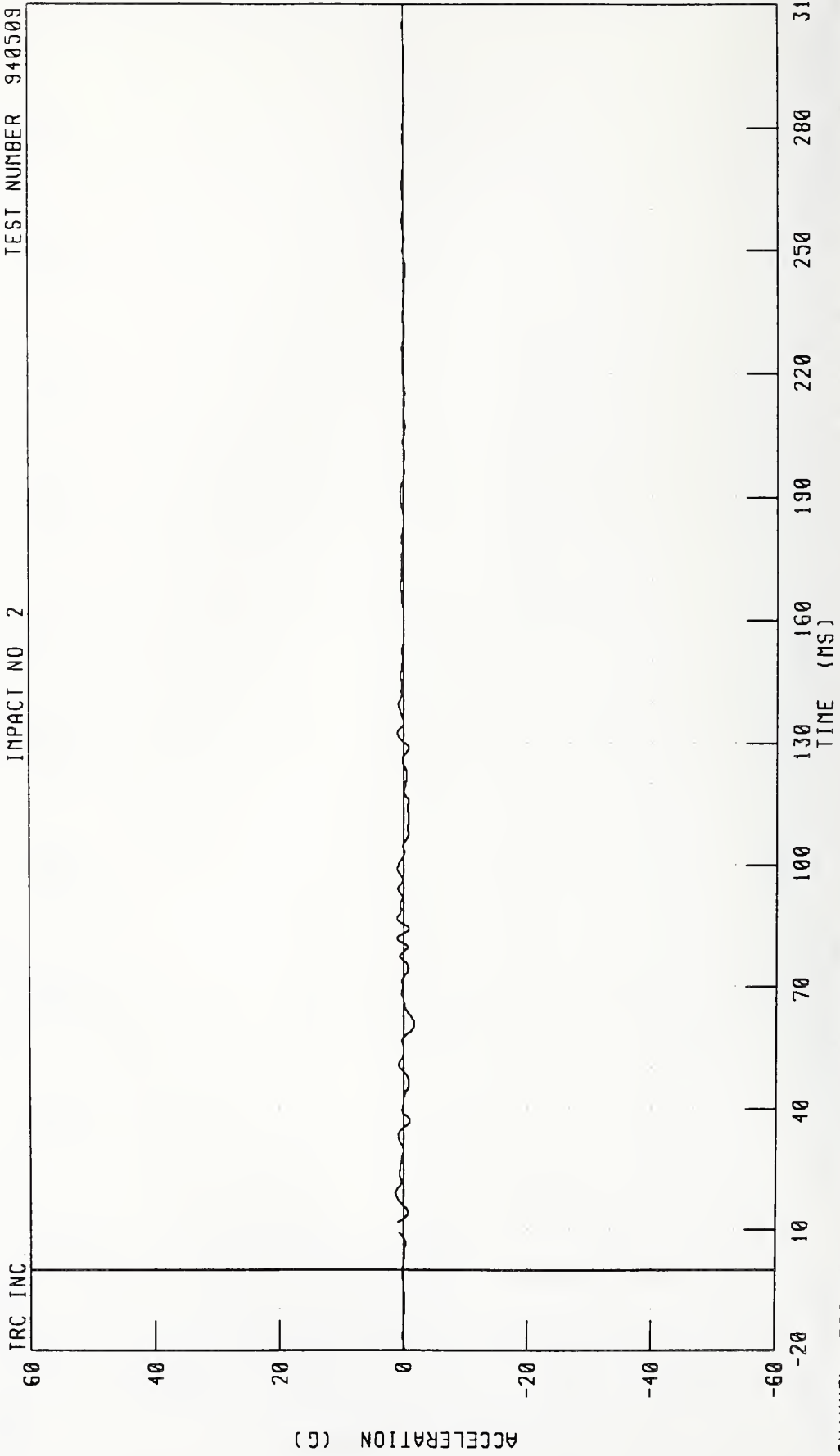
CHANNEL: RRSXD1 FILTER: CH CLASS 180

PEAK DATA: 411 27 MM @ 133.52 MS; 0 00 MM @ 0 00 MS

1987 FORD TAURUS INTO 30 5 CM POLE BARRIER AT 15 9 KPH  
RIGHT REAR SILL Y-AXIS ACCELERATION

TEST NUMBER 940509

IMPACT NO 2



CHANNEL: RRSYG1 FILTER: CH CLASS 60

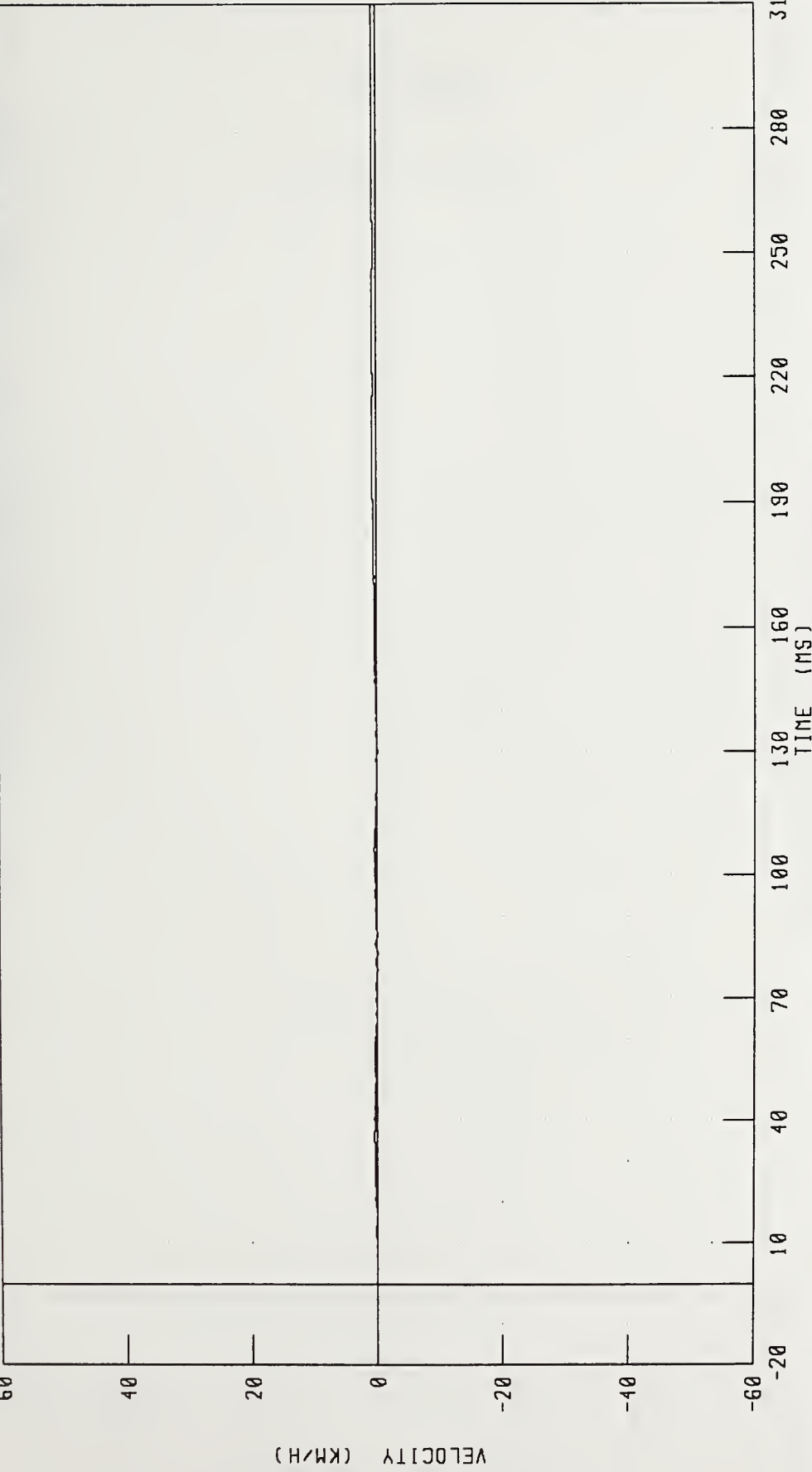
PEAK DATA 1 30 G @ 19 12 MS, -1 76 G @ 60 88 MS

1987 FORD TAURUS INTO 30 5 CM POLE BARRIER AT 15 9 KPH  
RIGHT REAR SILL Y-AXIS VELOCITY

TEST NUMBER 940509

IMPACT NO 2

TRC INC



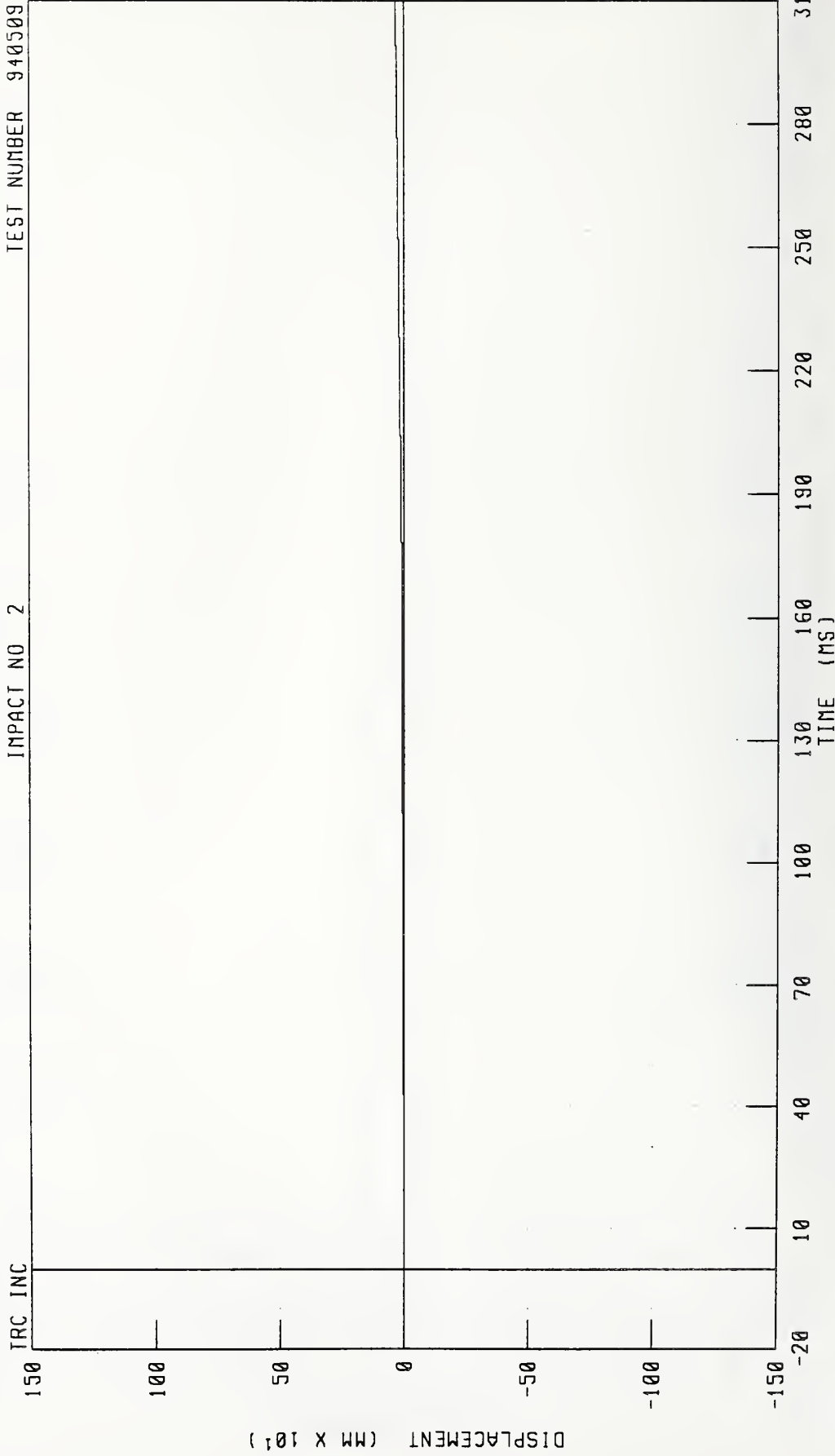
CHANNEL RRSYV1 FILTER: CH CLASS 180

PEAK DATA: 0.70 KM/H @ 281 60 MS, -0.16 KM/H @ 80 88 MS

1987 FORD TAURUS INTO 30 5 CM POLE BARRIER AT 15 9 KPH  
RIGHT REAR SILL Y-AXIS DISPLACEMENT

TEST NUMBER 940509

IMPACT NO 2



CHANNEL: RRSYD1 FILTER: CH CLASS 180

PEAK DATA: 33.94 MM @ 310.00 MS, -0.04 MM @ 10.32 MS

DATA PLOTS

TEST NO. 940509-3

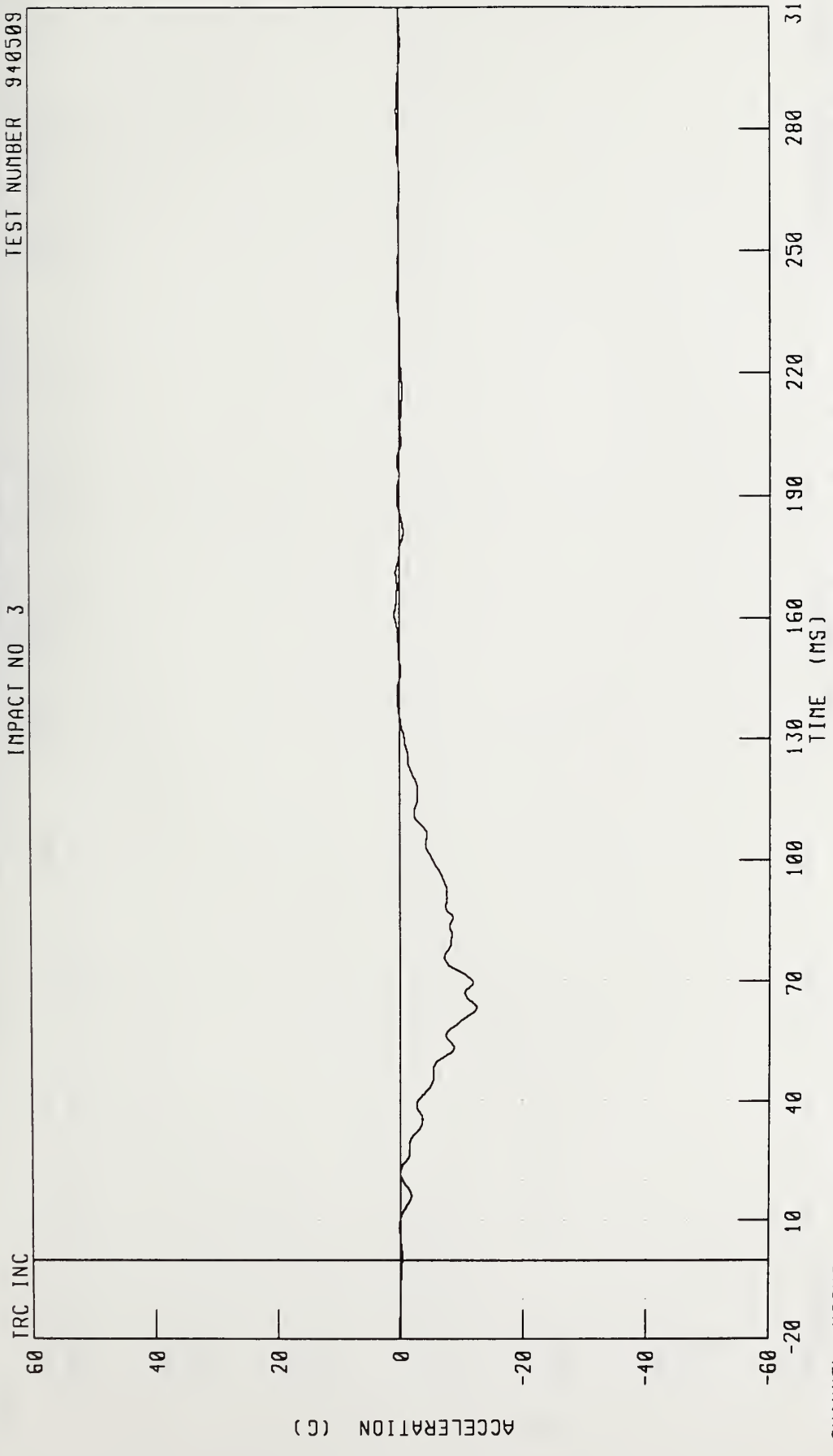




1987 FORD TAURUS INTO 30 5 CM POLE BARRIER AT 15 9 KPH  
VEHICLE CC X-AXIS ACCELERATION

TEST NUMBER 940509

IMPACT NO 3



CHANNEL : VCGXG1 FILTER : CH CLASS 60

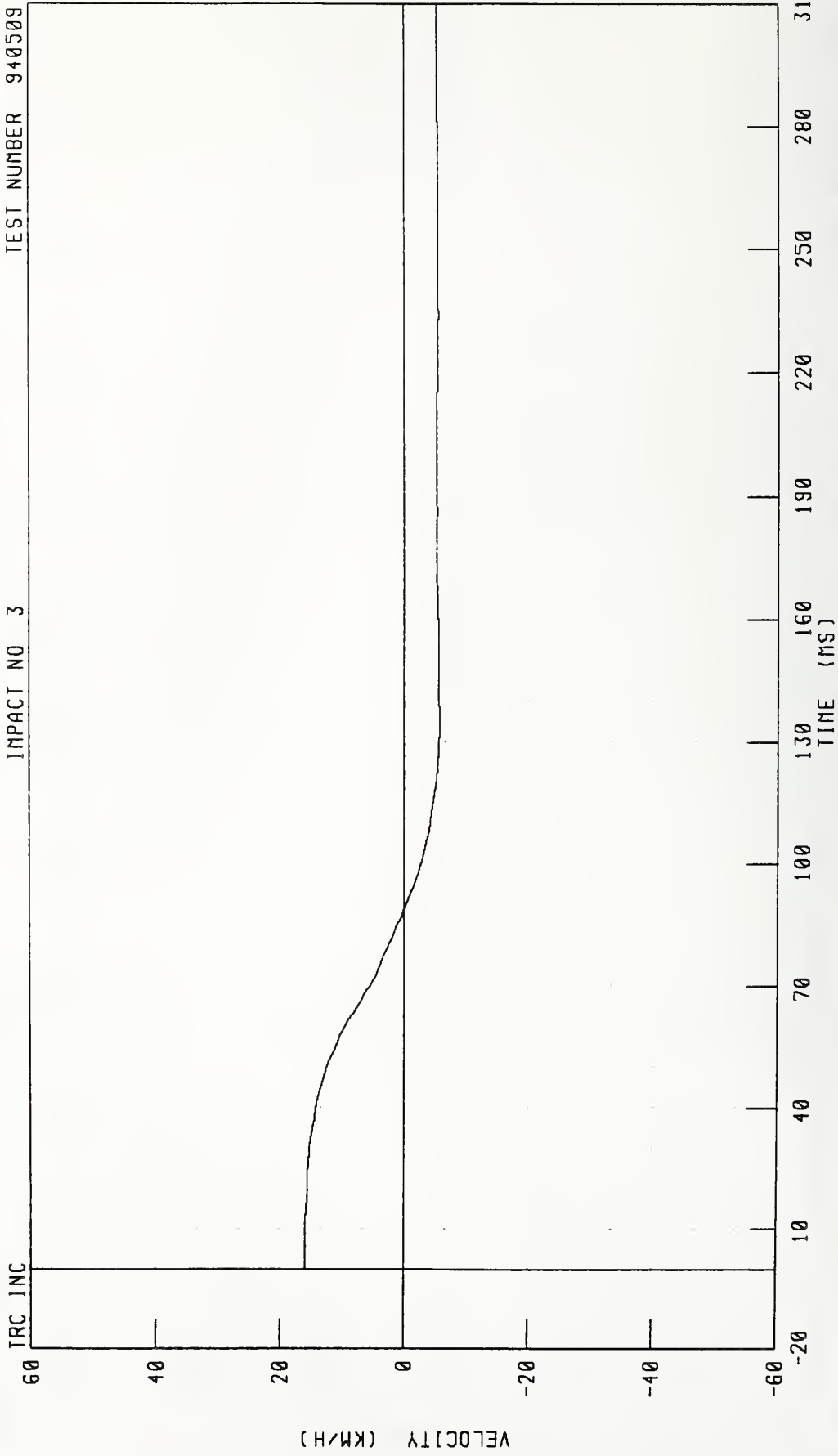
PEAK DATA : 0 81 G @ 160 80 MS, -12 47 G @ 63 28 MS

1987 FORD TAURUS INTO 30 5 CM POLE BARRIER AT 15 9 KPH  
VEHICLE CC X-AXIS VELOCITY

TEST NUMBER 940509

IMPACT NO 3

TRC\_INC

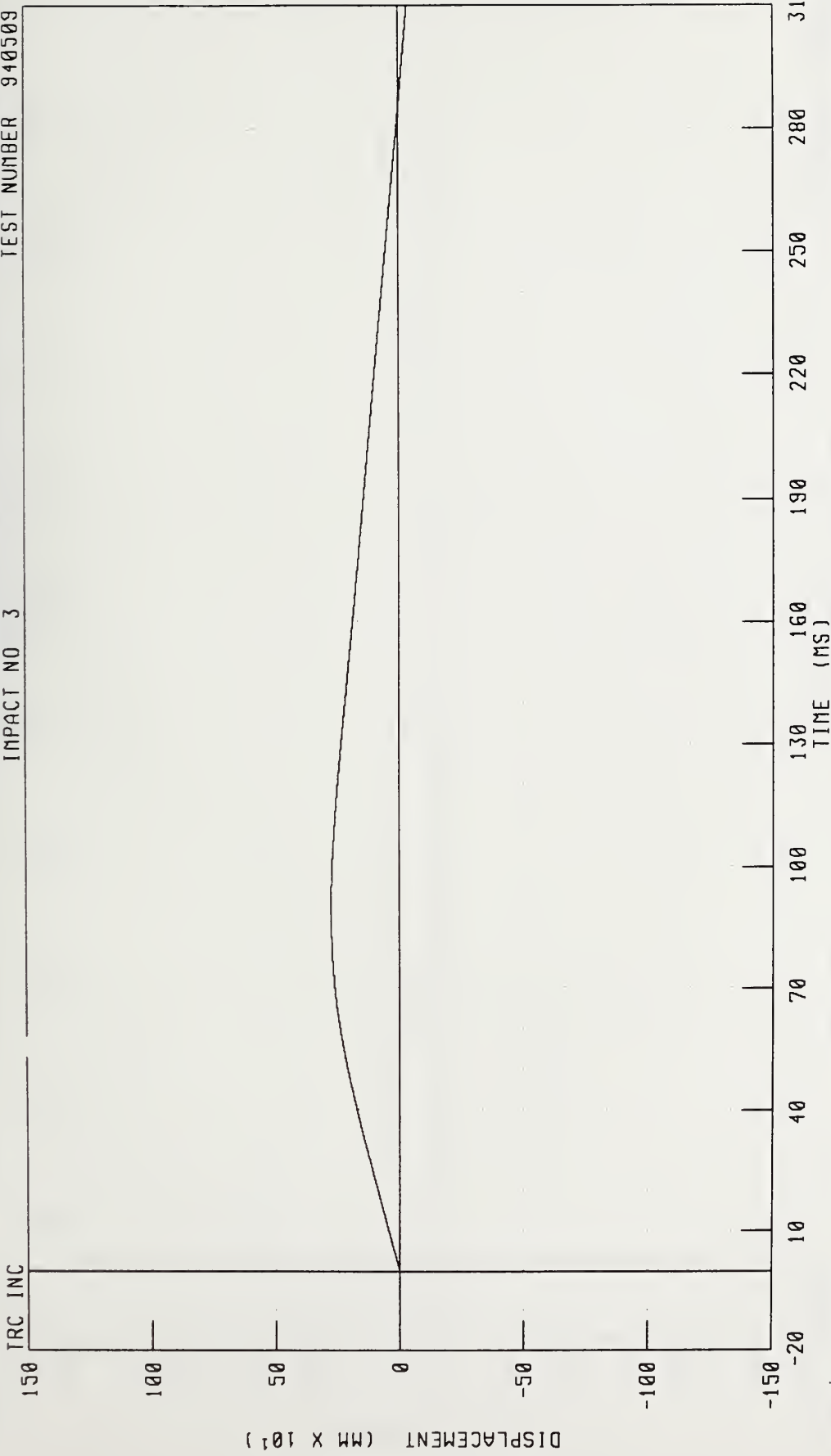


CHANNEL: VCGXV1 FILTER: CH CLASS 180

PEAK DATA: 15 90 KM/H @ 0 00 MS, -5 69 KM/H @ 135 68 MS

1987 FORD TAURUS INTO 30 5 CM POLE BARRIER AT 15 9 KPH  
VEHICLE CG X-AXIS DISPLACEMENT

IMPACT NO 3 TEST NUMBER 940509



CHANNEL VCGXD1 FILTER CH CLASS 180

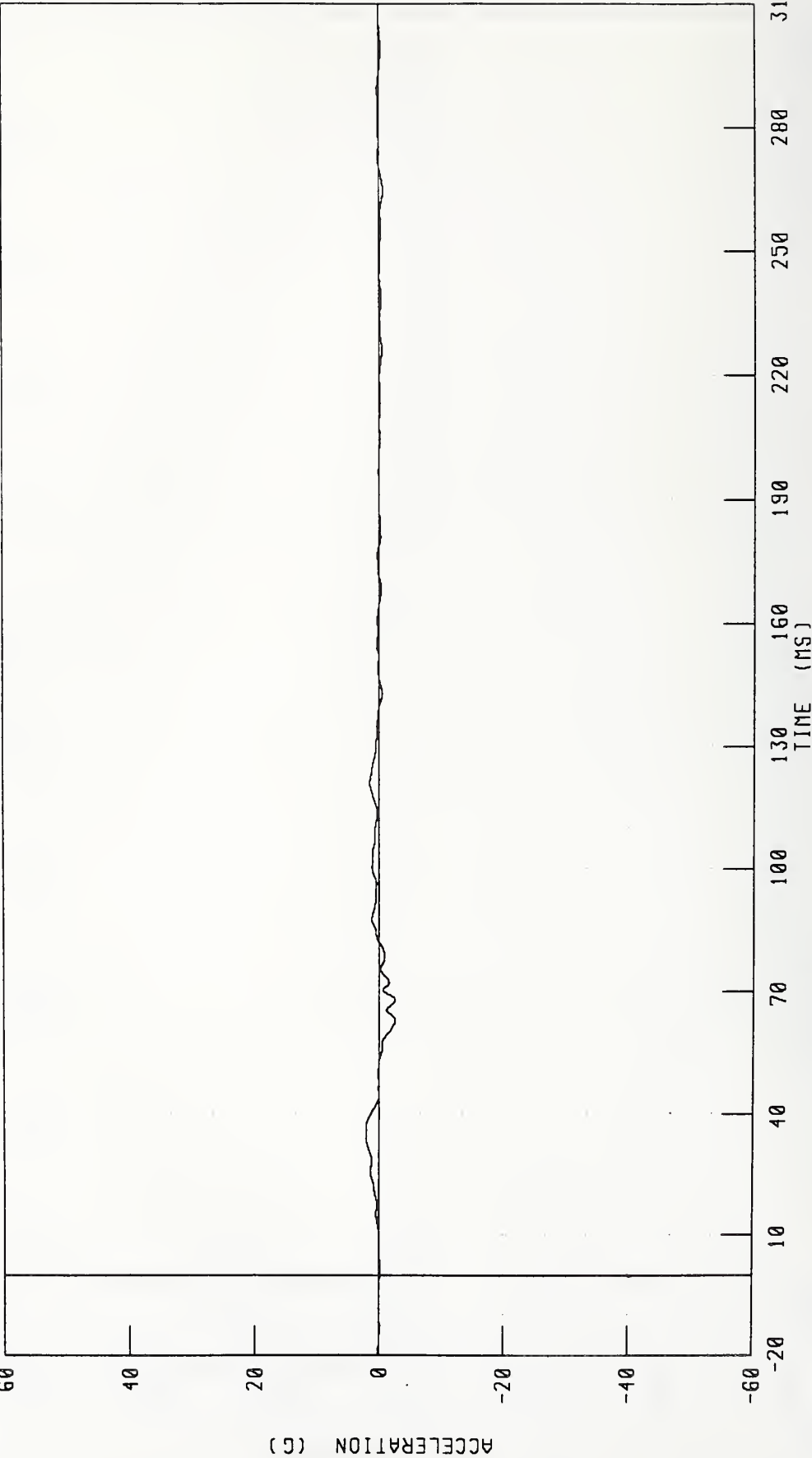
PEAK DATA 275 02 MM @ 89 12 MS, -35 61 MM @ 310 00 MS

1987 FORD TAURUS INTO 30.5 CM POLE BARRIER AT 15.9 KPH  
VEHICLE CG Y-AXIS ACCELERATION

TEST NUMBER 940509

IMPACT NO 3

TRC INC



CHANNEL: VCCYG1 FILTER: CH CLASS 60

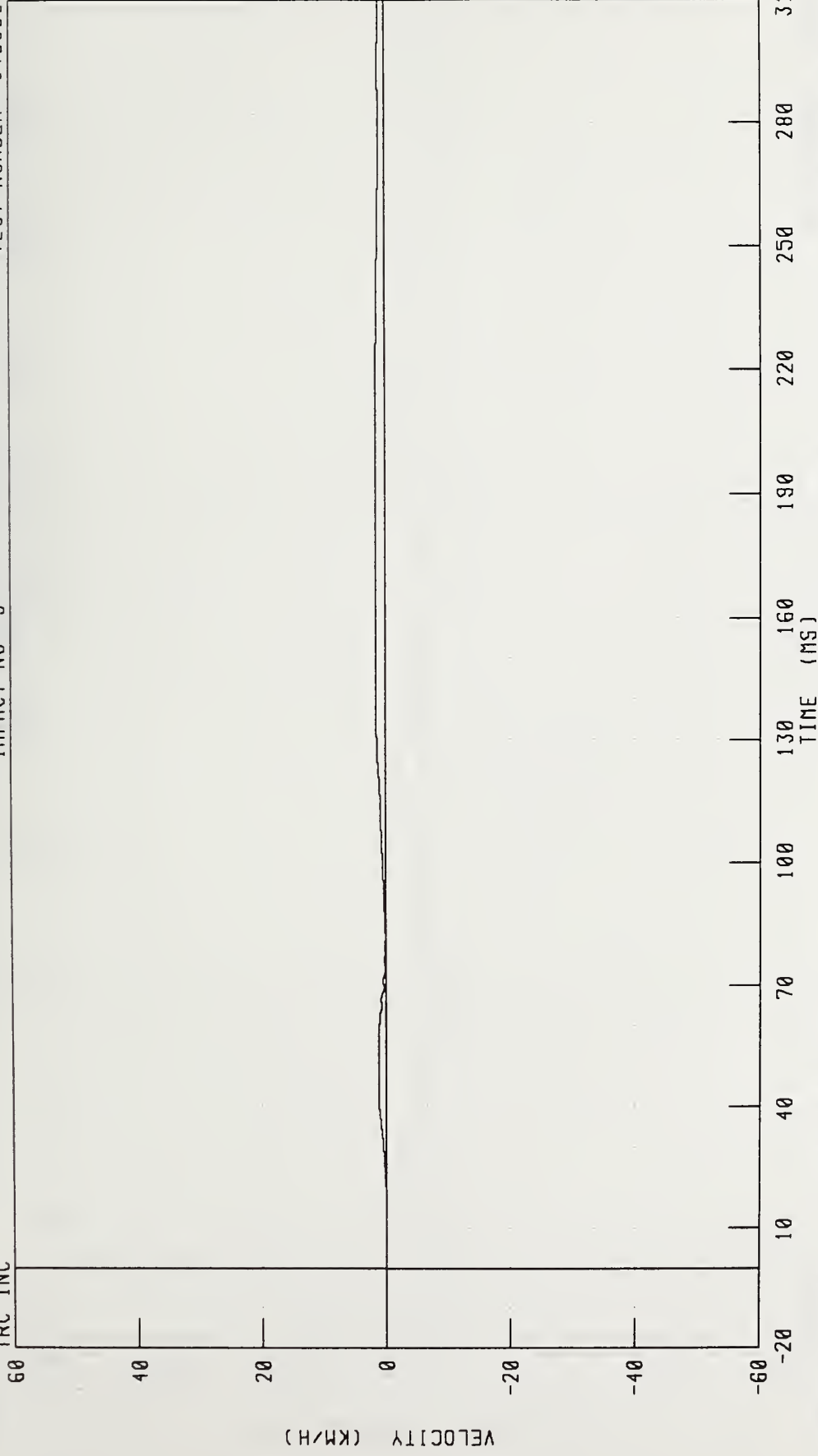
PEAK DATA 2 08 G @ 36 40 MS; -2 61 G @ 67 92 MS

1987 FORD TAURUS INTO 30 5 CM POLE BARRIER AT 15 9 KPH  
VEHICLE CG Y-AXIS VELOCITY

TEST NUMBER 940509

IMPACT NO 3

TRC INC



CHANNEL: VCGYV1 FILTER: CH CLASS 180

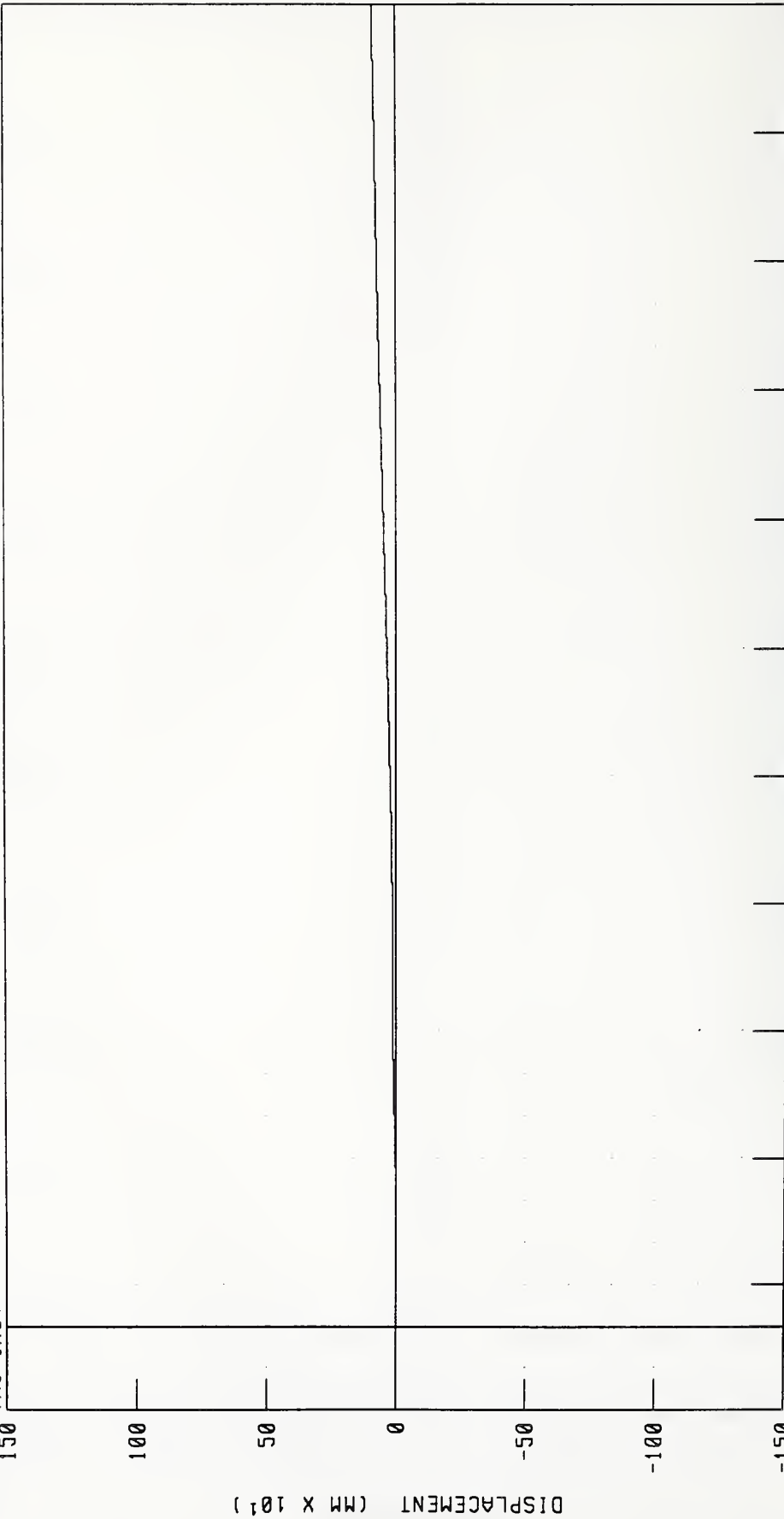
PEAK DATA 1 62 KM/H @ 178 80 MS, -0 03 KM/H @ 7 28 MS

1987 FORD TAURUS INTO 30 5 CM POLE BARRIER AT 15 9 KPH  
VEHICLE CC Y-AXIS DISPLACEMENT

TEST NUMBER 940509

IMPACT NO 3

TRC INC



TIME (MS) 130 160 190 220 250 280 310

CHANNEL: VCGYD1 FILTER: CH CLASS 180

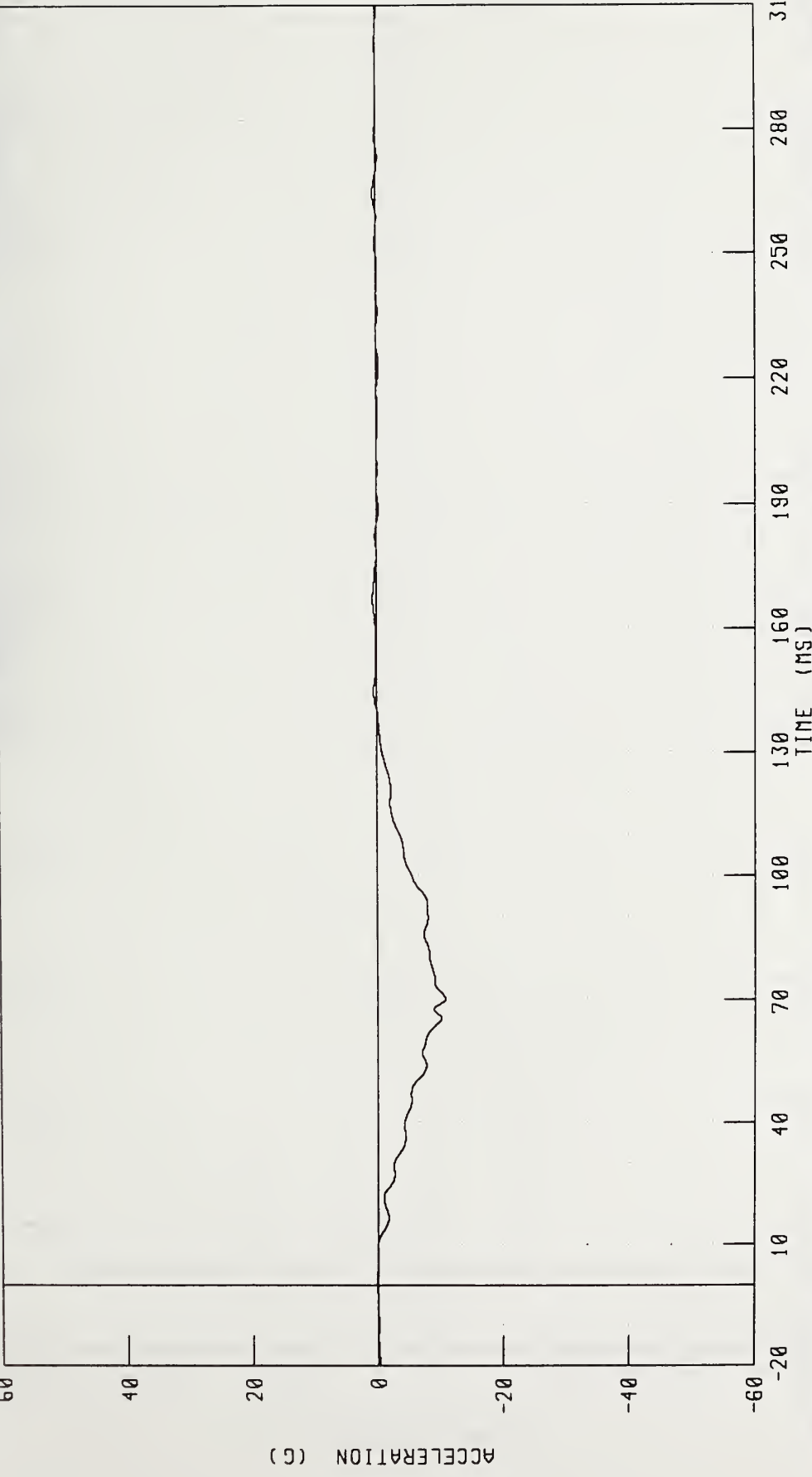
PEAK DATA: 91 07 MM @ 310 00 MS, -0 07 MM @ 14 40 MS

1987 FORD TAURUS INTO 30 5 CM POLE BARRIER AT 15 9 KPH  
LEFT REAR SILL X-AXIS ACCELERATION

TEST NUMBER 940509

IMPACT NO 3

TRC INC



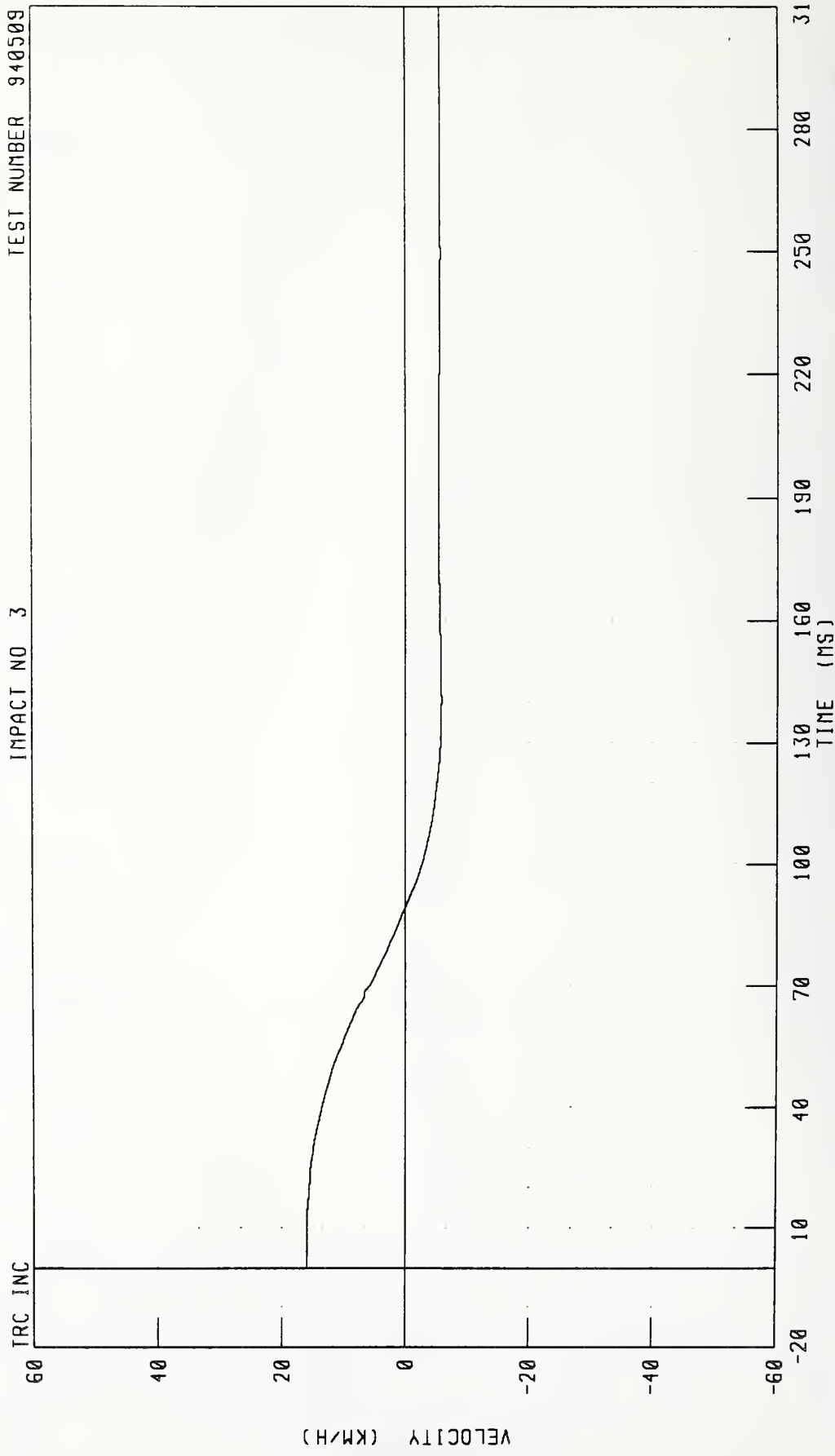
CHANNEL: LRSXG1 FILTER: CH CLASS 60

PEAK DATA: 0 68 G @ 167 12 MS, -10 80 G @ 70 00 MS

1987 FORD TAURUS INTO 30 5 CM POLE BARRIER AT 15 9 KPH  
LEFT REAR SILL X-AXIS VELOCITY

TEST NUMBER 940509

IMPACT NO 3



CHANNEL: LRSXV1 FILTER: CH. CLASS 180

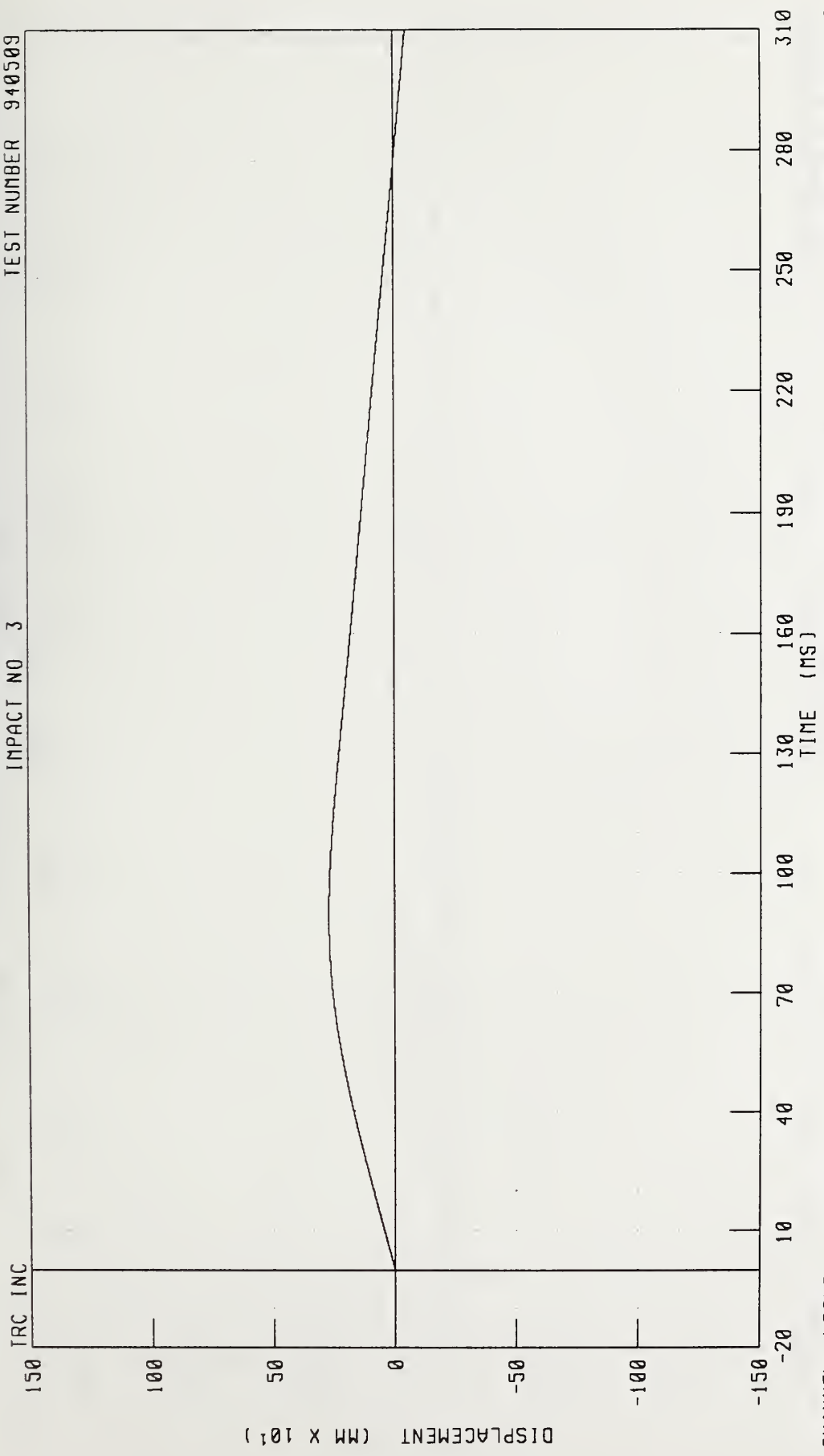
PEAK DATA: 15 93 KM/H @ 2 88 MS; -5 84 KM/H @ 140 48 MS



1987 FORD TAURUS INTO 30.5 CM POLE BARRIER AT 15.9 KPH  
LEFT REAR SILL X-AXIS DISPLACEMENT

IMPACT NO 3

TEST NUMBER 940509



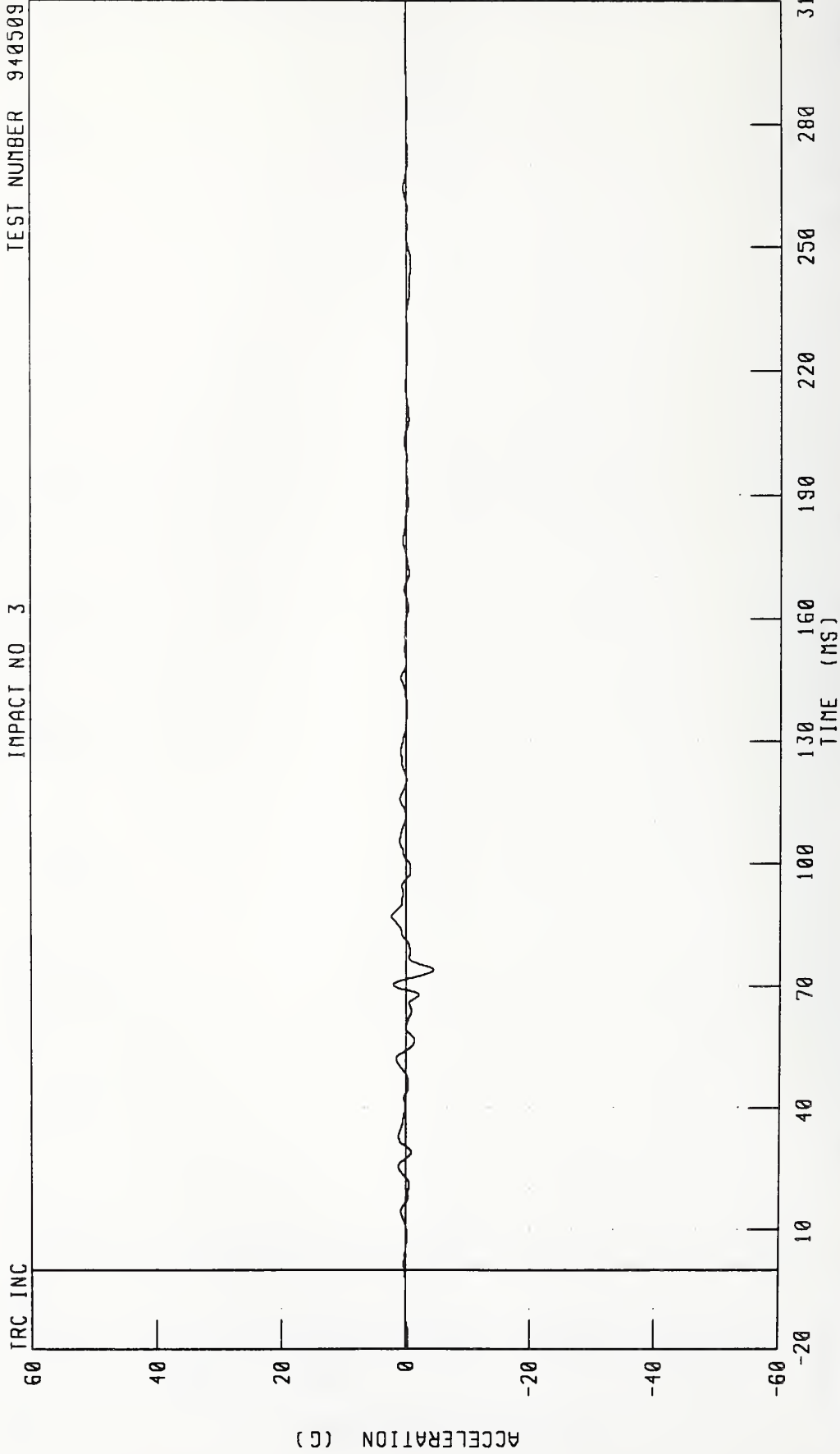
CHANNEL: LRSXD1 FILTER: CH CLASS 180

PEAK DATA 269.99 MM @ 89.36 MS; -50.52 MM @ 310.00 MS

1987 FORD TAURUS INTO 30.5 CM POLE BARRIER AT 15.9 KPH  
LEFT REAR SILL Y-AXIS ACCELERATION

TEST NUMBER 940509

IMPACT NO 3



CHANNEL: LRSYG1 FILTER: CH CLASS 60

PEAK DATA: 2.34 G @ 87.12 MS, -4.46 G @ 74.00 MS

1987 FORD TAURUS INTO 30.5 CM POLE BARRIER AT 15.9 KPH  
LEFT REAR SILL Y-AXIS VELOCITY

TEST NUMBER 940509

IMPACT NO 3

TRC INC

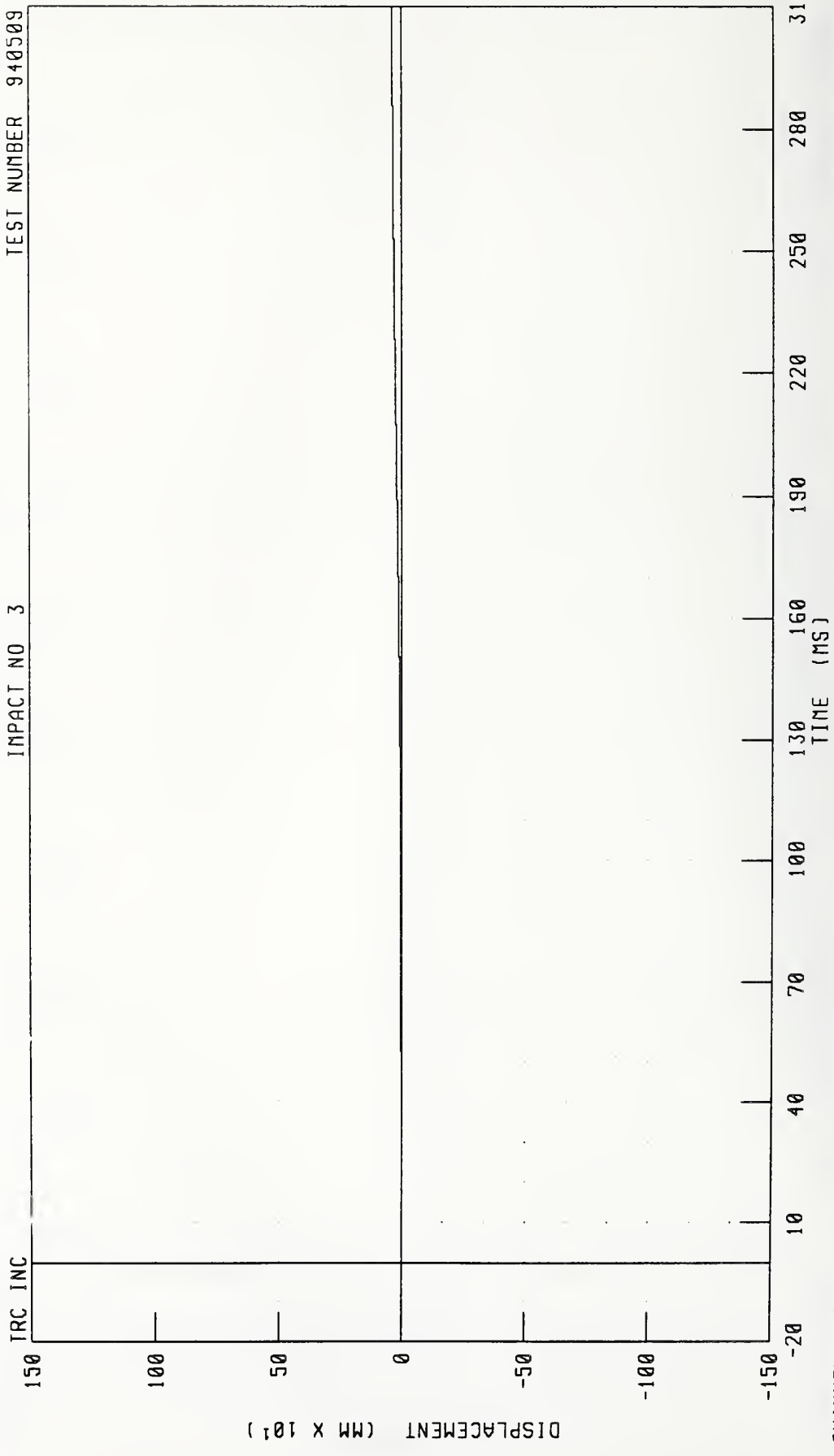


CHANNEL: LRSYV1 FILTER: CH CLASS 180

PEAK DATA: 0.87 KM/H @ 186.40 MS, -0.43 KM/H @ 75.12 MS

1987 FORD TAURUS INTO 30 5 CM POLE BARRIER AT 15 9 KPH  
LEFT REAR SILL Y-AXIS DISPLACEMENT

IMPACT NO 3 TEST NUMBER 940509



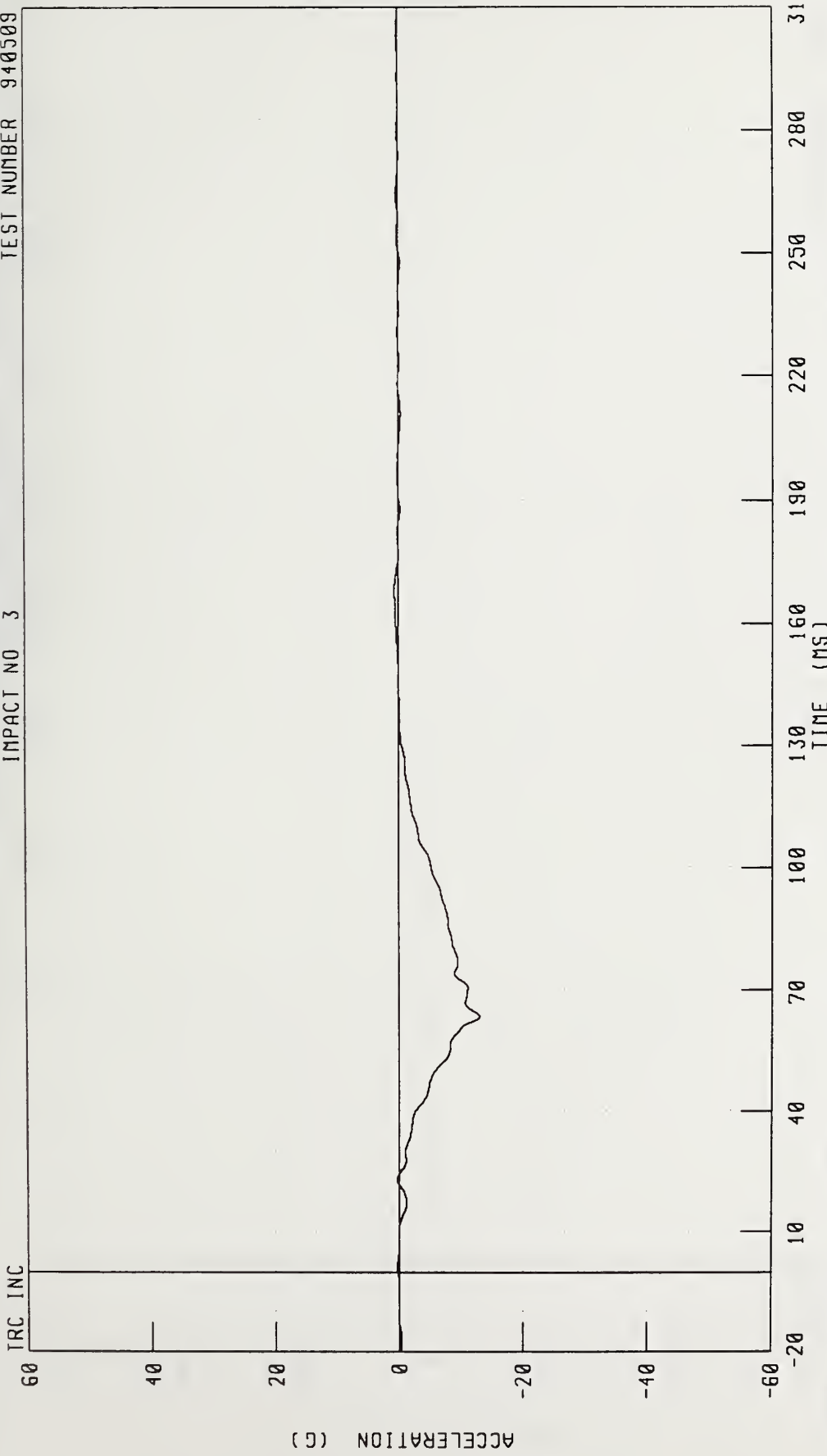
CHANNEL: LRSYD1 FILTER: CH. CLASS 180

PEAK DATA: 39.30 MM @ 310.00 MS, 0.00 MM @ 0.00 MS

1987 FORD TAURUS INTO 30 5 CM POLE BARRIER AT 15 9 KPH  
RIGHT REAR SILL X-AXIS ACCELERATION

TEST NUMBER 940509

IMPACT NO 3



CHANNEL: RRSXG1 FILTER: CH CLASS 60

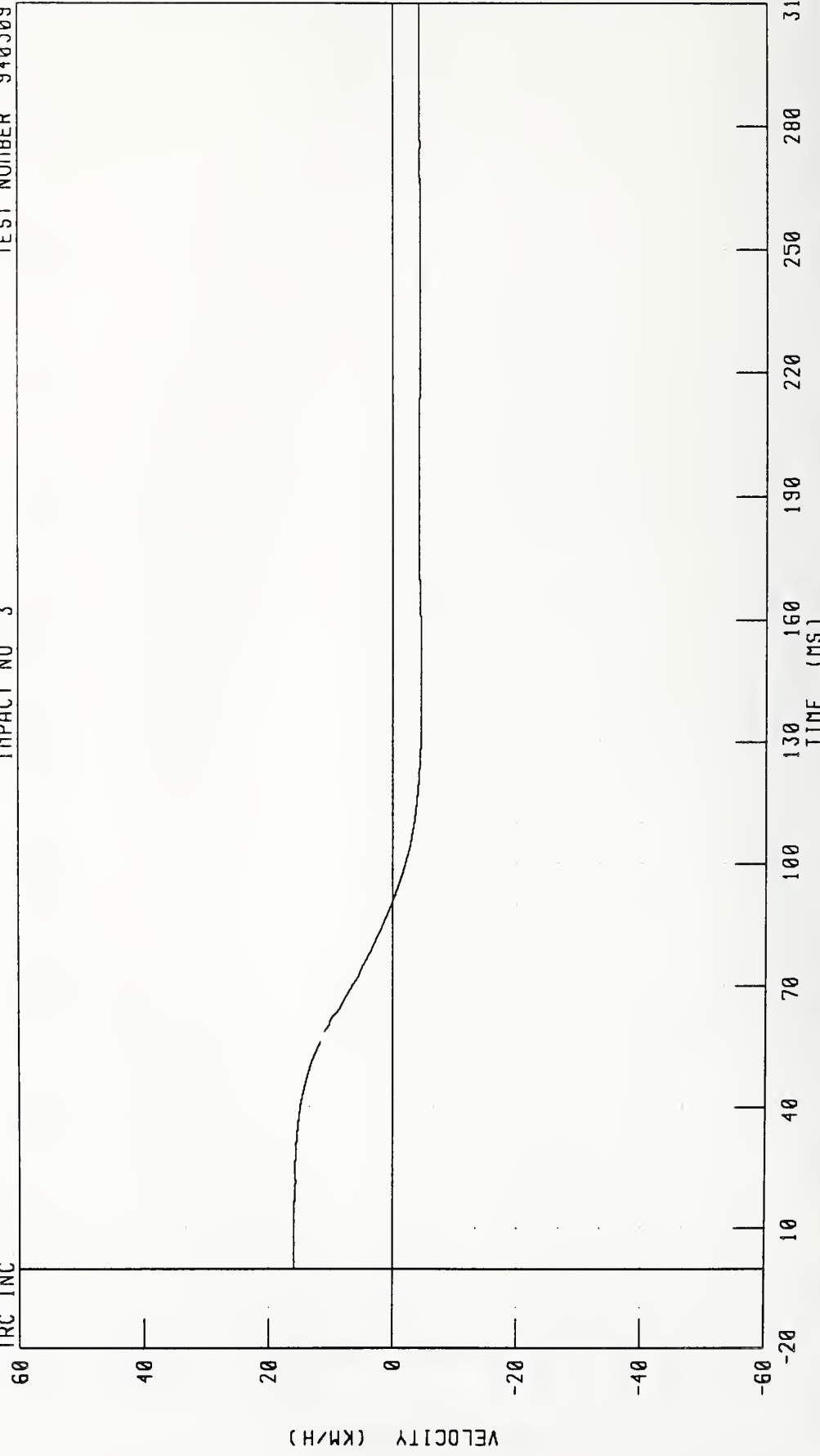
PEAK DATA: 0 67 G @ 167.44 MS, -13 00 G @ 63 36 MS

1987 FORD TAURUS INTO 30.5 CM POLE BARRIER AT 15.9 KPH  
RIGHT REAR SILL X-AXIS VELOCITY

TEST NUMBER 940509

IMPACT NO 3

TRC INC

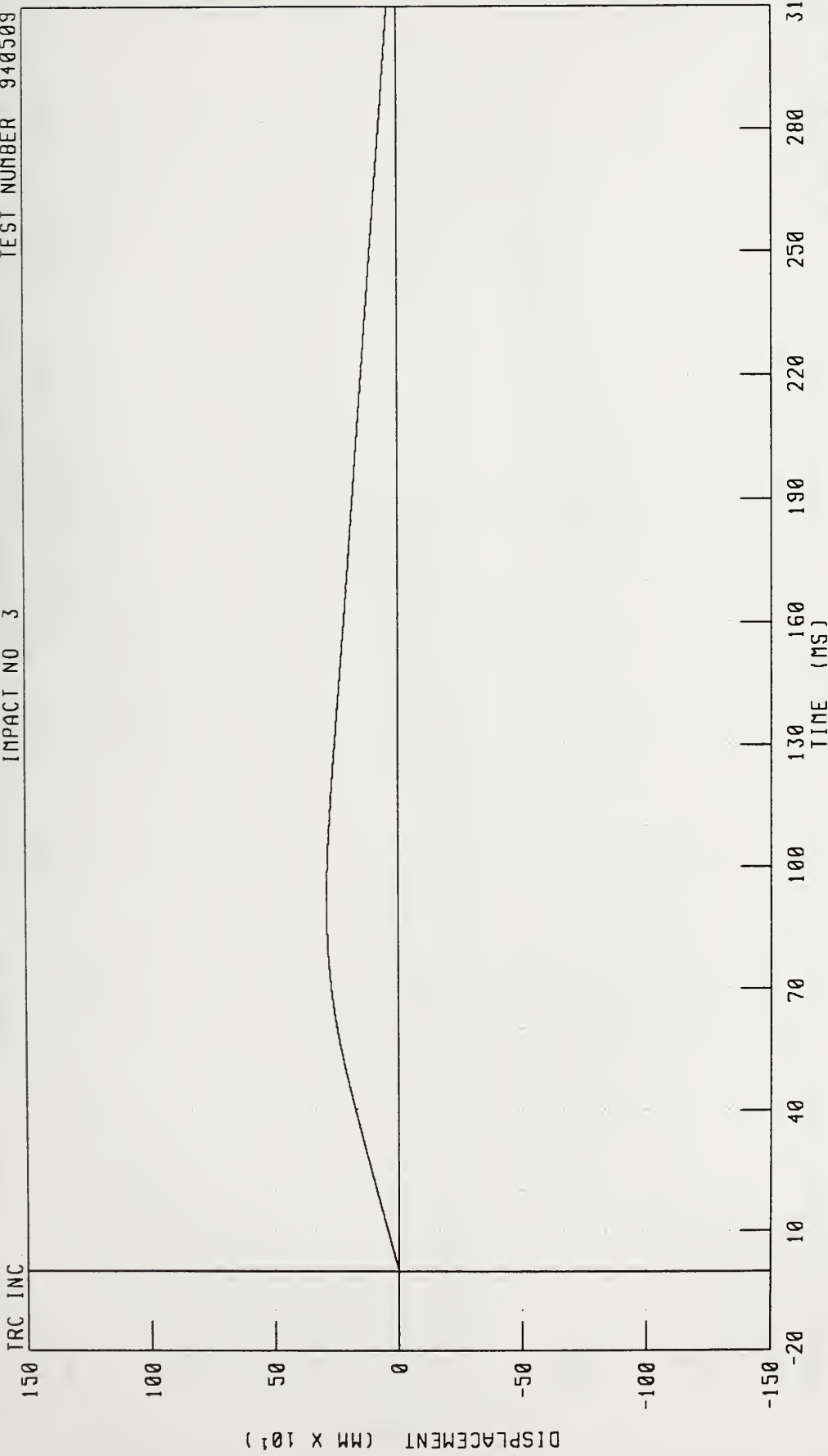


CHANNEL: RRSXV1 FILTER: CH CLASS 180

PEAK DATA 15.96 KM/H @ 11.44 MS; -4.61 KM/H @ 143.12 MS

1987 FORD TAURUS INTO 30 5 CM POLE BARRIER AT 15 9 KPH  
RIGHT REAR SILL X-AXIS DISPLACEMENT

IMPACT NO 3 TEST NUMBER 940509



CHANNEL: RRSXD1 FILTER: CH CLASS 180

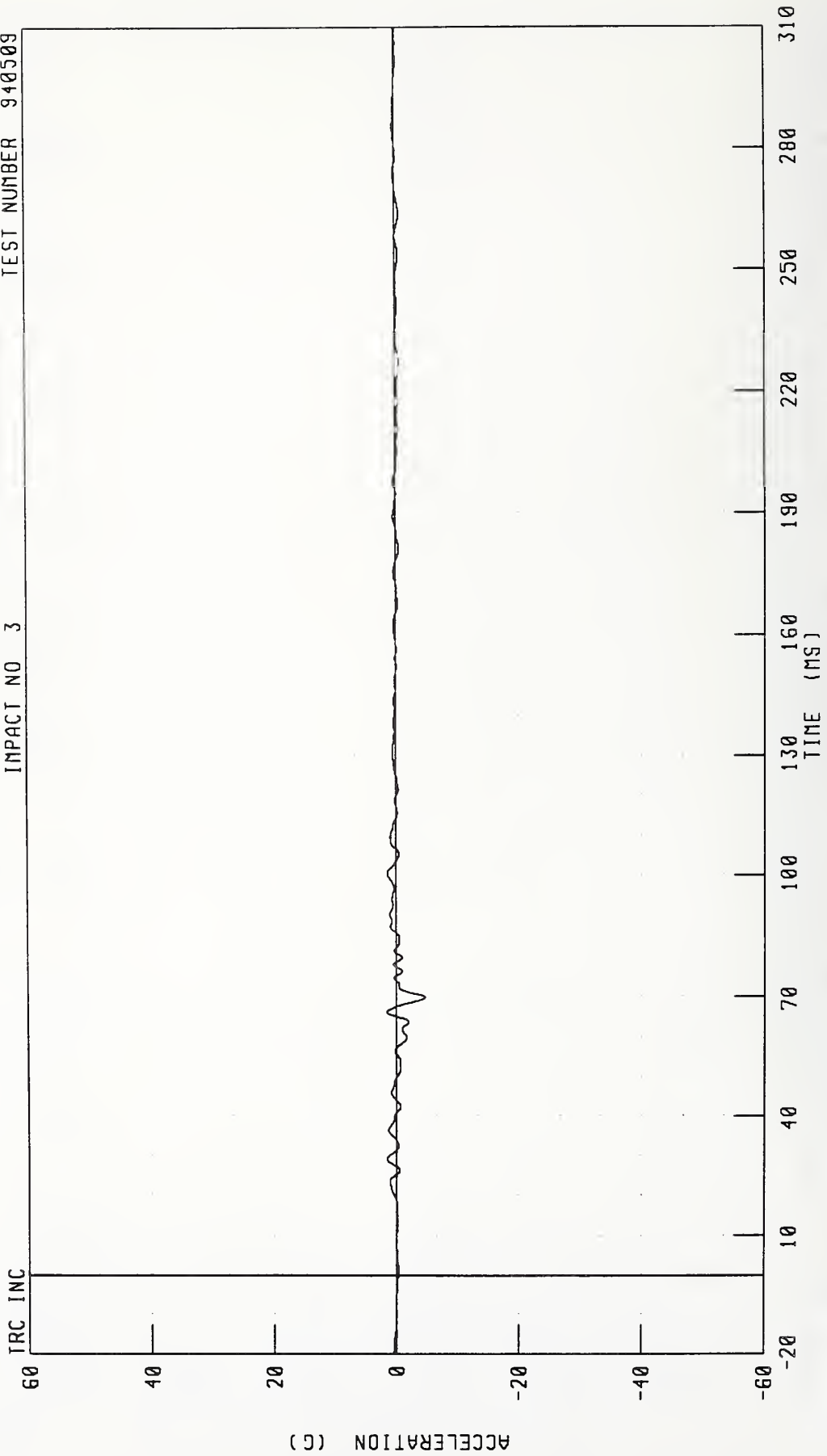
PEAK DATA: 288 28 MM @ 90 80 MS, 0 00 MM @ 0 00 MS

1987 FORD TAURUS INTO 30.5 CM POLE BARRIER AT 15.9 KPH

RIGHT REAR SILL Y-AXIS ACCELERATION

IMPACT NO 3

TEST NUMBER 940509



CHANNEL: RRSYG1 FILTER: CH. CLASS 60

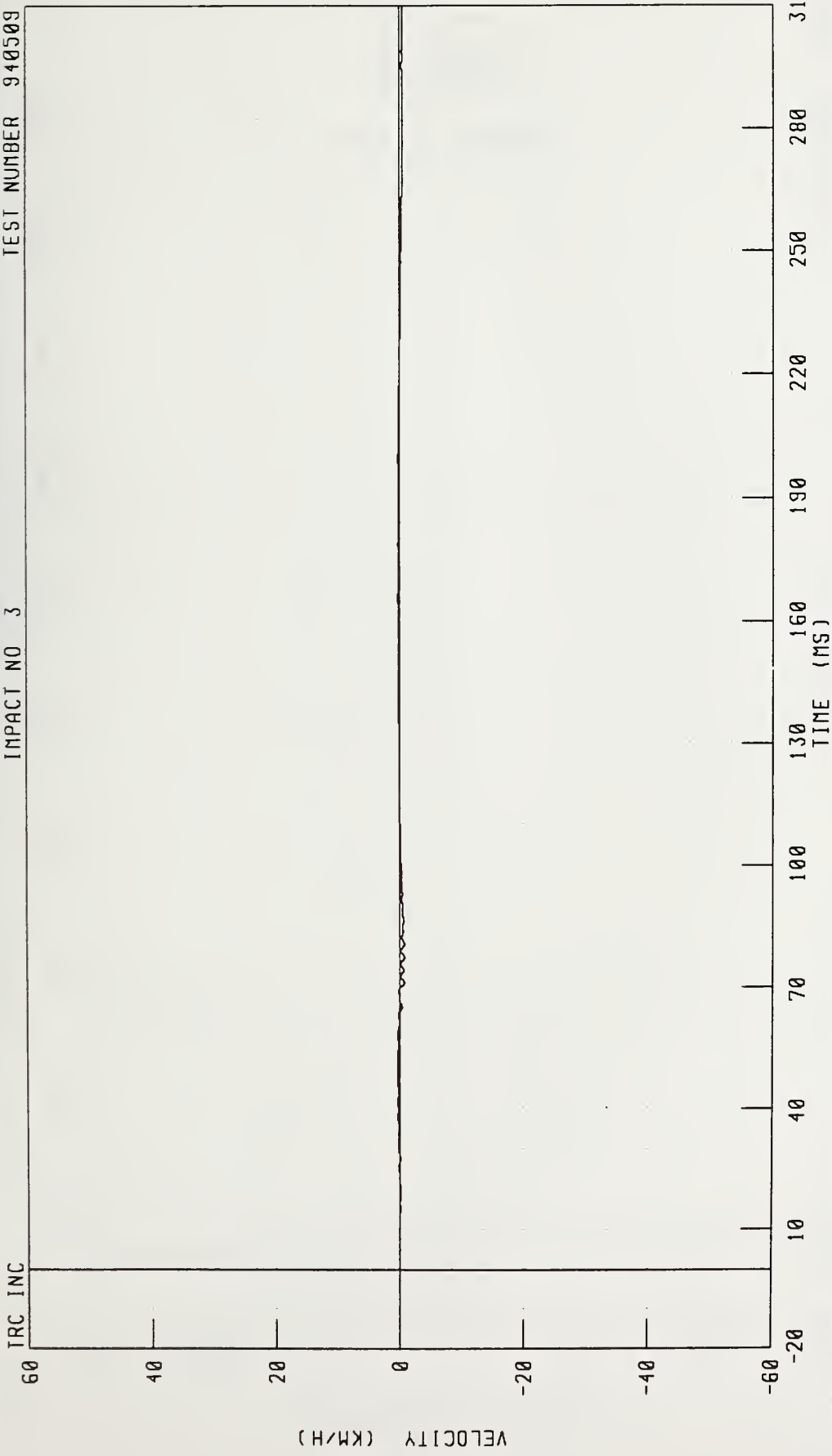
PEAK DATA: 1.54 G @ 29.12 MS, -4.69 G @ 69.84 MS



1987 FORO TAURUS INTO 30 5 CM POLE BARRIER AT 15 9 KPH  
RIGHT REAR SILL Y-AXIS VELOCITY

TEST NUMBER 940509

IMPACT NO 3

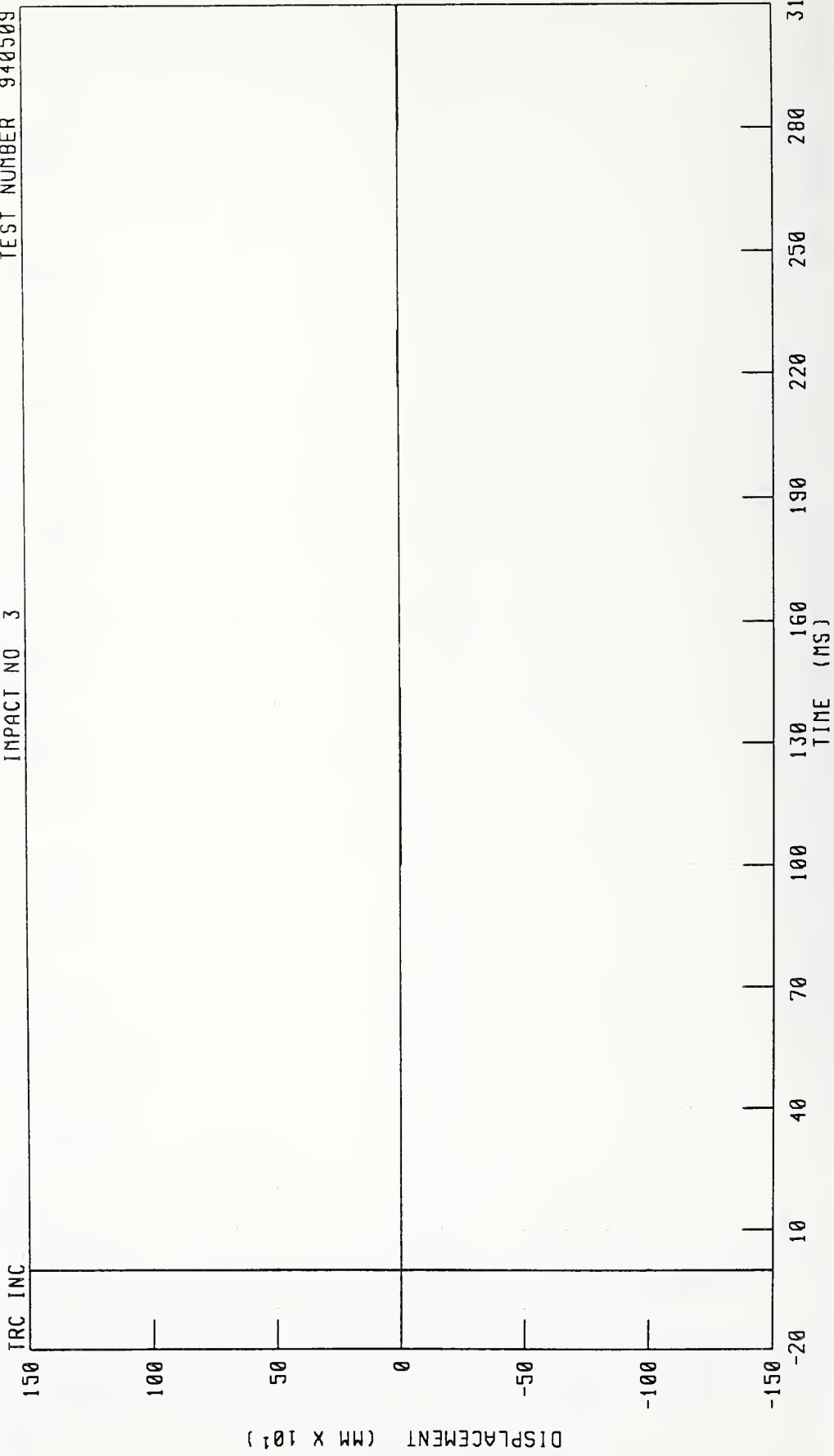


CHANNEL: RRSYV1 FILTER: CH. CLASS 180 PEAK DATA: 0 38 KM/H @ 50 08 MS, -0 80 KM/H @ 77 12 MS

1987 FORD TAURUS INTO 30 5 CM POLE BARRIER AT 15 9 KPH

RIGHT REAR SILL Y-AXIS DISPLACEMENT

IMPACT NO 3 TEST NUMBER 940509



CHANNEL RRSYD1 FILTER CH CLASS 180

PEAK DATA 2 54 MM @ 224 72 MS; -5 76 MM @ 310 00 MS

DATA PLOTS

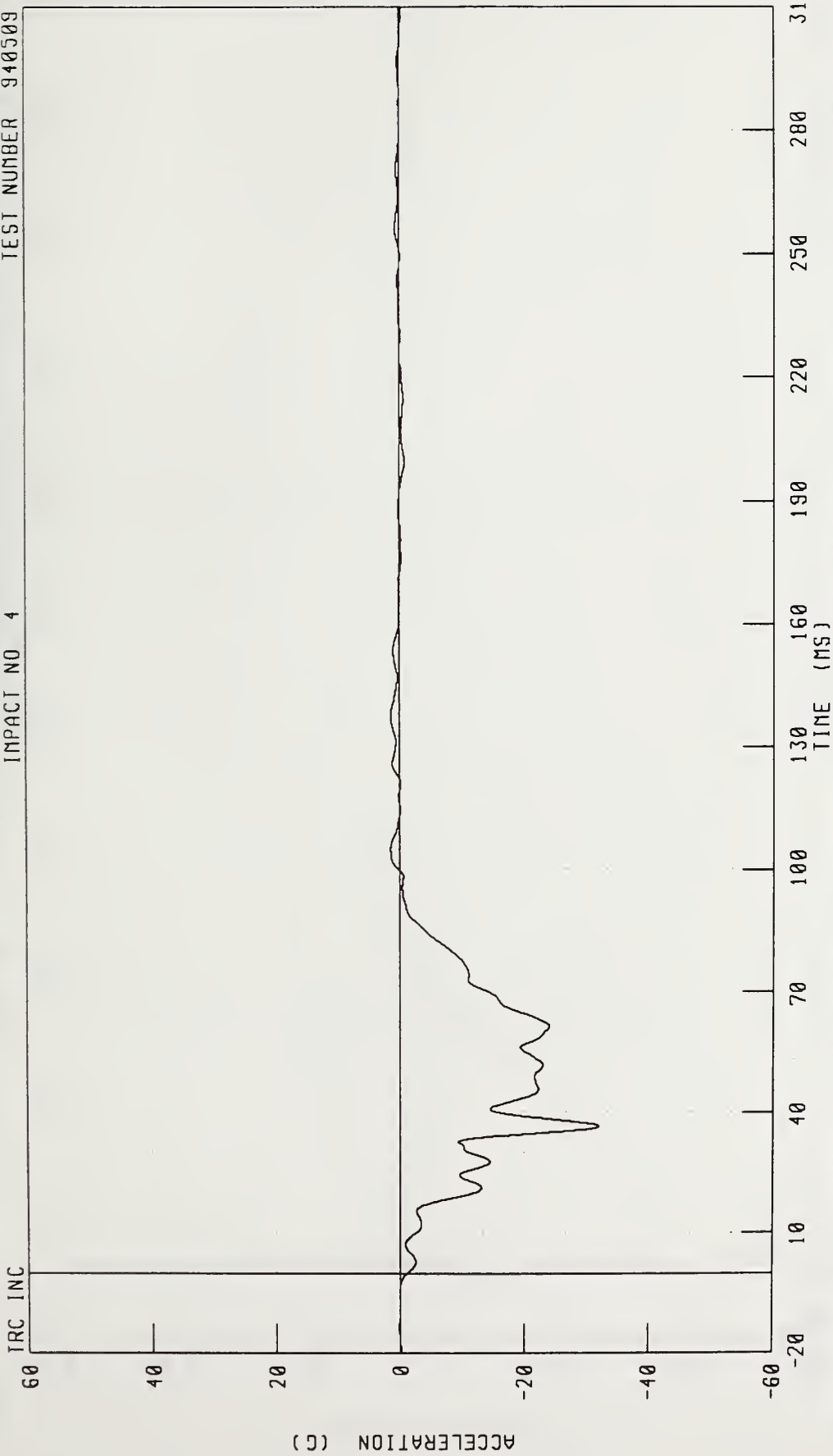
TEST NO. 940509-4



1987 FORD TAURUS INTO 30 5 CM POLE BARRIER AT 32 0 KPH  
VEHICLE CG X-AXIS ACCELERATION

IMPACT NO 4

TEST NUMBER 940509

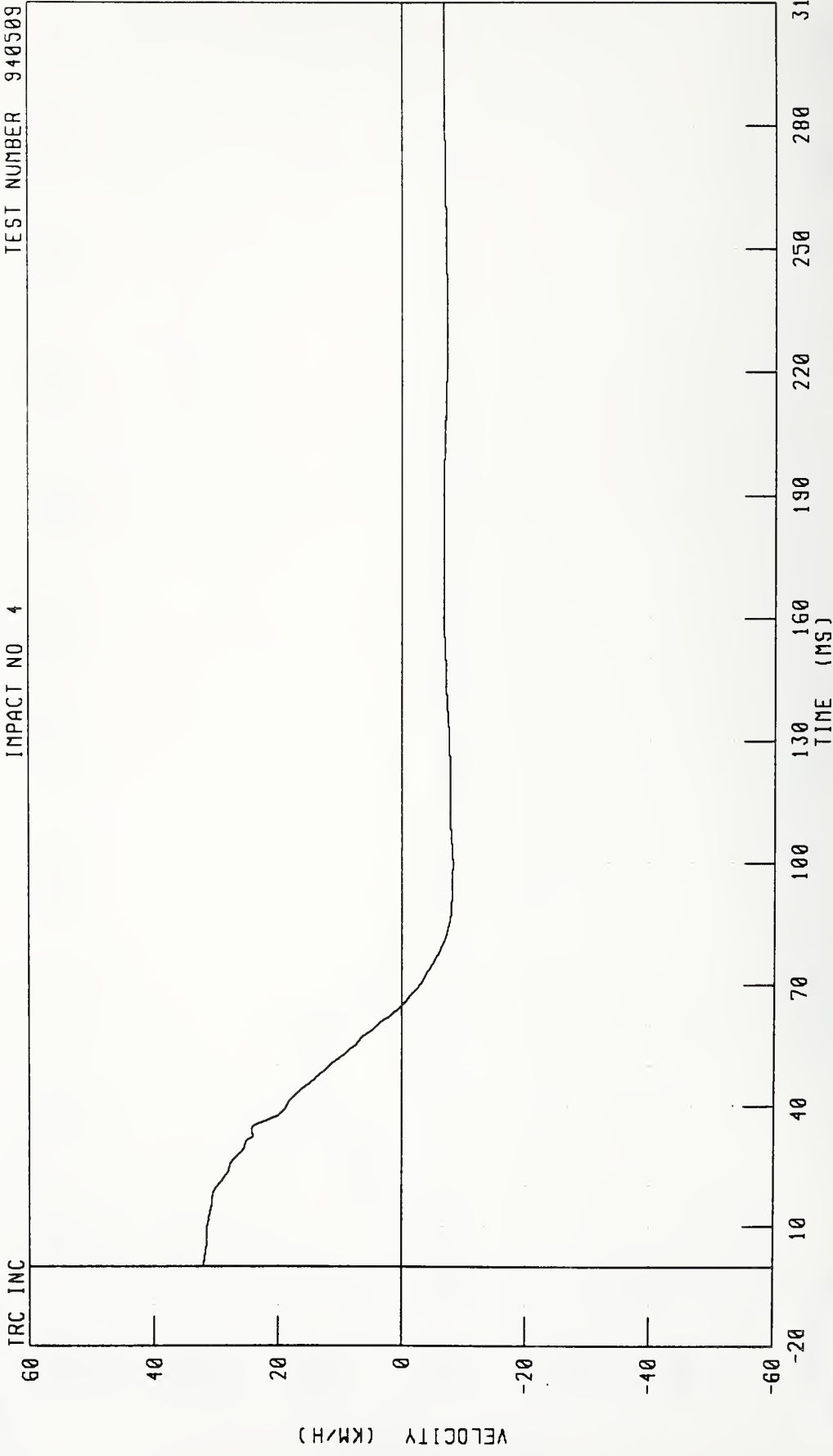


CHANNEL: VCGXG1 FILTER: CH CLASS 60

PEAK DATA: 1.46 G @ 104.80 MS, -31.94 G @ 36.64 MS

1987 FORD TAURUS INTO 30 5 CM POLE BARRIER AT 32 0 KPH  
VEHICLE CC X-AXIS VELOCITY

IMPACT NO 4 TEST NUMBER 940509



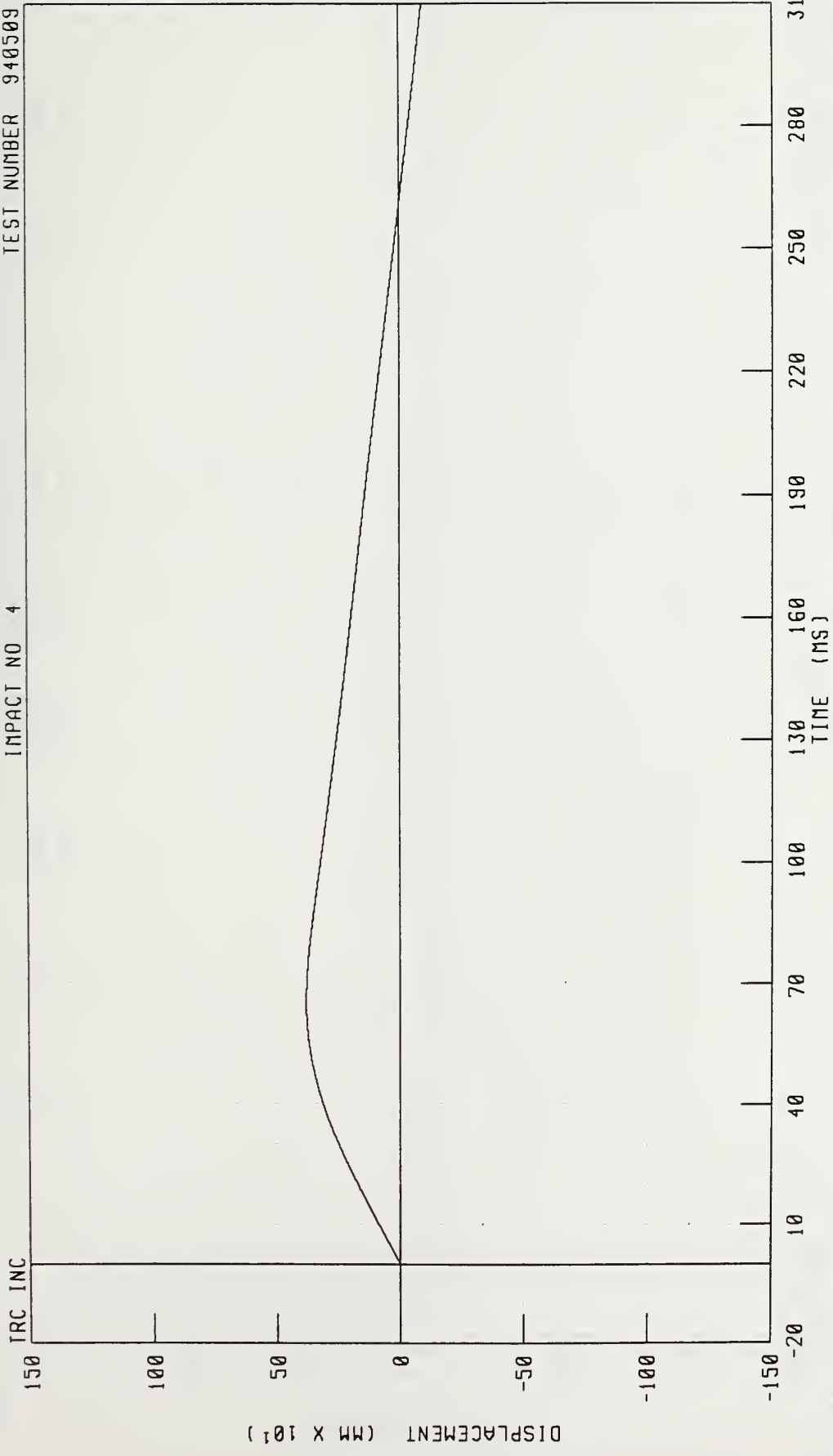
CHANNEL: VCGXV1 FILTER: CH CLASS 180

PEAK DATA: 32 00 KM/H @ 0 00 MS, -8 27 KM/H @ 99.44 MS

1987 FORD TAURUS INTO 30 5 CM POLE BARRIER AT 32 0 KPH  
VEHICLE CG X-AXIS DISPLACEMENT

TEST NUMBER 940509

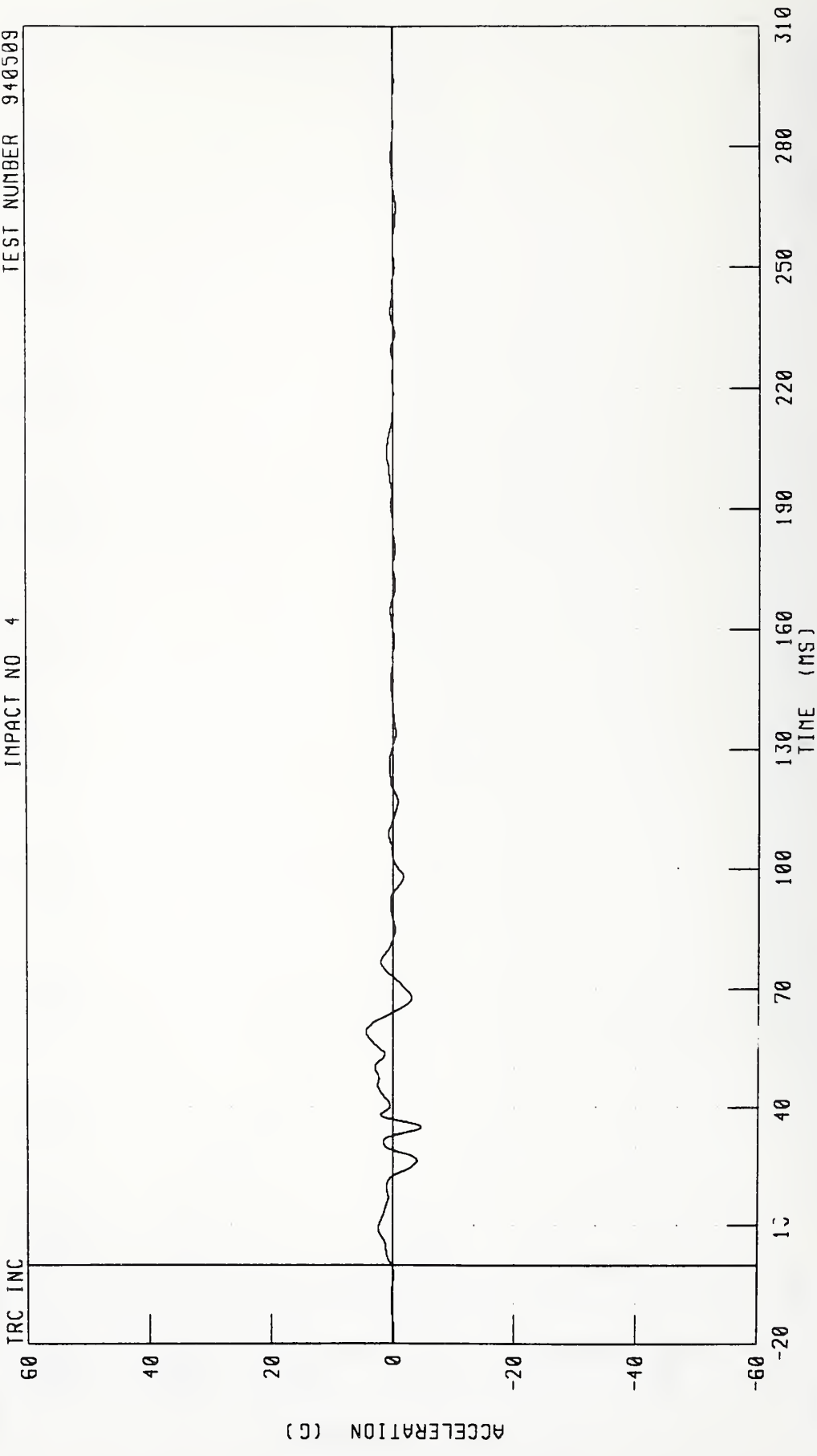
IMPACT NO 4



CHANNEL: VCGXD1 FILTER: CH CLASS 180 PEAK DATA: 380 04 MM @ 64 96 MS, -93 13 MM @ 310 00 MS

1987 FORD TAURUS INTO 30 5 CM POLE BARRIER AT 32 0 KPH  
VEHICLE CC Y-AXIS ACCELERATION

IMPACT NO 4 TEST NUMBER 940509



CHANNEL: VCGY61 FILTER: CH CLASS 60

PEAK DATA: 4 44 G @ 59 28 MS, -4 61 G @ 35 12 MS

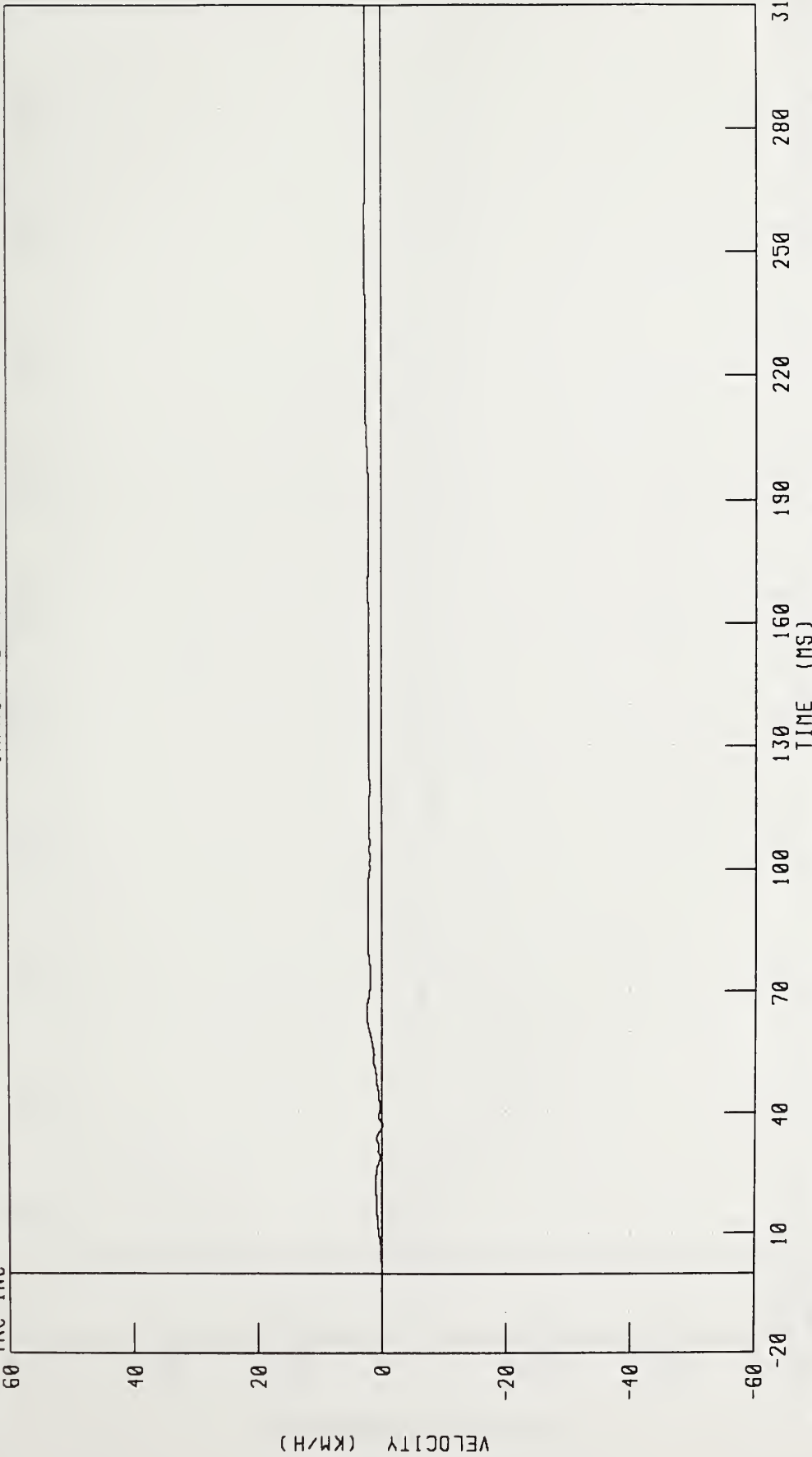


1987 FORD TAURUS INTO 30 5 CM POLE BARRIER AT 32 0 KPH  
VEHICLE CC Y-AXIS VELOCITY

TEST NUMBER 940509

IMPACT NO 4

TRC INC



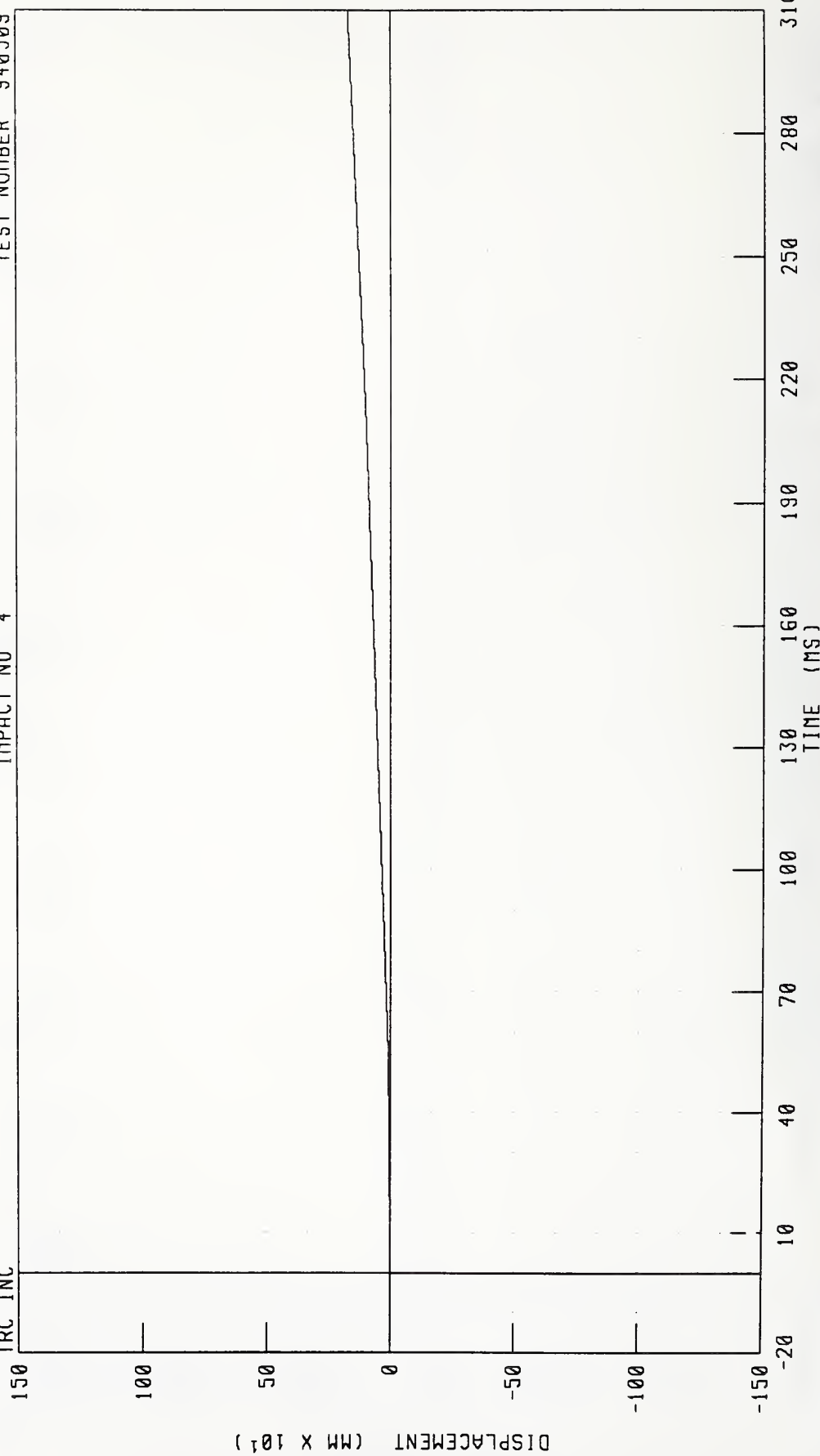
CHANNEL: VCGYV1 FILTER: CH. CLASS 180  
PEAK DATA: 2 71 KM/H @ 247 52 MS; -0 11 KM/H @ 36 72 MS

1987 FORD TAURUS INTO 30 5 CM POLE BARRIER AT 32 0 KPH  
VEHICLE CC Y-AXIS DISPLACEMENT

TEST NUMBER 940509

IMPACT NO 4

TRC INC



CHANNEL: VCGYDI FILTER: CH CLASS 180

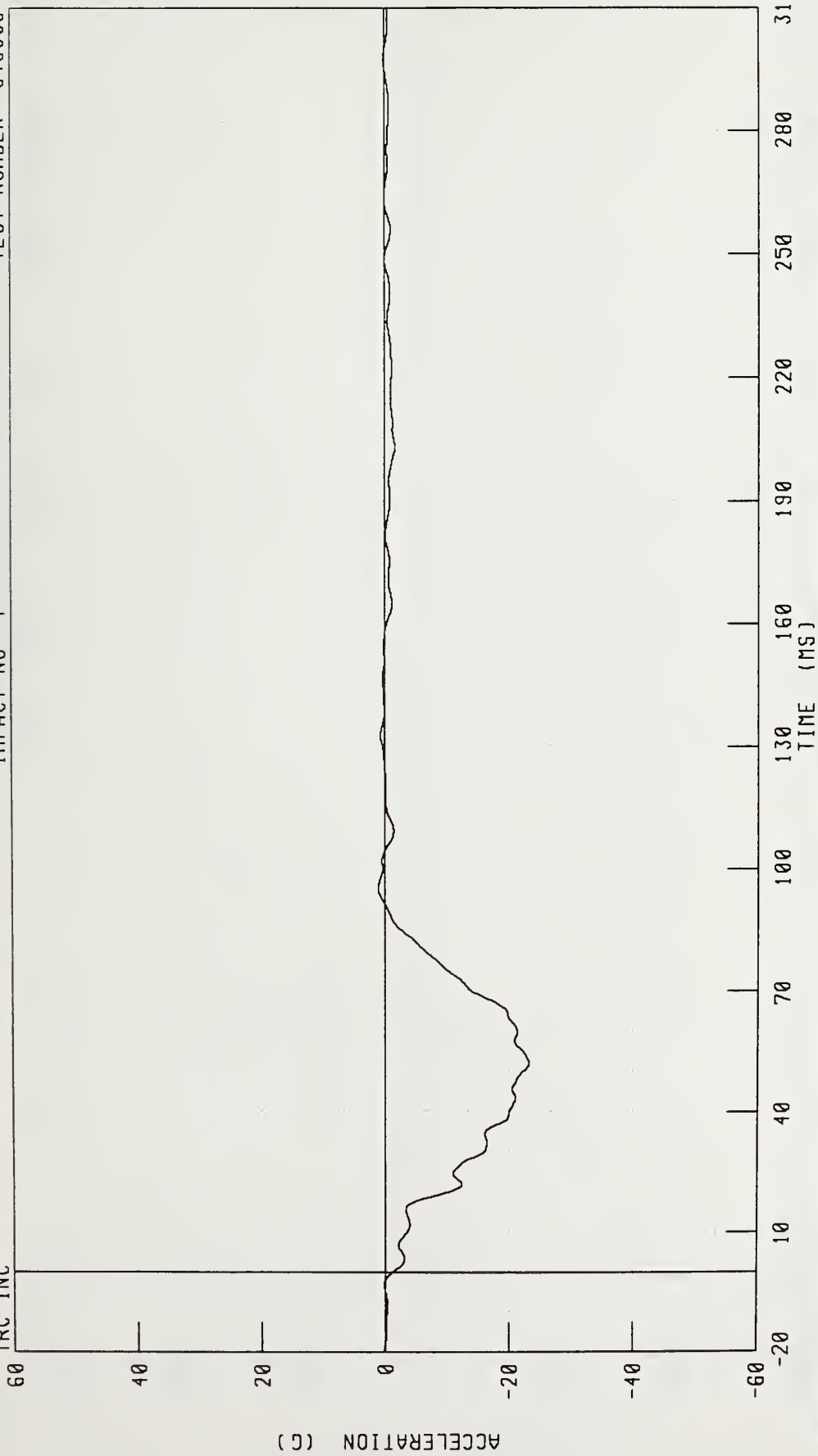
PEAK DATA: 171 44 MM @ 310 00 MS; 0 00 MM @ 0 72 MS

1987 FORD TAURUS INTO 30 5 CM POLE BARRIER AT 32 0 KPH  
LEFT REAR SILL X-AXIS ACCELERATION

TEST NUMBER 940509

IMPACT NO 4

TRC INC

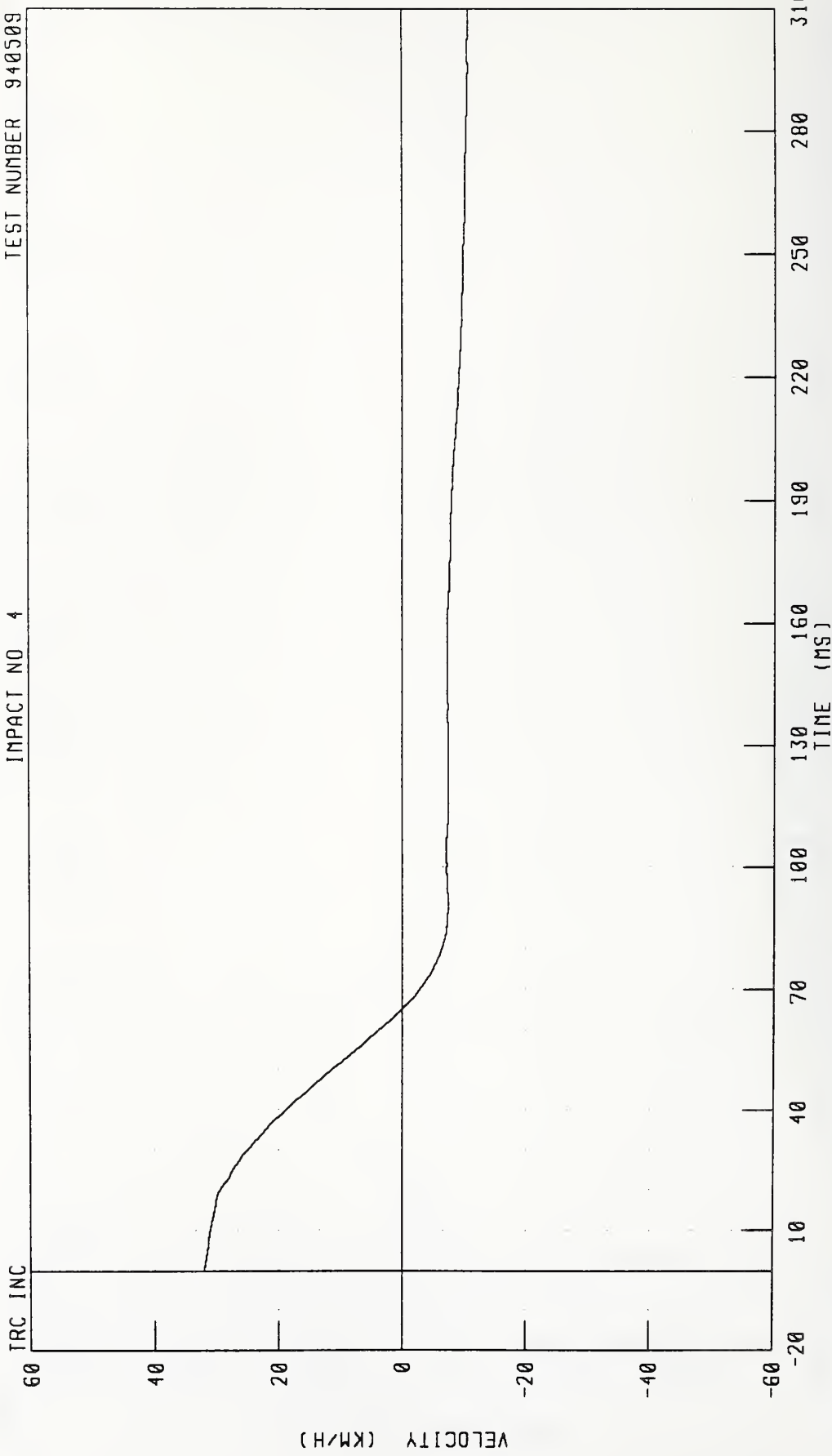


CHANNEL: LRSXG1 FILTER: CH. CLASS 60

PEAK DATA: 1 08 G @ 95 12 MS, -23 23 G @ 52 08 MS

1987 FORD TAURUS INTO 30 5 CM POLE BARRIER AT 32 0 KPH  
LEFT REAR SILL X-AXIS VELOCITY

IMPACT NO 4 TEST NUMBER 940509



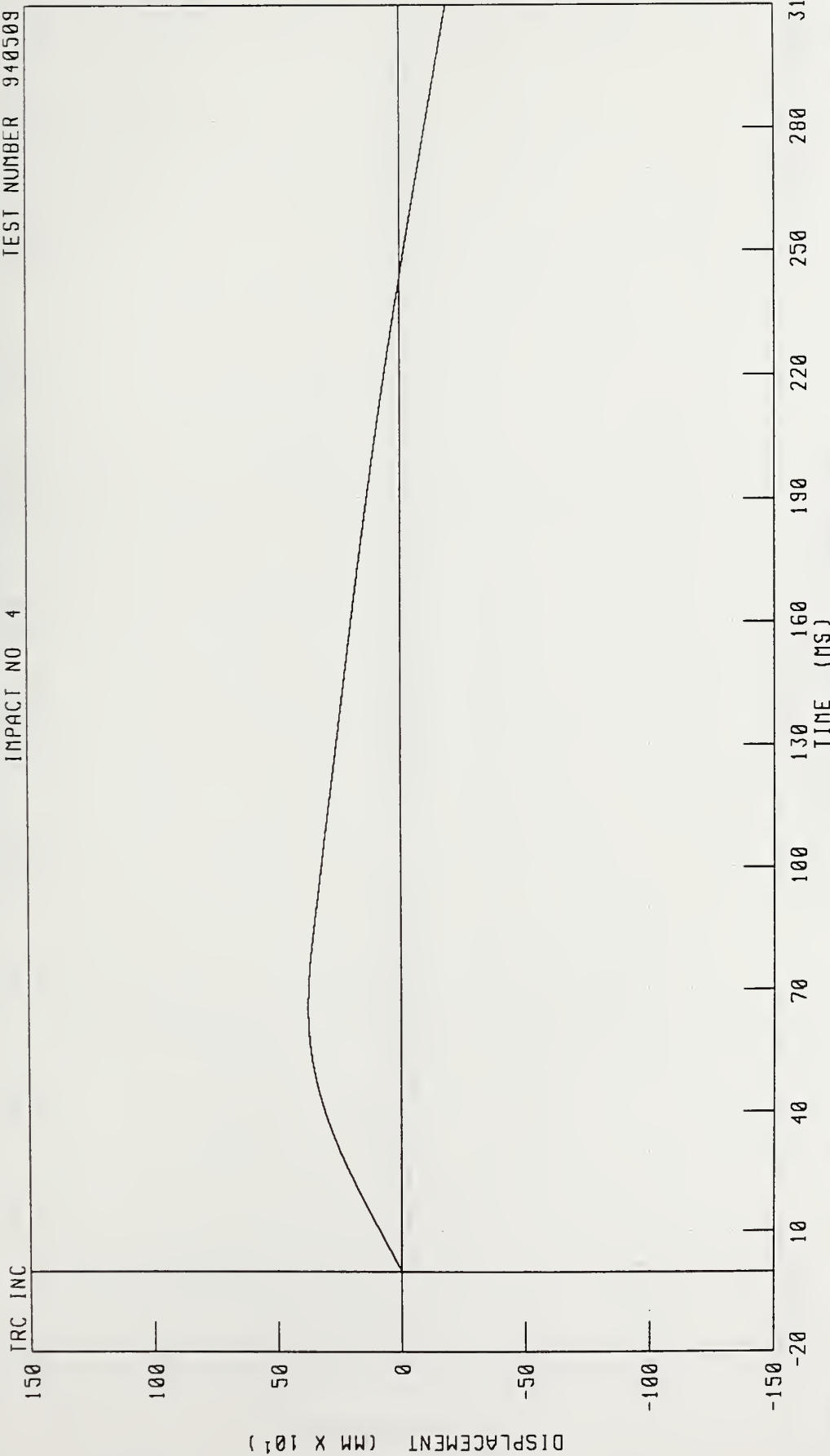
CHANNEL: LRSXV1 FILTER: CH CLASS 180

PEAK DATA: 32 00 KM/H @ 0 00 MS; -10 68 KM/H @ 309 44 MS

1987 FORD TAURUS INTO 30 5 CM POLE BARRIER AT 32 0 KPH  
LEFT REAR SILL X-AXIS DISPLACEMENT

TEST NUMBER 940509

IMPACT NO 4

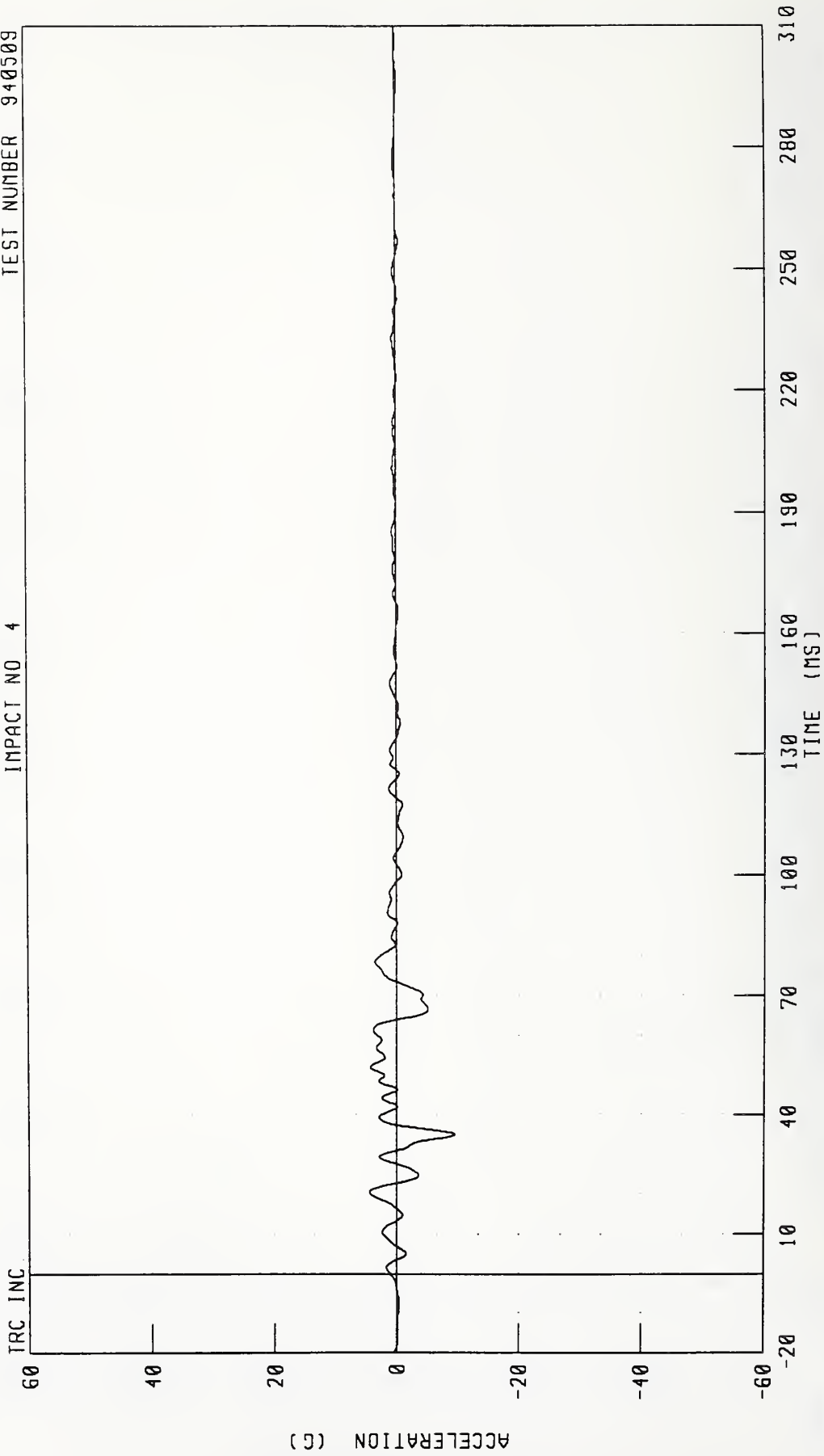


CHANNEL: LRSXD1 FILTER: CH CLASS 180

PEAK DATA: 375 57 MM @ 65 20 MS, -188 67 MM @ 310 00 MS

1987 FORD TAURUS INTO 30 5 CM POLE BARRIER AT 32 0 KPH  
LEFT REAR SILL Y-AXIS ACCELERATION

IMPACT NO 4 TEST NUMBER 940509



CHANNEL: LRSYG1 FILTER: CH. CLASS 60

1987 FORD TAURUS INTO 30 5 CM POLE BARRIER AT 32 0 KPH  
LEFT REAR SILL Y-AXIS VELOCITY

TEST NUMBER 940509

IMPACT NO 4

TRC INC

60

40

20

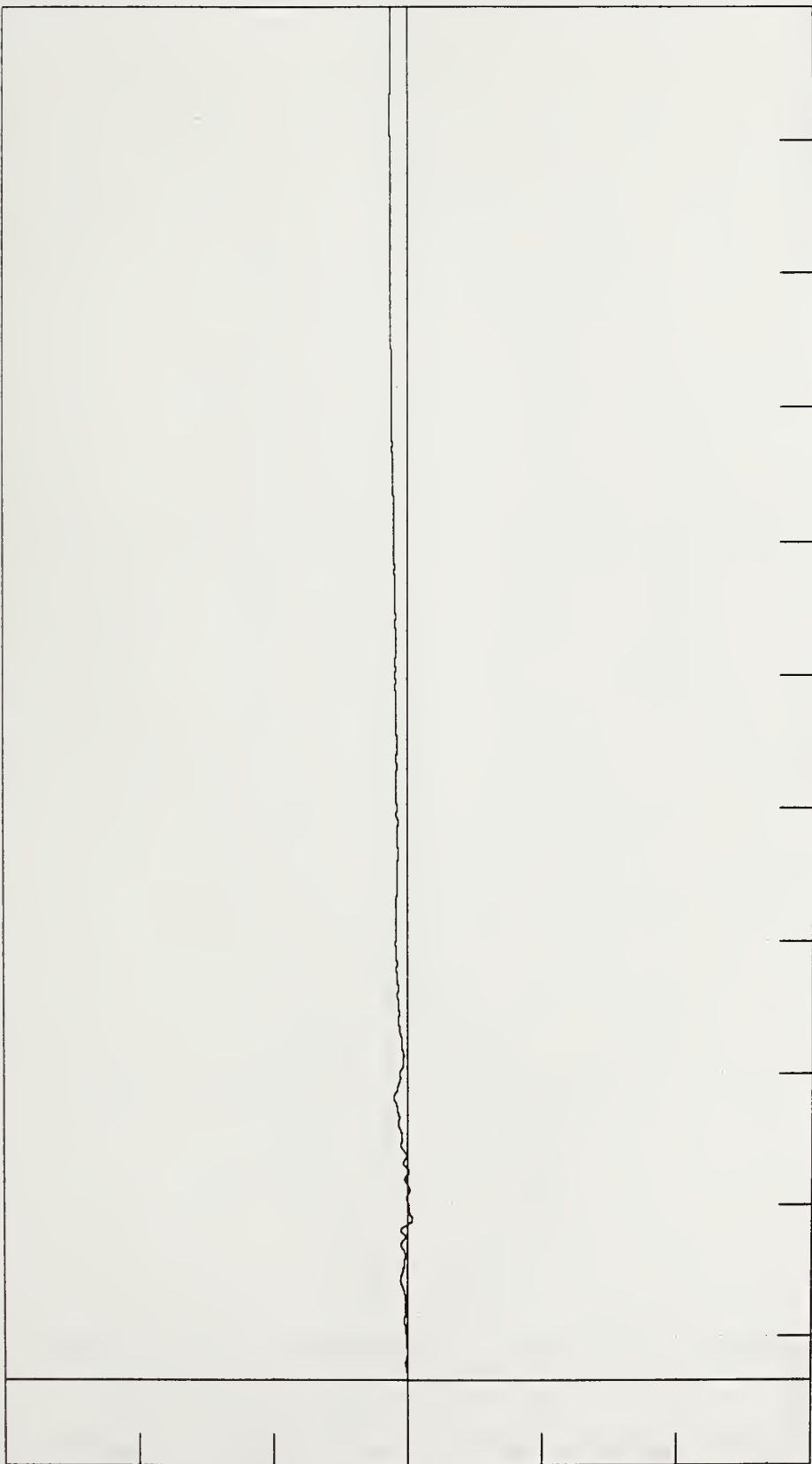
0

-20

-40

-60

VELOCITY (KM/H)



310

280

250

220

190

160

130

100

70

40

10

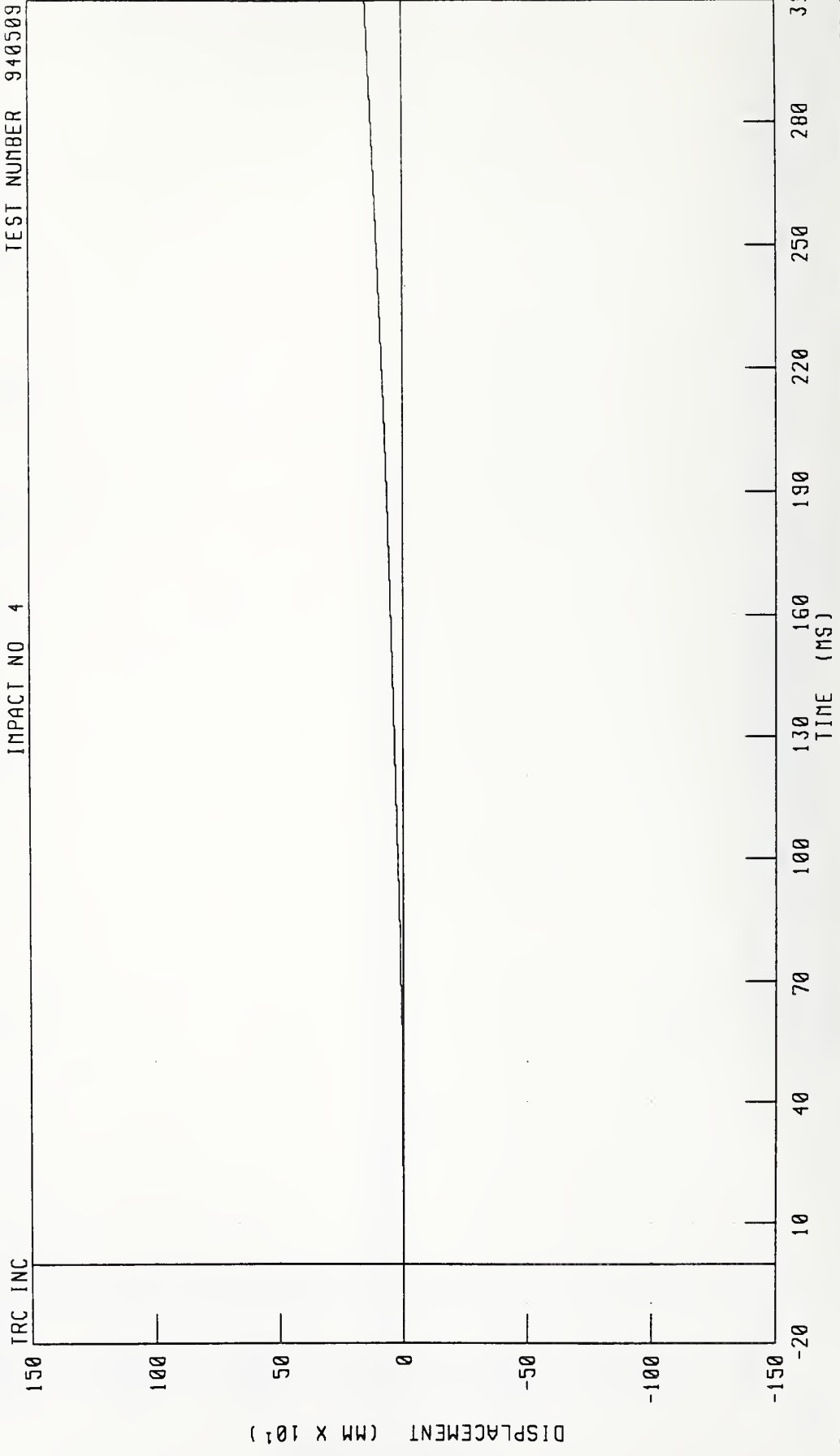
TIME (MS)

CHANNEL: LRSYV1 FILTER: CH. CLASS 180

PEAK DATA: 2 67 KM/H @ 282 40 MS, -0 74 KM/H @ 36 48 MS

1987 FORD TAURUS INTO 30 5 CM POLE BARRIER AT 32 0 KPH  
LEFT REAR SILL Y-AXIS DISPLACEMENT

IMPACT NO 4 TEST NUMBER 940509



CHANNEL: LRSYD1 FILTER: CH. CLASS 180

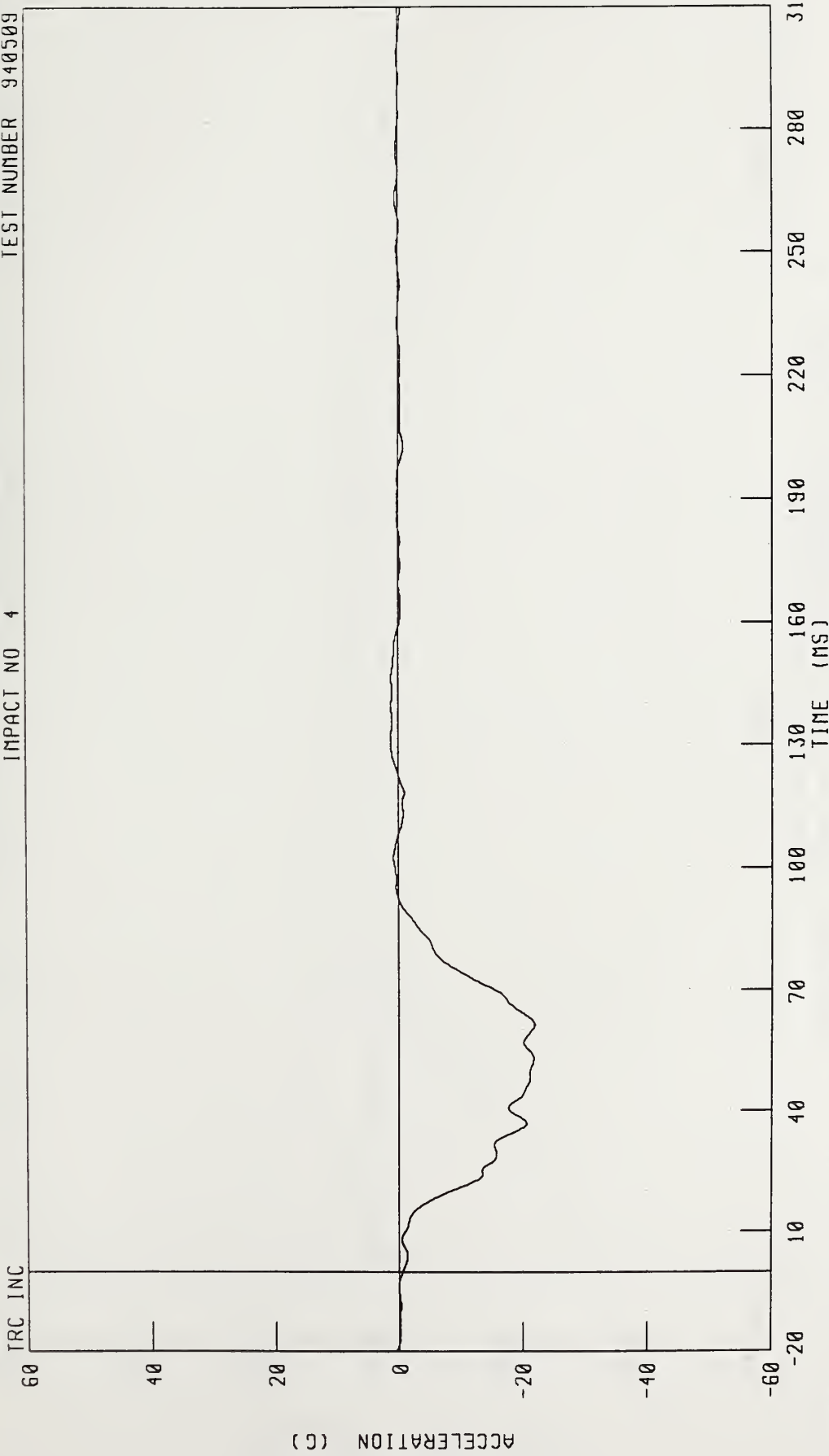
PEAK DATA: 146.75 MM @ 310.00 MS; 0.00 MM @ 0.00 MS



1987 FORD TAURUS INTO 30 5 CM POLE BARRIER AT 32 0 KPH  
RIGHT REAR SILL X-AXIS ACCELERATION

TEST NUMBER 940509

IMPACT NO 4



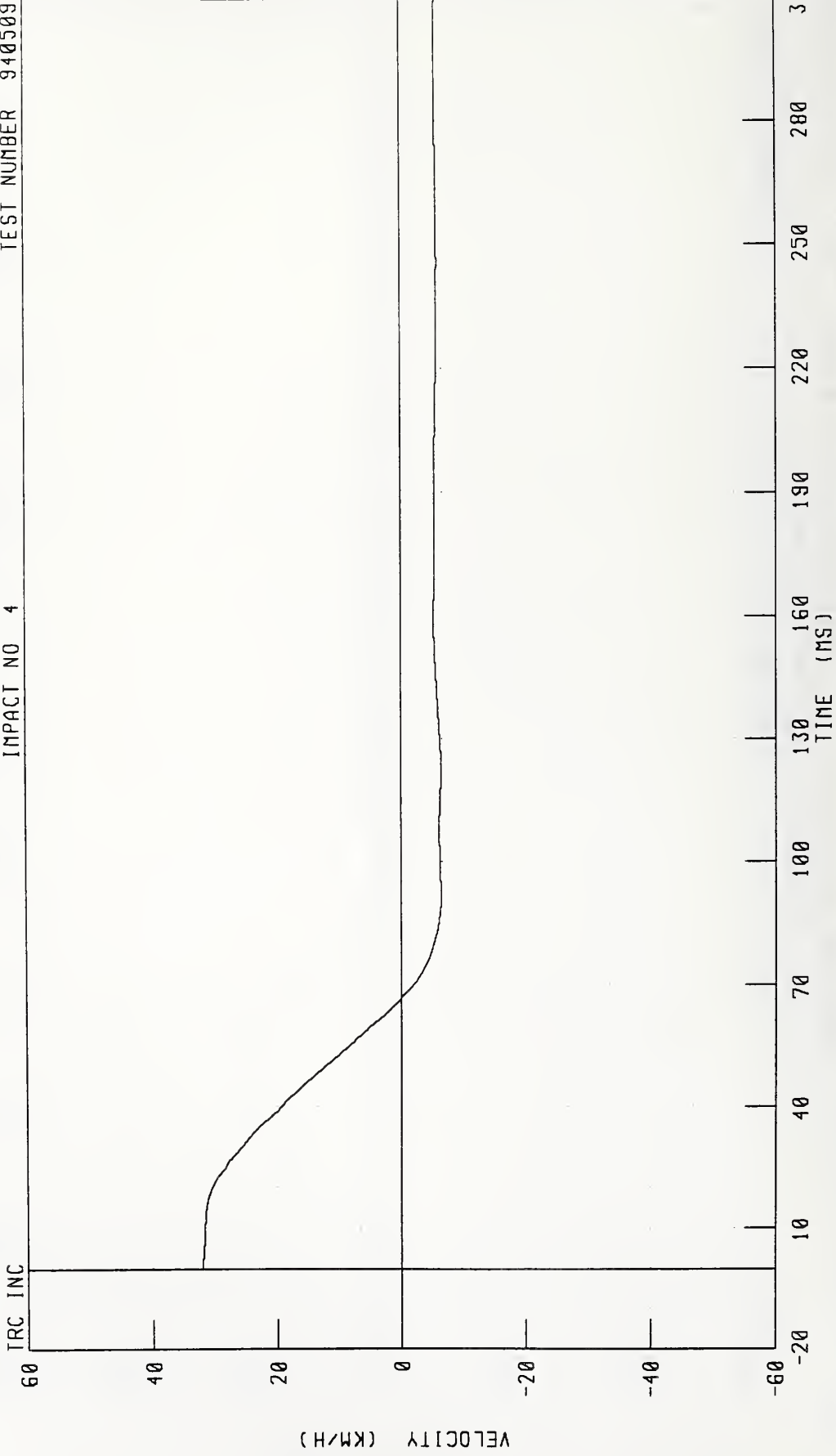
CHANNEL: RRSXG1 FILTER: CH. CLASS 60

PEAK DATA: 1 23 G @ 131 36 MS, -21 93 G @ 61 20 MS

1987 FORD TAURUS INTO 30 5 CM POLE BARRIER AT 32 0 KPH  
RIGHT REAR SILL X-AXIS VELOCITY

TEST NUMBER 940509

IMPACT NO 4

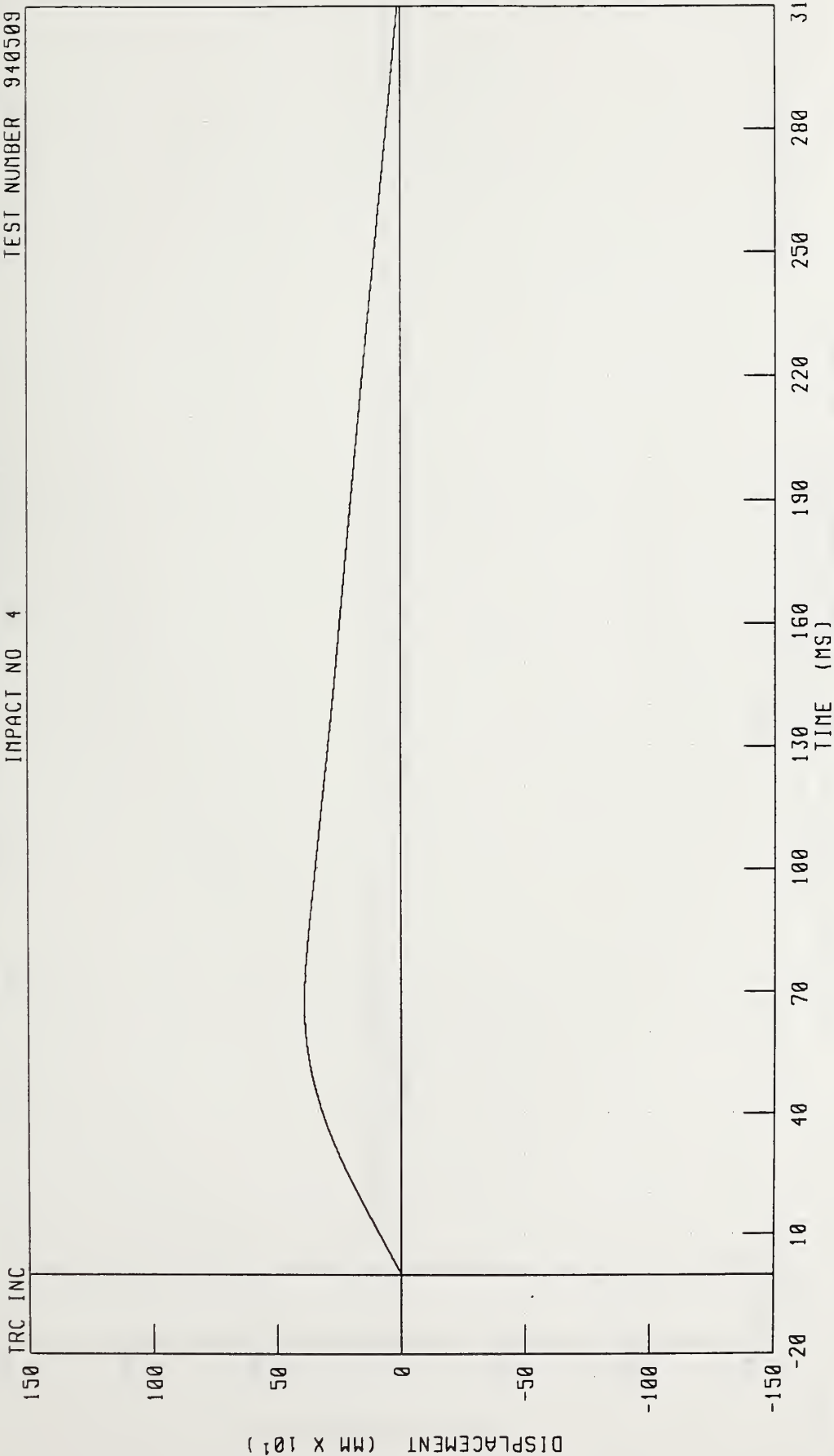


CHANNEL: RRSXV1 FILTER: CH. CLASS 180

PEAK DATA: 32.00 KM/H @ 0 00 MS, -6 42 KM/H @ 121 60 MS

1987 FORD TAURUS INTO 30 5 CM POLE BARRIER AT 32 0 KPH  
RIGHT REAR SILL X-AXIS DISPLACEMENT

IMPACT NO 4 TEST NUMBER 940509



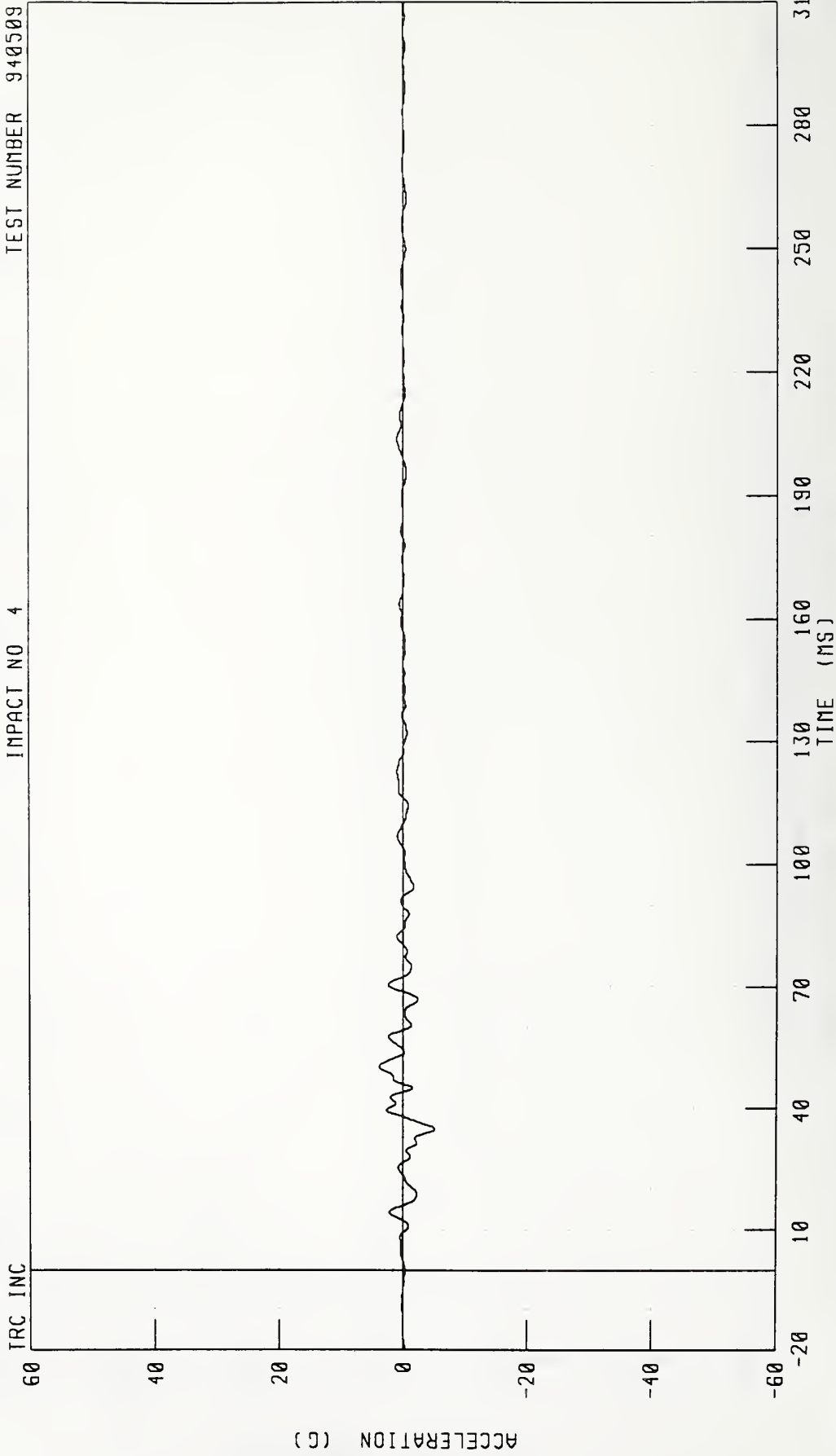
CHANNEL: RRSXD1 FILTER CH: CLASS 180

PEAK DATA: 389 91 MM @ 66 88 MS, 0 00 MM @ 0 00 MS

1987 FORD TAURUS INTO 30 5 CM POLE BARRIER AT 32 0 KPH  
RIGHT REAR SILL Y-AXIS ACCELERATION

TEST NUMBER 940509

IMPACT NO 4

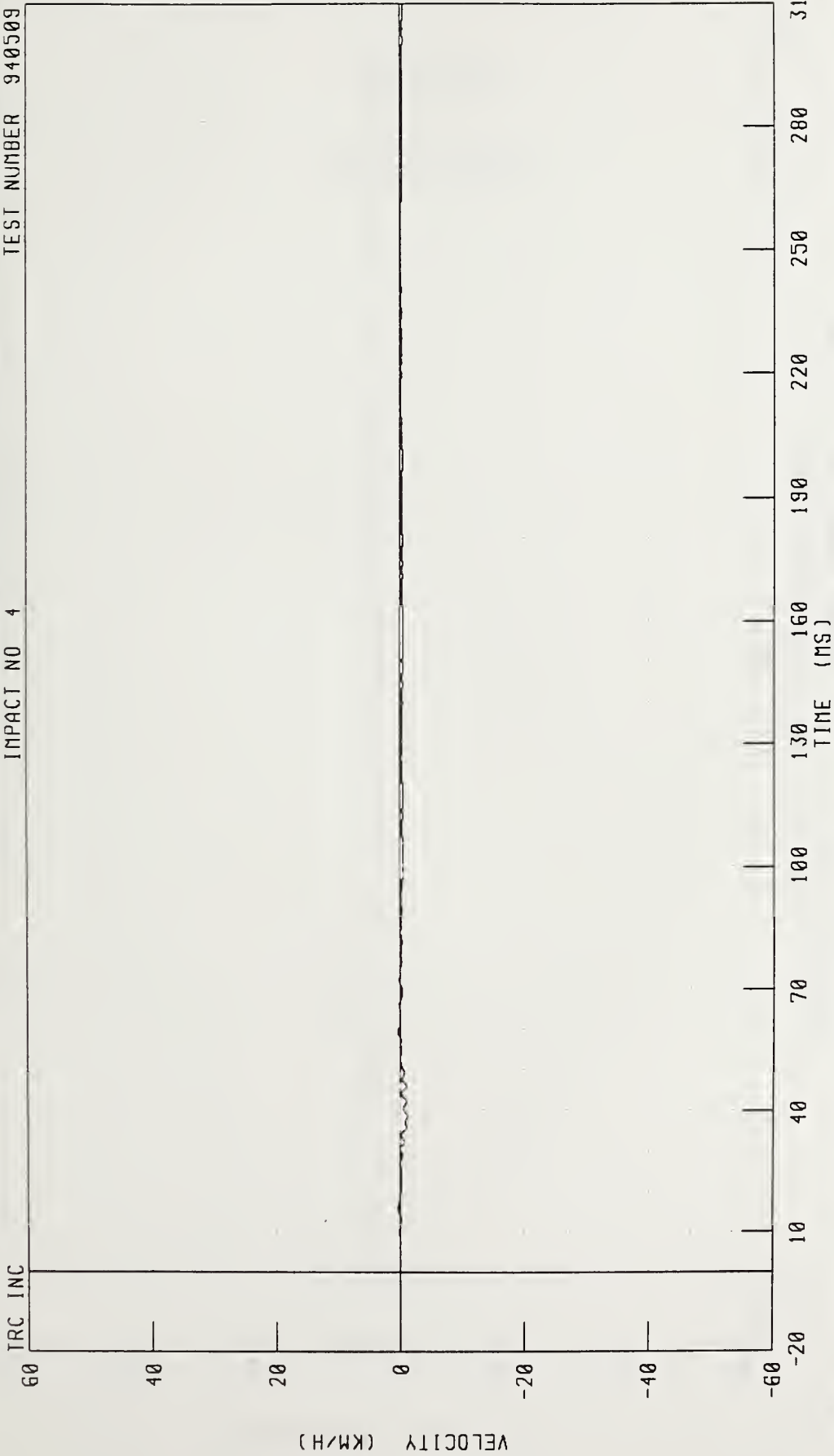


CHANNEL: ARSYG1 FILTER: CH. CLASS 60

PEAK DATA 3 85 G @ 50 32 MS, -5 11 G @ 34 96 MS

1987 FORD TAURUS INTO 30 5 CM POLE BARRIER AT 32 0 KPH  
RIGHT REAR SILL Y-AXIS VELOCITY

IMPACT NO 4 TEST NUMBER 940509



CHANNEL: RRSYV1 FILTER: CH CLASS 180

PEAK DATA: 0 37 KM/H @ 59 28 MS, -1 15 KM/H @ 38 56 MS

1987 FORD TAURUS INTO 30 5 CM POLE BARRIER AT 32 0 KPH  
RIGHT REAR SILL Y-AXIS DISPLACEMENT

IMPACT NO 4 TEST NUMBER 940509



CHANNEL: RRSYD1 FILTER: CH. CLASS 180

PEAK DATA: 0 22 MM @ 19.12 MS, -25 05 MM @ 310 00 MS

DATA PLOTS

TEST NO. 940509-5



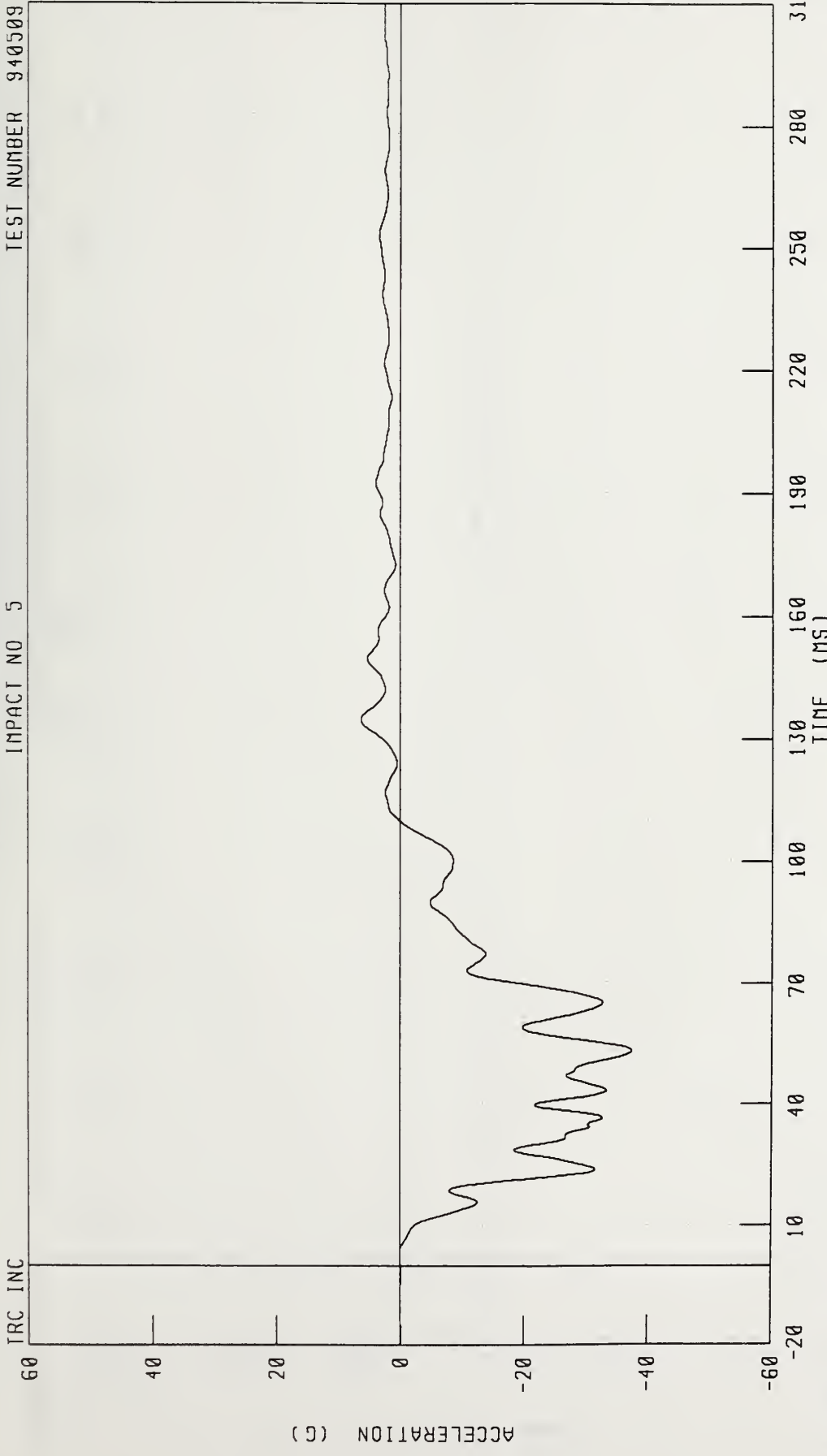


1987 FORD TAURUS INTO 30 5 CM POLE BARRIER AT 56 2 KPH  
VEHICLE CG X-AXIS ACCELERATION

TEST NUMBER 940509

IMPACT NO 5

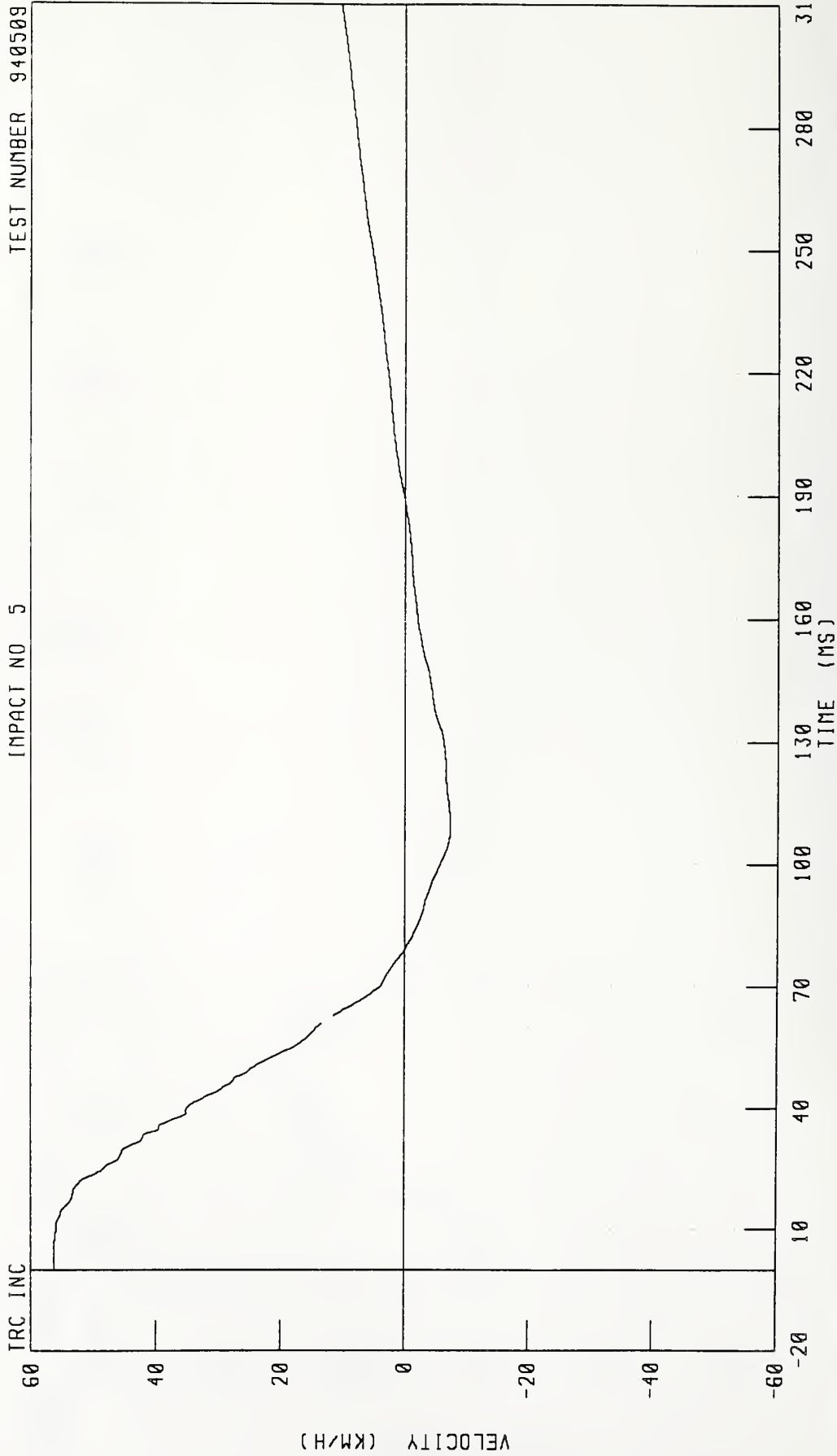
TRC INC



CHANNEL: VCGXG1 FILTER: CH CLASS 60

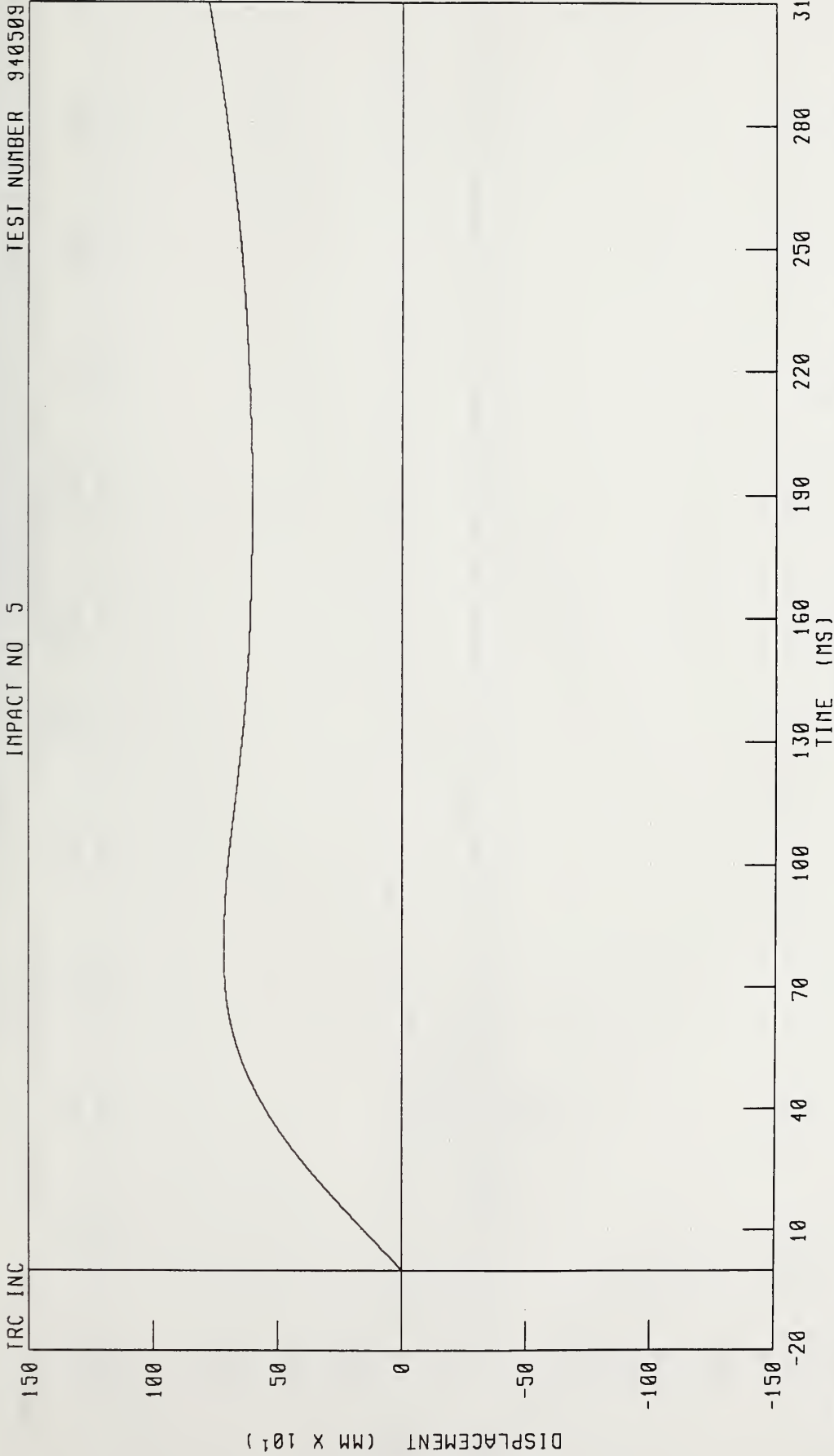
PEAK DATA: 6.35 G @ 134.48 MS; -37.38 G @ 53.20 MS

1987 FORD TAURUS INTO 30 5 CM POLE BARRIER AT 56 2 KPH  
VEHICLE CG X-AXIS VELOCITY



1987 FORD TAURUS INTO 30 5 CM POLE BARRIER AT 56 2 KPH  
VEHICLE CC X-AXIS DISPLACEMENT

IMPACT NO 5 TEST NUMBER 940509



CHANNEL VCGXD1 FILTER CH CLASS 180

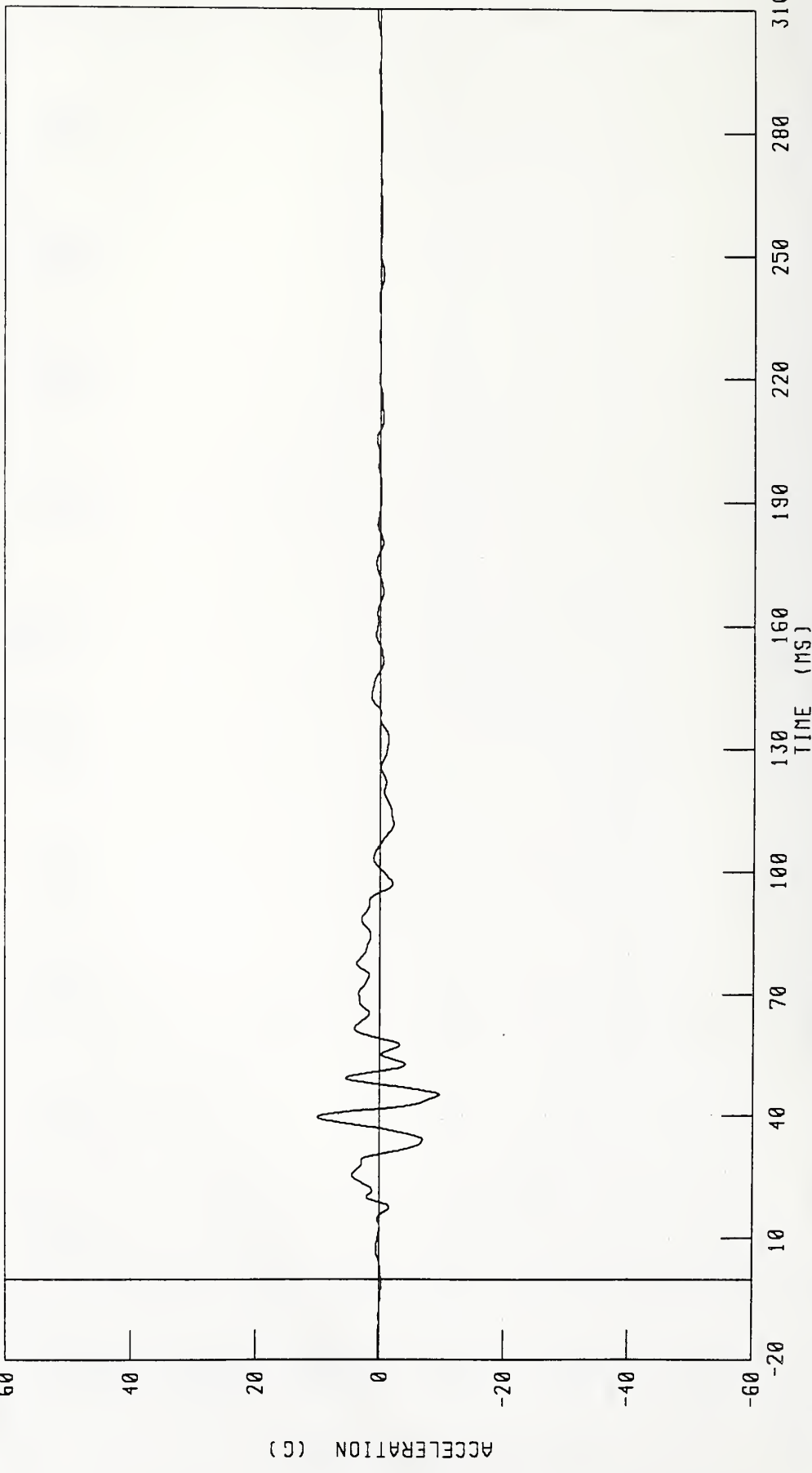
PEAK DATA 779 25 MM @ 310 00 MS, 0 00 MM @ 0 00 MS

1987 FORD TAURUS INTO 30 5 CM POLE BARRIER AT 56 2 KPH  
VEHICLE CG Y-AXIS ACCELERATION

TEST NUMBER 940509

IMPACT NO 5

TRC\_INC

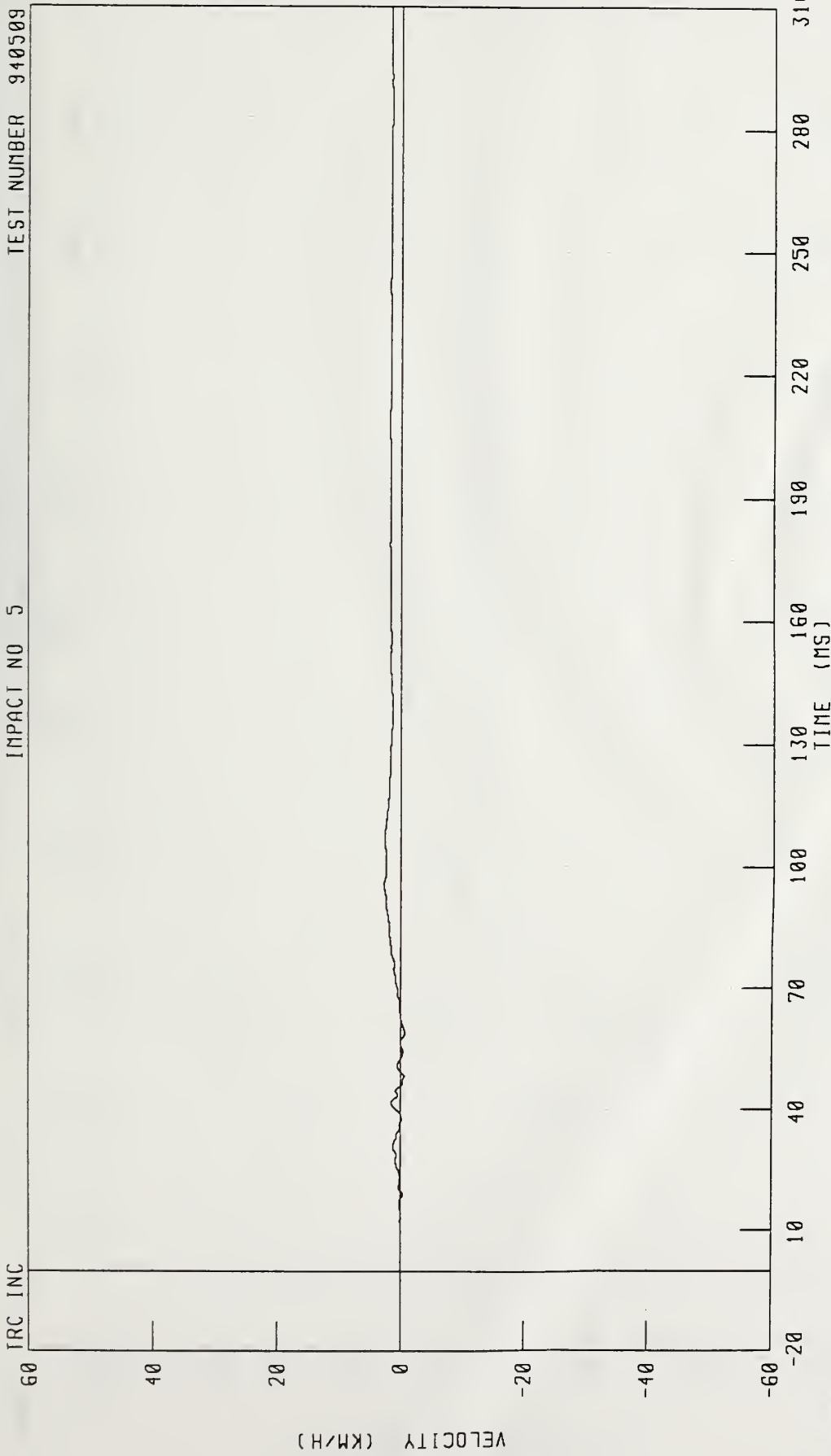


CHANNEL: VCGYG1 FILTER: CH CLASS 60

PEAK DATA: 9.92 G @ 39.60 MS, -9.57 G @ 45.28 MS

1987 FORD TAURUS INTO 30 5 CM POLE BARRIER AT 56 2 KPH  
VEHICLE CG Y-AXIS VELOCITY

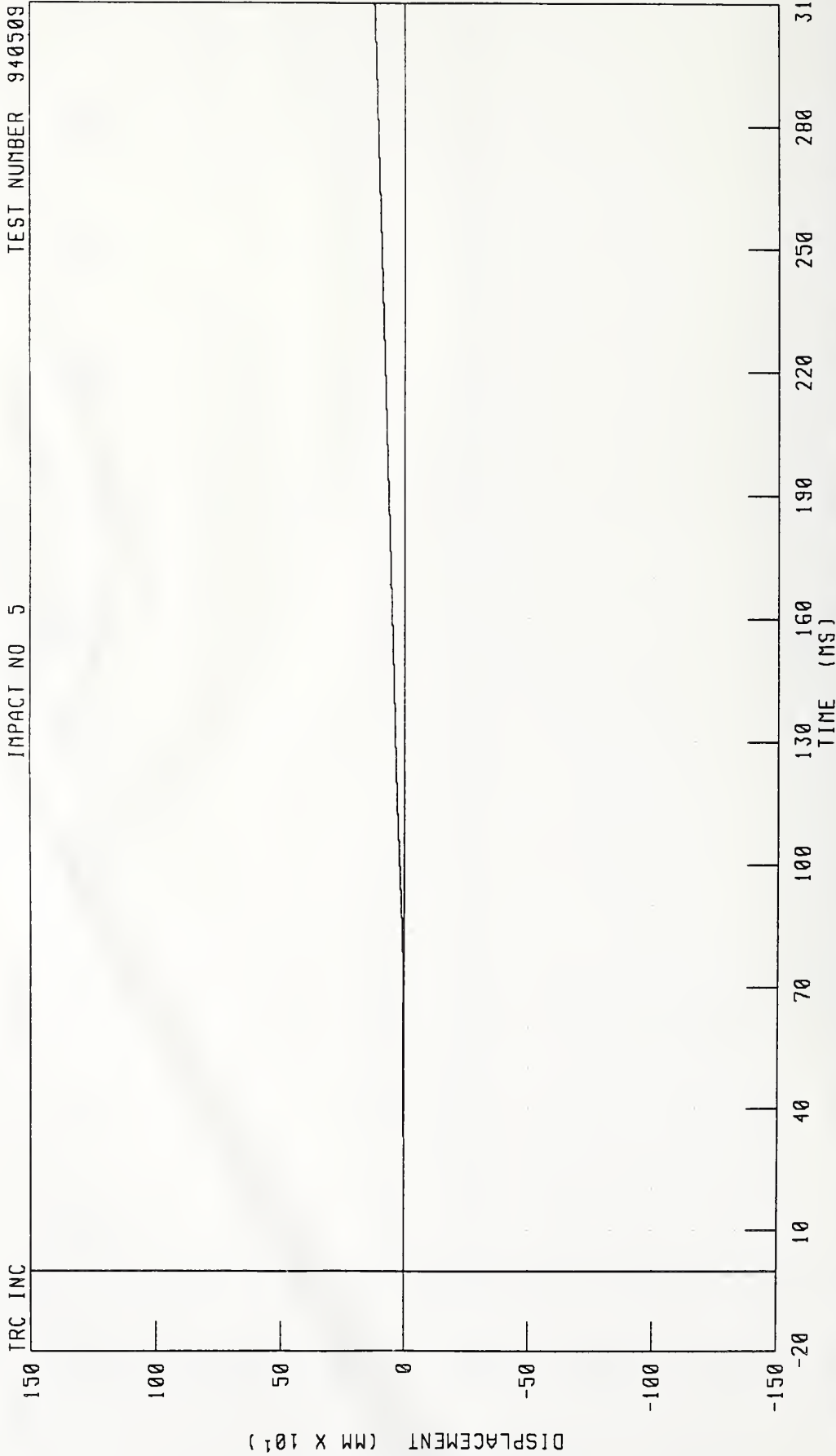
IMPACT NO 5 TEST NUMBER 940509



CHANNEL VCGYV1 FILTER CH CLASS 180 PEAK DATA 2 71 KM/H @ 95 36 MS, -0 64 KM/H @ 58 88 MS

1987 FORD TAURUS INTO 30 5 CM POLE BARRIER AT 56 2 KPH  
VEHICLE CG Y-AXIS DISPLACEMENT

IMPACT NO 5 TEST NUMBER 940509

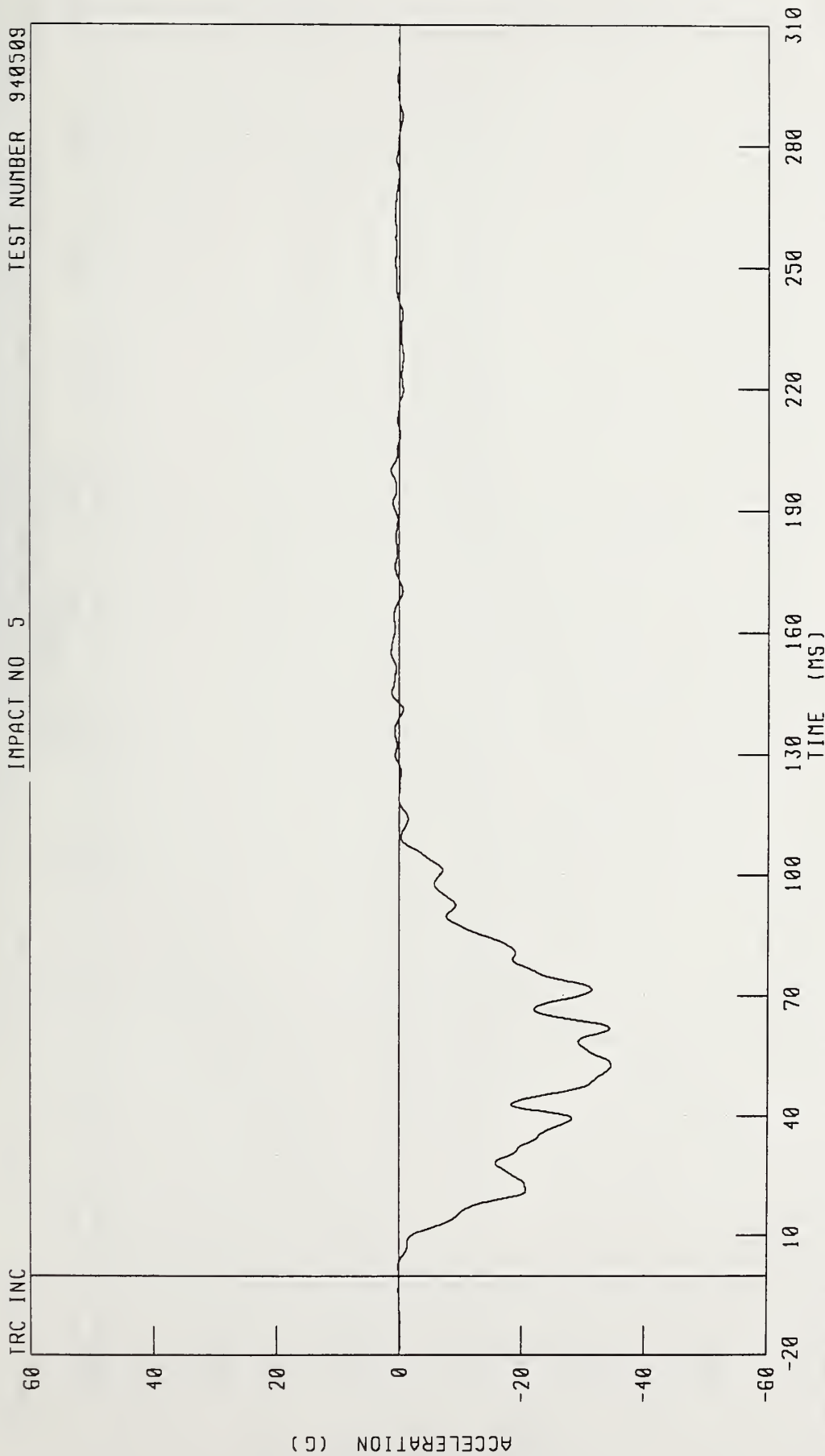


CHANNEL: VCGYD1 FILTER: CH CLASS 180

PEAK DATA: 121 14 MM @ 310 00 MS; -0.03 MM @ 6 40 MS

1987 FORD TAURUS INTO 30 5 CM POLE BARRIER AT 56 2 KPH  
LEFT REAR SILL X-AXIS ACCELERATION

IMPACT NO 5 TEST NUMBER 940509

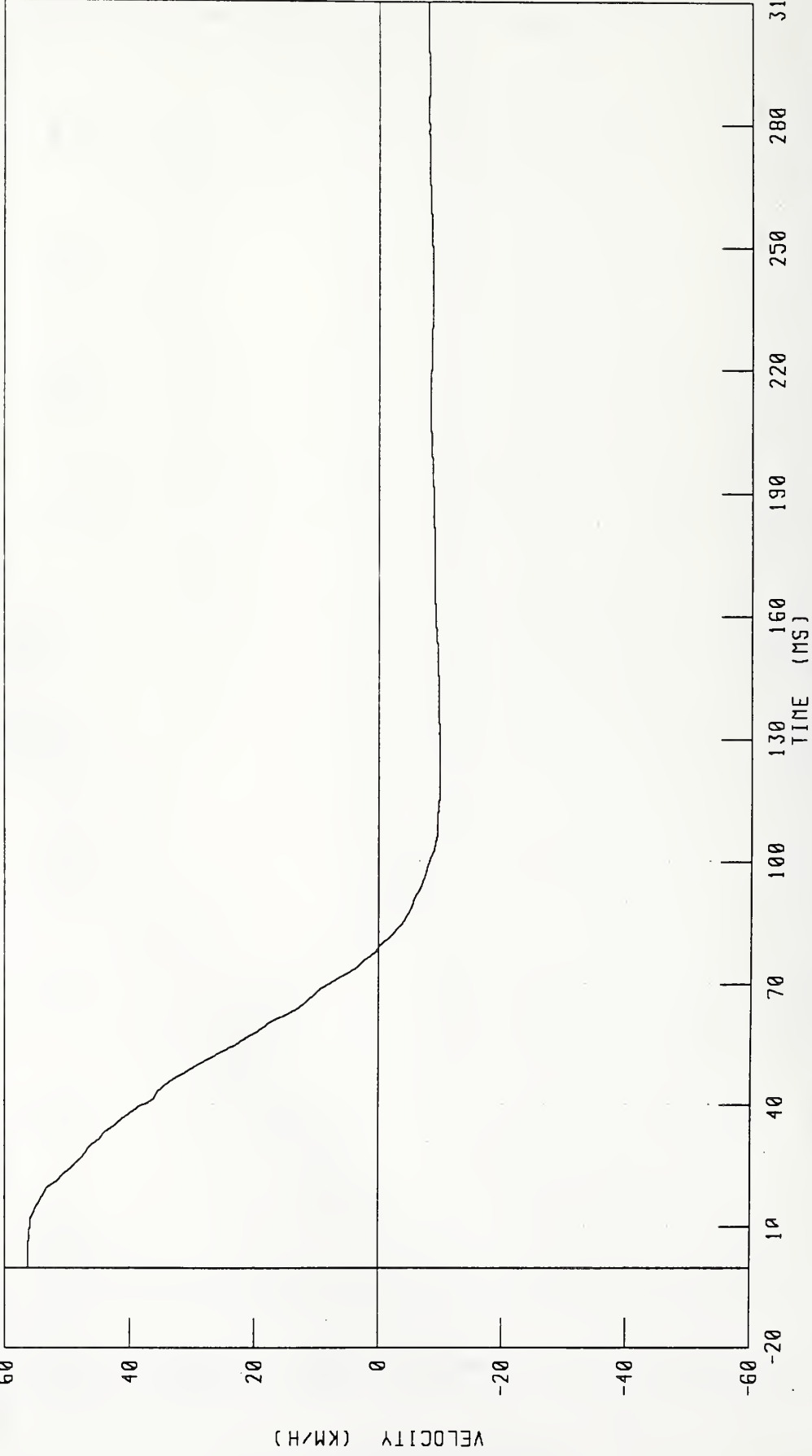


1987 FORD TAURUS INTO 30 5 CM POLE BARRIER AT 56 2 KPH  
LEFT REAR SILL X-AXIS VELOCITY

TEST NUMBER 940509

IMPACT NO 5

TRC INC



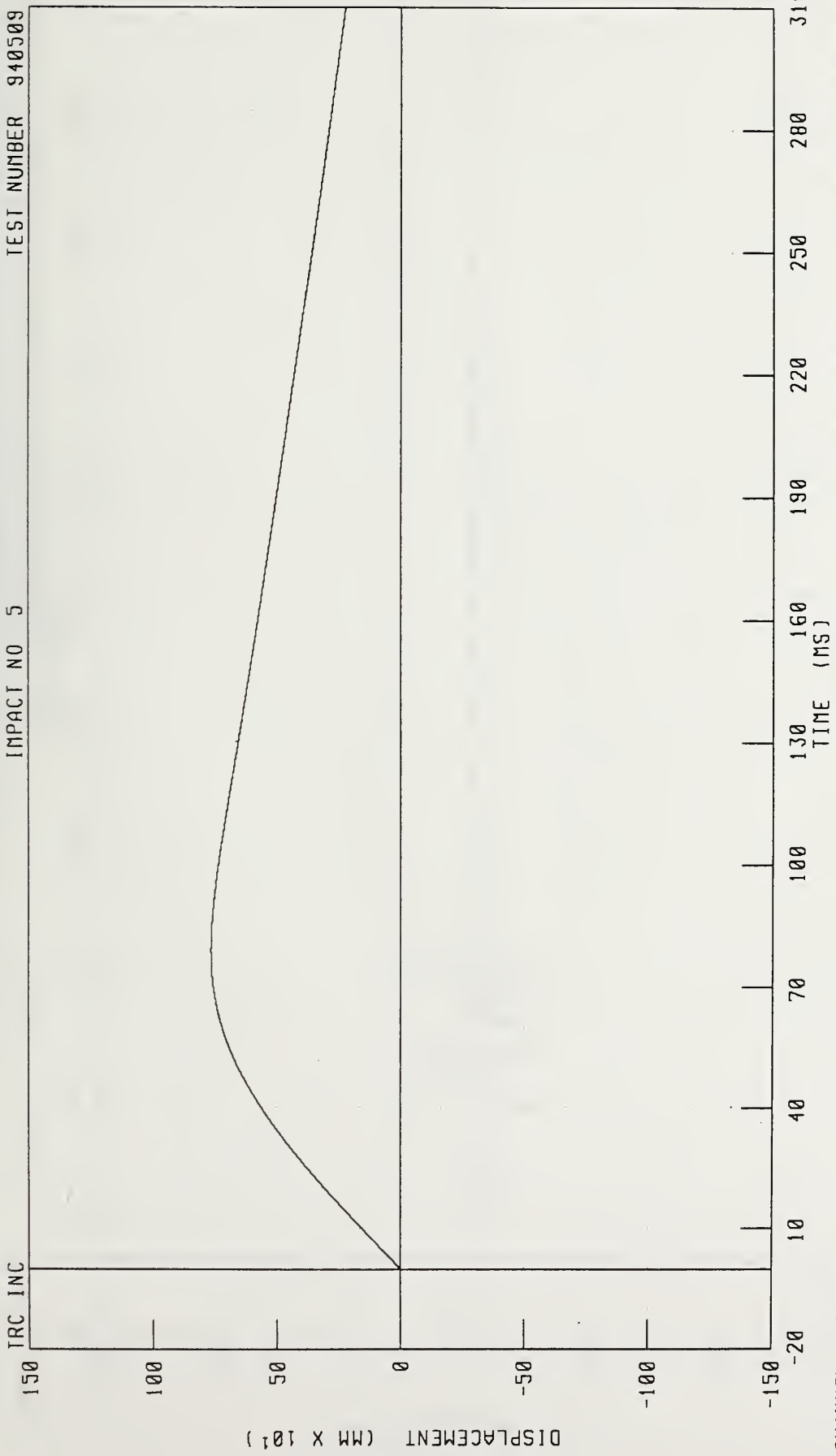
CHANNEL: LRSXV1 FILTER: CH CLASS 180

PEAK DATA: 56 22 KM/H @ 4 80 MS; -9 83 KM/H @ 128 00 MS



1987 FORD TAURUS INTO 30 5 CM POLE BARRIER AT 56 2 KPH  
LEFT REAR SILL X-AXIS DISPLACEMENT

IMPACT NO 5 TEST NUMBER 940509



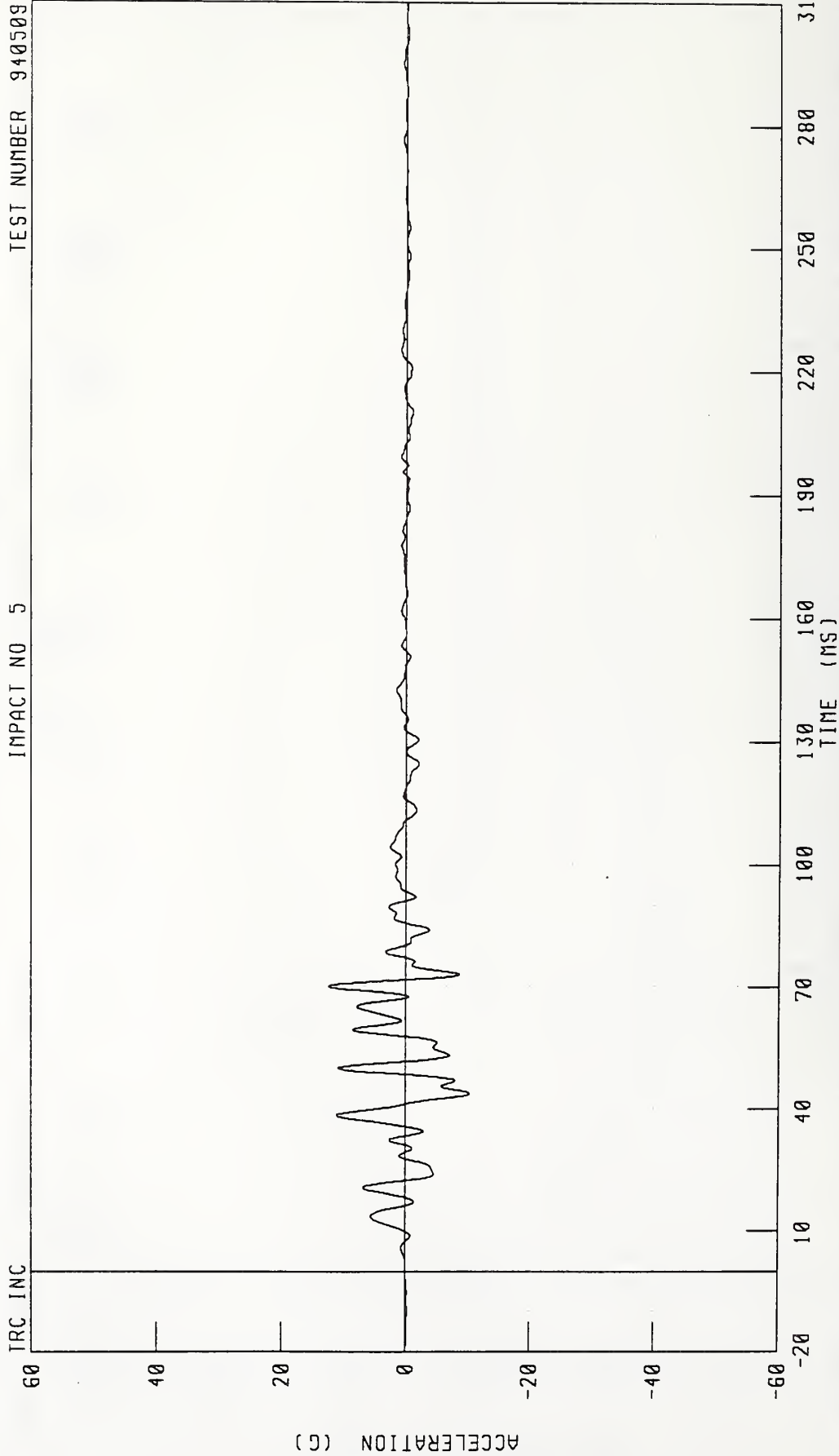
CHANNEL: LRSX01 FILTER: CH CLASS 180 PEAK DATA: 764.40 MM @ 78.88 MS; 0.00 MM @ 0.00 MS

'1987 FORD TAURUS INTO 30 5 CM POLE BARRIER AT 56 2 KPH  
LEFT REAR SILL Y-AXIS ACCELERATION

TEST NUMBER 940509

IMPACT NO 5

TRC INC



CHANNEL: LRSYG1 FILTER: CH CLASS 60

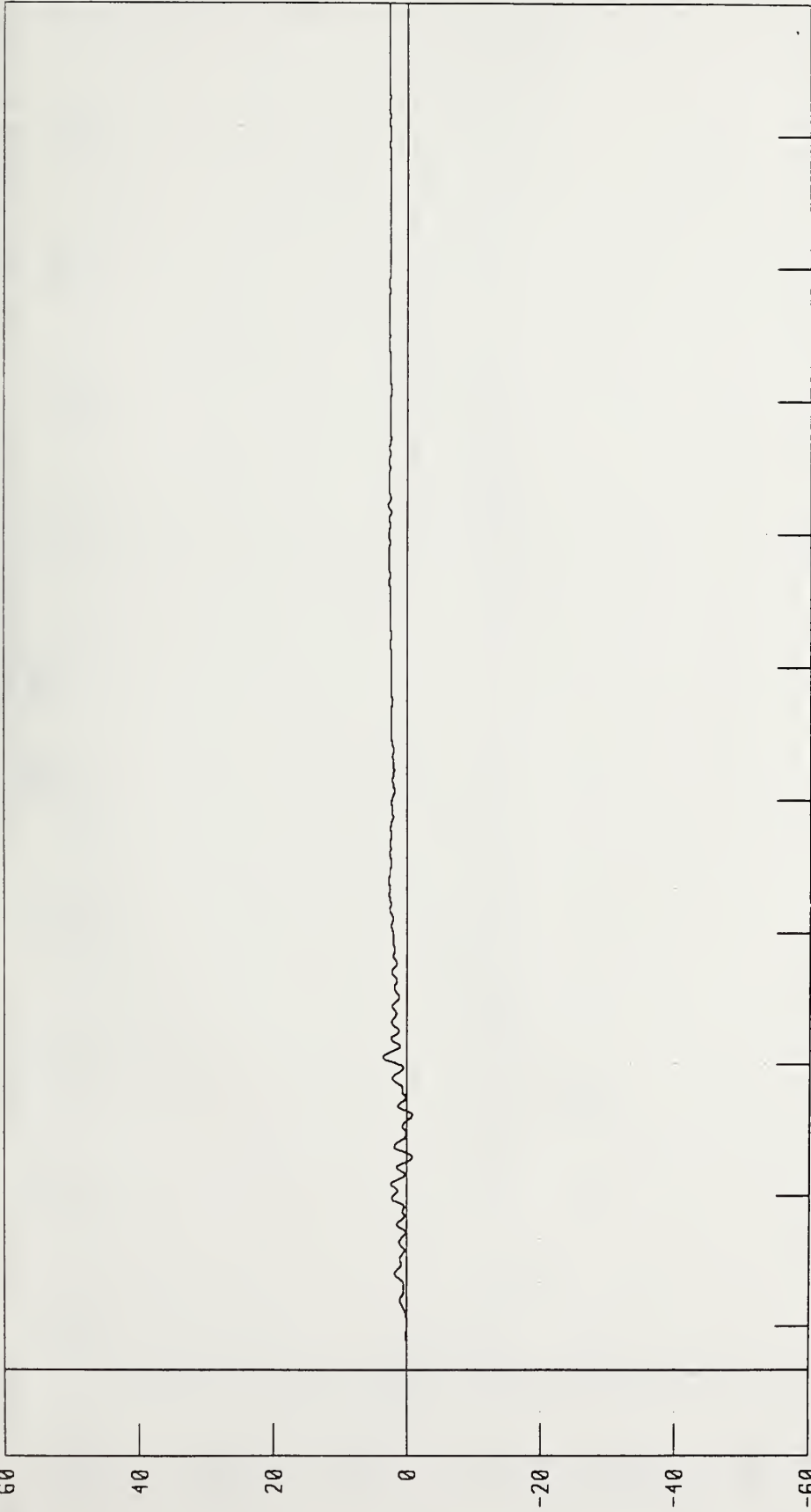
PEAK DATA 12 35 G @ 70 00 MS; -10 32 G @ 43 76 MS

1987 FORD TAURUS INTO 30 5 CM POLE BARRIER AT 56 2 KPH  
LEFT REAR SILL Y-AXIS VELOCITY

TEST NUMBER 940509

IMPACT NO 5

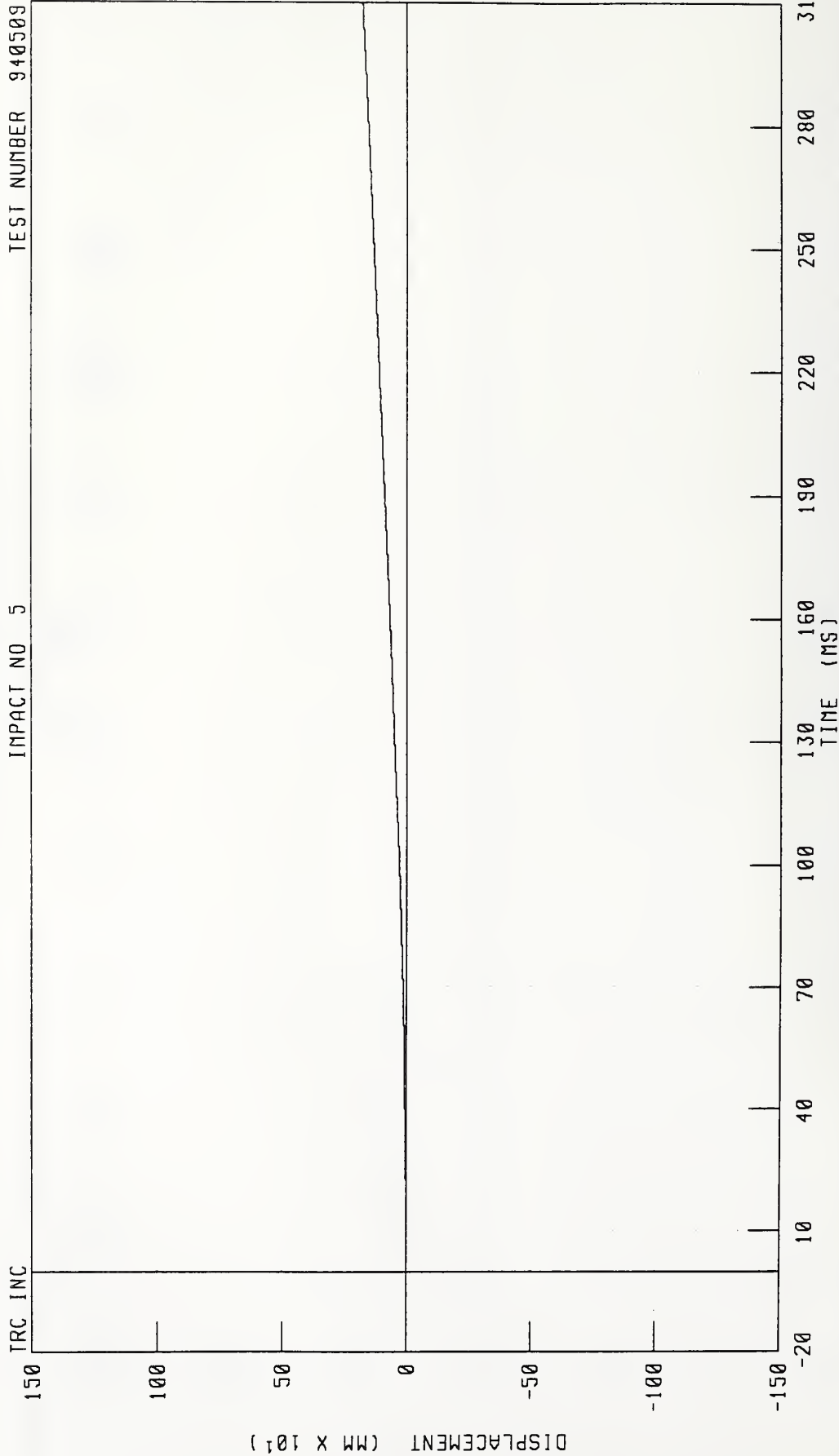
TRC INC



CHANNEL: LRSYV1 FILTER: CH CLASS 180  
PEAK DATA: 3 54 KM/H @ 71 44 MS, -0 83 KM/H @ 58 24 MS  
TIME (MS)

1987 FORD TAURUS INTO 30 5 CM POLE BARRIER AT 56 2 KPH  
LEFT REAR SILL Y-AXIS DISPLACEMENT

IMPACT NO 5 TEST NUMBER 940509



CHANNEL: LRSYD1 FILTER: CH CLASS 180

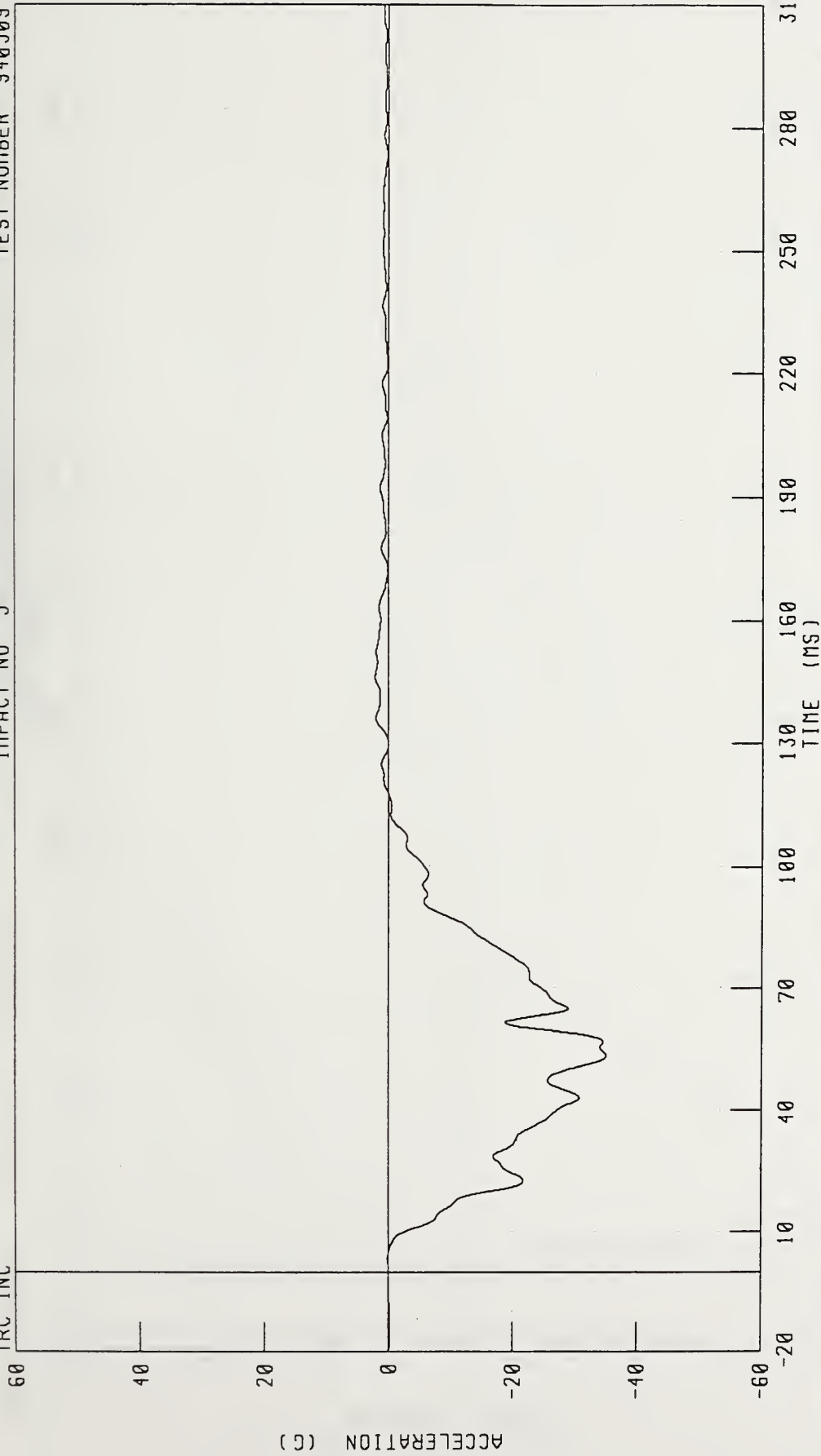
PEAK DATA: 176 38 MM @ 310 00 MS, 0 00 MM @ 5 44 MS

1987 FORD TAURUS INTO 30 5 CM POLE BARRIER AT 56 2 KPH  
RIGHT REAR SILL X-AXIS ACCELERATION

TEST NUMBER 940509

IMPACT NO 5

TRC INC

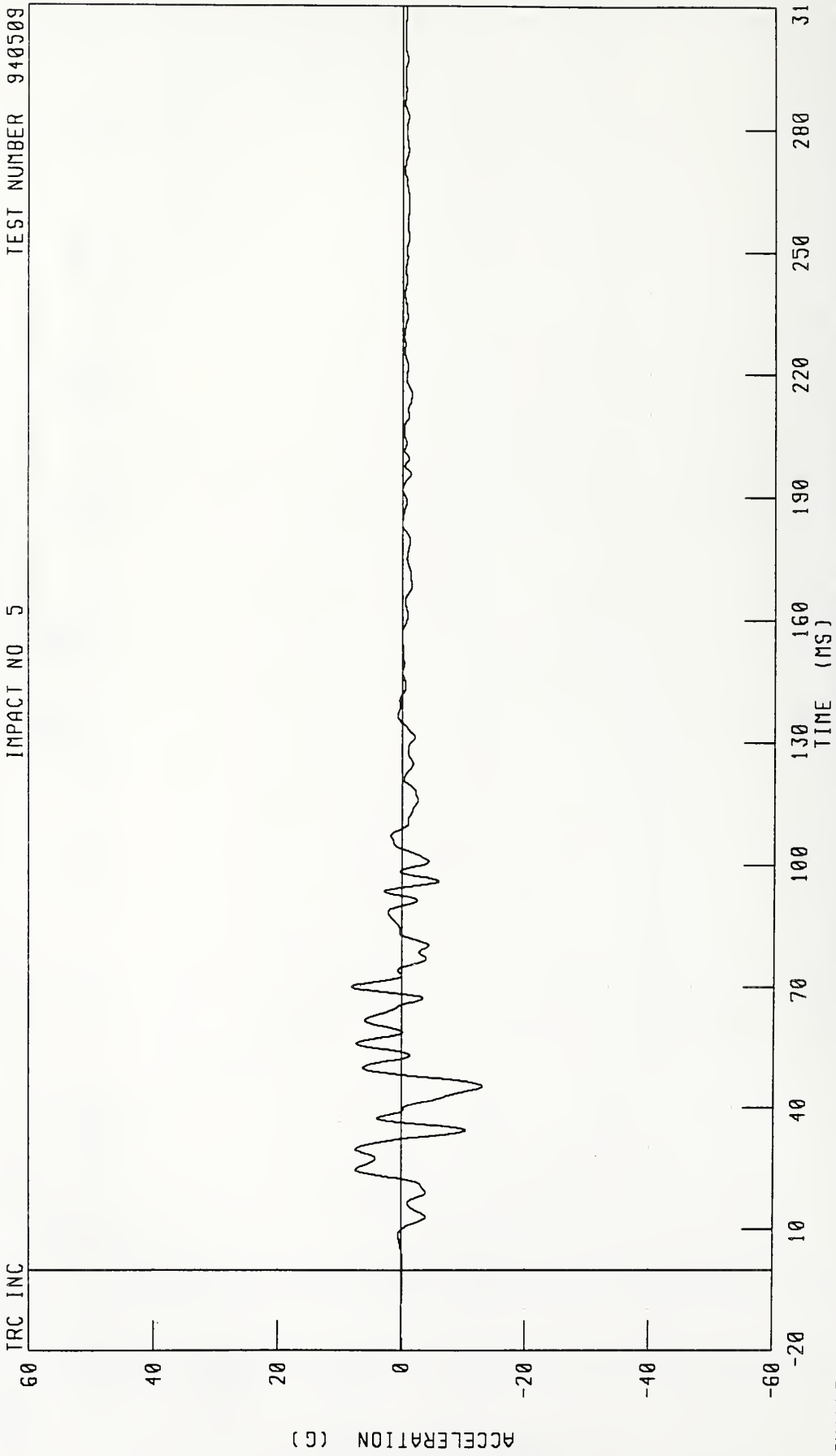


CHANNEL: RRSXG1 FILTER: CH CLASS 60

PEAK DATA: 2 17 G @ 145 84 MS, -35.03 G @ 53 36 MS

1987 FORD TAURUS INTO 30 5 CM POLE BARRIER AT 56 2 KPH  
RIGHT REAR SILL Y-AXIS ACCELERATION

IMPACT NO 5 TEST NUMBER 940509



CHANNEL: RRSYG1 FILTER: CH CLASS 60

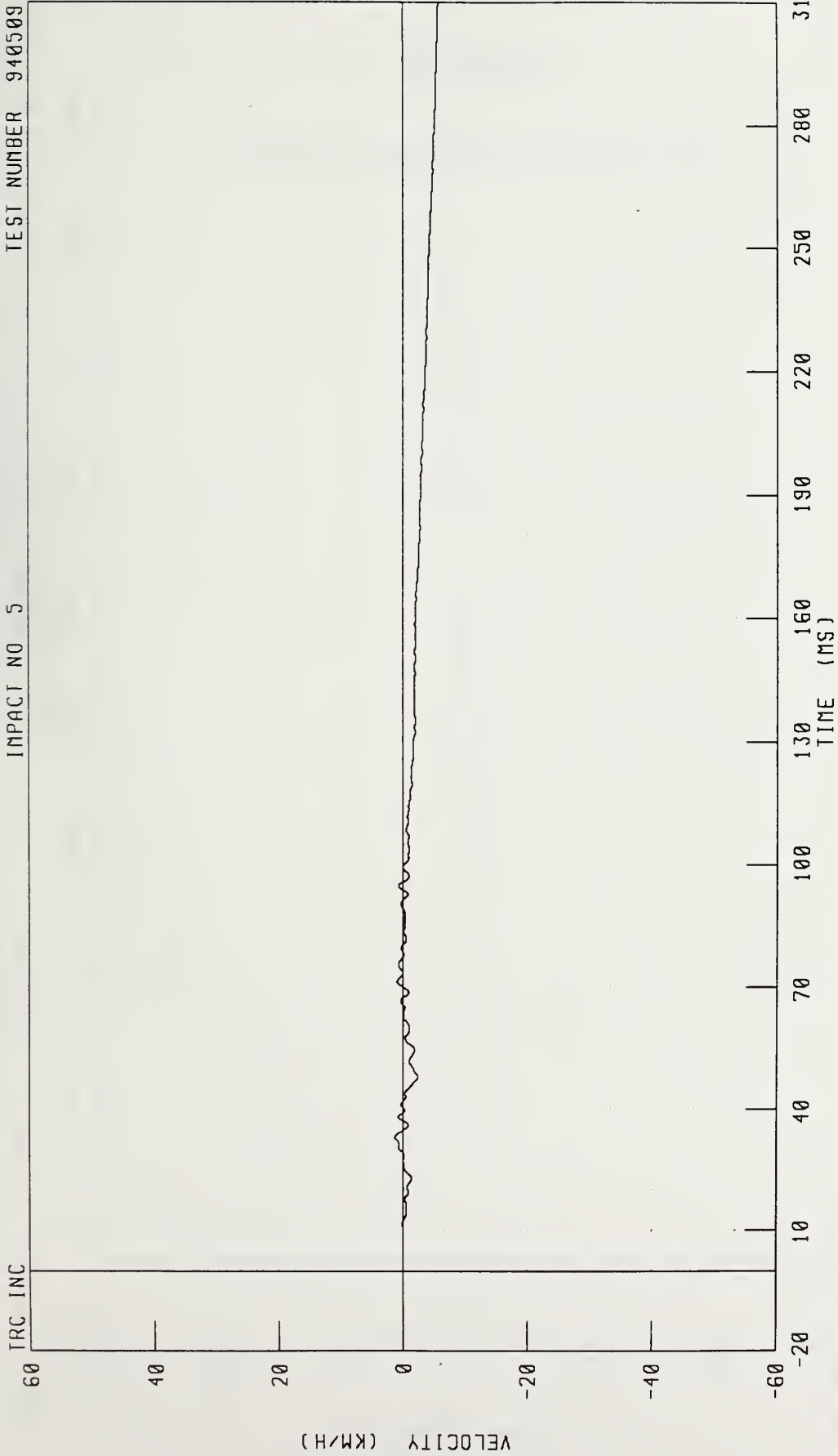
PEAK DATA: 8 17 G @ 70 00 MS, -13 03 G @ 45 36 MS

1987 FORD TAURUS INTO 30 5 CM POLE BARRIER AT 56 2 KPH  
RIGHT REAR SILL Y-AXIS VELOCITY

TEST NUMBER 940509

IMPACT NO 5

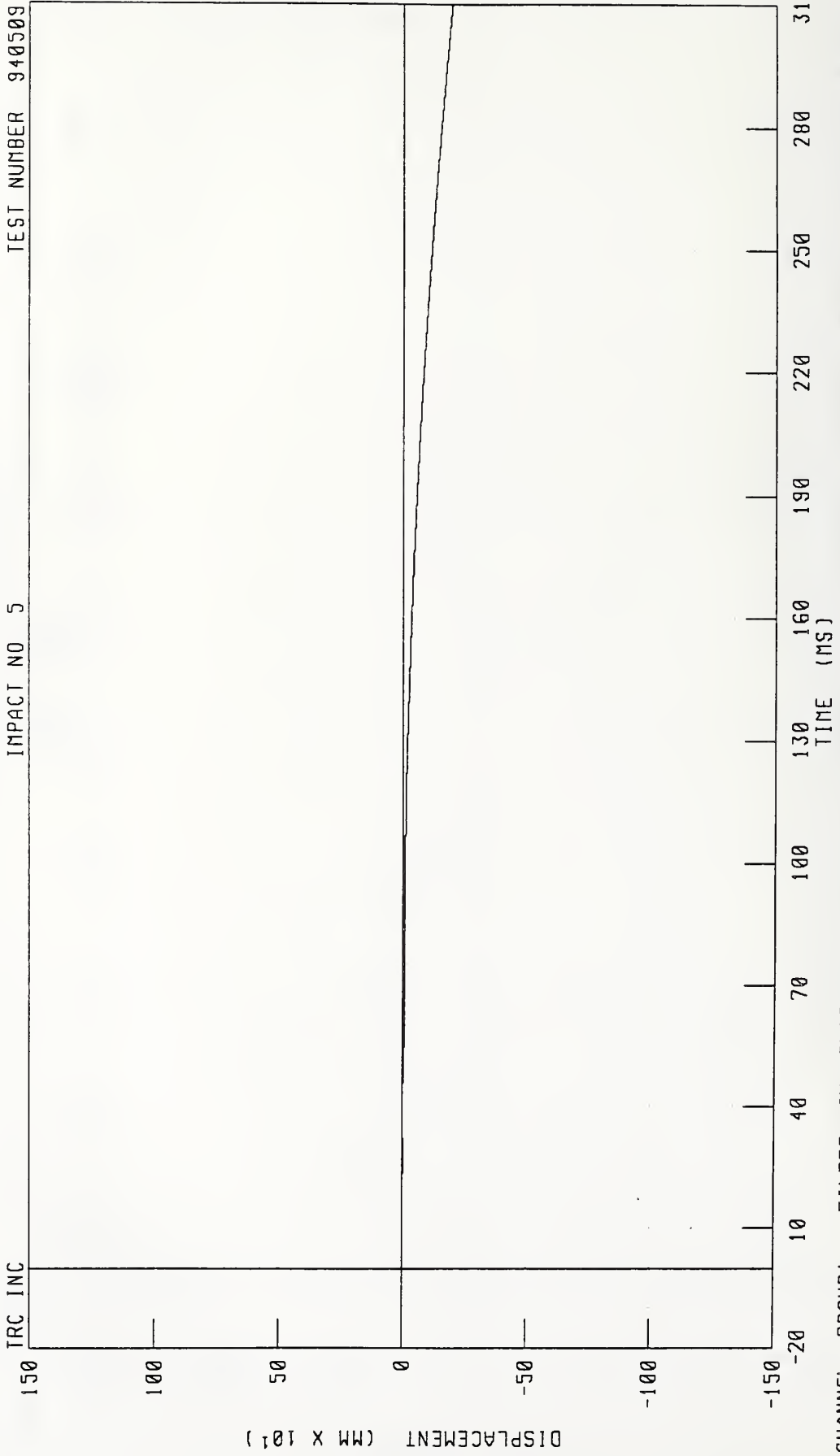
TRC INC



CHANNEL: RRSYV1 FILTER: CH CLASS 180 PEAK DATA 1 31 KM/H @ 33 20 MS, -5.69 KM/H @ 310 00 MS

1987 FORD TAURUS INTO 30 5 CM POLE BARRIER AT 56 2 KPH  
RIGHT REAR SILL Y-AXIS DISPLACEMENT

IMPACT NO 5 TEST NUMBER 940509



CHANNEL: RRSYD1 FILTER: CH CLASS 180

PEAK DATA: 0 04 MM @ 12 48 MS, -196 92 MM @ 310 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	7264	AGRE6	REAR
	LEFT REAR SILL	Y	ENDEVCO	7264	CR66H	RIGHT
2	RIGHT REAR SILL	X	ENDEVCO	7264	DR87J	REAR
	RIGHT REAR SILL	Y	ENDEVCO	7264	CK32H	LEFT
3	VEHICLE CENTER OF GRAVITY	X	ENDEVCO	7264	CJ75H	FRONT
	VEHICLE CENTER OF GRAVITY	Y	ENDEVCO	7264	CC71H	LEFT

## SIGN CONVENTION

ALL DUMMY, BARRIER AND VEHICLE CHANNELS:

+X: FORWARD

+Y: LEFTWARD

+Z: UPWARD

+FORCE: TENSION





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