

INFORMATION BULLETIN

GENERAL MOTORS VEHICLE MANUFACTURERS ASSOCIATION OF THE UNITED STATES, INC. • 7430 SECOND AVENUE, SUITE 300 • DETROIT, MICHIGAN 48202 • 872-4311 AREA 313

V1483

August 27, 1990

TO: Side Impact Subcommittee
FROM: Ronald J. Wasko
SUBJECT: MYMA Full Vehicle BioSID Test Report - Test 11P

Attached for information is a copy of the final report for one of the twelve MVMA Full Vehicle Side Impact Tests. The tests were conducted during February to April, 1990 at the General Motors Proving Grounds, using the BioSID dummy. The calibration procedures and results will be transmitted in a separate bulletin.

Attachment

cc: Engineering Research Subcommittee
Vehicle Safety Development Subcommittee

MVMA FULL VEHICLE BIOSID SIDE IMPACT TEST SERIES

FEBRUARY-APRIL, 1990

USING PROPOSED NHTSA FULL VEHICLE SIDE IMPACT TEST PROCEDURE

TEST NUMBER 11P*

(B= Baseline door interior; P= Padded door interior)

TYPE IMPACT:

- ☐ REAR MOVING BARRIER
☒ LEFT SIDE MOVING BARRIER
☐ RIGHT SIDE MOVING BARRIER
☐ OTHER

BARRIER TYPE:

- ☐ FLAT FACE ☐ CONTOURED ☒ OTHER

OTHER:

- ☒ CRABBED DEFORMABLE BARR AT 27 DEG.

TEST REPORT

REPORT NO. PG

SRDL TEST NO. C8011

TEST DATE MAR 27, 1990

VEHICLE DESCRIPTION

MAKE	YEAR	BODY TYPE	BODY STYLE	DIVISION CAR NO.	BUILD STATUS	
PONTIAC	90	A-BODY	2AF69	MVMA 11P	MODIFIED PRODUCTION	
ENGINE	CONFIGURATION	L4	DISPLACEMENT	2.5 L	PREVIOUS IMPACTS	NONE
	FUEL	GASOLINE			TRAILER HITCH	YES ☐ NO ☒ TYPE
	FUEL INDUCTION	ELECTRONIC FUEL INJECTION			SPARE TIRE TYPE	COMPACT
FUEL TANK	USABLE CAPACITY	N/D L	UNUSABLE CAPACITY	N/D L	AC	YES ☐ NO ☒
SPECIAL FEATURES:						
VEHICLE TESTED FOR MVMA FOR EVALUATION OF BIOSID DUMMY AND SID DUMMY.						
PADDING PLACED ON LEFT FRONT AND REAR DOOR.						

TEST CONDITIONS

MOVING BARRIER			
VELOCITY AT IMPACT	53.5 km/h	LOCATION	VEHICLE ☐ DRIVER SRP ☐ OTHER ☒
TEST MASS	1360 kg	AT IMPACT	

VEHICLE

TEST MASS	FRONT	920 kg
LESS DUMMIES ☒	REAR	673 kg
INCLUDING DUMMIES ☐	TOTAL	1593 kg

FUEL	TEST VOLUME: CONTENTS	WATER
TANK	N/D / OF USABLE CAPACITY=	64.6 L

FUEL LINES AND SYSTEM FILLED	YES ☐ NO ☒
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VEHICLE SERVICE BRAKES ON @ IMPACT	YES ☐ NO ☒
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SEAT	POSITION	MID
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VEHICLE ATTITUDE	
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J= DRIVER SIDE	193 mm	PASSENGER SIDE	188 mm
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K= DRIVER SIDE	178 mm	PASSENGER SIDE	166 mm
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COMMENTS:	
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LEFT SIDE OF MOVING BARRIER FACE WAS POSITIONED	
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940MM FORWARD OF VEHICLE WHEELBASE CENTERLINE.	
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SEE PAGE 4. FUEL TANK WAS FILLED WITH WATER.	
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DUMMIES

LEFT FRONT	MAKE	SID	NC.	4
	TYPE	50TH %ILE MALE	MASS	78.5 kg
	RESTRAINT	UNBELTED		

LEFT REAR	MAKE	BIOSID	NC	2
	TYPE	50TH %ILE MALE	MASS	77.3 kg
	RESTRAINT	UNBELTED		

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PHOTOGRAPHIC COVERAGE

OFFBOARD	OVER ALL	X	FUEL TANK	
	REAR HALF		OVERHEAD	X
	PIT			
OTHER	OFFBD-DR SIDE	X	ON MDR - IMPACT	X
	ONBD - DRIVER	X		
	ONBD - LR OCCUP.	X		

RECORDED DATA

FLOOR PAN ACCEL.	LONG ☐	LAT ☐	TRIAx ☐
FRAME ACCEL	LONG ☐	LAT ☐	TRIAx ☐
ROCKER PANEL ACCEL.	LONG ☐	LAT ☐	TRIAx ☐
VEHICLE ACCEL	☒ SID DATA		X
MOVING BARR ACCEL.	☒		
BIOSID DATA	☒		

N/A NOT APPLICABLE N/D NOT DETERMINED

POST-TEST OBSERVATIONS

	YES	NO	N/A	N/D	FIG.	NC
DOORS	ALL EXTERIOR DOORS REMAINED CLOSED					
	ALL EXTERIOR DOORS REMAINED LATCHED					
	ALL EXTERIOR DOOR HINGES REMAINED INTACT					
			LATCH OPERABLE		DISTANCE DOOR MAY BE OPENED (1)	
			YES	NO	OTHER	
	LEFT FRONT			X		0 mm
	RIGHT FRONT		X			FULL mm
	LEFT REAR			X		0 mm
RIGHT REAR		X			FULL mm	
(1) DISTANCE MEASURED BETWEEN DOOR OUTER SURFACE AND ADJACENT BODY OUTER SURFACE WHEN 450 N PULL IS APPLIED TO HANDLE.						
BODY	BODY TO-FRAME OR CRADLE MOUNTS REMAINED ATTACHED					
	SPARE TIRE REMAINED IN PLACE					
	TRUNK LID OR REAR HATCH REMAINED INTACT					
	TRUNK LID OR REAR HATCH REMAINED CLOSED					
DRIVE	REAR AXLE INTACT					
	REAR AXLE DEFORMED					
	DRIVESHAFT INTACT					
	DRIVESHAFT DEFORMED					
FUEL	FUEL TANK RETAINED					
	FILLER TUBE INTACT					
NOTE: 1. FRONT WHEEL DRIVE.						
NOTE: VEHICLE AND BARRIER FACE						
RESIDUAL CRUSH MEASUREMENTS ON						
PAGES 5 & 6.						

VEHICLE DATA

REAR IMPACT					
VEHICLE	DRIVER SIDE	mm	FUEL TANK	DRIVER SIDE	mm
RESIDUAL CRUSH	PASSENGER SIDE	mm	RESIDUAL CRUSH	PASSENGER SIDE	mm
VEHICLE	DRIVER SIDE	mm	FUEL TANK	DRIVER SIDE	mm
DYNAMIC CRUSH	PASSENGER SIDE	mm	RESIDUAL DISP	PASSENGER SIDE	mm
SIDE IMPACT					
VEHICLE RESIDUAL CRUSH			FUEL TANK LATERAL RESIDUAL CRUSH		
FRONT	mm		FRONT	N/D mm	REAR mm
MID	mm		FUEL TANK LATERAL RESIDUAL DISPLACEMENT		
REAR	mm		FRONT	N/D mm	REAR mm

NOTE: (A) RESIDUAL CRUSH MEASUREMENTS +OR- 25mm. OTHER RESIDUAL MEASUREMENTS +OR- 5mm
 (B) GENERALIZED TOLERANCE CANNOT BE SPECIFIED FOR DYNAMIC MEASUREMENTS BECAUSE OF ACCURACY VARIATIONS DUE TO DIFFERENCES IN ANALYSIS TECHNIQUES.

A TOLERANCE FOR SPECIFIC TEST DATA CAN BE FURNISHED ON REQUEST.
 N/A NOT APPLICABLE N/D NOT DETERMINED

DUMMY LOCATION IN VEHICLE

The following values reflect the dummy location in the test vehicle in corporate body coordinates. The location is determined relative to the vehicle front fiducial mark (front outboard seat anchor stud).

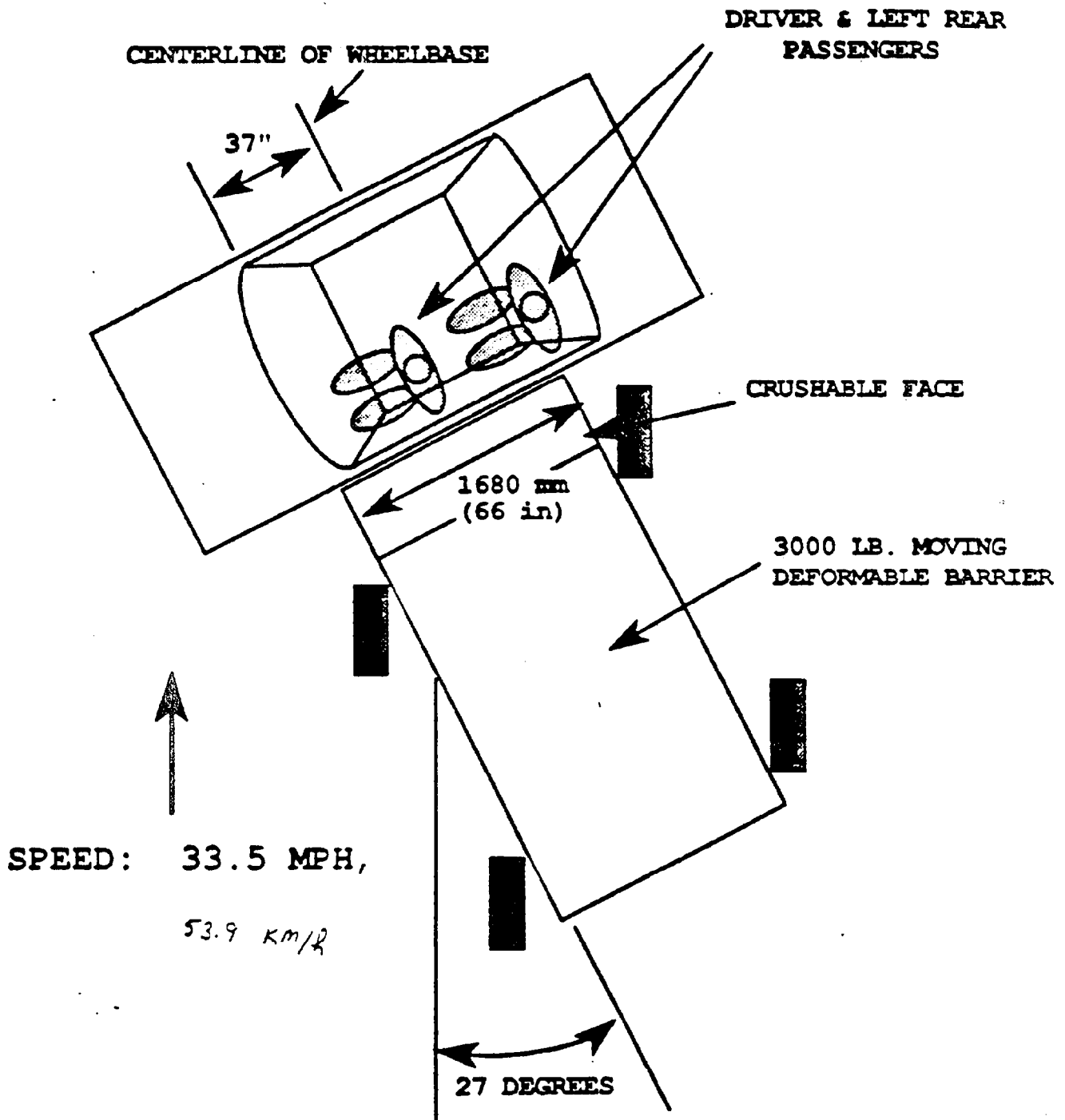
BODY COORDINATES (mm)

	LONGITUDINAL	VERTICAL
<u>LEFT FRONT PASSENGER</u>		
HEAD	<u>3282</u>	<u>1118</u>
HIP	<u>3069</u>	<u>468</u>
KNEE	<u>2672</u>	<u>552</u>
PELVIC ANGLE <u>25</u>	SEAT BACK ANGLE <u>24.0</u>	
<u>LEFT REAR PASSENGER</u>		
HEAD	<u>4113</u>	<u>1118</u>
HIP	<u>3927</u>	<u>453</u>
KNEE	<u>3550</u>	<u>288</u>
PELVIC ANGLE <u>25</u>	SEAT BACK ANGLE <u>24.0</u>	

Dummy lateral location: 343 mm relative to VEHICLE C/L

Comments: DUMMY HEAD ANGLE IN DEGREES - DR=-7.0, LR=-10.0

NHTSA TEST CONFIGURATION



27 DEGREE CRABBED MOVING DEFORMABLE BARRIER TO CAR SIDE IMPACT
TEST VEHICLE PRE-TEST, POST-TEST, AND STATIC CRUSH MEASUREMENTS (in mm)

TEST NUMBER: C8011

TEST DATE: 3-27-90

LOCATION			WINDOW TOP			WINDOW SILL			MID DOOR			H - POINT			AXCLE CL		
WEIGHT (in mm)			-			808			-			454			214		
TIME & CRUSH			PRE TEST	POST TEST	RSDL. CRUSH	PRE TEST	POST TEST	RSDL. CRUSH	PRE TEST	POST TEST	RSDL. CRUSH	PRE TEST	POST TEST	RSDL. CRUSH	PRE TEST	POST TEST	RSDL. CRUSH
M	F	610	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
E	R	457	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
A	W	305	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
S	D	152	-	-	-	416	397	-19	-	-	-	-	-	-	-	-	-
U		0*	-	-	-	408	394	-14	-	-	-	353	333	-20	444	446	2
R		152	-	-	-	404	491	87	-	-	-	352	601	249	447	523	76
E		305	-	-	-	402	547	145	-	-	-	349	660	311	447	549	102
M		457	-	-	-	399	575	176	-	-	-	346	677	331	442	571	129
E		610	-	-	-	396	591	195	-	-	-	344	696	352	438	594	156
N	R	762	-	-	-	394	611	217	-	-	-	342	716	374	434	617	183
T	E	914	-	-	-	393	634	241	-	-	-	341	729	388	439	643	204
	A	1067	-	-	-	392	649	257	-	-	-	339	745	406	430	668	238
L	R	1219	-	-	-	391	677	286	-	-	-	337	752	415	431	710	279
O	W	1372	-	-	-	391	687	296	-	-	-	336	771	435	425	605	180
C	A	1524	-	-	-	391	700	309	-	-	-	336	777	441	423	539	116
A	R	1676	-	-	-	391	702	311	-	-	-	336	778	442	421	487	66
T	D	1829	-	-	-	391	586	195	-	-	-	336	678	342	421	446	25
I		1981	-	-	-	393	478	85	-	-	-	-	-	-	-	-	-
O		2134	-	-	-	392	437	45	-	-	-	-	-	-	-	-	-
M		2286	-	-	-	393	392	-1	-	-	-	-	-	-	-	-	-
		2438	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

(in mm)

* IMPACT POINT- MOVING DEFORMABLE BARRIER LEADING EDGE

**27 DEGREE CRABBED MOVING DEFORMABLE BARRIER TO CAR SIDE IMPACT
STRIKING VEHICLE PRE-TEST, POST-TEST, AND STATIC CRUSH MEASUREMENTS (in mm)**

TEST NUMBER: C8011

TEST DATE: MARCH 27, 1990

LOCATION	HEIGHT	TIME/CRUSH	MEASUREMENT LOCATION (in mm)																
			DISTANCE LEFT OF CENTER**								DISTANCE RIGHT OF CENTER**								
			813	711	610	508	406	305	203	102	0	102	203	305	406	508	610	711	813
TOP OF STACK LEVEL	813	POST-TEST	330	280	280	280	280	280	282	283	285	286	290	290	296	304	330	370	402
		PRE-TEST	276	276	276	276	276	276	276	276	276	276	276	276	276	276	276	276	276
		STATIC CRUSH	54	4	4	4	4	4	6	7	9	10	14	14	20	28	54	94	126
MID-STACK LEVEL	686	POST-TEST	290	275	276	278	278	279	280	280	280	282	283	284	285	287	300	340	397
		PRE-TEST	276	276	276	276	276	276	276	276	276	276	276	276	276	276	276	276	276
		STATIC CRUSH	14	-1	0	2	2	3	4	4	4	6	7	8	9	11	24	64	121
BOTTOM OF STACK LEVEL	559	POST-TEST	288	285	282	280	280	280	278	277	280	280	280	283	285	286	292	305	334
		PRE-TEST	276	276	276	276	276	276	276	276	276	276	276	276	276	276	276	276	276
		STATIC CRUSH	12	9	6	4	4	4	2	1	4	4	4	7	9	10	16	29	58
BUMPER LEVEL	432	POST-TEST	205	186	186	185	186	191	186	184	186	190	190	196	198	200	214	250	277
		PRE-TEST	193	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	193
		STATIC CRUSH	12	12	12	11	12	17	12	10	12	16	16	22	24	26	40	76	84

* HEIGHTS MEASURED ABOVE GROUND LEVEL.

** LOOKING AT THE FACE OF THE BARRIER.

1

REPORT NO. PG

SRDL TEST NO. C8011

INSTRUMENTATION, FILM ANALYSIS DATA AND PHOTOGRAPH INDEX

ACCELERATION DATA AND PHOTOGRAPH INDEX	
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	FLOOR PAN ACCELERATION
	VEHICLE VELOCITY COMPUTED FROM ACCELERATION
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9-28	VEHICLE DOOR - ACCELERATION & VELOCITY
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34, 35	COMPUTED VELOCITY; DISPLACEMENT
	COMPUTED MOVING BARRIER FORCE
36-56	SID DATA - DRIVER
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	DYNAMIC REAR CRUSH-FILM ANALYSIS
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	OVERALL VEHICLE
	REAR OVERALL
128	CLOSEUP OF IMPACT AREA
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	VEHICLE UNDERBODY
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143-145	CLOSEUPS OF IMPACTED AREA
	OVERALL VEHICLE
	REAR OVERALL
	REAR CRUSH
146-153	DUMMIES & INTERIOR
	FUEL TANK
	REAR HALF OF VEHICLE UNDERBODY
	OVERALL OF VEHICLE UNDERBODY
154, 155	CLOSEUPS OF INTERIOR WITHOUT DUMMIES
156, 157	CLOSEUPS OF DUMMIES HEAD IMPACT AREAS

CPE 054 9 (03)

128

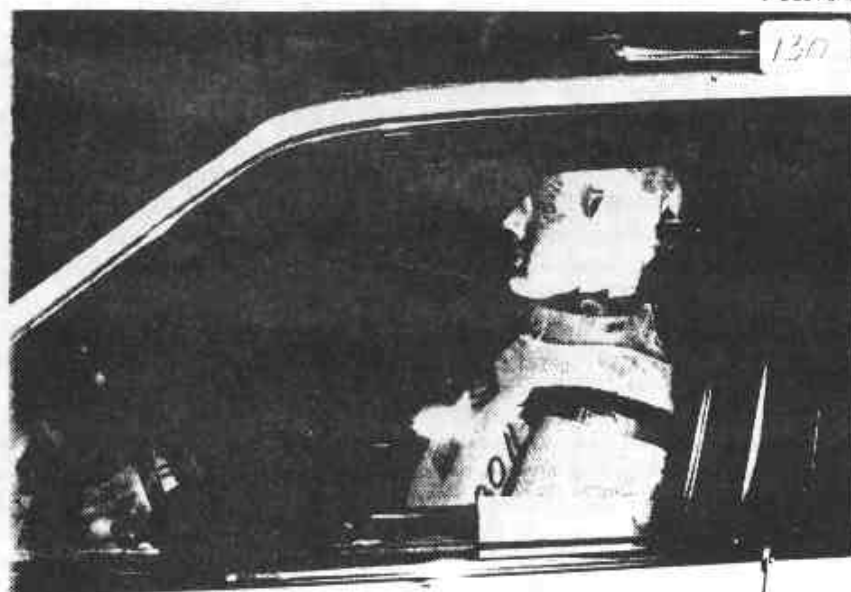


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129



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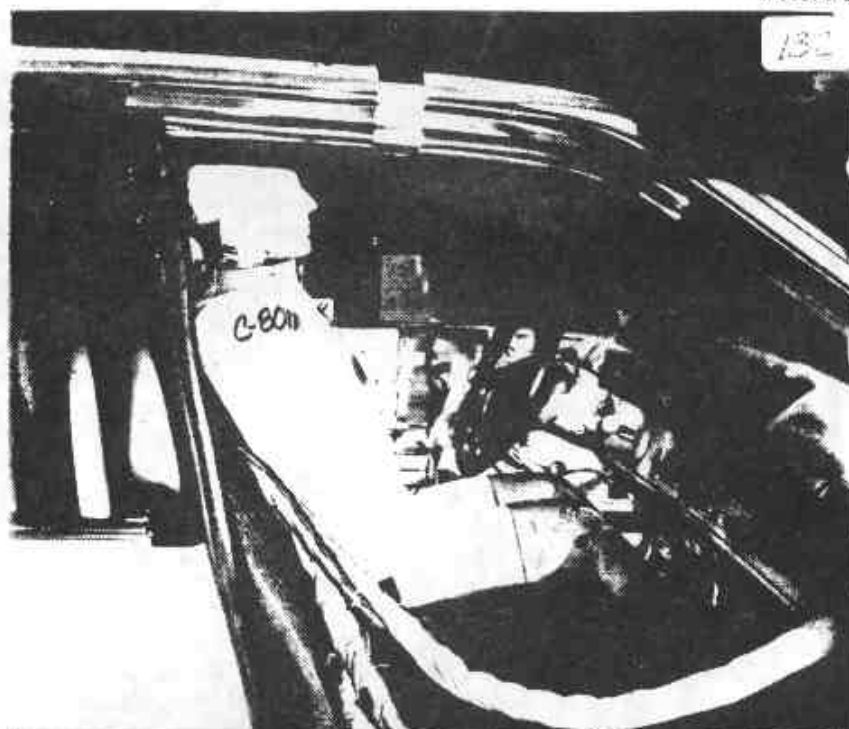


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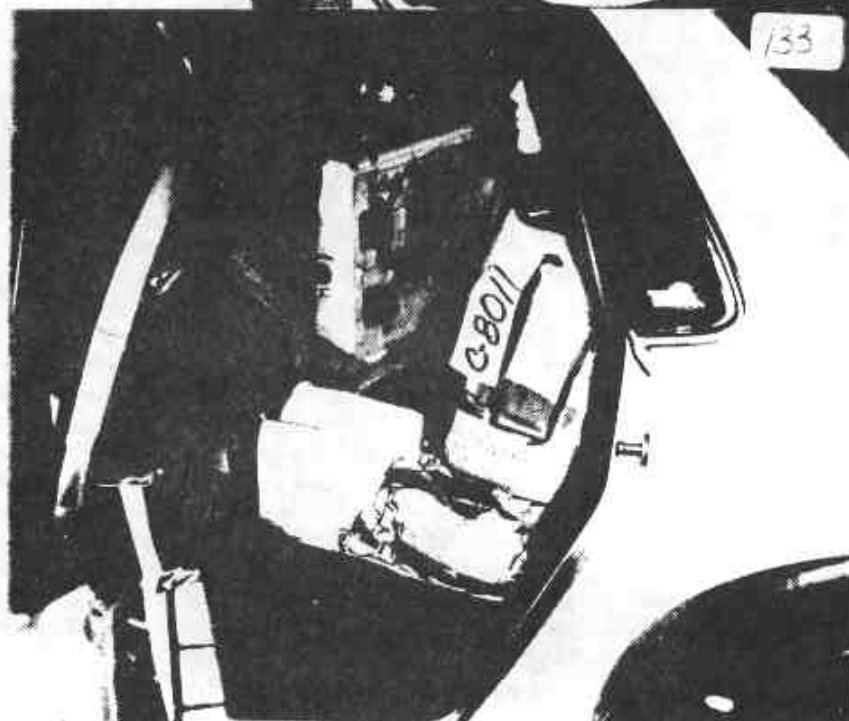
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Document No.	Fig. No.
55621	132

133



Document No.	Fig. No.
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CPE 054 9-83

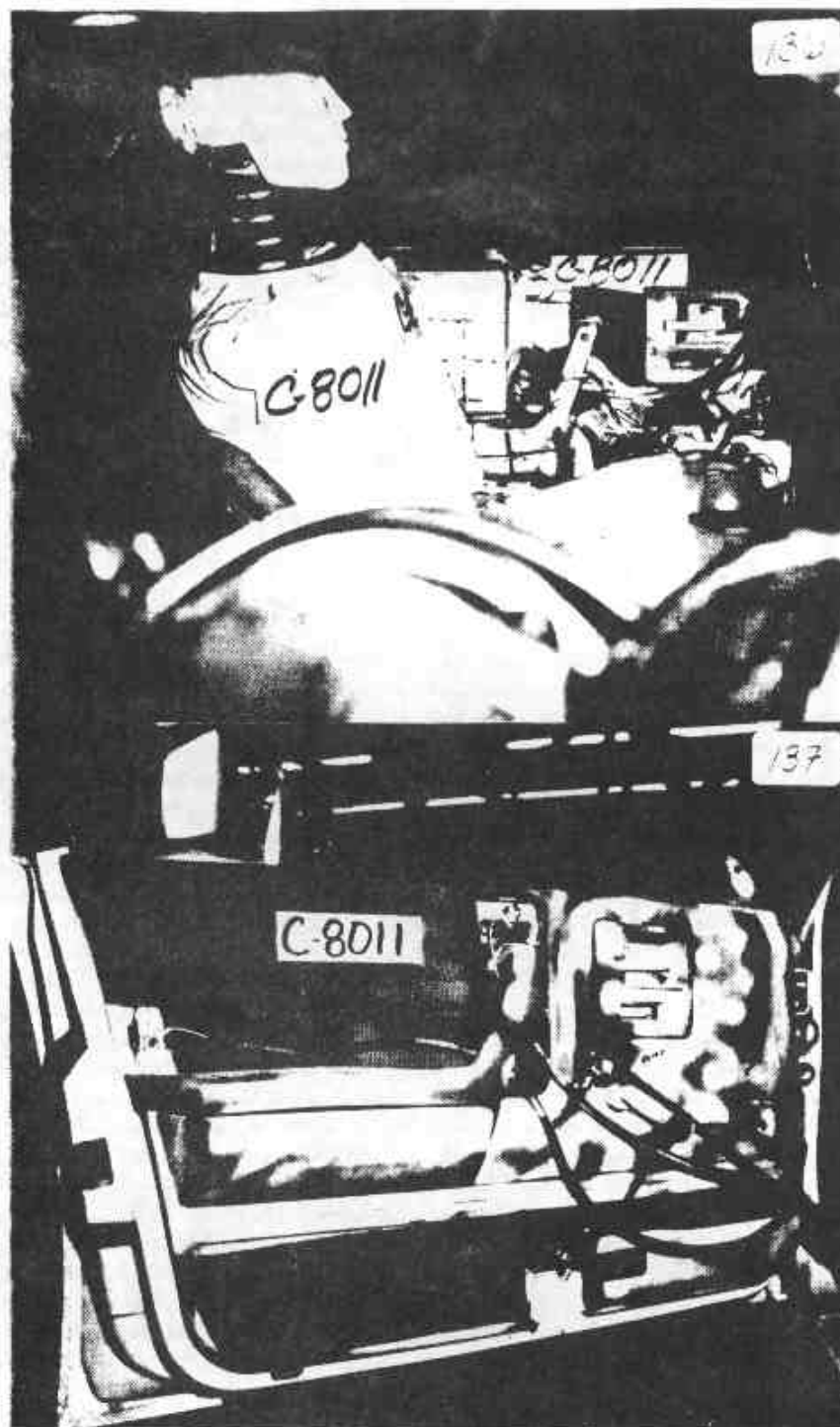


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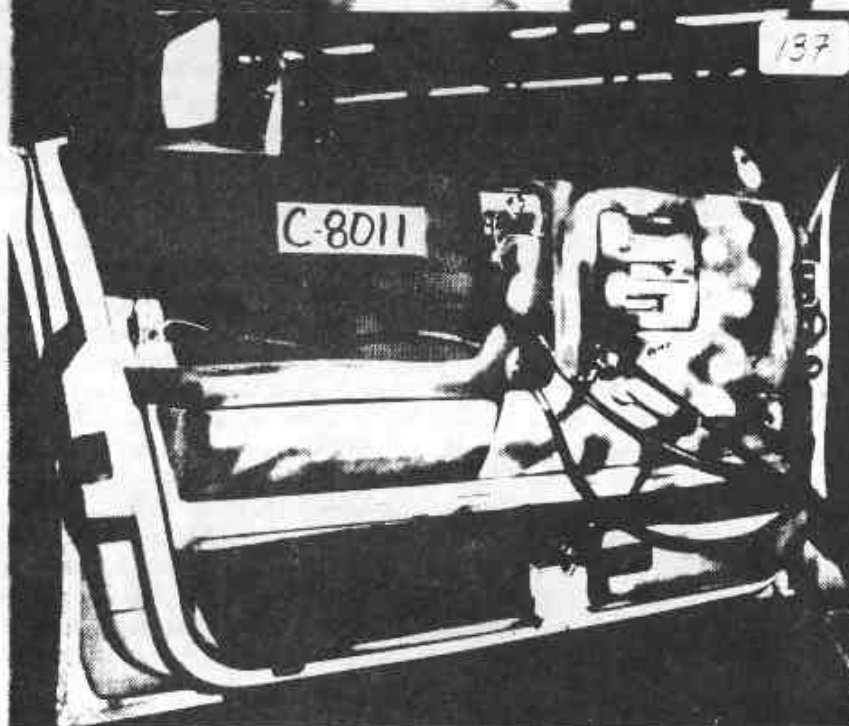


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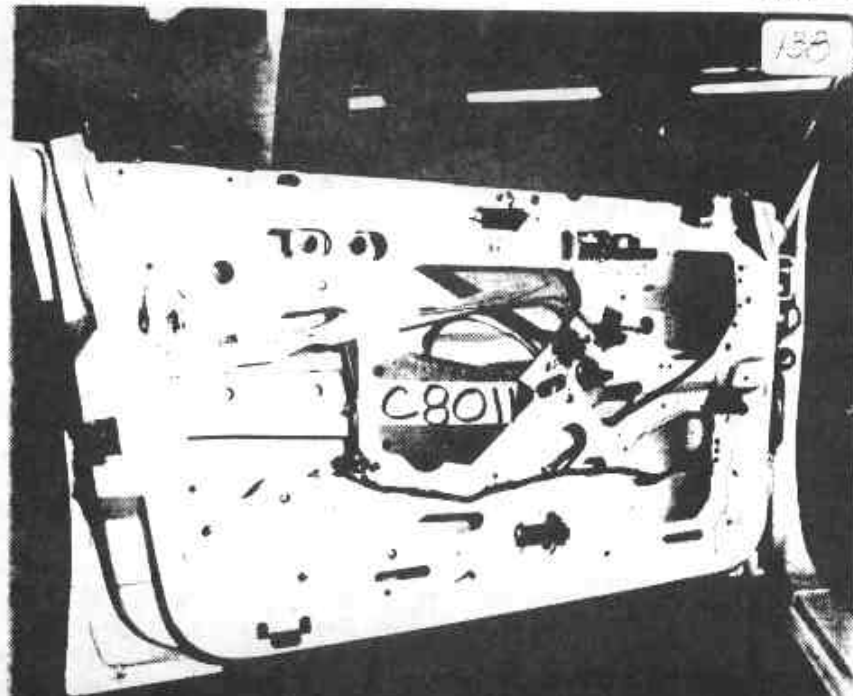
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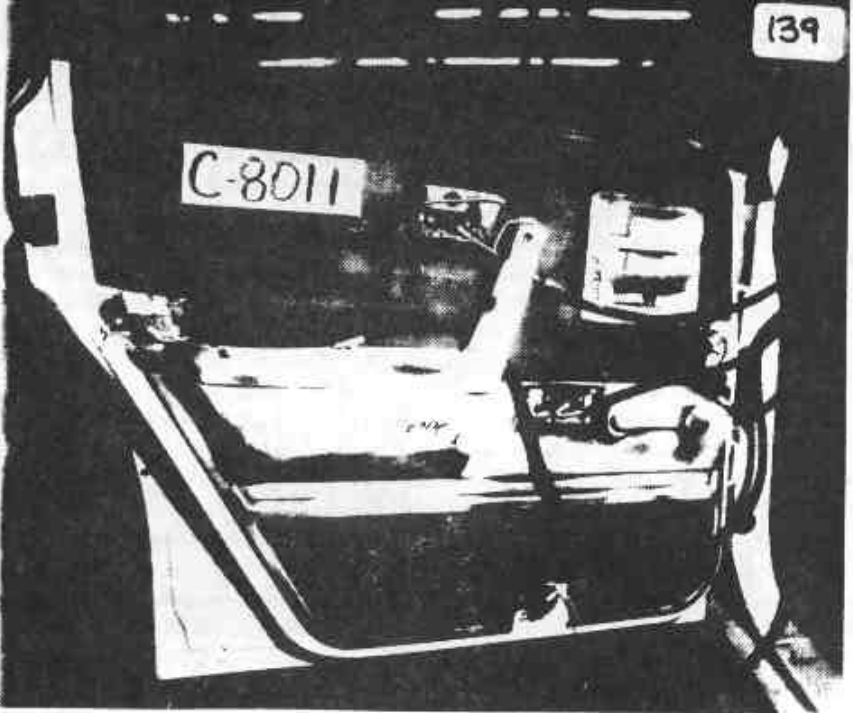
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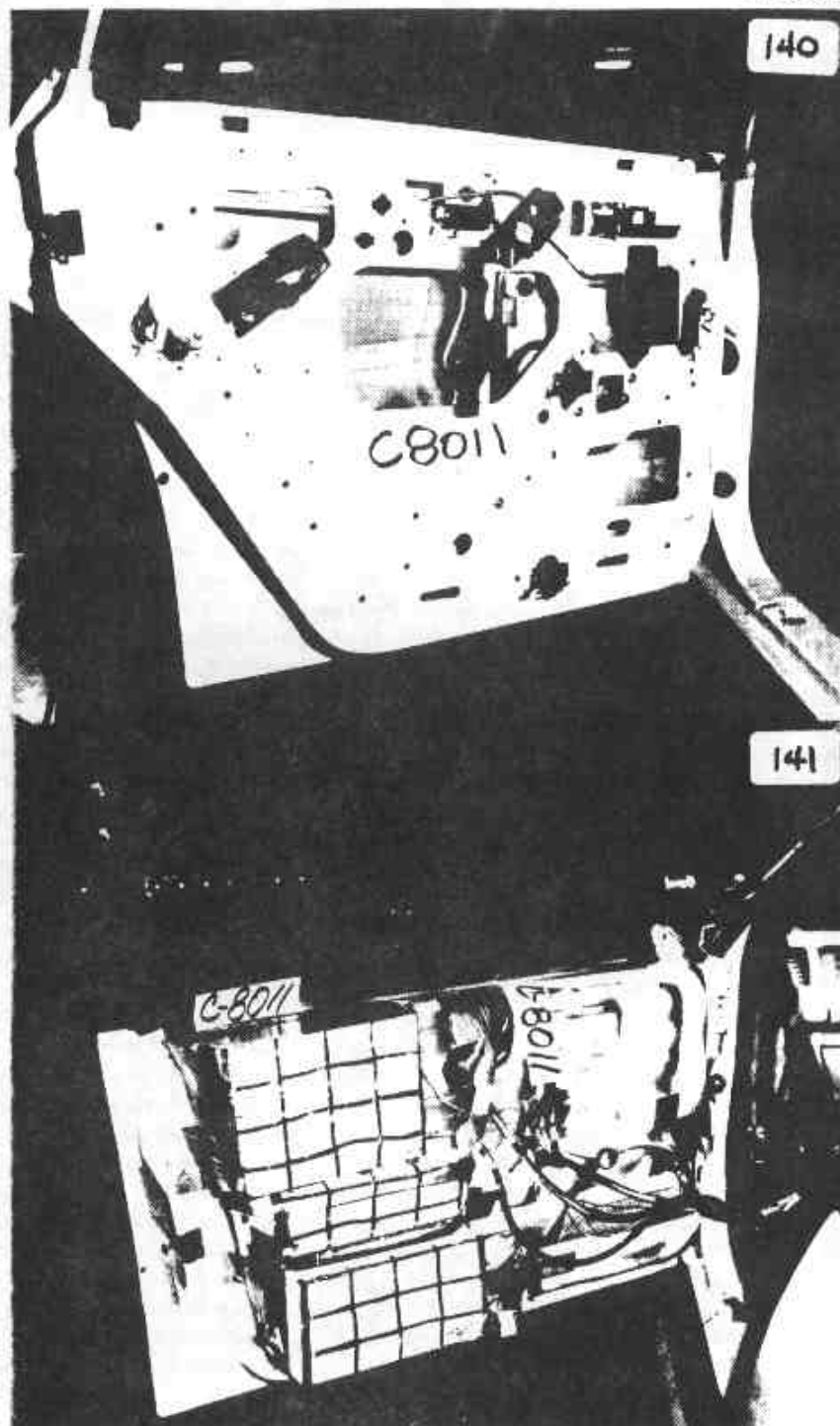
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Document No.	Fig. No.
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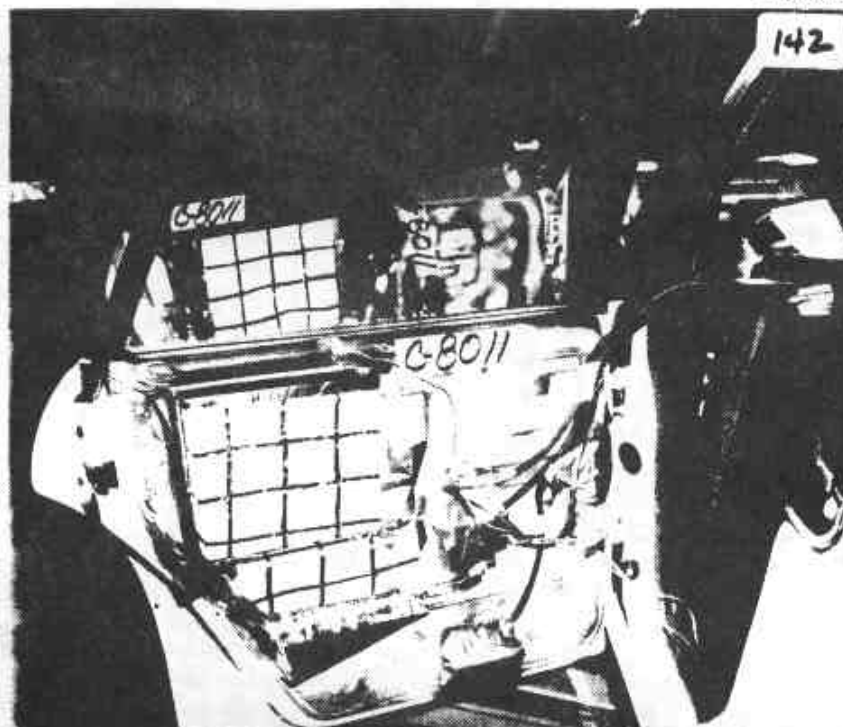


Document No.	Fig. No.
55621	140



Document No.	Fig. No.
55621	141

Document No.	Fig. No.
55621	142



Document No.	Fig. No.
55621	143



144



Document No.	Fig. No.
55621	144

145



Document No.	Fig. No.
55621	145

DPE 054 9-31

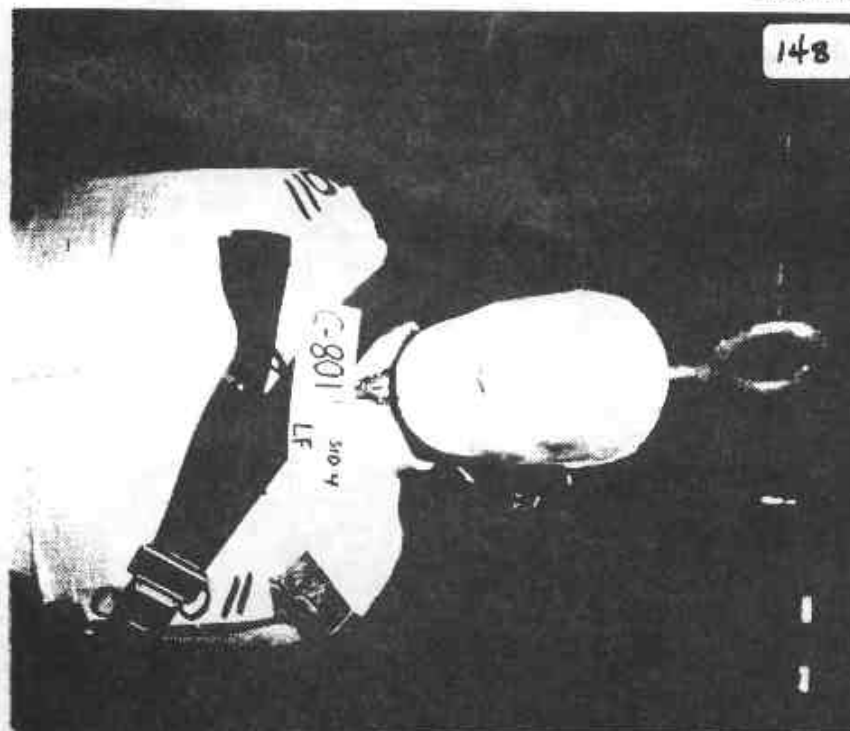


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Document No.	Fig. No.
55621	147

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55621	148



Document No.	Fig. No.
55621	149



150



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151



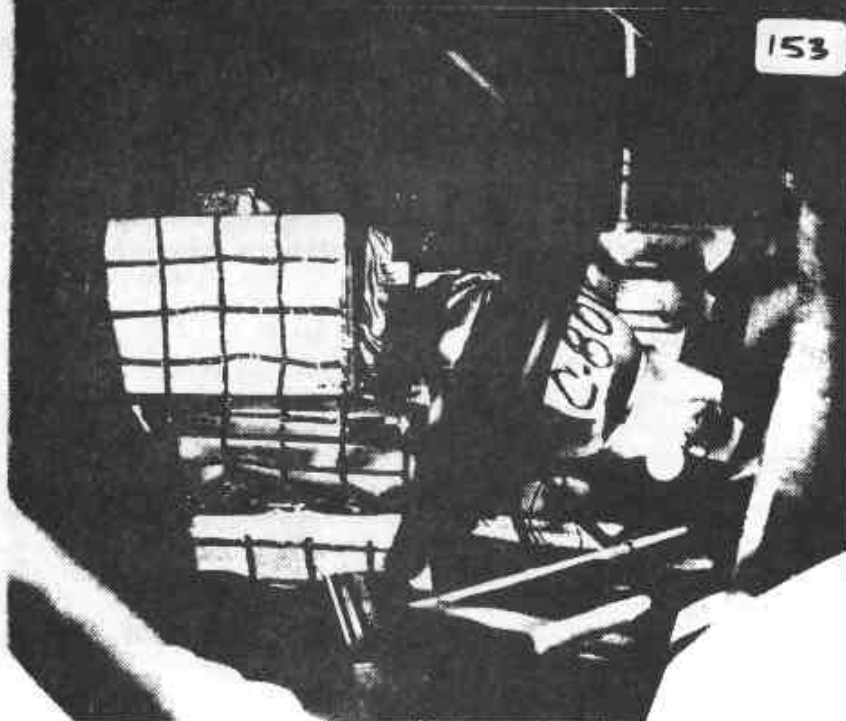
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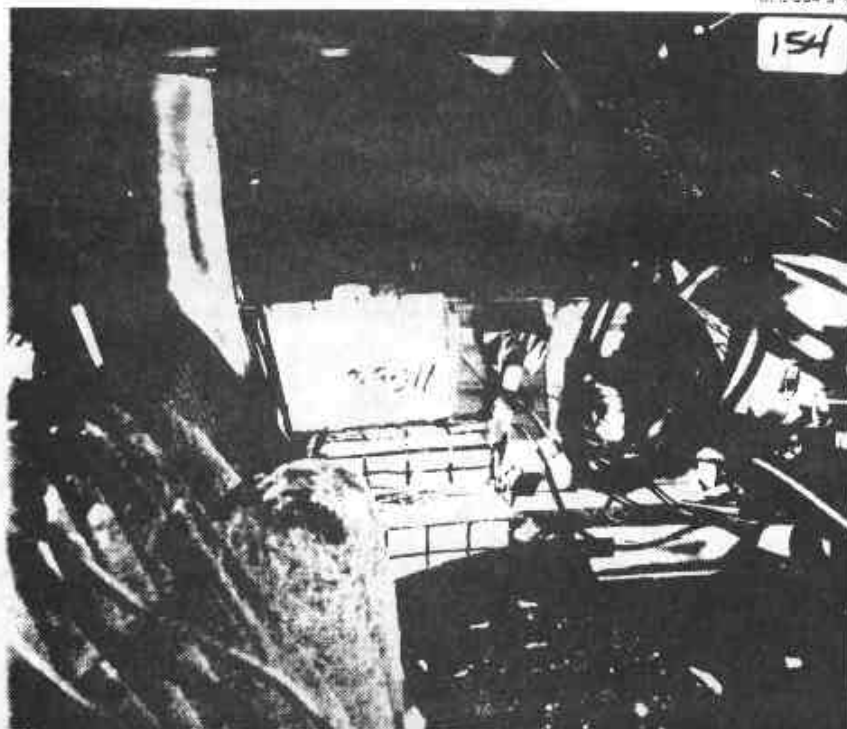
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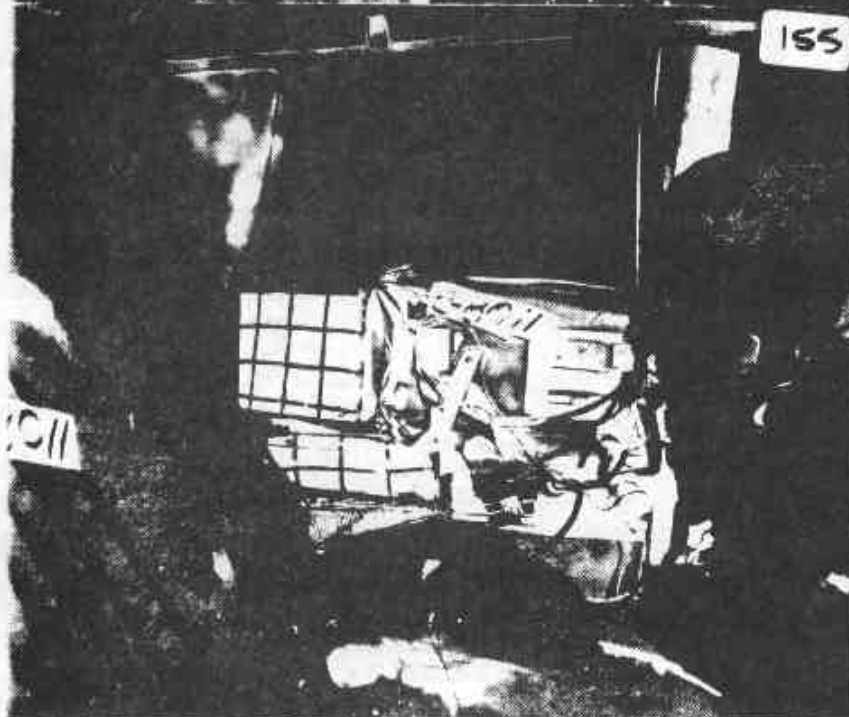


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Document No.	Fig. No.
55621	154



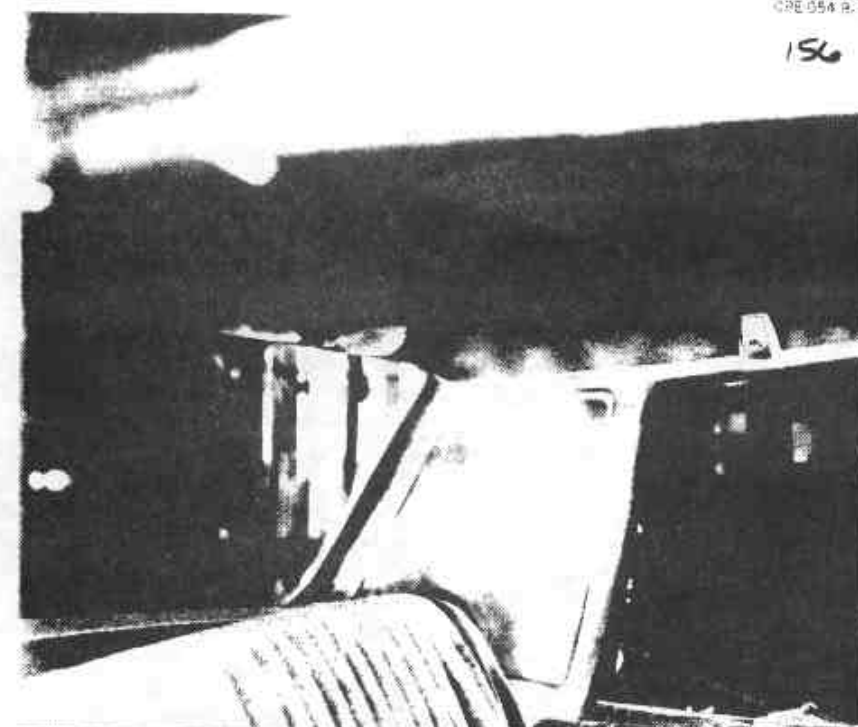
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156

Document No.	Fig. No.
55621	156



Document No.	Fig. No.
55621	157



M9B6UAG#

C8011T

05/15/90

06:48:26

OF PLOTS= 5

XOFF= 9.49999E-01

YOFF= 1.07999E+01

WPEN=

3;

C8011 L. SIDE IMPACT-27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 1

3868-905

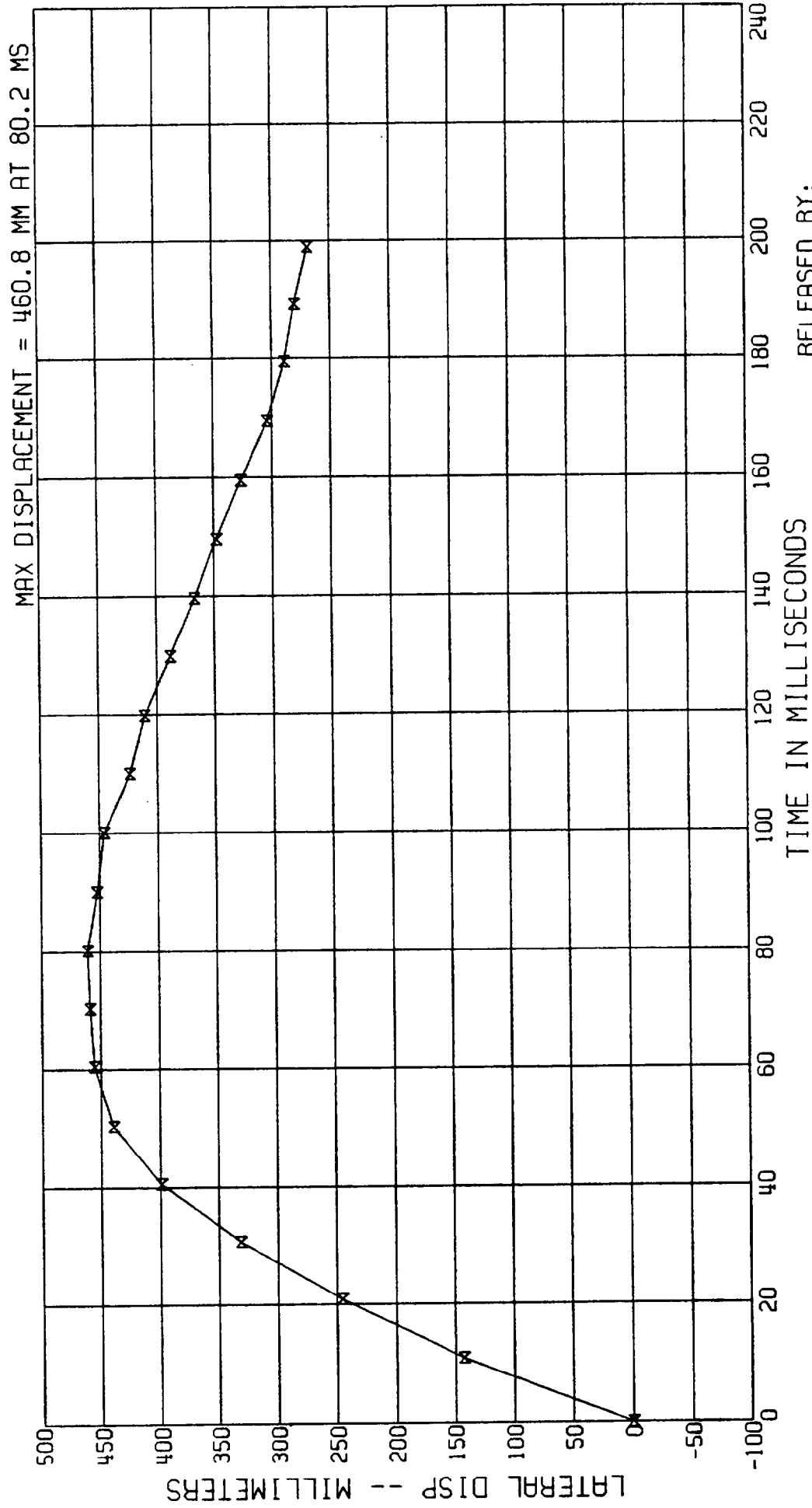
CPE MVMA11P 2AF69

FILM DATA

OVERHEAD VIEW

TEST DATE:03-27-90

STRIKING BARRIER RELATIVE TO STRUCK VEHICLE



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1 PROCESSED 15 MY 90 06:48

C8011 L. SIDE IMPACT-27 DEC MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 2-

3868-905

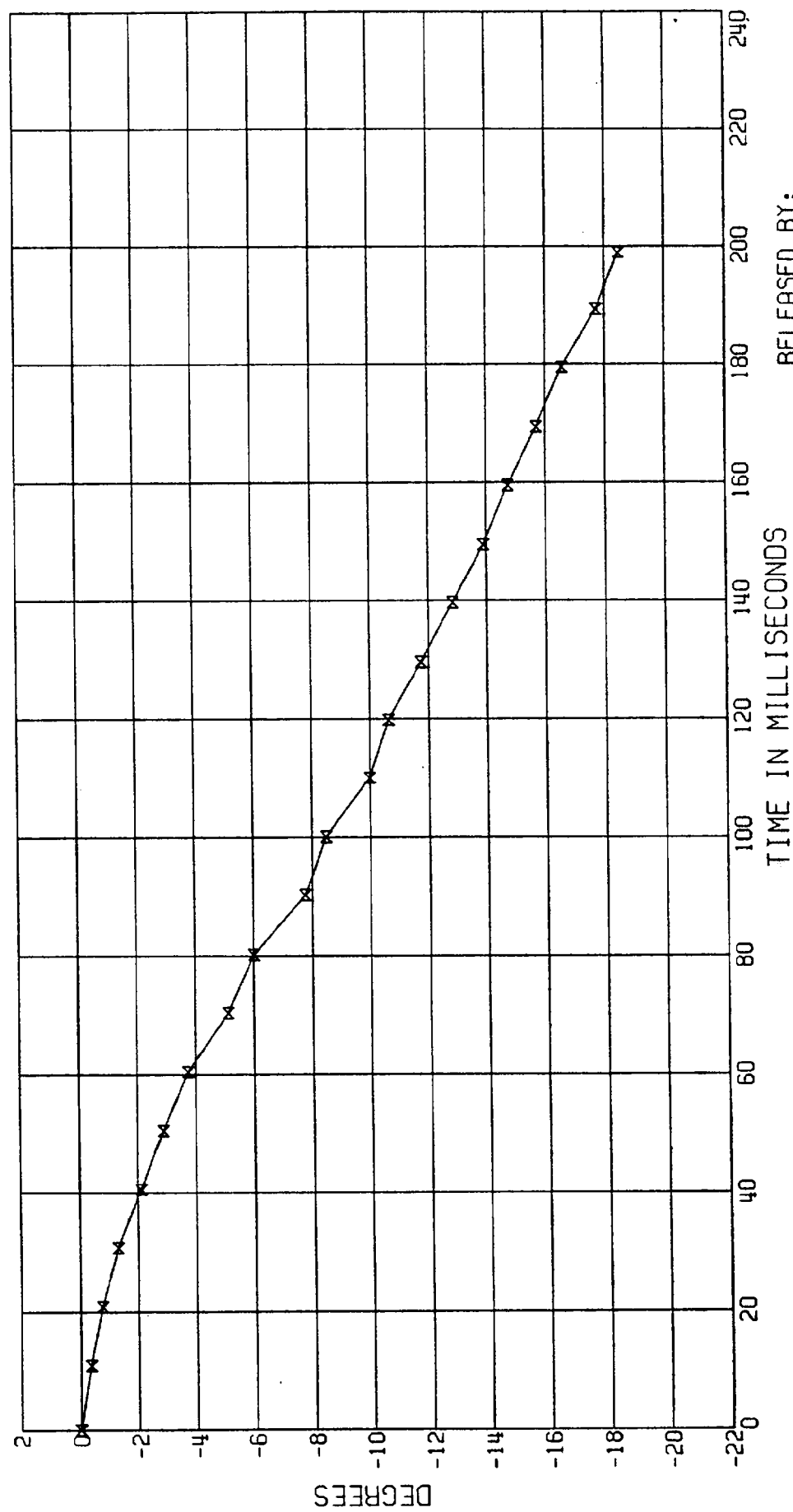
CPE MVMA11P 2AF69

FILM DATA

OVERHEAD VIEW

TEST DATE: 03-27-90

STRIKING BARRIER YAW RELATIVE TO GROUND REFERENCE

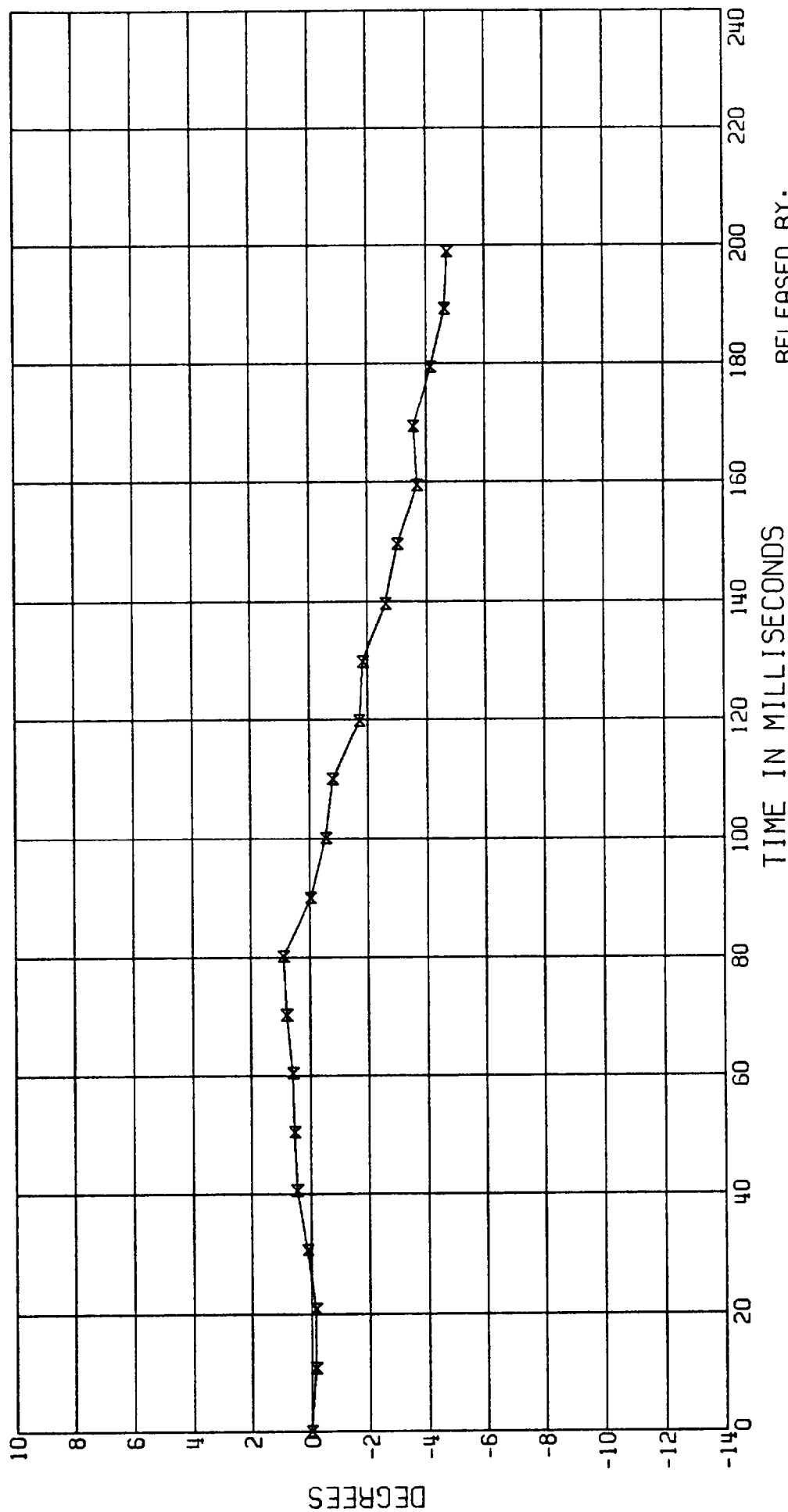


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3 PROCESSED 15 MY 90 06:48

C8011 L. SIDE IMPACT-27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 3
 3868-905
 CPE MVM11P 2AF69
 FILM DATA
 OVERHEAD VIEW
 TEST DATE:03-27-90

STRUCK VEHICLE YAW RELATIVE TO GROUND REFERENCE



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 4 PROCESSED 15 MY 90 06:48

FIGURE 4

MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H

C8011 L. SIDE IMPACT-27 DEG

3868-905

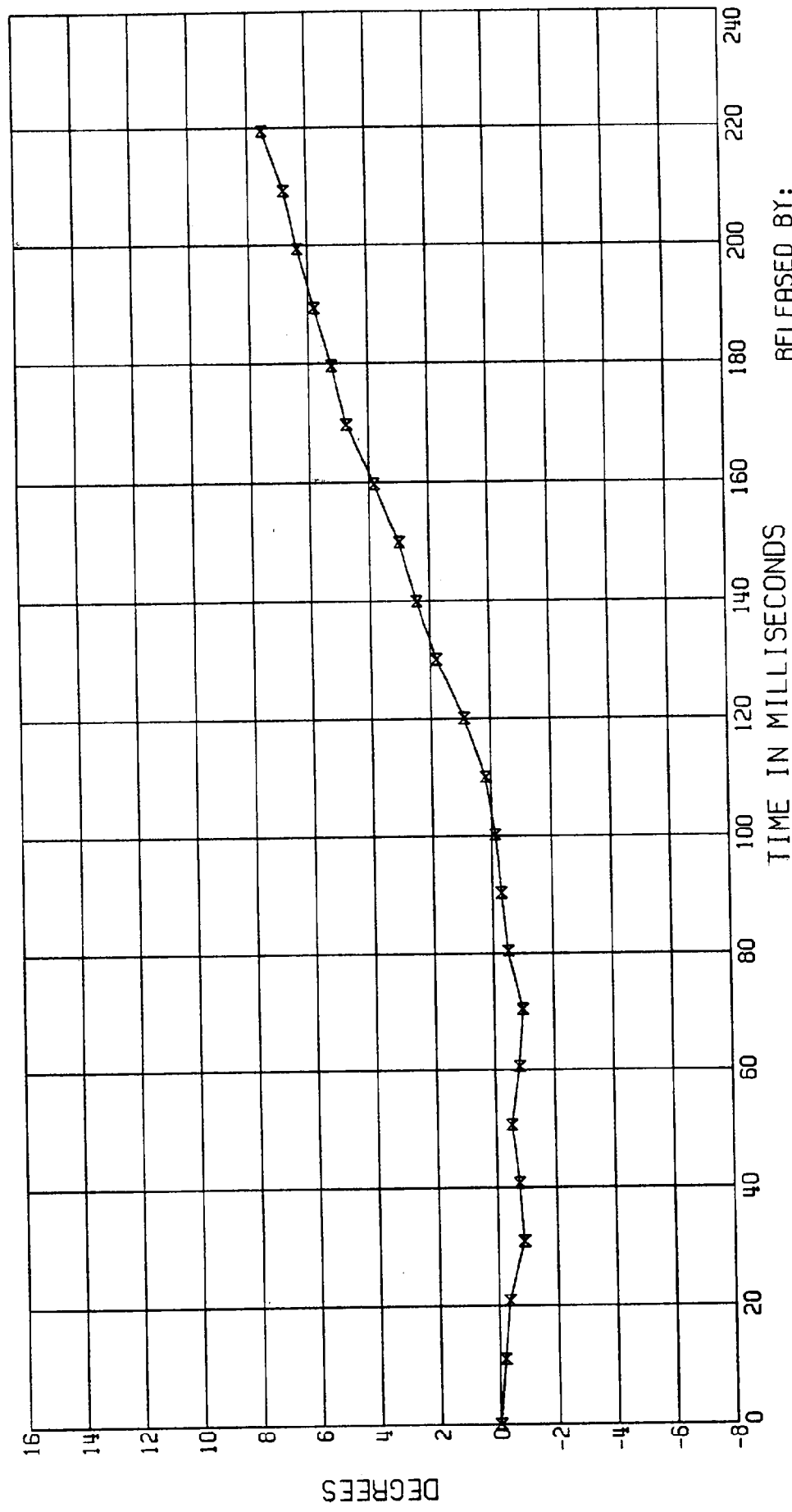
CPE MVM11P 2AF69

FILM DATA

REAR VIEW

TEST DATE:03-27-90

REAR VEHICLE ROLL RELATIVE TO GROUND REFERENCE



RELEASED BY:
5 PROCESSED 15 MY 90 06:48

M9B6UAG#

C8011A

05/04/90

14:40:22

NUMBER OF PLOTS = 73

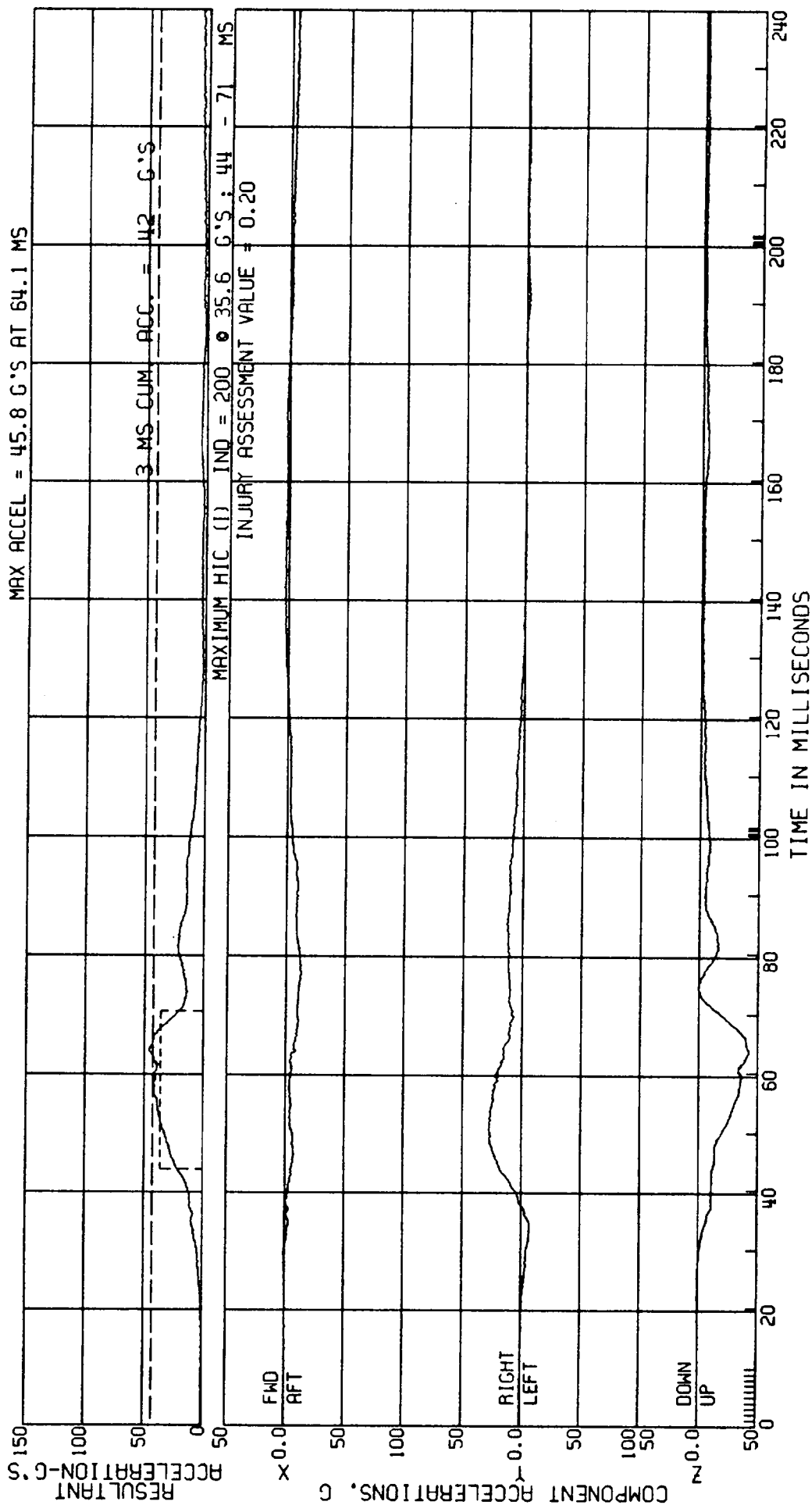
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YOFF = 0.75

Good
Data

4a

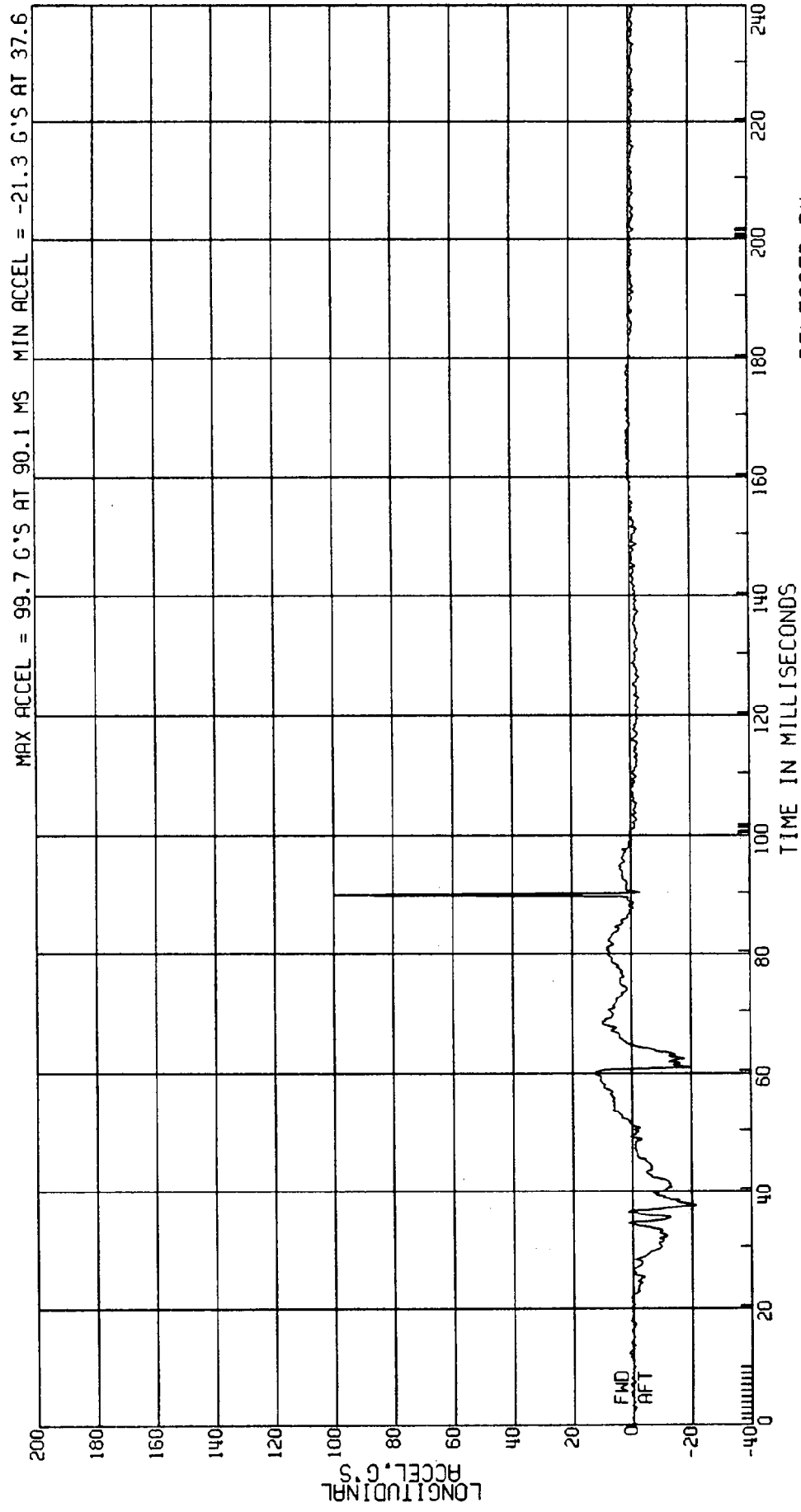
C8011A L. SIDE IMPACT- 27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 5
 3868-905
 CPE MVMA 11P 2AF69
 ELEC DATA, SAE CLASS 1000
 DRIVER HEAD ACCEL.
 (HIC 1 LIMITED TO 36MS)
 ATD TYPE: SID
 TEST DATE: 03-27-90



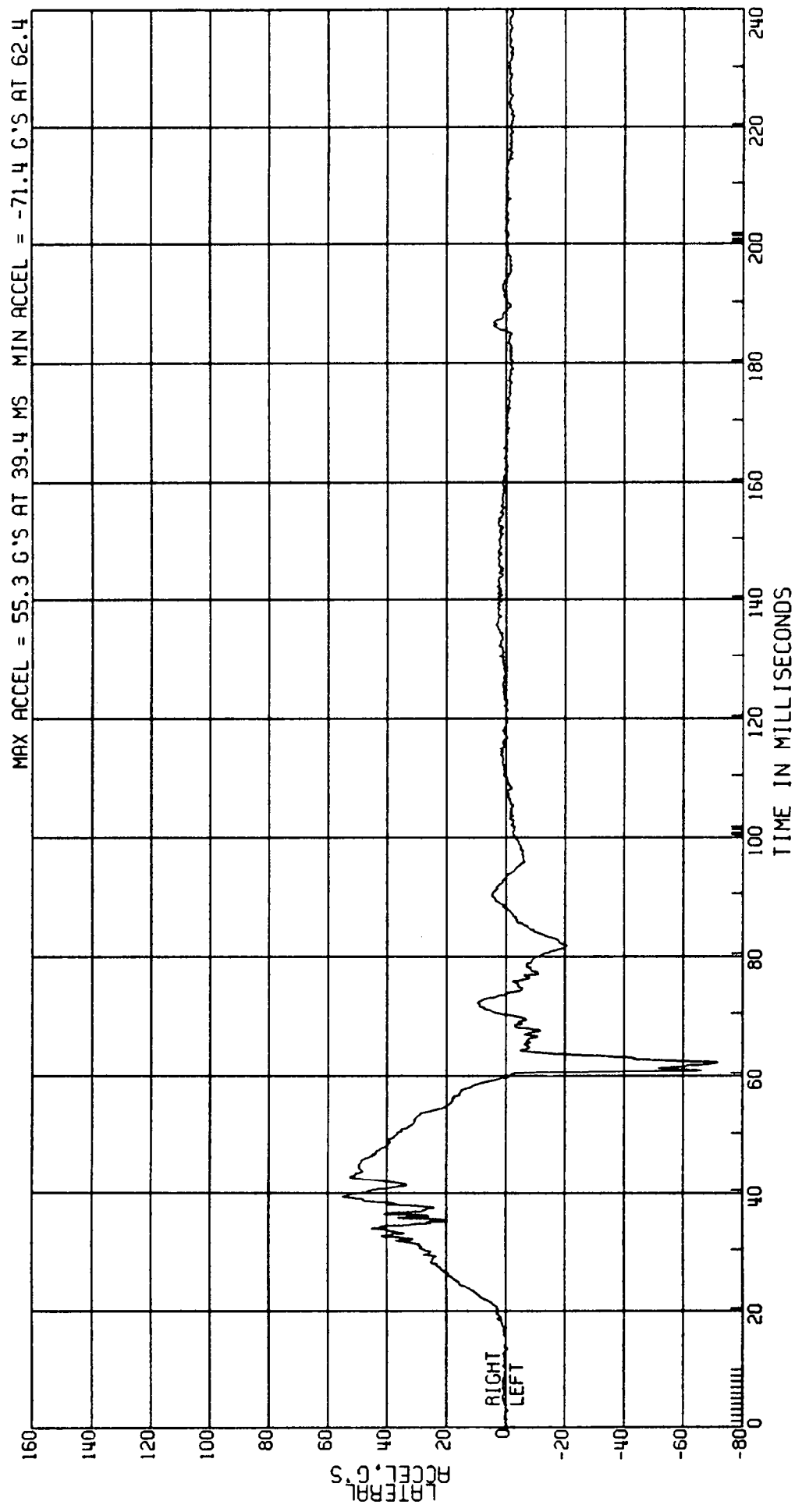
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38011A L. SIDE IMPACT- 27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 6
 3868-905
 CPE MVMA 11P 2AF69
 ELEC DATA, SAE CLASS 1000
 ATD TYPE: SID
 TEST DATE: 03-27-90



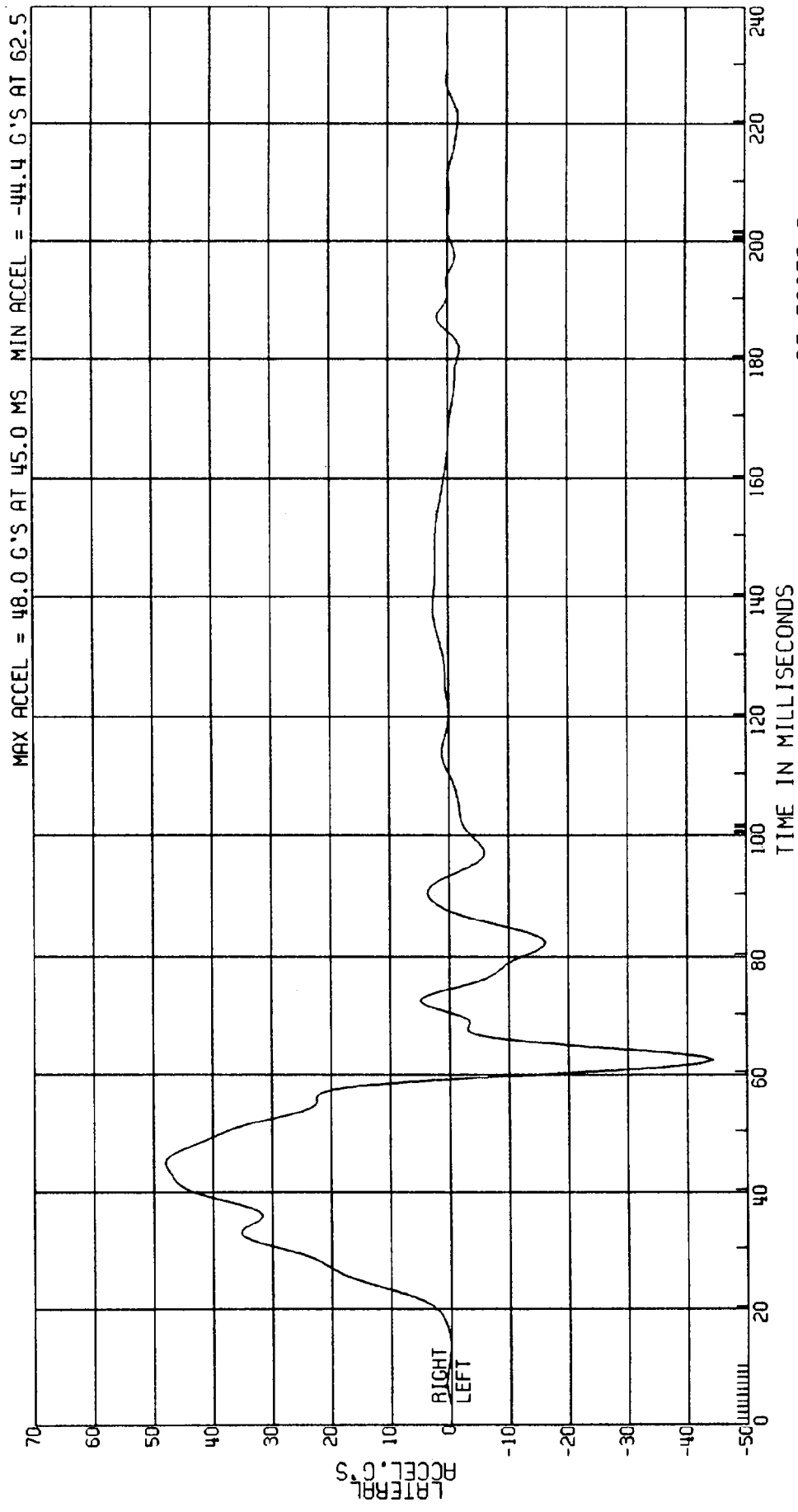
C8011A L. SIDE IMPACT- 27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 7
3868-905
CPE MVMA 11P 2AF69
ELEC DATA, SAE CLASS 1000 DRIVER UPPER SPINE ACCEL.
ATD TYPE: SID
TEST DATE:03-27-90



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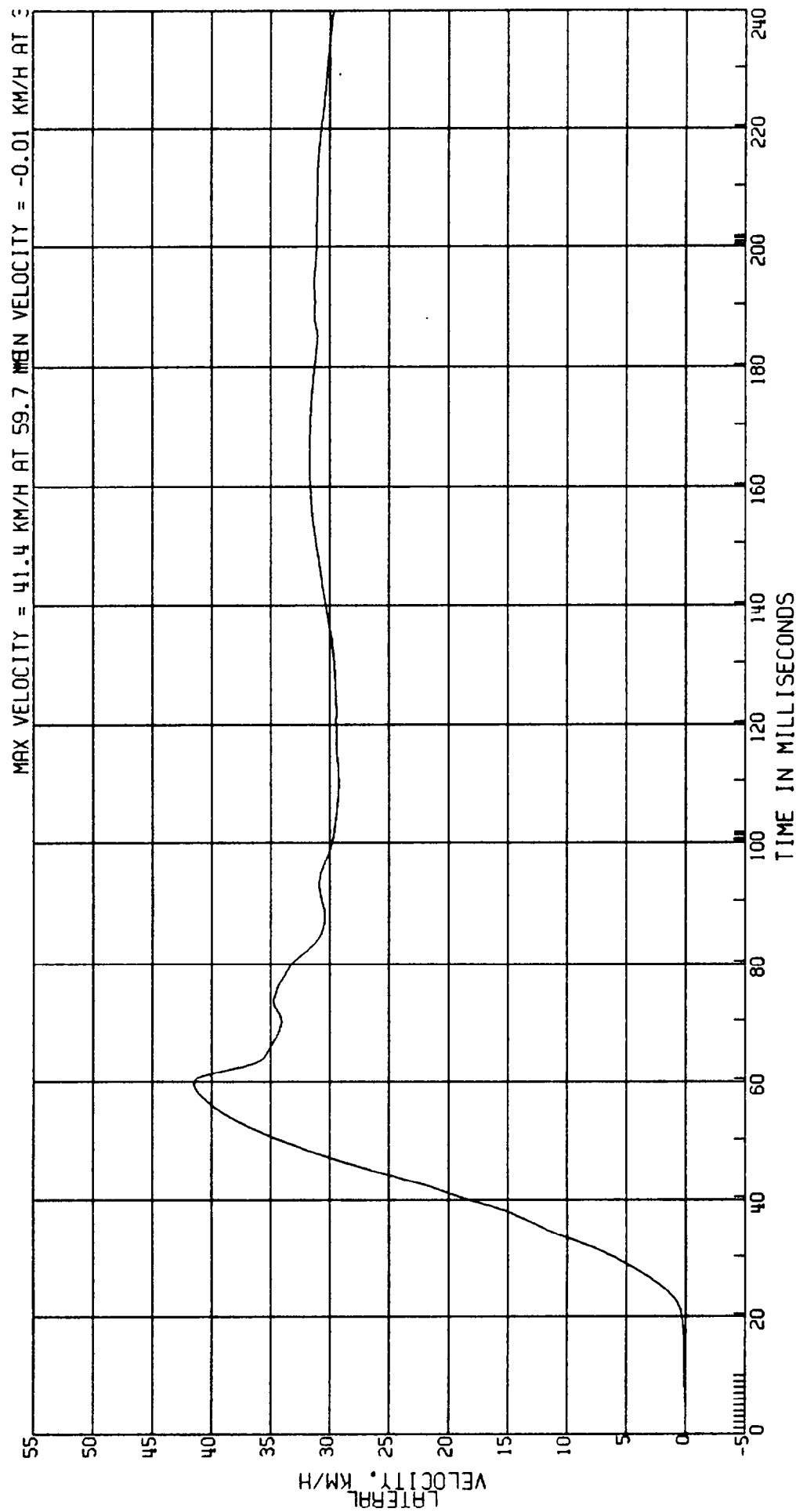
33 PROCESSED 4 MY 90 14:41

C8011A L. SIDE IMPACT- 27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 8
3868-905
CPE MVMA 11P 2AF69
ELEC DATA, NHTSA FIR FILTER DRIVER UPPER SPINE ACCEL.
F.I.R. FILTER, CLASS 300 BUTTERWORTH
ATD TYPE: SID
TEST DATE:03-27-90



RELEASED BY:
34 PROCESSED 4 MY 90 14:41

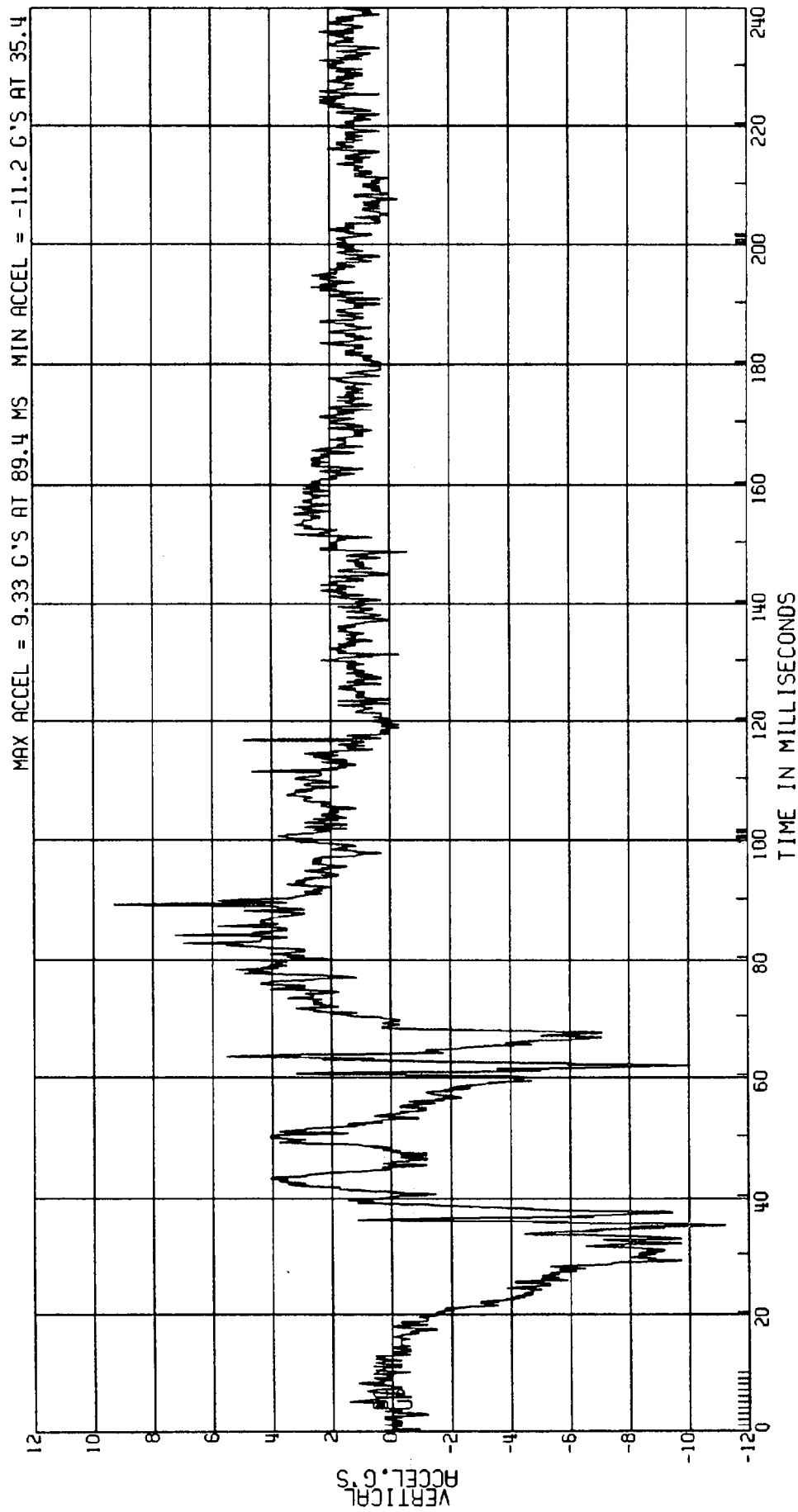
C8011A L. SIDE IMPACT- 27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 9
 3868-905
 CPE MVMA 11P 2AF69
 ELEC DATA, SAE CLASS 180
 ATD TYPE: SID
 TEST DATE: 03-27-90
 COMPUTED UPPER SPINE VELOCITY
 (1ST INT OF DRIVER ACCELERATION)



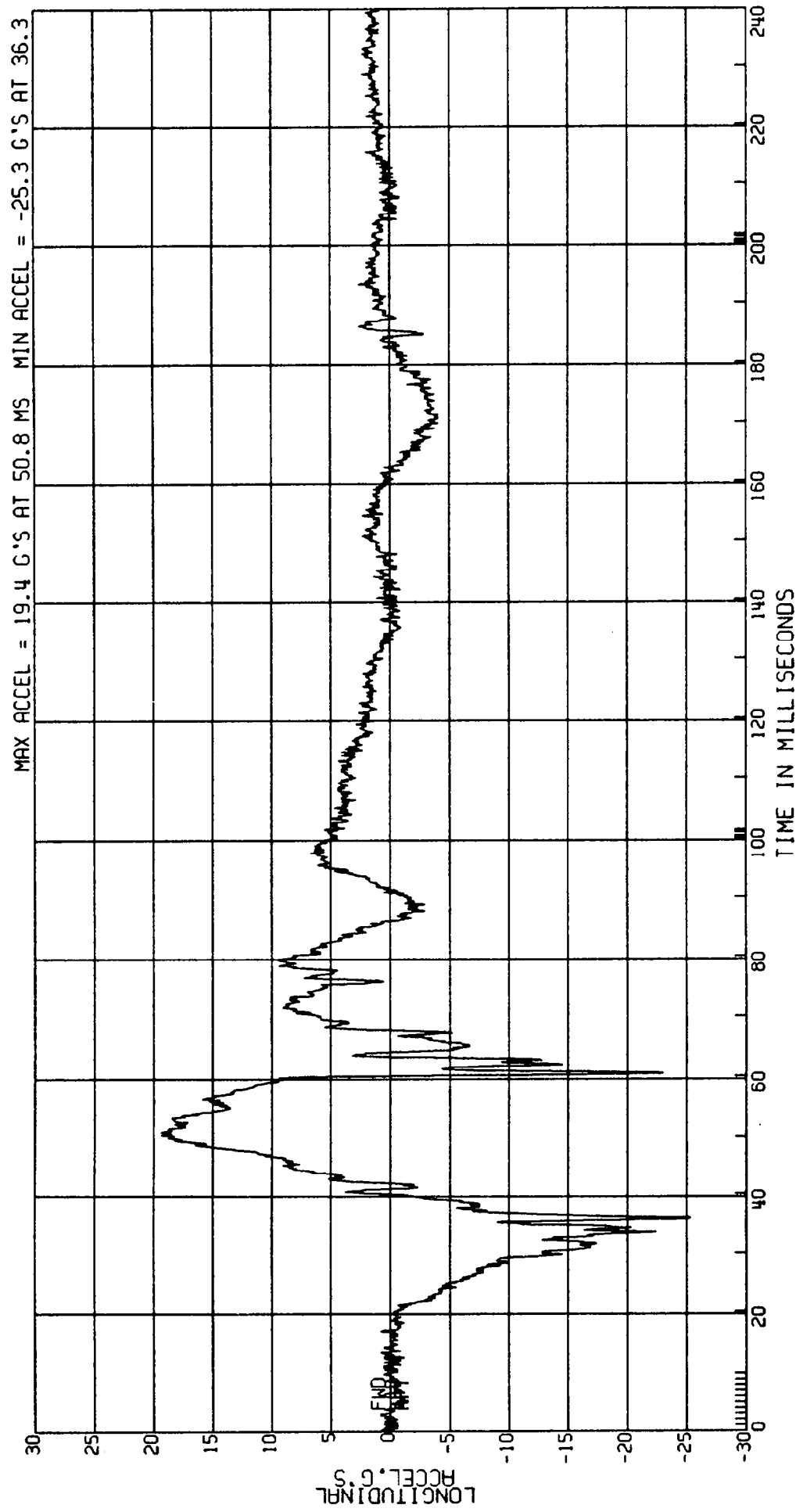
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38011A L. SIDE IMPACT- 27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 10
 3868-905
 CPE MVMA 11P 2AF69
 ELEC DATA, SAE CLASS 1000 DRIVER UPPER SPINE ACCEL.
 ATD TYPE: SID
 TEST DATE:03-27-90



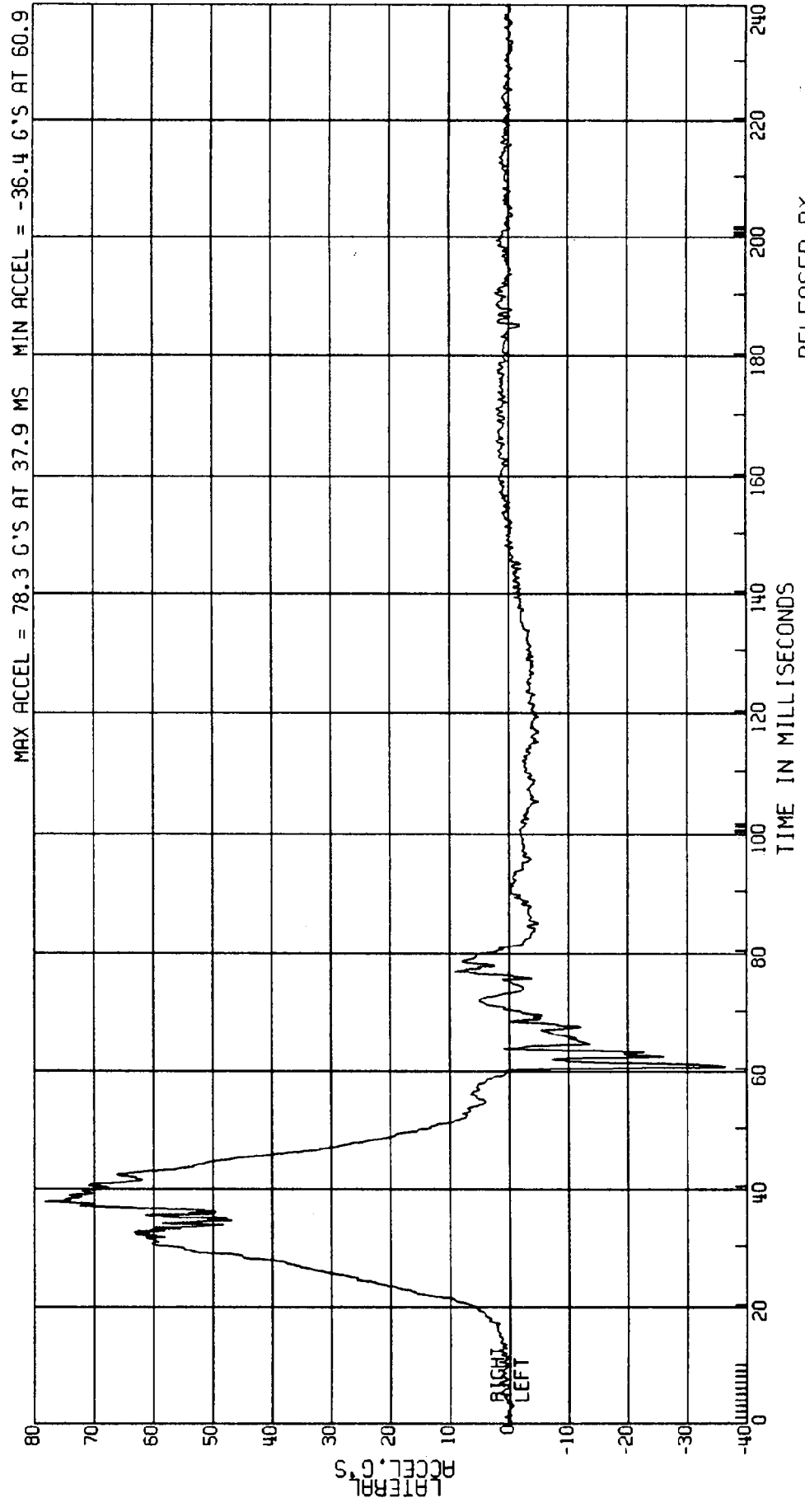
C8011A L. SIDE IMPACT- 27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 11
3868-905
CPE MVMA 11P 2AF69
ELEC DATA, SAE CLASS 1000 DRIVER LOWER SPINE ACCEL.
ATD TYPE: SID
TEST DATE: 03-27-90



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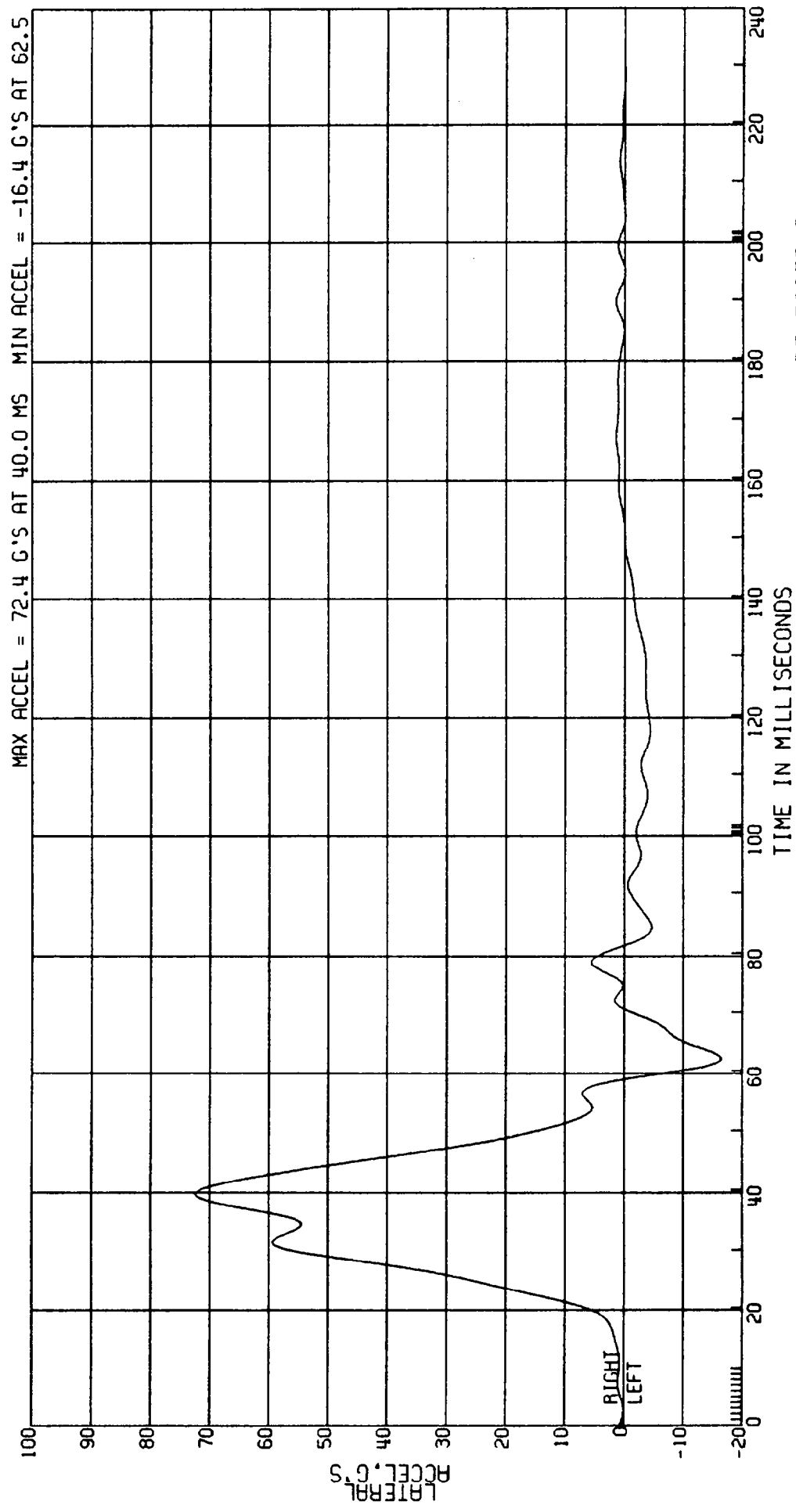
C8011A L. SIDE IMPACT- 27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 12
3868-905
CPE MVMA 11P 2AF69
ELEC DATA, SAE CLASS 1000
AID TYPE: SID
TEST DATE:03-27-90
DRIVER LOWER SPINE ACCEL.



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38 PROCESSED 4 MY 90 14:41

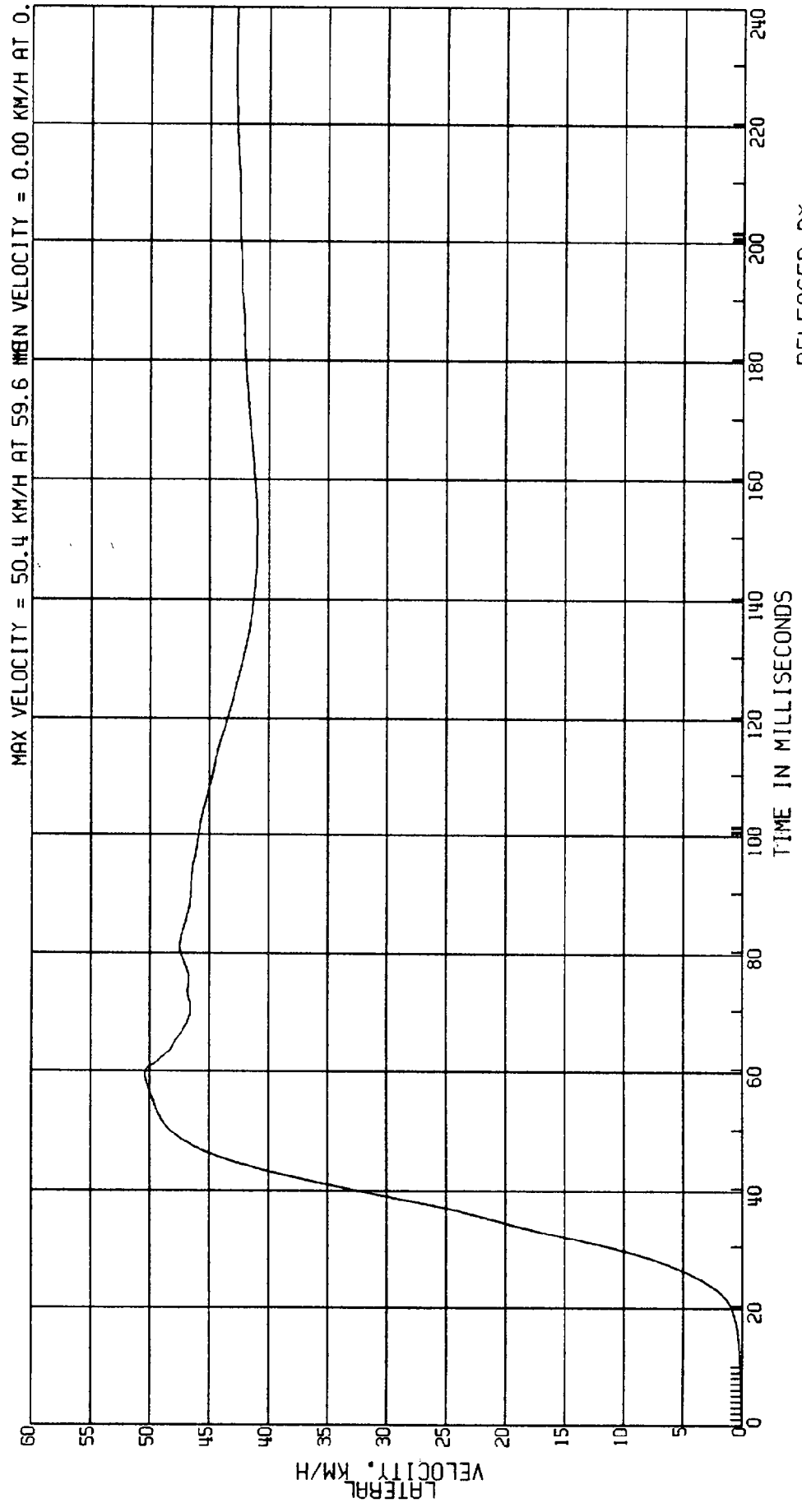
C8011A L. SIDE IMPACT- 27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 13
3868-905
CPE MVMA 11P 2AF69
ELEC DATA, NHTSA FIR FILTER DRIVER LOWER SPINE ACCEL.
F.I.R. FILTER, CLASS 300 BUTTERWORTH
ATD TYPE: SID
TEST DATE:03-27-90



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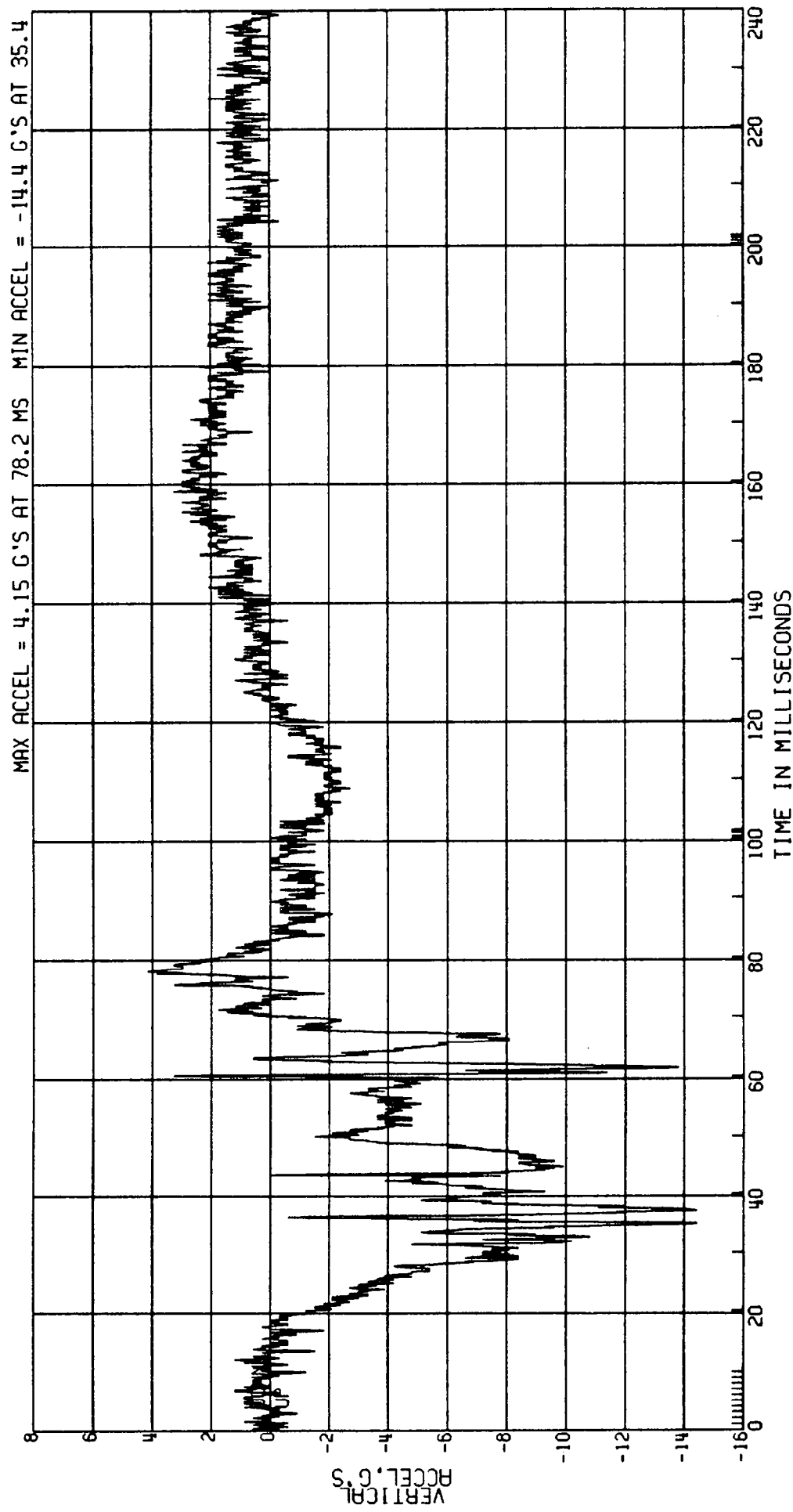
39 PROCESSED 4 MY 90 14:41

C8011A L. SIDE IMPACT- 27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5 KM/H FIGURE 14
3868-905
CPE MVMA 11P 2AF69
ELEC DATA, SAE CLASS 180
COMPUTED LOWER SPINE VELOCITY
ATD TYPE: SID
TEST DATE: 03-27-90
(1ST INT OF DRIVER ACCELERATION)



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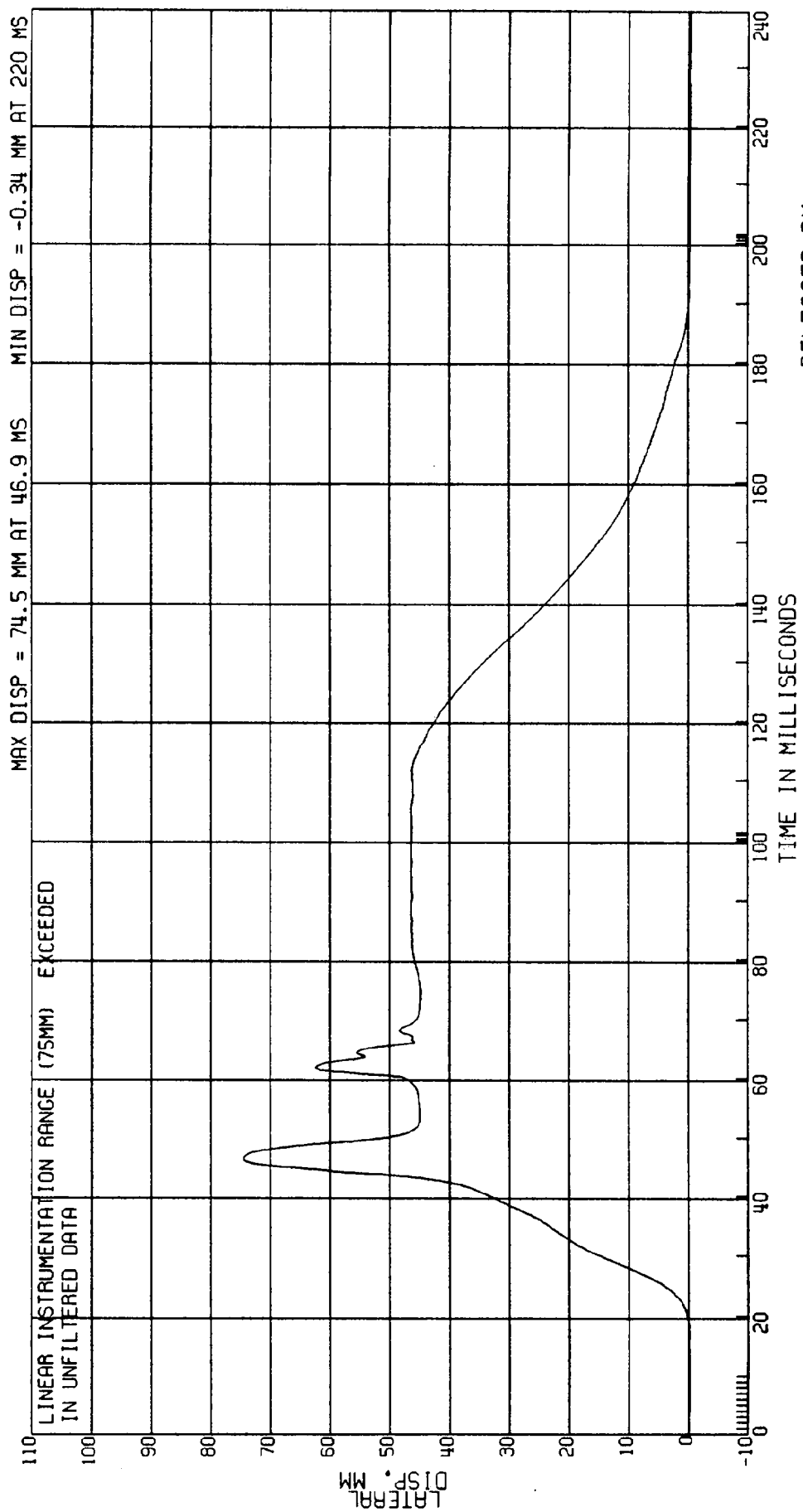
C8011A L. SIDE IMPACT- 27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 15
3868-905
CPE MVMA 11P 2AF69
ELEC DATA, SAE CLASS 1000 DRIVER LOWER SPINE ACCEL.
TEST DATE:03-27-90



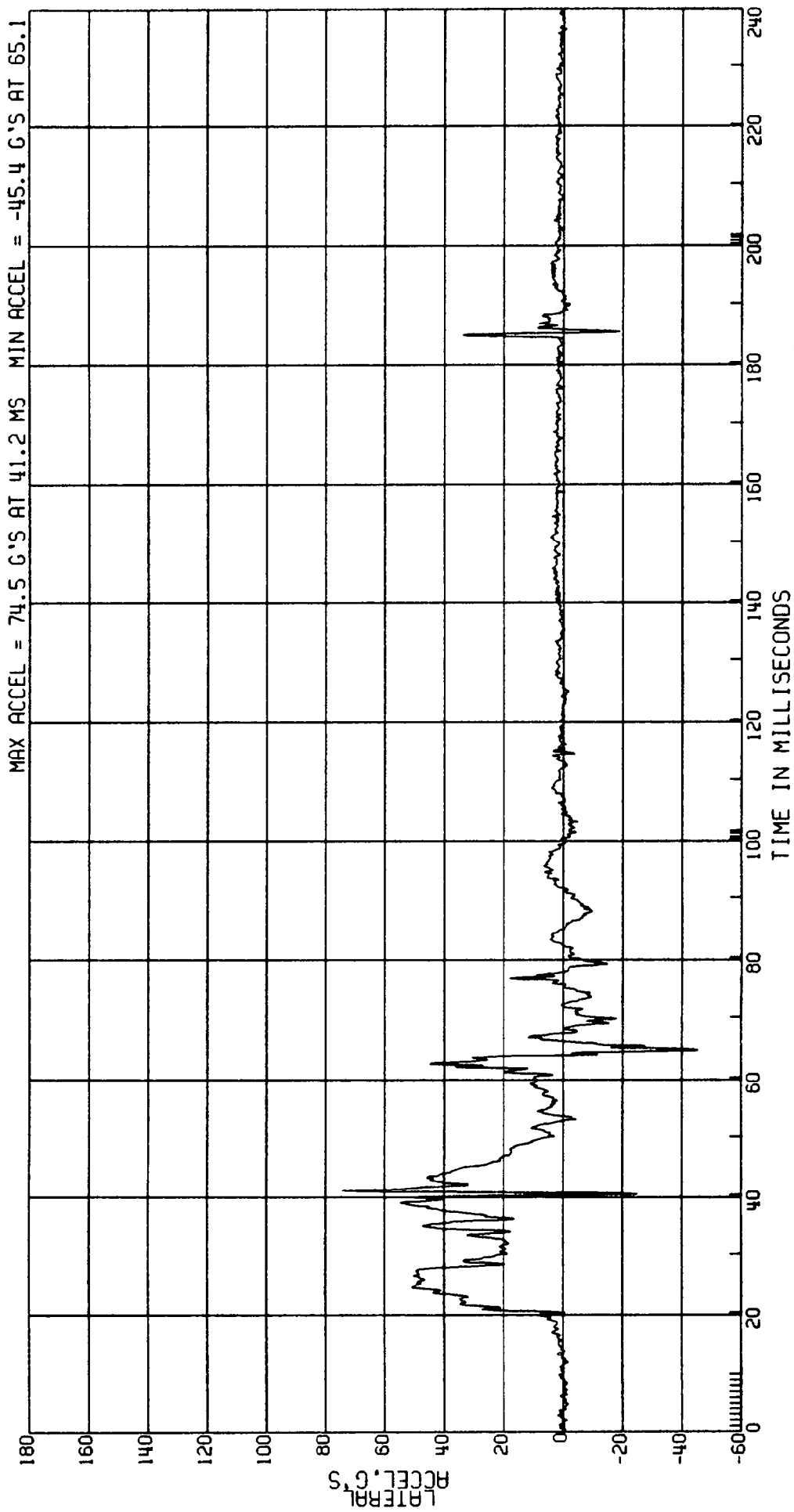
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C8011A L. SIDE IMPACT- 27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 16
 3868-905
 CPE MVMA 11P 2AF69
 ELEC DATA, SAE CLASS 60
 DRIVER THORAX DISP.
 ATD TYPE: SID
 TEST DATE: 03-27-90



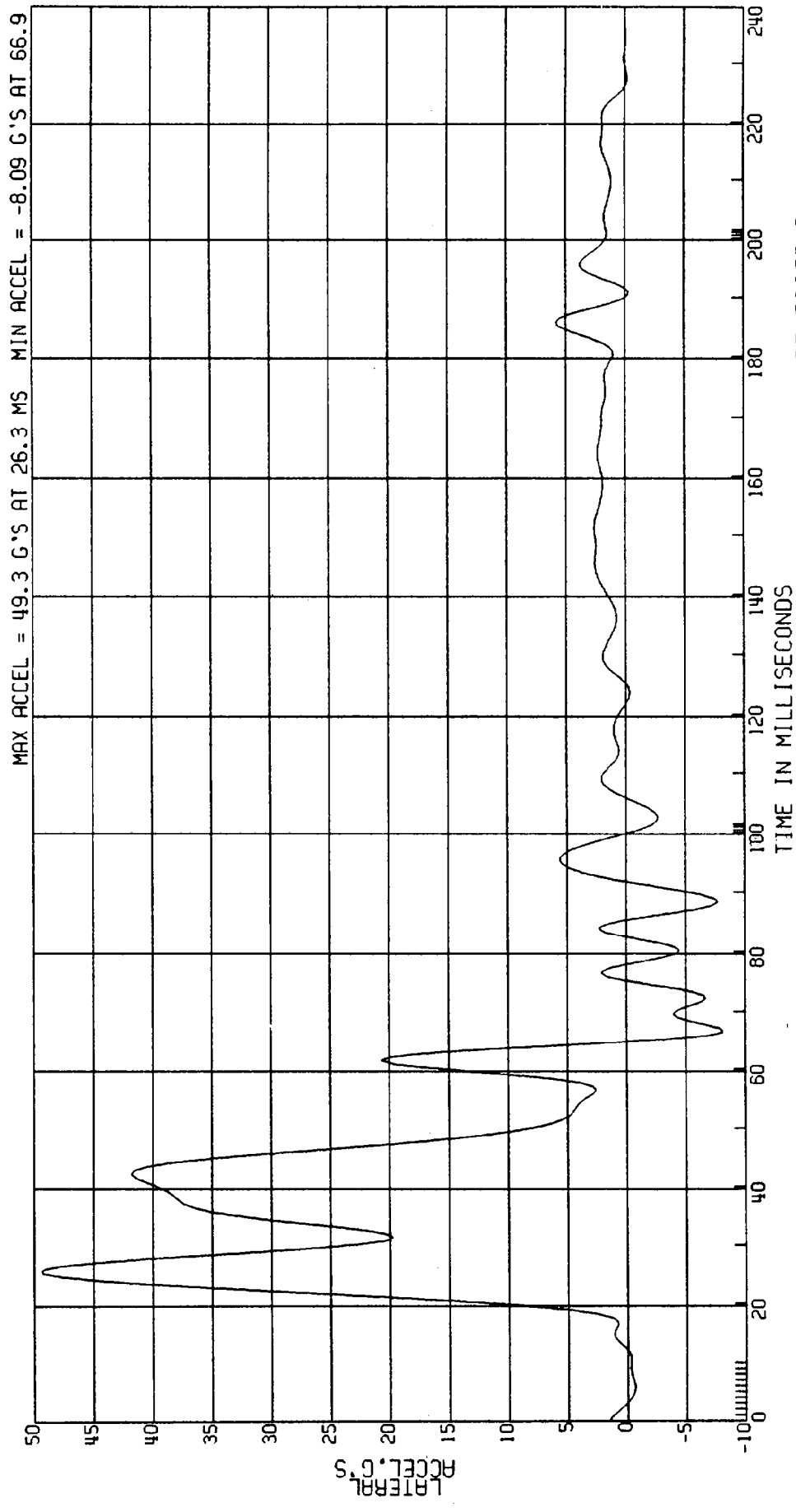
C8011A L. SIDE IMPACT- 27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 17
3868-905
CPE MVMA 11P 2AF69
ELEC DATA, SAE CLASS 1000 DRIVER LEFT UPPER RIB ACCEL.
ATD TYPE: SID
TEST DATE:03-27-90



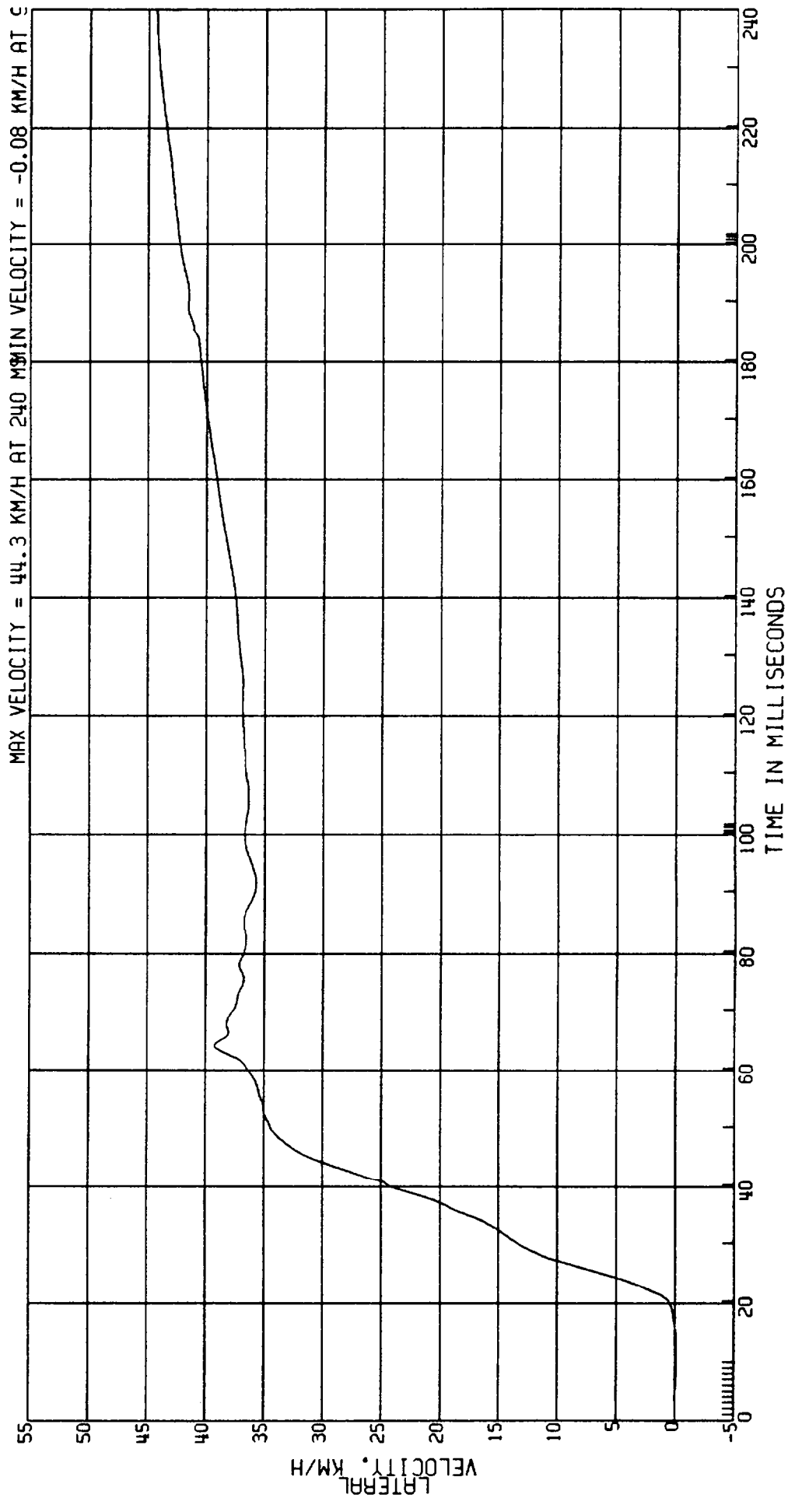
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C8011A L. SIDE IMPACT- 27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 18
 3868-905
 CPE MVMA 11P 2AF69
 ELEC DATA, NHTSA FIR FILTER F.I.R. FILTER, CLASS 300 BUTTERWORTH
 AID TYPE: SID
 TEST DATE: 03-27-90



C8011A L. SIDE IMPACT- 27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 19
 3868-905
 CPE MVMA 11P 2AF69
 ELEC DATA, SAE CLASS 180
 ATD TYPE: SID
 TEST DATE:03-27-90
 COMPUTED LEFT UPPER RIB VELOCITY
 (1ST INT OF DRIVER ACCELERATION)



C8011A L. SIDE IMPACT- 27 DEG

3868-905

CPE MVMA 11P 2AF69

ELEC DATA, SAE CLASS 1000

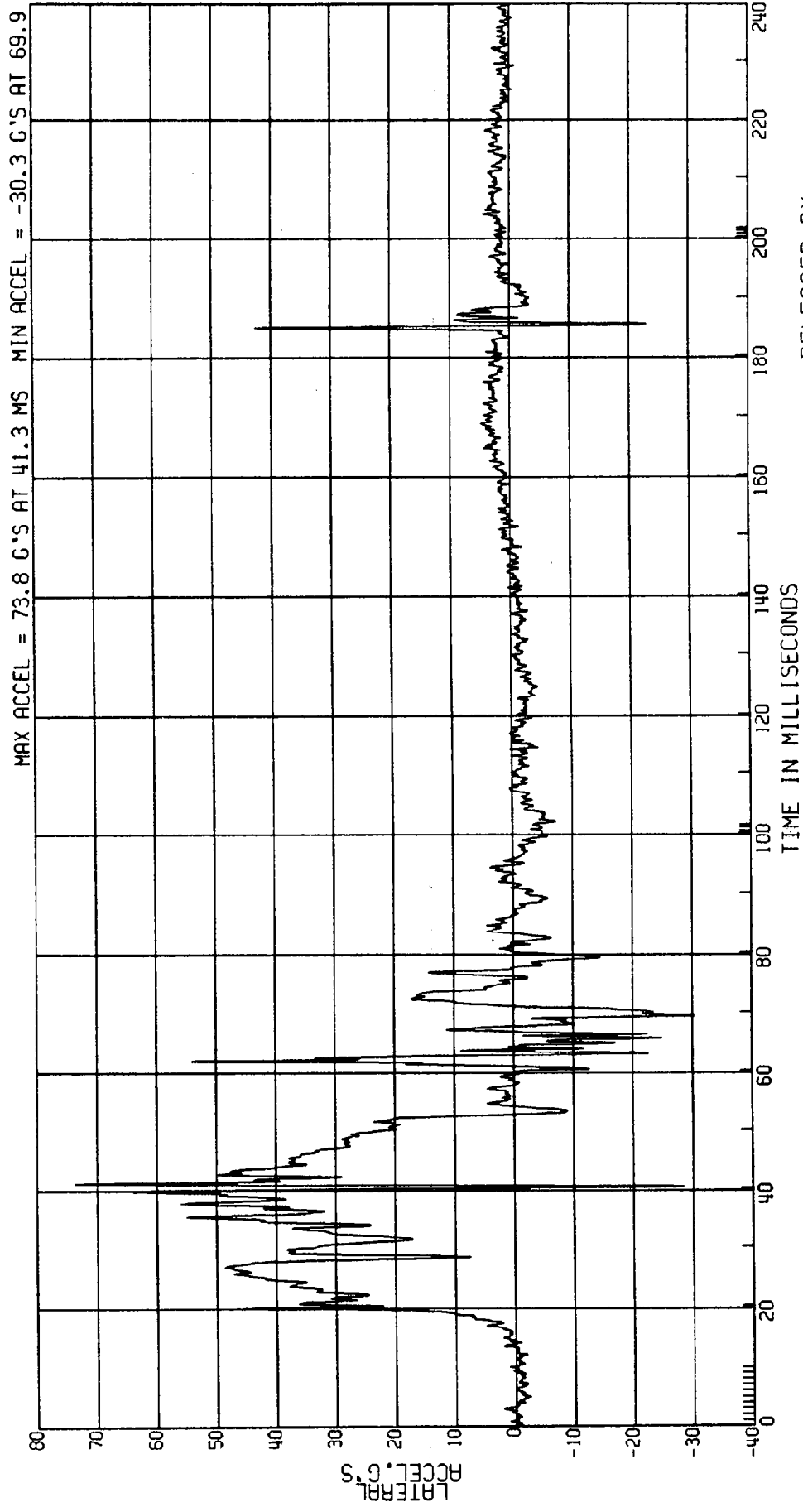
MOVING CRABBED BARR TO PRK VEHICLE

53.5KM/H FIGURE 20

ATD TYPE: SID

DRIVER LEFT LOWER RIB ACCEL.

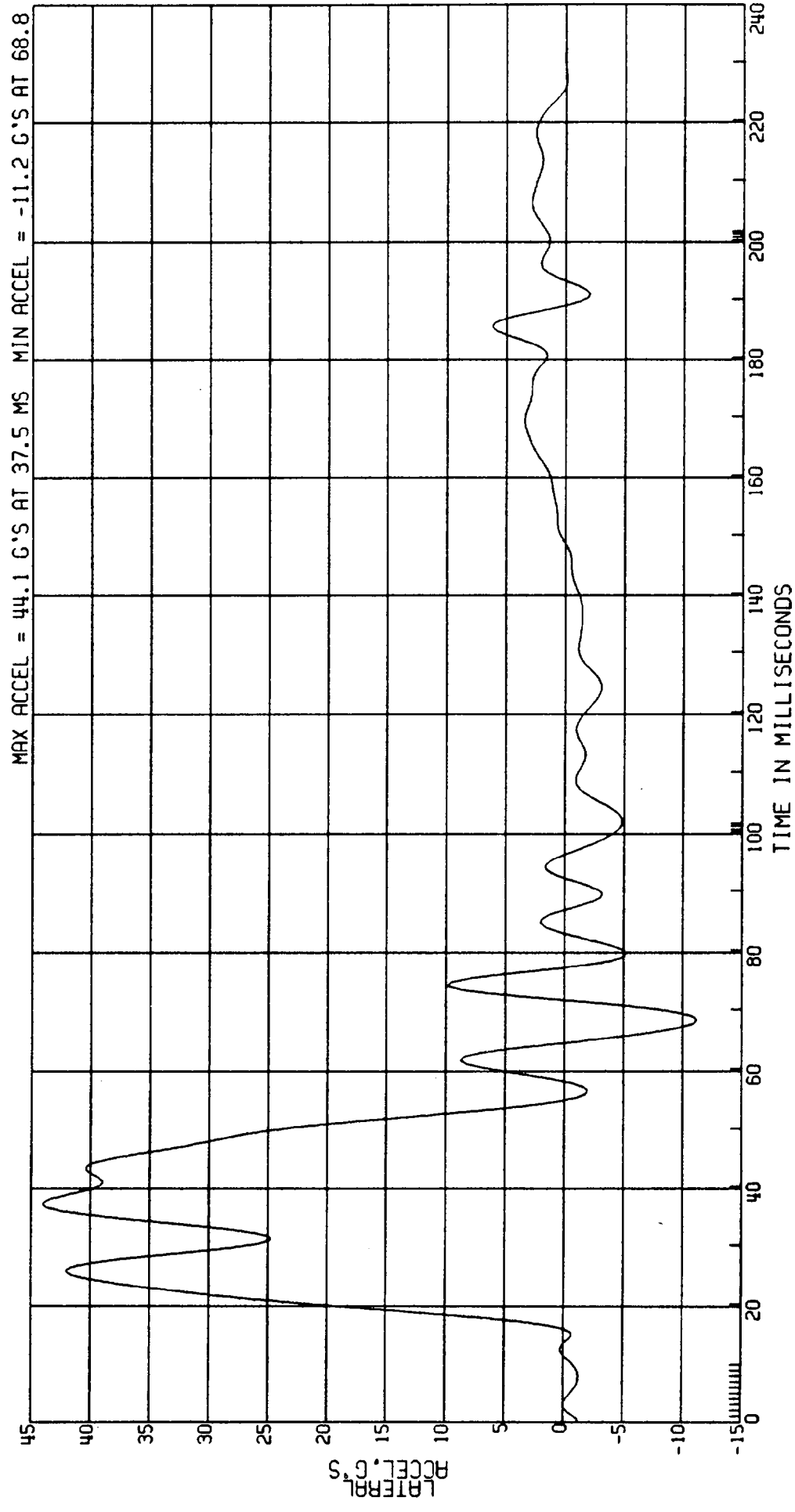
TEST DATE:03-27-90



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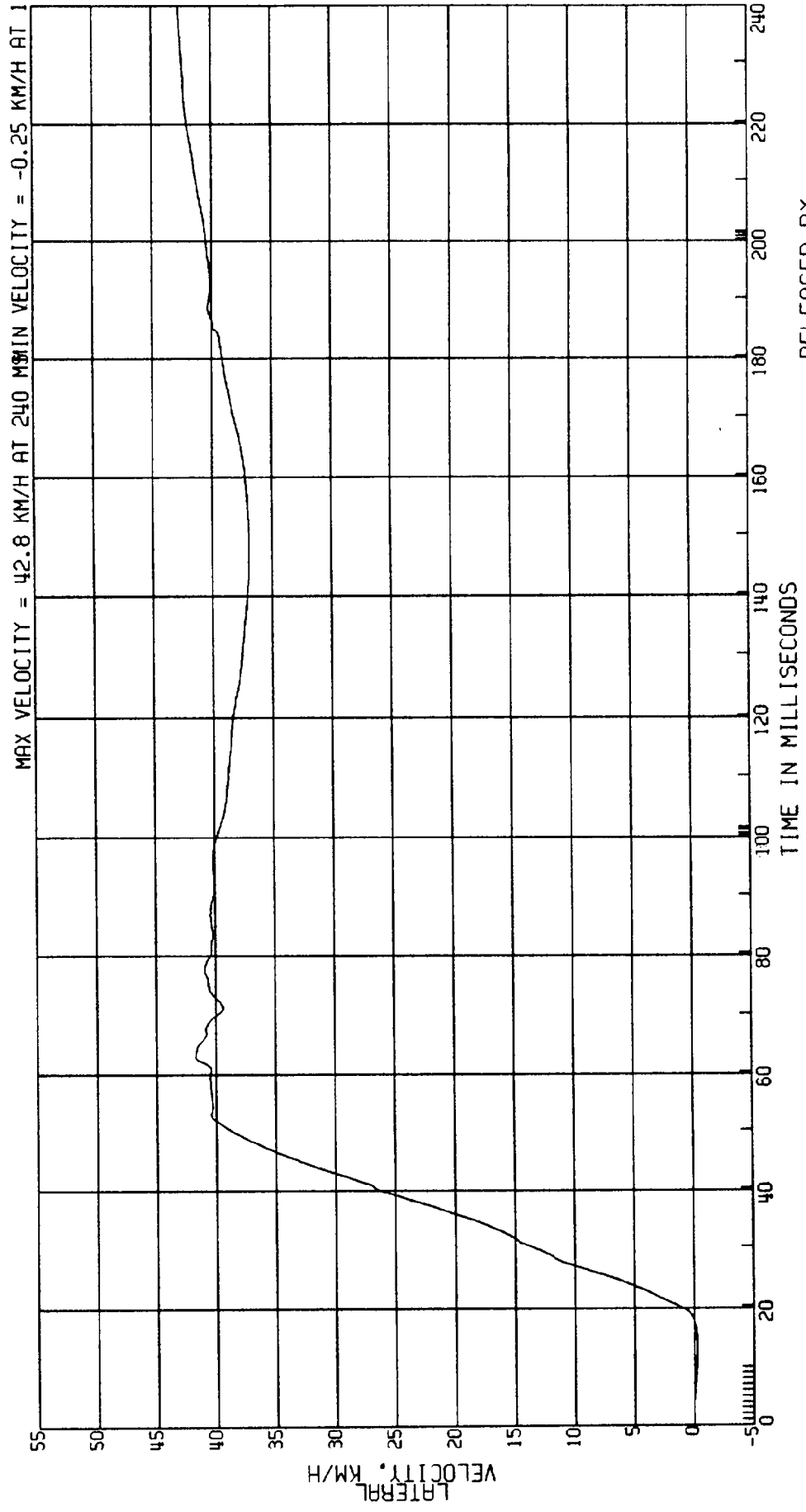
C8011A L. SIDE IMPACT- 27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 21
3868-905
CPE MVMA 11P 2AF69
ELEC DATA, NHTSA FIR FILTER DRIVER LEFT LOWER RIB ACCEL.
F.I.R. FILTER, CLASS 300 BUTTERWORTH
ATD TYPE: SID
TEST DATE:03-27-90



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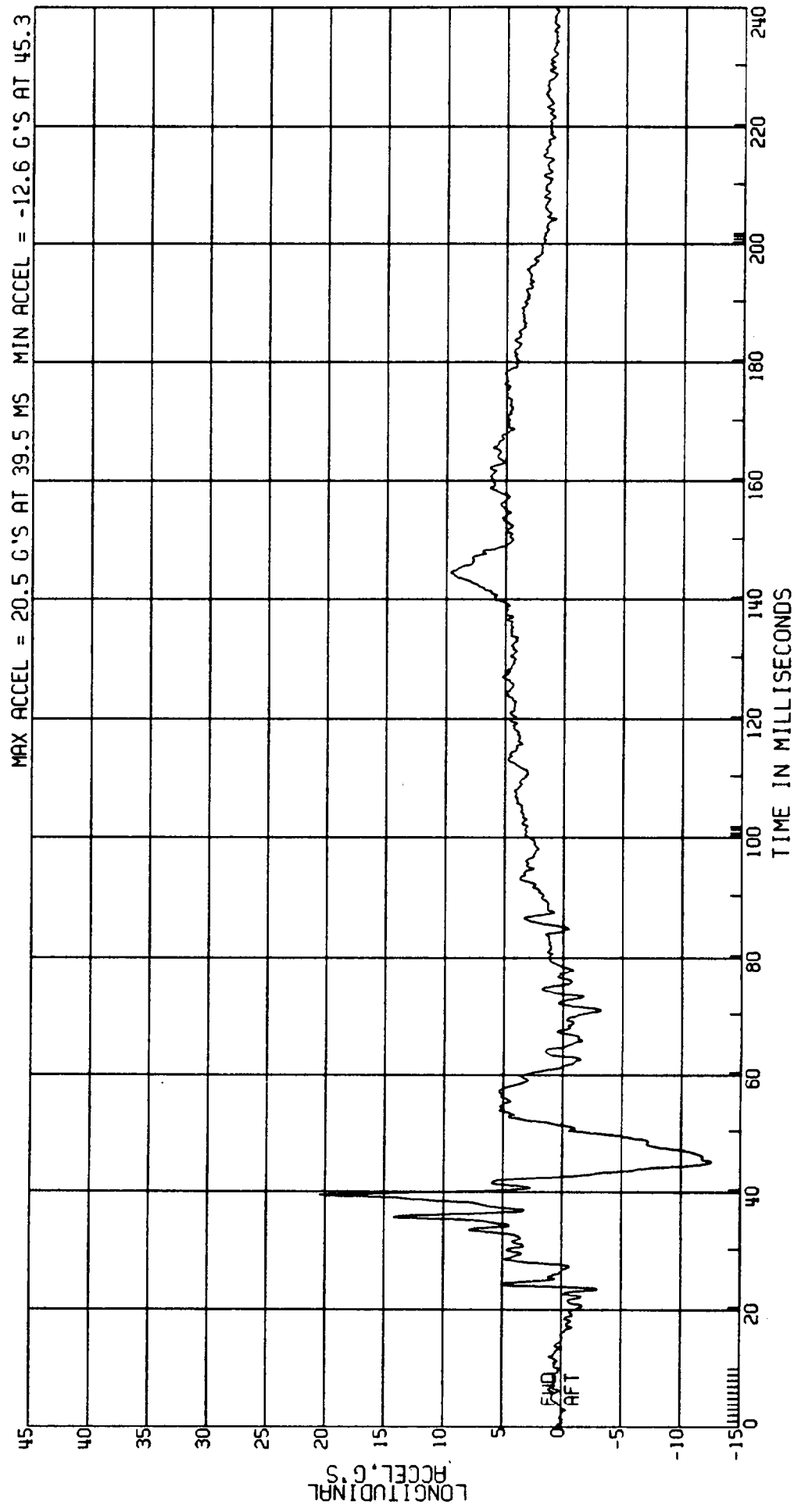
47 PROCESSED 4 MY 90 14:42

C8011A L. SIDE IMPACT- 27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 22
3868-905
CPE MVMA 11P 2AF69
ELEC DATA, SAE CLASS 180
ATD TYPE: SID
TEST DATE:03-27-90
(1ST INT OF DRIVER ACCELERATION)



RELEASED BY:
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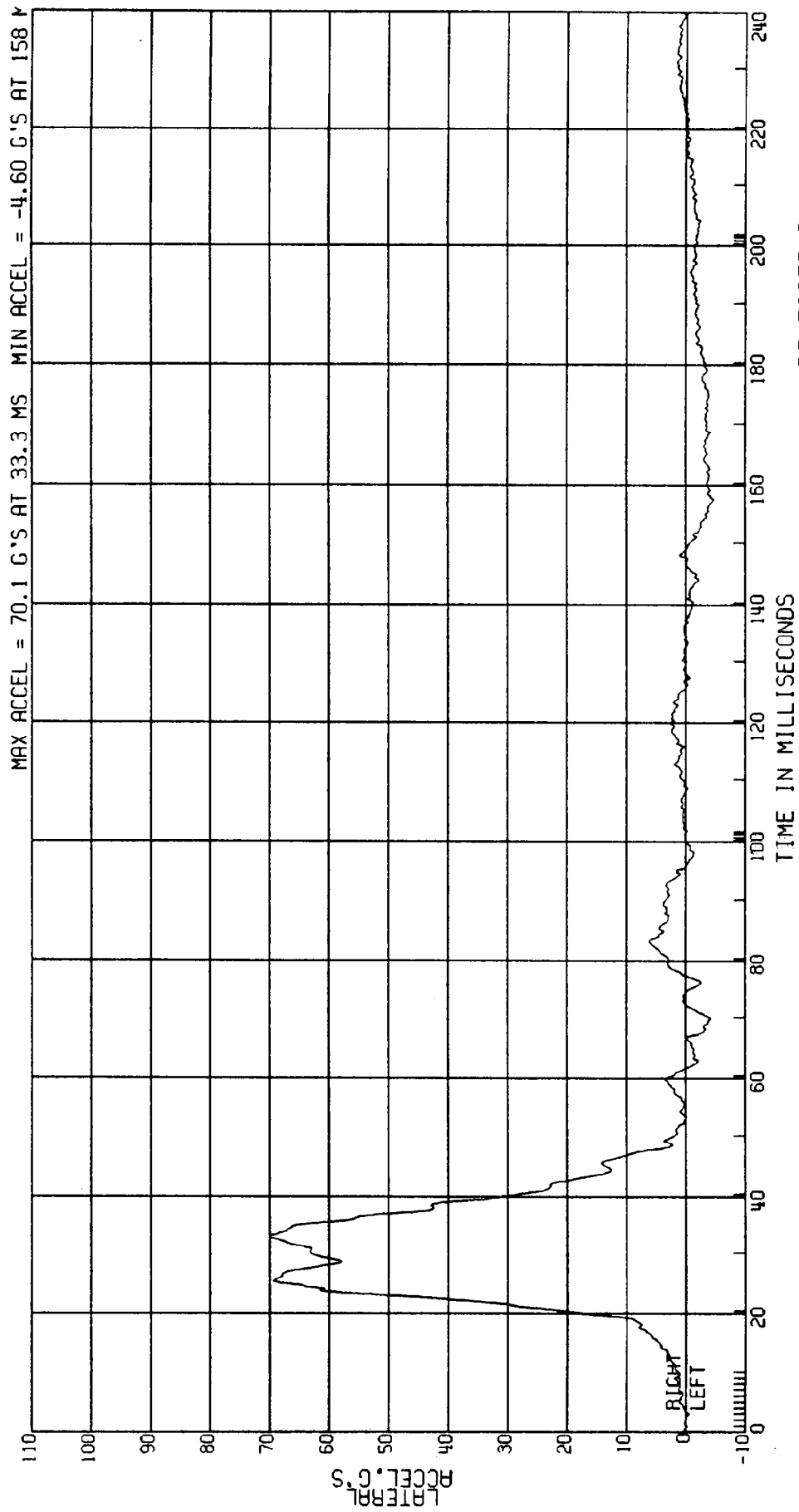
C8011A L. SIDE IMPACT- 27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 23
3868-905
CPE MVMA 11P 2AF69
ELEC DATA, SAE CLASS 600
DRIVER PELVIC ACCEL.
ATD TYPE: SID
TEST DATE: 03-27-90



RELEASED BY:

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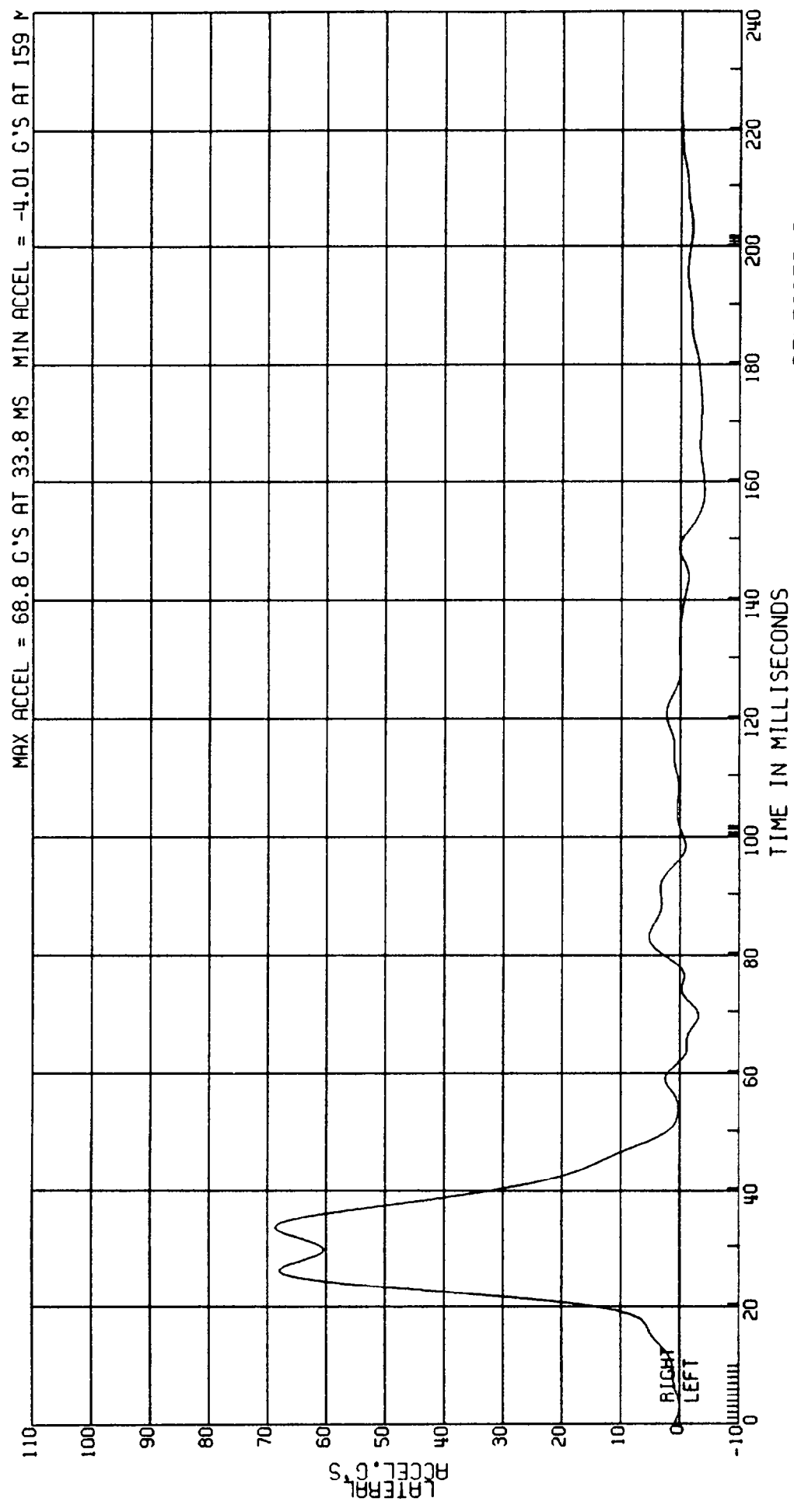
C8011A L. SIDE IMPACT- 27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 24
3868-905
CPE MVMA 11P 2AF69
ELEC DATA, SAE CLASS 600
DRIVER PELVIC ACCEL.
ATD TYPE: SID
TEST DATE:03-27-90



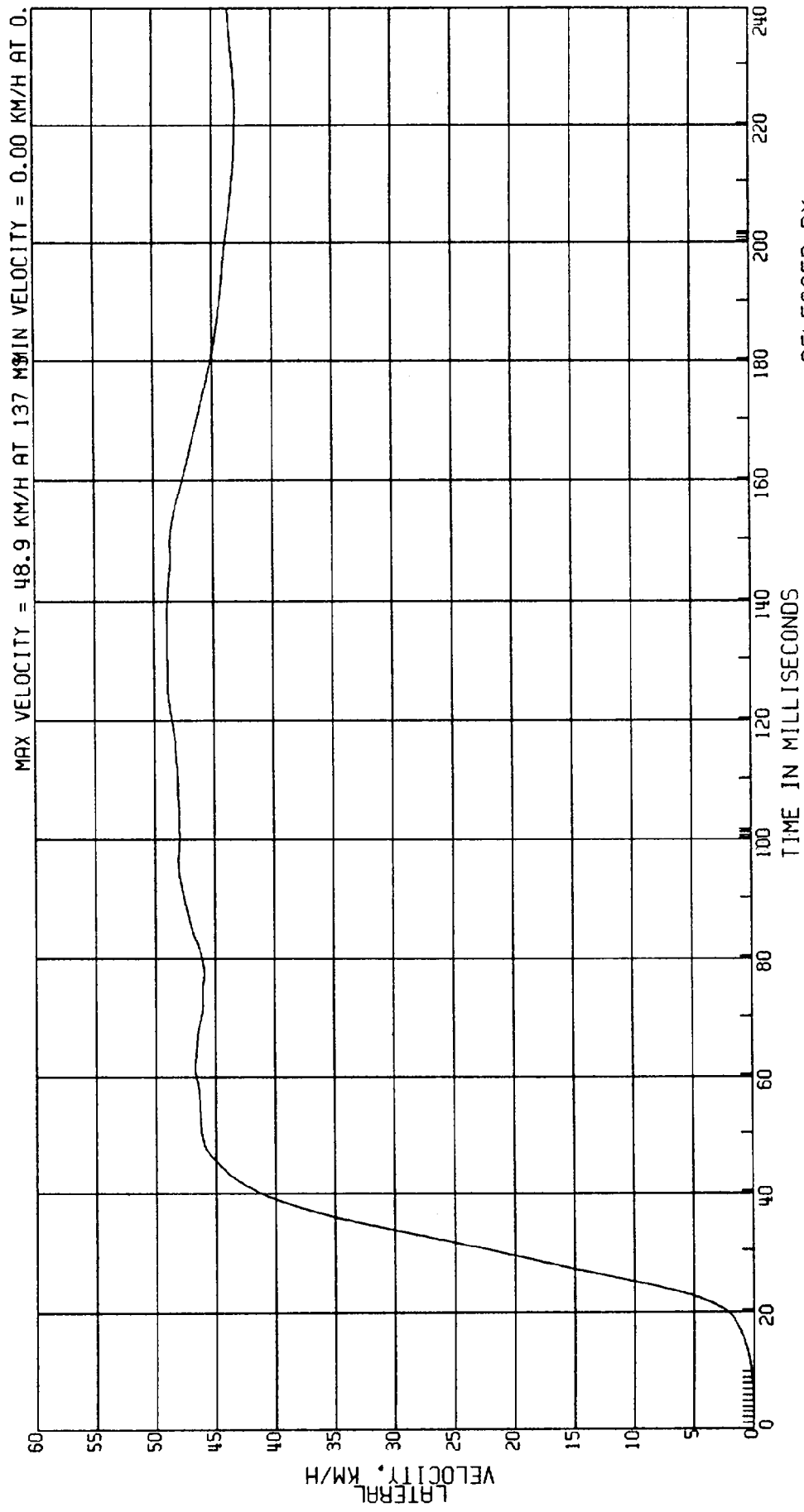
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C8011A L. SIDE IMPACT- 27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 25
 3868-905
 CPE MVMA 11P 2AF69
 ELEC DATA, NHTSA FIR FILTER DRIVER PELVIC ACCEL.
 F.I.R. FILTER, CLASS 300 BUTTERWORTH
 ATD TYPE: SID
 TEST DATE: 03-27-90

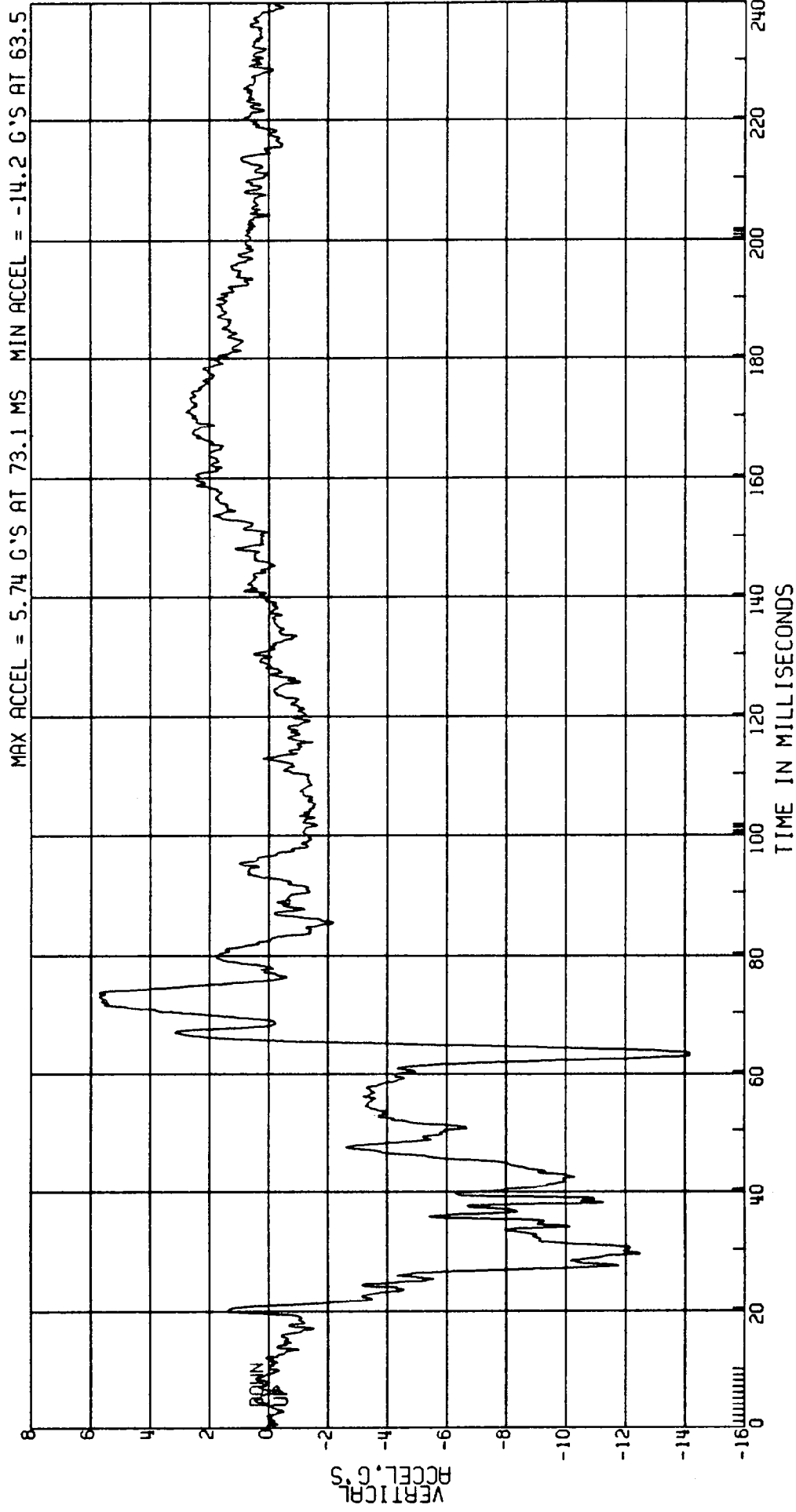


C8011A L. SIDE IMPACT- 27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 26
3868-905 AID TYPE: SID
CPE MVMA 11P 2AF69 TEST DATE:03-27-90
ELEC DATA, SAE CLASS 180 COMPUTED PELVIC VELOCITY
(1ST INT OF DRIVER ACCELERATION)



RELEASED BY:
52 PROCESSED 4 MY 90 14:42

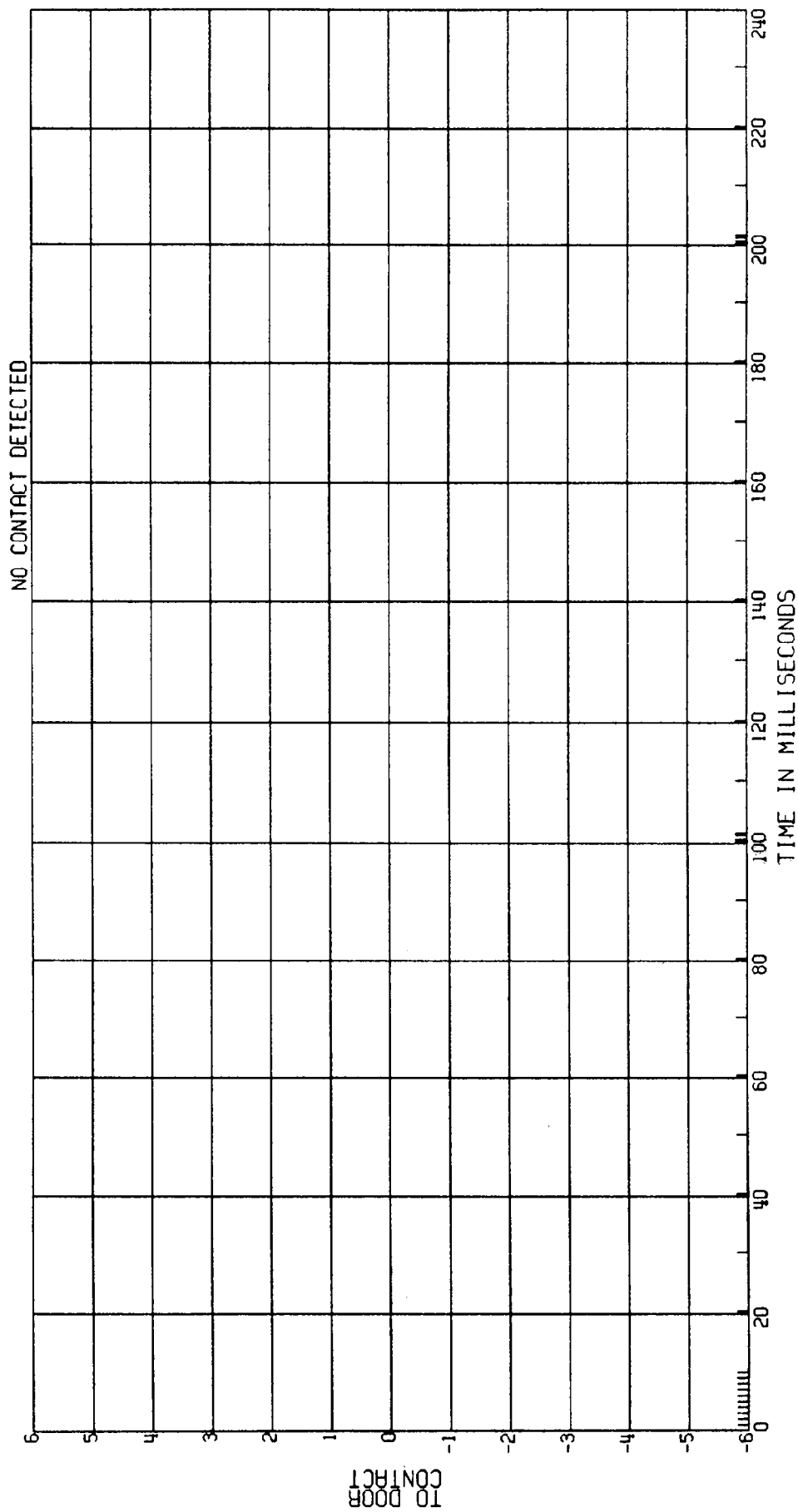
C8011A L. SIDE IMPACT- 27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 27
3868-905 ATD TYPE: SID
CPE MVMA 11P 2AF69 DRIVER PELVIC ACCEL.
ELEC DATA, SAE CLASS 600 TEST DATE:03-27-90



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53 PROCESSED 4 MY 90 14:42

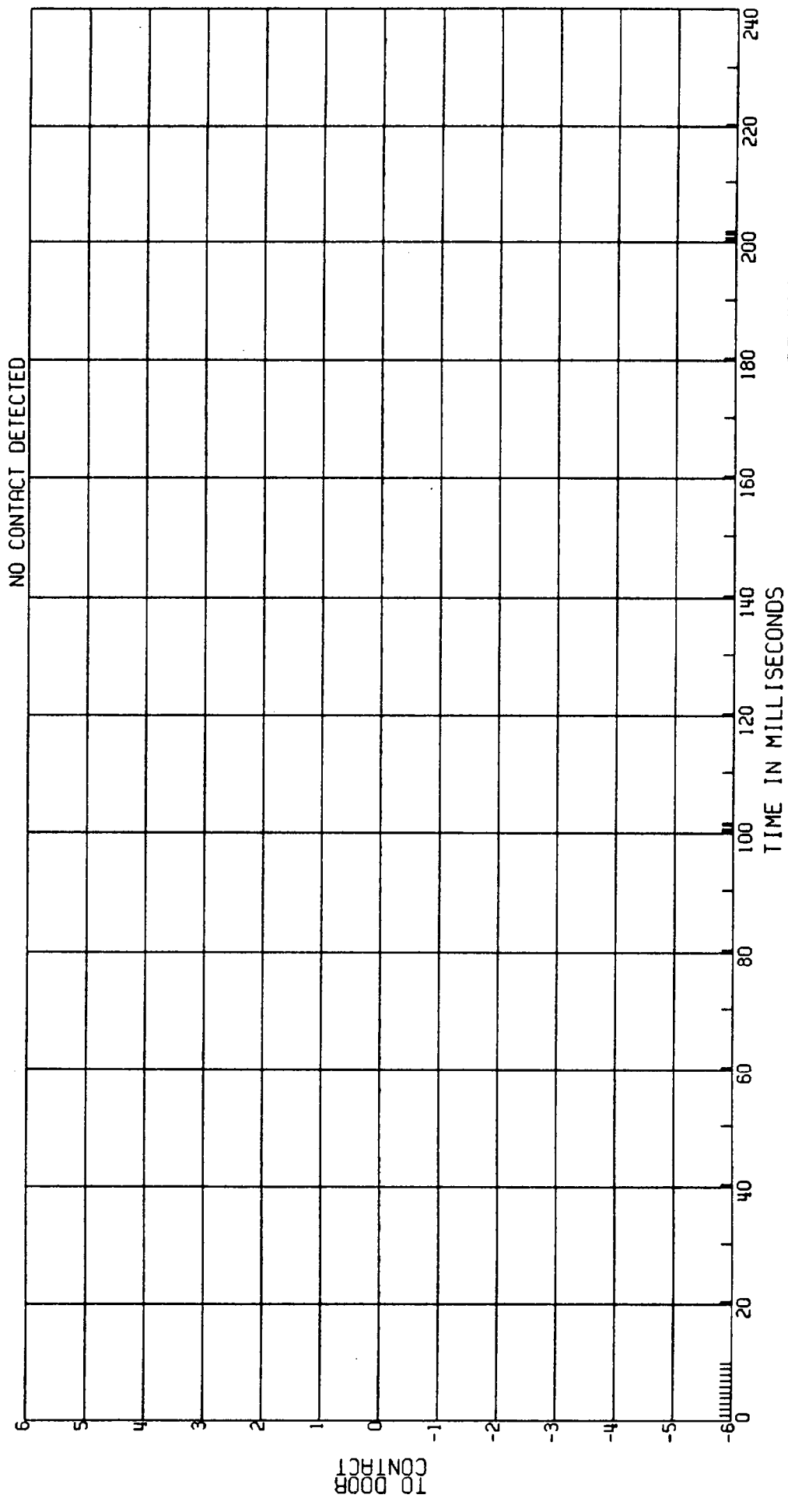
C8011A L. SIDE IMPACT- 27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 28
 3868-905
 CPE MVMA 11P 2AF69
 ELEC DATA, SAE CLASS 1000
 DRIVER THORAX-LEFT SIDE CONTACT
 ATD TYPE: SID
 TEST DATE: 03-27-90



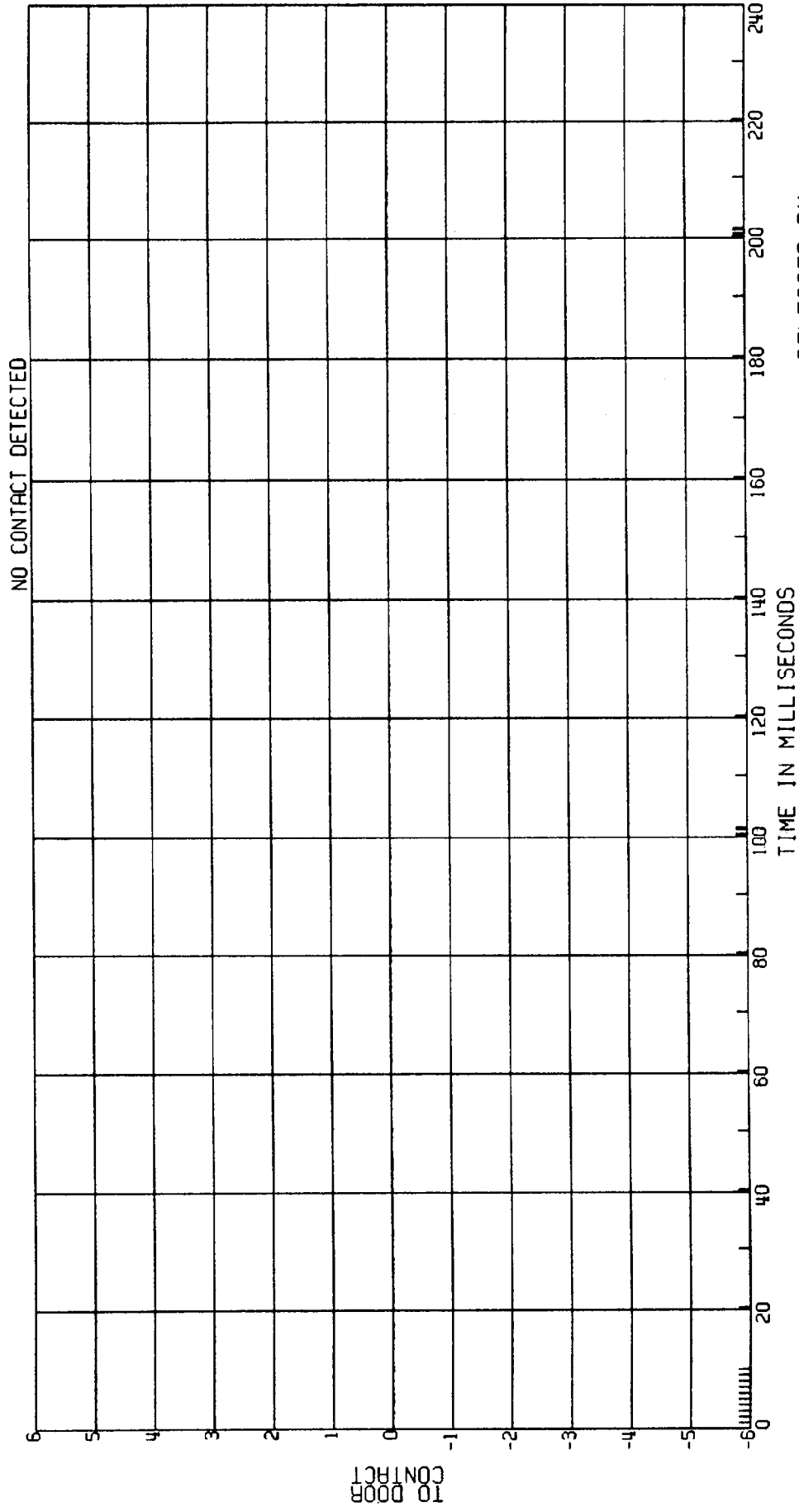
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C8011A L. SIDE IMPACT- 27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 29
3868-905
CPE MVMA 11P 2AF69
ELEC DATA, SAE CLASS 1000 DRIVER ABDOMEN-LEFT SIDE CONTACT
ATD TYPE: SID
TEST DATE:03-27-90



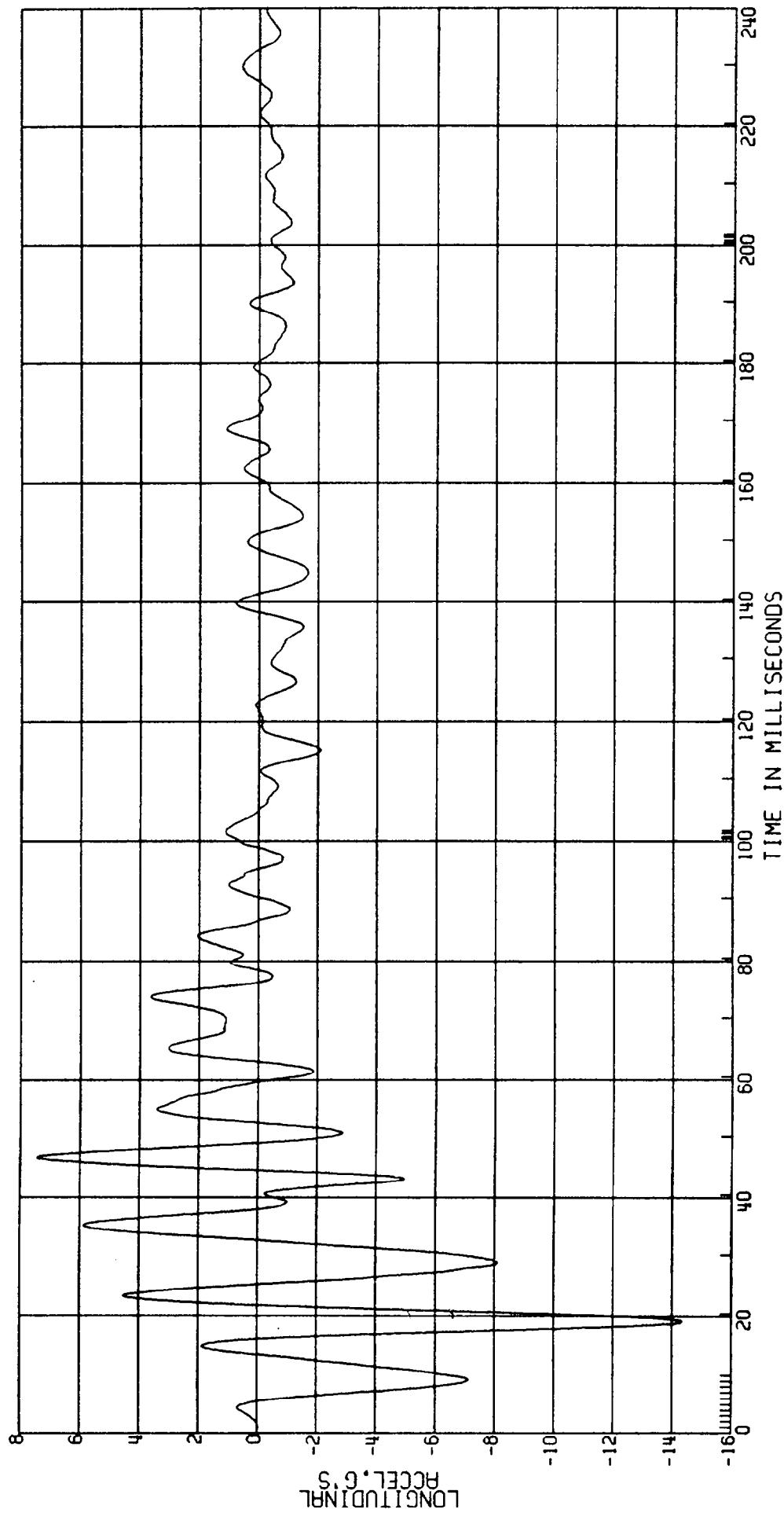
C8011A L. SIDE IMPACT- 27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 30
 3868-905
 CPE MVMA 11P 2AF69
 ELEC DATA, SAE CLASS 1000
 DRIVER PELVIC-LEFT SIDE CONTACT
 ATD TYPE: SID
 TEST DATE:03-27-90



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71 PROCESSED 4 MY 90 14:42

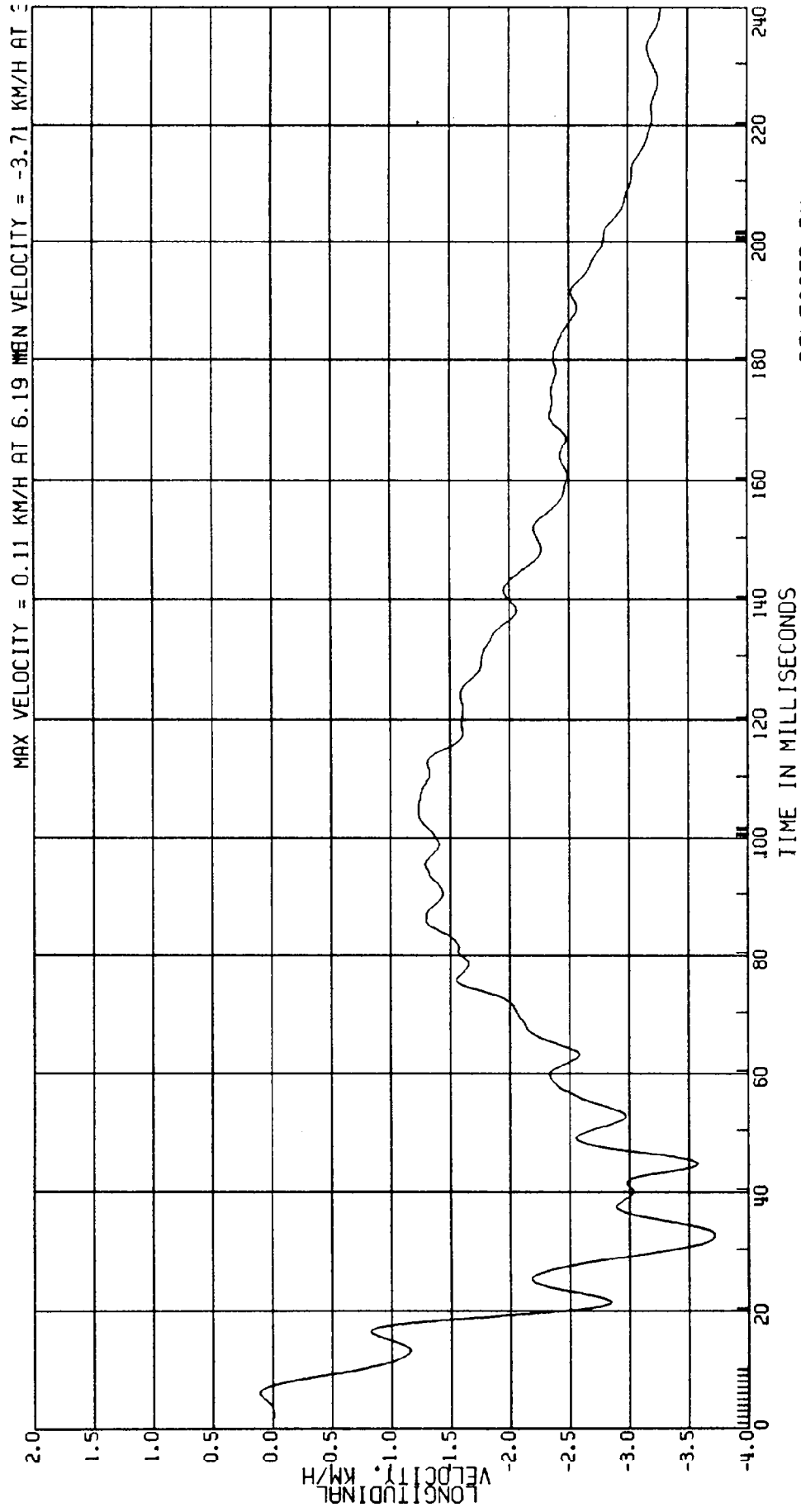
C8011A L. SIDE IMPACT- 27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 3/
3868-905
CPE MVMA 11P 2AF69 PASS-SIDE ROCKER AT CTR OF IMPACT ACCEL. TEST DATE:03-27-90
ELEC DATA, SAE CLASS 60



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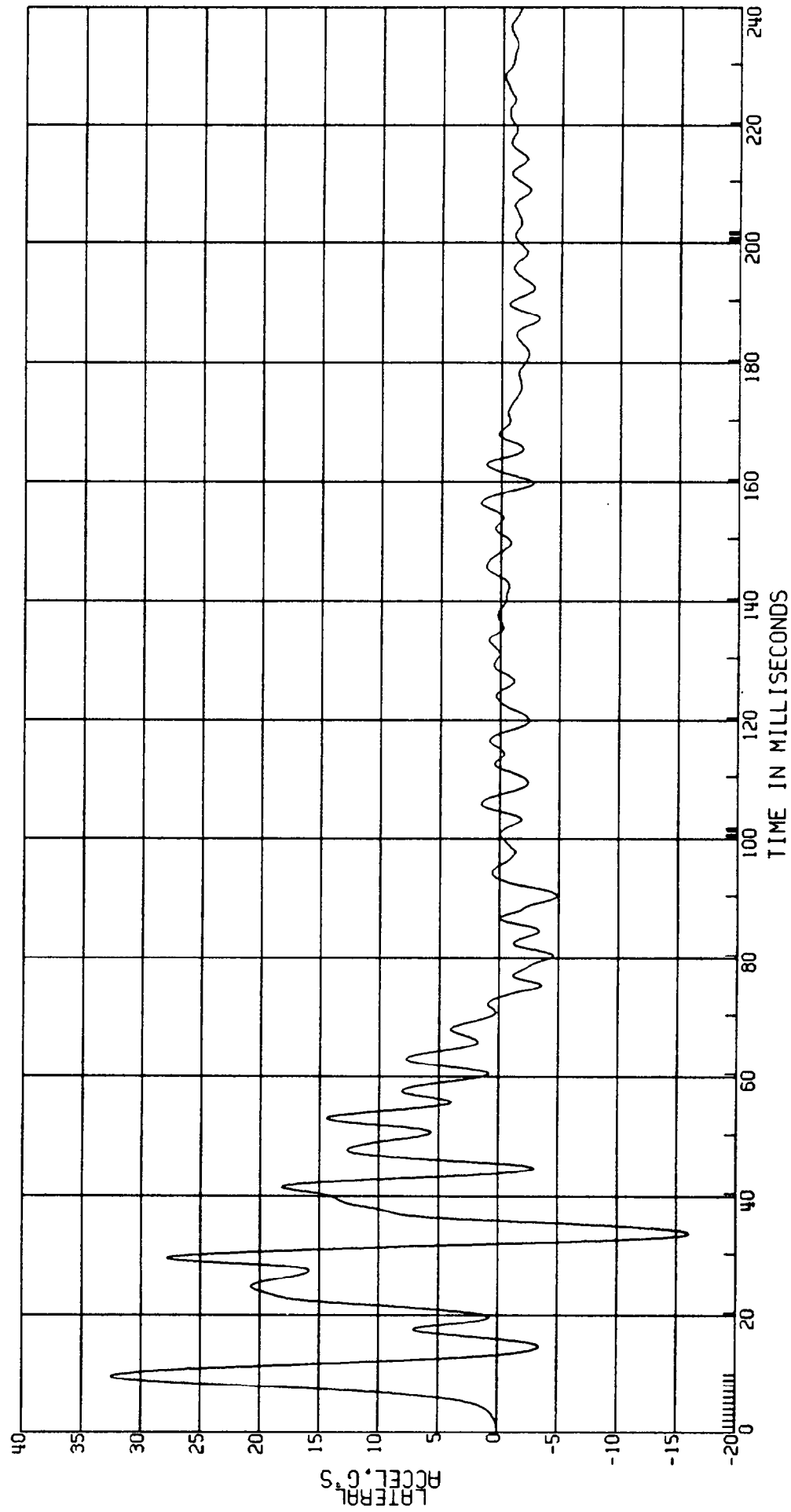
C8011A L. SIDE IMPACT- 27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 32
 3868-905
 CPE MVMA 11P 2AF69
 ELEC DATA, SAE CLASS 180 (1ST INTEGRAL OF PASS-SIDE ACCELERATION) TEST DATE:03-27-90



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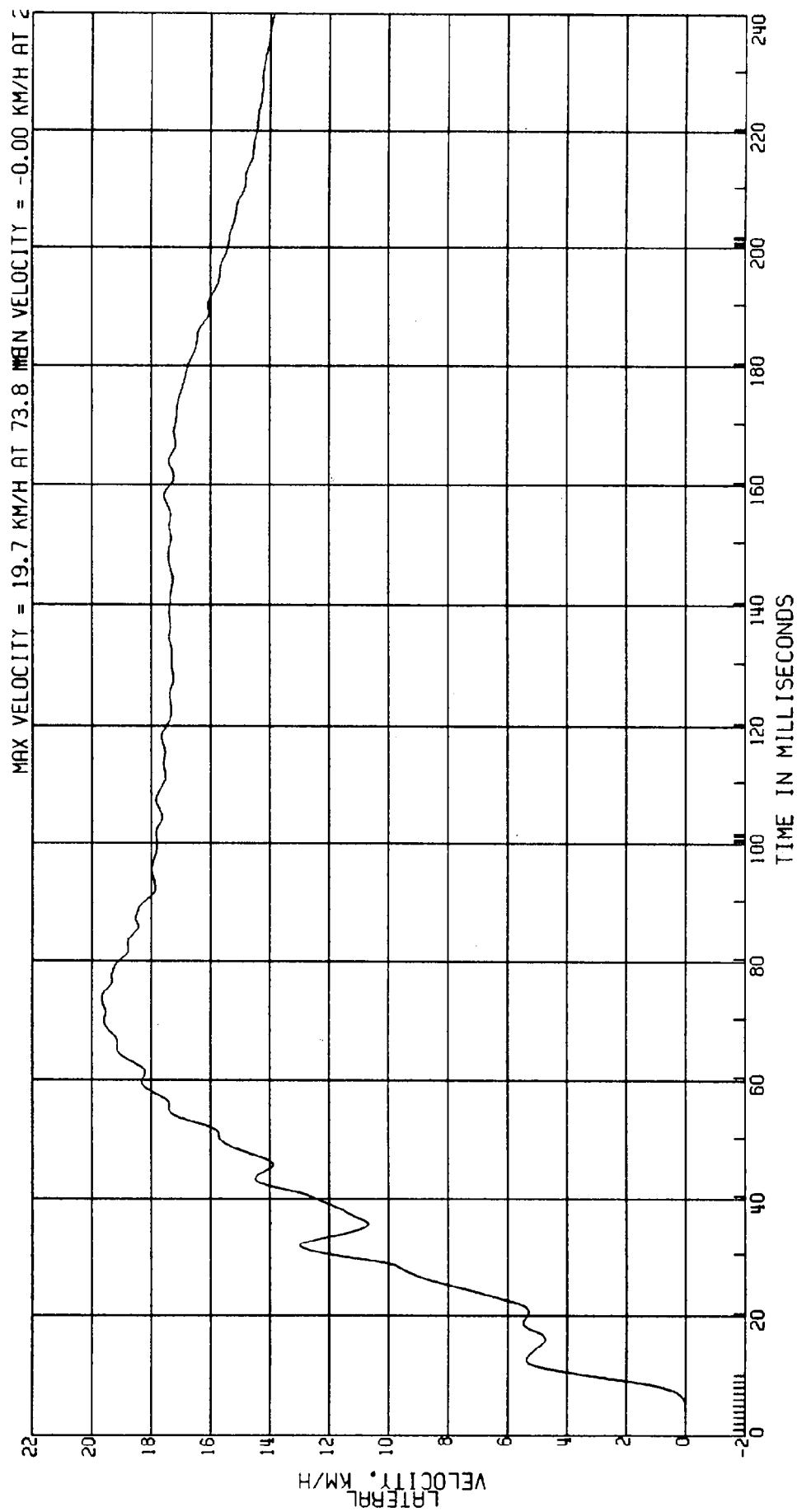
C8011A L. SIDE IMPACT - 27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 33
3868-905
CPE MVMA 11P 2AF69 PASS-SIDE ROCKER AT CTR OF IMPACT ACCEL. TEST DATE:03-27-90
ELEC DATA, SAE CLASS 60



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5 PROCESSED 4 MY 90 14:40

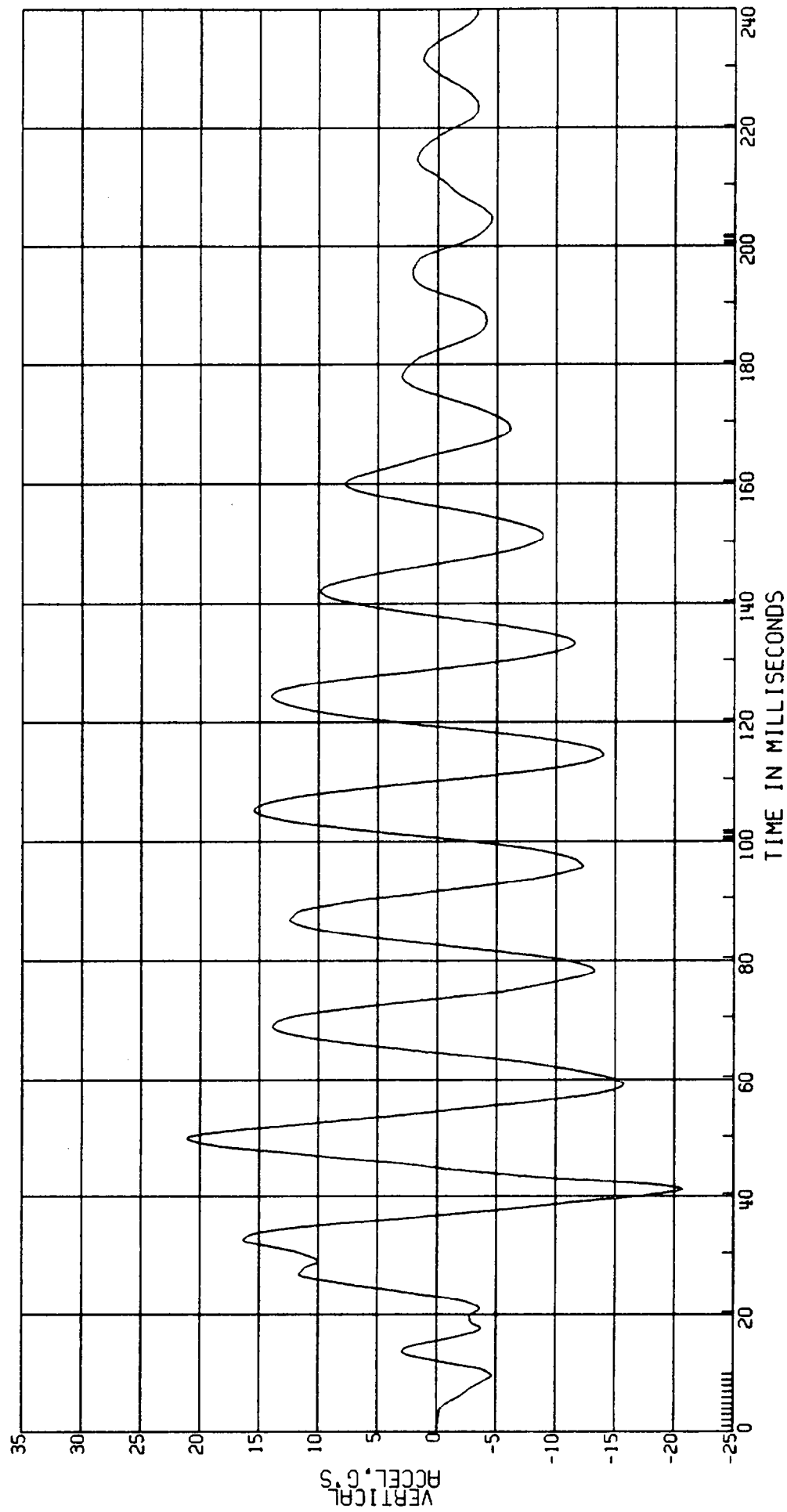
C8011A L. SIDE IMPACT- 27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 34
 3868-905
 CPE MVMA 11P 2AF69
 ELEC DATA, SAE CLASS 180
 TEST DATE: 03-27-90
 COMPUTED ROCKER AT CTR OF IMPACT VEL
 (1ST INTEGRAL OF PASS-SIDE ACCELERATION)



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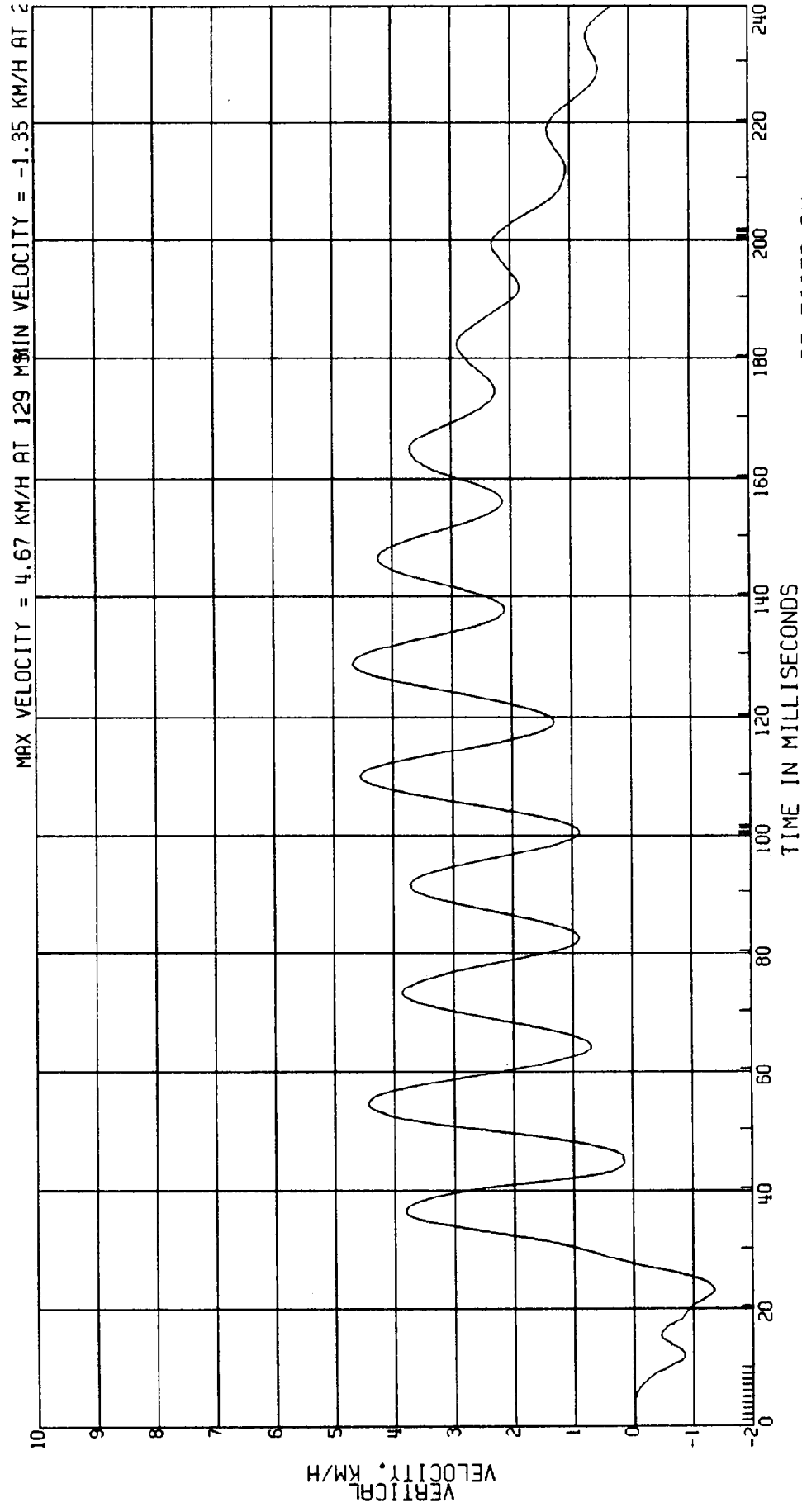
C8011A L. SIDE IMPACT- 27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 35
3868-905
CPE MVMA 11P 2AF69 PASS-SIDE ROCKER AT CTR OF IMPACT ACCEL. TEST DATE:03-27-90
ELEC DATA, SAE CLASS 60



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7 PROCESSED 4 MY 90 14:40

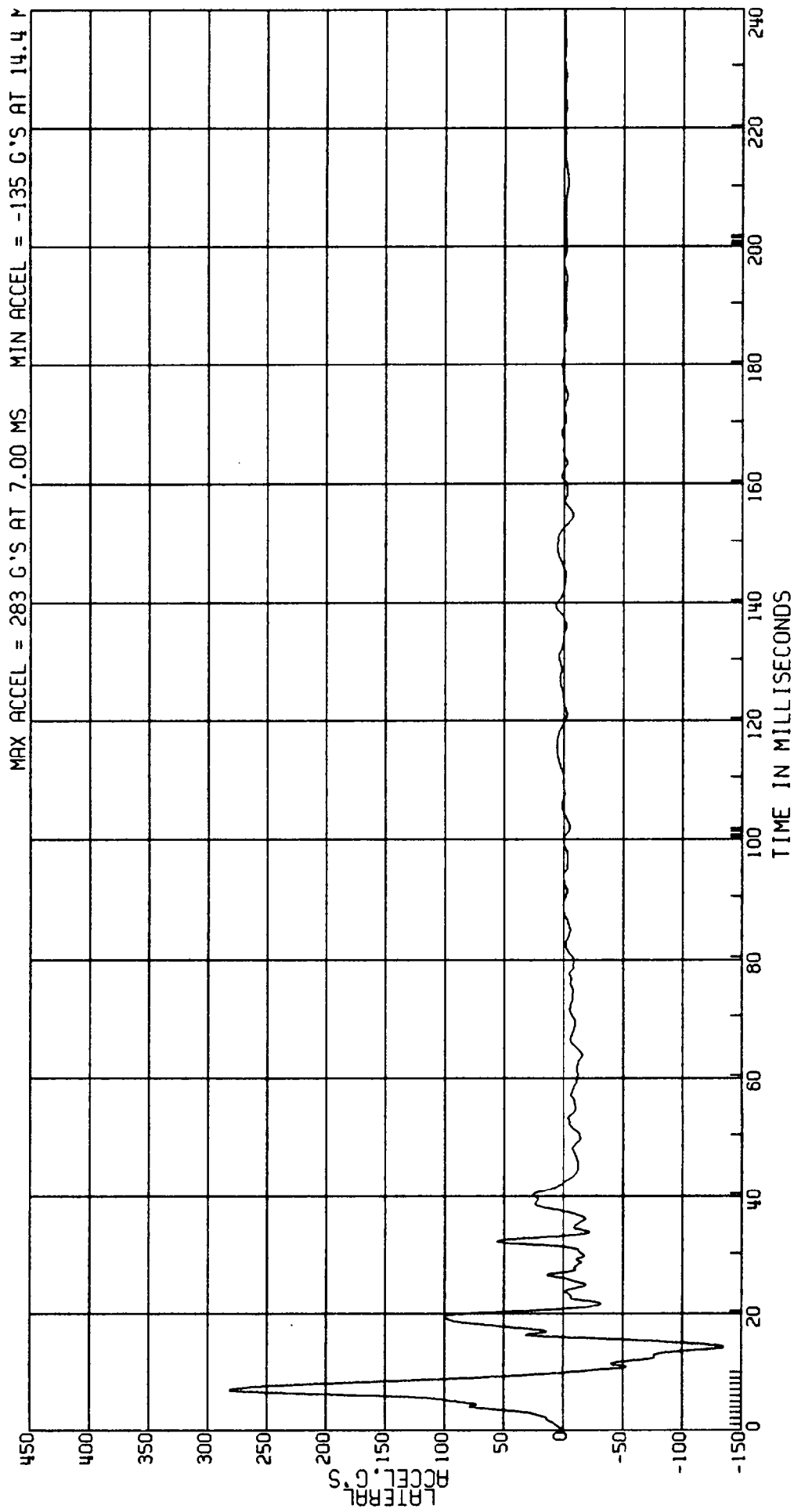
C8011A L. SIDE IMPACT- 27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 36
 3868-905
 CPE MVMA 11P 2AF69
 ELEC DATA, SAE CLASS 180 (1ST INTEGRAL OF PASS-SIDE ACCELERATION) TEST DATE:03-27-90



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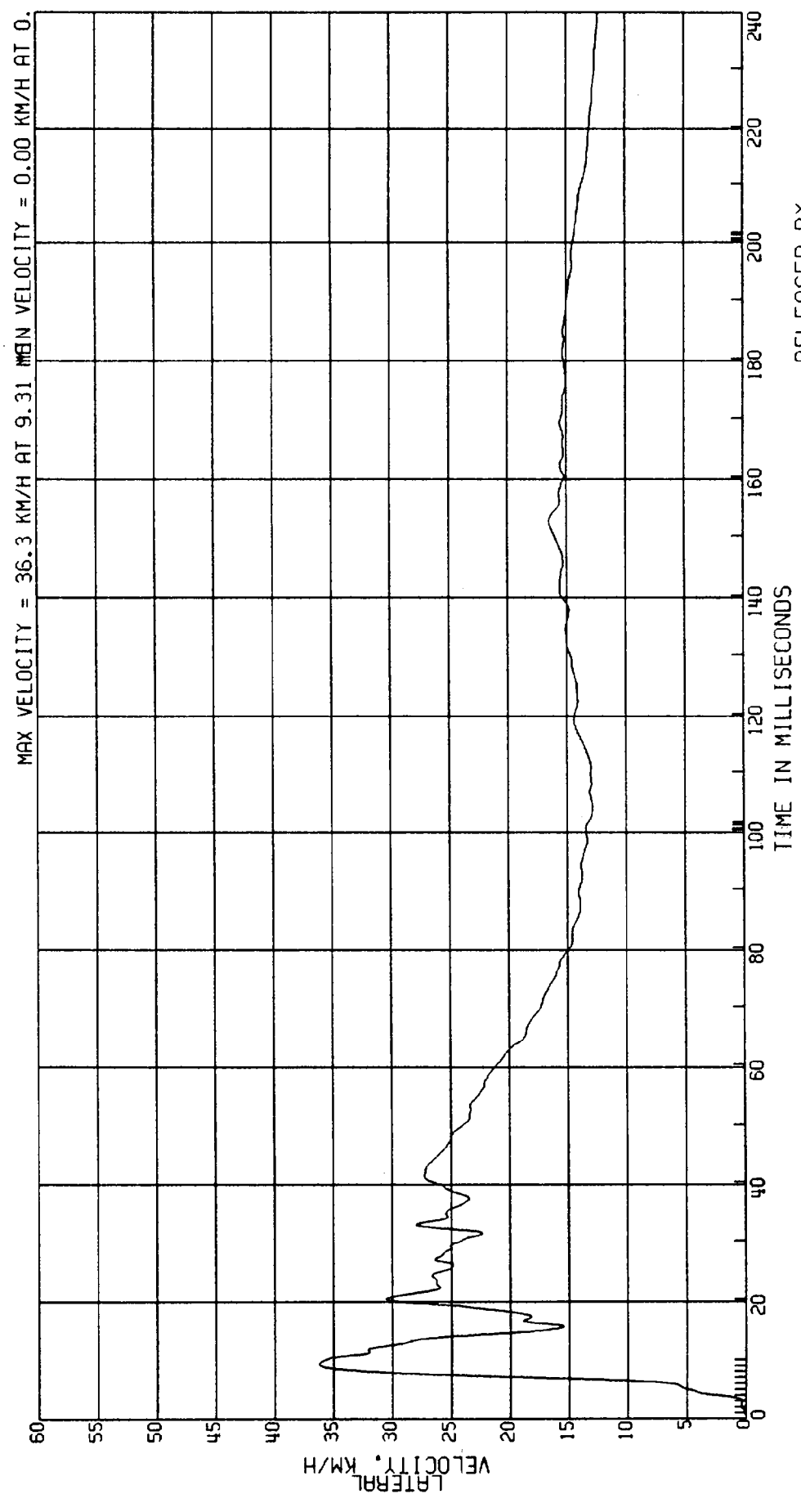
C8011A L. SIDE IMPACT- 27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 37
 3868-905
 CPE MVMA 11P 2AF69 DR-SIDE FRT. DOOR NO. 1 ACCEL.
 ELEC DATA, SAE CLASS 60 TEST DATE:03-27-90



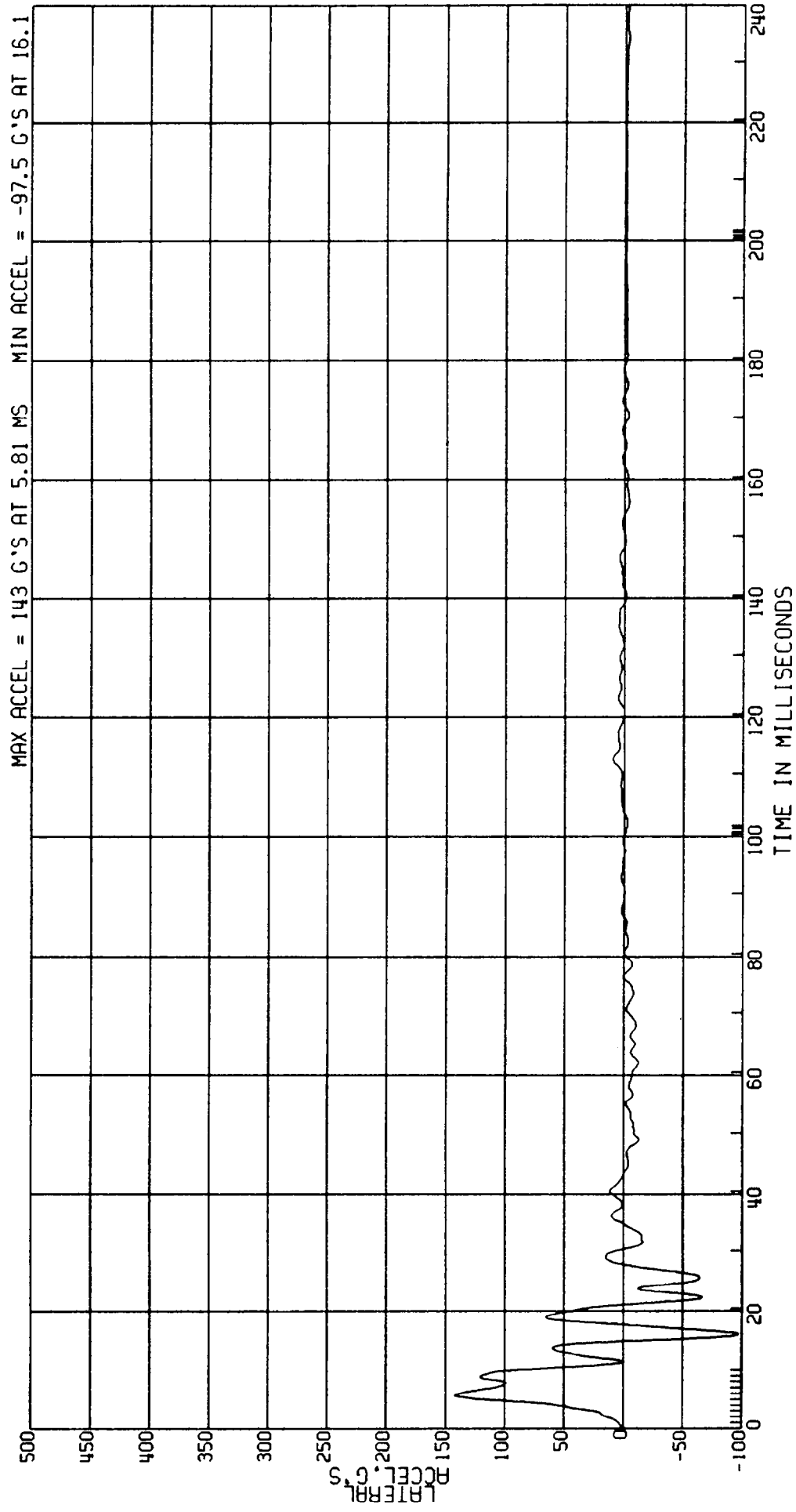
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C8011A L. SIDE IMPACT- 27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 38
3868-905
CPE MVMA 11P 2AF69 COMPUTED FRT. DOOR NO. 1 VELOCITY TEST DATE:03-27-90
ELEC DATA. SAE CLASS 180 (1ST INTEGRAL OF DR-SIDE ACCELERATION)



C8011A L. SIDE IMPACT- 27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 39
3868-905
CPE MVMA 11P 2AF69 DR-SIDE FRT. DOOR NO. 2 ACCEL. TEST DATE:03-27-90
ELEC DATA, SAE CLASS 60



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11 PROCESSED 4 MY 90 14:41

C8011A L. SIDE IMPACT- 27 DEG

MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 40

3868-905

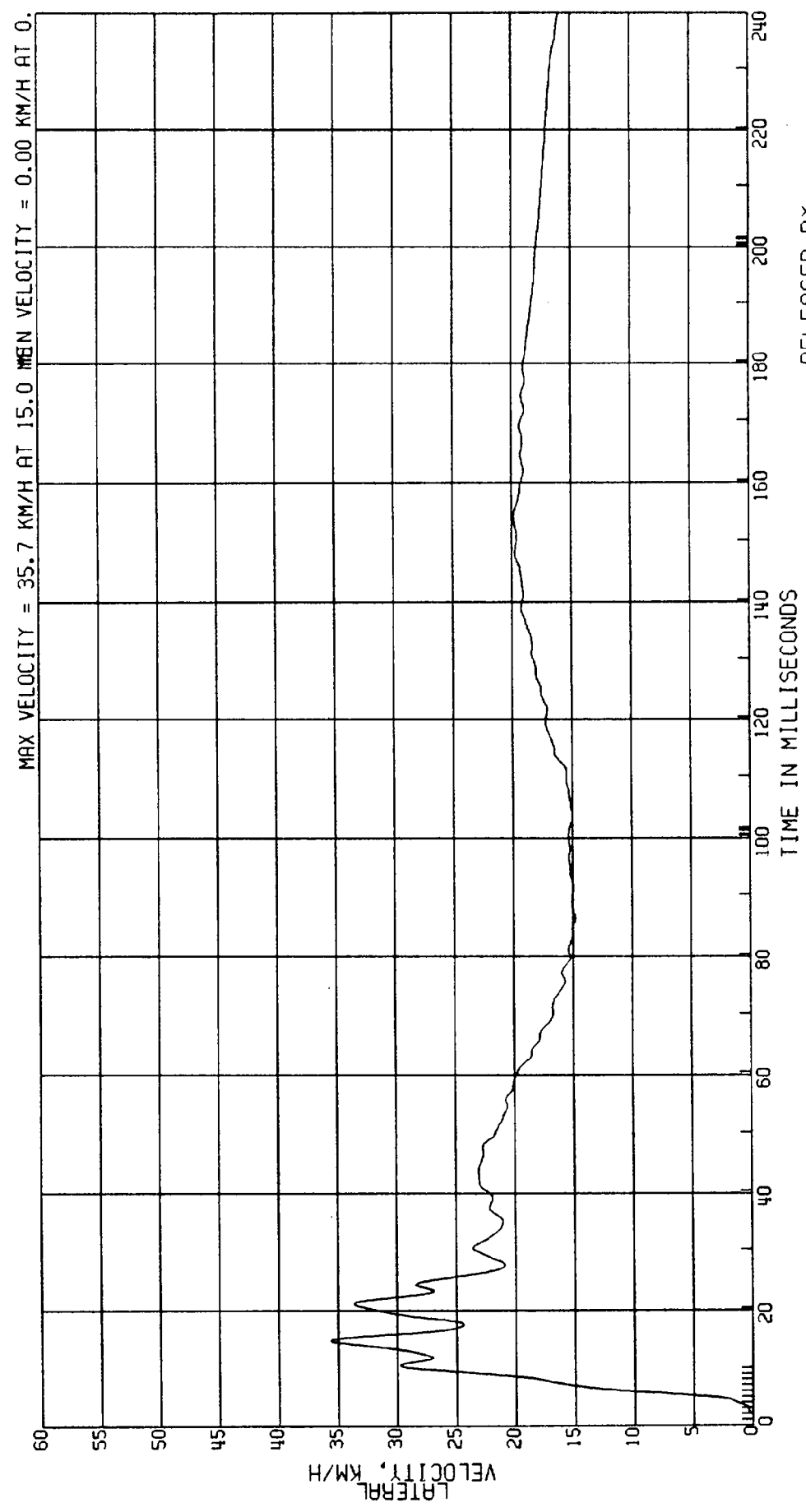
CPE MVMA 11P 2AF69

COMPUTED FRT. DOOR NO. 2 VELOCITY

TEST DATE:03-27-90

ELEC DATA, SAE CLASS 180

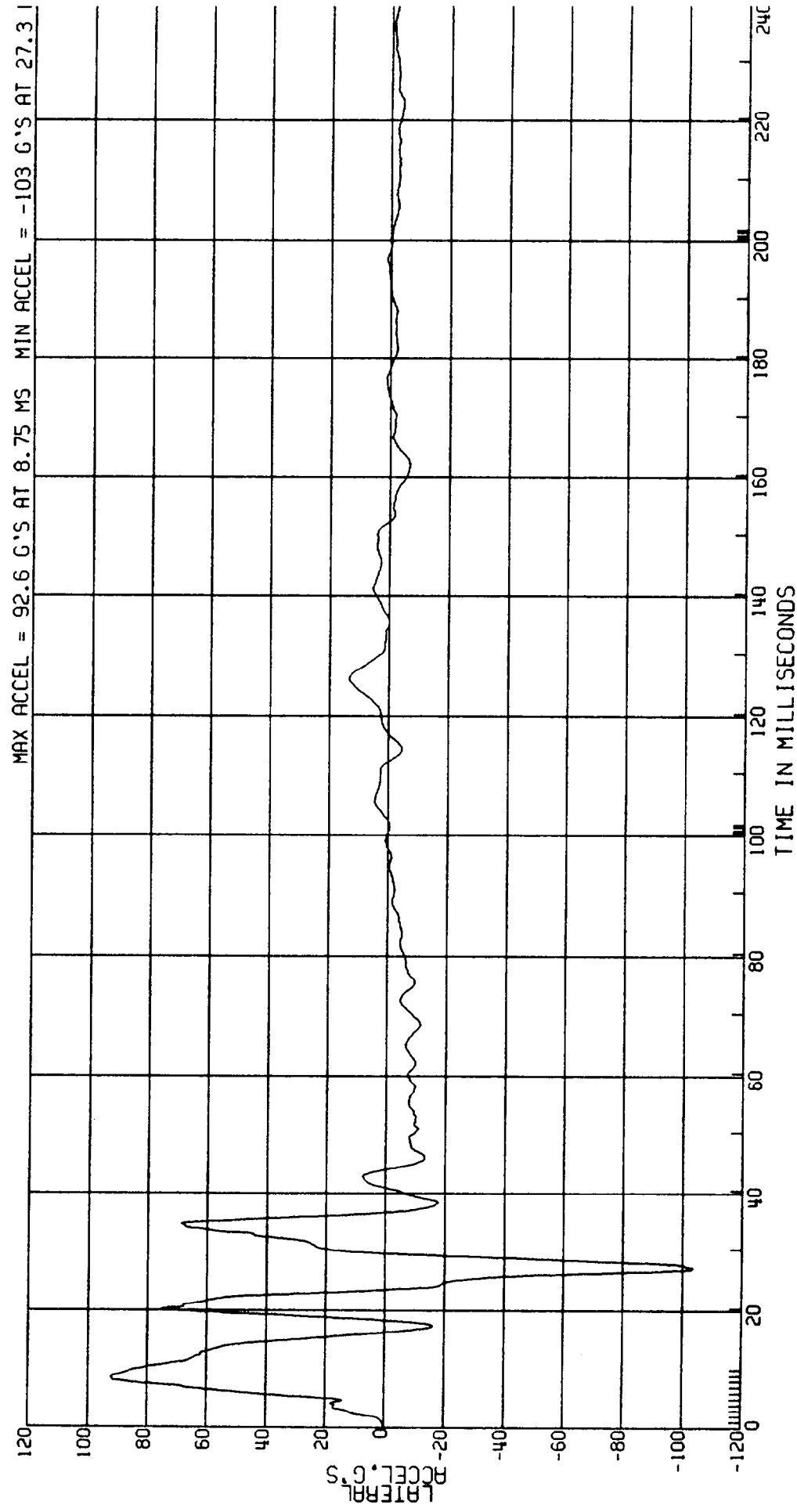
(1ST INTEGRAL OF DR-SIDE ACCELERATION)



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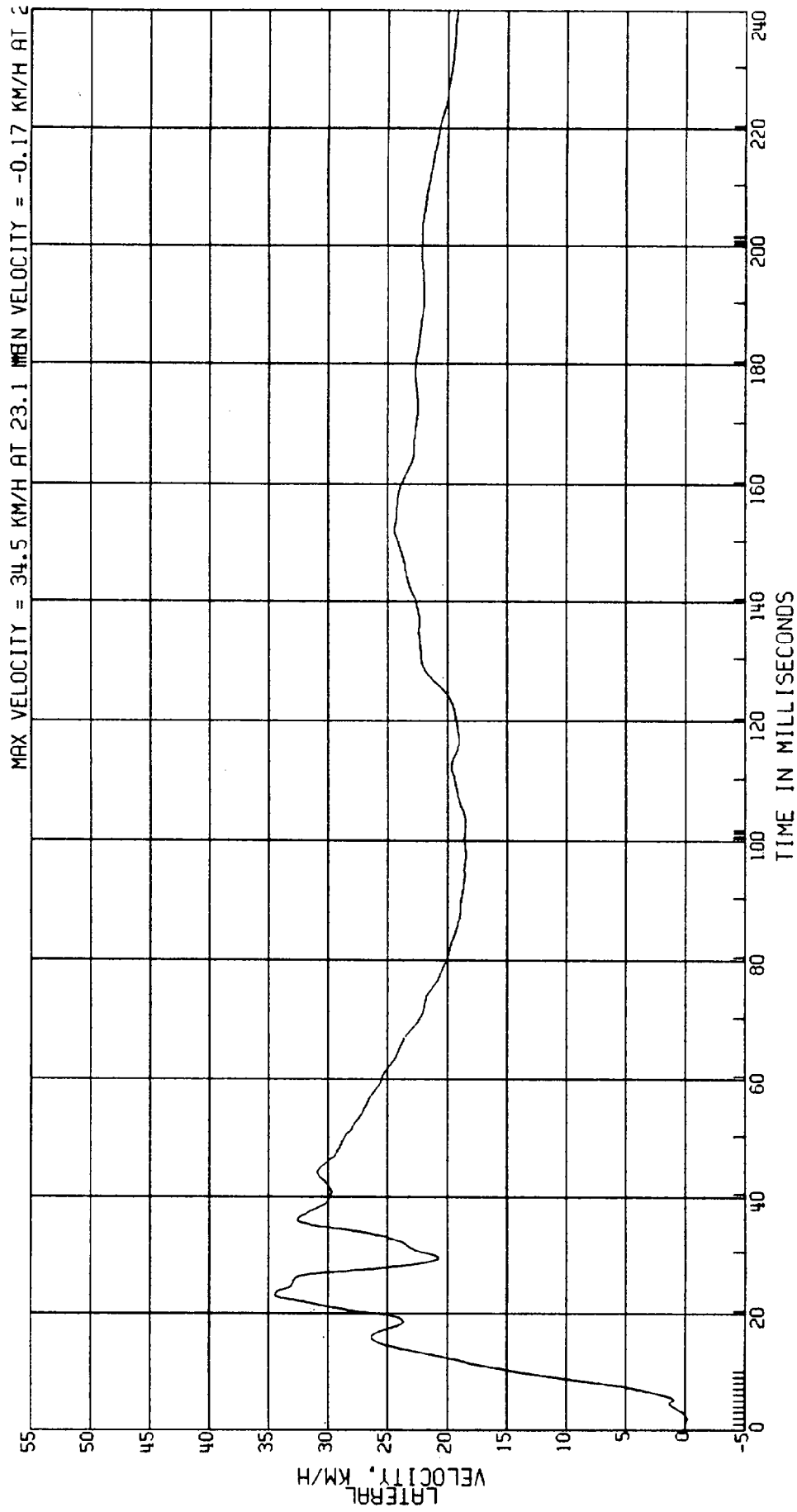
C8011A L. SIDE IMPACT- 27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 4/
 3868-905
 CPE MVMA 11P 2AF69
 ELEC DATA, SAE CLASS 60 DR-SIDE FRT. DOOR NO. 3 ACCEL.
 TEST DATE: 03-27-90



RELEASED BY:

13 PROCESSED 4 MY 90 14:41

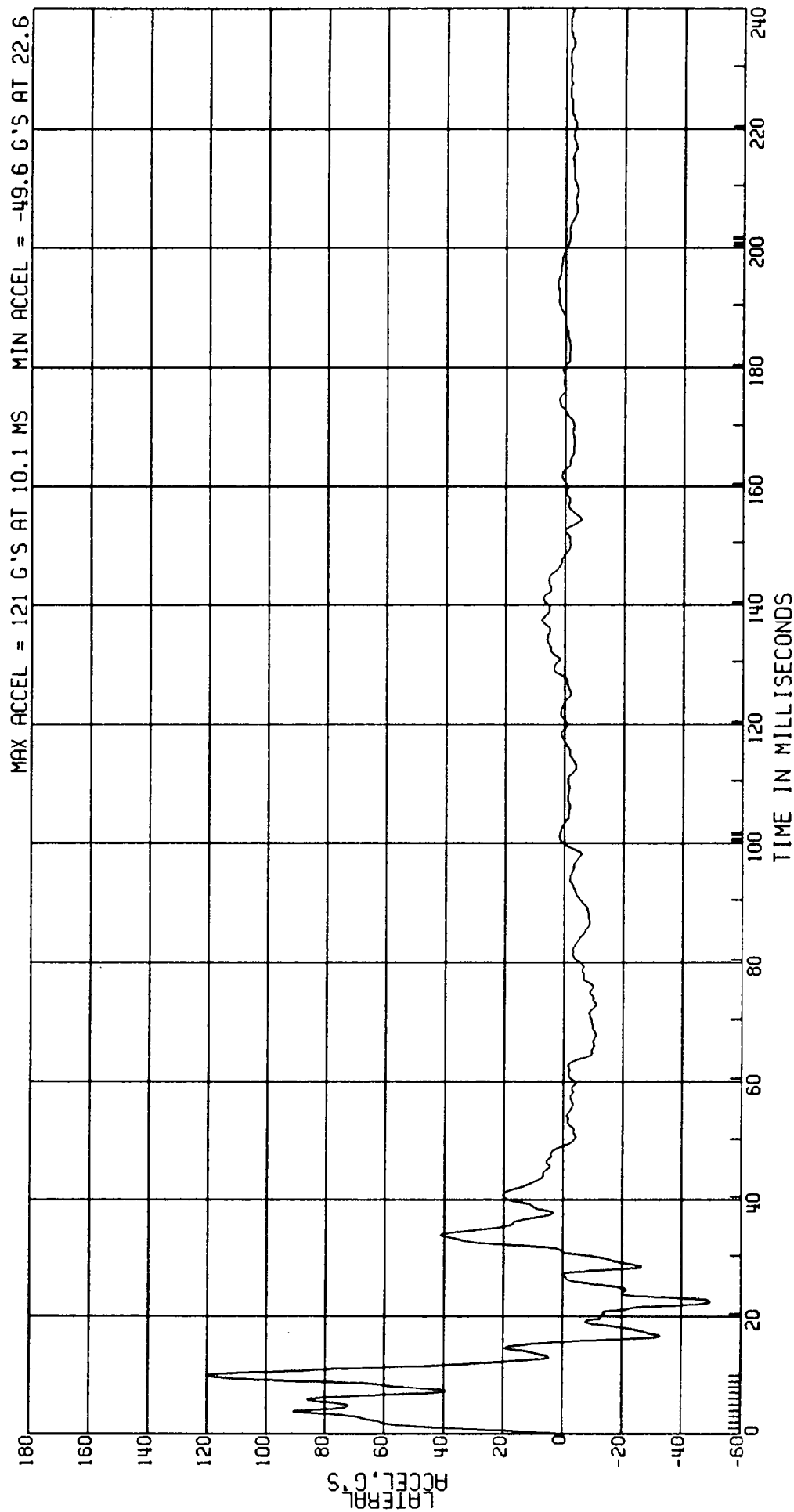
C8011A L. SIDE IMPACT- 27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5 KM/H FIGURE 42
3868-905
CPE MVMA 11P 2AF69 COMPUTED FRT. DOOR NO. 3 VELOCITY TEST DATE: 03-27-90
ELEC DATA, SAE CLASS 180 (1ST INTEGRAL OF DR-SIDE ACCELERATION)



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14 PROCESSED 4 MY 90 14:41

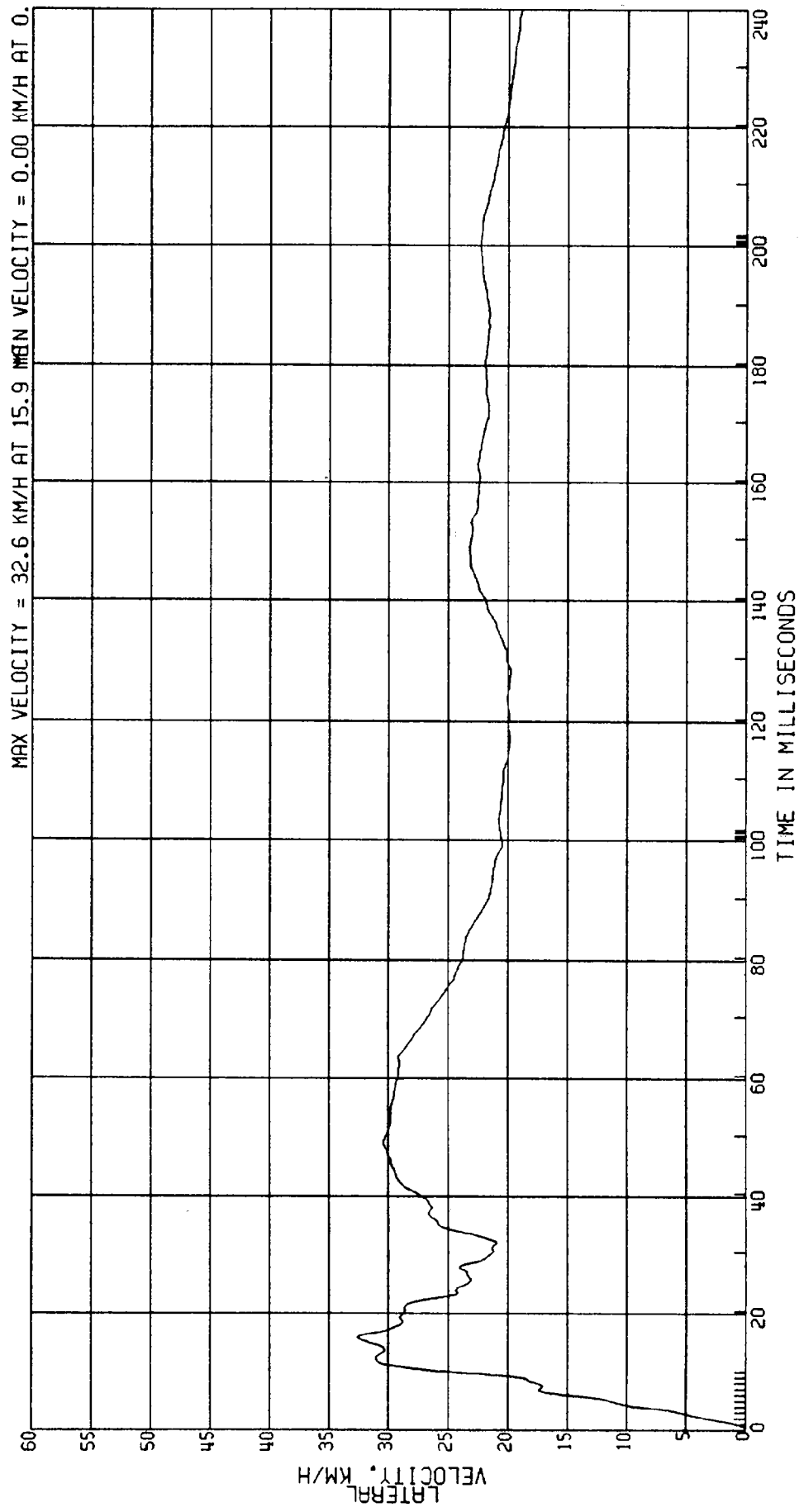
C8011A L. SIDE IMPACT- 27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 43
3868-905
CPE MVMA 11P 2AF69
ELEC DATA, SAE CLASS 60 DR-SIDE FRT. DOOR NO. 4 ACCEL. TEST DATE:03-27-90



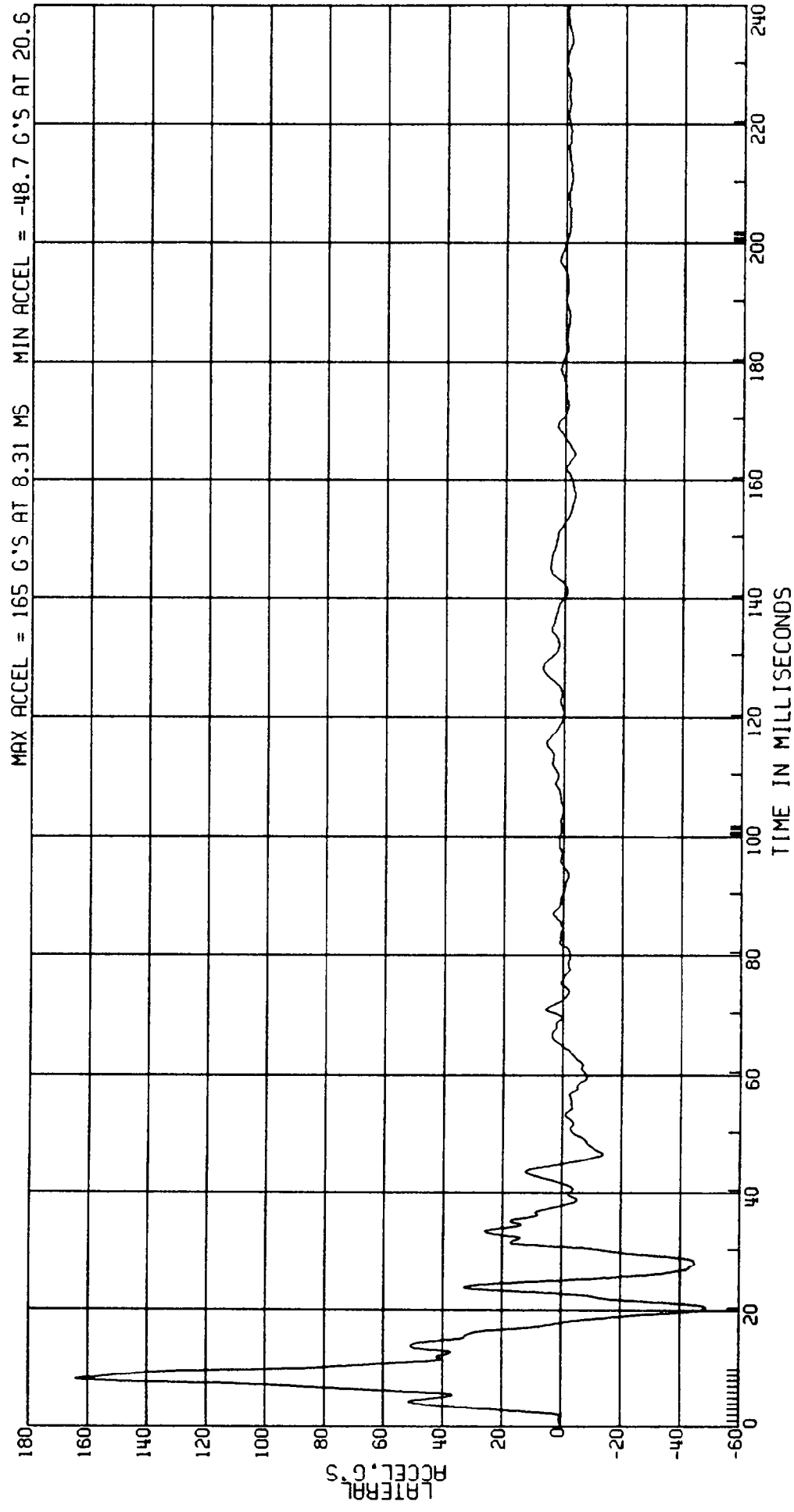
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C8011A L. SIDE IMPACT- 27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5 KM/H FIGURE 44
3868-905
CPE MVMA 11P 2AF69
ELEC DATA, SAE CLASS 180
COMPUTED FRT. DOOR NO. 4 VELOCITY
(1ST INTEGRAL OF DR-SIDE ACCELERATION)
TEST DATE: 03-27-90



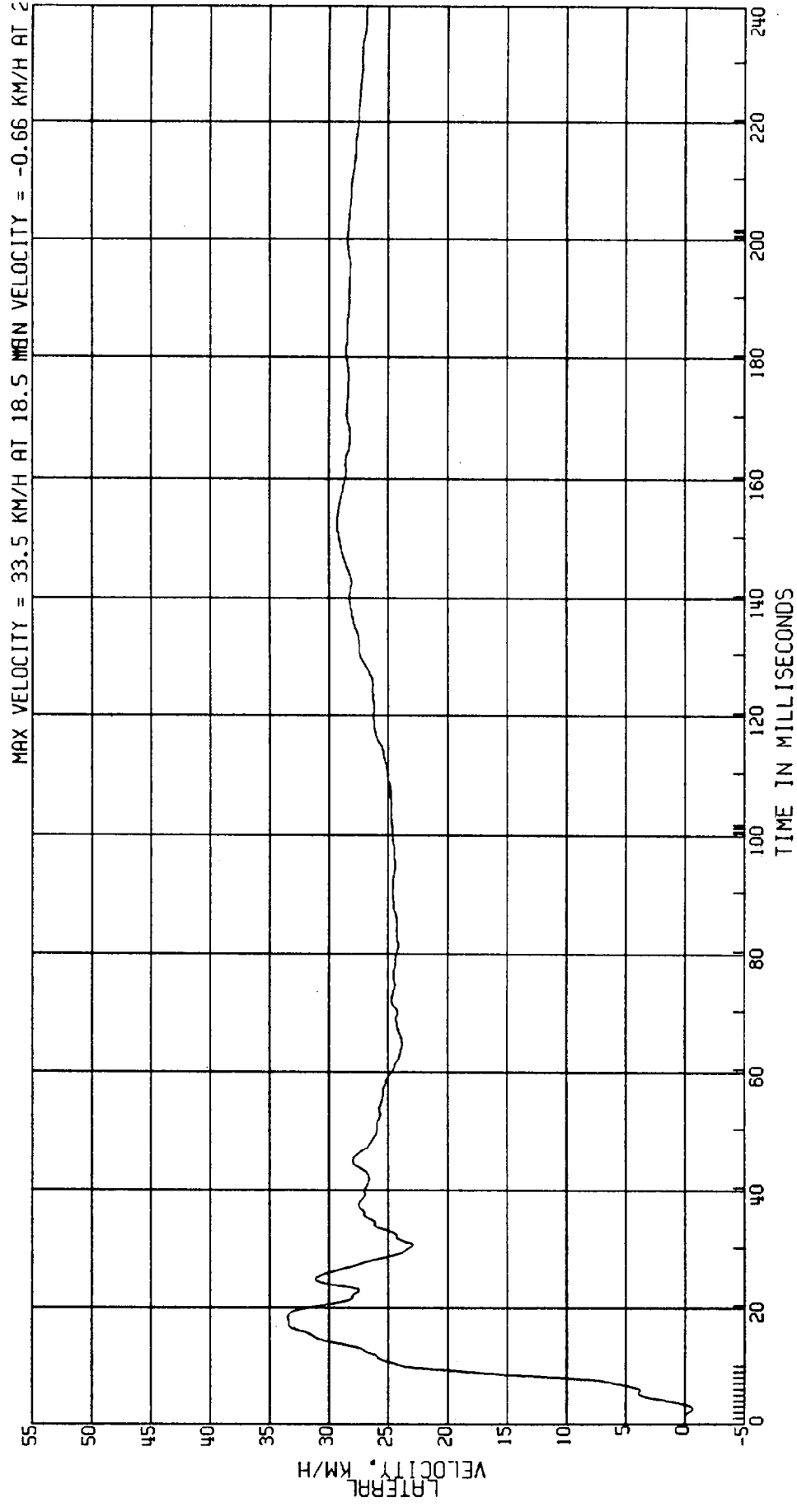
C8011A L. SIDE IMPACT- 27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 45
 3868-905
 CPE MVMA 11P 2AF69
 ELEC DATA, SAE CLASS 60 DR-SIDE FRT. DOOR NO. 5 ACCEL.
 TEST DATE:03-27-90



RELEASED BY:

17 PROCESSED 4 MY 90 14:41

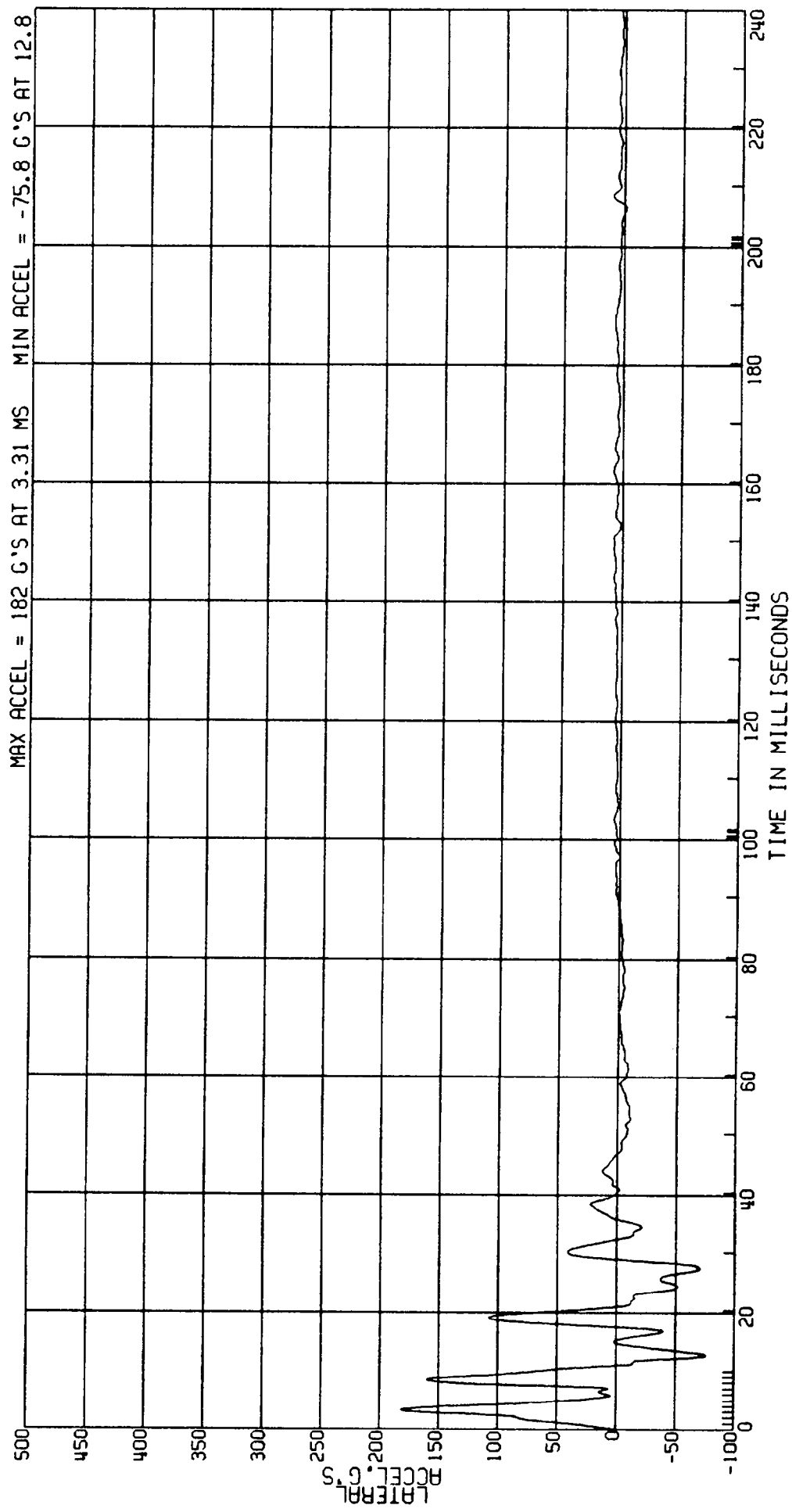
C8011A L. SIDE IMPACT- 27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 46
3868-905
CPE MVMA 11P 2AF69
ELEC DATA, SAE CLASS 180
COMPUTED FRT. DOOR NO. 5 VELOCITY
(1ST INTEGRAL OF DR-SIDE ACCELERATION)
TEST DATE:03-27-90



RELEASED BY:

18 PROCESSED 4 MY 90 14:41

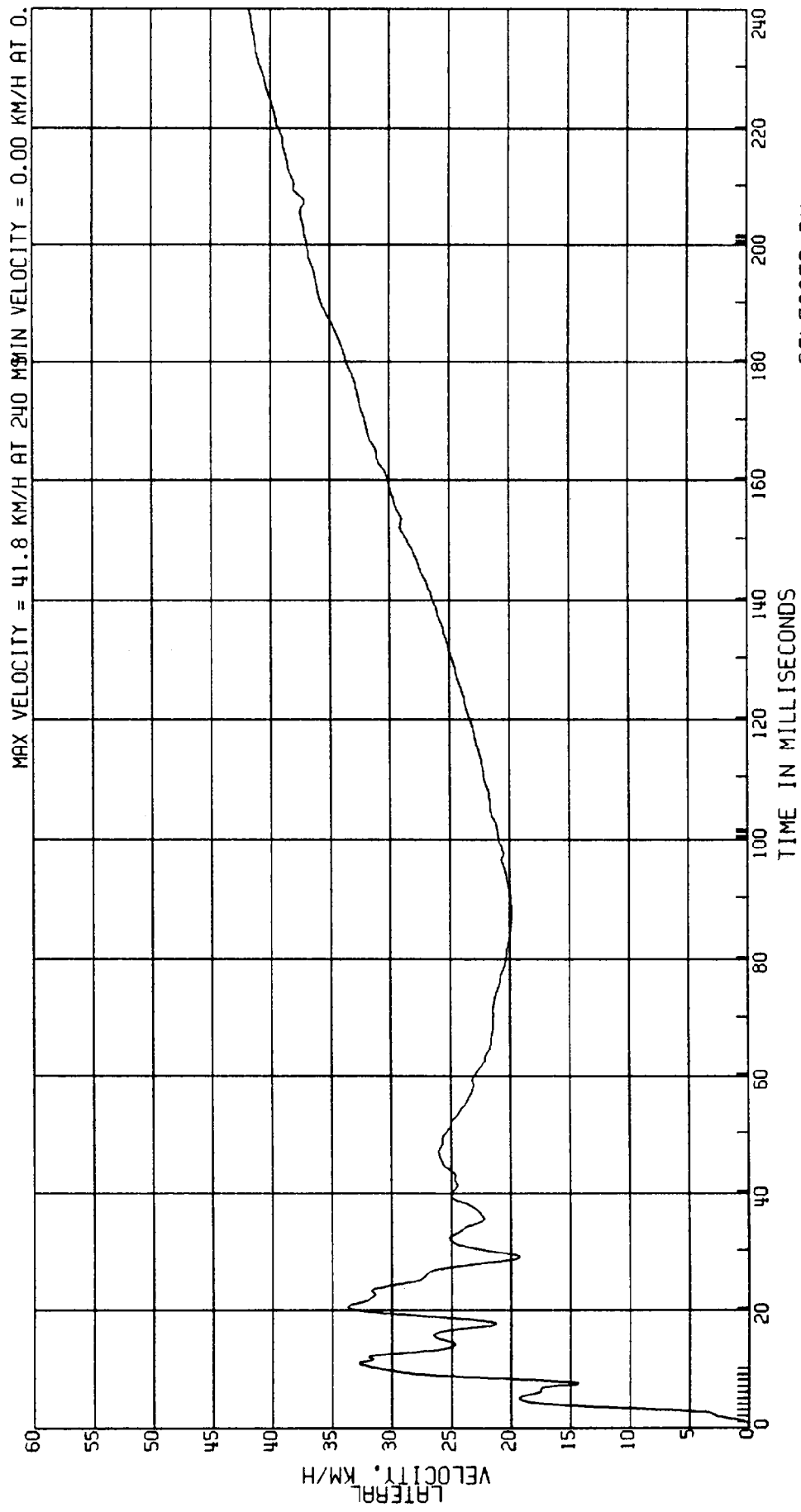
C8011A L. SIDE IMPACT- 27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 47
3868-905
CPE MVMA 11P 2AF69
ELEC DATA, SAE CLASS 60 DR-SIDE REAR DOOR NO. 1 ACCEL.
TEST DATE:03-27-90



RELEASED BY:

19 PROCESSED 4 MY 90 14:41

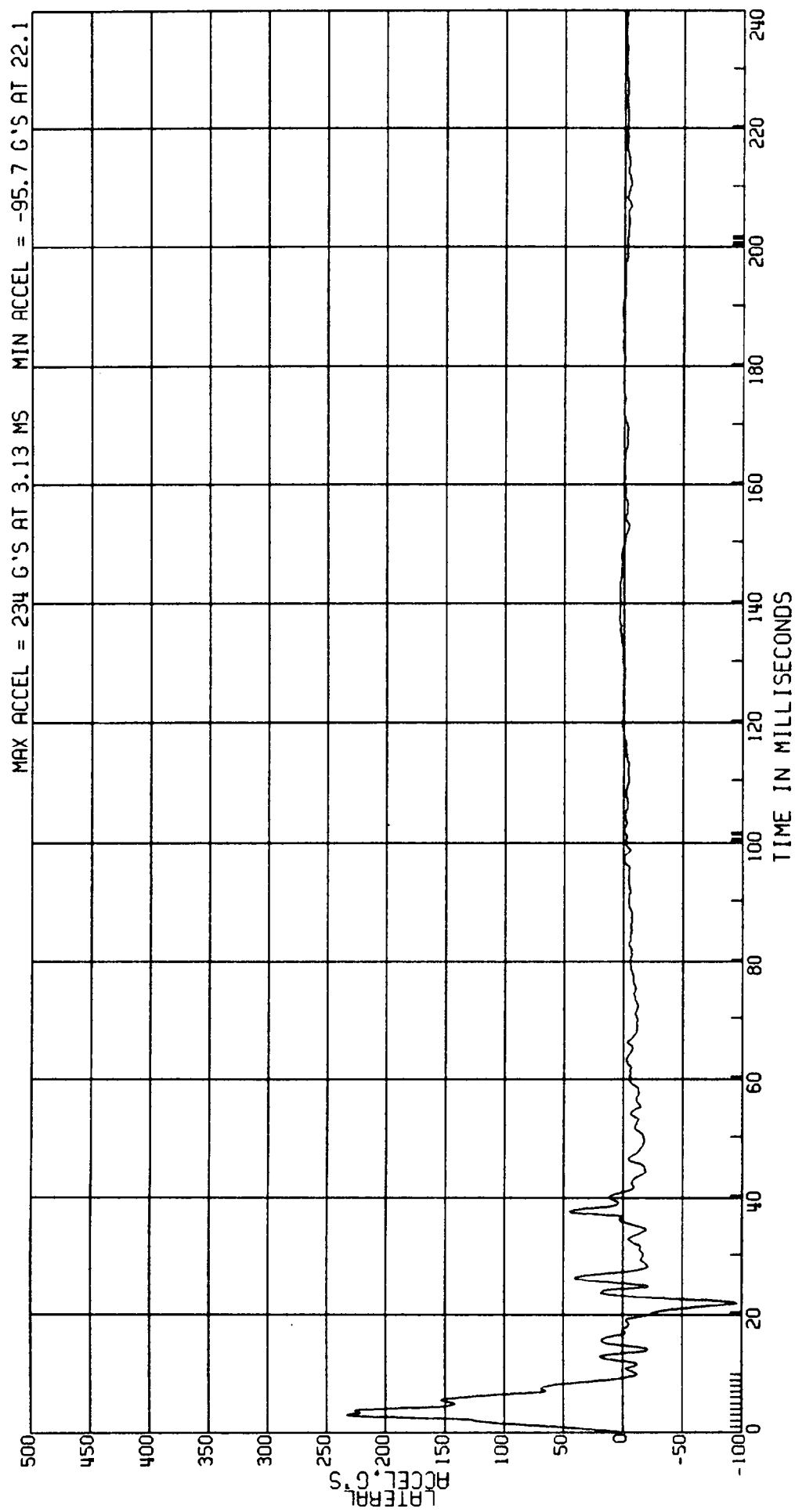
C8011A L. SIDE IMPACT- 27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 48
3868-905
CPE MVMA 11P 2AF69 COMPUTED REAR DOOR NO. 1 VELOCITY TEST DATE:03-27-90
ELEC DATA, SAE CLASS 180 (1ST INTEGRAL OF DR-SIDE ACCELERATION)



RELEASED BY:

20 PROCESSED 4 MY 90 14:41

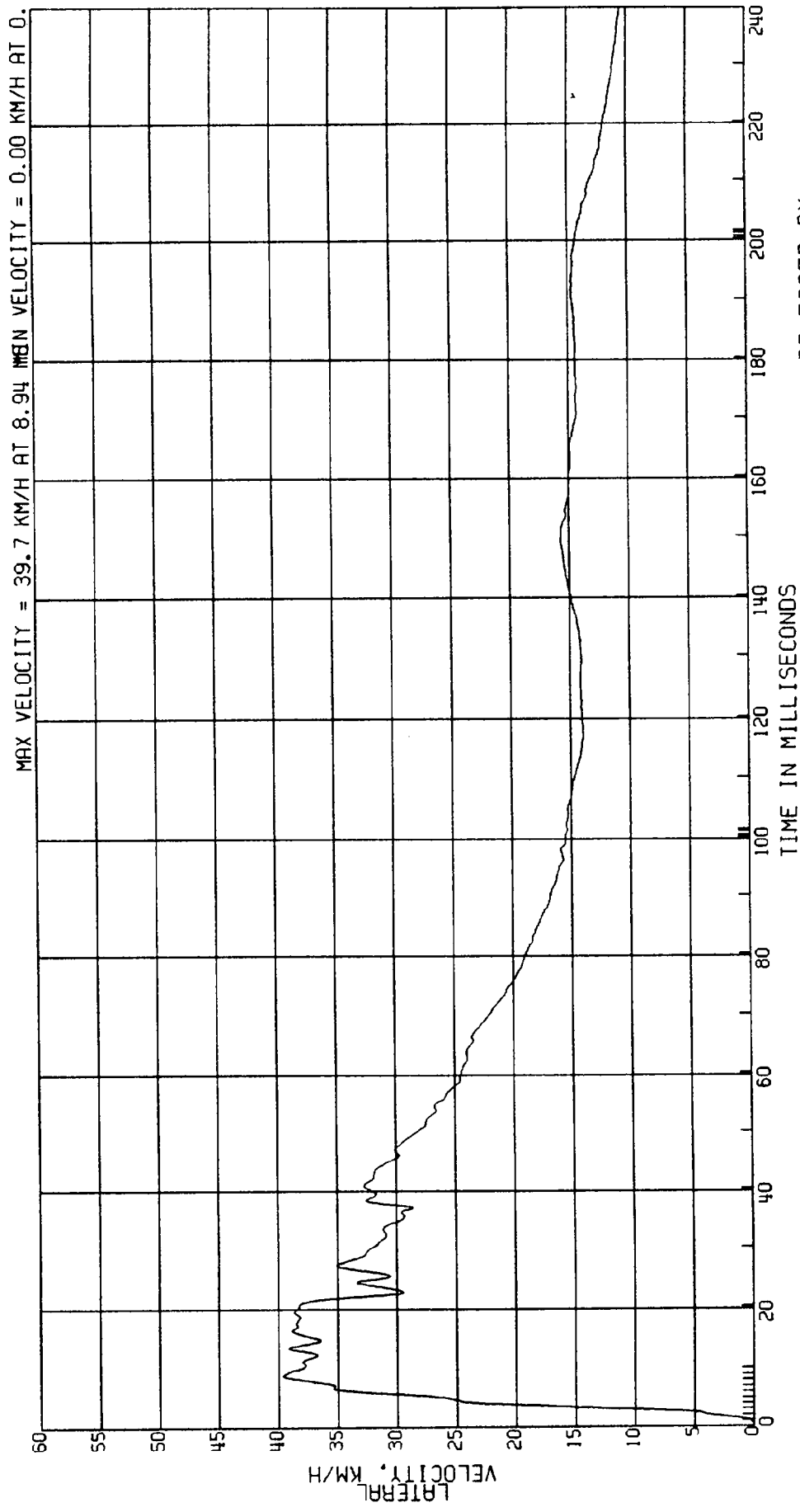
C8011A L. SIDE IMPACT- 27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 49
 3868-905
 CPE MVMA 11P 2AF69
 ELEC DATA, SAE CLASS 60 DR-SIDE REAR DOOR NO. 2 ACCEL. TEST DATE:03-27-90



RELEASED BY:

21 PROCESSED 4 MY 90 14:41

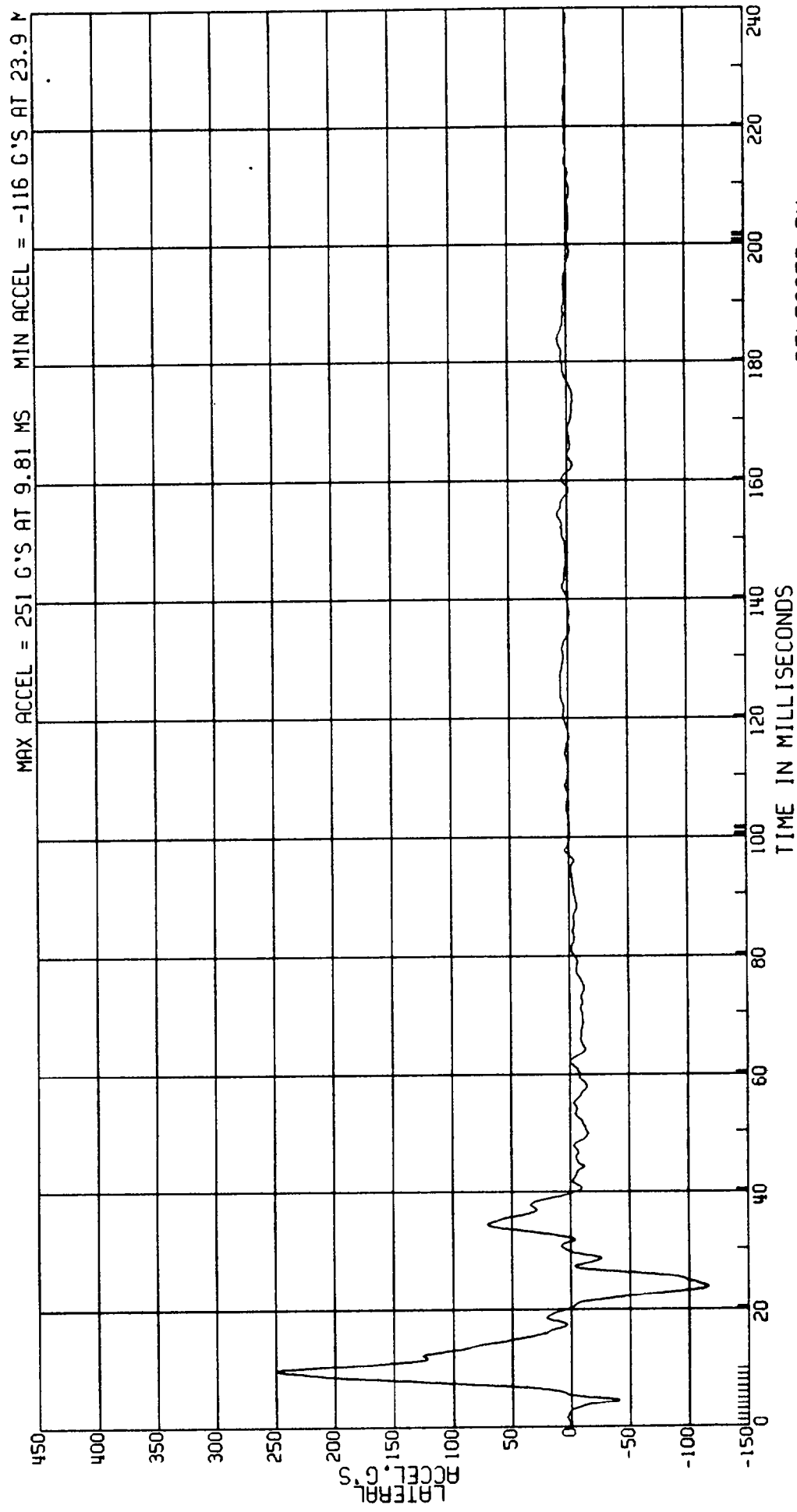
C8011A L. SIDE IMPACT- 27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 50
3868-905
CPE MVMA 11P 2AF69
ELEC DATA, SAE CLASS 180
COMPUTED REAR DOOR NO. 2 VELOCITY
(1ST INTEGRAL OF DR-SIDE ACCELERATION)
TEST DATE:03-27-90



RELEASED BY:

22 PROCESSED 4 MY 90 14:41

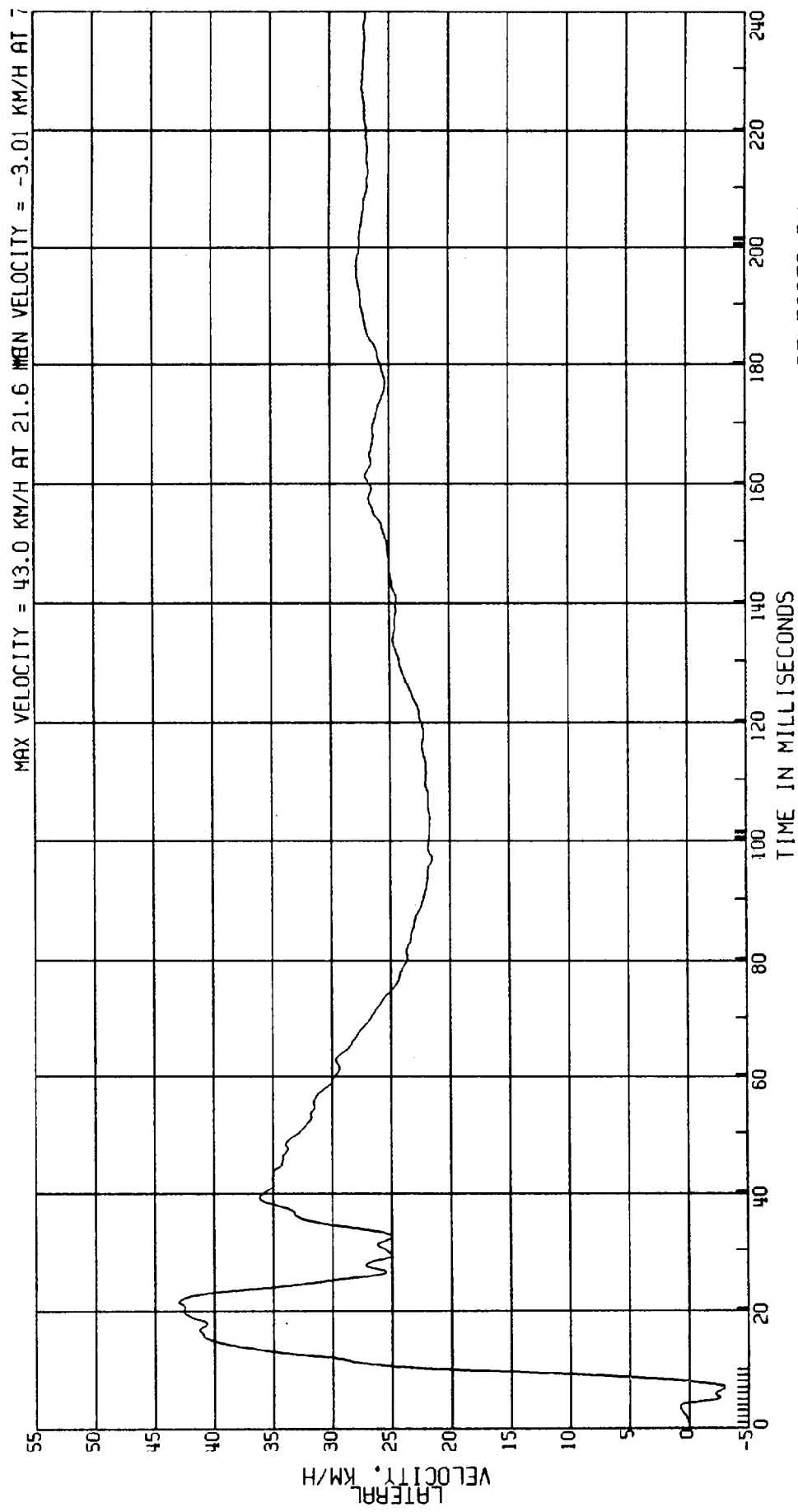
C8011A L. SIDE IMPACT- 27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 5/
 3868-905
 CPE MVMA 11P 2AF69
 ELEC DATA, SAE CLASS 60 DR-SIDE REAR DOOR NO. 3 ACCEL. TEST DATE:03-27-90



RELEASED BY:

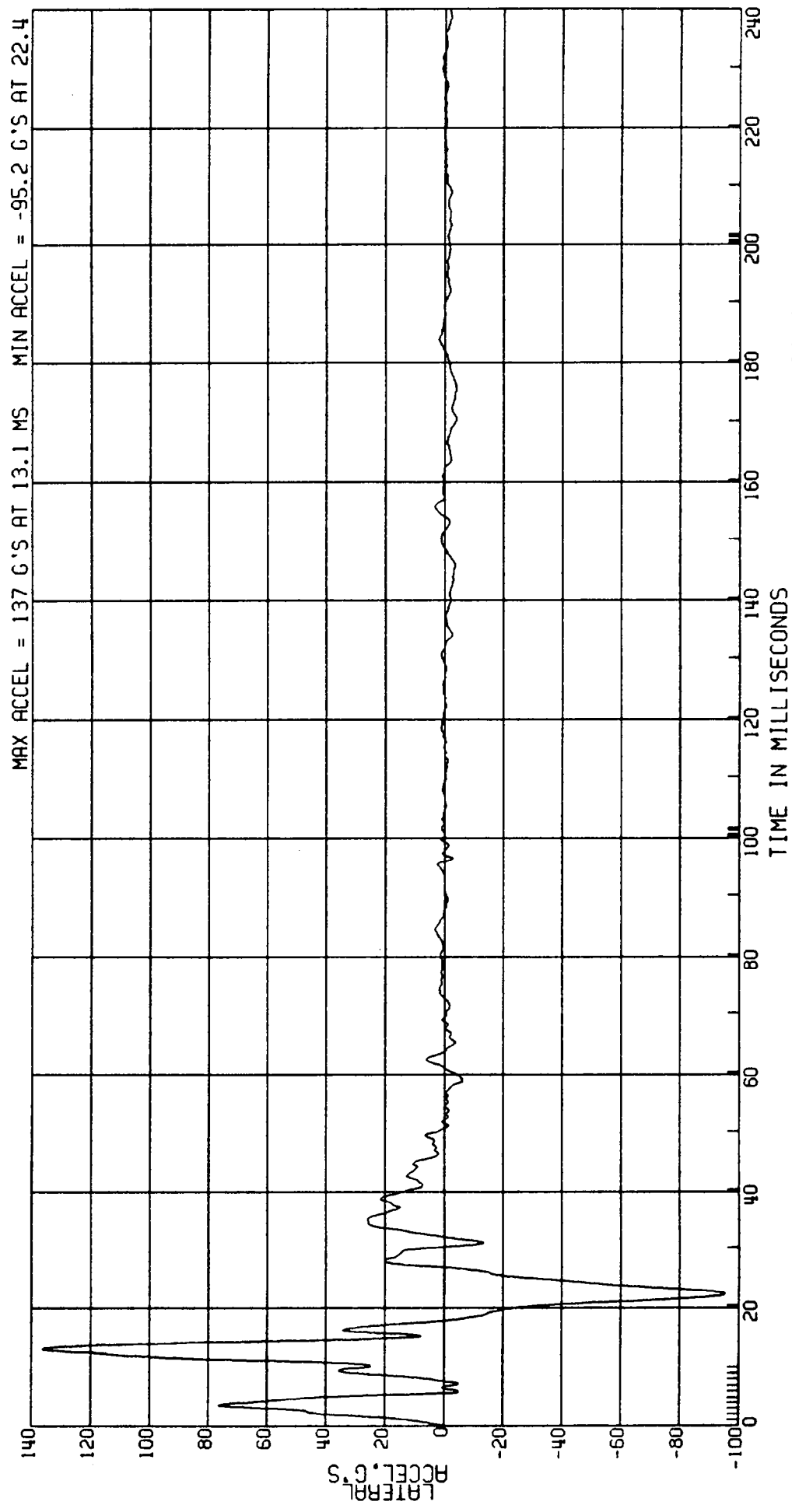
23 PROCESSED 4 MY 90 14:41

C8011A L. SIDE IMPACT- 27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 52
3868-905
CPE MVMA 11P 2AF69
ELEC DATA, SAE CLASS 180
COMPUTED REAR DOOR NO. 3 VELOCITY
(1ST INTEGRAL OF DR-SIDE ACCELERATION)
TEST DATE:03-27-90



RELEASED BY:
24 PROCESSED 4 MY 90 14:41

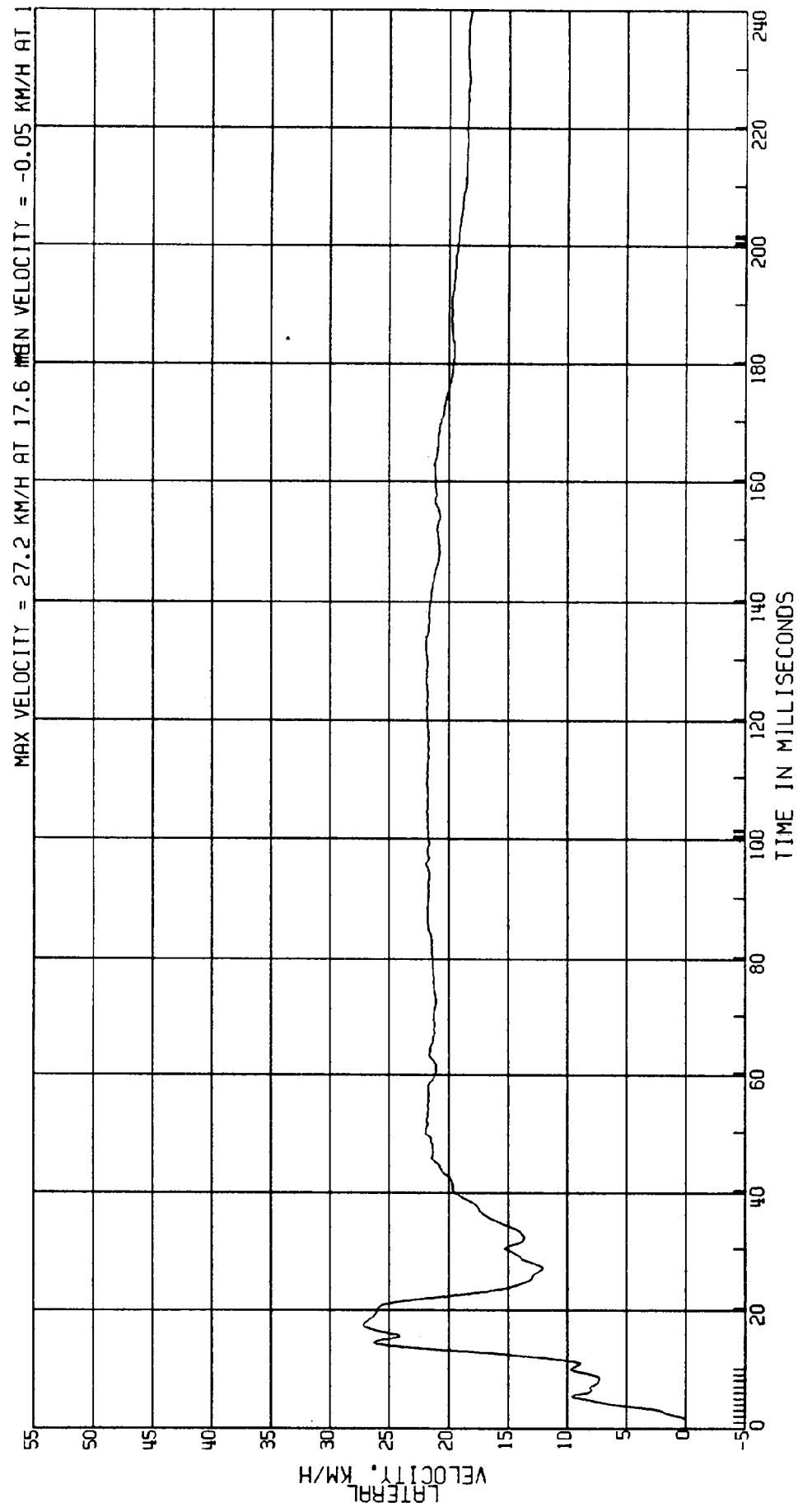
C8011A L. SIDE IMPACT- 27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 53
3868-905
CPE MVMA 11P 2AF69
ELEC DATA, SAE CLASS 60 DR-SIDE REAR DOOR NO. 4 ACCEL. TEST DATE:03-27-90



RELEASED BY:

25 PROCESSED 4 MY 90 14:41

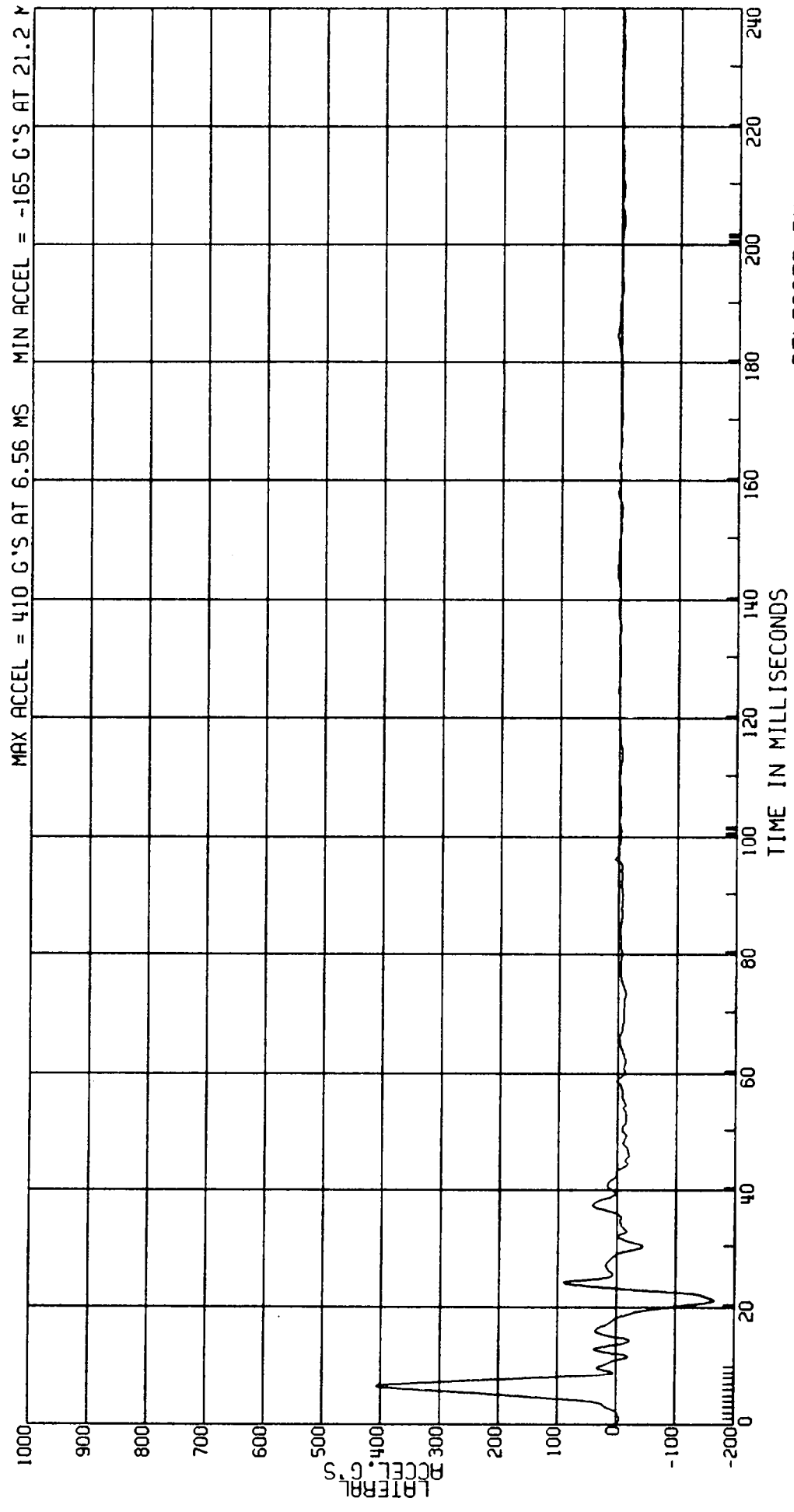
C8011A L. SIDE IMPACT- 27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 54
3868-905
CPE MVMA 11P 2AF69
ELEC DATA, SAE CLASS 180
COMPUTED REAR DOOR NO. 4 VELOCITY
(1ST INTEGRAL OF DR-SIDE ACCELERATION)
TEST DATE:03-27-90



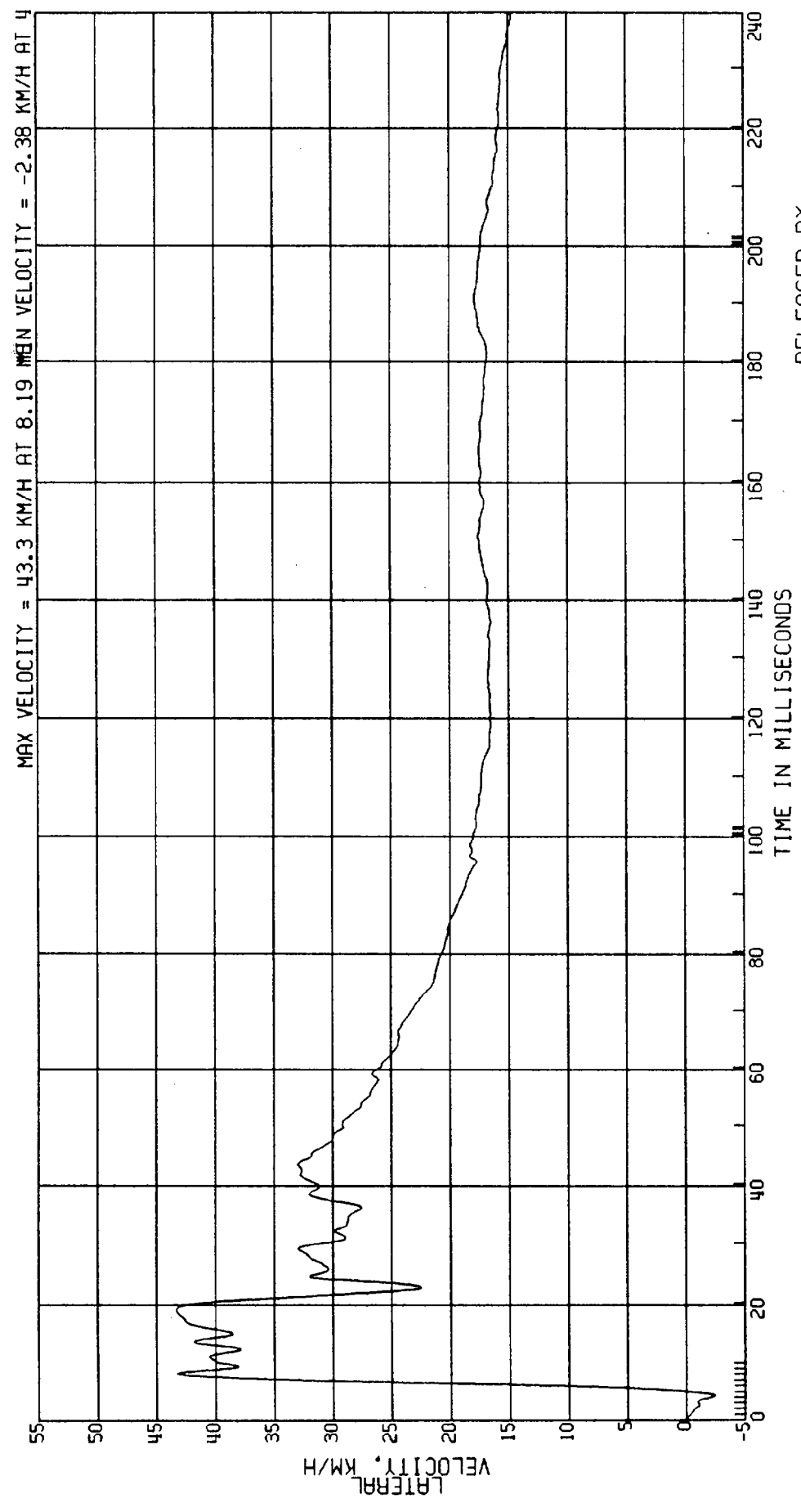
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26 PROCESSED 4 MY 90 14:41

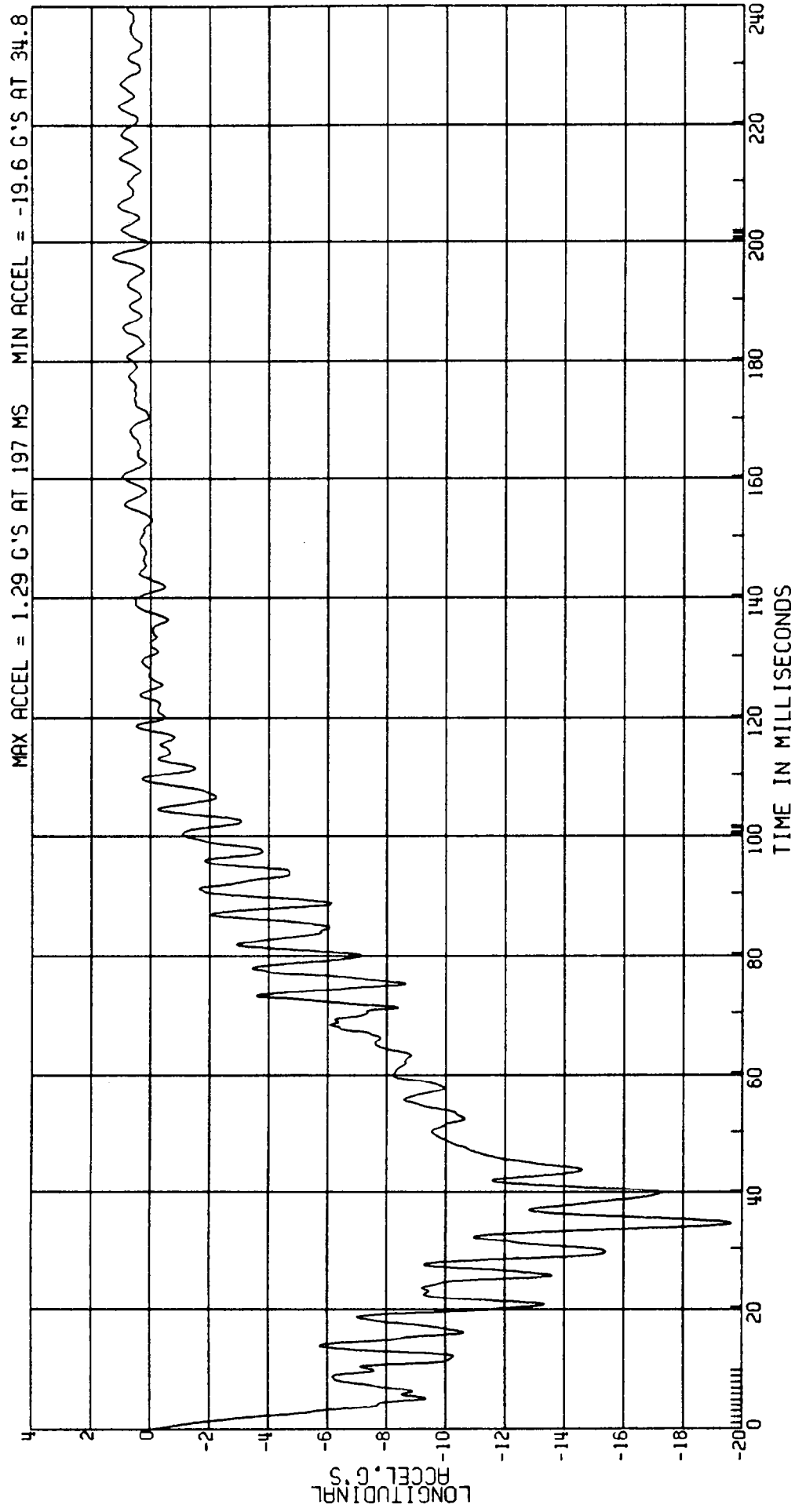
C8011A L. SIDE IMPACT- 27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 55
 3868-905
 CPE MVMA 11P 2AF69 DR-SIDE REAR DOOR NO. 5 ACCEL.
 ELEC DATA, SAE CLASS 60 TEST DATE:03-27-90



C8011A L. SIDE IMPACT - 27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5 KM/H FIGURE 56
3868-905
CPE MVMA 11P 2AF69
ELEC DATA, SAE CLASS 180
COMPUTED REAR DOOR NO. 5 VELOCITY
(1ST INTEGRAL OF DR-SIDE ACCELERATION)
TEST DATE: 03-27-90



C8011A L. SIDE IMPACT- 27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 57
3868-905
CPE MVMA 11P 2AF69
ELEC DATA, SAE CLASS 60 M.D.B. AT C.G. ACCEL. TEST DATE:03-27-90



RELEASED BY:

55 PROCESSED 4 MY 90 14:42

C8011A L. SIDE IMPACT- 27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 58

3868-905

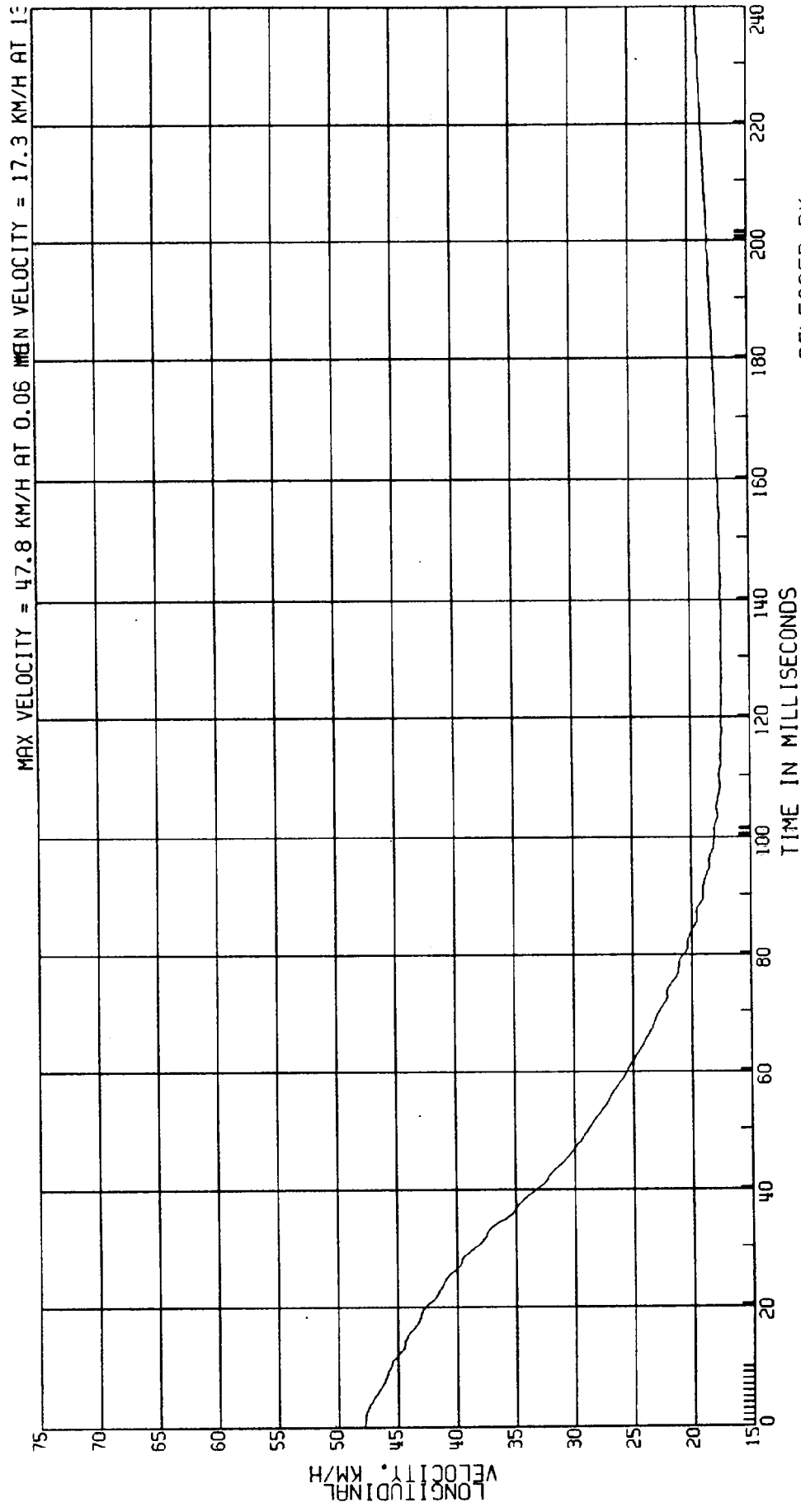
CPE MVMA 11P 2AF69

ELEC DATA, SAE CLASS 180

COMPUTED M.D.B. AT C.G. VELOCITY

(1ST INT OF ACCEL 53.5KPH* $\cos 27$ DEG)

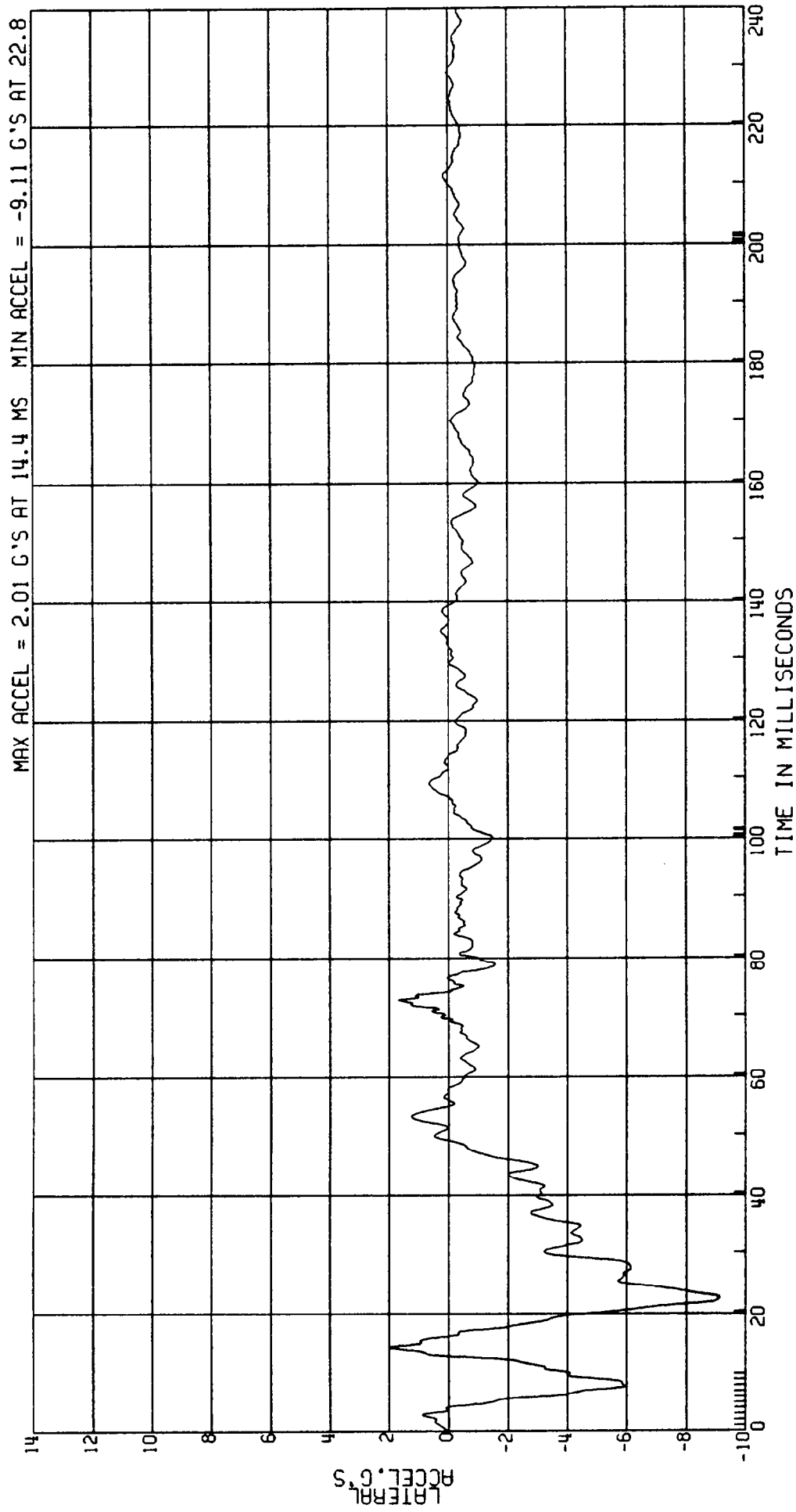
TEST DATE:03-27-90



RELEASED BY:

56 PROCESSED 4 MY 90 14:42

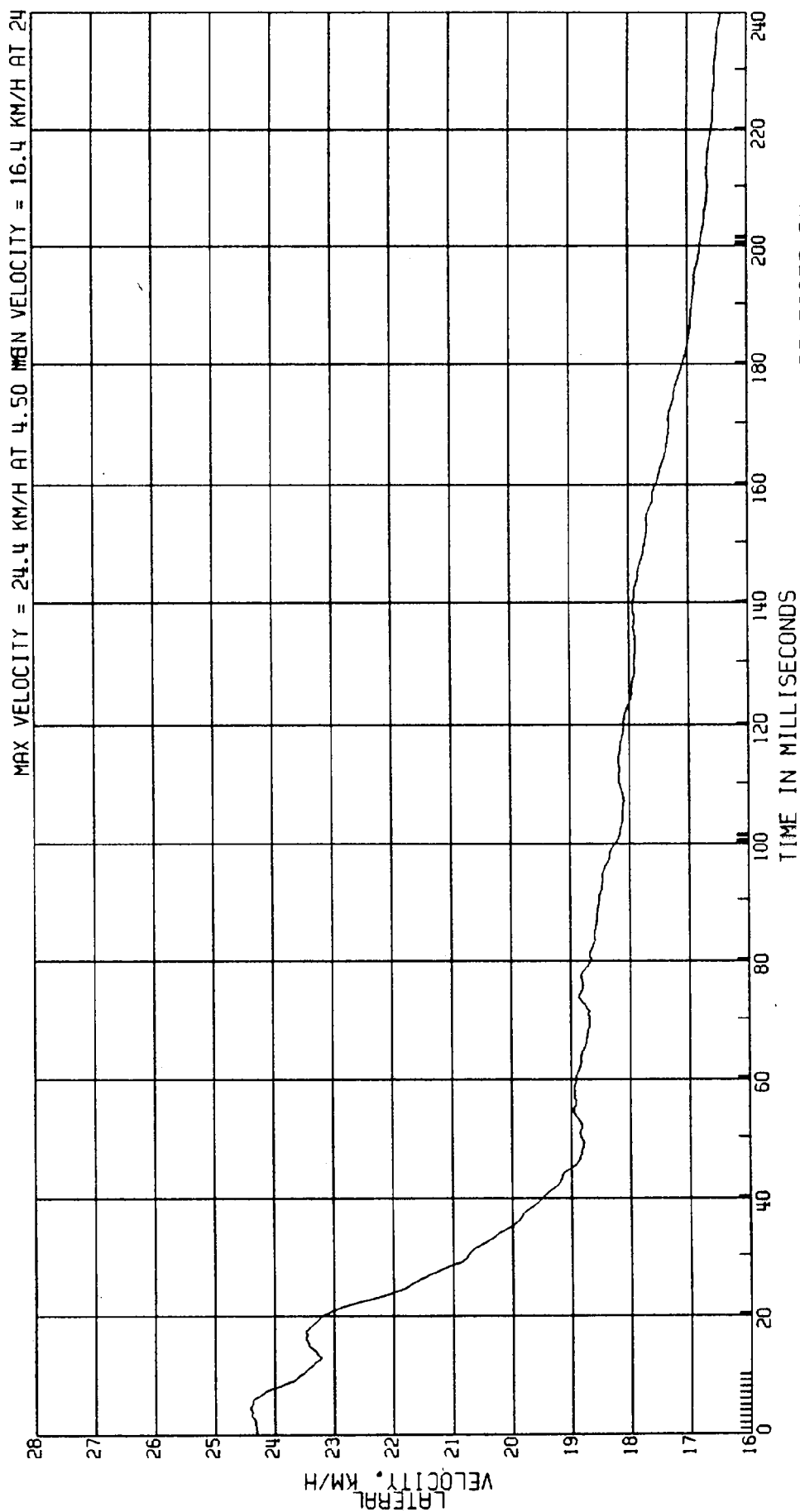
C8011A L. SIDE IMPACT- 27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 57
3868-905
CPE MVMA 11P 2AF69
ELEC DATA, SAE CLASS 60 M.D.B. AT C.G. ACCEL. TEST DATE:03-27-90



RELEASED BY:

57 PROCESSED 4 MY 90 14:42

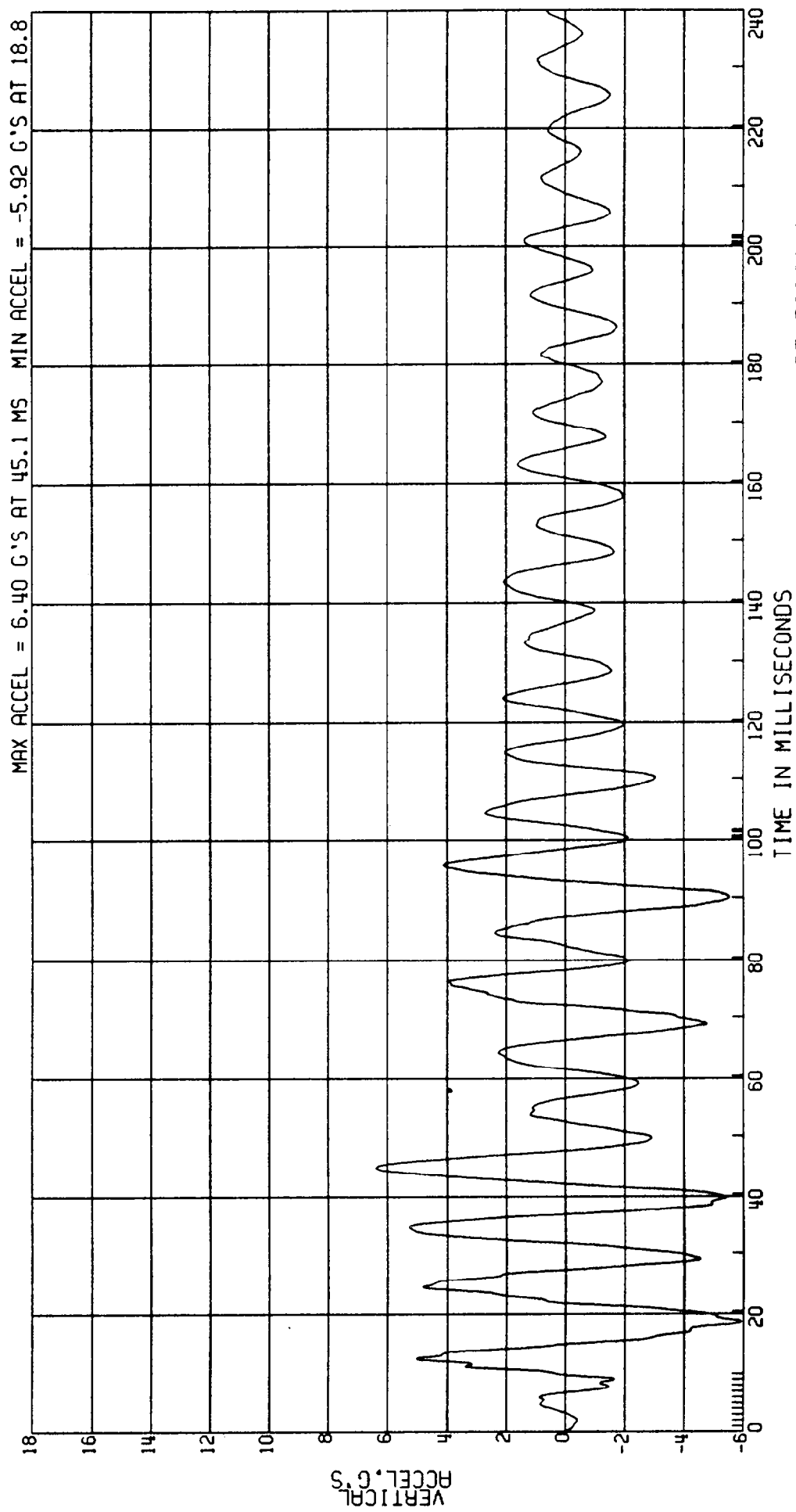
C8011A L. SIDE IMPACT - 27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 60
 3868-905
 CPE MVMA 11P 2AF69
 ELEC DATA, SAE CLASS 180
 COMPUTED M.D.B. AT C.G. VELOCITY
 (1ST INT OF ACCEL 53.5KPH*SIN27DEG)
 TEST DATE: 03-27-90



RELEASED BY:

58 PROCESSED 4 MY 90 14:42

C8011A L. SIDE IMPACT- 27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 6/
3868-905
CPE MVMA 11P 2AF69
ELEC DATA, SAE CLASS 60 M.D.B. AT C.G. ACCEL.
TEST DATE:03-27-90



RELEASED BY:

59 PROCESSED 4 MY 90 14:42

C8011A L. SIDE IMPACT- 27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5 KM/H FIGURE 62

3868-905

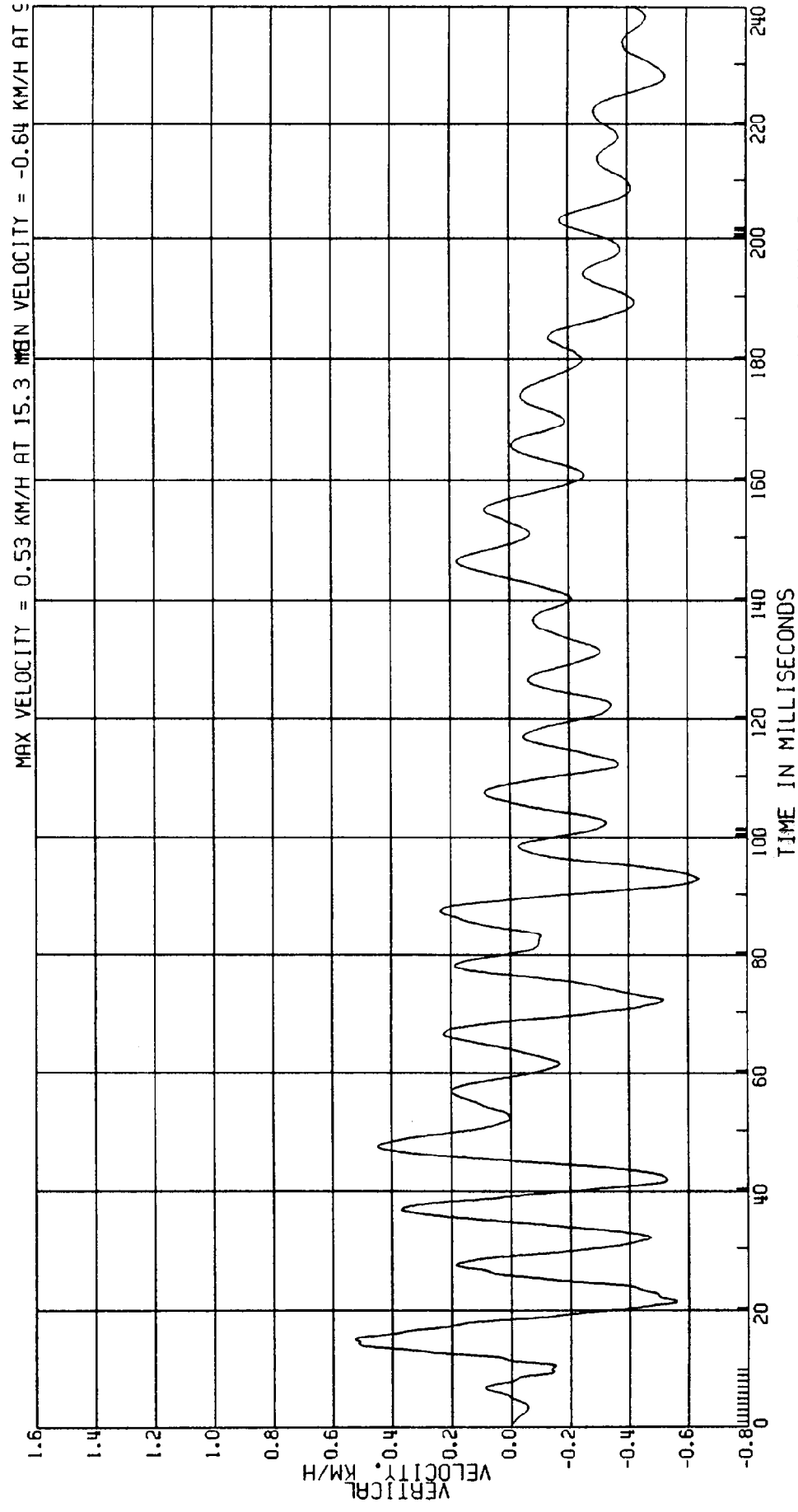
CPE MVMA 11P 2AF69

ELEC DATA, SAE CLASS 180

COMPUTED M.D.B. AT C.G. VELOCITY

TEST DATE: 03-27-90

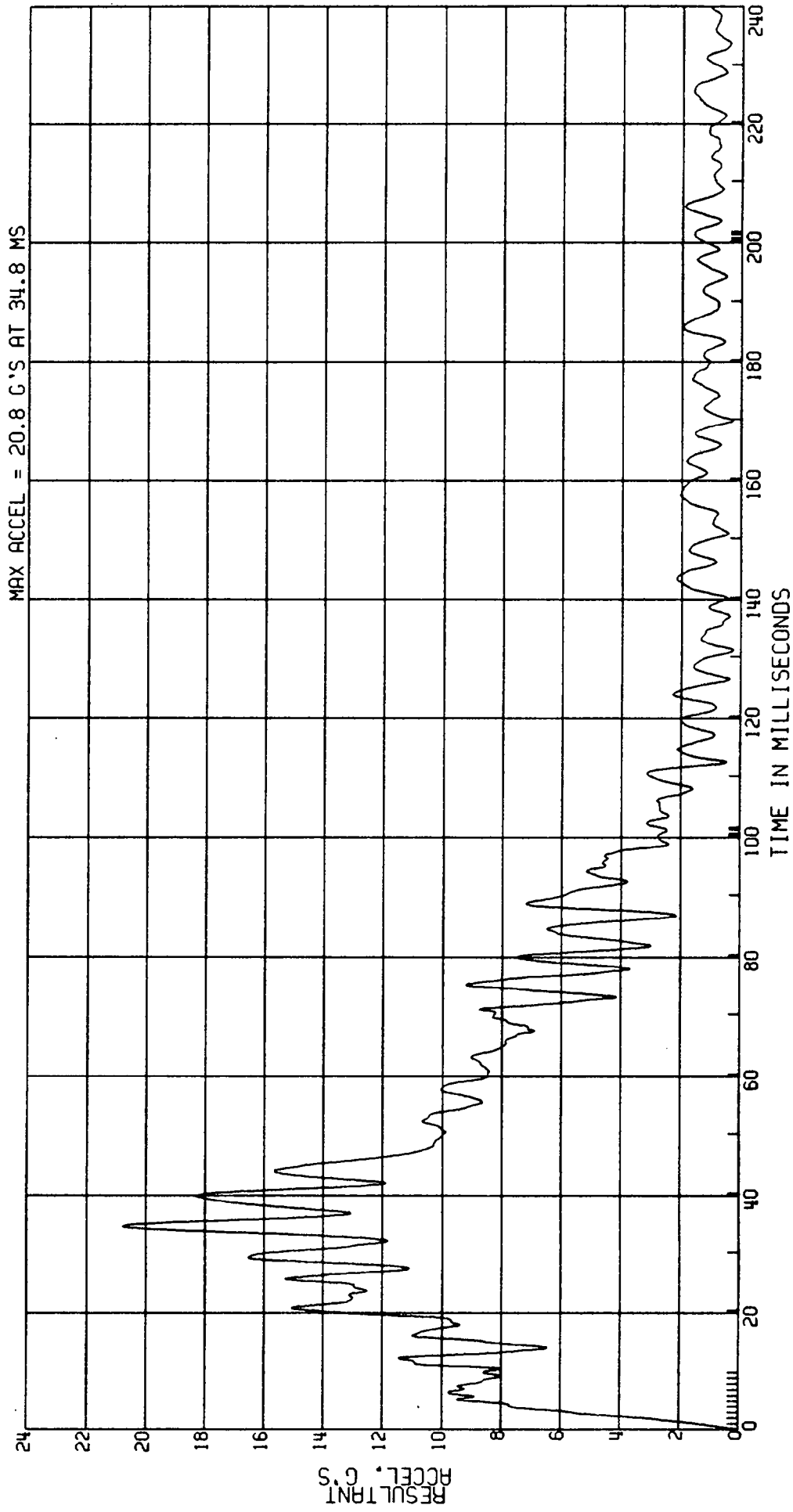
(1ST INT OF ACCELERATION)



RELEASED BY:

60 PROCESSED 4 MY 90 14:42

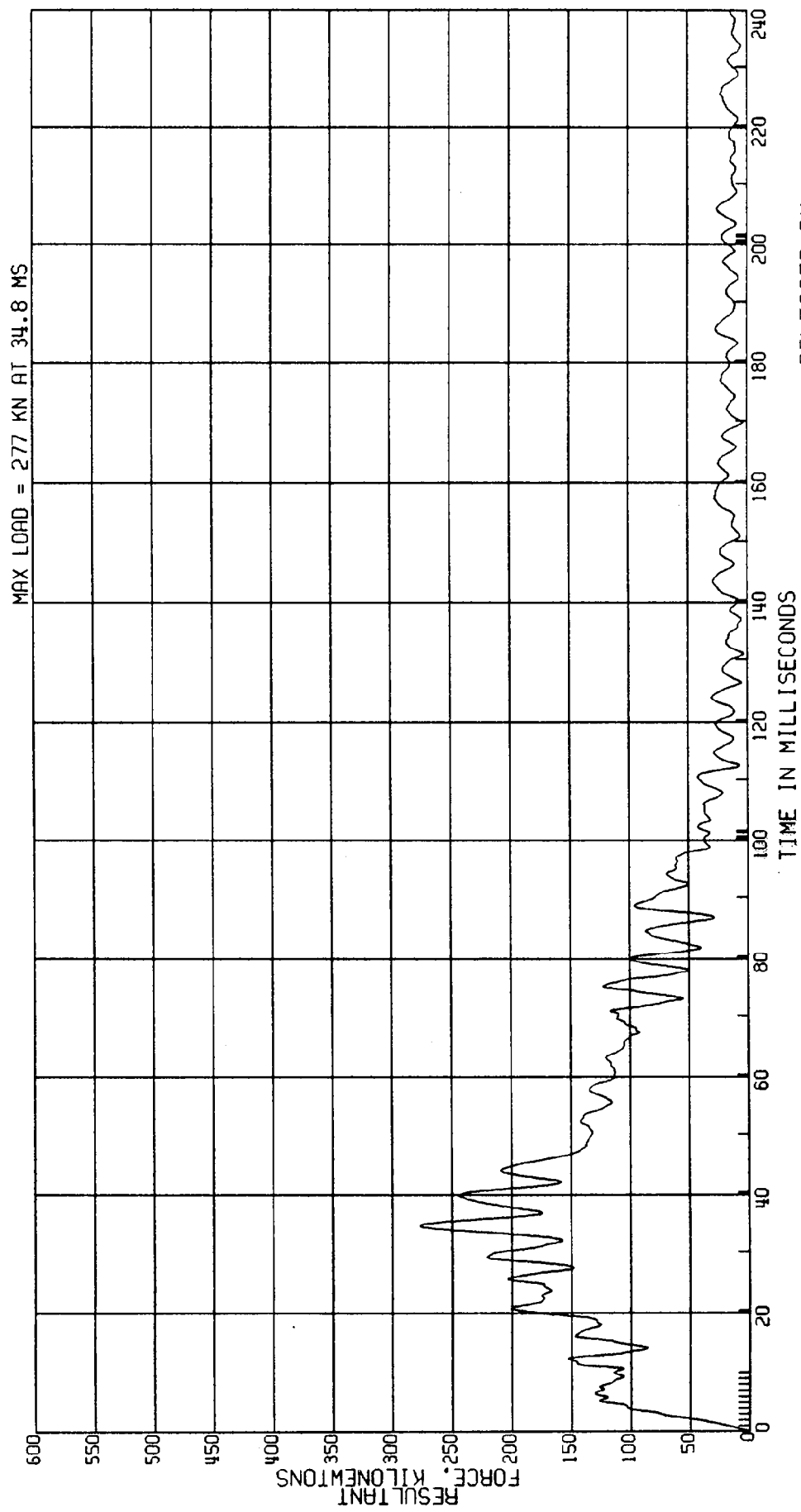
C8011A L. SIDE IMPACT- 27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 63
3868-905
CPE MVMA 11P 2AF69 M.D.B. AT C.G. ACCEL.
ELEC DATA, SAE CLASS 60 (VEC SUM OF C.G. ACCELERATIONS) TEST DATE:03-27-90



RELEASED BY:

61 PROCESSED 4 MY 90 14:42

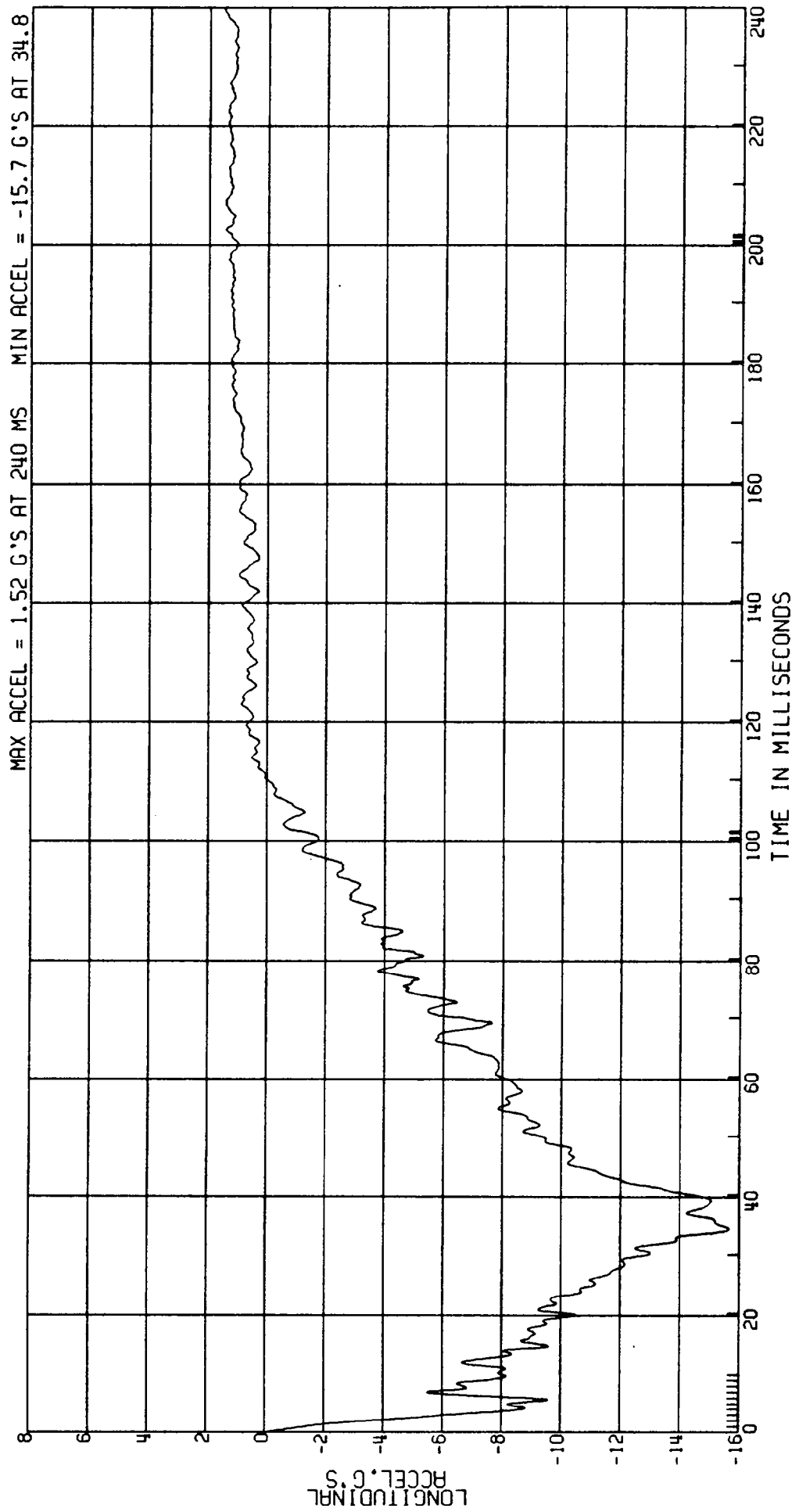
C8011A L. SIDE IMPACT- 27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 64
3868-905
CPE MVMA 11P 2AF69 COMPUTED M.D.B. AT C.G. FORCE TEST DATE:03-27-90
ELEC DATA, SAE CLASS 60 (1359.5KG) (9.807) (RESULTANT ACCEL)



RELEASED BY:

62 PROCESSED 4 MY 90 14:42

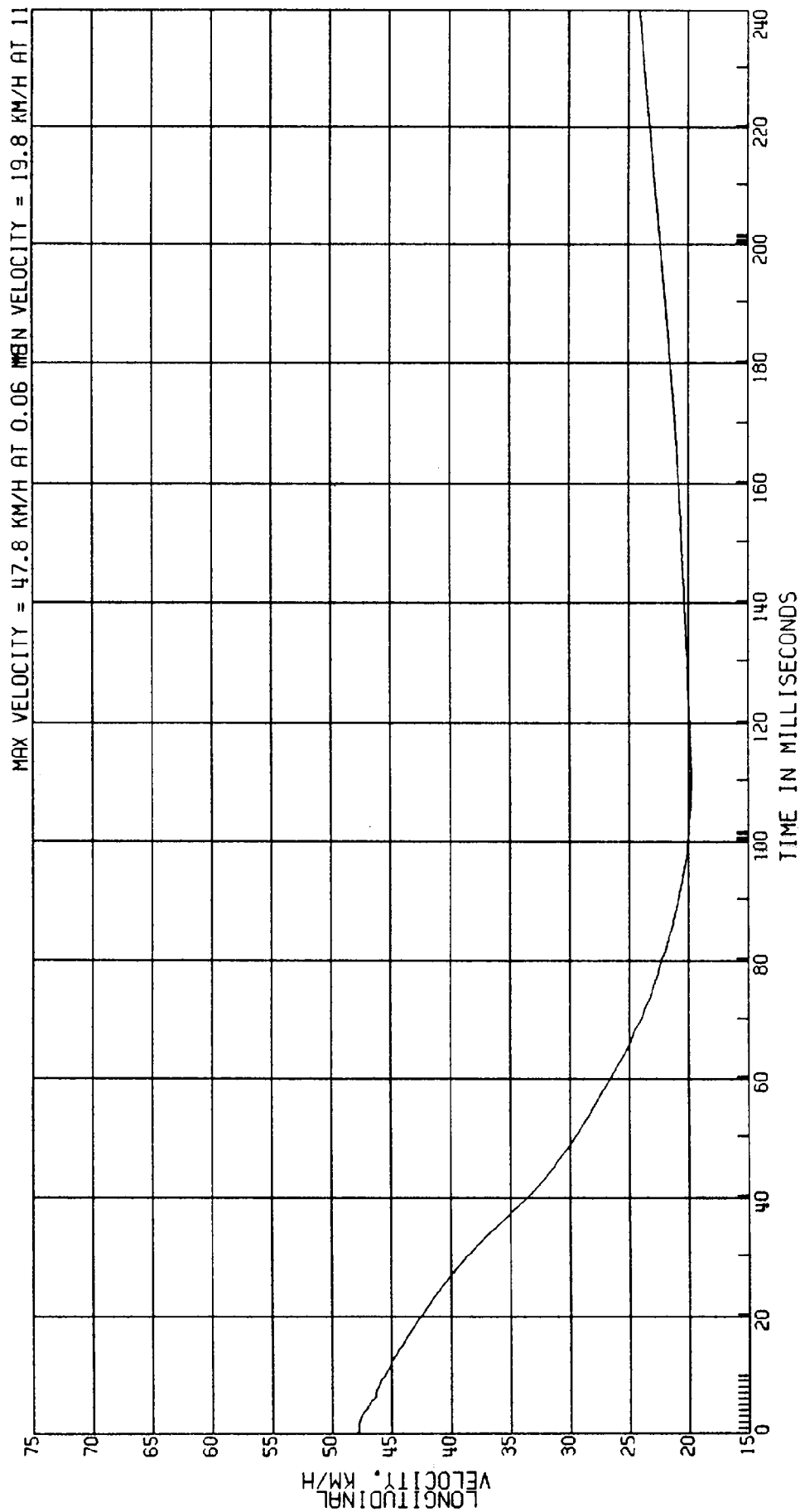
C8011A L. SIDE IMPACT- 27 DEC MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 65
 3868-905
 CPE MVMA 11P 2AF69
 ELEC DATA, SAE CLASS 60 M.D.B. REAR CROSS MEMBER ACCEL. TEST DATE:03-27-90



RELEASED BY:

63 PROCESSED 4 MY 90 14:42

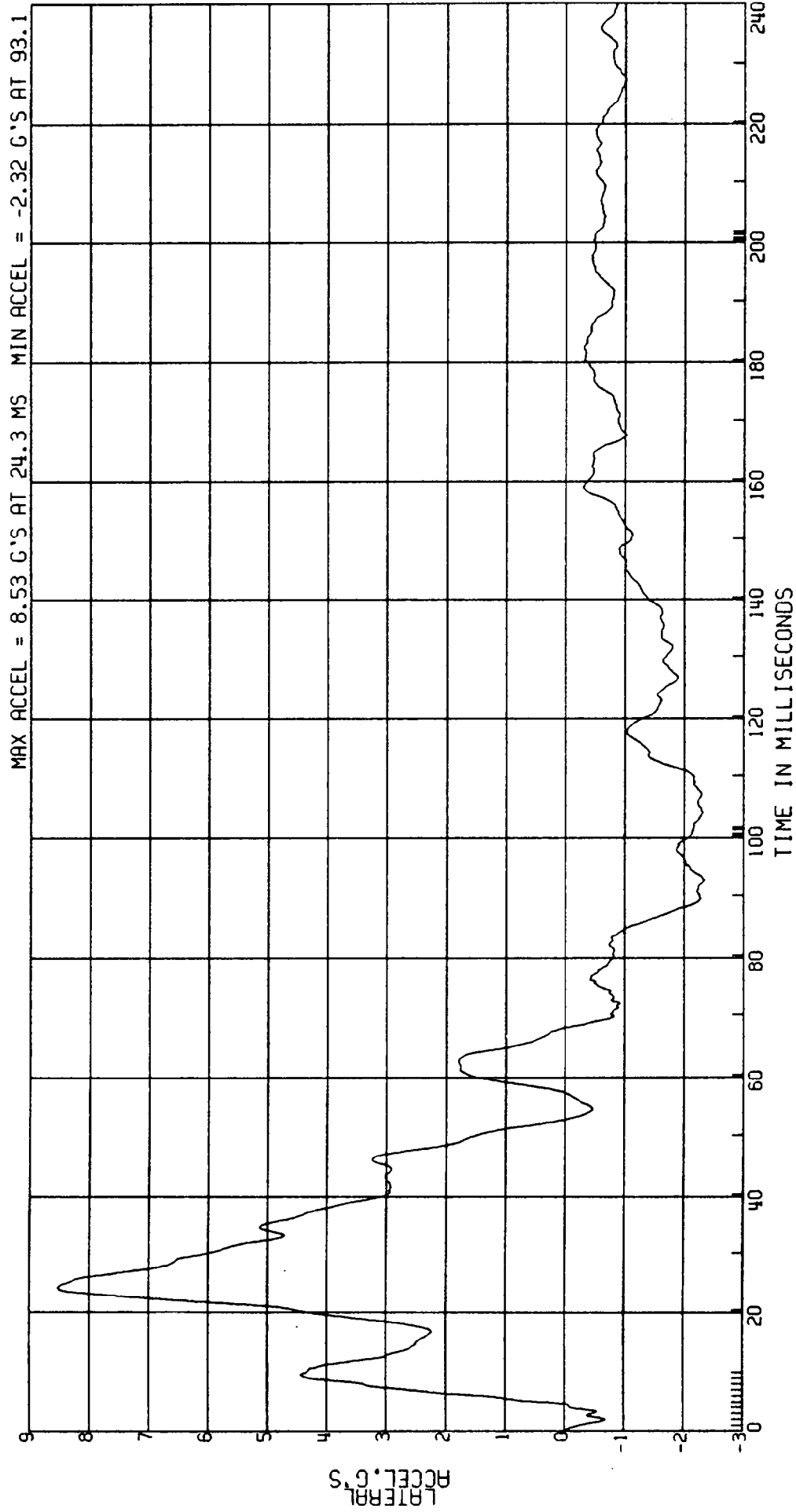
C8011A L. SIDE IMPACT- 27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 66
 3868-905
 CPE MVMA 11P 2AF69
 ELEC DATA, SAE CLASS 180
 COMPUTED M.D.B. REAR CROSS MEMBER VEL
 (1ST INT OF ACCEL 53.5KPH*COS27DEG)
 TEST DATE:03-27-90



RELEASED BY:

64 PROCESSED 4 MAY 90 14:42

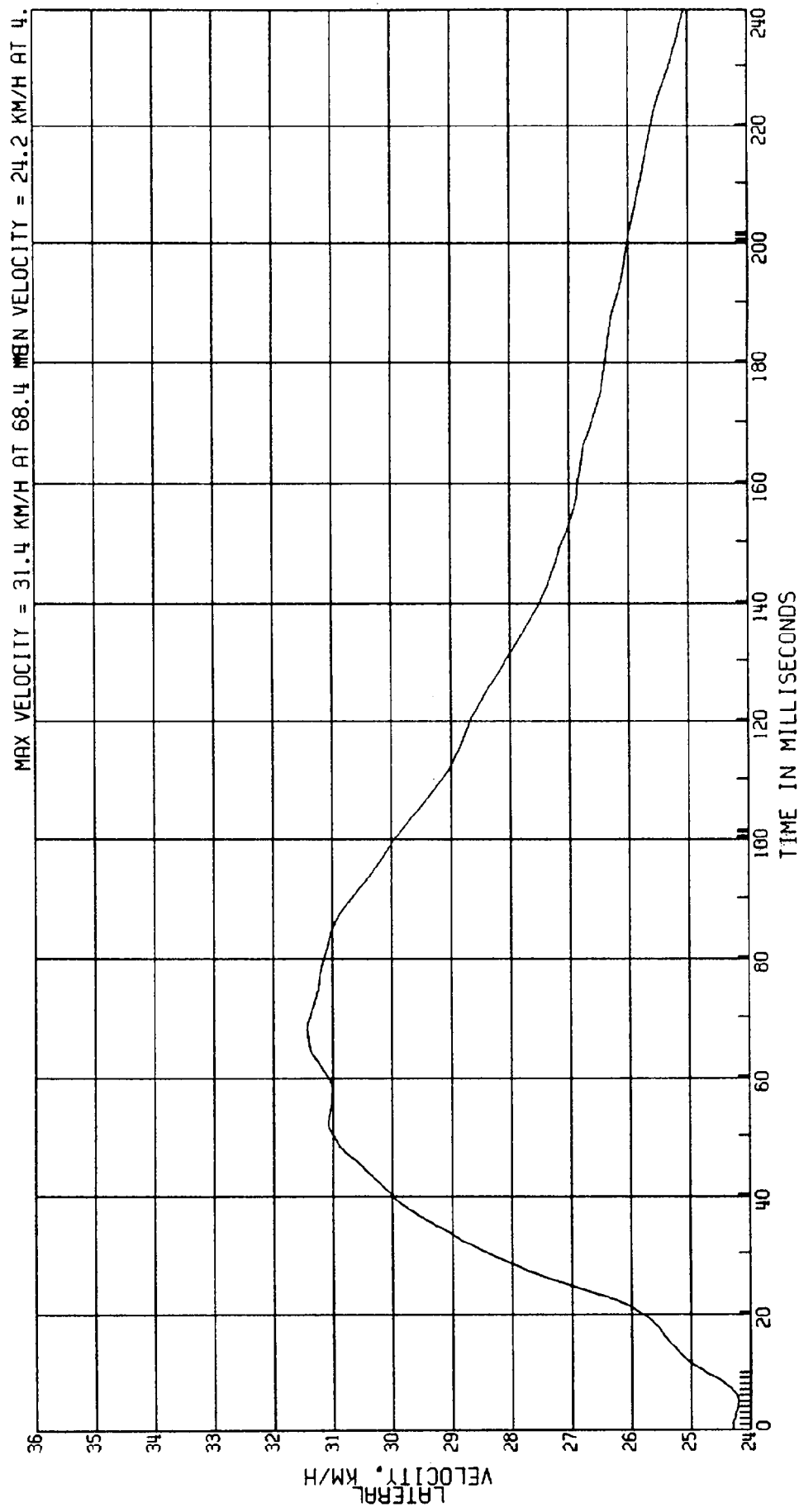
C8011A L. SIDE IMPACT- 27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 67
3868-905
CPE MVMA 11P 2AF69 M.D.B. REAR CROSS MEMBER ACCEL. TEST DATE:03-27-90
ELEC DATA, SAE CLASS 60



RELEASED BY:

65 PROCESSED 4 MY 90 14:42

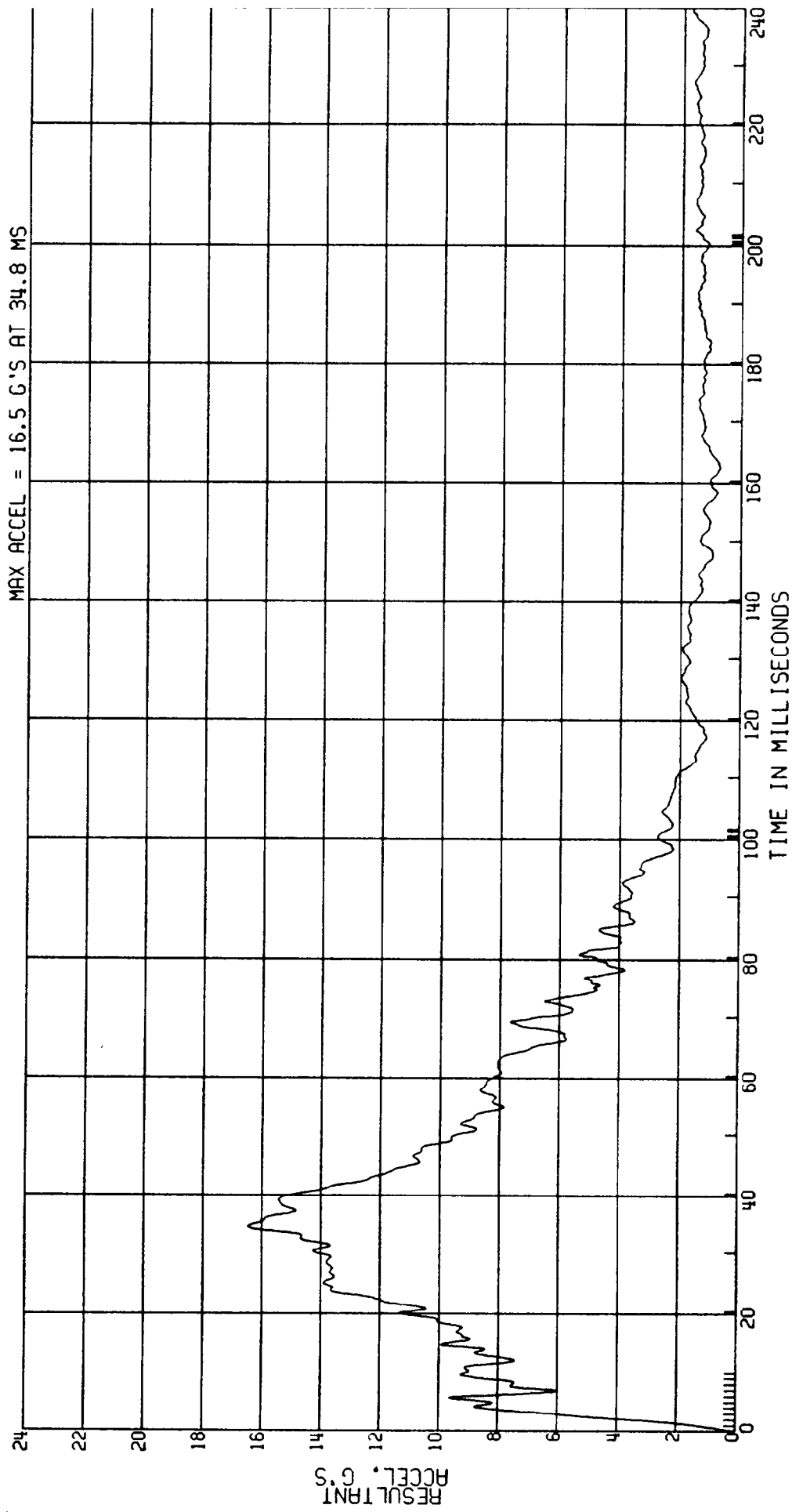
C8011A L. SIDE IMPACT- 27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 68
3868-905
CPE MVMA 11P 2AF69
ELEC DATA, SAE CLASS 180
COMPUTED M.D.B. REAR CROSS MEMBER VEL
(1ST INT OF ACCEL 53.5KPH*SIN27DEG)
TEST DATE:03-27-90



RELEASED BY:

66 PROCESSED 4 MY 90 14:42

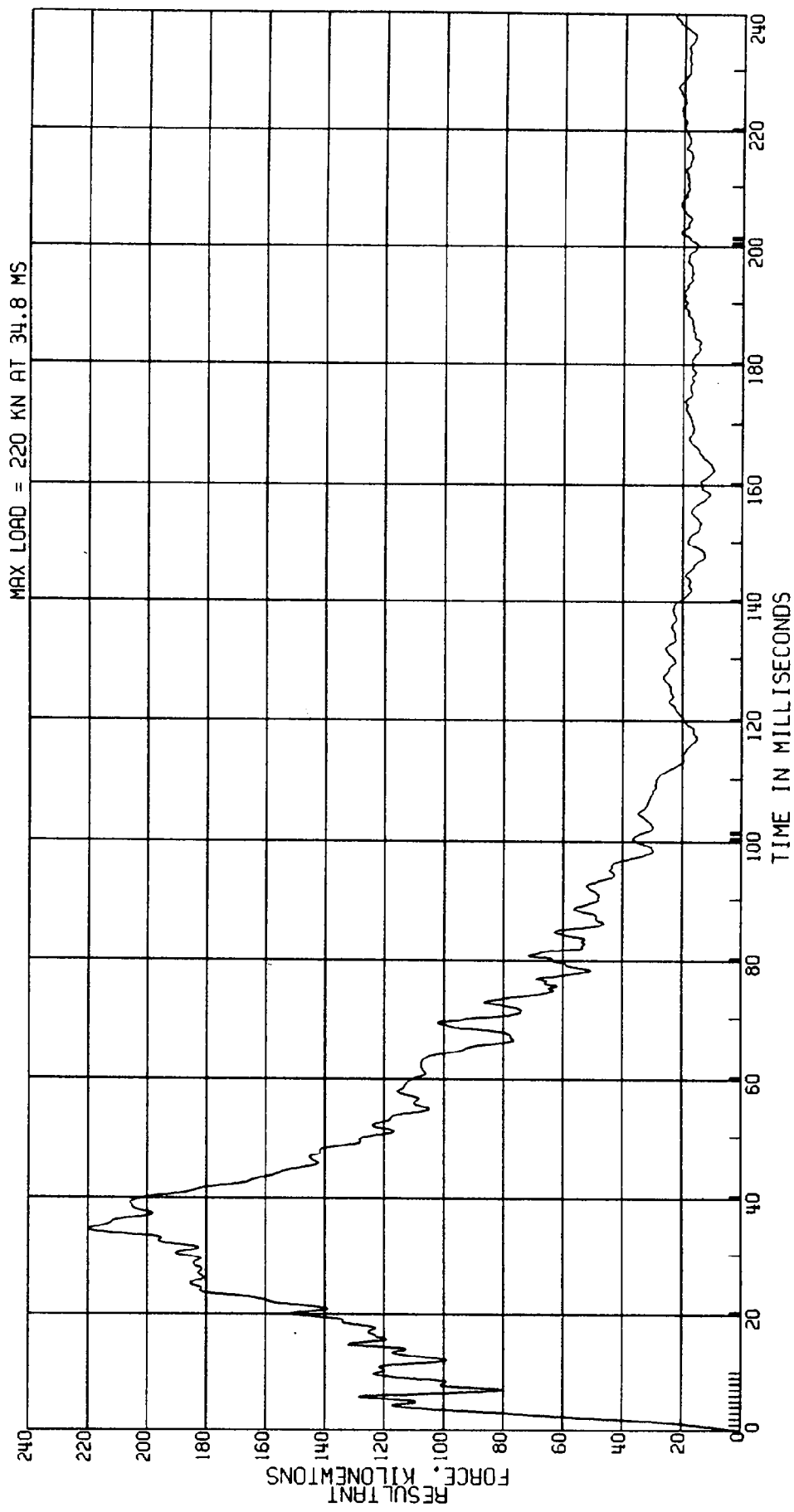
C8011A L. SIDE IMPACT- 27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 69
3868-905
CPE MVMA 11P 2AF69
ELEC DATA, SAE CLASS 60 M.D.B. REAR CROSS MEMBER ACCEL.
(VEC SUM OF LONG. & LAT X-MEMBER ACCELS) TEST DATE:03-27-90



RELEASED BY:

67 PROCESSED 4 MY 90 14:42

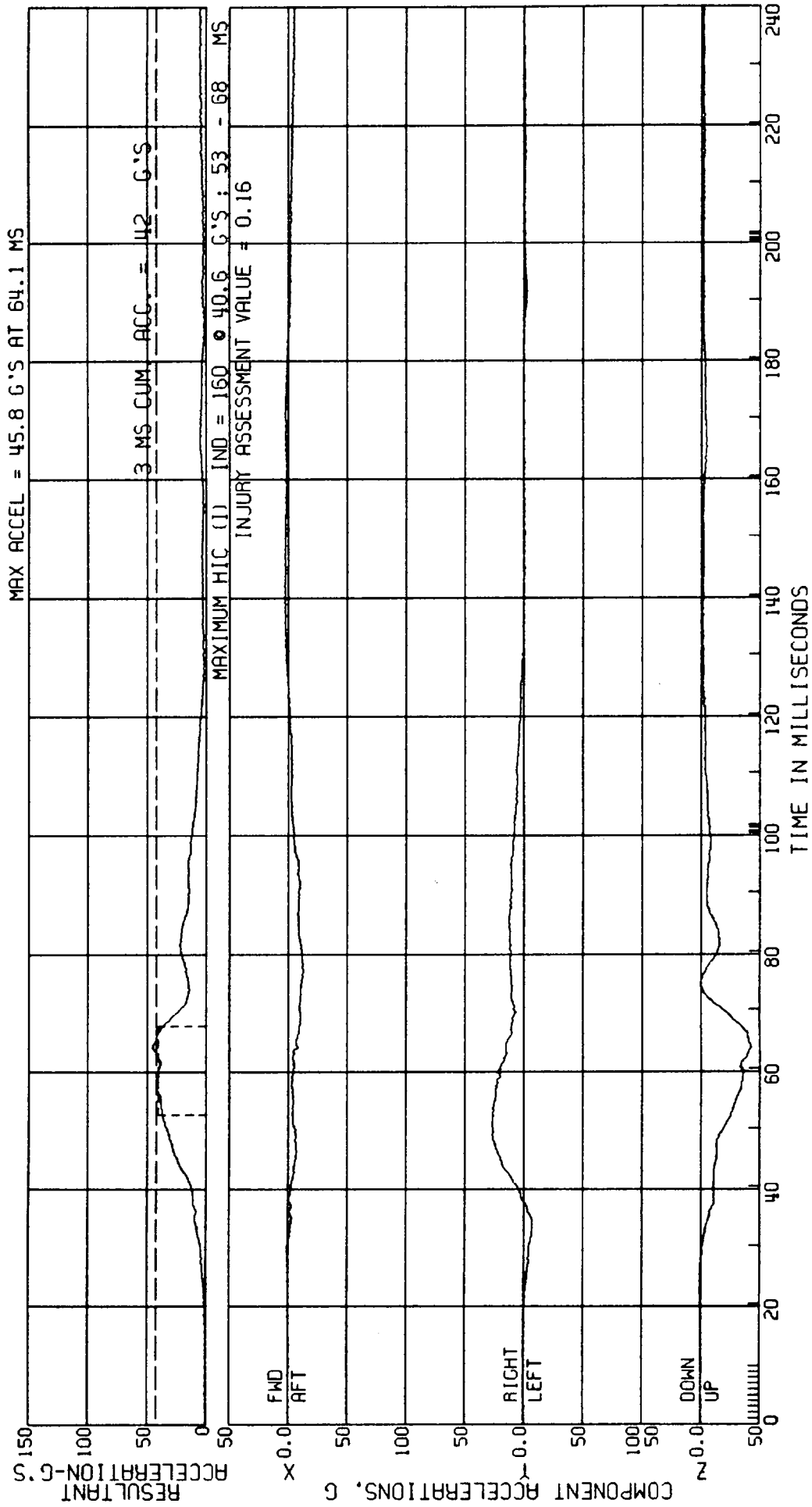
C8011A L. SIDE IMPACT- 27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 70
 3868-905
 CPE MVMA 11P 2AF69 COMPUTED M.D.B. REAR CROSS MEMBER FORCE TEST DATE:03-27-90
 ELEC DATA, SAE CLASS 60 (1359.5 KG) (9.807) (RESULTANT ACCEL)



RELEASED BY:

68 PROCESSED 4 MY 90 14:42

C8011A L. SIDE IMPACT- 27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 7 /
 3868-905
 CPE MVMA 11P 2AF69
 ELEC DATA, SAE CLASS 1000
 DRIVER HEAD ACCEL.
 (HIC 1 LIMITED TO 15MS)
 ATD TYPE: SID
 TEST DATE: 03-27-90



RELEASED BY:

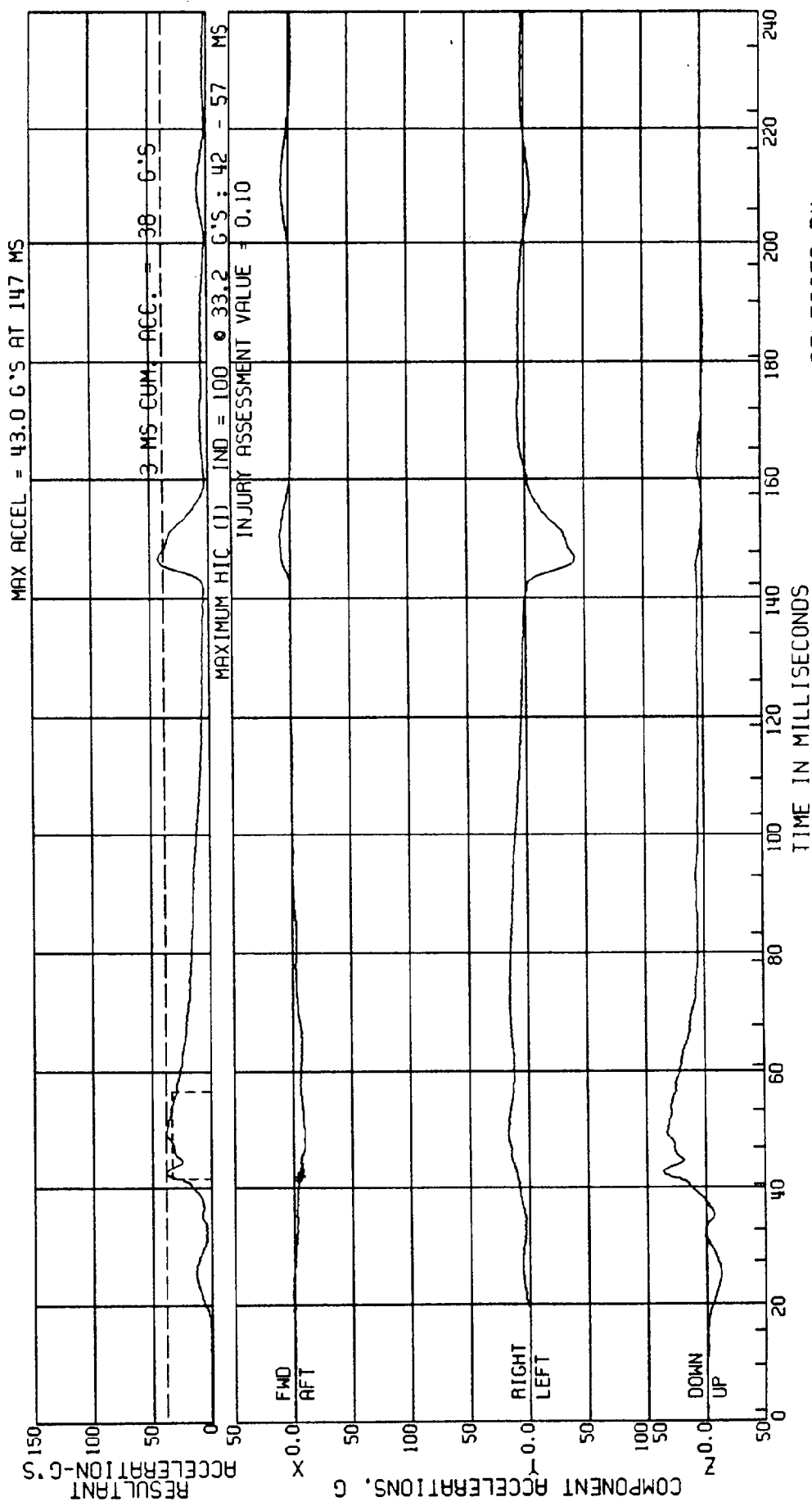
1 PROCESSED 4 MY 90 14:40

7/a.

60.10

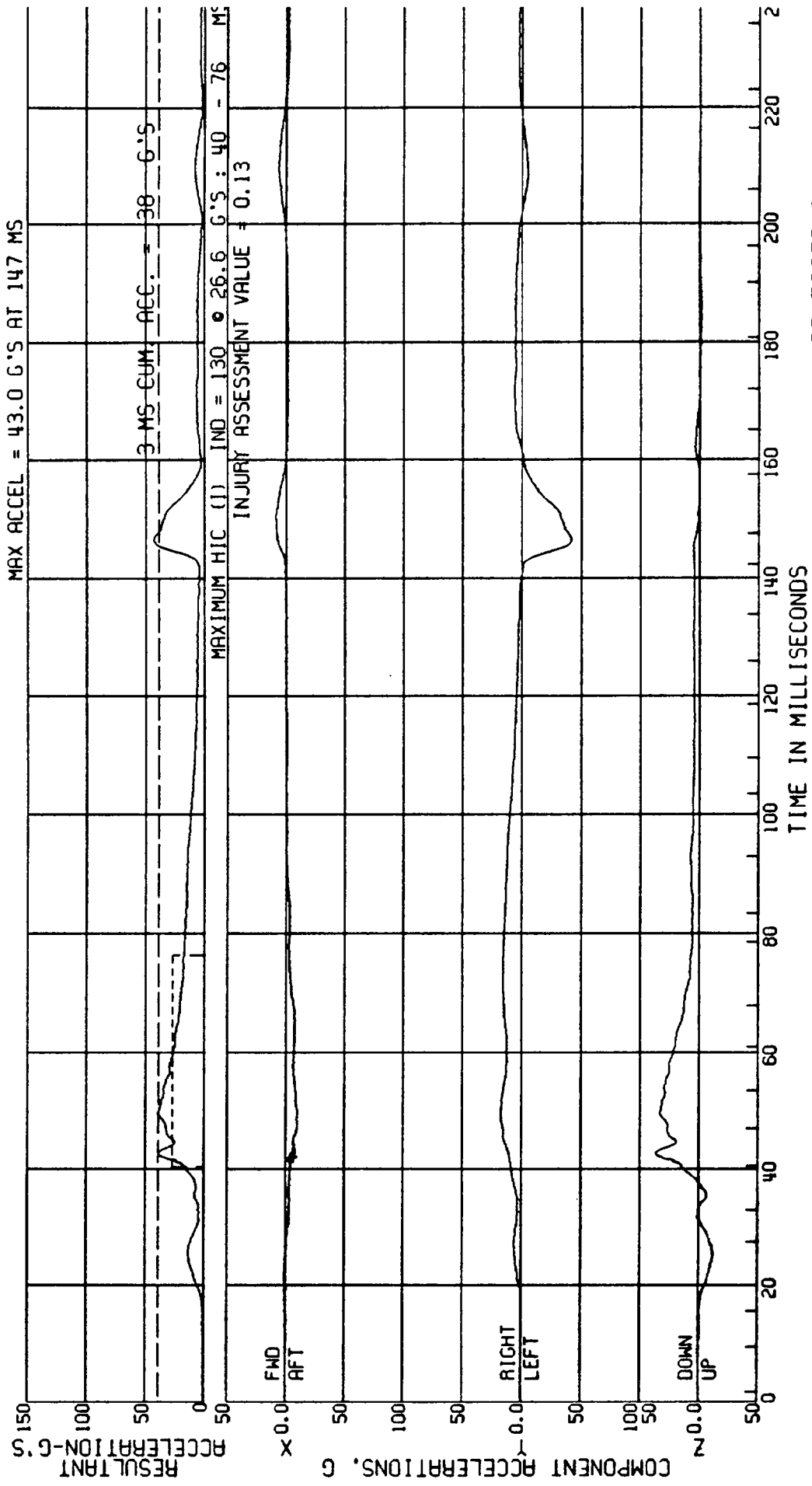
M9B6UAC#
C8011B
05/04/90
14:49:25
NUMBER OF PLOTS = 77
XOFF = 10.10
YOFF = 0.75

C8011B L. SIDE IMPACT- 27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 72
 3868-905
 CPE MVMA 11P 2AF69
 ELEC DATA. SAE CLASS 1000
 L. REAR HEAD ACCEL.
 (HIC 1 LIMITED TO 15MS)
 ATD TYPE: BIOSID
 TEST DATE: 03-27-90



RELEASED BY:
 1 PROCESSED 4 MAY 90 14:43

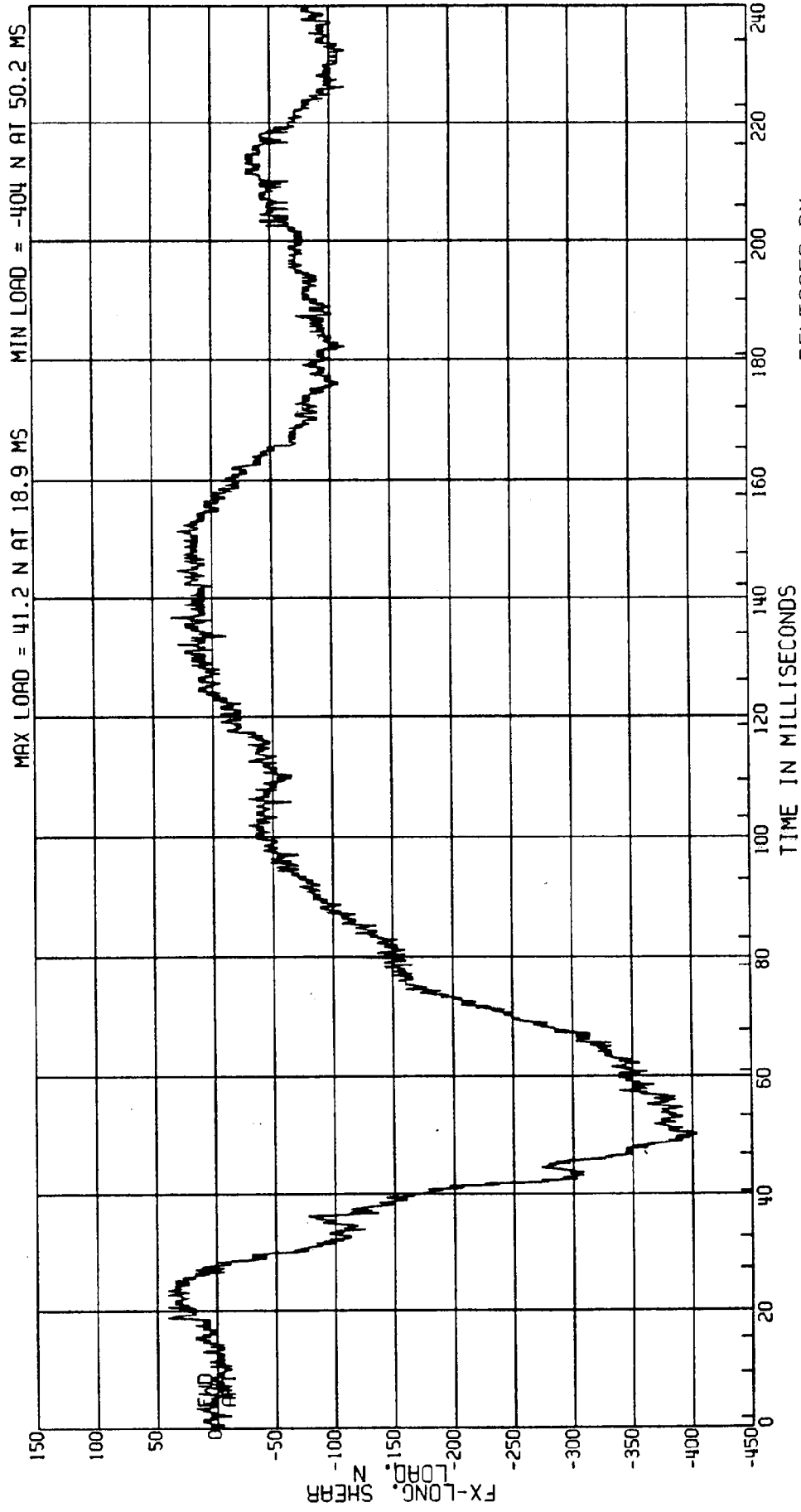
C8011B L. SIDE IMPACT- 27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 73
 3868-905
 CPE MVMA 11P 2AF69
 ELEC DATA, SAE CLASS 1000
 L. REAR HEAD ACCEL.
 (HIC 1 LIMITED TO 36MS)
 ATD TYPE: BIOSID
 TEST DATE: 03-27-9



RELEASED BY:

2 PROCESSED 4 MY 90 14:49

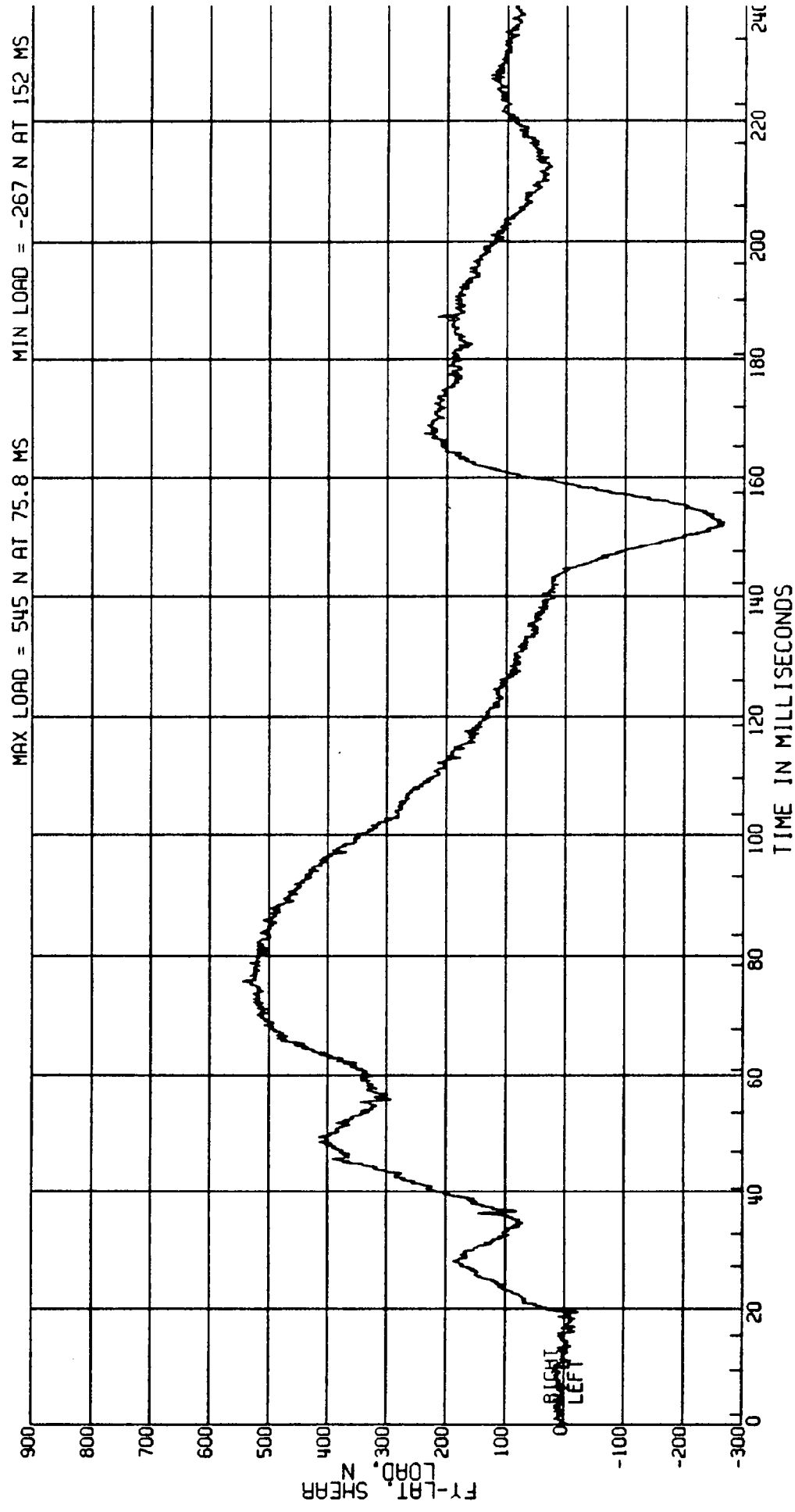
C8011B L. SIDE IMPACT- 27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 74
 3868-905
 CPE MVMA 11P 2AF69
 ELEC DATA, SAE CLASS 1000
 ATD TYPE: B10SID
 TEST DATE: 03-27-90



C8011B L. SIDE IMPACT- 27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 75
 3868-905
 CPE MVMA 11P 2AF69
 ELEC DATA, SAE CLASS 1000

AID TYPE: BIOSID
 TEST DATE: 03-27-90

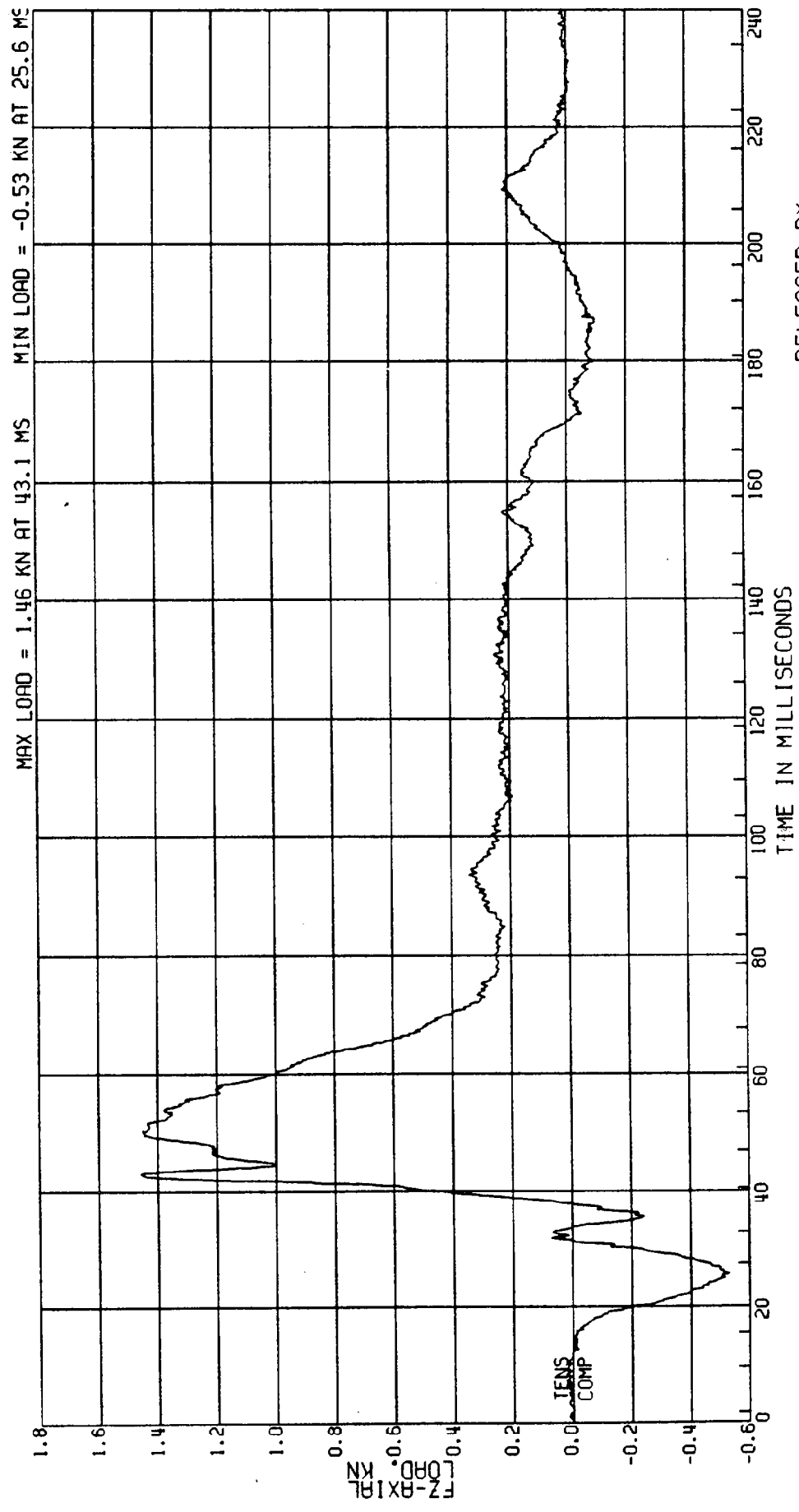
L. REAR NECK LOADING ON HEAD, UPPER LOAD



RELEASED BY:

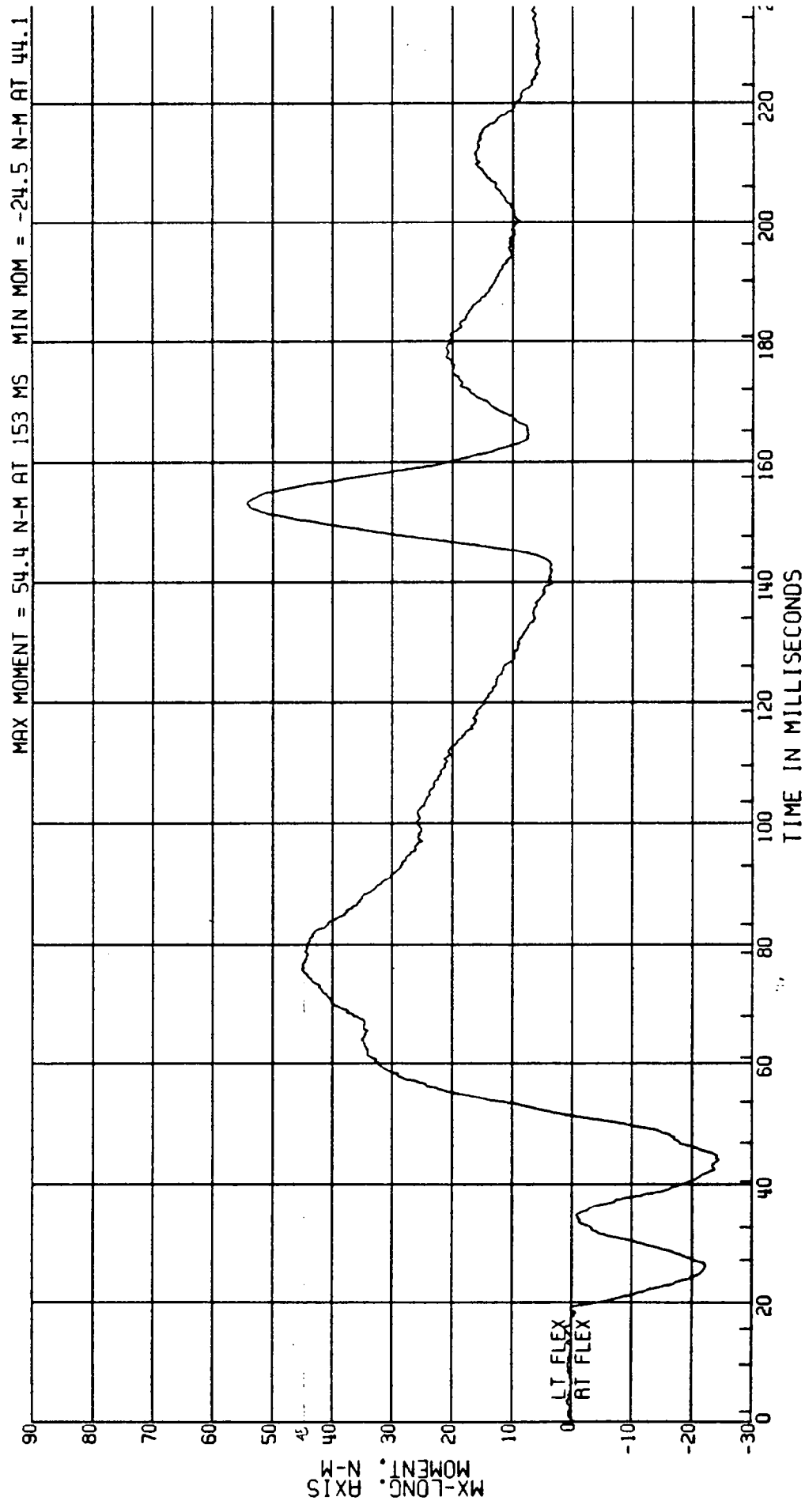
4 PROCESSED 4 MY 90 14:49

C80118 L. SIDE IMPACT- 27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 76
 3868-905 AID TYPE: BIOSID
 CPE MVMA 11P 2AF69 L. REAR NECK LOADING ON HEAD, UPPER LOAD TEST DATE:03-27-90
 ELEC DATA, SAE CLASS 1000



C80118 L. SIDE IMPACT- 27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 77
 3868-905
 CPE MVMA 11P 2AF69
 ELEC DATA, SAE CLASS 600

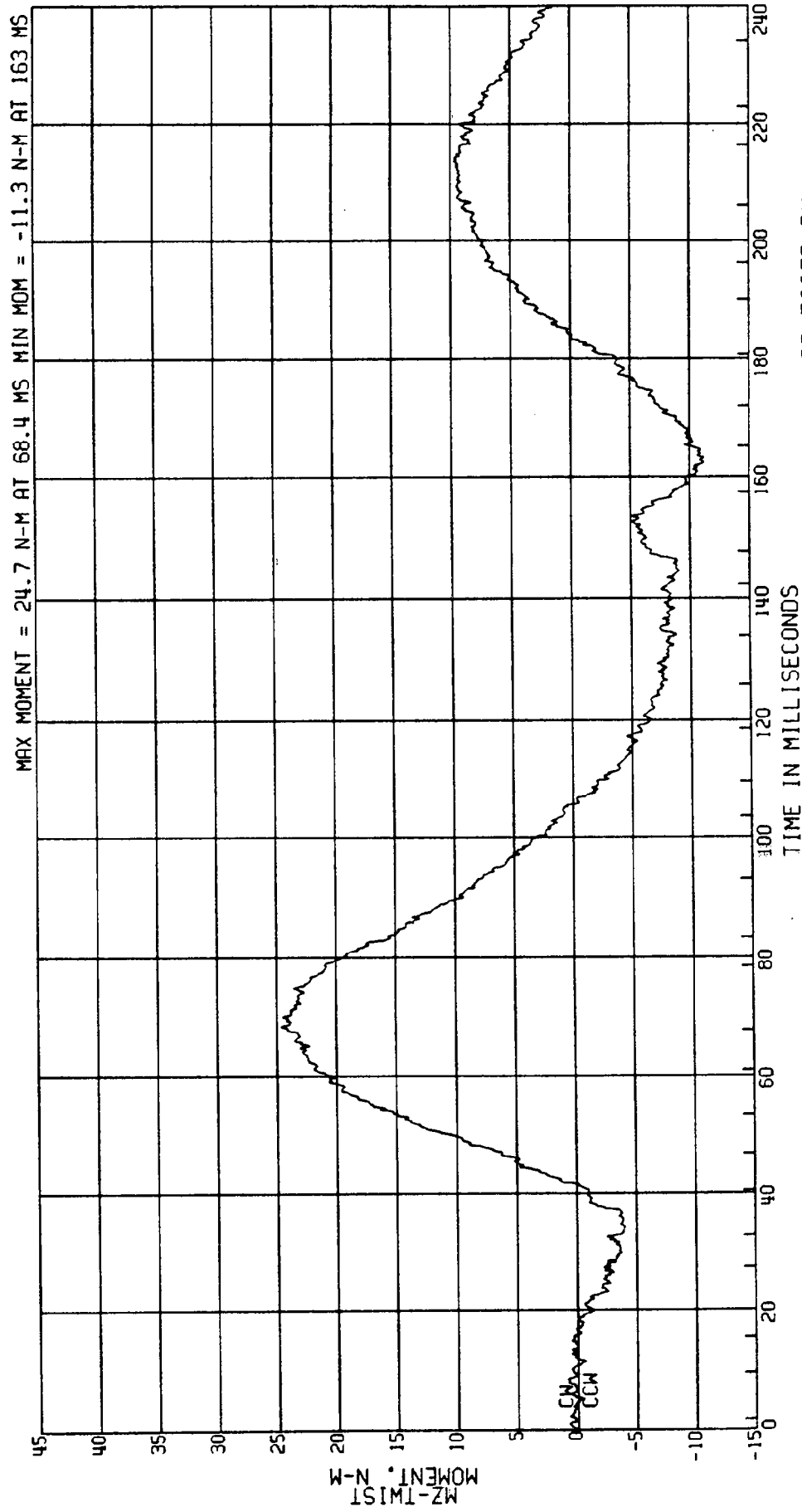
ATD TYPE: BIOSID
 TEST DATE: 03-27-9



RELEASED BY:

6 PROCESSED 4 MY 90 14:49

C80118 L. SIDE IMPACT- 27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 78
 3868-905 ATD TYPE: BIOSID
 CPE MVMA 11P 2AF69 L.REAR NECK LOADING ON HEAD, UPPER
 ELEC DATA, SAE CLASS 600 TEST DATE:03-27-90



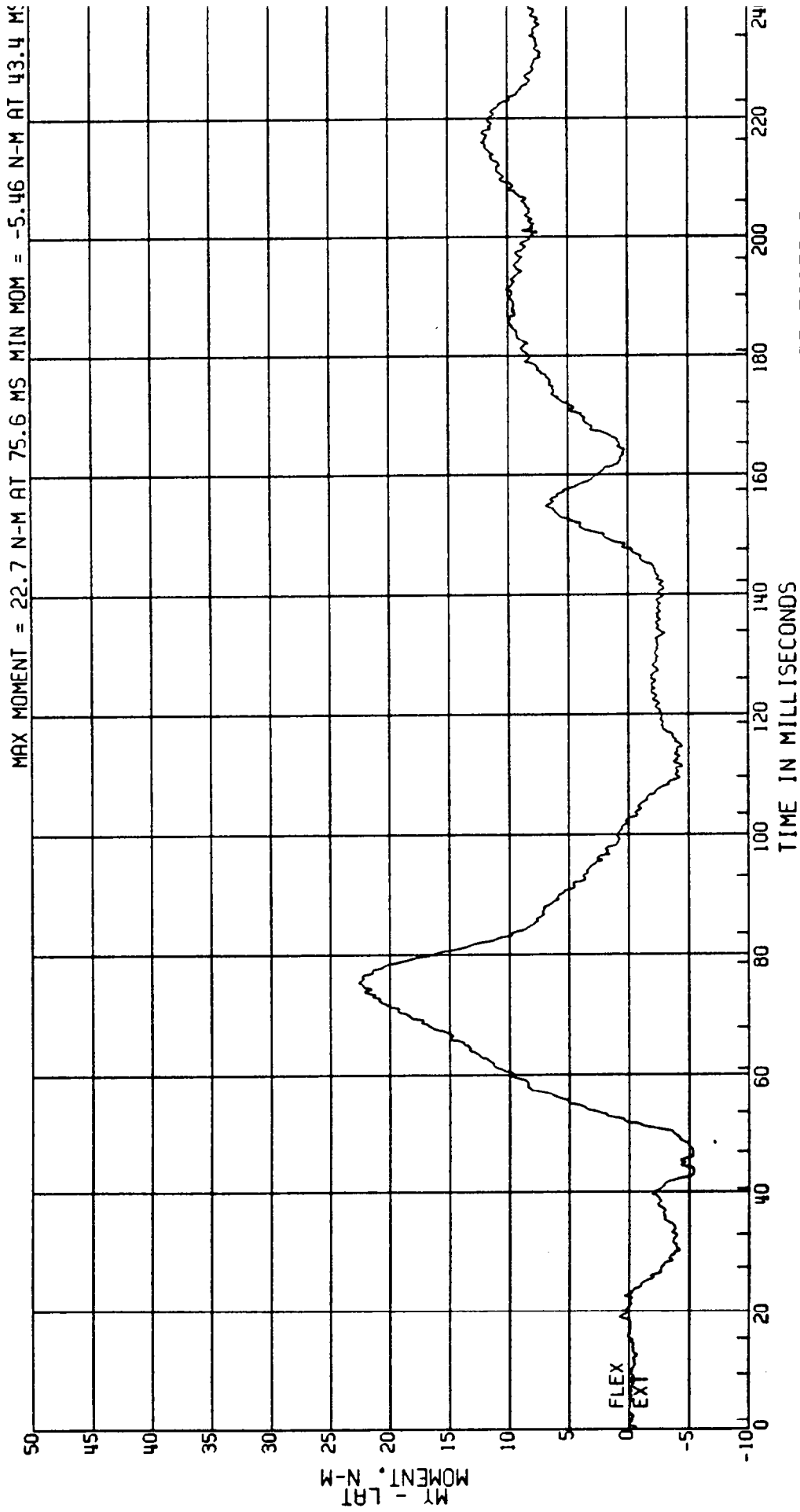
RELEASED BY:

7 PROCESSED 4 MY 90 14:49

C8011B L. SIDE IMPACT- 27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 79
 3868-905
 CPE MVMA 11P 2AF69
 ELEC DATA, SAE CLASS 600

ATD TYPE: BIOSID
 TEST DATE: 03-27-90

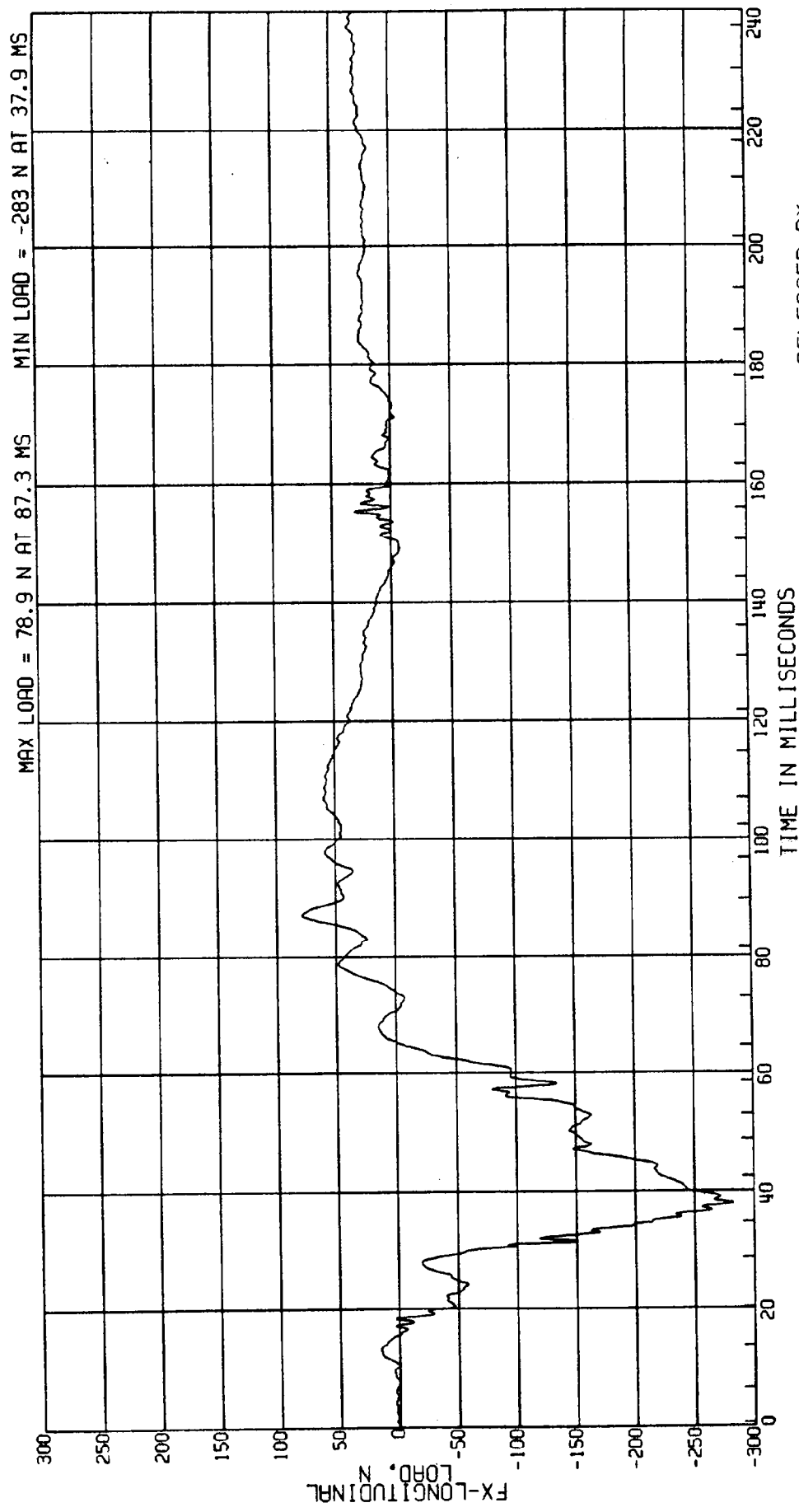
L. REAR NECK LOADING ON HEAD



RELEASED BY:

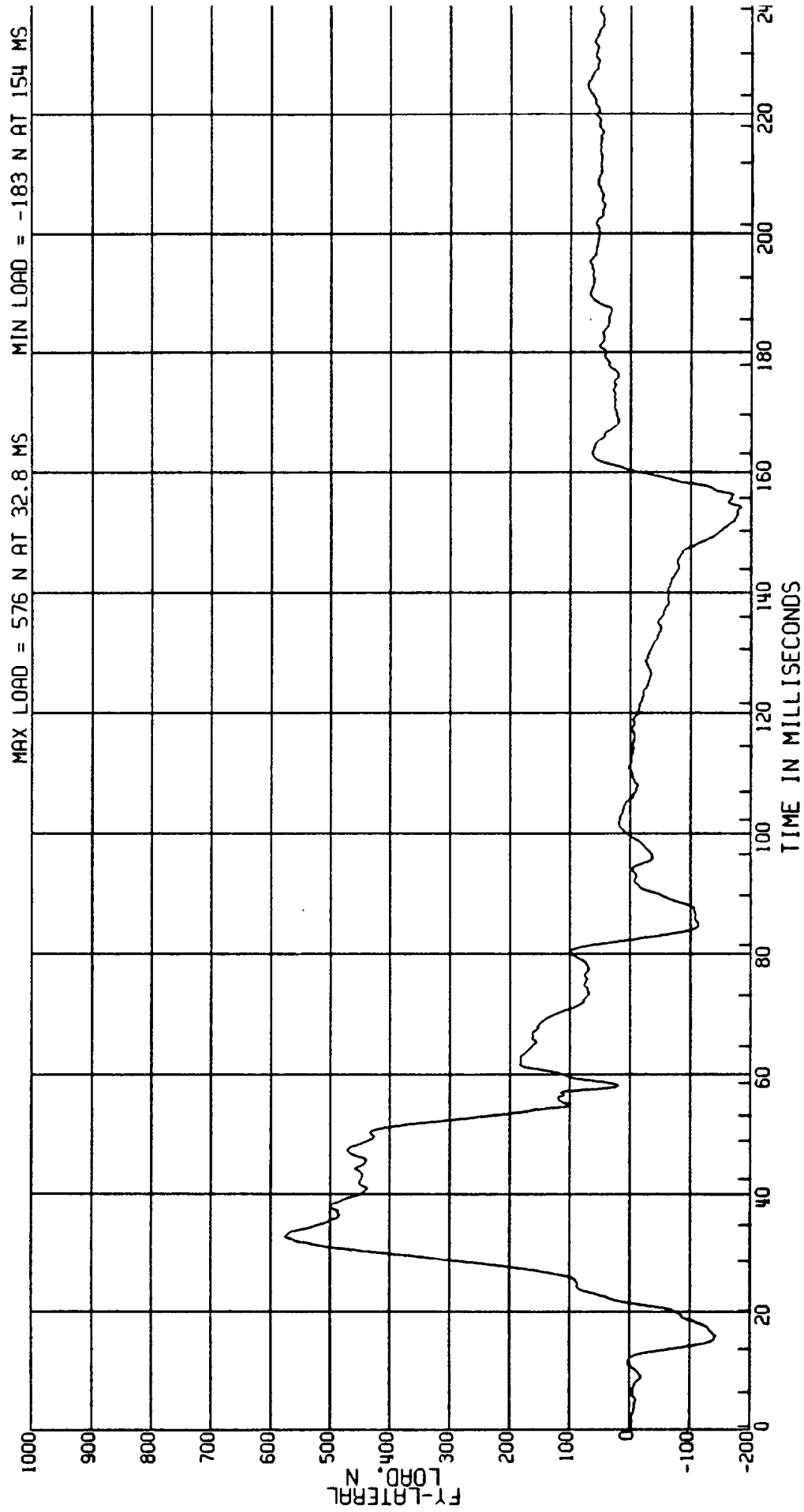
8 PROCESSED 4 MT 90 14:49

C80118 L. SIDE IMPACT- 27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 80
 3868-905 ATD TYPE: B10S10
 CPE MVMA 11P 2AF69
 ELEC DATA, SAE CLASS 180 L.REAR SHOULDER LOAD TEST DATE:03-27-90



RELEASED BY:
 1 PROCESSED 14 MY 90 08:45

C80118 L. SIDE IMPACT- 27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 8/
 3868-905
 CPE MVMA 11P 2AF69
 ELEC DATA, SAE CLASS 180
 ATD TYPE: BIOSID
 TEST DATE:03-27-90
 L.REAR SHOULDER LOAD



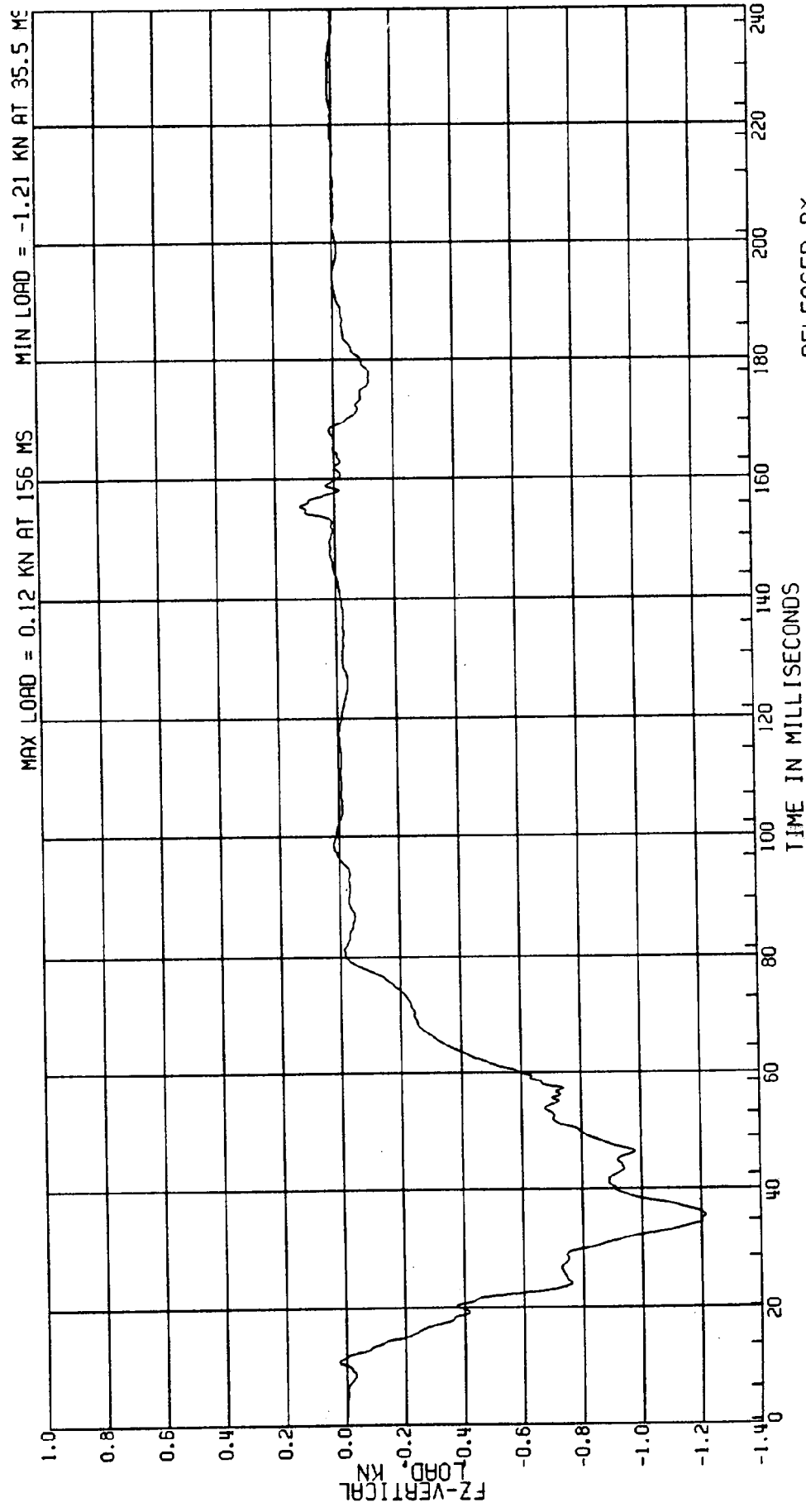
RELEASED BY:

2 PROCESSED 14 MY 90 08:45

C8011B L. SIDE IMPACT- 27 DEG
MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 82
ATD TYPE: B10SID
TEST DATE:03-27-90

L. REAR SHOULDER LOAD

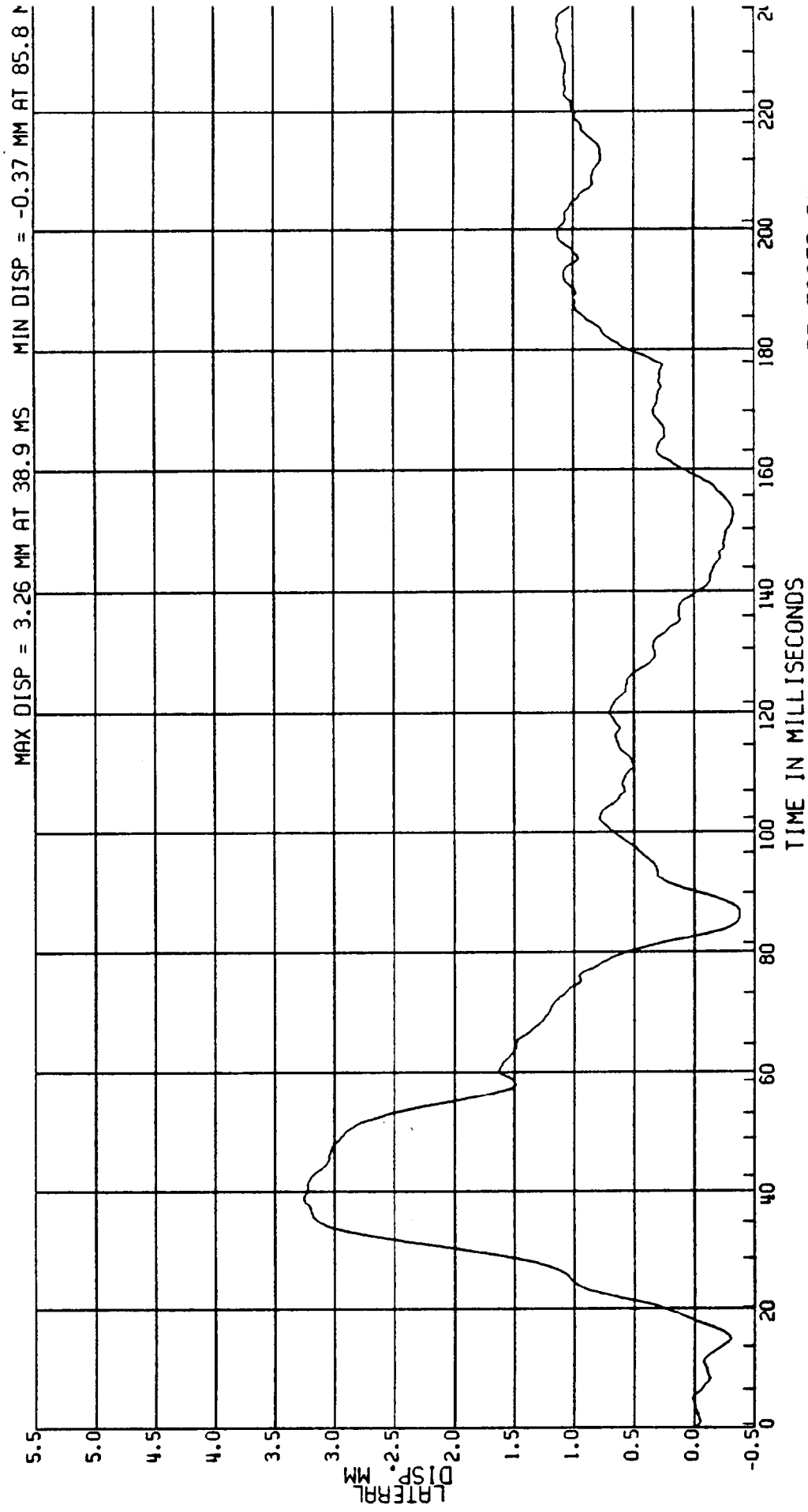
3868-905
CPE
MVMA 11P 2AF69
ELEC DATA, SAE CLASS 180



RELEASED BY:

3 PROCESSED 14 MY 90 08:45

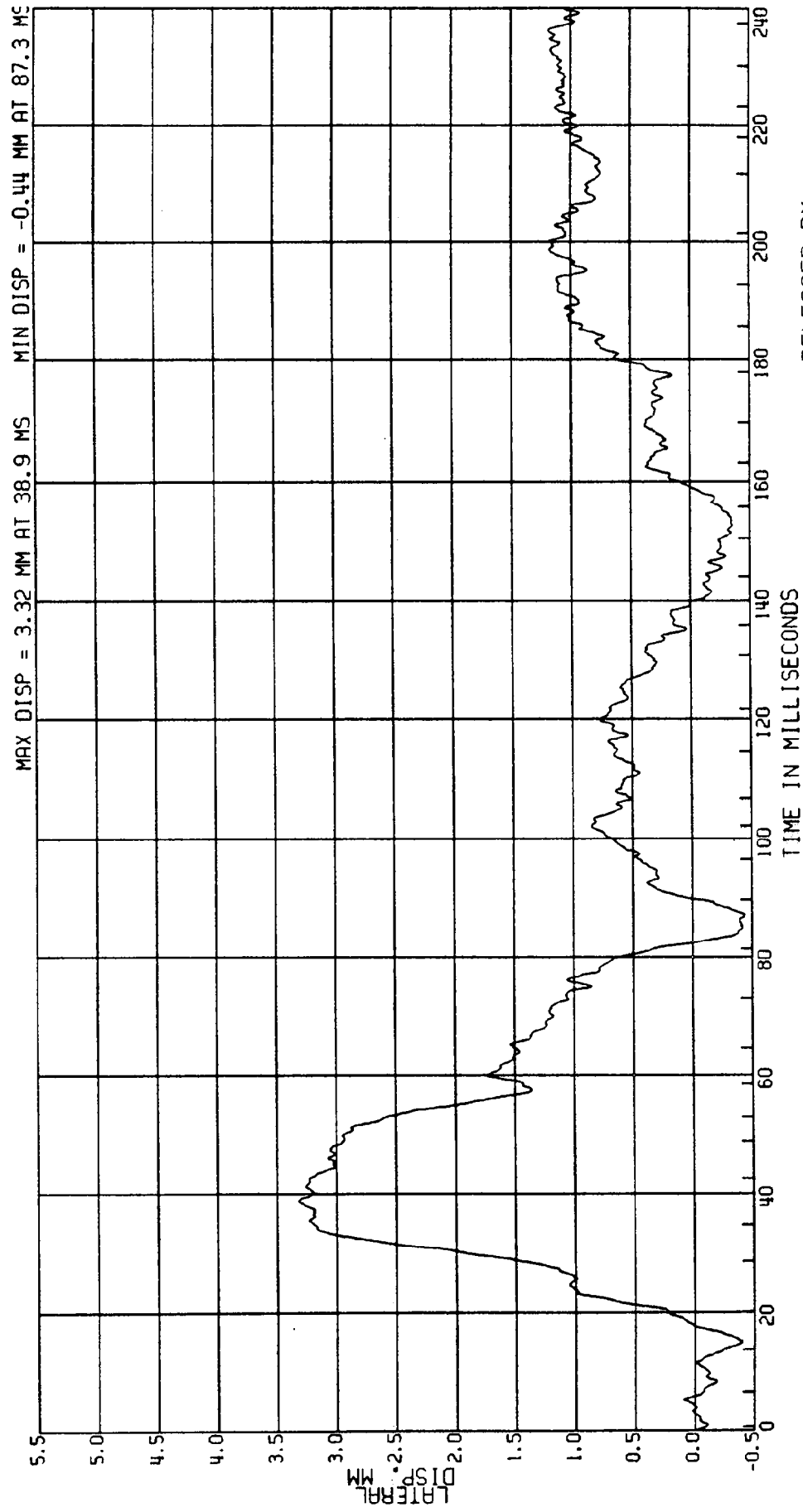
C8011B L. SIDE IMPACT- 27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 83
3868-905
CPE MVMA 11P 2AF69
ELEC DATA, SAE CLASS 60
ATD TYPE: B10SID
TEST DATE:03-27-90
L.REAR SHOULDER DISP.



RELEASED BY:

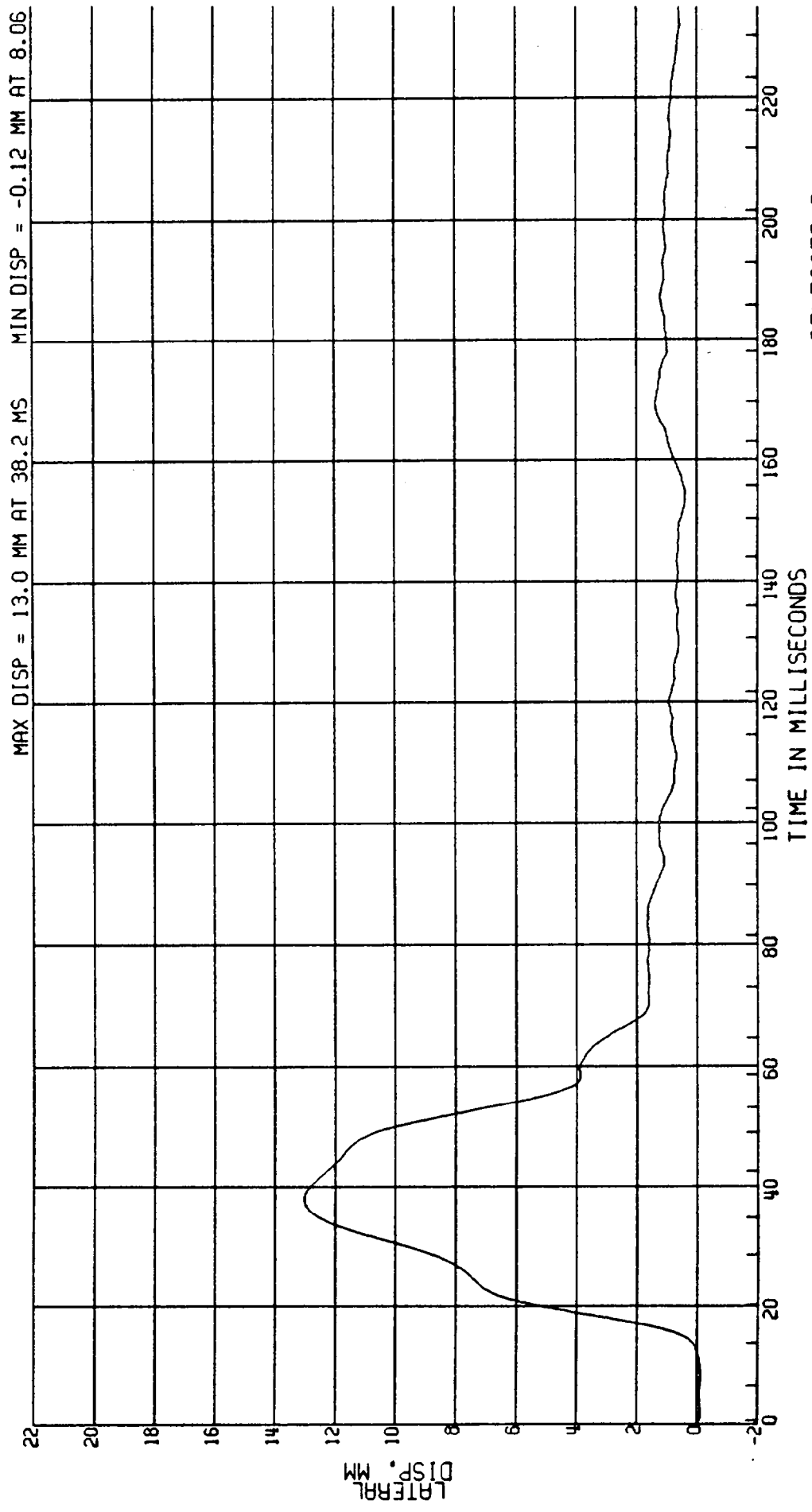
12 PROCESSED 4 MY 90 14:50

C8011B L. SIDE IMPACT- 27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 84
 3868-905 AID TYPE: B10SID
 CPE MVMA 11P 2AF69 TEST DATE: 03-27-90
 ELEC DATA, SAE CLASS 180 L. REAR SHOULDER DISP.



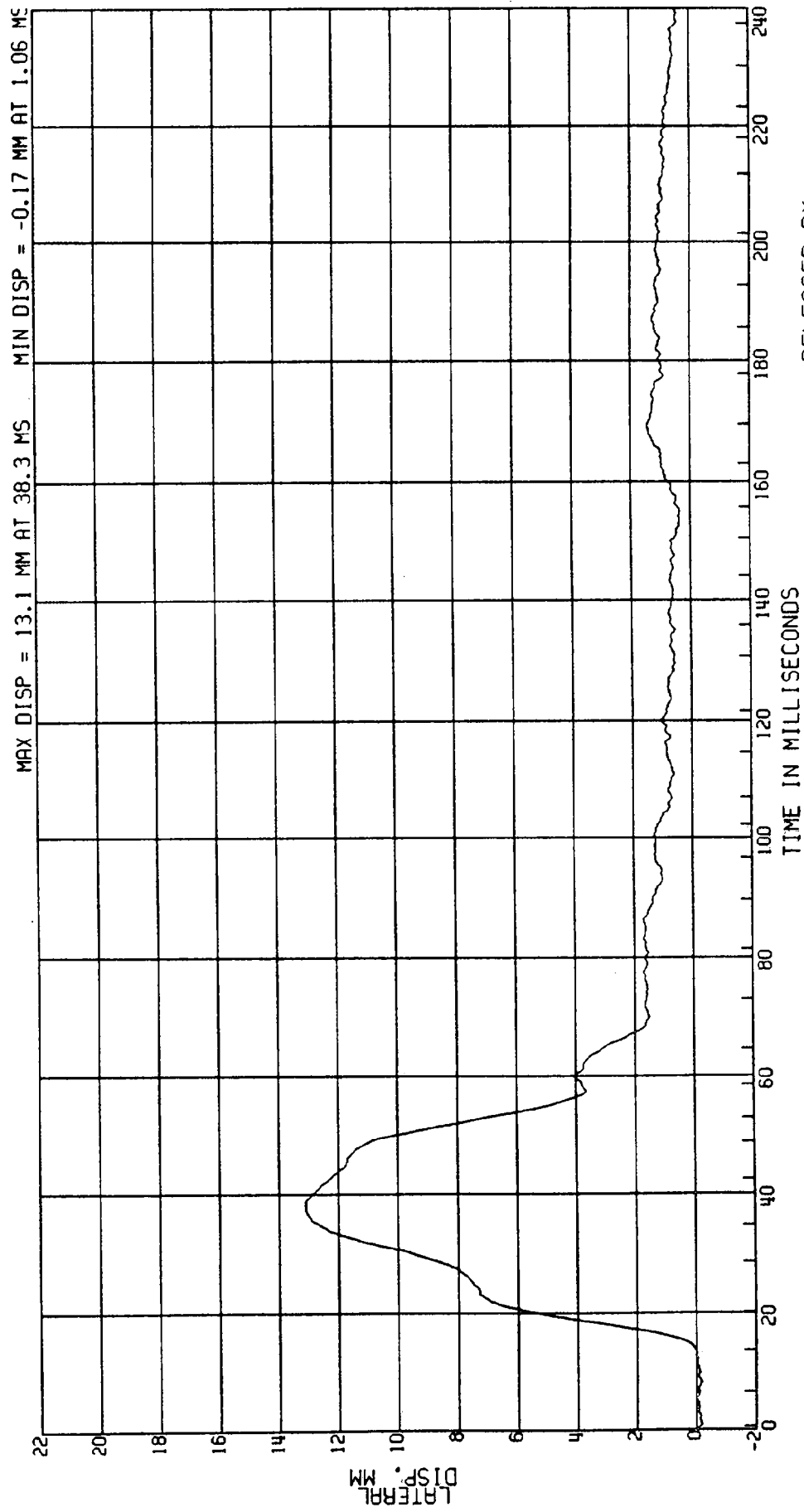
RELEASED BY:
 13 PROCESSED 4 MY 90 14:50

C8011B L. SIDE IMPACT- 27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 85
 3868-905
 CPE MVMA 11P 2AF69
 ELEC DATA, SAE CLASS 60
 ATD TYPE: BIOSID
 TEST DATE: 03-27-91
 L. REAR FIRST THORACIC RIB DISP.



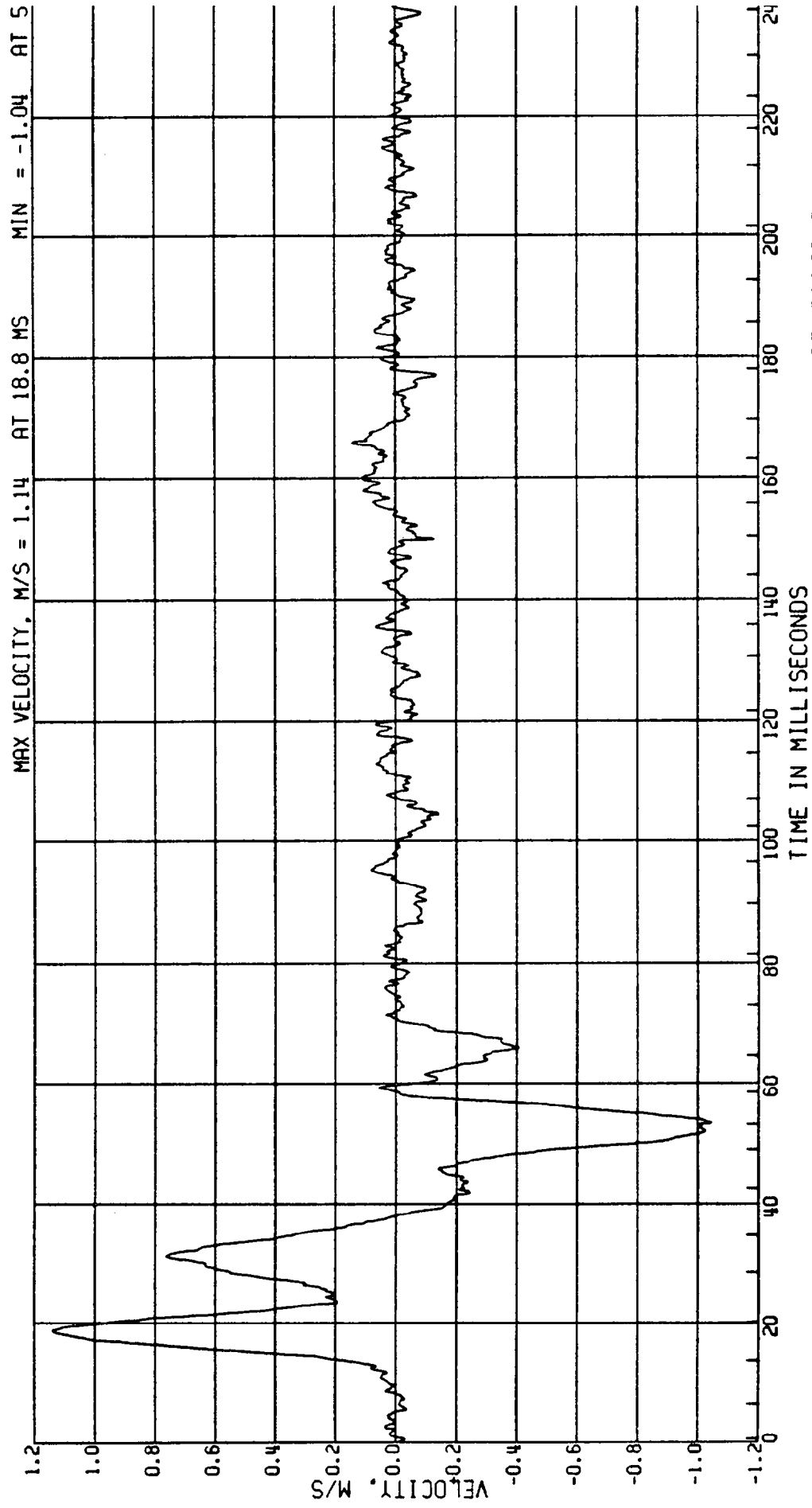
RELEASED BY:
 14 PROCESSED 4 MY 90 14:50

C8011B L. SIDE IMPACT- 27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 86
 3868-905 AID TYPE: BIOSID
 CPE MVMA.11P 2AF69 TEST DATE:03-27-90
 L.REAR FIRST THORACIC RIB DISP.
 ELEC DATA, SAE CLASS 180



RELEASED BY:
 15 PROCESSED 4 MY 90 14:50

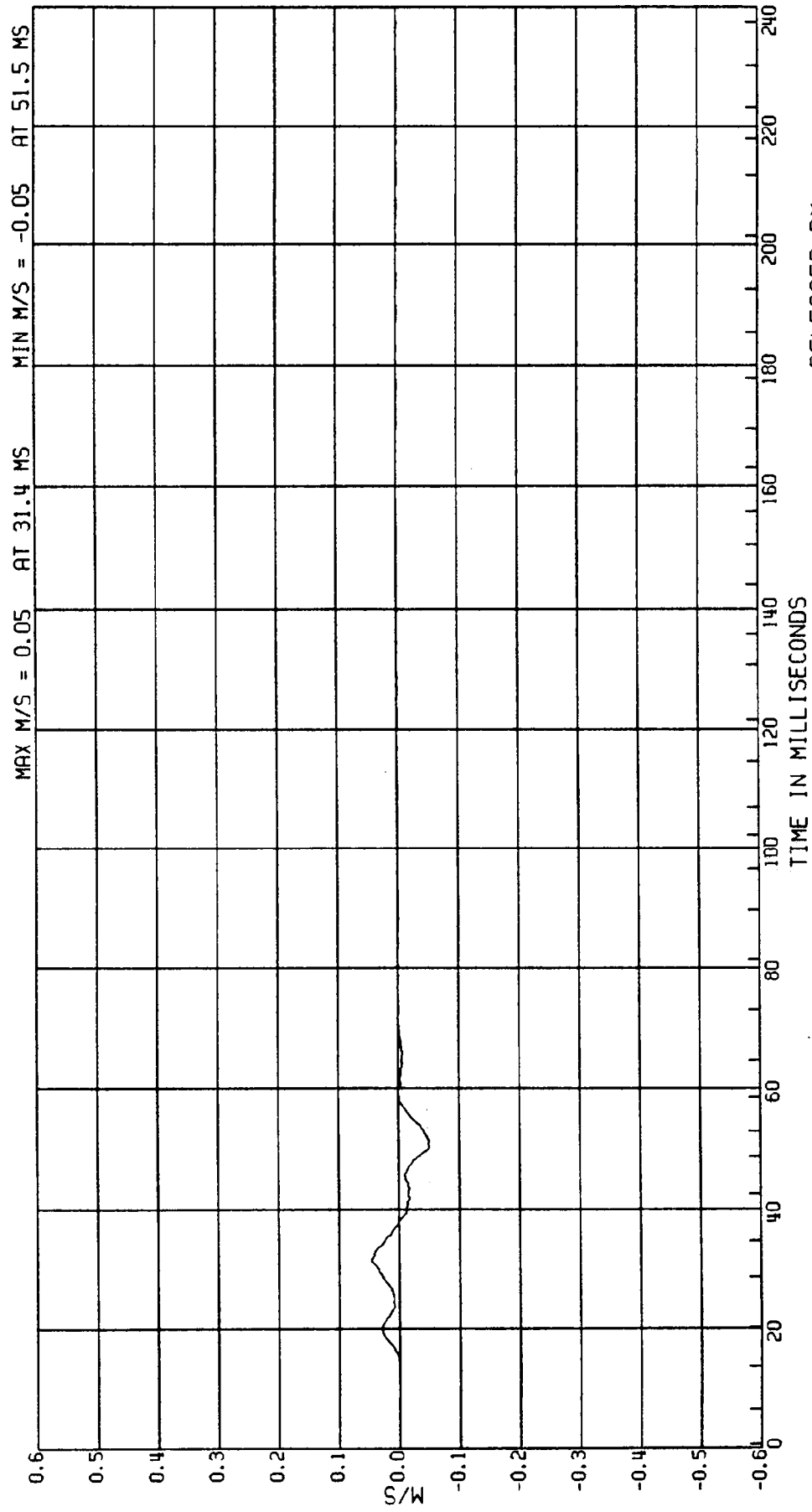
C8011B L. SIDE IMPACT- 27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 87
 3868-905
 CPE MVMA 11P 2AF69
 ELEC DATA, SAE CLASS 60
 L. REAR 1ST THORACIC RIB VELOCITY
 (DIFF OF 1ST RIB DISP)
 ATD TYPE: BIOSID
 TEST DATE: 03-27-90



RELEASED BY:

16 PROCESSED 4 MY 90 14:50

C8011B L. SIDE IMPACT- 27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 28
3868-905 AID TYPE: BIOSID
CPE MVMA 11P 2AF69 TEST DATE:03-27-90
ELEC DATA, SAE CLASS 60 (1ST RIB DISP*1ST RIB VEL)/175MM



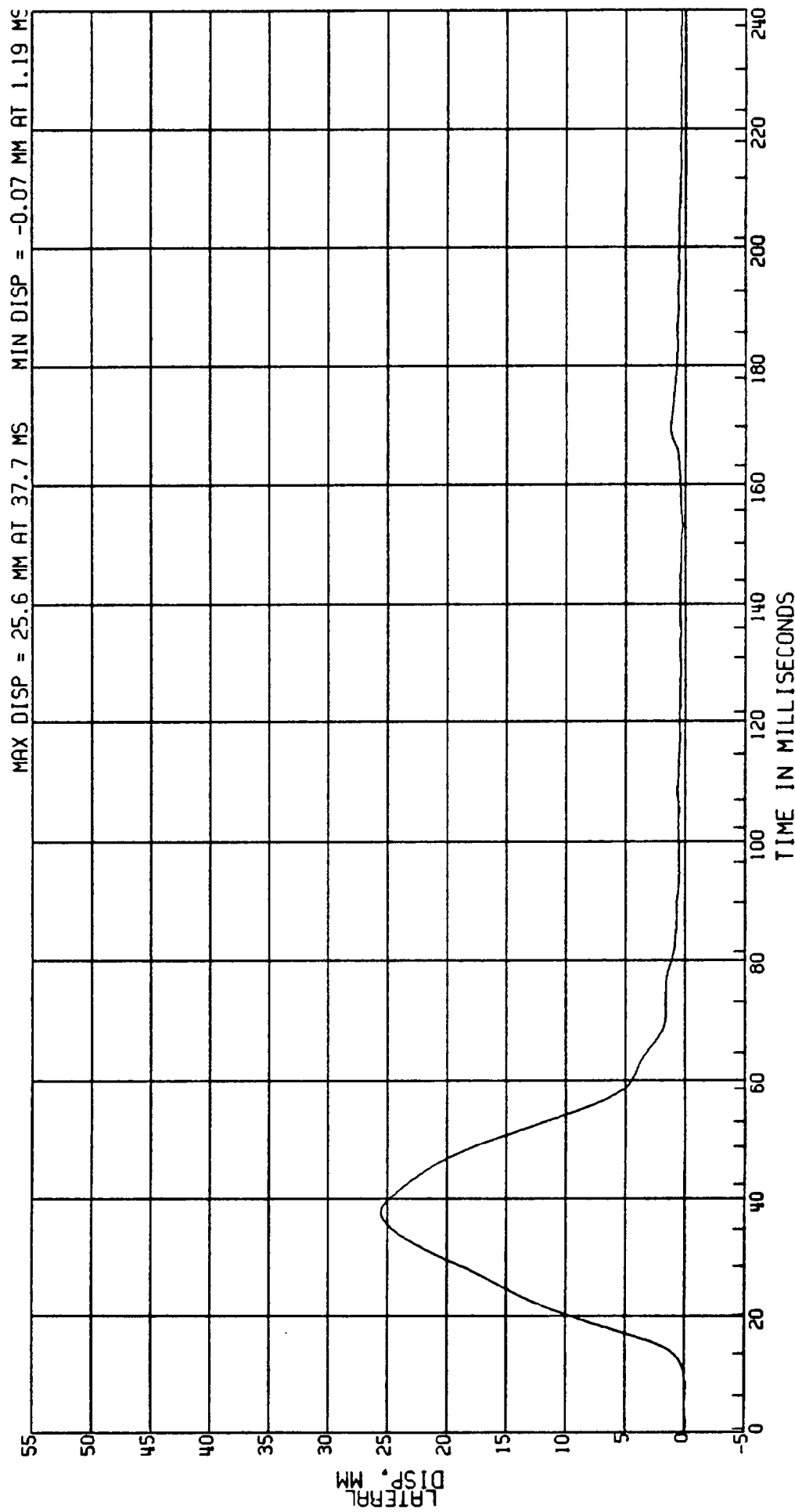
RELEASED BY:

17 PROCESSED 4 MY 90 14:50

C8011B L. SIDE IMPACT- 27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 89
 3868-905
 CPE MVMA 11P 2AF69
 ELEC DATA, SAE CLASS 60

ATD TYPE: BIOSID
 TEST DATE: 03-27-90

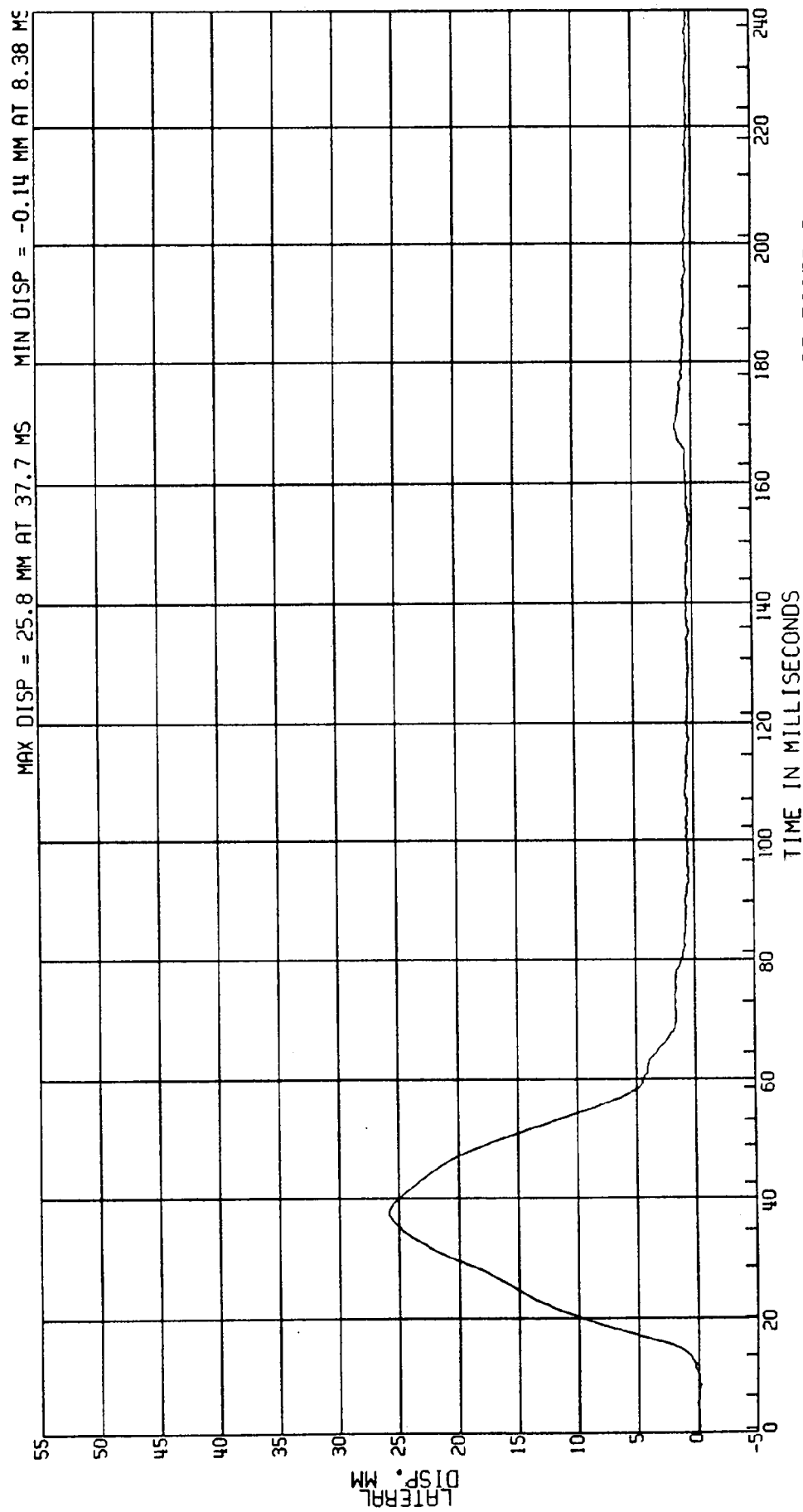
L. REAR SECOND THORACIC RIB DISP.



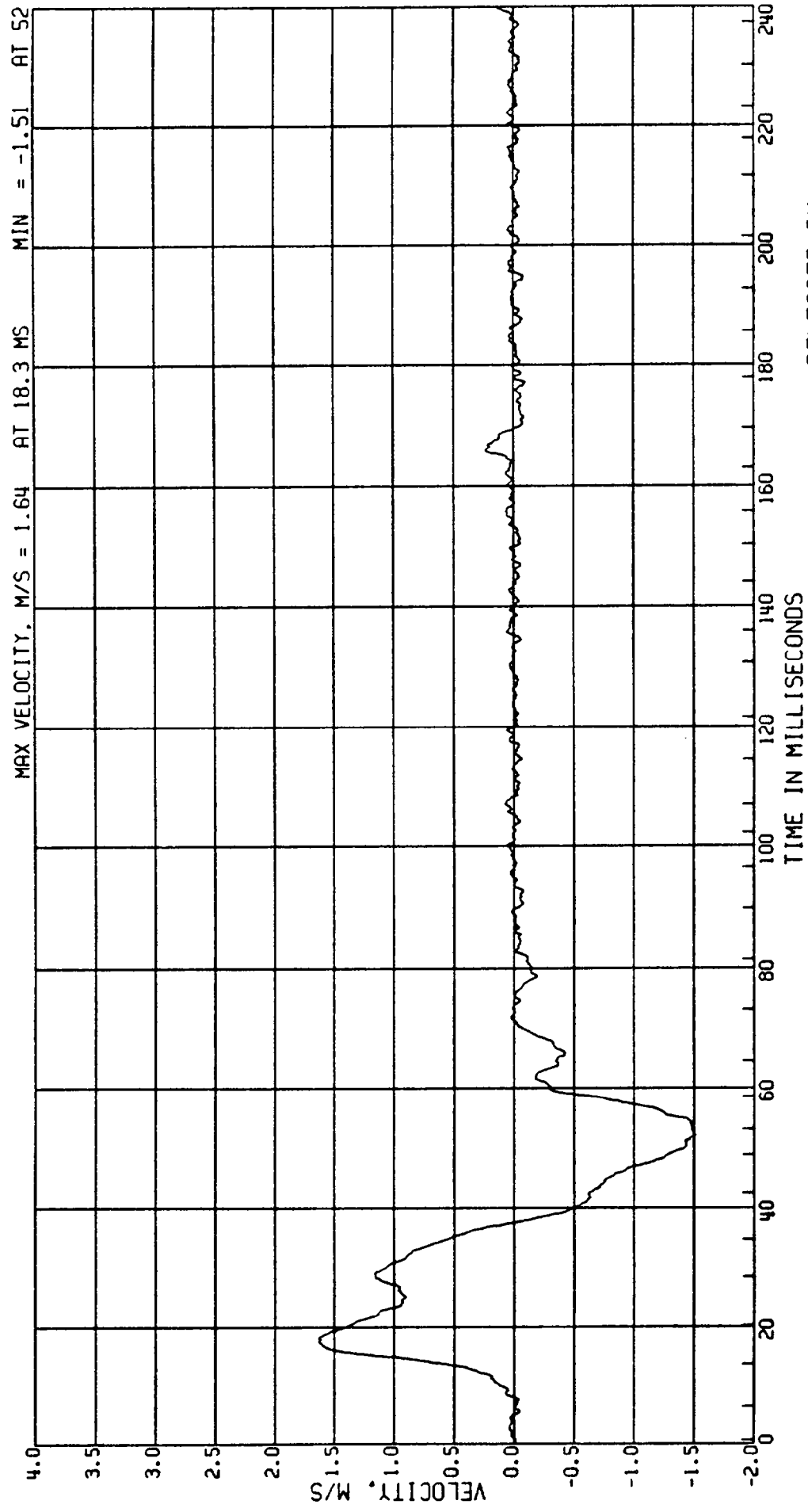
RELEASED BY:

18 PROCESSED 4 MY 90 14:50

C8011B L. SIDE IMPACT - 27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 96
 3868-905
 CPE MVMA 11P 2AF69
 ELEC DATA, SAE CLASS 180
 ATD TYPE: BIOSID
 TEST DATE: 03-27-90



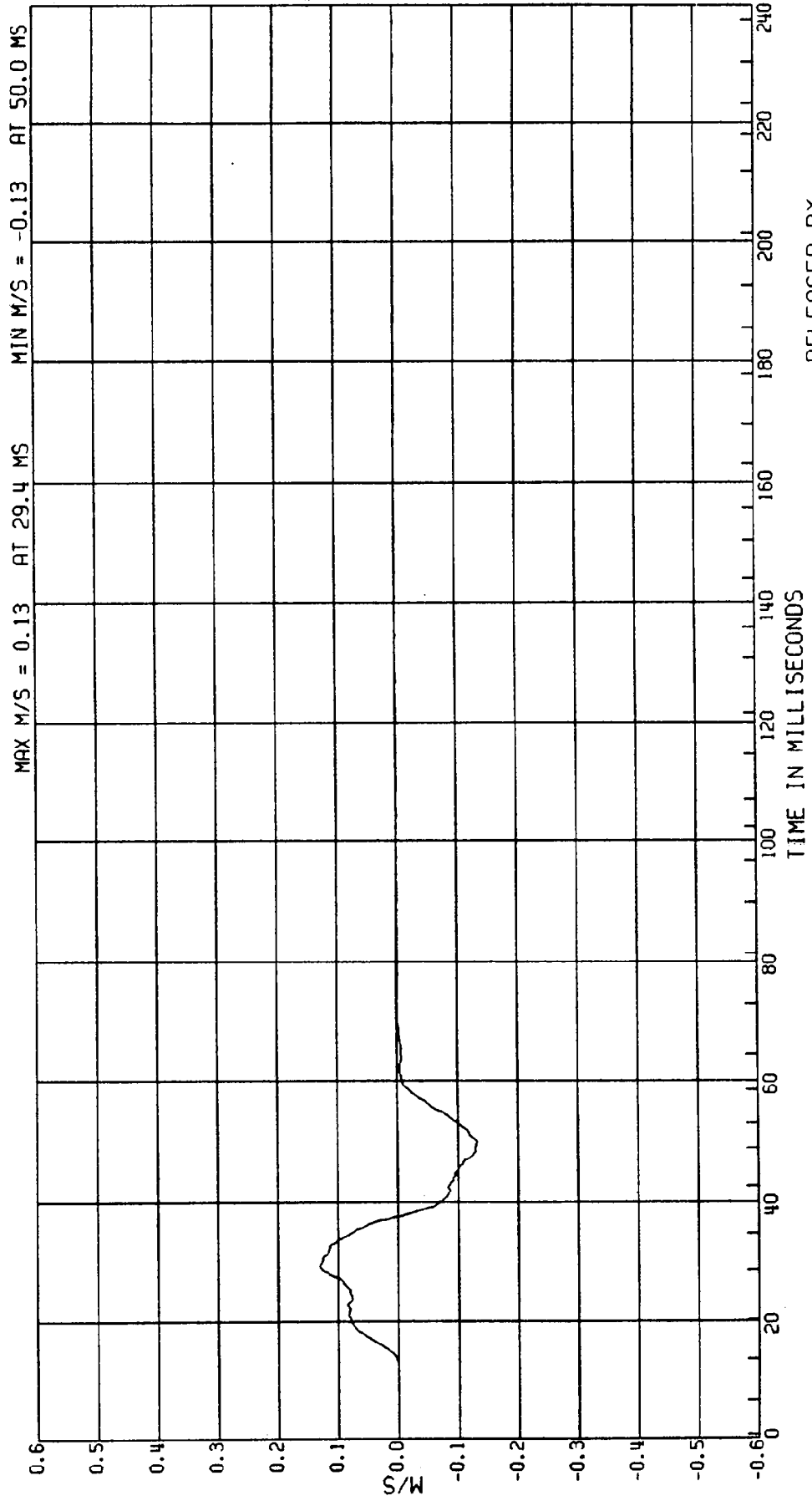
C8011B L. SIDE IMPACT- 27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 9 (1
3868-905
CPE MVMA 11P 2AF69
ELEC DATA, SAE CLASS 60
L. REAR 2ND THORACIC RIB VELOCITY
(DIFF OF 2ND RIB DISP)



RELEASED BY:

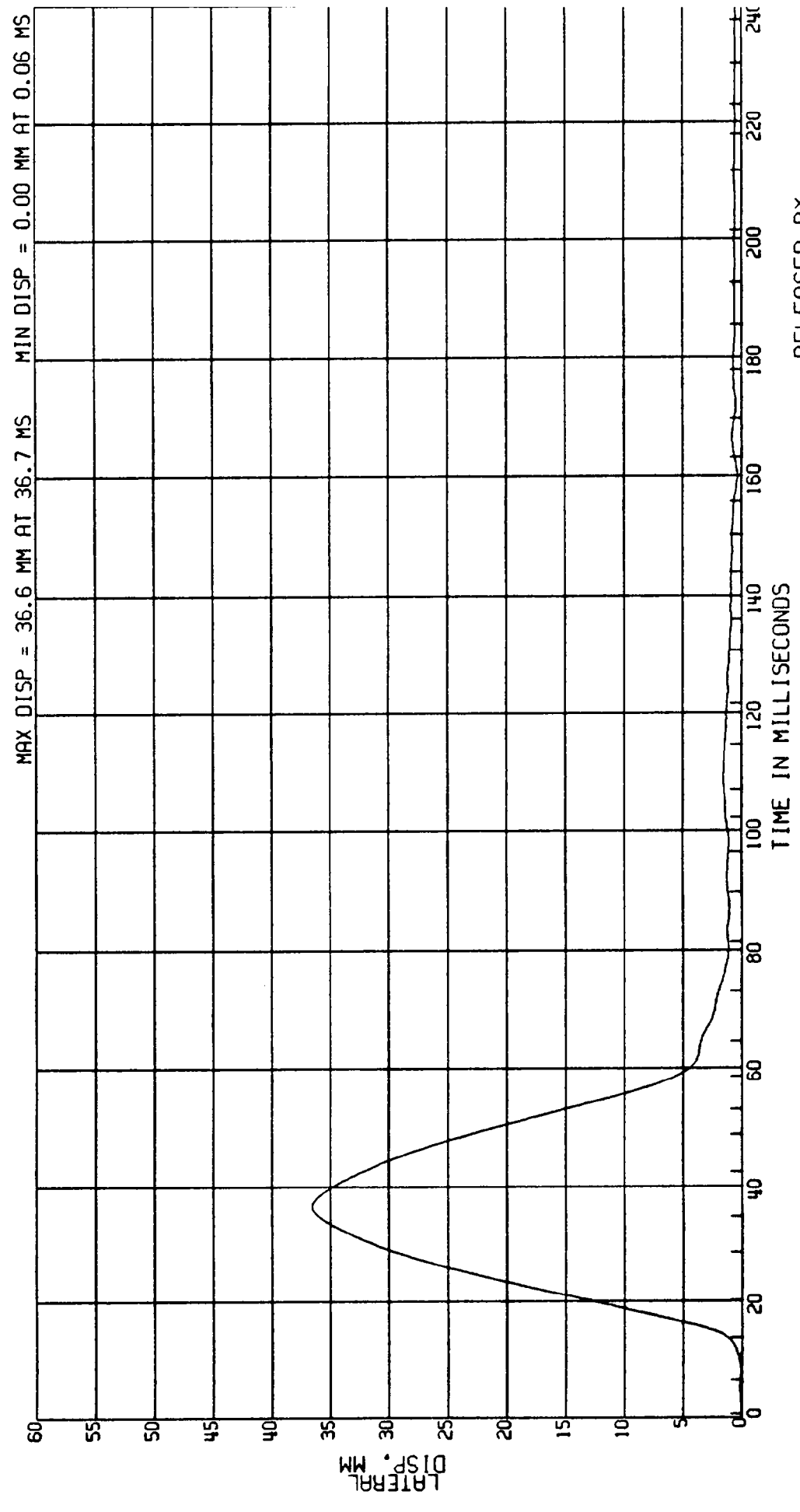
20 PROCESSED 4 MY 90 14:50

C8011B L. SIDE IMPACT- 27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 92
3868-905
EPE MVMA 11P 2AF69
ELEC DATA, SAE CLASS 60
ATD TYPE: BIOSID
TEST DATE:03-27-90
(2ND RIB DISP*2ND RIB VEL)/175MM



C8011B L. SIDE IMPACT- 27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 93
3868-905
CPE MVMA 11P 2AF69
ELEC DATA, SAE CLASS 60

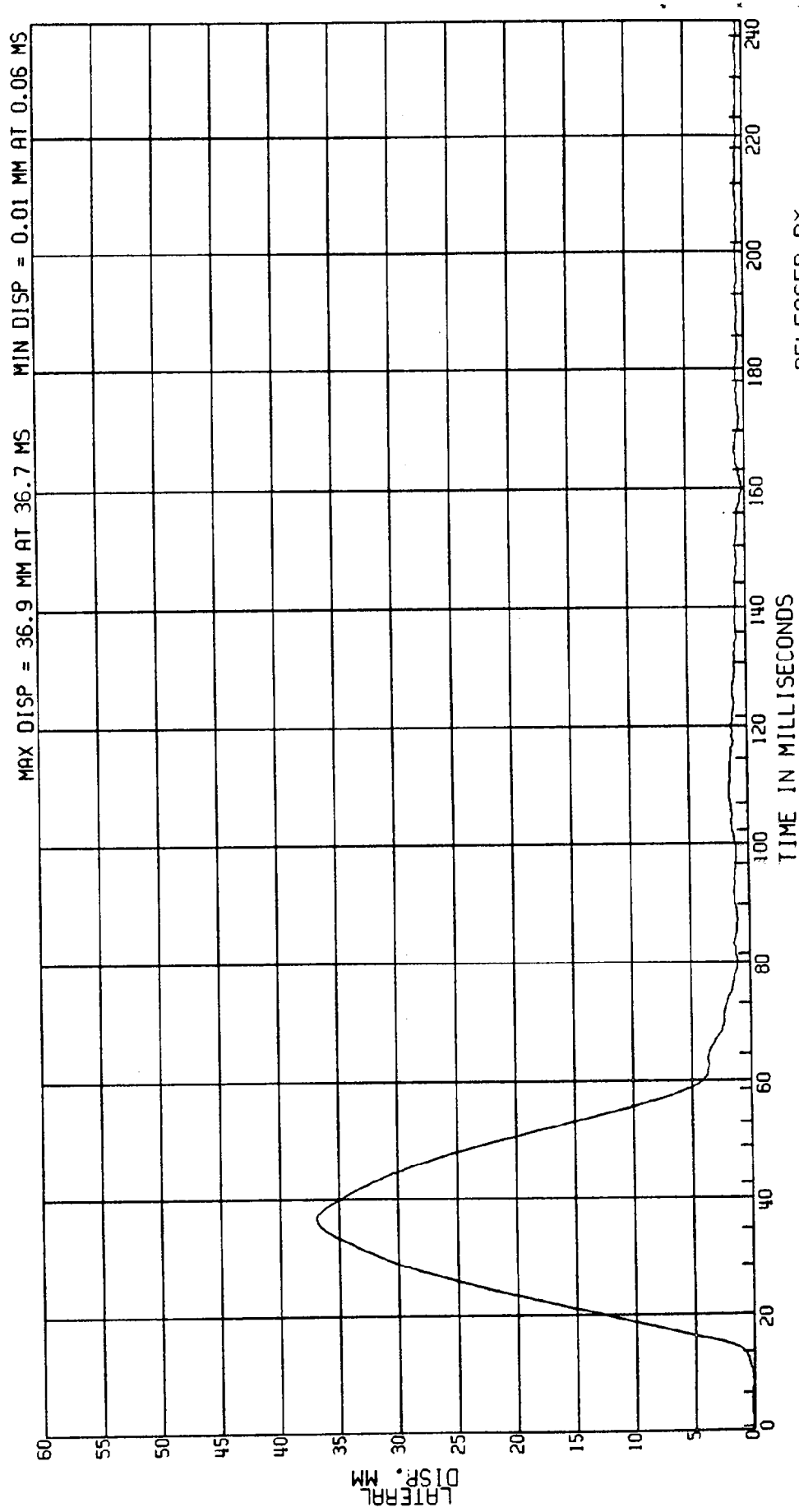
L.REAR THIRD THORACIC RIB DISP.
ATD TYPE: BIOSID
TEST DATE:03-27-90



C80118 L. SIDE IMPACT- 27 DEG
3868-905
CPE
ELEC DATA, SAE CLASS 180

MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 94
L.REAR THIRD THORACIC RIB DISP.

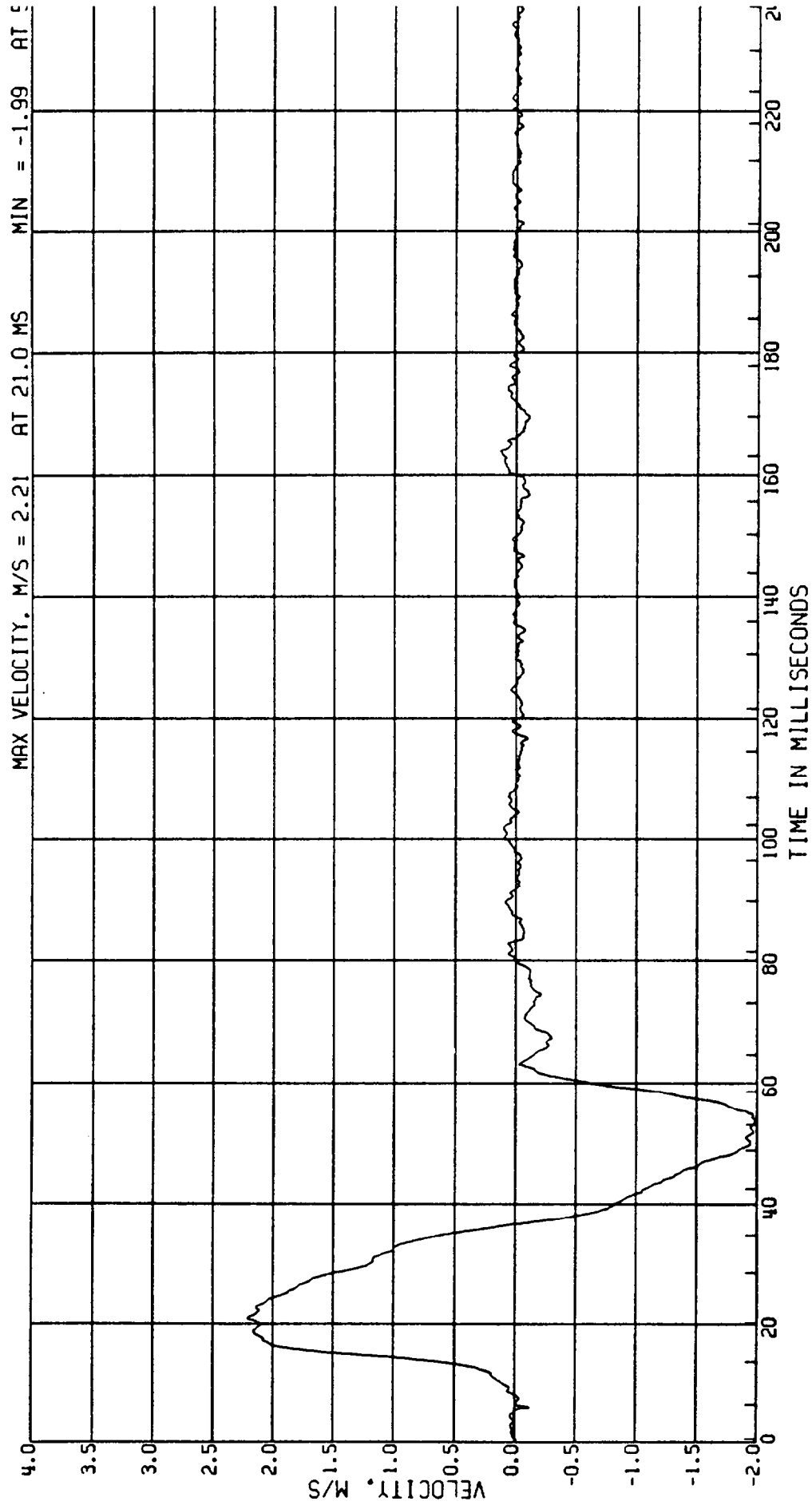
AID TYPE: B10SID
TEST DATE:03-27-90



RELEASED BY:

23 PROCESSED 4 NY 90 14:50

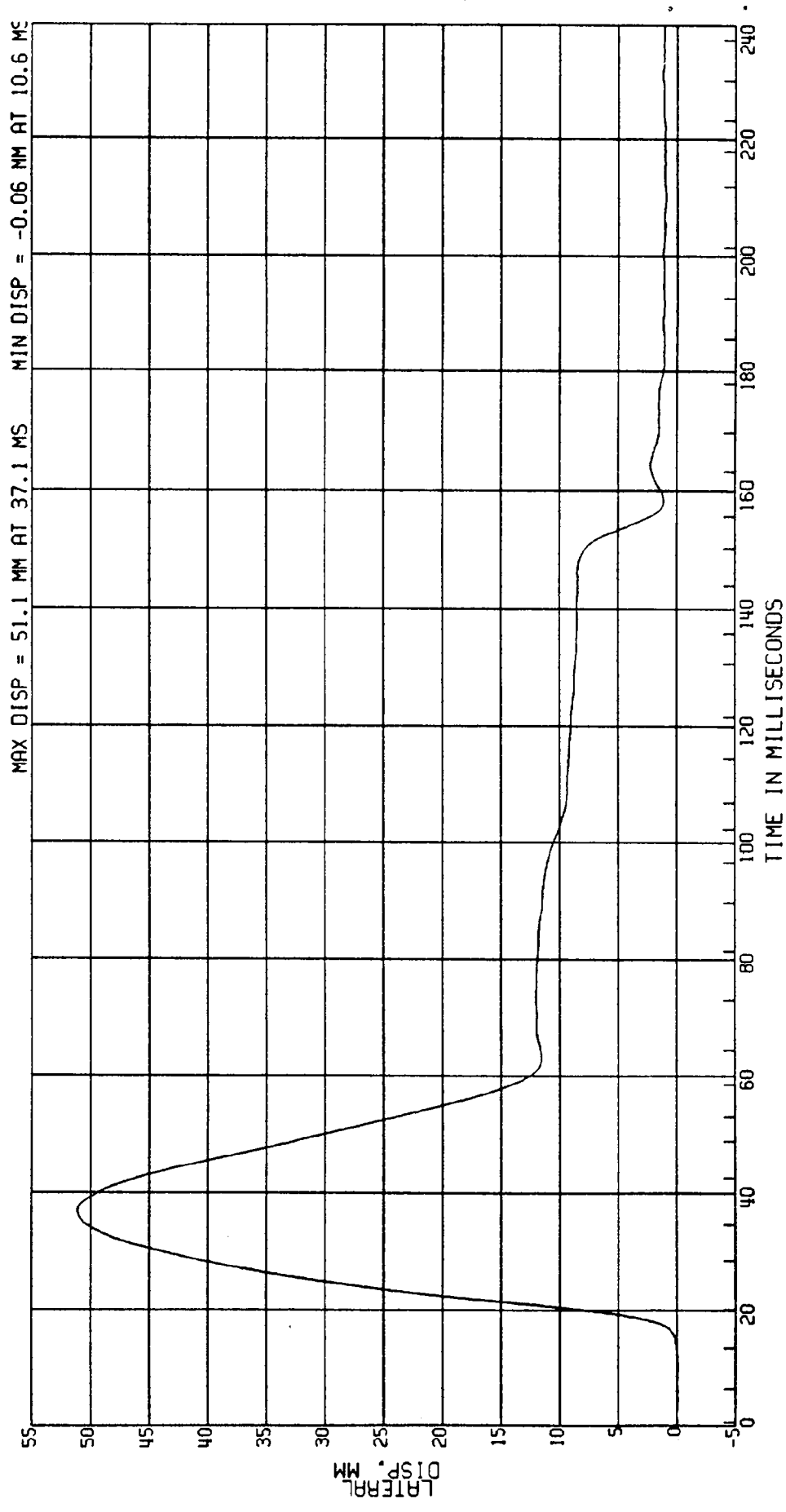
C80118 L. SIDE IMPACT- 27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 95
 3868-905
 CPE MVMA 11P 2AF69
 ELEC DATA, SAE CLASS 60
 L. REAR 3RD THORACIC RIB VELOCITY
 (DIFF OF 3RD RIB DISP)
 ATO TYPE: B10SID
 TEST DATE: 03-27-91



RELEASED BY:

24 PROCESSED 4 MY 90 14:50

C80118 L. SIDE IMPACT- 27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 96
3868-905 AID TYPE: BIOSID
CPE MVMA 11P 2AF69 TEST DATE:03-27-90
ELEC DATA, SAE CLASS 60 L.REAR FIRST ABDOMINAL RIB DISP.



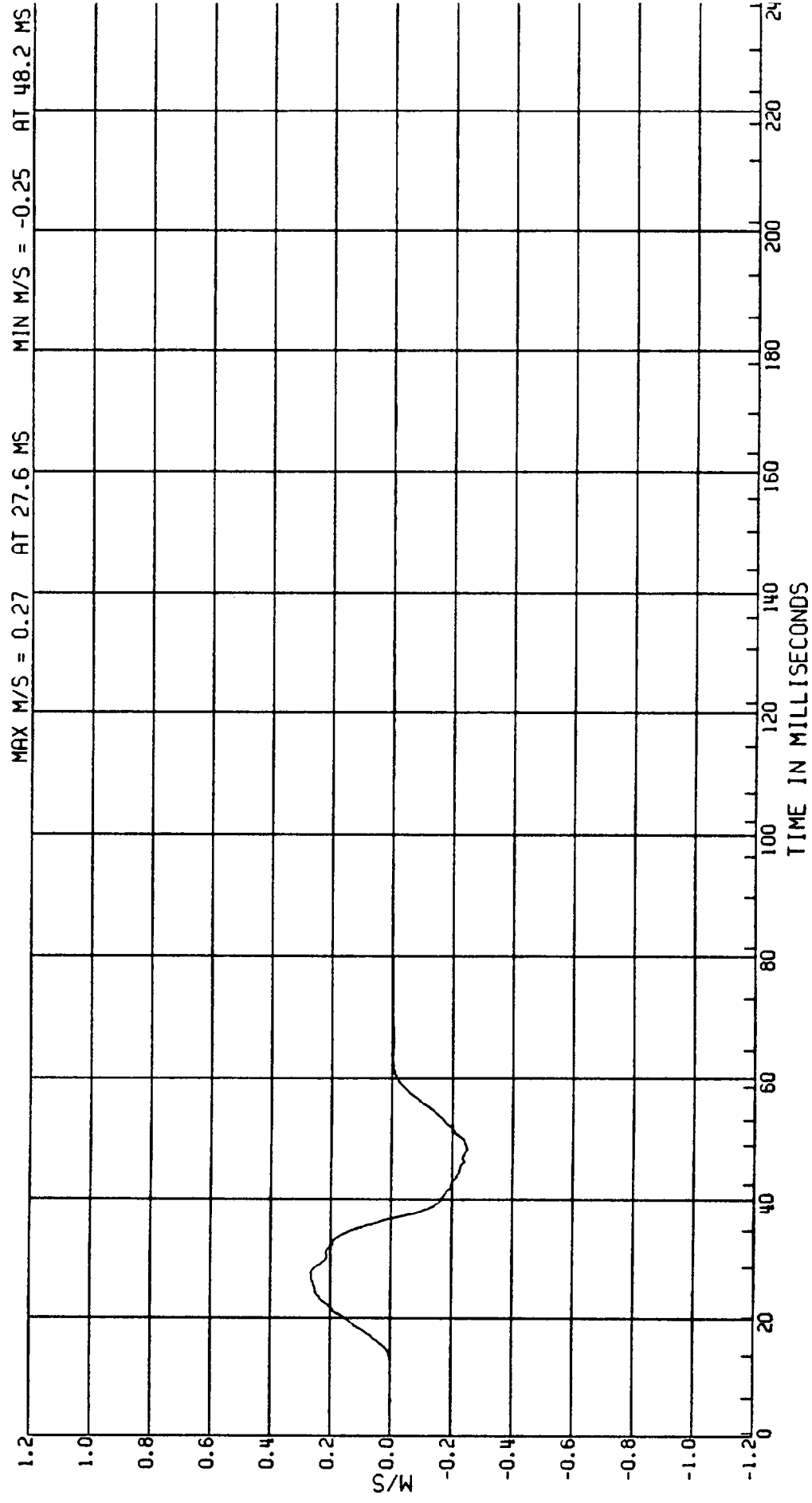
RELEASED BY:

26 PROCESSED 4 MY 90 14:51

C8011B L. SIDE IMPACT- 27 DEG
3868-905
CPE MVMA 11P 2AF69
ELEC DATA, SAE CLASS 60

MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H
VISCIOUS RESPONSE OF 3RD THORACIC RIB
(3RD RIB DISP*3RD RIB VEL) /175MM

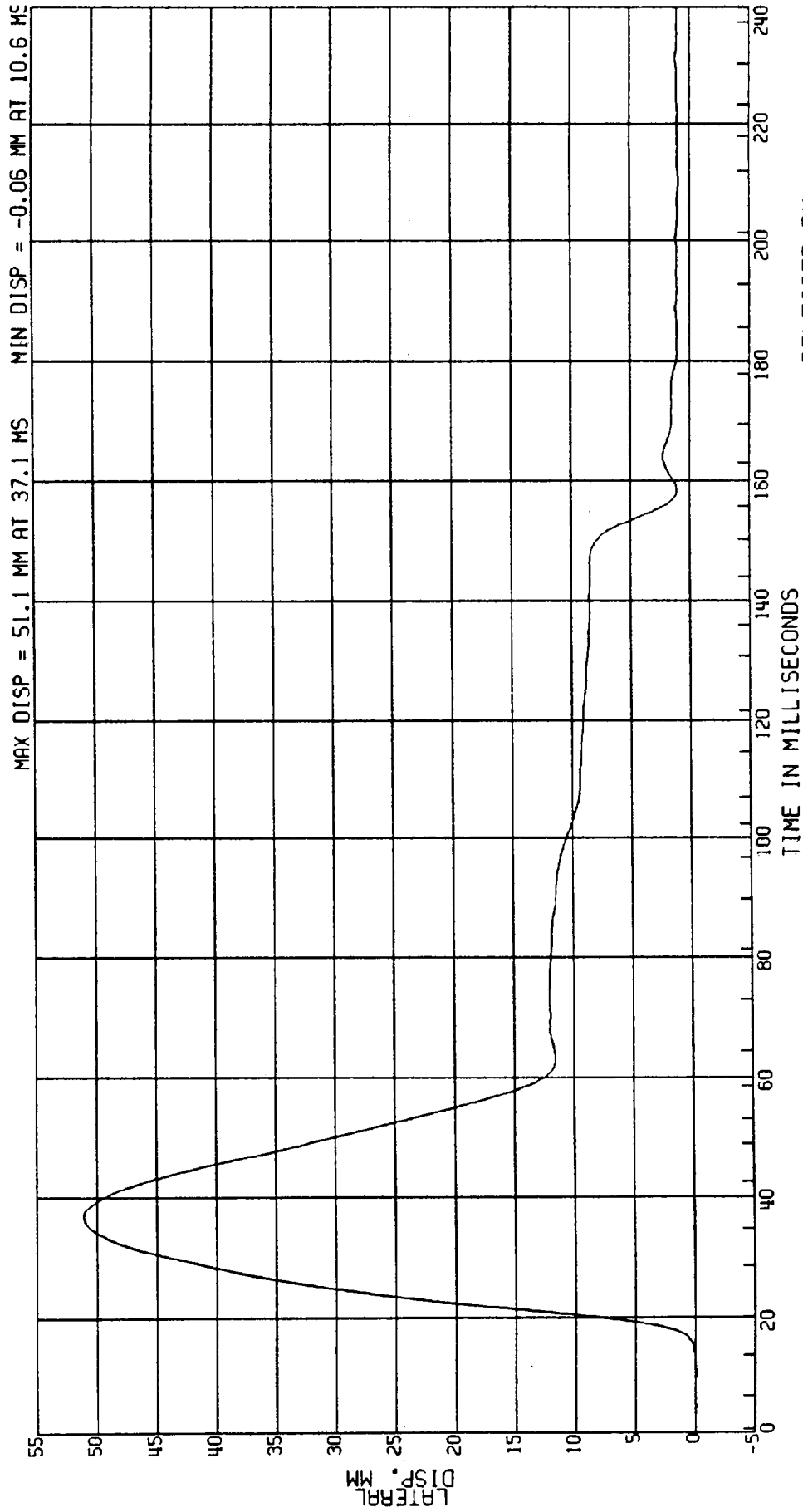
FIGURE 97
AID TYPE: BIOSID
TEST DATE:03-27-9



RELEASED BY:

25 PROCESSED 4 MY 90 14:51

C8011B L. SIDE IMPACT- 27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 98
3868-905
CPE MVMA 11P 2AF69
ELEC DATA, SAE CLASS 60
ATO TYPE: B10SID
TEST DATE: 03-27-90



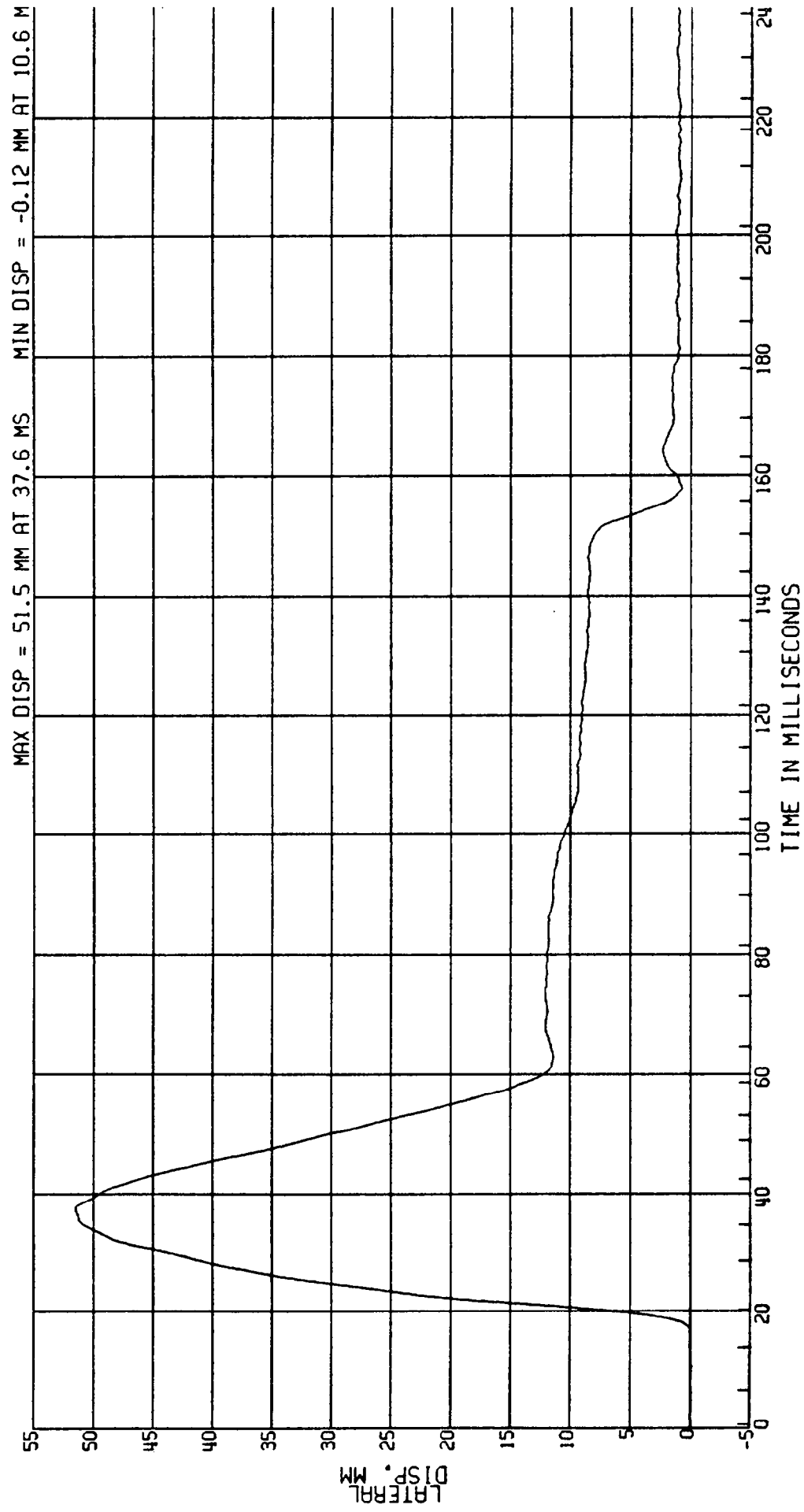
RELEASED BY:

26 PROCESSED 4 MY 90 14:51

C8011B L. SIDE IMPACT- 27 DEC
3868-905
CPE MVMA 11P 2AF69
ELEC DATA, SAE CLASS 180

MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H
L. REAR FIRST ABDOMINAL RIB DISP.

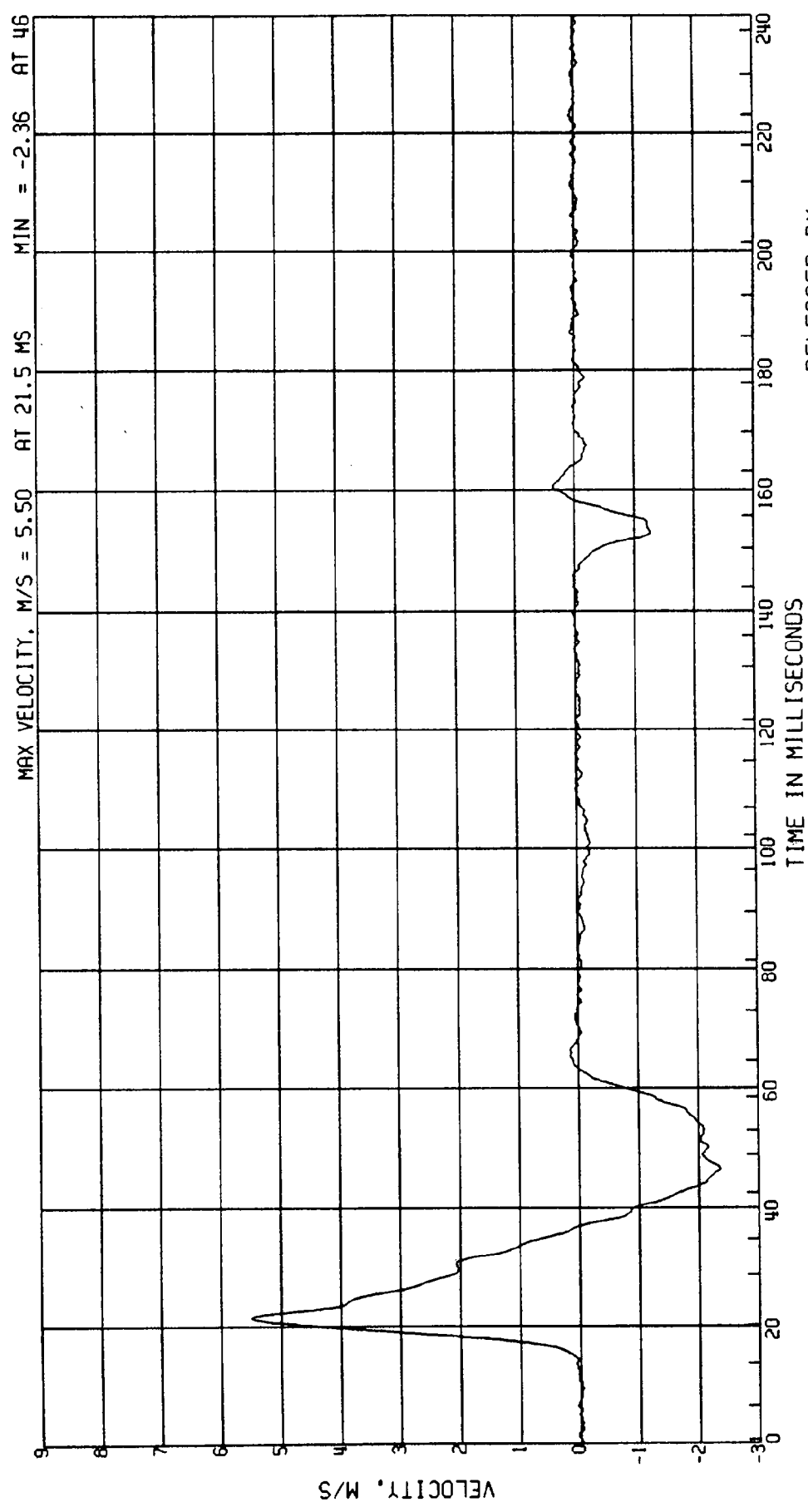
FIGURE 99
ATD TYPE: 810SID
TEST DATE: 03-27-90



RELEASED BY:

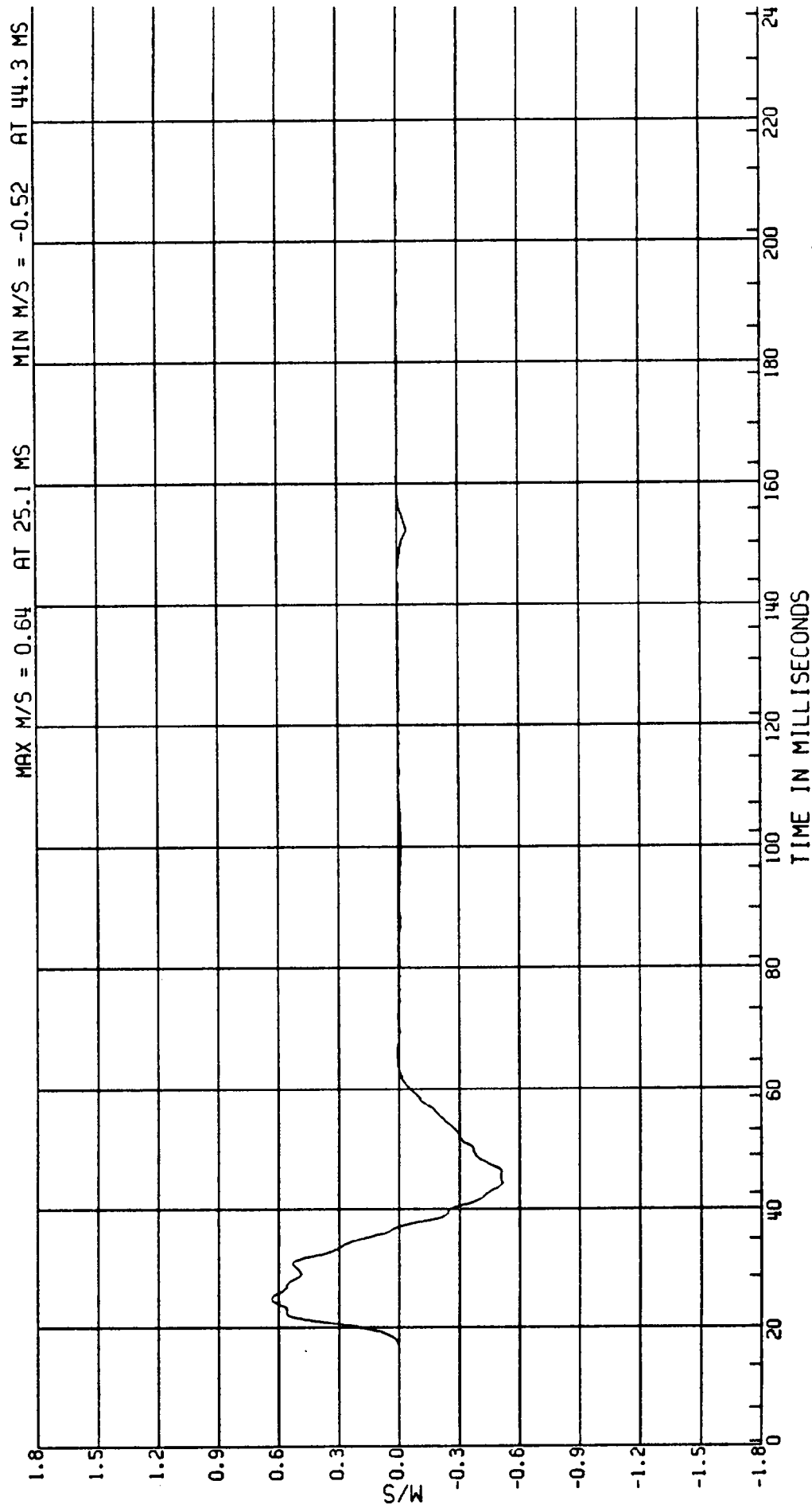
27 PROCESSED 4 MY 90 14:51

C8011B L. SIDE IMPACT- 27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE /00
 3868-905
 CPE MVMA 11P 2AF69
 ELEC DATA, SAE CLASS 60
 L.REAR 1ST ABDOMINAL RIB VELOCITY
 (DIFF OF 1ST RIB DISP)
 ATD TYPE: BIOSID
 TEST DATE:03-27-90



RELEASED BY:
 28 PROCESSED 4 MY 90 14:51

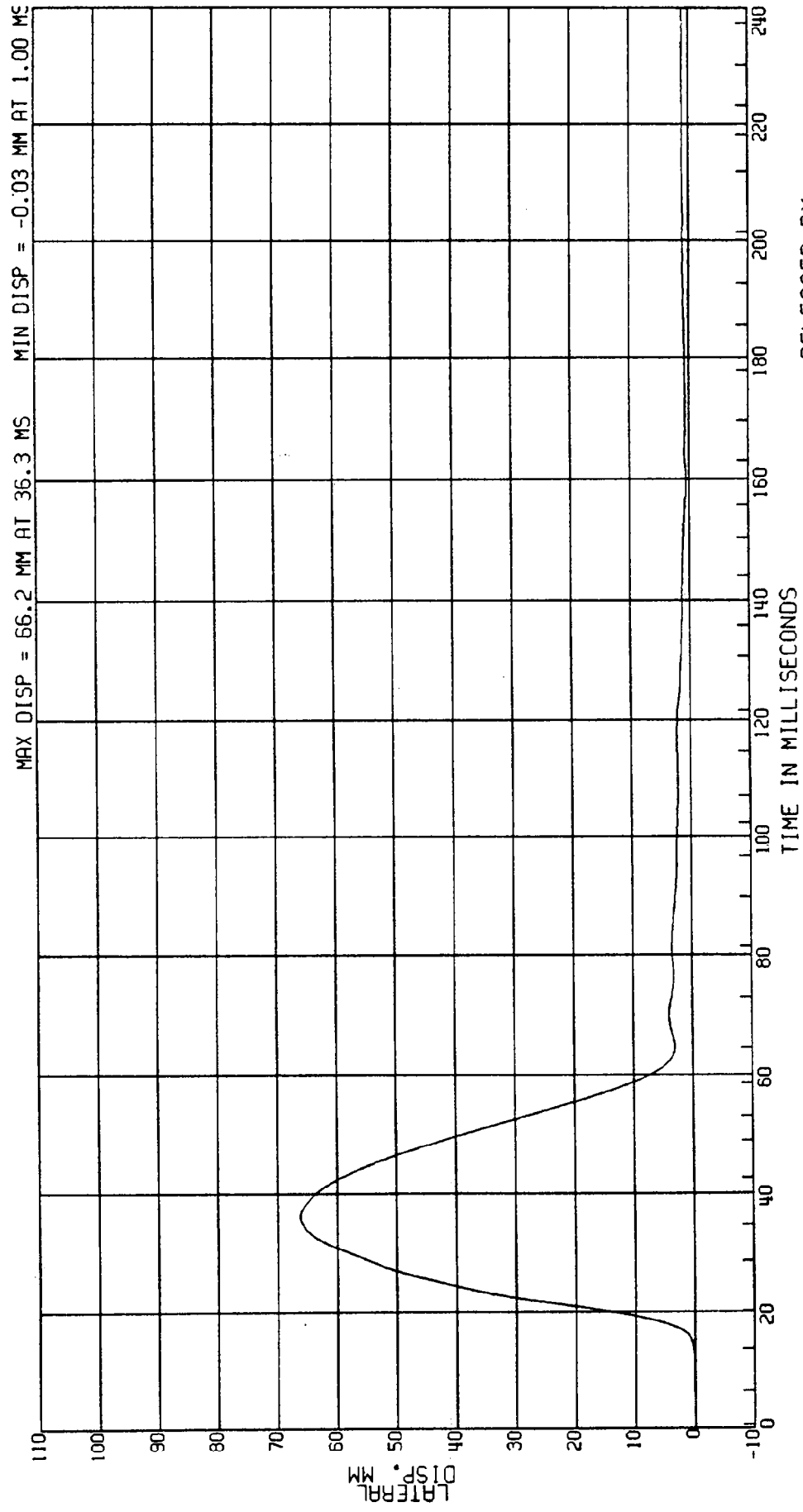
C8011B L. SIDE IMPACT- 27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE /01/
 3868-905
 CPE MVMA 11P 2AF69
 ELEC DATA, SAE CLASS 60
 VISCOUS RESPONSE OF 1ST ABDOMINAL RIB
 (1ST RIB DISP*1ST RIB VEL) /175MM
 ATD TYPE: BIOSID
 TEST DATE:03-27-90



RELEASED BY:

29 PROCESSED 4 MY 90 14:51

C8011B L. SIDE IMPACT- 27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 102
3868-905
CPE MVMA 11P 2AF69
ELEC DATA, SAE CLASS 60
ATD TYPE: BIOSID
TEST DATE: 03-27-90

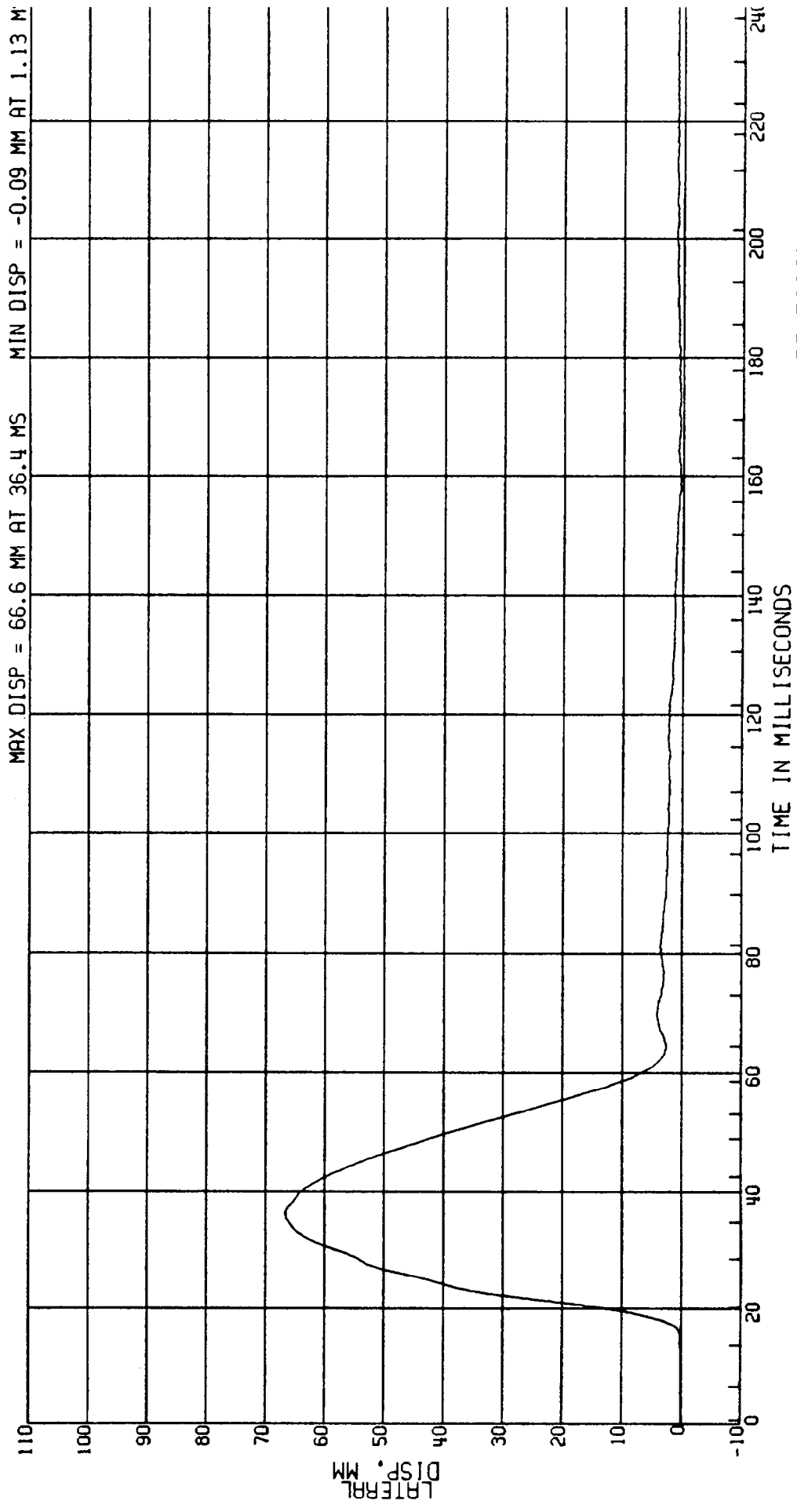


RELEASED BY:
30 PROCESSED 4 MY 90 14:51

C8011B L. SIDE IMPACT- 27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE /03
3868-905
CPE MVMA 11P 2AF69
ELEC DATA, SAE CLASS 180

ATD TYPE: B10SID
TEST DATE: 03-27-90

L. REAR SECOND ABDOMINAL RIB DISP.



RELEASED BY:

31 PROCESSED 4 MY 90 14:51

C8011B L. SIDE IMPACT- 27 DEG

3868-905

CPE MVMA 11P 2AF69

ELEC DATA, SAE CLASS 60

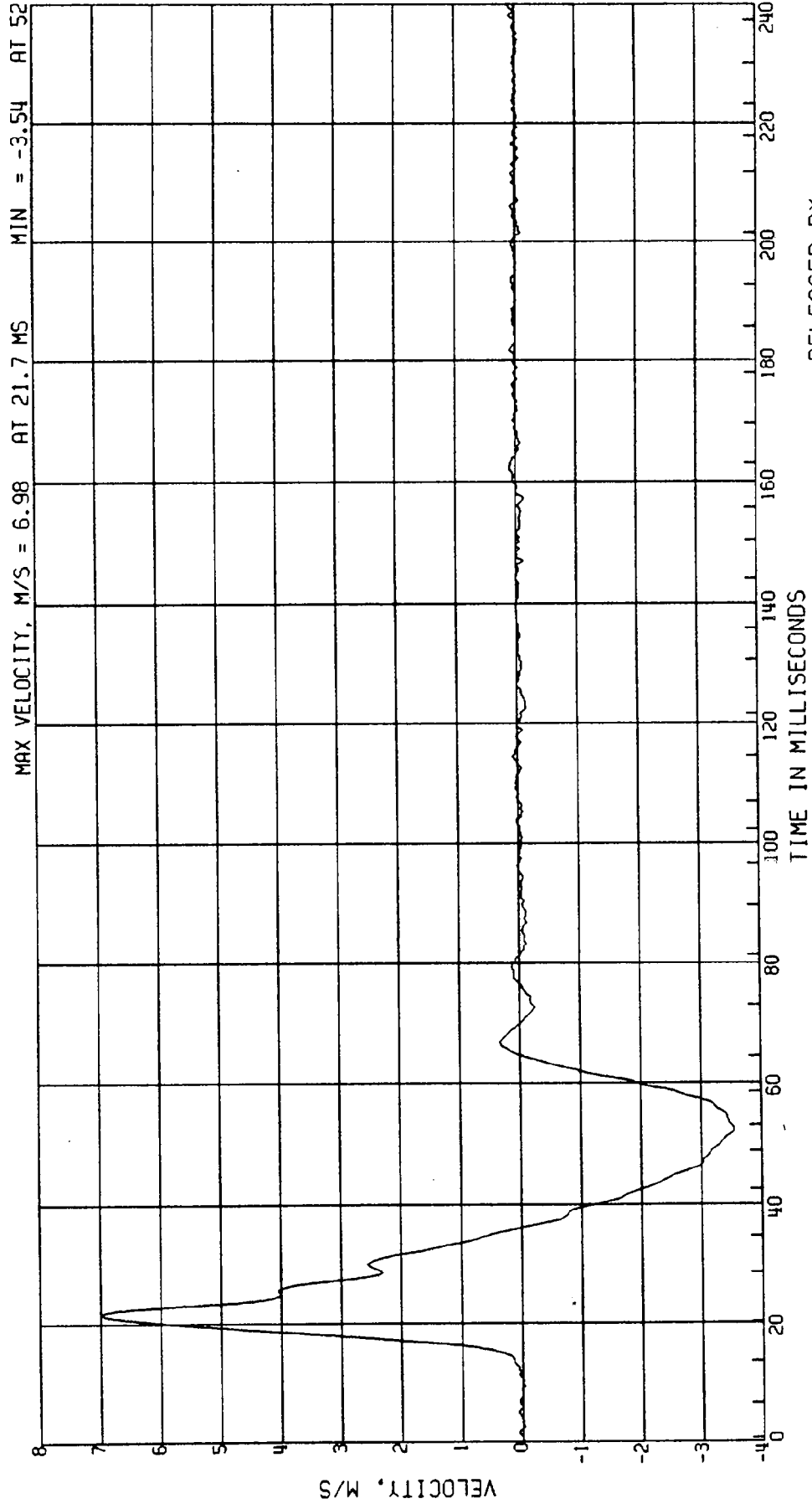
MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 104

AID TYPE: BIOSID

TEST DATE:03-27-90

L. REAR 2ND ABDOMINAL RIB VELOCITY

(DIFF OF 2ND RIB DISP)



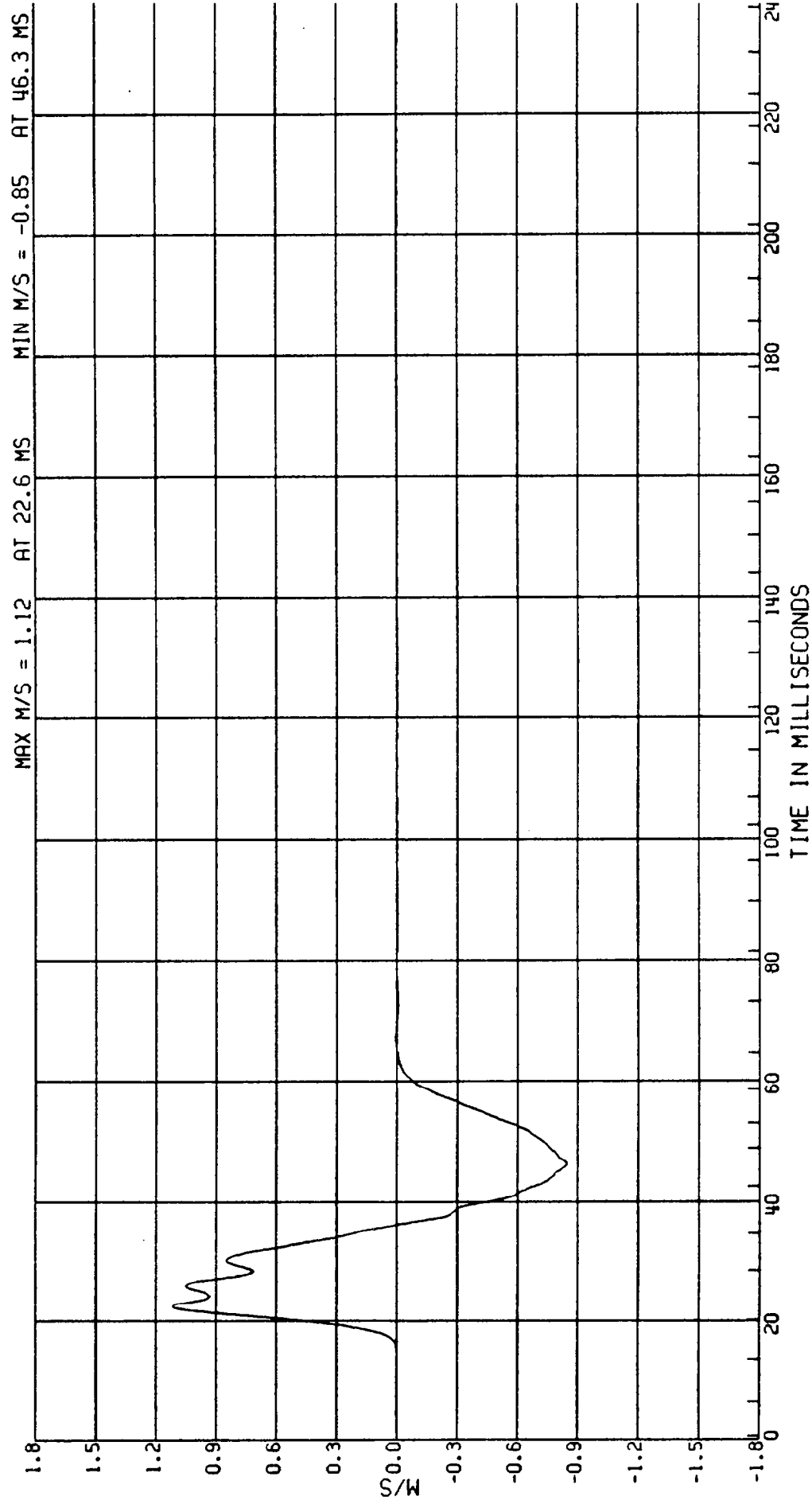
RELEASED BY:

32 PROCESSED 4 MY 90 14:51

C8011B L. SIDE IMPACT- 27 DEC
3868-905
CPE MVMA 11P 2AF69
ELEC DATA, SAE CLASS 60

MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 105
VISCIOUS RESPONSE OF 2ND ABDOMINAL RIB
(2ND RIB DISP*2ND RIB VEL)/175MM

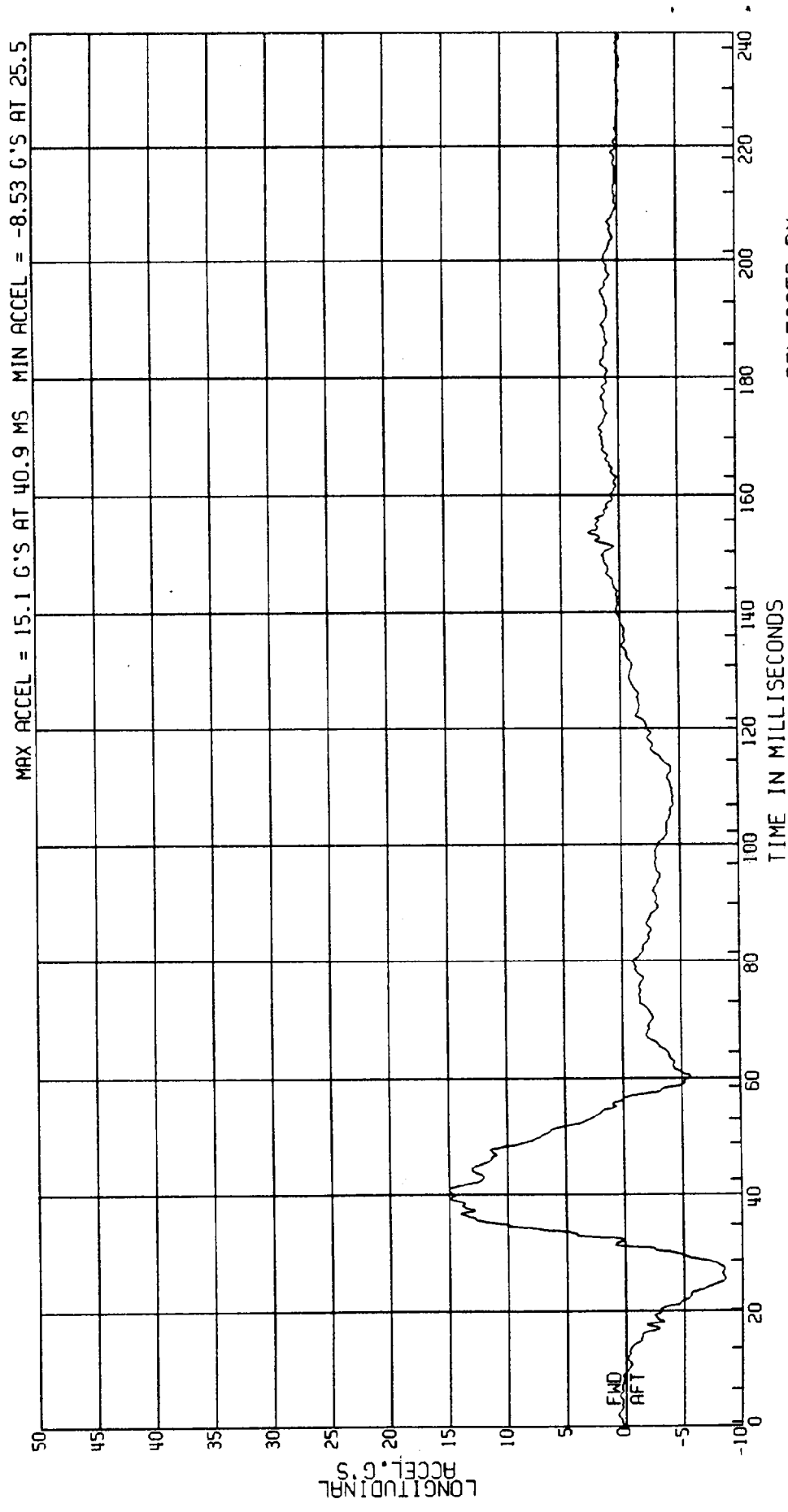
ATO TYPE: BIOSID
TEST DATE:03-27-90



RELEASED BY:

33 PROCESSED 4 MY 90 14:51

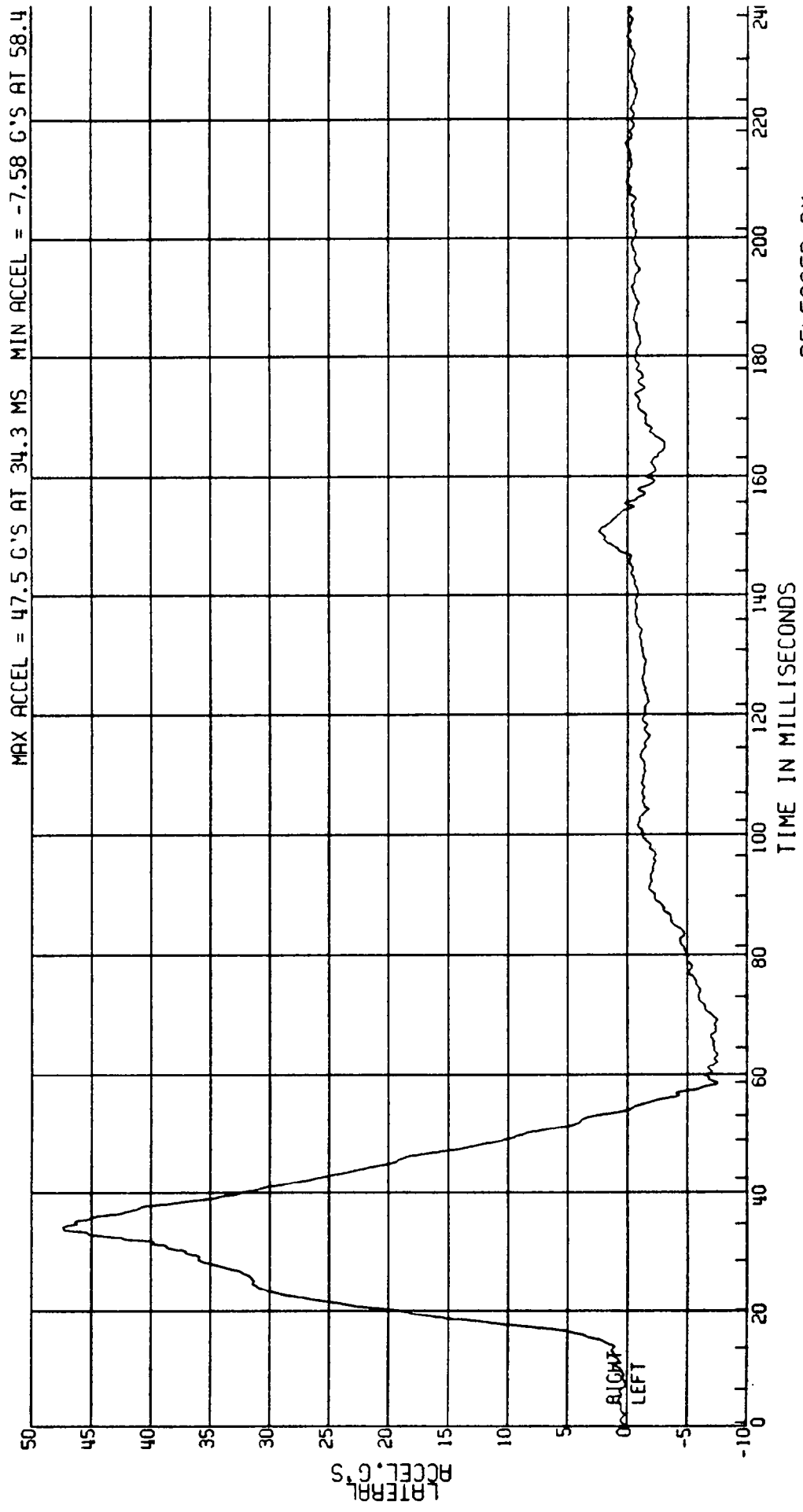
C80118 L. SIDE IMPACT- 27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 106
3868-905 ATD TYPE: BIOSID
CPE MVMA 11P 2AF69 TEST DATE: 03-27-90
ELEC DATA, SAE CLASS 180 L. REAR UPPER SPINE ACCEL.



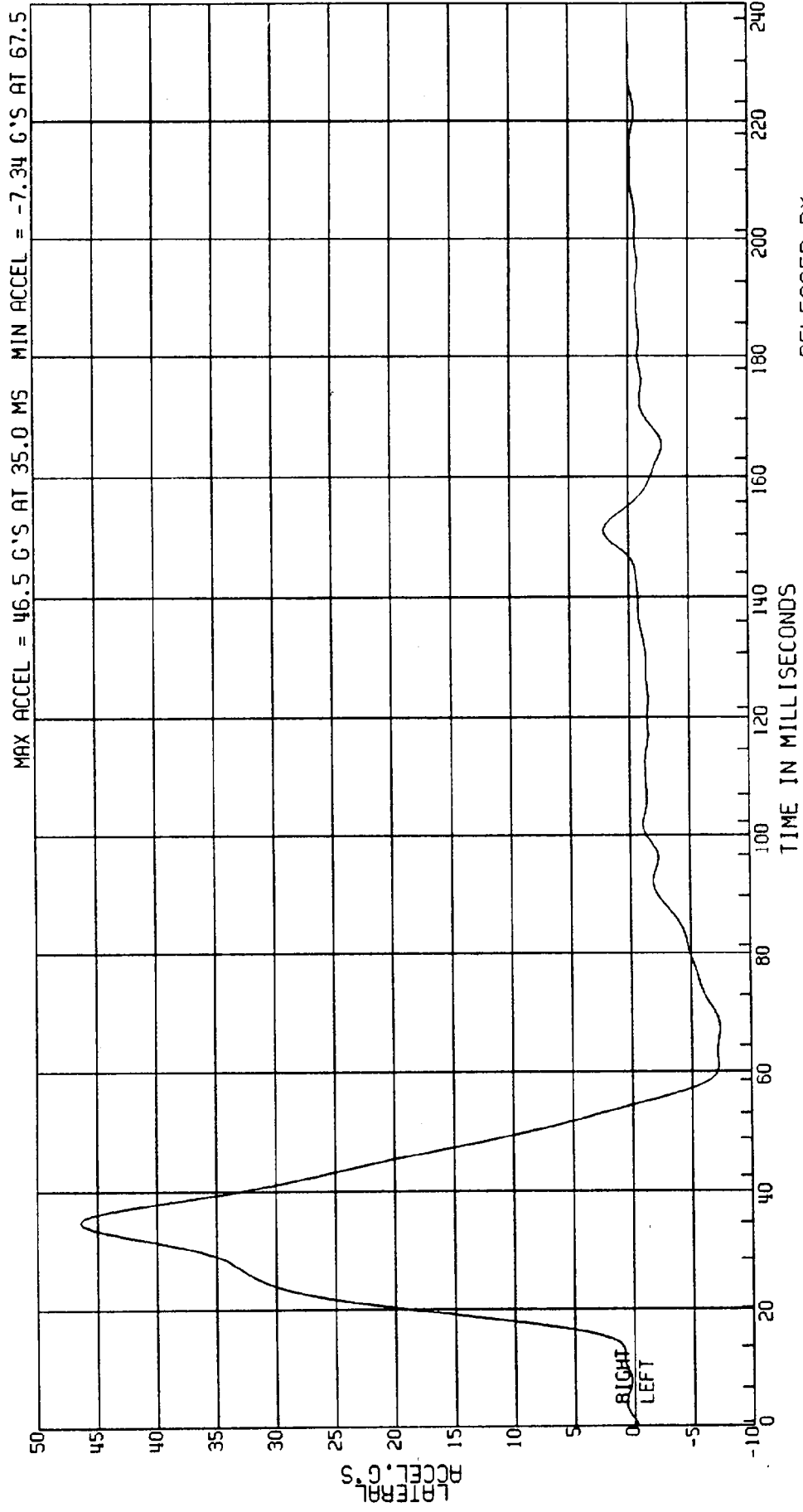
RELEASED BY:

34 PROCESSED 4 MY 90 14:51

C8011B L. SIDE IMPACT- 27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 107
3868-905 AID TYPE: BIOSID
CPE MVMA 11P 2AF69 L. REAR UPPER SPINE ACCEL. TEST DATE: 03-27-90
ELEC DATA, SAE CLASS 180



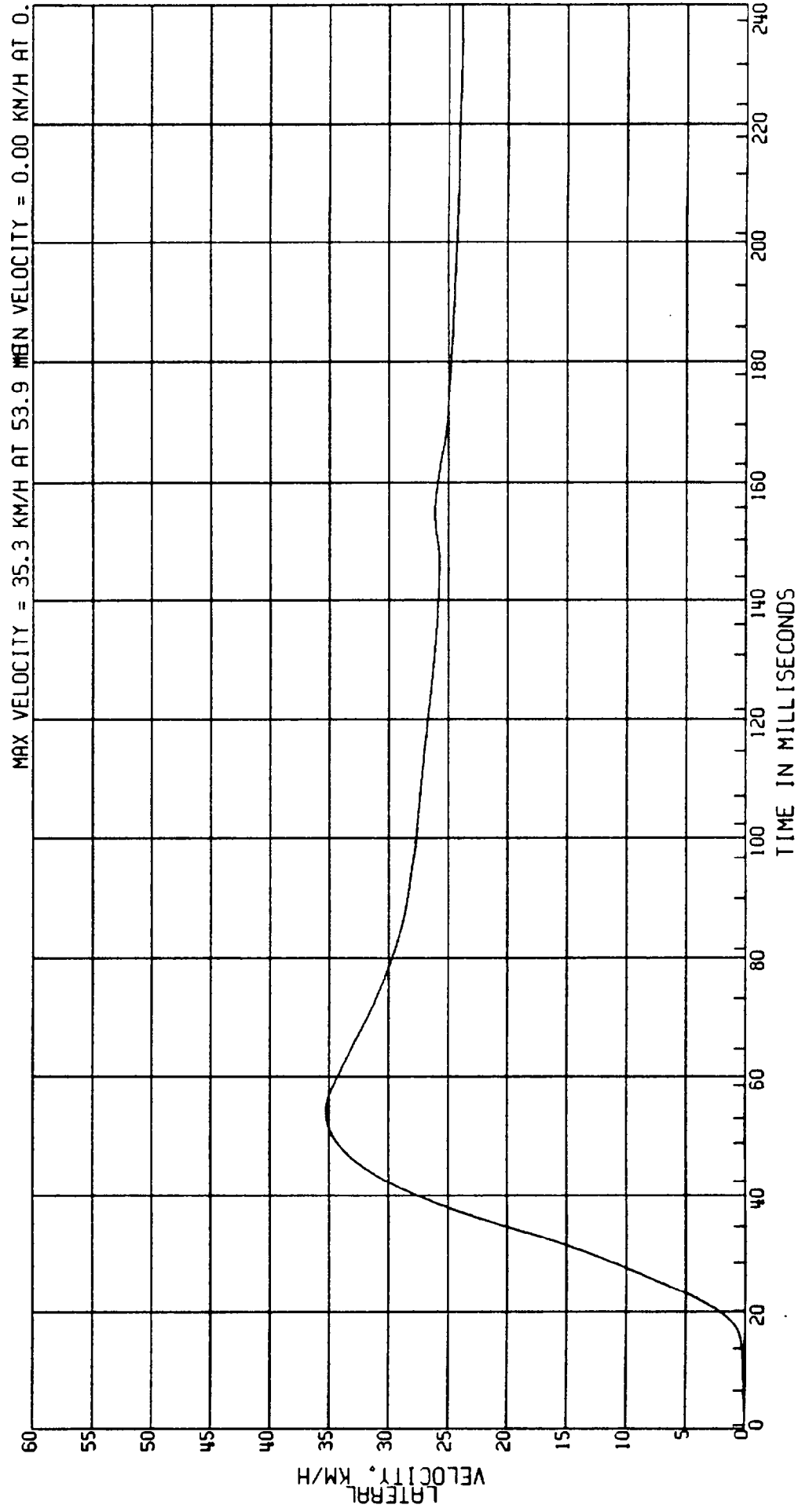
C8011B L. SIDE IMPACT- 27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 108
 3868-905
 CPE MVMA 11P 2AF69
 ELEC DATA, NHTSA FIR FILTER F.I.R. FILTER, CLASS 300 BUTTERWORTH
 ATD TYPE: BIOSID
 TEST DATE: 03-27-90



RELEASED BY:

36 PROCESSED 4 MY 90 14:51

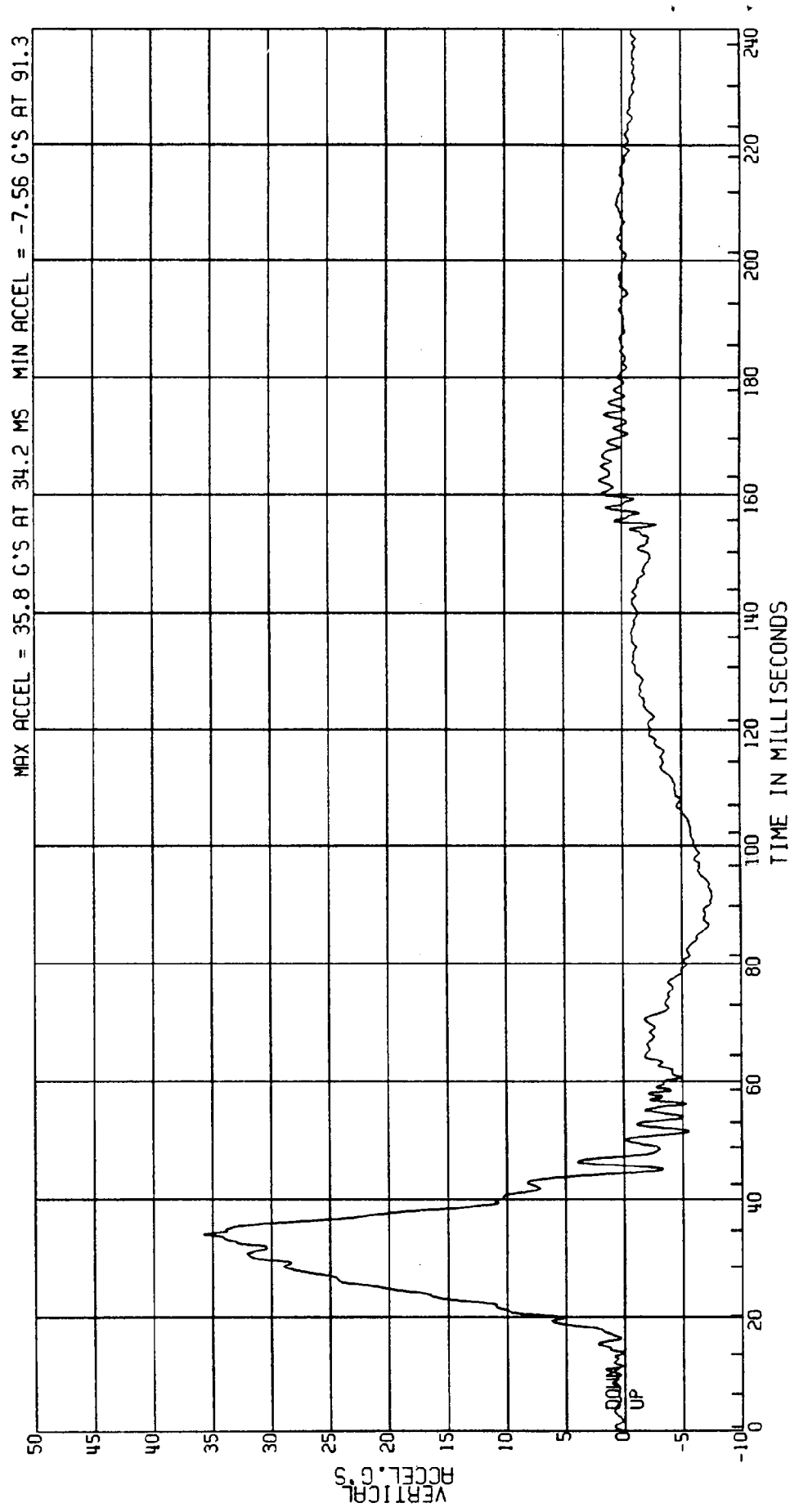
C8011B L. SIDE IMPACT- 27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 109
3868-905
CPE MVMA 11P 2AF69 ATD TYPE: BIOSID
ELEC DATA, SAE CLASS 180 COMPUTED UPPER SPINE VELOCITY TEST DATE:03-27-90
(1ST INTEGRAL L. REAR ACCELERATION)



RELEASED BY:

37 PROCESSED 4 MY 90 14:51

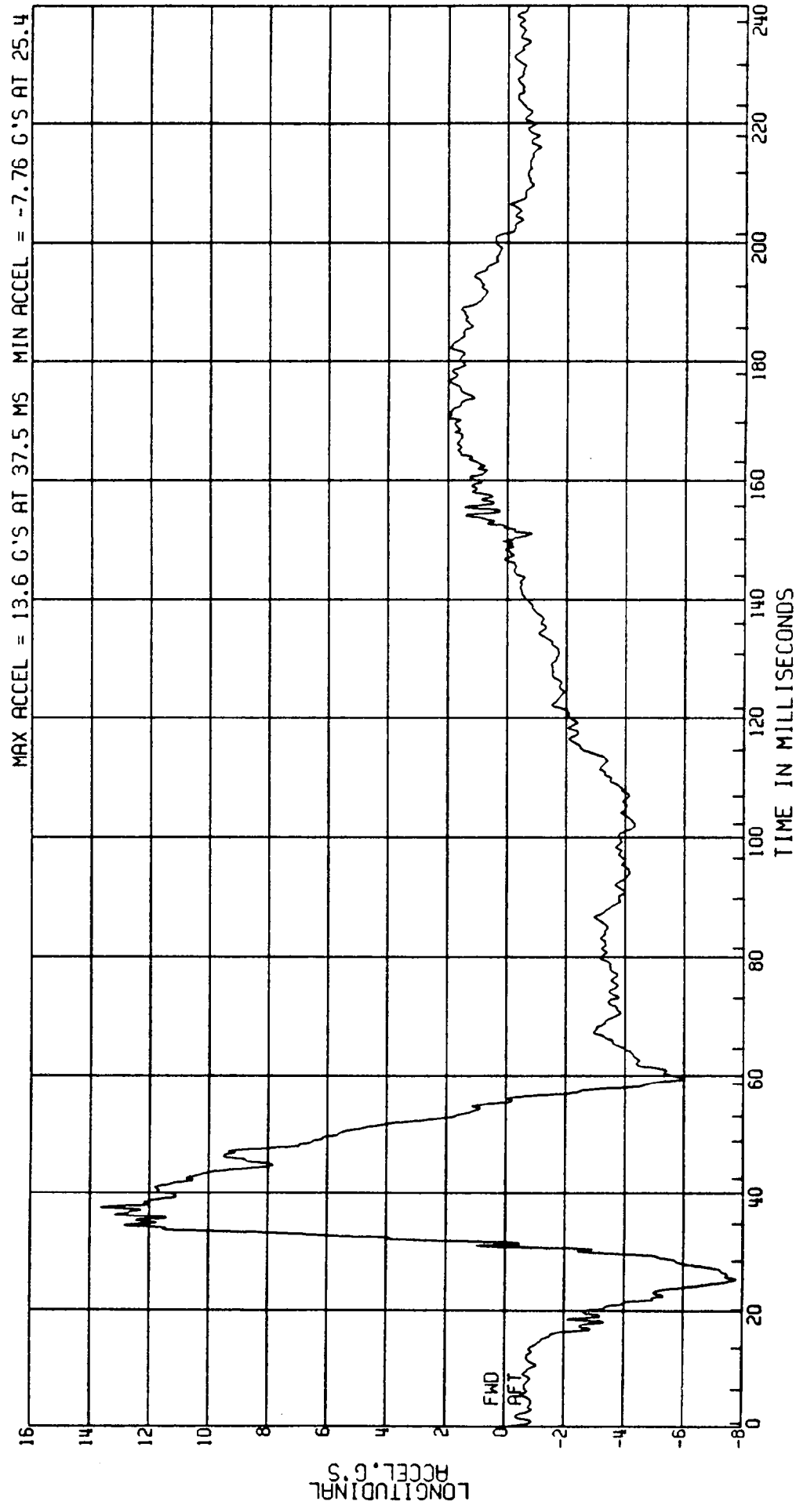
C80118 L. SIDE IMPACT- 27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE // 0
 3868-905 AID TYPE: BIOSID
 CPE MVMA 11P 2AF69 TEST DATE:03-27-90
 ELEC DATA, SAE CLASS 180 L.REAR UPPER SPINE ACCEL.



RELEASED BY:

38 PROCESSED 4 MY 90 14:51

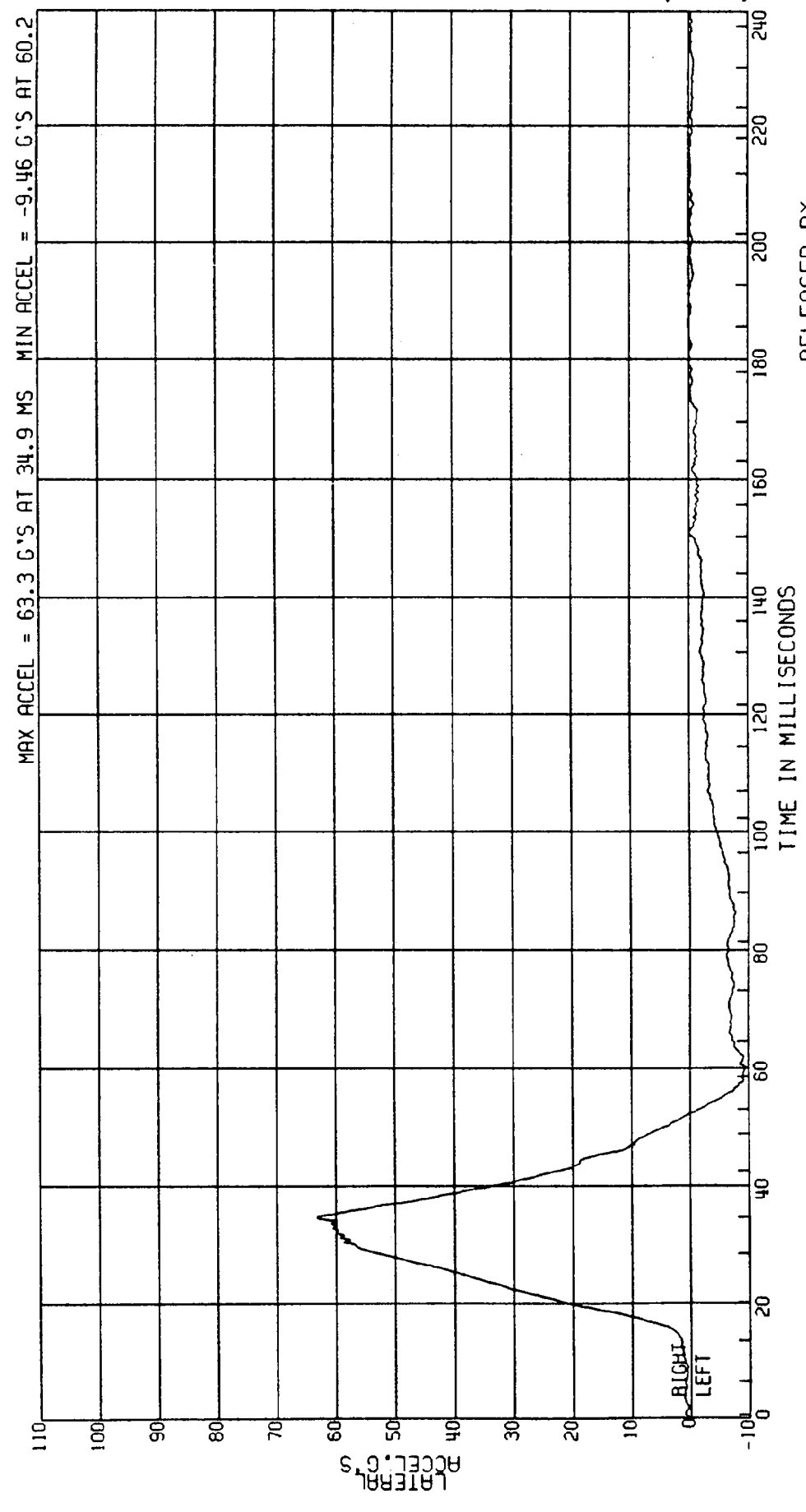
C8011B L. SIDE IMPACT- 27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 111
3868-905
CPE MVMA 11P 2AF69
ELEC DATA, SAE CLASS 180
L. REAR LOWER SPINE ACCEL.
ATD TYPE: BIOSID
TEST DATE: 03-27-90



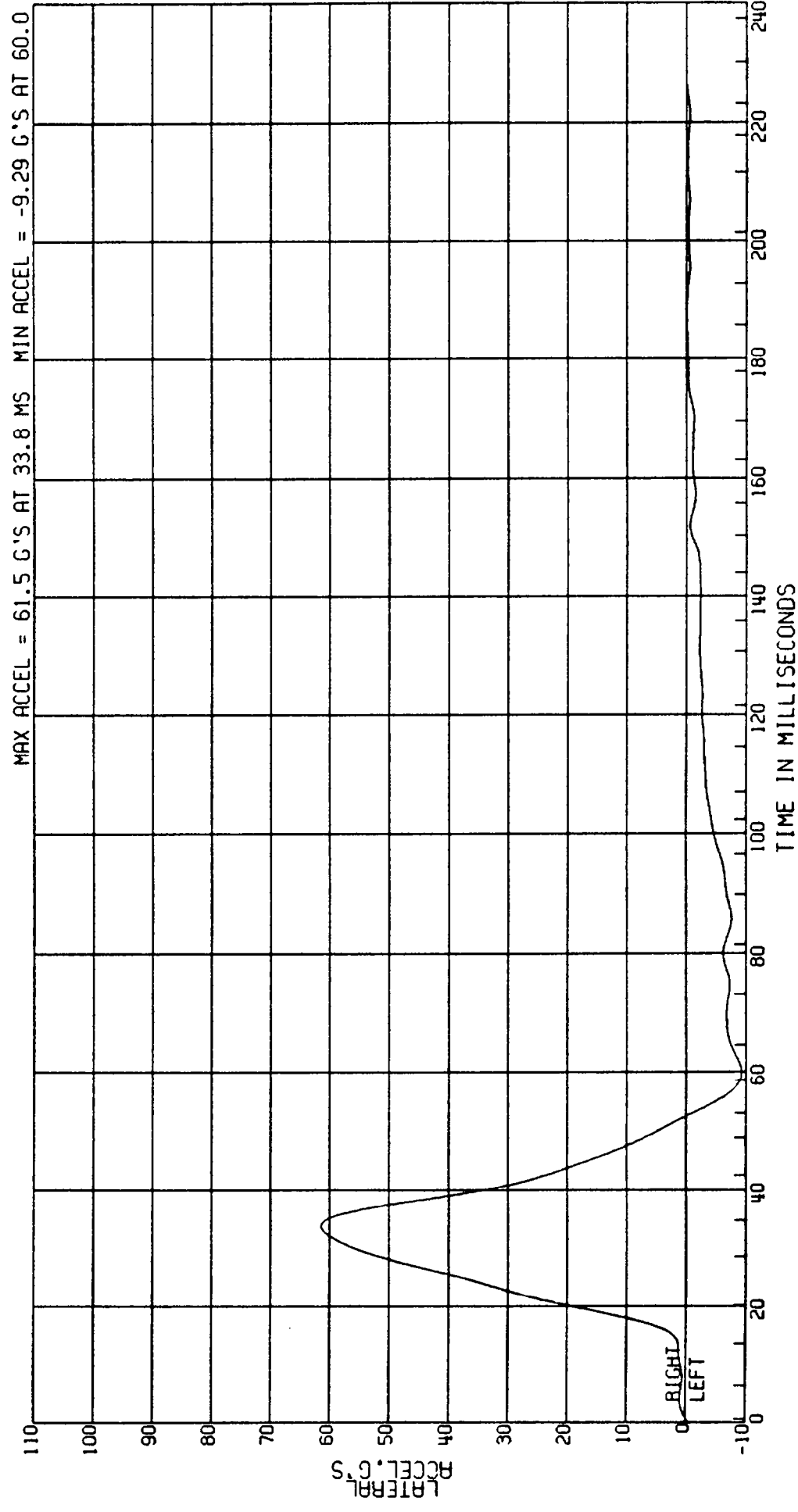
RELEASED BY:

39 PROCESSED 4 MY 90 14:51

C80118 L. SIDE IMPACT- 27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 112-
 3858-905
 CPE MVMA 11P 2AF69
 ELEC DATA, SAE CLASS 180
 AID TYPE: BIOSID
 TEST DATE: 03-27-90
 L. REAR LOWER SPINE ACCEL.



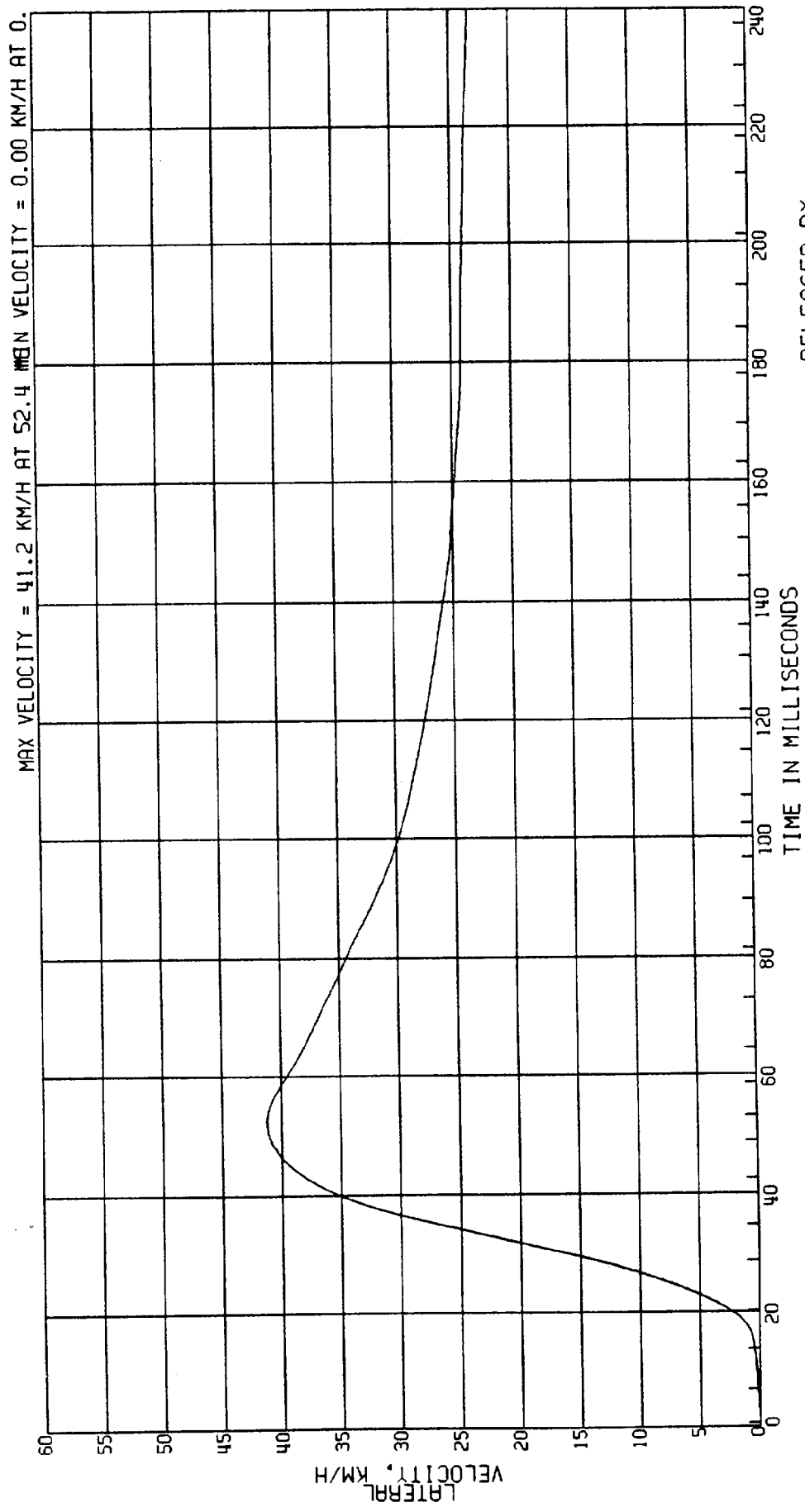
C8011B L. SIDE IMPACT- 27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE //3
 3868-905
 CPE MVMA 11P 2AF69
 ELEC DATA, NHTSA FIR FILTER F.I.R. FILTER, CLASS 300 BUTTERWORTH
 ATD TYPE: BIOSID
 TEST DATE: 03-27-90



RELEASED BY:

41 PROCESSED 4 MY 90 14:52

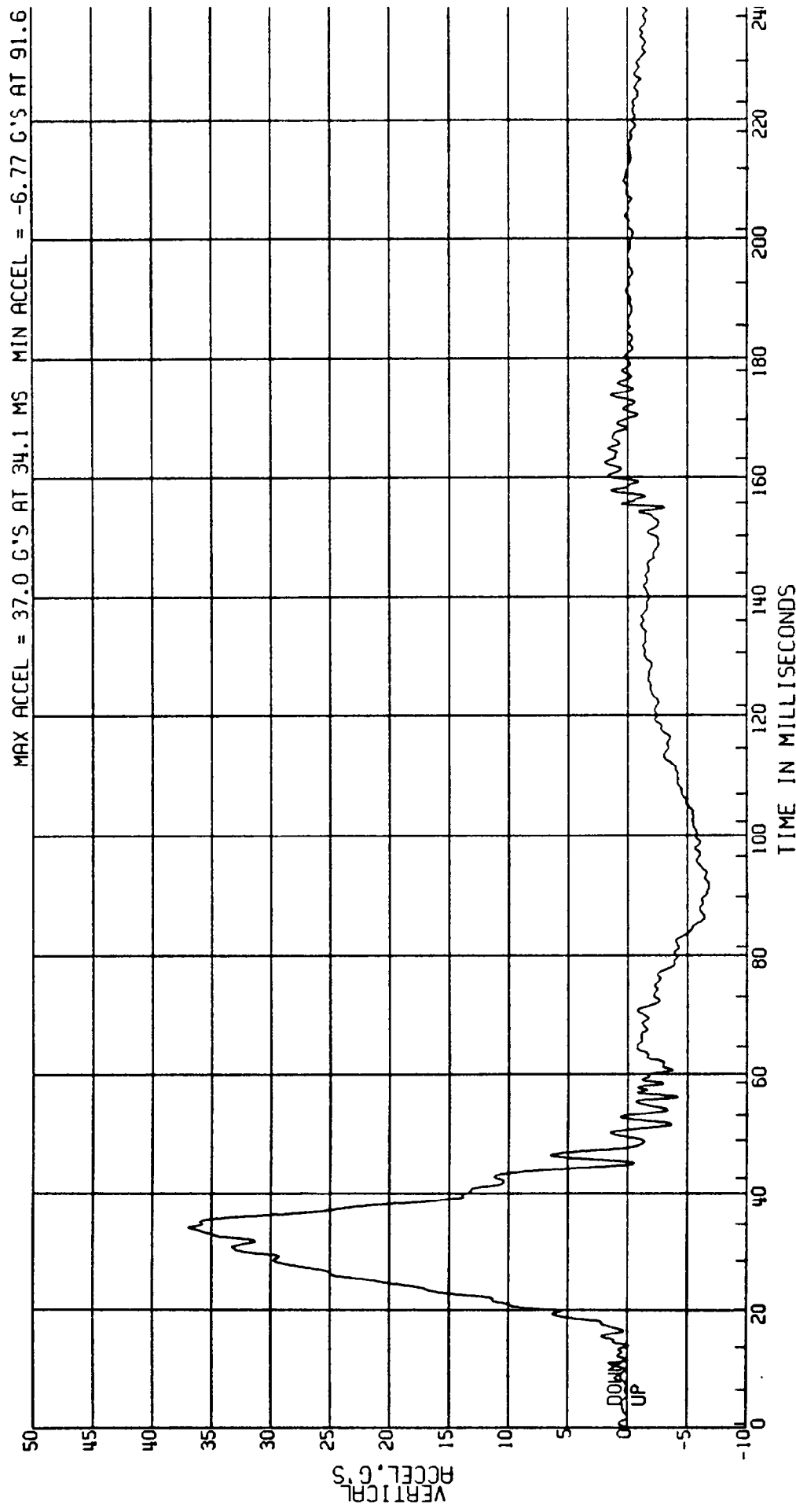
C8011B L. SIDE IMPACT- 27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 114
3868-905
CPE MVMA 11P 2AF69
ELEC DATA, SAE CLASS 180
COMPUTED LOWER SPINE VELOCITY
(1ST INTEGRAL L.REAR ACCELERATION)
ATD TYPE: B10SID
TEST DATE:03-27-90



RELEASED BY:

42 PROCESSED 4 MY 90 14:52

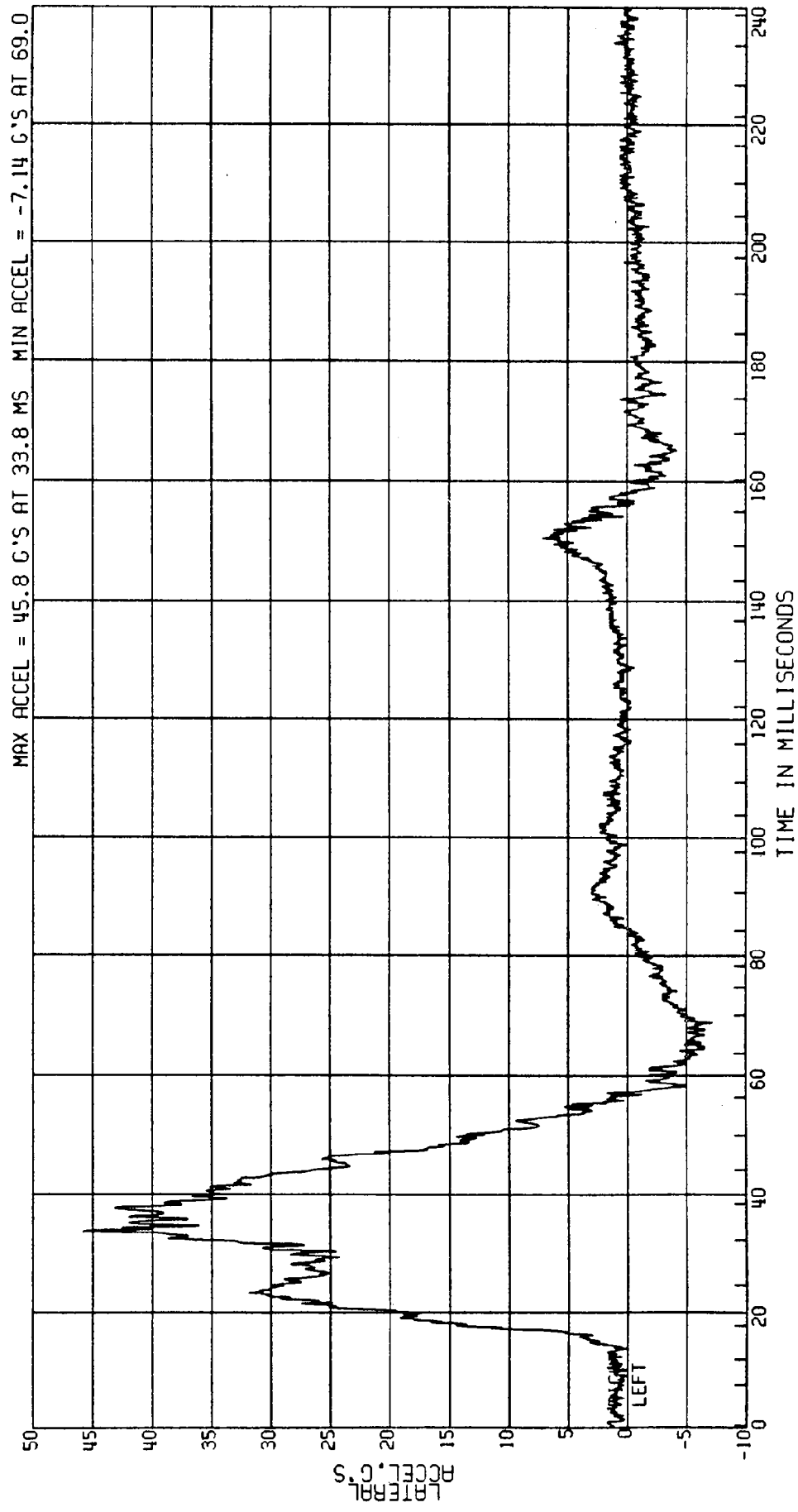
C8011B L. SIDE IMPACT- 27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE //5
 3868-905 ATD TYPE: BIOSID
 CPE MVMA 11P 2AF69 L.REAR LOWER SPINE ACCEL.
 ELEC DATA, SAE CLASS 180 TEST DATE:03-27-90



RELEASED BY:

43 PROCESSED 4 MY 90 14:52

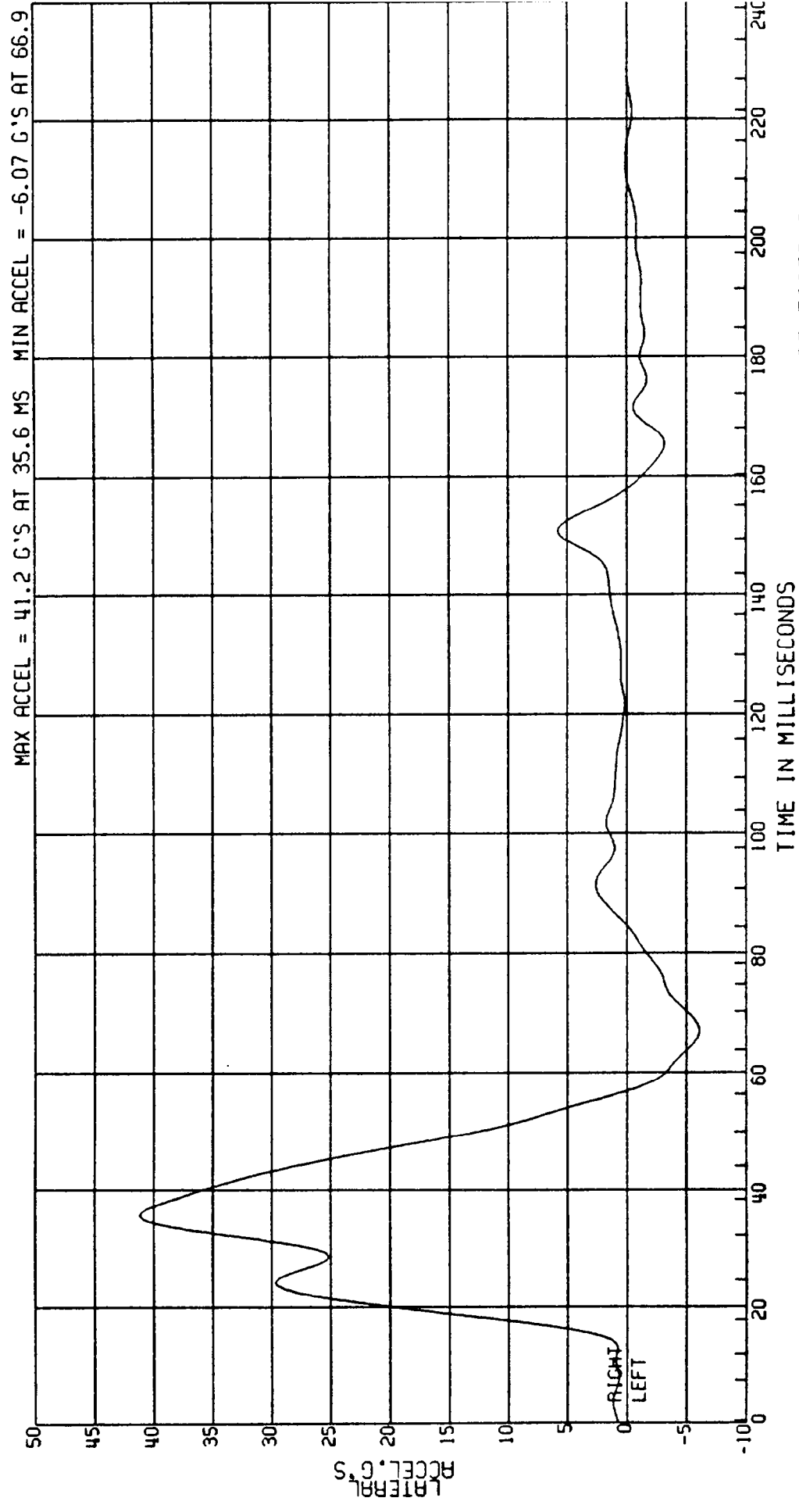
C8011B L. SIDE IMPACT- 27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 16
3868-905
CPE MVMA 11P 2AF69
ELEC DATA, SAE CLASS 1000
L. REAR T1 ACCEL.
ATD TYPE: BIOSID
TEST DATE: 03-27-90



RELEASED BY:

44 PROCESSED 4 MY 90 14:52

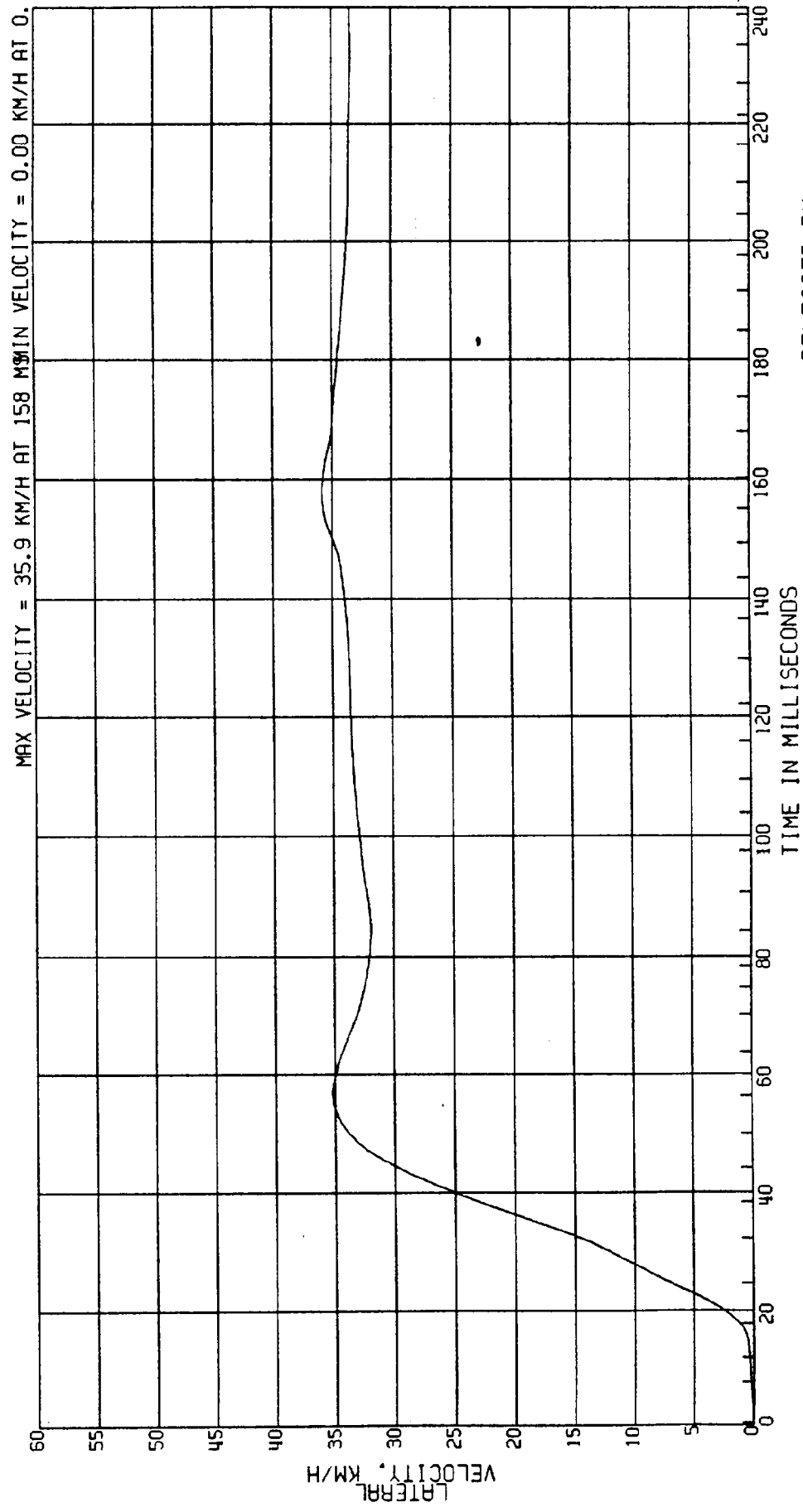
C8011B L. SIDE IMPACT- 27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 1/7
 3868-905 ATD TYPE: BIOSID
 CPE MVMA 11P 2AF69 TEST DATE:03-27-90
 ELEC DATA, NHTSA FIR FILTER L.REAR T1 ACCEL.
 F.I.R. FILTER, CLASS 300 BUTTERWORTH



RELEASED BY:

45 PROCESSED 4 MY 90 14:52

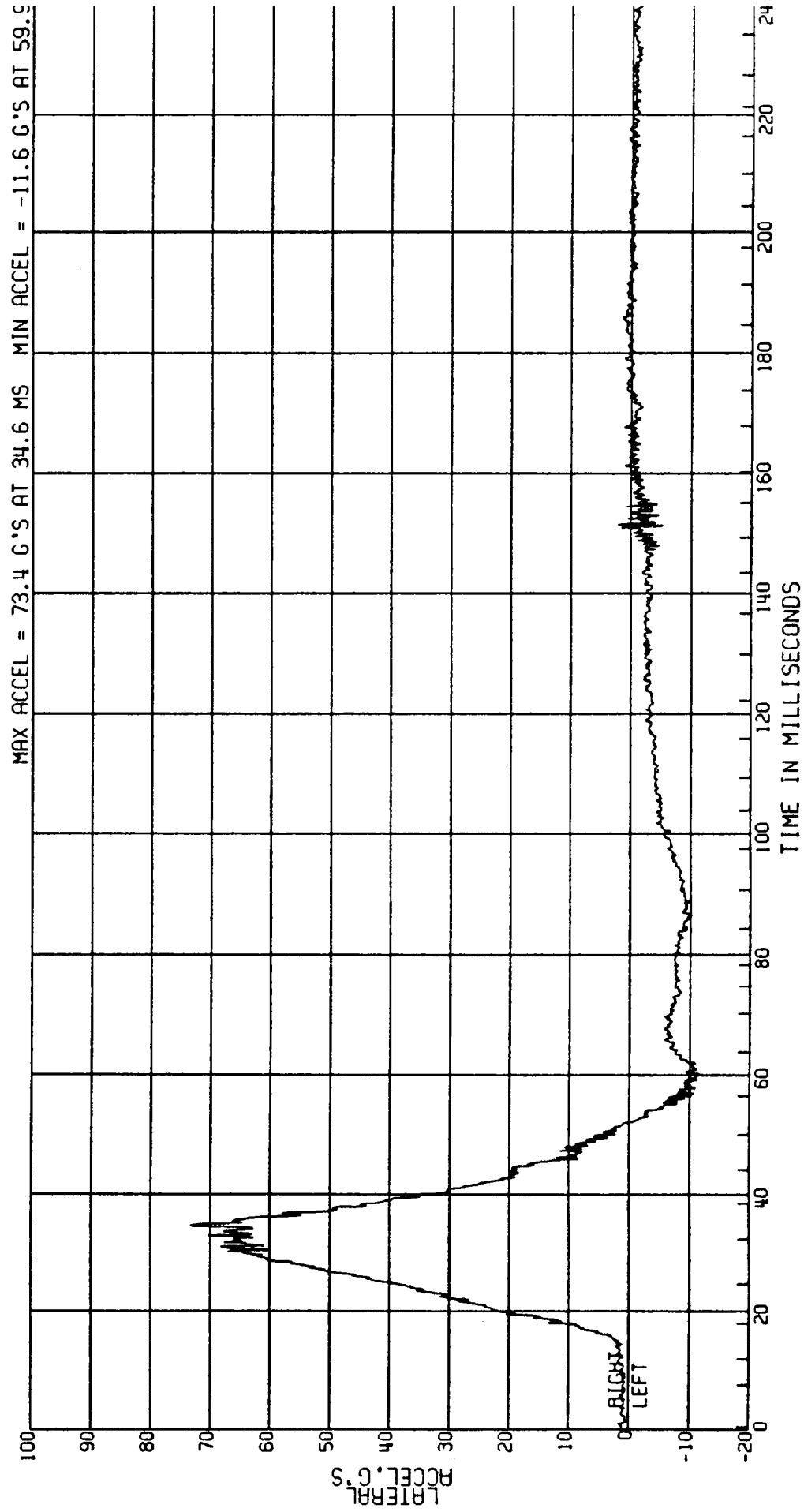
C8C118 L. SIDE IMPACT- 27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5 KM/H FIGURE 118
 3868-905
 CPE MVMA 11P 2AF69
 ELEC DATA, SAE CLASS 180
 COMPUTED T1 VELOCITY
 (1ST INTEGRAL L. REAR ACCELERATION)
 ATD TYPE: BIOSID
 TEST DATE: 03-27-90



RELEASED BY:

46 PROCESSED 4 MY 90 14:52

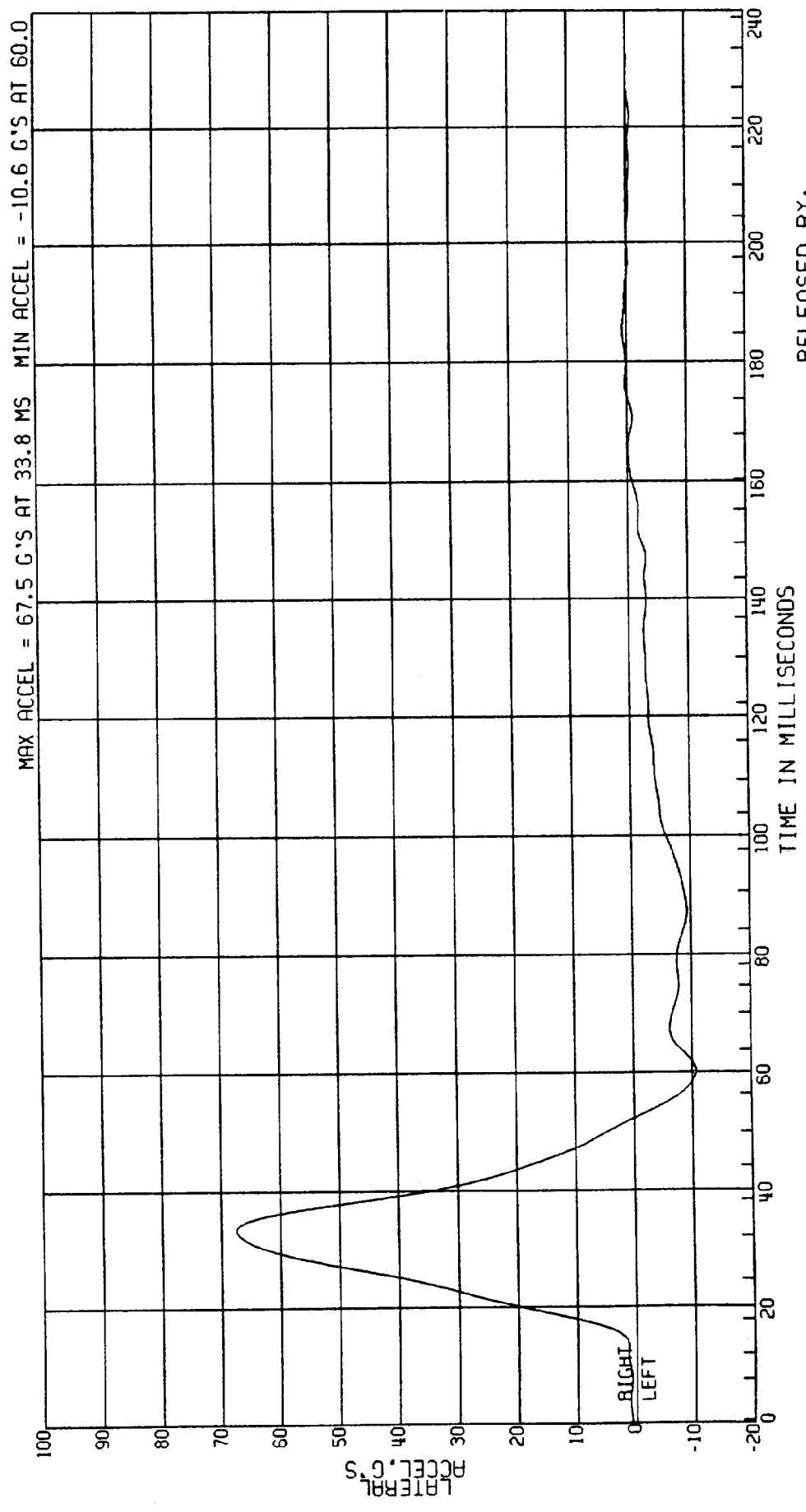
C8011B L. SIDE IMPACT- 27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 119
 3868-905
 CPE MVMA 11P 2AF69
 ELEC DATA, SAE CLASS 1000
 L.REAR T12 ACCEL.
 ATD TYPE: BIOSID
 TEST DATE:03-27-91



RELEASED BY:

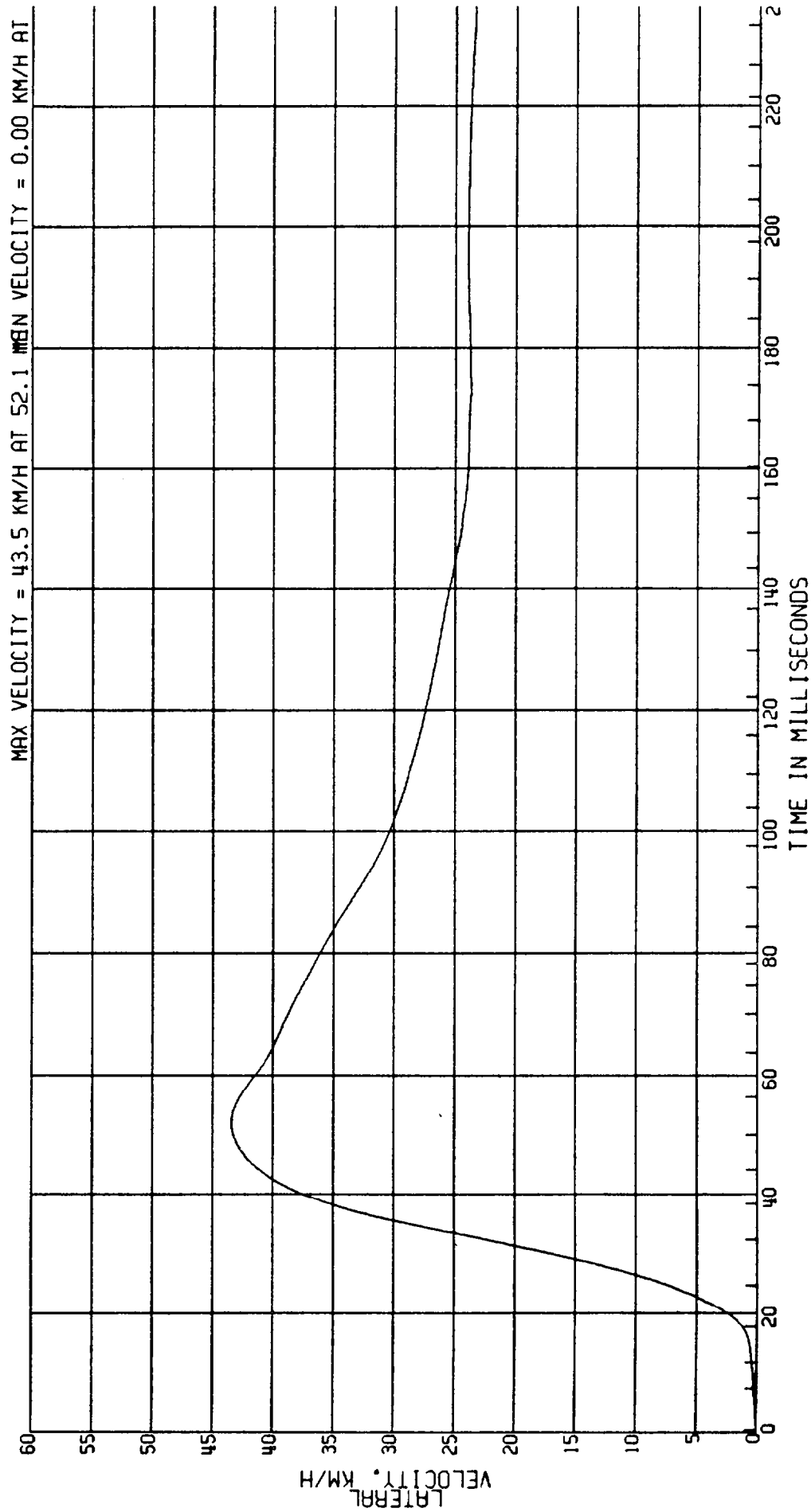
47 PROCESSED 4 MY 90 14:52

C80118 L. SIDE IMPACT- 27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 120
 3868-905 ATD TYPE: BIOSID
 CPE L.REAR T12 ACCEL. TEST DATE:03-27-90
 ELEC DATA, NHTSA FIR FILTER F.I.R. FILTER, CLASS 300 BUTTERWORTH



C8011B L. SIDE IMPACT- 27 DEG
3868-905
CPE MVMA 11P 2AF69
ELEC DATA, SAE CLASS 180

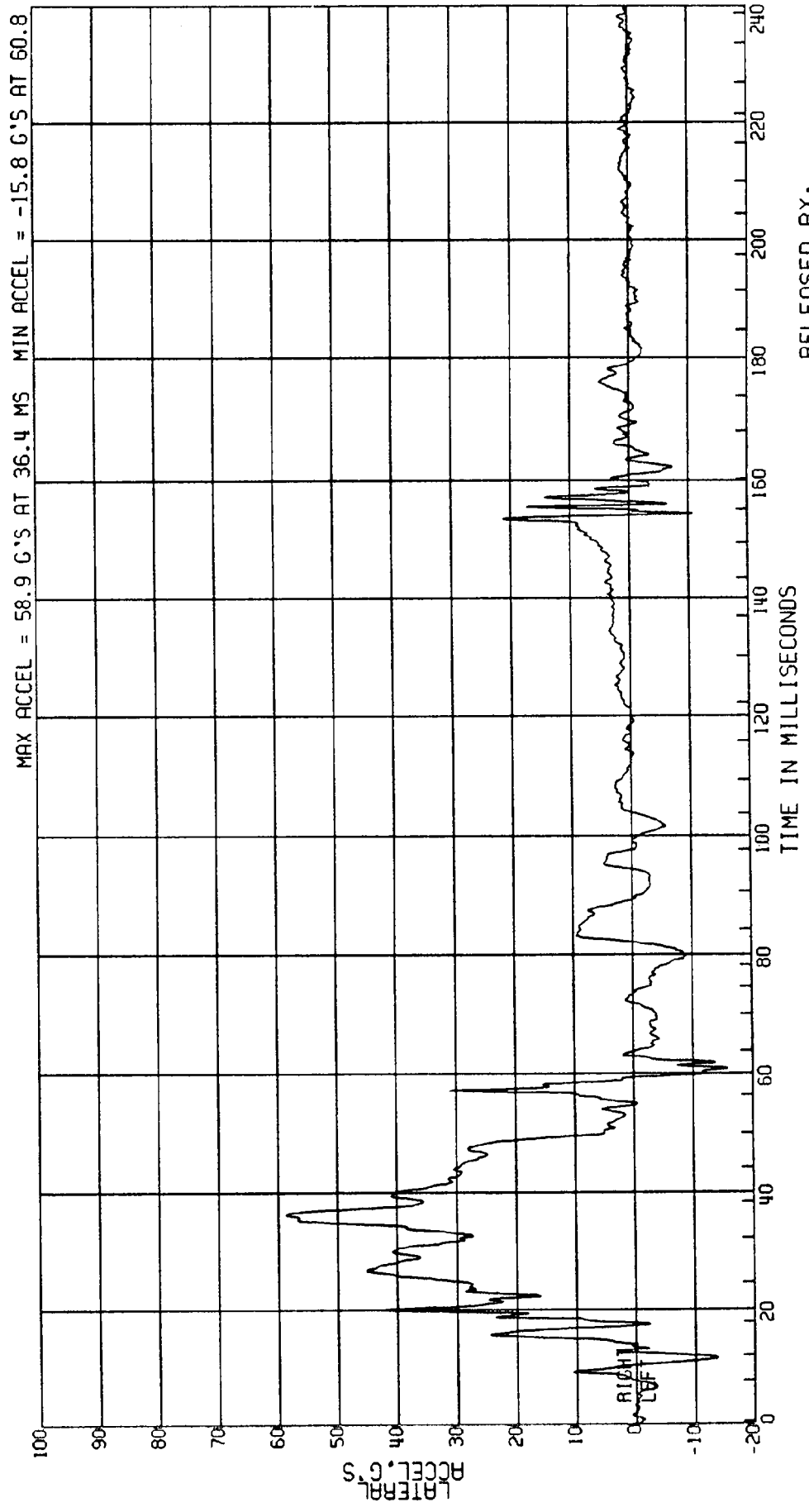
MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 121
ATD TYPE: BIOSID
TEST DATE:03-27-9
COMPUTED T12 VELOCITY
(1ST INTEGRAL L.REAR ACCELERATION)



RELEASED BY:

49 PROCESSED 4 MY 90 14:52

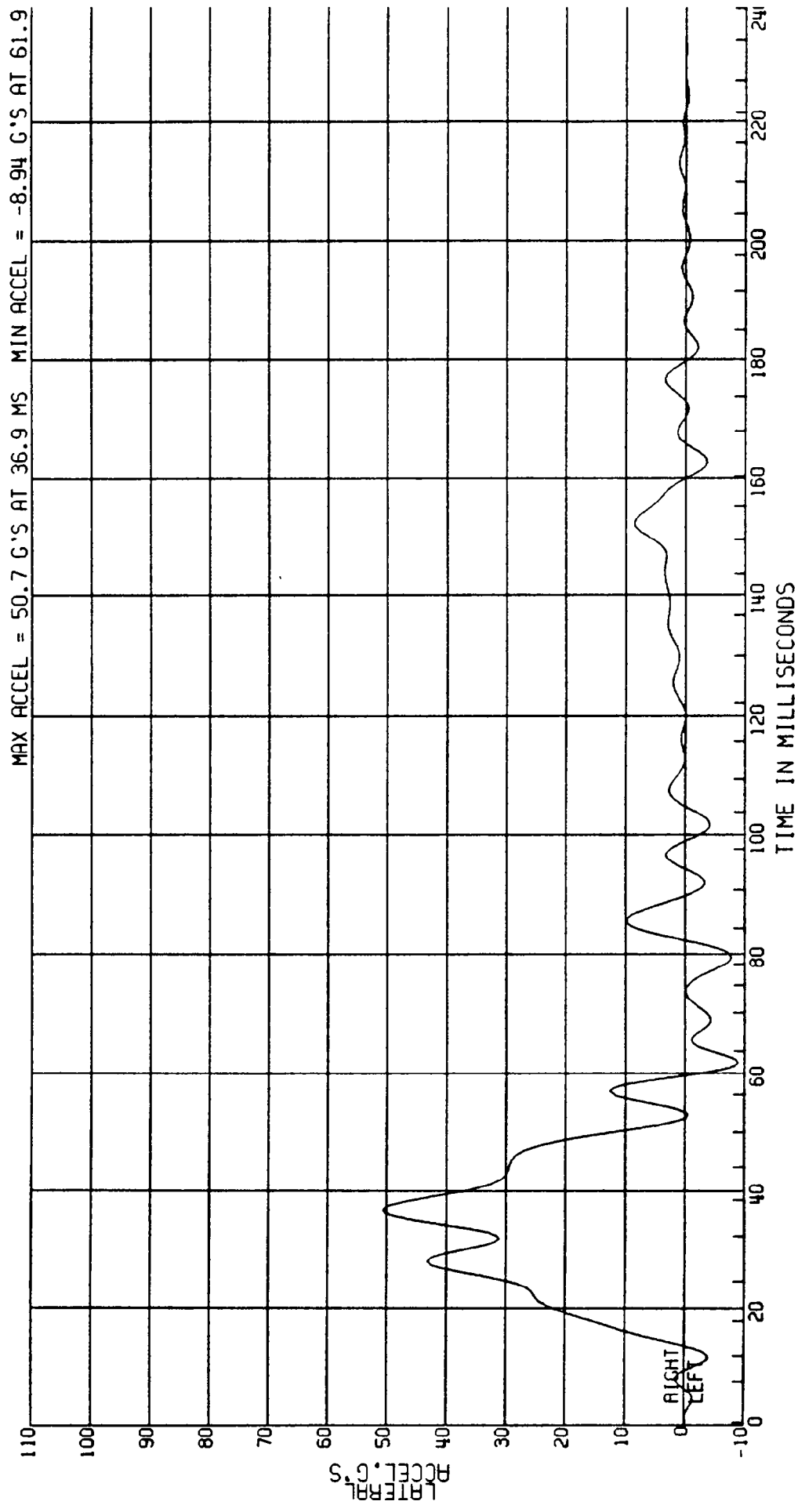
C8011B L. SIDE IMPACT- 27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 122
 3868-905
 CPE MVMA 11P 2AF69
 ELEC DATA, SAE CLASS 600
 L. REAR SHOULDER ACCEL.
 ATO TYPE: B10SID
 TEST DATE: 03-27-90



RELEASED BY:

50 PROCESSED 4 MY 90 14:52

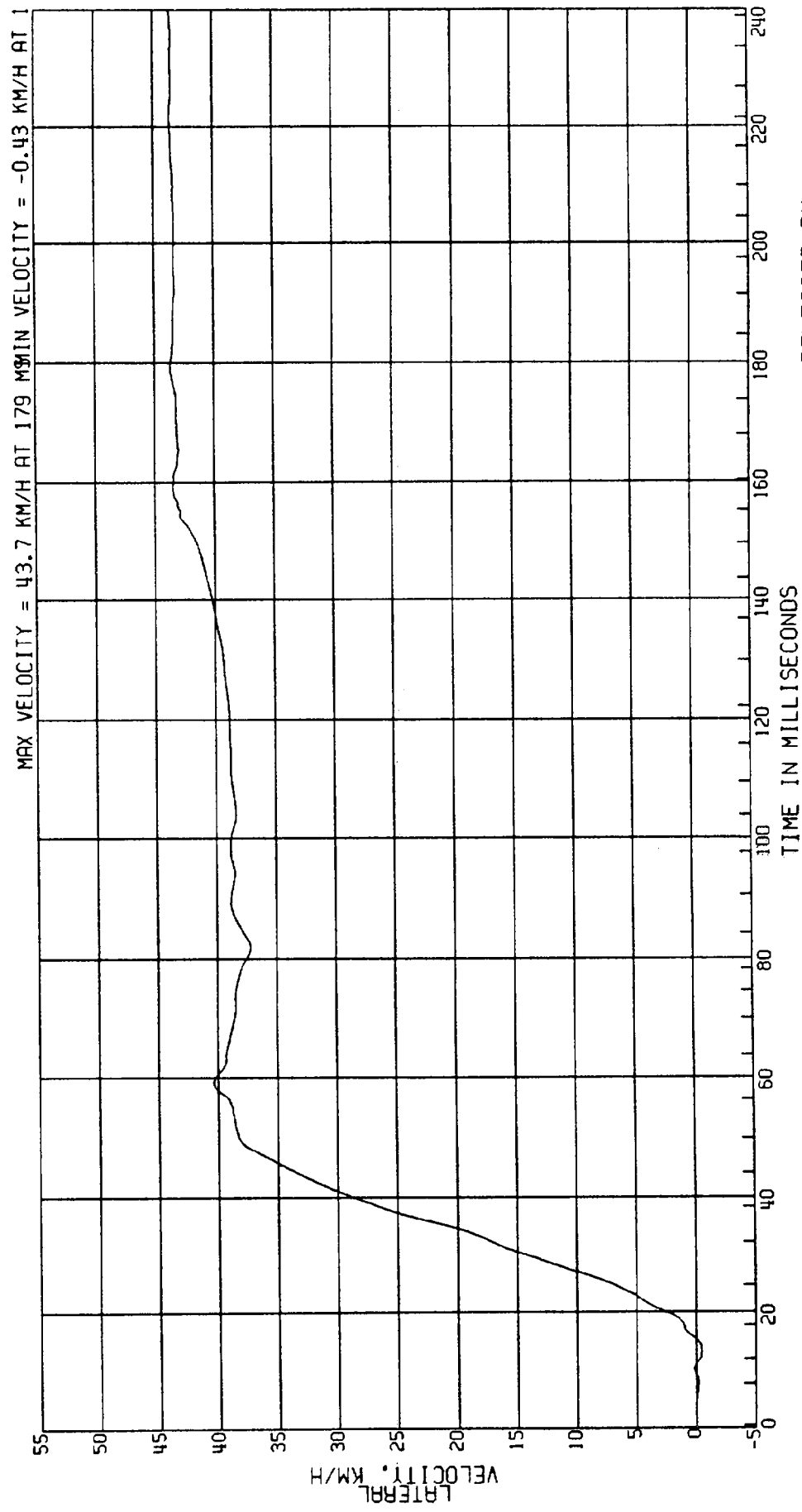
C8011B L. SIDE IMPACT- 27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE /23
 3868-905
 CPE MVMA 11P 2AF69
 ELEC DATA, NHTSA FIR FILTER F.I.R. FILTER, CLASS 300 BUTTERWORTH
 ATD TYPE: BIOSID
 TEST DATE:03-27-9C



RELEASED BY:

51 PROCESSED 4 MY 90 14:52

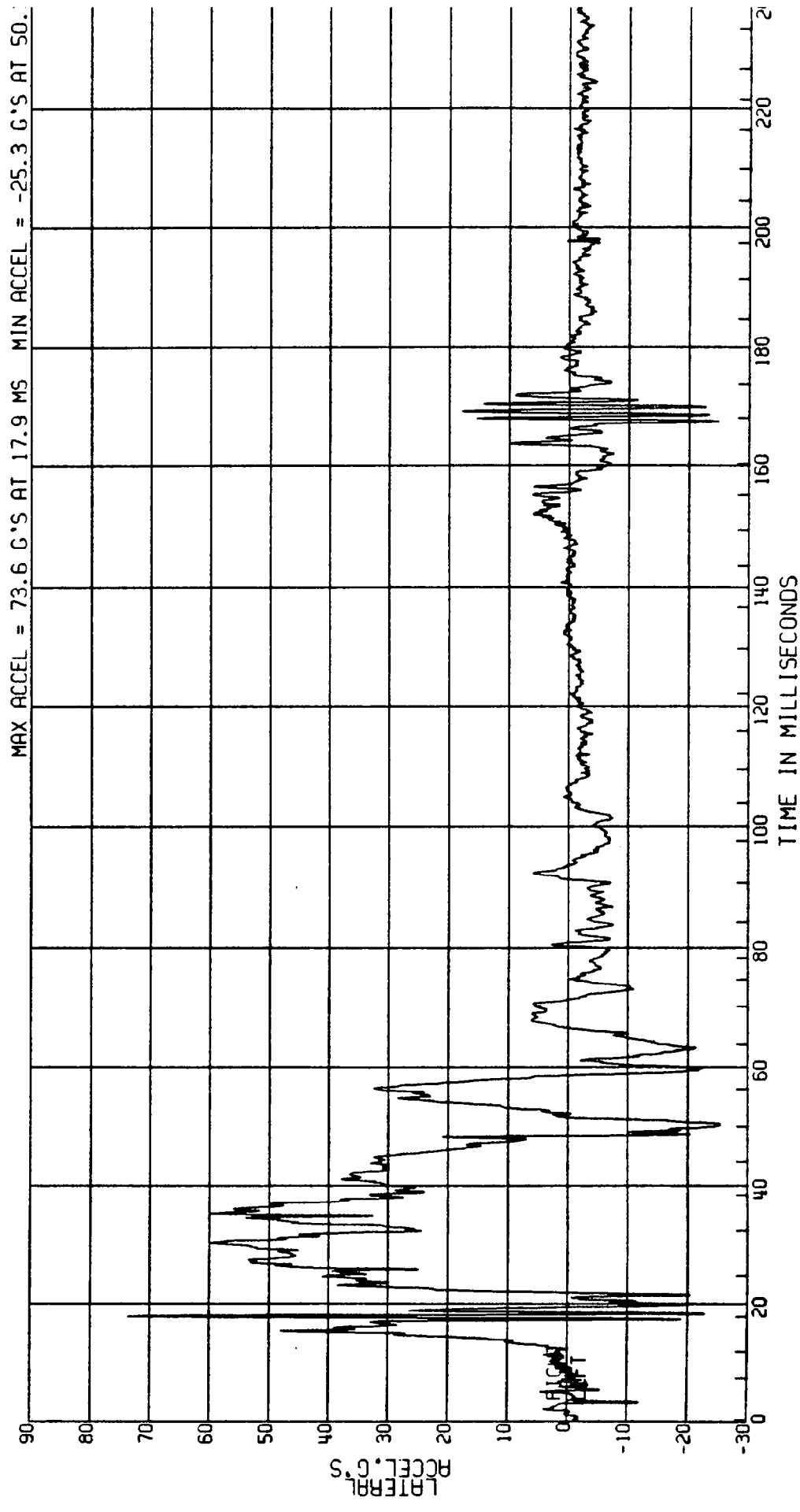
C8011B L. SIDE IMPACT- 27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5 KM/H FIGURE 124
 3868-905
 CPE MVMA 11P 2AF69
 ELEC DATA, SAE CLASS 180
 ATD TYPE: BIOSID
 TEST DATE: 03-27-90
 COMPUTED SHOULDER VELOCITY
 (1ST INTEGRAL L. REAR ACCELERATION)



RELEASED BY:

52 PROCESSED 4 MY 90 14:52

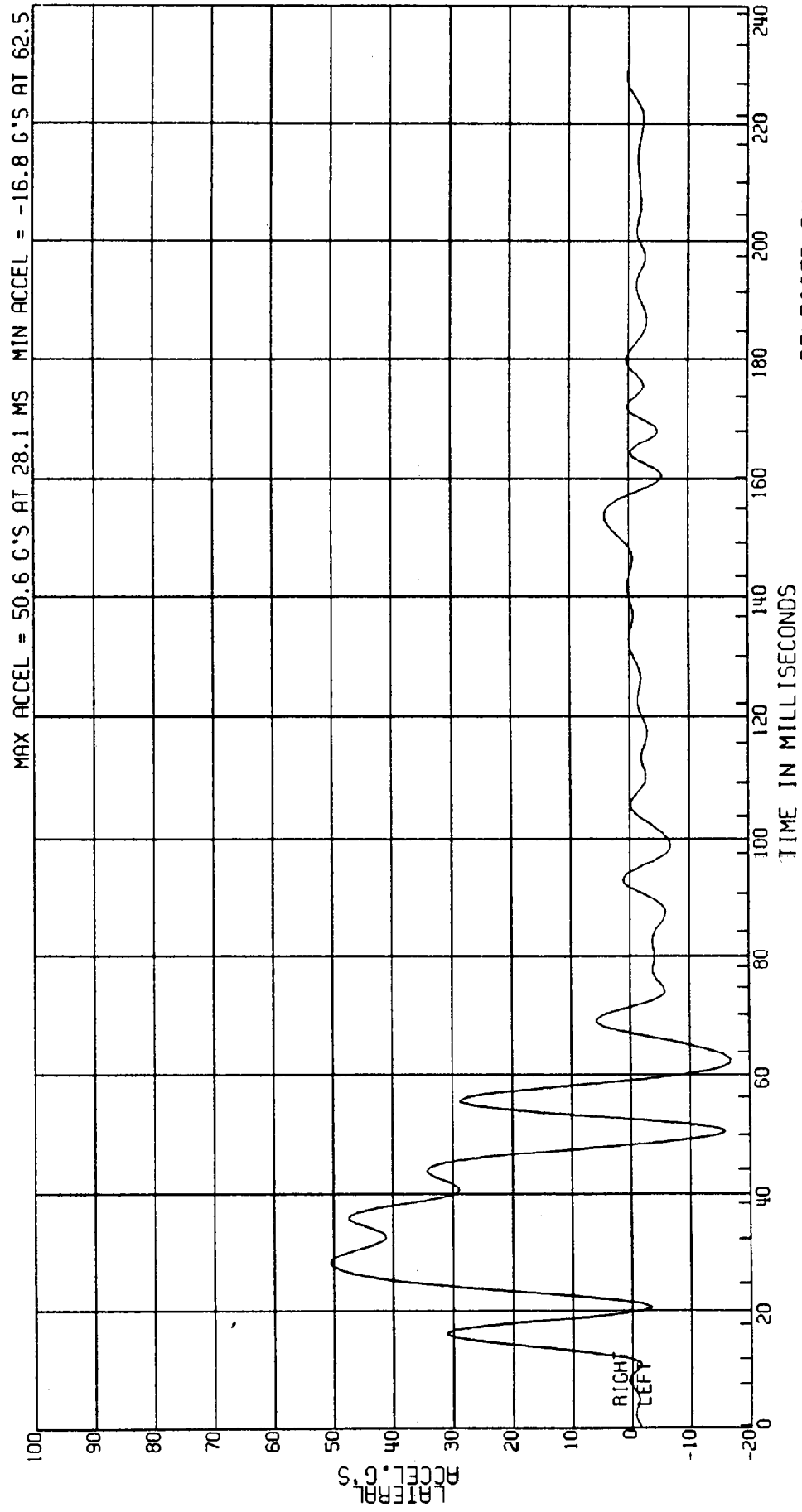
C80118 L. SIDE IMPACT- 27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE /25
3868-905
CPE MVMA 11P 2AF69
ELEC DATA, SAE CLASS 1000
L. REAR FIRST THORACIC RIB ACCEL.
ATD TYPE: BIOSID
TEST DATE: 03-27-9



RELEASED BY:

53 PROCESSED 4 MY 90 14:52

C8011B L. SIDE IMPACT- 27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 126
 3868-905
 CPE MVMA 11P 2AF69 AID TYPE: BIOSID
 ELEC DATA, NHTSA FIR FILTER L. REAR FIRST THORACIC RIB ACCEL. TEST DATE: 03-27-90
 F.I.R. FILTER, CLASS 300 BUTTERWORTH

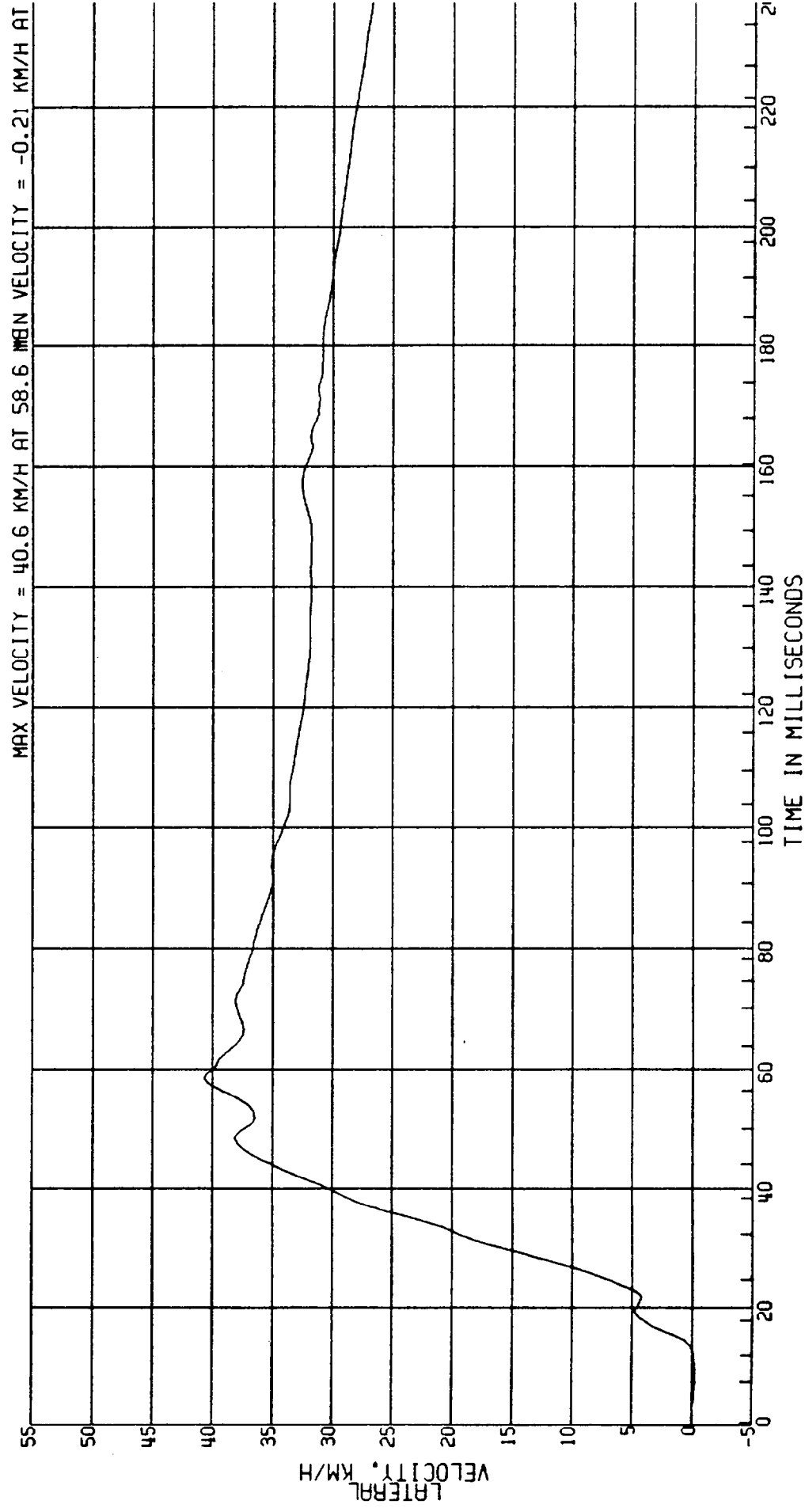


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54 PROCESSED 4 MY 90 14:52

C8011B L. SIDE IMPACT- 27 DEG
3868-905
CPE MVMA 11P 2AF69
ELEC DATA, SAE CLASS 180

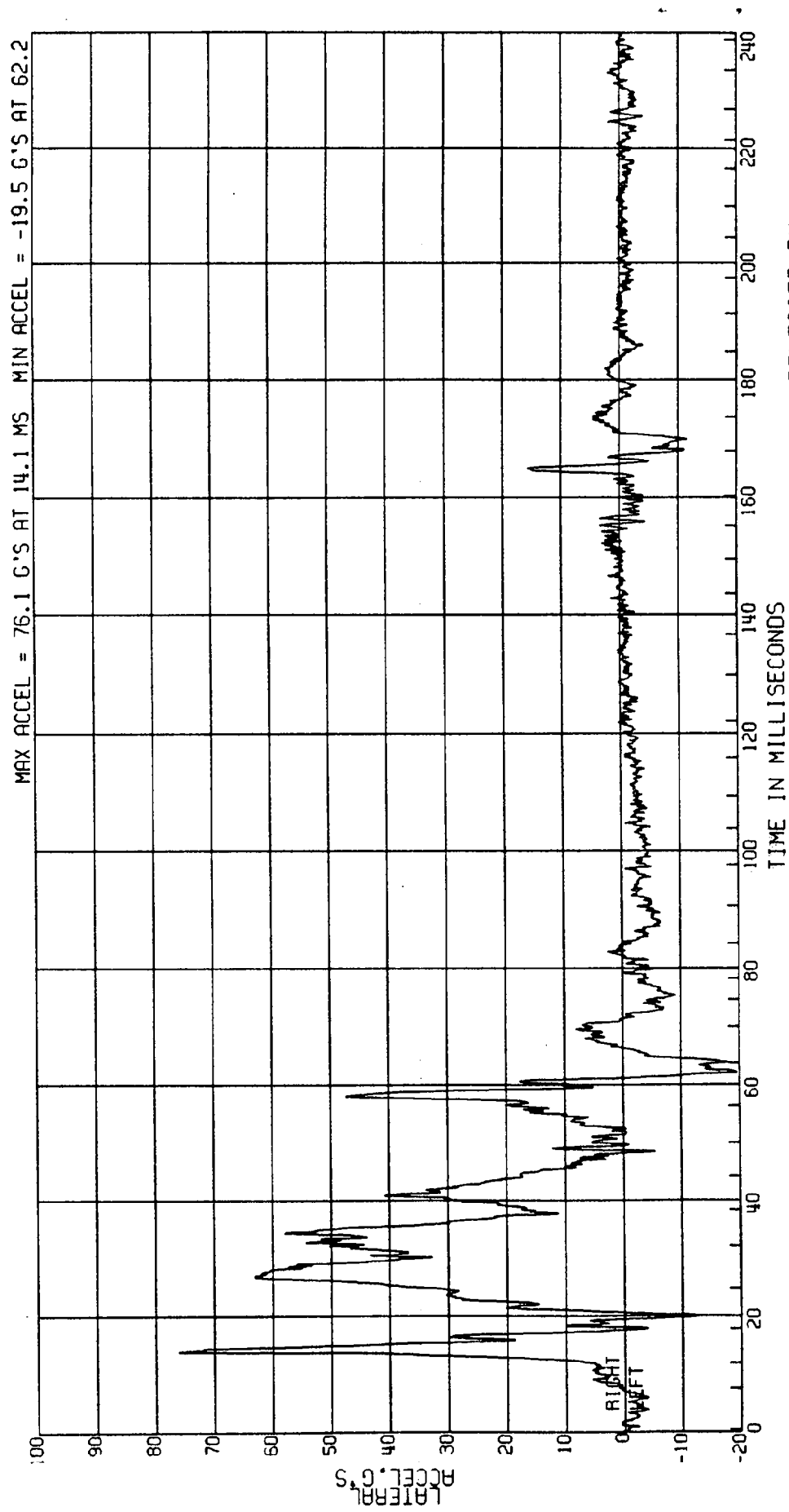
MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 127
ATD TYPE: B10SID
TEST DATE:03-27-9
COMPUTED 1ST THORACIC RIB VELOCITY
(1ST INTEGRAL L.REAR ACCELERATION)



RELEASED BY:

55 PROCESSED 4 MY 90 14:52

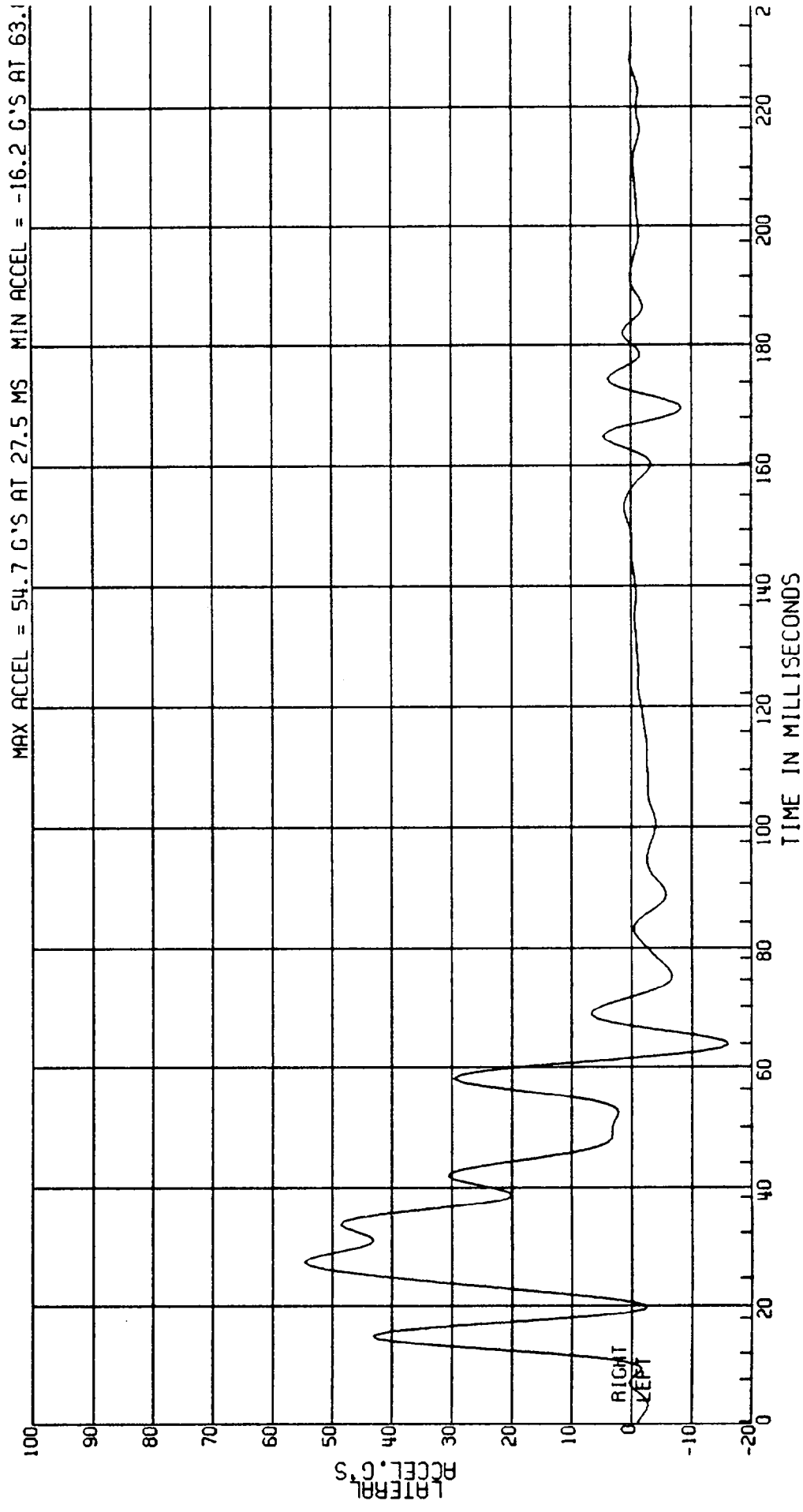
C8011B L. SIDE IMPACT- 27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 128
3868-905
CPE MVMA 11P 2AF69
ELEC DATA, SAE CLASS 1000
ATD TYPE: BIOSID
TEST DATE: 03-27-90
L. REAR SECOND THORACIC RIB ACCEL.



RELEASED BY:

56 PROCESSED 4 MY 90 14:52

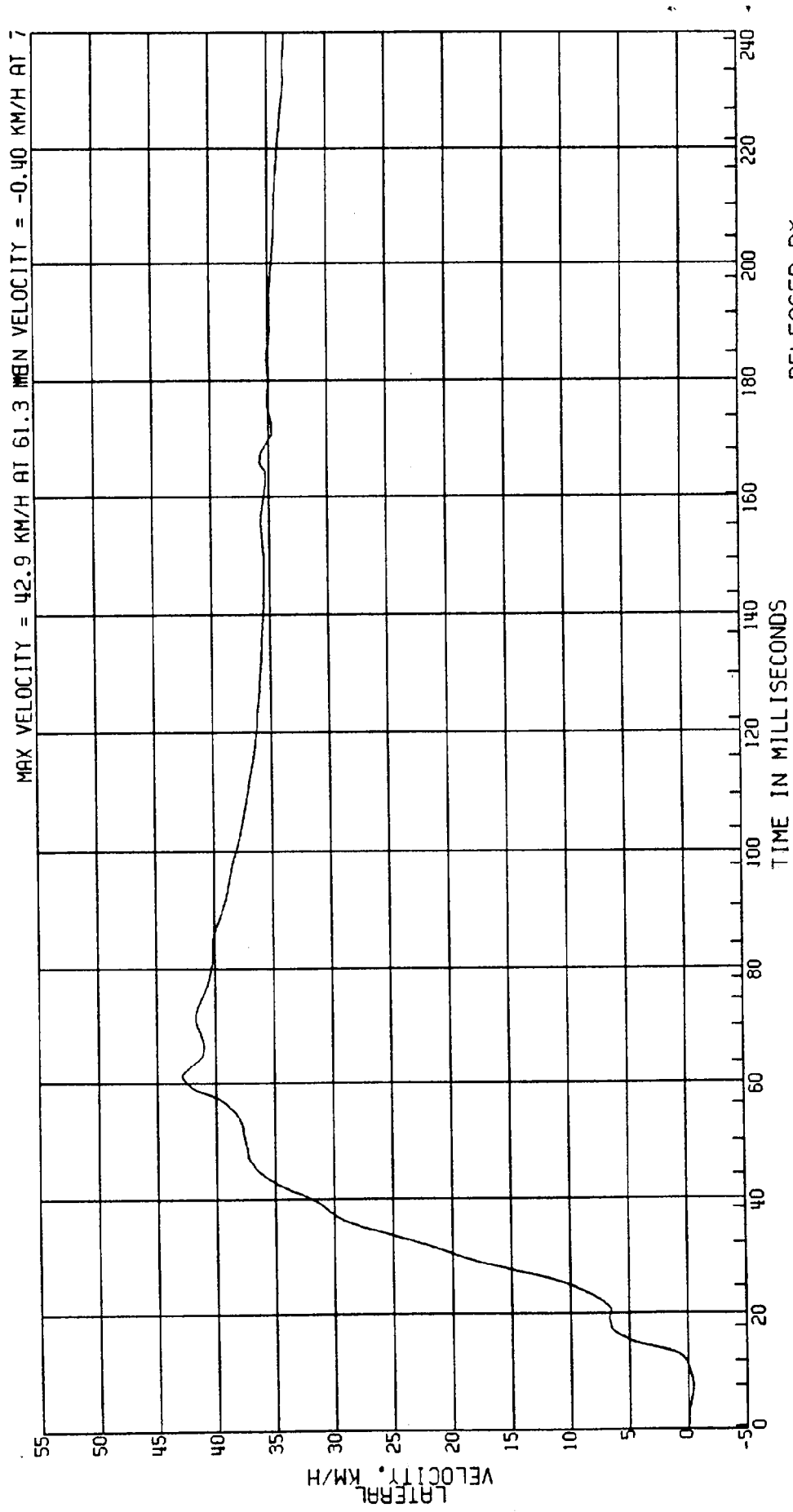
C80118 L. SIDE IMPACT- 27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 129
 3868-905 ATD TYPE: BIOSID
 CPE MVMA 11P 2AF69 L. REAR SECOND THORACIC RIB ACCEL.
 ELEC DATA, NHTSA FIR FILTER F.I.R. FILTER, CLASS 300 BUTTERWORTH TEST DATE:03-27-9



RELEASED BY:

57 PROCESSED 4 MY 90 14:52

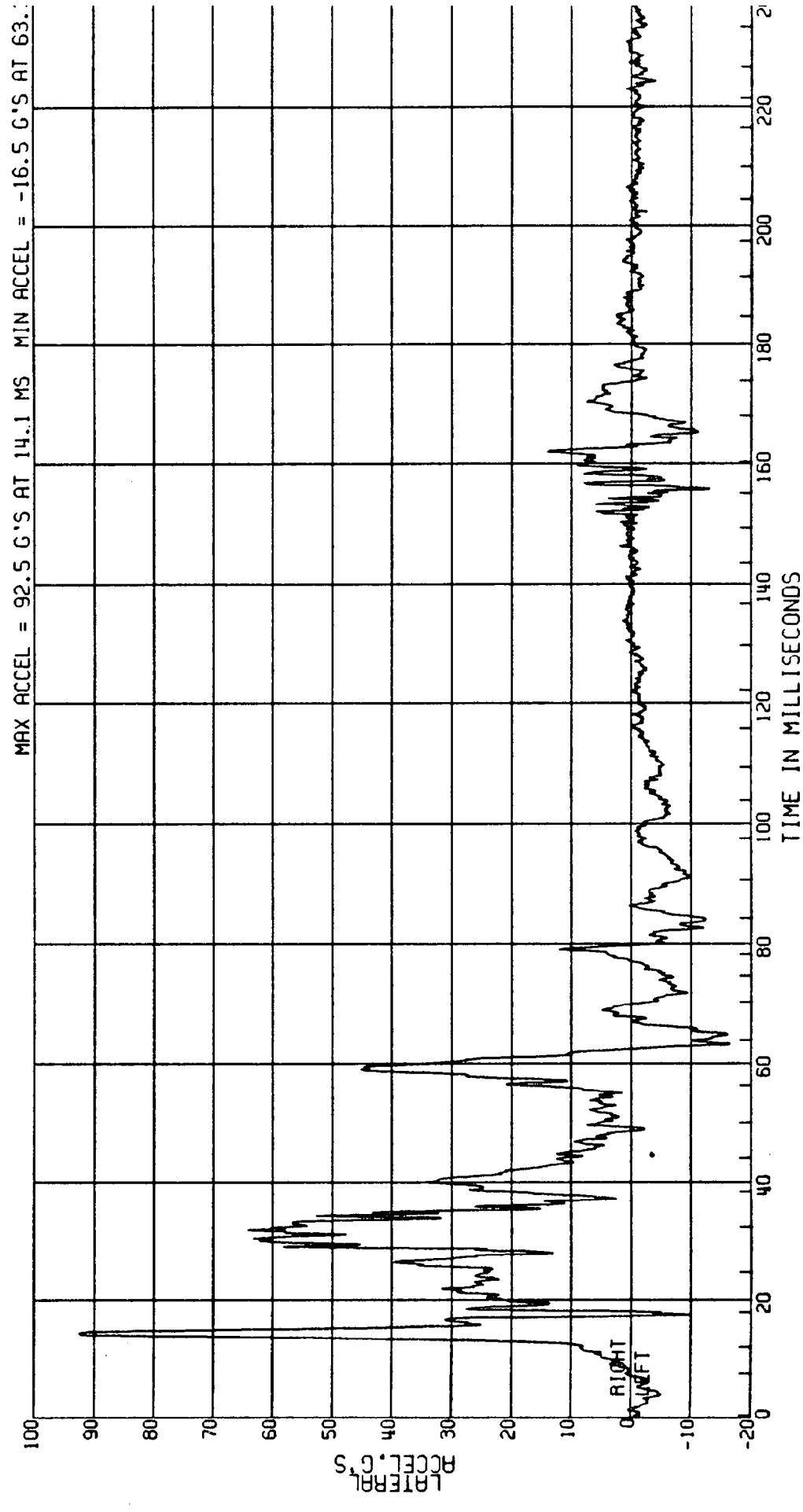
C8011B L. SIDE IMPACT- 27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 130
 3868-905
 CPE MVMA 11P 2AF69
 ELEC DATA, SAE CLASS 180
 COMPUTED 2ND THORACIC RIB VELOCITY
 (1ST INTEGRAL L. REAR ACCELERATION)
 ATD TYPE: BIOSID
 TEST DATE: 03-27-90



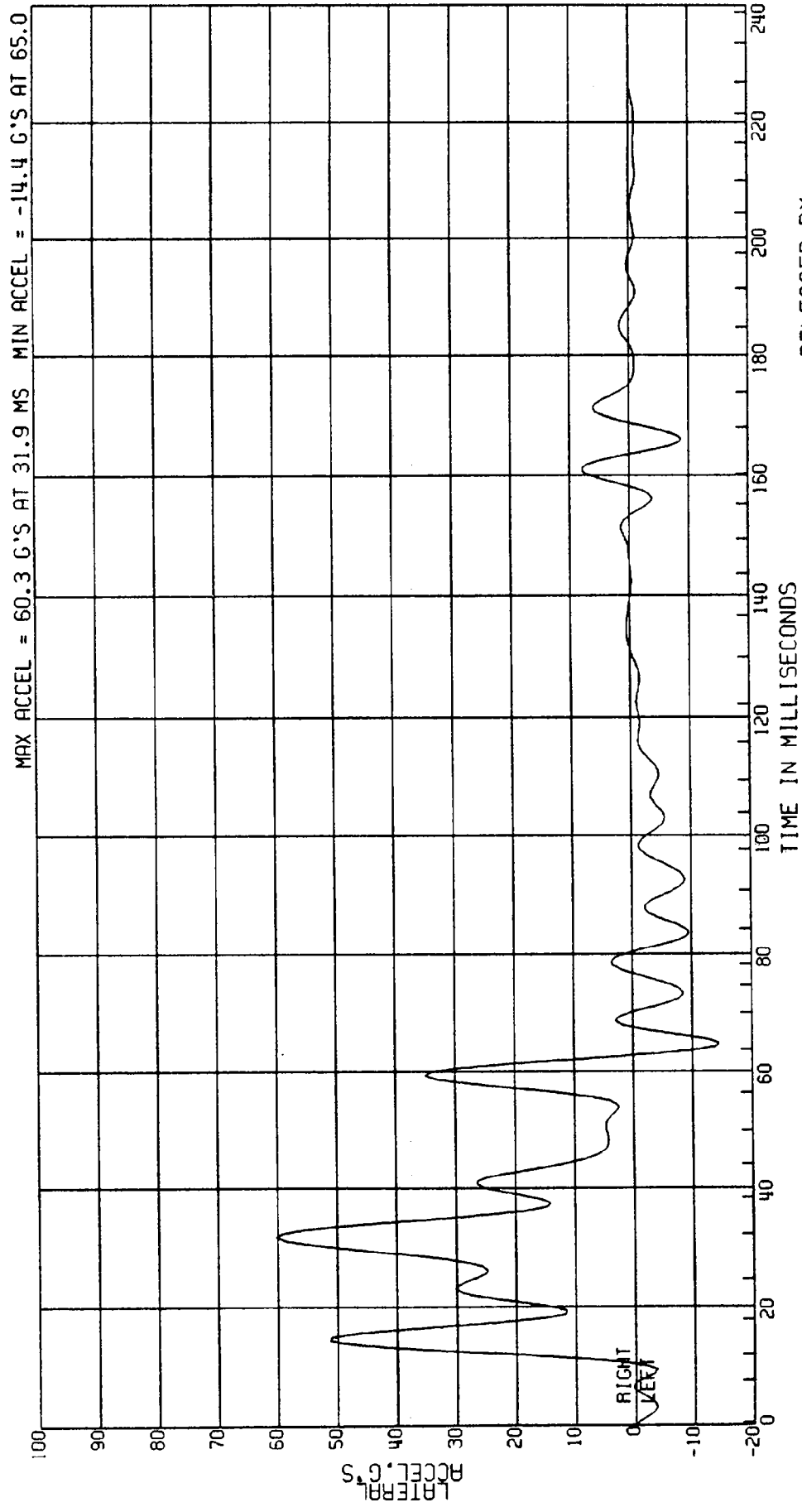
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58 PROCESSED 4 MY 90 14:52

C80118 L. SIDE IMPACT- 27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 13/
 3868-905 ATD TYPE: B10SID
 CPE MVMA 11P 2AF69 L. REAR THIRD THORACIC RIB ACCEL. TEST DATE: 03-27-9
 ELEC DATA, SAE CLASS 1000



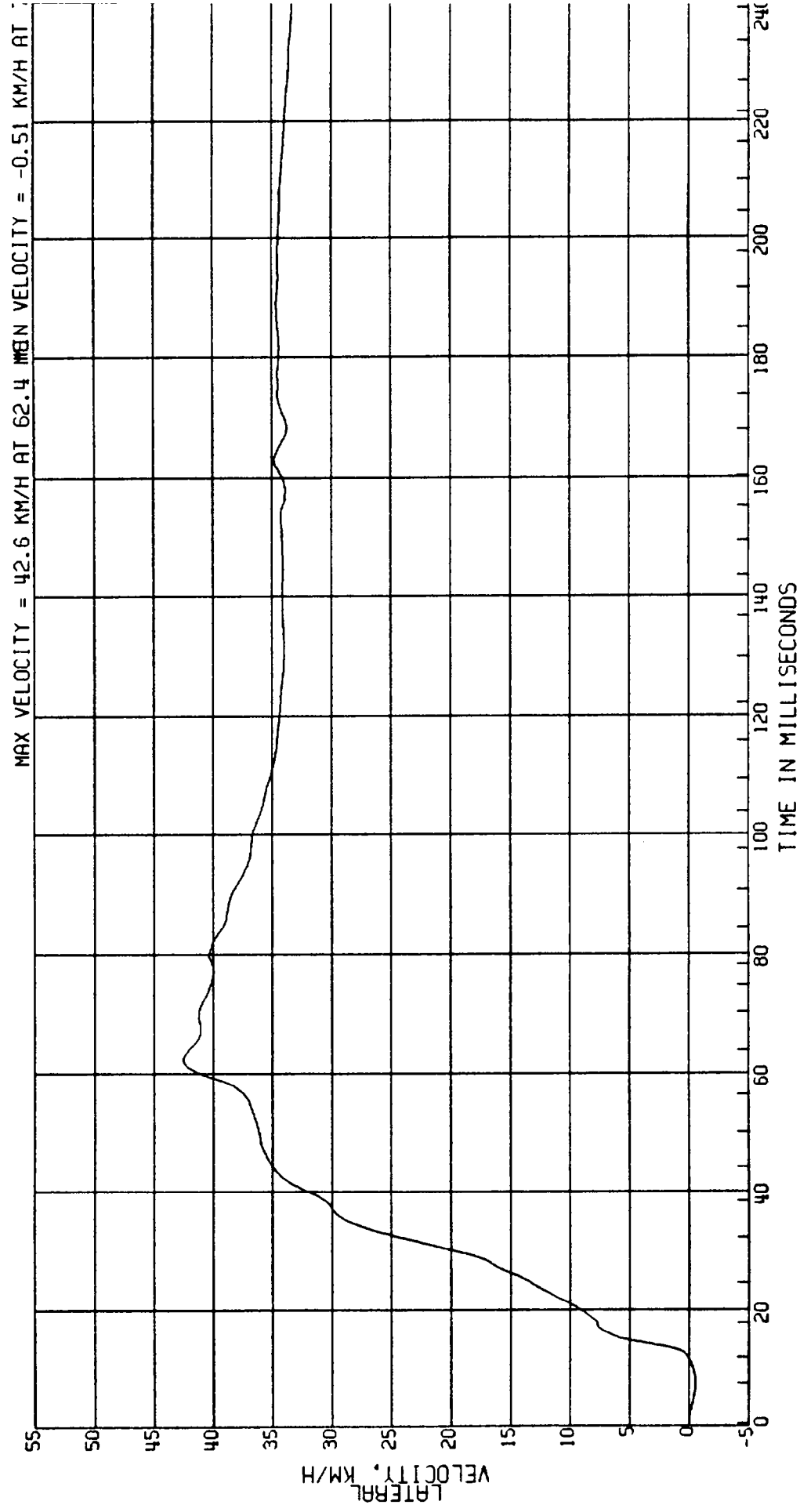
C8011B L. SIDE IMPACT- 27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 132
 3868-905
 CPE MVMA 11P 2AF69
 ELEC DATA, NHTSA FIR FILIER F.I.R. FILTER, CLASS 300 BUTTERWORTH
 ATD TYPE: BIOSID
 TEST DATE: 03-27-90



RELEASED BY:

60 PROCESSED 4 MT 90 14:52

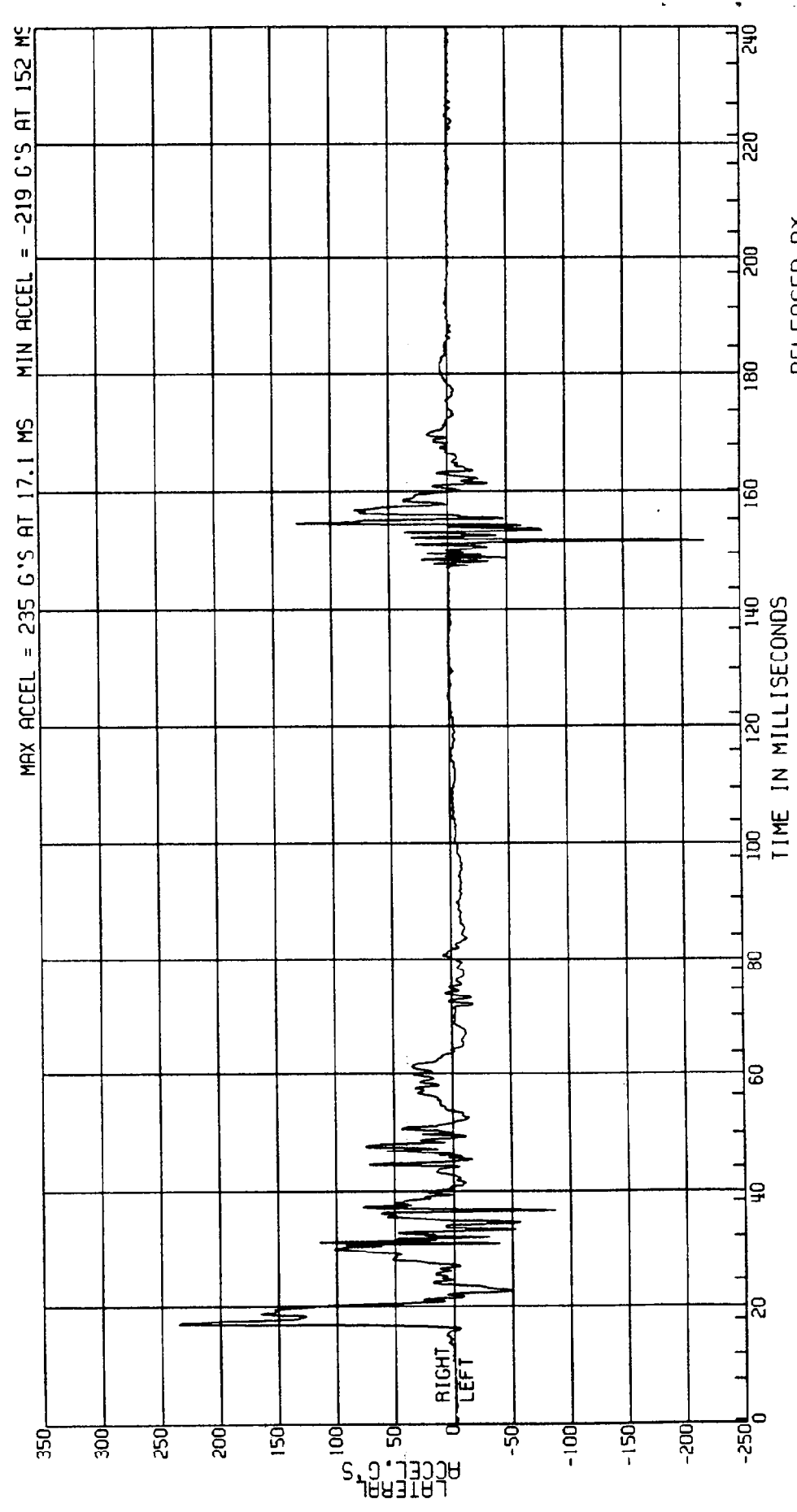
C80118 L. SIDE IMPACT- 27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5 KM/H FIGURE /33
3868-905 AID TYPE: BIOSID
CPE MVMA 11P 2AF69 TEST DATE: 03-27-90
ELEC DATA, SAE CLASS 180 (1ST INTEGRAL L. REAR ACCELERATION)



RELEASED BY:

61 PROCESSED 4 MY 90 14:52

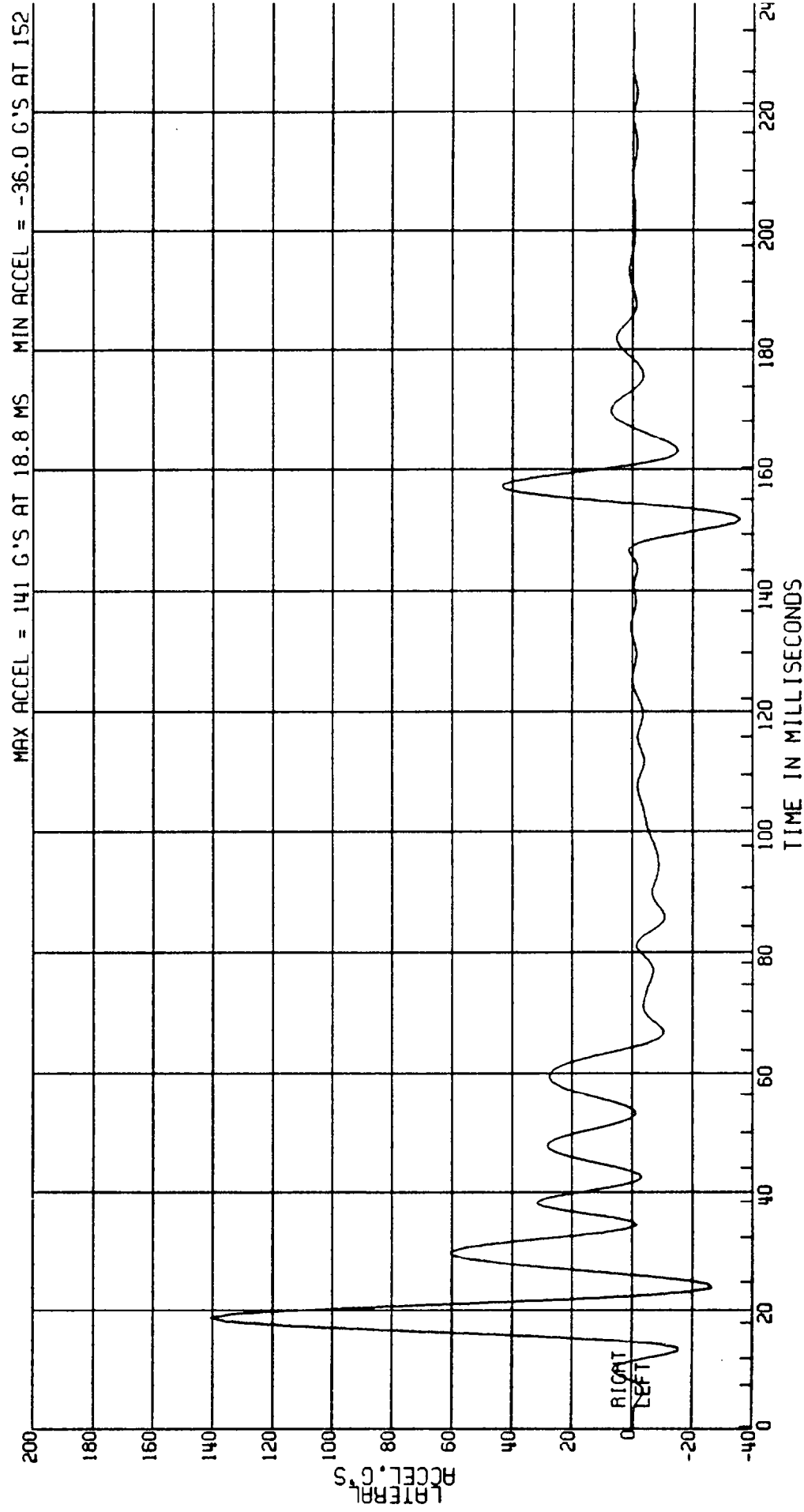
C8011B L. SIDE IMPACT- 27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 134
 3868-905
 CPE MVMA 11P 2AF69
 ELEC DATA, SAE CLASS 1000
 ATD TYPE: BIOSID
 TEST DATE:03-27-90
 L.REAR FIRST ABDOMINAL RIB ACCEL.



C80118 L. SIDE IMPACT- 27 DEG
3868-905
CPE MVMA 11P 2AF69
ELEC DATA, NHTSA FIR FILTER

MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE /35
L.REAR FIRST ABDOMINAL RIB ACCEL.
F.I.R. FILTER, CLASS 300 BUTTERWORTH

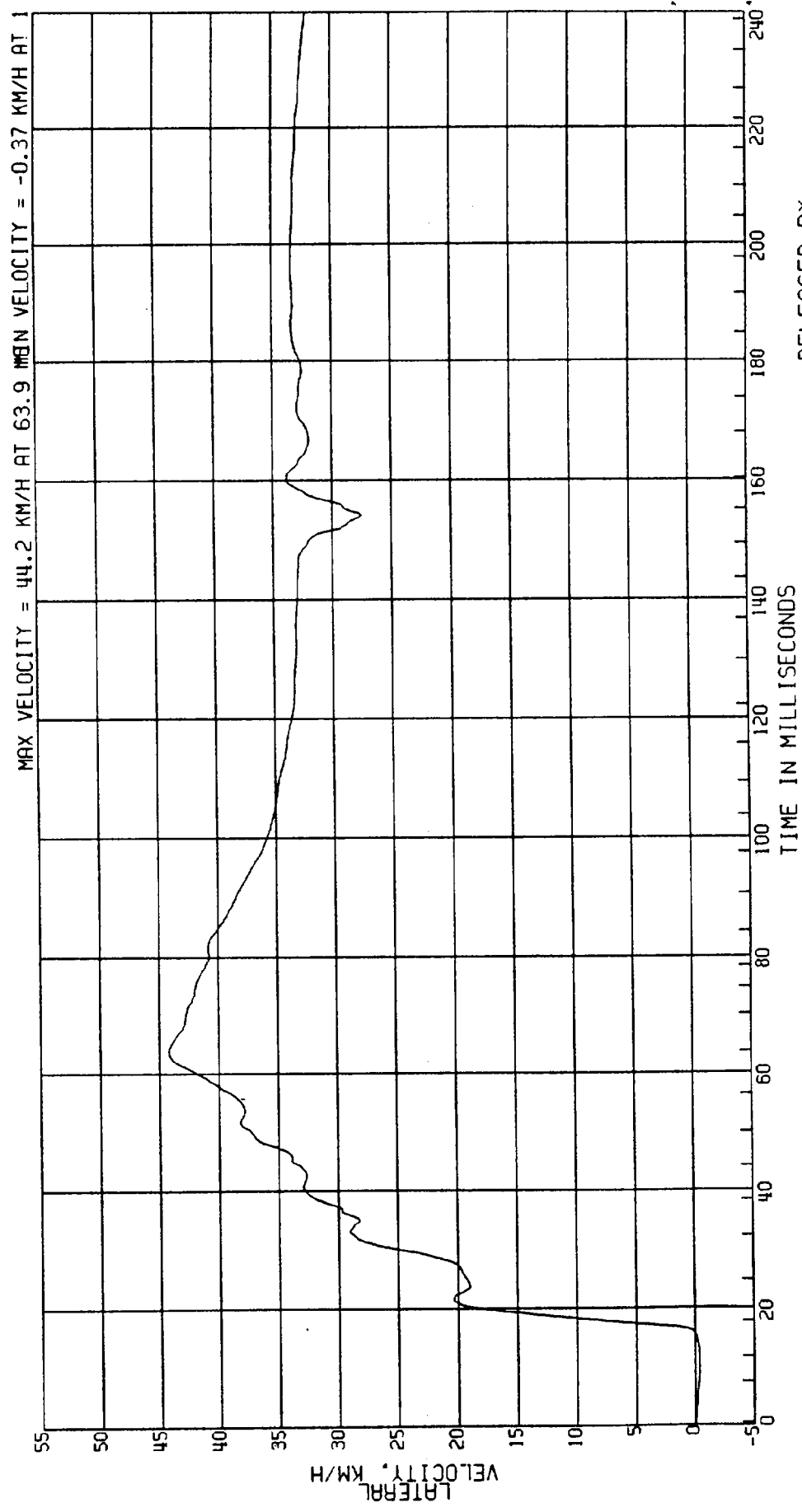
ATD TYPE: BIOSID
TEST DATE:03-27-90



RELEASED BY:

63 PROCESSED 4 MY 90 14:52

C8011B L. SIDE IMPACT - 27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5 KM/H FIGURE 136
3868-905
CPE MVMA 11P 2AF69
ELEC DATA, SAE CLASS 180
COMPUTED 1ST ABDOMINAL RIB VELOCITY
(1ST INTEGRAL L. REAR ACCELERATION)
ATD TYPE: BIOSID
TEST DATE: 03-27-90

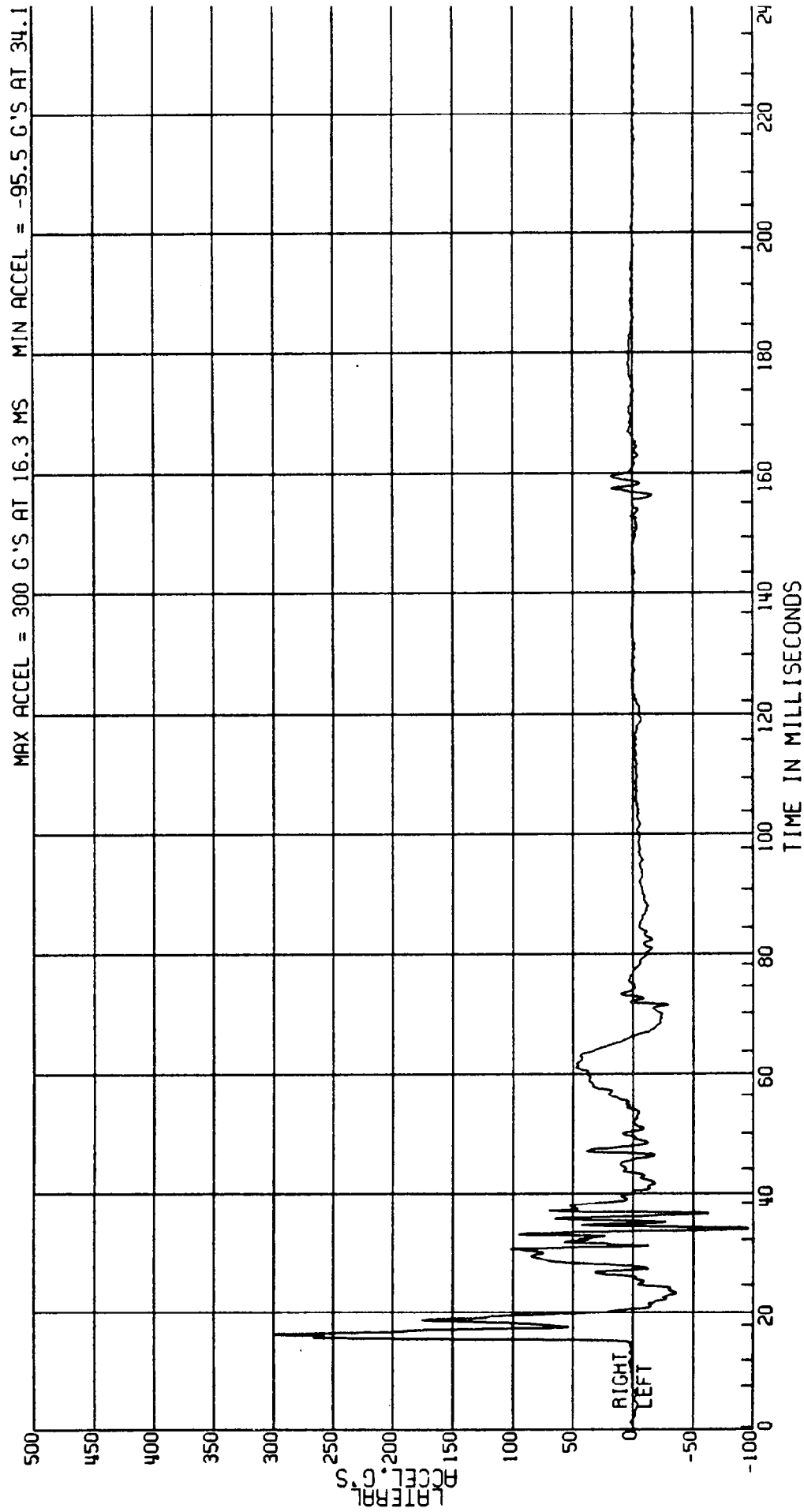


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C8011B L. SIDE IMPACT- 27 DEC
3868-905
CPE MVMA 11P 2AF69
ELEC DATA, SAE CLASS 1000

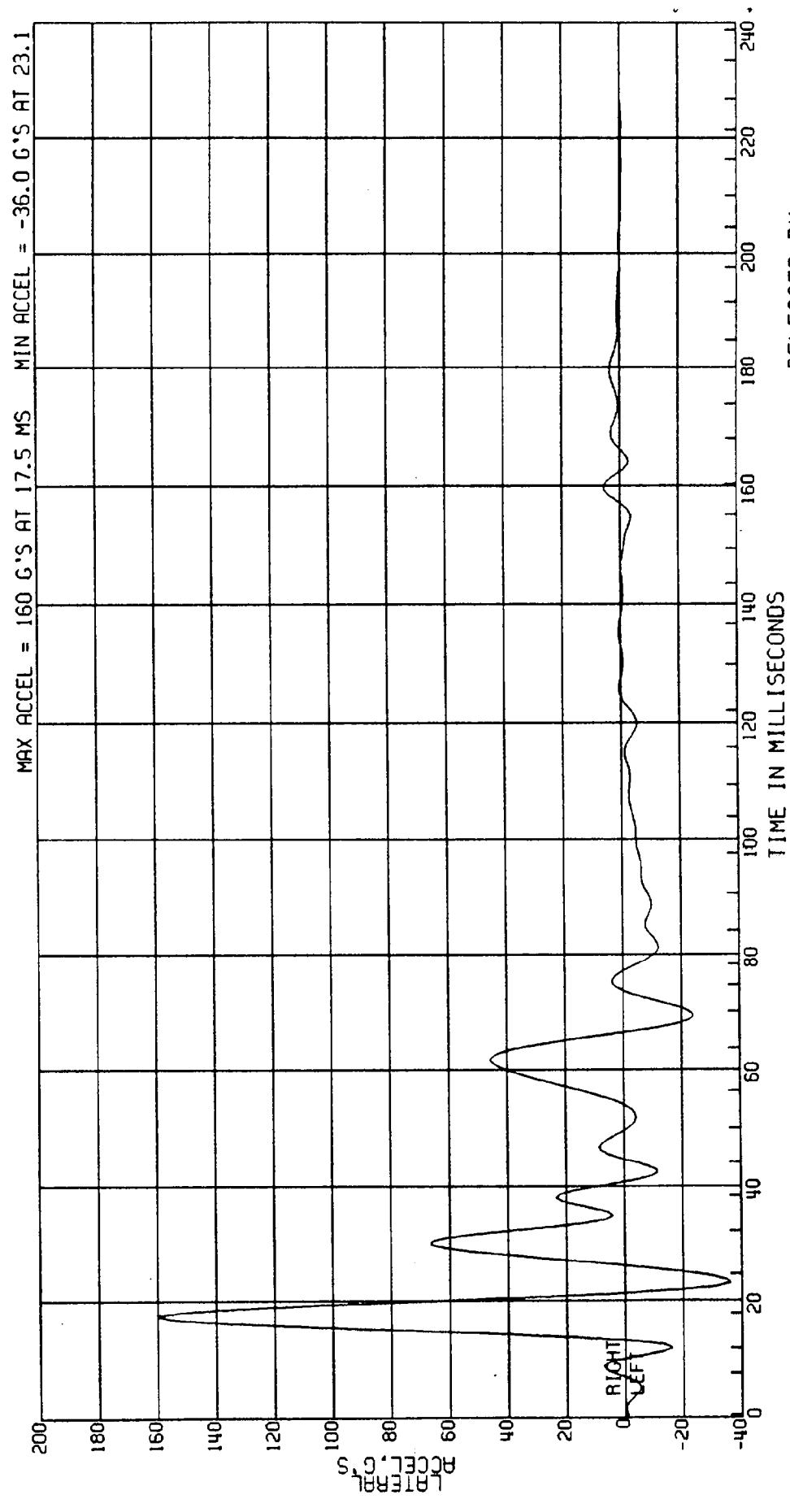
MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE / 37
L. REAR SECOND ABDOMINAL RIB ACCEL.
TEST DATE: 03-27-90



RELEASED BY:

65 PROCESSED 4 MY 90 14:53

C8011B L. SIDE IMPACT- 27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 138
 3868-905
 CPE MVMA 11P 2AF69
 ELEC DATA, NHTSA FIR FILTER F.I.R. FILTER, CLASS 300 BUTTERWORTH TEST DATE:03-27-90

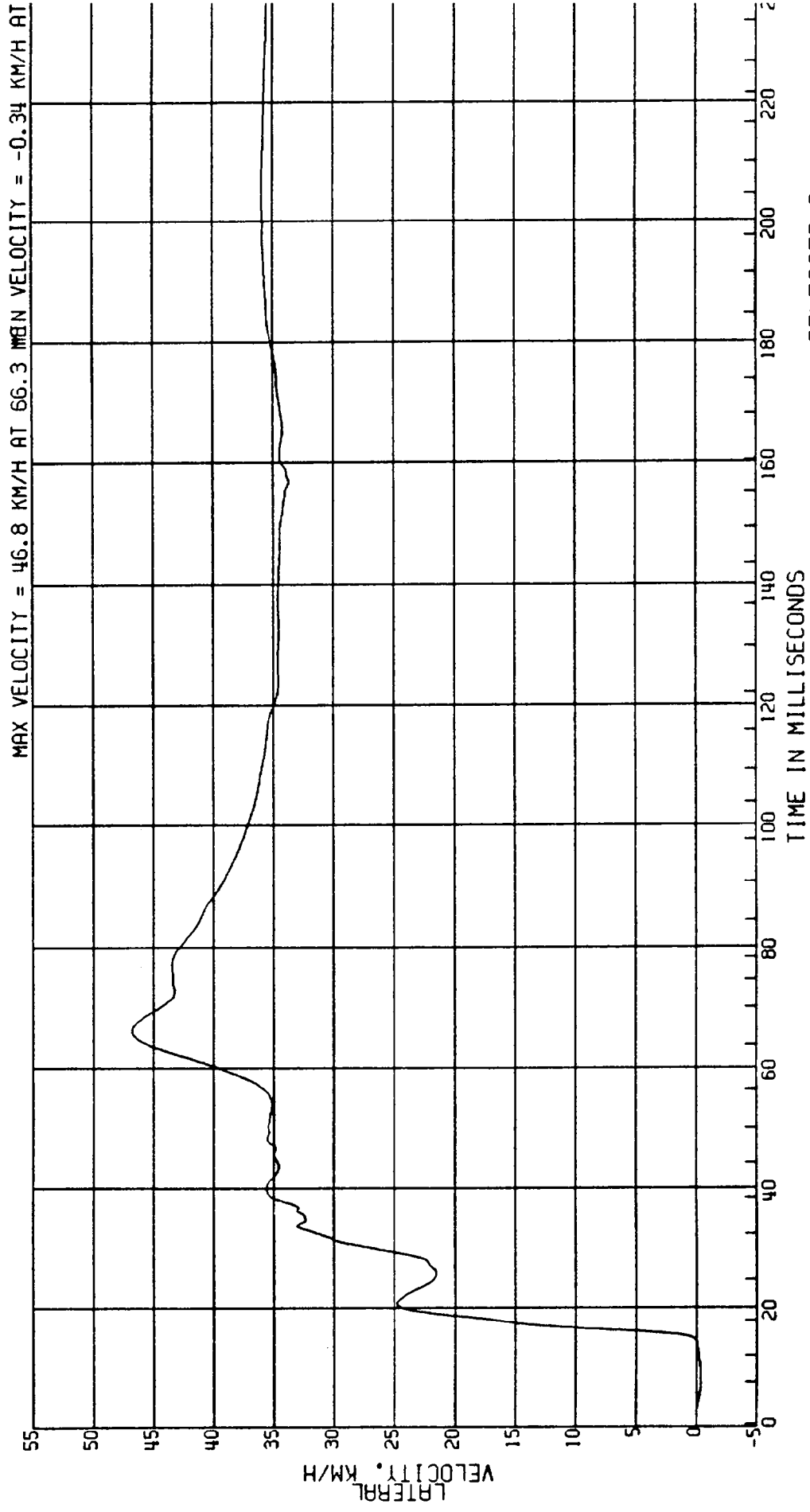


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66 PROCESSED 4 MY 90 14:53

C8011B L. SIDE IMPACT- 27 DEG
3868-905
CPE MVMA 11P 2AF69
ELEC DATA, SAE CLASS 180

MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 139
COMPUTED 2ND ABDOMINAL RIB VELOCITY
(1ST INTEGRAL L.REAR ACCELERATION)
ATD TYPE: BIOSID
TEST DATE:03-27-9



RELEASED BY:

67 PROCESSED 4 MY 90 14:53

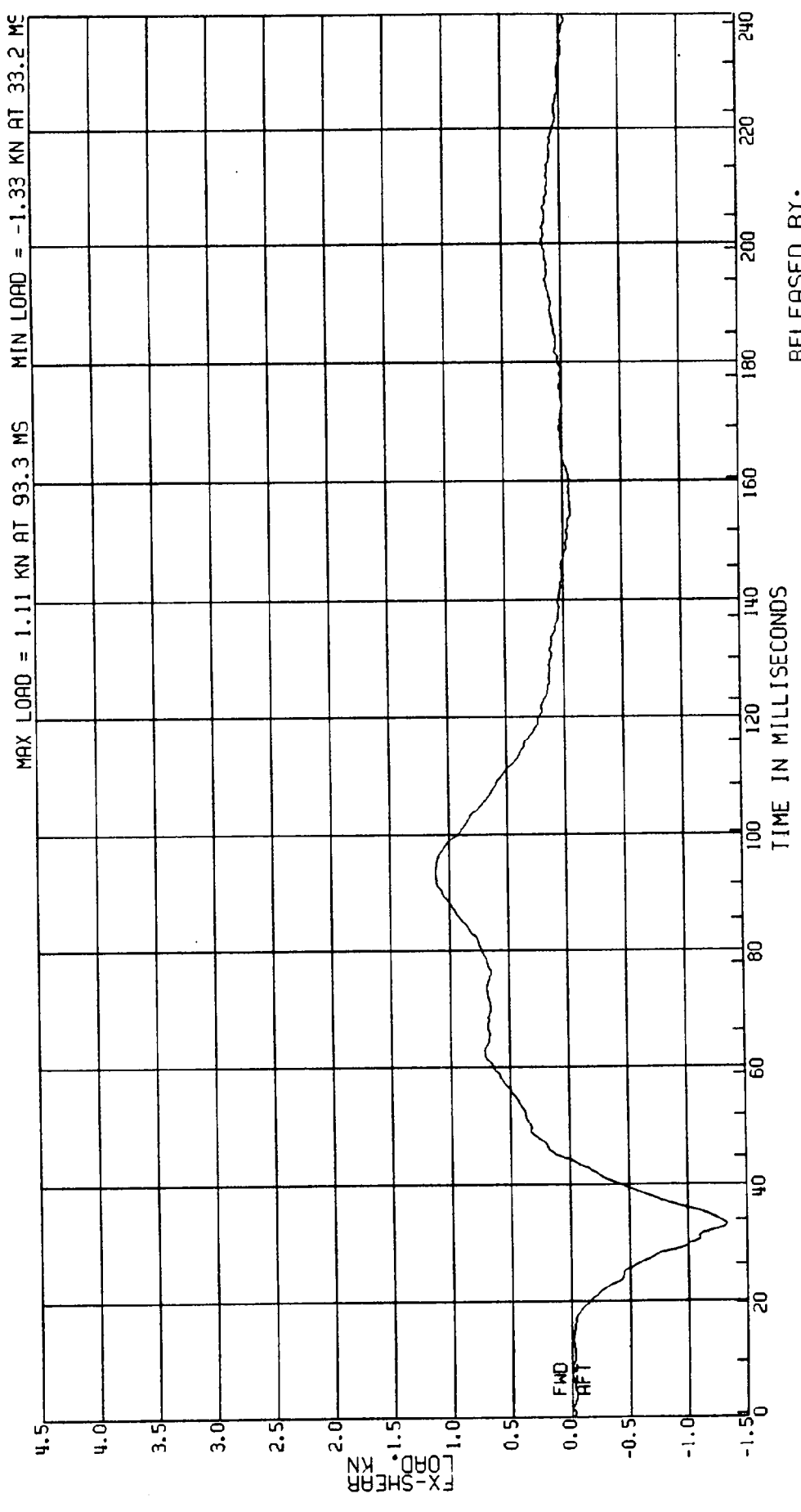
))

140

C8011B L. SIDE IMPACT- 27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE
3868-905
CPE MVMA 11P 2AF69
ELEC DATA, SAE CLASS 180

ATD TYPE: B10SID
TEST DATE: 03-27-90

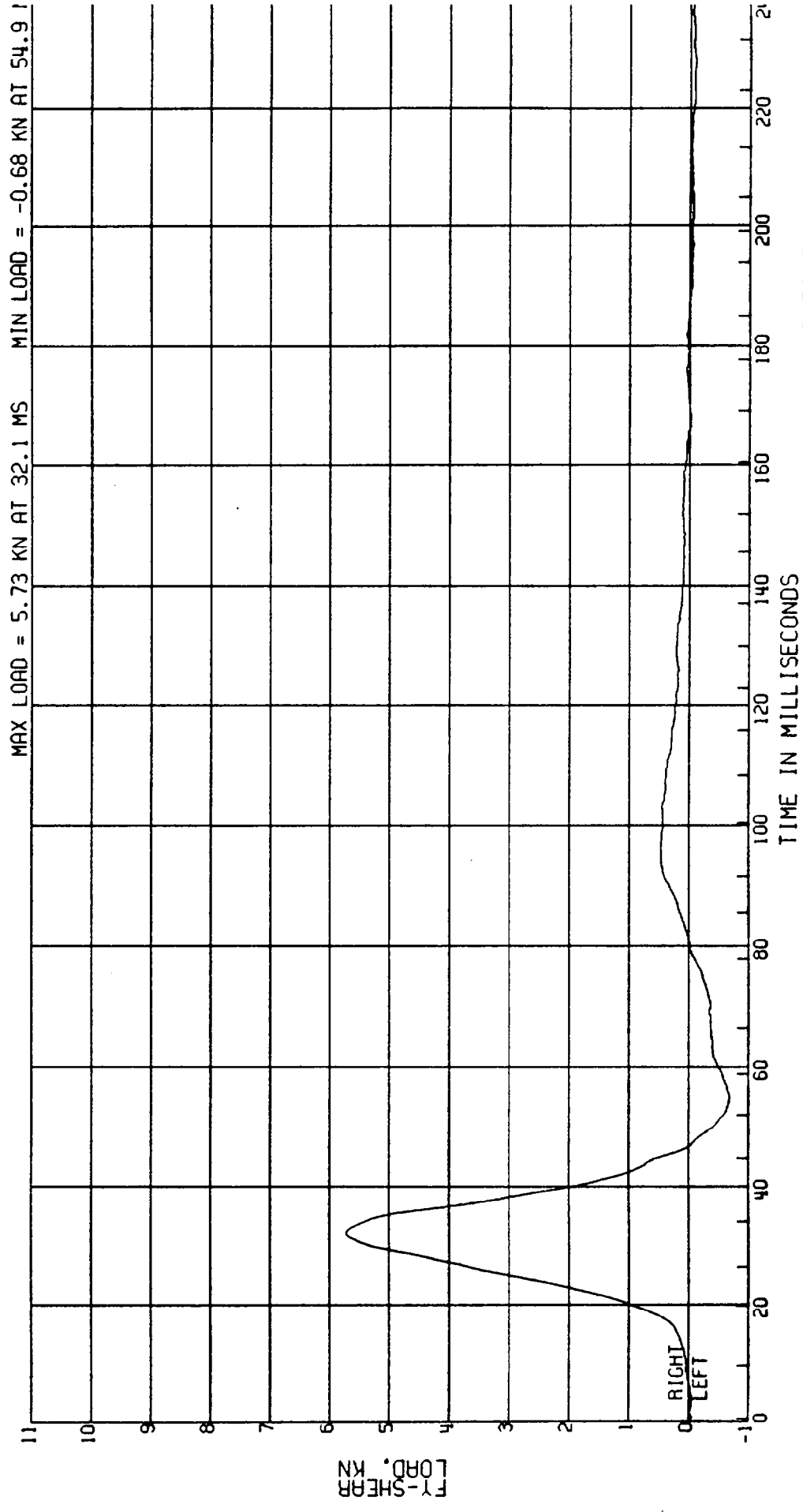
L. REAR LOWER LUMBAR LOAD



RELEASED BY:

68 PROCESSED 4 MY 90 14:53

C80118 L. SIDE IMPACT- 27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 14/
3868-905 ATD TYPE: BIOSID
CPE MVMA 11P 2AF69 L. REAR LOWER LUMBAR LOAD TEST DATE:03-27-9
ELEC DATA, SAE CLASS 180



RELEASED BY:

69 PROCESSED 4 MY 90 14:53

C8011B L. SIDE IMPACT- 27 DEC

3868-905

CPE MVMA 11P 2AF69

ELEC DATA, SAE CLASS 180

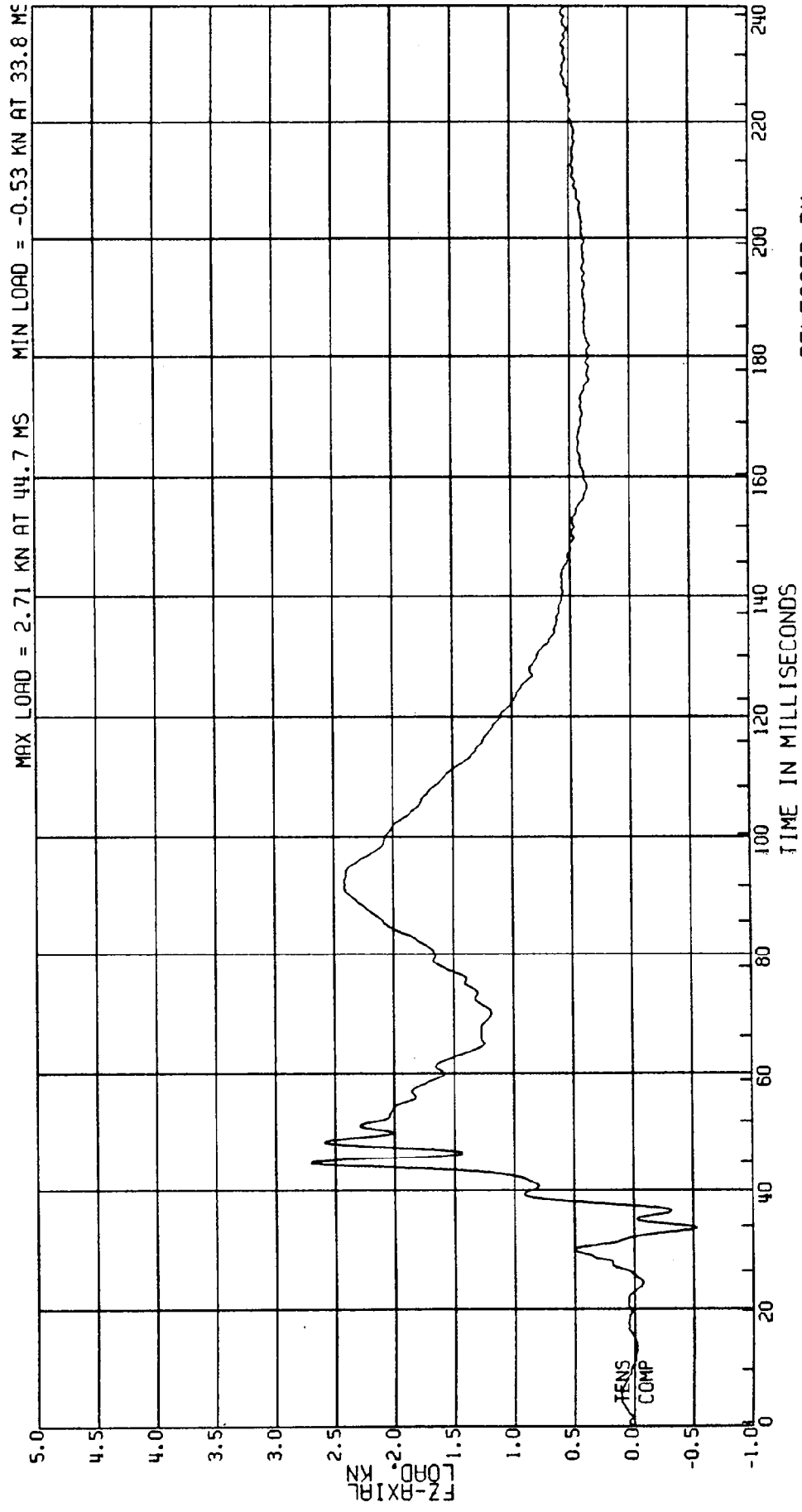
MOVING CRABBED BARR TO PRK VEHICLE

53.5KM/H FIGURE

ATD TYPE: BIOSID

TEST DATE: 03-27-90

L.REAR LOWER LUMBAR LOAD



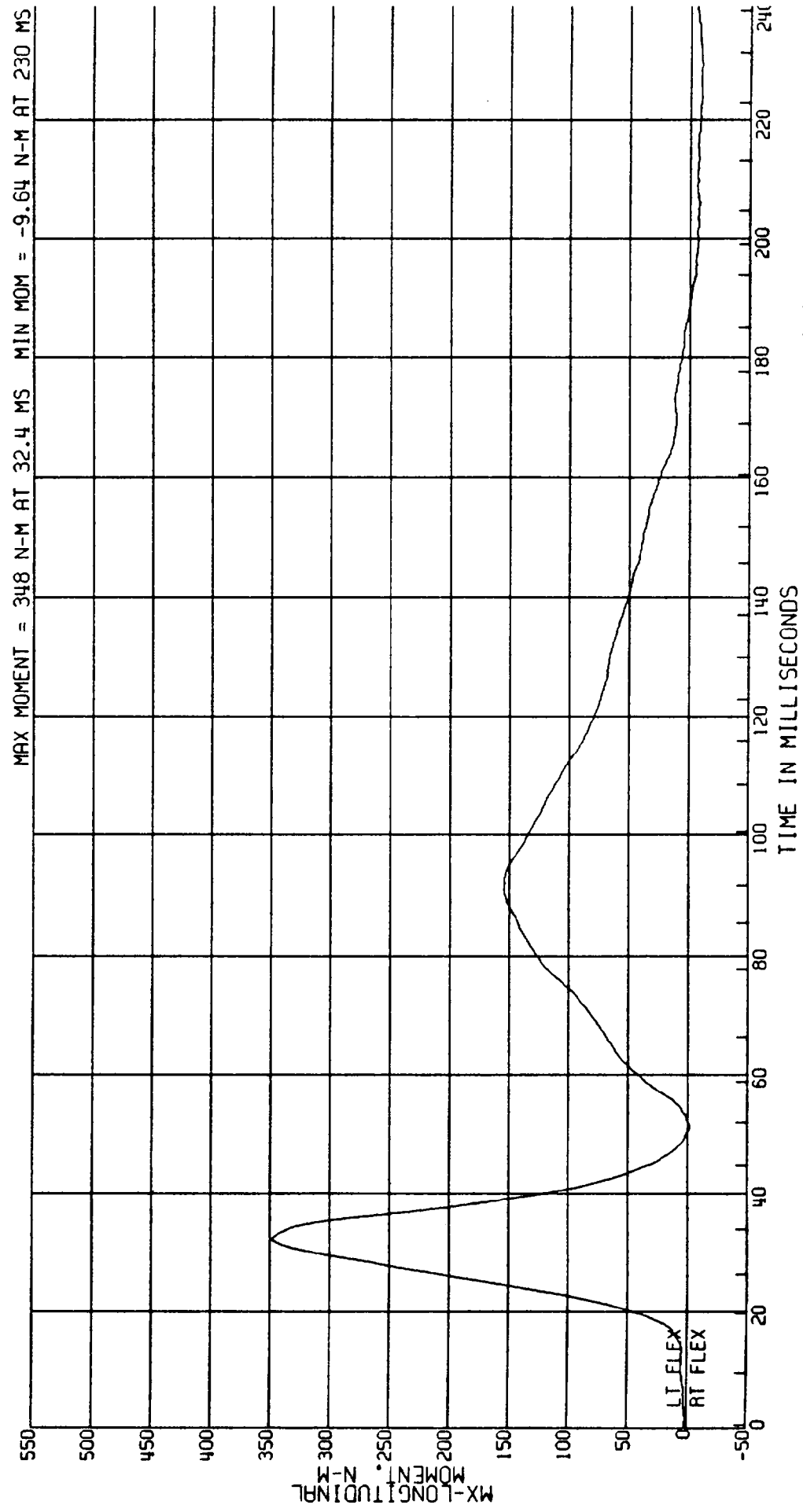
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70 PROCESSED 4 MY 90 14:53

C8011B L. SIDE IMPACT- 27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 143
 3868-905
 CPE MVMA 11P 2AF69
 ELEC DATA, SAE CLASS 180

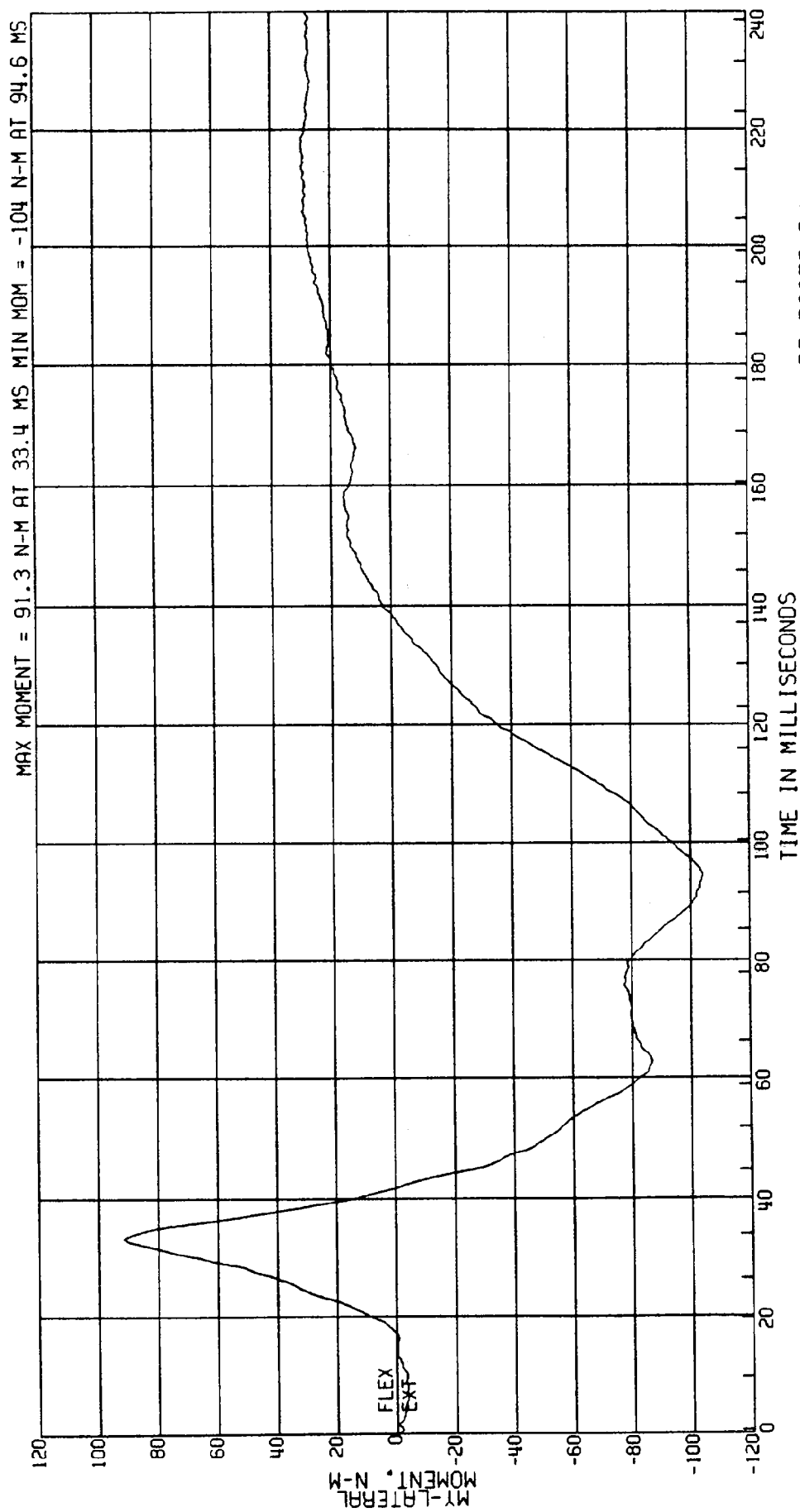
ATD TYPE: BIOSID
 TEST DATE: 03-27-90

L-REAR LOWER LUMBAR MOMENT



RELEASED BY:
 71 PROCESSED 4 MY 90 14:53

C8011B L. SIDE IMPACT- 27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 144
 3868-905
 CPE MVMA 11P 2AF69
 ELEC DATA, SAE CLASS 180
 ATD TYPE: BIOSID
 TEST DATE: 03-27-90

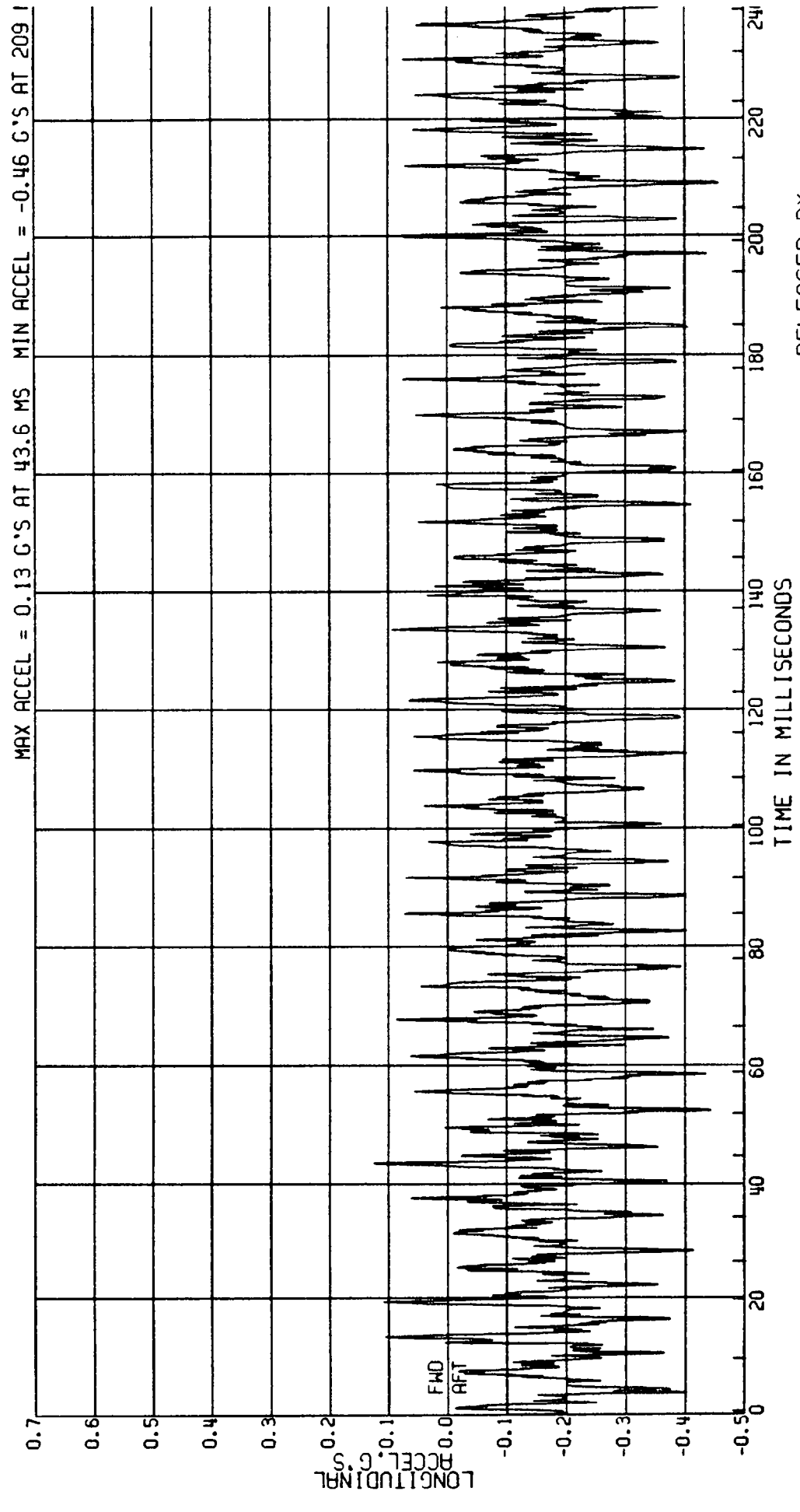


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72 PROCESSED 4 MY 90 14:53

C80118 L. SIDE IMPACT- 27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 145
3868-905
CPE MVMA 11P 2AF69
ELEC DATA, SAE CLASS 600 L.REAR PELVIC ACCEL.

ATD TYPE: B10SID
TEST DATE:03-27-90



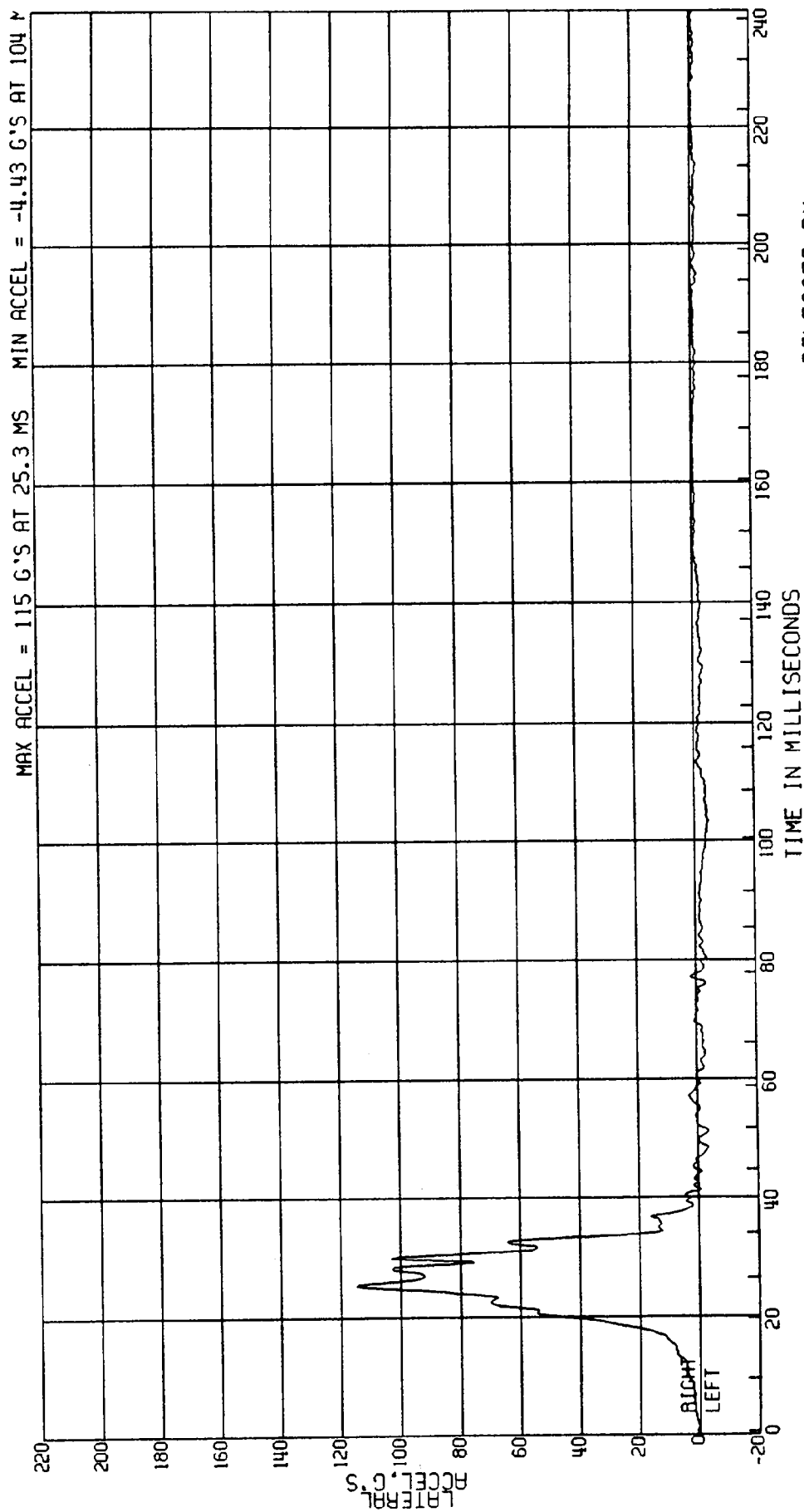
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73 PROCESSED 4 MY 90 14:53

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146

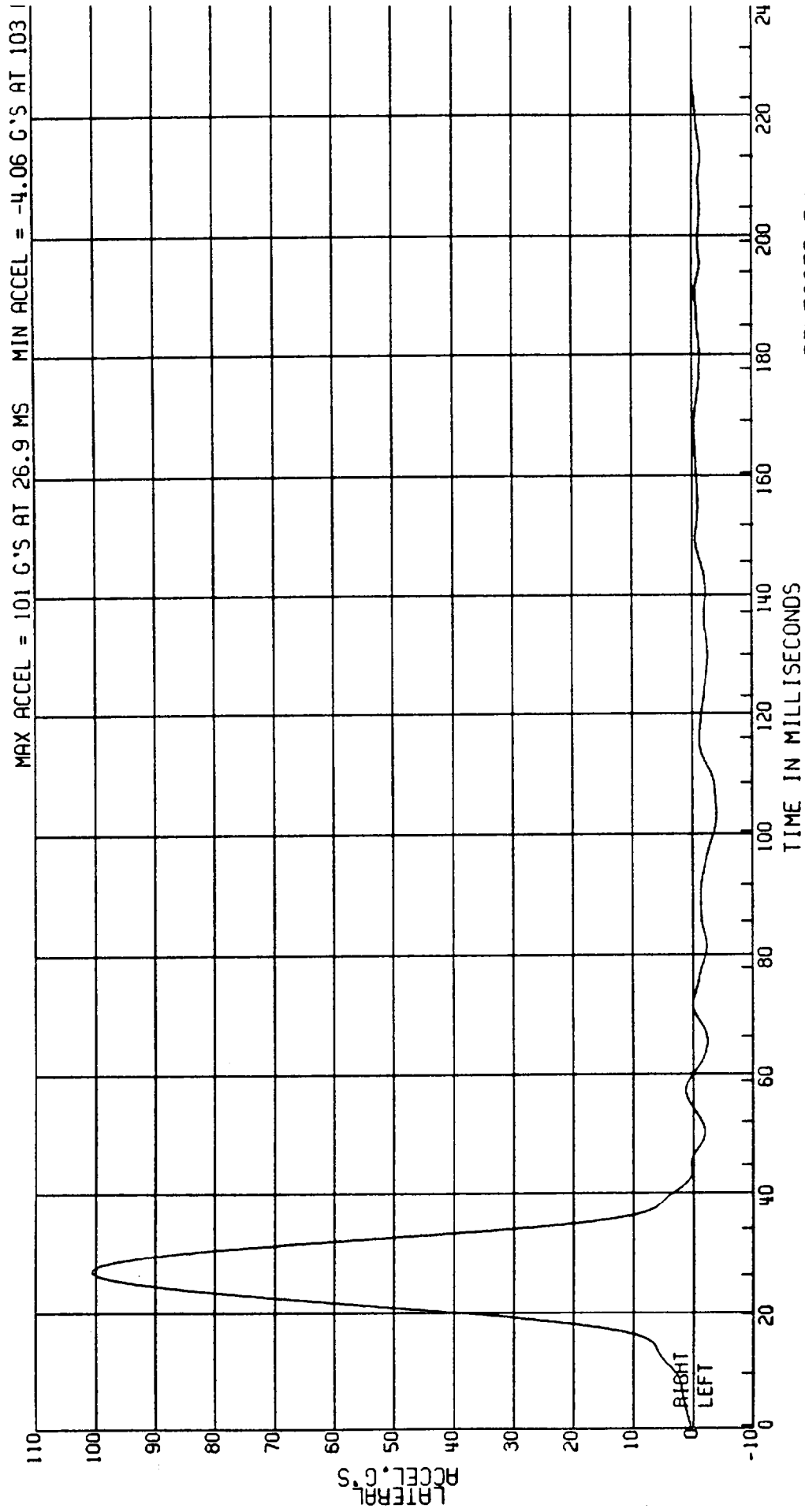
C8011B L. SIDE IMPACT- 27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE
3868-905 ATD TYPE: BIOSID
CPE MVMA 11P 2AF69 L.REAR PELVIC ACCEL.
ELEC DATA, SAE CLASS 600 TEST DATE:03-27-90



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74 PROCESSED 4 MY 90 14:53

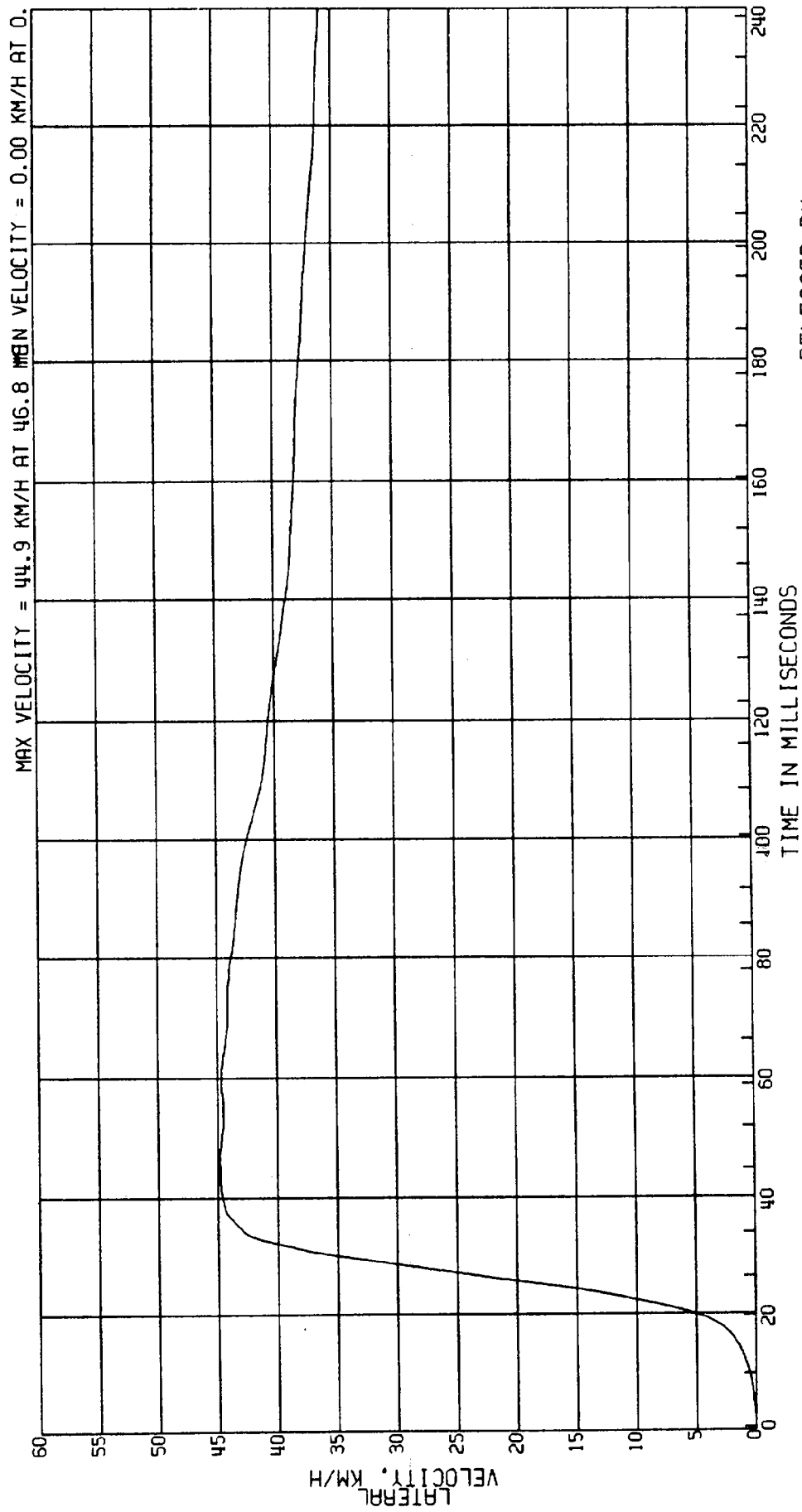
C8011B L. SIDE IMPACT- 27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 147
 3868-905
 CPE MVMA 11P 2AF69
 ELEC DATA, NHTSA FIR FILTER F.I.R. FILTER, CLASS 300 BUTTERWORTH
 ATD TYPE: B10SID
 TEST DATE: 03-27-90



RELEASED BY:

75 PROCESSED 4 MY 90 14:53

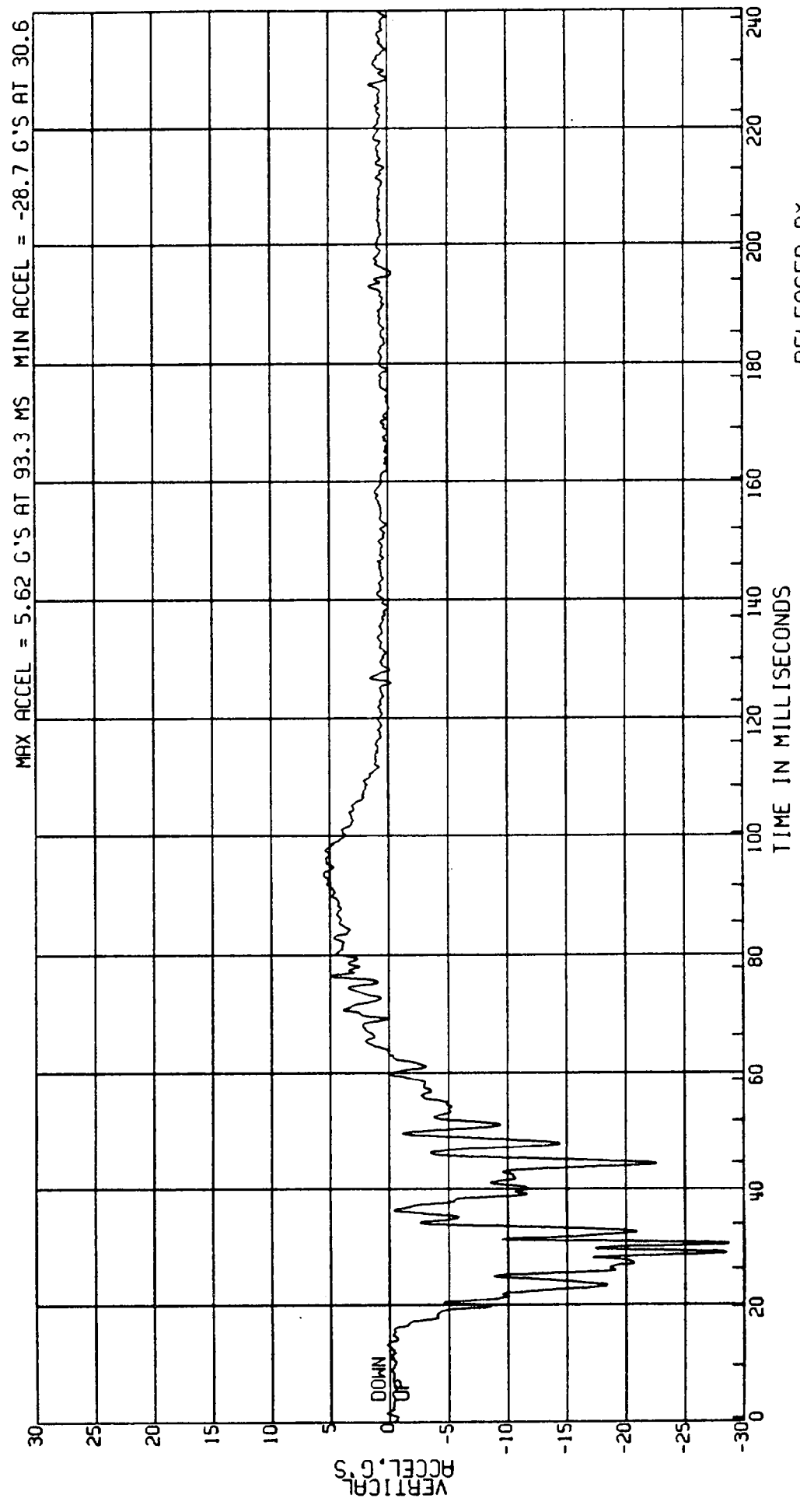
C80118 L. SIDE IMPACT- 27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5 KM/H FIGURE 148
3868-905
CPE MVMA 11P 2AF69
ELEC DATA, SAE CLASS 180 COMPUTED PELVIC VELOCITY
(1ST INTEGRAL L. REAR ACCELERATION) ATD TYPE: BIOSID
TEST DATE: 03-27-90



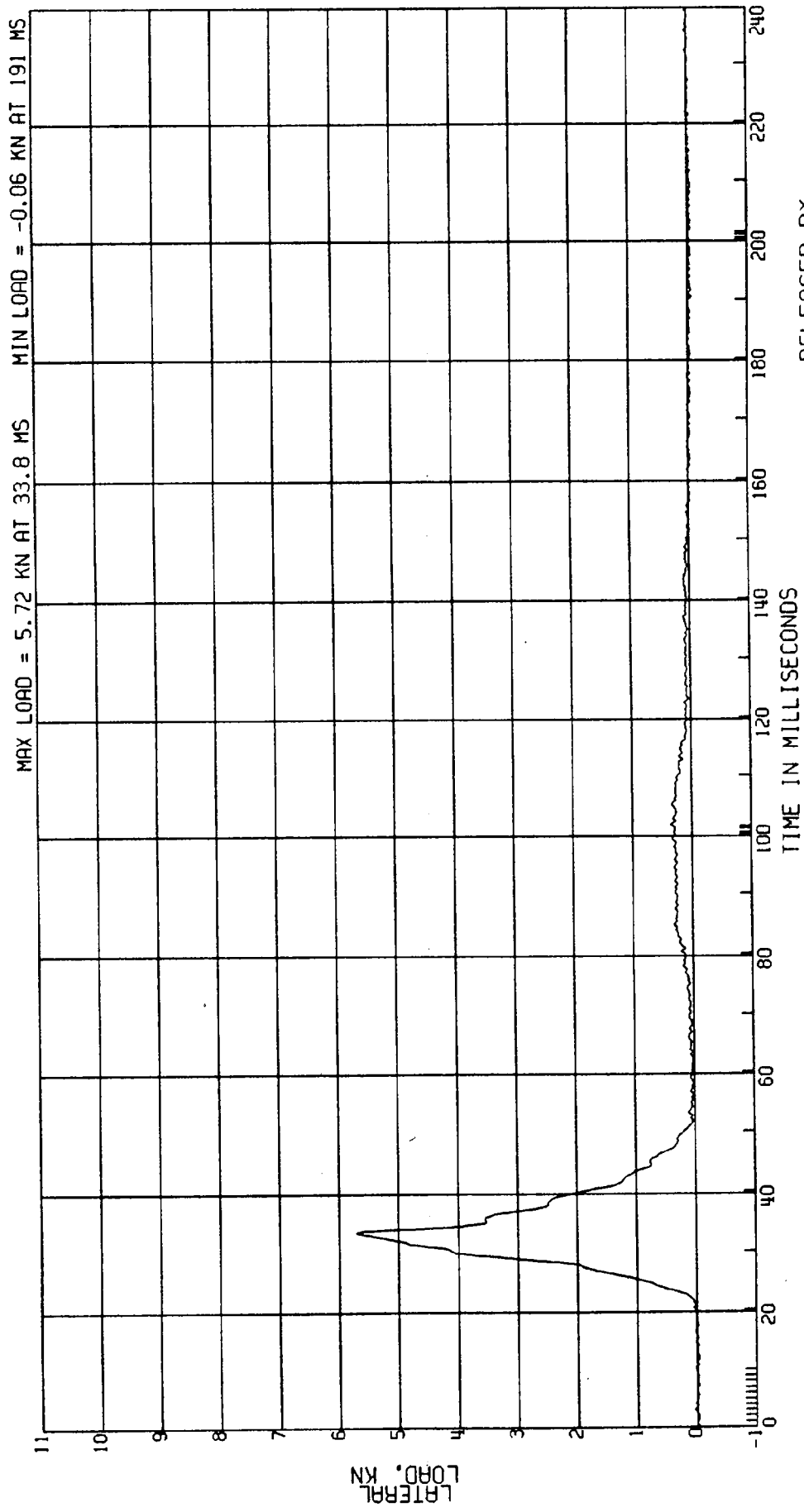
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76 PROCESSED 4 MY 90 14:53

C80118 L. SIDE IMPACT- 27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 149
3868-905
CPE MVMA 11P 2AF69
ELEC DATA, SAE CLASS 600 L. REAR PELVIC ACCEL. ATD TYPE: BIOSID
TEST DATE: 03-27-90



C8011A L. SIDE IMPACT- 27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 150
 3868-905
 CPE MVMA 11P 2AF69
 ELEC DATA, SAE CLASS 600
 AID TYPE: BIOSID
 TEST DATE: 03-27-90



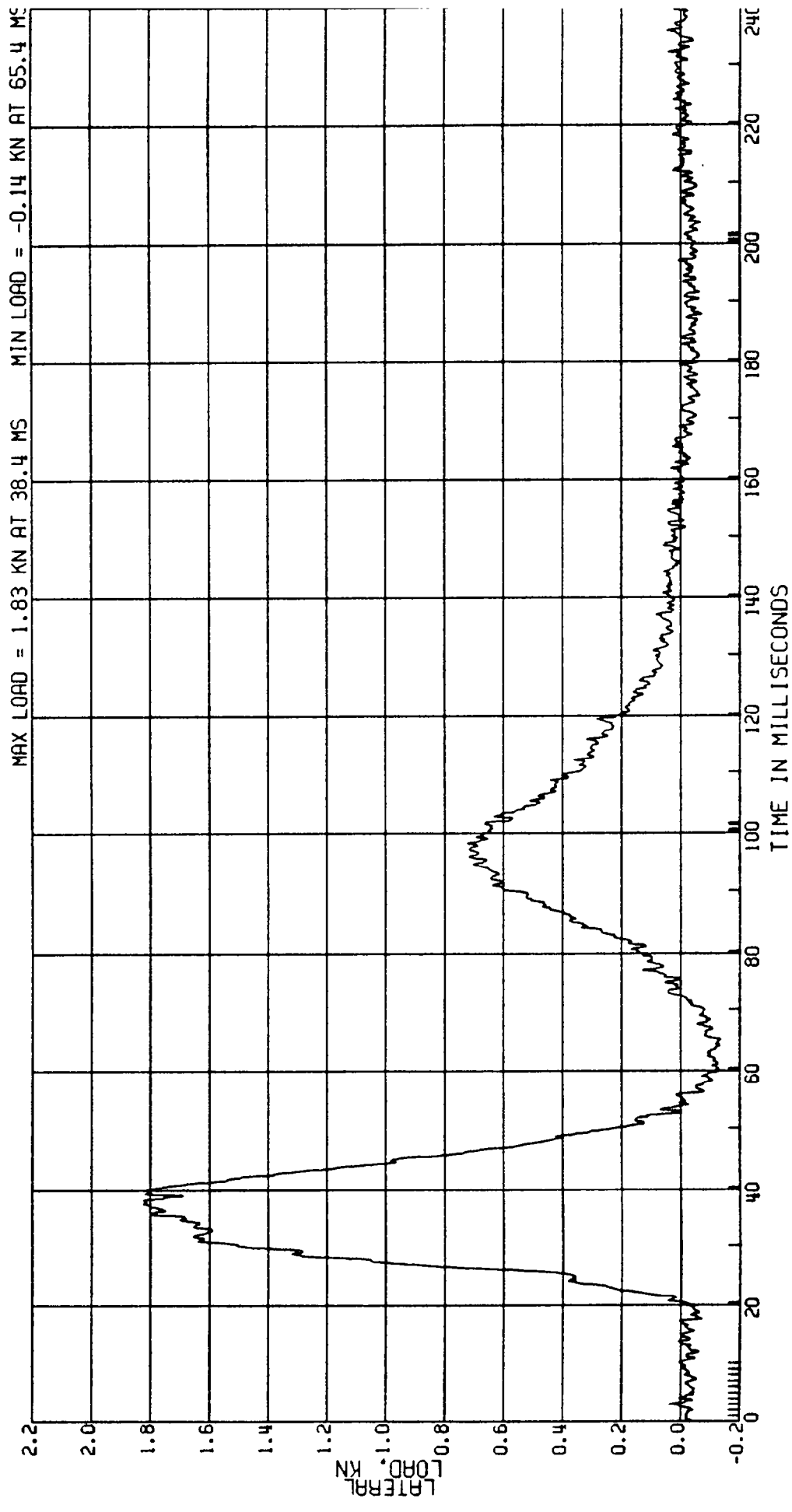
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29 PROCESSED 4 MY 90 14:41

C8011A L. SIDE IMPACT- 27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 15/
3868-905
CPE MVMA 11P 2AF69
ELEC DATA, SAE CLASS 600

L.REAR ILIAC LOAD

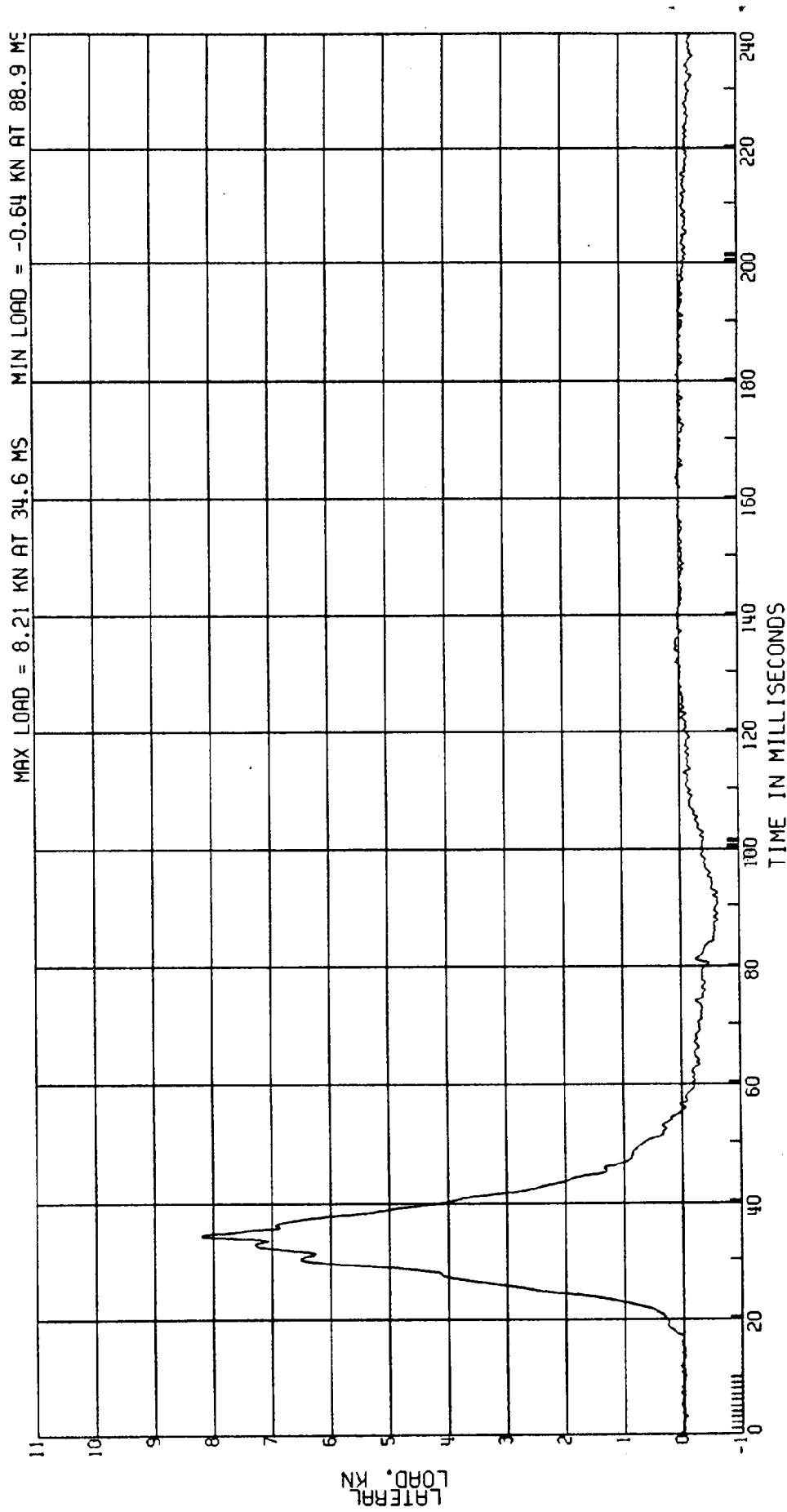
ATD TYPE: BIOSID
TEST DATE:03-27-90



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30 PROCESSED 4 MY 90 14:41

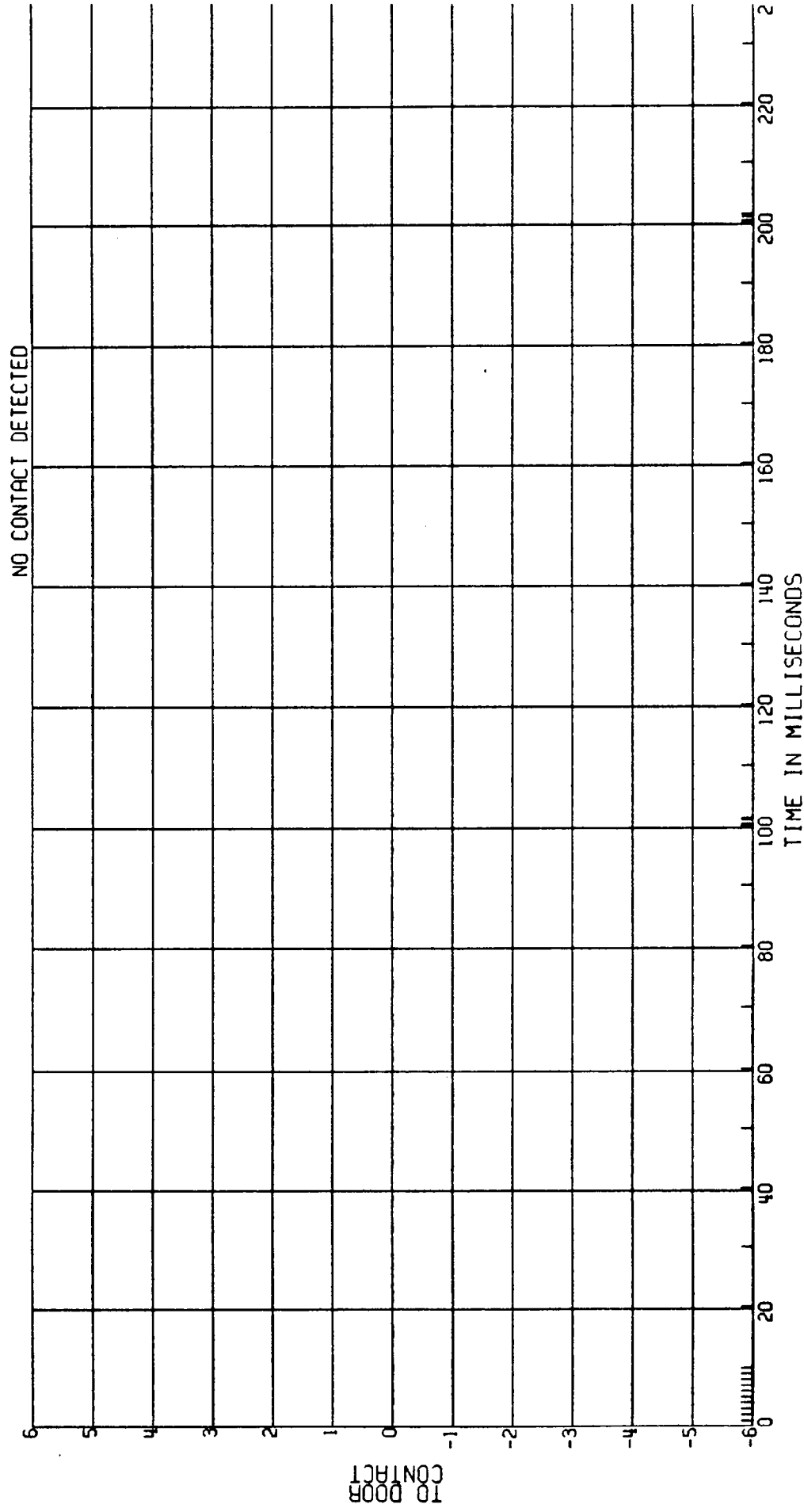
C8011A L. SIDE IMPACT- 27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 152
 3868-905
 CPE MVMA 11P 2AF69
 ELEC DATA, SAE CLASS 600
 L.REAR SACRUM LOAD
 ATD TYPE: BIOSID
 TEST DATE:03-27-90



RELEASED BY:

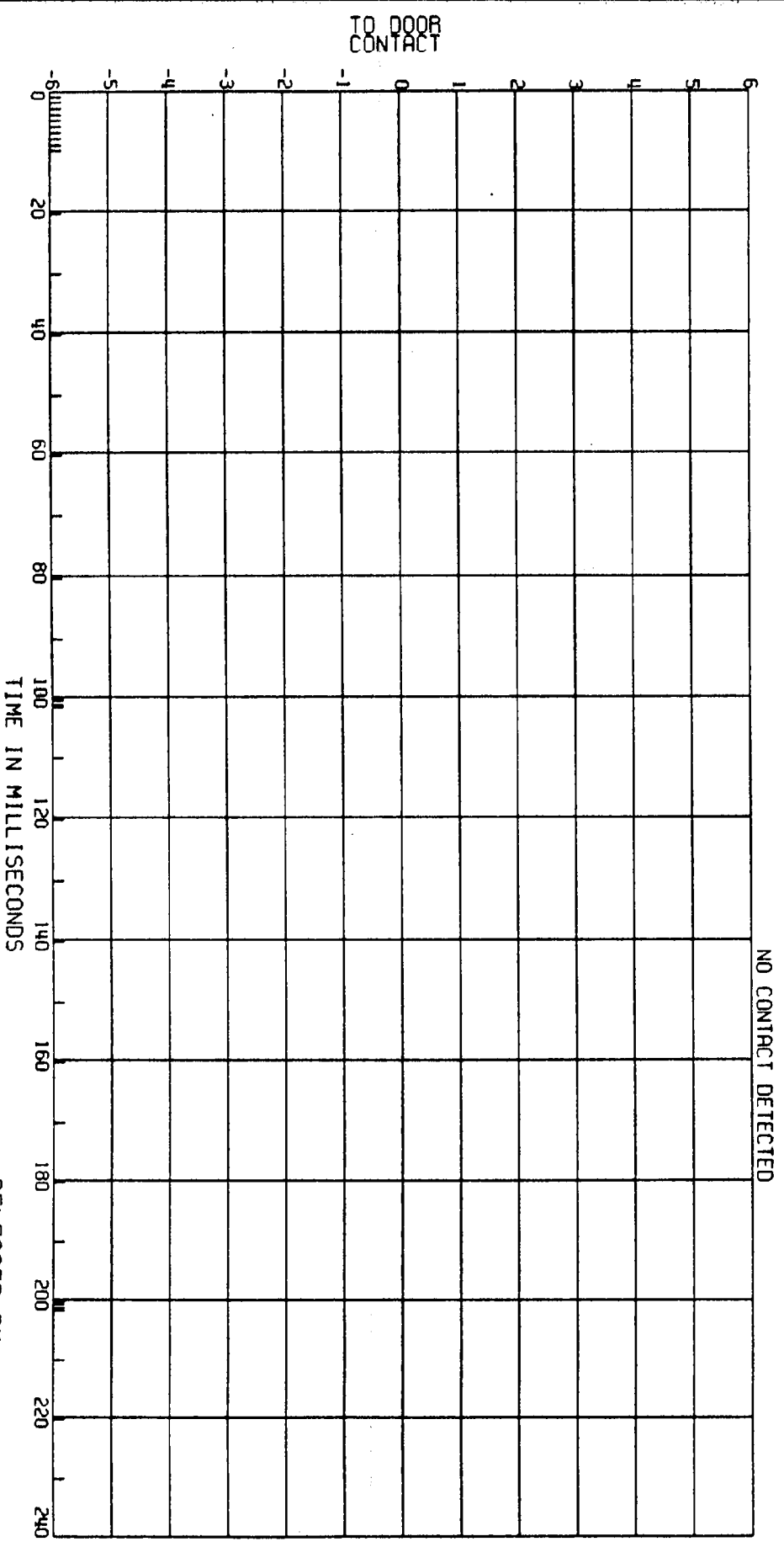
31 PROCESSED 4 MY 90 14:41

C8011A L. SIDE IMPACT- 27 DEG MOVING CRABBED BARR 10 PRK VEHICLE 53.5KM/H FIGURE 1
3868-905
CPE MVMA 1IP 2AF69
ELEC DATA, SAE CLASS 1000
ATD TYPE: BIOSID
TEST DATE: 03-27-91
L. REAR THORAX-LEFT SIDE CONTACT



RELEASED BY:
72 PROCESSED 4 MY 90 14:42

C8011A L. SIDE IMPACT - 27 DEC MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 154
 3868-905
 CPE MVMA 11P 2AF69 L. REAR ABDOMEN-LEFT SIDE CONTACT
 ELEC DATA, SAE CLASS 1000
 ATD TYPE: BIOSID
 TEST DATE: 03-27-90



RELEASED BY:
 73 PROCESSED 4 MT 90 14:42

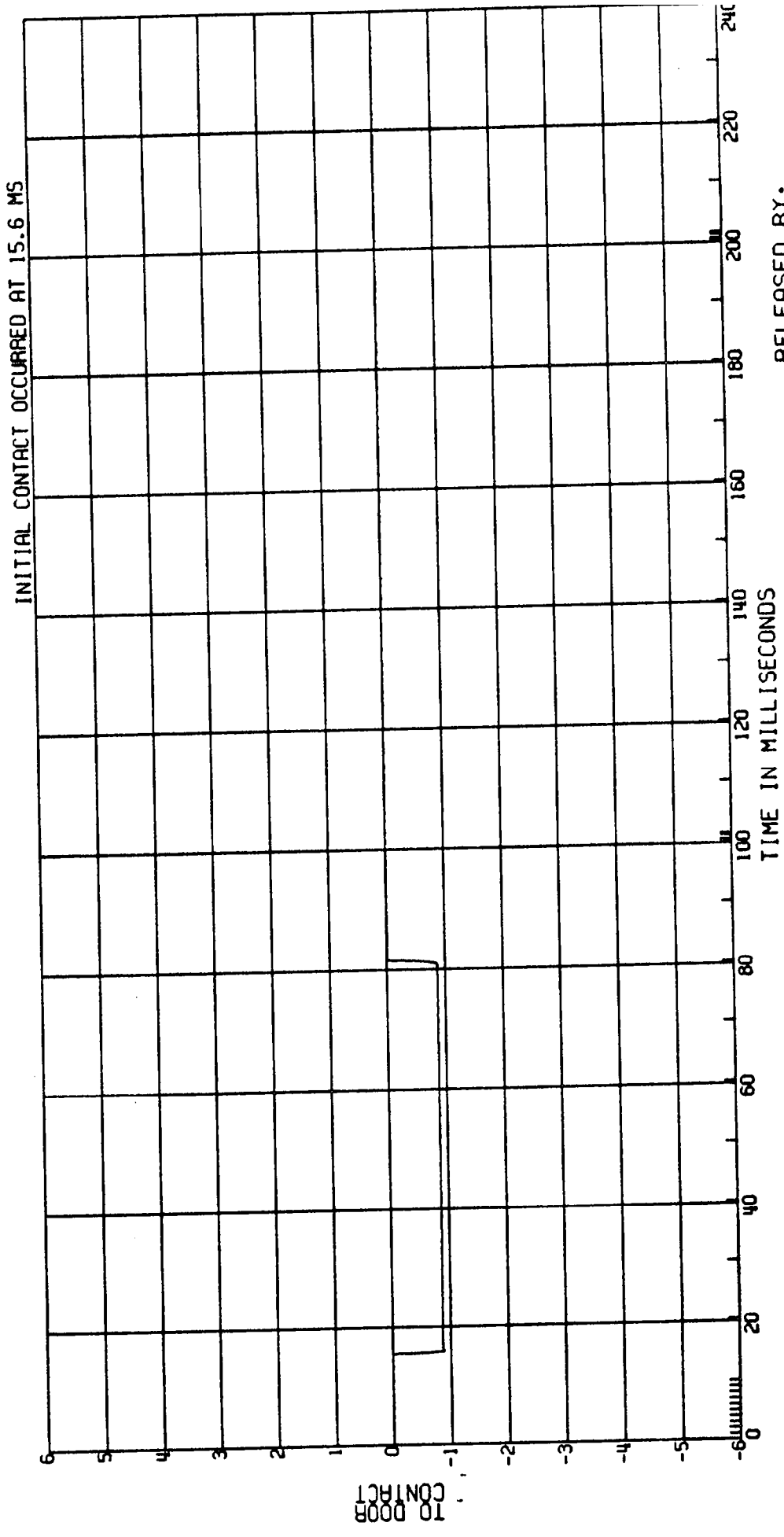
(

C8011A L. SIDE IMPACT- 27 DEG
3868-905
CPE
ELEC DATA, SAE CLASS 1000

MVMA 11P 2AF69

MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H
L.REAR PELVIC-LEFT SIDE CONTACT

FIGURE 155
ATD TYPE: BIOSID
TEST DATE:03-27-90



RELEASED BY:
SA PROCESSED 4 MY 90 14:42