Dynamic Science Report No. 212-DYS-79-001
Dynamic Science Report No. 219-DYS-79-001
Dynamic Science Report No. 301-DYS-79-006

R+D

DOT #156

NEW VEHICLE ASSESSMENT AND STANDARDS ENFORCEMENT INDICANT TESTING

FMVSS 212, 219, AND 301-75

FORD MOTOR COMPANY
1979 MERCURY BOBCAT 2-DOOR HATCHBACK
NHTSA No. 790211

Prepared by:

dsi Dynamic Science Inc.
a TALLEY INDUSTRIES Company
1850 WEST PINNACLE PEAK ROAD PHOENIX, ARIZONA 85027 (602) 942-3300

FINAL REPORT

JULY 1979

Prepared for:

U.S. DEPARTMENT OF TRANSPORTATION
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
-----ENFORCEMENT-----
OFFICE OF VEHICLE SAFETY COMPLIANCE
2100 SECOND STREET, S.W.
WASHINGTON, D.C. 20590

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FINAL REPORT ACCEPTED BY:

TOM GRUBBS

NHTSA Contract Technical Manager
FMVSS 212/219/301-75

JUL 27 1979

Date of Report Acceptance

TECHNICAL REPORT STANDARD TITLE PAGE

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APPROVED: E. Grigsby, Director of Technical Support Operations

16. Abstract FMVSS 212, 219, 301-75 Standards Enforcement Indicant Testing of a 1979 Mercury Bobcat 2-door Hatchback, NHTSA 790211, VIN 9T20Y607305, was conducted at the Dynamic Science, Inc., Phoenix Facility in Arizona.

The vehicle was tested using test parameter values which are in excess of the current upper limits of the subject FMVSS in order to obtain research and vehicle rating data. This test, therefore, can only be viewed as an "indicant" test by the Office of Vehicle Safety Compliance. If a vehicle indicates an apparent failure to meet any of the requirements of these standards, another comparable vehicle will be tested to the appropriate test procedure.

The front of the test vehicle impacted the fixed collision barrier at a speed of 35.05 mph.

The test was conducted May 22, 1979, with the following indicant results
(a) FMVSS 212 - One-inch windshield separation.
(b) FMVSS 219 - No intrusion into windshield protected zone.
(c) FMVSS 301 - No fuel system leakage or observable damage.

Occupant Injury Criteria:	HIC	Chest SI	Left Femur Max. Load (lb)	Right Femur Max Load (lb)
Driver	723.3	440.0	463.1	1342.8
Passenger	1877.5	524.4	740.7	570.8
Child	1803.9	934.2	692.1	432.5

17. Key Words
Frontal Impact,
Fuel System Integrity,
Windshield Testing

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Unclassified	Unclassified	107	

Form DOT F 1700.7 (8-69)

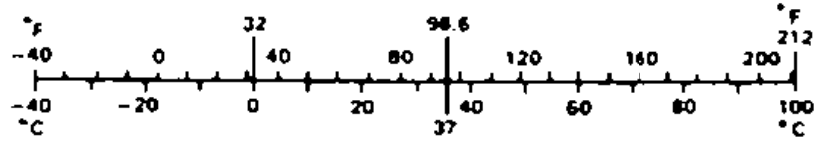
METRIC CONVERSION FACTORS

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



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SECTION 1
PURPOSE AND INTRODUCTION

PURPOSE:

The purpose of the test was to subject a 1979 Mercury Bobcat 2-door Hatchback to the indicant test requirements of DOT Test Plan TP-212-01, March 20, 1979, Standard Enforcement Indicant Testing for FMVSS No. 212, "Windshield Mounting," FMVSS No. 219, "Windshield Zone Intrusion," and FMVSS 301-75, "Fuel System Integrity." The vehicle was tested using test parameters which are in excess of the current upper limits of the subject FMVSS, in order to obtain research and vehicle rating data. This test, therefore, can only be viewed as an "indicant" test by the Office of Vehicle Safety Compliance (OVSC). If a vehicle indicates an apparent failure to meet any of the requirements of these standards, another comparable vehicle will be tested to the appropriate test procedure.

If a noncompliance to a safety standard is indicated, the compliance-related data will be deleted from the report and one (1) copy will be sent to the OVSC under separate cover. The resulting abbreviated report will be considered strictly a research report, and will be sent to the Research and Development and Office of Automotive Ratings (OAR) departments of the Department of Transportation.

INTRODUCTION:

The test procedure describing the facilities used and the test checklists completed for each vehicle indicant tested for FMVSS 212, 219, 301-75 are contained in Appendix A. Section 2 contains General Test and Vehicle Parameter Data. Section 3 contains Compliance Related Data for FMVSS 212, 219, 301-75 Indicant Testing, together with photographs related to these tests. Section 3 also contains data required by the Department of Transportation R&D and OAR departments which were acquired through the indicant approach to FMVSS 212, 219, 301-75 testing; this includes vehicle dimensional data, accelerometer location description, dummy positional data, and photographs. Appendix B contains Calcomp plots.

SECTION 2
GENERAL TEST AND VEHICLE PARAMETER DATA

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

SECTION 2

GENERAL TEST AND VEHICLE PARAMETER DATA

TEST VEHICLE INFORMATION:

Vehicle Manufacturer: Ford Motor Company

Make/Model: Mercury Bobcat 2-door Hatchback

Body Style: 2-door Hatchback Model Year: 1979

VIN: 9T20Y607305 Build Date: 9/78

NHTSA No.: 790211 Color: Tan

Engine Data: 4 cylinders; 2.3 litre displacement

Transmission Data: 4 speed (X) Manual ( ) Automatic

Date Vehicle Received by Laboratory: 5/11/79

Dealer Name & Address: Sunland Lincoln-Mercury, Glendale, Arizona

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

Vehicle Manufactured By: Ford Motor Company

Date of Manufacture: 9/78 ; VIN: 9T20Y607305

GVWR: 3443 lb; GAWR: Front = 1781 lb; Rear = 1670 lb

DATA FROM "RECOMMENDED TIRE PRESSURE" LABEL ON DOOR, POST, GLOVE BOX, ETC.:

Vehicle Load:	FRONT	REAR	RECOMMENDED TIRE SIZE:	LOAD RANGE:
Up to Capacity	24 psi	24 psi		
Vehicle Capacity:			BR 78-13, B 78-13, BR 70-13	B

Type of Seats - ___ Bench, X Bucket, ___ Split Bench

Number of Occupants (Designated Seating Capacity) = 2 Front, 2 Rear, 4 Total

CARGO LOAD = 50 lb

TOTAL = 650 lb

WEIGHT OF TEST VEHICLE AS RECEIVED FROM DEALER (with max. fluids)

Right Front = 771 lb Right Rear = 521 lb

Left Front = 746 lb Left Rear = 569 lb

TOTAL FRONT WEIGHT = 1517 lb (56.1% of Total Vehicle Weight)

TOTAL REAR WEIGHT = 1190 lb (43.9% of Total Vehicle Weight)

TOTAL DELV. WEIGHT = 2707 lb

WEIGHT OF TEST VEHICLE WITH REQUIRED DUMMIES AND 0 lb CARGO:

Right Front = 837 lb Right Rear = 663 lb

Left Front = 797 lb Left Rear = 701 lb

TOTAL FRONT WEIGHT = 1634 lb (54.5% of Total Vehicle Weight)

TOTAL REAR WEIGHT = 1364 lb (45.5% of Total Vehicle Weight)

TOTAL TEST WEIGHT = 2998 lb

Weight of ballast secured in vehicle trunk area = 0 lb

When is Calculated Test Wgt

GENERAL TEST AND VEHICLE PARAMETER DATA (CONTD)

TEST CONDITIONS:

Date of Test: May 22, 1979 Time of Test: 0910

Ambient Temperature: 86 °F at impact area.

Temperature in Occupant Compartment: 75 °F Windshield Molding Temperature: 72 °F

VEHICLE ATTITUDE: (all dimensions in inches)

Delivered Attitude:	RF 29.0	LF 29.0	RR 29.0	LR 29.0
Test Attitude:	RF 28.3	LF 28.4	RR 26.9	LR 27.4

VEHICLE TIRE DATA:

Recommended Cold Tire Pressure: Front = 24 psi
Rear = 24 psi

Recommended Tire Size: BR 78-13; BR 70-13; B 78-13

Load Range: B

Tires on Vehicle: BR 78-13

Is Spare Tire a "Space Saver": No (yes/no)

Is Spare Tire standard equipment: Yes (yes/no)

TEST FLUID DATA:

Test Fluid Type: Red Stoddard Solvent ; Spec. Grav.: 0.764

Kinematic Viscosity: .99 centistokes

Spill Point Volume: 13.2 Gallons (SPV)

Test Volume: 12.0 Gallons (90 to 91% of SPV)

Fuel System Capacity (data from Owner's Manual): 13.0 gallons

Details of Fuel System:

Electric Fuel Pump: No (yes/no); Fuel Injection: No (yes/no)

Does electric fuel pump operate with ignition switch "on" and the engine not operating: No (yes/no)

VEHICLE REBOUND AND CRUSH:

Overall Length of Test Vehicle	Pre-test = R 166.5	L 166.5	inches
	Post-test = R 146.5	L 146.4	inches

CRUSH = R 20.0 L 20.1

FOR FRONTAL IMPACTS, distance from front of test vehicle to the barrier after impact = 36.0 inches

VISIBLE DUMMY CONTACT POINTS

	Driver	Passenger	Child
Head	Top of Steering Wheel	Dash	Seat Back
Chest	Steering Wheel	None	None
Abdomen	None	None	None
Left Knee	Dash	Glove Box	None
Right Knee	Dash	Glove Box	None

	Front		Rear	
DOOR OPENING	Left	Right	Left	Right
Easy				
Difficult	X	X	NA	NA
Tools Required				
SEAT BACK				
Failure			X	X
GLAZING DAMAGE				
Windshield	Cracked			
Backlight			NA*	
Others	None	None	None	None

OTHER NOTABLE IMPACT EFFECTS: Drive shaft U-joint tore off at rear differential.

Right and left shoulder belts caught D-ring during crash

No seat movement occurred.

*Was removed prior to test to permit camera view of child dummy.
NA - Not Applicable

Figure 2-1. Pre-test Front View - 1979 Mercury Bobcat 2-door Hatchback - NHTSA 790211.

Figure 2-2. Post-test Front View - 1979 Mercury Bobcat 2-door Hatchback - NHTSA 790211.

Figure 2-3. Pre-test Side View - 1979 Mercury Bobcat 2-door Hatchback - NHTSA 790211.

Figure 2-4. Post-test Left Side View - 1979 Mercury Bobcat 2-door Hatchback - NHTSA 790211.

Figure 2-5. Post-test Right Side View - 1979 Mercury Bobcat 2-door Hatchback - NHTSA 790211.

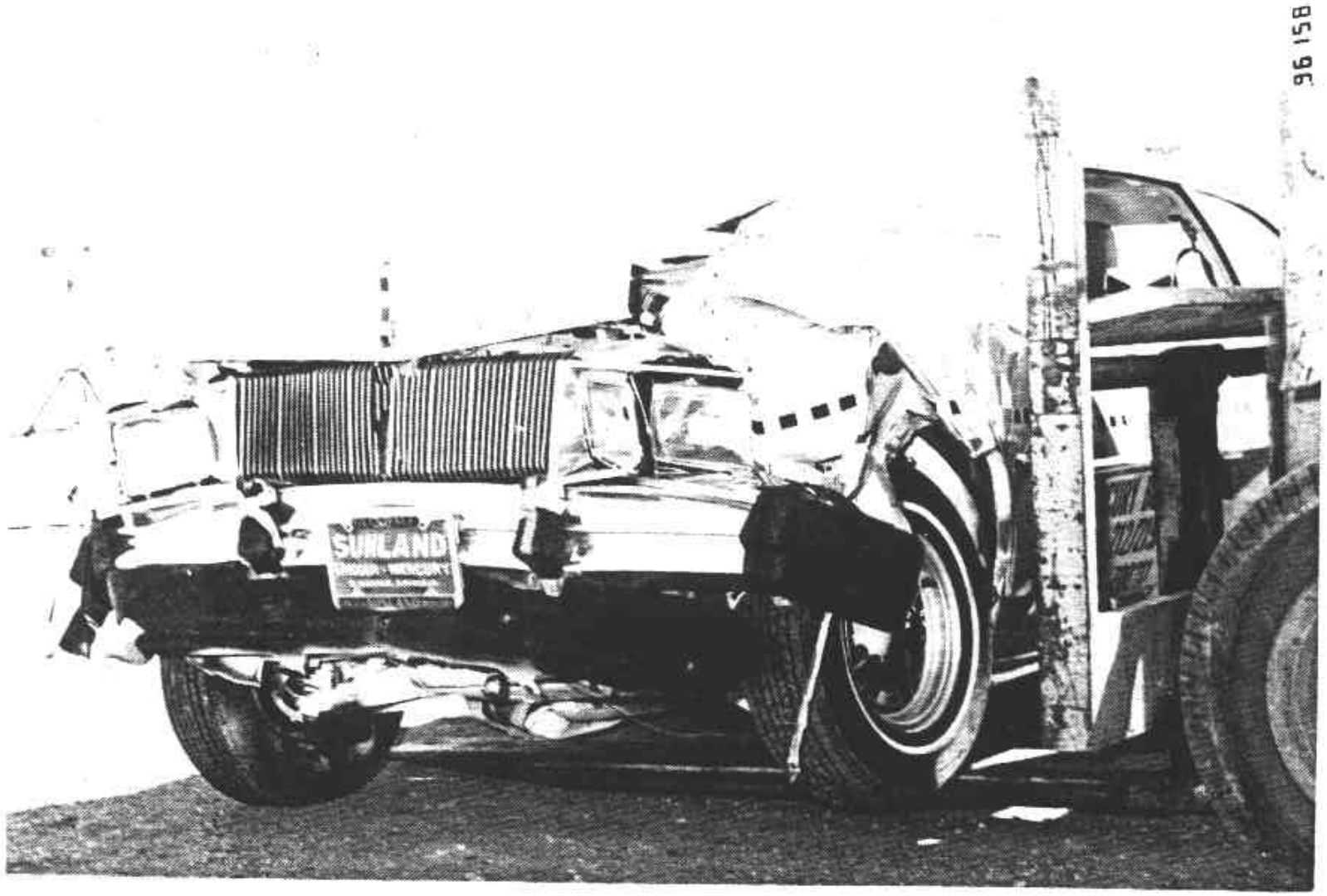


Figure 2-6. Post-test Left Front Quarter View - 1979 Mercury Bobcat 2-door Hatchback - NHTSA 790211.

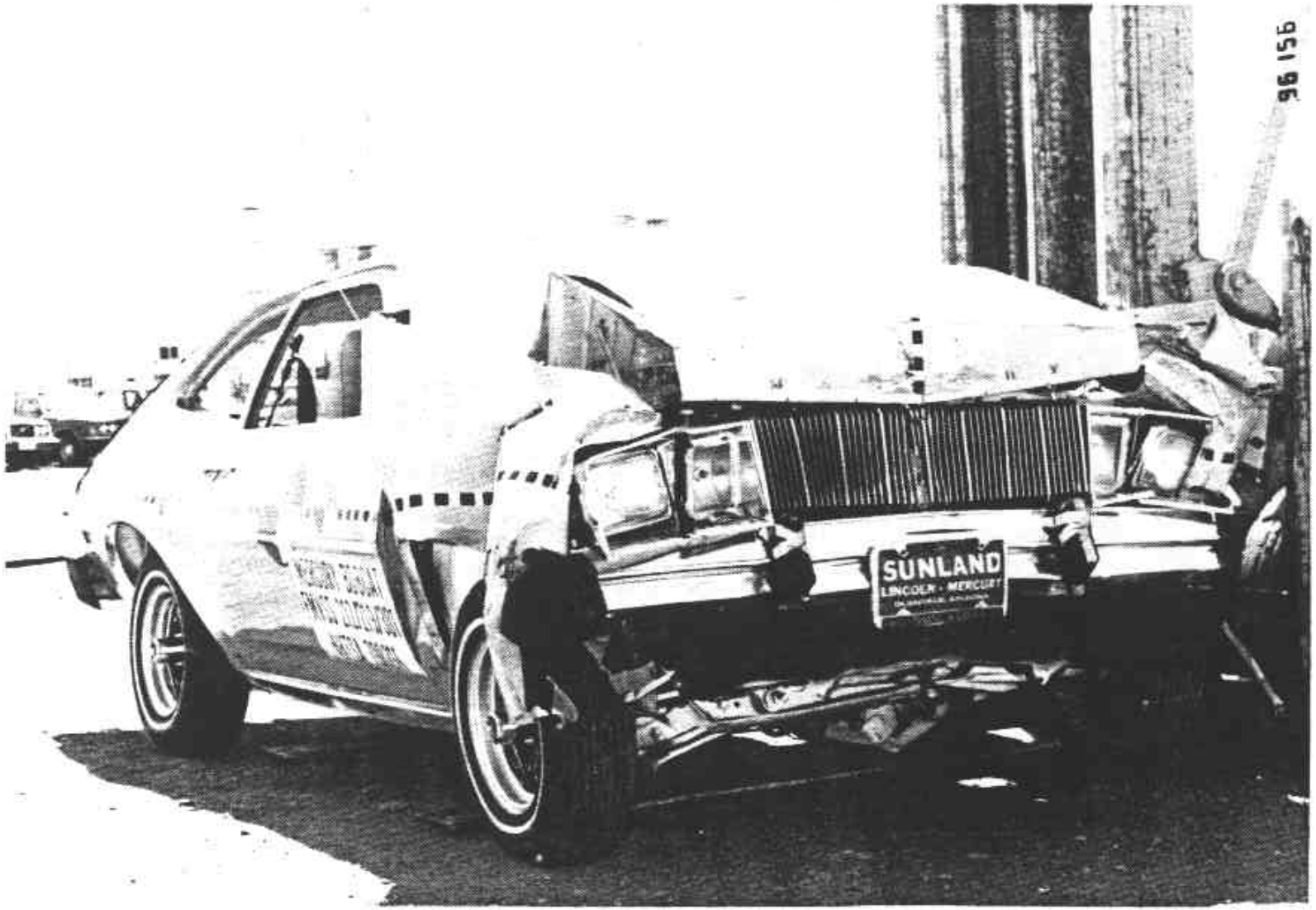


Figure 2-7. Post-test Right Front Quarter View - 1979 Mercury Bobcat 2-door Hatchback - NHTSA 790211.

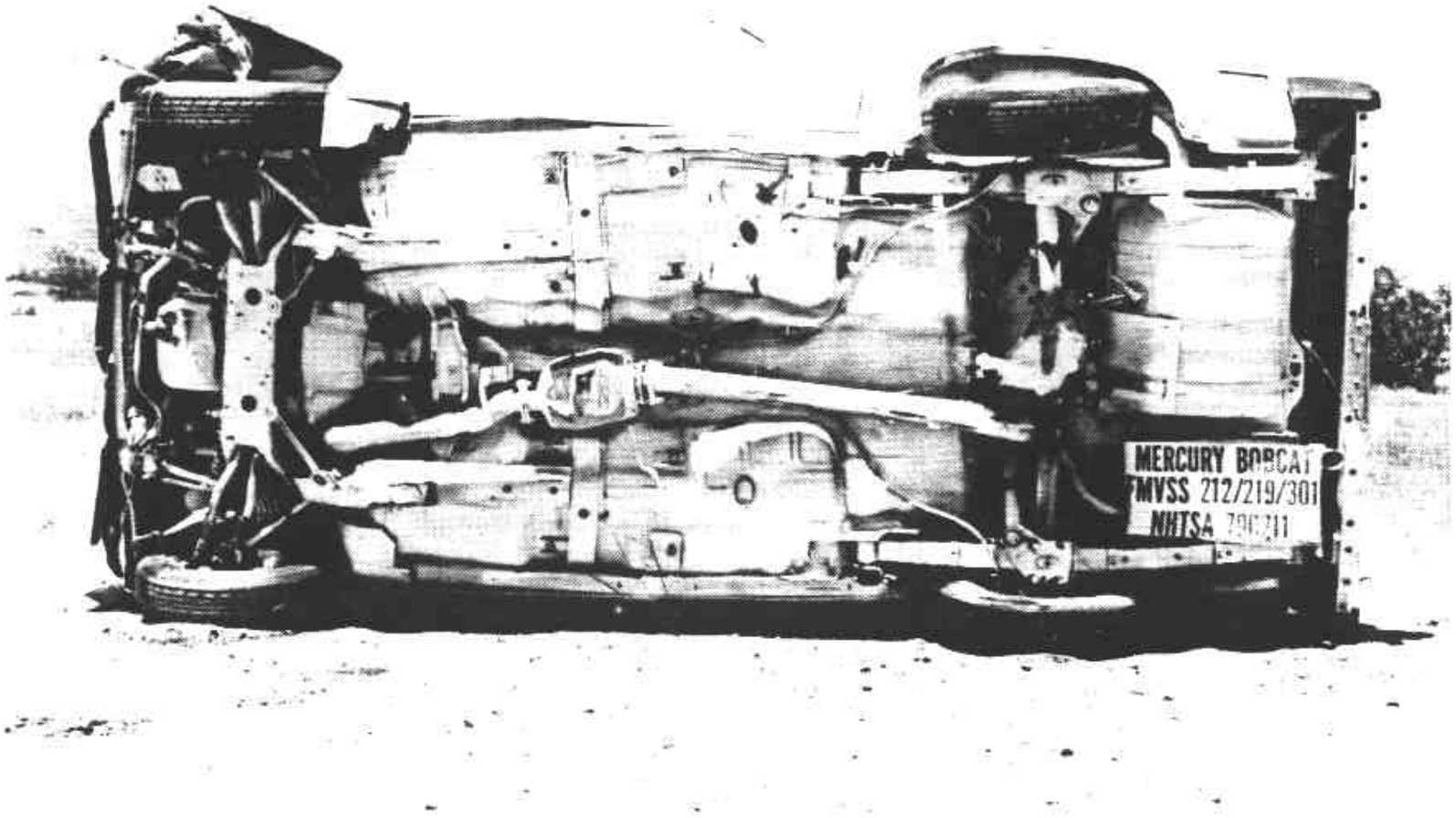


Figure 2-8. Post-test Overall Underside View - 1979 Mercury Bobcat 2-door Hatchback - NHTSA 790211.

SECTION 3

COMPLIANCE-RELATED DATA
FMVSS 212, 219, 301-75 INDICANT TESTING

The following data sheets and photographs document compliance data related to FMVSS 212, 219, and 301-75.

SECTION 3

SUMMARY OF RESULTS
FMVSS 212 INDICANT DATA

VEHICLE DATA:

Manufacturer: Ford Motor Company Model Year: 1979

Make/Model: Mercury Bobcat

Body Style: 2-door Hatchback Manufacture Date: 9/78

VIN: 9T20Y607305 NHTSA No.: 790211

Delivery Weight: 2707 lb; Test Weight: 2998 lb; GVWR: 3443 lb

Engine: No. of Cylinders 4 Displacement 2.3 liters

Vehicle Mileage: 68.6 miles

Remarks:

GENERAL TEST CONDITIONS:

Vehicle Impact Speed:

Primary 35.05 mph; Secondary 35.05 mph

Speed Range Specified by CTM: 34.5 to 35.5 mph

Ambient Temperature at Time of Test: 86 °F

Date of Test: May 22, 1979 Time: 0910

Windshield Molding Temperature: 72 °F

SUMMARY FOR FMVSS NO. 212:

			Actual Data	Standard Requirement	Pass/Fail
1.	Pre-test Windshield Periphery (in.)	Right	65		
		Left	65		
		Total	130		
2.	Post-test Windshield Periphery (in.)	Right	64		
		Left	65		
		Total	129	75% Minimum	Pass

LABORATORY INFORMATION:

Project Engineer: R. Pirtle Date: 5/79

Project Manager: E. Enserink Date: 5/79

SECTION 3

TEST DATA SHEET FOR
FMVSS 212 INDICANT DATA

VEHICLE DATA:

NHTSA No.: 790211 Tire Size and Type: BR 78-13

Cold Tire Inflation Pressure (psi): RF 24 LF 24
RR 24 LR 24 Spare -

Delivered Vehicle Attitude (in.):

RF 29.0 LF 29.0 RR 29.0 LR 29.0

Vehicle Test Attitude (in.):

RF 28.3 LF 28.4 RR 26.9 LR 27.4

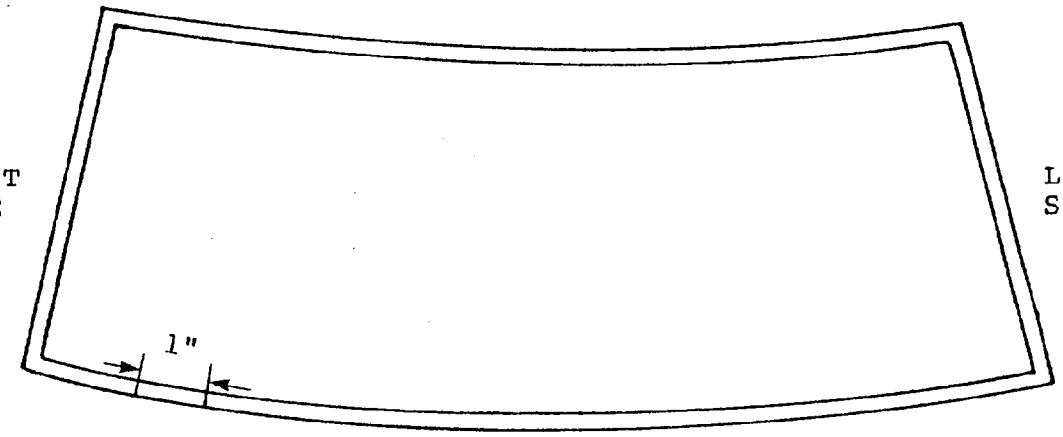
Static Crush: 20.0 in. (Right Side) 20.1 in. (Left Side)

Rebound Distance: Right 36.0 in. Left 36.0 in.

SPECIFIC TEST DATA FOR FMVSS 212:

Details of Windshield Mounting: The windshield is secured to the body by a 3/4-inch wide mastic on all sides. A 3/4-inch wide chrome molding borders the windshield on the top, right and left sides. A one-inch wide molding borders the bottom edge.

Area of Retention Failure (as noted):



FRONT VIEW

SECTION 3
FMVSS 301-75 INDICANT DATA

GENERAL TEST CONDITIONS:

Vehicle Impact Speed:

Primary 35.05 mph Secondary 35.05 mph

Speed Range Specified by CTM: 34.5 to 35.5 mph

Ambient Temperature at Time of Test: 86 °F

Date of Test: May 22, 1979 Time: 0910

FUEL SYSTEM DATA:

Test Fluid: Stoddard Solvent No. 2 Specific Gravity: 0.764

Kinematic Viscosity: 0.99 centistokes

Spill Point Volume: 13.2/84 U.S. gal/lb Liquid Temp: °F

Test Volume: 12.0/76.5 U.S. gal/lb Liquid Temp: °F

Details of Fuel Tank, Filler Pipes, and Connections:
The fuel tank is located below the trunk and aft of the rear wheels. The tank is held in place by two tank straps. A plastic shield covers the portion of the tank just aft of the rear axle. The filler tube fits through a grommet on the upper left side of the tank, and terminates at the exterior of the body just aft of the rear wheel on the left side. The tube is sealed by a twist-type cap.

PERFORMANCE SUMMARY FOR FMVSS NO. 301-75:

	Actual Data	Standard Requirement	Pass/Fail
1. Transimpact Fluid Loss (oz)	0.0	1 oz maximum	Pass
2. Post-impact Fluid Loss (oz) (30-minute period post-impact)	0.0	1 oz/ minute maximum	Pass

Details of Leakage:

3. Static Rollover: See following four pages

LABORATORY INFORMATION:

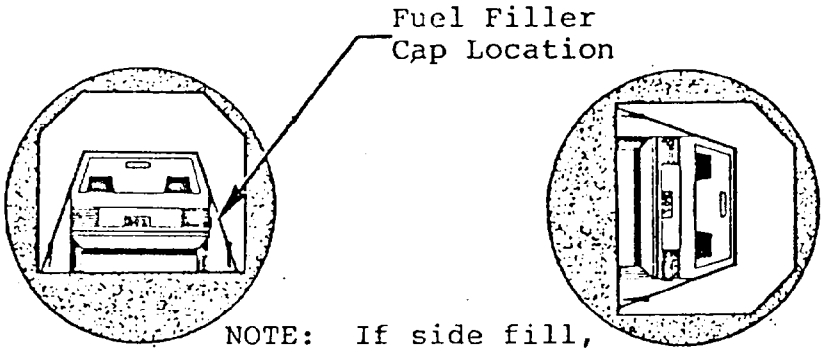
Project Engineer: R. Pirtle Date: 5/79

Project Manager: E. Enserink Date: 5/79

SECTION 3

FMVSS 301-75 INDICANT STATIC ROLLOVER DATA SHEET

TEST PHASE: 0 to 90° VEHICLE NHTSA NO. 790211



NOTE: If side fill, rotate so that filler cap is down.

DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:

Rollover Fixture 90° Rotation Time.... = 1 min, 39 sec +
(Spec. Range = 1 to 3 min)

FMVSS 301 Position Hold Time..... = 5 min, 0 sec =

Total..... = 6 min, 39 sec

Next Whole Minute Interval..... = 7 min

FMVSS 301 REQUIREMENTS AND ACTUAL TEST RESULTS:

Time Period	First 5 min (from onset)	6th min	7th min	8th min (if req'd)
Maximum Spillage Allowed (oz)	5	1	1	1
Actual Spillage Recorded	0	0	0	--

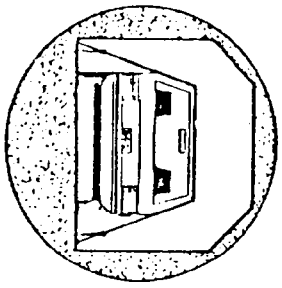
NOTE: Spillage is recorded in whole minute intervals only - as determined above.

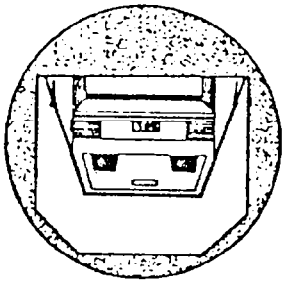
SOLVENT SPILLAGE LOCATION(S):

SECTION 3

FMVSS 301-75 INDICANT STATIC ROLLOVER DATA SHEET

TEST PHASE: 90 to 180° VEHICLE NHTSA NO. 790211





DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:

Rollover Fixture 90° Rotation Time.... = 1 min, 37 sec +
(Spec. Range = 1 to 3 min)

FMVSS 301 Position Hold Time..... = 5 min, 0 sec =

Total..... = 6 min, 37 sec

Next Whole Minute Interval..... = 7 min

FMVSS 301 REQUIREMENTS AND ACTUAL TEST RESULTS:

Time Period	First 5 min (from onset)	6th min	7th min	8th min (if req'd)
Maximum Spillage Allowed (oz)	5	1	1	1
Actual Spillage Recorded	0	0	0	--

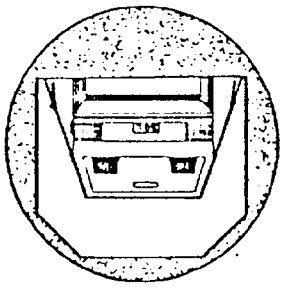
NOTE: Spillage is recorded in whole minute intervals only - as determined above.

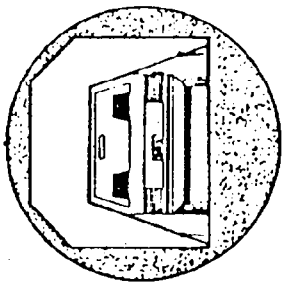
SOLVENT SPILLAGE LOCATION(S):

SECTION 3

FMVSS 301-75 INDICANT STATIC ROLLOVER DATA SHEET

TEST PHASE: 180° to 270° VEHICLE NHTSA NO. 790211





DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:

Rollover Fixture 90° Rotation Time.... = 1 min, 36 sec +
(Spec. Range = 1 to 3 min)

FMVSS 301 Position Hold Time..... = 5 min, 0 sec =

Total..... = 6 min, 36 sec

Next Whole Minute Interval..... = 7 min

FMVSS 301 REQUIREMENTS AND ACTUAL TEST RESULTS:

Time Period	First 5 min (from onset)	6th min	7th min	8th min (if req'd)
Maximum Spillage Allowed (oz)	5	1	1	1
Actual Spillage Recorded	0	0	0	--

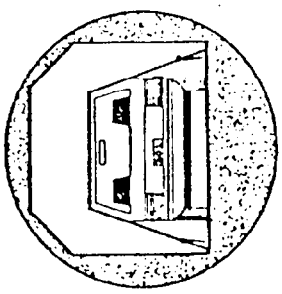
NOTE: Spillage is recorded in whole minute intervals only - as determined above.

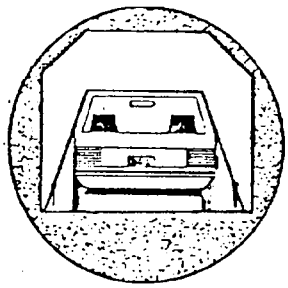
SOLVENT SPILLAGE LOCATION(S):

SECTION 3

FMVSS 301-75 INDICANT STATIC ROLLOVER DATA SHEET

TEST PHASE: 270° to 360° VEHICLE NHTSA NO. 790211





DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:

Rollover Fixture 90° Rotation Time.... = 1 min, 38 sec +
(Spec. Range = 1 to 3 min)

FMVSS 301 Position Hold Time..... = 5 min, 0 sec =

Total..... = 6 min, 38 sec

Next Whole Minute Interval..... = 7 min

FMVSS 301 REQUIREMENTS AND ACTUAL TEST RESULTS:

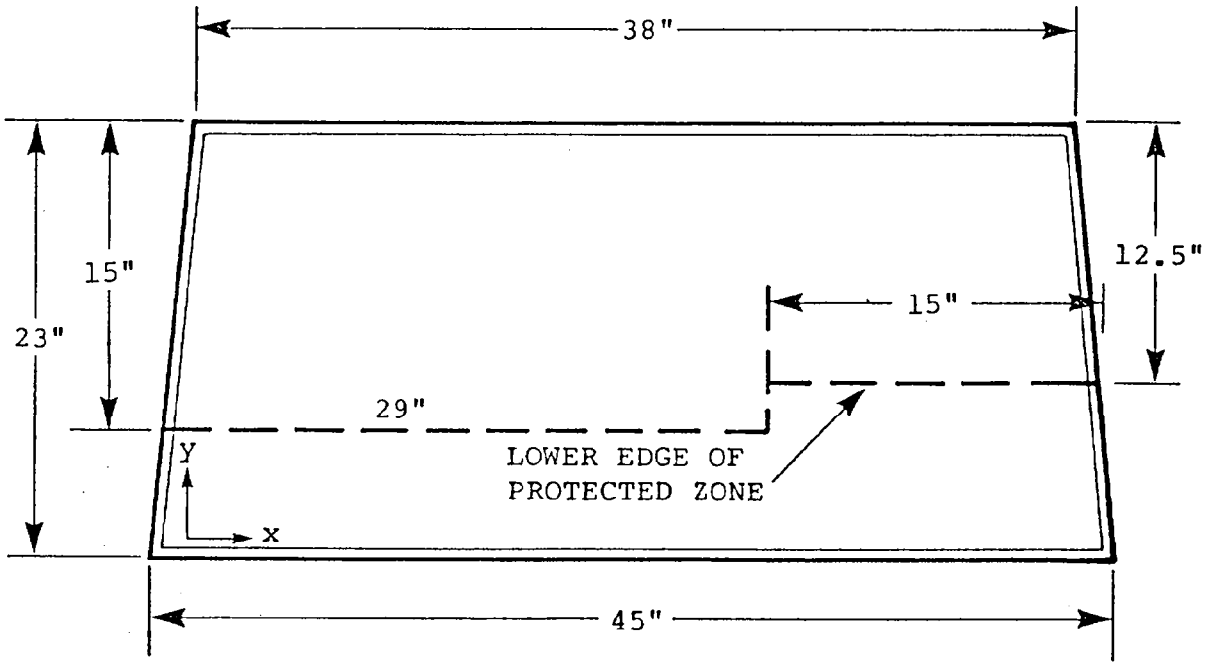
Time Period	First 5 min (from onset)	6th min	7th min	8th min (if req'd)
Maximum Spillage Allowed (oz)	5	1	1	1
Actual Spillage Recorded	0	0	0	--

NOTE: Spillage is recorded in whole minute intervals only - as determined above.

SOLVENT SPILLAGE LOCATION(S):

SECTION 3
FMVSS 219 INDICANT DATA

1. PROTECTED ZONE DEFINITION:



90701701

FRONT VIEW OF WINDSHIELD

Method of adhering styrofoam to the windshield:
One-half inch cut cell foam panels glued on with 3M cement and at least 24 hours of compression. Template then undergoes final 45° contouring and is recovered to protect template.

2. TEST RESULTS:

Zone Intrusion Description/Cause: No intrusion noted

	Coordinates X	Coordinates Y	Depth (in.)
1.	NA	NA	NA
2.	NA	NA	NA
3.	NA	NA	NA

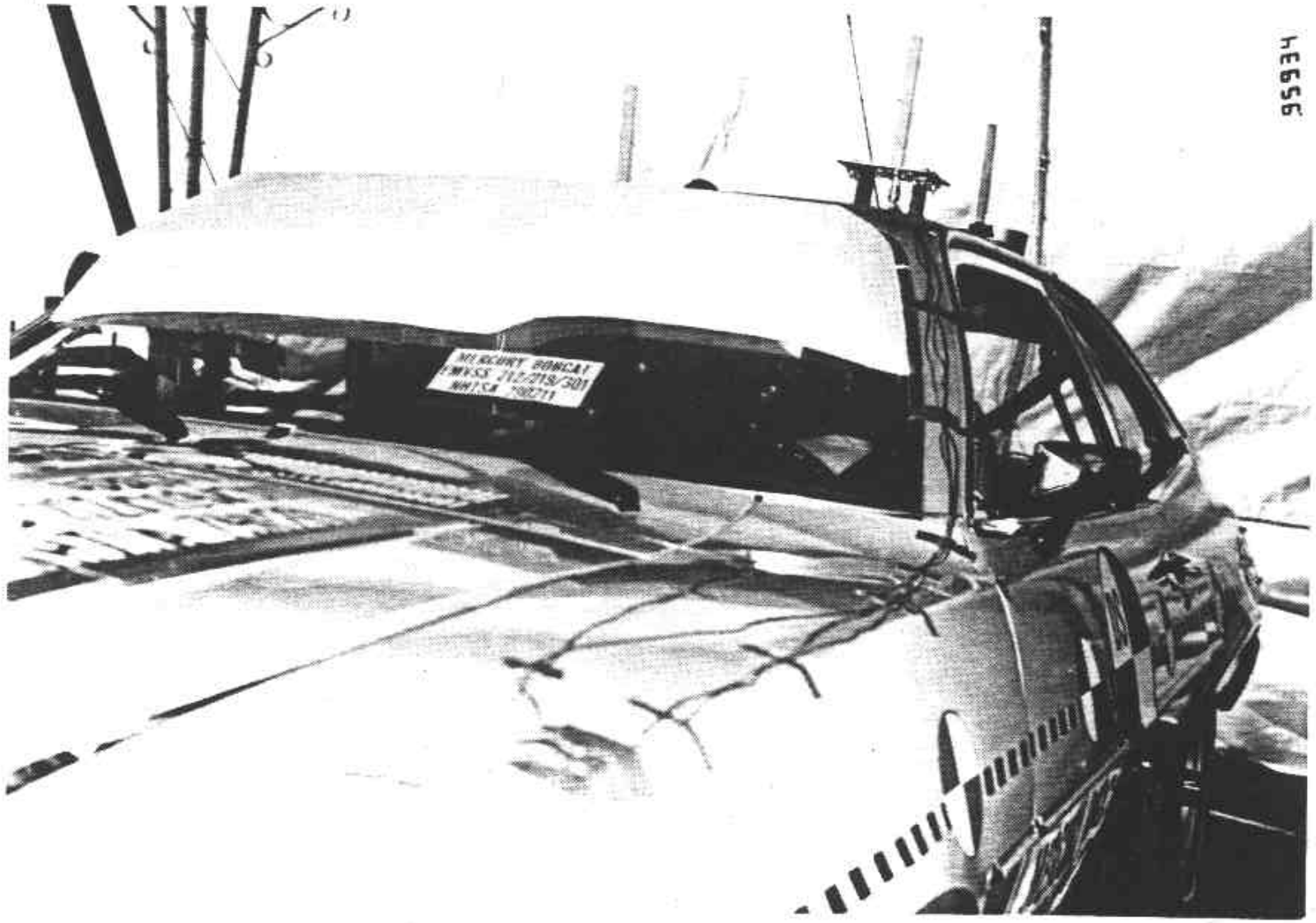


Figure 3-1. Pre-test Windshield - Overall View - 1979 Mercury Bobcat 2-door Hatchback - NHTSA 790211.

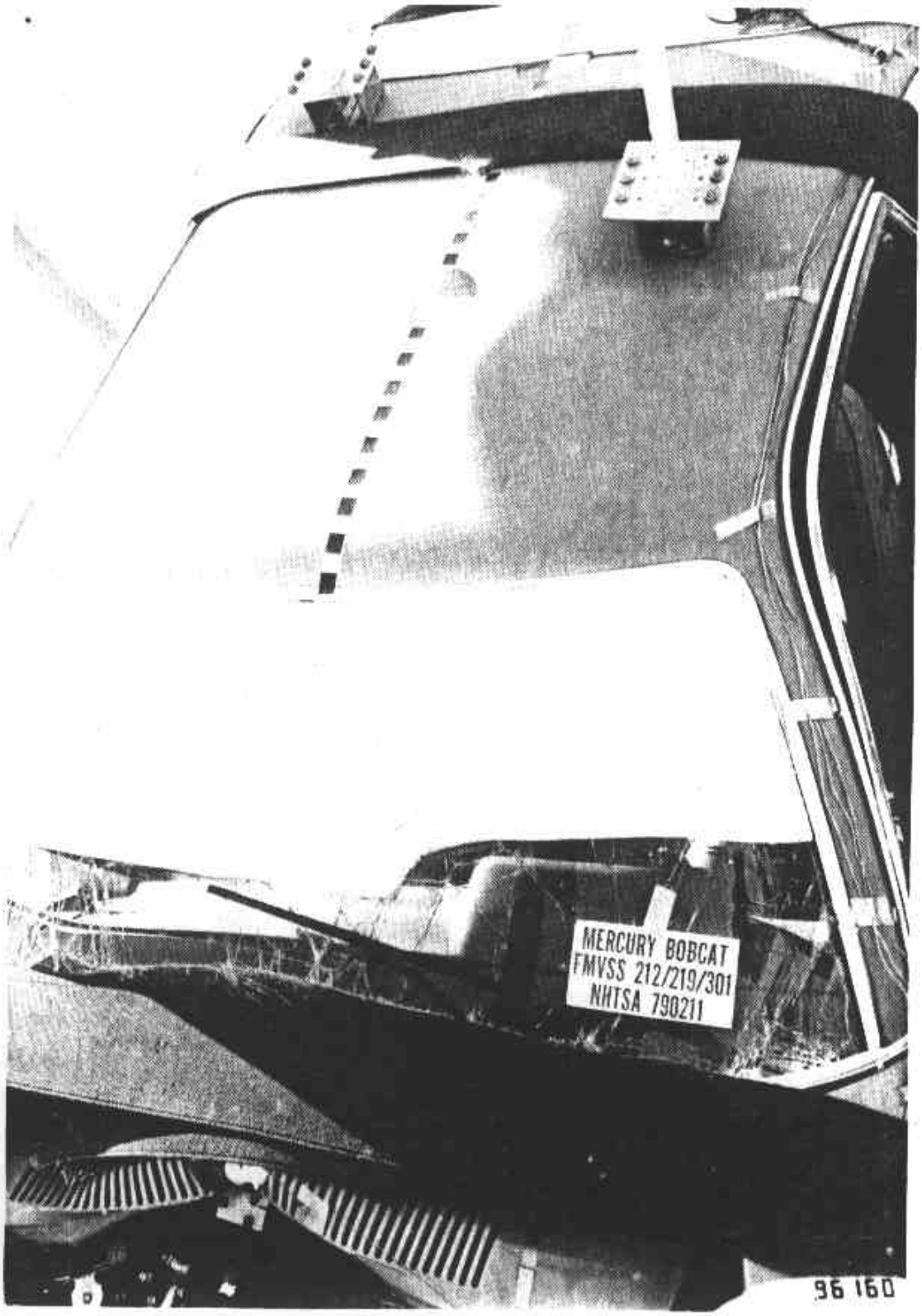


Figure 3-2. Post-test Windshield - Overall View - 1979 Mercury Bobcat 2-door Hatchback - NHTSA 790211.

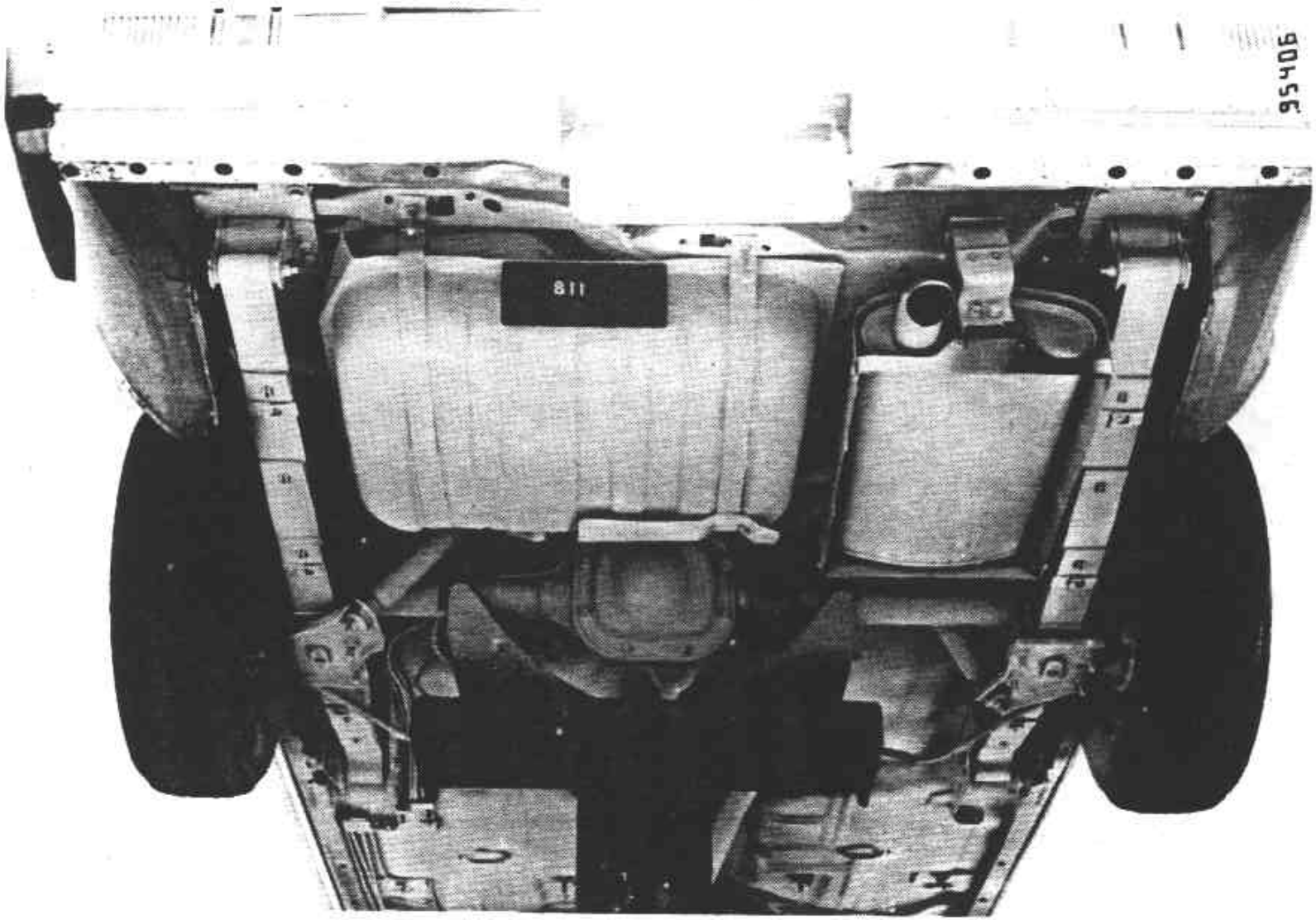


Figure 3-3. Pre-test View of Fuel Tank - 1979 Mercury Bobcat 2-door Hatchback - NHTSA 790211.

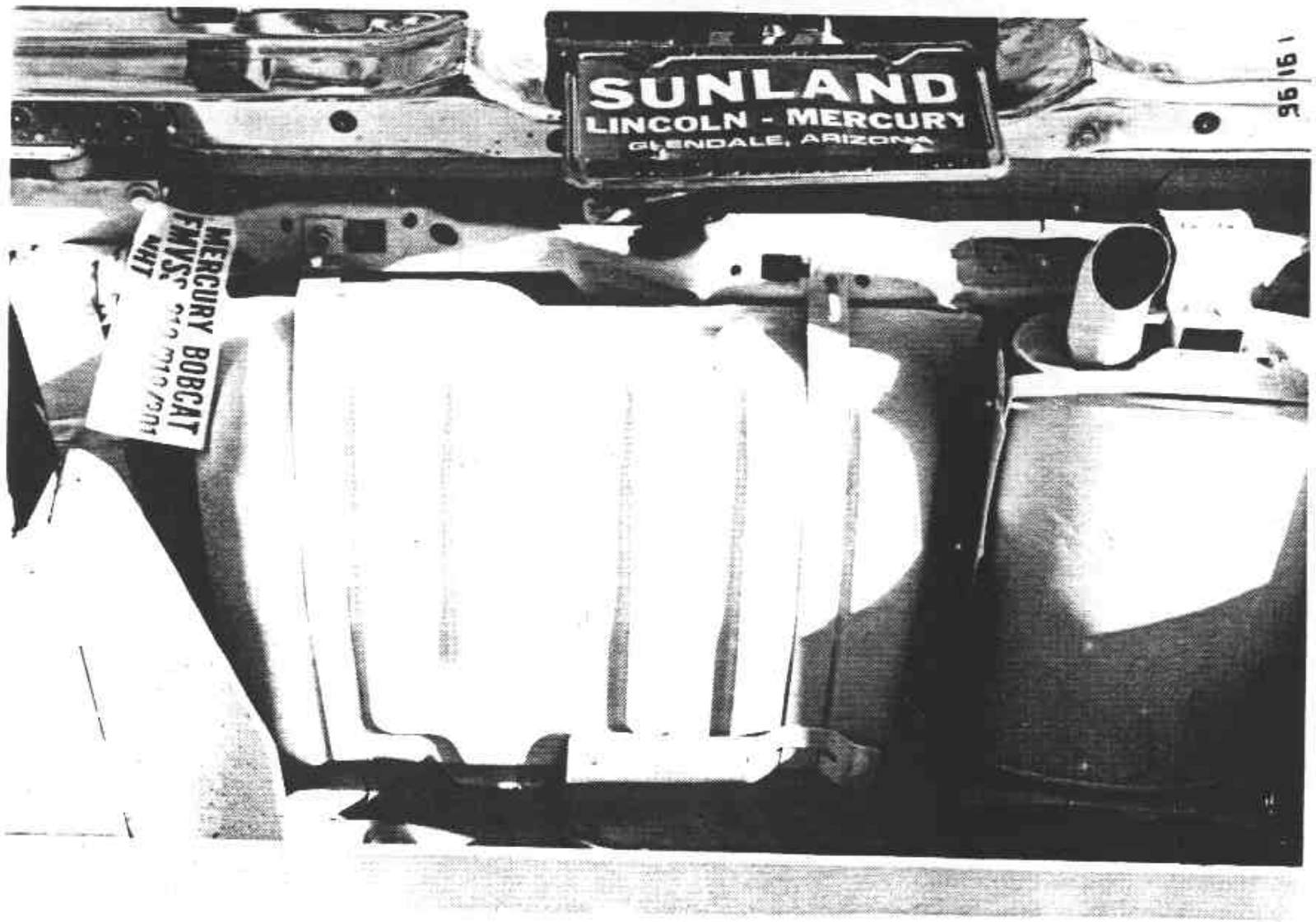


Figure 3-4. Post-test View of Fuel Tank - 1979 Mercury Bobcat 2-door Hatchback - NHTSA 790211.

SECTION 4
DATA REQUIRED BY R&D AND OAR

The following pages are included in this section:

1. Dummy positional data
2. Dummy injury summaries
3. Vehicle crush data
4. Accelerometer location and data summary
5. Photographs pertinent to R&D and OAR

Calcomp plots of dummy and vehicle accelerometer data are presented in Appendix B.

SECTION 4
DUMMY POSITIONING

Pre-test Dummy Positions

Measurement	Driver (in.)	Passenger (in.)	Child (in.)
Dummy Centerline to Vehicle Centerline	--	--	--
Nose to Upper Rim Steering Wheel	16.9	--	--
Nose to Windshield (Horizontal Distance)	21.5	22.0	--
Left Knee to Closest Point on Lower Panel	7.5	8.2	--
Right Knee to Closest Point on Lower Panel	6.7	7.6	--
Ankle Distance	11.0	9.0	--
Knee Distance	10.2	9.0	--
Nose to Seatback	--	--	18.4

Additional dummy positioning information is presented in the PART 572 DUMMY IN-VEHICLE POSITION RECORDING SHEET which follows.

Need measurement from dummy chest to wheel, nose, head to Windshield

SECTION 4

PART 572 DUMMY IN-VEHICLE POSITION RECORDING SHEET

NHTSA No.: 790211 Manufacturer: Ford Motor Company

Make/Model: Mercury Bobcat 2-door Hatchback Model Year: 1979

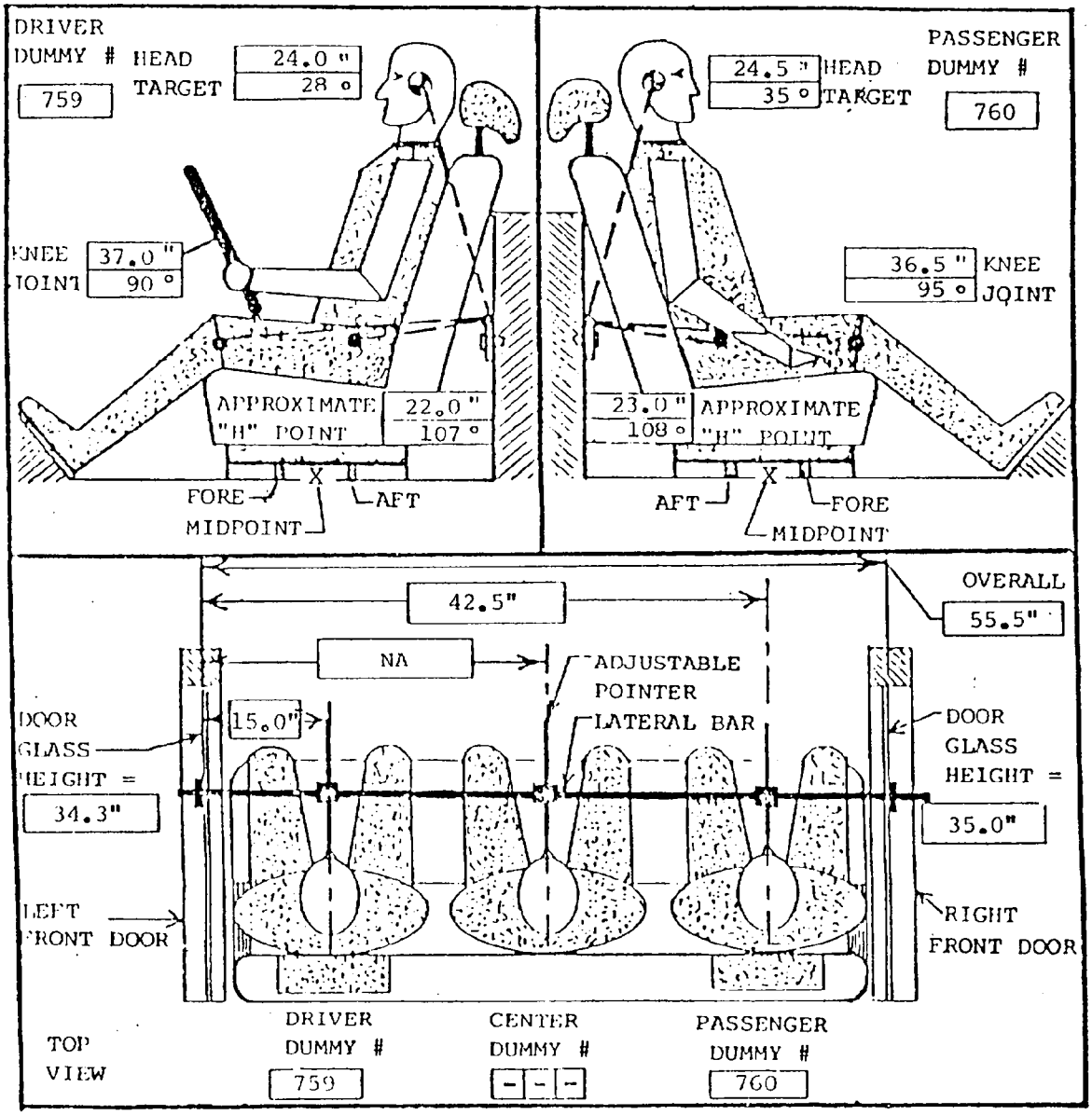
SEAT TYPE:	ADJUSTER TYPE:	BUCKET SEAT BACK TYPE:
___ Bench X Bucket	X Manual	___ Adjustable Reclining
___ Split Bench	___ Power	X Fixed

AMBIENT TEMPERATURE: 72 °F; TIME: 0800

POSITIONING DATE: May 22, 1979

TECHNICIANS: 1. R. Pirtle
2. M. Pozzi

All front seat dummies shall be positioned according to the procedure "OSE RECOMMENDED PROCEDURE FOR POSITIONING PART 572 DUMMIES IN TEST VEHICLE."



SECTION 4

PART 572 DUMMY DATA SUMMARY

	Driver Dummy				Passenger Dummy			
	Positive Direction*		Negative Direction**		Positive Direction*		Negative Direction**	
	Peak (G)	Time (msec)	Peak (G)	Time (msec)	Peak (G)	Time (msec)	Peak (G)	Time (msec)
Head Acceleration								
Longitudinal	8.0	196	40.1	100	49.7	190	131.4	90
Lateral	11.2	70	19.7	119	14.4	91	7.3	164
Vertical	56.3	88	6.2	17	80.4	94	5.1	121
Resultant	58.8	85			147.4	90		
HIC	723.3 @ 63-127 msec				1877.5 @ 88-102 msec			
Chest Acceleration								
Longitudinal	1.6	200	63.4	73	8.5	191	50.8	100
Lateral	7.3	73	9.5	100	20.3	82	3.5	47
Vertical	11.4	64	11.4	77	29.4	45	9.8	82
Resultant	64.2	73			51.4	100		
TIME > 60 G	2 msec				0 msec			
	Peak (lb)	Time (msec)	Peak (lb)	Time (msec)	Peak (lb)	Time (msec)	Peak (lb)	Time (msec)
Femur Loads								
Left			463.1	65			740.7	56
Right			1342.8	65			570.8	56
Belt Loads								
Lap	--	--			--	--		
Torso	1024.7	85			1595.5	91		

Vehicle Impact Speed (mph): 35.05

*Longitudinal:	Forward
Lateral:	Rightward
Vertical:	Downward
**Longitudinal:	Rearward
Lateral:	Leftward
Vertical:	Upward

NO CSI VALUE

SECTION 4
CHILD DUMMY DATA SUMMARY

	Child Dummy			
	Positive Direction*		Negative Direction**	
	Peak G	Time (msec)	Peak G	Time (msec)
Head Acceleration				
Longitudinal	12.6	97	83.2	106
Lateral	8.1	102	47.9	54
Vertical	122.7	105	4.3	41
Resultant	142.7	105		
HIC	1803.9 @ 75-115 msec			
Chest Acceleration				
Longitudinal	34.5	106	106.8	104
Lateral	75.1	104	17.8	92
Vertical	86.7	108	6.4	155
Resultant	134.5	104		
TIME > 60G	7 msec			
Femur Loads				
Left	692.1 @ 92			
Right	432.5 @ 100			
Vehicle Impact Speed (mph): 35.05				

*Longitudinal: Forward
Lateral: Rightward
Vertical: Downward
**Longitudinal: Rearward
Lateral: Leftward
Vertical: Upward

SECTION 4
DUMMY KINEMATIC SUMMARY

DRIVER - Impacted steering wheel with head at about 63 msec after impact. Came to rest upright in seat.

PASSENGER - Impacted dash with head at about 90 msec after impact. Came to rest upright in seat.

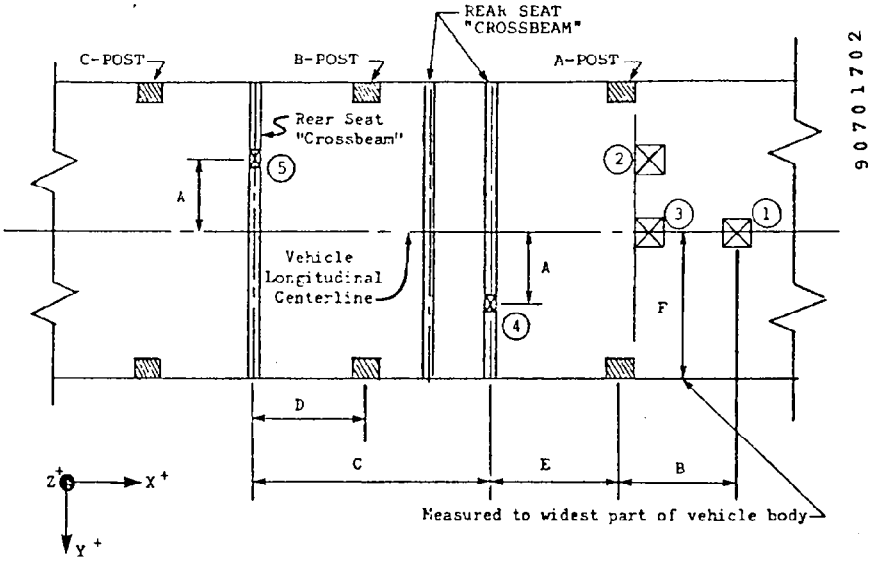
CHILD - Struck passenger seat back at about 102 msec after impact. Came to rest in vertical position with right arm flung upward. Rear seat back forced dummy into forward leaning position.

OTHER COMMENTS:

SECTION 4

TEST VEHICLE ACCELEROMETER LOCATION DEFINITION AND DATA SUMMARY

Dim.	Length (in.)
A	11.5(5) 16.0(4)
B	40.0
C	33.5
D	1.0
E	13.0
F	32.0



9 0 7 0 1 7 0 2

No.	Location Description	Component Direction X	Y	Z	Data Summary Peak G @ MSEC X "+"	X "−"	Y "+"	Y "−"	Z "+"	Z "−"
1	Engine	✓		✓	12.5 @ 65	139.9 @ 34	@	@	28.9 @ 42	17.9 @ 66
2	Firewall above steering column	✓		✓	19.5 @ 57	39.6 @ 31	@	@	29.7 @ 44	23.6 @ 56
3	Firewall @ vehicle centerline	✓		✓	33.1 @ 18	58.3 @ 58	@	@	45.9 @ 41	32.5 @ 51
4	Below front seat area	✓	✓	✓	15.5 @ 11	41.0 @ 57	26.4 @ 10	34.1 @ 14	61.9 @ 46	37.3 @ 50
5	Below rear seat area	✓		✓	2.9 @ 158	51.3 @ 57	@	@	41.8 @ 18	37.6 @ 22

SECTION 4

PRE-/POST-TEST STATIC MEASUREMENT DATA
(See Following Page for Dimension Definition)

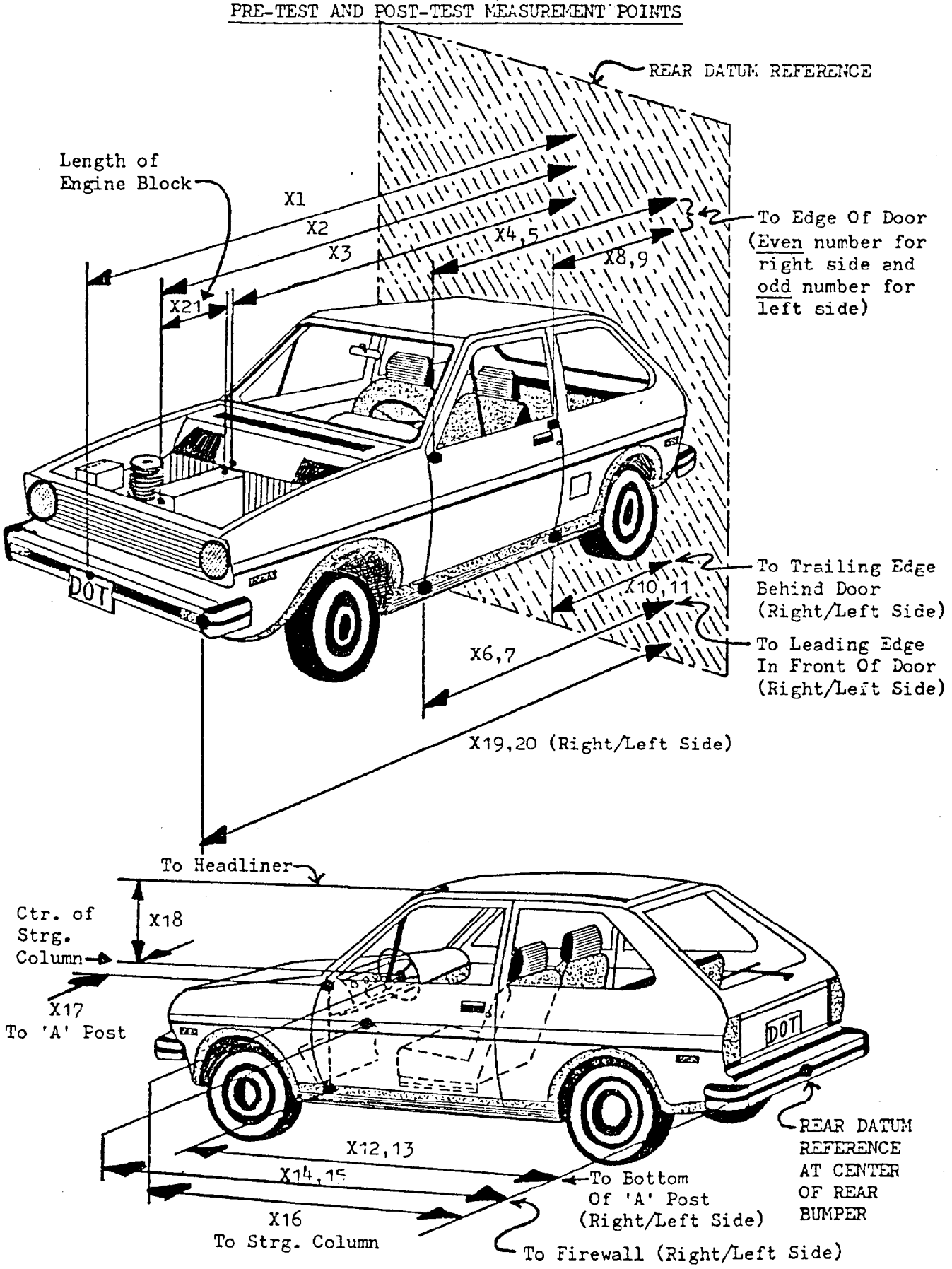
Vehicle: 1979 Mercury Bobcat 2-door Hatchback NHTSA No.: 790211

Test Date: May 22, 1979 D.S. No.: 811

Reference Dimension	Pre-test Measurement	Post-test Measurement	Change
X_1*	167.5	147.3	-20.2
X_2	146.6	137.8	-8.8
X_3	127.7	118.7	-9.0
X_4	110.5	109.3	-1.2
X_5	110.3	109.0	-1.3
X_6	109.5	108.5	-1.0
X_7	109.8	108.3	-1.5
X_8*	61.5	60.2	-1.3
X_9*	61.3	60.1	-1.2
X_{10}	59.5	57.6	-1.9
X_{11}	59.5	57.8	-1.7
X_{12}	106.0	105.0	-1.0
X_{13}	107.3	105.1	-2.2
X_{14}	130.0	114.0	-16.0
X_{15}	129.5	114.0	-15.5
X_{16}	93.5	91.0	-2.5
Y_{17}	17.0	13.5	-3.5**
Z_{18}	14.6	18.8	+4.2
X_{19}*	166.5	146.5	-20.0
X_{20}*	166.5	146.4	-20.1
X_{21}	18.3	18.3	0

*Rear impact data requirements.
**To left.

PRE-TEST AND POST-TEST MEASUREMENT POINTS



SECTION 4
VEHICLE PROFILE DATA SHEET

Vehicle: 1979 Mercury Bobcat 2-door Hatchback D.S. No.: 811

Test Date: May 22, 1979

Measurement Date: Pre-test: May 15, 1979 Post-test May 22, 1979

Exterior Measurements Referenced to Plane: 12 feet Forward of: Rear Axle

Location	Height	Vehicle Left (in.) 30	24	18	12	6	0	Vehicle Right (in.) 6	12	18	24	30
Pre-test Profile (in.)												
Top of Front Bumper		15.0	14.8	14.1	13.5	12.6	12.2	12.6	13.4	14.0	14.7	15.0
Front of Hood		22.4	21.0	20.0	19.5	19.2	18.3	19.0	19.6	20.5	21.0	22.5
Post-test Profile (in.)												
Top of Front Bumper		40.1	39.1	38.3	38.3	37.0	36.3	36.7	32.2	37.5	37.8	38.7
Front of Hood		39.4	39.7	40.0	38.8	38.7	38.5	38.6	38.9	39.1	39.7	39.4
Post-test Static Crush (in.)												
Top of Front Bumper		25.1	24.3	24.2	24.8	24.4	24.1	24.1	18.8	23.5	23.1	23.7
Front of Hood		17.0	18.7	20.0	18.8	19.5	20.2	19.6	19.3	18.6	18.7	16.9

Figure 4-1. Pre-test Driver Dummy Position - 1979 Mercury Bobcat 2-door Hatchback - NHTSA 790211.

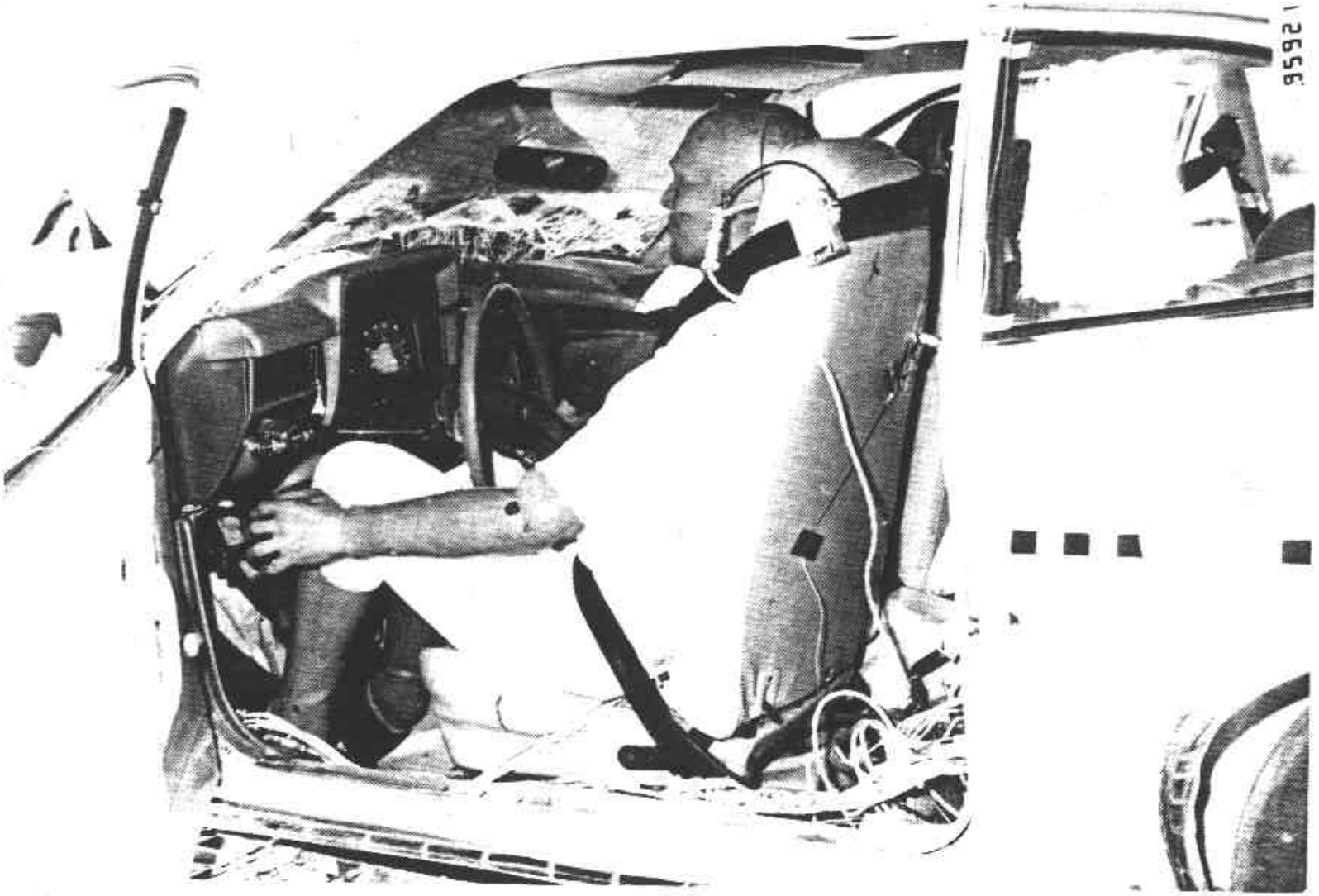


Figure 4-2. Post-test Driver Dummy Position - 1979 Mercury Bobcat 2-door Hatchback - NHTSA 790211.

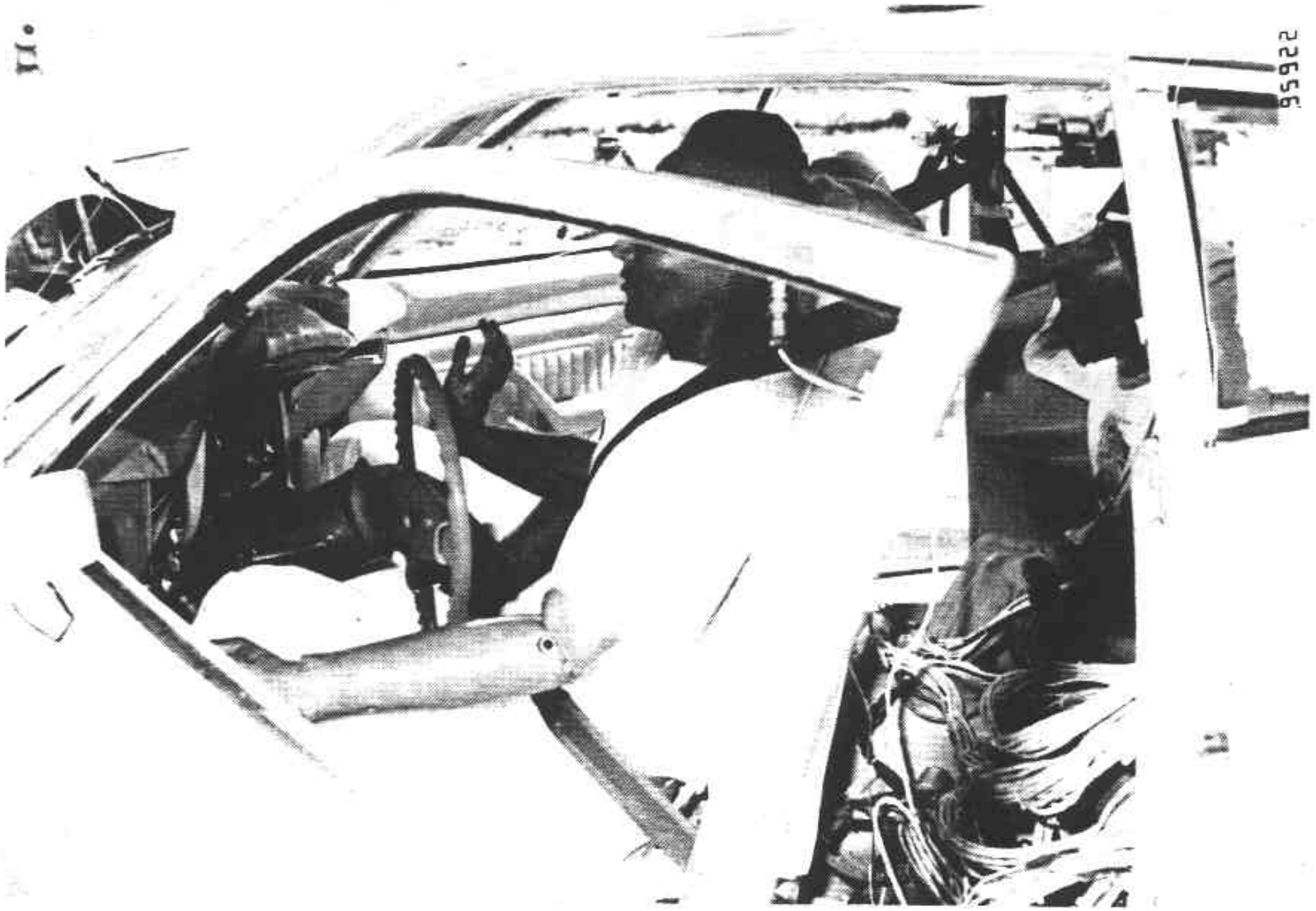


Figure 4-3. Post-test Driver Dummy Position - 1979 Mercury Bobcat 2-door Hatchback - NHTSA 790211.

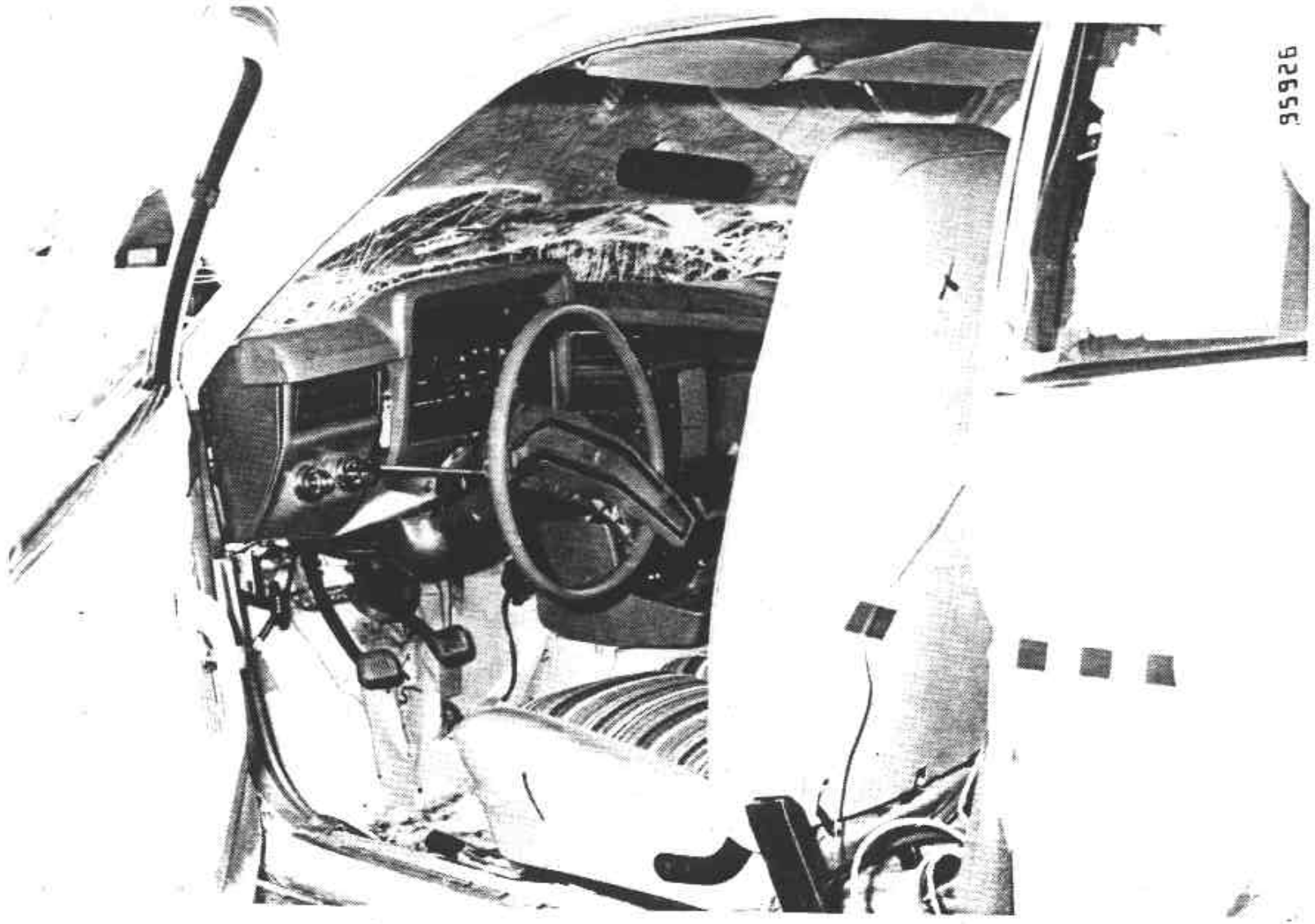


Figure 4-4. Post-test Driver Compartment - 1979 Mercury Bobcat 2-door Hatchback - NHTSA 790211.

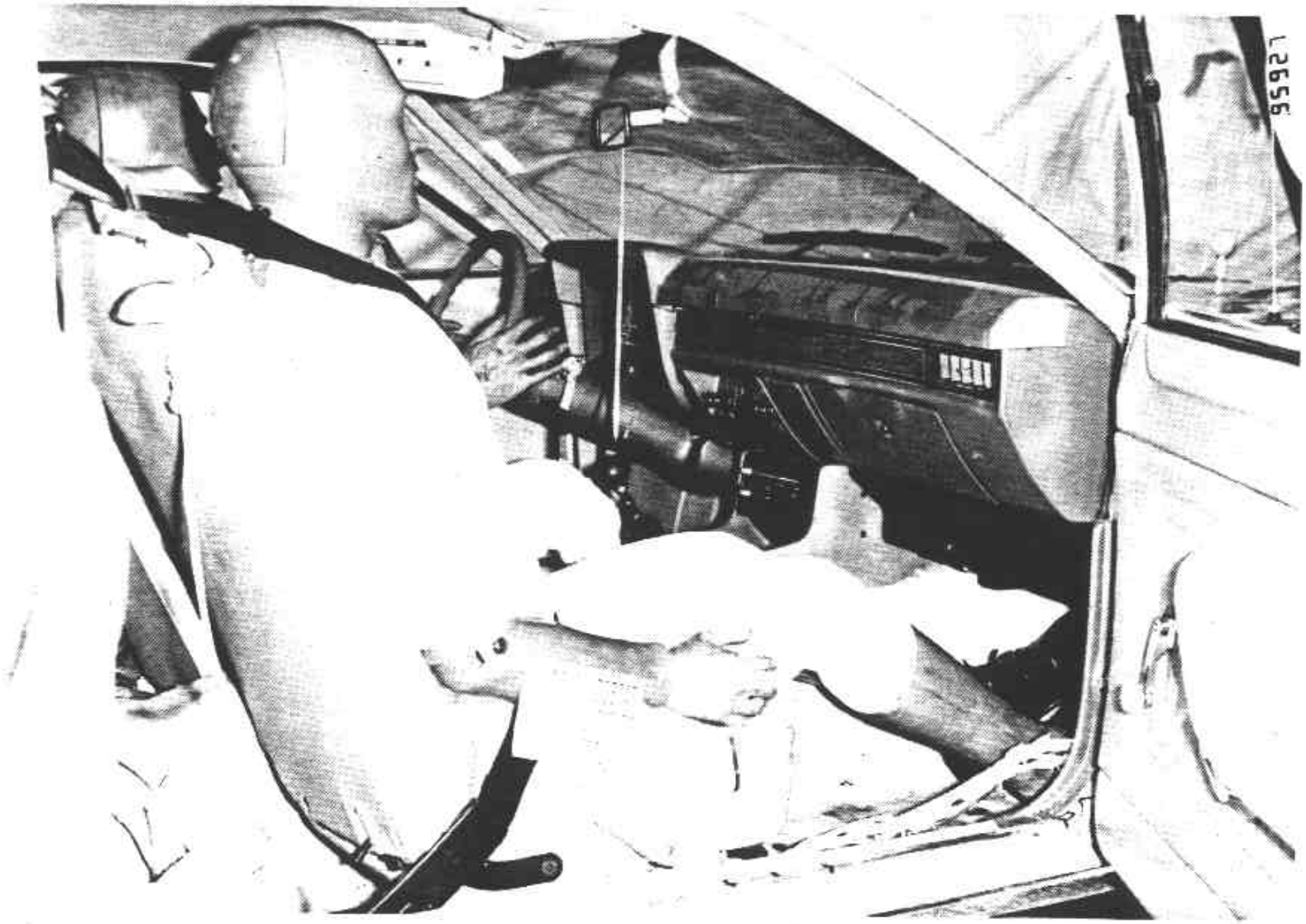


Figure 4-5. Pre-test Passenger Dummy Position - 1979 Mercury Bobcat 2-door Hatchback - NHTSA 790211.

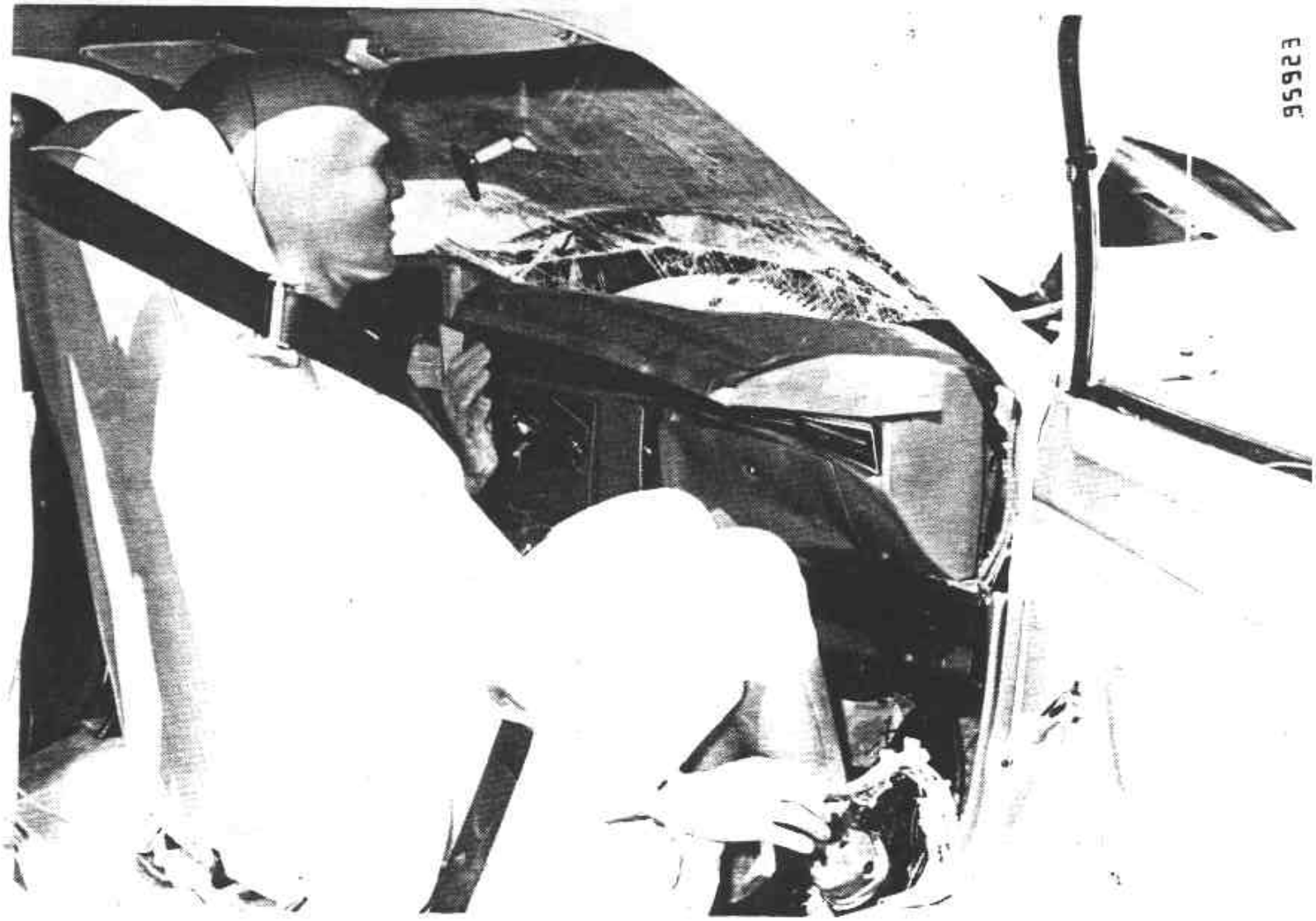


Figure 4-6. Post-test Passenger Dummy Position - 1979 Mercury Bobcat 2-door Hatchback - NHTSA 790211.

Figure 4-7. Post-test Passenger Dummy Position - 1979 Mercury Bobcat 2-door Hatchback - NHTSA 790211.

Figure 4-8. Post-test Passenger Compartment - 1979 Mercury Bobcat 2-door Hatchback - NHTSA 790211.

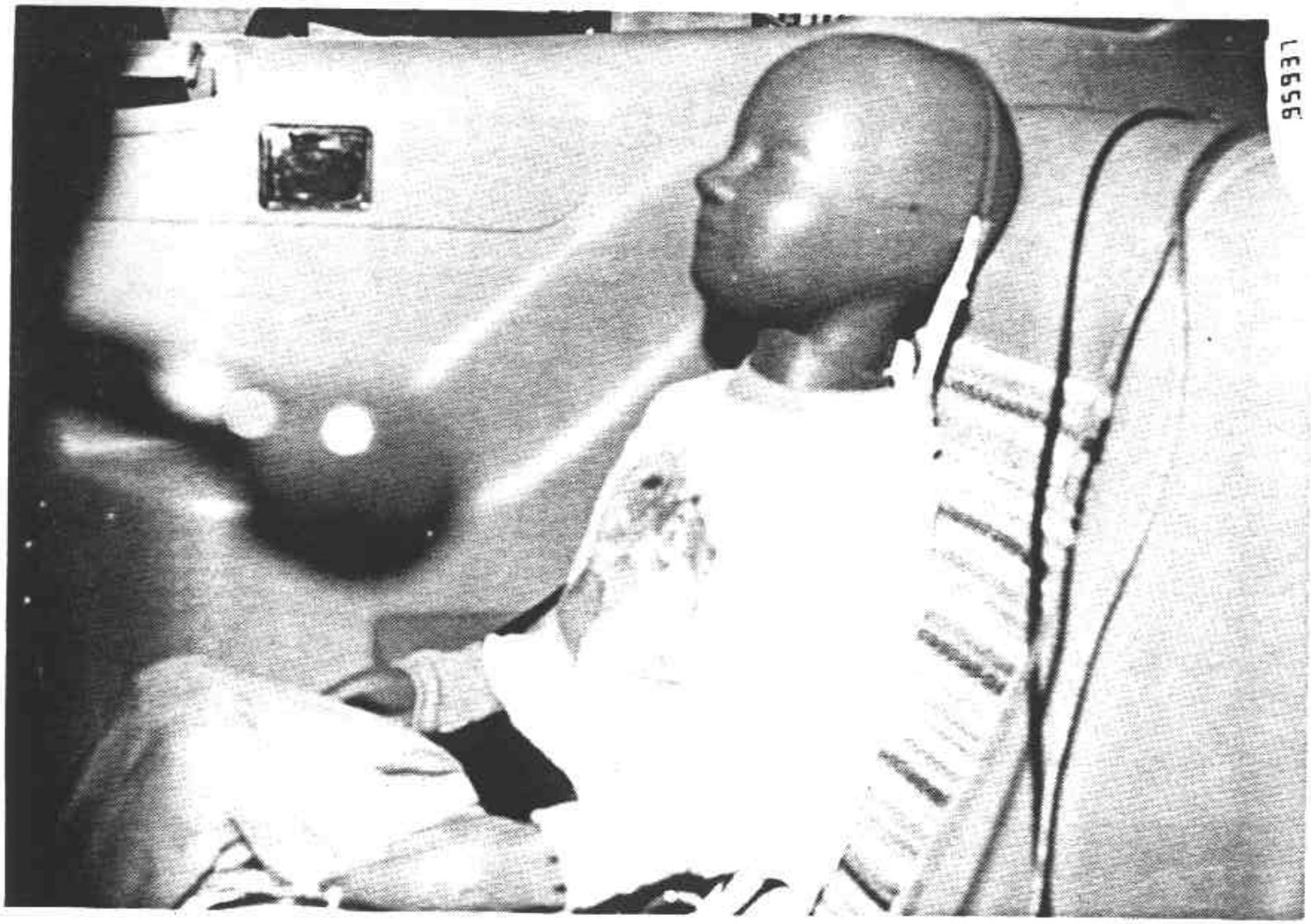


Figure 4-9. Pre-test Child Dummy Position - 1979 Mercury Bobcat 2-door Hatchback - NHTSA 790211.

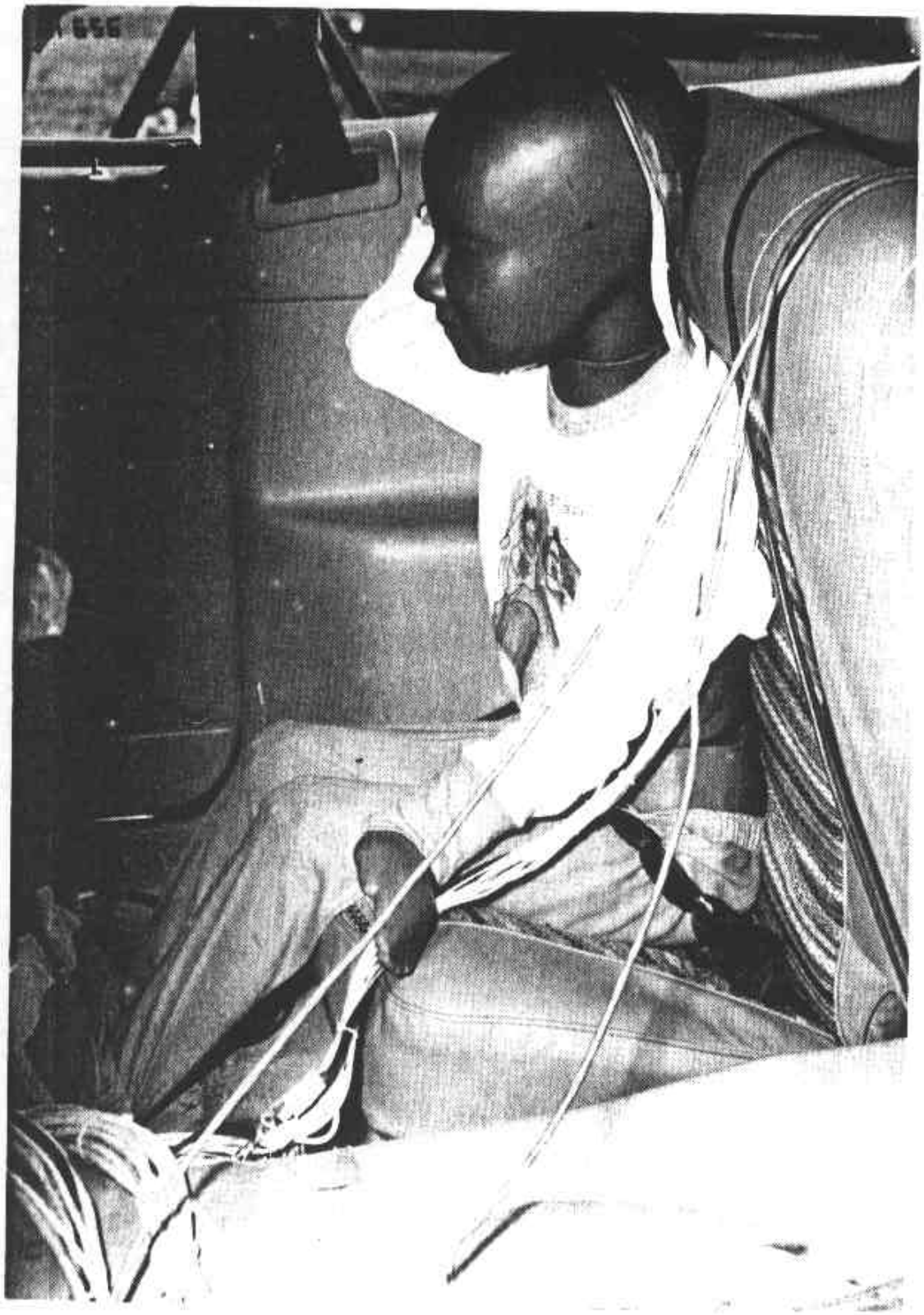


Figure 4-10. Post-test Child Dummy Position - 1979 Mercury Bobcat 2-door Hatchback - NHTSA 790211.

Figure 4-11. Post-test Child Dummy Position - 1979 Mercury Bobcat 2-door Hatchback - NHTSA 790211.

APPENDIX A

TEST FACILITIES AND PROCEDURE

TEST FACILITY AND EQUIPMENT FOR FMVSS 301-75 and 219 IMPACT TESTS

General Test Facility Description

FMVSS 301-75 and 219 impact tests are conducted at the Dynamic Science, Inc. Phoenix Facility in Phoenix, Arizona. Figure A-1 is an overall aerial view of that facility.

More specifically, the Monorail Impact Facility shown schematically in Figure A-2 is used. As indicated in Figure A-2, the Monorail Impact Facility accommodates a variety of test modes and configurations.

Test Track and Guidance System

The test track consists of 1,200 feet of asphalt pavement (SN = 75 ±5), 14 feet in width. The length allows sufficient acceleration distance to accommodate impact speeds in excess of 60 mph with sufficient distance remaining to abort the test if necessary. Guidance for the test vehicle is provided by a sliding shoe attached to the vehicle. The sliding shoe rides on the monorail embedded in the test track. Prior to impact, the shoe is mechanically released from the test vehicle.

Tow System and Velocity Control

The tow system consists of a drum-driven endless cable powered by a pair of 390-cubic-inch engines driven in tandem driving a modified three-speed C-6 automatic truck transmission. The tow system can propel a 6,000-pound vehicle into the fixed barrier at 75 mph. Velocity control is achieved through a manually controlled throttle system. A visual readout of speed versus distance is provided and compared with the "ideal curve." Velocity control under ±0.5 mph is realizable down to 20 mph and ±2.0 percent down to zero mph.

1. ENGINEERING/ADMINISTRATION CENTER
2. MECHANICAL/INSTRUMENTATION SHOPS
3. DUMMY CALIBRATION LABORATORY
4. GARAGE/MAINTENANCE SHOP
5. ENVIRONMENTAL CHAMBER
6. STATIC CRUSH FACILITY
7. TWO-MILE OVAL
8. TURNAROUND (TYPICAL OF TWO)
9. BARRIER IMPACT FACILITY
10. DROP TOWER/SLED TEST FACILITY
11. CENTRAL DATA ACQUISITION AND CONTROL STATION
12. PENDULUM FACILITY
13. NONMETALLICS LABORATORY
14. TEST SERVICE FACILITY
15. VEHICLE-TO-VEHICLE TEST FACILITY
16. ROLLOVER TEST FACILITY
17. RIDE QUALITY COURSE
18. SKID PAD
19. HIGH AND LOW SKID NUMBER BRAKING LANES
20. SALT WATER TROUGH
21. BELGIAN BLOCK
22. PARKING BRAKE TEST RAMP
23. PULL-OFF AREA (TYPICAL OF THIRTEEN)
24. BALLISTIC TEST RANGE

Figure A-1. The Dynamic Science, Inc. Phoenix Facility.

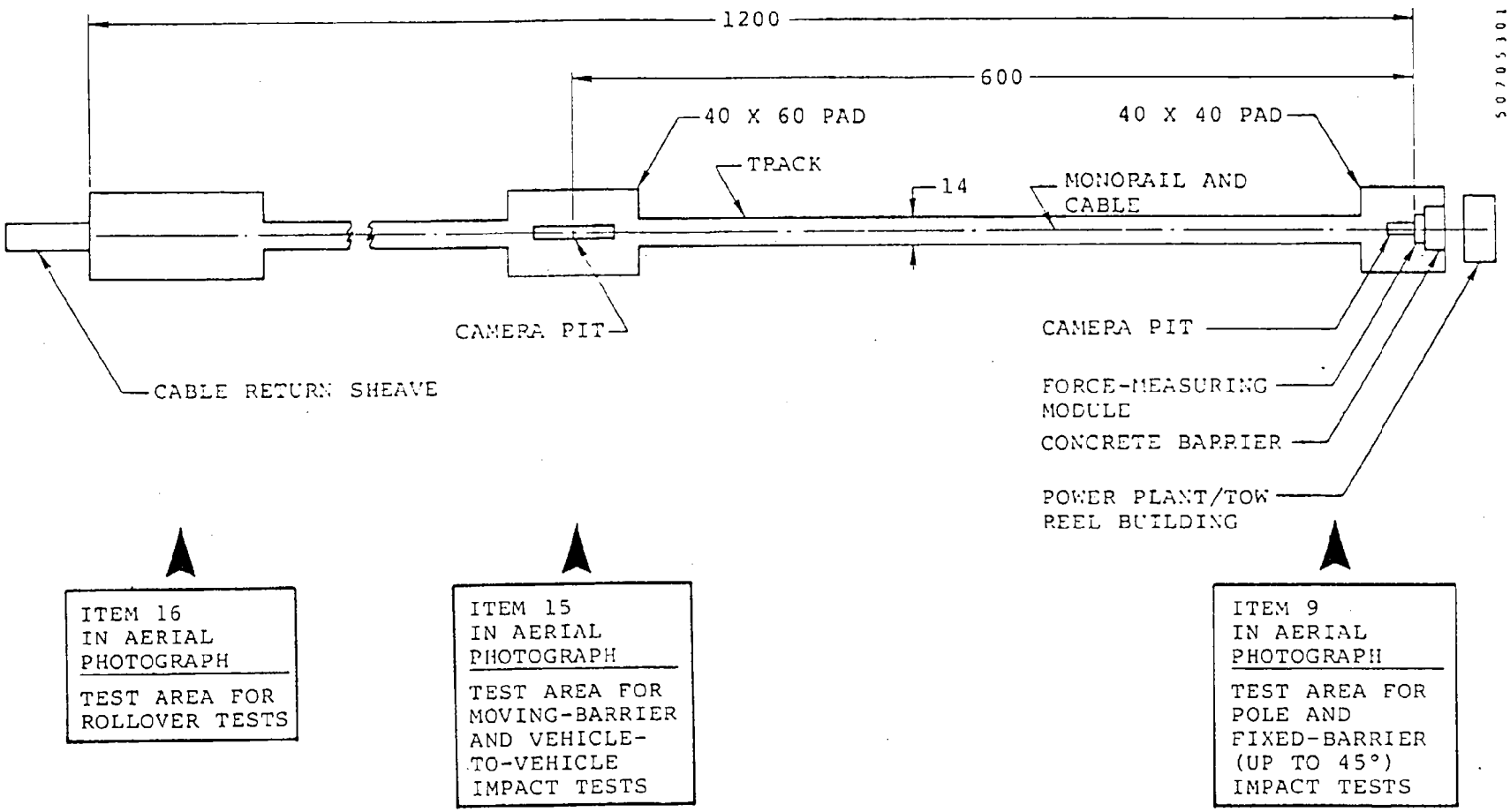


Figure A-2. Monorail Impact Facility.

Automatic abort capability is provided through the vehicle service brakes which are actuated by releasing high-pressure air into the hydraulic system. Abort criteria consist of vehicle speed, data acquisition and instrumentation system readiness, and stability of the vehicle on the test track. The first two criteria are automatically monitored by the test control system, while the third criterion is visually monitored by the test conductor. Manual abort provisions are available to the test conductor. Upon verifying vehicle speed, the test control system automatically deactivates the abort system to preclude inadvertent test abort immediately prior to impact.

Control System

The master control system used for impact tests controls and monitors all primary system functions that must operate throughout a predetermined interval during a test. This includes the starting and stopping of the tape recorder, high-speed cameras, and oscillograph, and control of the power winch which propels the test vehicle. The operation of the various devices is confirmed, including vehicle velocity and tape recorder speed synchronization, before it passes through a "commit" window. When the vehicle is committed, the abort system is disarmed, preventing an accidental abort after the point of no return is reached.

Any system malfunction, including improper vehicle velocity up to the commit window, generates an abort. The control system uses the pulse output from the IRIG time base generator as a clock with a manual push button defining time zero. The logic circuits compare pulse counts from time zero to preset values dialed in at the control panel. As each control circuit gets an equal comparison, that circuit is turned on. If the self-test circuit does not verify, the abort system is automatically activated. After successful vehicle test, the last control circuit shuts the entire system down. The manual backup control system provides the test conductor the option for manually aborting the test if the need arises.

Fixed Collision Barrier

The basic fixed collision barrier conforms to the definition in Part 571-1, Paragraph 571.3 - Definitions, 36 F.R. 11242, dated July 14, 1970 and effective September 1, 1970. The fixed impact barrier is a reinforced concrete structure, 6-feet high, 6-feet thick, 12-feet wide, and weighing approximately 100,000 pounds. The barrier face is adjustable for conducting 30-degree oblique impact tests.

Fuel Simulation

As prescribed in the FMVSS 301-75 Laboratory Procedure, the vehicle fuel system is filled to 90-91 percent of capacity with Stoddard Solvent.

The fuel is pumped out of the fuel tank, and the residual fuel in the fuel lines and the carburetor is burned by operating the vehicle engine. The fuel system is filled with Stoddard Solvent No. 2. The solvent is then pumped into the fuel lines, up to the carburetor. The weight of the Stoddard Solvent added and removed is determined with two Western Beam Scales (Model No. WP 2000).

The solvent used, Stoddard Solvent No. 2, has a specific gravity of 0.764 at 75°F and a viscosity of 0.99 centistokes.

Windshield Zone Intrusion Template

A windshield zone intrusion template is laid out and fabricated for each vehicle to spatially define the windshield protected zone.

Windshield Protected Zone Boundaries

The lower boundary of the protected zone is determined as follows:

1. A 6.5-inch diameter rigid sphere, weighing 15 pounds, is positioned so it simultaneously contacts the inner surface of the windshield glazing and the surface of the instrument panel, and the locus of points contacted by the sphere is marked. The line is then extended horizontally to the edge of the glazing material.

2. A line is drawn on the inner surface of the windshield below and one-half inch distant from the locus of points determined in Step 1.

The top and side boundaries of the zone are the top and sides of the windshield opening. The protected zone extends three inches outward from the outer surface of the windshield measured perpendicular to any point along the outer boundary of the zone. The protected zone is shown in Figure A-3.

Fabrication of Windshield Zone Intrusion Template

In order to determine whether or not there is any penetration into the protected zone, FMVSS No. 219 specifies that a template be formed of Styrofoam, type DB, cut cell, conforming to the shape of the zone and attached to the windshield. The Styrofoam exhibits essentially only plastic deformation characteristics, making it excellent for recording possible intrusion but difficult to shape to the windshield contour. The ultimate thickness of 3 inches is achieved by laminating six 1/2-inch-thick layers which can be individually bent to the windshield curvature, an operation not possible with 3-inch-thick Styrofoam because of its brittleness. The laminations are glued together in place on the windshield and the 45° bevel is applied to the perimeter of the template after it is bonded to the windshield.

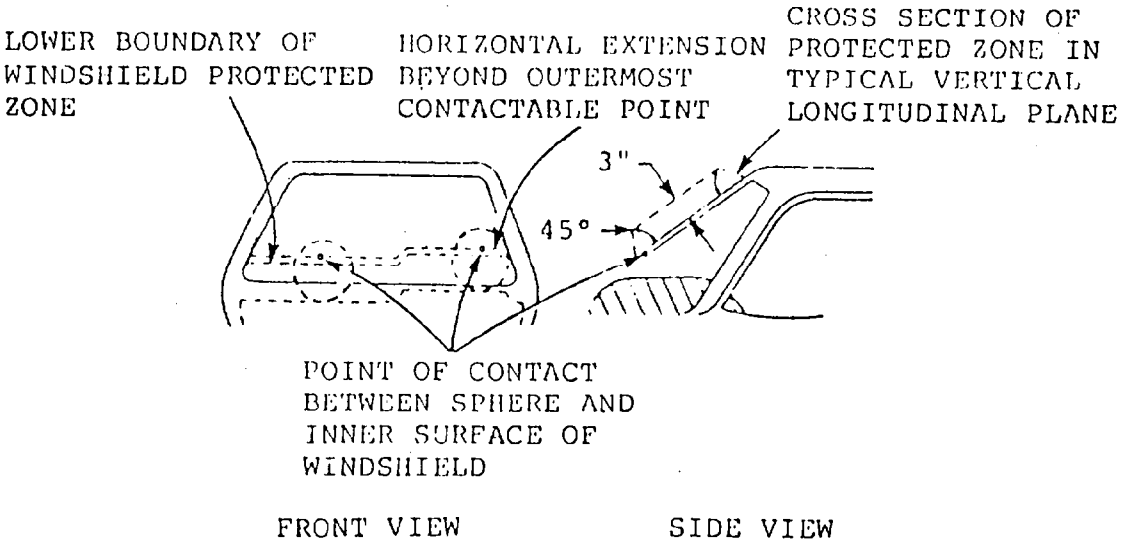


Figure A-3. Windshield Protected Zone.

Camera Coverage

Eight high-speed cameras are positioned on and around the impact barrier and test vehicle to provide total coverage of the barrier impact (Figure A-4). Specific locations are:

1. Left side overall
2. Offboard vehicle right side to view windshield.
3. At the front end of the pit to view possible fuel spillage in the engine compartment.
4. In the pit under the fuel tank to view possible fuel spillage from the tank.
5. Right side closeup of dummy motion and the windshield zone template.
6. Left side closeup of dummy motion and the windshield zone template.
7. On the barrier to provide a front view of the windshield template.

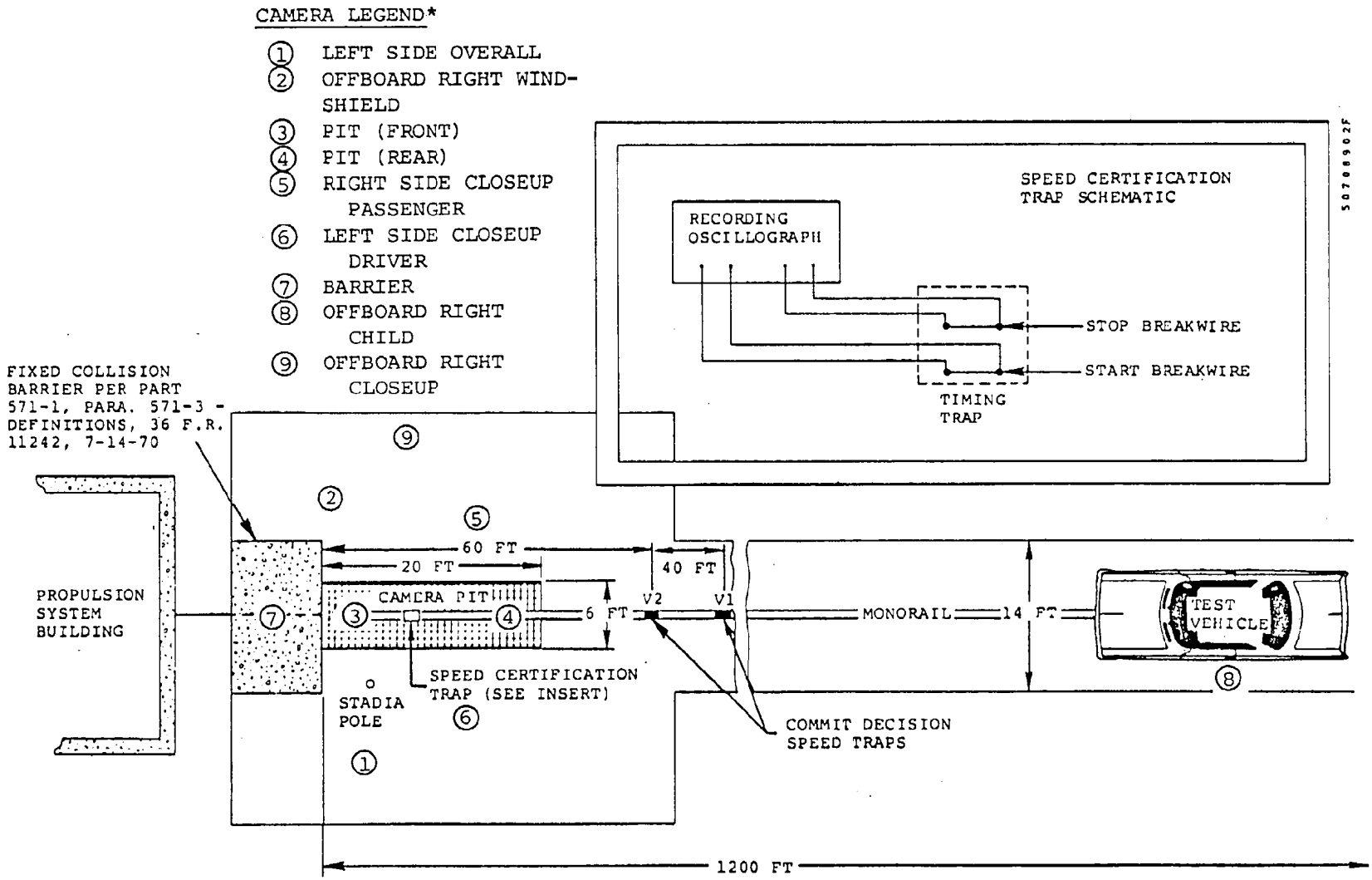


Figure A-4. FMVSS 301-75 and 219 (Frontal Impact Test) Barrier Test Site Layout.

Test Equipment List and Function

Item	Manufacturer	Model	Purpose
Timing Trap	Dynamic Science	None	Determine impact speed by furnishing a start and stop signal to recording oscillograph.
Oscillograph	Bell and Howell	5-134	Records timing start and stop signals from timing traps, cable drum drive rpm, and impact switch.
Speed Control	Dynamic Science	None	Precision control of cable drive drum rpm.
Beam Scales	Western	WP 2000	Used to determine vehicle test weights.
High-speed Motion Picture Cameras	Photosonics Milliken Red Lake Labs	16-1B 5A 164-5AC	Used for front, side, overhead, and underside film coverage.
Motion Picture Camera	Canon Scoopic		Panning and documentation.
Still Camera	Mamiya	RB 67	Documentary photo coverage.
100 and 1000 Hz Time Code Generators	Dynamic Science	None	Furnish timing signal for high-speed cameras and a 1 second timing for velocity determination.
Stop Watch	Brietling	None	Time for collection of fuel leak samples.
Containers	-	-	Collection for fuel leak samples.
Graduated Cylinder	Pyrex	3022	Fuel volume measurement.
Graduated Cylinder	Kimax	-	Fuel volume measurement.
Calibrated Steel Rule	Starret	48 in.	Precision measurement of velocity trap spacing.
Anthropomorphic Dummies	Alderson Research Labs	Hybrid II	To ballast the vehicle and to gather occupant response data.

8. Offboard right to view child in rear seat.

9. Offboard right to view two-thirds of vehicle.

Ballast Weight

The ballast used in this program is weighed on a Howe platform scale prior to installation in the test vehicle.

The platform scale is calibrated by placing precision weights thereon and recording the scale reading. The accuracy of the ballast weights is:

- ±1/2 pound for 0 to 300-pound weights
- ±1 pound for 300 to 1000-pound weights.

Vehicle Weight

The weights of the test vehicle are determined by placing each wheel on a Western Model WP 2000 beam scale, certified with test weights scaled to National Bureau of Standards Class B tolerances.

Dummy Positioning

The following table summarizes the steps taken to position the instrumented, calibrated dummies in the test vehicle. The dummies were kept in a temperature-controlled enclosure at the head of the track until t-30 seconds. The temperatures both in the enclosure, and the outside ambient temperature were recorded immediately prior to rollout.

At the request of Mr. Chetta Nirmel, NHTSA OAR CTM, an exception was made to the NHTSA Laboratory Procedure TP-212-01, in that a 50-pound force was exerted against the dummy abdomen while flexing the torso forward as specified in FMVSS 218, Section 8.1.11. The object was to ensure that the dummy buttocks were stably positioned in the seat. This step is specified in FMVSS 208 but was inadvertently omitted in the TP-212-01 specification.

DUMMY PLACEMENT AND POSITIONING

Part 572 Dummy	Driver DSP	Passenger DSP
HEAD	Surface of transverse instrument mounting platform is horizontal & midsagittal plane falls in longitudinal plane.	Surface of transverse instrument mounting platform is horizontal & midsagittal plane falls in longitudinal plane.
UPPER TORSO	Placed against seat back. Midsagittal plane is vertical & longitudinal & passes through center point of steering wheel rim.	Placed against seat back. Midsagittal plane is vertical, longitudinal, & the same distance from vehicle longitudinal centerline as driver dummy midsagittal plane.
UPPER ARMS	Initially placed against seat back & tangent to side of Upper Torso. Push arms rearward into seat back with bending at elbows.	Initially placed against seat back & tangent to side of Upper Torso. Push arms rearward into seat back with bending at elbows. Remains tangent.
LOWER ARMS	Initially placed against the outside of the thighs. Centerline as close as possible in a vertical plane.	Initially placed against the outside of the thighs. Centerline as close as possible in a vertical plane.
HAND PALMS	Palms contact outer part of steering wheel rim at horizontal centerline.	Palms contact the outsides of the thighs.
HAND THUMBS	Placed over steering wheel rim.	
HAND LITTLE FINGERS		Barely in contact with the seat cushion.

DUMMY PLACEMENT AND POSITIONING (CONTD)

Part 572 Dummy	Driver DSP	Passenger DSP
LOWER TORSO	Centered on bucket seat cushion. Midsagittal plane is vertical & longitudinal. For bench seat, midsagittal plane is vertical & longitudinal & passes through center point of plane described by steering wheel rim.	Centered on bucket seat cushion. Midsaggital plane is vertical & longitudinal. For bench seat, midsagittal plane is vertical, longitudinal, and same distance from vehicle longitudinal centerline as driver dummy midsagittal plane.
UPPER LEGS (thighs or femurs)	Placed against seat cushion. Plane defined by femur and tibia centerlines is as close as possible to vertical.	Placed against seat cushion. Plane defined by femur and tibia centerlines is as close as possible to vertical.
RIGHT KNEE	Knees initially set 14.5" apart between pivot bolt head outer surfaces.	Located so that plane defined by femur and tibia centerlines is as close as possible to vertical.
LEFT KNEE	Outer surface of pivot bolt head is 5.9" from midsagittal plane of dummy.	Located as above.
LOWER LEGS (tibias)	Plane defined by femur and tibia centerlines is as close as possible to vertical longitudinal plane.	Plane defined by femur and tibia centerlines is as close as possible to vertical longitudinal plane.
RIGHT FOOT	Placed on undepressed accelerator pedal--rearmost point of heel on floorpan in plane of pedal.	Centerline falls in vertical longitudinal plane. Placed on toeboard--rearmost point of heel on floorpan as close as possible to intersection of toeboard and floorpan.
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 toeboard--rearmost point of heel on floorpan as close as possible to intersection of toeboard and floorpan.

APPENDIX B

CALCOMP PLOT PRESENTATION

Calcomp plots generated from the crash test data are presented on the following pages. All data will be recorded on magnetic tape for inclusion in the NHTSA crash test data base system. All data was filtered according to SAE J211. Plot legends and test anomalies are listed below:

PLOT LEGEND

Dummy Data*

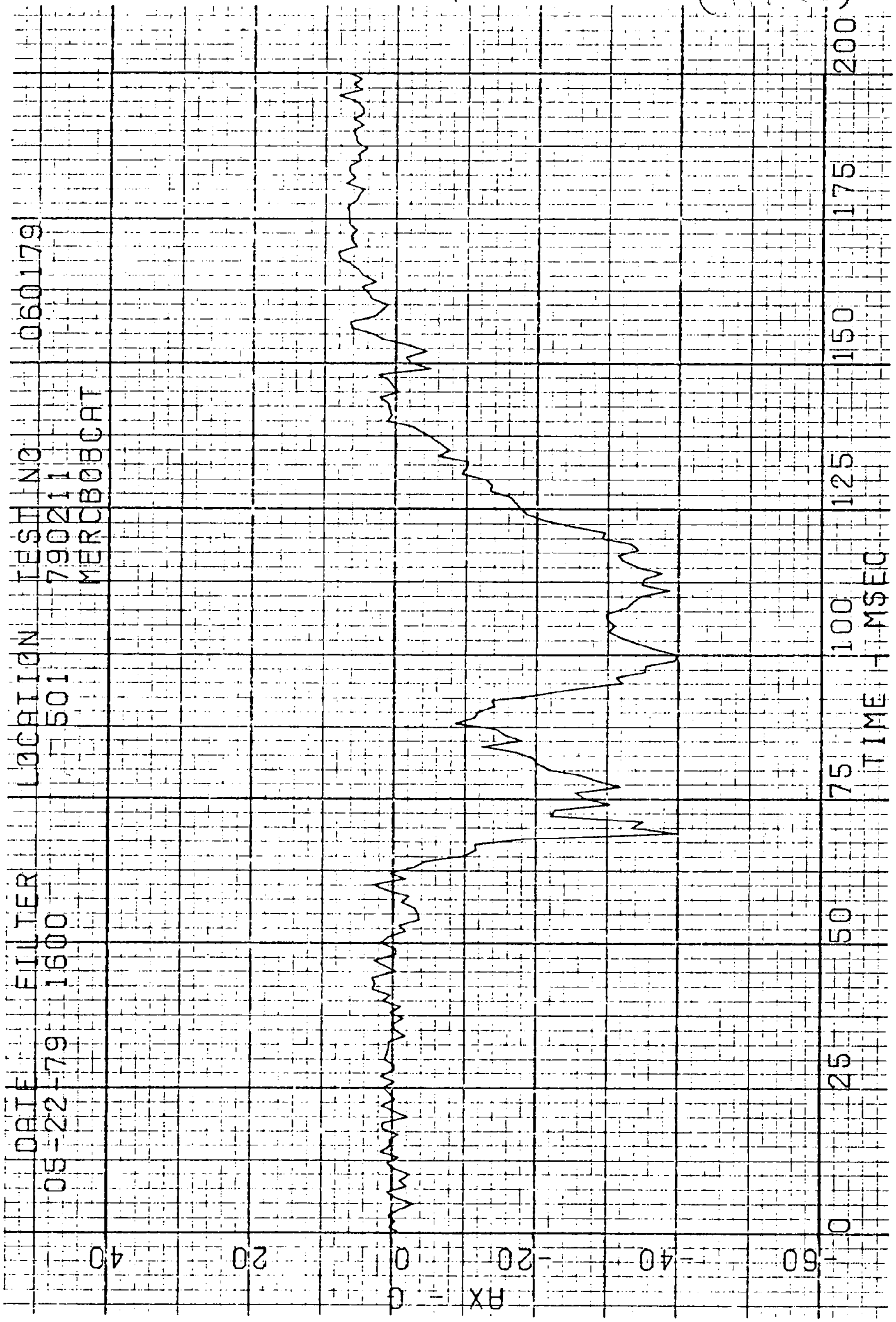
Driver	RF Outboard Passenger	RR 6-year-Child	Data Description
501	503	506	Head Acceleration
1101	1103	1106	Chest Acceleration
2111	2131	2161	Left Femur Load
2112	2132	2162	Right Femur Load
4101	4103	-	Torso Belt Load

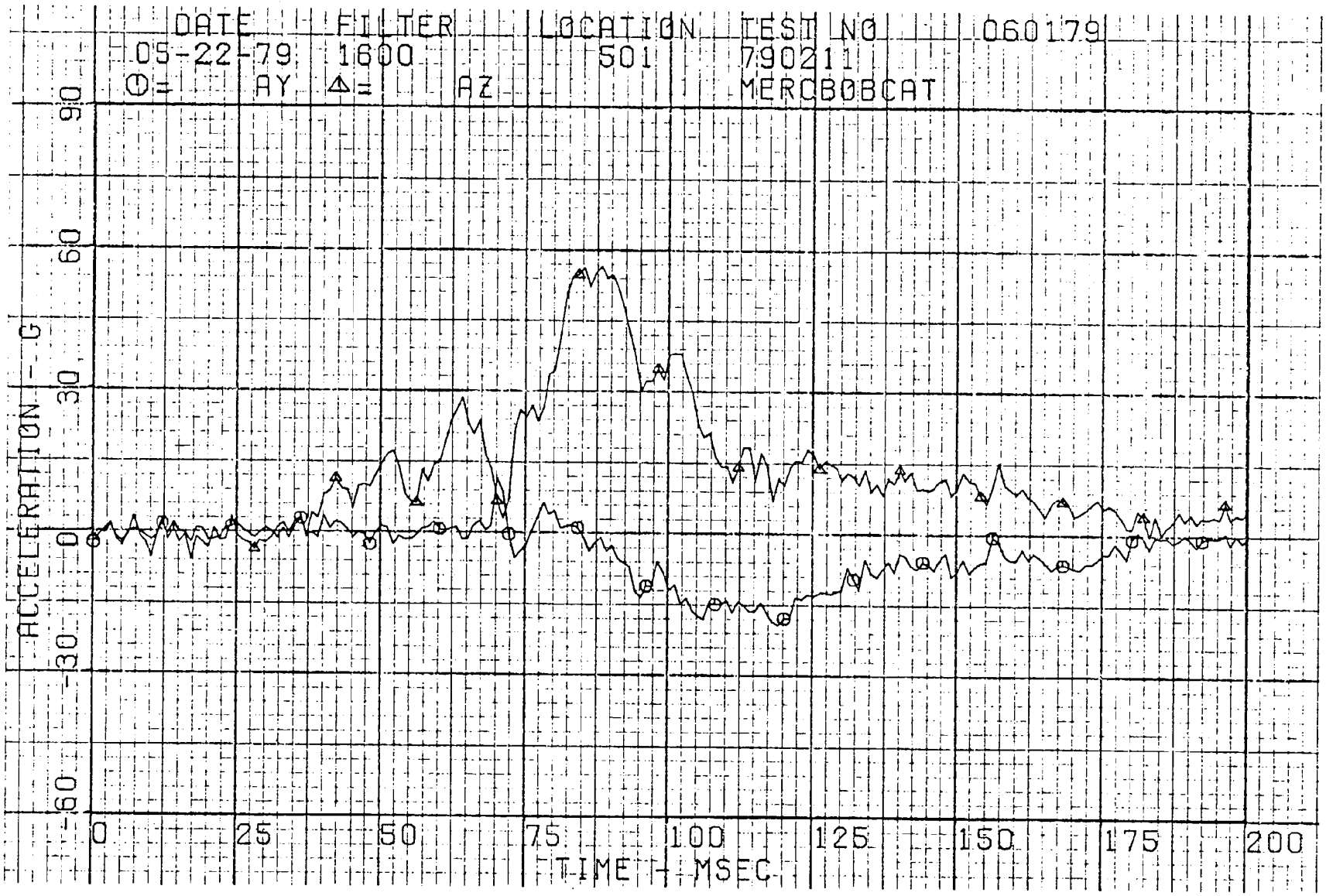
Vehicle Data**

	Location
101	Engine
102	Firewall
103	Firewall at Vehicle Centerline
104	Front Seat Area
105	Rear Seat Area

*Dummy Injury Summary presented on page 4-1 and 4-2.
**Vehicle accelerometer location and data summarized on page 4-4.

Each Graph should [illegible]

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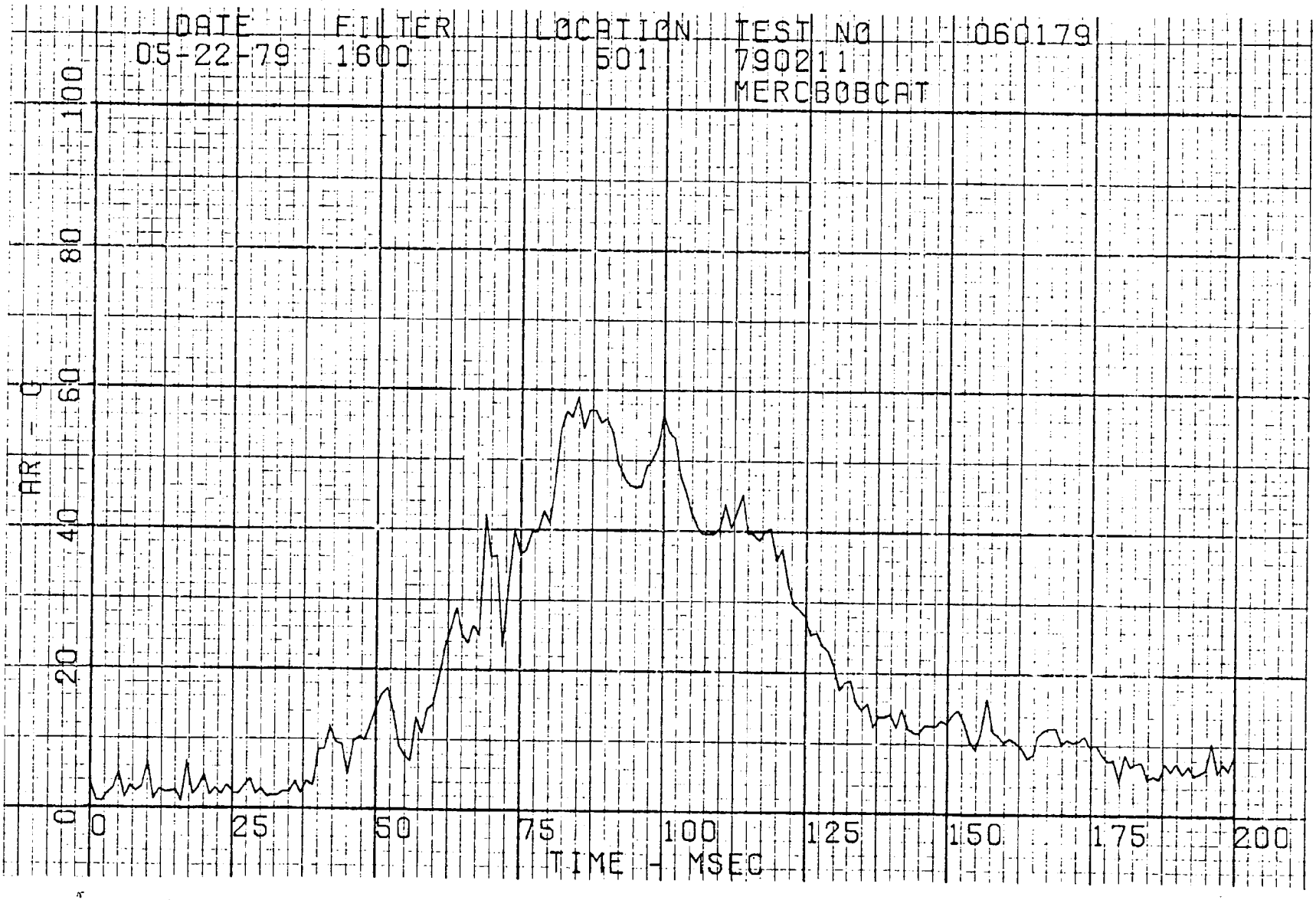
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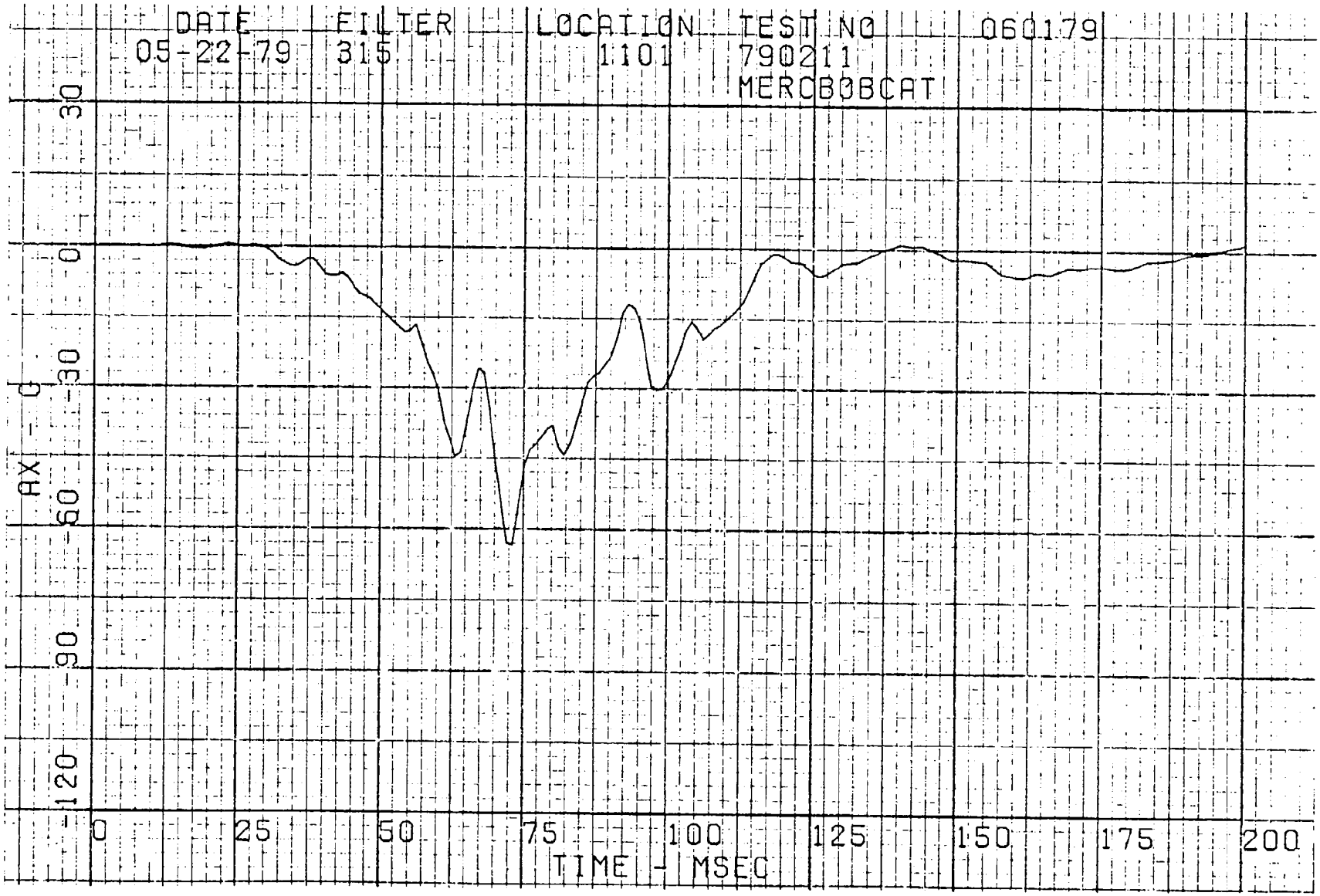
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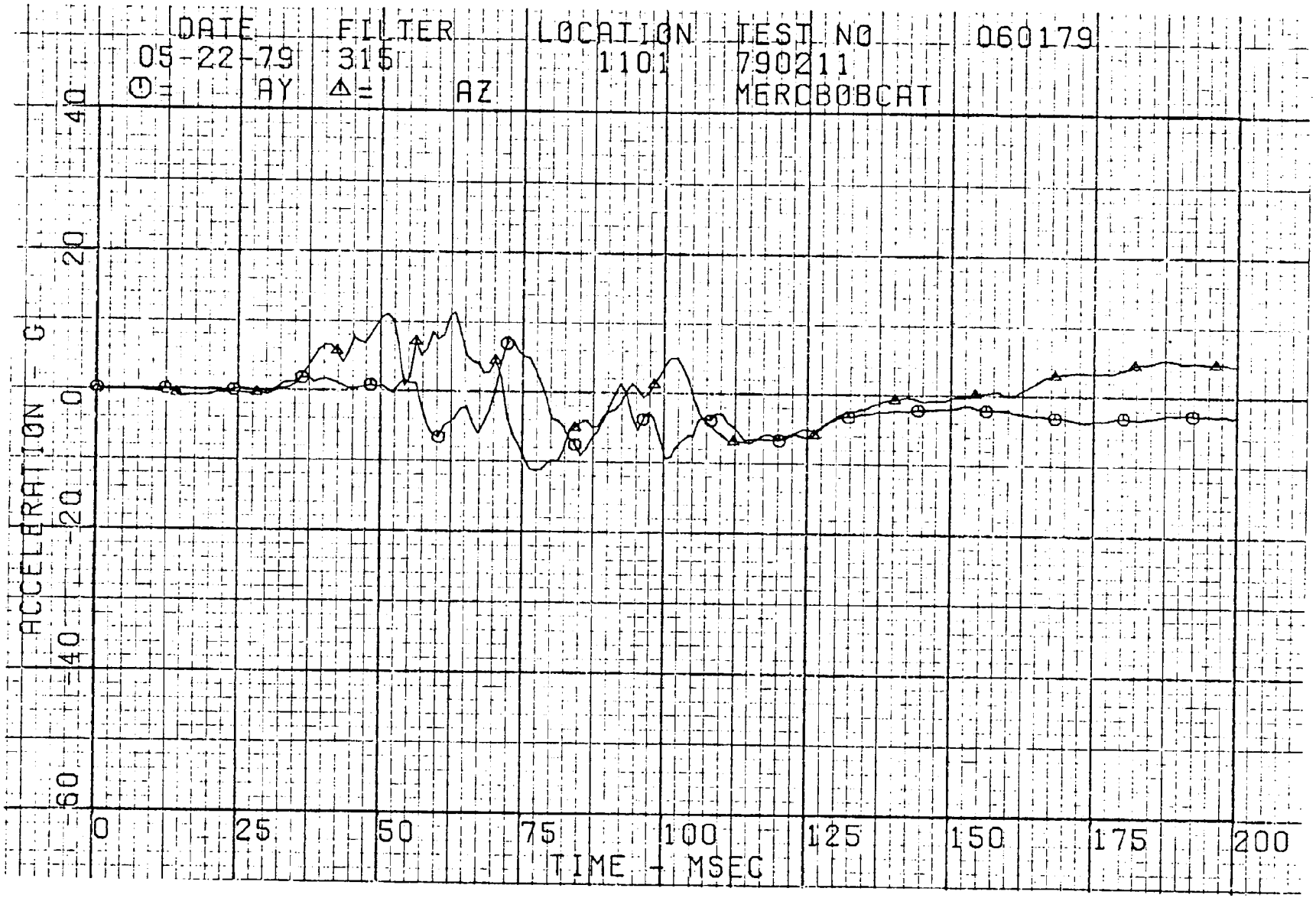
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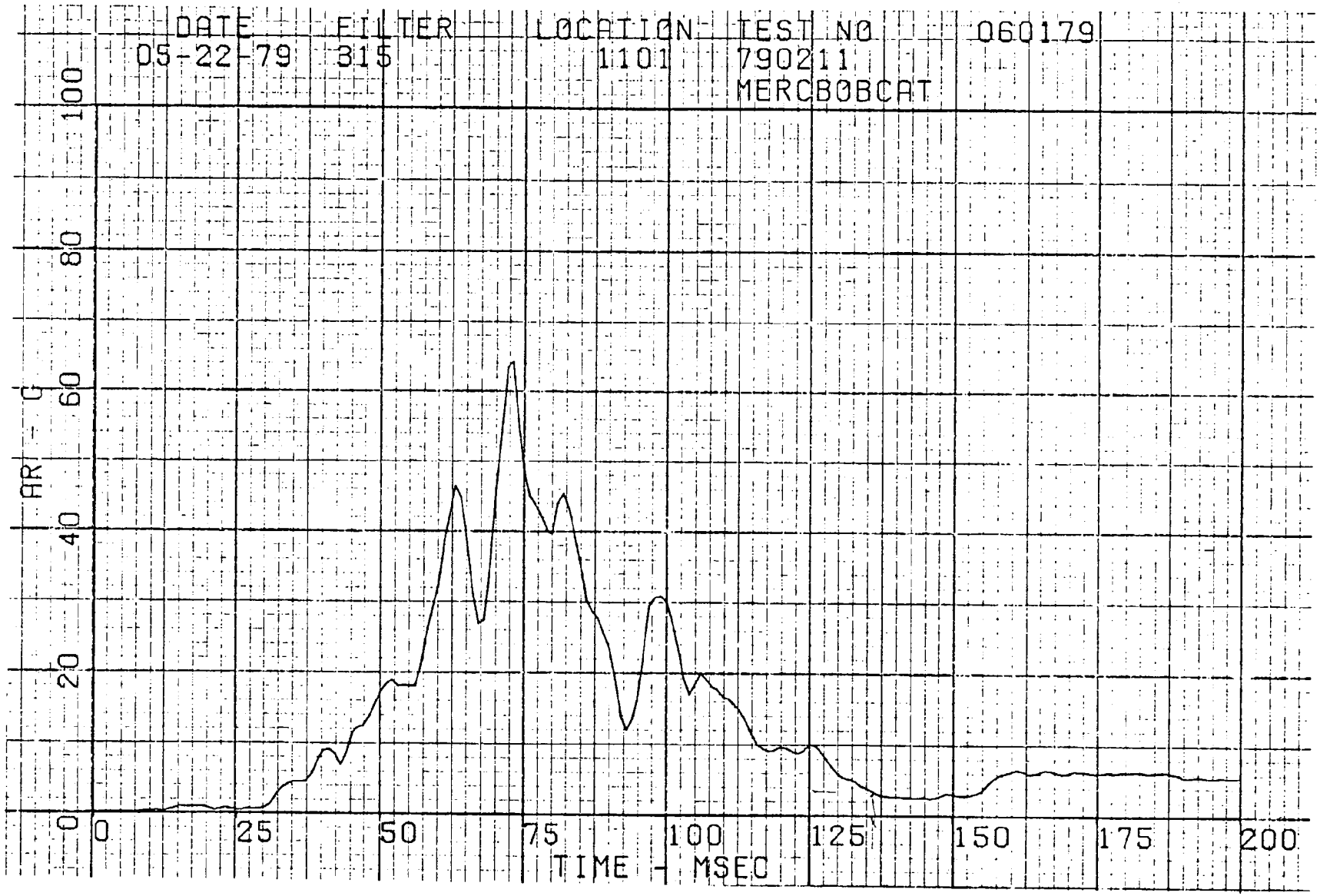
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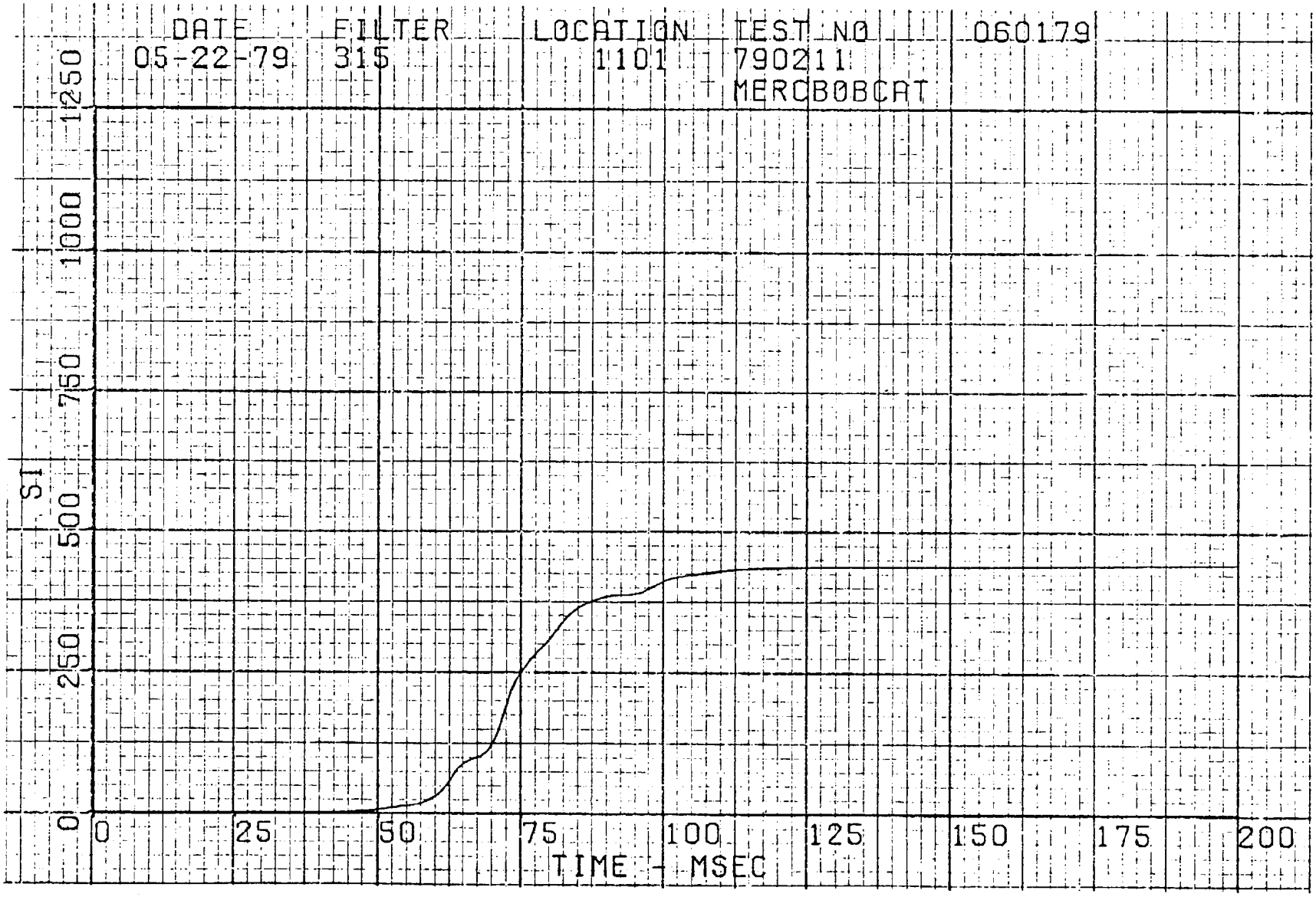
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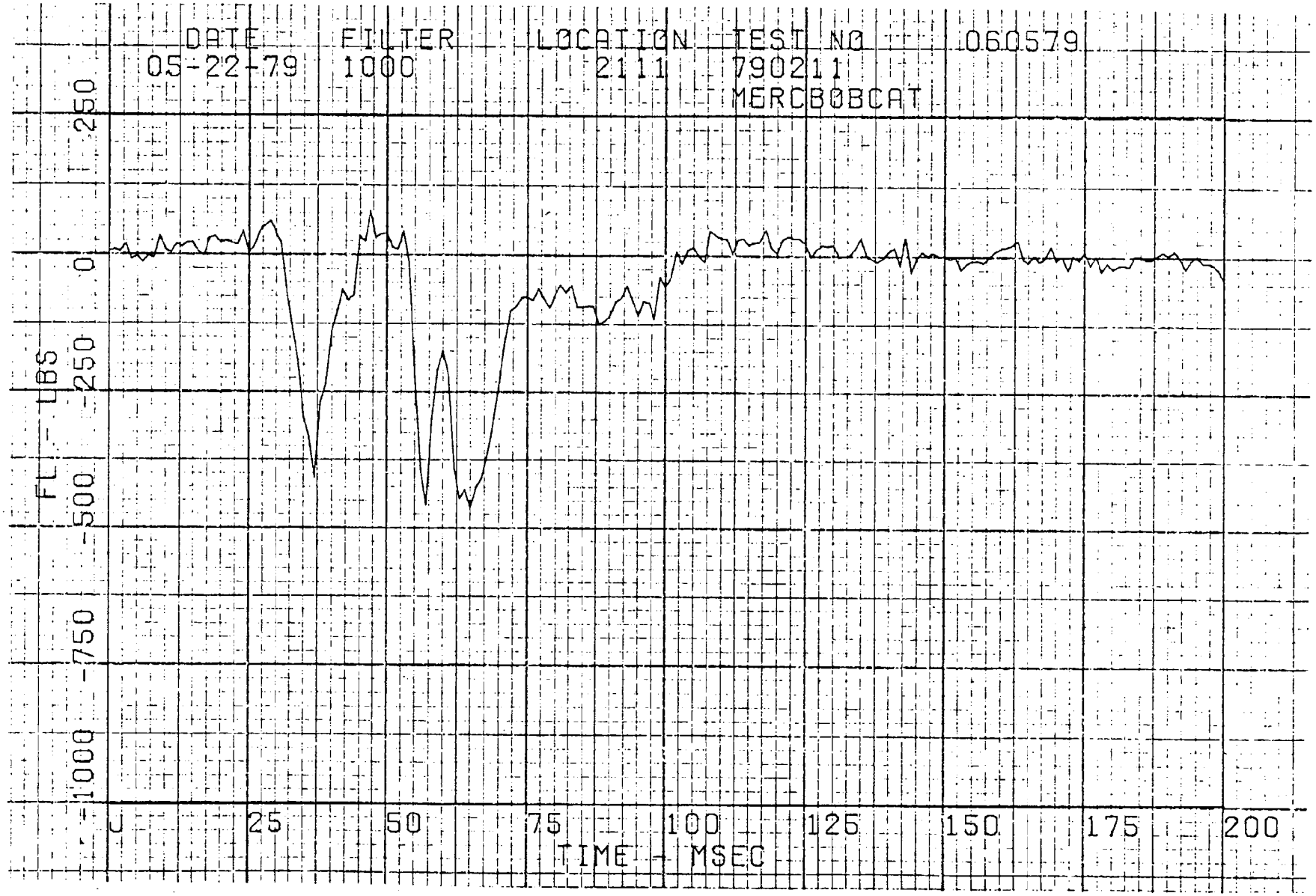
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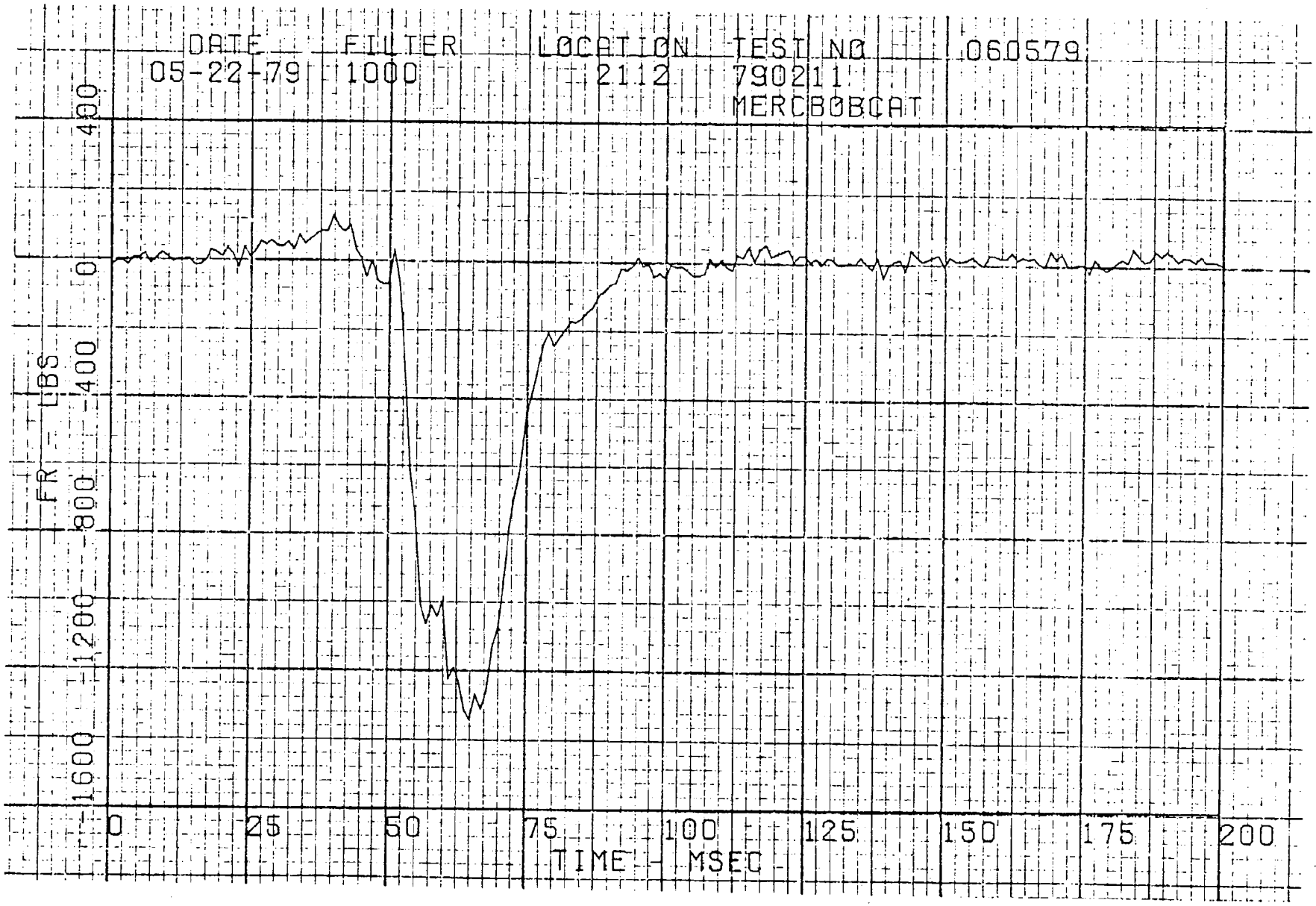
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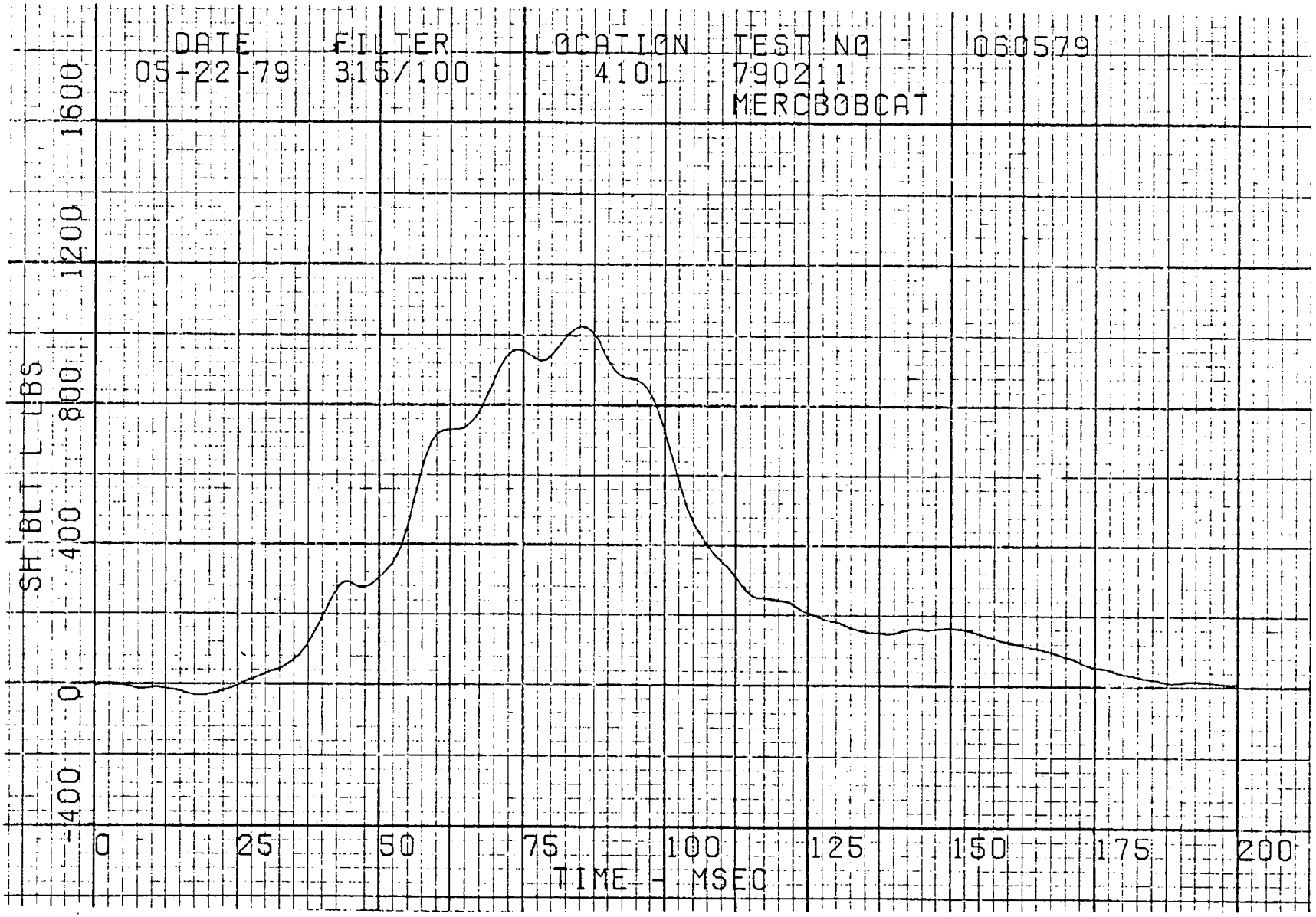
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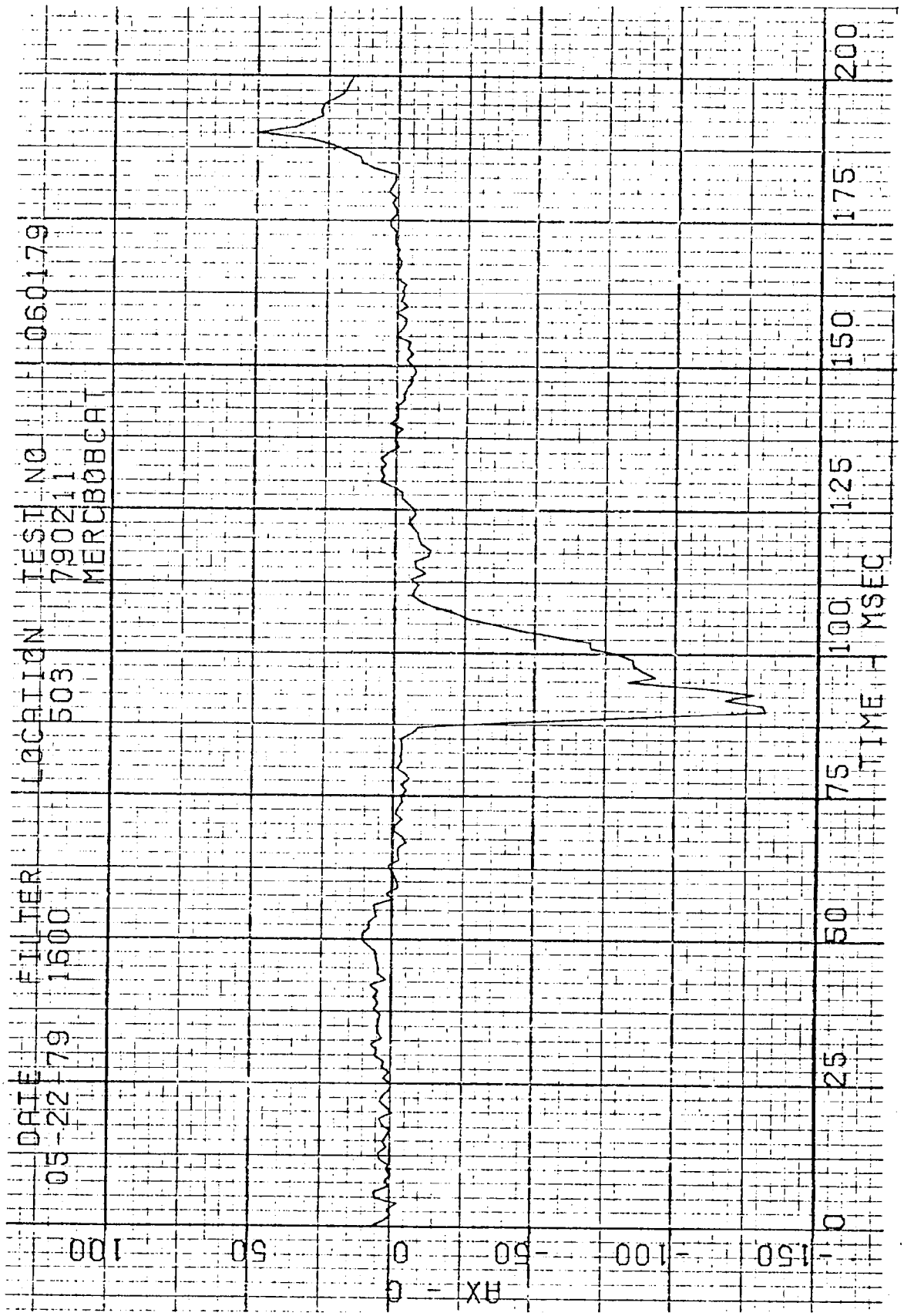
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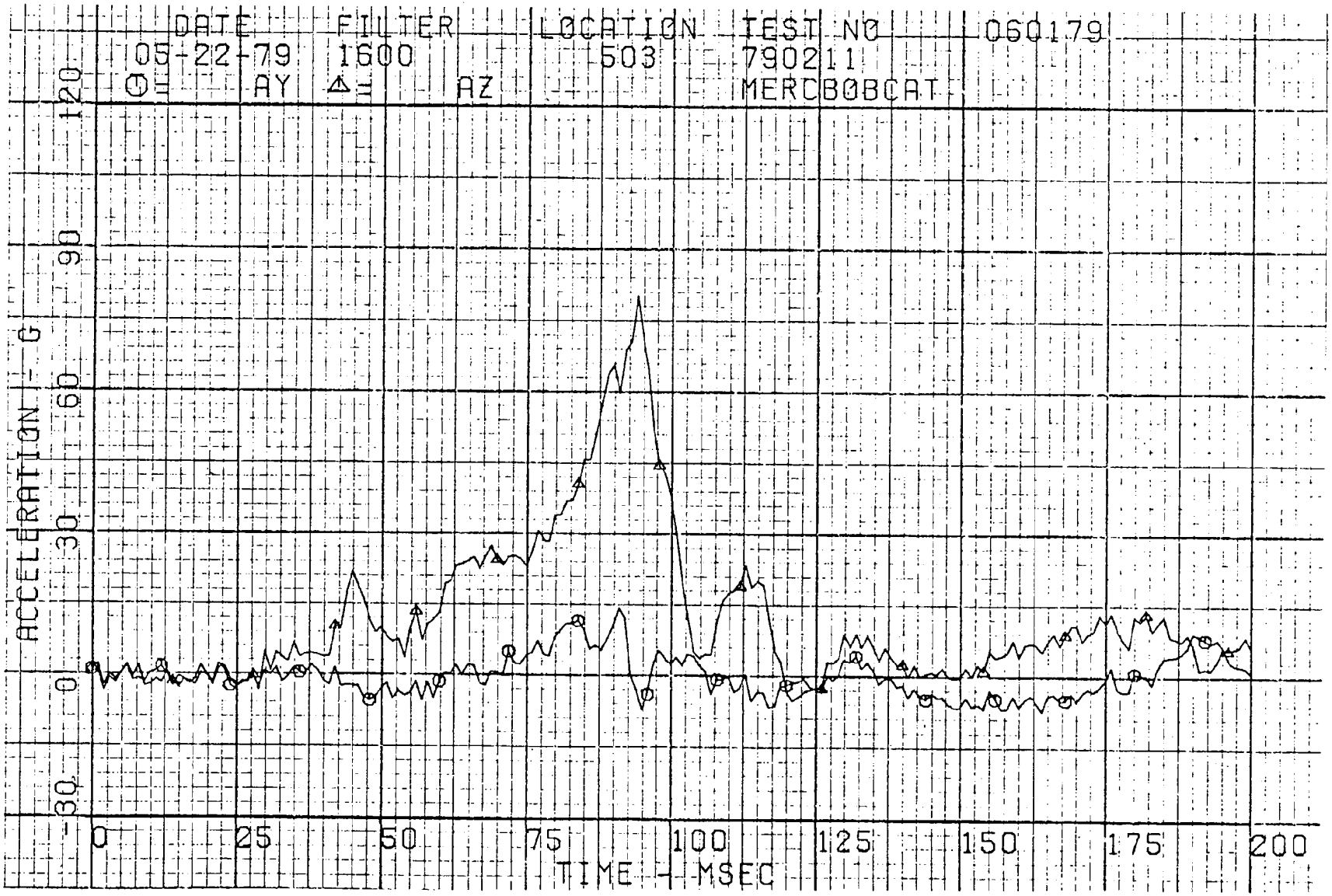
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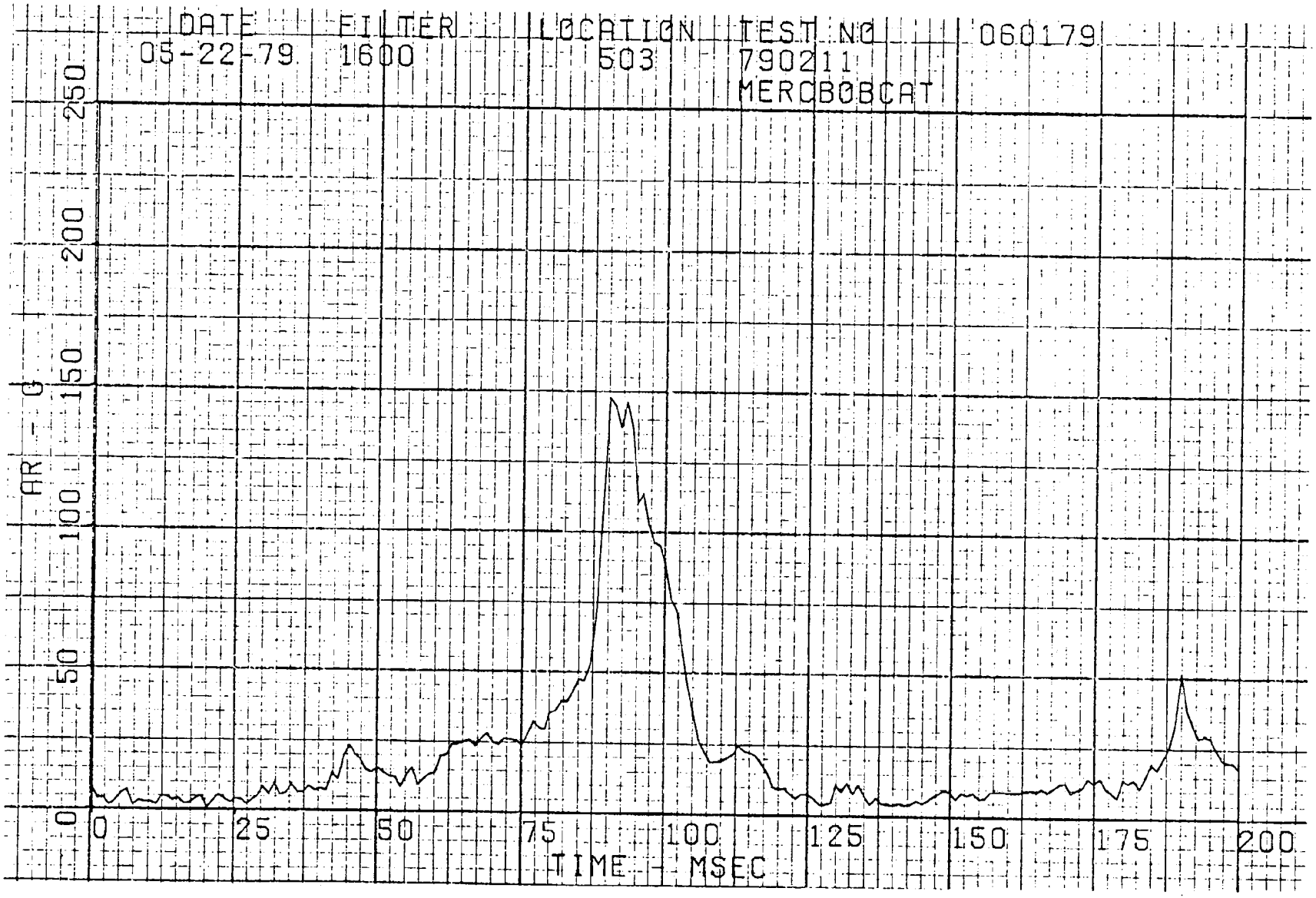
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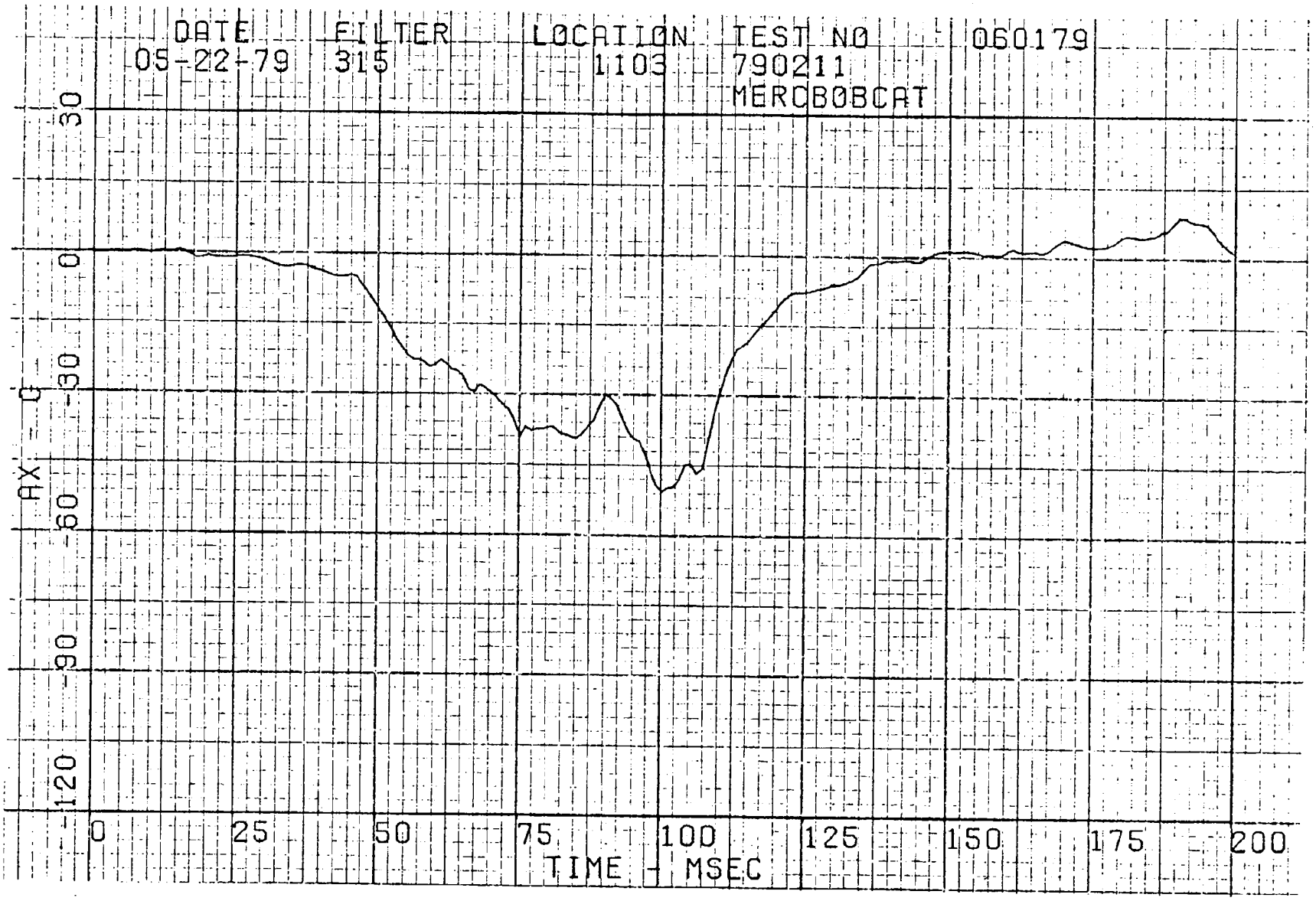
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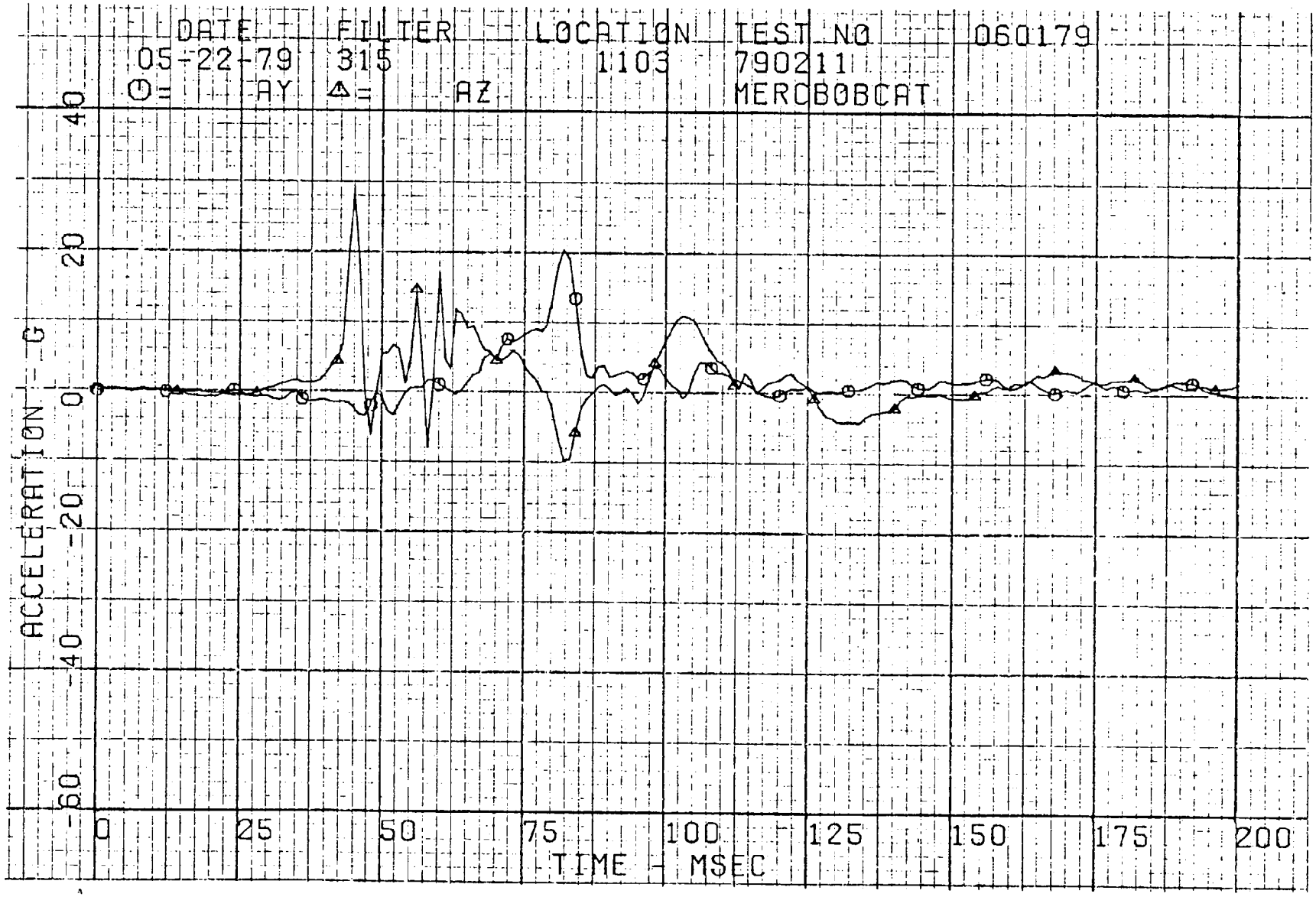
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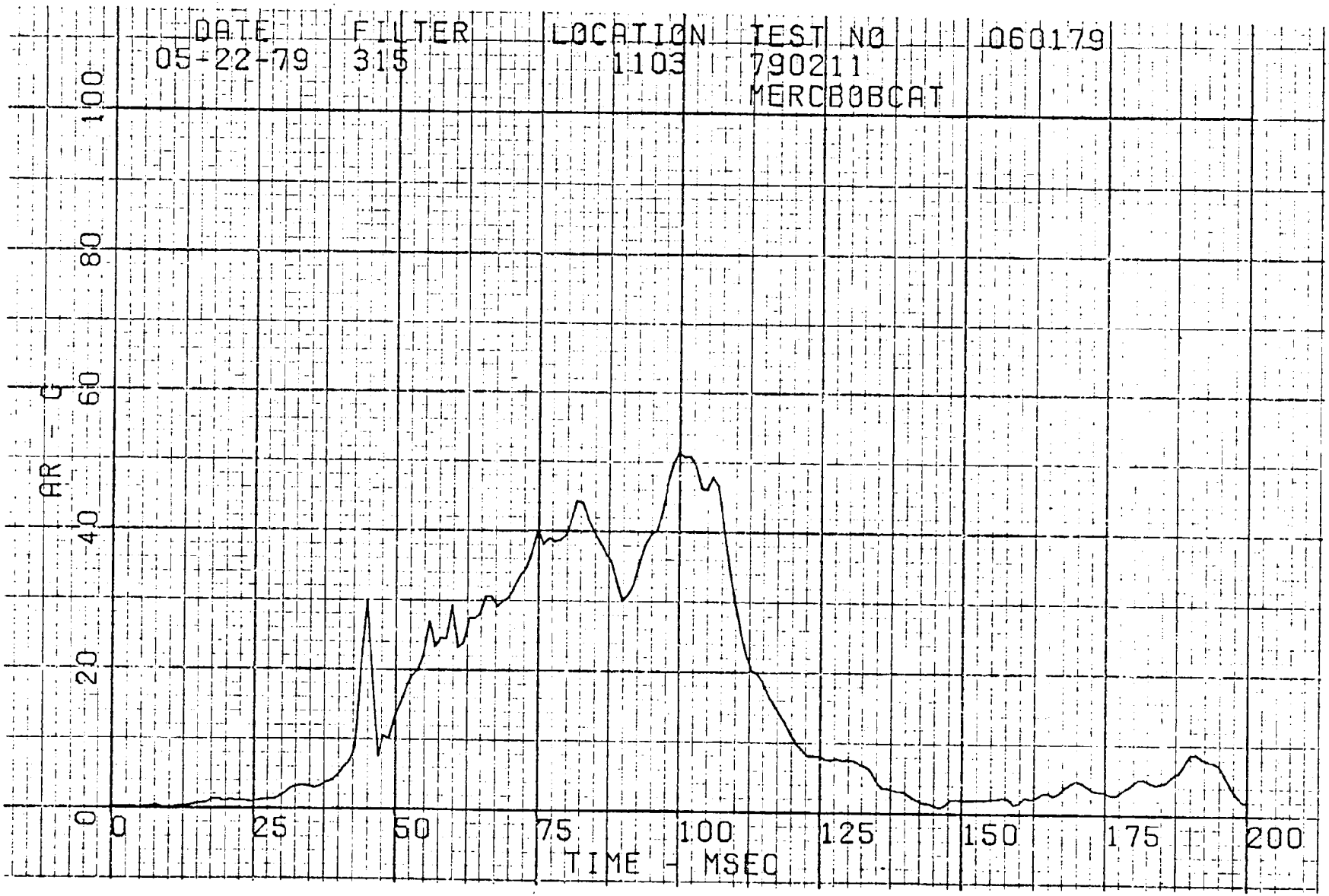
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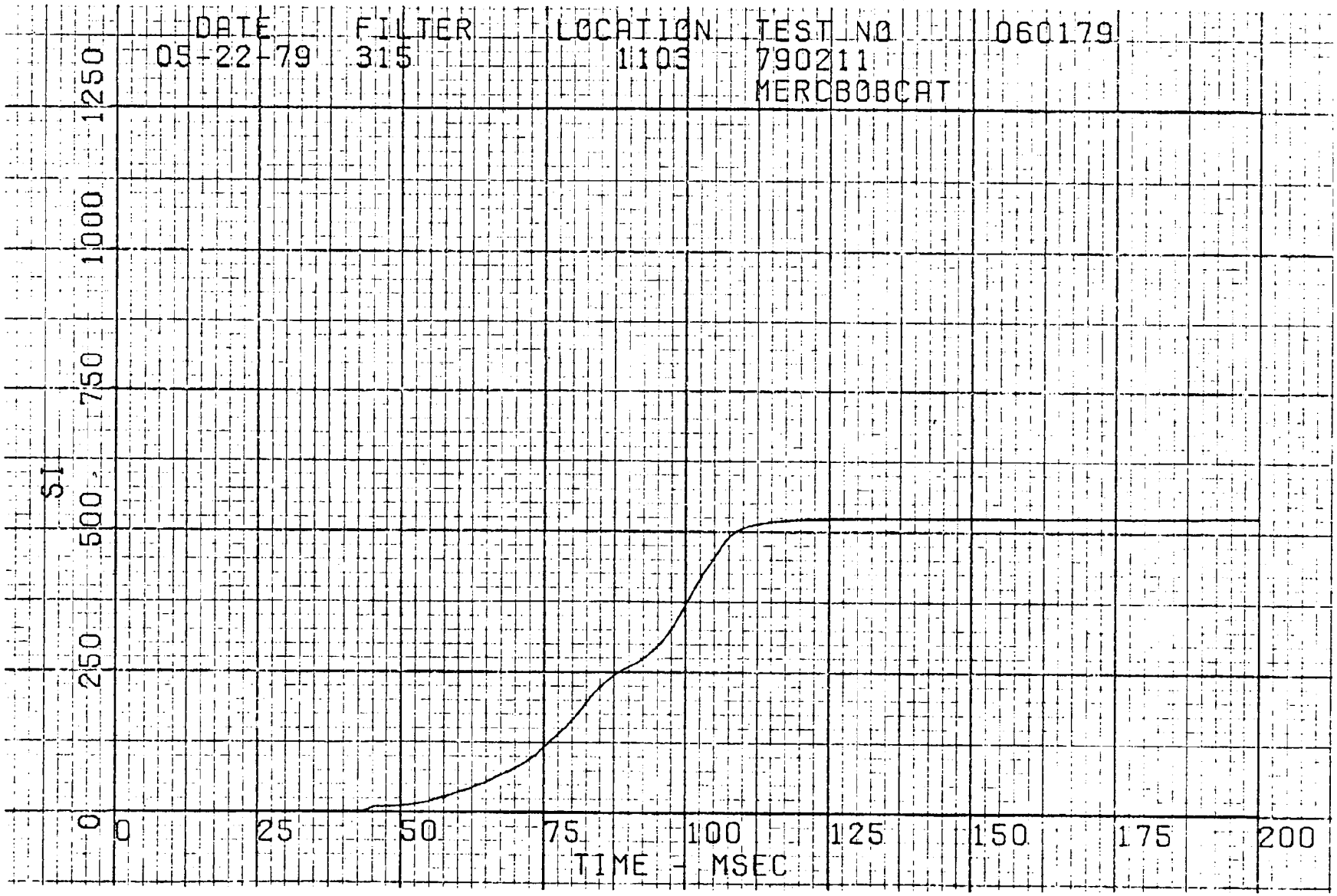
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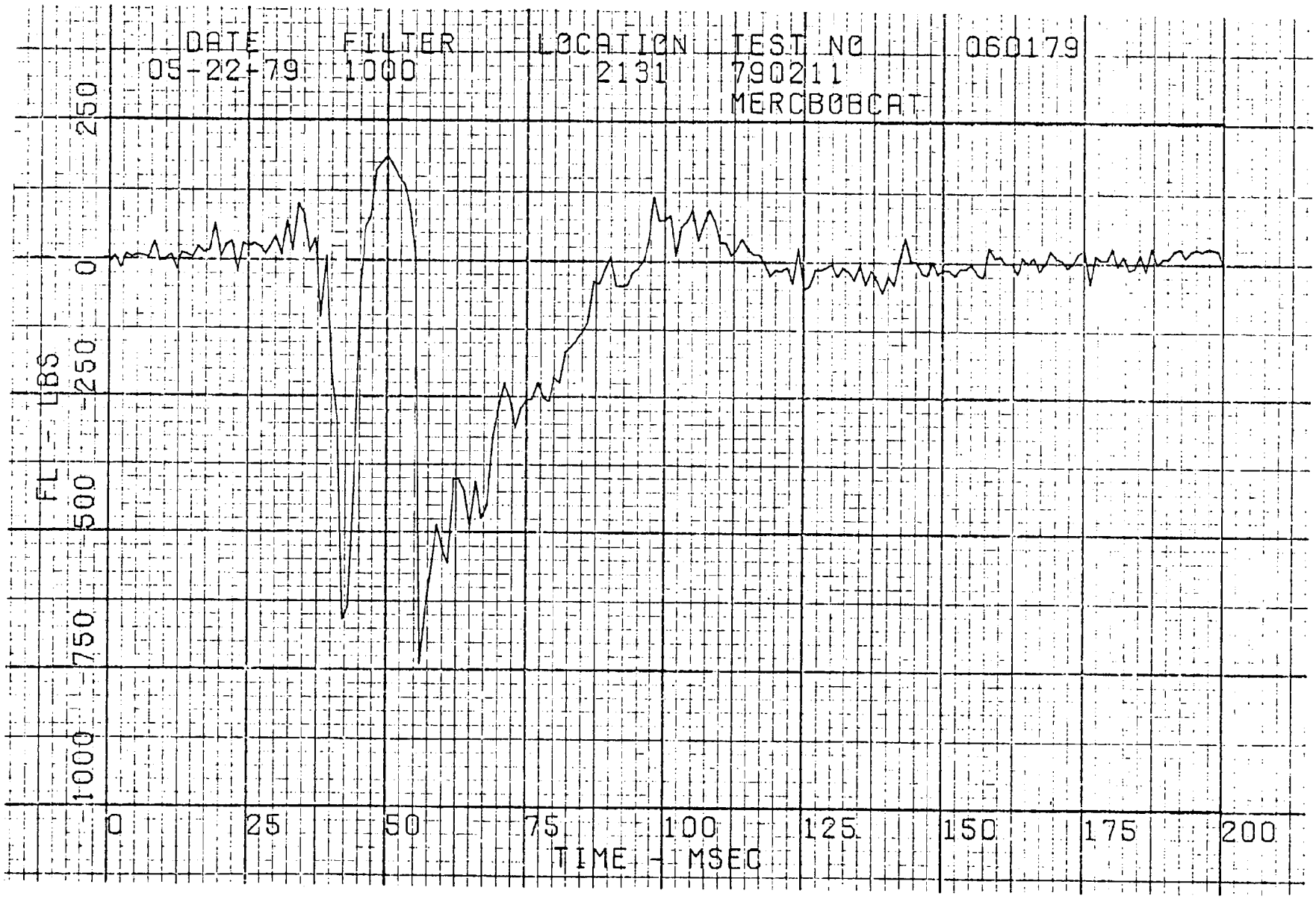
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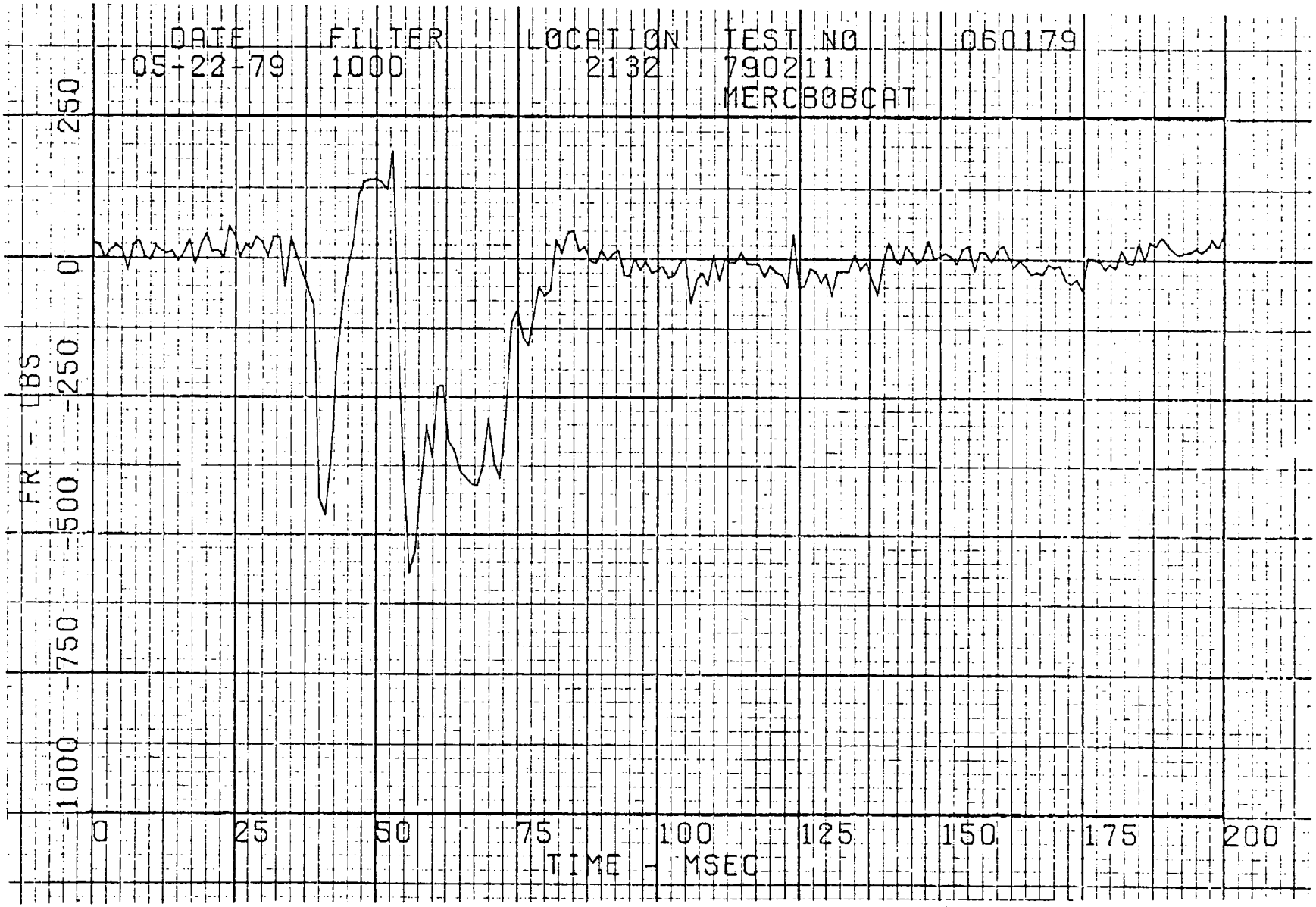
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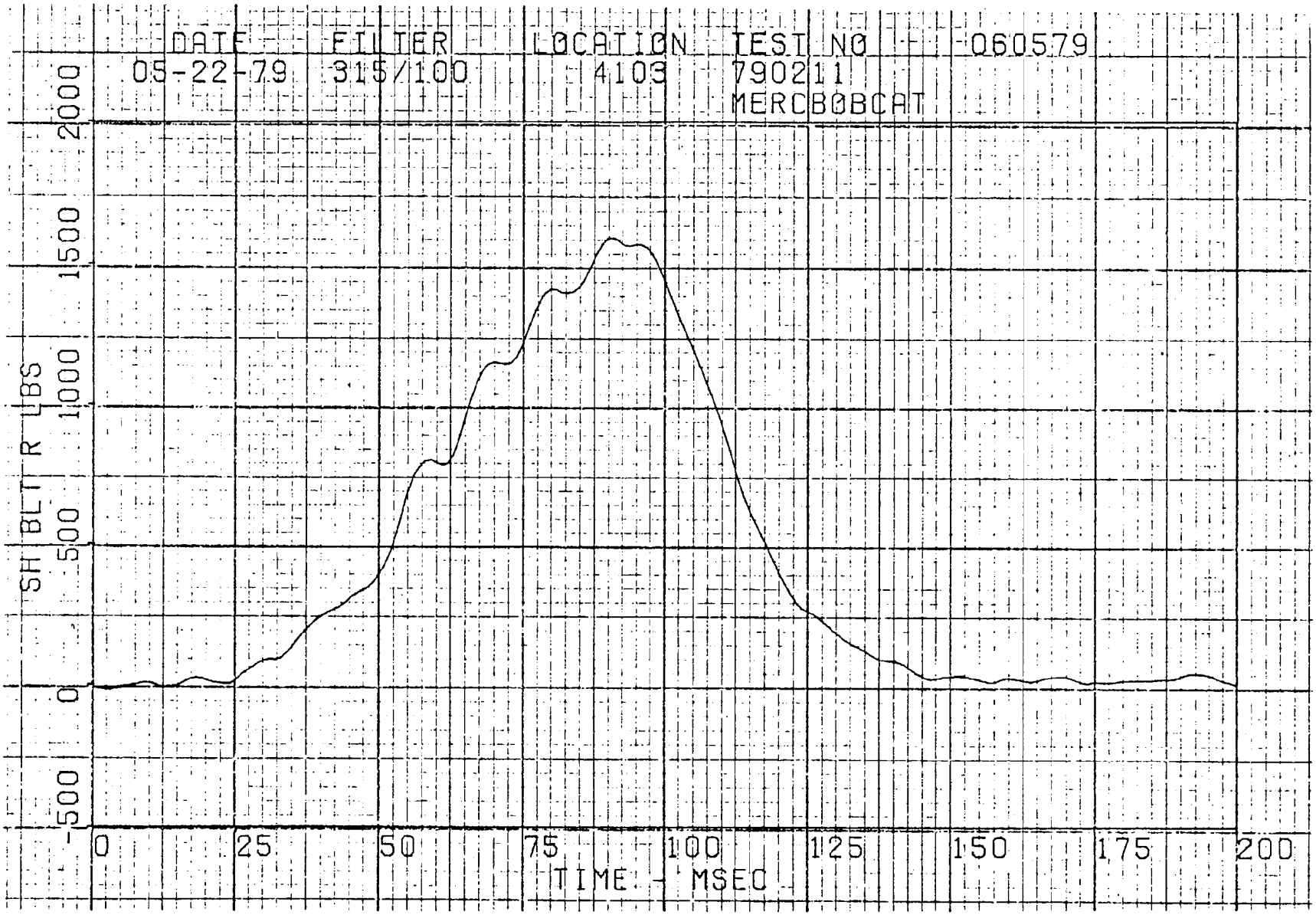
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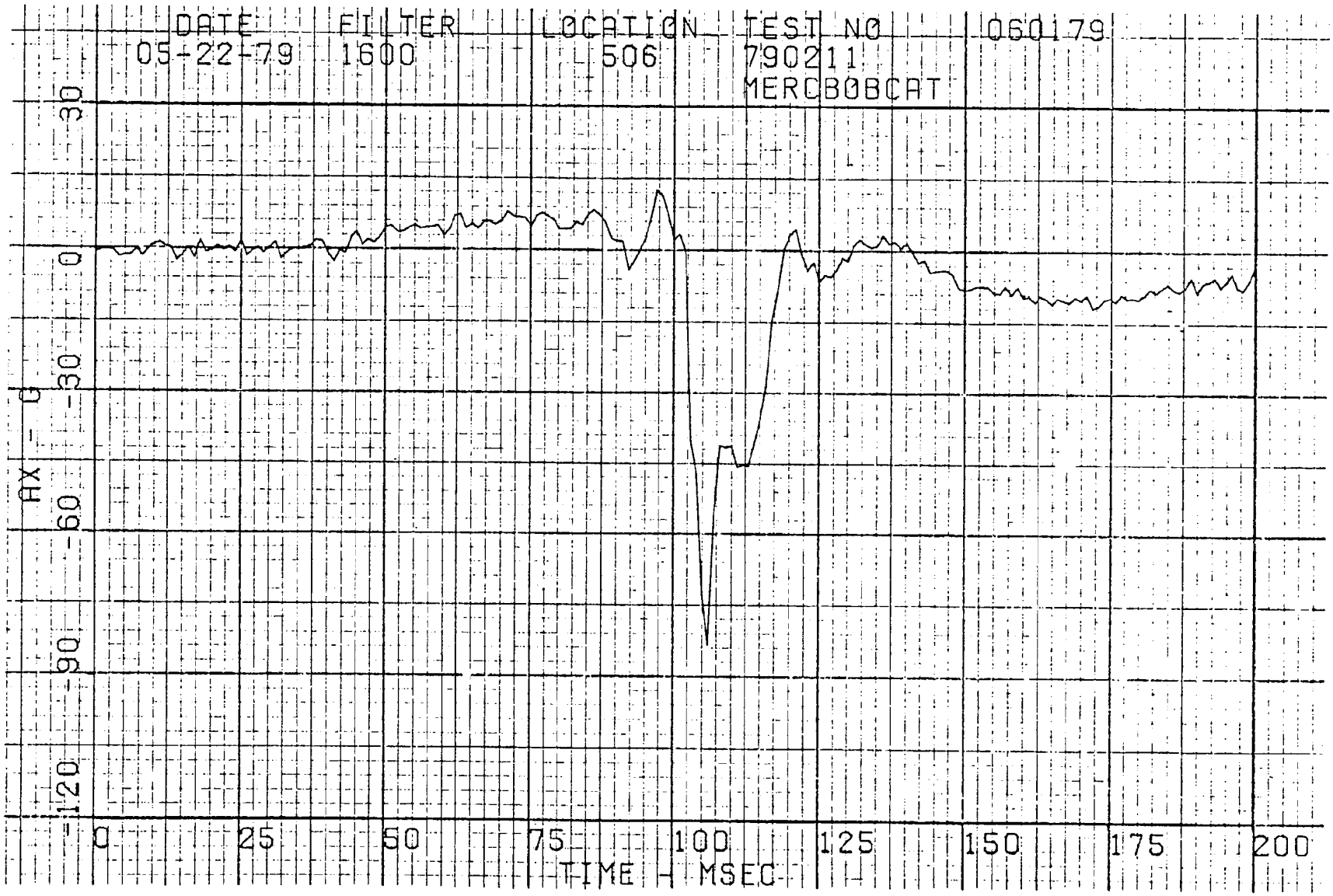
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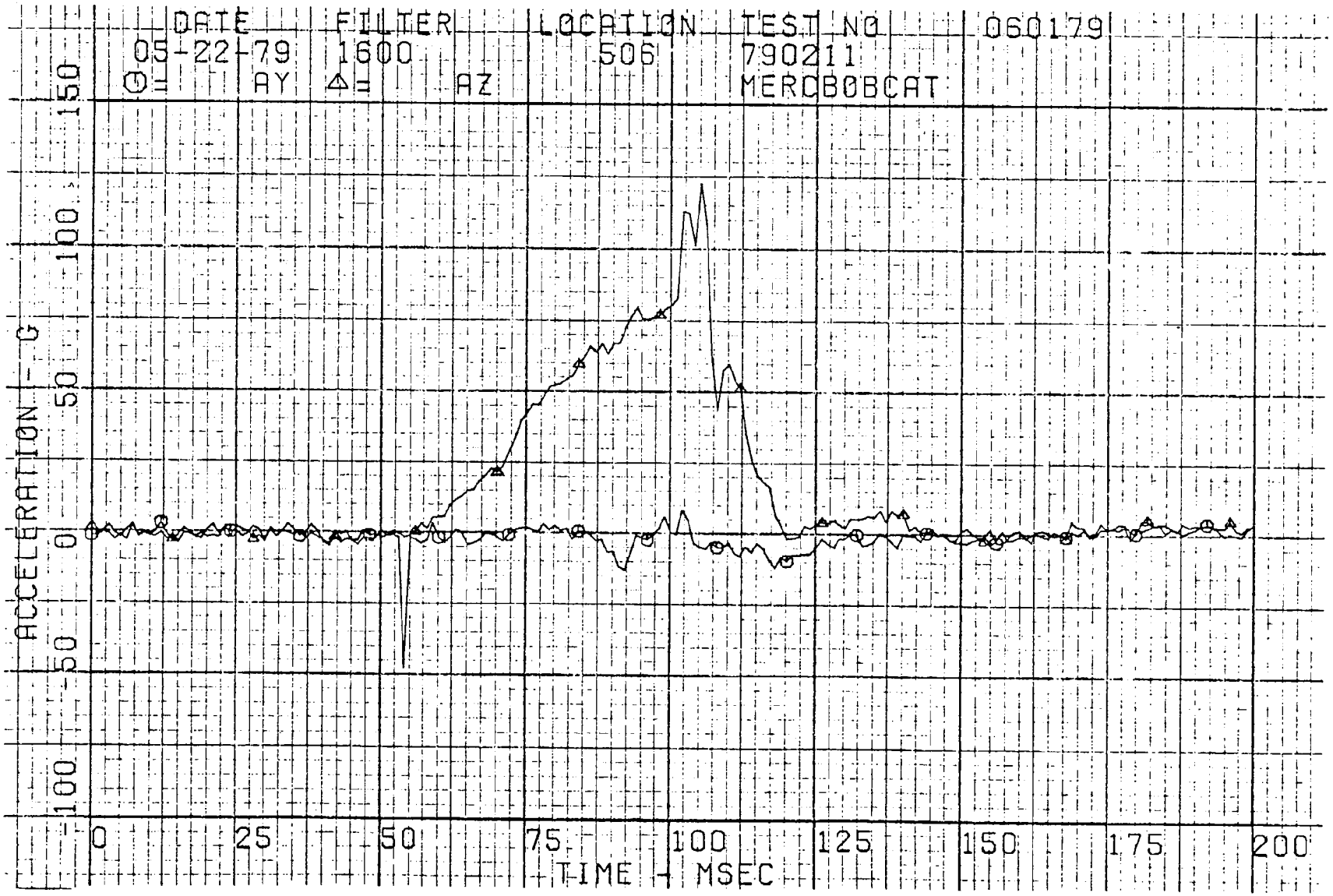
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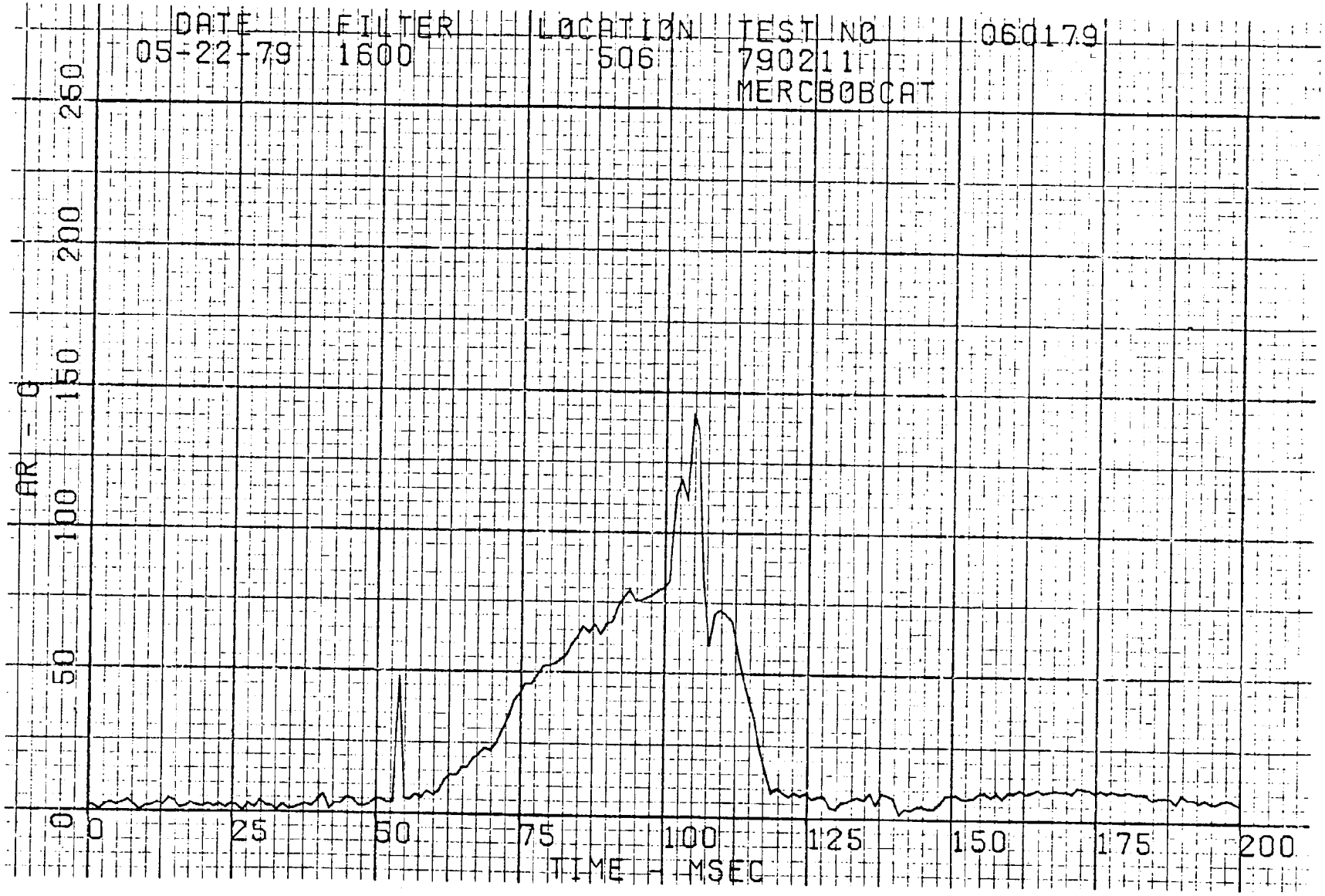
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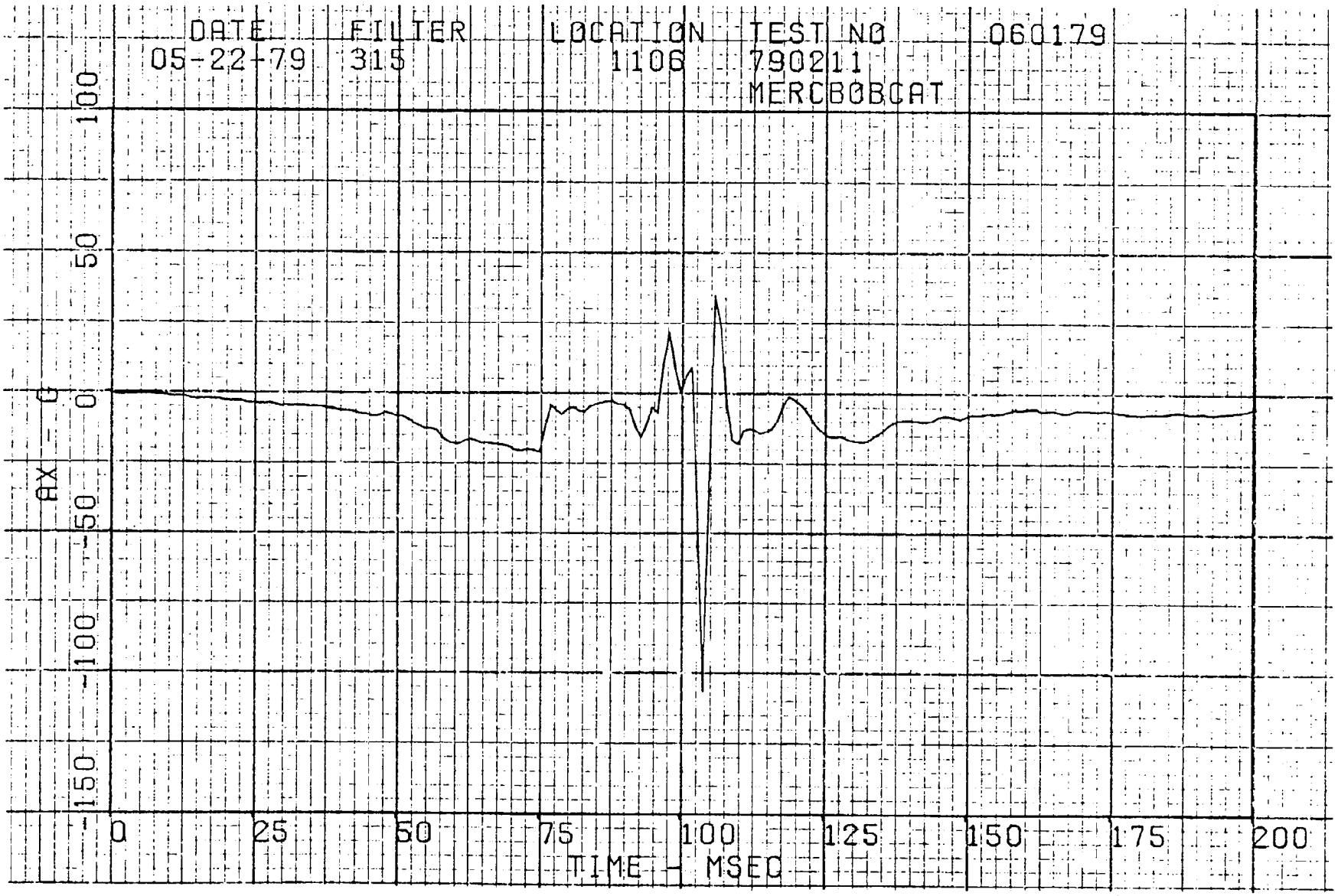
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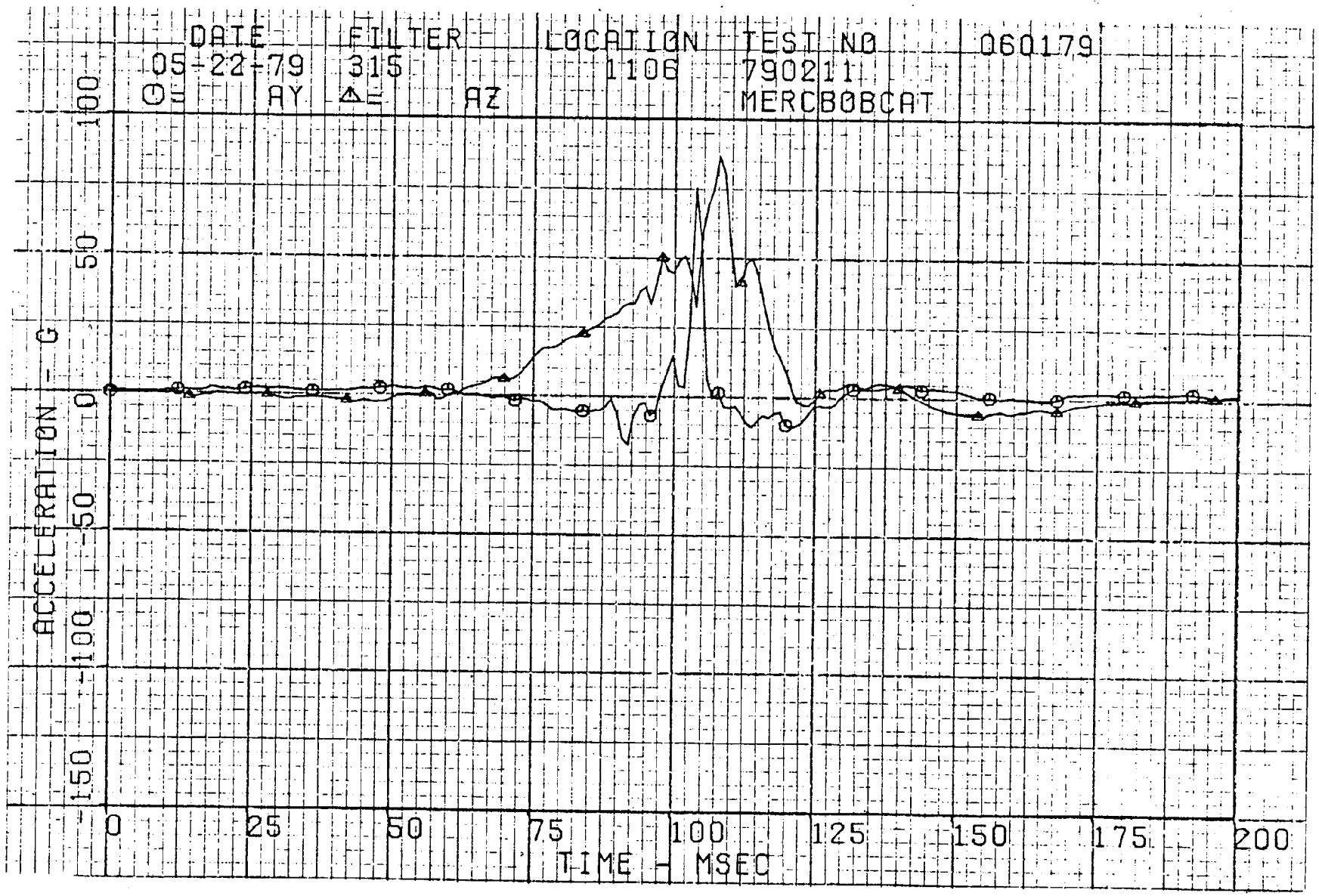
DATE
05-22-79
FILTER
315
LOCATION
1106
TEST NO
790211
060179
MERCBOBCAT
AY
AZ
ACCELERATION - G
100
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0
-50
-100
-150
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75
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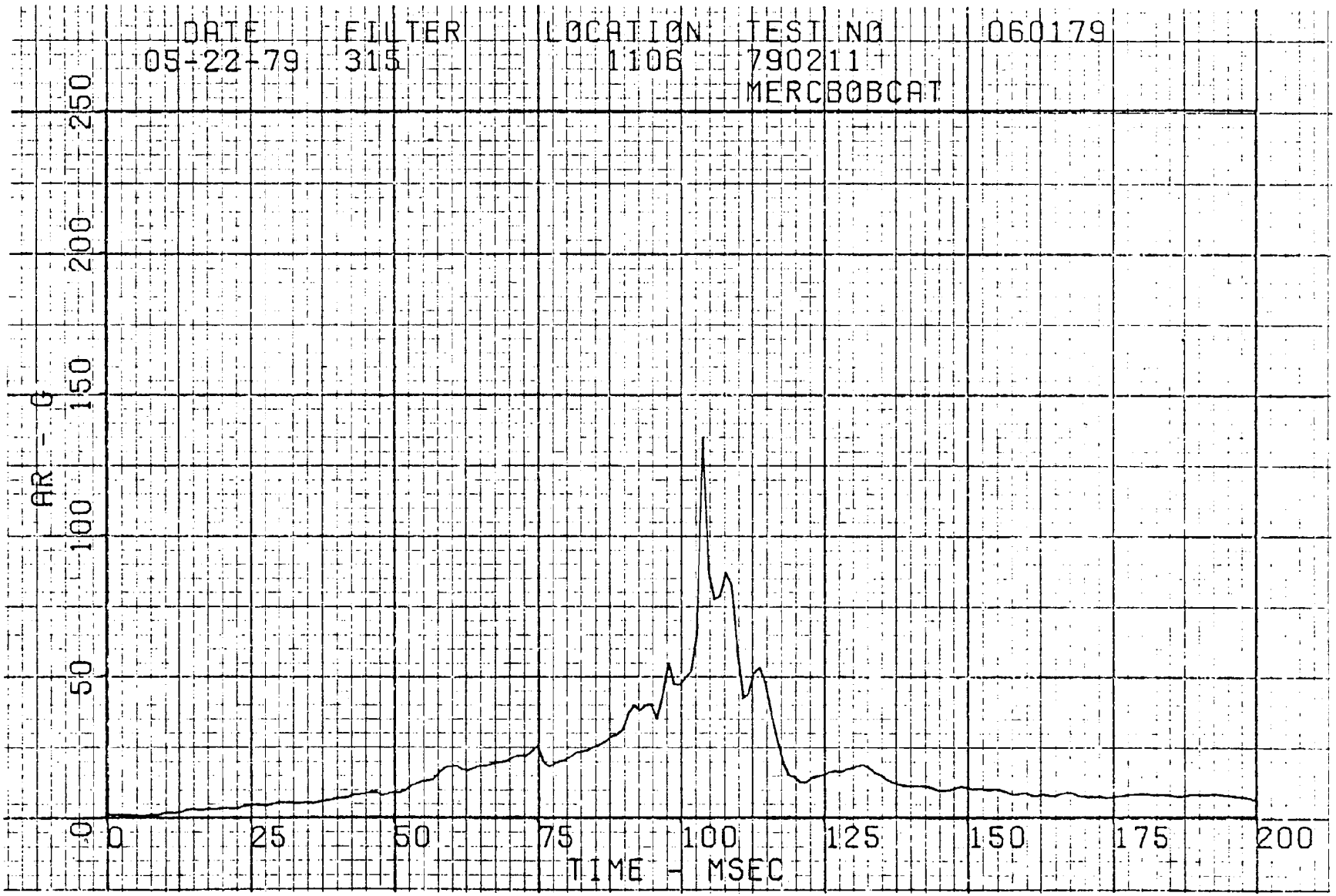
125
150
175
200
TIME - MSEC


DATE
05-22-79
FILTER
315
LOCATION
1106
TEST NO
790211
060179
MERCB0BCAT
AR - g
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50
100
150
200
250
0
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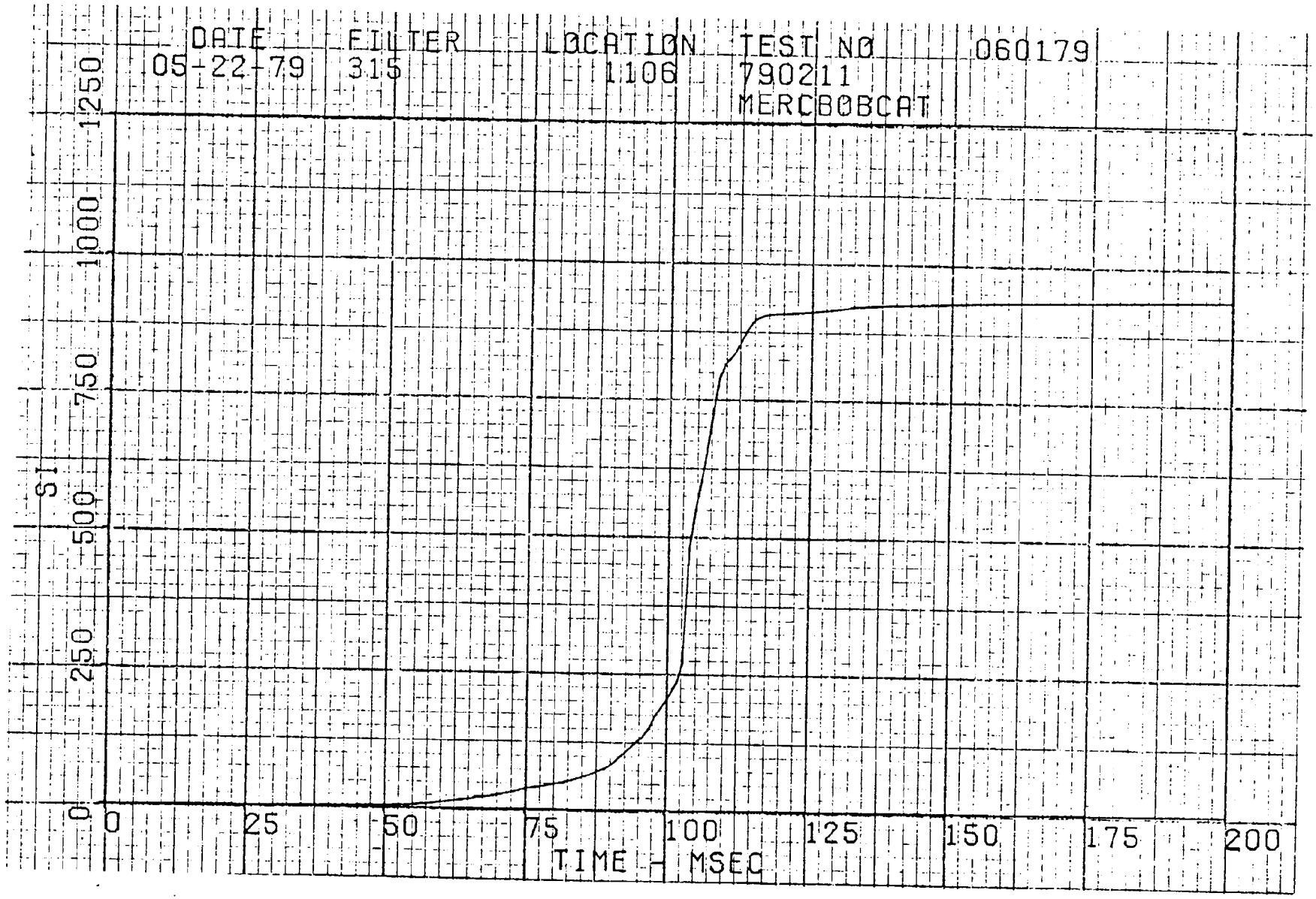
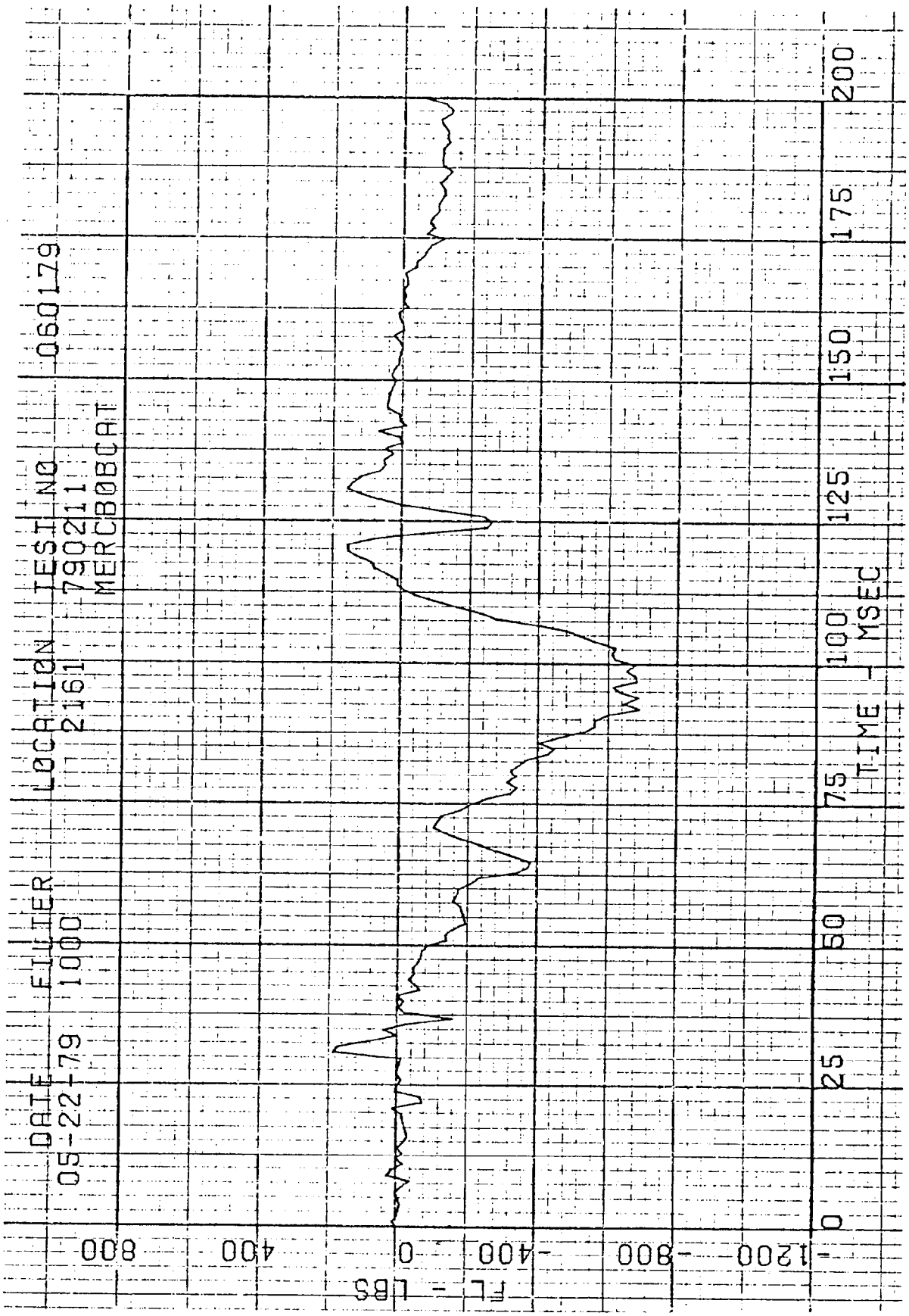
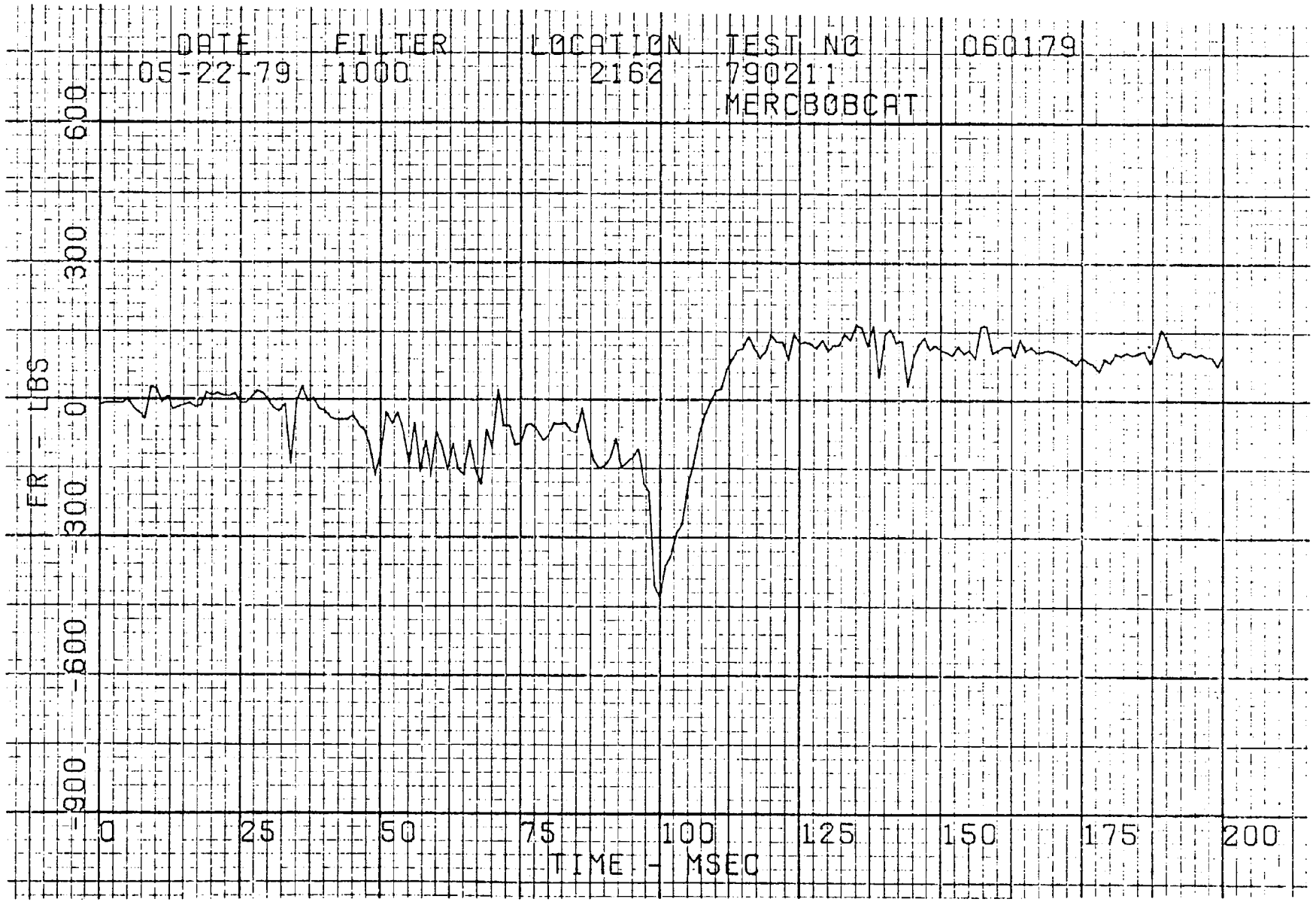
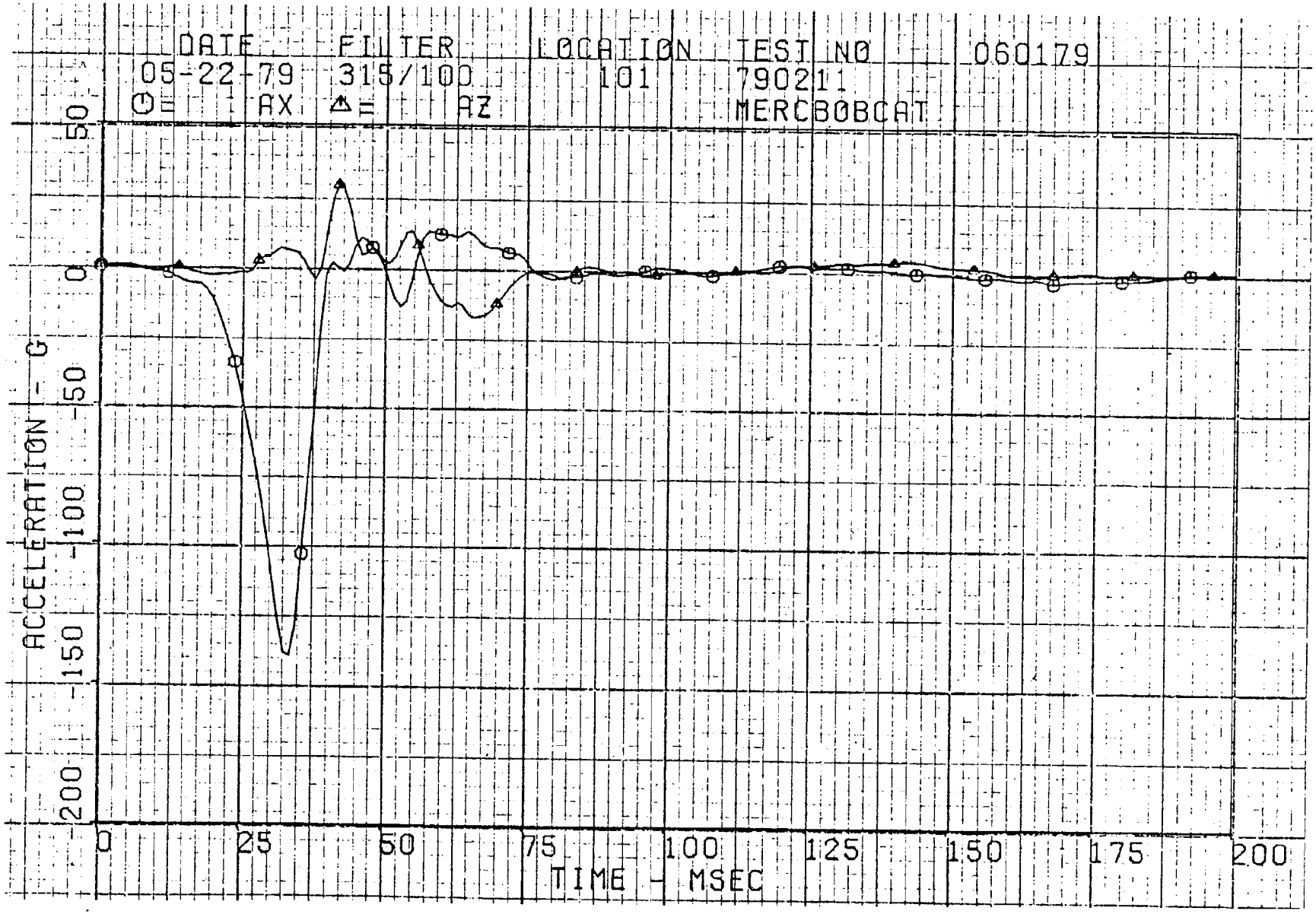
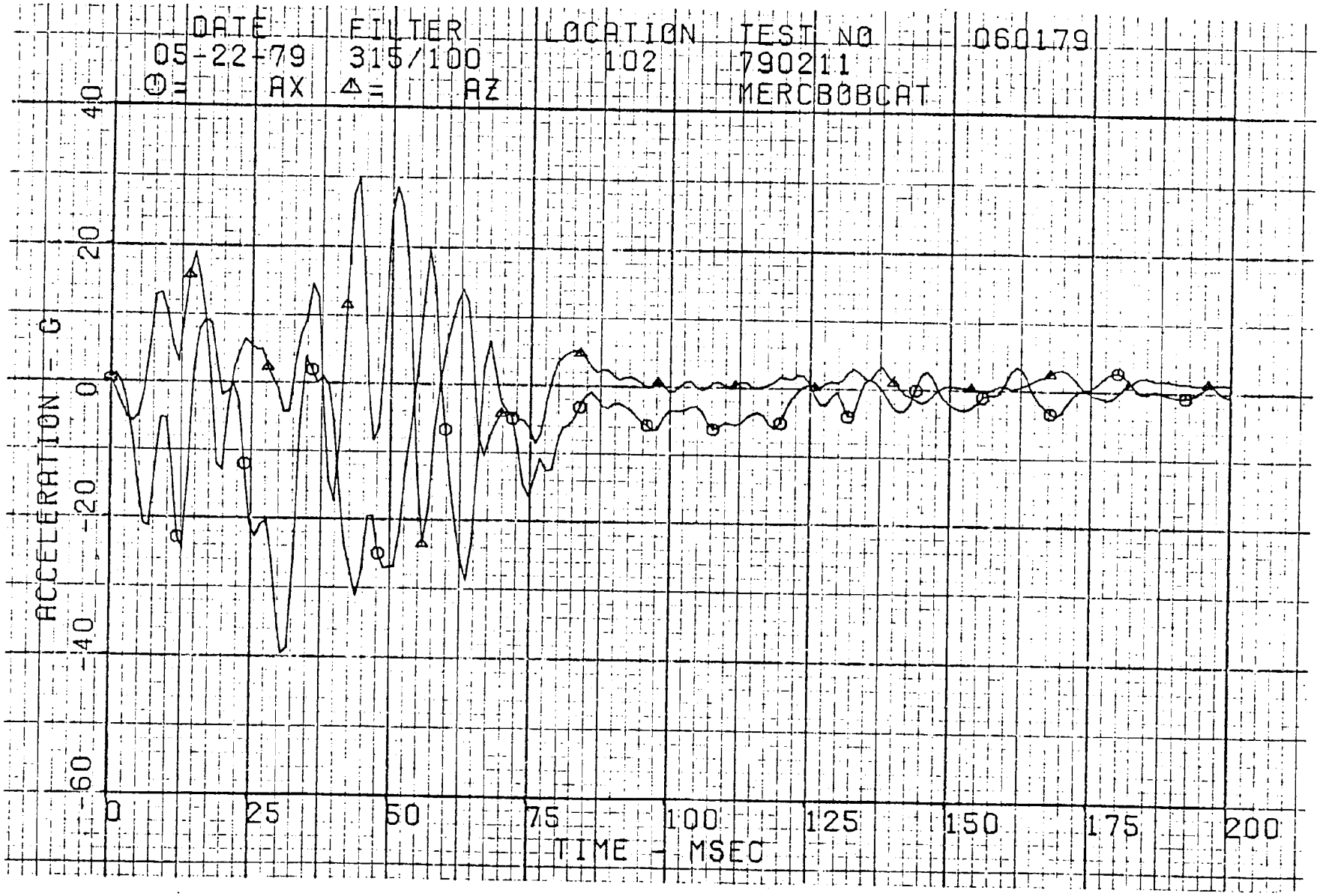
75
100
125
150
175
200
TIME - MSEC


DATE
05-22-79
FILTER
315
LOCATION
1106
TEST NO
790211
MERC80BCAT
060179
1250
1000
750
500
250
0
IS
0
25
50
75
100
125
150
175
200
TIME - MSEC


DATE
05-22-79
FILTER
1000
LOCATION
2161
TEST NO
790211
MERCB0BCAT
060179
FL - LBS
800
400
0
-400
-800
-1200
0
25
50
75
100
125
150
175
200
TIME - MSEC


DATE
05-22-79
FILTER
1000
LOCATION
2162
TEST NO
790211
060179
MERCB0BCAT
FR - LBS
600
300
0
-300
-600
-900
0
25
50
75
100
125
150
175
200
TIME - MSEC


DATE
05-22-79
FILTER
315/100
LOCATION
101
TEST NO
060179
790211
MERCB0BCAT
○ = AX
△ = AZ
ACCELERATION - G
50
0
-50
-100
-150
-200
0
25
50
75
100
125
150
175
200
TIME - MSEC


DATE
05-22-79
FILTER
315/100
LOCATION
102
TEST NO
790211
060179
MERCB0BCAT
⊖ = AX
△ = AZ
ACCELERATION - G
40
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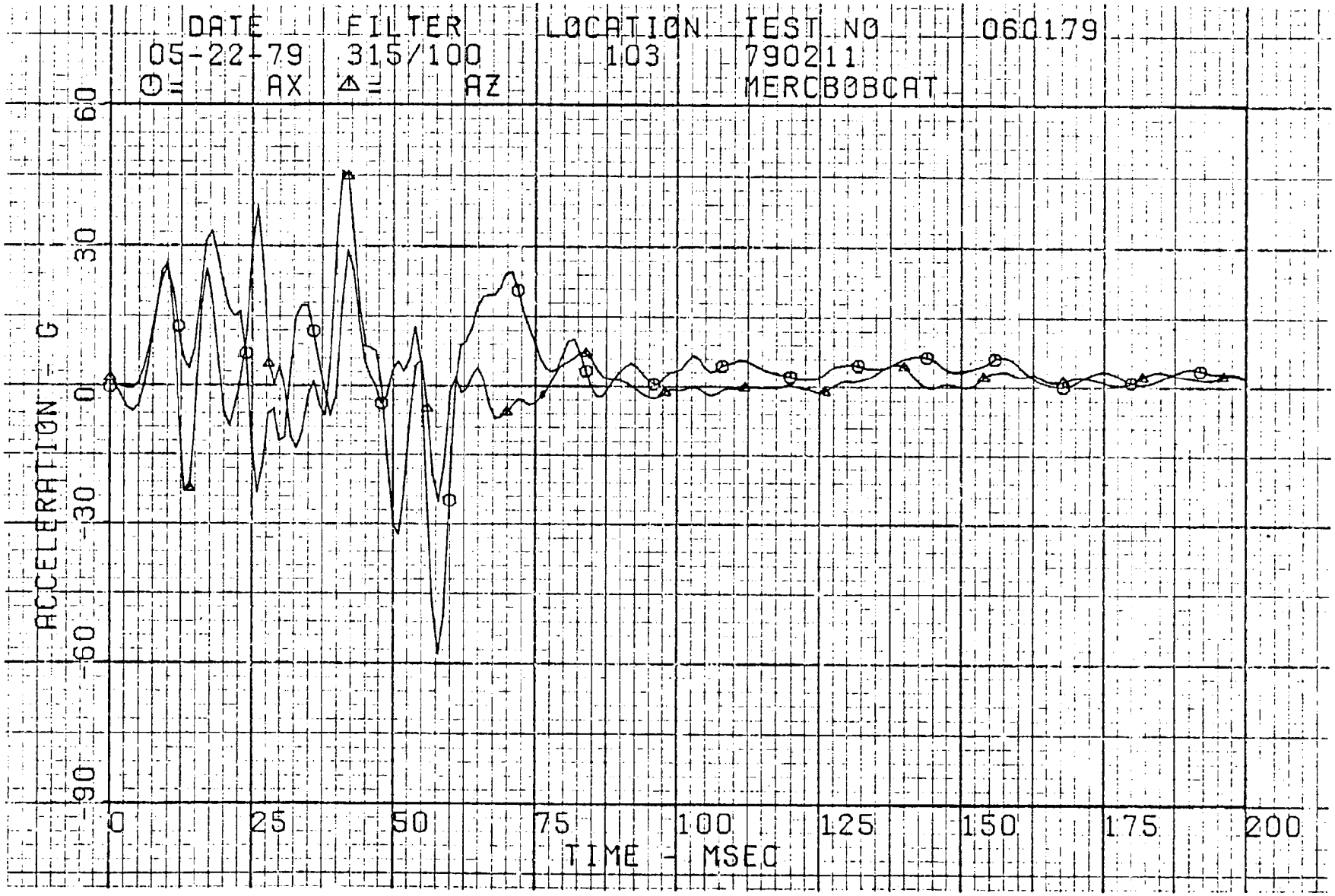
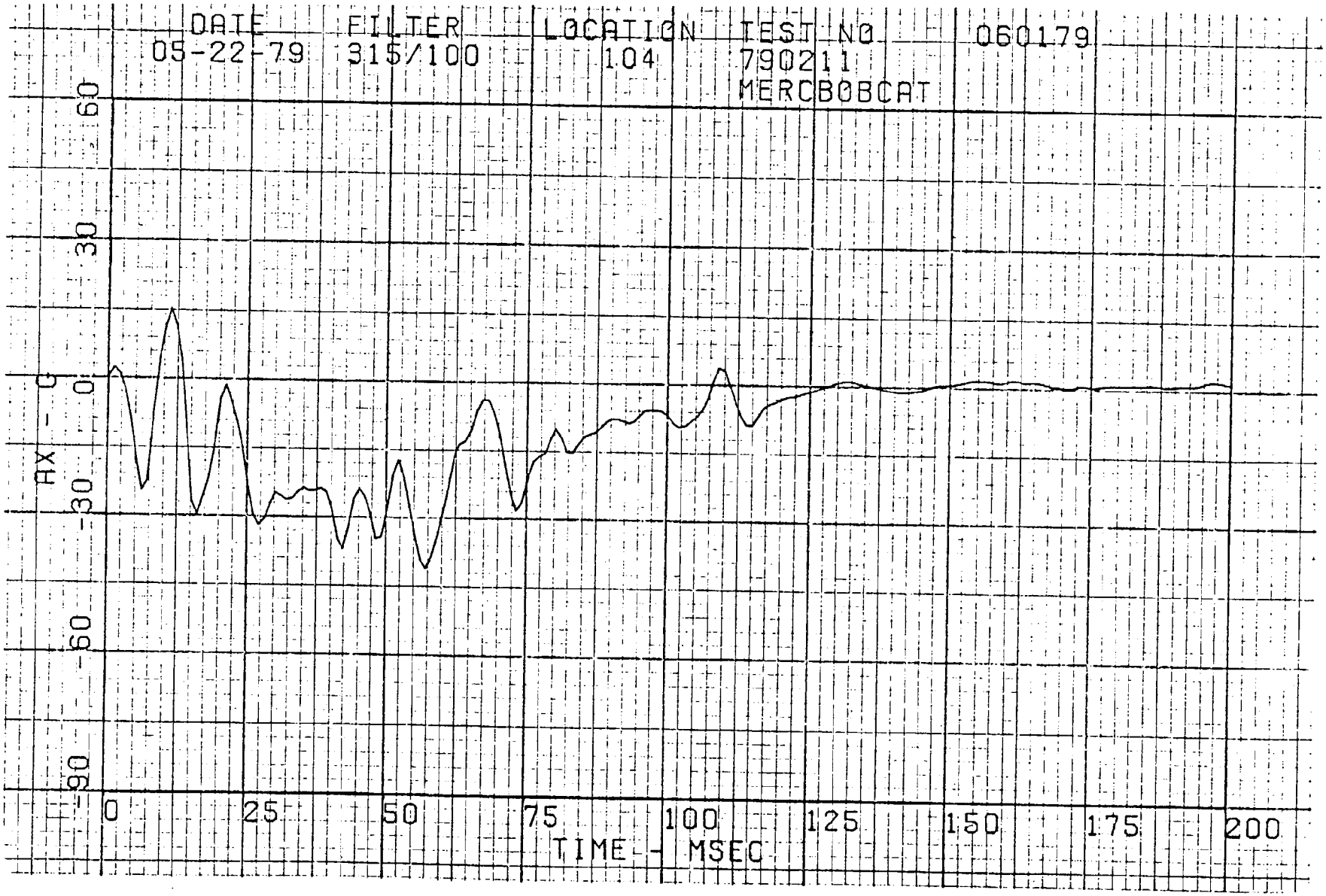
0
-20
-40
-60
0
25
50
75
100
125
150
175
200
TIME - MSEC


DATE
05-22-79
FILTER
315/100
LOCATION
103
TEST NO
790211
060179
MERCB0BCAT
Θ = AX
Δ = AZ
ACCELERATION - G
60
30
0
-30
-60
-90
0
25
50
75
100
125
150
175
200
TIME - MSEC


DATE
05-22-79
FILTER
315/100
LOCATION
104
TEST NO
790211
MERCBOBCAT
060179
AX - G
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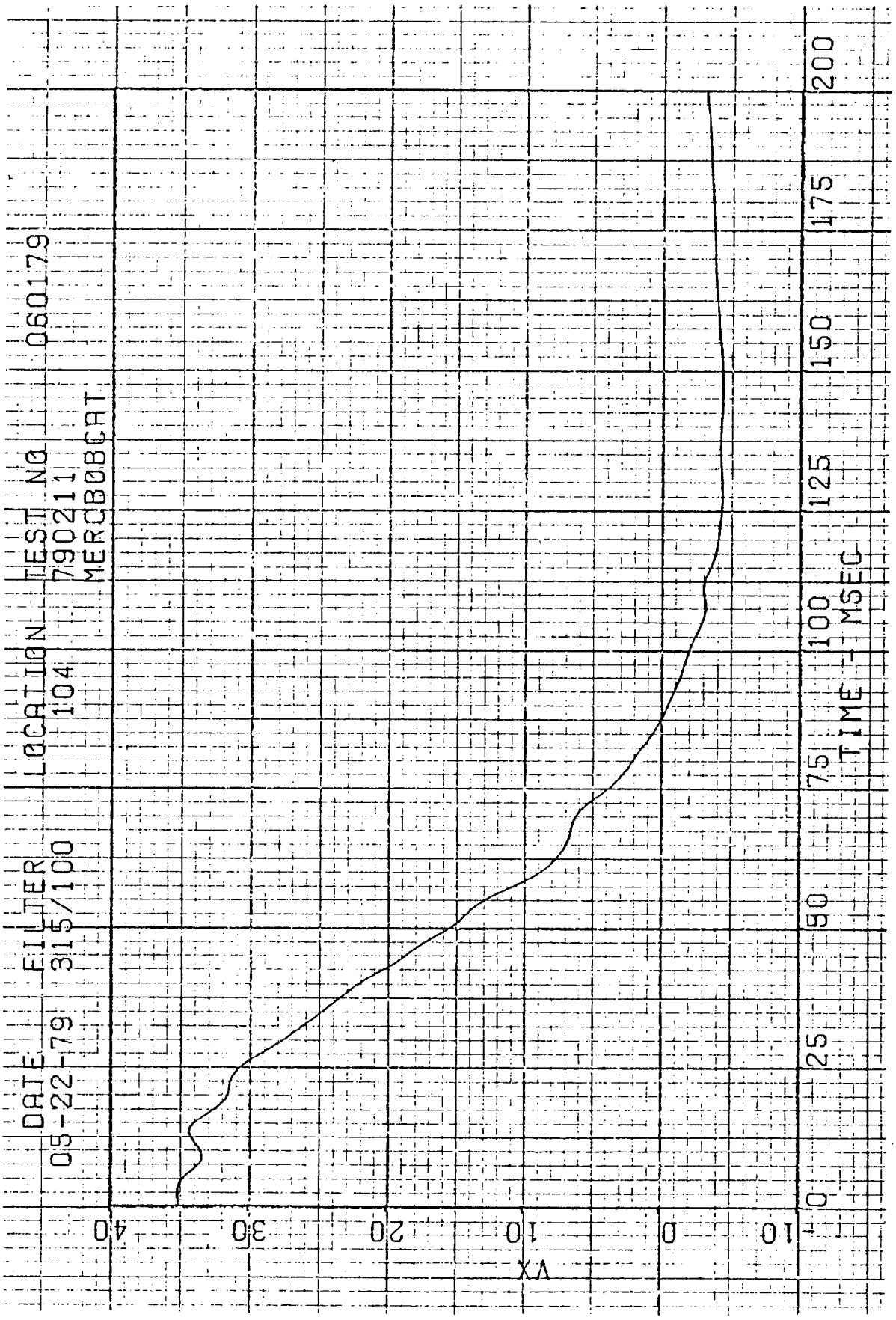
0
-30
-60
-90
0
25
50
75
100
125
150
175
200
TIME - MSEC


DATE 05-22-79
FILTER 315/100
LOCATION 104
TEST NO 060179
790211
MERCB0BCAT
VX
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30
20
10
0
10
0
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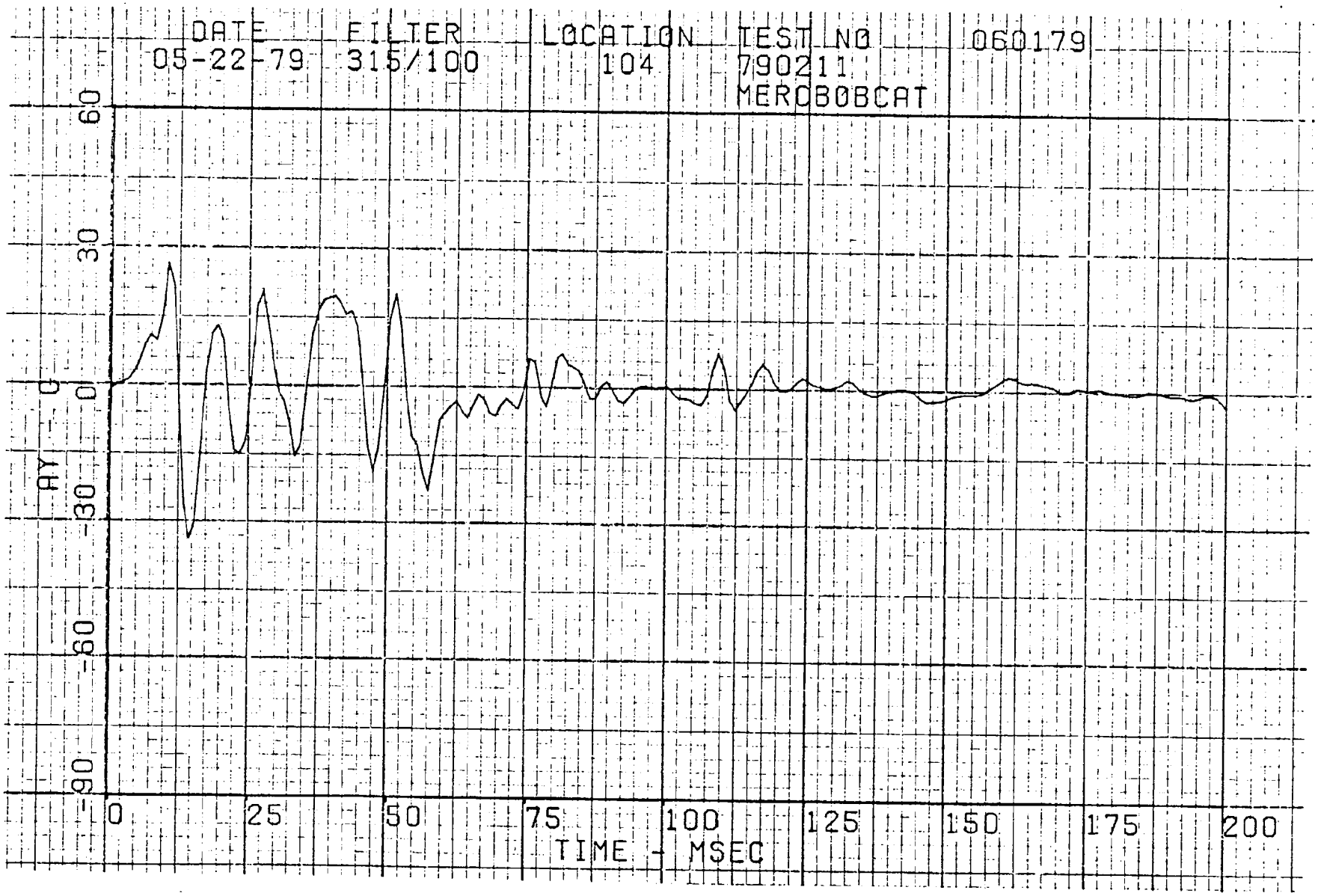
75
100
125
150
175
200
TIME - MSEC


DATE
05-22-79
FILTER
315/100
LOCATION
104
TEST NO
790211
MERCBOBCAT
060179
AY - G
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-30
-60
-90
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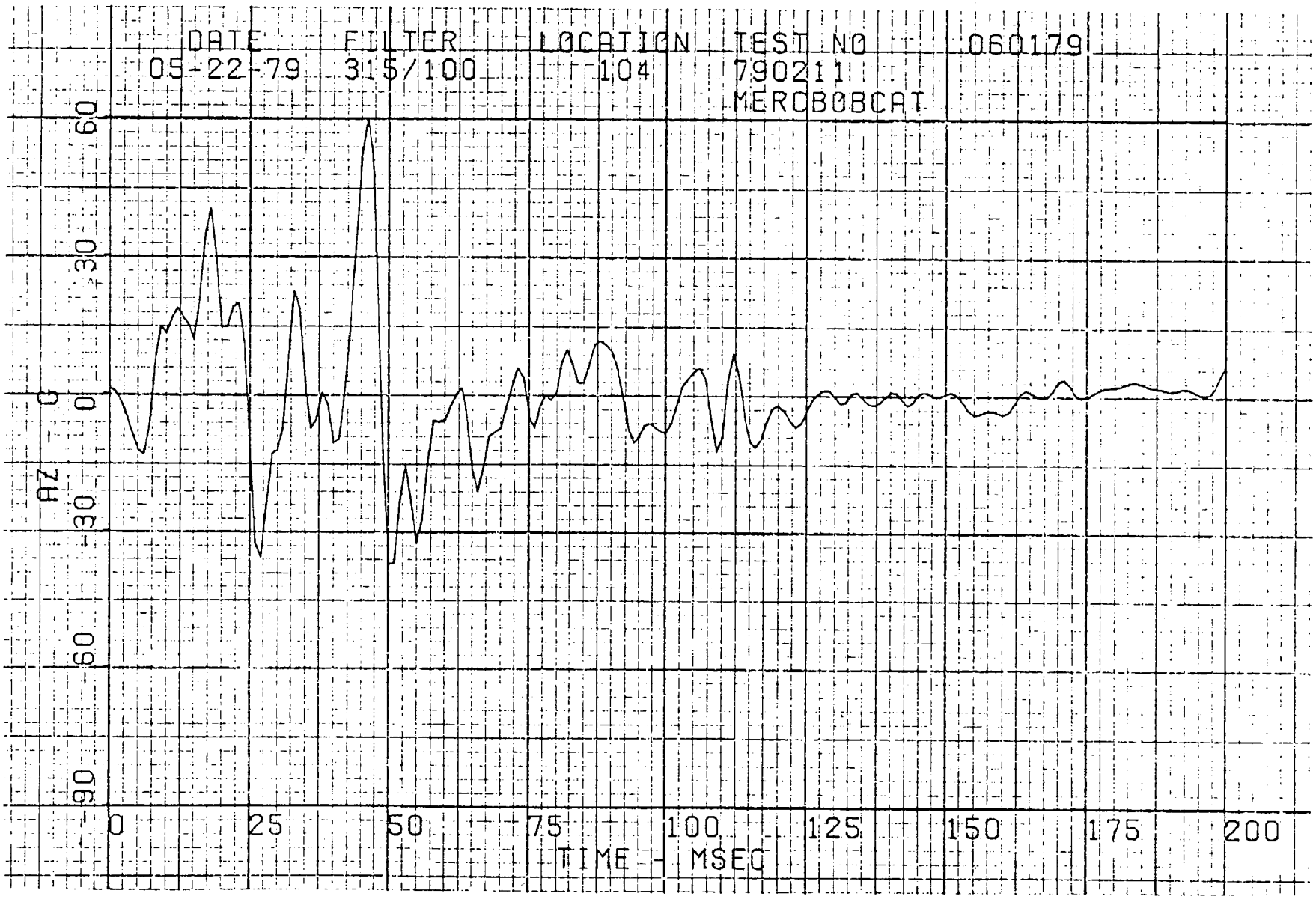
75
100
125
150
175
200
TIME - MSEC


DATE
05-22-79
FILTER
315/100
LOCATION
104
TEST NO
790211
MERCB0BCAT
060179
AZ
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-30
-60
-90
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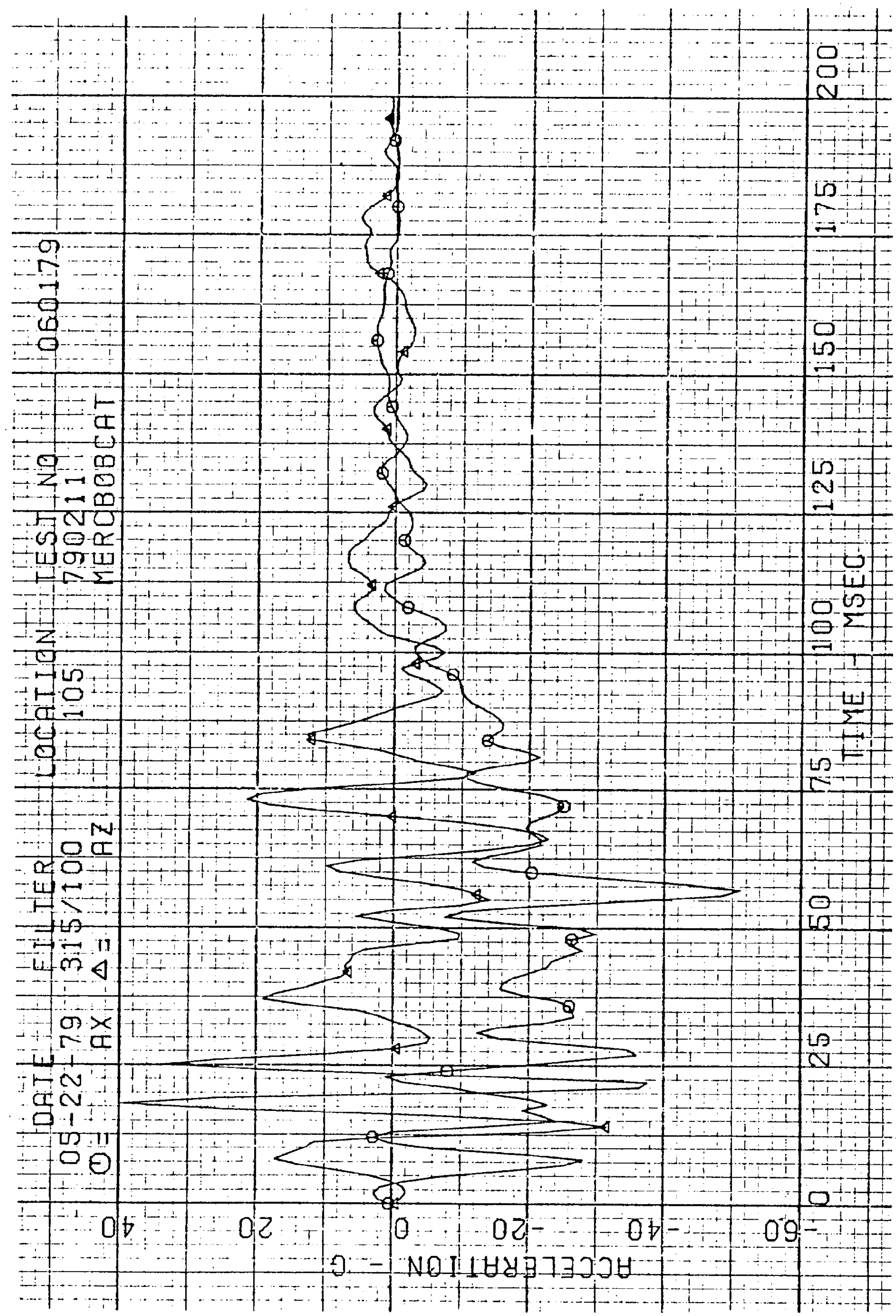
25
50
75
100
125
150
175
200
TIME - MSEC


DATE
05-22-79
⊖= AX
FILTER
315/100
Δ= AZ
LOCATION
105
TEST NO
790211
MERCBØBCAT
060179
0
25
50
75
100
125
150
175
200
TIME - MSEC
40
20
0
-20
-40
-60
ACCELERATION - G

Test Anomalies:

The test was aborted on the first run due to speed trap inconsistencies. Dummies were repositioned as per specification.