

V1984

48/24 KPH 90° DRIVER'S SIDE IMPACT
(MOVING DEFORMABLE BARRIER)
1993 FORD EXPLORER XLT

PREPARED BY:
TRANSPORTATION RESEARCH CENTER INC.
10820 STATE ROUTE 347
EAST LIBERTY, OHIO 43319

FINAL REPORT
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PREPARED FOR:
VEHICLE RESEARCH AND TEST CENTER
P.O. BOX 37
EAST LIBERTY, OH 43319

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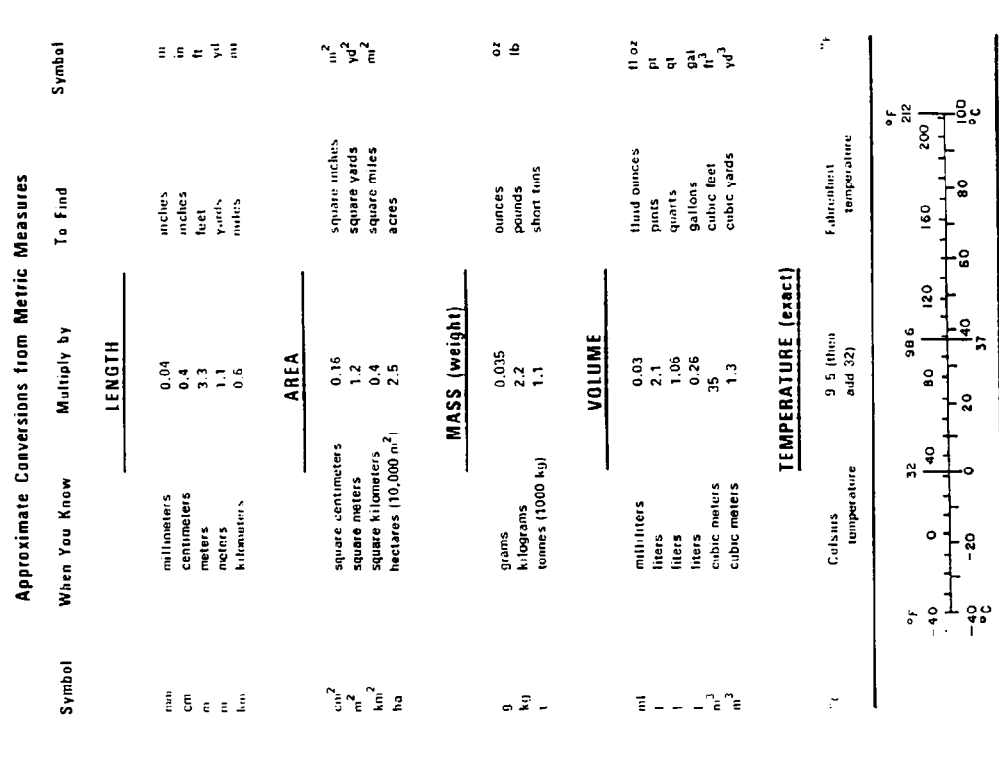
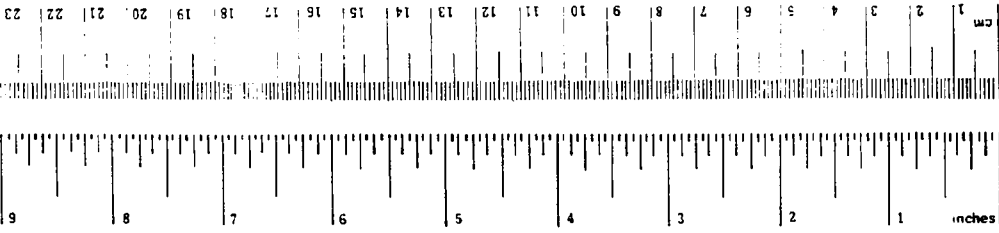
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<p>16. Abstract</p> <p>This 48/24 kph 90° driver's side impact test was conducted at Transportation Research Center Inc. on September 28, 1993. The test vehicle was a 1993 Ford Explorer XLT. This test was conducted to aid in the development of extending the test procedure for FMVSS No. 214, "Side Impact Protection - Passenger Cars," to include light trucks and vans.</p> <p>The deformable barrier face was raised 229 millimeters above its standard height specified in the FMVSS No. 214 Laboratory Test Procedure and its test weight was 1363 kilograms. The impact velocity was 54.1 kph. The moving deformable barrier struck the target vehicle 944 mm forward of the vehicle's wheelbase mid-point.</p> <p>Results for the driver and passenger SIDS are:</p> <table border="1" data-bbox="292 1312 1307 1512"> <thead> <tr> <th></th> <th>Driver SID</th> <th>Passenger SID</th> </tr> </thead> <tbody> <tr> <td>Left upper rib acceleration</td> <td>60.9 g's</td> <td>62.1 g's</td> </tr> <tr> <td>Left lower rib acceleration</td> <td>51.1 g's</td> <td>69.6 g's</td> </tr> <tr> <td>Upper spine acceleration</td> <td>62.7 g's</td> <td>44.1 g's</td> </tr> <tr> <td>Lower spine acceleration</td> <td>74.6 g's</td> <td>47.5 g's</td> </tr> <tr> <td>Thoracic Trauma Index (TTI)</td> <td>68</td> <td>59</td> </tr> <tr> <td>Pelvis acceleration</td> <td>79.6 g's</td> <td>82.1 g's</td> </tr> </tbody> </table>					Driver SID	Passenger SID	Left upper rib acceleration	60.9 g's	62.1 g's	Left lower rib acceleration	51.1 g's	69.6 g's	Upper spine acceleration	62.7 g's	44.1 g's	Lower spine acceleration	74.6 g's	47.5 g's	Thoracic Trauma Index (TTI)	68	59	Pelvis acceleration	79.6 g's	82.1 g's
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METRIC CONVERSION FACTORS

Approximate Conversions to Metric Measures			Approximate Conversions from Metric Measures			
Symbol	When You Know	Multiply by	To Find	Symbol	When You Know	
LENGTH						
in	inches	2.54	centimeters	cm	millimeters	0.04
ft	feet	30	centimeters	cm	inches	0.4
yd	yards	0.9	meters	m	feet	3.3
mi	miles	1.6	kilometers	km	yards	1.1
					meters	0.6
AREA						
m ²	square meters	6.5	square centimeters	cm ²	square centimeters	0.16
ft ²	square feet	0.09	square meters	m ²	square meters	1.2
yd ²	square yards	0.8	square meters	m ²	square yards	1.2
mi ²	square miles	2.6	square kilometers	km ²	square kilometers	0.4
	acres	0.4	hectares	ha	hectares (10,000 m ²)	2.5
					acres	
MASS (weight)						
oz	ounces	28	grams	g	grams	0.035
lb	pounds	0.45	kilograms	kg	pounds	2.2
	short tons (2000 lb)	0.9	tonnes	t	short tons	1.1
VOLUME						
tsp	teaspoons	5	milliliters	ml	fluid ounces	0.03
Tbsp	tablespoons	15	milliliters	ml	pints	2.1
fl oz	fluid ounces	30	milliliters	ml	quarts	1.06
c	cups	0.24	liters	l	gallons	0.26
pt	pints	0.47	liters	l	cubic feet	35
qt	quarts	0.95	liters	l	cubic meters	1.3
gal	gallons	3.8	liters	l		
ft ³	cubic feet	0.03	cubic meters	m ³		
yd ³	cubic yards	0.76	cubic meters	m ³		
TEMPERATURE (exact)						
°F	Fahrenheit temperature	5/9 (after subtracting 32)	Celsius temperature	°C	Celsius temperature	9/5 (then add 32)
					Fahrenheit temperature	

*1 in 4 2/54 (exact). For other exact conversions and more detailed tables, see NBS Misc. Publ. 286, Units of Weights and Measures, Price \$2.25, SD Catalog No. C13.10.286.



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SECTION 1.0

PURPOSE AND TEST PROCEDURE

PURPOSE

This 48/24 kph 90° driver's side impact test was conducted for Vehicle Research and Test Center by Transportation Research Center Inc. (TRC). The purpose of this test was to aid in the development of extending the test procedure for FMVSS 214, "Side Impact Protection - Passenger Cars," to include the testing of light trucks and vans.

TEST PROCEDURE

This test was conducted using NHTSA's Office of Vehicle Safety Compliance (OVSC) Laboratory Test Procedure No. TP-214D-02 as a guideline. Data was obtained relative to FMVSS 214, "Side Impact Protection - Passenger Cars," performance.

The test vehicle was instrumented with seventeen (17) accelerometers oriented to measure longitudinal, lateral, and vertical axis accelerations. The test vehicle was positioned so that its longitudinal centerline was at an angle of 63° to the tow cable system.

The test vehicle contained two (2) Part 572 F side impact adult male anthropomorphic test devices (dummies). The dummies were positioned in the left front and rear outboard seating positions according to the dummy placement procedure specified as an attachment to the Laboratory Test Procedure. The dummies were instrumented with head, pelvis, upper spine, and lower spine accelerometers oriented to measure longitudinal, lateral, and vertical axis accelerations. Upper rib and lower rib accelerometers were oriented to measure lateral axis accelerations. Each dummy was restrained by a 3-point unibelt.

The moving deformable barrier was instrumented with five (5) accelerometers oriented to measure longitudinal, lateral, and vertical axis accelerations. The moving barrier was crabbed clockwise at a 27° angle to the tow cable system and its deformable barrier face was raised 229 mm above the standard barrier face height specified in the Laboratory Test Procedure. The bottom most edge of the deformable barrier face was 508 mm above the ground level. The moving deformable barrier's weight was 1363 kg and its specified velocity range was 53.1 to 54.7 kph.

The fifty-eight (58) data channels were multiplexed and recorded on a 14-track tape deck. The data was digitally sampled at 8000 samples per second and processed per Section 12.0 of the Laboratory Test Procedure.

The crash event was recorded by one (1) real-time panning motion picture camera and nine (9) high-speed motion picture cameras operating at approximately 1000 frames per second.

The vehicle and occupant data are summarized in Section 2.0. The FMVSS 214 data are presented in Section 3.0. The vehicle, occupant, and camera measurements are presented in Section 4.0. Appendix A contains the still photographic prints. Appendix B contains the dummy and vehicle data plots. Appendix C contains the dummy calibration data. Appendix D contains miscellaneous test information.

SECTION 2.0

SIDE IMPACT TEST SUMMARY

TEST RESULTS SUMMARY

This 48/24 kph 90° driver's side impact test was conducted at TRC on September 28, 1993.

The test vehicle, a 1993 Ford Explorer XLT, was equipped with a 4.0-liter, inline engine, automatic transmission, and power brakes. Two Part 572 F dummies were seated in the left front and rear outboard seating positions. The vehicle's test weight was 2073 kilograms. The moving deformable barrier's impact speed was 54.1 kph. The vehicle's maximum static crush was 382 millimeters.

The driver dummy's Thoracic Trauma Index (TTI(d)) and Head Injury Criteria (HIC) were 68 and 273, respectively. Maximum pelvis lateral acceleration was 79.6 g.

The left rear passenger dummy's TTI(d) and HIC were 59 and 485, respectively. Maximum pelvis lateral acceleration was 82.1 g.

The moving barrier's leading edge of contact was 944 mm forward of the subject vehicle's wheelbase mid-point.

The doors on the struck side of the test vehicle did not separate from the vehicle's main body at the hinges or latches. The doors on the opposite side did not open during the crash event.

DATA ACQUISITION EXPLANATIONS

The left front door centerline Y-axis acceleration data channel, LFDYG1, exceeded its data channel full-scale output at approximately 9 milliseconds.

The left front door mid-rear Y-axis acceleration data channel, LFDYG3, stopped recording data after approximately 15 milliseconds because the accelerometer's cable was cut by vehicle crush.

The left rear door mid-rear Y-axis acceleration data channel, LRDYG2, exceeded its data channel full-scale output at approximately 6.6 milliseconds.

TABLE 1 CRASH TEST SUMMARY

TEST TYPE: Moving Deformable Barrier Left Side Impact

TEST DATE: 09/28/93 TEST TIME: 1436 AMBIENT TEMP. (°C): 16

VEHICLE: 1993 Ford Explorer XLT

VEHICLE TEST WEIGHT (KG): 2073

MOVING BARRIER TEST WEIGHT (KG): 1363

IMPACT ANGLE¹ (DEG): 270

IMPACT VELOCITY² (KPH): PRIMARY = 54.1 SECONDARY = 54.1

DUMMIES:

	DRIVER #906	PASSENGER #903
TYPE:	PART 572 F	PART 572 F
LOCATION:	LEFT FRONT	LEFT REAR
RESTRAINT:	3-POINT UNIBELT	3-POINT UNIBELT

NUMBER OF DATA CHANNELS: 58

NUMBER OF CAMERAS: HIGH-SPEED 9 REAL-TIME 1

¹Measured clockwise from struck vehicle's front longitudinal centerline.

²Speed trap measurement (± .08 kph accuracy)

TABLE 2 TEST VEHICLE INFORMATION

VEHICLE MANUFACTURER: Ford Motor Co.

MAKE/MODEL/BODY STYLE: Ford/Explorer/4-door sport utility

MODEL YEAR: 1993

VIN: 1FMDU32X9PUD87888

COLOR: Blue

ENGINE DATA: TYPE: inline CYLINDERS: 6 DISPLACEMENT: 4.0 liters

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

DATE VEHICLE RECEIVED: NA

ODOMETER READING: 14

DEALER'S NAME AND ADDRESS: NA

ACCESSORIES:

POWER STEERING	Yes	AUTOMATIC TRANSMISSION	Yes
POWER BRAKES	Yes	AUTOMATIC SPEED CONTROL	Yes
POWER SEATS	No	TILTING STEERING WHEEL	No
POWER WINDOWS	Yes	TELESCOPING STEERING WHEEL	No
TINTED GLASS	Yes	AIR CONDITIONING	Yes
RADIO	No	ANTI-SKID BRAKE	Yes
CLOCK	No	REAR WINDOW DEFROSTER	Yes

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 Company

DATE OF MANUFACTURE: 08/93

VIN: 1FMDU32X9PUD87888

GVWR: 5120 LBS.

GAWR: FRONT: 2400 LBS., REAR: 3000 LBS.

TABLE 2 TEST VEHICLE INFORMATION, CONT'D.

TIRES ON VEHICLE (MFR., LINE, SIZE): Firestone, ATX, P235/75R15

TIRE PRESSURE WITH MAXIMUM CAPACITY VEHICLE LOAD: FRONT: 40 psi
REAR: 40 psi

SPARE TIRE (MFR., LINE, SIZE): None

TYPE OF SEATS: FRONT: Bucket
REAR: Bench

TYPE OF FRONT SEAT BACKS: Manually adjustable

MAXIMUM WIDTH: 1707 MM

WHEELBASE: 2857 MM

LOCATION OF "RECOMMENDED TIRE PRESSURE" LABEL:

The label was located on the driver's door.

DATA FROM VEHICLE'S "RECOMMENDED TIRE PRESSURE" LABEL:

RECOMMENDED TIRE SIZE: P235/75R15

RECOMMENDED COLD TIRE PRESSURE: FRONT: 26 psi; REAR: 26 psi

DESIGNATED SEATING CAPACITY: NA FRONT NA REAR NA TOTAL

VEHICLE CAPACITY WEIGHT: NA KG

TEST VEHICLE ATTITUDE (ALL MEASUREMENTS ARE IN MILLIMETERS):

DELIVERED ATTITUDE: LF 808; RF 817; LR 828; RR 828

PRE-TEST ATTITUDE: LF 776; RF 796; LR 802; RR 806

POST-TEST ATTITUDE: LF 815; RF 815; LR 798; RR 795

TABLE 2 TEST VEHICLE INFORMATION, CONT'D.

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

RIGHT FRONT	472 KG	RIGHT REAR	406 KG
LEFT FRONT	484 KG	LEFT REAR	415 KG
TOTAL FRONT WEIGHT	956 KG	(53.8% OF TOTAL VEHICLE WEIGHT)	
TOTAL REAR WEIGHT	821 KG	(46.2% OF TOTAL VEHICLE WEIGHT)	
TOTAL DELIVERED WEIGHT	1777 KG		

CALCULATION OF TEST VEHICLE'S TARGET TEST WEIGHT:

RCLW¹ = RATED CARGO AND LUGGAGE WEIGHT

UDW = UNLOADED DELIVERED WEIGHT (1777 KG)

VCW = VEHICLE CAPACITY WEIGHT (NA KG)

DSC = DESIGNATED SEATING CAPACITY (NA)

RCLW¹ = VCW - 150 (DSC) = 136 KG

TARGET TEST WEIGHT = UDW + RCLW¹ + (NO. OF SID DUMMIES X 79 KG/DUMMY)

TARGET TEST WEIGHT = 1777 + 136 + 158

TARGET TEST WEIGHT = 2071 KG

WEIGHT OF TEST VEHICLE WITH REQUIRED DUMMIES AND 160 KG OF CARGO WEIGHT:

RIGHT FRONT	496 KG	RIGHT REAR	508 KG
LEFT FRONT	537 KG	LEFT REAR	532 KG
TOTAL FRONT WEIGHT	1033 KG	(49.8% OF TOTAL VEHICLE WEIGHT)	
TOTAL REAR WEIGHT	1040 KG	(50.2% OF TOTAL VEHICLE WEIGHT)	
TOTAL TEST WEIGHT	2073 KG	(0.1% OVER TARGET TEST WEIGHT)	

WEIGHT OF BALLAST SECURED IN VEHICLE CARGO AREA: 10 KG

COMPONENTS REMOVED TO MEET TARGET TEST WEIGHT: Exhaust pipe, battery,
alternator

CG = 1434 MM REARWARD OF FRONT WHEEL CENTERLINE

¹Cargo weight for multi-purpose passenger vehicles, trucks, and buses is the vehicle's rated cargo and luggage weight from the vehicle's label or 136 kg, whichever is less.

TABLE 3 POST-IMPACT DATA

TEST NUMBER: 930928

TEST DATE: 09/28/93

TEST TIME: 1436

TEST TYPE: Moving Deformable Barrier Left Side Impact

IMPACT ANGLE¹: 270°

AMBIENT TEMPERATURE AT IMPACT AREA: 16° C

TEMPERATURE IN OCCUPANT COMPARTMENT: 19° C

IMPACT VELOCITY: PRIMARY = 54.1 KPH

SECONDARY = 54.1 KPH

(SPECIFIED RANGE = 53.1 TO 54.7 KPH)

DISTANCE FROM VEHICLE TO BARRIER: ENTERING VELOCITY TRAP = 660 MM

EXITING VELOCITY TRAP = 51 MM

¹Measured clockwise from struck vehicle's front longitudinal centerline.

TABLE 4 TEST CONDITIONS

TEST NUMBER: 930928
DATE OF TEST: 09/28/93
TIME OF TEST: 1436
WIND VELOCITY: NA
HUMIDITY: NA
AMBIENT TEMPERATURE AT IMPACT AREA: 16° C
TEMPERATURE IN OCCUPANT COMPARTMENT: 19° C

VEHICLE DATA

	<u>ACTUAL</u>	<u>INTENDED</u>
SUBJECT VEHICLE TEST WEIGHT (KG):	2073	2071
MOVING DEFORMABLE BARRIER TEST WEIGHT (KG):	1363	1361
MOVING DEFORMABLE BARRIER VELOCITY (KPH) ¹ :	54.1	53.9
IMPACT POINT (MM) ² :	944	940

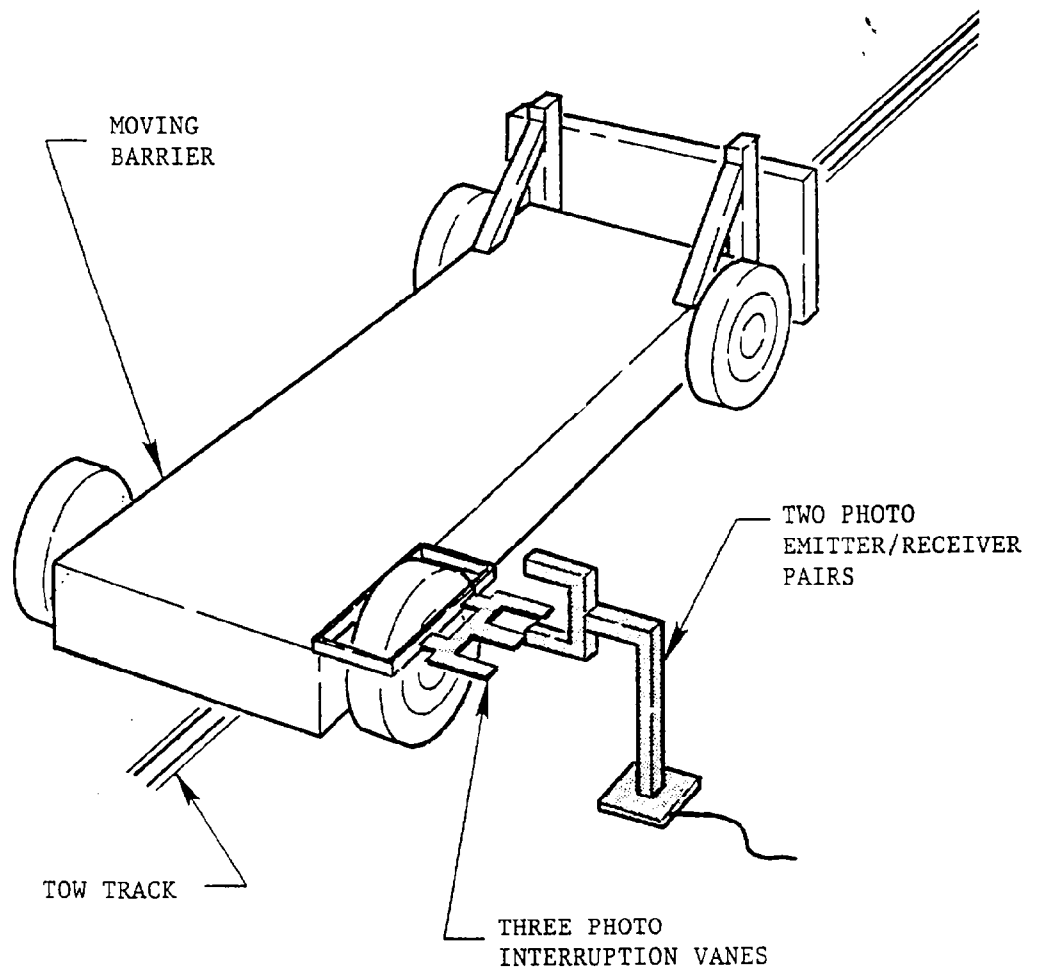
DUMMY INFORMATION

	<u>DRIVER</u>	<u>LEFT REAR PASSENGER</u>
TYPE:	SID	SID
SERIAL NO.:	906	903
INSTRUMENTATION:		
HEAD ACCELEROMETERS:	3	3
UPPER SPINE ACCELEROMETERS:	4	4
UPPER RIB ACCELEROMETERS:	2	2
LOWER RIB ACCELEROMETERS:	2	2
LOWER SPINE ACCELEROMETERS:	4	4
PELVIS ACCELEROMETERS:	3	3
RESTRAINT SYSTEM:	3-POINT UNIBELT	3-POINT UNIBELT

¹As measured over final 305 mm of travel.

²As measured forward of the subject vehicle's wheelbase mid-point.

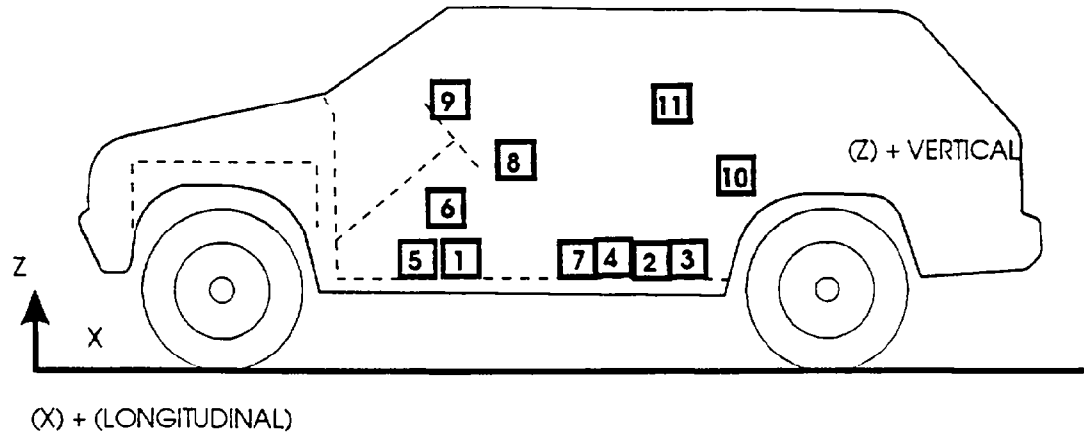
FIGURE 1 IMPACT VELOCITY MEASUREMENT SYSTEM



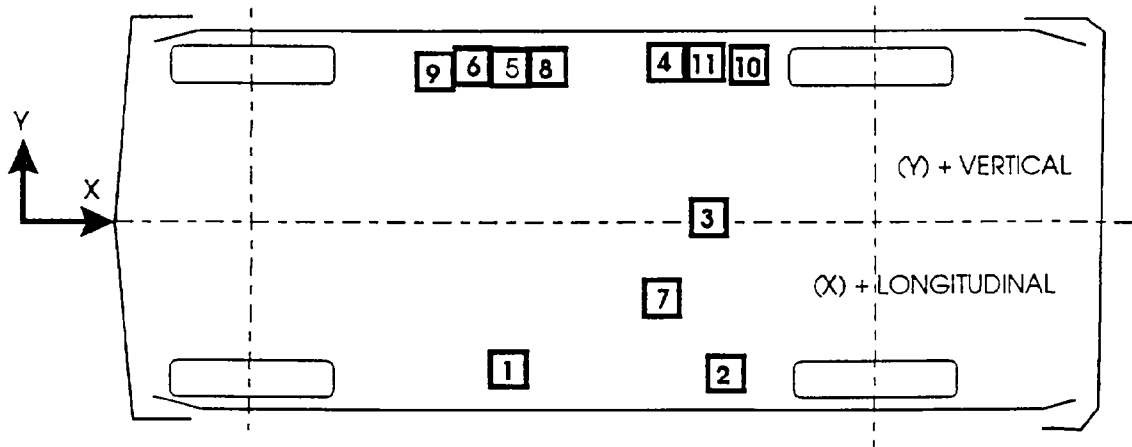
The final vane clears the final emitter/receiver pair 51 millimeters before impact.

The vanes have 305-millimeter spacing.

FIGURE 2 VEHICLE ACCELEROMETER PLACEMENT



SIDE VIEW



BOTTOM VIEW

TABLE 5

VEHICLE ACCELEROMETER LOCATIONS AND DATA SUMMARY

TEST NUMBER 930928

No. LOCATION	X*	Y*	Z*	POSITIVE		NEGATIVE	
				DIRECTION	MAX G MSEC	DIRECTION	MAX G MSEC
1 RIGHT FRONT SILL	2714	-632	440				
LONGITUDINAL				3.9	34.8	8.0	24.3
LATERAL				2.5	164.9	18.0	23.9
VERTICAL				11.0	45.1	6.0	20.4
RESULTANT				19.9	21.0		
2 RIGHT REAR SILL	1740	-599	492				
LONGITUDINAL				4.9	32.4	13.7	23.4
LATERAL				5.1	32.1	25.4	23.9
VERTICAL				5.4	29.5	12.9	48.8
RESULTANT				28.8	23.8		
3 REAR FLOORPAN OVER AXLE	1020	0	730				
LONGITUDINAL				3.5	55.0	7.5	22.6
LATERAL				2.1	218.6	19.3	22.9
VERTICAL				7.0	80.8	7.7	45.8
RESULTANT				21.0	22.9		

TABLE 5

VEHICLE ACCELEROMETER LOCATIONS AND DATA SUMMARY CONTINUED

TEST NUMBER 930928

No. LOCATION	X*	Y*	Z*	POSITIVE DIRECTION MAX G MSEC	NEGATIVE DIRECTION MAX G MSEC
4 LEFT REAR SILL LATERAL	1794	667	462	26.1 48.4	51.8 20.6
5 LEFT FRONT SILL LATERAL	2711	631	440	10.3 59.0	43.7 5.9
6 LEFT FRONT DOOR CENTERLINE LATERAL ¹	2878	718	749	135.5 17.5	266.0 9.5
7 RIGHT REAR SEAT LATERAL	1832	-249	515	4.5 31.4	26.2 23.8
8 LEFT FRONT DOOR MID-REAR LATERAL ¹	2537	733	687	89.8 13.9	135.5 6.9
9 LEFT FRONT DOOR UPPER CENTERLINE LATERAL	2851	729	962	93.1 15.0	141.5 10.1

TABLE 5

VEHICLE ACCELEROMETER LOCATIONS AND DATA SUMMARY CONTINUED

TEST NUMBER 930928

No. LOCATION	X*	Y*	Z*	POSITIVE DIRECTION MAX G MSEC	NEGATIVE DIRECTION MAX G MSEC
10 LEFT REAR DOOR MID-REAR LATERAL ¹	1920	720	768	69.2	24.5
11 LEFT REAR DOOR UPPER CENTERLINE LATERAL	1860	731	1035	50.8	39.0
				144.1	7.4

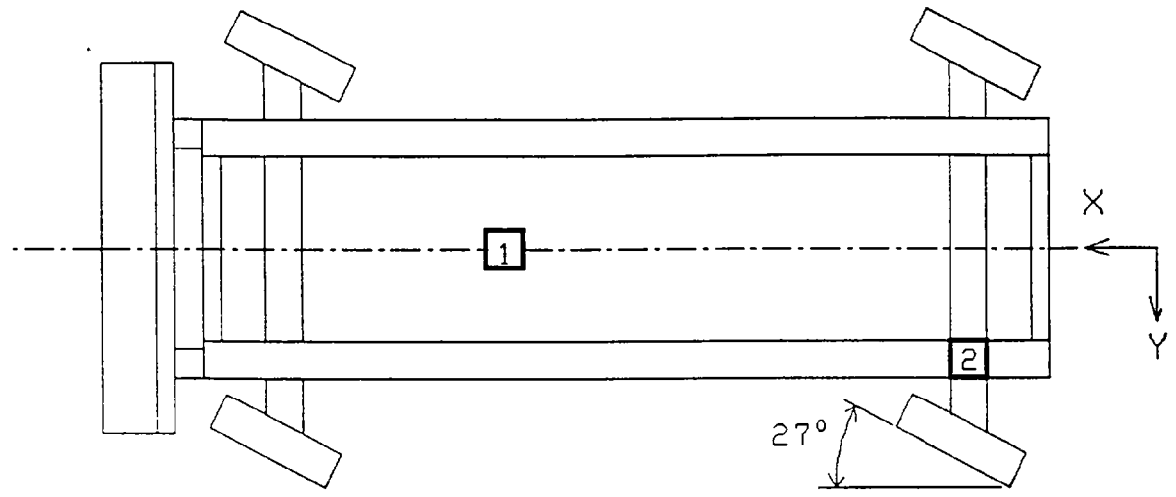
214

* ALL MEASUREMENTS OF ACCELEROMETER LOCATIONS ARE IN MILLIMETERS.

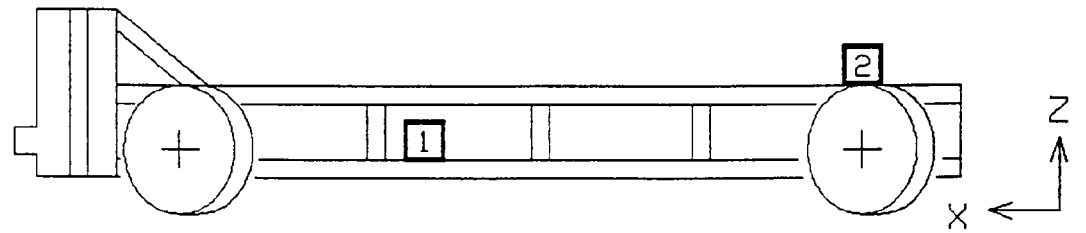
REFERENCE: X: + FORWARD FROM REAR BUMPER
 Y: + LEFTWARD FROM VEHICLE CENTERLINE
 Z: + UPWARD FROM GROUND LEVEL

¹ See DATA ACQUISITION EXPLANATIONS

FIGURE 3 MOVING DEFORMABLE BARRIER ACCELEROMETER PLACEMENT



TOP VIEW



SIDE VIEW

TABLE 6

MOVING DEFORMABLE BARRIER ACCELEROMETER LOCATIONS AND DATA SUMMARY

TEST NUMBER 930928

No. LOCATION	X*	Y*	Z*	POSITIVE DIRECTION		NEGATIVE DIRECTION	
				MAX G	MSEC	MAX G	MSEC
1 CENTER OF GRAVITY	1900	0	320				
LONGITUDINAL				1.5	184.6	15.9	42.5
LATERAL				9.7	27.8	1.2	262.3
VERTICAL				6.2	156.4	5.8	19.6
RESULTANT				17.6	37.0		
2 LEFT FRAME RAIL	385	633	620				
OVER REAR AXLE							
LONGITUDINAL				3.0	111.9	22.1	32.0
LATERAL				6.2	141.4	5.4	26.4

* ALL MEASUREMENTS OF ACCELEROMETER LOCATIONS ARE IN MILLIMETERS.

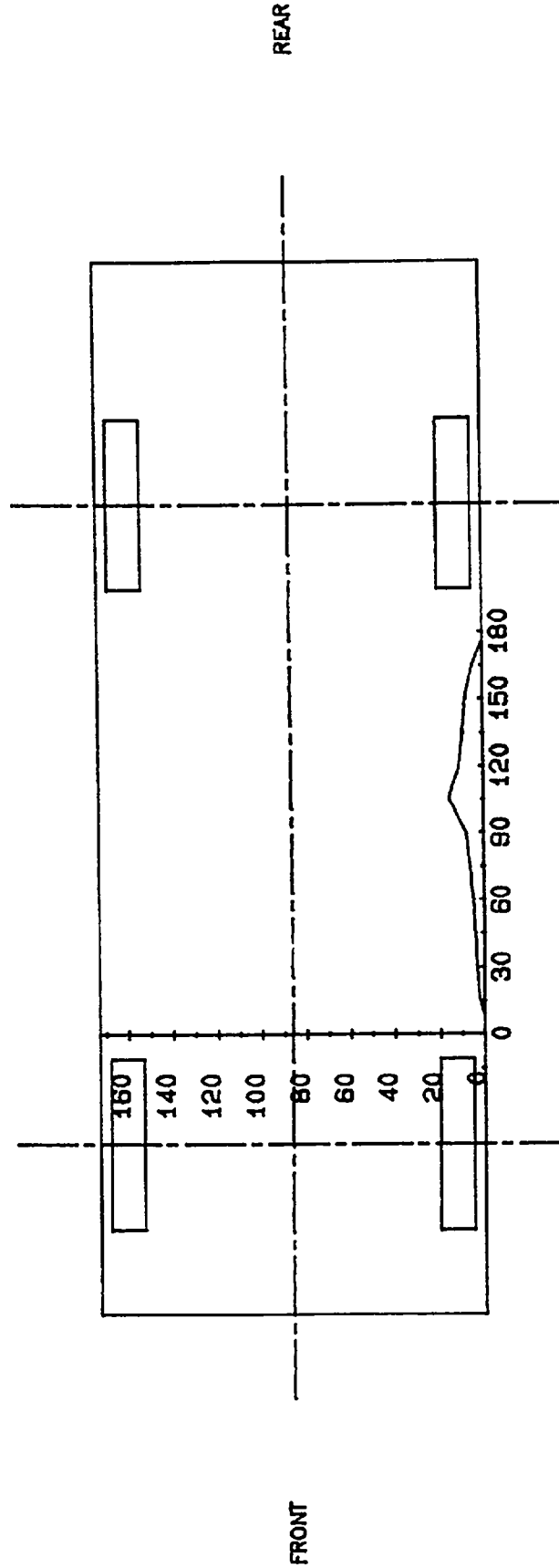
REFERENCE: X: + FORWARD FROM REAR POINT OF FRAME

Y: + LEFTWARD FROM BARRIER CENTERLINE

Z: + UPWARD FROM GROUND LEVEL

FIGURE 4

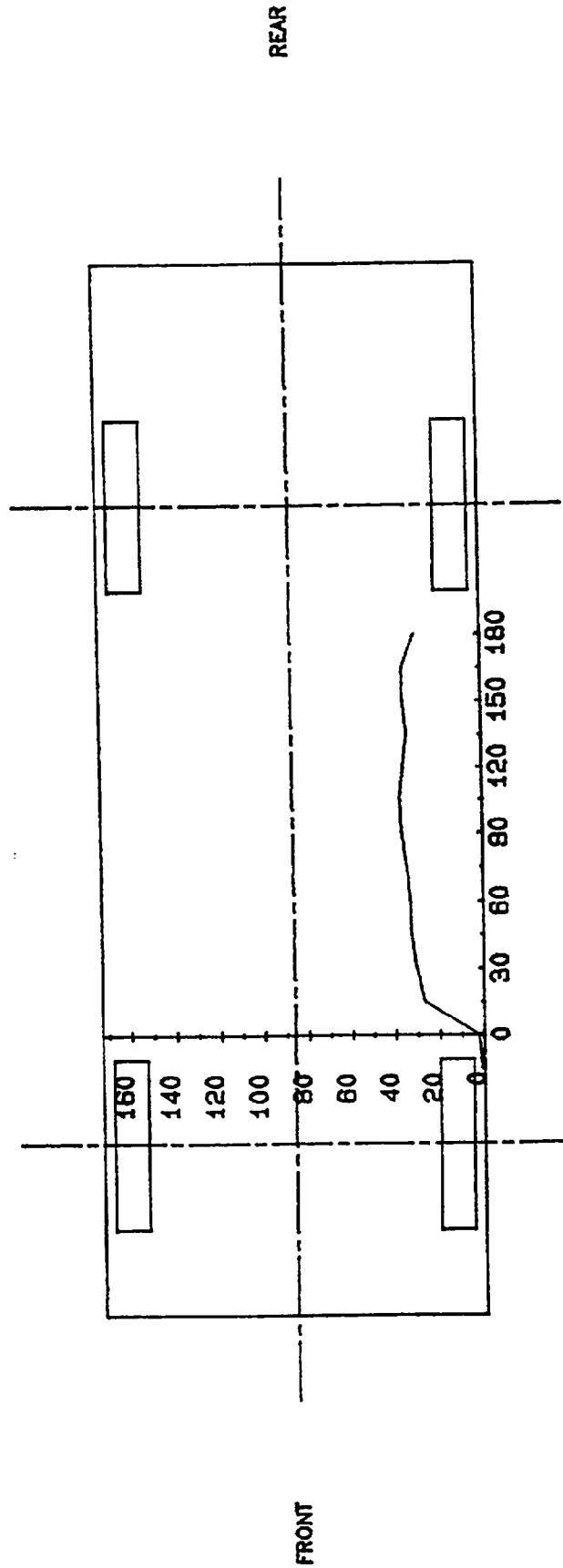
VEHICLE EXTERIOR STATIC CRUSH PROFILE



PROFILE LEVEL EQUALS AXLE HEIGHT WHICH IS 33.7 CM. ABOVE GROUND LEVEL
(0,0) EQUALS PROJECTED IMPACT POINT

FIGURE 4, CONT'D.

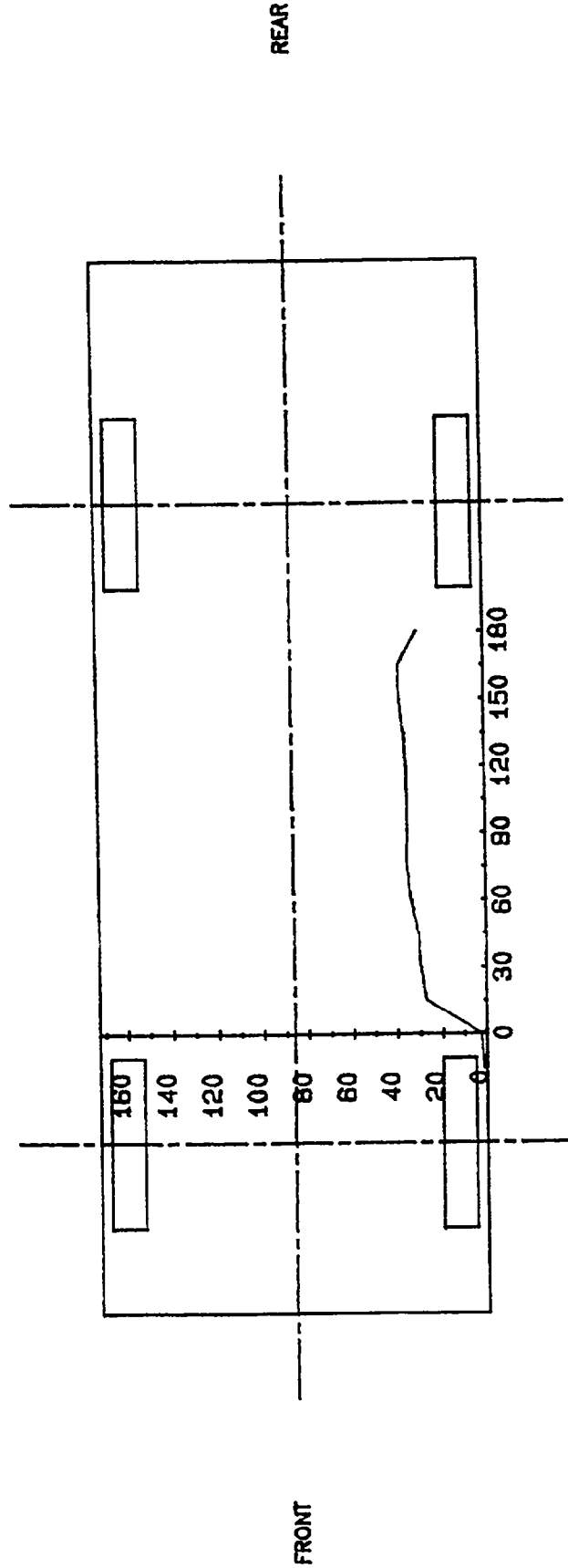
VEHICLE EXTERIOR STATIC CRUSH PROFILE



PROFILE LEVEL EQUALS H-POINT HEIGHT WHICH IS 76.4 CM. ABOVE GROUND LEVEL
(0,0) EQUALS PROJECTED IMPACT POINT

FIGURE 4, CONT'D.

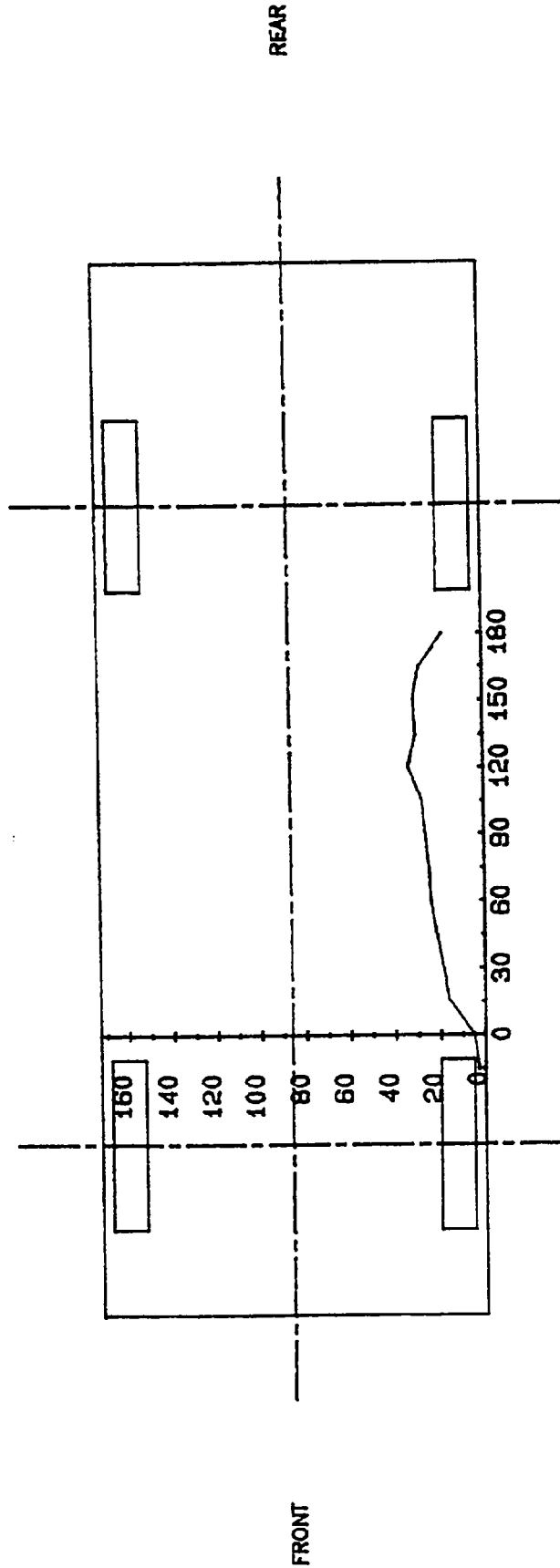
VEHICLE EXTERIOR STATIC CRUSH PROFILE



PROFILE LEVEL EQUALS MID DOOR HEIGHT WHICH IS 74.7 CM. ABOVE GROUND LEVEL
(0,0) EQUALS PROJECTED IMPACT POINT

FIGURE 4, CONT'D.

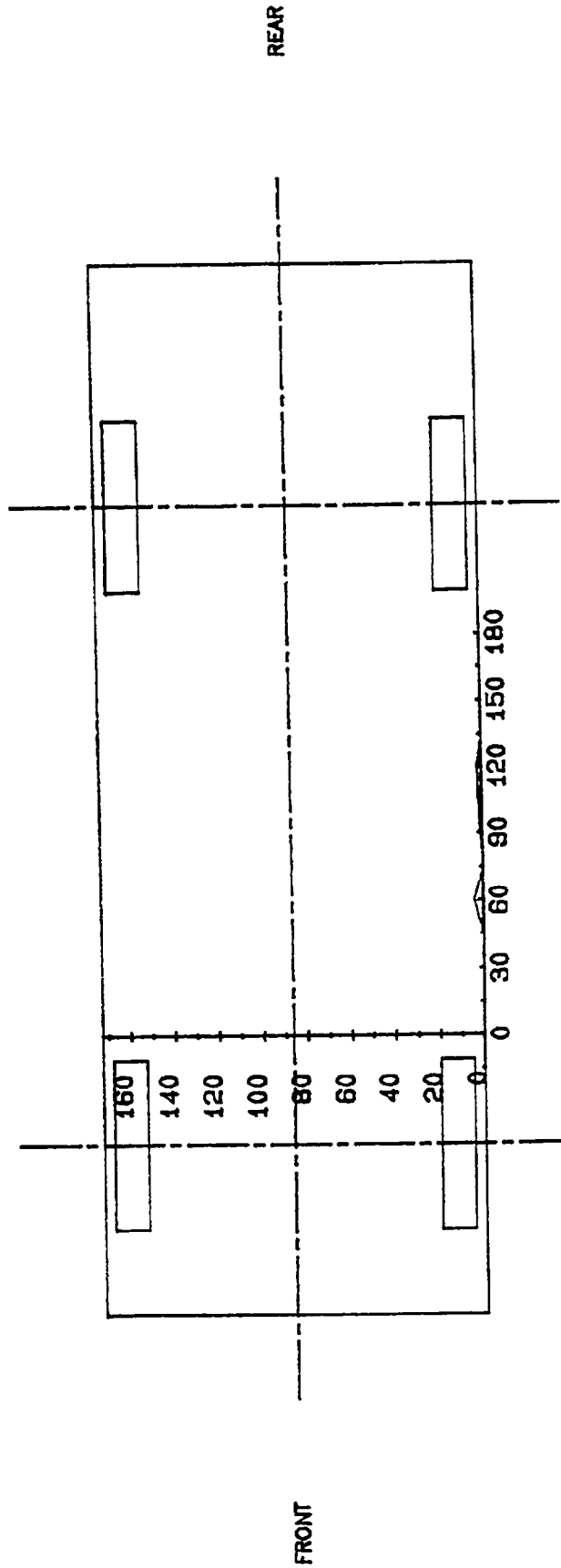
VEHICLE EXTERIOR STATIC CRUSH PROFILE



PROFILE LEVEL EQUALS WINDOW SILL HEIGHT WHICH IS 107.0 CM. ABOVE GROUND LEVEL
(0,0) EQUALS PROJECTED IMPACT POINT

FIGURE 4, CONT'D.

VEHICLE EXTERIOR STATIC CRUSH PROFILE



PROFILE LEVEL EQUALS WINDOW TOP HEIGHT WHICH IS 161.6 CM. ABOVE GROUND LEVEL
(0,0) EQUALS PROJECTED IMPACT POINT

TABLE 7 VEHICLE EXTERIOR PROFILES AND STATIC CRUSH
ZERO DISTANCE AT PROJECTED IMPACT POINT¹

LOCATION	DELIVERED HEIGHT	PRE-TEST PROFILE (DISTANCE IN MILLIMETERS FROM REFERENCE PLANE ²)															
		-152	0	152	305	457	610	762	914	1067	1219	1372	1524	1676	1829		
Axle height	337	X	419	423	424	420	420	422	422	420	418	420	415	418	418		
H-point	764	379	387	379	377	369	367	364	367	361	361	362	359	358	360		
Mid-door	747	380	385	379	377	369	367	366	368	362	362	363	359	358	361		
Window sill	1070	421	410	406	405	397	394	395	400	394	394	395	391	389	399		
Window top	1616	X	X	X	X	X	599	591	592	593	594	599	588	593	600		

POST-TEST PROFILE (DISTANCE IN MILLIMETERS FROM REFERENCE PLANE²)

LOCATION	DELIVERED HEIGHT	STATIC CRUSH (MM)															
		-34	22	31	38	47	63	80	156	105	87	75	45	-16			
Axle height	337	X	8	24	266	303	326	327	341	365	371	354	337	354	295		
H-point	764	8	24	266	303	326	327	341	365	371	354	337	354	295			
Mid-door	747	9	25	272	293	306	336	352	349	350	355	360	380	382	299		
Window sill	1070	26	47	157	184	213	241	248	263	276	336	300	309	279	178		
Window top	1616	X	X	X	X	X	41	-9	8	15	16	-6	-5	-10	-40		

Column readings are front to rear from left to right.

¹All measurements are in millimeters.

²Projected impact point is 940 mm forward of the driver's side wheelbase mid-point.

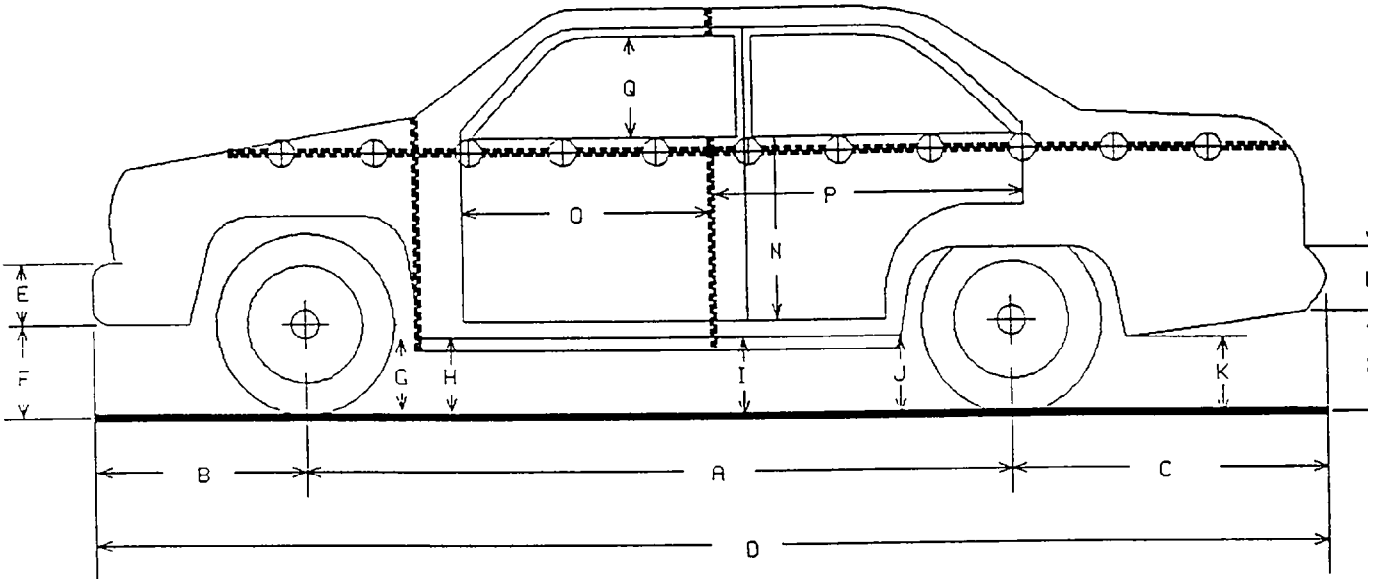
³Reference plane is parallel to and 1219 mm from vehicle's longitudinal centerline.

FIGURE 5 PRE-TEST AND POST-TEST MEASUREMENTS

VEHICLE: 1993 Ford Explorer XLT

VIN: 1FMDU32X9PUD87888

TEST DATE: 09/28/93

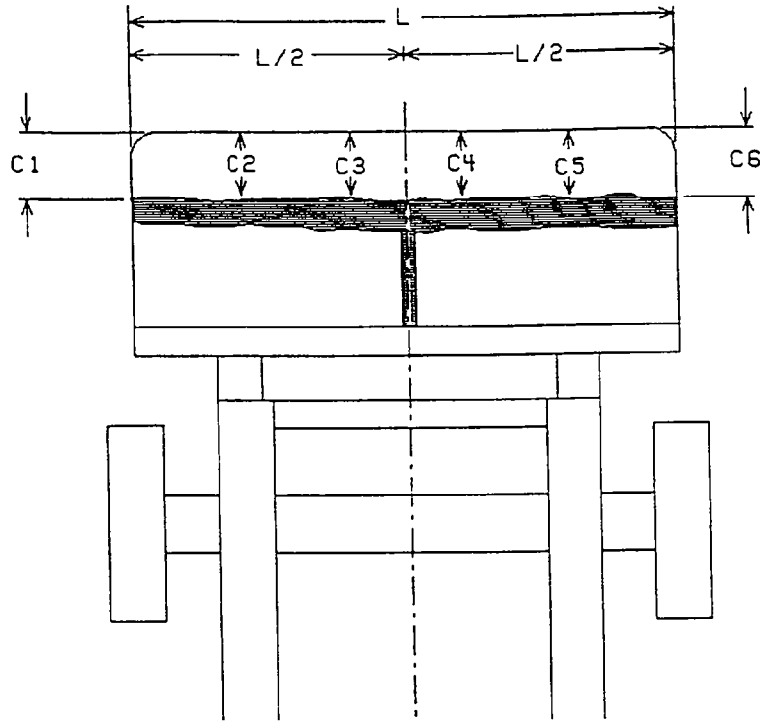


LEFT SIDE VIEW

	PRE-TEST	POST-TEST	CHANGE		PRE-TEST	POST-TEST	CHANGE
A	2857	2858	-1	J	330	407	-77
B	765	765	0	K	441	458	-17
C	1075	1050	25	L	170	170	0
D	4697	4673	24	M	485	488	-3
E	180	180	0	N	700	616	84
F	435	452	-17	O	745	705	40
G	345	345	0	P	1280	1215	65
H	292	365	-73	Q	487	470	17
I	312	401	-89				

All distance measurements are in millimeters.

FIGURE 6 MOVING DEFORMABLE BARRIER FACE CRUSH



NOTES: L is pre-test length of contact surface.
 C1 through C6 are spaced equally apart.
 CL is vehicle centerline.
 All measurements are in millimeters.

	PRE-TEST		POST-TEST		CRUSH
L	<u>1676</u>				
C1	<u>372</u>	C1	<u>420</u>	C1	<u>48</u>
C2	<u>362</u>	C2	<u>387</u>	C2	<u>25</u>
C3	<u>358</u>	C3	<u>397</u>	C3	<u>39</u>
C4	<u>362</u>	C4	<u>412</u>	C4	<u>50</u>
C5	<u>363</u>	C5	<u>418</u>	C5	<u>55</u>
C6	<u>375</u>	C6	<u>437</u>	C6	<u>62</u>
CL	<u>366</u>	CL	<u>398</u>	CL	<u>32</u>

TABLE 8 MOVING DEFORMABLE BARRIER FACE STATIC CRUSH
ZERO DISTANCE AT BARRIER CENTERLINE¹

LOCATION	HEIGHT	813	711	610	508	406	305	203	102	0	102	203	305	406	508	610	711	813	
<u>PRE-TEST PROFILE (DISTANCE IN MILLIMETERS FROM REFERENCE PLANE²)</u>																			
Top of face	1041	465	468	462	461	461	465	462	465	467	460	462	464	466	463	464	457	466	466
Mid-face	787	466	461	462	461	464	463	462	465	467	461	460	464	465	463	462	457	464	464
Bumper	660	375	361	361	363	362	362	362	364	366	360	358	362	362	362	360	356	372	372
<u>POST-TEST PROFILE (DISTANCE IN MILLIMETERS FROM REFERENCE PLANE²)</u>																			
Top of face	1041	539	495	465	462	458	472	468	470	470	468	473	474	472	480	498	518	533	533
Mid-face	787	508	510	508	505	498	503	500	489	483	473	482	484	478	478	485	490	493	493
Bumper	660	437	427	424	418	414	427	412	400	398	396	397	392	390	387	399	418	420	420
<u>STATIC CRUSH (MM)</u>																			
Top of face	1041	74	27	3	1	-3	7	6	5	3	8	11	10	6	17	34	61	67	67
Mid-face	787	42	49	46	44	34	40	38	24	16	12	22	20	13	15	23	33	29	29
Bumper	660	62	66	63	55	52	65	50	36	32	36	39	30	28	25	39	62	48	48

All measurements are in millimeters.

¹Column readings are left to right across barrier face from left to right.

²Reference plane is 900 mm forward of the rear surface of the deformable barrier face.

SECTION 3.0

FMVSS 214 DATA

TABLE 9

DUMMY DATA SUMMARY

TEST NUMBER 930928

	DRIVER DUMMY SN: 906			PASSENGER DUMMY SN: 903		
	POSITIVE DIRECTION MAX	NEGATIVE DIRECTION MAX	MSEC	POSITIVE DIRECTION MAX	NEGATIVE DIRECTION MAX	MSEC
HEAD						
LONGITUDINAL	18.3	42.1	17.3	87.9	44.6	125.9
LATERAL	8.7	172.8	84.0	43.1	43.3	170.5
VERTICAL	5.4	29.6	23.2	65.6	32.0	64.0
RESULTANT	85.5	42.4			116.6	56.5
HIC	273 FROM 39.4 TO 46.0		485 FROM 54.6 TO 61.2			
UPPER SPINE						
LONGITUDINAL	6.2	29.4	18.8	68.8	7.9	55.0
LATERAL (P)	20.6	68.1	62.7	39.4	2.7	233.8
LATERAL (R)	17.5	68.8	61.8	39.4	3.1	231.9
VERTICAL	10.4	30.0	8.3	100.6	7.9	33.1
RESULTANT (P)	63.1	39.4			44.4	51.9
RESULTANT (R)	62.2	39.4			43.1	51.9

TABLE 9

DUMMY DATA SUMMARY CONTINUED

TEST NUMBER 930928

	DRIVER DUMMY SN: 906			PASSENGER DUMMY SN: 903		
	POSITIVE DIRECTION MAX	NEGATIVE DIRECTION MAX	MSEC	POSITIVE DIRECTION MAX	NEGATIVE DIRECTION MAX	MSEC
LOWER SPINE						
LONGITUDINAL	14.2	20.7	54.4	10.7	18.1	56.9
LATERAL (P)	20.4	74.6	90.0	19.1	47.5	70.0
LATERAL (R)	20.0	75.6	89.4	18.5	46.6	70.0
VERTICAL	9.0	5.1	30.6	9.5	3.9	48.1
RESULTANT (P)	76.7		31.9	47.9		42.5
RESULTANT (R)	77.6		31.9	47.0		42.5
LEFT UPPER THORAX RIB						
LATERAL (P)	18.5	60.9	77.5	3.8	62.1	120.0
LATERAL (R)	19.0	60.4	77.5	4.3	60.9	119.4
LEFT LOWER THORAX RIB						
LATERAL (P)	17.2	51.1	77.5	4.7	69.6	121.2
LATERAL (R)	17.3	53.6	93.8	5.2	69.3	66.3
			TTI(d) (P) 68	TTI(d) (P) 59		
			TTI(d) (R) 68	TTI(d) (R) 58		

TABLE 9

DUMMY DATA SUMMARY CONTINUED

TEST NUMBER 930928

	DRIVER DUMMY SN: 906		PASSENGER DUMMY SN: 903	
	POSITIVE DIRECTION MAX	NEGATIVE DIRECTION MSEC	POSITIVE DIRECTION MAX	NEGATIVE DIRECTION MSEC
PELVIS				
LONGITUDINAL	6.9	46.3	21.8	39.4
LATERAL	20.8	81.3	79.6	32.5
VERTICAL	16.4	30.6	6.5	81.3
RESULTANT	80.6	32.5	89.2	36.3
			8.2	44.4
			11.3	77.5
			16.7	37.5
			36.5	37.5
			82.1	35.6
			3.6	77.5

POSITIVE DIRECTION	
LONGITUDINAL:	FORWARD
LATERAL:	LEFTWARD
VERTICAL:	UPWARD
NEGATIVE DIRECTION	
LONGITUDINAL:	REARWARD
LATERAL:	RIGHTWARD
VERTICAL:	DOWNWARD

TABLE 10 POST-IMPACT DUMMY/VEHICLE DATA

VISIBLE DUMMY CONTACT POINTS:

	DRIVER #906	PASSENGER #903
HEAD	None <u>B-Pillar</u>	<u>C-pillar</u>
CHEST	<u>Door panel</u>	<u>Door panel</u>
ABDOMEN	<u>Door panel</u>	<u>Door panel</u>
LEFT KNEE	<u>Door panel</u>	<u>Door panel</u>
RIGHT KNEE	<u>None</u>	<u>Left knee</u>

DOOR OPENING:

	LEFT	RIGHT
FRONT	<u>Tools</u>	<u>Easy</u>
REAR	<u>Tools</u>	<u>Easy</u>

SEAT MOVEMENT:

	SEAT BACK FAILURE	SEAT SHIFT
FRONT	<u>None</u>	<u>None</u>
REAR	<u>None</u>	<u>None</u>

GLAZING DAMAGE:

The left side of the windshield cracked.

The driver's and left rear passenger's door glass
broke out.

OTHER NOTABLE IMPACT EFFECTS:

None

DUMMY KINEMATIC SUMMARY

Driver

Upon impact, the driver dummy translated toward the left and impacted the door panel. The driver dummy's head rotated and tilted toward the left as the dummy rebounded toward the right. The dummy's head and upper body rotated toward to the right and the dummy was restrained by the three-point unbelt. The dummy came to rest sitting in the driver's seat, facing forward, leaning to the right, and restrained by the three-point unbelt.

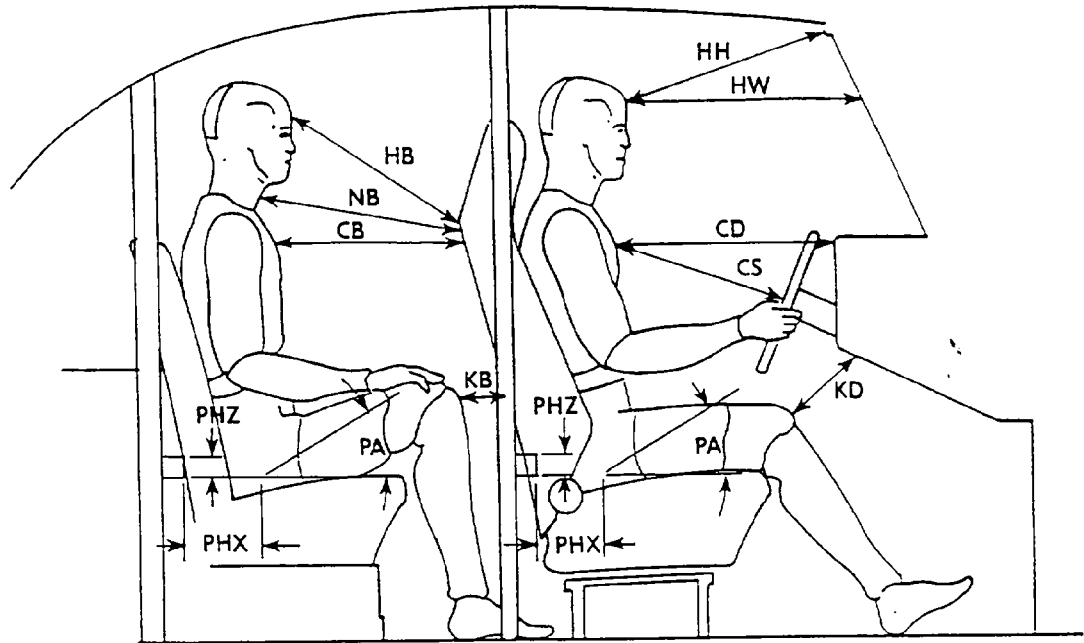
Left rear passenger

Upon impact, the passenger dummy translated toward the left and impacted the door panel. The dummy's head rotated toward the left and contacted the C-pillar. The dummy's upper body rotated toward the left and the seatbelt buckle released while the dummy's pelvis raised out of the seat. The dummy rebounded and translated toward the right before the seatbelt buckle caught on the dummy's umbilical cable and restrained the dummy's upper body. The dummy's pelvis rose and continued to translate to the right. The passenger dummy's pelvis descended into the seat and its upper body rotated toward the right. The dummy came to rest sitting in the left rear passenger seat leaning to the left and facing forward.

SECTION 4.0

VEHICLE, OCCUPANT, AND CAMERA MEASUREMENTS

FIGURE 8 DUMMY LONGITUDINAL CLEARANCE MEASUREMENTS



	DRIVER	LEFT REAR PASSENGER
HH	544	NA
HW	680	NA
CD	623	NA
CS	353	NA
KDL	196	NA
KDR	171	NA
PA	25	25
PHX	181	248
PHZ	118	124
HB	NA	707
NB	NA	642
CB	NA	512
KBL	NA	123
KBR	NA	124

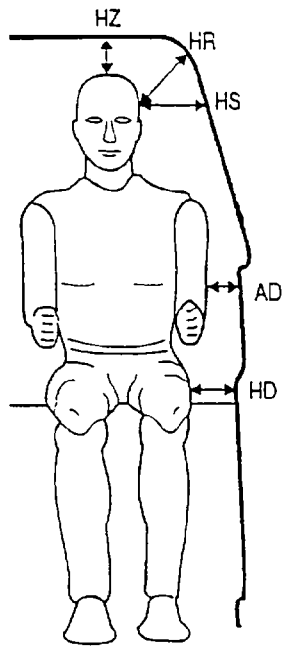
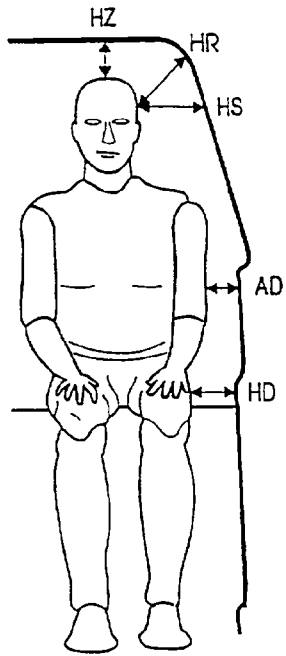
¹Knee measurements taken parallel to the vehicle's longitudinal centerline.

All distance measurements are in millimeters.

All angle measurements are in degrees.

NOTE: For 2-door vehicles, the rear passenger's PHX and PHZ measurements are referenced to the front door stiker.

FIGURE 9 DUMMY LATERAL CLEARANCE MEASUREMENTS



	<u>DRIVER</u>	<u>LEFT REAR PASSENGER</u>
HR	208	187
HS	241	186
AD	101	167
HD	153	113
HZ	156	136

All distance measurements are in millimeters.

FIGURE 10 CAMERA POSITIONS

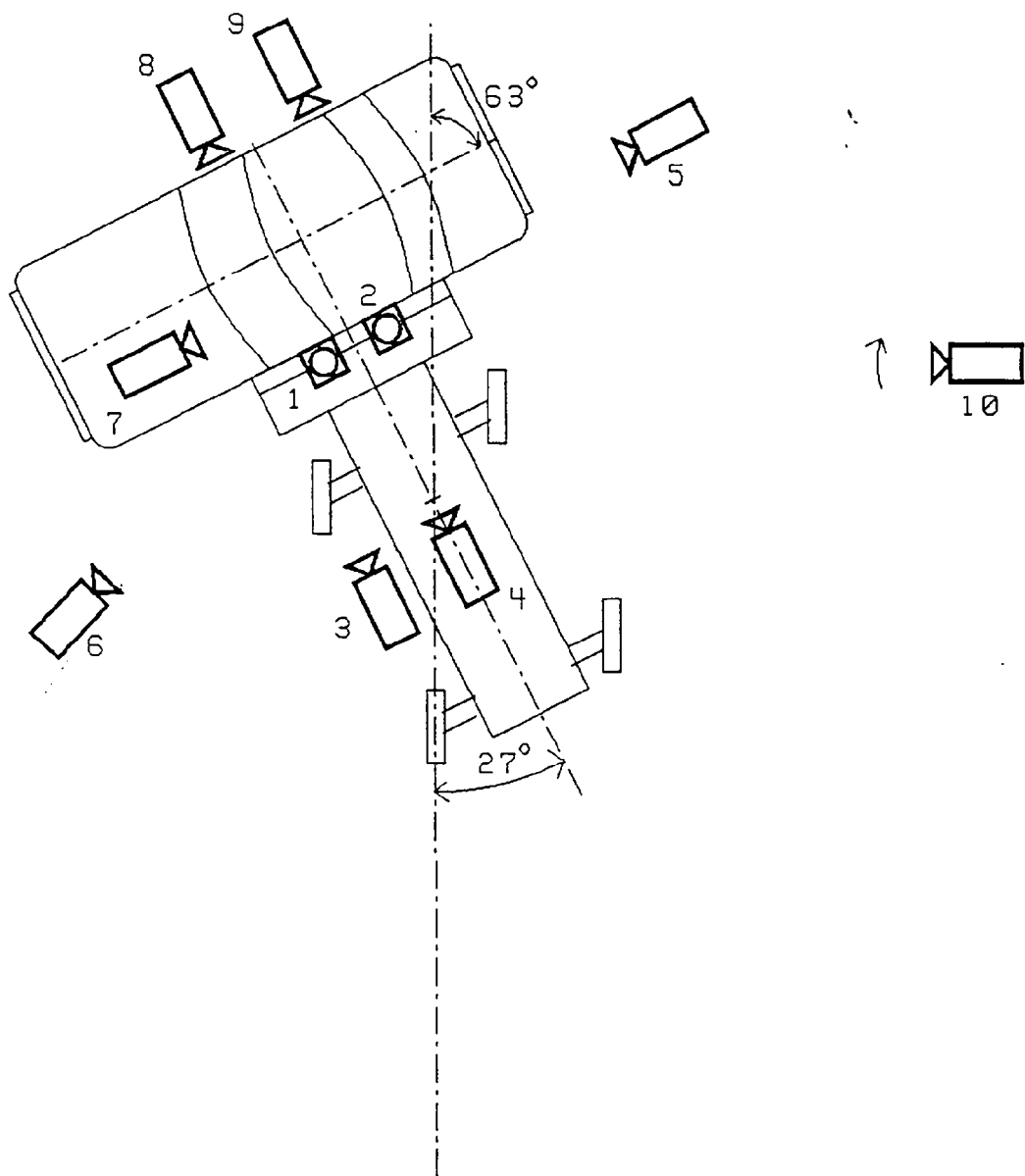


TABLE 11 CAMERA INFORMATION

TEST NO. 930928

VEHICLE: 1993 Ford Explorer XLT

CAMERA NO.	VIEW	CAMERA POSITIONS (CM) ¹			ANGLE ² (DEG)	LENS (MM)	FILM SPEED (FPS)
		X	Y	Z			
1	Overhead overall	0	0	1110	-90	8.5	908
2	Overhead close-up	-47	0	1110	-90	25	983
3	Onboard barrier side	NA	NA	NA	NA	25	1000
4	Onboard barrier center	NA	NA	NA	NA	13	998
5	Right side	477	-962	91	0	13	998
6	Left side	-490	299	101	0	25	998
7	Onboard vehicle front	NA	NA	NA	NA	8	1005
8	Onboard vehicle side-front	NA	NA	NA	NA	8	723
9	Onboard vehicle side-rear	NA	NA	NA	NA	8	1000
10	Real-time panning	NA	NA	NA	NA	16	24

¹ +X = Film plane forward of impact point on target vehicle's struck side

+Y = Film plane leftward of impact point on target vehicle's struck side

+Z = Film plane above ground level

² +Angle = Film plane angled upward from horizontal plane.

APPENDIX A

PHOTOGRAPHS



Figure A-1. PRE-TEST FRONT VIEW

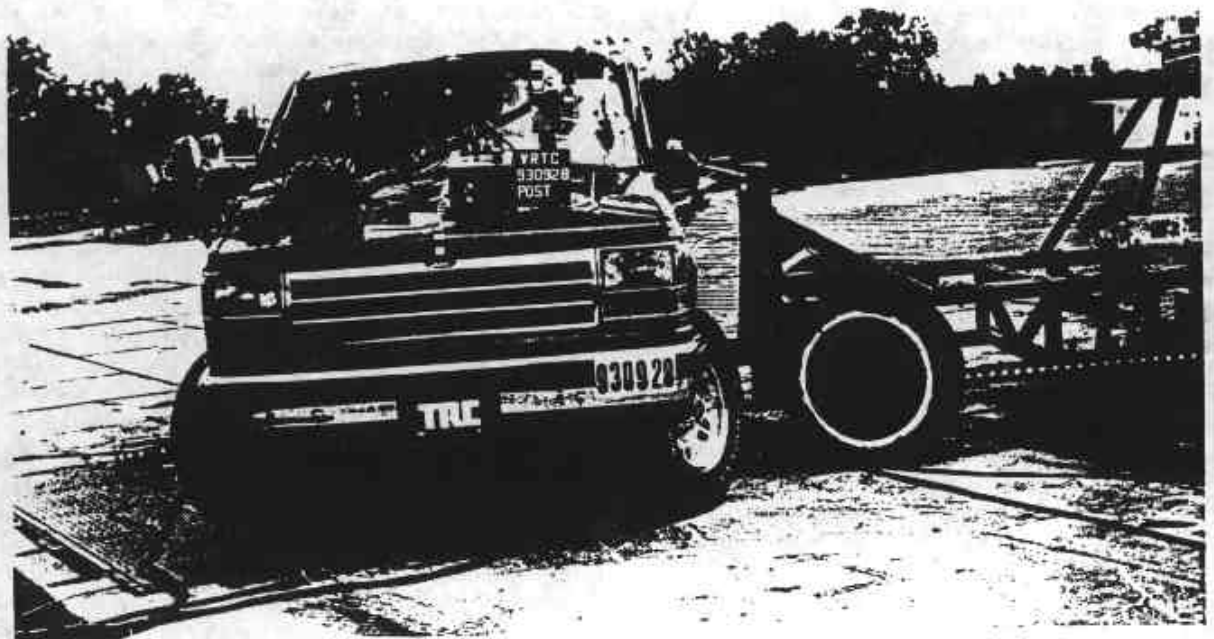


Figure A-2. POST-TEST FRONT VIEW

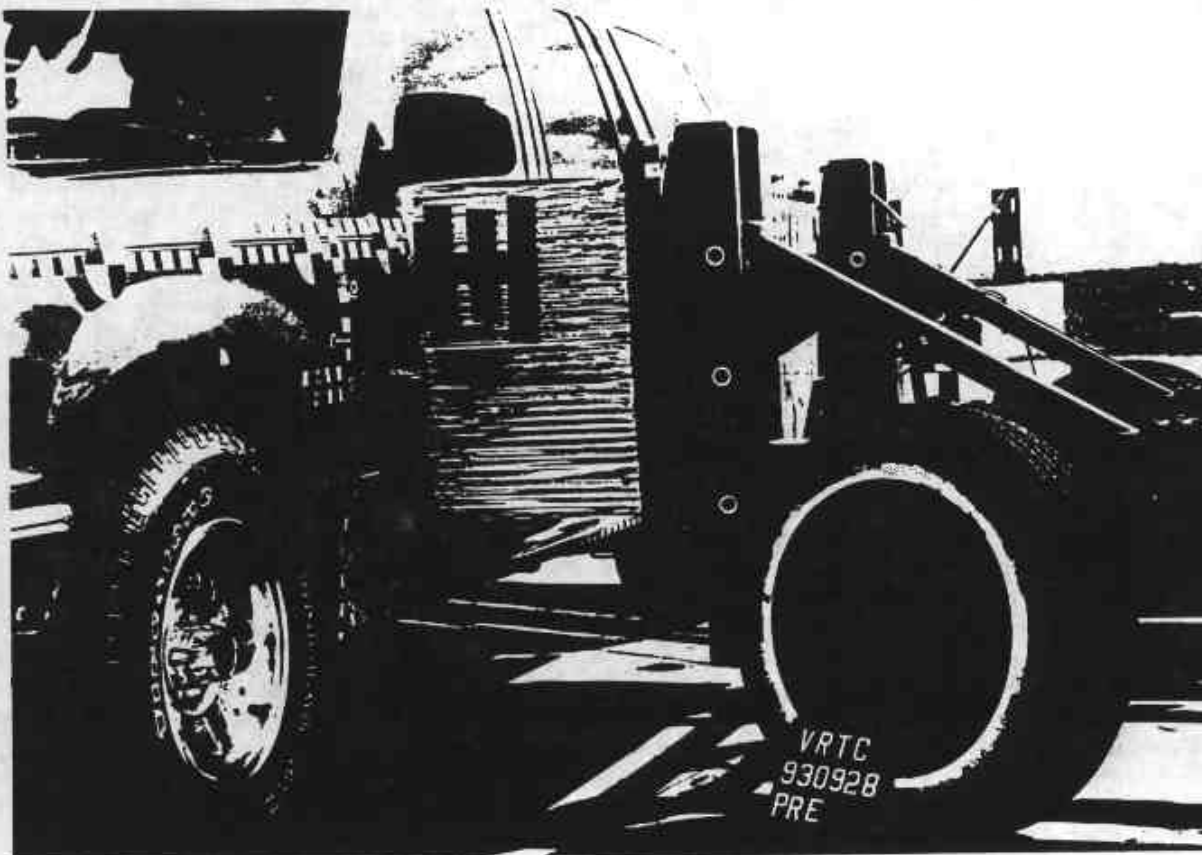


Figure A-3. PRE-TEST LEFT FRONT VIEW

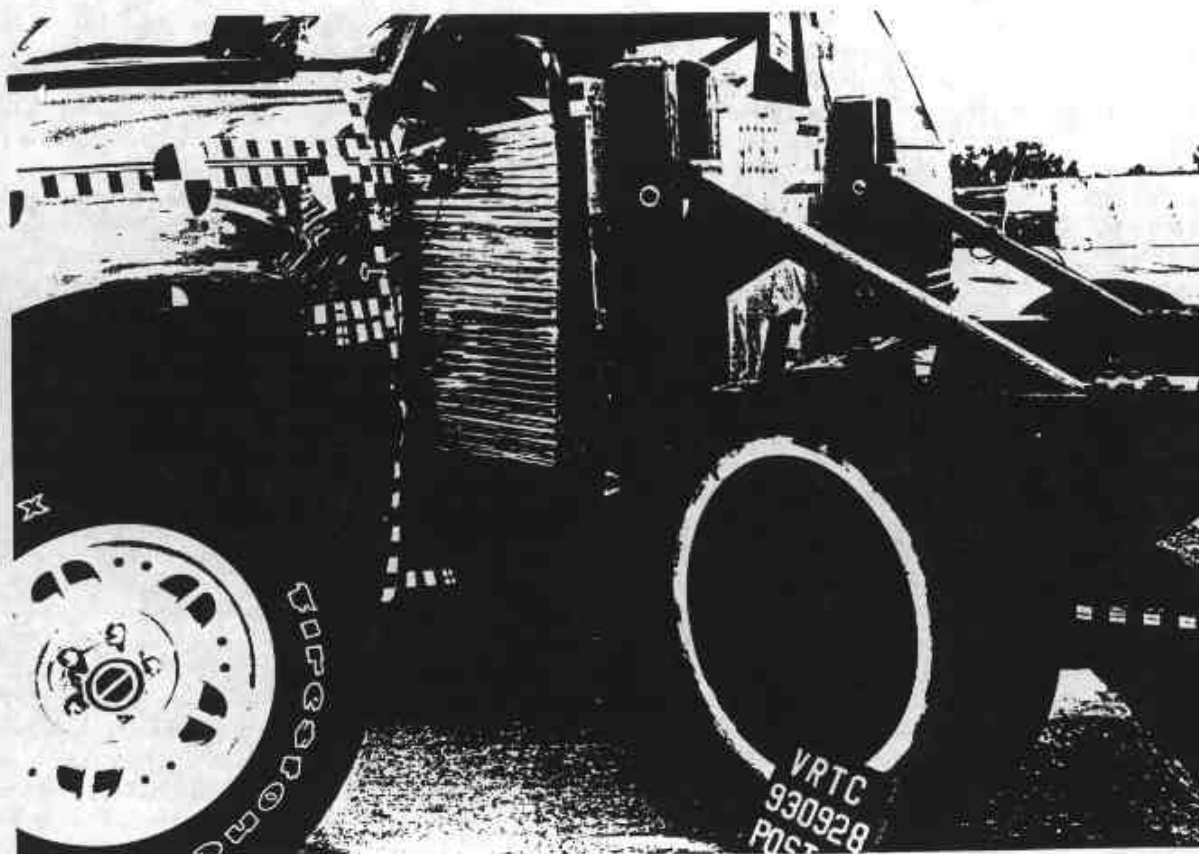


Figure A-4. POST-TEST LEFT FRONT VIEW

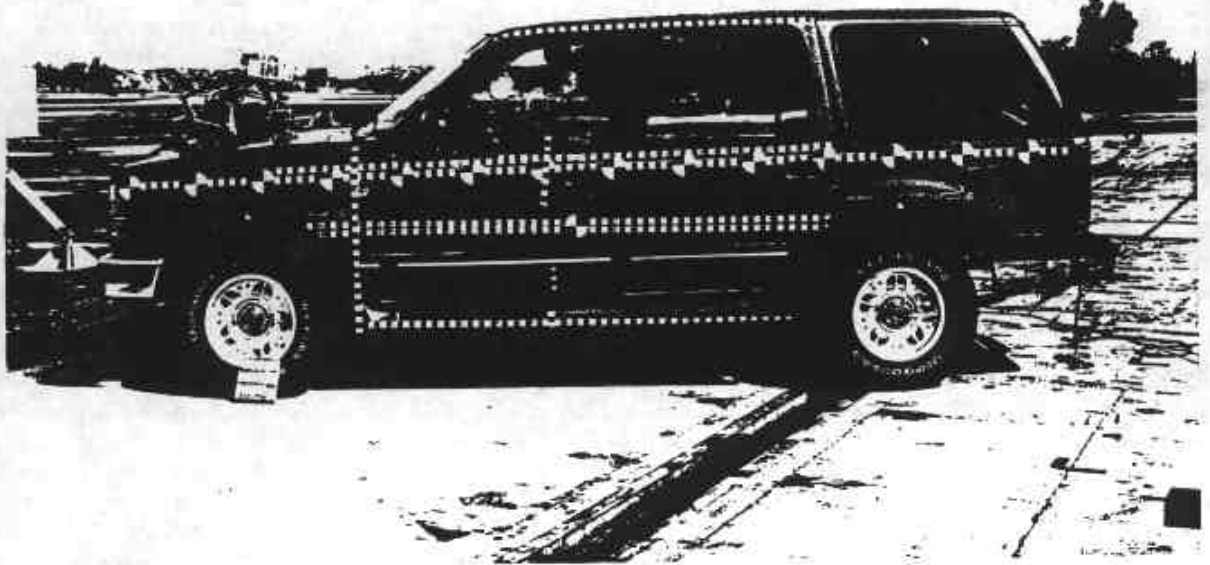


Figure A-5. PRE-TEST LEFT SIDE VIEW



Figure A-6. POST-TEST LEFT SIDE - VIEW 1

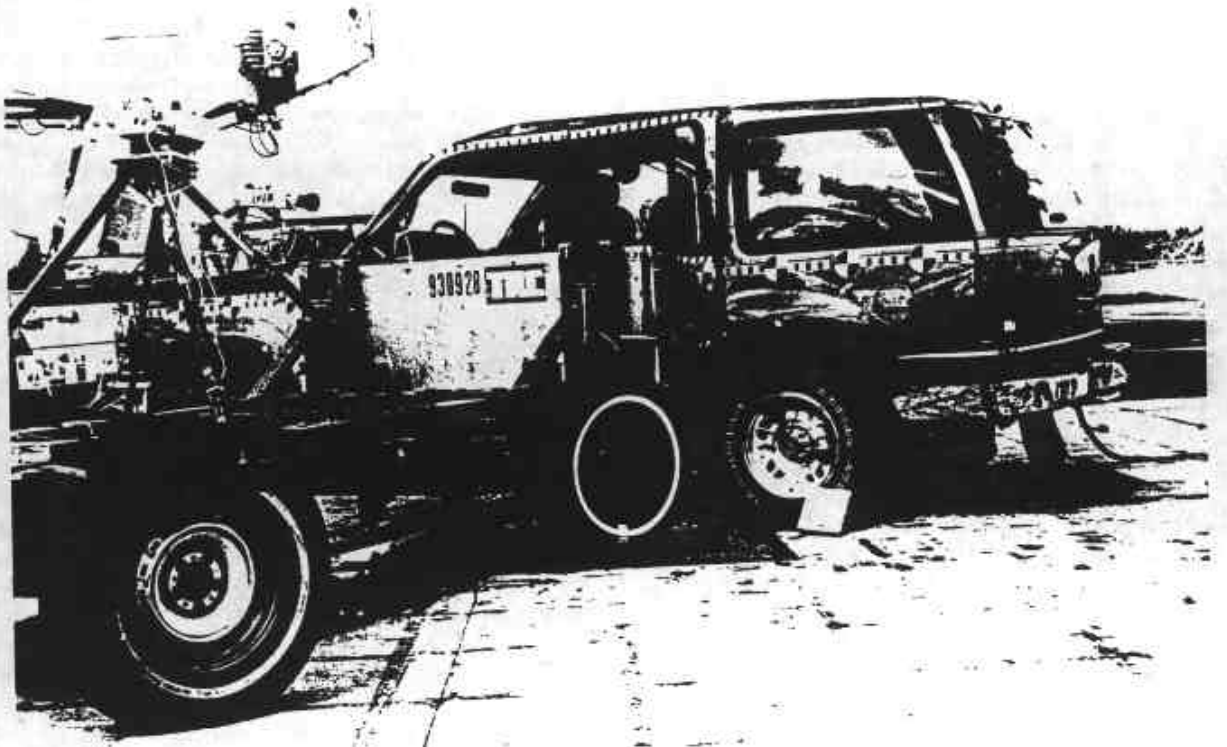


Figure A-7. POST-TEST LEFT SIDE - VIEW 2

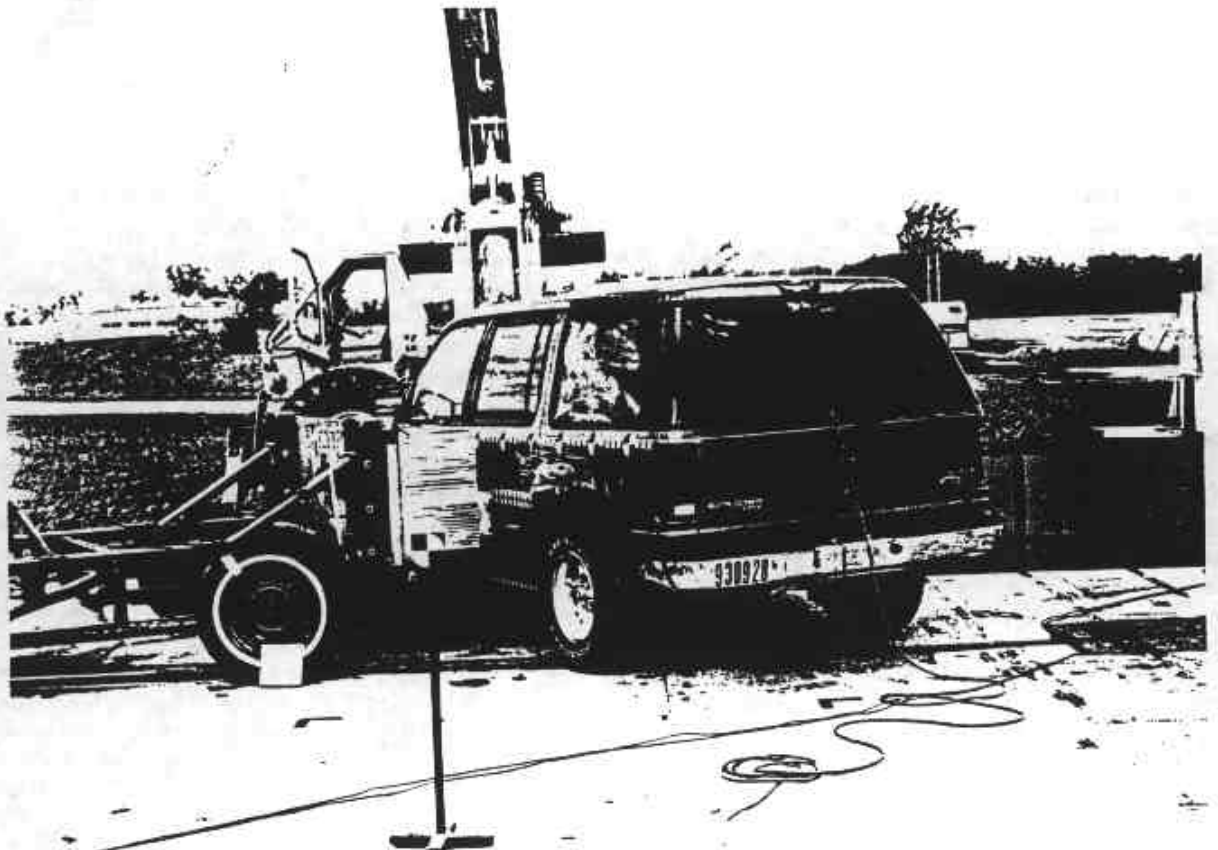


Figure A-8. PRE-TEST LEFT REAR - VIEW 1

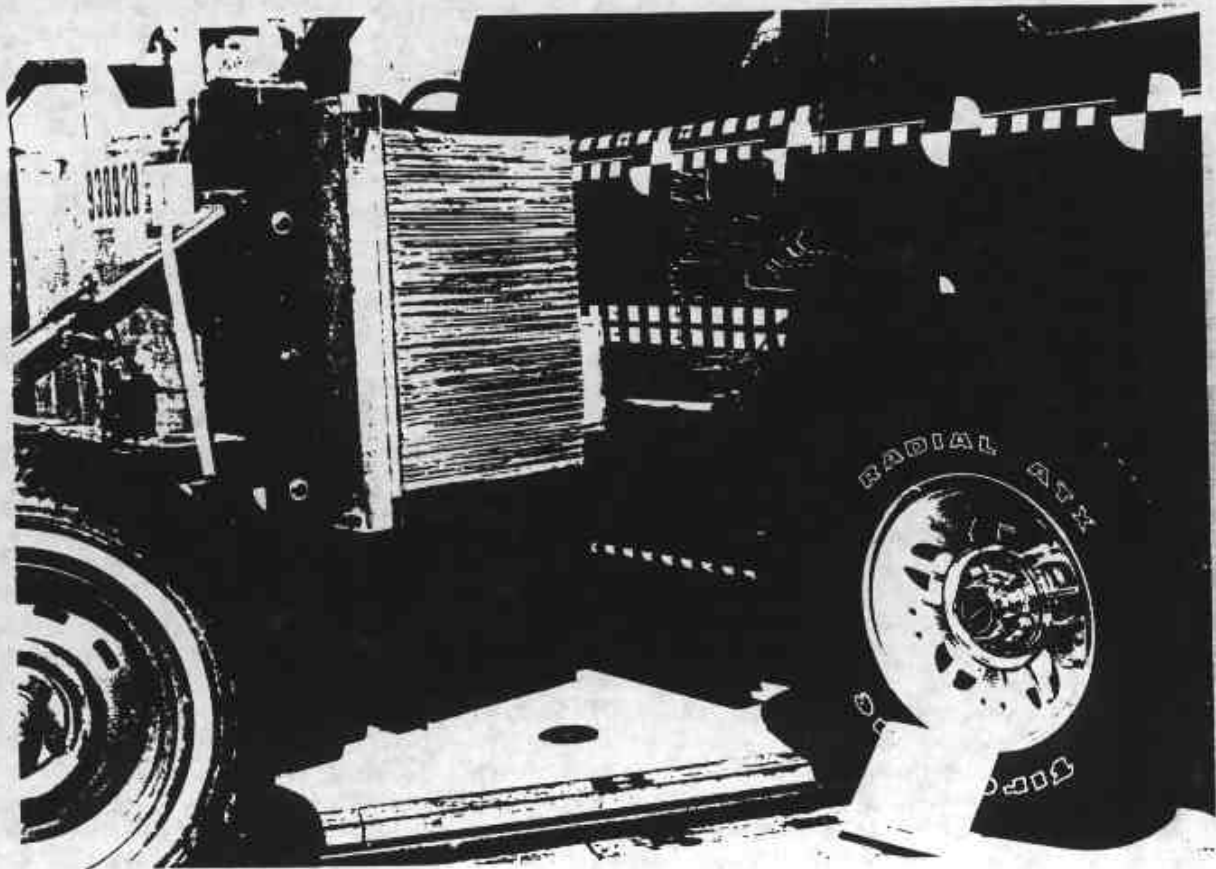


Figure A-9. PRE-TEST LEFT REAR - VIEW 2



Figure A-10. POST-TEST REAR VIEW

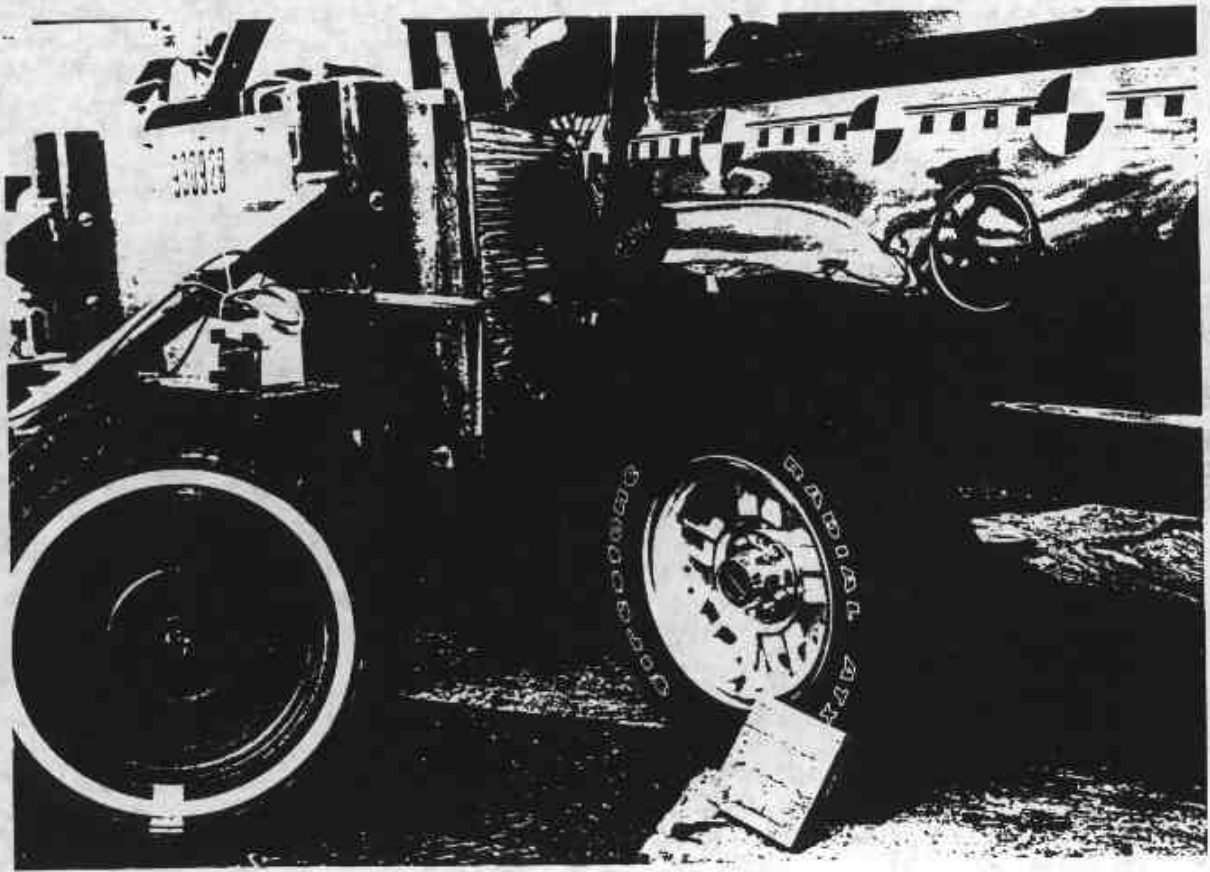


Figure A-11. POST-TEST LEFT REAR VIEW



Figure A-12. PRE-TEST RIGHT SIDE VIEW

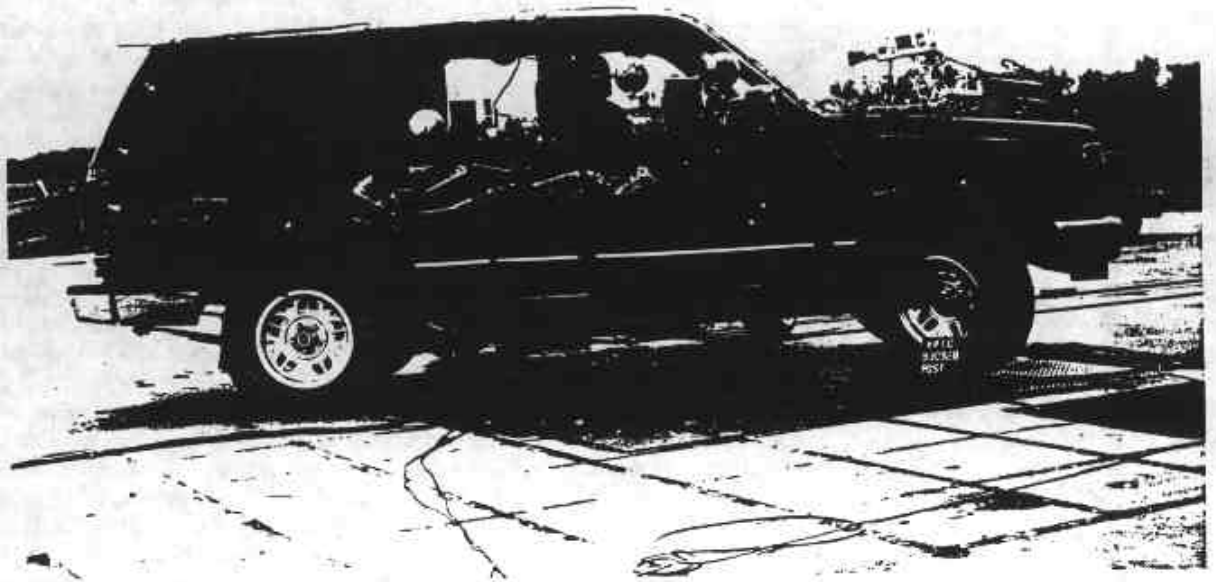


Figure A-13. POST-TEST RIGHT SIDE VIEW

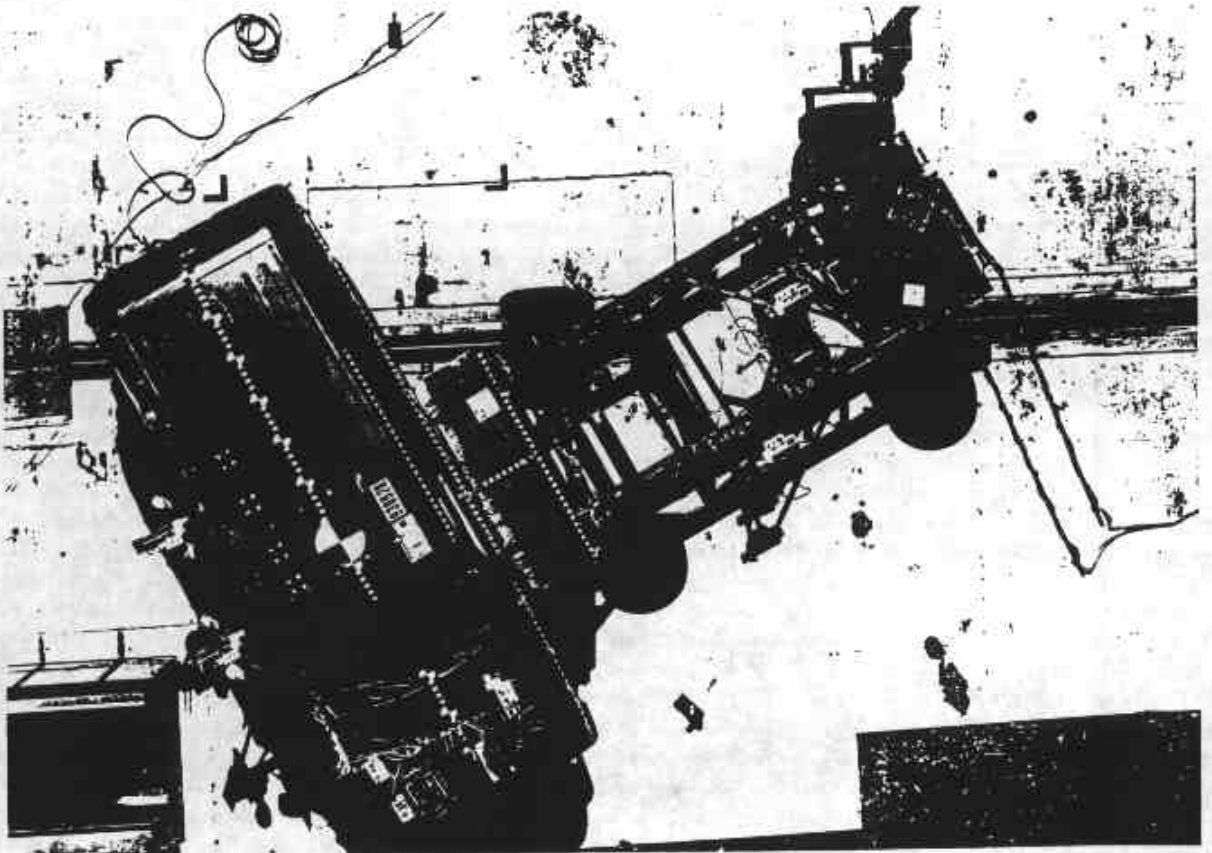


Figure A-14. PRE-TEST OVERHEAD VIEW

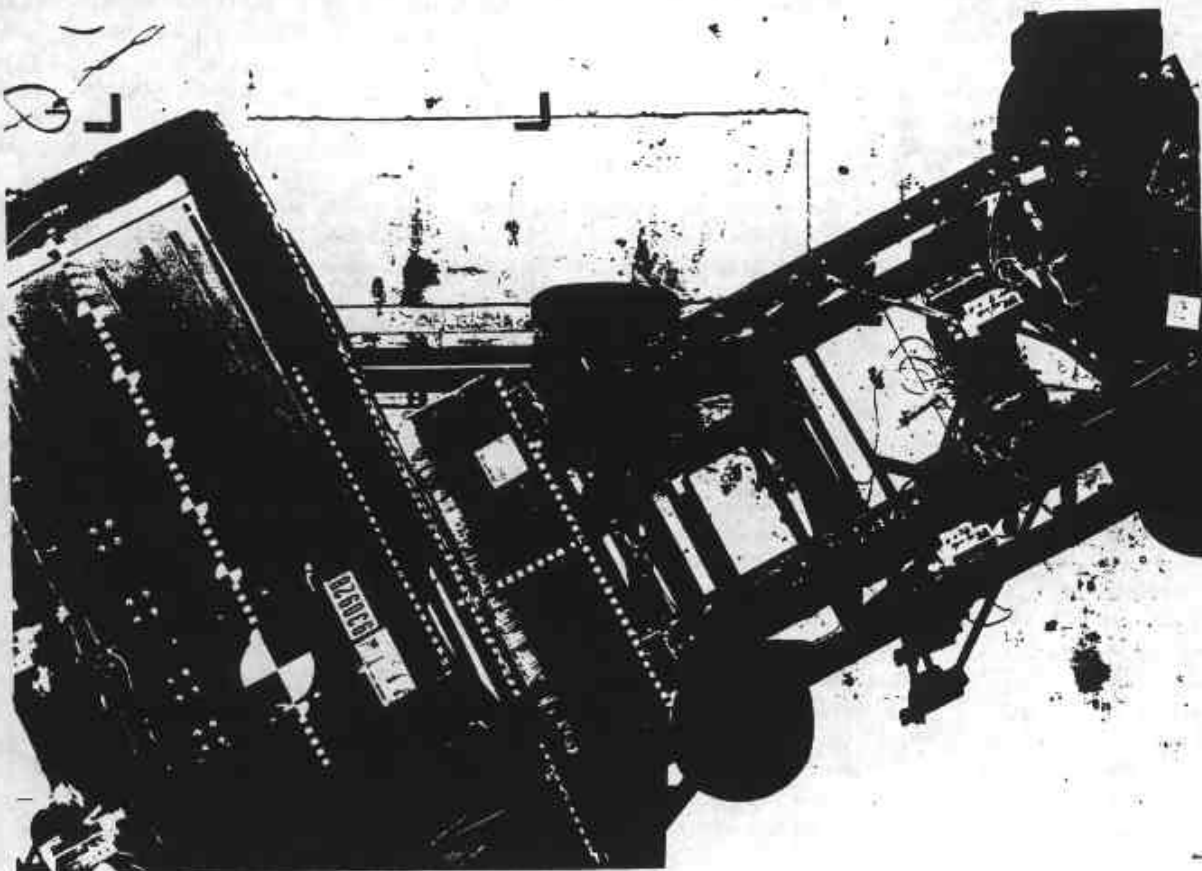


Figure A-15. PRE-TEST OVERHEAD CLOSE-UP VIEW



Figure A-16. PRE-TEST DRIVER DUMMY POSITION VIEW



Figure A-17. POST-TEST DRIVER DUMMY POSITION VIEW

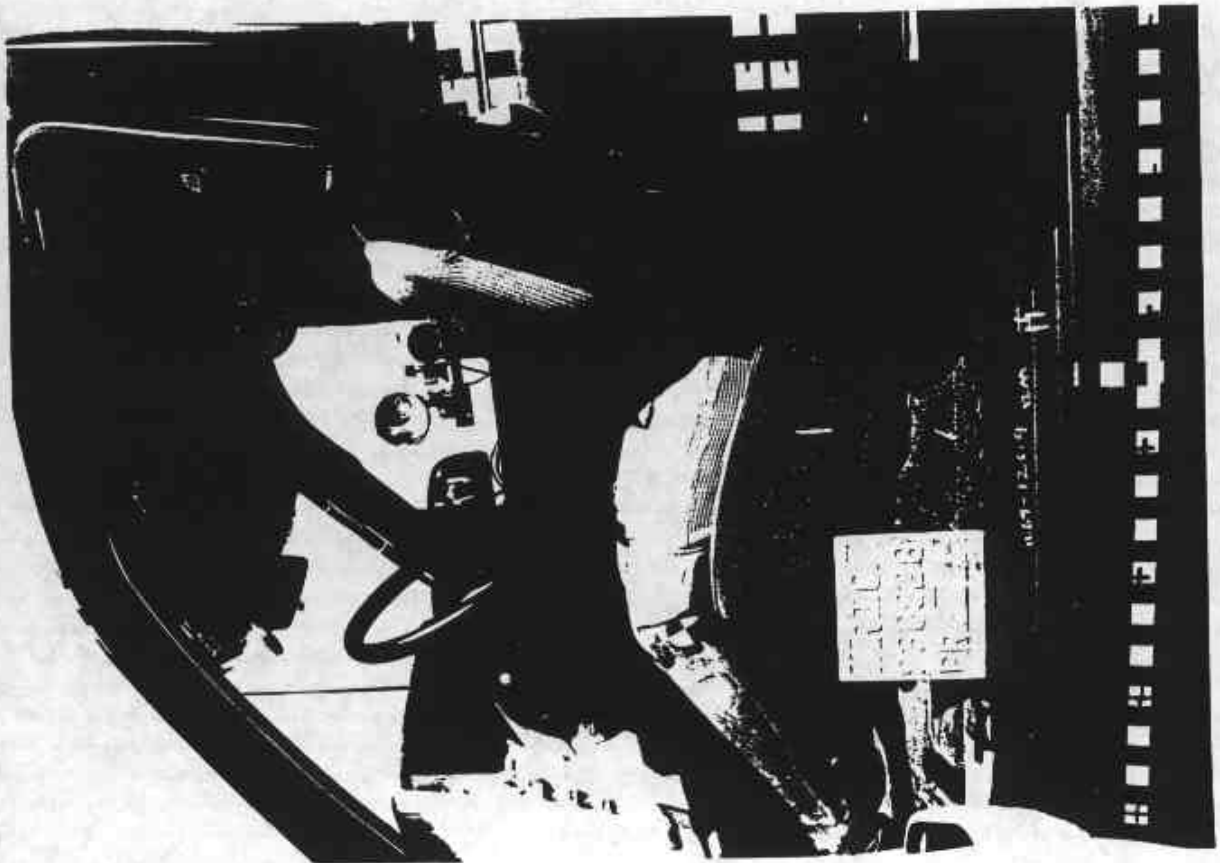


Figure A-18. PRE-TEST DRIVER DUMMY & VEHICLE INTERIOR - VIEW 1



Figure A-19. PRE-TEST DRIVER DUMMY & VEHICLE INTERIOR - VIEW 2

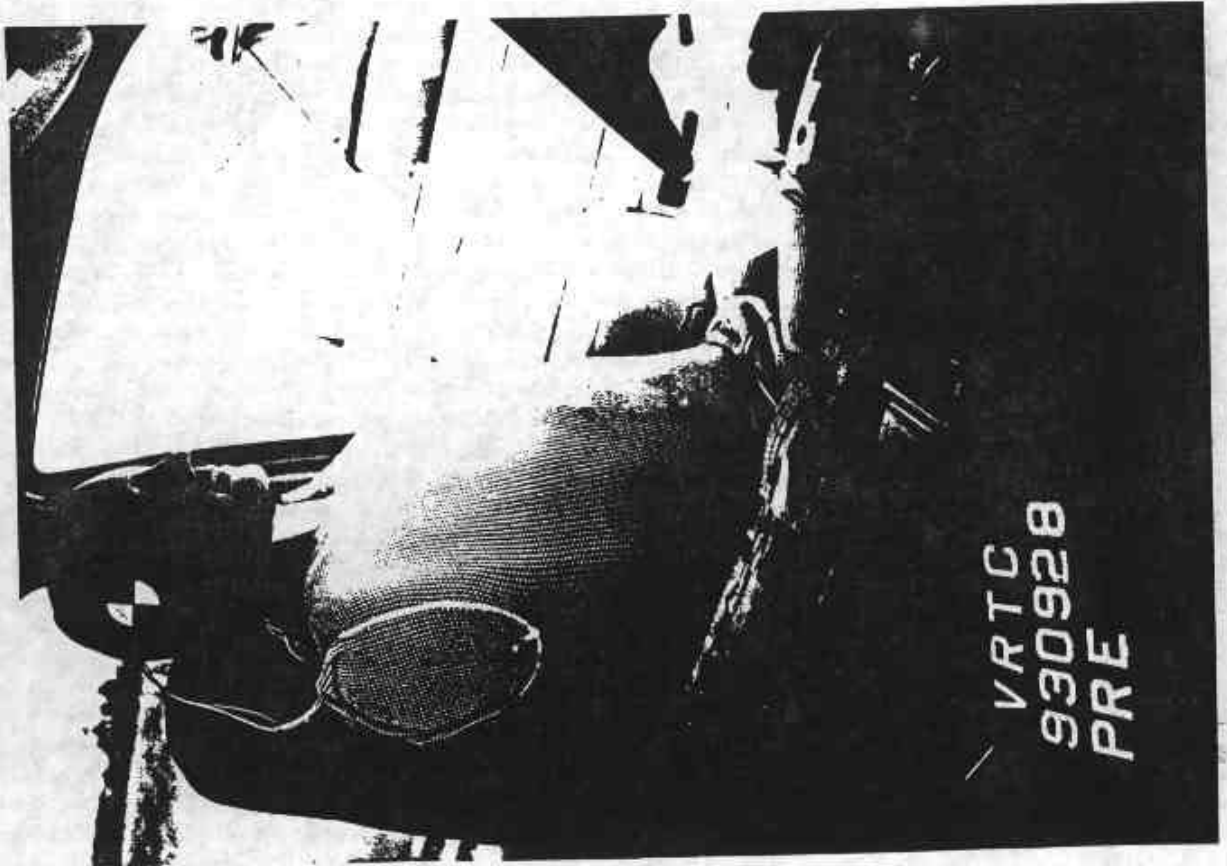


Figure A-20. PRE-TEST DRIVER DUMMY & VEHICLE INTERIOR - VIEW 3

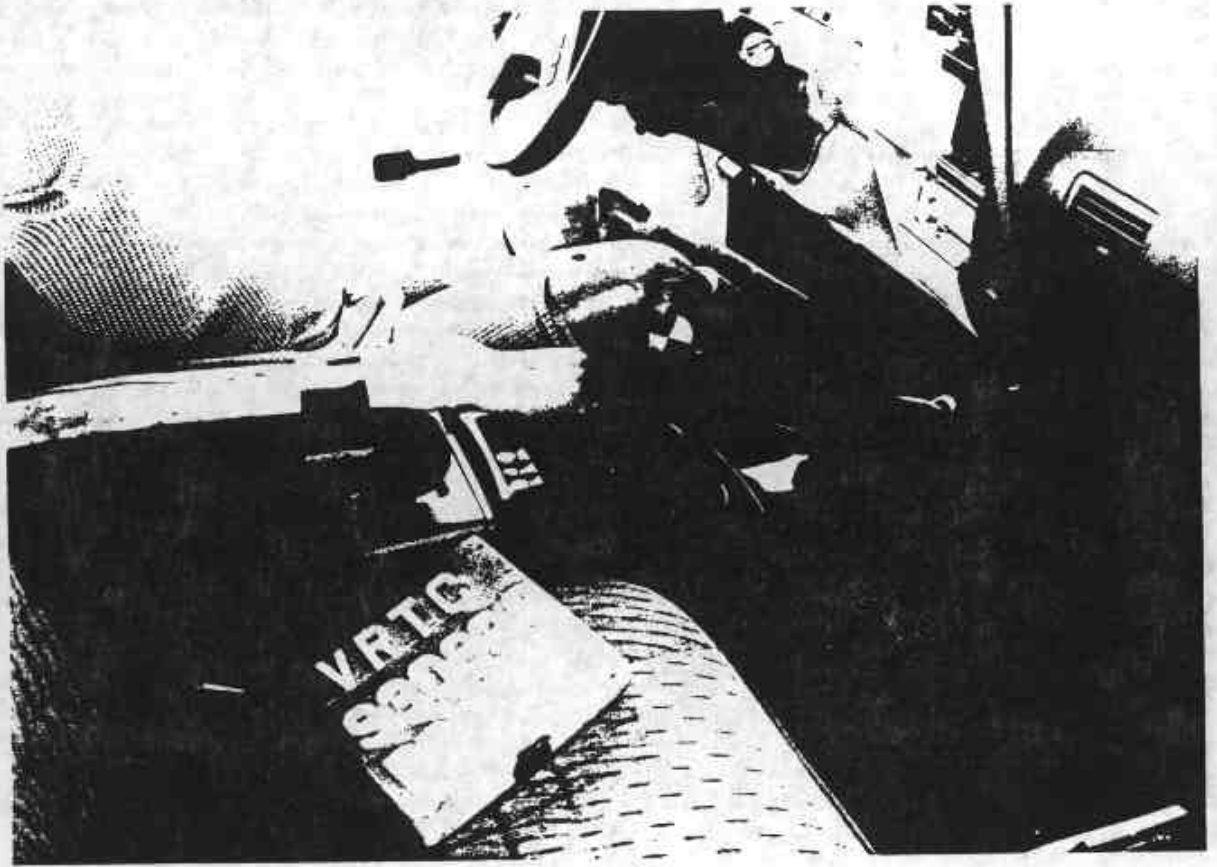


Figure A-21. PRE-TEST DRIVER DUMMY & VEHICLE INTERIOR - VIEW 4

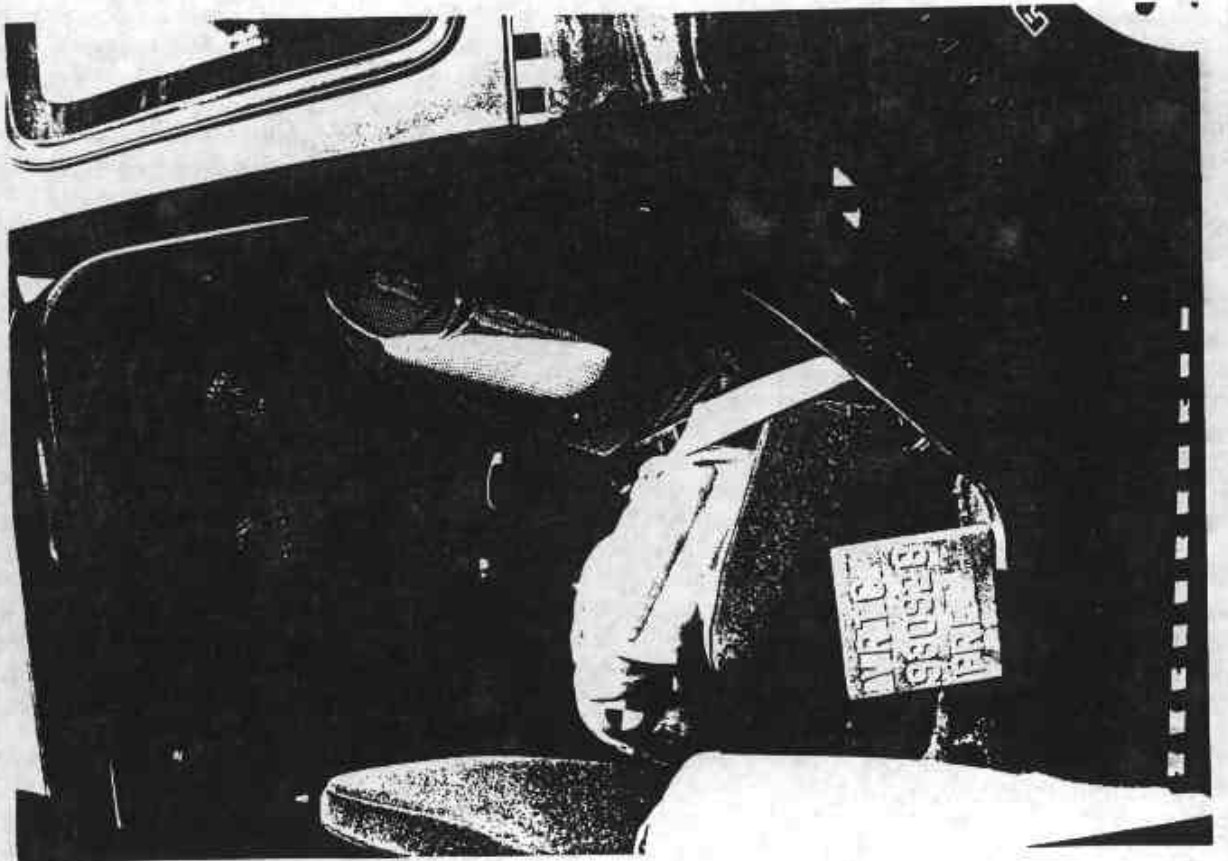


Figure A-22. PRE-TEST PASSENGER DUMMY & VEHICLE INTERIOR - VIEW 1

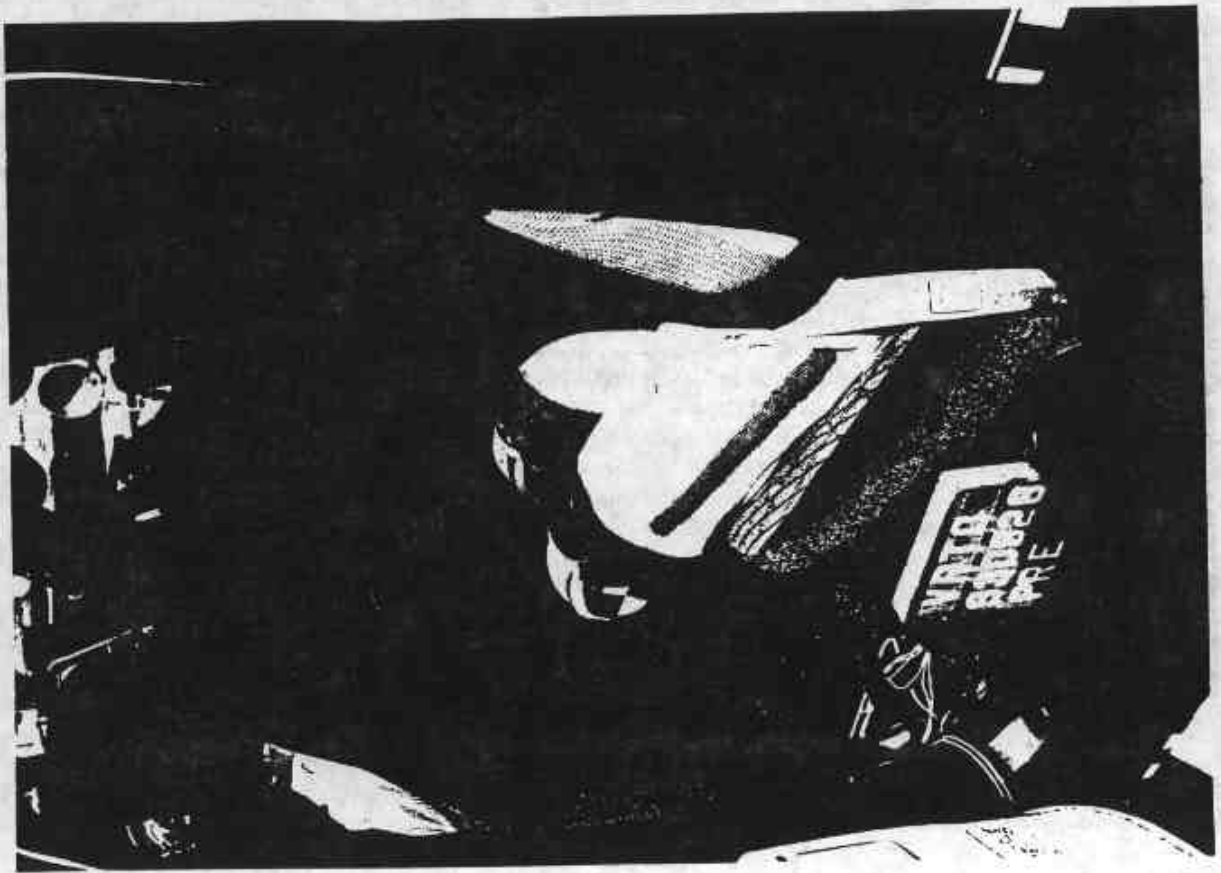


Figure A-23. PRE-TEST PASSENGER DUMMY & VEHICLE INTERIOR - VIEW 2

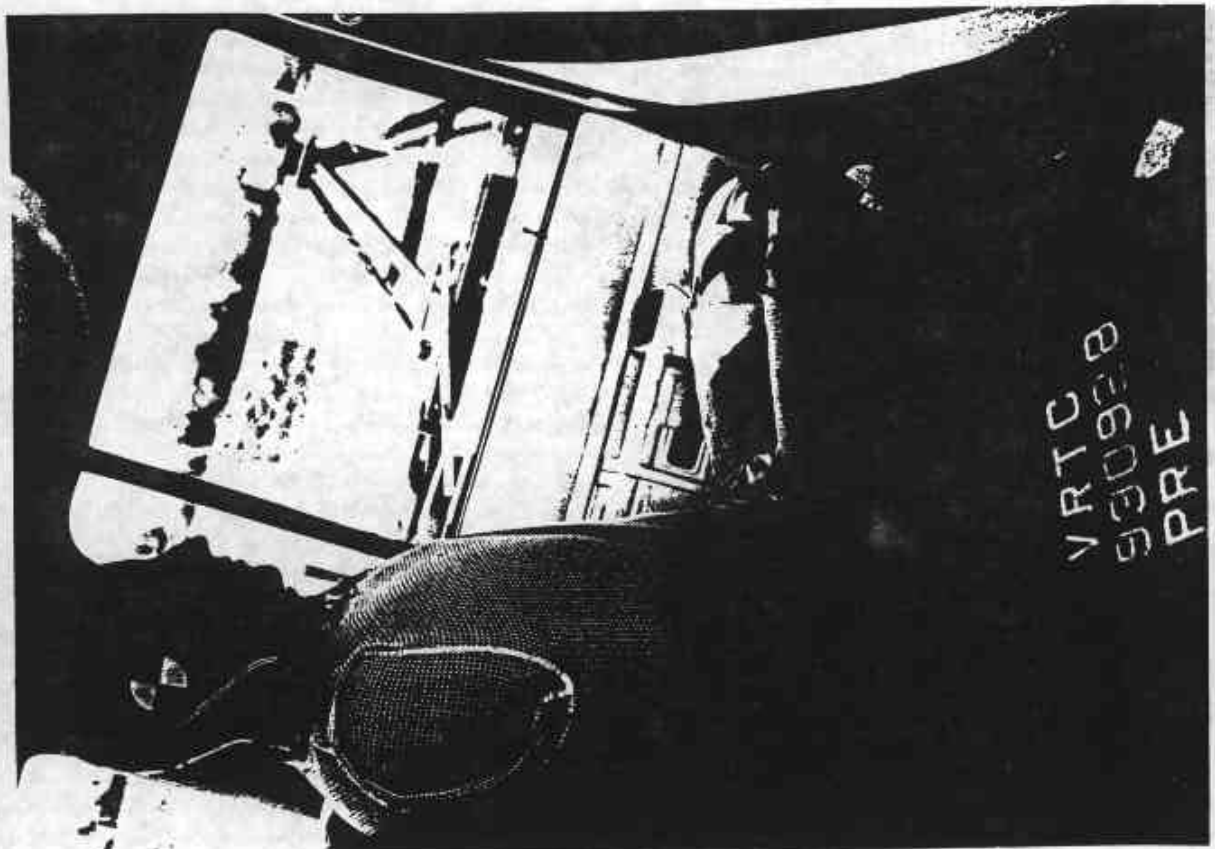


Figure A-24. PRE-TEST PASSENGER DUMMY & VEHICLE INTERIOR - VIEW 3

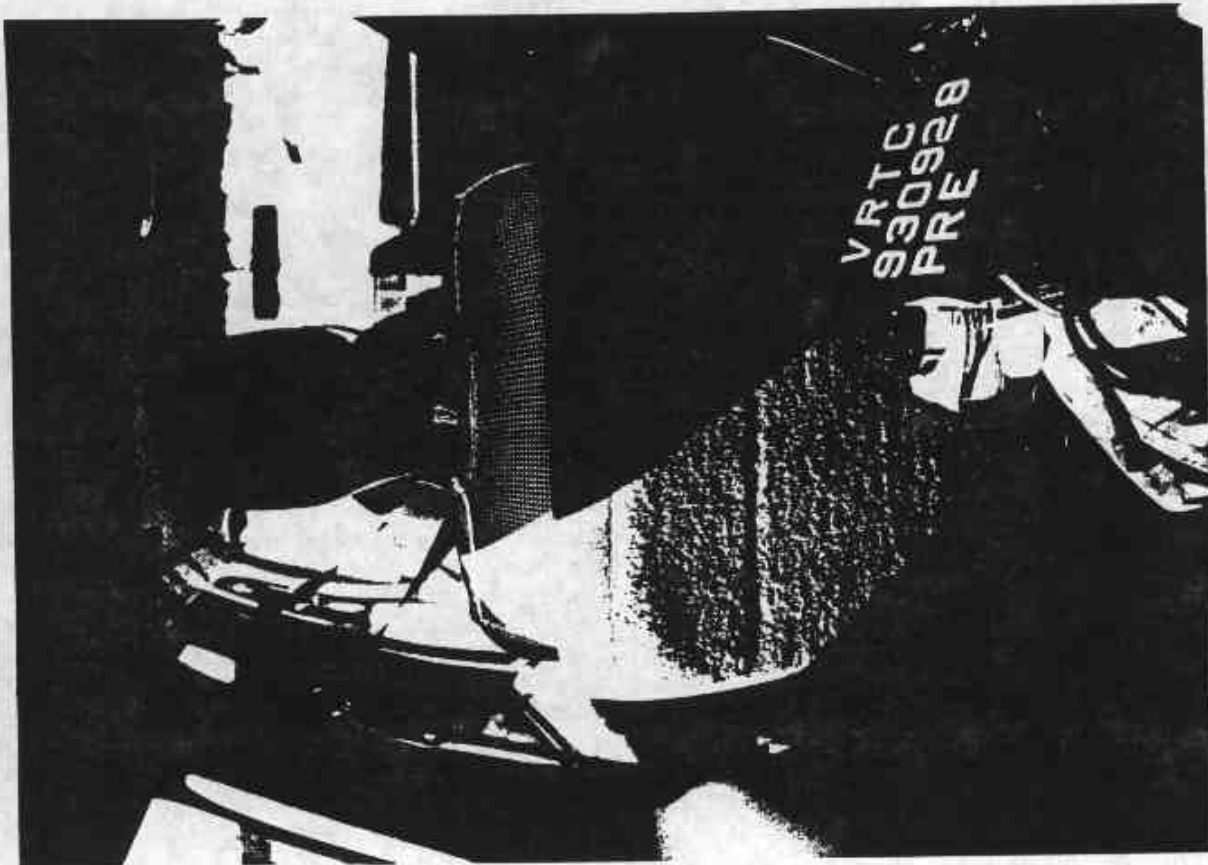


Figure A-25. PRE-TEST PASSENGER DUMMY & VEHICLE INTERIOR - VIEW 4

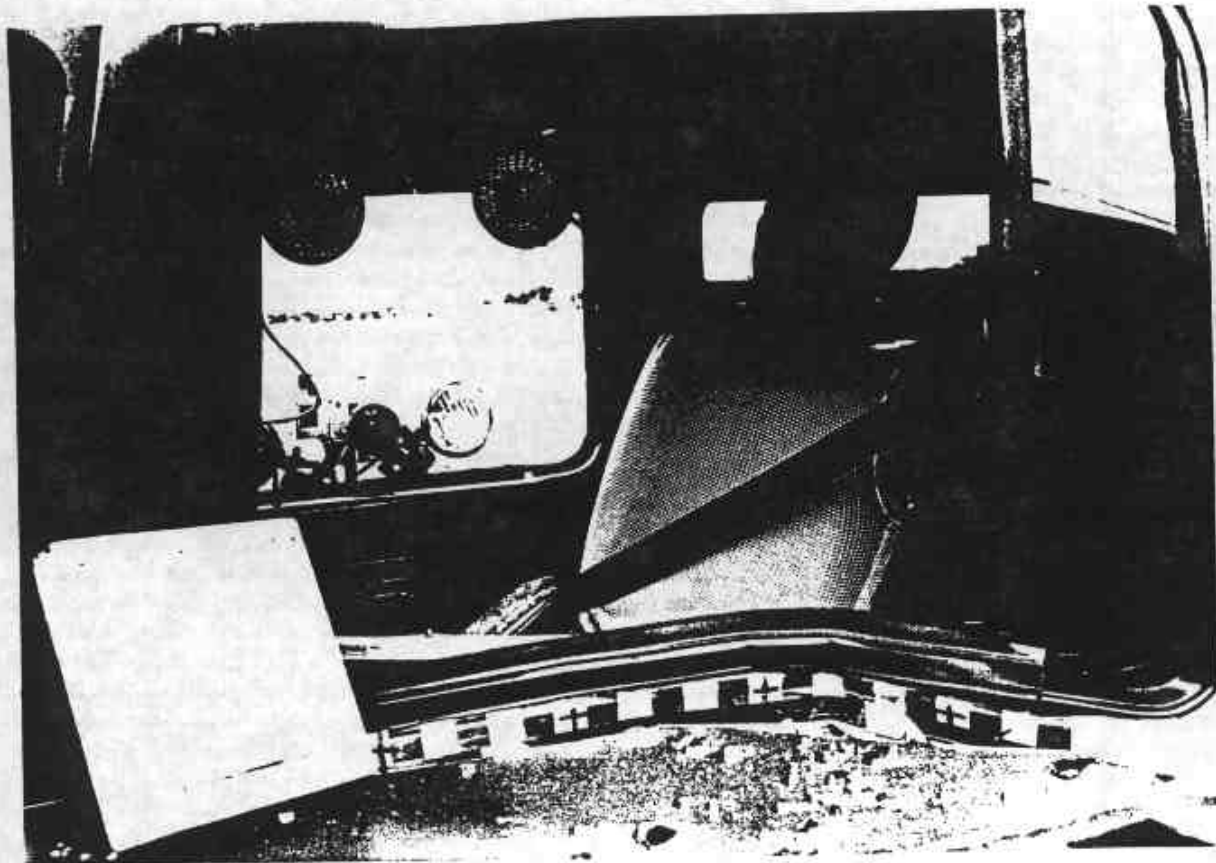


Figure A-26. POST-TEST PASSENGER DUMMY POSITION VIEW

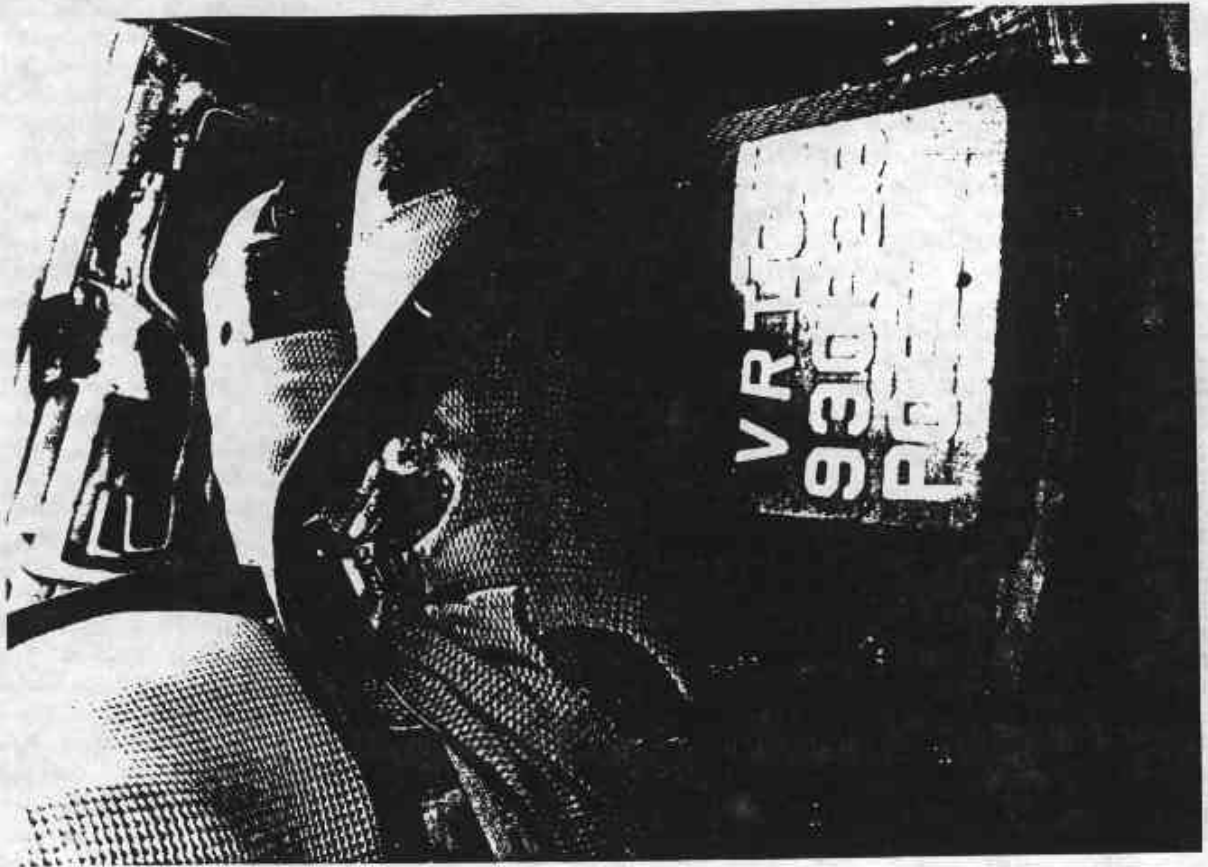


Figure A-27. POST-TEST PASSENGER DUMMY SEAT BELT - VIEW 1

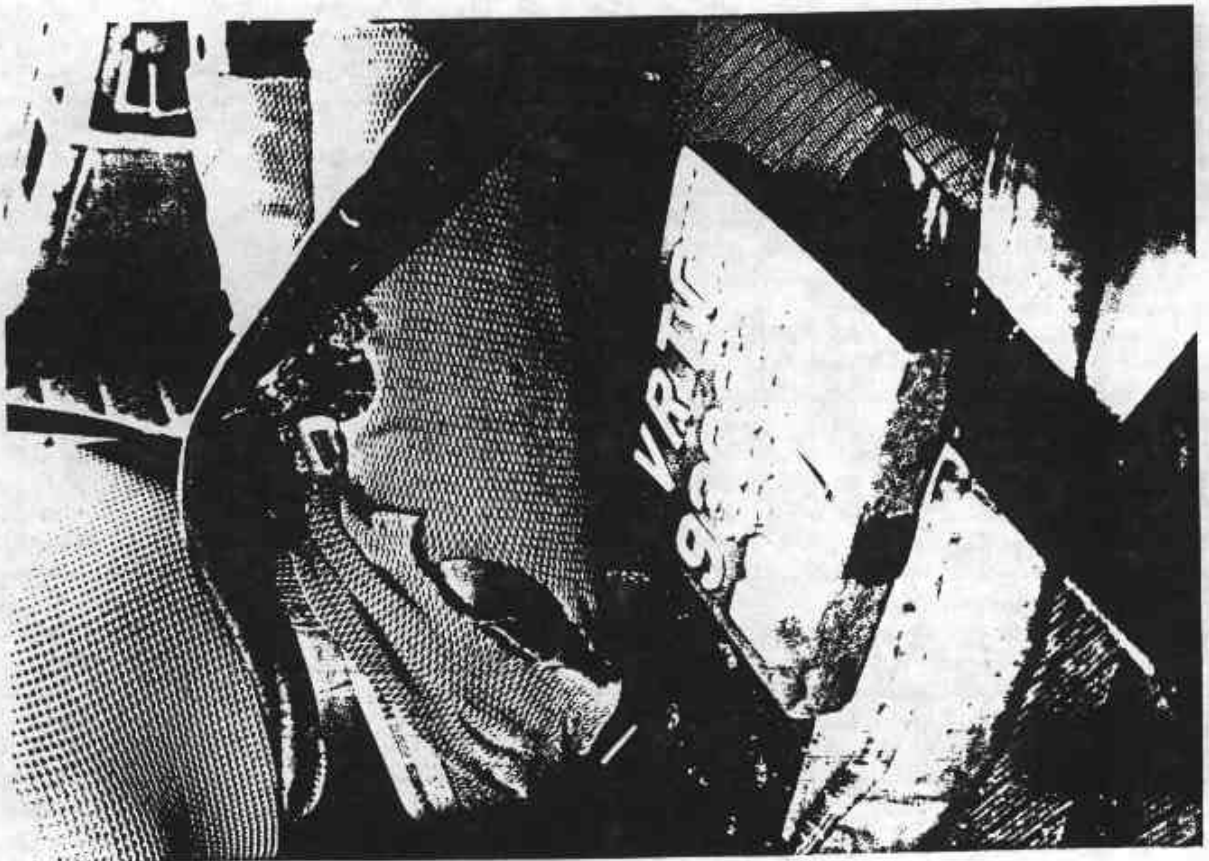


Figure A-28. POST-TEST PASSENGER DUMMY SEAT BELT - VIEW 2

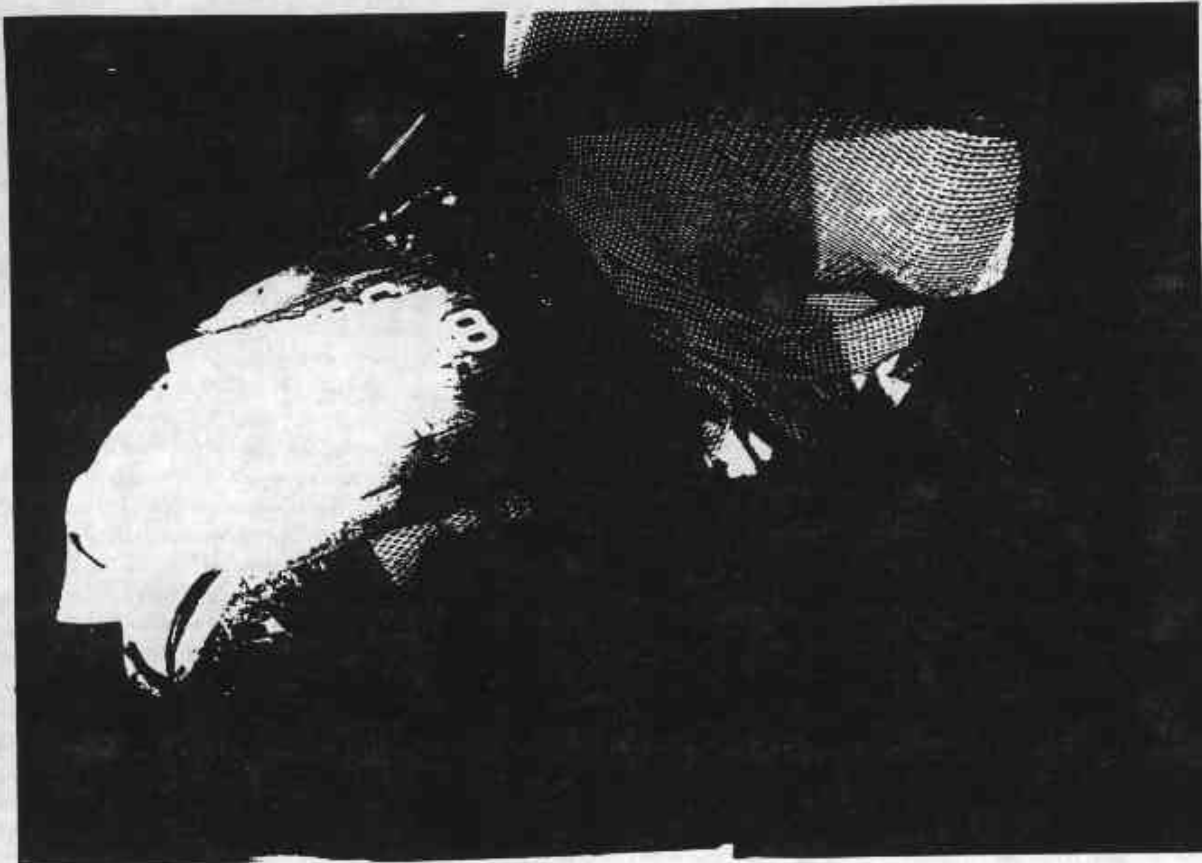


Figure A-29. POST-TEST PASSENGER DUMMY SEAT BELT - VIEW 3

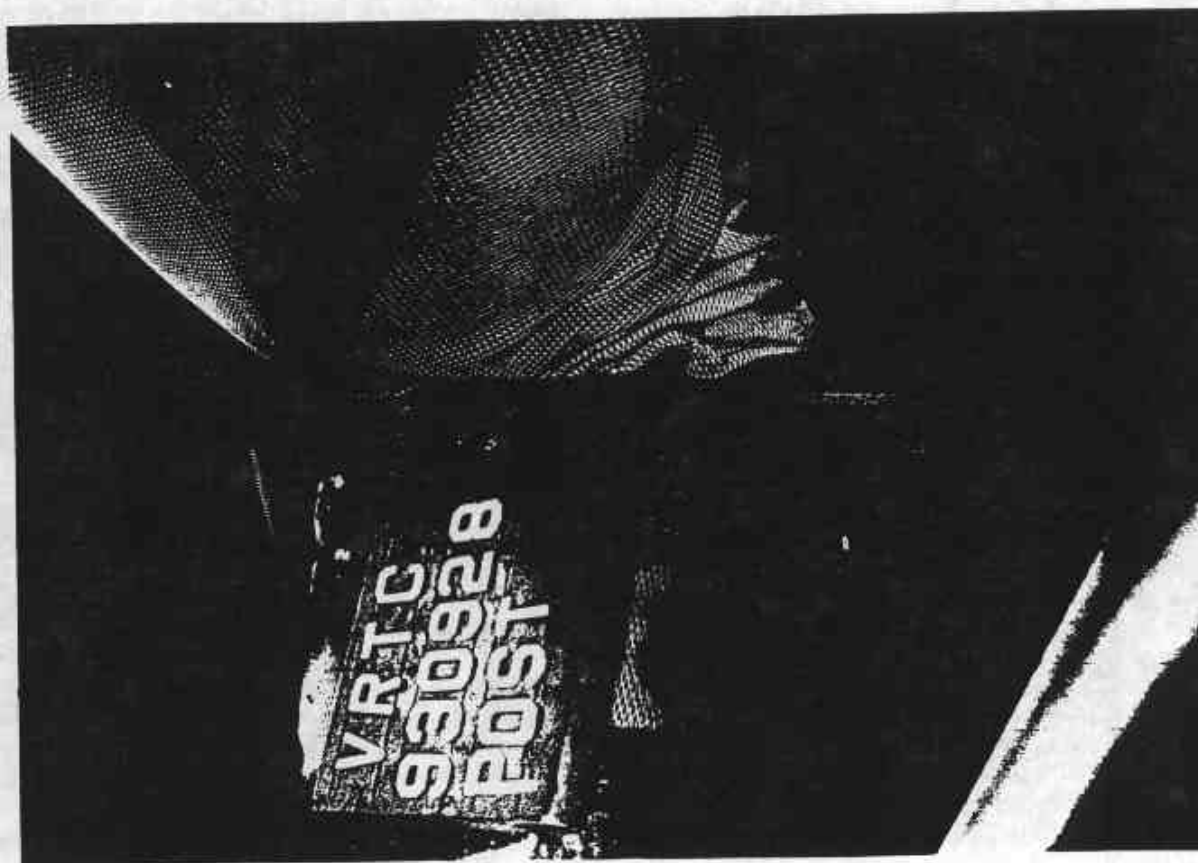


Figure A-30. POST-TEST PASSENGER DUMMY SEAT BELT - VIEW 4



Figure A-31. POST-TEST DRIVER DUMMY HEAD CONTACT VIEW



Figure A-32. POST-TEST DRIVER DUMMY CONTACT - VIEW 1



Figure A-33. POST-TEST DRIVER DUMMY CONTACT - VIEW 2



Figure A-34. POST-TEST PASSENGER DUMMY HEAD CONTACT VIEW



Figure A-35. POST-TEST PASSENGER DUMMY CONTACT - VIEW 1

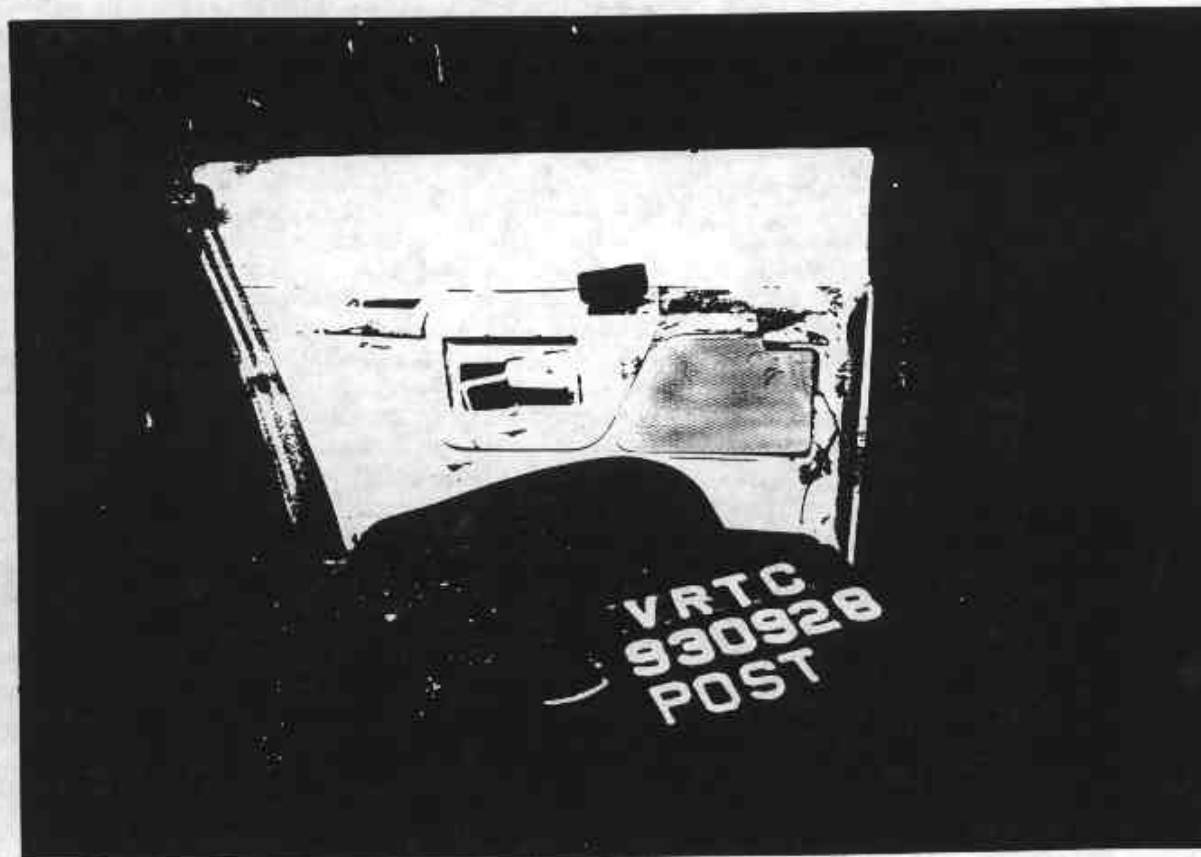


Figure A-36. POST-TEST PASSENGER DUMMY CONTACT - VIEW 2

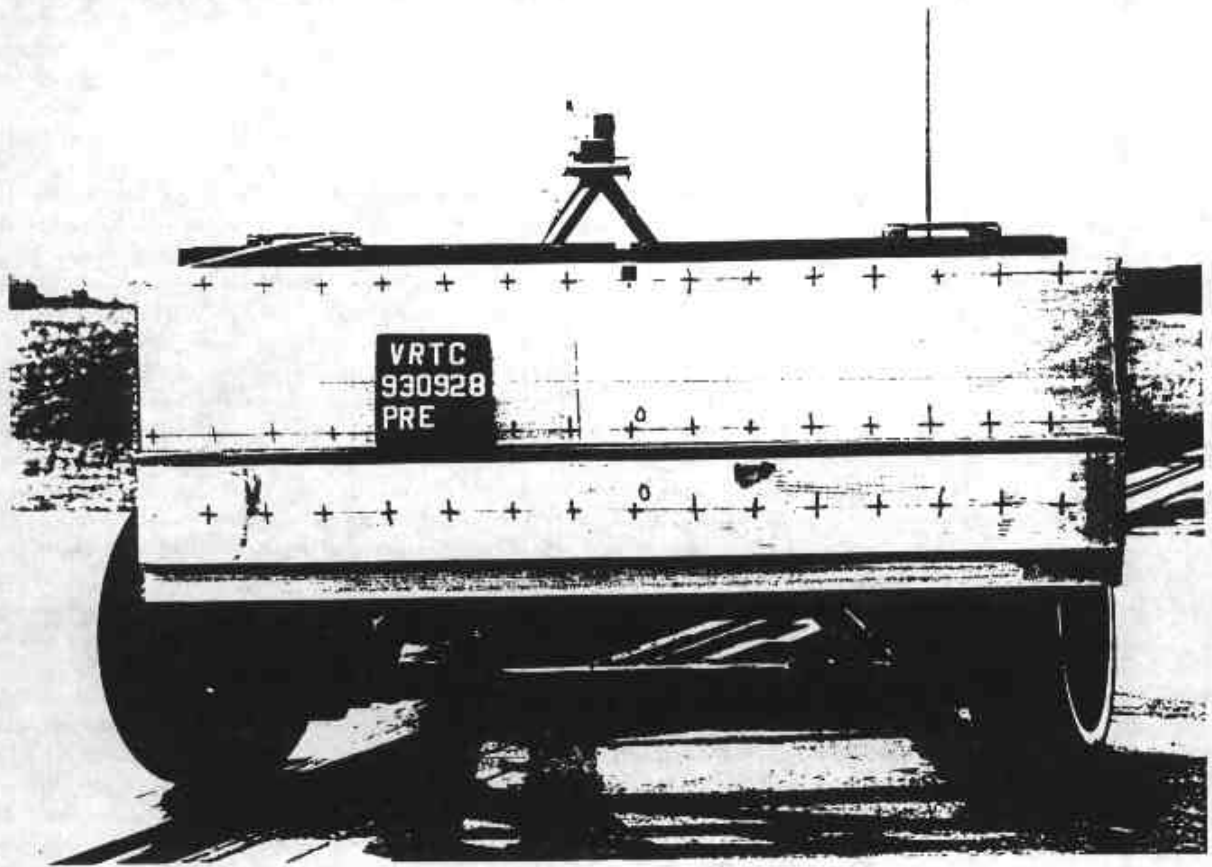


Figure A-37. PRE-TEST VEHICLE IMPACTOR FACE - FRONT VIEW

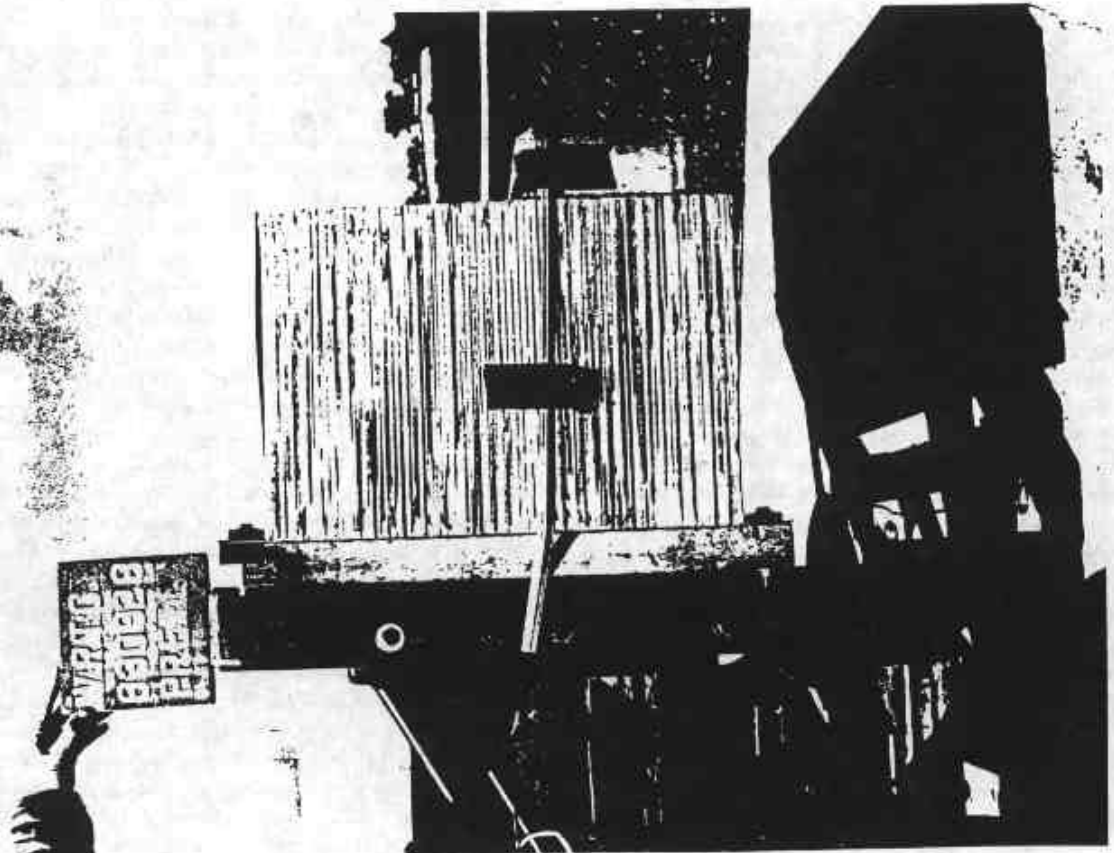


Figure A-38. PRE-TEST VEHICLE IMPACTOR FACE - RIGHT SIDE VIEW

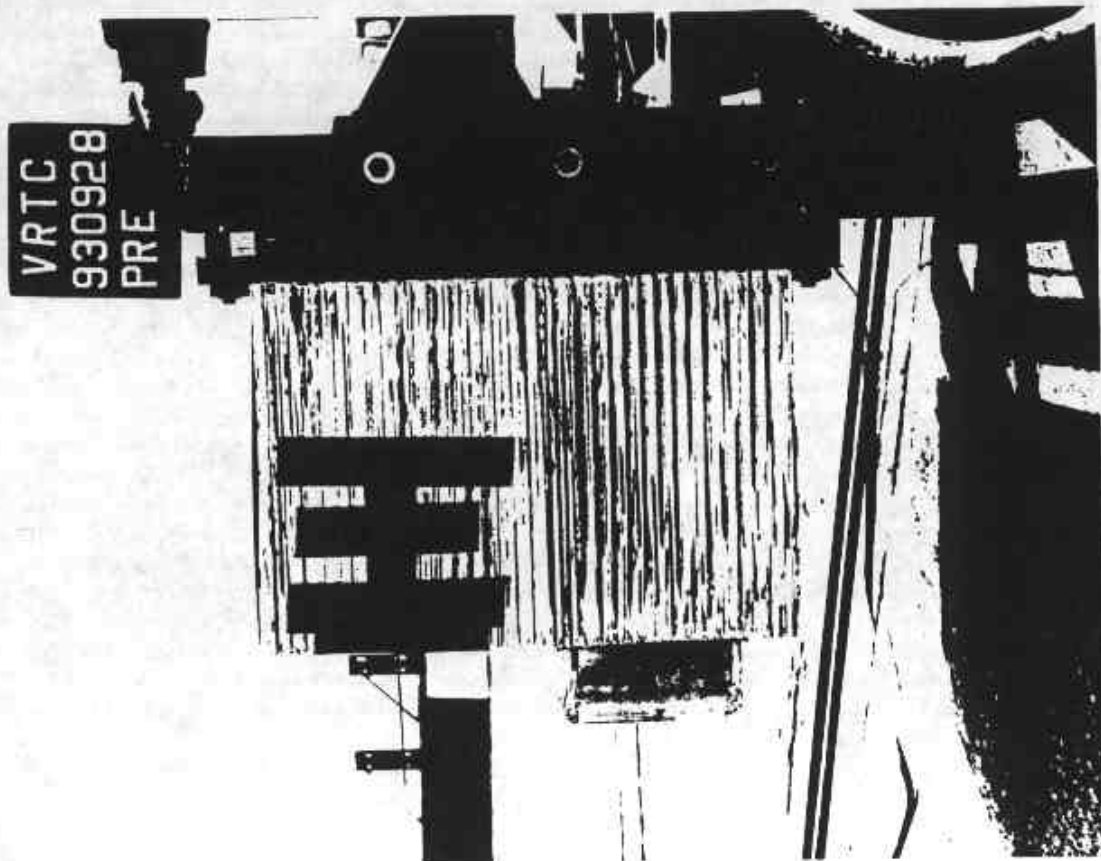


Figure A-39. PRE-TEST VEHICLE IMPACTOR FACE - LEFT SIDE VIEW

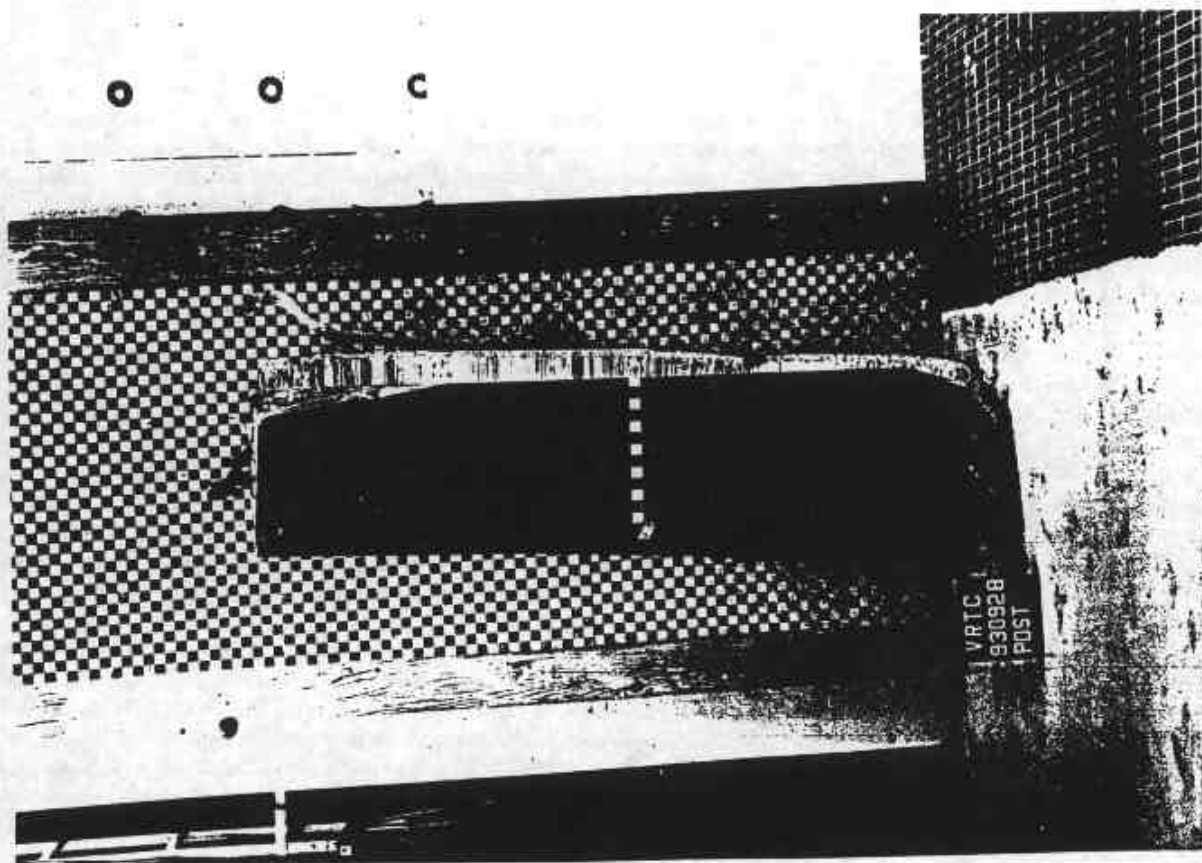


Figure A-40. POST-TEST VEHICLE IMPACTOR FACE - TOP VIEW

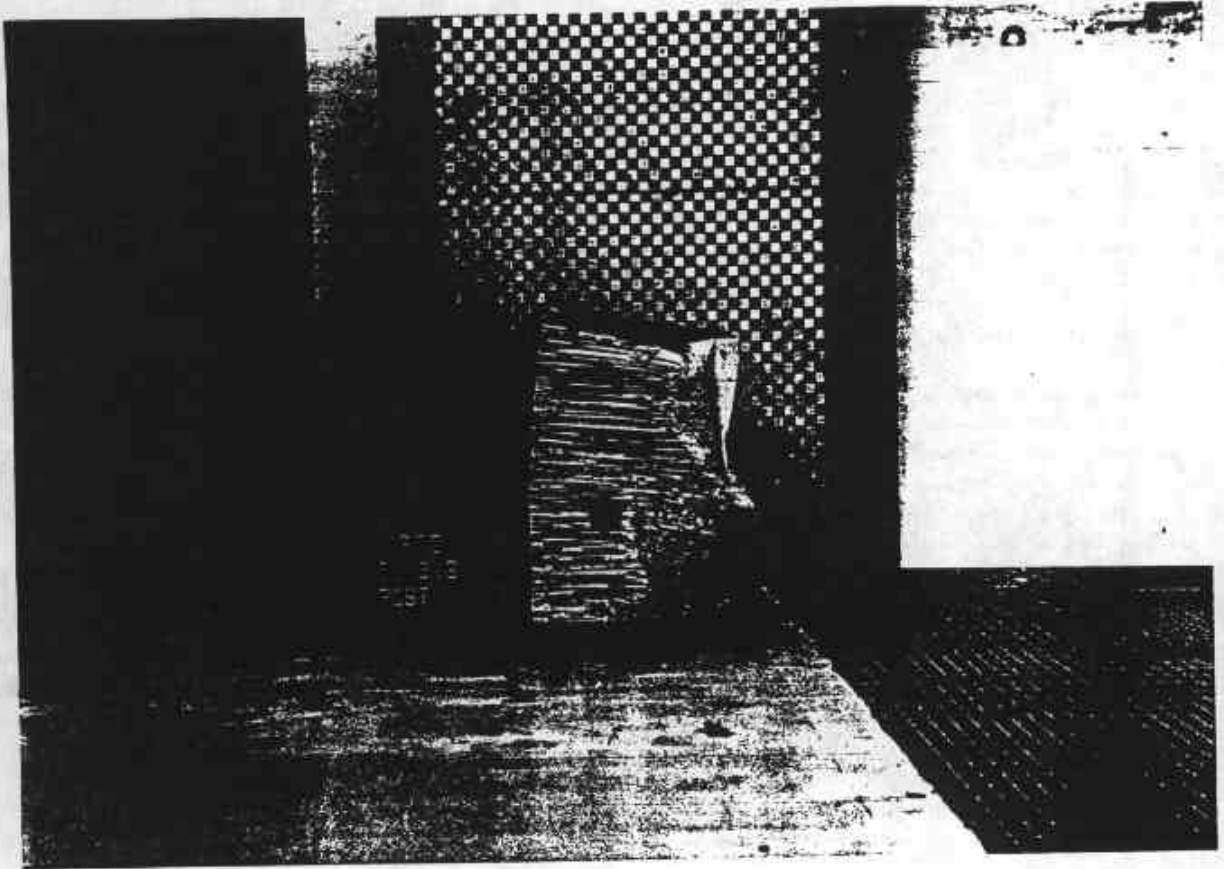


Figure A-41. POST-TEST VEHICLE IMPACTOR FACE - RIGHT SIDE VIEW

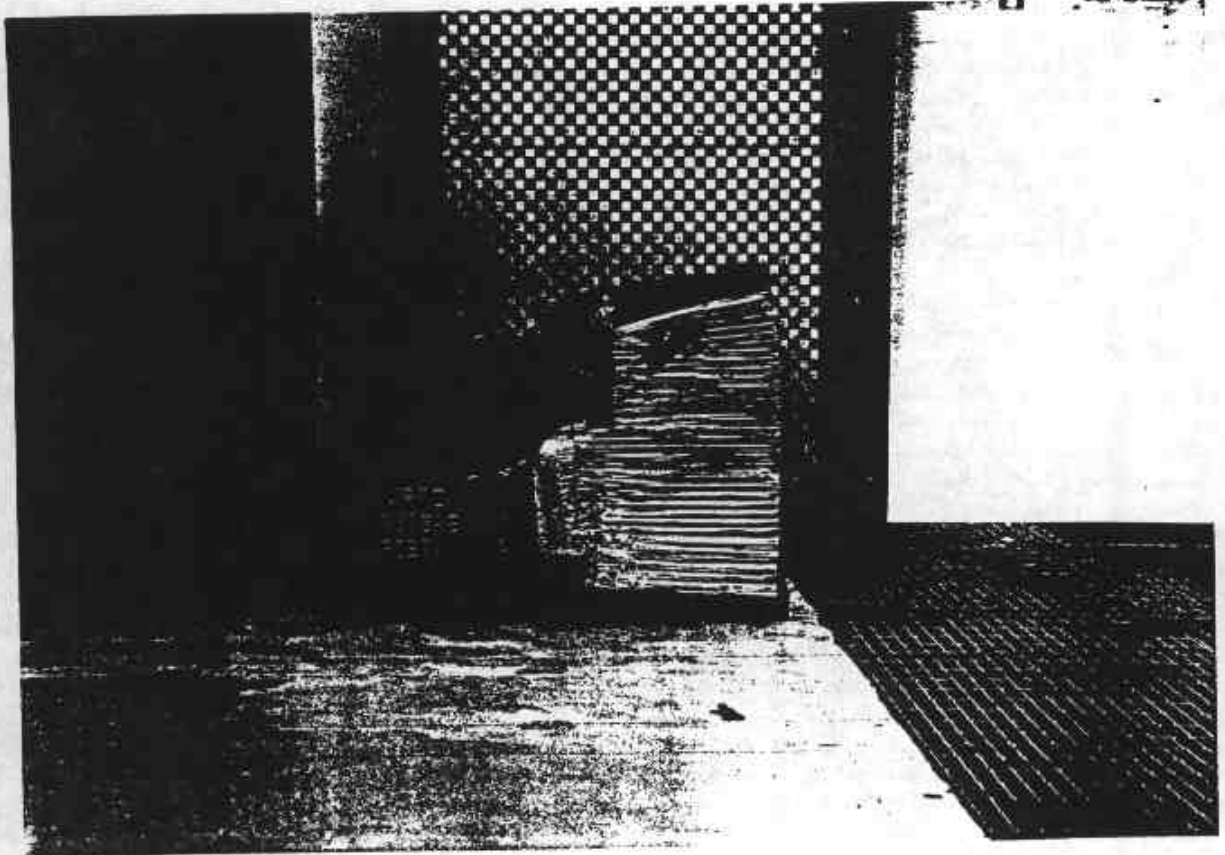


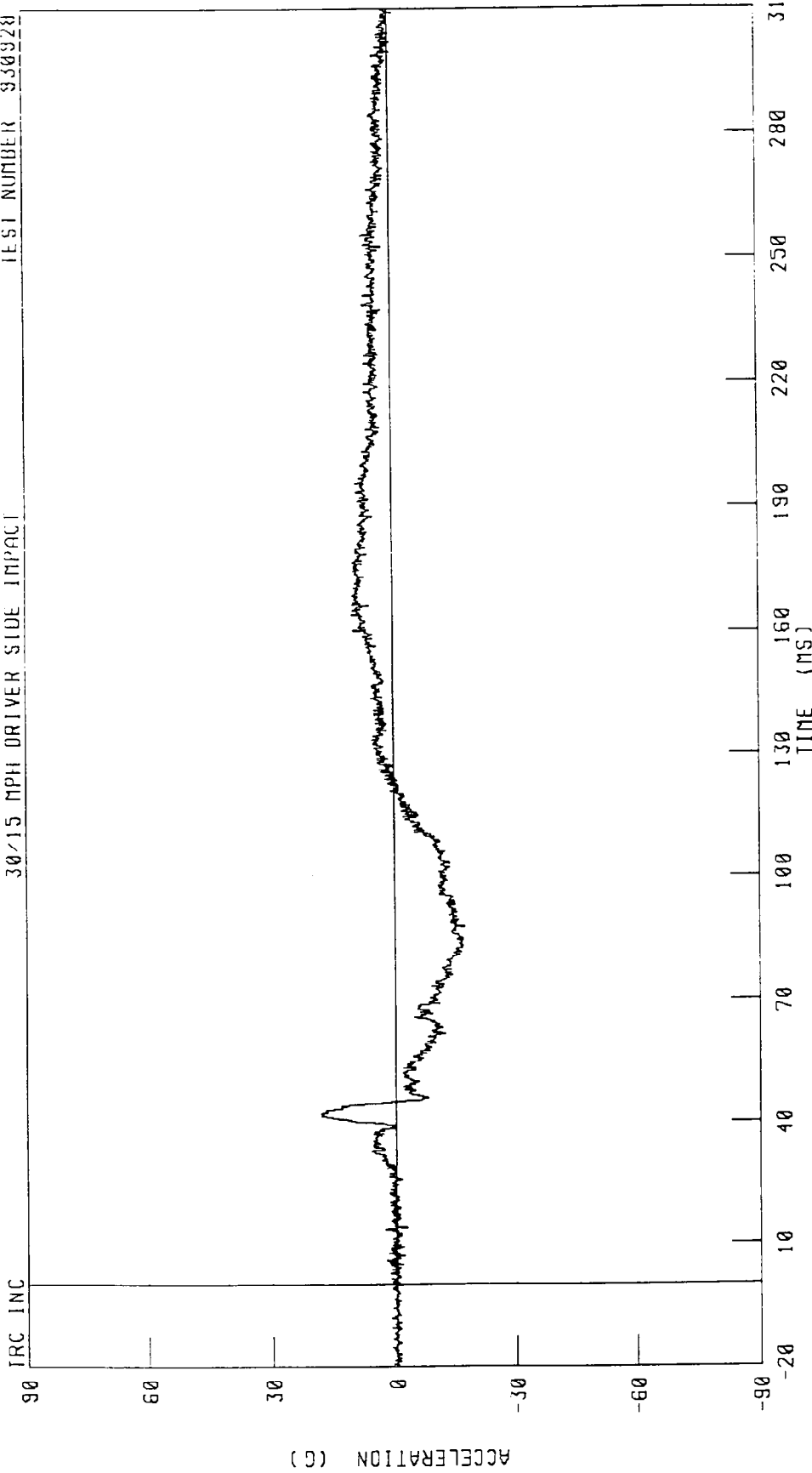
Figure A-42. POST-TEST VEHICLE IMPACTOR FACE - LEFT SIDE VIEW

APPENDIX B

DATA PLOTS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1993 FORD EXPLORER XLT
DRIVER HEAD X-AXIS ACCELERATION
30/15 MPH DRIVER SIDE IMPACT

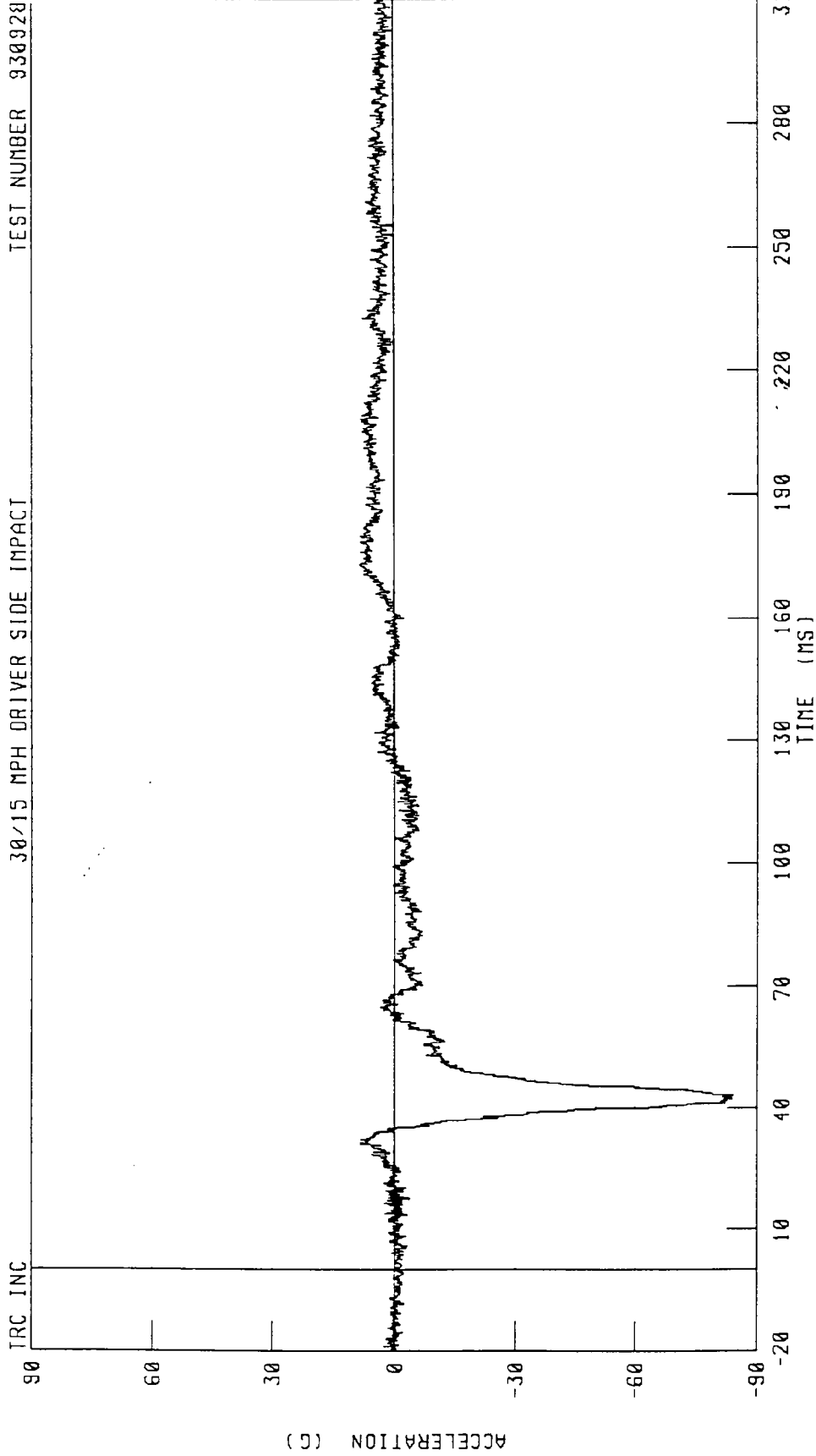
TEST NUMBER 930928



CHANNEL HEDXG1 FILTER CH CLASS 1000 PEAK DATA 18 29 G @ 42 13 MS, -17 27 G @ 87 88 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1993 FORD EXPLORER XLT
DRIVER HEAD Y-AXIS ACCELERATION
30/15 MPH DRIVER SIDE IMPACT

TEST NUMBER 930928

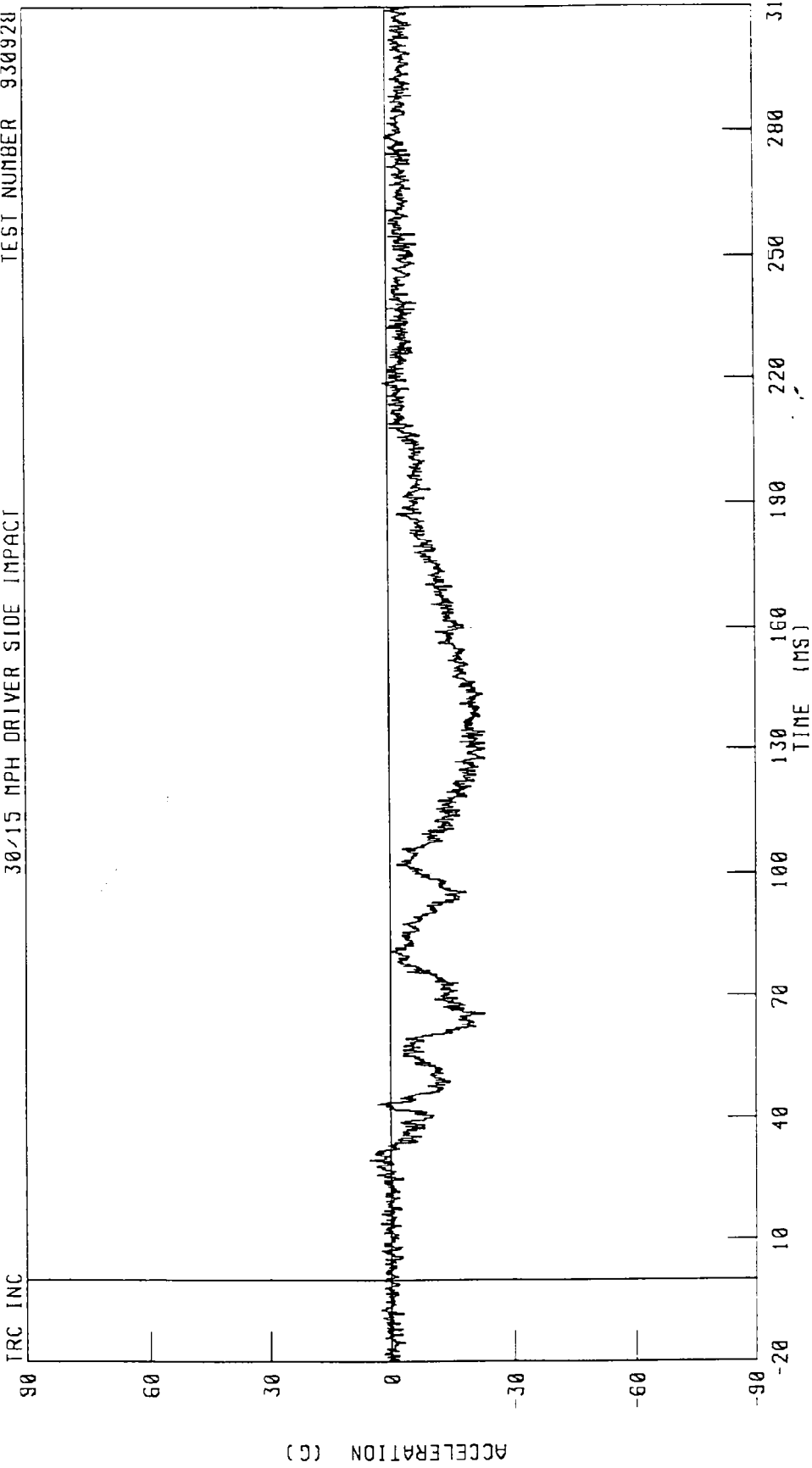


CHANNEL HEDY01 FILTER CH CLASS 1000

PEAK DATA 8 66 G @ 172 75 MS, -83 96 G @ 43 13 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1993 FORD EXPLORER XLT
DRIVER HEAD Z-AXIS ACCELERATION
30/15 MPH DRIVER SIDE IMPACT

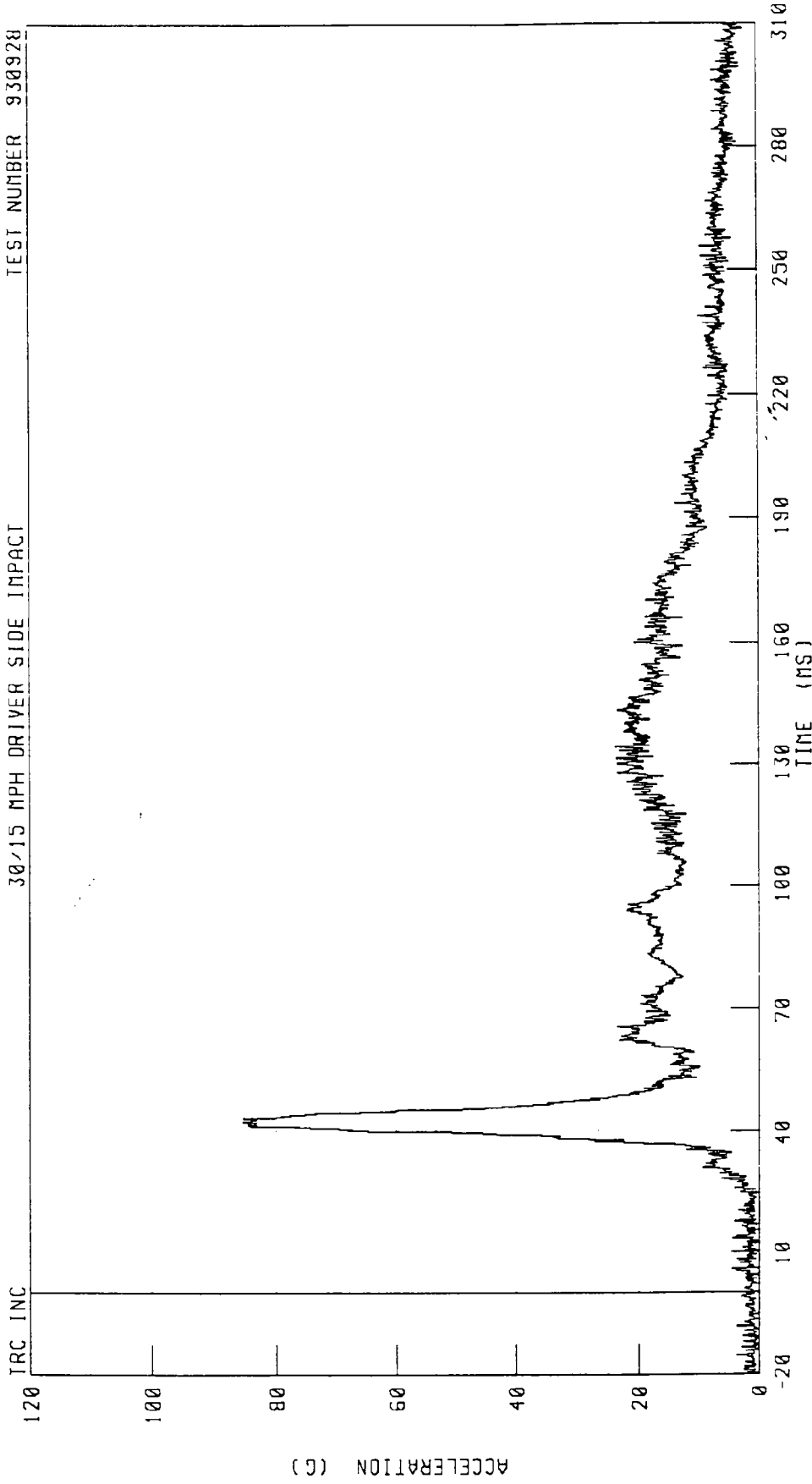
TEST NUMBER 930928



CHANNEL HEADZG1 FILTER CH CLASS 1000 PEAK DATA 5 37 G @ 29 63 MS, -23 19 G @ 65 63 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1993 FORD EXPLORER XI I
DRIVER HEAD RESULTANT ACCELERATION
30/15 MPH DRIVER SIDE IMPACT

TEST NUMBER 930928

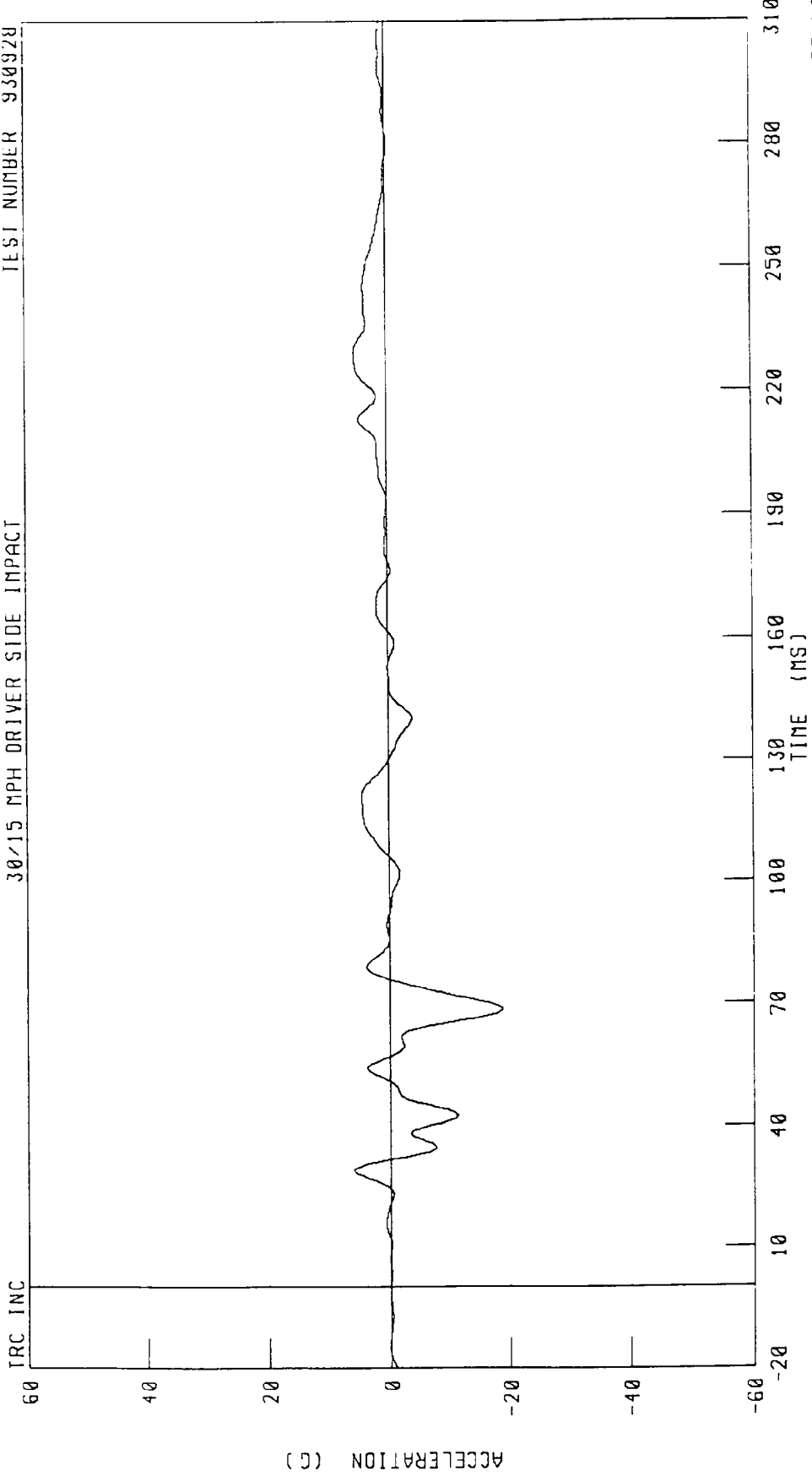


CHANNEL HEDRG1 FILTER CH CLASS 1000

PEAK DATA 85 48 G @ 42 38 MS, 0 16 G @ -5 50 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1993 FORD EXPLORER XLT
DRIVER UPPER SPINE X-AXIS ACCELERATION
30/15 MPH DRIVER SIDE IMPACT

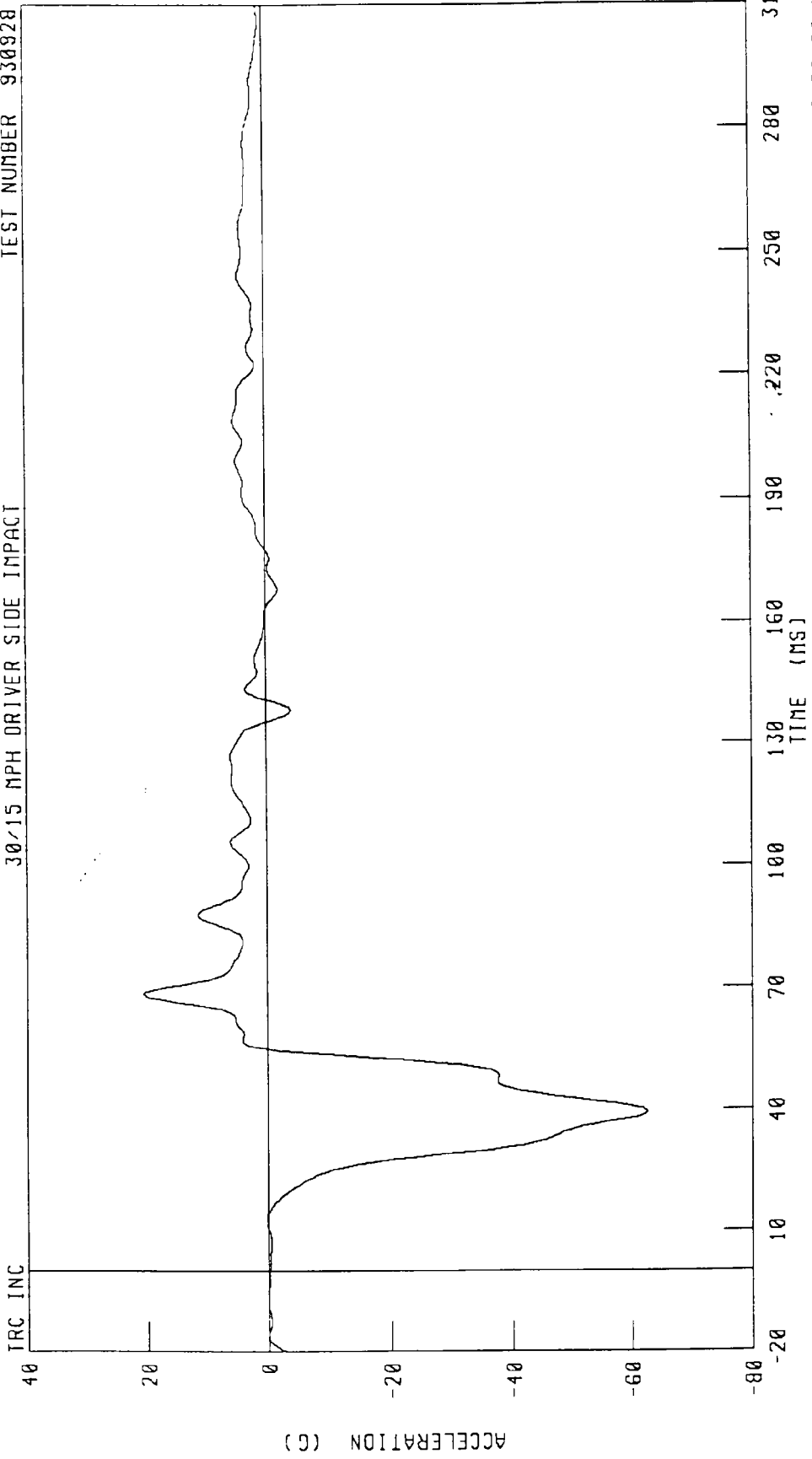
TEST NUMBER 930928



CHANNEL T01XG1 FILTER FIR 100 PEAK DATA 6 19 G @ 29 38 MS, -18 84 G @ 68 75 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1993 FORD EXPLORER XLT
UPPER SPINE X-AXIS ACCELERATION
30/15 MPH DRIVER SIDE IMPACT

TEST NUMBER 930928

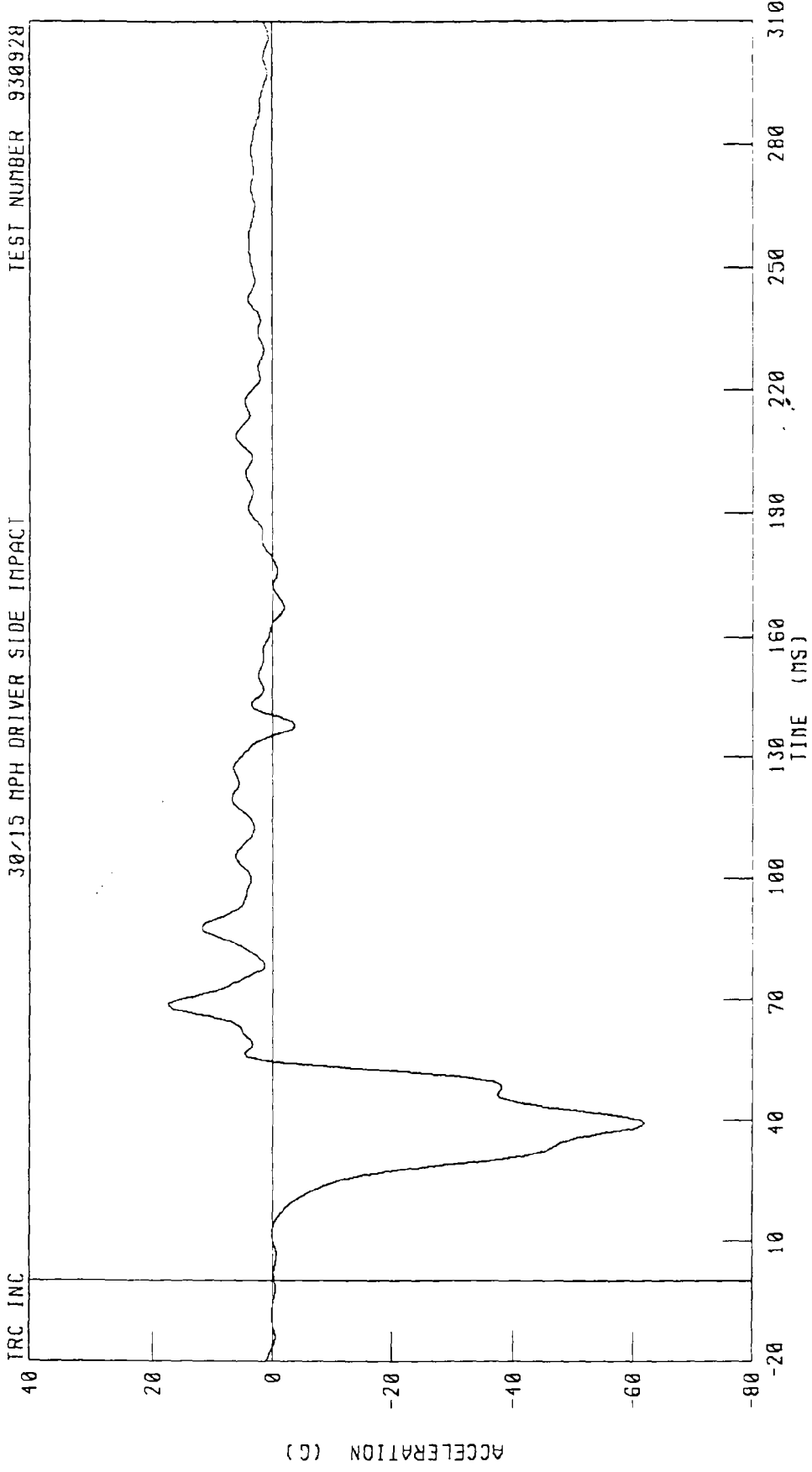


CHANNEL T01YG1 FILTER FIR 100 PEAK DATA 20 61 G @ 68 13 MS, -62 74 G @ 39 38 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1993 FORD EXPLORER XLT
DRIVER UPPER SPINE Y-AXIS REDUNDANT ACCELERATION
30/15 MPH DRIVER SIDE IMPACT

TEST NUMBER 930928

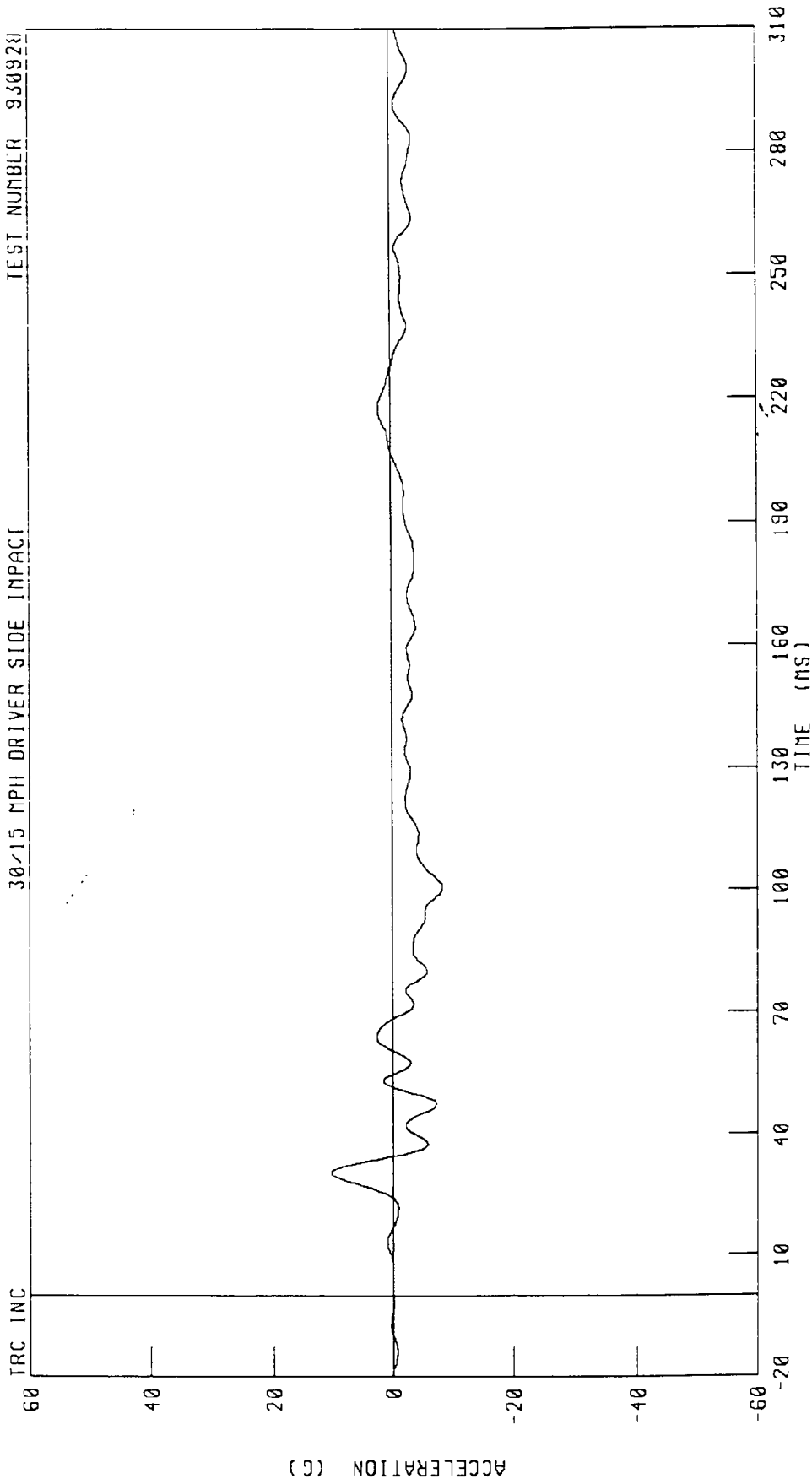
IRC INC



CHANNEL T01YCA FILTER FIR 100 PEAK DATA: 17 50 G @ 68 75 MS, -61 82 G @ 39 38 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1993 FORD EXPLORER XI T
DRIVER UPPER SPINE Z-AXIS ACCELERATION
30/15 MPH DRIVER SIDE IMPACT

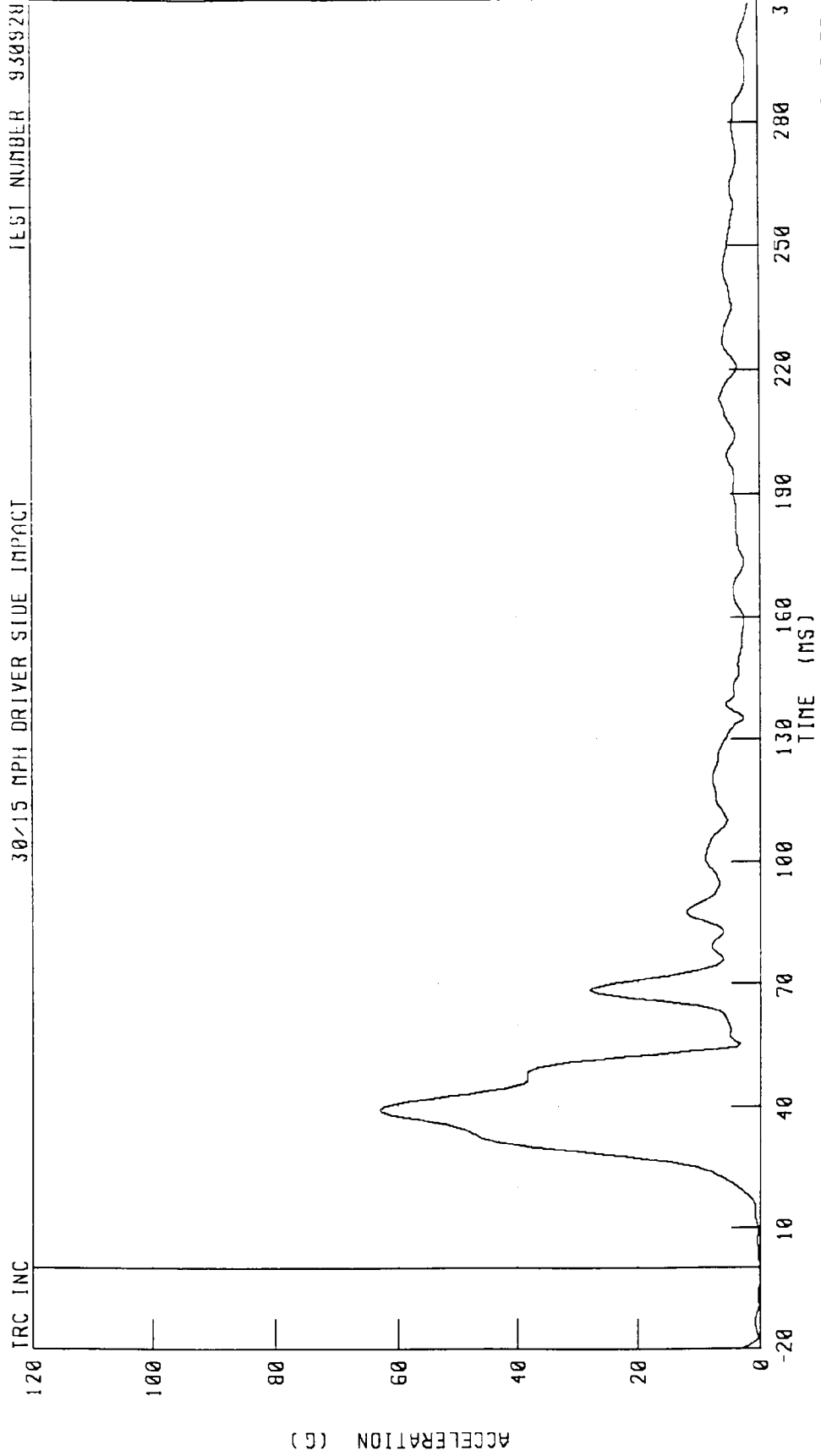
TEST NUMBER 930928



CHANNEL T01ZG1 FILTER FIR 100

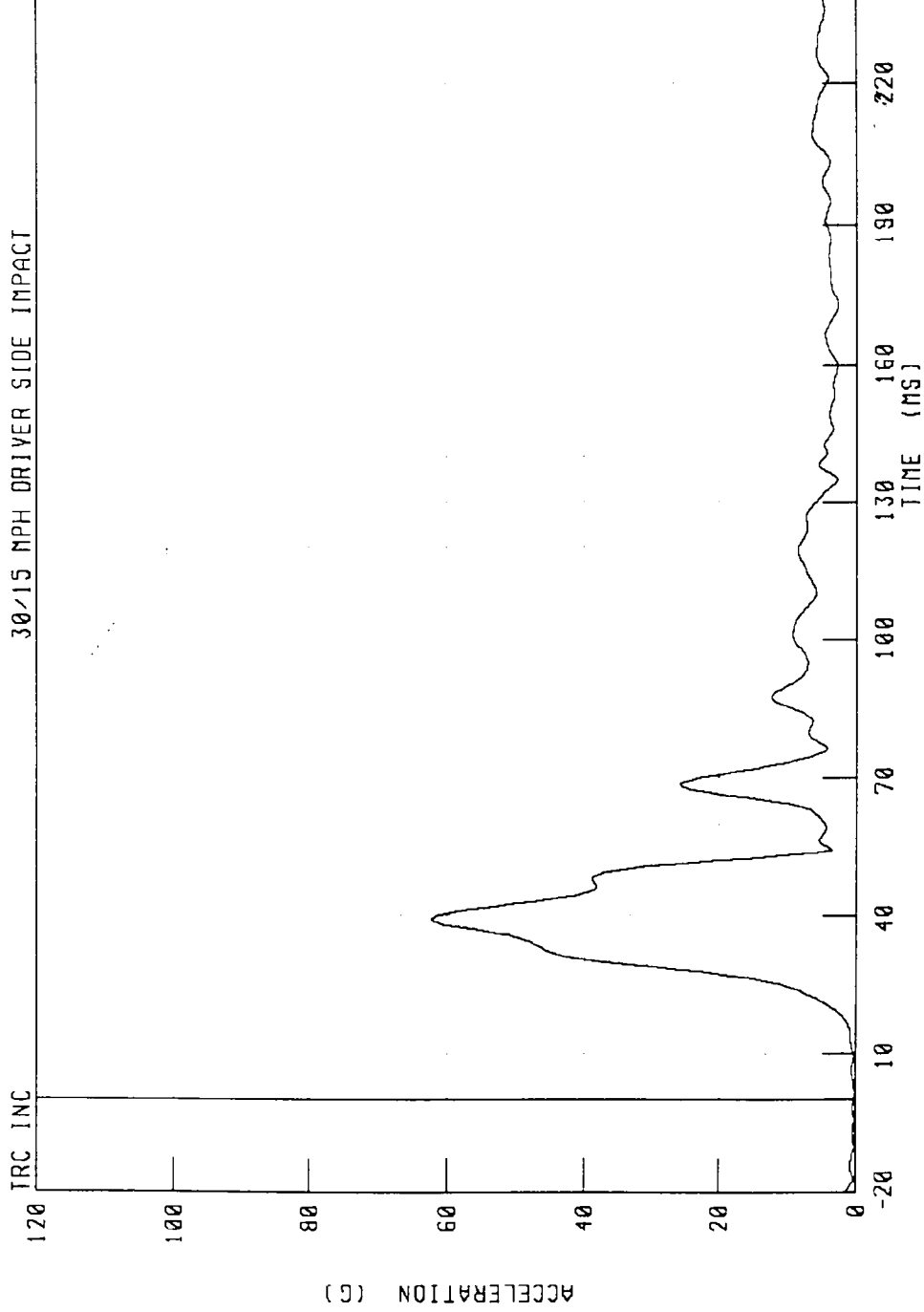
PEAK DATA 10 36 G @ 30 00 MS, -8 35 G @ 100 63 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1993 FORD EXPLORER XLT
DRIVER UPPER SPINE RESULTANT ACCELERATION
30/15 MPH DRIVER SIDE IMPACT



MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1993 FORD EXPLORER XLT
DRIVER UPPER SPINE RESULTANT REDUNDANT ACCELERATION
30/15 MPH DRIVER SIDE IMPACT

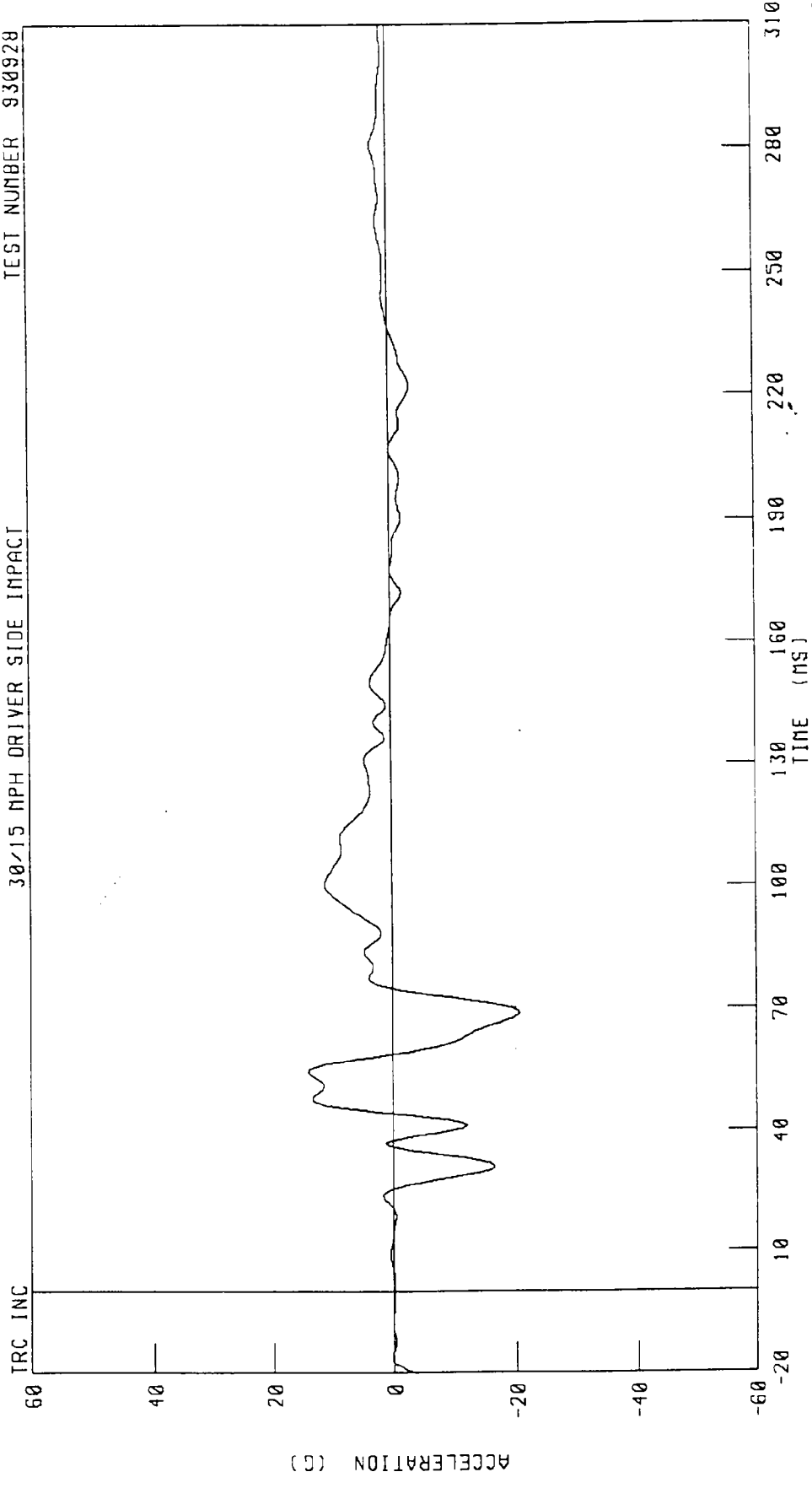
TEST NUMBER 930928



CHANNEL: T01RGA FILTER: FIR 100 PEAK DATA 62 17 G @ 39 38 MS, 0 24 G @ -10 63 MS

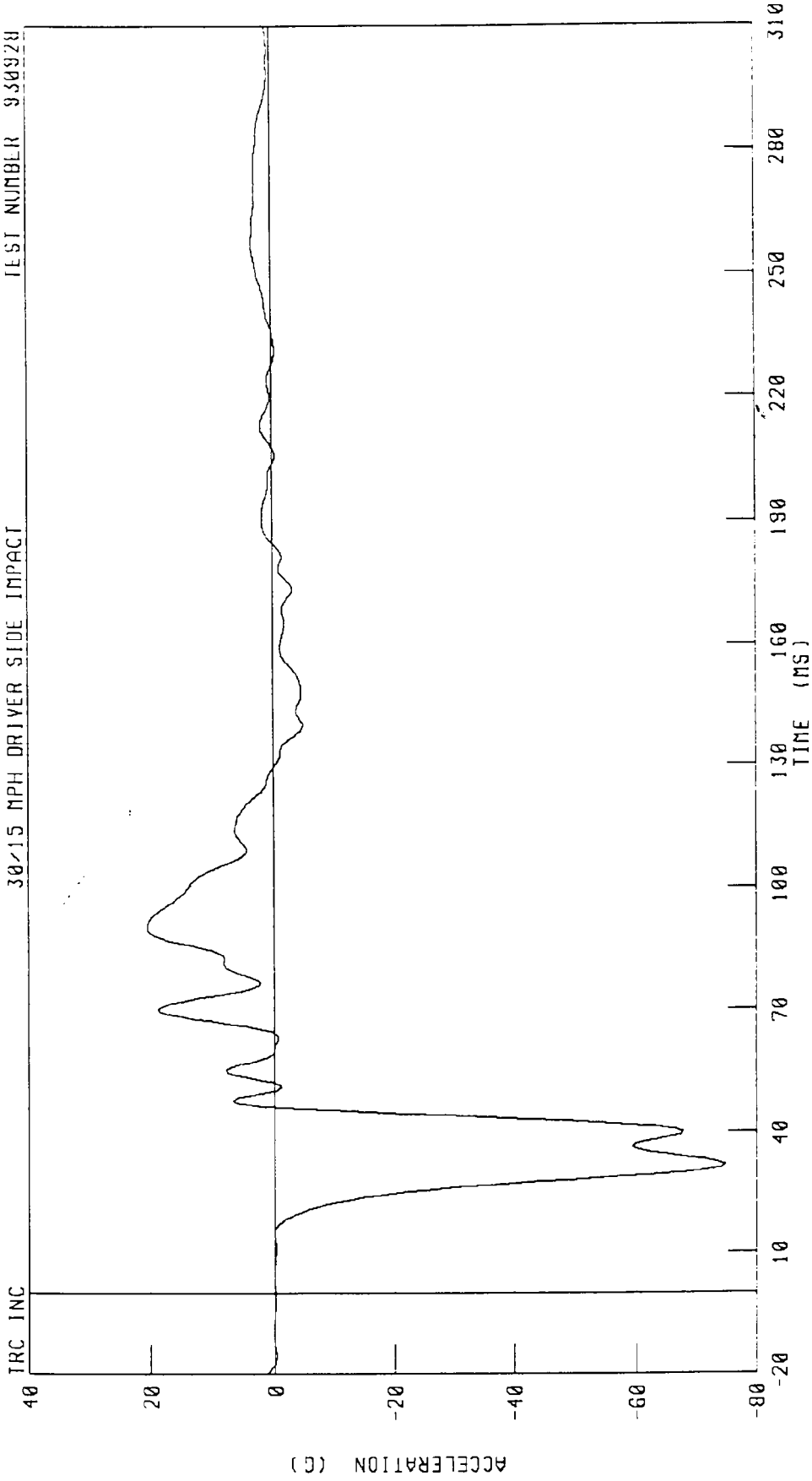
MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1993 FORD EXPLORER XLT
DRIVER LOWER SPINE X-AXIS ACCELERATION
30/15 MPH DRIVER SIDE IMPACT

TEST NUMBER 930928



MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1993 FORD EXPLORER XLT
DRIVER LOWER SPINE Y-AXIS ACCELERATION
30/15 MPH DRIVER SIDE IMPACT

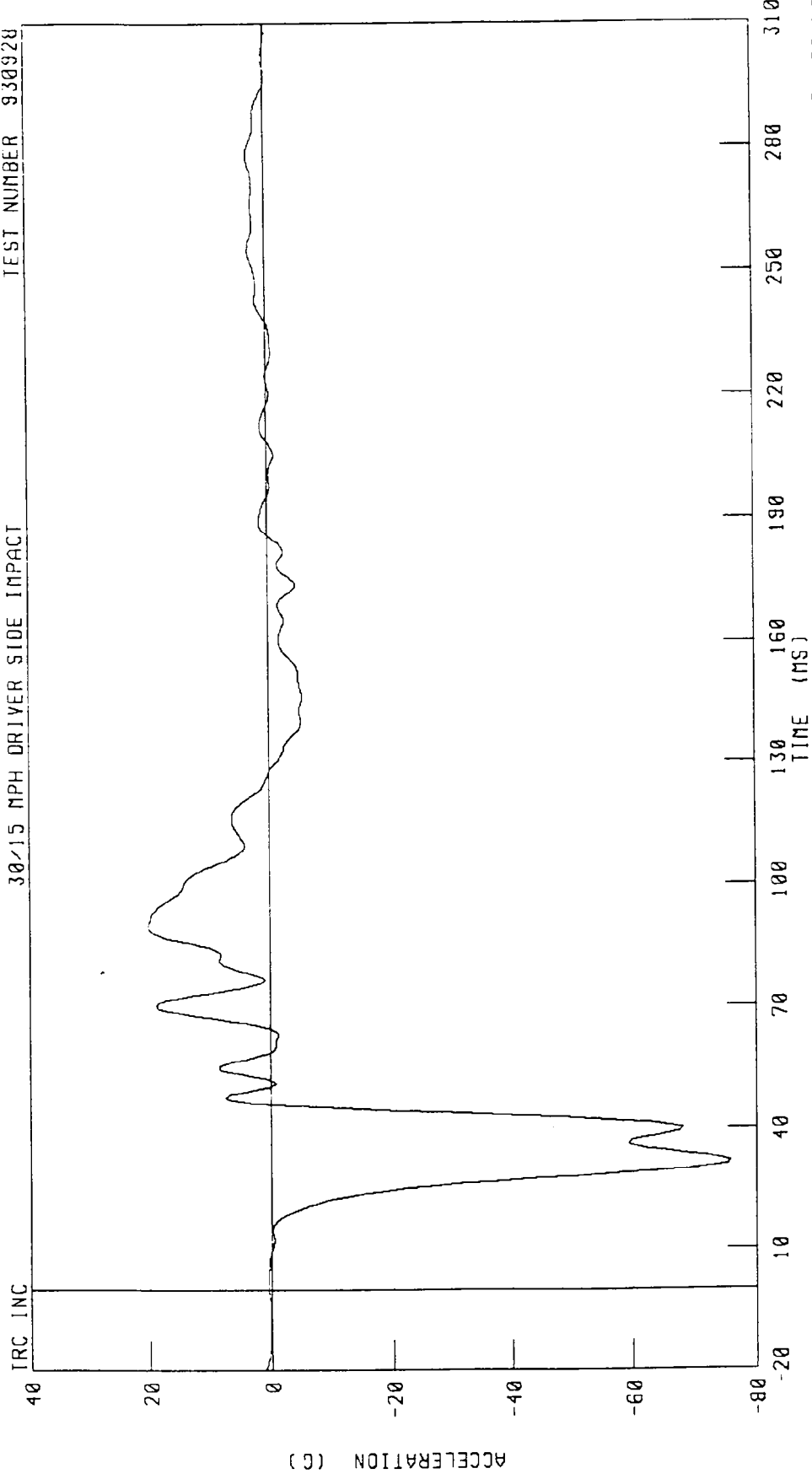
TEST NUMBER 930928



CHANNEL T12YGI FILTER FIR 100
PEAK DATA 20 36 G @ 90 00 MS, -74 62 G @ 31 88 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1993 FORD EXPLORER XLT
DRIVER LOWER SPINE Y-AXIS REDUNDANT ACCELERATION
30/15 MPH DRIVER SIDE IMPACT

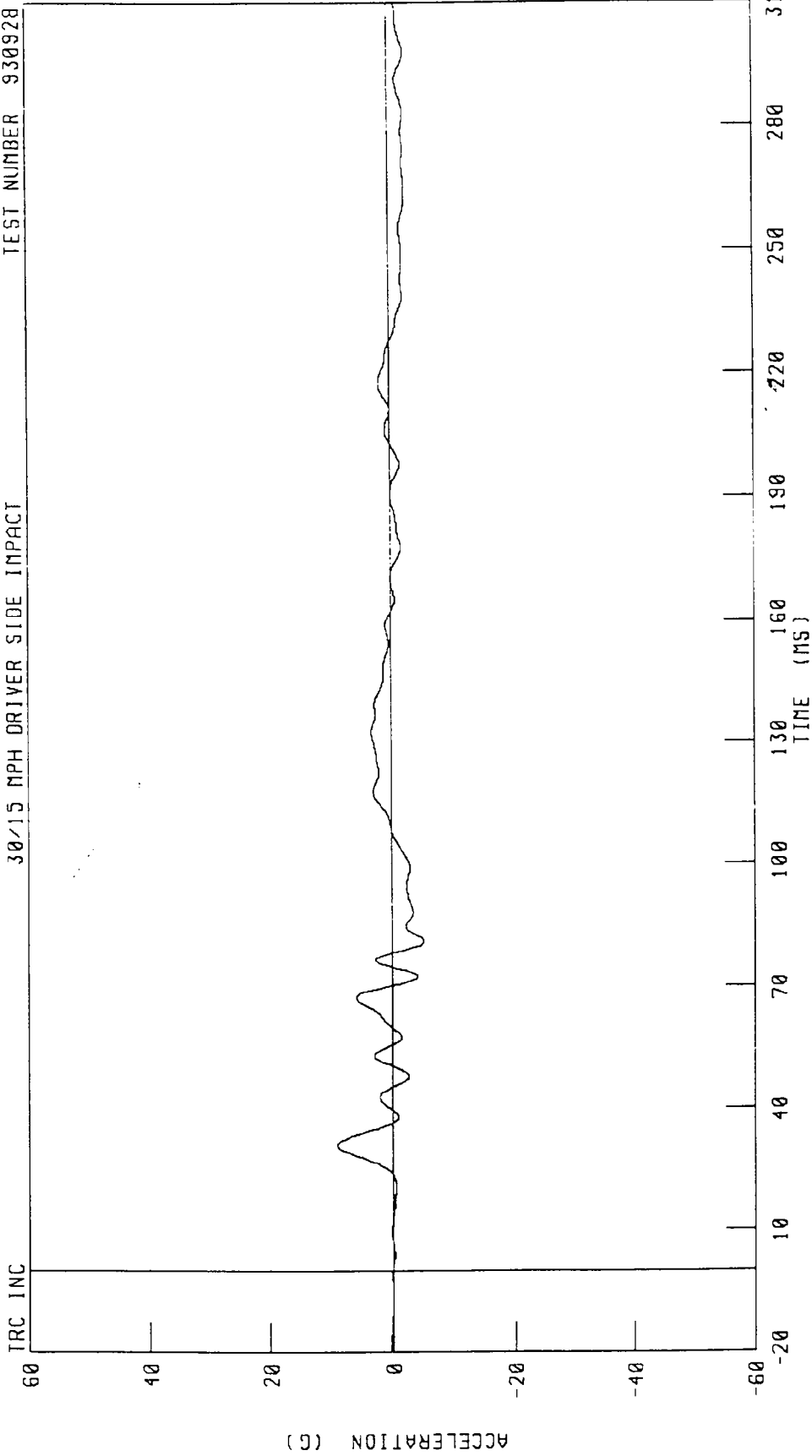
TEST NUMBER 930928



CHANNEL T12YGA FILTER FIR 100 PEAK DATA 20 03 G @ 89 38 MS, -75 57 G @ 31 88 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1993 FORD EXPLORER XLT
DRIVER LOWER SPINE Z-AXIS ACCELERATION
30/15 MPH DRIVER SIDE IMPACT

TRC INC TEST NUMBER 930928

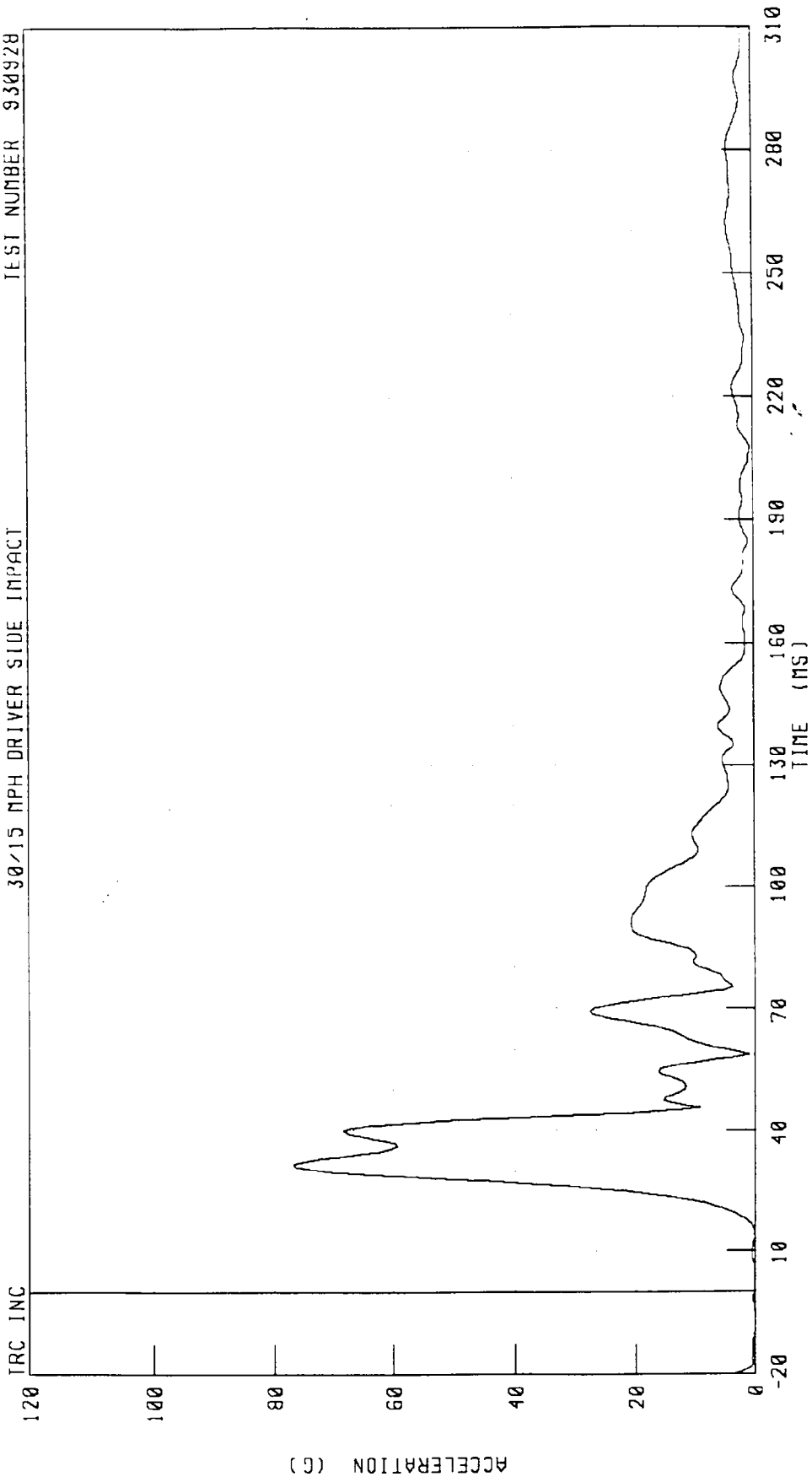


CHANNEL T12ZG1 FILTER FIR 100

PEAK DATA 8.96 G @ 30.62 MS, -5.15 G @ 81.25 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1993 FORD EXPLORER XLT
DRIVER LOWER SPINE RESULTANT ACCELERATION
30/15 MPH DRIVER SIDE IMPACT

TEST NUMBER 930928

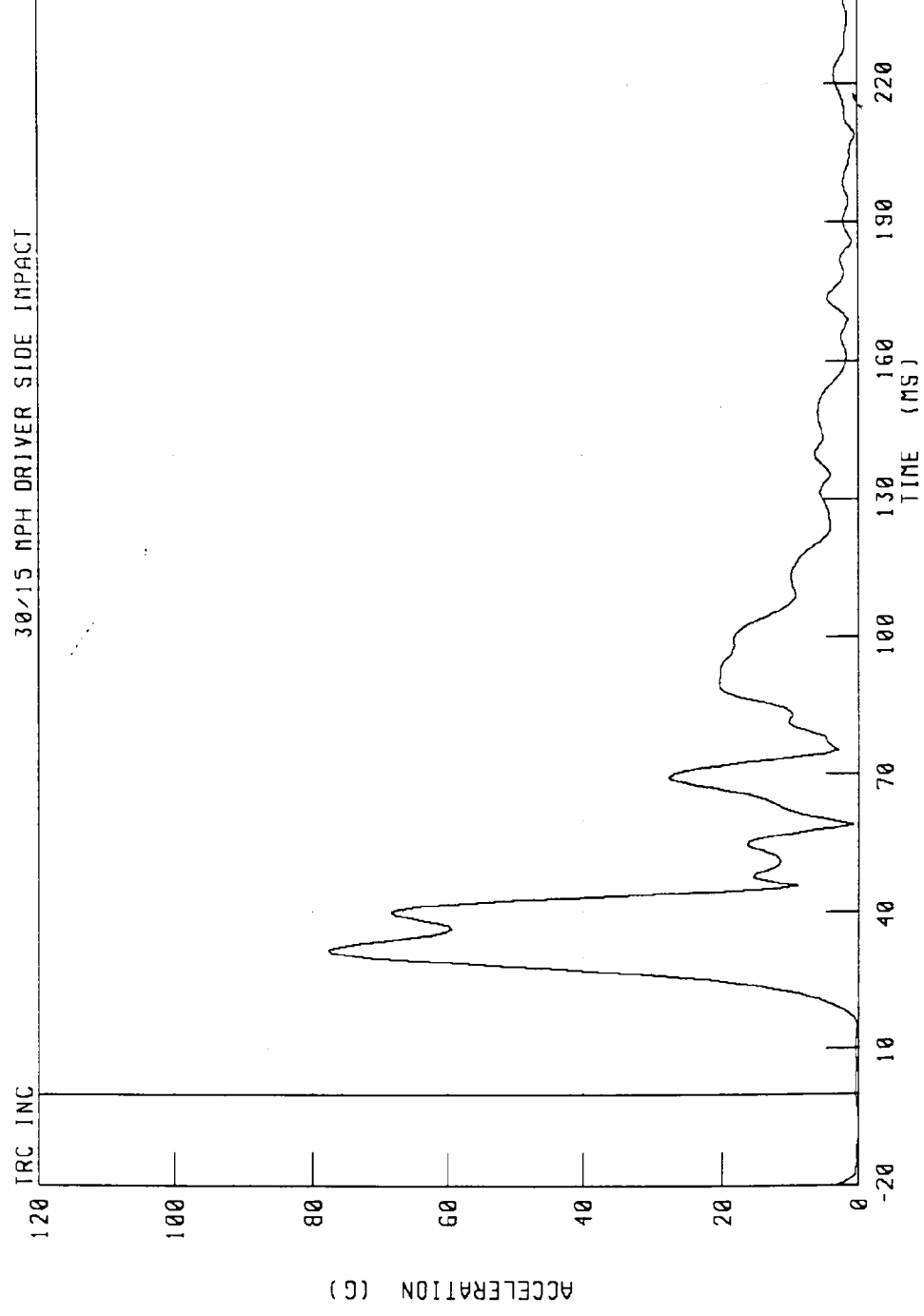


CHANNEL T12RG1 FILTER FIR 100

PEAK DATA 76.72 G @ 31.88 MS, 0.03 G @ -6.25 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1993 FORD EXPLORER XLT
DRIVER LOWER SPINE RESULTANT REDUNDANT ACCELERATION
30/15 MPH DRIVER SIDE IMPACT

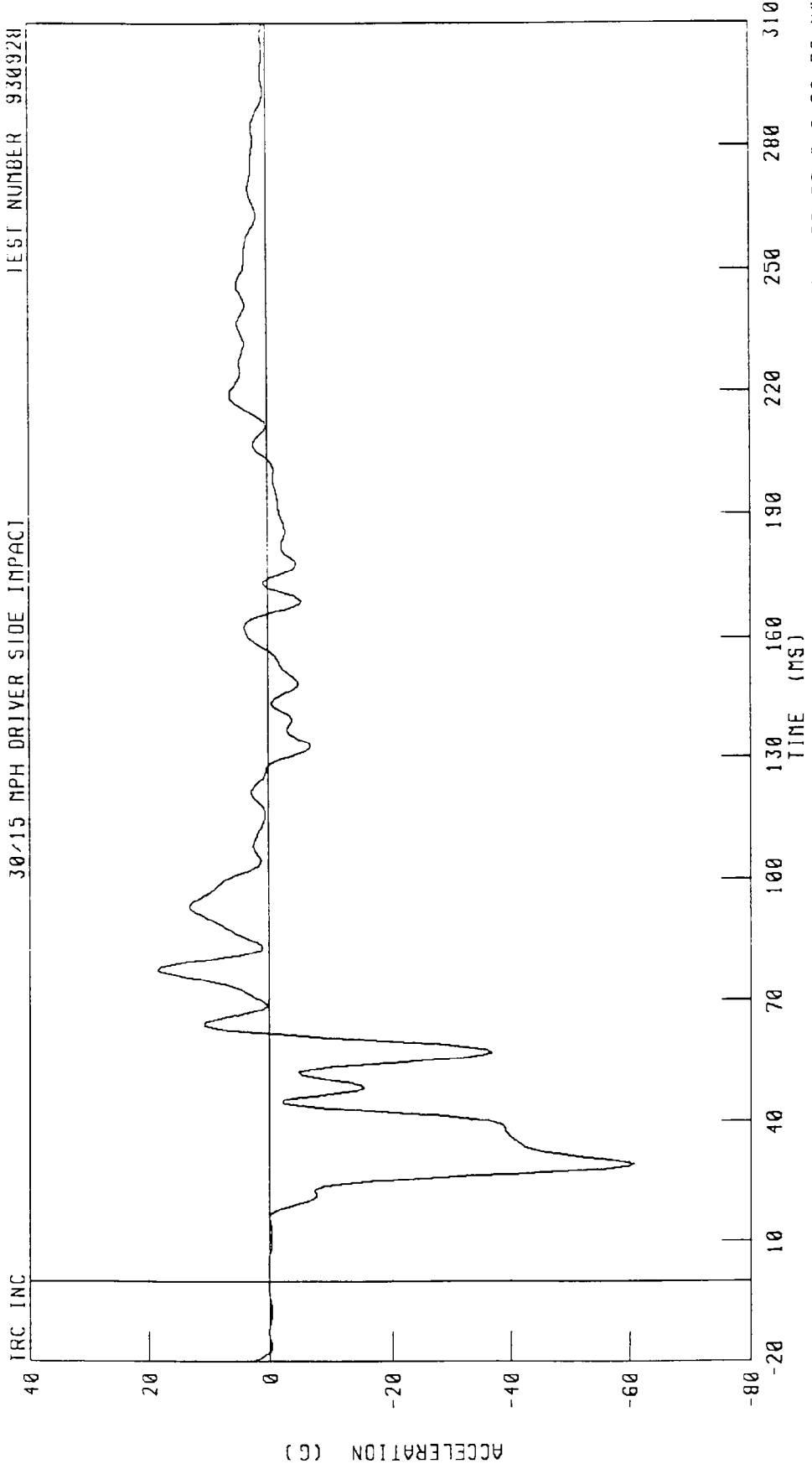
TEST NUMBER 930928



TRC INC
CHANNEL T12RGA FILTER FIR 100
PEAK DATA 77 65 G @ 31 88 MS, 0 10 G @ -6 25 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1993 FORD EXPLORER XLT
DRIVER LEFT UPPER THORAX RIG Y-AXIS ACCELERATION
30-15 MPH DRIVER SIDE IMPACT

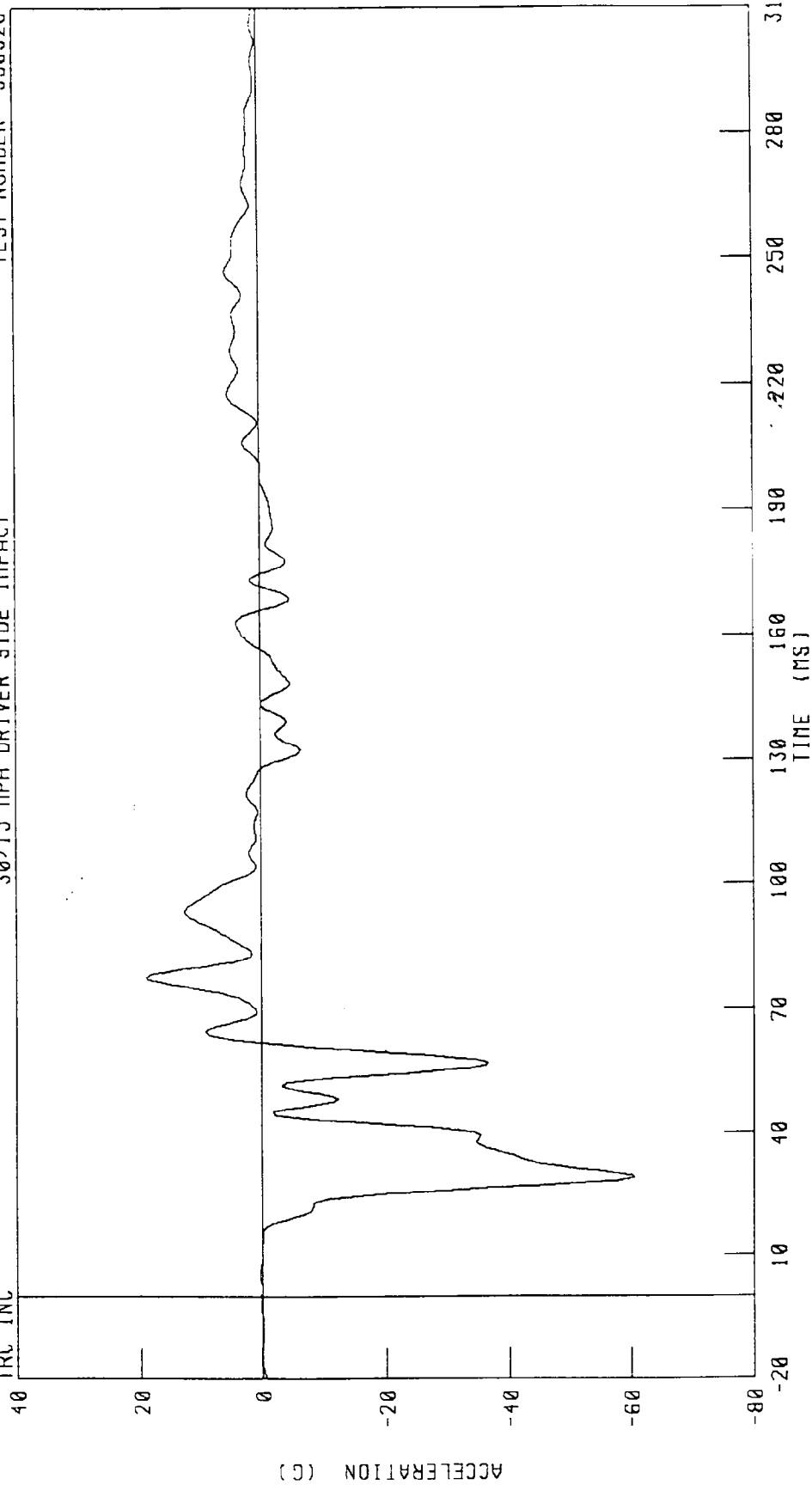
TEST NUMBER 930928



MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1993 FORD EXPLORER XLT
DRIVER LEFT UPPER THORAX RIB Y-AXIS REDUNDANT ACCELERATION
30/15 MPH DRIVER SIDE IMPACT

TEST NUMBER 930928

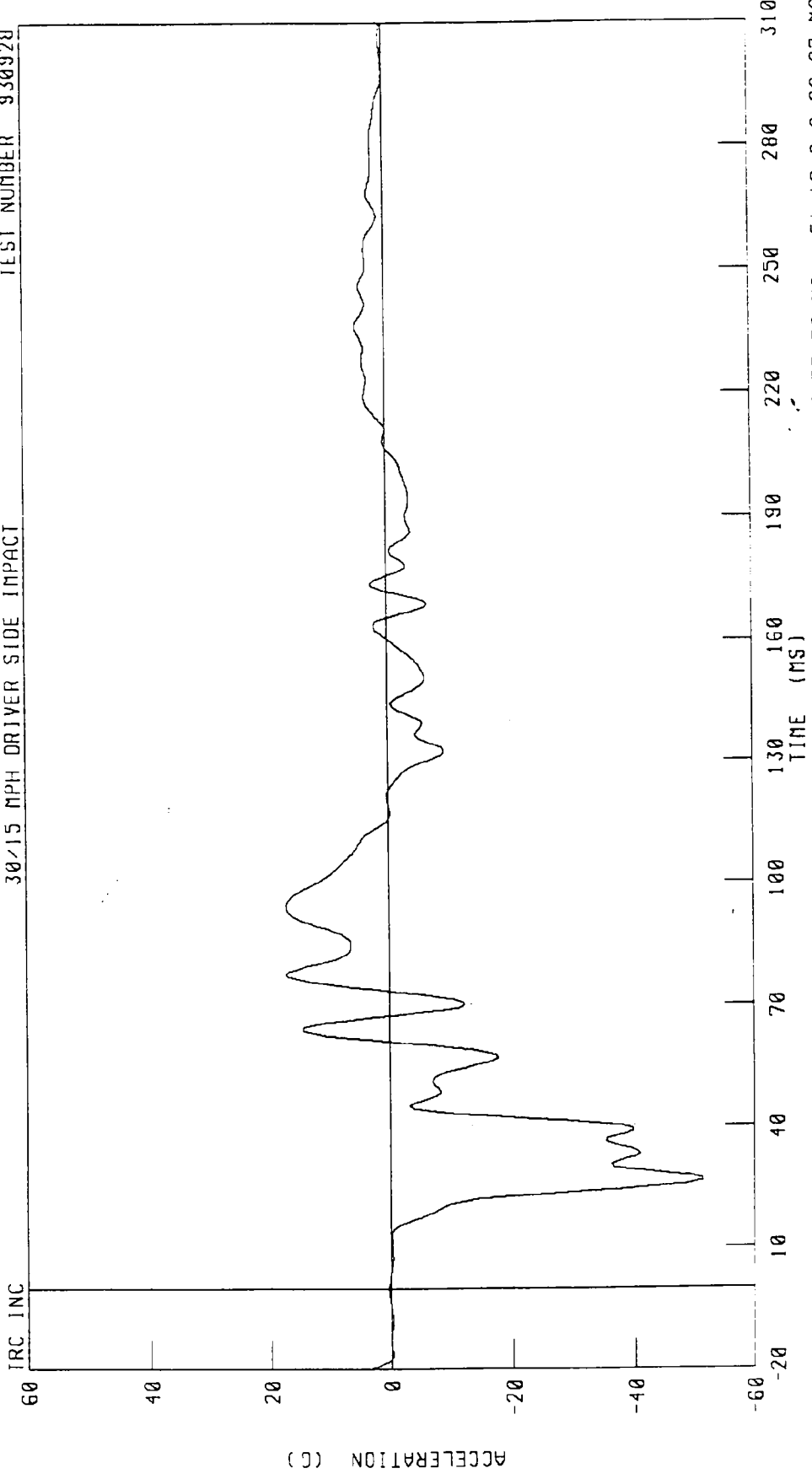
TRC INC



CHANNEL LURYGA FILTER FIR 100 PEAK DATA 18.99 G @ 77.50 MS, -60.38 G @ 28.75 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1993 FORD EXPLORER XLT
DRIVER LEFT LOWER THORAX RIB Y-AXIS ACCELERATION
30/15 MPH DRIVER SIDE IMPACT

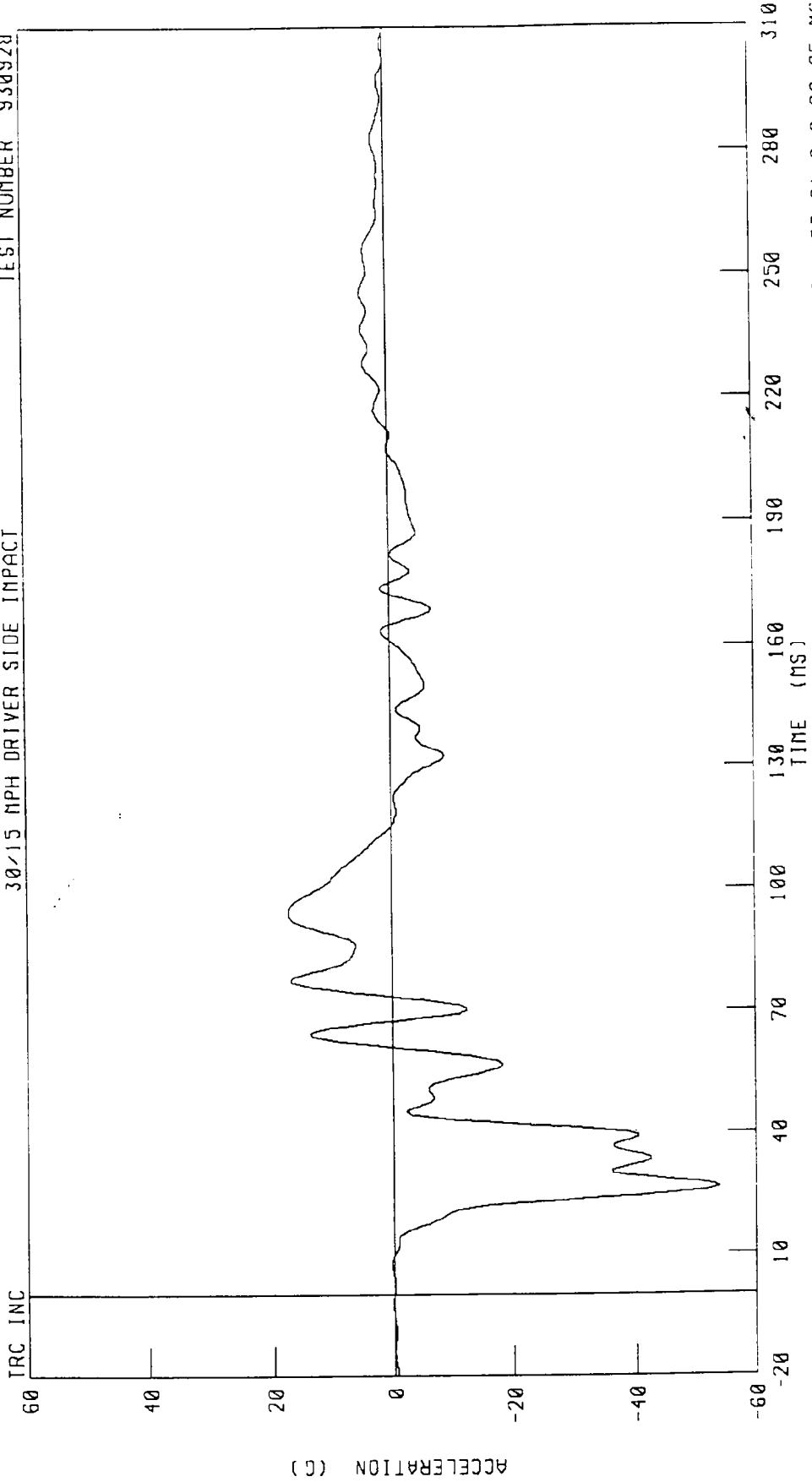
TEST NUMBER 930928



CHANNEL LLRYG1 FILTER FIR 100 PEAK DATA 17 23 G @ 77 50 MS, -51 10 G @ 26 87 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1993 FORD EXPLORER XI I
DRIVER LEFT LOWER THORAX RIB Y-AXIS REDUNDANT ACCELERATION
30/15 MPH DRIVER SIDE IMPACT

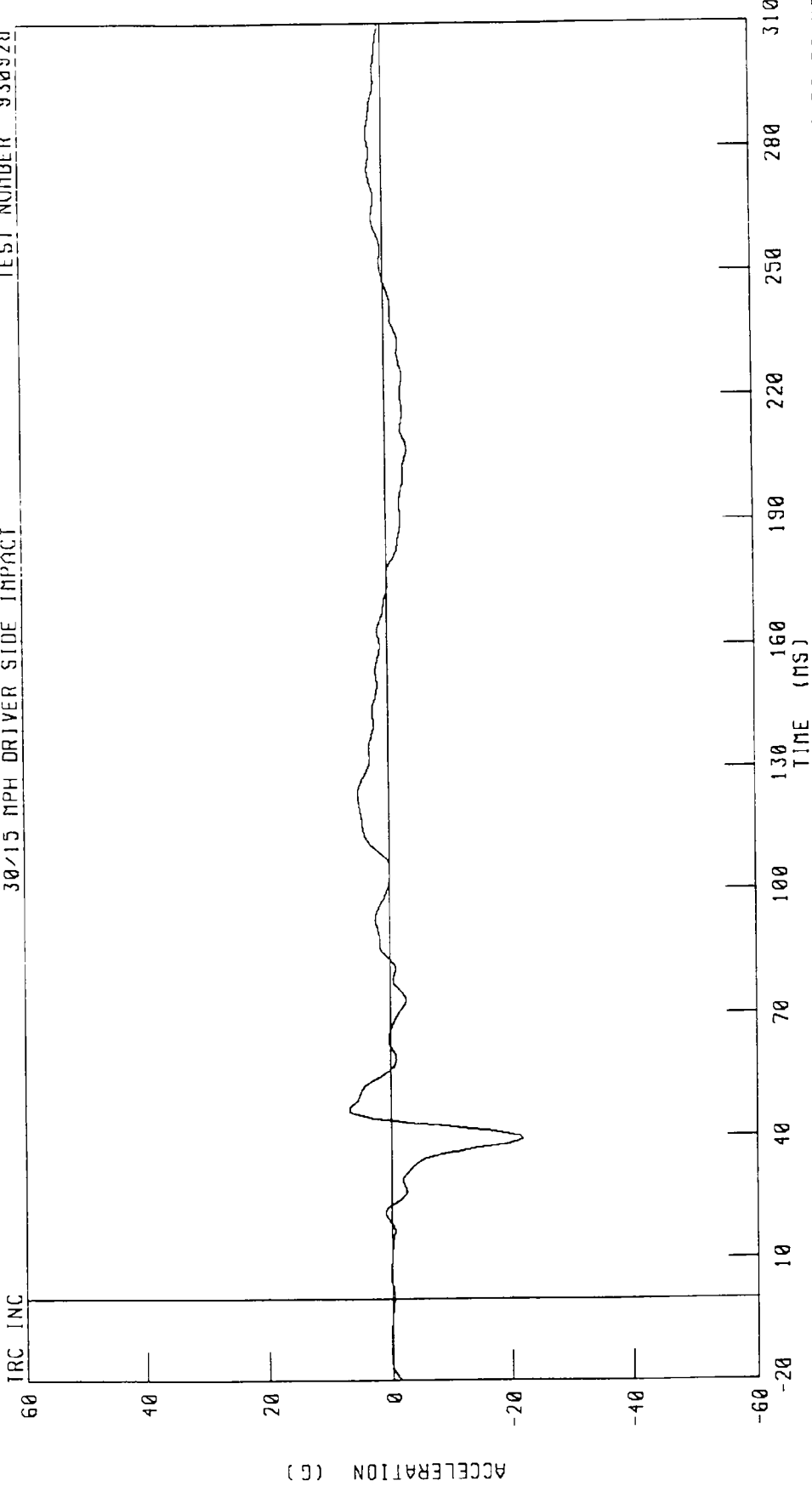
TEST NUMBER 930928



CHANNEL LLRYGA FILTER FIR 100 PEAK DATA 17 35 G @ 93 75 MS, -53 61 G @ 26 25 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1993 FORD EXPLORER XLT
DRIVER PELVIS X-AXIS ACCELERATION
30/15 MPH DRIVER SIDE IMPACT

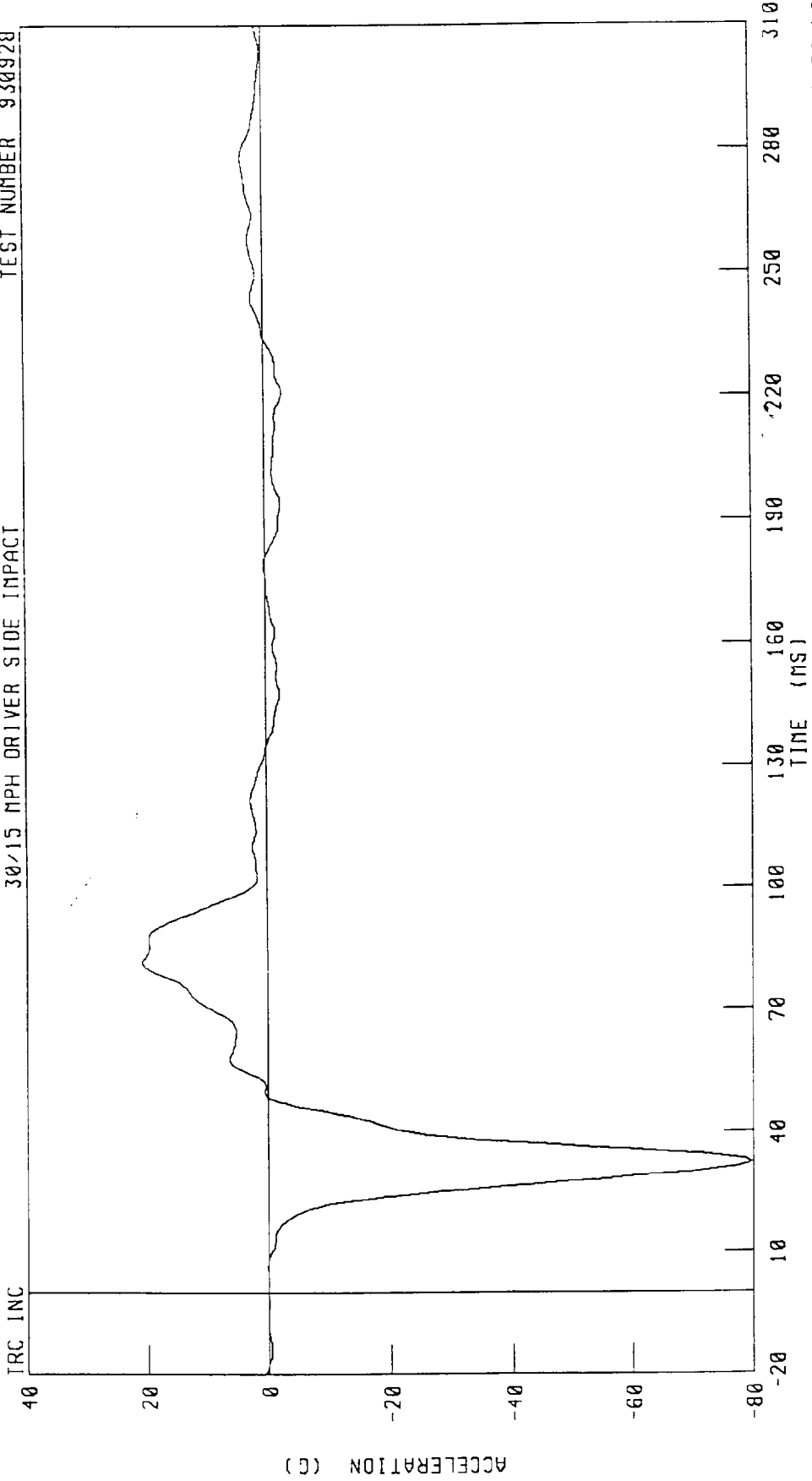
TEST NUMBER 930928



CHANNEL PEVXG1 FILTER FIR 100 PEAK DATA 6 93 G @ 46 25 MS, -21 78 G @ 39 38 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1993 FORD EXPLORER XLT
DRIVER PELVIS Y-AXIS ACCELERATION
30/15 MPH DRIVER SIDE IMPACT

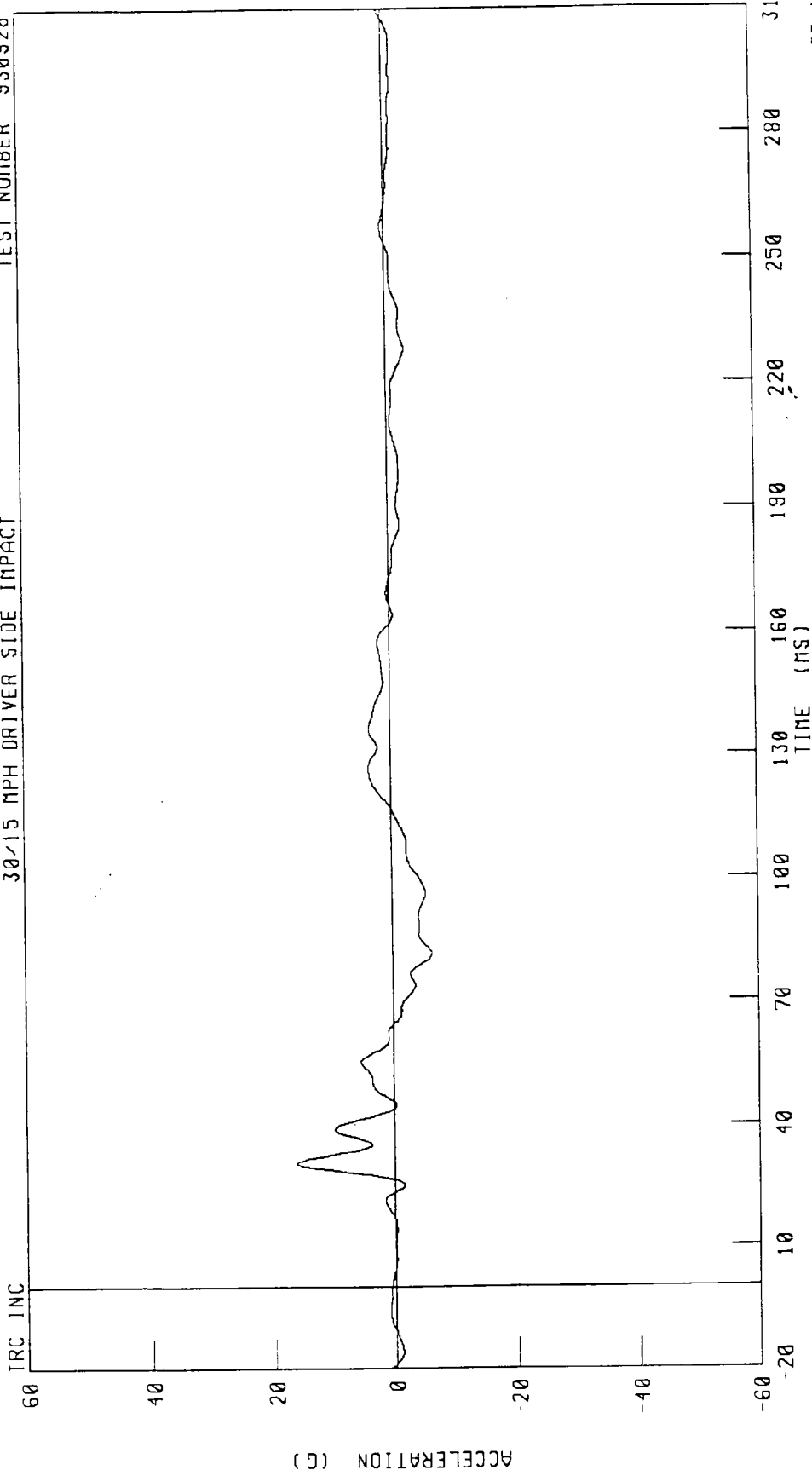
TEST NUMBER 930928



CHANNEL PEVYG1 FILTER FIR 100 PEAK DATA 20 77 G @ 81 25 MS, -79 63 G @ 32 50 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1993 FORD EXPLORER XLT
DRIVER PELVIS Z-AXIS ACCELERATION
30/15 MPH DRIVER SIDE IMPACT

TEST NUMBER 930928

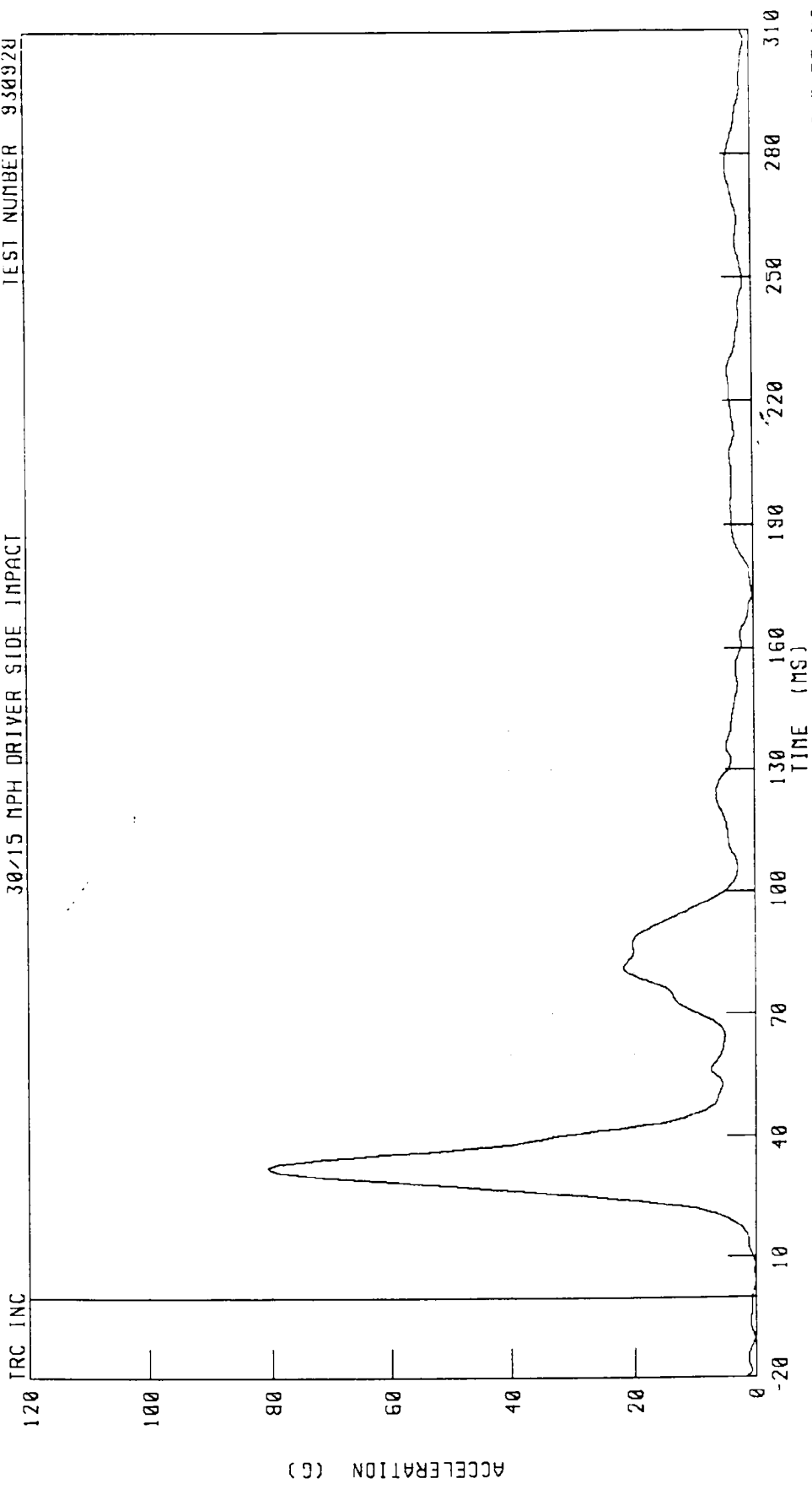


TRC INC

CHANNEL PEVZG1 FILTER FIR 100 PEAK DATA 16 38 G @ 30 62 MS, -6 47 G @ 81 25 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1993 FORD EXPLORER XLT
DRIVER PELVIS RESULTANT ACCELERATION
30/15 MPH DRIVER SIDE IMPACT

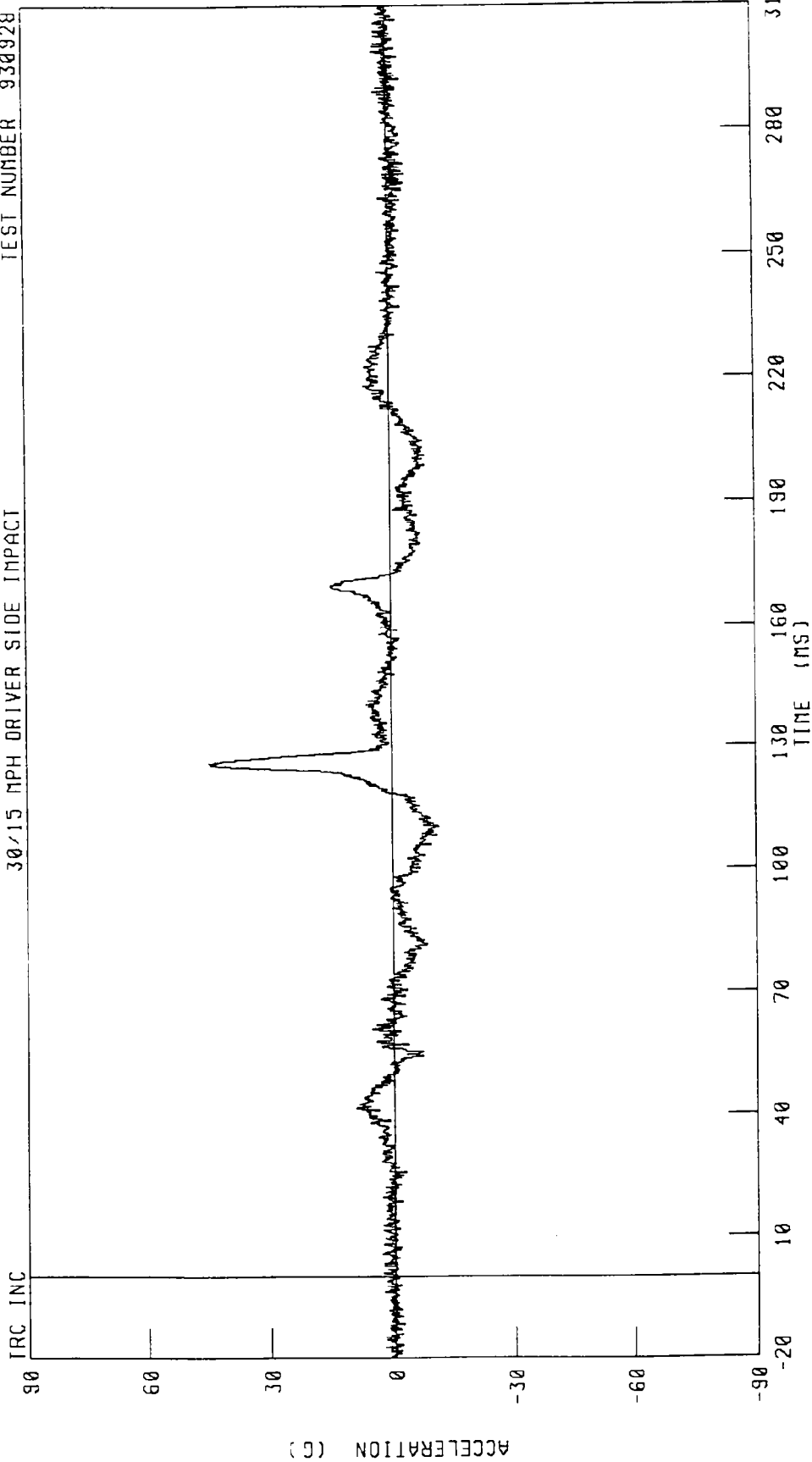
TEST NUMBER 930928



CHANNEL PEVRG1 FILTER FIR 100 PEAK DATA 80 59 G @ 32 50 MS, 0 08 G @ 3 75 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1993 FORD EXPLORER XLT
LEFT REAR PASSENGER HEAD X-AXIS ACCELERATION
30/15 MPH DRIVER SIDE IMPACT

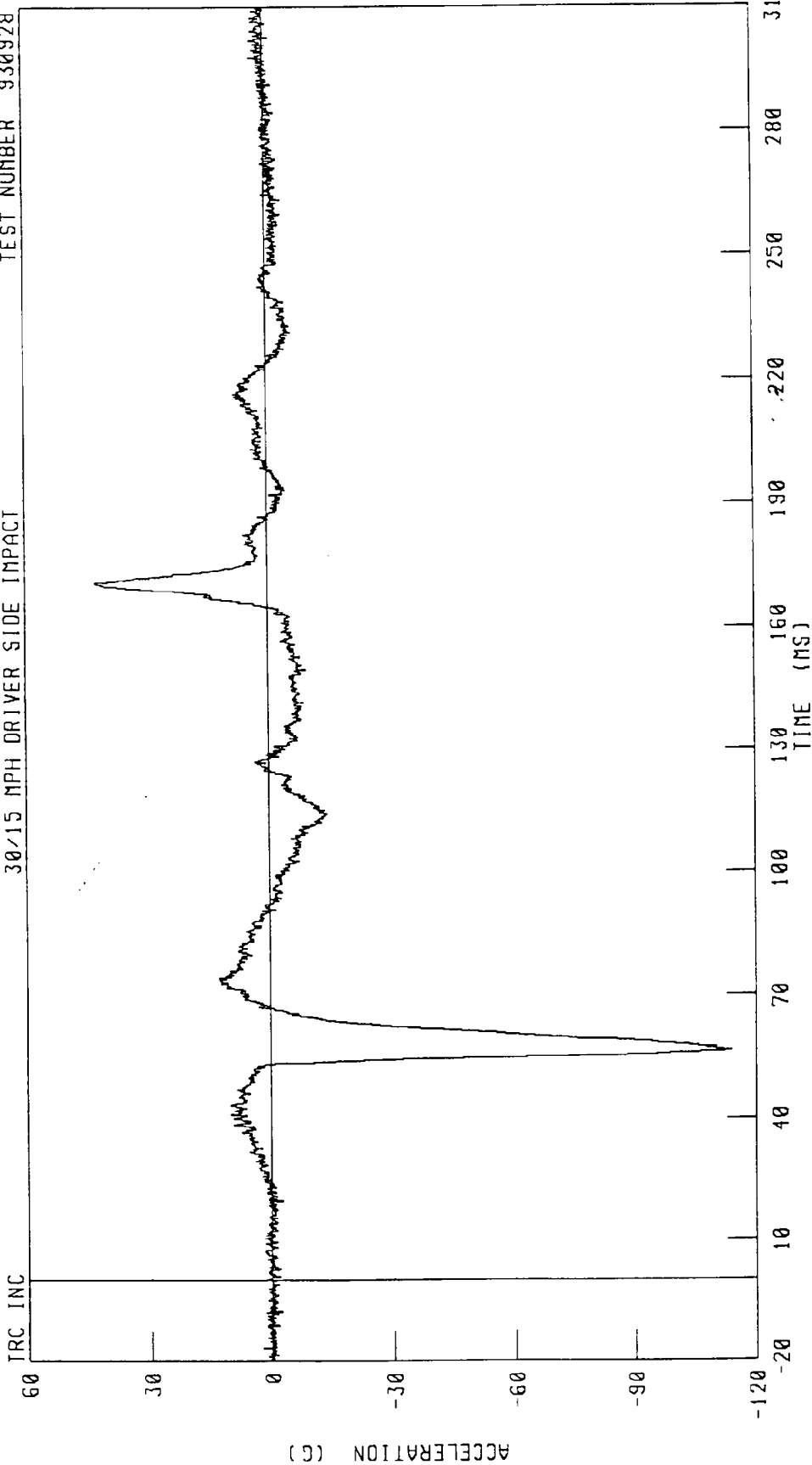
TEST NUMBER 930928



CHANNEL HEDXG4 FILTER CH CLASS 1000 PEAK DATA 44 65 G @ 125 88 MS, -11 46 G @ 110 38 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1993 FORD EXPLORER XLT
LEFT REAR PASSENGER HEAD Y-AXIS ACCELERATION
30/15 MPH DRIVER SIDE IMPACT

TEST NUMBER 930928



CHANNEL HEDYG4 FILTER CH CLASS 1000 PEAK DATA 43 29 G @ 170 50 MS, -113 74 G @ 56 50 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1993 FORD EXPLORER XI 1
LEFT REAR PASSENGER HEAD Z AXIS ACCELERATION
30/15 MPH DRIVER SIDE IMPACT

TEST NUMBER 930928

IRC INC

90

60

30

ACCELERATION (G)

-30

-60

-90

-20

10

40

70

100

130

160

190

220

250

280

310

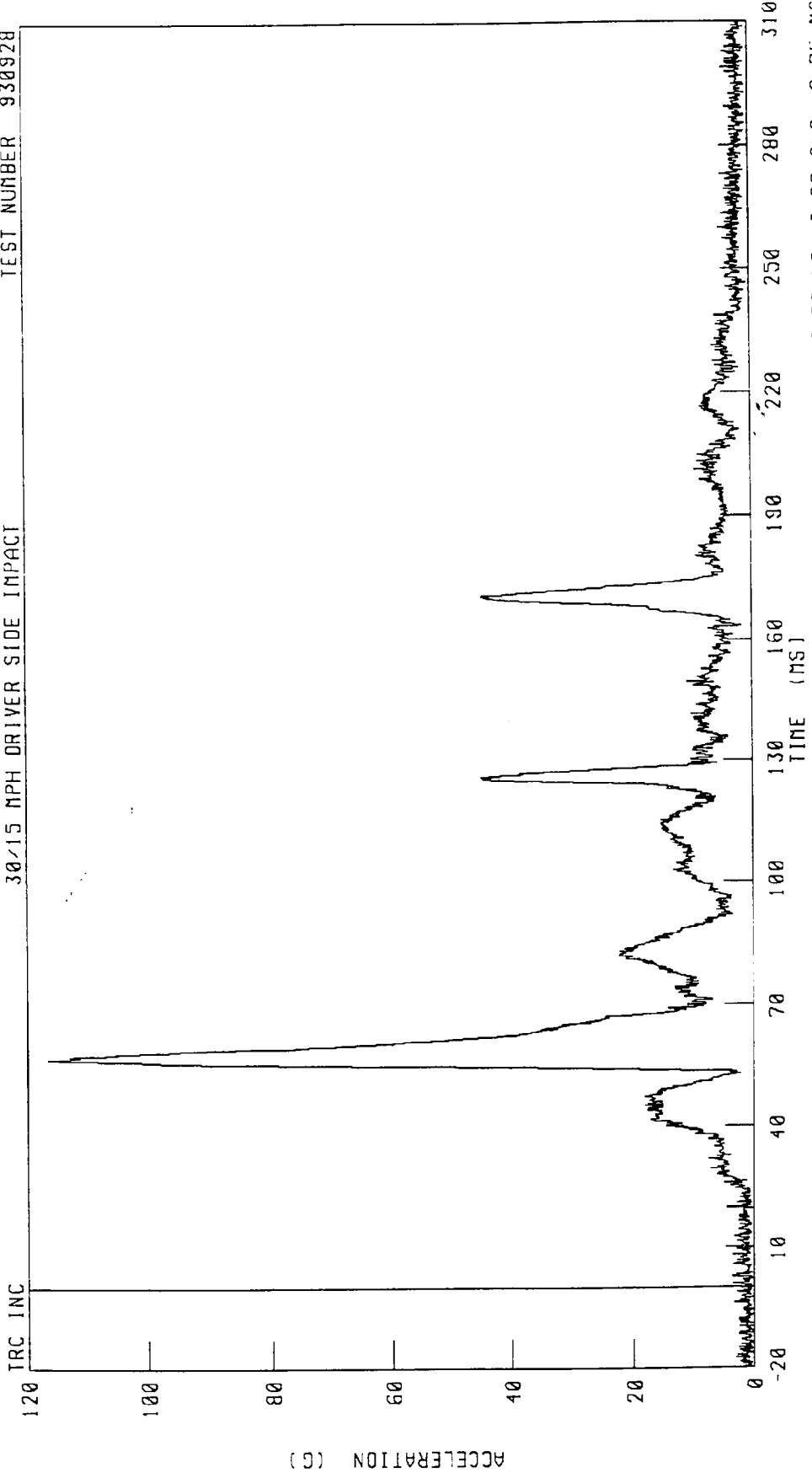
TIME (MS)

CHANNEL HEDZG4 FILTER CH CLASS 1000

PEAK DATA 31 98 G @ 64 00 MS, -20 89 G @ 83 13 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1993 FORD EXPLORER XI T
LEFT REAR PASSENGER HEAD RESULTANT ACCELERATION
30/15 MPH DRIVER SIDE IMPACT

TEST NUMBER 930928

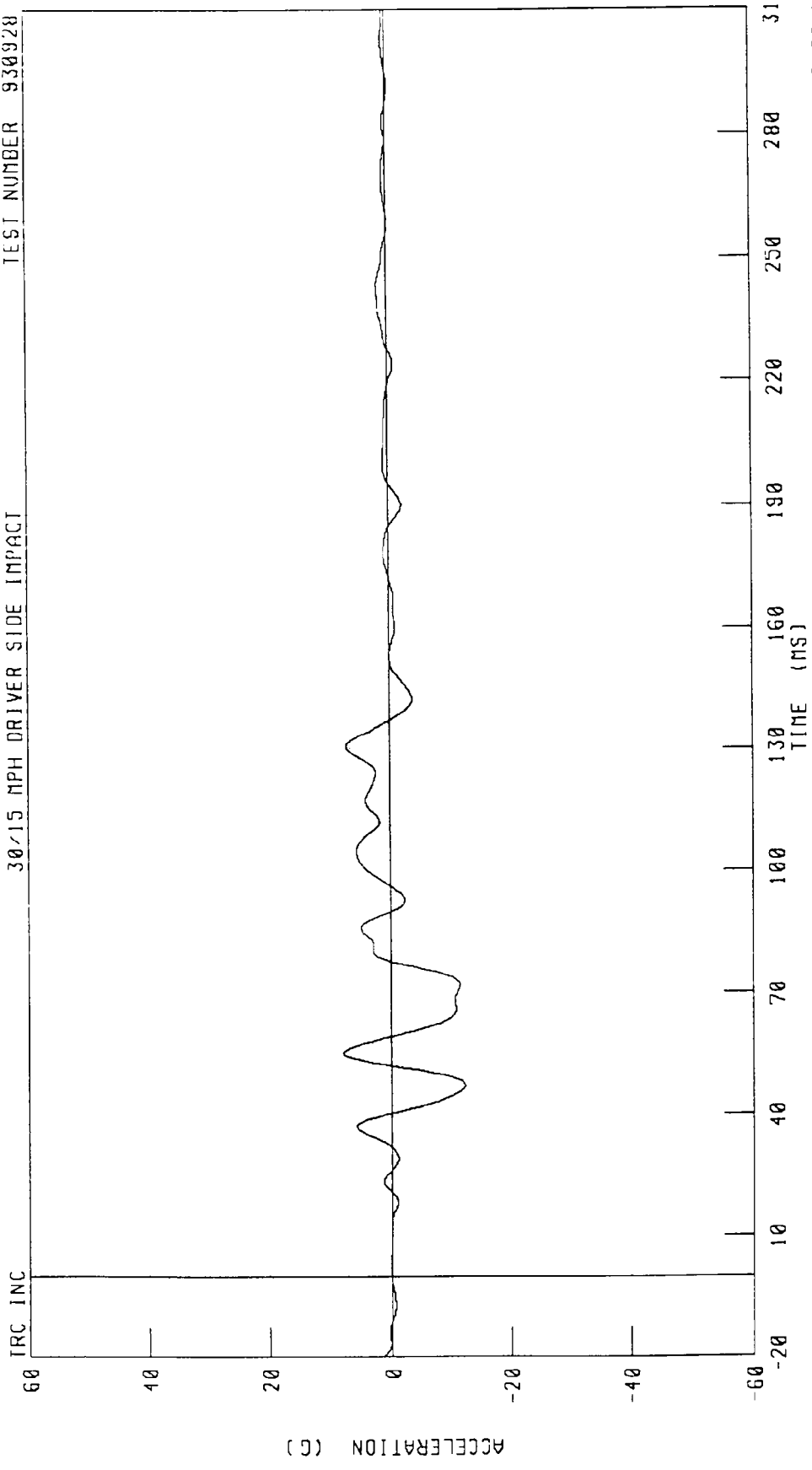


CHANNEL HEDRC4 FILTER CH CLASS 1000

PEAK DATA 116 56 G @ 56 50 MS, 0 06 G @ -2 75 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1993 FORD EXPLORER XLT
LEFT REAR PASSENGER UPPER SPINE X-AXIS ACCELERATION
30/15 MPH DRIVER SIDE IMPACT

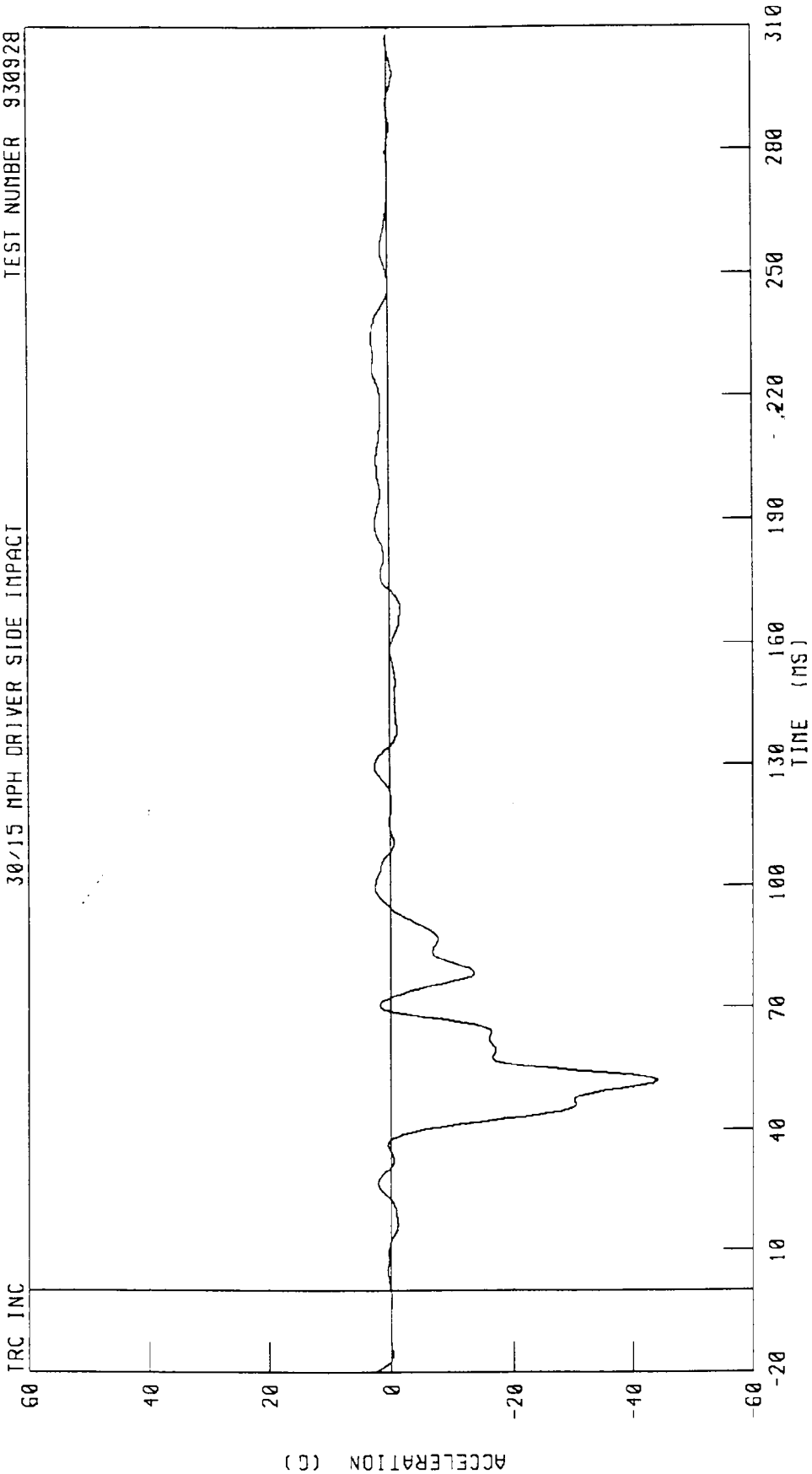
TEST NUMBER 930928



CHANNEL T01XG4 FILTER FIR 100 PEAK DATA 7 93 G @ 55 00 MS, -12 35 G @ 46 88 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1993 FORD EXPLORER XLT
UPPER SPINE X-AXIS ACCELERATION
30/15 MPH DRIVER SIDE IMPACT

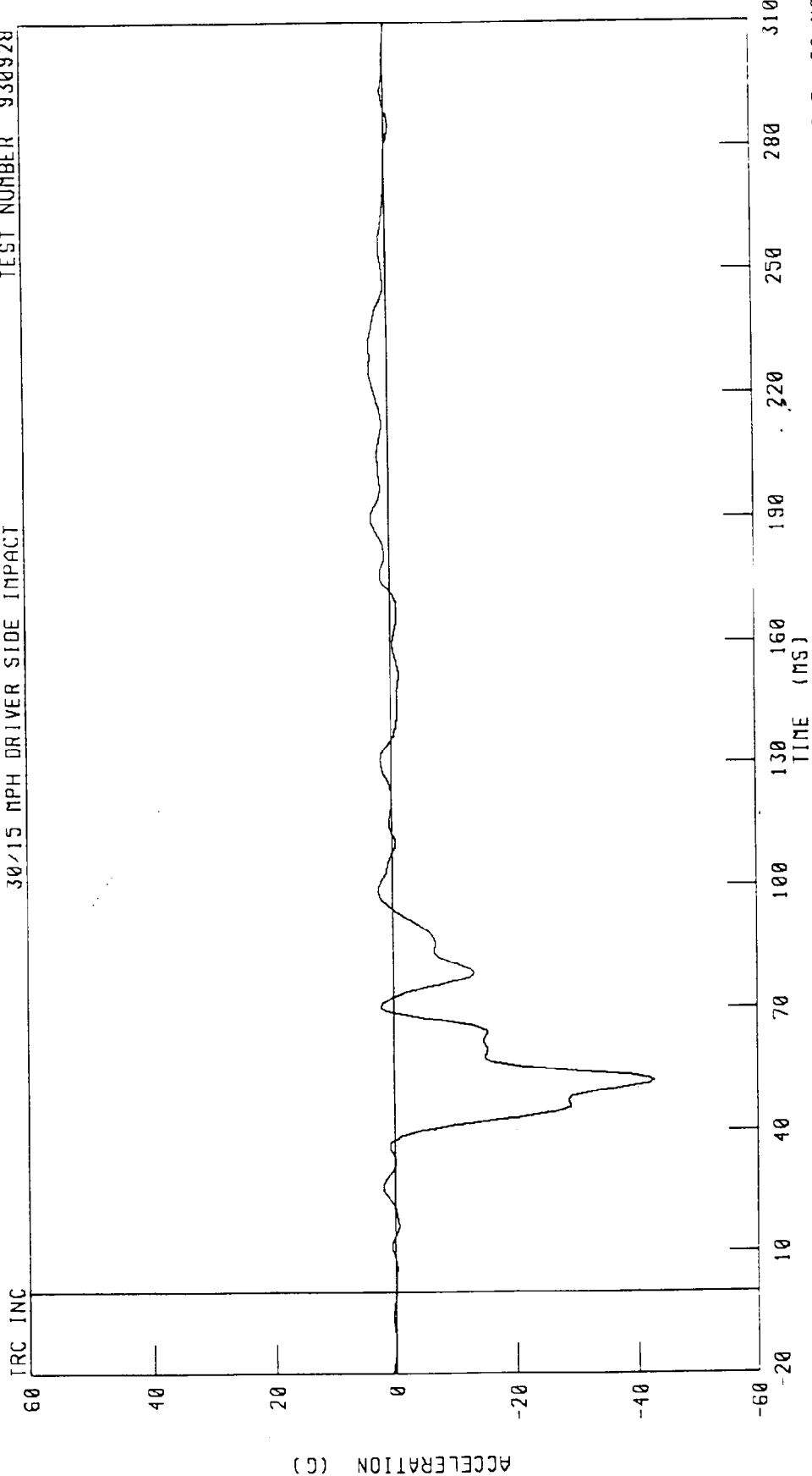
TRC INC TEST NUMBER 930928



CHANNEL T01YC4 FILTER FIR 100 PEAK DATA 2.74 G @ 233.75 MS, -44.09 G @ 51.88 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1993 FORD EXPLORER XLT
LEFT REAR PASSENGER UPPER SPINE Y-AXIS REDUNDANT ACCELERATION
30/15 MPH DRIVER SIDE IMPACT

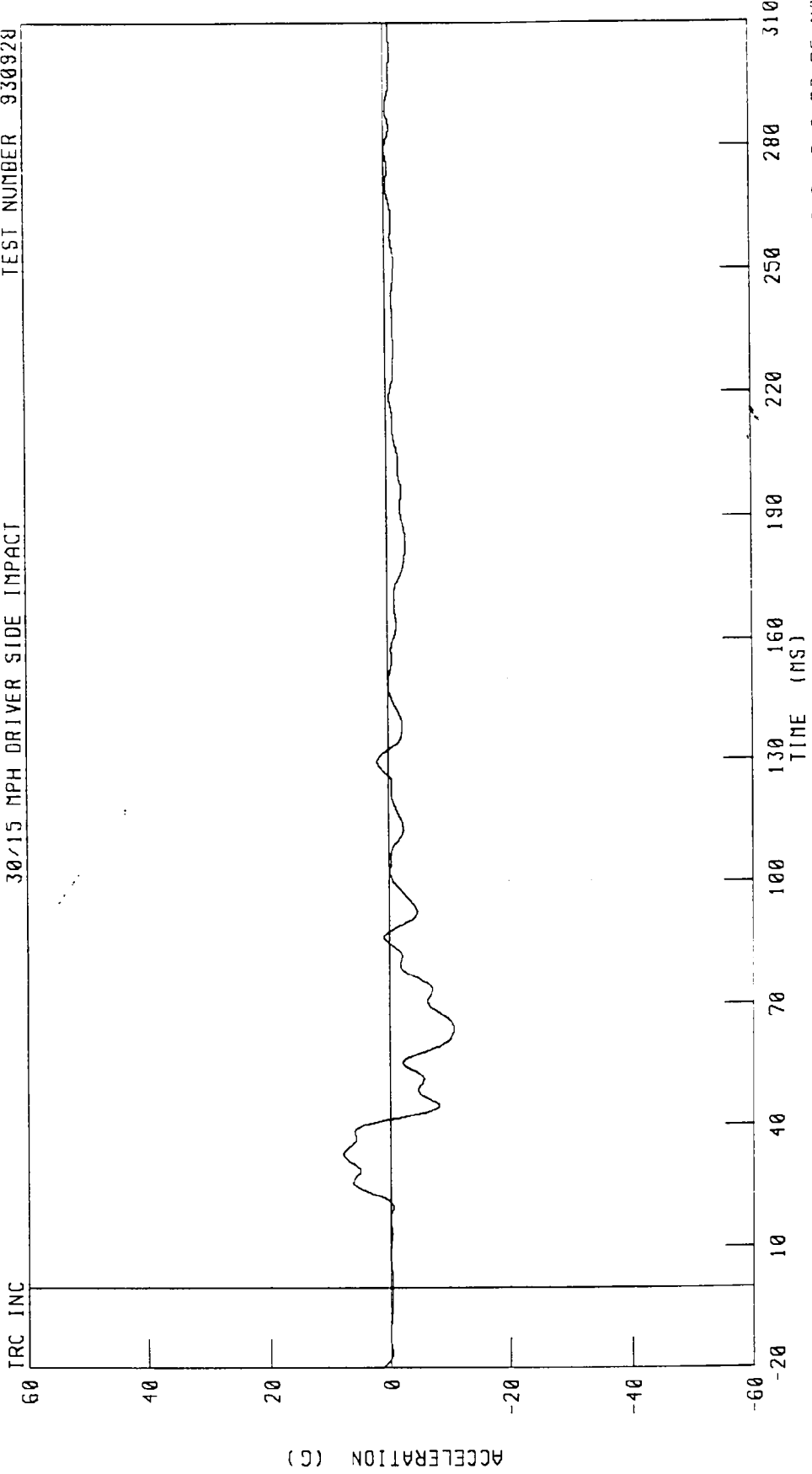
TEST NUMBER 930928



CHANNEL T01YGD FILTER FIR 100 PEAK DATA 3 11 G @ 231 87 MS, -42 73 G @ 51 88 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1993 FORD EXPLORER XLT
LEFT REAR PASSENGER UPPER SPINE Z-AXIS ACCELERATION
30/15 MPH DRIVER SIDE IMPACT

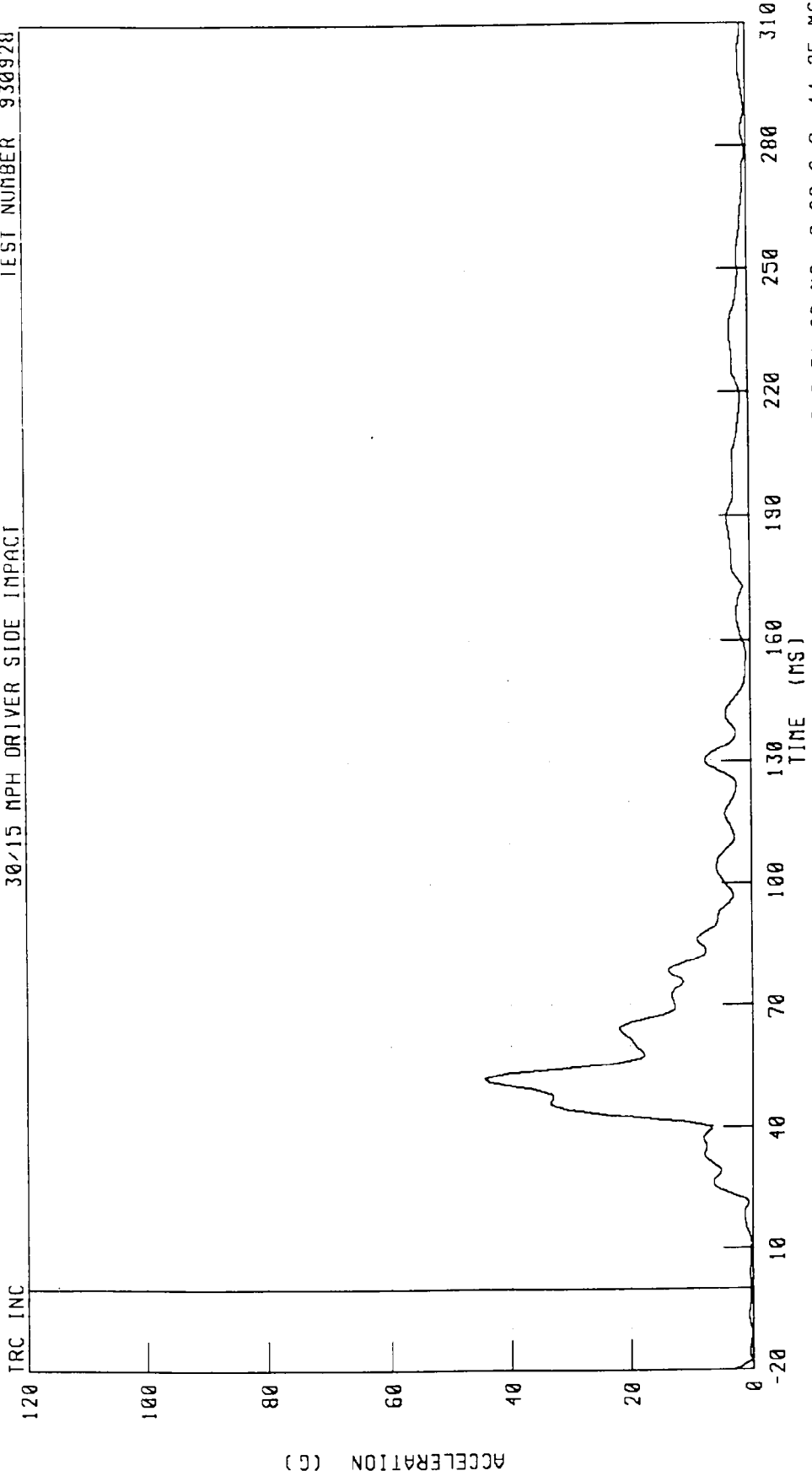
TEST NUMBER 930928



CHANNEL 101ZG4 FILTER FIR 100

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1993 FORD EXPLORER XLT
LEFT REAR PASSENGER UPPER SPINE RESULTANT ACCELERATION
30/15 MPH DRIVER SIDE IMPACT

TEST NUMBER 930928

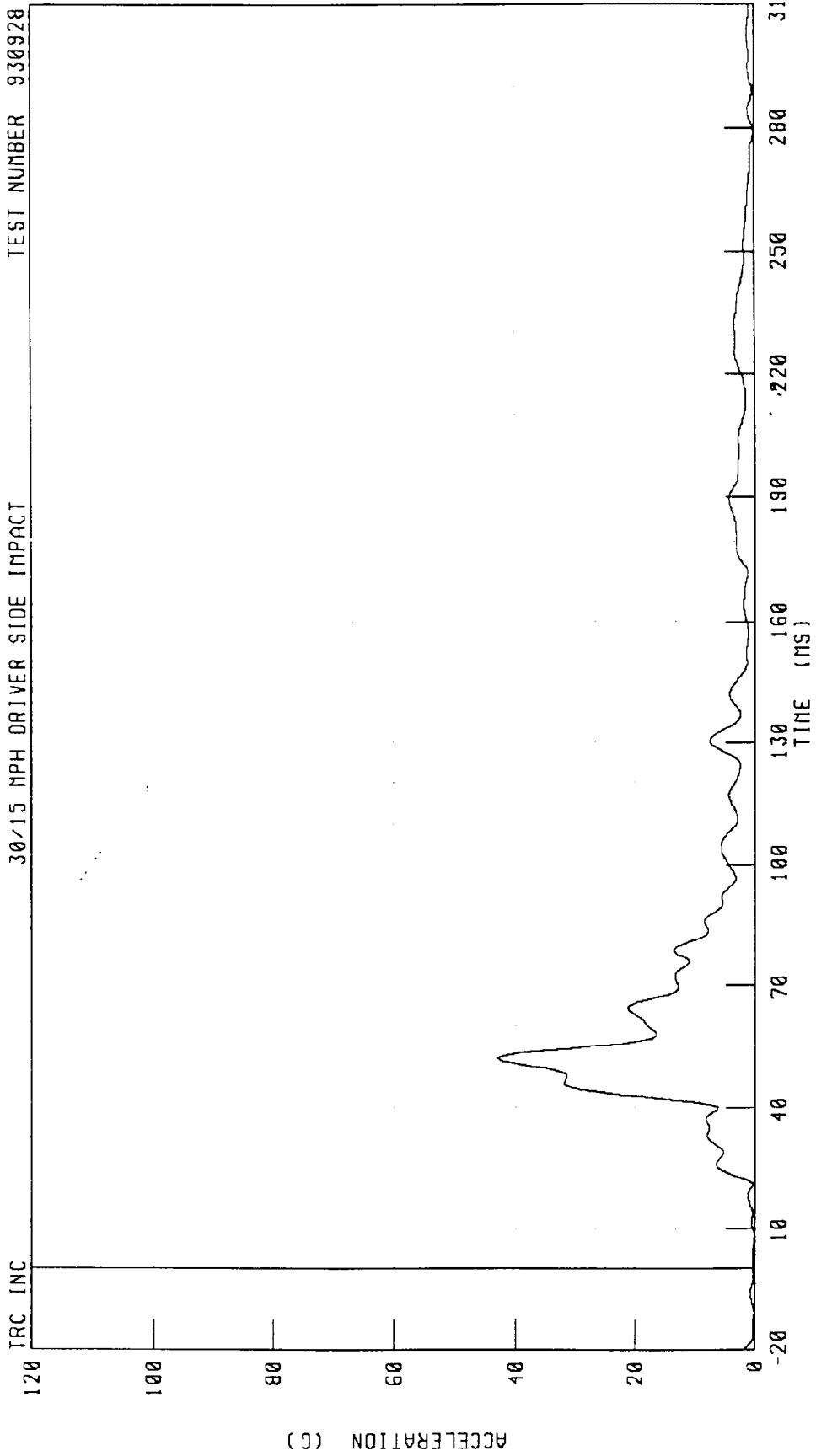


CHANNEL T01RC4 FILTER FIR 100 PEAK DATA: 44 44 G @ 51 88 MS, 0 00 G @ -11 25 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1993 FORD EXPLORER XLT
LEFT REAR PASSENGER UPPER SPINE RESULTANT RECDUANT ACCELERATION
30/15 MPH DRIVER SIDE IMPACT

TEST NUMBER 930928

IRC INC

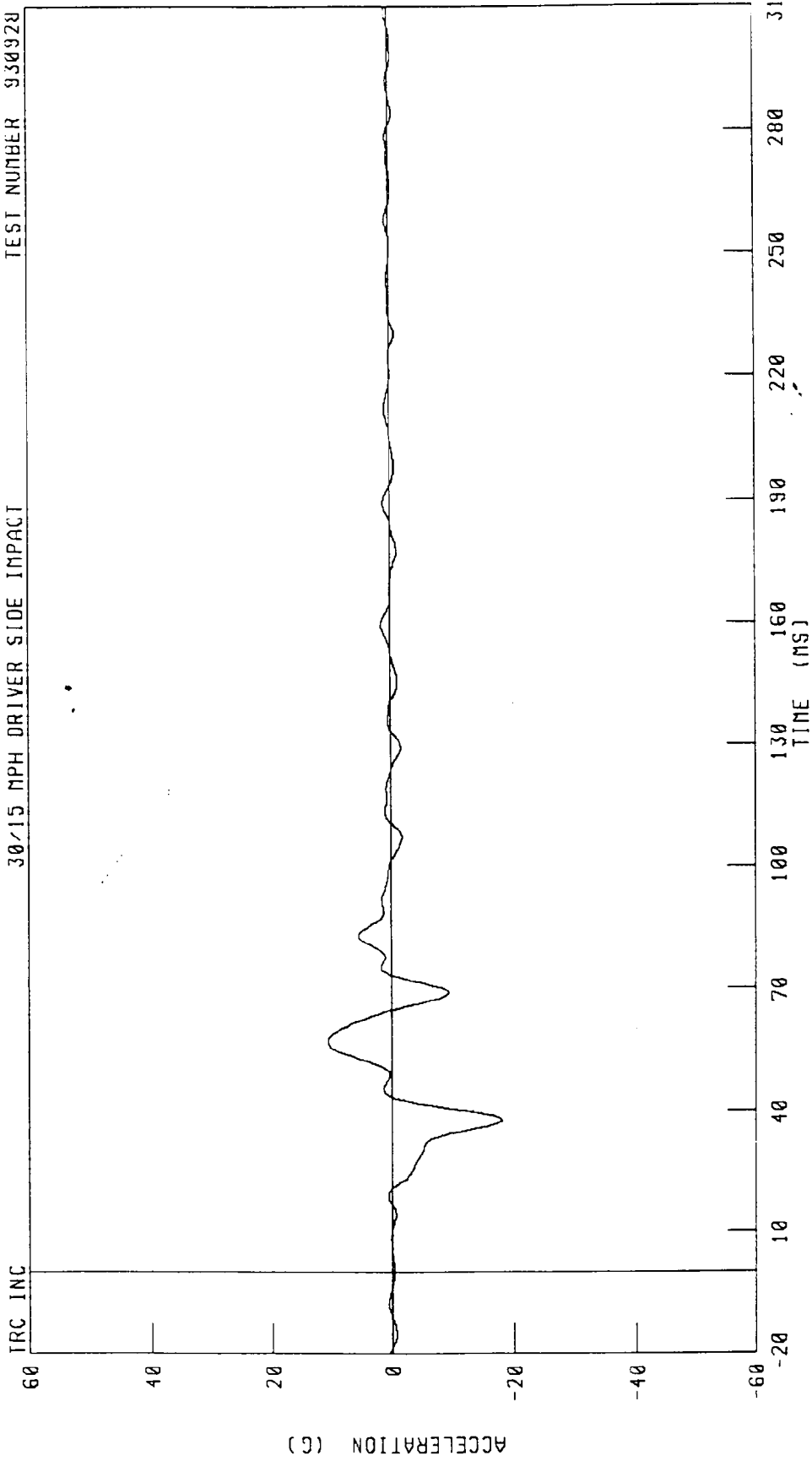


CHANNEL: T01RCD FILTER: FIR 100

PEAK DATA: 43.09 G @ 51.88 MS, 0.05 G @ 8.13 MS

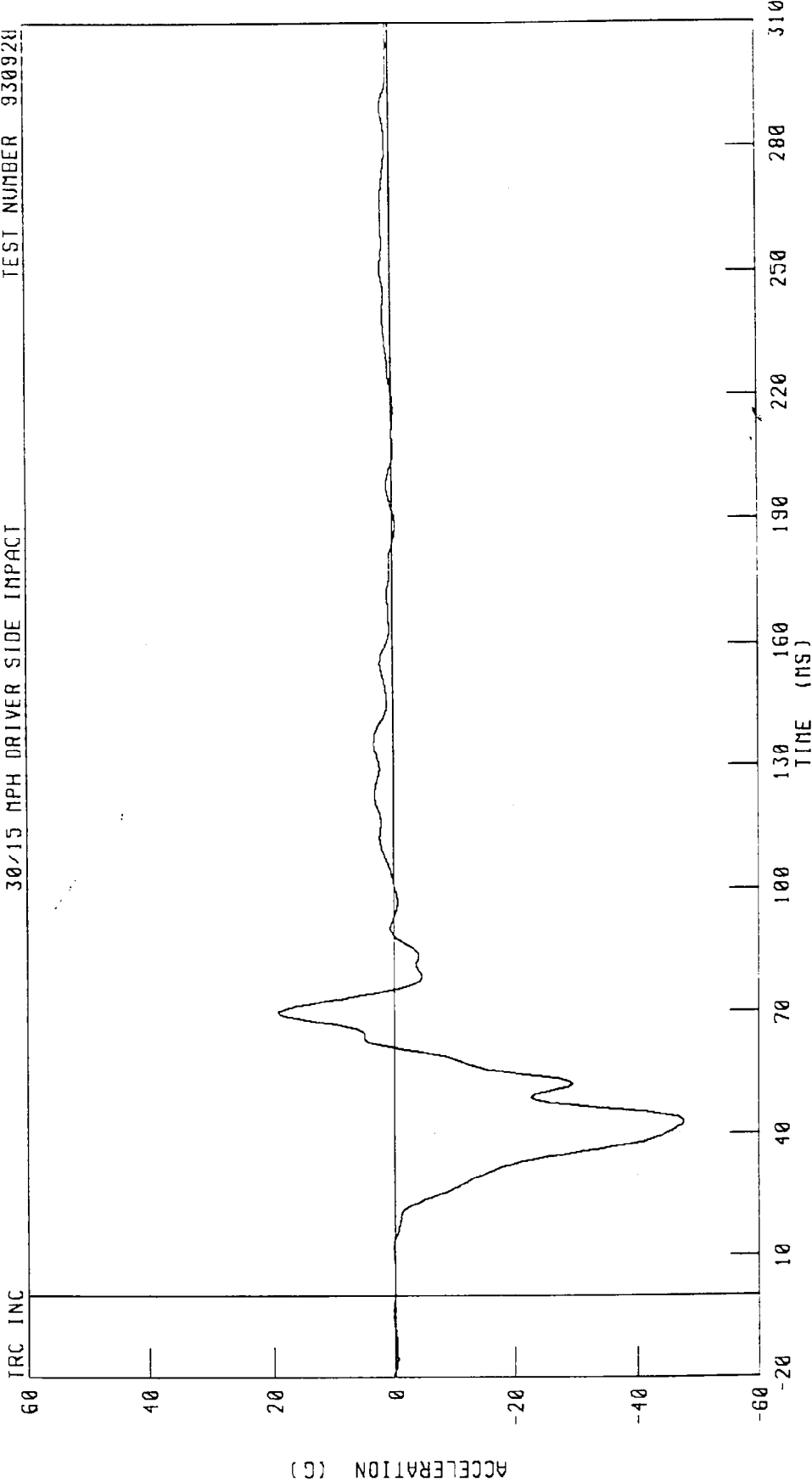
MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1993 FORD EXPLORER XLT
LEFT REAR PASSENGER LOWER SPINE X-AXIS ACCELERATION
30/15 MPH DRIVER SIDE IMPACT

TEST NUMBER 930928

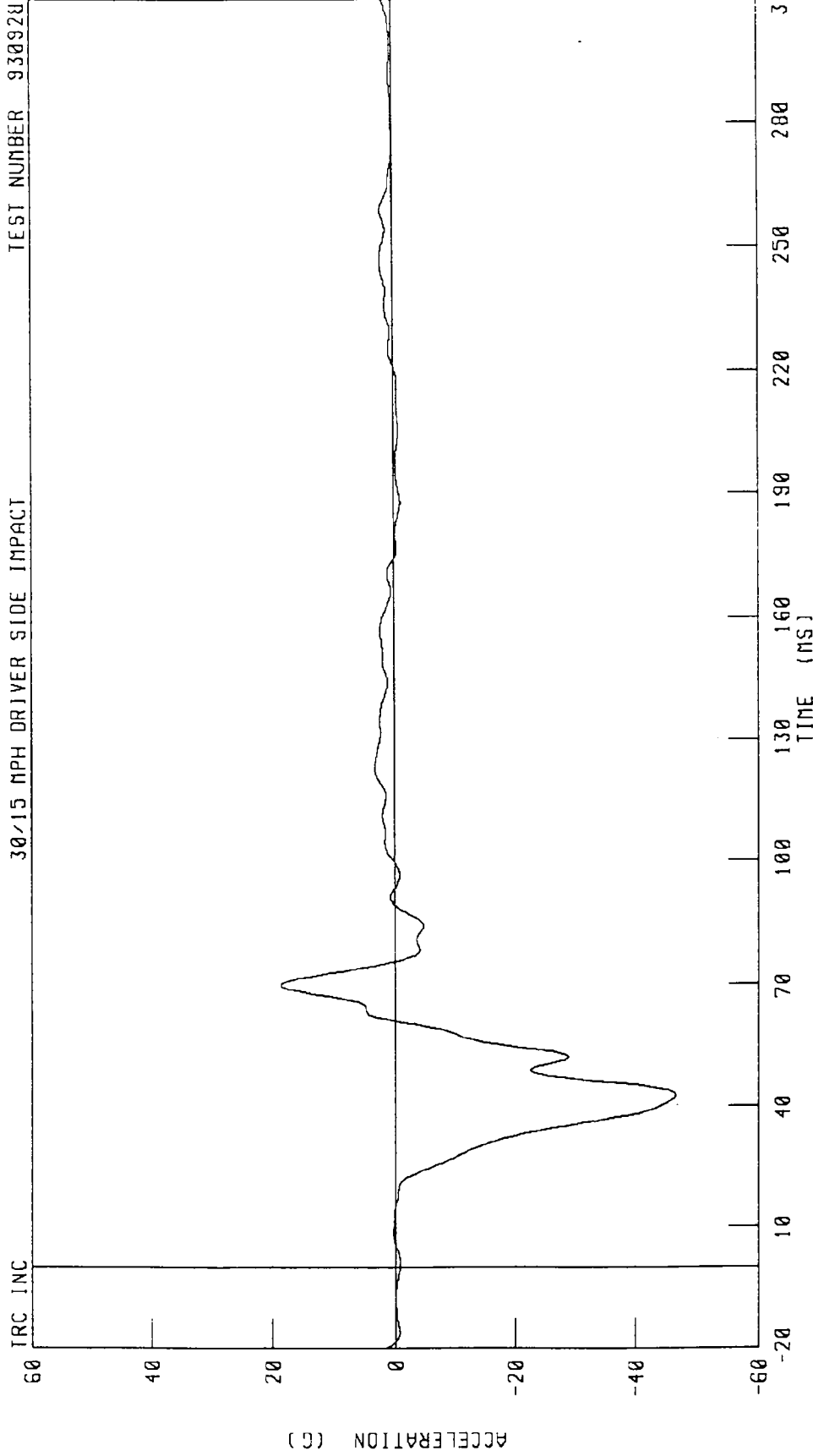


MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1993 FORD EXPLORER XLT
LEFT REAR PASSENGER LOWER SPINE Y-AXIS ACCELERATION
30/15 MPH DRIVER SIDE IMPACT

TEST NUMBER 930928



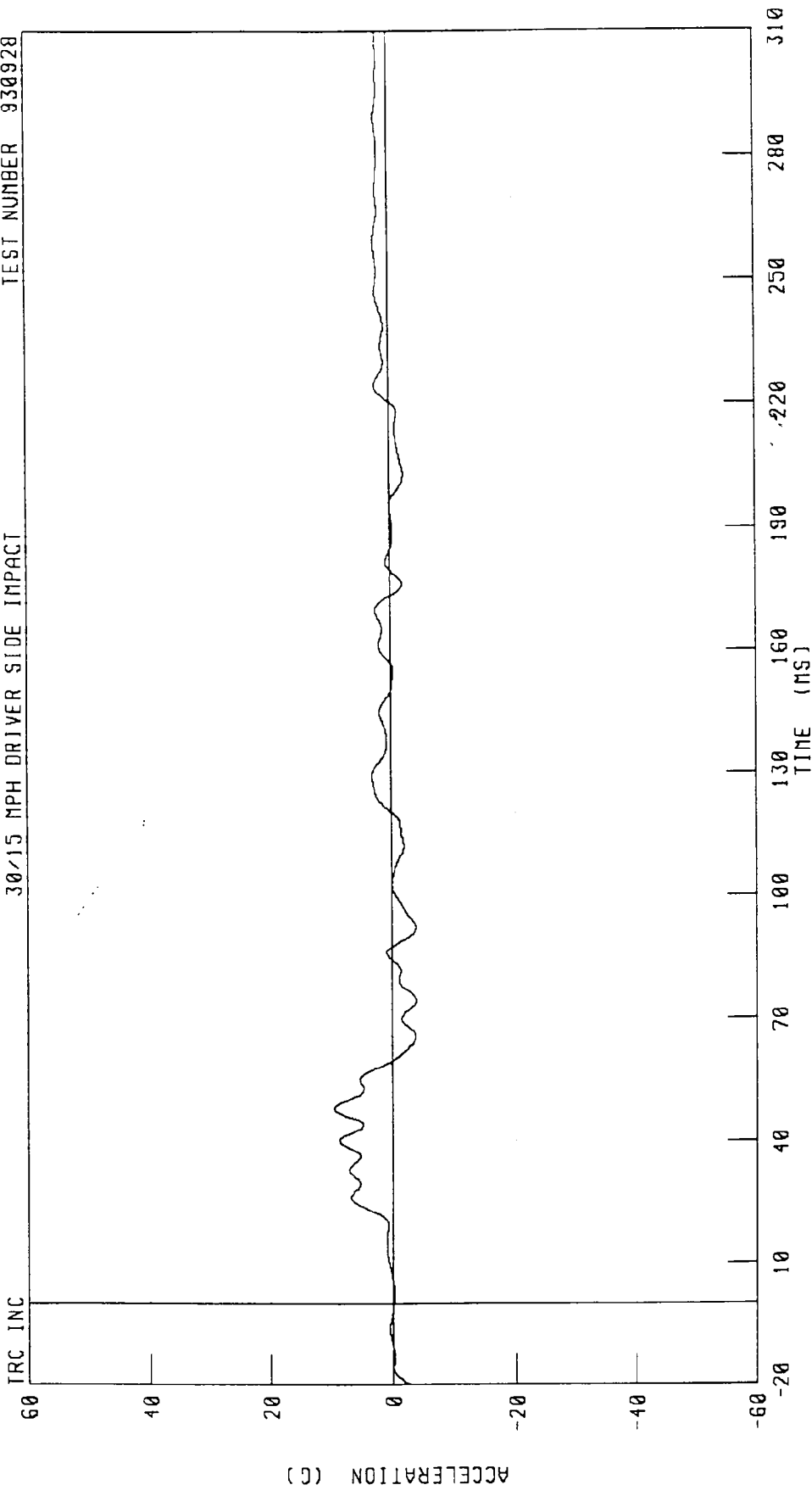
MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1993 FORD EXPLORER XLT
LEFT REAR PASSENGER LOWER SPINE Y-AXIS REDUNDANT ACCELERATION
30/15 MPH DRIVER SIDE IMPACT



CHANNEL T12YGD FILTER FIR 100 PEAK DATA 18 52 G @ 70 00 MS, -46 59 G @ 42 50 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1993 FORD EXPLORER XLT
LEFT REAR PASSENGER LOWER SPINE Z-AXIS ACCELERATION
30/15 MPH DRIVER SIDE IMPACT

TEST NUMBER 930928



CHANNEL T12264 FILTER FIR 100 PEAK DATA 9 53 G @ 48.13 MS, -3 93 G @ 74 37 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1993 FORD EXPLORER XLT
LEFT REAR PASSENGER LOWER SPINE RESULTANT ACCELERATION
30/15 MPH DRIVER SIDE IMPACT

TEST NUMBER 930928

TRC INC

120

100

80

60

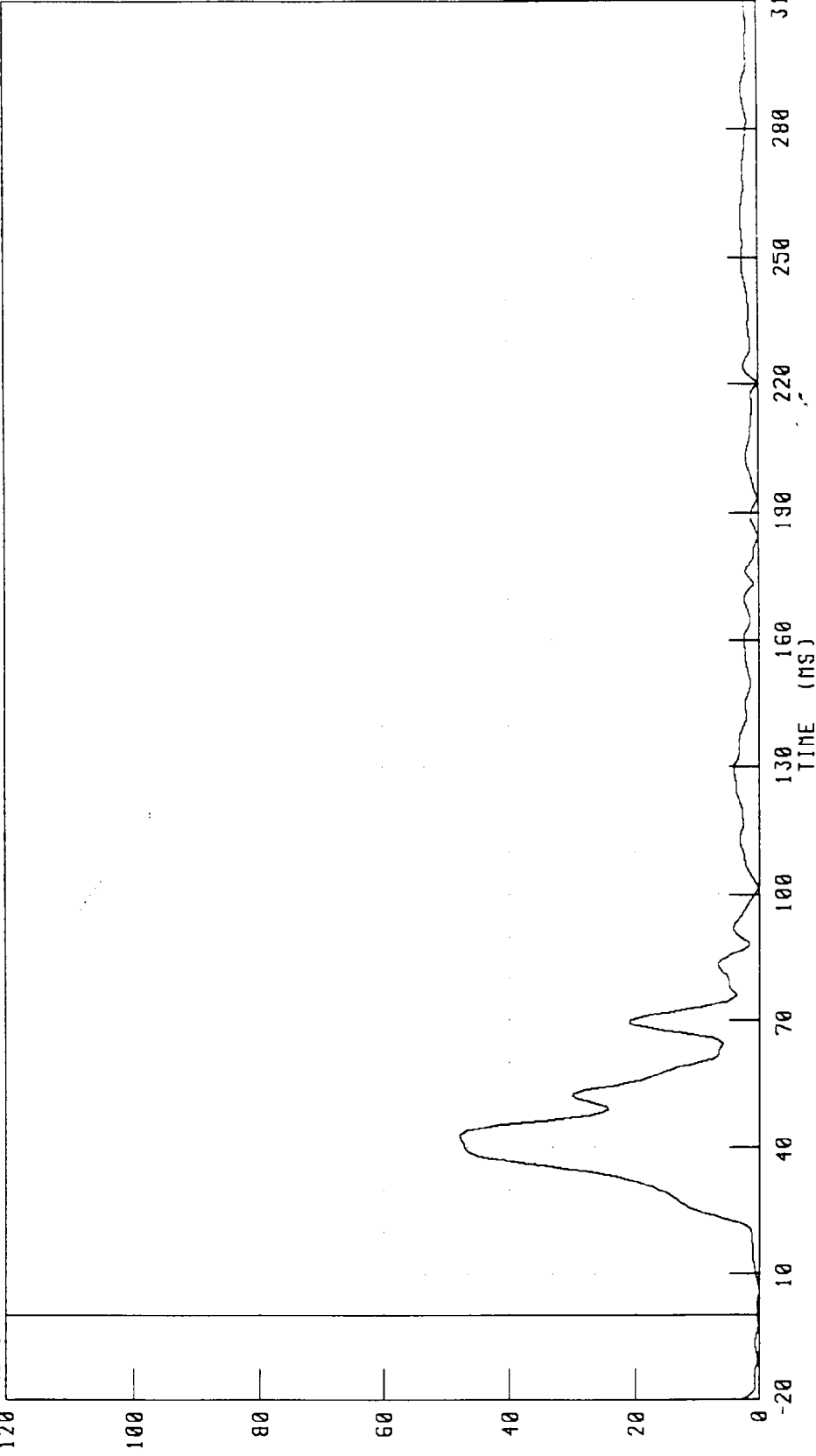
40

20

0

-20

ACCELERATION (G)

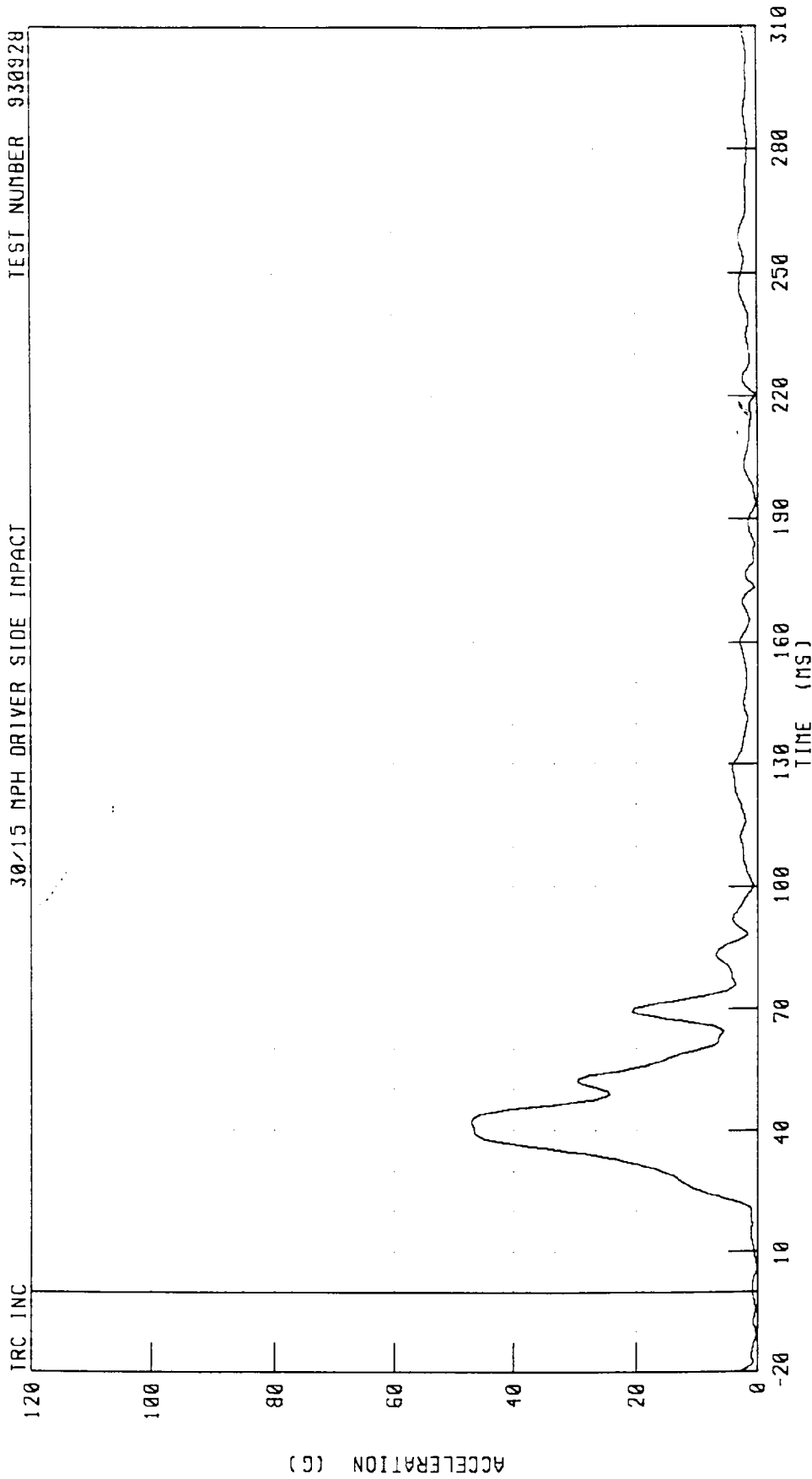


PEAK DATA: 47.89 G @ 42.50 MS, 0.06 G @ 5.62 MS

CHANNEL: T12RG4 FILTER: FIR 100

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1993 FORD EXPLORER XLT
LEFT REAR PASSENGER LOWER SPINE RESULTANT REDUNDANT ACCELERATION
30/15 MPH DRIVER SIDE IMPACT

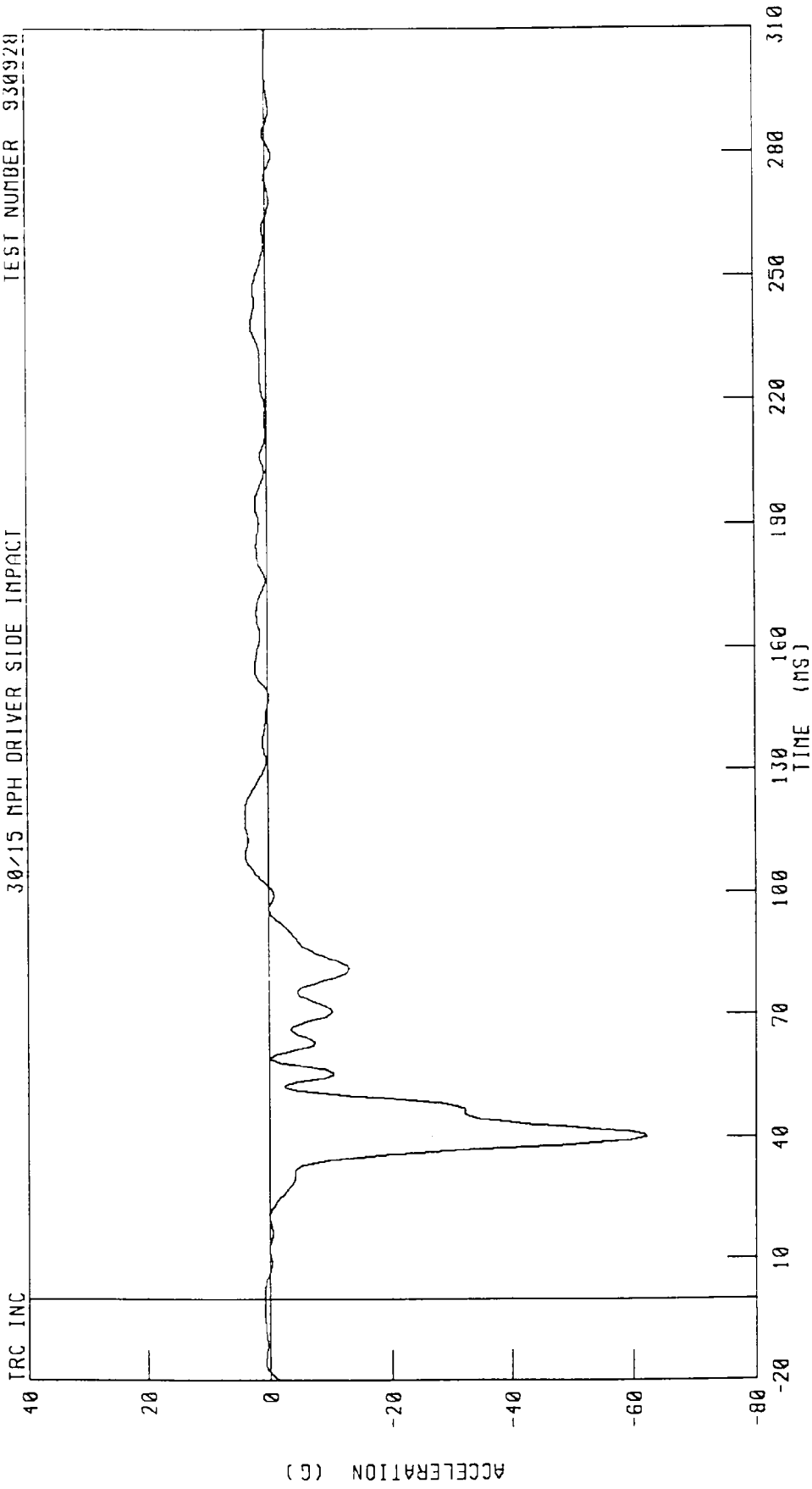
TEST NUMBER 930928



CHANNEL: T12RGD FILTER: FIR 100 PEAK DATA: 47 02 G @ 42 50 MS, 0 02 G @ 5 62 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1993 FORD EXPLORER XLT
LEFT REAR PASSENGER LEFT UPPER THORAX RIB Y-AXIS ACCELERATION
30/15 MPH DRIVER SIDE IMPACT

TEST NUMBER 930928

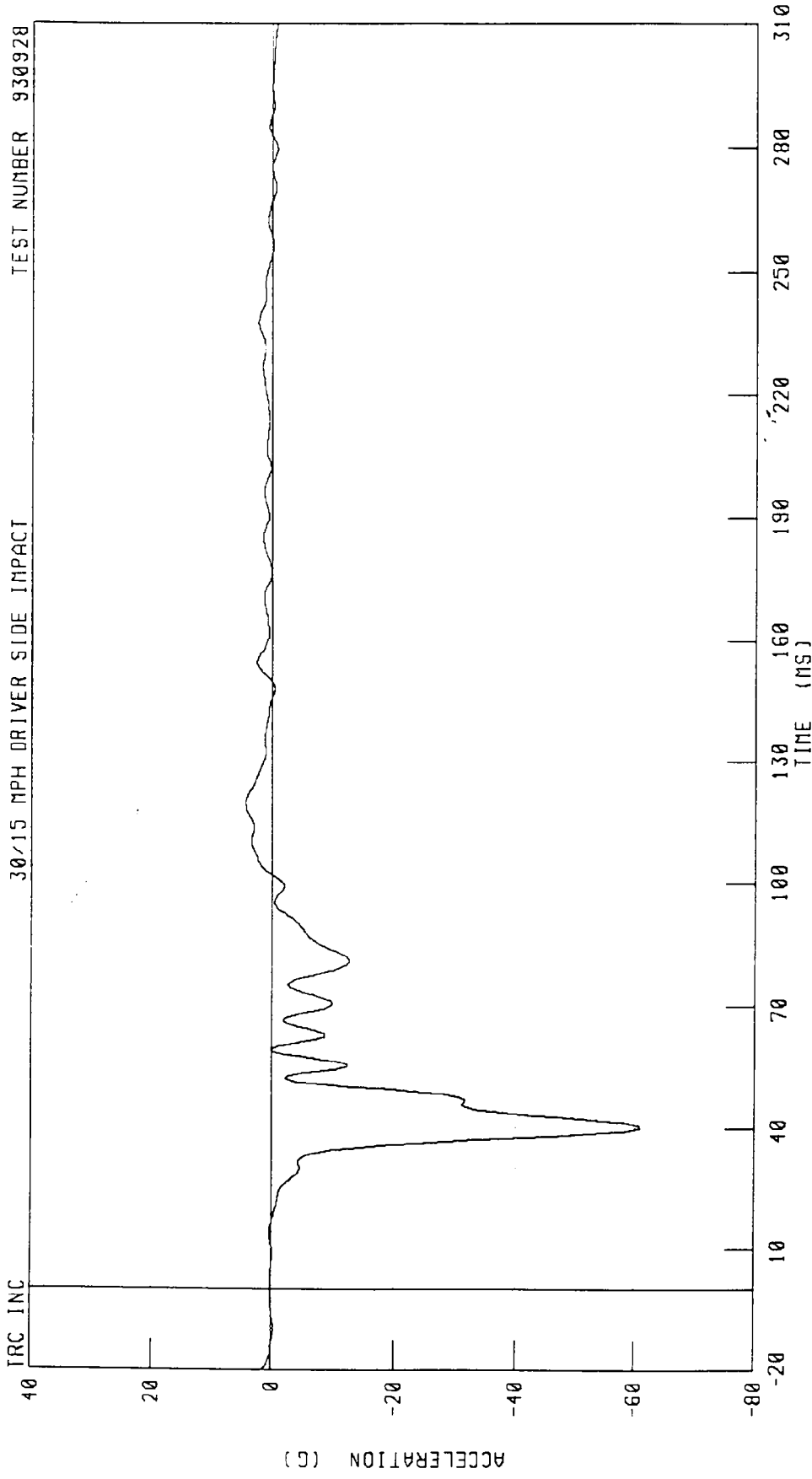


CHANNEL LURYG4 FILTER FIR 100

PEAK DATA 3 79 G @ 120 00 MS, -62 09 G @ 40 00 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1993 FORD EXPLORER XLT
LEFT REAR PASSENGER LEFT UPPER THORAX RIB Y-AXIS REDUNDANT ACCELERATION
30/15 MPH DRIVER SIDE IMPACT

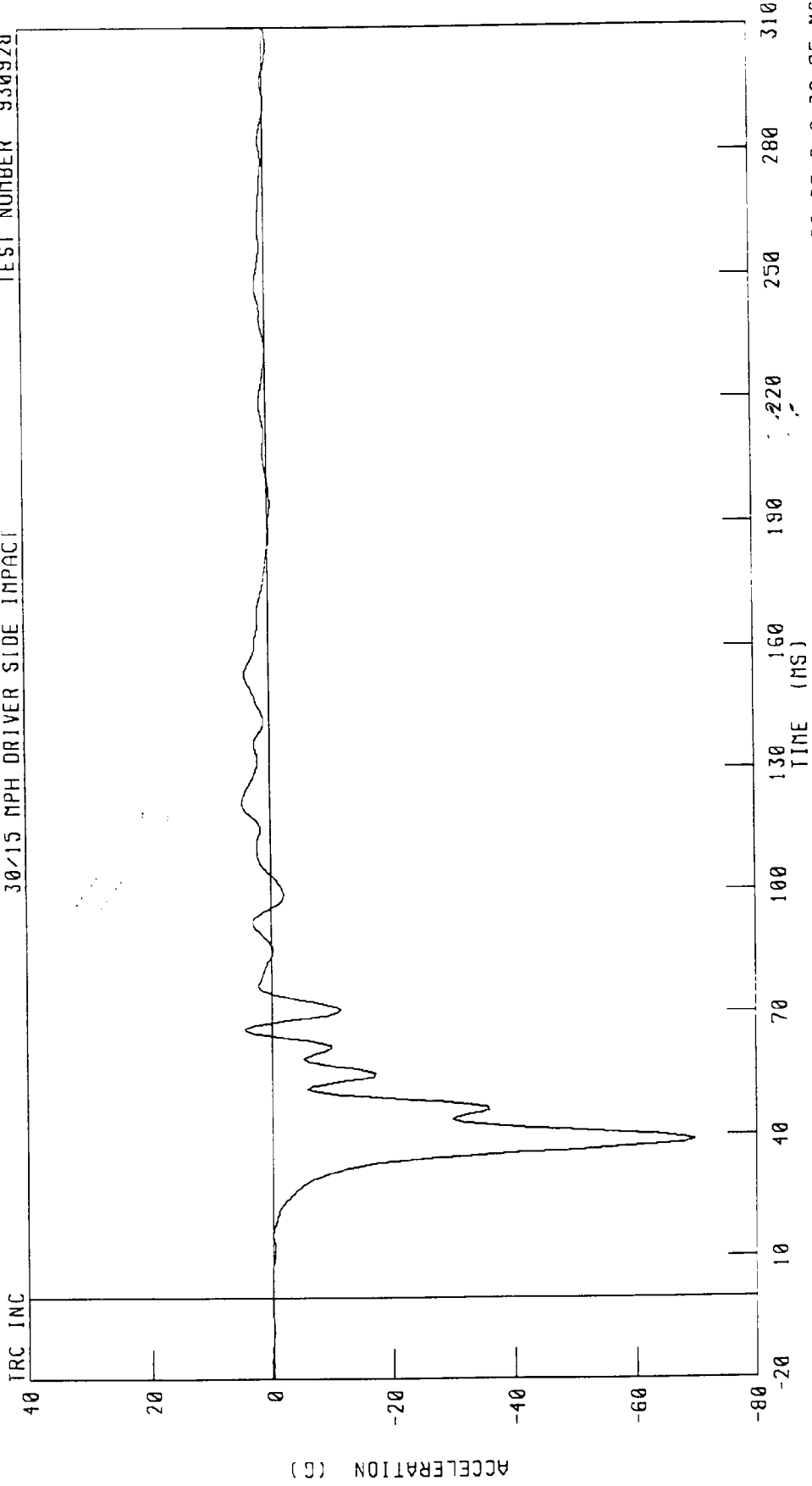
TEST NUMBER 930928



CHANNEL LURYGD FILTER FIR 100 PEAK DATA 4 33 G @ 119 38 MS, -60 90 G @ 40 00 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1993 FORD EXPLORER XLT
LEFT REAR PASSENGER LEFT LOWER THORAX RIB Y-AXIS ACCELERATION
30/15 MPH DRIVER SIDE IMPACT

TEST NUMBER 93092B



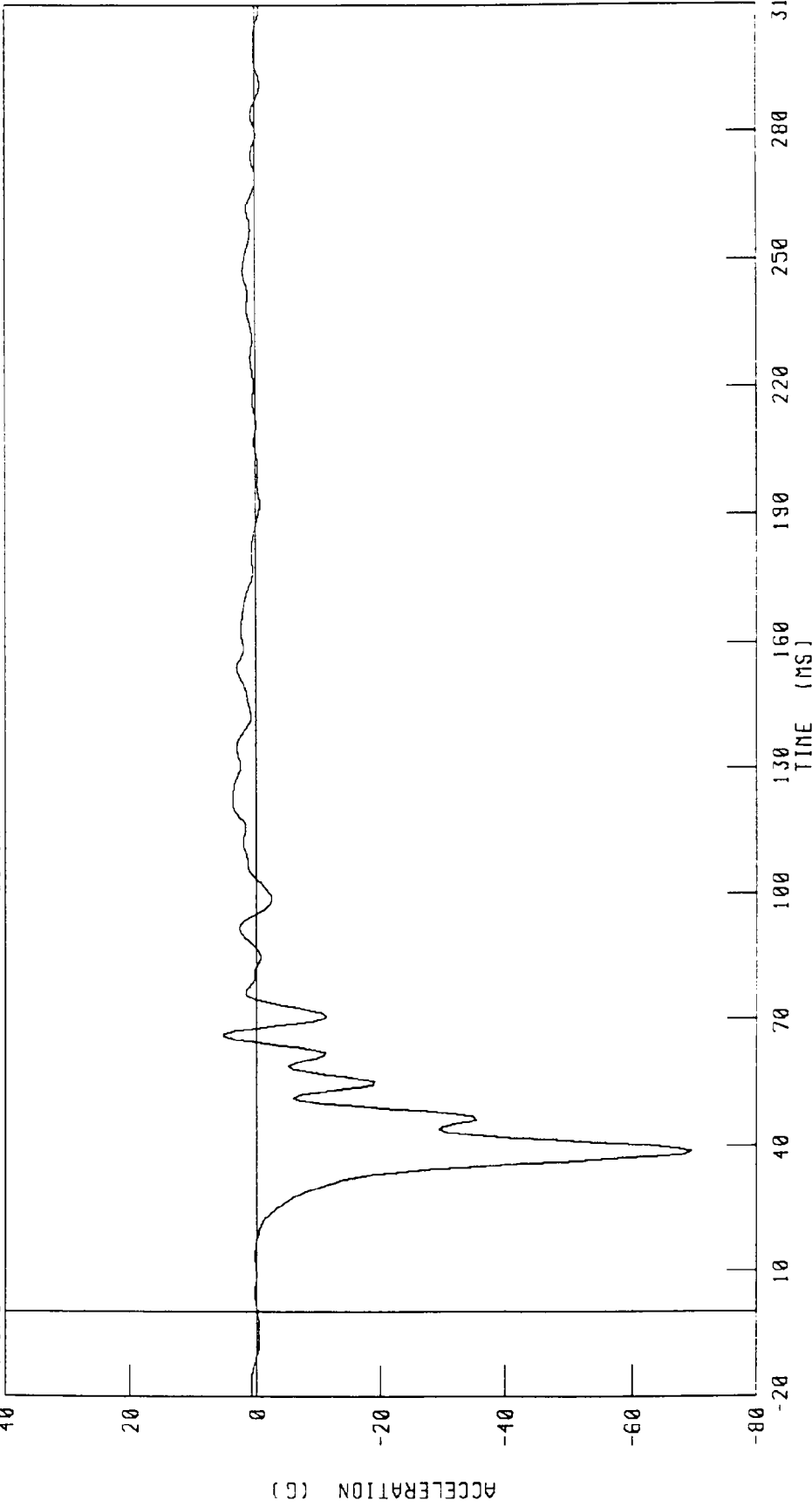
CHANNEL LRLRYC4 FILTER FIR 100

PEAK DATA 4 74 G @ 121 25 MS, -69 62 G @ 38 75 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1993 FORD EXPLORER XLT
LEFT REAR PASSENGER LEFT LOWER THORAX RIB Y AXIS REDUNDANT ACCELERATION
30/15 MPH DRIVER SIDE IMPACT

TEST NUMBER 930928

TRC INC

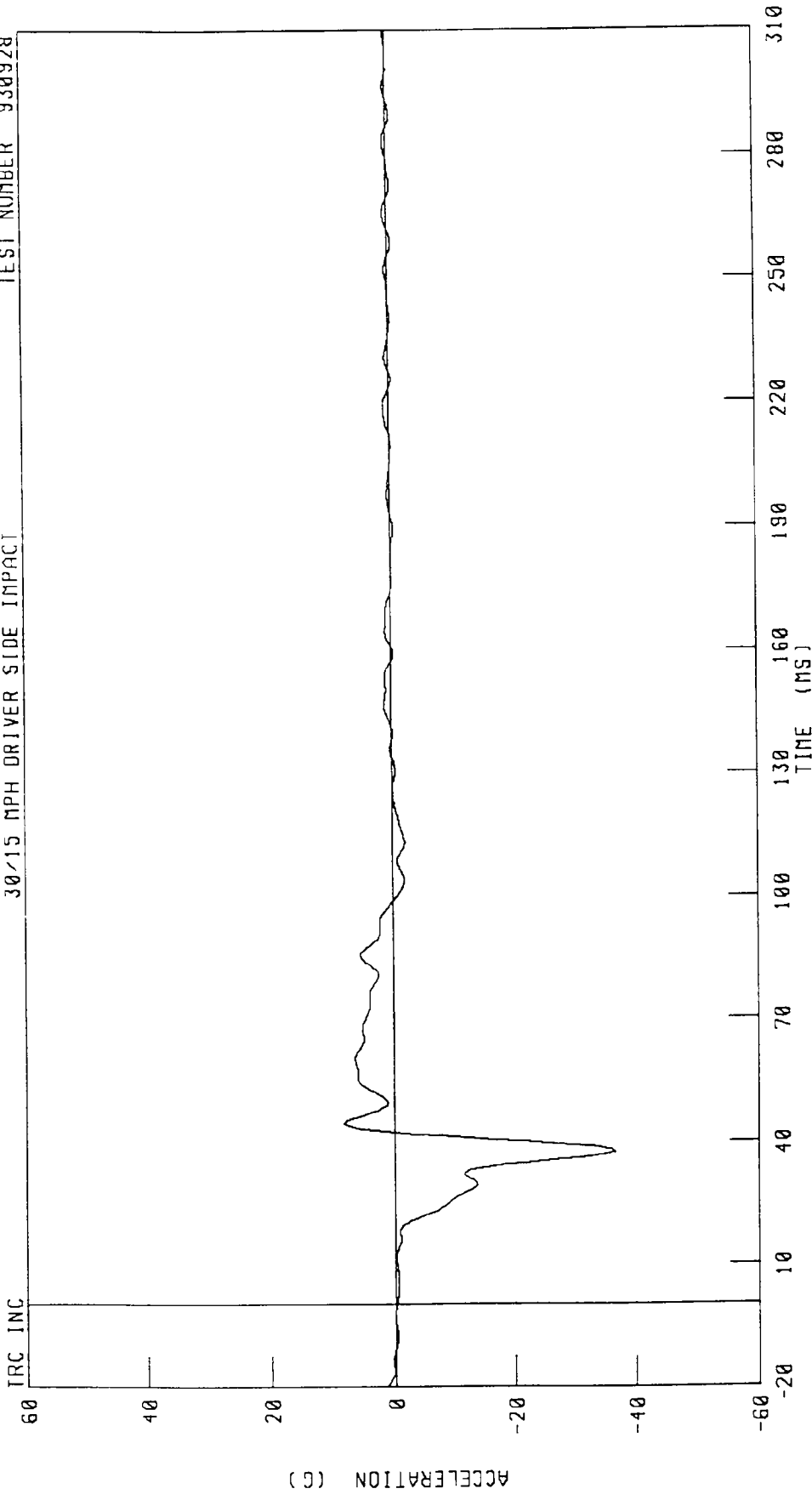


CHANNEL LLRYCD FILTER FIR 100

PEAK DATA 5 24 G @ 66 25 MS, -69 33 G @ 38 75 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1993 FORD EXPLORER XLT
LEFT REAR PASSENGER PELVIS X-AXIS ACCELERATION
30/15 MPH DRIVER SIDE IMPACT

TEST NUMBER 930928

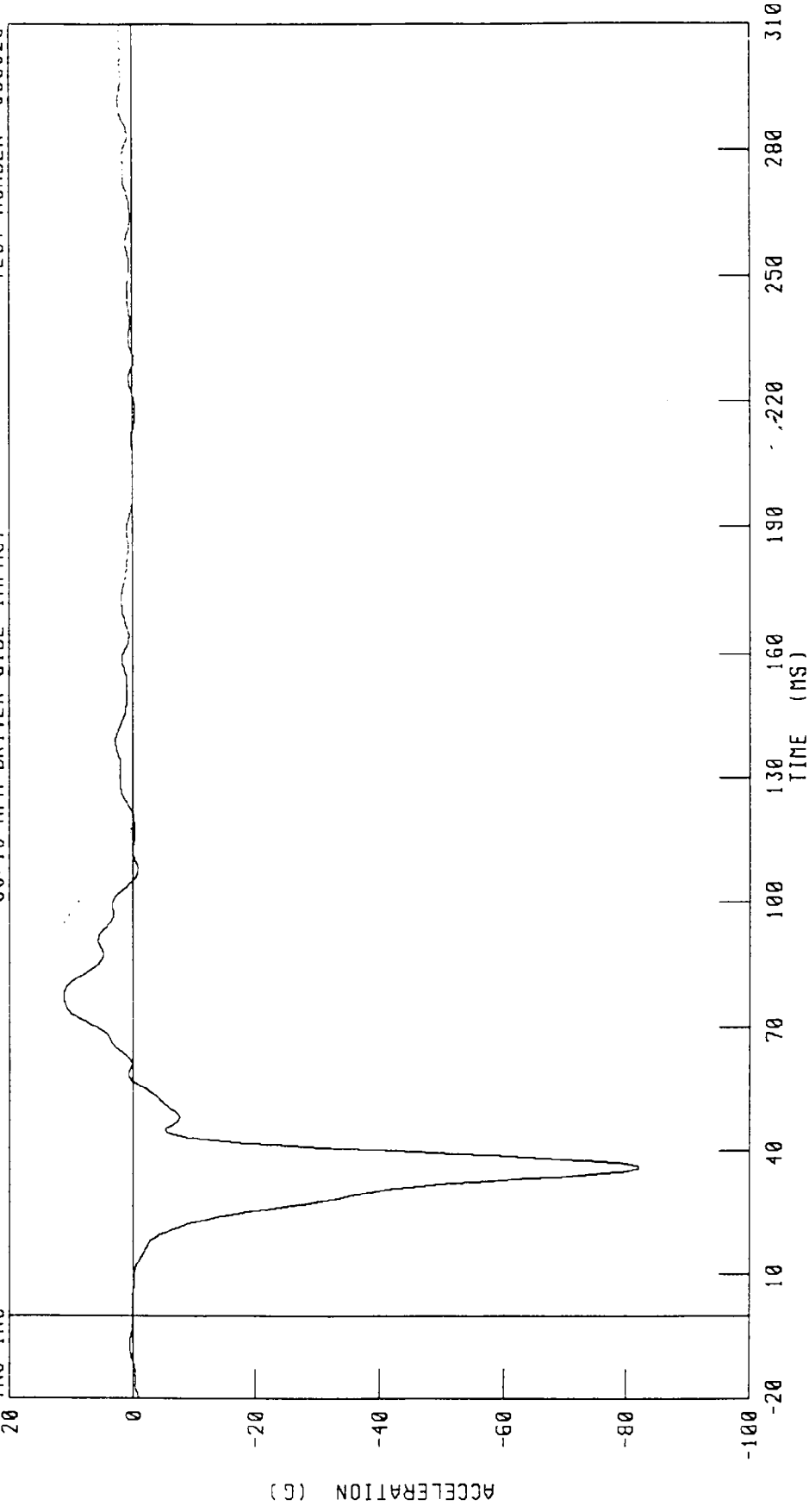


TRC INC
CHANNEL PEVXG4 FILTER FIR 100
PEAK DATA 8 23 G @ 44 38 MS, -36 55 G @ 37 50 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1993 FORD EXPLORER XLT
LEFT REAR PASSENGER PELVIS Y-AXIS ACCELERATION
30/15 MPH DRIVER SIDE IMPACT

TEST NUMBER 930928

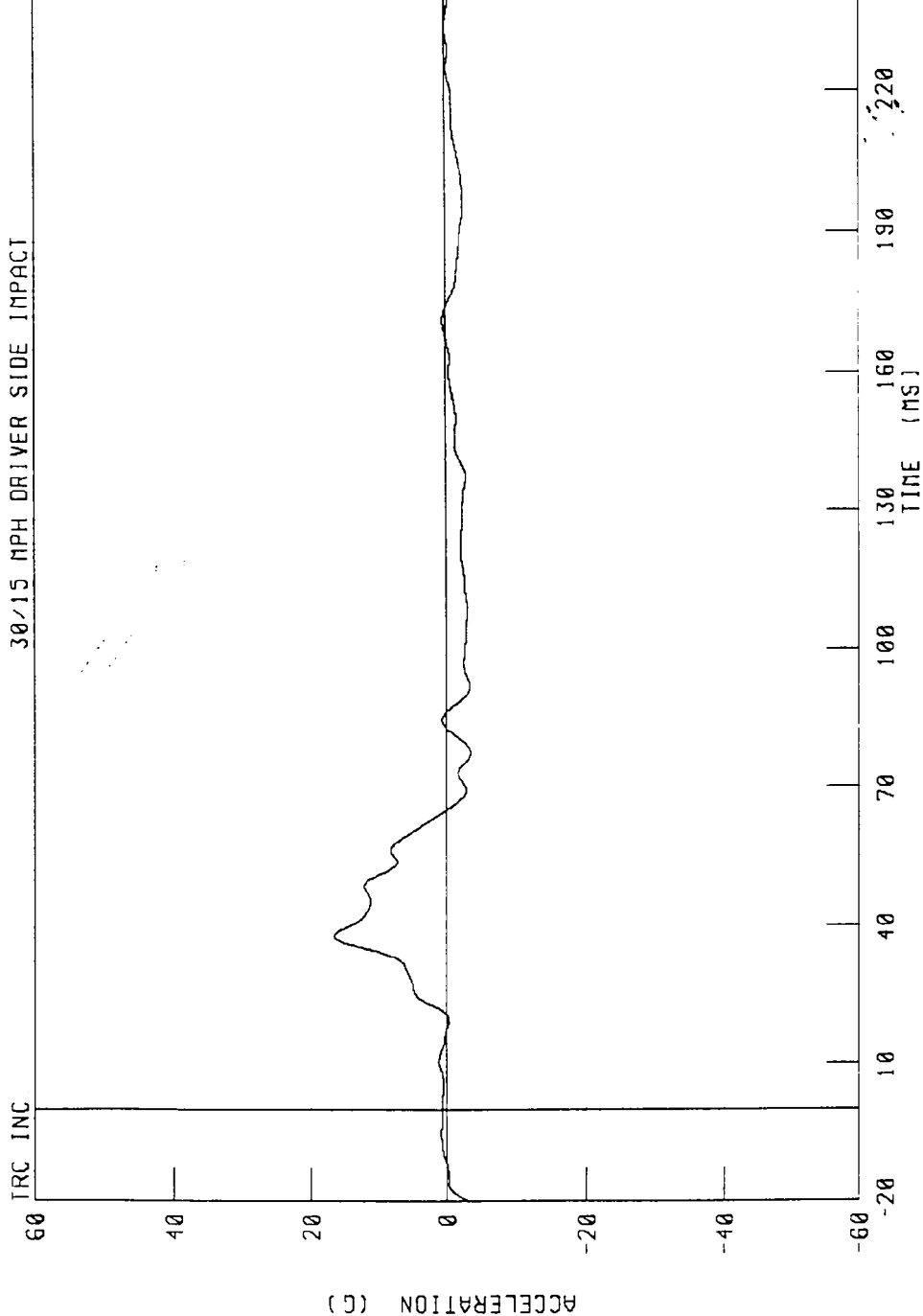
IRC INC



CHANNEL PEYG4 FILTER FIR 100
PEAK DATA 11 33 G @ 77 50 MS, -82 06 G @ 35 63 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1993 FORD EXPLORER XLT
LEFT REAR PASSENGER PELVIS Z-AXIS ACCELERATION
30/15 MPH DRIVER SIDE IMPACT

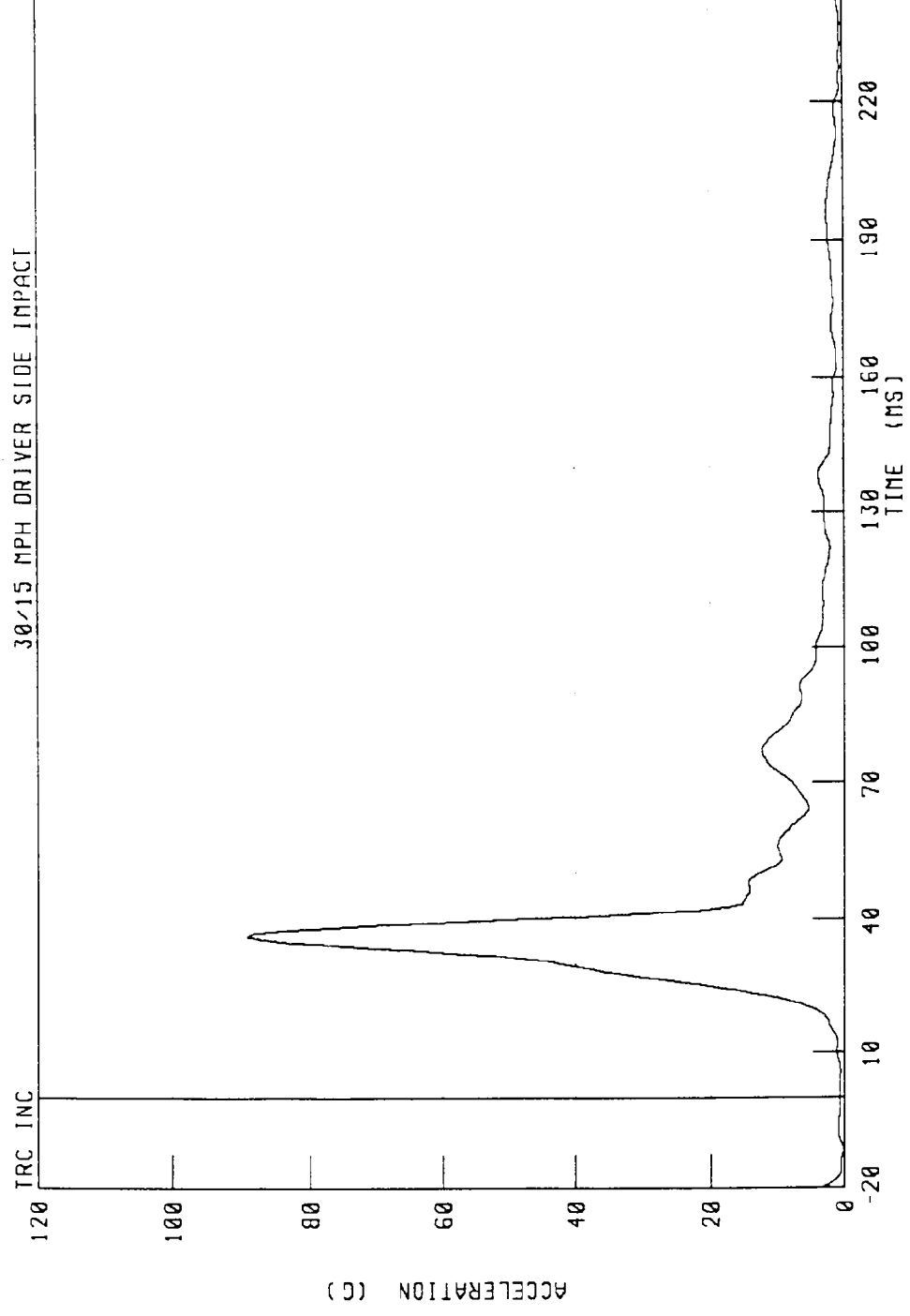
TEST NUMBER 930928



CHANNEL PEVZG4 FILTER FIR 100 PEAK DATA 16 67 G @ 37 50 MS, -3 60 G @ 77 50 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1993 FORD EXPLORER XLT
LEFT REAR PASSENGER PELVIS RESULTANT ACCELERATION
30/15 MPH DRIVER SIDE IMPACT

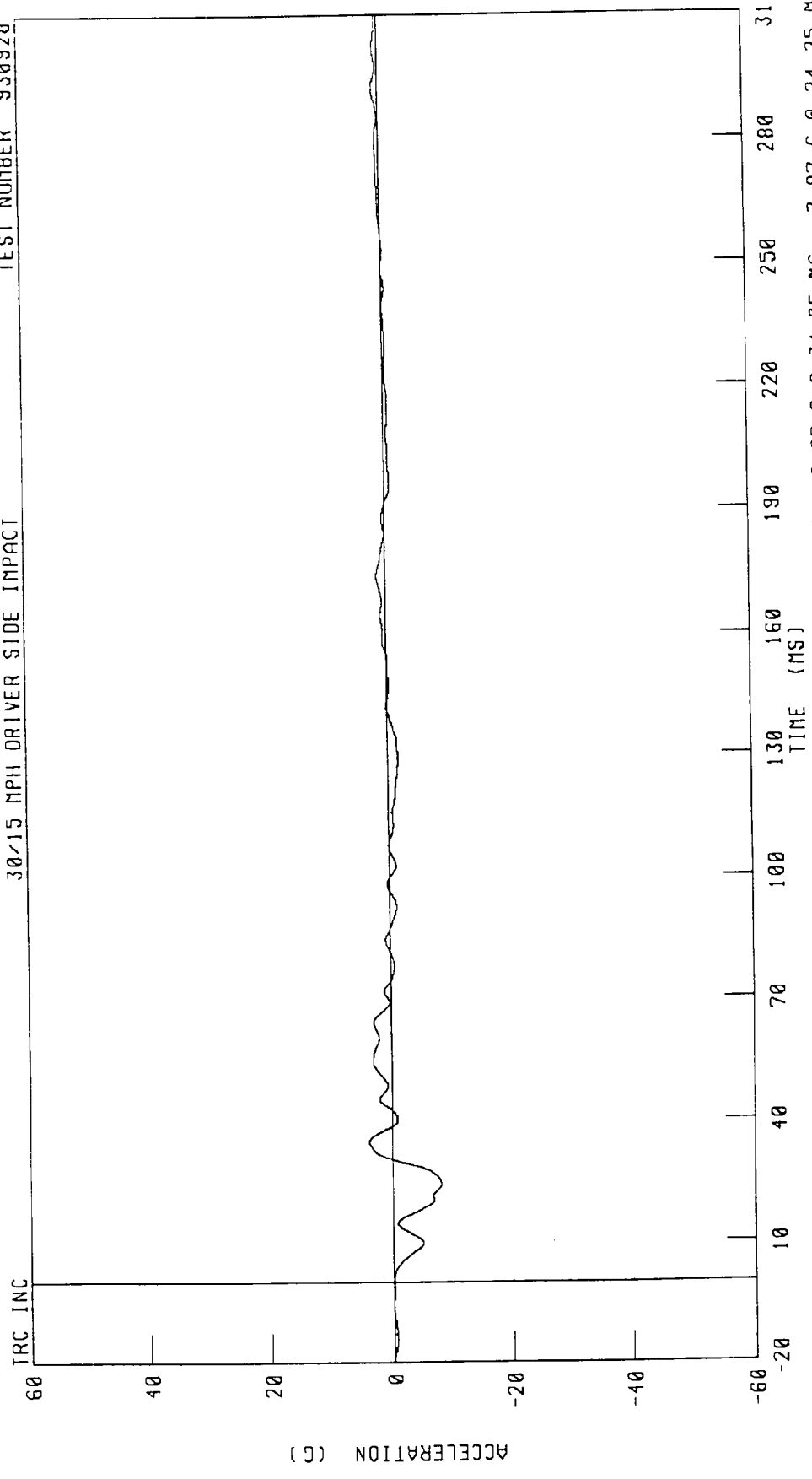
TEST NUMBER 930928



TRC INC
CHANNEL PEVRG4 FILTER FIR 100
PEAK DATA 89 22 G @ 36 25 MS, 0 16 G @ -11 88 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1993 FORD EXPLORER XLT
VEHICLE RIGHT FRONT SILL X-AXIS ACCELERATION
30/15 MPH DRIVER SIDE IMPACT

TEST NUMBER 930928



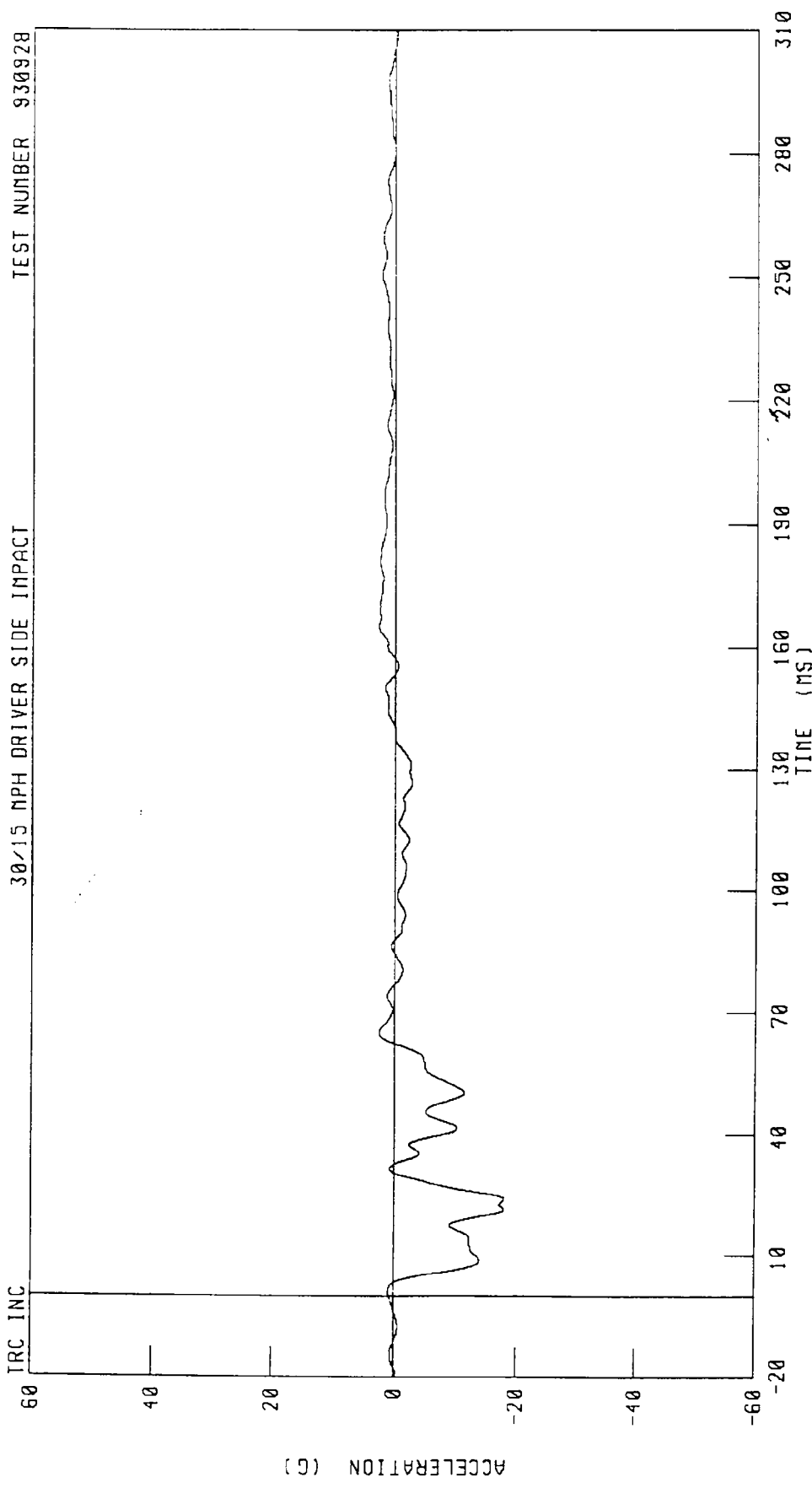
PEAK DATA 3 87 G @ 34 75 MS, -7 97 G @ 24 25 MS

CHANNEL RFSXG1 FILTER CH CLASS 60

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1993 FORD EXPLORER XLT
VEHICLE RIGHT FRONT SILL Y-AXIS ACCELERATION
30/15 MPH DRIVER SIDE IMPACT

TEST NUMBER 930928

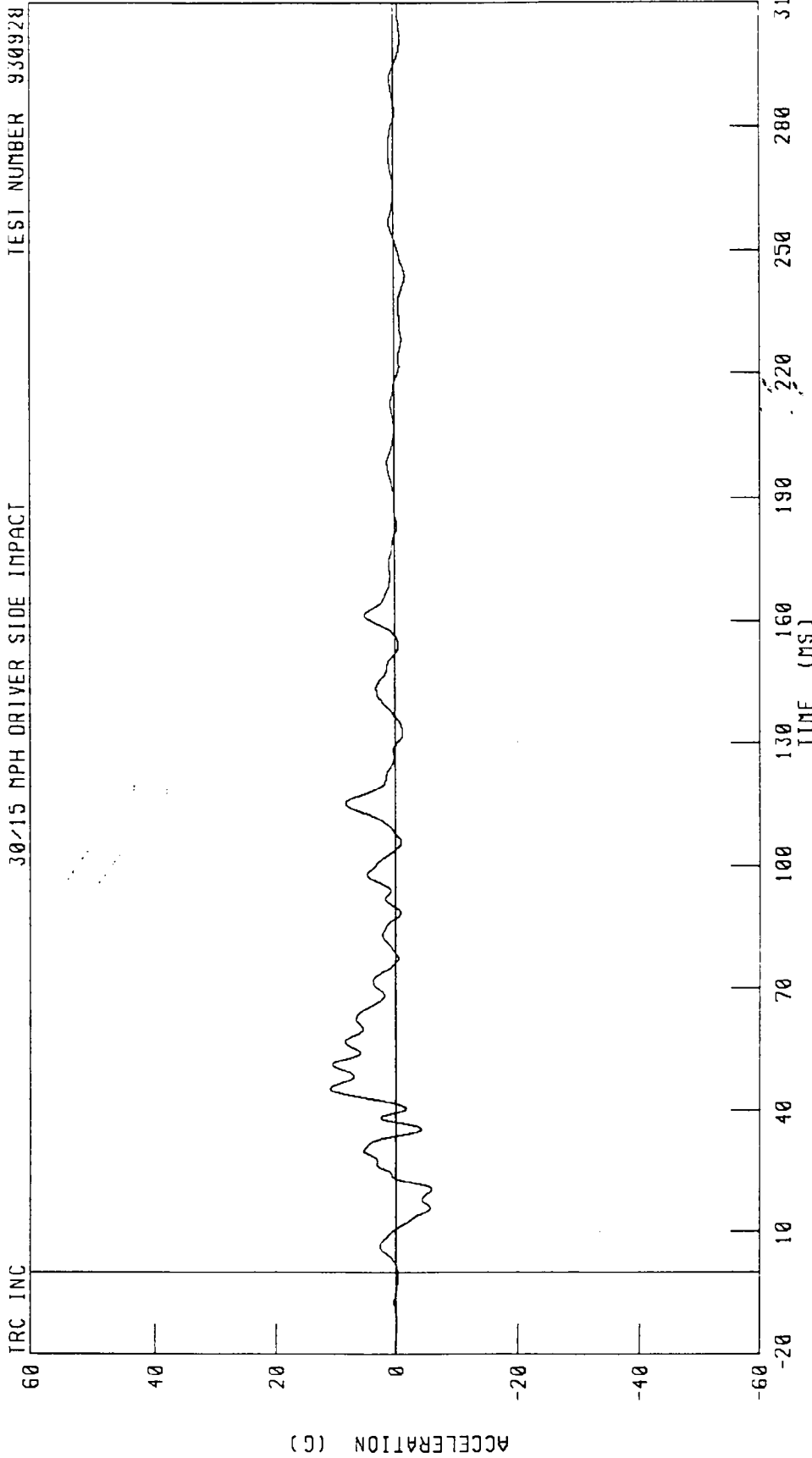
TRC INC



CHANNEL RFSYG1 FILTER CH CLASS 60 PEAK DATA 2 55 G @ 164 88 MS, -18 00 G @ 23 88 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1993 FORD EXPLORER XL.T
VEHICLE RIGHT FRONT SILL Z-AXIS ACCELERATION
30/15 MPH DRIVER SIDE IMPACT

TEST NUMBER 930928



CHANNEL RFSZG1 FILTER CH CLASS 60 PEAK DATA 11 00 G @ 45 13 MS, -5 96 G @ 20 38 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1993 FORD EXPLORER XLT
VEHICLE RIGHT FRONT SILL RESULTANT ACCELERATION
30/15 MPH DRIVER SIDE IMPACT

TEST NUMBER 930928

IRC INC

120

100

ACCELERATION (G)

80

60

40

20

0

-20

10

40

70

100

130

160

190

220

250

280

310

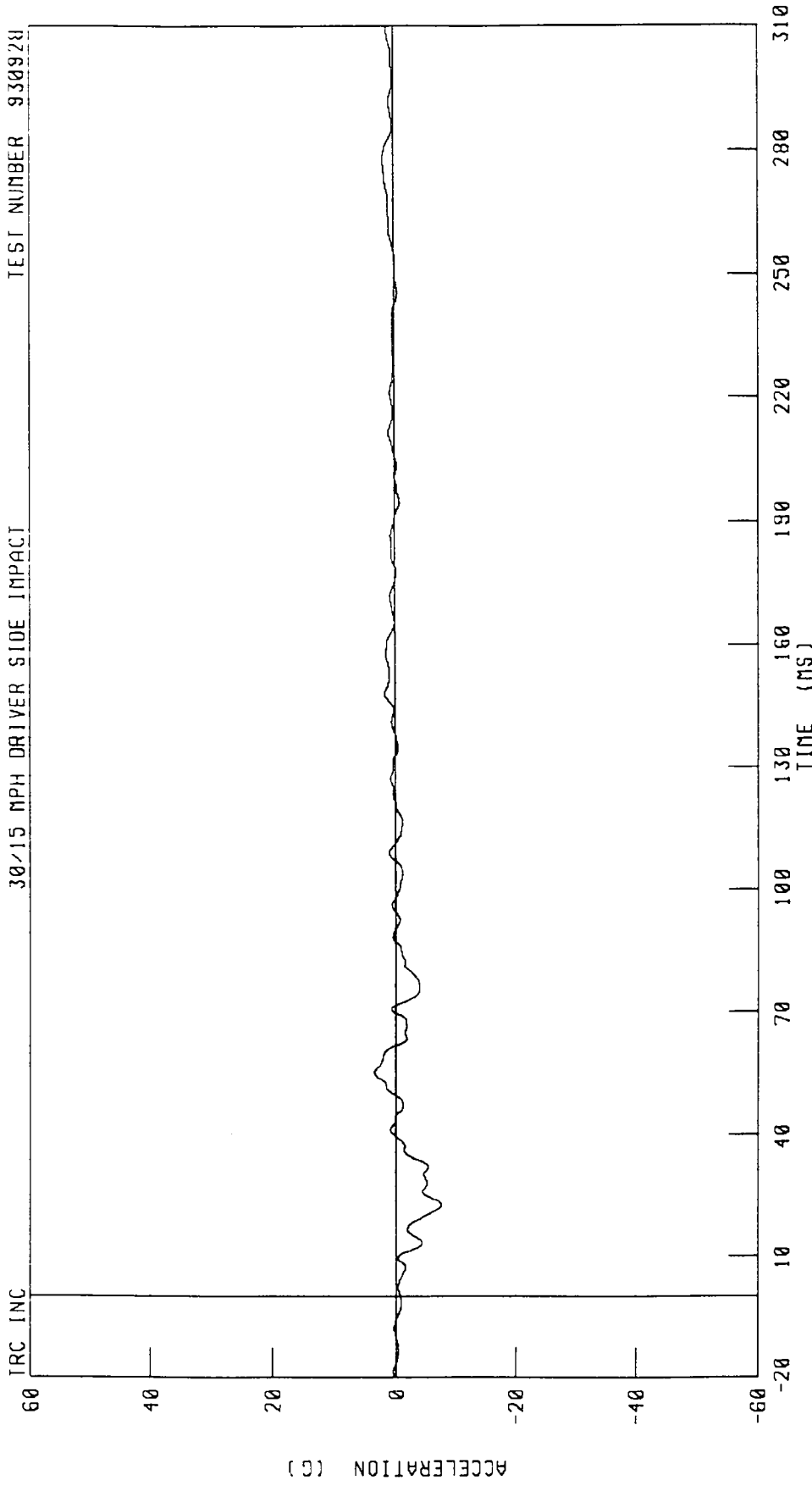
TIME (MS)

CHANNEL: RFSRGI FILTER: CH CLASS 60

PEAK DATA: 19.86 G @ 21.00 MS; 0.14 G @ -20.00 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1993 FORD EXPLORER XLT
REAR FLOORPAN ABOVE REAR AXLE X-AXIS ACCELERATION
30/15 MPH DRIVER SIDE IMPACT

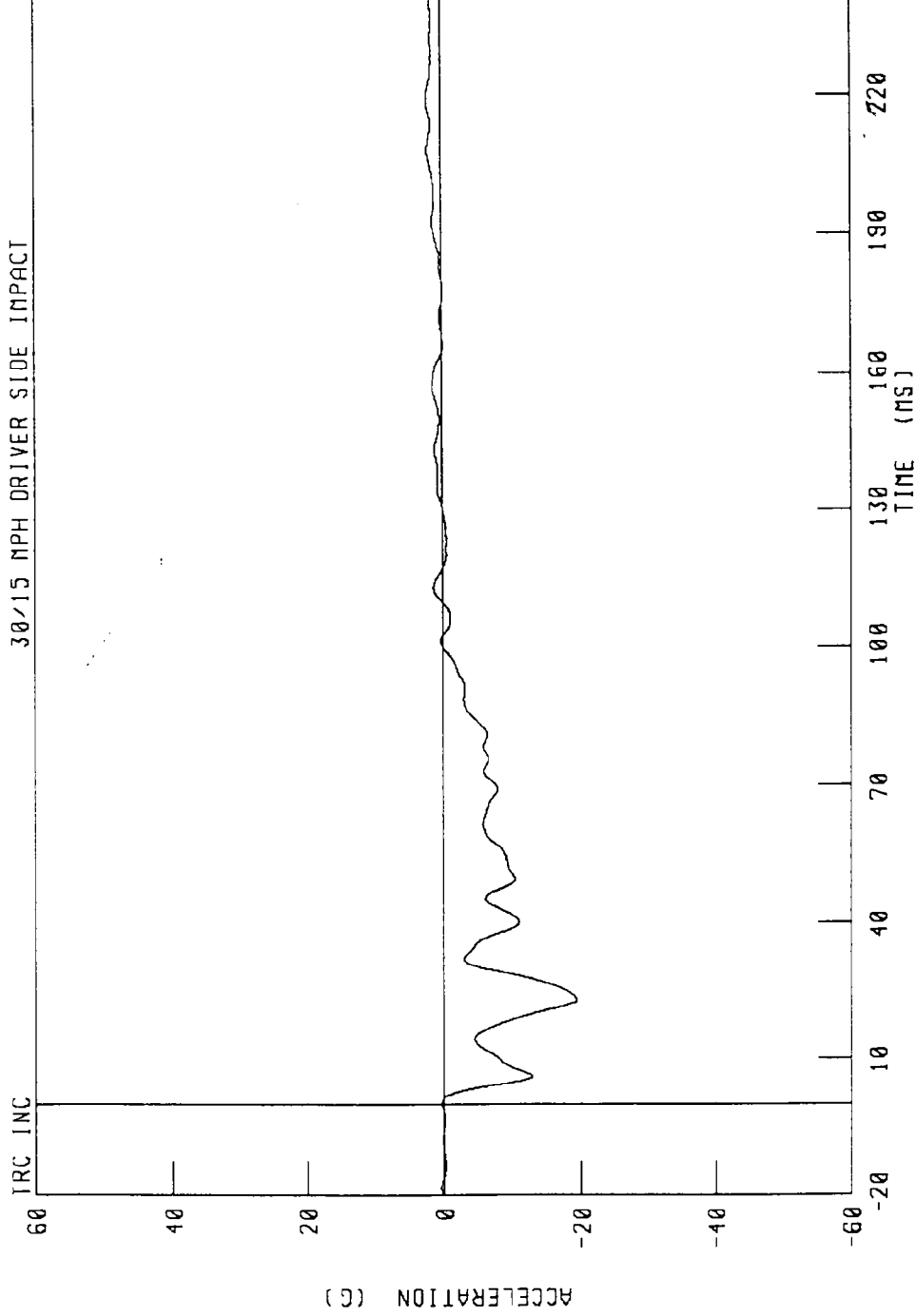
TEST NUMBER 930924



CHANNEL R0KXG1 FILTER CH CLASS 60 PEAK DATA 3 54 G @ 55 00 MS, -7 45 G @ 22 63 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1993 FORD EXPLORER XLT
REAR FLOORPAN ABOVE REAR AXLE Y-AXIS ACCELERATION
30/15 MPH DRIVER SIDE IMPACT

TEST NUMBER 930928

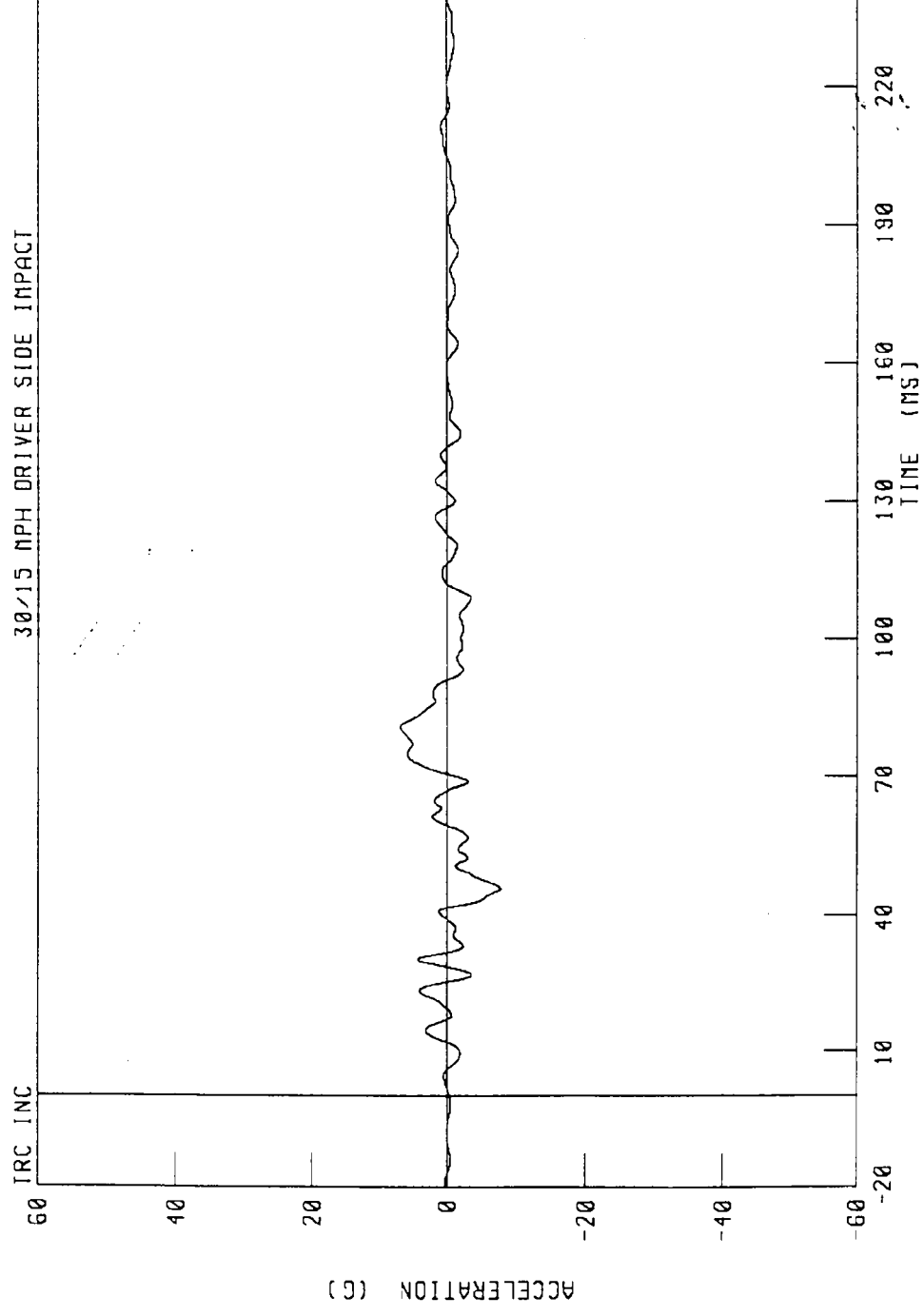


CHANNEL ROKYGI FILTER CH CLASS 60

PEAK DATA 2 08 G @ 218.63 MS, -19 31 G @ 22 88 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1993 FORD EXPLORER XLT
REAR FLOORPAN ABOVE REAR AXLE Z-AXIS ACCELERATION
30/15 MPH DRIVER SIDE IMPACT

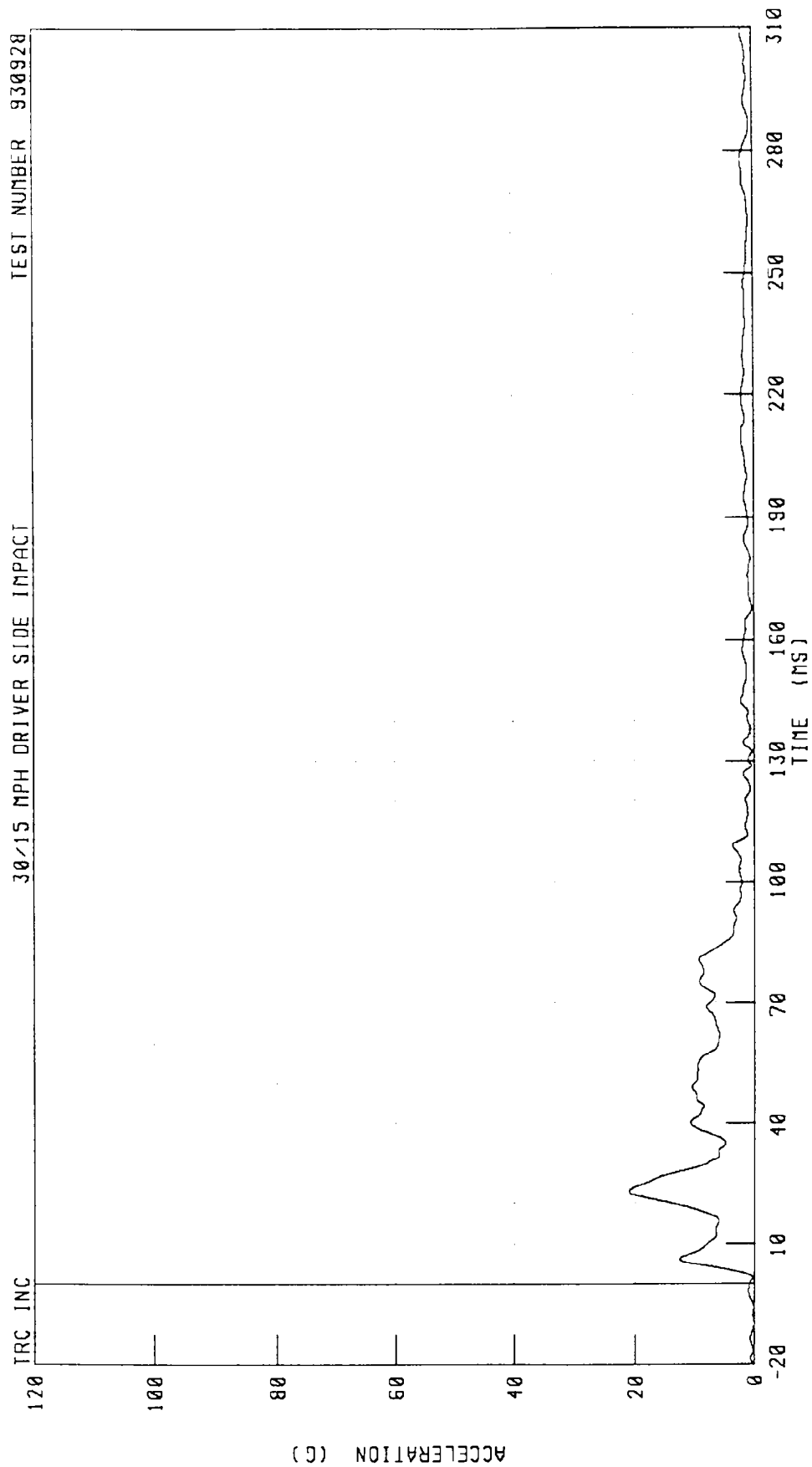
TEST NUMBER 930928



CHANNEL RDKZG1 FILTER CH CLASS 60
PEAK DATA: 7 01 G @ 80.75 MS, -7 71 G @ 45 75 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1993 FORD EXPLORER XLT
REAR FLOORPAN ABOVE REAR AXLE RESULTANT ACCELERATION
30/15 MPH DRIVER SIDE IMPACT

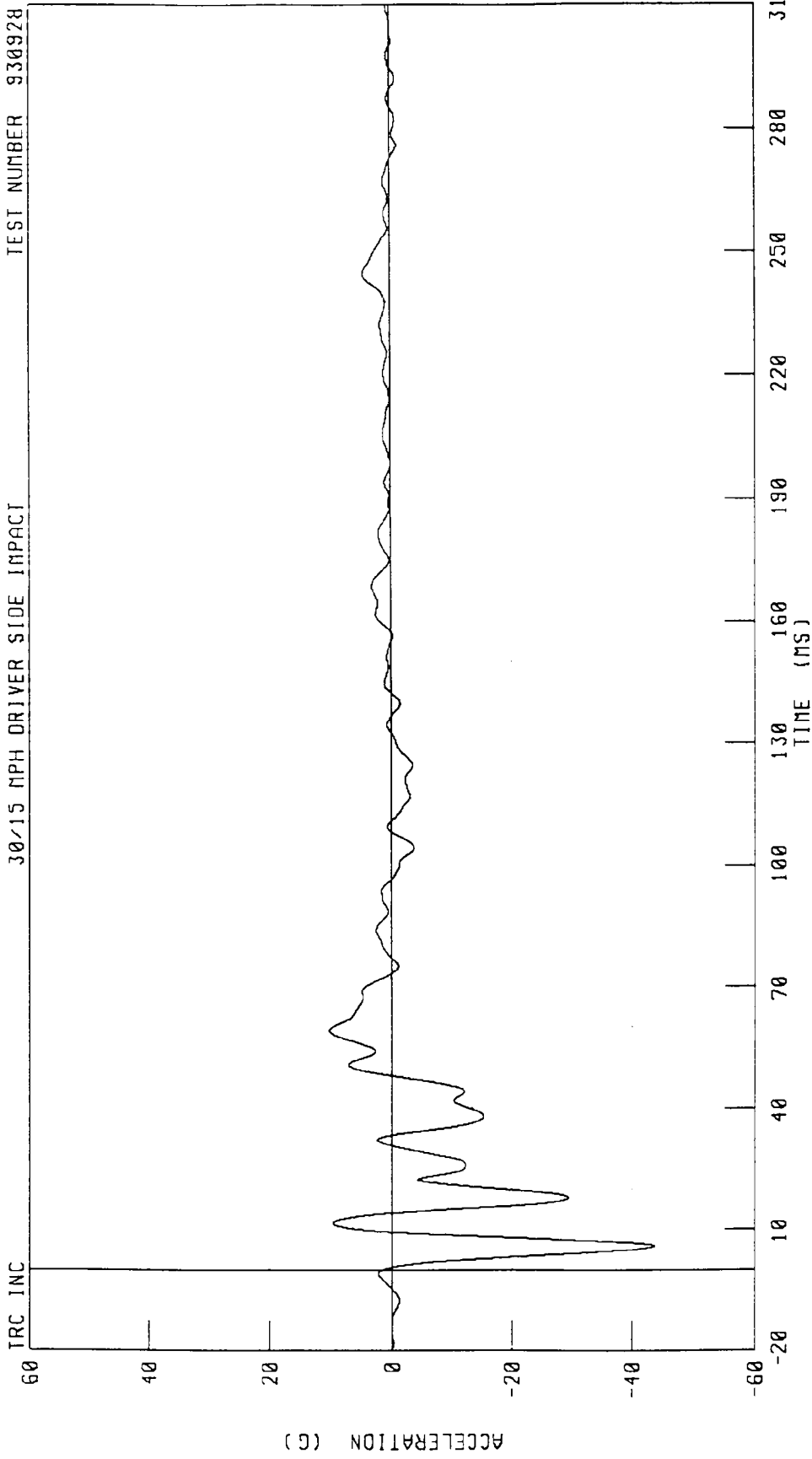
TEST NUMBER 930928



CHANNEL: RDKRG1 FILTER: CH CLASS 60 PEAK DATA: 21.02 G @ 22.88 MS, 0.05 G @ -10.25 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1993 FORD EXPLORER XLT
LEFT FRONT SILL Y-AXIS ACCELERATION
30/15 MPH DRIVER SIDE IMPACT

TEST NUMBER 930928

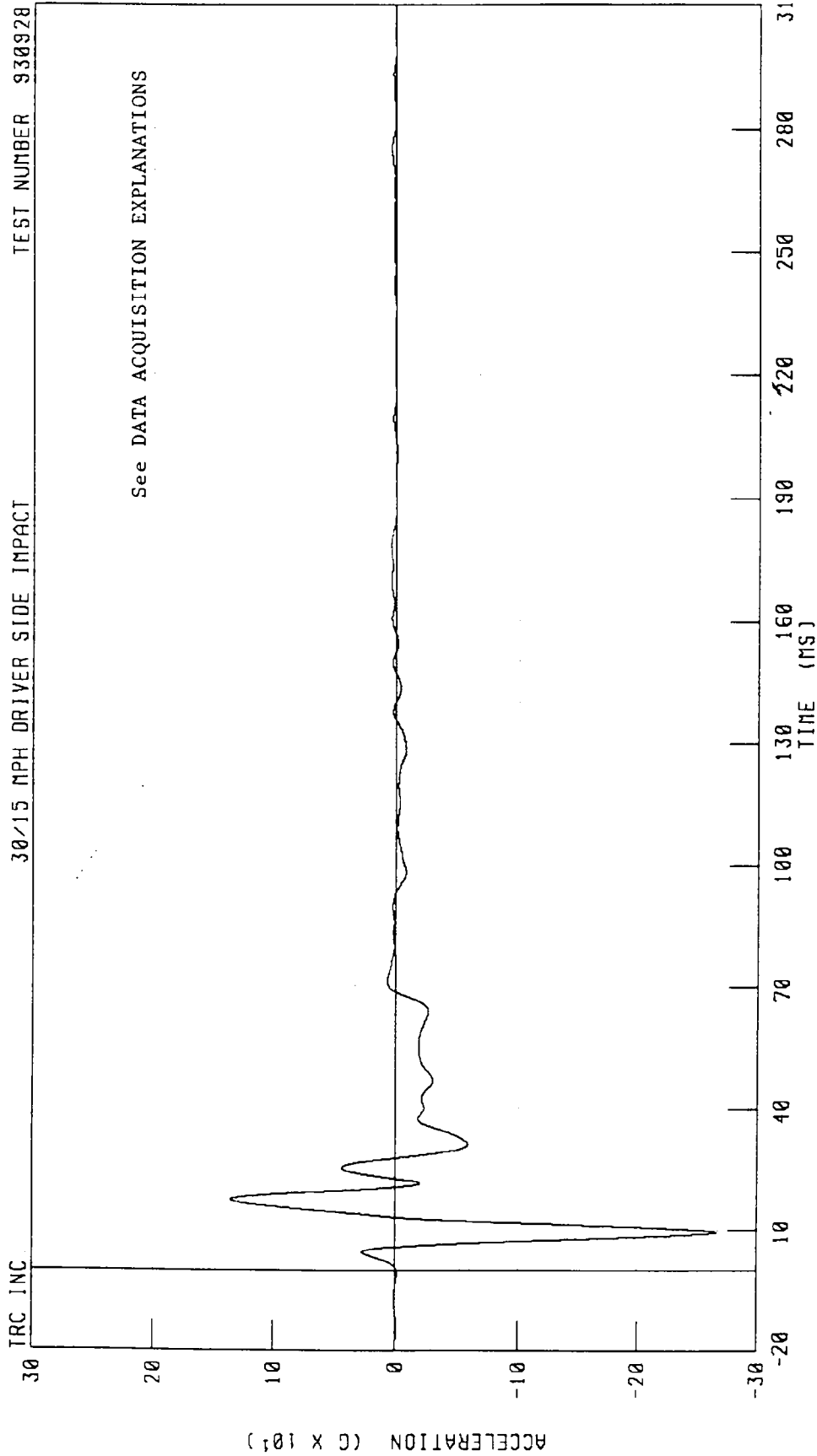


CHANNEL LFSYG1 FILTER CH CLASS 60

PEAK DATA 10 27 G @ 59 00 MS, -43 67 G @ 5 88 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1993 FORD EXPLORER XLT
LEFT FRONT DOOR CENTERLINE Y-AXIS ACCELERATION
30/15 MPH DRIVER SIDE IMPACT

TEST NUMBER 930928

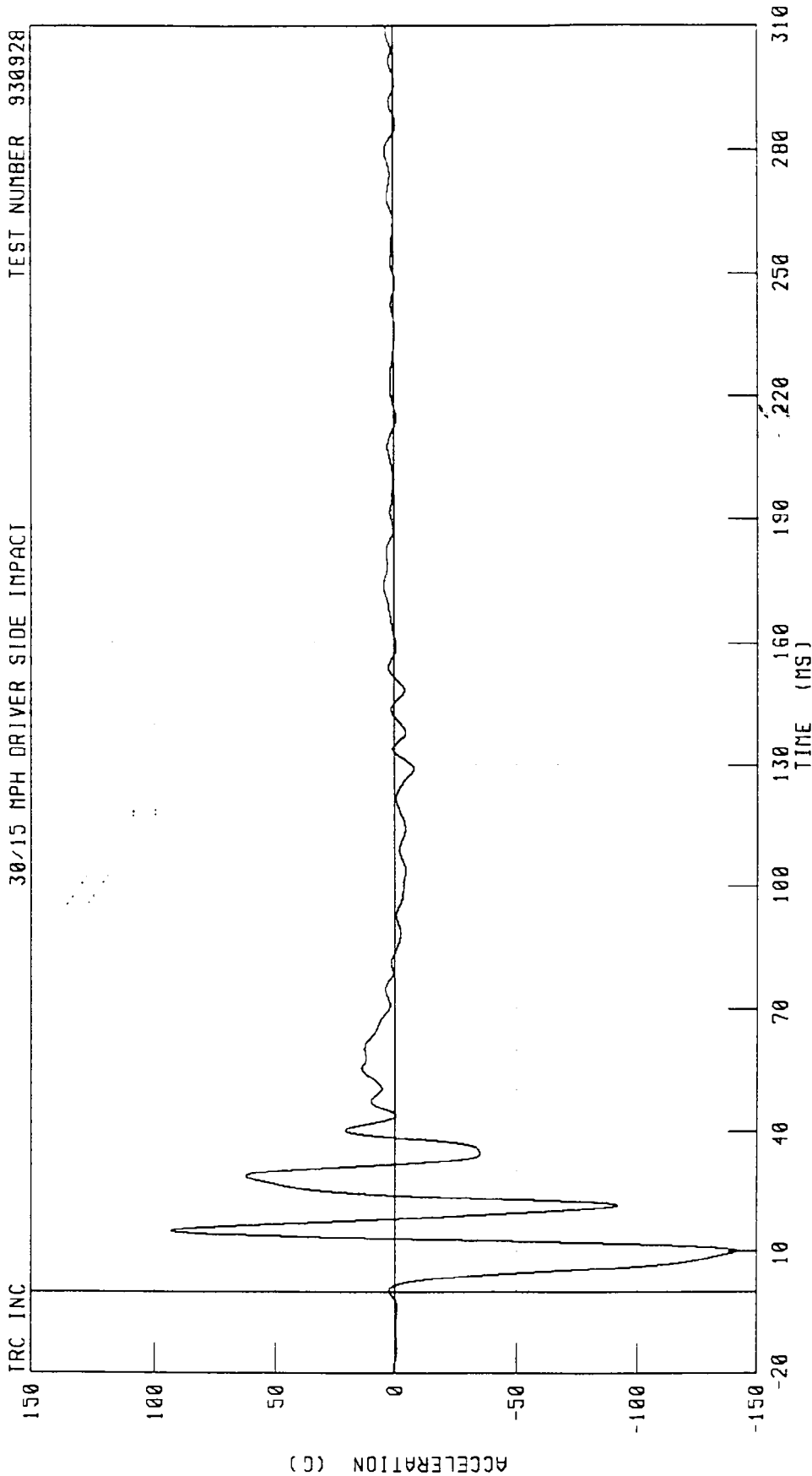


CHANNEL: LFDY61 FILTER: CH CLASS 60

PEAK DATA: 135 51 G @ 17 50 MS, -265 98 G @ 9 50 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1993 FORD EXPLORER XIT
LEFT FRONT DOOR UPPER CENTERLINE Y-AXIS ACCELERATION
30/15 MPH DRIVER SIDE IMPACT

TEST NUMBER 930928

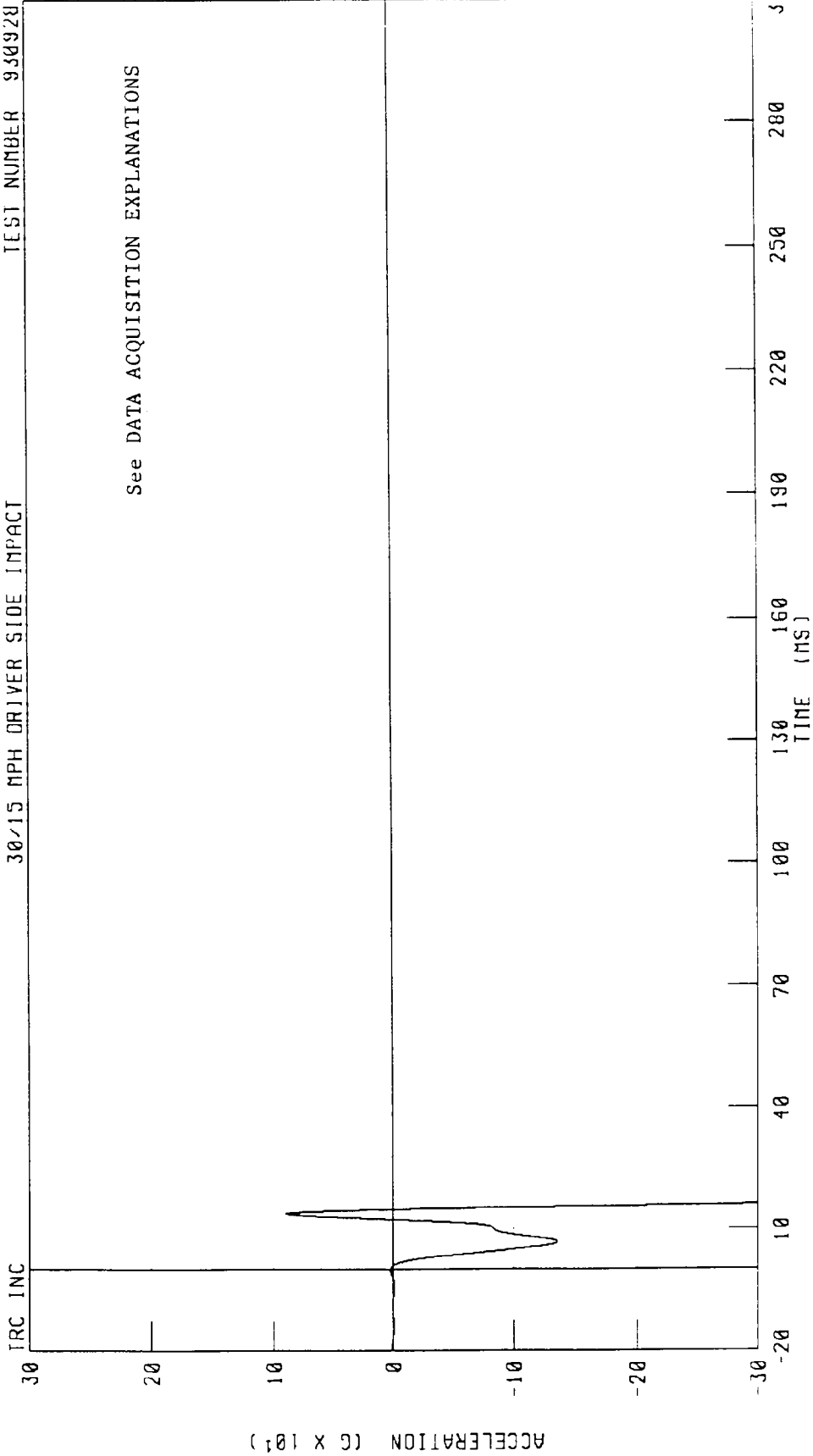


CHANNEL LFDYG2 FILTER CH. CLASS 60

PEAK DATA 93.13 G @ 15.00 MS, -141.50 G @ 10.13 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1993 FORD EXPLORER XLT
LEFT FRONT DOOR MID-REAR Y-AXIS ACCELERATION
30/15 MPH DRIVER SIDE IMPACT

TEST NUMBER 930928



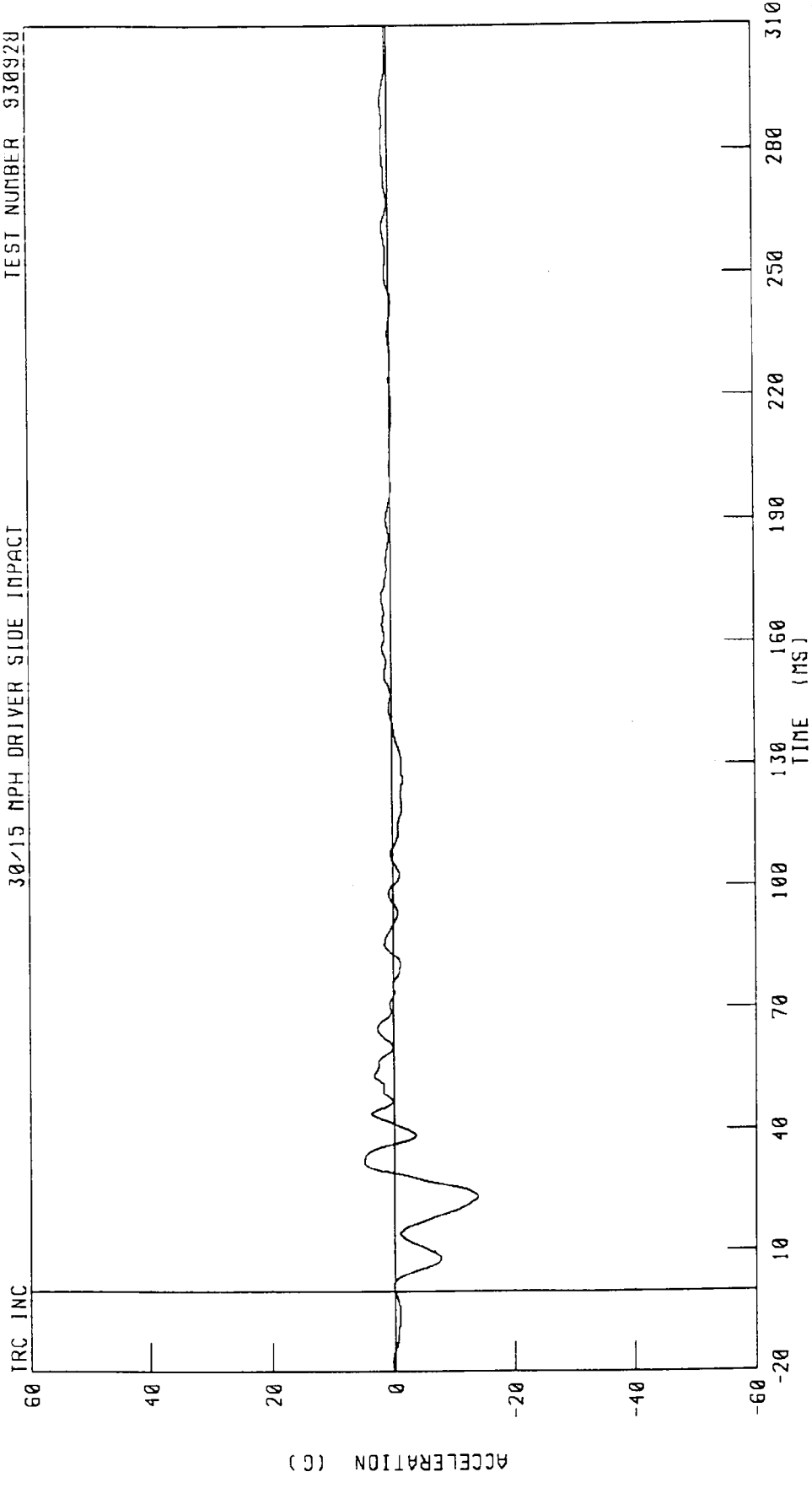
See DATA ACQUISITION EXPLANATIONS

CHANNEL LFDYG3 FILTER CH CLASS 60

PEAK DATA 89 82 G @ 13 88 MS, -1124 27 G @ 64 63 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1993 FORD EXPLORER XLT
RIGHT REAR SILL X-AXIS ACCELERATION
30/15 MPH DRIVER SIDE IMPACT

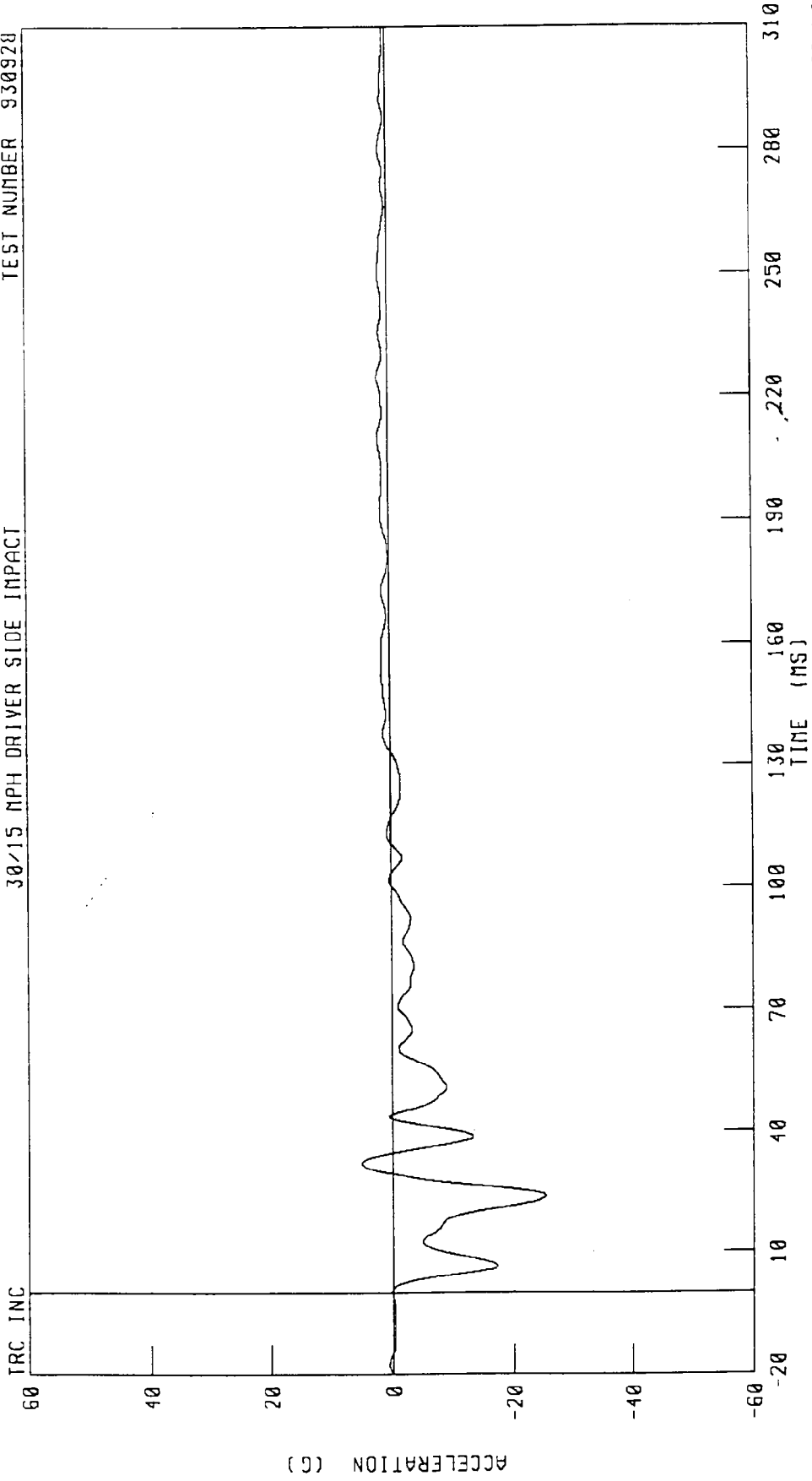
TEST NUMBER 930928



CHANNEL RRSXG1 FILTER CH CLASS 60 PEAK DATA 4 94 G @ 32 38 MS, -13 75 G @ 23 38 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1993 FORD EXPLORER XLT
RIGHT REAR SILL Y-AXIS ACCELERATION
30/15 MPH DRIVER SIDE IMPACT

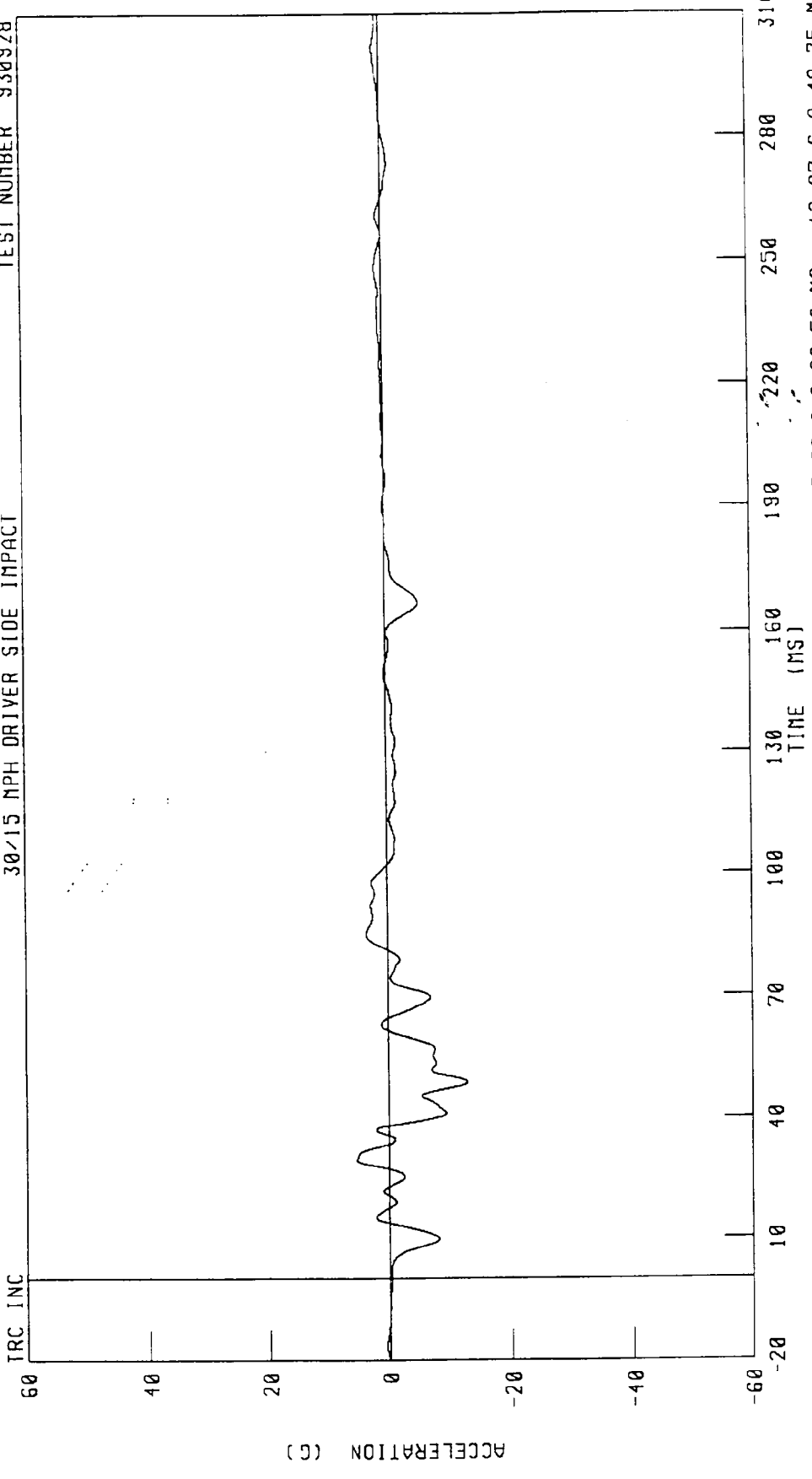
TEST NUMBER 930928



CHANNEL RRSYG1 FILTER CH CLASS 60 PEAK DATA: 5 06 G @ 32 13 MS, -25 38 G @ 23 88 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1993 FORD EXPLORER XLT
RIGHT REAR SILL Z-AXIS ACCELERATION
30/15 MPH DRIVER SIDE IMPACT

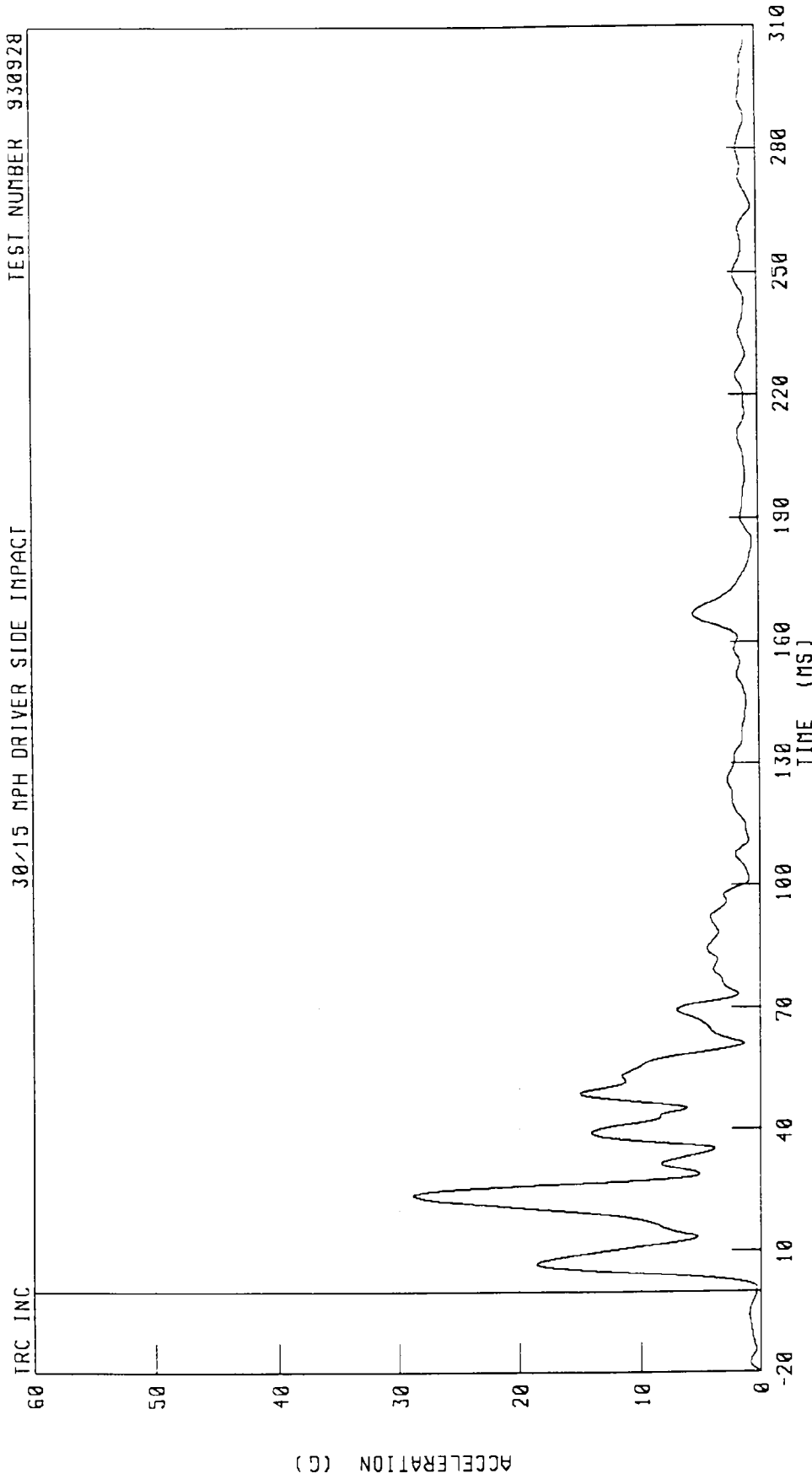
TEST NUMBER 930928



CHANNEL RRSZG1 FILTER CH CLASS 60 PEAK DATA 5 39 G @ 29 50 MS, -12 87 G @ 48 75 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1993 FORD EXPLORER XLT
RIGHT REAR SILL RESULTANT ACCELERATION
30/15 MPH DRIVER SIDE IMPACT

TEST NUMBER 930928



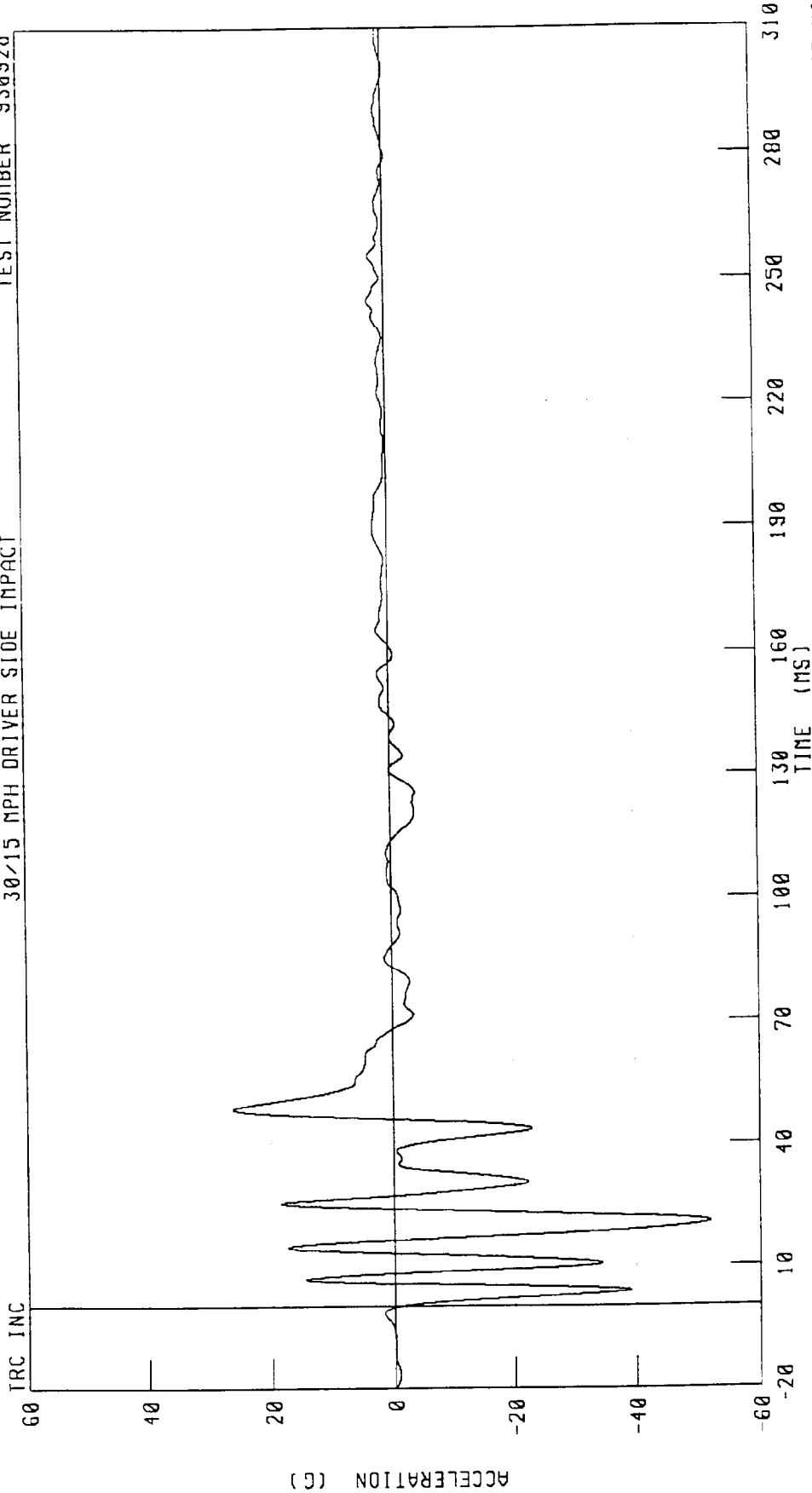
TRC INC

CHANNEL RRSRG1 FILTER CH CLASS 60

PEAK DATA 28 82 G @ 23 75 MS, 0 04 G @ -20 00 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1993 FORD EXPLORER XLT
LEFT REAR SILL Y-AXIS ACCELERATION
30/15 MPH DRIVER SIDE IMPACT

TEST NUMBER 930928

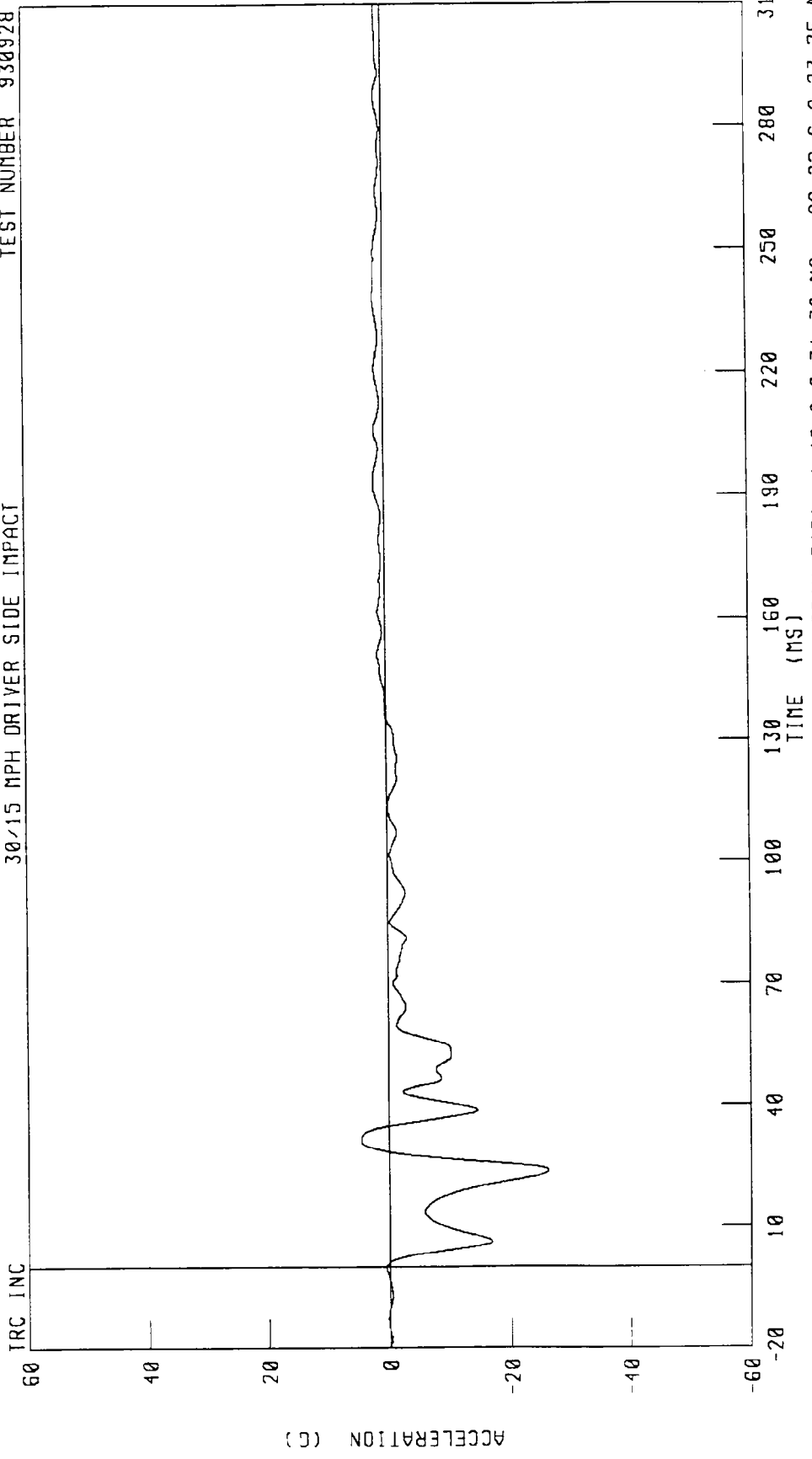


CHANNEL: LRSYG1 FILTER: CH CLASS 60

PEAK DATA 26 11 G @ 48 38 MS, -51 84 G @ 20 63 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1993 FORD EXPLORER XLT
RIGHT REAR SEAT Y-AXIS ACCELERATION
30/15 MPH DRIVER SIDE IMPACT

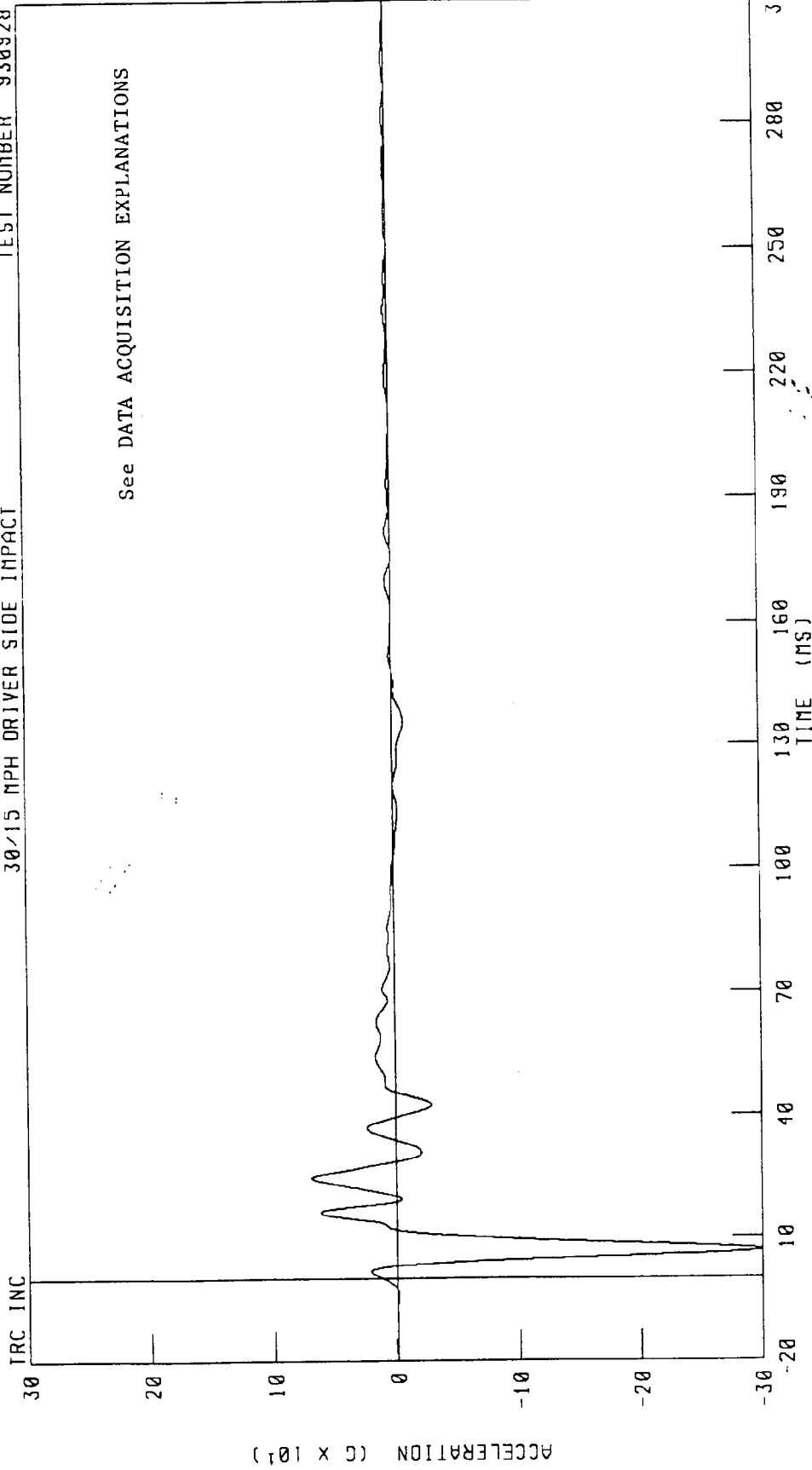
TEST NUMBER 930928



CHANNEL TRRYG1 FILTER CH. CLASS 60 PEAK DATA 4 48 G @ 31 38 MS, -26 22 G @ 23 75 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1993 FORD EXPLORER XLT
LEFT REAR DOOR MID-REAR Y-AXIS ACCELERATION
30/15 MPH DRIVER SIDE IMPACT

TEST NUMBER 930928



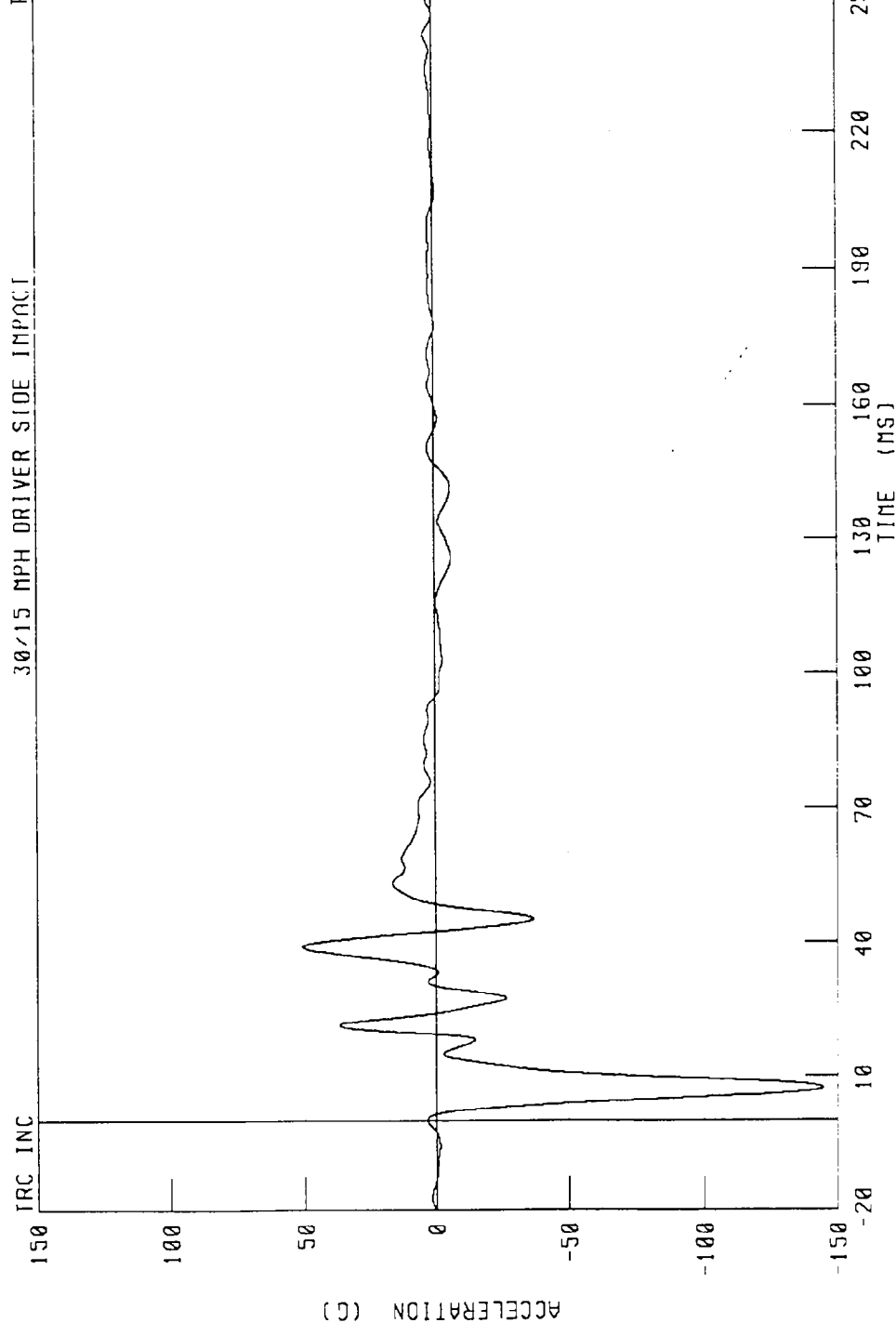
See DATA ACQUISITION EXPLANATIONS

CHANNEL LR0Y61 FILTER: CH CLASS 60

PEAK DATA 69 17 G @ 24 50 MS, -299 84 G @ 6 75 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1993 FORD EXPLORER XLT
LEFT REAR DOOR UPPER CENTERLINE Y-AXIS ACCELERATION
30/15 MPH DRIVER SIDE IMPACT

TEST NUMBER 930928

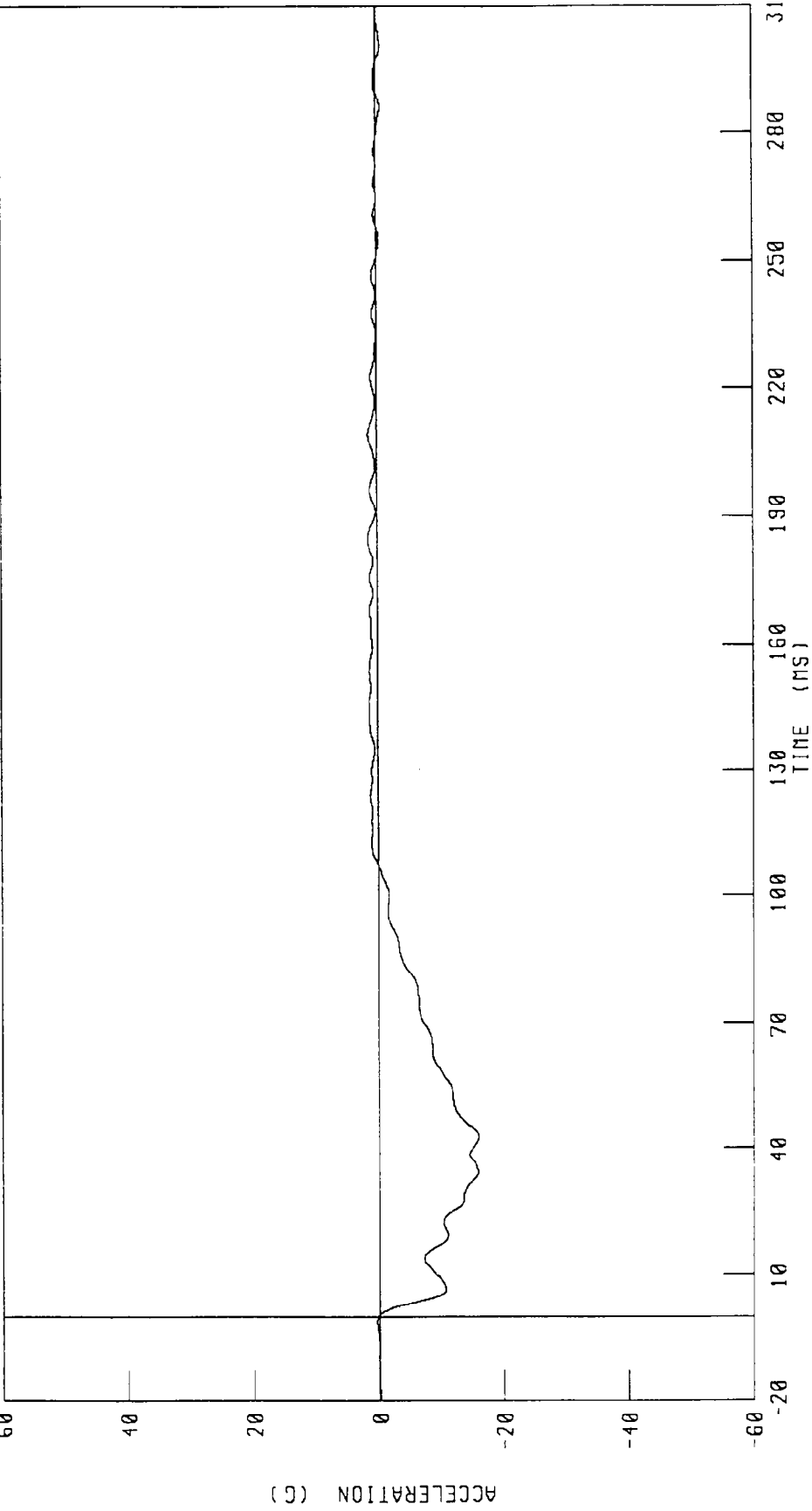


CHANNEL LRDY62 FILTER CH CLASS 60 PEAK DATA 50 76 G @ 39 00 MS, -144 14 G @ 7 38 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1993 FORD EXPLORER XLT
BARRIER CENTER OF GRAVITY X-AXIS ACCELERATION
30/15 MPH DRIVER SIDE IMPACT

TEST NUMBER 930928

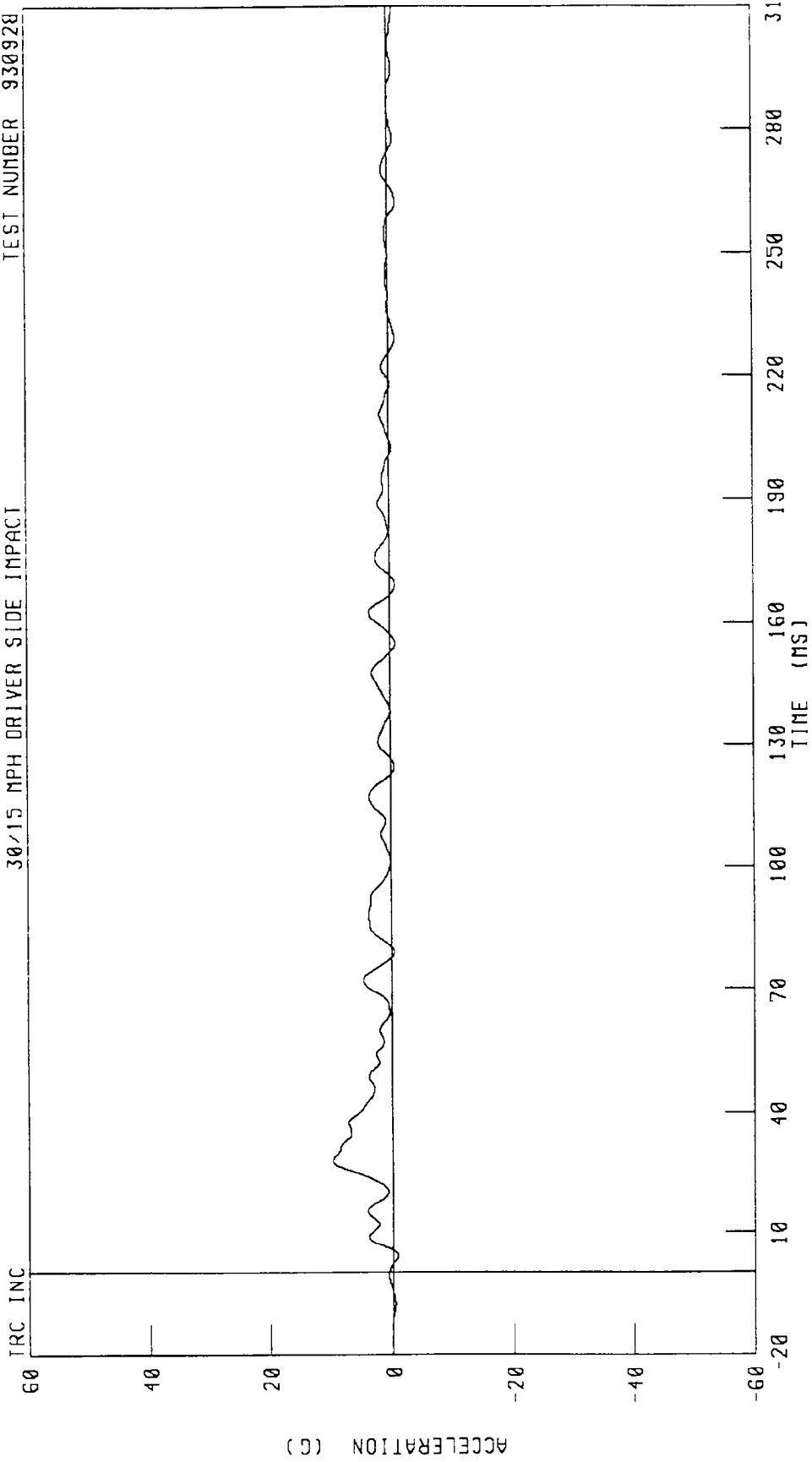
TRC INC



CHANNEL BCGXG FILTER CH CLASS 60 PEAK DATA 1 51 G @ 184 63 MS, -15 93 G @ 42 50 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1993 FORD EXPLORER XLT
BARRIER CENTER OF GRAVITY Y-AXIS ACCELERATION
30/15 MPH DRIVER SIDE IMPACT

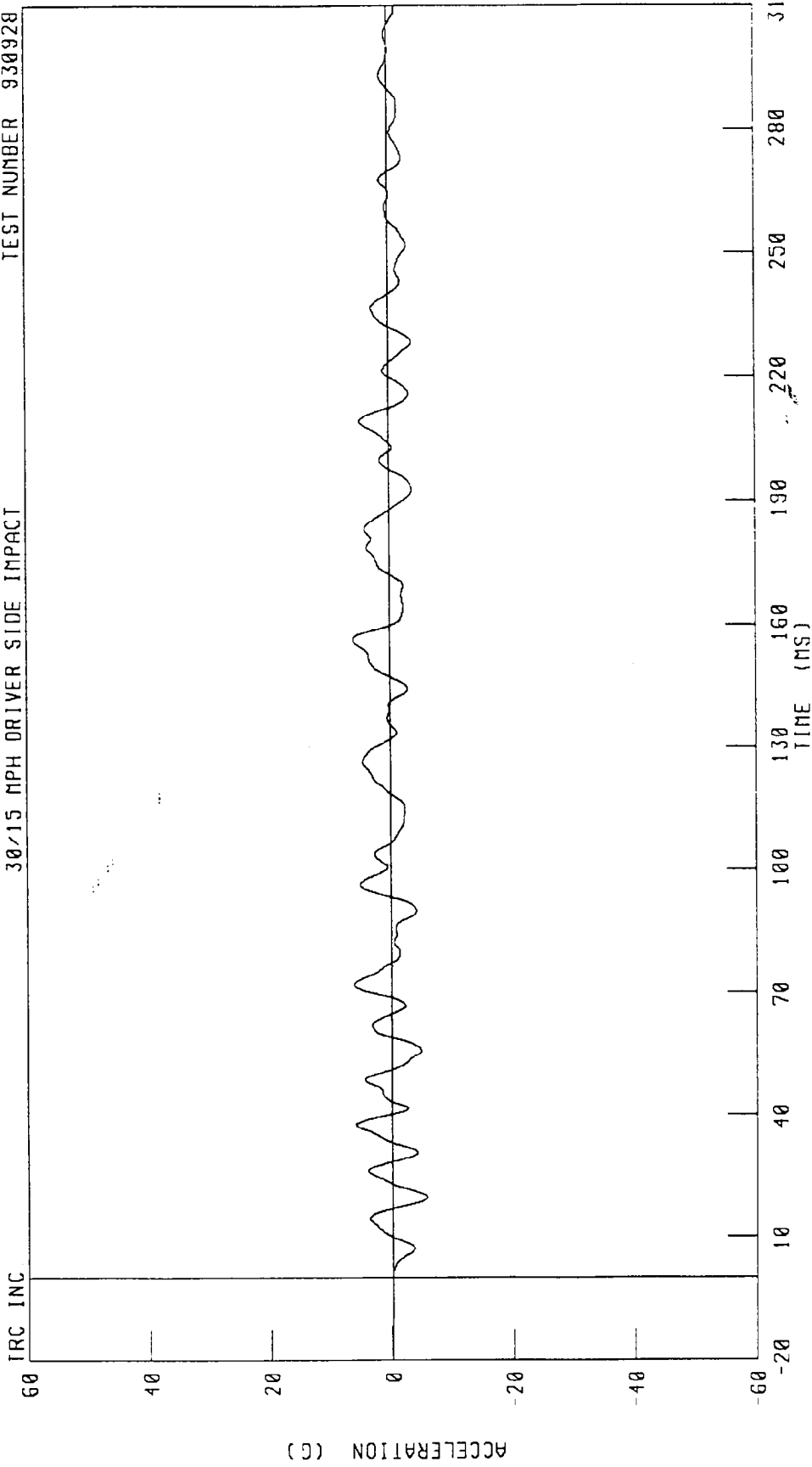
TEST NUMBER 930928



CHANNEL BCGYG FILTER CH CLASS 60 PEAK DATA 9 70 G @ 27 75 MS, -1 25 G @ 262 25 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1993 FORD EXPLORER XLT
BARRIER CENTER OF GRAVITY Z-AXIS ACCELERATION
30/15 MPH DRIVER SIDE IMPACT

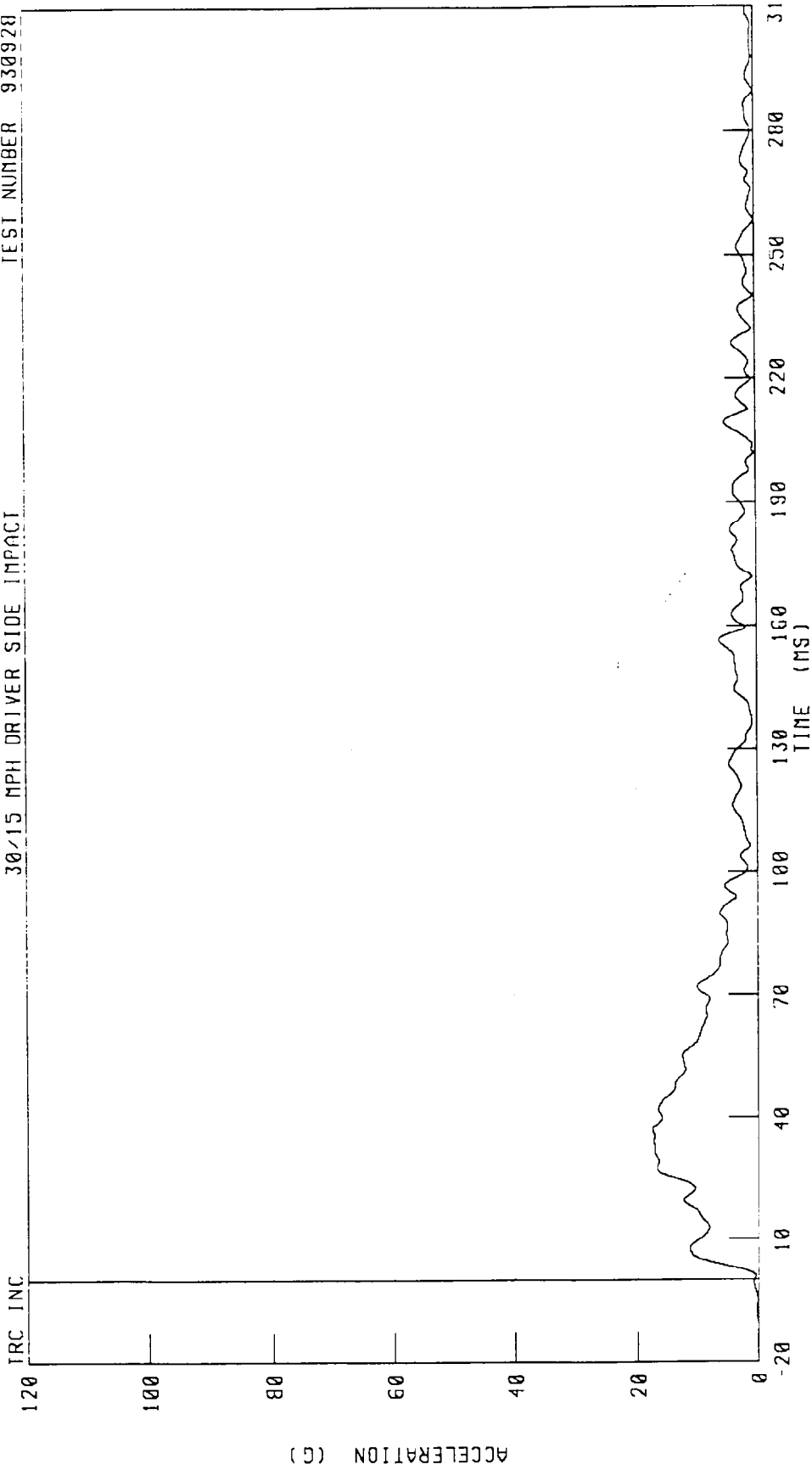
TEST NUMBER 930928



CHANNEL BCGZG FILTER CH CLASS 60 PEAK DATA 6 16 G @ 156 38 MS, -5 79 G @ 19 63 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1993 FORD EXPLORER XLT
BARRIER CENTER OF GRAVITY RESULTANT ACCELERATION
30/15 MPH DRIVER SIDE IMPACT

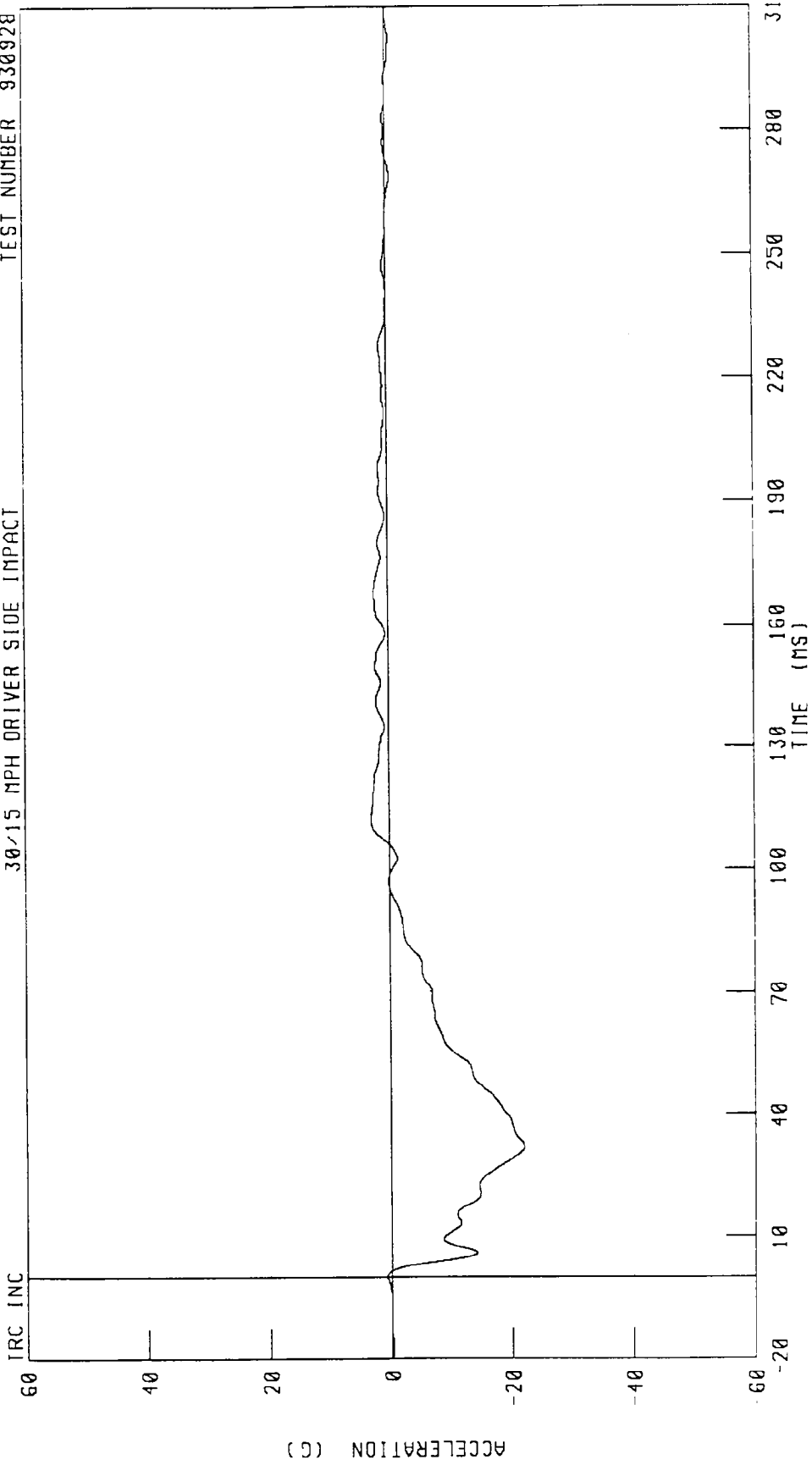
TEST NUMBER 930928



CHANNEL BCGRG FILTER CH CLASS 60 PEAK DATA 17.58 G @ 37.00 MS, 0.12 G @ -11.38 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1993 FORD EXPLORER XLT
BARRIER LEFT FRAME RAIL X-AXIS ACCELERATION
30/15 MPH DRIVER SIDE IMPACT

TEST NUMBER 930928

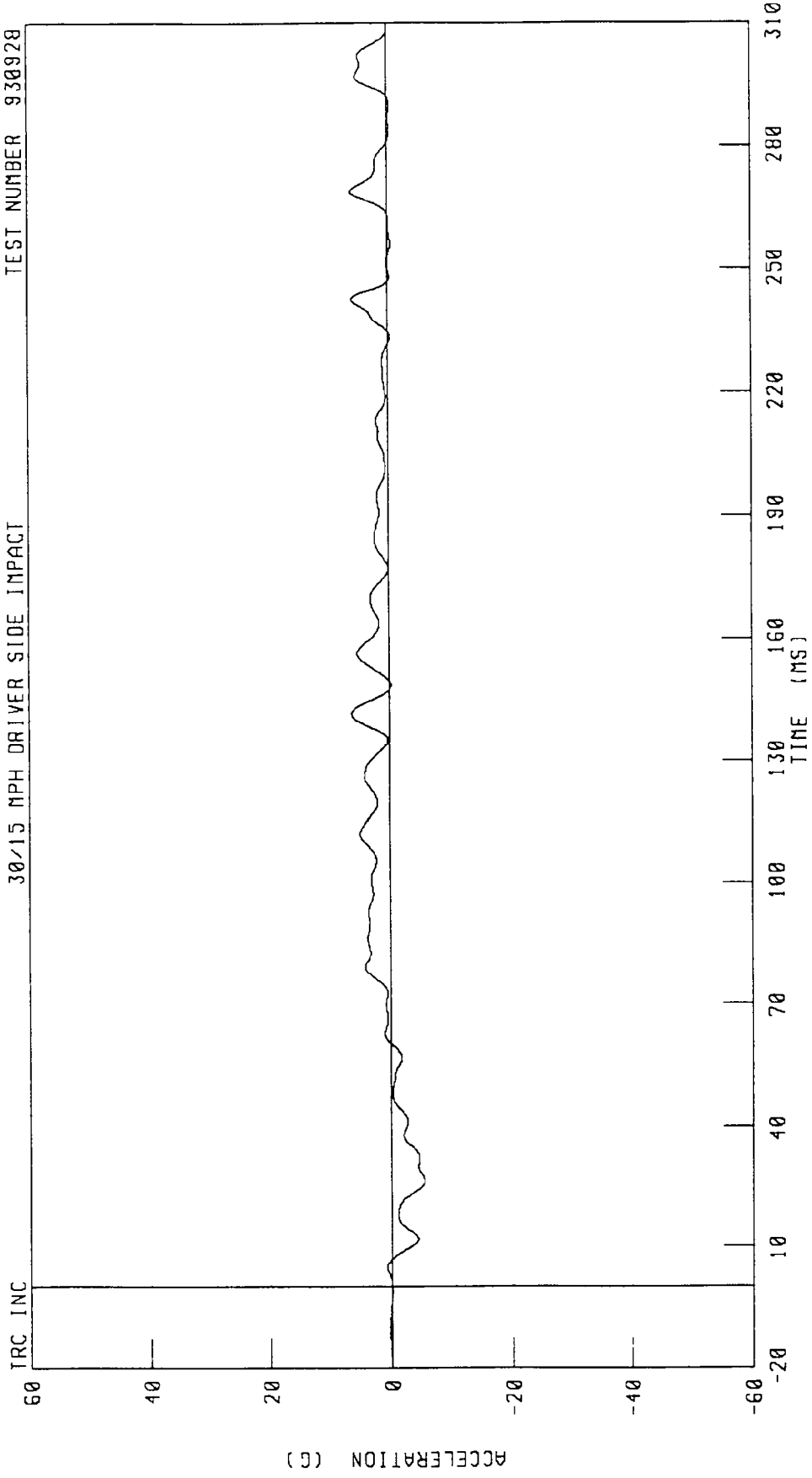


CHANNEL BSRXG FILTER CH CLASS 60

PEAK DATA 3 05 C @ 111 88 MS, -22 07 G @ 32 00 MS

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1993 FORD EXPLORER XLT
BARRIER LEFT FRAME RAIL Y-AXIS ACCELERATION
30/15 MPH DRIVER SIDE IMPACT

TEST NUMBER 930928



CHANNEL BSRYG FILTER CH CLASS 60 PEAK DATA 6 20 G @ 141 38 MS, -5 42 G @ 26 38 MS

APPENDIX C

DUMMY CALIBRATION INFORMATION

PRE-TEST CALIBRATION

DRIVER DUMMY S/N 906

TRANSPORTATION RESEARCH CENTER INC.
 SIDE IMPACT DUMMY
 EXTERNAL DIMENSIONS
 LEFT SIDE CONFIGURATION

23-SEP-93

SN 906 FIRST TECH

TRC

ED90603

572F SN906 EXT.DIMENSION CAL03

DIMENSIONS WITH CHEST JACKET INSTALLED			
SYMB	DESCRIPTION	SPECIFICATION	TEST RESULTS
	TEMPERATURE		21.1 DEG. C
	RELATIVE HUMIDITY		52.0 %
SH	SEATED HEIGHT	889 - 909 MM	894.1 MM
HP	HIP PIVOT HEIGHT	99 MM REF.	94.0 MM
KH	KNEE PIVOT FROM BACKLINE	511 - 526 MM	525.8 MM
KV	KNEE PIVOT FROM FLOOR	490 - 506 MM	490.2 MM
HW	HIP WIDTH	356 - 391 MM	370.8 MM
DIMENSIONS WITH CHEST JACKET REMOVED			
SYMB	DESCRIPTION	SPECIFICATION	TEST RESULTS
RH	RIB HEIGHT	501 - 520 MM	508.0 MM
RD	RIB FROM BACKLINE	229 - 241 MM	236.2 MM
IRW-1	TOP RIB WIDTH FROM C/L	165. - 180 MM	168.9 MM
IRW-2	BOTTOM RIB WIDTH FROM C/L	165 - 180 MM	168.9 MM
	DIFFERENCE BETWEEN TOP & BOTTOM RIB WIDTH FROM C/L	≤ 2.5 MM	0.0 MM

DUMMY MEETS SPECIFICATIONS

TECHNICIAN

Pete Font

TRANSPORTATION RESEARCH CENTER INC.

NECK PENDULUM TEST

PART 572B

10-SEP-93

TRC HN90602B 572B SN 906 HEAD/NECK CAL 02

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	18.9 - 25.5 C	20.0 C
RELATIVE HUMIDITY	10 - 70 %	50 %
PENDULUM VELOCITY	6.55 TO 7.77 M/SEC	7.17 M/SEC
PENDULUM DECELERATION:		
T1 - T2 TIME (5 - 20 G)	3 MS MAX	2.62 MS
T2 - T3 TIME (20 - 20 G)	25 - 30 MS	27.05 MS
T3 - T4 TIME (20 - 5 G)	10 MS MAX	7.64 MS
AVG. G LEVEL T2 - T3	20 - 24 G	21.27 G
MAXIMUM ROTATION ANGLE	63 - 73 DEG	62.52 DEG **
PEAK HEAD RESULTANT ACCEL	26 G MAX	25.98 G

TEST PARAMETER	SPECIFICATION		TEST RESULTS	
ROTATION ANGLE (DEGREES)	TIME (MS)	CHORDAL DISP. (MM)	TIME (MS)	CHORDAL DISP. (MM)
0	-2.0 - +2.0	-12.7 - +12.7	1.25	0.60
30	25.6 - 34.4	53.3 - 78.7	31.68	63.46
60	40.3 - 51.7	109.2 - 134.6	53.29**	128.99
MAX	53.2 - 66.8	127.0 - 152.4	60.50	132.39
60	67.0 - 83.0	109.2 - 134.6	67.18	126.42
30	85.4 - 104.6	53.3 - 78.7	89.43	57.75
0	101.0 - 123.0	-12.7 - +12.7	103.40	3.82

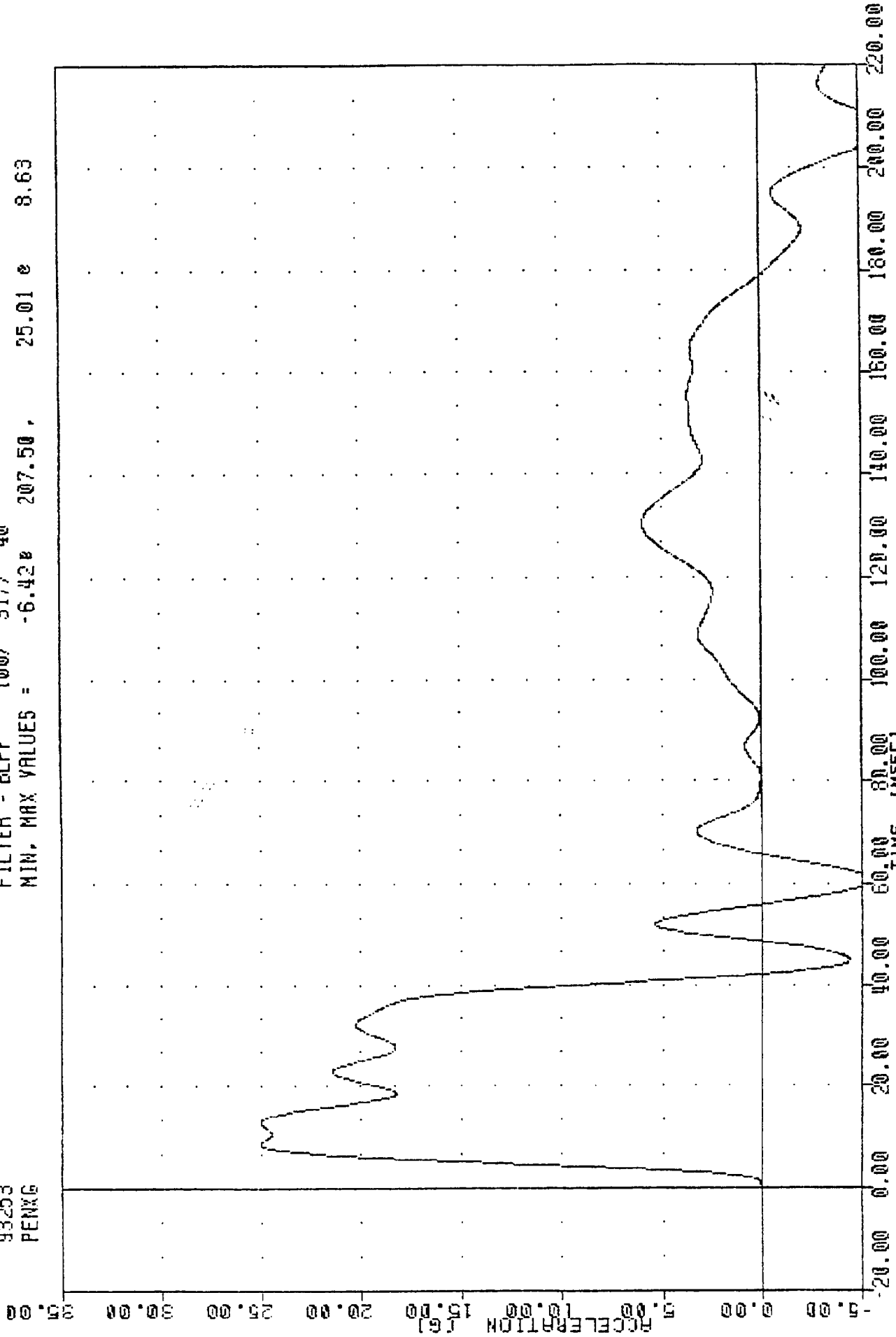
SND: 151.13 MM

* DUMMY DOES NOT MEET SPECIFICATIONS

TECHNICIAN *Pete Bond*

TRC
572B SN 908 HEAD/NECK CAL 02
93253
PENXG

FILTER = BLPF 100/ 317/ -40
MIN. MAX VALUES = -6.42e 207.50 , 25.01 e 8.63

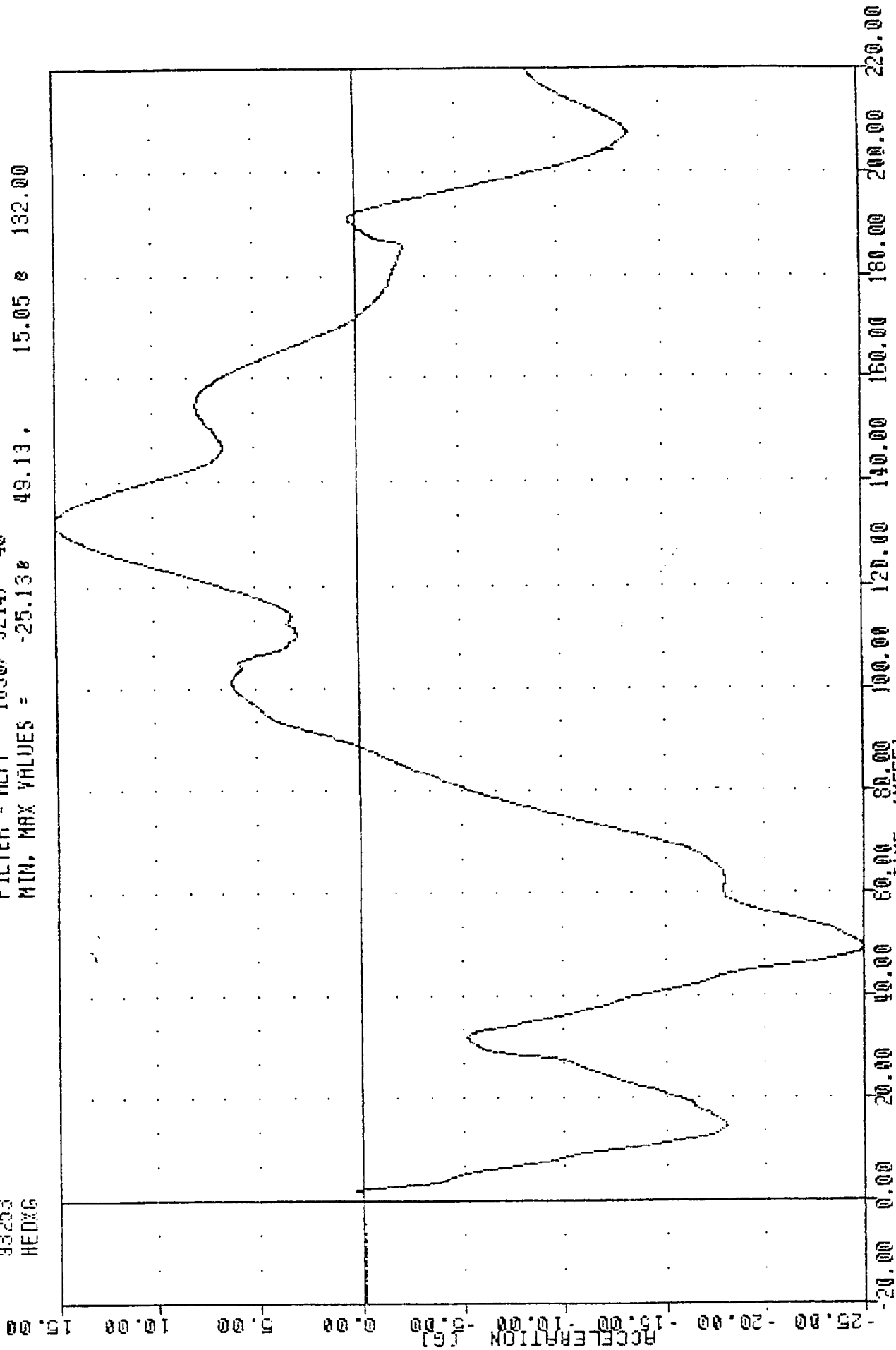


PART 572-B HYBRID II HEAD/NECK CALIBRATION

TRC
5728 SN 906 HEAD/NECK CAL 02
93253
HEDX6

, HN90602B

FILTER = ALPF 1650/ 5214/ -40
MIN. MAX VALUES = -25.13 49.13, 15.05 132.00



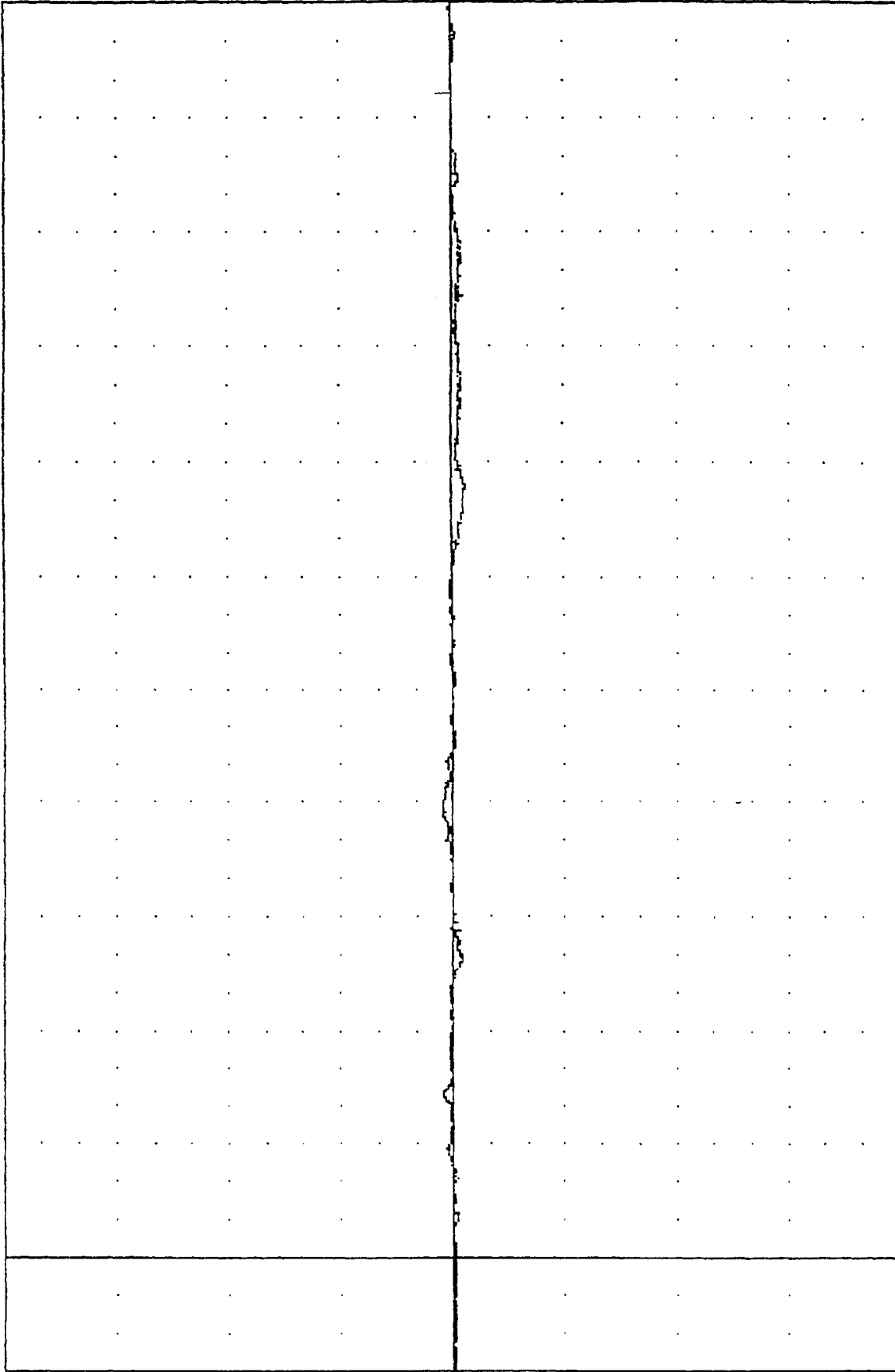
PART 572-8 HYBRID II HEAD/NECK CALIBRATION
UPON ACCEPTATION V OYTC

TRC
 5728 SN 906 HEAD/NECK CAL 02
 93253
 HEDYG

HK90602B

FILTER = ALPF 1650/ 5214/ -40
 MIN, MAX VALUES = -0.59g 135.25, 0.67 g 204.25

20.00

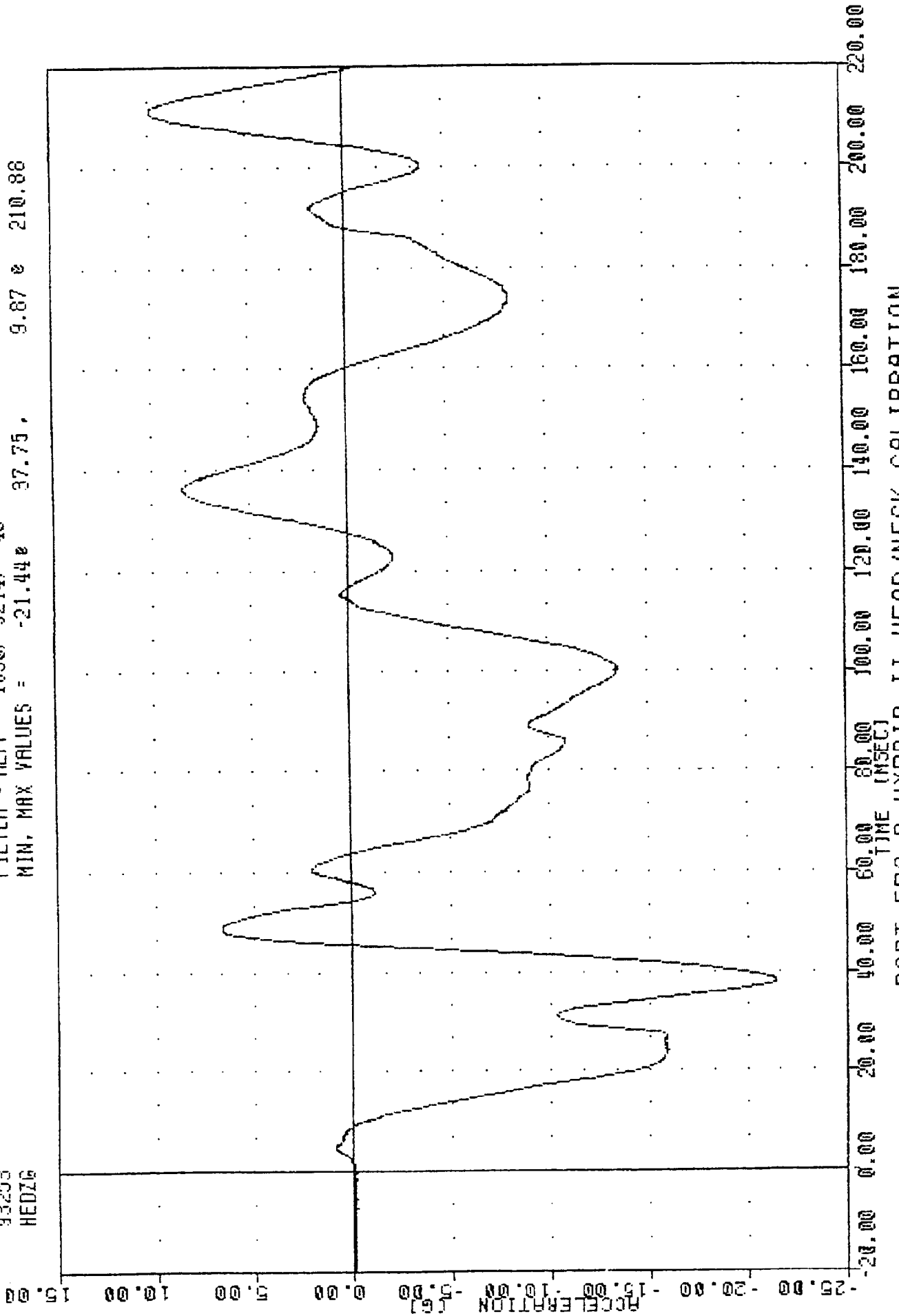


-20.00 0.00 20.00 40.00 60.00 80.00 100.00 120.00 140.00 160.00 180.00 200.00 220.00
 TIME (MSEC)

PART 572-B HYBRID II HEAD/NECK CALIBRATION
 HEAD ACCELERATION Y AXIS

TRC
572B SN 906 HEAD/NECK CAL 02
93253
HEDZG

FILTER = ALPF 1650/ 5214/ -40
MIN, MAX VALUES = -21.44e 9.87e 210.88



PART 572-B HYBRID II HEAD/NECK CALIBRATION

TRC
572B SN 906 HEAD/NECK CAL 02
93253
HEADG

HH90602B

FILTER = ALPF 1650/ 5214/ -40
MIN. MAX VALUES = 0.08 1.50

25.98 49.13

35.00

30.00

25.00

20.00

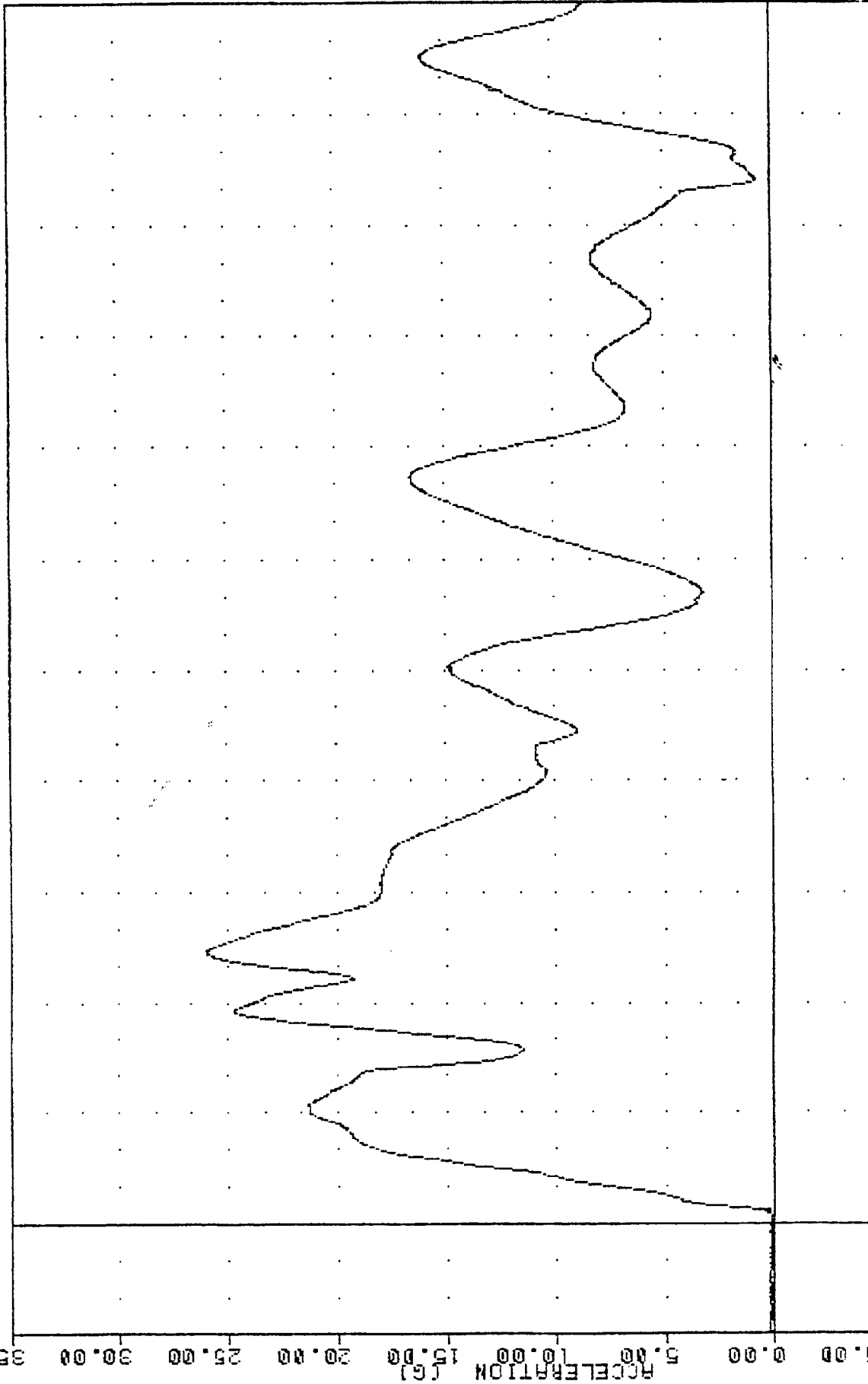
15.00

10.00

5.00

0.00

-5.00



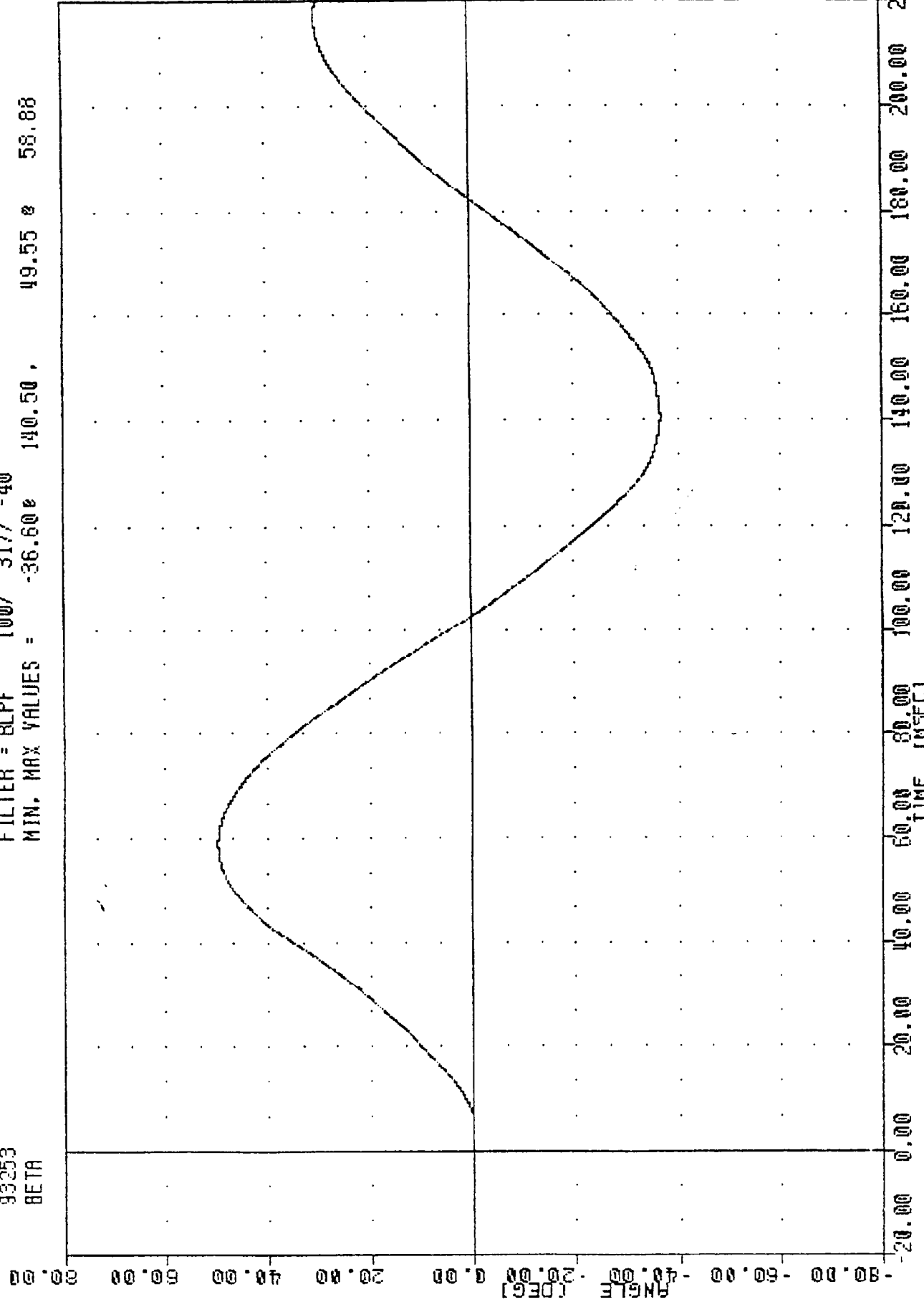
-20.00 0.00 20.00 40.00 60.00 80.00 100.00 120.00 140.00 160.00 180.00 200.00 220.00

TIME (MSEC)

PART 572-B HYBRID II HEAD/NECK CALIBRATION

TRC
572B SN 906 HEAD/NECK CAL 02
93253
BETA

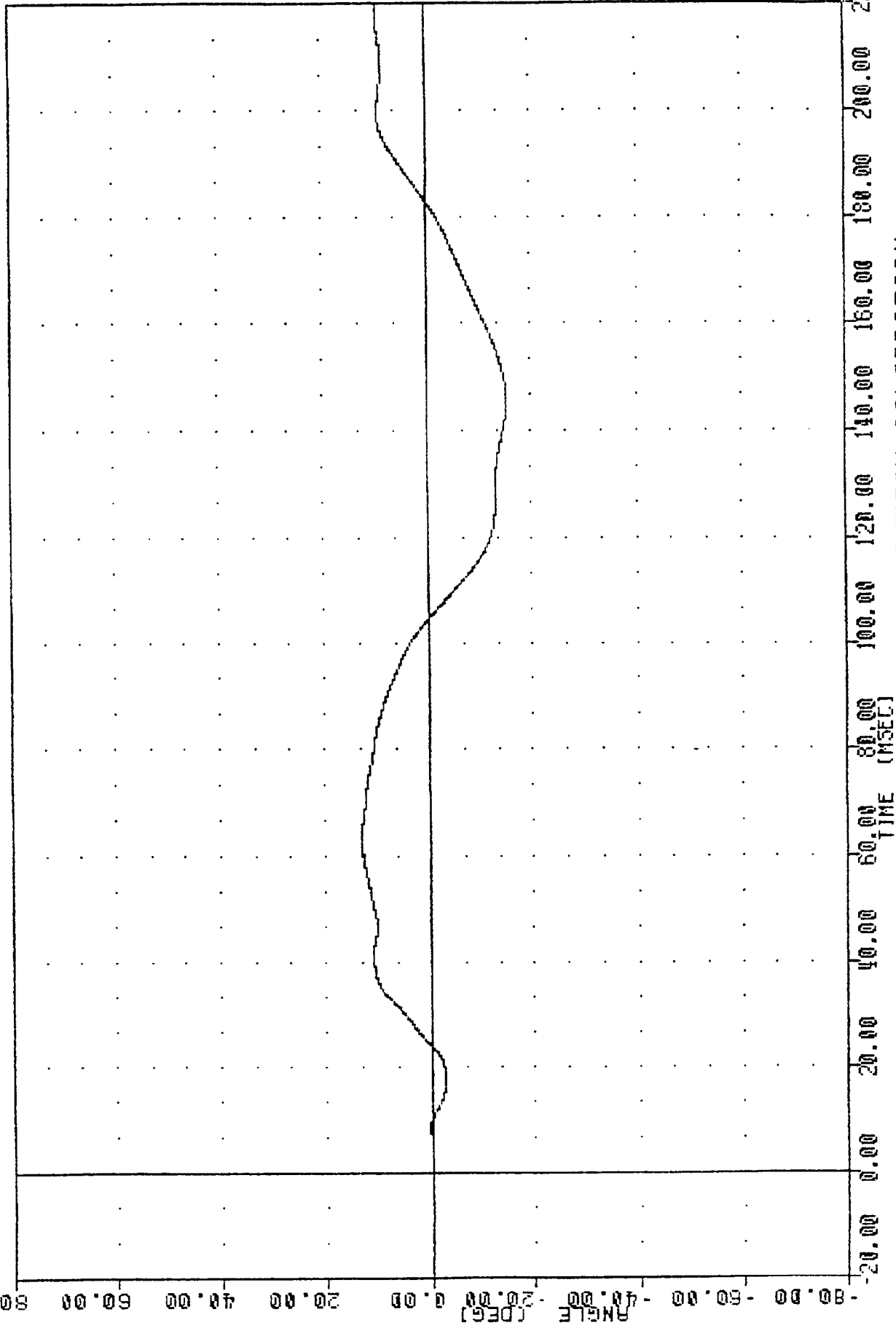
HK90602B
FILTER = BLPF 100/ 317/ -40
MIN. MAX VALUES = -36.60e 140.50, 49.55 e 58.88



PART 572-B HYBRID II HEAD/NECK CALIBRATION

TRC
572B 5M 906 HEAD/NECK CAL 02
93253
THETA

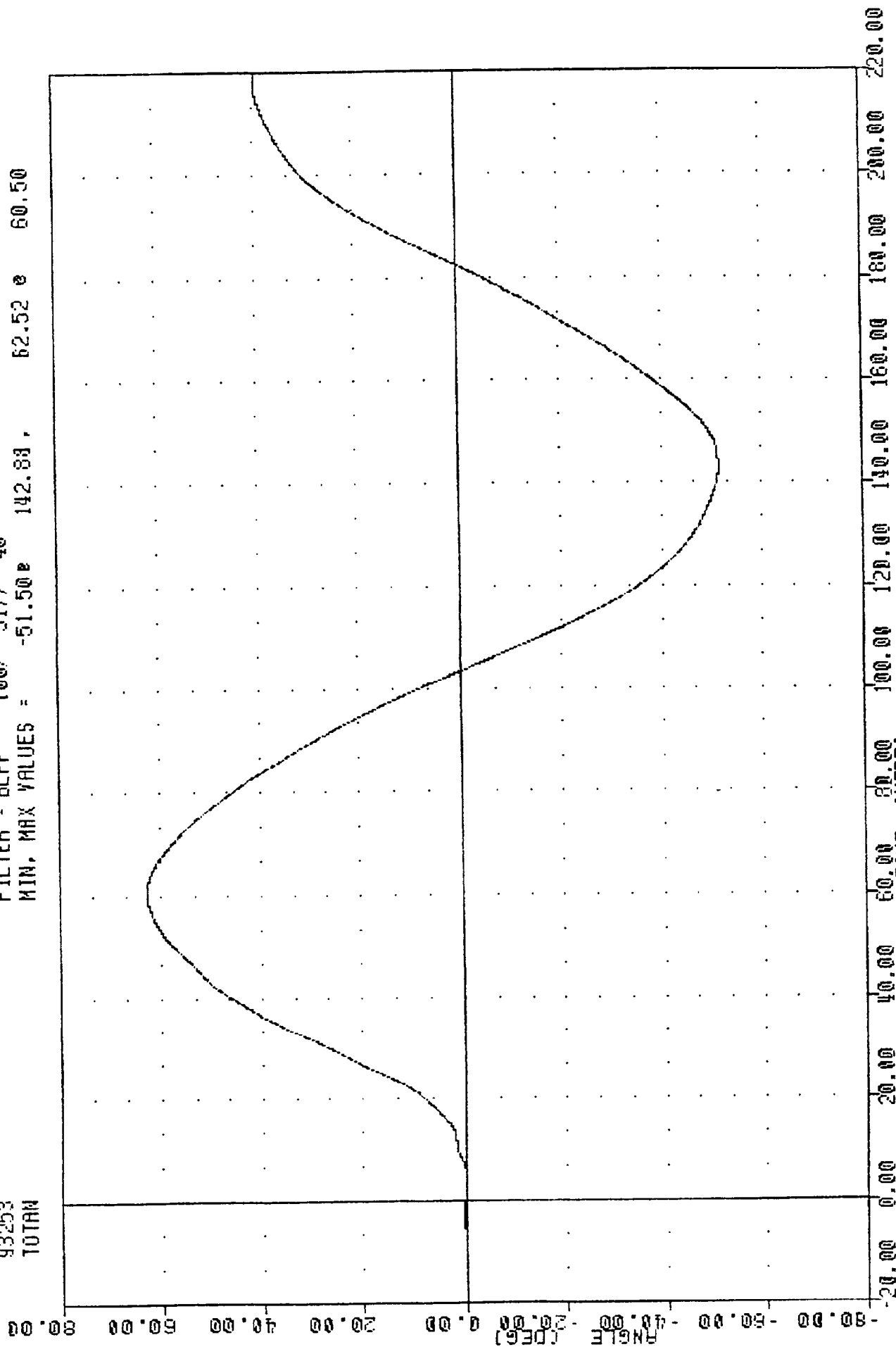
FILTER = BLPF 100/ 317/ -40
MIN. MAX VALUES = -15.37° 145.75° 13.23° 63.00



PART 572-B HYBRID II HEAD/NECK CALIBRATION

TRC
572B SN 906 HEAD/NECK CAL 02
93253
TOTAL

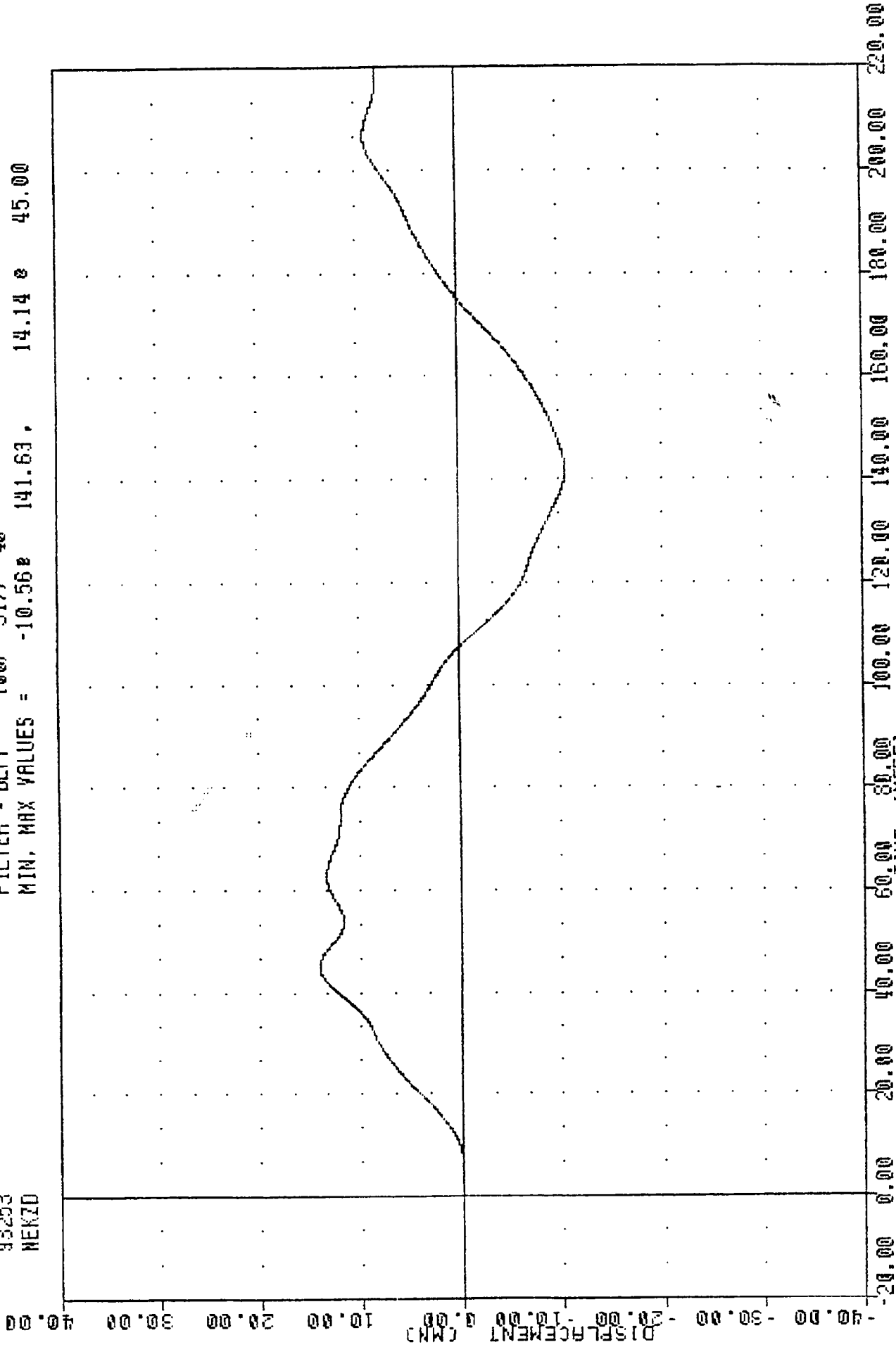
FILTER = BLPF 100/ 317/ -40
MIN, MAX VALUES = -51.50e 142.88, 62.52 e 60.50



PART 572-B HYBRID II HEAD/NECK CALIBRATION
TOTAL ROTATION

TRC
572B SN 906 HEAD/NECK CAL 02
93253
NEKZD

FILTER = BLPF 100/ 317/ -40
MIN, MAX VALUES = -10.56e 141.63, 14.14 e 45.00

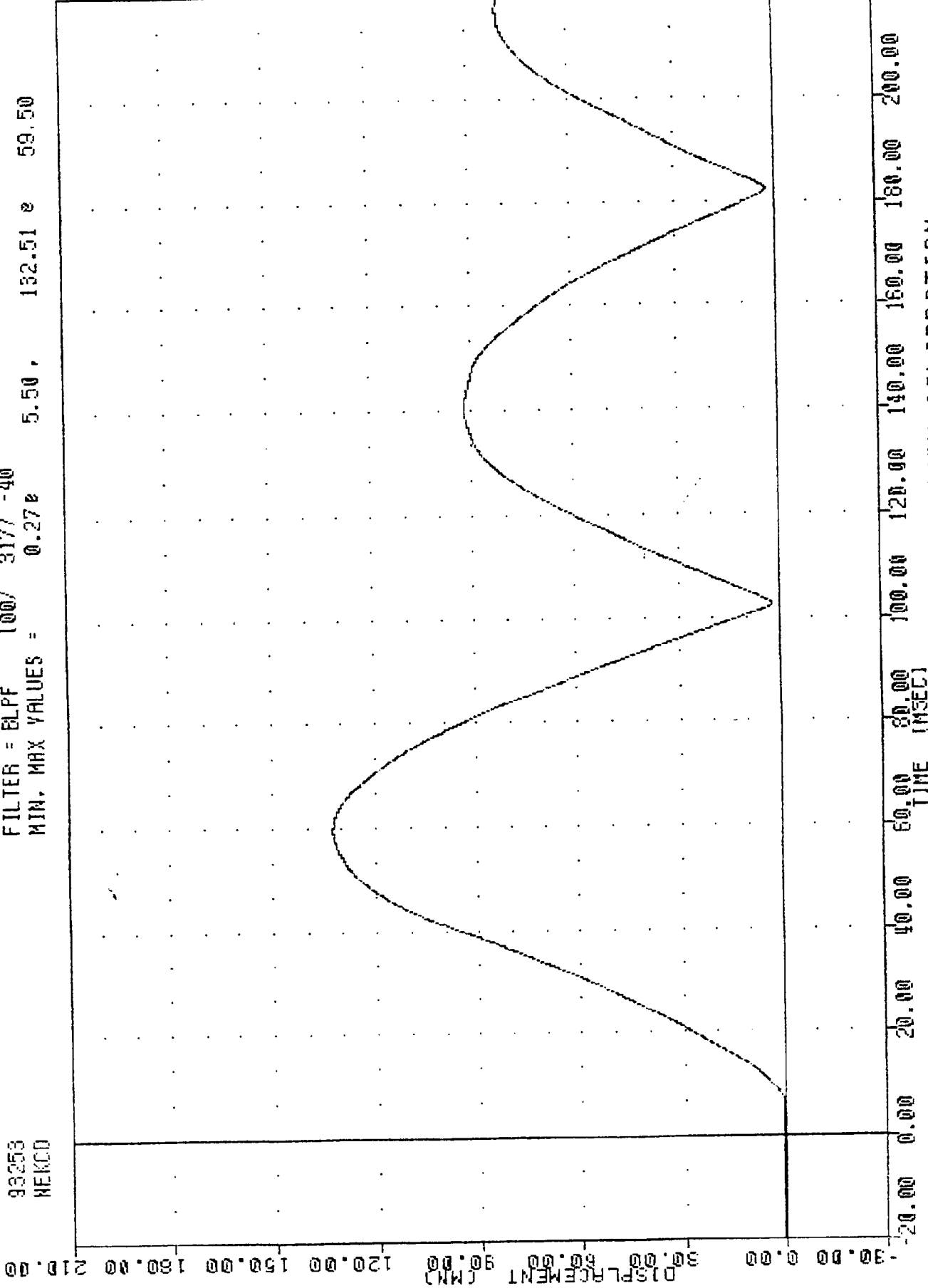


PART 572-B HYBRID II HEAD/NECK CALIBRATION
HYBRID II CALIBRATION 7 DIVC

TRC
5728 SN 508 HEAD/NECK CAL 02
93253
HEKCD

, HHS0602B

FILTER = BLPF 100/ 317/ -40
MIN. MAX VALUES = 5.50 , 132.51 e 59.50



PART 572-8 HYBRID II HEAD/NECK CALIBRATION
HEAD/NECK CALIBRATION

TRANSPORTATION RESEARCH CENTER INC.

THORACIC SHOCK ABSORBER TESTS

SIDE IMPACT DUMMY

24-Sep-93

TRC

572F SN906 DAMPER TEST CAL03

TEST NOS. DP90603A, DP90603B, DP90603C

TEST PARAMETER		SPECIFICATION	TEST RESULTS
TEMPERATURE		18.9 - 25.5 C	21.1 DEG. C
RELATIVE HUMIDITY		10 - 70 %	64.0 %
VELOCITY	FORCE	856 - 1146 N	986 N
3.08 M/S	DISPLACEMENT	31.2 - 35.2 MM	33.4 MM
VELOCITY	FORCE	1759 - 2131 N	1878 N
4.30 M/S	DISPLACEMENT	32.8 - 37.3 MM	35.8 MM
VELOCITY	FORCE	3824 - 4542 N	4375 N
6.15 M/S	DISPLACEMENT	34.5 - 39.6 MM	37.6 MM

DAMPER SETTING = 9.0

TEST MEETS SPECIFICATIONS

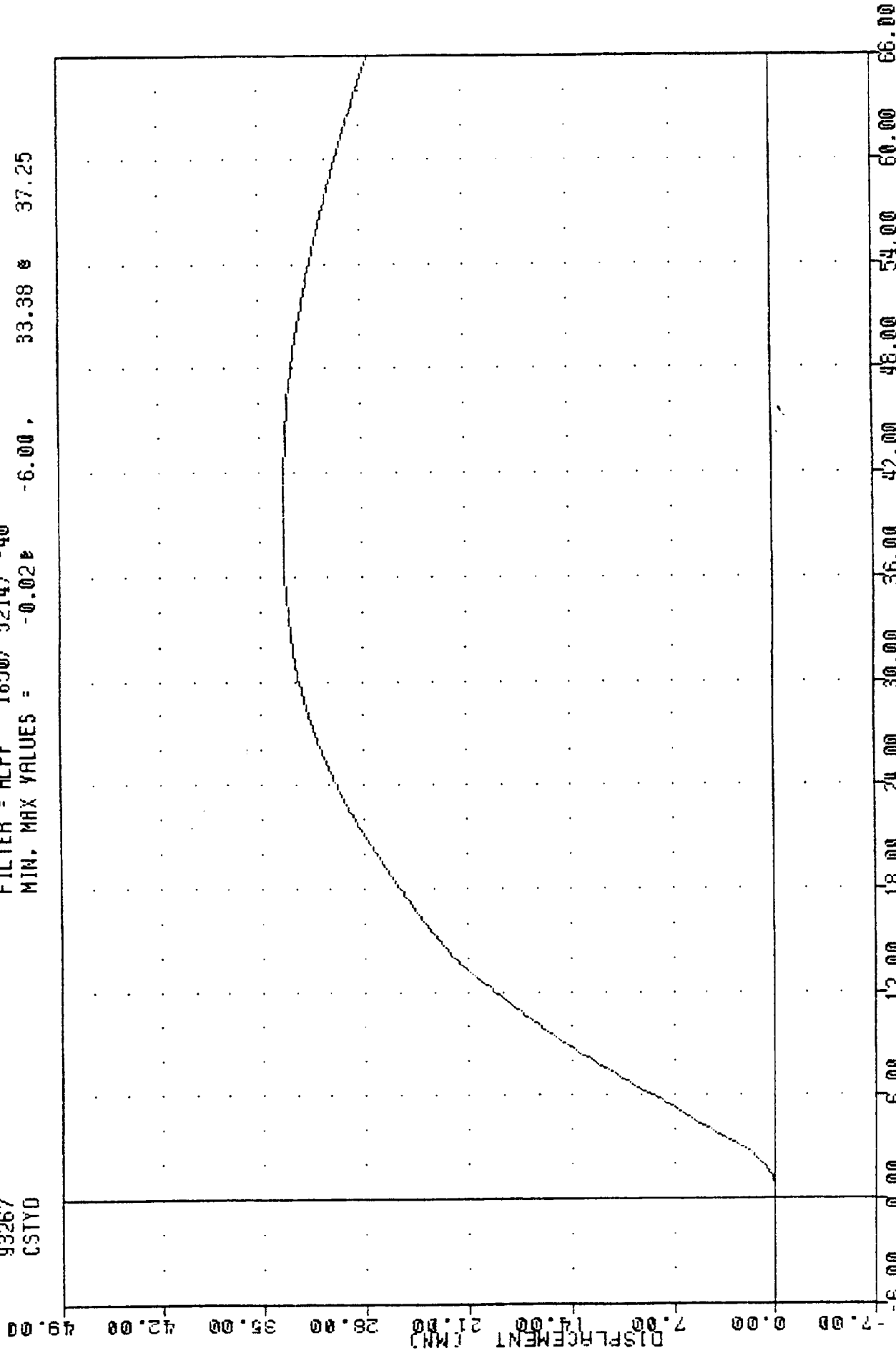
TECHNICIAN Pete Foster

66.00
60.00
54.00
48.00
42.00
36.00
30.00
24.00
18.00
12.00

TRC
572F 3N506 DAMPER TEST CAL03
93267
CSTYD

, DF90603A

FILTER = ALPF 1650/ 5214/ -40
MIN. MAX VALUES = -0.02E -6.00, 33.38 E 37.25

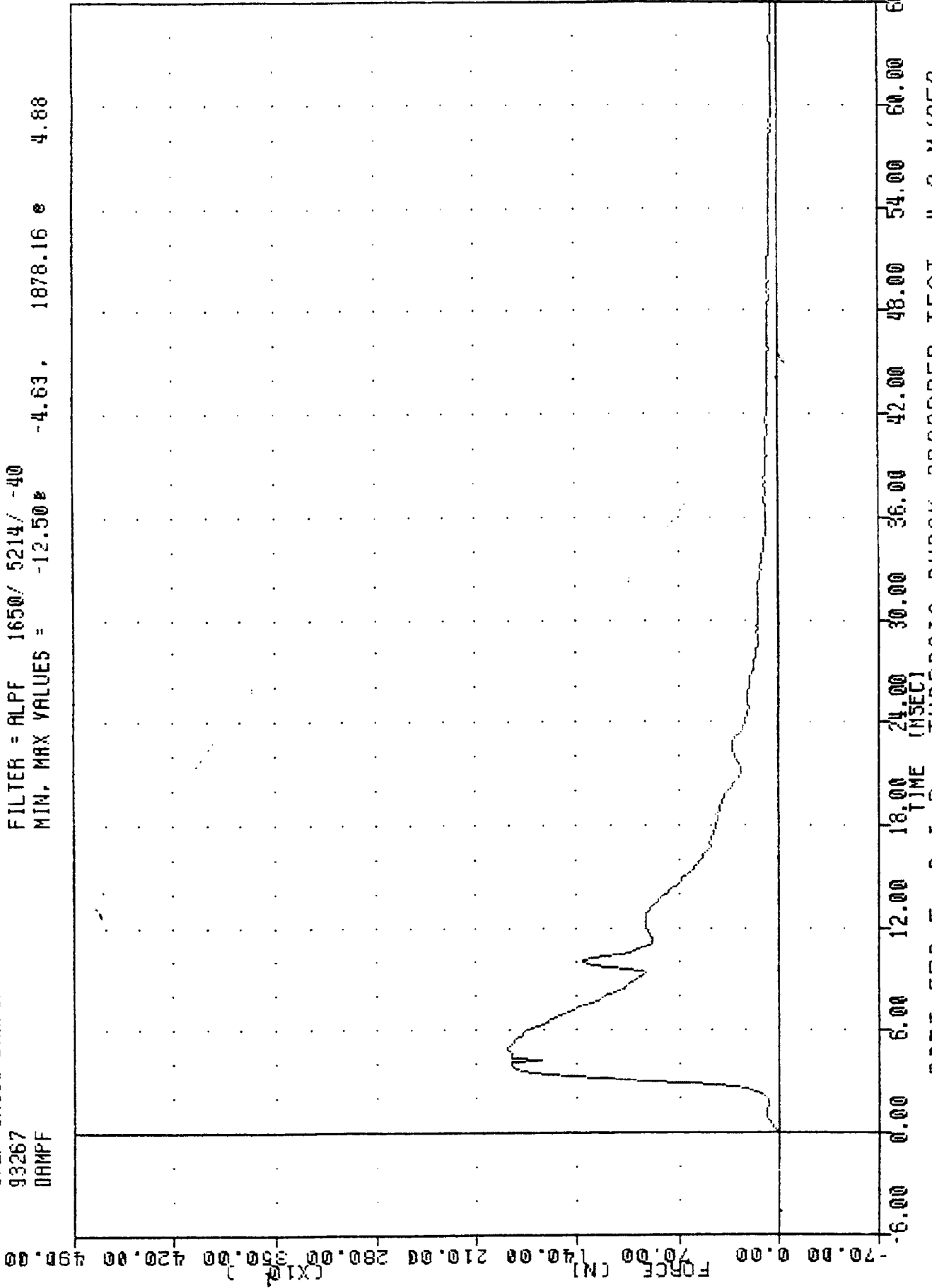


PART 572-F S.I.D. THORACIC SHOCK ABSORBER TEST 3.0 M/SEC
DAMPER DISPLACEMENT

TRC
572F SN906 DAMPER TEST CAL03
93267
DAMPF

DP90503B

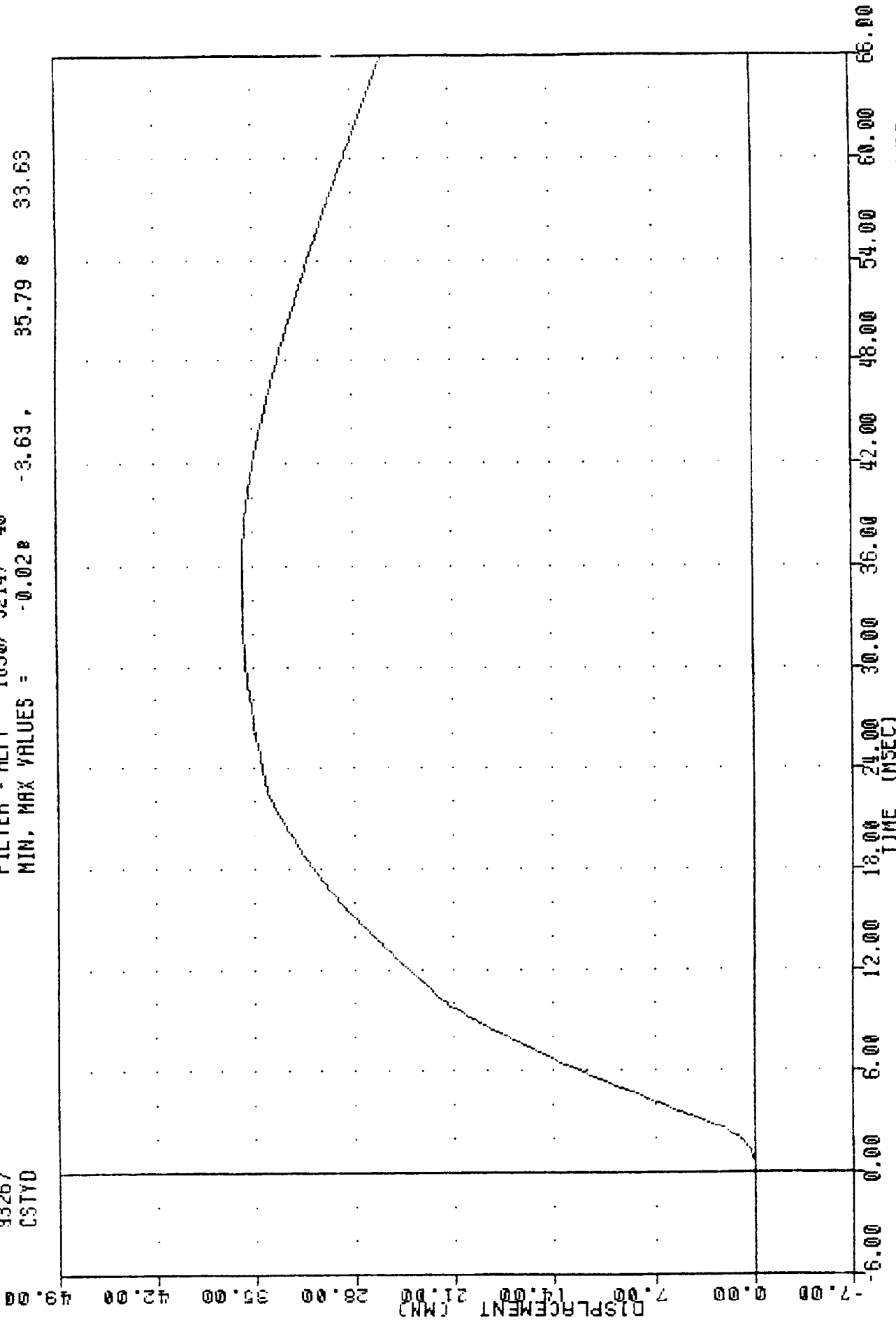
FILTER = ALPF 1650/ 5214/ -40
MIN. MAX VALUES = -12.50% 4.88
-4.63, 1878.16 e



PART 572-F S.I.D. THORACIC SHOCK ABSORBER TEST 4.3 M/SEC

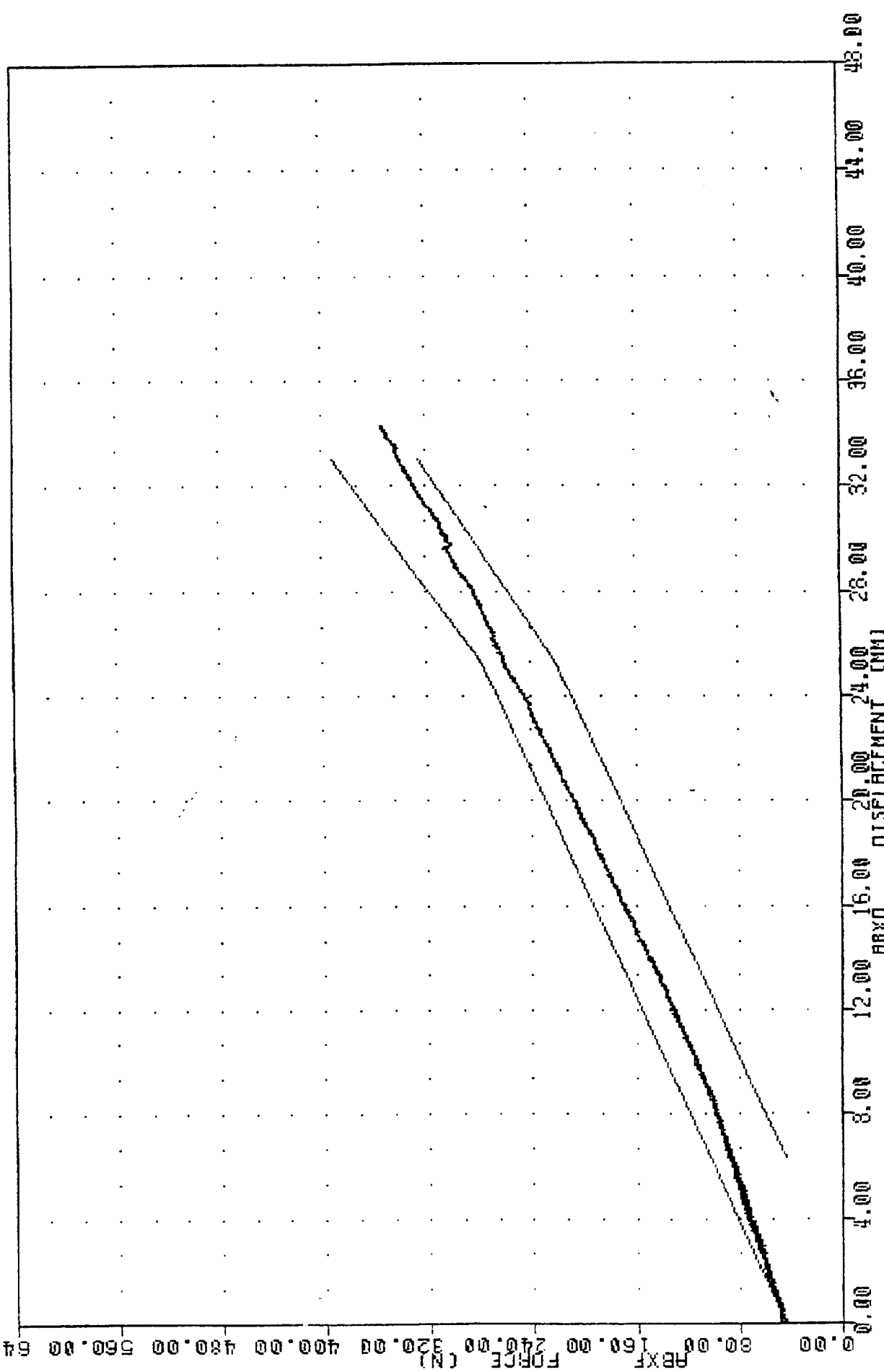
TRC
572F SN506 DAMPER TEST CAL03
93267
CSTYD

FILTER = ALPF 1650/ 5214/ -40
MIN. MAX VALUES = -0.02 e 35.79 e 33.63



PART 572-F S.I.D. THORACIC SHOCK ABSORBER TEST 4.3 M/SEC

TRC
 ABXD
 ABXF
 572B SN 906 ABDOM COMP CAL 02
 1650/ 5214/ -40 MIN, MAX =
 1650/ 5214/ -40 MIN, MAX =
 35251
 -0.018
 43.816
 0.00,
 0.00,
 34.308
 355.048
 354.45
 34.27



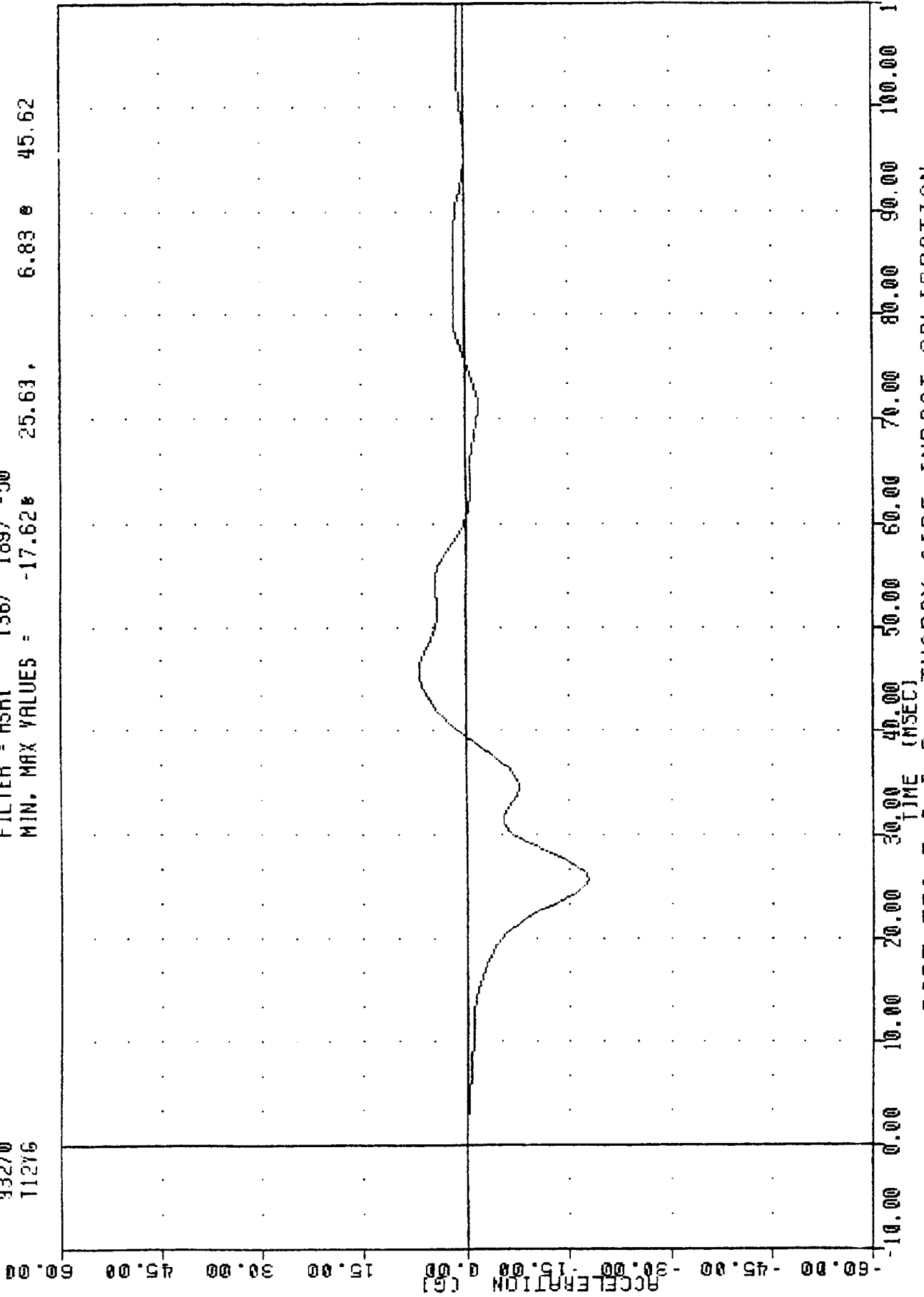
PART 572-B HYBRID II ABDOMEN CALIBRATION
 ABDOMEN FORCE VS DISPLACEMENT

TRC
572F SN906 THORAX IMPACT CALD3
93270
11276

, ST90603A

FILTER = HSRI 136/ 189/ -50

MIN. MAX VALUES = -17.62g 25.63g 6.83g 45.62



PART 572-F S.I.D. THORAX SIDE IMPACT CALIBRATION

TRANSPORTATION RESEARCH CENTER INC.

LATERAL PELVIS IMPACT TEST

SIDE IMPACT DUMMY

23-Sep-93

LEFT SIDE CONFIGURATION

TRC

SP90603

572F SN906 PELVIS IMPACT CAL03

TEST PARAMETER	SPECIFICATION (ABSOLUTE VALUE)	TEST RESULTS
TEMPERATURE	18.9 - 25.5 C	21.1 DEG. C
RELATIVE HUMIDITY	10 - 70 %	61.0 %
PISTON VELOCITY	4.21 - 4.32 M/SEC	4.31 M/SEC
PEAK PELVIC ACCELERATION	40 - 60 G	-51.0 G
TIME ABOVE 20 G LEVEL	3 - 7 MSEC	5.7 MSEC
IS ACCELERATION CURVE UNIMODAL?	YES	YES

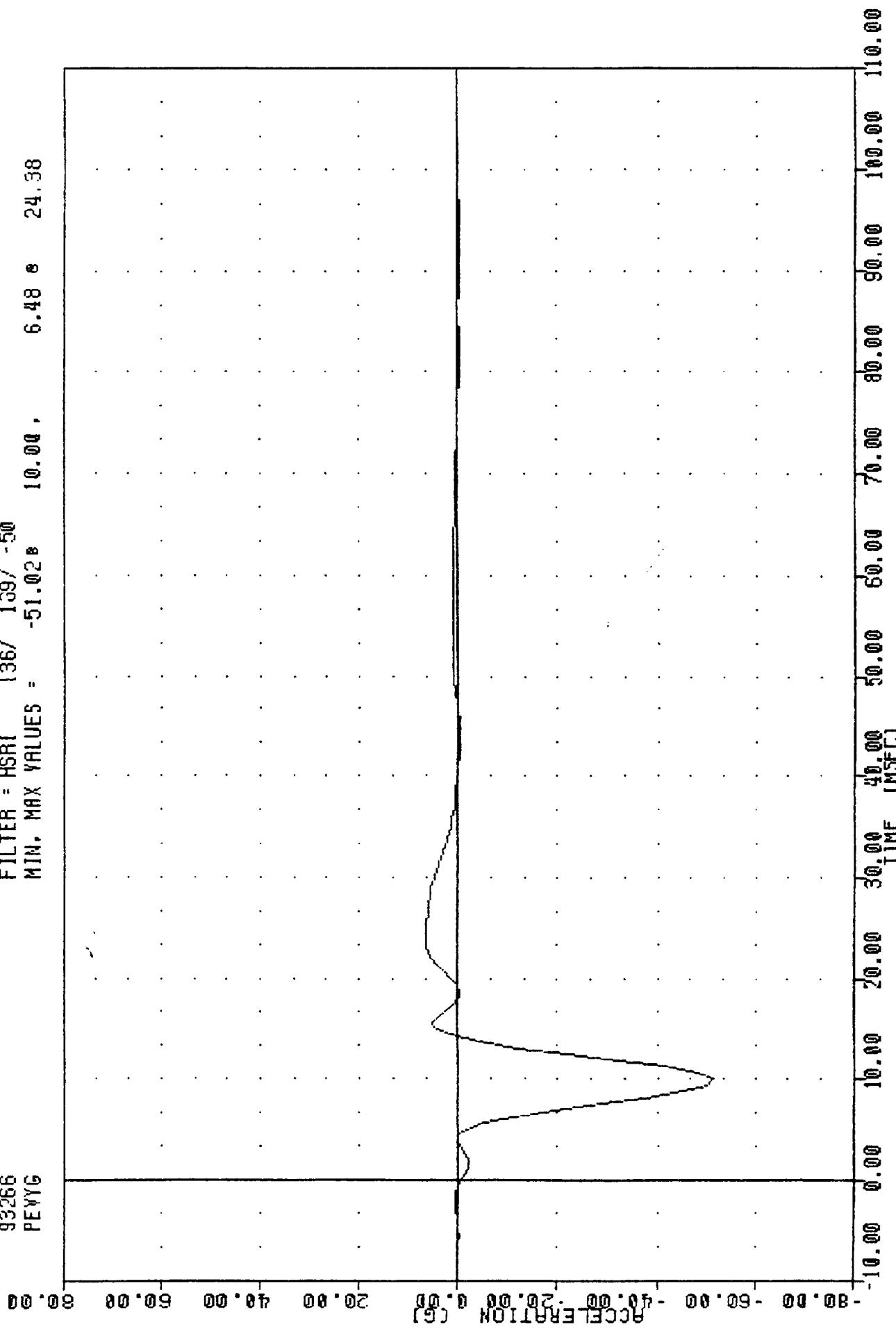
TEST MEETS SPECIFICATIONS

TECHNICIAN *John P. ...*

TRC
572F SN906 PELVIS IMPACT CALD3
93266
PEVYG

SP90603

FILTER = HSRI 136/ 139/ -50
MIN. MAX VALUES = -51.028 10.00 6.48 e 24.38



PART 572-F S.I.D. PELVIS SIDE IMPACT CALIBRATION

PRE-TEST CALIBRATION

LEFT REAR PASSENGER DUMMY S/N 903

TRANSPORTATION RESEARCH CENTER INC.
 SIDE IMPACT DUMMY
 EXTERNAL DIMENSIONS
 LEFT SIDE CONFIGURATION

23-SEP-93

SN 903 FIRST TECH

TRC

ED90315

572F SN903 EXT. DIMENSION CAL15

DIMENSIONS WITH CHEST JACKET INSTALLED			
SYMB	DESCRIPTION	SPECIFICATION	TEST RESULTS
	TEMPERATURE		21.1 DEG. C
	RELATIVE HUMIDITY		52.0 %
SH	SEATED HEIGHT	889 - 909 MM	894.1 MM
HP	HIP PIVOT HEIGHT	99 MM REF.	99.1 MM
KH	KNEE PIVOT FROM BACKLINE	511 - 526 MM	523.2 MM
KV	KNEE PIVOT FROM FLOOR	490 - 506 MM	490.2 MM
HW	HIP WIDTH	356 - 391 MM	378.5 MM
DIMENSIONS WITH CHEST JACKET REMOVED			
SYMB	DESCRIPTION	SPECIFICATION	TEST RESULTS
RH	RIB HEIGHT	501 - 520 MM	513.1 MM
RD	RIB FROM BACKLINE	229 - 241 MM	236.2 MM
RW-1	TOP RIB WIDTH FROM C/L	165. - 180 MM	167.6 MM
RW-2	BOTTOM RIB WIDTH FROM C/L	165 - 180 MM	167.6 MM
	DIFFERENCE BETWEEN TOP & BOTTOM RIB WIDTH FROM C/L	≤ 2.5 MM	0.0 MM

DUMMY MEETS SPECIFICATIONS

TECHNICIAN *Pete Ford*

TRANSPORTATION RESEARCH CENTER INC.

NECK PENDULUM TEST

PART 572B

03-SEP-93

TRC HN90312 572B SN 903 HEAD/NECK CAL 12

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	18.9 - 25.5 C	20.0 C
RELATIVE HUMIDITY	10 - 70 %	59 %
PENDULUM VELOCITY	6.55 TO 7.77 M/SEC	7.17 M/SEC
PENDULUM DECELERATION:		
T1 - T2 TIME (5 - 20 G)	3 MS MAX	2.59 MS
T2 - T3 TIME (20 - 20 G)	25 - 30 MS	27.57 MS
T3 - T4 TIME (20 - 5 G)	10 MS MAX	5.59 MS
AVG. G LEVEL T2 - T3	20 - 24 G	22.67 G
MAXIMUM ROTATION ANGLE	63 - 73 DEG	63.66 DEG
PEAK HEAD RESULTANT ACCEL	26 G MAX	26.33 G **

TEST PARAMETER	SPECIFICATION		TEST RESULTS	
ROTATION ANGLE (DEGREES)	TIME (MS)	CHORDAL DISP. (MM)	TIME (MS)	CHORDAL DISP. (MM)
0	-2.0 - +2.0	-12.7 - +12.7	1.38	0.09
30	25.6 - 34.4	53.3 - 78.7	31.32	65.57
60	40.3 - 51.7	109.2 - 134.6	50.26	127.64
MAX	53.2 - 66.8	127.0 - 152.4	58.63	132.61
60	67.0 - 83.0	109.2 - 134.6	67.75	123.60
30	85.4 - 104.6	53.3 - 78.7	88.27	58.49
0	101.0 - 123.0	-12.7 - +12.7	101.99	2.90

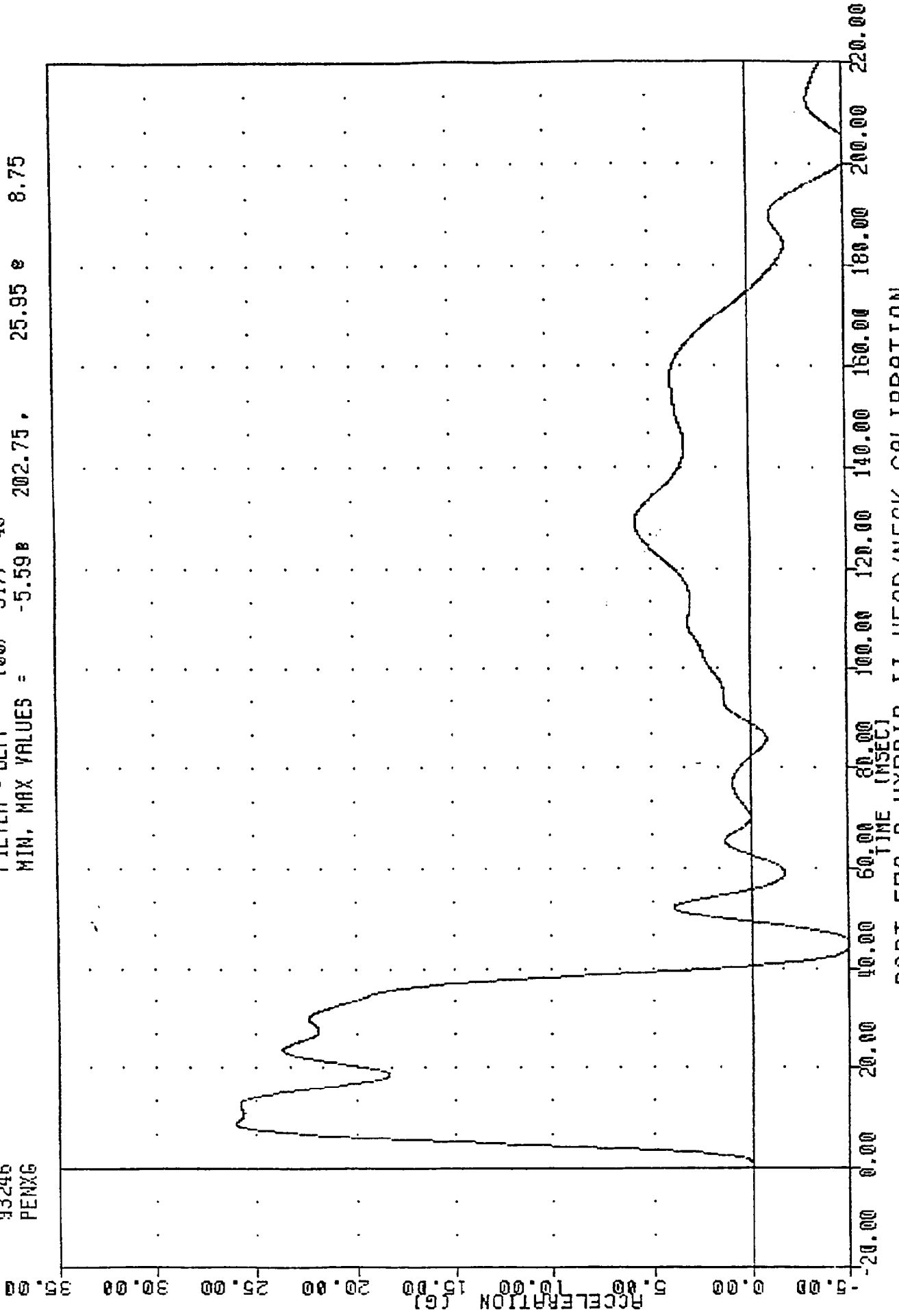
SND: 151.13 MM

* DUMMY DOES NOT MEET SPECIFICATIONS

TECHNICIAN Pete Faust

TRC
572B SN 903 HEAD/NECK CAL 12
93246
PENXG

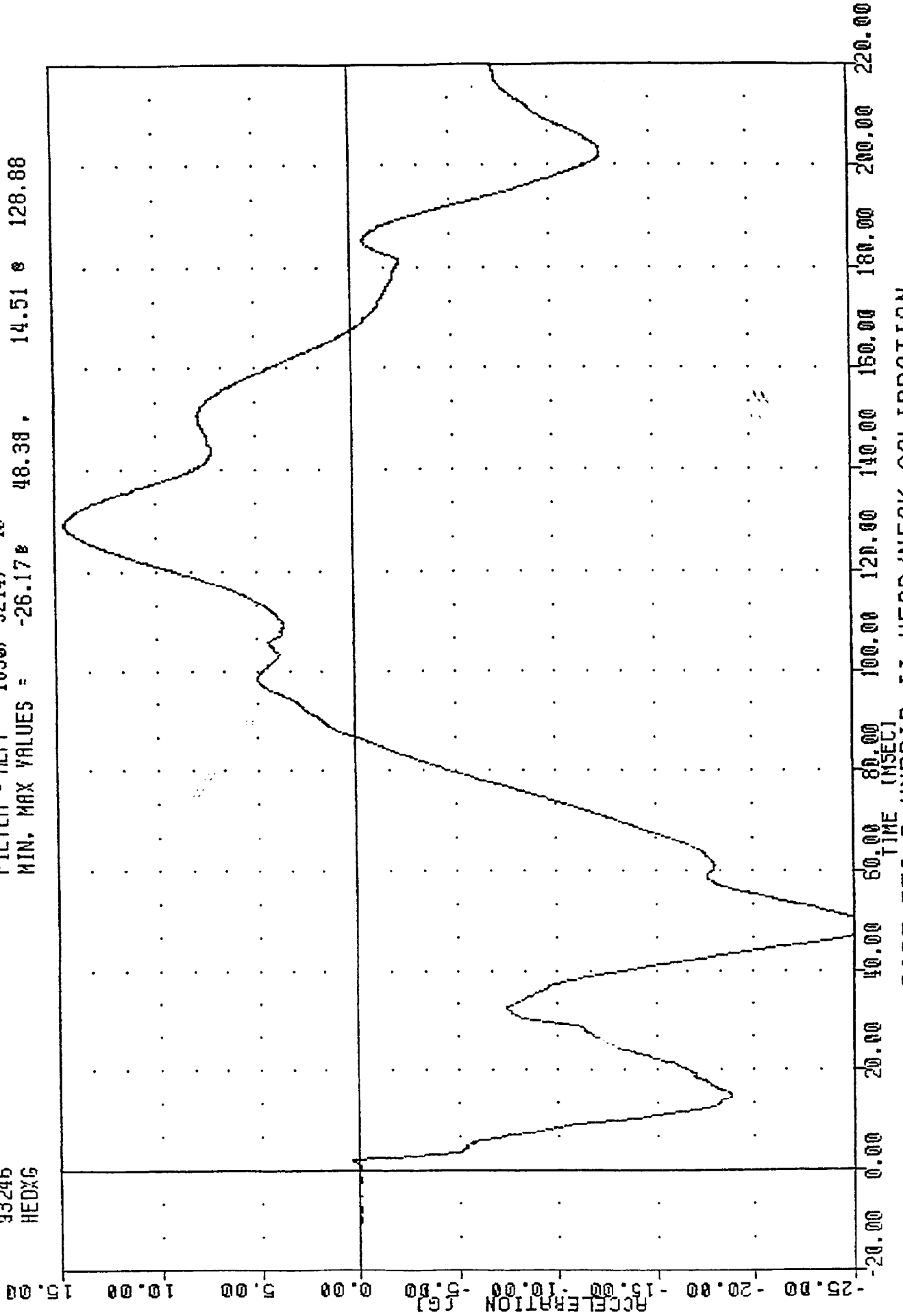
FILTER = BLPF 100/ 317/ -40
MIN, MAX VALUES = -5.59B 202.75, 25.95 e 8.75



PART 572-B HYBRID II HEAD/NECK CALIBRATION

IRC
572B SN 903 HEAD/NECK CAL 12
93246
HEDXG

FILTER = ALPF 1650/ 5214/ -40
MIN, MAX VALUES = -26.17 48.38 14.51 128.88

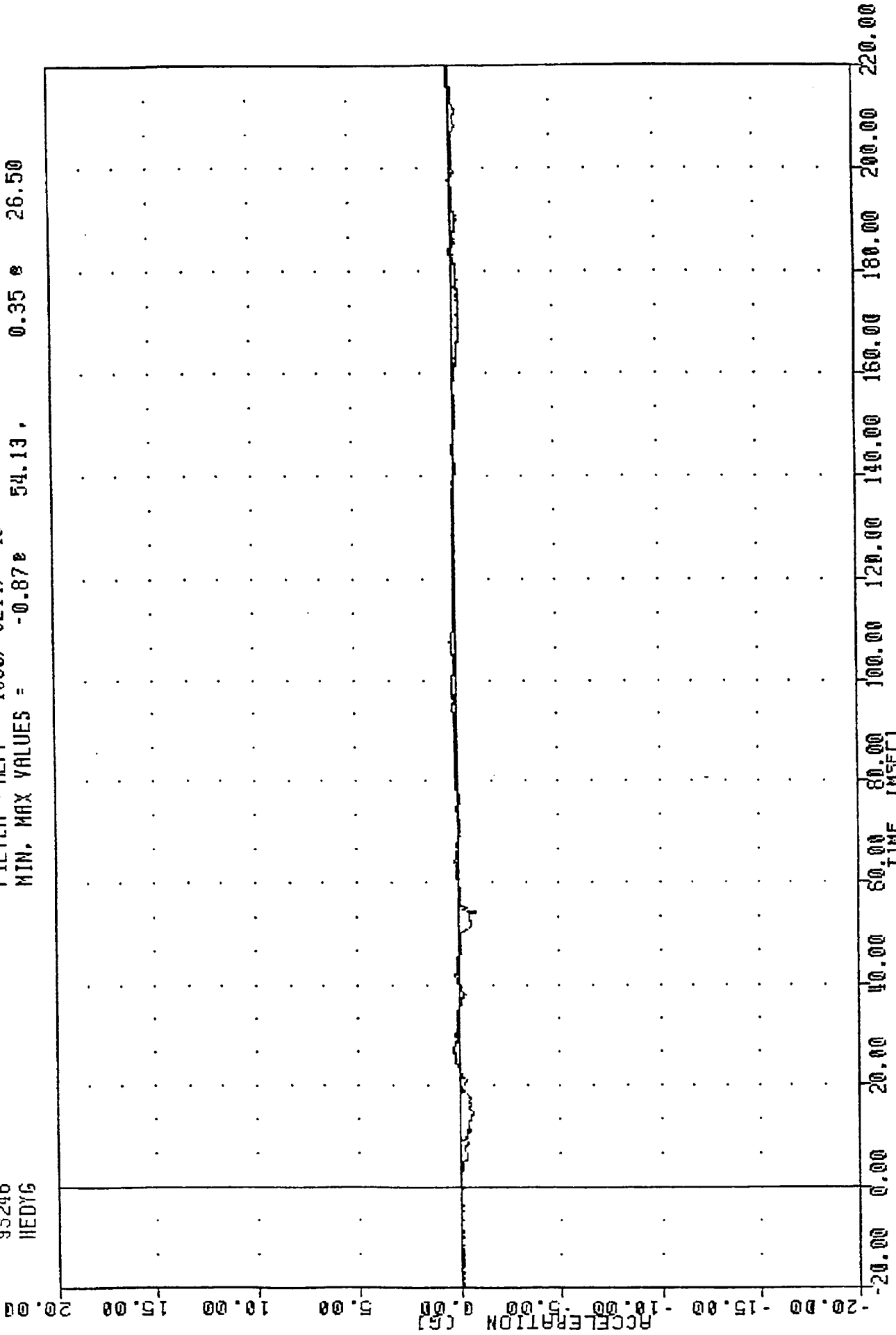


PART 572-B HYBRID II HEAD/NECK CALIBRATION

TRC
5728 SN 903 HEAD/NECK CAL 12
93246
MEDYG

HK90312

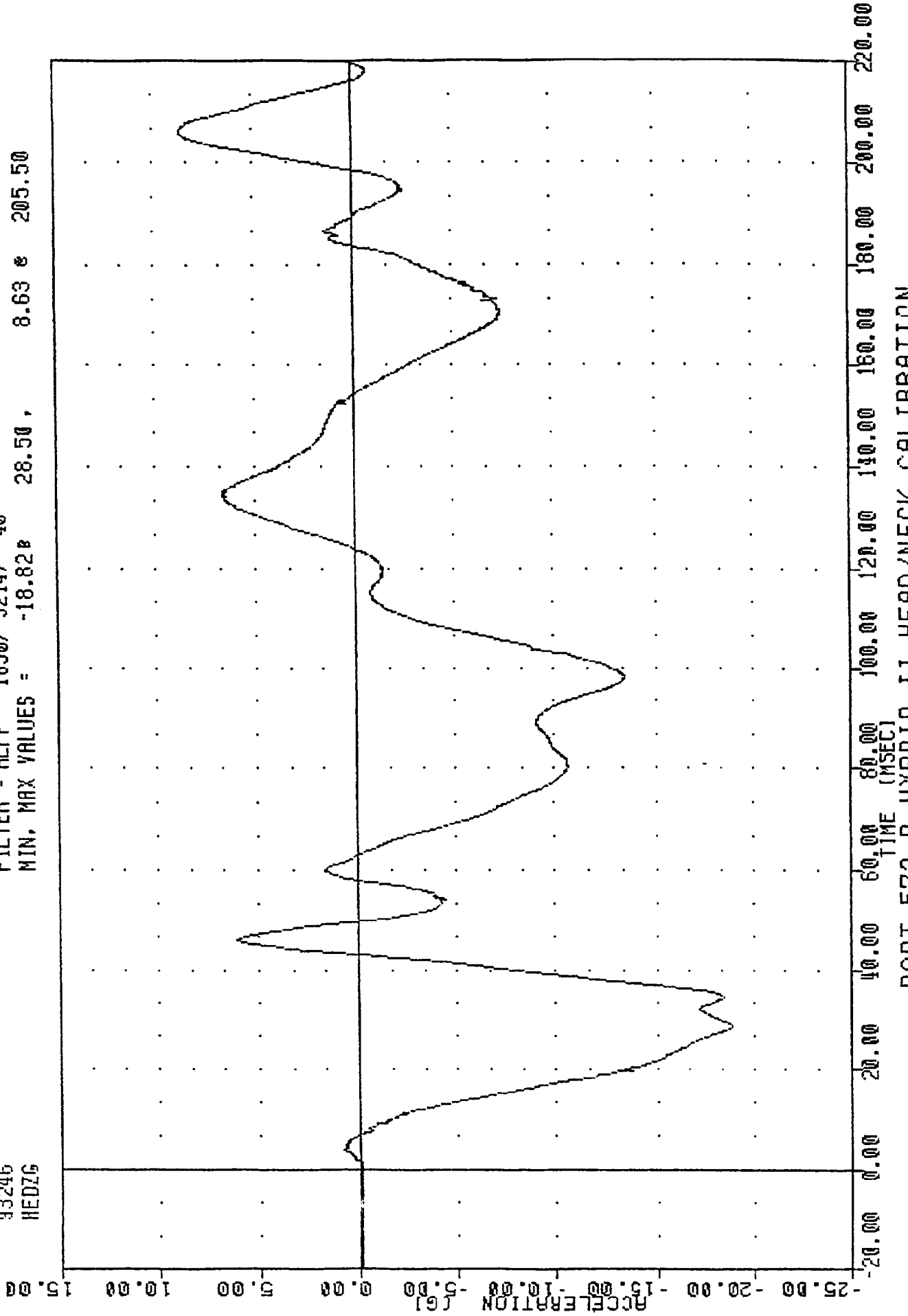
FILTER = ALPF 1650/ 5214/ -40
MIN. MAX VALUES = -0.87e 54.13 . 0.35 e 26.50



PART 572-B HYBRID II HEAD/NECK CALIBRATION

TRC
572B SN 903 HEAD/NECK CAL 12
33246
HEDIG

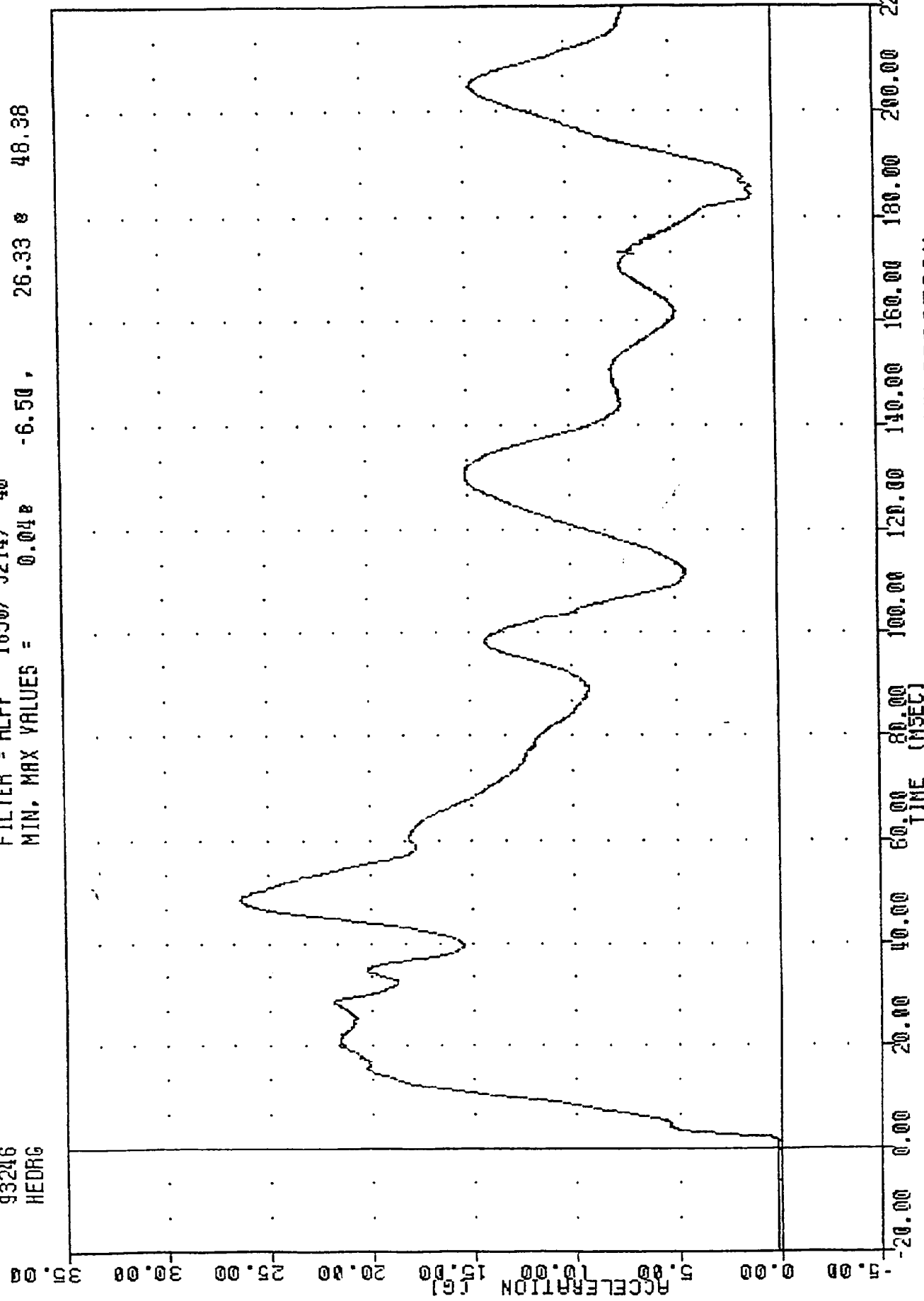
FILTER = ALPF 1650/ 5214/ -40
MIN. MAX VALUES = -18.82B 28.50, 8.63 & 205.50



PART 572-B HYBRID II HEAD/NECK CALIBRATION

TRC , HN90312
 5728 SN 903 HEAD/NECK CAL 12
 93246
 HEDRG

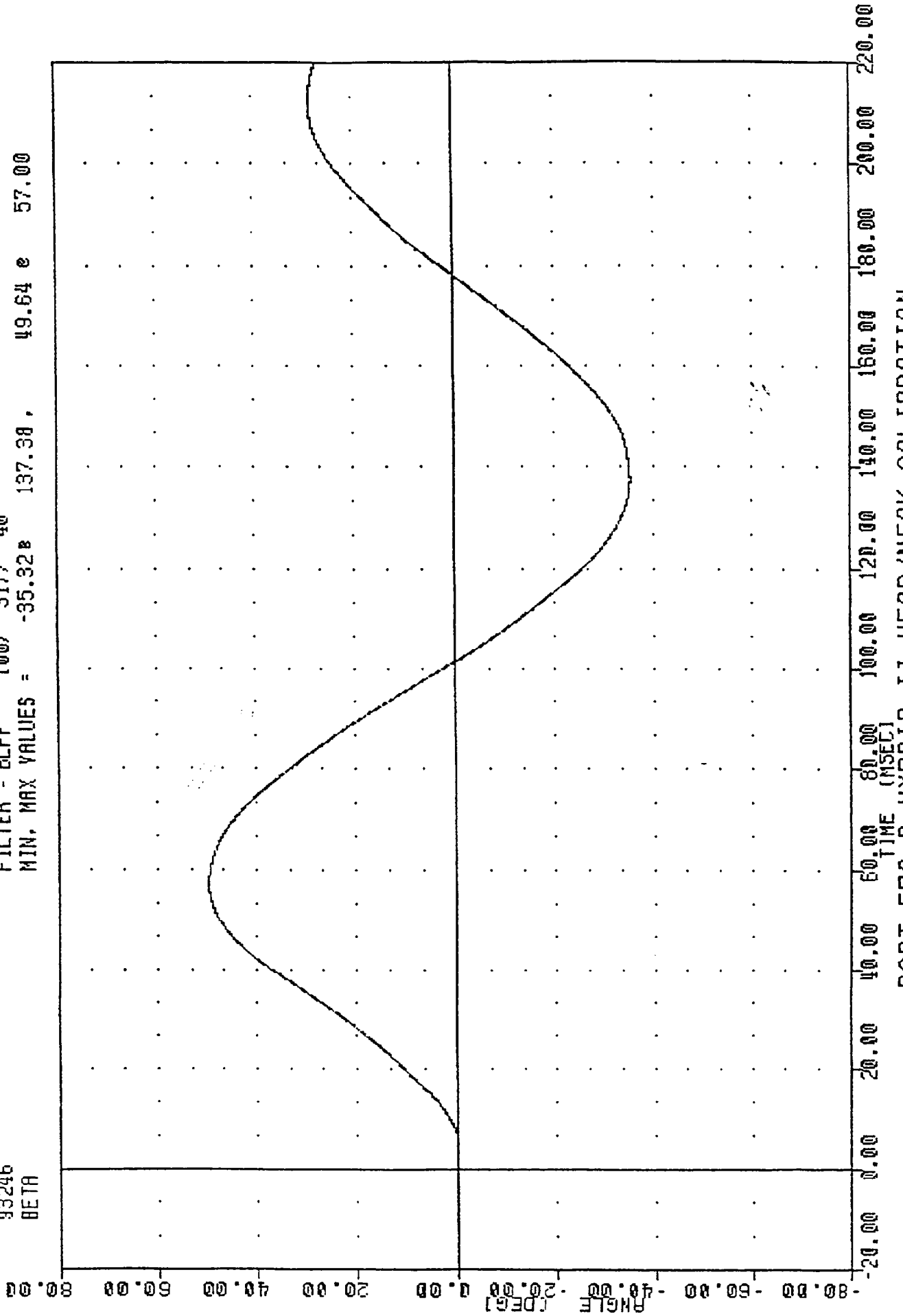
FILTER = ALPF 1650/ 5214/ -40
 MIN. MAX VALUES = 0.04e -6.50, 26.33 e 48.38



PART 572-B HYBRID II HEAD/NECK CALIBRATION

TRC , H190312
572B SN 903 HEAD/NECK CAL 12
93246
BETA

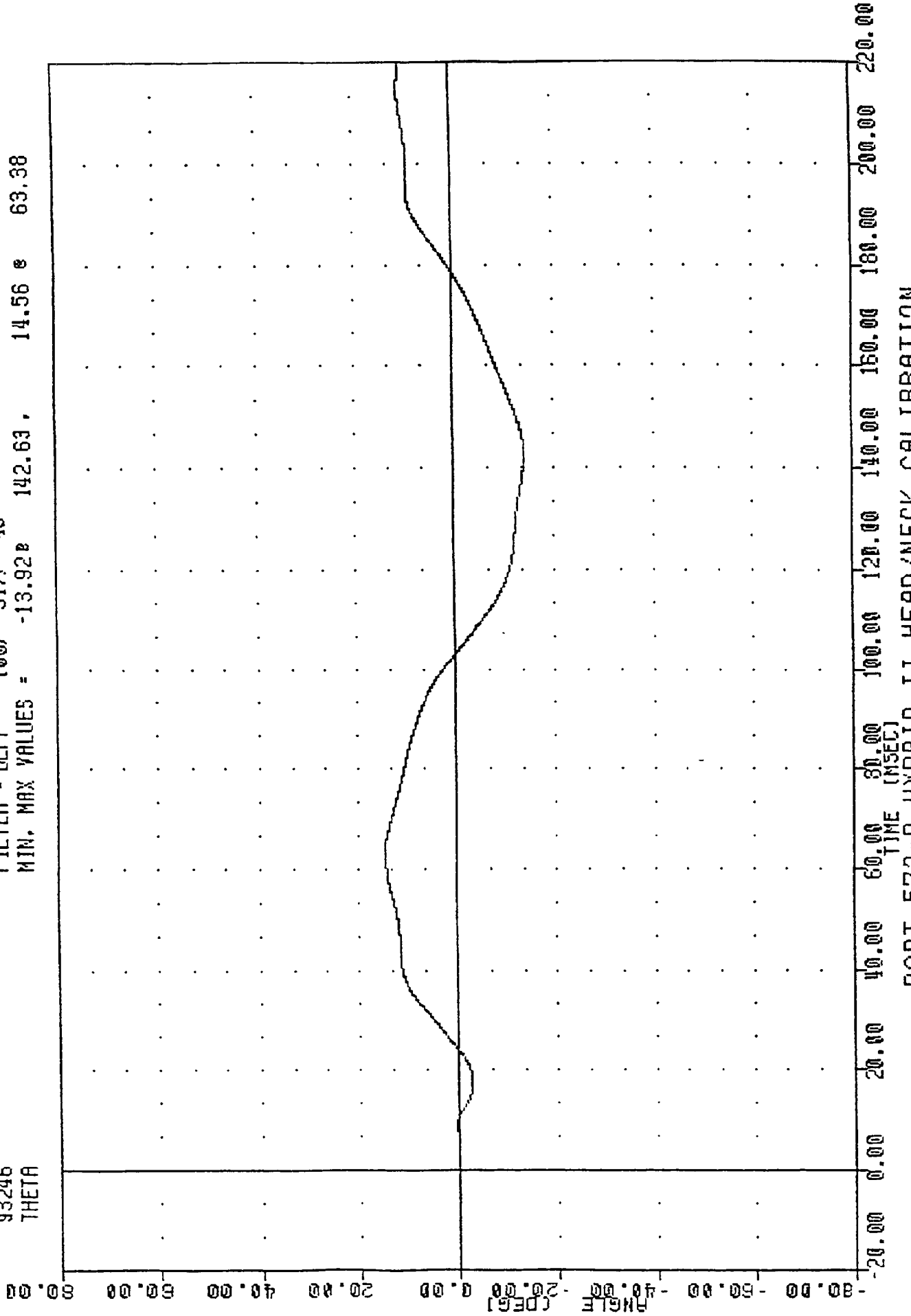
FILTER = BLPF 100/ 317/ -40
MIN. MAX VALUES = -35.32 137.38 , 49.64 e 57.00



PART 572-B HYBRID II HEAD/NECK CALIBRATION

IRC
5728 SN 903 HEAD/NECK CAL 12
93246
THETA

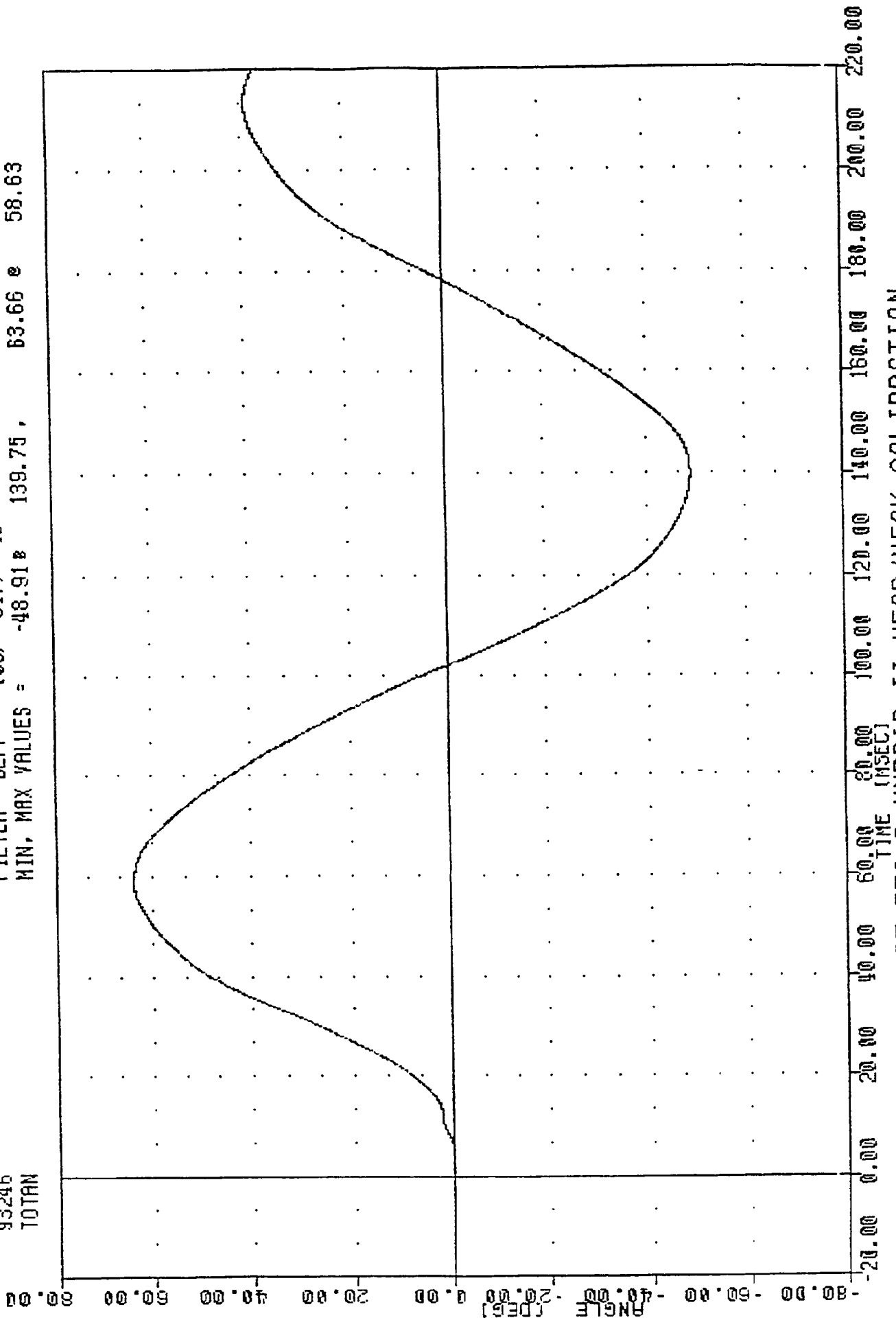
FILTER = BLPF 100/ 317/ -40
MIN. MAX VALUES = -13.92 142.63 14.56 63.38



PART 572-B HYBRID II HEAD/NECK CALIBRATION

TRC
572B SN 903 HEAD/NECK CAL 12
93246
TOTAL

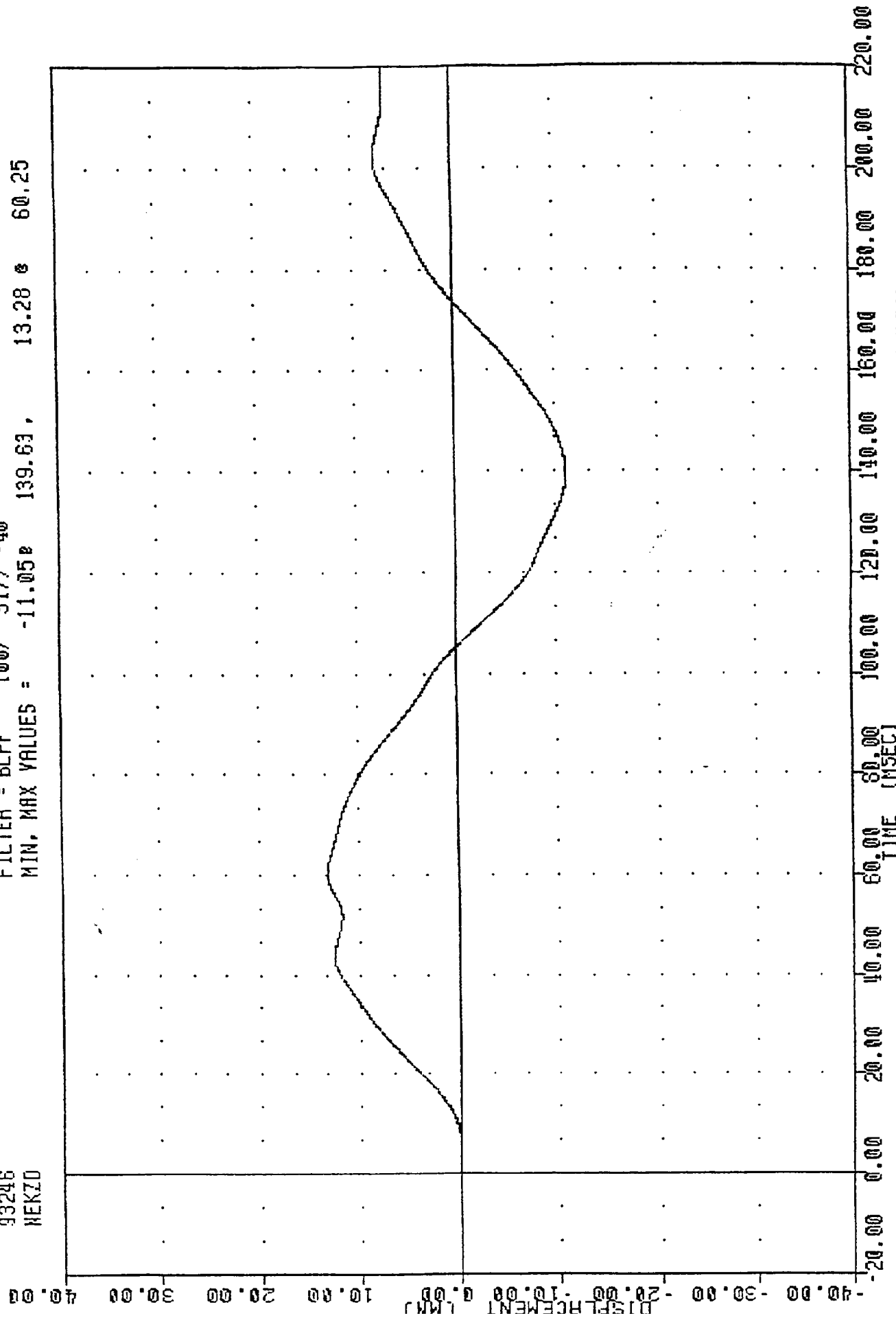
FILTER = BLPF 100/ 317/ -40
MIN, MAX VALUES = -48.91 139.75, 63.66 58.63



PART 572-B HYBRID II HEAD/NECK CALIBRATION

TRC
 572B SM 903 HEAD/NECK CAL 12
 93246
 NEKID

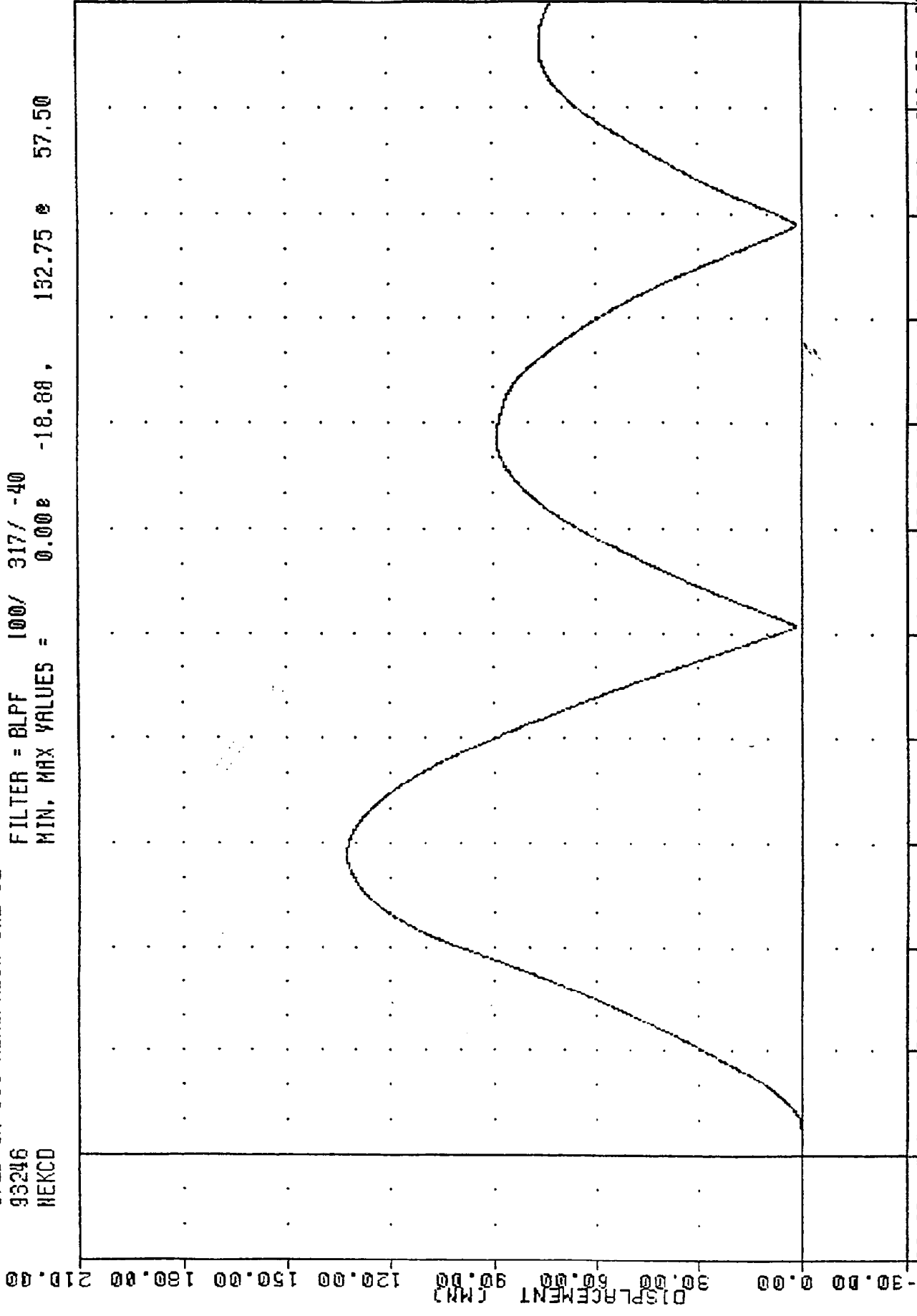
FILTER = BLPF 100/ 317/ -40
 MIN, MAX VALUES = -11.05e 139.63, 13.28 e 60.25



PART 572-B HYBRID II HEAD/NECK CALIBRATION

TAC
 5728 SN 903 HEAD/NECK CAL 12
 93246
 HEKCD

FILTER = BLPF 100/ 317/ -40
 MIN, MAX VALUES = 0.00e -18.88 , 132.75 e 57.50



-20.00 0.00 20.00 40.00 60.00 80.00 100.00 120.00 140.00 160.00 180.00 200.00 220.00
 TIME (MSEC)
 PART 572-R HYRATD II HEAD/NECK CALIBRATION

TRANSPORTATION RESEARCH CENTER INC.

THORACIC SHOCK ABSORBER TESTS

SIDE IMPACT DUMMY

23-Sep-93

TRC

572F SN903 DAMPER TEST CAL15

TEST NOS. DP90315A, DP90315B, DP90315C

TEST PARAMETER		SPECIFICATION	TEST RESULTS
TEMPERATURE		18.9 - 25.5 C	21.1 DEG. C
RELATIVE HUMIDITY		10 - 70 %	61.0 %
VELOCITY	FORCE	856 - 1146 N	906 N
3.07 M/S	DISPLACEMENT	31.2 - 35.2 MM	31.5 MM
VELOCITY	FORCE	1733 - 2100 N	1856 N
4.28 M/S	DISPLACEMENT	32.7 - 37.2 MM	34.4 MM
VELOCITY	FORCE	3743 - 4448 N	4433 N
6.10 M/S	DISPLACEMENT	34.4 - 39.5 MM	36.4 MM

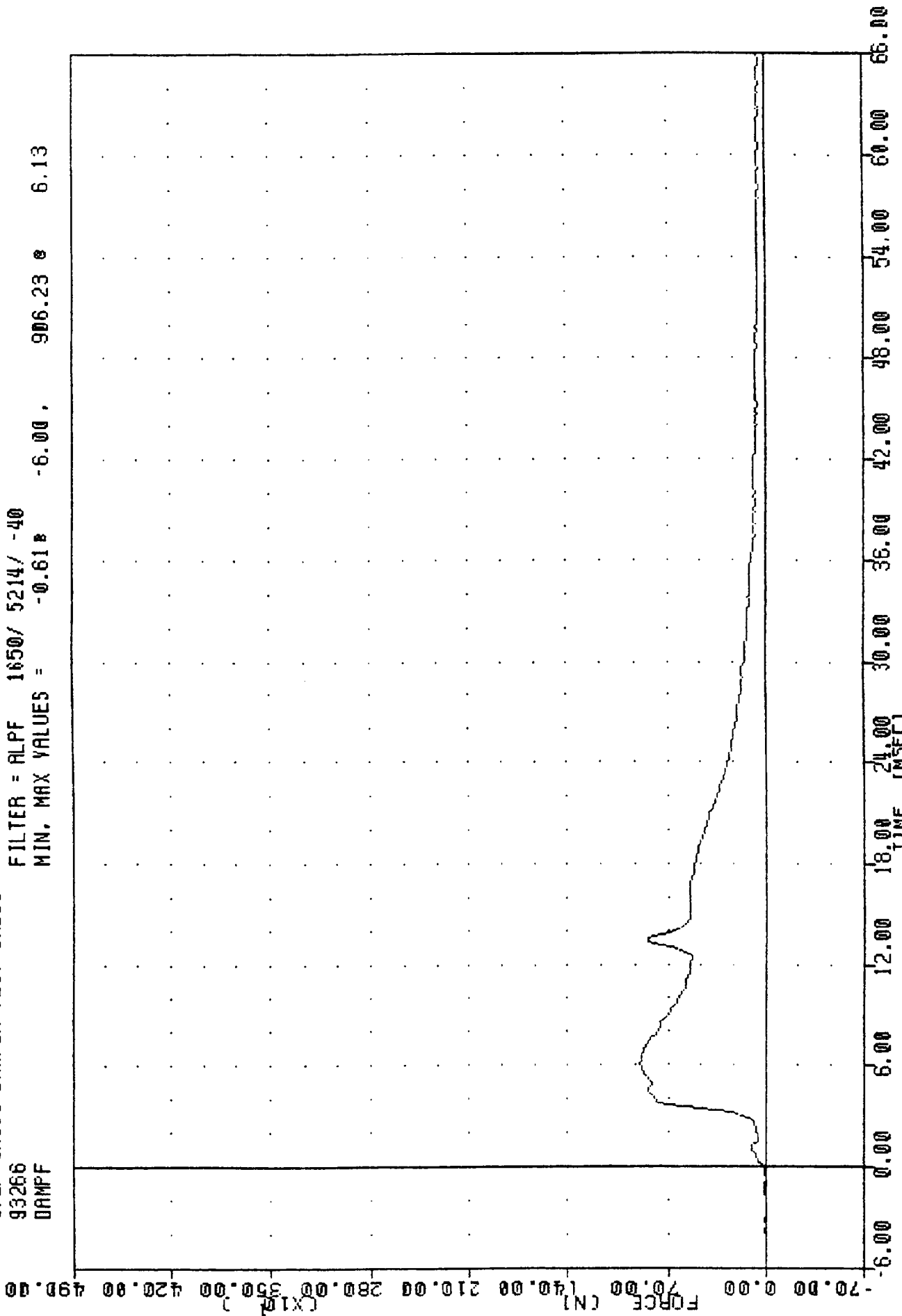
DAMPER SETTING = 5.5

TEST MEETS SPECIFICATIONS

TECHNICIAN Pete Font

TRC , DP90315A
572F SM903 DAMPER TEST CAL15
93266
DAMP

FILTER = ALPF 1650/ 5214/ -40
MIN. MAX VALUES = -0.618 -6.00 , 906.23 e 6.13

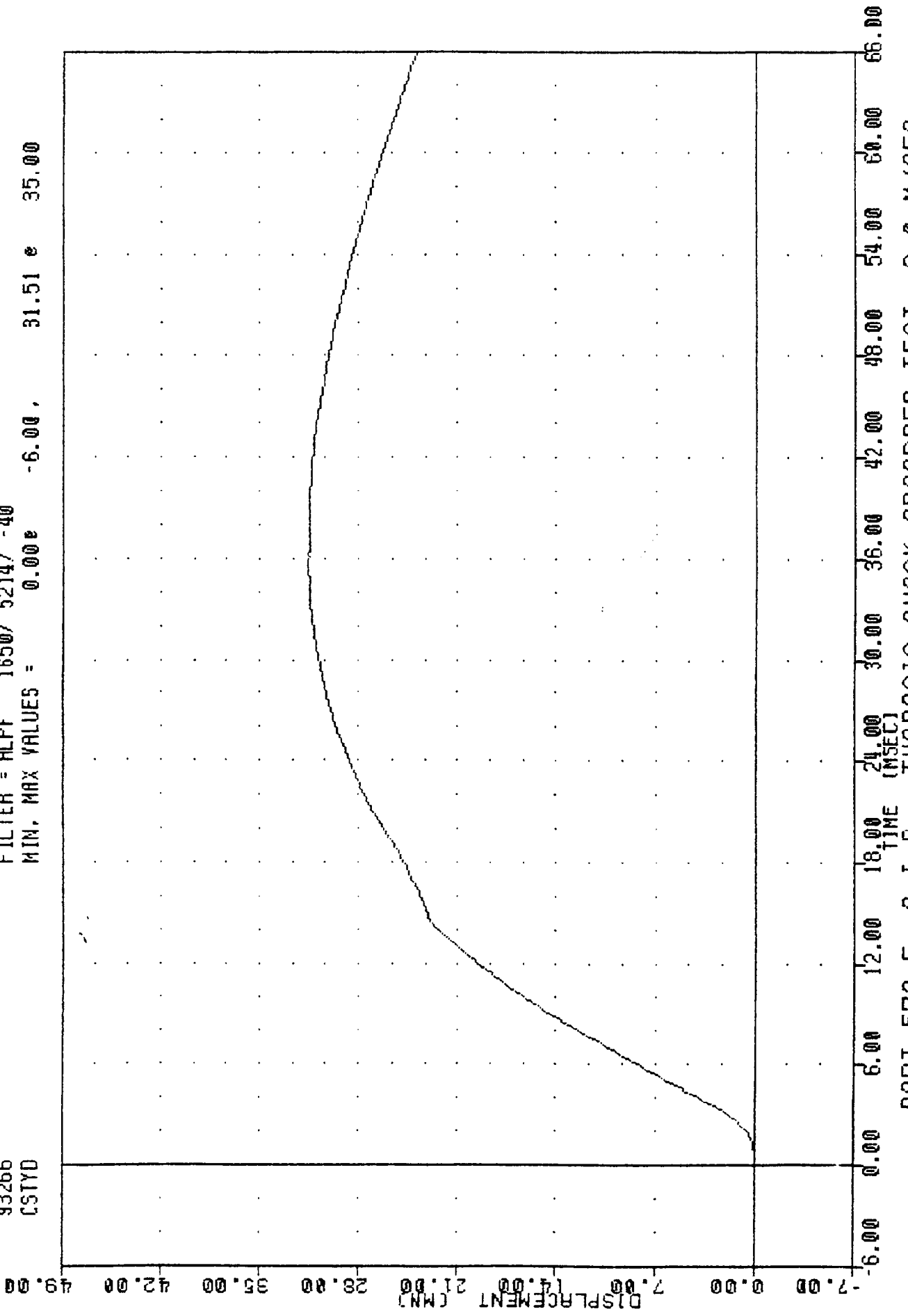


PART 572-F S.I.D. THORACIC SHOCK ABSORBER TEST 3.0 M/SEC

TRC
572F SN903 DAMPER TEST CAL15
93266
CSTYD

, DF90315A

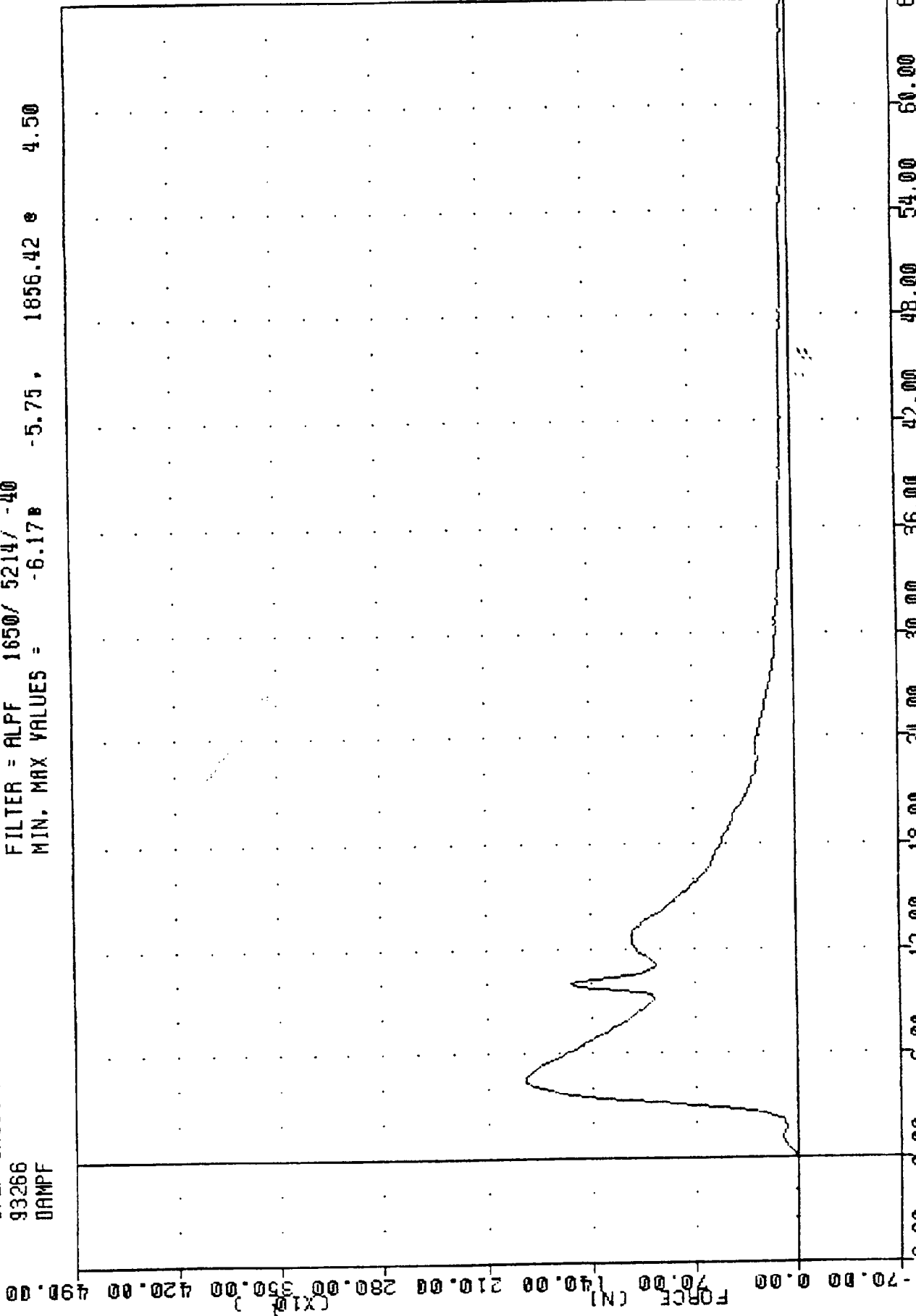
FILTER = ALPF 1650/ 5214/ -40
MIN. MAX VALUES = 0.00e -6.00, 31.51 e 35.00



PART 572-F S.I.D. THORACIC SHOCK ABSORBER TEST 3.0 M/SEC

TRC
 572F SN903 DAMPER TEST CAL15
 93266
 DAMPF

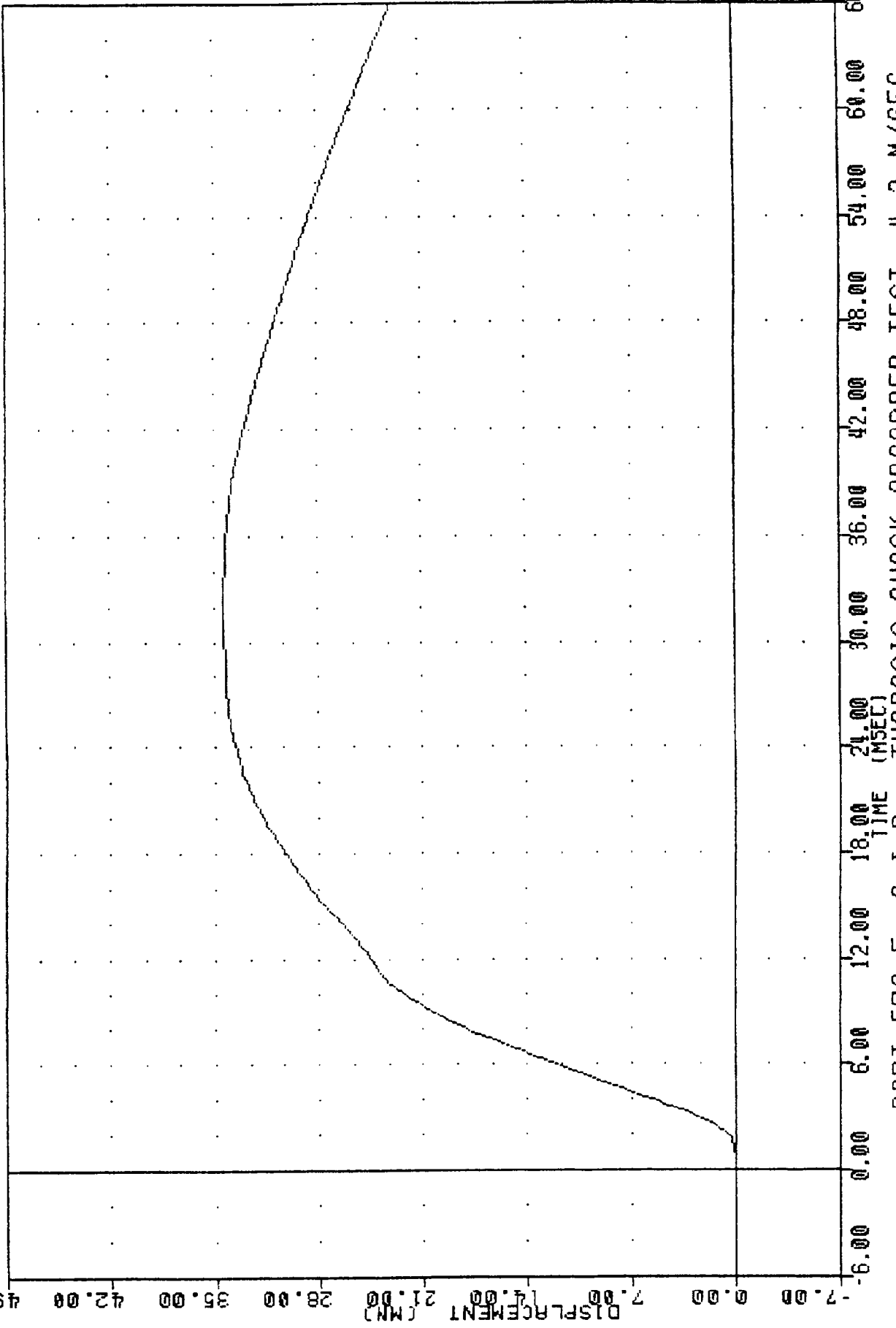
FILTER = ALPF 1650/ 5214/ -40
 MIN. MAX VALUES = -6.17 1856.42 4.50



PART 572-F S.I.D. THORACIC SHOCK ABSORBER TEST 4.3 M/SEC
 DAMPER RESISTIVE FORCE

TRC
572F SN903 DAMPER TEST CAL15
93266
CSTYD

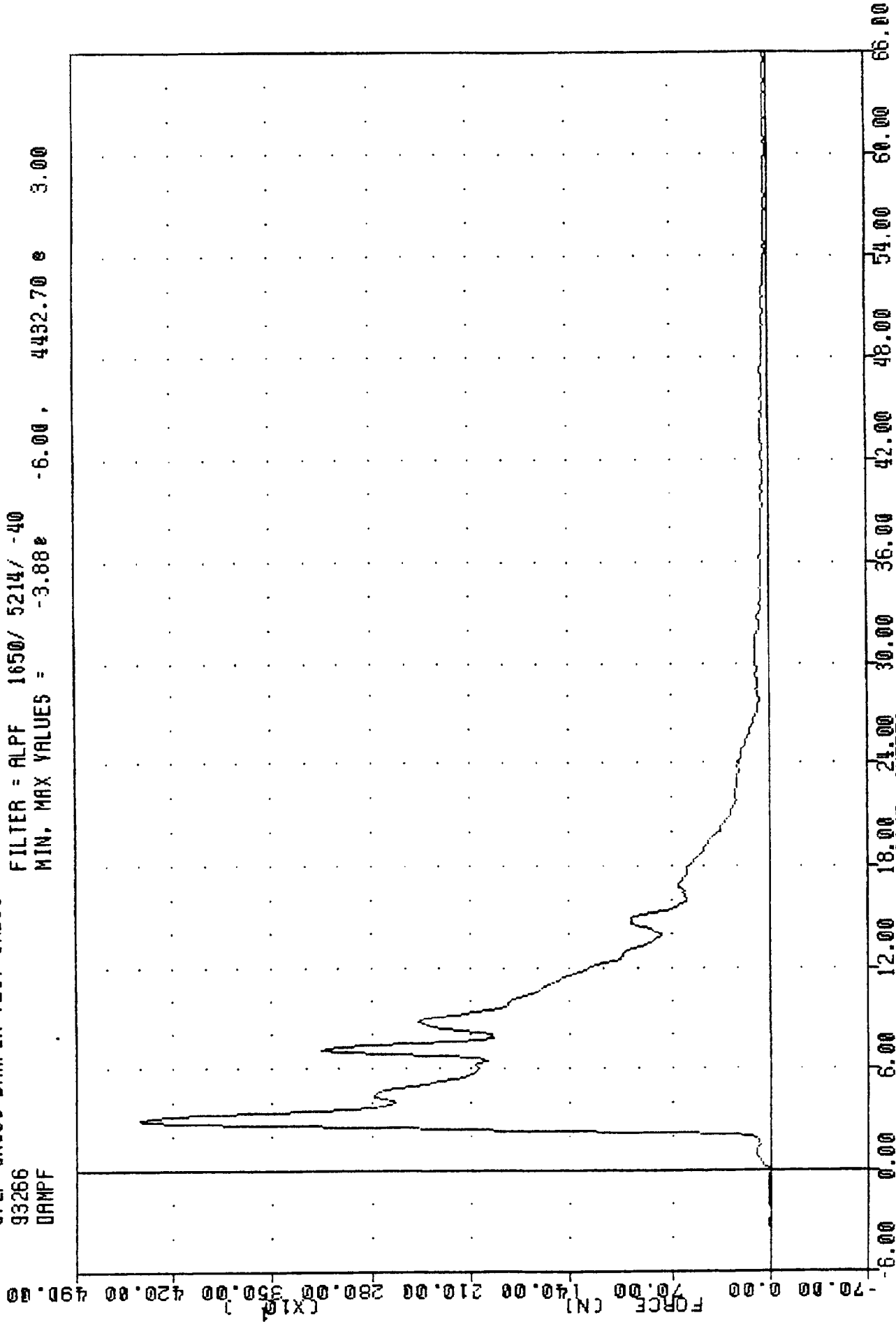
FILTER = ALPF 1650/ 5214/ -40
MIN. MAX VALUES = -0.04 34.35 30.38



PART 572-F S.I.D. THORACIC SHOCK ABSORBER TEST 4.3 M/SEC

TRC
572F SN903 DAMPER TEST CAL15
93266
DAMPF

FILTER = ALPF 1650/ 5214/ -40
MIN. MAX VALUES = -3.88e -6.00, 4432.70 e 3.00

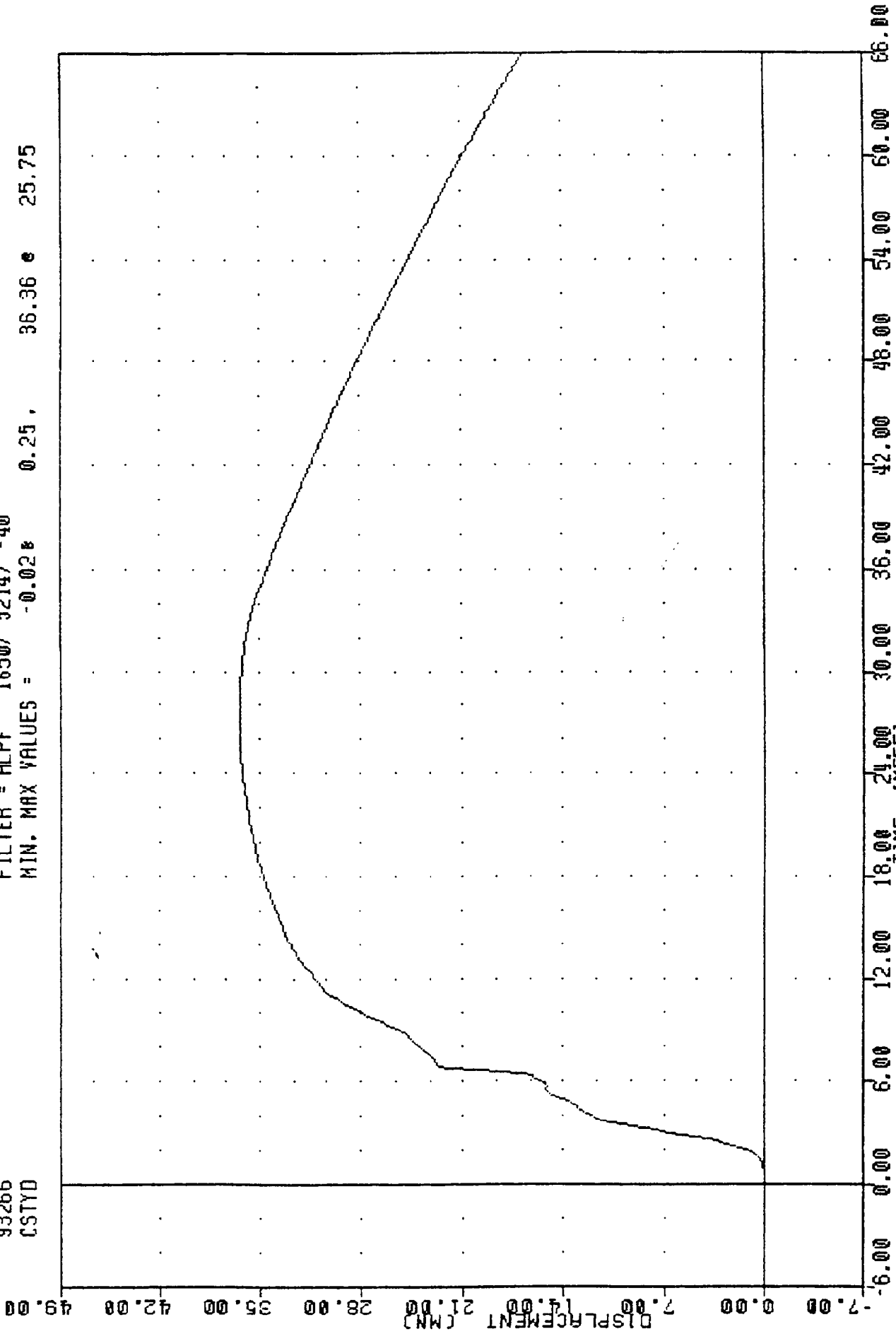


PART 572-F S.I.D. THORACIC SHOCK ABSORBER TEST 6.1 M/SEC

TRC
 572F SN903 DAMPER TEST CAL15
 93266
 CSTYD

, DP90315C

FILTER = ALPF 1650/ 5214/ -40
 MIN. MAX VALUES = -0.028 0.25, 36.36 e 25.75



PART 572-F S.I.D. THORACIC SHOCK ABSORBER TEST 6.1 M/SEC
 NUMBER DISPLACEMENT

TRANSPORTATION RESEARCH CENTER INC.

ABDOMEN COMPRESSION TEST

PART 572B

02-SEP-93

TRC

AB90312

572B SN 903 ABDOM COMPR CAL 12

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	18.9 - 25.5 C	20.0 C
RELATIVE HUMIDITY	10 - 70 %	59 %
FORCE AT 0.00 MM DISP.	44.48 N	44.48 N
FORCE AT 12.7 MM DISP.	102.30 - 160.13 N	133.57 N
FORCE AT 19.1 MM DISP.	160.13 - 222.40 N	190.24 N
FORCE AT 25.4 MM DISP.	222.40 - 280.22 N	259.42 N
FORCE AT 33.0 MM DISP.	324.70 - 391.42 N	369.65 N

DUMMY MEETS SPECIFICATIONS

TECHNICIAN Pete Faust

TRANSPORTATION RESEARCH CENTER INC.

LUMBAR FLEXION TEST

PART 572B

03-SEP-93

TRC

LF90312

572F SN903 LUMBAR FLEX CAL12

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	18.9 - 25.5 C	20.0 C
RELATIVE HUMIDITY	10 - 70 %	59 %
FORCE AT 0 DEG FLEXION	-26.69 - +26.69 N	0.00 N
FORCE AT 20 DEG FLEXION	97.86 - 151.24 N	142.34 N
FORCE AT 30 DEG FLEXION	151.24 - 204.62 N	195.71 N
FORCE AT 40 DEG FLEXION	204.62 - 258.00 N	240.19 N
NET RETURN ANGLE	< 12 DEG	7.94 DEG

DUMMY MEETS SPECIFICATIONS

TECHNICIAN Pete Fount

TRANSPORTATION RESEARCH CENTER INC.

LATERAL THORAX IMPACT TEST

SIDE IMPACT DUMMY

24-Sep-93

LEFT SIDE CONFIGURATION

TRC

ST90315

572F SN903 THORAX IMPACT CAL15

TEST PARAMETER	SPECIFICATION (ABSOLUTE VALUE)	TEST RESULTS
TEMPERATURE	18.9 - 25.5 C	20.6 DEG. C
RELATIVE HUMIDITY	10 - 70 %	52.0 %
PISTON VELOCITY	4.21 - 4.32 M/SEC	4.22 M/SEC
PEAK ACCELERATION: UPPER RIB BAR	37 - 46 G	-44.1 G
PEAK ACCELERATION: LOWER RIB BAR	37 - 46 G	-42.5 G
PEAK ACCELERATION: LOWER THORACIC SPINE	15 - 22 G	-18.7 G

TEST MEETS SPECIFICATIONS

TECHNICIAN Pete Faust

TRC , ST90315

572F SN503 THORAX IMPACT CAL15

93267

LURYG

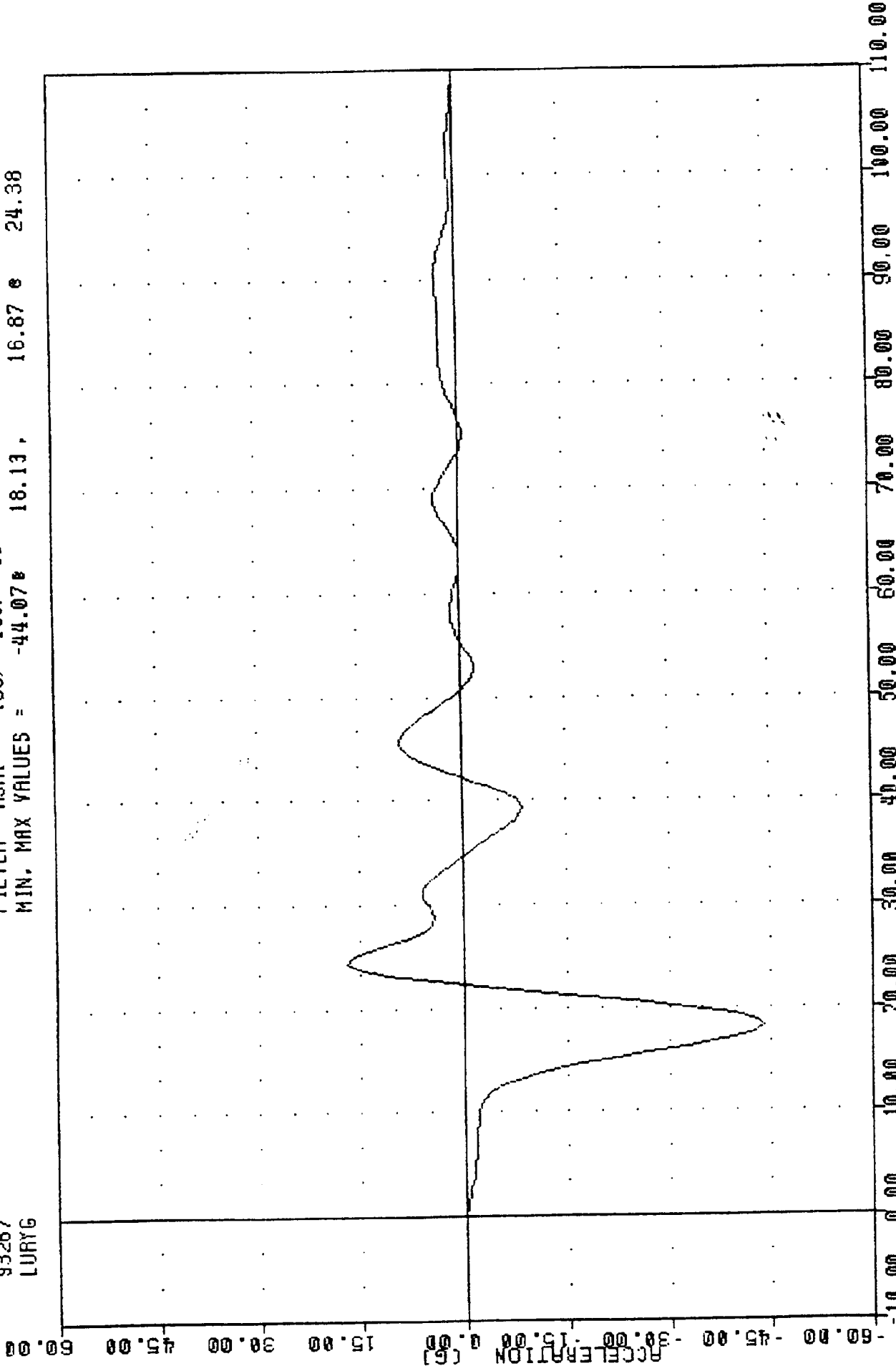
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MIN. MAX VALUES = -44.07e

18.13

16.87 e

24.38

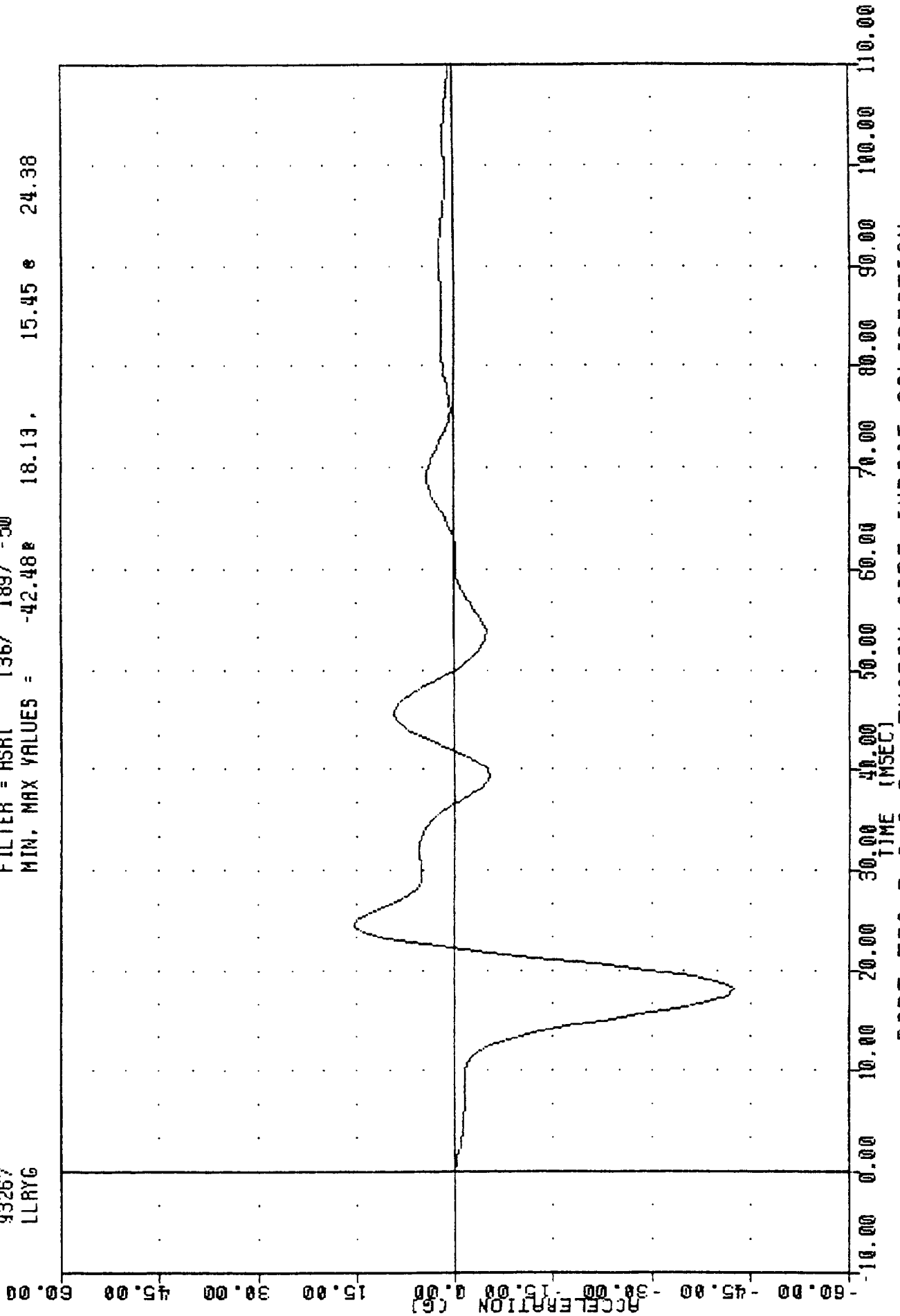


PART 572-F S.I.D. THORAX SIDE IMPACT CALIBRATION

1. FEET IMPACT DTD ACCCELERATION V DATA

TRC
572F SN909 THORAX IMPACT CAL15
93267
LLRYG

FILTER = HSRI 136/ 189/ -50
MIN, MAX VALUES = -42.48R 18.13, 15.45 e 24.38



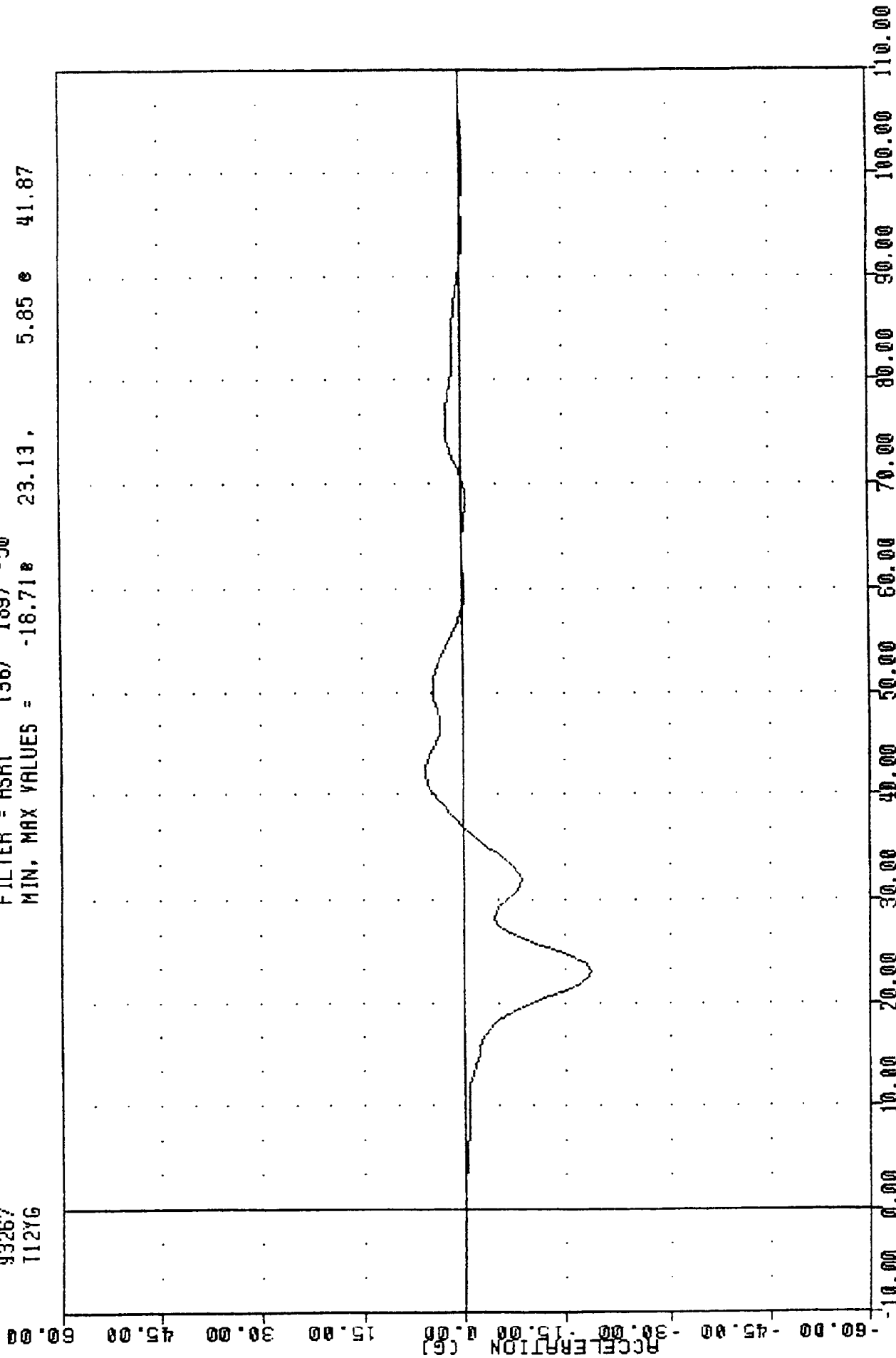
PART 572-F S.I.D. THORAX SIDE IMPACT CALIBRATION

TAC
572F SN903 THORAX IMPACT CAL15

93267
112YG

FILTER = HSRI 136/ 189/ -50

MIN, MAX VALUES = -18.71e 23.13, 5.85 e 41.87



PART 572-F S.I.D. THORAX SIDE IMPACT CALIBRATION

TRANSPORTATION RESEARCH CENTER INC.

LATERAL PELVIS IMPACT TEST

SIDE IMPACT DUMMY

24-Sep-93

LEFT SIDE CONFIGURATION

TRC

SP90315

572F SN903 PELVIS IMPACT CAL15

TEST PARAMETER	SPECIFICATION (ABSOLUTE VALUE)	TEST RESULTS
TEMPERATURE	18.9 - 25.5 C	20.6 DEG. C
RELATIVE HUMIDITY	10 - 70 %	52.0 %
PISTON VELOCITY	4.21 - 4.32 M/SEC	4.29 M/SEC
PEAK PELVIC ACCELERATION	40 - 60 G	-47.9 G
TIME ABOVE 20 G LEVEL	3 - 7 MSEC	5.6 MSEC
IS ACCELERATION CURVE UNIMODAL?	YES	YES

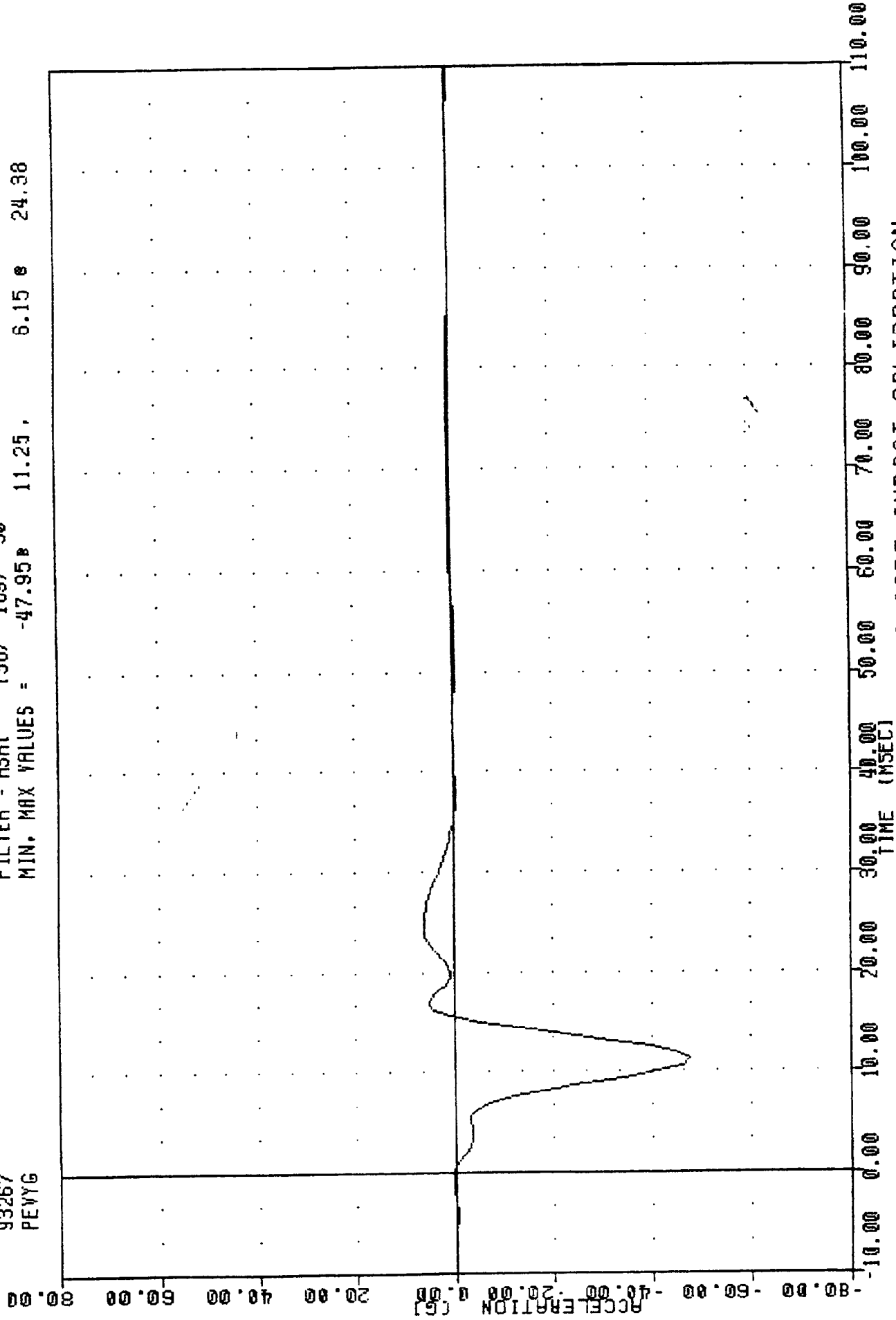
TEST MEETS SPECIFICATIONS

TECHNICIAN Pete Fount

TRC , SP90315
572F SN903 PELVIS IMPACT CAL15

93267
PEVYG

FILTER = HSR1 136/ 189/ -50
MIN. MAX VALUES = -47.95 B 11.25 , 6.15 e 24.38



PART 572-F S.I.D. PELVIS SIDE IMPACT CALIBRATION

APPENDIX D

MISCELLANEOUS TEST INFORMATION

DUMMY INSTRUMENTATION PLACEMENT

DUMMY MANUFACTURER & S/N: NHTSA/906

SEATING POSITION: DRIVER

MNEMONIC	LOCATION	AXIS	MFR.	MODEL	S/N	ORIENTATION (+ SENSING)
HEDXG1	HEAD	X	ENDEVCO	7264	BH72J	REAR
HEDYG1	HEAD	Y	ENDEVCO	7264	AAMB4	LEFT
HEDZG1	HEAD	Z	ENDEVCO	7264	EH65J	UP
T01XG1	UPPER SPINE	X	ENDEVCO	7264	BE39J	REAR
T01YG1	UPPER SPINE	Y	ENDEVCO	7264	BE68J	LEFT
T01YGA	UPPER SPINE REDUNDANT	Y	ENDEVCO	7264	EJ94J	LEFT
T01ZG1	UPPER SPINE	Z	ENDEVCO	7264	BE56J	UP
T12XG1	LOWER SPINE	X	ENDEVCO	7264	BD91J	FORWARD
T12YG1	LOWER SPINE	Y	ENDEVCO	7264	ET59J	LEFT
T12YGA	LOWER SPINE REDUNDANT	Y	ENDEVCO	7264	CB70H	LEFT
T12ZG1	LOWER SPINE	Z	ENDEVCO	7264	DC20J	UP
LURYG1	LEFT UPPER RIB	Y	ENDEVCO	7264	CR39H	RIGHT
LURYGA	LEFT UPPER RIB REDUNDANT	Y	ENDEVCO	7264	DD92J	RIGHT
LLRYG1	LEFT LOWER RIB	Y	ENDEVCO	7264	BT29J	RIGHT
LLRYGA	LEFT LOWER RIB REDUNDANT	Y	ENDEVCO	7264	FG97J	RIGHT
PEVXG1	PELVIS	X	ENDEVCO	7264	BH95J	REAR
PEVYG1	PELVIS	Y	ENDEVCO	7264	DM66J	LEFT
PEVZG1	PELVIS	Z	ENDEVCO	7264	EH85J	UP

DUMMY INSTRUMENTATION PLACEMENT

DUMMY MANUFACTURER & S/N: NHTSA/903

SEATING POSITION: PASSENGER

MNEMONIC	LOCATION	AXIS	MFR.	MODEL	S/N	ORIENTATION (+ SENSING)
HEDXG4	HEAD	X	ENDEVCO	7264	DC72J	REAR
HEDYG4	HEAD	Y	ENDEVCO	7264	BF42J	LEFT
HEDZG4	HEAD	Z	ENDEVCO	7264	EH75J	UP
T01XG4	UPPER SPINE	X	ENDEVCO	7264	DE99J	REAR
T01YG4	UPPER SPINE	Y	ENDEVCO	7264	FG43J	LEFT
T01YGD	UPPER SPINE REDUNDANT	Y	ENDEVCO	7264	EJ62J	LEFT
T01ZG4	UPPER SPINE	Z	ENDEVCO	7264	BE02J	UP
T12XG4	LOWER SPINE	X	ENDEVCO	7264	BF65J	FORWARD
T12YG4	LOWER SPINE	Y	ENDEVCO	7264	EJ59J	LEFT
T12YGD	LOWER SPINE REDUNDANT	Y	ENDEVCO	7264	BE24J	LEFT
T12ZG4	LOWER SPINE	Z	ENDEVCO	7264	BH31J	UP
LURYG4	LEFT UPPER RIB	Y	ENDEVCO	7264	EY99J	RIGHT
LURYGD	LEFT UPPER RIB REDUNDANT	Y	ENDEVCO	7264	DC54J	RIGHT
LLRYG4	LEFT LOWER RIB	Y	ENDEVCO	7264	FJ66J	RIGHT
LLRYGD	LEFT LOWER RIB REDUNDANT	Y	ENDEVCO	7264	FC60J	RIGHT
PEVXG4	PELVIS	X	ENDEVCO	7264	FB67J	REAR
PEVYG4	PELVIS	Y	ENDEVCO	7264	DF92J	LEFT
PEVZG4	PELVIS	Z	ENDEVCO	7264	BE50J	UP

VEHICLE INSTRUMENTATION PLACEMENT

MNEMONIC	LOCATION	AXIS	MFR.	MODEL	S/N	ORIENTATION (+ SENSING)
RFSXG1	RIGHT FRONT SILL	X	ENDEVCO	2264	AT38	FRONT
RFSYG1	RIGHT FRONT SILL	Y	ENDEVCO	2264	AG24	RIGHT
RFSZG1	RIGHT FRONT SILL	Z	ENDEVCO	2264	AU31	UP
LFSYG1	LEFT FRONT SILL	Y	ENDEVCO	7264	AB62	RIGHT
LFDYG1	LEFT FRONT DOOR CENTERLINE	Y	ENDEVCO	7264	CG21H	LEFT
LFDYG3	LEFT FRONT DOOR MID-REAR	Y	ENDEVCO	7264	BF40J	LEFT
LFDYG2	LEFT FRONT DOOR UPPER CENTERLINE	Y	ENDEVCO	7264	CJ30H	LEFT
RDKXG1	REAR FLOORPAN OVER AXLE	X	ENDEVCO	2264	AU09	FRONT
RDKYG1	REAR FLOORPAN OVER AXLE	Y	ENDEVCO	2264	AS95	LEFT
RDKZG1	REAR FLOORPAN OVER AXLE	Z	ENDEVCO	2264	BA46	UP
RRSXG1	RIGHT REAR SILL	X	ENDEVCO	7264	BA68J	FRONT
RRSYG1	RIGHT REAR SILL	Y	ENDEVCO	2264	AA05	LEFT
RRSZG1	RIGHT REAR SILL	Z	ENDEVCO	7264	BK12J	UP
LRSYG1	LEFT REAR SILL	Y	ENDEVCO	7264	BE53J	RIGHT
TRRYG1	RIGHT REAR SEAT	Y	ENDEVCO	7264	BP85J	RIGHT
LRDYG1	LEFT REAR DOOR MID-REAR	Y	ENDEVCO	7264	AK87H	LEFT
LRDYG2	LEFT REAR DOOR UPPER CENTERLINE	Y	ENDEVCO	2264	AP45	LEFT

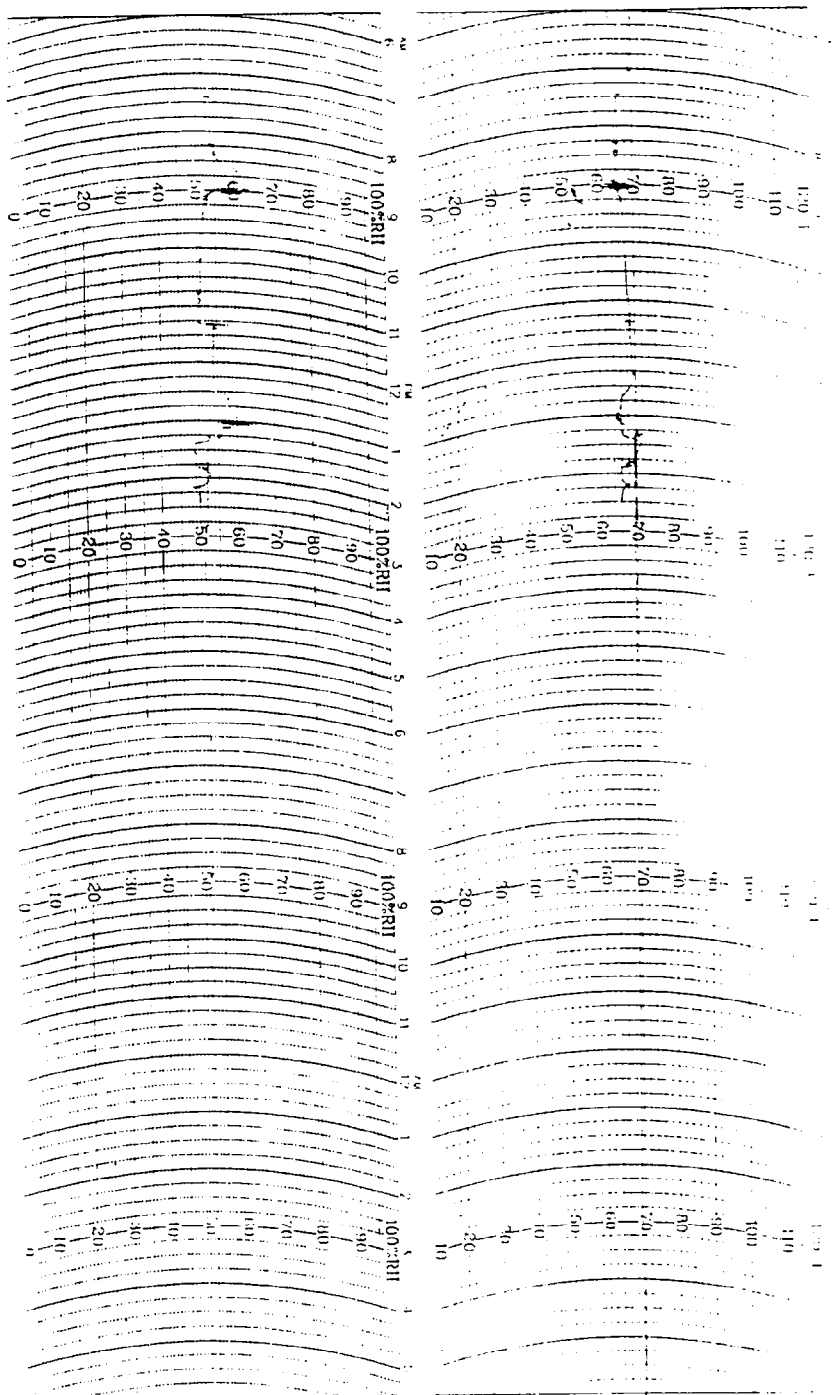
MOVING DEFORMABLE BARRIER INSTRUMENTATION PLACEMENT

MNEMONIC	LOCATION	AXIS	MFR.	MODEL	S/N	ORIENTATION (+ SENSING)
BCGXG	CENTER OF GRAVITY	X	ENDEVCO	2264	AK21	REAR
BCGYG	CENTER OF GRAVITY	Y	ENDEVCO	2264	AY66	RIGHT
BCGZG	CENTER OF GRAVITY	Z	ENDEVCO	2264	AZ67	UP
BSRXG	LEFT FRAME RAIL OVER REAR AXLE	X	ENDEVCO	2264	AY89	REAR
BSRYG	LEFT FRAME RAIL OVER REAR AXLE	Y	ENDEVCO	7264	AL42	RIGHT

FREQUENCY RESPONSE CLASSES
NHTSA LABORATORY PROCEDURE TP-214D-02

<u>TYPICAL TEST MEASUREMENTS</u>	<u>CHANNEL CLASS</u>
Vehicle structural acceleration for use in:	
Total vehicle comparison	60
Collision simulation input	60
Component analysis	600
Integration for velocity or displacement	180
Anthropomorphic test device	
Head accelerations (linear and angular)	1000
Thorax	
Spine acceleration	180*
Rib accelerations	180*
Deflections	180
Pelvis	
Accelerations	180*

*The Channel Class 180 data is further processed by subsampling to a 1600 Hz sample rate, removing bias, and filtering with the Finite Impulse Response (FIR100) filter program.



Weather Measure WEATHER THERMOGRAPH

930928

OCCUPANT COMPARTMENT THERMOGRAPH