DOT HS-806 507

EVALUATION OF NHTSA MODIFIED VOLKSWAGEN RABBITS

MDB-TO-CAR SIDE IMPACT TEST OF A 26° CRABBED MOVING DEFORMABLE BARRIER TO A 1982 VOLKSWAGEN RABBIT AT 39.1 MPH

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FINAL REPORT
OCTOBER 1983

PREPARED FOR:
U.S. DEPARTMENT OF TRANSPORTATION
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16. Abstract

This test report documents one of a series of twelve crash tests to evaluate the NHTSA's Modified Volkswagen Rabbits. Testing was conducted on a baseline 1982 Volkswagen Rabbit 2-door hatchback at the TRC Crash Test Facility, East Liberty, Ohio. The test vehicle was impacted on the left side by a moving deformable barrier, crabbed to 26°, at 39.1 mph. Occupant responses of two side impact dummies were measured. One dummy was located in the driver's designated seating position and one was located in the left rear seating position. The test date was September 30, 1983 and the ambient temperature was 67°F.

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METRIC CONVERSION FACTORS

Approximate Conversions to Metric Measures

Symbol	When You Know	Multiply by	To Find	Symbol
		LENGTH		
in	inches	2.5	centimeters	cm
ft	feet	30	centimeters	cm
yd	yards	0.9	meters	m
mi	miles	1.6	kilometers	km
		AREA		
in^2	square inches	6.5	square centimeters	cm^2
ft^2	square feet	0.09	square meters	m^2
yd^2	square yards	0.8	square meters	m^2
mi^2	square miles	2.6	square kilometers	km^2
	acres	0.4	hectares	ha
		MASS (weight)		
oz	ounces	28	grams	g
lb	pounds	0.45	kilograms	kg
	short tons (2000 lb)	0.9	metric ton	t
		VOLUME		
tsp	teaspoons	5	milliliters	ml
Tbsp	tablespoons	15	milliliters	ml
in^3	cubic inches	16	milliliters	ml
fl oz	fluid ounces	30	milliliters	ml
c	cups	0.24	liters	L
pt	pints	0.47	liters	L
qt	quarts	0.95	liters	L
gal	gallons	3.8	liters	L
ft^3	cubic feet	0.03	cubic meters	m^3
yd^3	cubic yards	0.76	cubic meters	m^3
		TEMPERATURE (exact)		
°F	degrees Fahrenheit	5 9 (after subtracting 32)	degrees Celsius	°C

Approximate Conversions from Metric Measures

Symbol	When You Know	Multiply by	To Find	Symbol
		LENGTH		
mm	millimeters	0.04	inches	in
cm	centimeters	0.4	inches	in
m	meters	3.3	feet	ft
m	meters	1.1	yards	yd
km	kilometers	0.6	miles	mi
		AREA		
cm^2	square centimeters	0.16	square inches	in^2
m^2	square meters	1.2	square yards	yd^2
km^2	square kilometers	0.4	square miles	mi^2
ha	hectares (10 000 m^2)	2.5	acres	
		MASS (weight)		
g	grams	0.035	ounces	oz
kg	kilograms	2.2	pounds	lb
t	metric ton (1000 kg)	1.1	short tons	
		VOLUME		
mL	milliliters	0.03	fluid ounces	fl oz
mL	milliliters	0.06	cubic inches	in^3
L	liters	2.1	pints	pt
L	liters	1.06	quarts	qt
L	liters	0.26	gallons	gal
m^3	cubic meters	35	cubic feet	ft^3
m^3	cubic meters	1.3	cubic yards	yd^3
		TEMPERATURE (exact)		
°C	degrees Celsius	9/5 (then add 32)	degrees Fahrenheit	°F

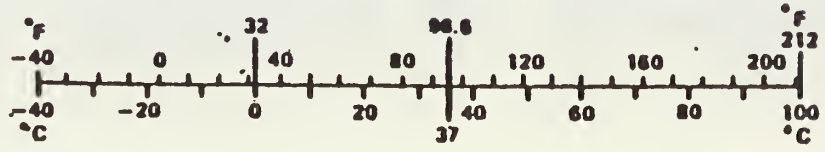


TABLE OF CONTENTS

LIST OF PHOTOGRAPHS

LIST OF PHOTOGRAPHS CONT'D

SECTION 1.0
PURPOSE AND INTRODUCTION

PURPOSE

The main purpose of this test was to evaluate the NHTSA fleet of modified Volkswagen Rabbits with and without padding. The vehicle was tested using conditions not currently contained in a Federal Motor Vehicle Safety Standard.

INTRODUCTION

A stationary 1982 Volkswagen Rabbit 2-door hatchback was impacted on the left side by a Moving Deformable Barrier (MDB) on September 30, 1983. The test was to simulate an intersection collision with the striking vehicle traveling at 35 mph and the struck vehicle traveling at 17.5 mph. The orientation angle of the striking vehicle was 90^{o} counterclockwise with respect to the longitudinal axis of the struck vehicle. The leading edge of contact was to be 37 inches forward of the vehicle center of gravity which is defined by accident investigation to be the midpoint of the wheelbase.

To simulate this collision, the MDB was to be towed into the stationary Volkswagen Rabbit at 39.1 mph with the MDB's wheels crabbed clockwise to 26^{o}. The actual test speed was 39.1 mph and the actual leading edge was 36 inches forward of the midpoint of the Volkswagen Rabbit's wheelbase.

The vehicle was a baseline model with no structural modification. The driver door and left rear occupant wall contained three inches of padding.

Section 2 contains General Test and Vehicle Parameter Data. Section 3 contains data required by R & D. Appendix A contains pre-test and post-test vehicle and dummy photographs. Appendix B contains Data Plots.

SECTION 2.0
GENERAL TEST AND VEHICLE PARAMETER DATA

The following data sheets and photographs describe the General Test and Vehicle Parameter Data.

TEST VEHICLE INFORMATION

VEHICLE MANUFACTURER: Volkswagen of America

MAKE/MODEL: Volkswagen Rabbit VIN: 1VWBBC178CV110877

BODY STYLE: 2-Door Hatchback MODEL YEAR: 1982

NHTSA NO.: R & D COLOR: Burgundy

ENGINE DATA: TYPE: Transverse CYLINDERS: 4 DISPLACEMENT 105 CID

TRANSMISSION DATA: 4 Speed Manual

DATE VEHICLE RECEIVED: 9/9/83 ODOMETER READING: 14762

DEALER'S NAME AND ADDRESS: NA

ACCESSORIES:

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

REMARKS:

1. IS THE VEHICLE STOCK THROUGHOUT? Yes
2. DOES VEHICLE SHOW EVIDENCE OF PRIOR ACCIDENT HISTORY? No
3. DOES VEHICLE SHOW ANY SIGNIFICANT CORROSION? No
4. CONDITION OF THE FRONT/REAR BUMPER AND FRAME: Good

DATA FROM CERTIFICATION LABEL ON LEFT DOOR FACE OR "B" POST:

VEHICLE MANUFACTURED BY: Volkswagen of America

DATE OF MANUFACTURE: 7/82

GVWR: 2822 LBS.,

GAWR: FRONT 1609 LBS., REAR 1278 LBS.

VEHICLE TIRE DATA

RECOMMENDED COLD TIRE PRESSURE: FRONT 27 psi; REAR 27 psi

TIRES ON VEHICLE (MFGR. & LINE, SIZE): Michelin 155/R80/13

BIAS PLY, BELTED, OR RADIAL: Radial

PLY RATING: 3

IS SPARE TIRE "SPACE SAVER"? No

IS SPARE TIRE STANDARD EQUIPMENT? Yes

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

RIGHT FRONT	640 LBS.	RIGHT REAR	330 LBS.
LEFT FRONT	670 LBS.	LEFT REAR	340 LBS.

TOTAL FRONT WEIGHT 1310 LBS. (66.2 % OF TOTAL VEHICLE WEIGHT)

TOTAL REAR WEIGHT 670 LBS. (33.8 % OF TOTAL VEHICLE WEIGHT)

TOTAL DELIVERED WEIGHT 1980 LBS.

VEHICLE ATTITUDE (ALL DIMENSIONS IN INCHES):

DELIVERED ATTITUDE:	RF 25 1/2	;LF 25 3/8	;RR 25 5/16	;LR 25 1/8
PRE-TEST ATTITUDE:	RF 24 3/4	;LF 24 3/4	;RR 22 11/16	;LR 22 11/16
POST-TEST ATTITUDE:	RF 23 1/4	;LF 23 9/16	;RR 23 5/16	;LR 22 7/8

WEIGHT OF TEST VEHICLE WITH REQUIRED DUMMIES AND 157 LBS. CARGO:

RIGHT FRONT	685 LBS.	RIGHT REAR	560 LBS.
LEFT FRONT	685 LBS.	LEFT REAR	555 LBS.

TOTAL FRONT WEIGHT 1370 LBS. (55.1 % OF TOTAL VEHICLE WEIGHT)

TOTAL REAR WEIGHT 1115 LBS. (44.9 % OF TOTAL VEHICLE WEIGHT)

TOTAL TEST WEIGHT 2485 LBS.

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

TEST FLUID DATA

TEST FLUID TYPE: RED STODDARD SOLVENT #2; SPEC. GRAVITY: 0.764

KINEMATIC VISCOSITY: 0.99 CENTISTOKES

"USEABLE" CAPACITY*: NA GALLONS

TEST VOLUME: 3.0 GALLONS

FUEL SYSTEM CAPACITY (DATA FROM OWNERS MANUAL): 15.0 GALLONS

DETAILS OF FUEL SYSTEM: DNA

ELECTRIC FUEL PUMP: Yes FUEL INJECTION: Yes

DOES ELECTRIC FUEL PUMP OPERATE WITH IGNITION SWITCH "ON" AND THE ENGINE NOT OPERATING? No

DATA FROM "RECOMMENDED TIRE PRESSURE" LABEL ON DOOR, POST, GLOVEBOX, ETC.

VEHICLE LOAD (UP TO CAPACITY): FRONT 27 psi; REAR 27 psi

RECOMMENDED TIRE SIZE: 155 R80 13 LOAD RANGE X B, C,

VEHICLE CAPACITY: TYPES OF SEATS: Front - Bucket
Rear - Bench

NUMBER OF OCCUPANTS (DESIGNATED SEATING CAPACITY): 2 FRONT
2 REAR
4 TOTAL

CARGO LOAD 135 LBS.

TOTAL 735 LBS.

*WITH ENTIRE FUEL SYSTEM FILLED WITH FUEL TANK THROUGH CARBURETOR BOWL.

TEST CONDITIONS

TEST NUMBER: 830930

DATE OF TEST: September 30, 1983 TIME OF TEST: 10:25

WIND VELOCITY: 0-2 mph 288° NW HUMIDITY: NA

AMBIENT TEMPERATURE AT IMPACT AREA: 67° F

TEMPERATURE IN OCCUPANT COMPARTMENT: 72° F

SUBJECT VEHICLE DATA

	ACTUAL	INTENDED
VEHICLE TEST WEIGHT (LBS.)	2485	2463
MDB TEST WEIGHT (LBS.)	2990	3000
MDB VELOCITY (MPH)*	39.1	39.1
IMPACT POINT (INCHES)**	36.	37

DUMMIES

	DRIVER	MIDDLE PASSENGER	RT. FRONT PASSENGER	LEFT REAR PASSENGER	RT. REAR PASSENGER
TYPE:	SID			SID	
SERIAL NO.:	C6			UO2	
INSTRUMENTATION:					
HEAD ACCEL.:	Yes			Yes	
CHEST ACCEL.:	Yes (Upper/Lower)			Yes (Upper/Lower)	
FEMUR L.C.'S:	No			No	
OTHER:	Pelvis/Ribs			Pelvis/Ribs	

RESTRAINT SYSTEM: Both dummies were unrestrained

* As measured over final one foot of travel.

** As measured forward of the midpoint of the Volkswagen's wheelbase.

GENERAL TEST AND VEHICLE PARAMETER DATA

VISIBLE DUMMY CONTACT POINTS:

	DRIVER #	PASSENGER #
Head	Side window and sill	Side header padding & window
Chest	Padding	Padding
Abdomen	Padding	Padding
Left Knee	Padding	Left quarter panel
Right Knee	Left knee	Left knee

DOOR OPENING:

	LEFT	RIGHT
Front	Tools required	Easy
Rear	DNA	DNA

SEAT MOVEMENT:

	SEAT BACK FAILURE	SEAT SHIFT
Front	No	Left Front shifted 3"
Rear	No	No

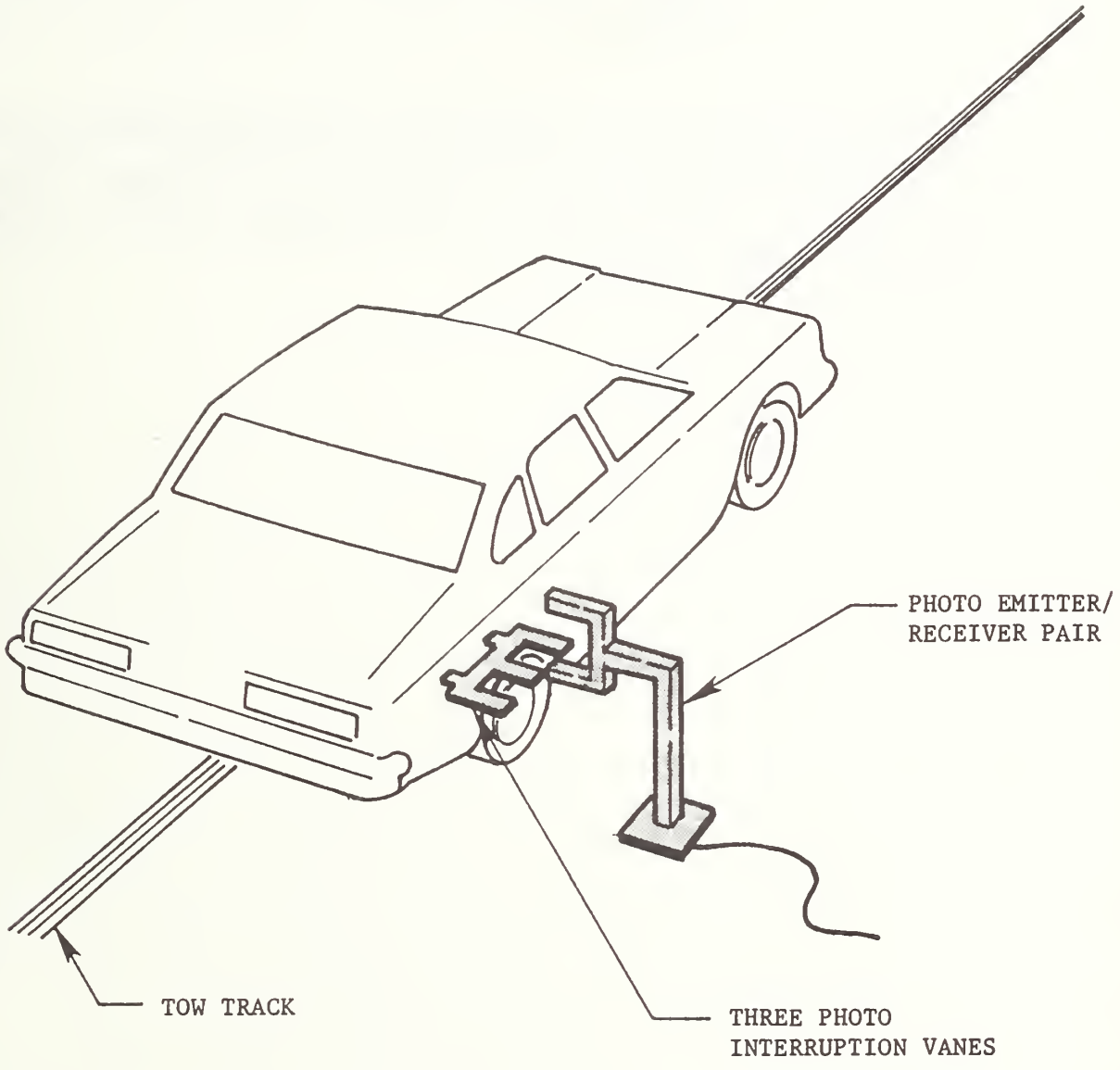
GLAZING DAMAGE:

Left edge of windshield cracked, both driver's side window and left rear passenger window shattered

OTHER NOTABLE IMPACT EFFECTS:

Approximately 8 inches of sill torn loose at front seat area, A-pillar split from sill.

IMPACT VELOCITY MEASUREMENT SYSTEM



The final vane is located two inches before impact.

The vanes have one foot spacing.

VEHICLE TEST WEIGHT CALCULATION

Test Weight = Unloaded Delivered Weight +
Number of Dummies X 174 lbs. +
Cargo Weight
= 1980 + 2 X 174 + 135 lbs.
= 2463 lbs.

To achieve test weight, the exhaust system and starter motor were removed and 3 gallons of Stoddard Solvent was added in the fuel tank. The weight of the test vehicle was measured by placing each wheel on a Loadmeter Corporation Hiway Loadometer.

TEST ANOMALIES

1) Cable separation occurred in data channel T01XG1 (Driver Upper Spine Acceleration X Axis) at approximately 320 msec. Because the separation occurred late in the crash, the test results are uneffected by it.

2) Cable separation occurred in data channel LFDYG2 {Left Front Door (Position 8) Acceleration Y Axis} within the first 10 msec. No peak values or Delta Velocities are reported.

SECTION 3.0
DATA REQUIRED BY R&D

The following pages are included in this section:

1. Dummy temperature control and positioning data
2. Dummy kinematic summary
3. Vehicle crush data
4. Dummy and vehicle accelerometer location and data summary
5. High speed camera information
6. Transducer information

DUMMY TEMPERATURE CONTROL AND POSITIONING

The vehicle was kept inside the temperature controlled crash test building until approximately 2 hours prior to the test. Temperature inside the vehicle and ambient temperature at the crash area were recorded. Dummy temperature while outside the crash test building was maintained portably until approximately 1 minute prior to the test.

The following table summarizes the steps taken to position the instrumented, calibrated dummies in the test vehicle.

DUMMY PLACEMENT AND POSITIONING

SIDE IMPACT DUMMY*	DRIVER DSP	REAR PASSENGER DSP
HEAD	Surface of transverse instrument mounting platform is as horizontal as possible without inducing torso movement & midsagittal plane falls in longitudinal plane.	Surface of transverse instrument mounting platform is as horizontal as possible without inducing torso movement & midsagittal plane falls in longitudinal plane.
UPPER TORSO	Placed against seat back. Midsagittal plane is vertical and centered on bucket seat.	Placed against seat back. Midsagittal plane is vertical and contained in the same longitudinal plane as the driver's midsagittal plane.
LOWER TORSO	Midsagittal plane is vertical and centered on bucket seat.	Midsagittal plane is vertical and contained in the same longitudinal plane as the driver's midsagittal plane.
UPPER LEGS (thighs or femurs)	Placed against seat cushion. Planes defined by femur and tibia centerlines are as close as possible to vertical.	Placed against seat cushion. Planes defined by femur and tibia centerlines are as close as possible to vertical.
KNEES	Knees set 14.5" apart between pivot bolt head outer surfaces. Outer surface of right knee pivot bolt is 8.6" from midsagittal plane of dummy. Outer surface of left knee pivot bolt is 5.9" from midsagittal plane of dummy.	Located so that planes defined by femur and tibia centerlines are as close as possible to vertical.
LOWER LEGS	Plane defined by femur and tibia centerlines are as close as possible to vertical longitudinal plane.	Plane defined by femur and tibia centerlines are as close as possible to vertical longitudinal plane.
RIGHT FOOT	Placed on undepressed accelerator pedal -- rearmost point of heel on floorplan in plane of pedal.	Centerline falls in vertical longitudinal plane. Placed on floor as far forward as possible without front seat interference.
LEFT FOOT	Placed on toeboard -- rearmost point of heel on floorpan as close as possible to intersection of toeboard and floorpan. Centerline falls in vertical longitudinal plane.	Centerline falls in vertical longitudinal plane. Placed on floor as far forward as possible without front seat interference.

*NOTE: THE SIDE IMPACT DUMMY DOES NOT INCLUDE ARMS.

DUMMY IN-VEHICLE POSITION RECORDING SHEET

VEHICLE NHTSA NO. R&D

MFR./MAKE/MODEL: Volkswagen Rabbit

FRONT SEAT TYPE: ____ BENCH
X BUCKET
____ SPLIT BENCH

ADJUSTER TYPE: X MANUAL
____ POWER

BUCKET SEAT BACK TYPE: ____ FIXED
X ADJUSTABLE

TECHNICIANS:
1. J. Kokoruda
2. M. Garrison
3. D. LeVally

POSITIONING DATE: 9/30/83

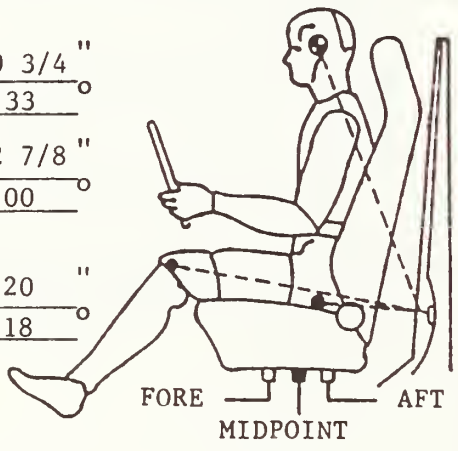
AMBIENT TEMP.: 69° F. TIME: 5:30

DRIVER DUMMY # 06

HEAD 20 3/4 "
TARGET* 33 °

KNEE 32 7/8 "
JOINT 100 °

APPROX.
"H" 20 "
POINT 118 °

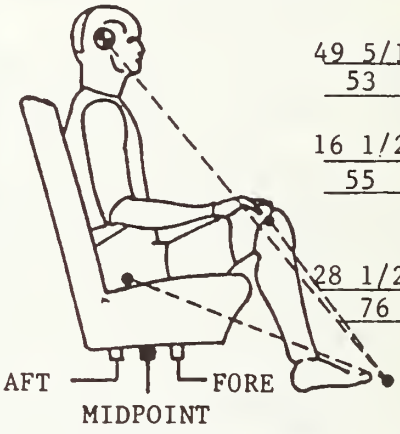


REAR PASSENGER DUMMY # U02

49 5/16 "HEAD
53 °TARGET**

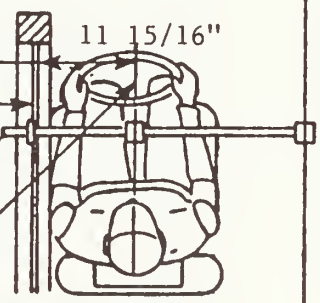
16 1/2 "KNEE
55 °JOINT

APPROX.
28 1/2 " "H"
76 °POINT



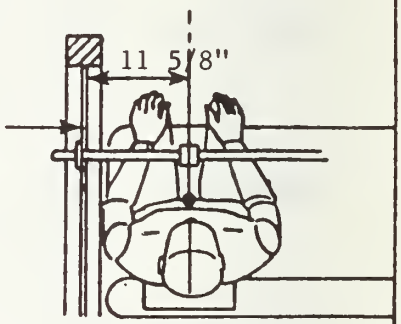
DOOR
GLASS
HEIGHT*** 9 1/2"

LATERAL BAR
ADJUSTABLE
POINTER



DRIVER
DUMMY # 06

DOOR
GLASS
HEIGHT DNA

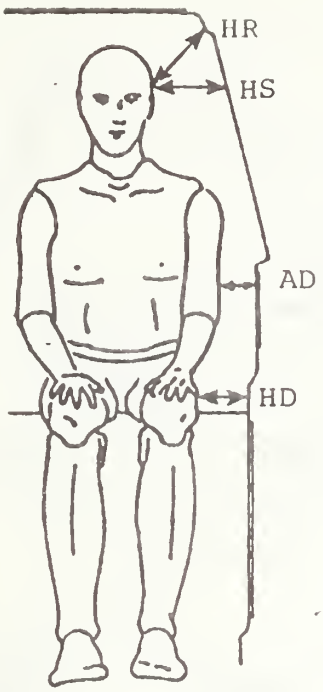


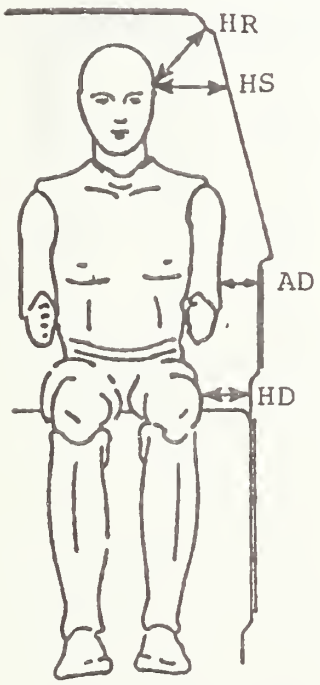
PASSENGER
DUMMY # U02

*All driver dummy dimensions referenced to top of striker bolt and all angles referenced to vertical.

**All passenger dummy dimensions referenced to front seat back latch bolt with front seat in mid-position and all angles referenced to vertical.

***Door glass height is equal on the right and left side of vehicle at dummy nose level.



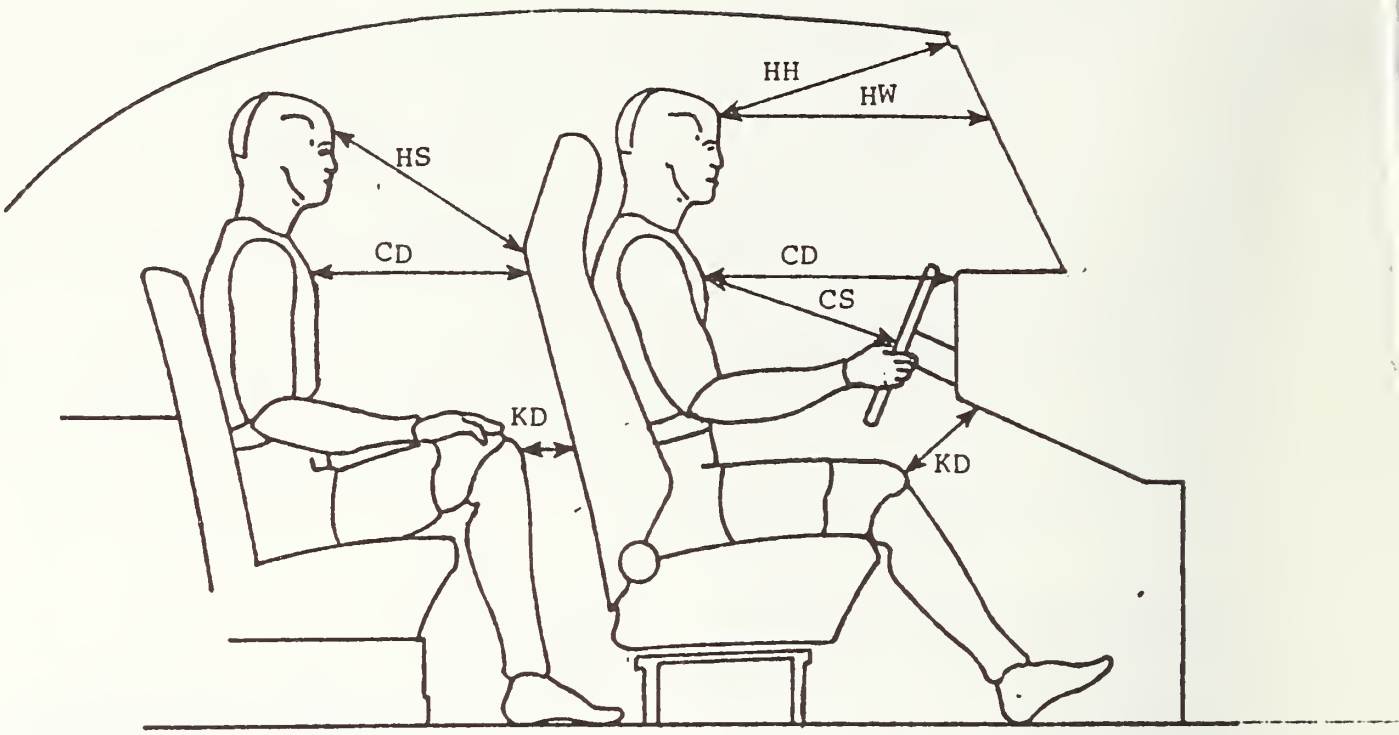


06 '002

	DRIVER	PASSENGER
HR	5 7/8	4 11/16
HS	7 5/8	7 7/8
AD	0	1/2
HD	2 3/8	1 3/4

NOTE: ALL MEASUREMENTS IN INCHES

DUMMY LATERAL CLEARANCE DIMENSIONS



	06	U02
	DRIVER	PASSENGER
HH	12 1/4	DNA
HW	19 1/2	DNA
HS	DNA	24
CD	20 1/8	17 13/16
CS	11 3/8	DNA
KDL	3 5/8	4 1/4
KDR	3 13/16	4 1/4

NOTE: ALL MEASUREMENTS IN INCHES

DUMMY LONGITUDINAL CLEARANCE DIMENSIONS

DUMMY KINEMATIC SUMMARY

DRIVER

During impact, the dummy's torso contacted the padded driver's door and the head passed through the already shattered driver's window and then struck the window sill. The dummy rebounded across the front seats. It's buttocks struck and passed through the front passenger's window sill and it's head and back struck the roof. The dummy came to rest sitting on the front passenger's window sill with it's head wedged between the front bucket seat's head restraints.

PASSENGER

During impact, the dummy's torso contacted the padded left rear occupant side wall and the head contacted the side window and side header padding. The dummy remained upright throughout the entire crash event with it's feet trapped in the left rear passenger foot well.

VEHICLE EXTERIOR PROFILES AND STATIC CRUSH

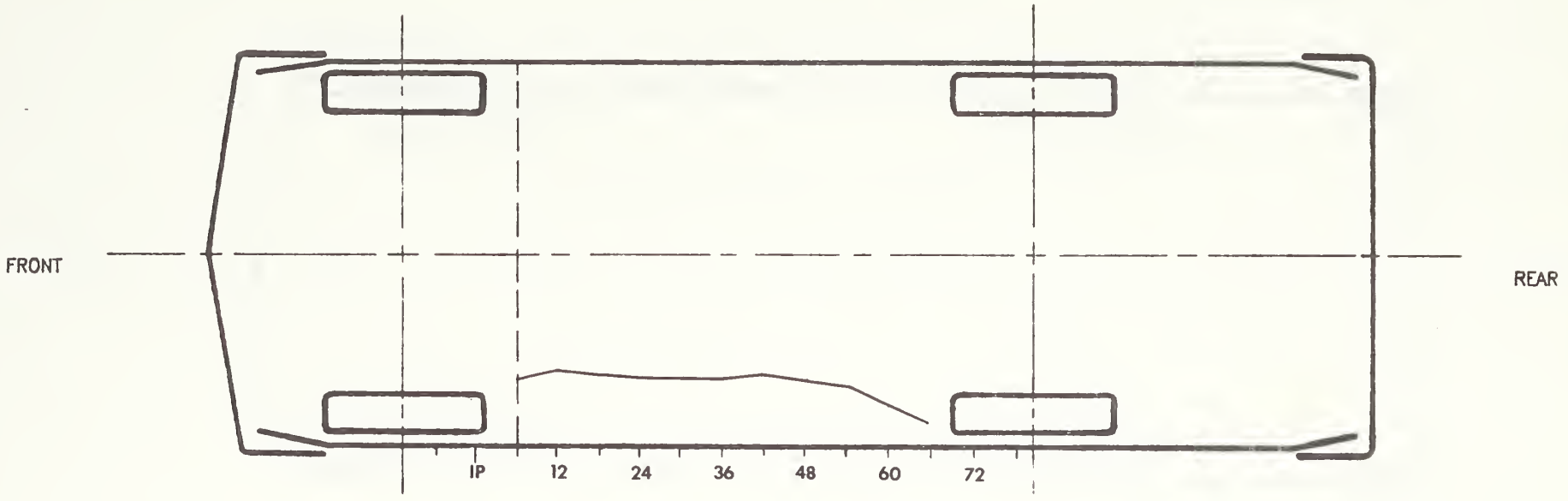
ZERO DISTANCE AT PROJECTED IMPACT POINT*

LOCATION	HEIGHT (in)	6	0	6	12	18	24	30	36	42	48	54	60	66	72	78
PRE-TEST PROFILE (DISTANCE IN INCHES FROM REFERENCE PLANE**)																
Axle Height	8.6	X	X	20.6	20.5	20.4	20.4	20.5	20.4	20.5	20.5	20.6	20.8	21.1	X	X
H-Point	16.4	X	X	18.1	18.1	18.1	18.1	18.0	18.0	18.0	18.1	18.3	18.3	18.3	X	X
Mid Door	23.9	16.5	18.0	17.9	17.8	17.8	17.7	17.7	17.7	17.8	17.8	17.8	17.9	17.9	18.1	16.6
Window Sill	33.0	X	19.8	19.5	19.3	19.3	19.3	19.3	19.2	19.3	19.3	19.3	19.4	19.5	19.6	19.8
Window Top	51.5	X	X	X	X	X	28.0	26.8	26.5	26.4	26.4	26.4	26.6	26.8	27.1	28.1
POST-TEST PROFILE (DISTANCE IN INCHES FROM REFERENCE PLANE**)																
Axle Height	8.6	X	X	30.9	32.3	31.6	31.3	31.4	31.4	31.6	31.3	30.5	27.6	24.9	X	X
H-Point	16.4	X	X	32.5	34.9	35.5	35.4	35.4	35.3	35.1	35.1	35.1	33.2	30.9	X	X
Mid Door	23.9	24.6	26.5	30.1	32.1	32.2	32.4	32.6	32.8	32.8	32.9	34.1	32.9	31.8	28.3	23.4
Window Sill	33.0	X	23.3	24.9	30.6	30.9	31.4	31.9	32.1	32.4	32.6	33.1	33.0	31.4	27.2	23.4
Window Top	51.5	X	X	X	X	X	31.0	29.8	29.2	29.1	28.9	28.9	28.6	28.5	28.6	29.2
STATIC CRUSH (IN)																
Axle Height	8.6	X	X	10.3	11.8	11.2	10.9	10.9	11.0	11.1	10.8	9.9	6.8	3.8	X	X
H-Point	16.4	X	X	14.4	16.8	17.4	17.3	17.4	17.3	17.1	17.0	16.8	14.9	12.6	X	X
Mid Door	23.9	8.1	8.5	12.2	14.3	14.4	14.7	14.9	15.1	15.0	15.1	16.3	15.0	13.9	10.2	6.8
Window Sill	33.0	X	3.5	5.4	11.3	11.6	12.1	12.6	12.9	13.1	13.3	13.8	13.6	11.9	7.6	3.6
Window Top	51.5	X	X	X	X	X	3.0	3.0	2.7	2.7	2.5	2.5	2.0	1.7	1.5	1.1

* Projected impact point is 37 inches forward of driver's side wheelbase midpoint. Column readings are front to rear from left to right.

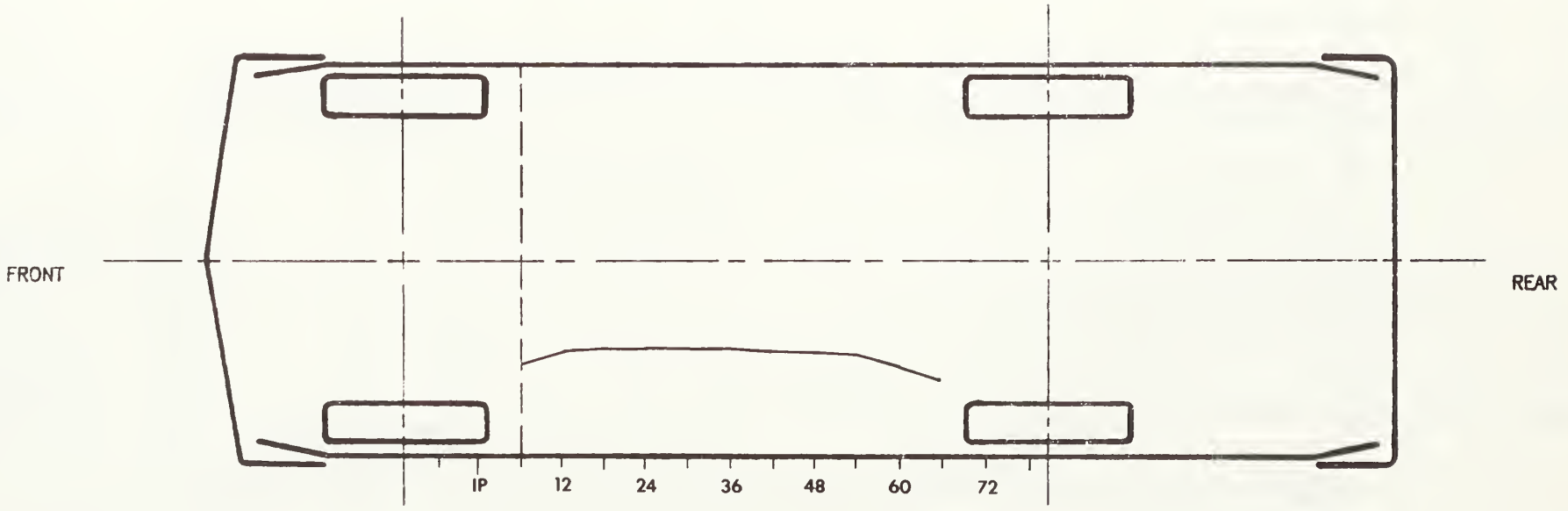
** Reference plane is parallel to and 48 inches from the vehicle longitudinal centerline.

VEHICLE EXTERIOR STATIC CRUSH PROFILE



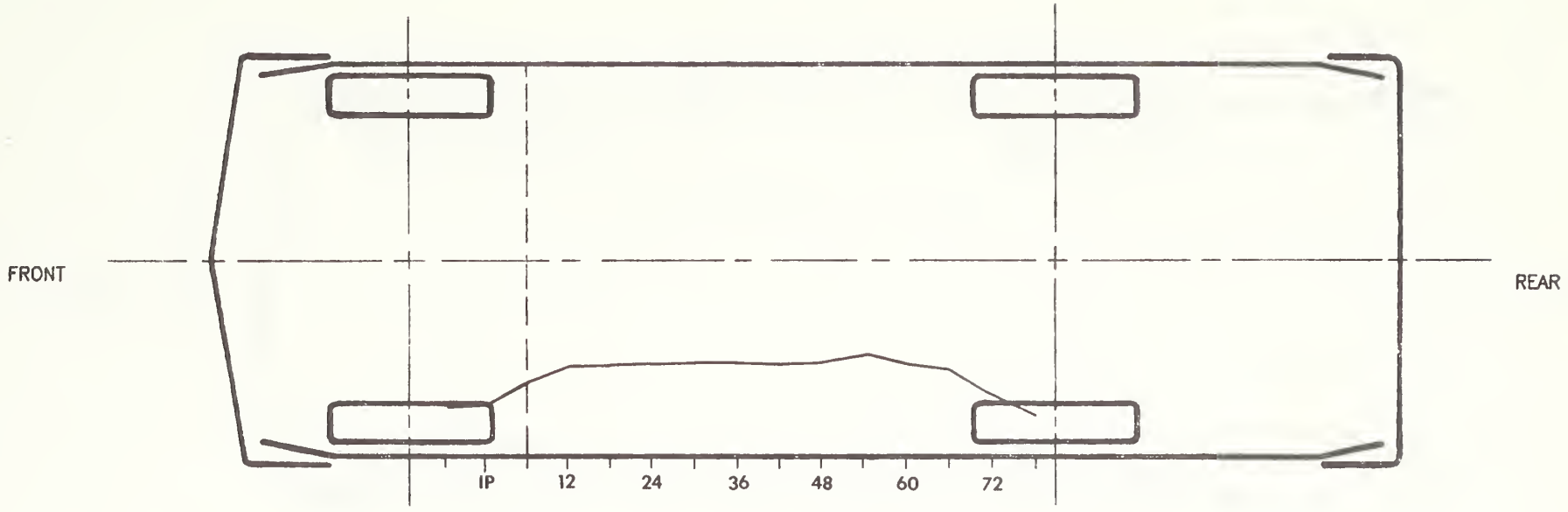
PROFILE LEVEL EQUALS AXLE HEIGHT
IP EQUALS PROJECTED IMPACT POINT

VEHICLE EXTERIOR STATIC CRUSH PROFILE



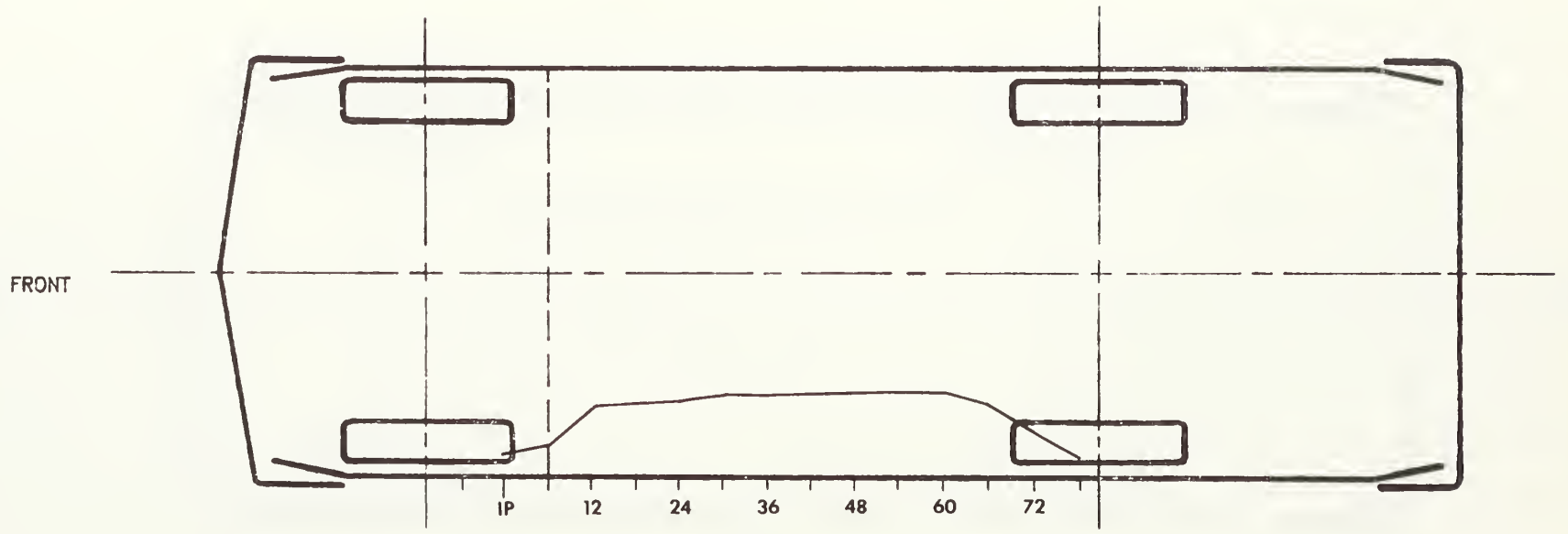
PROFILE LEVEL EQUALS H-POINT HEIGHT
IP EQUALS PROJECTED IMPACT POINT

VEHICLE EXTERIOR STATIC CRUSH PROFILE



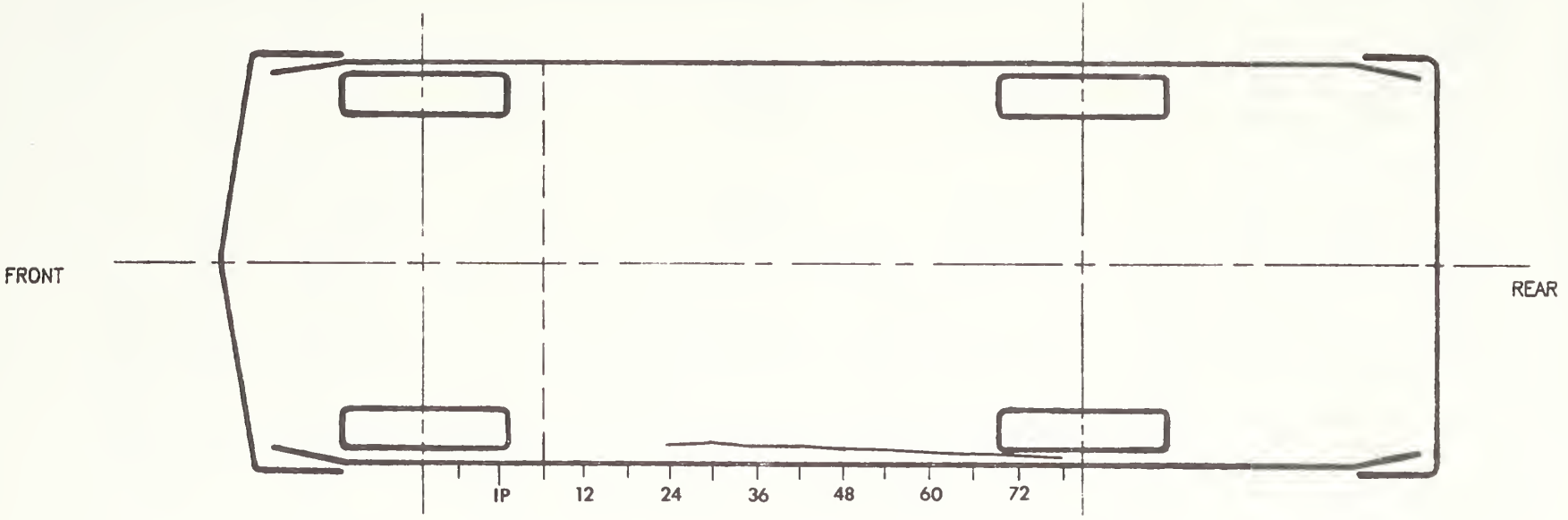
PROFILE LEVEL EQUALS MID-DOOR HEIGHT
IP EQUALS PROJECTED IMPACT POINT

VEHICLE EXTERIOR STATIC CRUSH PROFILE



PROFILE LEVEL EQUALS WINDOW SILL HEIGHT
IP EQUALS PROJECTED IMPACT POINT

VEHICLE EXTERIOR STATIC CRUSH PROFILE



PROFILE LEVEL EQUALS WINDOW TOP HEIGHT
IP EQUALS PROJECTED IMPACT POINT

SIDE IMPACT DUMMY DATA SUMMARY

	DRIVER DUMMY				PASSENGER DUMMY			
	POSITIVE DIRECTION*		NEGATIVE DIRECTION**		POSITIVE DIRECTION*		NEGATIVE DIRECTION**	
	MAX (g)	TIME (msec)	MAX (g)	TIME (msec)	MAX (g)	TIME (msec)	MAX (g)	TIME (msec)
HEAD ACCELERATION								
LONGITUDINAL	28.99	164.00	89.51	75.38	22.98	129.88	28.25	52.50
LATERAL	73.93	75.25	21.56	163.63	117.49	48.38	12.62	134.38
VERTICAL	8.62	163.13	68.93	54.00	31.89	96.13	26.76	38.00
RESULTANT		123.63 à 75.38				120.79 à 48.38		
HIC	944.33 from 35.63 to 80.00					1012.15 from 44.88 to 55.00		
CHEST ACCELERATION								
UPPER SPINE								
LONGITUDINAL	25.22	46.88	27.73	54.38Y	6.38	145.00	21.86	56.25
LATERAL (P)***	114.32	33.13	63.10	52.50	56.59	41.25	6.05	136.88
LATERAL (R)***	116.11	32.50	62.63	52.50	58.53	41.25	6.24	138.13
VERTICAL	17.10	50.00	13.56	68.75	12.50	25.63	16.50	56.25
RESULTANT (P)		115.14 à 33.13Y				60.12 à 41.25		
RESULTANT (R)		116.85 à 33.13Y				61.95 à 41.25		
DELTA V (MPH)****		35.2 à 48.75 (P)				25.9 à 128.13 (P)		
		36.4 à 48.75 (R)				26.2 à 127.50 (R)		
LOWER SPINE								
LONGITUDINAL	43.25	40.63	32.91	52.50	12.18	42.50	32.88	30.00
LATERAL (P)	135.51	24.38	40.41	51.88	85.41	30.00	28.39	57.50
LATERAL (R)	135.45	24.38	50.83	51.88	86.38	30.62	27.45	57.50
VERTICAL	27.40	30.62	7.76	68.75	19.52	36.88	5.32	97.50
RESULTANT (P)		135.73 à 24.38				92.00 à 30.00		
RESULTANT (R)		135.67 à 24.38				92.82 à 30.62		
DELTA V (MPH)		40.7 à 41.25 (P)				33.1 à 51.25 (P)		
		41.7 à 41.67 (R)				33.9 à 51.25 (R)		
LEFT UPPER RIB								
LATERAL (P)	100.67	28.75	12.92	65.63	56.02	25.63	5.58	146.25
LATERAL (R)	103.59	26.00	14.30	61.25	57.60	25.63	5.17	82.50
DELTA V (MPH)		31.9 à 58.75 (P)				29.8 à 135.00 (P)		
		32.3 à 58.75 (R)				31.2 à 137.50 (R)		
LEFT LOWER RIB								
LATERAL (P)	110.04	19.38	78.65	56.87	68.51	33.75	14.19	56.87
LATERAL (R)	118.67	19.38	75.91	56.87	65.82	24.38	12.95	56.25
DELTA V (MPH)		34.3 à 54.38 (P)				30.9 à 53.75 (P)		
		34.6 à 54.38 (R)				29.7 à 53.75 (R)		
PELVIS ACCELERATION								
LONGITUDINAL	12.57	59.50	280.43	85.13°	9.03	94.25	75.18	27.13
LATERAL	191.61	23.50	30.61	41.75°	182.21	28.50	8.47	72.75
VERTICAL	36.55	26.88	114.57	74.38°	39.62	31.00	7.89	94.63
RESULTANT		282.64 à 85.38°				186.34 à 28.50		
DELTA V (MPH)		37.2 à 55.88°				30.9 à 57.13		

SIDE IMPACT DUMMY DATA SUMMARY CONTD

	DRIVER DUMMY				PASSENGER DUMMY			
	POSITIVE DIRECTION*		NEGATIVE DIRECTION**		POSITIVE DIRECTION*		NEGATIVE DIRECTION**	
	MAX (in)	TIME (msec)	MAX (in)	TIME (msec)	MAX (in)	TIME (msec)	MAX (in)	TIME (msec)
RIB DEFLECTION †	0.04	210.00	1.80	50.88	0.04	6.50	1.56	54.38

* LONGITUDINAL: FORWARD
LATERAL: RIGHTWARD
VERTICAL: UPWARD

**LONGITUDINAL: REARWARD
LATERAL: LEFTWARD
VERTICAL: DOWNWARD

*** (P) = Primary Sensor, (R) = Redundant Sensor

**** For dummy channels, Delta V is the velocity change at the approximate time of separation from the contact area.

† Compression: Negative

ϒ See TEST ANOMALIES

º The CTM has judged that intermittent rattling has occurred in these channels and, therefore, the peak values reported are questionable as are applicable resultants and Delta V's.

VEHICLE ACCELEROMETER LOCATIONS AND DATA SUMMARY

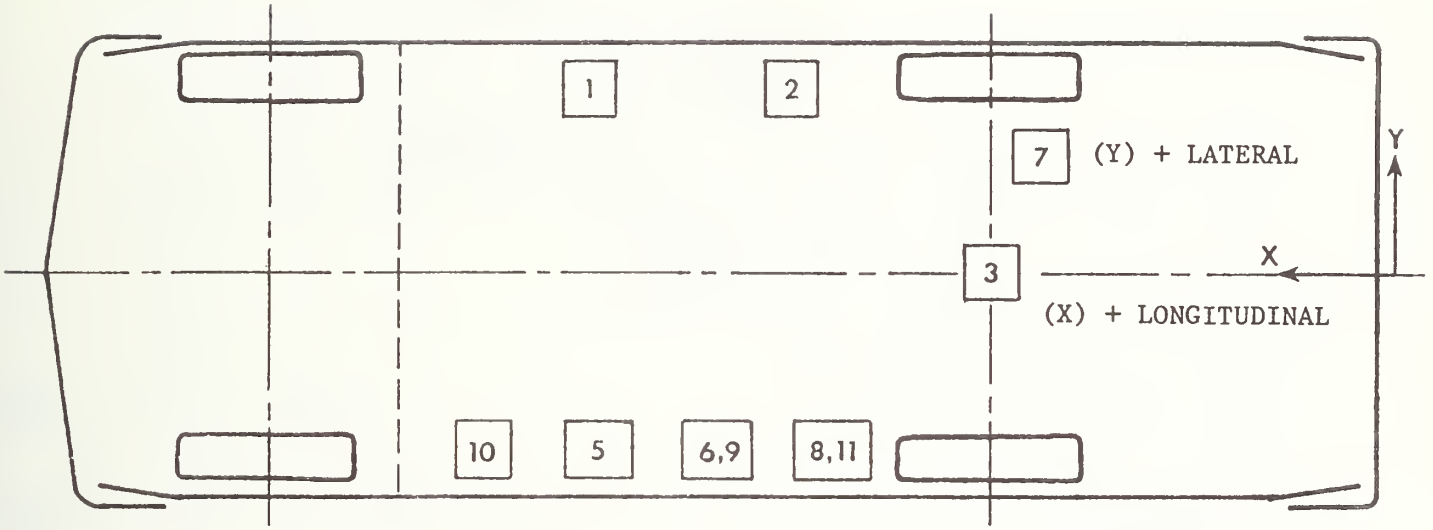
NO.	LOCATION	X*	Y*	Z*	POSITIVE DIRECTION MAX (g)	POSITIVE DIRECTION TIME (msec)	NEGATIVE DIRECTION MAX (g)	NEGATIVE DIRECTION TIME (msec)
1	RIGHT SILL AT FRONT SEAT	83.3	23.4	10.5				
	(LONGITUDINAL)	ΔV = -1.7 mph à 100.00 msec			[illegible].87	63.88	8.18	20.13
	(LATERAL)	ΔV = 18.1 mph à 100.00 msec			2[illegible].10	34.50	2.66	151.63
	(VERTICAL)				[illegible].45	64.25	14.67	33.13
	(RESULTANT)					24.76 à 33.63		
2	RIGHT SILL AT REAR SEAT	61.3	23.6	9.0				
	(LONGITUDINAL)	ΔV = -0.1 mph à 100.00 msec			4.81	64.00	7.62	19.88
	(LATERAL)	ΔV = 21.1 mph à 100.00 msec			24.08	35.25	3.03	152.13
	(VERTICAL)				6.58	53.50	10.07	34.00
	(RESULTANT)					25.85 à 35.00		
3	REAR DECK OVER AXLE	32.0	0.0	7.1				
	(LONGITUDINAL)	ΔV = -3.1 mph à 100.00 msec			6.17	35.00	15.53	19.50
	(LATERAL)	ΔV = 25.8 mph à 100.00 msec			23.78	21.13	2.55	147.63
	(VERTICAL)				8.95	35.75	11.08	20.13
	(RESULTANT)					29.51 à 20.25		
4	LEFT SILL AT REAR SEAT	61.0	-23.6	9.0				
	(LATERAL)	ΔV = 18.6 mph à 39.25 msec			45.05	24.63	33.42	47.00
5	LEFT SILL AT FRONT SEAT	83.6	-23.3	10.5				
	(LATERAL)	ΔV = 8.8 mph à 10.00 msec			54.40	10.13	58.49	16.00
6	LEFT FRONT DOOR CENTERLINE	80.8	-25.4	23.3				
	(LATERAL)	ΔV = 17.5 mph à 15.13 msec			124.12	11.68	94.60	22.25
7	RIGHT REAR COMPARTMENT	31.0	15.4	13.9				
	(LONGITUDINAL)				4.23	33.00	10.04	19.00
8	MIDREAR OF LEFT FRONT DOOR	60.4	-25.0	23.8				
	(LATERAL)				---	--- Y	---	--- Y
9	UPPER LEFT FRONT DOOR CENTERLINE	81.8	-25.4	32.6				
	(LATERAL)	ΔV = 21.6 mph à 16.13 msec			231.31	17.13	161.61	24.63
10	MIDFRONT OF LEFT FRONT DOOR	98.9	-25.8	22.8				
	(LATERAL)	ΔV = 23.6 mph à 17.00 msec			136.48	7.25	64.97	23.63
11	UPPER REAR OF LEFT FRONT DOOR	70.8	-25.5	32.6				
	(LATERAL)	ΔV = 17.6 mph à 18.25 msec			116.24	19.25	129.92	24.00

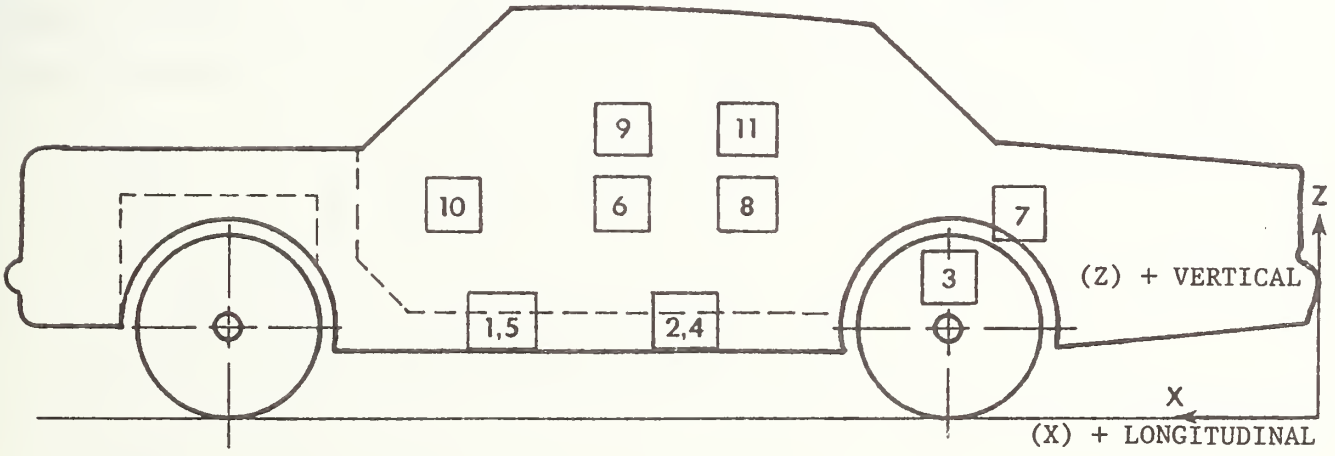
* Reference: X - Rear Bumper (+ Forward), Y - Vehicle Centerline (+ To Right), Z - Ground Level (+ Up)

All measurements of accelerometer locations in inches.

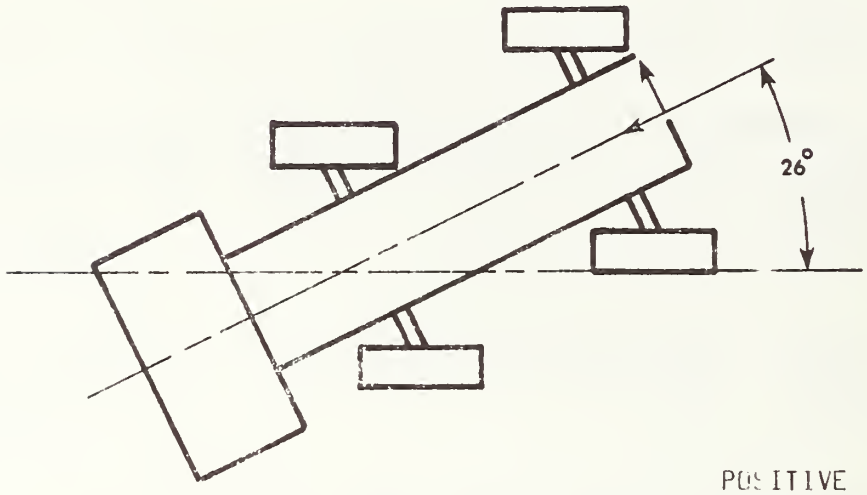
YSee TEST ANOMALIES

VEHICLE ACCELEROMETER LOCATIONS





MOVING BARRIER ACCELEROMETER LOCATIONS AND DATA SUMMARY



NO.	LOCATION	X*	Y*	Z*	POSITIVE DIRECTION MAX (g)	POSITIVE DIRECTION TIME (msec)	NEGATIVE DIRECTION MAX (g)	NEGATIVE DIRECTION TIME (msec)
1	CENTER OF GRAVITY	74.5	C.C	11.5				
	(LONGITUDINAL)	ΔV = -18.5 mph à 1CC.CC msec			C.99	159.63	17.94	38.CC
	(LATERAL)	ΔV = -5.C mph à 1CC.CC msec			1.12	73.25	9.C3	39.88
	(VERTICAL)				17.49	68.CC	13.4C	6C.13
	(RESULTANT)					2C.89 à 38.CC		
2	FRONT FRAME MEMBER	13C.3	C.C	11.3				
	(LONGITUDINAL)	Δ V = -17.1 mph à 1CC.CC msec			C.64	247.88	17.C7	37.38
3	REAR FRAME MEMBER	23.3	C.C	11.5				
	(LONGITUDINAL)	ΔV = -17.C mph à 1CC.CC msec			1.37	152.CC	16.63	36.88

* Reference: X - Rear Most Point of Frame (+ To Forward), Y - Barrier Centerline (+ To Right), Z - Ground Level (+ To Up)

All measurements of accelerometer locations in inches.

HIGH SPEED CAMERA INFORMATION

CAMERA NO.	LOCATION	TYPE	LENS (mm)	SPEED (fps)	PURPOSE OF CAMERA DATA
1	Overhead	Photosonics 1B	8	792.5	Vehicle Dynamics
2	Overhead	Photosonics 1B	25	732.5	Close-up of Impact Point
3	Onboard MDB	Stalex	25	500	Close-up of Impact Point
4	Onboard MDB	Photosonics 1B	13	1002	Driver Kinematics
5	Ground Level - Right	Hycam	25	845	Overall View
6	Ground Level - Left	Photosonics 1B	17	810	Overall View
7	Onboard Vehicle	Photosonics 1B	8	812	Driver Kinematics - Front View
8	Onboard Vehicle	Photosonics 1B	8	800	Driver Kinematics
9	Onboard Vehicle	Photosonics 1B	8	800	Passenger Kinematics

NOTE: CAMERAS ARE NUMBERED ACCORDING TO SPLICING SEQUENCE OF FILM. (24 fps) REAL TIME MOVIE FILM COVERAGE OF PRE-CRASH, POST-CRASH AND CRASH EVENT SPLICED AT START AND END OF FILM.

LOCATIONS OF OFFBOARD HIGH SPEED CAMERAS

CAMERA NO.	X	Y	Z
1	0	0	25'
2	0	0	25'
5	24'10"	58'8"	45"
6	-20'11"	-13'	45"

Origin of Coordinate System is Point of Impact

+X = Forward with Respect to Striking Vehicle's Velocity Vector
+Y = Rightward with Respect to Striking Vehicle's Velocity Vector
+Z = Upward with Respect to Striking Vehicle's Velocity Vector

NON-GOVERNMENT FURNISHED TRANSDUCER INFORMATION

PARAMETER BEING MEASURED	TYPE OF TRANSDUCER	MODEL NUMBER	SERIAL NUMBER	MFGR.	DATE OF LAST CALIBRATION	SENSITIVITY	DESIRED FULL SCALE (ENGR. UNITS)
BCGXG	Accel	4-202-0001	18845	Bell Howell	8/9/83	.236 MV/G	50 G
BCGYG	Accel	4-202-0001	18858	Bell Howell	8/9/83	.2385 MV/G	50 G
BCGZG	Accel	4-202-0001	18857	Bell Howell	8/9/83	.2385 MV/G	50 G
BFCXG	Accel	4-202-0001	18240	Bell Howell	8/9/83	.2385 MV/G	50 G
BRCXG	Accel	4-202-0001	19022	Bell Howell	8/9/83	.221 MV/G	50 G

All dummy and struck vehicle accelerometers were Government Furnished Equipment and were Endevco 2264 Accelerometers.

APPENDIX A

PHOTOGRAPHS

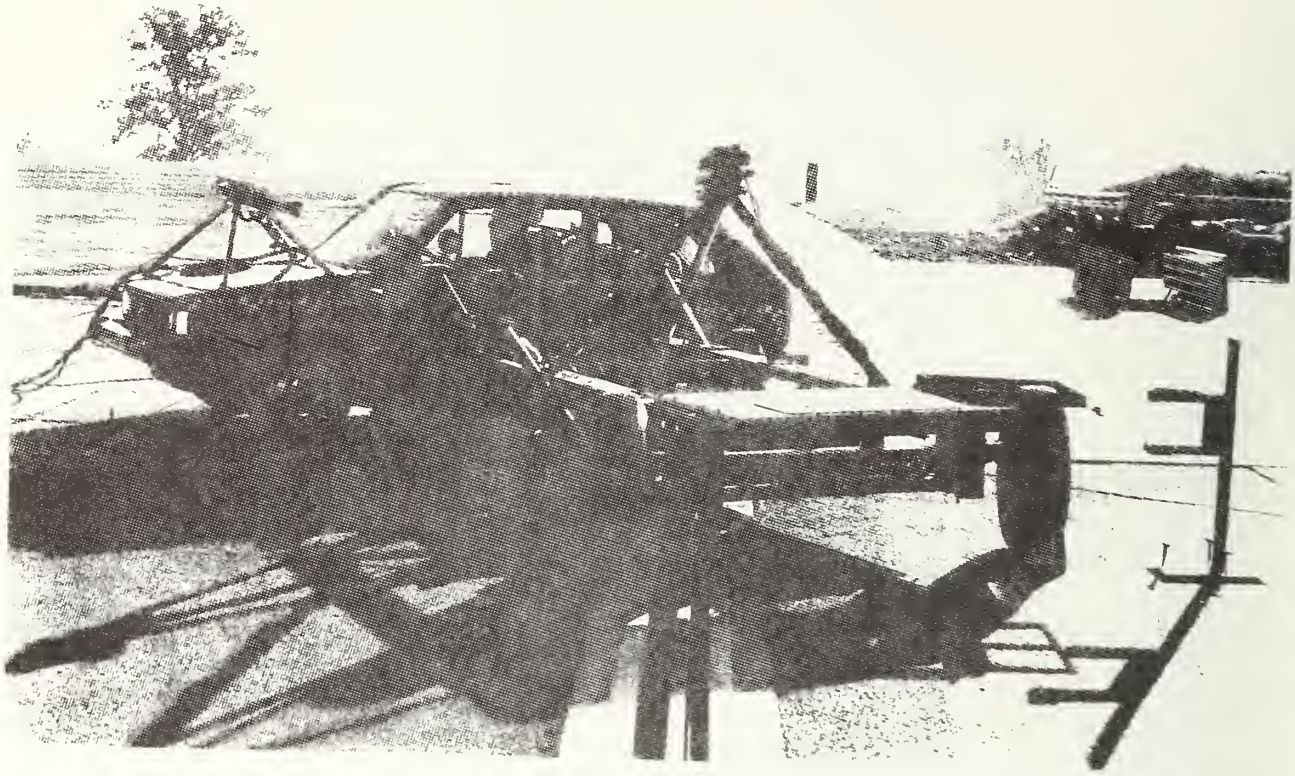


Figure A-1. PRE-TEST OVERALL - VIEW 1

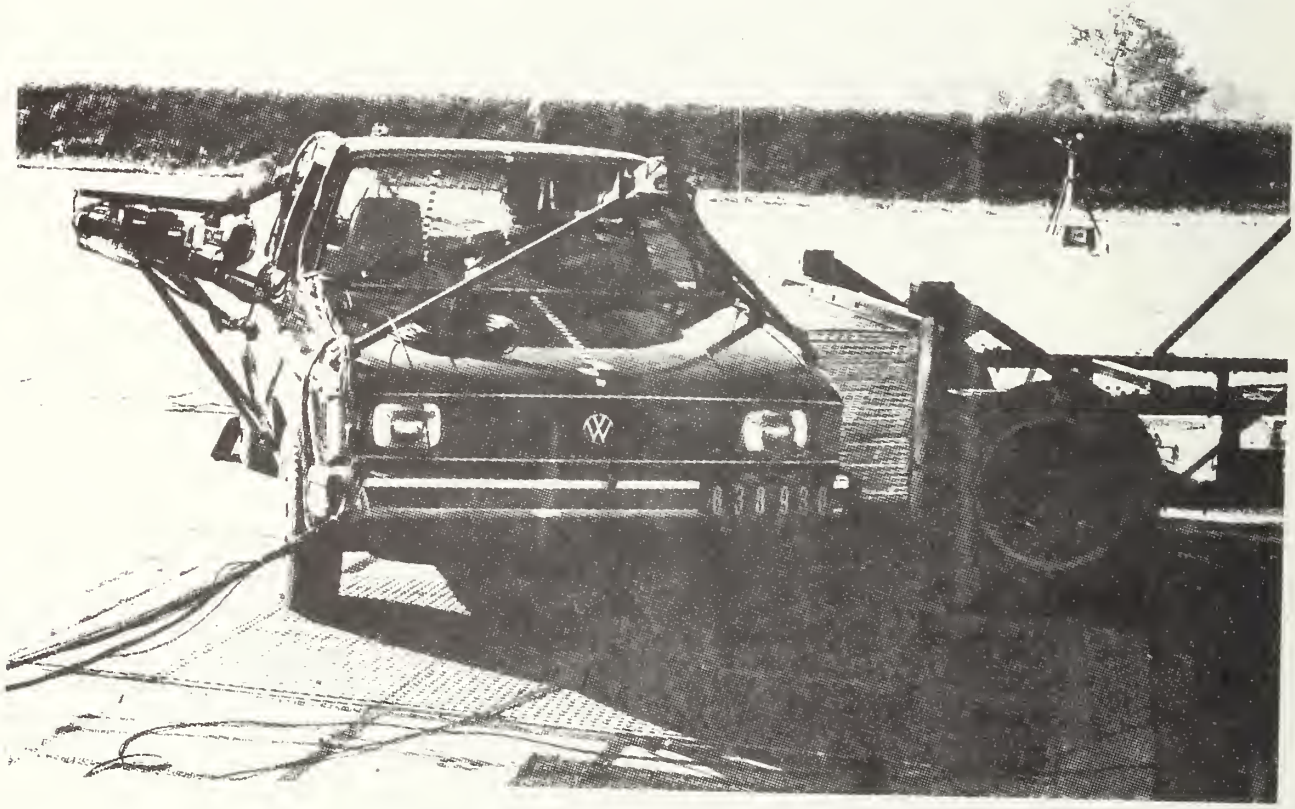


Figure A-2. PRE-TEST OVERALL - VIEW 2

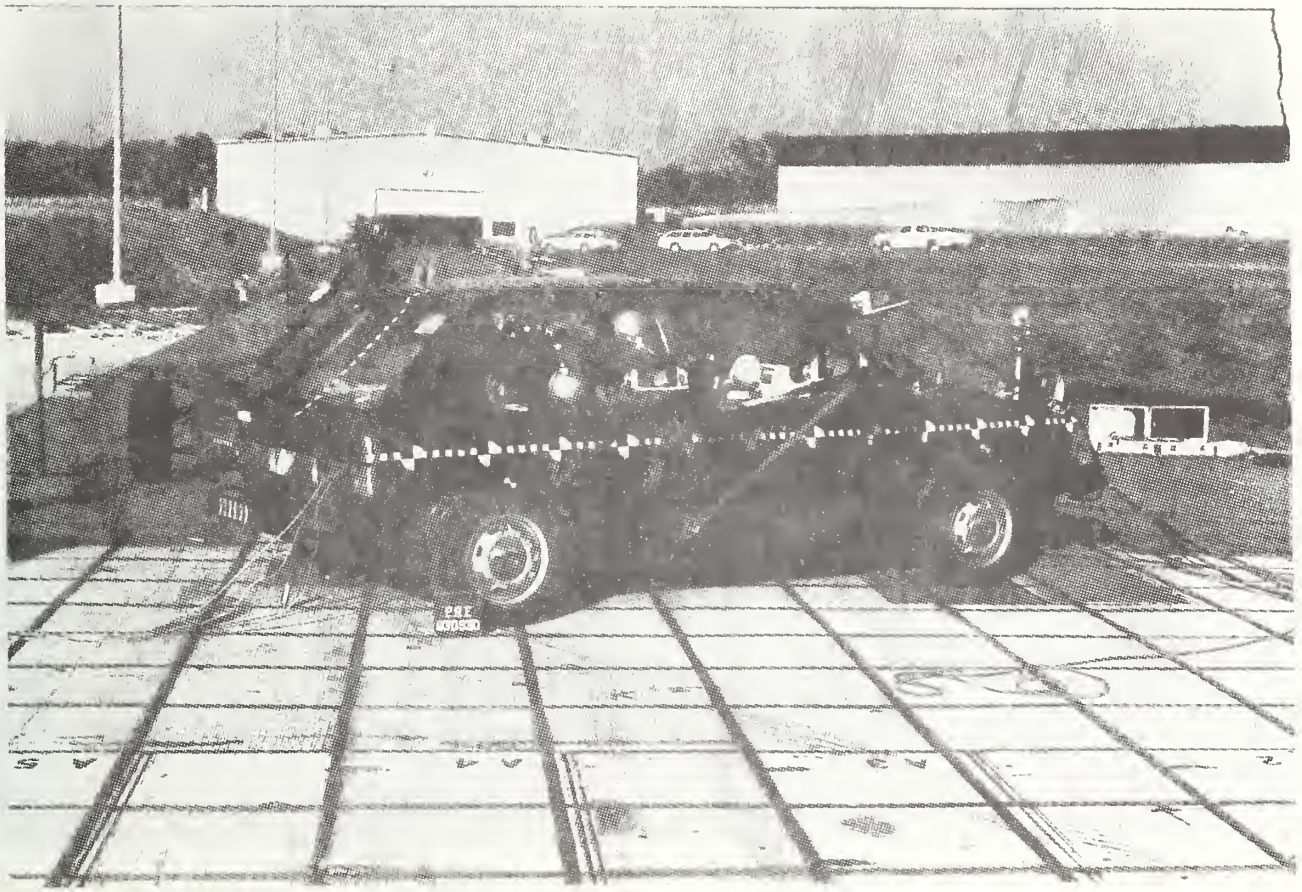


Figure A-3. PRE-TEST OVERALL - VIEW 3

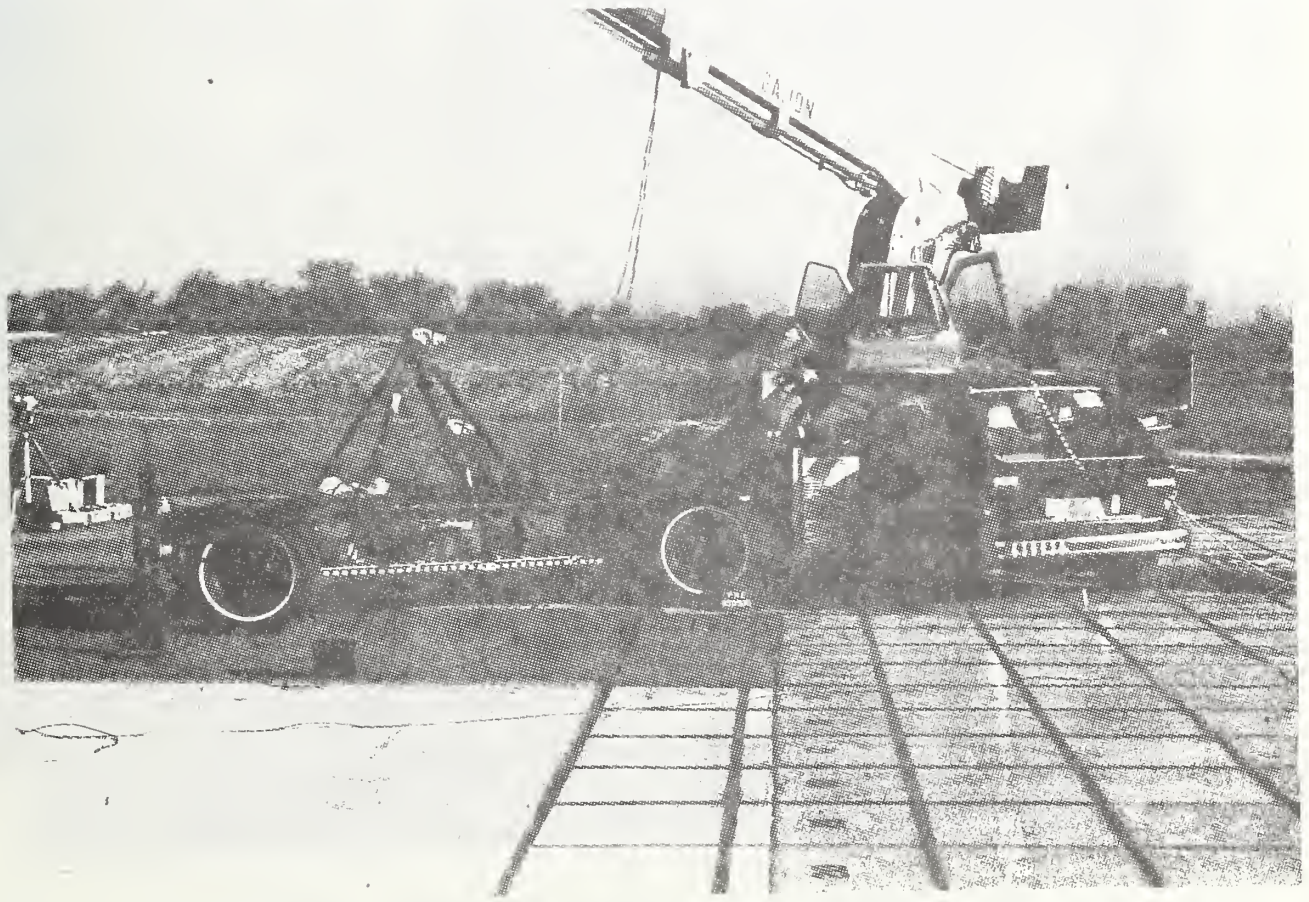


Figure A-4. PRE-TEST OVERALL - VIEW 4

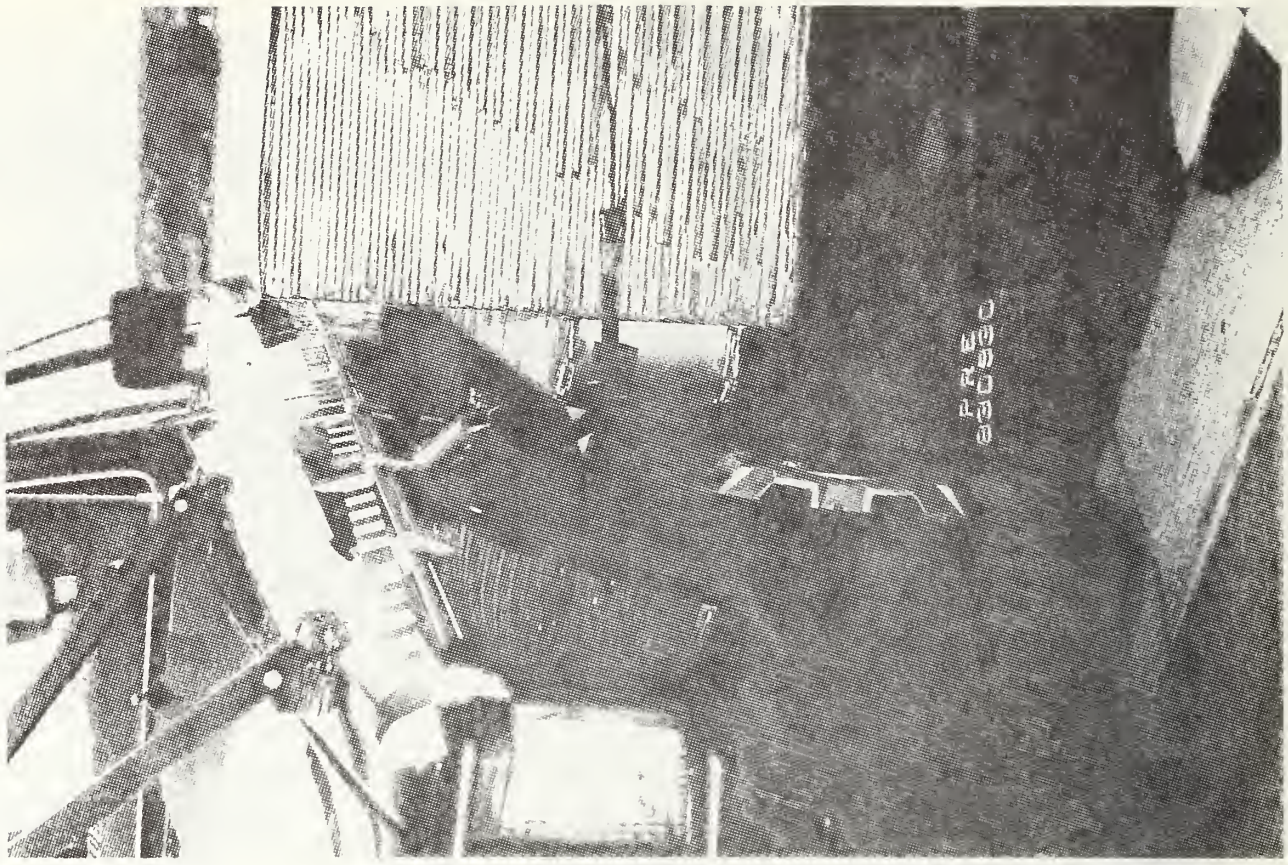


Figure A-5. PRE-TEST CLOSEUP - VIEW 1

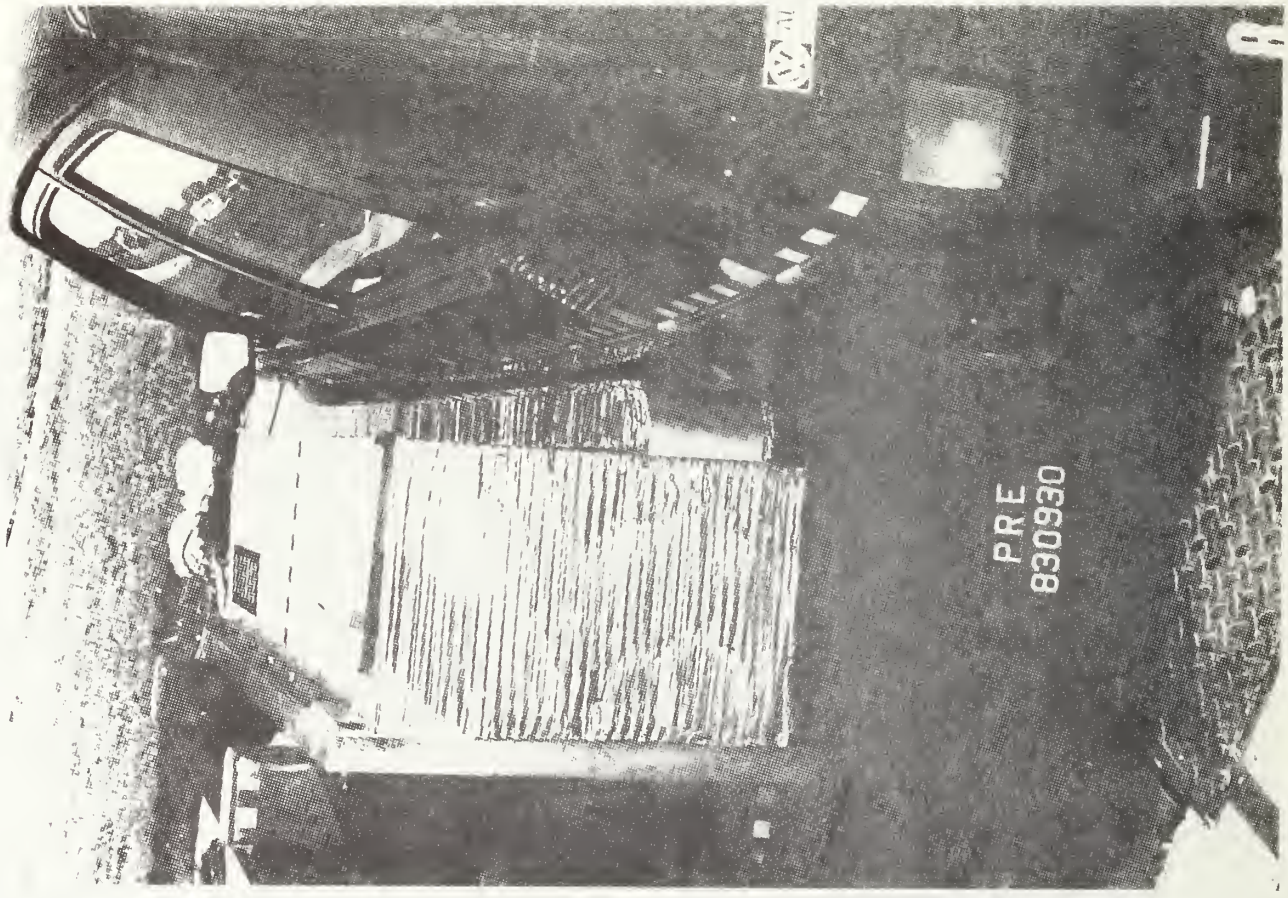


Figure A-6. PRE-TEST CLOSEUP - VIEW 2

Figure A-7. PRE-TEST CLOSEUP - VIEW 3

Figure A-8. PRE-TEST DRIVER DUMMY - VIEW 1

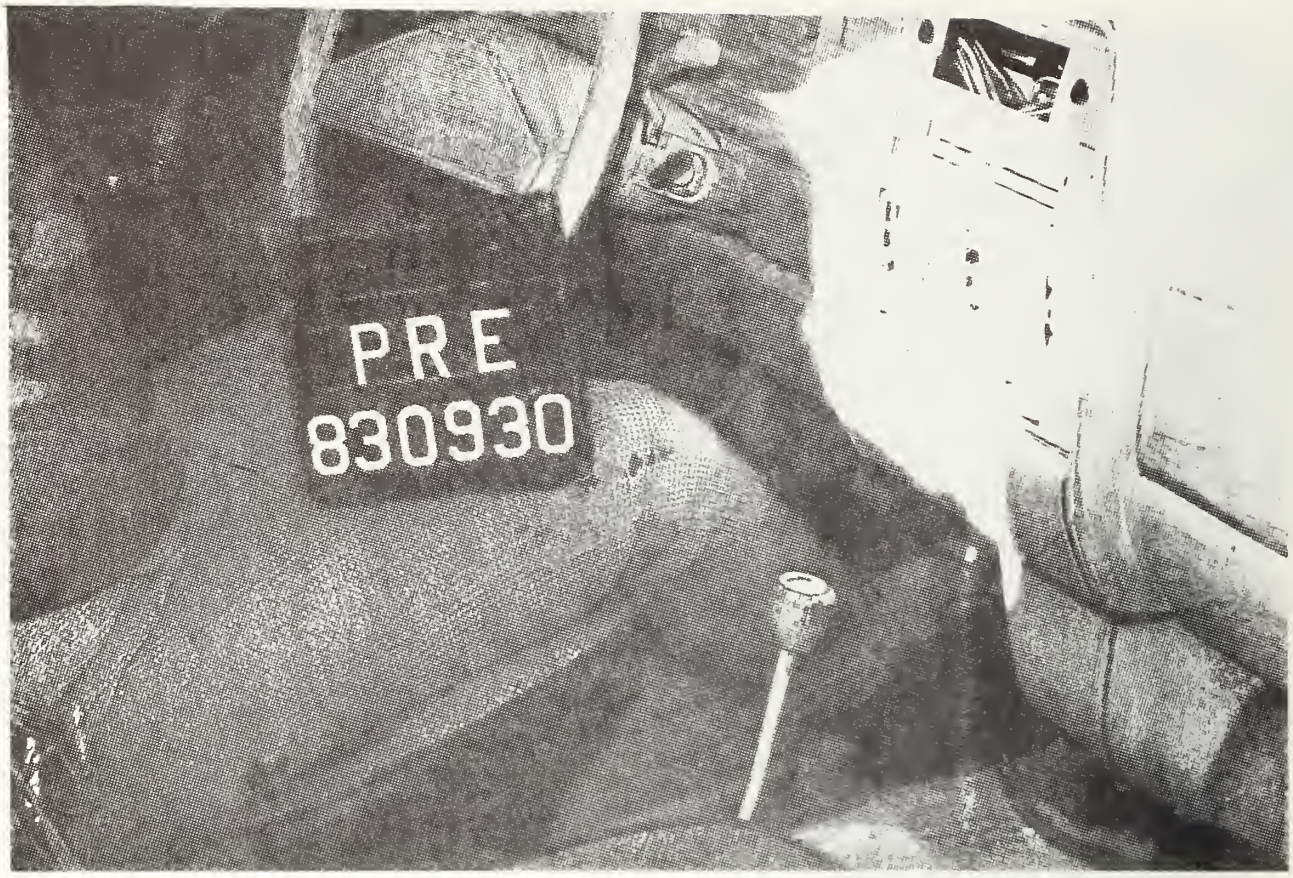


Figure A-9. PRE-TEST DRIVER DUMMY - VIEW 2

Figure A-10. PRE-TEST PASSENGER DUMMY - VIEW 1

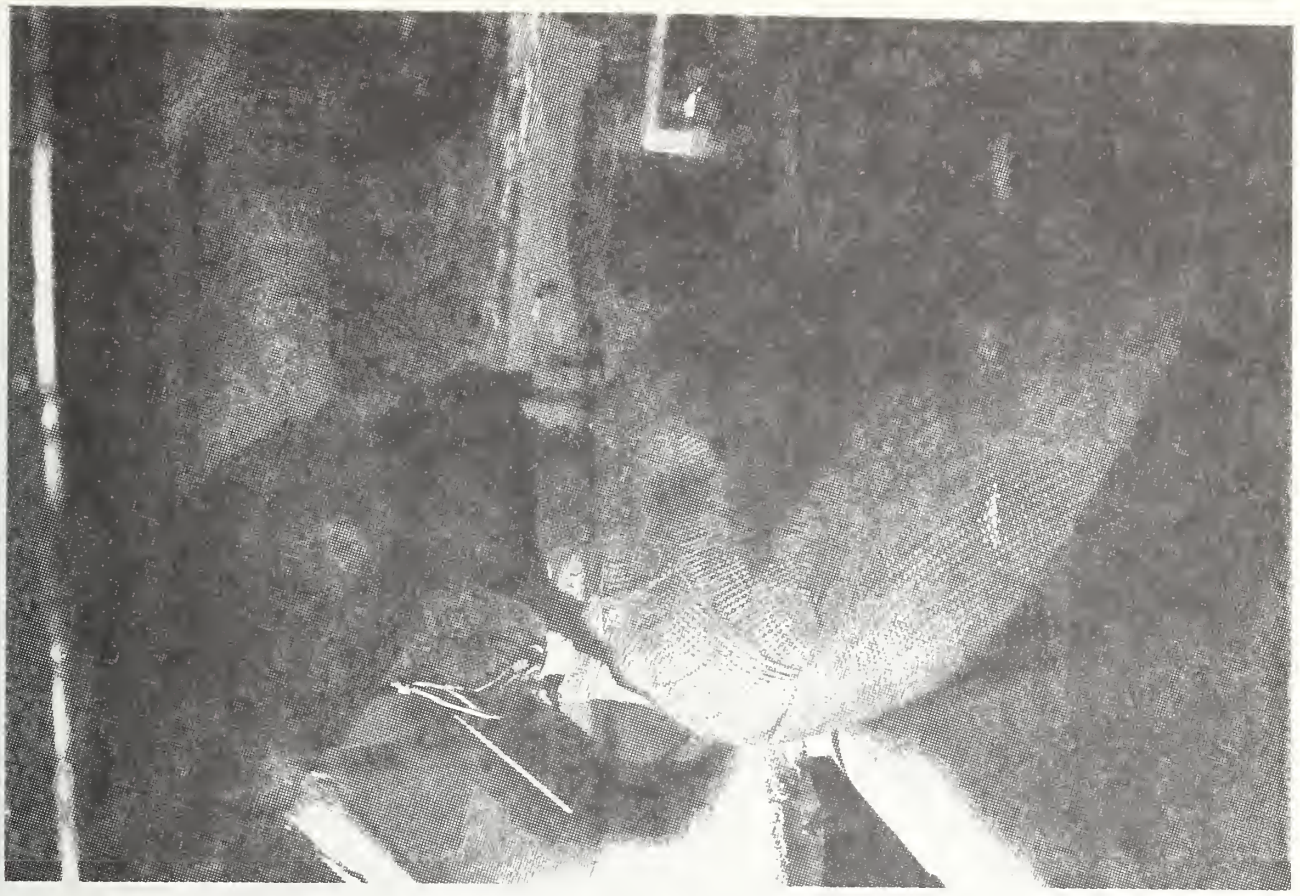


Figure A-11. PRE-TEST PASSENGER DUMMY - VIEW 2

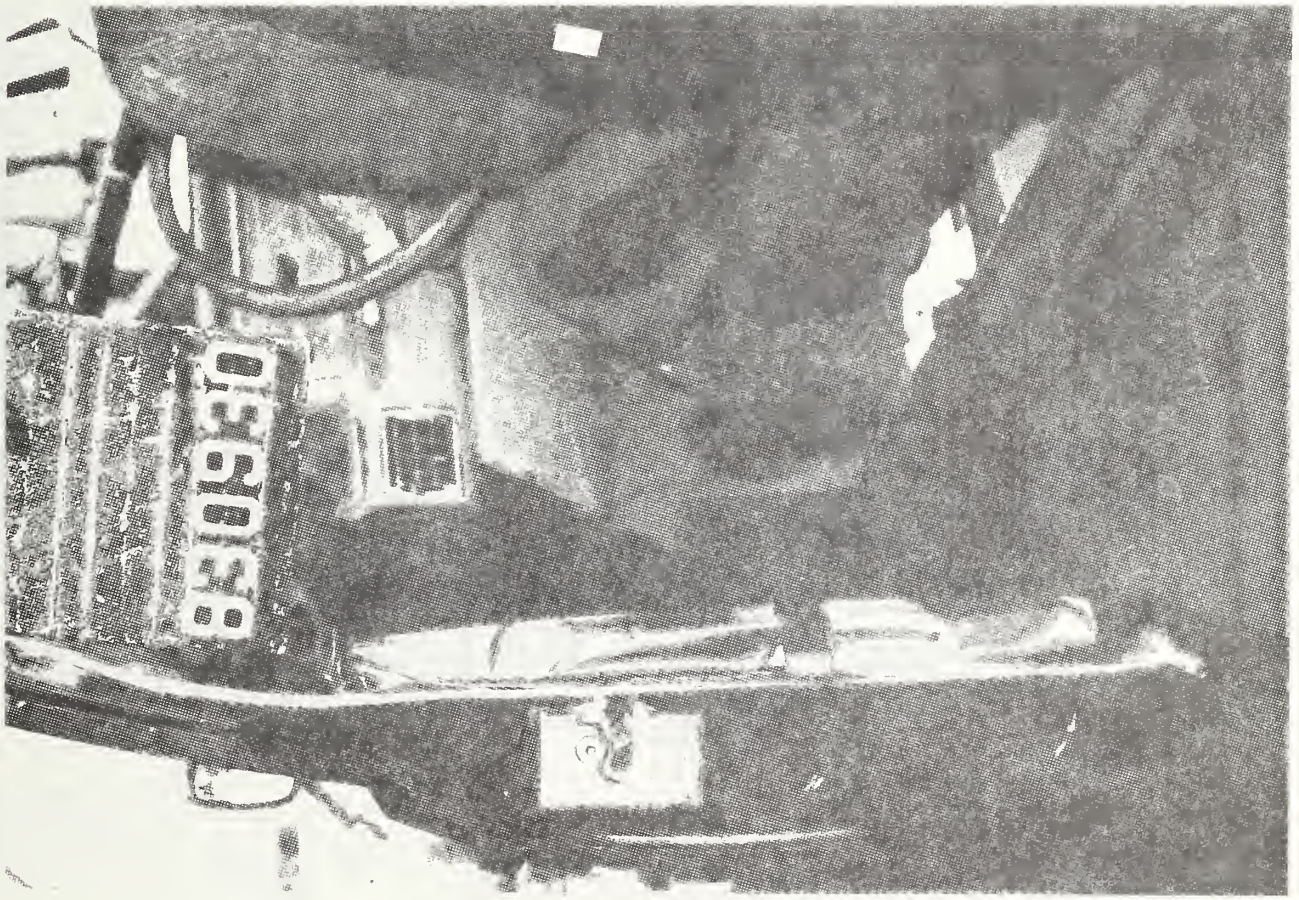


Figure A-12. PRE-TEST DRIVER'S PADDING - VIEW 1

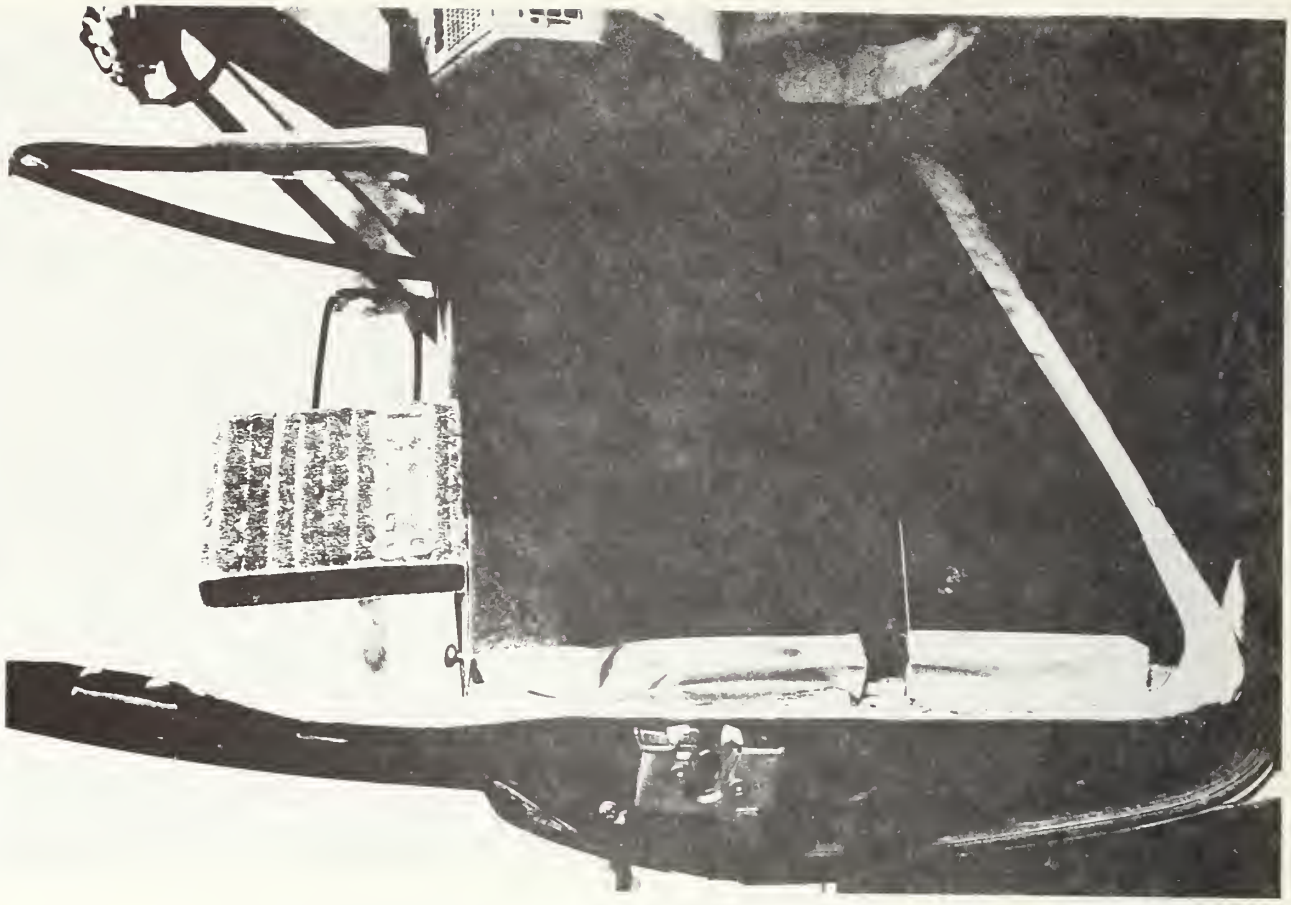


Figure A-13. PRE-TEST DRIVER'S PADDING - VIEW 2

Figure A-14. CRASH EVENT PHOTOGRAPH

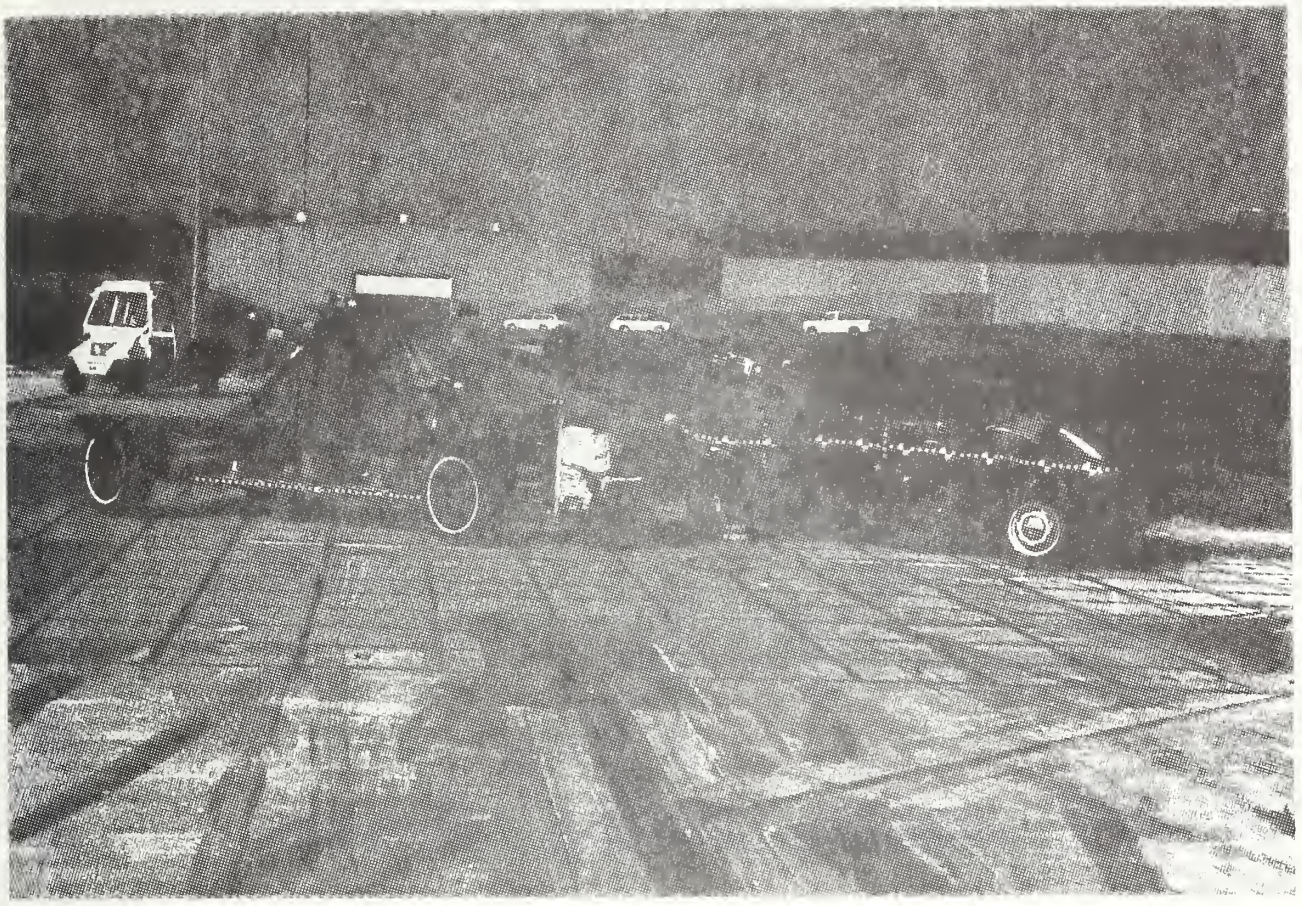


Figure A-15. POST-TEST OVERALL - VIEW 1

Figure A-16. POST-TEST OVERALL - VIEW 2

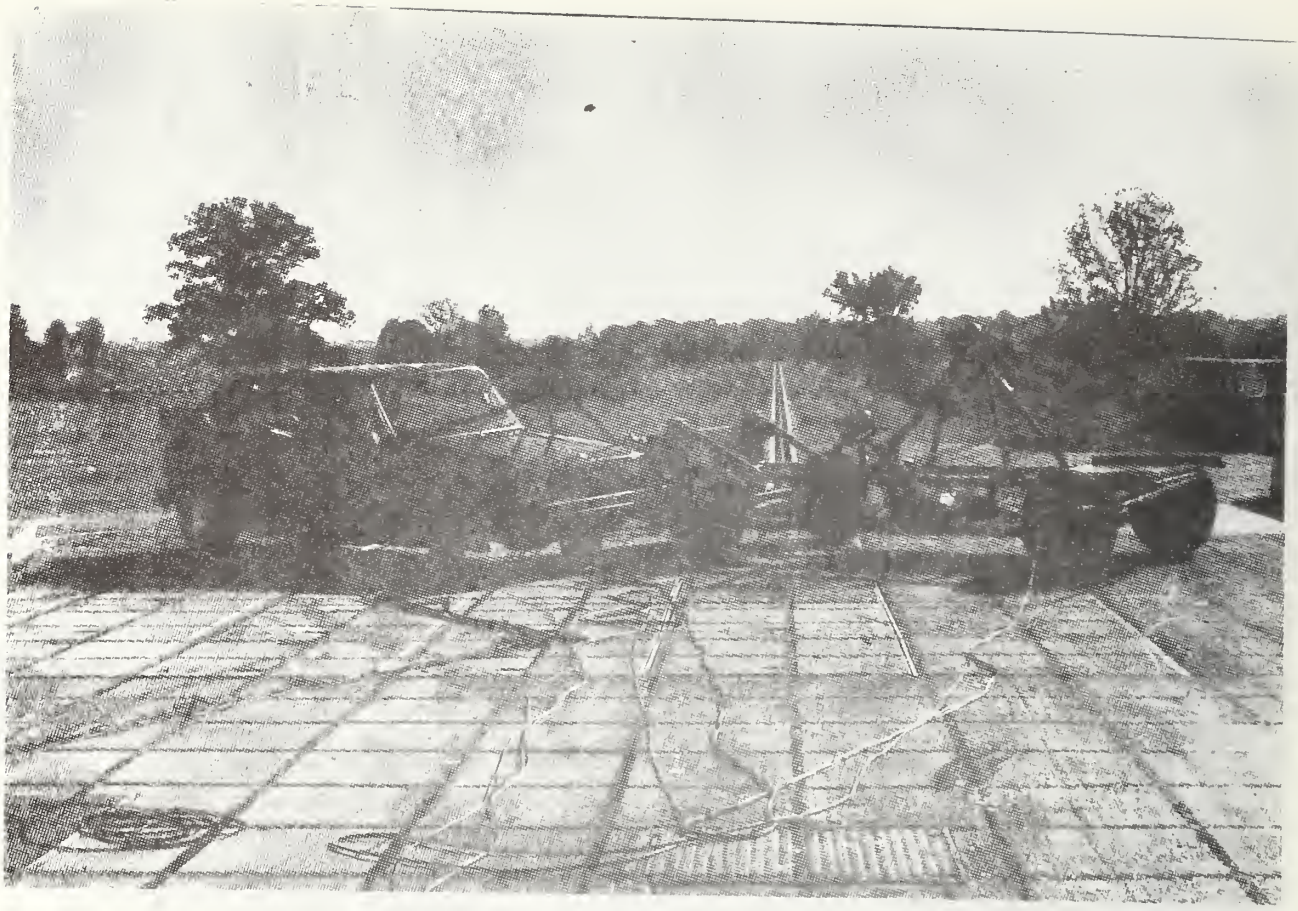


Figure A-17. POST-TEST OVERALL - VIEW 3

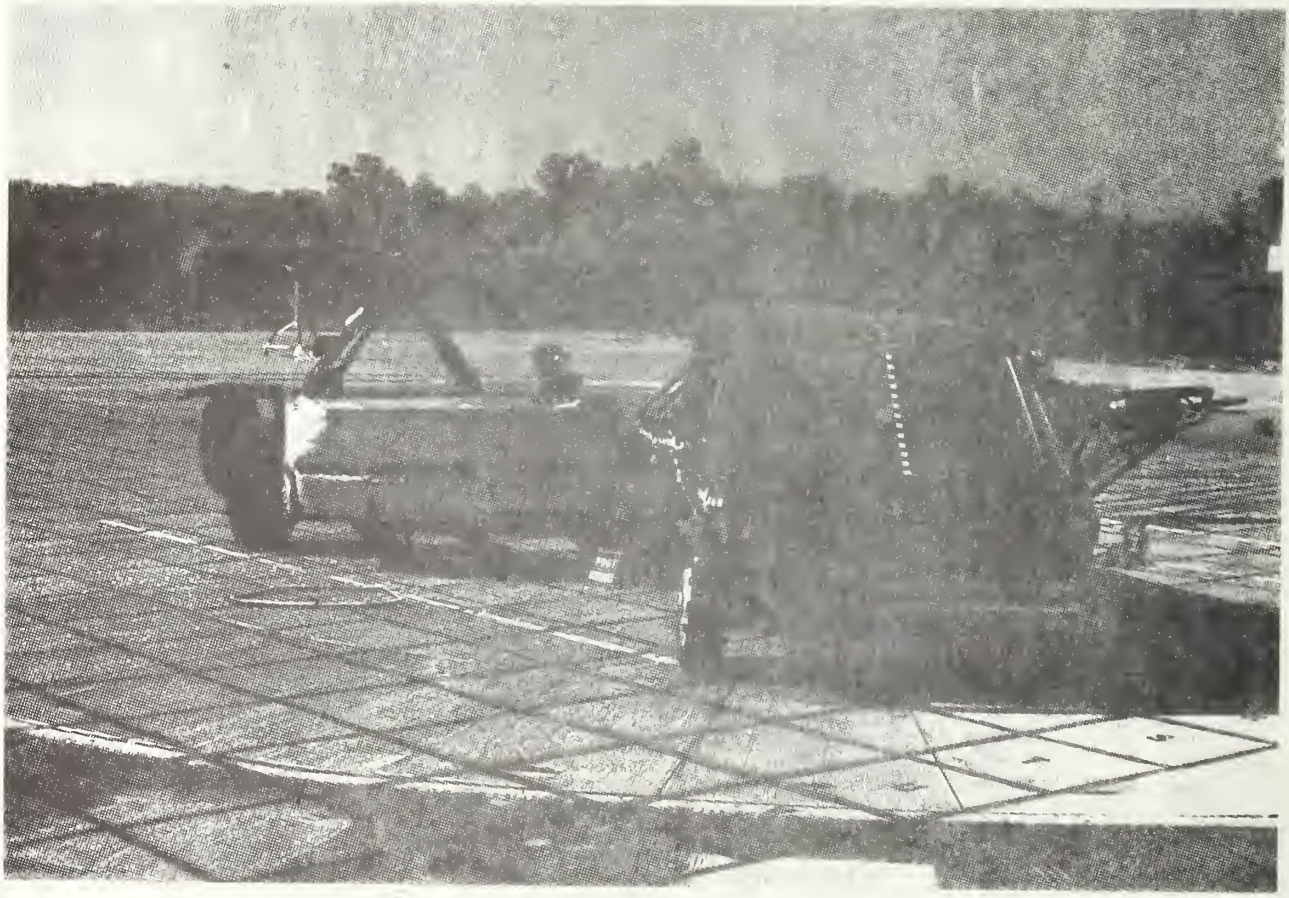


Figure A-18. POST-TEST OVERALL - VIEW 4

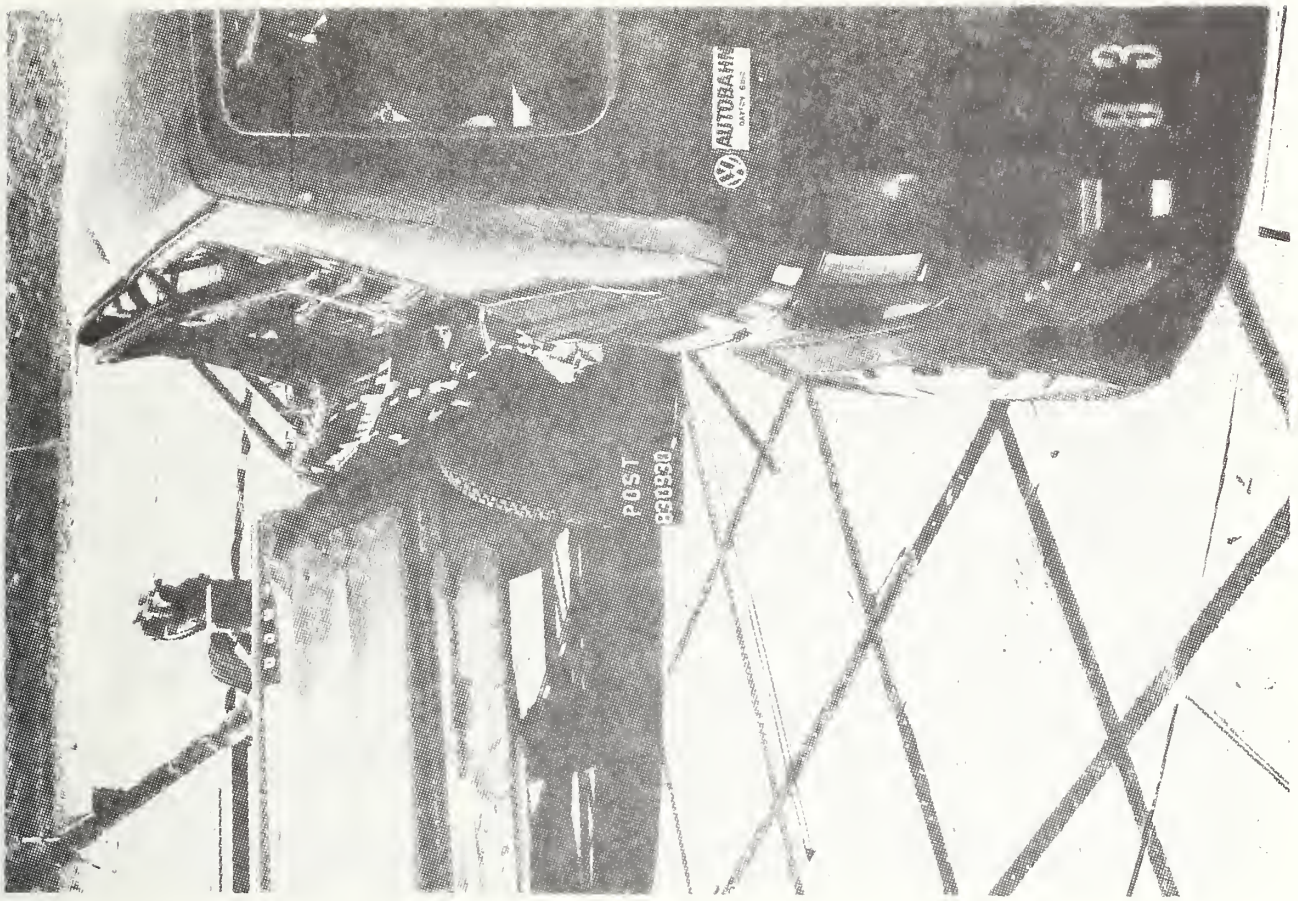


Figure A-19. POST-TEST CLOSEUP - VIEW 1

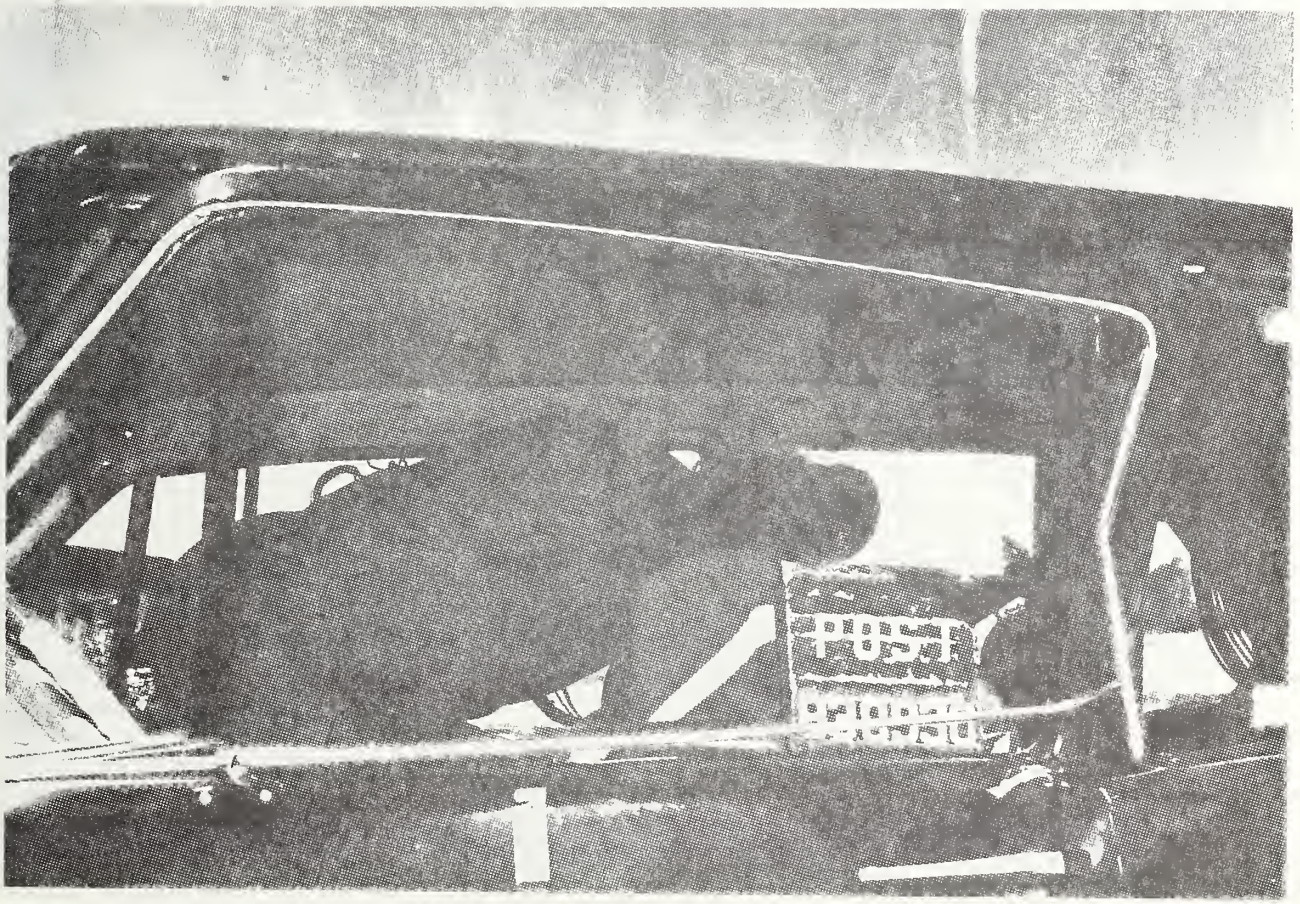


Figure A-20. POST-TEST DRIVER DUMMY - VIEW 1

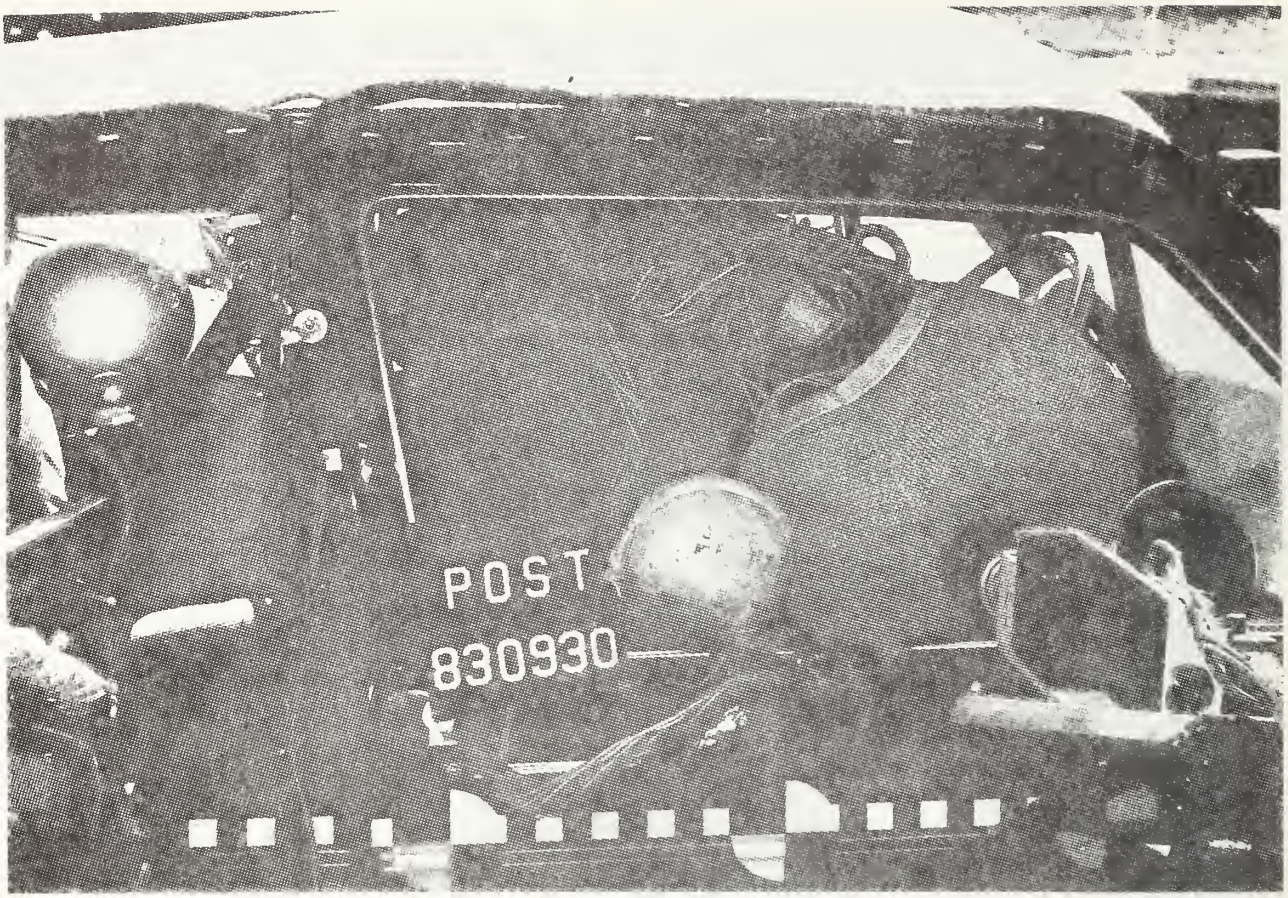


Figure A-21. POST-TEST DRIVER DUMMY - VIEW 2

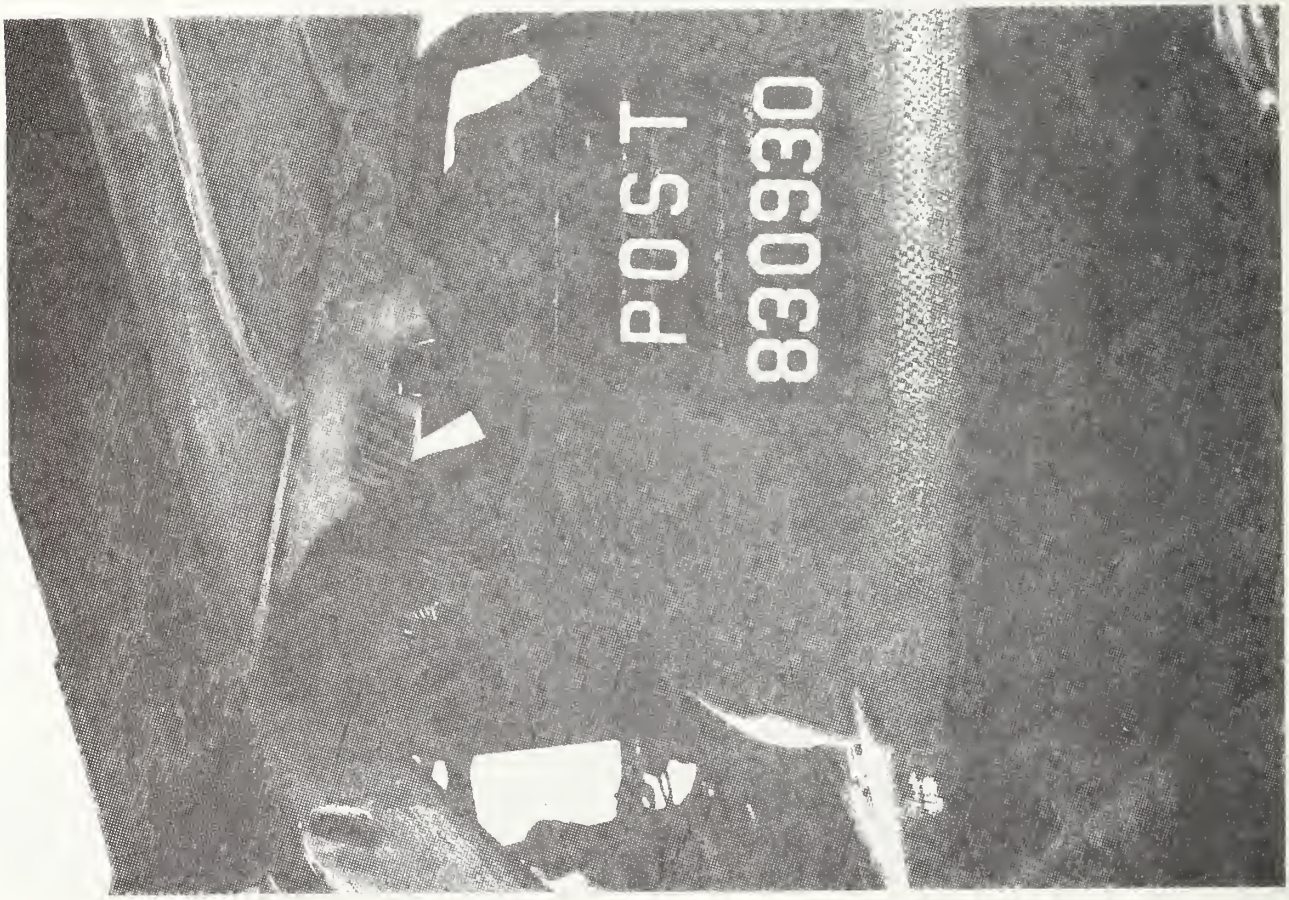


Figure A-22. POST-TEST PASSENGER DUMMY - VIEW 1

Figure A-25. POST-TEST PASSENGER DUMMY - VIEW 4

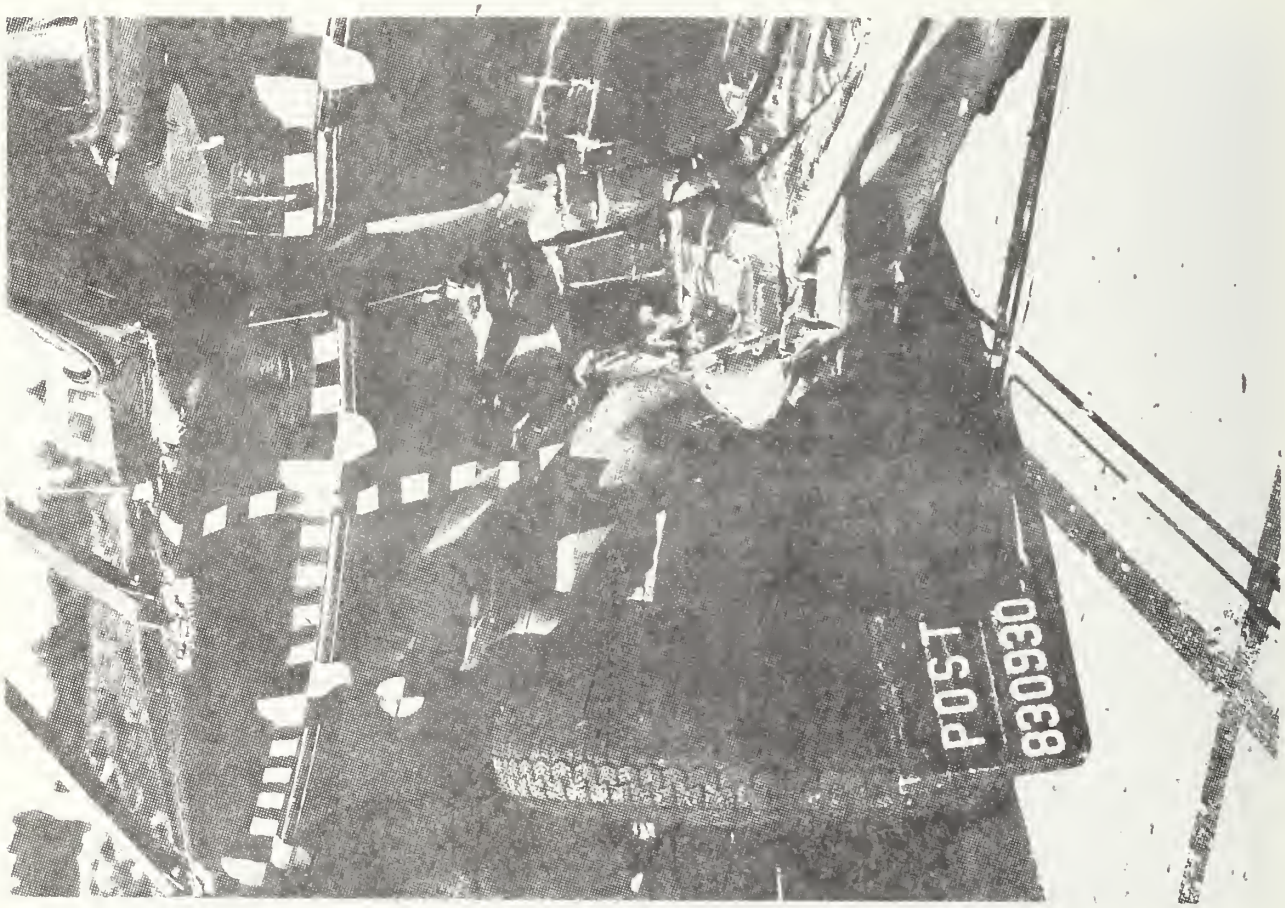


Figure A-26. POST-TEST VEHICLE DAMAGE - VIEW 1

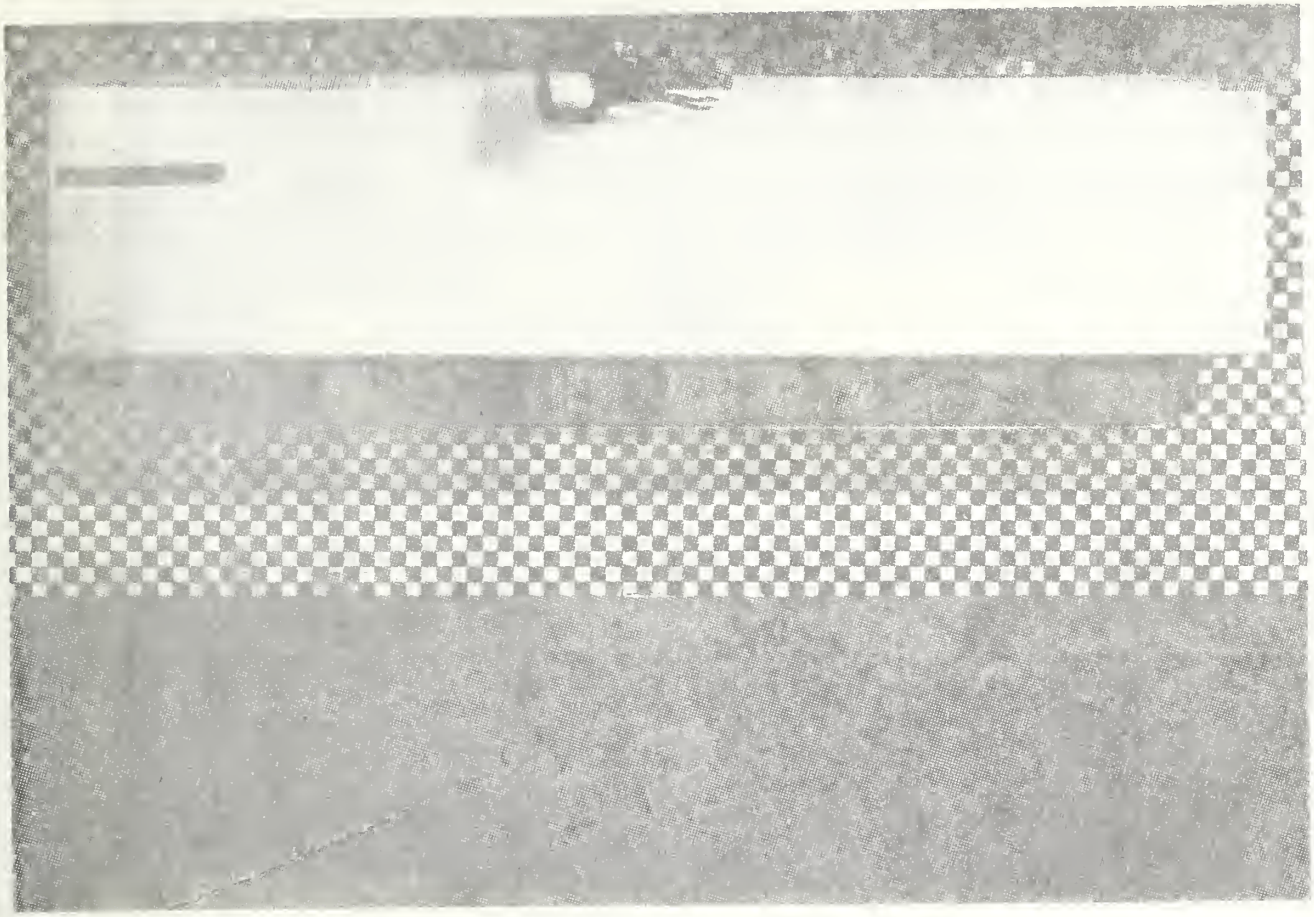


Figure A-27. PRE-TEST MDB FACE - VIEW 1

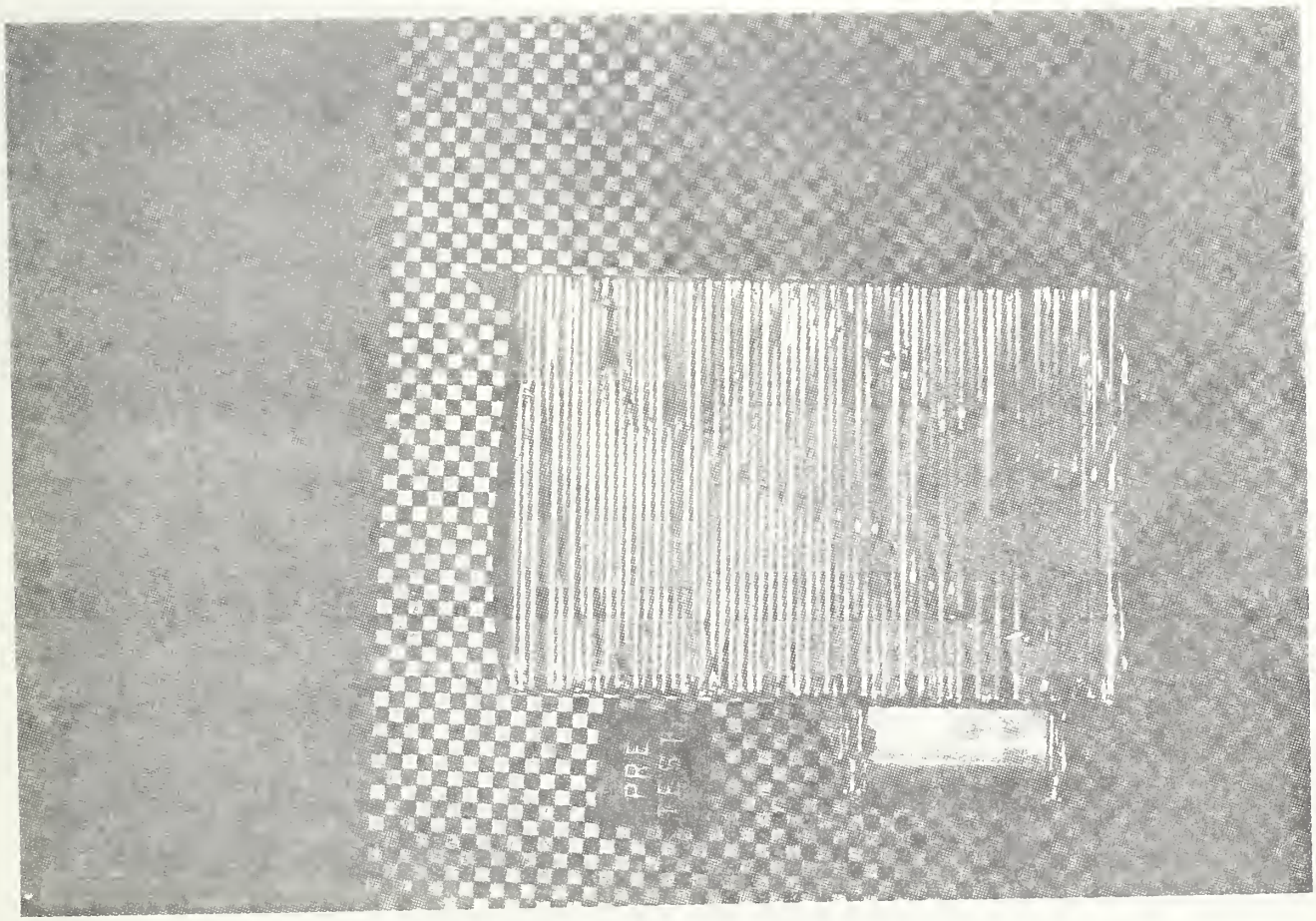


Figure A-28. PRE-TEST MDB FACE - VIEW 2

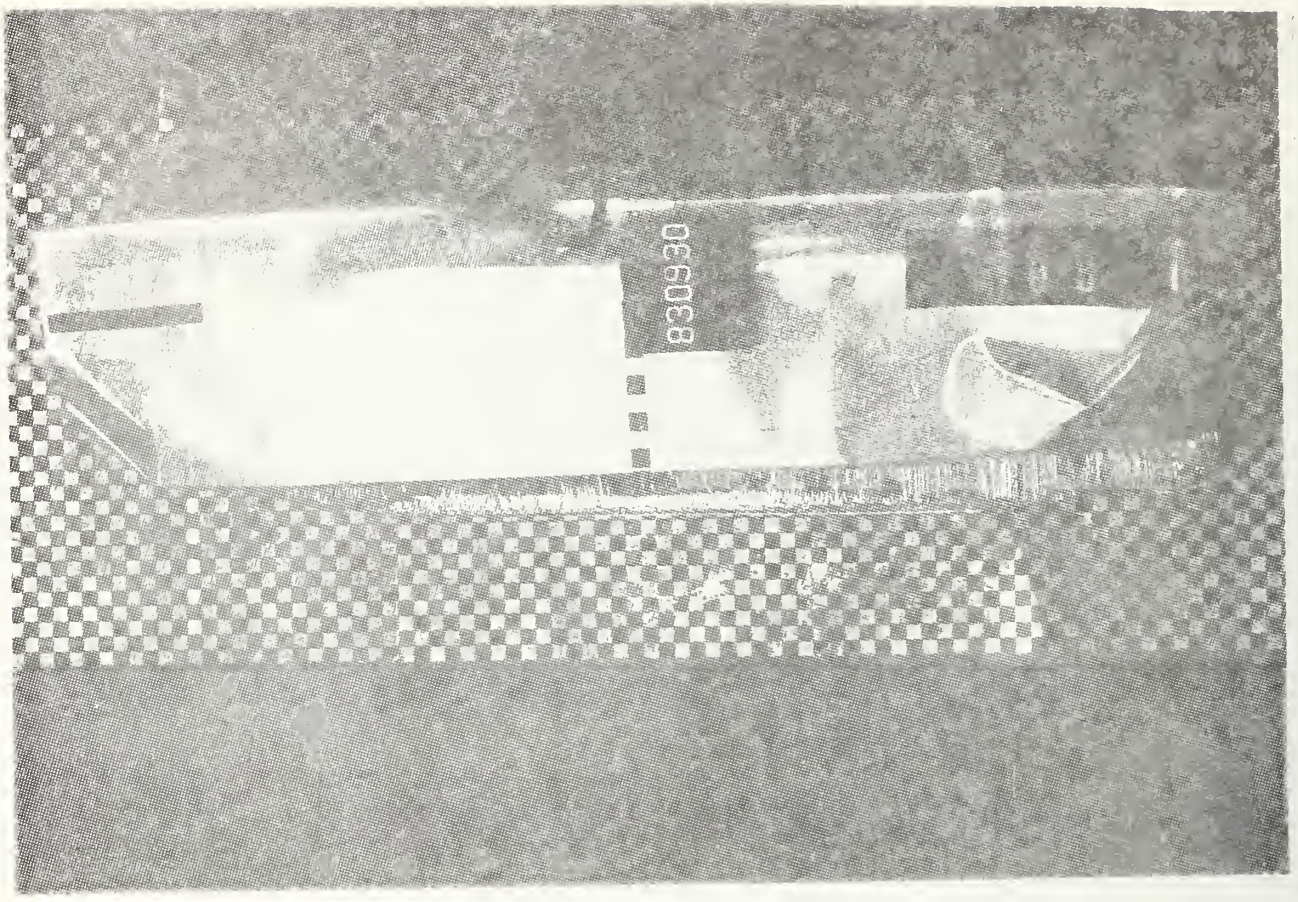


Figure A-29. POST-TEST MDB FACE - VIEW 1

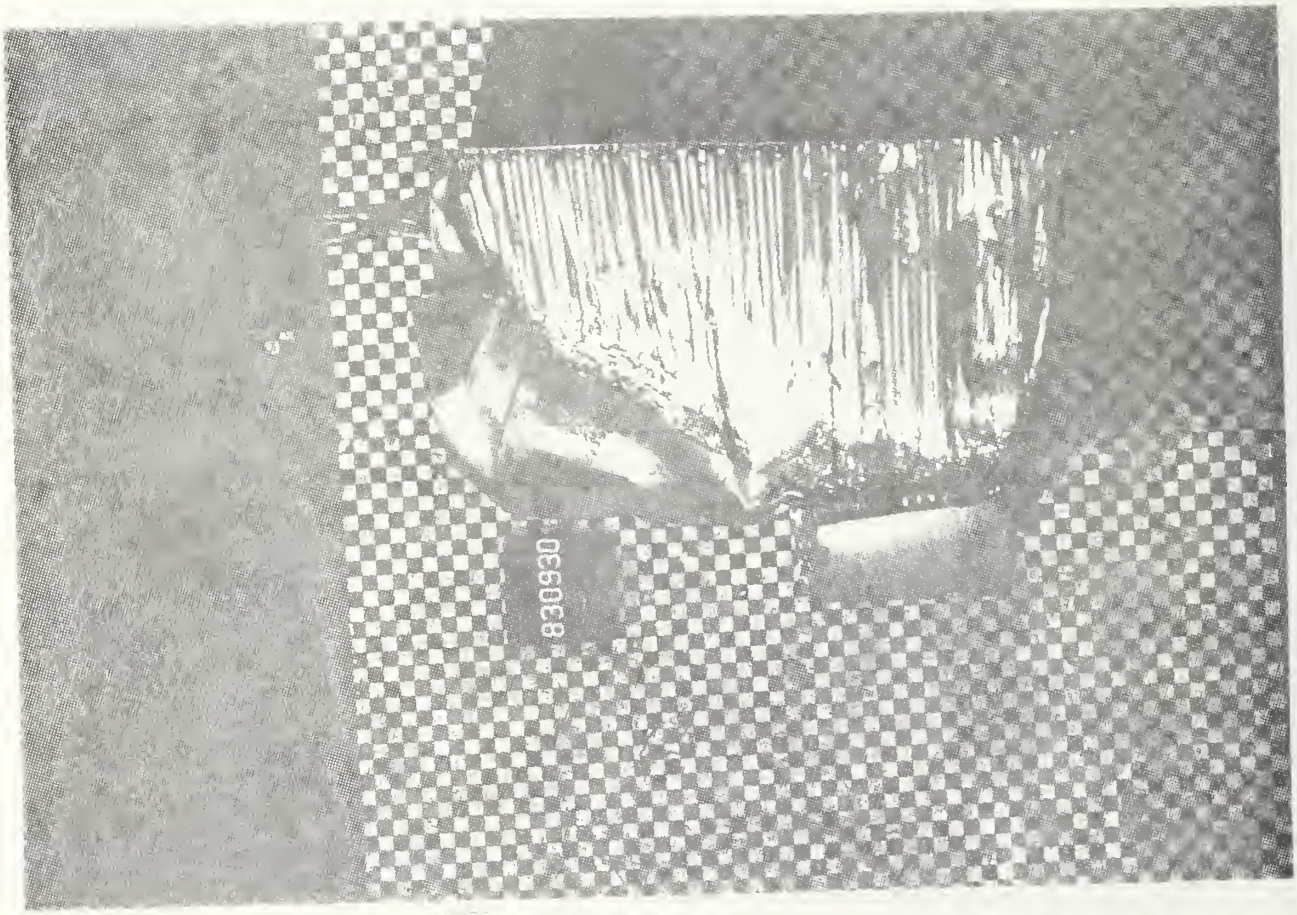
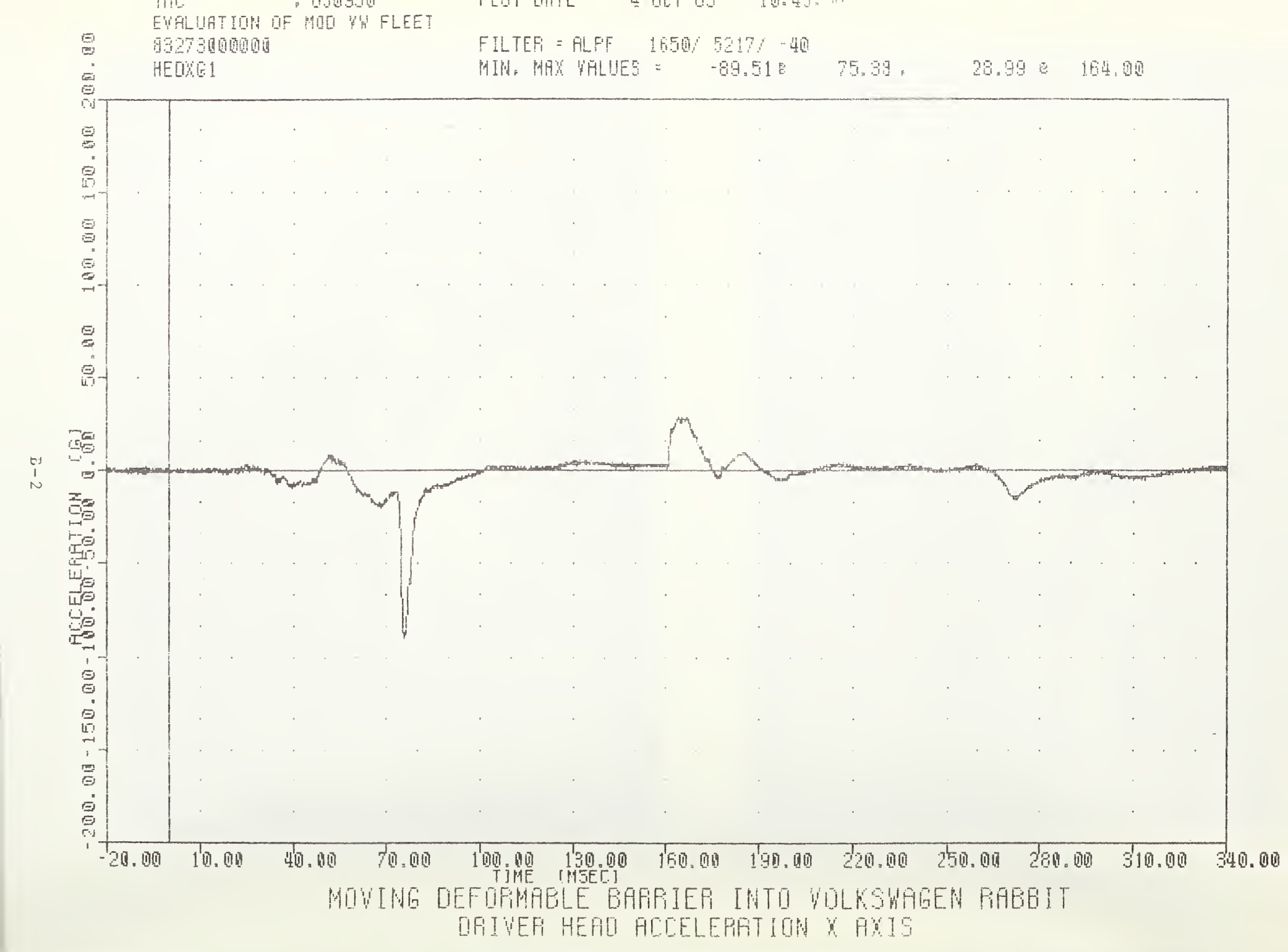


Figure A-30. POST-TEST MDB FACE - VIEW 2

APPENDIX B

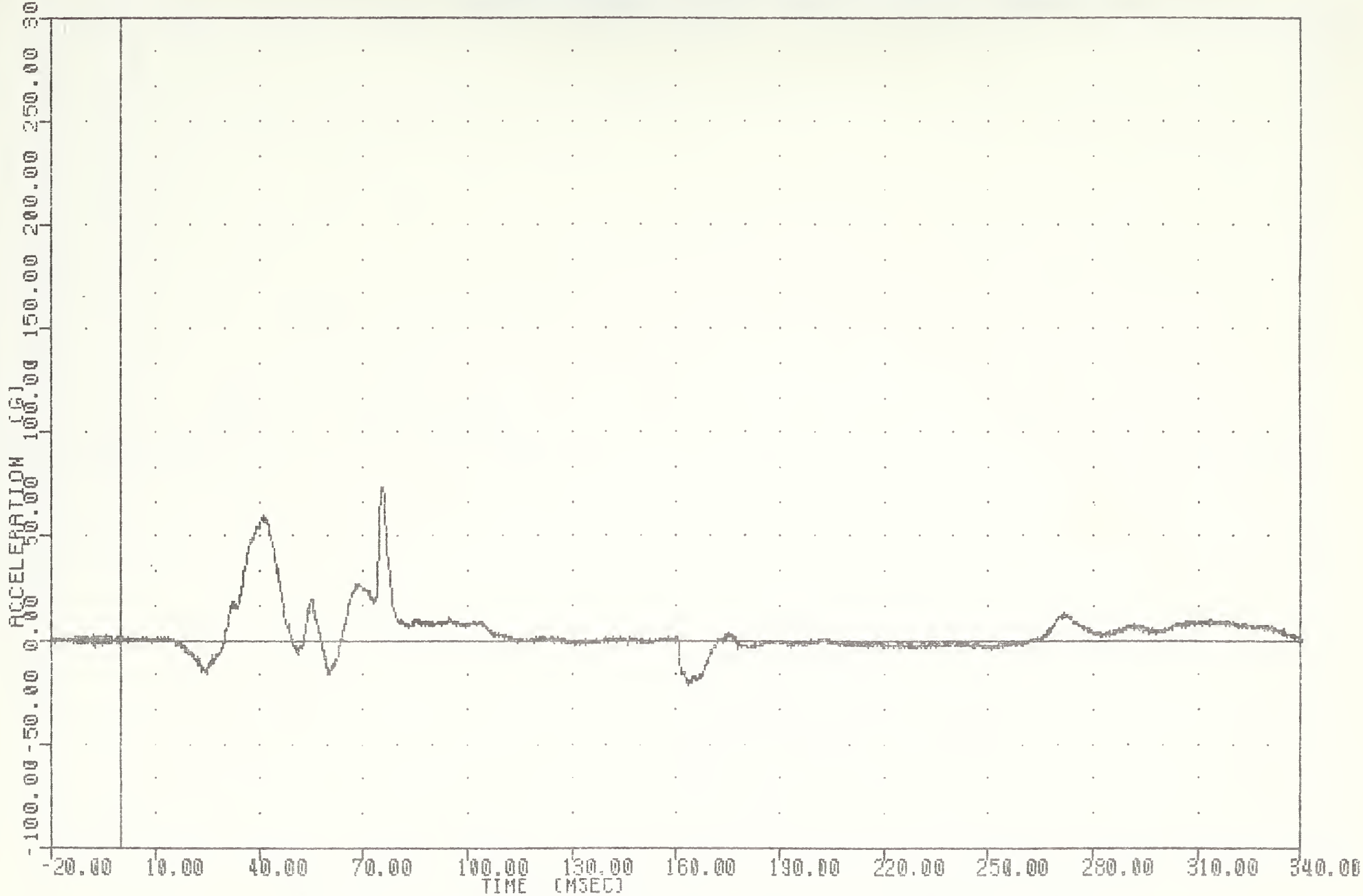
DATA PLOT PRESENTATION

Data plots generated from the crash test data are presented on the following pages. All data are recorded on magnetic tape for inclusion in the NHTSA crash test data base system. All data were filtered according to SAE J211, except that dummy thorax data were filtered using the HSRI filter.

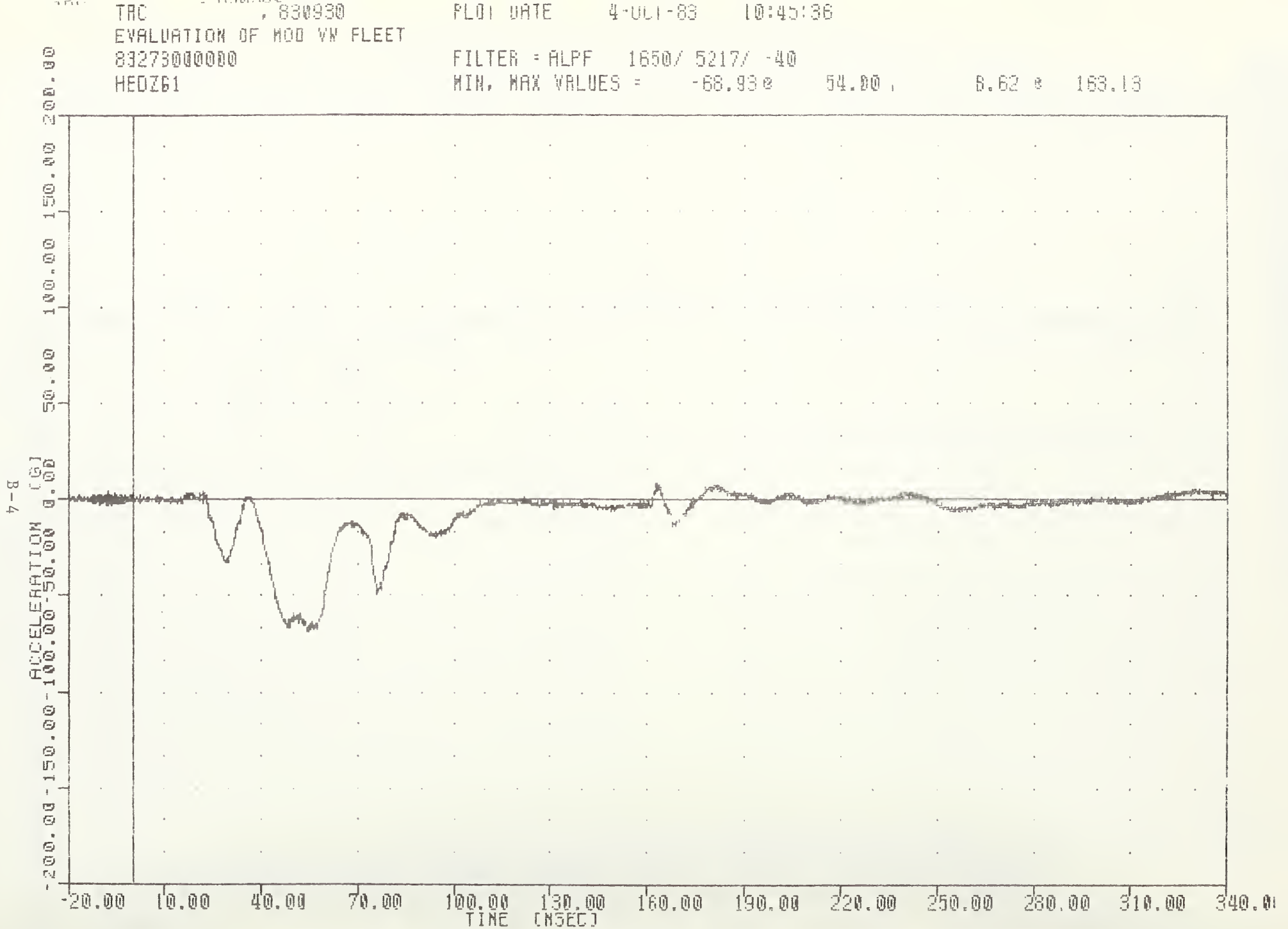


MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
DRIVER HEAD ACCELERATION X AXIS

TRL , 830930 PLOT DATE 4-OCT-83 10:45:36
EVALUATION OF MDD VW FLEET
8327300@@@@ FILTER = ALPF 1650/ 5217/ -40
HEDYG1 MIN, MAX VALUES = -21.56 @ 163.63 , 73.93 @ 75.25

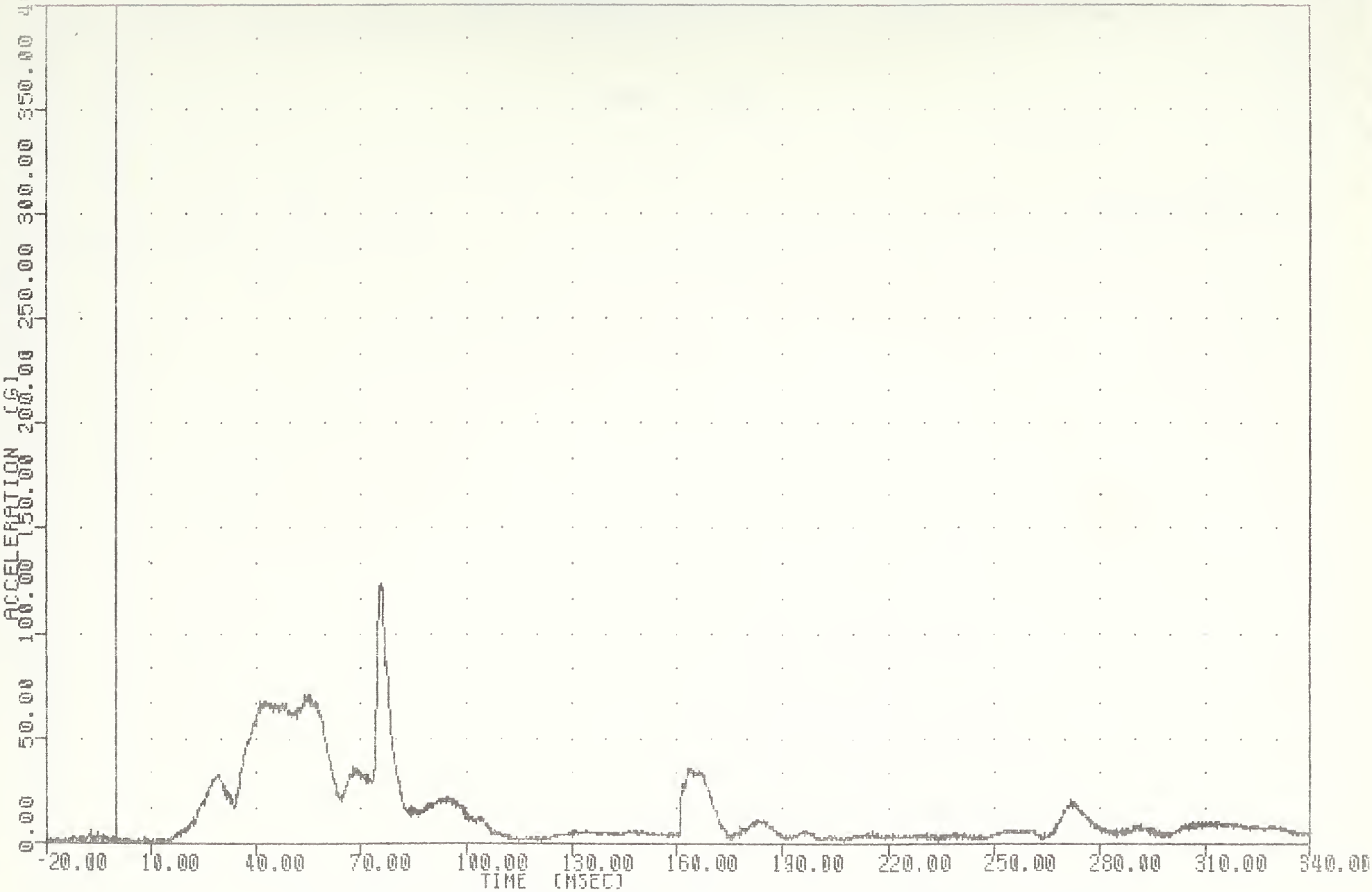


MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
DRIVER HEAD ACCELERATION Y AXIS



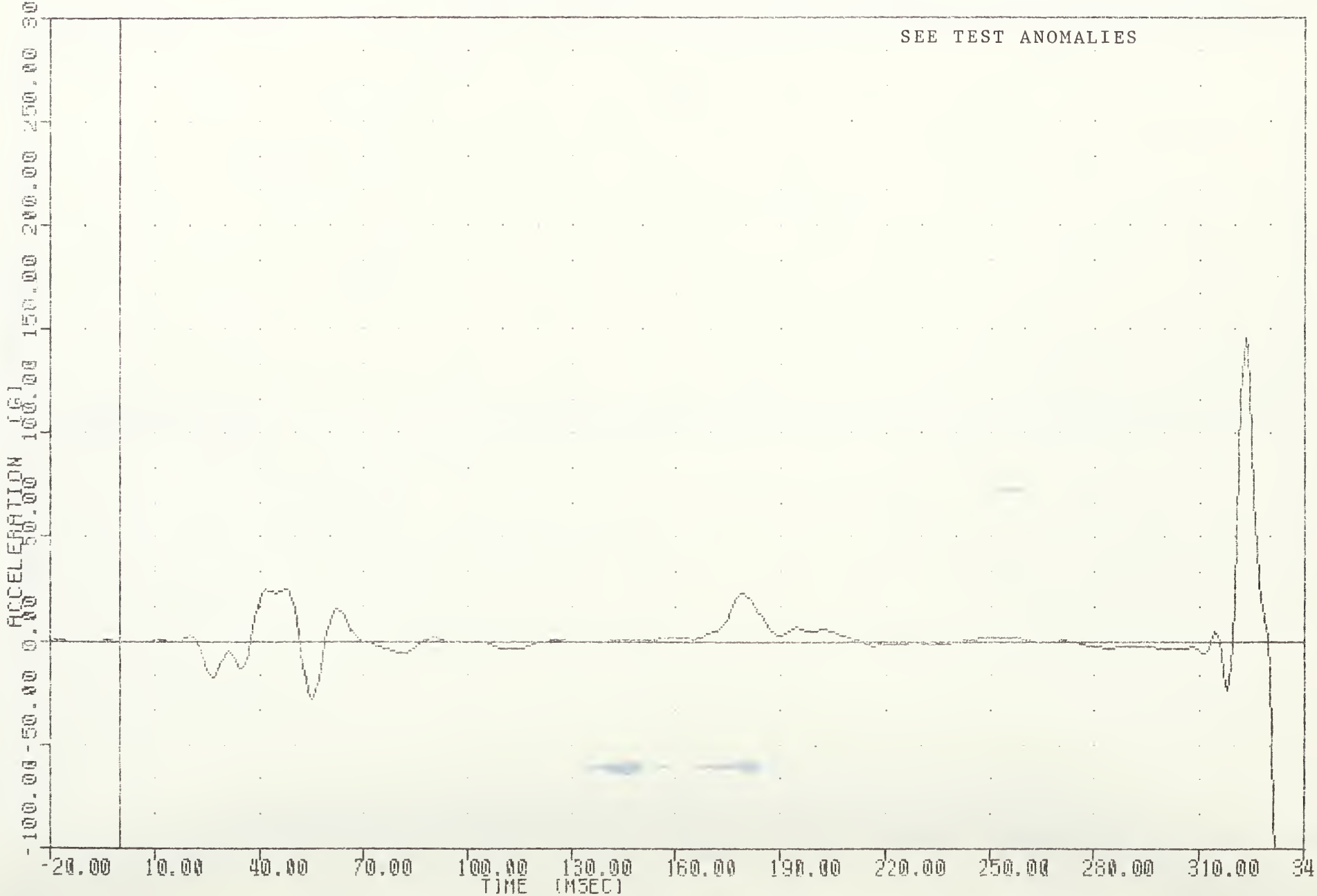
MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
DRIVER HEAD ACCELERATION Z AXIS

TRC , 83W930 . PLOT DATE 4-OCT-83 10:45:38
EVALUATION OF MOD VW FLEET
832730@@@@@ FILTER = ALFF 1650/ 5217/ -40
HEDRG1 MIN, MAX VALUES = 0.14@ 1.25 , 123.63 @ 75.38

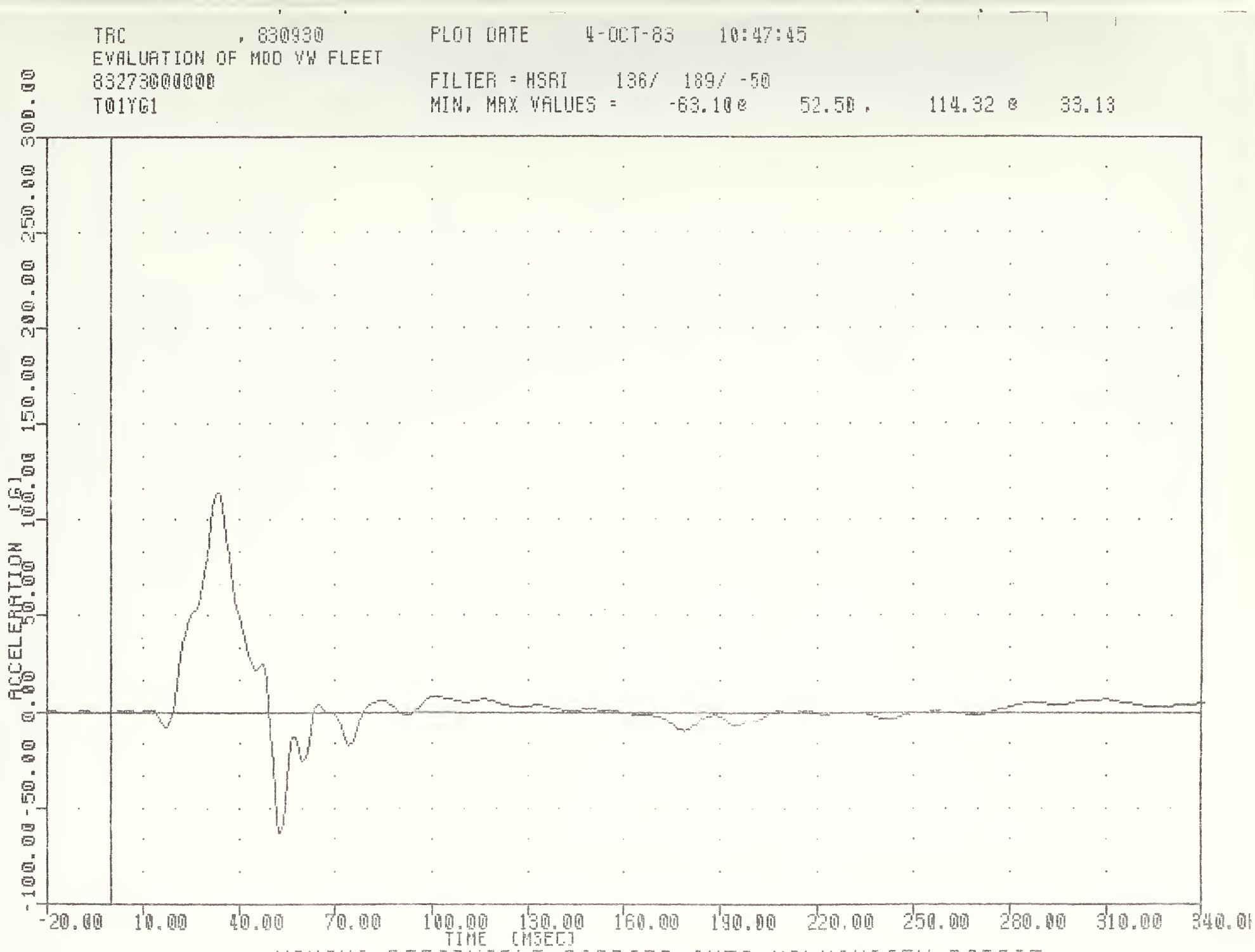


MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
DRIVER HEAD RESULTANT

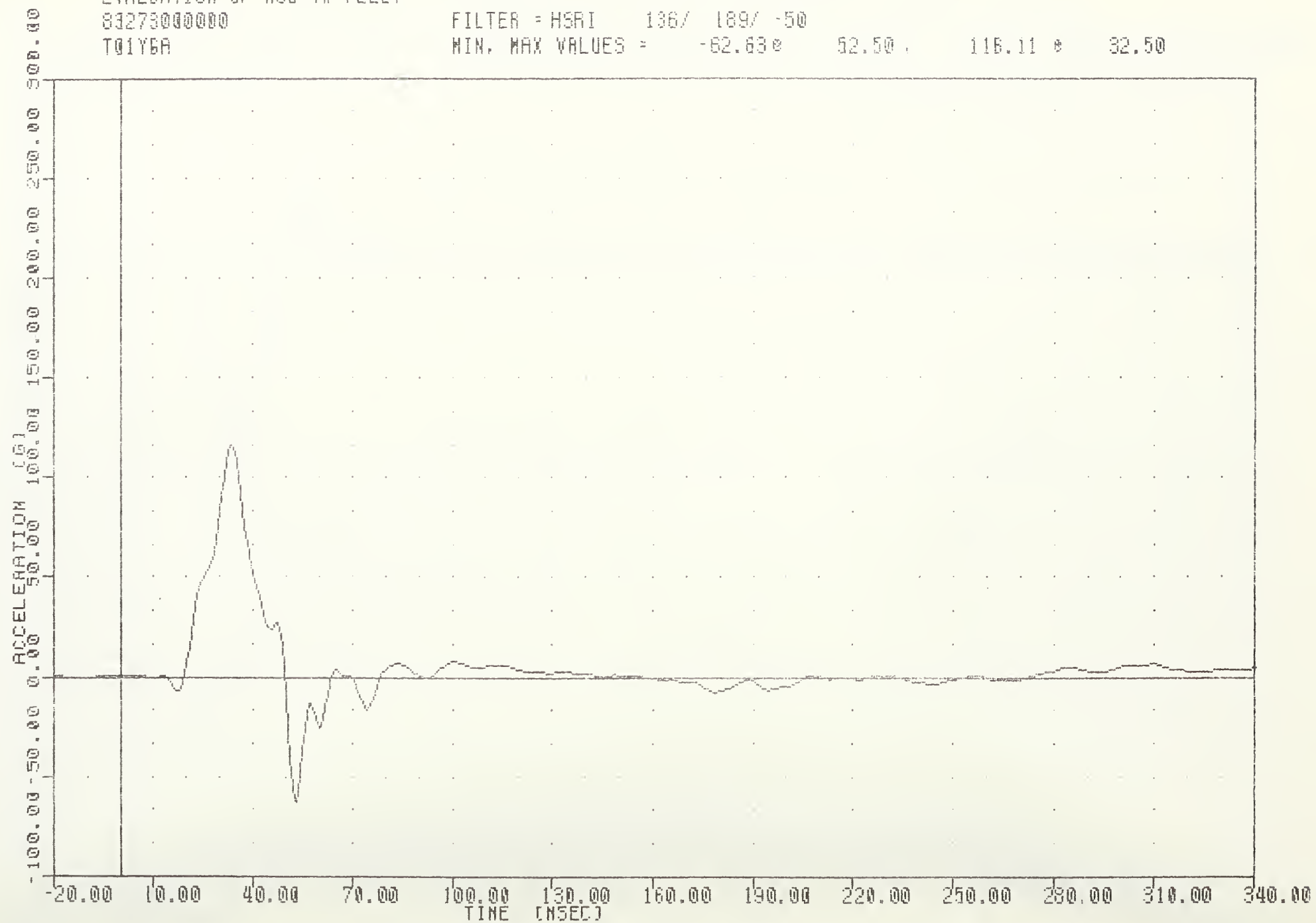
TRC , 830930 PLOT DATE 4-OCT-83 10:47:45
EVALUATION OF MOD VW FLEET
8327300000 FILTER = HSRI 156/ 139/ -50
T01XG1 MIN, MAX VALUES = -276.46 @ 340.00 , 145.71 @ 322.50



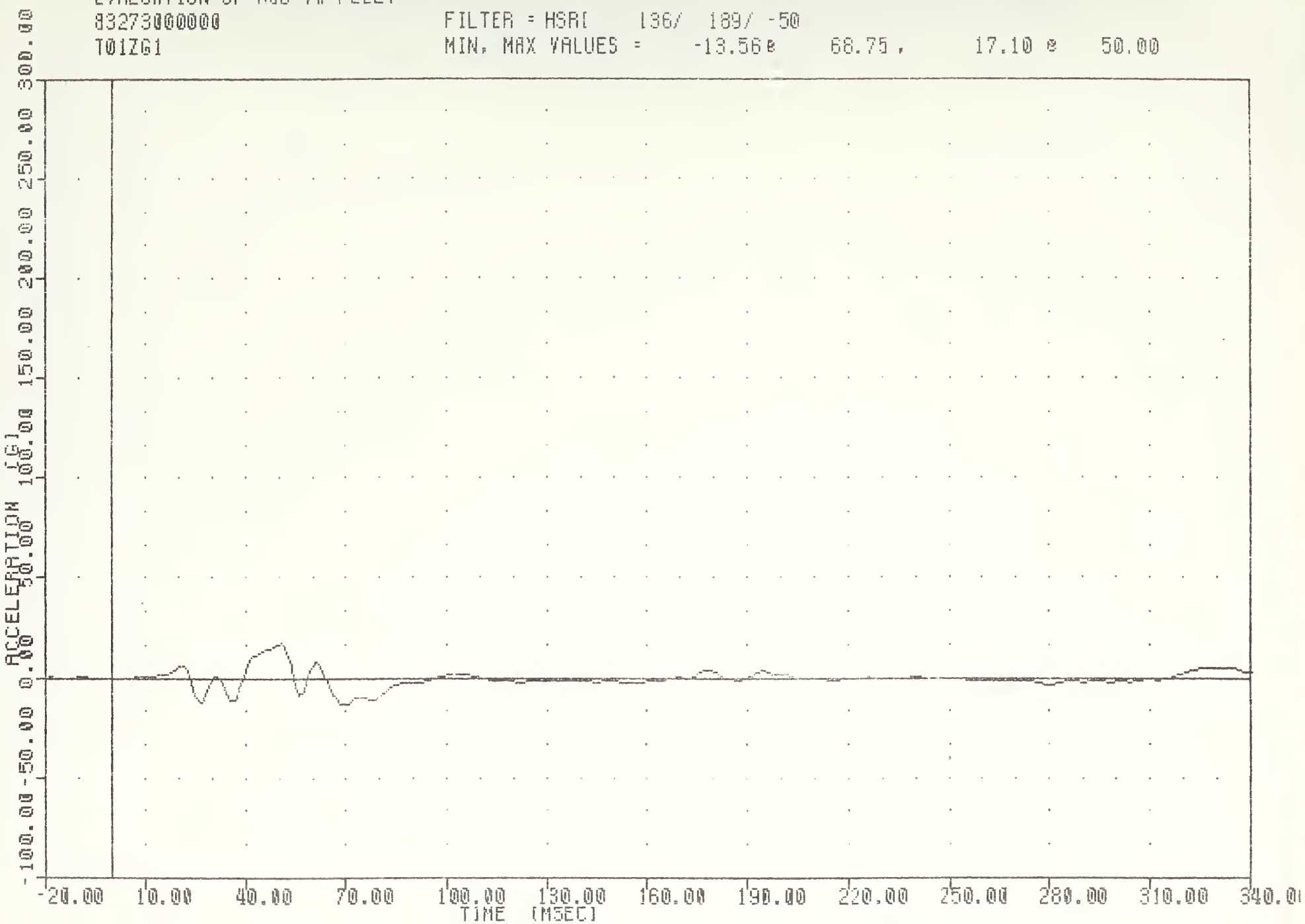
MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
DRIVER UPPER SPINE ACCELERATION X AXIS



MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
DRIVER UPPER SPINE ACCELERATION Y AXIS

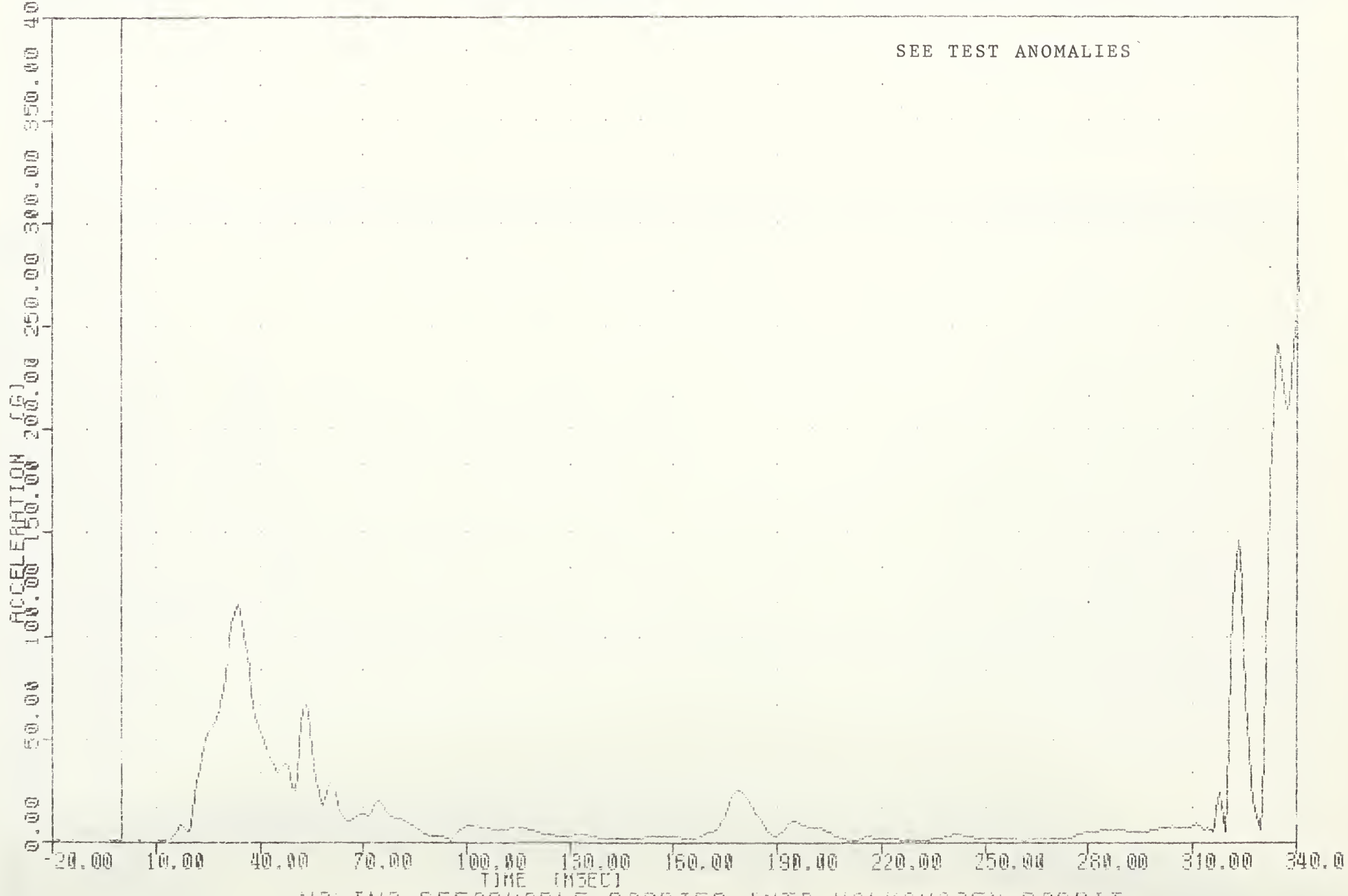


MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
DRIVER UPPER SPINE ACCELERATION -Z Y AXIS

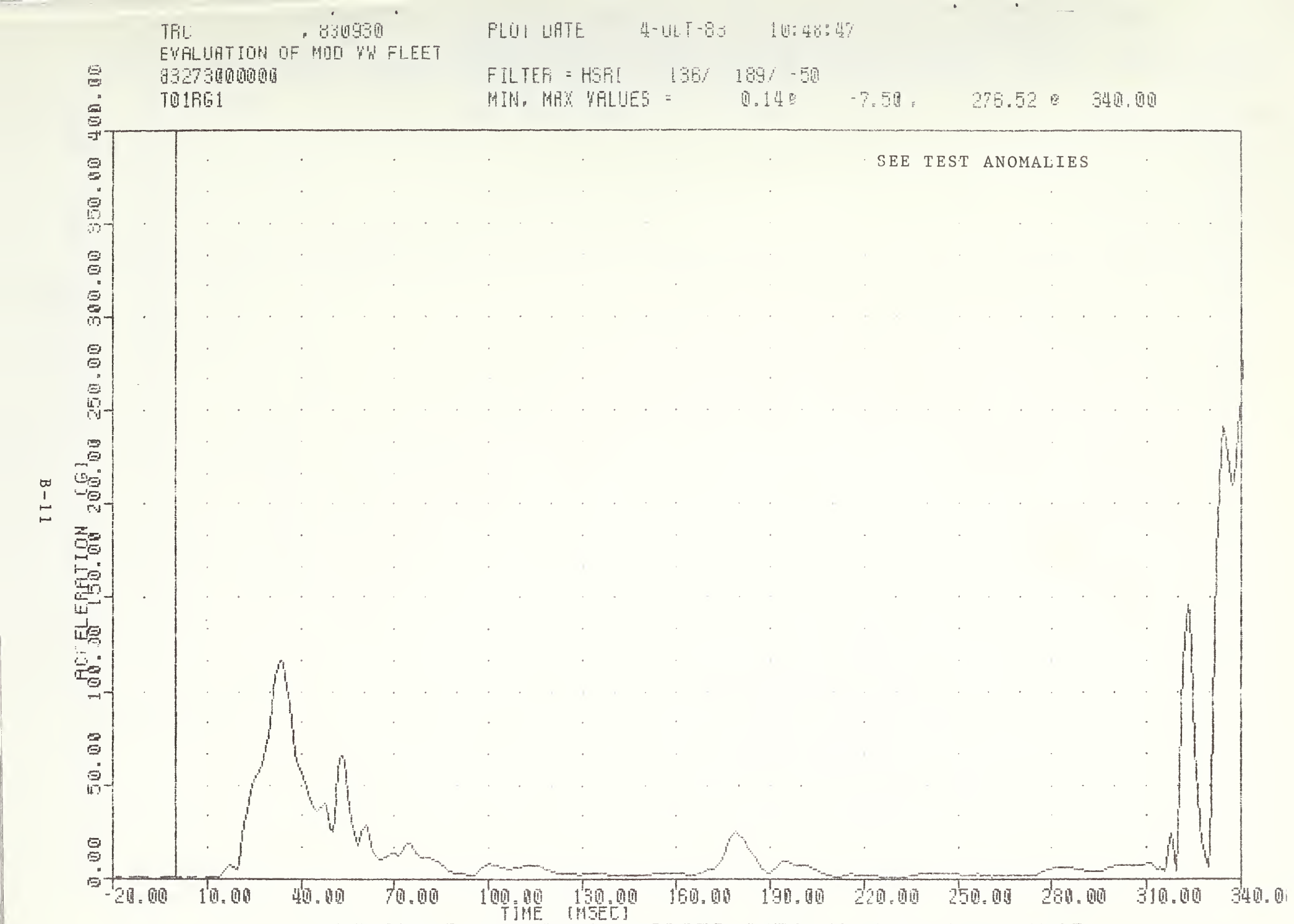


MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
DRIVER UPPER SPINE ACCELERATION Z AXIS

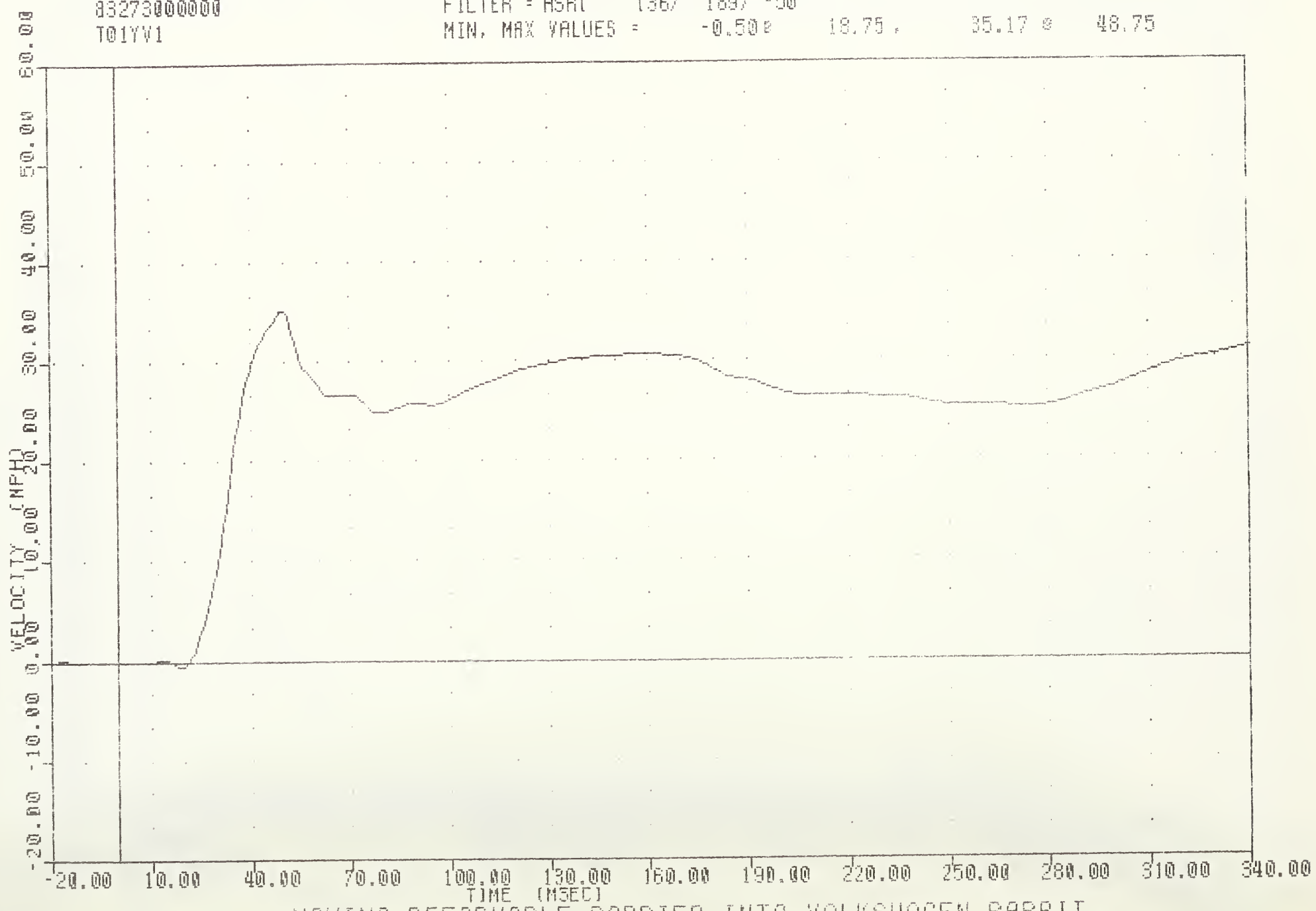
TRC , 8:0930 PLOT DATE 4-OCT 89 10:47:45
EVALUATION OF MOD VW FLEET
83273000000 FILTER = MSAI 135/ 169/ -50
T01RG1 MIN, MAX VALUES = 0.06@ -6.88 , 276.52 @ 340.00



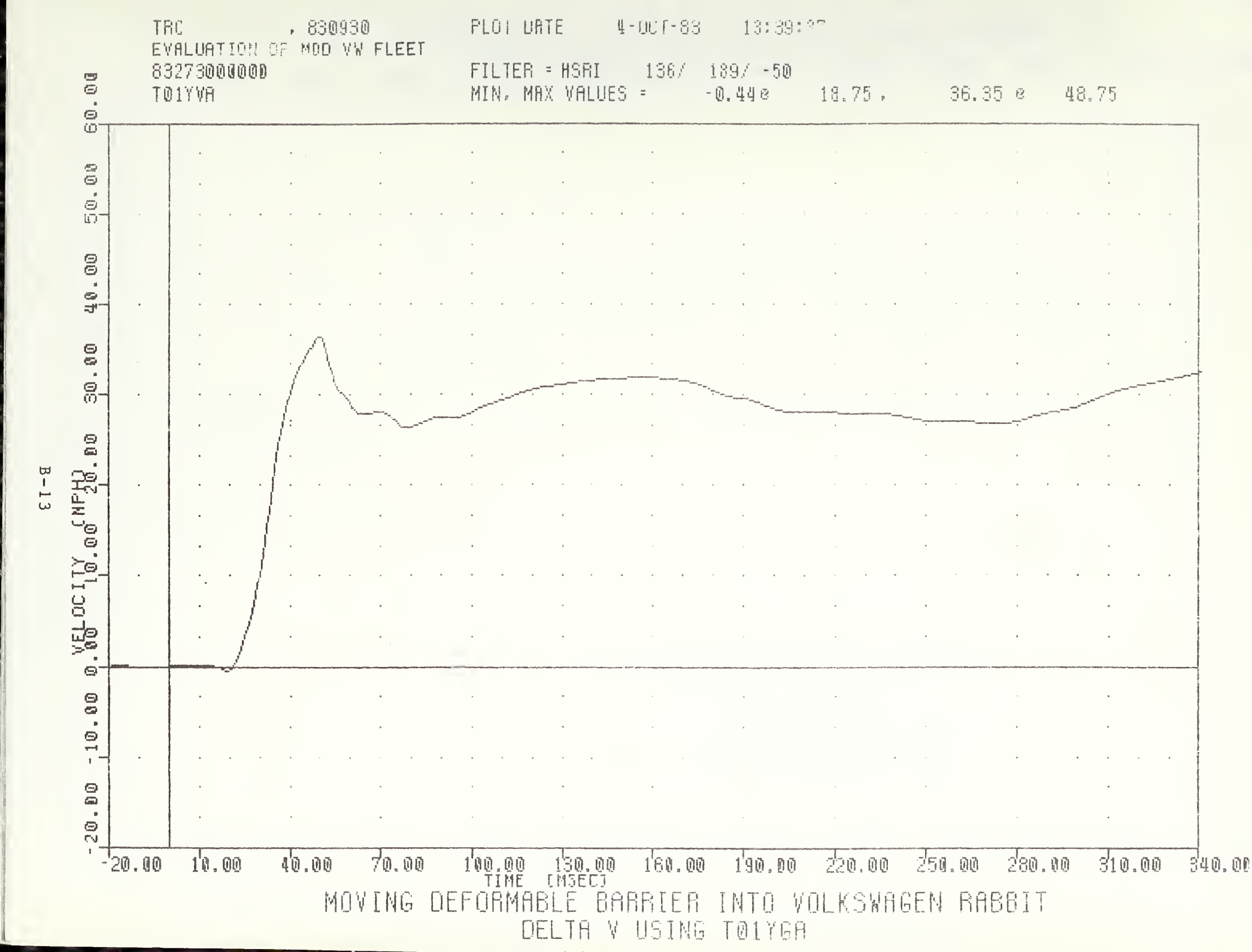
MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
DRIVER UPPER SPINE RESULTANT

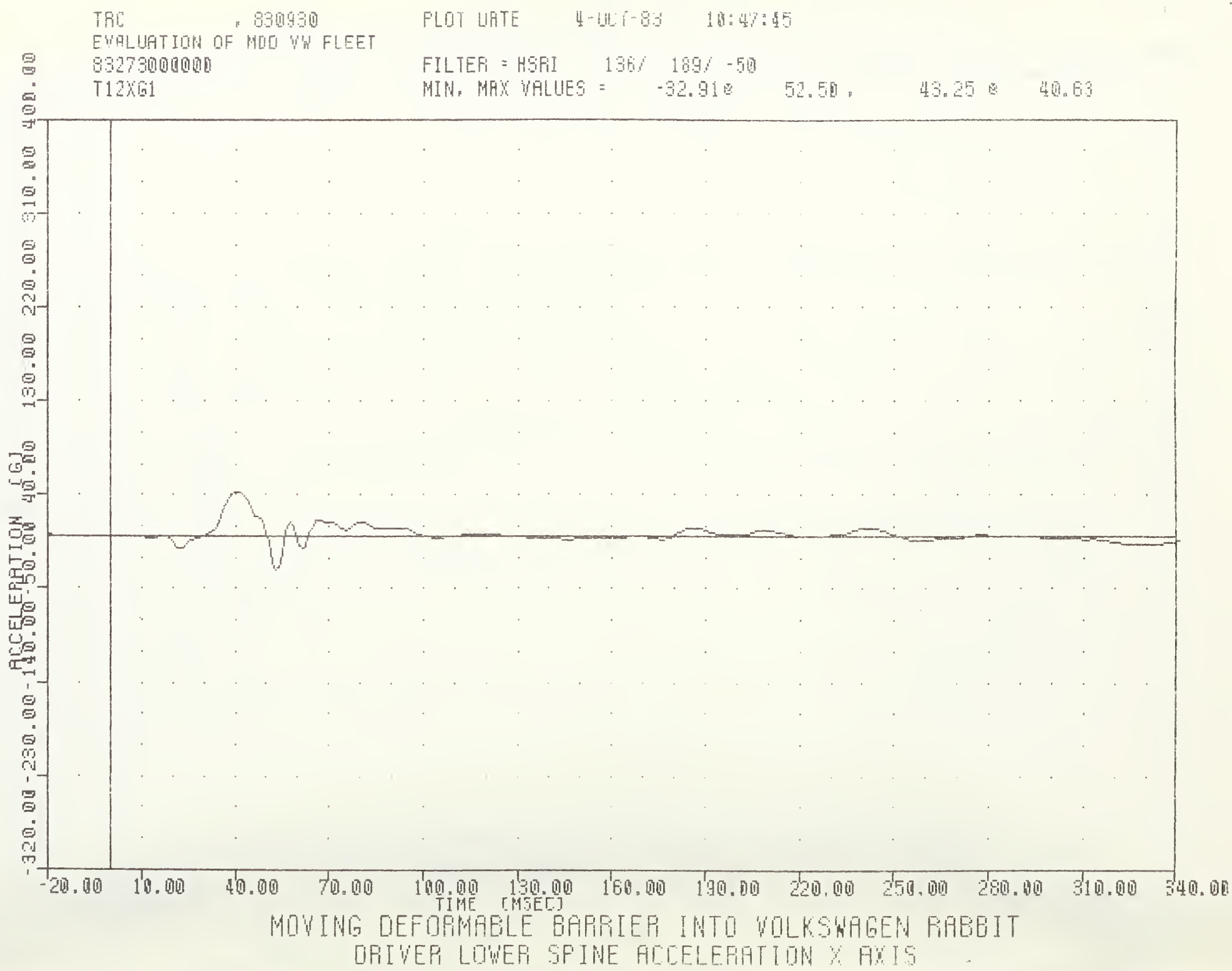


MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
DRIVER UPPER SPINE RESULTANT USING T01YGA



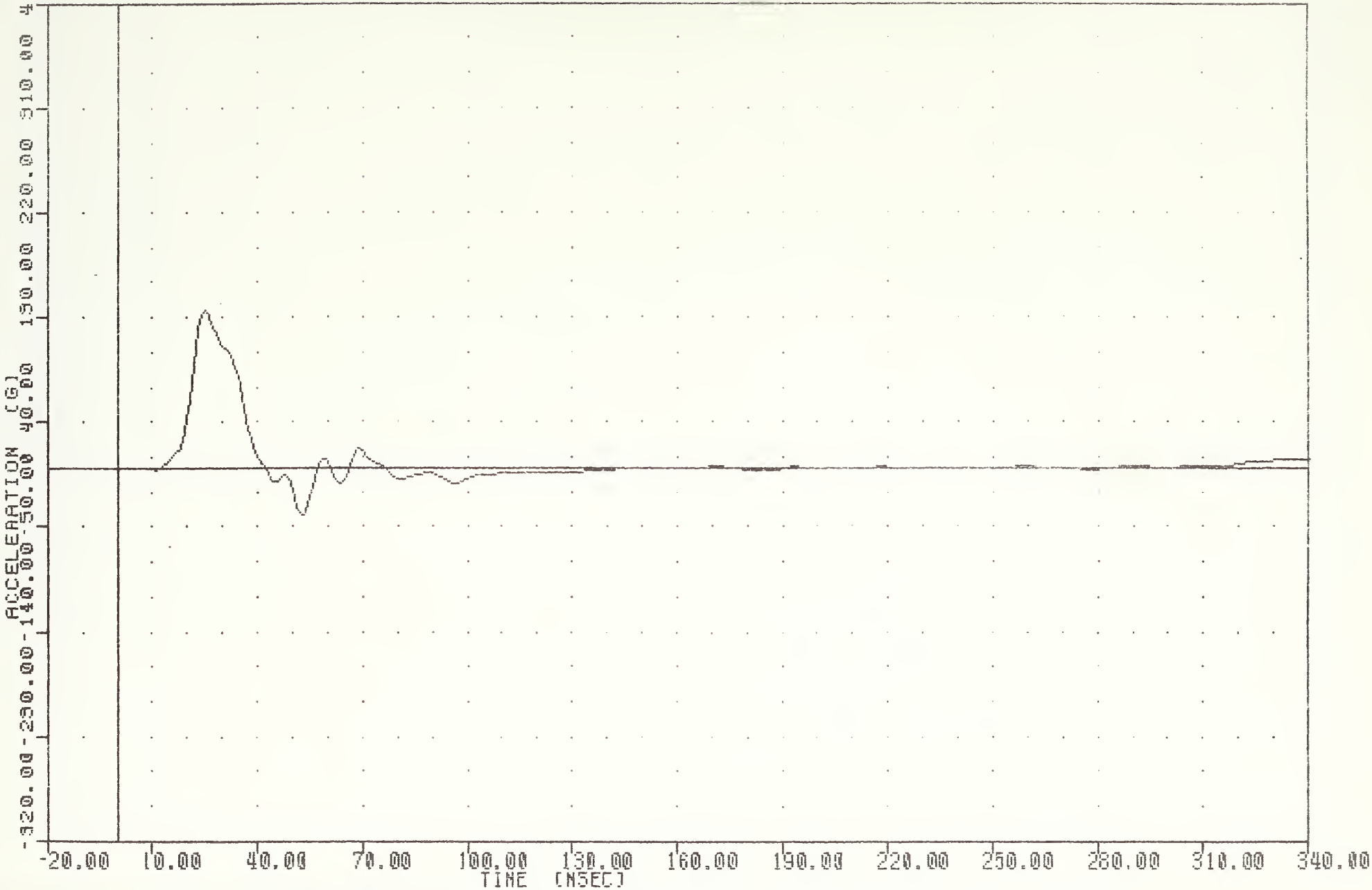
MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
DELTA V USING T01YG1


TRC , 830930
PLOT DATE 4-OCT-83 13:39:37
EVALUATION OF MOD VW FLEET
83273000000
FILTER = HSRI 136/ 189/ -50
T01YVA
MIN, MAX VALUES = -0.44@ 18.75 , 36.35 @ 48.75
VELOCITY (MPH)
60.00
50.00
40.00
30.00
20.00
10.00
0.00
-10.00
-20.00
-20.00
10.00
40.00
70.00
100.00
130.00
160.00
190.00
220.00
250.00
280.00
310.00
340.00
TIME (MSEC)
MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
DELTA V USING T01YGA

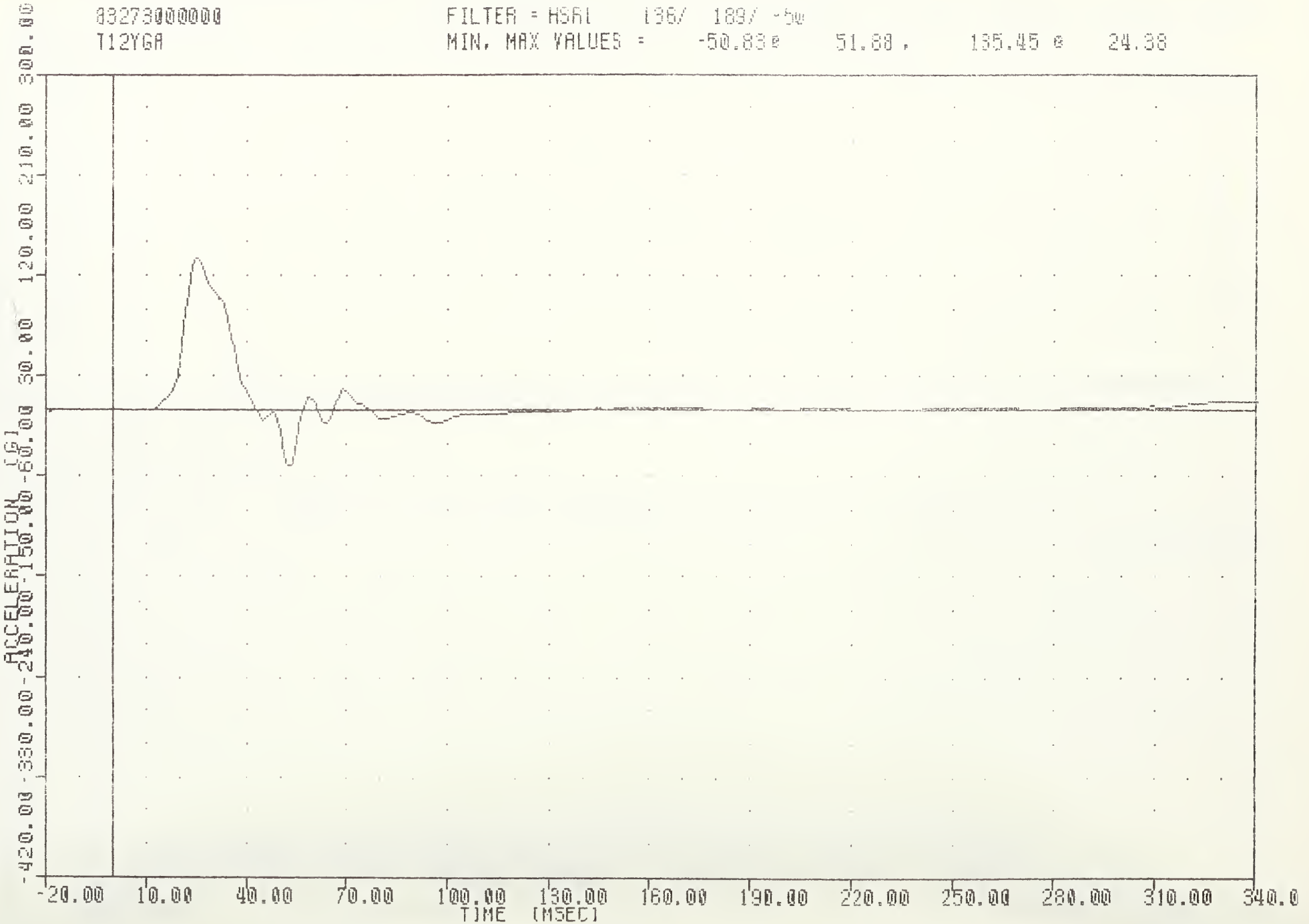


MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
DRIVER LOWER SPINE ACCELERATION X AXIS

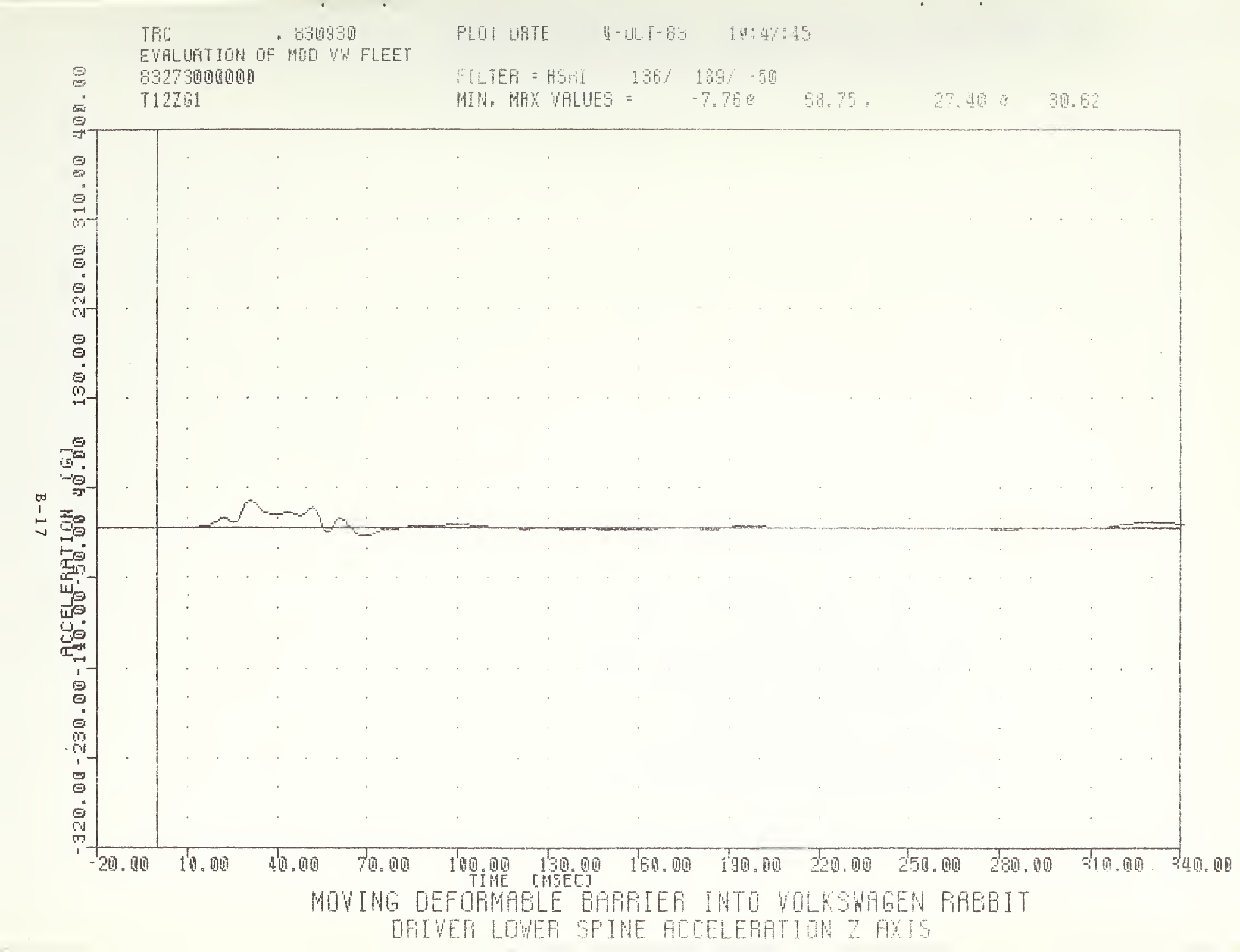
TRC , 830930 PLOT DATE 4-OCT-83 10:47:45
EVALUATION OF MOD VW FLEET
83273000000 FILTER = HSRI 136/ 189/ -50
T12Y61 MIN, MAX VALUES = -40.41 @ 51.88 , 135.51 @ 24.38



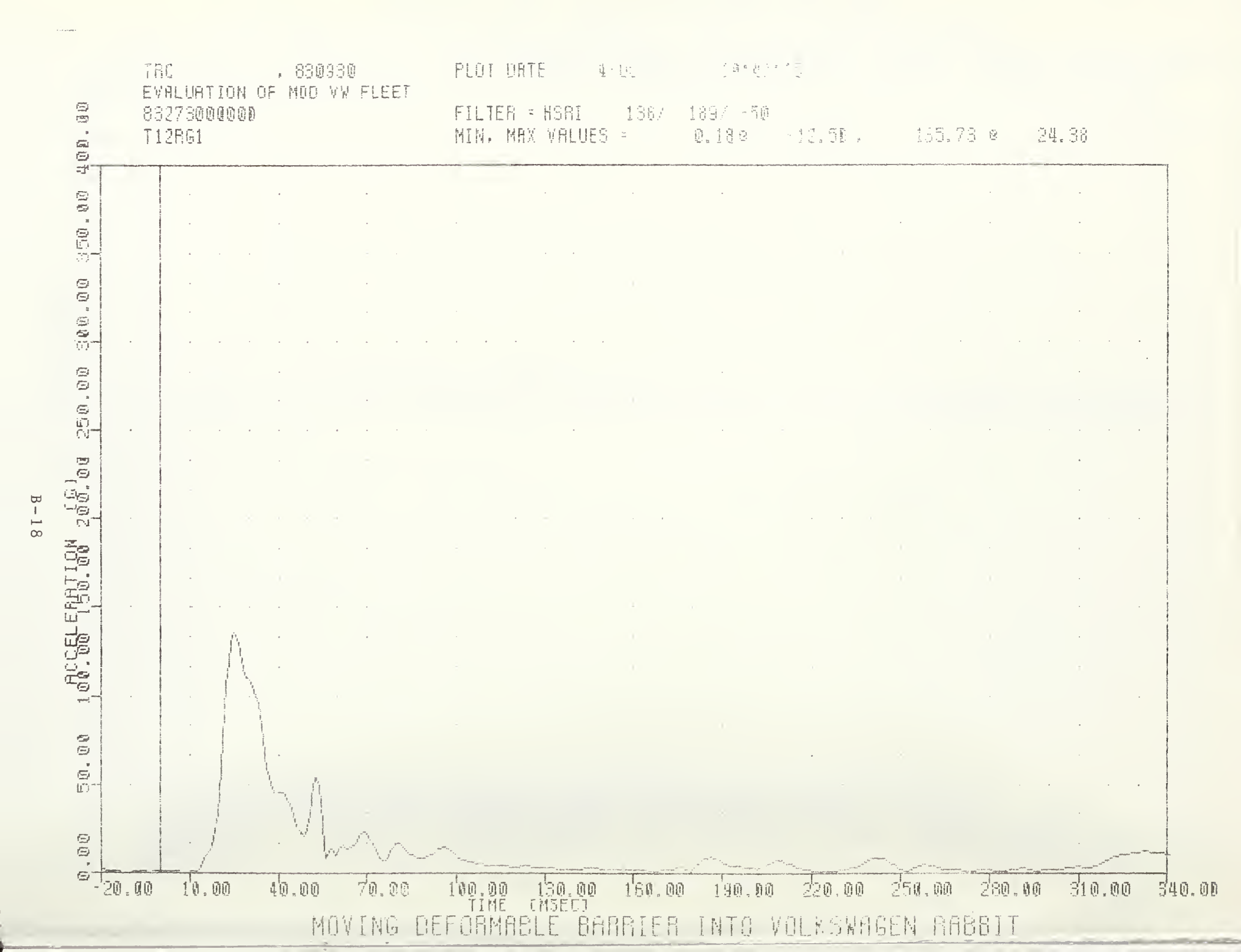
MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
DRIVER LOWER SPINE ACCELERATION Y AXIS



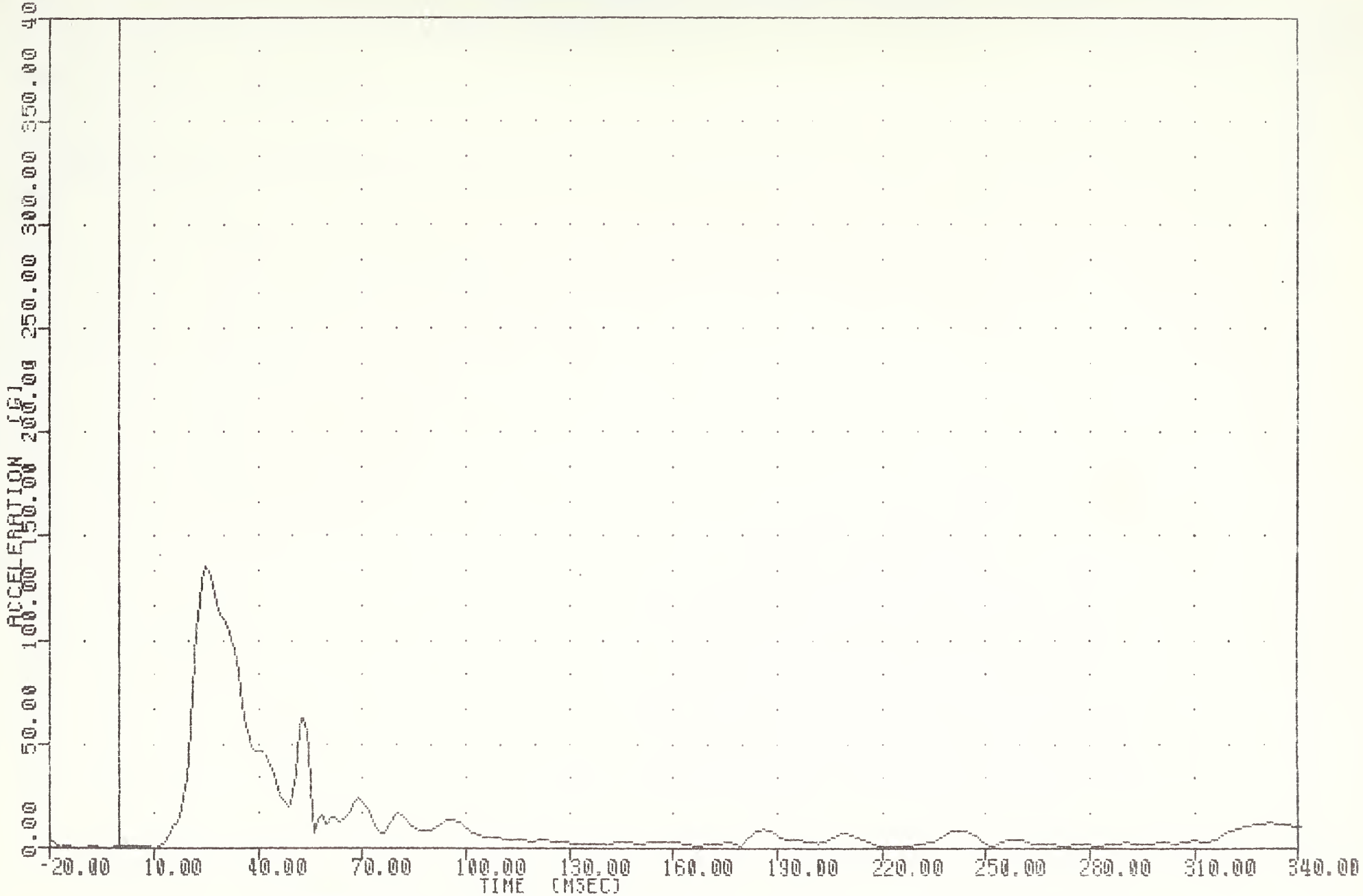
MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
DRIVER LOWER SPINE ACCELERATION #2 Y AXIS



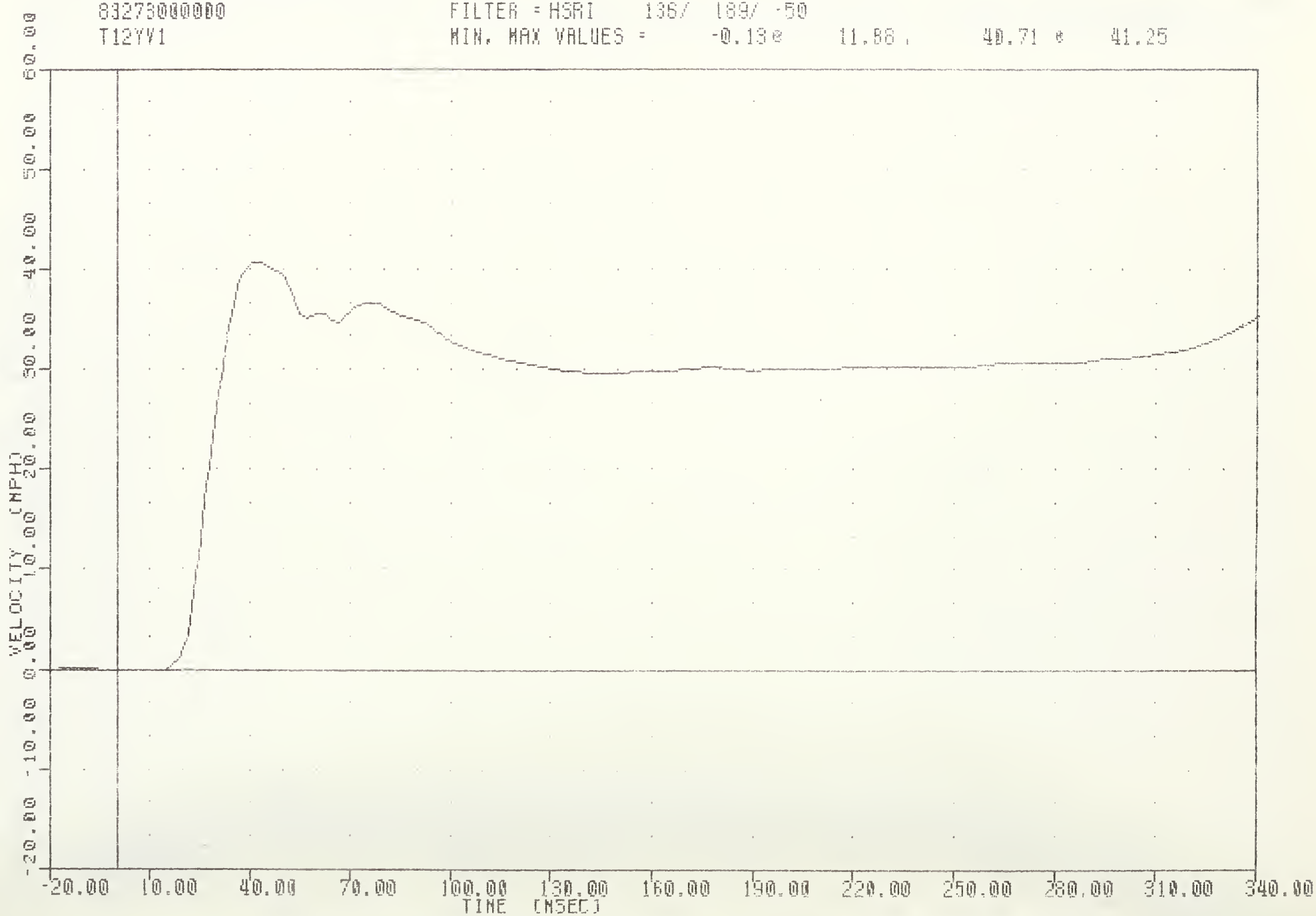
MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
DRIVER LOWER SPINE ACCELERATION Z AXIS


TRC , 830330
PLOT DATE
EVALUATION OF MOD VW FLEET
8327300000D
FILTER = HSAI 136/ 189/ -50
T12RG1
MIN, MAX VALUES = 0.18@ -12.5D, 165.73 @ 24.38
ACCELERATION (G)
0.00
50.00
100.00
150.00
200.00
250.00
300.00
350.00
400.00
-20.00
10.00
40.00
70.00
100.00
130.00
160.00
190.00
220.00
250.00
280.00
310.00
340.00
TIME (MSEC)
MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT

TRC , 830930 PLOT DATE 4-OCT-83 10:48:47
EVALUATION OF MOD VW FLEET
83273@@@@@@ FILTER = HSRI 136/ 189/ -50
T12RG1 MIN, MAX VALUES = 0.17@ -13.13 , 135.67 @ 24.38

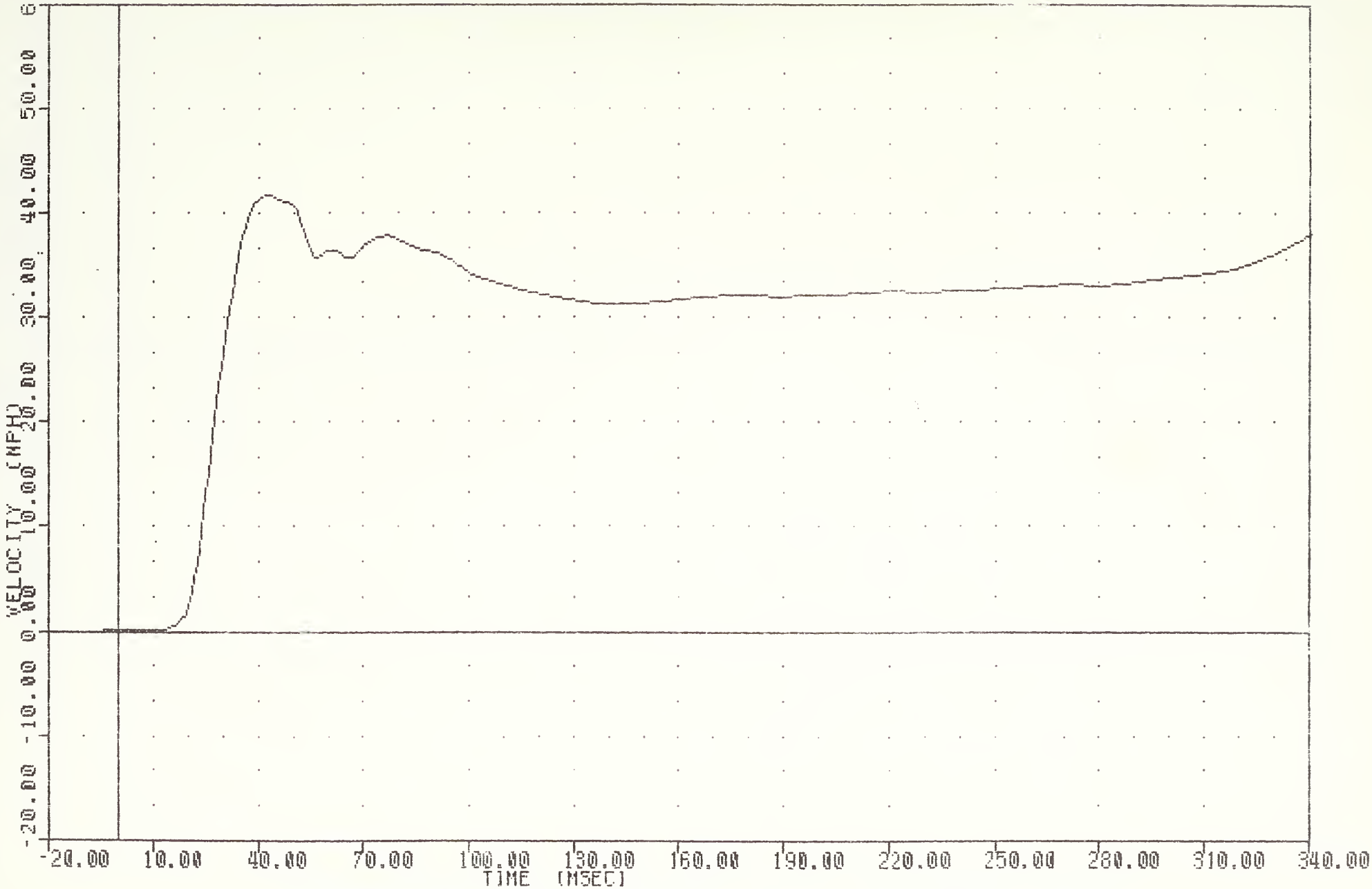


MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
DRIVER LOWER SPINE RESULTANT USING T12YGA

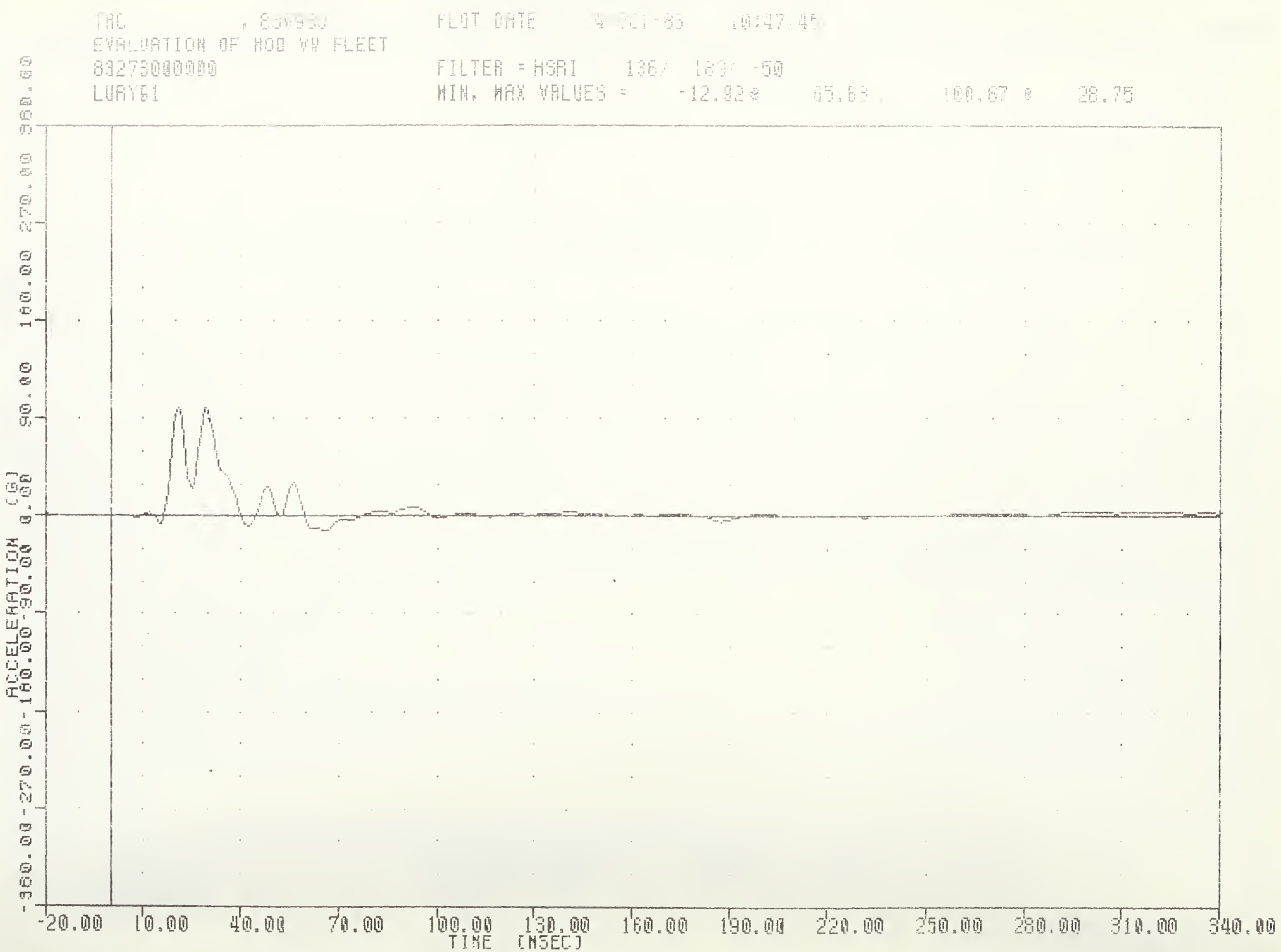


MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
DELTA V USING T12YV1

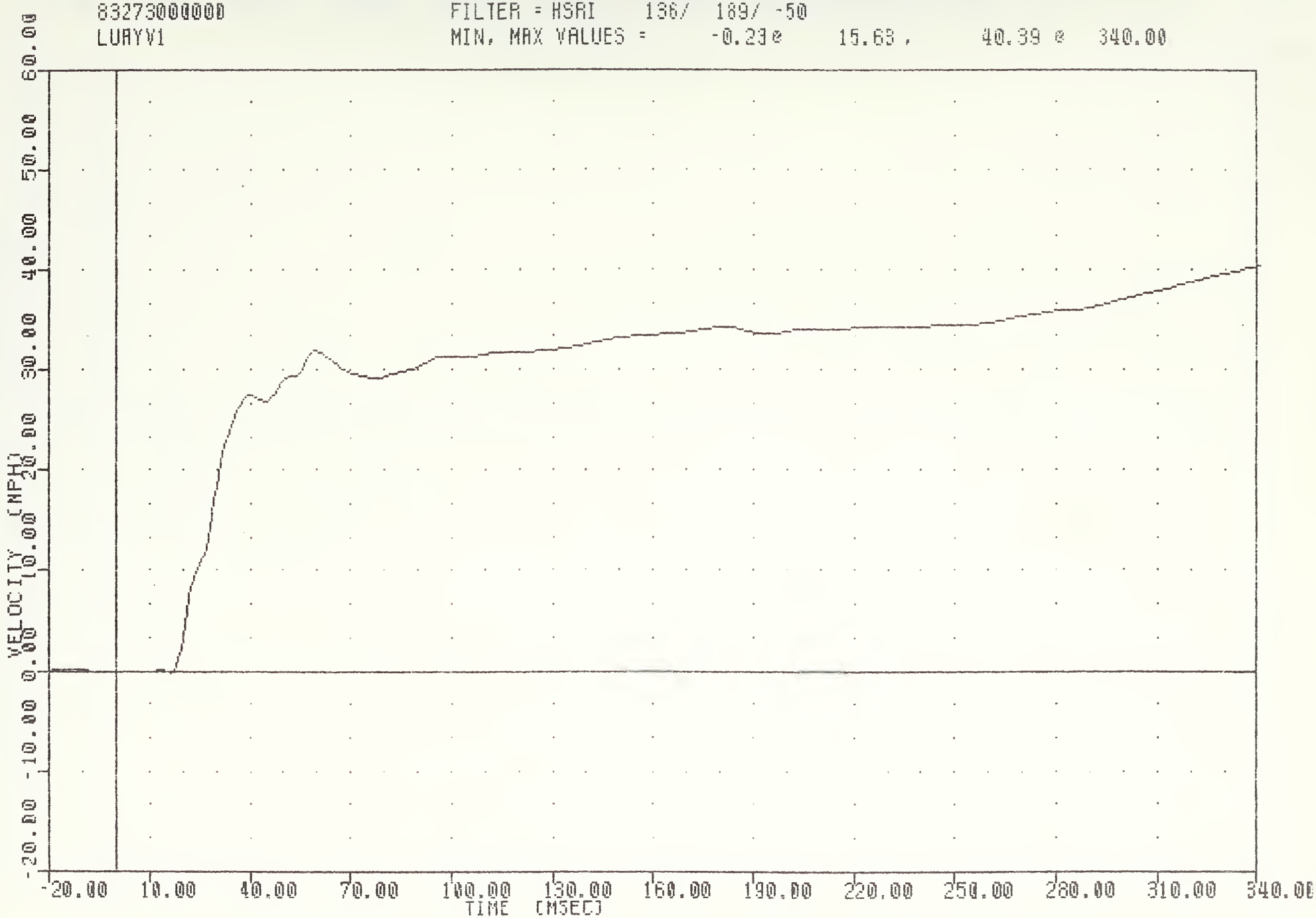
TRC , 830930 PLOT DATE 4-OCT-83 13:38:37
EVALUATION OF MOD VW FLEET
83273@@@@@@ FILTER = HSRI 136/ 189/ -50
T12YVA MIN, MAX VALUES = -0.05@ -17.50 , 41.72 @ 41.87



MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
DELTA V USING T12YGA

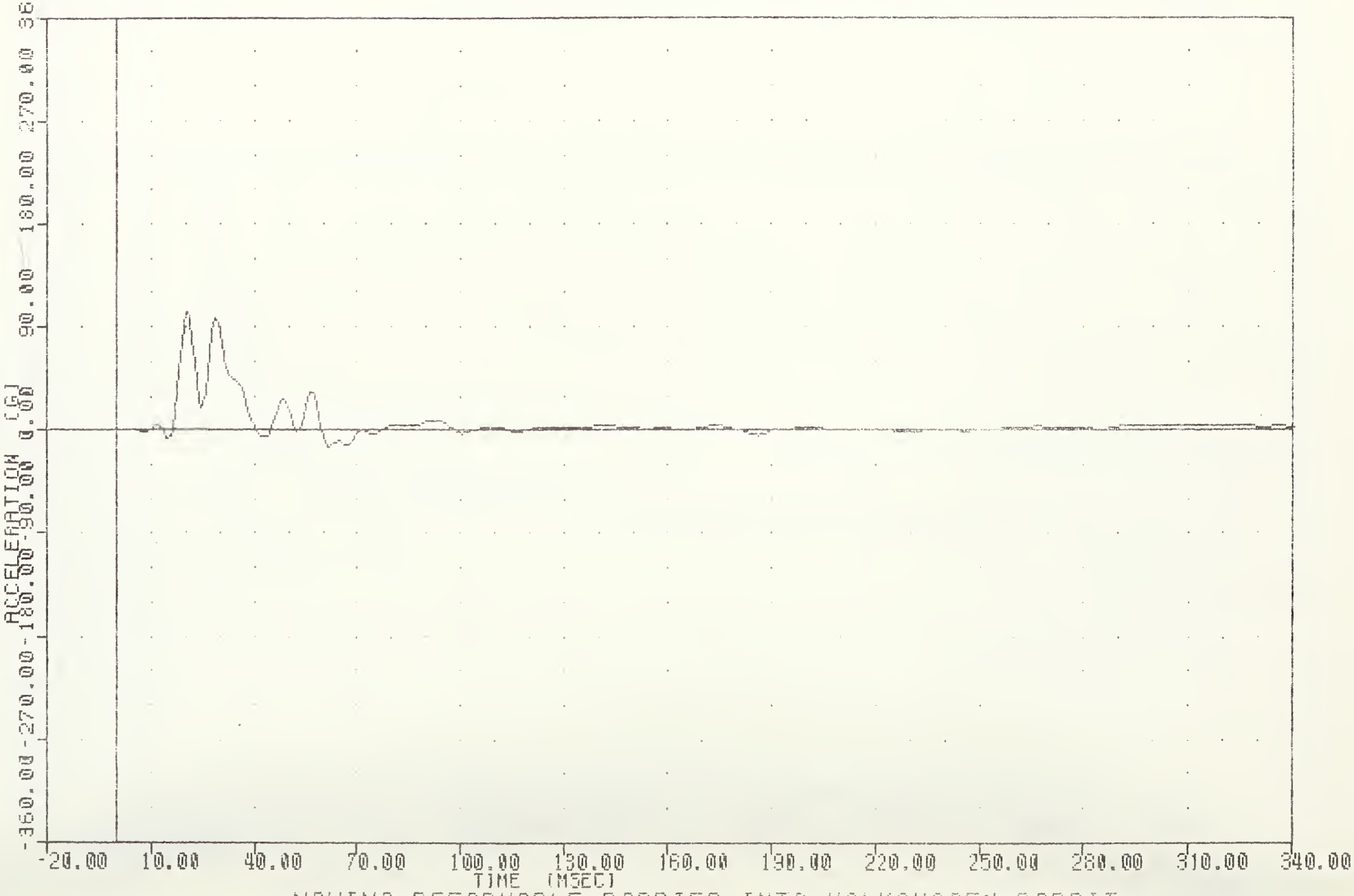


MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
DRIVER LEFT UPPER RIB ACCELERATION Y AXIS



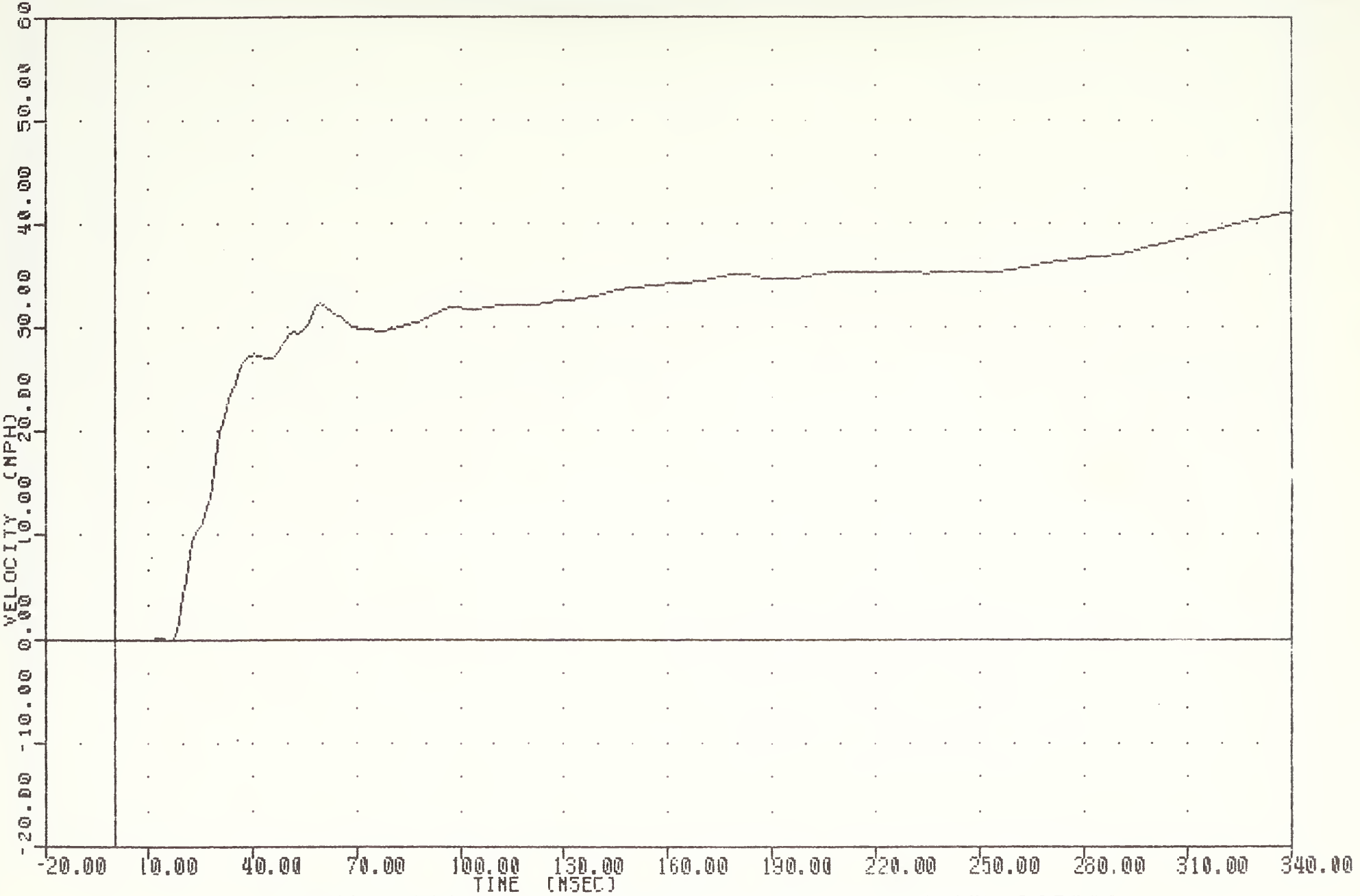
MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
DELTA V USING LURYG1

TRC , 830930 PLOT DATE 4-OCT-83 45
EVALUATION OF MOD VW FLEET
83273@@@@@@ FILTER = HSR(136/ 189/ -50
LURYGA MIN, MAX VALUES = -14.30@ 61.25 , 183.53 @ 20.00

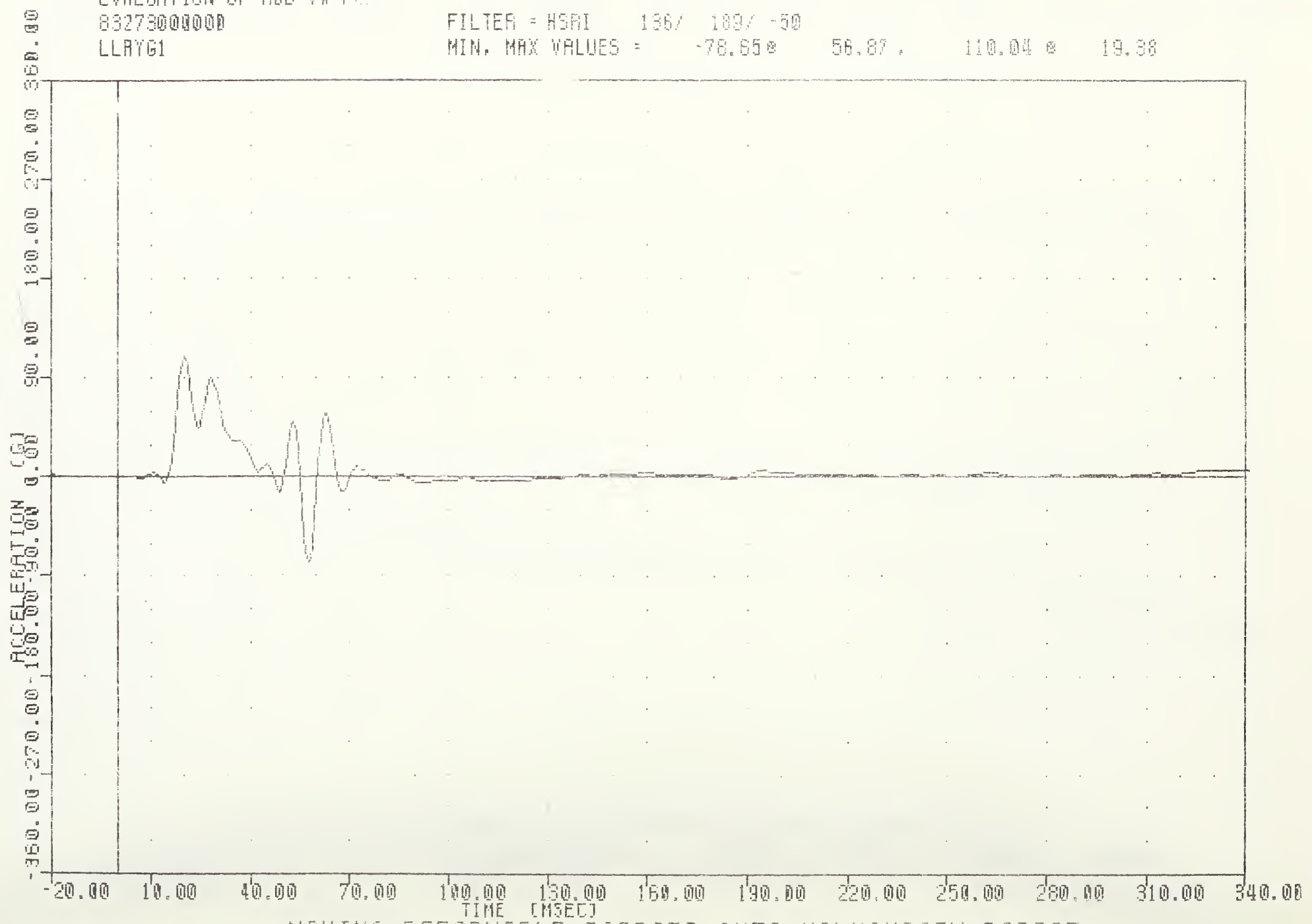


MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
DRIVER LEFT UPPER RIB ACCELERATION -2 Y AXIS

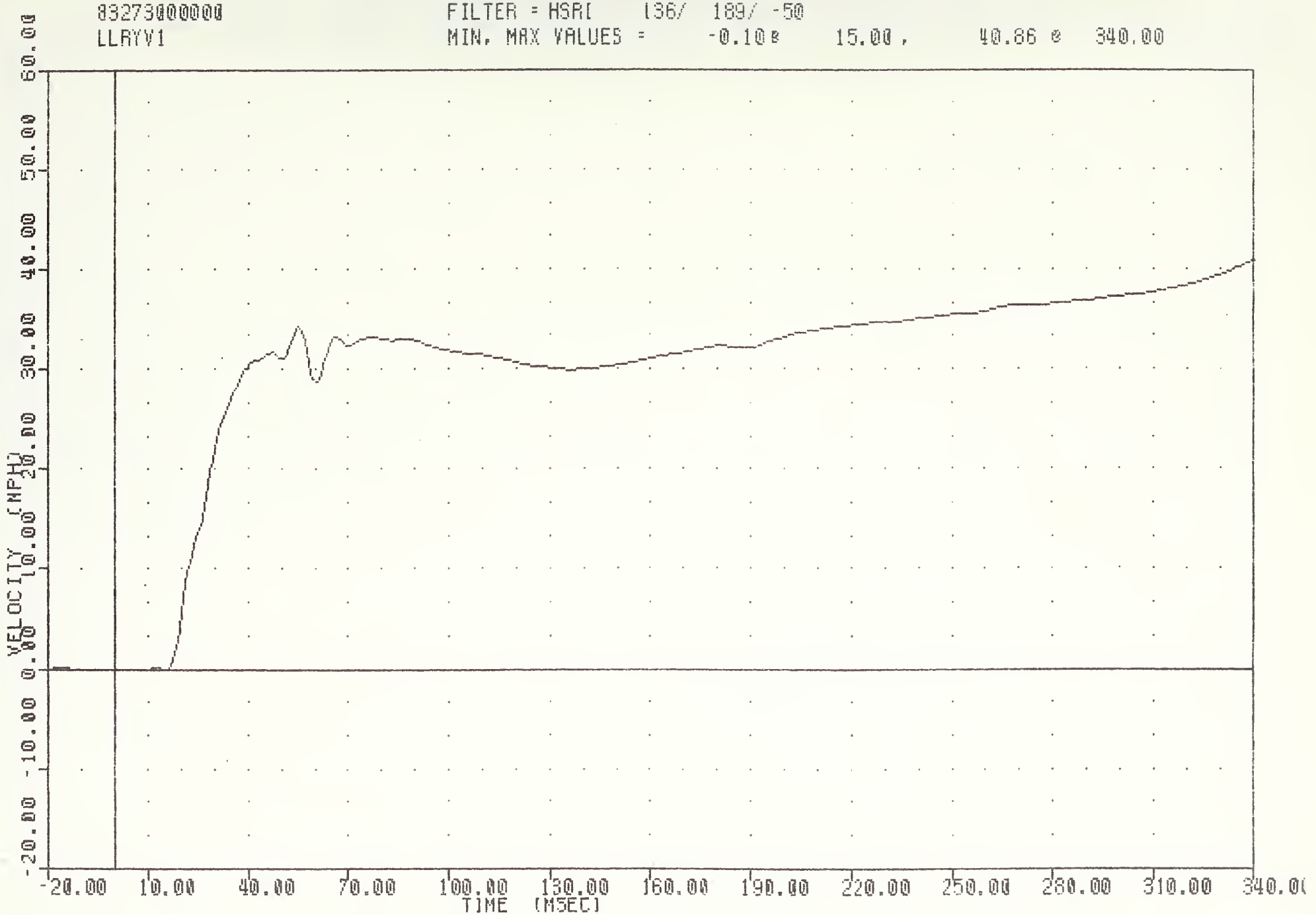
TAC , 83W930 PLOT DATE 4-OCT-83 13:39:37
EVALUATION OF MOD VW FLEET
83273000000 FILTER = HSRI 136/ 189/ -50
LURYVA MIN, MAX VALUES = -0.16 @ 15.63 , 41.24 @ 340.00



MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
DELTA V USING LURYGA

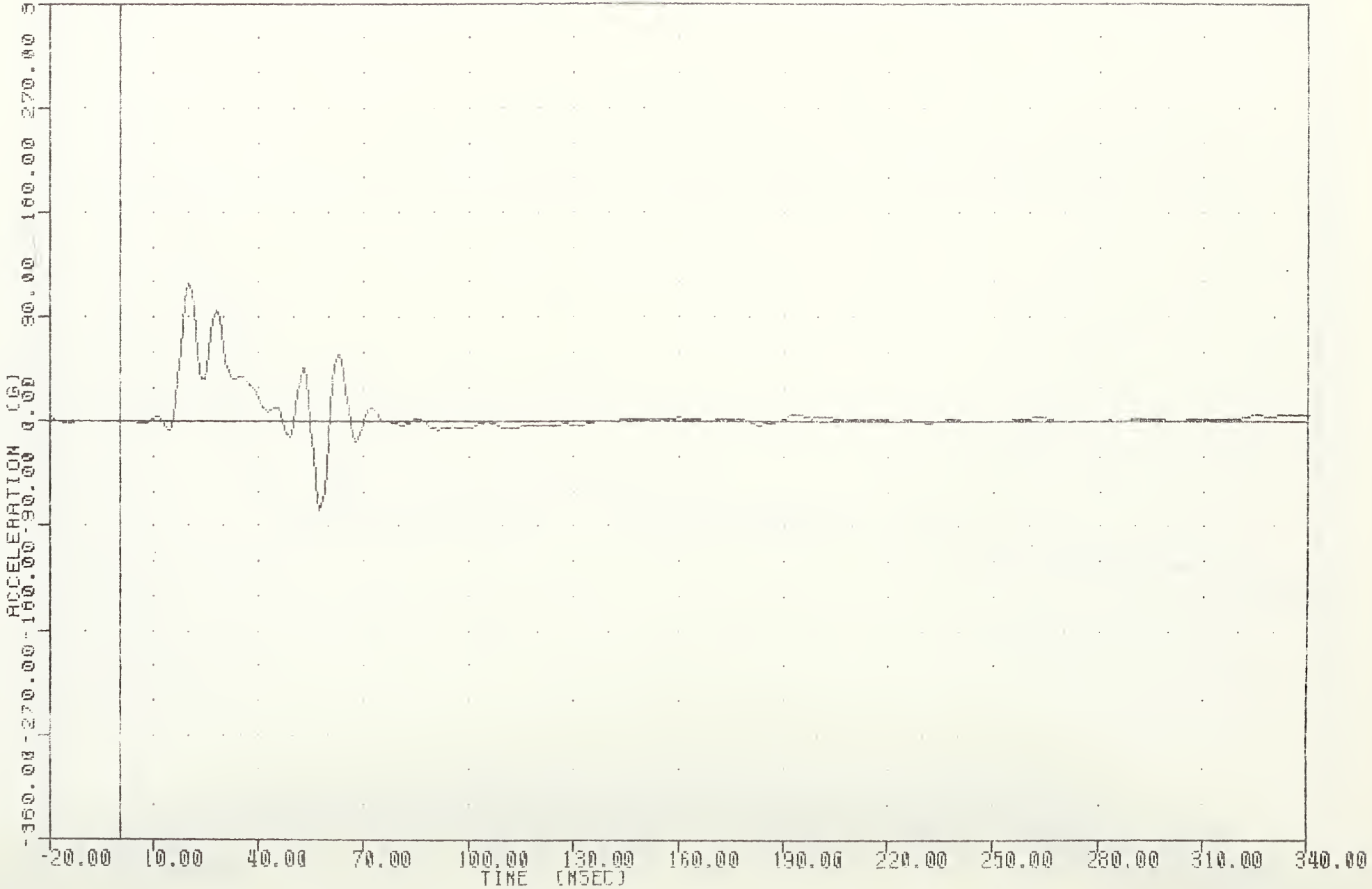


MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
DRIVER LEFT LOWER RIB ACCELERATION Y AXIS



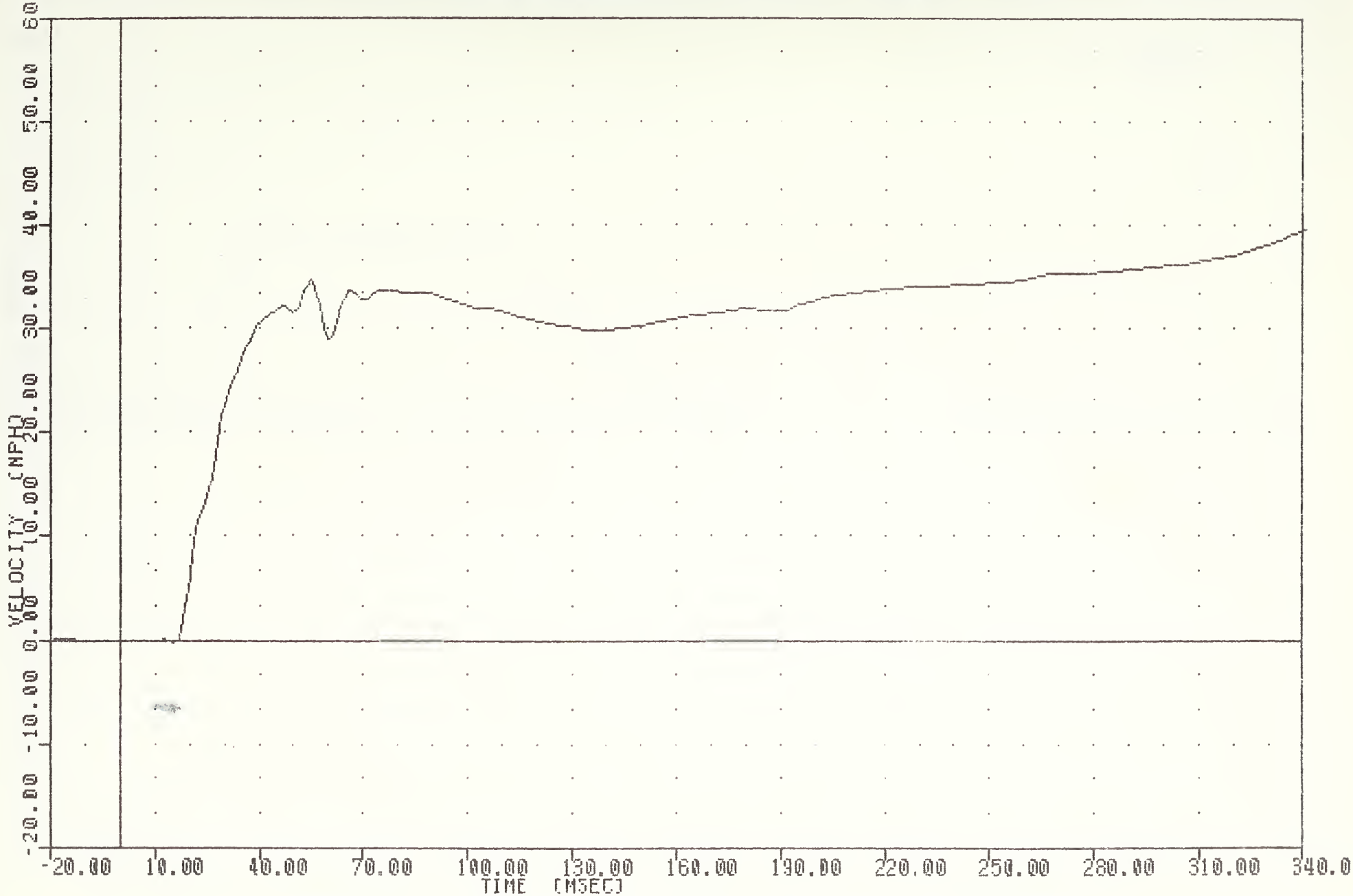
MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
DELTA V USING LLRYG1

TAC , 830930 PLOT DATE 4-OCT-88 10:47:45
EVALUATION OF MOD VW FLEET
832730@@@@@ FILTER = HSRI 136/ 189/ -50
LLRYGA MIN. MAX VALUES = -75.91 @ 56.87 , 118.67 @ 19.38



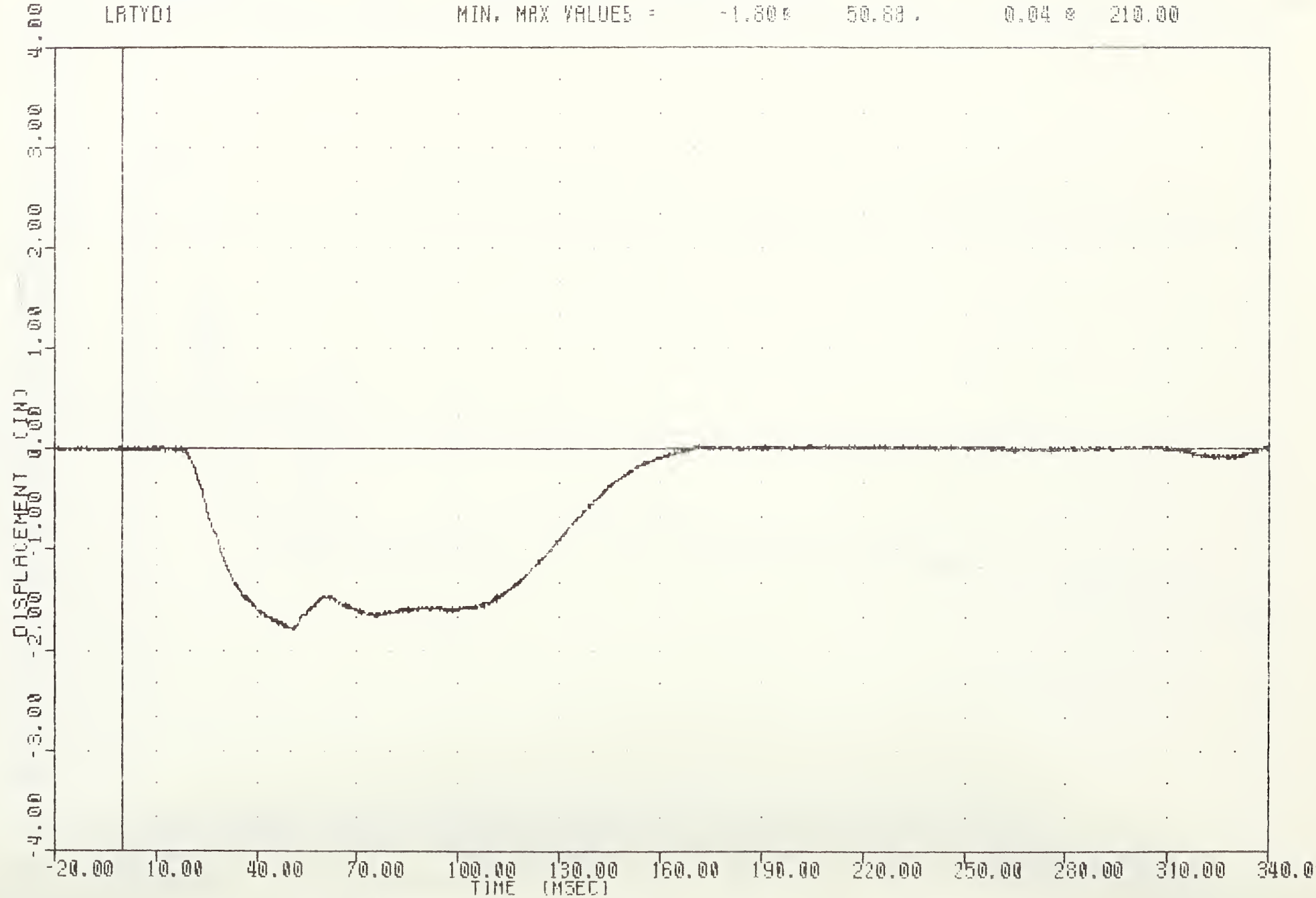
MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
DRIVER LEFT LOWER RIB ACCELERATION -Z Y AXIS

TRC , 830930 PLOT DATE 4-OCT-83 13:39:37
EVALUATION OF MOD VW FLEET
83273000000 FILTER = HSRI 136/ 189/ -50
LLAYVA MIN, MAX VALUES = -0.23@ 15.00 , 39.51 @ 340.00



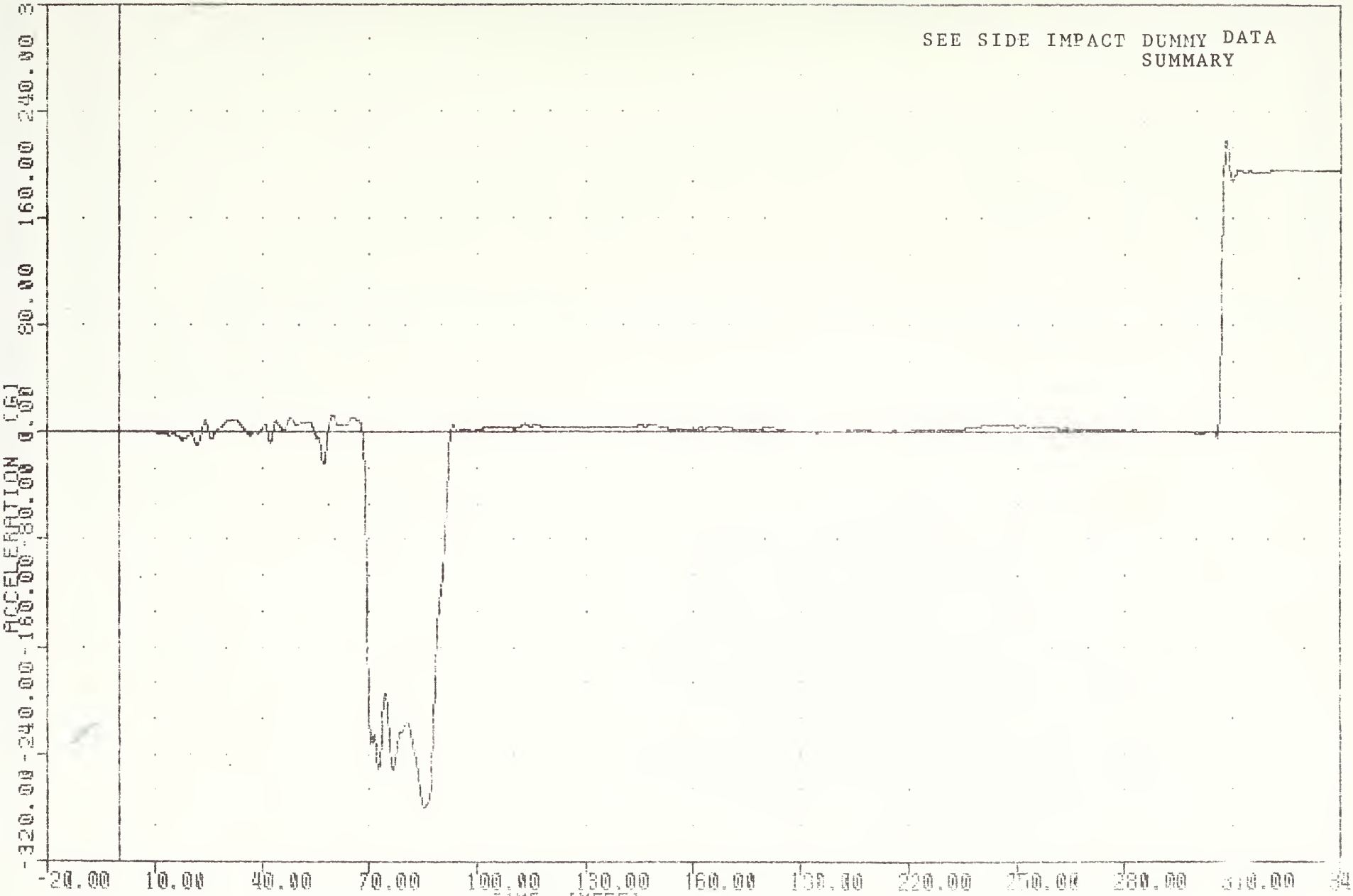
MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
DELTA V USING LLAYGA

TRL , 830930 PLOT DATE 4-OCT-83 10:45:36
EVALUATION OF MOD VW FLEET
83273000000 FILTER = ALPF 1650/ 5217/ -40
LRTYD1 MIN. MAX VALUES = -1.80 @ 50.88 , 0.04 @ 210.00



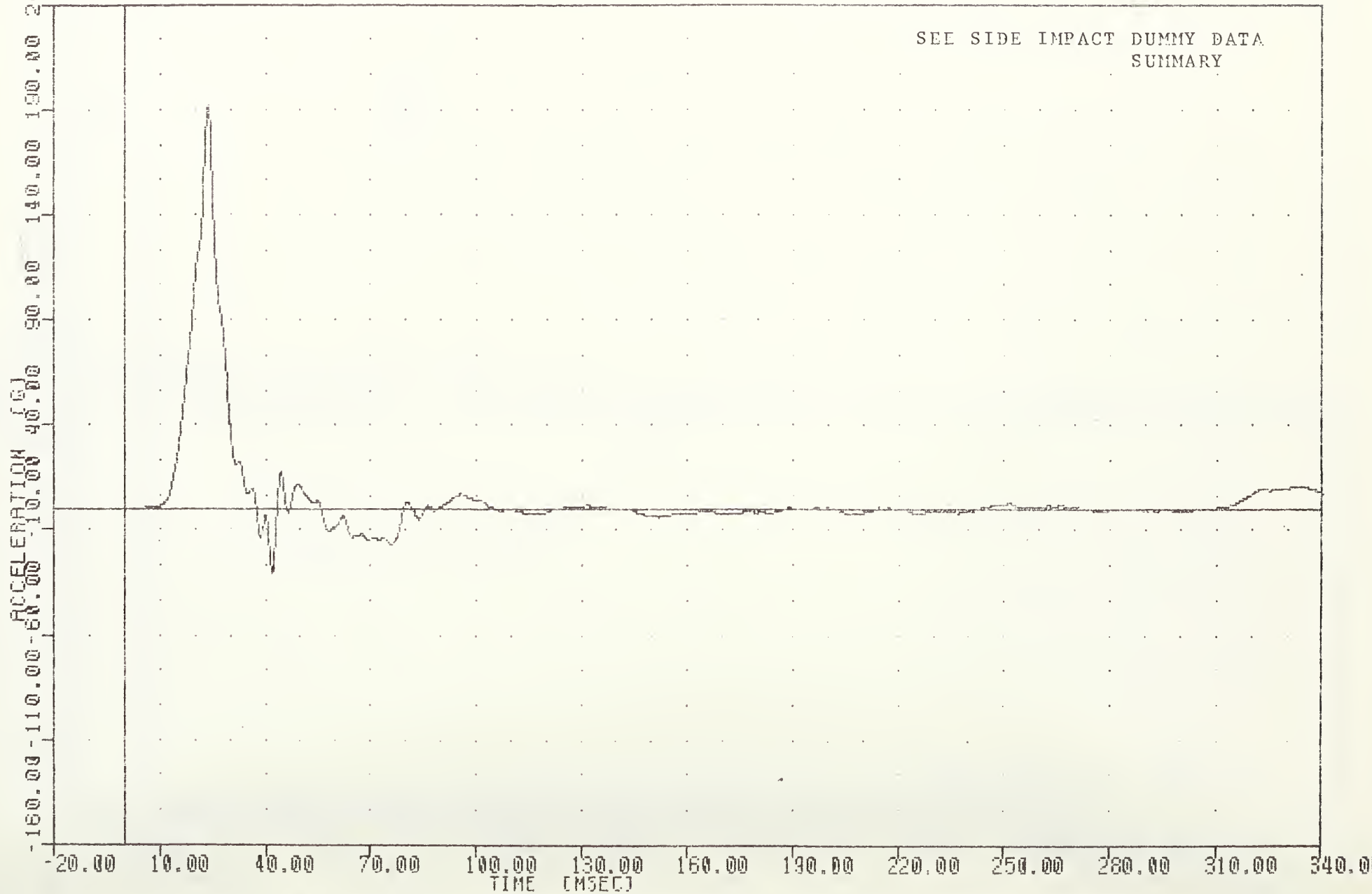
MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
DRIVER LEFT RIB TO SPINE DISPLACEMENT INCHES

TRL , 830930 PLOT DATE 12-OCT-83 15:30:22
EVALUATION OF MOD VW FLEET
83273000000 FILTER = BLPF 300/ 949/ -40
PEVXG1 MIN, MAX VALUES = -280.43@ 85.13 , 217.69 @ 308.13



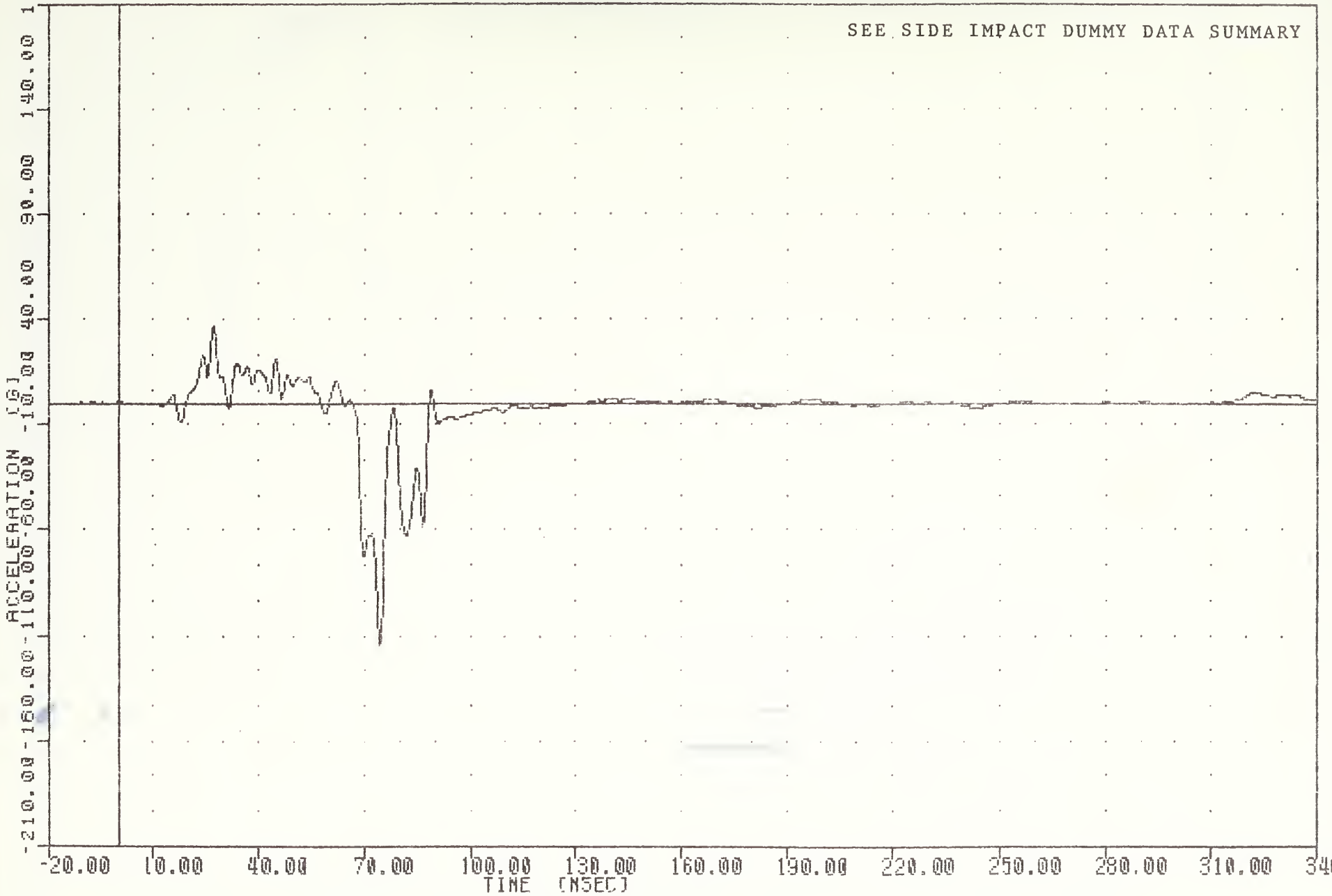
MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
DRIVER PELVIS ACCELERATION X AXIS

TRC , 830930 PLOT DATE 4-OCT-83 10:45:36
EVALUATION OF MDD VW FLEET
83273000000 FILTER = BLPF 300/ 949/ -40
PEVYG1 MIN, MAX VALUES = -30.61@ 41.75 , 191.61 @ 23.50



MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
DRIVER PELVIS ACCELERATION Y AXIS

TAC , 830930 PLOT DATE 4-OCT-83 10:45:36
EVALUATION OF MOD VW FLEET
83273000000 FILTER = BLPF 300/ 949/ -40
PEVZ61 MIN, MAX VALUES = -114.57 @ 74.38 , 36.55 @ 26.88



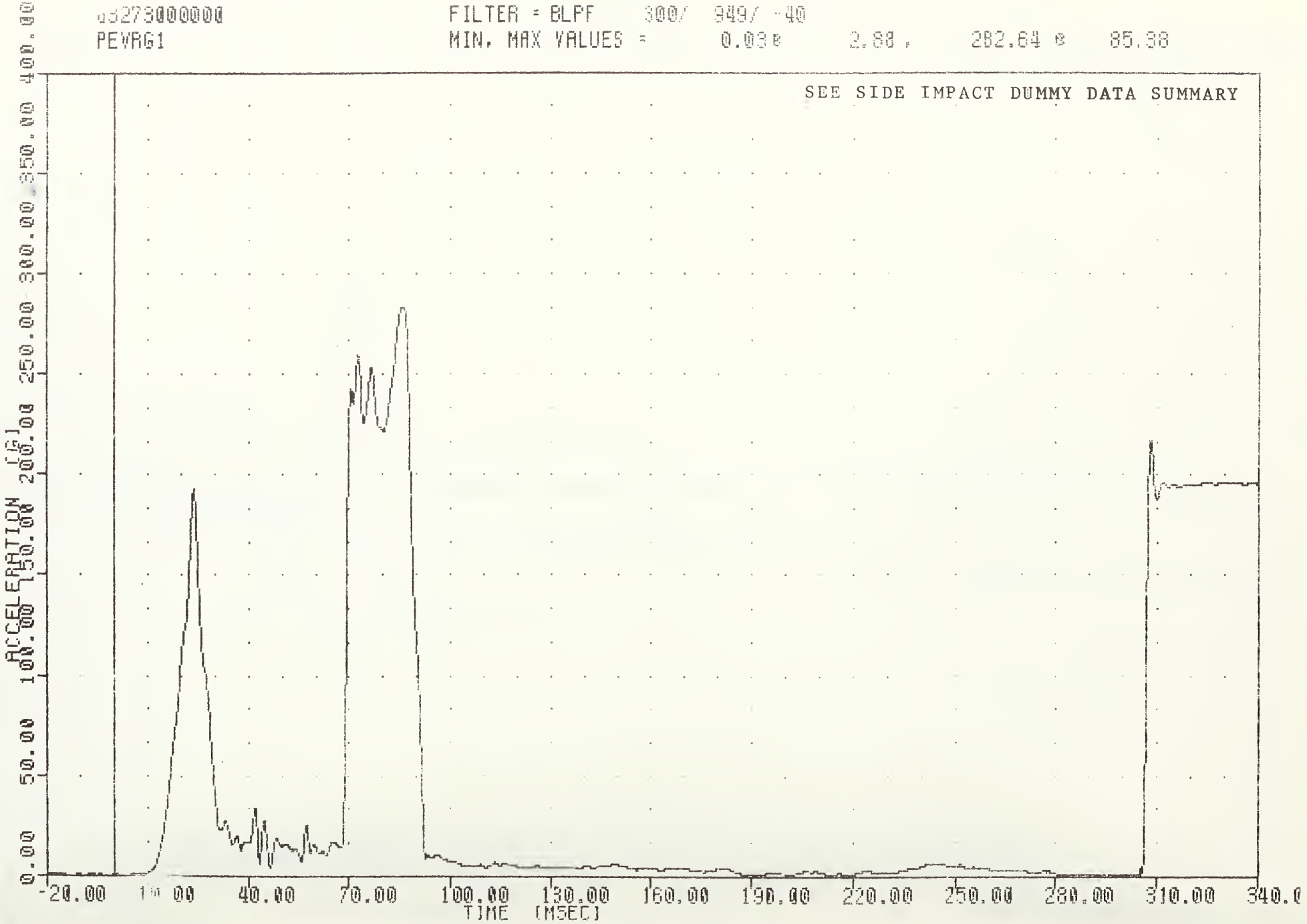
MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
DRIVER PELVIS ACCELERATION Z AXIS

TRC , 830930 PLOT DATE 4-OCT-83 10:45:

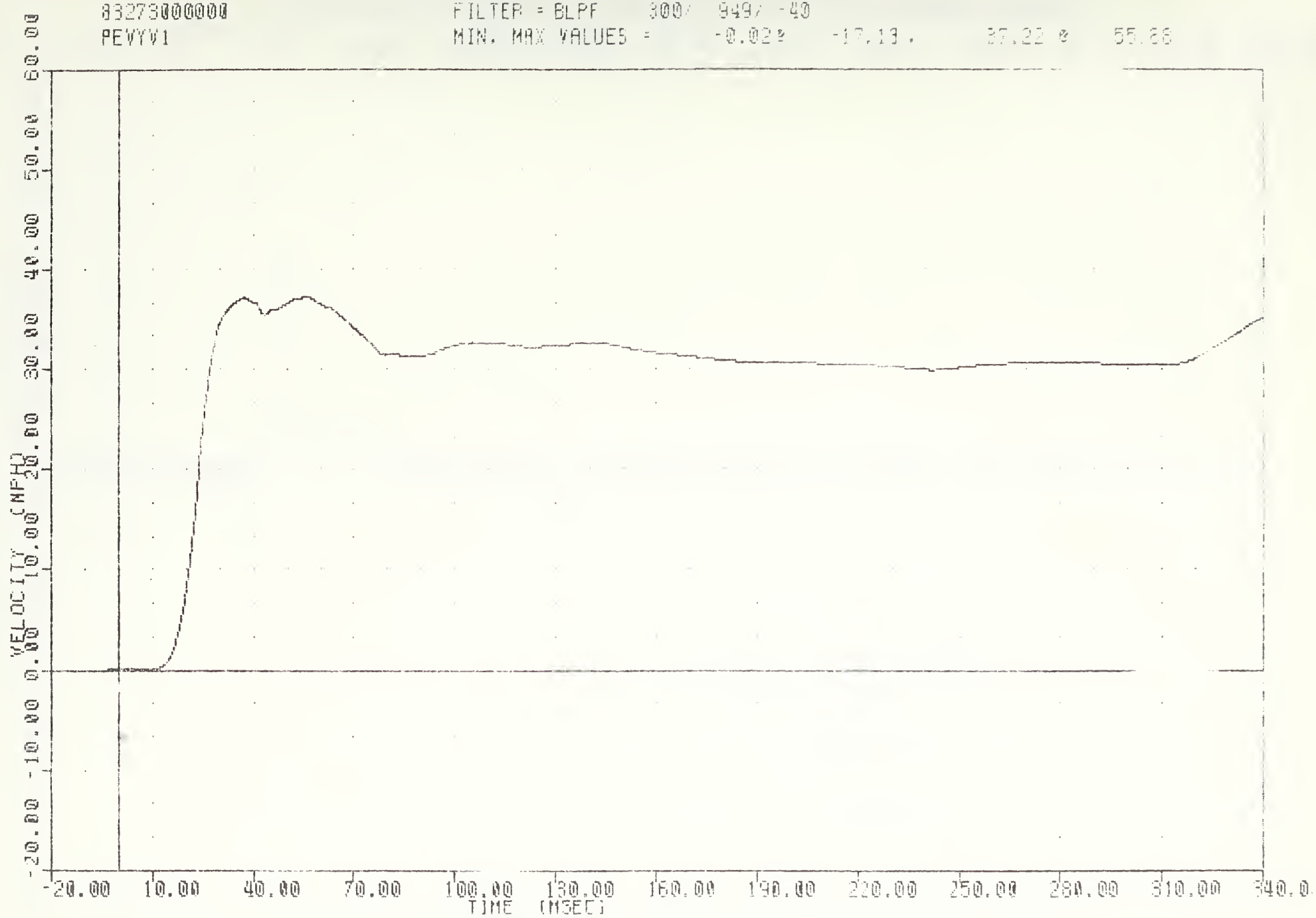
ION OF MOD -- FLEET

as273000000 FILTER = BLPF 300/ 949/ -40

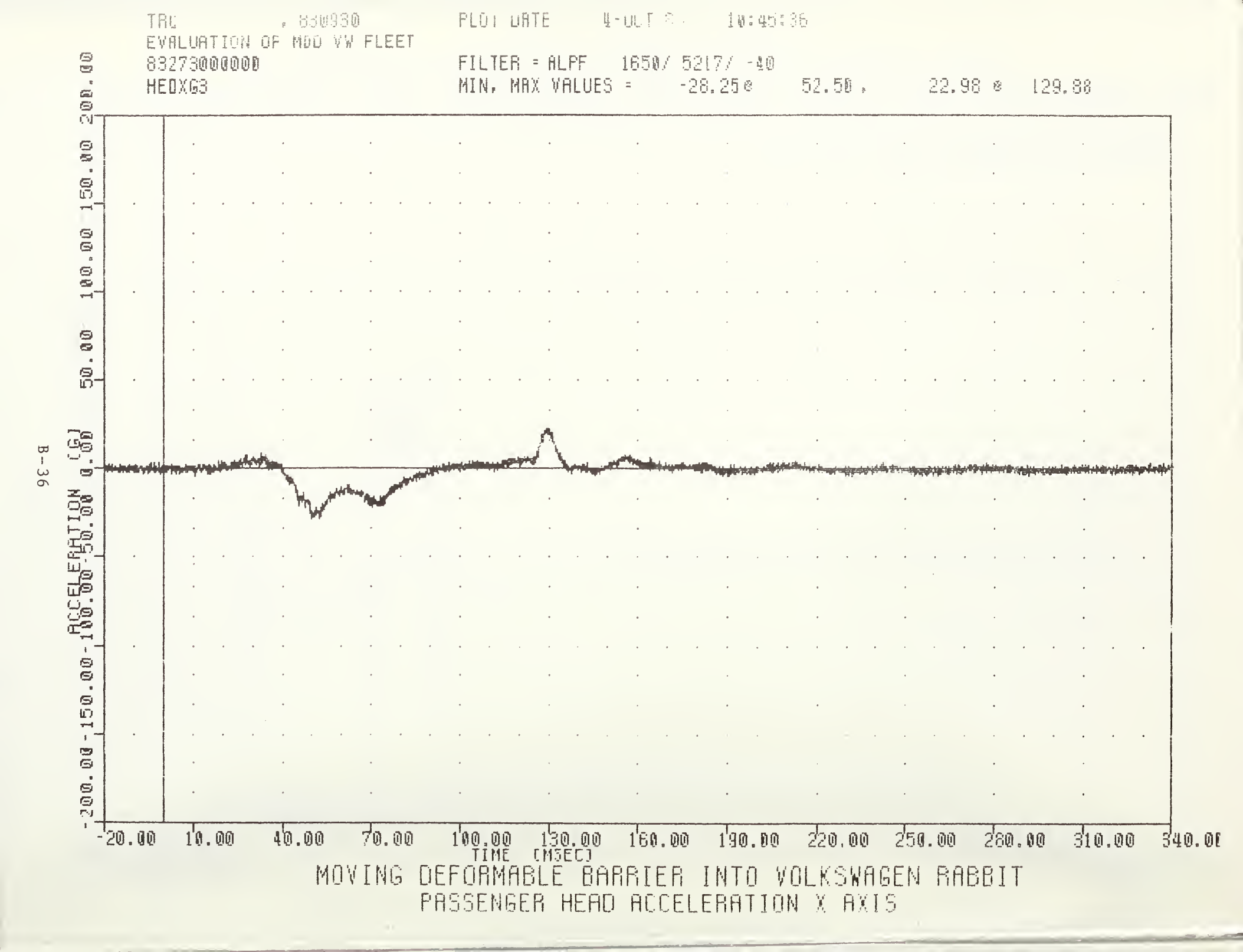
PEVRG1 MIN, MAX VALUES = 0.03 @ 2.88 , 282.64 @ 85.38

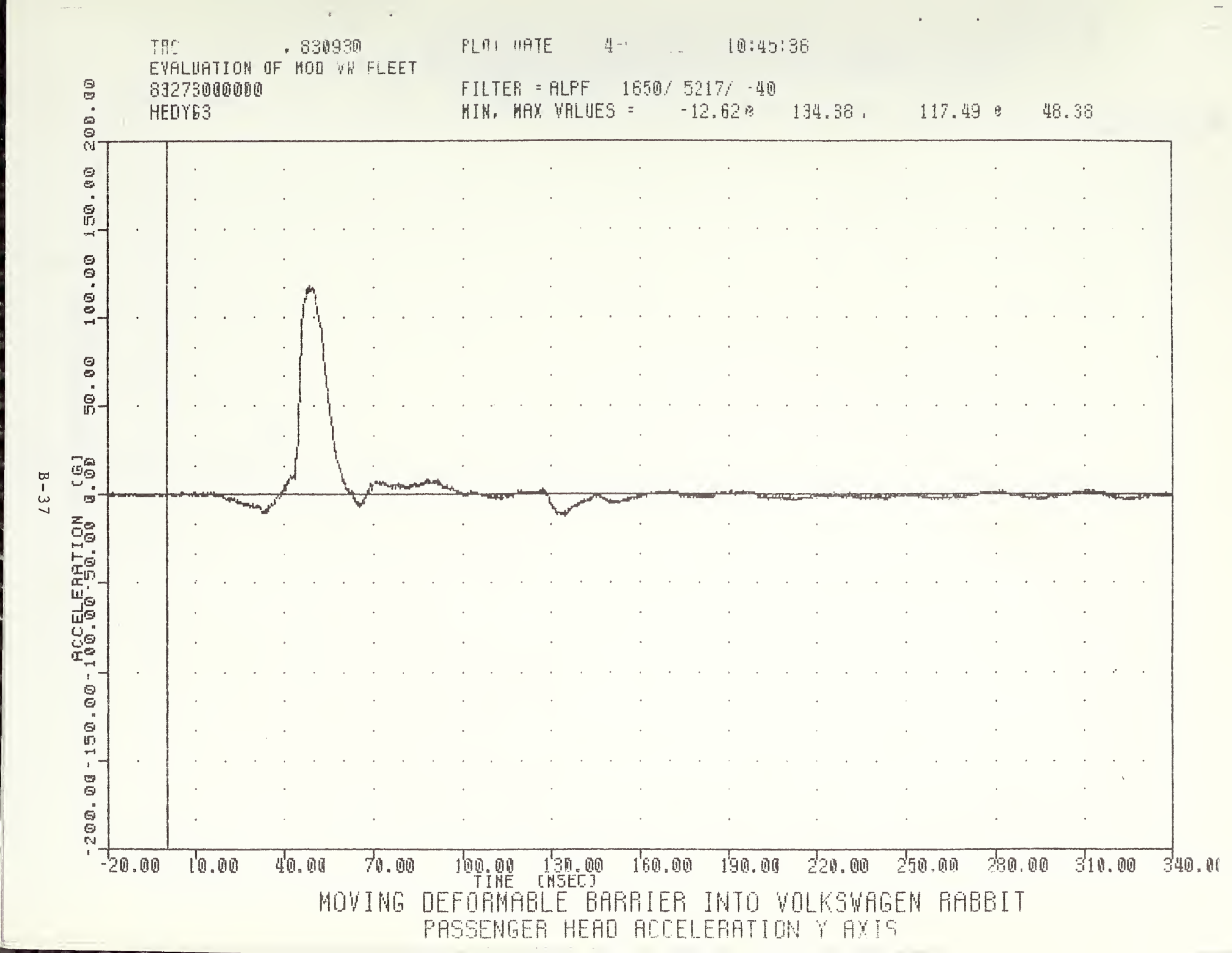


MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
DRIVER PELVIS RESULTANT



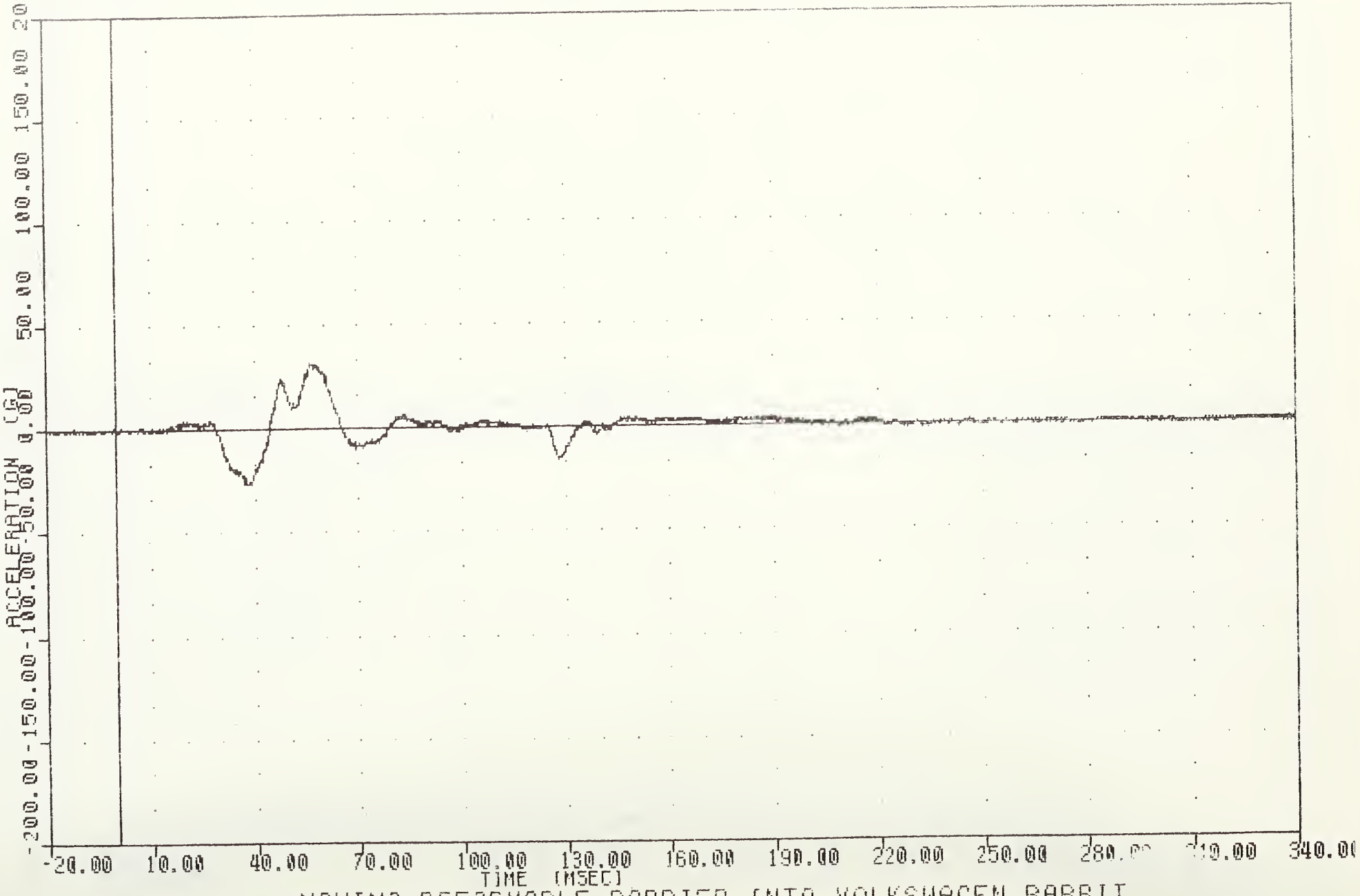
MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
DELTA V USING PEVY


TRC , 830930
PLOT DATE 4-OCT 8- 10:45:36
EVALUATION OF MDD VW FLEET
83273000000
HEDXG3
FILTER = ALPF 1650/ 5217/ -40
MIN, MAX VALUES = -28.25@ 52.50 , 22.98 @ 129.88
ACCELERATION (G)
200.00
150.00
100.00
50.00
0.00
-50.00
-100.00
-150.00
-200.00
-20.00
10.00
40.00
70.00
100.00
130.00
160.00
190.00
220.00
250.00
280.00
310.00
340.00
TIME (MSEC)
MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
PASSENGER HEAD ACCELERATION X AXIS



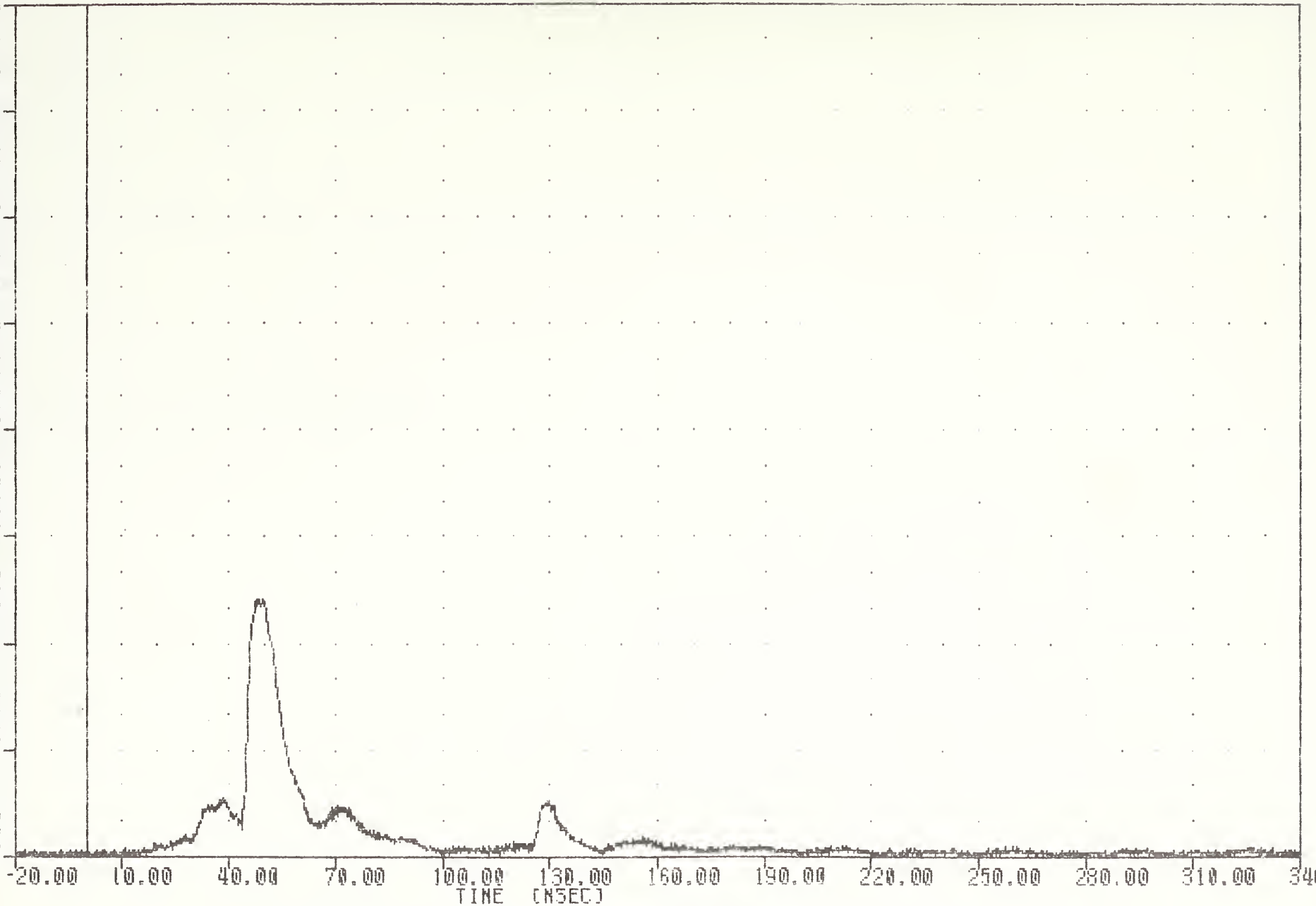
MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
PASSENGER HEAD ACCELERATION Y AXIS

TRC , 830930 PLOT DATE 4-OCT-83 10:45:36
EVALUATION OF MOD VW FLEET
83273000000
HEDZG3
FILTER = ALPF 1650/ 5217/ -40
MIN, MAX VALUES = -26.76 @ 38.00 , 31.89 @ 56.13



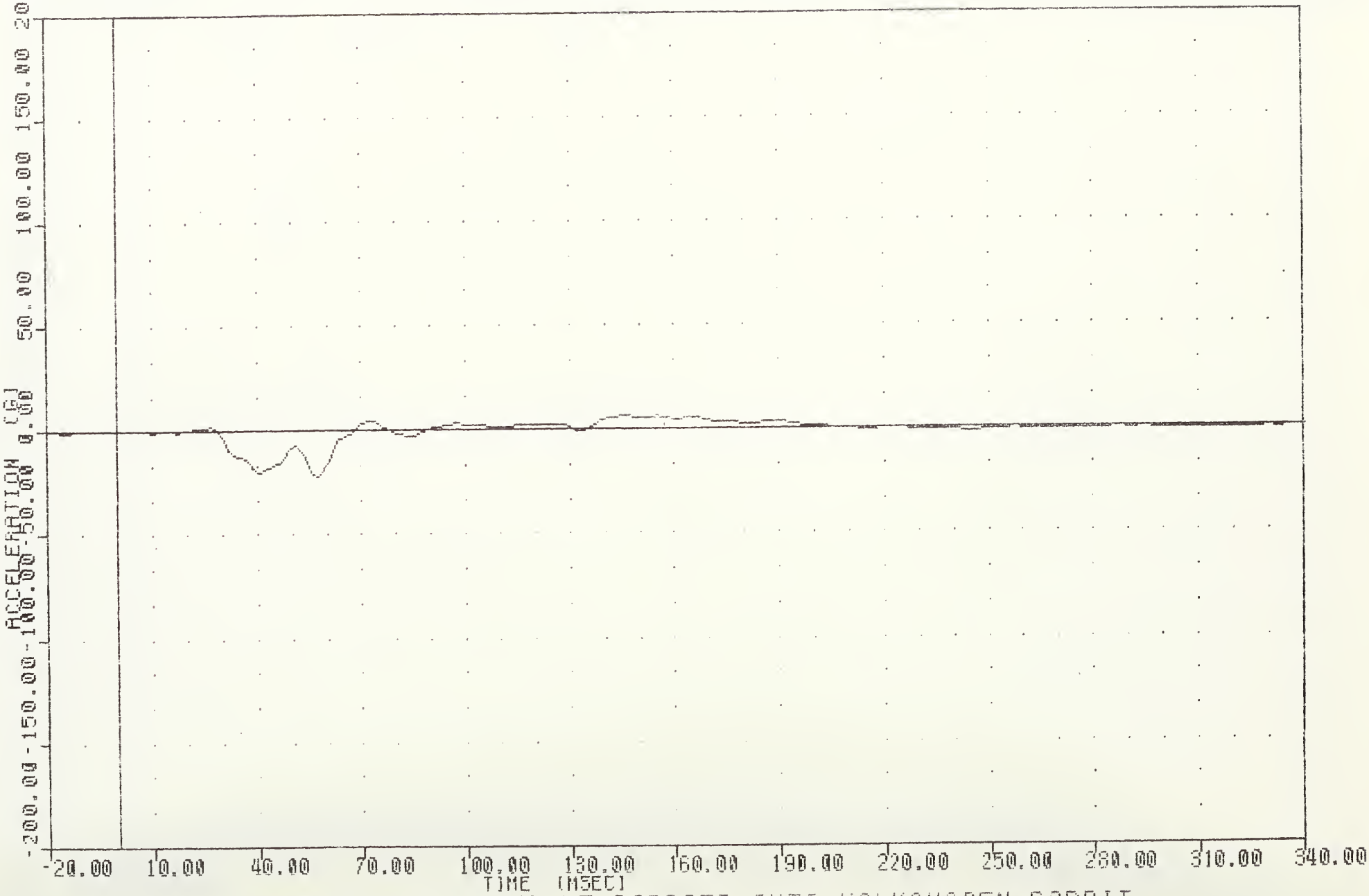
MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
PASSENGER HEAD ACCELERATION Z AXIS

TRC , 830930 PLOT DATE 4-OCT-83 10:45:36
EVALUATION OF MOD VW FLEET
83273000000 FILTER = ALPF 1650/ 5217/ -40
HEDR63 MIN, MAX VALUES = 0.10 @ 286.50 , 120.79 @ 48.38

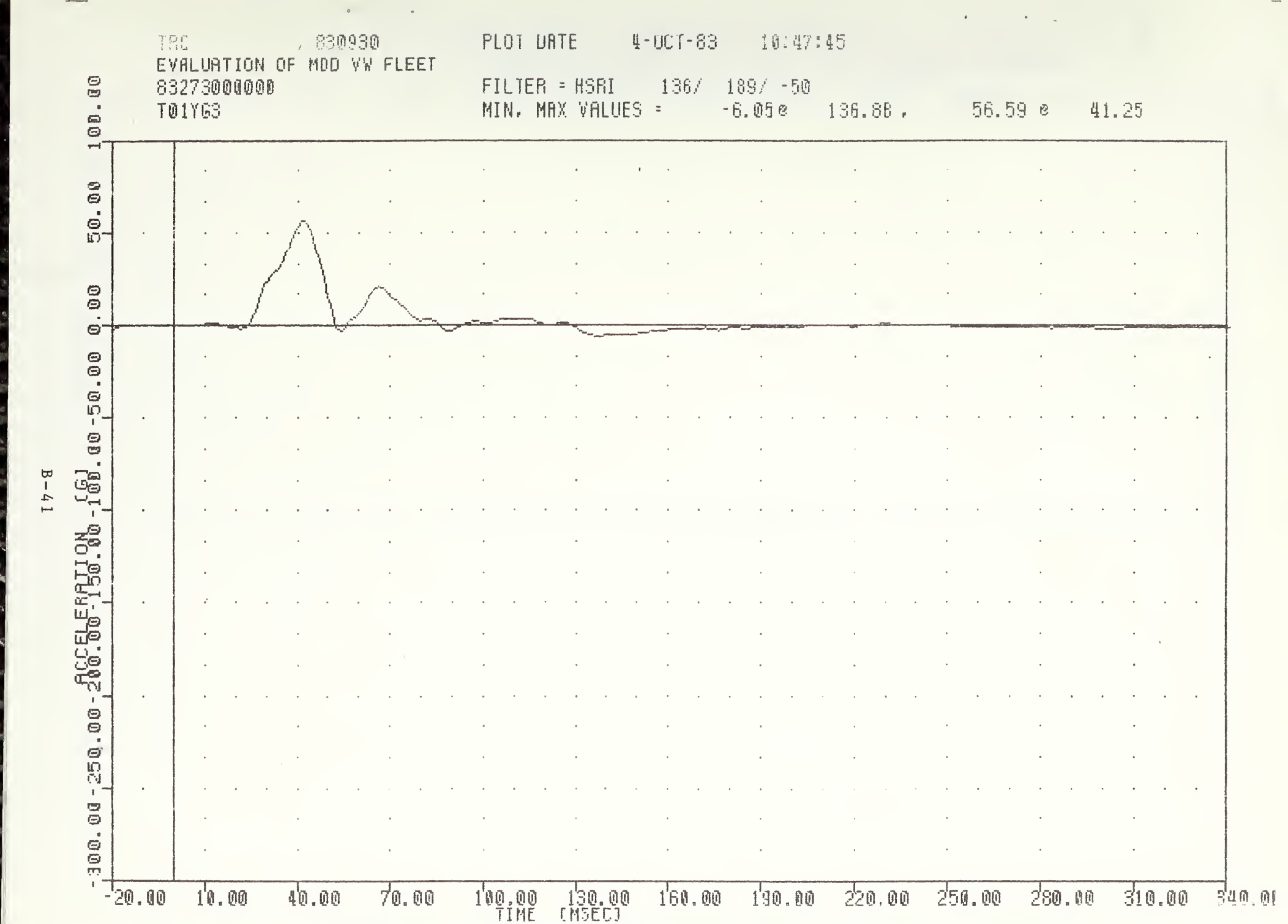


MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
PASSENGER HEAD RESULTANT

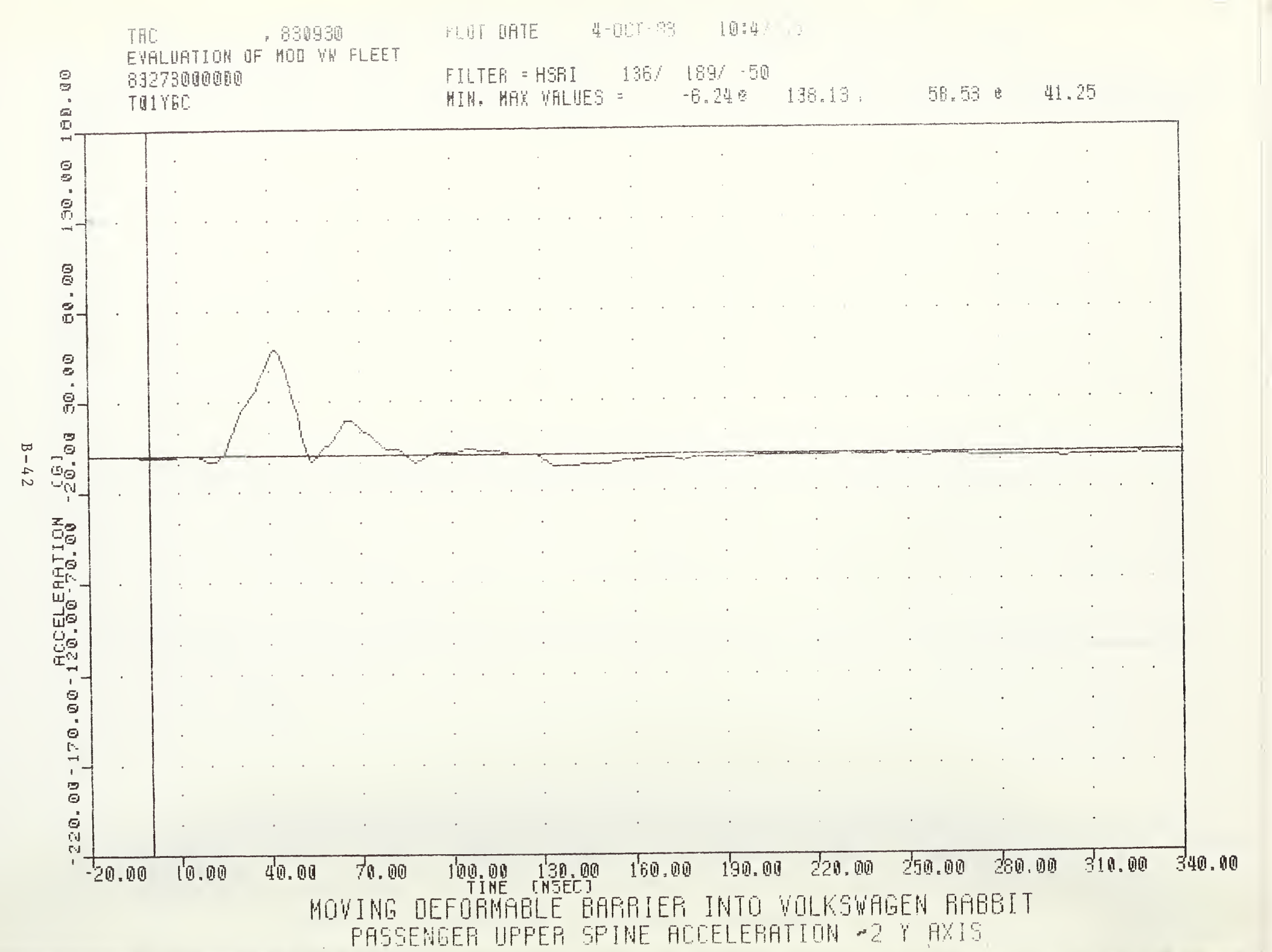
TRC , 830930 PLOT DATE 4-OCT-83 10:47:45
EVALUATION OF MOD VW FLEET
83273000000 FILTER = HSRI [36/ 189/ -50
T01XG3 MIN, MAX VALUES = -21.86 @ 56.25 , 6.38 @ 145.00



MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
PASSENGER UPPER SPINE ACCELERATION X AXIS

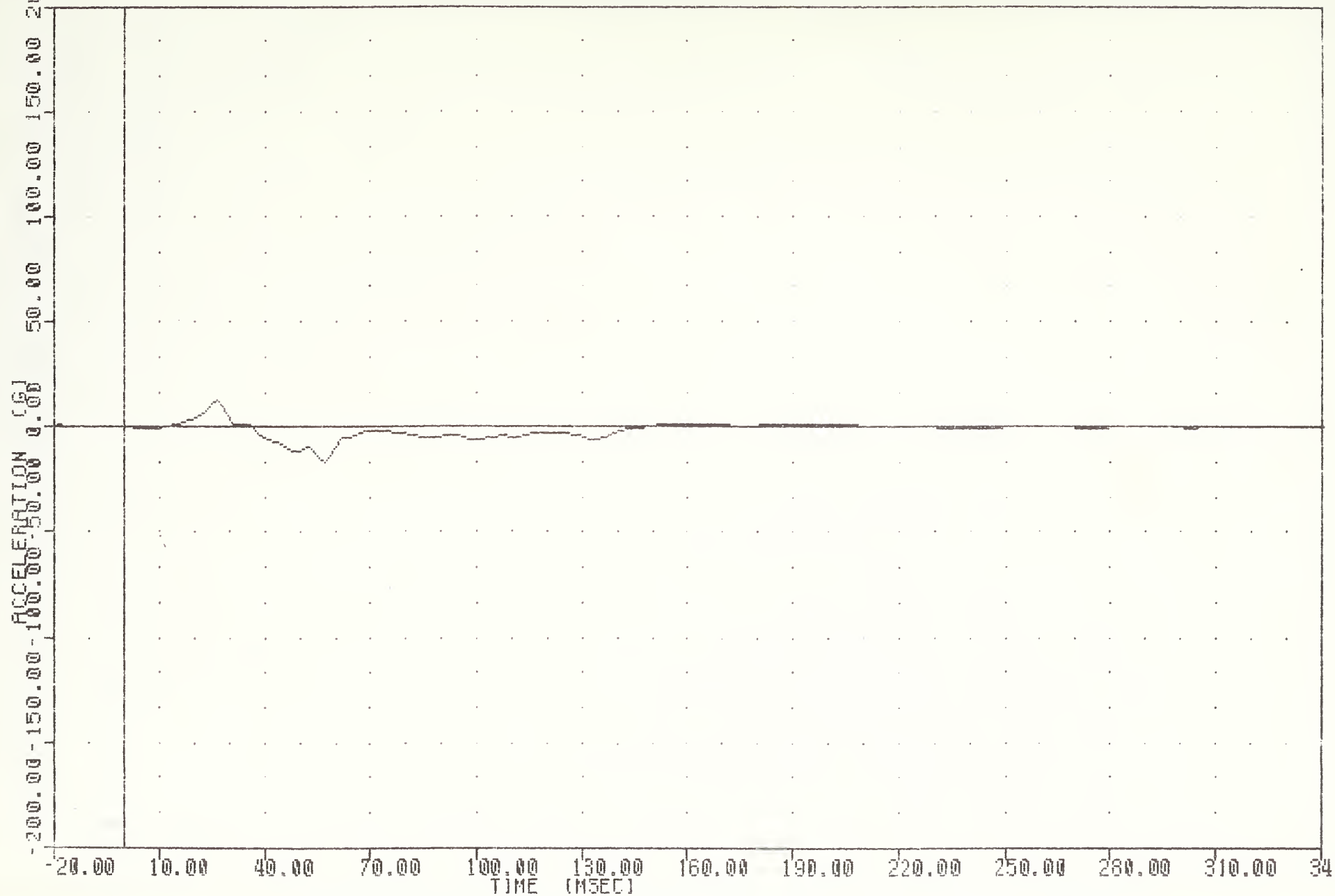


MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
PASSENGER UPPER SPINE ACCELERATION Y AXIS



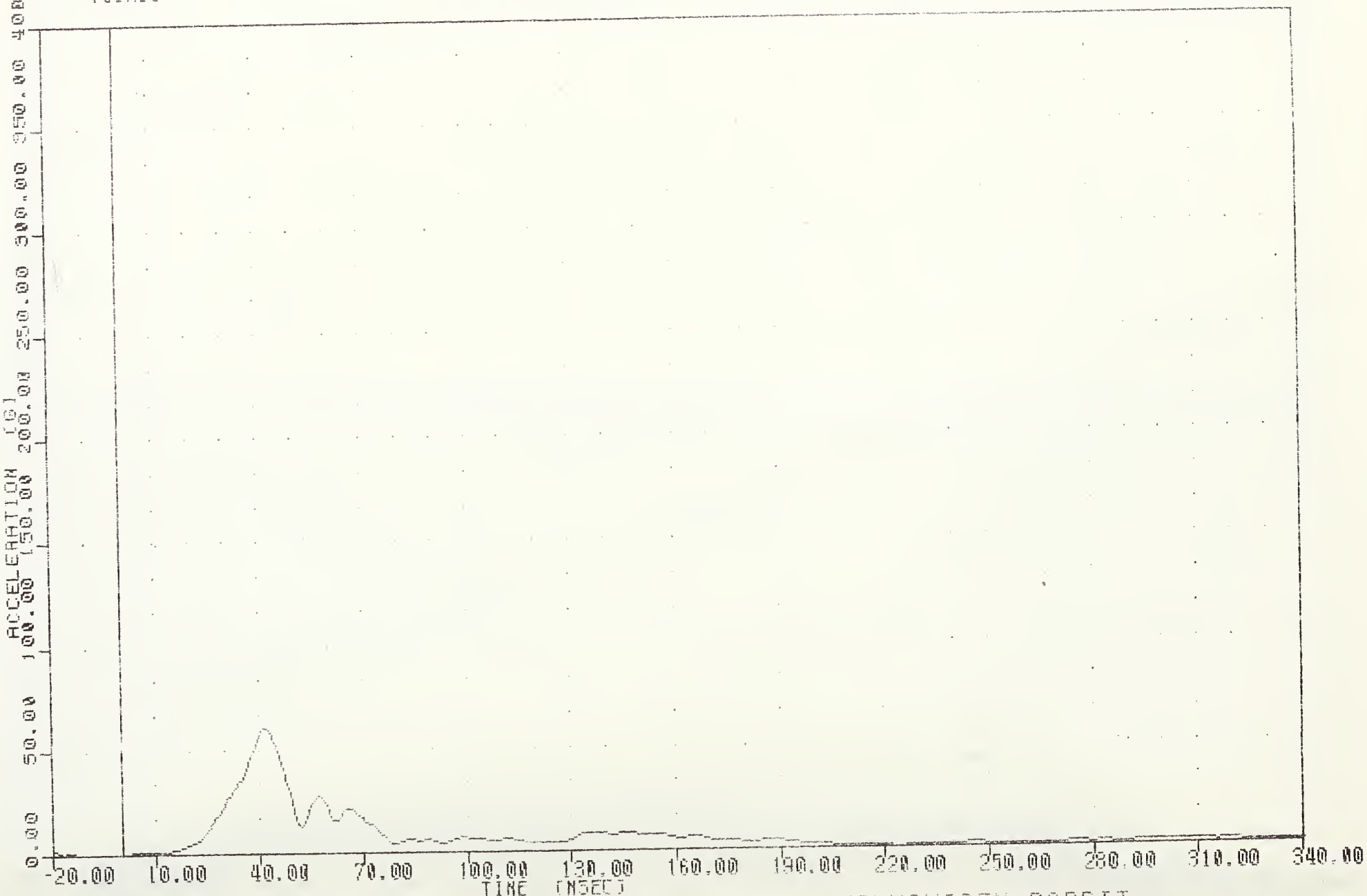
MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
PASSENGER UPPER SPINE ACCELERATION -Z Y AXIS

TRL , 830930 PLOT DATE 4-OCT-83 10:47:45
EVALUATION OF MOD VW FLEET
83273000000 FILTER = HSRI 136/ 189/ -50
T01ZG3 MIN, MAX VALUES = -16.50 @ 56.25 , 12.50 @ 25.63

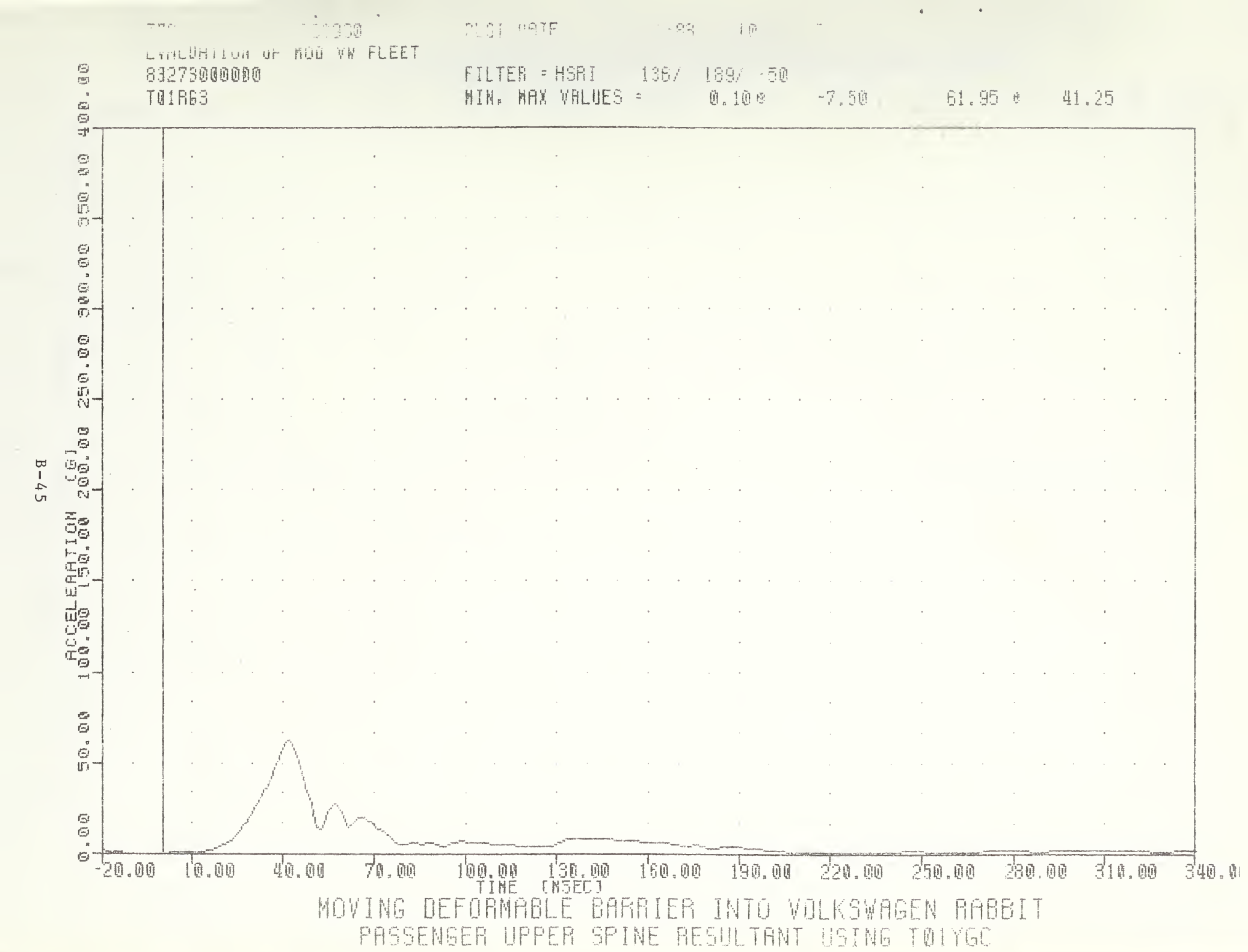


MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
PASSENGER UPPER SPINE ACCELERATION Z AXIS

TAC , 830930 PLOT DATE 4-OCT-83 10:47:47
EVALUATION OF MOD VW FLEET
83273000000
T01R63
FILTER = HSAI 136/ 169/ -50
MIN, MAX VALUES = 0.11@ -7.50 60.12 @ 41.25



MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
PASSENGER UPPER SPINE RESULTANT



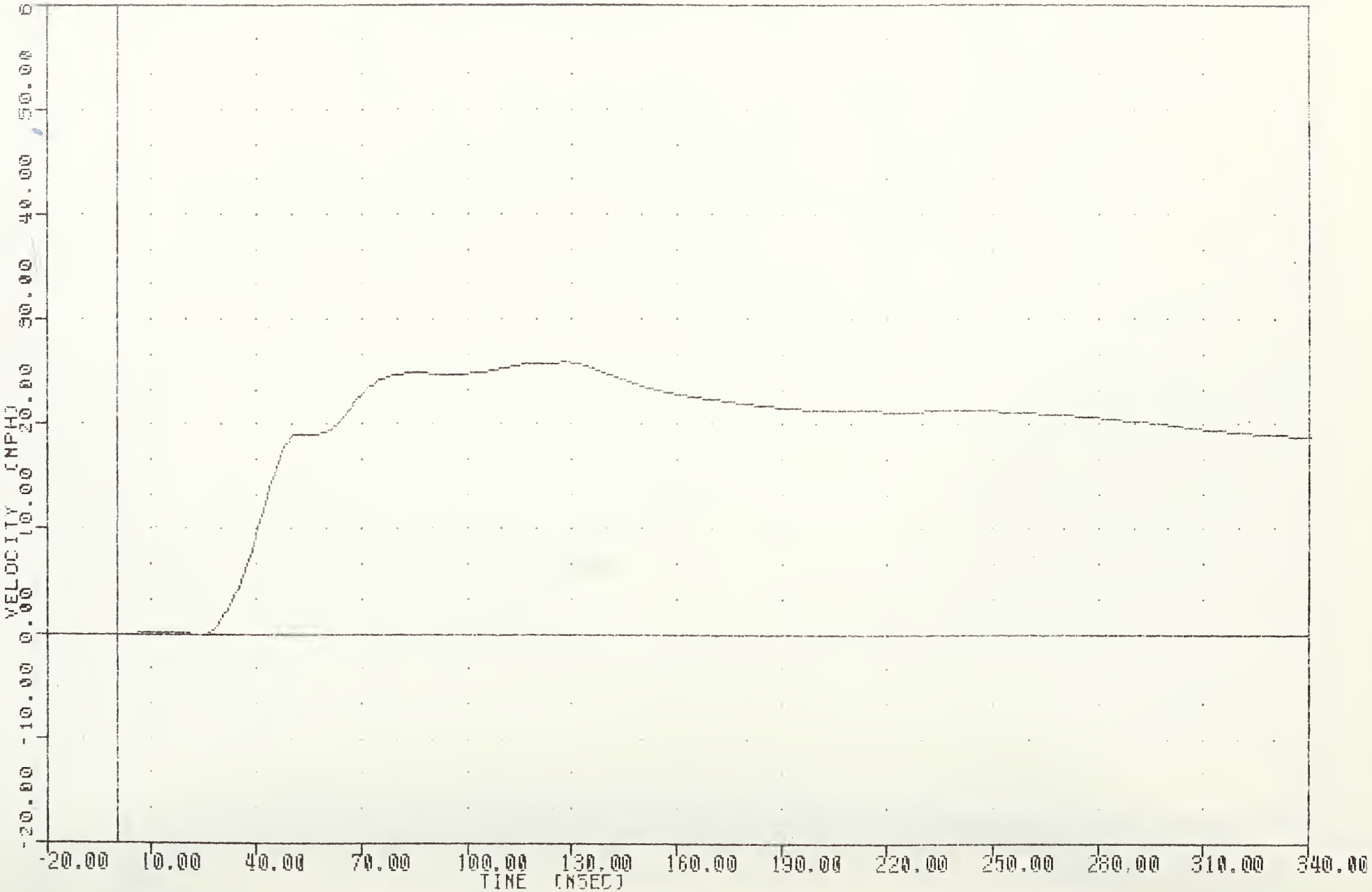
MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
PASSENGER UPPER SPINE RESULTANT USING T01YGC

TAC , 830930 PLOT DATE 4-OCT-83 13:39

EVALUATION OF MOD VW FLEET

83273000000 FILTER = HSAI 136/ 189/ 50

T01YV3 MIN, MAX VALUES = -0.08 @ 23.13 , 25.91 @ 128.13



MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT

DELTA V USING T01YG3

TRC , 830930 . PLOT DATE 4-OCT- .

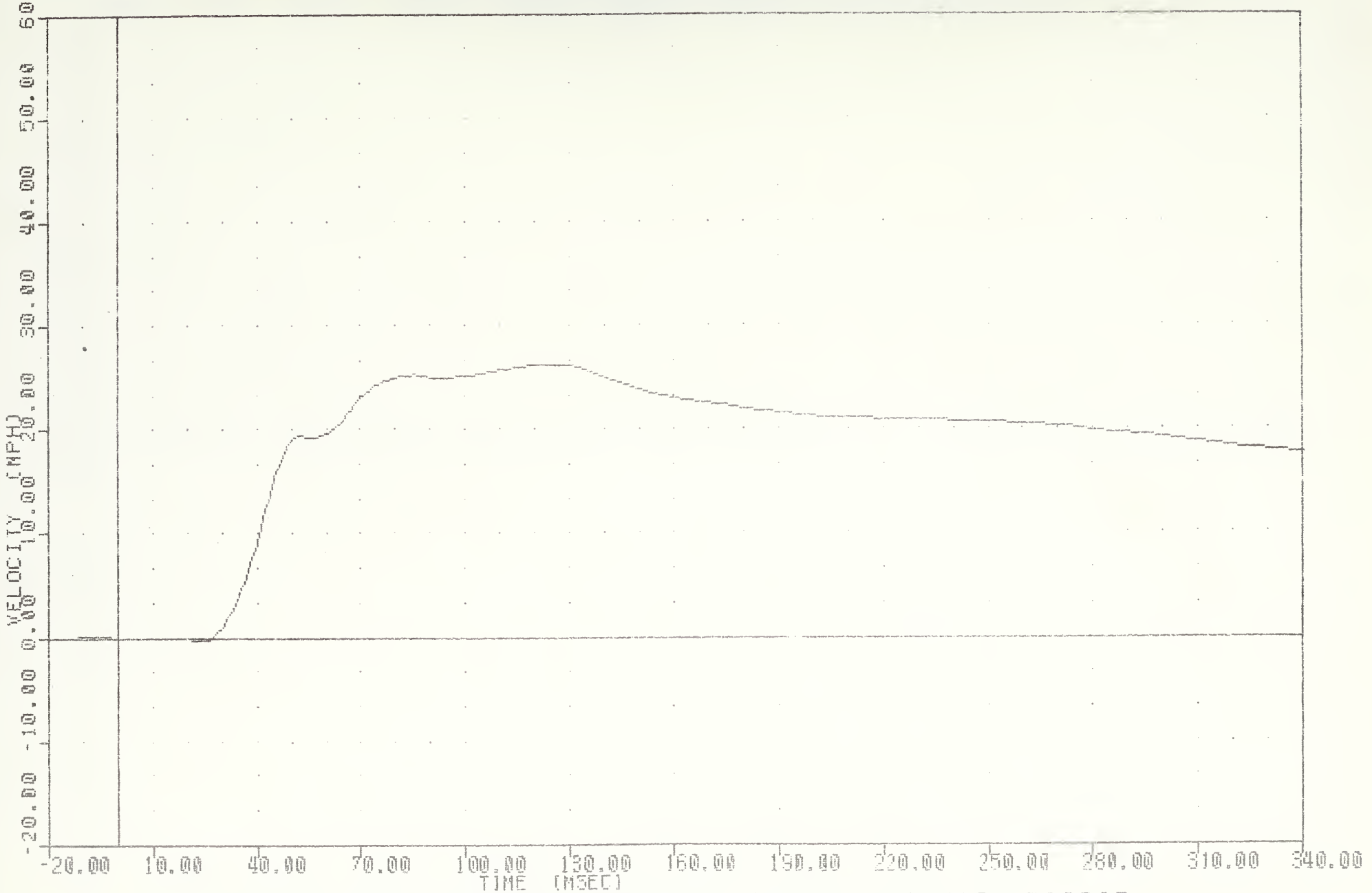
EVALUATION OF MOD VW FLEE.

83273@@@@@@

T01YYC

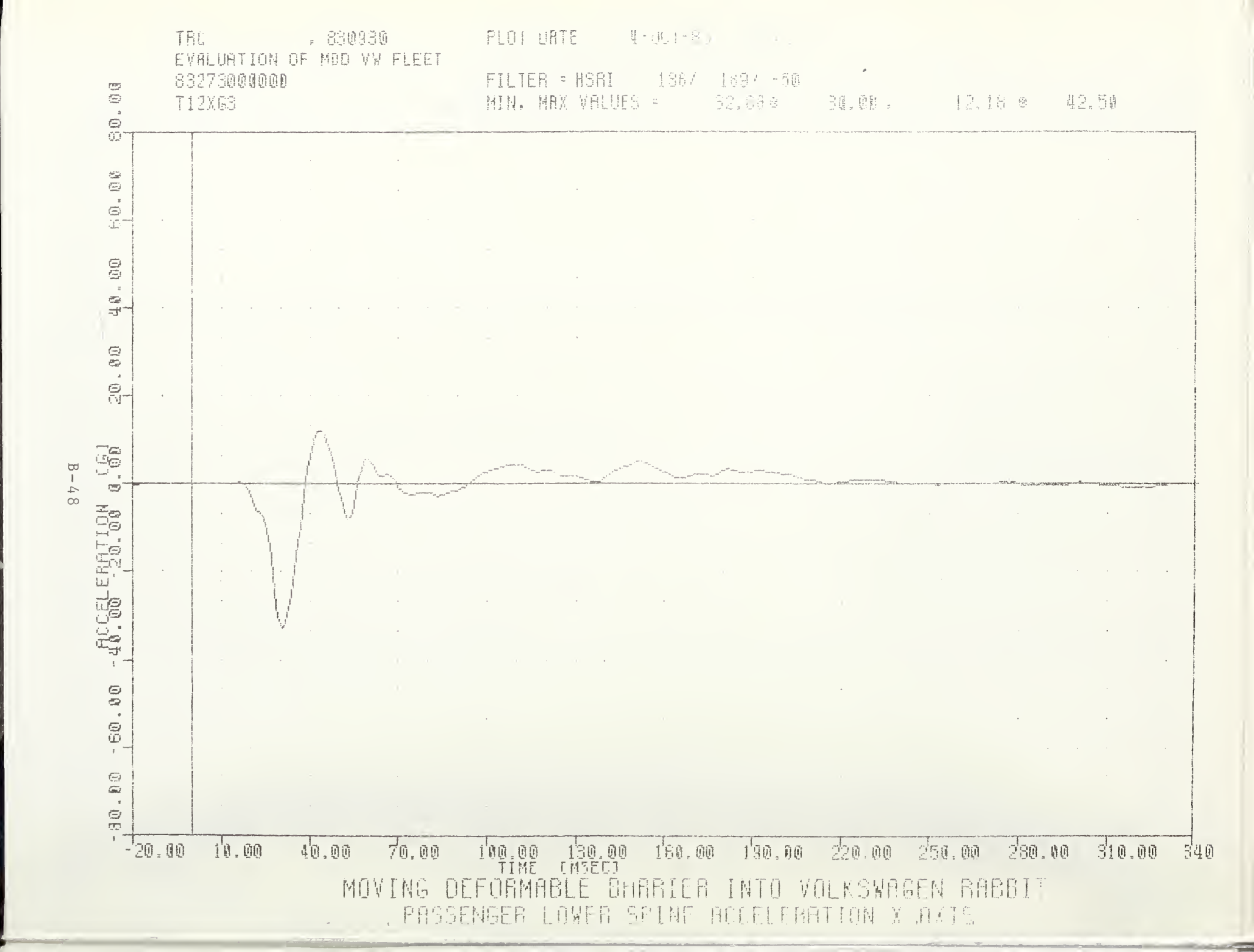
FILTER = HSRI (36/ 189/ -50

MIN, MAX VALUES = -0.38@ 23.75 , 26.19 @ 127.50



MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT

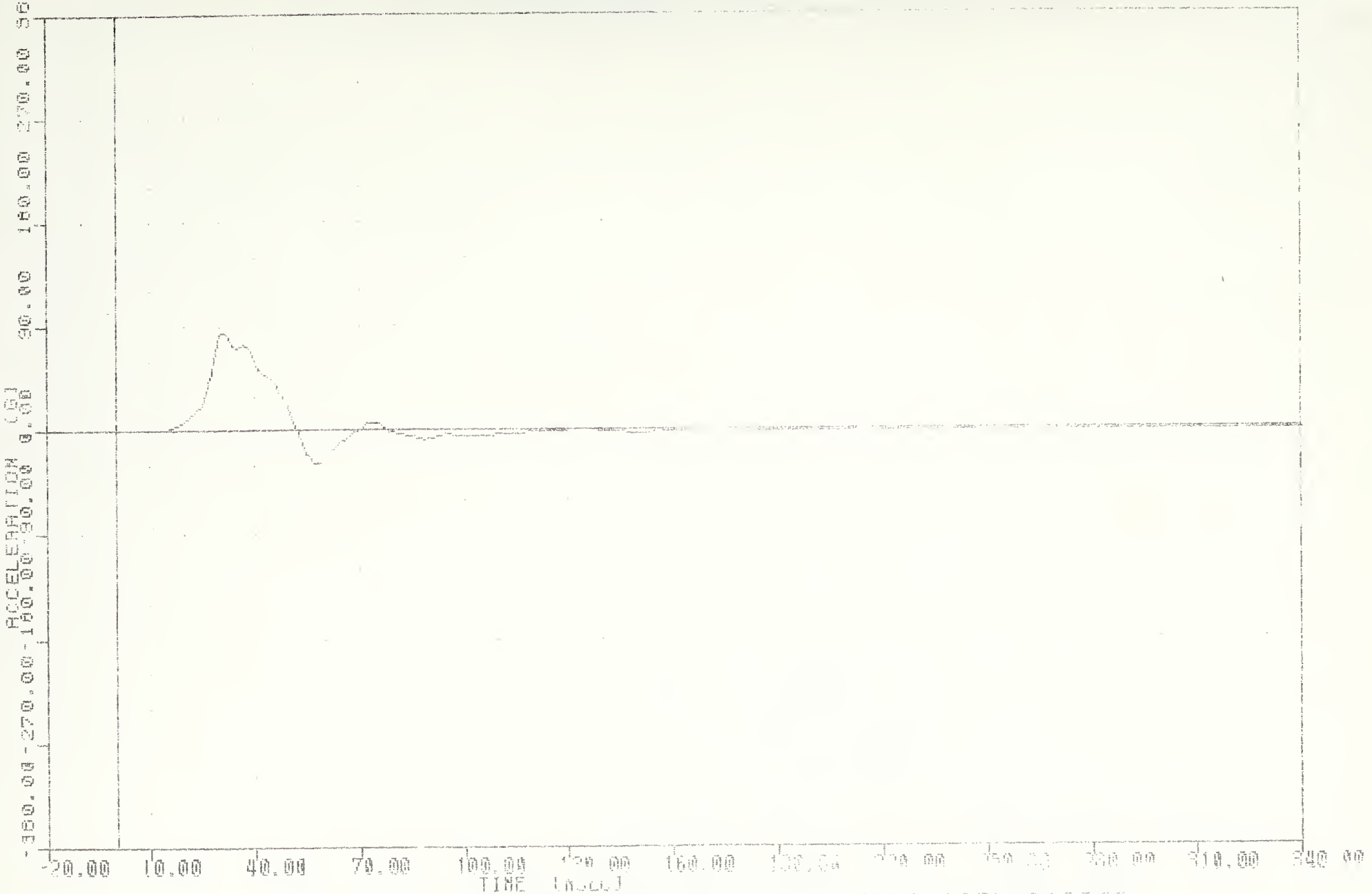
DELTA V USING T01YGC


TRC , 880930
EVALUATION OF MOD VW FLEET
8327300000D
T12XG3
FILTER = HSRI 196/ 1e9/ -50
MIN. MAX VALUES = 32.08 @ 30.0B , 12.16 @ 42.50
80.00
60.00
40.00
20.00
0.00
-20.00
-40.00
-60.00
-80.00
ACCELERATION [G]
-20.00
10.00
40.00
70.00
100.00
130.00
160.00
190.00
220.00
250.00
280.00
310.00
340
TIME [MSEC]
MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
PASSENGER LOWER SPINE ACCELERATION X AXIS

TAC , 880930 .
EVALUATION OF MOD VW FLEET
88273000000
T12YB3

PLOT RATE 4-ULT AP , .

FILTER = MSAE 1/6 /APV 60
MIN. MAX VALUES = -24.33 , 20.40



MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN AUDIT
PASSENGER LOWER SPINE ACCELERATION X AXIS

TRI , 880430

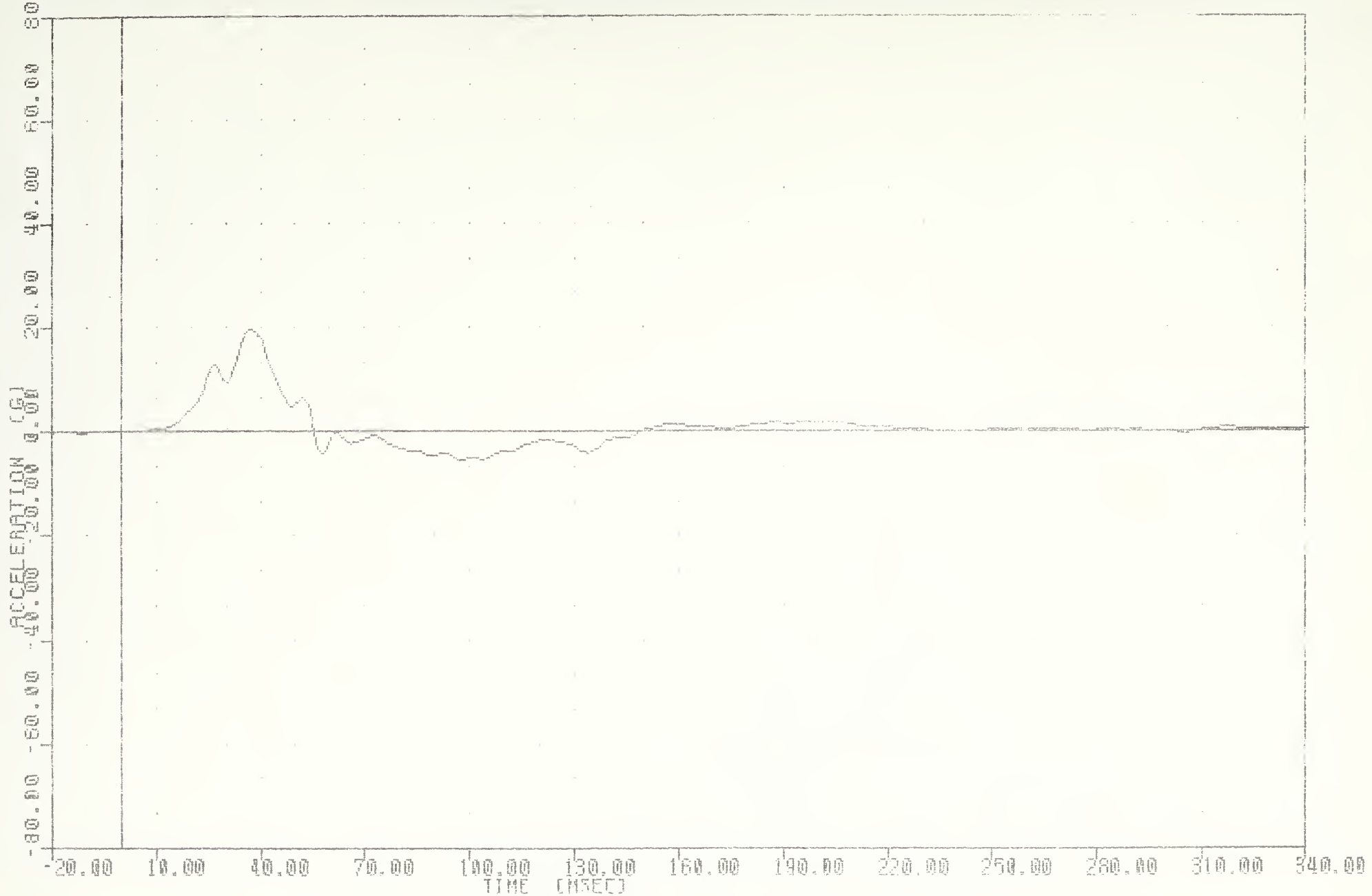
OF MOD VW FLEET

8327300000D

T12Z6S

FILTER = HSRI 196/ 189/ .50

MIN, MAX VALUES = -5.32@ 97.5D , 13.9Z @ 36.86

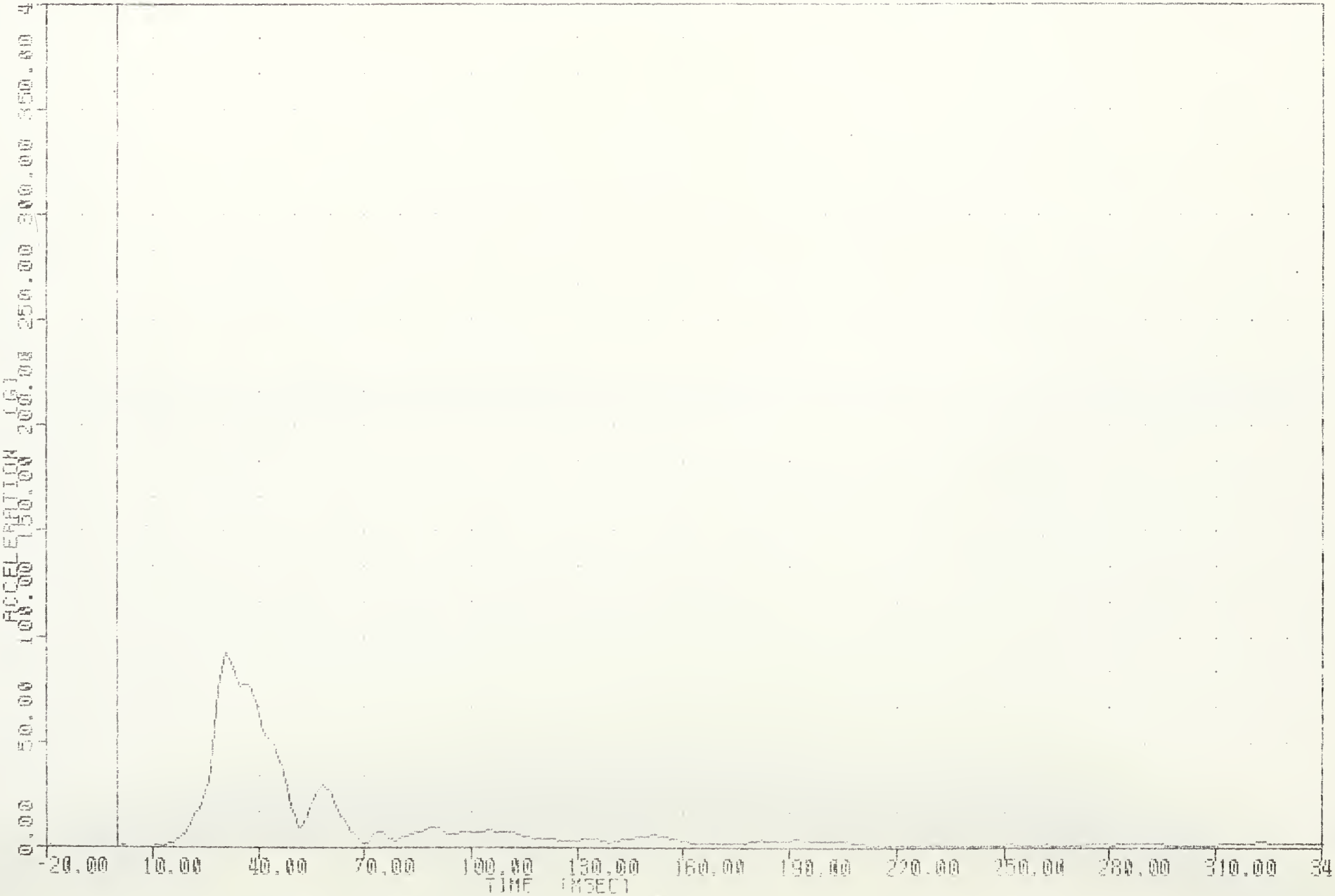


MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT

PASSENGER LOWER SPINE ACCELERATION Z AXIS

EVALUATION OF MOD VW FLEET
8327300000G
T12RG3

FILTER = HSRI [96/ 16ms 50
MIN, MAX VALUES = 0.05 -15.00 92.00 30.00



MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
PASSENGER LOWER SPINE ACCEL (G)

TRC , 830930 , . PLOT DATE 4-OCT-83 10:46:47 . .

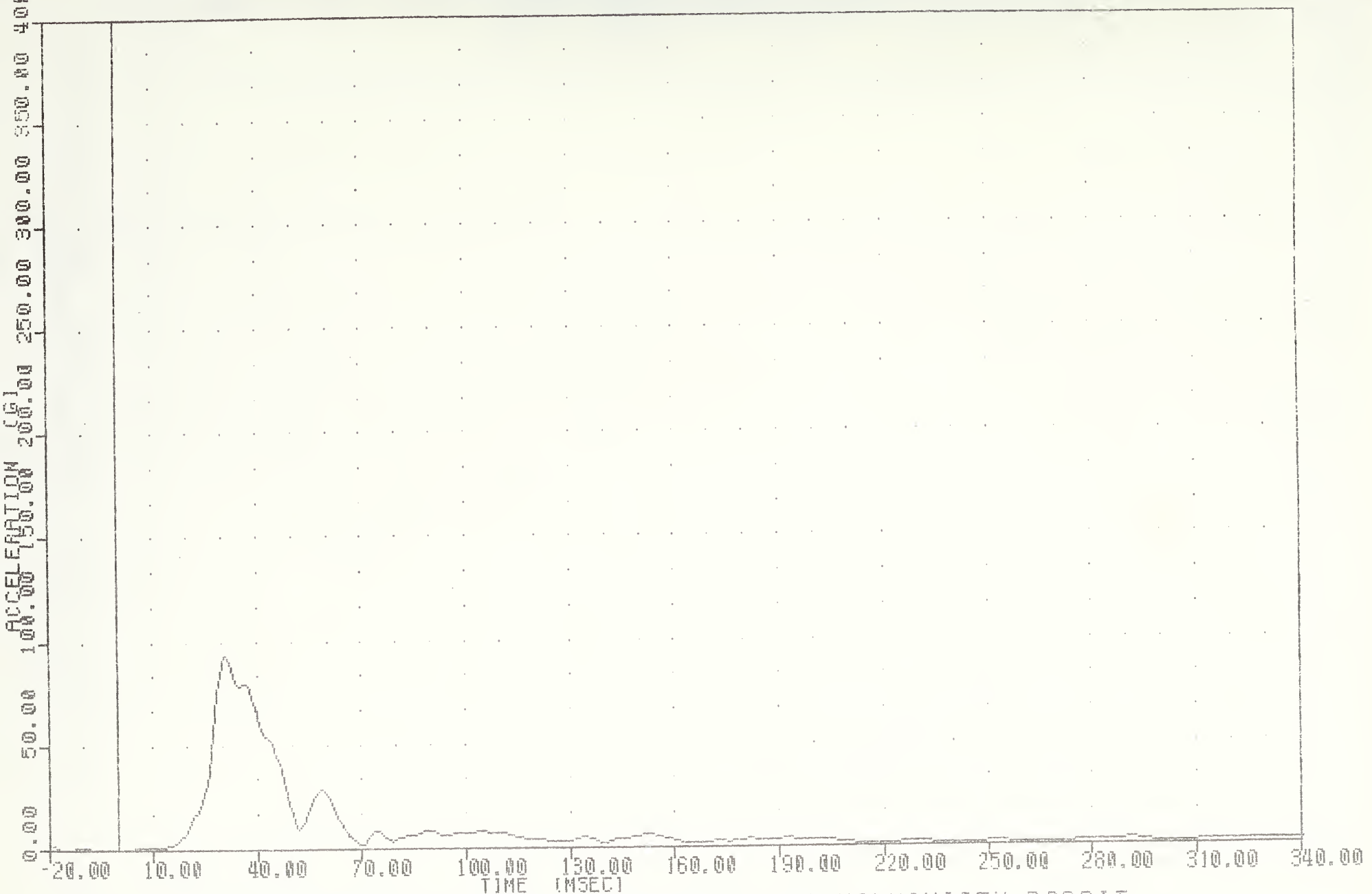
EVE OF MOD VW FLEET

83273000000

T12RG3

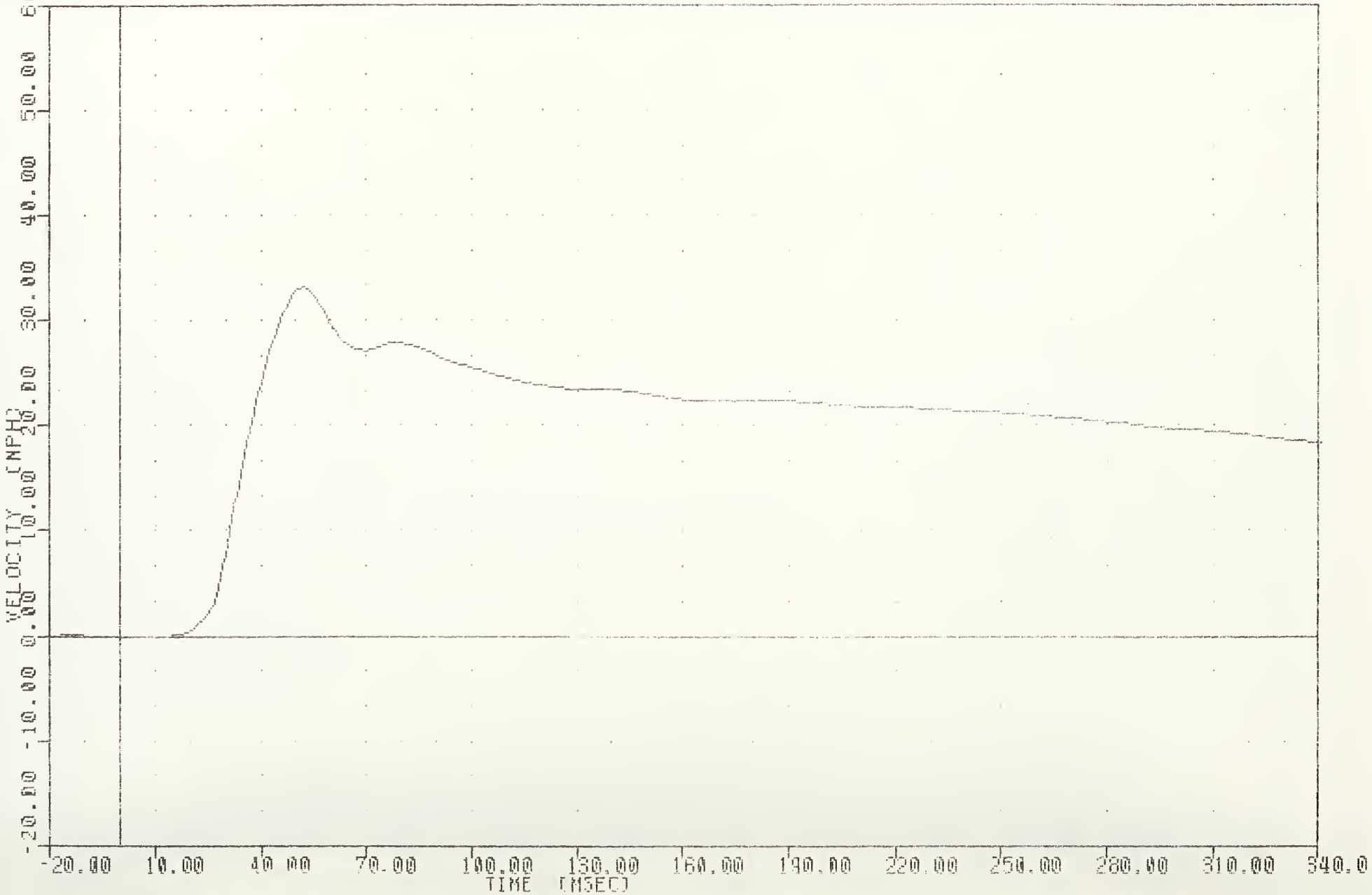
FILTER = HSRI 136/ 189/ -50

MIN, MAX VALUES = 0.10@ -16.87 , 92.82 @ 30.62



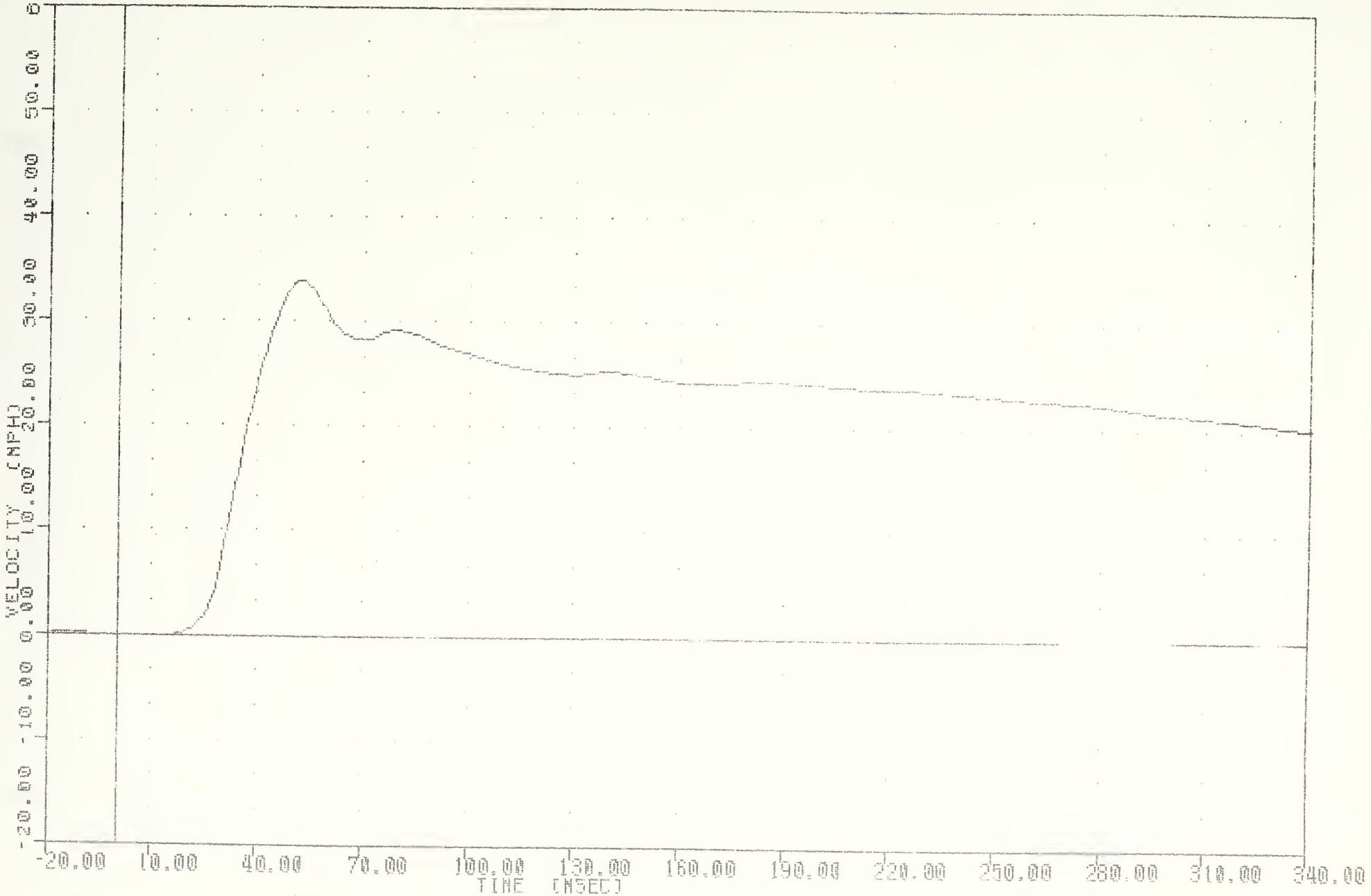
MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
PASSENGER LOWER SPINE RESULTANT USING T12YGC

TRC . 880330 PLOT DATE 4-OCT-88 1:32:37
EVALUATION OF MOD VW FLEET
88273000000 FILTER = HSRI 136/ 189/ -50
T12YV3 MIN, MAX VALUES = -0.03@ 9.37 , 38.12 @ 51.25



MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
DELTA V USING T12Y63

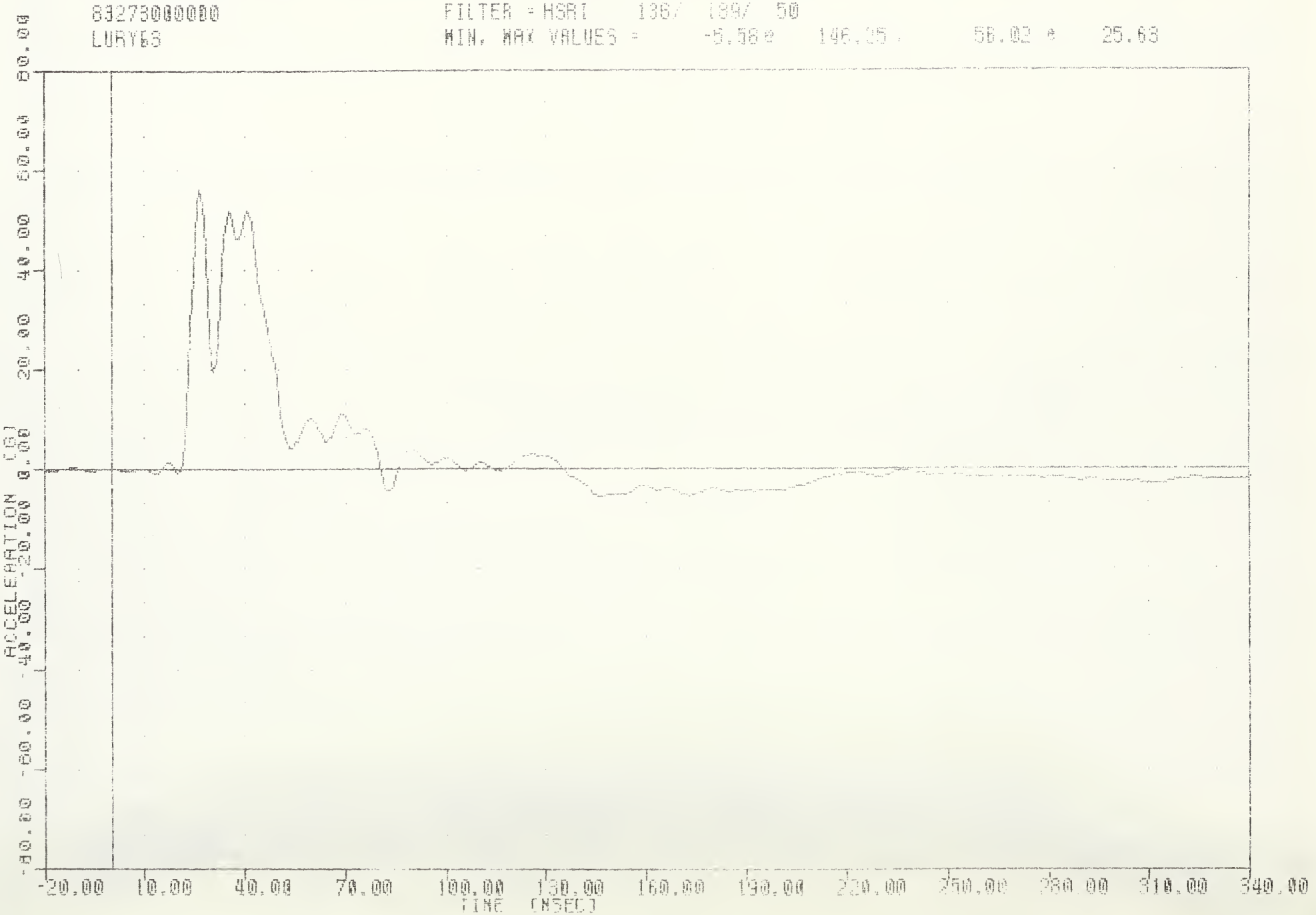
TRC , 830090 PLOT DATE 4-OCT-83 15:45:37
EVALUATION OF MOD VW FLOOR
8327300000D FILTER = HSRI 136/ 189/ -50
T12YVC MIN, MAX VALUES = -0.00 @ 11.25 @ 33.90 @ 51.25



MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT

DELTA V USING T12YVC

TRC , 880930 PLOT DATE 4-OCT-88 10:46:44
EVALUATION OF MOD VV FLEET
8327300000 FILTER = HSRI 136/ 180/ 50
LURY63 MIN, MAX VALUES = -5.58 @ 146.05 , 56.02 @ 25.63



MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN Rabbit
PASSENGER LEFT UPPER B/P ACCELERATION vs TIME

TSC , 830090 PLOT DATE

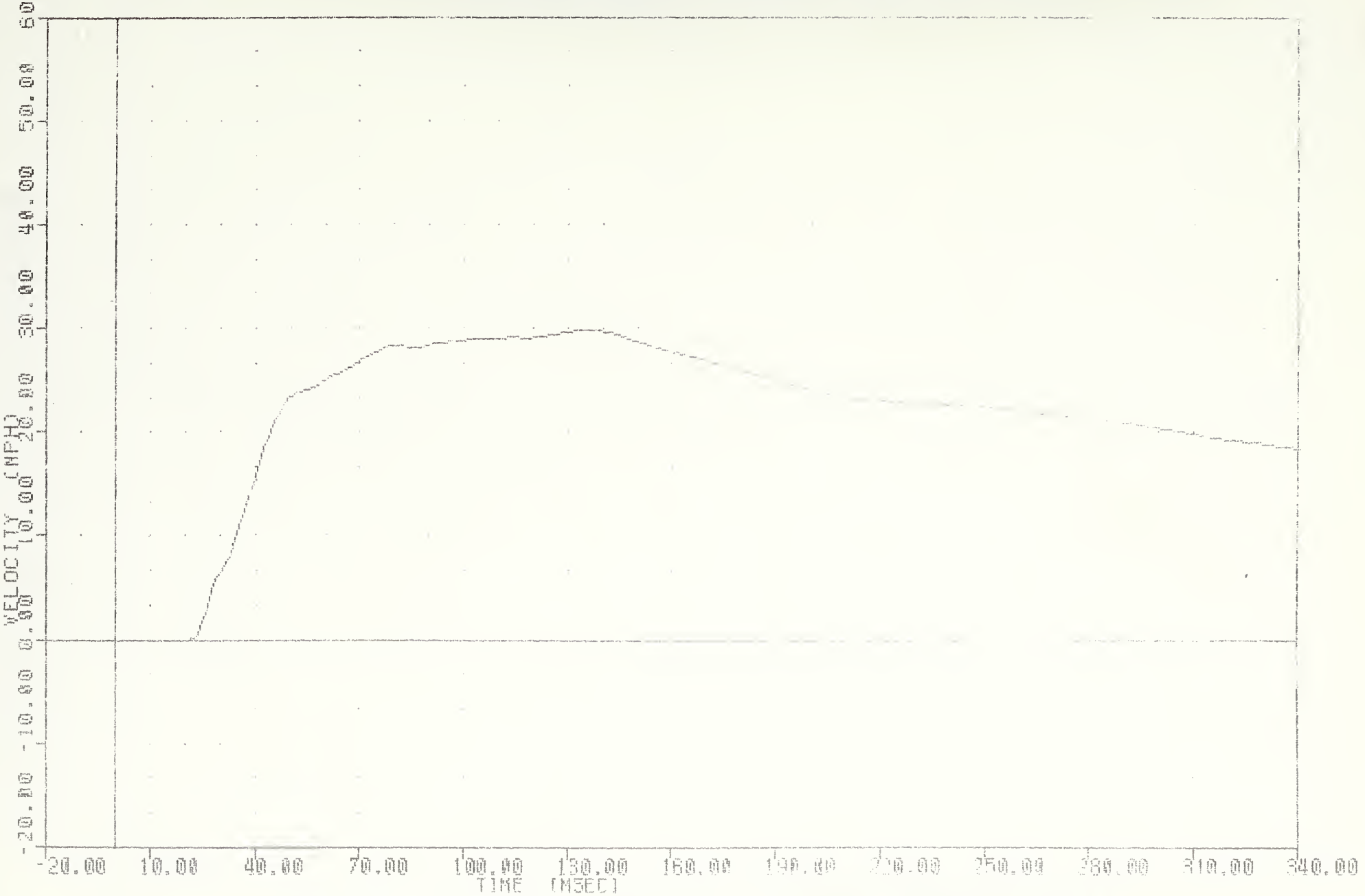
EVALUATION OF MOD VW FLEET

830730000000

LURYV3

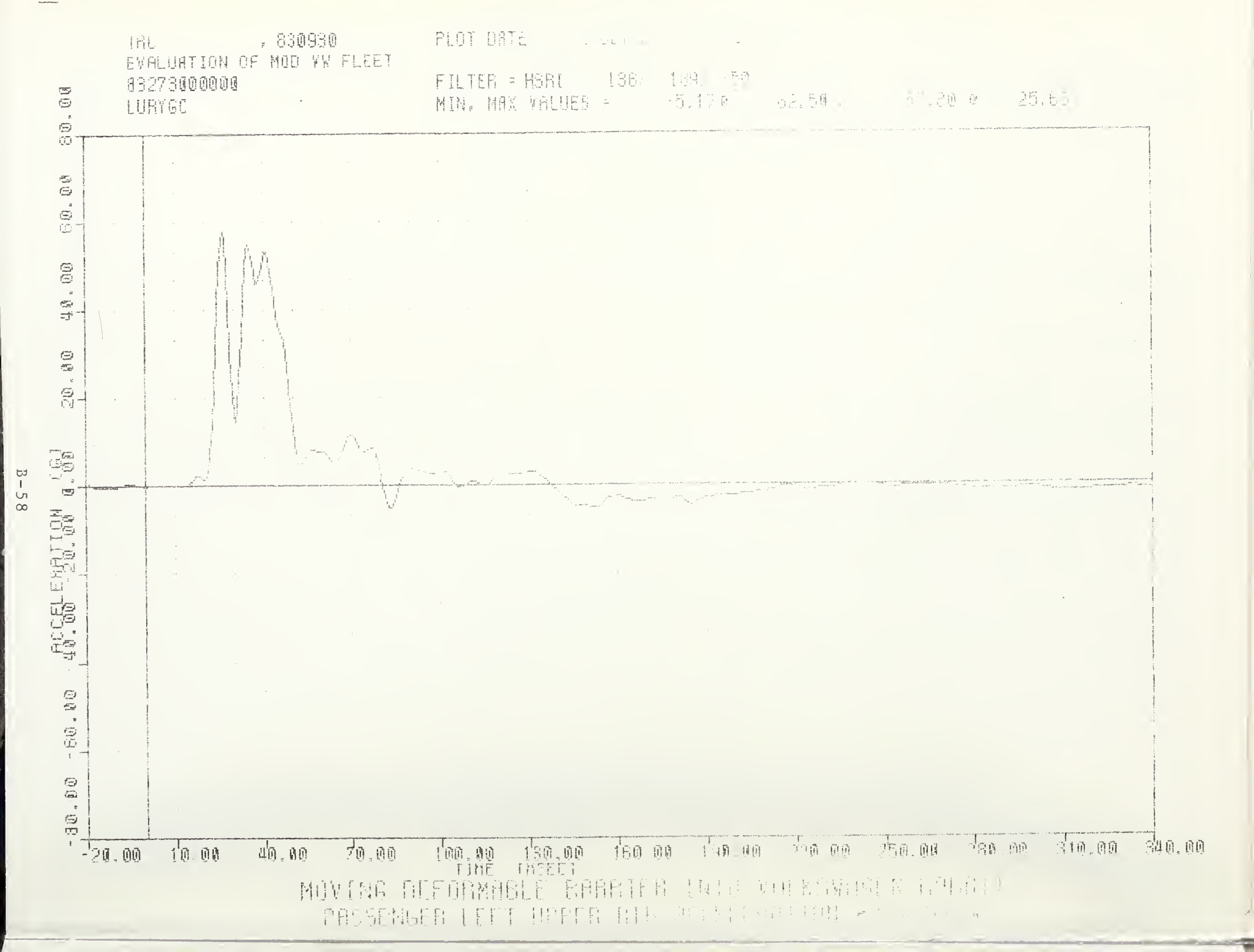
FILTER = HSRI 136/ 193/ 30

MIN, MAX VALUES = -0.06 @ 14.37 @ 19.63 @ 135.00



MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT

DELTA V USING LURYV3


IRL , 830930
EVALUATION OF MOD VW FLEET
8327300000
LURYGC
PLOT DATE
FILTER = HSRI
MIN, MAX VALUES =
60.00
40.00
20.00
0.00
-20.00
-40.00
-60.00
ACCELERATION (G)
-20.00
10.00
40.00
70.00
100.00
130.00
160.00
190.00
220.00
250.00
280.00
310.00
340.00
TIME (MSEC)
MOVING DEFORMABLE BARRIER
PASSENGER LEFT UPPER

TRC . 830930 PLOT DATE

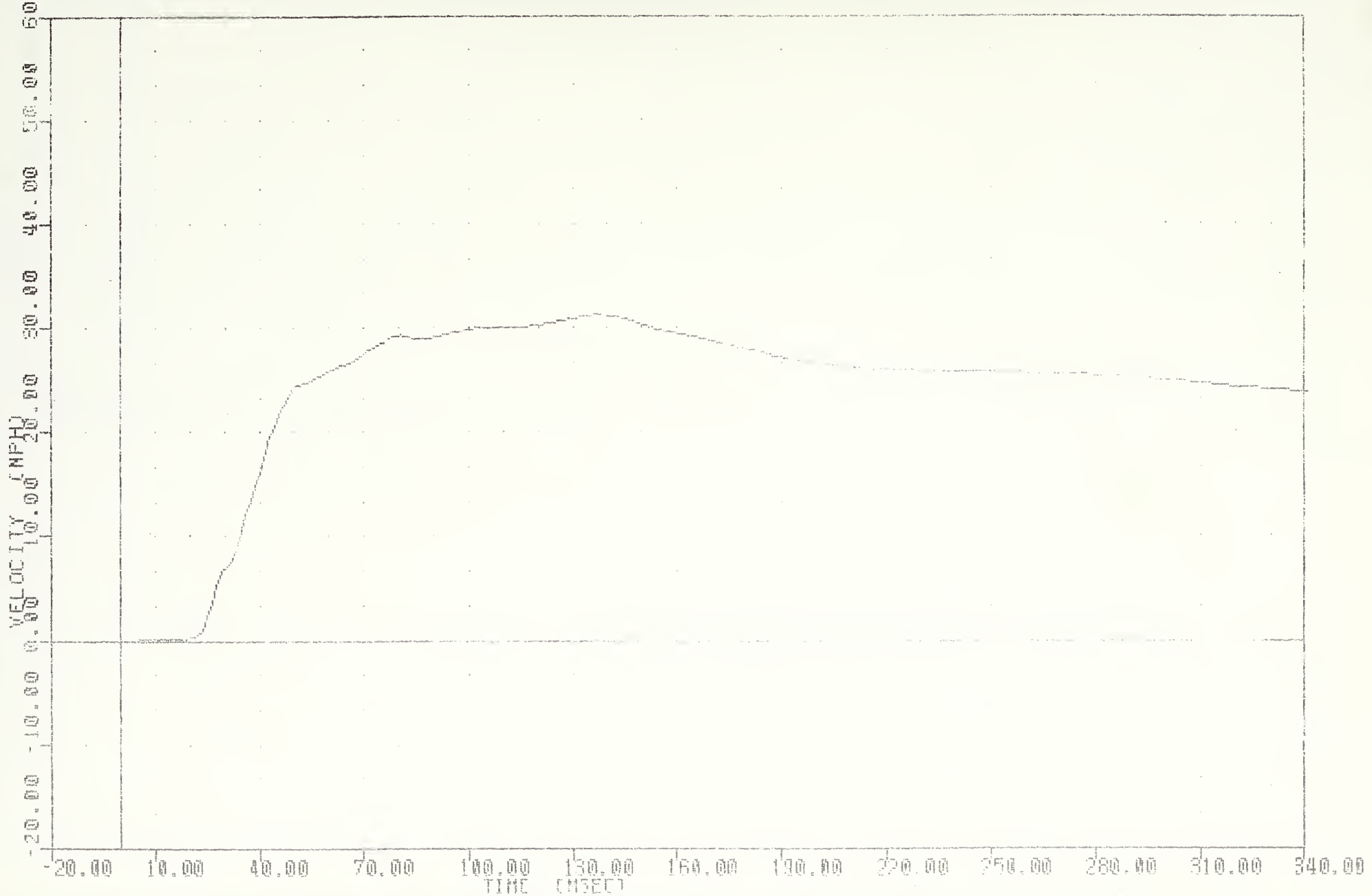
EVALUATION OF MOD VW FLEET

8327300@@@@

LURYVC

FILTER = HSRI 156/ 189/ -50

MIN, MAX VALUES = -0.04@ -9.3@, 31.21 @ 157.50



MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT

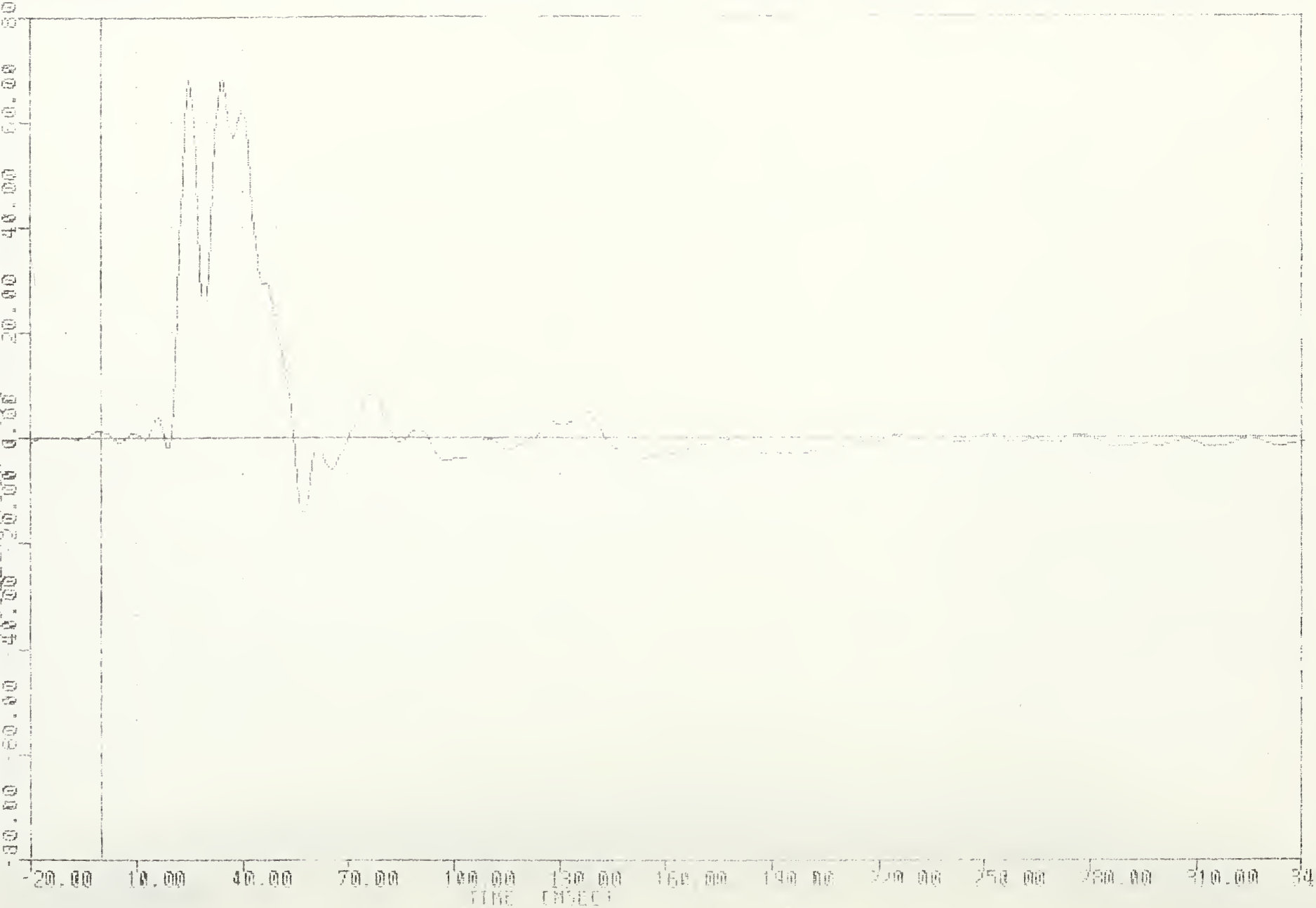
DELTA V USING LURYVC

TRC . 830630 PLOT DATE

EVALUATION OF MOD VW FLEET

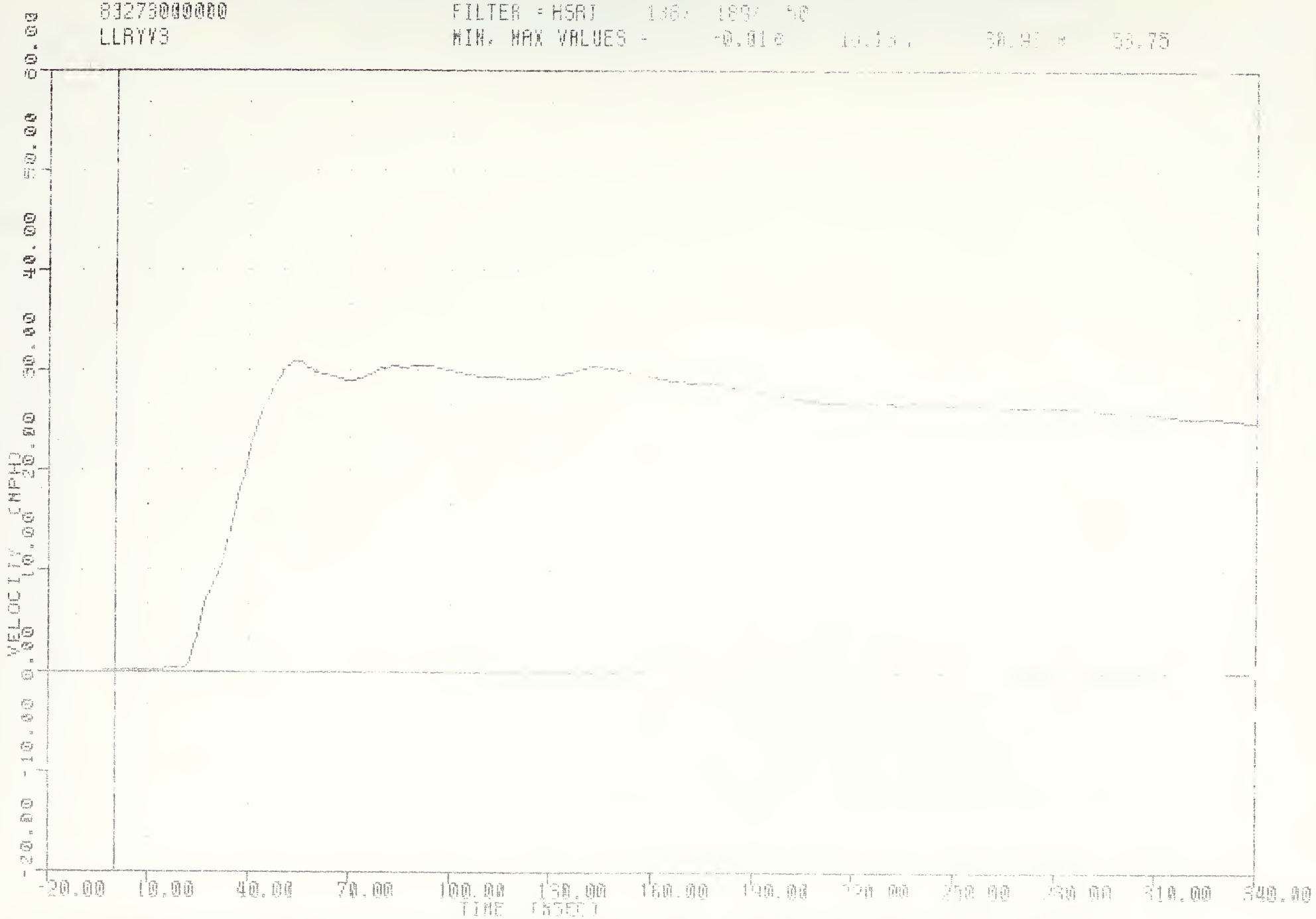
83273000000 FILTER = HSRI

LLAY63 MIN. MAX VALUES



MOVING DEFORMABLE BARRIER INTO MID-SIZED SEDAN

PASSENGER LEFT FRONT DOOR OCCUPANT


TRC , 830930
EVALUATION OF MOD VW FLEET
83273@@@@@@
LLRYV3
PLOT DATE 4-OCT-8
FILTER = HSAE 1/6- 180- %0
MIN, MAX VALUES - -0.01@ 30.95 @ 33.75
VELOCITY (MPH)
-20.00 -10.00 0.00 10.00 20.00 30.00 40.00 50.00 60.00
-20.00 10.00 40.00 70.00 100.00 130.00 160.00 190.00 220.00 250.00 280.00 310.00 340.00
TIME (MSEC)
MOVING DEFORMABLE BARRIER UNIT
SEAT 1 (FRONT DRIVER)

TAC , 88N930 PLOT DATE

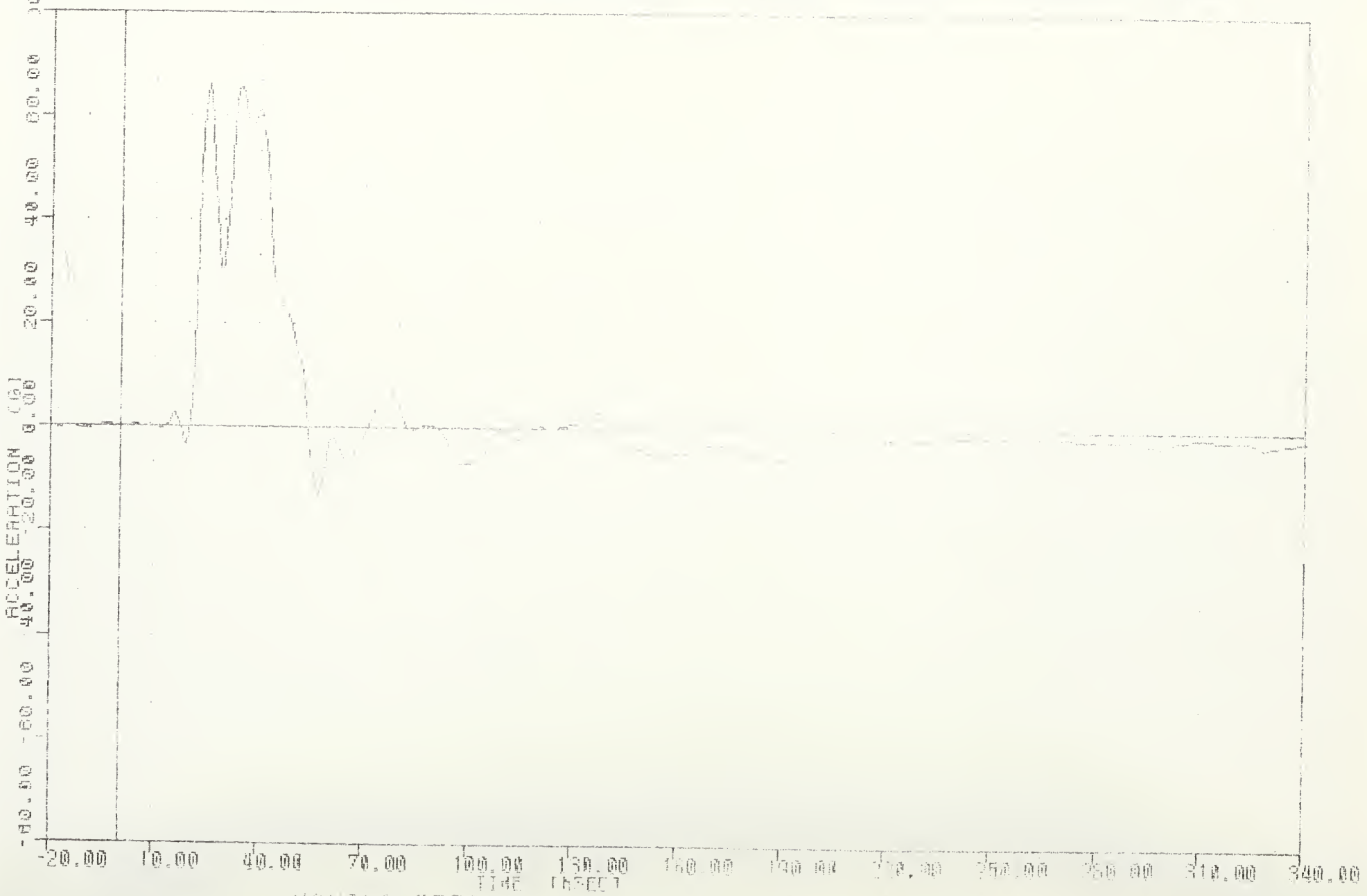
EVALUATION OF ADD VW FLEET

8327300000

LLRY6C

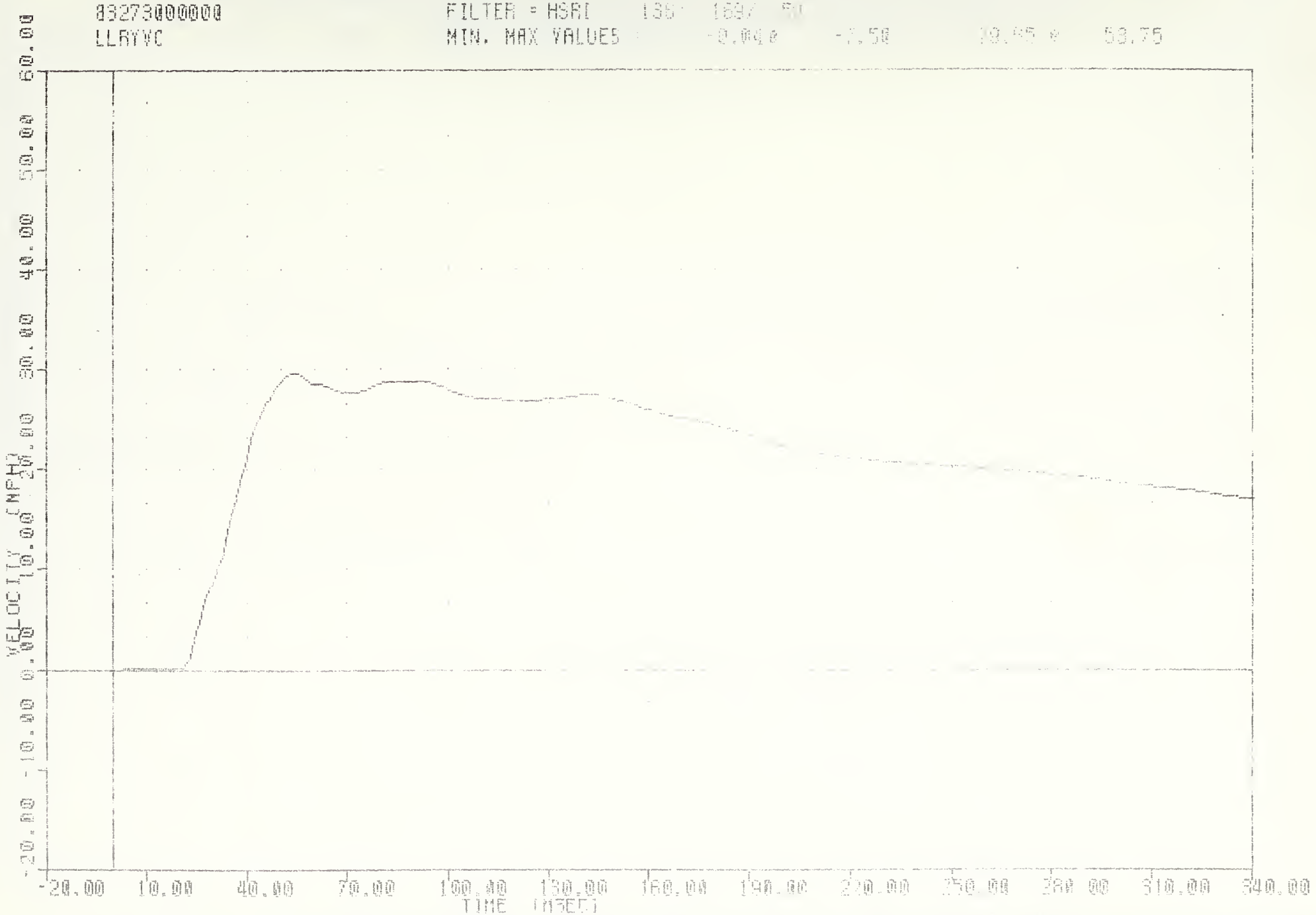
FILTER = HSRI

MIN, MAX VALUES

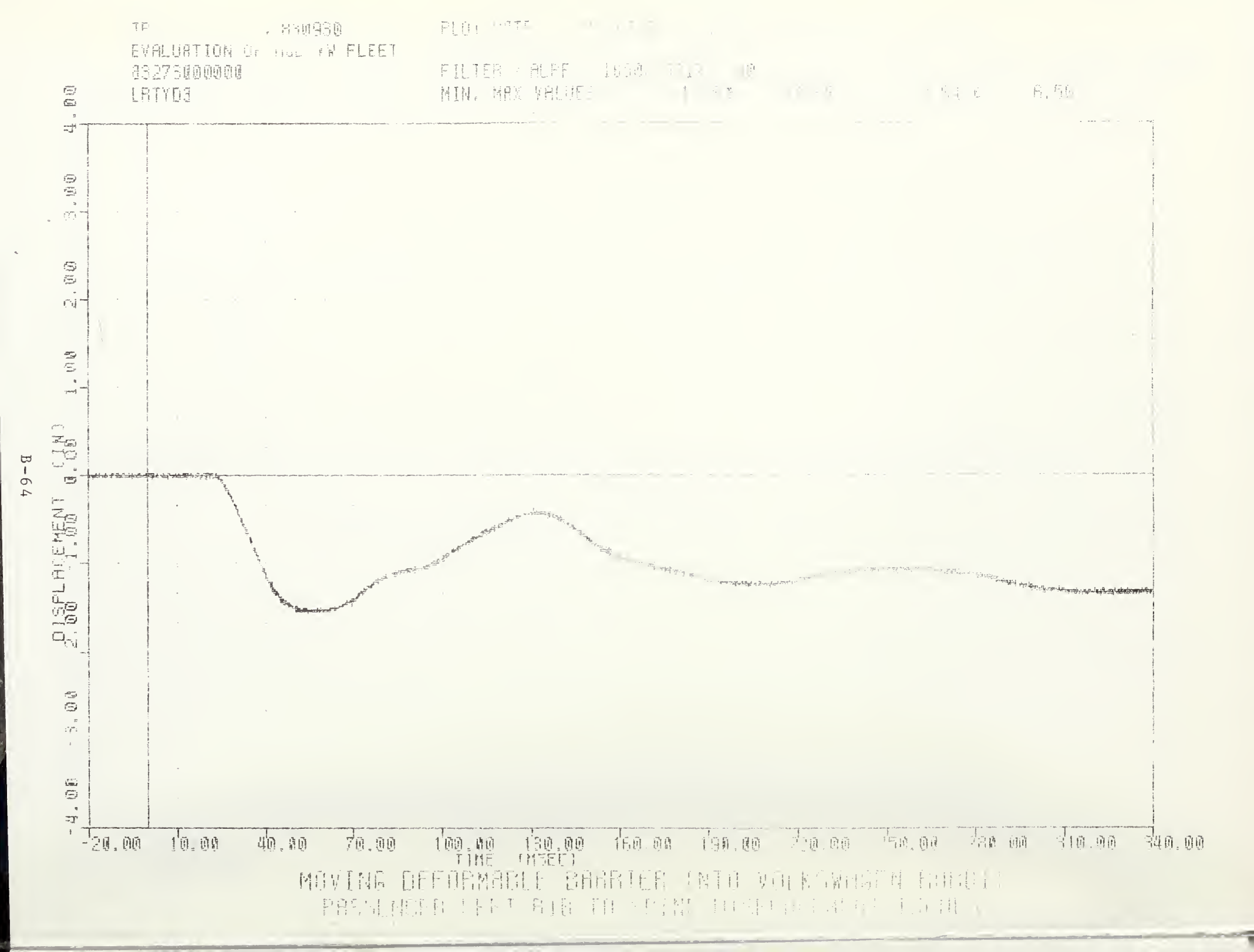


MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT

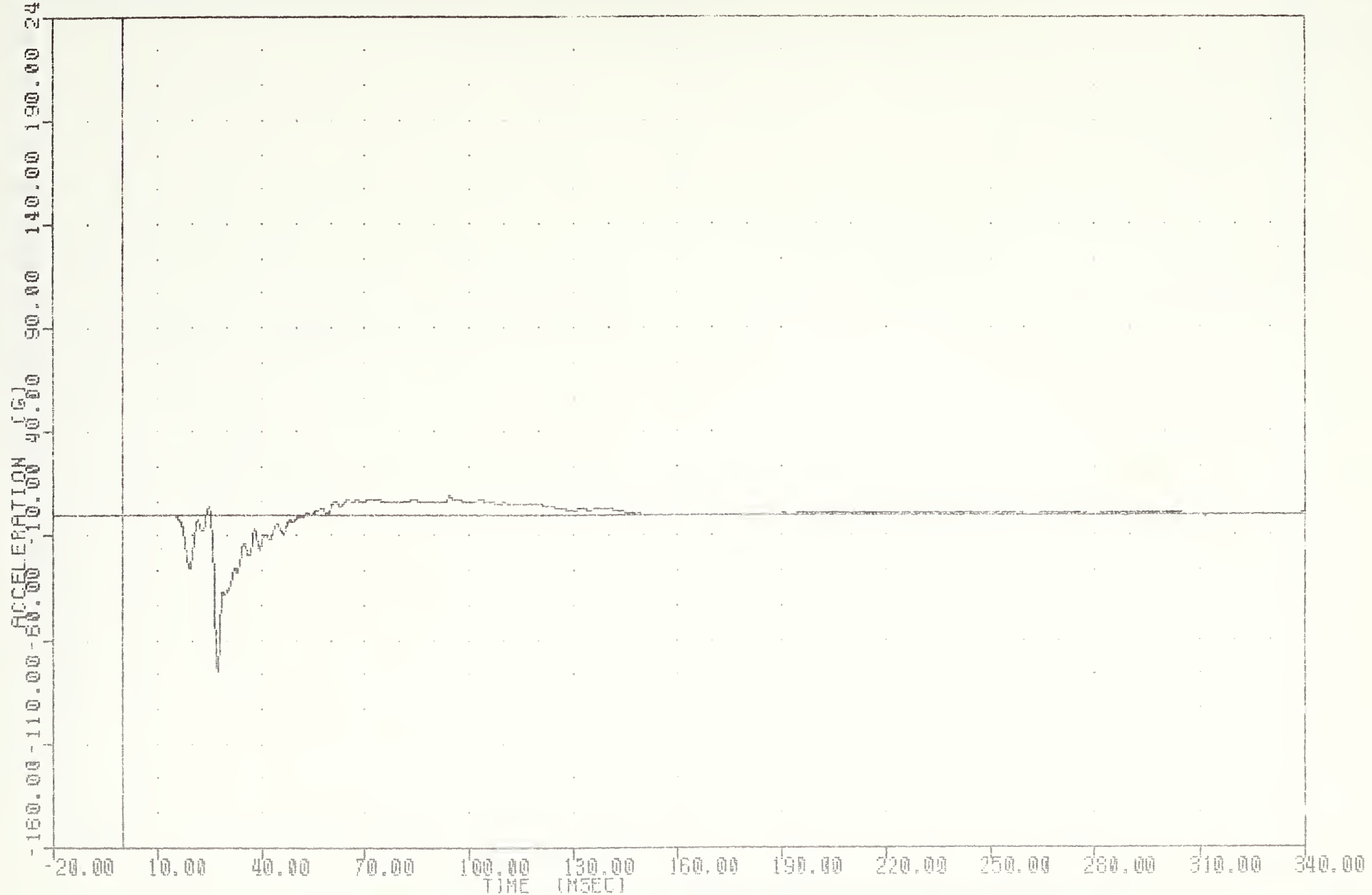
PASSENGER LEFT LOWER MID-[illegible]



MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN FASTBACK


TP , M=0980
EVALUATION OF
33275000000
LATYD3
FLEET
FILTER
MIN, MAX VALUES
4.00
3.00
2.00
1.00
0.00
-1.00
-2.00
-3.00
-4.00
DISPLACEMENT (IN)
-20.00
10.00
40.00
70.00
100.00
130.00
160.00
190.00
220.00
250.00
280.00
310.00
340.00
TIME (MSEC)
MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
PASSENGER LEFT SIDE TO SIDE IMPACT AT 38.50

TRC . 830930 PLOT DATE 4-OCT-83 12:49:38
EVALUATION OF MOD VW FLEET
83273000000 FILTER = BLPF 300/ 949/ -40
PEVXG3 MIN, MAX VALUES = -75.18@ 27.13 , 9.03 @ 94.25



MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
PASSENGER PELVIS ACCELERATION - AXIS

TRI , 850000 PLOT DATE 0-10-[illegible] [illegible]

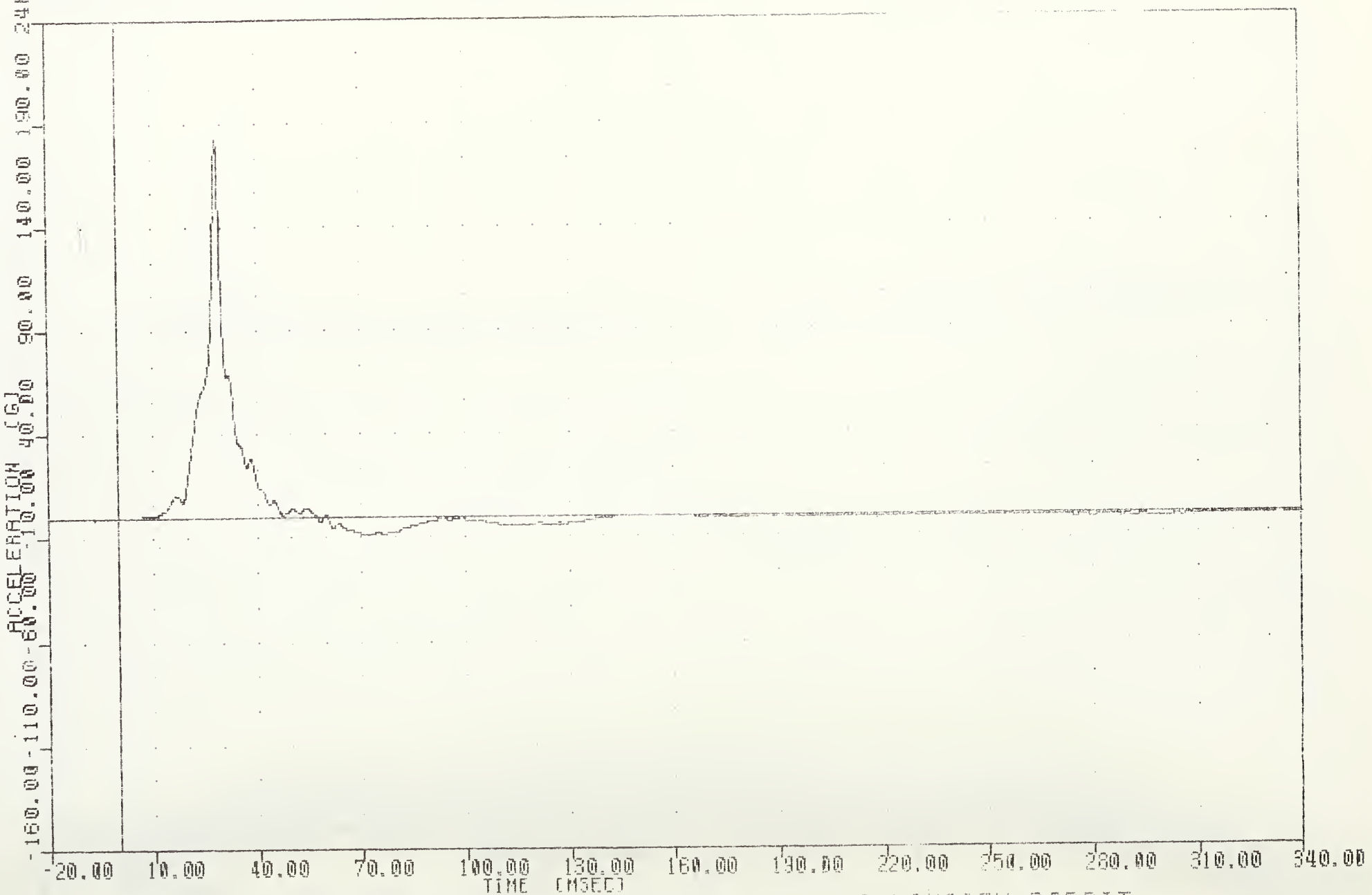
EVALUATION OF MOD % FLEE

83273000000

PEVYG3

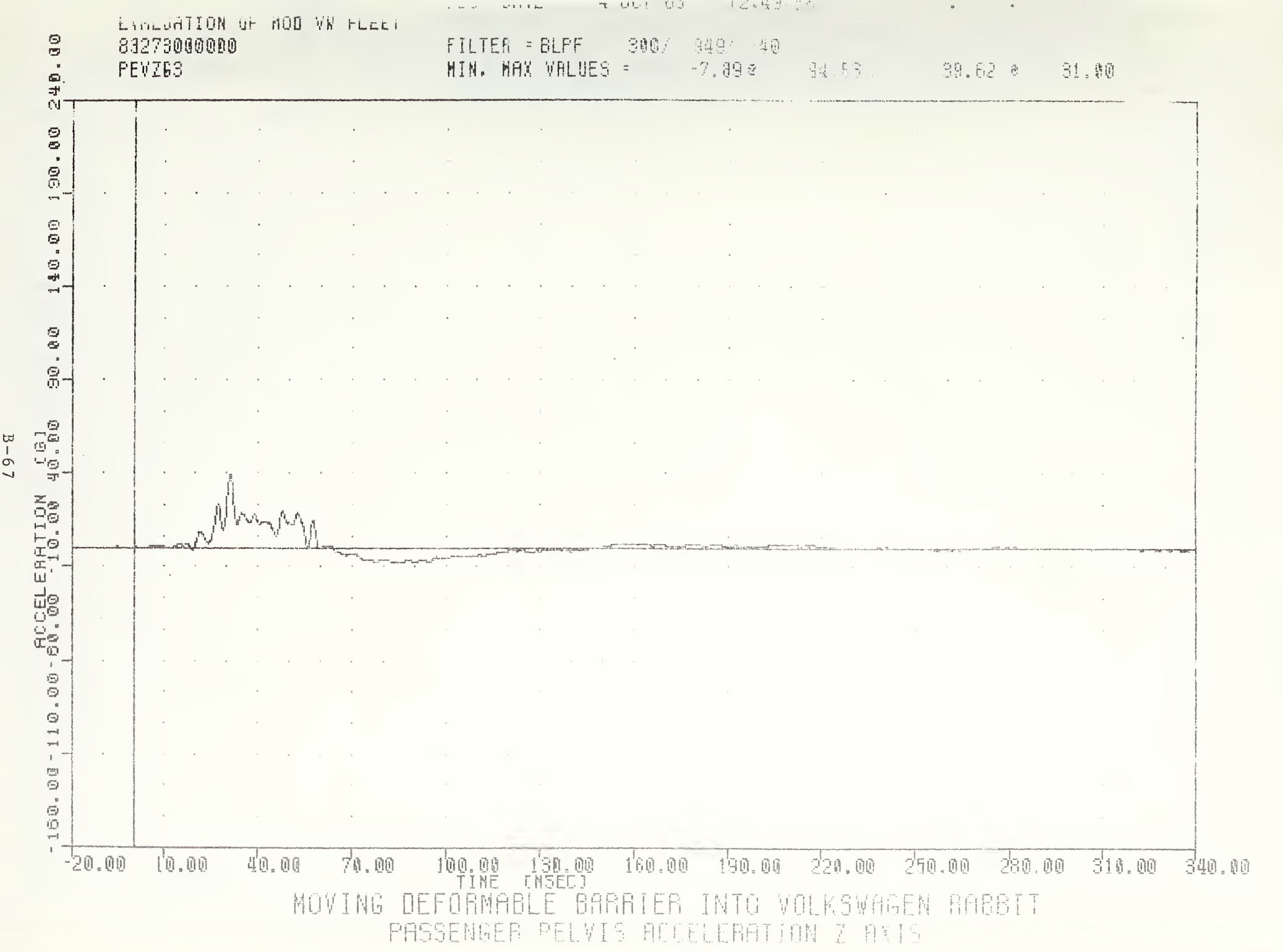
FILTER = BLPF 300 949 40

MIN, MAX VALUES = -8.470 72.75 , 182.21 @ 28.50



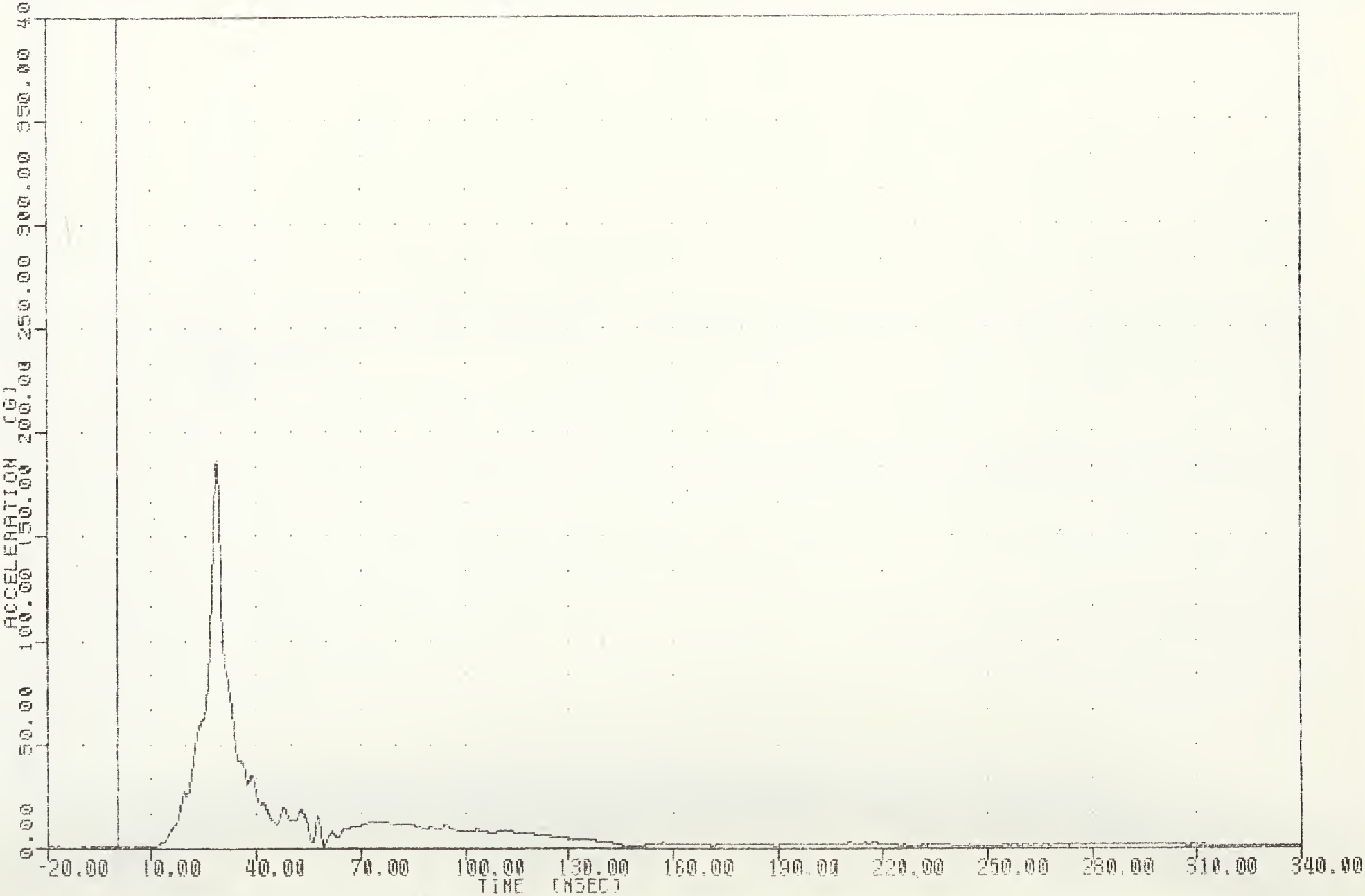
MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT

PASSENGER PELVIS ACCELERATION Y AXIS

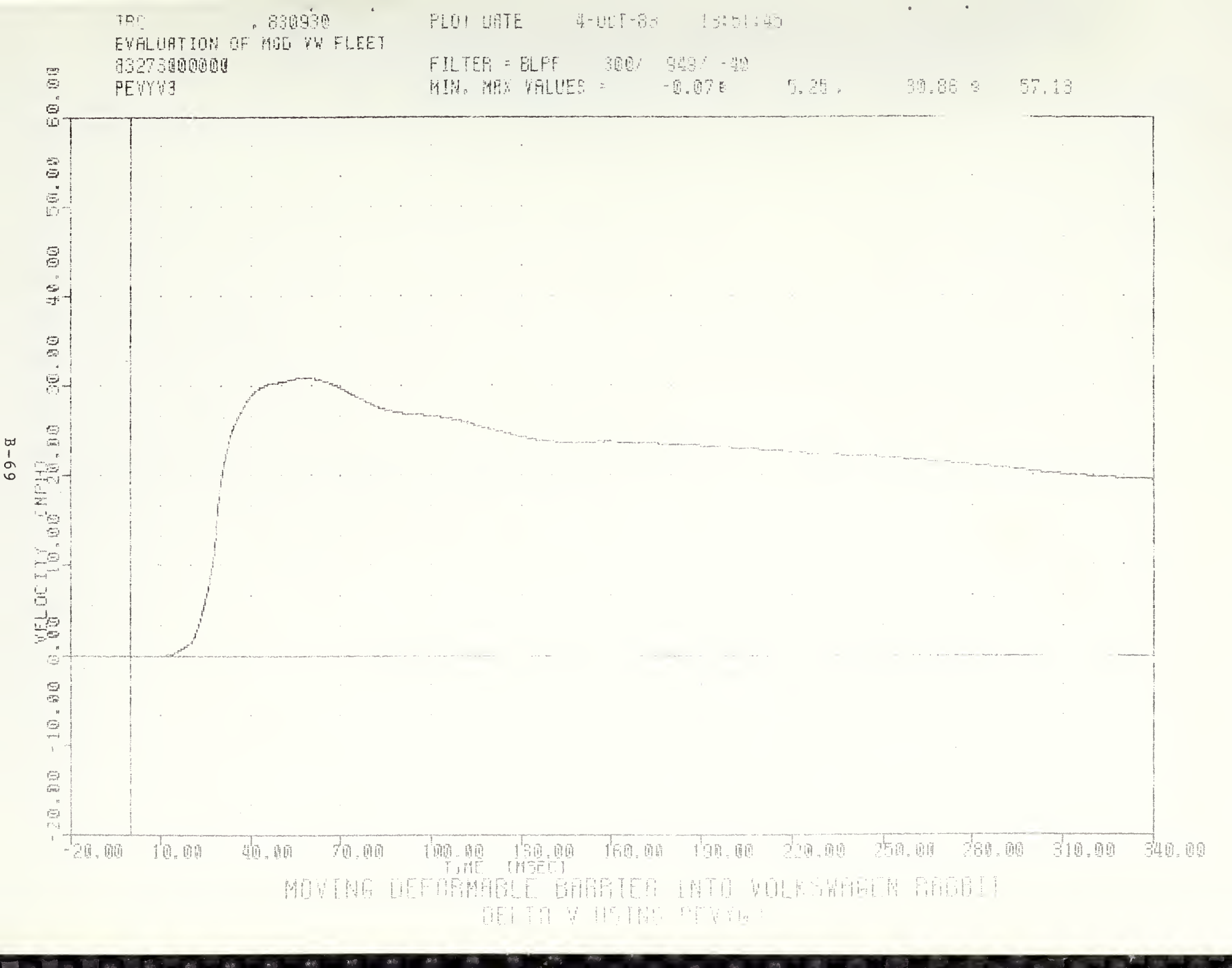


MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
PASSENGER PELVIS ACCELERATION Z AXIS

TAG , 83V830 PLOT DATE 4-OCT-85 10:48:20
EVALUATION OF MOD VW FLEET
8327300000D FILTER = BLPF 300/ 949/ 40
FEVR63 MIN, MAX VALUES = 0.050 -17.75 166.34 @ 28.50

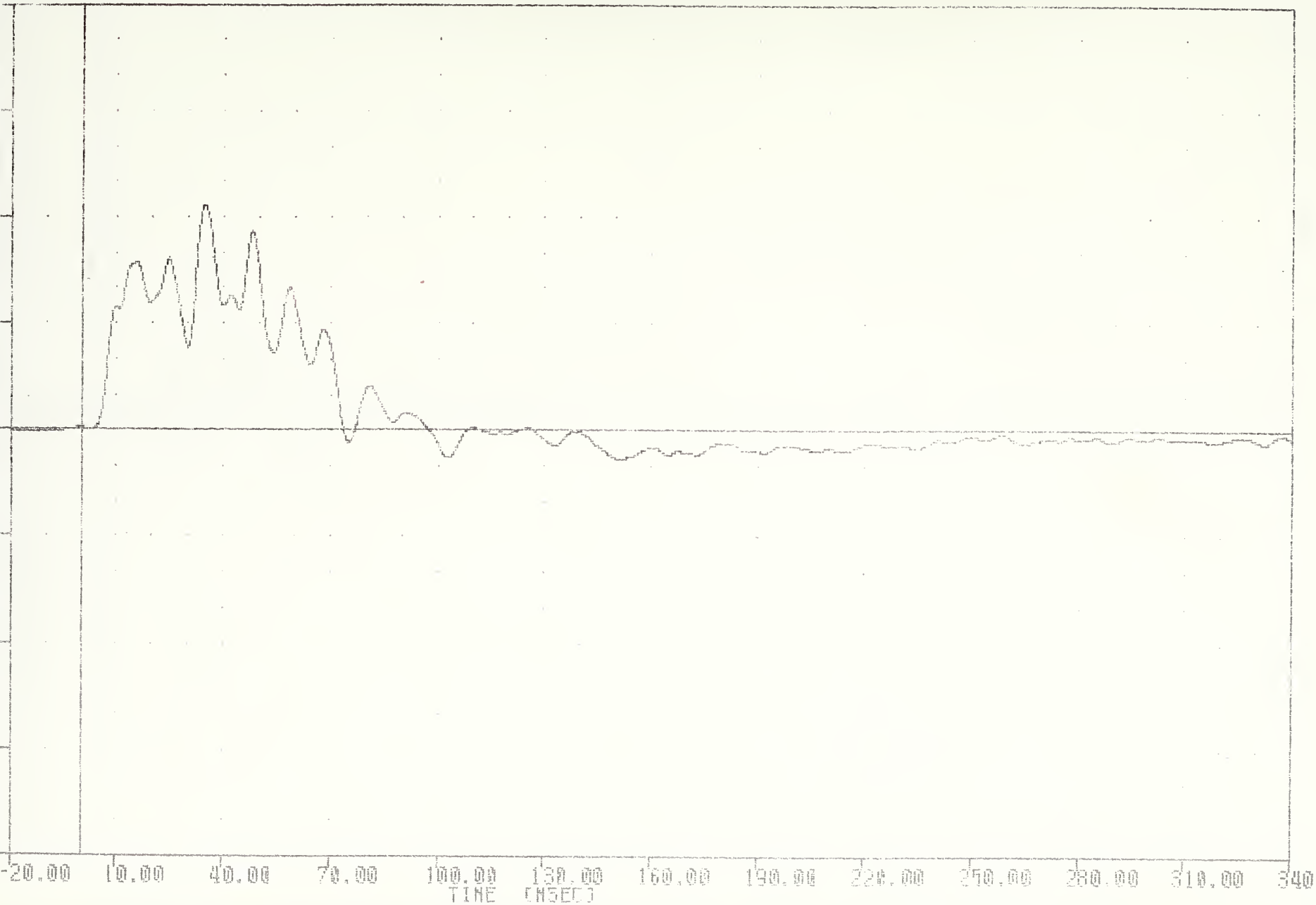


MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
PASSENGER PELVIS RESULTANT

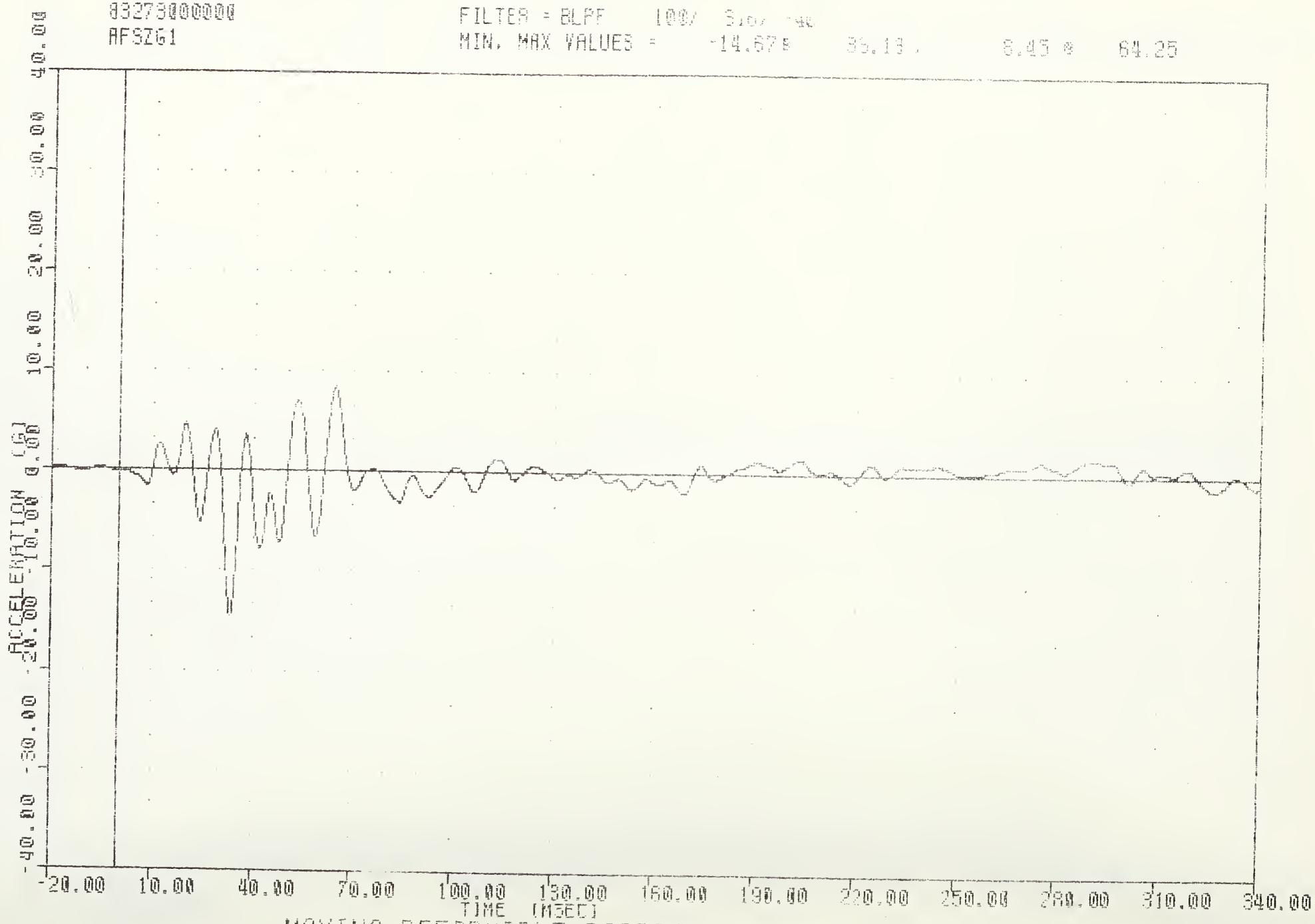

TRC , 830930
PLOT DATE 4-OCT-83 13:51:45
EVALUATION OF MGD VW FLEET
83273000000
PEVYV3
FILTER = BLPF 300/ 949/ -90
MIN, MAX VALUES = -0.078 5.25 , 30.86 @ 57.13
VELOCITY (MPH)
60.00
50.00
40.00
30.00
20.00
10.00
0.00
-10.00
-20.00
-20.00
10.00
40.00
70.00
100.00
130.00
160.00
190.00
220.00
250.00
280.00
310.00
340.00
TIME (MSEC)
MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
DELTA V USING PEVYV3

TRG
EVALUATION OF SRO
RFSKG1
FILTER SLPS
ACCELERATION (G)

TRC , 830930 PLOT DATE 4-OCT-83 10:48.20
EVALUATION OF MOD VW FLEET
832730000000 FILTER = BLPF 100/ 316/ 40
RFSY61 MIN, MAX VALUES = -2.66 @ 151.69 21.10 @ 34.50

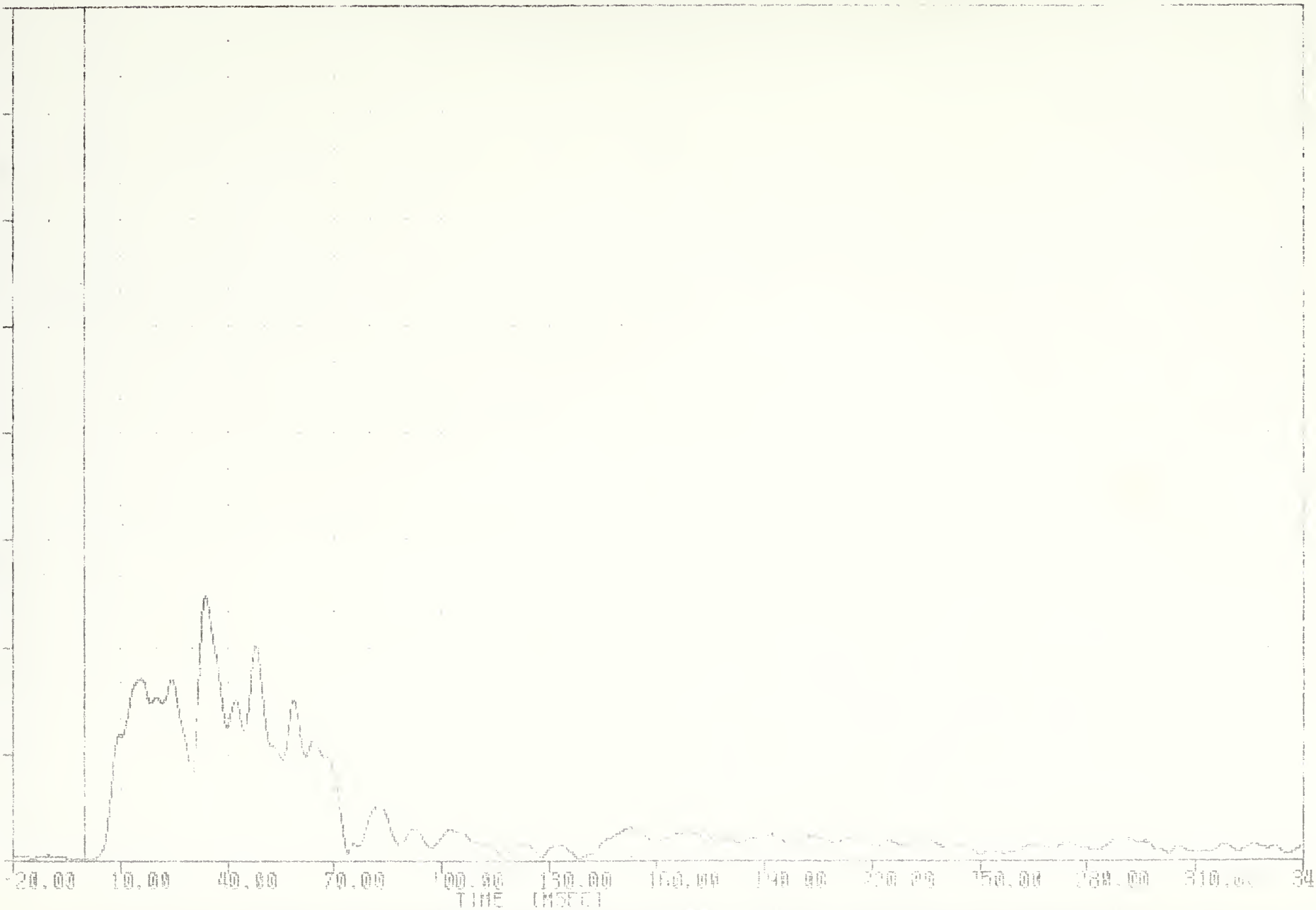


MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
VEHICLE RIGHT FRONT SILL ACCELERATION Y AXIS

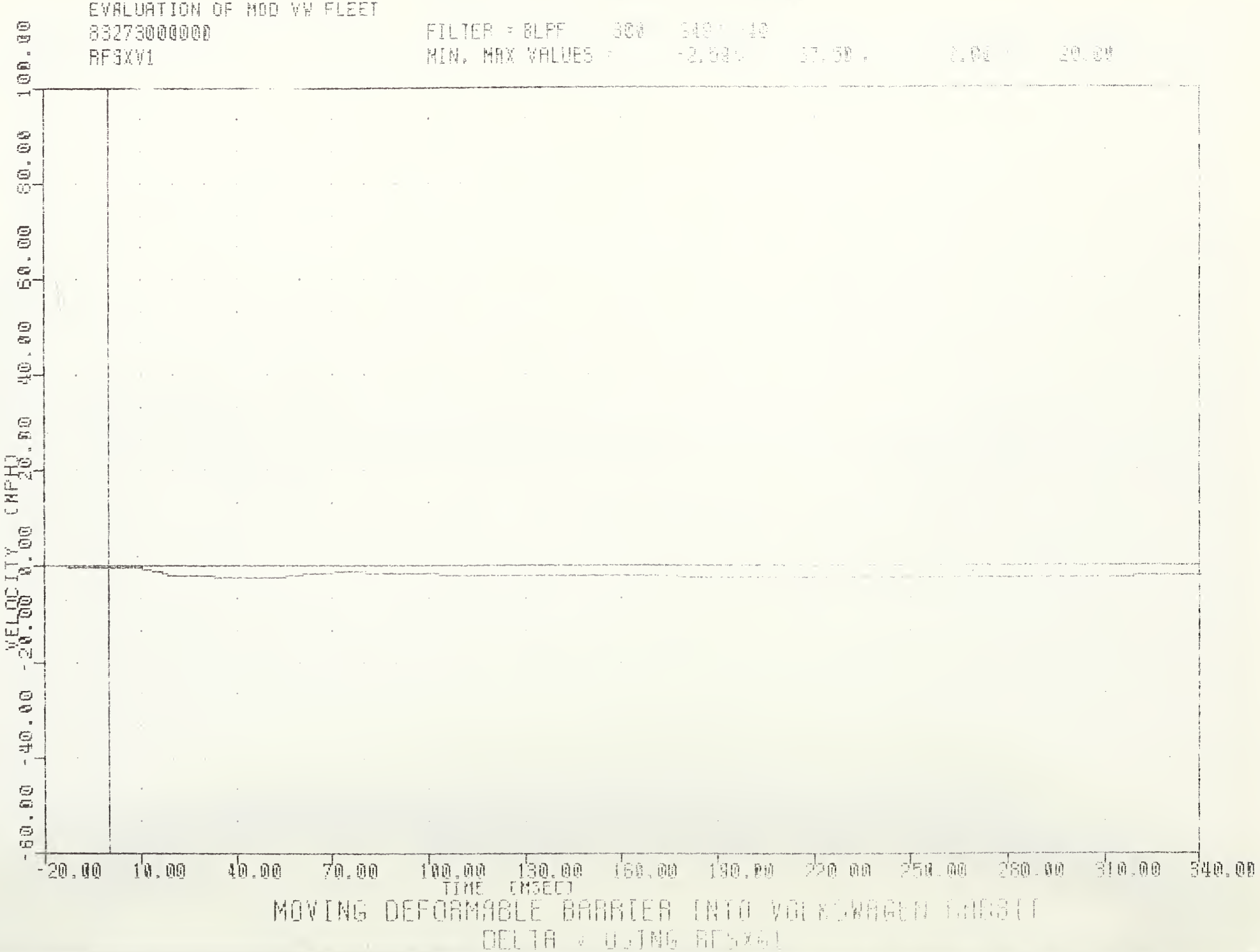


MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
VEHICLE RIGHT FRONT SILL ACCELERATION Y AXIS

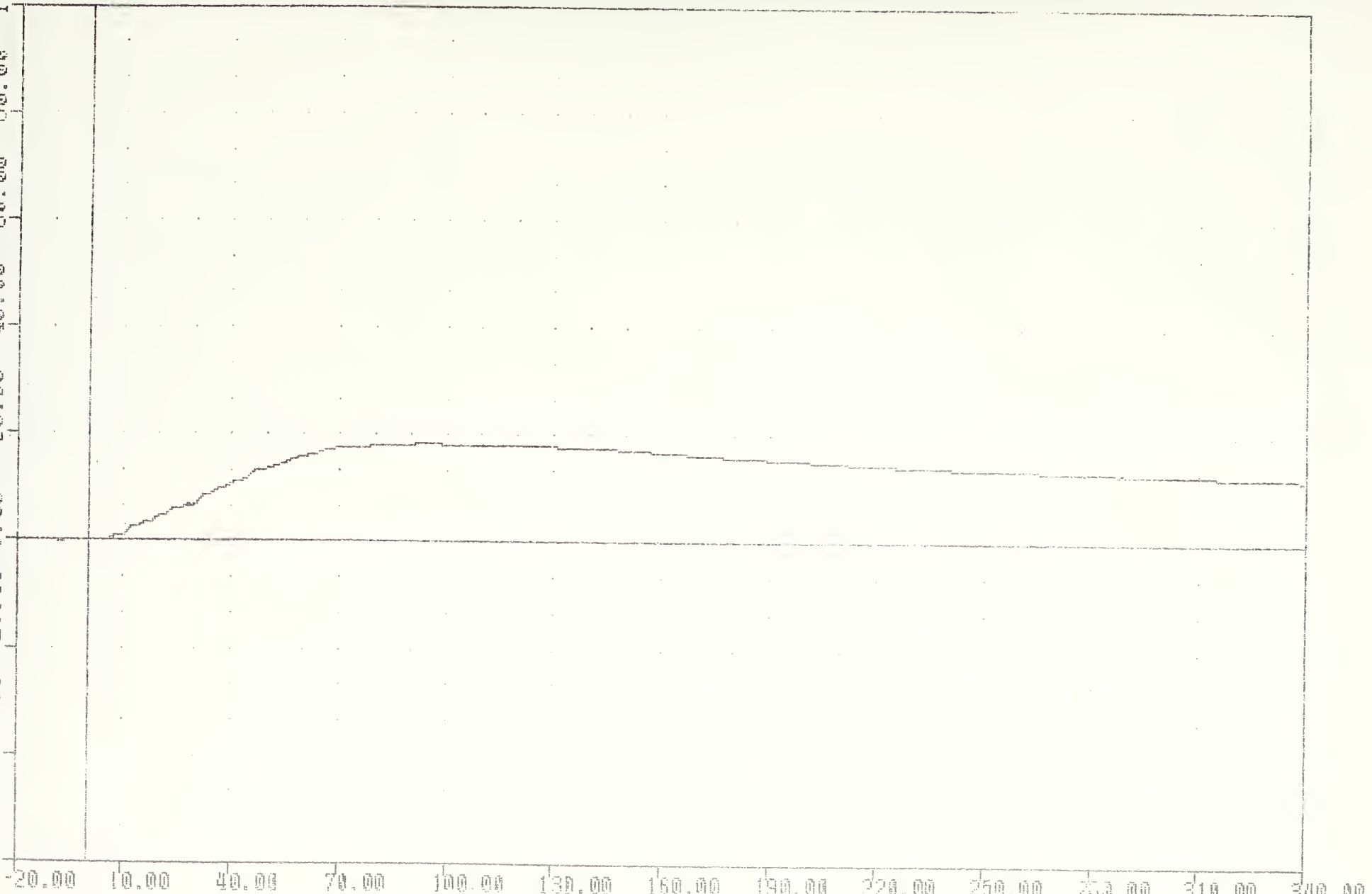
TRL , 830950 PLOT DATE [illegible]
EVALUATION OF MOD VW FLEET
8327800000B FILTER = BUPF 100/ 316/ 60
RFSRG1 MIN, MAX VALUES = 0.10 [illegible] [illegible] 33.83



MOVING DEFORMABLE BARRIER (MDB) VW/AUDI B4 (1992)
VEHICLE AUDI 80 4D (1992) [illegible]


TRL , 830930
EVALUATION OF MOD VW FLEET
83273000000
RF3XV1
FILTER = 6LPF
MIN, MAX VALUES
100.00
80.00
60.00
40.00
20.00
0.00
-20.00
-40.00
-60.00
VELOCITY (MPH)
-20.00
10.00
40.00
70.00
100.00
130.00
160.00
190.00
220.00
250.00
280.00
310.00
340.00
TIME (MSEC)
MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
DELTA V USING RF3XV1

TRC , 830930 PLOT DATE
EVALUATION OF MOD VW FLEET
83273000000
RFSYV1
FILTER = BLPF
MIN, MAX VALUES = -0.046 -5.00 18.23 94.65



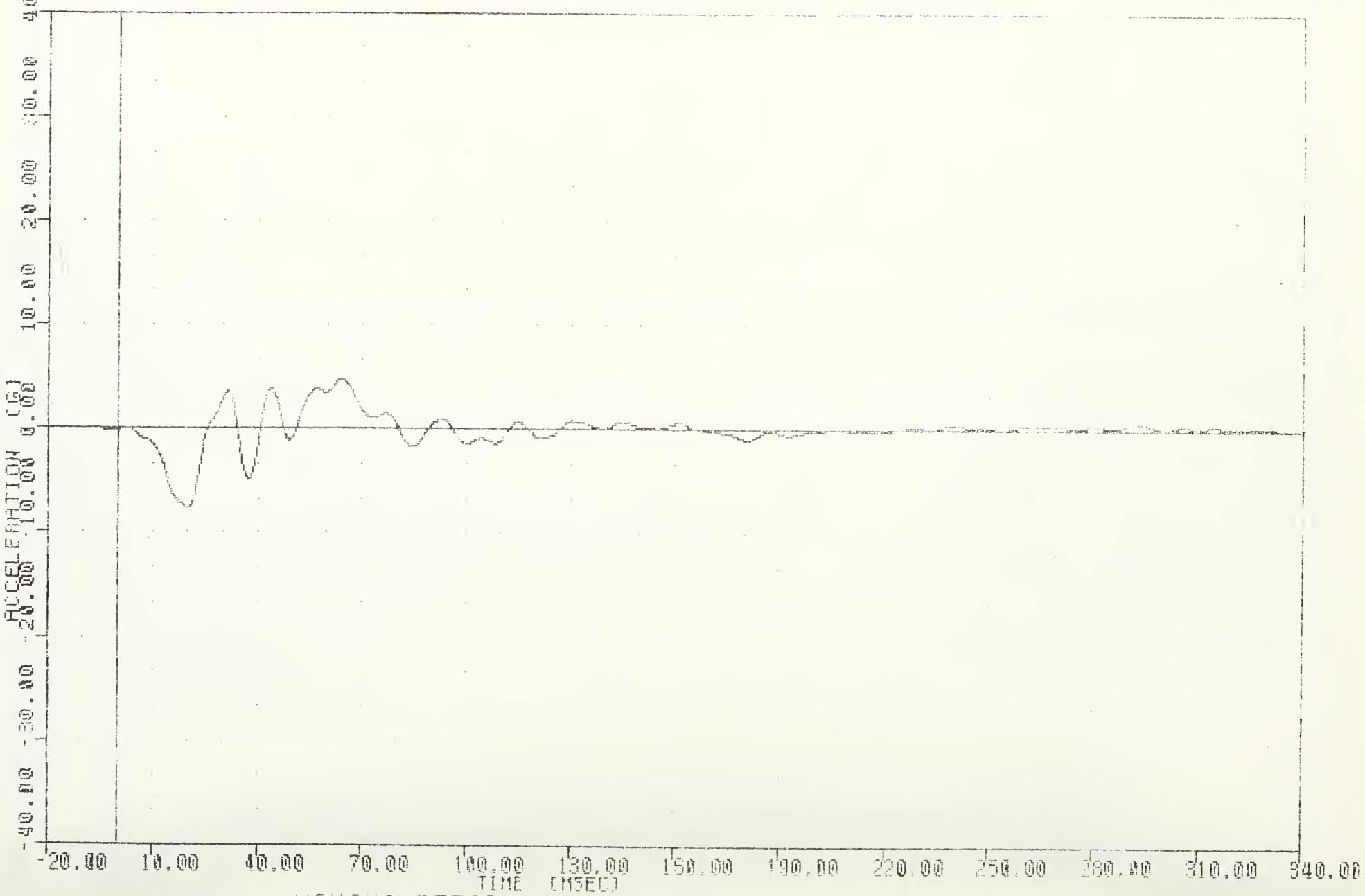
MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
DELTA V USING ACCEL

TRL , 850930 PLOT DATE

EVALUATION OF MOD VW FLEET

88273000000 FILTER = CFC

RRSXG2 MIN. MAX VALUES =



MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT

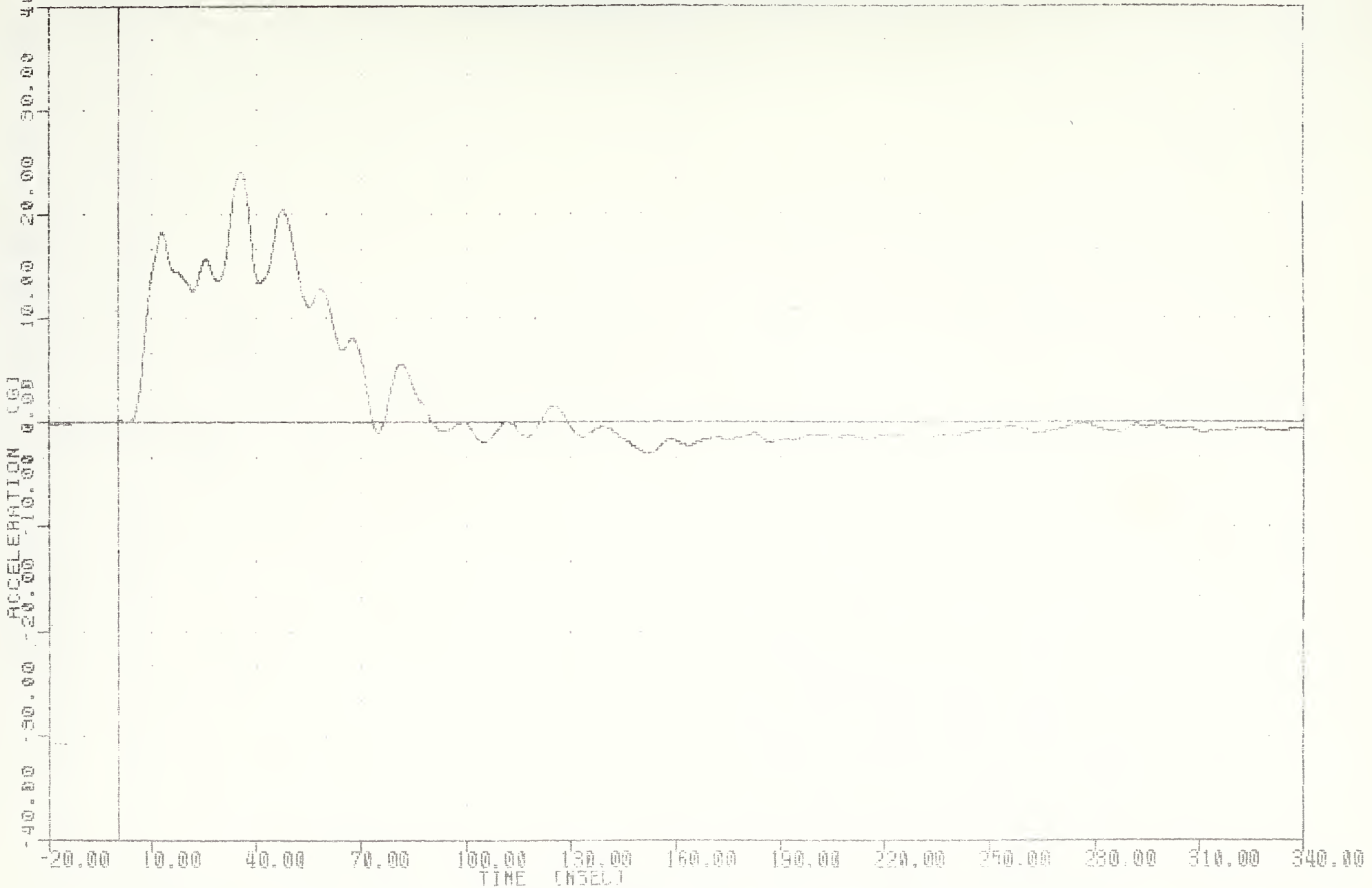
VEHICLE RIGHT REAR SILL ACCELERATION X A-C

TRC , 88N980 . PLOT DATE 4-OCT 88 10:44:20

EVALUATION OF MOD VW FLEET

83273@@@@@@ FILTER = CLFF 100 316 -40

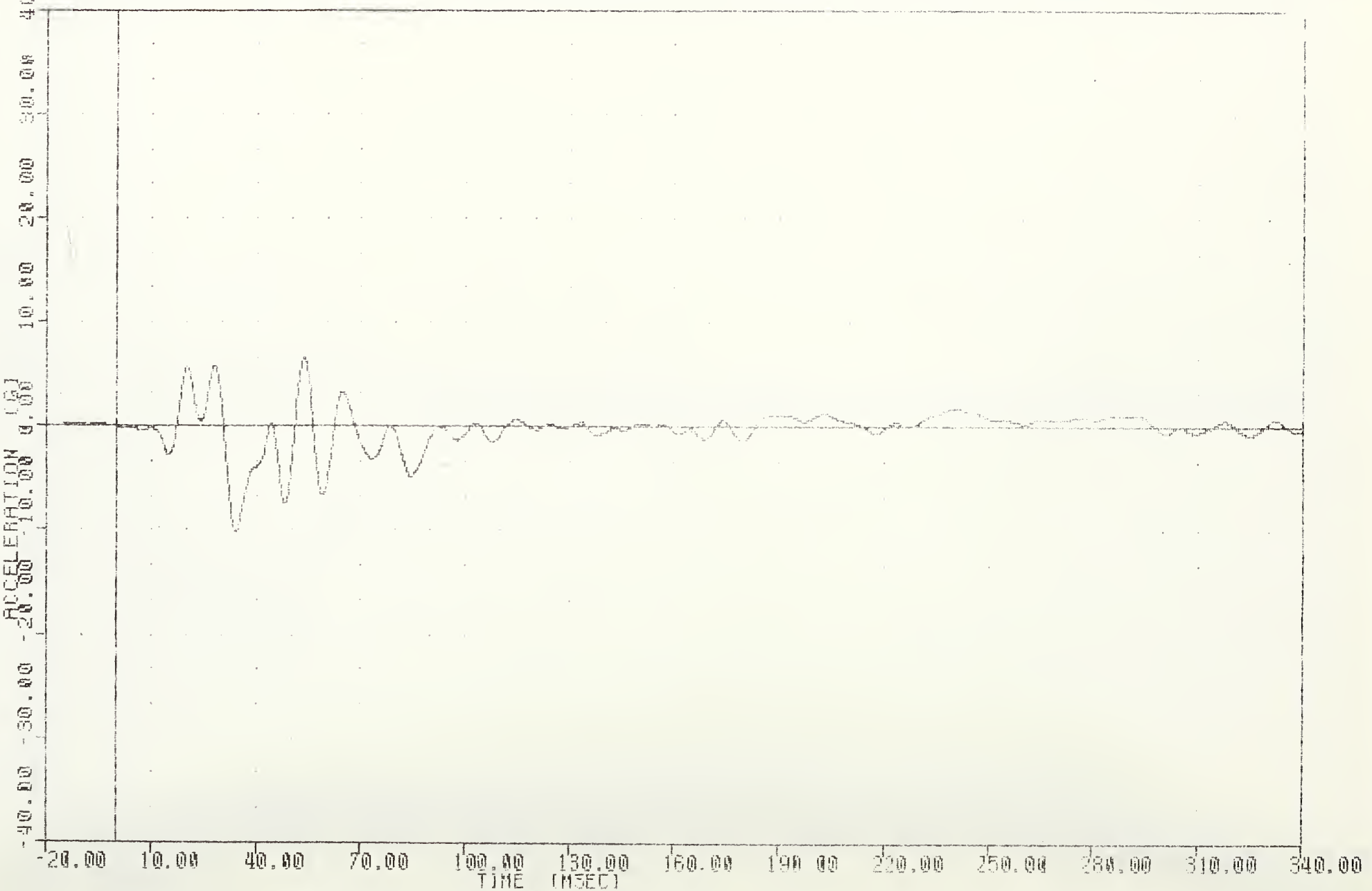
RASY62 MIN, MAX VALUES = -8.03 152.18 24.00 = 95.25



MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT

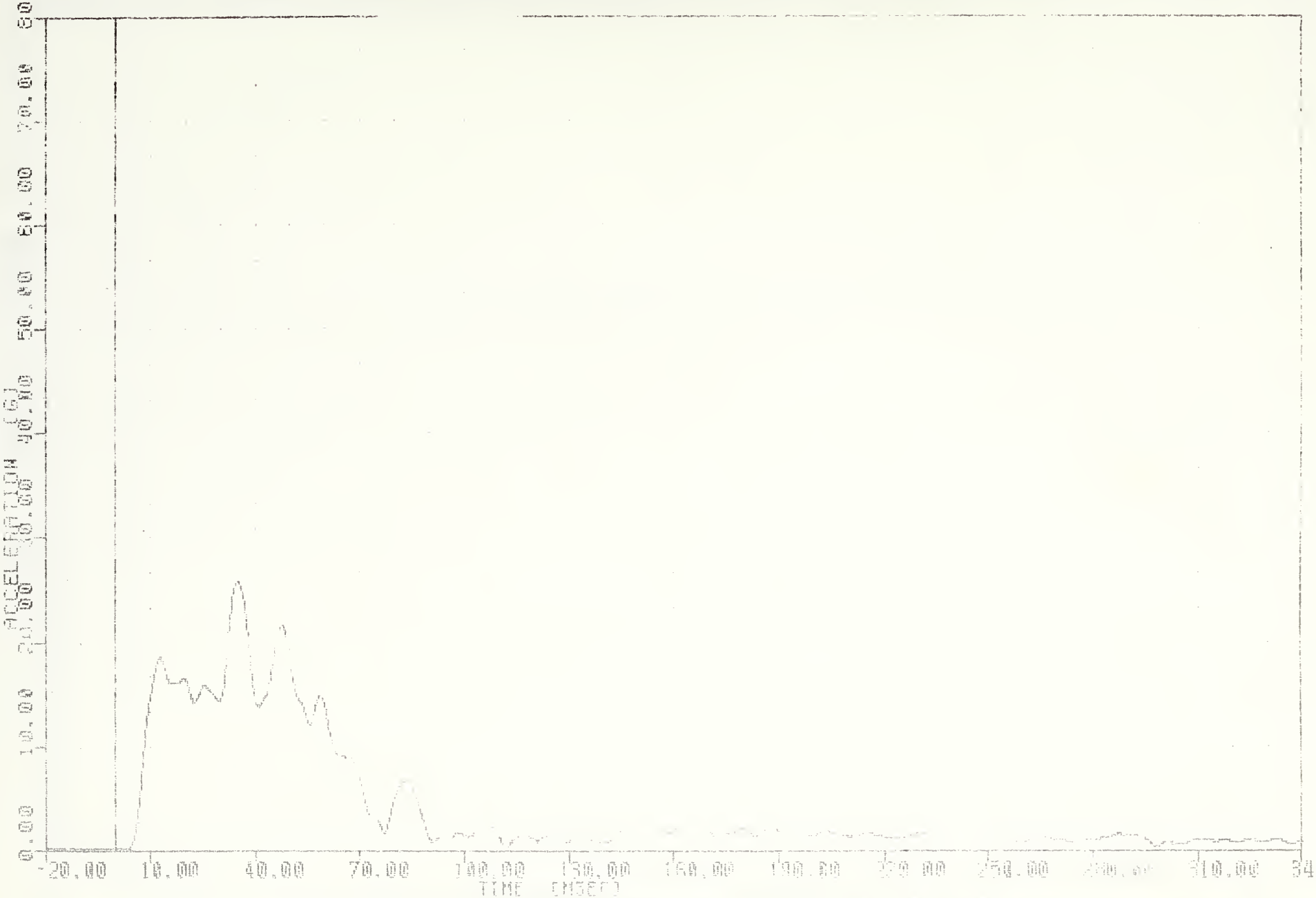
VEHICLE RIGHT REAR SILL ACCELERATION - G'S

TRL , 830980 PLOT DATE 4-OCT-83 10:48:26
EVALUATION OF MOD VW FLEET
8327300000 FILTER = BLPF 100/ 516/ -40
RRSZG2 MIN, MAX VALUES = -10.07@ 34.00 , 6.58 @ 55.50



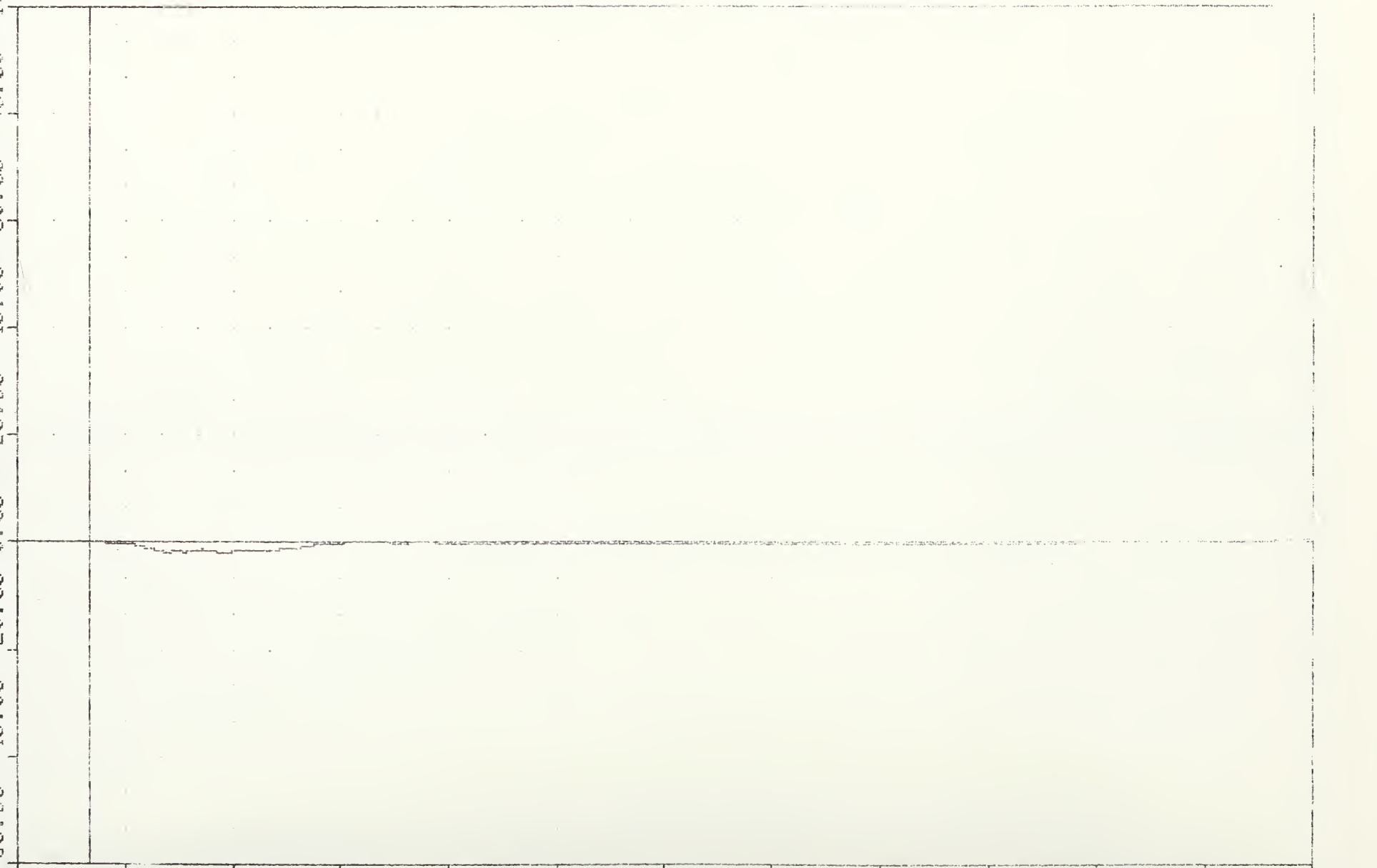
MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
VEHICLE RIGHT REAR SILL ACCELERATION Z AXIS

TRC , 830930 PLOT DATE
EVALUATION OF MDB VW FLEET
8327300000D FILTER = BLPF 100 40 5
RR5RG2 MIN, MAX VALUES 0.153 35.08

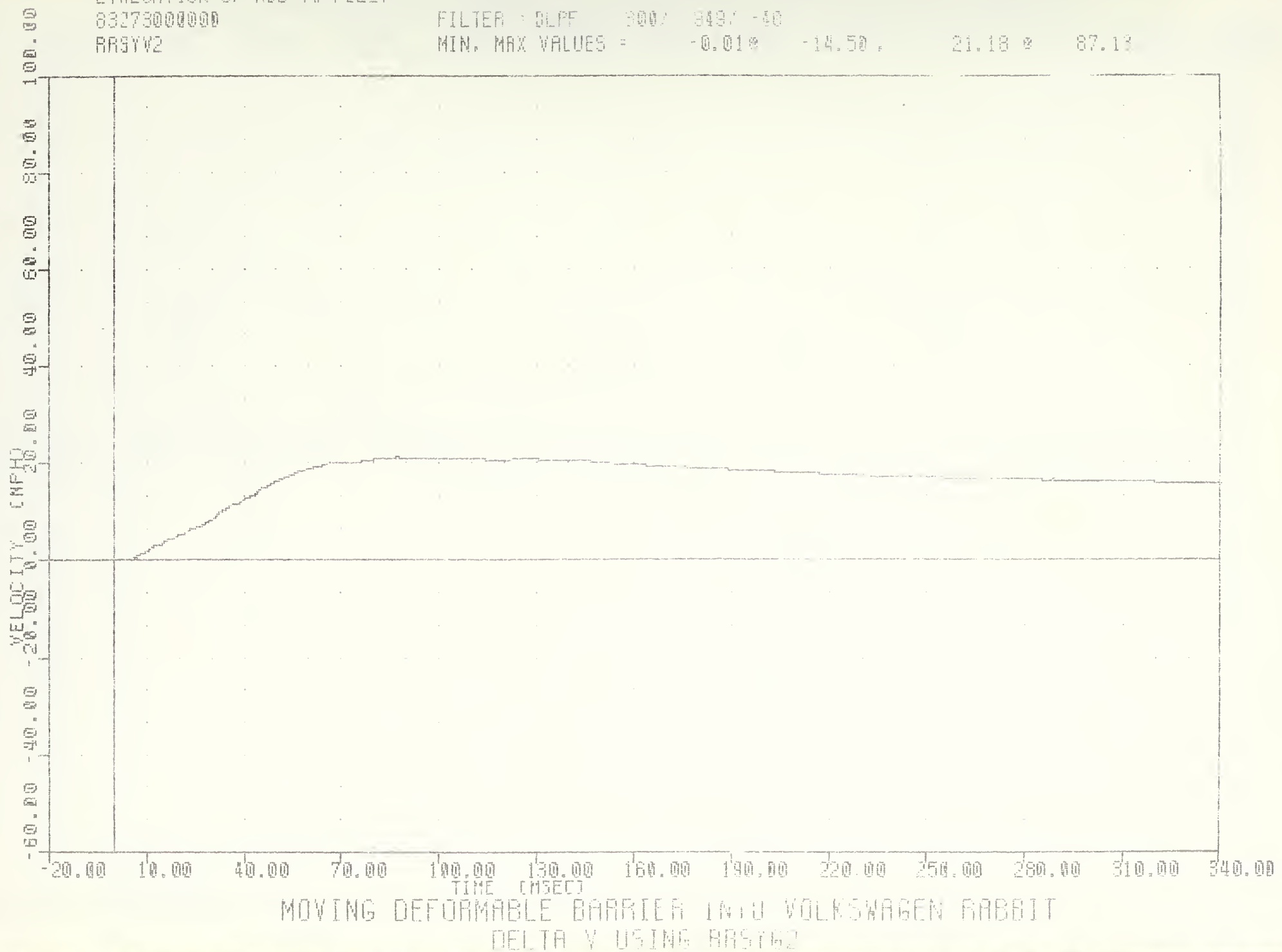


MOVING DEFORMABLE BARRIER (MDB) TO VEHICLE CRASH
VEHICLE RIGHT REAR SILL AREA

TRC , 830930 PLOT DATE [illegible]
EVALUATION OF MOD VW FLEET
83273@@@@@@ FILTER - SLPF [illegible]
BRSXV2 MIN, MAX VALUES - [illegible]



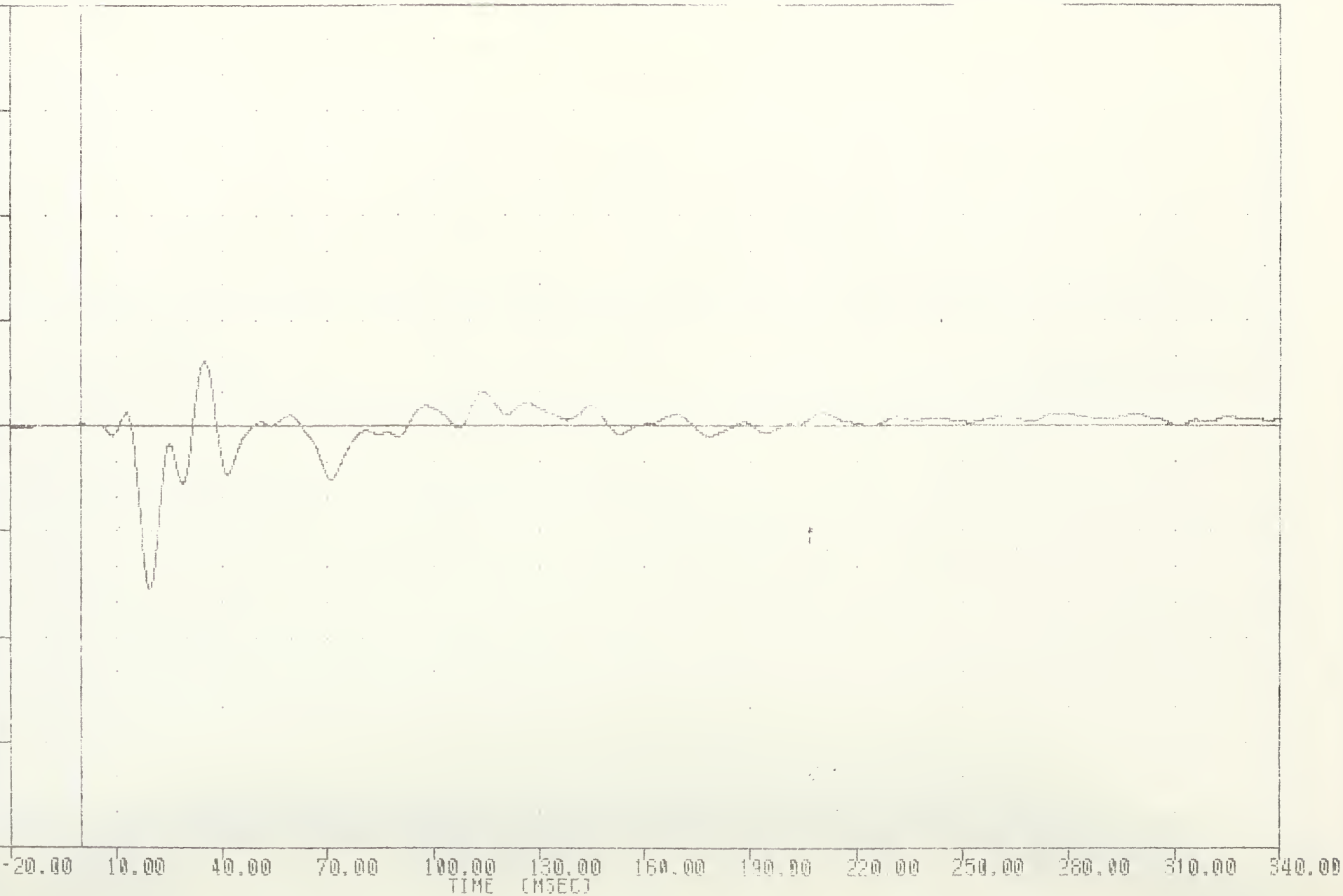
MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
DELTA V USING BRSXV2



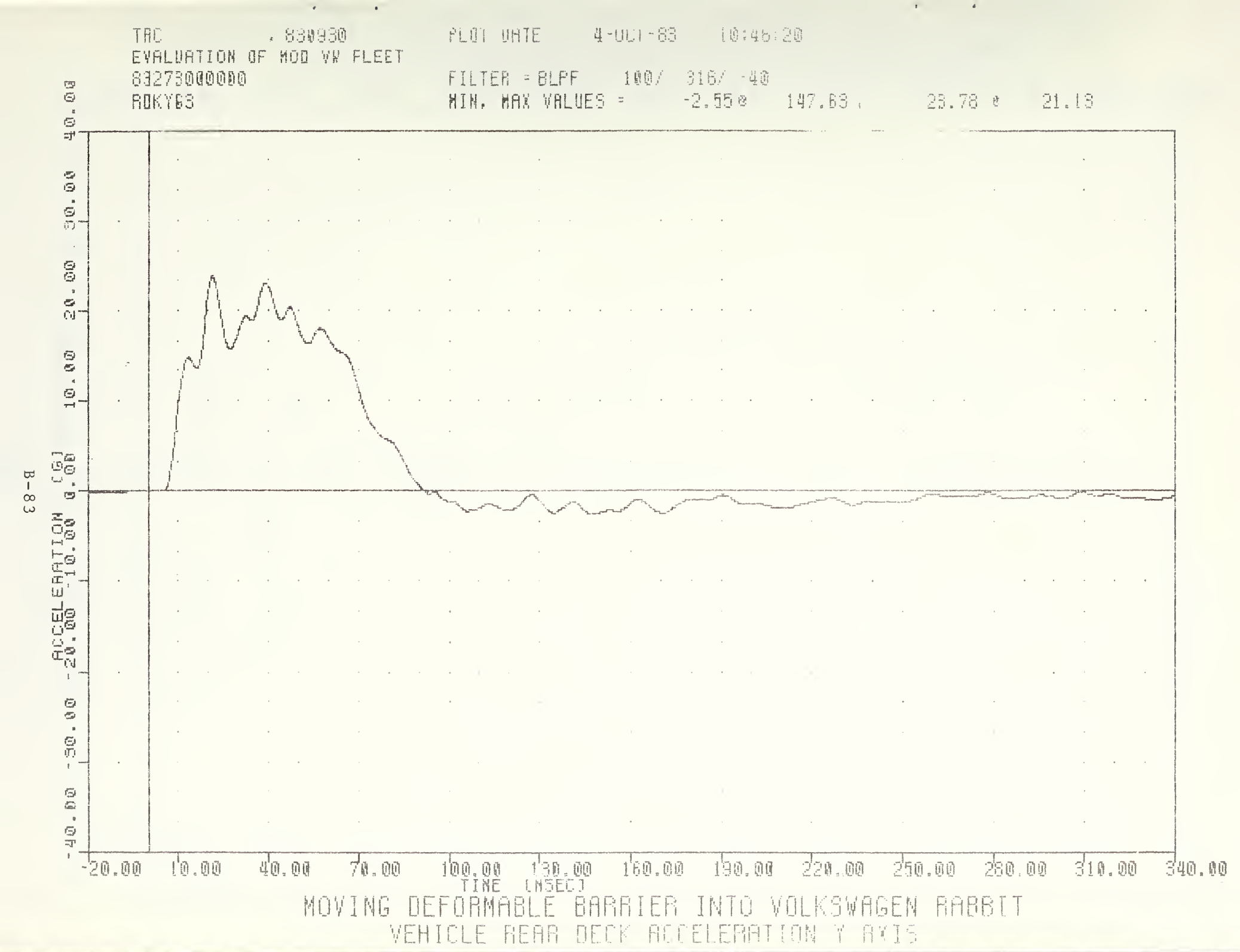
MOVING DEFORMABLE BARRIER IMPACT VOLKSWAGEN RABBIT

DELTA V USING RR3YW2

TAC , 880930 PLOT DATE 4-OCT-88 10:46:20
EVALUATION OF MOD VW FLEET
8827300000@ FILTER = SLPF 100/ 216 -40
RDRXG3 MIN, MAX VALUES = -15.53@ 19.50@ 6.17@ 35.00

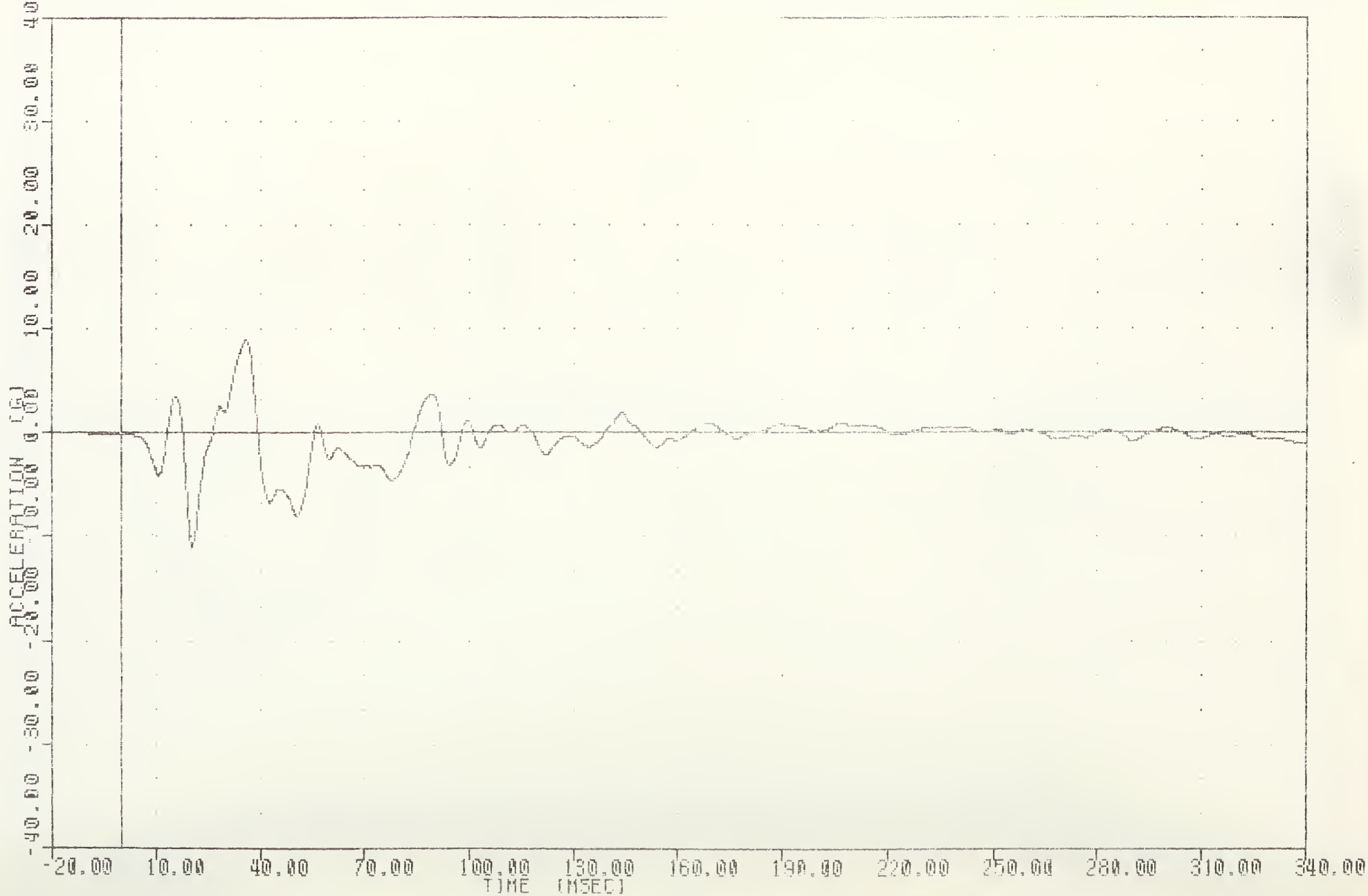


MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
VEHICLE REAR DECK ACCELERATION X AXIS



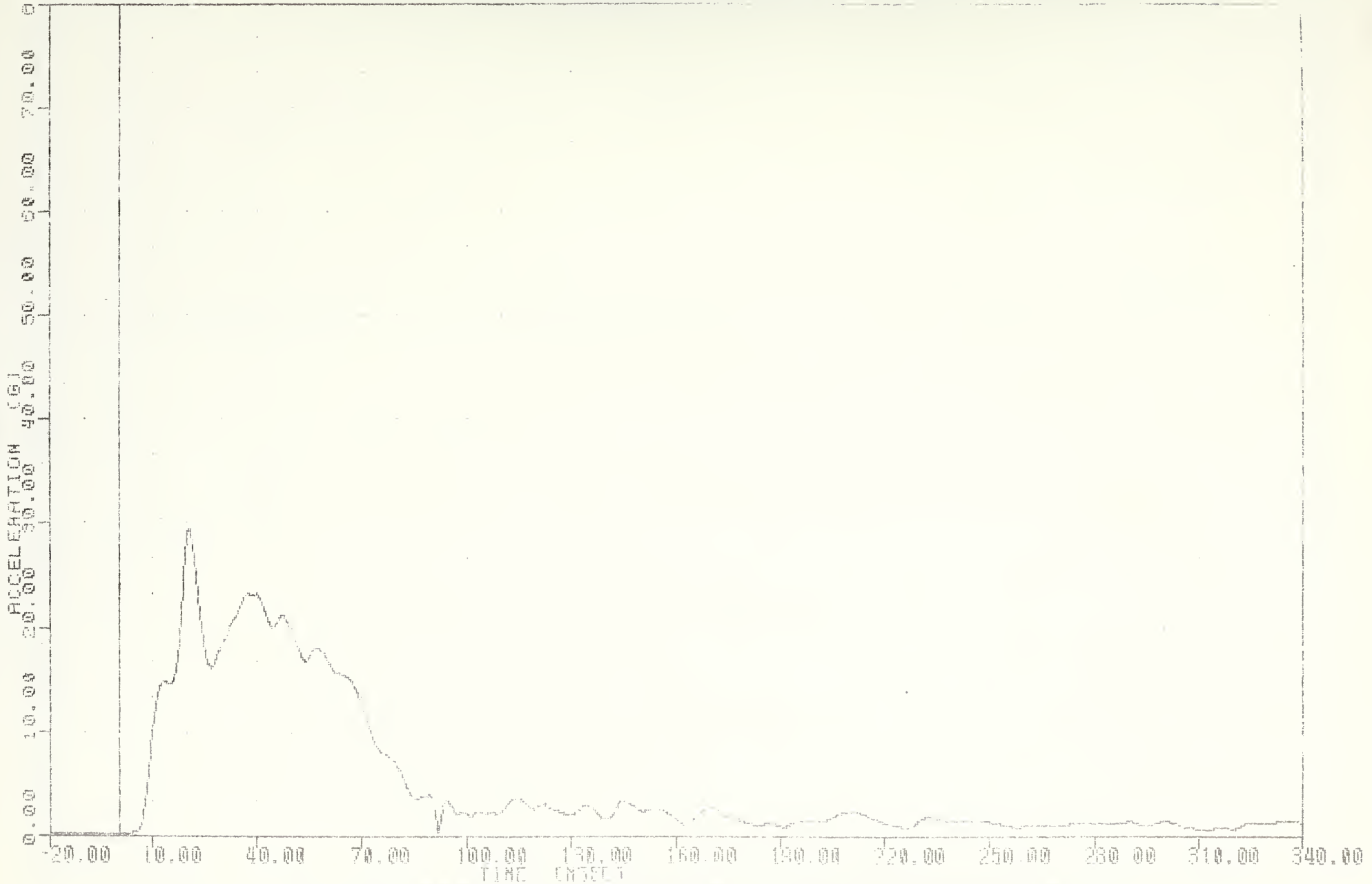
MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
VEHICLE REAR DECK ACCELERATION Y AXIS

TRL , 830930 PLOT DATE 4-JUL-85 10:46:20
EVALUATION OF MOD VW FLEET
8327300000 FILTER = BLPF 100/ 315/ -40
RDKZG3 MIN, MAX VALUES = -11.08@ 20.13 , 8.95 @ 35.75



MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
VEHICLE REAR DECK ACCELERATION Z AXIS

TAC , 630950 PLOT DATE 4-OCT-90 16:42:20
EVALUATION OF MOD VW FLEET
8327300000D0 FILTER = BLPF 100 CFC 60
ROKR63 MIN, MAX VALUES = 0.11@ -10.00 10.51 @ 30.25



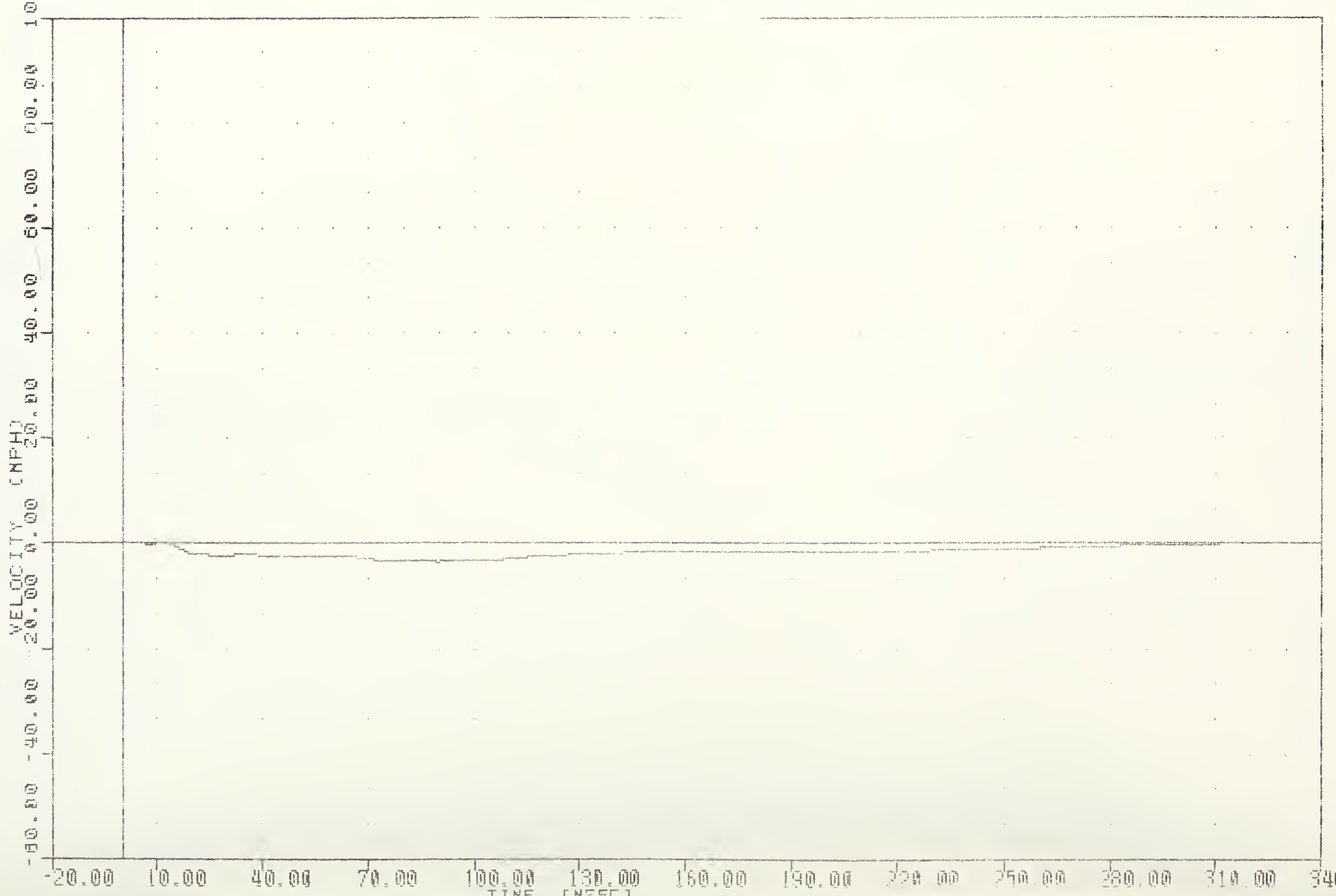
MOVING DEFORMABLE BARRIER IMPACT WITH TWELVE RABBIT
VEHICLE REAR INPUT ACCELERATION

TAL . 830830 PLOT DATE 4-OCT-83 13:51:45

EVALUATION OF MOD VW FLEET

83273000000 FILTER = BLPF 300 96% 40

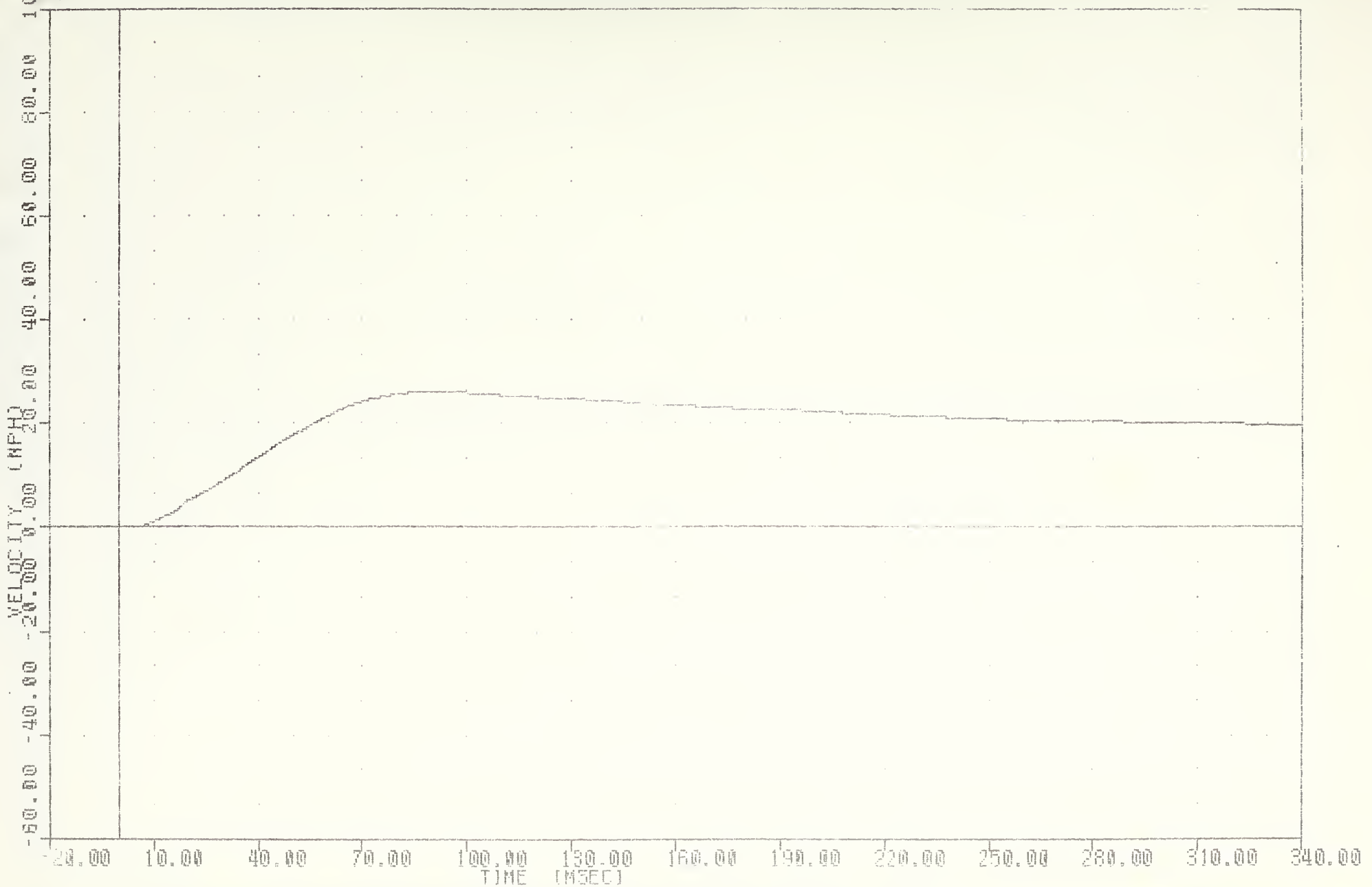
RDKXV3 MIN, MAX VALUES = -3.44 @ 89.50 0.37 @ 340.00



MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT

DELTA V USING RDKXV3

TRC , 830930 PLOT DATE 4-OCT-85 15:51:45
EVALUATION OF MOD VW FLEET
83273@@@@@@ FILTER = BLPF 300/ 945/ -40
RDKYV3 MIN, MAX VALUES = -0.02@ -8.25 , 26.01 @ 89.00



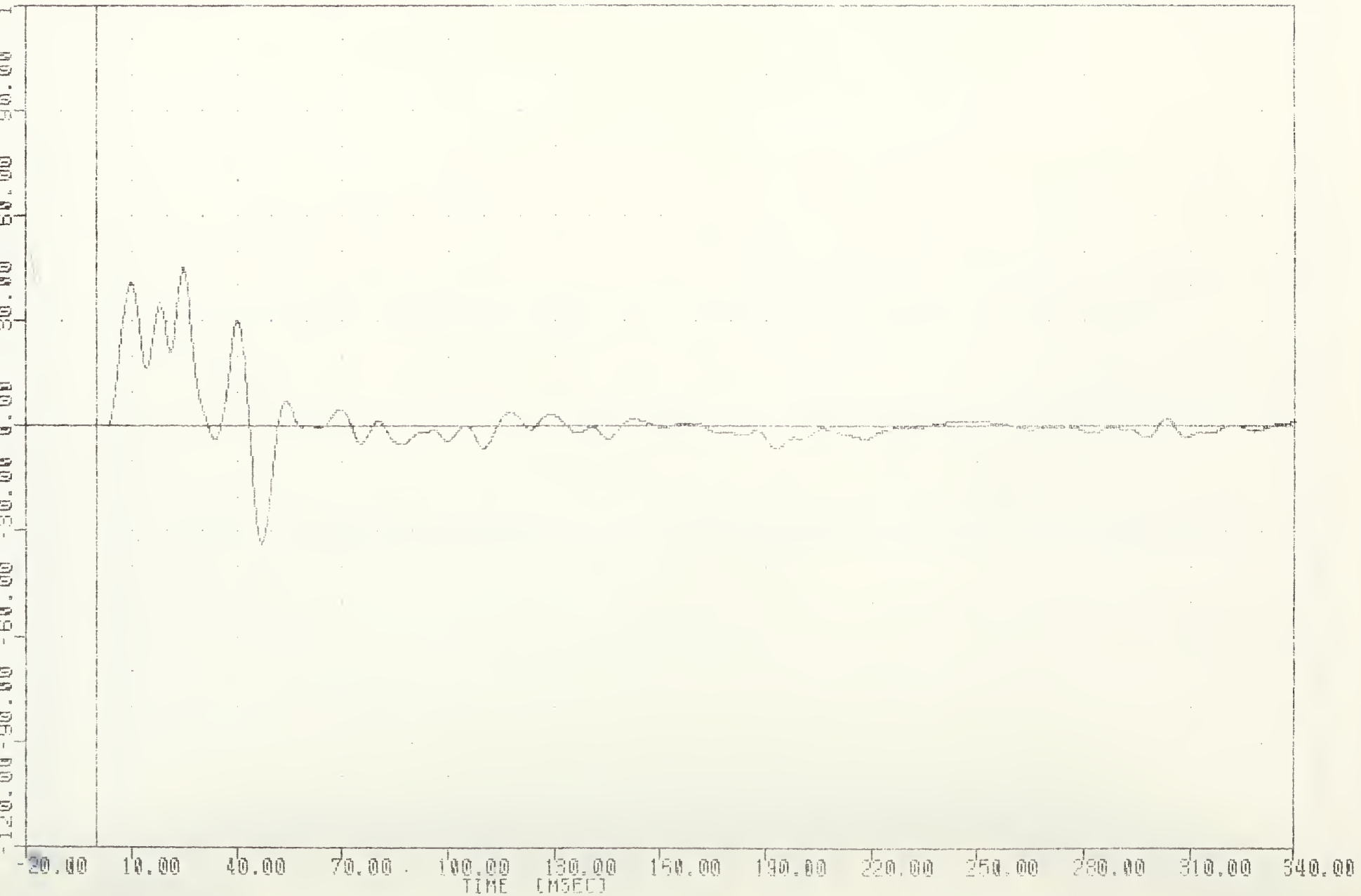
MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
DELTA V USING RDKYV3

TRL , 830930 PLOT DATE 4 OCT-83 12:40:00

EVALUATION OF MOD VW FLEET

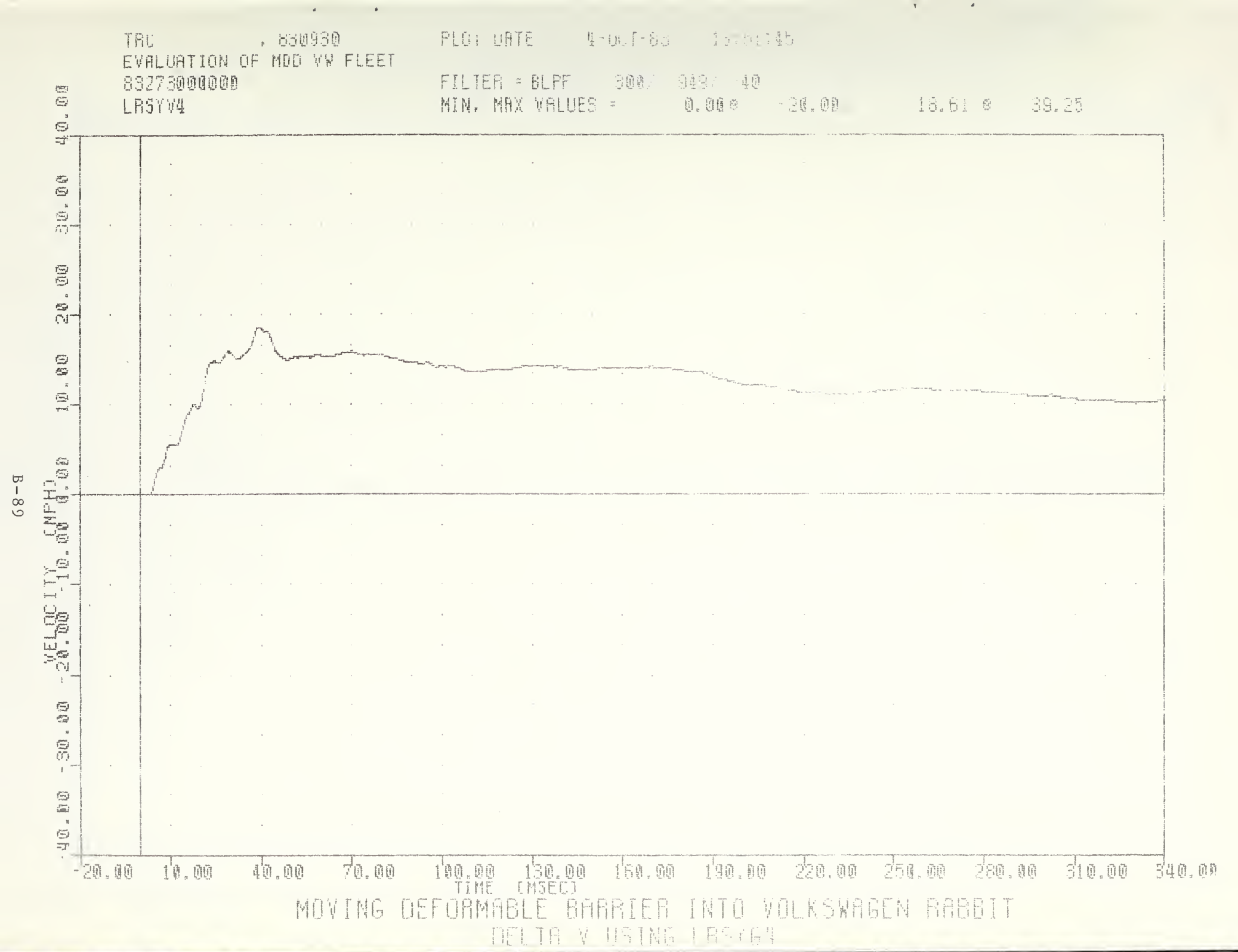
8327300000 FILTER = BUTT 100/ 316/ 40

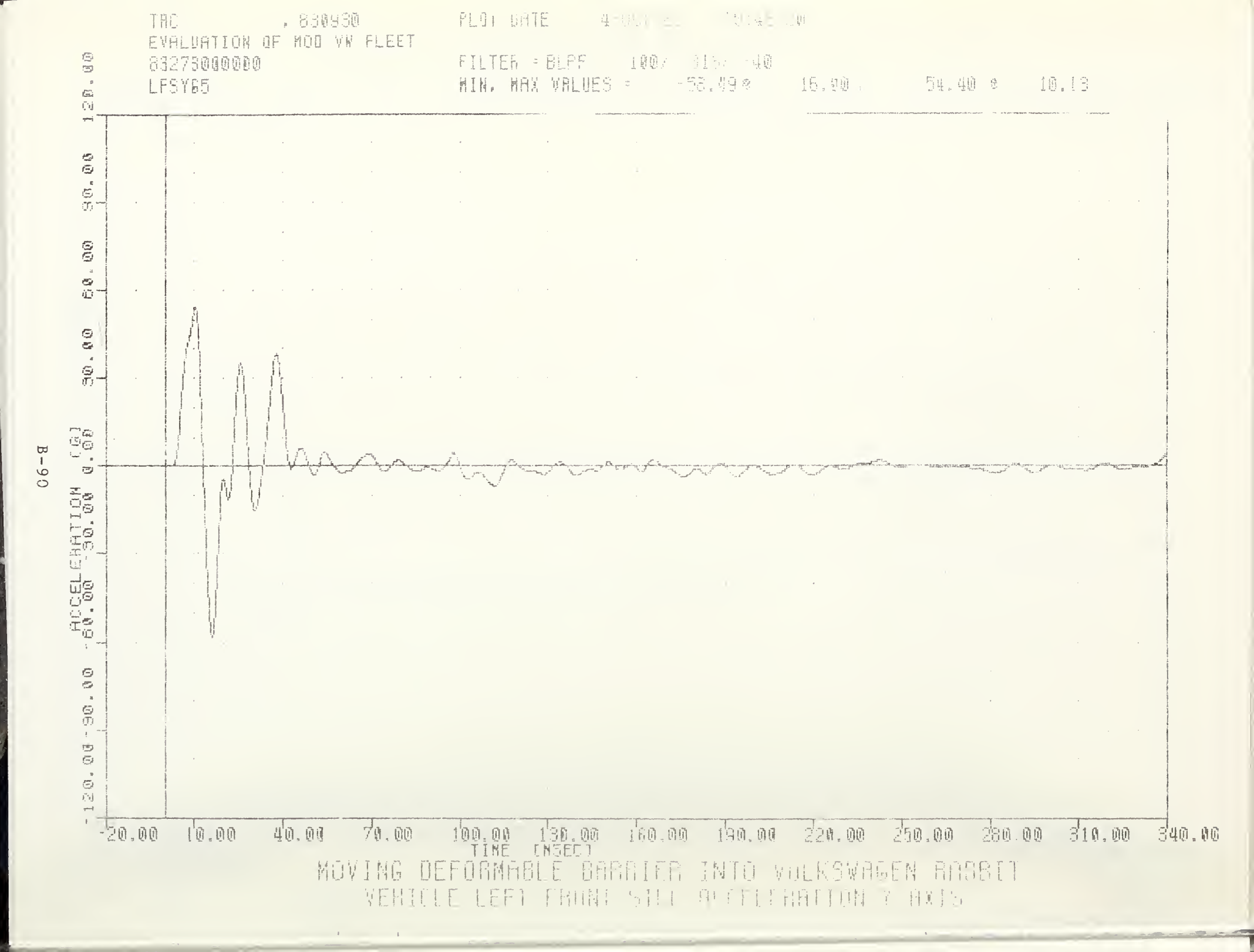
LRSYG4 MIN, MAX VALUES = -35.43 @ 47.00 45.05 @ 24.63

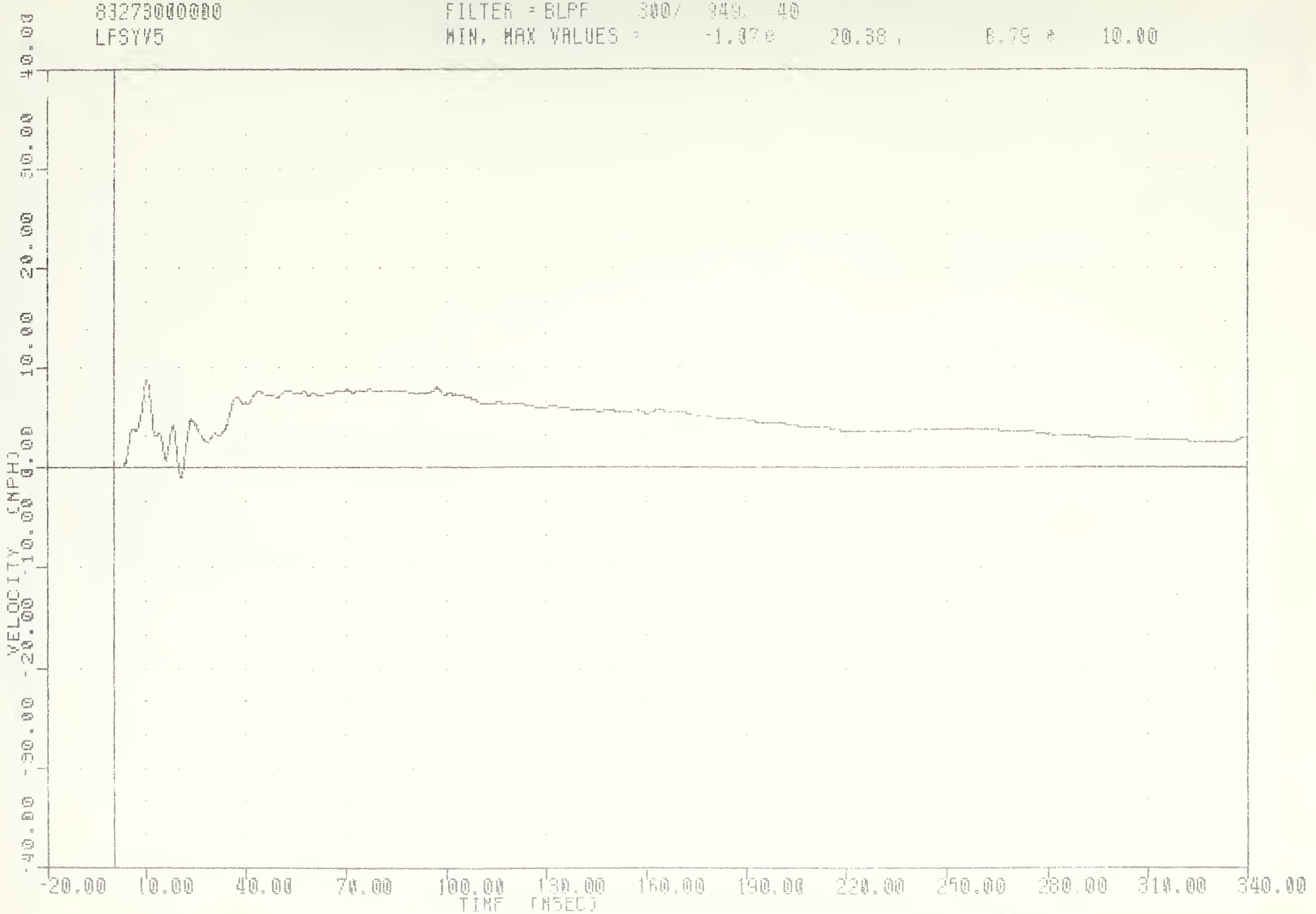


MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT

VEHICLE LEFT REAR SILL ACCELERATION Y AXIS

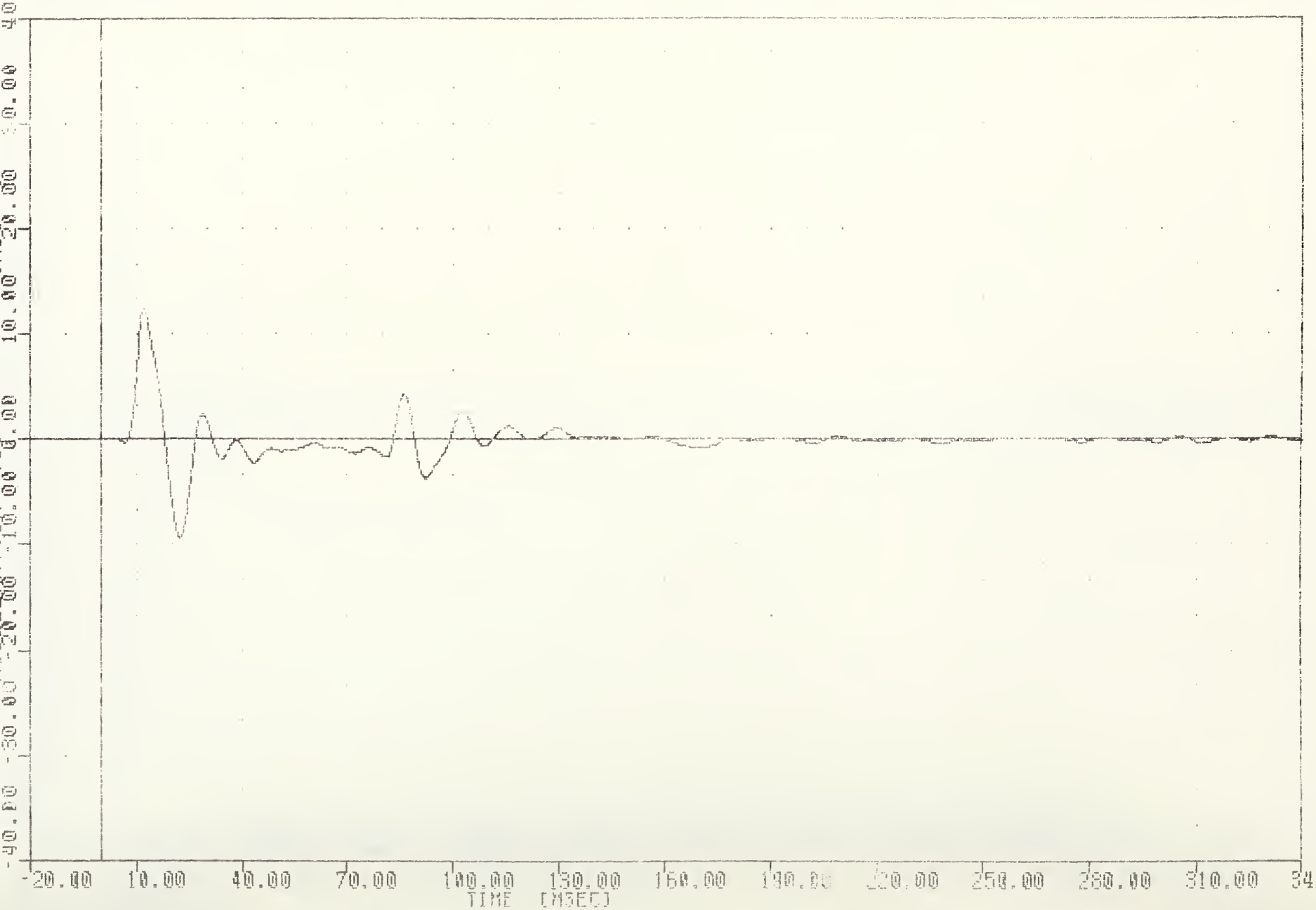

TRC , 830930
PLOT DATE 4-OCT-83
EVALUATION OF MOD VW FLEET
83273000000
FILTER = BLPF 300/ 900/ 40
LRSYV4
MIN, MAX VALUES = 0.00 @ -26.09 16.61 @ 39.25
VELOCITY (MPH)
40.00
30.00
20.00
10.00
0.00
-10.00
-20.00
-30.00
-40.00
-20.00
10.00
40.00
70.00
100.00
130.00
160.00
190.00
220.00
250.00
280.00
310.00
340.00
TIME (MSEC)
MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
DELTA V USING LRSYV4


TAC , 830930
PLOT DATE
EVALUATION OF MOD VW FLEET
83275000000
FILTER = BLPF 100/ 315/ 40
LFSY65
MIN, MAX VALUES = -58.99 @ 15.90 , 54.40 @ 10.13
ACCELERATION (G)
120.00
90.00
60.00
30.00
0.00
-30.00
-60.00
-90.00
-120.00
-20.00
10.00
40.00
70.00
100.00
130.00
160.00
190.00
220.00
250.00
280.00
310.00
340.00
TIME (MSEC)
MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
VEHICLE LEFT FRONT SILL ACCELERATION Y AXIS

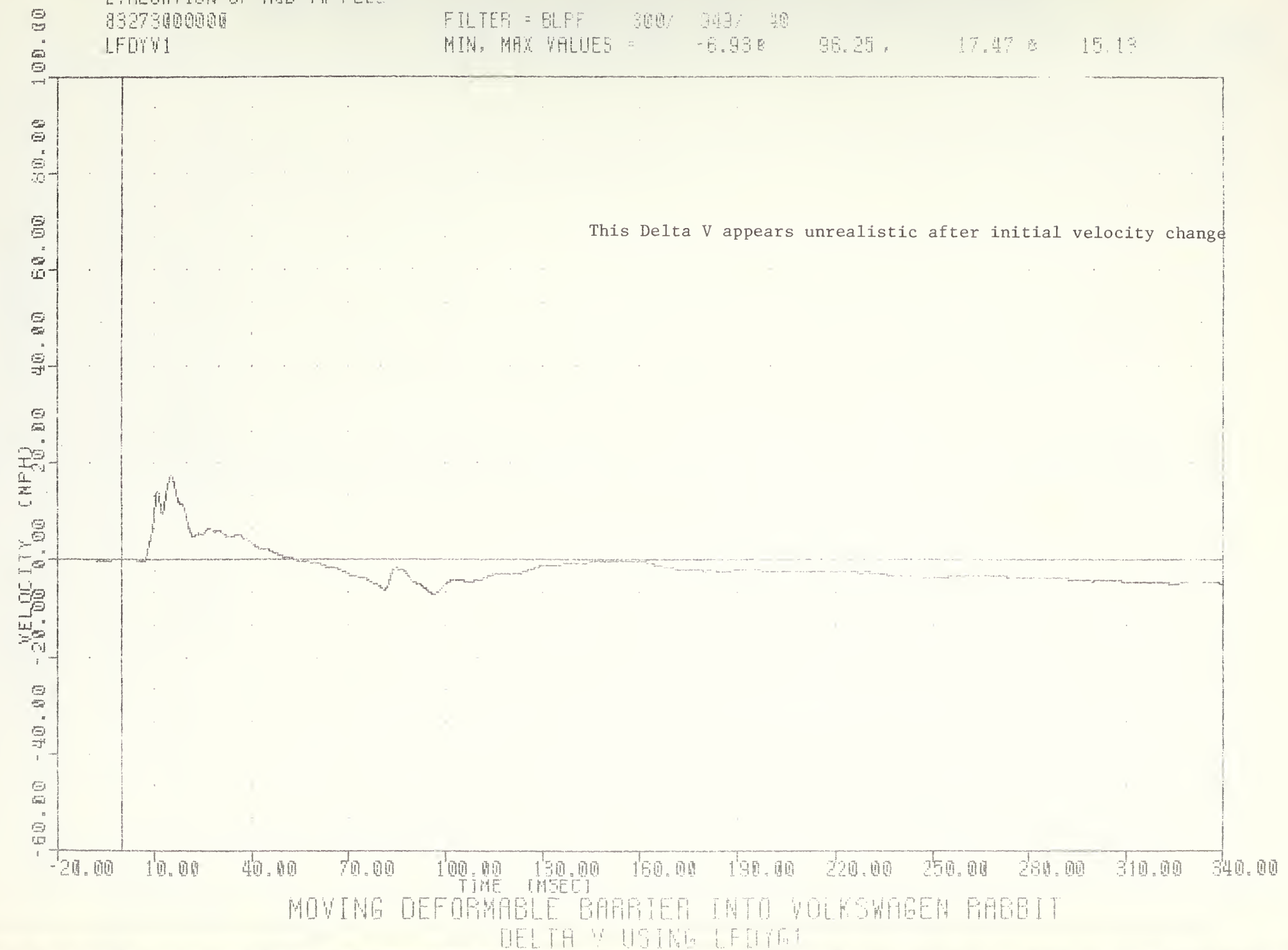


MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
DELTA V USING LFSYV5

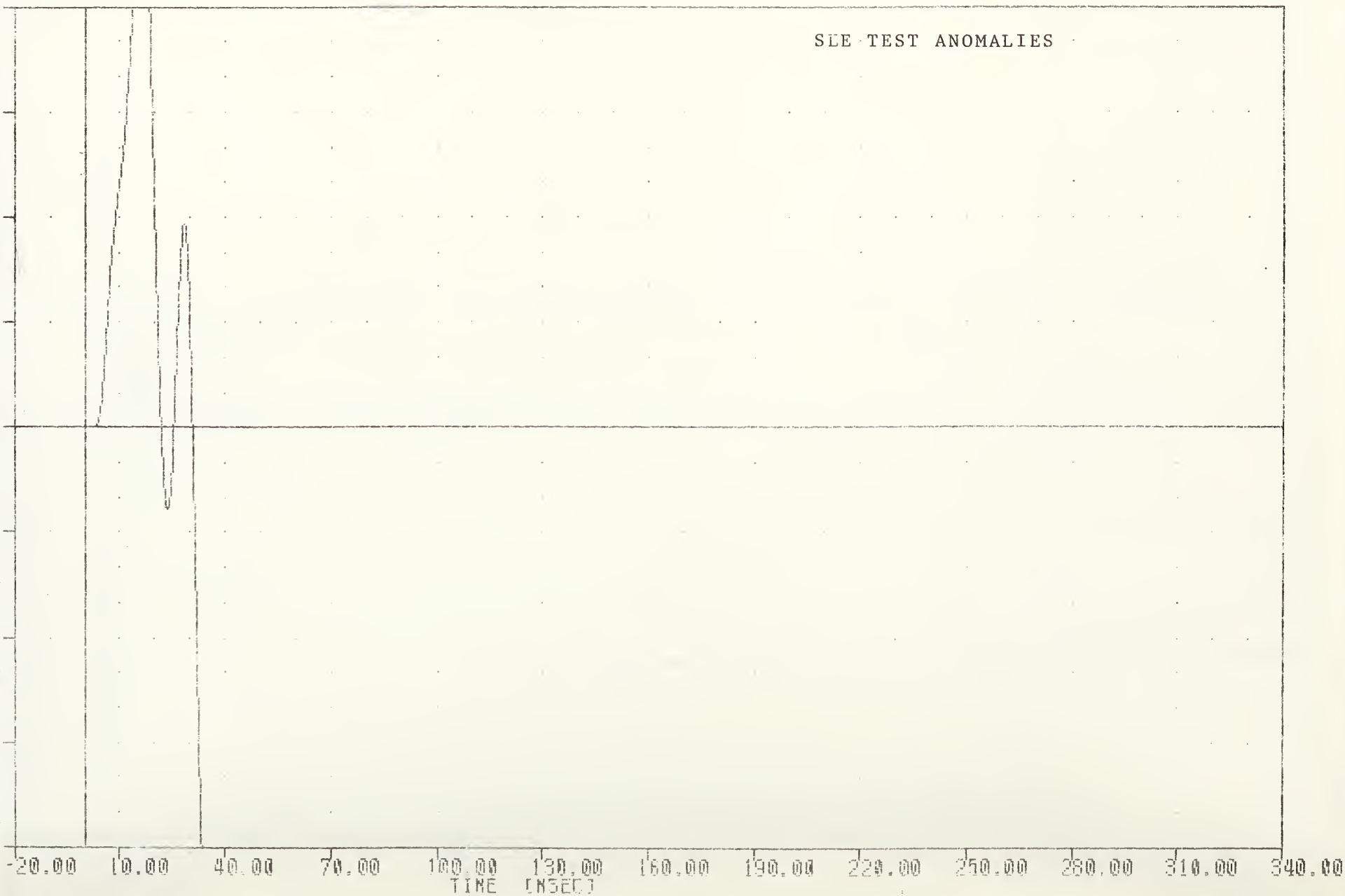
TRL , 88@930 PLOT DATE 4-JUL-88 16:45:20
EVALUATION OF MOD VW FLEET
88273000000 FILTER = BUTT 100/ 316/ -40
LFDY61 MIN, MAX VALUES = -94.00 @ 22.25 , 124.12 @ 11.88



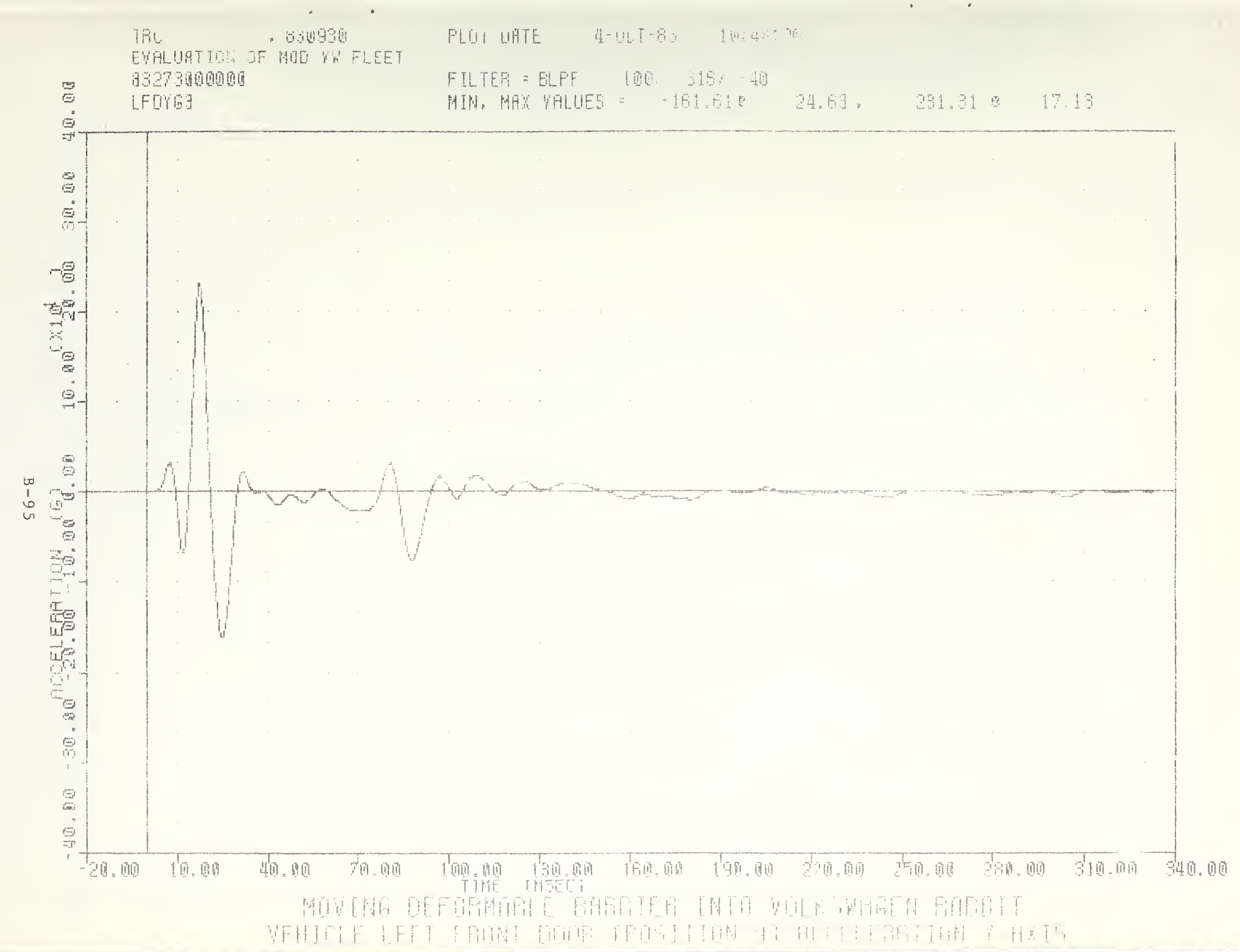
MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
VEHICLE LEFT FRONT DOOR (POSITION 6) ACCELERATION Y AXIS

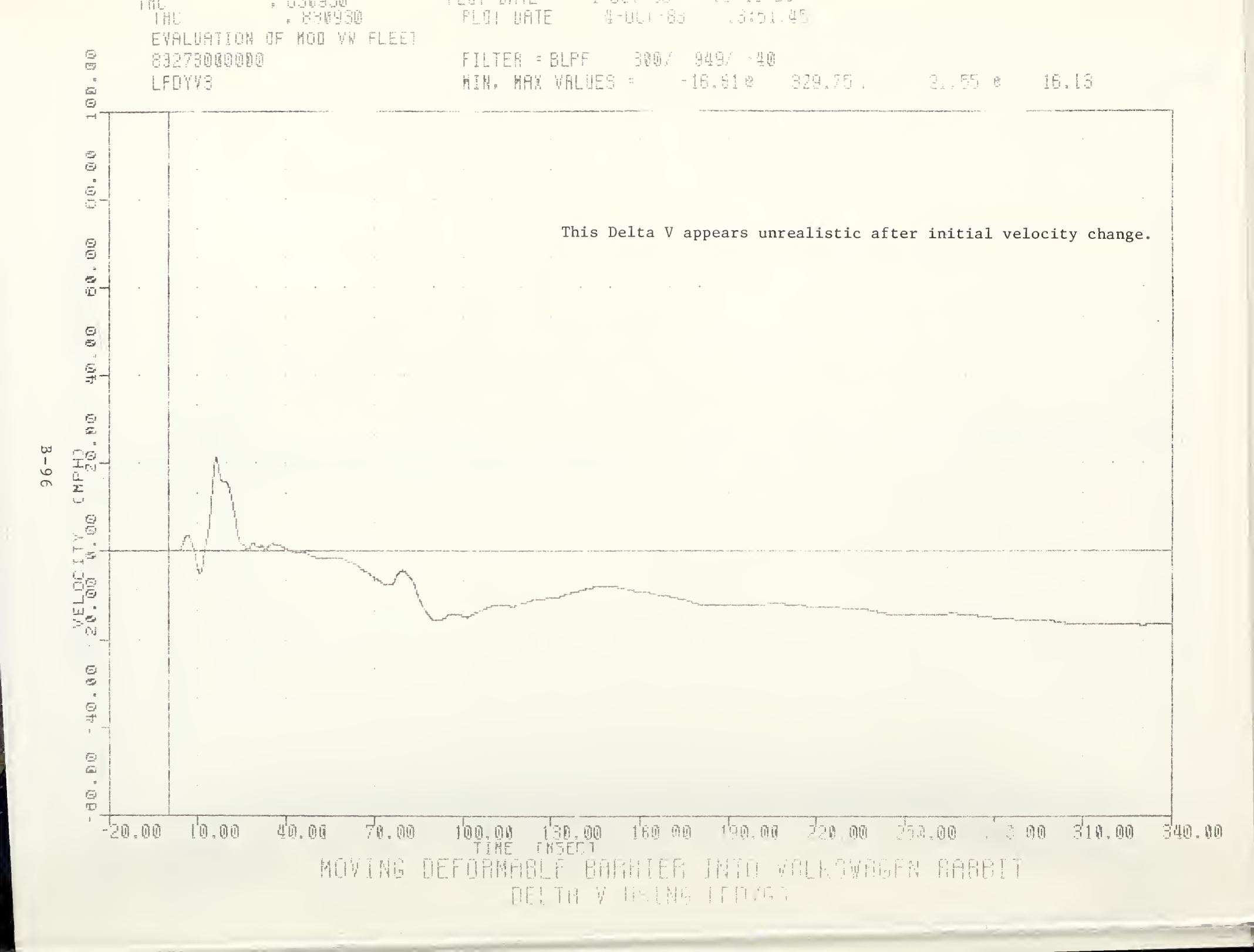

TRL , 83@930
EVALUATION OF MOD VW FLEET
83273@@@@@
LFDYV1
PLOT DATE 4-OCT-83 13:51:45
FILTER = BLPF 300/ 343/ 90
MIN, MAX VALUES = -6.93@ 96.25 , 17.47 @ 15.19
This Delta V appears unrealistic after initial velocity change
VELOCITY (MPH)
100.00
60.00
40.00
20.00
0.00
-20.00
-40.00
-60.00
-20.00
10.00
40.00
70.00
100.00
130.00
160.00
190.00
220.00
250.00
280.00
310.00
340.00
TIME (MSEC)
MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
DELTA V USING LFDYV1

TRC , 830930 PLOT DATE 4-OCT-83 10:46:20
EVALUATION OF MOD VW FLEET
8127300000 FILTER = BLPF 100/ 316/ -40
LFDY62 MIN, MAX VALUES = -569.85 @ 36.13 , 491.78 @ 16.13

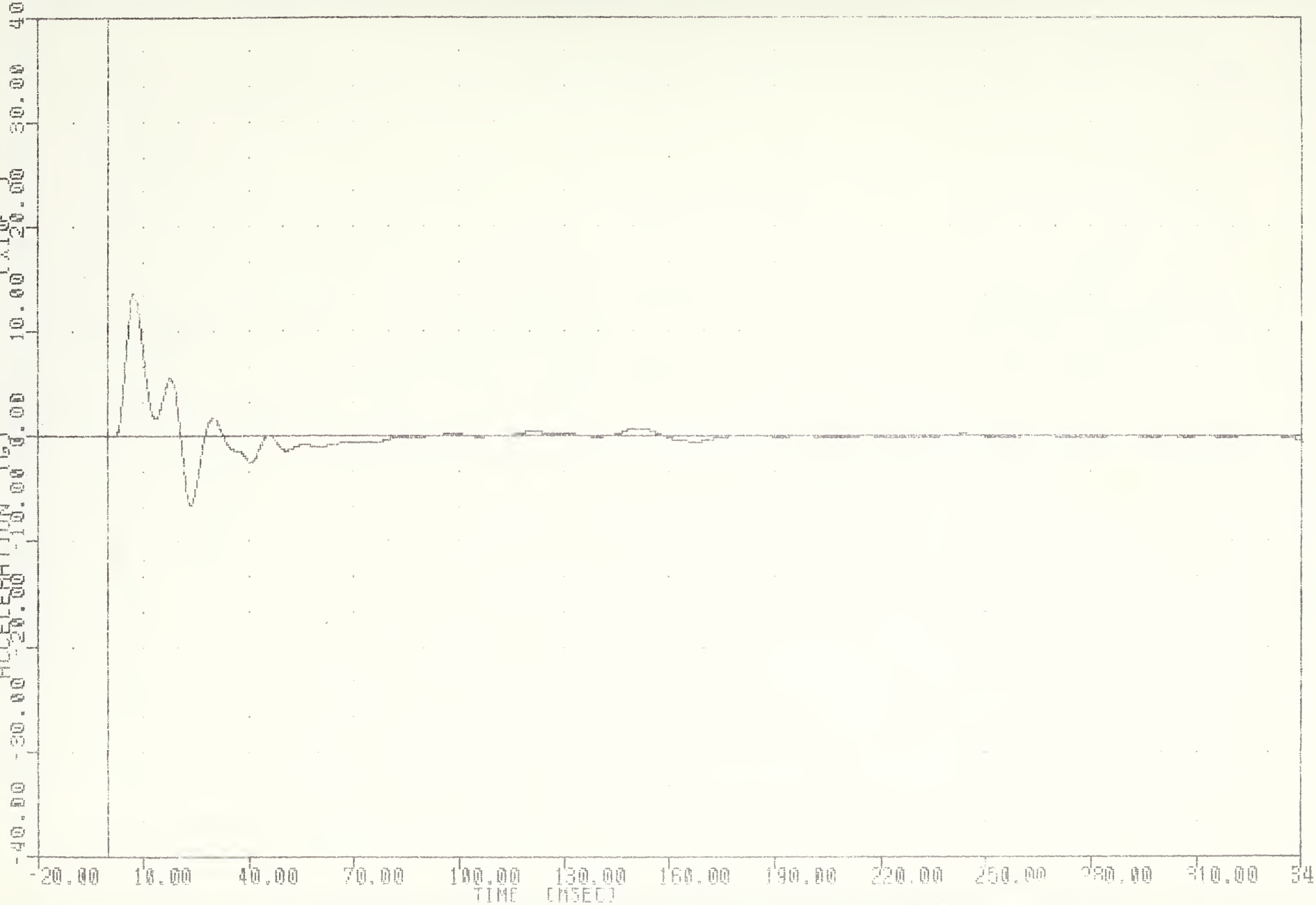


MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
VEHICLE LEFT FRONT DOOR (POSITION 8) ACCELERATION Y AXIS


TRL , 830930
PLOT DATE 4-OCT-83
EVALUATION OF MOD YW FLEET
83273000000
FILTER = BLPF
LFDYG3
MIN, MAX VALUES = -161.61 @ 24.63 , 291.31 @ 17.19
ACCELERATION (G) (X10)
40.00
30.00
20.00
10.00
0.00
-10.00
-20.00
-30.00
-40.00
-20.00
10.00
40.00
70.00
100.00
130.00
160.00
190.00
220.00
250.00
280.00
310.00
340.00
TIME (MSEC)
MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
VEHICLE LEFT FRONT DOOR (POSITION #1 ACCELERATION 7 MTS.

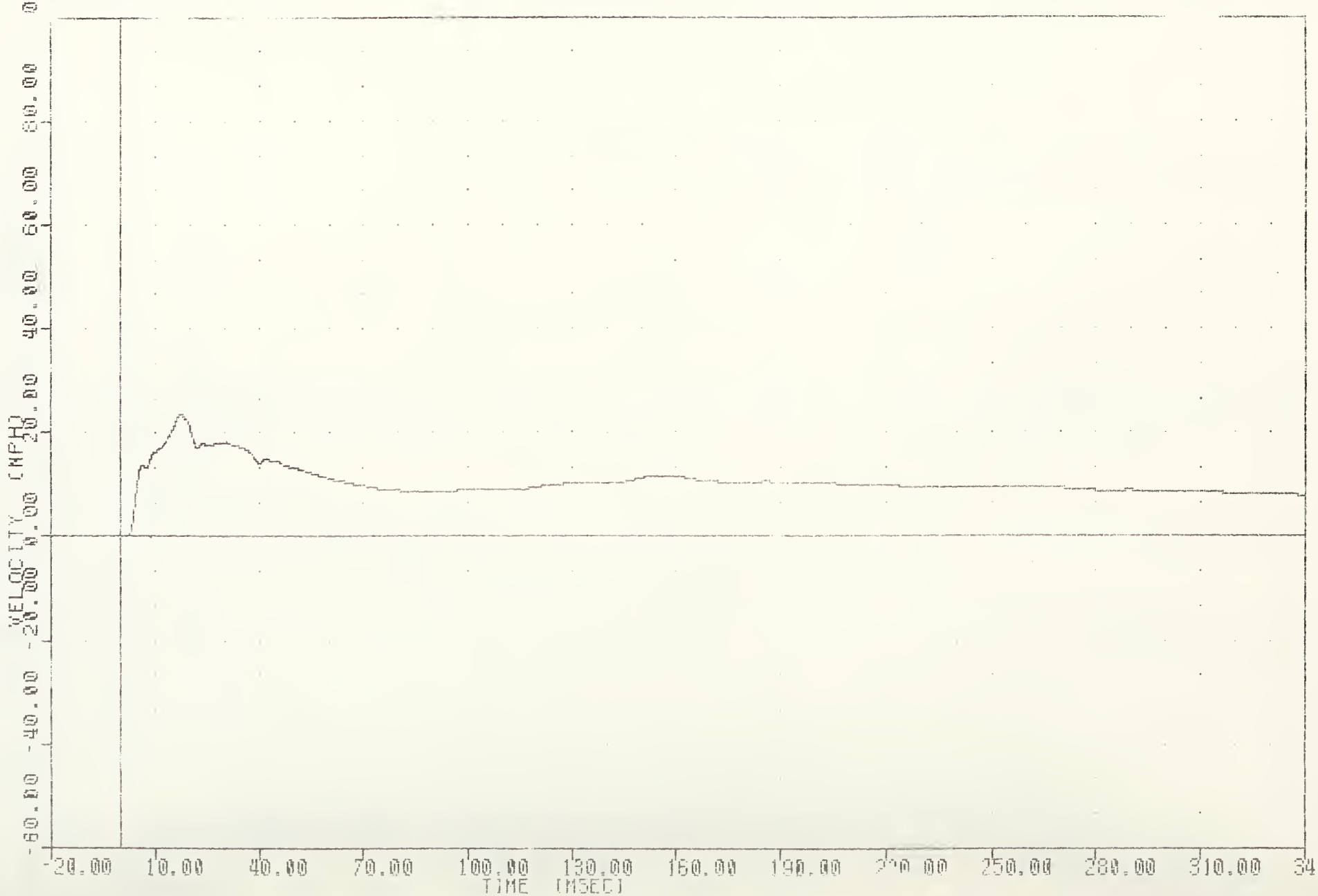

THC , 030930
THC , 830930
PLOT DATE 9-OCT-83 15:51:45
EVALUATION OF MOD VW FLEET
8327300000D0
LFDYV3
FILTER = BLPF 300/ 949/ -40
MIN, MAX VALUES = -16.51 @ 329.75 , 3.55 @ 16.13
This Delta V appears unrealistic after initial velocity change.
VELOCITY (MPH)
100.00
80.00
60.00
40.00
20.00
0.00
-20.00
-40.00
-60.00
-20.00
10.00
40.00
70.00
100.00
130.00
160.00
190.00
220.00
250.00
280.00
310.00
340.00
TIME (MSEC)
MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
DELTA V USING LFDYV3

TRC , 830930 PLOT DATE 4-OCT-83 10:46:20
EVALUATION OF MOD VW FLEET
83273000000 FILTER = BLPF 100/ 316/ -40
LFDYG4 MIN, MAX VALUES = -64.97@ 23.63 . 186.48 @ 7.25

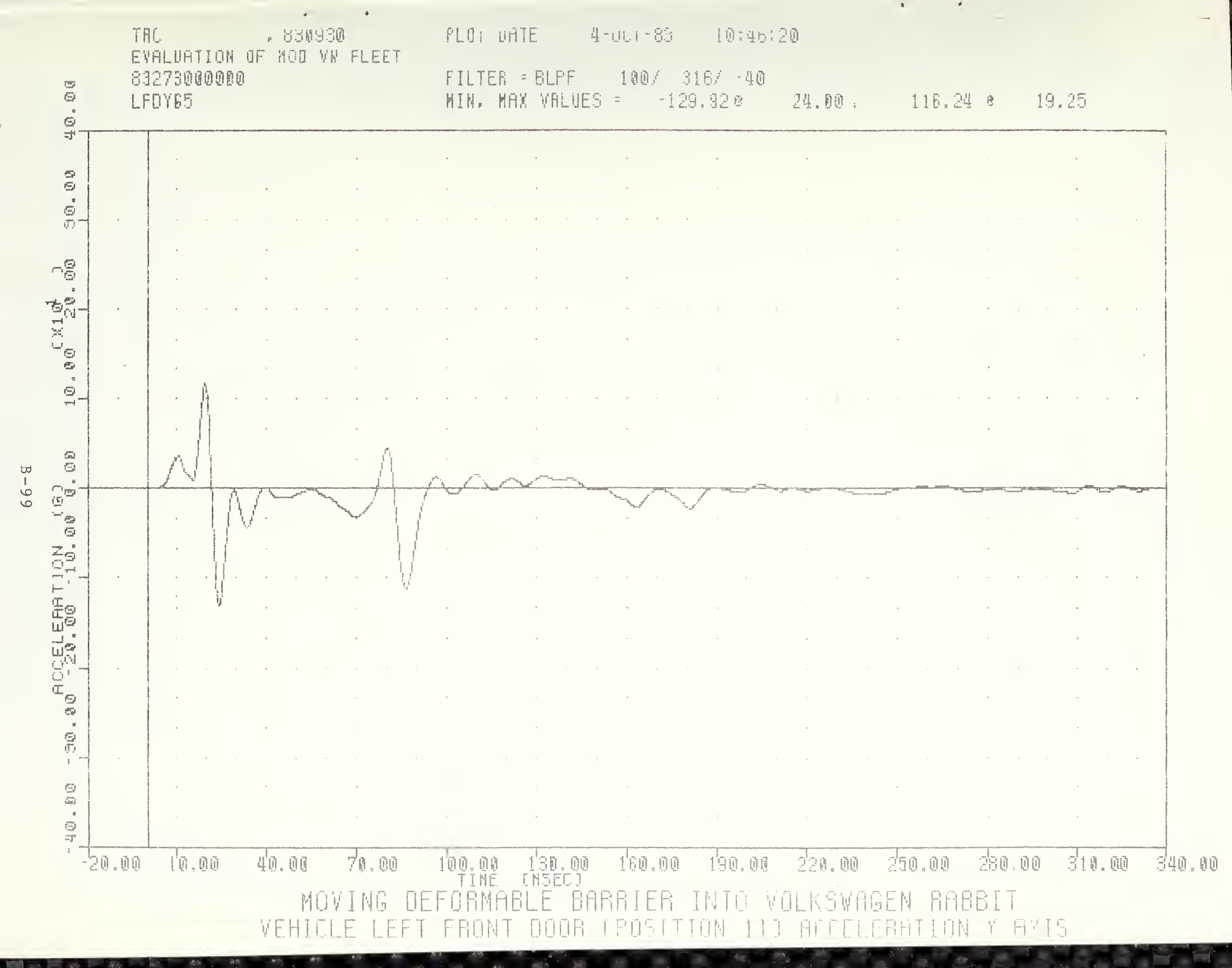


MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
VEHICLE LEFT FRONT DOOR CRUSH (10) ACCELERATION Y AXIS

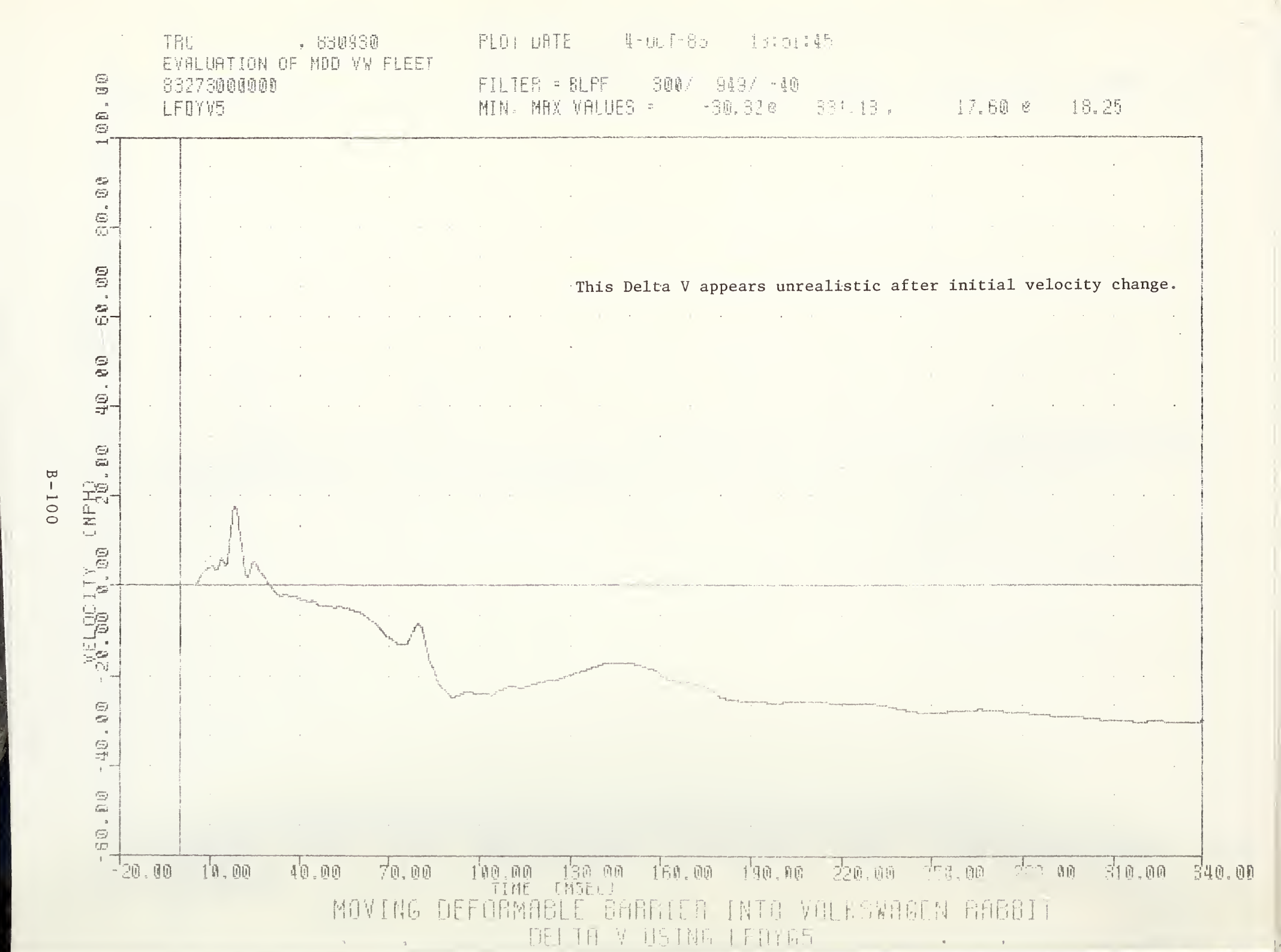
TRC , 830930 PLOT DATE 4-OCT-83 15:51:45
EVALUATION OF MOD VW FLEET
8327300000
LFDYV4
FILTER = BLPF 300/ 949/ -40
MIN, MAX VALUES = -0.02@ -4.63 , 23.60 @ 17.00

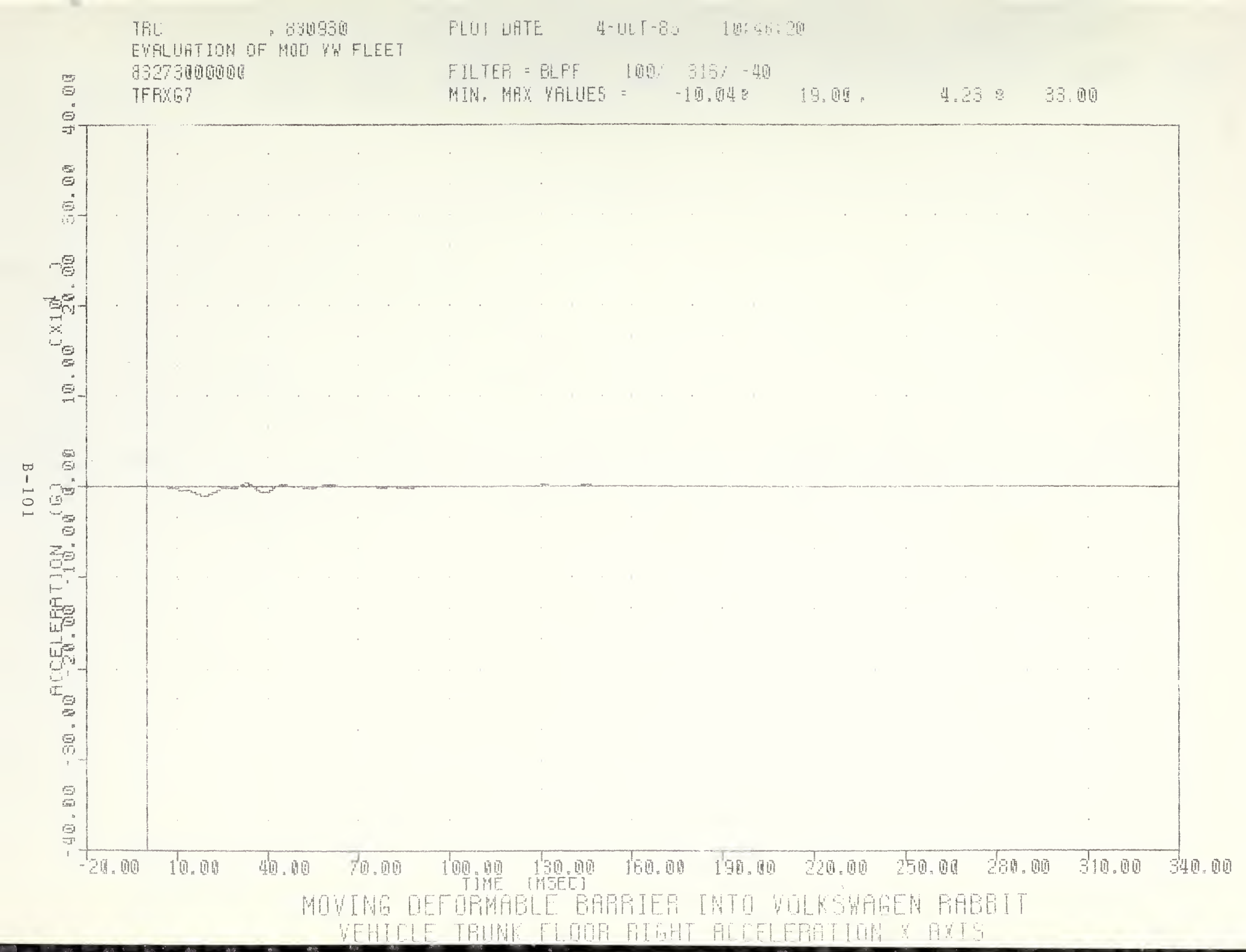


MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
DELTA V USING LFDYG4



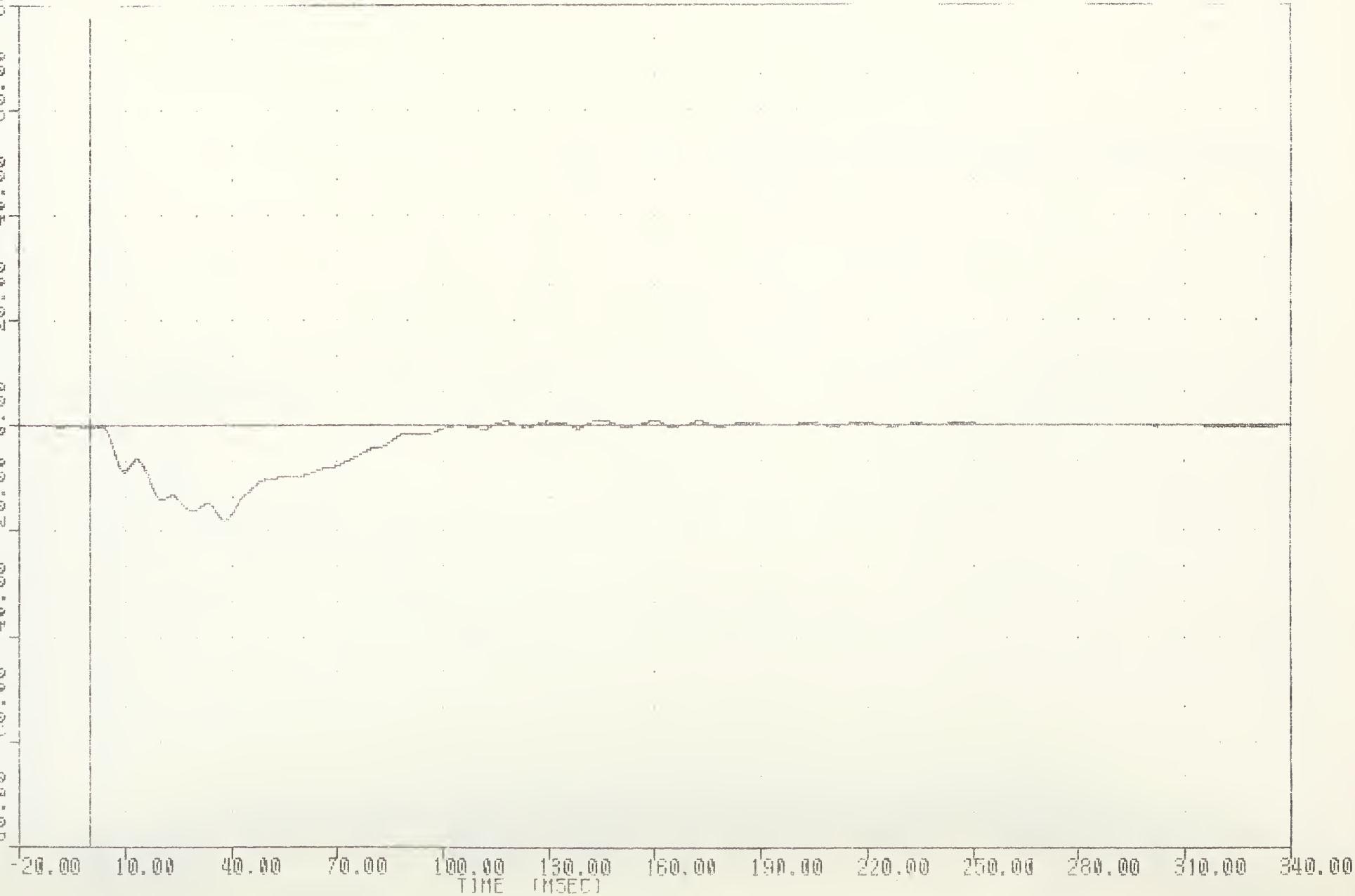
MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
VEHICLE LEFT FRONT DOOR (POSITION 11) ACCELERATION Y AXIS


TRC . 630980
EVALUATION OF MDD VW FLEET
8327300000000
LFDYV5
PLOT DATE 4-OCT-85 15:01:45
FILTER = BLPF 300/ 949/ -40
MIN. MAX VALUES = -30.320 58.13 , 17.60 @ 18.25
This Delta V appears unrealistic after initial velocity change.
VELOCITY (MPH)
100.00
80.00
60.00
40.00
20.00
0.00
-20.00
-40.00
-60.00
-20.00
10.00
40.00
70.00
100.00
130.00
160.00
190.00
220.00
250.00
280.00
310.00
340.00
TIME (MSEC)
MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
DELTA V USING LFDYV5

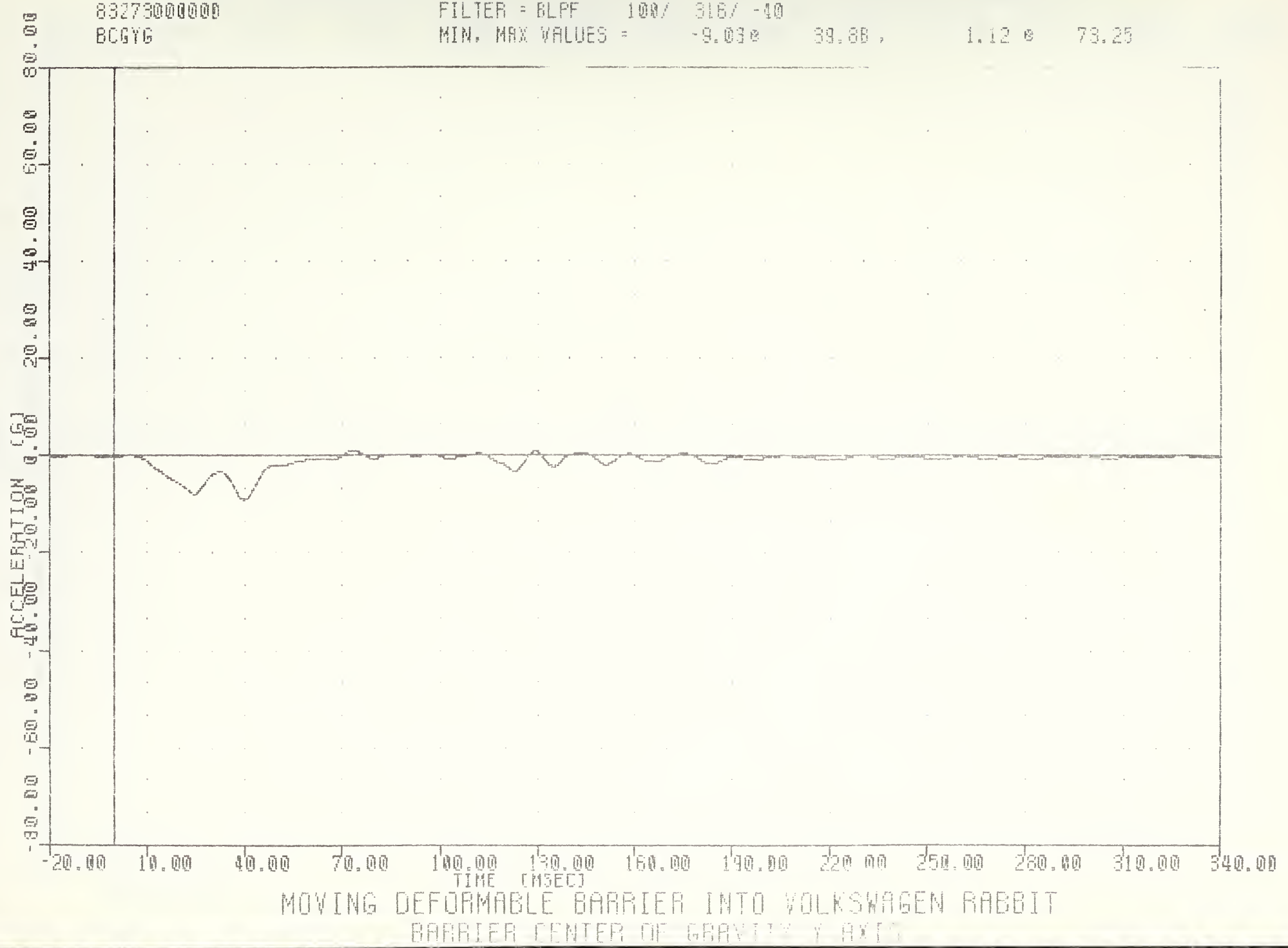


MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
VEHICLE TRUNK FLOOR RIGHT ACCELERATION X AXIS

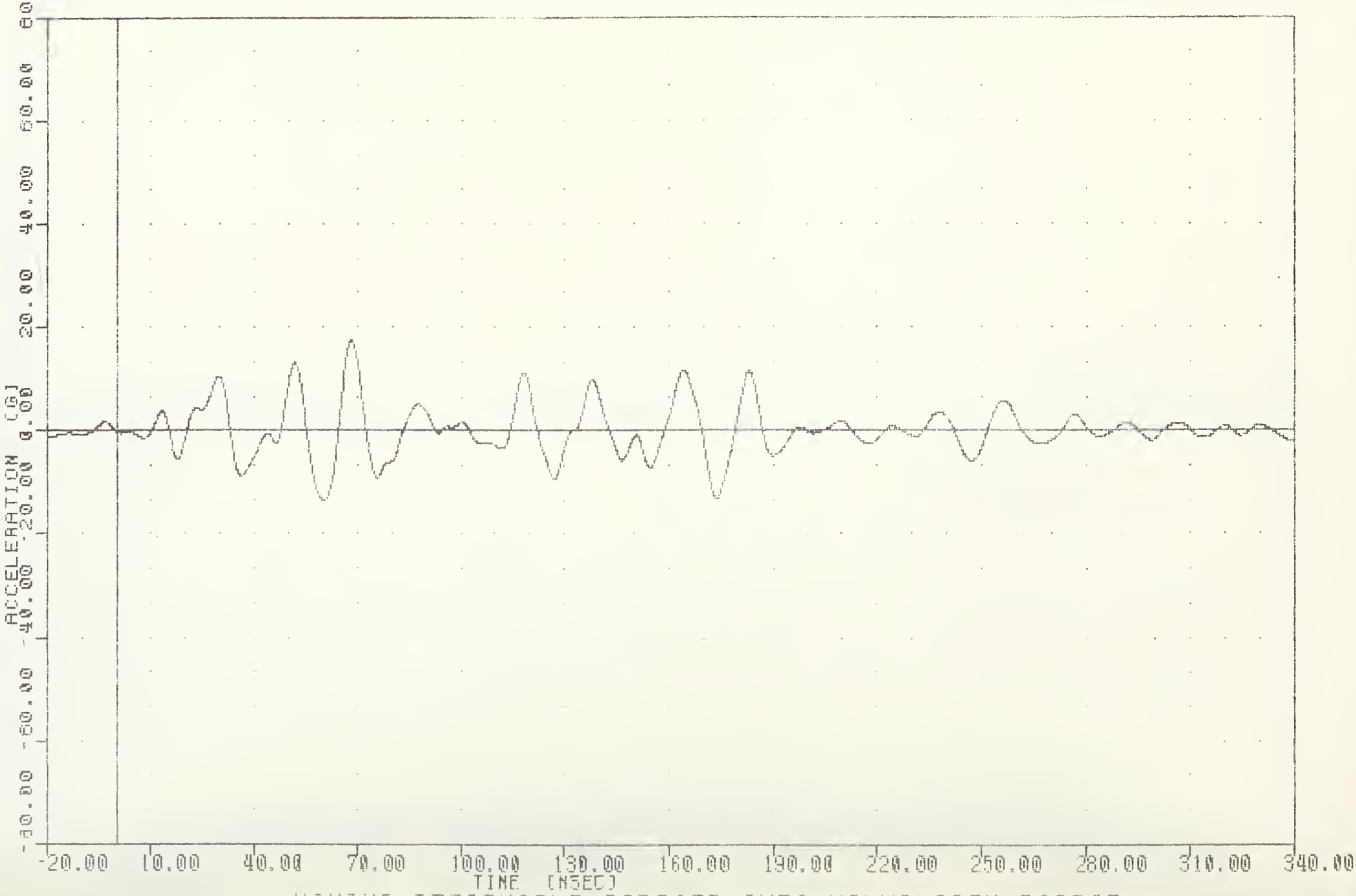
TRC , 830930 PLOT DATE 4-OCT-83 10:42:20
EVALUATION OF MOD VW FLEET
83273000000 FILTER = BLPF 100/ 316/ -40
BCGXG MIN, MAX VALUES = -17.94@ 38.00, 0.99@ 159.68



MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
BARRIER CENTER OF GRAVITY X AXIS

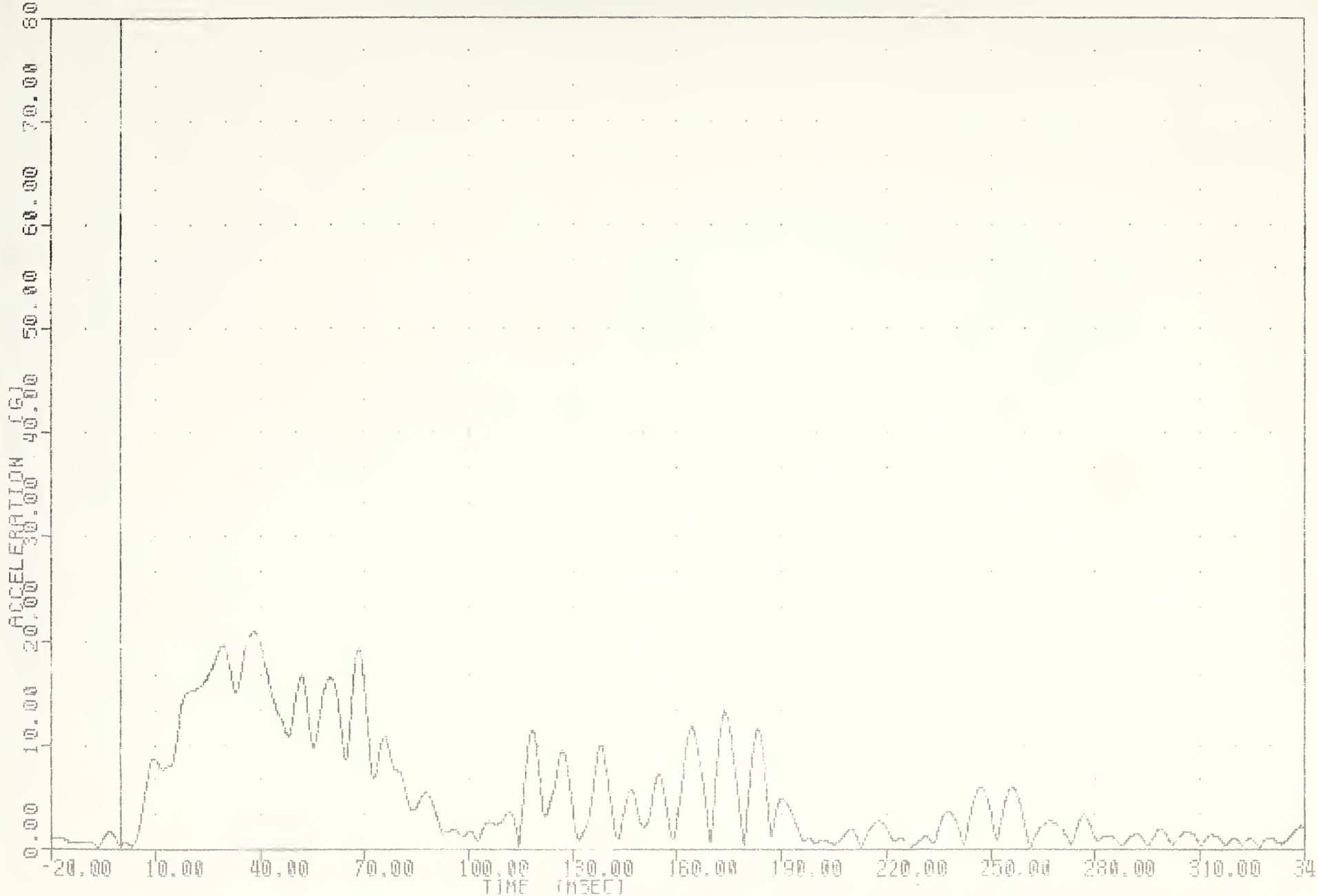

TRC , 830930
PLOT DATE 4-OCT-83 10:45:20
EVALUATION OF MOD VW FLEET
8327300000
FILTER = BLPF 100/ 316/ -40
BCGYG
MIN, MAX VALUES = -9.03@ 39.88 , 1.12 @ 78.25
80.00
60.00
40.00
20.00
0.00
-20.00
-40.00
-60.00
-80.00
ACCELERATION (G)
-20.00
10.00
40.00
70.00
100.00
130.00
160.00
190.00
220.00
250.00
280.00
310.00
340.00
TIME (MSEC)
MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
BARRIER CENTER OF GRAVITY Y AXIS

TAC , 830930 PLOT DATE 4-OCT-83 10:45:20
EVALUATION OF MOD VW FLEET
832730000000 FILTER = BLPF 100/ 316/ -40
BCGZ6 MIN, MAX VALUES = -13.40 @ 60.13 , 17.49 @ 68.00



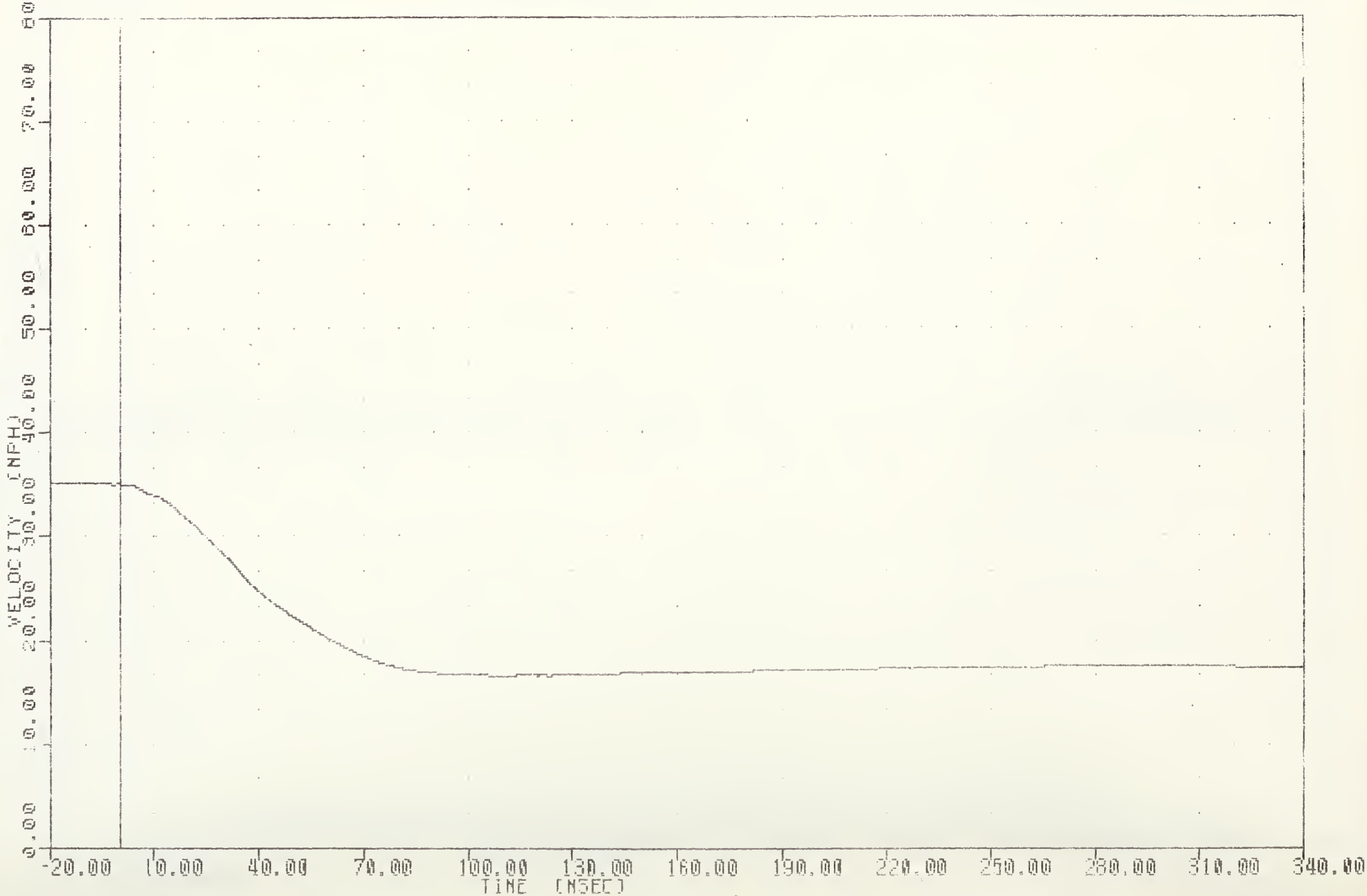
MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
BARRIER CENTER OF GRAVITY Z AXIS

TRL , 830930 PLOT DATE 4-OCT-83 10:46:20
EVALUATION OF MOD VW FLEET
83273000000 FILTER = BLPF 100/ 316/ -40
BCGRG MIN, MAX VALUES = 0.07@ -6.75 , 20.89 @ 38.00



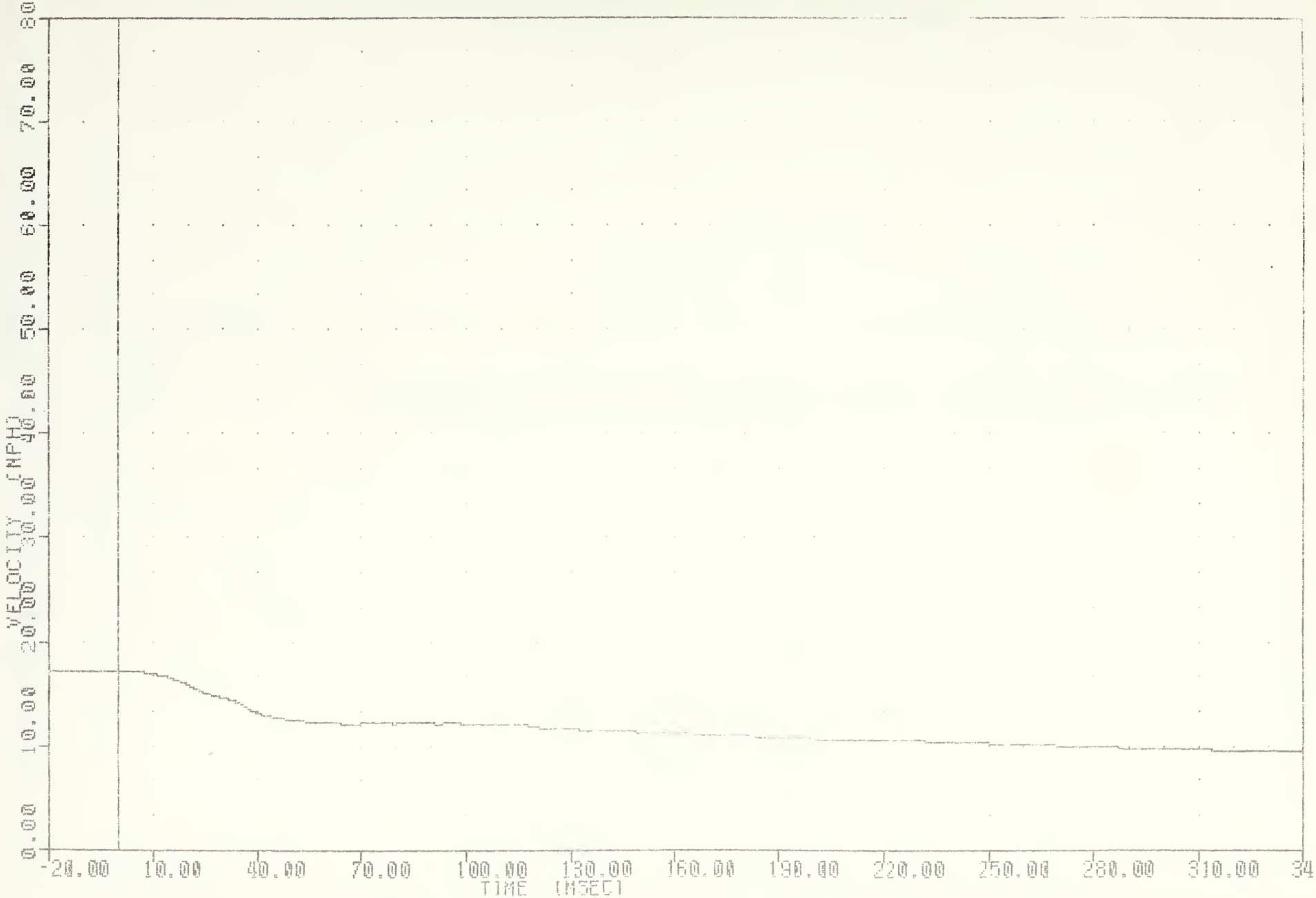
MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
BARRIER CG RESULTANT

TAR , 830930 PLOT DATE 4-OCT-83 13:51:45
EVALUATION OF MOD VW FLEET
8327300000D0 FILTER = BLPF 300/ 949/ -40
BCGXV MIN, MAX VALUES = 16.54 @ 111.13 , 35.12 @ -12.38

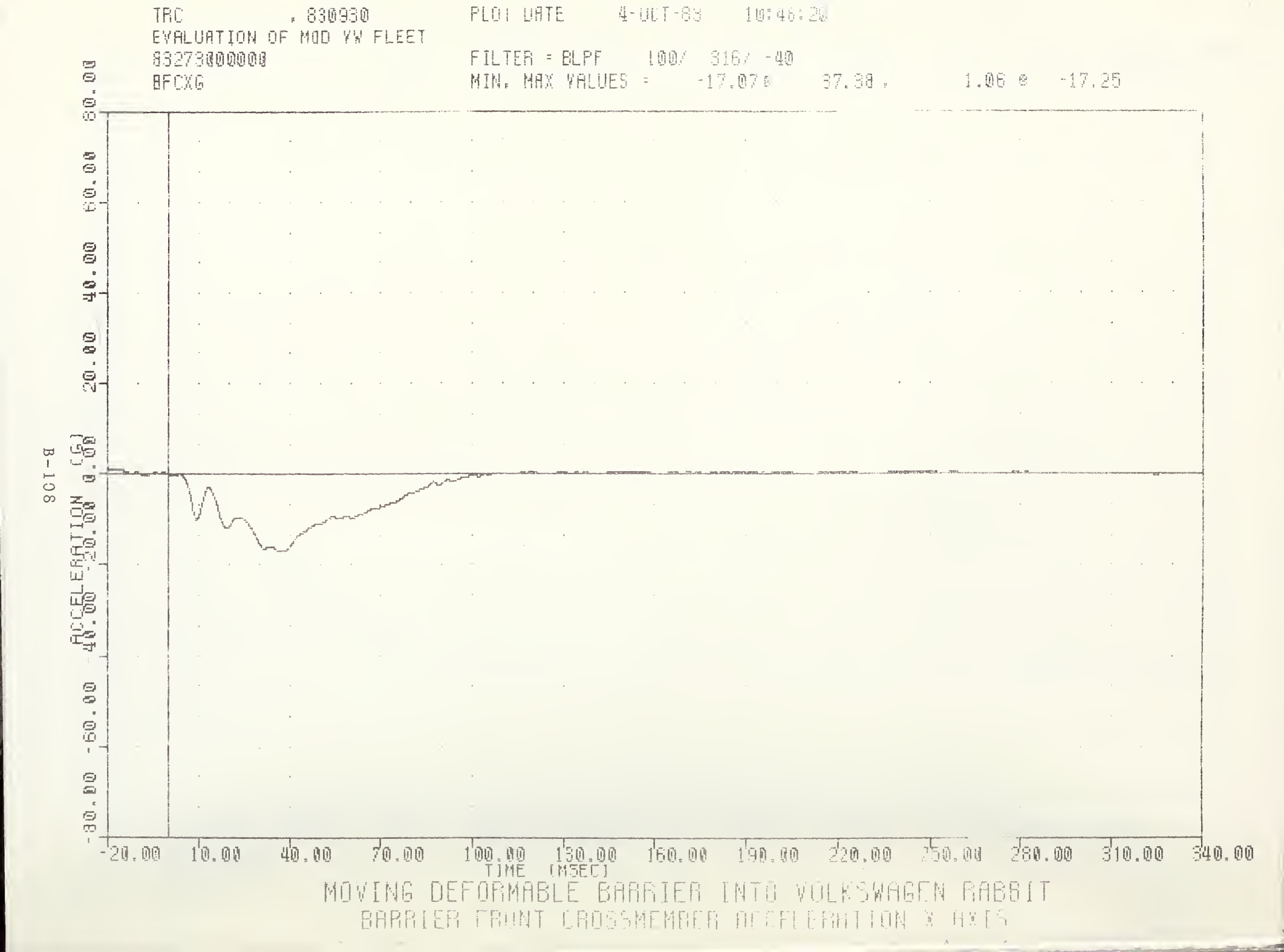


MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
DELTA V USING BCGXG

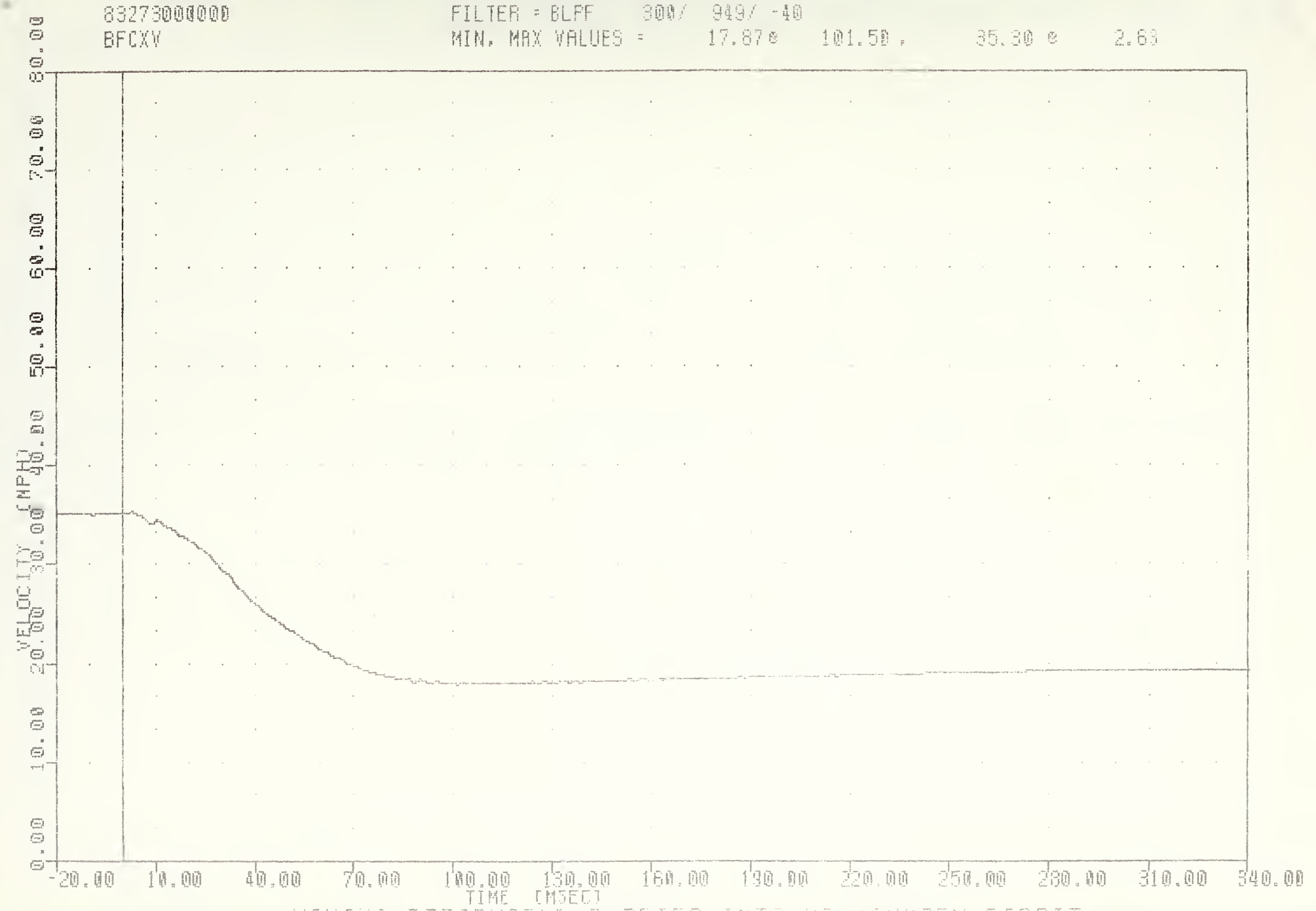
TRL , 830930 PLOT DATE 4-OCT-83 15:51:45
EVALUATION OF MOD VW FLEET
83273000000 FILTER = BLPF 300/ 949/ -40
BCGYV MIN, MAX VALUES = 9.43@ 338.88 , 17.12 @ -9.63



MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT

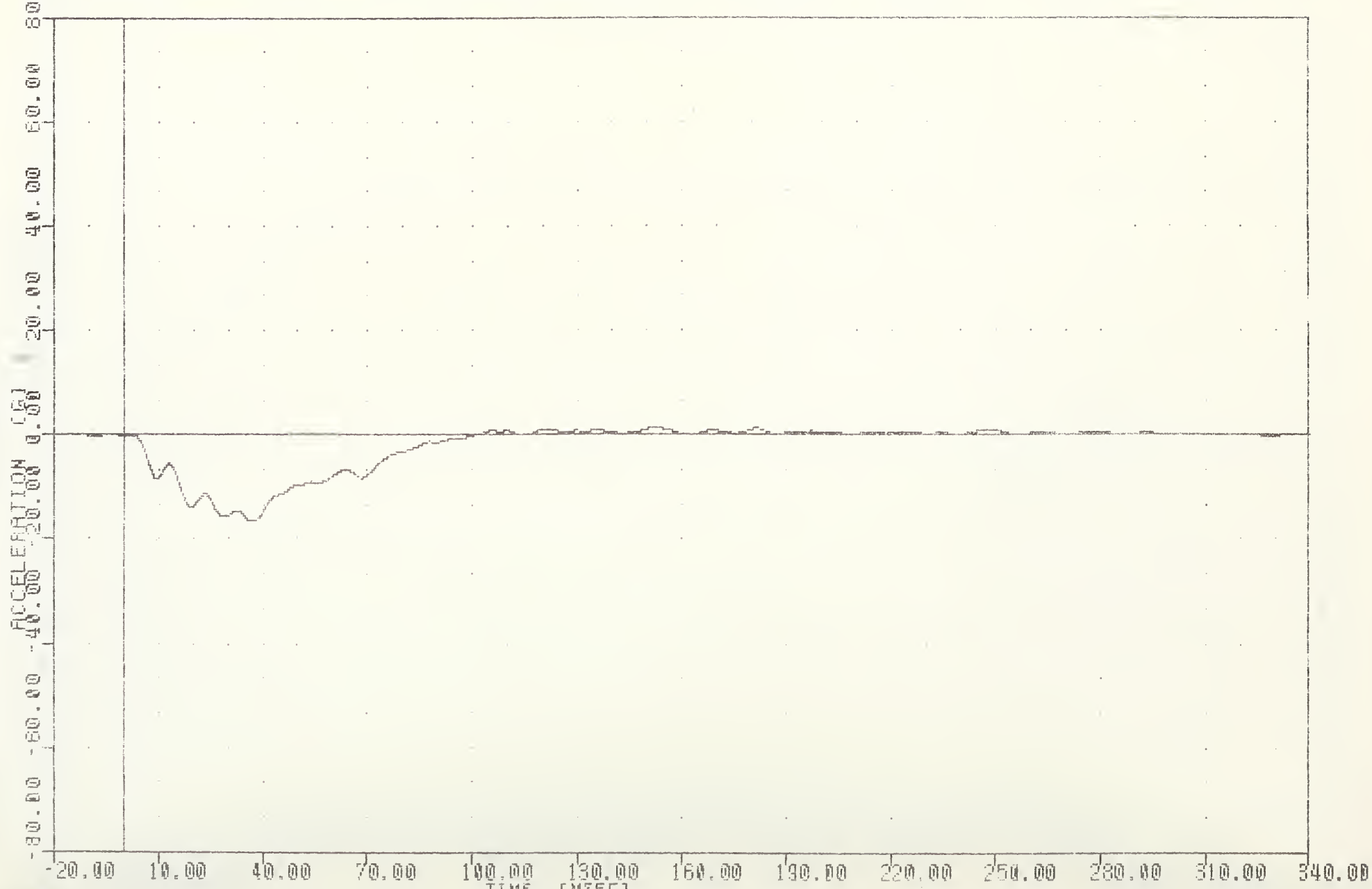


MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
BARRIER FRONT CROSSMEMBER ACCELERATION X AXIS



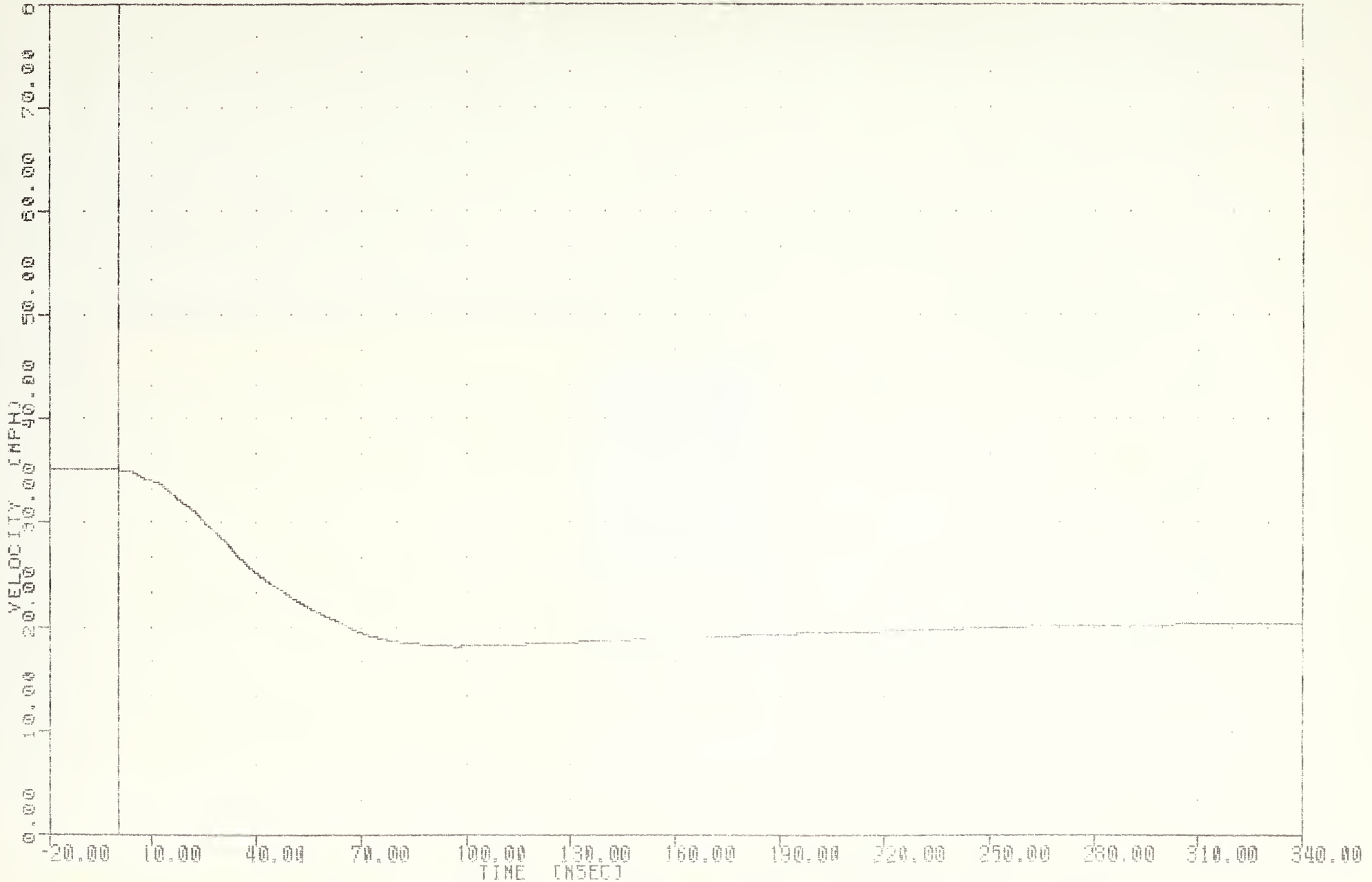
MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT

TRL , 830930 PLOT DATE 9-Oct-85 10:46:20
EVALUATION OF MOD VW FLEET
83273000000 FILTER = BLPF 100/ 316/ -40
BRCXG MIN, MAX VALUES = -16.63@ 36.88 , 1.37 @ 152.00



MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
BARRIER REAR CROSSMEMBER ACCELERATION X AXIS

TAC , 830930 PLOT DATE 4-OCT-83 13:51:45
EVALUATION OF MOD VW FLEET
83273000000 FILTER = BLPF 300/ 949/ -40
BRCXV MIN, MAX VALUES = 18.09@ 97.58 , 35.13 @ -12.50



MOVING DEFORMABLE BARRIER INTO VOLKSWAGEN RABBIT
DELTA V USING BRCXV