mvma INFORMATION BULLETIN

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August 27, 1990

TO: Side Impact Subcommittee

FROM: Ronald J. Wasko

SUBJECT: **MVMA Full Vehicle BioSID Test Report - Test 5B**

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 Subcomittee
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 5B*

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

TEST REPORT

REPORT NO. PG
SRDL TEST NO. C8005
TEST DATE MAR 06, 1990

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.

VEHICLE DESCRIPTION

MAKE	YEAR	BODY TYPE	BODY STYLE	DIVISION CAR NO.	BUILD STATUS
PONTIAC	90	A-BODY	2AF69	MVMA 5B	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.

TEST CONDITIONS

MOVING BARRIER

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

VEHICLE

TEST MASS		FRONT 918 kg	
	LESS DUMMIES ☒	REAR 674 kg	
	INCLUDING DUMMIES ☐	TOTAL 1592 kg	
FUEL TANK	TEST VOLUME: CONTENTS WATER		
	N/D % OF USABLE CAPACITY= 64.4 L		
FUEL LINES AND SYSTEM FILLED		YES ☐ NO ☒	
VEHICLE SERVICE BRAKES ON @ IMPACT		YES ☐ NO ☒	
SEAT	POSITION MID		

VEHICLE ATTITUDE

J= DRIVER SIDE	191 mm	PASSENGER SIDE	191 mm
K= DRIVER SIDE	168 mm	PASSENGER SIDE	163 mm

COMMENTS:
LEFT SIDE OF MOVING BARRIER FACE WAS POSITIONED 940MM FORWARD OF VEHICLE WHEELBASE CENTERLINE. SEE PAGE 4. FUEL TANK WAS FILLED WITH WATER.

DUMMIES

LEFT FRONT	MAKE BIOSID	NO. 1	
	TYPE 50TH %ILE MALE	MASS 77.3 kg	
	RESTRAINT UNBELTED		
LEFT REAR	MAKE SID	NO 4	
	TYPE 50TH %ILE MALE	MASS 78.5 kg	
	RESTRAINT UNBELTED		

TEST CONFIGURATION:

PHOTOGRAPHIC COVERAGE

OFFBOARD	OVER ALL	X	FUEL TANK	
	REAR HALF		OVERHEAD	X
	PIT			
OTHER	OFFBD-DR SIDE	X	ON MDB - 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

REPORT NO. PG

SRDL TEST NO. C8005

POST-TEST OBSERVATIONS

		YES	NO	N/A	N/D	FIG.	NOTE
DOORS	ALL EXTERIOR DOORS REMAINED CLOSED	X					
	ALL EXTERIOR DOORS REMAINED LATCHED	X					
	ALL EXTERIOR DOOR HINGES REMAINED INTACT	X					

	LATCH OPERABLE YES	LATCH OPERABLE NO	LATCH OPERABLE OTHER	DISTANCE DOOR MAY BE OPENED (1)
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.

		YES	NO	N/A	N/D	FIG.	NOTE
BODY	BODY TO-FRAME OR CRADLE MOUNTS REMAINED ATTACHED	X					
	SPARE TIRE REMAINED IN PLACE	X					
	TRUNK LID OR REAR HATCH REMAINED INTACT	X					
	TRUNK LID OR REAR HATCH REMAINED CLOSED	X					
DRIVE LINE	REAR AXLE INTACT			X			1
	REAR AXLE DEFORMED			X			1
	DRIVESHAFT INTACT			X			1
	DRIVESHAFT DEFORMED			X			1
FUEL SYS	FUEL TANK RETAINED	X					
	FILLER TUBE INTACT	X					

NOTE:

1. FRONT WHEEL DRIVE

NOTE: VEHICLE AND BARRIER FACE RESIDUAL CRUSH MEASUREMENTS ON PAGES 5 & 6.

VEHICLE DATA

REAR IMPACT

VEHICLE RESIDUAL CRUSH	DRIVER SIDE	mm	FUEL TANK RESIDUAL CRUSH	DRIVER SIDE	mm
	PASSENGER SIDE	mm		PASSENGER SIDE	mm
VEHICLE DYNAMIC CRUSH	DRIVER SIDE	mm	FUEL TANK RESIDUAL DISP	DRIVER SIDE	mm
	PASSENGER SIDE	mm		PASSENGER SIDE	mm

SIDE IMPACT

VEHICLE RESIDUAL CRUSH		FUEL TANK LATERAL RESIDUAL CRUSH			
FRONT	mm	FRONT	N/D mm	REAR	N/D mm
MID	mm	FUEL TANK LATERAL RESIDUAL DISPLACEMENT			
REAR	mm	FRONT	N/D mm	REAR	N/D 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).

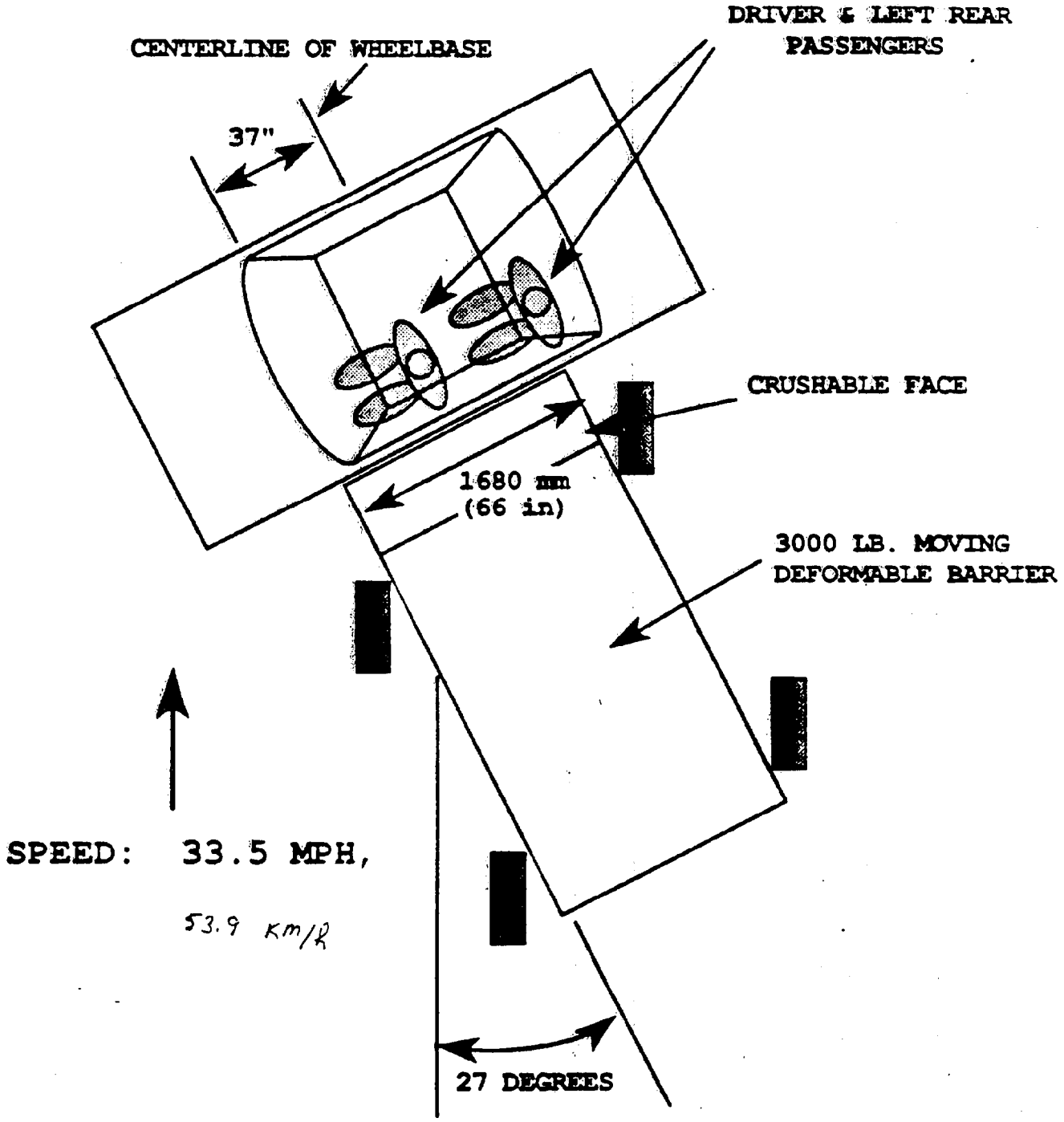
BODY COORDINATES (mm)

	LONGITUDINAL	VERTICAL
LEFT FRONT PASSENGER		
HEAD	3209	1150
HIP	3069	469
KNEE	2683	558
PELVIC ANGLE	21.0	SEAT BACK ANGLE 24.0
LEFT REAR PASSENGER		
HEAD	4169	1088
HIP	3995	458
KNEE	3529	625
PELVIC ANGLE	17	SEAT BACK ANGLE N/D

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

Comments: DUMMY HEAD ANGLE IN DEGREES - DR=-8.0, LR=-8.0

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: C8005

TEST DATE:

LOCATION			WINDOW TOP			WINDOW SILL			MID DOOR			M - POINT			AXCLE CL		
HEIGHT (in mm)			-			807			-			445			215		
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	-	-	-	417	400	-17	-	-	-	-	-	-	-	-	-
S	D	152	-	-	-	411	401	-10	-	-	-	-	-	-	-	-	-
U		0*	-	-	-	407	419	12	-	-	-	353	360	7	447	459	12
R		152	-	-	-	403	513	110	-	-	-	354	612	258	459	528	69
E		305	-	-	-	401	560	159	-	-	-	353	679	326	452	555	103
M		457	-	-	-	397	589	192	-	-	-	350	689	339	451	576	125
E		610	-	-	-	395	602	207	-	-	-	348	704	356	452	596	144
N	R	762	-	-	-	393	612	219	-	-	-	347	720	373	452	617	165
T	E	914	-	-	-	392	627	235	-	-	-	345	731	386	445	640	195
	A	1067	-	-	-	391	643	252	-	-	-	343	743	400	445	662	217
L	R	1219	-	-	-	392	673	281	-	-	-	344	749	405	444	700	256
O	W	1372	-	-	-	391	689	298	-	-	-	344	775	431	439	609	170
C	A	1524	-	-	-	392	704	312	-	-	-	344	789	445	440	542	102
A	R	1676	-	-	-	392	723	331	-	-	-	344	799	455	439	487	48
T	D	1829	-	-	-	393	630	237	-	-	-	344	709	365	436	440	4
I		1981	-	-	-	393	508	115	-	-	-	-	-	-	-	-	-
O		2134	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
N		2286	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		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: C8005

TEST DATE: MAR 6,1990

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	326	281	280	281	282	282	283	285	289	289	290	292	296	302	320	356	392
		PRE-TEST	276	276	276	276	276	276	276	276	276	276	276	276	276	276	276	276	276
		STATIC CRUSH	50	5	4	5	6	6	7	9	13	13	14	16	20	26	44	80	116
MID-STACK LEVEL	686	POST-TEST	292	278	280	280	280	282	281	280	282	282	283	285	284	287	293	322	384
		PRE-TEST	276	276	276	276	276	276	276	276	276	276	276	276	276	276	276	276	276
		STATIC CRUSH	16	2	4	4	4	6	5	4	6	6	7	9	8	11	17	46	108
BOTTOM OF STACK LEVEL	559	POST-TEST	290	287	285	285	283	285	281	280	280	280	283	285	285	287	290	302	339
		PRE-TEST	276	276	276	276	276	276	276	276	276	276	276	276	276	276	276	276	276
		STATIC CRUSH	14	11	9	9	7	9	5	4	4	4	7	9	9	11	14	26	63
BUMPER LEVEL	432	POST-TEST	280	241	211	199	197	197	200	207	213	217	224	230	235	244	262	293	320
		PRE-TEST	205	188	190	190	190	193	190	184	182	187	187	192	192	196	204	236	281
		STATIC CRUSH	75	53	21	9	7	4	10	23	31	30	37	38	43	48	58	57	39

* HEIGHTS MEASURED ABOVE GROUND LEVEL.

** LOOKING AT THE FACE OF THE BARRIER.

MOVING BARRIER

REAR IMPACT ☐
SIDE IMPACT ☒

REPORT NO. PG
SRDL TEST NO. C8005

INSTRUMENTATION, FILM ANALYSIS DATA AND PHOTOGRAPH INDEX

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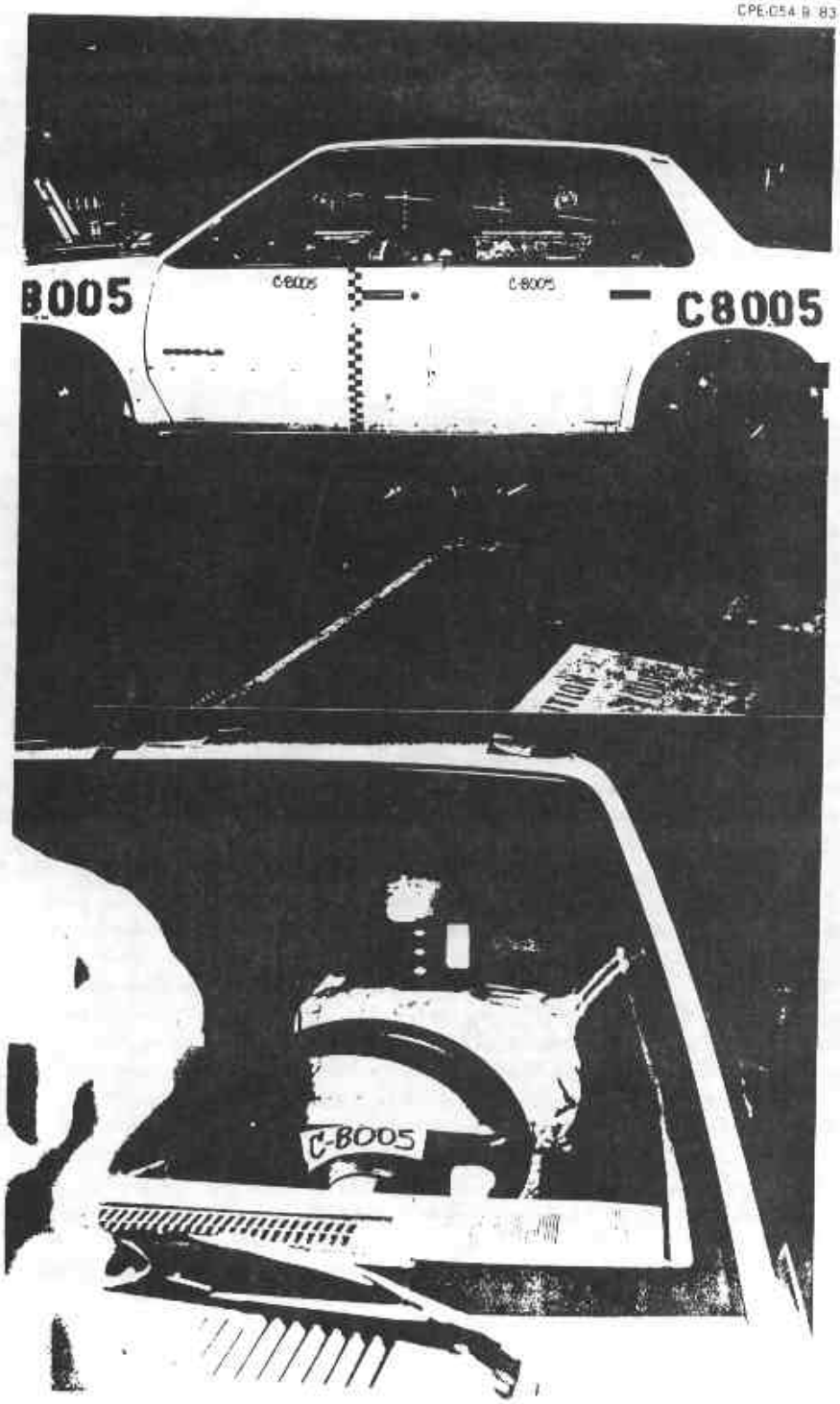
CPE-054 9 83



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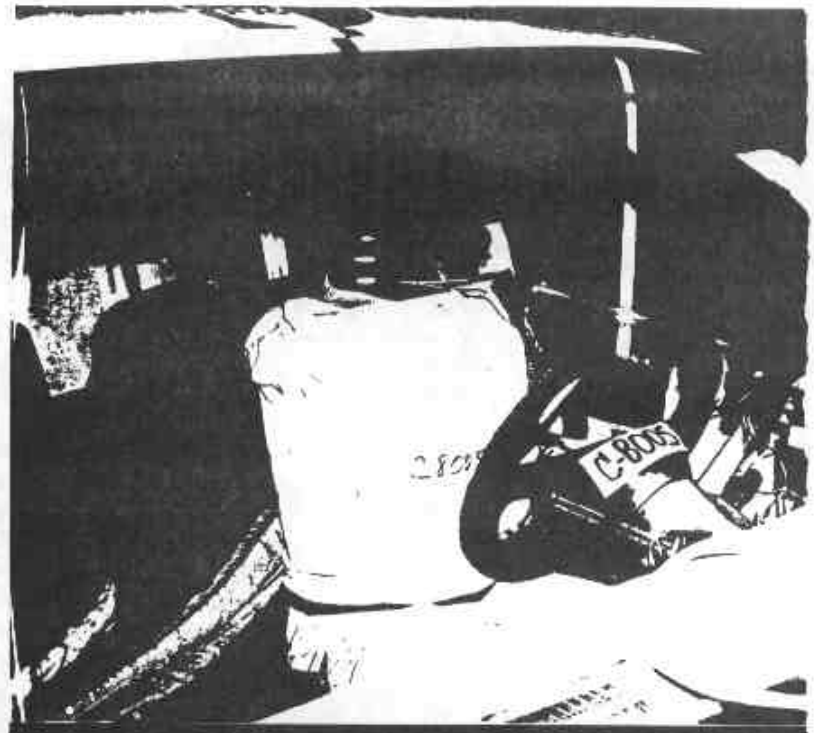
CPE 05



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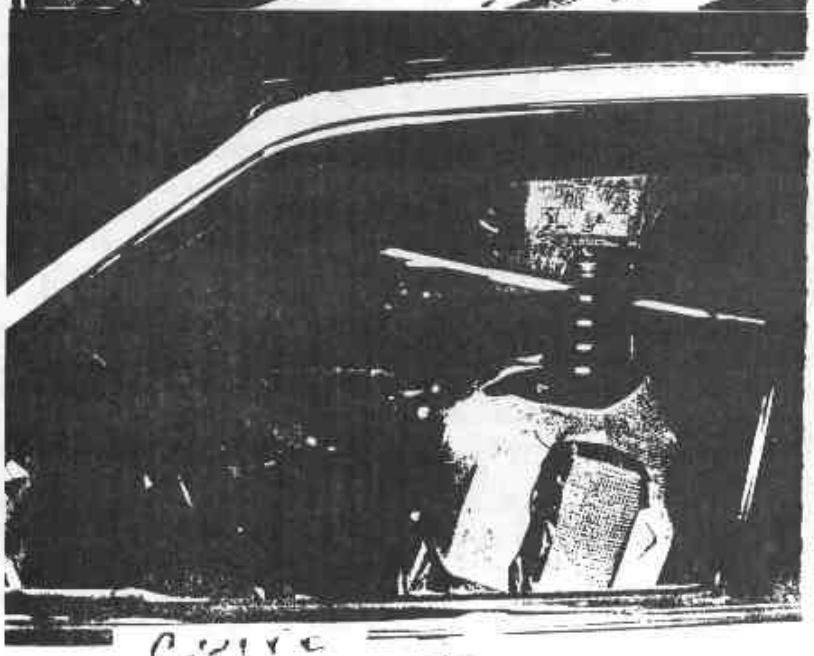

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C8115

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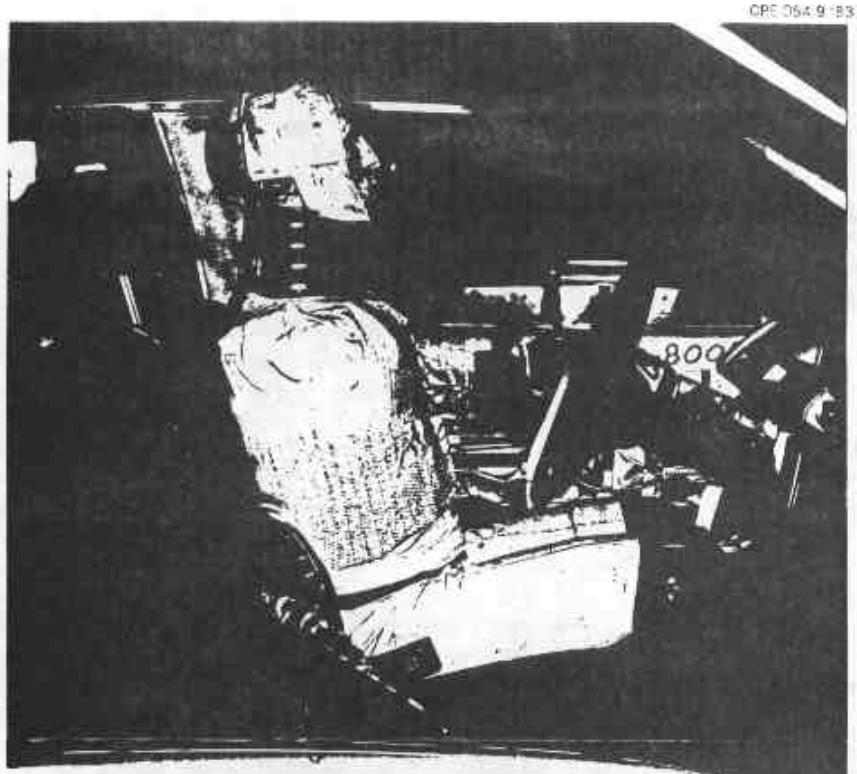

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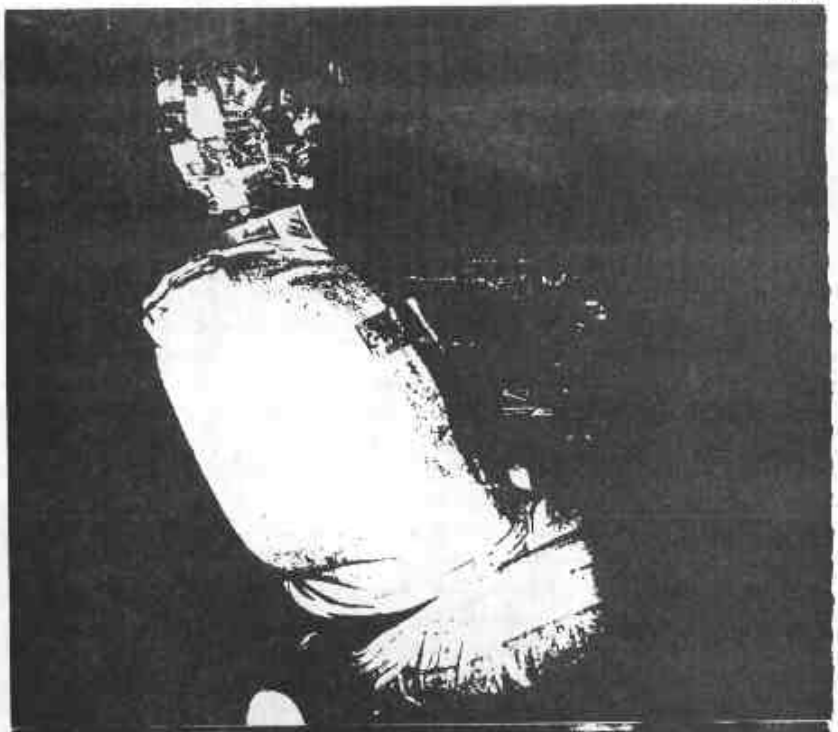
CPE 054 9



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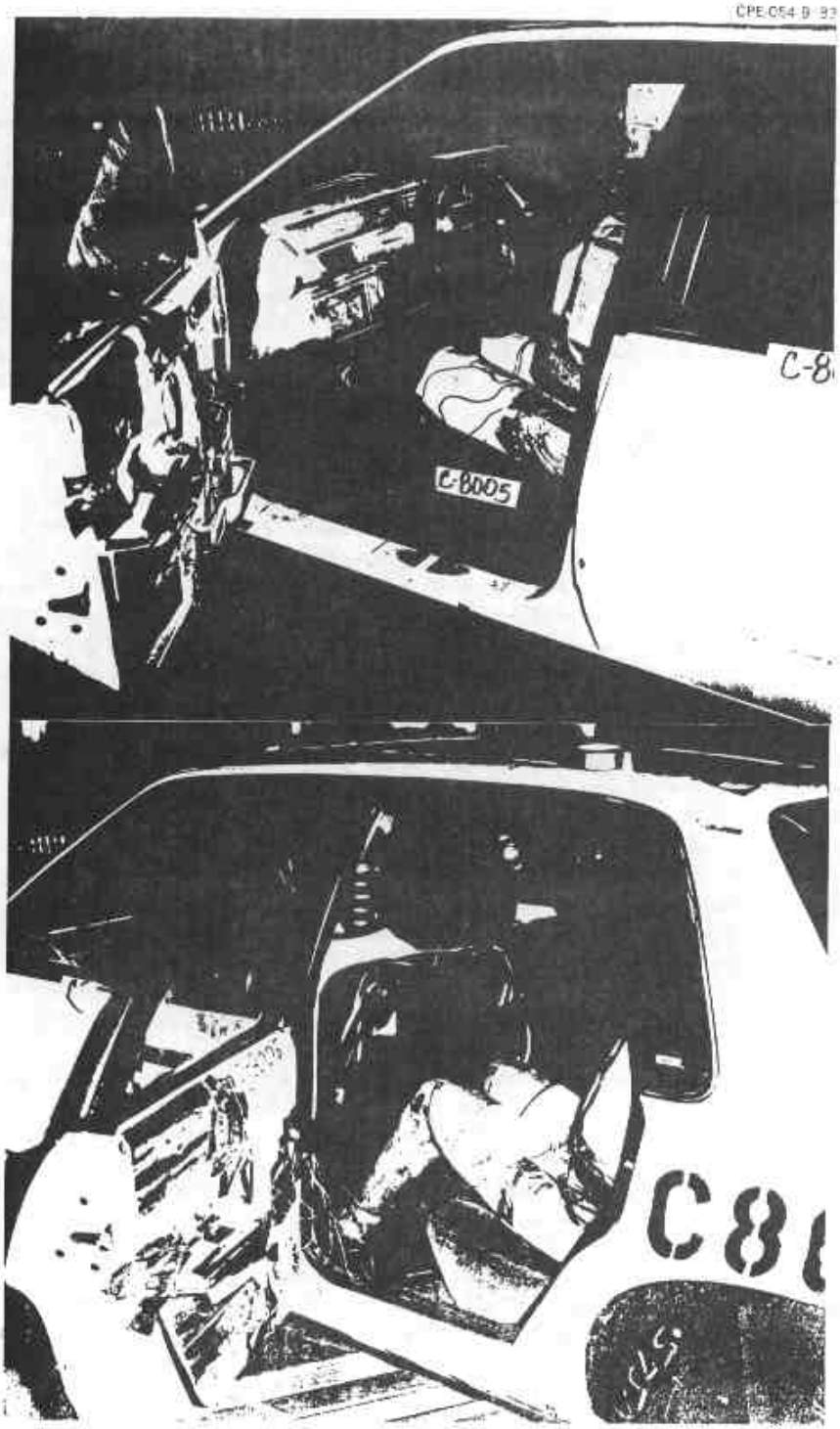

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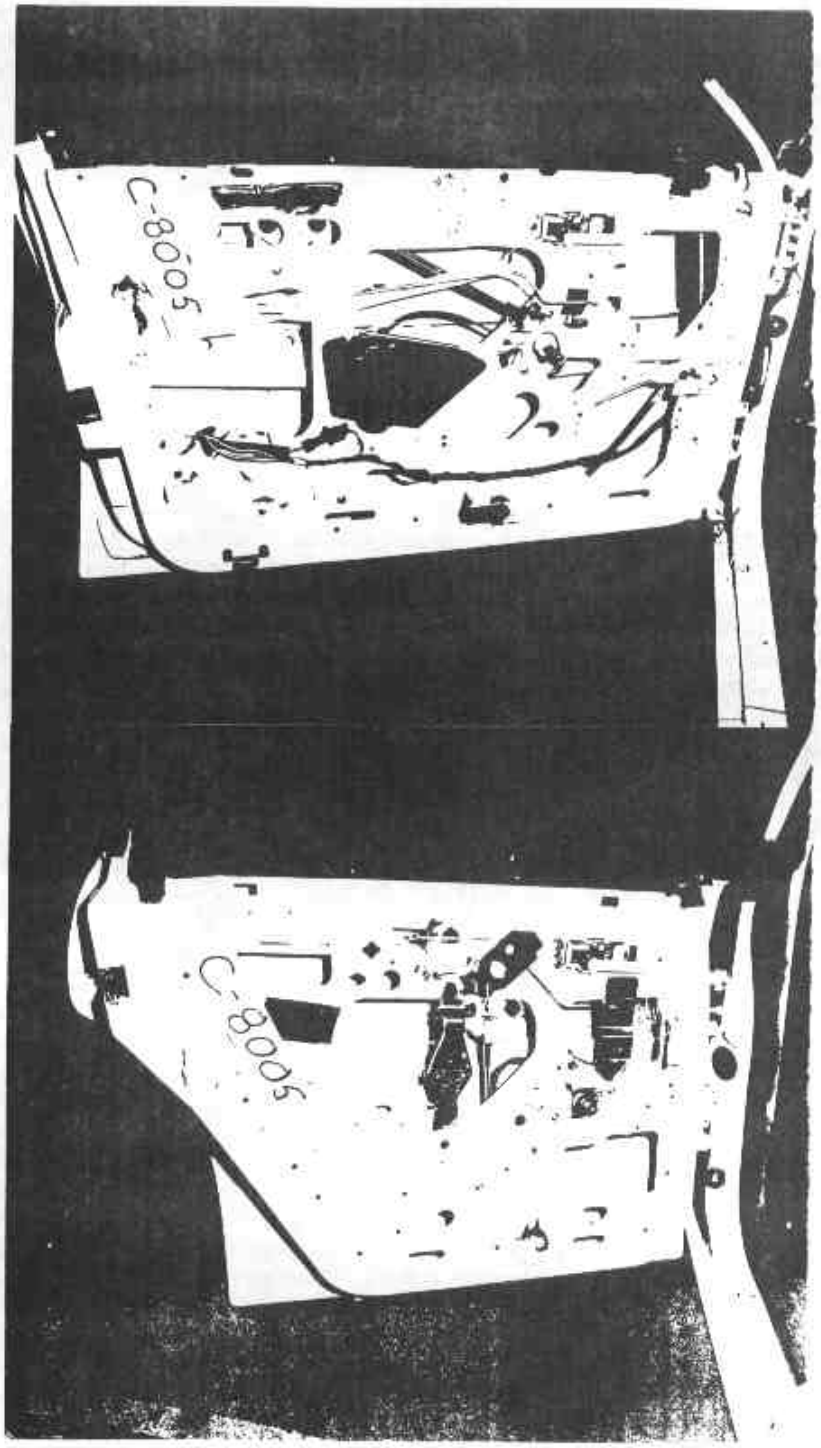
CPE 05



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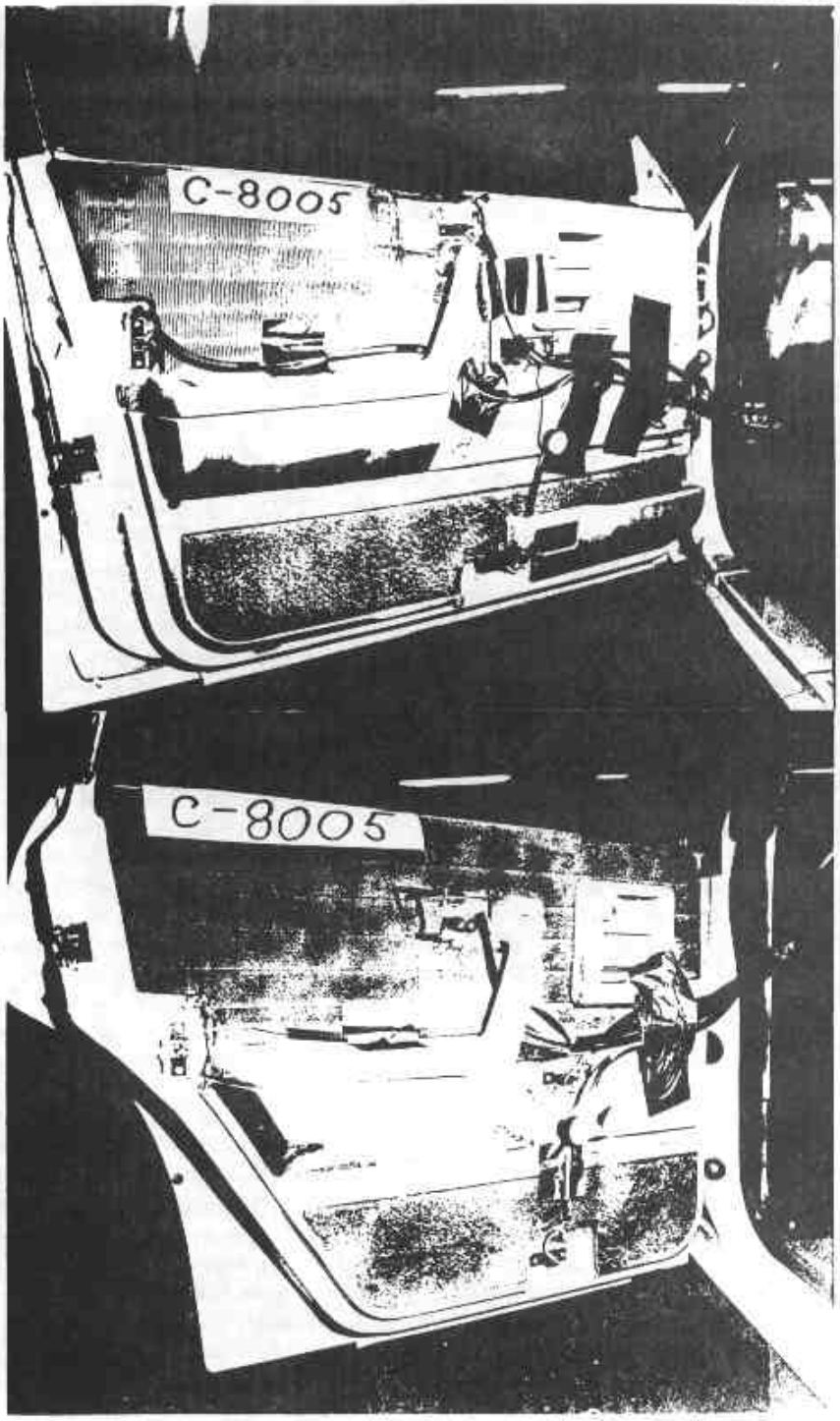

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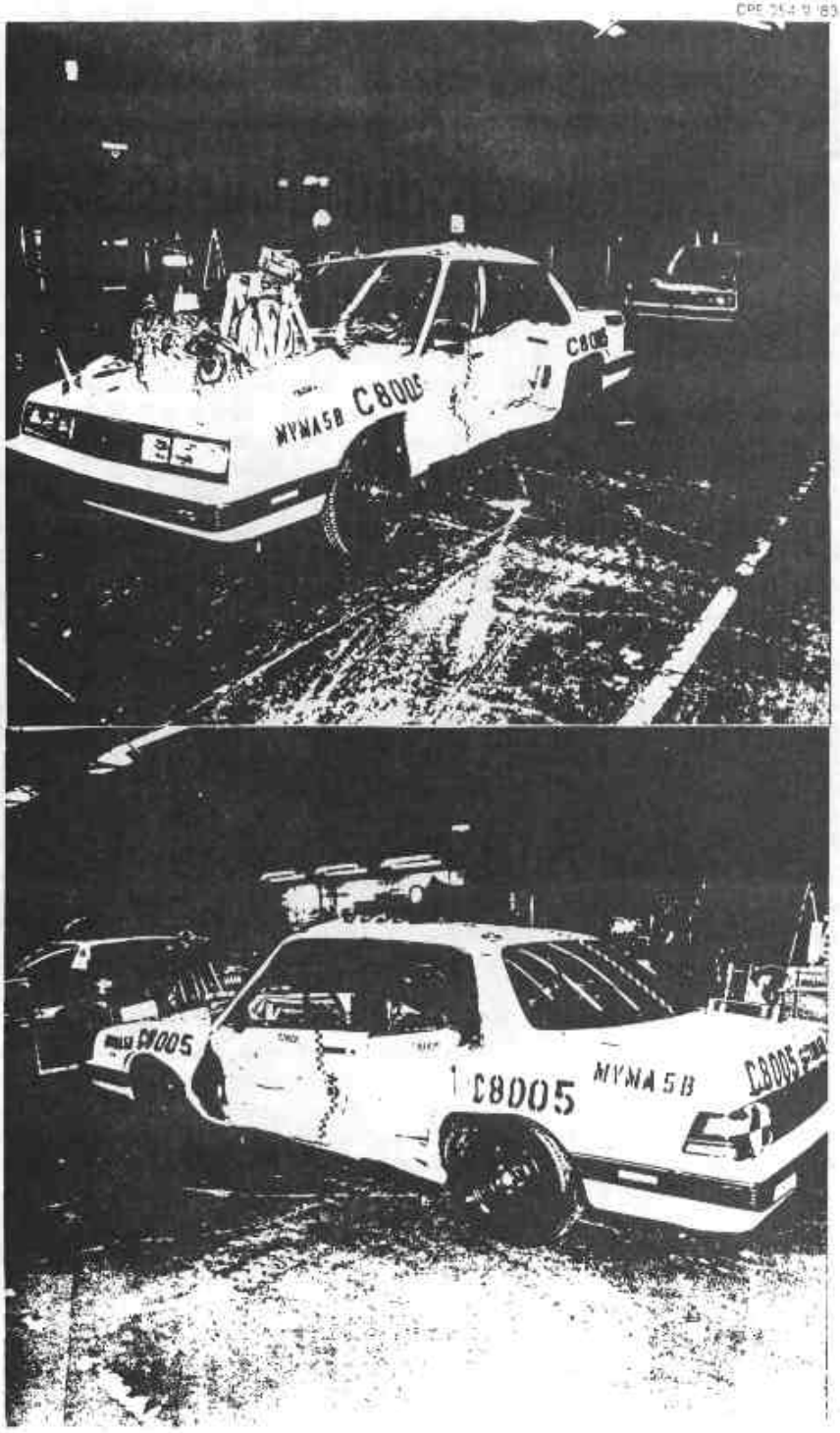

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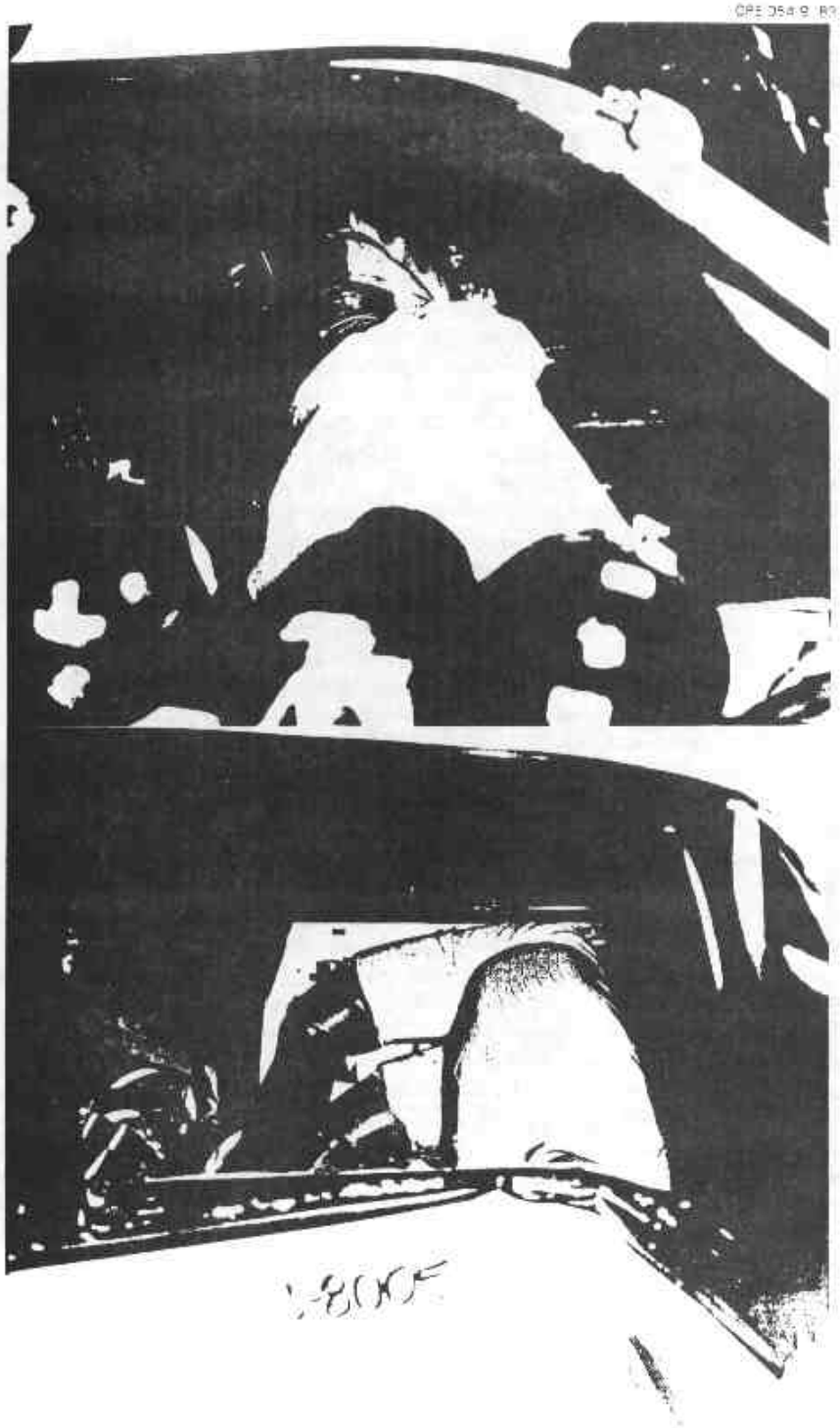

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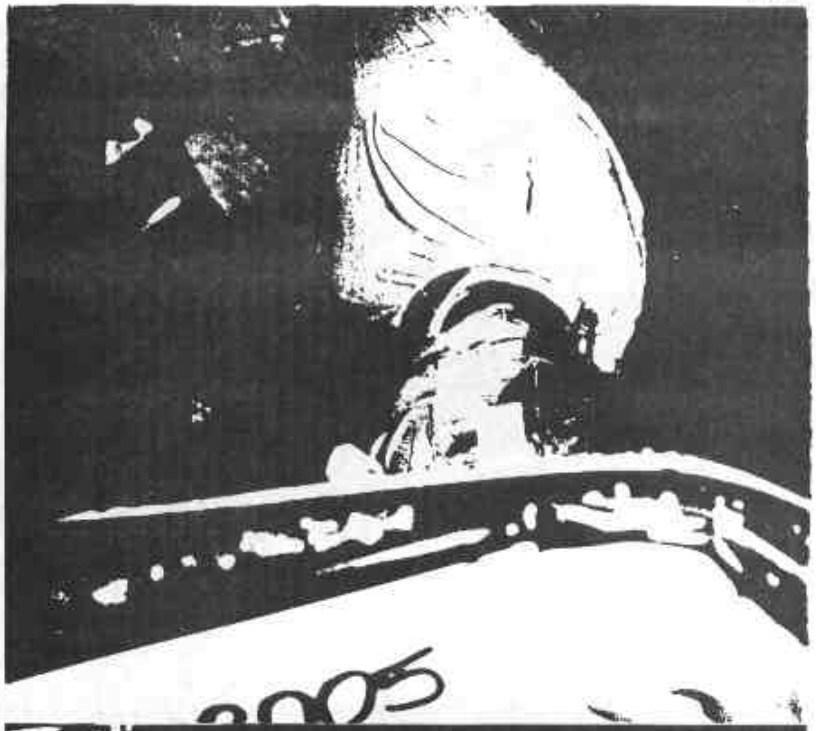

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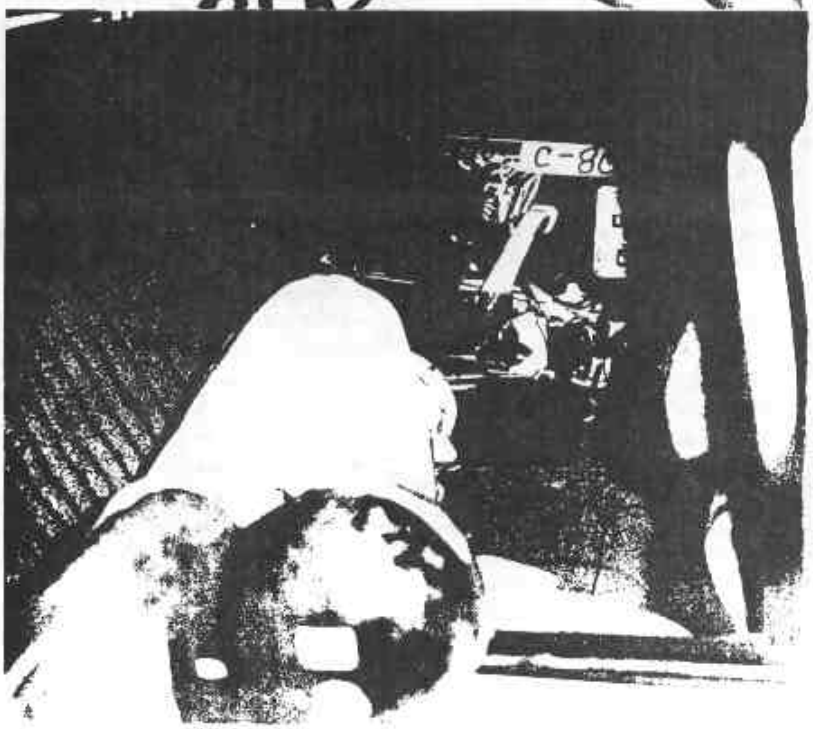

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CPE 054 9/83

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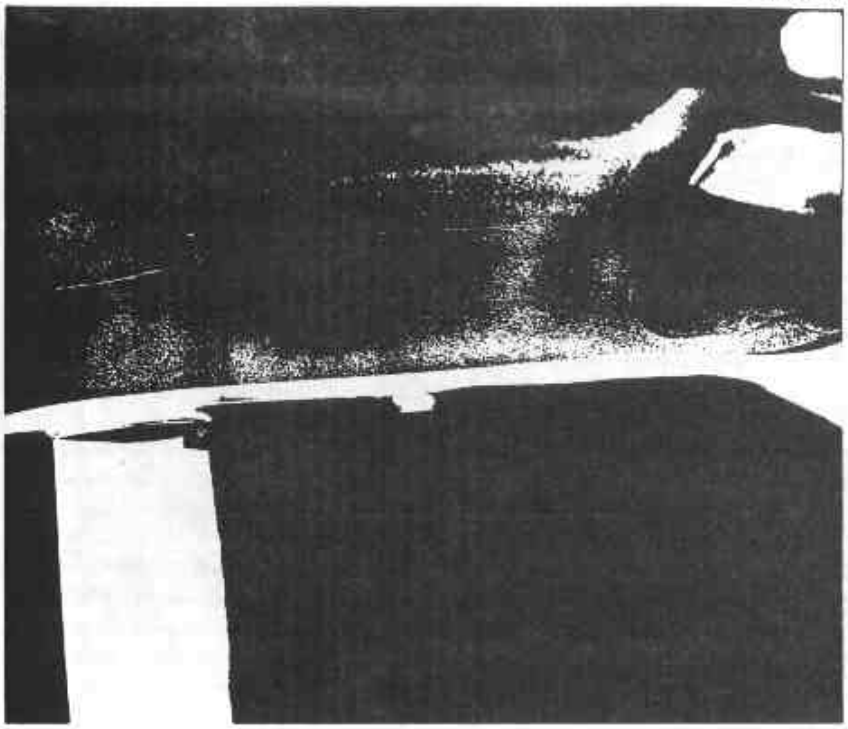
CPE 054 9/83



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C8005B L. SIDE IMPACT-27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 1

3868-905

CPE MVMA 5B 2AF69

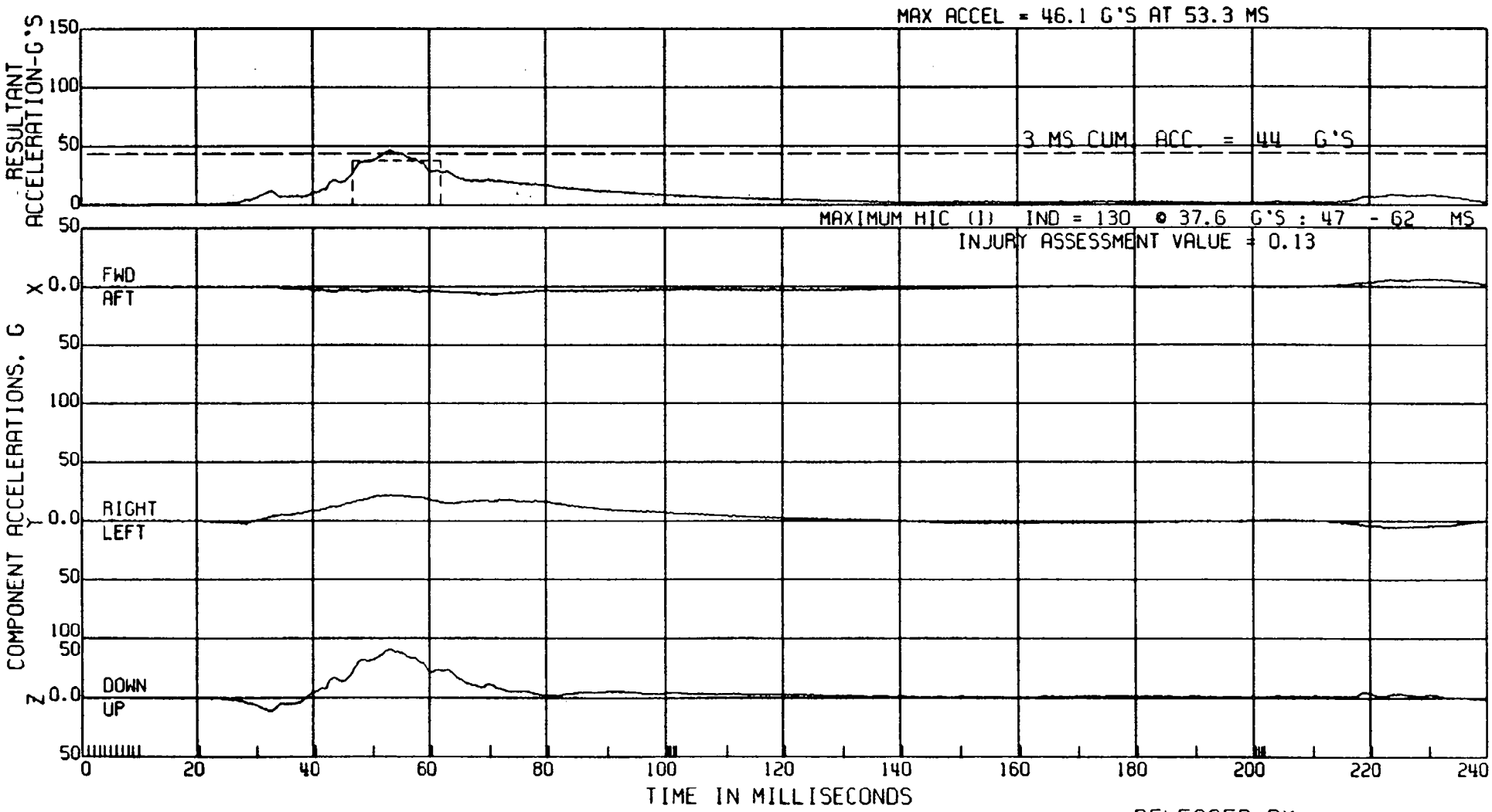
ELEC DATA, SAE CLASS 1000

ATD TYPE: BIOSID

TEST DATE:03-06-90

DRIVER HEAD ACCEL.

(HIC I LIMITED TO 15MS)



RELEASED BY:

1 PROCESSED 4 MT 90 11:50

M9B6UAG#
C8005B
05/04/90
11:50:54
NUMBER OF PLOTS = 77
XOFF = 10.10
YOFF = 0.75

Good Data

C8005
Good Data

C8005B L. SIDE IMPACT-27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 3

3868-905

CPE MVMA 5B 2AF69

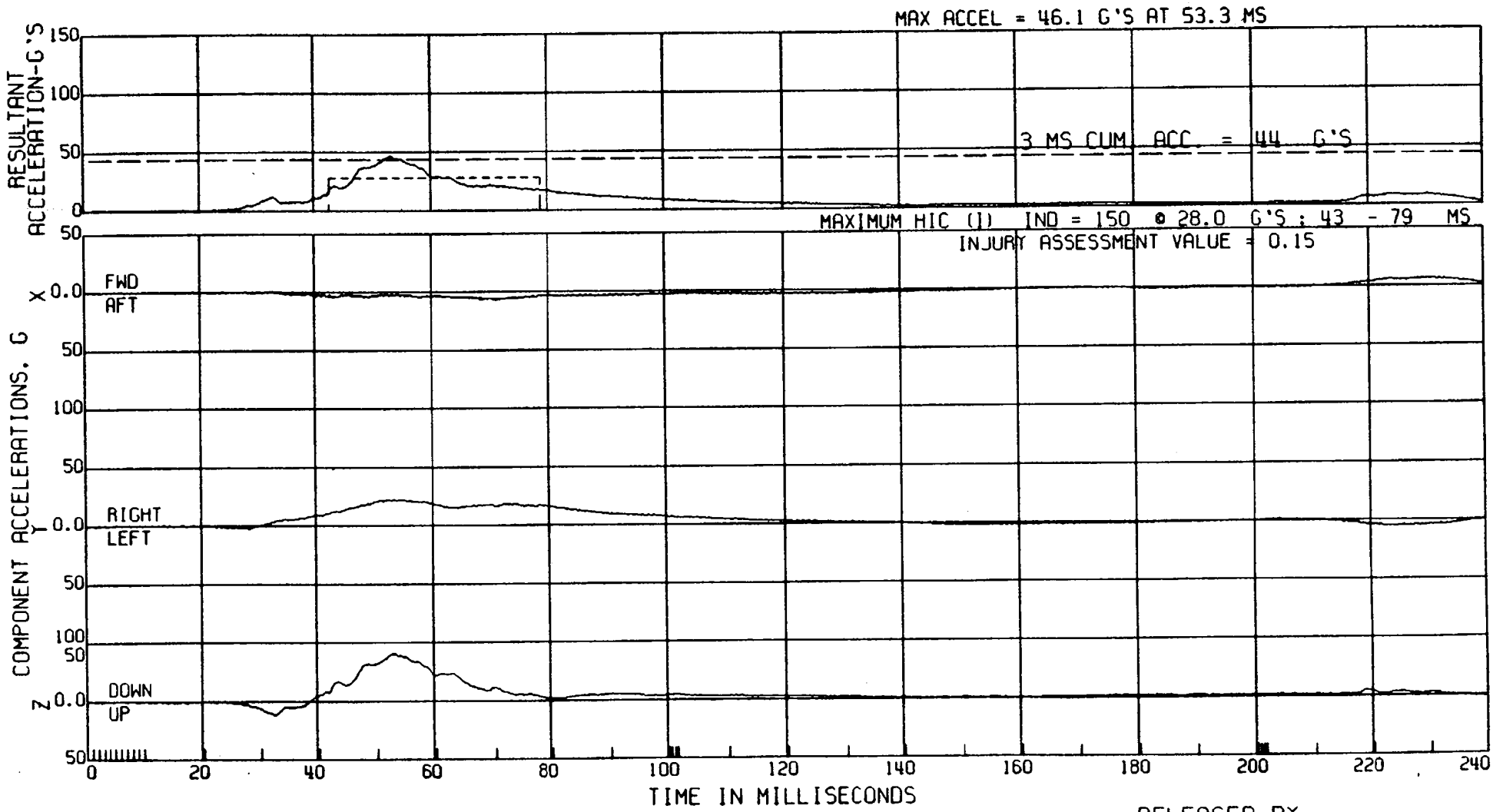
ELEC DATA, SAE CLASS 1000

ATD TYPE: BIOSID

TEST DATE:03-06-90

DRIVER HEAD ACCEL.

(HIC I LIMITED TO 36MS)



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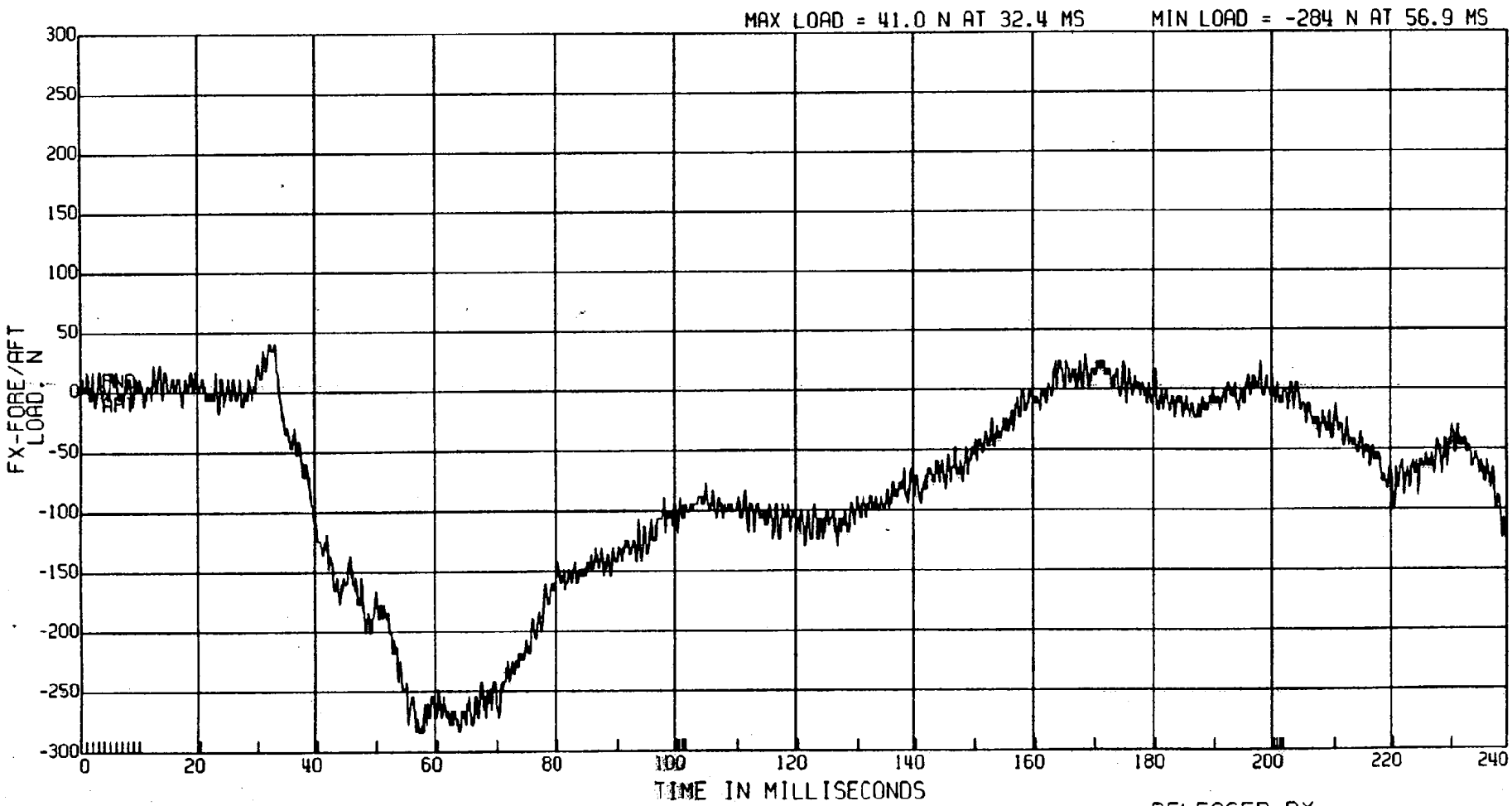
2 PROCESSED 4 MY 90 11:51

C8005B L. SIDE IMPACT-27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 4
3868-905
CPE MVMA 5B 2AF69
ELEC DATA, SAE CLASS 1000

DRIVER NECK LOADING ON HEAD, UPPER LOAD

ATD TYPE: BIOSID
TEST DATE:03-06-90



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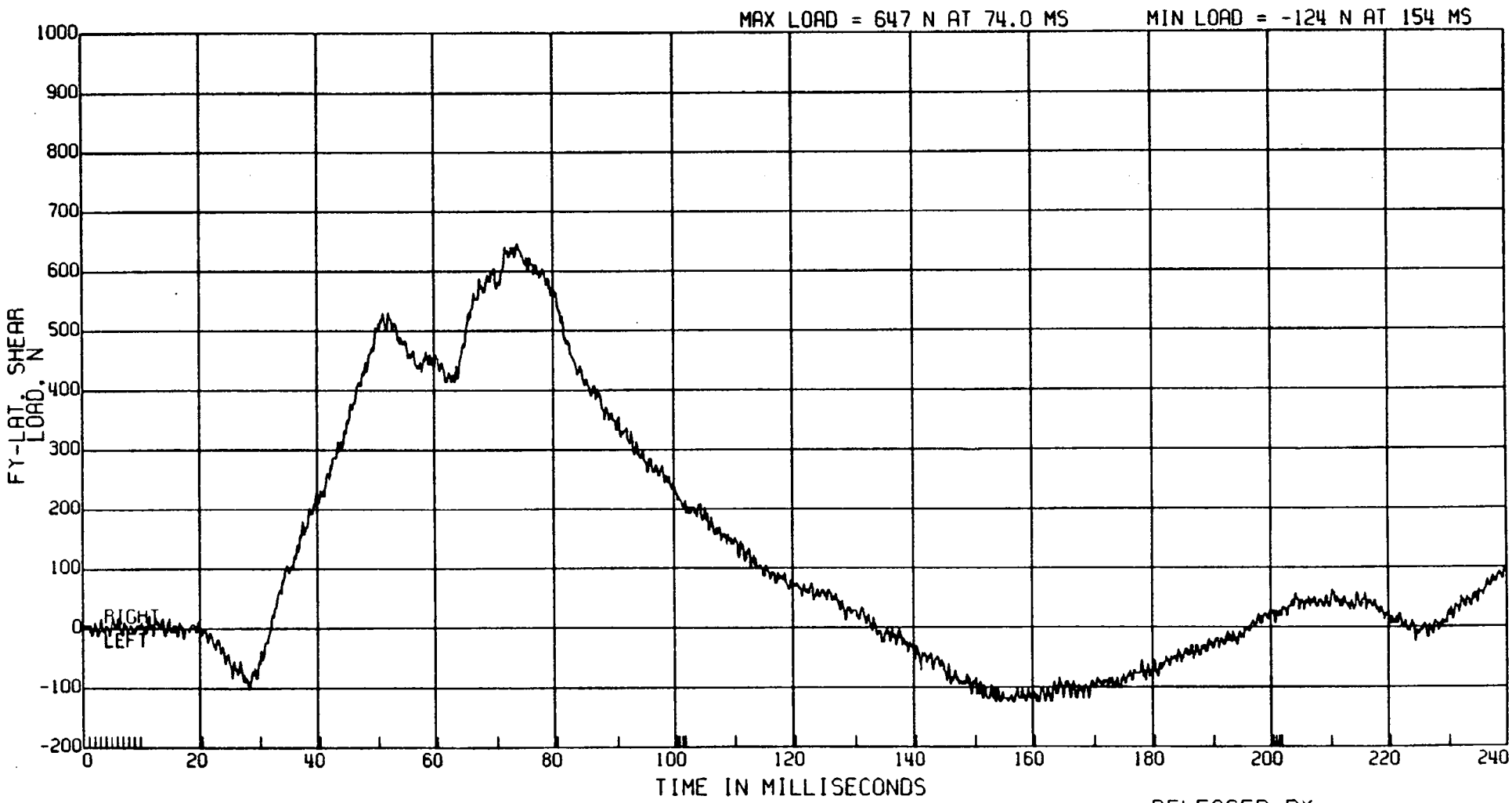
3 PROCESSED 4 MY 90 11:51

C8005B L. SIDE IMPACT-27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 5
3868-905
CPE MVMA 5B 2AF69
ELEC DATA. SAE CLASS 1000

DRIVER NECK LOADING ON HEAD, UPPER LOAD

ATD TYPE: BIOSID
TEST DATE:03-06-90



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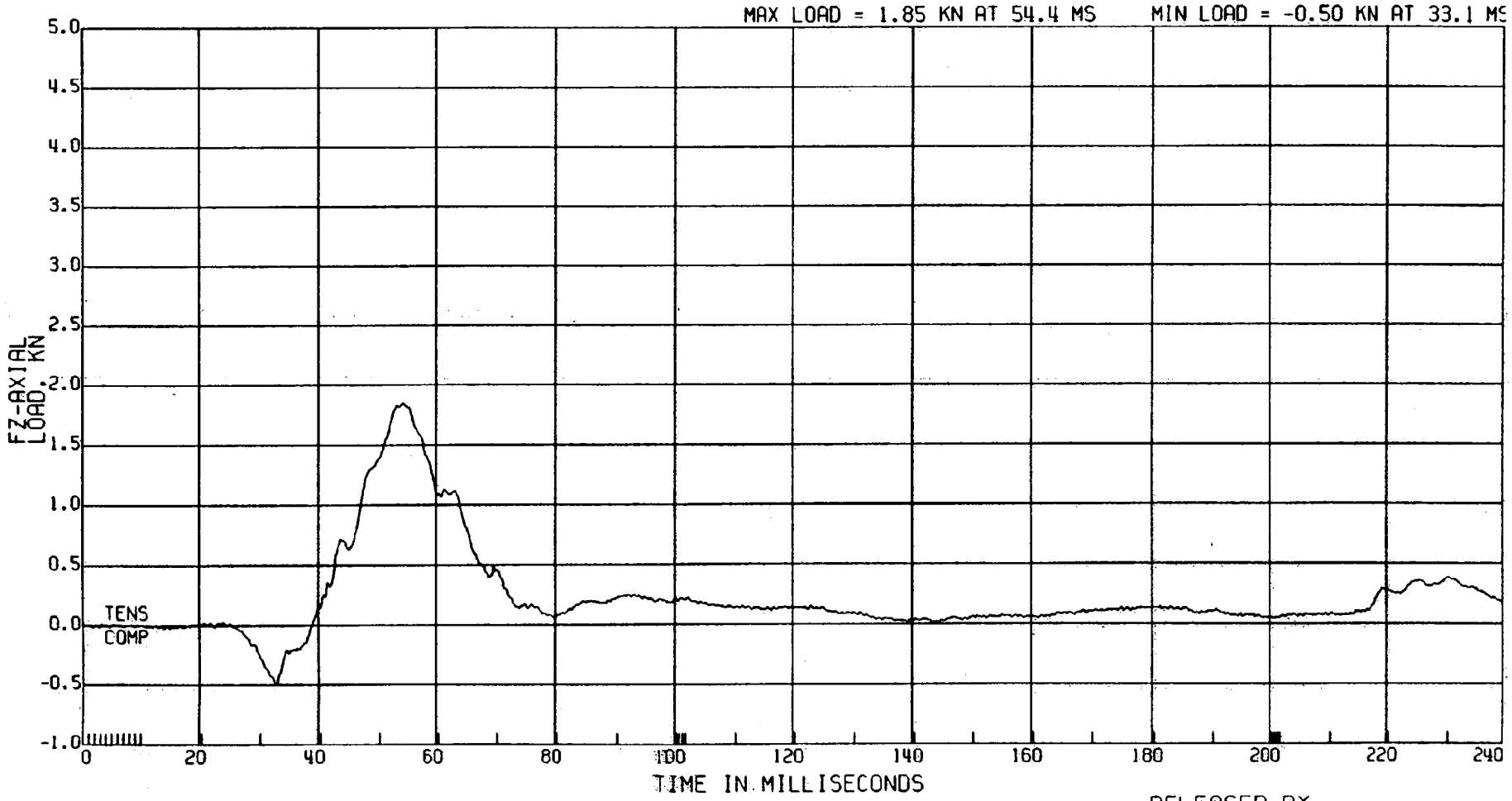
C8005B L. SIDE IMPACT-27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 6
3868-905
CPE MVMA 5B 2AF69
ELEC DATA, SAE CLASS 1000

DRIVER NECK LOADING ON HEAD, UPPER LOAD

ATD TYPE: BIOSID
TEST DATE:03-06-90



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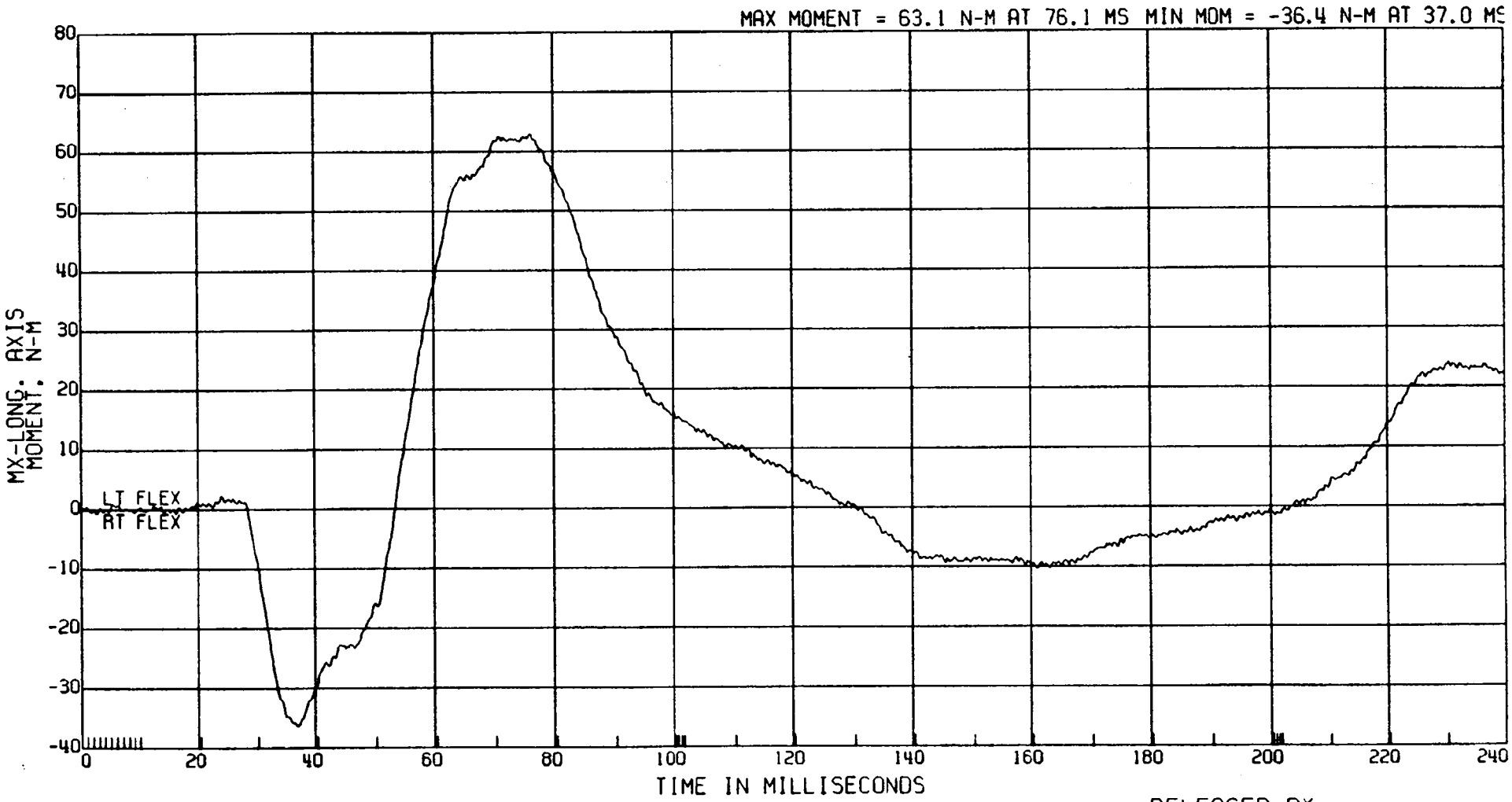
5 PROCESSED 4 MY 90 11:51

C8005B L. SIDE IMPACT-27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 7
3868-905
CPE MVMA 5B 2AF69
ELEC DATA, SAE CLASS 600

DRIVER NECK LOADING ON HEAD, UPPER

ATD TYPE: BIOSID
TEST DATE:03-06-90



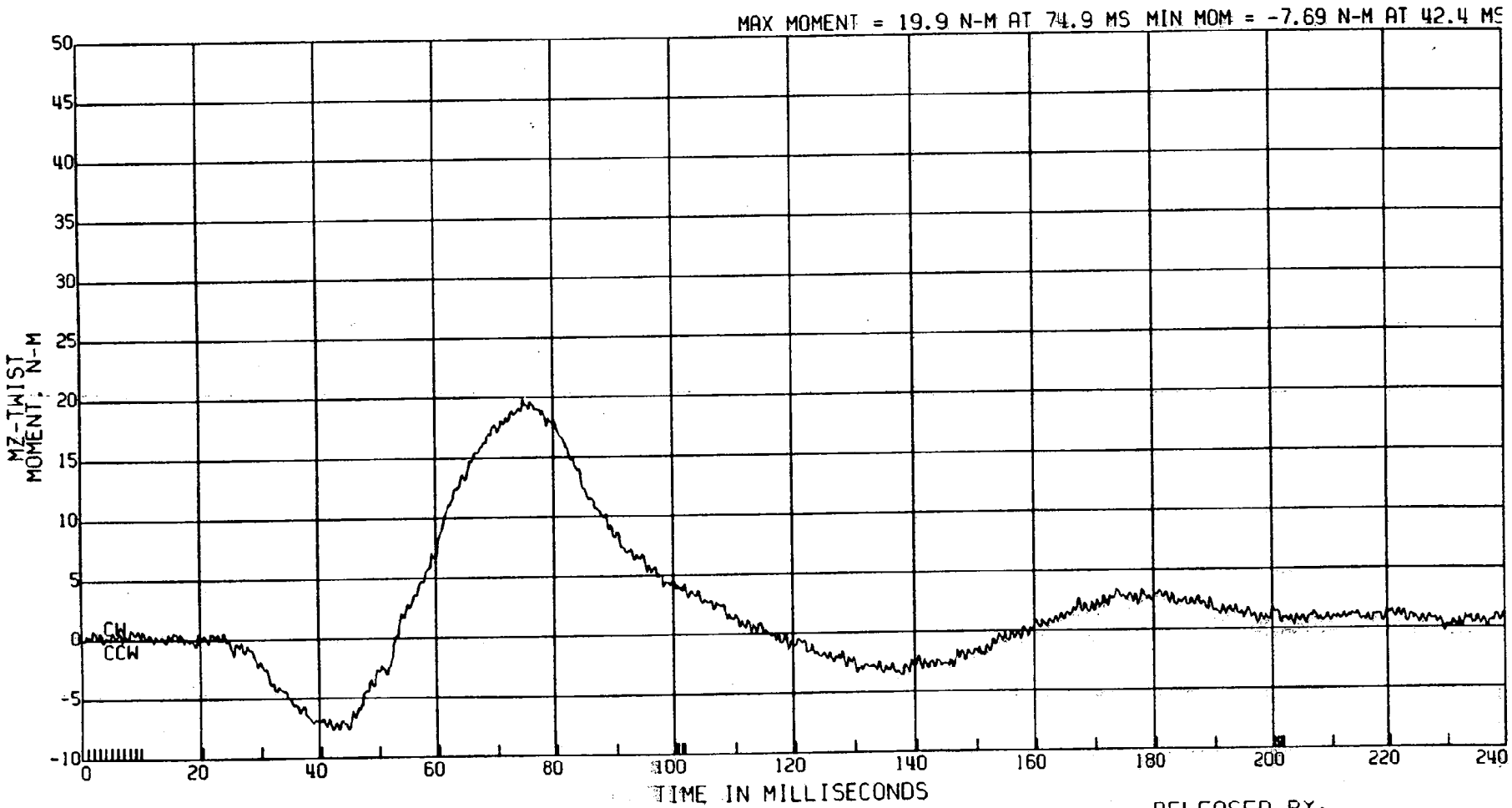
RELEASED BY:
6 PROCESSED 4 MY 90 11:51

C8005B L. SIDE IMPACT-27 DEG
3868-905
CPE MVMA 5B 2AF69
ELEC DATA, SAE CLASS 600

MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 8

DRIVER NECK LOADING ON HEAD, UPPER

ATD TYPE: BIOSID
TEST DATE:03-06-90



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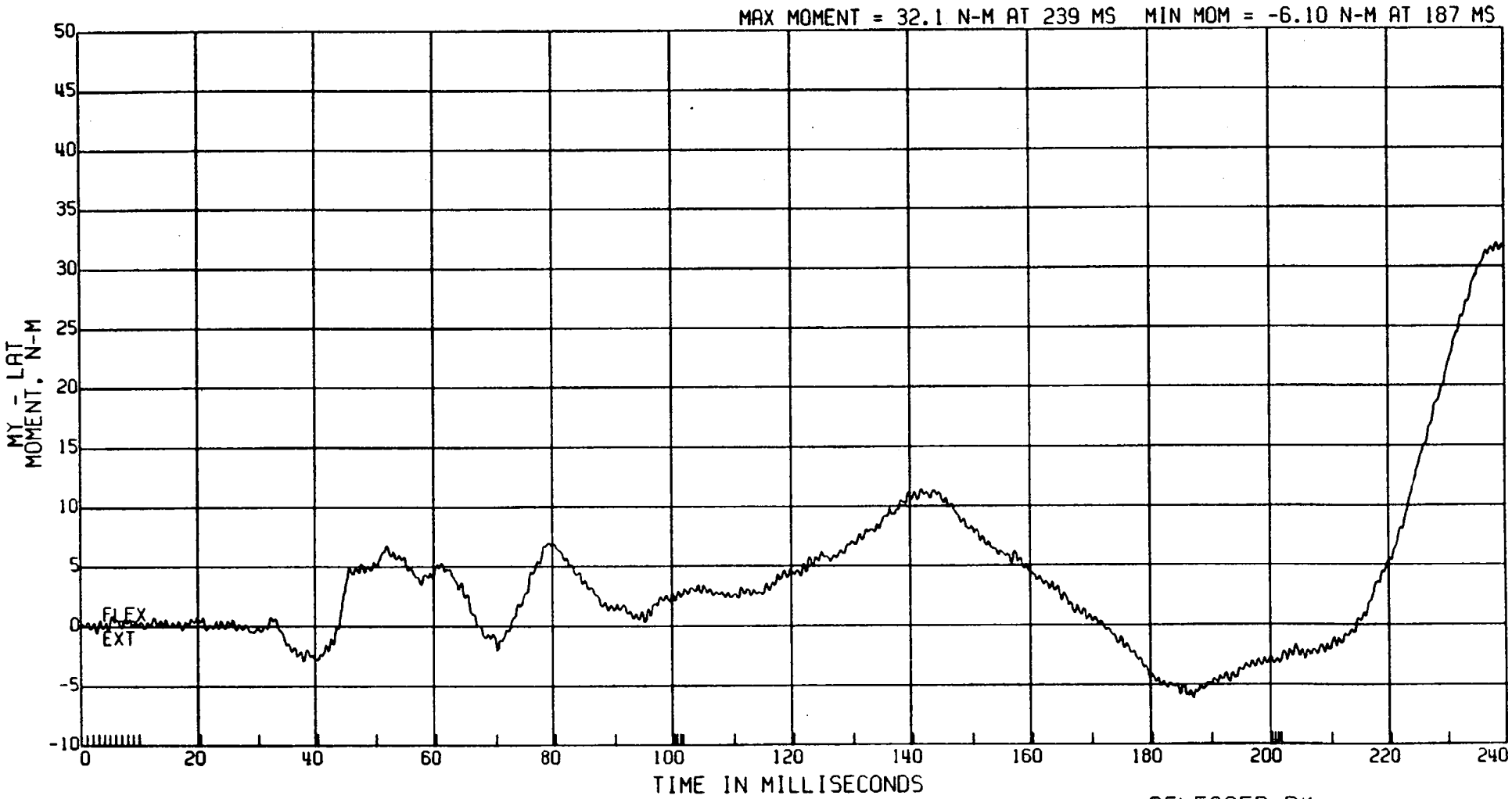
7 PROCESSED 4 MT 90 11:51

C8005B L. SIDE IMPACT-27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 9
3868-905
CPE MVMA 5B 2AF69
ELEC DATA, SAE CLASS 600

DRIVER NECK LOADING ON HEAD

ATD TYPE: BIOSID
TEST DATE:03-06-90



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8 PROCESSED 4 MT 90 11:51

C8005B L. SIDE IMPACT-27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 10

3868-905

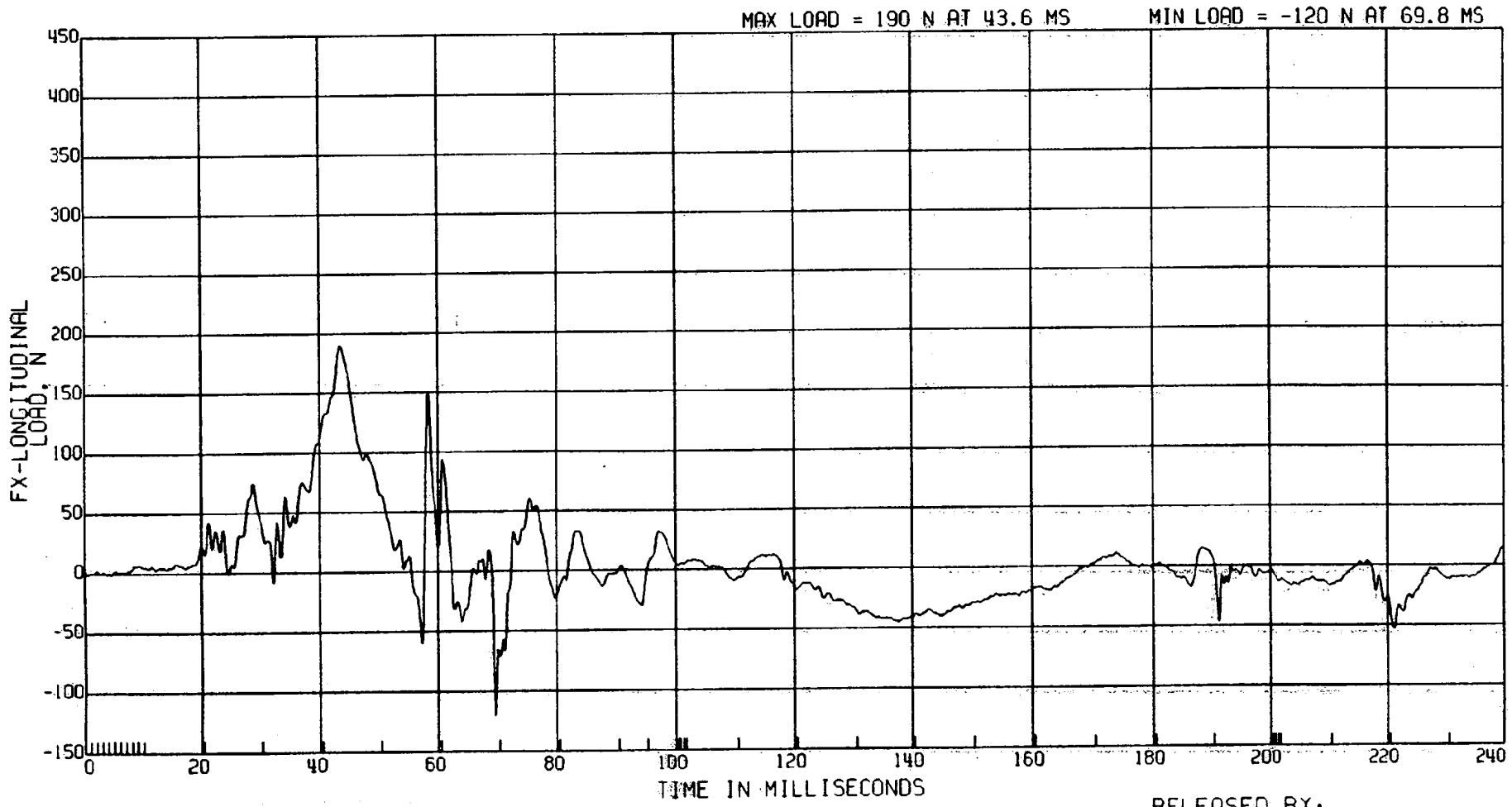
CPE MVMA 5B 2AF69

ELEC DATA, SAE CLASS 180

DRIVER SHOULDER LOAD

ATD TYPE: BIOSID

TEST DATE:03-06-90



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9 PROCESSED 4 MY 90 11:51

C8005B L. SIDE IMPACT-27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 11

3868-905

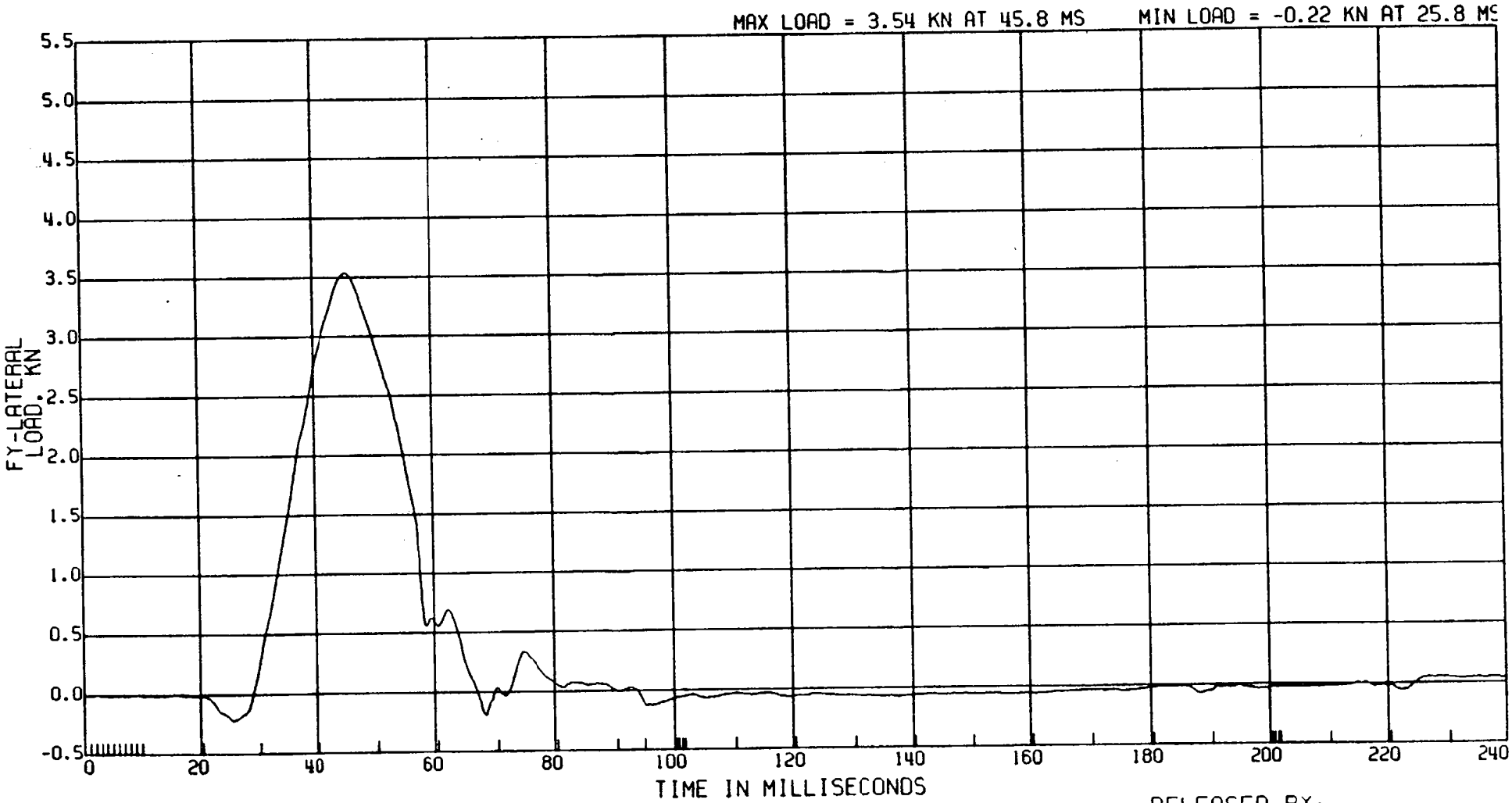
ATD TYPE: BIOSID

CPE MVMA 5B 2AF69

DRIVER SHOULDER LOAD

TEST DATE:03-06-90

ELEC DATA, SAE CLASS 180



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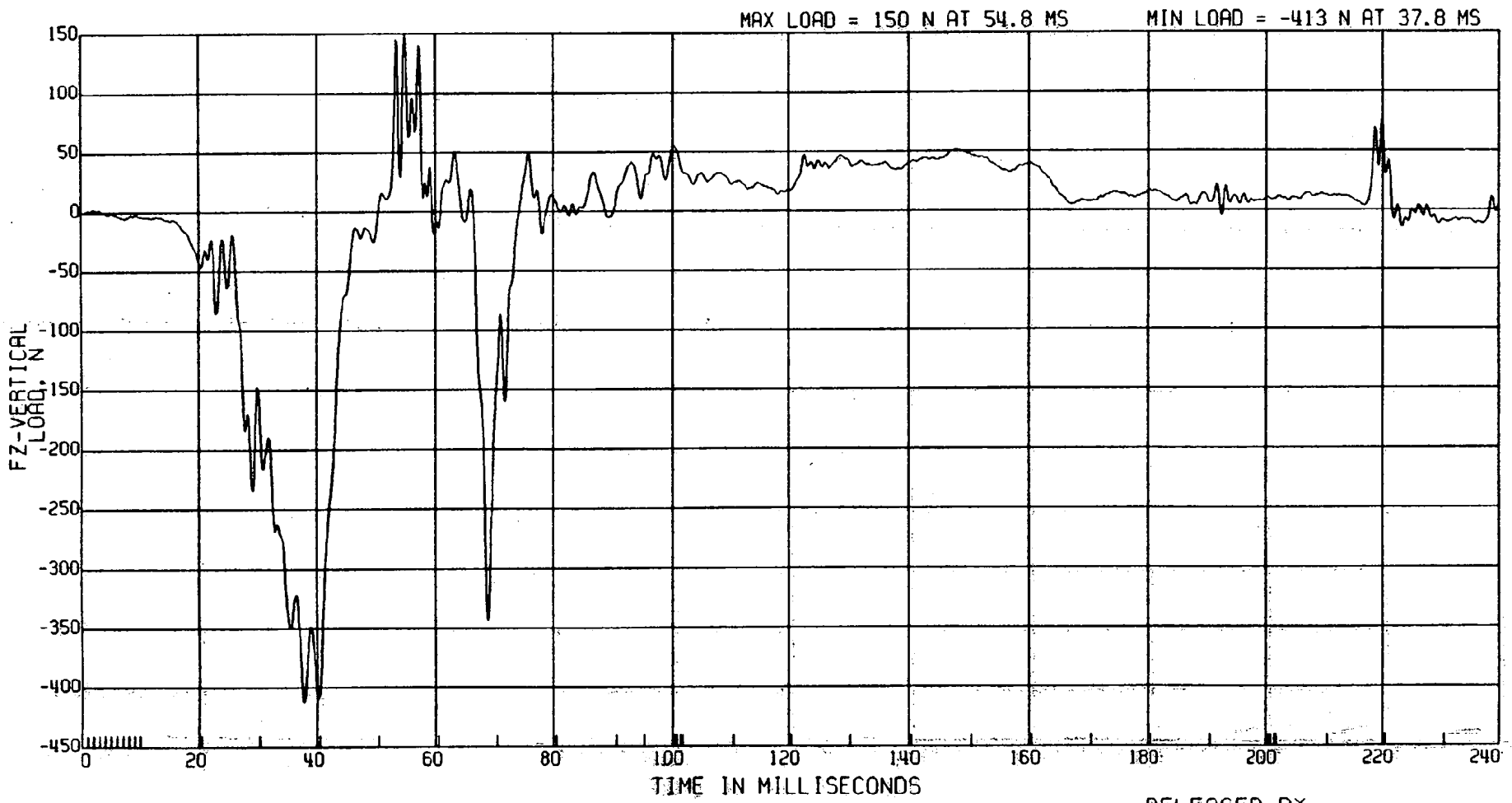
10 PROCESSED 4 MT 90 11:51

C8005B L. SIDE IMPACT-27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 12
3868-905 ATD TYPE: BIOSID
CPE MVMA 5B 2AF69 DRIVER SHOULDER LOAD TEST DATE:03-06-90
ELEC DATA, SAE CLASS 180



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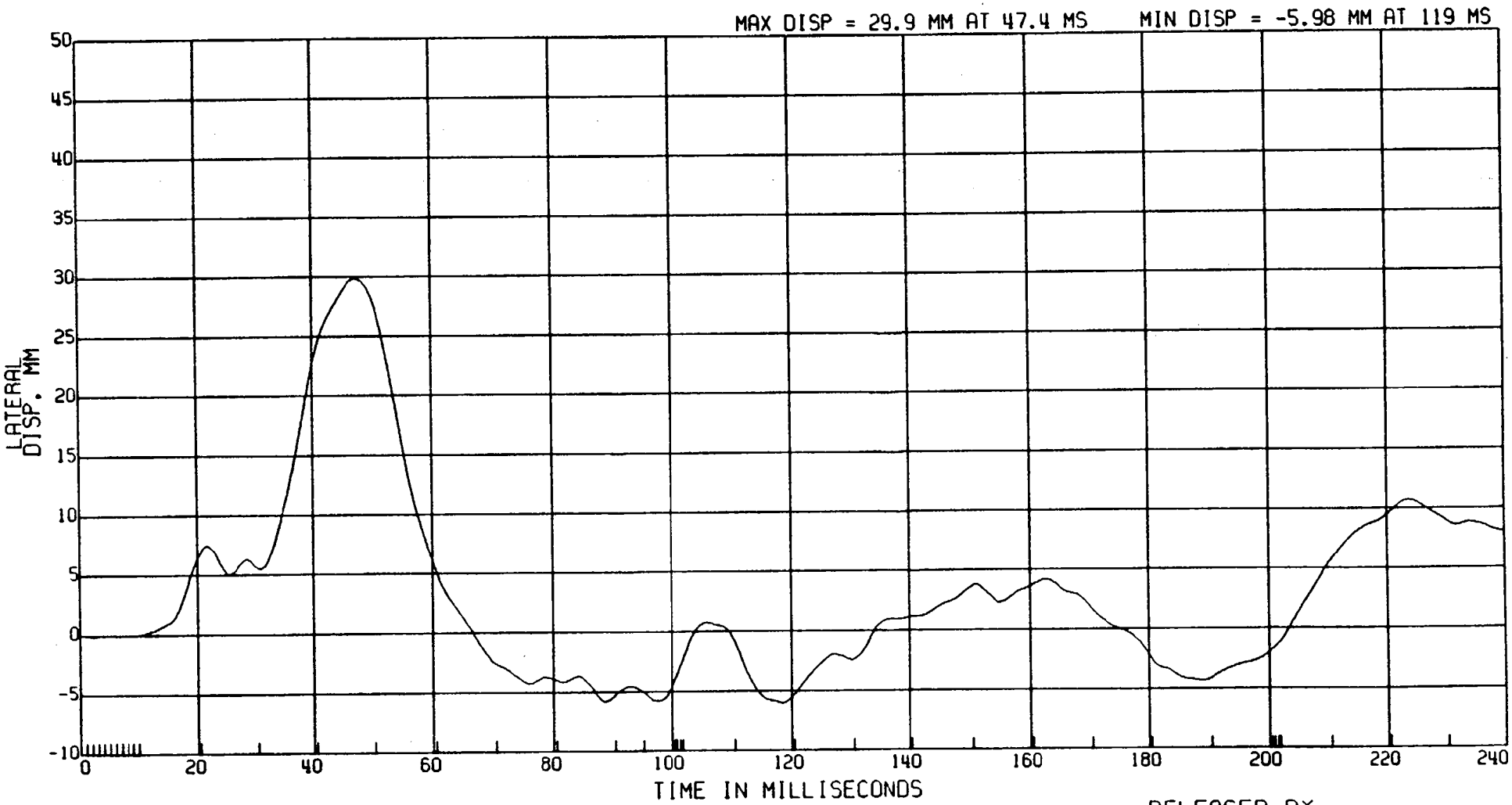
11 PROCESSED 4 MY 90 11:51

C8005B L. SIDE IMPACT-27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 13
3868-905 ATD TYPE: BIOSID
CPE MVMA 5B 2AF69 DRIVER SHOULDER DISP. TEST DATE:03-06-90
ELEC DATA, SAE CLASS 60



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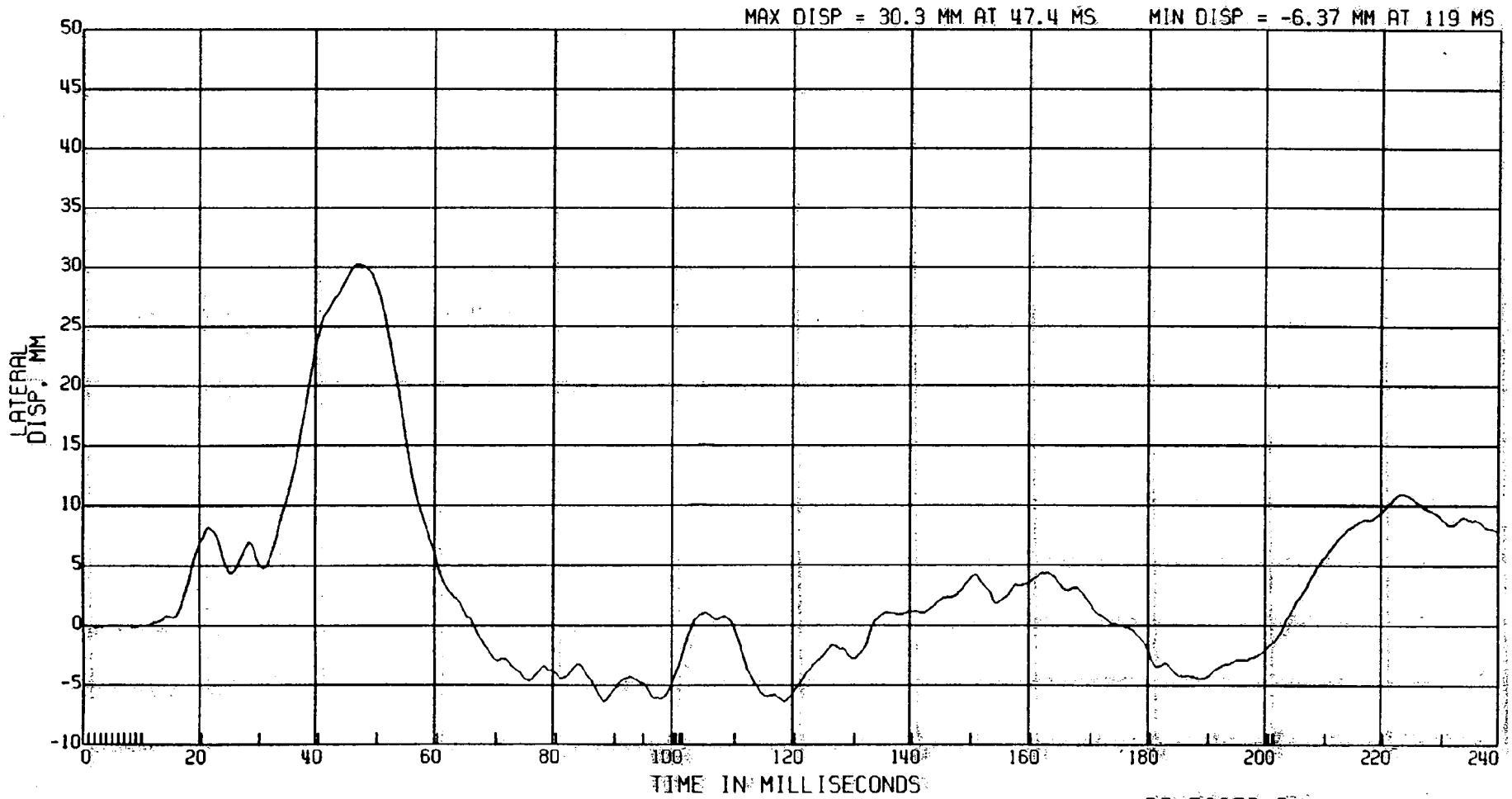
12 PROCESSED 4 MY 90 11:51

C8005B L. SIDE IMPACT-27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 14
3868-905 ATD TYPE: BIOSID
CPE MVMA 5B 2AF69 DRIVER SHOULDER DISP. TEST DATE:03-06-90
ELEC DATA, SAE CLASS 180



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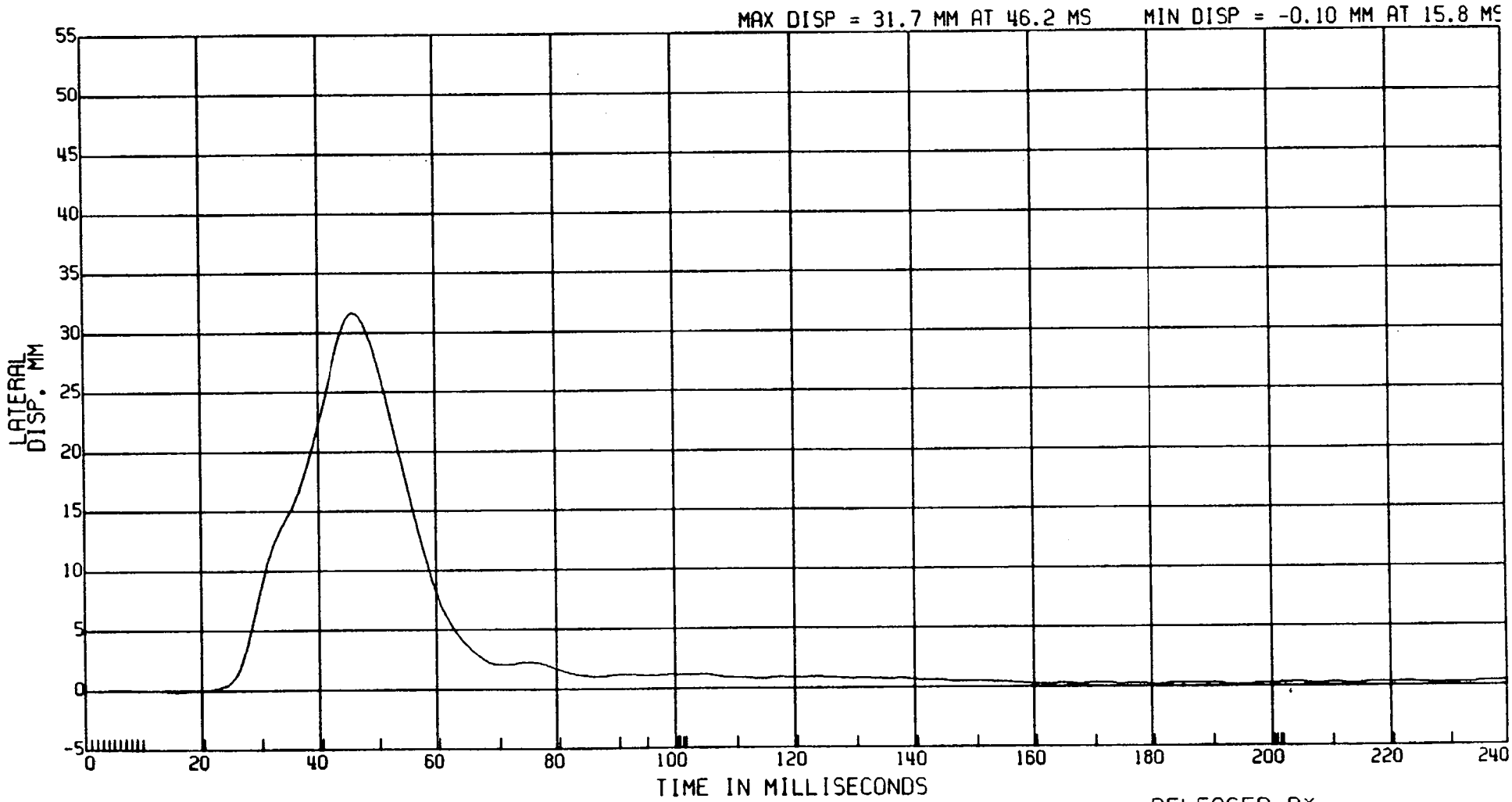
13 PROCESSED 4 MY 90 11:51

C8005B L. SIDE IMPACT-27 DEG
3868-905
CPE MVMA 5B 2AF69
ELEC DATA, SAE CLASS 60

MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 15

DRIVER FIRST THORACIC RIB DISP.

ATD TYPE: BIOSID
TEST DATE:03-06-90



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14 PROCESSED 4 MY 90 11:51

C8005B L. SIDE IMPACT-27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 16

3868-905

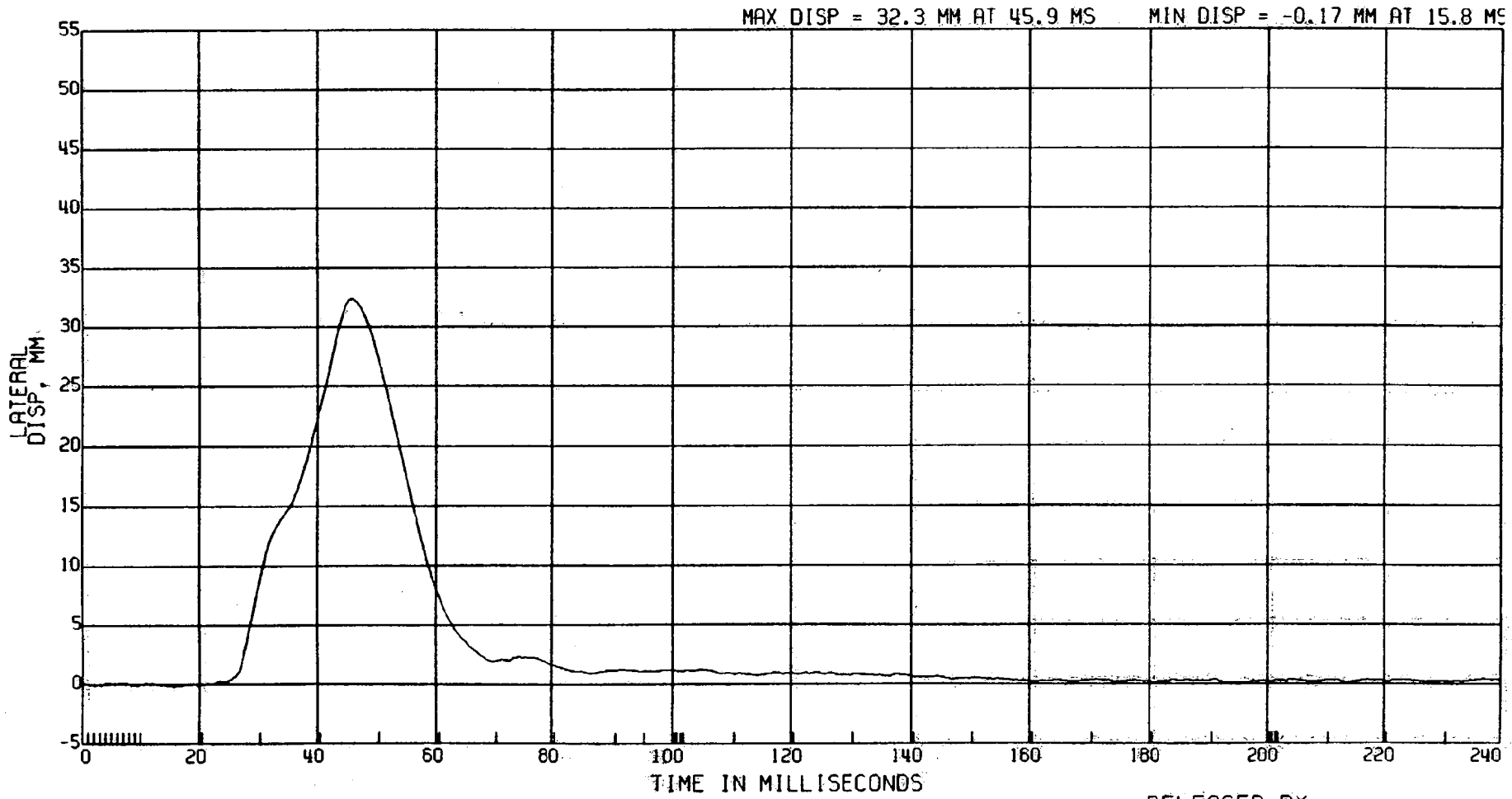
CPE MVMA 5B 2AF69

ELEC DATA, SAE CLASS 180

DRIVER FIRST THORACIC RIB DISP.

ATD TYPE: BIOSID

TEST DATE:03-06-90



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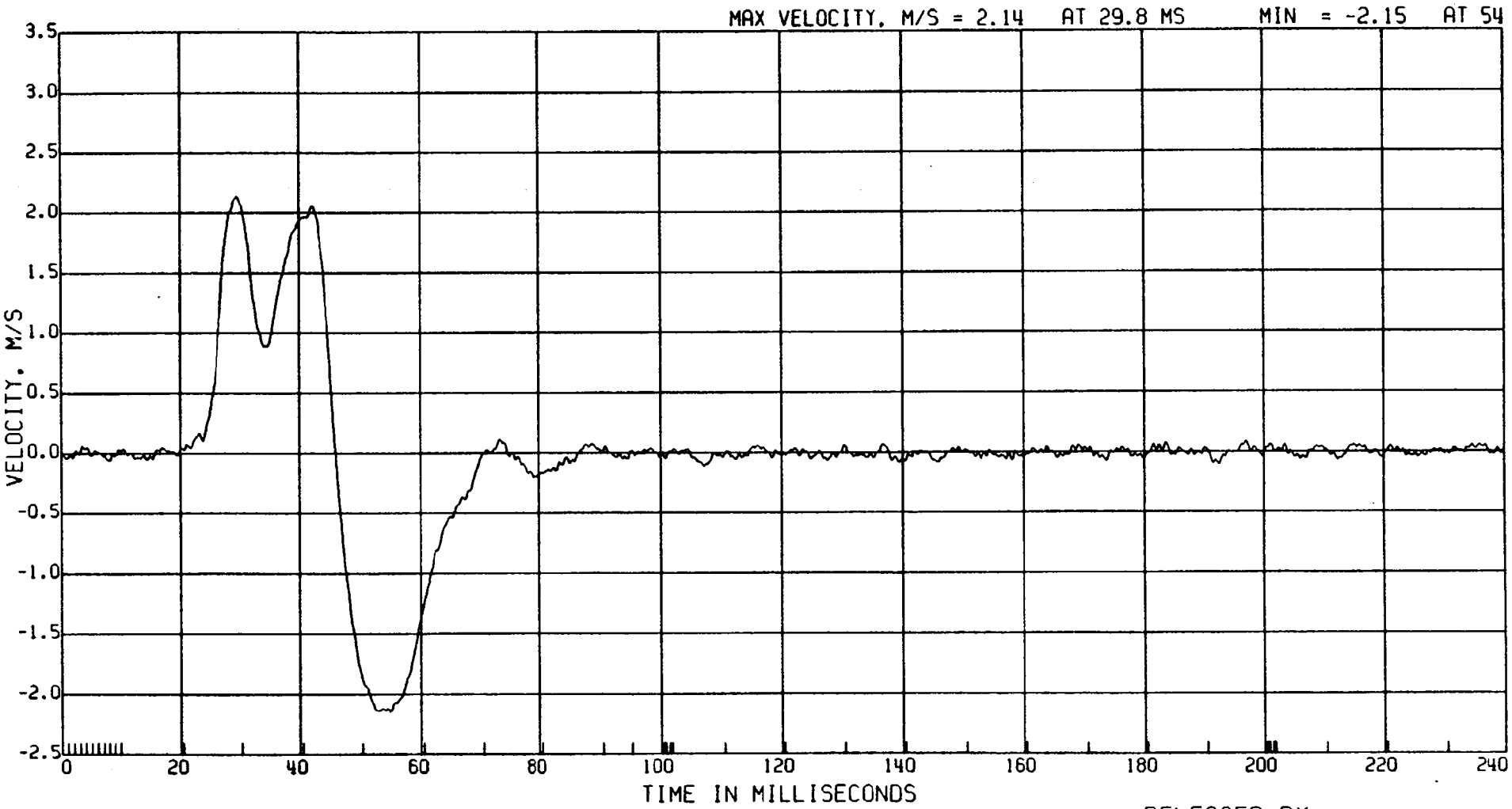
C8005B L. SIDE IMPACT-27 DEG
3868-905
CPE MVMA 5B 2AF69
ELEC DATA, SAE CLASS 60

MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 17

ATD TYPE: BIOSID
TEST DATE:03-06-90

DRIVER 1ST THORACIC RIB VELOCITY

(DIFF OF 1ST RIB DISP)



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16 PROCESSED 4 MY 90 11:51

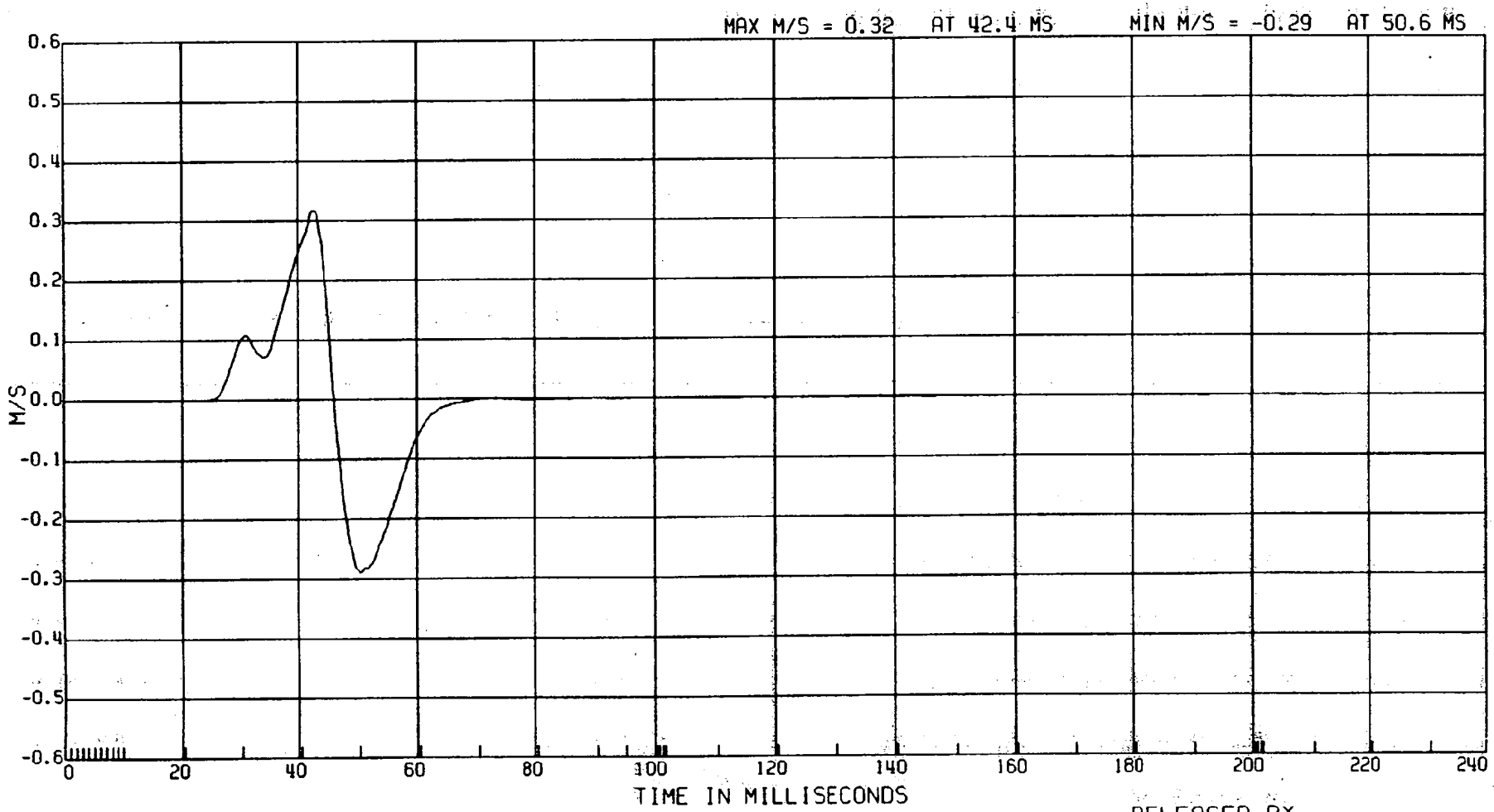
C8005B L. SIDE IMPACT-27 DEG
3868-905
CPE MVMA 5B 2AF69
ELEC DATA, SAE CLASS 60

MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 18

VISCOUS RESPONSE OF 1ST THORACIC RIB

(1ST RIB DISP*1ST RIB VEL)/175MM

ATD TYPE: BIOSID
TEST DATE:03-06-90

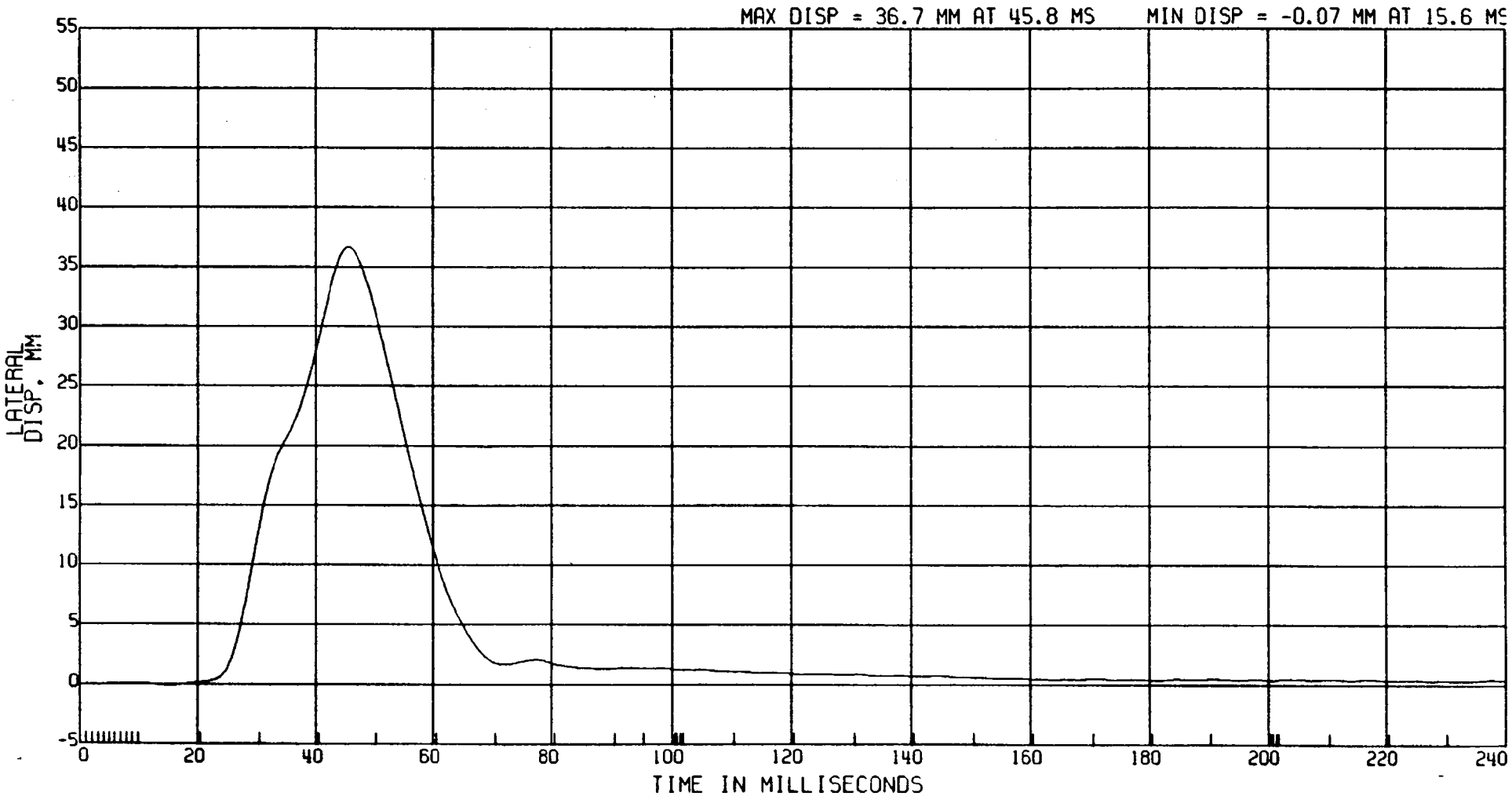


RELEASED BY:
17 PROCESSED 4 MT 90 11:51

C8005B L. SIDE IMPACT-27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 19
3868-905
CPE MVMA 5B 2AF69
ELEC DATA, SAE CLASS 60

DRIVER SECOND THORACIC RIB DISP.

ATD TYPE: BIOSID
TEST DATE:03-06-90



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18 PROCESSED 4 MY 90 11:51

C8005B L. SIDE IMPACT-27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 20

3868-905

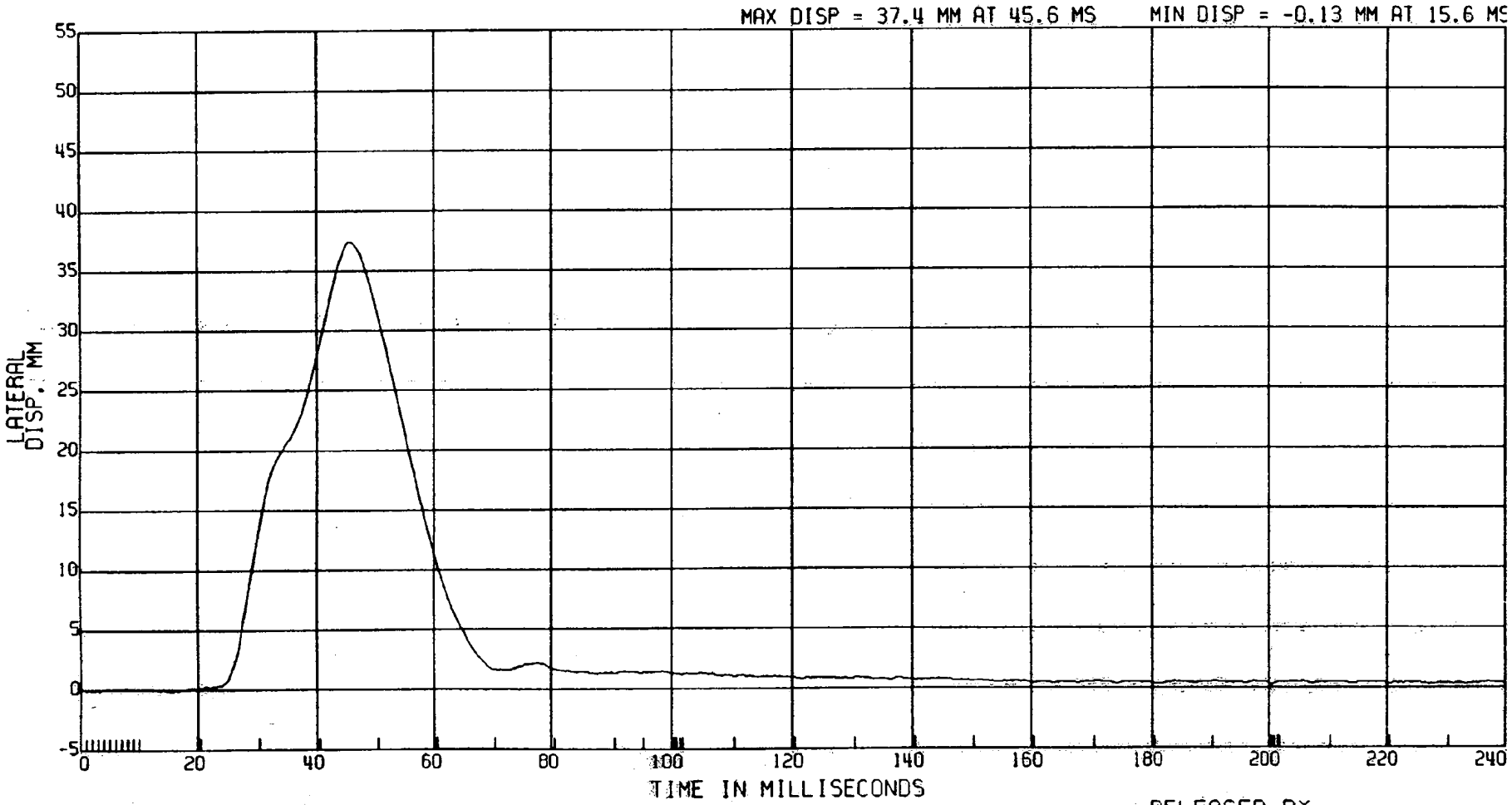
CPE MVMA 5B 2AF69

ELEC DATA, SAE CLASS 180

DRIVER SECOND THORACIC RIB DISP.

ATD TYPE: BIOSID

TEST DATE:03-06-90



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19 PROCESSED 4 MY 90 11:51

C8005B L. SIDE IMPACT-27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 21

3868-905

CPE MVMA 5B 2AF69

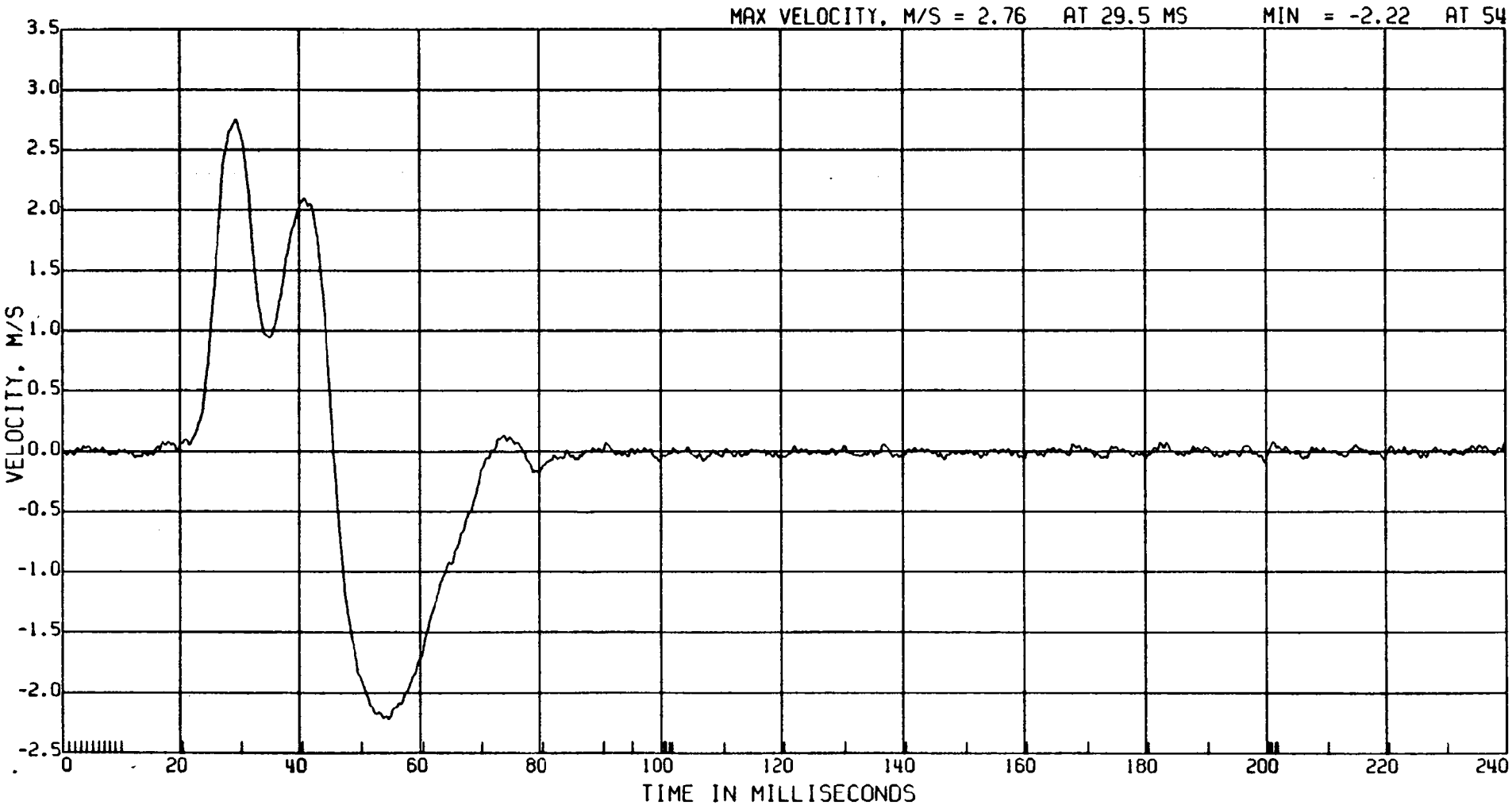
ELEC DATA, SAE CLASS 60

ATD TYPE: BIOSID

TEST DATE:03-06-90

DRIVER 2ND THORACIC RIB VELOCITY

(DIFF OF 2ND RIB DISP)



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20 PROCESSED 4 MY 90 11:51

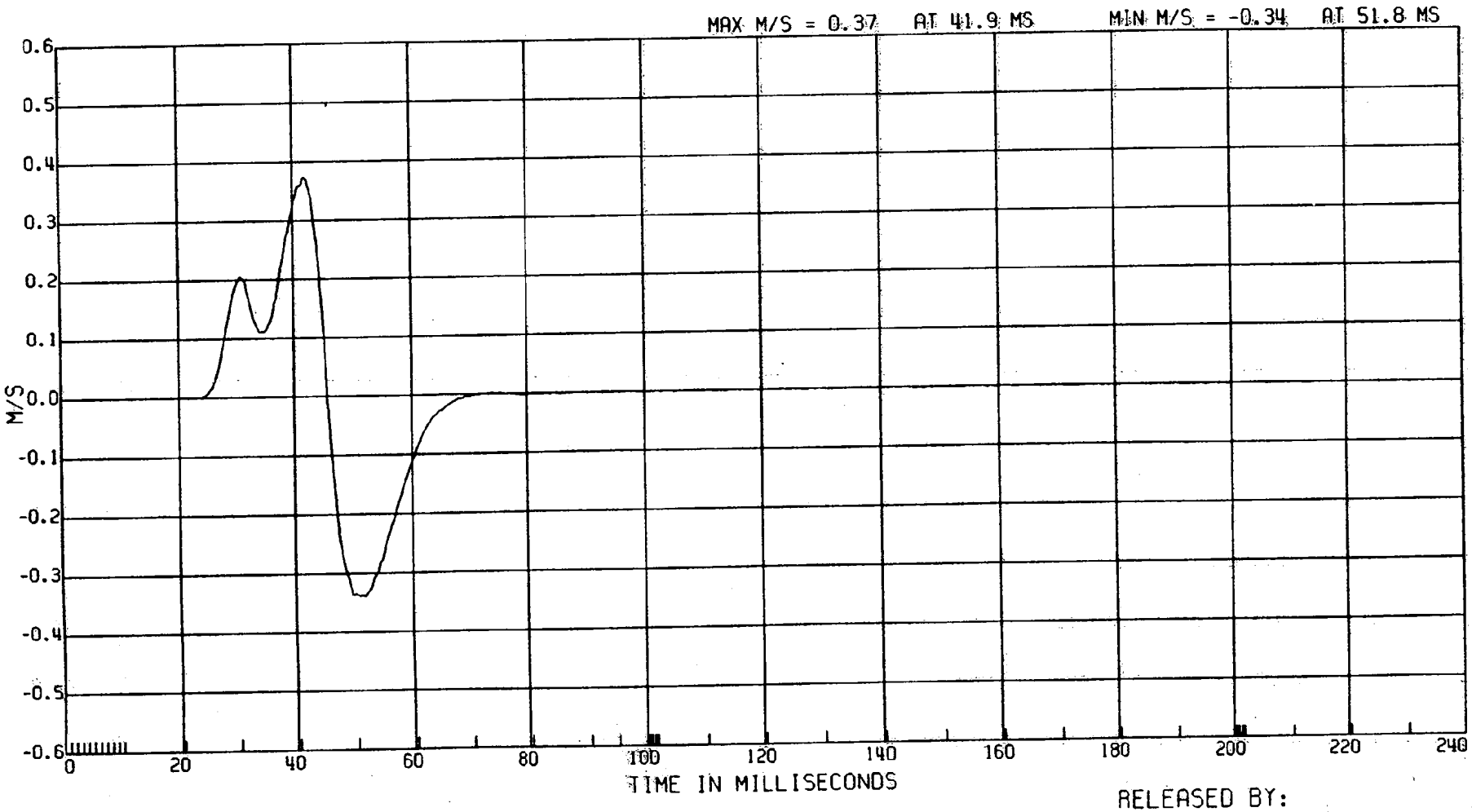
C8005B L. SIDE IMPACT-27 DEG
3868-905
CPE MVMA 5B 2AF69
ELEC DATA, SAE CLASS 60

MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 22

VISCOUS RESPONSE OF 2ND THORACIC RIB

(2ND RIB DISP×2ND RIB VEL)/175MM

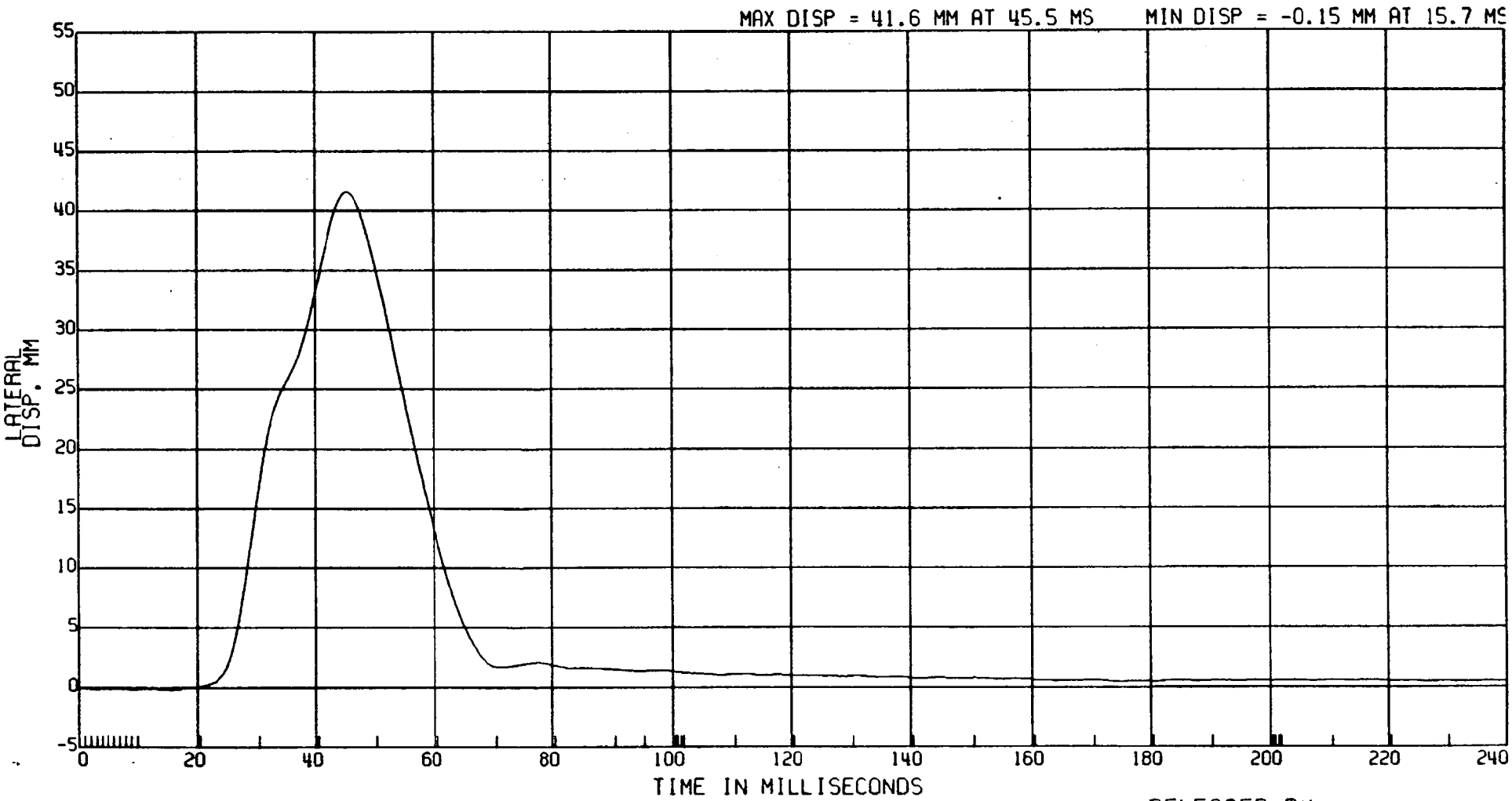
ATD TYPE: BIOSID
TEST DATE:03-06-90



RELEASED BY:

21 PROCESSED 4 MY 90 11:51

C8005B L. SIDE IMPACT-27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 23
3868-905 ATD TYPE: BIOSID
CPE MVMA 5B 2AF69 DRIVER THIRD THORACIC RIB DISP. TEST DATE:03-06-90
ELEC DATA, SAE CLASS 60



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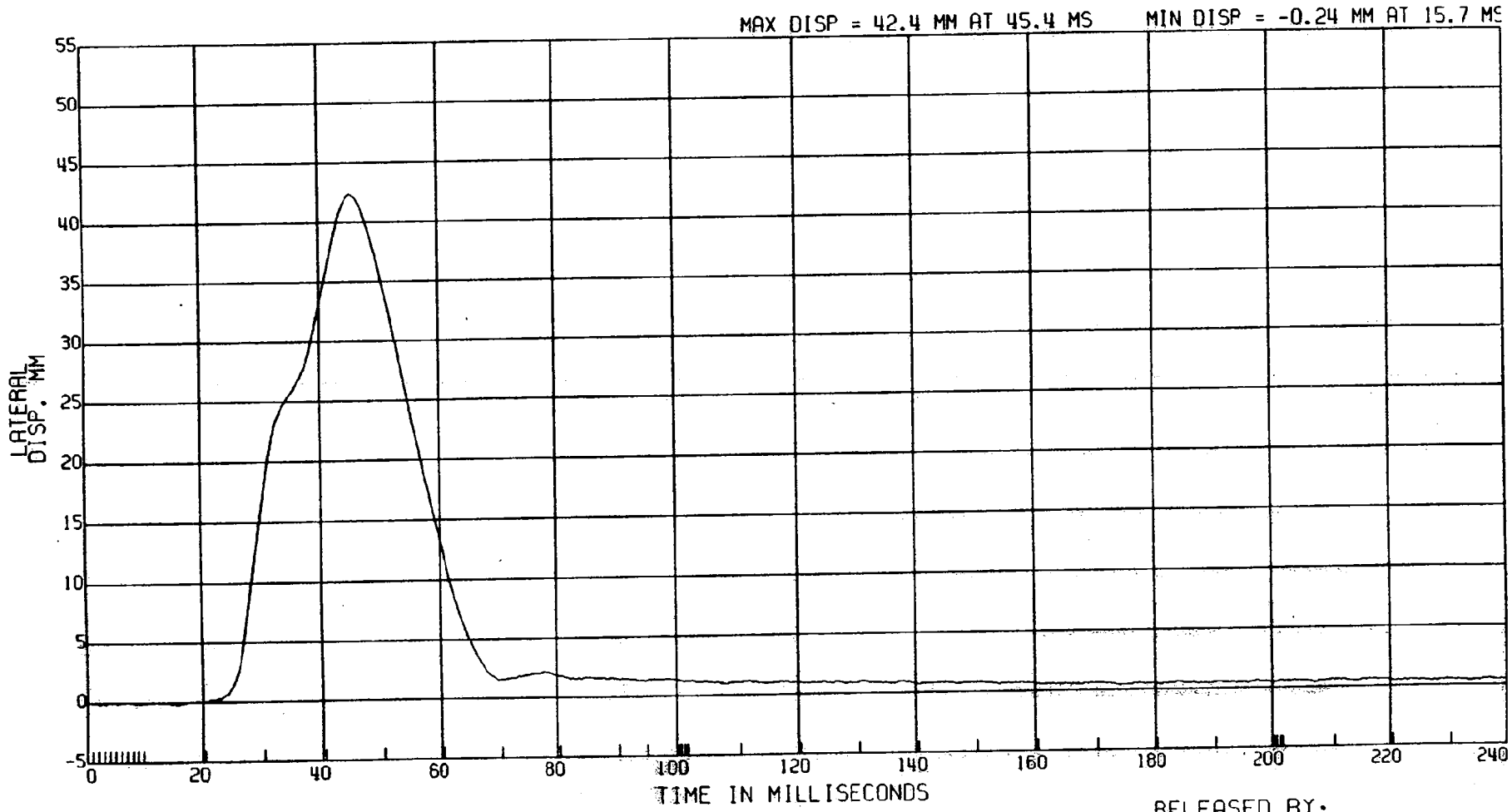
22 PROCESSED 4 MY 90 11:51

C8005B L. SIDE IMPACT-27 DEG
3868-905
CPE MVMA 5B 2AF69
ELEC DATA, SAE CLASS 180

MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 24

DRIVER THIRD THORACIC RIB DISP.

ATD TYPE: BIOSID
TEST DATE:03-06-90



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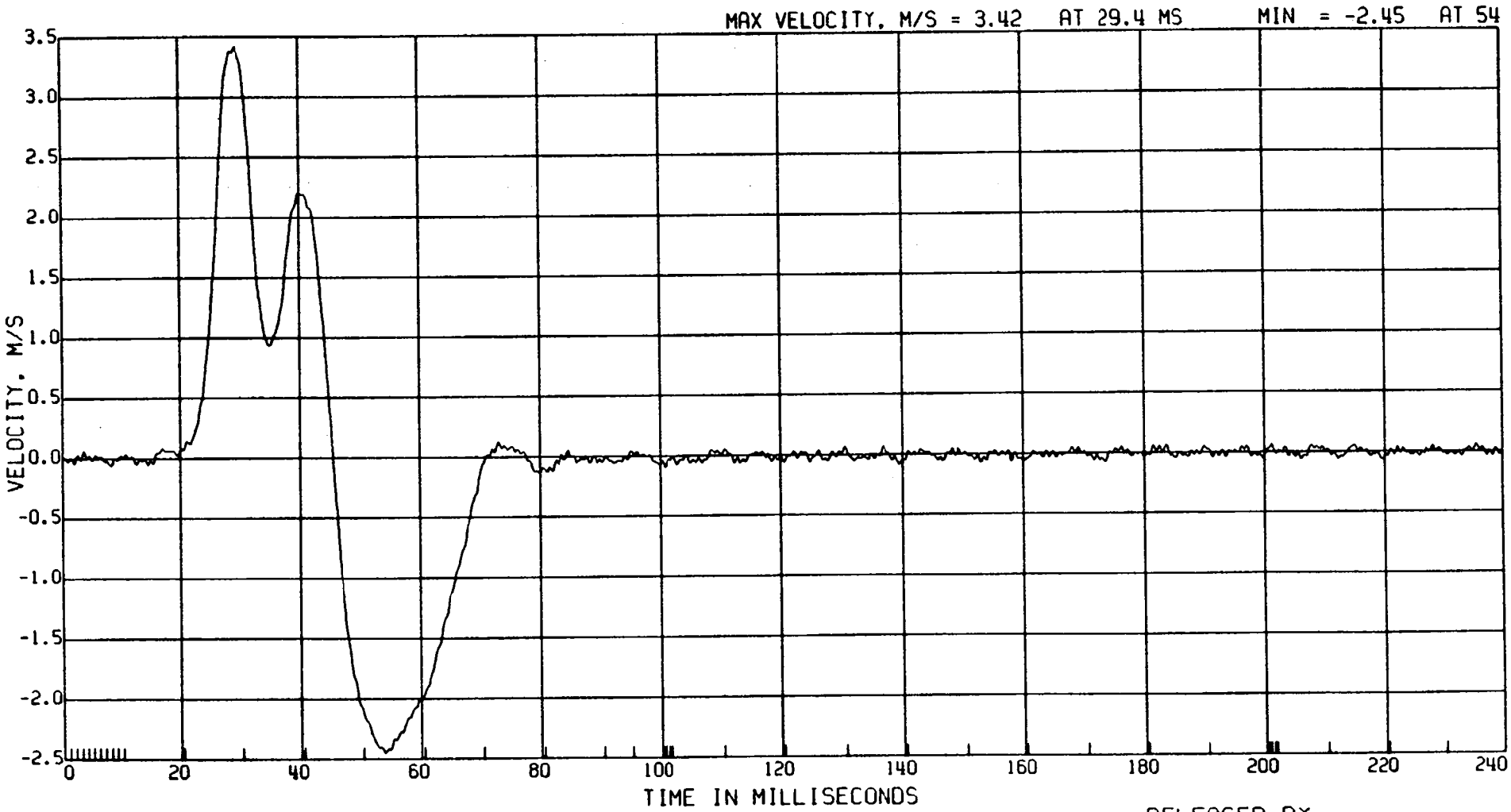
C8005B L. SIDE IMPACT-27 DEG
3868-905
CPE MVMA 5B 2AF69
ELEC DATA, SAE CLASS 60

MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 25

ATD TYPE: BIOSID
TEST DATE:03-06-90

DRIVER 3RD THORACIC RIB VELOCITY

(DIFF OF 3RD RIB DISP)



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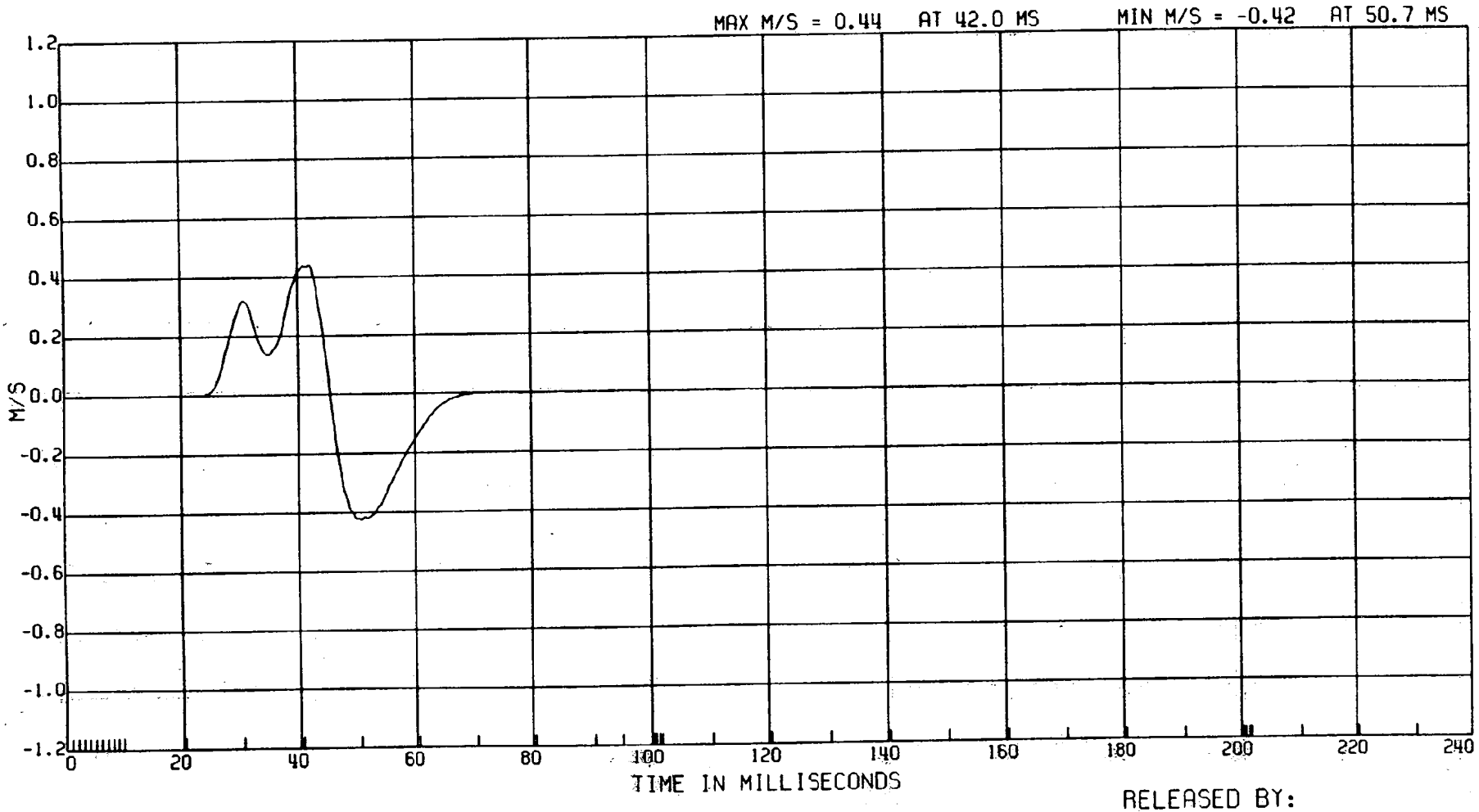
C8005B L. SIDE IMPACT-27 DEG
3868-905
CPE MVMA 5B 2AF69
ELEC DATA, SAE CLASS 60

MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 26

VISCOUS RESPONSE OF 3RD THORACIC RIB

(3RD RIB DISP*3RD RIB VEL)/175MM

ATD TYPE: BIOSID
TEST DATE:03-06-90

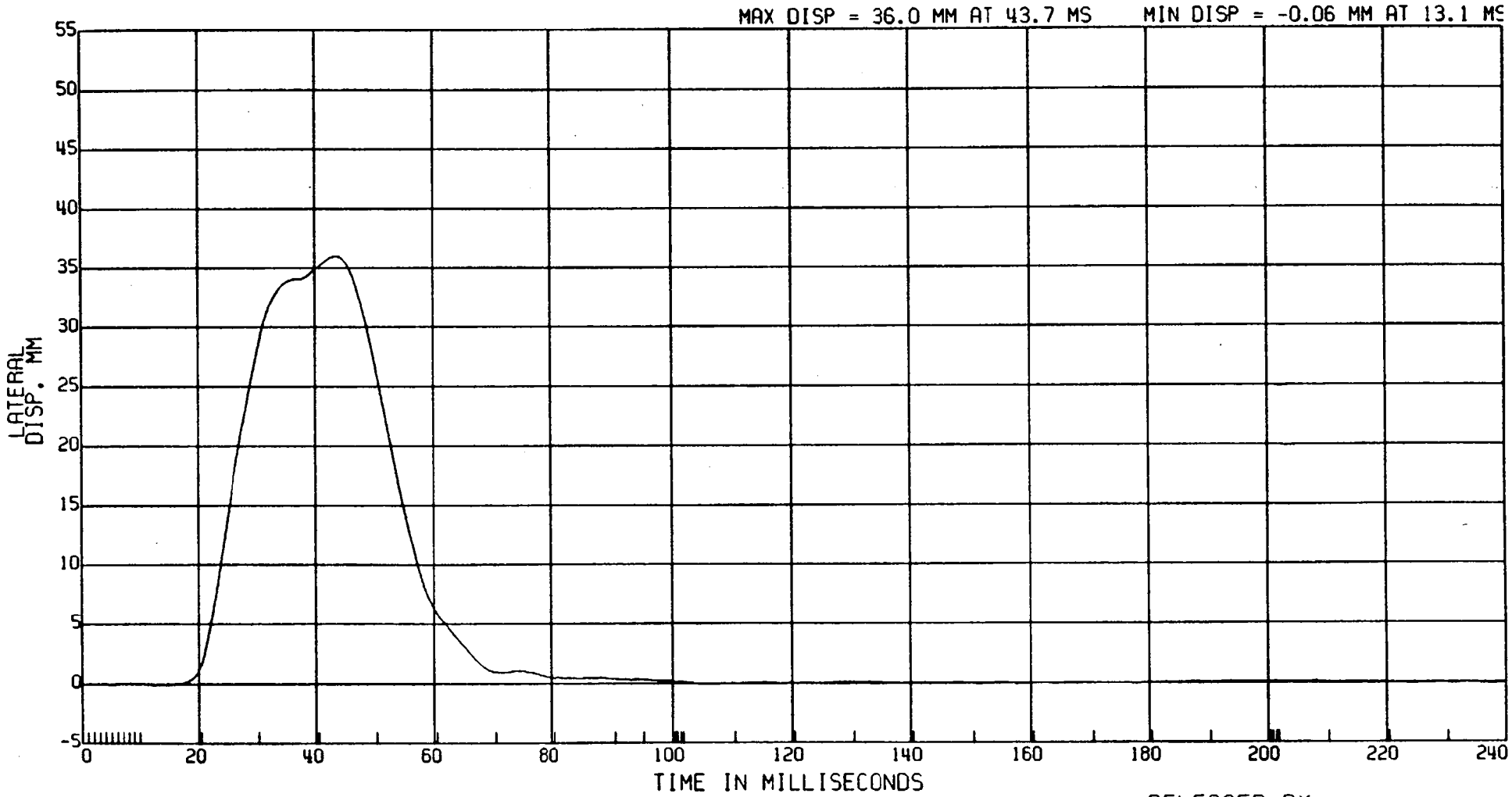


RELEASED BY:
25 PROCESSED 4 MY 90 11:52

C8005B L. SIDE IMPACT-27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 27
3868-905
CPE MVMA 5B 2AF69
ELEC DATA, SAE CLASS 60

DRIVER FIRST ABDOMINAL RIB DISP.

ATD TYPE: BIOSID
TEST DATE:03-06-90



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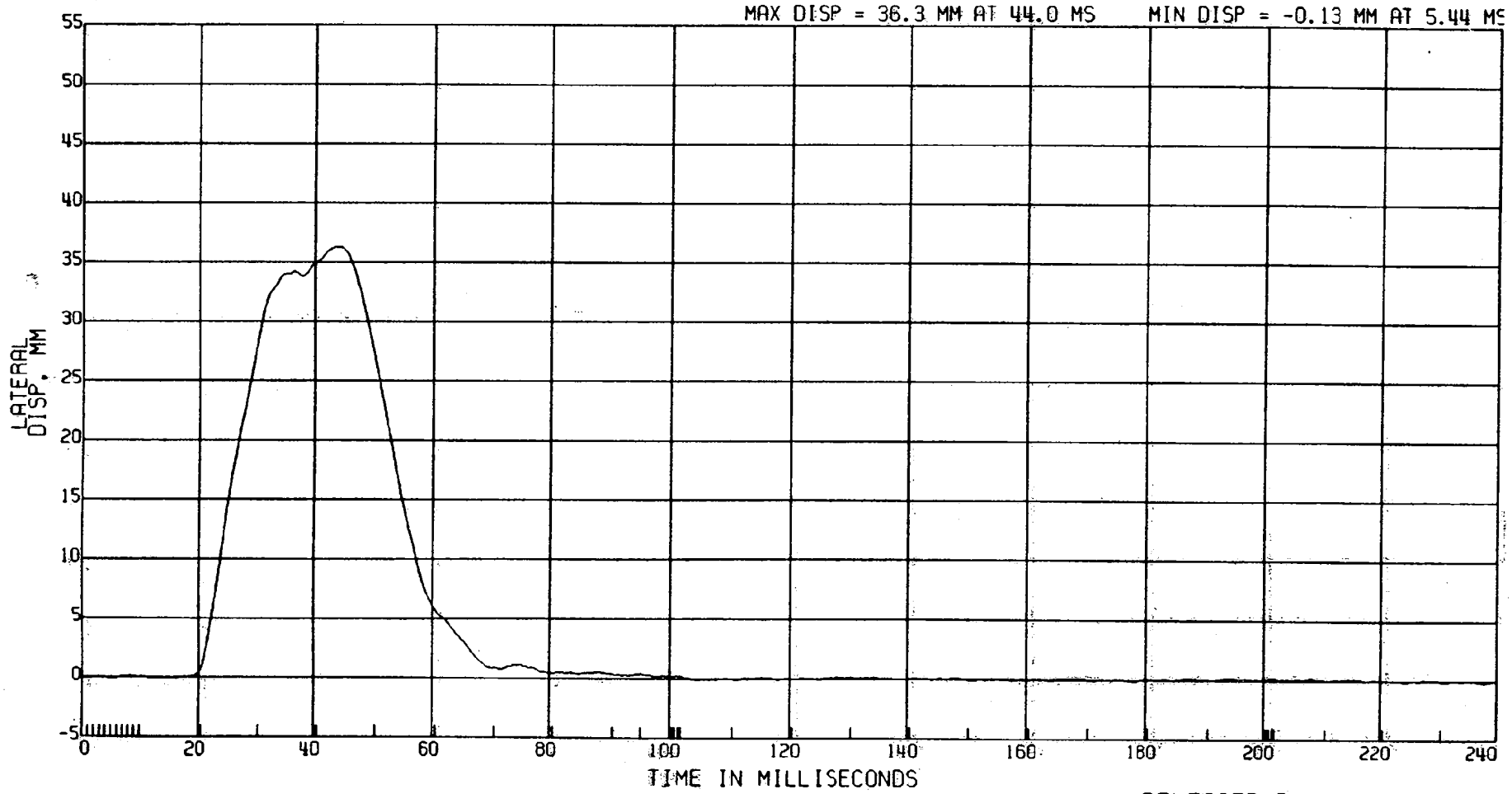
26 PROCESSED 4 MY 90 11:52

C8005B L. SIDE IMPACT-27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 28
3868-905
CPE MVMA 5B 2AF69
ELEC DATA, SAE CLASS 180

DRIVER FIRST ABDOMINAL RIB DISP.

ATD TYPE: BIOSID
TEST DATE:03-06-90



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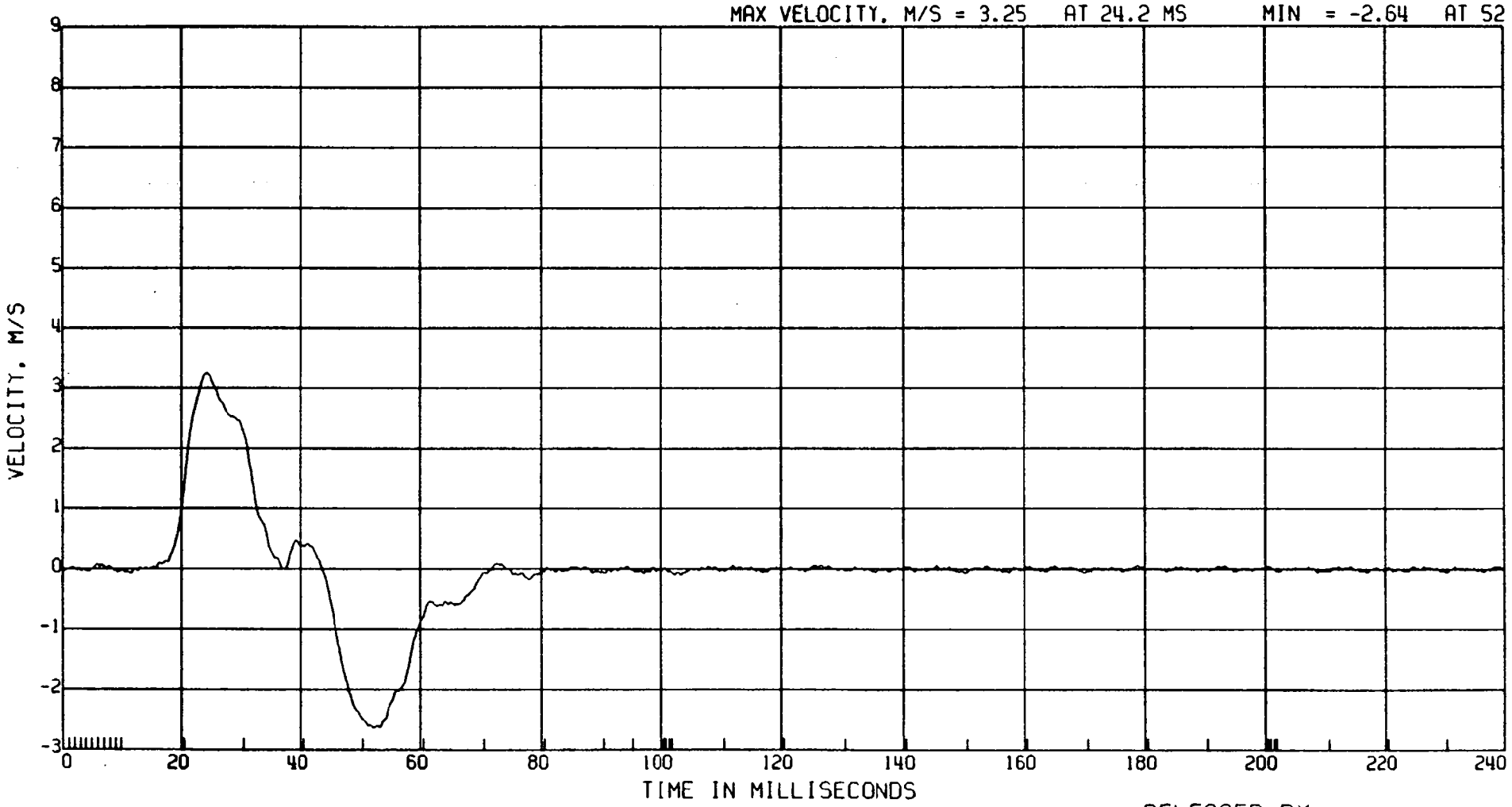
27 PROCESSED 4 MT 90 11:52

C8005B L. SIDE IMPACT-27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 29
3868-905
CPE MVMA 5B 2AF69
ELEC DATA, SAE CLASS 60

ATD TYPE: BIOSID
TEST DATE:03-06-90

DRIVER 1ST ABDOMINAL RIB VELOCITY

(DIFF OF 1ST RIB DISP)



RELEASED BY:
28 PROCESSED 4 MY 90 11:52

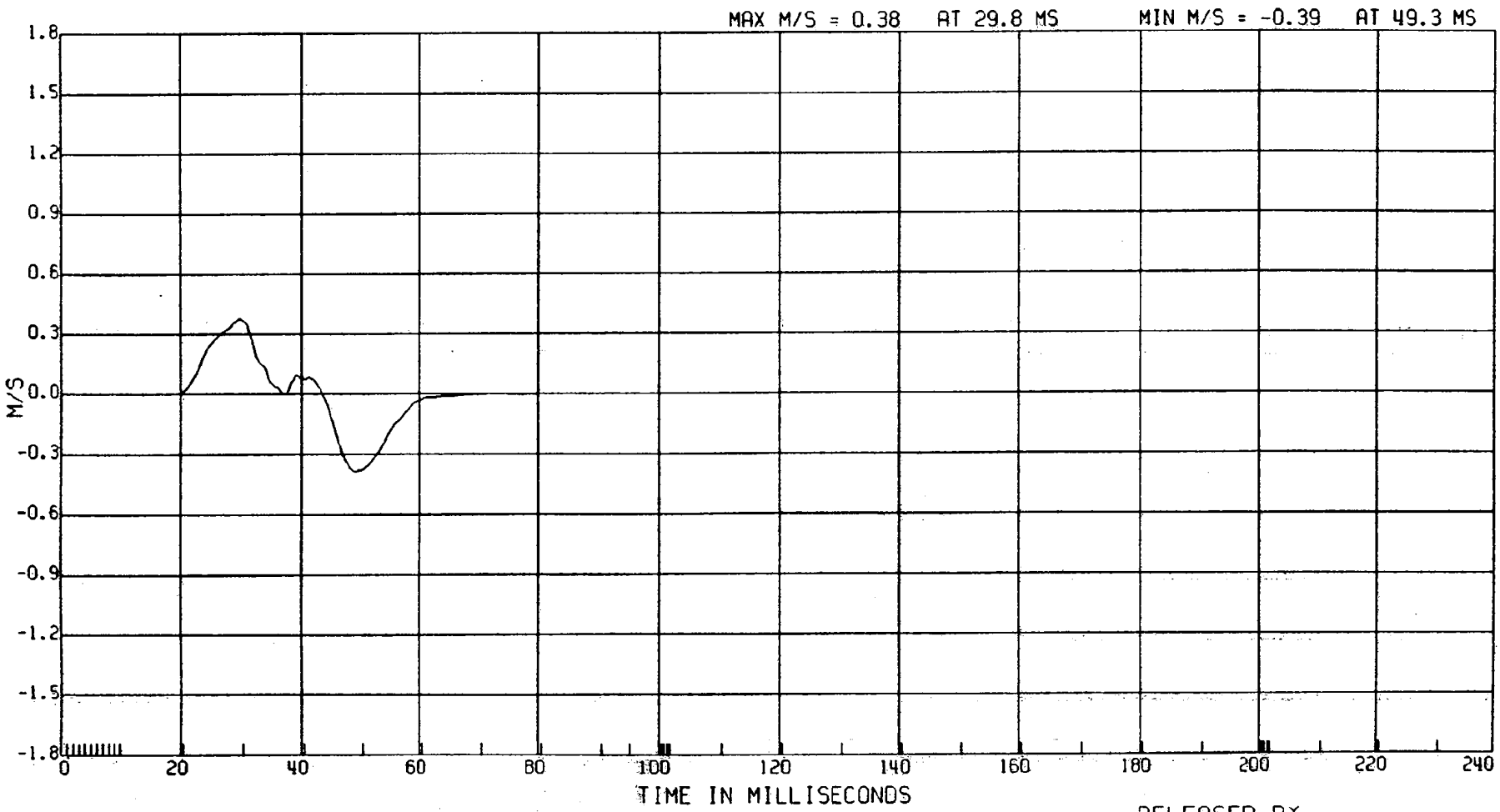
C8005B L. SIDE IMPACT-27 DEG
3868-905
CPE MVMA 5B 2AF69
ELEC DATA, SAE CLASS 60

MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 30

VISCOUS RESPONSE OF 1ST ABDOMINAL RIB

(1ST RIB DISP*1ST RIB VEL)/175MM

ATD TYPE: BIOSID
TEST DATE:03-06-90



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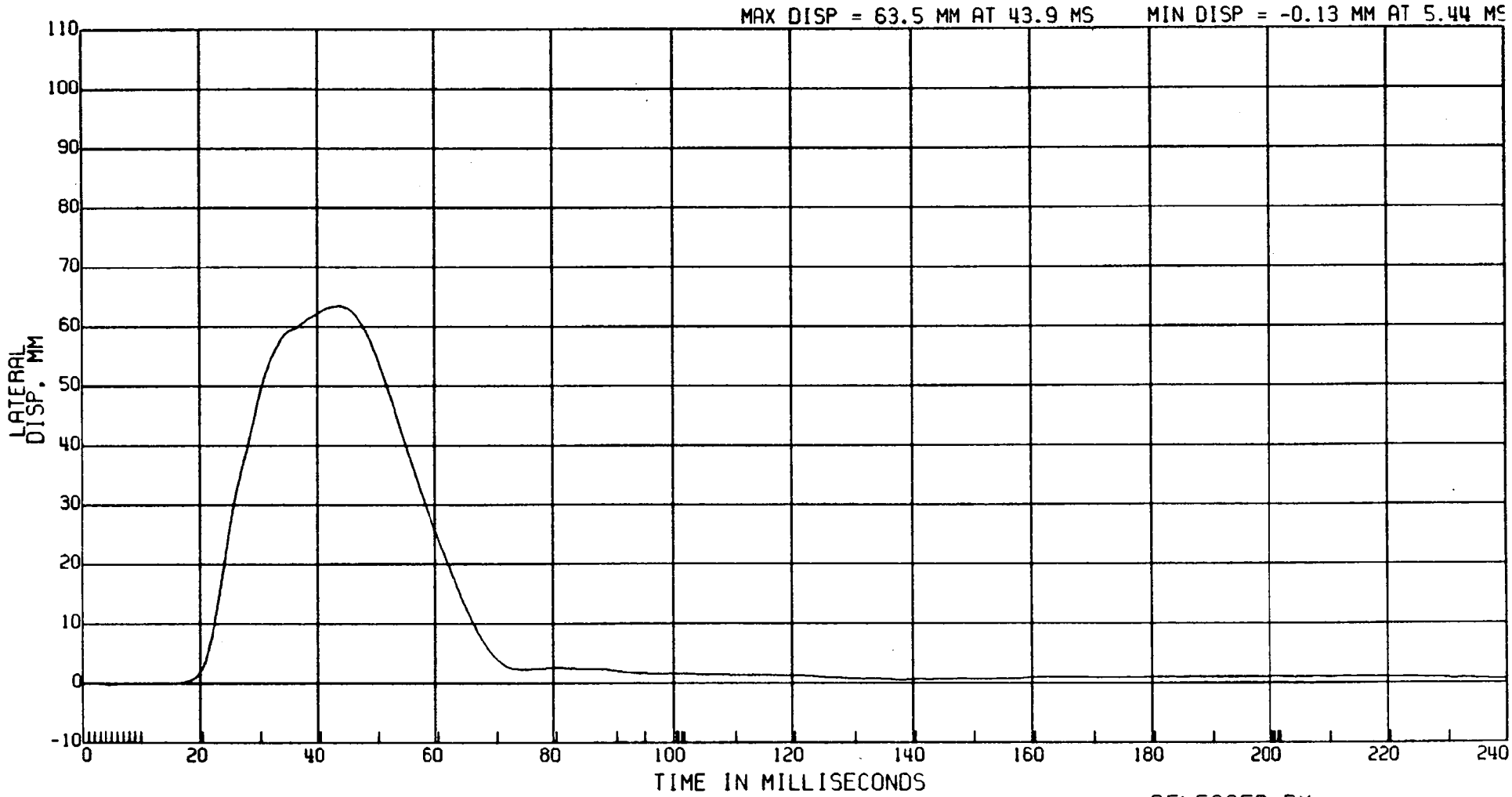
29 PROCESSED 4 MY 90 ,11:52

C8005B L. SIDE IMPACT-27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 31
3868-905 ATD TYPE: BIOSID
CPE MVMA 5B 2AF69 DRIVER SECOND ABDOMINAL RIB DISP. TEST DATE:03-06-90
ELEC DATA, SAE CLASS 60

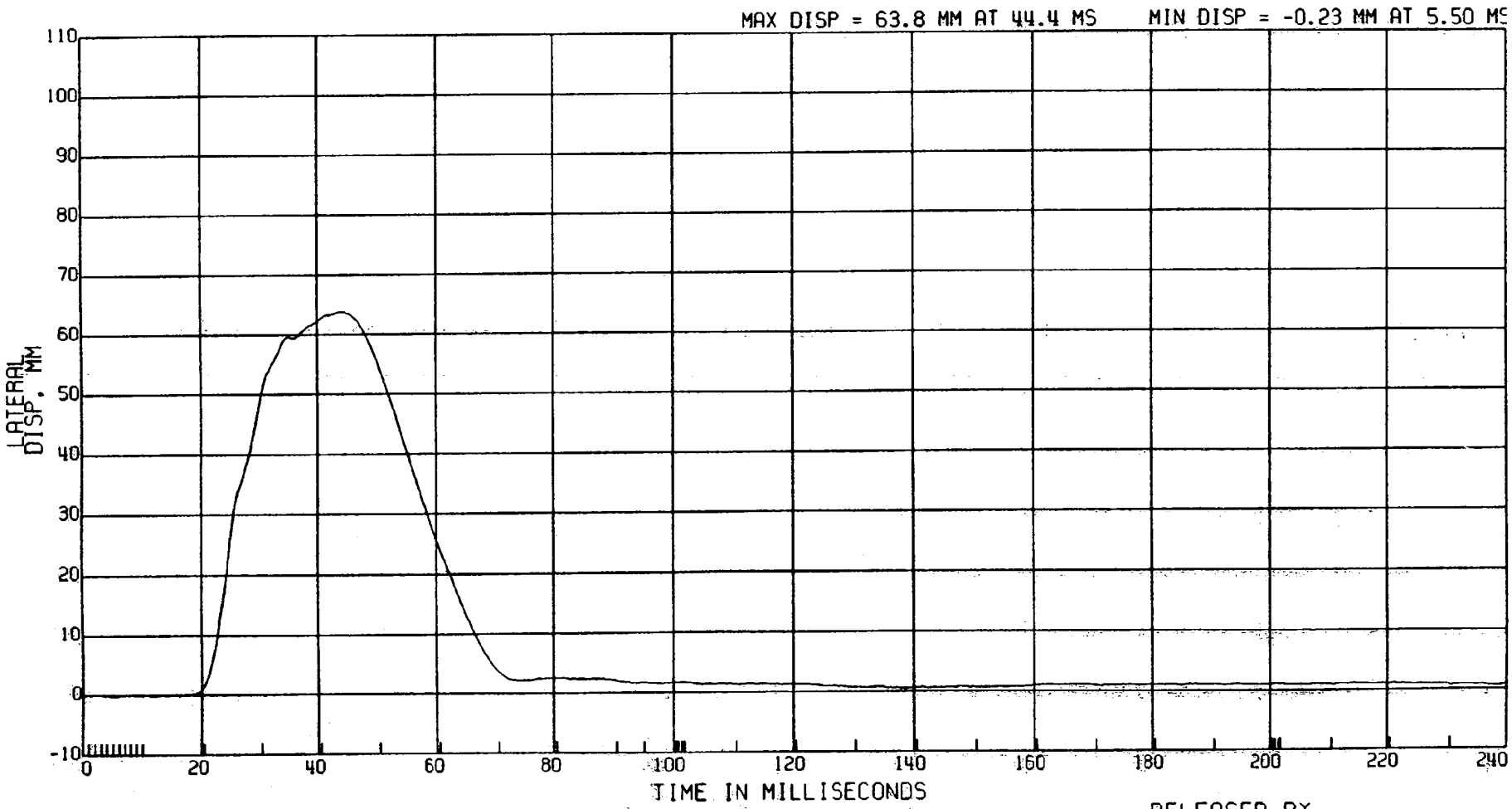


RELEASED BY:
30 PROCESSED 4 MY 90 11:52

C8005B L. SIDE IMPACT-27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 32
3868-905
CPE MVMA 5B 2AF69
ELEC DATA, SAE CLASS 180

DRIVER SECOND ABDOMINAL RIB DISP.

ATD TYPE: BIOSID
TEST DATE:03-06-90



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31 PROCESSED 4 MY 90, 11:52

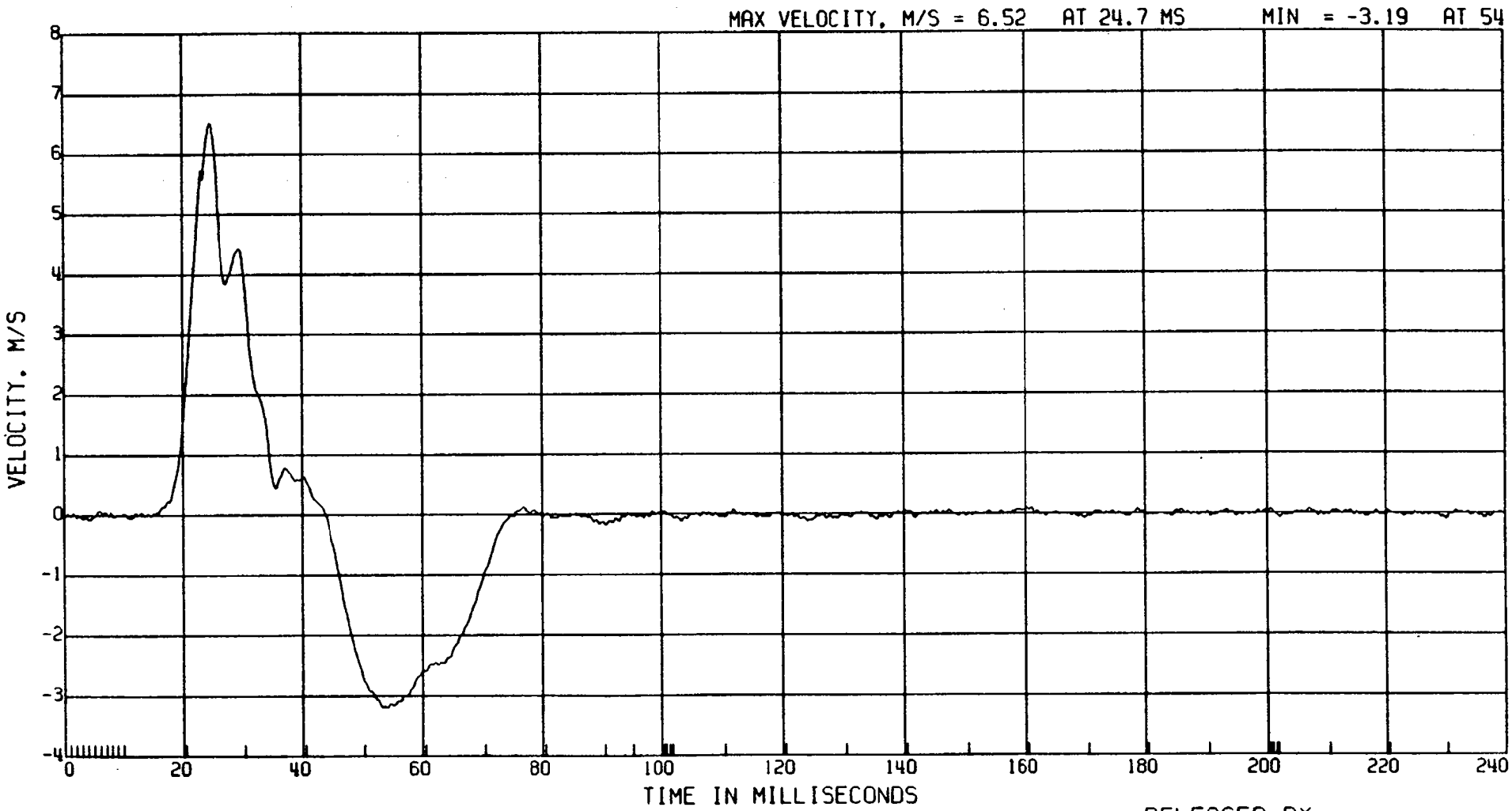
C8005B L. SIDE IMPACT-27 DEG
3868-905
CPE MVMA 5B 2AF69
ELEC DATA, SAE CLASS 60

MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 33

ATD TYPE: BIOSID
TEST DATE:03-06-90

DRIVER 2ND ABDOMINAL RIB VELOCITY

(DIFF OF 2ND RIB DISP)



RELEASED BY:
32 PROCESSED 4 MY 90 11:52

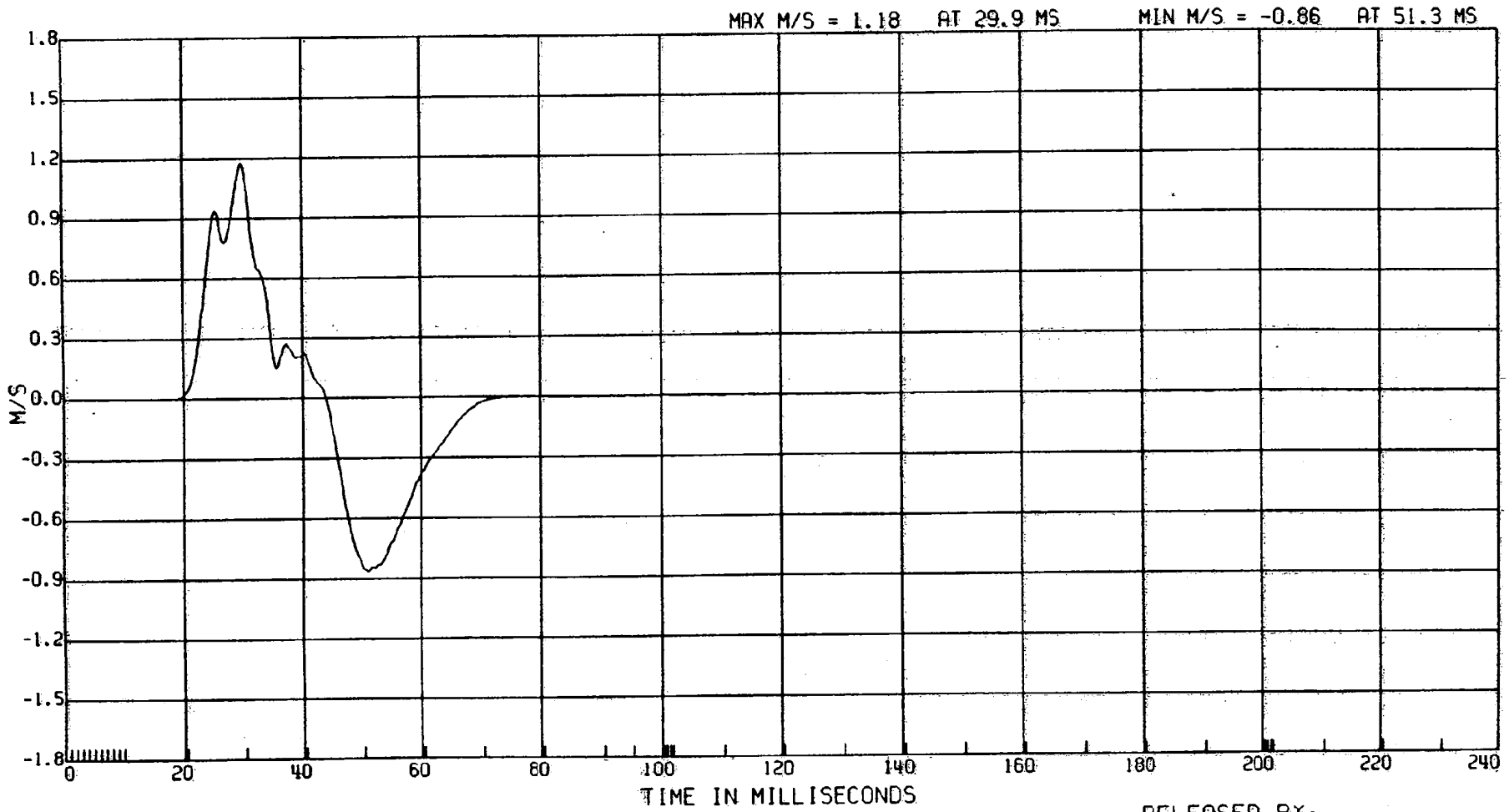
C8005B L. SIDE IMPACT-27 DEG
3868-905
CPE MVMA 5B 2AF69
ELEC DATA. SAE CLASS 60

MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 34

VISCOUS RESPONSE OF 2ND ABDOMINAL RIB

(2ND RIB DISP*2ND RIB VEL)/175MM

ATD TYPE: BIOSID
TEST DATE:03-06-90



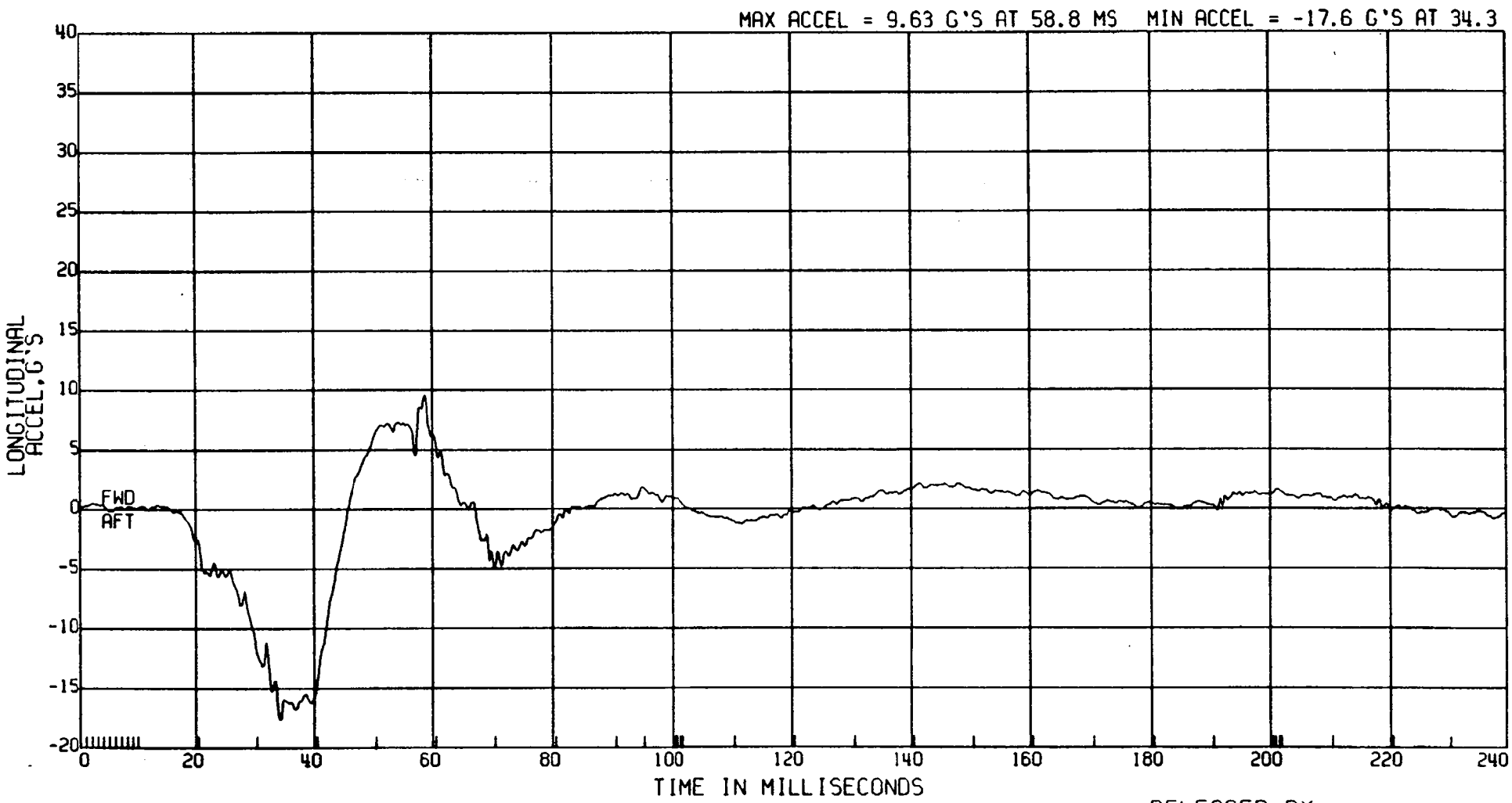
RELEASED BY:
33 PROCESSED 4 MY 90 11:52

C8005B L. SIDE IMPACT-27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 35

3868-905 ATD TYPE: BIOSID

CPE MVMA 5B 2AF69 DRIVER UPPER SPINE ACCEL. TEST DATE:03-06-90

ELEC DATA, SAE CLASS 180



RELEASED BY:

34 PROCESSED 4 MY 90 11:52

C8005B L. SIDE IMPACT-27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 36

3868-905

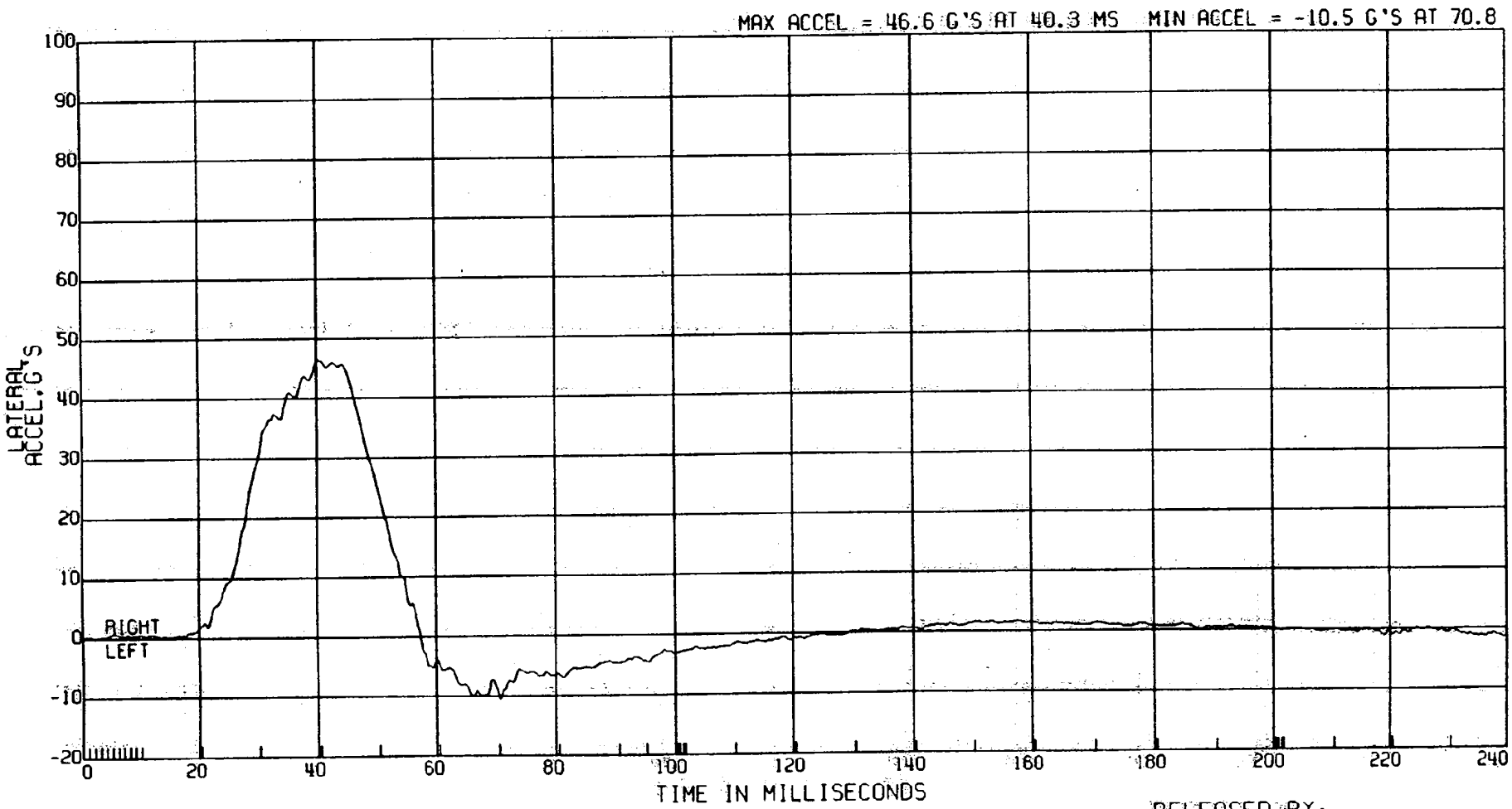
CPE MVMA 5B 2AF69

ELEC DATA, SAE CLASS 180

DRIVER UPPER SPINE ACCEL.

ATD TYPE: BIOSID

TEST DATE:03-06-90



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35 PROCESSED 4 MY 90 11:52

C8005B L. SIDE IMPACT-27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 37

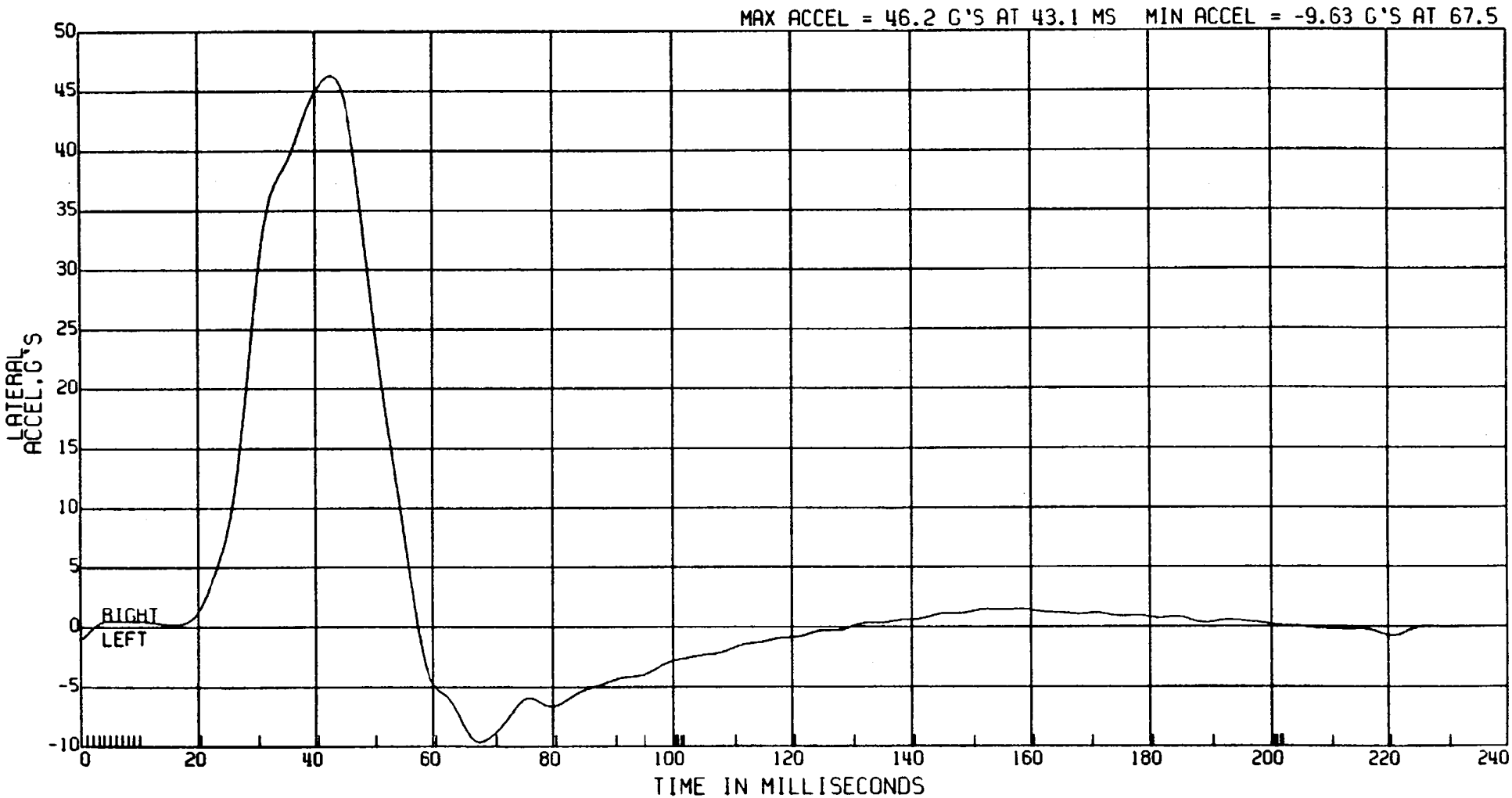
3868-905 ATD TYPE: BIOSID

CPE MVMA 5B 2AF69 TEST DATE:03-06-90

ELEC DATA, NHTSA FIR FILTER

DRIVER UPPER SPINE ACCEL.

F.I.R. FILTER, CLASS 300 BUTTERWORTH



RELEASED BY:

36 PROCESSED 4 MY 90 11:52

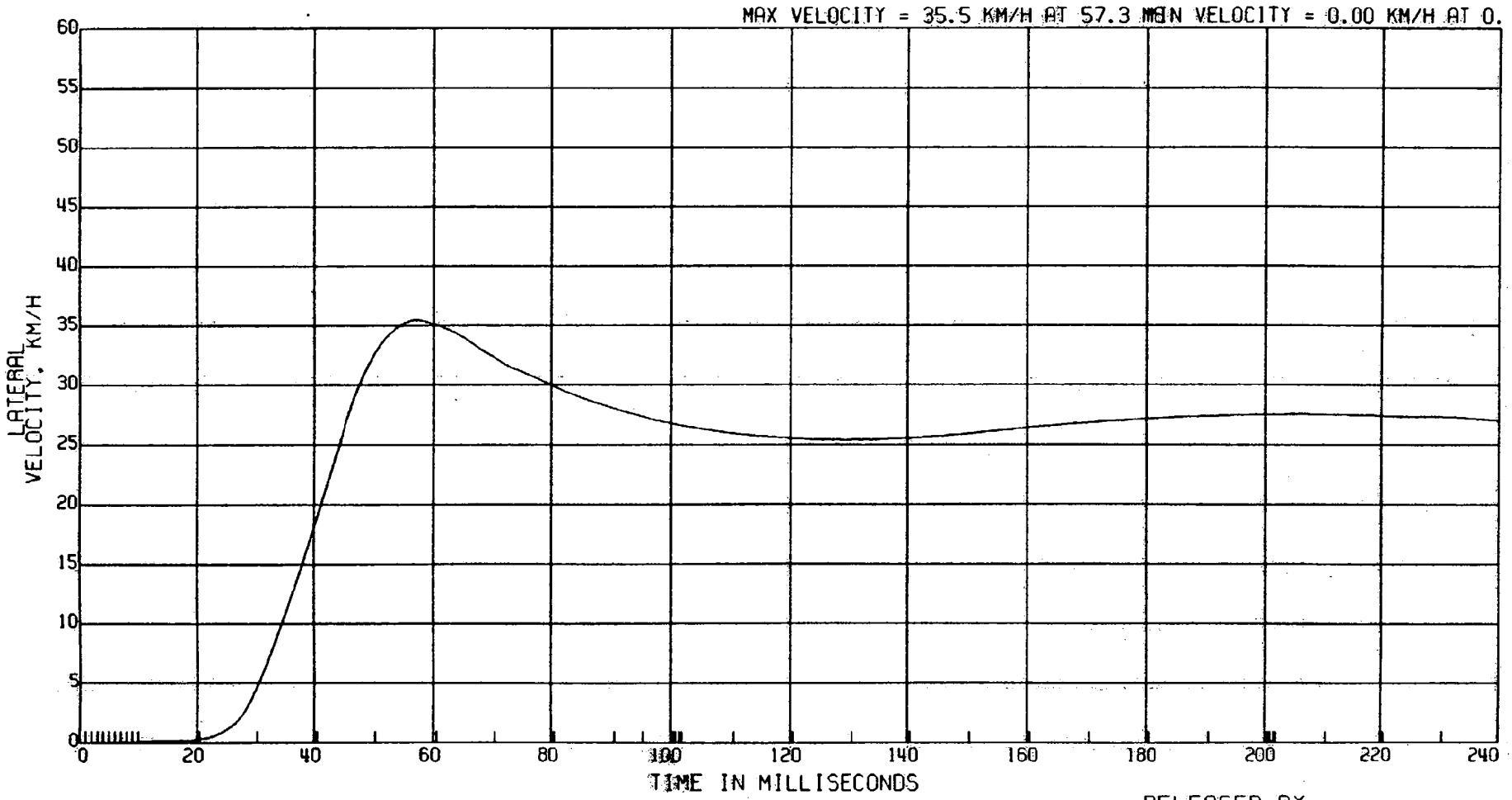
C8005B L. SIDE IMPACT-27 DEG
3868-905
CPE MVMA 5B 2AF69
ELEC DATA, SAE CLASS 180

MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 30

ATD TYPE: BIOSID
TEST DATE:03-06-90

COMPUTED UPPER SPINE VELOCITY

(1ST INTEGRAL DRIVER ACCELERATION)



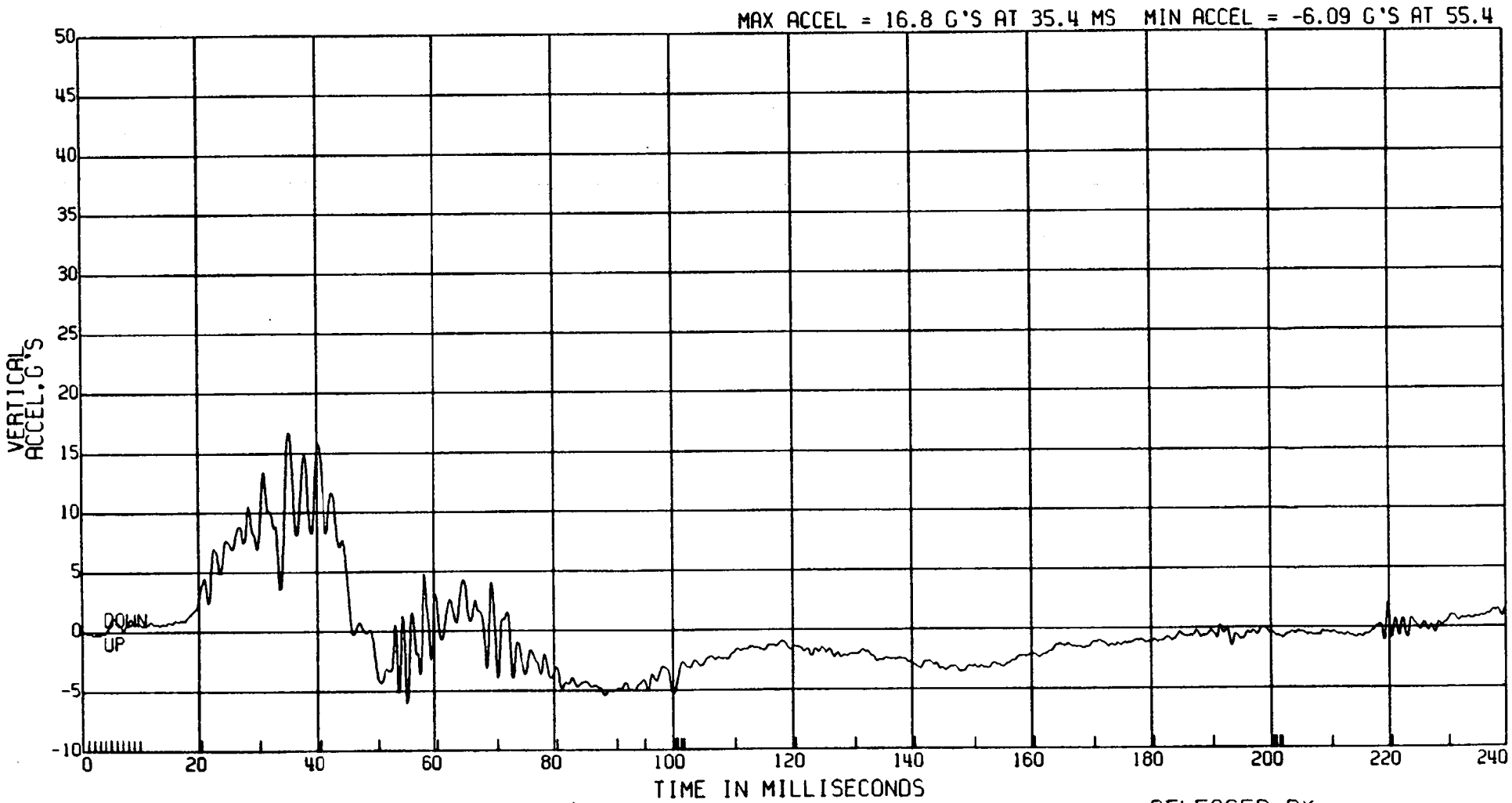
RELEASED BY:

37 PROCESSED 4 MY 90 11:52

C8005B L. SIDE IMPACT-27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 39
3868-905
CPE MVMA 5B 2AF69
ELEC DATA, SAE CLASS 180

DRIVER UPPER SPINE ACCEL.

ATD TYPE: BIOSID
TEST DATE:03-06-90

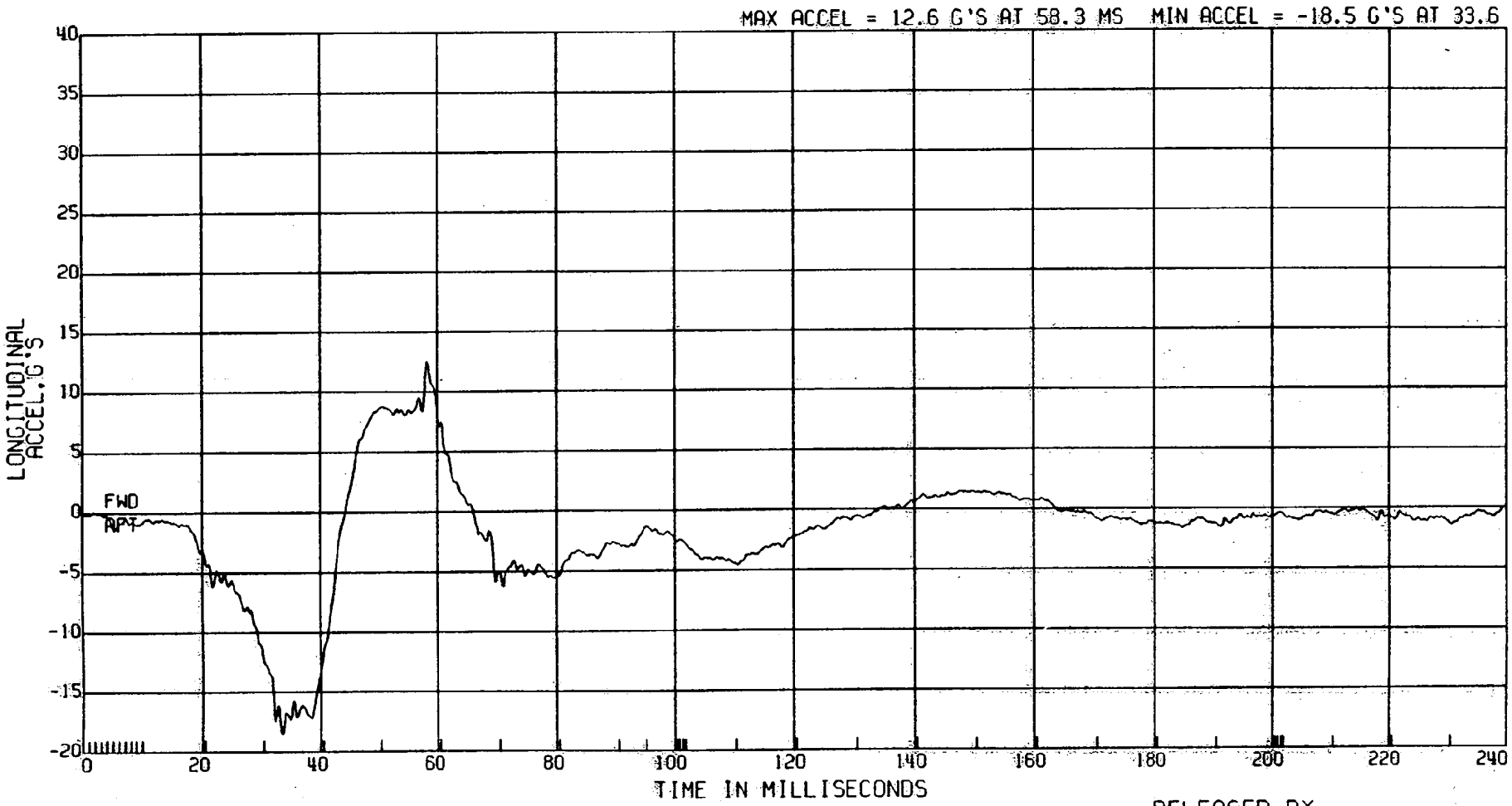


RELEASED BY:
38 PROCESSED 4 MY 90 11:52

C8005B L. SIDE IMPACT-27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 40
3868-905
CPE MVMA 5B 2AF69
ELEC DATA, SAE CLASS 180

DRIVER LOWER SPINE ACCEL.

ATD TYPE: BIOSID
TEST DATE:03-06-90

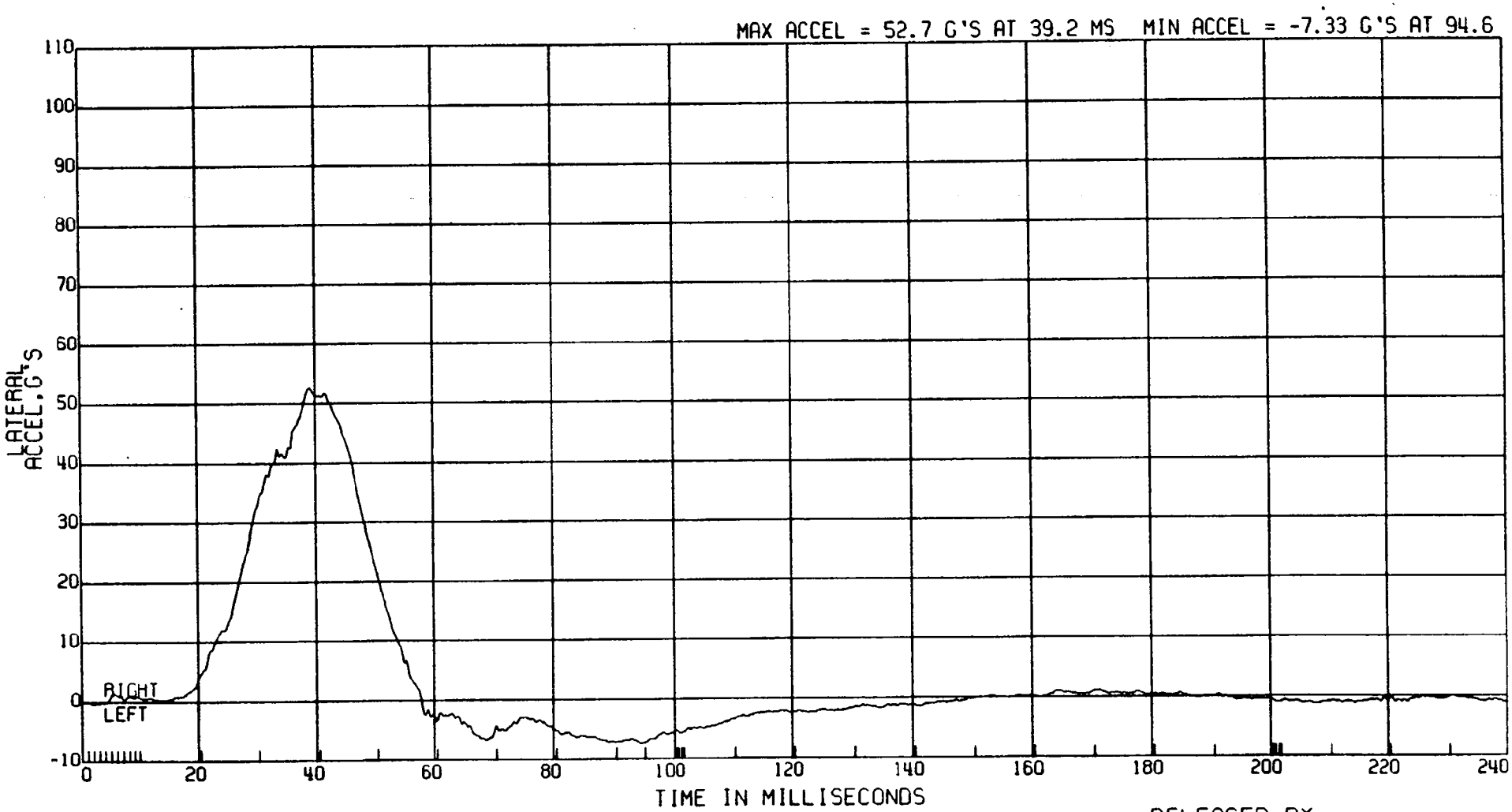


RELEASED BY:
39 PROCESSED 4 MY 90 , 11:52

C8005B L. SIDE IMPACT-27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 41
3868-905
CPE MVMA 5B 2AF69
ELEC DATA, SAE CLASS 180

DRIVER LOWER SPINE ACCEL.

ATD TYPE: BIOSID
TEST DATE:03-06-90



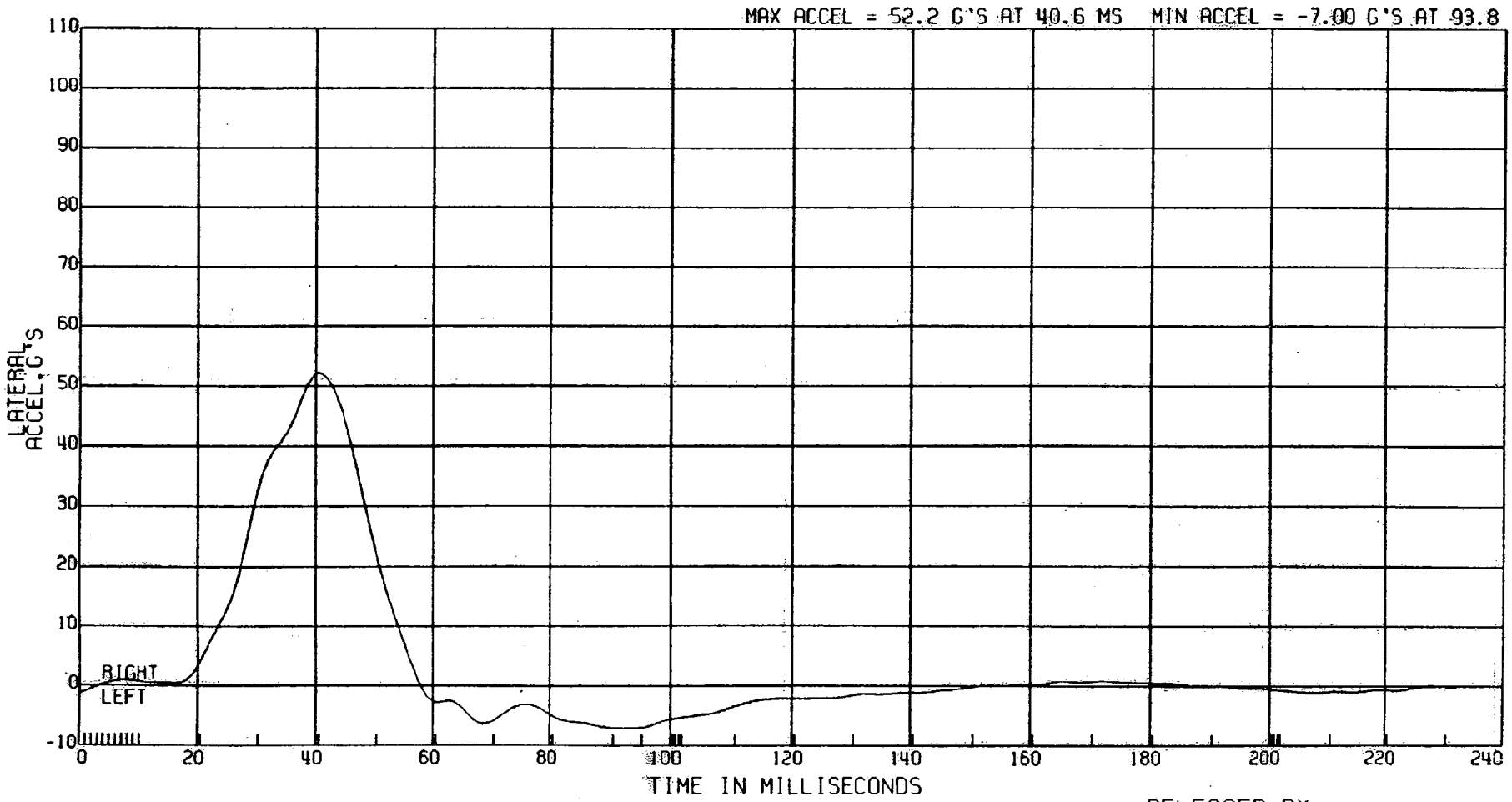
RELEASED BY:
40 PROCESSED 4 MT 90 11:52

C8005B L. SIDE IMPACT-27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 42

3868-905 ATD TYPE: BIOSID

CPE MVMA 5B 2AF69 DRIVER LOWER SPINE ACCEL. TEST DATE:03-06-90

ELEC DATA, NHTSA FIR FILTER F.I.R. FILTER, CLASS 300 BUTTERWORTH



RELEASED BY:

41 PROCESSED 4 MY 90 ,11:52

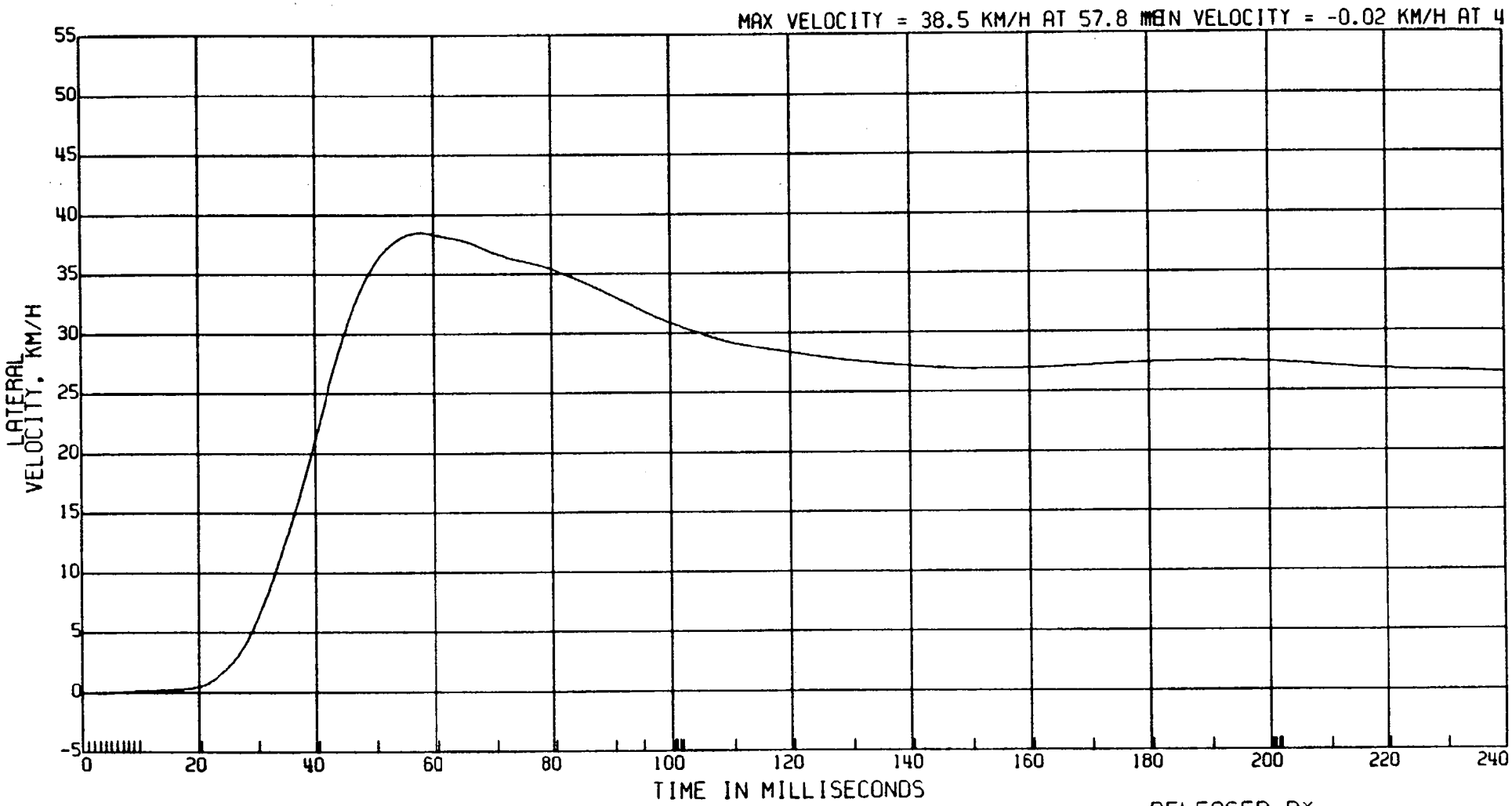
C8005B L. SIDE IMPACT-27 DEG
3868-905
CPE MVMA 5B 2AF69
ELEC DATA, SAE CLASS 180

MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 43

ATD TYPE: BIOSID
TEST DATE:03-06-90

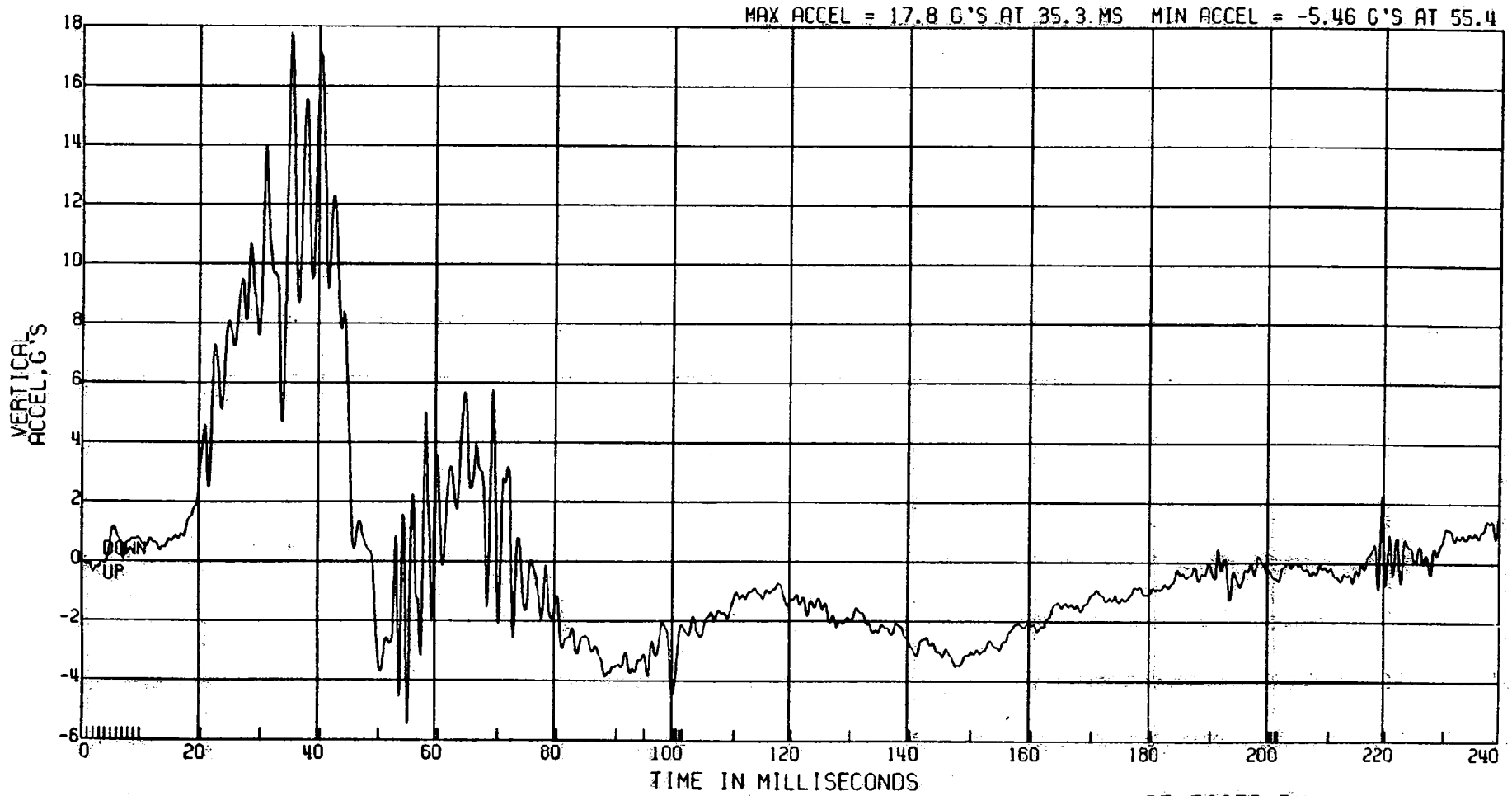
COMPUTED LOWER SPINE VELOCITY

(1ST INTEGRAL DRIVER ACCELERATION)



RELEASED BY:
42 PROCESSED 4 MT 90 11:52

C8905B L. SIDE IMPACT-27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 44
3868-905 ATD TYPE: BIOSID
CPE MVMA 5B 2AF69 DRIVER LOWER SPINE ACCEL. TEST DATE:03-06-90
ELEC DATA, SAE CLASS 180



RELEASED BY:
43 PROCESSED 4 MY 90 11:52

C8005B L. SIDE IMPACT-27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 45

3868-905

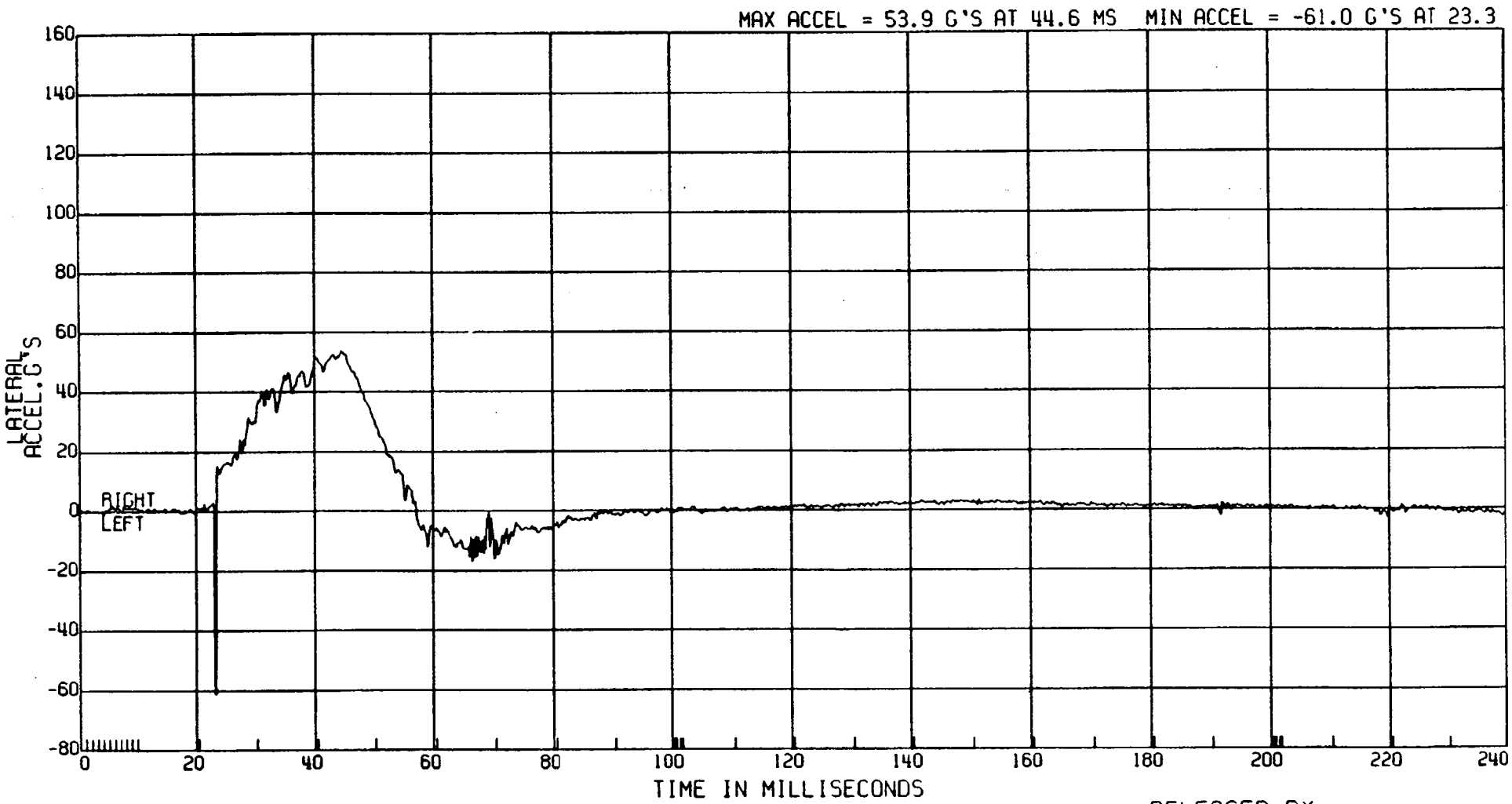
ATD TYPE: BIOSID

CPE MVMA 5B 2AF69

DRIVER T1 ACCEL.

TEST DATE:03-06-90

ELEC DATA, SAE CLASS 1000



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44 PROCESSED 4 MT 90 11:52

C8005B L. SIDE IMPACT-27 DEG
3868-905
CPE MVMA 5B 2AF69
ELEC DATA. NHTSA FIR FILTER

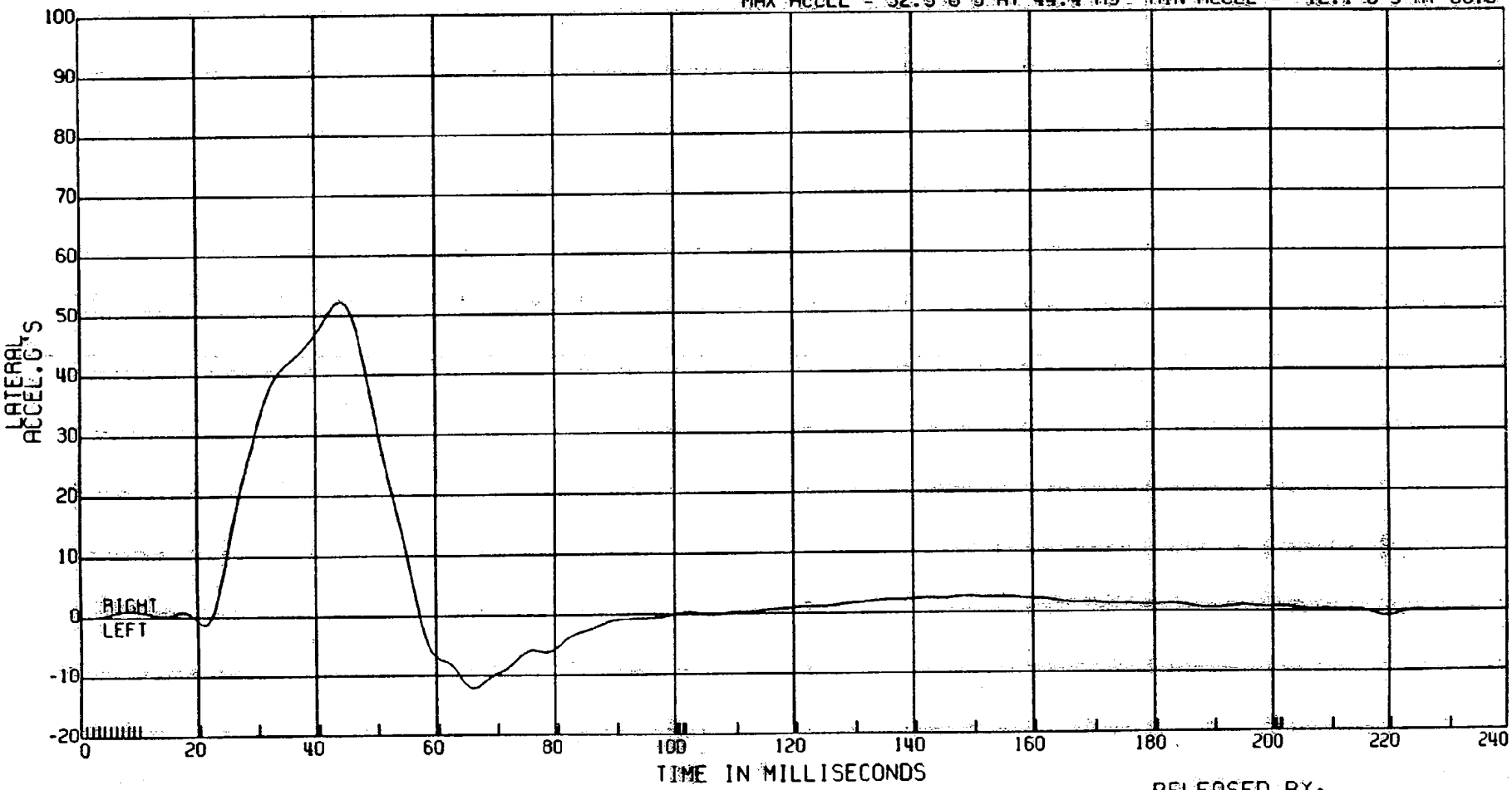
MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 46

DRIVER T1 ACCEL.

F.I.R. FILTER, CLASS 300 BUTTERWORTH

ATD TYPE: BIOSID
TEST DATE:03-06-90

MAX ACCEL = 52.3 G'S AT 44.4 MS MIN ACCEL = -12.1 G'S AT 66.3



RELEASED BY:
45 PROCESSED 4 MY 90 11:52

C8005B L. SIDE IMPACT-27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 41

3868-905

ATD TYPE: BIOSID

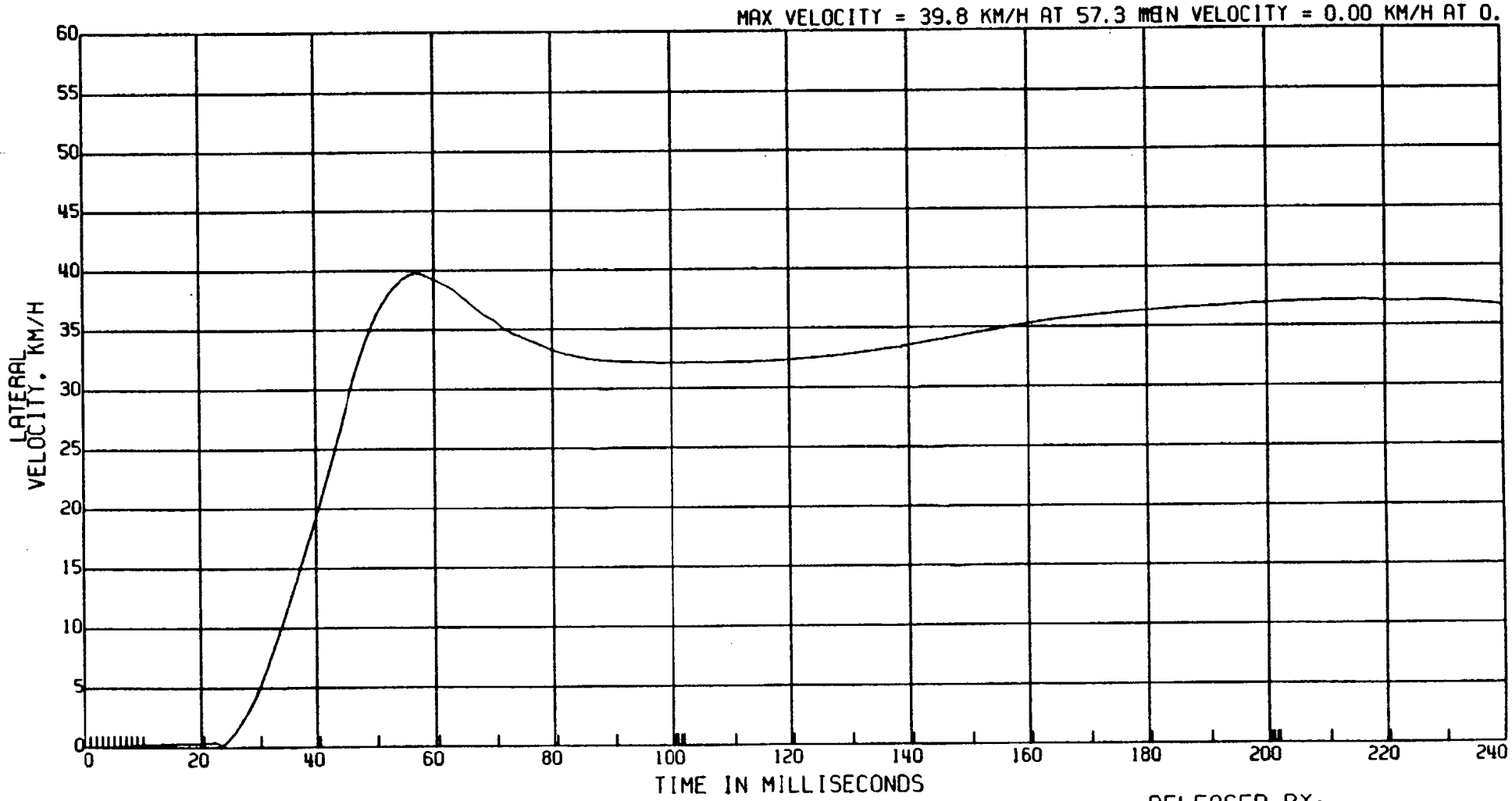
CPE MVMA 5B 2AF69

TEST DATE:03-06-90

ELEC DATA, SAE CLASS 180

COMPUTED T1 VELOCITY

(1ST INTEGRAL DRIVER ACCELERATION)



RELEASED BY:

46 PROCESSED 4 MY 90 11:52

C8005B L. SIDE IMPACT-27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 48

3868-905

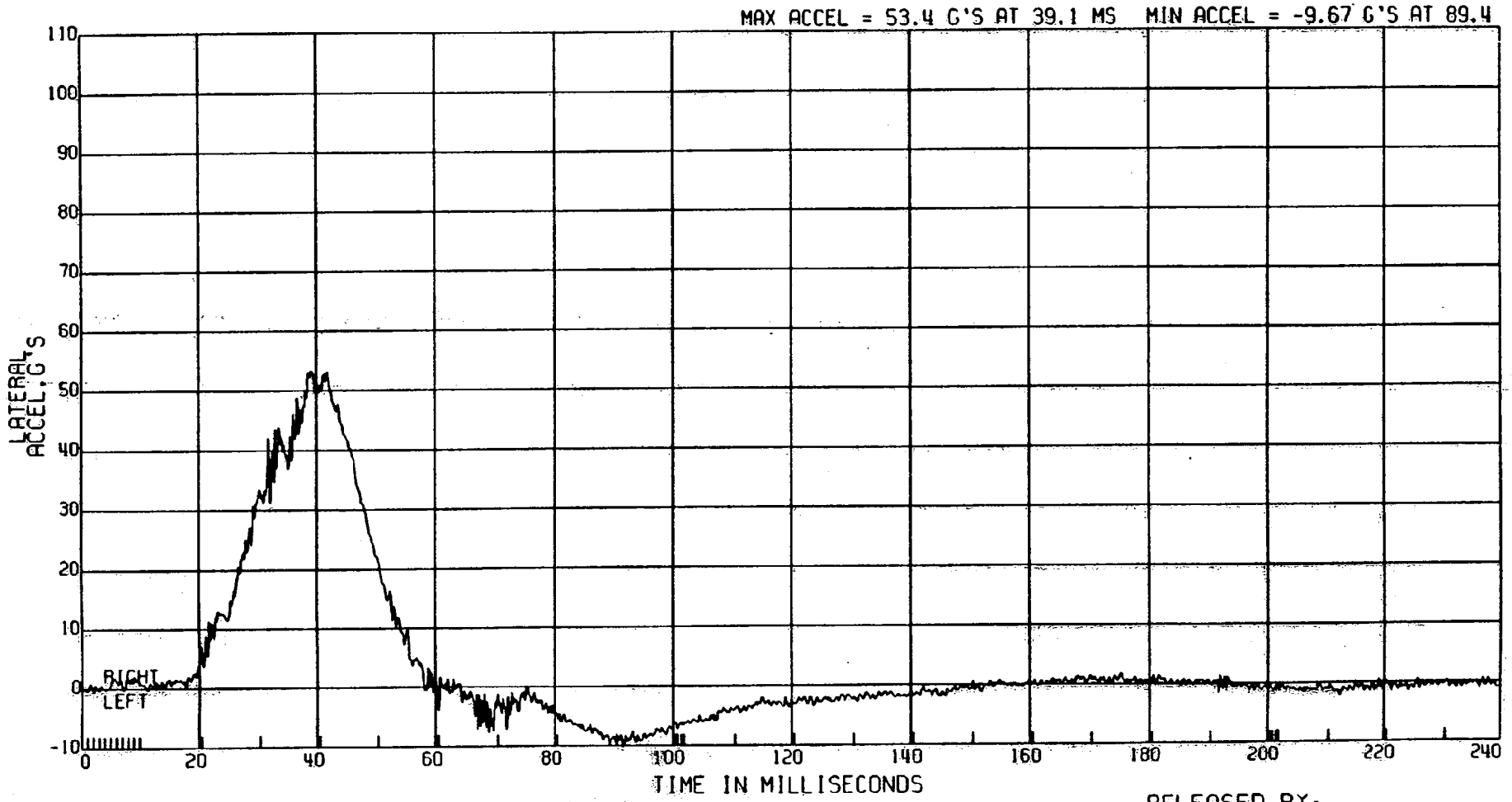
CPE MVMA 5B 2AF69

ELEC DATA, SAE CLASS 1000

DRIVER T12 ACCEL.

ATD TYPE: BIOSID

TEST DATE:03-06-90



RELEASED BY:

47 PROCESSED 4 MY 90 11:52

C8005B L. SIDE IMPACT-27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 49

3868-905

ATD TYPE: BIOSID

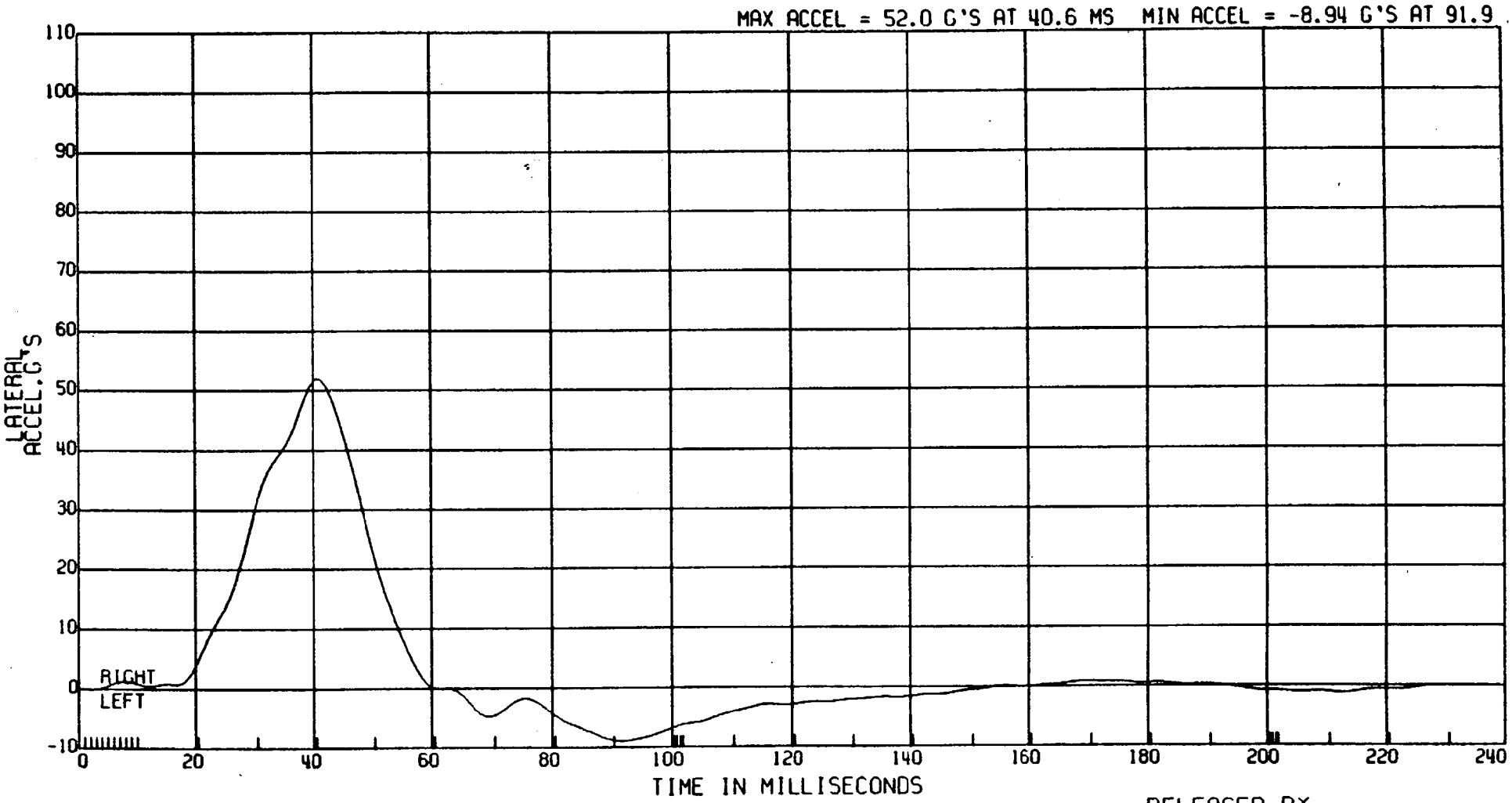
CPE MVMA 5B 2AF69

TEST DATE:03-06-90

ELEC DATA, NHTSA FIR FILTER

DRIVER T12 ACCEL.

F.I.R. FILTER, CLASS 300 BUTTERWORTH



RELEASED BY:

48 PROCESSED 4 MY 90 11:52

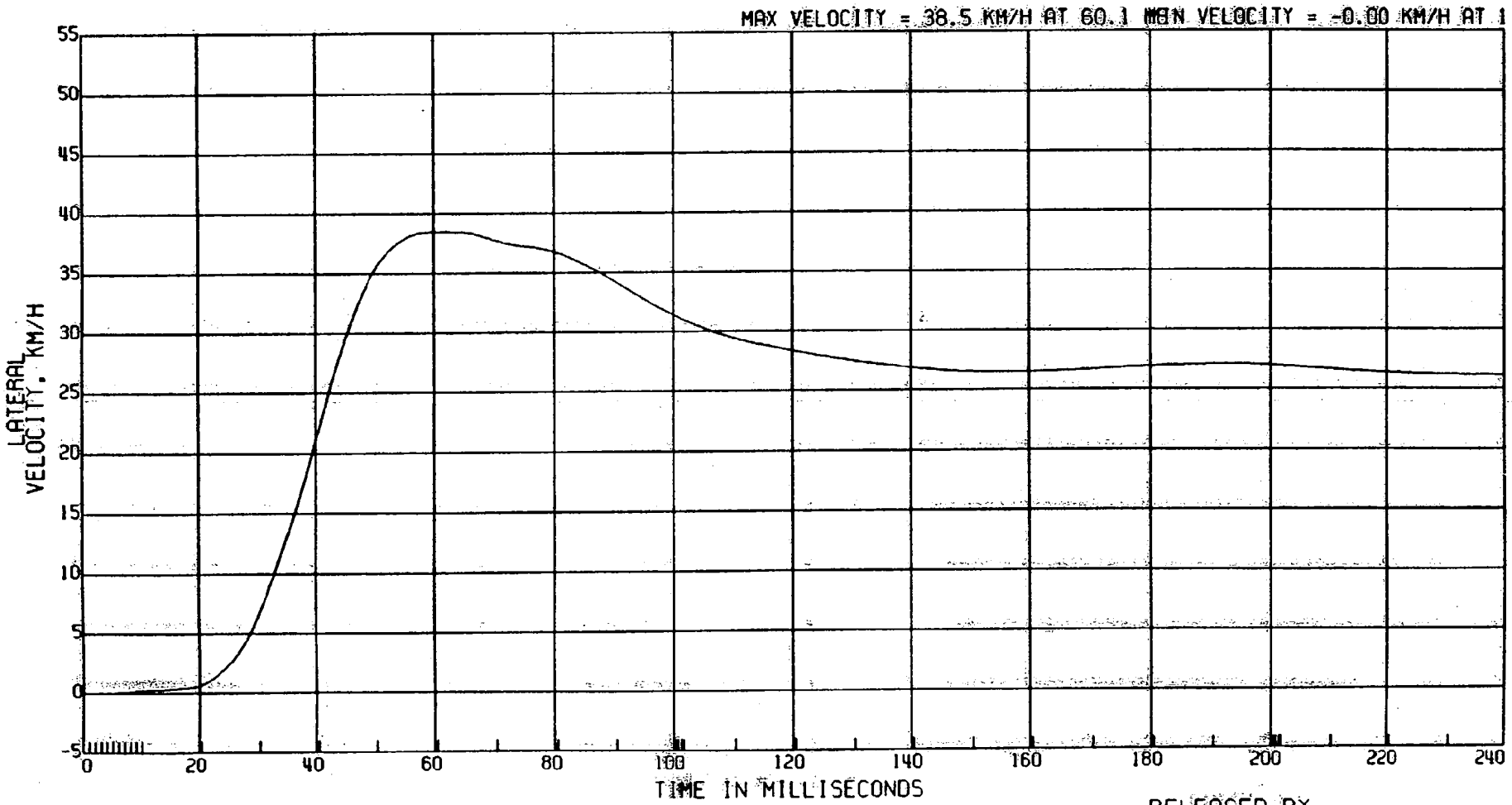
C8005B L. SIDE IMPACT-27 DEG
3868-905
CPE MVMA 5B 2AF69
ELEC DATA, SAE CLASS 180

MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 50

COMPUTED T12 VELOCITY

(1ST INTEGRAL DRIVER ACCELERATION)

ATD TYPE: BIOSID
TEST DATE:03-06-90

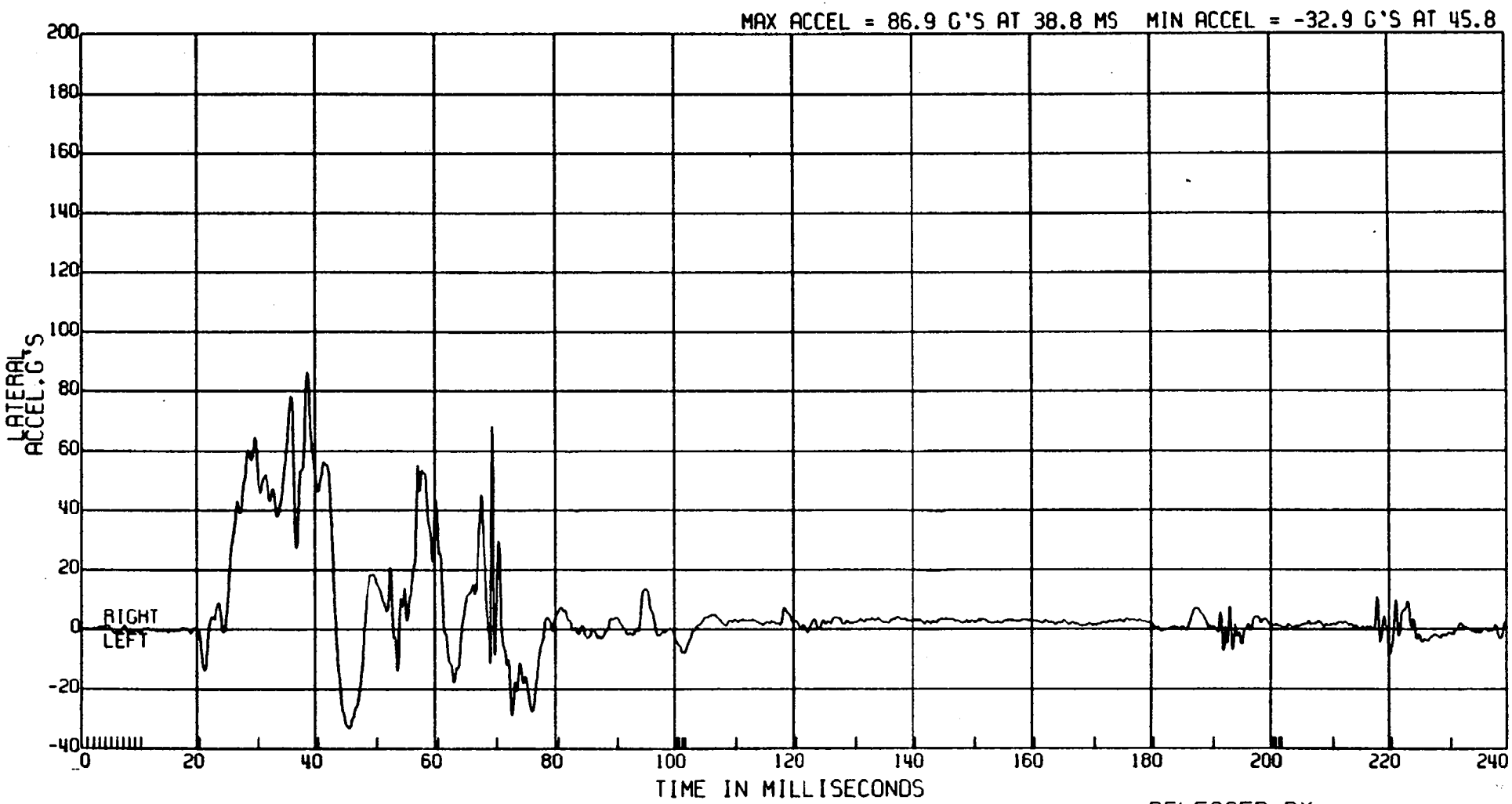


RELEASED BY:
49 PROCESSED 4 MT 90 11:52

C8005B L. SIDE IMPACT-27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 27
3868-905
CPE MVMA 5B 2AF69
ELEC DATA, SAE CLASS 600

DRIVER SHOULDER ACCEL.

ATD TYPE: BIOSID
TEST DATE:03-06-90



RELEASED BY:
50 PROCESSED 4 MY 90 11:52

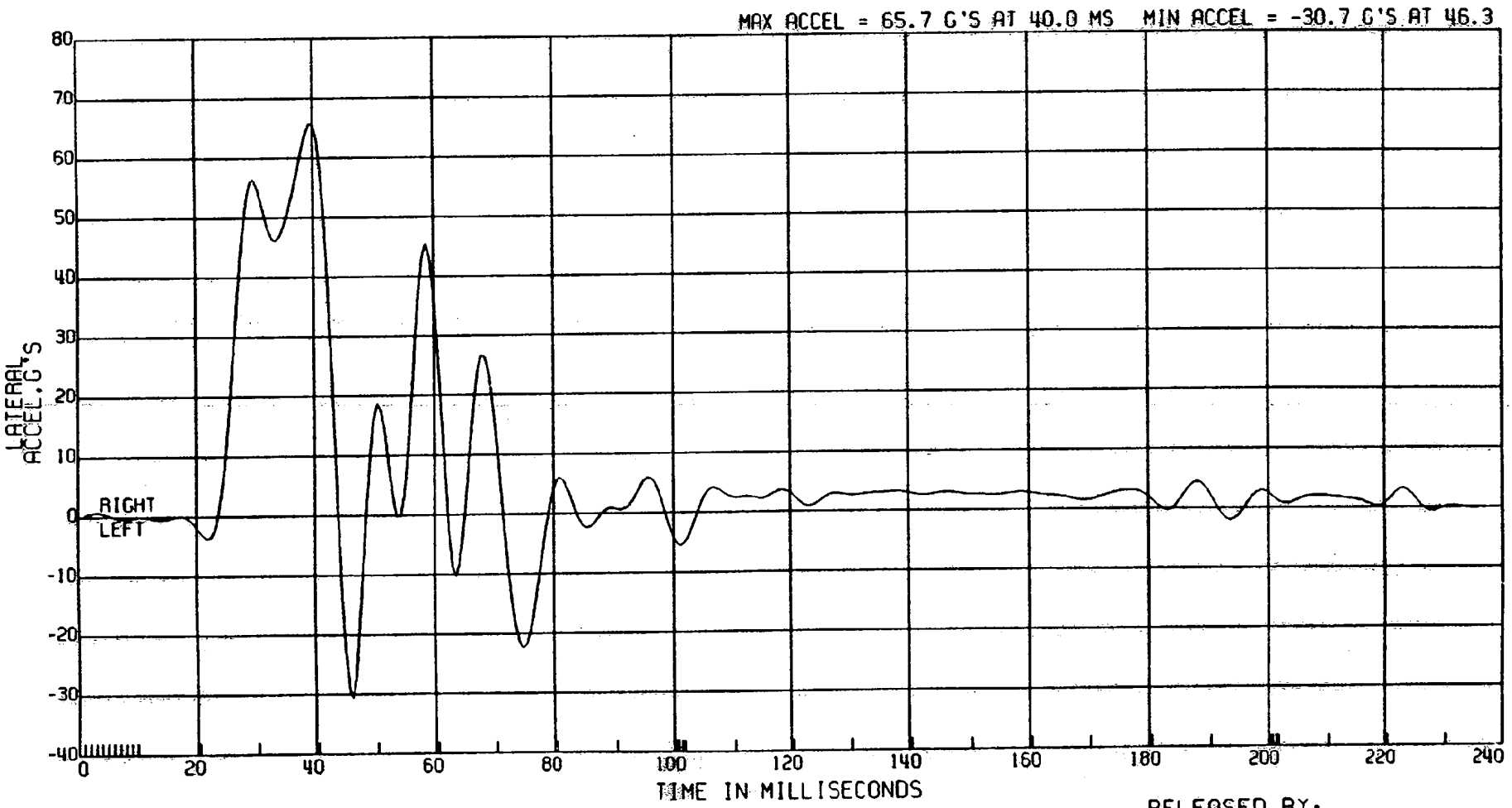
C8005B L. SIDE IMPACT-27 DEG
3868-905
CPE MVMA 5B 2AF69
ELEC DATA, NHTSA FIR FILTER

MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 52

ATD TYPE: BIOSID
TEST DATE:03-06-90

DRIVER SHOULDER ACCEL.

F.I.R. FILTER, CLASS 300 BUTTERWORTH



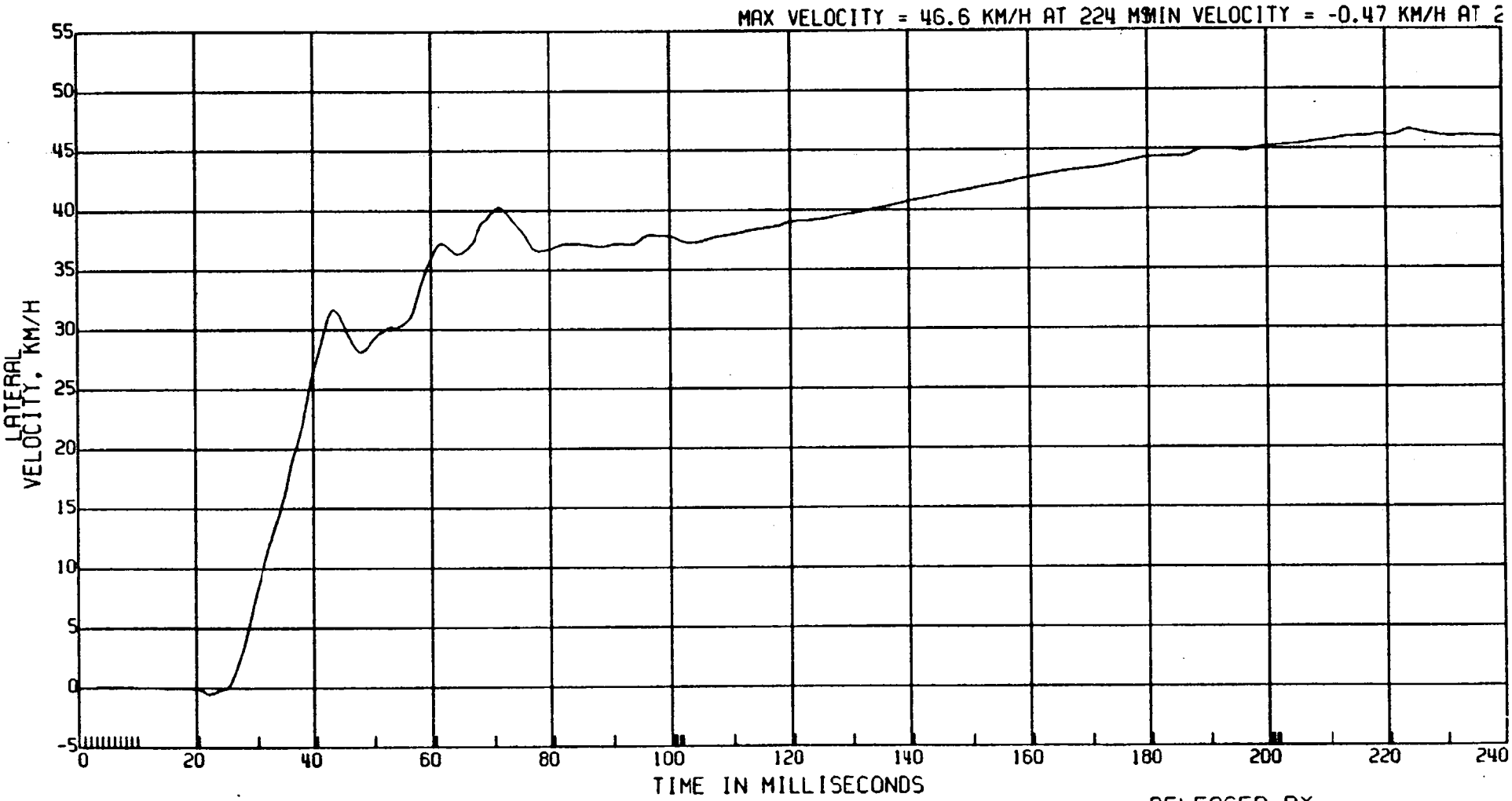
RELEASED BY:

51 PROCESSED 4 MY 90 11:52

C8005B L. SIDE IMPACT-27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 53
3868-905 ATD TYPE: BIOSID
CPE MVMA 5B 2AF69 TEST DATE:03-06-90
ELEC DATA, SAE CLASS 180

COMPUTED SHOULDER VELOCITY

(1ST INTEGRAL DRIVER ACCELERATION)



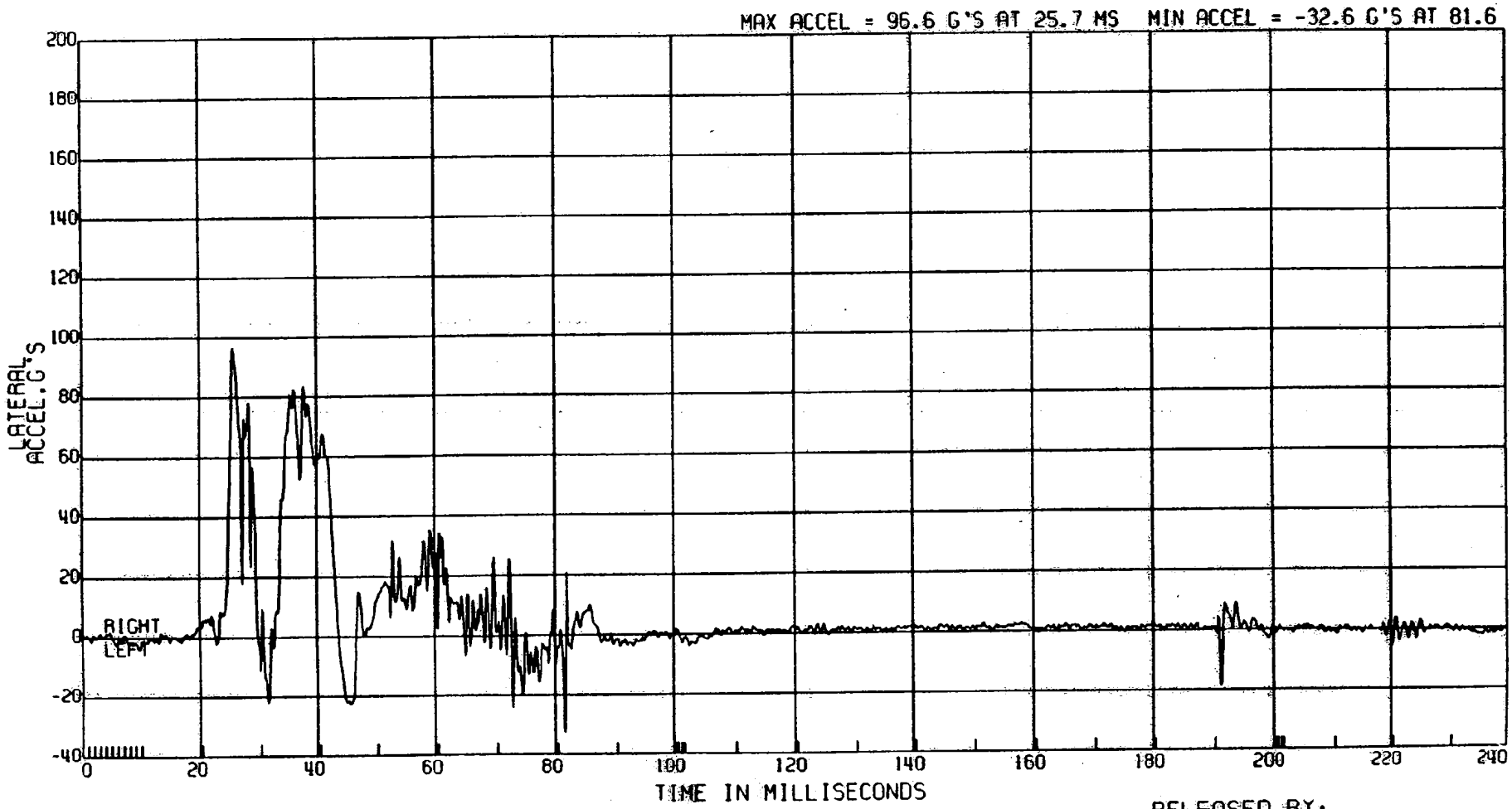
RELEASED BY:
52 PROCESSED 4 MY 90 11:52

C8005B L. SIDE IMPACT-27 DEG
3868-905
CPE MVMA 5B 2AF69
ELEC DATA, SAE CLASS 1000

MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 54

DRIVER FIRST THORACIC RIB ACCEL.

ATD TYPE: BIOSID
TEST DATE:03-06-90



RELEASED BY:
53 PROCESSED 4 MY 90 11:52

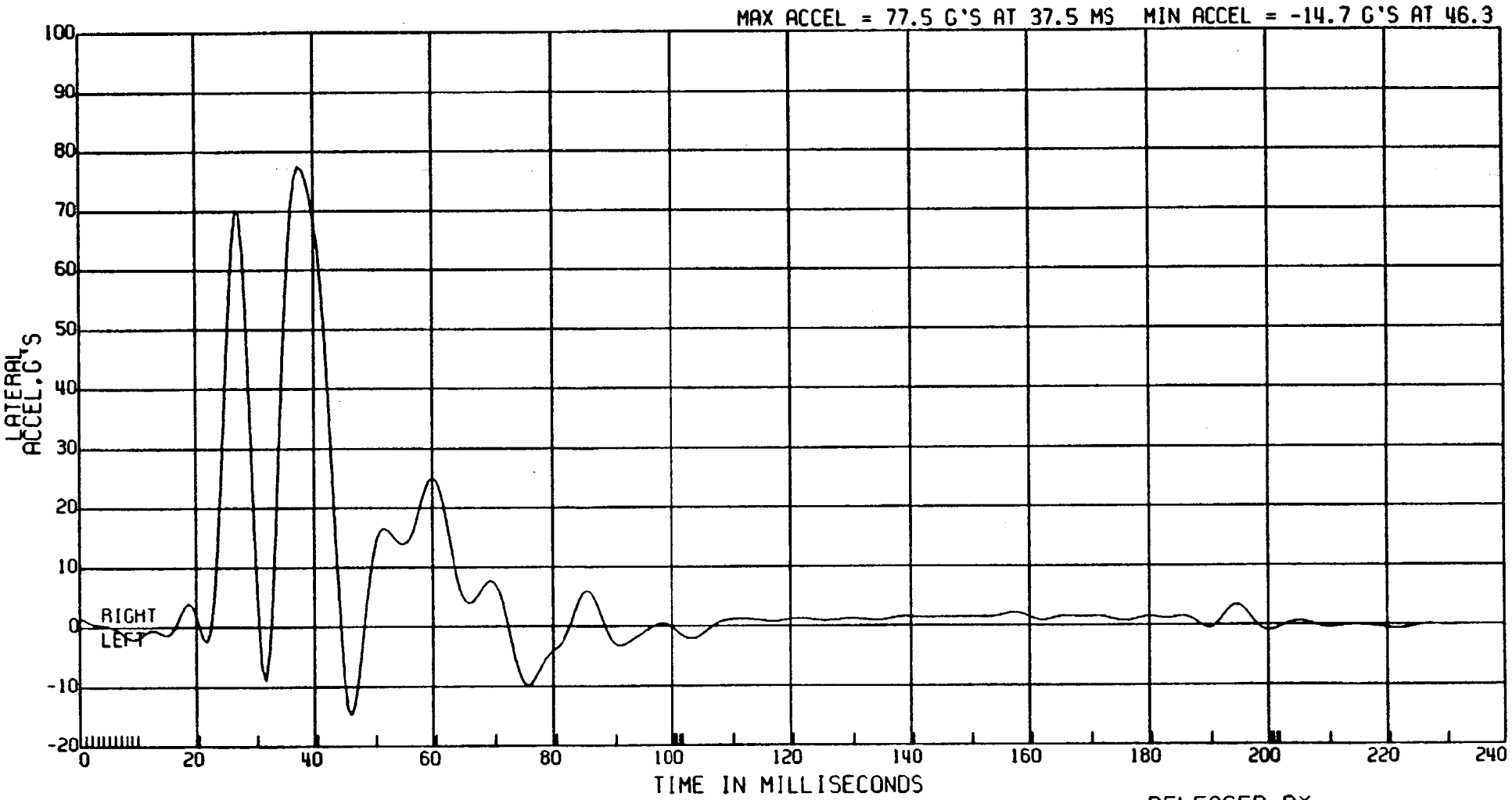
C8005B L. SIDE IMPACT-27 DEG
3868-905
CPE MVMA 5B 2AF69
ELEC DATA, NHTSA FIR FILTER

MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 55

DRIVER FIRST THORACIC RIB ACCEL.

F.I.R. FILTER, CLASS 300 BUTTERWORTH

ATD TYPE: BIOSID
TEST DATE:03-06-90



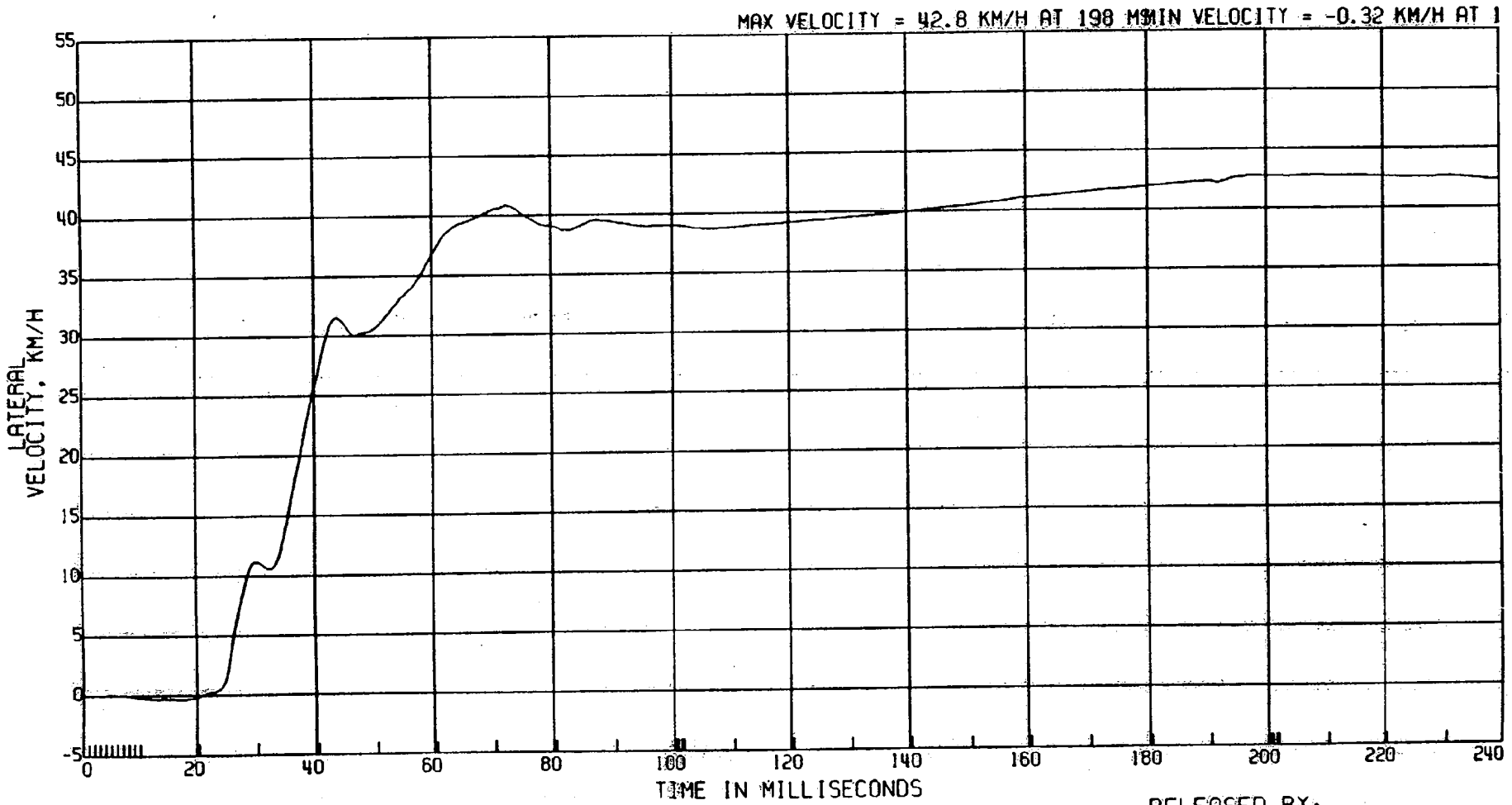
RELEASED BY:
54 PROCESSED 4 MY 90 11:53

C8005B L. SIDE IMPACT-27 DEG
3868-905
CPE MVMA 5B 2AF69
ELEC DATA, SAE CLASS 180

MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 56

COMPUTED 1ST THORACIC RIB VELOCITY
(1ST INTEGRAL DRIVER ACCELERATION)

ATD TYPE: BIOSID
TEST DATE:03-06-90

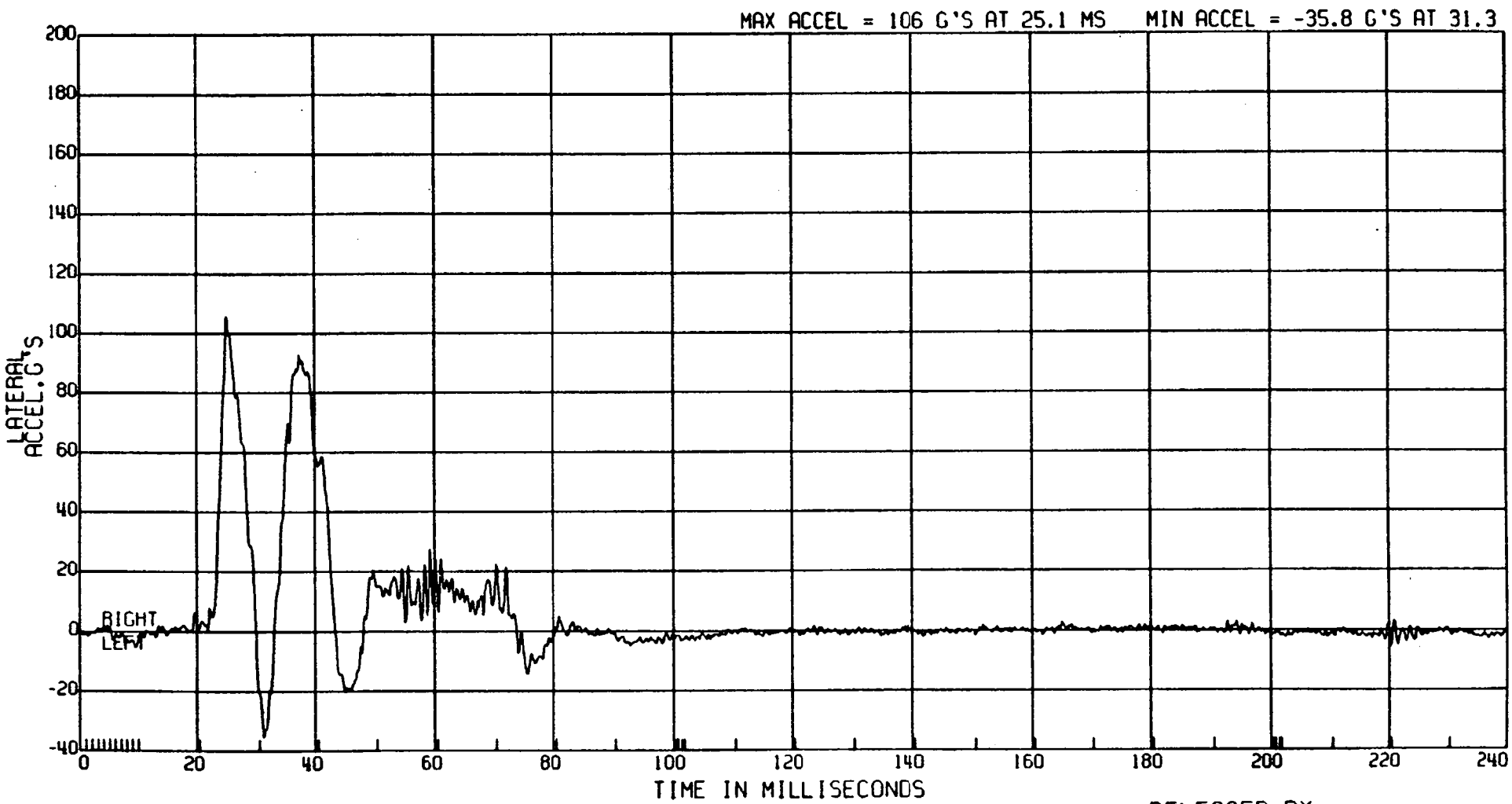


RELEASED BY:
55 PROCESSED 4 MY 90 11:53

C8005B L. SIDE IMPACT-27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 57
3868-905
CPE MVMA 5B 2AF69
ELEC DATA, SAE CLASS 1000

DRIVER SECOND THORACIC RIB ACCEL.

ATD TYPE: BIOSID
TEST DATE:03-06-90



RELEASED BY:
56 PROCESSED 4 MY 90 11:53

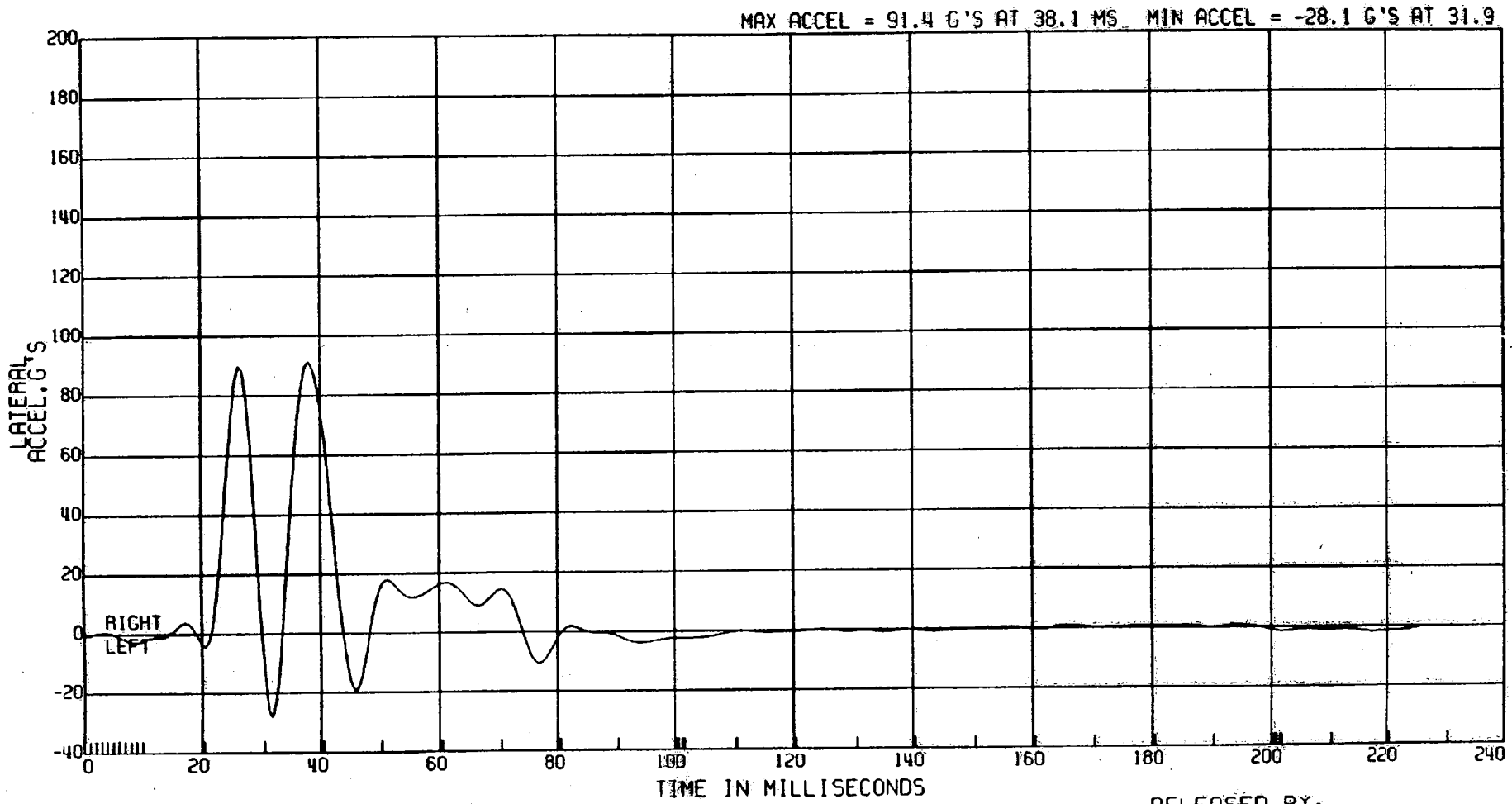
C8005B L. SIDE IMPACT-27 DEG
3868-905
CPE MVMA 5B 2AF69
ELEC DATA, NHTSA FIR FILTER

MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 58

DRIVER SECOND THORACIC RIB ACCEL.

F.I.R. FILTER, CLASS 300 BUTTERWORTH

ATD TYPE: B10SID
TEST DATE:03-06-90



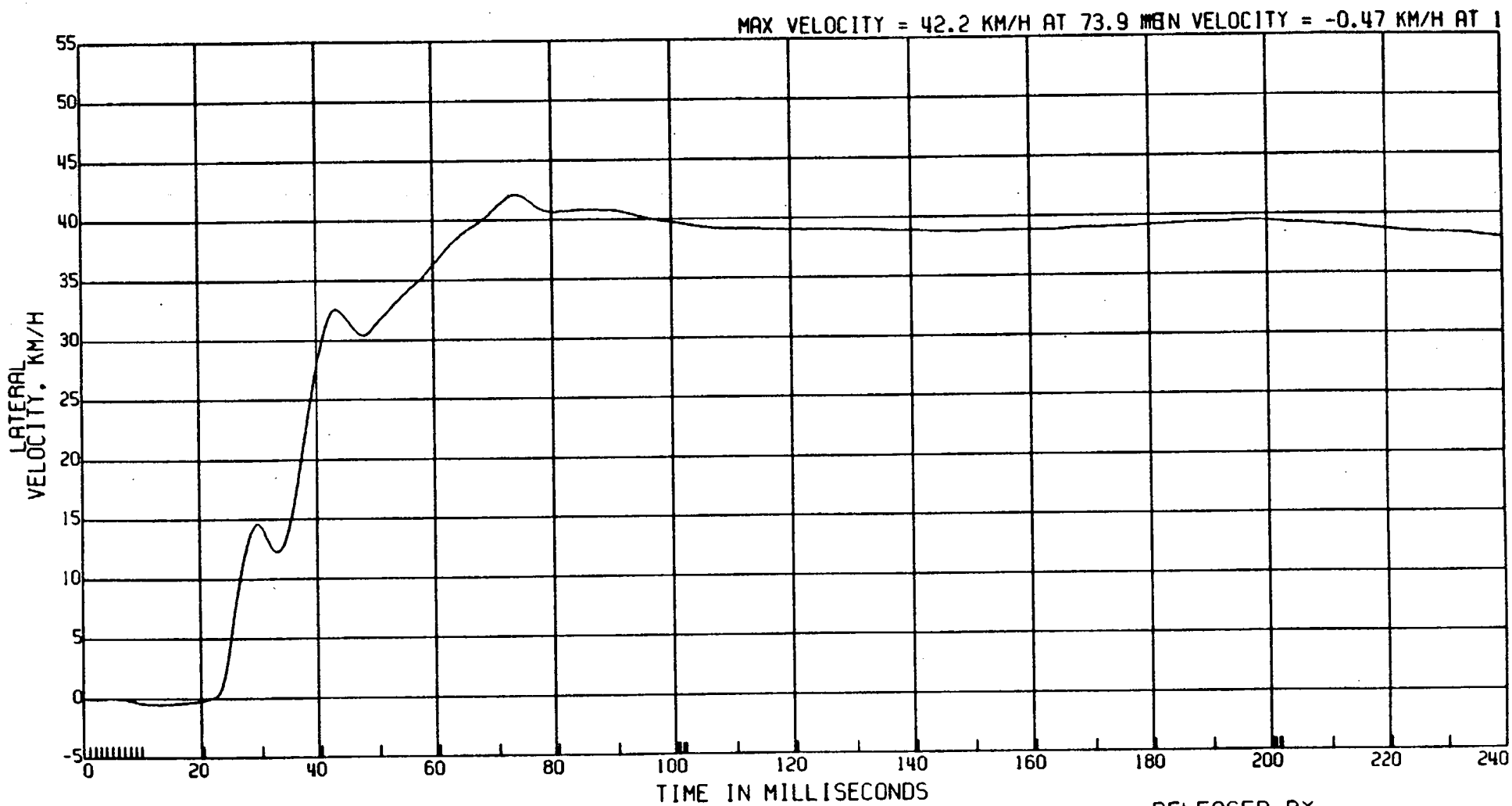
RELEASED BY:
57 PROCESSED 4 MT 90 11:53

C8005B L. SIDE IMPACT-27 DEG
3868-905
CPE MVMA 5B 2AF69
ELEC DATA, SAE CLASS 180

MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 59

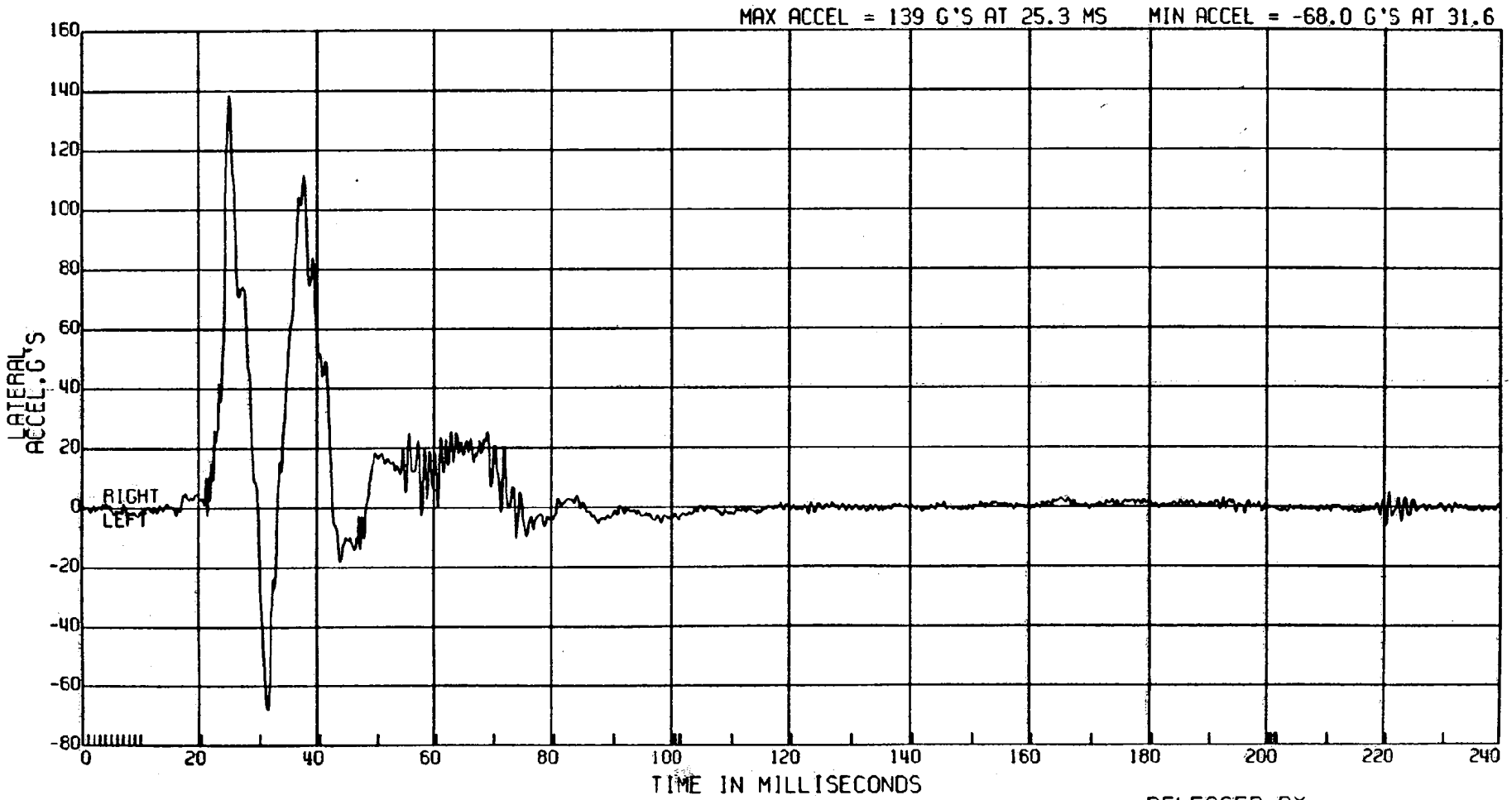
COMPUTED 2ND THORACIC RIB VELOCITY
(1ST INTEGRAL DRIVER ACCELERATION)

ATD TYPE: BIOSID
TEST DATE:03-06-90



RELEASED BY:
58 PROCESSED 4 MY 90 11:53

C8005B L. SIDE IMPACT-27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 60
3868-905 ATD TYPE: BIOSID
CPE MVMA 5B 2AF69 DRIVER THIRD THORACIC RIB ACCEL. TEST DATE:03-06-90
ELEC DATA, SAE CLASS 1000



RELEASED BY:
59 PROCESSED 4 MY 90 11:53

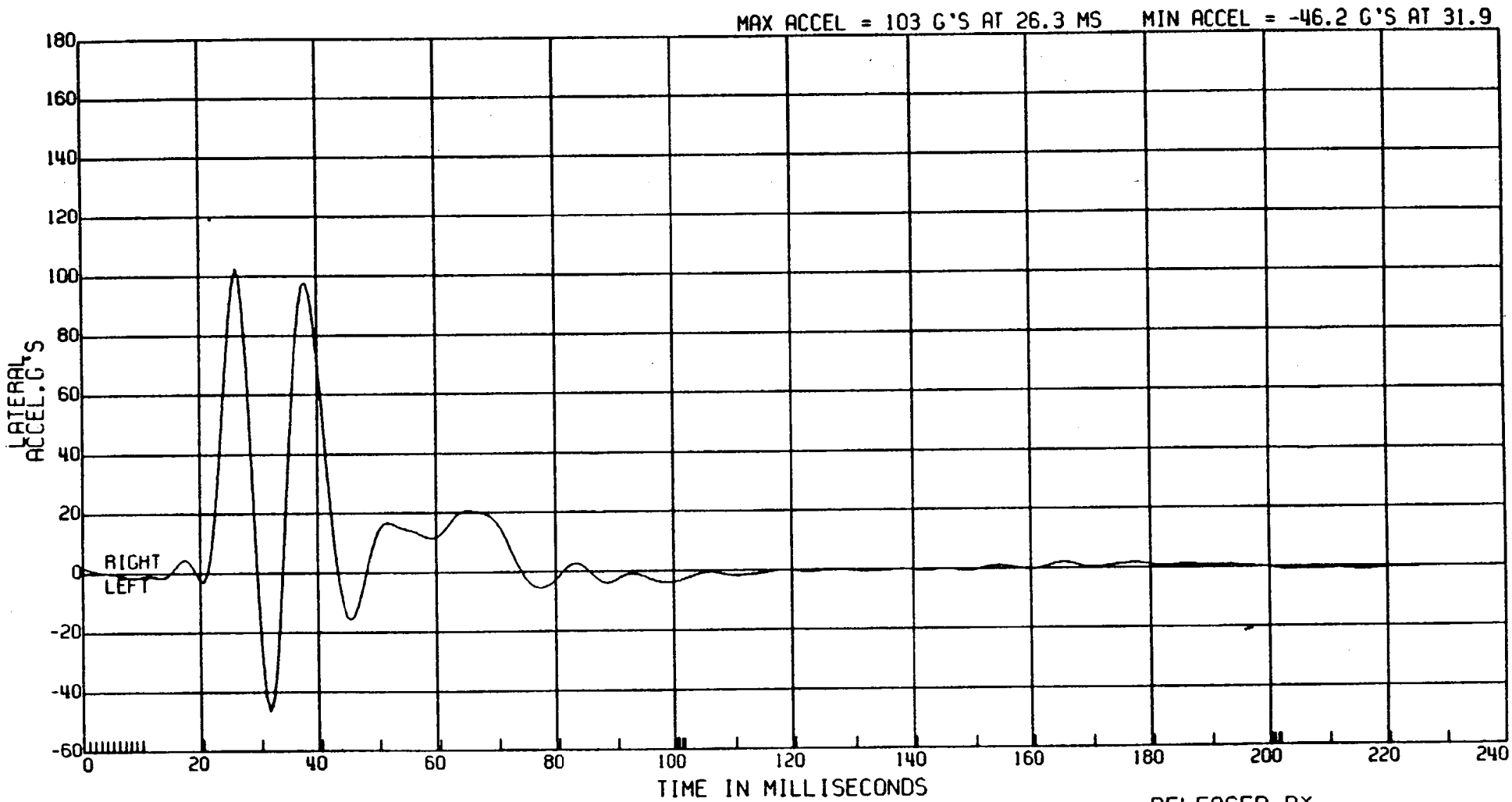
C8005B L. SIDE IMPACT-27 DEG
3868-905
CPE MVMA 5B 2AF69
ELEC DATA, NHTSA FIR FILTER

MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 61

ATD TYPE: BIOSID
TEST DATE:03-06-90

DRIVER THIRD THORACIC RIB ACCEL.

F.I.R. FILTER, CLASS 300 BUTTERWORTH



RELEASED BY:
60 PROCESSED 4 MY 90 11:53

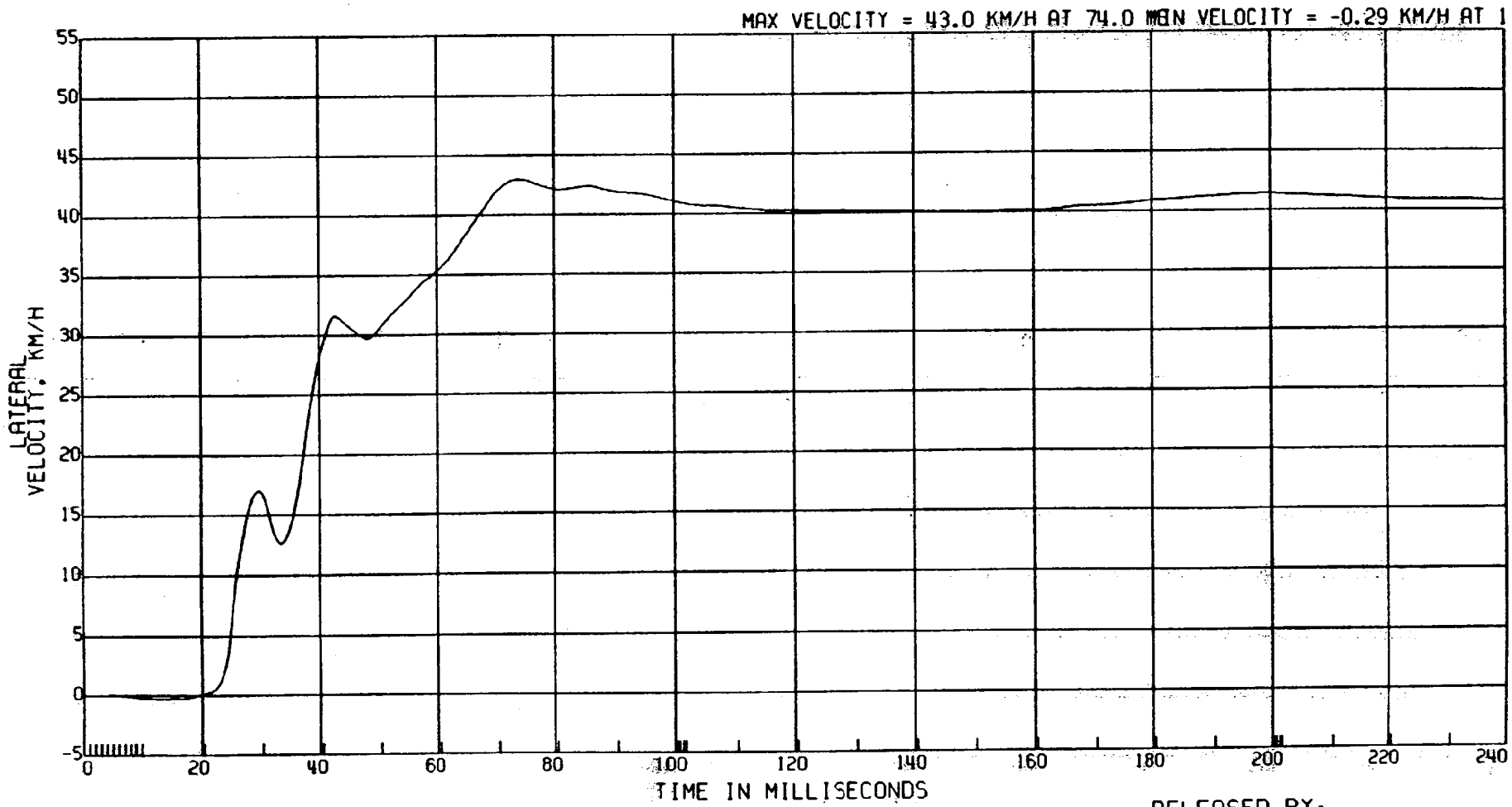
C8005B L. SIDE IMPACT-27 DEG
3868-905
CPE MVMA 5B 2AF69
ELEC DATA, SAE CLASS 180

MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 62

COMPUTED 3RD THORACIC RIB VELOCITY

(1ST INTEGRAL DRIVER ACCELERATION)

ATD TYPE: BIOSID
TEST DATE:03-06-90



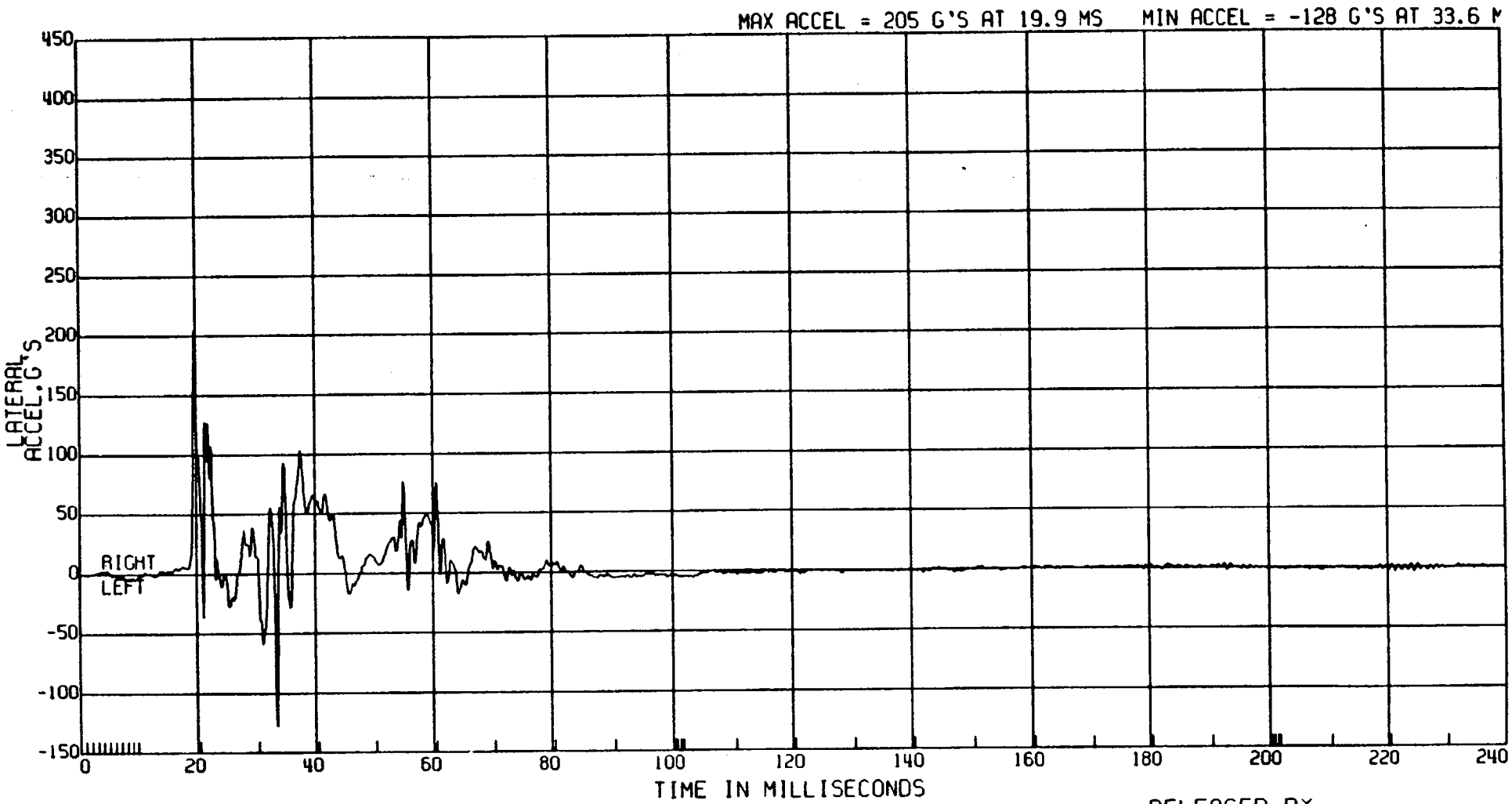
RELEASED BY:
61 PROCESSED 4 MY 90 11:53

C8005B L. SIDE IMPACT-27 DEG
3868-905
CPE MVMA 5B 2AF69
ELEC DATA, SAE CLASS 1000

MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 63

DRIVER FIRST ABDOMINAL RIB ACCEL.

ATD TYPE: BIOSID
TEST DATE:03-06-90



RELEASED BY:
62 PROCESSED 4 MY 90 11:53

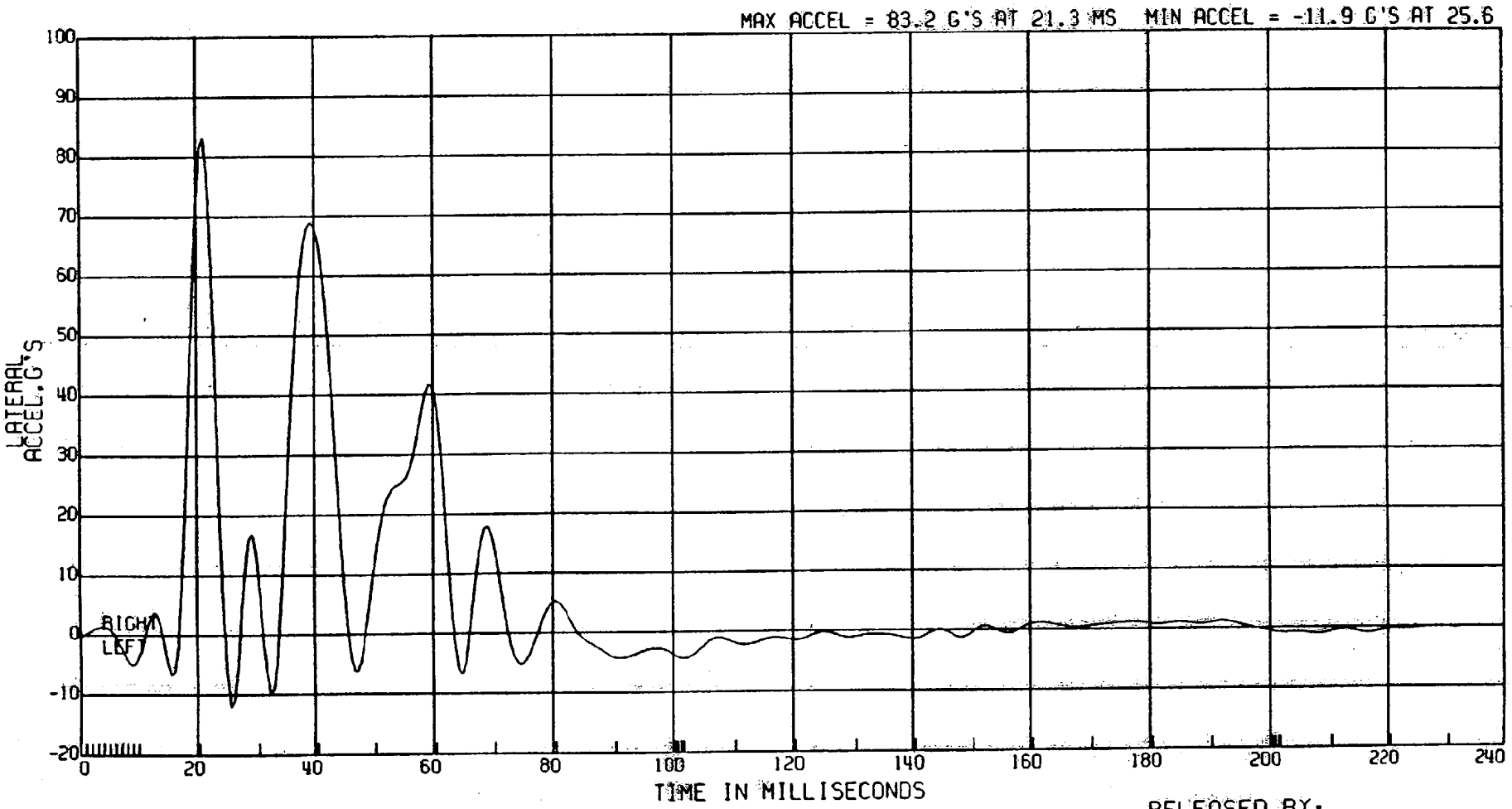
C8005B L. SIDE IMPACT-27 DEG
3868-905
CPE MVMA 5B 2AF69
ELEC DATA. NHTSA FIR FILTER

MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 64

DRIVER FIRST ABDOMINAL RIB ACCEL.

F.I.R. FILTER, CLASS 300 BUTTERWORTH

ATD TYPE: B10SID
TEST DATE:03-06-90



RELEASED BY:
63 PROCESSED 4 MY 90 11:53

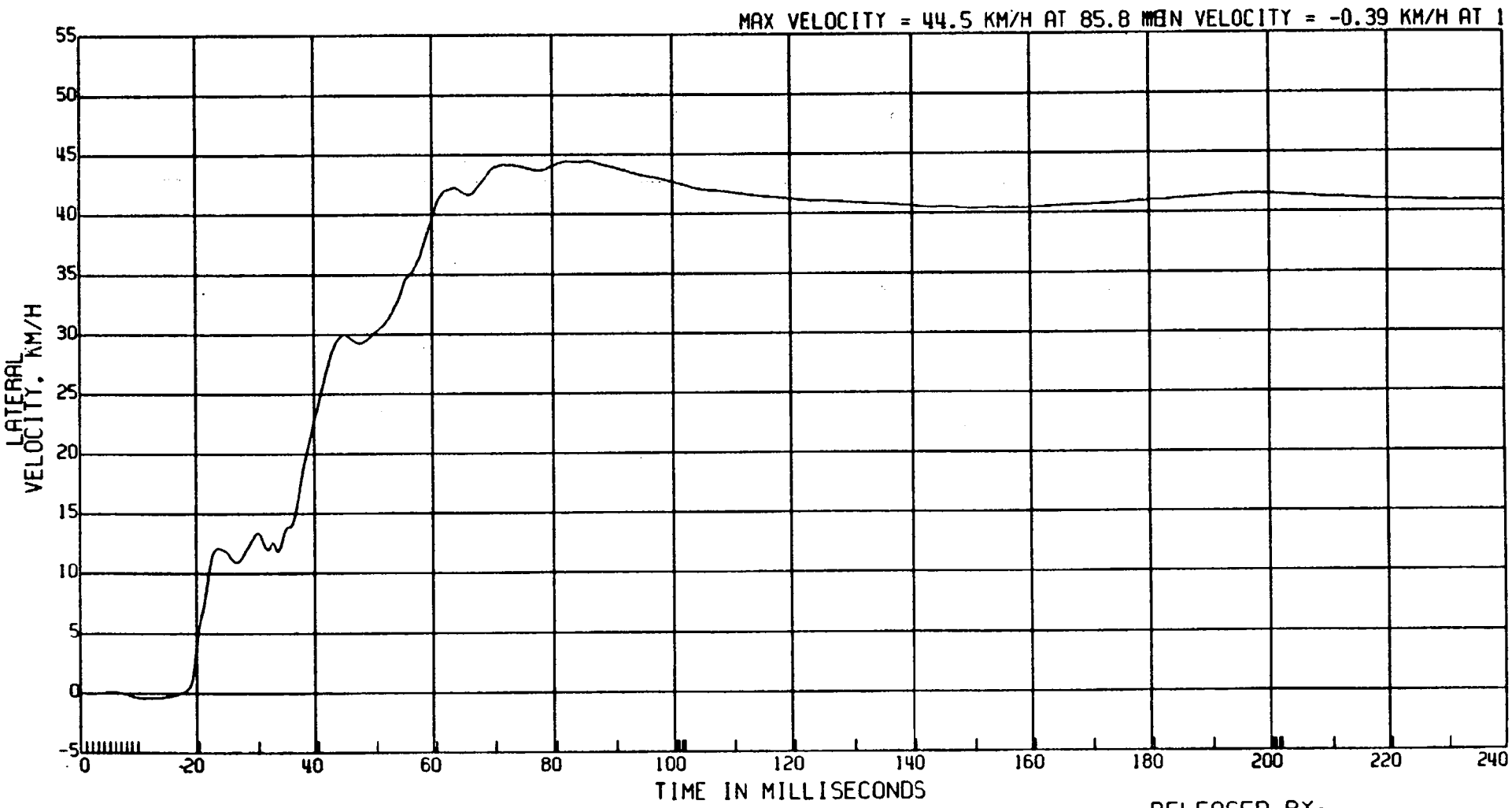
C8005B L. SIDE IMPACT-27 DEG
3868-905
CPE MVMA 5B 2AF69
ELEC DATA, SAE CLASS 180

MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 65

ATD TYPE: BIOSID
TEST DATE:03-06-90

COMPUTED 1ST ABDOMINAL RIB VELOCITY

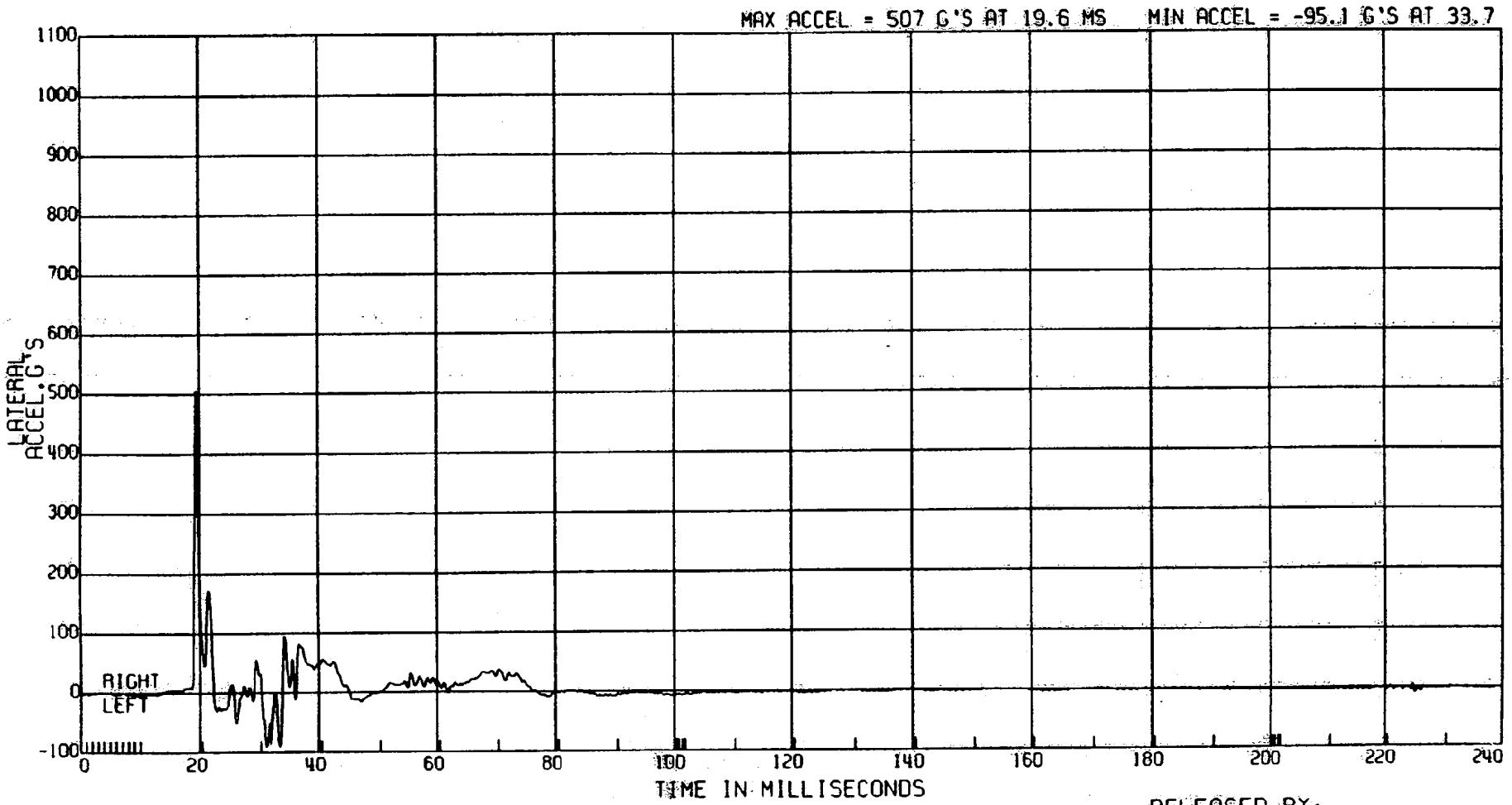
(1ST INTEGRAL DRIVER ACCELERATION)



RELEASED BY:

64 PROCESSED 4 MT 90 11:53

C8005B L. SIDE IMPACT-27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 66
3868-905
CPE MVMA 5B 2AF69 DRIVER SECOND ABDOMINAL RIB ACCEL. TEST DATE:03-06-90
ELEC DATA, SAE CLASS 1000



RELEASED BY:
65 PROCESSED 4 MY 90 11:53

C8005B L. SIDE IMPACT-27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 67

3868-905

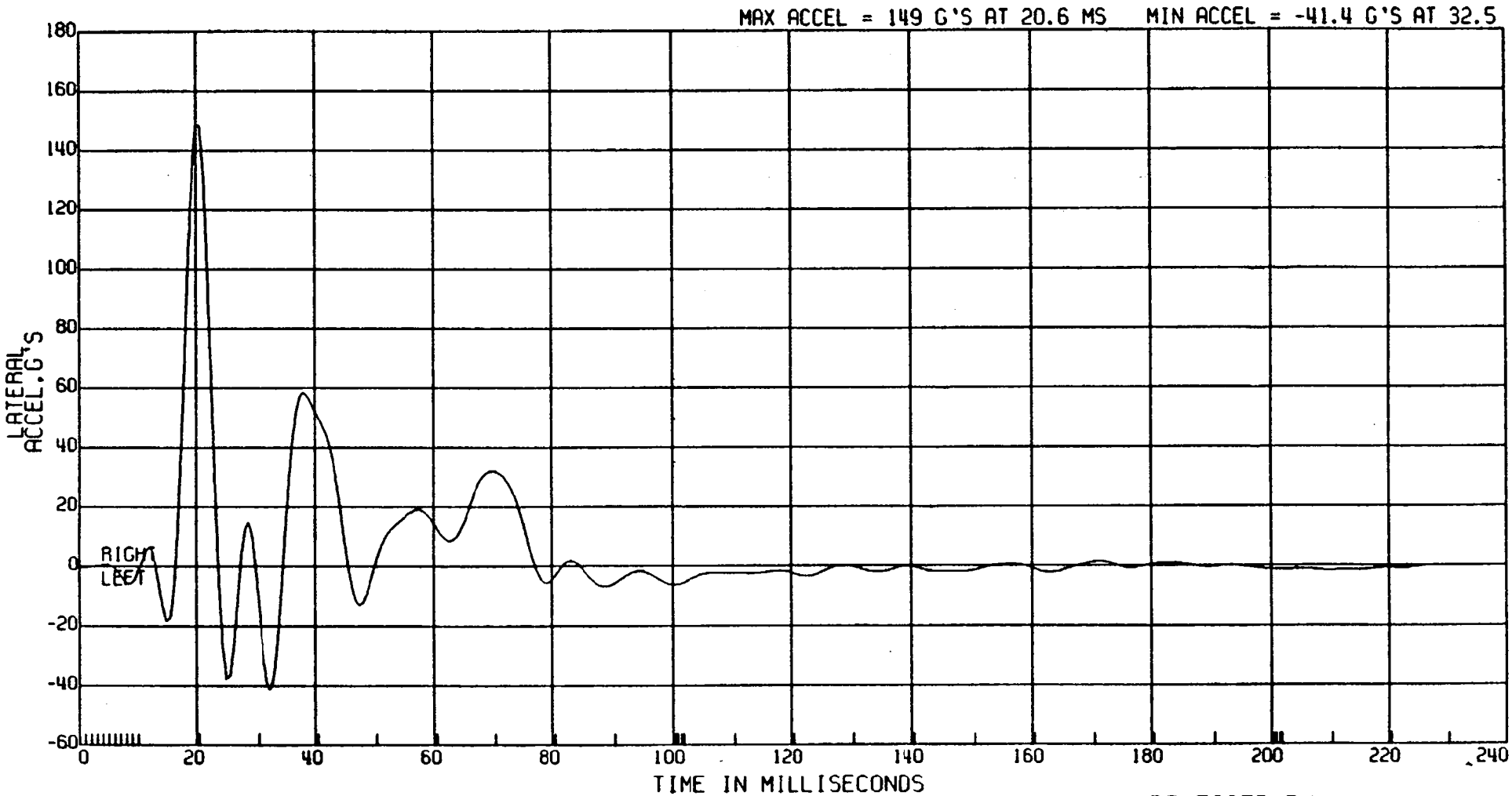
CPE MVMA 5B 2AF69

ELEC DATA, NHTSA FIR FILTER

DRIVER SECOND ABDOMINAL RIB ACCEL.

F.I.R. FILTER, CLASS 300 BUTTERWORTH

TEST DATE:03-06-90



RELEASED BY:

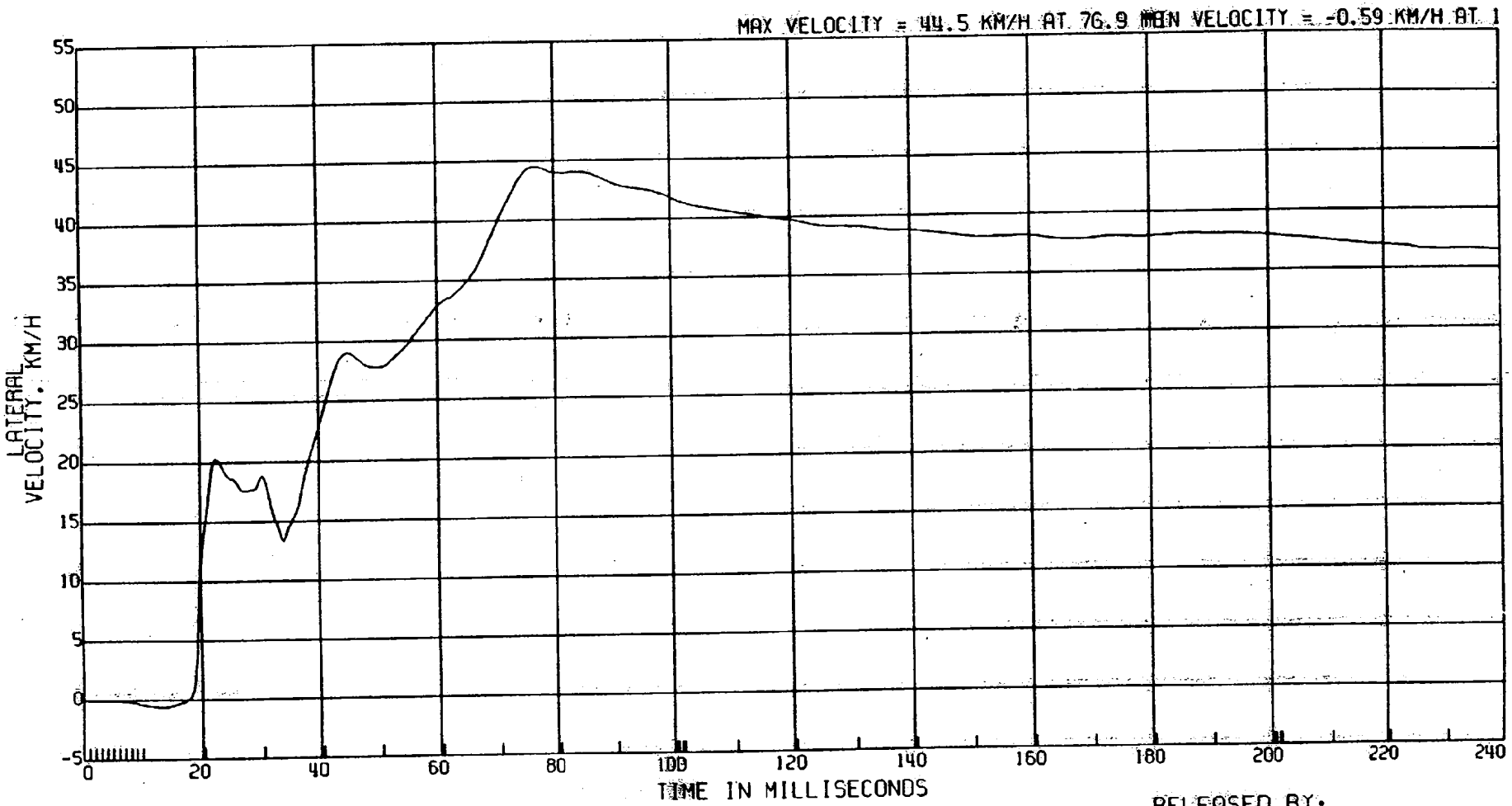
66 PROCESSED 4 MY 90 11:53

C8005B L. SIDE IMPACT-27 DEG
3868-905
CPE MVMA 5B 2AF69
ELEC DATA, SAE CLASS 180

MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 68

COMPUTED 2ND ABDOMINAL RIB VELOCITY
(1ST INTEGRAL DRIVER ACCELERATION)

ATD TYPE: BIOSID
TEST DATE:03-06-90



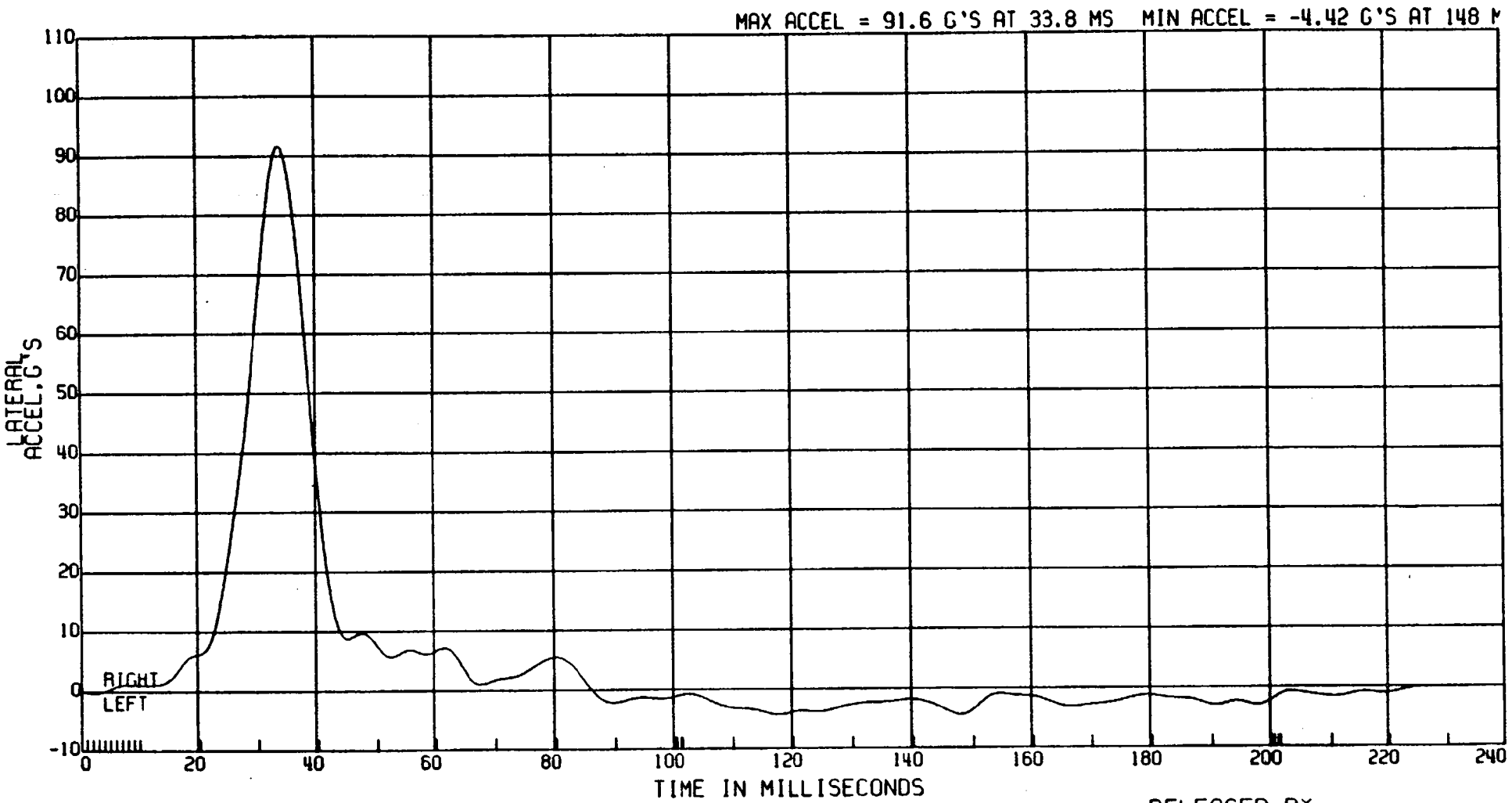
RELEASED BY:
67 PROCESSED 4 MY 90 11:53

C8005B L. SIDE IMPACT-27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 69

3868-905 ATD TYPE: BIOSID

CPE MVMA 5B 2AF69 DRIVER PELVIC ACCEL. TEST DATE:03-06-90

ELEC DATA, NHTSA FIR FILTER F.I.R. FILTER, CLASS 300 BUTTERWORTH



RELEASED BY:

75 PROCESSED 4 MY 90 11:53

C8005B L. SIDE IMPACT-27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 70

3868-905

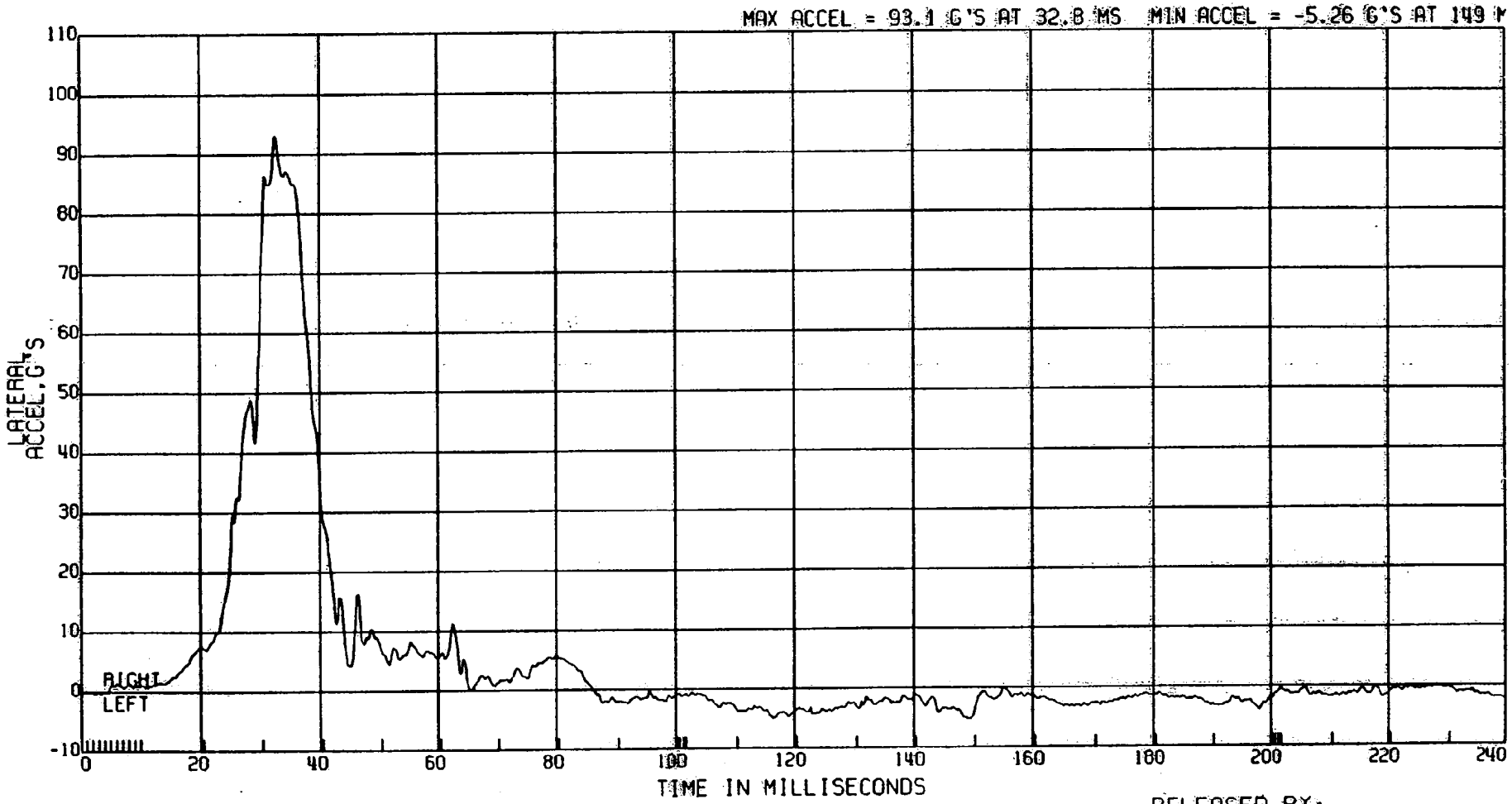
ATD TYPE: BIOSID

CPE MVMA 5B 2AF69

DRIVER PELVIC ACCEL.

TEST DATE:03-06-90

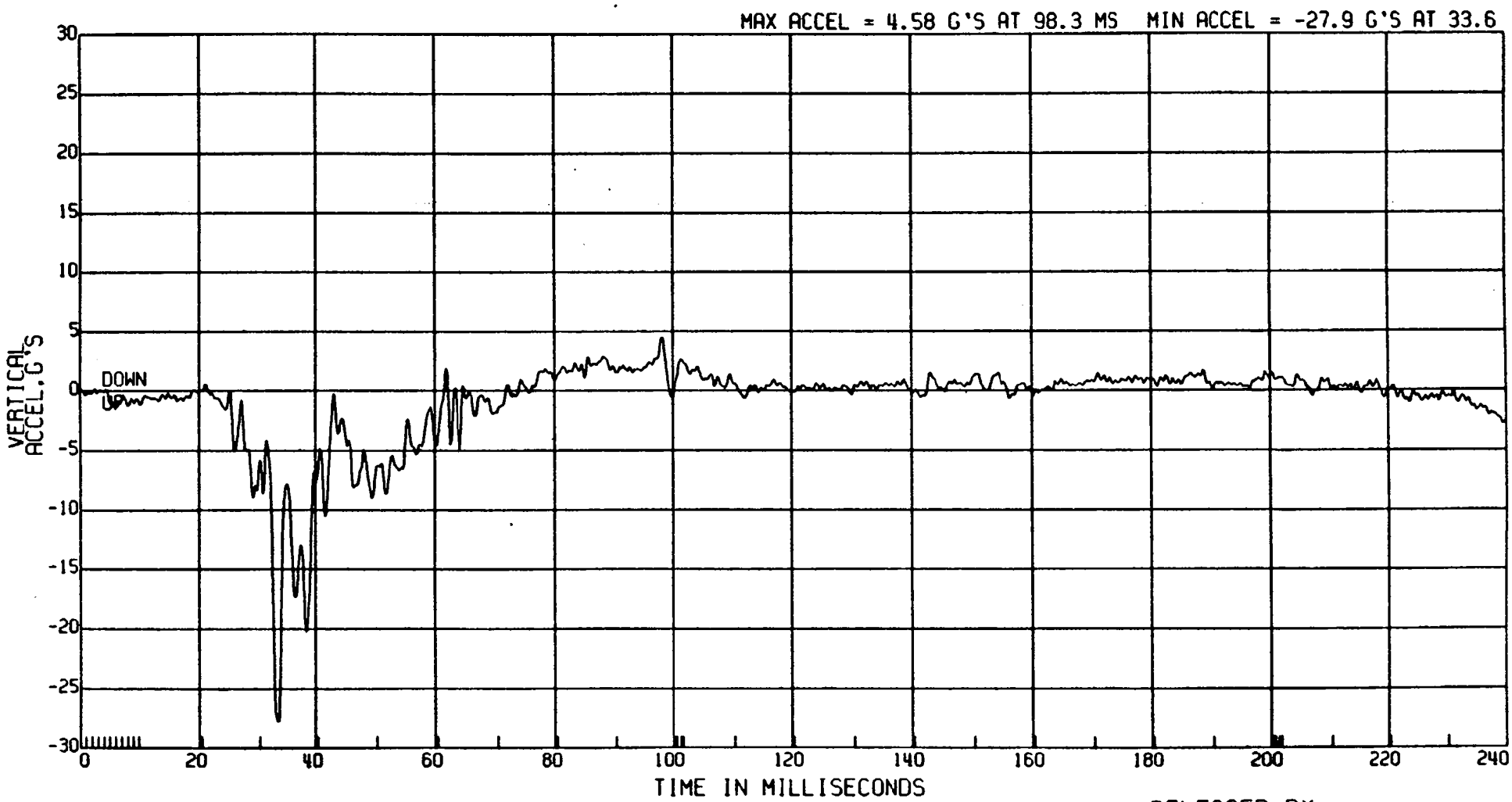
ELEC DATA. SAE CLASS 600



RELEASED BY:

74 PROCESSED 4 MY 90 11:53

C8005B L. SIDE IMPACT-27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 77
3868-905 ATD TYPE: BIOSID
CPE MVMA 5B 2AF69 DRIVER PELVIC ACCEL. TEST DATE:03-06-90
ELEC DATA, SAE CLASS 600



RELEASED BY:
77 PROCESSED 4 MY 90 11:53

C8005B L. SIDE IMPACT-27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 72

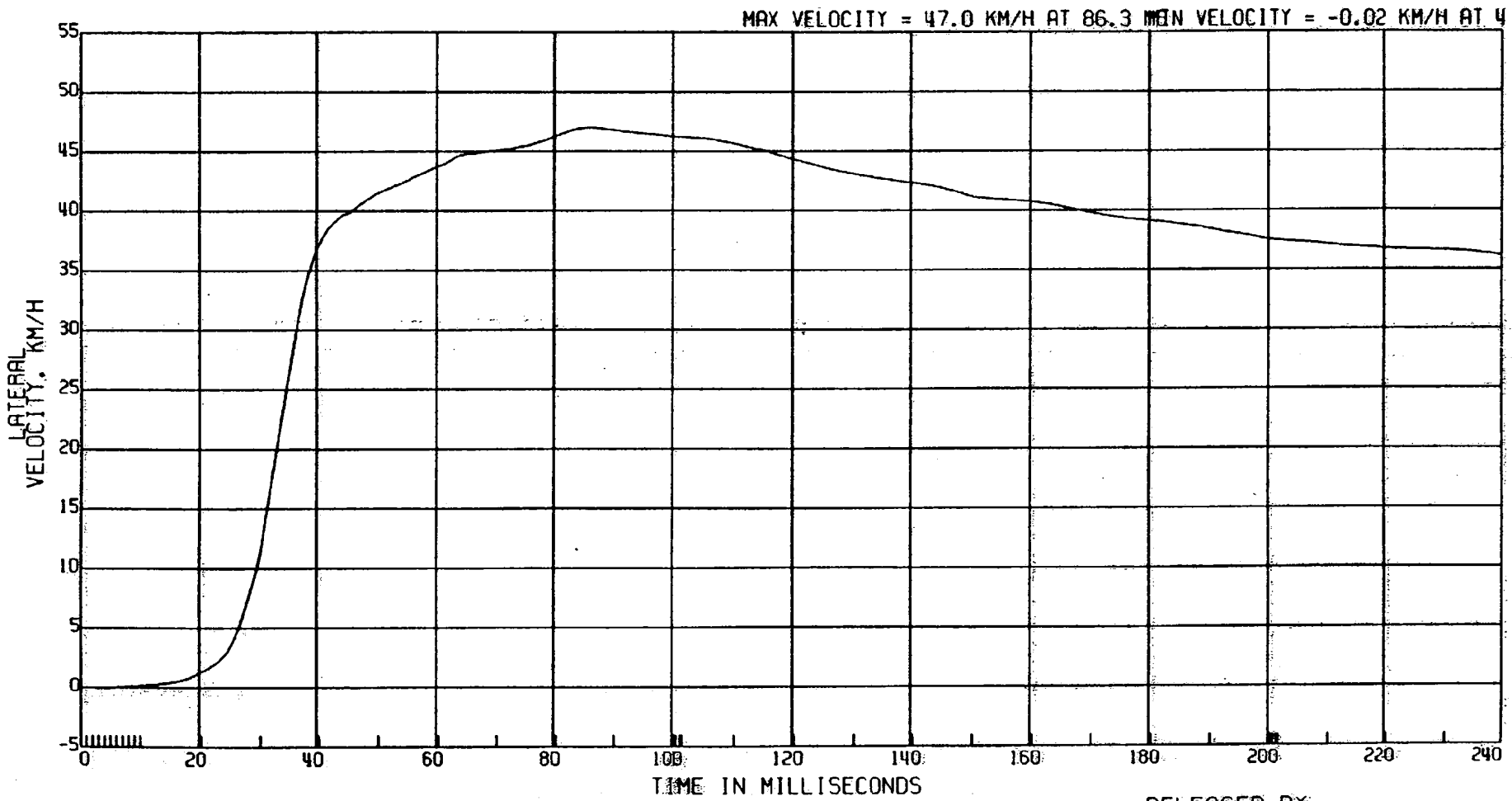
3868-905 ATD TYPE: BIOSID

CPE MVMA 5B 2AF69 TEST DATE:03-06-90

ELEC DATA, SAE CLASS 180

COMPUTED PELVIC VELOCITY

(1ST INTEGRAL DRIVER ACCELERATION)



RELEASED BY:

76 PROCESSED 4 MY 90 11:53

C8005B L. SIDE IMPACT-27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 73

3868-905

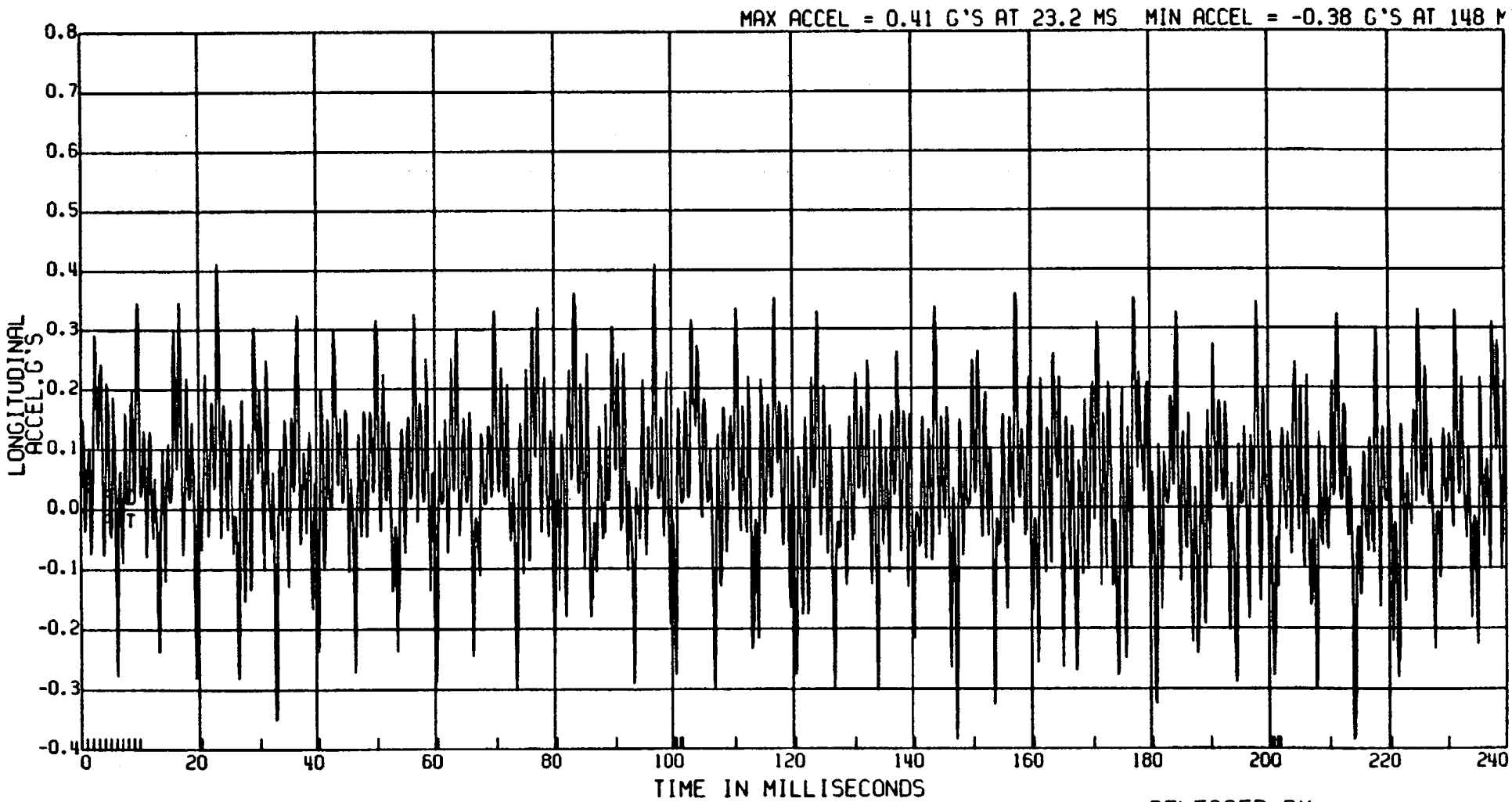
ATD TYPE: BIOSID

CPE MVMA 5B 2AF69

DRIVER PELVIC ACCEL.

TEST DATE:03-06-90

ELEC DATA, SAE CLASS 600



RELEASED BY:

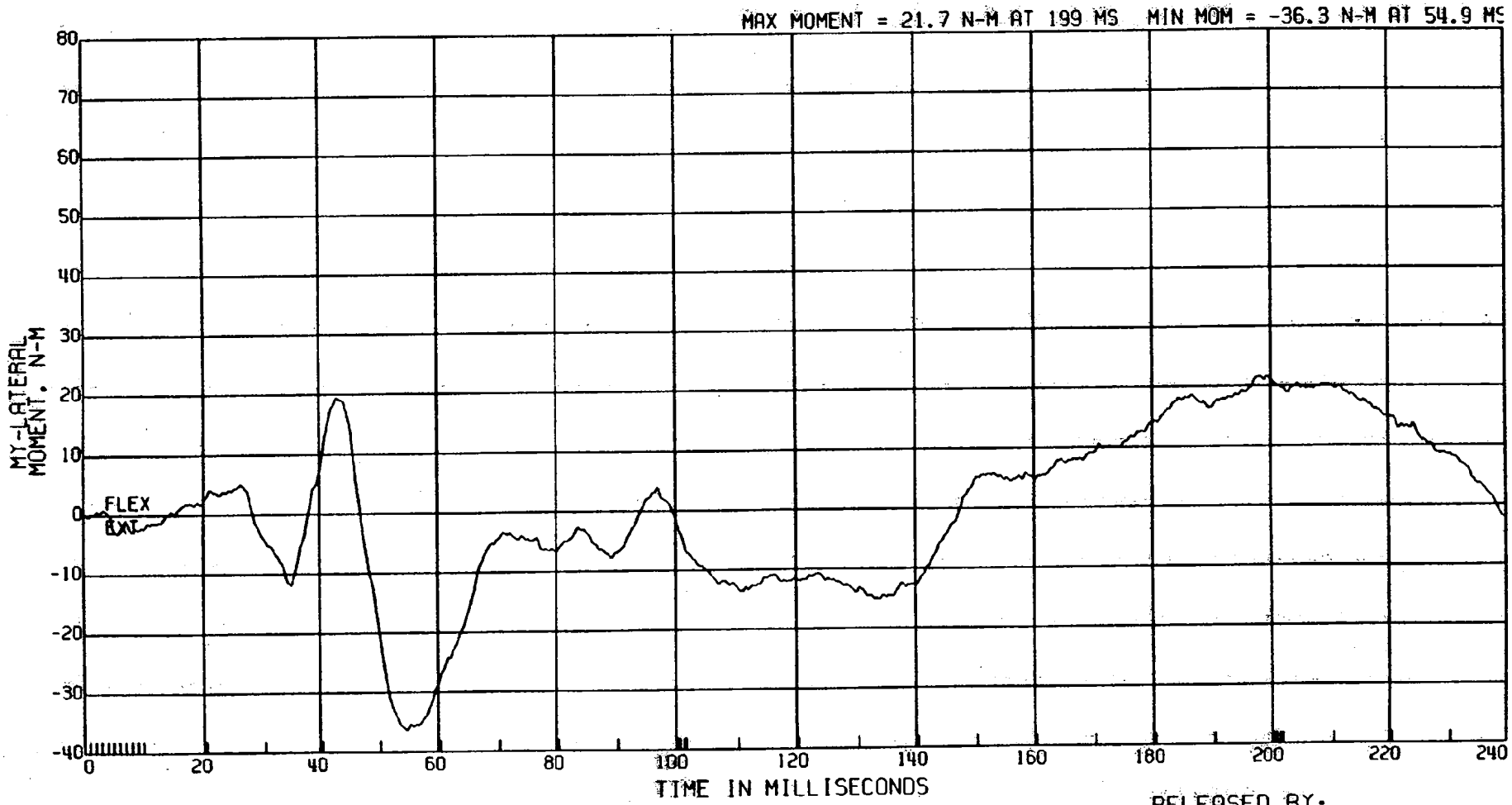
73 PROCESSED 4 MY 90 11:53

C8005B L. SIDE IMPACT-27 DEG
3868-905
CPE MVMA 5B 2AF69
ELEC DATA, SAE CLASS 180

MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 74

DRIVER LOWER LUMBAR MOMENT

ATD TYPE: BIOSID
TEST DATE:03-06-90



RELEASED BY:

72 PROCESSED 4 MY 90 11:53

C8005B L. SIDE IMPACT-27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 75

3868-905

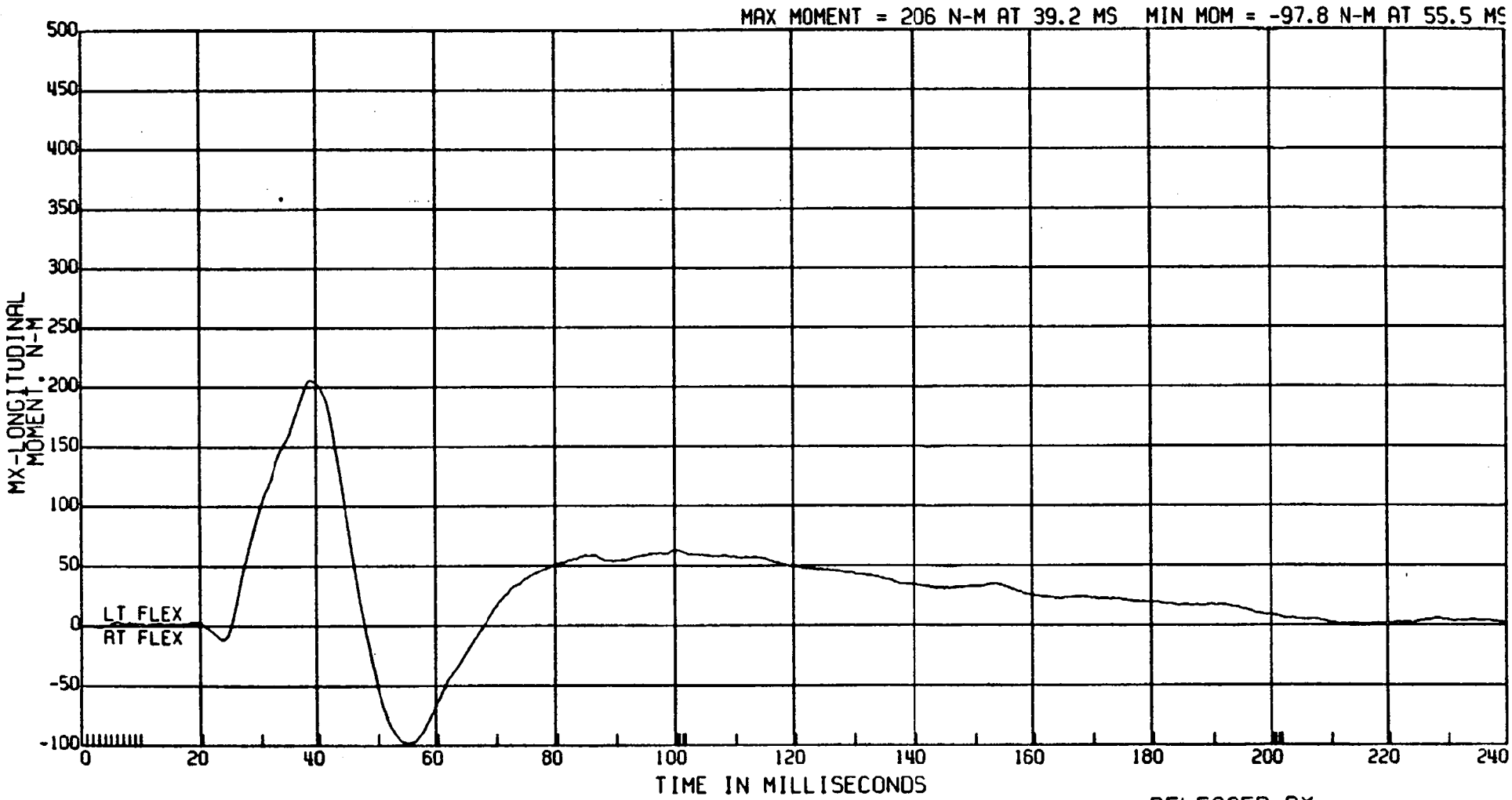
CPE MVMA 5B 2AF69

ELEC DATA, SAE CLASS 180

DRIVER LOWER LUMBAR MOMENT

ATD TYPE: BIOSID

TEST DATE:03-06-90



RELEASED BY:

71 PROCESSED 4 MY 90 11:53

C8005B L. SIDE IMPACT-27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 76

3868-905

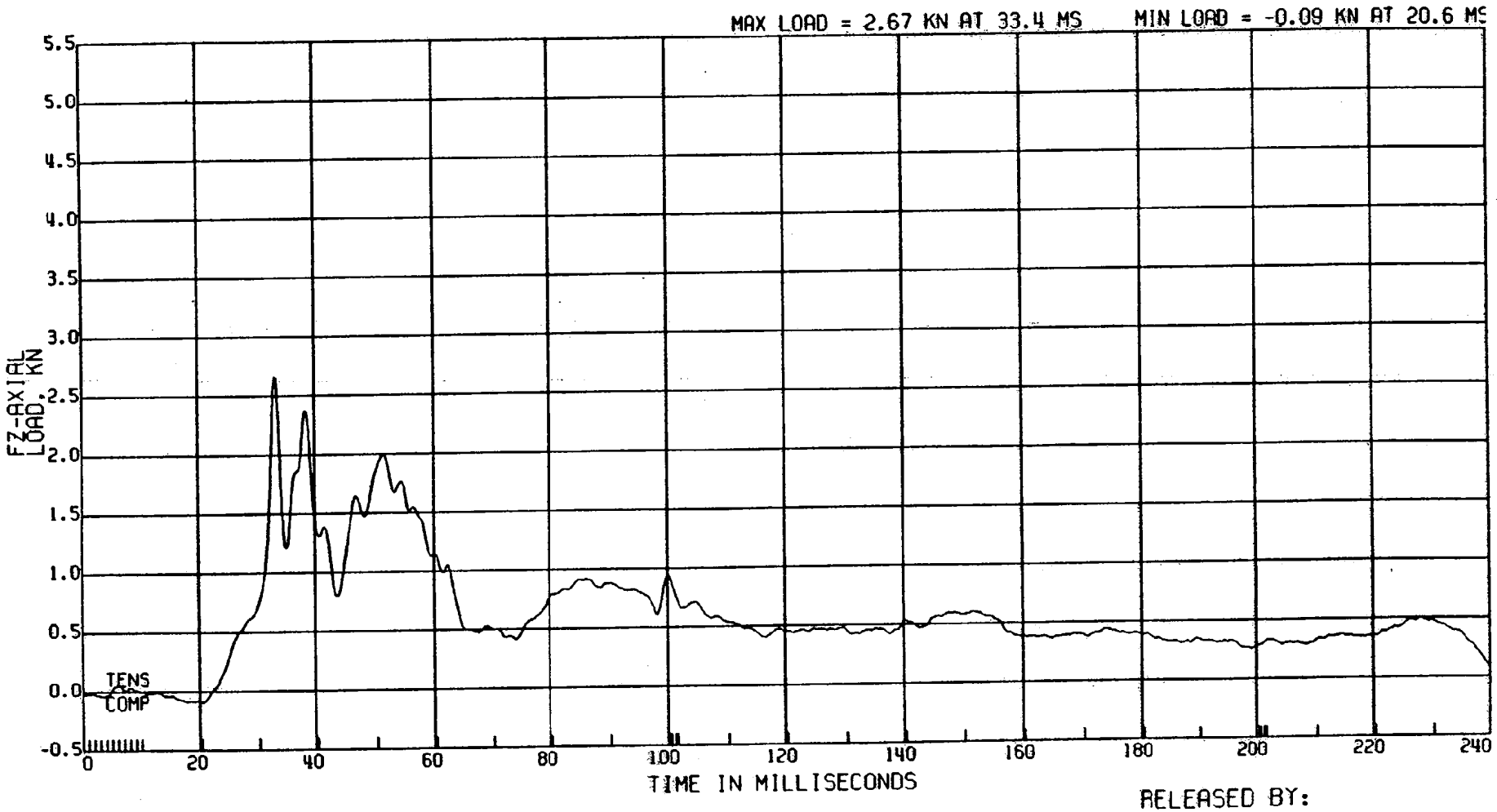
CPE MVMA 5B 2AF69

ELEC DATA, SAE CLASS 180

DRIVER LOWER LUMBAR LOAD

ATD TYPE: BIOSID

TEST DATE:03-06-90



RELEASED BY:

70 PROCESSED 4 MY 90 11:53

C8005B L. SIDE IMPACT-27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 77

3868-905

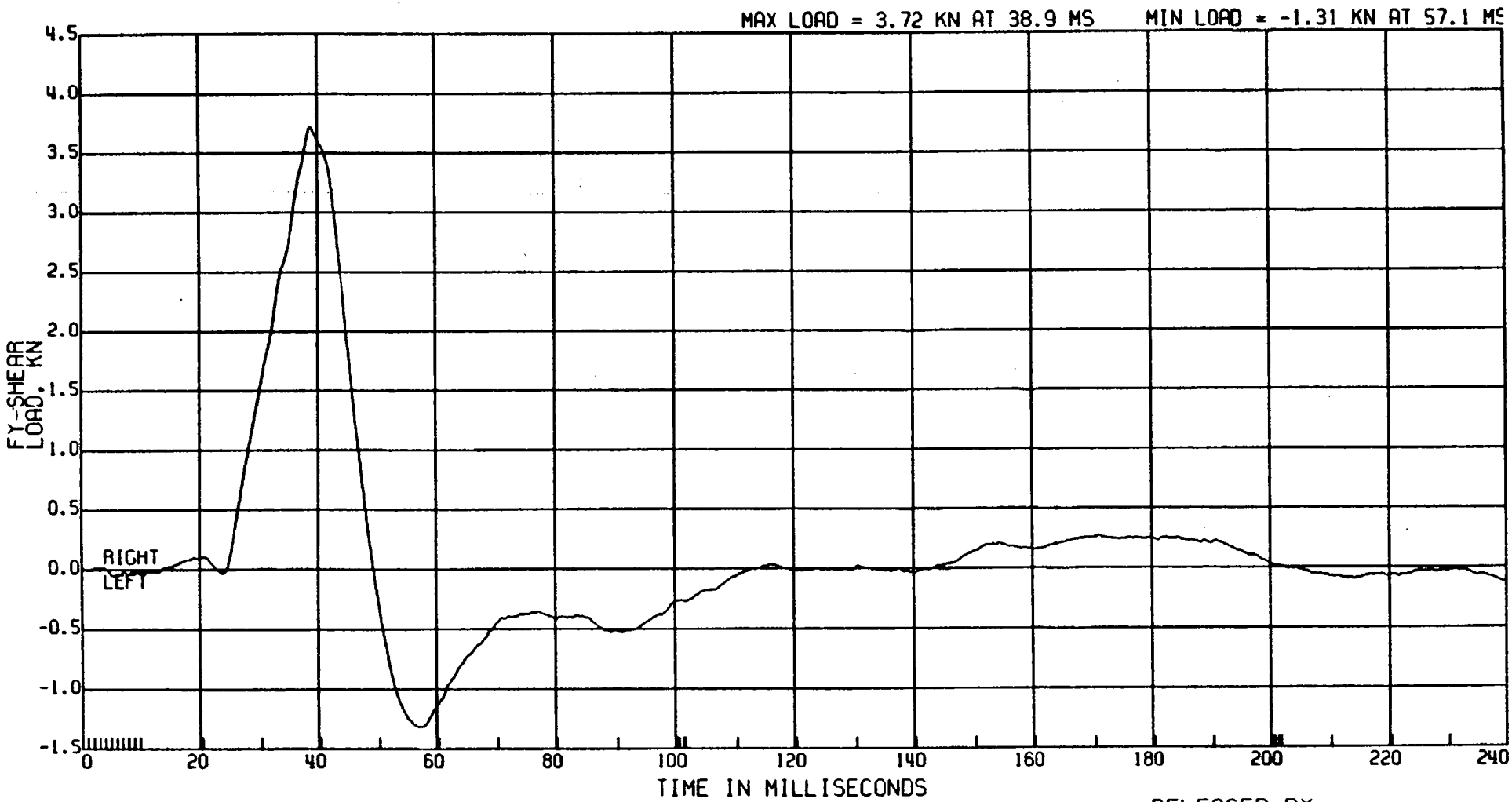
CPE MVMA 5B 2AF69

ELEC DATA, SAE CLASS 180

DRIVER LOWER LUMBAR LOAD

ATD TYPE: BIOSID

TEST DATE:03-06-90



RELEASED BY:

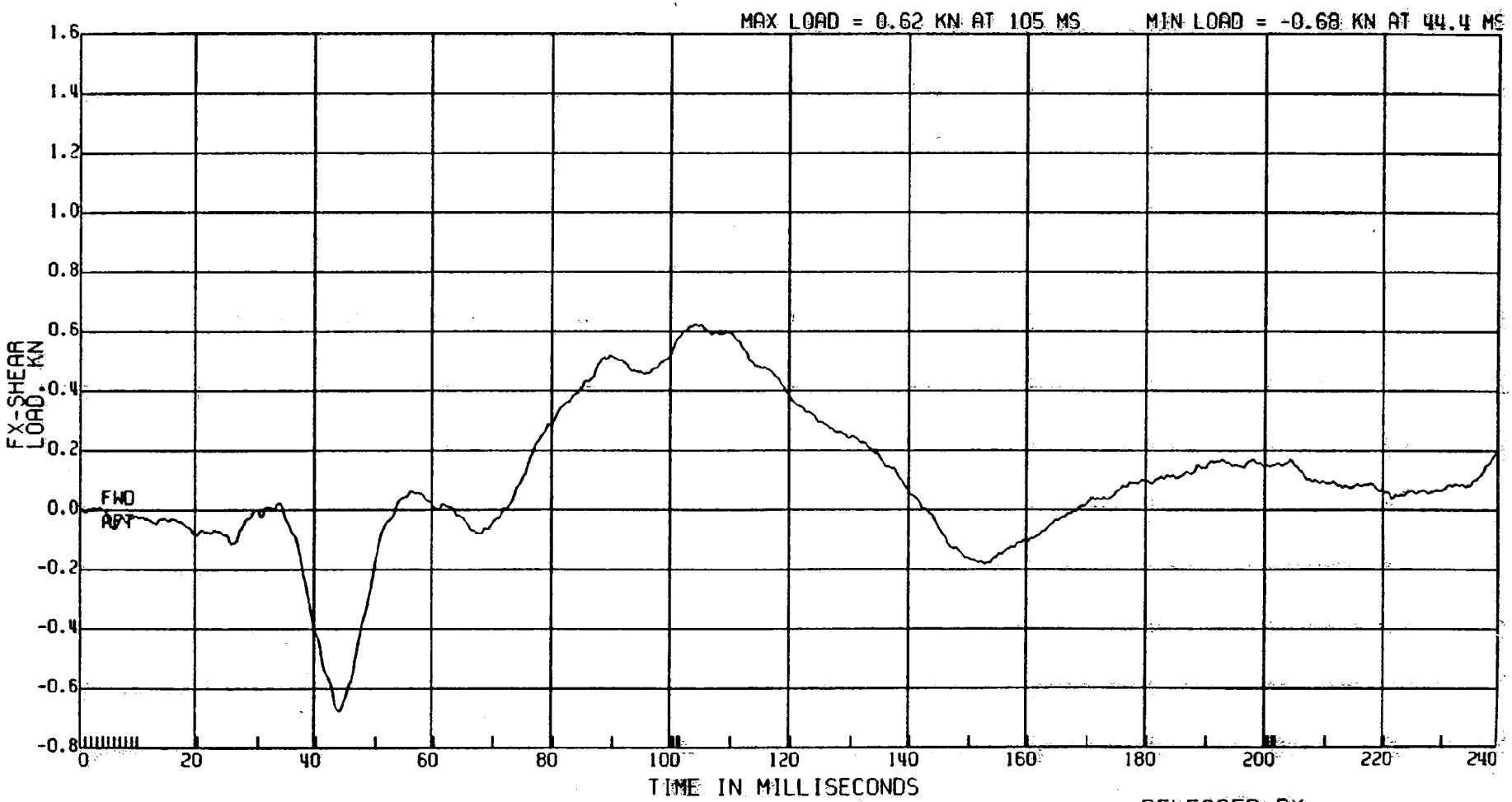
69 PROCESSED 4 MY 90 11:53

C8005B L. SIDE IMPACT-27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 78

3868-905 ATD TYPE: BIOSID

CPE MVMA 5B 2AF69 DRIVER LOWER LUMBAR LOAD TEST DATE:03-06-90

ELEC DATA, SAE CLASS 180



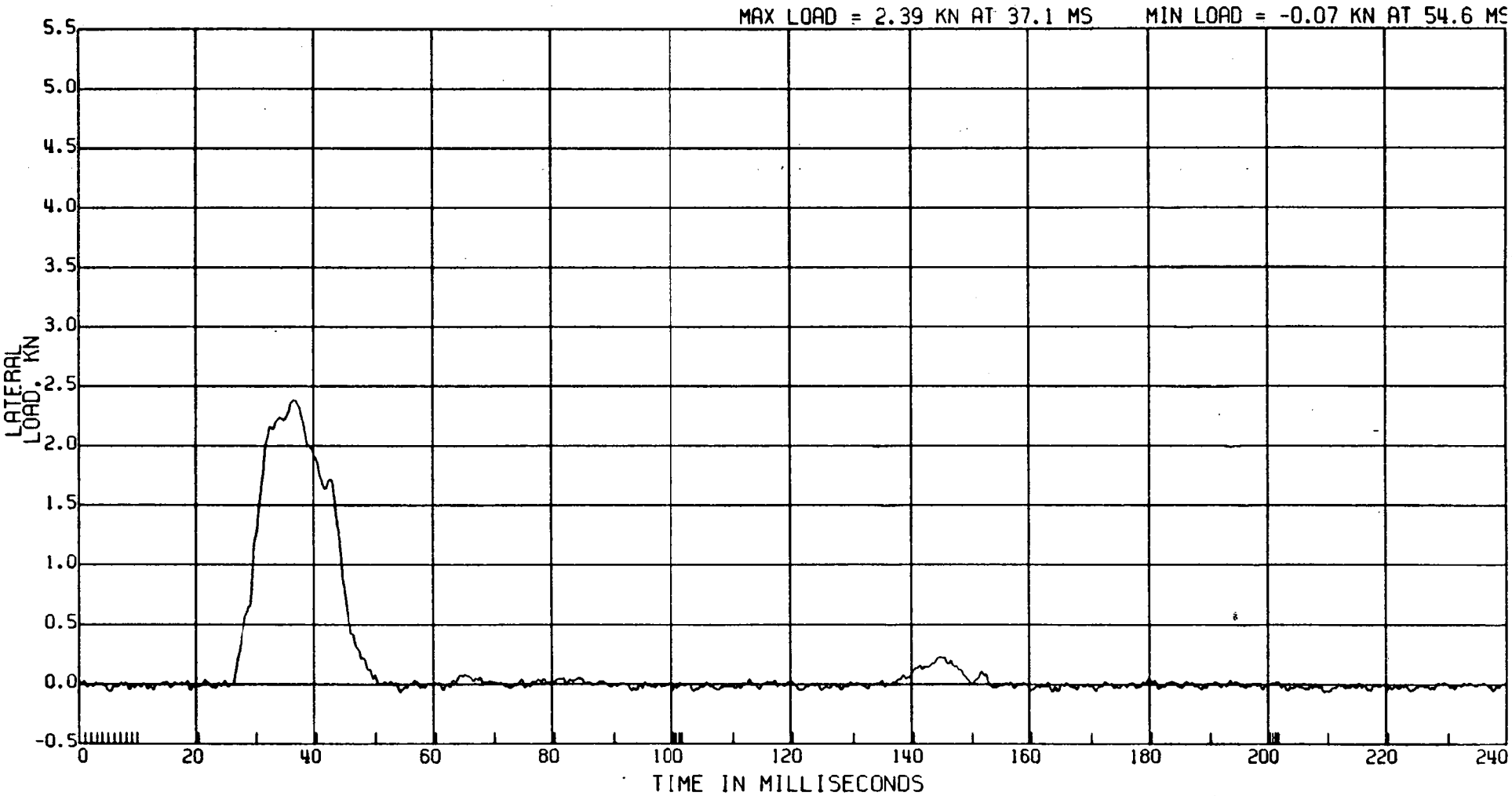
RELEASED BY:

68 PROCESSED 4 MY 90 11:53

C8005A L. SIDE IMPACT-27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 79
3868-905
CPE MVMA 5B 2AF69
ELEC DATA, SAE CLASS 600

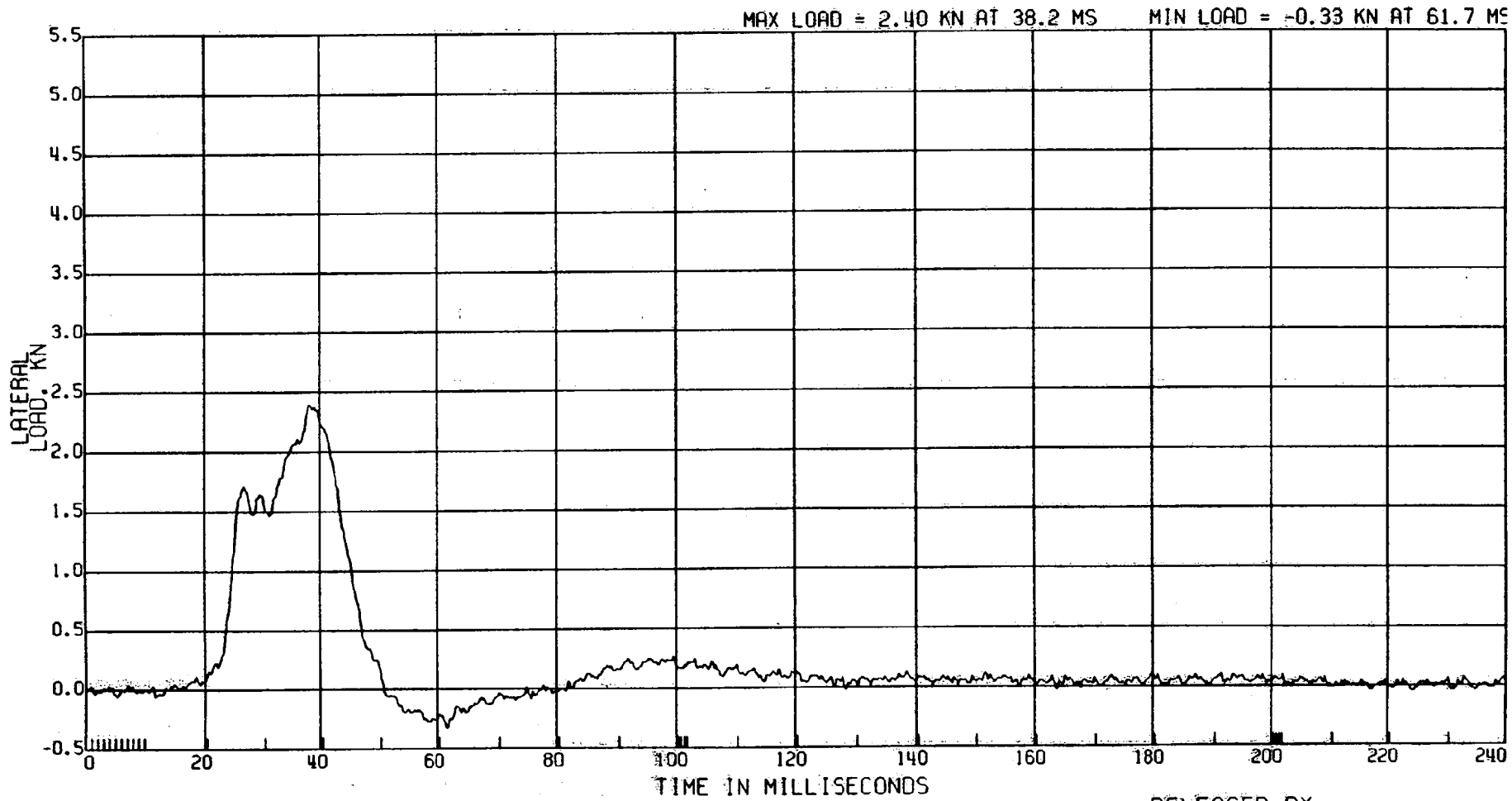
DRIVER PUBIC SYMPHYSIS LOAD

ATD TYPE: BIOSID
TEST DATE:03-06-90



RELEASED BY:
29 PROCESSED 4 MY 90 11:45

C8005A L. SIDE IMPACT-27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 80
3868-905 ATD TYPE: BIOSID
CPE MVMA 5B 2AF69 DRIVER ILIAC LOAD TEST DATE:03-06-90
ELEC DATA: SAE CLASS 600

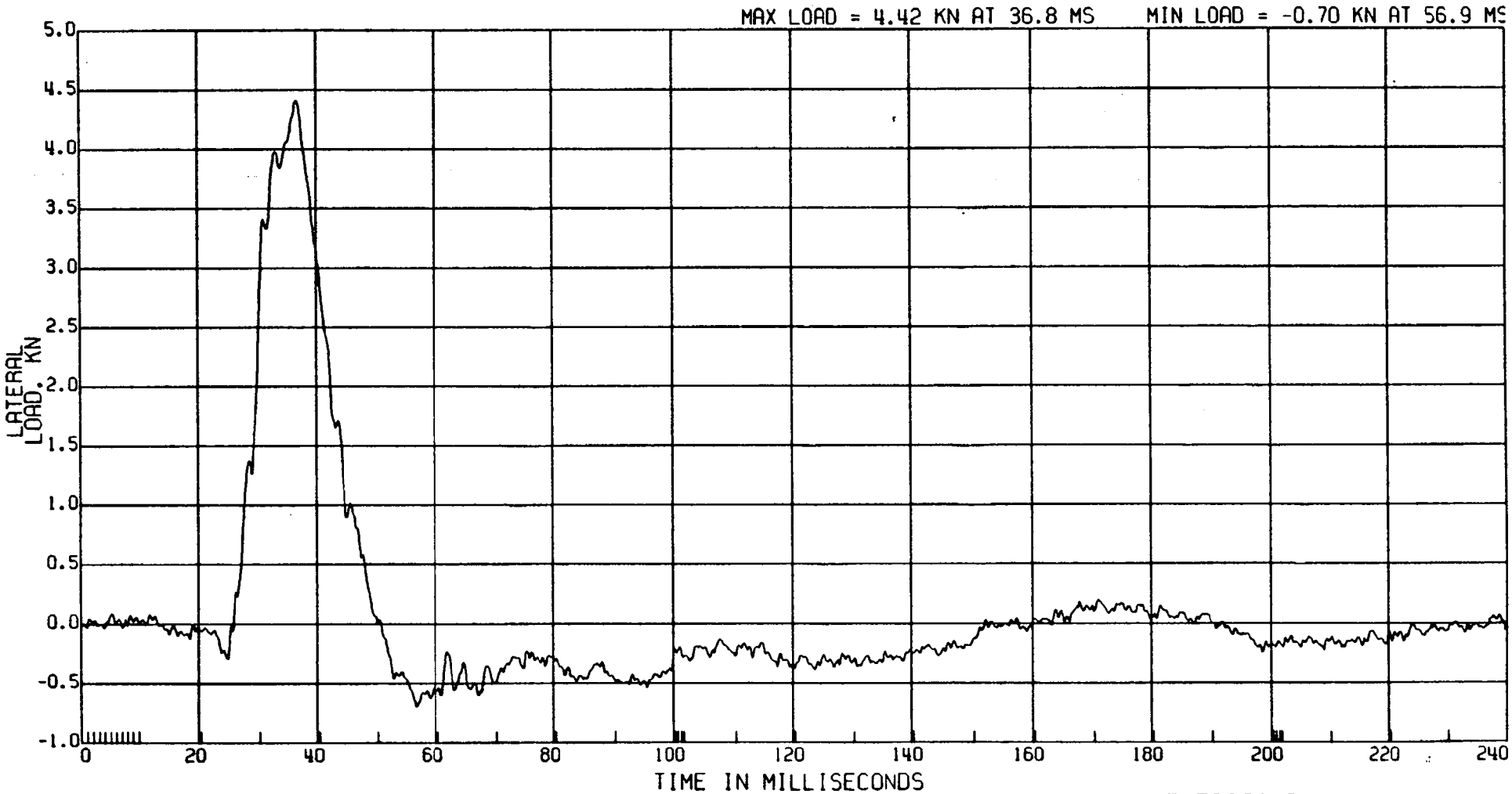


RELEASED BY:
30 PROCESSED 4 MY 90 11:46.

C8005A L. SIDE IMPACT-27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 81
3868-905
CPE MVMA 5B 2AF69
ELEC DATA, SAE CLASS 600

DRIVER SACRUM LOAD

ATD TYPE: BIOSID
TEST DATE:03-06-90



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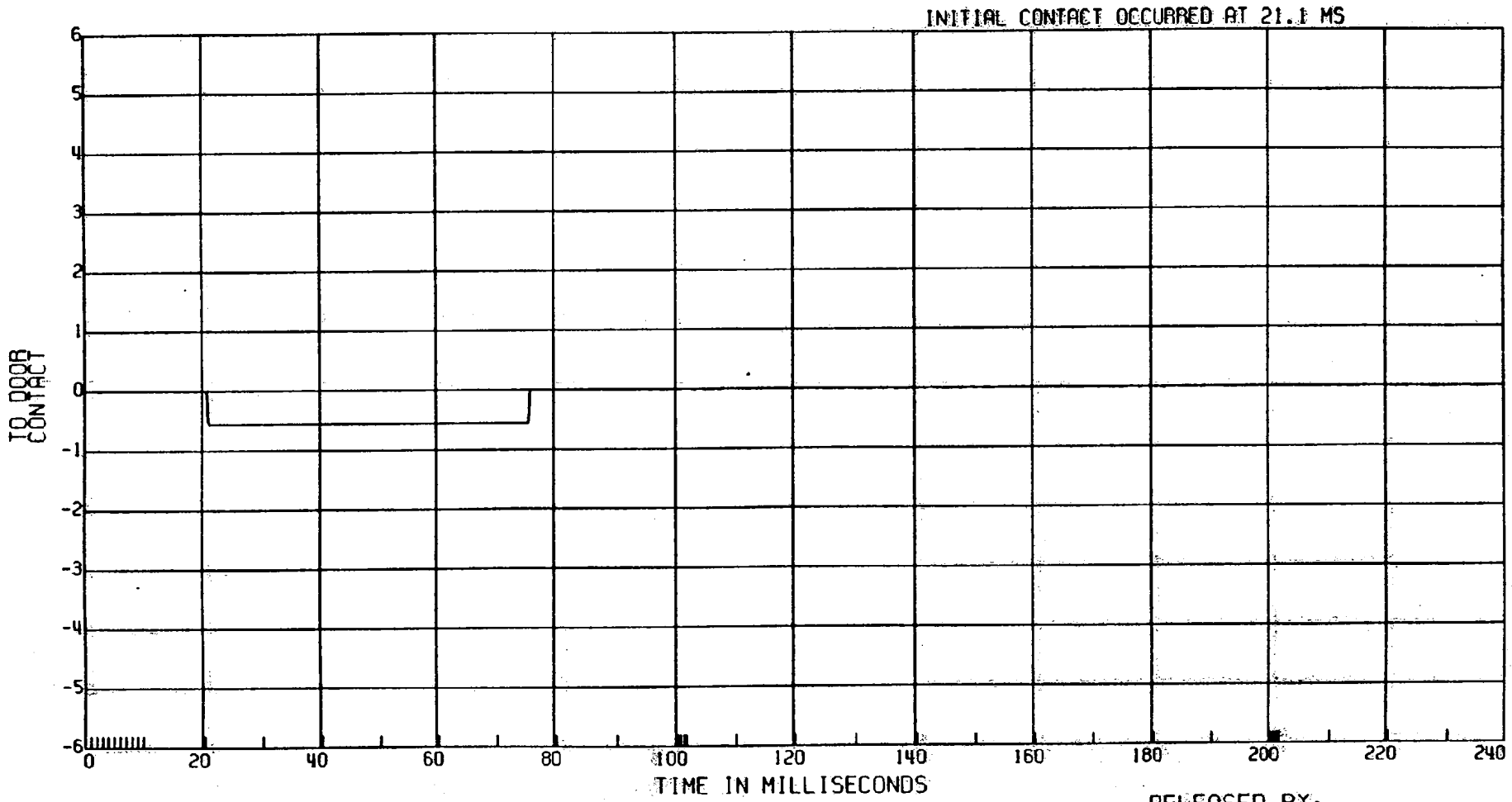
31 PROCESSED 4 MY 90 11:46

C8005A L. SIDE IMPACT-27 DEG
3868-905
CPE MVMA 5B 2AF69
ELEC DATA, SAE CLASS 1000

MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 82

DRIVER THORAX-LEFT SIDE CONTACT

ATD TYPE: BIOSID
TEST DATE:03-06-90

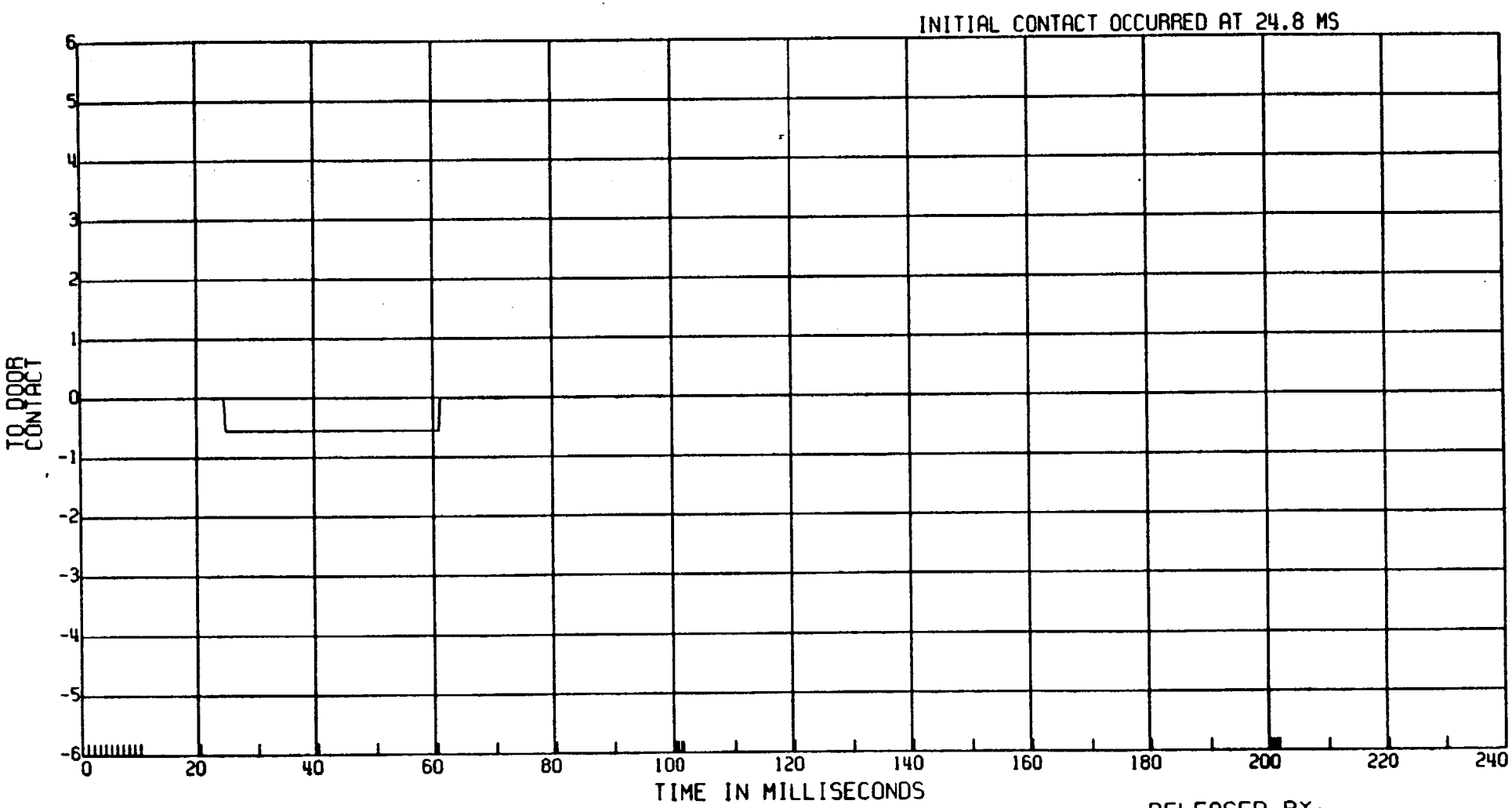


RELEASED BY:
69 PROCESSED 4 MT 90 11:46

C8005A L. SIDE IMPACT-27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 83
3868-905
CPE MVMA 5B 2AF69
ELEC DATA, SAE CLASS 1000

DRIVER PELVIC-LEFT SIDE CONTACT

ATD TYPE: BIOSID
TEST DATE:03-06-90



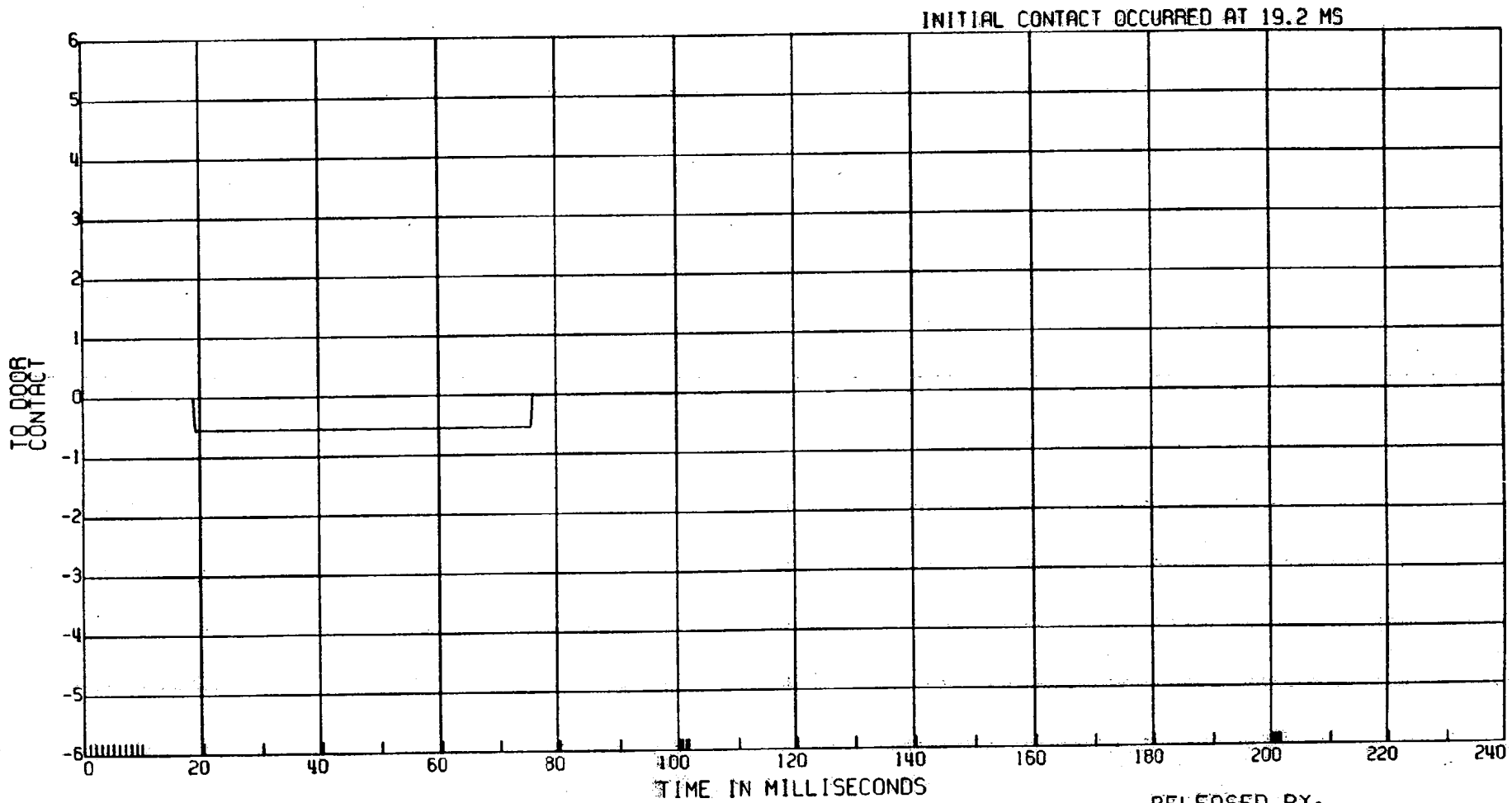
RELEASED BY:
71 PROCESSED 4 MY 90 11:47

C8005A L. SIDE IMPACT-27 DEG
3868-905
CPE MVMA 5B 2AF69
ELEC DATA, SAE CLASS 1000

MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 84

DRIVER ABDOMEN-LEFT SIDE CONTACT

ATD TYPE: BIOSID
TEST DATE:03-06-90



RELEASED BY:
70 PROCESSED 4-MY-90 ,11:47

C8005A L. SIDE IMPACT-27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 85

3868-905

ATD TYPE: SID

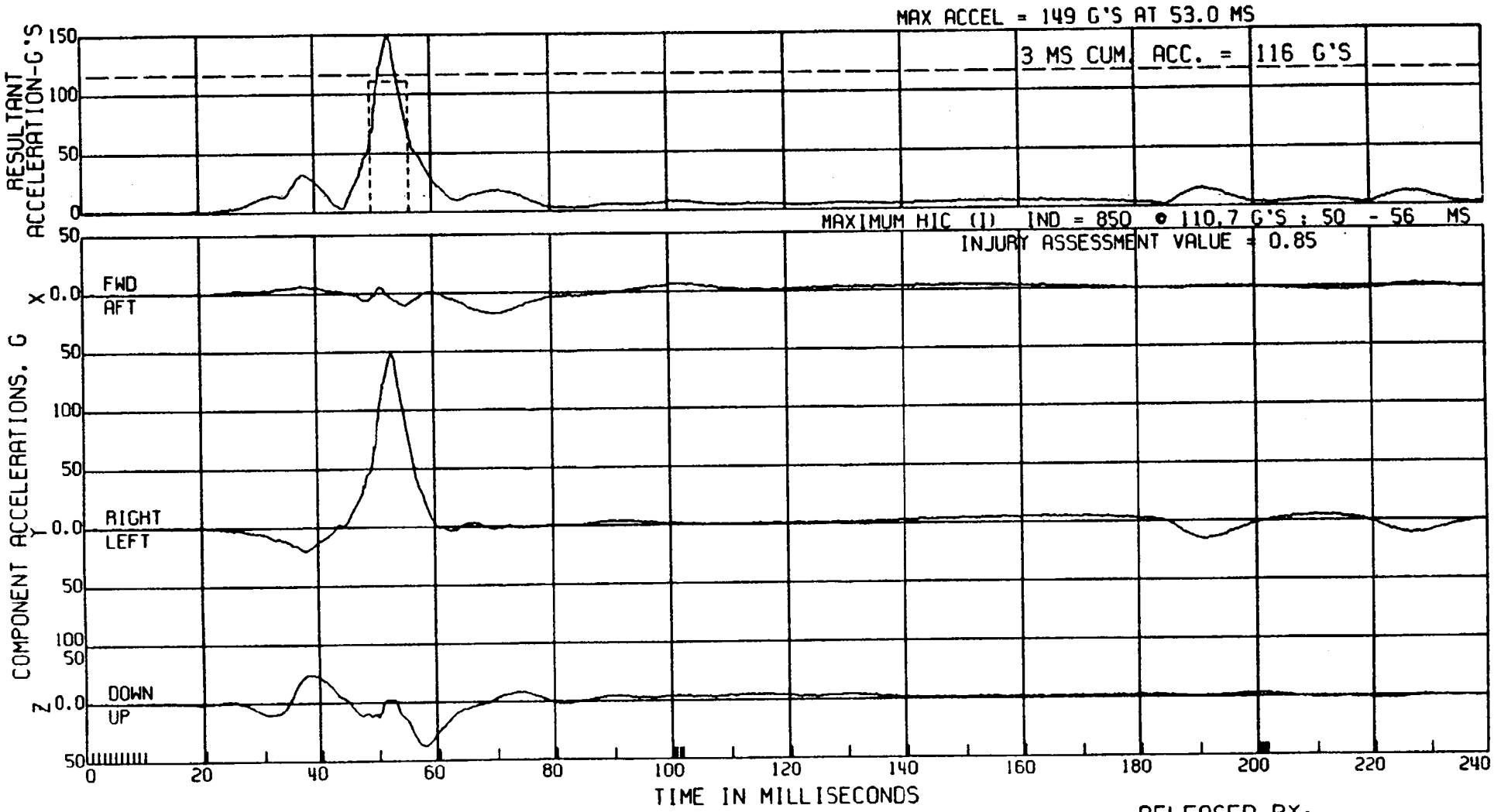
CPE MVMA 5B 2AF69

TEST DATE:03-06-90

ELEC DATA, SAE CLASS 1000

L.REAR HEAD ACCEL.

(HIC I LIMITED TO 15MS)



RELEASED BY:

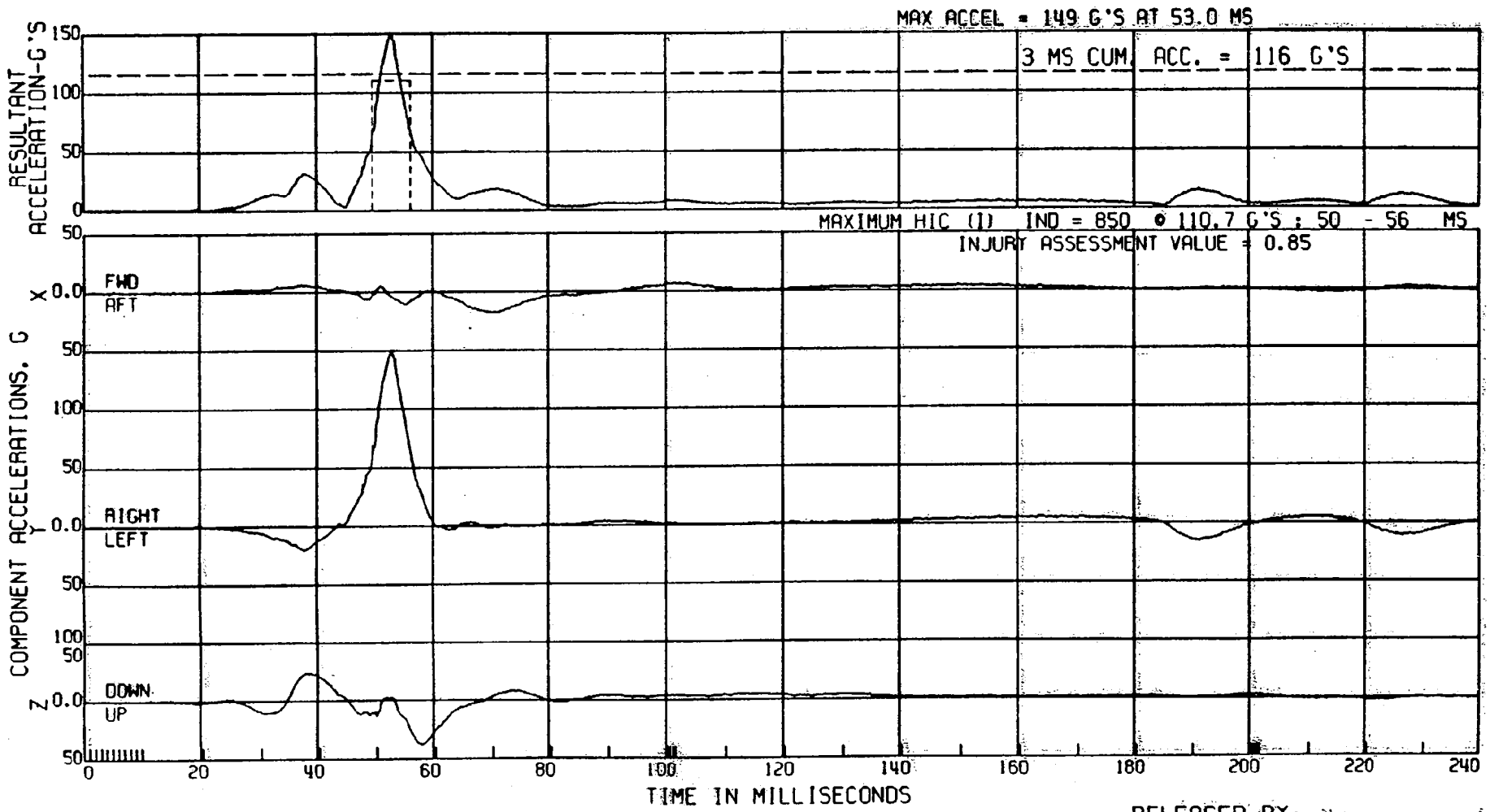
1 PROCESSED 4 MY 90 11:45

C8005A L. SIDE IMPACT-27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 86

3868-905 ATD TYPE: SID

CPE MVMA 5B 2AF69 L.REAR HEAD ACCEL. TEST DATE:03-06-90

ELEC DATA, SAE CLASS 1000 (HIC I LIMITED TO 36MS)



RELEASED BY:

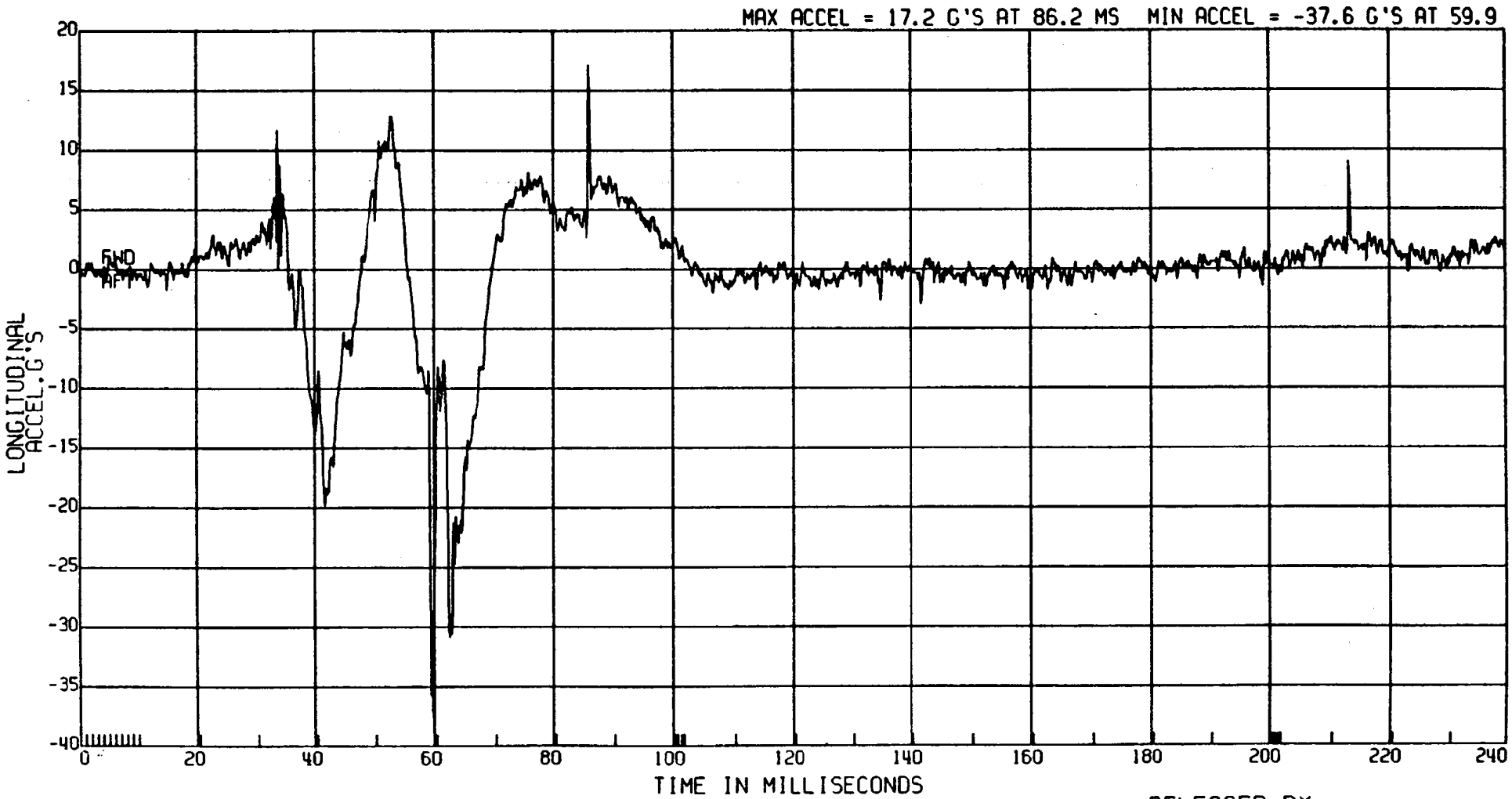
2 PROCESSED 4 MY 90 11:45

C8005A L. SIDE IMPACT-27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 87

3868-905 ATD TYPE: SID

CPE MVMA 5B 2AF69 L.REAR UPPER SPINE ACCEL. TEST DATE:03-06-90

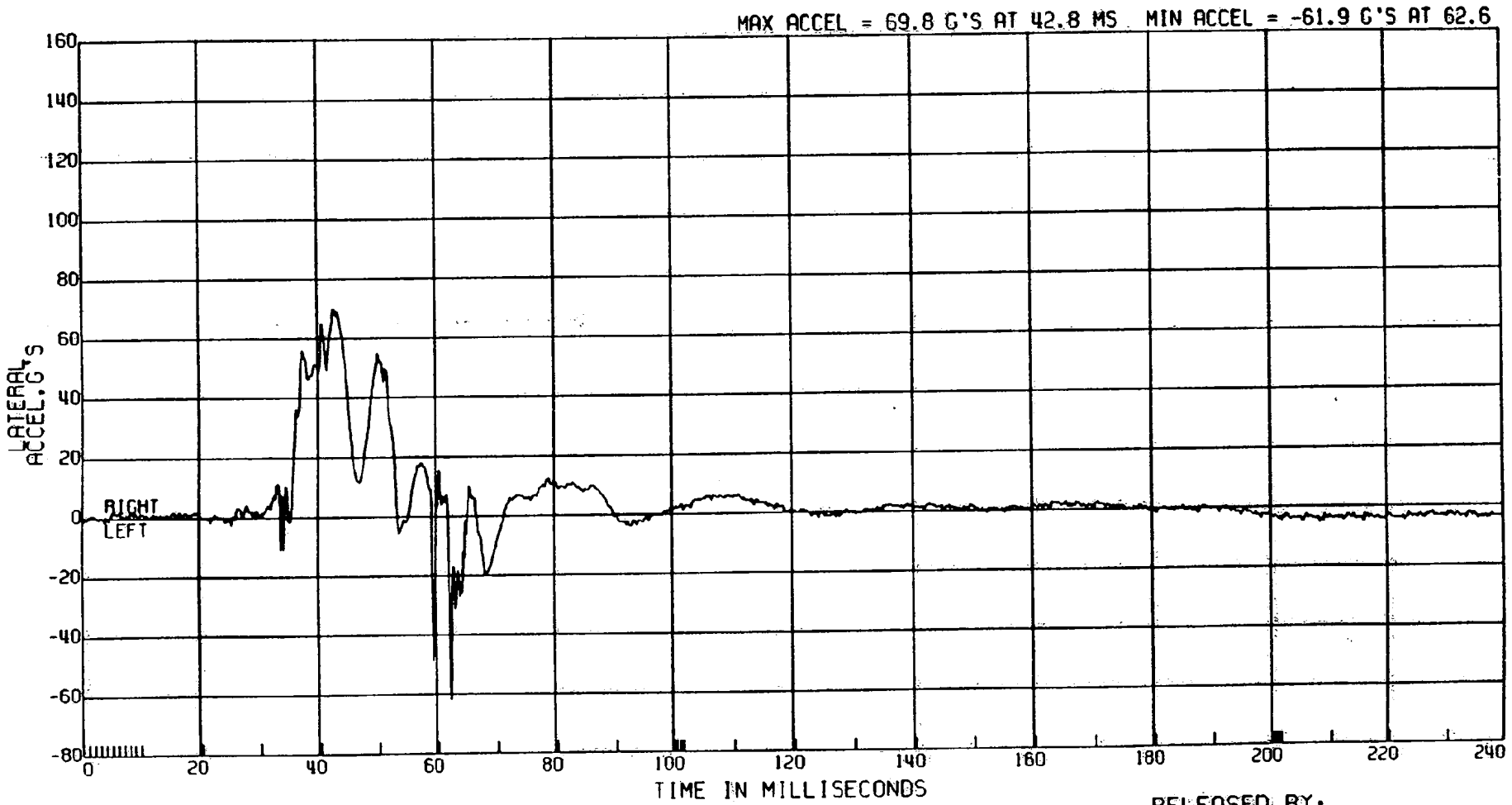
ELEC DATA, SAE CLASS 1000



RELEASED BY:

32 PROCESSED 4 MT 90 11:46

C8005A L. SIDE IMPACT-27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 88
3868-905 ATD TYPE: SID
CPE MVMA 5B 2AF69 L.REAR UPPER SPINE ACCEL. TEST DATE:03-06-90
ELEC DATA, SAE CLASS 1000



RELEASED BY:
33 PROCESSED 4 MY 90 11:46

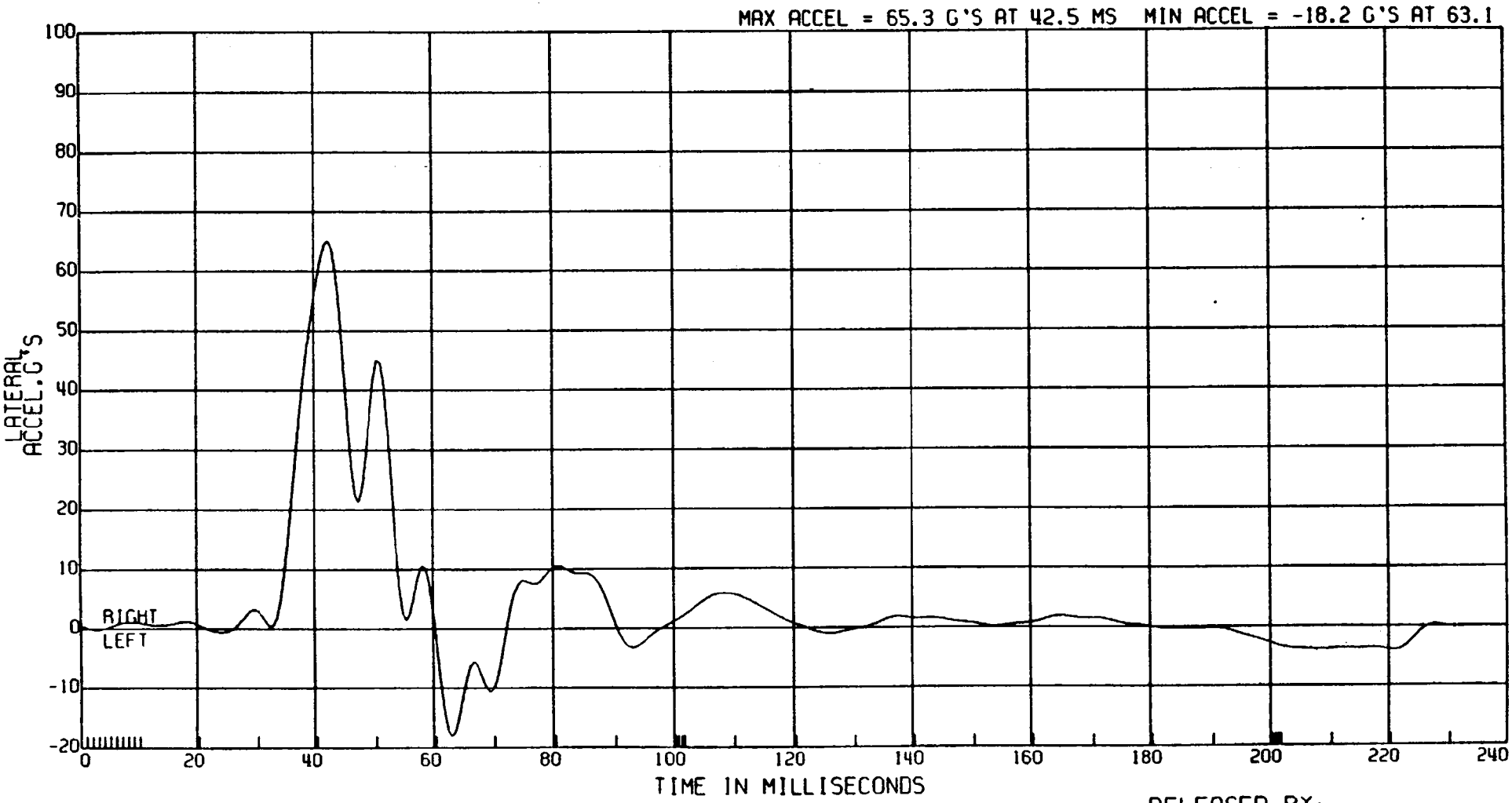
C8005A L. SIDE IMPACT-27 DEG
3868-905
CPE MVMA 5B 2AF69
ELEC DATA, NHTSA FIR FILTER

MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 89

L.REAR UPPER SPINE ACCEL.

F.I.R. FILTER, CLASS 300 BUTTERWORTH

ATD TYPE: SID
TEST DATE:03-06-90



RELEASED BY:
34 PROCESSED 4 MY 90 11:46

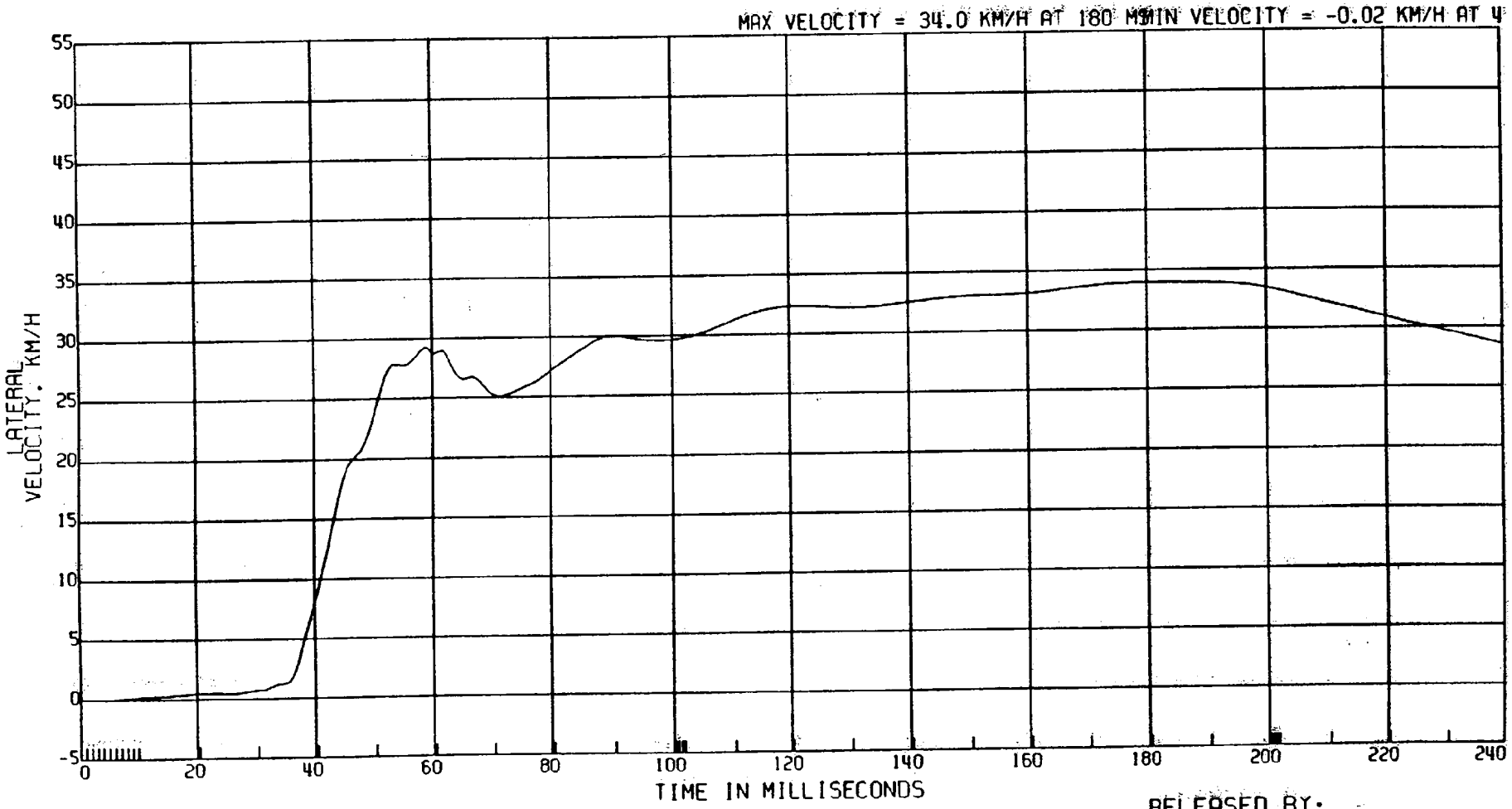
C8005A L. SIDE IMPACT-27 DEG
3868-905
CPE MVMA 5B 2AF69
ELEC DATA, SAE CLASS 180

MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 90

COMPUTED UPPER SPINE VELOCITY

(1ST INT OF L.REAR ACCELERATION)

ATD TYPE: SID
TEST DATE:03-06-90

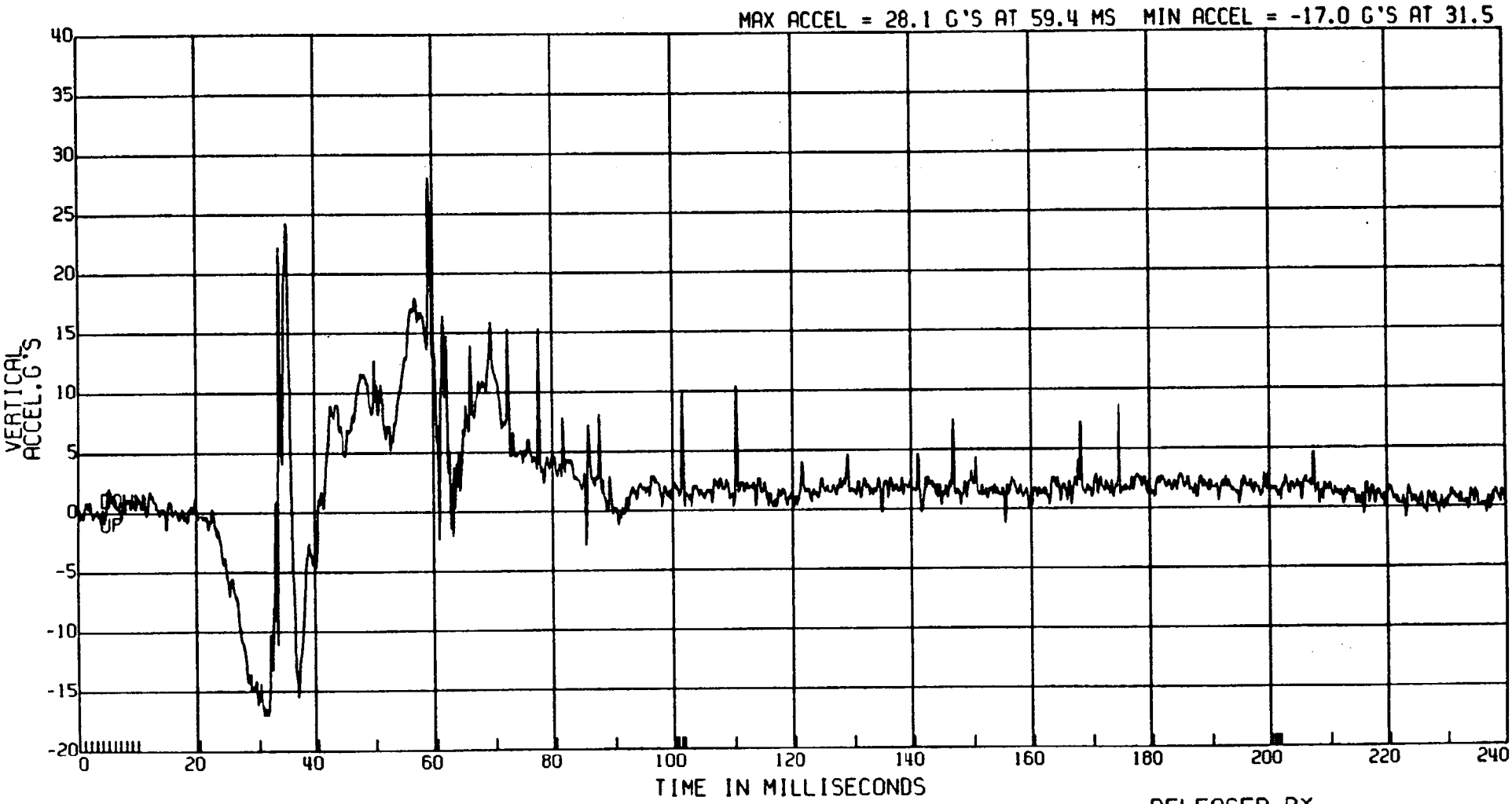


RELEASED BY:
35 PROCESSED 4 MY 90 11:46 .

C8005A L. SIDE IMPACT-27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 91
3868-905
CPE MVMA 5B 2AF69
ELEC DATA, SAE CLASS 1000

L.REAR UPPER SPINE ACCEL.

ATD TYPE: SID
TEST DATE:03-06-90

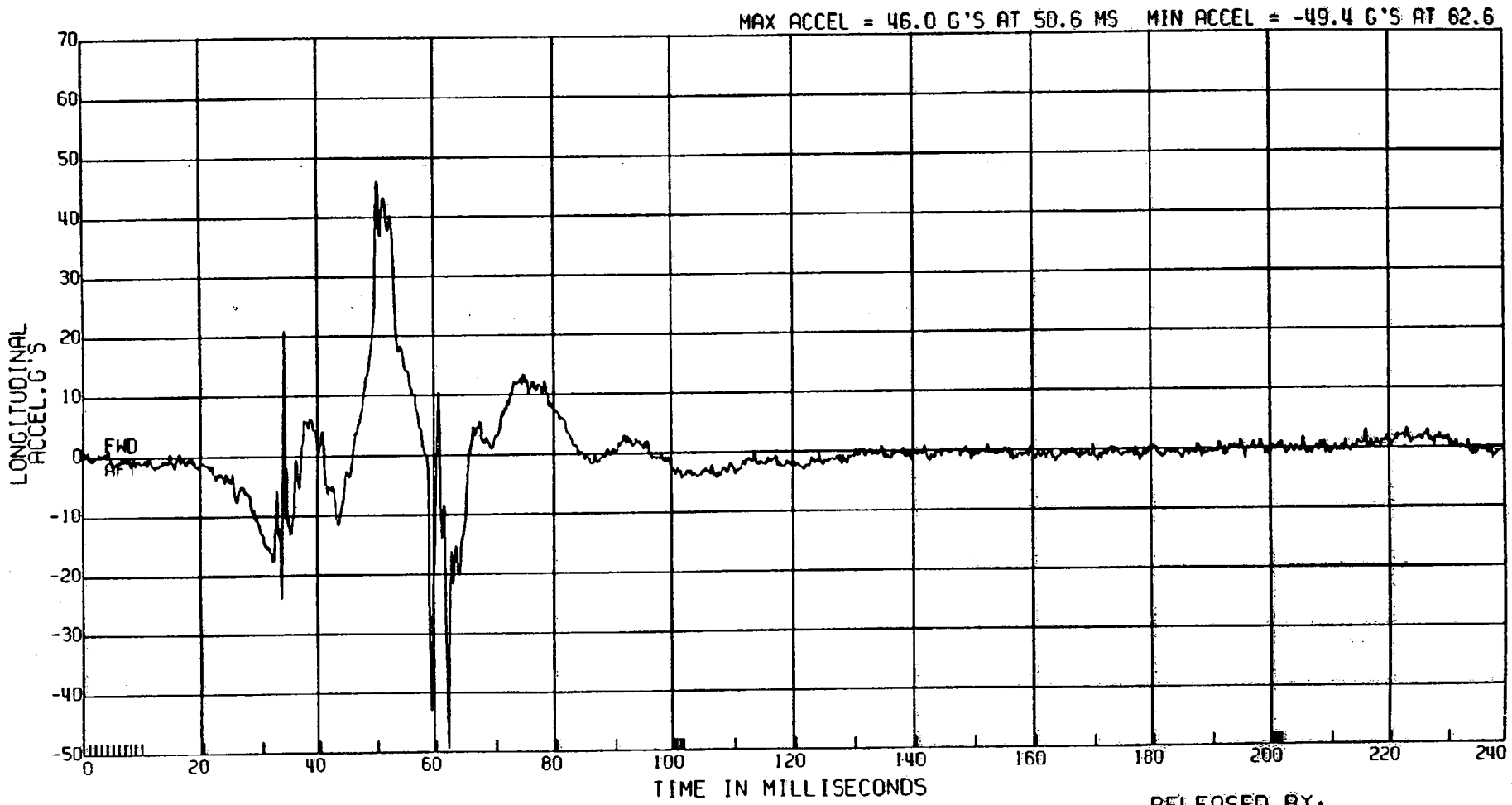


RELEASED BY:
36 PROCESSED 4 MY 90 11:46

C8005A L. SIDE IMPACT-27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 92
3868-905
CPE MVMA 5B 2AF69
ELEC DATA, SAE CLASS 1000

L.REAR LOWER SPINE ACCEL.

ATD TYPE: SID
TEST DATE:03-06-90

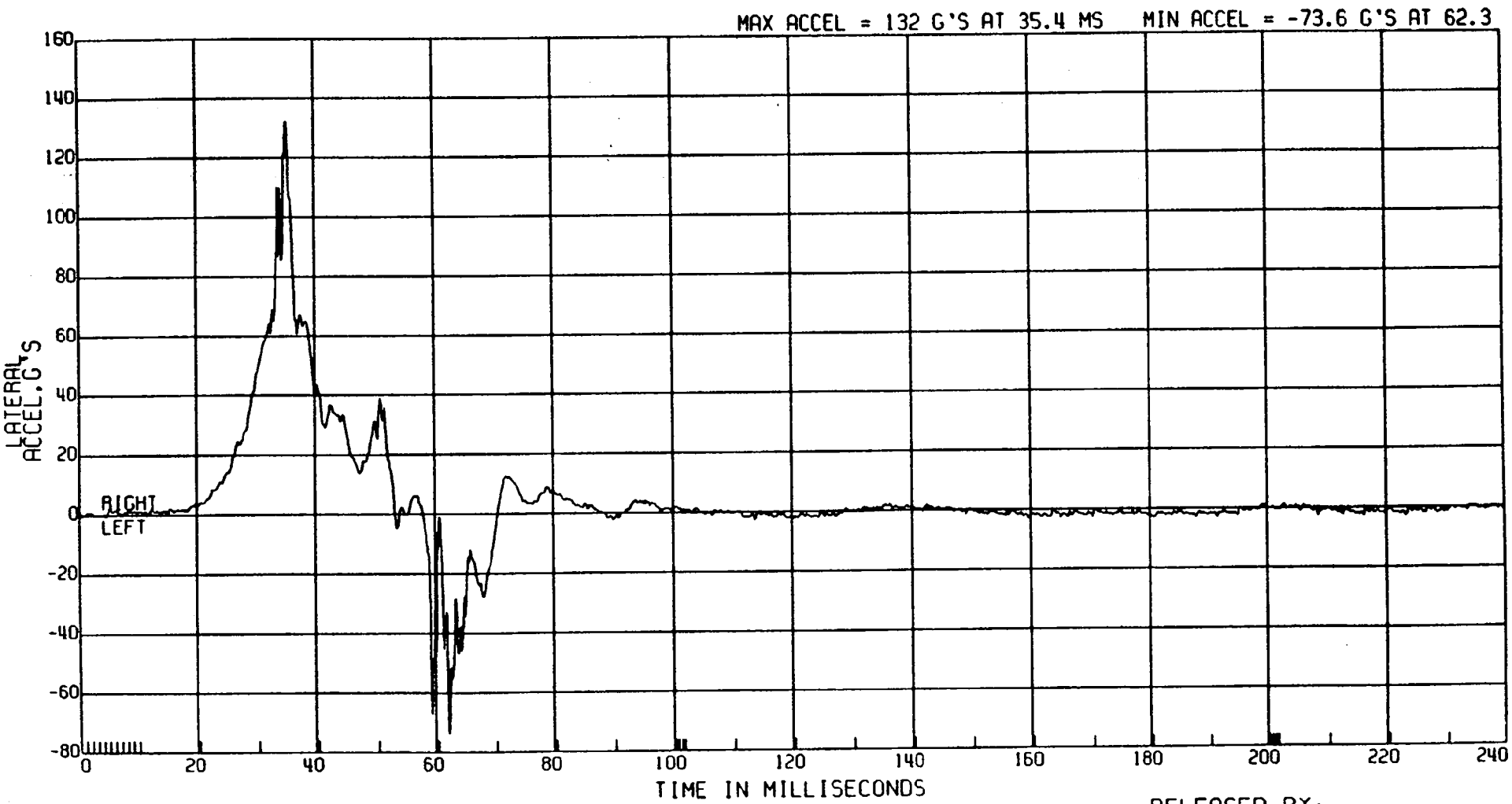


RELEASED BY:
37 PROCESSED 4 MY 90 11:46

C8005A L. SIDE IMPACT-27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 93
3868-905
CPE MVMA 5B 2AF69
ELEC DATA, SAE CLASS 1000

L.REAR LOWER SPINE ACCEL.

ATD TYPE: SID
TEST DATE:03-06-90



RELEASED BY:
38 PROCESSED 4 MY 90 11:46

C8005A L. SIDE IMPACT-27 DEC
3868-905
CPE MVMA 5B 2AF69
ELEC DATA, NHTSA FIR FILTER

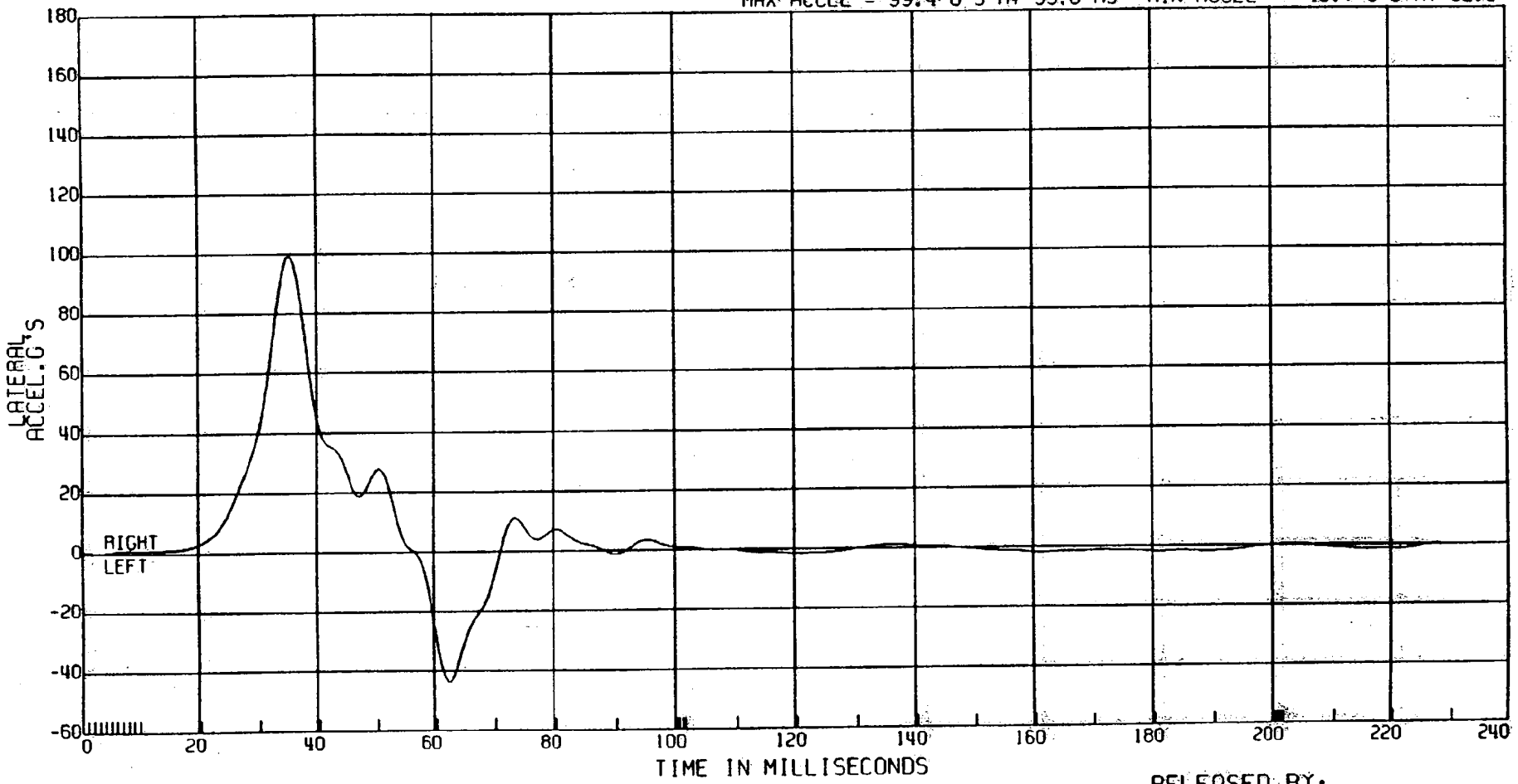
MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 94

L.REAR LOWER SPINE ACCEL.

F.I.R. FILTER, CLASS 300 BUTTERWORTH

ATD TYPE: SID
TEST DATE:03-06-90

MAX ACCEL = 99.4 G'S AT 35.6 MS MIN ACCEL = -43.7 G'S AT 62.5



RELEASED BY:
39 PROCESSED 4 MY 90 11:46

C8005A L. SIDE IMPACT-27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 95

3868-905

CPE MVMA 5B 2AF69

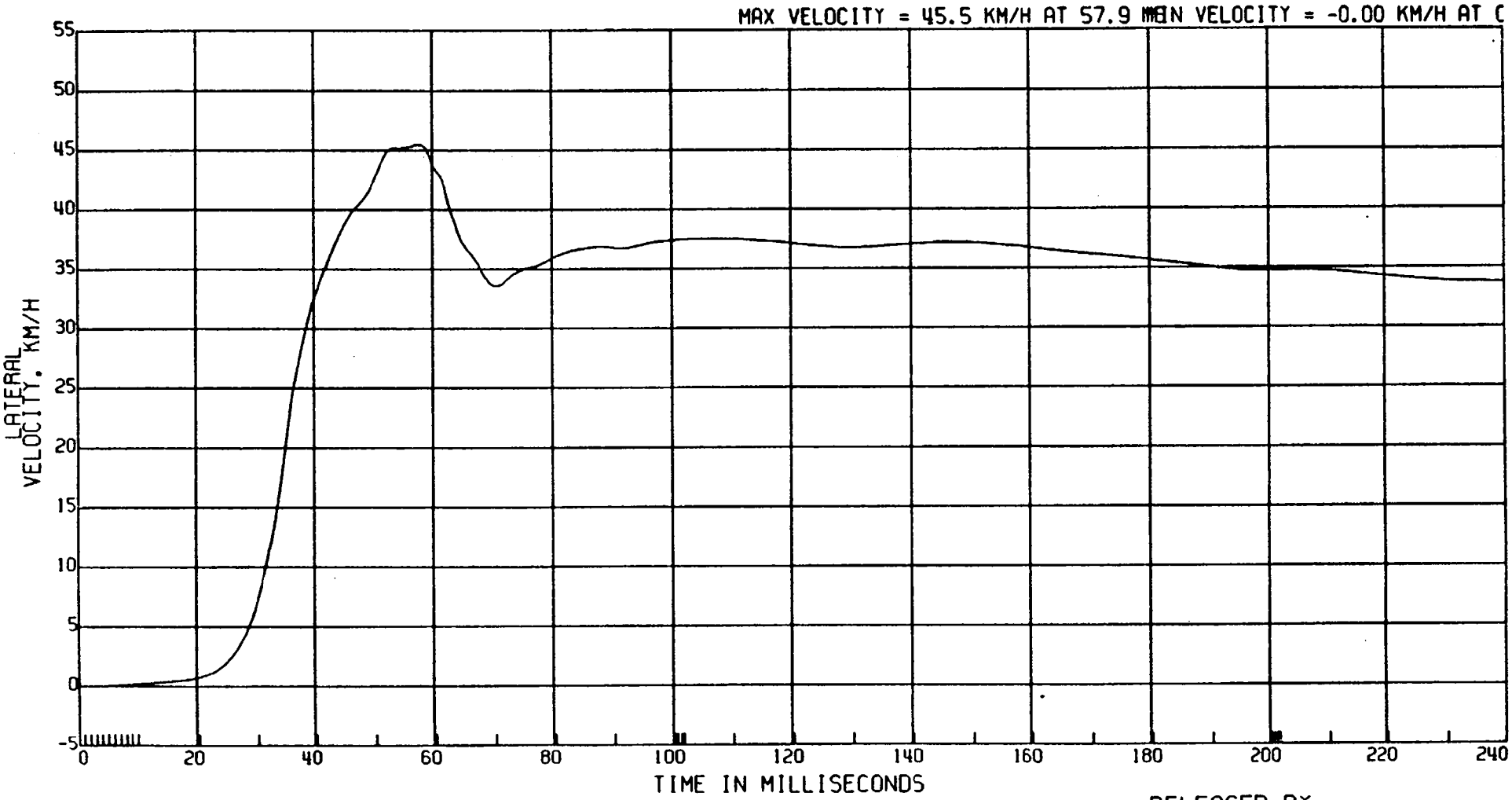
ELEC DATA, SAE CLASS 180

ATD TYPE: SID

TEST DATE:03-06-90

COMPUTED LOWER SPINE VELOCITY

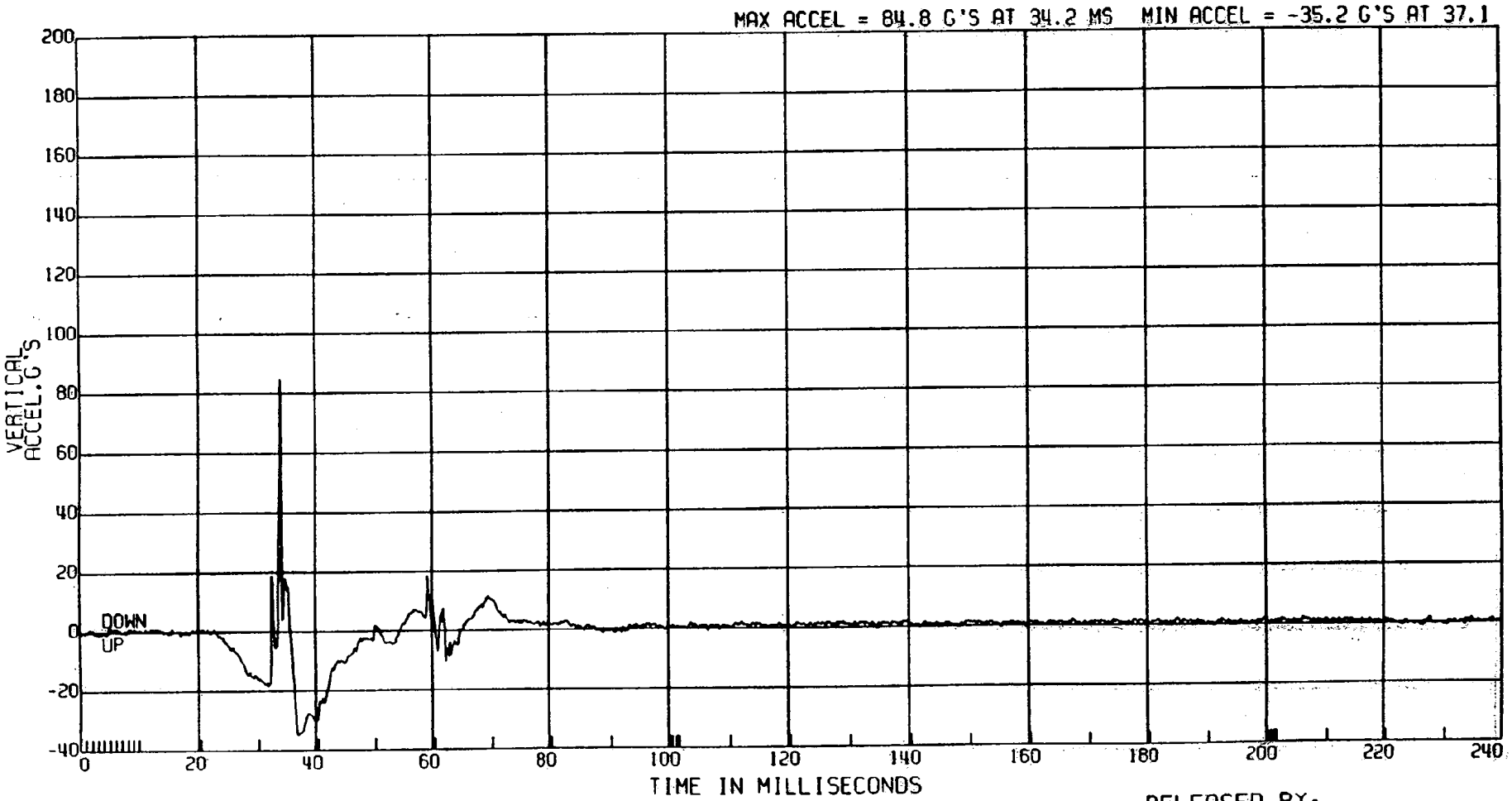
(1ST INT OF L.REAR ACCELERATION)



RELEASED BY:

40 PROCESSED 4 MY 90 11:46

C8005A L. SIDE IMPACT-27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 96
3868-905 ATD TYPE: SID
CPE MVMA 5B 2AF69 L.REAR LOWER SPINE ACCEL. TEST DATE:03-06-90
ELEC DATA, SAE CLASS 1000

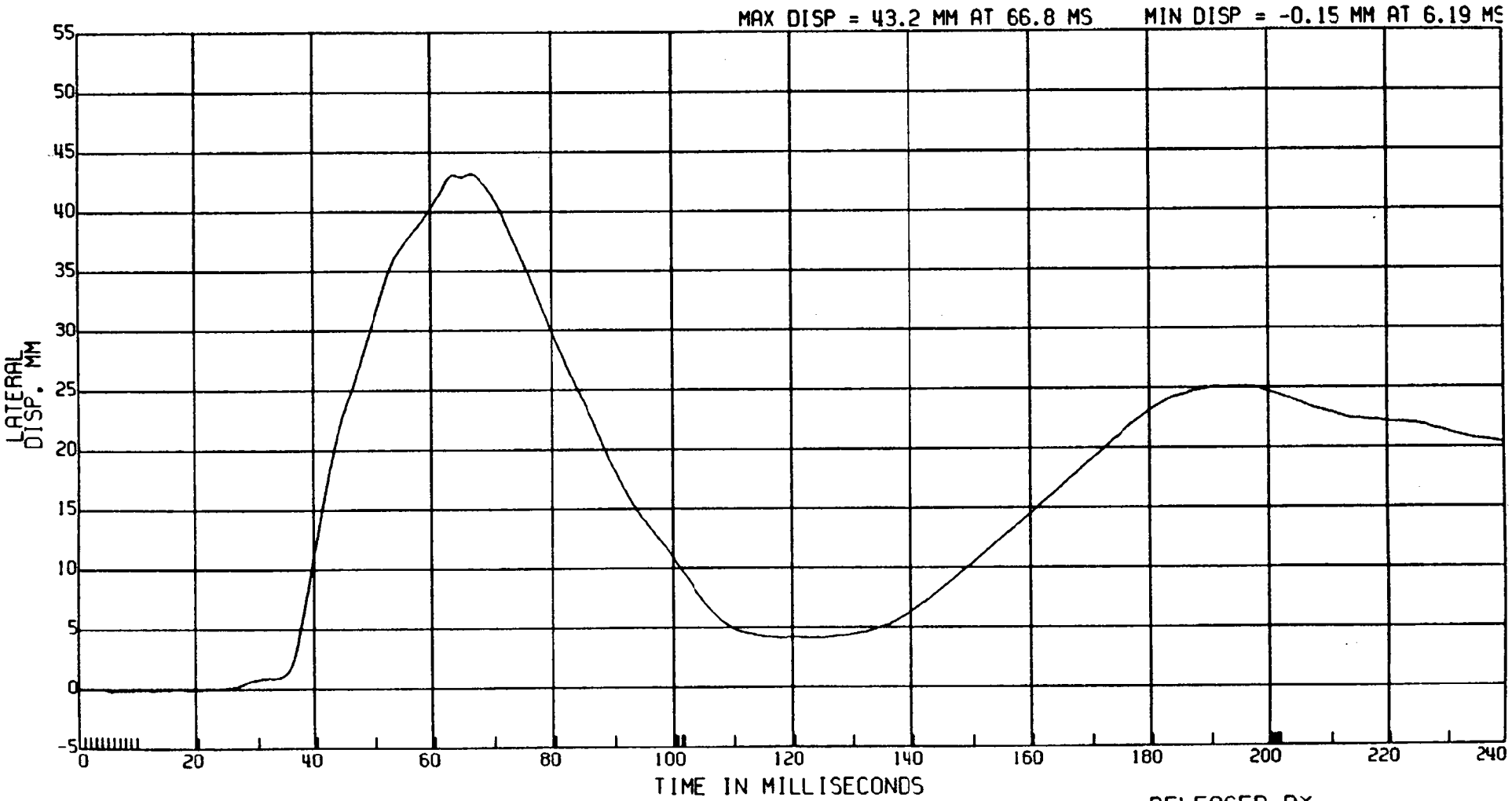


RELEASED BY:
41 PROCESSED 4-MY 90 11:46

C8005A L. SIDE IMPACT-27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 97
3868-905
CPE MVMA 5B 2AF69
ELEC DATA, SAE CLASS 60

L.REAR THORAX DISP.

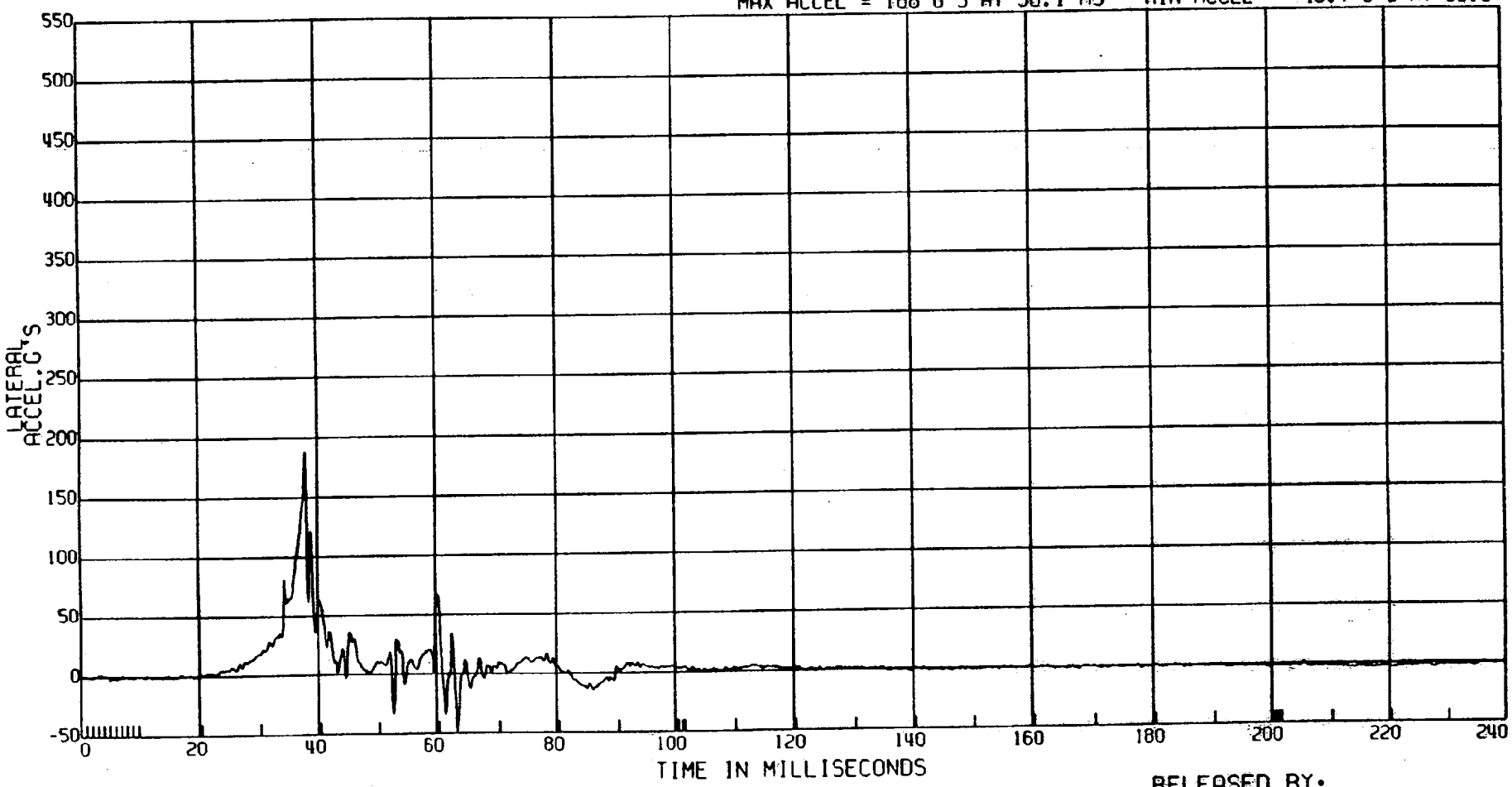
ATD TYPE: SID
TEST DATE:03-06-90



RELEASED BY:
42 PROCESSED 4 MY 90 11:46

C8005A L. SIDE IMPACT-27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 98
3868-905 ATD TYPE: SID
CPE MVMA 5B 2AF69 L.REAR LEFT UPPER RIB ACCEL. TEST DATE:03-06-90
ELEC DATA, SAE CLASS 1000

MAX ACCEL = 188 G'S AT 38.1 MS MIN ACCEL = -49.7 G'S AT 63.5



RELEASED BY:
43 PROCESSED 4 MY 90. 11:46

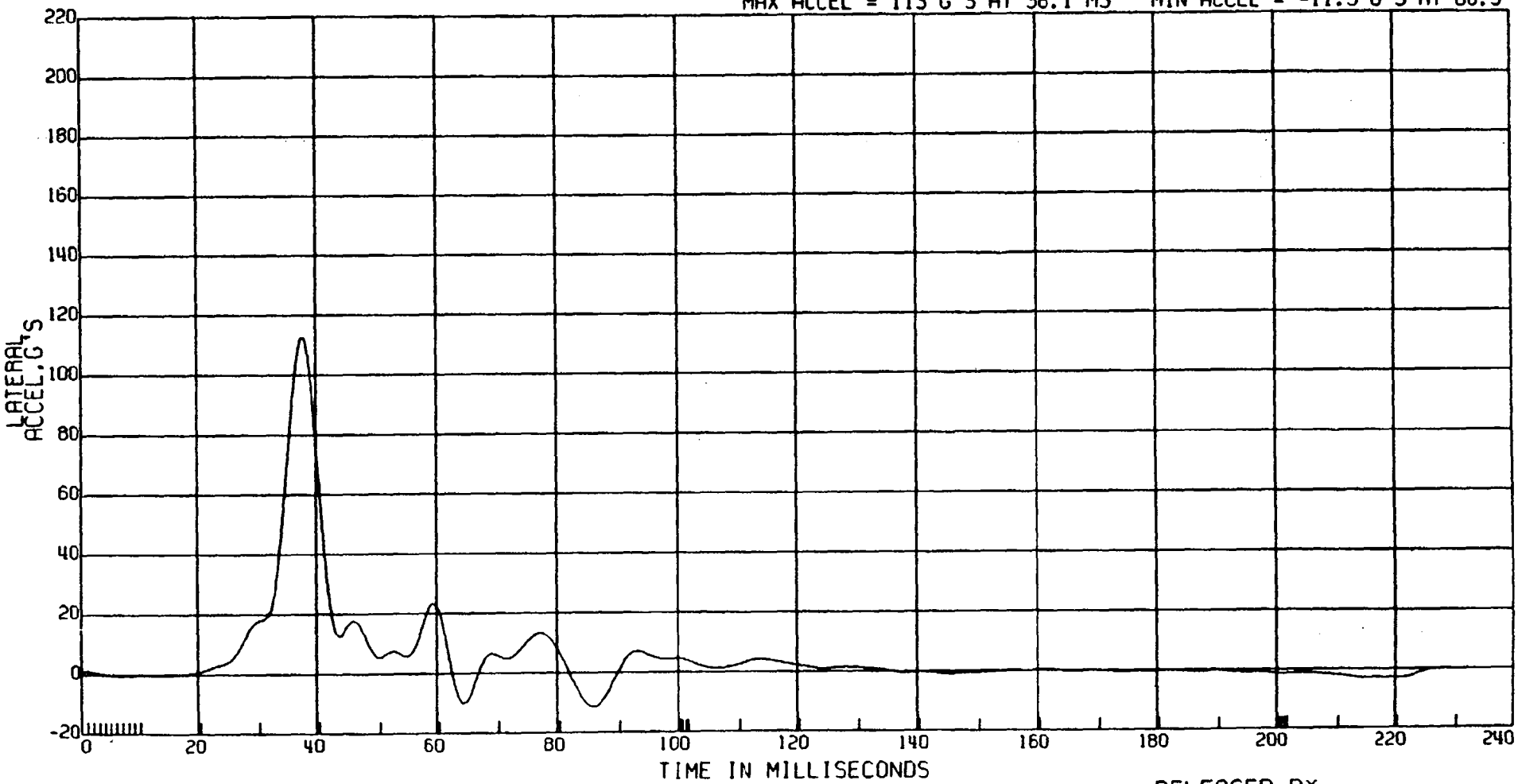
C8005A L. SIDE IMPACT-27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 99

3868-905 ATD TYPE: SID

CPE MVMA 5B 2AF69 L.REAR LEFT UPPER RIB ACCEL. TEST DATE:03-06-90

ELEC DATA, NHTSA FIR FILTER F.I.R. FILTER, CLASS 300 BUTTERWORTH

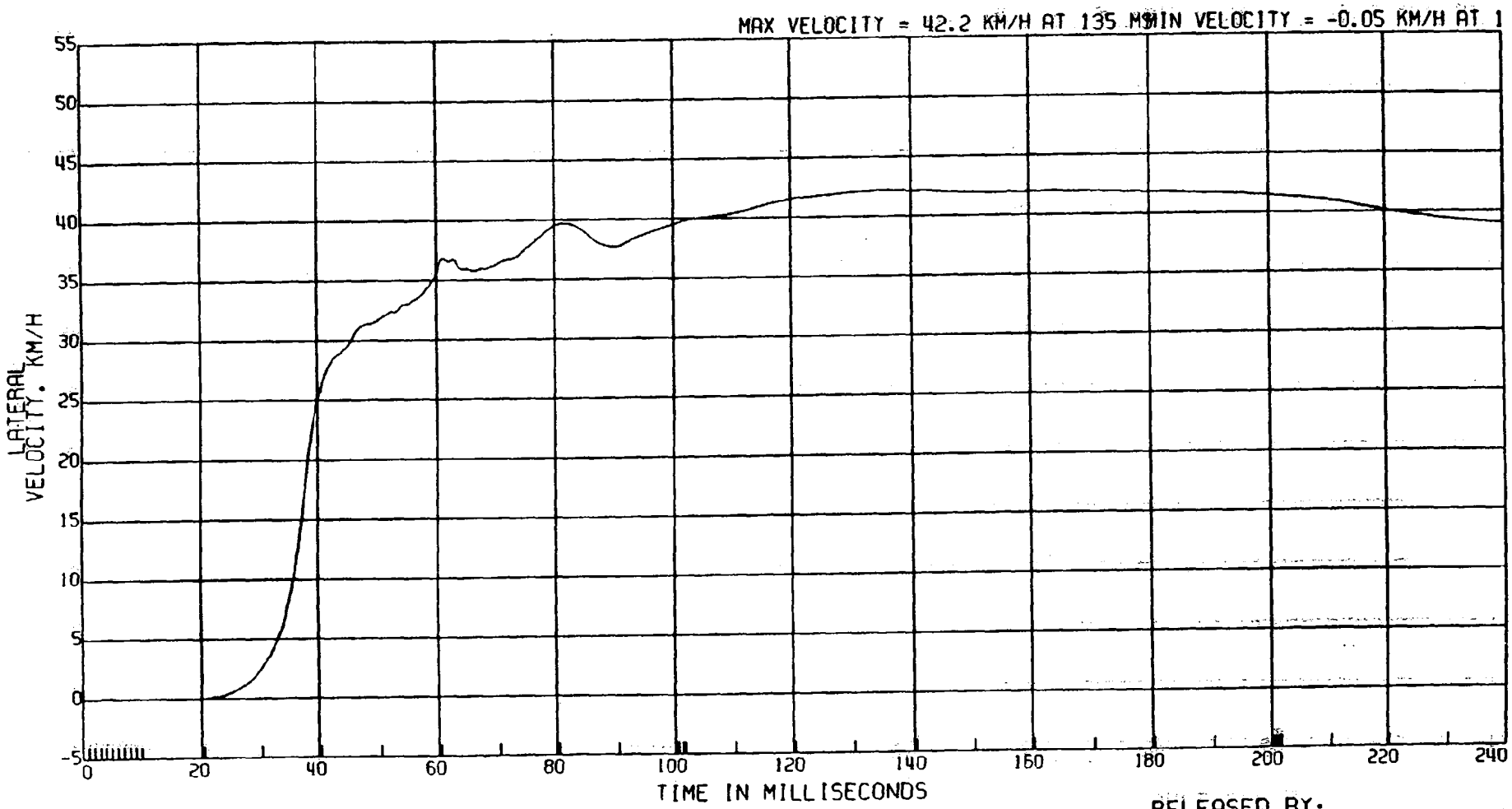
MAX ACCEL = 113 G'S AT 38.1 MS MIN ACCEL = -11.3 G'S AT 86.3



RELEASED BY:

44 PROCESSED 4 MY 90 11:46

C8005A L. SIDE IMPACT-27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 100
3868-905 ATD TYPE: SID
CPE MVMA 5B 2AF69 COMPUTED LEFT UPPER RIB VELOCITY TEST DATE:03-06-90
ELEC DATA, SAE CLASS 180 (1ST INT OF L.REAR ACCELERATION)



RELEASED BY:
45 PROCESSED 4 MY 90 · 11:46.

C8005A L. SIDE IMPACT-27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 101

3868-905

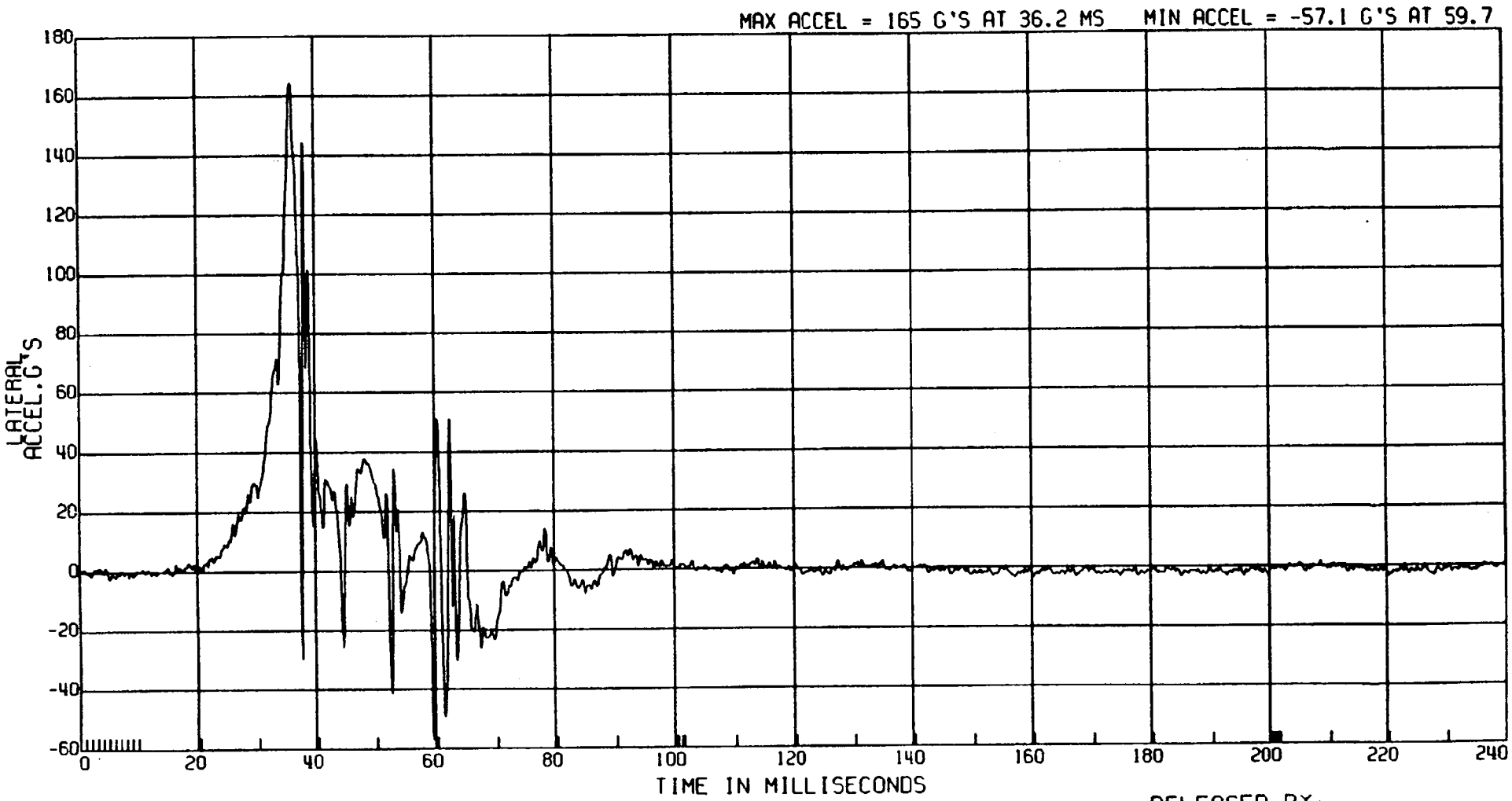
CPE MVMA 5B 2AF69

ELEC DATA, SAE CLASS 1000

L.REAR LEFT LOWER RIB ACCEL.

ATD TYPE: SID

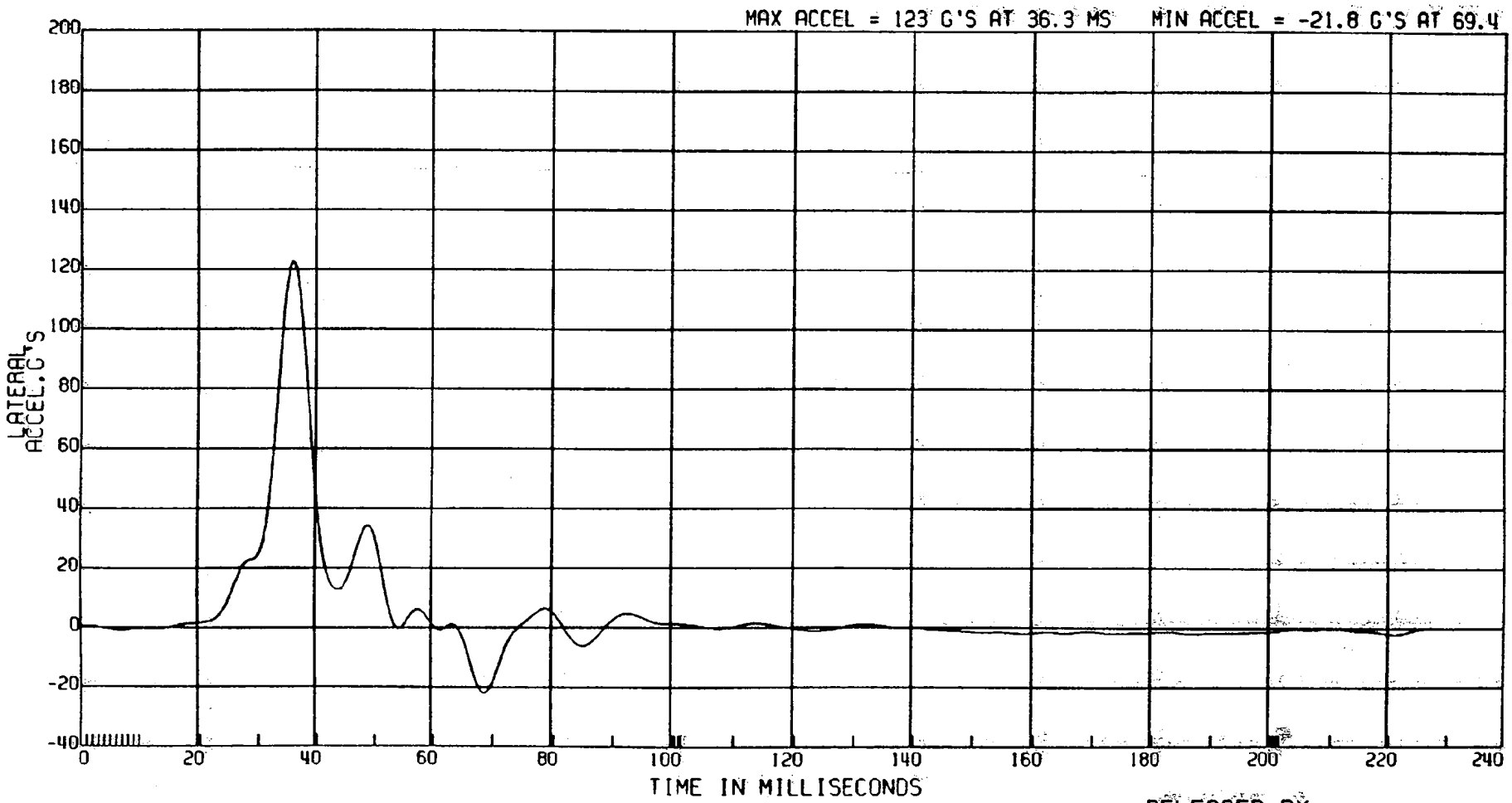
TEST DATE:03-06-90



RELEASED BY:

46 PROCESSED 4 MY 90 11:46

C8005A L. SIDE IMPACT-27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 102
3868-905 ATD TYPE: SID
CPE MVMA 5B 2AF69 L.REAR LEFT LOWER RIB ACCEL. TEST DATE:03-06-90
ELEC DATA, NHTSA FIR FILTER F.I.R. FILTER, CLASS 300 BUTTERWORTH



RELEASED BY:
47 PROCESSED 4 MY 90 11:46

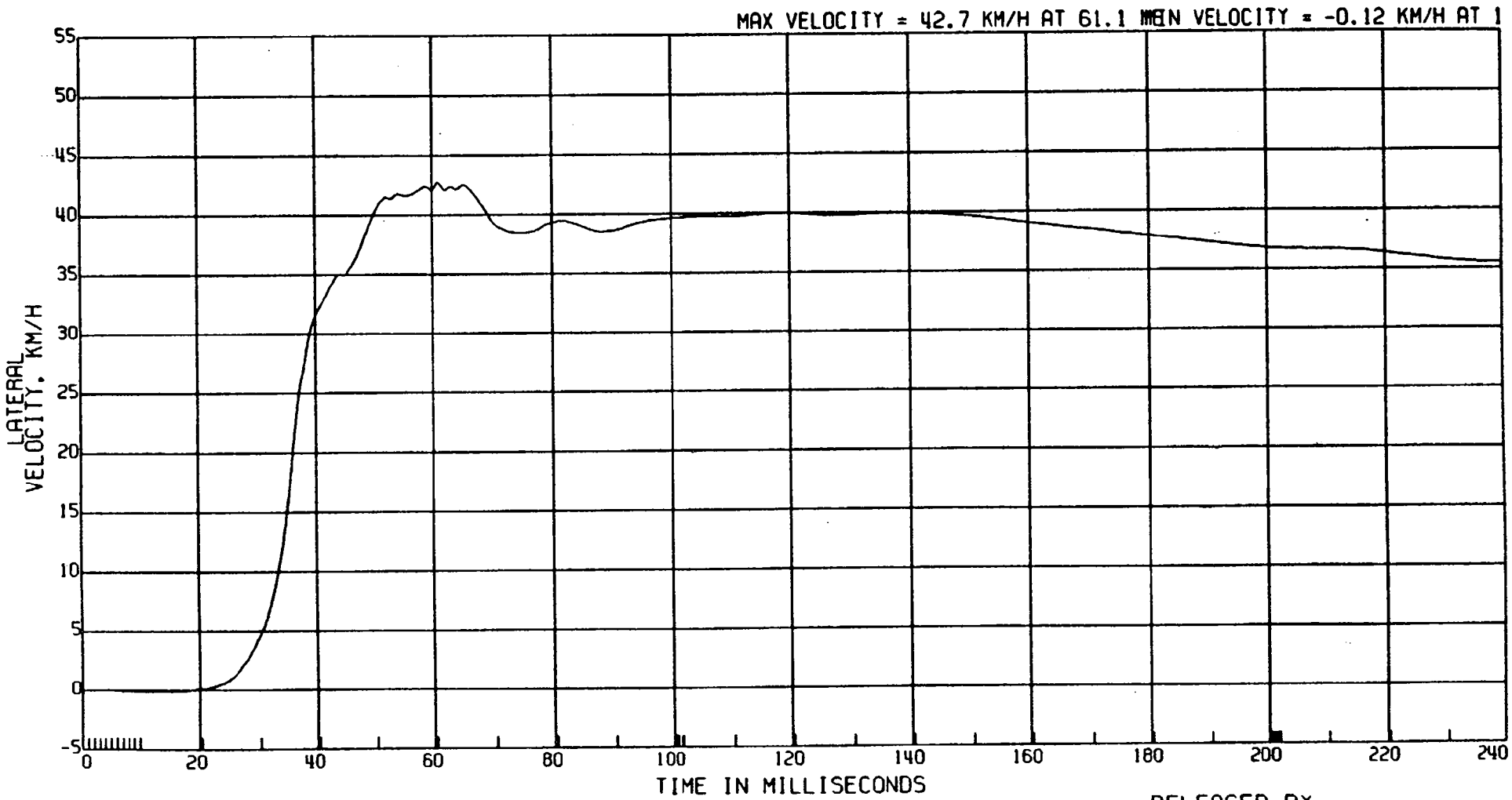
C8005A L. SIDE IMPACT-27 DEG
3868-905
CPE MVMA 5B 2AF69
ELEC DATA, SAE CLASS 180

MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 103

ATD TYPE: SID
TEST DATE:03-06-90

COMPUTED LEFT LOWER RIB VELOCITY

(1ST INT OF L.REAR ACCELERATION)



RELEASED BY:
48 PROCESSED 4 MY 90 11:46

C8005A L. SIDE IMPACT-27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 104

3868-905

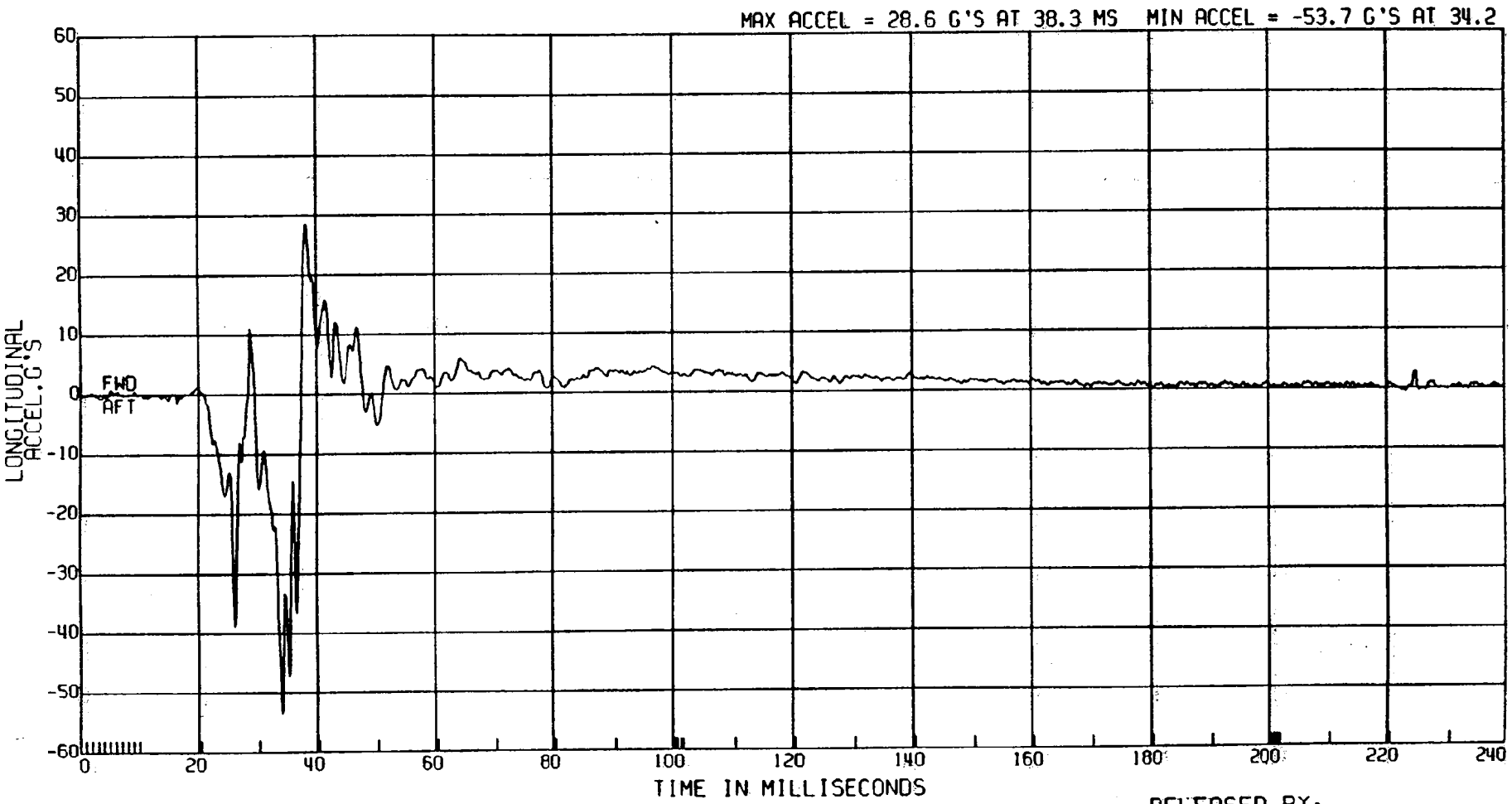
CPE MVMA 5B 2AF69

ELEC DATA, SAE CLASS 600

L.REAR PELVIC ACCEL.

ATD TYPE: SID

TEST DATE:03-06-90



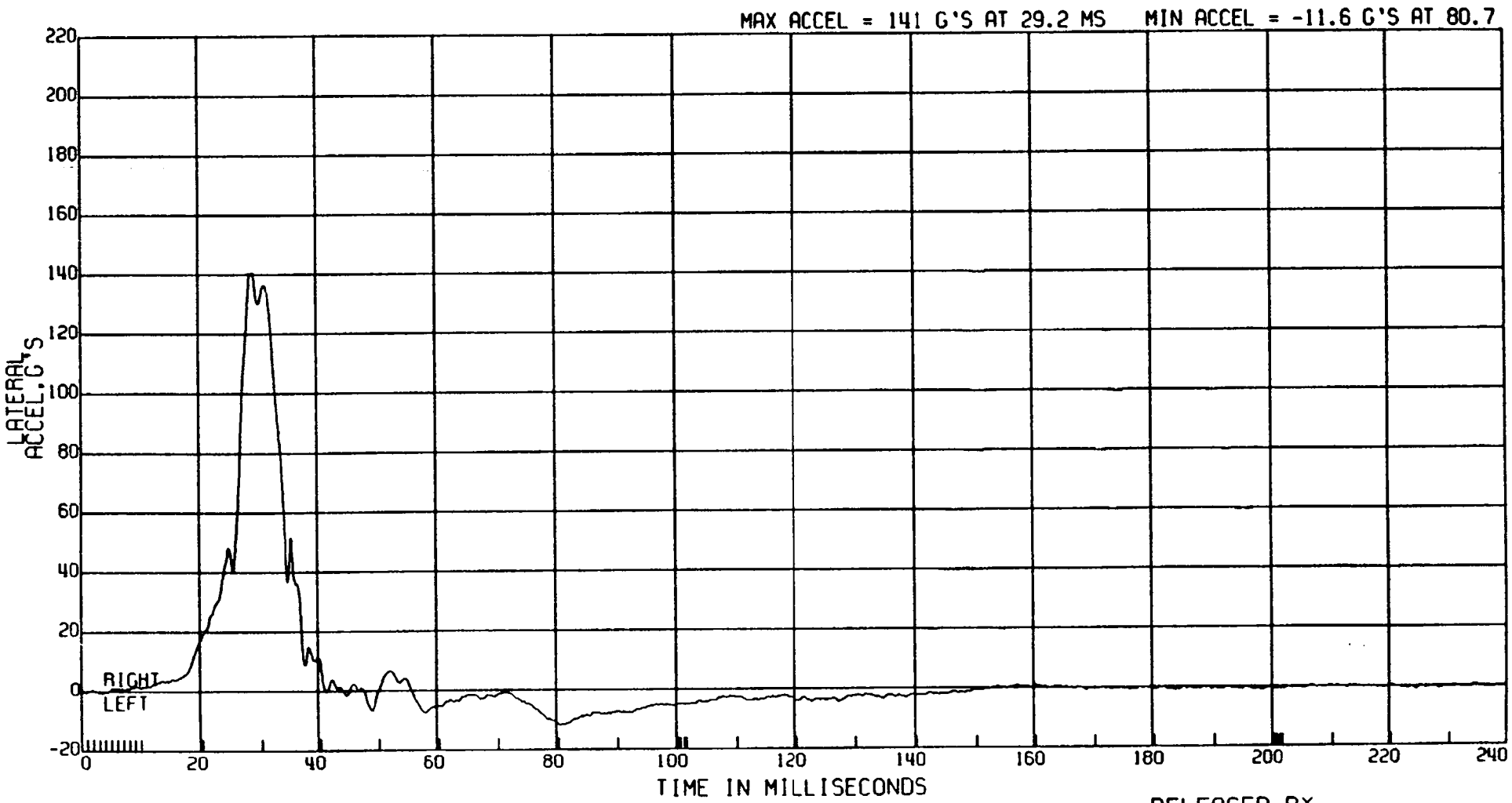
RELEASED BY:

49 PROCESSED 4 MY 90 11:46

C8005A L. SIDE IMPACT-27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 105
3868-905
CPE MVMA 5B 2AF69
ELEC DATA, SAE CLASS 600

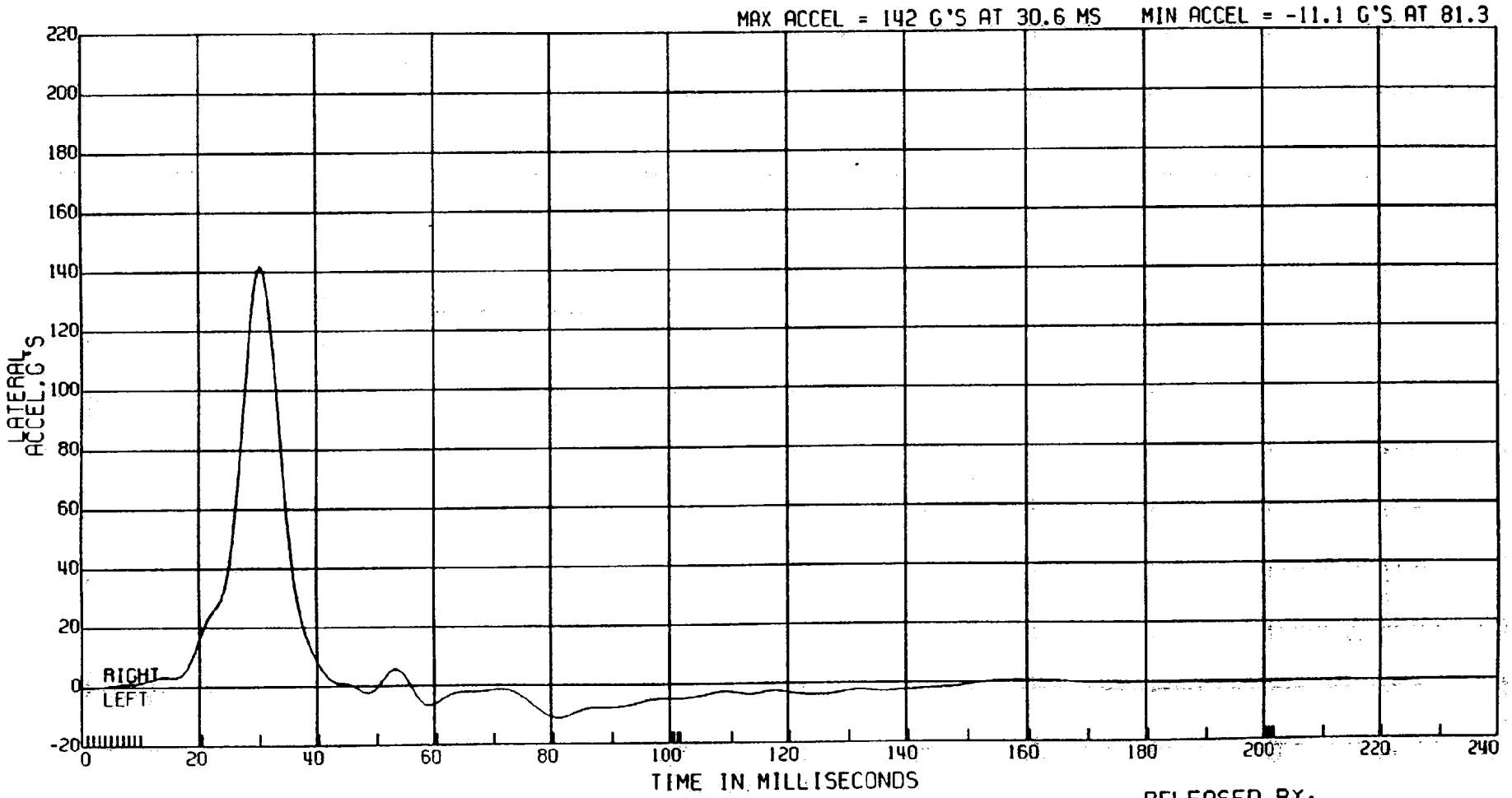
L.REAR PELVIC ACCEL.

ATD TYPE: SID
TEST DATE:03-06-90



RELEASED BY:
50 PROCESSED 4 MY 90 11:46

C8005A L. SIDE IMPACT-27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 106
3868-905 ATD TYPE: SID
CPE MVMA 5B 2AF69 L.REAR PELVIC ACCEL. TEST DATE:03-06-90
ELEC DATA, NHTSA FIR FILTER F.I.R. FILTER, CLASS 300 BUTTERWORTH

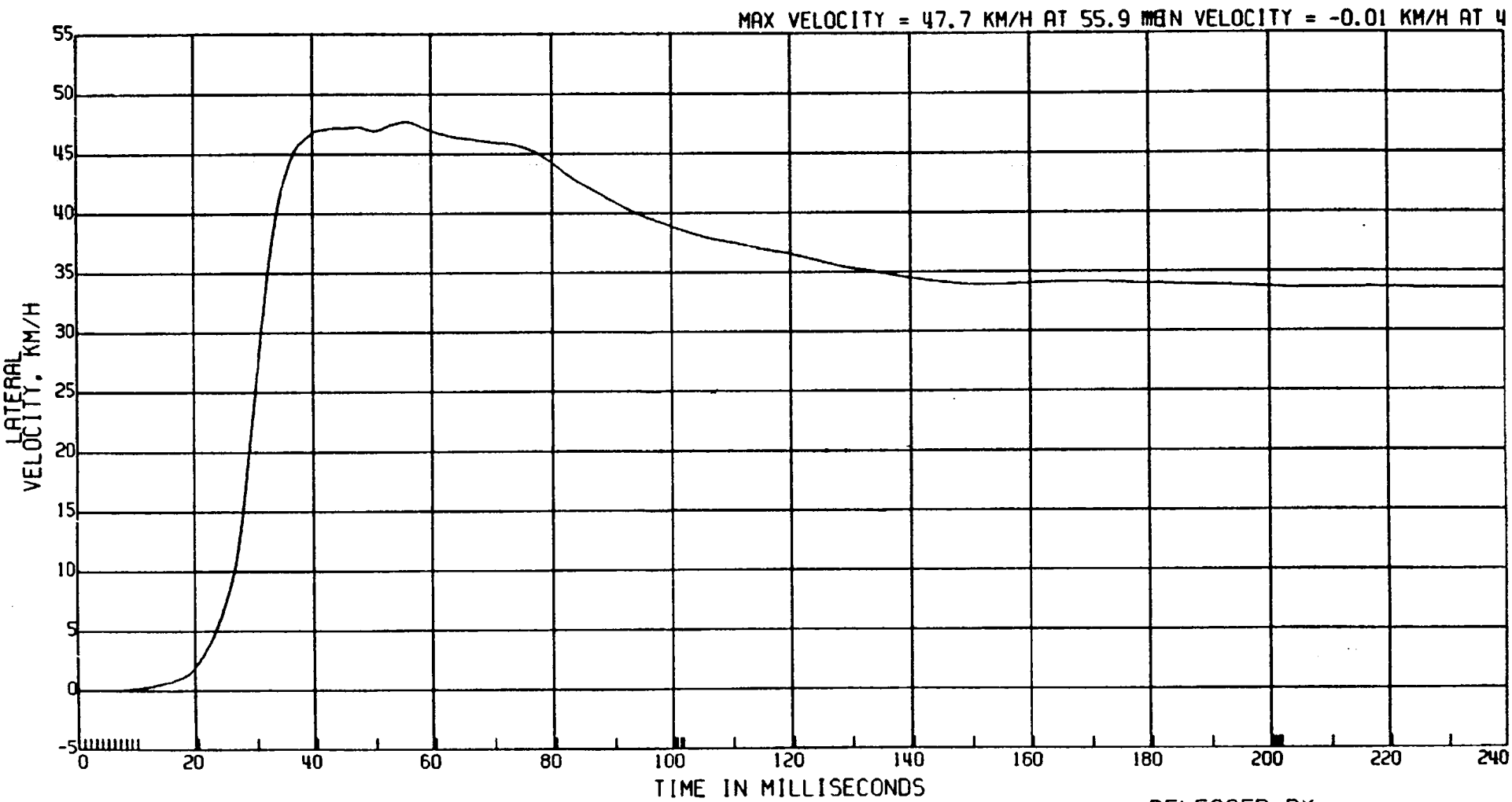


RELEASED BY:
51 PROCESSED 4 MAY 90 11:46

C8005A L. SIDE IMPACT-27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 107
3868-905 ATD TYPE: SID
CPE MVMA 5B 2AF69 TEST DATE:03-06-90
ELEC DATA, SAE CLASS 180

COMPUTED PELVIC VELOCITY

(1ST INT OF L.REAR ACCELERATION)



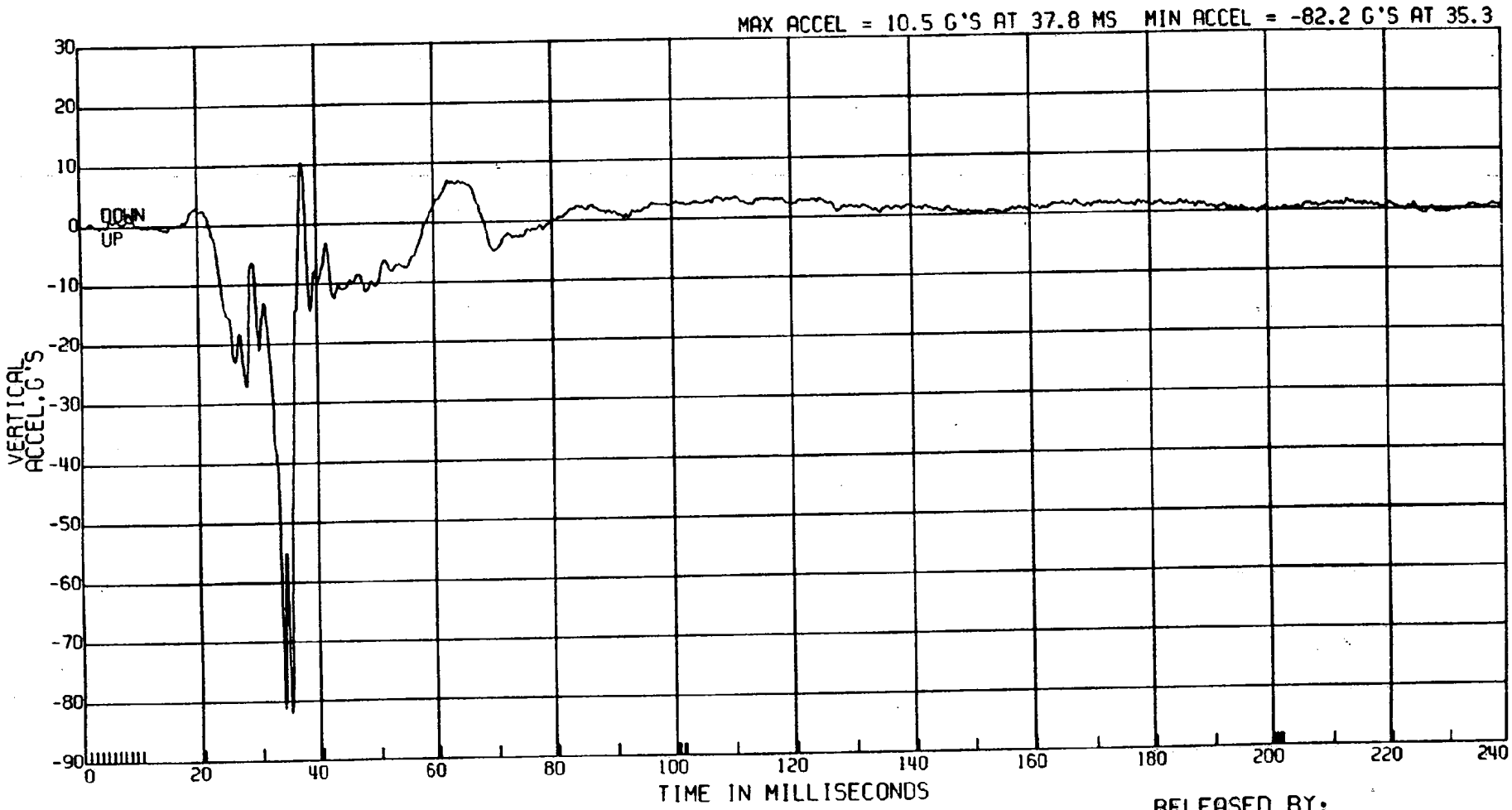
RELEASED BY:
52 PROCESSED 4 MY 90 11:46

C8005A L. SIDE IMPACT-27 DEG
3868-905
CPE MVMA 5B 2AF69
ELEC DATA, SAE CLASS 600

MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 108

L.REAR PELVIC ACCEL.

ATD TYPE: SID
TEST DATE:03-06-90

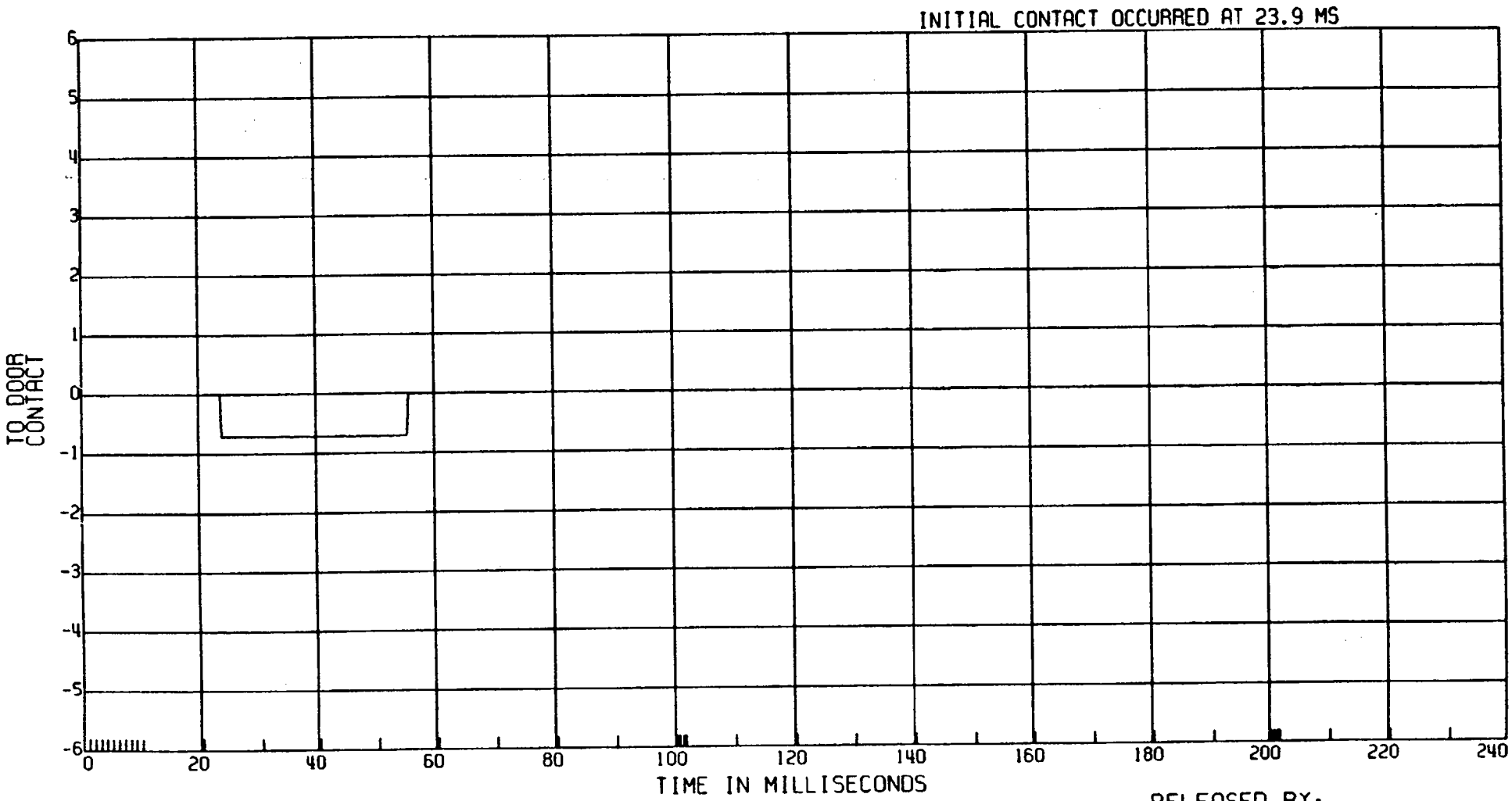


RELEASED BY:
53 PROCESSED 4 MY 90 11:46

C8005A L. SIDE IMPACT-27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 109
3868-905
CPE MVMA 5B 2AF69
ELEC DATA, SAE CLASS 1000

L.REAR PELVIC-LEFT SIDE CONTACT

ATD TYPE: SID
TEST DATE:03-06-90



RELEASED BY:
54 PROCESSED 4 MY 90 11:46

C8005A L. SIDE IMPACT-27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 110

3868-905

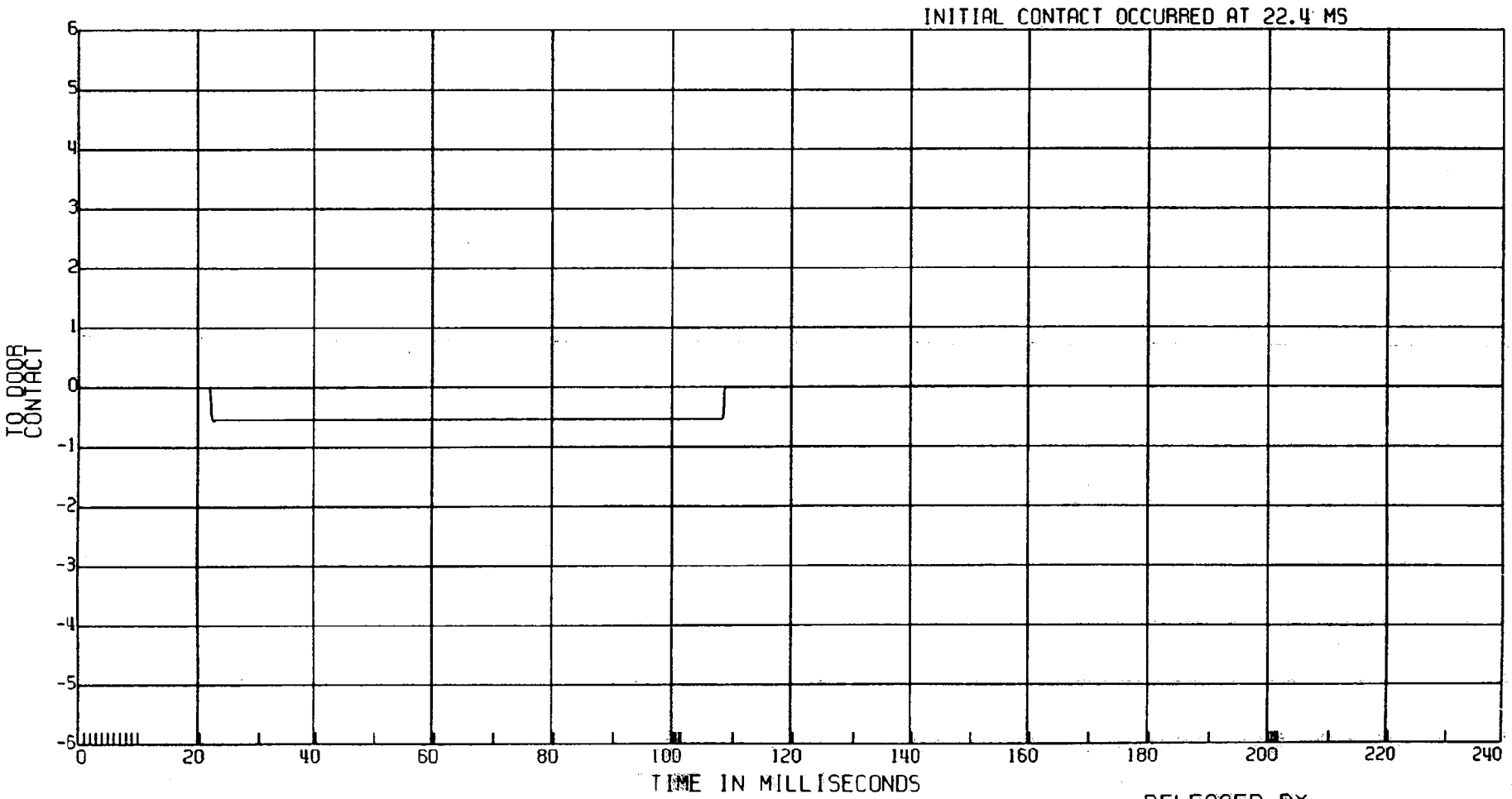
CPE MVMA 5B 2AF69

ELEC DATA, SAE CLASS 1000

L.REAR THORAX-LEFT SIDE CONTACT

ATD TYPE: SID

TEST DATE:03-06-90



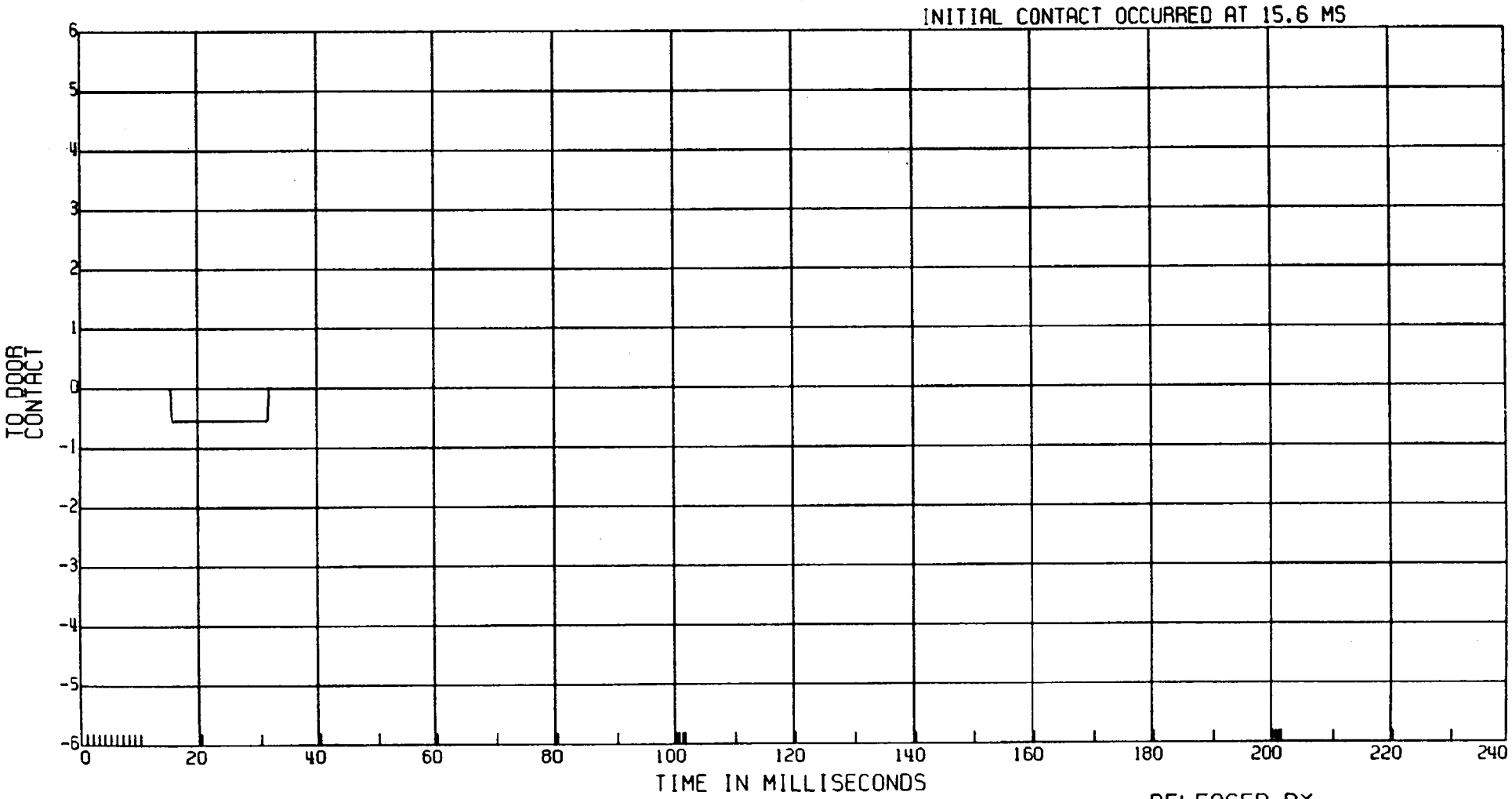
RELEASED BY:

72 PROCESSED 4 MY 90 11:47

C8005A L. SIDE IMPACT-27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 111
3868-905
CPE MVMA 5B 2AF69
ELEC DATA, SAE CLASS 1000

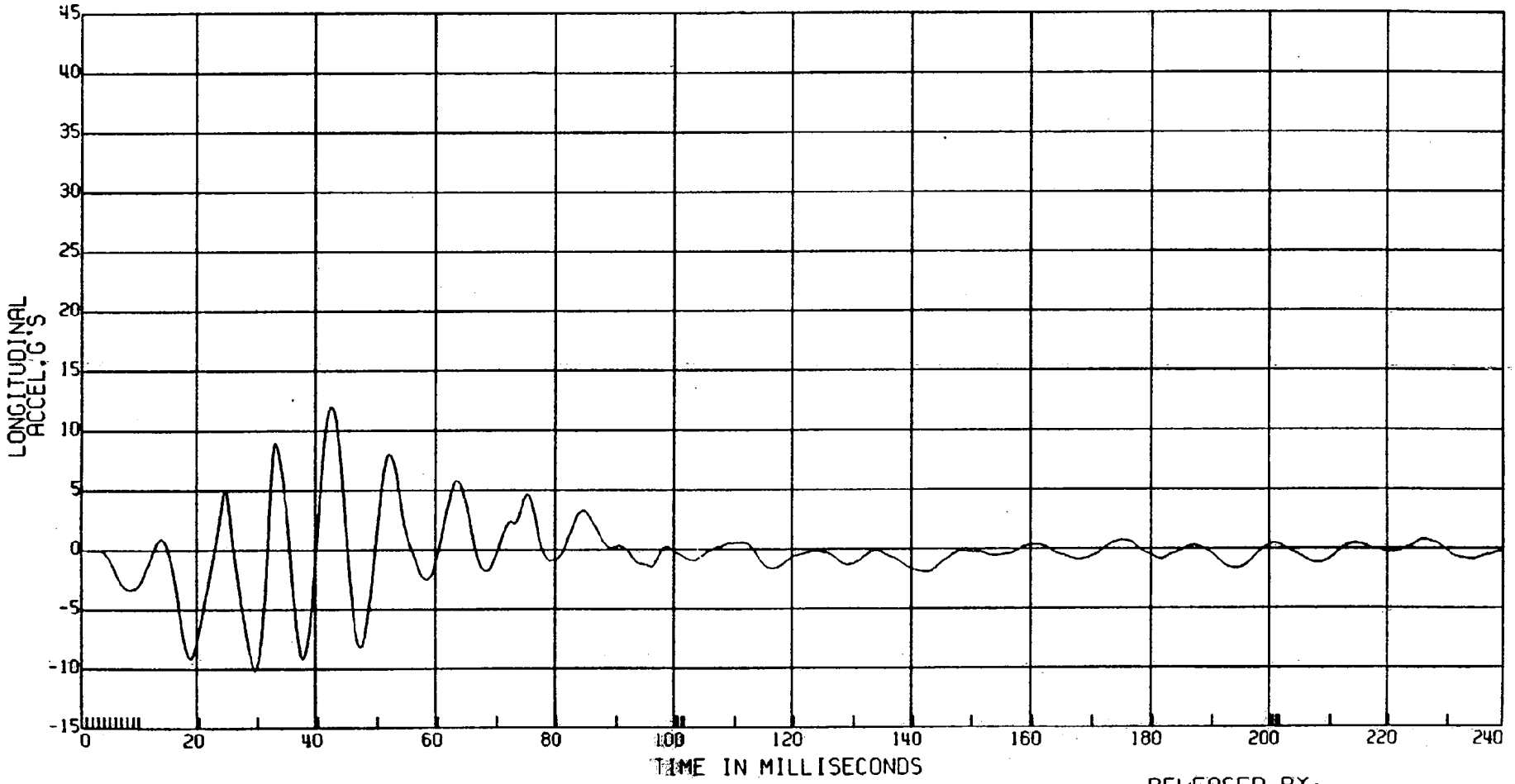
L.REAR ABDOMEN-LEFT SIDE CONTACT

ATD TYPE: SID
TEST DATE:03-06-90



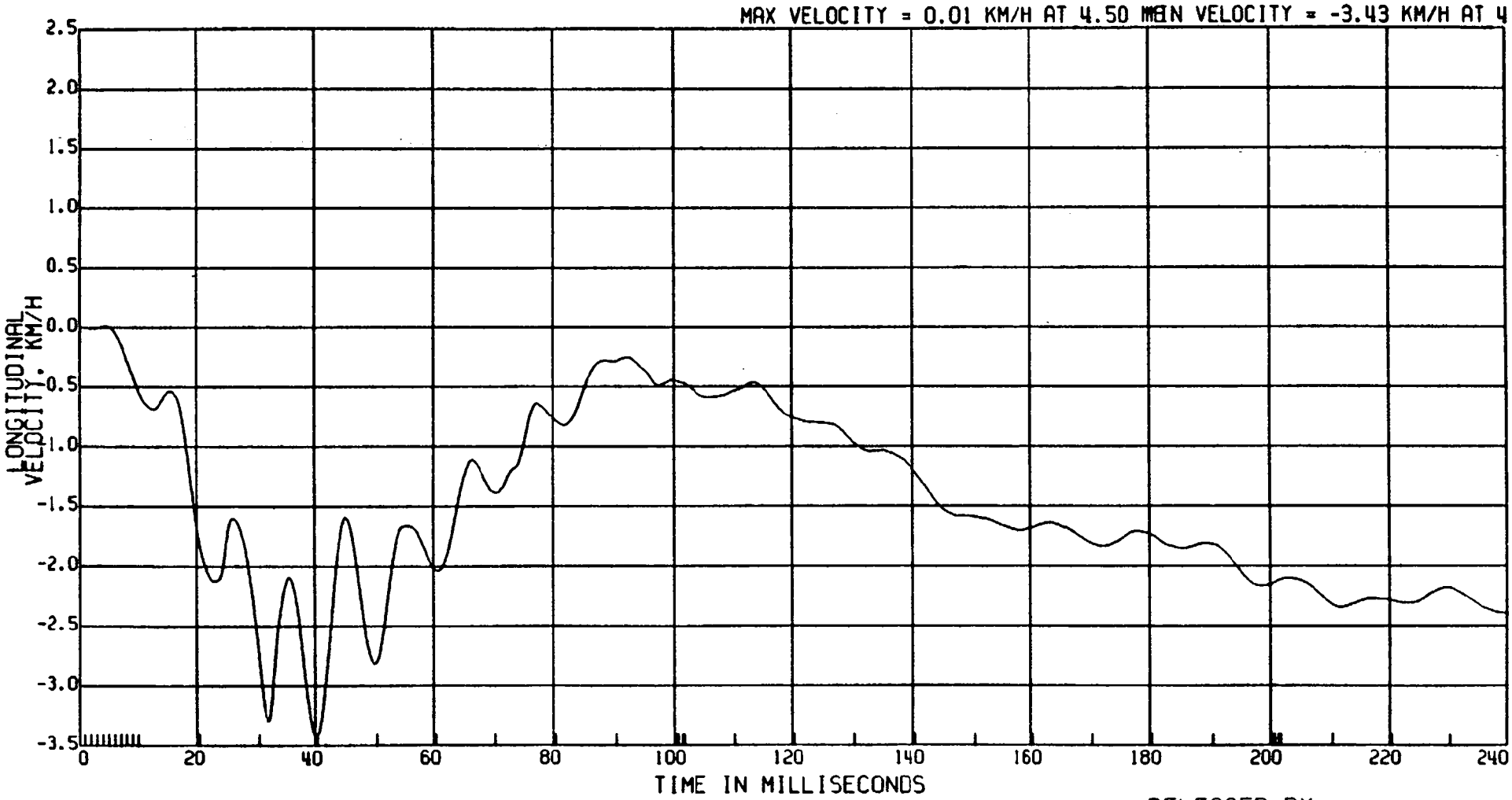
RELEASED BY:
73 PROCESSED 4 MY 90 11:47

C8005A L. SIDE IMPACT-27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 112
3868-905
CPE MVMA 5B 2AF69 PASS-SIDE ROCKER AT CTR OF IMPACT ACCEL. TEST DATE:03-06-90
ELEC DATA, SAE CLASS 60



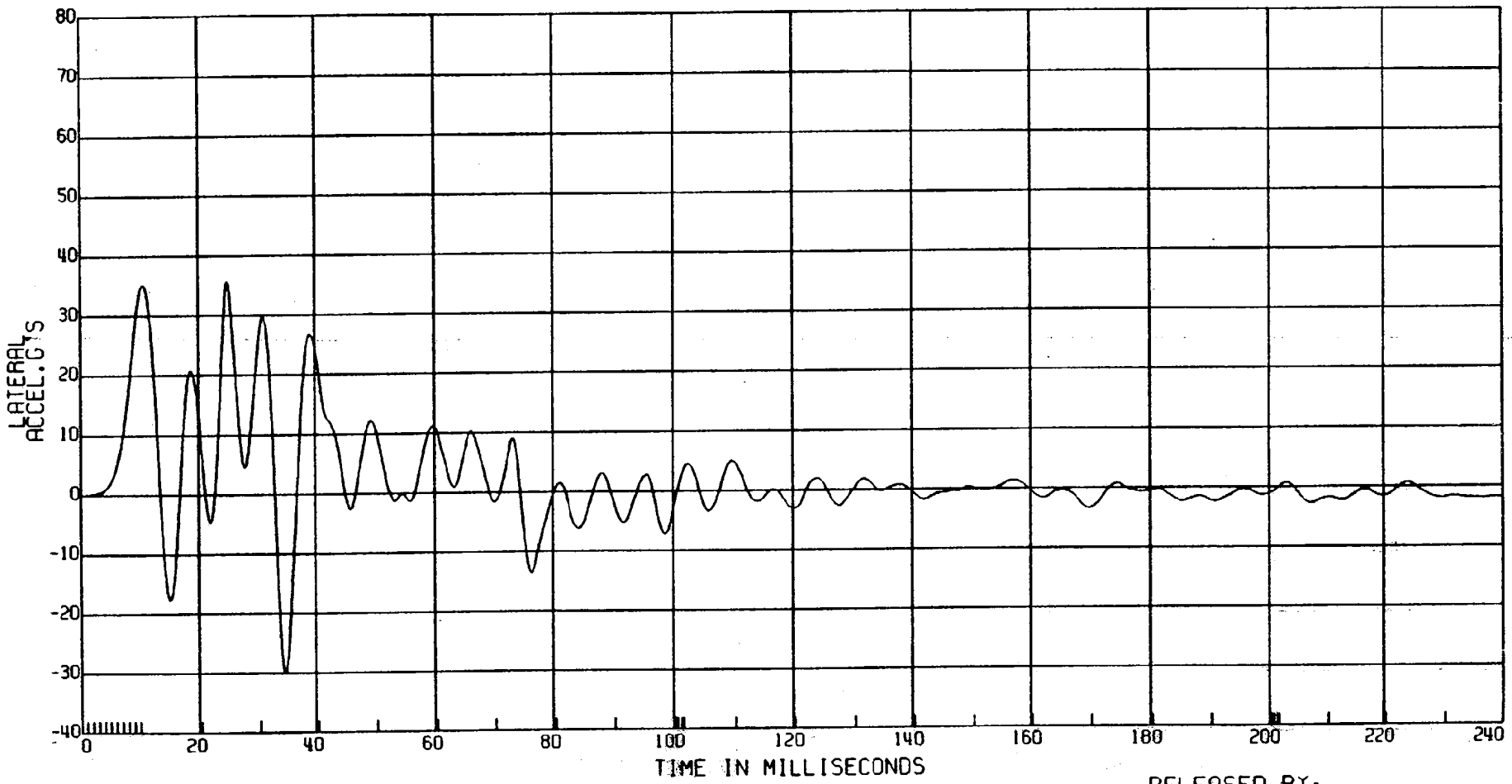
RELEASED BY:
3 PROCESSED 4 MY 90 11:45

C8005A L. SIDE IMPACT-27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 113
3868-905
CPE MVMA 5B 2AF69 COMPUTED ROCKER AT CTR OF IMPACT VEL TEST DATE:03-06-90
ELEC DATA, SAE CLASS 180 (1ST INTEGRAL OF PASS-SIDE ACCELERATION)



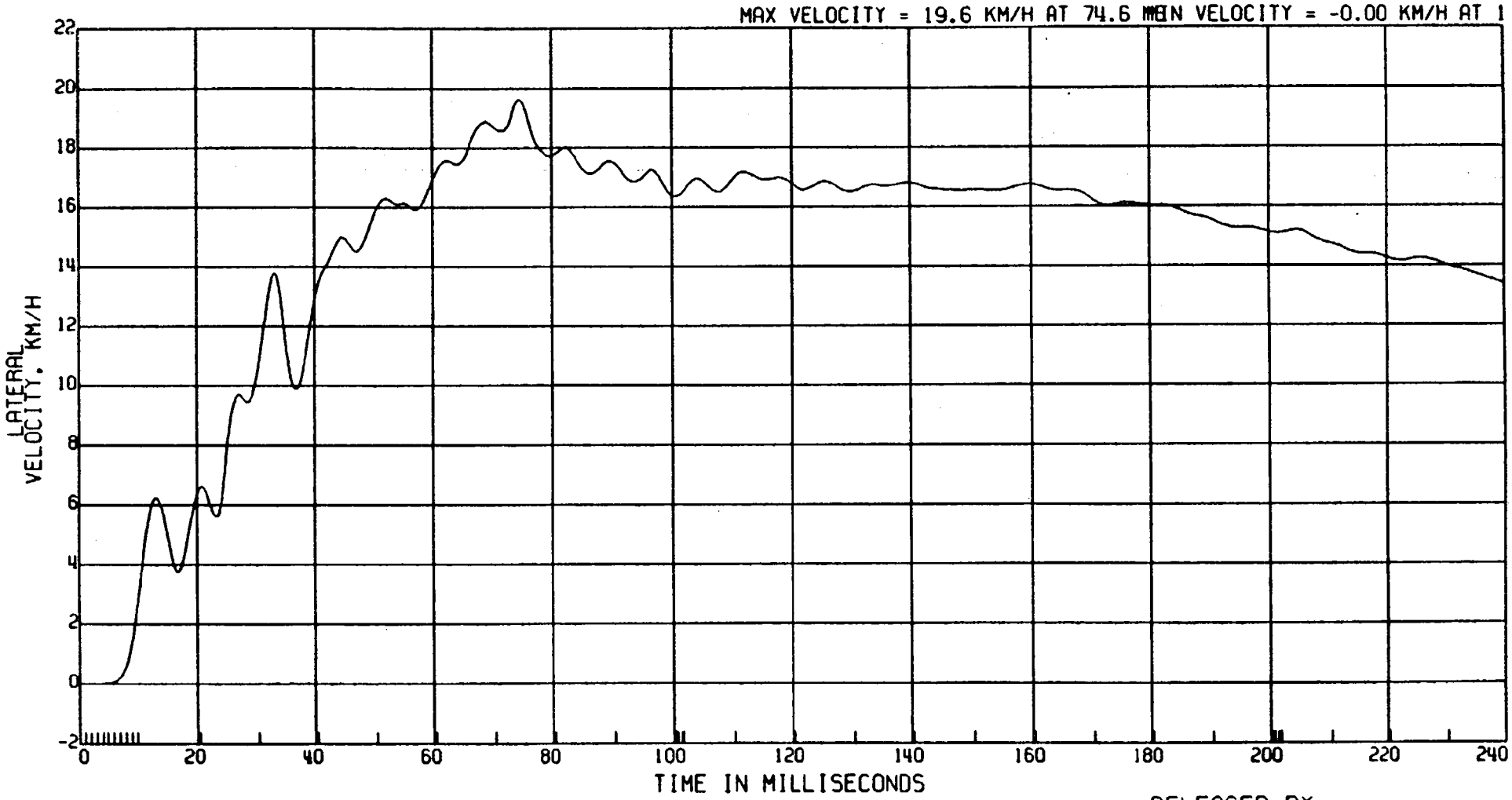
RELEASED BY:
4 PROCESSED 4 MT 90 11:45

C8005A L. SIDE IMPACT-27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 114
3868-905
CPE MVMA 5B 2AF69 PASS-SIDE ROCKER AT CTR OF IMPACT ACCEL. TEST DATE:03-06-90
ELEC DATA, SAE CLASS 60



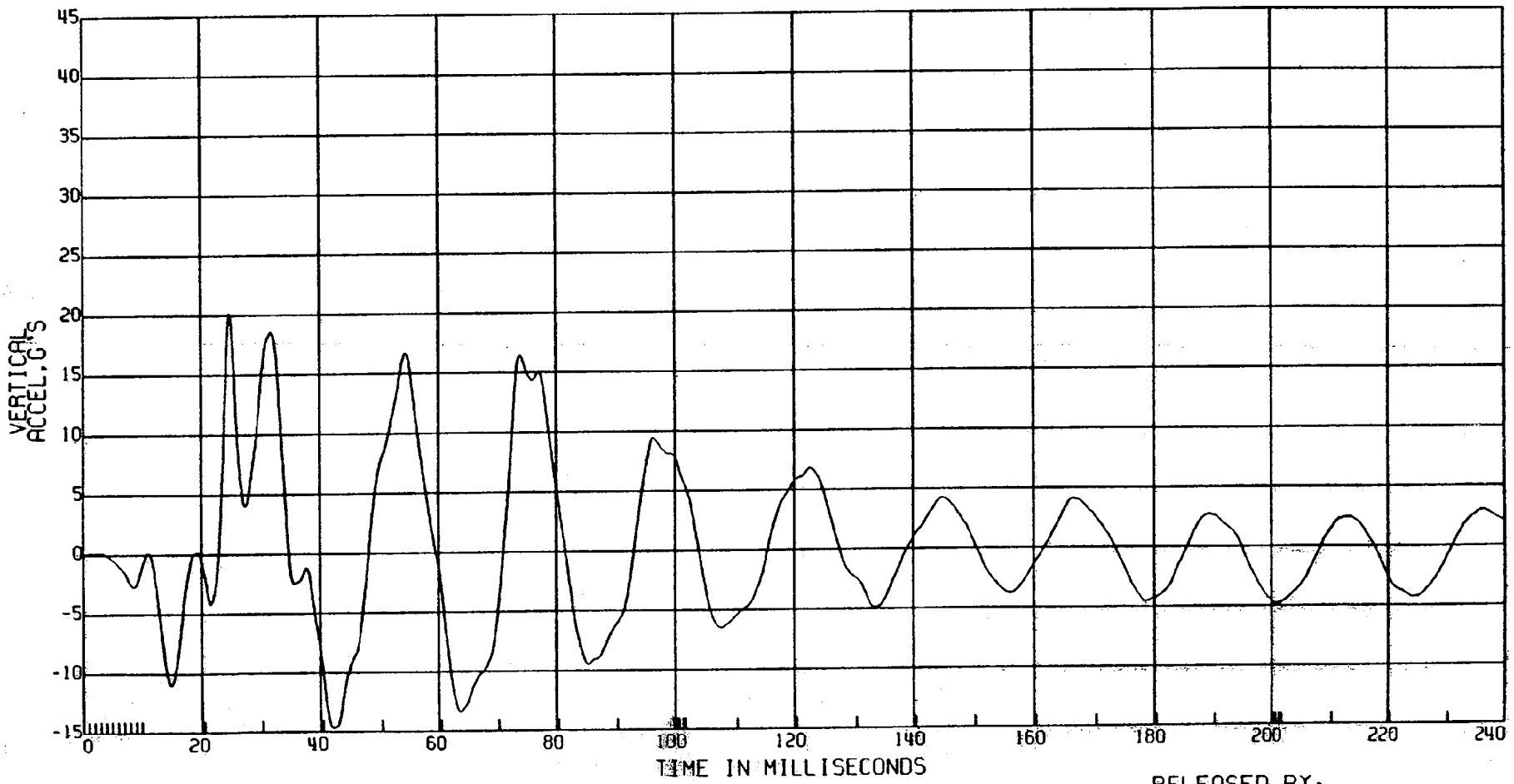
RELEASED BY:
5 PROCESSED 4 MT 90 11:45

C8005A L. SIDE IMPACT-27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 115
3868-905
CPE MVMA 5B 2AF69 COMPUTED ROCKER AT CTR OF IMPACT VEL TEST DATE:03-06-90
ELEC DATA, SAE CLASS 180 (1ST INTEGRAL OF PASS-SIDE ACCELERATION)



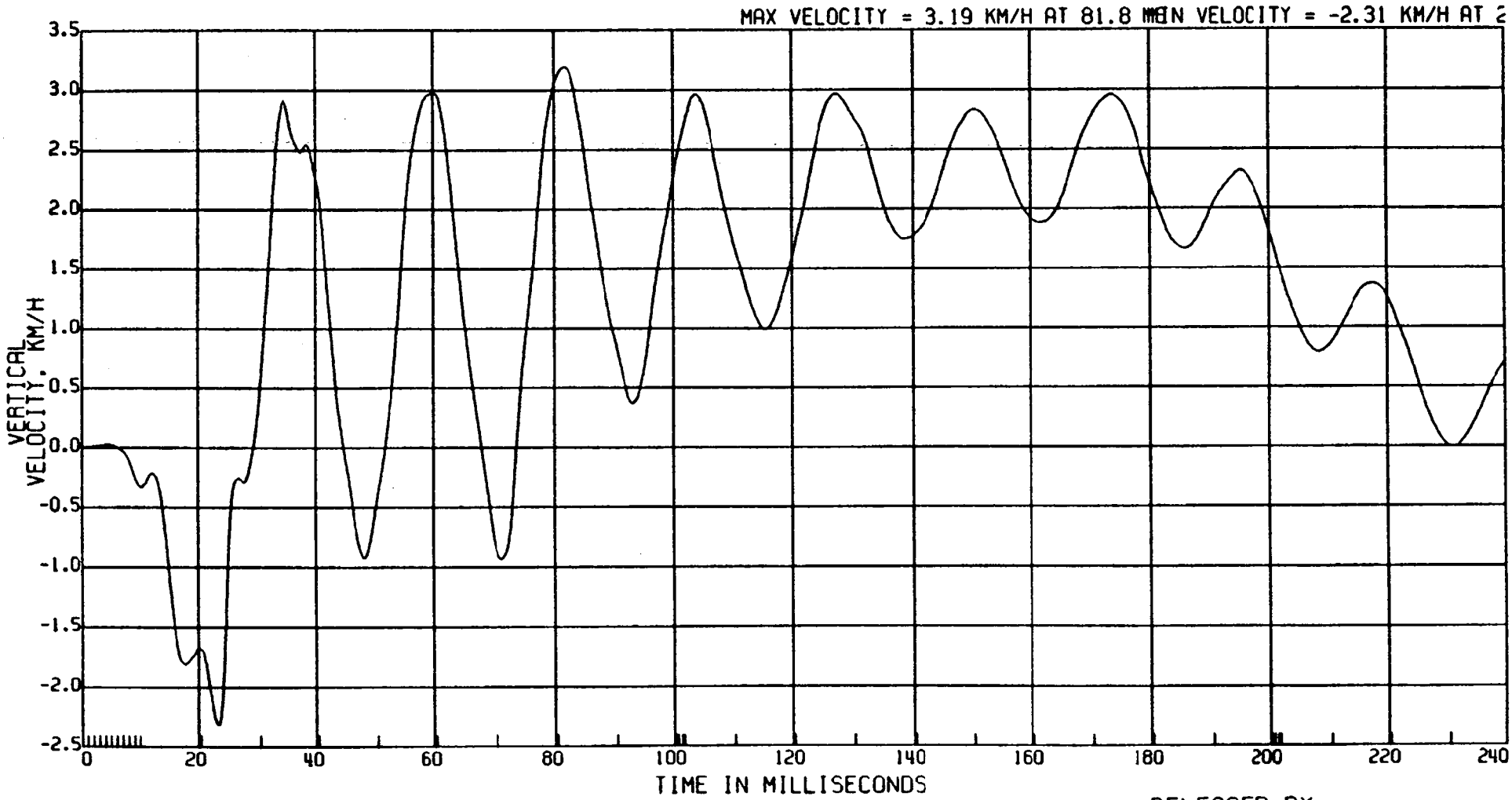
RELEASED BY:
6 PROCESSED 4 MY 90 11:45

C8005A L. SIDE IMPACT-27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 116
3868-905
CPE MVMA 5B 2AF69 PASS-SIDE ROCKER AT CTR OF IMPACT ACCEL. TEST DATE:03-06-90
ELEC DATA, SAE CLASS 60



RELEASED BY:
7 PROCESSED 4 MY 90 11:45

C8005A L. SIDE IMPACT-27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 117
3868-905
CPE MVMA 5B 2AF69 COMPUTED ROCKER AT CTR OF IMPACT VEL TEST DATE:03-06-90
ELEC DATA, SAE CLASS 180 (1ST INTEGRAL OF PASS-SIDE ACCELERATION)



RELEASED BY:
8 PROCESSED 4 MT 90 11:45

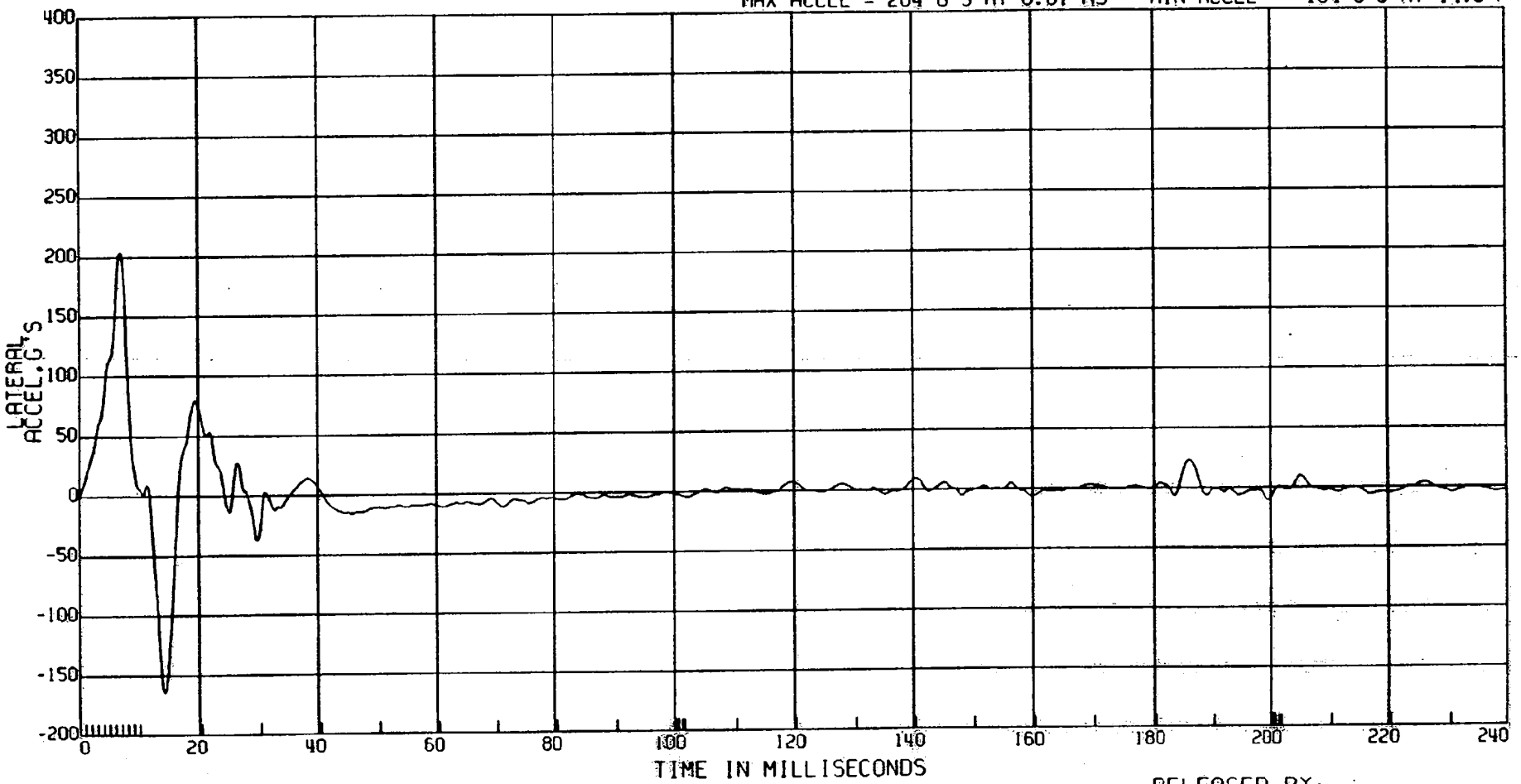
C8005A L. SIDE IMPACT-27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 118

3868-905

CPE MVMA 5B 2AF69 DR-SIDE FRT. DOOR NO. 1 ACCEL. TEST DATE:03-06-90

ELEC DATA, SAE CLASS 60

MAX ACCEL = 204 G'S AT 6.81 MS MIN ACCEL = -164 G'S AT 14.3 M



RELEASED BY:

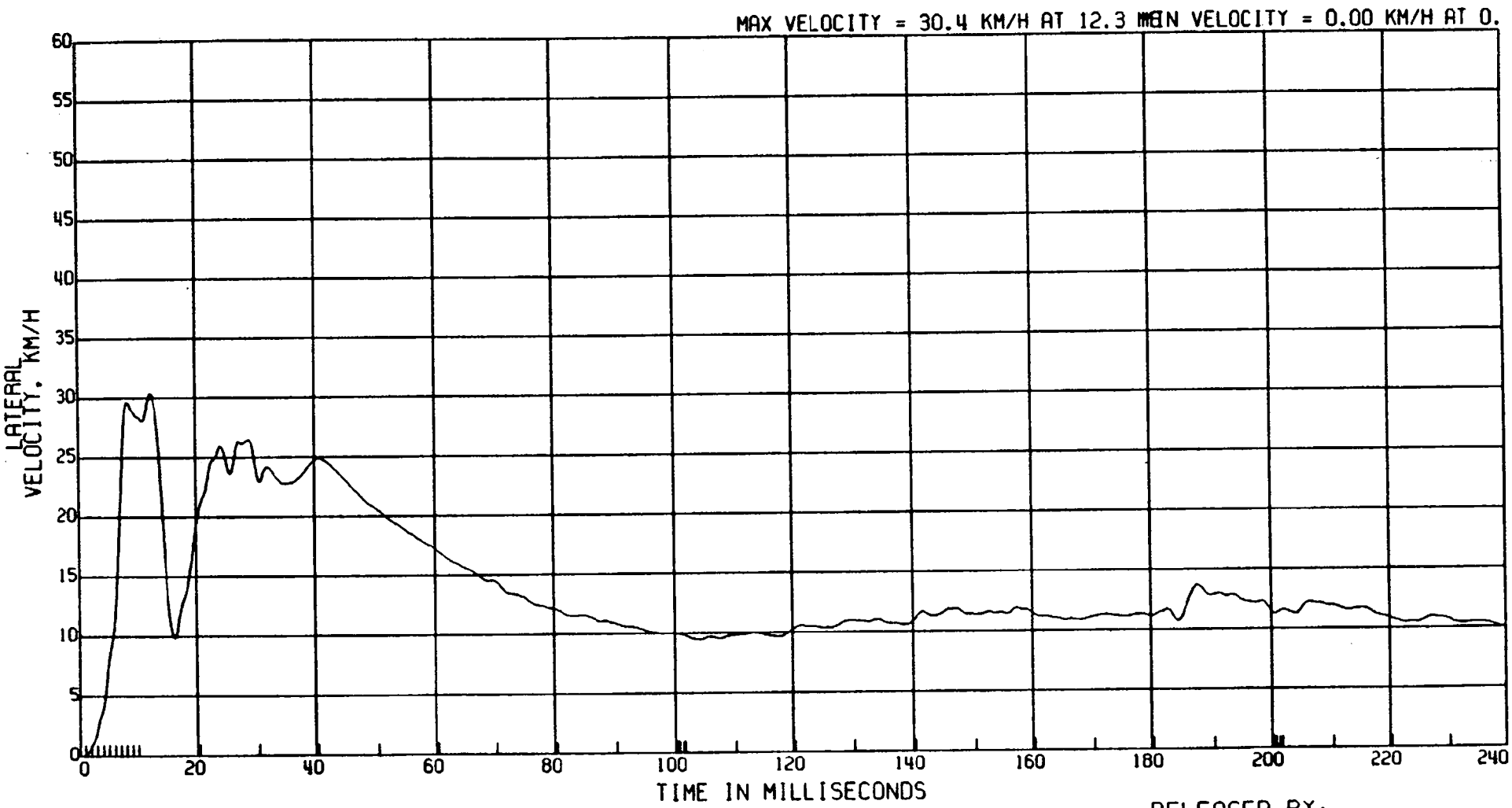
9 PROCESSED 4 MY 90 11:45

C8005A L. SIDE IMPACT-27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 119

3868-905

CPE MVMA 5B 2AF69 COMPUTED FRT. DOOR NO. 1 VELOCITY TEST DATE:03-06-90

ELEC DATA, SAE CLASS 180 (1ST INTEGRAL OF DR-SIDE ACCELERATION)



RELEASED BY:

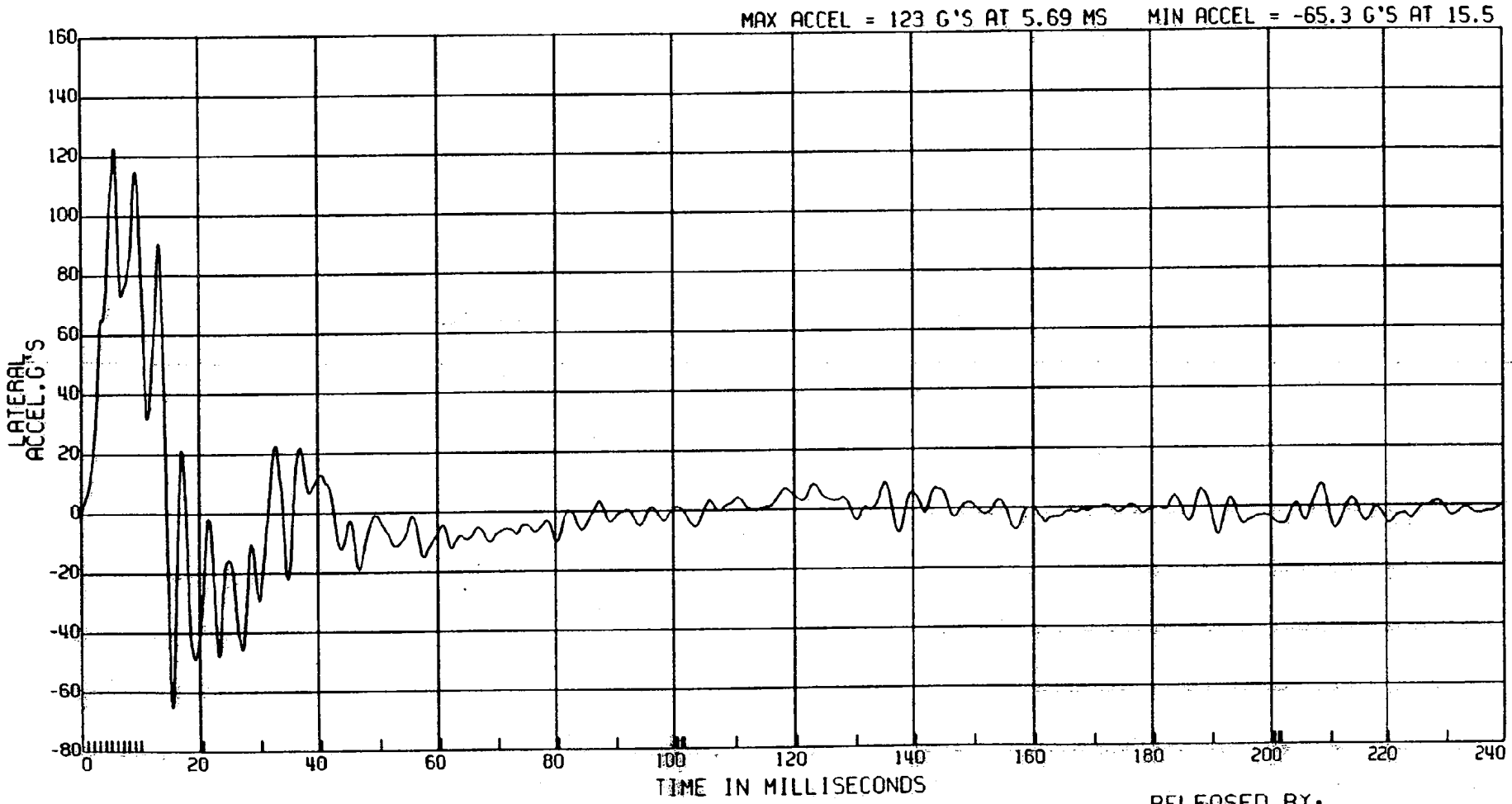
10 PROCESSED 4 MY 90 11:45

C8005A L. SIDE IMPACT-27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 120

3868-905

CPE MVMA 5B 2AF69 DR-SIDE FRT. DOOR NO. 2 ACCEL. TEST DATE:03-06-90

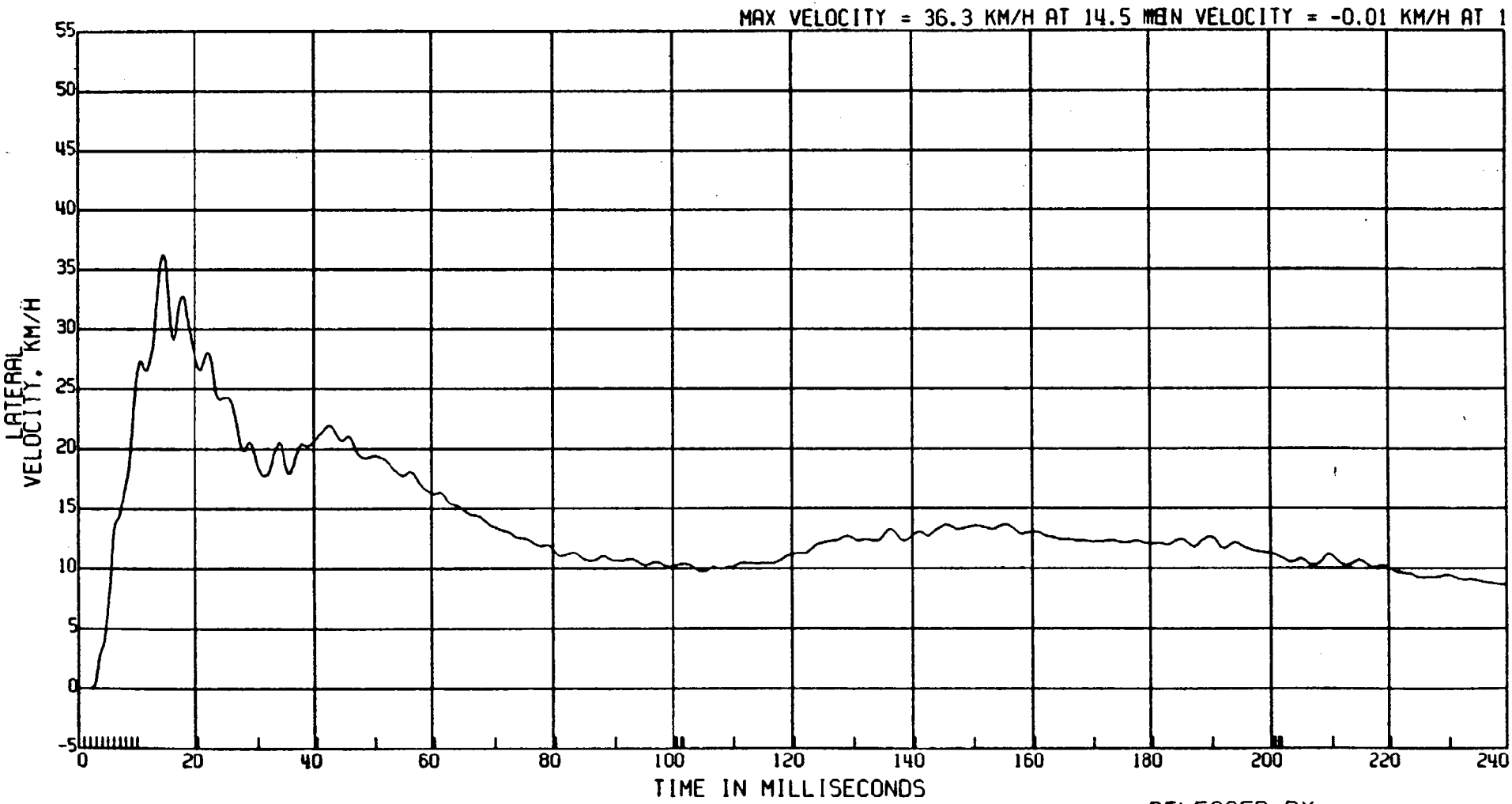
ELEC DATA, SAE CLASS 60



RELEASED BY:

H1 PROCESSED 4 MY 90 11:45

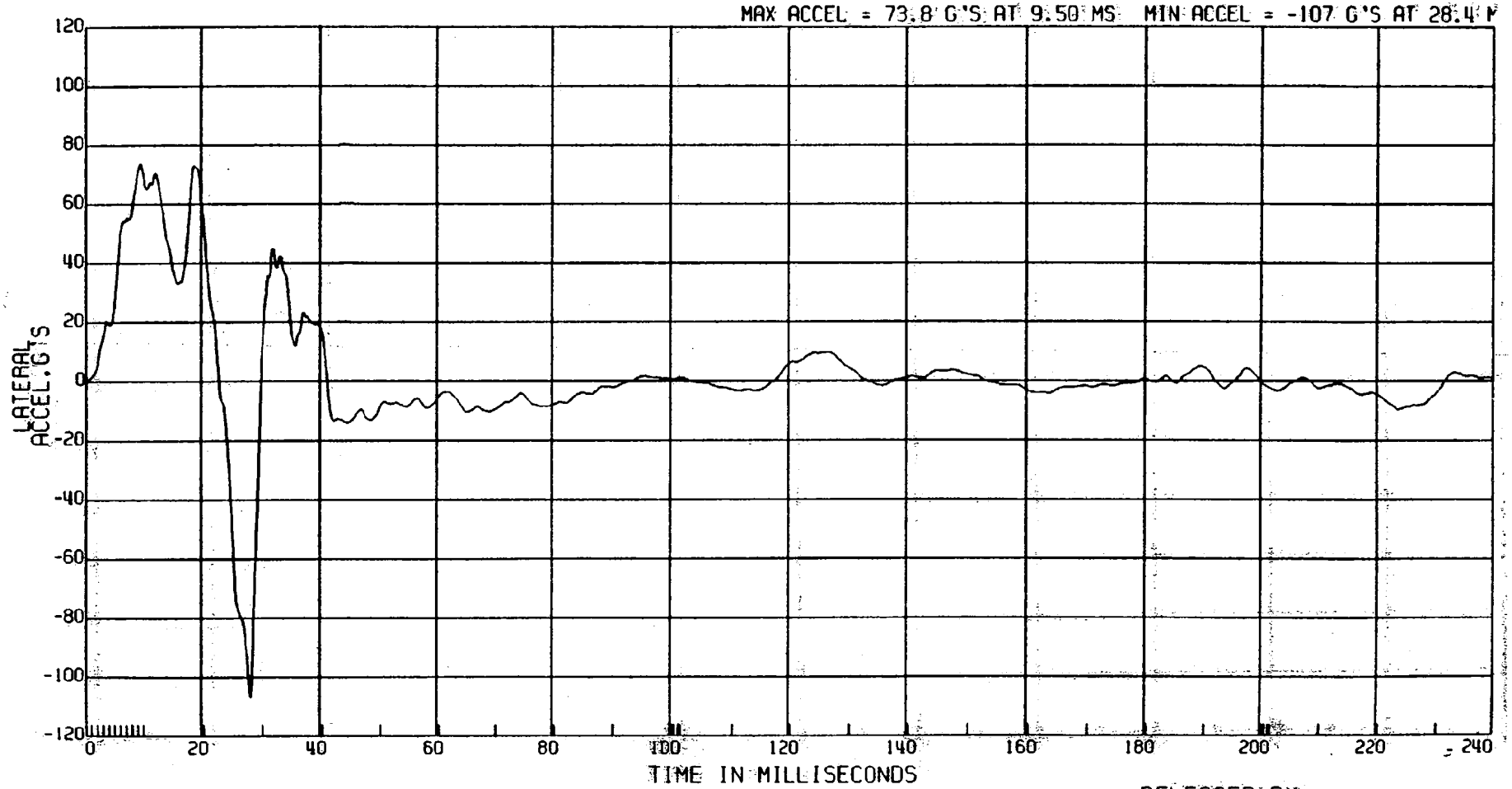
C8005A L. SIDE IMPACT-27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 121
3868-905
CPE MVMA 5B 2AF69 COMPUTED FRT. DOOR NO. 2 VELOCITY TEST DATE:03-06-90
ELEC DATA, SAE CLASS 180 (1ST INTEGRAL OF DR-SIDE ACCELERATION)



RELEASED BY:
12 PROCESSED 4 MY 90 11:45

68005A L. SIDE IMPACT-27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 12
3868-905
CPE MVMA 5B 2AF69 DR-SIDE FRT. DOOR NO. 3 ACCEL. TEST DATE:03-06-90
ELEC DATA, SAE CLASS 60

MAX ACCEL = 73.8 G'S AT 9.50 MS MIN ACCEL = -107 G'S AT 28.4 M



RELEASED BY:
13 PROCESSED 4 MY 90 11:45

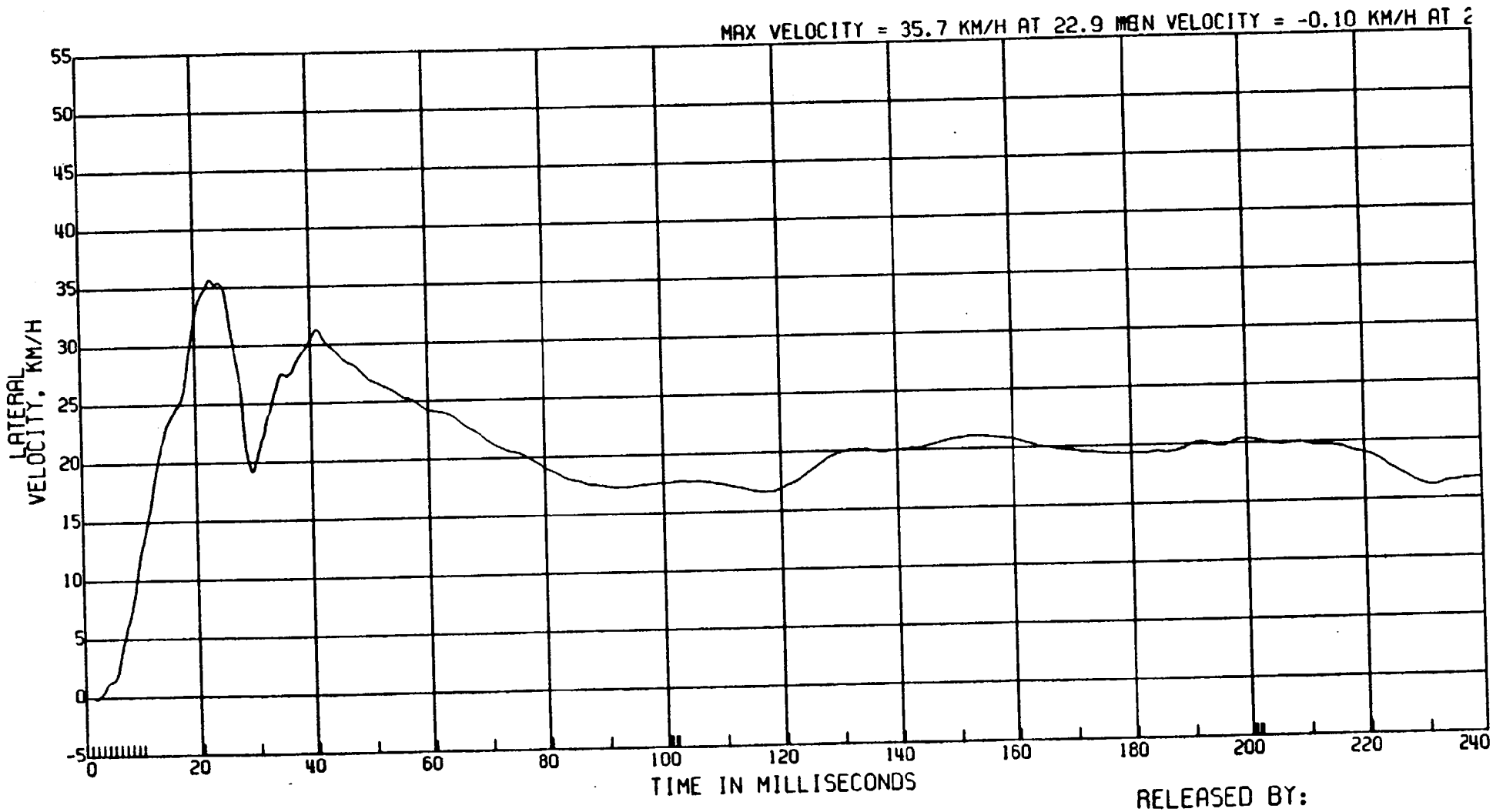
8005A L. SIDE IMPACT-27 DEG
868-905
CPE MVMA 5B 2AF69
LEC DATA, SAE CLASS 180

MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 123

COMPUTED FRT. DOOR NO. 3 VELOCITY

(1ST INTEGRAL OF DR-SIDE ACCELERATION)

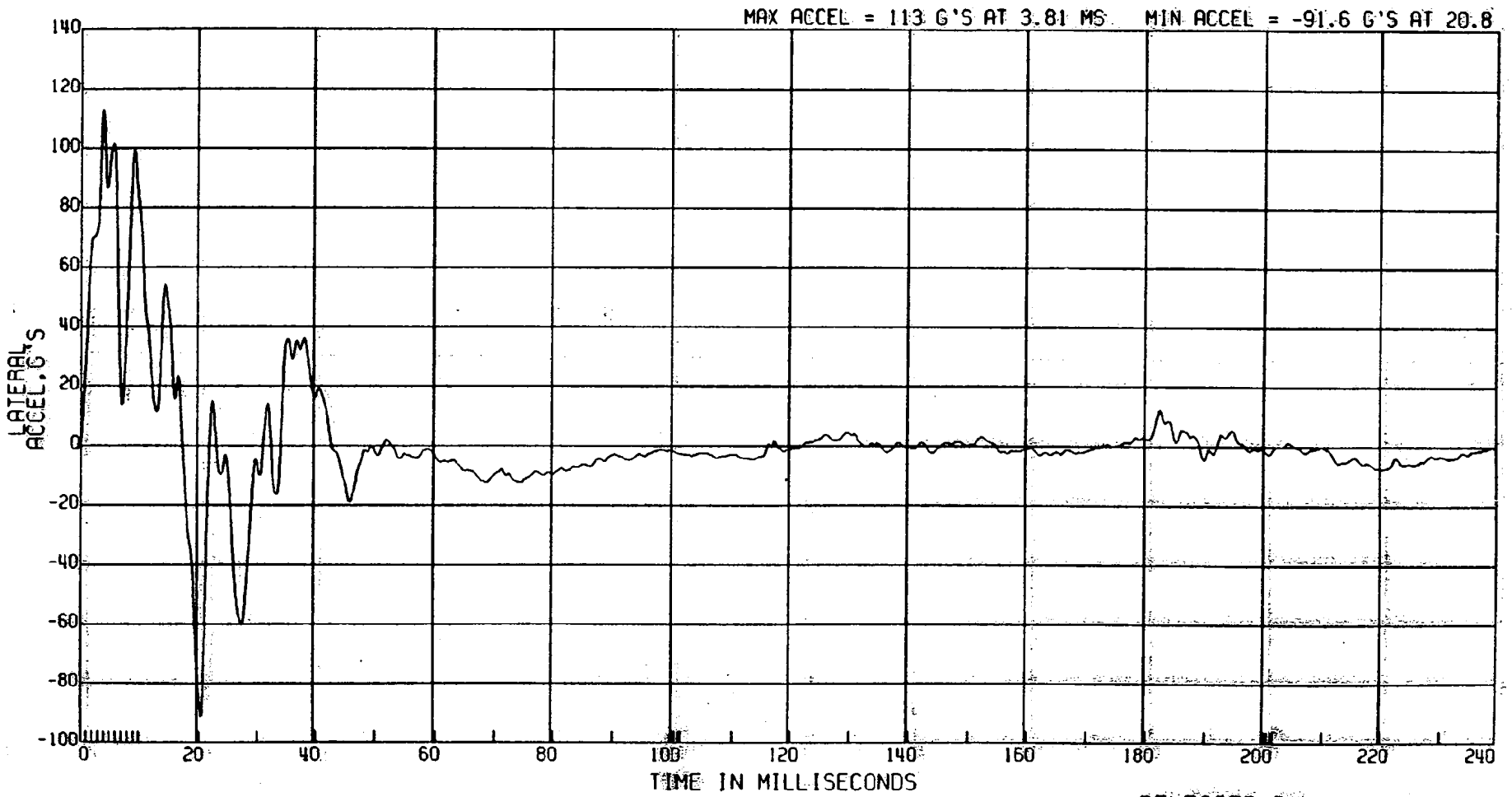
TEST DATE:03-06-90



RELEASED BY:

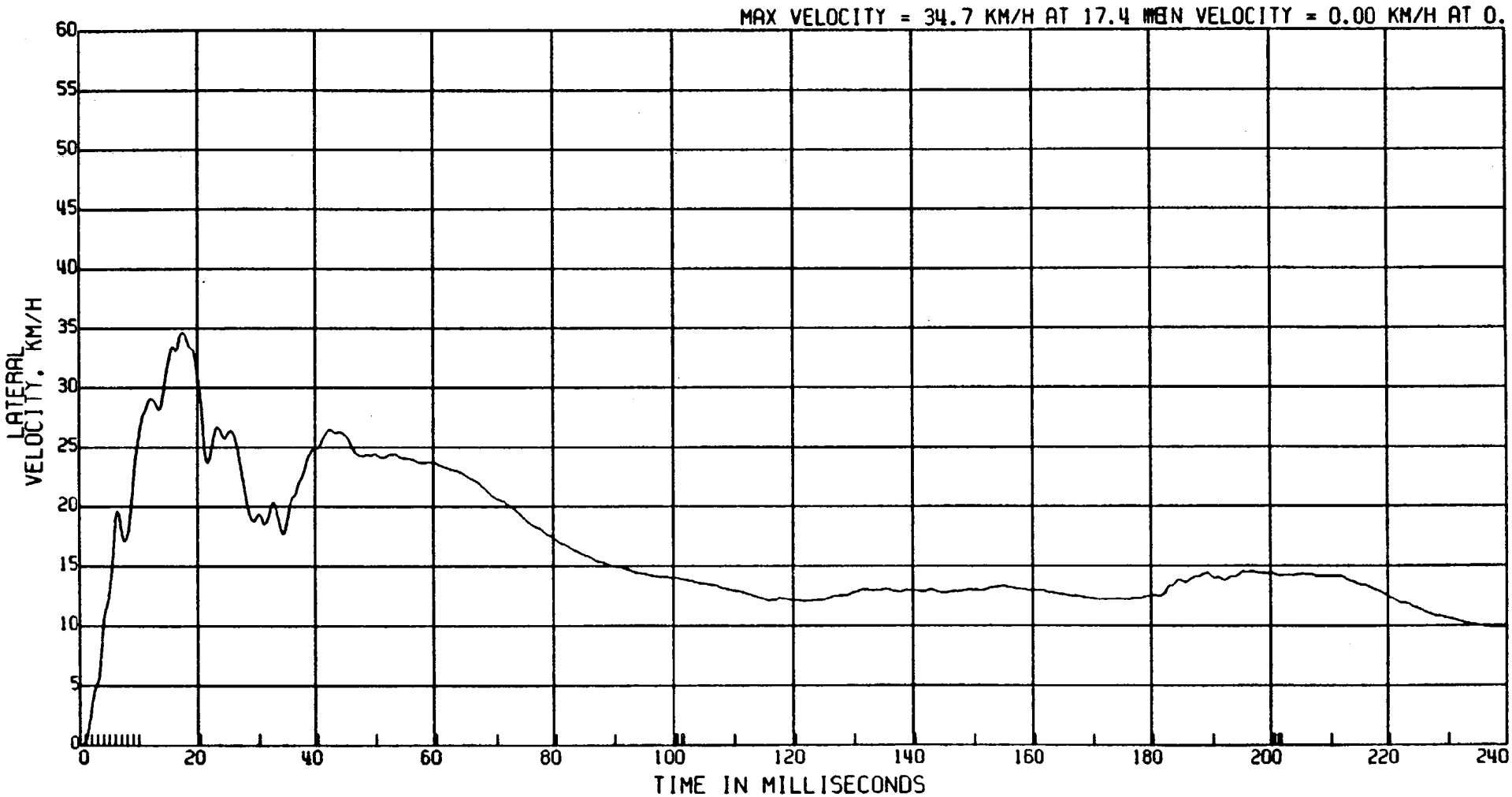
14 PROCESSED 4 MY 90 11:45

C8005A L. SIDE IMPACT-27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 124
3868-905
CPE MVMA 5B 2AF69 DR-SIDE FRT. DOOR NO. 4 ACCEL. TEST DATE:03-06-90
ELEC DATA, SAE CLASS 60



RELEASED BY:
15 PROCESSED 4 MY 90 11:45

C8005A L. SIDE IMPACT-27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 125
3868-905
CPE MVMA 5B 2AF69 COMPUTED FRT. DOOR NO. 4 VELOCITY TEST DATE:03-06-90
ELEC DATA, SAE CLASS 180 (1ST INTEGRAL OF DR-SIDE ACCELERATION)



RELEASED BY:
16 PROCESSED 4 MT 90 11:45

CB005A L. SIDE IMPACT-27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 126

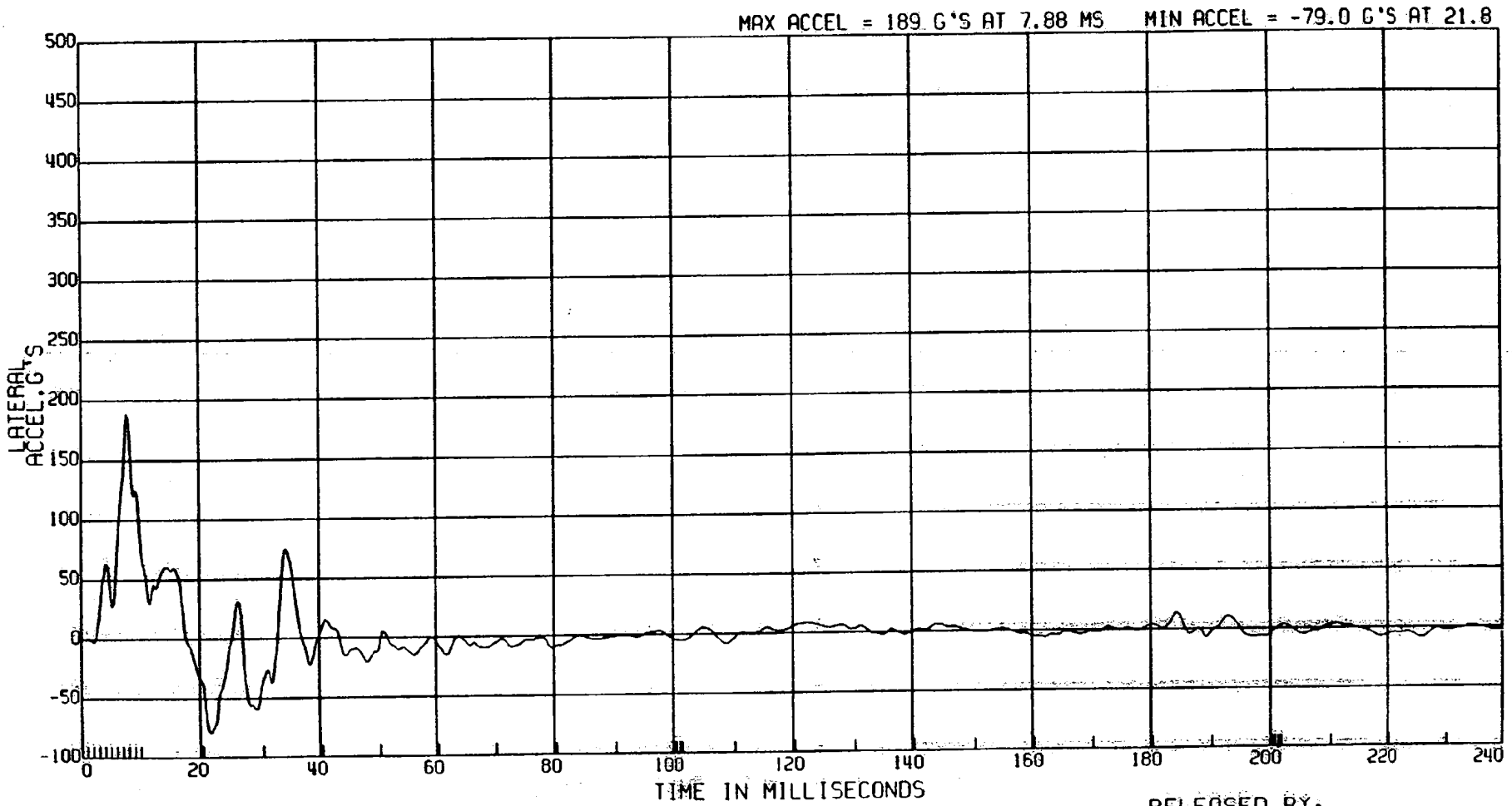
3868-905

CPE MVMA 5B 2AF69

ELEC DATA, SAE CLASS 60

DR-SIDE FRT. DOOR NO. 5 ACCEL.

TEST DATE:03-06-90



RELEASED BY:

17 PROCESSED 4 MY 90 11:45

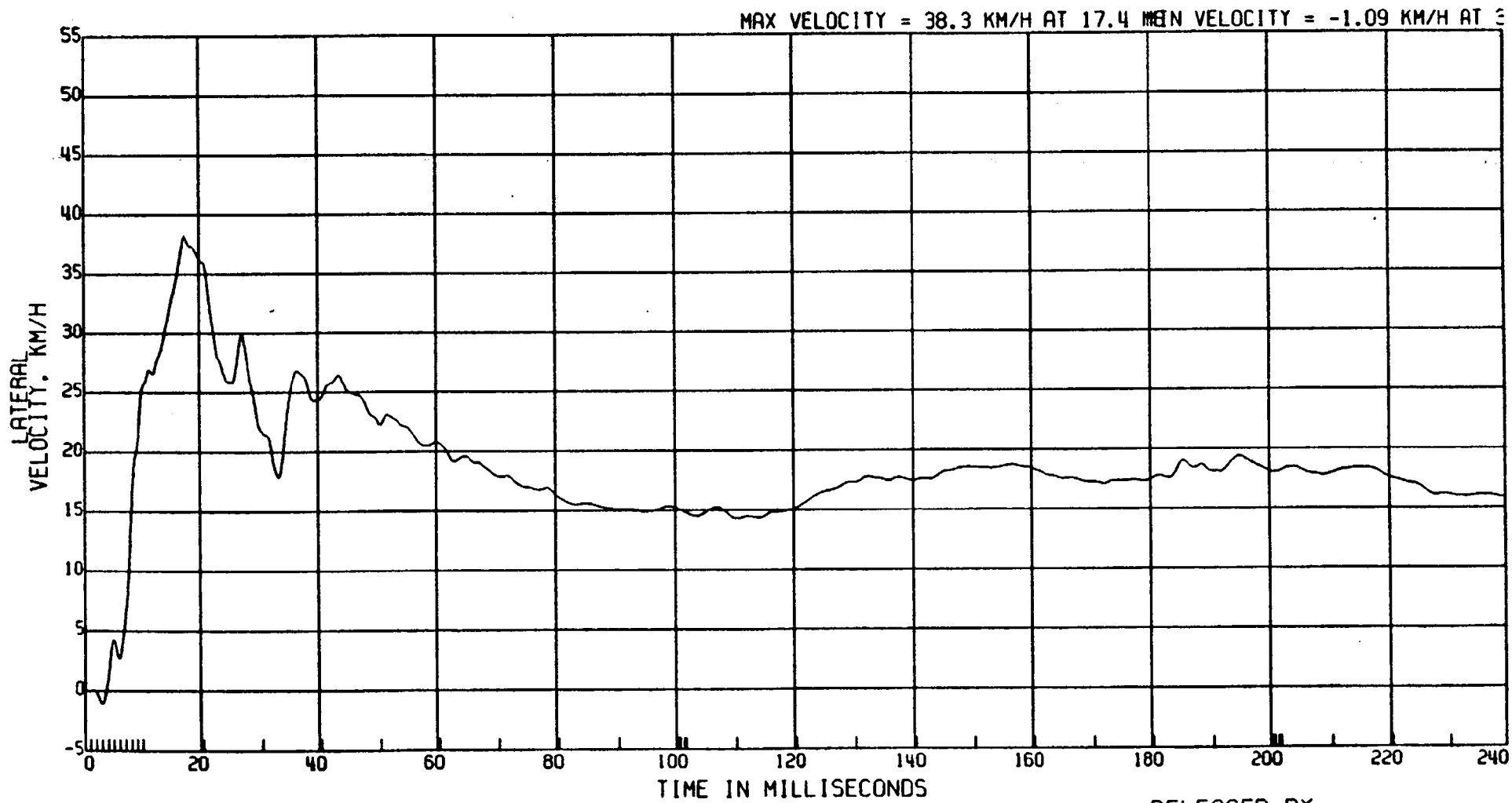
C8005A L. SIDE IMPACT-27 DEG
3868-905
CPE MVMA 5B 2AF69
ELEC DATA, SAE CLASS 180

MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 127

COMPUTED FRT. DOOR NO. 5 VELOCITY

(1ST INTEGRAL OF DR-SIDE ACCELERATION)

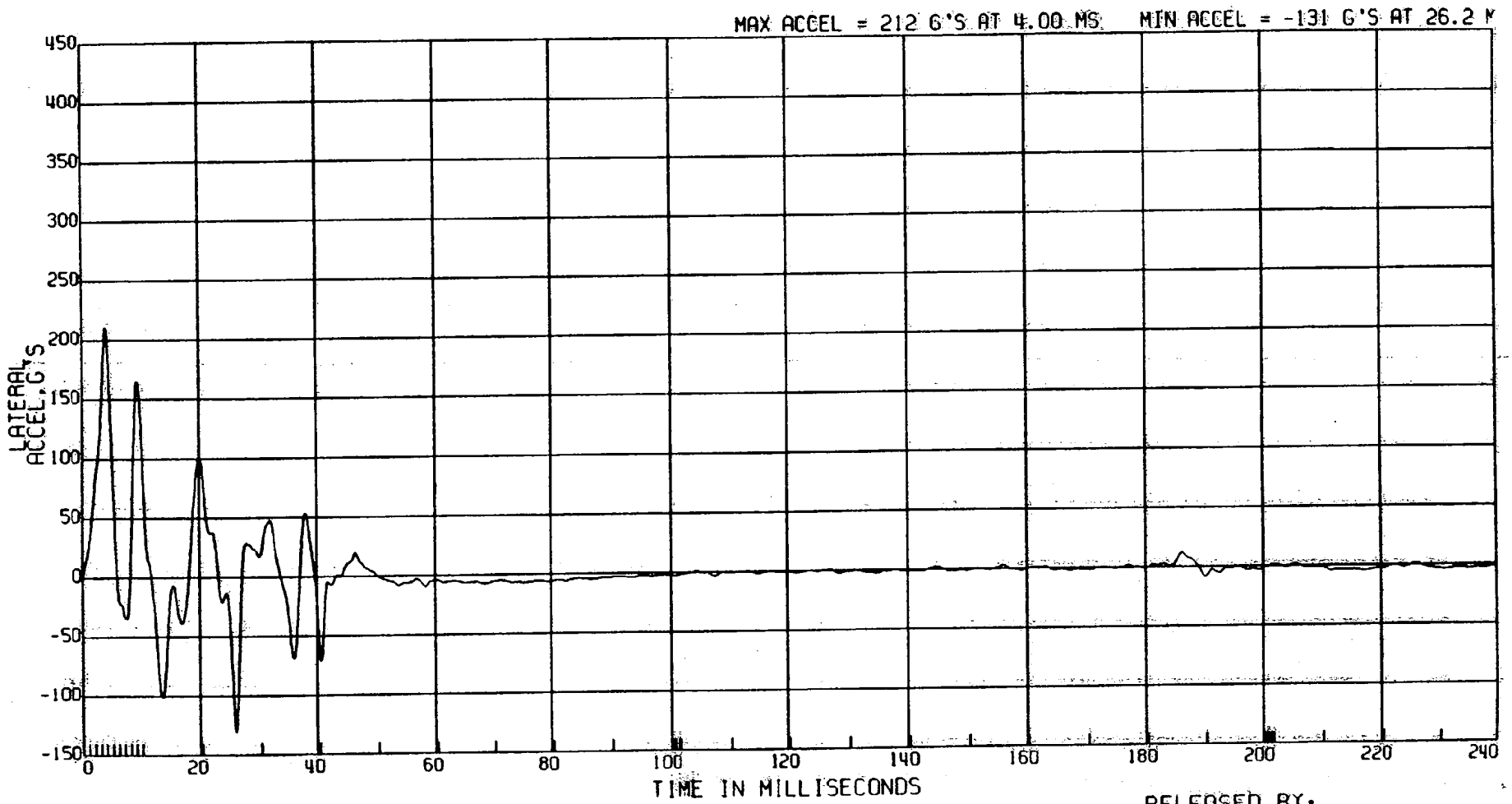
TEST DATE:03-06-90



RELEASED BY:

18 PROCESSED 4 MY 90 11:45

C8005A L. SIDE IMPACT-27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 128
3868-905
CPE MVMA 5B 2AF69 DR-SIDE REAR DOOR NO. 1 ACCEL. TEST DATE:03-06-90
ELEC DATA, SAE CLASS 60



RELEASED BY:
19 PROCESSED 4 MY 90 11:45

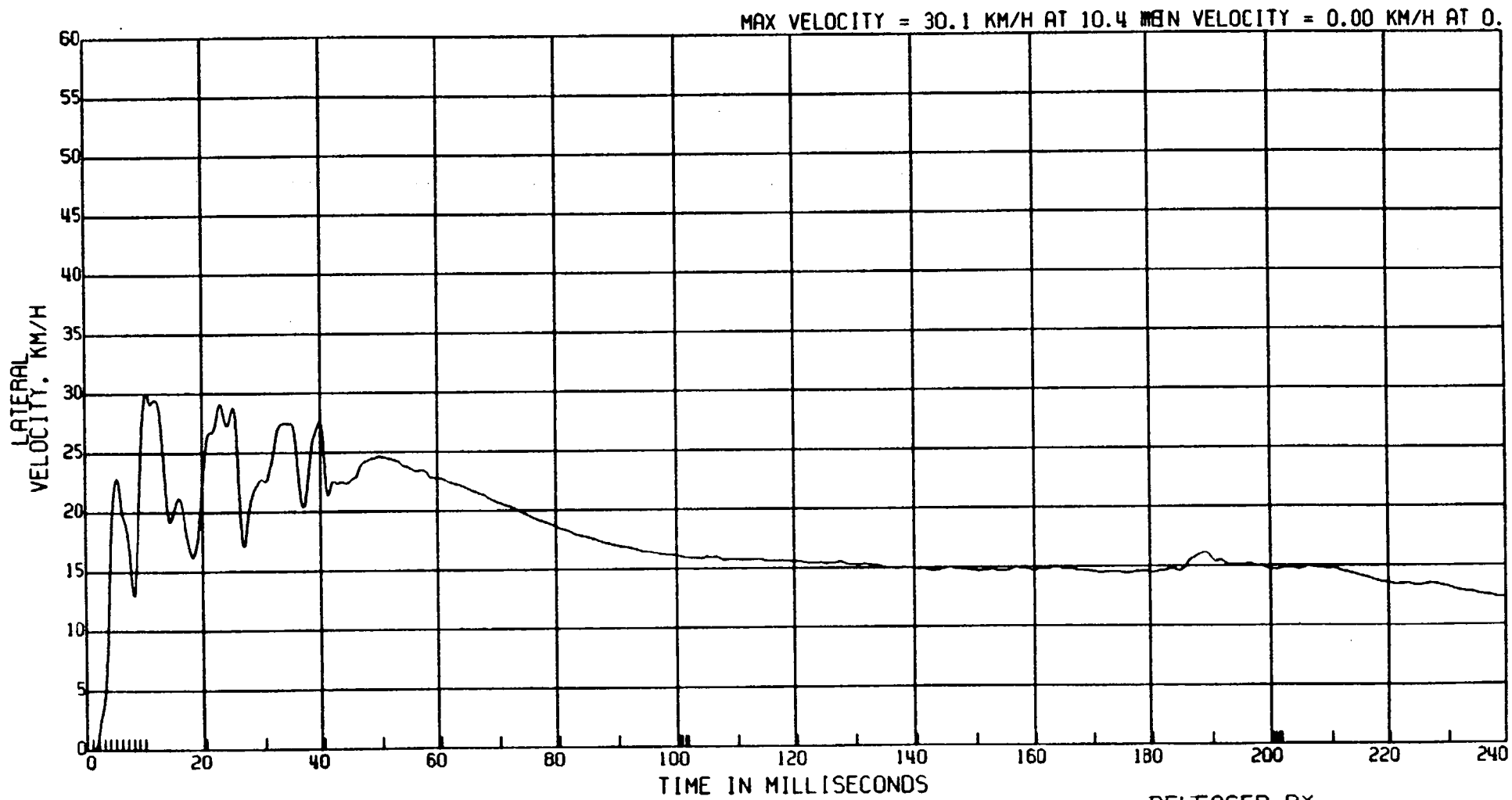
C8005A L. SIDE IMPACT-27 DEG
3868-905
CPE MVMA 5B 2AF69
ELEC DATA, SAE CLASS 180

MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 129

COMPUTED REAR DOOR NO. 1 VELOCITY

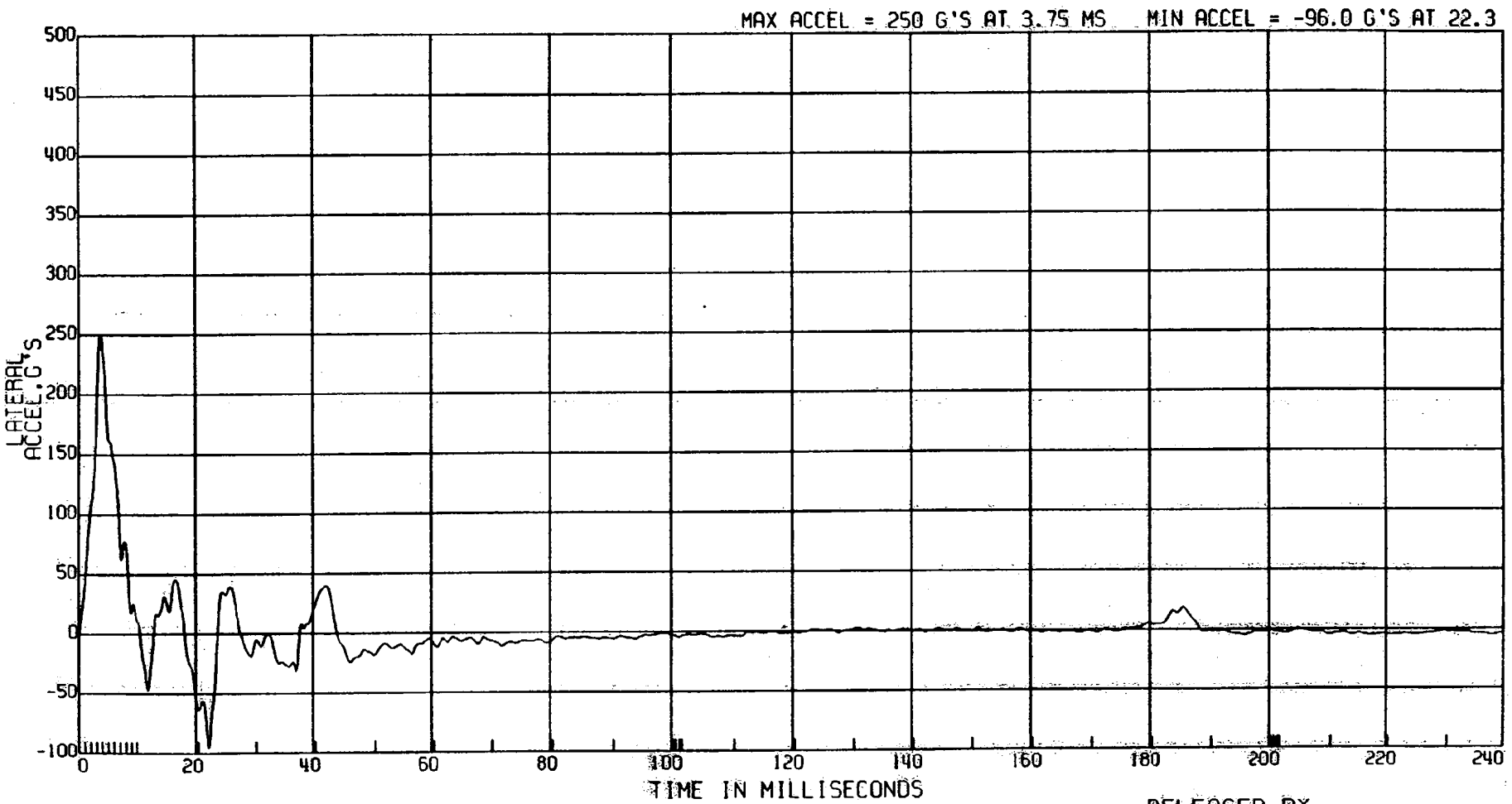
(1ST INTEGRAL OF DR-SIDE ACCELERATION)

TEST DATE:03-06-90



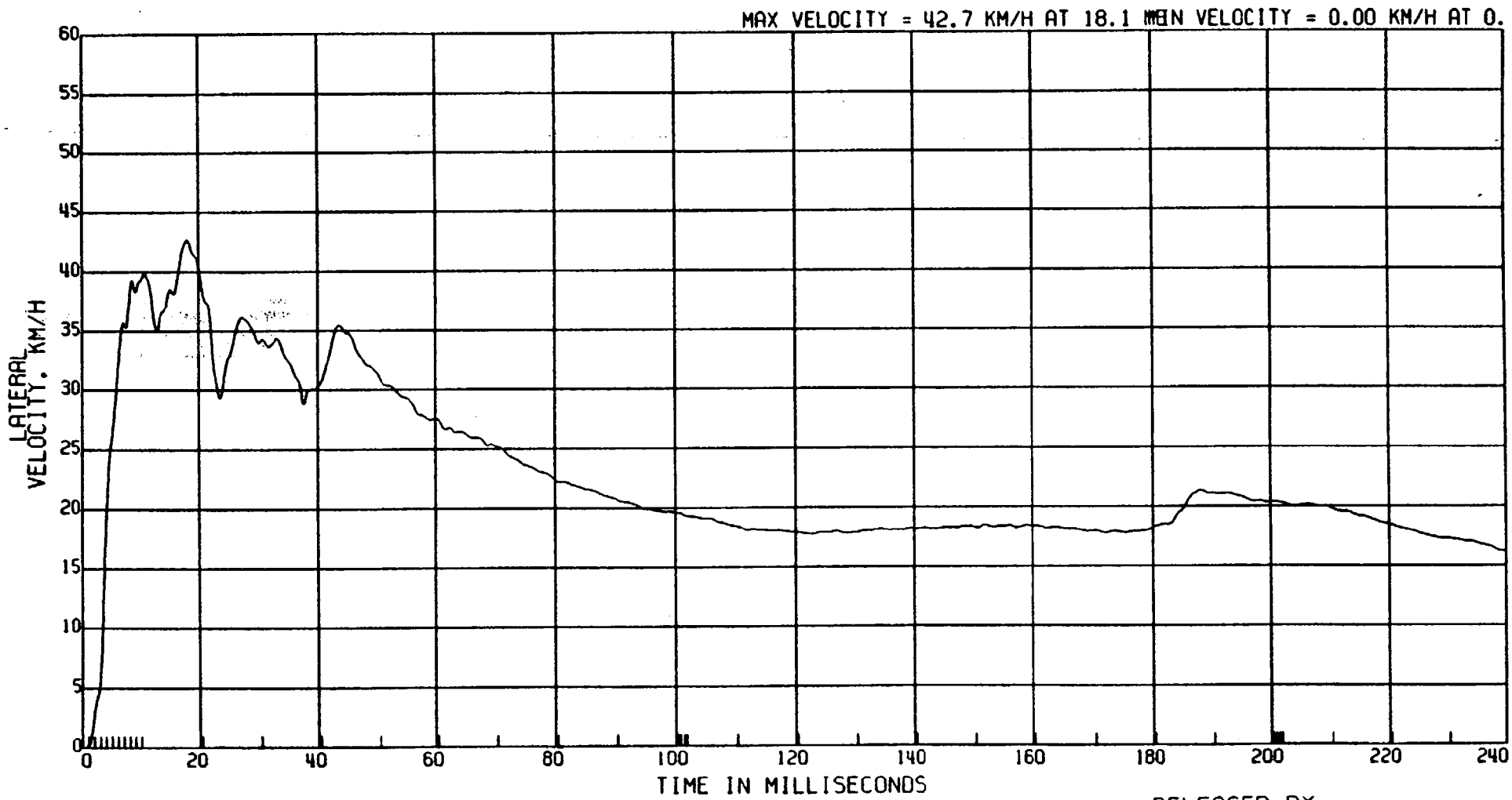
RELEASED BY:
20 PROCESSED 4 MT 90 11:45

C8005A L. SIDE IMPACT-27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 130
3868-905
CPE MVMA 5B 2AF69 DR-SIDE REAR DOOR NO. 2 ACCEL. TEST DATE:03-06-90
ELEC DATA, SAE CLASS 60



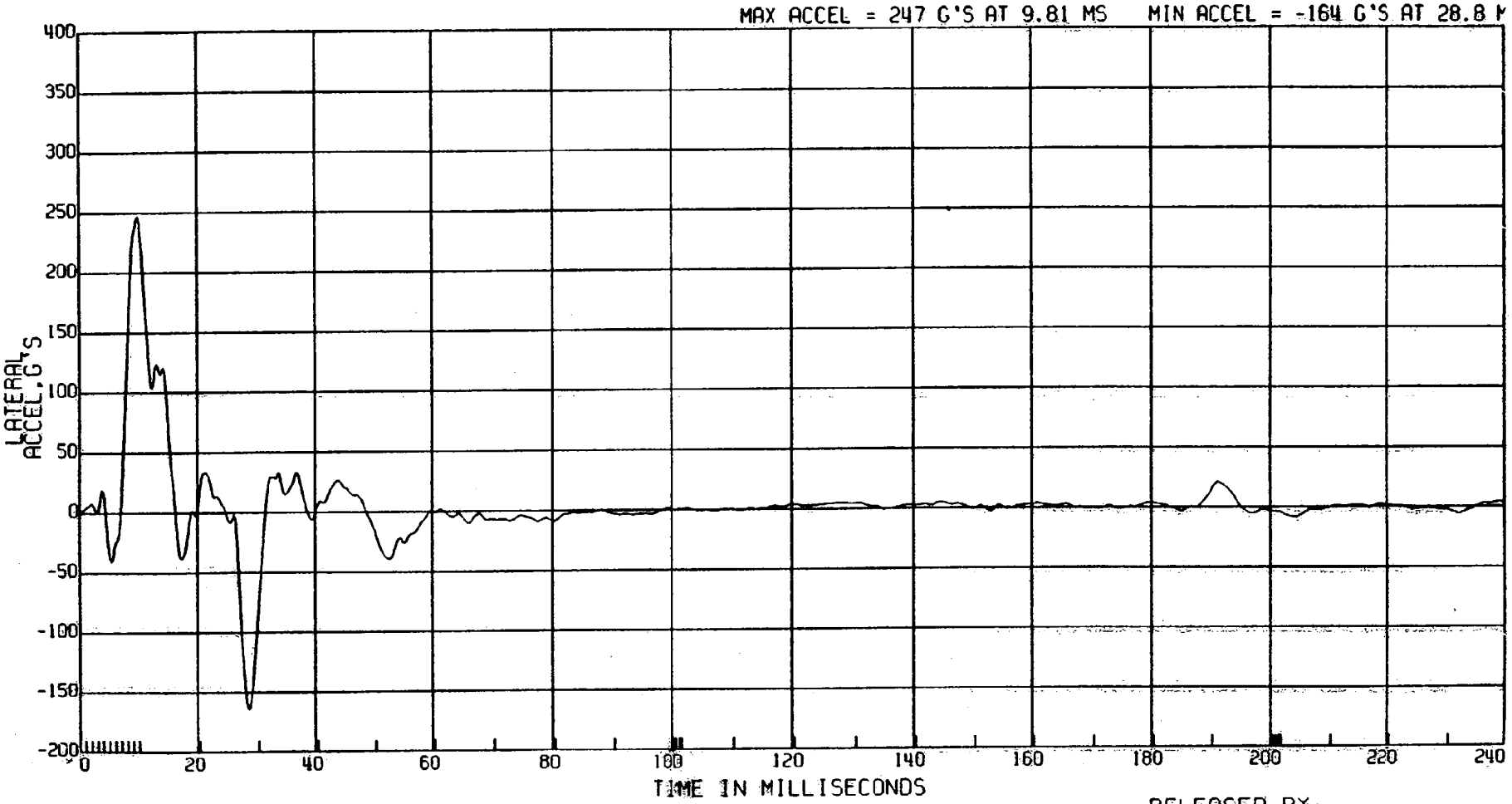
RELEASED BY:
21 PROCESSED 4 MY 90 11:45

C8005A L. SIDE IMPACT-27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 131
3868-905
CPE MVMA 5B 2AF69 COMPUTED REAR DOOR NO. 2 VELOCITY TEST DATE:03-06-90
ELEC DATA, SAE CLASS 180 (1ST INTEGRAL OF DR-SIDE ACCELERATION)



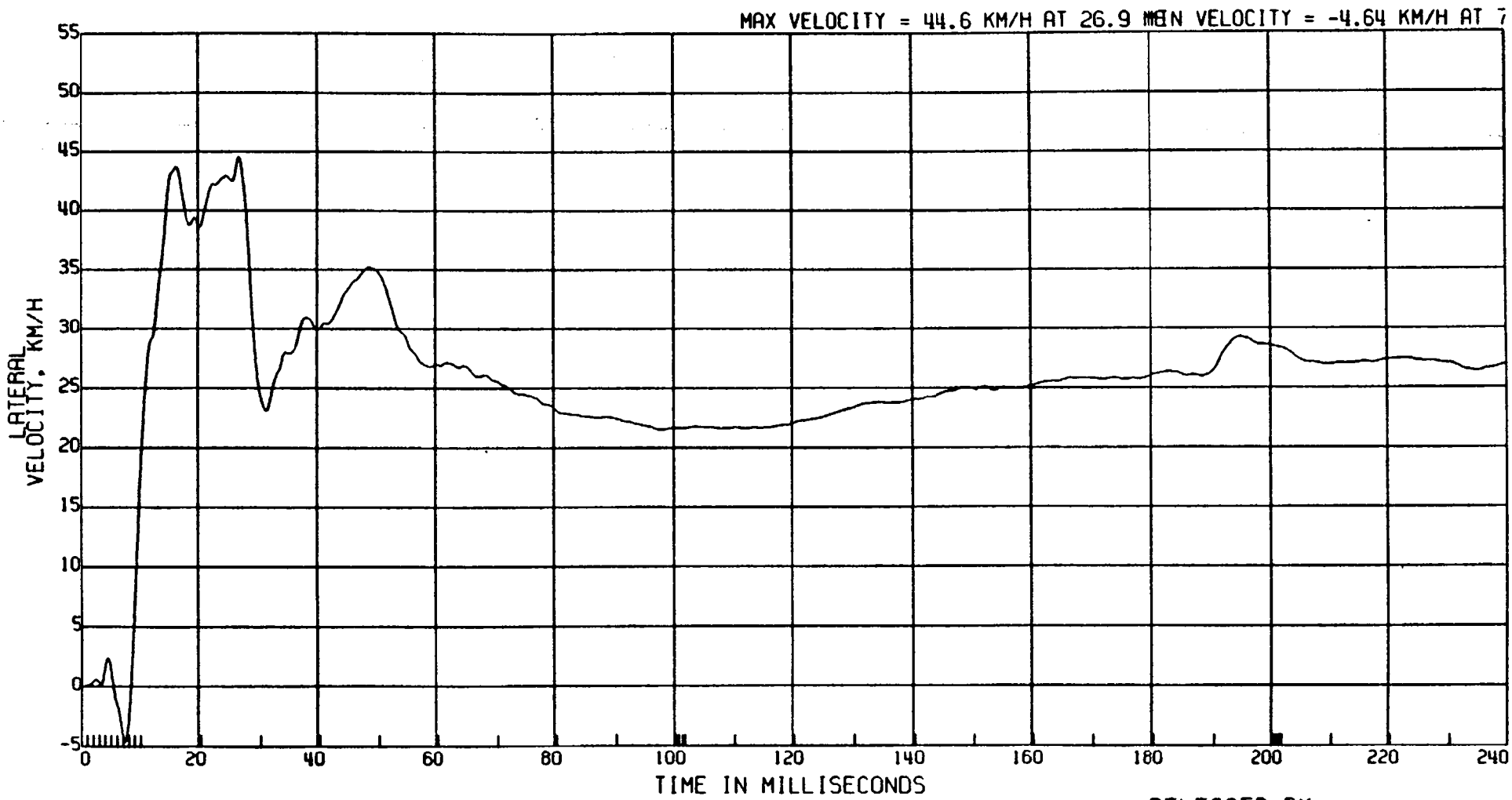
RELEASED BY:
22 PROCESSED 4 MY 90 11:45

C8005A L. SIDE IMPACT-27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 132
3868-905
CPE MVMA 5B 2AF69 DR-SIDE REAR DOOR NO. 3 ACCEL. TEST DATE:03-06-90
ELEC DATA, SAE CLASS 60



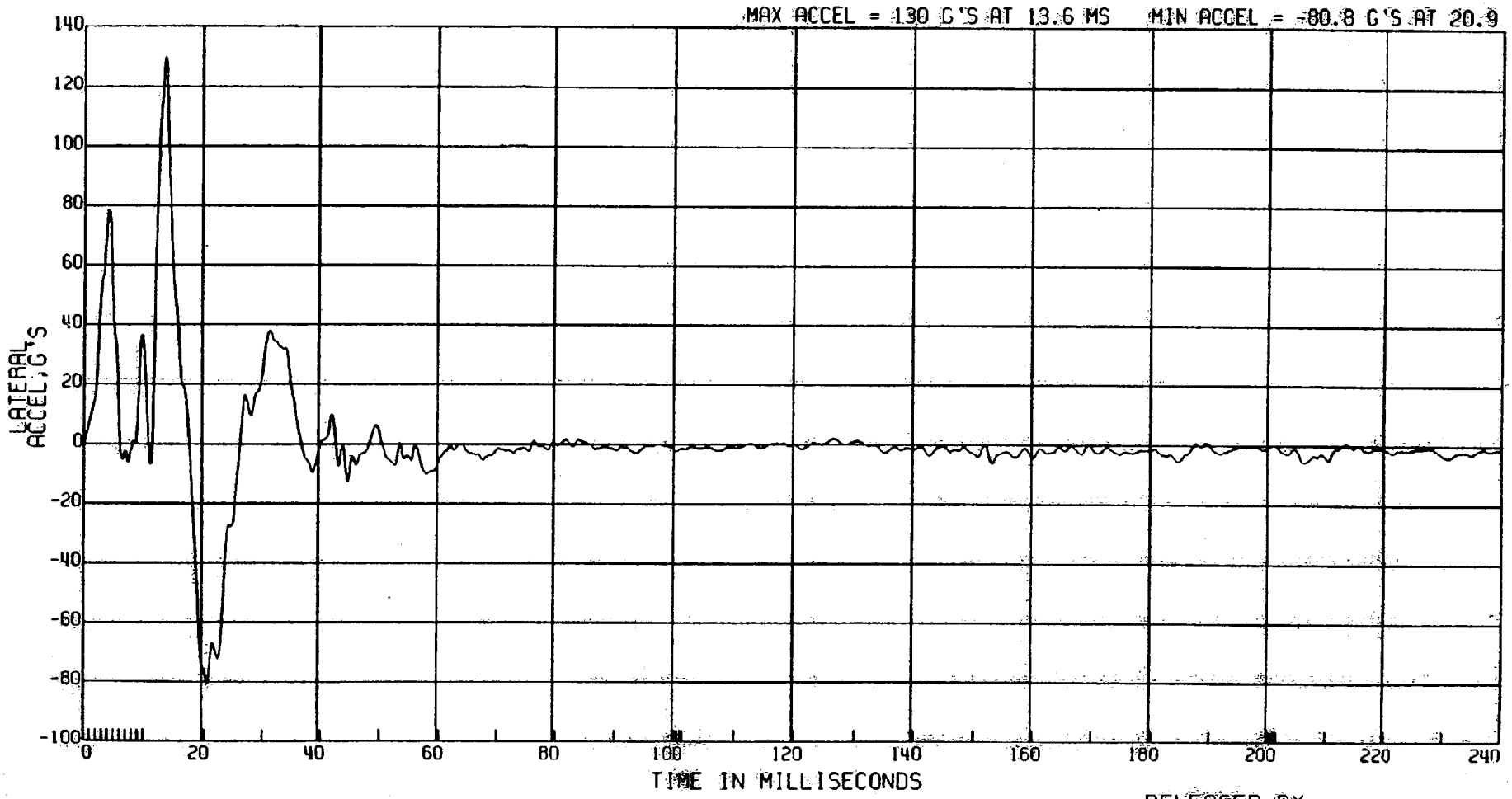
RELEASED BY:
23 PROCESSED 4 MY 90 11:45

C8005A L. SIDE IMPACT-27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 133
3868-905
CPE MVMA 5B 2AF69 COMPUTED REAR DOOR NO. 3 VELOCITY TEST DATE:03-06-90
ELEC DATA, SAE CLASS 180 (1ST INTEGRAL OF DR-SIDE ACCELERATION)



RELEASED BY:
24 PROCESSED 4 MY 90 11:45

C8005A L. SIDE IMPACT-27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 134
3868-905
GRE MVMA 5B 2AF69 DR-SIDE REAR DOOR NO. 4 ACCEL. TEST DATE:03-06-90
ELEC DATA, SAE CLASS 60



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25 PROCESSED 4 MT 90 11:45

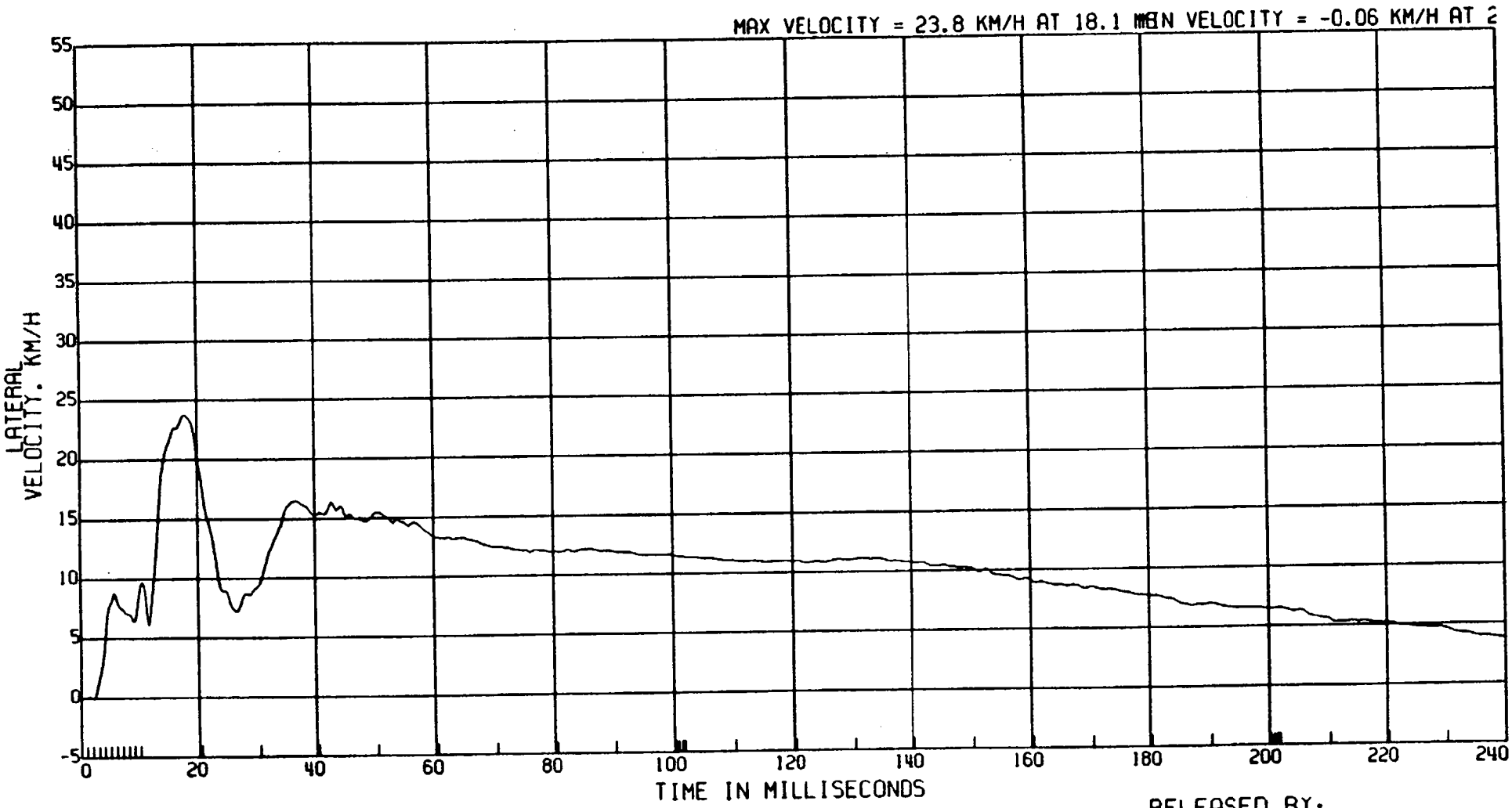
C8005A L. SIDE IMPACT-27 DEG
3868-905
CPE MVMA 5B 2AF69
ELEC DATA, SAE CLASS 180

MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 135

COMPUTED REAR DOOR NO. 4 VELOCITY

(1ST INTEGRAL OF DR-SIDE ACCELERATION)

TEST DATE:03-06-90

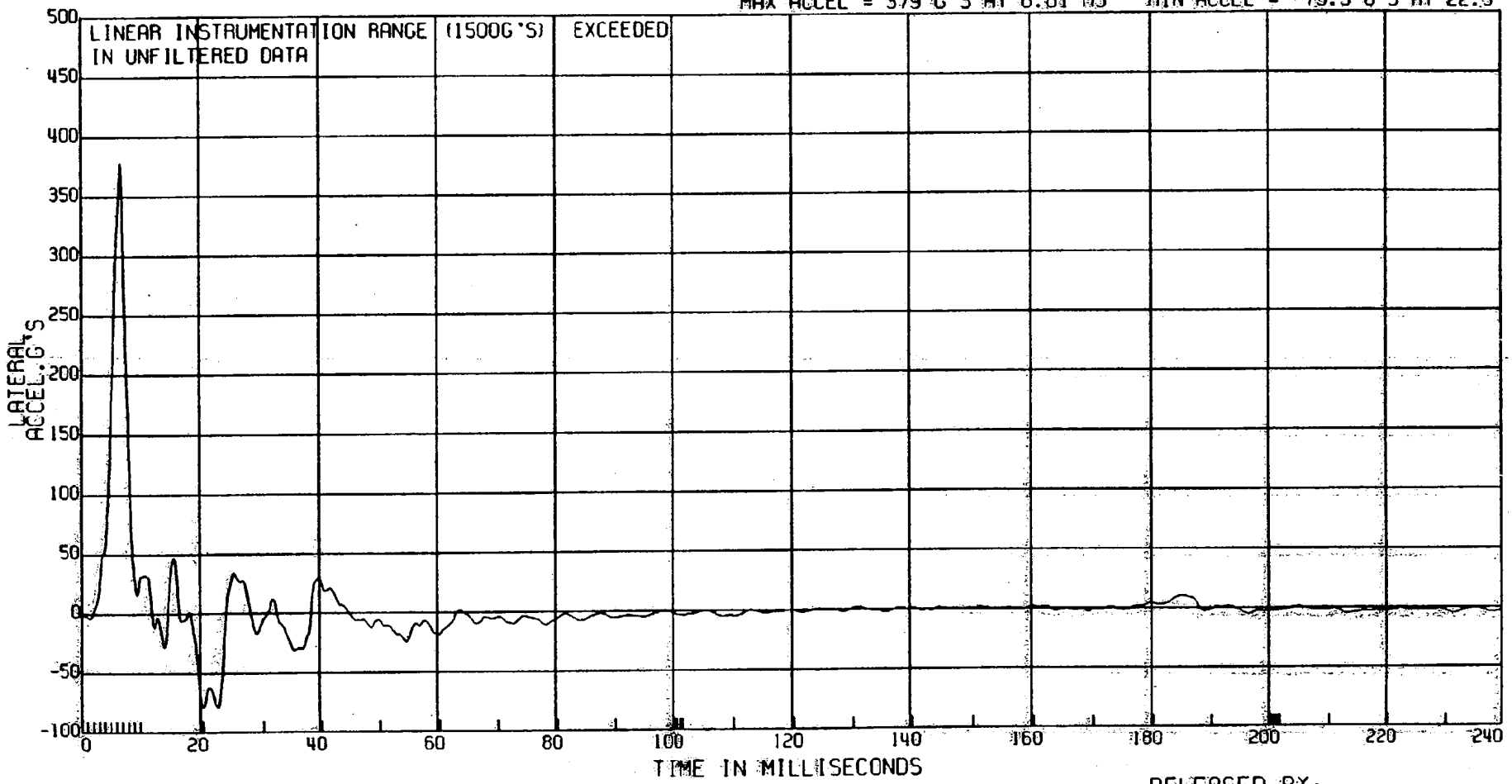


RELEASED BY:

26 PROCESSED 4 MY 90 11:45

C8005A L. SIDE IMPACT-27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 136
3868-905
CPE MVMA 5B 2AF69 DR-SIDE REAR DOOR NO. 5 ACCEL. TEST DATE:03-06-90
ELEC DATA, SAE CLASS 60

MAX ACCEL = 379 G'S AT 6.81 MS MIN ACCEL = -79.3 G'S AT 22.9



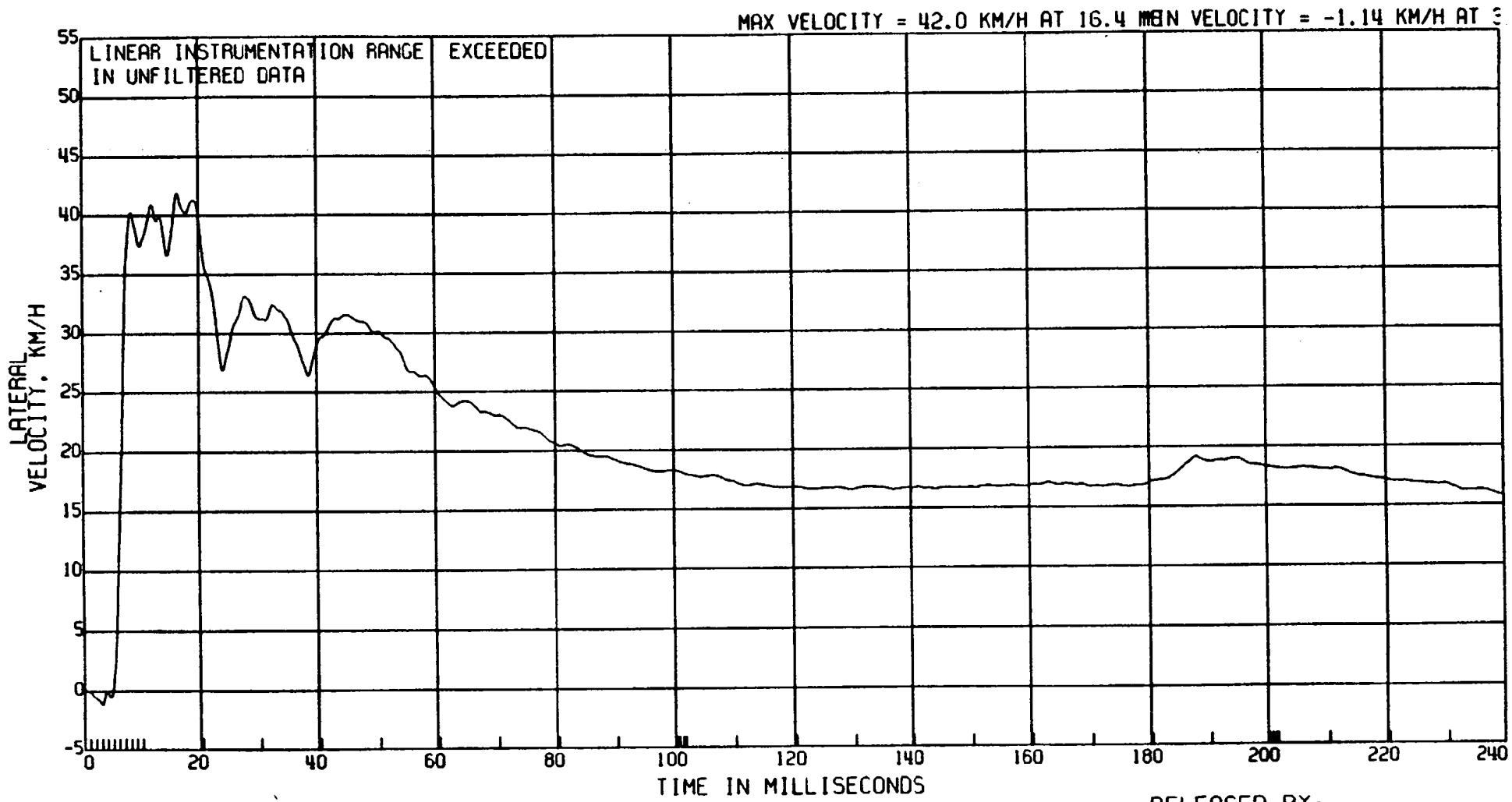
RELEASED BY:
27 PROCESSED 4 MT 90 11:45

C8005A L. SIDE IMPACT-27 DEG
3868-905
CPE MVMA 5B 2AF69
ELEC DATA, SAE CLASS 180

MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 137

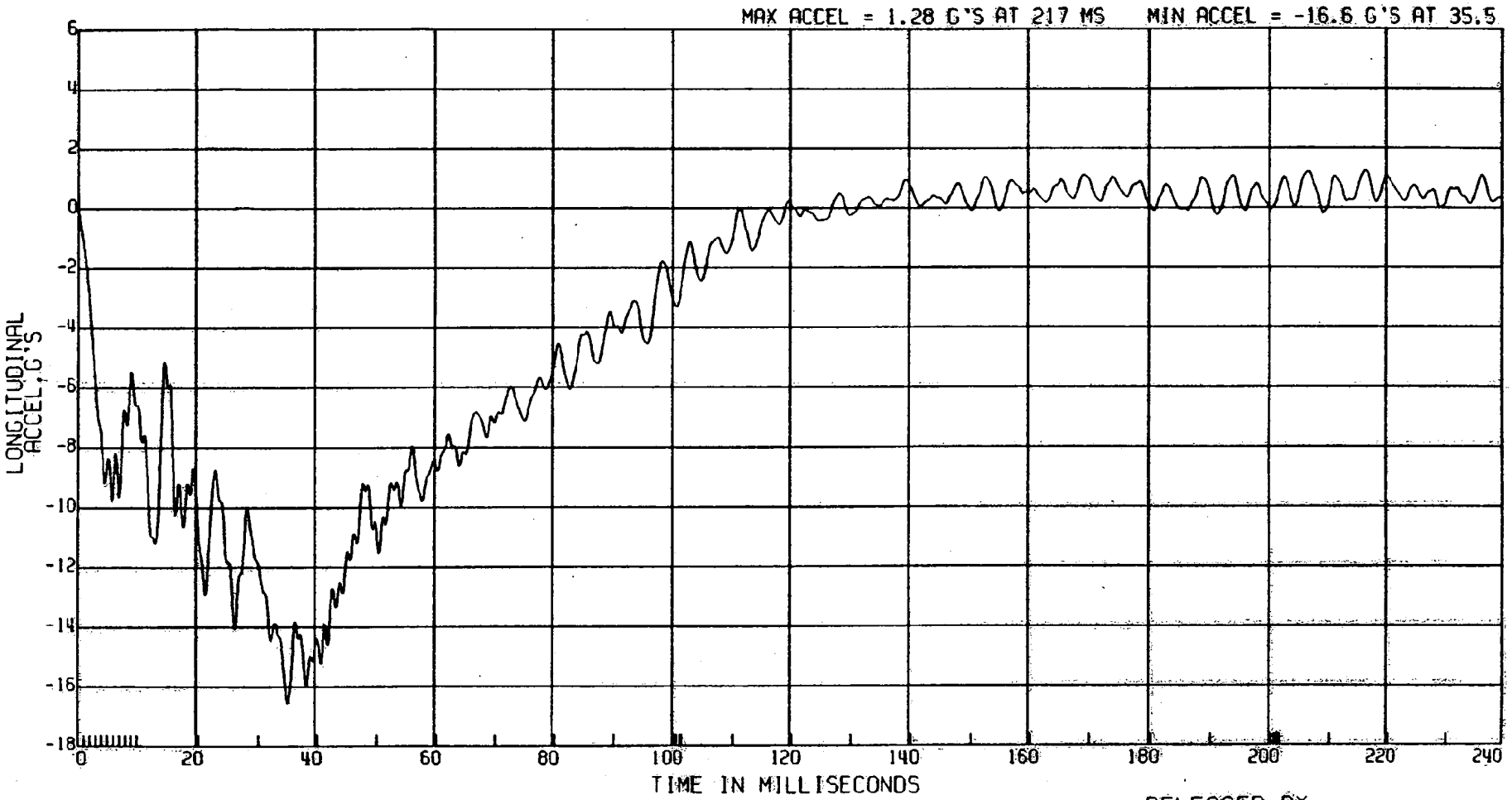
COMPUTED REAR DOOR NO. 5 VELOCITY
(1ST INTEGRAL OF DR-SIDE ACCELERATION)

TEST DATE:03-06-90



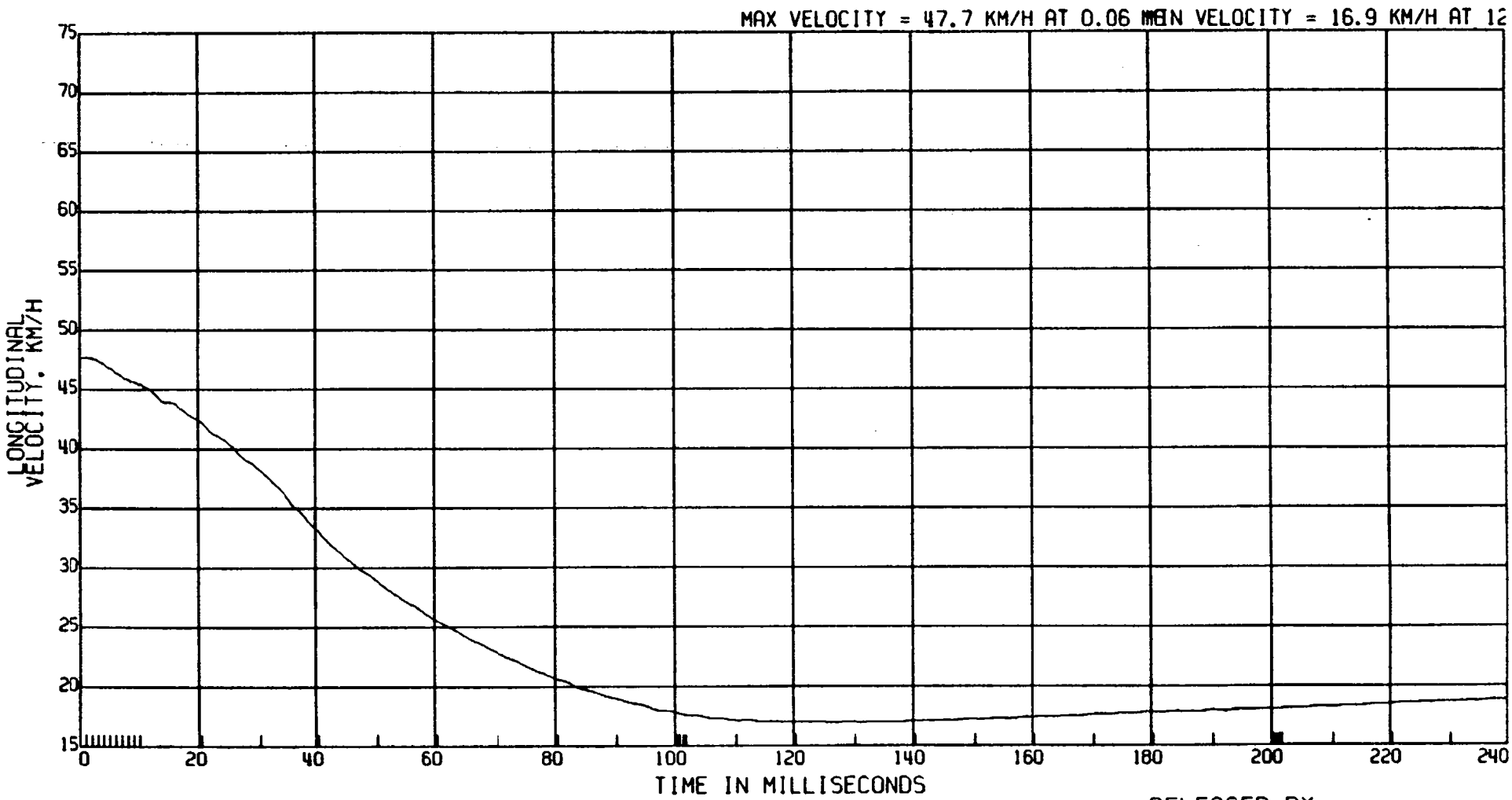
RELEASED BY:
28 PROCESSED 4 MY 90 11:45

C8005A L. SIDE IMPACT-27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE /38
3868-905
CPE MVMA 5B 2AF69 M.D.B. AT C.G. ACCEL. TEST DATE:03-06-90
ELEC DATA, SAE CLASS 60



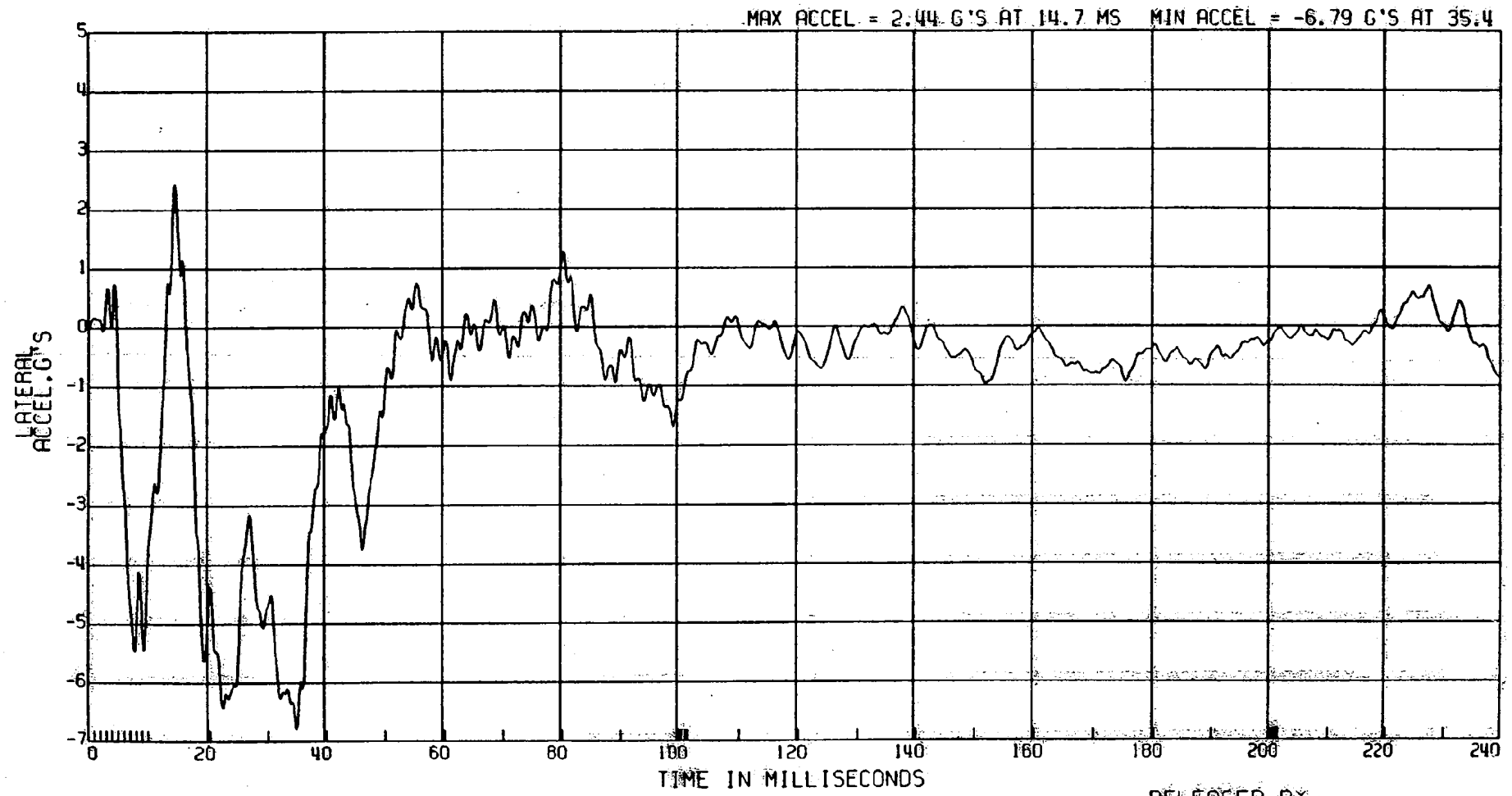
RELEASED BY:
55 PROCESSED 4 MY 90 11:46

C8005A L. SIDE IMPACT-27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 139
3868-905
CPE MVMA 5B 2AF69 COMPUTED M.D.B. AT C.G. VELOCITY TEST DATE:03-06-90
ELEC DATA, SAE CLASS 180 (1ST INT OF ACCEL 53.5KPH×COS27DEG)



RELEASED BY:
56 PROCESSED 4 MY 90 11:46

C8005A L. SIDE IMPACT-27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 140
3868-905
CPE MVMA 5B 2AF69 M.D.B. AT C.G. ACCEL. TEST DATE:03-06-90
ELEC DATA, SAE CLASS 60



RELEASED BY:
57 PROCESSED 4 MY 90 11:46

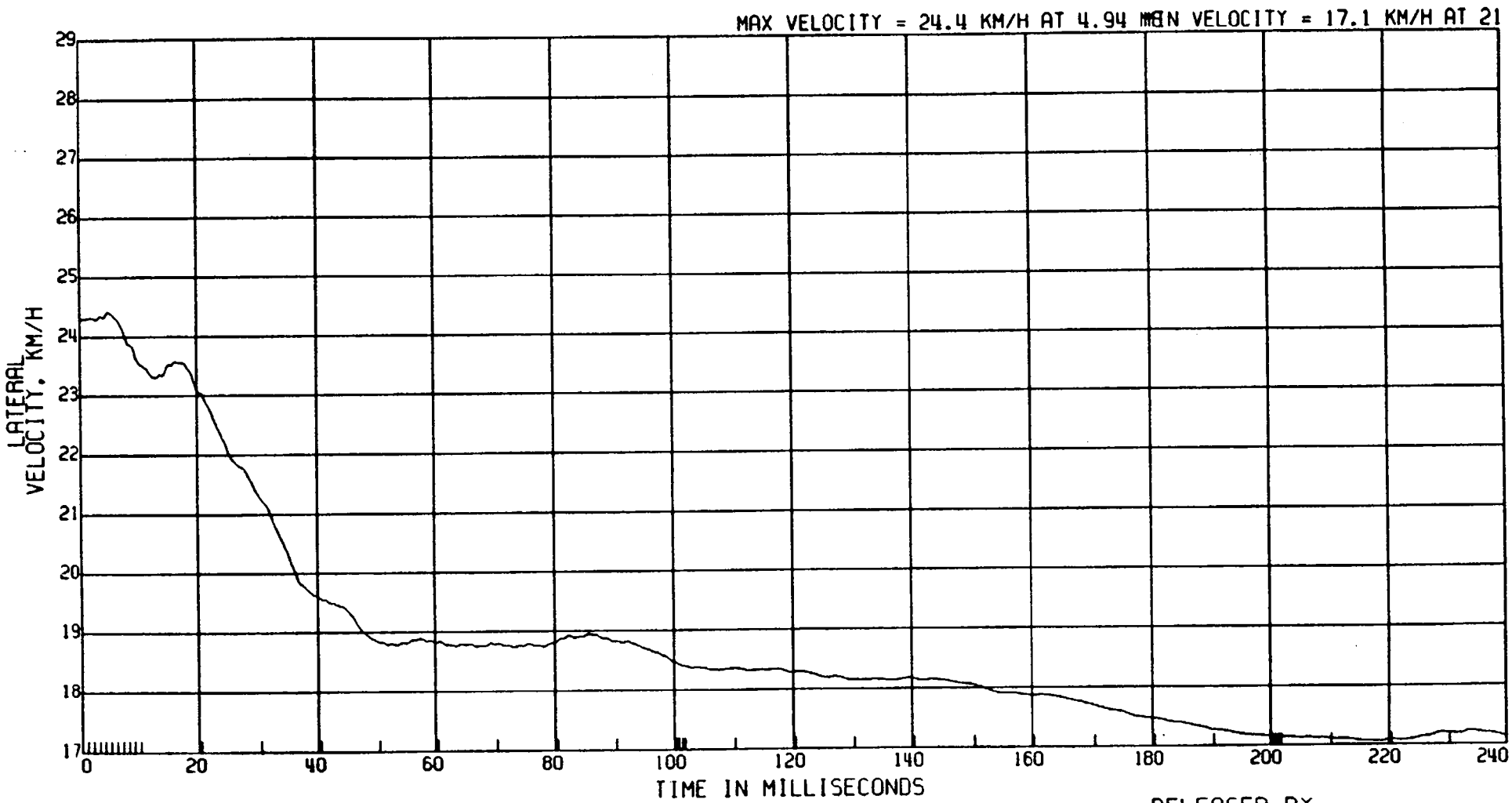
C8005A L. SIDE IMPACT-27 DEG
3868-905
CPE MVMA 5B 2AF69
ELEC DATA, SAE CLASS 180

MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 141

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

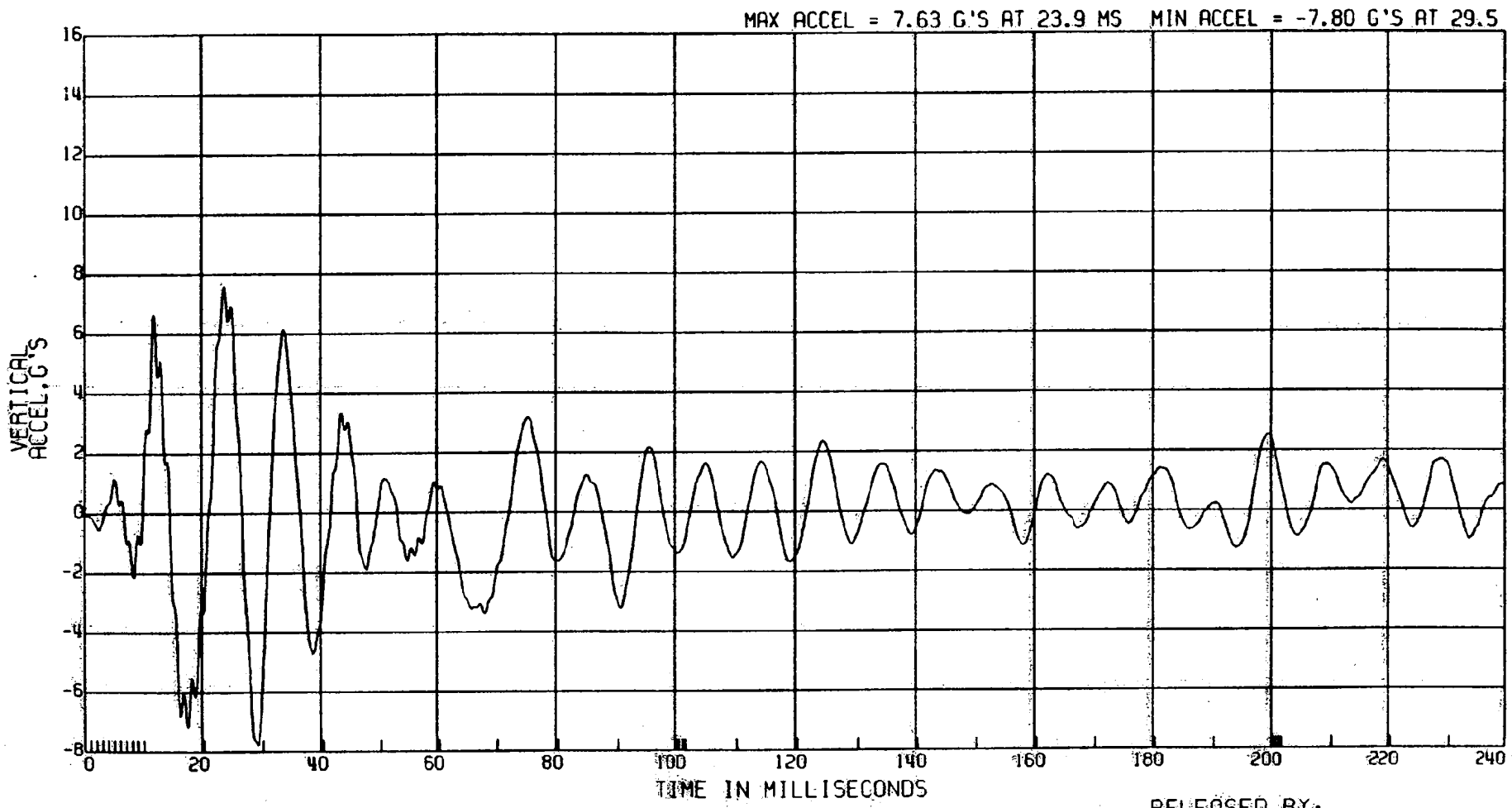
(1ST INT OF ACCEL 53.5KPH*SIN27DEG)

TEST DATE:03-06-90



RELEASED BY:
58 PROCESSED 4 MT 90 11:46

C8005A L. SIDE IMPACT-27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 142
3868-905
CPE MVMA 5B 2AF69 M.D.B. AT C.G. ACCEL. TEST DATE:03-06-90
ELEC DATA, SAE CLASS 60

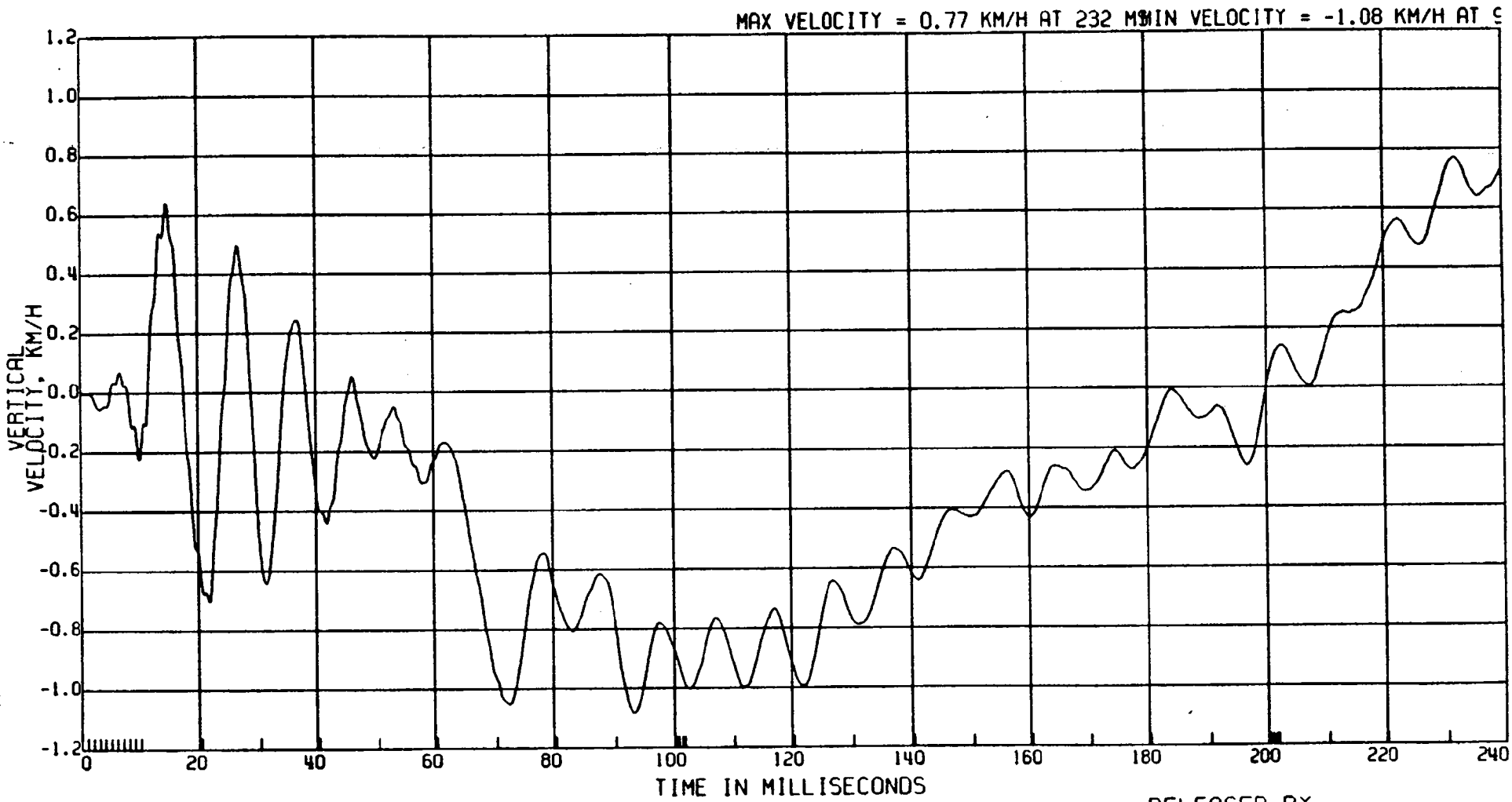


RELEASED BY:
59 PROCESSED 4 MAY 90 11:46

C8005A L. SIDE IMPACT-27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 143
3868-905
CPE MVMA 5B 2AF69
ELEC DATA, SAE CLASS 180

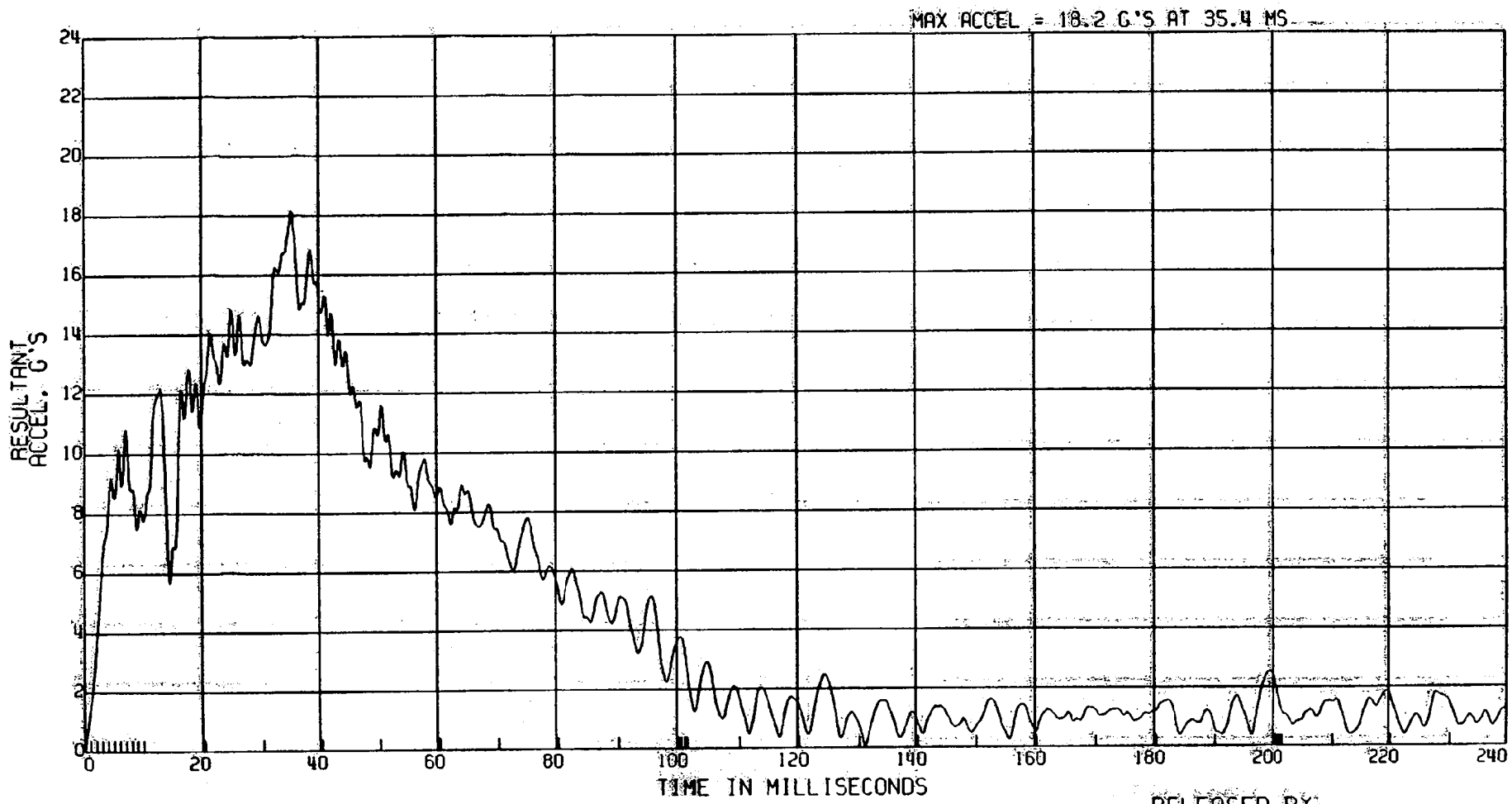
COMPUTED M.D.B. AT C.G. VELOCITY
(1ST INT OF ACCELERATION)

TEST DATE:03-06-90



RELEASED BY:
60 PROCESSED 4 MY 90 11:46

C8005A L. SIDE IMPACT-27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 144
3868-905
CPE MVMA 5B 2AF69 M.D.B. AT C.G. ACCEL. TEST DATE:03-06-90
ELEC DATA, SAE CLASS 60 (VEC SUM OF C.G. ACCELERATIONS)



RELEASED BY:
61 PROCESSED 4 MT 90 11:46

C8005A L. SIDE IMPACT-27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 145

3868-905

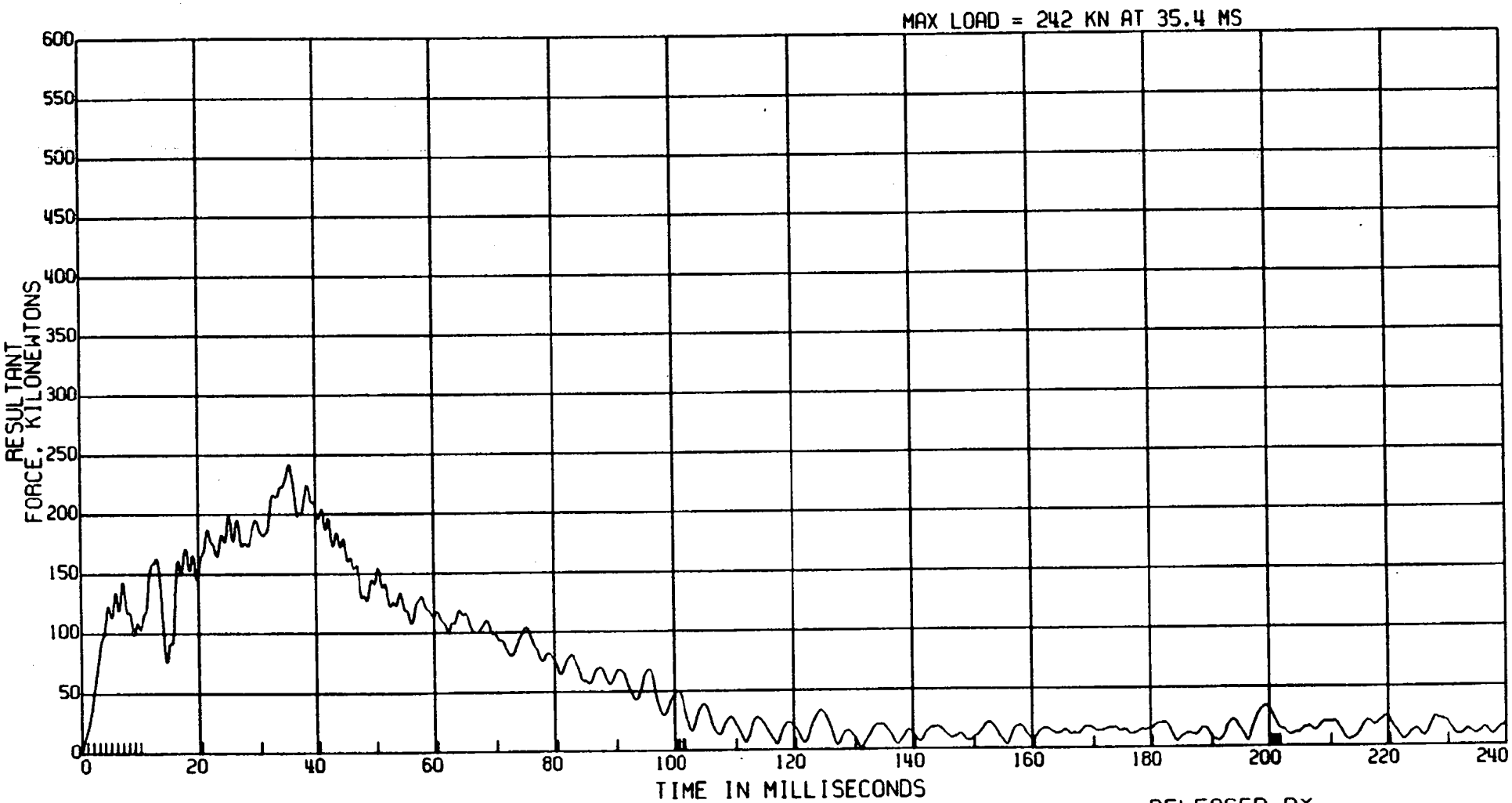
CPE MVMA 5B 2AF69

ELEC DATA, SAE CLASS 60

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

(1359.5KG) (9.807) (RESULTANT ACCEL)

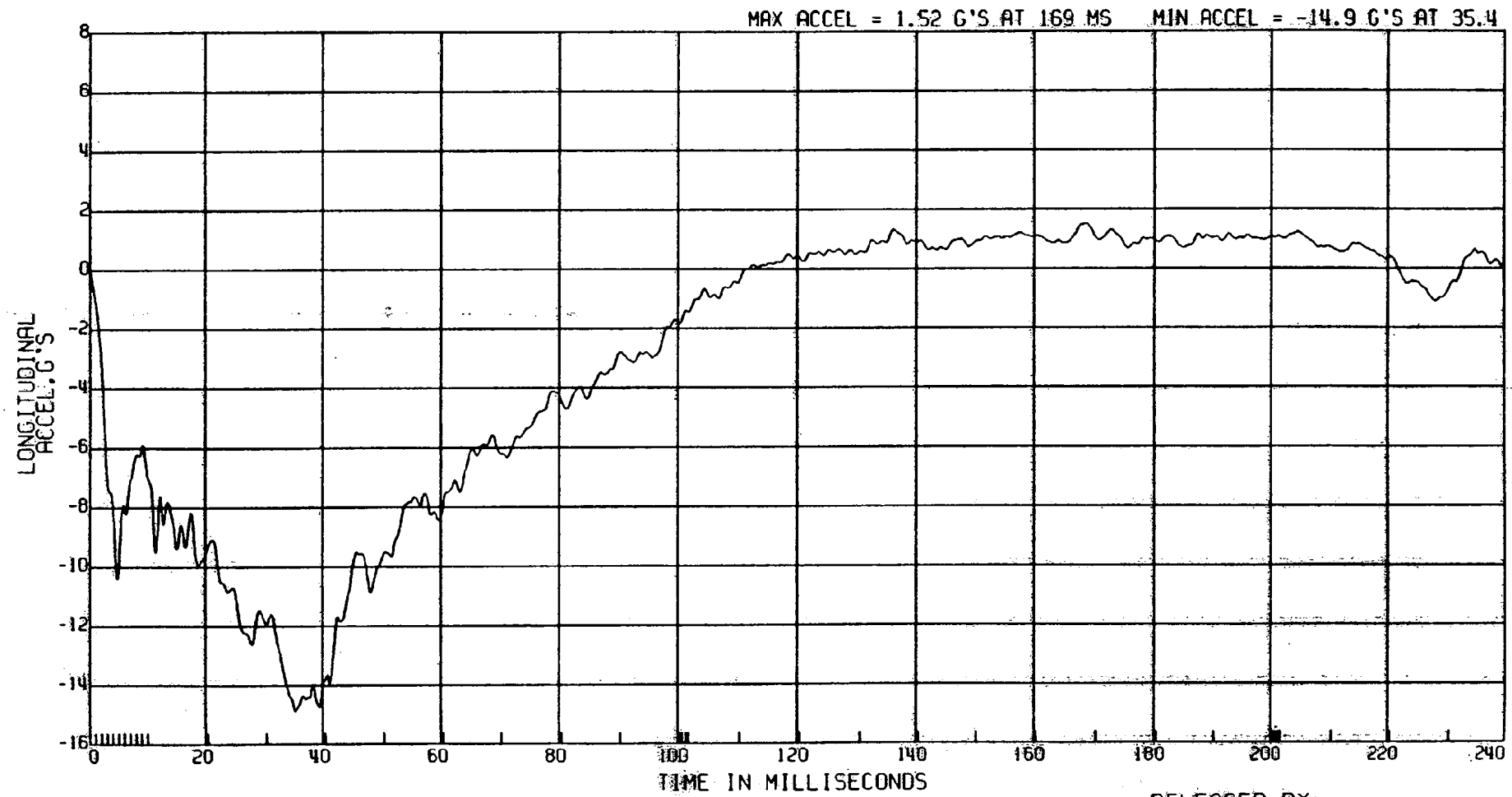
TEST DATE:03-06-90



RELEASED BY:

62 PROCESSED 4 MY 90 11:46

C8005A L. SIDE IMPACT-27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 146
3868-905
CPE MVMA 5B 2AF69 M.D.B. REAR CROSS MEMBER ACCEL. TEST DATE:03-06-90
ELEC DATA, SAE CLASS 60



RELEASED BY:

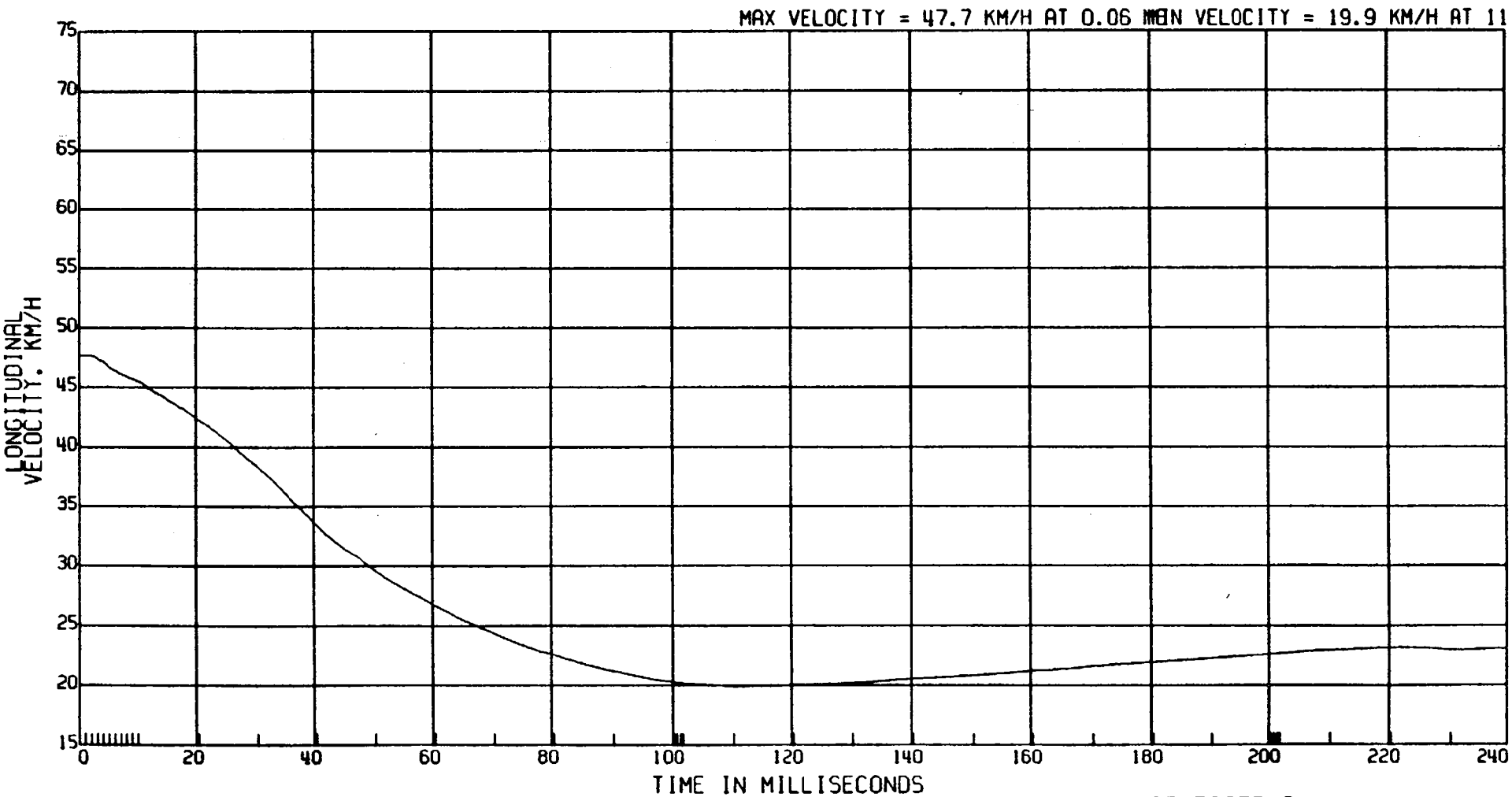
63 PROCESSED 4 MT 90 11:46

C8005A L. SIDE IMPACT-27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 147

3868-905

CPE MVMA 5B 2AF69 COMPUTED M.D.B. REAR CROSS MEMBER VEL TEST DATE:03-06-90

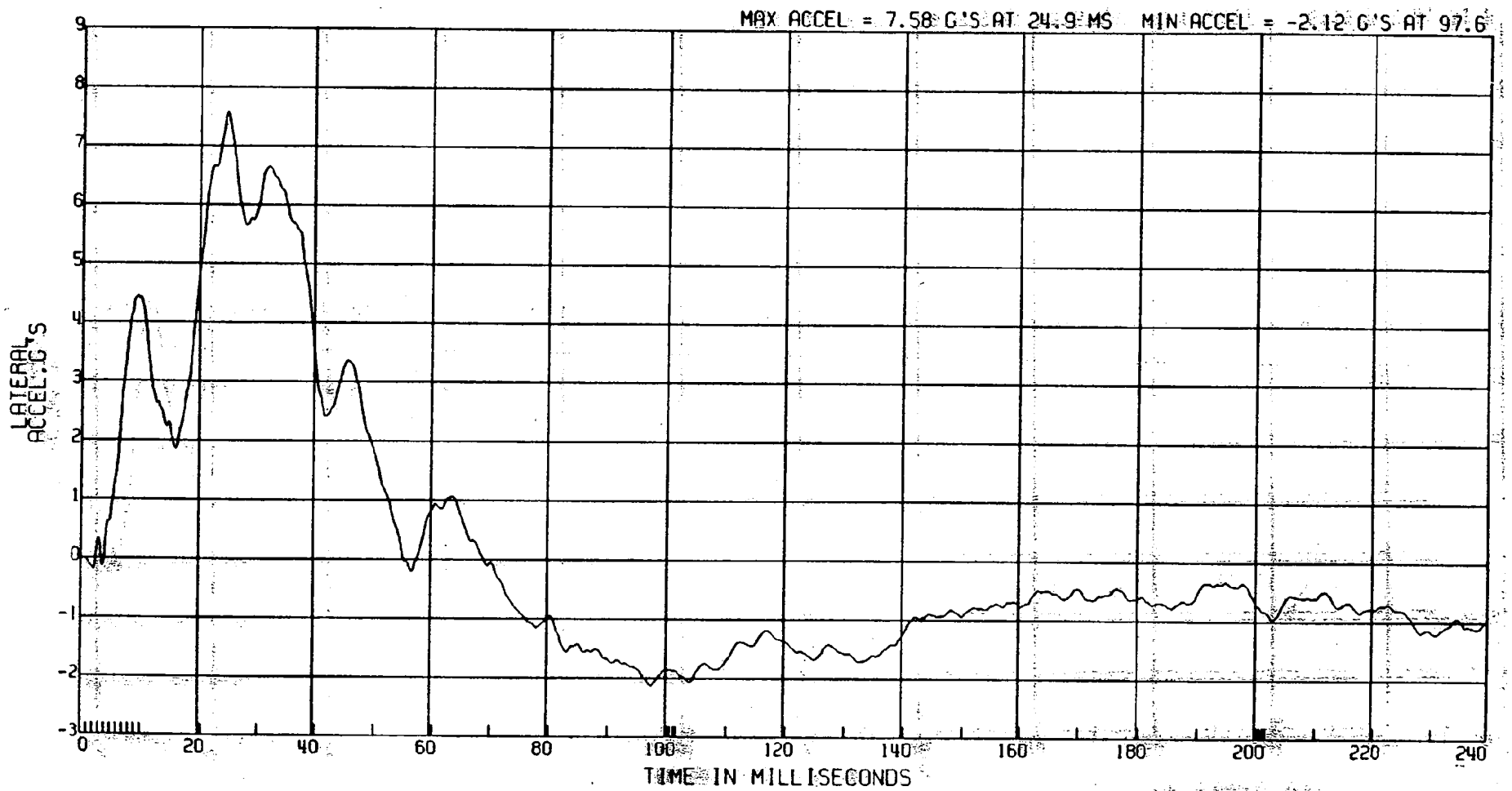
ELEC DATA, SAE CLASS 180 (1ST INT OF ACCEL 53.5KPH*COS27DEG)



RELEASED BY:

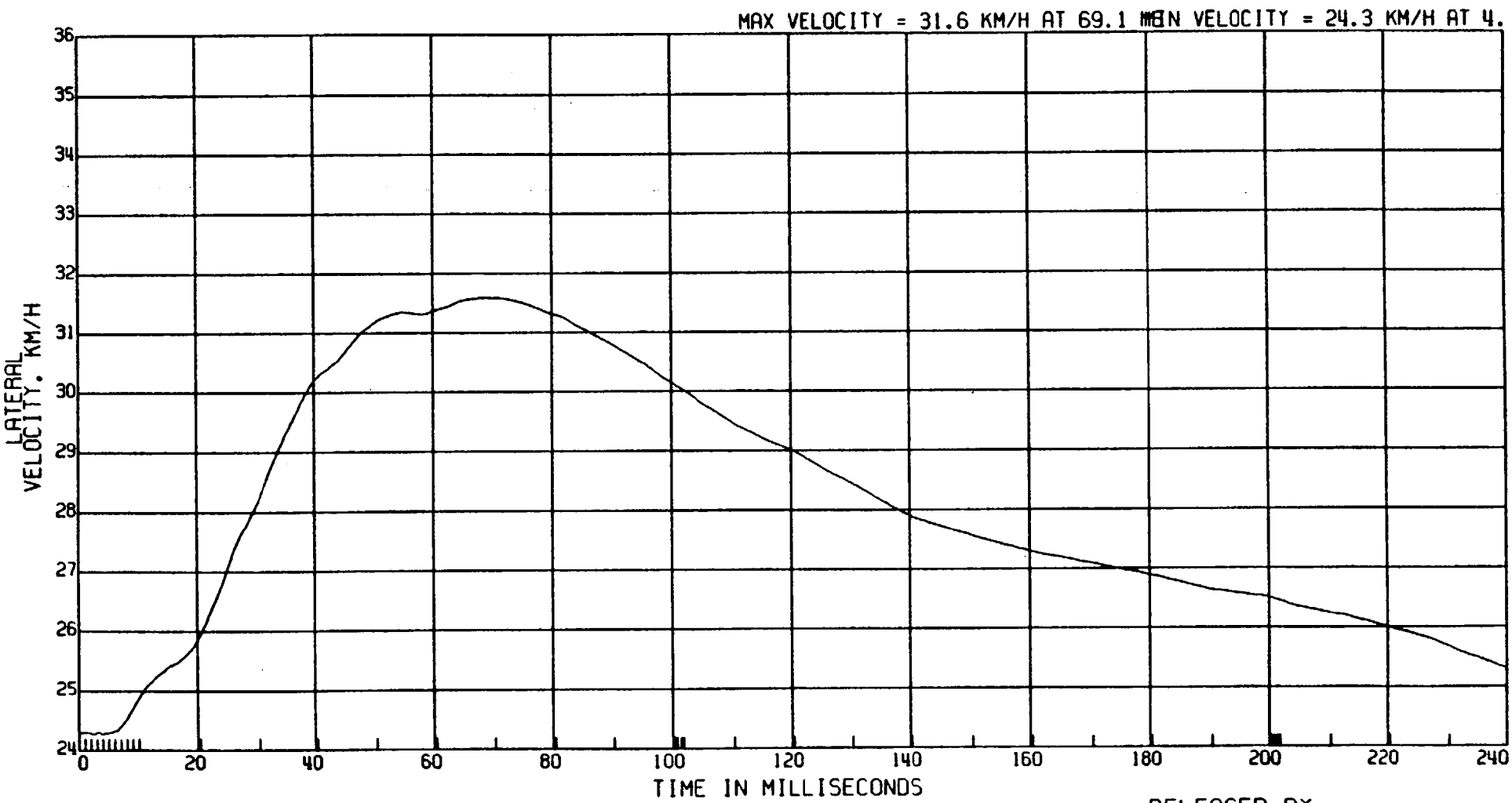
64 PROCESSED 4 MY 90 11:46

C8005A L. SIDE IMPACT-27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 148
3868-905
CPE MVMA 5B 2AF69 M.D.B. REAR CROSS MEMBER ACCEL. TEST DATE:03-06-90
ELEC DATA. SAE CLASS 60



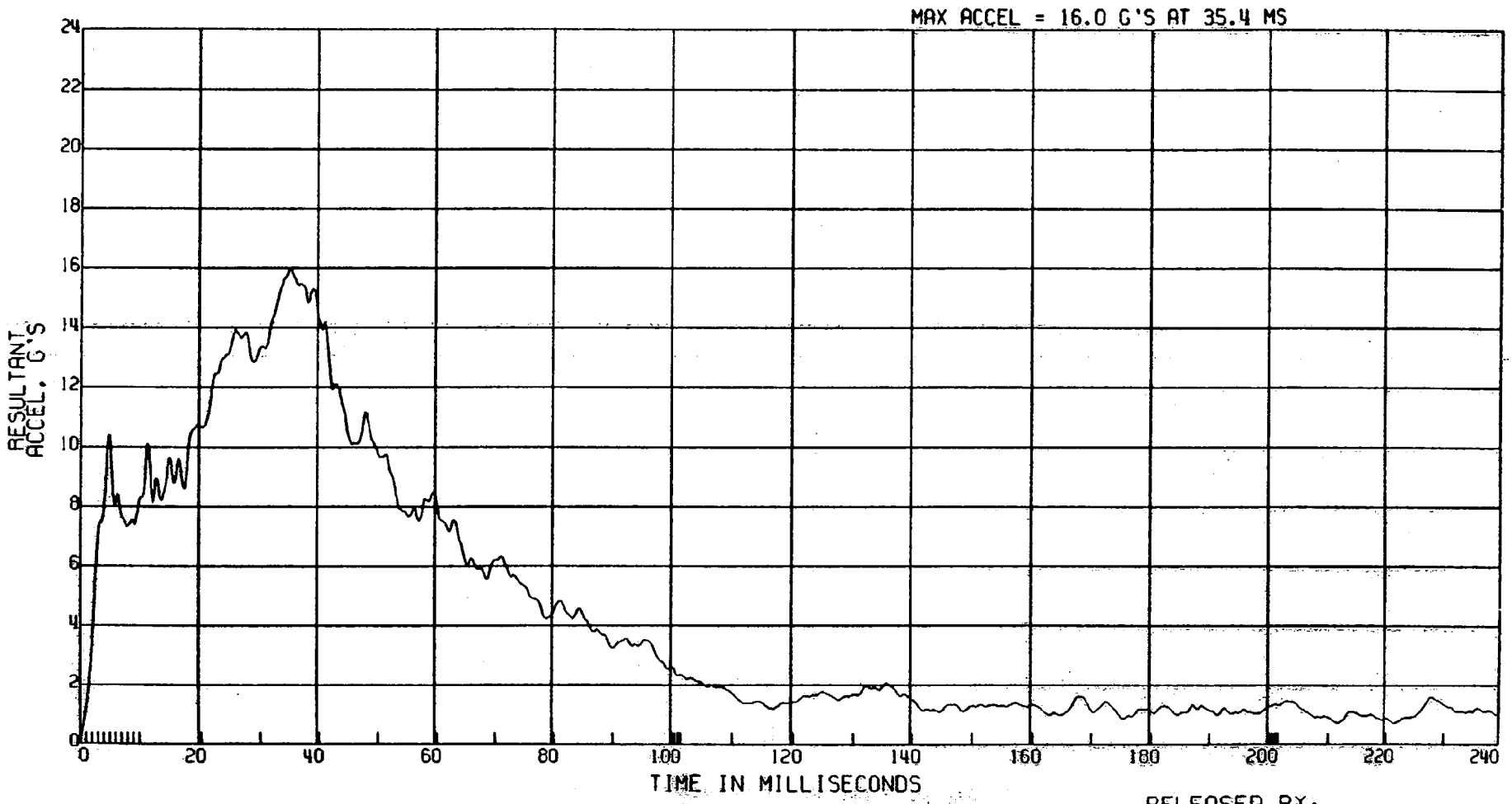
RELEASED BY:
65 PROCESSED 4 MY 90 11:46

C8005A L. SIDE IMPACT-27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 149
3868-905
CPE MVMA 5B 2AF69 COMPUTED M.D.B. REAR CROSS MEMBER VEL TEST DATE:03-06-90
ELEC DATA, SAE CLASS 180 (1ST INT OF ACCEL 53.5KPH*SIN27DEG)



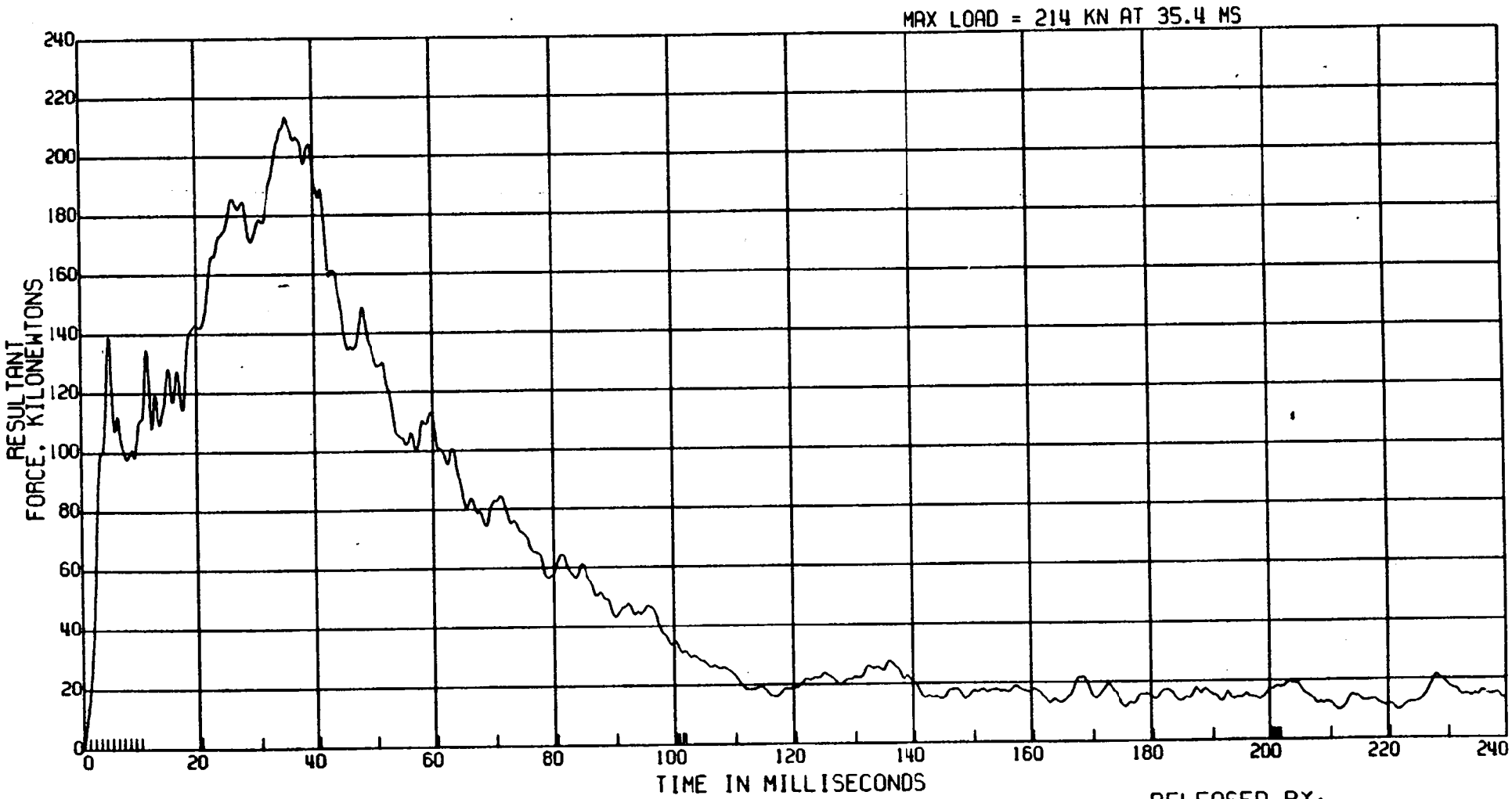
RELEASED BY:
66 PROCESSED 4 MY 90 11:46

C8005A L. SIDE IMPACT-27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 150
3868-905
CPE MVMA 5B 2AF69 M.D.B. REAR CROSS MEMBER ACCEL. TEST DATE:03-06-90
ELEC DATA, SAE CLASS 60 (VEC SUM OF LONG. & LAT X-MEMBER ACCELS)



RELEASED BY:
67 PROCESSED 4 MY 90; 11:46

C8005A L. SIDE IMPACT-27 DEG MOVING CRABBED BARR TO PRK VEHICLE 53.5KM/H FIGURE 151
3868-905
CPE MVMA 5B 2AF69 COMPUTED M.D.B. REAR CROSS MEMBER FORCE TEST DATE:03-06-90
ELEC DATA, SAE CLASS 60 (1359.5 KG) (9.807) (RESULTANT ACCEL)



RELEASED BY:
68 PROCESSED 4 MY 90 11:46