

*Failure Analysis Associates
Test and Engineering Center*

3949

Exponent[®]

**Frontal Offset
Oblique Crash Test**

**Moving Deformable Barrier at 95.7 kph
into a Stationary 2001 Dodge Neon
Positioned at a 17° Angle
with an Impact Overlap of 45%**

Exponent Test Number: 091801

Report Number: PH06608/CTG3/0901/R248

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Exponent Test Number: 091801**

Prepared By:

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September 2001

Draft Report

Prepared for:

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Vehicle Crashworthiness Division, DTS-74
Kendall Square
Cambridge, MA 02142-1093**

1	Report No PH06608/CTG3/0901/R248	2	Government Accession No	3	Recipient's Catalog No
4	Title and Subtitle Frontal Offset Oblique Crash Test Moving Deformable Barrier into 2001 Dodge Neon	5	Report Date December 07, 2001	6	Performing Organization Code
7	Author(s) Jim Smith, Project Manager; Mitch Klann, Test Engineer	8	Performing Organization Report No PH06608/CTG3/0901/R248	9	Performing Organization Name and Address Exponent™ Failure Analysis Associates 1850 West Pinnacle Peak Road Phoenix, AZ 85027
10	Work Unit No (TRAIS)	11	Contract or Grant No DTRS57-98-D-00040/TO1	12	Sponsoring Agency Name and Address John A Volpe National Transportation Systems Center Kendall Square Cambridge, MA 02142-1093
13	Type of Report and Period Covered Draft Report September 2001	14	Sponsoring Agency Code	15	Supplemental Notes
16	Abstract A frontal offset oblique crash test of a Moving Deformable Barrier (MDB) into a stationary 2001 Dodge Neon was conducted at the Exponent Failure Analysis Associates Test and Engineering Center on September 18, 2001. The MDB's velocity was 95.7 kph. The MDB's test weight was 2033 kg and that of the Dodge Neon was 1496 kg. The Dodge Neon's maximum crush was 920 mm measured on the left side of the grill. The ambient temperature was 36°C. A Hybrid III dummy was placed in the driver position. The driver's Head Injury Criteria (HIC36) was 283 2. The driver's chest maximum resultant acceleration with three (3) milliseconds minimum duration was 49.0 g. The driver's maximum upper neck injury criteria was 0.39 (N_{tr}). The driver's chest maximum deflection was -34.9 mm and viscous response was 0.50 m/s. The driver's left and right femur maximum axial forces were -8730.6 N and -8882 6 N, respectively. A THOR dummy was placed in the passenger position. The passenger's Head Injury Criteria (HIC36) was 516 8. The passenger's chest maximum resultant acceleration with three (3) milliseconds minimum duration was 38 3 g. The passenger's maximum upper neck injury criteria was 0 39 (N_{ce}). The passenger's chest maximum deflection was -16 3 mm and viscous response was 0 08 m/s. The passenger's left and right femur maximum axial forces were -4809 7 N and -2673.7 N, respectively.				
17	Key Words Frontal Offset Oblique Crash Test Moving Deformable Barrier	18	Distribution Statement Copies of this report are available from. NHTSA Technical Reference Division Nassif Building, Room 5108 400 Seventh Street, S.W. Washington, DC 20590		
19	Security Classif (of this report) Unclassified	20	Security Classif (of this page) Unclassified	21	Number of Pages 369
22	Price				

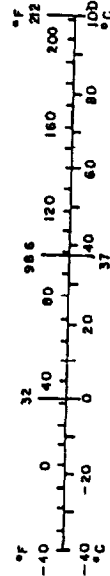
METRIC CONVERSION FACTORS

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	tonnes	t
VOLUME				
tsp	teaspoons	5	milliliters	ml
Tbsp	tablespoons	15	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	Fahrenheit temperature	5/9 (after subtracting 32)	Celsius temperature	°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
km	kilometers	1.1	yards	yd
		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	tonnes (1000 kg)	1.1	short tons	
VOLUME				
ml	milliliters	0.03	fluid ounces	fl oz
l	liters	2.1	pints	pt
l	liters	1.06	quarts	qt
m ³	cubic meters	0.26	gallons	gal
m ³	cubic meters	35	cubic feet	ft ³
		1.3	cubic yards	yd ³
TEMPERATURE (exact)				
°C	Celsius temperature	9/5 (then add 32)	Fahrenheit temperature	°F



1 in x 2 3/4 (tenths) For other exact conversions and more detailed tables see NIS Univ. Publ. 241, Units of Weights and Measures Price \$2.25, SO Catalog No. C13 10 248

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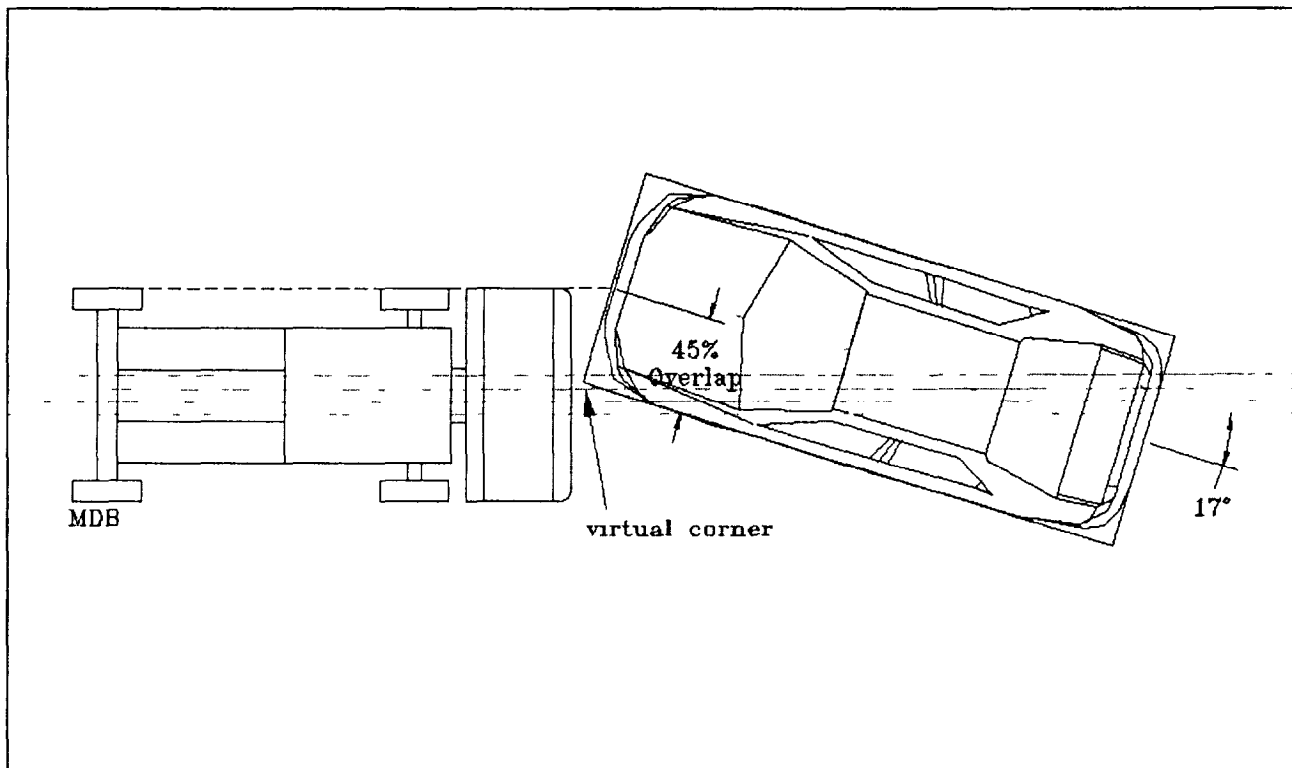
Figure A-35 Post-Test Right Side View – Moving Deformable Barrier

Section 1 0

Purpose and Test Procedure

Purpose

This crash test was conducted to determine vehicle and occupant response in a 95 kph frontal impact with the longitudinal centerline of the stationary vehicle at a +17 degree angle from the longitudinal centerline and velocity vector of the moving vehicle, and an impact overlap of 45%. The moving vehicle was a Moving Deformable Barrier, and the stationary vehicle was a 2001 Dodge Neon.



Test Procedure

This test was conducted per Contract No DTRS57-98-D-00040, Task Order 1, "Frontal Full-Scale Crash Testing for Upgrade of FMVSS 208 Frontal Test Procedure "

The target vehicle, a 2001 Dodge Neon, was instrumented with 23 accelerometers. Ten of the accelerometers were oriented to measure longitudinal axis accelerations; eight of the accelerometers were oriented to measure lateral axis accelerations, and five of the accelerometers were oriented to measure vertical axis accelerations. Additionally, the target vehicle was instrumented with an angular rate sensor oriented to measure yaw rate.

The target vehicle contained one Hybrid III 50th-percentile adult male anthropomorphic test device (dummy), positioned in the driver seat, and one THOR (Test Device for **H**uman **O**ccupant **R**estraint) advanced frontal impact dummy, positioned in the front passenger seat. The test dummies were positioned in the seats according to the FMVSS 208 dummy placement procedure.

The Hybrid III (HIII) dummy was configured with 44 channels of instrumentation. The instruments were: head center of gravity triaxial accelerometers; upper neck 6-axis load cell; chest triaxial accelerometers, chest deflection potentiometer; pelvis triaxial accelerometers; left and right femur uniaxial load cells; left and right knee load cells (2 each) and displacement potentiometers, and left and right upper and lower tibia 5-axis load cells.

The THOR dummy was configured with 117 channels of instrumentation. The instruments were: head vertex biaxial accelerometers; head temporal biaxial accelerometers; head occipital biaxial accelerometers, head center of gravity triaxial accelerometers, left and right eye uniaxial load cells, left and right cheek uniaxial load cells, chin uniaxial load cell, upper neck 6-axis load cell; lower neck 6-axis load cell, front neck spring uniaxial load cell; rear neck spring uniaxial load cell; head rotation potentiometer, upper left thorax 3D compression (CRUX) system (3 potentiometers), upper right thorax CRUX system (3 potentiometers); lower left thorax CRUX system (3 potentiometers), lower right thorax CRUX system (3 potentiometers); chest triaxial accelerometers; upper abdomen uniaxial accelerometer; upper abdomen displacement potentiometer; lower left abdomen double gimbaled string potentiometer (DGSP) system (3 potentiometers), lower right abdomen DGSP system (3 potentiometers), T12 thoracic spine 5-axis load cell, T12 spine triaxial accelerometers, pelvis left acetabular 3-axis load cell; pelvis right acetabular 3-axis load cell; pelvis triaxial accelerometers, left and right femur 6-axis load cells; left and right knee displacement potentiometers, left and right upper tibia 4-axis load cells; left and right lower tibia 5-axis load cells; left and right tibia biaxial accelerometers, left and right ankle rotation (3 potentiometers each); and left and right foot triaxial accelerometers.

The bullet vehicle, a Moving Deformable Barrier (MDB), was instrumented with four accelerometers and 51 load cells. Two of the accelerometers were oriented to measure longitudinal axis accelerations; one of the accelerometers was oriented to measure lateral axis accelerations, and one of the accelerometers was oriented to measure vertical axis acceleration. The 51 load cells measured loads along the longitudinal axis (x-axis) of the MDB. The load cells were evenly distributed on the front face of the MDB in 5 rows and 11 columns. The four spaces not occupied by load cells were filled with wood blocks cut to approximately the same size as the load cells.

The honeycomb barrier face was a standard IIHS side impact barrier design. An intermediate honeycomb section was installed between the IIHS barrier face and the load cell array. The intermediate honeycomb section design specifications and further explanation of the load cell array configuration are provided in the figures on the following two pages.

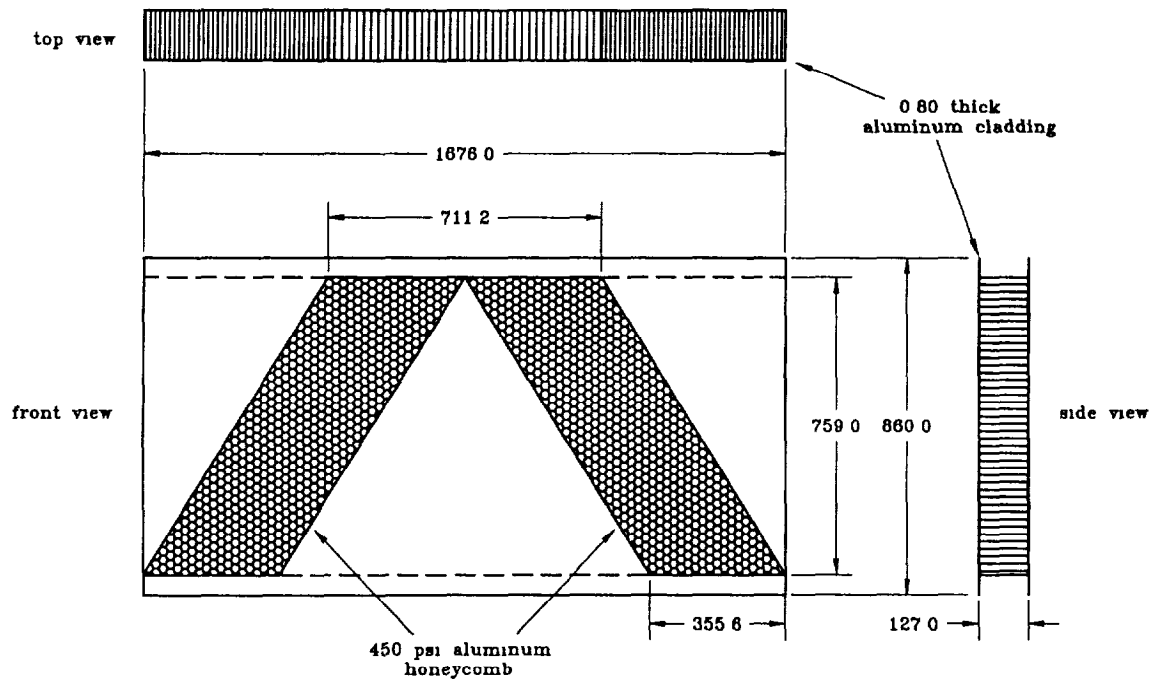
The specified impact velocity range of the bullet vehicle was 95.0 ± 1.5 kph.

In total, 239 data channels were digitally sampled at 10,000 samples per second. Data acquisition and post-processing were conducted per FMVSS 208 and SAE J211 MAR 95 specifications. Head Injury Criterion (HIC), Chest Injury Criterion (CIC), Chest Deflection Viscous Criterion (VC), and Neck Injury Criterion (Nij) were calculated for the HIII dummy. Post-processing of the THOR upper neck, CRUX, and DGSP data was performed using THORTEST software supplied by GESAC, and then Head Injury Criterion (HIC), Chest Injury Criterion (CIC), Chest Deflection Viscous Criterion (VC), and Neck Injury Criterion (Nij) were calculated for the THOR dummy following guidelines provided by GESAC.

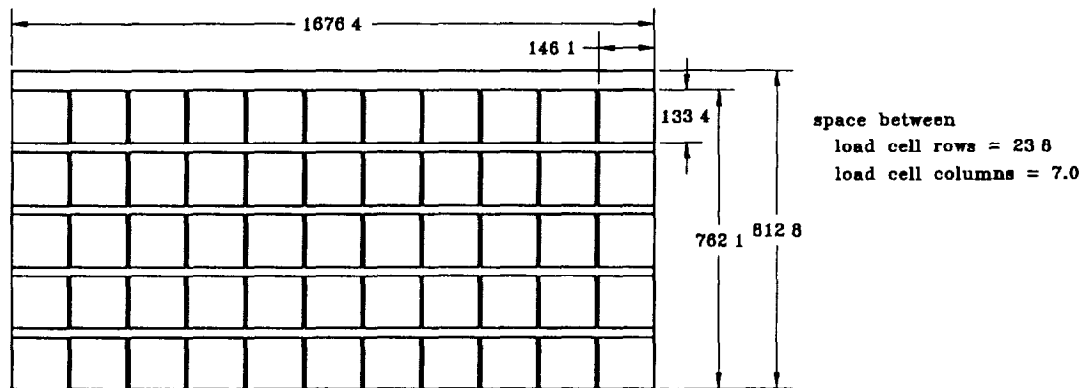
The crash event was documented by 12 off-board, high-speed film cameras and one ground-based, real-time, panning video camera.

The vehicle and occupant data are summarized in Section 2.0. The test data is presented in Section 3.0. The camera, occupant, and vehicle measurements are presented in Section 4.0. Appendix A contains the still photographic images. Appendix B contains the vehicle and dummy data plots.

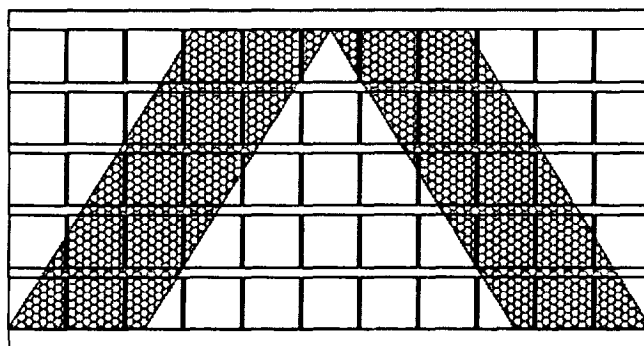
Intermediate Honeycomb Section Design and Load Cell Array Specifications



Intermediate Honeycomb Section



55-Load Cell Array - Front View



Honeycomb Section Center-Mounted on Load Cell Array

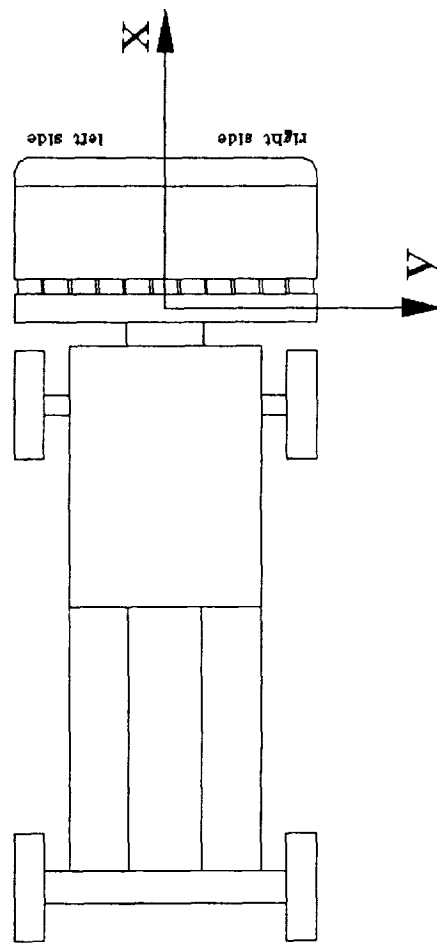
dimensions in millimeters

MOVING DEFORMABLE BARRIER LOAD CELL IDENTIFICATION

A1 (wood block) (bolted)	A2 (bolted)	A3 (bolted)	A4	A5	A6	A7	A8	A9 (bolted)	A10 (bolted)	A11 (wood block) (bolted)	top of barrier
B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11 (wood block)	
C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11 (wood block)	
D1	D2	D3	D4	D5	D6	D7	D8	D9	D10	D11	
E1	E2	E3	E4	E5 (bolted)	E6	E7 (bolted)	E8	E9	E10	E11	bottom of barrier
left side of barrier**											right side of barrier**

* "bolted" indicates that load cell was bolted to the honeycomb barrier face

** barrier sides defined according to SAE convention with positive x in the forward direction and positive y to the right



Section 2 0

Test Summary and Forms

Test Results Summary

A frontal offset oblique crash test of a Moving Deformable Barrier (MDB) into a stationary 2001 Dodge Neon was conducted at the Exponent Failure Analysis Associates Test and Engineering Center on September 18, 2001. The MDB's velocity was 95.7 kph. The MDB's test weight was 2033 kg and that of the Dodge Neon was 1496 kg. The Dodge Neon's maximum crush was 920 mm measured on the left side of the grill. The ambient temperature was 36°C.

A Hybrid III dummy was placed in the driver position. The driver's Head Injury Criteria (HIC₃₆) was 283.2. The driver's chest maximum resultant acceleration with three (3) milliseconds minimum duration was 49.0 g. The driver's maximum upper neck injury criteria was 0.39 (N_{if}). The driver's chest maximum deflection was -34.9 mm and viscous response was 0.50 m/s. The driver's left and right femur maximum axial forces were -8730.6 N and -8882.6 N, respectively.

A THOR dummy was placed in the passenger position. The passenger's Head Injury Criteria (HIC₃₆) was 516.8. The passenger's chest maximum resultant acceleration with three (3) milliseconds minimum duration was 38.3 g. The passenger's maximum upper neck injury criteria was 0.39 (N_{ce}). The passenger's chest maximum deflection was -16.3 mm and viscous response was 0.08 m/s. The passenger's left and right femur maximum axial forces were -4809.7 N and -2673.7 N, respectively.

Data Acquisition Explanations

HIII Right Upper Tibia Force (Fx) – data dropouts due to broken wire in cable

THOR Left Femur Moment (Mx) – transducer full-scale range exceeded, acquisition system limit reached

THOR Left Femur Moment (Mz) – transducer full-scale range exceeded; acquisition system limit reached

THOR Left Upper Tibia Moment (Mx) – transducer full-scale range exceeded; acquisition system limit reached

THOR Left Ankle Rotation (Y Axis) – data dropouts from 75 to 86 ms, transducer verified as functioning properly in post-test checkout

THOR Left Tibia Acceleration (Ax) – transducer damaged during test; left tibia member broken during test

THOR Left Tibia Acceleration (Ay) – transducer damaged during test, left tibia member broken during test

THOR Right Ankle Rotation (X Axis) – data erroneous due to transducer grounding error

Dodge Neon Left Shock Tower Acceleration (Az) – transducer and transducer cable damaged during test

Dodge Neon Left Shock Tower Acceleration (Ar) – calculated resultant erroneous due to damaged Az transducer

Dodge Neon Left Rear Compartment Acceleration (Ay) – transducer damaged during test

Dodge Neon Center Rear Compartment Acceleration (Az) - data dropouts from 92 to 113 ms; transducer verified as functioning properly in post-test checkout

MDB Barrier Face Load Cell (Fx) - E10 – transducer connector damaged, data unreliable

MDB Barrier Face Load Cell Total Load – Total load calculated neglecting the data from load cell position E10

Data spike recorded that affects the maximum and/or minimum value (and corresponding resultant calculation if applicable) for the following channels:

HIII Left Knee Left Force

HIII Right Knee Left Force

HIII Right Knee Right Force

HIII Right Upper Tibia Force (Fy)

—
HIII Right Upper Tibia Force (Fz)
HIII Right Lower Tibia Force (Fx)
HIII Right Lower Tibia Force (Fy)
HIII Right Lower Tibia Force (Fz)

THOR Right Eye Compression Load
THOR Left Eye Compression Load
THOR Right Cheek Compression Load
THOR Left Cheek Compression Load
THOR Chin Compression Load
THOR Upper Neck Force (Fx) - pre-THORTEST
THOR Upper Neck Force (Fy) - pre-THORTEST
THOR Upper Neck Moment (My) - pre-THORTEST
THOR Neck Front Spring Compression - pre-THORTEST
THOR Neck Rear Spring Compression - pre-THORTEST
THOR Upper Neck Force (Fy) - post-THORTEST
THOR Lower Neck Force (Fx)
THOR Lower Neck Force (Fy)
THOR Lower Neck Moment (My)
THOR Lower Neck Moment (Mz)
THOR Upper Abdomen Acceleration (Ax)
THOR T12 Thoracic Force (Fx)
THOR T12 Thoracic Force (Fy)
THOR T12 Thoracic Force (Fz)
THOR Pelvis Left Acetabular Force (Fy)
— THOR Pelvis Left Acetabular Force (Fz)
THOR Pelvis Right Acetabular Force (Fx)
THOR Pelvis Right Acetabular Force (Fy)
THOR Pelvis Right Acetabular Force (Fz)
THOR Pelvis Acceleration (Ax)
THOR Pelvis Acceleration (Ay)
THOR Pelvis Acceleration (Az)
THOR Pelvis Acceleration (Ar)
THOR Right Upper Tibia Force (Fz)
THOR Right Tibia Acceleration (Ax)
THOR Right Tibia Acceleration (Ay)

Data spikes recorded that do not effect the maximum and/or minimum value for the following channels:

—
HIII Right Femur Force
HIII Left Knee Right Force
HIII Left Upper Tibia Force (Fx)
HIII Left Upper Tibia Force (Fy)
HIII Left Upper Tibia Force (Fz)
HIII Left Lower Tibia Force (Fx)
HIII Left Lower Tibia Moment (Mx)
— HIII Left Lower Tibia Moment (My)

HIII Right Lower Tibia Moment (Mx)
HIII Right Lower Tibia Moment (My)

THOR Upper Neck Force (Fz) - pre-THORTEST
THOR Upper Neck Moment (Mx) - pre-THORTEST
THOR Upper Neck Moment (Mz) - pre-THORTEST
THOR Upper Neck Force (Fx) - post-THORTEST
THOR Upper Neck Force (Fz) - post-THORTEST
THOR Upper Neck Moment (Mx) - post-THORTEST
THOR Upper Neck Moment (My) - post-THORTEST
THOR Upper Neck Moment (Mz) - post-THORTEST
THOR Upper Neck Nij
THOR Lower Neck Force (Fz)
THOR Lower Neck Moment (Mx)
THOR T12 Thoracic Moment (Mx)
THOR T12 Thoracic Moment (My)
THOR Pelvis Left Acetabular Force (Fx)
THOR Left Upper Tibia Force (Fz)
THOR Left Ankle Rotation (Z Axis)

VEHICLE RECEIVING SUMMARY

VEHICLE FILE NUMBER		4599		DATE RECEIVED		8/8/01							
PROJECT NO		PH06608		PROJECT NAME				VOLPE CRASH TESTING TASK ORDER 1					
VEHICLE YEAR		2001		VEHICLE MAKE		DODGE		VEHICLE MODEL		NEON			
VEHICLE BODY STYLE		4-DOOR SEDAN						VEHICLE COLOR		BLUE			
VEHICLE IDENTIFICATION NUMBER		1B3ES46C91D112929						DATE OF MANUFACTURE		7/00			
GVWR (kgs)		1667		FRONT GAWR (kgs)		910		REAR GAWR (kgs)		780			
RECOMMENDED TIRE SIZE F/R		P185/65R14				RECOMMENDED TIRE PRESSURE F/R (kPa)		220					
ENGINE TYPE		4-CYLINDER TRANSVERSE		ENGINE DISPLACEMENT		2.0 LITER		ODOMETER (mi)		26			
TRANSMISSION TYPE		AUTOMATIC		SHIFT LEVER LOCATION		FLOOR		FUEL CAPACITY (L)		47			
FUEL TANK LOC		CENTER FORWARD OF REAR AXLE				FILLER CAP LOC		RIGHT REAR QUARTER PANEL					
DESIGNATED SEATING		FRONT		2		REAR		3		TOTAL		5	
FRONT SEAT TYPE		BUCKET											

RESTRAINT SYSTEM DESCRIPTION

DRIVER	3-PT ACTIVE BELT	CENTER FRONT	---	RIGHT FRONT	3-PT ACTIVE BELT
LEFT REAR	3-PT ACTIVE BELT	CENTER REAR	3-PT ACTIVE BELT	RIGHT REAR	3-PT ACTIVE BELT

VEHICLE EQUIPMENT & CONDITION

AIR CONDITIONING	Y	POWER STEERING	Y	POWER BRAKES	Y	POWER WINDOWS	N	POWER SEATS	N		
POWER DOOR LOCKS	N	CRUISE CONTROL	Y	SPACE SAVER SPARE	Y	FRONT WHEEL DRIVE	Y	4 WHEEL DRIVE	N		
TELESCOPING WHEEL	N	TILT WHEEL	Y	FRONT DISK BRAKES	Y	REAR DISK BRAKES	N	ANTI LOCK BRAKES F	N		
DRIVER AIRBAG	Y	RF PASSENGER AIRBAG	Y	SIDE AIRBAGS	N	PRE TENSIONERS	N	ANTI LOCK BRAKES R	N		
ADDITIONAL SIGNIFICANT OPTIONS/ACCESSORIES										NONE	
SIGNIFICANT BODY DAMAGE/CORROSION										NONE	

VEHICLE WEIGHTS AS RECEIVED (WITH MAX. FLUIDS/kgs)

LEFT FRONT	380	RIGHT FRONT	390	TOTAL FRONT	770	PERCENT FRONT	63%
LEFT REAR	225	RIGHT REAR	219	TOTAL REAR	444	PERCENT REAR	37%
				TOTAL WEIGHT	1214		

VEHICLE ATTITUDE MEASUREMENTS AS RECEIVED (WITH MAX. FLUIDS/mm)

LEFT FRONT	659 AT WHL WELL @ AXLE	RIGHT FRONT	658 AT WHL WELL @ AXLE
LEFT REAR	677 AT WHL WELL @ AXLE	RIGHT REAR	678 AT WHL WELL @ AXLE

VEHICLE EXTERIOR DIMENSIONS (mm)

OVERALL LENGTH	4402	OVERALL WIDTH	1715	OVERALL HEIGHT	1410						
WHEELBASE	2667	FRONT TRACK	1478	REAR TRACK	1473						
REAR OVERHANG	897	OTHER	NONE								
COMMENTS						NONE					
EIGHT POINT PHOTOS TAKEN? (Y/N)		Y		FORM COMPLETED BY		BH		CHECKED BY		MK	

VEHICLE CRASH TEST CONDITION

PROJECT NO	PH06608	PROJECT NAME	VOLPE CRASH TESTING TASK ORDER 1		TEST DATE	9/18/01
VEHICLE YEAR	2001	VEHICLE MAKE	DODGE	VEHICLE MODEL	NEON	
VEHICLE BODY STYLE	4-DOOR SEDAN			VEHICLE COLOR	BLUE	
VEHICLE IDENTIFICATION NUMBER	1B3ES46C91D112929			ODOMETER (mi)	27	
INSTALLED TIRES	LEFT	SIZE / PRESSURE (kPa)	RIGHT SIZE / PRESSURE (kPa)			
FRONT	P185/65R14 / 220 kPa		P185/65R14 / 220 kPa			
REAR	P185/65R14 / 220 kPa		P185/65R14 / 220 kPa			

VEHICLE TEST WEIGHT (kgs)							
LEFT FRONT	421	RIGHT FRONT	437	TOTAL FRONT	858	PERCENT FRONT	57%
LEFT REAR	319	RIGHT REAR	319	TOTAL REAR	638	PERCENT REAR	43%
				TOTAL WEIGHT	1496		

VEHICLE TEST ATTITUDE MEASUREMENTS (mm)							
LEFT FRONT	640	AT	WHL WELL @ AXLE	RIGHT FRONT	650	AT	WHL WELL @ AXLE
LEFT REAR	634	AT	WHL WELL @ AXLE	RIGHT REAR	625	AT	WHL WELL @ AXLE
SUSPENSION ADJUSTMENTS	NONE						
OTHER MEASUREMENTS	NONE						

VEHICLE MODIFICATIONS & ADDITIONS			
TOW SHOE LOCATION(S)	NONE		
BRAKE ABORT SYSTEM	NONE	TIME DELAY (sec)	NONE
ONBOARD CAMERA LOCATION(S)	NONE		
EVENT FLASH LOCATION(S)	LEFT & RIGHT UPPER A-PILLAR, LEFT & RIGHT FRONT FENDER		
TARGET LOCATION(S)	LEFT & RIGHT SIDES, HOOD, ROOF, & TRUNK CENTERLINE/12" CENTER-TO-CENTER/SEE VEHICLE TARGET LOCATION PAGE		
INSTALLED TRANSDUCER(S)	SEE VEHICLE TRANSDUCER LOCATION RECORD		
INSTRUMENTATION PACKAGE LOCATION	TRUNK/REAR PASSENGER COMPARTMENT		
OTHER	NONE		

VEHICLE CONDITION			
TRANSMISSION GEAR	NEUTRAL	WINDOW POSITION	F/OPEN, R/CLOSED
FUEL TANK LEVEL	94% OF CAPACITY	FLUID TYPE	STODDARD
DOOR LOCKS	UNLOCKED		
BRAKES	PARKING BRAKE OFF		
OTHER	NONE		

ANTHROPOMORPHIC DUMMIES / RESTRAINTS				
LEFT FRONT	H-III / 3-PT ACTIVE BELT		LEFT REAR	NONE
CENTER FRONT	NONE		CENTER REAR	NONE
RIGHT FRONT	THOR / 3-PT ACTIVE BELT		RIGHT REAR	NONE

COMMENTS	
NONE	
FORM COMPLETED BY	MK
CHECKED BY	JS

VEHICLE CRASH TEST CONDITION

PROJECT NO	PH06608	PROJECT NAME	VOLPE CRASH TESTING TASK ORDER 1	TEST DATE	9/18/01
VEHICLE YEAR	---	VEHICLE MAKE	---	VEHICLE MODEL	---
VEHICLE BODY STYLE	MOVING DEFORMABLE BARRIER			VEHICLE COLOR	---
VEHICLE IDENTIFICATION NUMBER	091801			ODOMETER (mi)	---
INSTALLED TIRES	LEFT - SIZE / PRESSURE (kPa)		RIGHT - SIZE / PRESSURE (kPa)		
FRONT	P215/75B15 / 314 kPa		P215/75B15 / 162 kPa		
REAR	P215/75B15 / 241 kPa		P215/75B15 / 228 kPa		

VEHICLE TEST WEIGHT (kgs)					
LEFT FRONT	591	RIGHT FRONT	524	TOTAL FRONT	1115
PERCENT FRONT	55%				
LEFT REAR	425	RIGHT REAR	493	TOTAL REAR	918
PERCENT REAR	45%				
TOTAL WEIGHT				2033	

VEHICLE TEST ATTITUDE MEASUREMENTS (mm)					
LEFT FRONT	NR	AT	--	RIGHT FRONT	NR
AT	--	RIGHT FRONT	NR	AT	--
LEFT REAR	NR	AT	--	RIGHT REAR	NR
AT	--	RIGHT REAR	NR	AT	--
SUSPENSION ADJUSTMENTS	NONE				
OTHER MEASUREMENTS	LOWER EDGE OF HONEYCOMB BARRIER FACE, LEFT 353 mm / RIGHT 353mm				

VEHICLE MODIFICATIONS & ADDITIONS			
TOW SHOE LOCATION(S)	FRAME RAILS FORWARD OF FRONT WHEELS		
BRAKE ABORT SYSTEM	MANUAL & AUTOMATIC	TIME DELAY (sec)	0 2
ONBOARD CAMERA LOCATION(S)	NONE		
EVENT FLASH LOCATION(S)	NONE		
TARGET LOCATION(S)	SEE VEHICLE TARGET LOCATION PAGE		
INSTALLED TRANSDUCER(S)	SEE VEHICLE TRANSDUCER LOCATION RECORD		
INSTRUMENTATION PACKAGE LOCATION	INSIDE FRAME RAILS OF MOVING DEFORMABLE BARRIER		
OTHER	NONE		

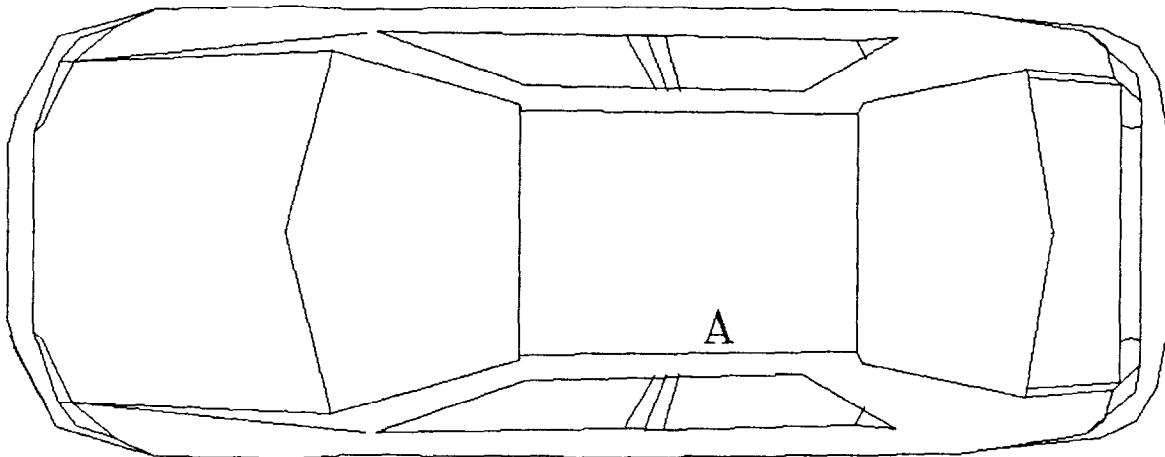
VEHICLE CONDITION			
TRANSMISSION GEAR	N/A	WINDOW POSITION	N/A
DOOR LOCKS	N/A		
FUEL TANK LEVEL	N/A	FLUID TYPE	N/A
BRAKES	N/A		
OTHER	NONE		

ANTHROPOMORPHIC DUMMIES / RESTRAINTS			
LEFT FRONT	N/A	LEFT REAR	N/A
CENTER FRONT	N/A	CENTER REAR	N/A
RIGHT FRONT	N/A	RIGHT REAR	N/A

COMMENTS	
NONE	
FORM COMPLETED BY	MK
CHECKED BY	JS

TEST VEHICLE BALLAST RECORD

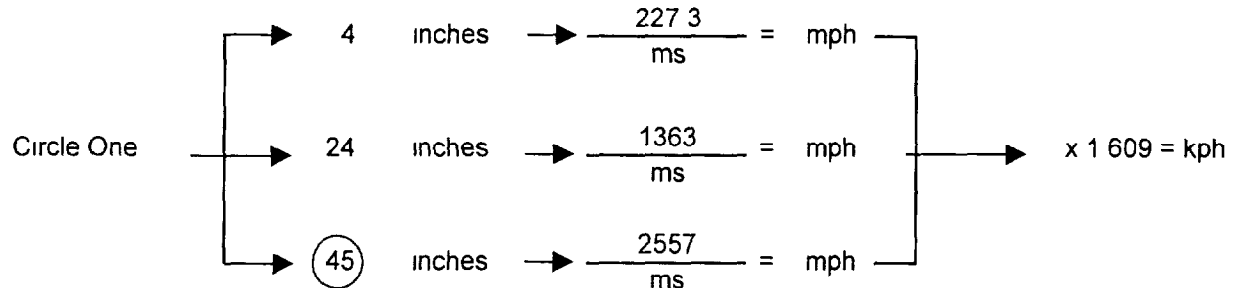
PROJECT NO	PH06608	PROJECT NAME	VOLPE CRASH TESTING TASK ORDER 1	TEST DATE	9/18/01
VEHICLE YEAR	2001	VEHICLE MAKE	DODGE	VEHICLE MODEL	NEON
VEHICLE IDENTIFICATION NUMBER	1B3ES46C91D112929				



	LOCATION (Shown on sketch)	TYPE	AMOUNT (kg)	SECURING METHOD
A	LEFT REAR COMPARTMENT FLOOR BOARD	LEAD BAR	19	BOLTED

SPEED TRAP COUNTER LOG

PROJECT NO	PH06608	PROJECT NAME	VOLPE CRASH TESTING TASK ORDER 1	TEST DATE	9/18/01
OPERATOR	MK	SPEED COUNTER S/N	031588	CALIBRATION DUE DATE	3/31/02
COMMENTS	NONE				



Test ID		Time [ms]	Speed [mph]	Speed [kph]	Checked By
1	Channel 1	42.98	59.5		JS
	Channel 2	42.98	59.5		
	Average	--	59.5	95.7	
	Channel 1				
	Channel 2				
	Average	--			
	Channel 1				
	Channel 2				
	Average	--			
	Channel 1				
	Channel 2				
	Average	--			
	Channel 1				
	Channel 2				
	Average	--			
	Channel 1				
	Channel 2				
	Average	--			

POST TEST INSPECTION SUMMARY

PROJECT NO	PH06608	PROJECT NAME	VOLPE CRASH TESTING TASK ORDER 1	TEST DATE	9/18/01
TARGET VEHICLE					
VEHICLE YEAR	2001	VEHICLE MAKE	DODGE	VEHICLE MODEL	NEON
VEHICLE IDENTIFICATION NUMBER	1B3ES45C91D112929			DATE OF MANUFACTURE	7/00

TEST DESCRIPTION					
TEST TYPE	OBLIQUE OFFSET FRONTAL IMPACT TESTING				
TEST TIME	2 04 PM	AMBIENT TEMPERATURE (°C)	36	MEASUREMENT LOCATION	73 m NORTH OF CRASH RAIL

VISIBLE DUMMY CONTACT POINTS		
	DRIVER DUMMY	PASSENGER DUMMY
HEAD	VISOR, AIRBAG, INTERIOR A-PILLAR TRIM	VISOR, INSTRUMENT PANEL, WINDOW FRAME, PASSENGER DUMMY SHOULDER, AIRBAG, DOOR FRAME, HEADLINER
CHEST	NO PAINT	NO PAINT
ABDOMEN	NO PAINT	NO PAINT
LEFT KNEE	INSTRUMENT PANEL	INSTRUMENT PANEL
RIGHT KNEE	INSTRUMENT PANEL	INSTRUMENT PANEL, PASSENGER DOOR PANEL
OTHER	NONE	NONE

VEHICLE DOOR OPENING INFORMATION		
	LEFT SIDE DOORS	RIGHT SIDE DOORS
FRONT	TOOLS NEEDED	TOOLS NEEDED
REAR	EASY	EASY

VEHICLE SEAT CONDITION		
	LEFT SIDE	RIGHT SIDE
SEAT TRACK FAILURE	NONE	NONE
SEAT BACK FAILURE	NONE	NONE

GLAZING DAMAGE	
BACKLIGHT/WINDSHIELD	WINDSHIELD BROKEN

COMMENTS & OBSERVATIONS			
NONE			
FORM COMPLETED BY		MK	CHECKED BY JS

Section 3.0

Test Data Summary

Test Data Summary

Description	Units	Filter	Maximum	Time@Max	Minimum	Time@Min	.
HIII, Driver Position (2001 Dodge Neon)							
<i>H3HEAD (results calculated between -0 1 and 0 4 sec)</i>							
HIII Head Acceleration (Ax)	g	1650 Hz	15 5	0 119	-46 9	0 075	
HIII Head Acceleration (Ay)	g	1650 Hz	64 3	0 110	-7 1	0 159	
HIII Head Acceleration (Az)	g	1650 Hz	39 4	0 075	-7 3	0 131	
HIII Head Resultant Acceleration (Ar)	g	1650 Hz	71 8	0 110	0 2	-0 017	
HIII HIC (36 ms) 283 2 from 0 108 to 0 121 sec							
HIII HIC (15 ms) 283 2 from 0 108 to 0 121 sec							
<i>H3UNCK (results calculated between 0 1 and 0 4 sec)</i>							
HIII Upper Neck Force (Fx)	N	1650 Hz	738 7	0 083	-374 6	0 143	
HIII Upper Neck Force (Fy)	N	1650 Hz	847 1	0 117	-108 3	0 213	
HIII Upper Neck Force (Fz)	N	1650 Hz	2136 6	0 075	-639 3	0 116	
HIII Upper Neck Force (Mx)	N-m	1000 Hz	31 8	0 132	-10 8	0 063	
HIII Upper Neck Force (My)	N-m	1000 Hz	50 5	0 085	-18 3	0 208	
HIII Upper Neck Force (Mz)	N-m	1000 Hz	24 1	0 154	-28 7	0 108	
HIII Upper Neck Force (Fx)	N	1000 Hz	732 2	0 084	-372 5	0 143	
HIII Upper Neck Force (Fz)	N	1000 Hz	2122 8	0 075	-631 6	0 116	
HIII Upper Neck Force (My)	N-m	1000 Hz	50 5	0 085	-18 3	0 208	
HIII NIJ Nte 0 18 @ 0 203 sec							
Ntf 0 39 @ 0 083 sec							
Nce 0 07 @ 0 113 sec							
Ncf 0 15 @ 0 130 sec							
<i>H3CHEST (results calculated between 0 1 and 0 4 sec)</i>							
HIII Chest Acceleration (Ax)	g	300 Hz	9 3	0 093	-49 4	0 068	
HIII Chest Acceleration (Ay)	g	300 Hz	33 4	0 101	-4 5	0 071	
HIII Chest Acceleration (Az)	g	300 Hz	21 0	0 077	-17 8	0 123	
HIII Chest Resultant Acceleration (Ar)	g	300 Hz	51 9	0 078	0 1	-0 050	
HIII CIC = 49 0 from 0 067 to 0 079 sec							
<i>H3CHSDFL (results calculated between -0 1 and 0 4 sec)</i>							
HIII Chest Deflection (Dx)	mm	1000 Hz	0 2	-0 042	-34 9	0 077	
HIII Chest Compression (Dx)	mm	1000 Hz	34 9	0 077	-0 2	-0 042	
HIII VC = 0 50 m/s at 0 066 sec							
<i>H3PELVIS (results calculated between -0 1 and 0 4 sec)</i>							
HIII Pelvis Acceleration (Ax)	g	1650 Hz	25 9	0 096	-76 1	0 064	
HIII Pelvis Acceleration (Ay)	g	1650 Hz	28 5	0 087	-26 2	0 060	
HIII Pelvis Acceleration (Az)	g	1650 Hz	11 1	0 077	-19 6	0 116	
HIII Pelvis Resultant Acceleration (Ar)	g	1650 Hz	78 2	0 063	0 1	0 139	
<i>H3FEMUR (results calculated between 0 1 and 0 4 sec)</i>							
HIII Left Femur Force	N	1000 Hz	1774 9	0 098	-8730 6	0 063	
HIII Right Femur Force	N	1000 Hz	2879 9	0 077	-8882 6	0 060	
<i>H3KNEE (results calculated between 0 1 and 0 4 sec)</i>							
HIII Left Knee Displacement	mm	300 Hz	0 4	0 049	-5 4	0 102	
HIII Right Knee Displacement	mm	300 Hz	0 5	0 055	-5 2	0 064	
HIII Left Knee Left Force	N	1000 Hz	498 3	0 275	-3742 0	0 096	1
HIII Left Knee Right Force	N	1000 Hz	3079 6	0 098	-2847 6	0 063	
HIII Right Knee Left Force	N	1000 Hz	867 8	0 055	-3575 8	0 071	1
HIII Right Knee Right Force	N	1000 Hz	2721 2	0 100	2915 4	0 053	1
<i>H3LTIBIA (results calculated between -0 1 and 0 4 sec)</i>							
HIII Left Upper Tibia Force (Fx)	N	1000 Hz	277 6	0 051	-1668 3	0 076	
HIII Left Upper Tibia Force (Fy)	N	1000 Hz	99 8	0 049	-841 8	0 095	
HIII Left Upper Tibia Force (Fz)	N	1000 Hz	61 5	0 029	-4420 3	0 076	
HIII Left Upper Tibia Moment (Mx)	N-m	1000 Hz	245 9	0 098	-139 7	0 060	
HIII Left Upper Tibia Moment (My)	N-m	1000 Hz	88 4	0 072	-121 2	0 047	
HIII Left Lower Tibia Force (Fx)	N	1000 Hz	29 9	0 031	-983 0	0 047	
HIII Left Lower Tibia Force (Fy)	N	1000 Hz	680 1	0 055	-779 1	0 099	
HIII Left Lower Tibia Force (Fz)	N	1000 Hz	59 3	0 029	-4821 4	0 076	
HIII Left Lower Tibia Moment (Mx)	N-m	1000 Hz	49 5	0 100	-166 8	0 053	
HIII Left Lower Tibia Moment (My)	N-m	1000 Hz	356 7	0 075	-66 1	0 046	
<i>H3RTIBIA (results calculated between -0 1 and 0 4 sec)</i>							
HIII Right Upper Tibia Force (Fx)	N	1000 Hz	13898 3	0 085	-652 4	0 086	1
HIII Right Upper Tibia Force (Fy)	N	1000 Hz	221 8	0 123	-1255 4	0 080	1
HIII Right Upper Tibia Force (Fz)	N	1000 Hz	1571 4	0 100	-6226 9	0 080	1
HIII Right Upper Tibia Moment (Mx)	N-m	1000 Hz	139 7	0 100	-153 4	0 052	
HIII Right Upper Tibia Moment (My)	N-m	1000 Hz	15 8	0 307	-150 1	0 052	
HIII Right Lower Tibia Force (Fx)	N	1000 Hz	102 2	0 322	-1366 6	0 052	1
HIII Right Lower Tibia Force (Fy)	N	1000 Hz	453 5	0 054	-748 5	0 046	1
HIII Right Lower Tibia Force (Fz)	N	1000 Hz	1019 7	0 098	-3095 3	0 051	1
HIII Right Lower Tibia Moment (Mx)	N-m	1000 Hz	13 5	0 044	-238 6	0 052	
HIII Right Lower Tibia Moment (My)	N-m	1000 Hz	90 7	0 071	-77 3	0 101	

Description	Units	Filter	Maximum	Time@Max	Minimum	Time@Min	*
THOR, Passenger Position (2001 Dodge Neon)							
<i>THEAD (results calculated between -0.1 and 0.4 sec)</i>							
THOR Head Vertex Acceleration (Ax)	g	1650 Hz	10.6	0.143	-49.6	0.121	
THOR Head Vertex Acceleration (Ay)	g	1650 Hz	70.3	0.120	-11.6	0.351	
THOR Head Temporal Acceleration (Ax)	g	1650 Hz	4.4	0.358	-37.0	0.121	
THOR Head Temporal Acceleration (Az)	g	1650 Hz	79.0	0.098	-53.2	0.120	
THOR Head Occipital Acceleration (Ay)	g	1650 Hz	89.0	0.120	-10.7	0.103	
THOR Head Occipital Acceleration (Az)	g	1650 Hz	44.3	0.119	-6.5	0.152	
THOR Head C G Acceleration (Ax)	g	1650 Hz	12.3	0.354	-63.2	0.121	
THOR Head C G Acceleration (Ay)	g	1650 Hz	60.5	0.124	-10.4	0.352	
THOR Head C G Acceleration (Az)	g	1650 Hz	21.8	0.109	-5.2	0.122	
THOR Head C G Resultant Acceleration (Ar)	g	1650 Hz	86.7	0.124	0.1	0.013	
THOR HIC (36 ms) 516.8 from 0.107 to 0.129 sec							
THOR HIC (15 ms) 466.9 from 0.113 to 0.128 sec							
<i>TFACE (results calculated between -0.1 and 0.4 sec)</i>							
THOR Right Eye Compression Load	N	1000 Hz	9.3	0.354	-93.5	0.321	1
THOR Left Eye Compression Load	N	1000 Hz	603.5	0.123	-92.2	0.321	1
THOR Right Cheek Compression Load	N	1000 Hz	10.4	0.041	-101.7	0.321	1
THOR Left Cheek Compression Load	N	1000 Hz	339.6	0.107	-79.4	0.321	1
THOR Chin Compression Load	N	1000 Hz	26.1	0.050	-99.4	0.321	1
<i>UNCK PRE (results calculated between 0.1 and 0.4 sec)</i>							
THOR Upper Neck Force (Fx) - pre-THORTEST	N	(unfiltered)	560.5	0.224	-521.1	0.284	1
THOR Upper Neck Force (Fy) - pre-THORTEST	N	(unfiltered)	605.9	0.098	-867.1	0.224	1
THOR Upper Neck Force (Fz) - pre-THORTEST	N	(unfiltered)	1957.2	0.109	-767.5	0.250	
THOR Upper Neck Moment (Mx) - pre-THORTEST	N-m	(unfiltered)	37.1	0.361	-30.3	0.098	
THOR Upper Neck Moment (My) - pre-THORTEST	N-m	(unfiltered)	14.1	0.225	-21.1	0.224	1
THOR Upper Neck Moment (Mz) - pre-THORTEST	N-m	(unfiltered)	10.6	0.087	-15.9	0.123	
THOR Neck Front Spring Compression - pre-THORTEST	N	(unfiltered)	405.2	0.099	-463.7	0.224	1
THOR Neck Rear Spring Compression - pre-THORTEST	N	(unfiltered)	625.6	0.293	-141.2	0.079	1
THOR Head Rotation at O C - pre-THORTEST	deg	(unfiltered)	153.0	0.374	129.3	0.100	
<i>TUNCK (results calculated between -0.1 and 0.4 sec)</i>							
THOR Upper Neck Force (Fx) - post-THORTEST	N	1650 Hz	869.3	0.109	-957.0	0.294	
THOR Upper Neck Force (Fy) - post-THORTEST	N	1650 Hz	602.8	0.098	-654.8	0.224	1
THOR Upper Neck Force (Fz) - post-THORTEST	N	1650 Hz	1481.3	0.109	-1010.5	0.253	
THOR Upper Neck Moment (Mx) - post-THORTEST	N-m	1000 Hz	36.0	0.362	-27.0	0.123	
THOR Upper Neck Moment (My) - post-THORTEST	N-m	1000 Hz	18.5	0.103	-36.5	0.299	
THOR Upper Neck Moment (Mz) - post-THORTEST	N-m	1000 Hz	16.8	0.097	-12.6	0.133	
THOR Upper Neck Force (Fz) - post-THORTEST	N	1000 Hz	1474.0	0.109	-1010.4	0.253	
THOR NIJ Nte 0.14 @ 0.331 sec							
Ntf 0.27 @ 0.109 sec							
Nce 0.39 @ 0.257 sec							
Ncf 0.08 @ 0.357 sec							
<i>TLNECK (results calculated between -0.1 and 0.4 sec)</i>							
THOR Lower Neck Force (Fx)	N	1650 Hz	910.4	0.224	-383.3	0.138	1
THOR Lower Neck Force (Fy)	N	1650 Hz	453.9	0.138	-1193.0	0.098	1
THOR Lower Neck Force (Fz)	N	1650 Hz	2297.2	0.109	-892.3	0.253	
THOR Lower Neck Moment (Mx)	N-m	1000 Hz	49.6	0.122	-29.4	0.228	
THOR Lower Neck Moment (My)	N-m	1000 Hz	42.4	0.307	-9.9	0.042	1
THOR Lower Neck Moment (Mz)	N-m	1000 Hz	15.4	0.084	-8.4	0.138	1
<i>CRUX PRE (results calculated between -0.1 and 0.4 sec)</i>							
THOR Crux Upper Left Base Rotation - pre-THORTEST	deg	300 Hz	137.5	0.060	125.1	0.143	
THOR Crux Upper Left Mid Rotation - pre-THORTEST	deg	300 Hz	200.0	0.317	171.7	0.122	
THOR Crux Upper Left Elbow Rotation - pre-THORTEST	deg	300 Hz	190.4	0.123	145.2	0.239	
THOR Crux Upper Right Base Rotation - pre-THORTEST	deg	300 Hz	175.6	0.233	166.1	0.123	
THOR Crux Upper Right Mid Rotation - pre-THORTEST	deg	300 Hz	130.3	0.069	95.8	0.148	
THOR Crux Upper Right Elbow Rotation - pre-THORTEST	deg	300 Hz	177.4	0.150	142.9	0.071	
THOR Crux Lower Left Base Rotation - pre-THORTEST	deg	300 Hz	165.9	0.153	132.8	0.069	
THOR Crux Lower Left Mid Rotation - pre-THORTEST	deg	300 Hz	156.7	0.087	134.1	0.030	
THOR Crux Lower Left Elbow Rotation - pre-THORTEST	deg	300 Hz	142.1	0.042	124.1	0.122	
THOR Crux Lower Right Base Rotation - pre-THORTEST	deg	300 Hz	177.2	0.096	159.1	0.318	
THOR Crux Lower Right Mid Rotation - pre-THORTEST	deg	300 Hz	182.0	0.086	177.3	-0.042	
THOR Crux Lower Right Elbow Rotation - pre-THORTEST	deg	300 Hz	152.9	-0.011	135.4	0.086	

Description	Units	Filter	Maximum	Time@Max	Minimum	Time@Min	°
<i>TCRUX (results calculated between -0.1 and 0.4 sec)</i>							
THOR Crux Upper Right Deflection (Dx) - post-THORTEST	mm	300 Hz	7.4	0.150	-17.6	0.069	
THOR Crux Upper Right Deflection (Dy) - post-THORTEST	mm	300 Hz	16.0	0.069	-21.1	0.147	
THOR Crux Upper Right Deflection (Dz) - post-THORTEST	mm	300 Hz	6.6	0.068	-11.3	0.233	
THOR Crux Upper Right Endpoint Length - post-THORTEST	mm	300 Hz	13.0	0.150	-18.7	0.071	
THOR Crux Upper Left Deflection (Dx) - post-THORTEST	mm	300 Hz	2.9	0.262	-40.4	0.124	
THOR Crux Upper Left Deflection (Dy) - post-THORTEST	mm	300 Hz	13.4	0.069	-17.8	0.172	
THOR Crux Upper Left Deflection (Dz) - post-THORTEST	mm	300 Hz	9.4	0.121	-14.8	0.089	
THOR Crux Upper Left Endpoint Length - post-THORTEST	mm	300 Hz	4.2	0.239	-37.5	0.123	
THOR Crux Lower Right Deflection (Dx) - post-THORTEST	mm	300 Hz	10.3	0.086	0.0	-0.042	
THOR Crux Lower Right Deflection (Dy) - post-THORTEST	mm	300 Hz	10.5	0.318	-24.2	0.096	
THOR Crux Lower Right Deflection (Dz) - post-THORTEST	mm	300 Hz	2.0	0.068	-13.5	0.150	
THOR Crux Lower Right Endpoint Length - post-THORTEST	mm	300 Hz	14.5	0.086	-0.1	-0.011	
THOR Crux Lower Left Deflection (Dx) - post-THORTEST	mm	300 Hz	0.1	0.049	-19.9	0.080	
THOR Crux Lower Left Deflection (Dy) - post-THORTEST	mm	300 Hz	37.0	0.066	-9.3	0.154	
THOR Crux Lower Left Deflection (Dz) - post-THORTEST	mm	300 Hz	3.9	0.323	-24.1	0.092	
THOR Crux Lower Left Endpoint Length - post-THORTEST	mm	300 Hz	0.1	0.042	-19.3	0.122	
<i>TVC (results calculated between 0.1 and 0.4 sec)</i>							
THOR Chest Deflection (Dx)	mm	1000 Hz	0.3	0.371	-16.3	0.114	
THOR Chest Compression (Dx)	mm	1000 Hz	16.3	0.114	-0.3	0.371	
THOR VC = 0.08 m/s at 0.109 sec							
<i>TTORAX (results calculated between 0.1 and 0.4 sec)</i>							
THOR Thorax C G Acceleration (Ax)	g	300 Hz	5.0	0.096	-28.6	0.076	
THOR Thorax C G Acceleration (Ay)	g	300 Hz	30.0	0.099	-3.6	0.315	
THOR Thorax C G Acceleration (Az)	g	300 Hz	27.5	0.099	-5.0	0.136	
THOR Thorax C G Resultant Acceleration (Ar)	g	300 Hz	44.3	0.099	0.0	-0.049	
THOR Upper Abdomen Acceleration (Ax)	g	1650 Hz	72.2	0.086	-21.1	0.092	1
THOR Upper Abdomen Displacement	mm	1650 Hz	0.1	0.039	-20.3	0.092	
THOR CIC 38.3 from 0.075 to 0.100 sec							
<i>DGSP PRE (results calculated between 0.1 and 0.4 sec)</i>							
THOR DGSP Left Displacement - pre-THORTEST	mm	300 Hz	57.6	0.069	23.5	0.032	
THOR DGSP Left Yaw - pre-THORTEST	deg	300 Hz	169.6	0.092	163.9	0.063	
THOR DGSP Left Pitch - pre-THORTEST	deg	300 Hz	209.8	0.164	204.5	0.305	
THOR DGSP Right Displacement - pre-THORTEST	mm	300 Hz	45.3	0.072	18.0	0.033	
THOR DGSP Right Yaw - pre-THORTEST	deg	300 Hz	166.9	0.141	158.3	0.070	
THOR DGSP Right Pitch - pre-THORTEST	deg	300 Hz	155.6	0.086	152.2	0.243	
<i>TDGSP (results calculated between -0.1 and 0.4 sec)</i>							
THOR DGSP Right Displacement (Dx) - post-THORTEST	mm	300 Hz	4.9	0.364	-10.4	0.086	
THOR DGSP Right Displacement (Dy) - post-THORTEST	mm	300 Hz	19.0	0.070	-3.8	0.141	
THOR DGSP Right Displacement (Dz) - post-THORTEST	mm	300 Hz	23.1	0.072	-0.1	0.035	
THOR DGSP Left Displacement (Dx) - post-THORTEST	mm	300 Hz	0.1	0.030	-28.5	0.069	
THOR DGSP Left Displacement (Dy) - post-THORTEST	mm	300 Hz	12.3	0.063	-6.8	0.151	
THOR DGSP Left Displacement (Dz) - post-THORTEST	mm	300 Hz	8.3	0.163	-16.6	0.070	
<i>TSPINE (results calculated between 0.1 and 0.4 sec)</i>							
THOR T12 Thoracic Force (Fx)	N	1000 Hz	12952.4	0.086	-14265.9	0.085	1
THOR T12 Thoracic Force (Fy)	N	1000 Hz	182.8	0.040	-236.6	0.042	1
THOR T12 Thoracic Force (Fz)	N	1000 Hz	3768.3	0.084	-772.3	0.052	1
THOR T12 Thoracic Moment (Mx)	N-m	1000 Hz	86.9	0.112	-85.1	0.084	
THOR T12 Thoracic Moment (My)	N-m	1000 Hz	61.0	0.166	-89.0	0.069	
THOR T12 Thoracic Acceleration (Ax)	g	1000 Hz	3.0	0.084	-40.7	0.072	
THOR T12 Thoracic Acceleration (Ay)	g	1000 Hz	29.2	0.095	-22.3	0.076	
THOR T12 Thoracic Acceleration (Az)	g	1000 Hz	32.1	0.099	-17.5	0.077	
THOR T12 Thoracic Resultant Acceleration (Ar)	g	1000 Hz	43.6	0.072	0.0	0.010	
<i>TLPELVIS (results calculated between -0.1 and 0.4 sec)</i>							
THOR Pelvis Left Acetabular Force (Fx)	N	1650 Hz	224.2	0.225	-7466.8	0.075	
<i>TPELVIS (results calculated between 0.1 and 0.4 sec)</i>							
THOR Pelvis Left Acetabular Force (Fy)	N	1650 Hz	4695.3	0.225	-961.7	0.066	1
THOR Pelvis Left Acetabular Force (Fz)	N	1650 Hz	2446.2	0.095	-1114.7	0.053	1
THOR Pelvis Right Acetabular Force (Fx)	N	1650 Hz	3847.7	0.087	-1581.6	0.053	1
THOR Pelvis Right Acetabular Force (Fy)	N	1650 Hz	1944.4	0.087	-3565.0	0.086	1
THOR Pelvis Right Acetabular Force (Fz)	N	1650 Hz	1131.3	0.098	-1355.8	0.053	1
THOR Pelvis Acceleration (Ax)	g	1650 Hz	18.3	0.096	-59.3	0.070	1
THOR Pelvis Acceleration (Ay)	g	1650 Hz	50.3	0.076	-23.5	0.096	1
THOR Pelvis Acceleration (Az)	g	1650 Hz	27.0	0.063	-15.7	0.085	1
THOR Pelvis Resultant Acceleration (Ar)	g	1650 Hz	62.1	0.063	0.1	-0.071	1

Description	Units	Filter	Maximum	Time@Max	Minimum	Time@Min	*
TFEMUR (results calculated between -0.1 and 0.4 sec)							
THOR Left Femur Force (Fx)	N	1000 Hz	2280.3	0.082	-79.7	0.226	
THOR Left Femur Force (Fy)	N	1000 Hz	3875.9	0.069	-819.2	0.095	
THOR Left Femur Force (Fz)	N	1000 Hz	137.1	0.038	-4809.7	0.069	
THOR Left Femur Moment (Mx)	N-m	1000 Hz	412.4	0.075	-62.7	0.051	1
THOR Left Femur Moment (My)	N-m	1000 Hz	283.6	0.078	-50.8	0.063	
THOR Left Femur Moment (Mz)	N-m	1000 Hz	12.6	0.049	-429.3	0.095	1
THOR Right Femur Force (Fx)	N	1000 Hz	613.5	0.069	-734.0	0.098	
THOR Right Femur Force (Fy)	N	1000 Hz	1207.1	0.075	-153.4	0.233	
THOR Right Femur Force (Fz)	N	1000 Hz	2443.2	0.082	-2673.7	0.061	
THOR Right Femur Moment (Mx)	N-m	1000 Hz	284.9	0.098	-117.2	0.066	
THOR Right Femur Moment (My)	N-m	1000 Hz	119.0	0.096	-100.0	0.130	
THOR Right Femur Moment (Mz)	N-m	1000 Hz	13.9	0.074	-205.1	0.101	
TKNEE (results calculated between -0.1 and 0.4 sec)							
THOR Right Knee Displacement	mm	300 Hz	0.6	0.093	-2.2	0.073	
THOR Left Knee Displacement	mm	300 Hz	0.6	0.204	-8.7	0.077	
LTIBIA (results calculated between -0.1 and 0.4 sec)							
THOR Left Upper Tibia Force (Fx)	N	1000 Hz	513.0	0.078	-624.6	0.072	
THOR Left Upper Tibia Force (Fz)	N	1000 Hz	458.6	0.100	-4280.4	0.069	
THOR Left Upper Tibia Moment (Mx)	N-m	1000 Hz	423.0	0.094	-90.2	0.053	1
THOR Left Upper Tibia Moment (My)	N-m	1000 Hz	73.7	0.097	-113.8	0.064	
THOR Left Lower Tibia Force (Fx)	N	1000 Hz	608.2	0.094	-432.1	0.064	
THOR Left Lower Tibia Force (Fy)	N	1000 Hz	765.0	0.094	-1418.7	0.094	
THOR Left Lower Tibia Force (Fz)	N	1000 Hz	473.8	0.100	-3917.7	0.072	
THOR Left Lower Tibia Moment (Mx)	N-m	1000 Hz	225.7	0.094	-73.7	0.054	
THOR Left Lower Tibia Moment (My)	N-m	1000 Hz	68.7	0.071	-49.1	0.053	
THOR Left Ankle Rotation (X Axis)	deg	300 Hz	148.7	0.128	87.0	0.061	
THOR Left Ankle Rotation (Y Axis)	deg	300 Hz	279.6	0.083	-255.1	0.081	1
THOR Left Ankle Rotation (Z Axis)	deg	300 Hz	213.3	0.058	187.3	0.082	
THRLTB (results calculated between -0.1 and 0.4 sec)							
THOR Left Tibia Acceleration (Ax)	g	1000 Hz	2104.6	0.094	-2365.1	0.094	1
THOR Left Tibia Acceleration (Ay)	g	1000 Hz	1216.7	0.093	-569.0	0.094	1
TRTIBIA (results calculated between -0.1 and 0.4 sec)							
THOR Right Upper Tibia Force (Fx)	N	1000 Hz	692.1	0.083	-723.6	0.070	
THOR Right Upper Tibia Force (Fz)	N	1000 Hz	1224.2	0.086	-3367.4	0.070	1
THOR Right Upper Tibia Moment (Mx)	N-m	1000 Hz	327.4	0.101	-160.3	0.078	
THOR Right Upper Tibia Moment (My)	N-m	1000 Hz	105.7	0.092	-107.8	0.133	
THOR Right Lower Tibia Force (Fx)	N	1000 Hz	482.1	0.070	-741.6	0.065	
THOR Right Lower Tibia Force (Fy)	N	1000 Hz	1676.6	0.077	-1350.7	0.102	
THOR Right Lower Tibia Force (Fz)	N	1000 Hz	735.8	0.098	-4063.7	0.070	
THOR Right Lower Tibia Moment (Mx)	N-m	1000 Hz	191.5	0.121	-204.3	0.077	
THOR Right Lower Tibia Moment (My)	N-m	1000 Hz	58.0	0.071	-88.9	0.063	
THOR Right Tibia Acceleration (Ax)	g	1000 Hz	548.4	0.110	-108.2	0.062	1
THOR Right Tibia Acceleration (Ay)	g	1000 Hz	397.3	0.068	-77.3	0.120	1
THOR Right Ankle Rotation (X Axis)	deg	300 Hz	292.6	0.063	-206.7	0.051	1
THOR Right Ankle Rotation (Y Axis)	deg	300 Hz	172.9	0.126	134.4	0.369	
THOR Right Ankle Rotation (Z Axis)	deg	300 Hz	215.2	0.075	191.4	0.117	
THRLFT (results calculated between -0.1 and 0.4 sec)							
THOR Left Foot Acceleration (Ax)	g	1000 Hz	276.9	0.095	-137.4	0.095	
THOR Left Foot Acceleration (Ay)	g	1000 Hz	95.5	0.078	-325.4	0.076	
THOR Left Foot Acceleration (Az)	g	1000 Hz	314.9	0.094	-93.7	0.097	
THOR Left Foot Resultant Acceleration (Ar)	g	1000 Hz	378.7	0.094	0.0	-0.015	
THRRFT (results calculated between -0.1 and 0.4 sec)							
THOR Right Foot Acceleration (Ax)	g	1000 Hz	165.7	0.077	-160.3	0.060	
THOR Right Foot Acceleration (Ay)	g	1000 Hz	198.4	0.077	-178.8	0.109	
THOR Right Foot Acceleration (Az)	g	1000 Hz	258.5	0.076	-81.9	0.068	
THOR Right Foot Resultant Acceleration (Ar)	g	1000 Hz	346.1	0.076	0.0	-0.005	
2001 Dodge Neon							
TENG (results calculated between -0.1 and 0.4 sec)							
Top of Engine Acceleration (Ax)	g	100 Hz	62.3	0.061	-121.4	0.045	
Top of Engine Acceleration (Ay)	g	100 Hz	18.1	0.067	-58.8	0.049	
BENG (results calculated between -0.1 and 0.4 sec)							
Bottom of Engine Acceleration (Ax)	g	100 Hz	18.1	0.055	-62.7	0.049	
Bottom of Engine Acceleration (Ay)	g	100 Hz	79.1	0.050	-56.0	0.057	
LST (results calculated between -0.1 and 0.4 sec)							
Left Shock Tower Acceleration (Ax)	g	100 Hz	54.6	0.064	-103.4	0.043	
Left Shock Tower Acceleration (Ay)	g	100 Hz	57.5	0.028	-15.5	0.083	
Left Shock Tower Acceleration (Az)	g	100 Hz	1045.4	0.048	-42.6	0.024	1
Left Shock Tower Resultant Acceleration (Ar)	g	100 Hz	1045.6	0.048	0.0	-0.058	1

Description	Units	Filter	Maximum	Time@Max	Minimum	Time@Min	*
<i>RST (results calculated between -0.1 and 0.4 sec)</i>							
Right Shock Tower Acceleration (Ax)	g	100 Hz	10.5	0.053	-50.7	0.046	
Right Shock Tower Acceleration (Ay)	g	100 Hz	44.4	0.052	-17.4	0.056	
Right Shock Tower Acceleration (Az)	g	100 Hz	35.9	0.050	-15.7	0.063	
Right Shock Tower Resultant Acceleration (Ar)	g	100 Hz	52.8	0.046	0.0	-0.047	
<i>LAP (results calculated between -0.1 and 0.4 sec)</i>							
Left A-Pillar Top Hinge Acceleration (Ax)	g	100 Hz	78.8	0.033	-128.0	0.053	
<i>TOEP (results calculated between -0.1 and 0.4 sec)</i>							
Driver Side Toe Pan Acceleration (Ax)	g	100 Hz	18.9	0.066	-67.3	0.040	
Driver Side Toe Pan Acceleration (Ay)	g	100 Hz	58.9	0.046	-17.3	0.032	
Driver Side Toe Pan Acceleration (Az)	g	100 Hz	71.1	0.041	-86.9	0.059	
Driver Side Toe Pan Resultant Acceleration (Ar)	g	100 Hz	101.3	0.040	0.0	-0.073	
<i>BP (results calculated between -0.1 and 0.4 sec)</i>							
Brake Pedal Acceleration (Ax)	g	100 Hz	125.9	0.051	-265.9	0.044	
Brake Pedal Acceleration (Ay)	g	100 Hz	132.1	0.059	-107.2	0.078	
Brake Pedal Acceleration (Az)	g	100 Hz	127.8	0.051	-136.6	0.067	
Brake Pedal Resultant Acceleration (Ar)	g	100 Hz	291.4	0.044	0.0	-0.050	
<i>LRC (results calculated between -0.1 and 0.4 sec)</i>							
Left Rear Compartment Acceleration (Ax)	g	100 Hz	1.3	0.191	-23.5	0.059	
Left Rear Compartment Acceleration (Ay)	g	100 Hz	98.7	0.321	-11.3	0.063	1
<i>CRC (results calculated between -0.1 and 0.4 sec)</i>							
Center Rear Compartment Acceleration (Ax)	g	100 Hz	1.4	0.198	-32.8	0.052	
Center Rear Compartment Acceleration (Az)	g	100 Hz	109.7	0.103	-4.8	0.109	1
<i>RRC (results calculated between -0.1 and 0.4 sec)</i>							
Right Rear Compartment Acceleration (Ax)	g	100 Hz	0.4	0.190	-29.4	0.050	
Right Rear Compartment Acceleration (Ay)	g	100 Hz	13.9	0.042	-4.9	0.060	
<i>YAW (results calculated between -0.1 and 0.4 sec)</i>							
Vehicle Yaw Rate	deg/s	300 Hz	199.7	0.077	-72.2	0.044	
Moving Deformable Barrier							
<i>CG (results calculated between -0.1 and 0.4 sec)</i>							
Center of Gravity Acceleration (Ax)	g	100 Hz	0.8	0.177	-24.9	0.053	
Center of Gravity Acceleration (Ay)	g	100 Hz	7.1	0.056	-5.5	0.069	
Center of Gravity Acceleration (Az)	g	100 Hz	17.4	0.070	-23.4	0.049	
Center of Gravity Resultant Acceleration (Ar)	g	100 Hz	32.9	0.049	0.1	0.342	
<i>REARFRM (results calculated between -0.1 and 0.4 sec)</i>							
Rear Frame Acceleration (Ax)	g	100 Hz	0.6	0.214	-23.7	0.051	
<i>BAR1 (results calculated between -0.1 and 0.4 sec)</i>							
Barrier Face Load (Fx) - Position A2	N	100 Hz	1317	0.033	-555	0.094	
Barrier Face Load (Fx) - Position A3	N	100 Hz	2916	0.094	-2840	0.040	
Barrier Face Load (Fx) - Position A4	N	100 Hz	1572	0.035	-1386	0.043	
Barrier Face Load (Fx) - Position A5	N	100 Hz	1520	0.021	-11594	0.044	
Barrier Face Load (Fx) - Position A6	N	100 Hz	1155	0.024	-991	0.036	
Barrier Face Load (Fx) - Position A7	N	100 Hz	1197	0.034	-368	0.143	
Barrier Face Load (Fx) - Position A8	N	100 Hz	1275	0.035	-439	0.143	
Barrier Face Load (Fx) - Position A9	N	100 Hz	3644	0.061	-765	0.310	
Barrier Face Load (Fx) - Position A10	N	100 Hz	2084	0.062	-79	0.011	
Barrier Face Load (Fx) - Position B1	N	100 Hz	1198	0.061	-255	0.154	
Barrier Face Load (Fx) - Position B2	N	100 Hz	1232	0.061	-51	0.353	
Barrier Face Load (Fx) - Position B3	N	100 Hz	1721	0.051	-8769	0.039	
Barrier Face Load (Fx) - Position B4	N	100 Hz	2630	0.051	-1239	0.029	
Barrier Face Load (Fx) - Position B5	N	100 Hz	1336	0.018	-7817	0.035	
Barrier Face Load (Fx) - Position B6	N	100 Hz	2759	0.037	-332	0.305	
Barrier Face Load (Fx) - Position B7	N	100 Hz	1060	0.025	-2154	0.041	
Barrier Face Load (Fx) - Position B8	N	100 Hz	2046	0.037	-642	0.213	
Barrier Face Load (Fx) - Position B9	N	100 Hz	438	0.061	-159	0.209	
Barrier Face Load (Fx) - Position B10	N	100 Hz	933	0.061	-911	0.039	
Barrier Face Load (Fx) - Position C3	N	100 Hz	2038	0.052	-13076	0.011	
Barrier Face Load (Fx) - Position C4	N	100 Hz	1414	0.060	-13571	0.045	
Barrier Face Load (Fx) - Position C5	N	100 Hz	2322	0.038	-368	0.343	
Barrier Face Load (Fx) - Position C6	N	100 Hz	2847	0.037	-563	0.323	
Barrier Face Load (Fx) - Position C7	N	100 Hz	1064	0.024	-947	0.043	
Barrier Face Load (Fx) - Position C8	N	100 Hz	1242	0.062	-4840	0.053	
Barrier Face Load (Fx) - Position C9	N	100 Hz	199	0.036	43	0.076	
Barrier Face Load (Fx) - Position C10	N	100 Hz	1144	0.061	-351	0.204	

Description	Units	Filter	Maximum	Time@Max	Minimum	Time@Min	*
<i>BAR2 (results calculated between -0 1 and 0 4 sec)</i>							
Barrier Face Load (Fx) - Position C1	N	100 Hz	1344	0 061	-60	0 086	
Barrier Face Load (Fx) - Position C2	N	100 Hz	1155	0 060	-2464	0 009	
Barrier Face Load (Fx) - Position D1	N	100 Hz	504	0 092	-6603	0 048	
Barrier Face Load (Fx) - Position D2	N	100 Hz	1866	0 011	-5526	0 040	
Barrier Face Load (Fx) - Position D3	N	100 Hz	1122	0 071	-47979	0 047	
Barrier Face Load (Fx) - Position D4	N	100 Hz	1214	0 065	-12166	0 046	
Barrier Face Load (Fx) - Position D5	N	100 Hz	2017	0 036	-554	0 144	
Barrier Face Load (Fx) - Position D6	N	100 Hz	2649	0 051	-226	0 344	
Barrier Face Load (Fx) - Position D7	N	100 Hz	2409	0 038	-374	0 293	
Barrier Face Load (Fx) - Position D8	N	100 Hz	1522	0 024	-14008	0 056	
Barrier Face Load (Fx) - Position D9	N	100 Hz	848	0 024	-4606	0 060	
Barrier Face Load (Fx) - Position D10	N	100 Hz	449	0 081	-405	0 058	
Barrier Face Load (Fx) - Position D11	N	100 Hz	501	0 050	-98	0 120	
Barrier Face Load (Fx) - Position E1	N	100 Hz	402	-0 002	-31410	0 052	
Barrier Face Load (Fx) - Position E2	N	100 Hz	657	0 176	-68451	0 049	
Barrier Face Load (Fx) - Position E3	N	100 Hz	335	0 214	-54336	0 053	
Barrier Face Load (Fx) - Position E4	N	100 Hz	2729	0 036	-30316	0 054	
Barrier Face Load (Fx) - Position E5	N	100 Hz	2797	0 299	-34458	0 062	
Barrier Face Load (Fx) - Position E6	N	100 Hz	2188	0 038	-1085	0 066	
Barrier Face Load (Fx) - Position E7	N	100 Hz	2882	0 052	-183	0 230	
Barrier Face Load (Fx) - Position E8	N	100 Hz	1325	0 034	-953	0 086	
Barrier Face Load (Fx) - Position E9	N	100 Hz	252	-0 003	-36386	0 061	
Barrier Face Load (Fx) - Position E10	N	100 Hz	24602	0 087	-38254	0 072	1
Barrier Face Load (Fx) - Position E11	N	100 Hz	870	0 050	-2463	0 005	
<i>TOTALOAD MEU (results calculated between -0 1 and 0 4 sec)</i>							
Sum of BAR1 Load Cells (Fx)	N	100 Hz	29982	0 061	-38625	0 043	
Sum of BAR2 Load Cells (Fx)	N	100 Hz	3916	-0 003	-288071	0 052	1
Barrier Face Total Load (Fx) - Sum of All Positions	N	100 Hz	5696	-0 003	-268784	0 051	1

* Comments

1 - See Data Acquisition Explanations p 2-3

Notes for electronic files

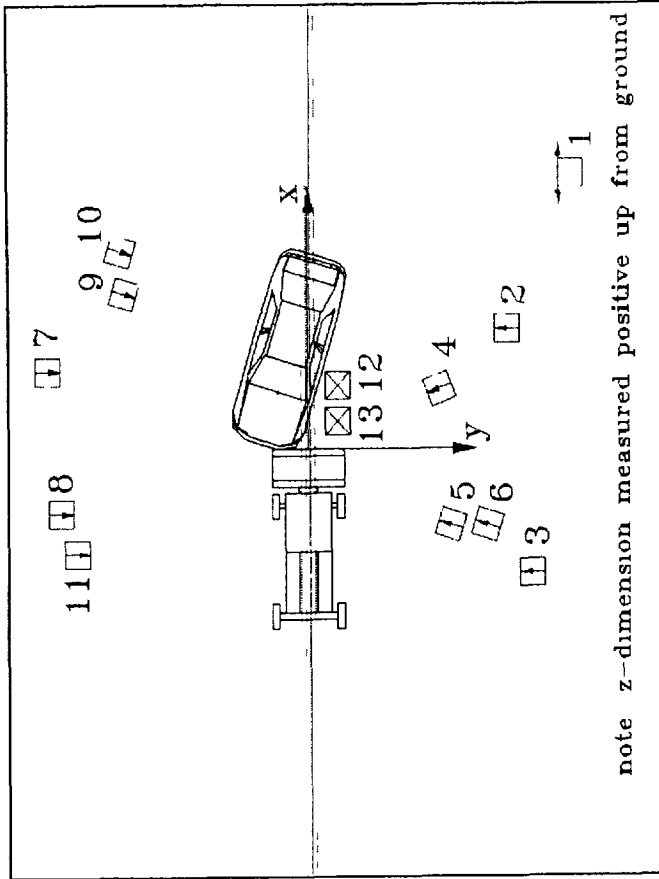
- File root names are listed above (e g H3CHEST H3CHSDFL), all have extension FEU (formatted engrg units) unless otherwise noted
- Files with extension PRE indicate Pre-Thortest Software Processing
- Each file has time (seconds) in the first column, followed by the data listed above in the order listed (excluding HIC CIC VC NIJ)

Section 4 0

Camera, Occupant, and Vehicle Measurements

CAMERA SET-UP RECORD

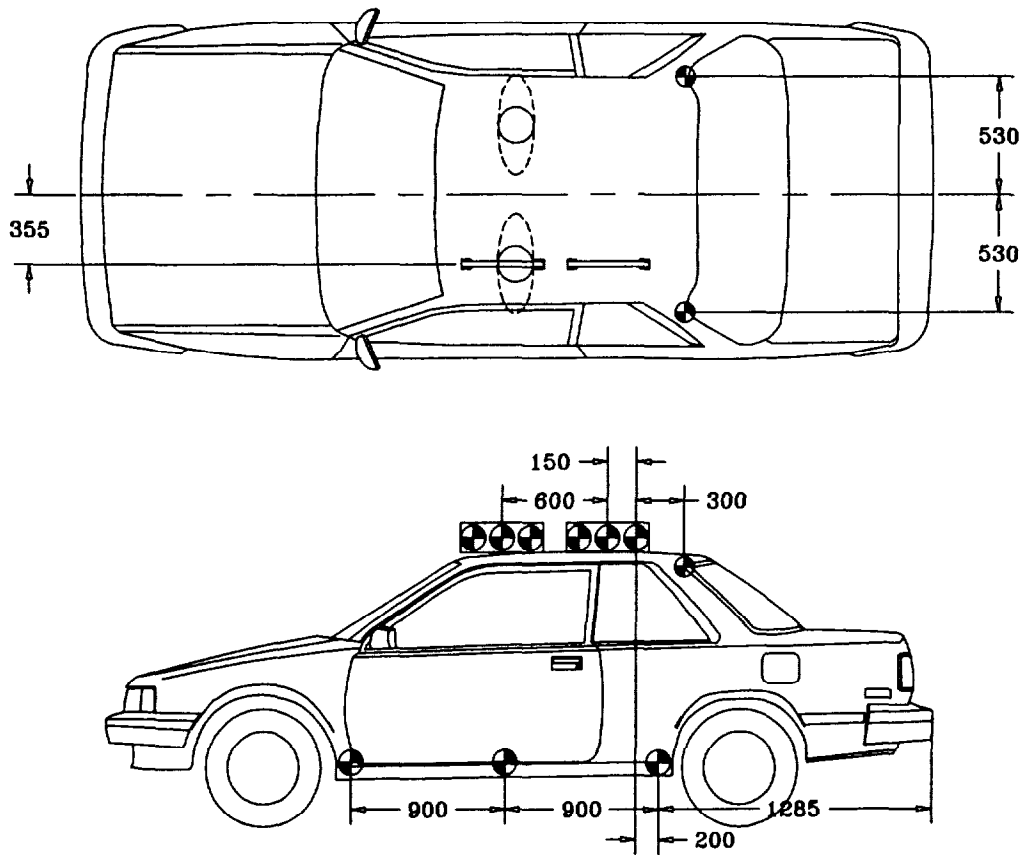
PROJECT NO	PH06608	TEST DATE	9/18/01
PROJECT NAME	VOLPE CRASH TESTING TASK ORDER 1		
TEST TYPE	FRONTAL OFFSET OBLIQUE CRASH TEST		
TARGET VEHICLE (T)	2001 DODGE NEON		
BULLET VEHICLE (B)	MOVING DEFORMABLE BARRIER		
APPROX TEST SPEEDS (T)	0	(B)	95.7 KPH
COMMENTS	MEASUREMENT ORIGIN ON CRASH-RAIL CENTERLINE		
AT POINT OF IMPACT ALL MEASUREMENTS IN MILLIMETERS			
GROUND-BASED TARGET LOCATIONS			
TARGET 1 X = 660, Y = 3120, Z = 920			
TARGET 2 X = 4260, Y = -3150, Z = 920			



NOTE: ALL DIMENSIONS IN MILLIMETERS

LOC NO	CAMERA TYPE	FIELD OF VIEW	IMPACT DISTANCE (X)	CENTERLINE DISTANCE (Y)	CAMERA HEIGHT (Z)	SET SPEED (fps)	LENS SIZE (mm)
1	VIDEO	PANNING EVENT	9600	28000	1370	RT	--
2	LOCAM	FULL VIEW OF TARGET VEHICLE DRIVER SIDE	3830	17400	940	500	25
3	PS	FULL VIEW OF BULLET VEHICLE RIGHT SIDE	-2290	18150	1370	1000	25
4	PS	CLOSE-UP OF IMPACT POINT	970	10350	1630	1000	50
5	PS	FILM ANALYSIS VIEW OF TARGET VEHICLE DRIVER SIDE	-1430	11040	1250	1000	25
6	LOCAM	CLOSE-UP OF TARGET VEHICLE DRIVER DUMMY	-1430	12000	1310	500	75
7	LOCAM	FULL VIEW OF TARGET VEHICLE PASSENGER SIDE	2160	-18250	1320	500	25
8	LOCAM	FULL VIEW OF BULLET VEHICLE LEFT SIDE	-1120	-18080	1270	500	25
9	LOCAM	FILM ANALYSIS VIEW OF TARGET VEHICLE PASSENGER SIDE	5870	-13350	1220	500	25
10	LOCAM	CLOSE-UP OF TARGET VEHICLE PASSENGER DUMMY	6510	-13720	1450	500	75
11	LOCAM	CLOSE-UP FRONT VIEW OF BULLET VEHICLE LEFT SIDE	-1730	-16750	1450	500	75
12	PS	WIDE OVERHEAD VIEW OF IMPACT POINT	600	-390	7630	500	13
13	PS	CLOSE-UP OVERHEAD VIEW OF IMPACT POINT	310	-390	7630	1000	25

Vehicle Target Locations – 2001 Dodge Neon



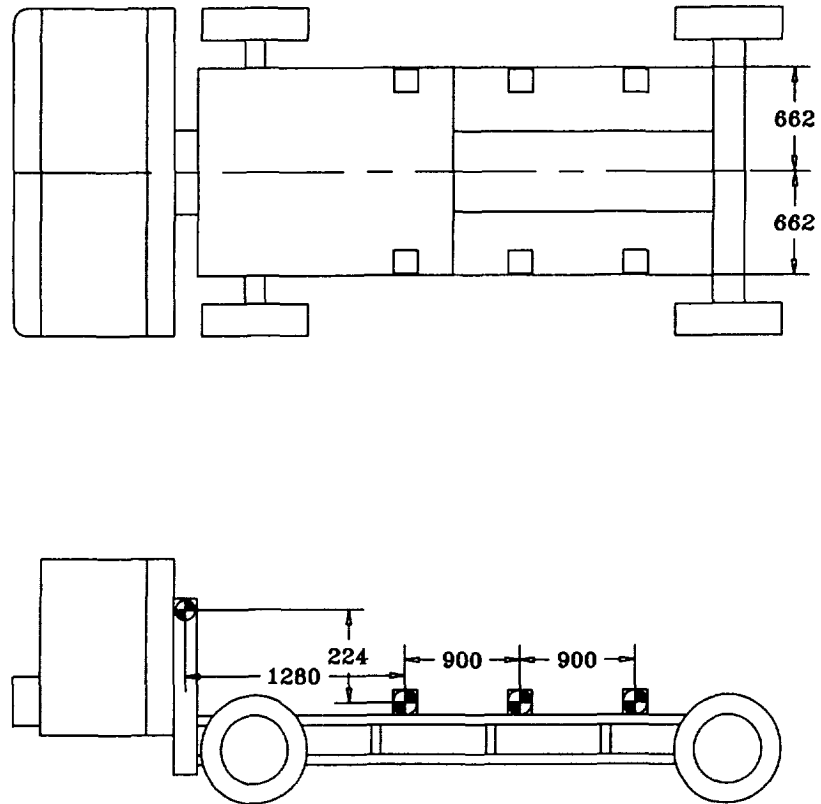
Notes

All dimensions in millimeters

Right side targets positioned symmetrically to left side

At impact, center rearmost point of 2001 Dodge Neon is 218 mm left of the crash rail centerline (positive y direction on Camera Set-Up Record)

Vehicle Target Locations – Moving Deformable Barrier



Notes

All dimensions in millimeters

Right side targets positioned symmetrically to left side

At impact, center rearmost point of Moving Deformable Barrier is directly over the crash rail centerline

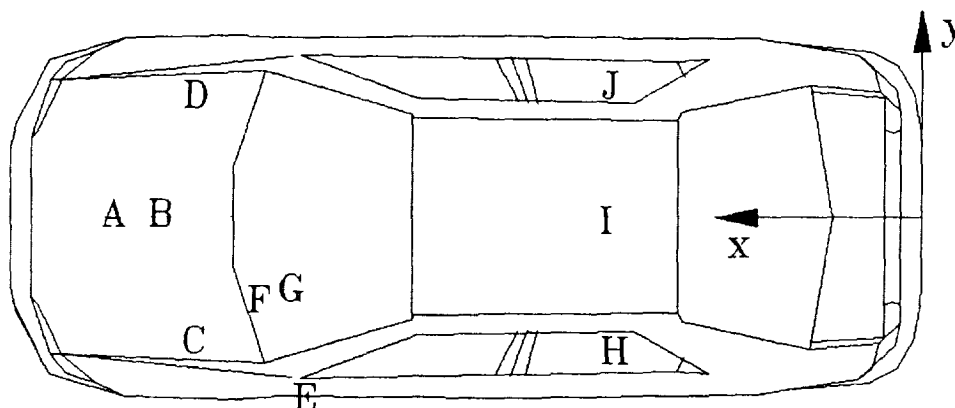
OCCUPANT INTERIOR CLEARANCE SUMMARY

PROJECT NO	PH06608	PROJECT NAME	VOLPE CRASH TESTING TASK ORDER 1	TEST DATE	9/18/01
VEHICLE YEAR	2001	VEHICLE MAKE	DODGE	VEHICLE MODEL	NEON
VEHICLE BODY STYLE	4-DOOR SEDAN	VEHICLE COLOR	BLUE		
VEHICLE IDENTIFICATION NUMBER	1B3ES46C91D112929				

FORE / AFT CLEARANCE MEASUREMENTS			VEHICLE MEASUREMENTS		
	DRIVER DUMMY	PASSENGER DUMMY	DRIVER		PASSENGER
CD = CHEST TO DASH	477 mm	528 mm	SA = SEAT BACK ANGLE	22 5 deg	22 5 deg
CS = STEERING WHEEL TO CHEST	273 mm	N/A	SCA = STEERING COLUMN ANGLE		24 0 deg
HZ = HEAD TO ROOF	168 mm	145 mm	SWA = STEERING WHEEL ANGLE		67 0 deg
HH = HEAD TO HEADER	320 mm	348 mm	WA = WINDSHIELD ANGLE		25 0 deg
HW = HEAD TO WINDSHIELD	598 mm	605 mm			
NR = NOSE TO RIM	356 mm	N/A			
NA = NOSE TO RIM ANGLE	11 0 deg	N/A			
HA = HEAD ANGLE	0 0 deg	0 0 deg			
KDL = LEFT KNEE TO DASH	120 mm	110 mm			
KDR = RIGHT KNEE TO DASH	122 mm	101 mm			
KDA = KNEE (outboard) TO DASH ANGLE	30 0 deg	40 0 deg			
PA = PELVIS ANGLE	23 0 deg	N/A* deg			
TA = TIBIA ANGLE	40 0 deg	35 0 deg			
SH = STRIKER TO Hpt	255 mm	255 mm			
SHA = STRIKER TO Hpt ANGLE (wrt horiz)	27 0 deg	25 0 deg			
SK = STRIKER TO KNEE	623 mm	625 mm			
SKA = STRIKER TO KNEE ANGLE (wrt horiz)	3 0 deg	1 0 deg			
ST = STRIKER TO HEAD	550 mm	582 mm			
STA = STRIKER TO HEAD ANGLE (wrt horiz)	78 0 deg	84 0 deg			
HptX = Hpt X (to seat mount bolt)	194 mm	191 mm			
HptZ = Hpt Z (to seat mount bolt)	225 mm	225 mm			
LATERAL CLEARANCE MEASUREMENTS					
	DRIVER DUMMY	PASSENGER DUMMY			
AD = ARM TO DOOR	95 mm	95 mm			
HD = Hpt TO DOOR	205 mm	182 mm			
HR = HEAD TO SIDE HEADER	198 mm	198 mm			
HS = HEAD TO SIDE WINDOW	N/A mm	N/A mm			
KK = KNEE TO KNEE (OUTER FLANGES)	269 mm	269 mm			
SHY = STRIKER TO Hpt (Y)	212 mm	210 mm	Y-Z SECTION		
COMMENTS					
DRIVER HIII-50TH PERCENTILE / PASSENGER THOR					
*FEMUR ANGLE 18 0°			FORM COMPLETED BY	BN	CHECKED BY CCR/MK

VEHICLE TRANSDUCER LOCATION RECORD

PROJECT NO	PH06608	PROJECT NAME	VOLPE CRASH TESTING TASK ORDER 1	TEST DATE	9/18/01
VEHICLE YEAR	2001	VEHICLE MAKE	DODGE	VEHICLE MODEL	NEON
VEHICLE IDENTIFICATION NUMBER	1B3ES46C91D112929				

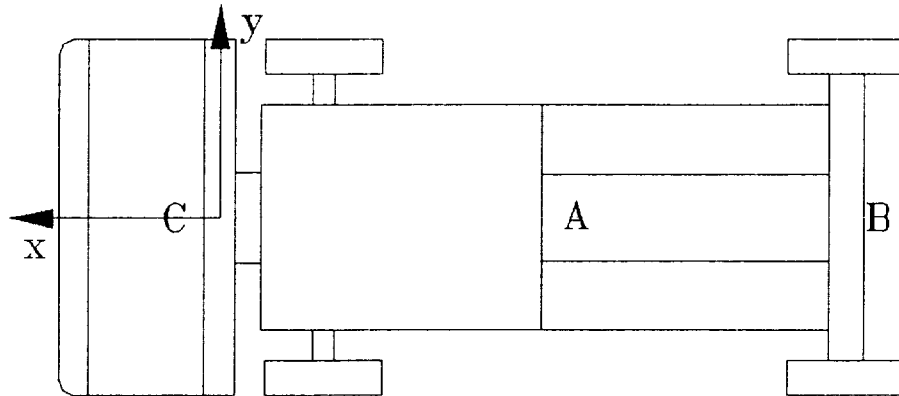


NOTE Z DIMENSION MEASURED POSITIVE UP FROM GROUND

TRANSDUCER LOCATION									
TRANSDUCER LOCATION DESCRIPTION	X (mm)			Y (mm)			Z (mm)		
	PRE TEST	POST TEST	DIFFERENCE	PRE TEST	POST TEST	DIFFERENCE	PRE TEST	POST TEST	DIFFERENCE
A Top of Engine - Ax, Ay	3726	3471	-255	117	203	86	730	864	134
B Bottom of Engine - Ax, Ay	3684	3507	-177	-53	-27	26	267	419	152
C Left Shock Tower - Ax, Ay, Az	3561	3025	-536	-493	-321	172	767	908	141
D Right Shock Tower - Ax, Ay, Az	3541	3498	-43	476	485	9	784	904	120
E Left A-Pillar, Top Hinge - Ax	3054	2696	-358	-739	-649	90	777	781	4
F Driver Side Toe Pan - Ax, Ay, Az	3201	3026	-175	-295	-220	75	292	427	135
G Brake Pedal - Ax, Ay, Az	3098	2753	-345	-322	-247	75	399	521	122
H Left Rear Compartment - Ax, Ay	1649	1653	4	-588	-585	3	306	337	31
I Center Rear Compartment - Ax, Az	1685	1685	0	-1	-6	-5	344	387	43
J Right Rear Compartment - Ax, Ay	1656	1655	-1	583	589	6	303	309	6
K									
L									

VEHICLE TRANSDUCER LOCATION RECORD

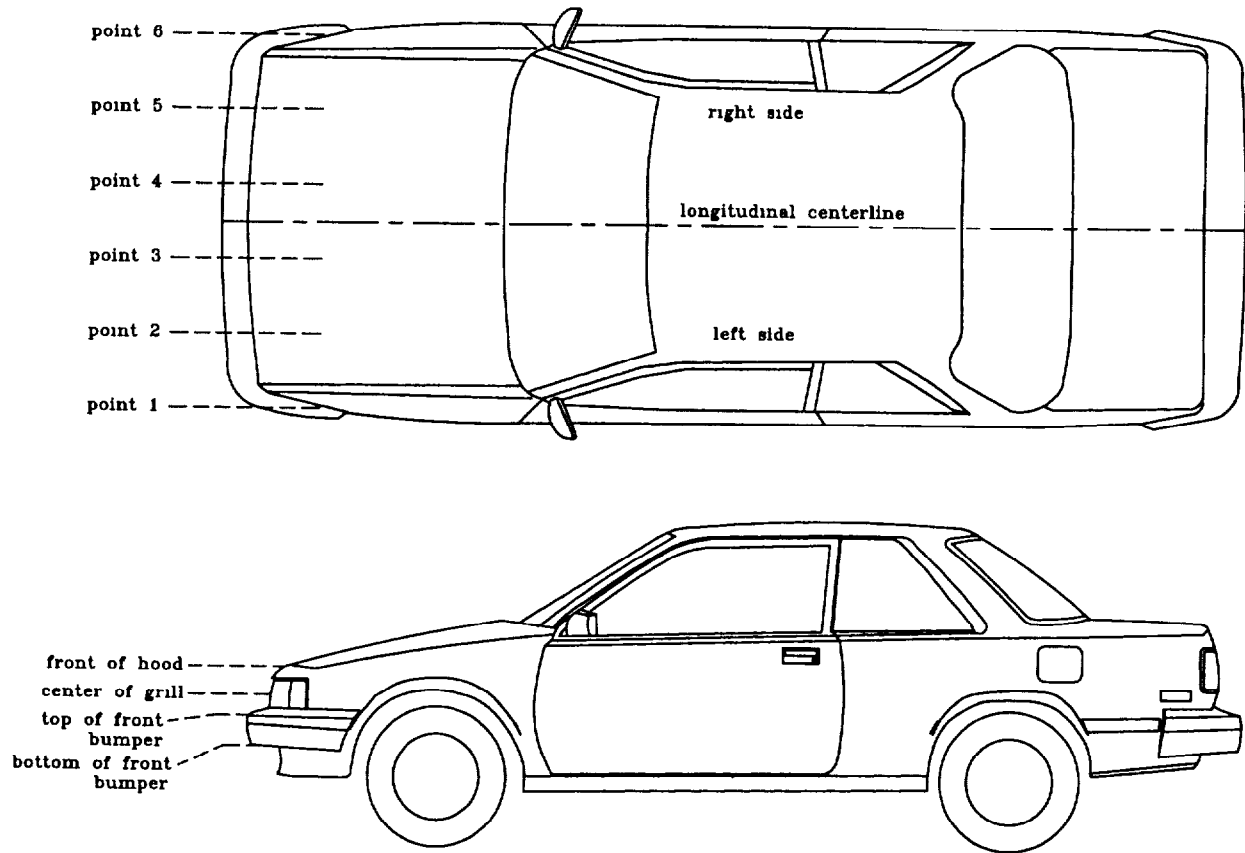
PROJECT NO	PH06608	PROJECT NAME	VOLPE CRASH TESTING TASK ORDER 1		TEST DATE	9/18/01
VEHICLE YEAR	---	VEHICLE MAKE	---	VEHICLE MODEL	MDB	
VEHICLE IDENTIFICATION NUMBER		---				



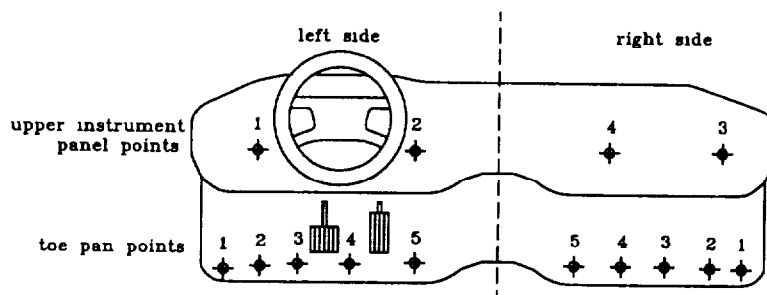
NOTE Z DIMENSION MEASURED POSITIVE UP FROM GROUND

TRANSDUCER LOCATION									
TRANSDUCER LOCATION		X (mm)			Y (mm)			Z (mm)	
DESCRIPTION	PRE TEST	POST TEST	DIFFERENCE	PRE TEST	POST TEST	DIFFERENCE	PRE TEST	POST TEST	DIFFERENCE
A Center of Gravity - Ax, Ay, Az	-1704	NM	NM	-5	NM	NM	331	NM	NM
B Rear Frame - Ax	-3576	NM	NM	-5	NM	NM	603	NM	NM
C Load Cells - Fx	NM	NM	NM	NM	NM	NM	NM	NM	NM
D									
E									
F									
G									
H									
I									
J									
K									
L									

Vehicle Frontal Crush and Intrusion Measure Point Locations



Frontal Crush Profile Measurement Locations



Intrusion Measurement Locations

VEHICLE FRONTAL CRUSH PROFILE
(pag 1 of 2)

PROJECT NO	PH06608	PROJECT NAME	VOLPE CRASH TESTING TASK ORDER 1	TEST DATE	9/18/01
VEHICLE YEAR	2001	VEHICLE MAKE	DODGE	VEHICLE MODEL	NEON
VEHICLE IDENTIFICATION NUMBER	1B3ES46C91D112929				

REFERENCE COMMENTS

NOTE POSITIVE X-AXIS MEASUREMENTS ARE FORWARD OF THE REAR BUMPER CENTER POSITIVE Y-AXIS MEASUREMENTS ARE RIGHT OF THE PRE-TEST VEHICLE CENTERLINE POSITIVE Z-AXIS (HEIGHT) MEASUREMENTS ARE UP FROM THE GROUND

NM - NOT MEASURED DUE TO DAMAGE

PRE-TEST PROFILE MEASUREMENTS

		VEHICLE LEFT (mm)			VEHICLE RIGHT (mm)		
		PT 1	PT 2	PT 3	PT 4	PT 5	PT 6
BOTTOM OF FRONT BUMPER	X	4253	4342	4387	4387	4340	4255
	Y	-634	-379	-126	121	377	631
	Z	265	263	264	263	260	259
TOP OF FRONT BUMPER	X	4260	4345	4391	4393	4347	4264
	Y	-632	-378	-126	122	377	632
	Z	496	495	494	492	490	488
CENTER OF GRILL	X	4173	4261	4304	4305	4263	4173
	Y	-629	-377	-123	124	380	637
	Z	569	570	567	567	566	560
FRONT OF HOOD	X	4028	4253	4302	4303	4255	4031
	Y	-627	-376	-124	124	379	638
	Z	741	612	611	610	610	733

POST-TEST PROFILE MEASUREMENTS

		VEHICLE LEFT (mm)			VEHICLE RIGHT (mm)		
		PT 1	PT 2	PT 3	PT 4	PT 5	PT 6
BOTTOM OF FRONT BUMPER	X	3759	3951	4115	4224	4289	4286
	Y	-691	-503	-318	-92	145	403
	Z	698	640	606	571	540	525
TOP OF FRONT BUMPER	X	3678	3961	4140	4231	4272	4264
	Y	-527	-478	-297	-64	178	438
	Z	851	840	827	814	792	753
CENTER OF GRILL	X	3253	3526	NM	NM	4223	4205
	Y	-467	-222	NM	NM	198	466
	Z	884	829	NM	NM	866	831
FRONT OF HOOD	X	3166	3440	3596	3742	3844	3732
	Y	-368	-207	-19	107	296	619
	Z	1088	913	971	1128	1279	1396

VEHICLE FRONTAL CRUSH PROFILE
(page 2 of 2)

PROJECT NO	PH06608	PROJECT NAME	VOLPE CRASH TESTING TASK ORDER 1	TEST DATE	9/18/01
VEHICLE YEAR	2001	VEHICLE MAKE	DODGE	VEHICLE MODEL	NEON
VEHICLE IDENTIFICATION NUMBER	1B3ES46C91D112929				

MEASUREMENT CHANGE							
		VEHICLE LEFT (mm)			VEHICLE RIGHT (mm)		
		PT 1	PT 2	PT 3	PT 4	PT 5	PT 6
BOTTOM OF FRONT BUMPER	X	-494	-391	-272	-163	-51	31
	Y	-57	-124	-192	-213	-232	-228
	Z	433	377	342	308	280	266
TOP OF FRONT BUMPER	X	-582	-384	-251	-162	-75	0
	Y	105	-100	-171	-186	-199	-194
	Z	355	345	333	322	302	265
CENTER OF GRILL	X	-920	-735	NM	NM	-40	32
	Y	162	155	NM	NM	-182	-171
	Z	315	259	NM	NM	300	271
FRONT OF HOOD	X	-862	-813	-706	-561	-411	-299
	Y	259	169	105	-17	-83	-19
	Z	347	301	360	518	669	663

COMMENTS	
NM - NOT MEASURED DUE TO DAMAGE	
FORM COMPLETED BY	JS
CHECKED BY	MK

VEHICLE INTRUSION MEASUREMENTS
(page 1 of 2)

PROJECT NO	PH06608	PROJECT NAME	VOLPE CRASH TESTING TASK ORDER 1	TEST DATE	9/18/01
VEHICLE YEAR	2001	VEHICLE MAKE	DODGE	VEHICLE MODEL	NEON
VEHICLE IDENTIFICATION NUMBER	1B3ES46C91D112929				

REFERENCE COMMENTS

NOTE POSITIVE X-AXIS MEASUREMENTS ARE FORWARD OF THE REAR BUMPER CENTER POSITIVE Y-AXIS MEASUREMENTS ARE RIGHT OF THE PRE-TEST VEHICLE CENTERLINE POSITIVE Z-AXIS (HEIGHT) MEASUREMENTS ARE UP FROM THE GROUND
NM - NOT MEASURED DUE TO DAMAGE

TOE PAN - LEFT SIDE (mm)

		PT 1	PT 2	PT 3	PT 4	PT 5
PRE-TEST	X	3161	3191	3261	3255	3272
	Y	-571	-507	-432	-297	-157
	Z	252	272	314	313	326
POST-TEST	X	3055	3043	3081	3049	NM
	Y	-488	-417	-344	-217	NM
	Z	393	405	467	456	NM
DIFFERENCE	X	-106	-148	-180	-206	NM
	Y	83	90	88	80	NM
	Z	141	133	153	143	NM
MEASUREMENT COMMENTS						

TOE PAN - RIGHT SIDE (mm)

		PT 1	PT 2	PT 3	PT 4	PT 5
PRE-TEST	X	3185	3223	3250	3247	3244
	Y	516	473	384	282	179
	Z	272	295	312	313	313
POST-TEST	X	3172	3207	3237	3238	3210
	Y	548	507	420	317	236
	Z	326	354	373	374	409
DIFFERENCE	X	-13	-16	-13	-9	-34
	Y	32	34	36	35	57
	Z	54	59	61	61	96
MEASUREMENT COMMENTS						

VEHICLE INTRUSION MEASUREMENTS
(page 2 of 2)

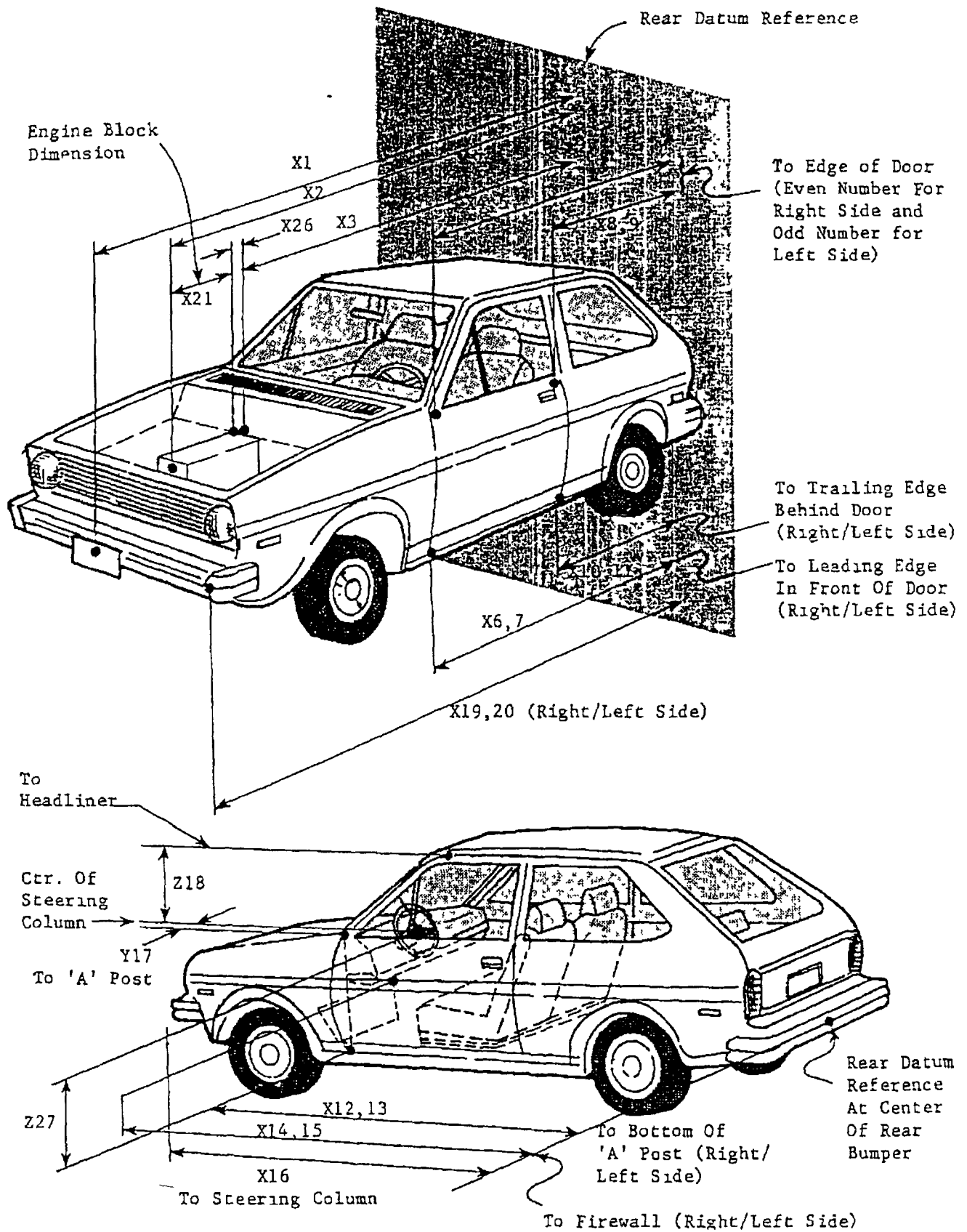
PROJECT NO	PH06608	PROJECT NAME	VOLPE CRASH TESTING TASK ORDER 1	TEST DATE	9/18/01
VEHICLE YEAR	2001	VEHICLE MAKE	DODGE	VEHICLE MODEL	NEON
VEHICLE IDENTIFICATION NUMBER	1B3ES46C91D112929				

UPPER INSTRUMENT PANEL MEASUREMENTS (mm)					
		LEFT SIDE		RIGHT SIDE	
		PT 1	PT 2	PT 3	PT 4
PRE-TEST	X	2767	2755	2775	2765
	Y	-544	-152	489	184
	Z	707	720	706	716
POST-TEST	X	NM	2541	2716	2671
	Y	NM	11	596	304
	Z	NM	674	693	702
DIFFERENCE	X	NM	-214	-59	-94
	Y	NM	163	107	120
	Z	NM	-46	-13	-14
MEASUREMENT COMMENTS NM - NOT MEASURED DUE TO DAMAGE					
NOTE MEASUREMENT TAKEN ON UPPER IP WHERE DUMMY S KNEES CONTACT DASH					

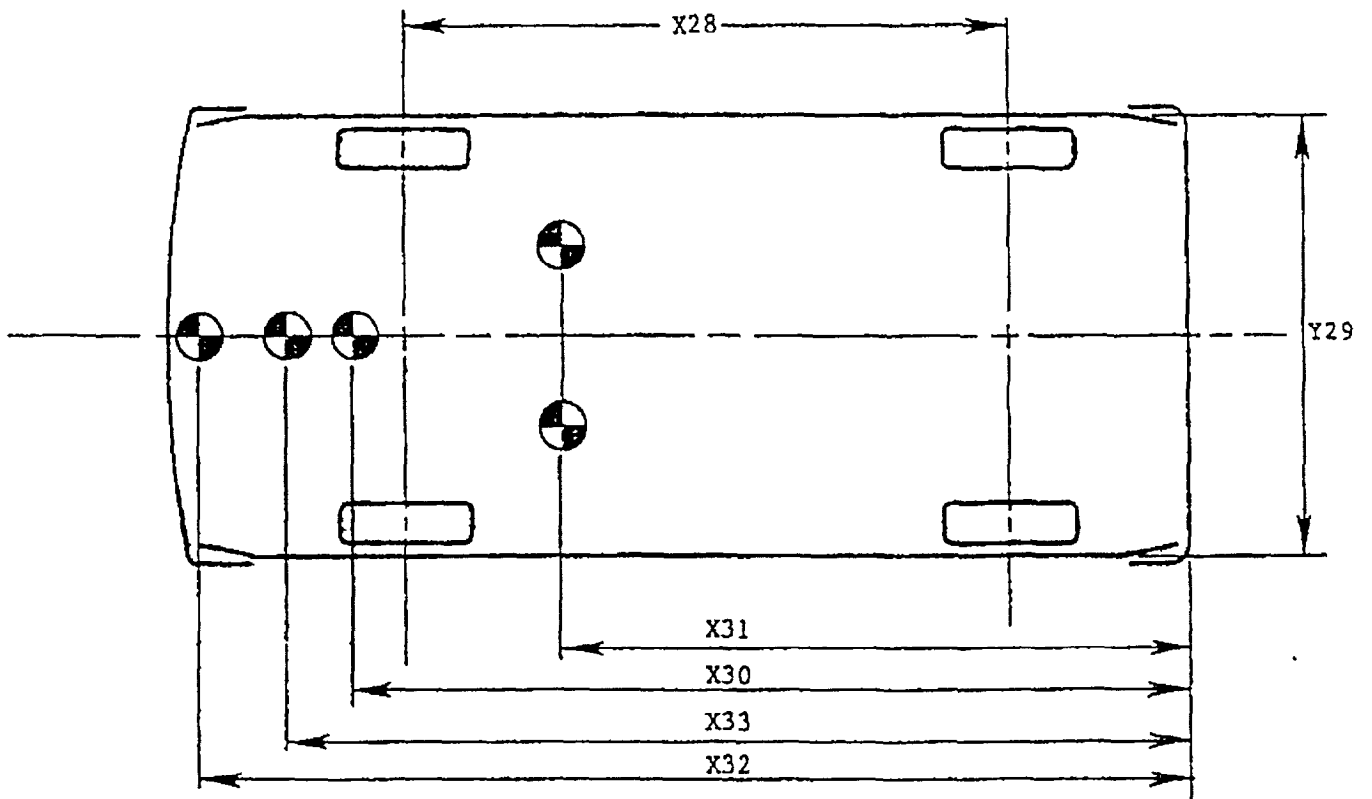
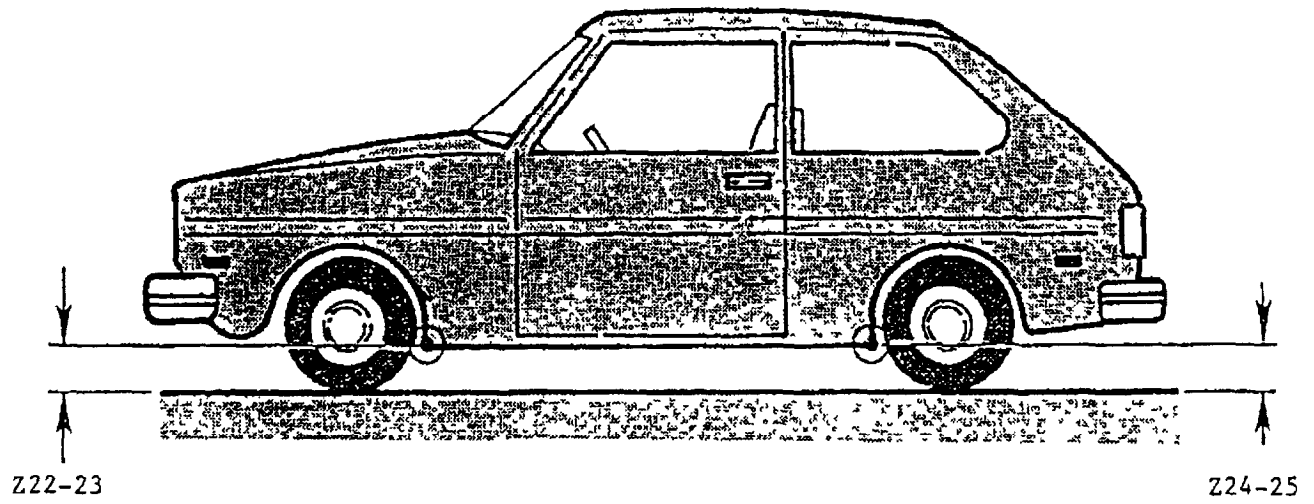
MISCELLANEOUS MEASUREMENTS (mm)				
		BRAKE PEDAL	A PILLAR HINGE TO DOOR STRIKER*	
			TOP	BOTTOM
PRE-TEST	X	3098	-976	-966
	Y	-322	10	20
	Z	399	-145	212
POST-TEST	X	2753	-663	-864
	Y	-247	-85	-50
	Z	521	-127	166
DIFFERENCE	X	-345	313	102
	Y	75	-95	-70
	Z	122	18	-46
MEASUREMENT COMMENTS * DRIVER SIDE				

COMMENTS	
FORM COMPLETED BY	JS
CHECKED BY	MK

Impacted Vehicle Measurement Points



Impacted Vehicle Measurement Points, Cont'd



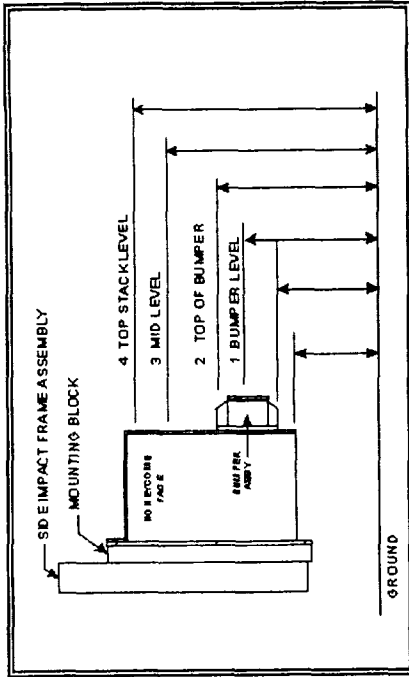
IMPACTED VEHICLE MEASUREMENTS

PROJECT NO	PH06608	PROJECT NAME	VOLPE CRASH TESTING TASK ORDER 1	TEST DATE	9/18/01
VEHICLE YEAR	2001	VEHICLE MAKE	DODGE	VEHICLE MODEL	NEON
VEHICLE IDENTIFICATION NUMBER	1B3ES46C91D112929				
REFERENCE POINT COMMENTS	POSITIVE Z-AXIS MEASUREMENTS ARE UP FROM GROUND				

MEASUREMENTS				
NO	TYPE OF MEASUREMENT	PRE IMPACT (mm)	POST IMPACT (mm)	DIFFERENCE (mm)
X1	TOTAL LENGTH OF VEHICLE AT CENTERLINE	4402	4186	-216
X2	REAR SURFACE OF VEHICLE TO ENGINE AT CENTERLINE	3643	3344	-299
X3	REAR SURFACE OF VEHICLE TO FIREWALL	3486	3302	-184
X4	REAR SURFACE OF VEHICLE TO LEADING EDGE OF RIGHT DOOR	3101	3118	17
X5	REAR SURFACE OF VEHICLE TO LEADING EDGE OF LEFT DOOR	3093	2637	-456
X6	REAR SURFACE OF VEHICLE TO LOWER LEADING EDGE OF RIGHT DOOR	3090	3086	-4
X7	REAR SURFACE OF VEHICLE TO LOWER LEADING EDGE OF LEFT DOOR	3087	2996	-91
X8	REAR SURFACE OF VEHICLE TO UPPER TRAILING EDGE OF RIGHT DOOR	2008	1990	-18
X9	REAR SURFACE OF VEHICLE TO UPPER TRAILING EDGE OF LEFT DOOR	1999	1989	-10
X10	REAR SURFACE OF VEHICLE TO LOWER TRAILING EDGE OF RIGHT DOOR	2016	2008	-8
X11	REAR SURFACE OF VEHICLE TO LOWER TRAILING EDGE OF LEFT DOOR	2007	1952	-55
X12	REAR SURFACE OF VEHICLE TO BOTTOM OF "A" POST OF RIGHT SIDE	3049	3040	-9
X13	REAR SURFACE OF VEHICLE TO BOTTOM OF "A" POST OF LEFT SIDE	3039	2989	-50
X14	REAR SURFACE OF VEHICLE TO FIREWALL RIGHT SIDE	3318	3289	-29
X15	REAR SURFACE OF VEHICLE TO FIREWALL LEFT SIDE	3302	3037	-265
X16	REAR SURFACE OF VEHICLE TO STEERING WHEEL CENTER	2727	2401	-326
Y17	STEERING COLUMN TO "A" POST	-311	-385	-74
Z18	STEERING COLUMN TO HEAD LINER	476	601	125
X19	REAR SURFACE OF VEHICLE TO RIGHT SIDE OF FRONT BUMPER	4264	4264	0
X20	REAR SURFACE OF VEHICLE TO LEFT SIDE OF FRONT BUMPER	4260	3678	-582
X21	WIDTH OF ENGINE BLOCK	225	229	4
Z22	RIGHT FRONT SILL TO GROUND PLANE	150	204	54
Z23	LEFT FRONT SILL TO GROUND PLANE	157	NM	NM
Z24	RIGHT REAR SILL TO GROUND PLANE	163	165	2
Z25	LEFT REAR SILL TO GROUND PLANE	164	173	9
X26	FIREWALL TO ENGINE OR TRANSAXLE	157	42	-115
Z27	VERTICAL DIMENSION FROM DOOR SILL TO CENTERLINE OF STEERING COLUMN	-180	-144	36
X28	WHEELBASE OF VEHICLE*	2663	2387	-276
Y29	WIDTH OF VEHICLE AT MAXIMUM WIDTH POINT	1715	1716	1
X30	REAR SURFACE OF VEHICLE TO ENGINE TARGET	3791	3648	-143
X31	REAR SURFACE OF VEHICLE TO COMPARTMENT TARGET*	2918	2827	-91
X32	REAR SURFACE OF VEHICLE TO BUMPER TARGET	4262	4033	-229
X33	REAR SURFACE OF VEHICLE TO FRAME CROSSMEMBER	3428	3350	-78

COMMENTS			
* LEFT SIDE			
NM - NOT MEASURED DUE TO DAMAGE		FORM COMPLETED BY	JS
		CHECKED BY	MK

MDB FACE STATIC CRUSH



PROJECT NO	PH06608	TEST DATE	9/18/01
PROJECT NAME	VOLPE CRASH TESTING TASK ORDER 1		
MDB MODIFICATIONS/MEASUREMENTS	LOWER EDGE OF HONEYCOMB STACK		
353 MM FROM GROUND			
COMMENTS	NM - NOT MEASURED DUE TO DAMAGE; MEASURE- MENTS REFERENCE = MDB LOAD CELL MOUNTING BLOCK		

MEASUREMENTS

LATERAL LOCATION	MID BUMPER LEVEL LEVEL 1				TOP BUMPER LEVEL LEVEL 2				MID LEVEL LEVEL 3				TOP STACK LEVEL LEVEL 4			
	HT FROM GROUND (mm) = 500		HT FROM GROUND (mm) = 610		HT FROM GROUND (mm) = 825		HT FROM GROUND (mm) = 1050		HT FROM GROUND (mm) = 825		HT FROM GROUND (mm) = 1050		HT FROM GROUND (mm) = 1050		HT FROM GROUND (mm) = 1050	
	PRE IMPACT (mm)	POST IMPACT (mm)	STATIC CRUSH (mm)	POST IMPACT (mm)	PRE IMPACT (mm)	POST IMPACT (mm)	STATIC CRUSH (mm)	POST IMPACT (mm)	PRE IMPACT (mm)	POST IMPACT (mm)	STATIC CRUSH (mm)	POST IMPACT (mm)	PRE IMPACT (mm)	POST IMPACT (mm)	STATIC CRUSH (mm)	POST IMPACT (mm)
LEFT OF CENTER	800mm	535	153	-382	NM	NM	NM	NM	424	460	36	428	551	123	123	123
	700mm	581	170	-411	NM	NM	NM	NM	467	516	49	472	599	127	127	127
	600mm	625	192	-433	437	423	-73	565	513	603	52	517	660	143	143	143
	500mm	672	216	-456	404	381	-132	609	621	625	40	608	713	148	148	148
	400mm	709	222	-487	605	408	-198	609	621	625	12	608	757	149	149	149
	300mm	707	252	-455	605	386	-224	609	621	625	15	610	763	153	153	153
	200mm	709	281	-428	605	386	-219	609	621	625	25	607	767	160	160	160
	100mm	708	321	-387	605	408	-197	609	621	625	23	608	746	138	138	138
CENTER	0	709	358	-351	606	449	-157	609	621	625	-29	608	759	151	151	151
	100mm	710	406	-304	610	479	-131	609	621	625	NM	610	763	153	153	153
	200mm	711	439	-272	613	512	-101	610	621	625	-3	611	736	125	125	125
	300mm	710	487	-223	614	538	-76	612	621	625	39	610	721	111	111	111
	400mm	709	519	-190	612	575	-37	610	621	625	76	611	794	183	183	183
	500mm	681	566	-115	567	556	-11	565	621	625	117	565	819	254	254	254
	600mm	634	551	-83	523	533	10	523	621	625	138	521	792	271	271	271
	700mm	589	555	-34	478	526	48	476	621	625	173	475	778	303	303	303
800mm	544	553	9	433	511	78	434	634	200	430	760	330	330	330	330	330

FORM COMPLETED BY JS CHECKED BY MK

Appendix A

Photographs

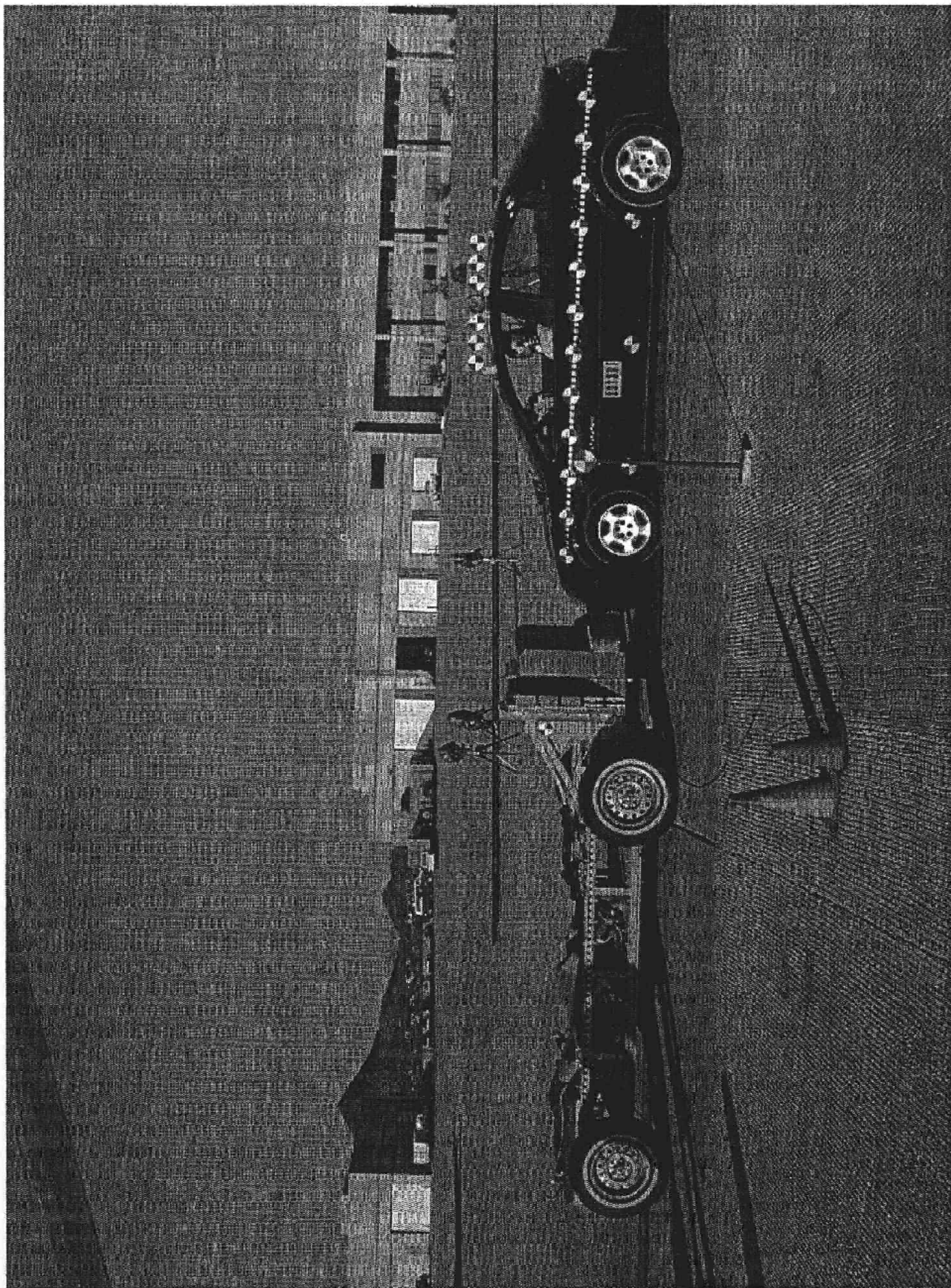


Figure A-1. Impact Configuration Left Side View

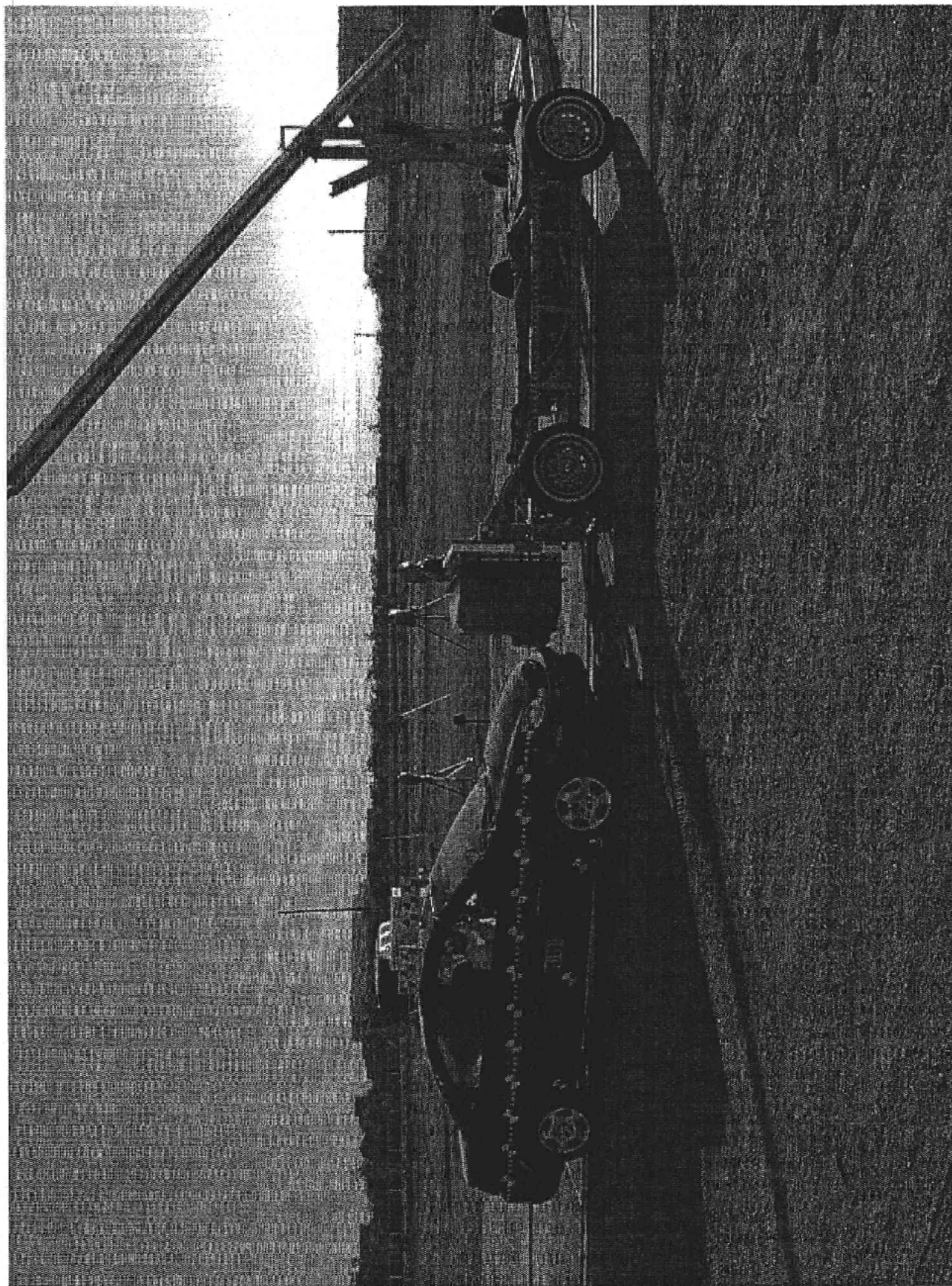


Figure A-2. Impact Configuration Right Side View

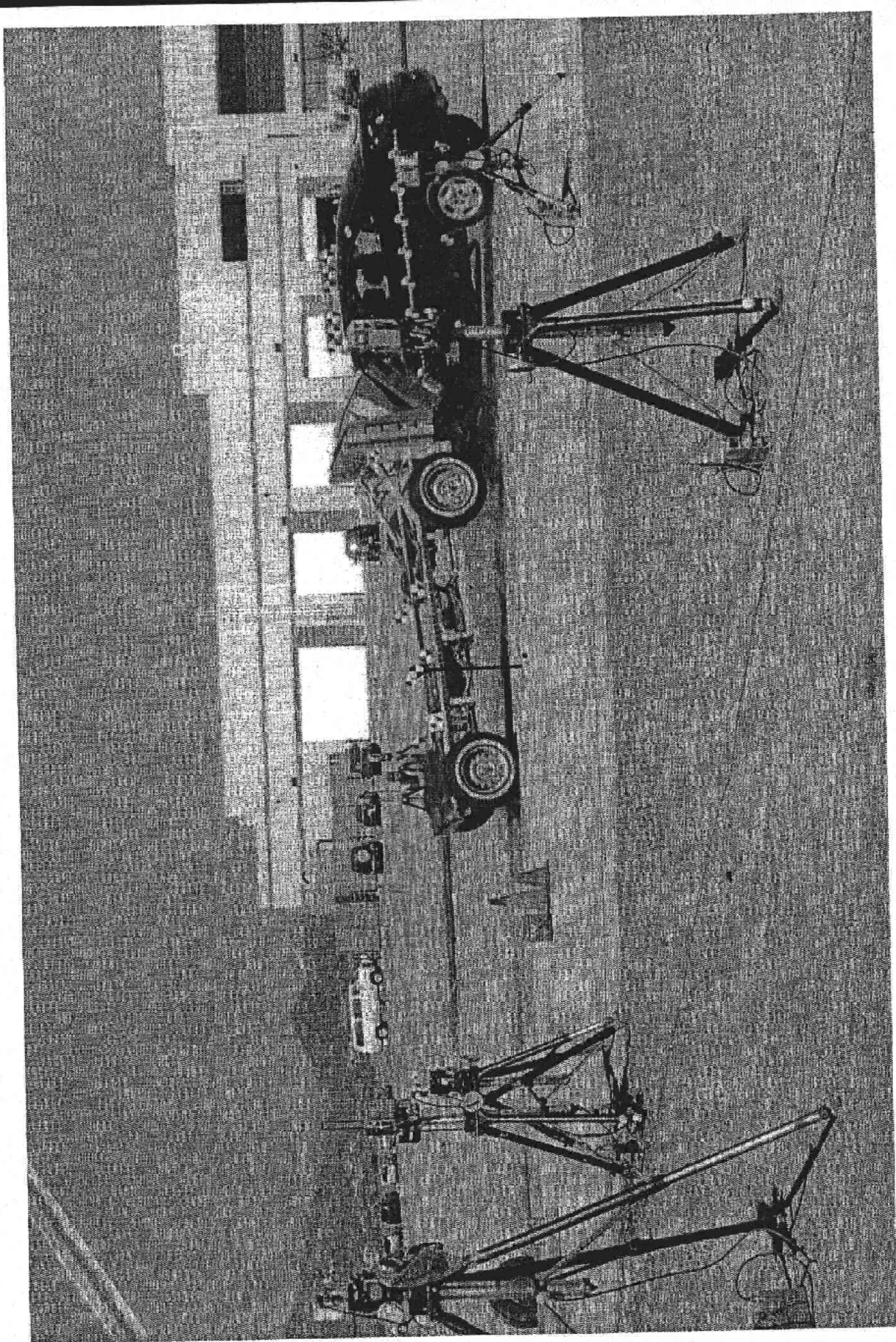


Figure A-3. Moment of Impact

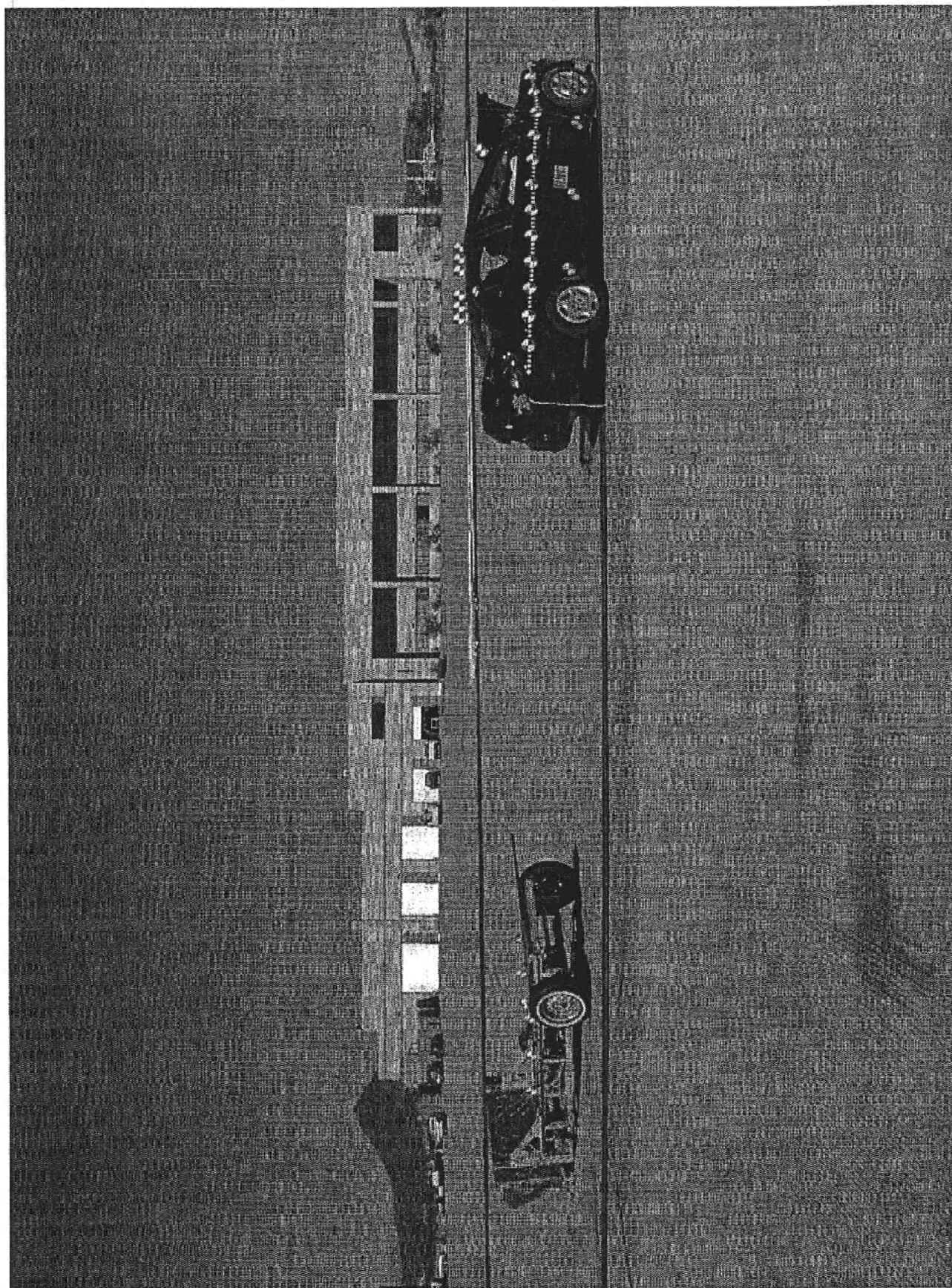


Figure A-4. Post-Test Rest Position Left Side View

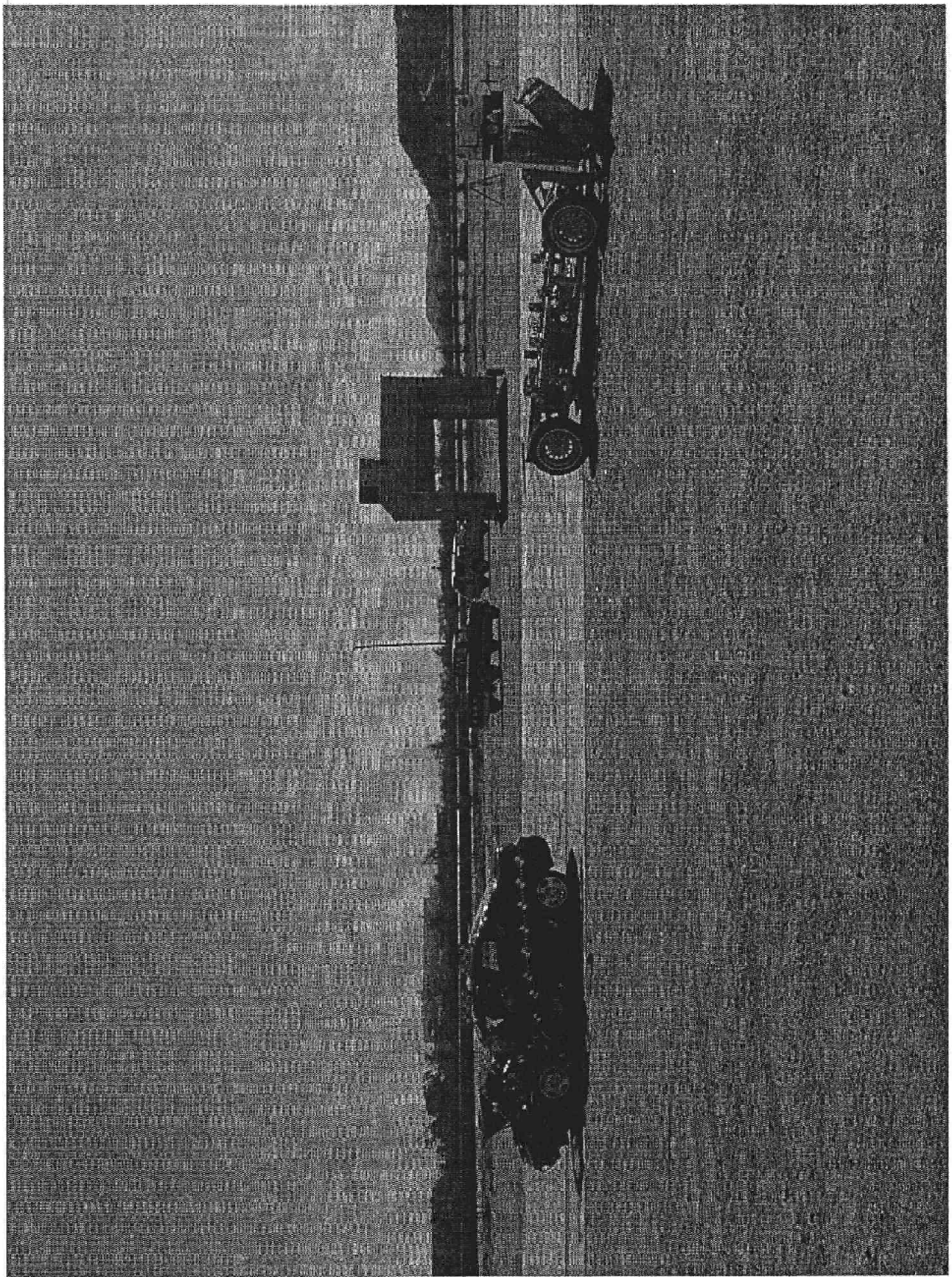


Figure A-5. Post-Test Rest Position Right Side View

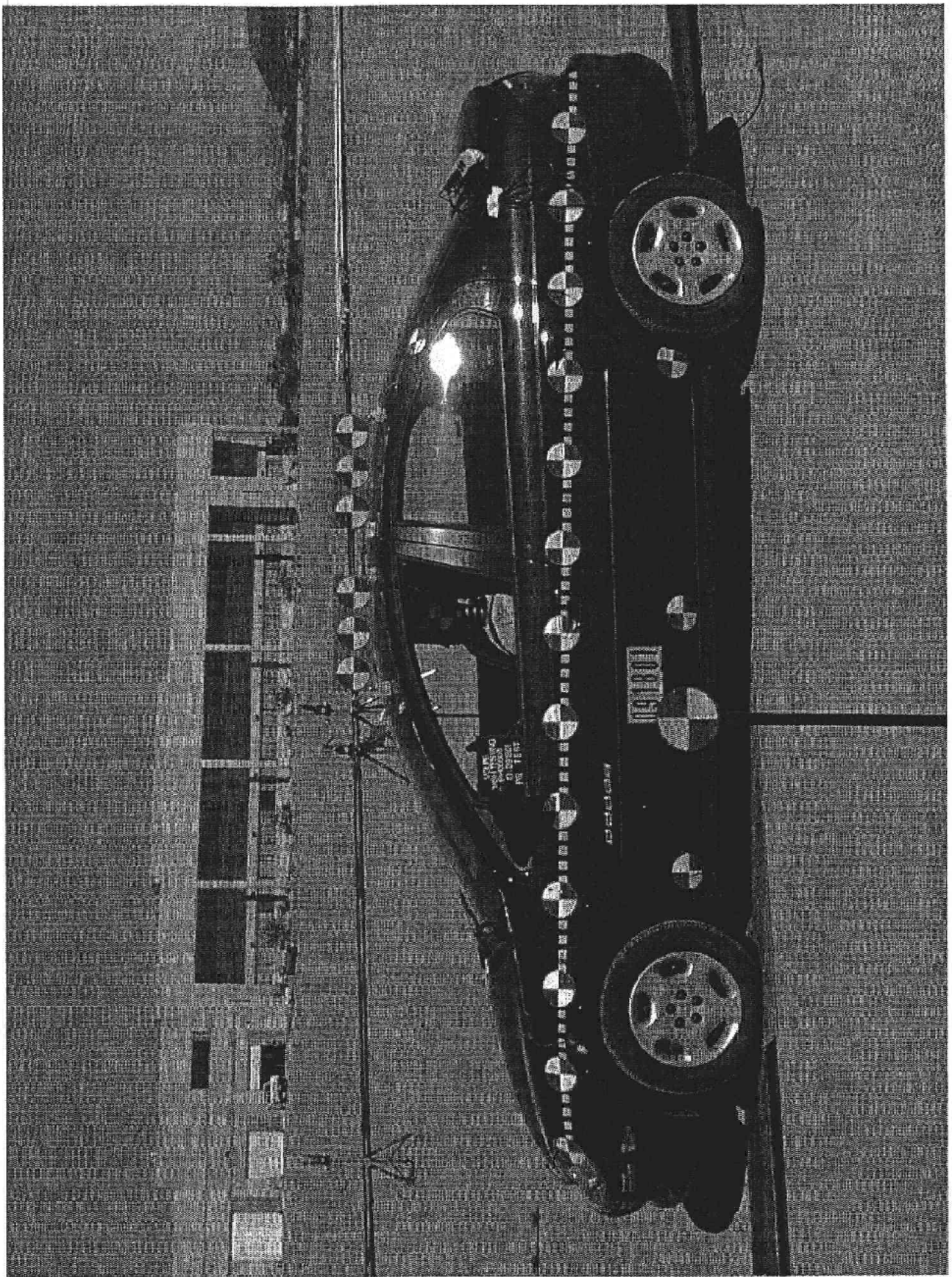


Figure A-6. Pre-Test Left Side View – 2001 Dodge Neon

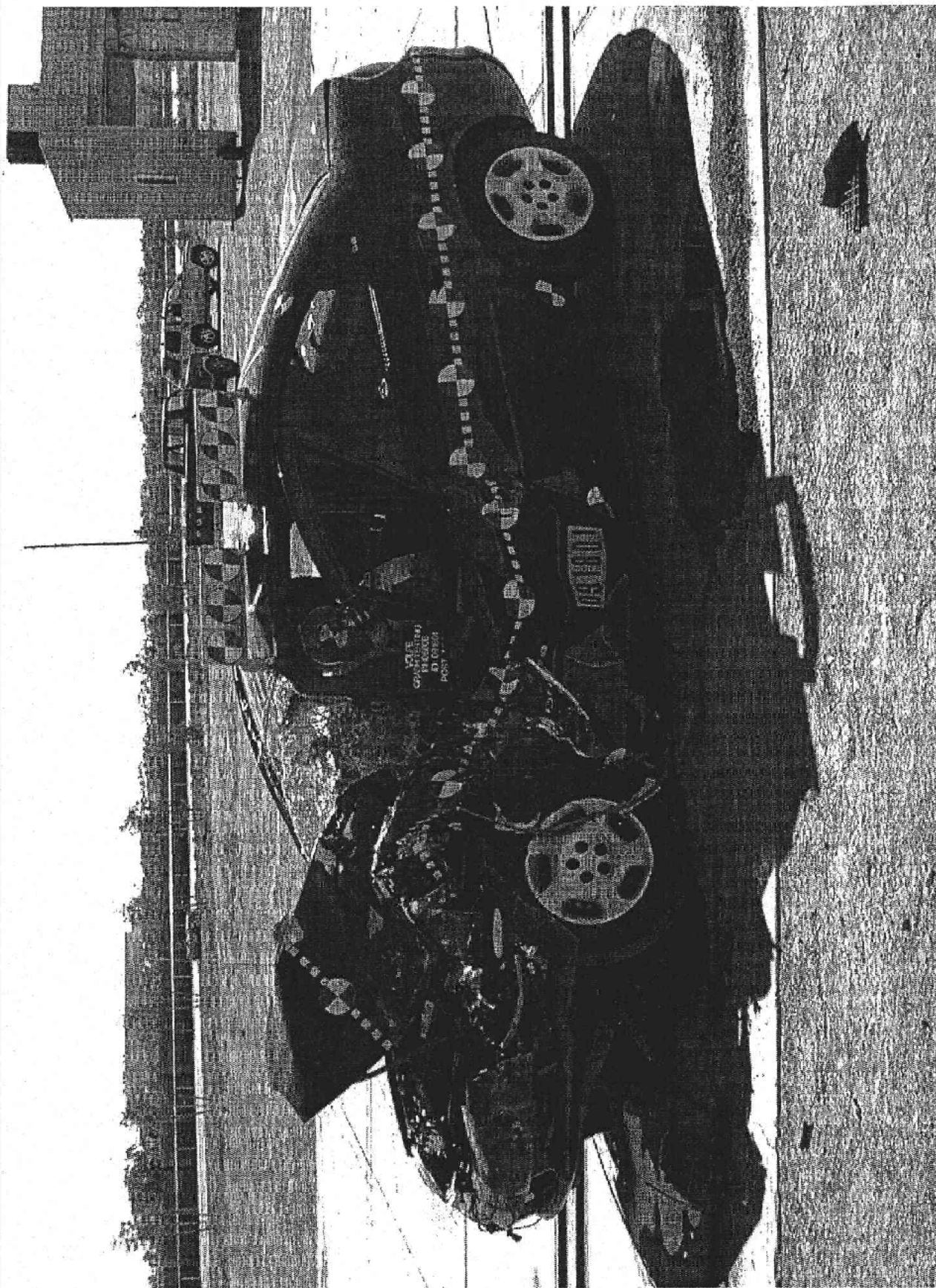


Figure A-7. Post-Test Left Side View – 2001 Dodge Neon

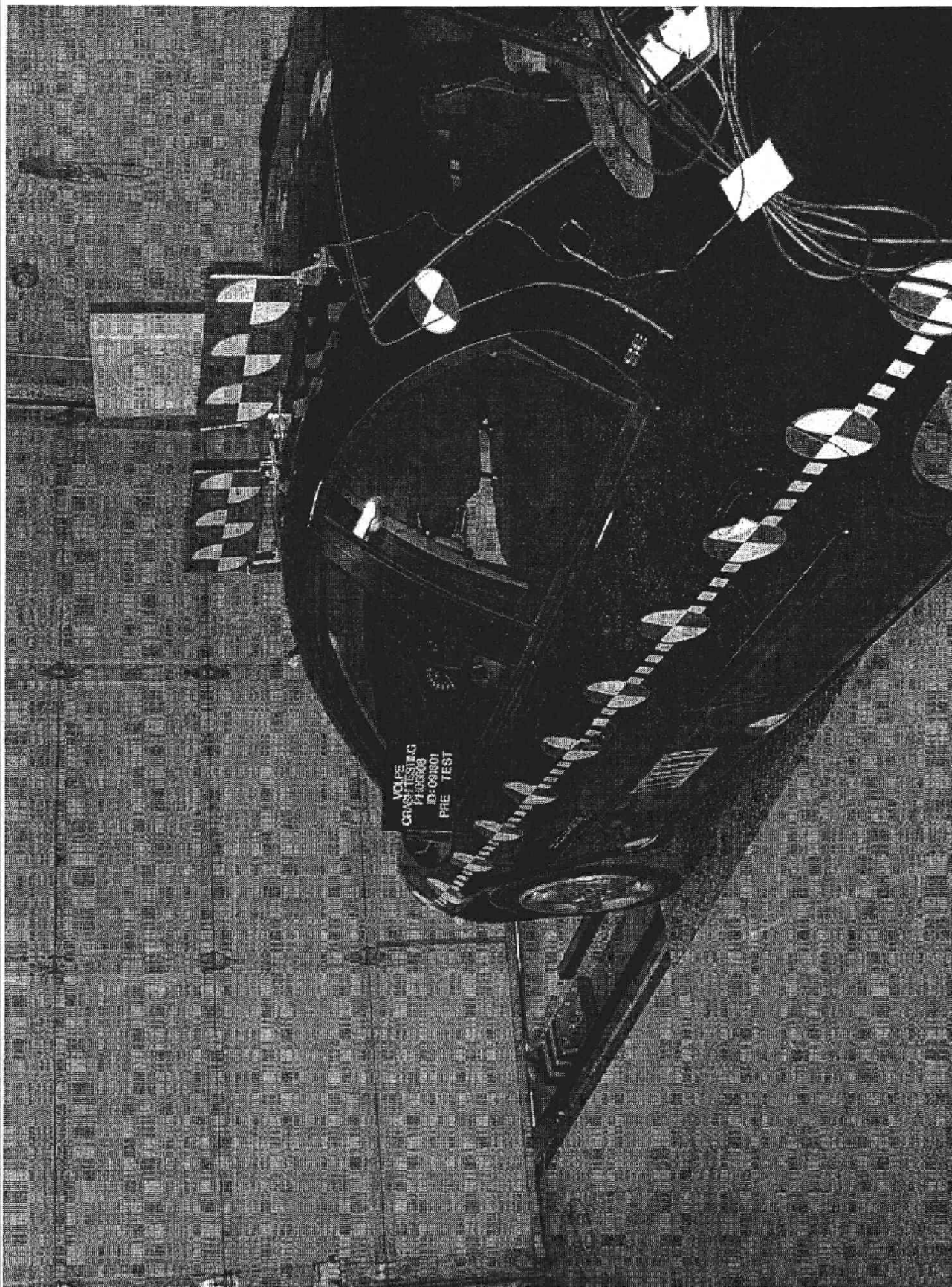


Figure A-8. Pre-Test Driver Close-up with Door Closed – 2001 Dodge Neon

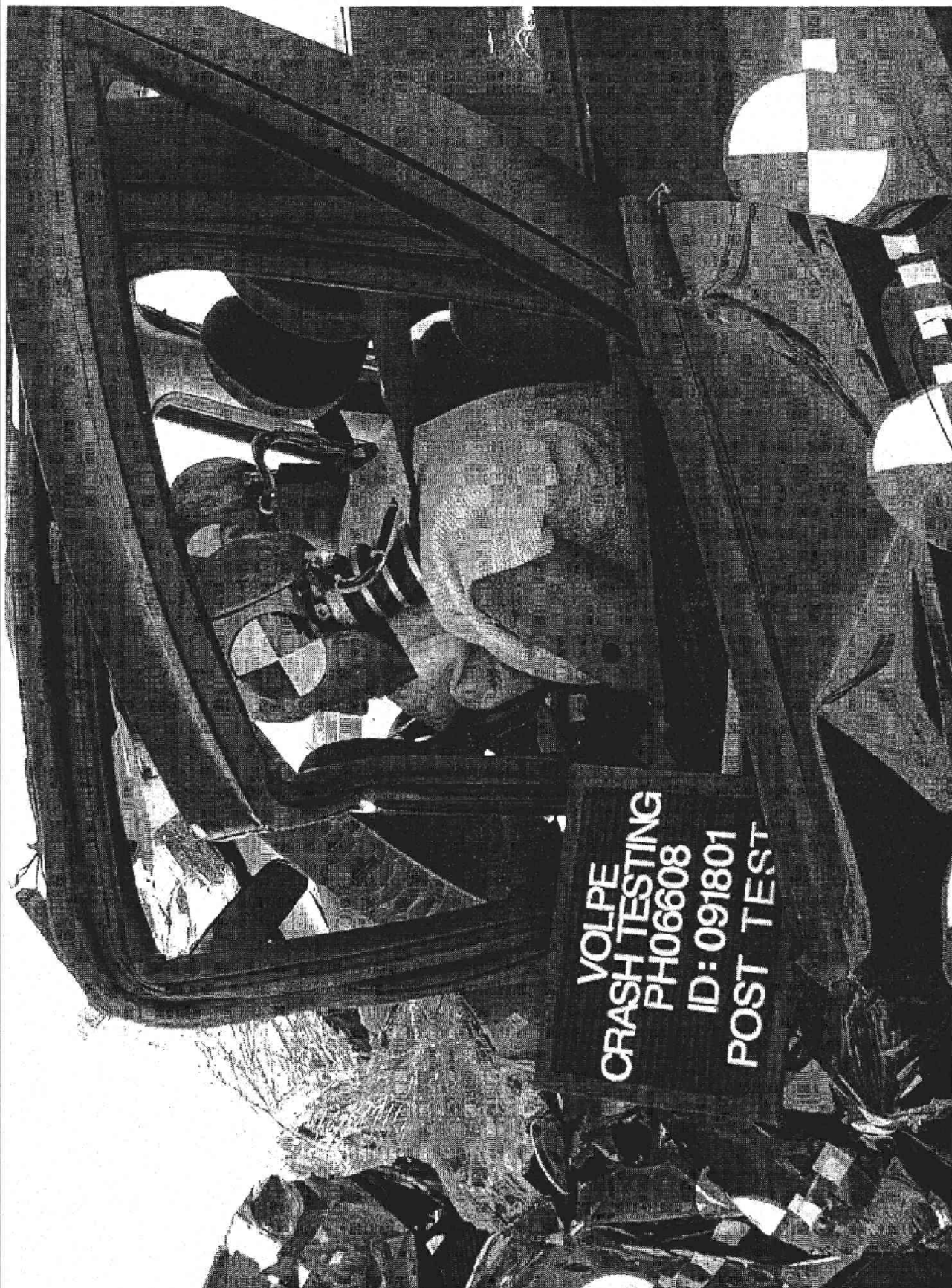


Figure A-9. Post-Test Driver Close-up with Door Closed – 2001 Dodge Neon

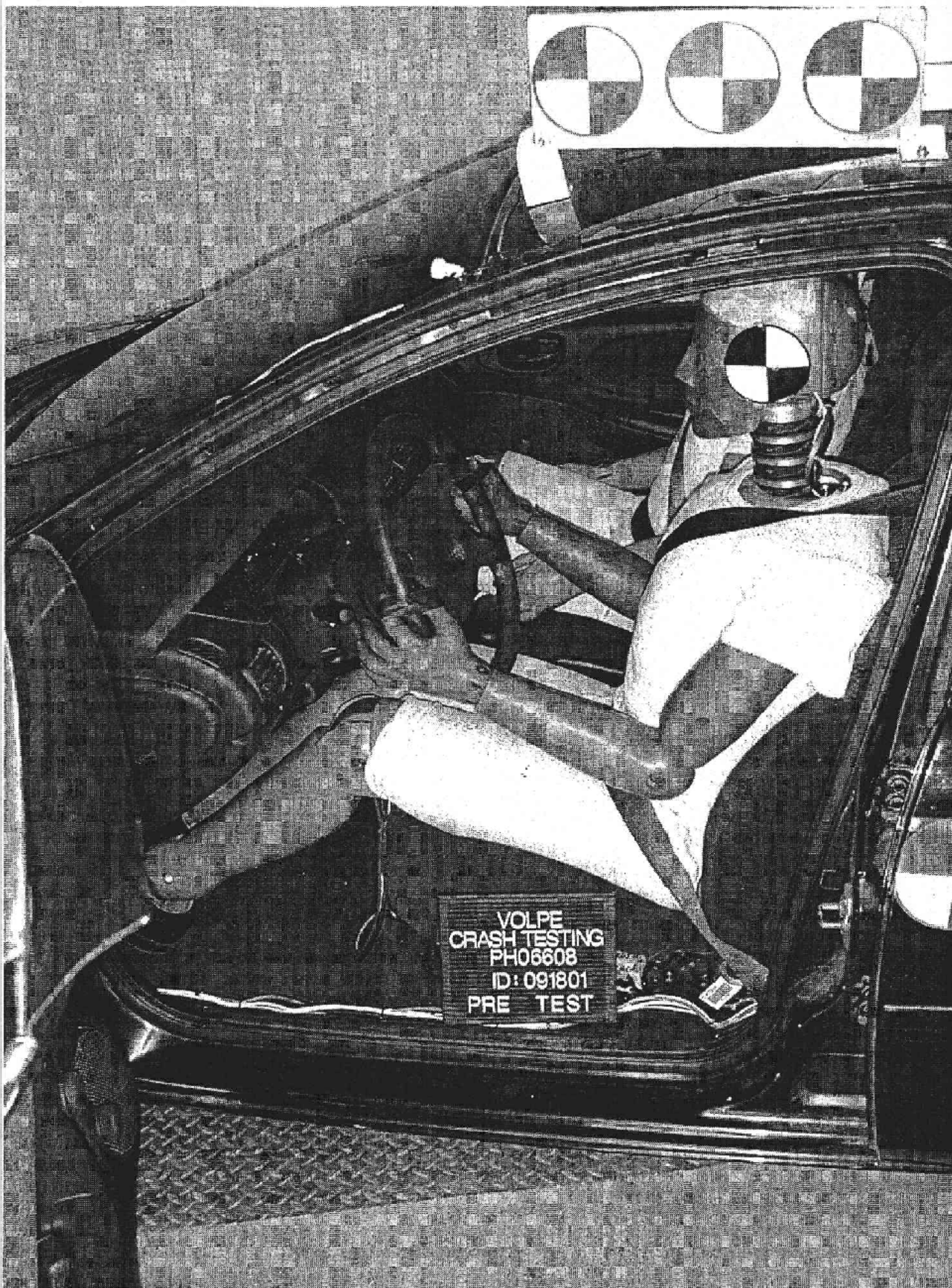


Figure A-10. Pre-Test Driver Close-up with Door Open – 2001 Dodge Neon



Figure A-11. Post-Test Driver Close-up with Door Open – 2001 Dodge Neon

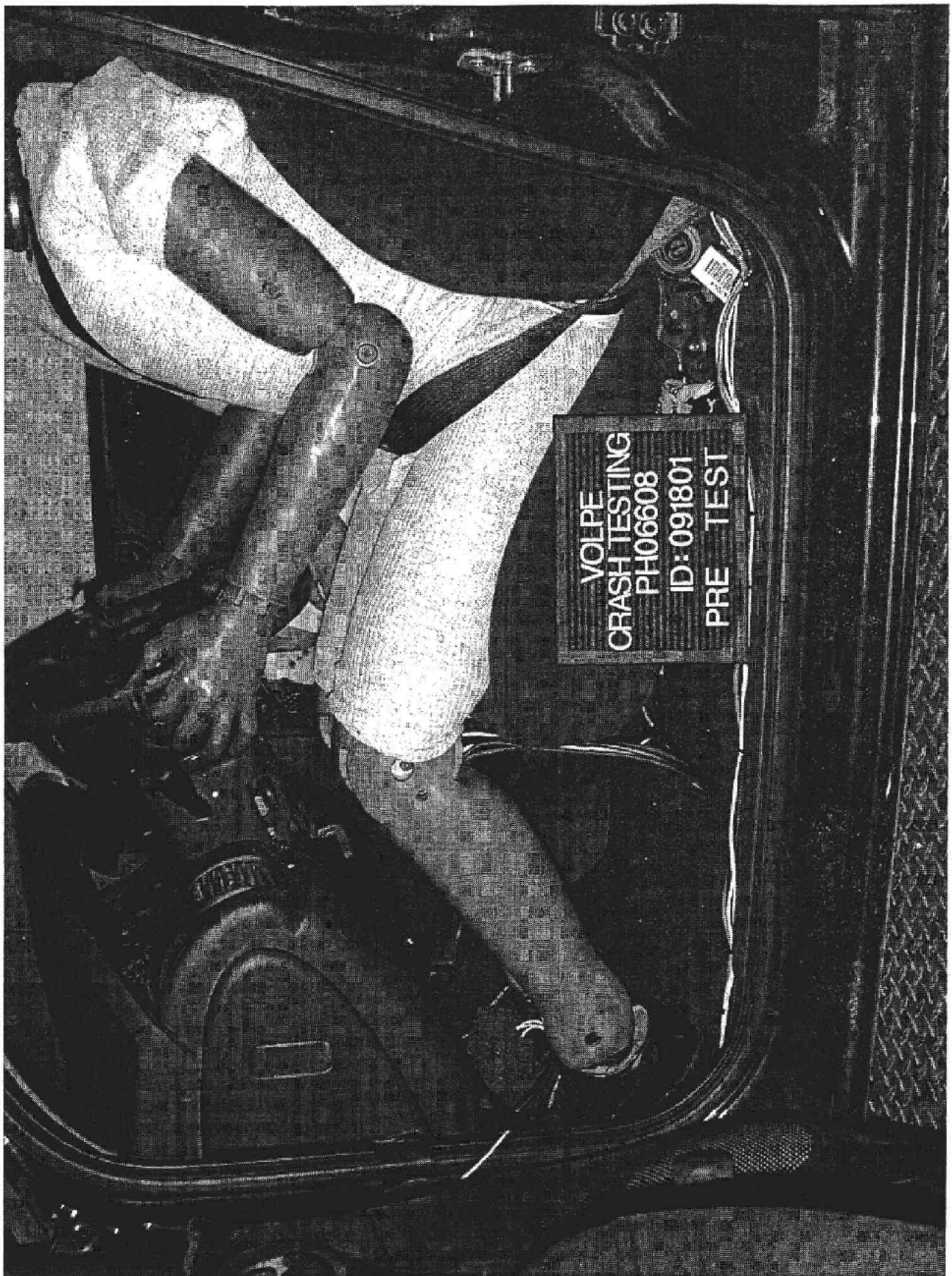


Figure A-12. Pre-Test Driver Foot/Leg Close-up with Door Open – 2001 Dodge Neon

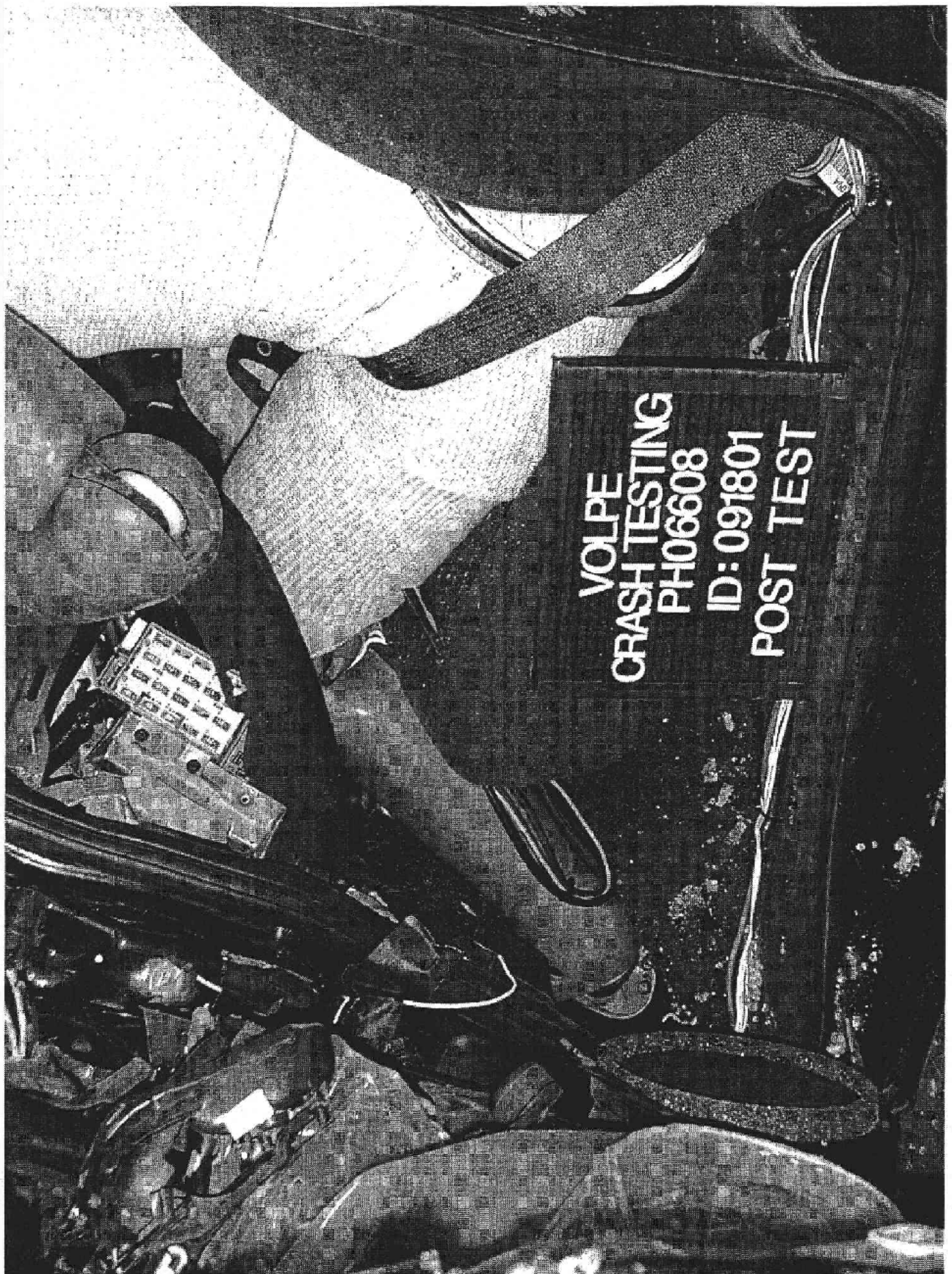


Figure A-13. Post-Test Driver Foot/Leg Close-up with Door Open – 2001 Dodge Neon

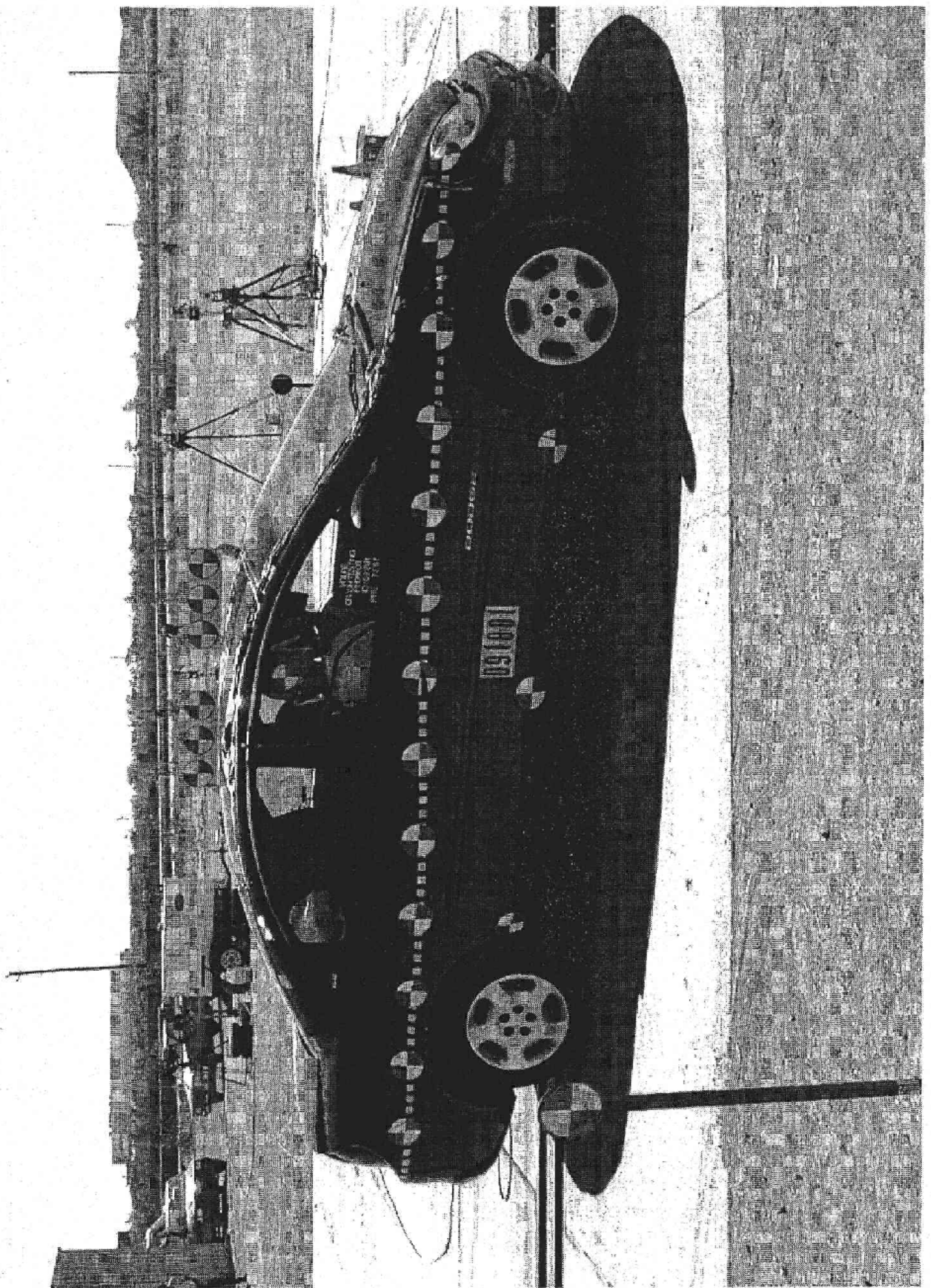


Figure A-14. Pre-Test Right Side View – 2001 Dodge Neon

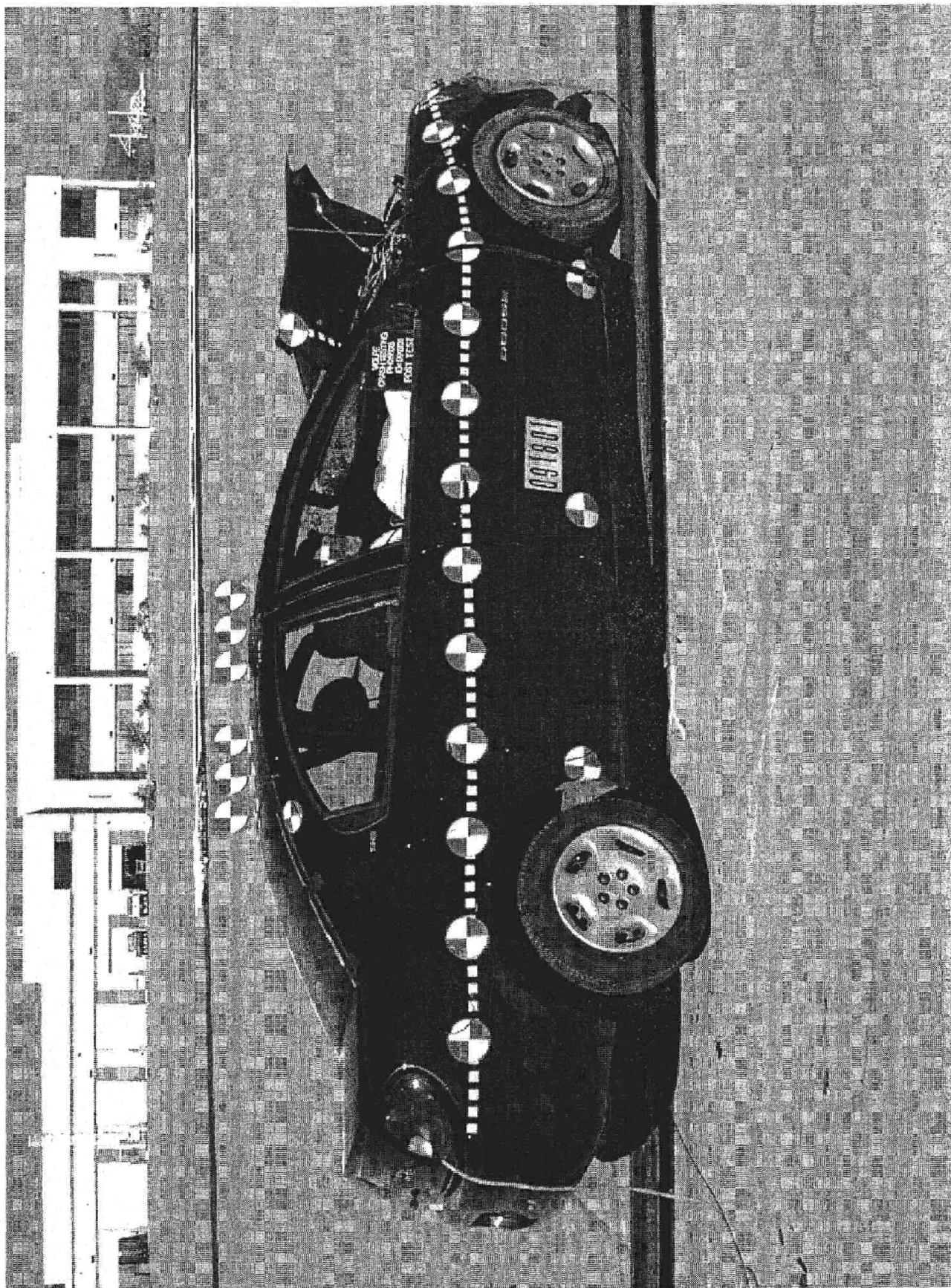


Figure A-15. Post-Test Right Side View – 2001 Dodge Neon

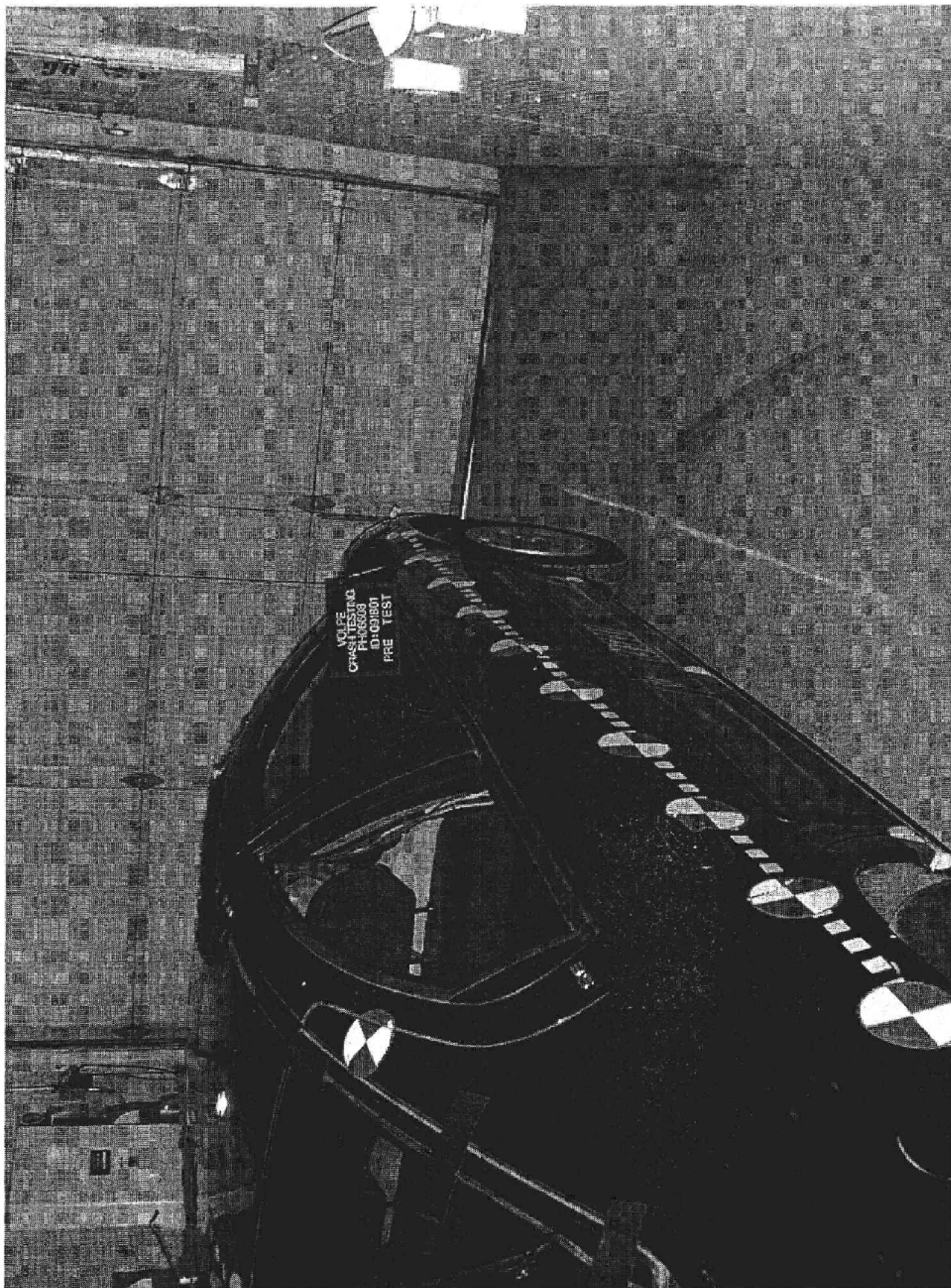


Figure A-16. Pre-Test Passenger Close-up with Door Closed – 2001 Dodge Neon

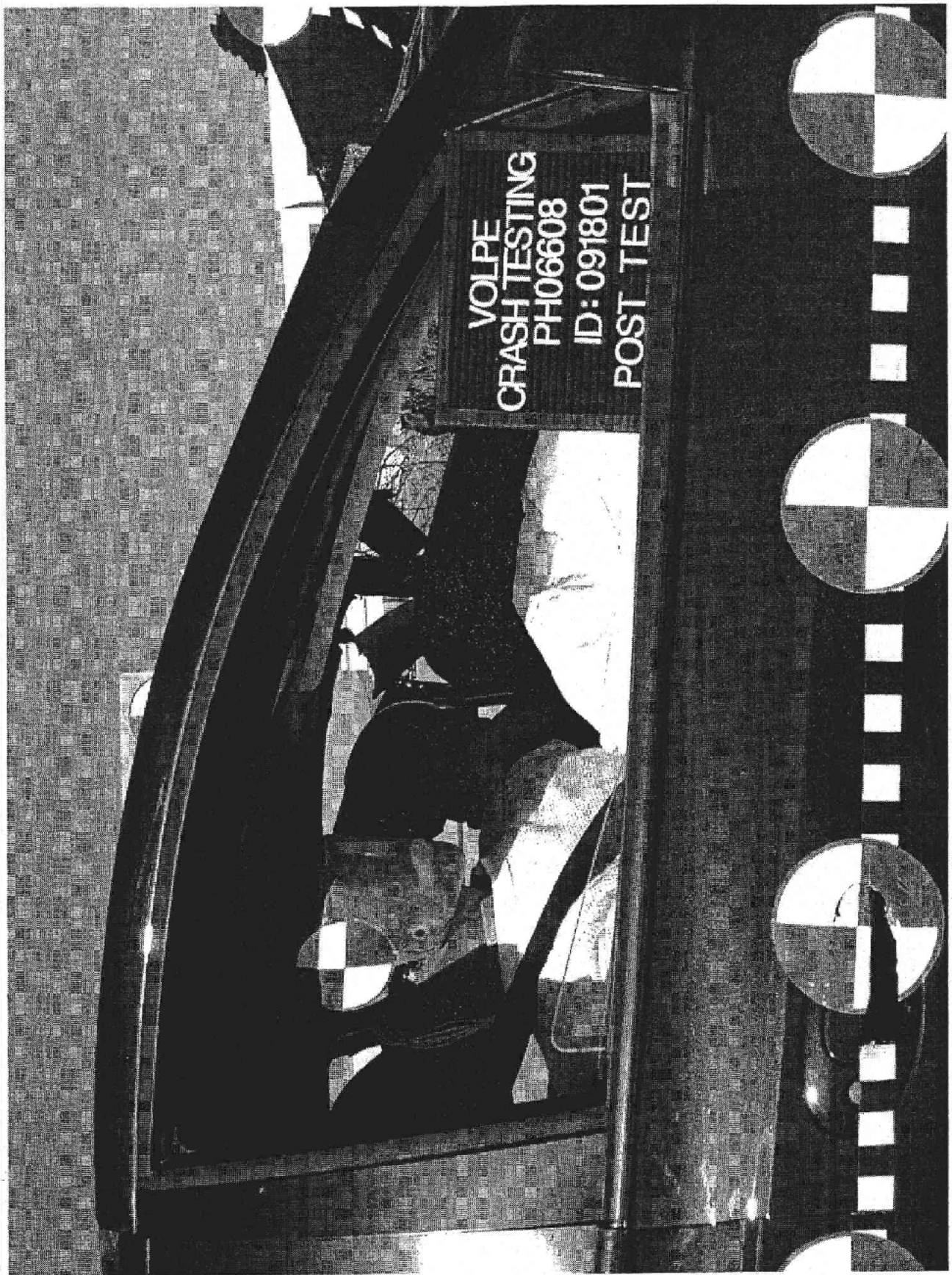


Figure A-17. Post-Test Passenger Close-up with Door Closed – 2001 Dodge Neon

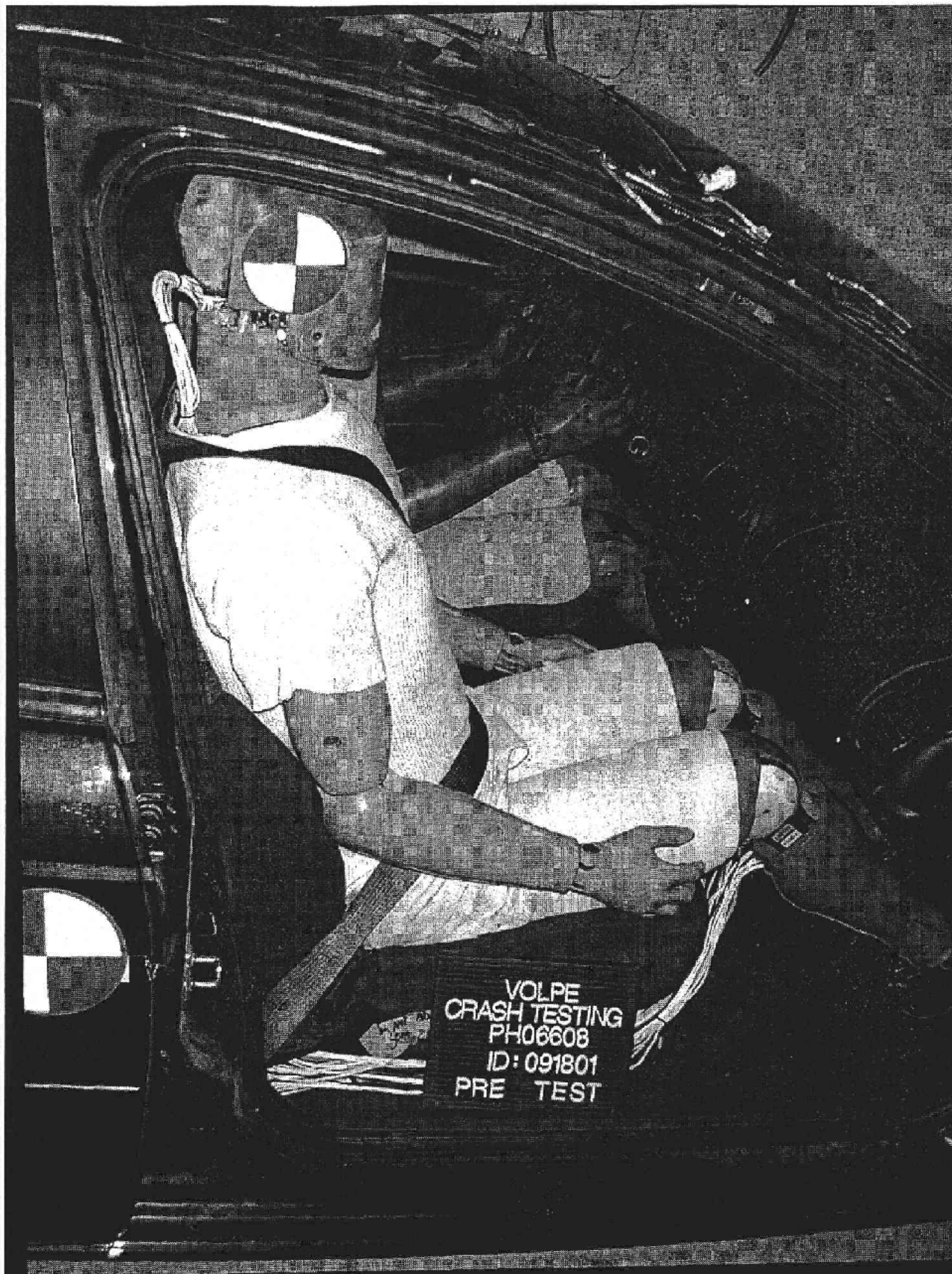


Figure A-18. Pre-Test Passenger Close-up with Door Open – 2001 Dodge Neon



Figure A-19. Post-Test Passenger Close-up with Door Open – 2001 Dodge Neon

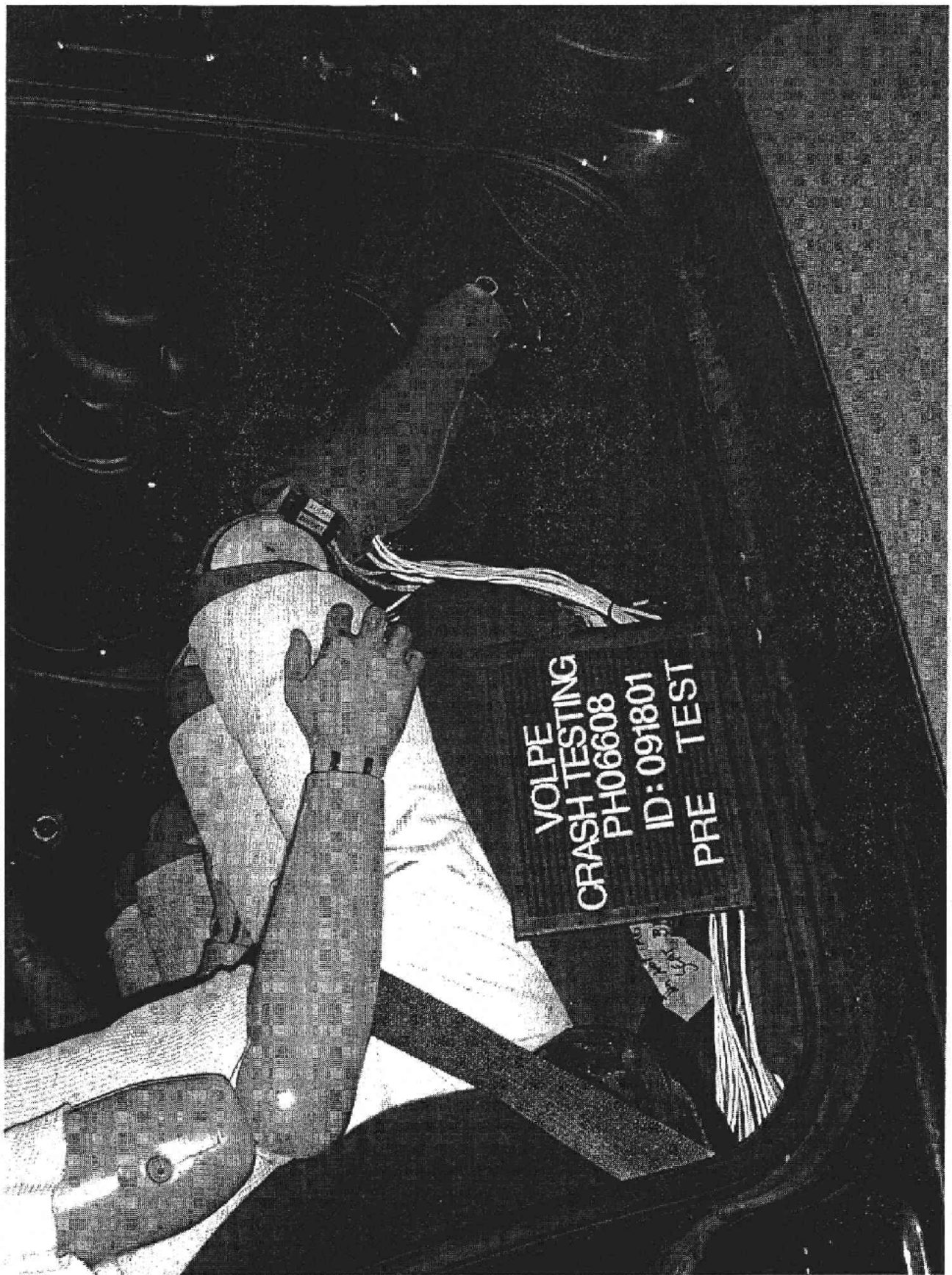


Figure A-20. Pre-Test Passenger Foot/Leg Close-up with Door Open – 2001 Dodge Neon

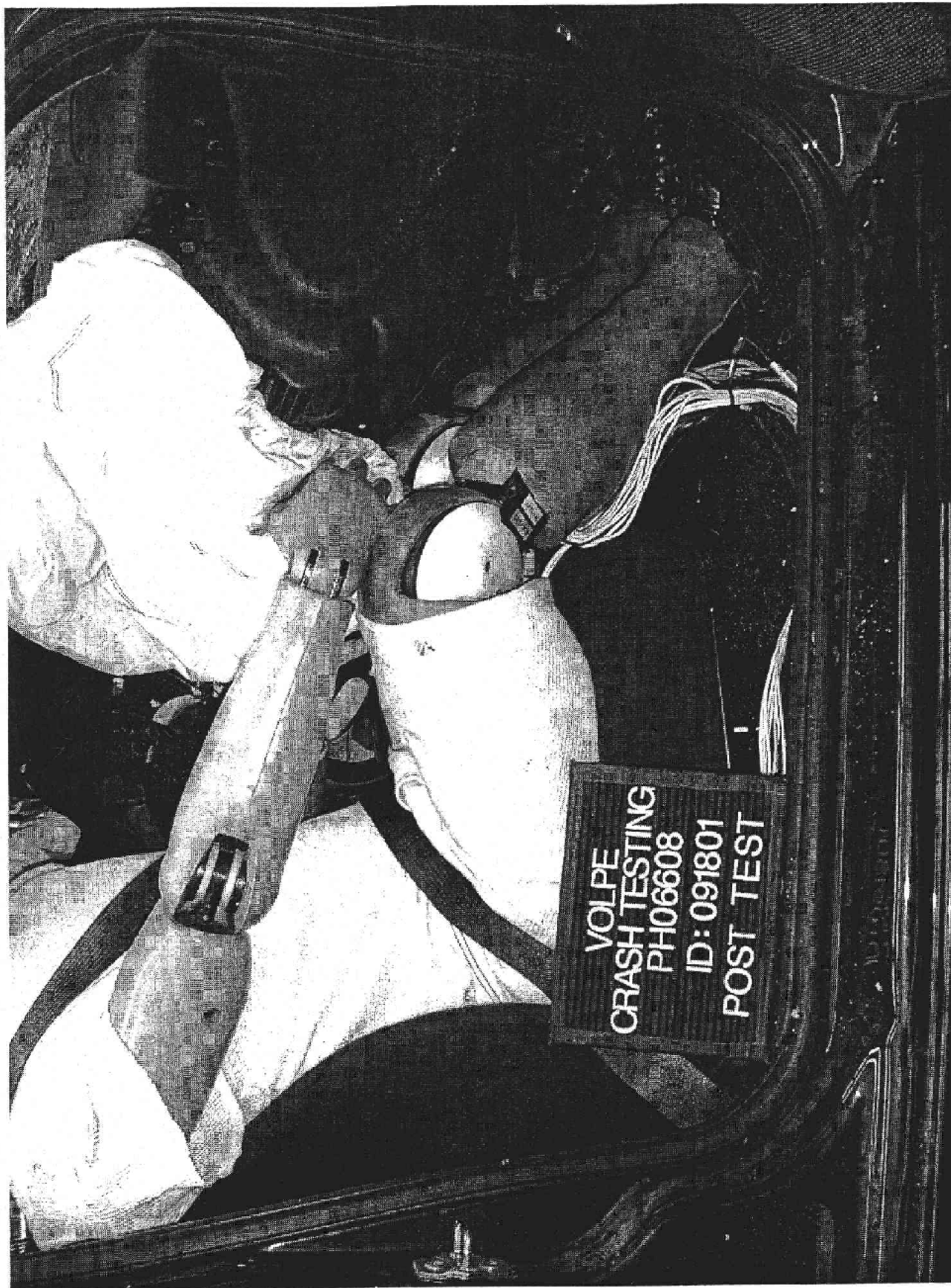


Figure A-21. Post-Test Passenger Foot/Leg Close-up with Door Open – 2001 Dodge Neon

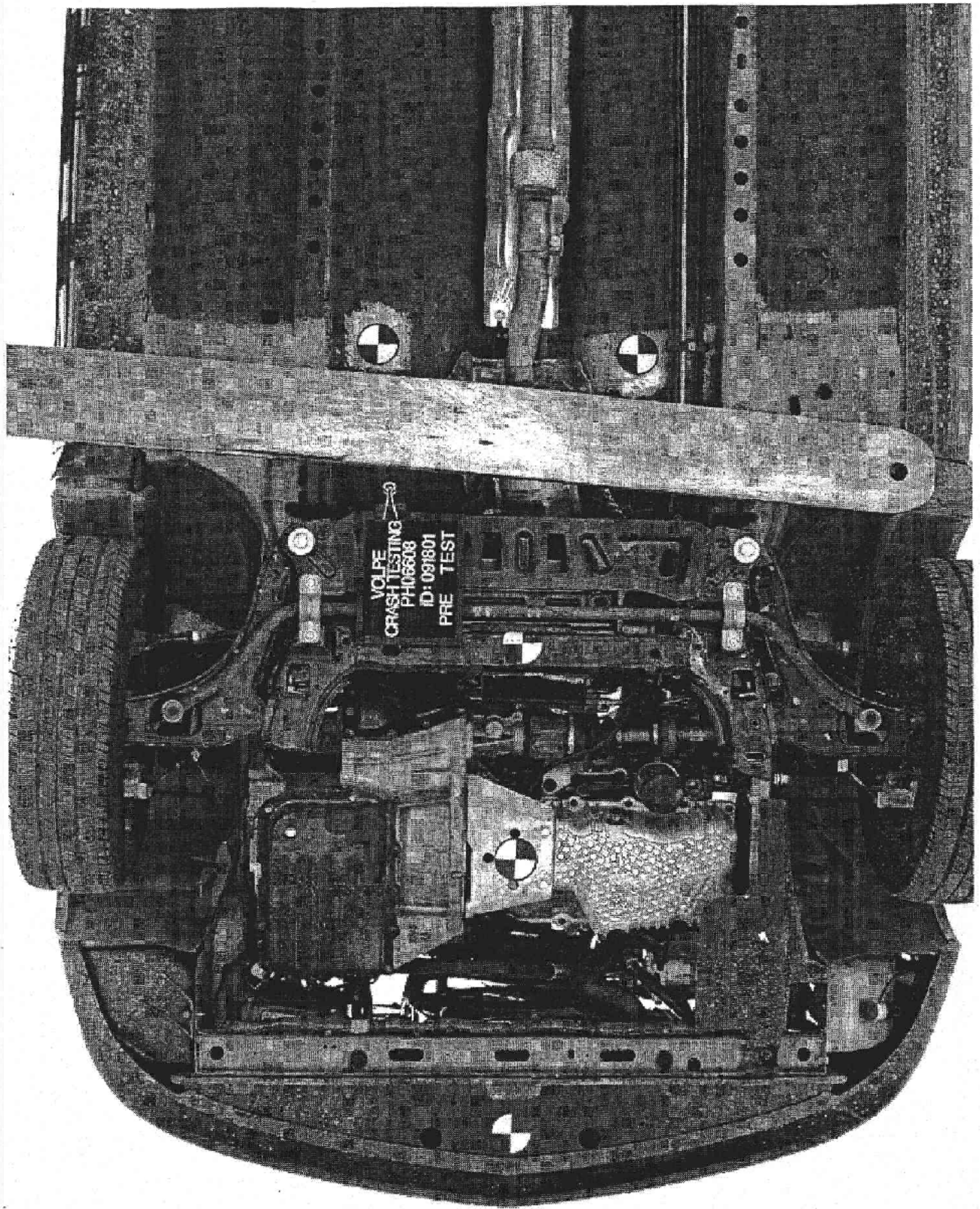


Figure A-22. Pre-Test Underbody View #1 – 2001 Dodge Neon

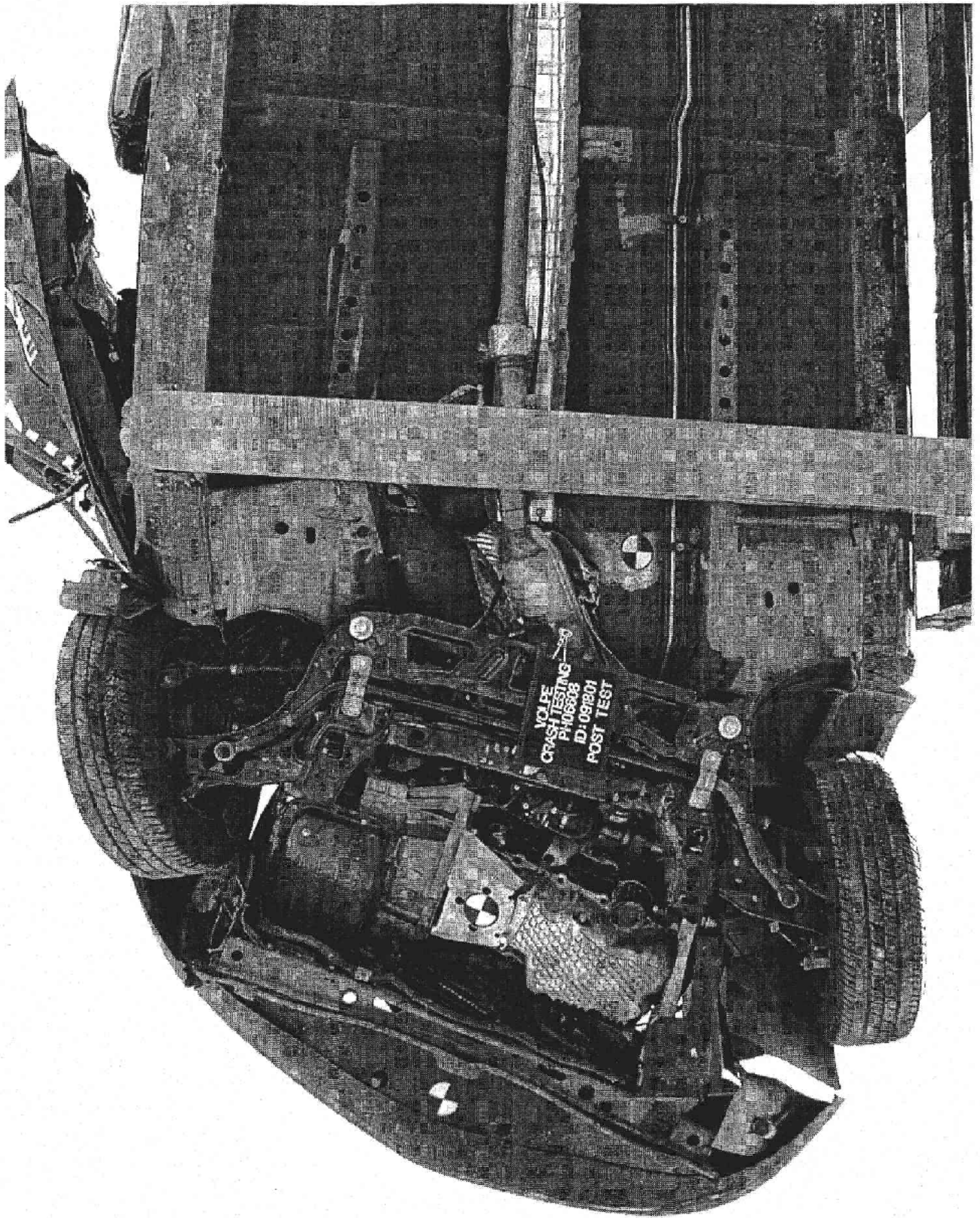


Figure A-23. Post-Test Underbody View #1 – 2001 Dodge Neon

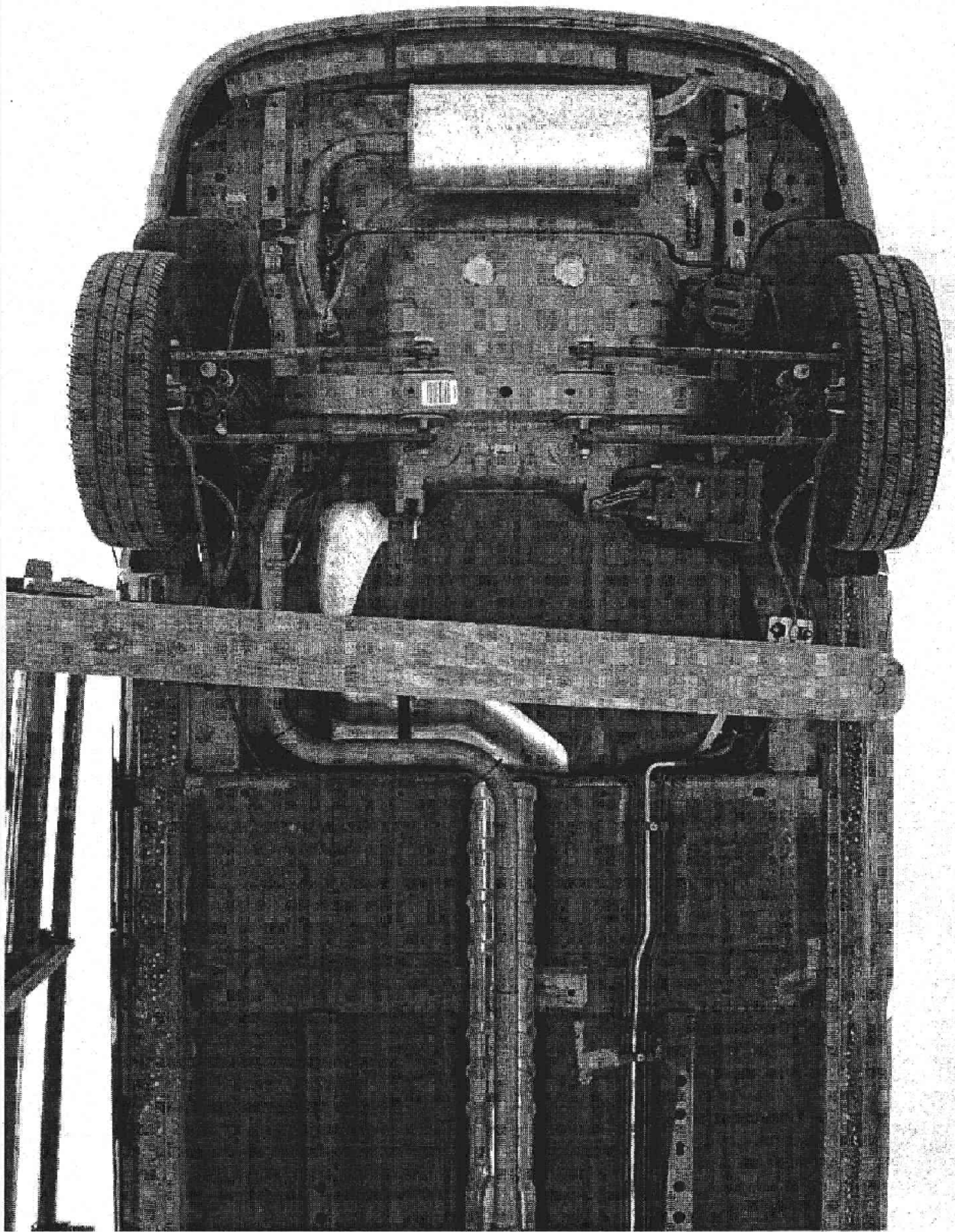


Figure A-24. Pre-Test Underbody View #2 – 2001 Dodge Neon

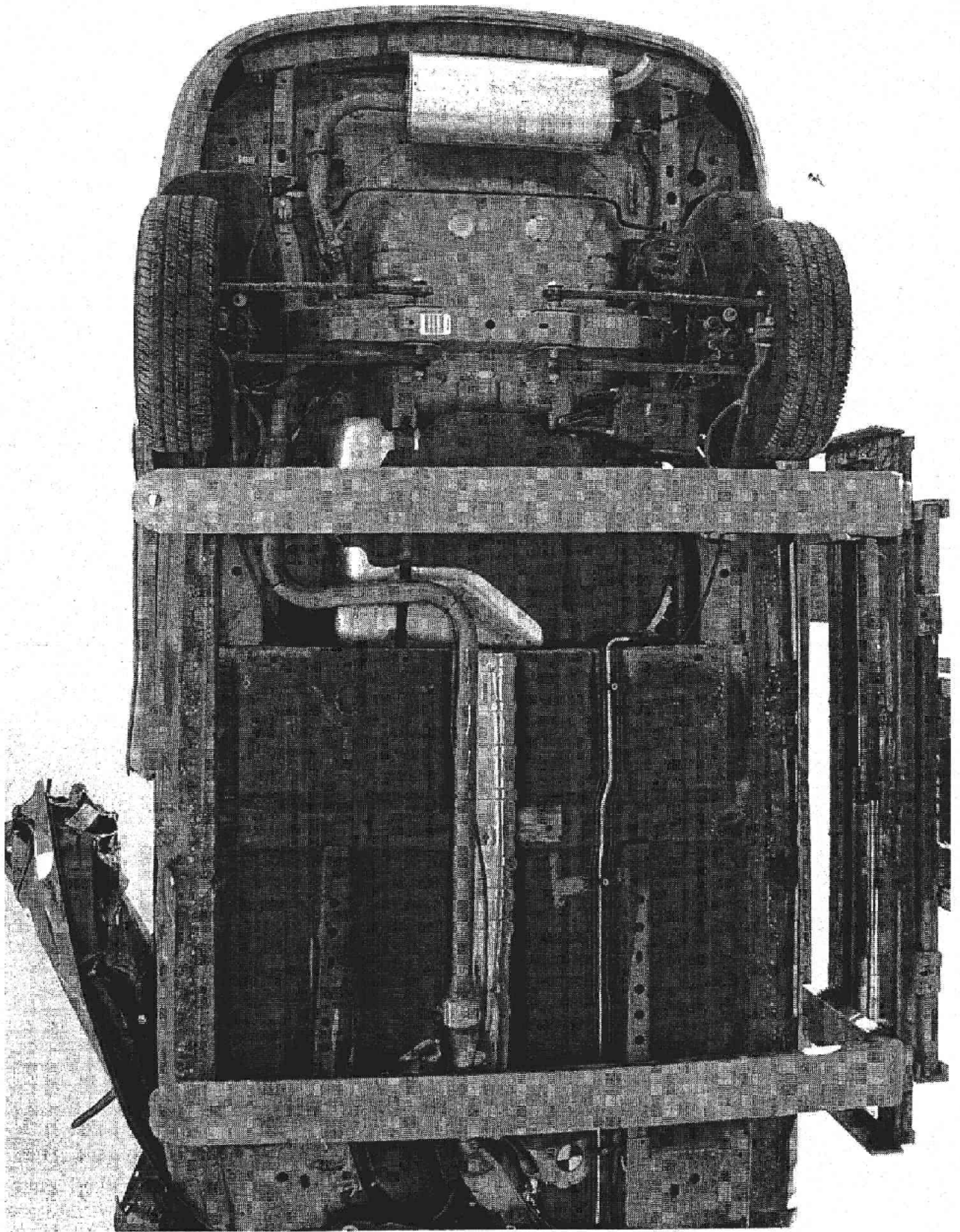


Figure A-25. Post-Test Underbody View #2 – 2001 Dodge Neon

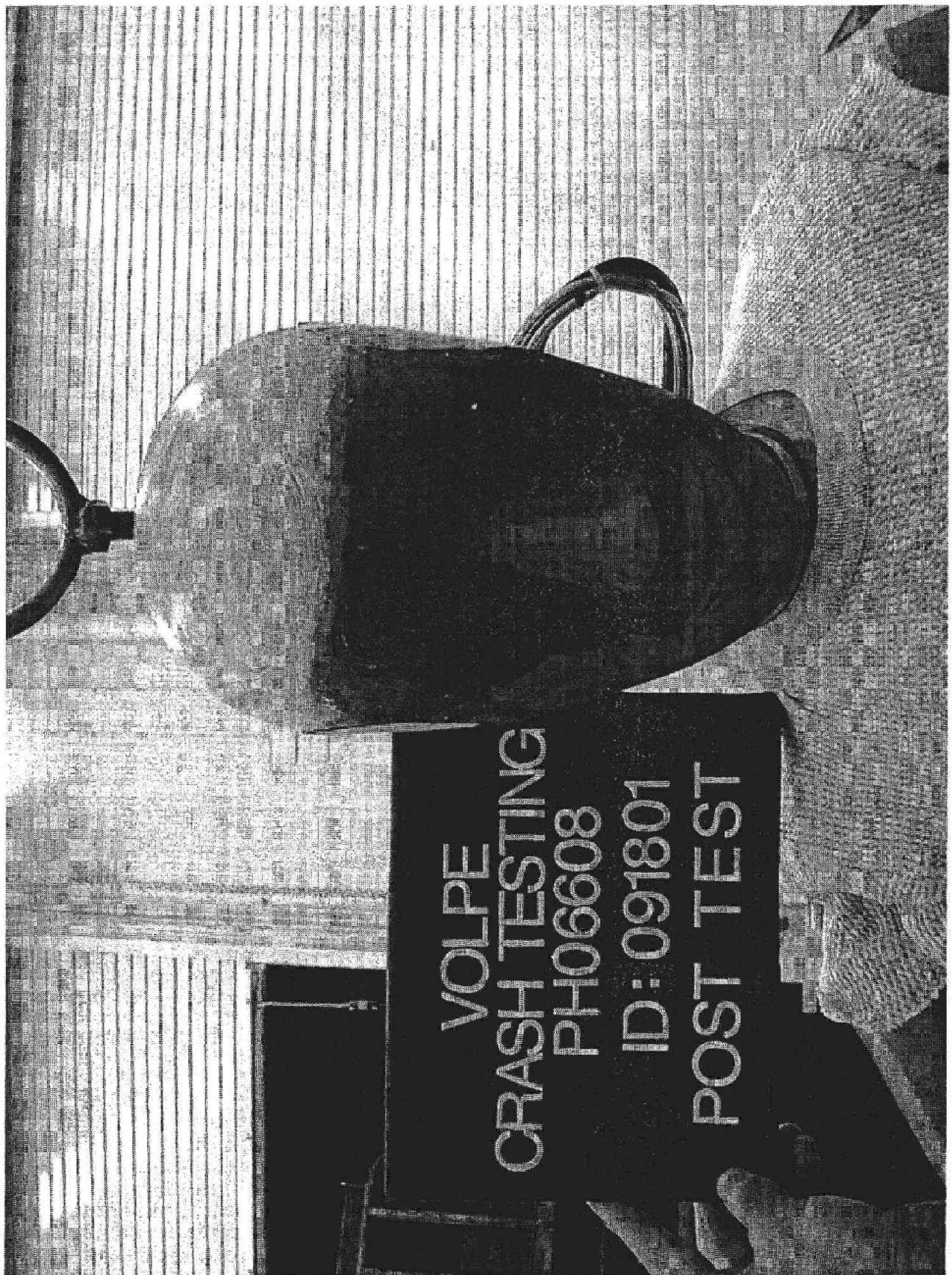


Figure A-26. Post-Test Driver Dummy Contact View #1 – 2001 Dodge Neon

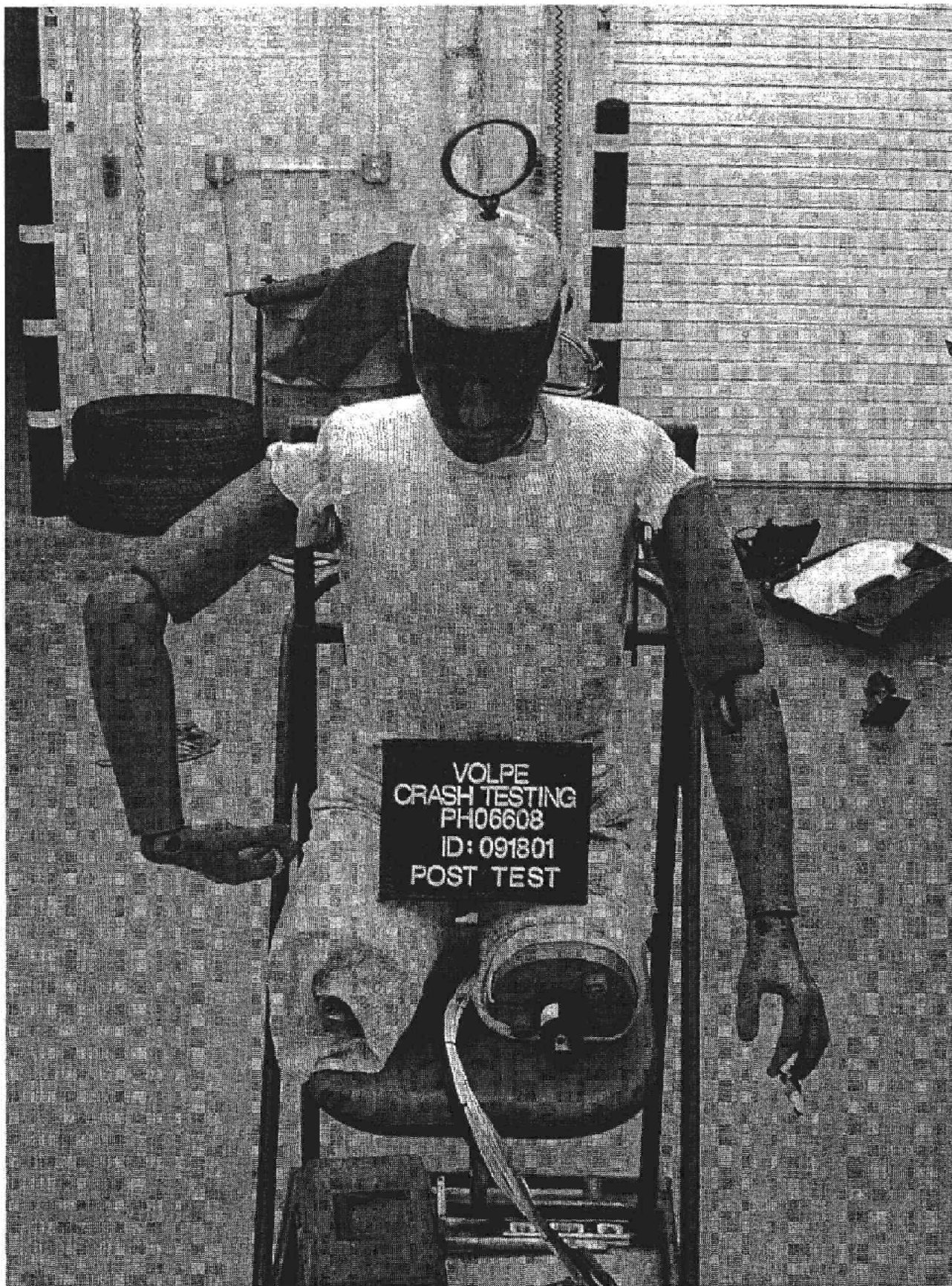


Figure A-27. Post-Test Driver Dummy Contact View #2 – 2001 Dodge Neon

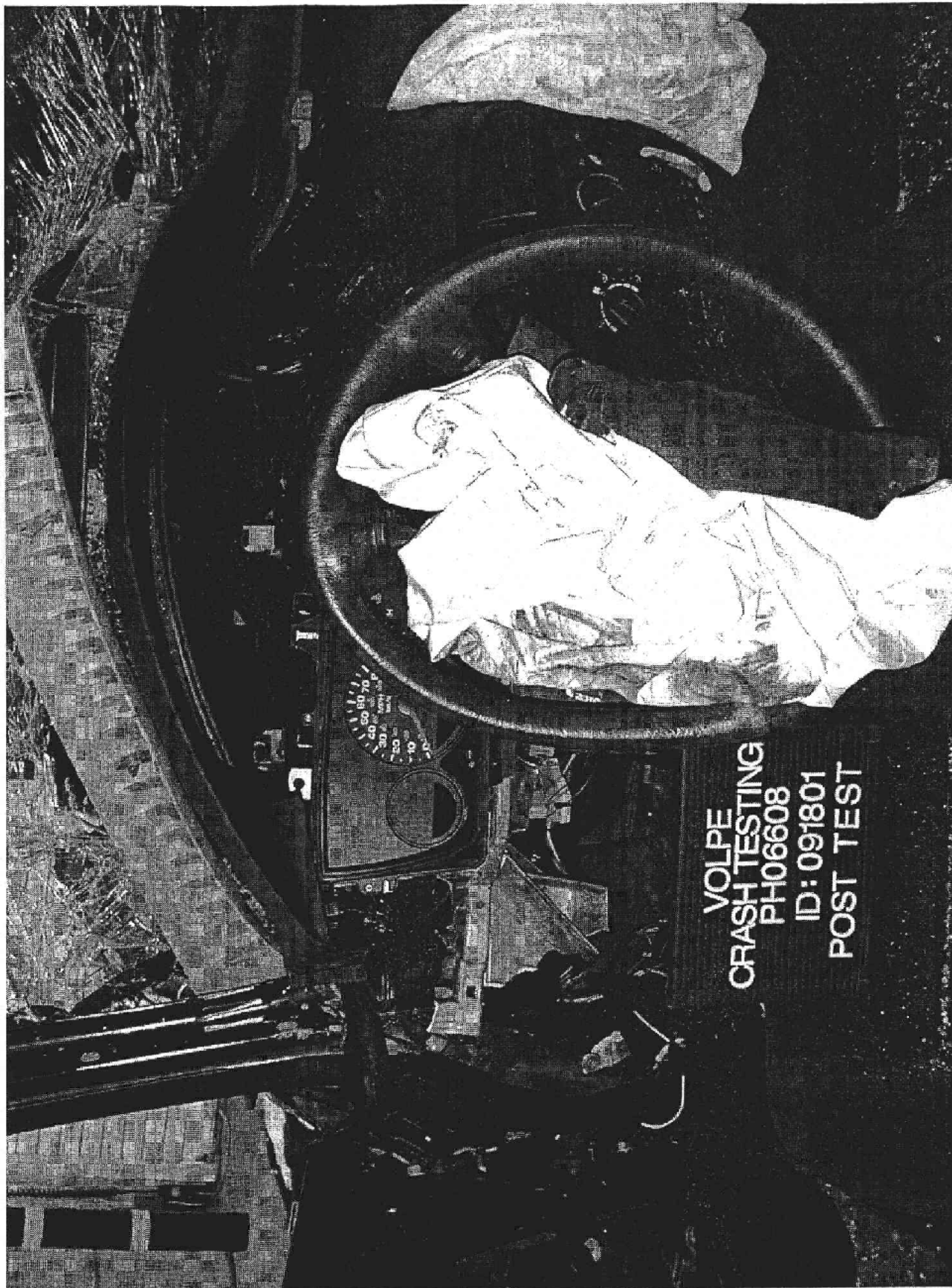


Figure A-28. Post-Test Driver Dummy Contact View #3 – 2001 Dodge Neon

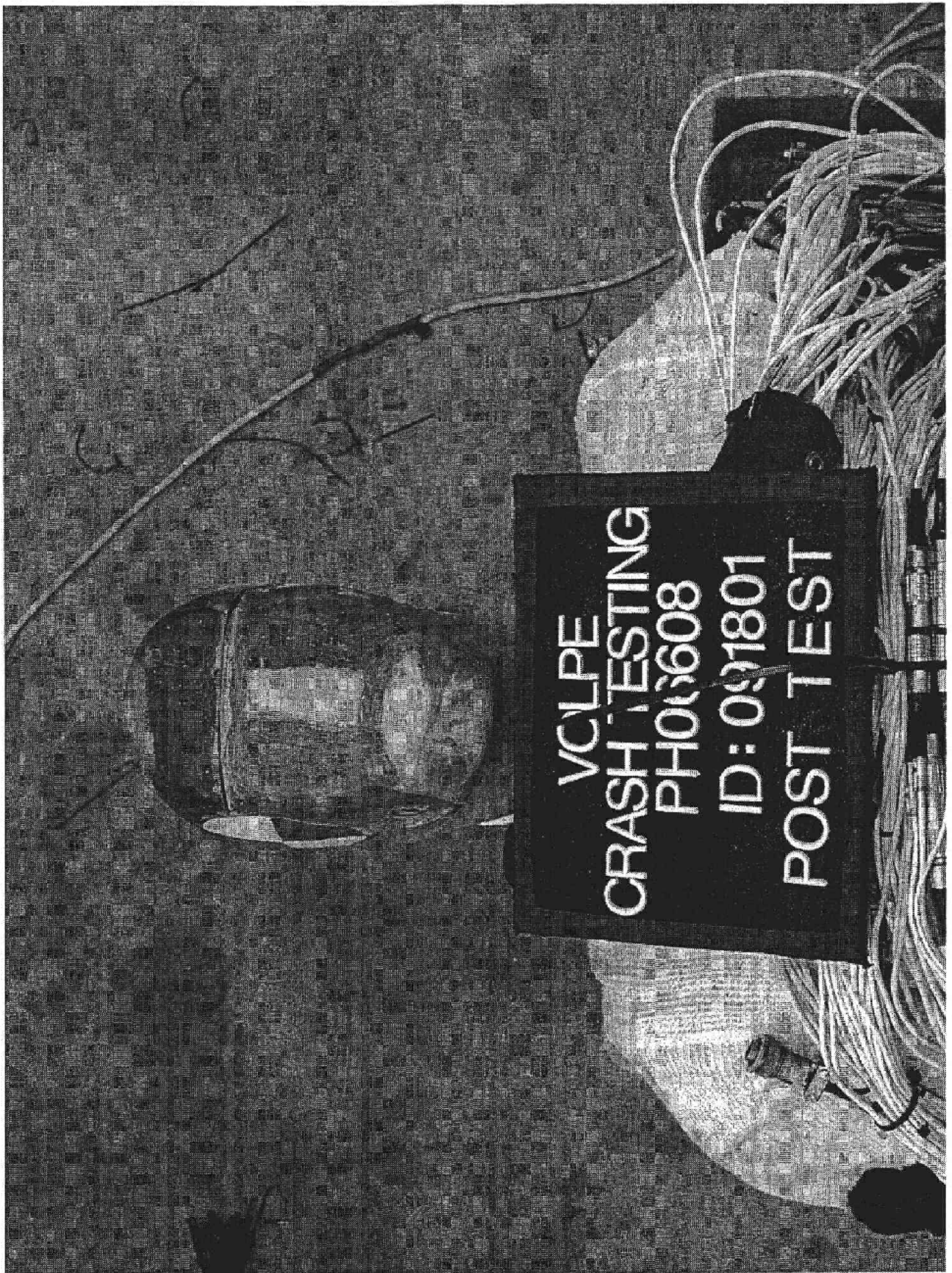


Figure A-29. Post-Test Passenger Dummy Contact View #1 – 2001 Dodge Neon

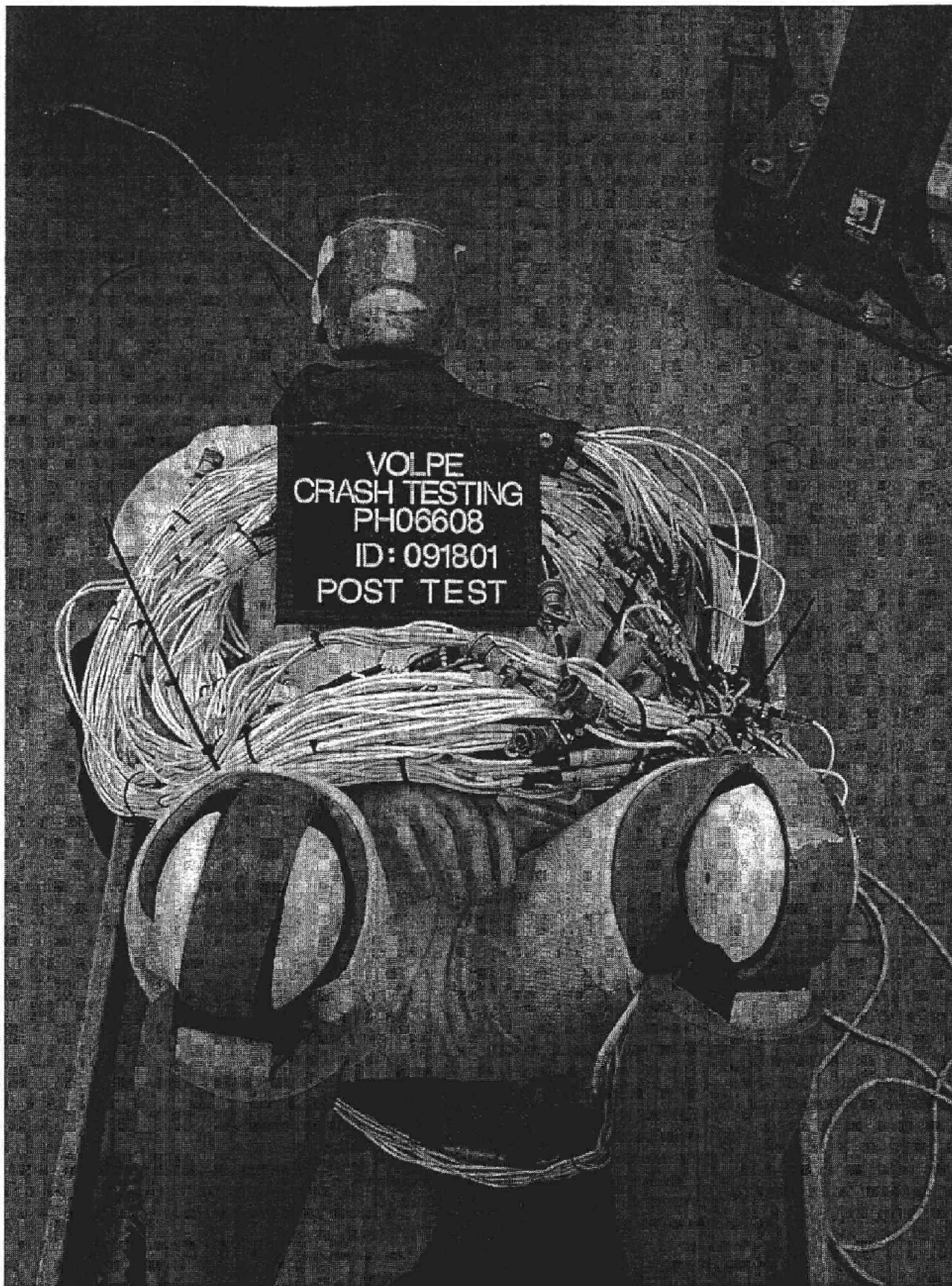


Figure A-30. Post-Test Passenger Dummy Contact View #2 – 2001 Dodge Neon

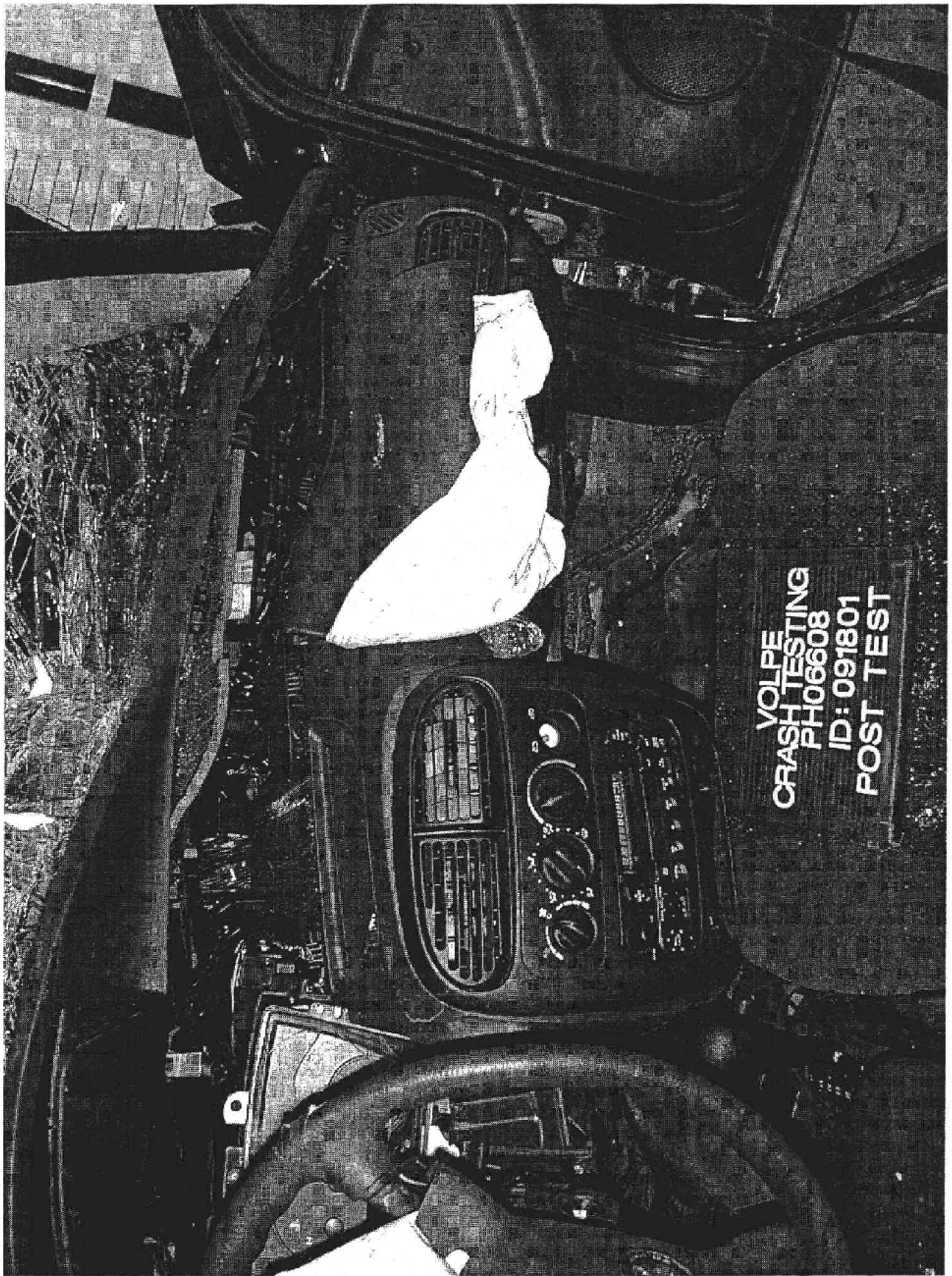


Figure A-31. Post-Test Passenger Dummy Contact View #3 – 2001 Dodge Neon

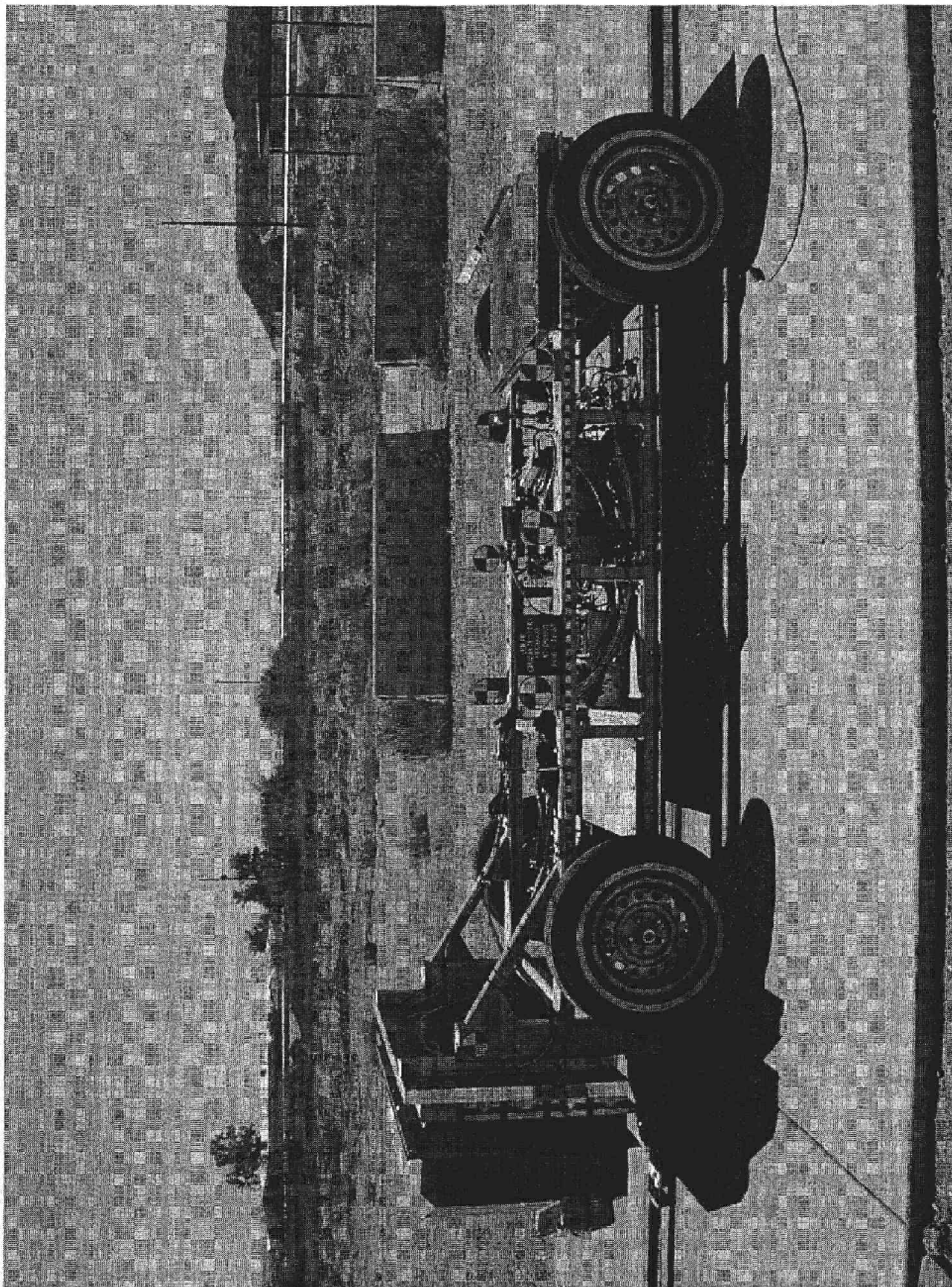


Figure A-32. Pre-Test Left Side View – Moving Deformable Barrier

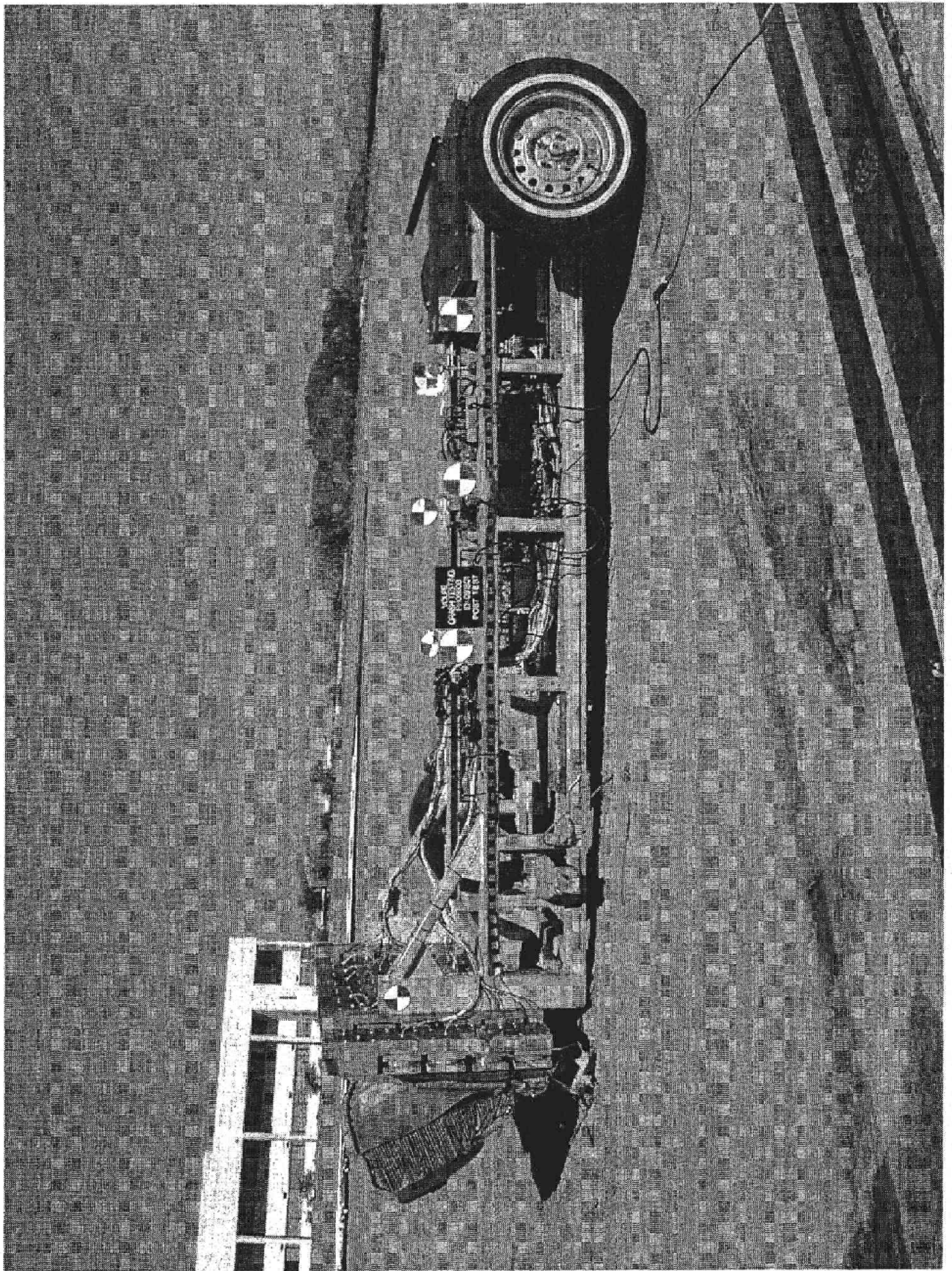


Figure A-33. Post-Test Left Side View – Moving Deformable Barrier

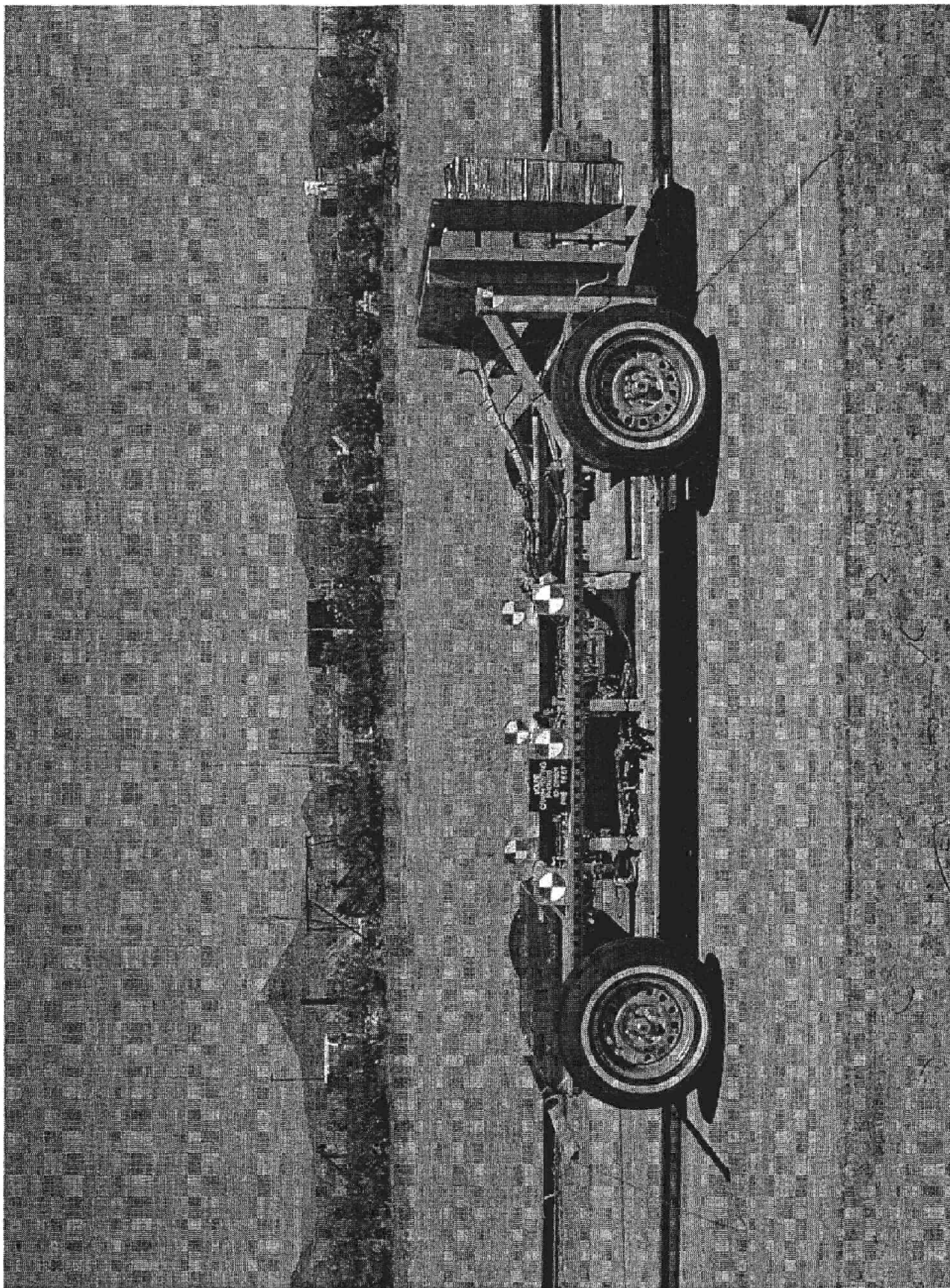


Figure A-34. Pre-Test Right Side View – Moving Deformable Barrier

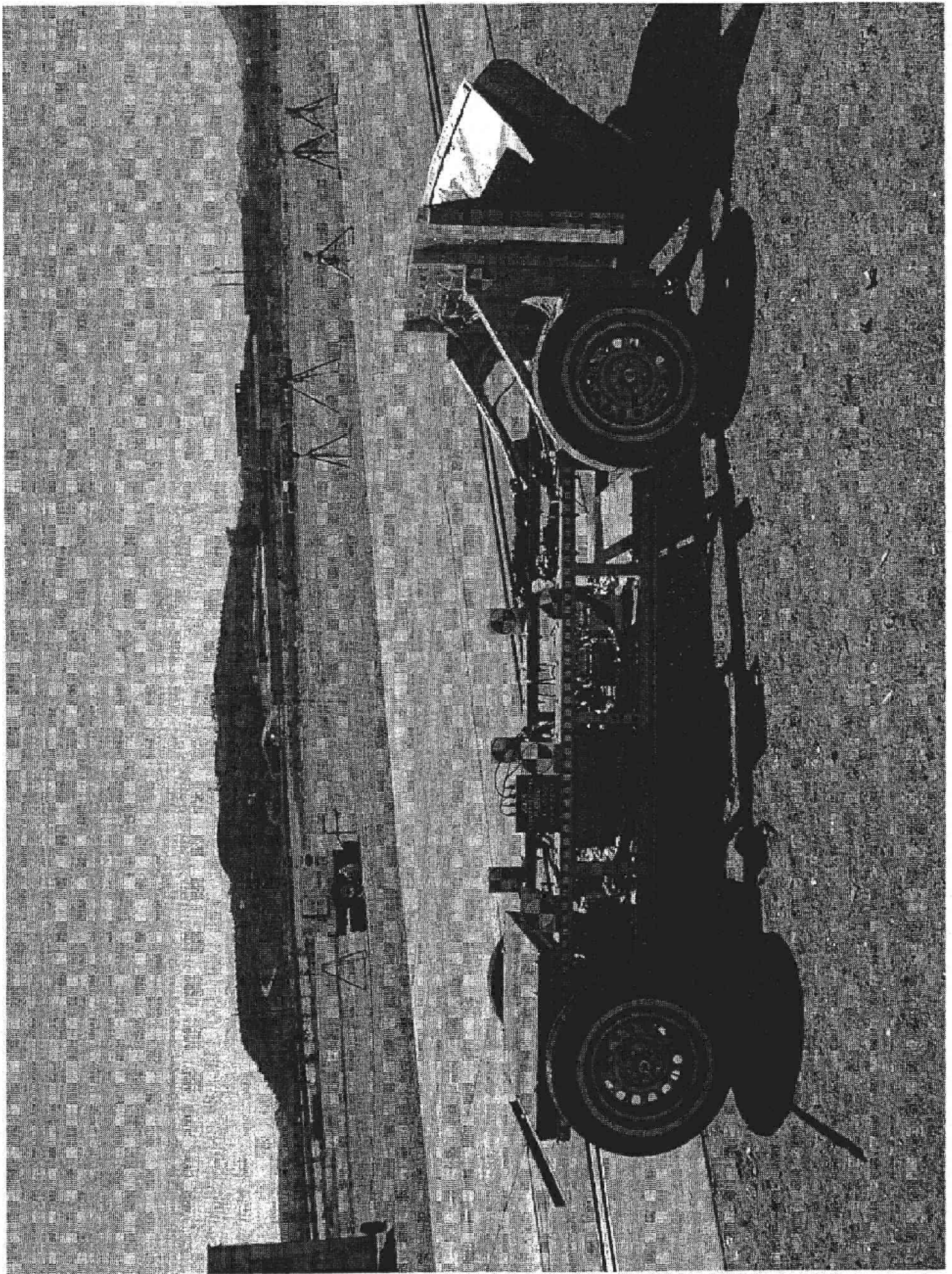


Figure A-35. Post-Test Right Side View – Moving Deformable Barrier

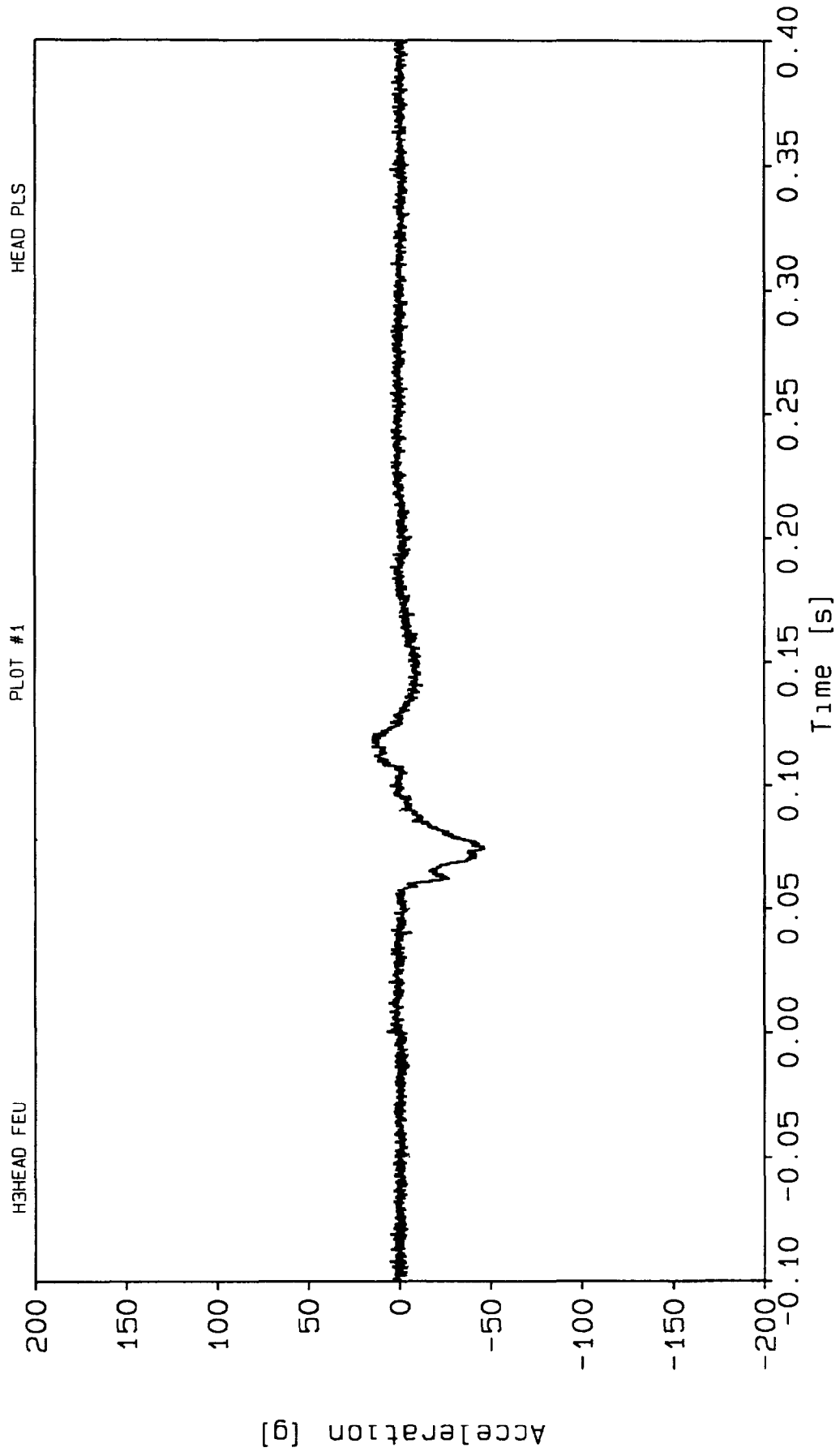
Appendix B

Data Plots

Head Acceleration (Ax) v Time

Driver Dummy - HIII
2001 Dodge Neon

Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



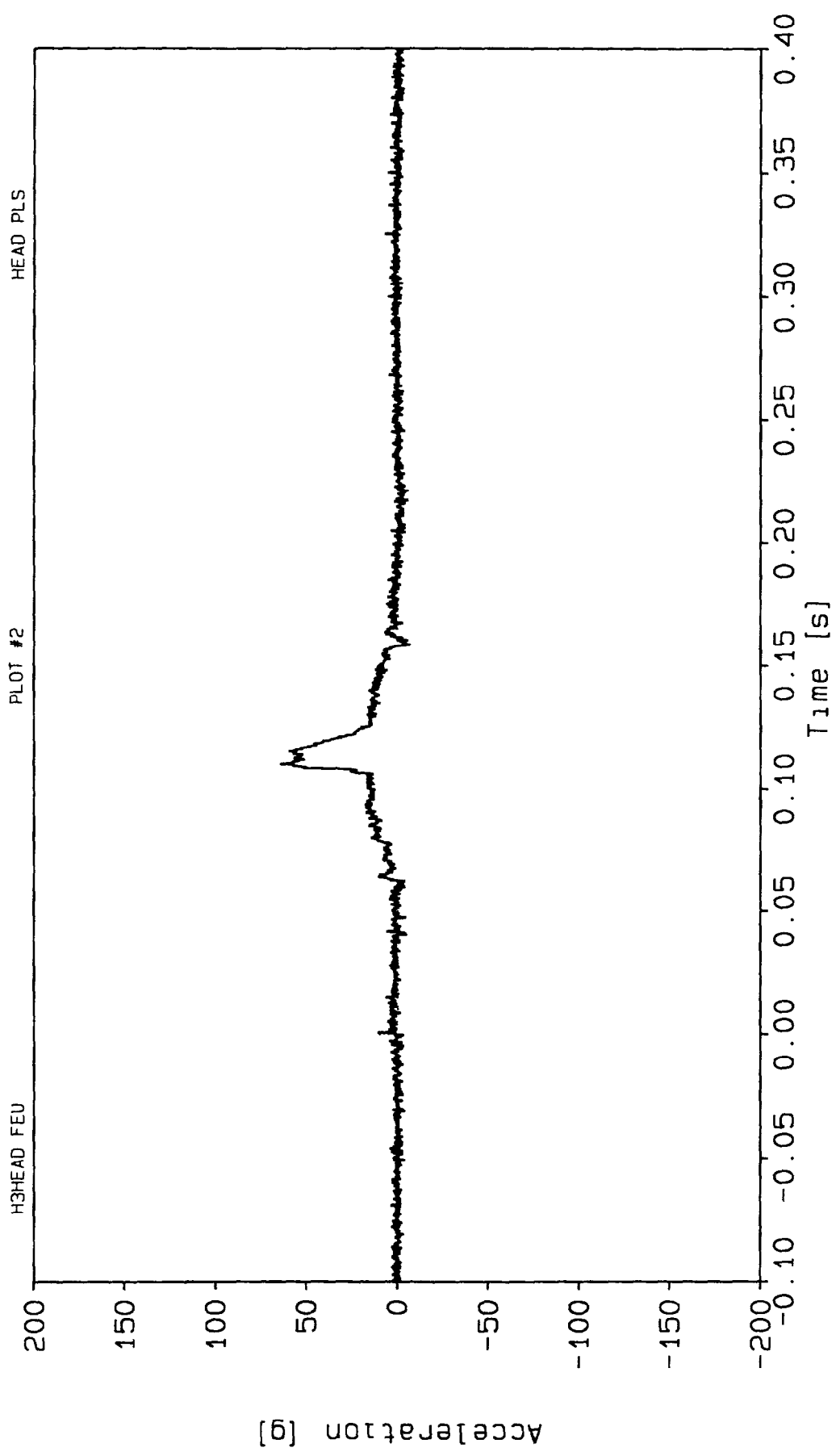
Exponent
Failure
Analysis
Associates

Filter Class 1000
Volpe Crash Testing
PH06608

Head Acceleration (Ay) v Time

Driver Dummy - HIII
2001 Dodge Neon

Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



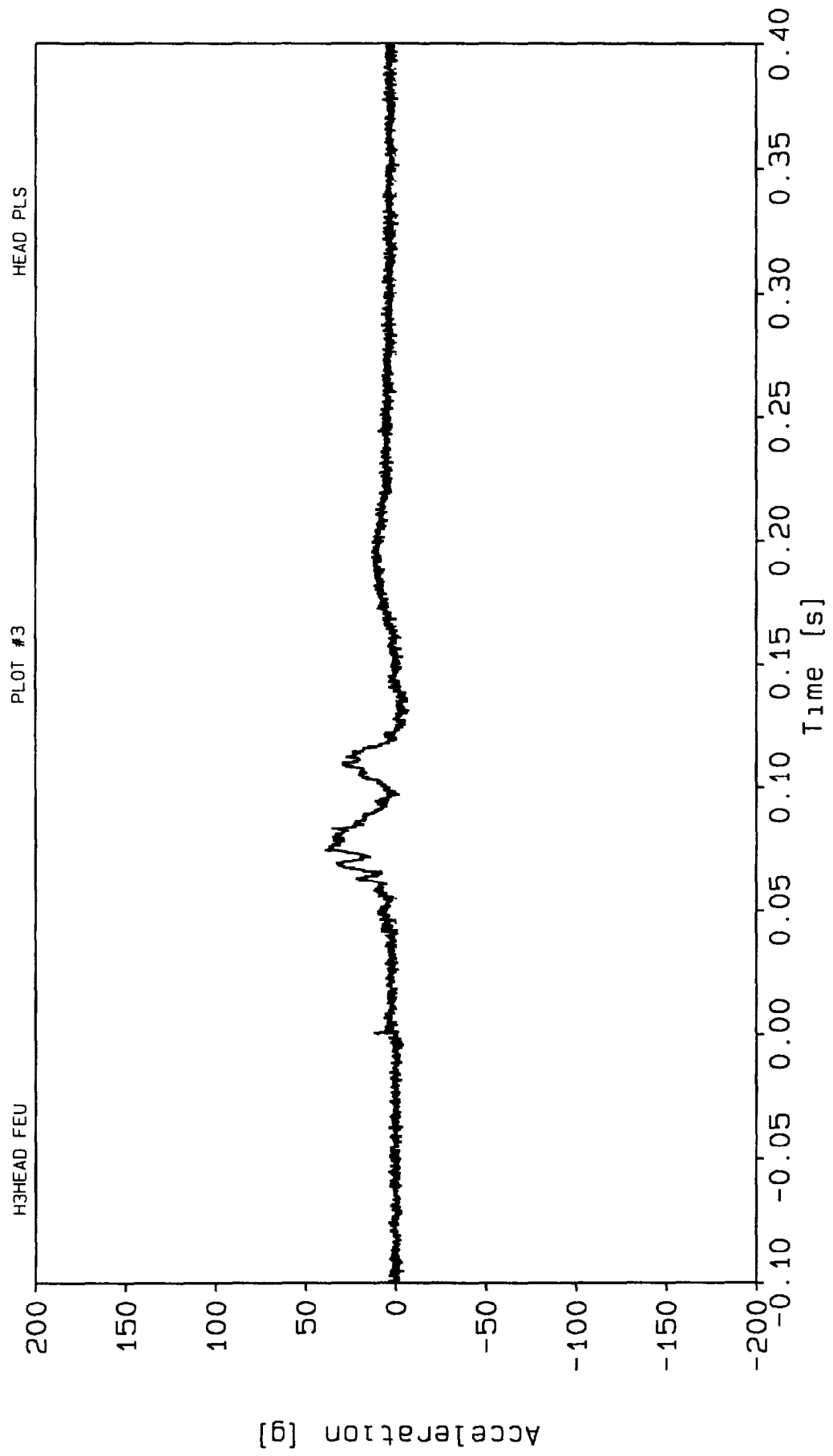
Exponent
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Analysis
Associates

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Volpe Crash Testing
PH06608

Head Acceleration (Az) v Time

Driver Dummy - HIII
2001 Dodge Neon

Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



Exponent
Failure
Analysis
Associates

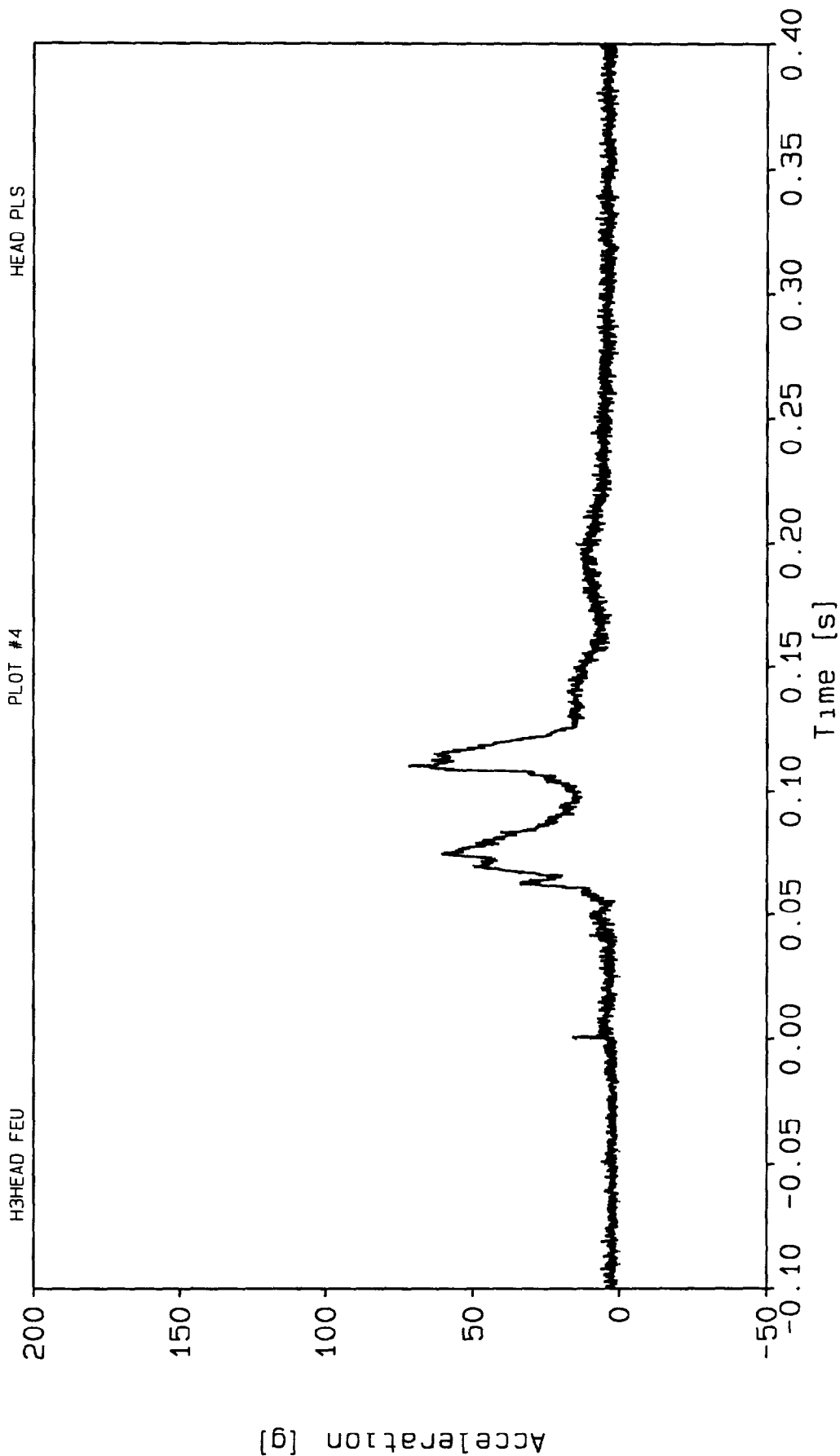
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Volpe Crash Testing
PH06608

Head Resultant Acceleration (Ar) v Time

Driver Dummy - HIII

2001 Dodge Neon

Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



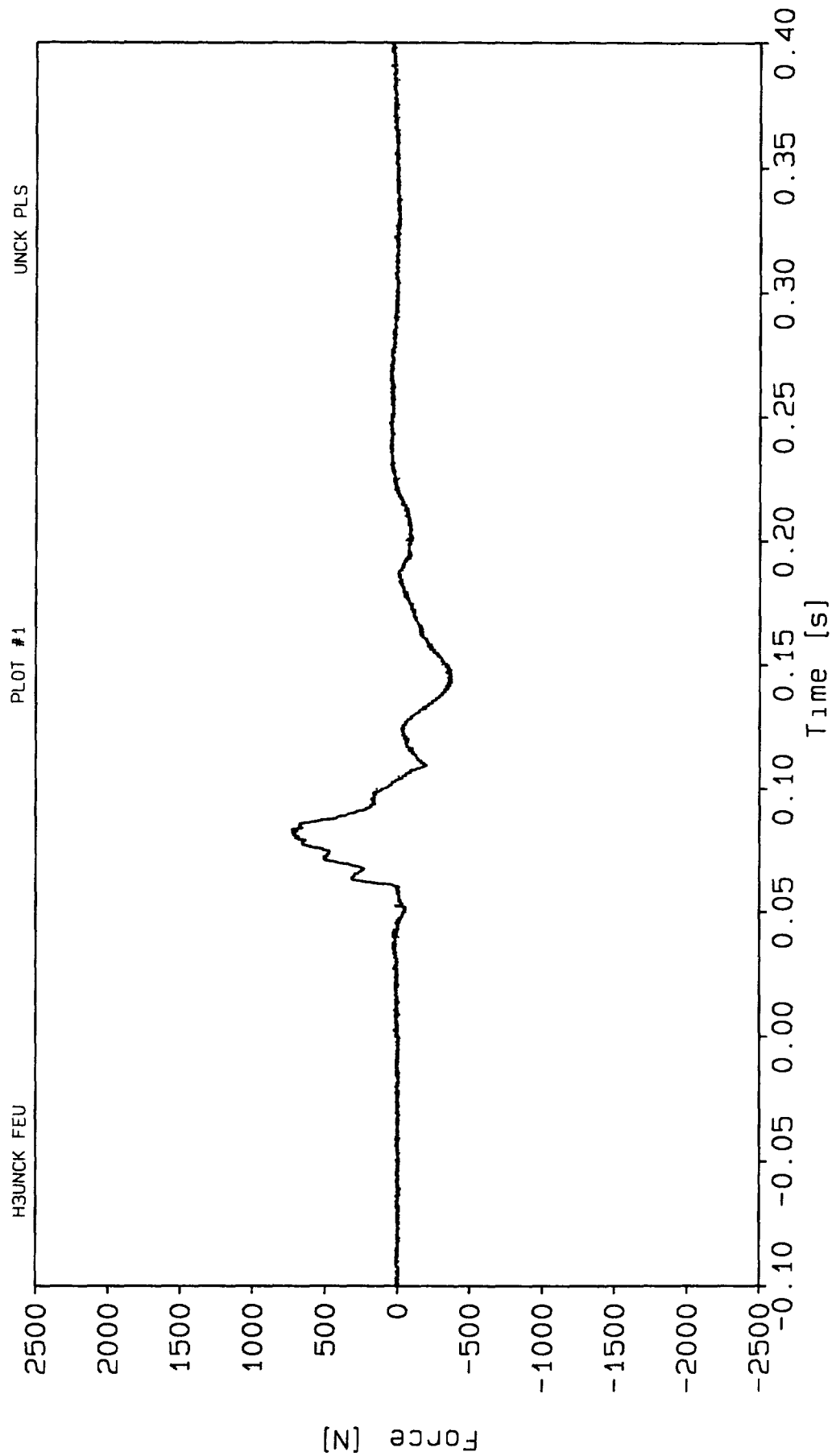
Exponent
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Analysis
Associates

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PH06608

Upper Neck Force (Fx) v Time

Driver Dummy - HIII
2001 Dodge Neon

Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



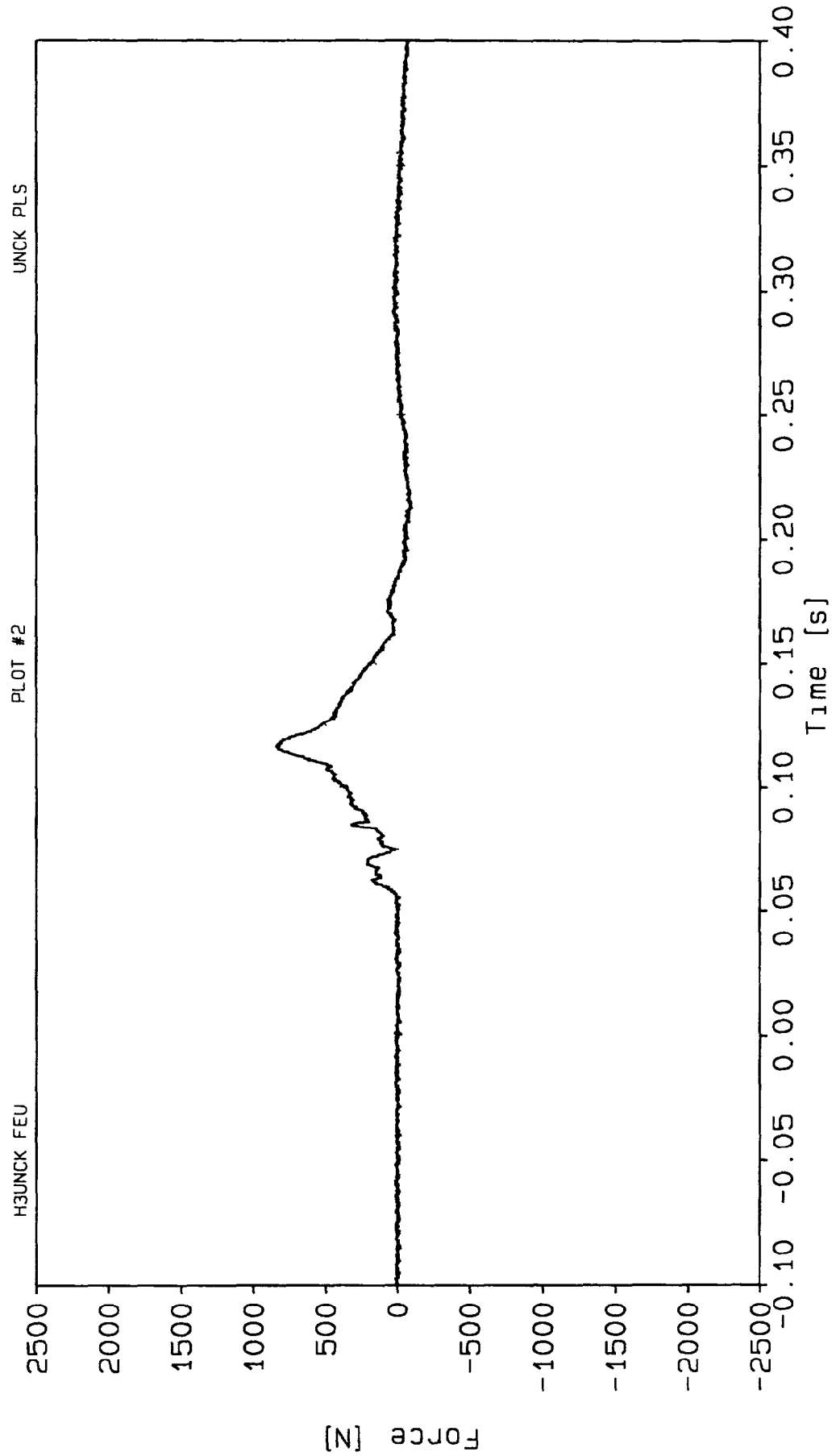
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Volpe Crash Testing
PH06608

Exponent
Failure
Analysis
Associates

Upper Neck Force (Fy) v Time

Driver Dummy - HIII
2001 Dodge Neon

Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



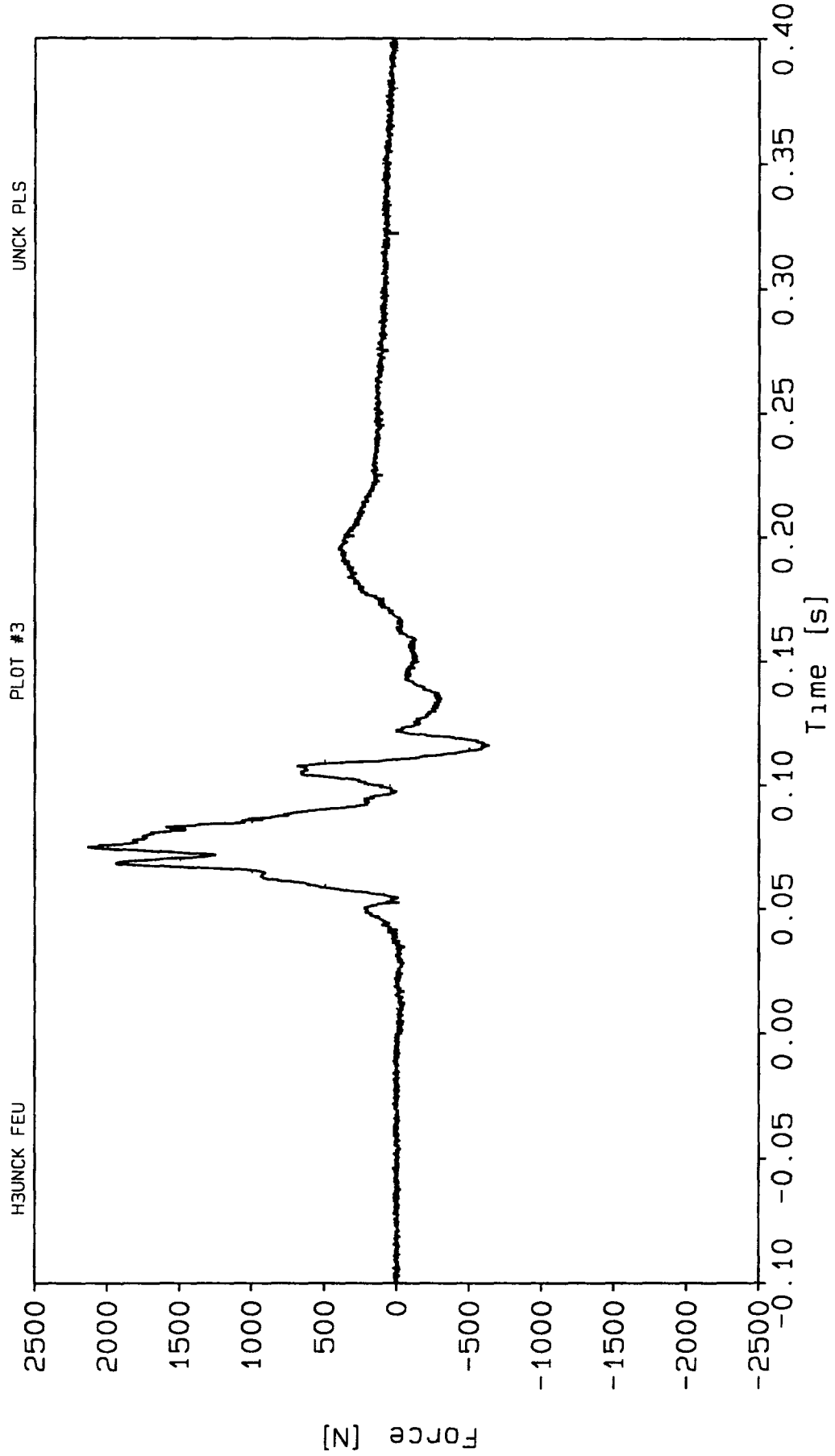
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Volpe Crash Testing
PH06608

Exponent
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Analysis
Associates

Upper Neck Force (Fz) v Time

Driver Dummy - HIII
2001 Dodge Neon

Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



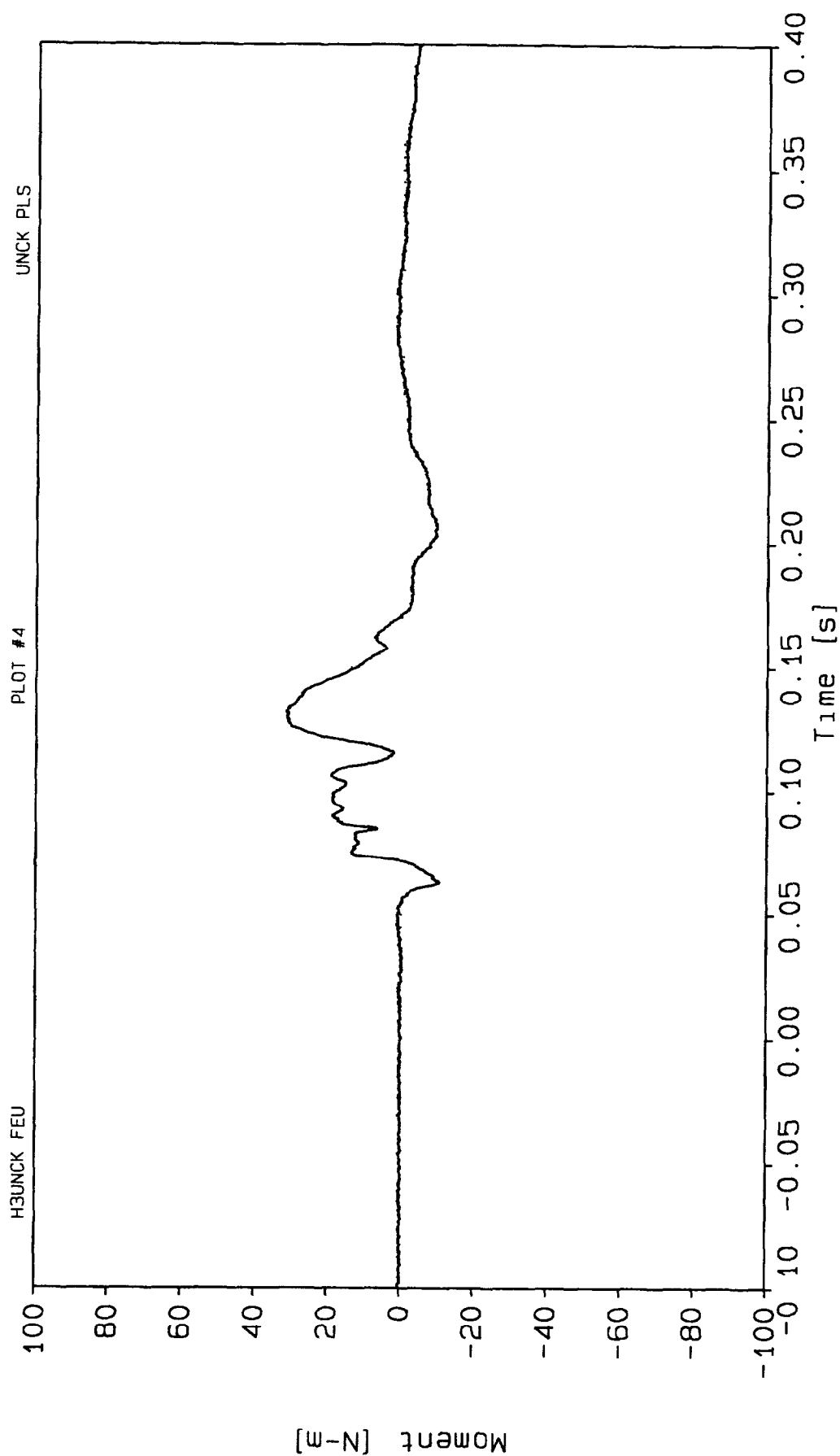
Filter Class 1000
Volpe Crash Testing
PH06608

Exponent
Failure
Analysis
Associates

Upper Neck Moment (Mx) v Time

Driver Dummy - HIII
2001 Dodge Neon

Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



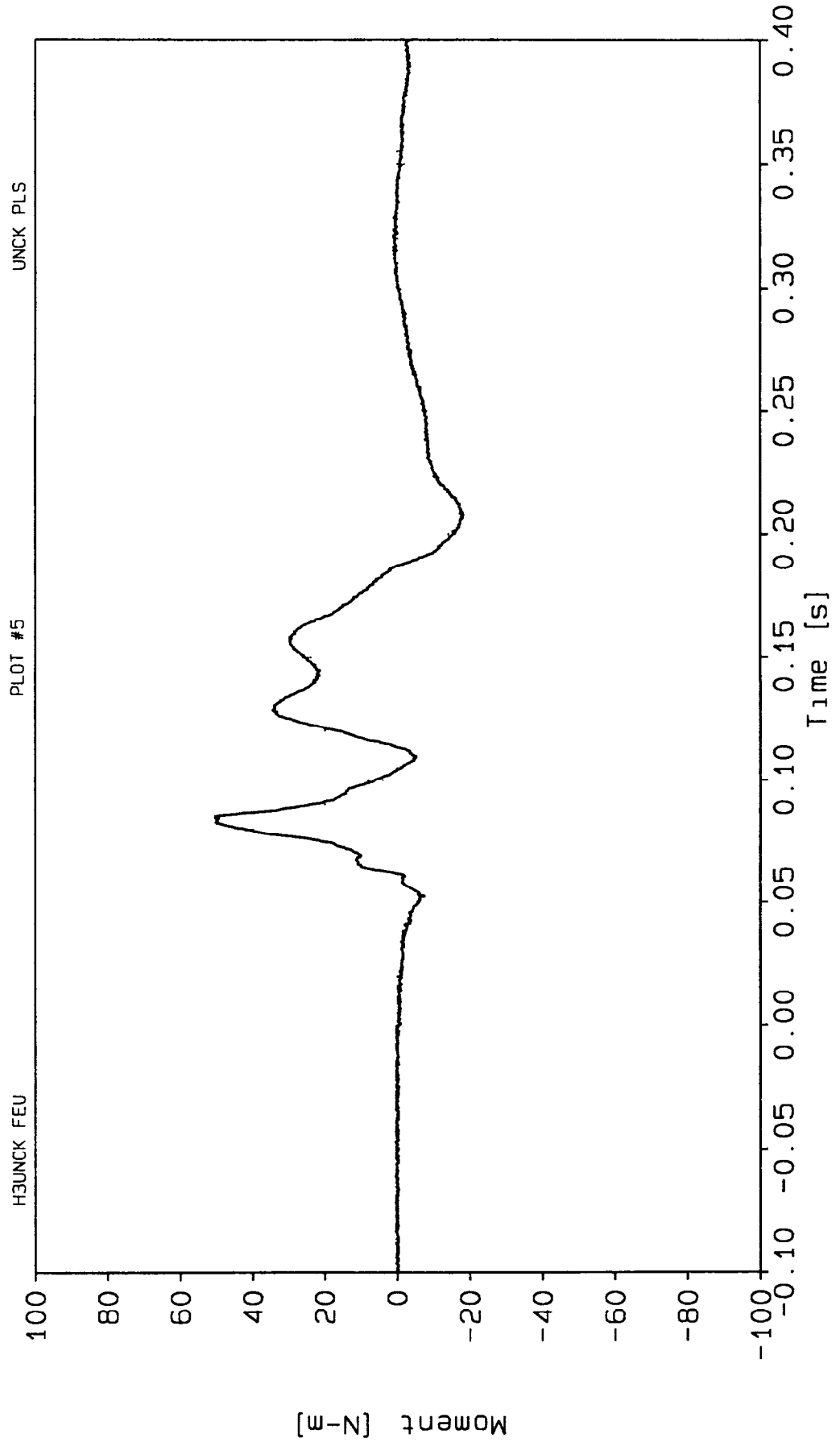
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Analysis
Associates

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Volpe Crash Testing
PH06608

Upper Neck Moment (My) v Time

Driver Dummy - HIII
2001 Dodge Neon

Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



Exponent
Failure
Analysis
Associates

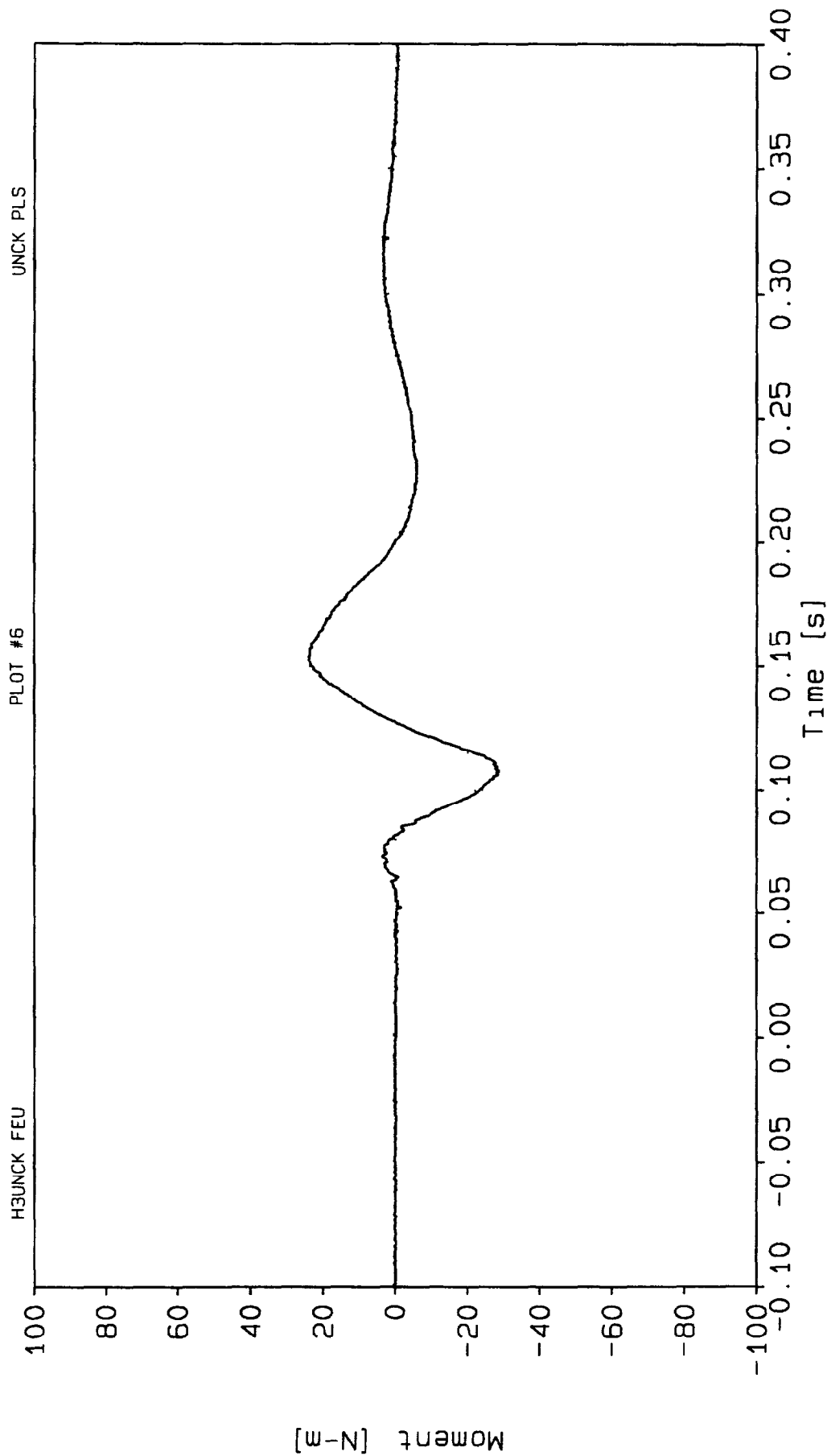
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Volpe Crash Testing
PH06608

Upper Neck Moment (Mz) v Time

Driver Dummy - HIII

2001 Dodge Neon

Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



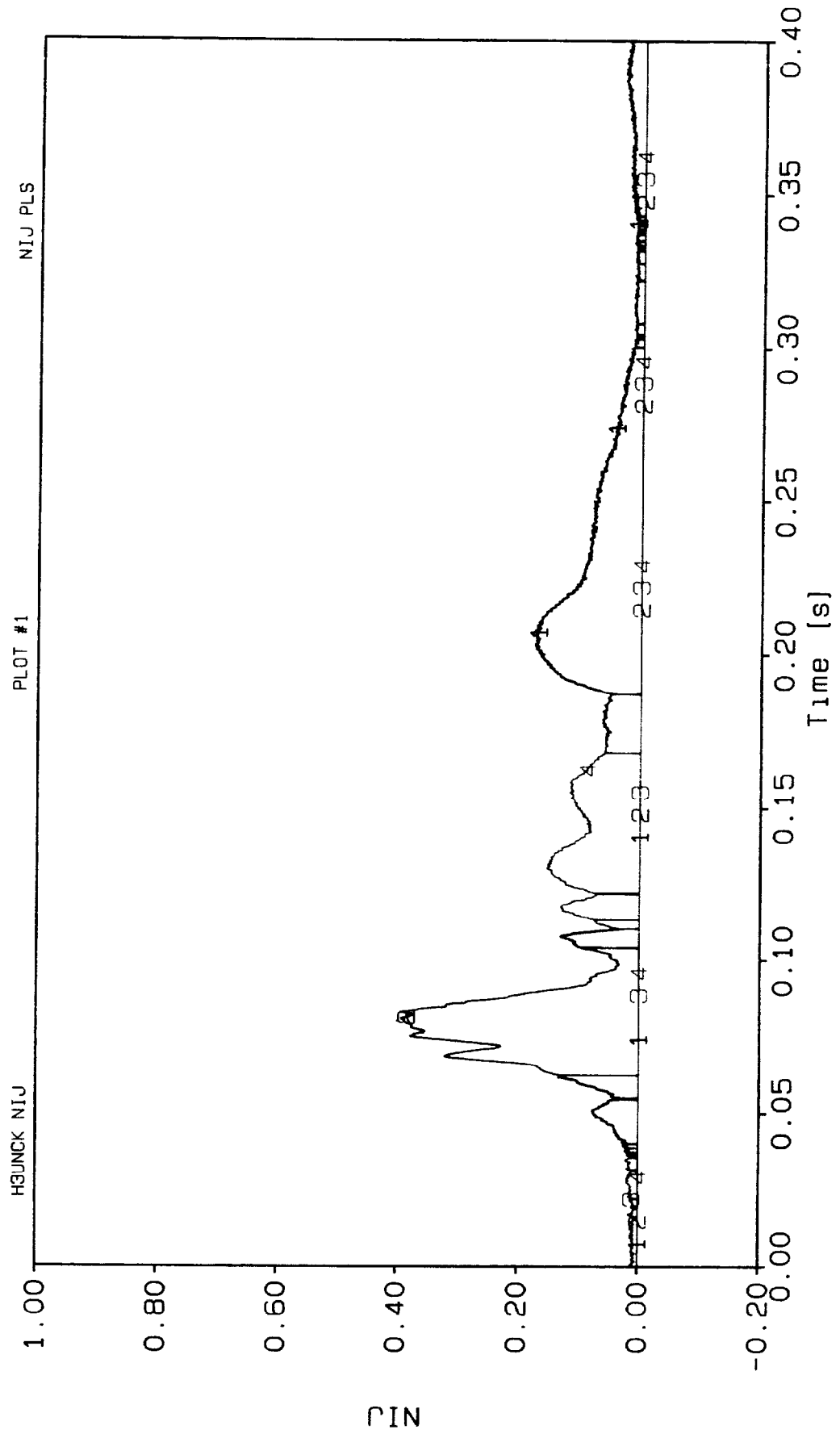
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Volpe Crash Testing
PH06608

Exponent
Failure
Analysis
Associates

Neck Injury Predictor v Time

Driver Dummy - HIII
2001 Dodge Neon

Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



Exporent
Failure
Analysis
Associates

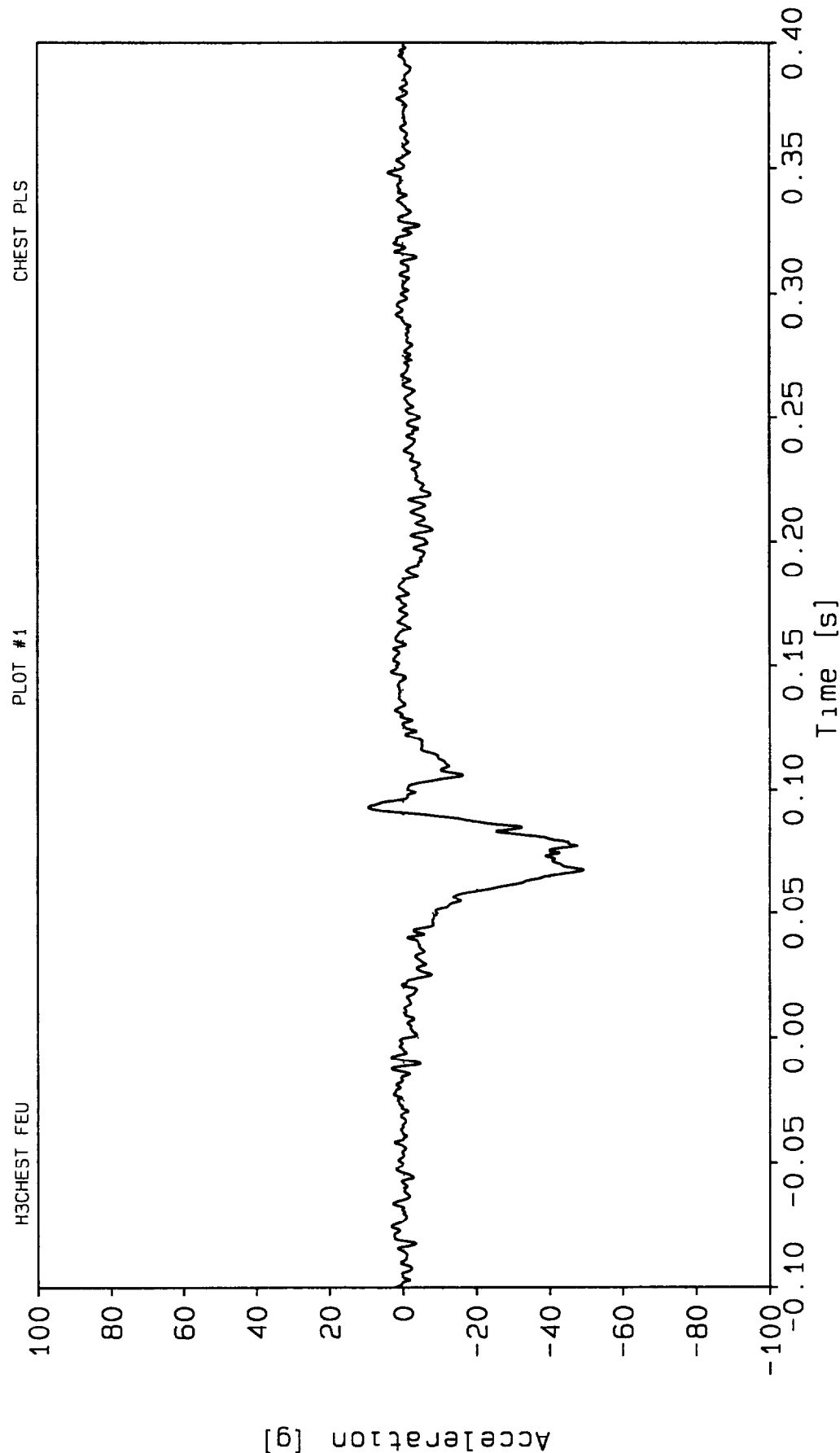
Volpe Crash Testing
PH05608

Chest Acceleration (Ax) v Time

Driver Dummy - HIII

2001 Dodge Neon

Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



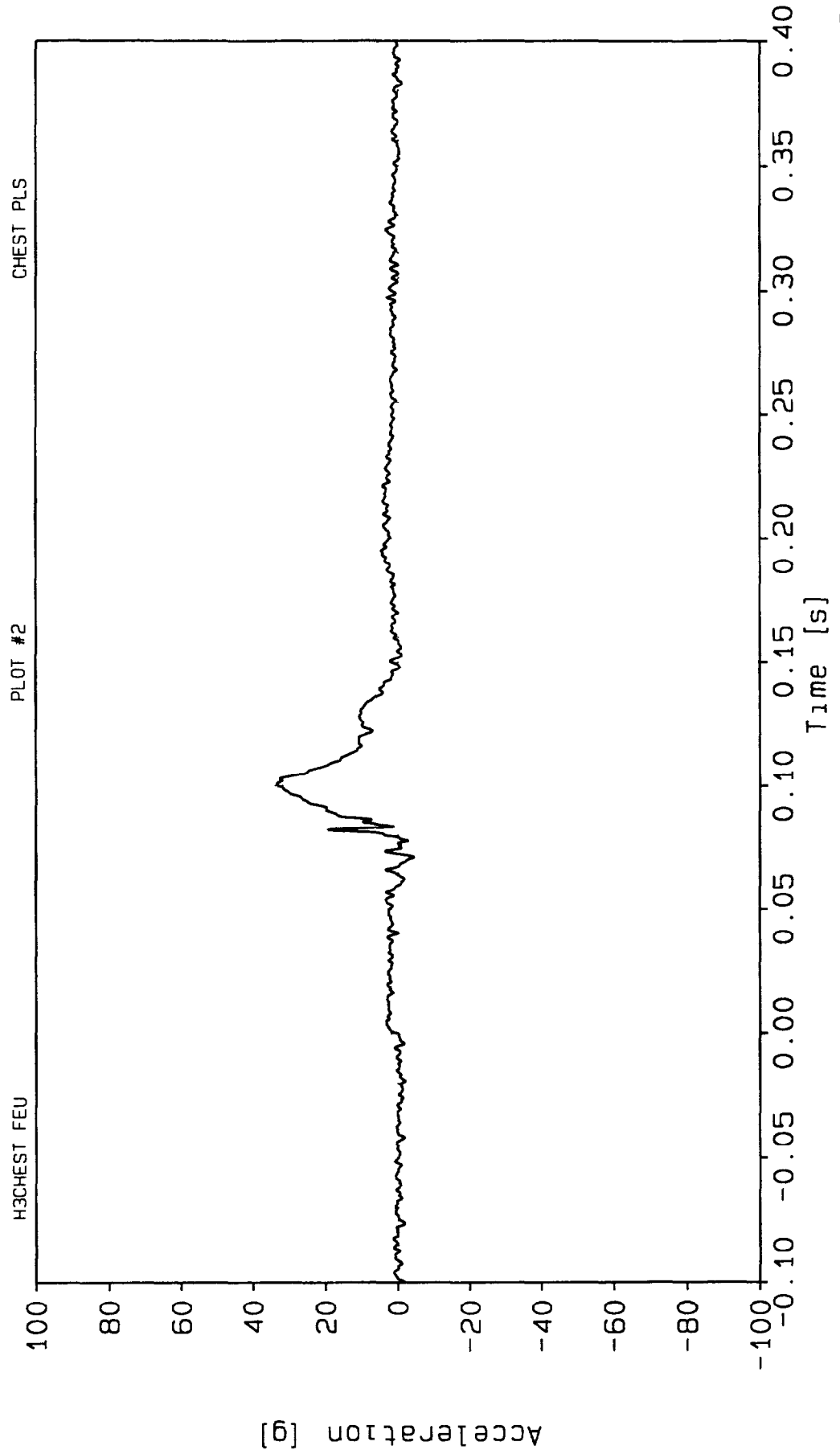
Filter Class 180
Volpe Crash Testing
PH06608

Exponent
Failure
Analysis
Associates

Chest Acceleration (Ay) v Time

Driver Dummy - HIII
2001 Dodge Neon

Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



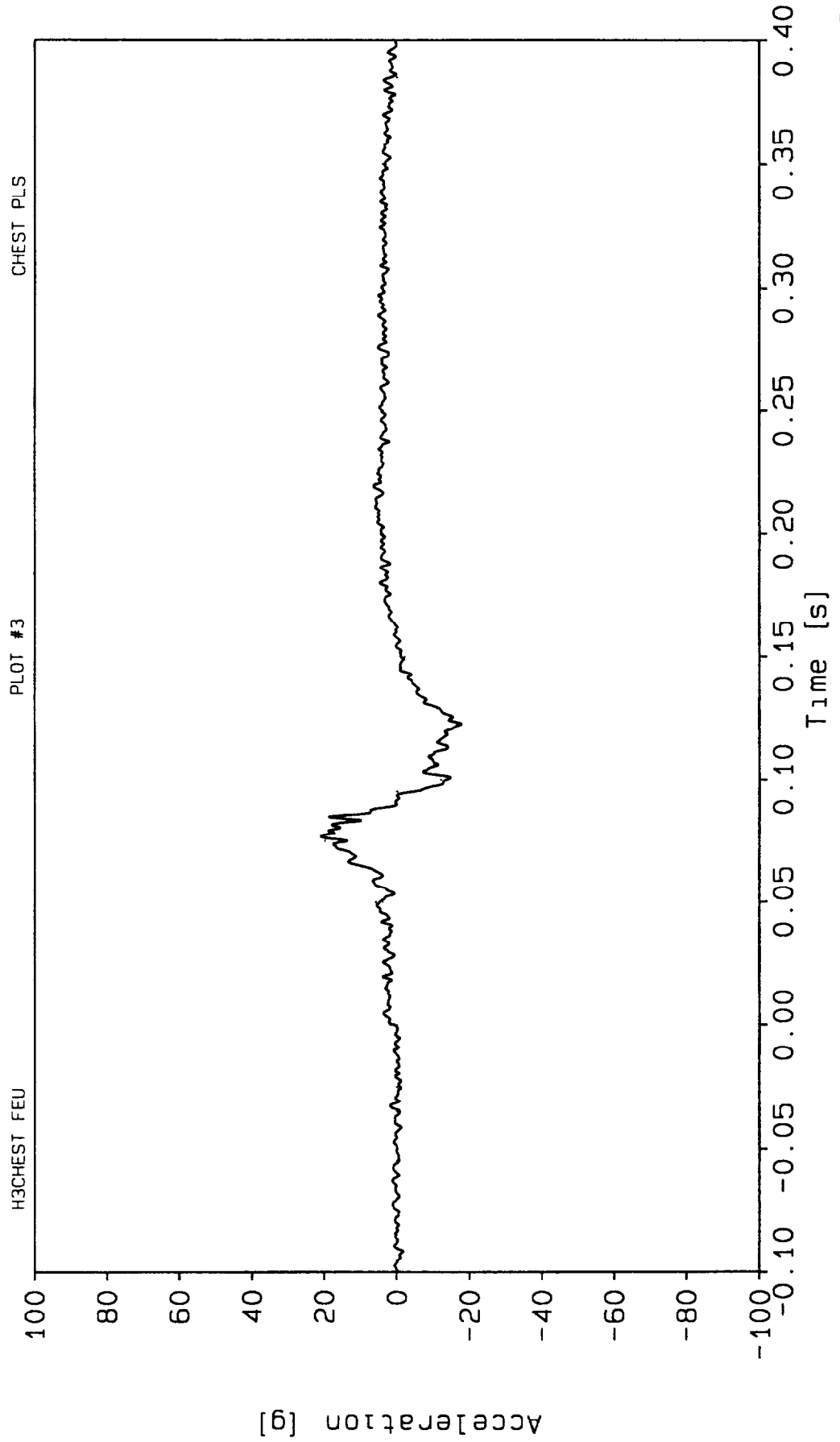
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Analysis
Associates

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Volpe Crash Testing
PH06608

Chest Acceleration (Az) v Time

Driver Dummy - HIII
2001 Dodge Neon

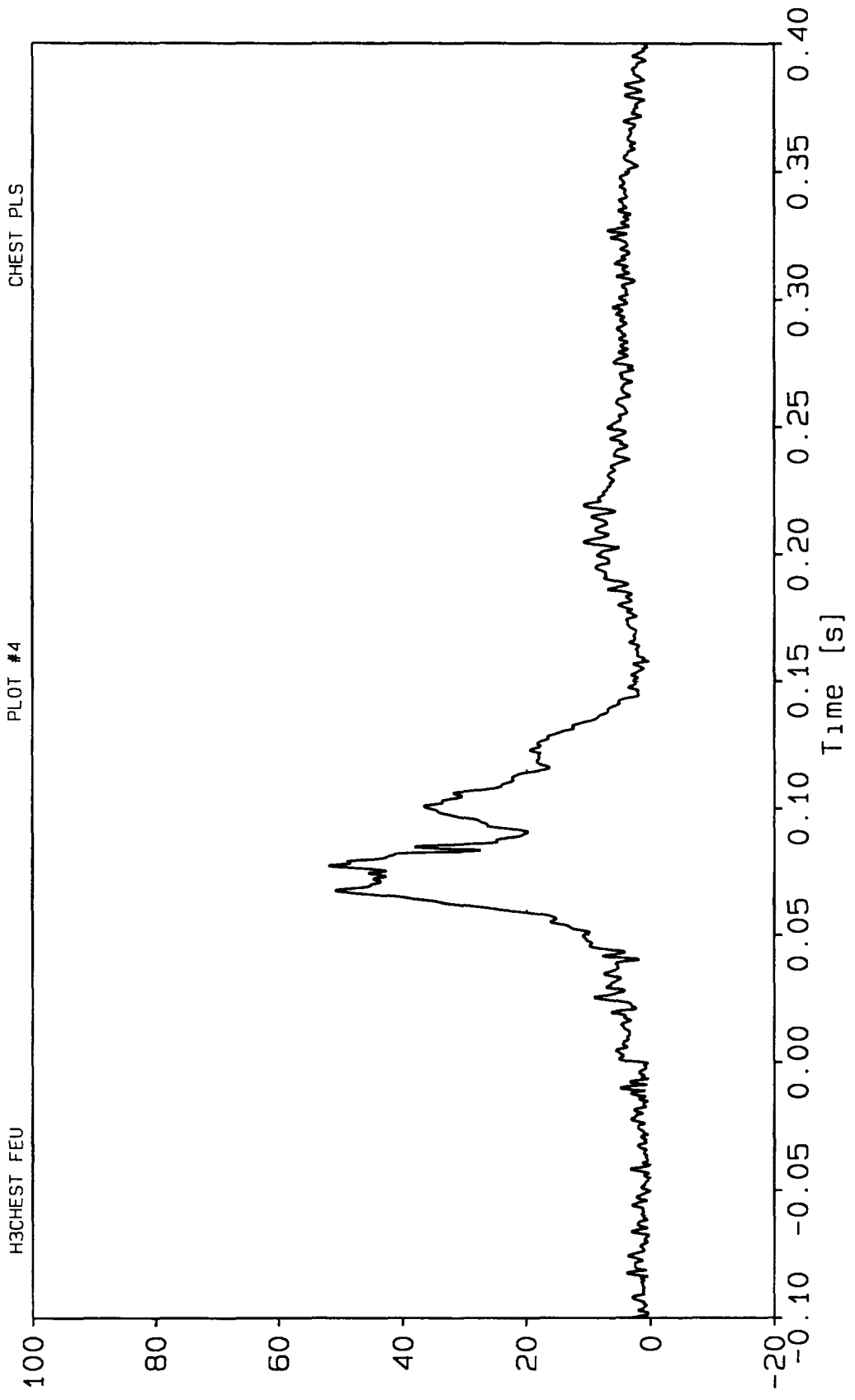
Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



Filter Class 180
Volpe Crash Testing
PH06608

Exponent
Failure
Analysis
Associates

Chest Resultant Acceleration (Ar) v Time
Driver Dummy - HIII
2001 Dodge Neon
Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



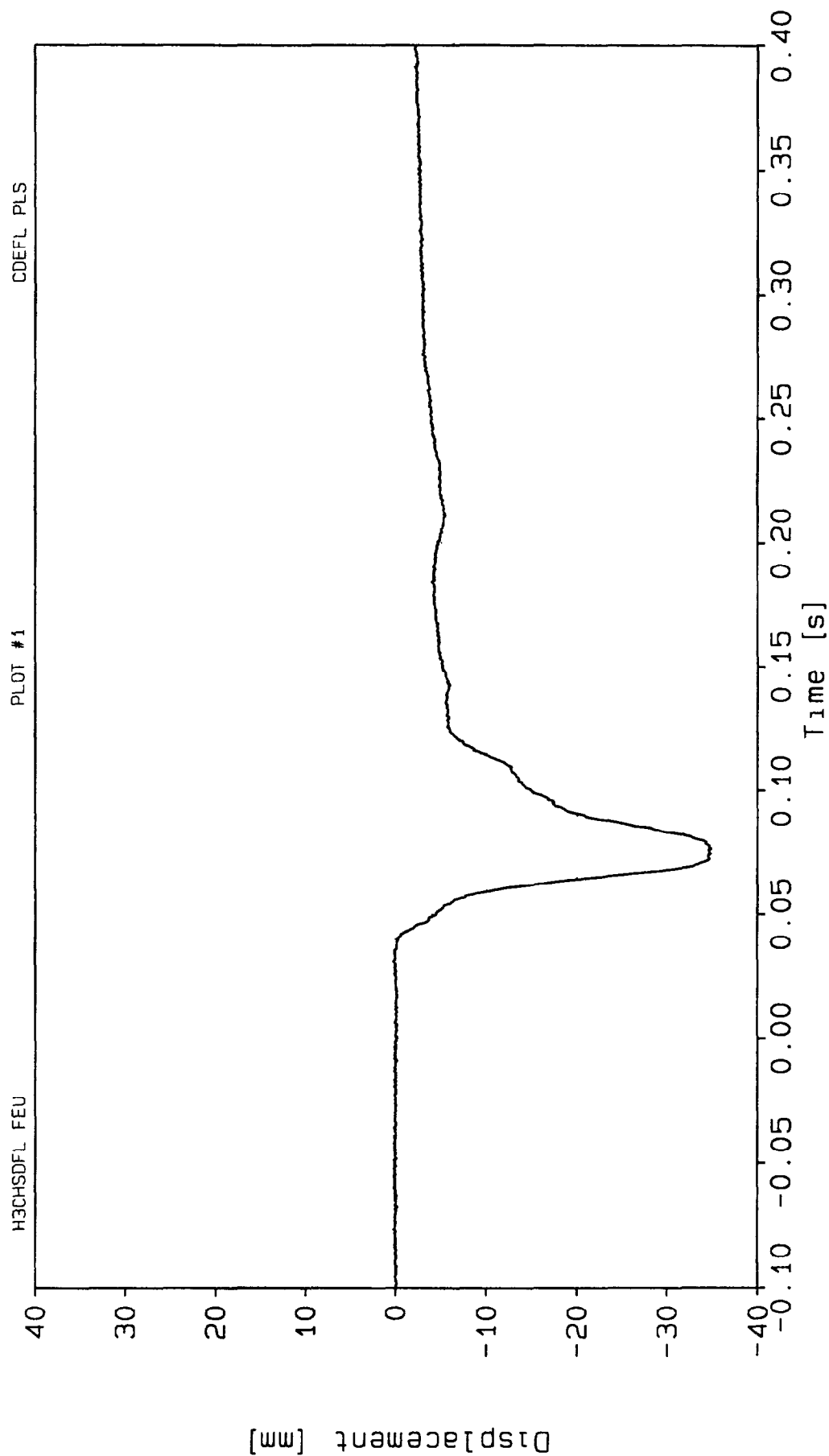
Exponent
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Analysis
Associates

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Volpe Crash Testing
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Chest Deflection (Dx) v Time

Driver Dummy - HIII
2001 Dodge Neon

Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



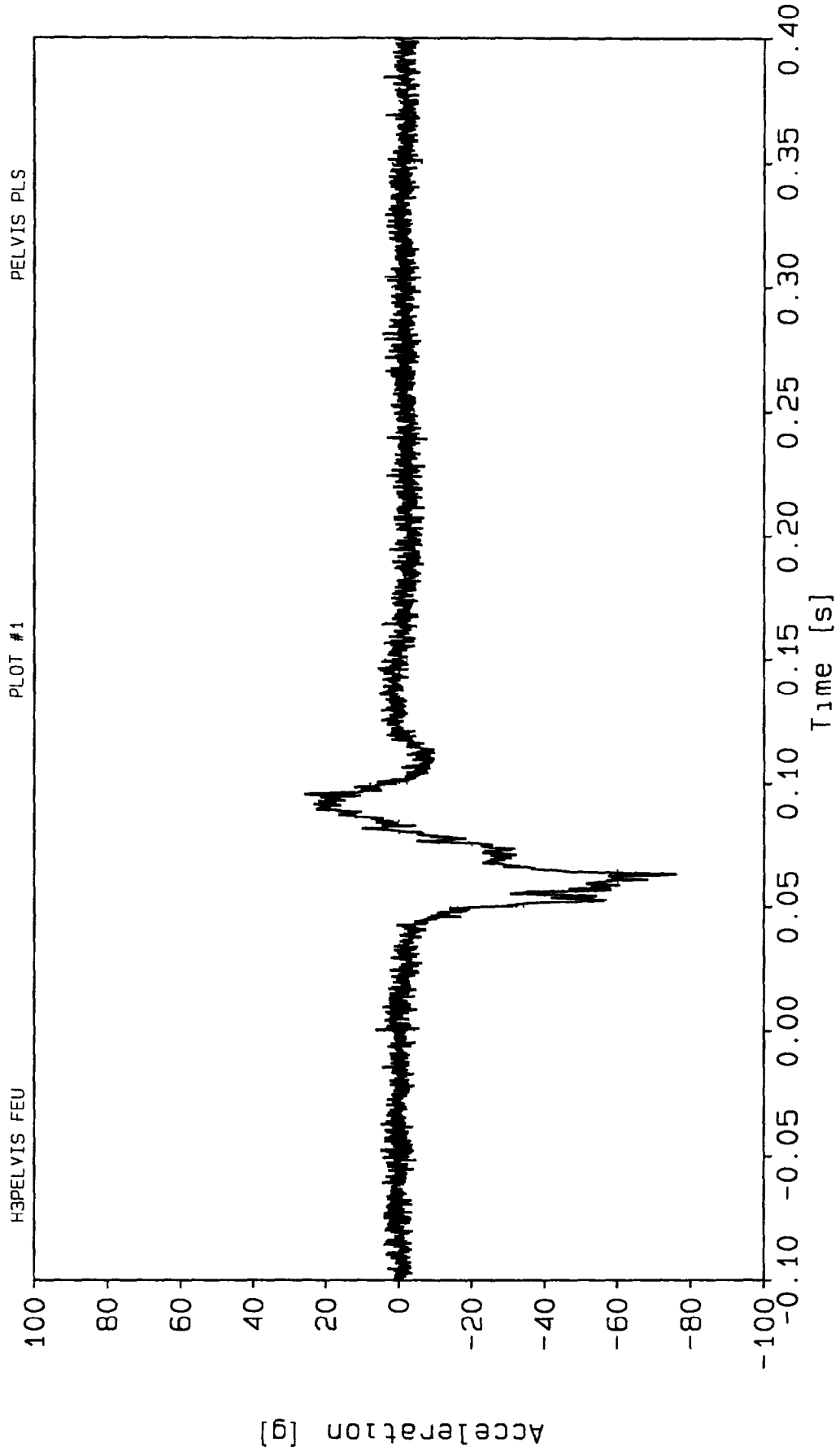
Filter Class 600
Volpe Crash Testing
PH06608

Exponent
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Analysis
Associates

Pelvis Acceleration (Ax) v Time

Driver Dummy - HIII
2001 Dodge Neon

Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



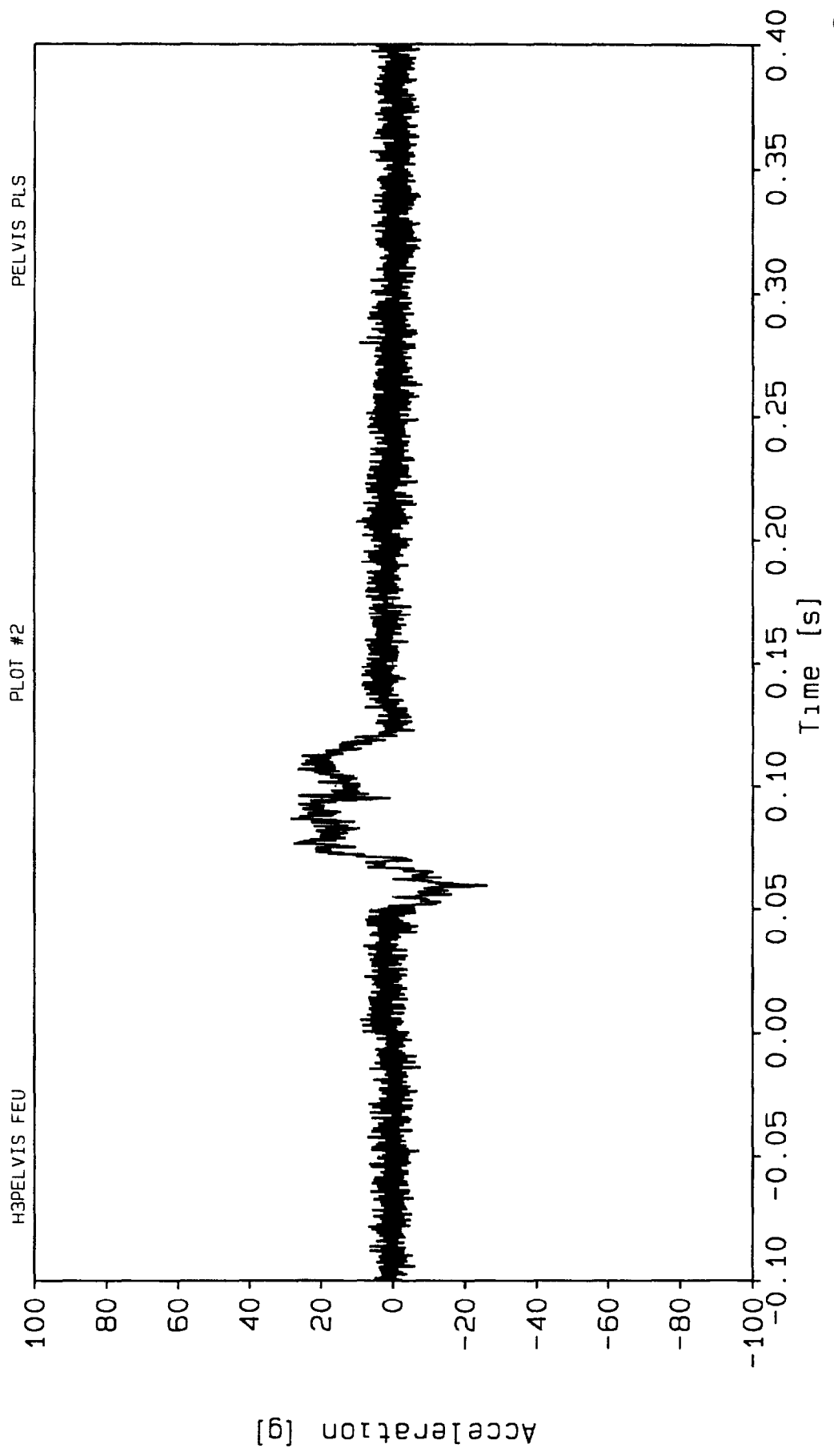
Exponent
Failure
Analysis
Associates

Filter Class 1000
Volpe Crash Testing
PH06608

Pelvis Acceleration (Ay) v Time

Driver Dummy - HIII
2001 Dodge Neon

Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



Filter Class 1000
Volpe Crash Testing
PH05608

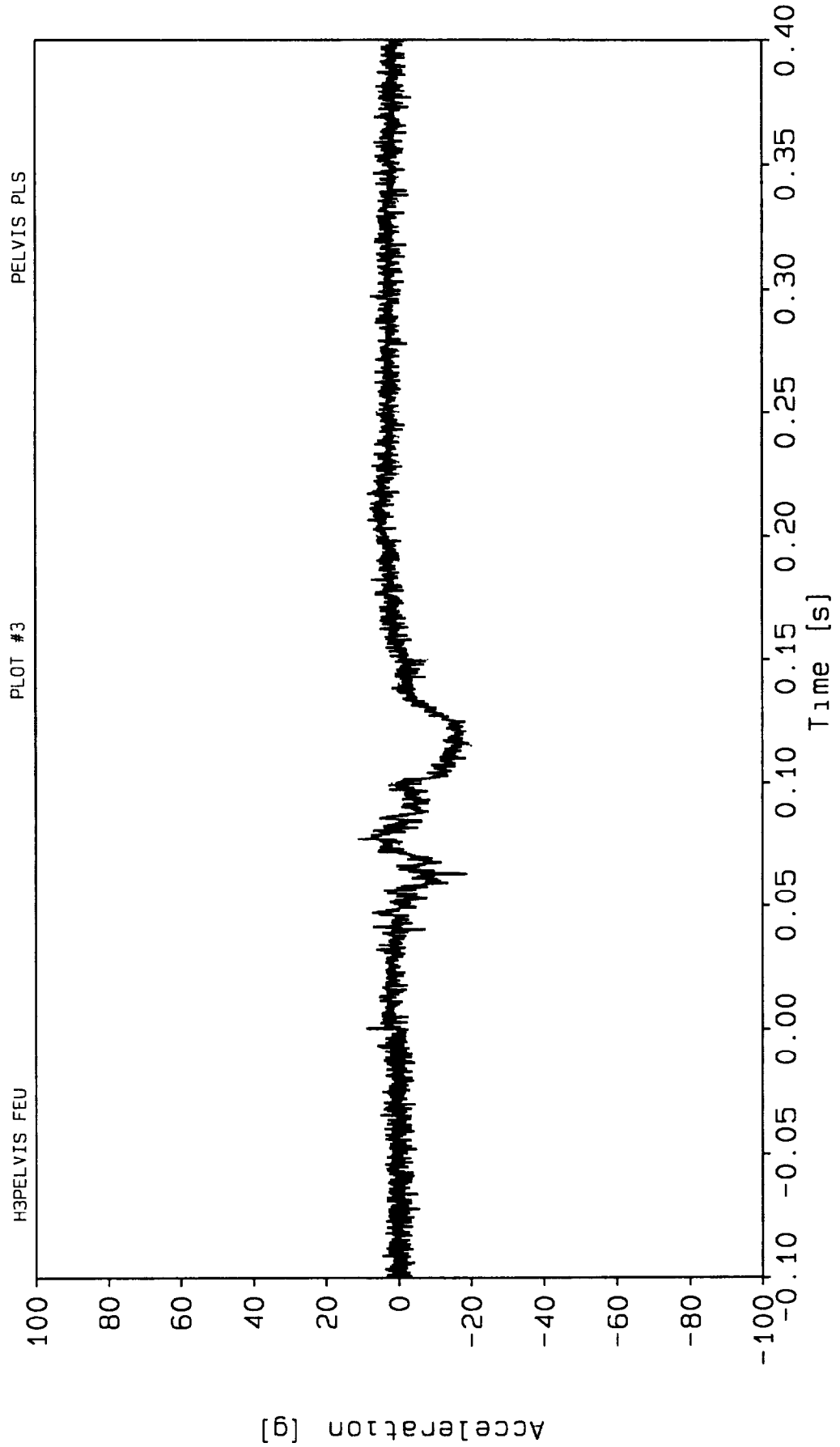
Exponent
Failure
Analysis
Associates

Pelvis Acceleration (Az) v Time

Driver Dummy - HIII

2001 Dodge Neon

Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



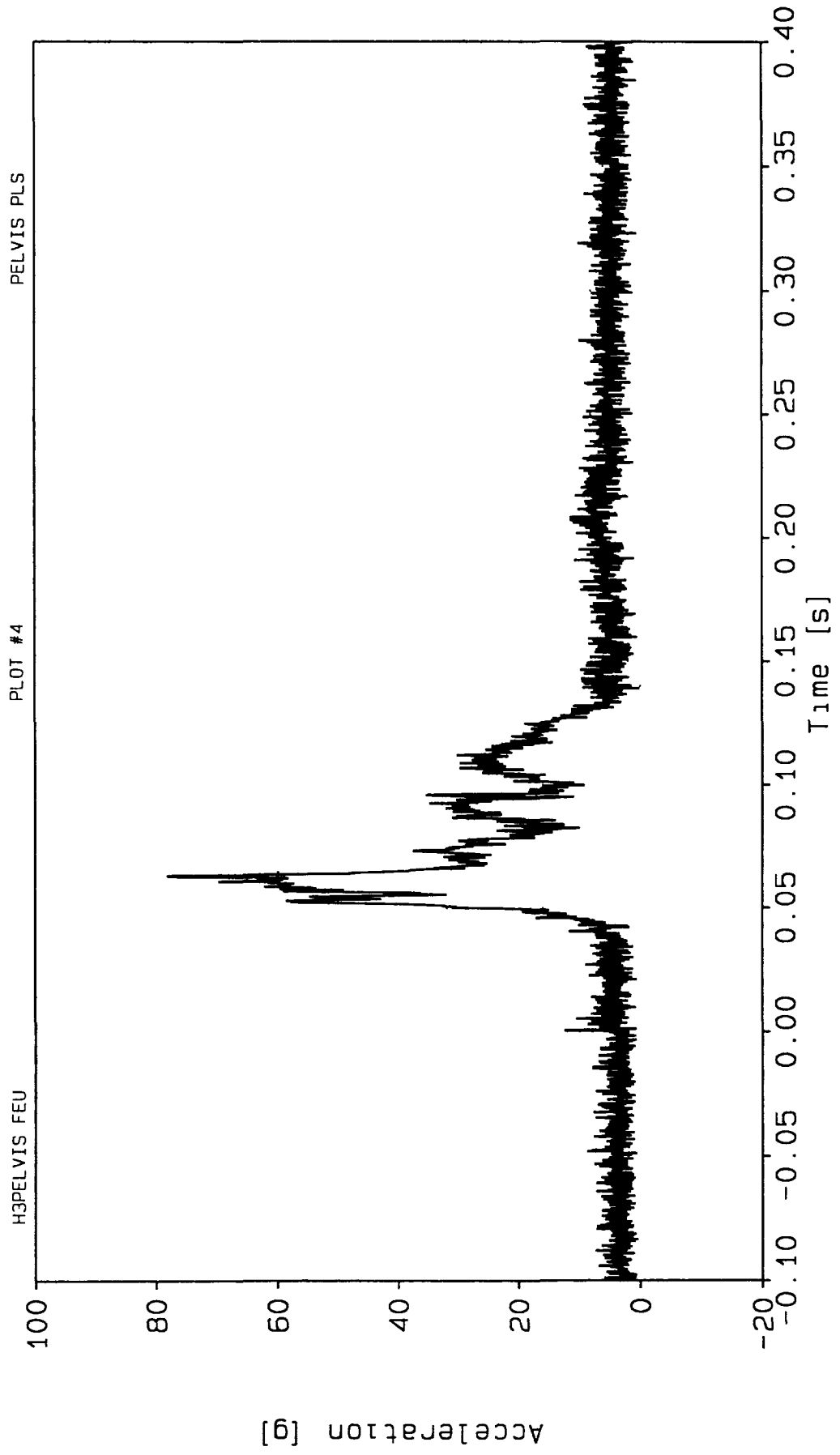
Filter Class 1000
Volpe Crash Testing
PH06608

Exponent
Failure
Analysis
Associates

Pelvis Acceleration (Ar) v Time

Driver Dummy - HIII
2001 Dodge Neon

Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



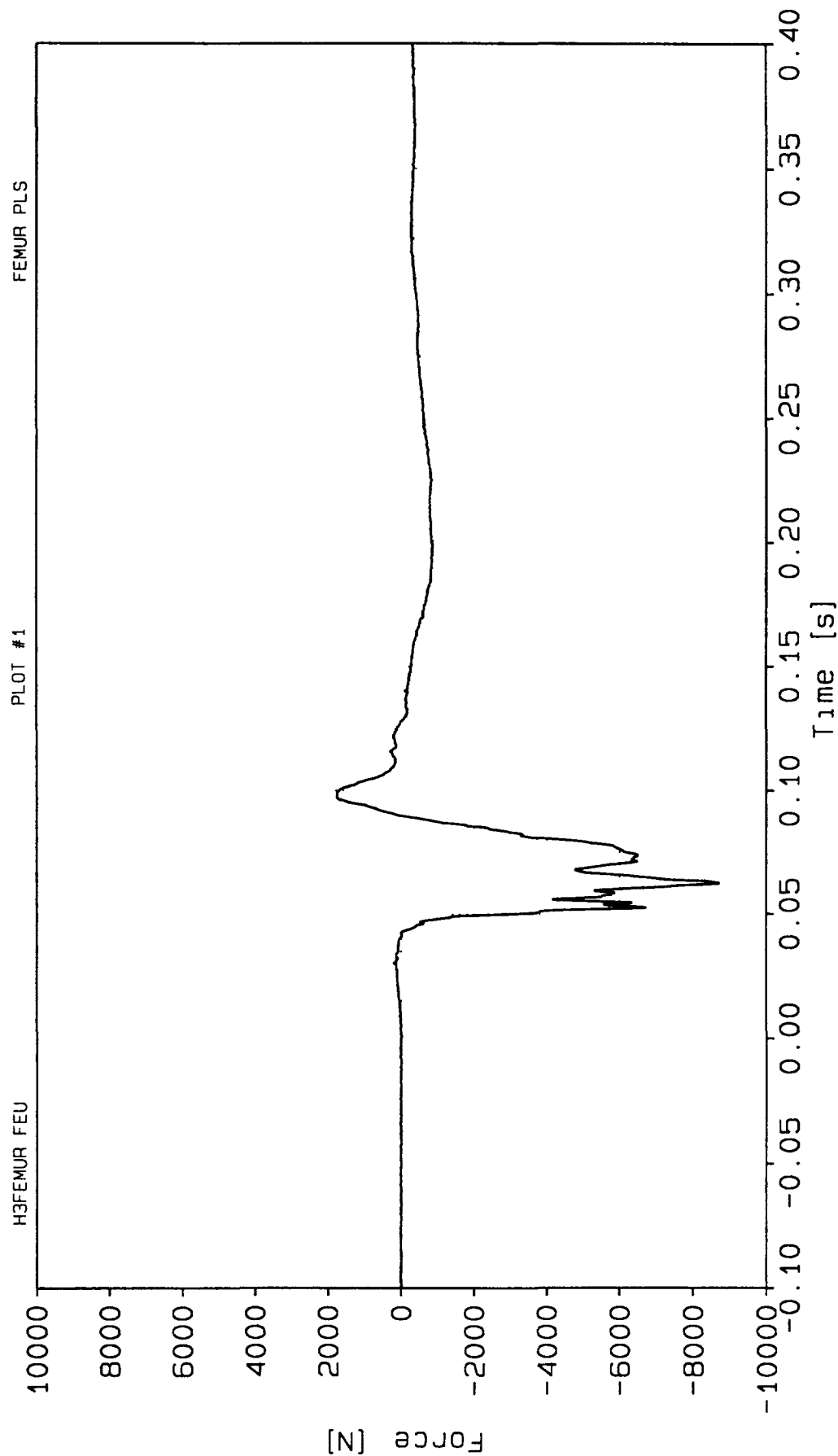
Filter Class 1000
Volpe Crash Testing
PH05608

Exponent
Failure
Analysis
Associates

Left Femur Force v Time

Driver Dummy - HIII
2001 Dodge Neon

Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



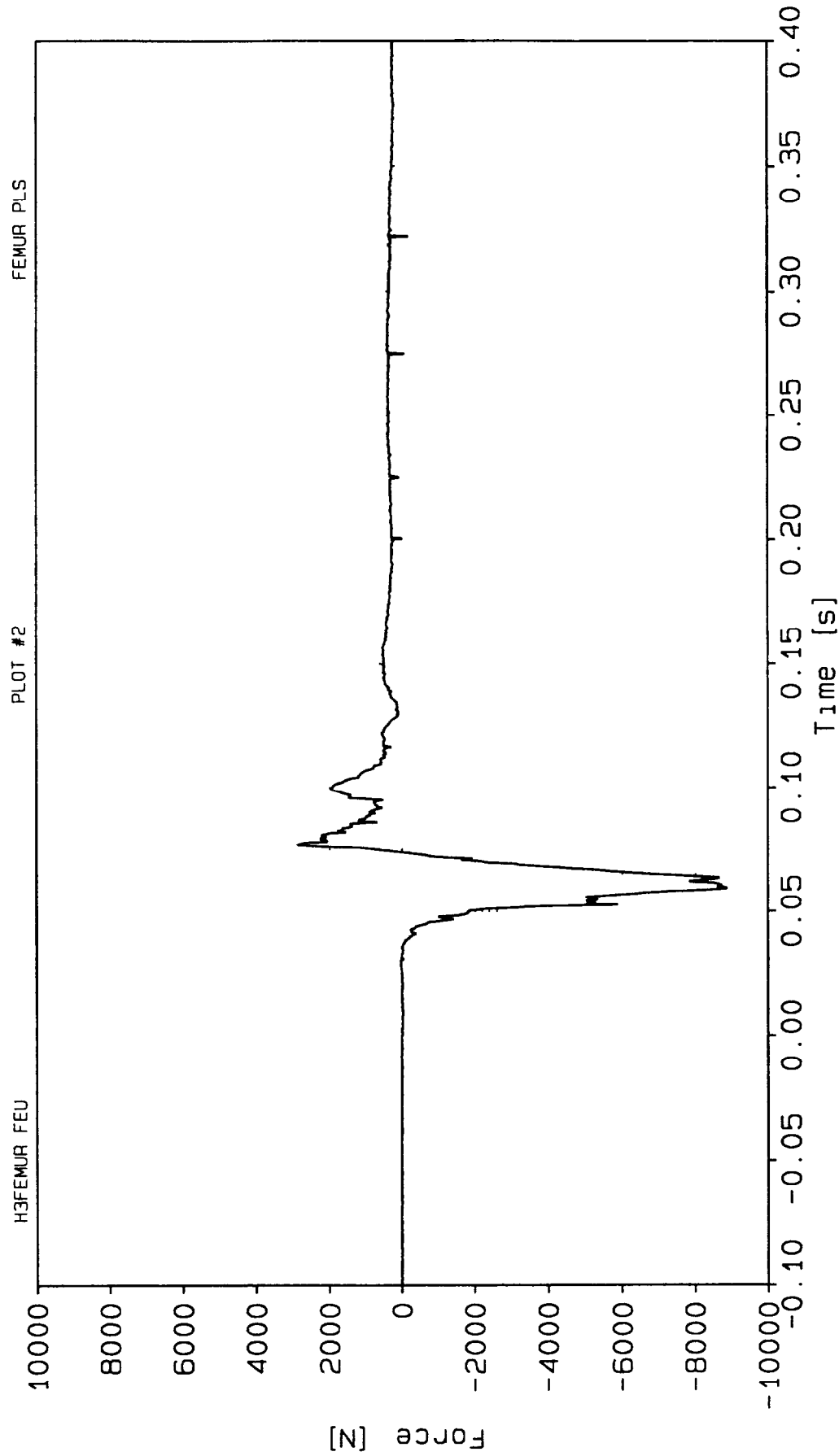
Exponent
Failure
Analysis
Associates

Filter Class 600
Volpe Crash Testing
PH06608

Right Femur Force v Time

Driver Dummy - HIII
2001 Dodge Neon

Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



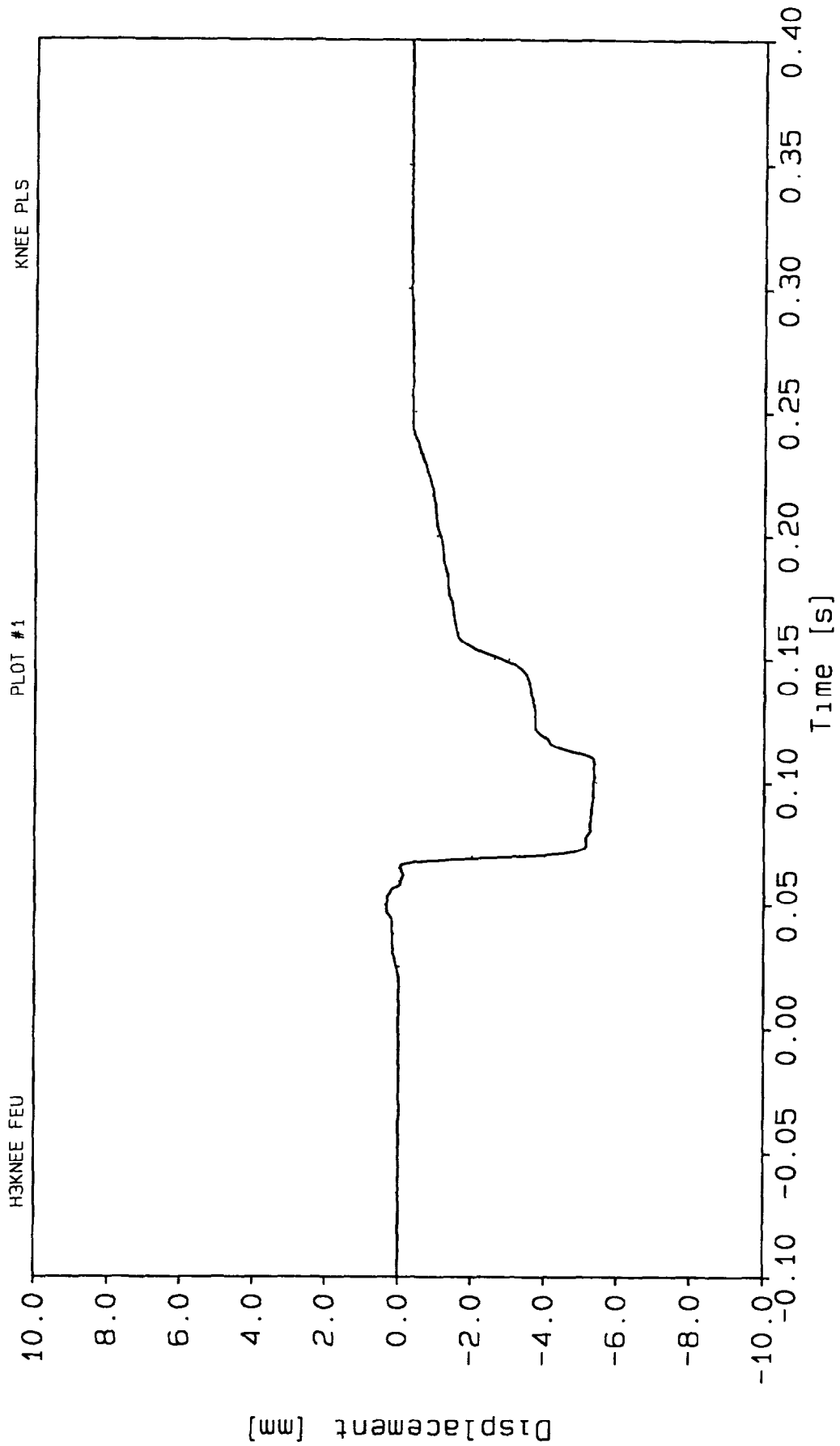
Filter Class 500
Volpe Crash Testing
PH06608

Exponent
Failure
Analysis
Associates

Left Knee Displacement v Time

Driver Dummy - HIII
2001 Dodge Neon

Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



Exponent
Failure
Analysis
Associates

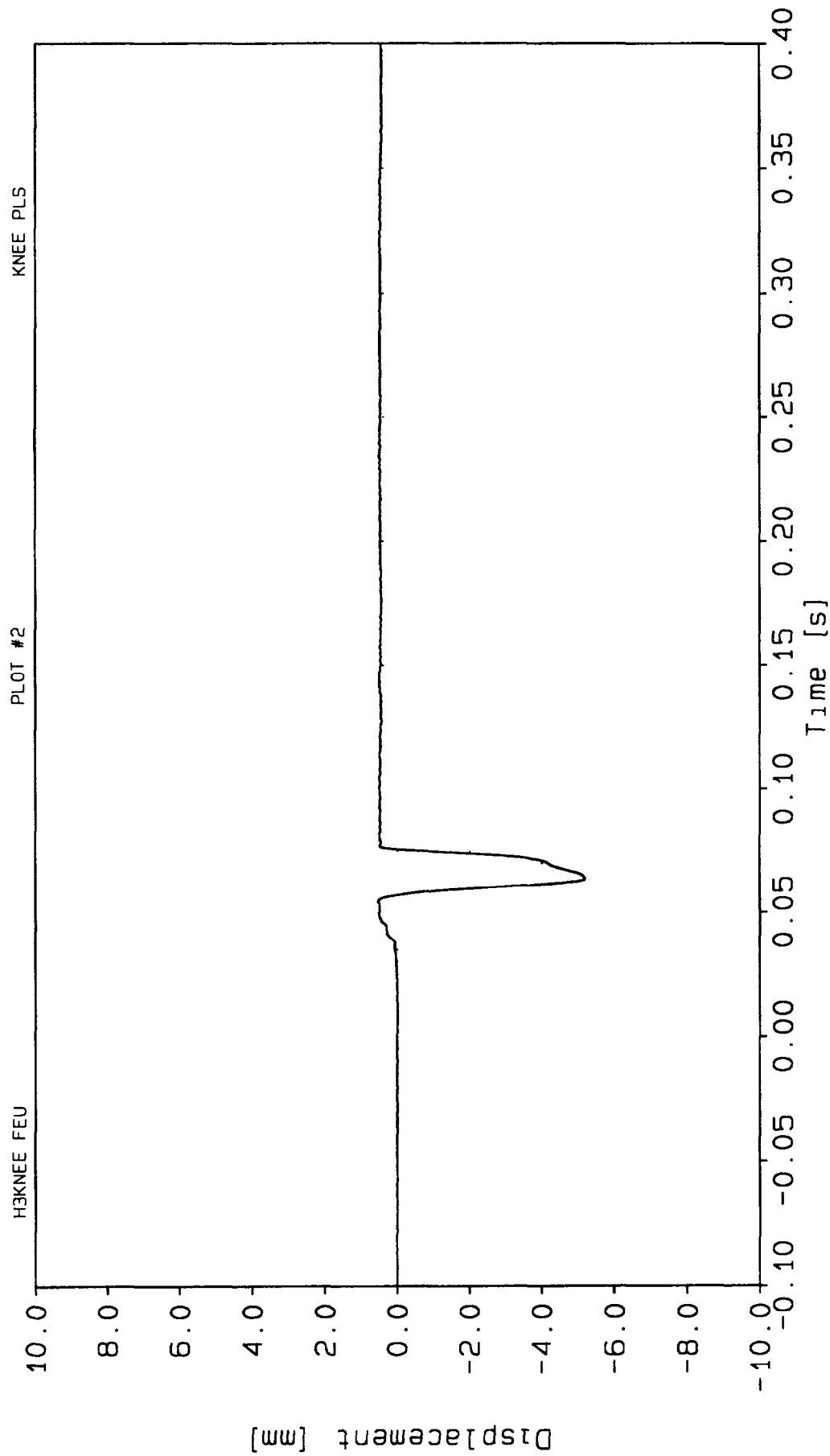
Filter Class 180
Volpe Crash Testing
PH06608

Right Knee Displacement v Time

Driver Dummy - HIII

2001 Dodge Neon

Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



Filter Class 180
Volpe Crash Testing
PH05608

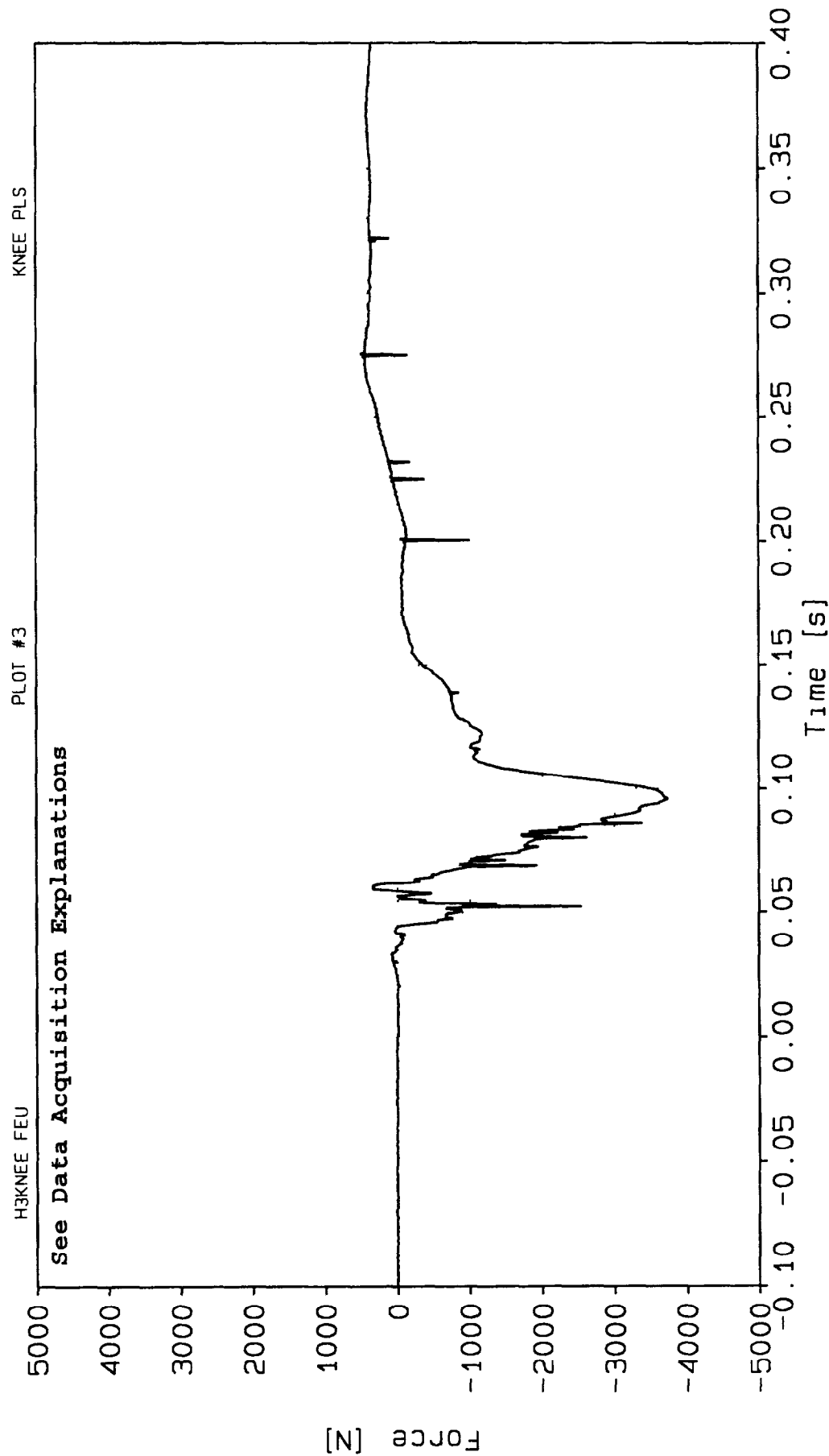
Exponent
Failure
Analysis
Associates

Left Knee Left Force v Time

Driver Dummy - HIII

2001 Dodge Neon

Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



Exponent
Failure
Analysis
Associates

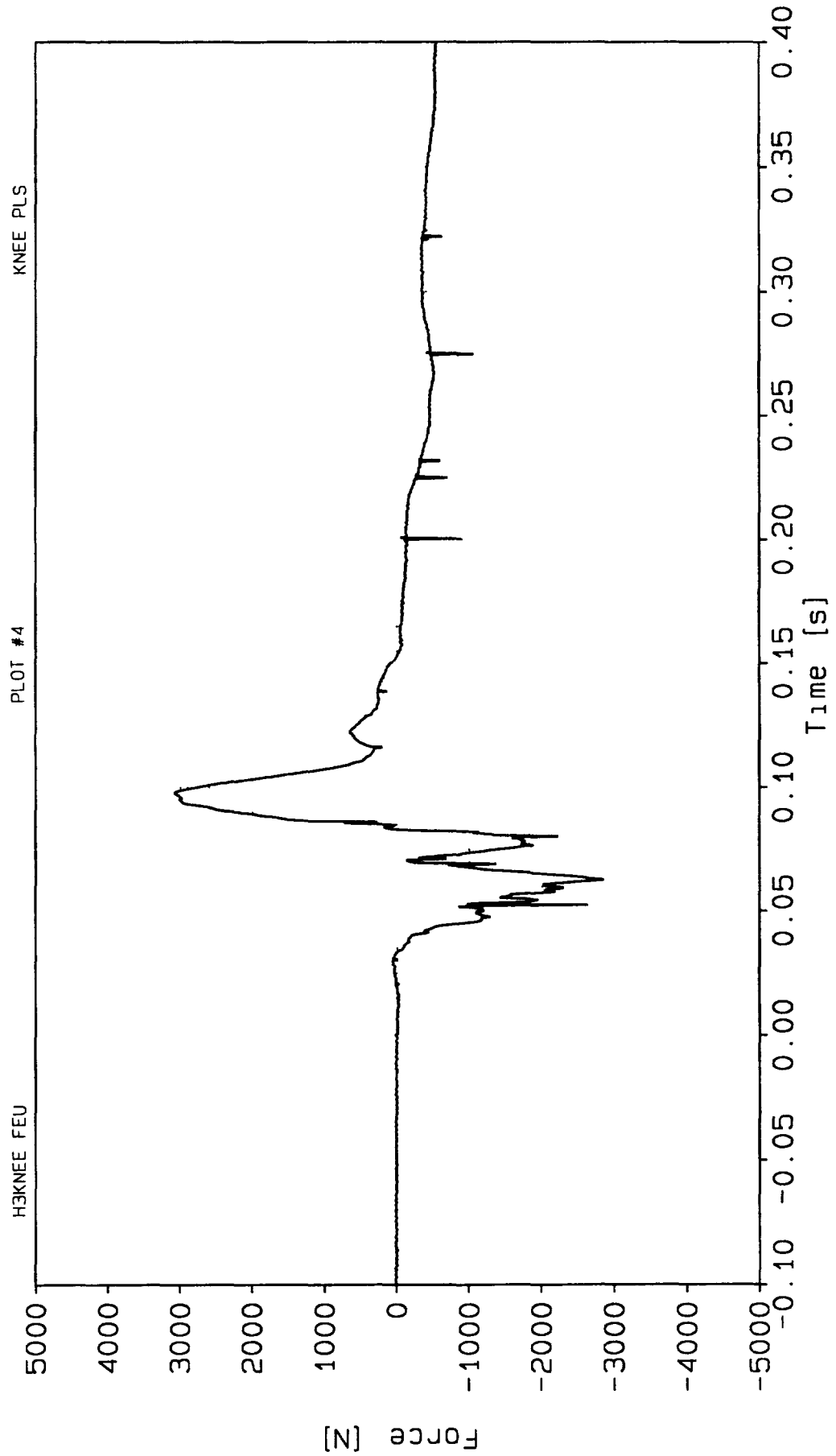
Filter Class 500
Volpe Crash Testing
PH06508

Left Knee Right Force v Time

Driver Dummy - HIII

2001 Dodge Neon

Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



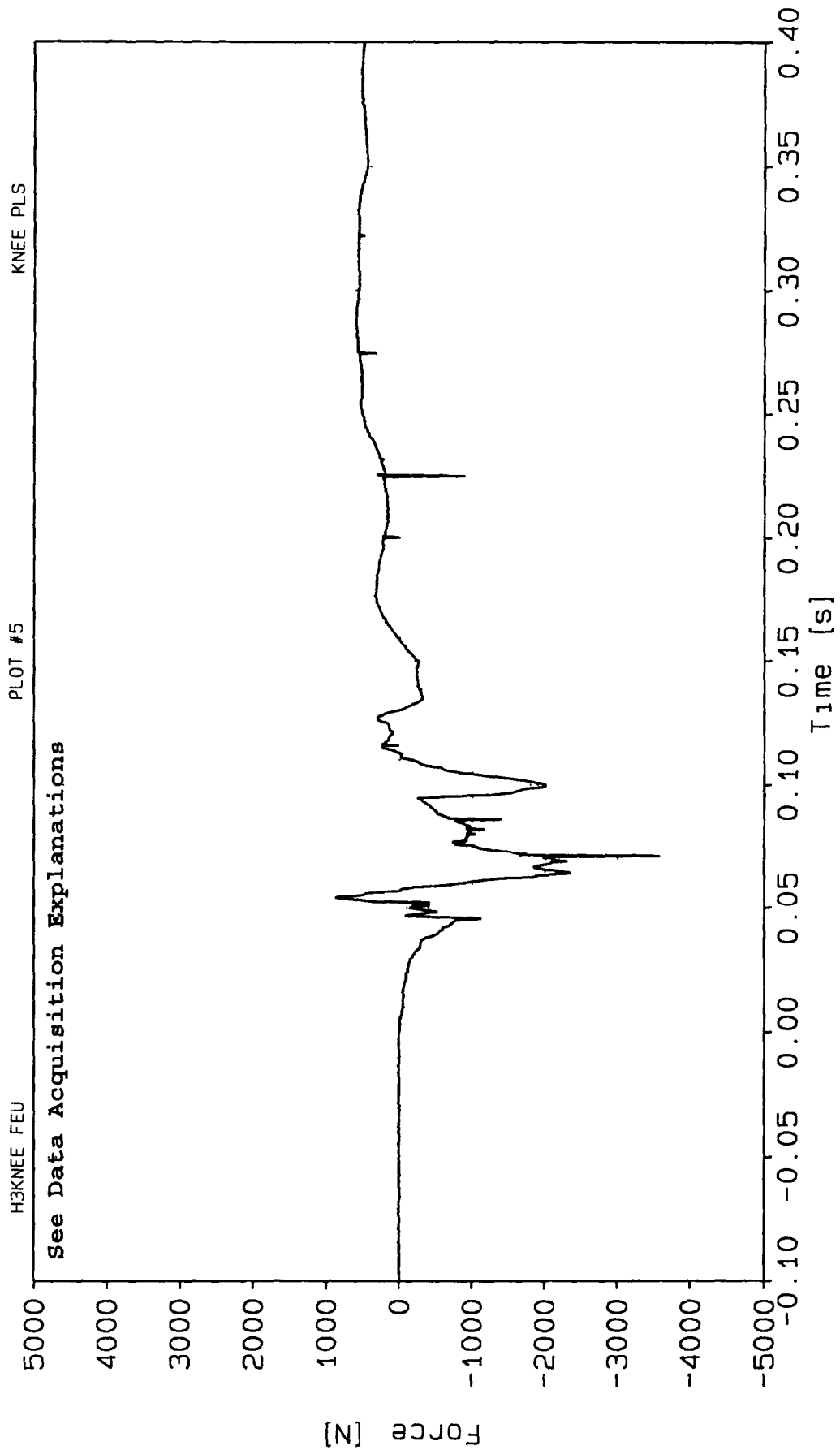
Exponent
Failure
Analysis
Associates

Filter Class 600
Volpe Crash Testing
PH06608

Right Knee Left Force v Time

Driver Dummy - HIII
2001 Dodge Neon

Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



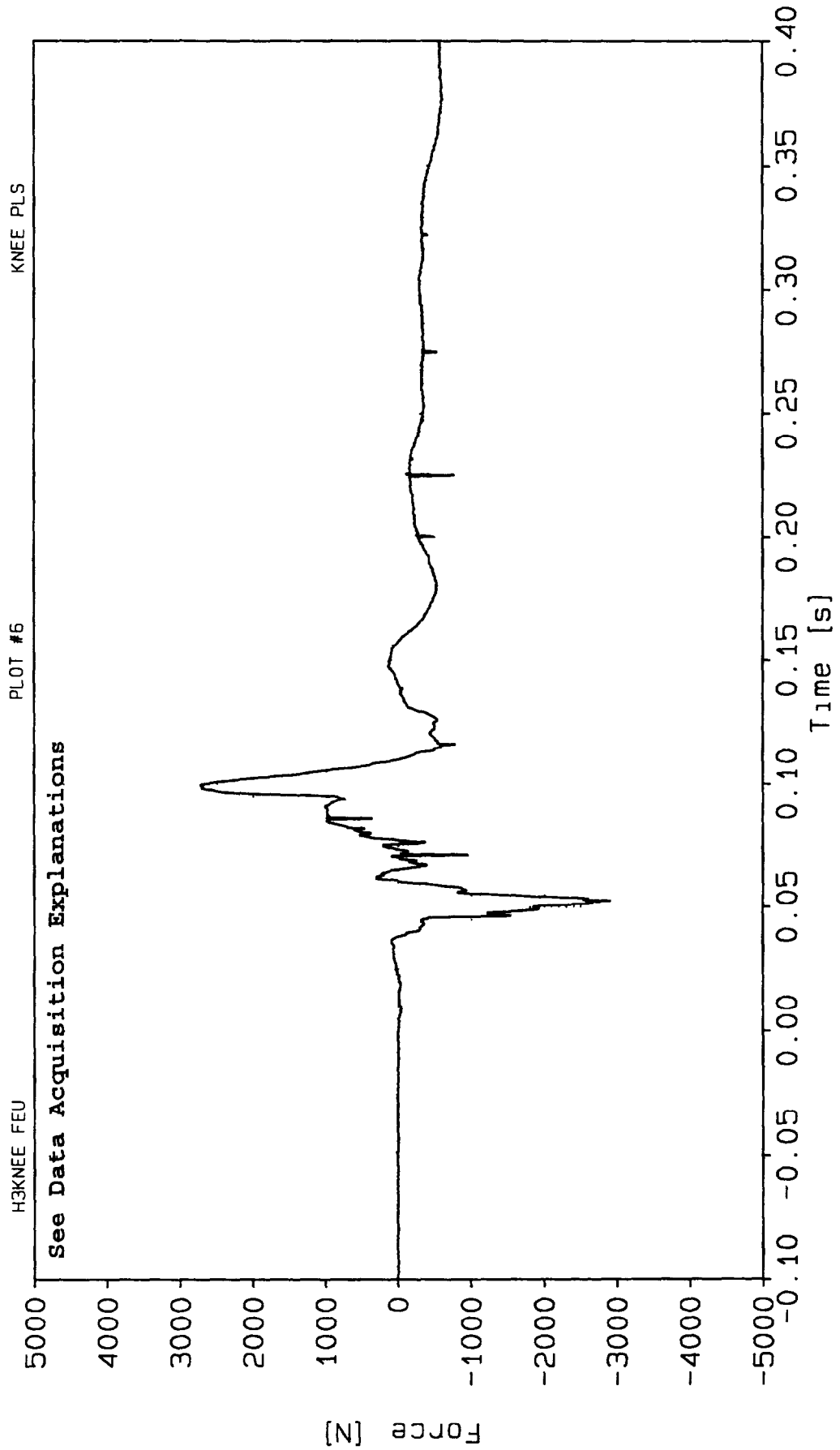
Exponent
Failure
Analysis
Associates

Filter Class 600
Volpe Crash Testing
PH06608

Right Knee Right Force v Time

Driver Dummy - HIII
2001 Dodge Neon

Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



Exponent
Failure
Analysis
Associates

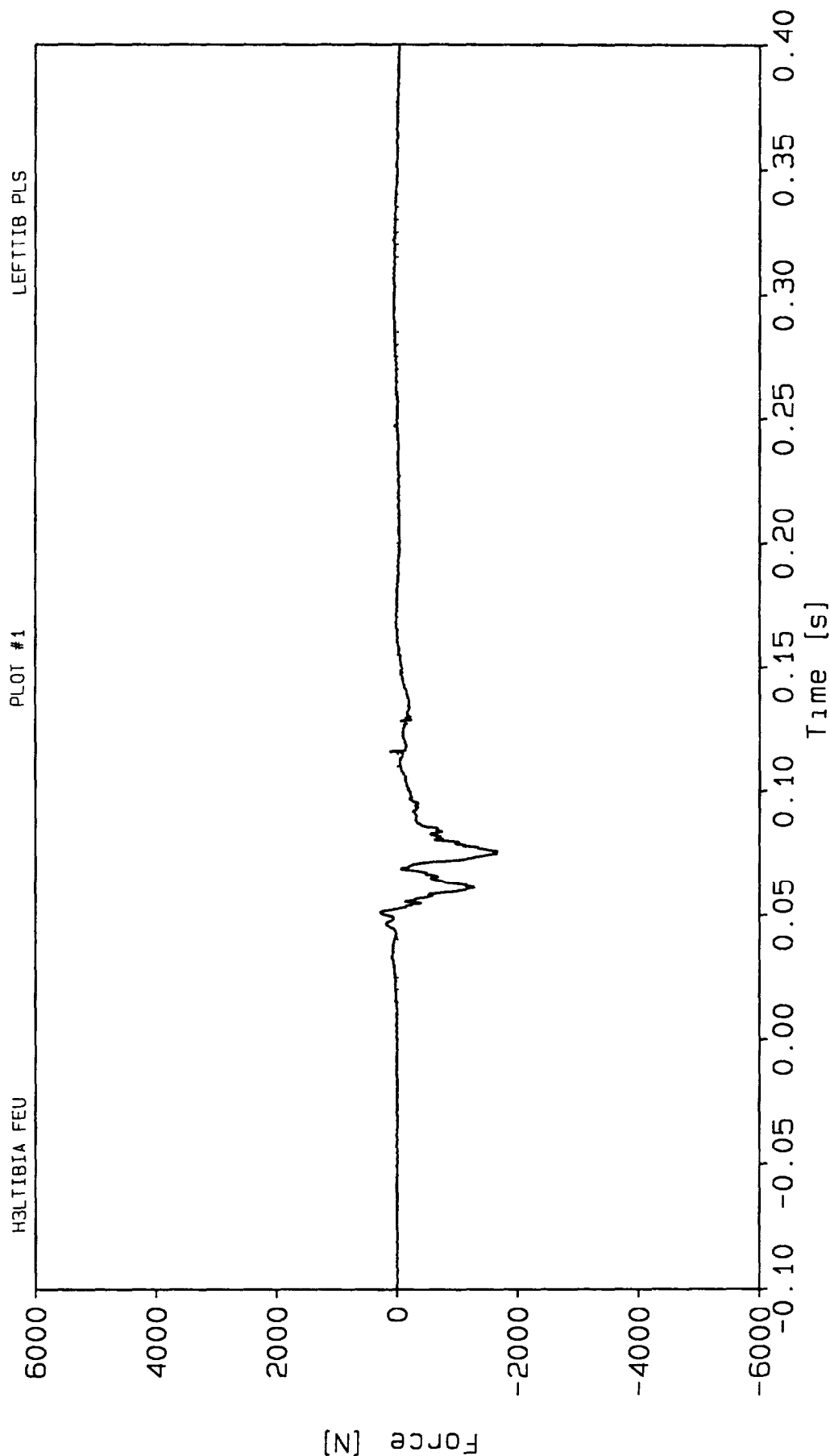
Filter Class 500
Volpe Crash Testing
PH06608

Left Upper Tibia Force (Fx) v Time

Driver Dummy - HIII

2001 Dodge Neon

Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



Exponent
Failure
Analysis
Associates

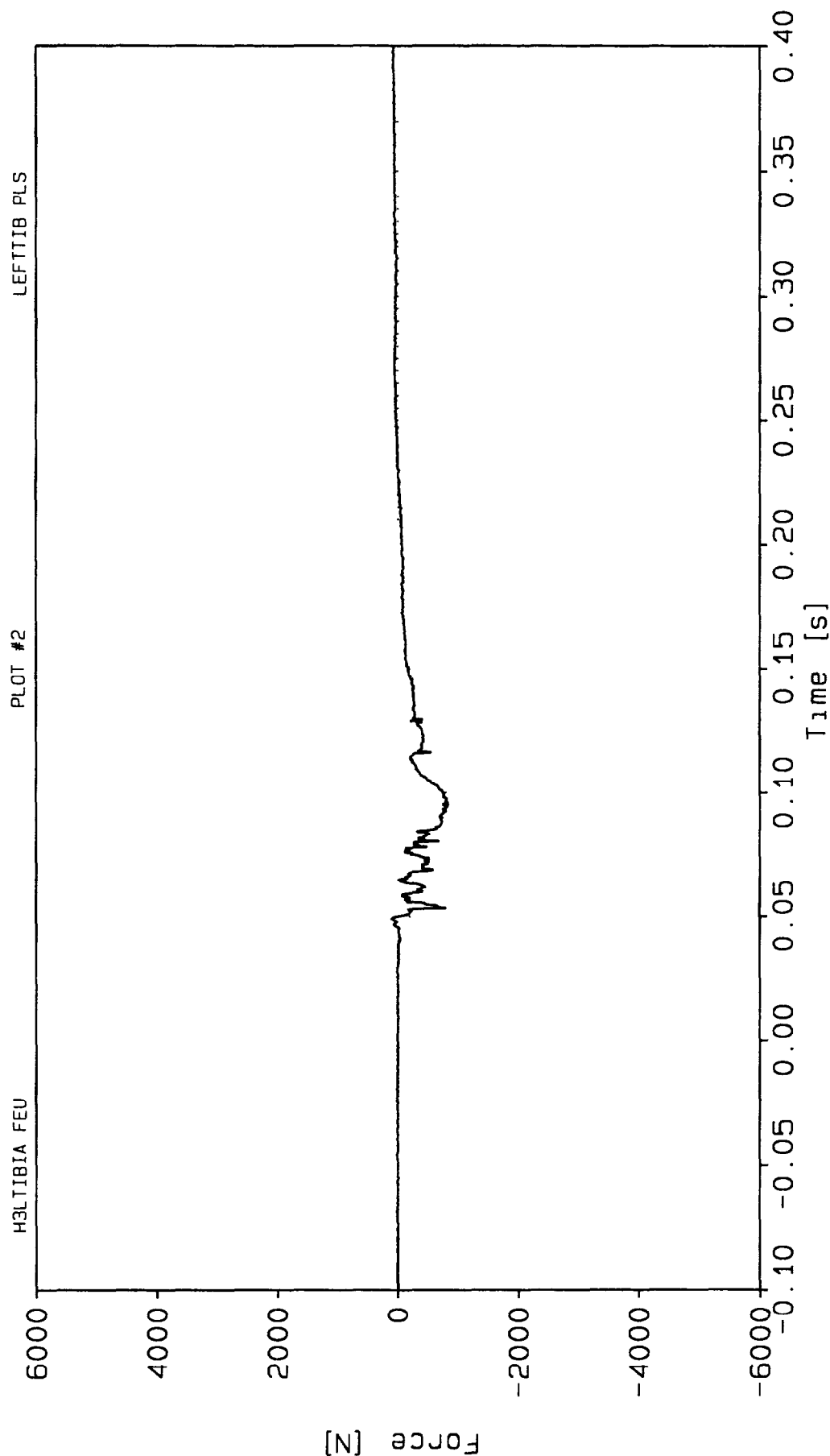
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Volpe Crash Testing
PH06608

Left Upper Tibia Force (Fy) v Time

Driver Dummy - HIII

2001 Dodge Neon

Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



Exponent
Failure
Analysis
Associates

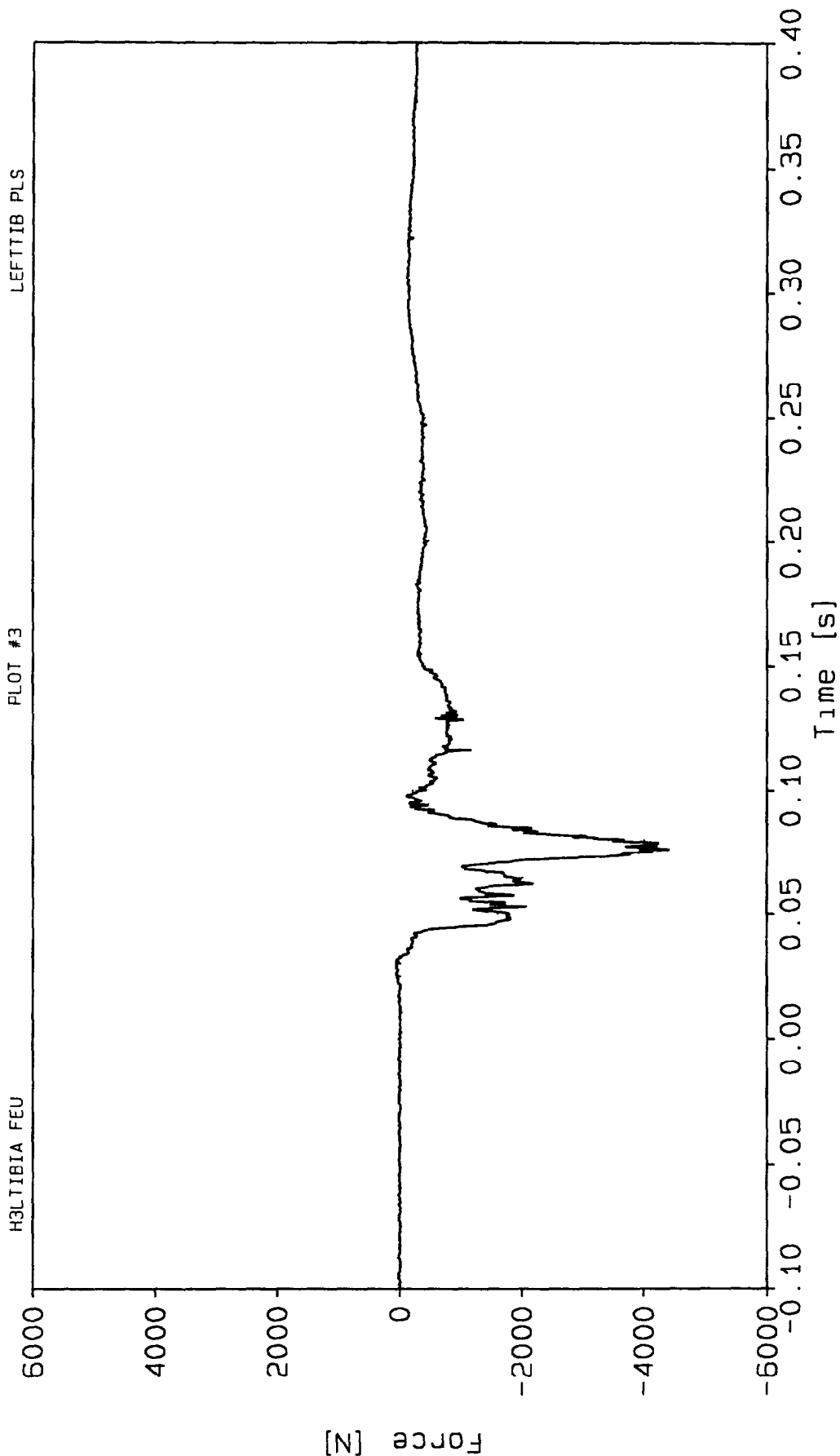
Filter Class 600
Voipe Crash Testing
PH06608

Left Upper Tibia Force (Fz) v Time

Driver Dummy - HIII

2001 Dodge Neon

Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



Exponent
Failure
Analysis
Associates

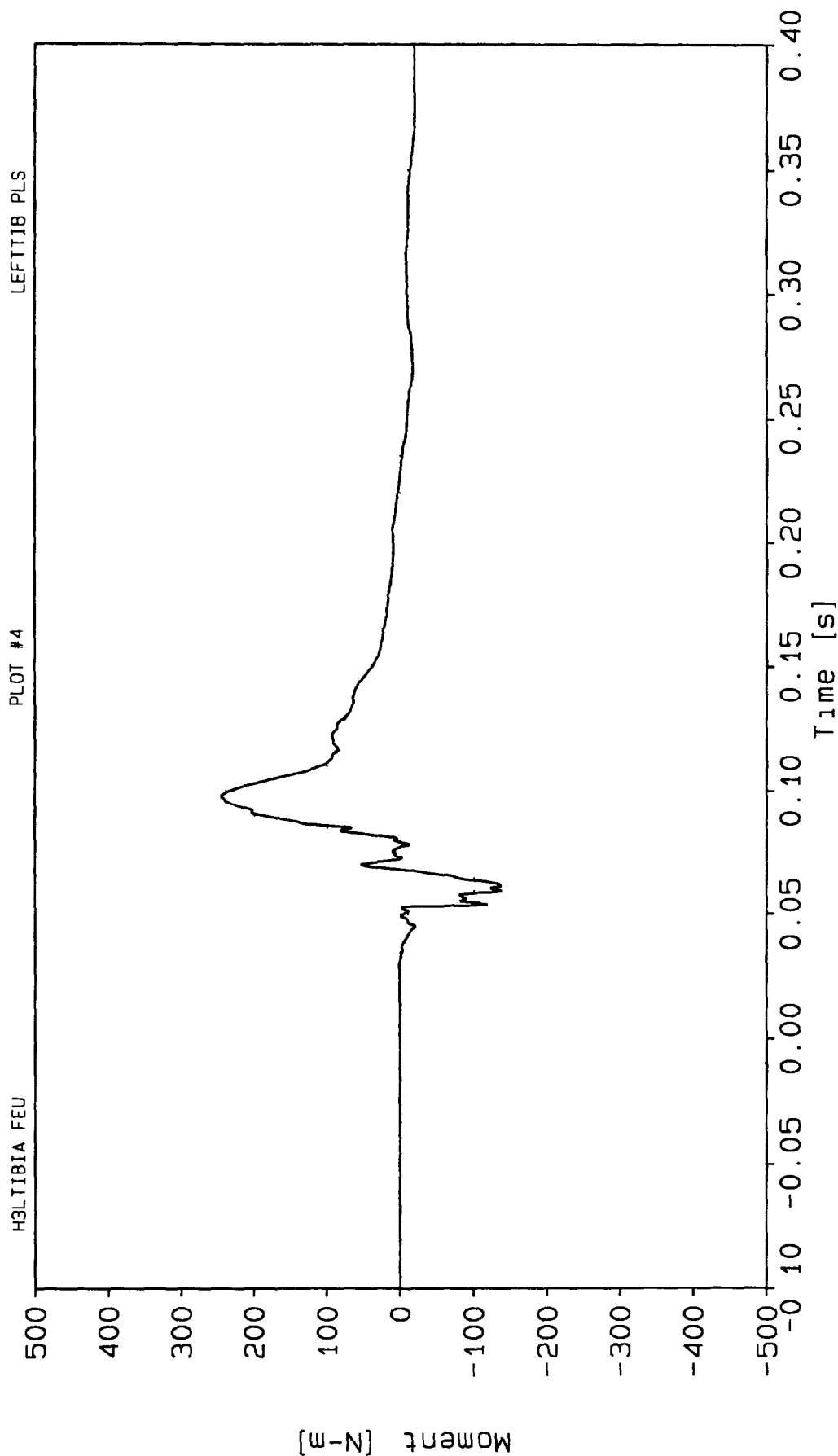
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Volpe Crash Testing
PH06608

Left Upper Tibia Moment (Mx) v Time

Driver Dummy - HIII

2001 Dodge Neon

Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



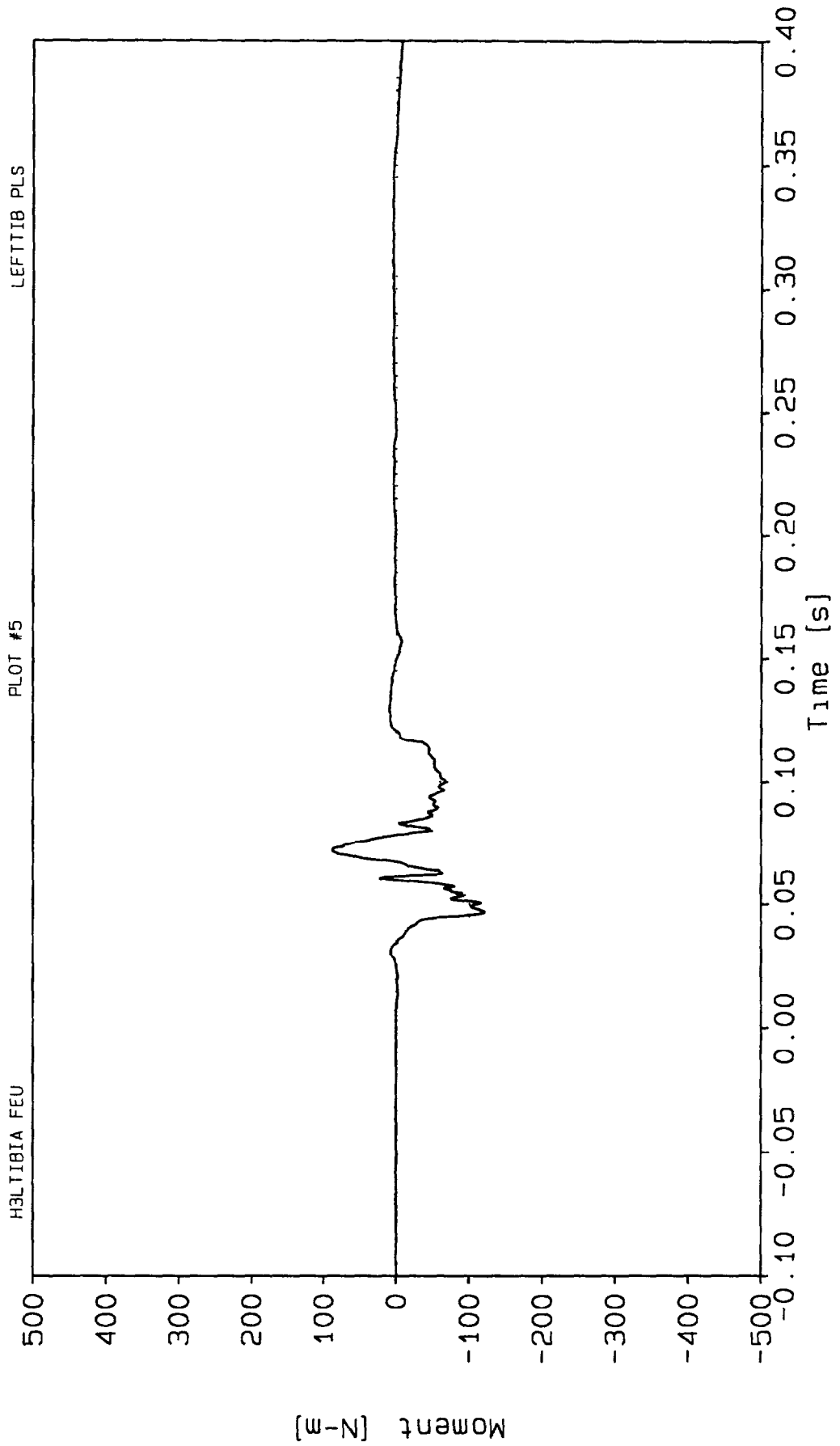
Exponent
Failure
Analysis
Associates

Filter Class 600
Volpe Crash Testing
PH06608

Left Upper Tibia Moment (My) v Time

Driver Dummy - HIII
2001 Dodge Neon

Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



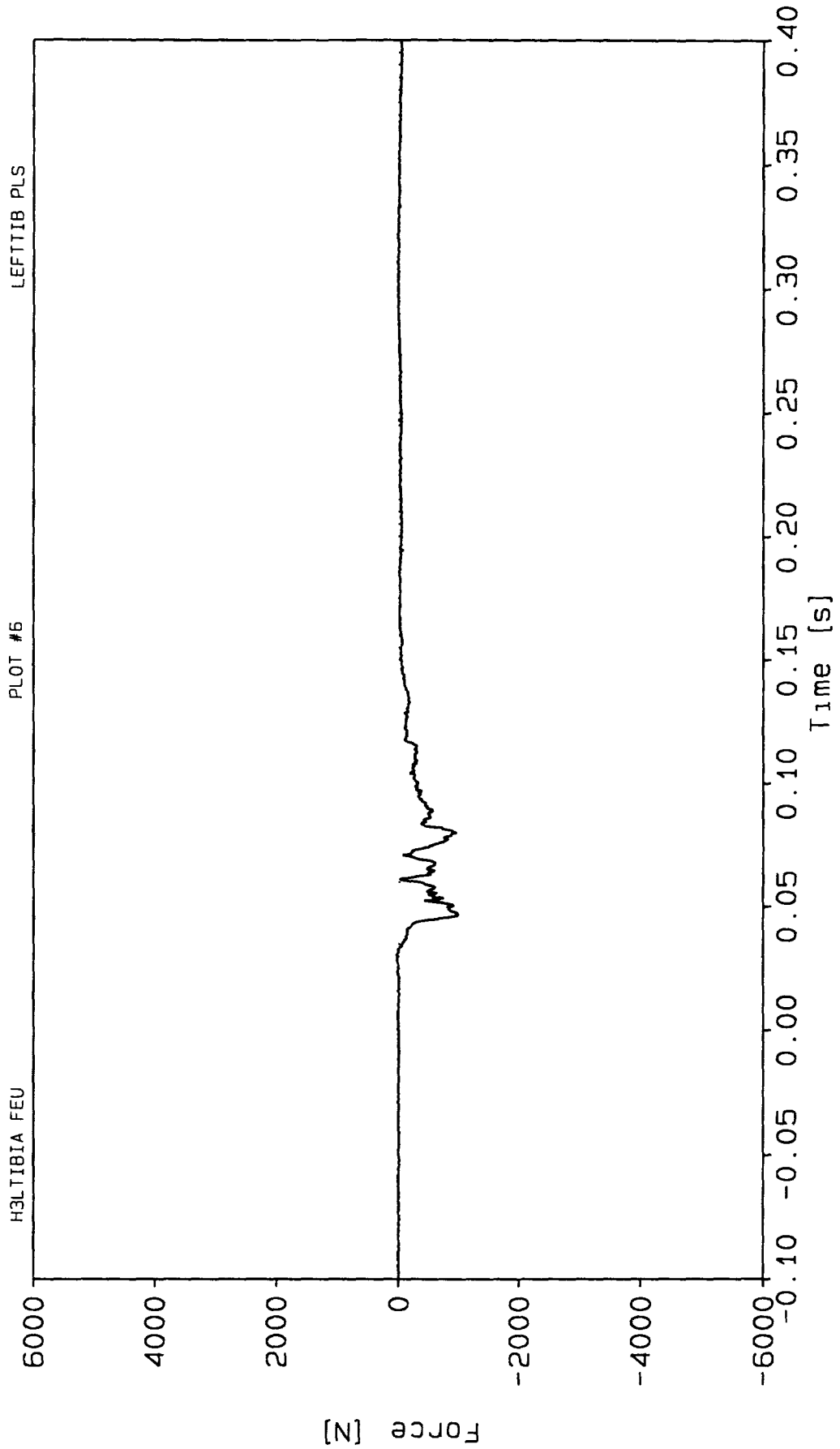
Filter Class 600
Volpe Crash Testing
PH06608

Exponent
Failure
Analysis
Associates

Left Lower Tibia Force (Fx) v Time

Driver Dummy - HIII
2001 Dodge Neon

Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



Exponent
Failure
Analysis
Associates

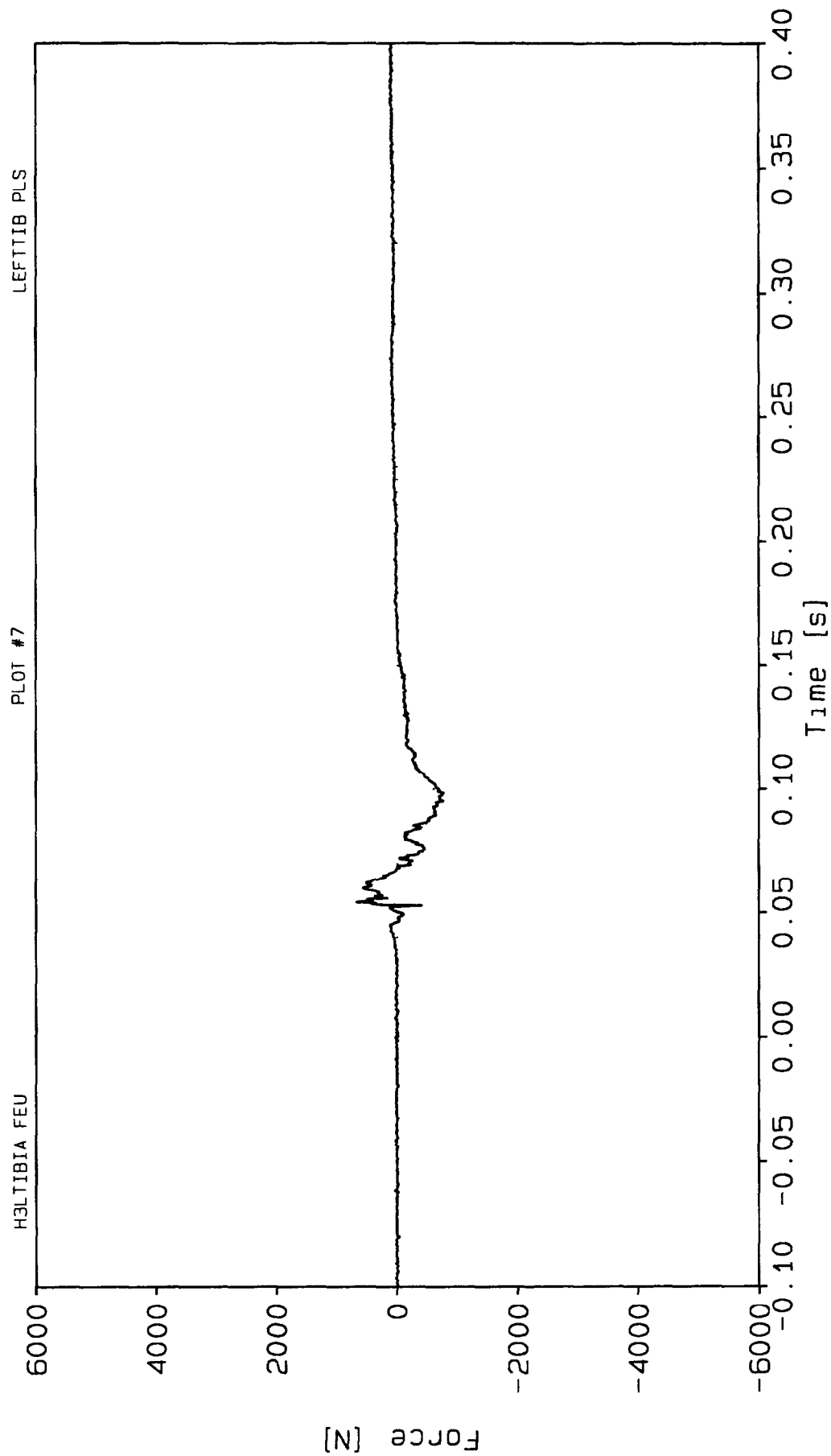
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Voipe Crash Testing
PH06608

Left Lower Tibia Force (Fy) v Time

Driver Dummy - HIII

2001 Dodge Neon

Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



Exponent
Failure
Analysis
Associates

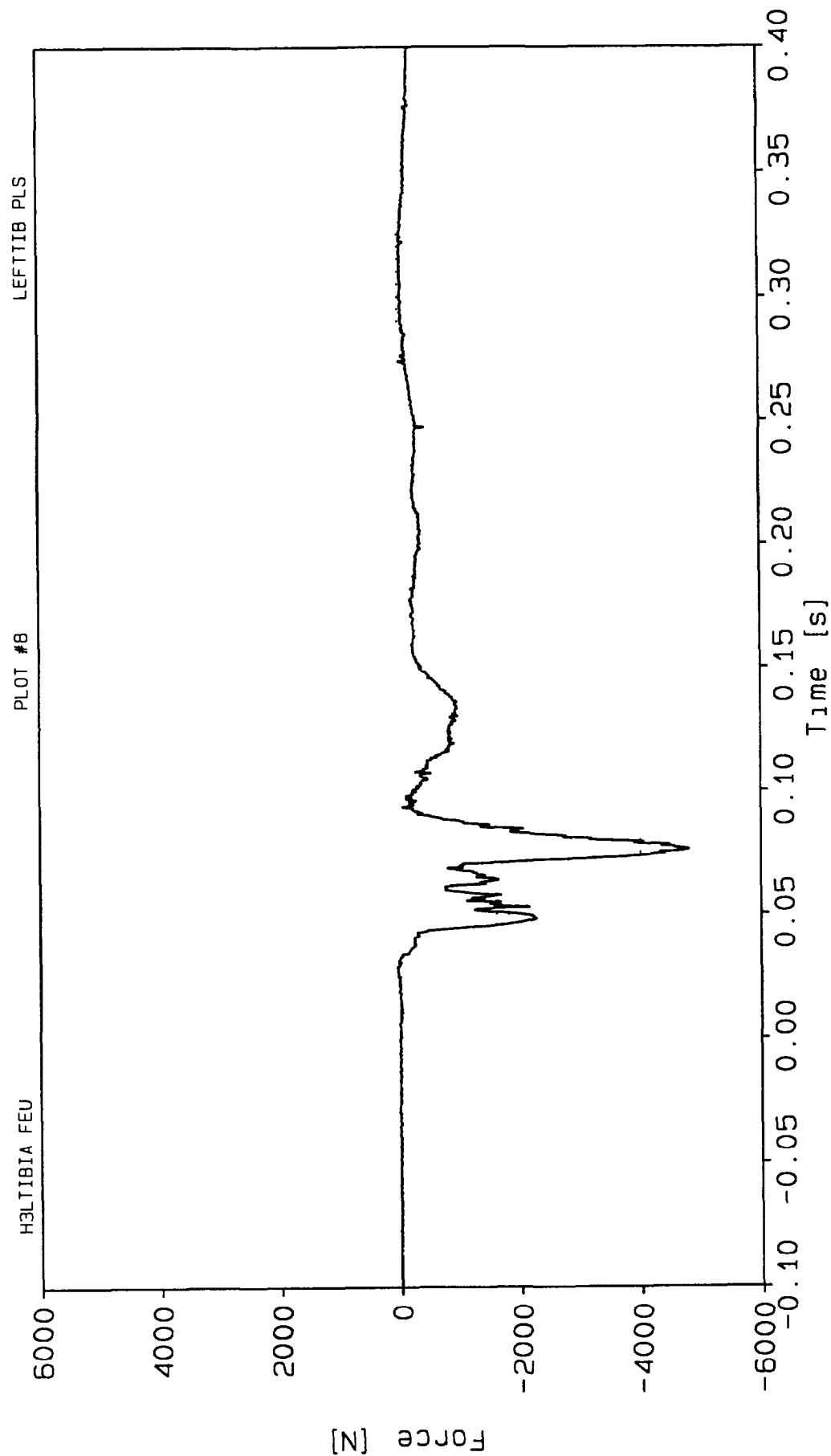
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Volpe Crash Testing
PH06608

Left Lower Tibia Force (Fz) v Time

Driver Dummy - HIII

2001 Dodge Neon

Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



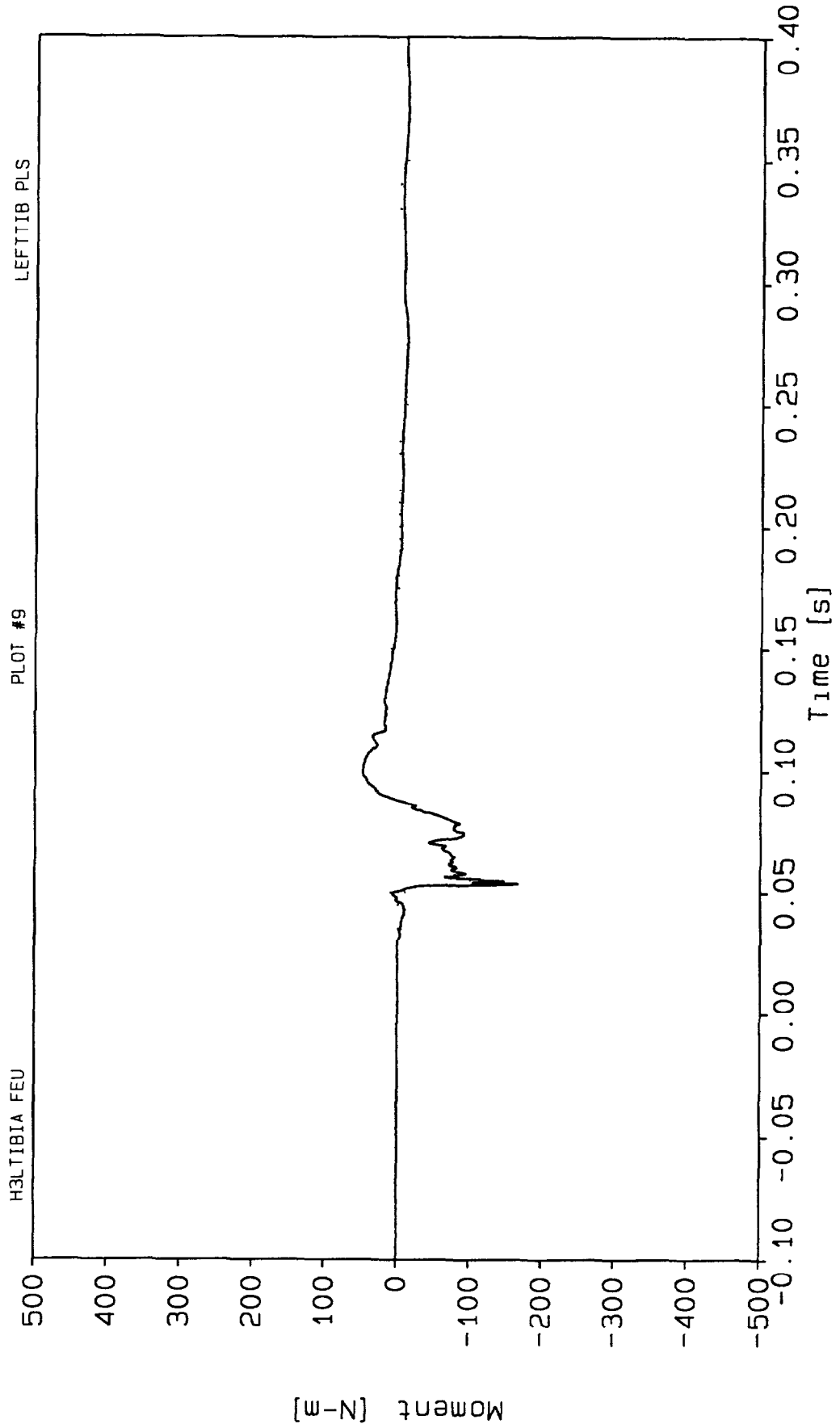
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Analysis
Associates

Filter Class 600
Volpe Crash Testing
PH06608

Left Lower Tibia Moment (Mx) v Time

Driver Dummy - HIII
2001 Dodge Neon

Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



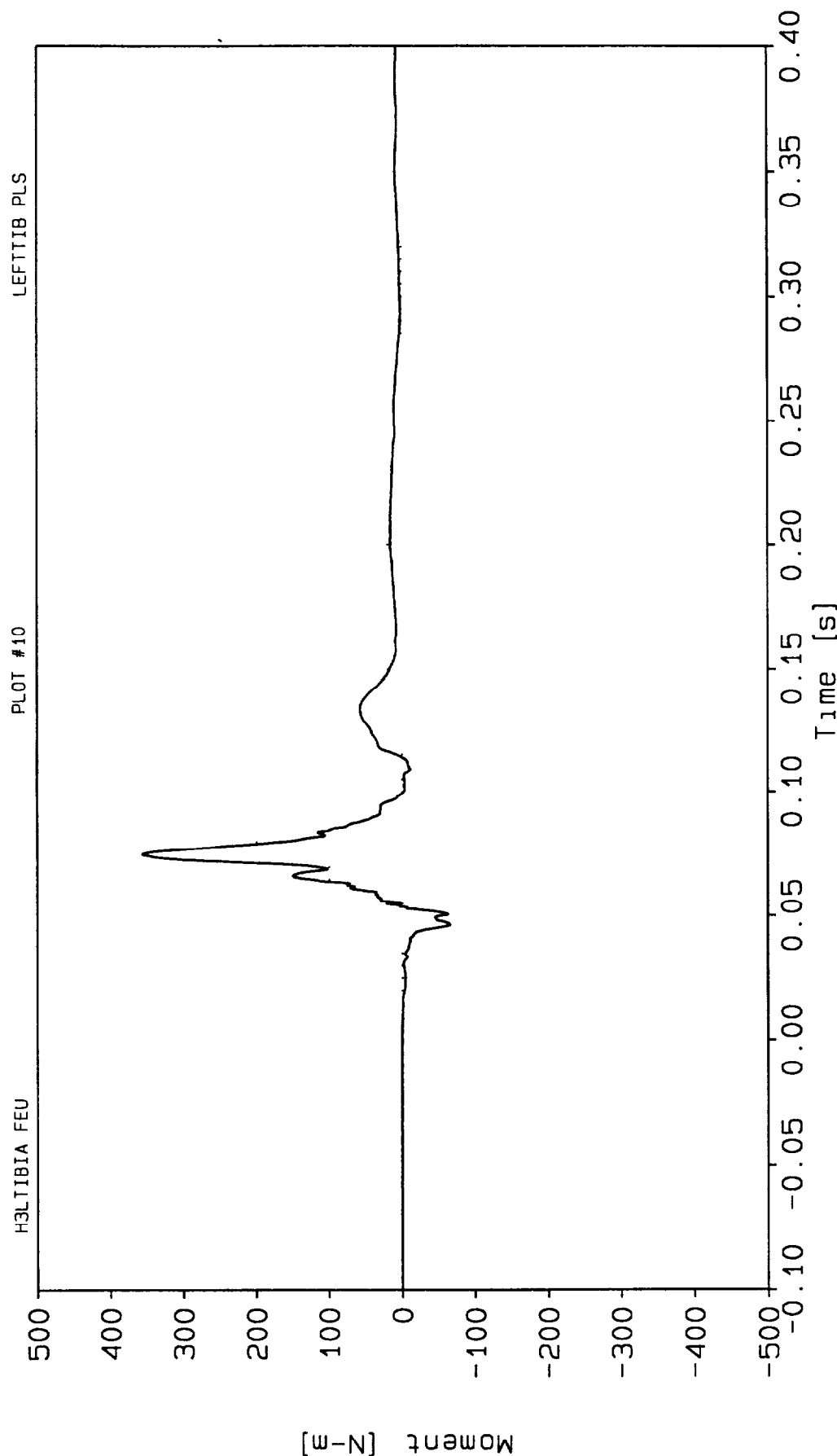
Filter Class 600
Volpe Crash Testing
PH05608

Exponent
Failure
Analysis
Associates

Left Lower Tibia Moment (My) v Time

Driver Dummy - HI II
2001 Dodge Neon

Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



Filter Class 500
Volpe Crash Testing
PH05608

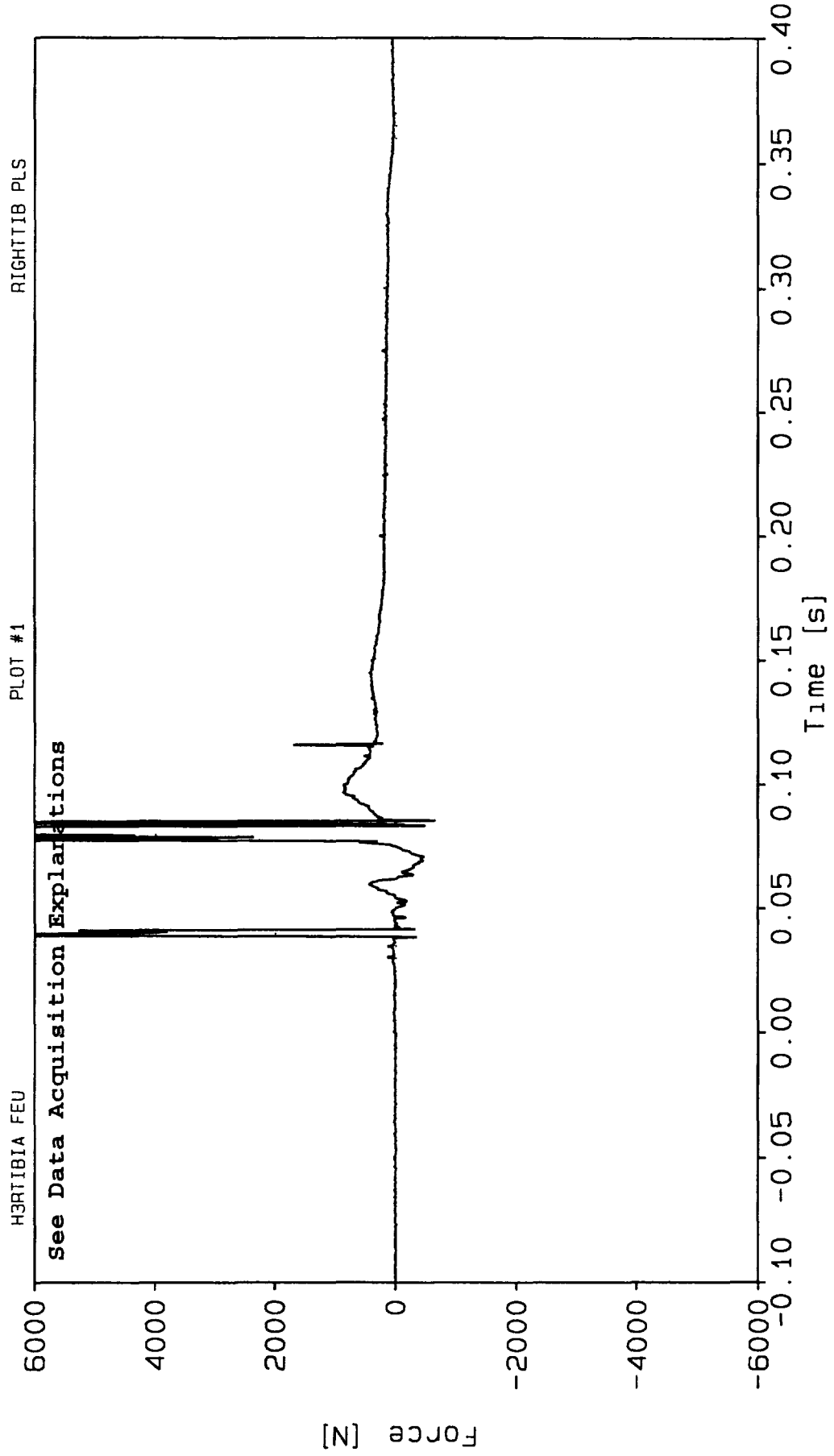
Exponent
Failure
Analysis
Associates

Right Upper Tibia Force (Fx) v Time

Driver Dummy - HIII

2001 Dodge Neon

Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



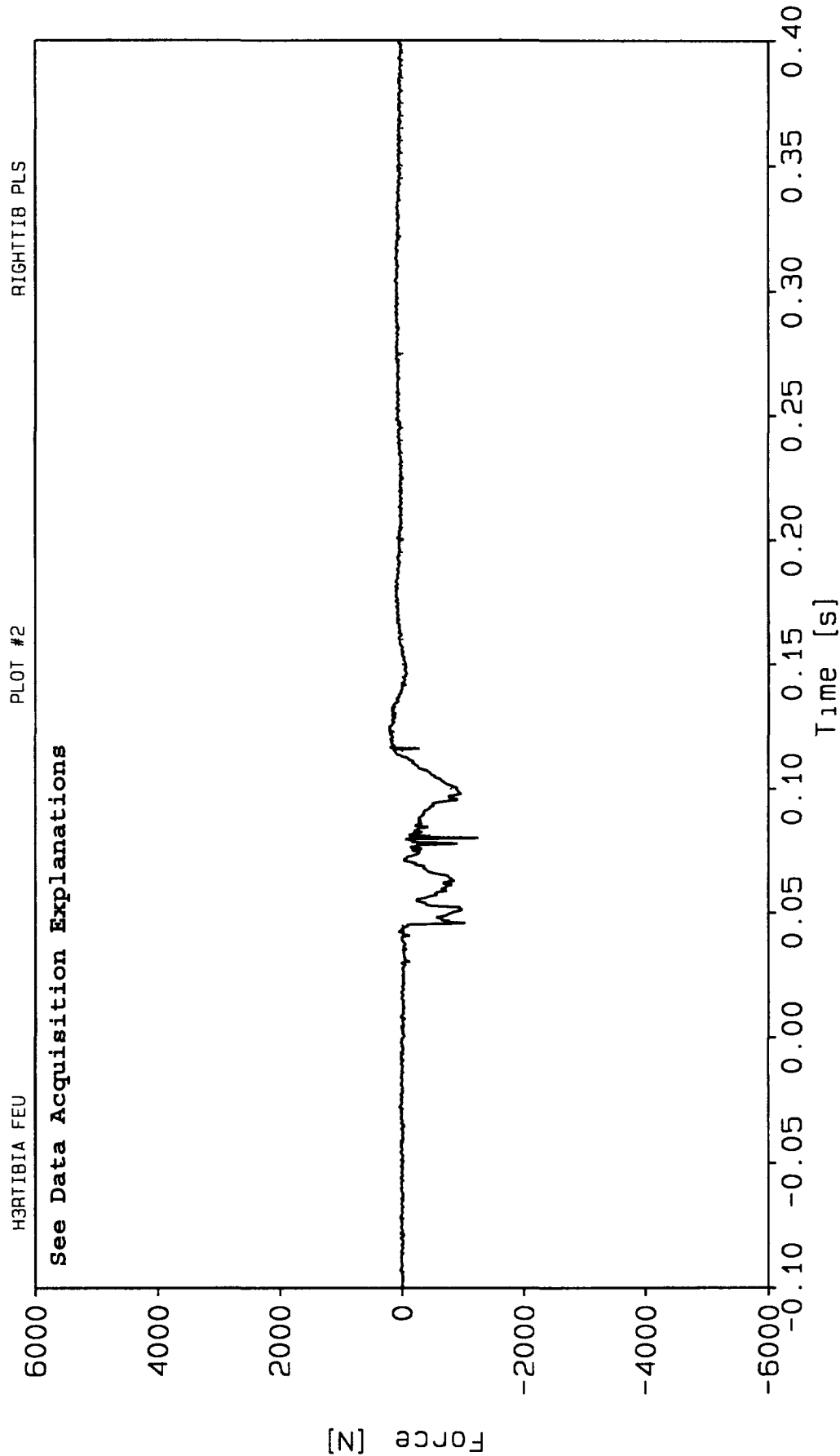
Filter Class 600
Volpe Crash Testing
PH06608

Exponent
Failure
Analysis
Associates

Right Upper Tibia Force (Fy) v Time

Driver Dummy - HIII
2001 Dodge Neon

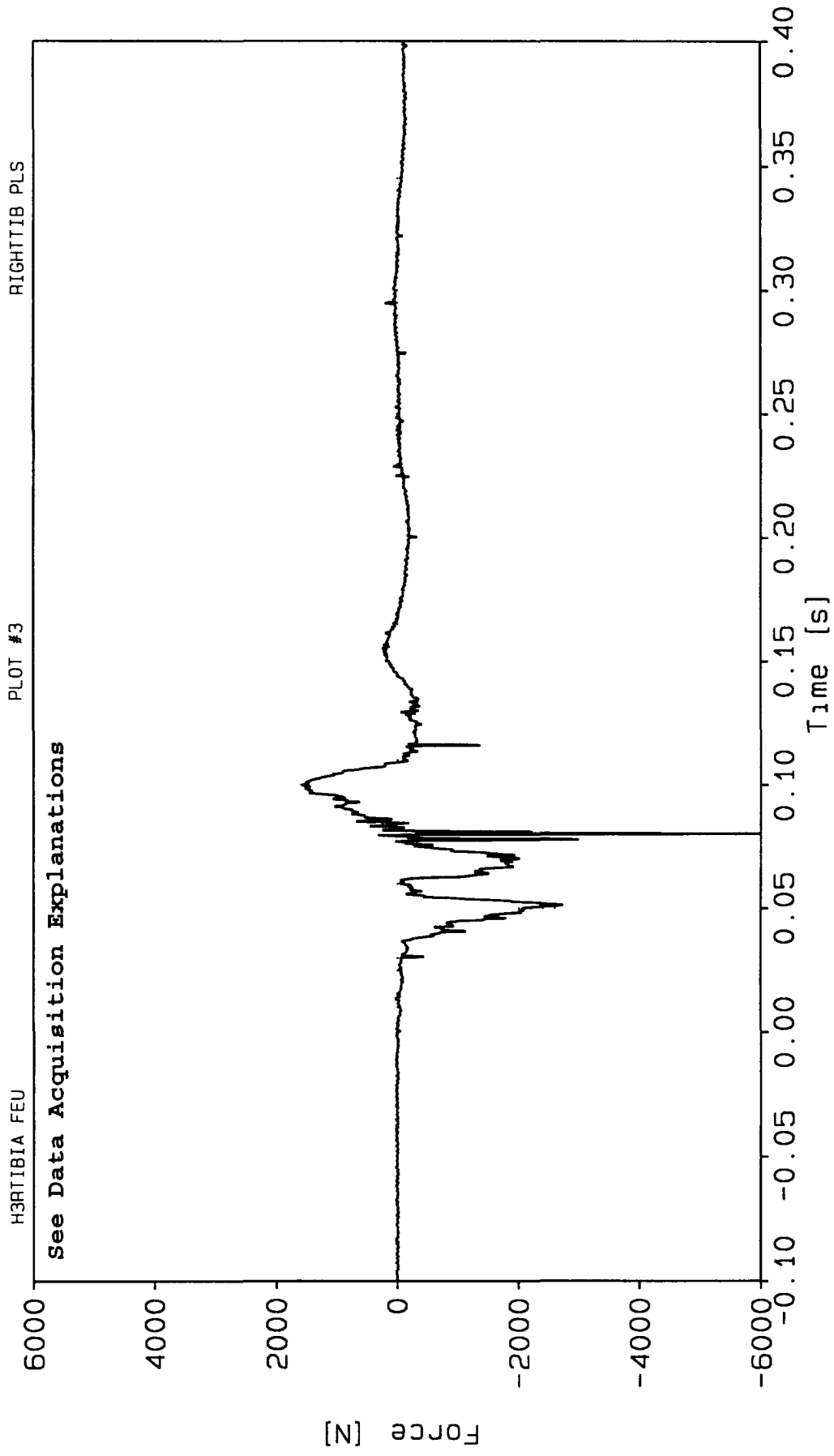
Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



Filter Class 600
Volpe Crash Testing
PH05608

Exponent
Failure
Analysis
Associates

Right Upper Tibia Force (Fz) v Time
Driver Dummy - HIII
2001 Dodge Neon
Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01

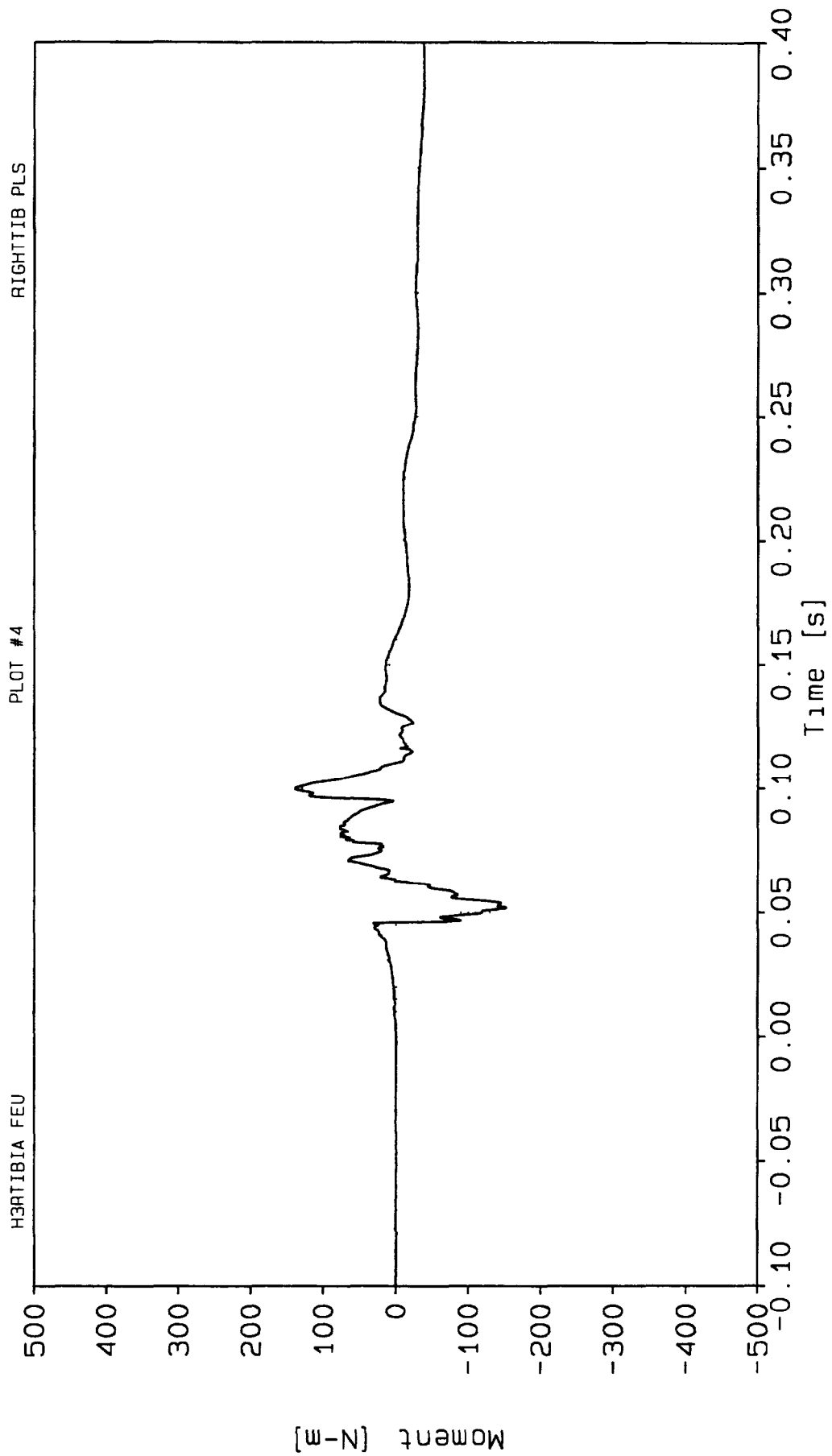


See Data Acquisition Explanations

Filter Class 600
Voipe Crash Testing
PH06608

Exponent
Failure
Analysis
Associates

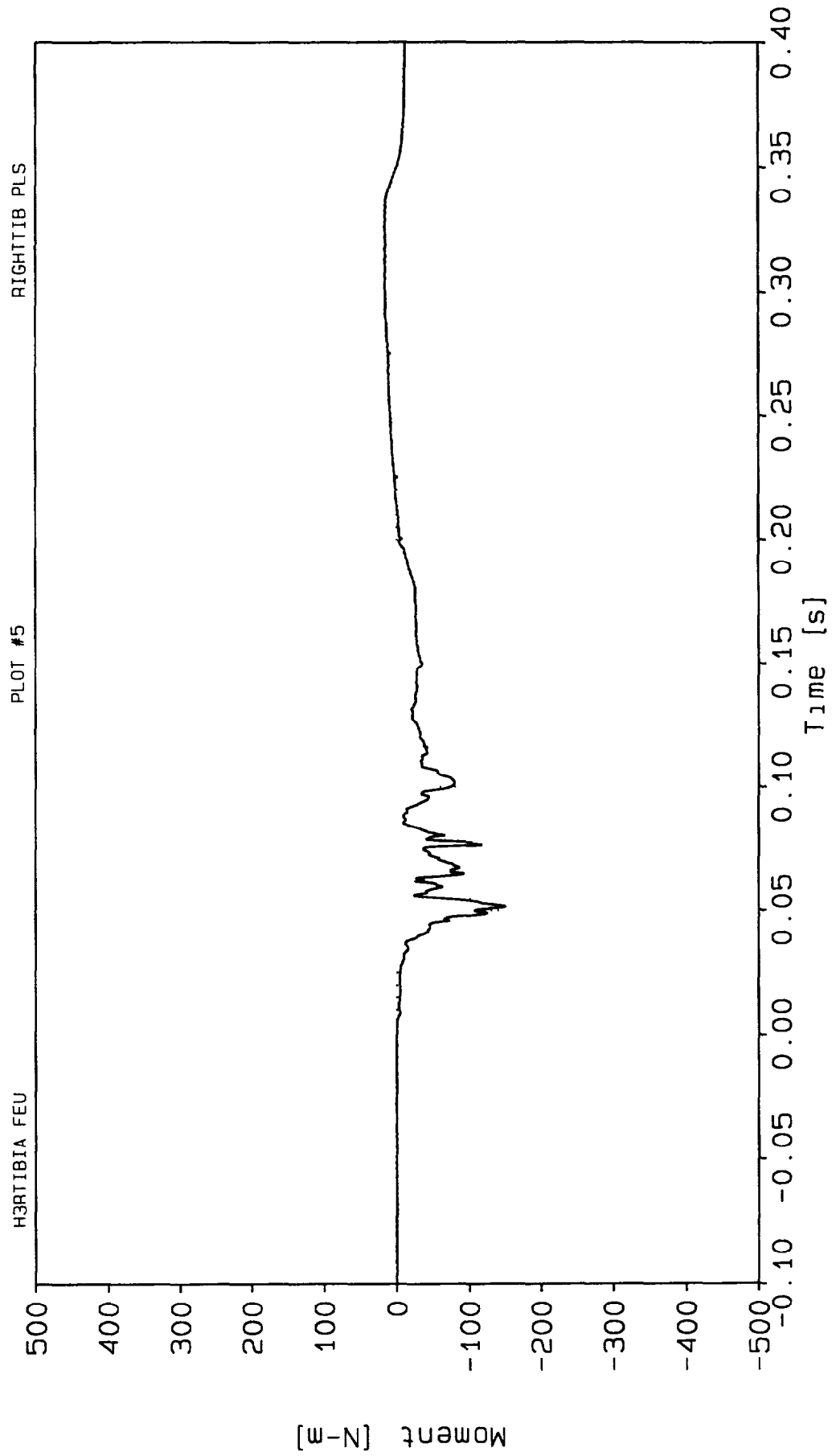
Right Upper Tibia Moment (Mx) v Time
Driver Dummy - HIII
2001 Dodge Neon
Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



Exponent
Failure
Analysis
Associates

Filter Class 600
Volpe Crash Testing
PH06608

Right Upper Tibia Moment (My) v Time
Driver Dummy - HIII
2001 Dodge Neon
Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



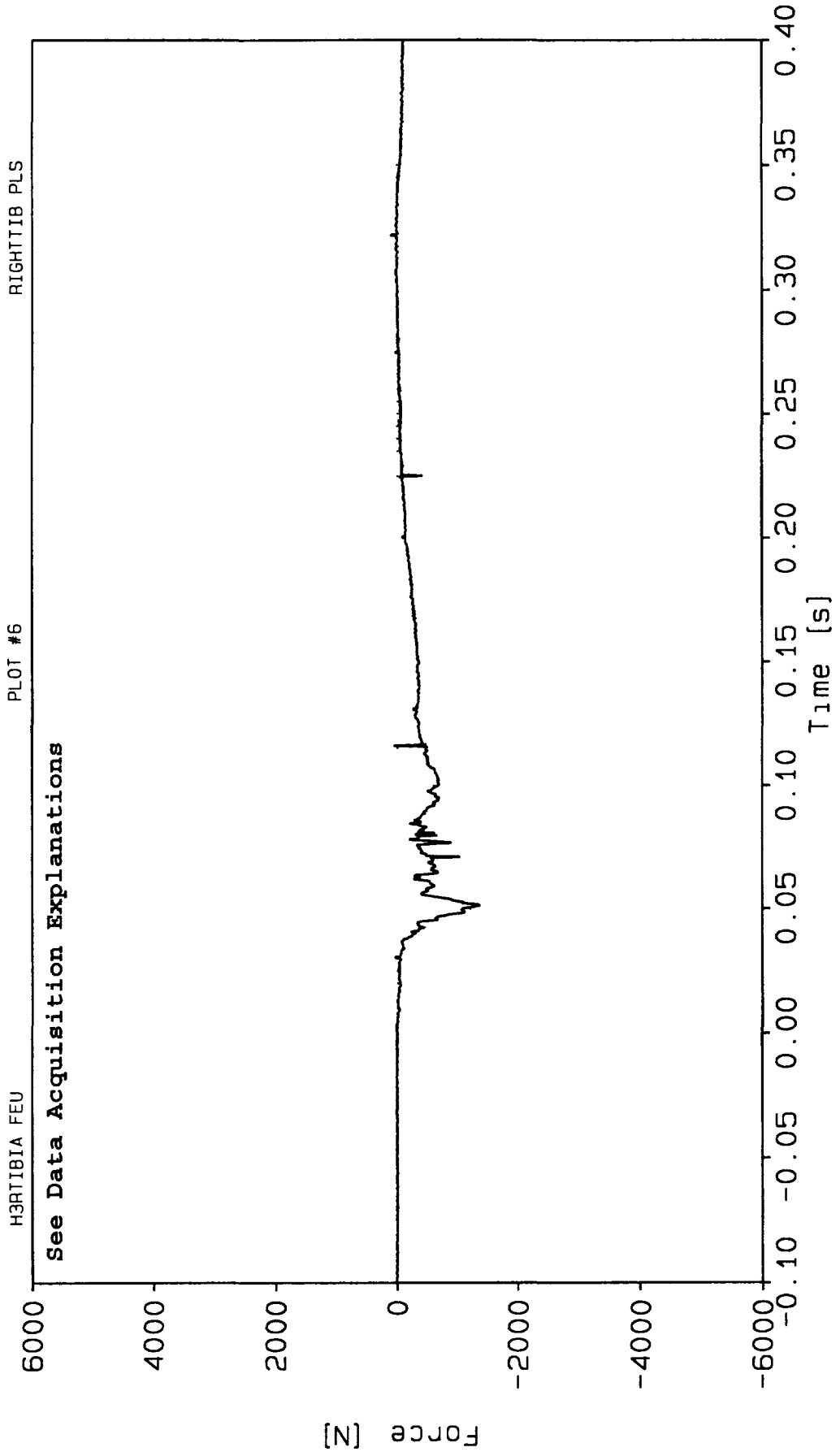
Filter Class 600
Volpe Crash Testing
PH06608

Exponent
Failure
Analysis
Associates

Right Lower Tibia Force (Fx) v Time

Driver Dummy - HIII
2001 Dodge Neon

Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



Exponent
Failure
Analysis
Associates

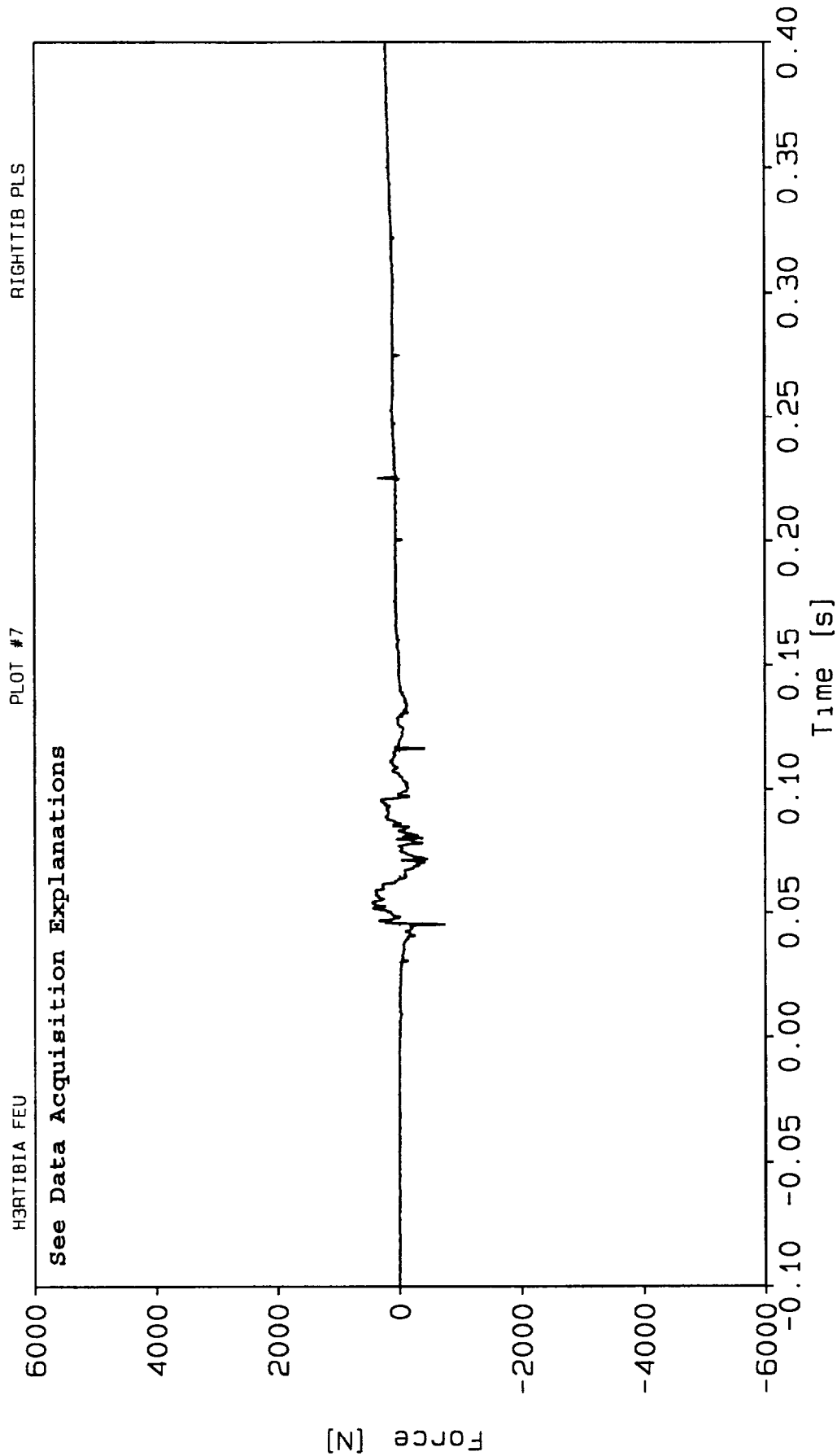
Filter Class 600
Volpe Crash Testing
PH06608

Right Lower Tibia Force (Fy) v Time

Driver Dummy - HIII

2001 Dodge Neon

Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



Filter Class 600
Volpe Crash Testing
PH06608

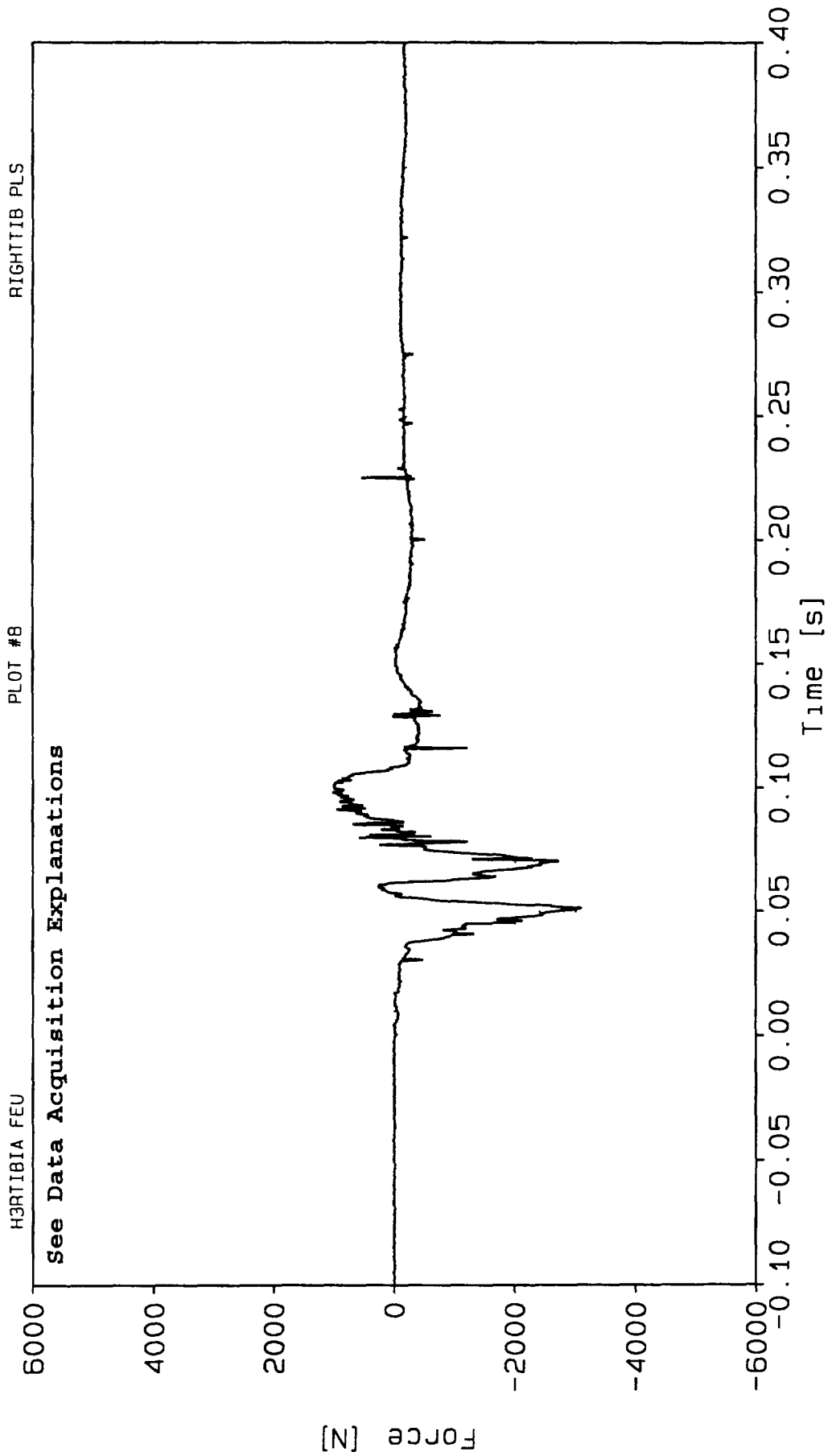
Exponent
Failure
Analysis
Associates

Right Lower Tibia Force (Fz) v Time

Driver Dummy - HIII

2001 Dodge Neon

Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



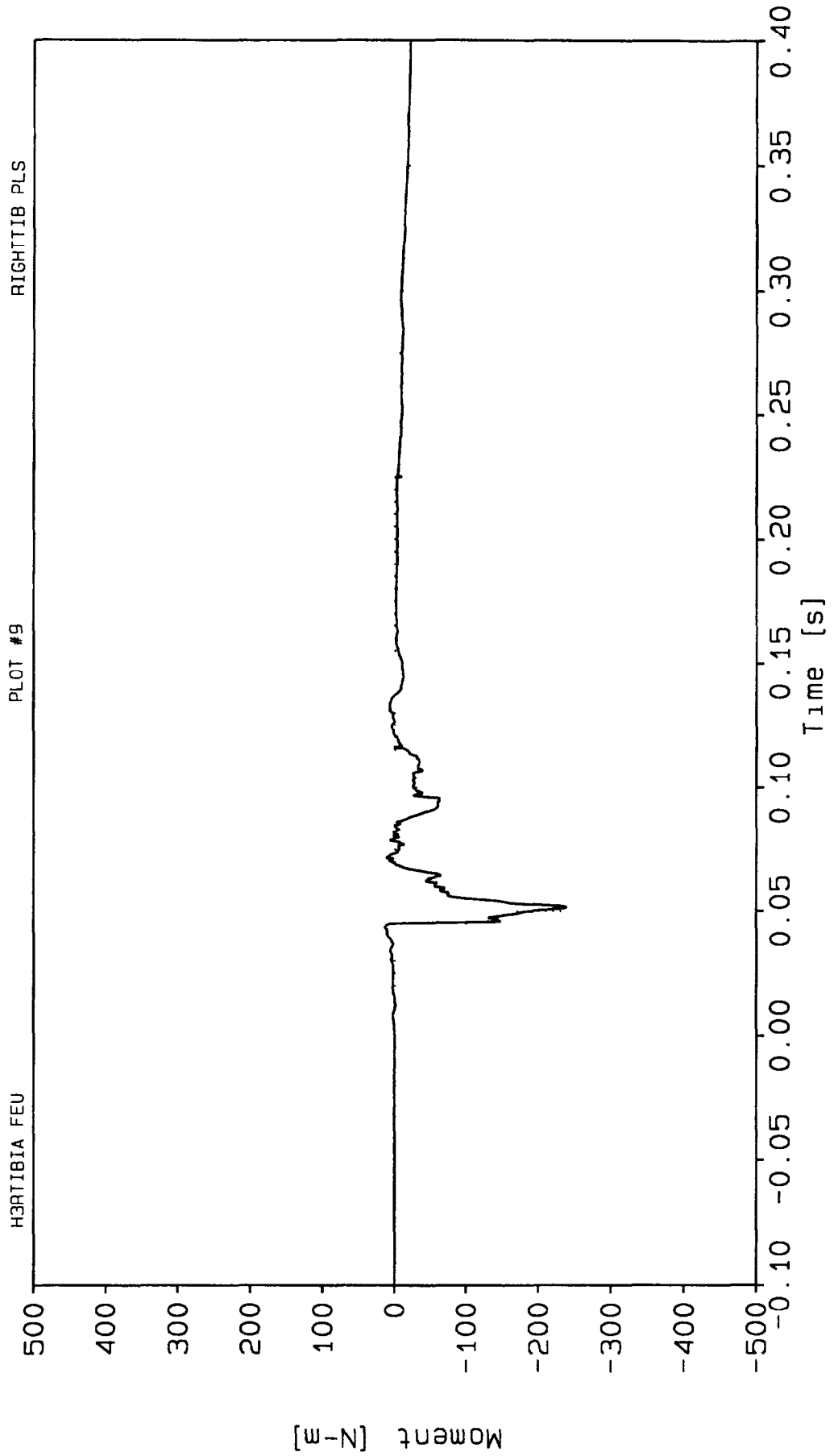
Exponent
Failure
Analysis
Associates

Filter Class 600
Volpe Crash Testing
PH06608

Right Lower Tibia Moment (Mx) v Time

Driver Dummy - HIII
2001 Dodge Neon

Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



Filter Class 600
Voipe Crash Testing
PH06608

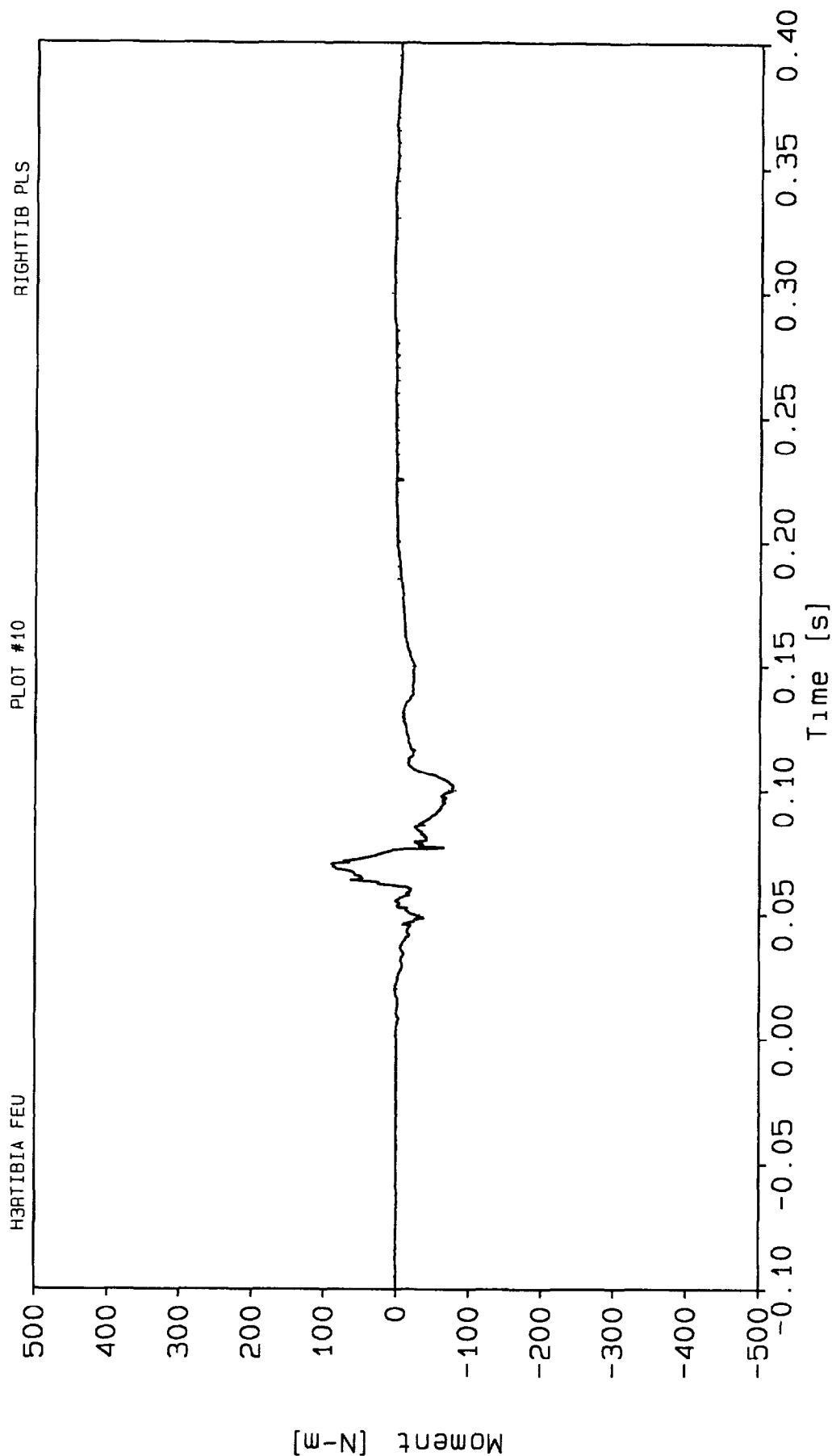
Exponent
Failure
Analysis
Associates

Right Lower Tibia Moment (My) v Time

Driver Dummy - HIII

2001 Dodge Neon

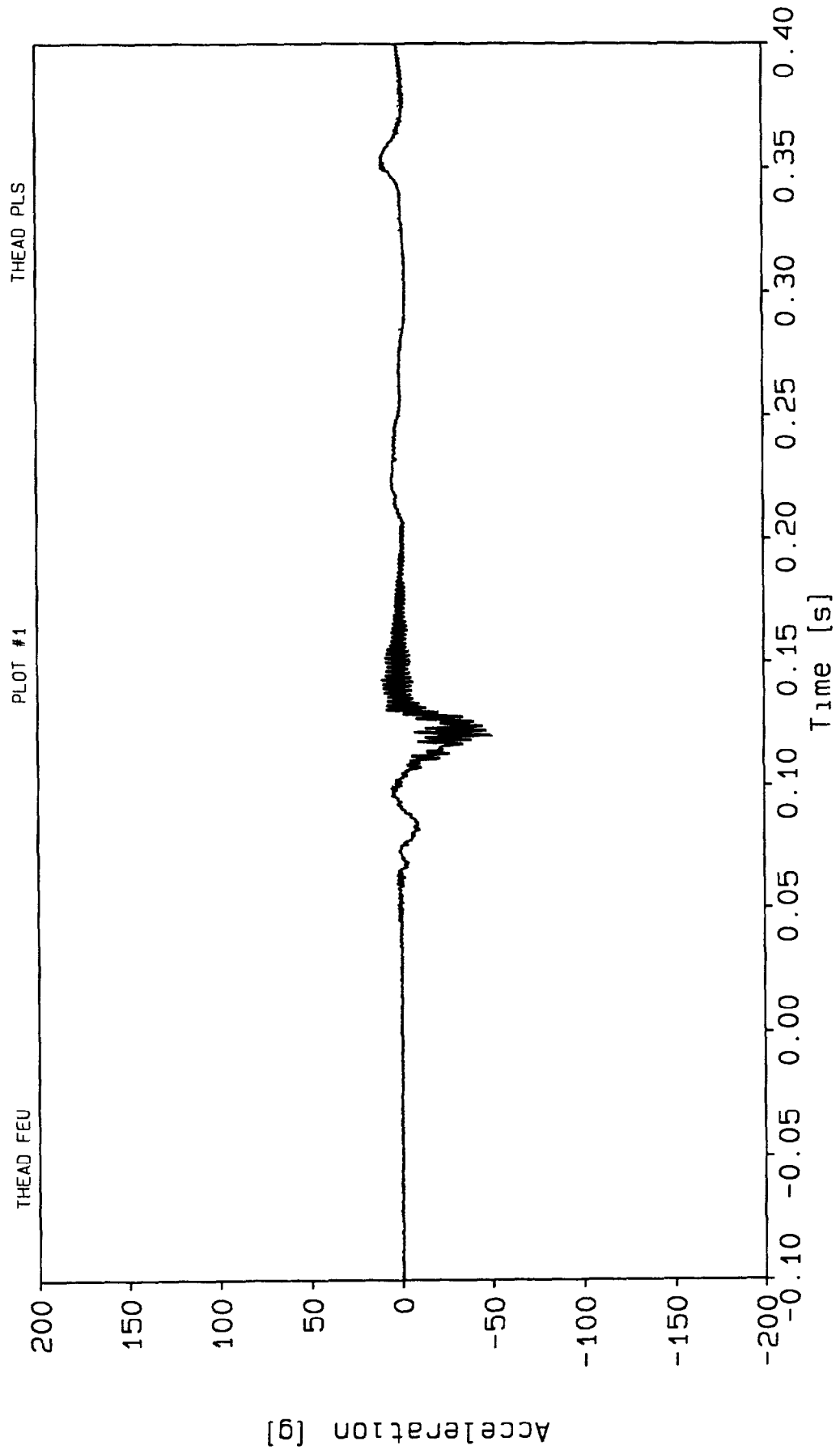
Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



Exponent
Failure
Analysis
Associates

Filter Class 600
Volpe Crash Testing
PH06608

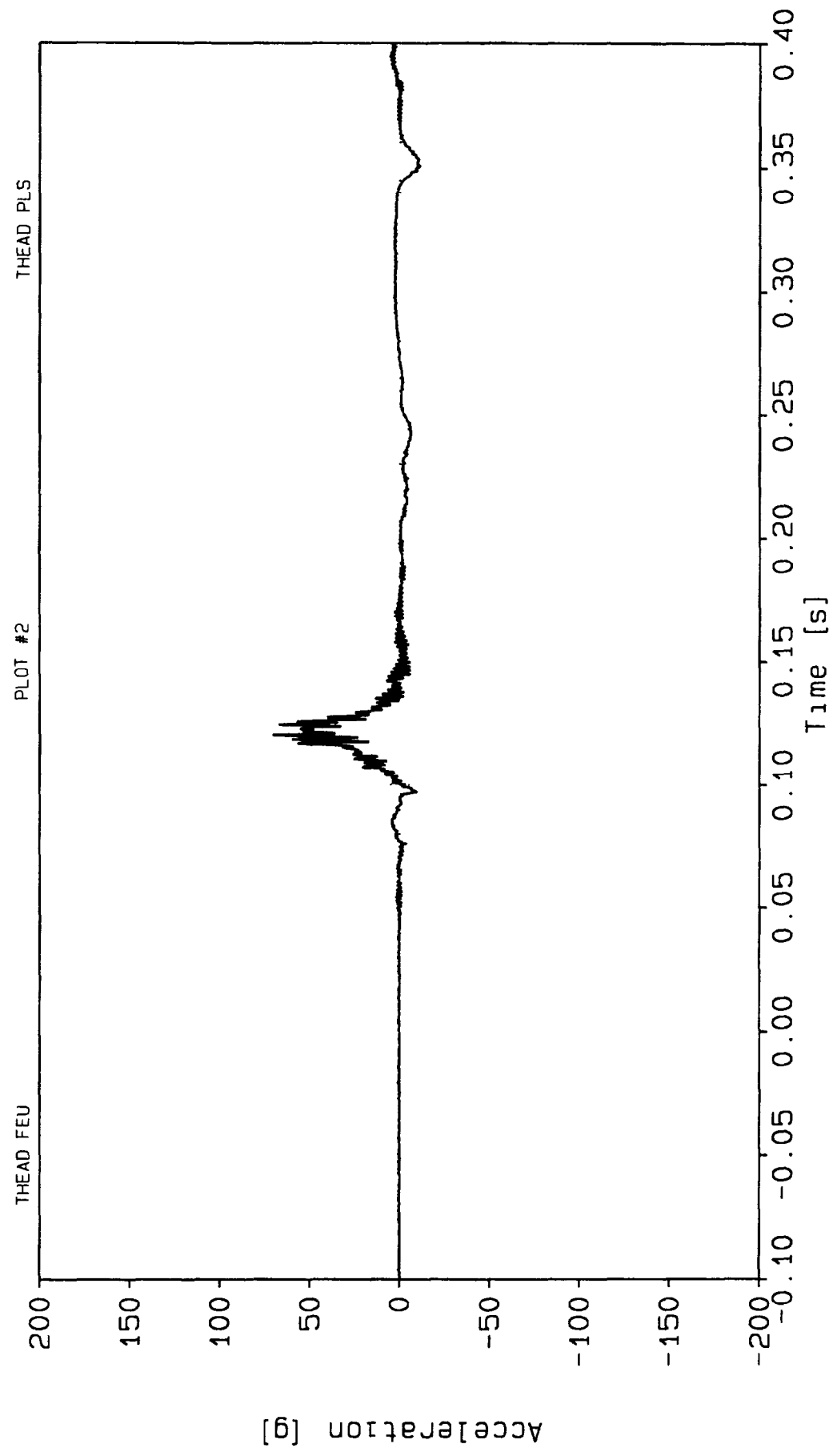
Head Vertex Acceleration (Ax) v Time
Passenger Dummy - THOR
2001 Dodge Neon
Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



Exponent
Failure
Analysis
Associates

Filter Class 1000
Volpe Crash Testing
PH06608

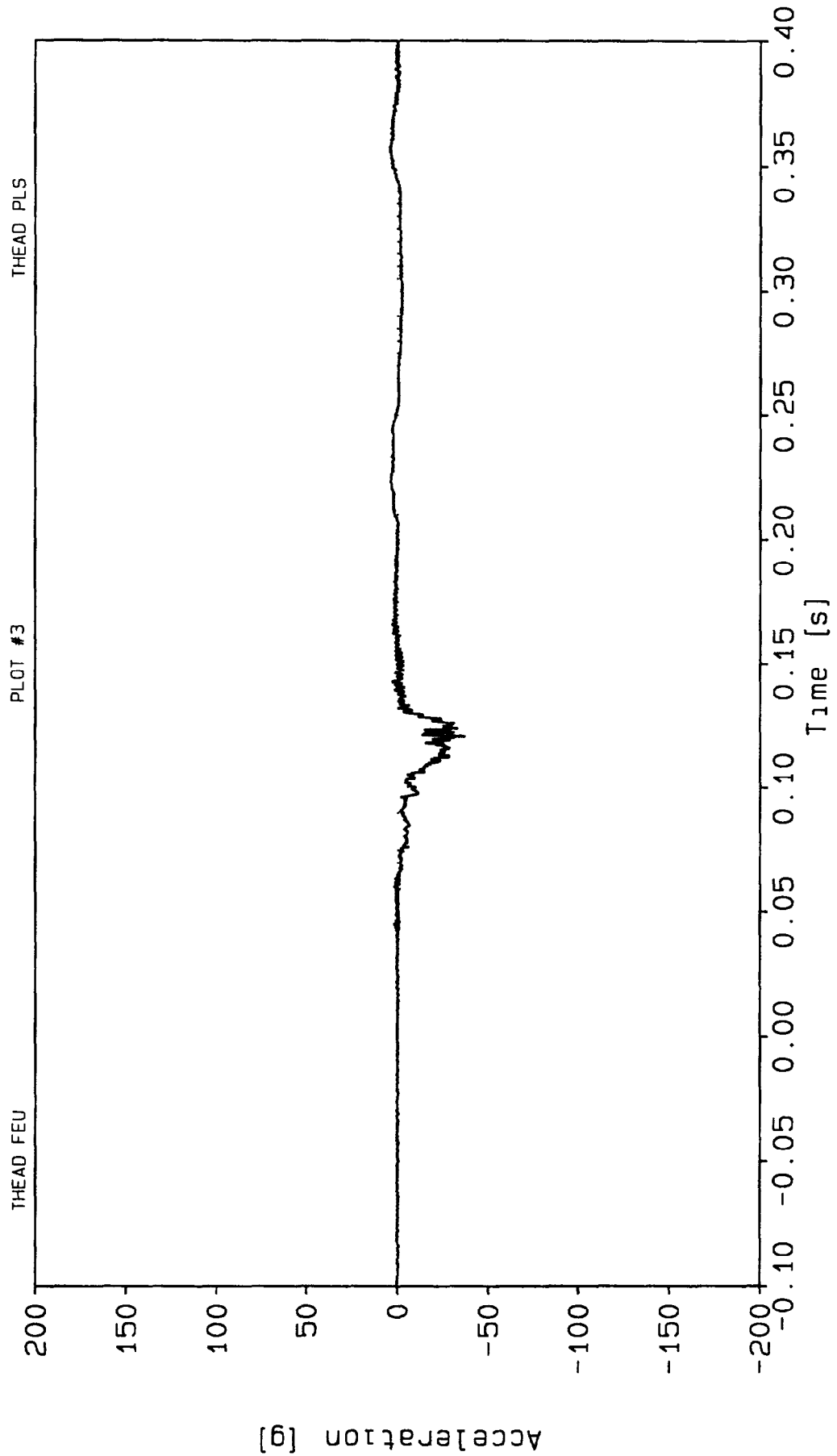
Head Vertex Acceleration (Ay) v Time
Passenger Dummy - THOR
2001 Dodge Neon
Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



Exponent
Failure
Analysis
Associates

Filter Class 1000
Volpe Crash Testing
PH06608

Head Temporal Acceleration (Ax) v Time
Passenger Dummy - THOR
2001 Dodge Neon
Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



Exponent
Failure
Analysis
Associates

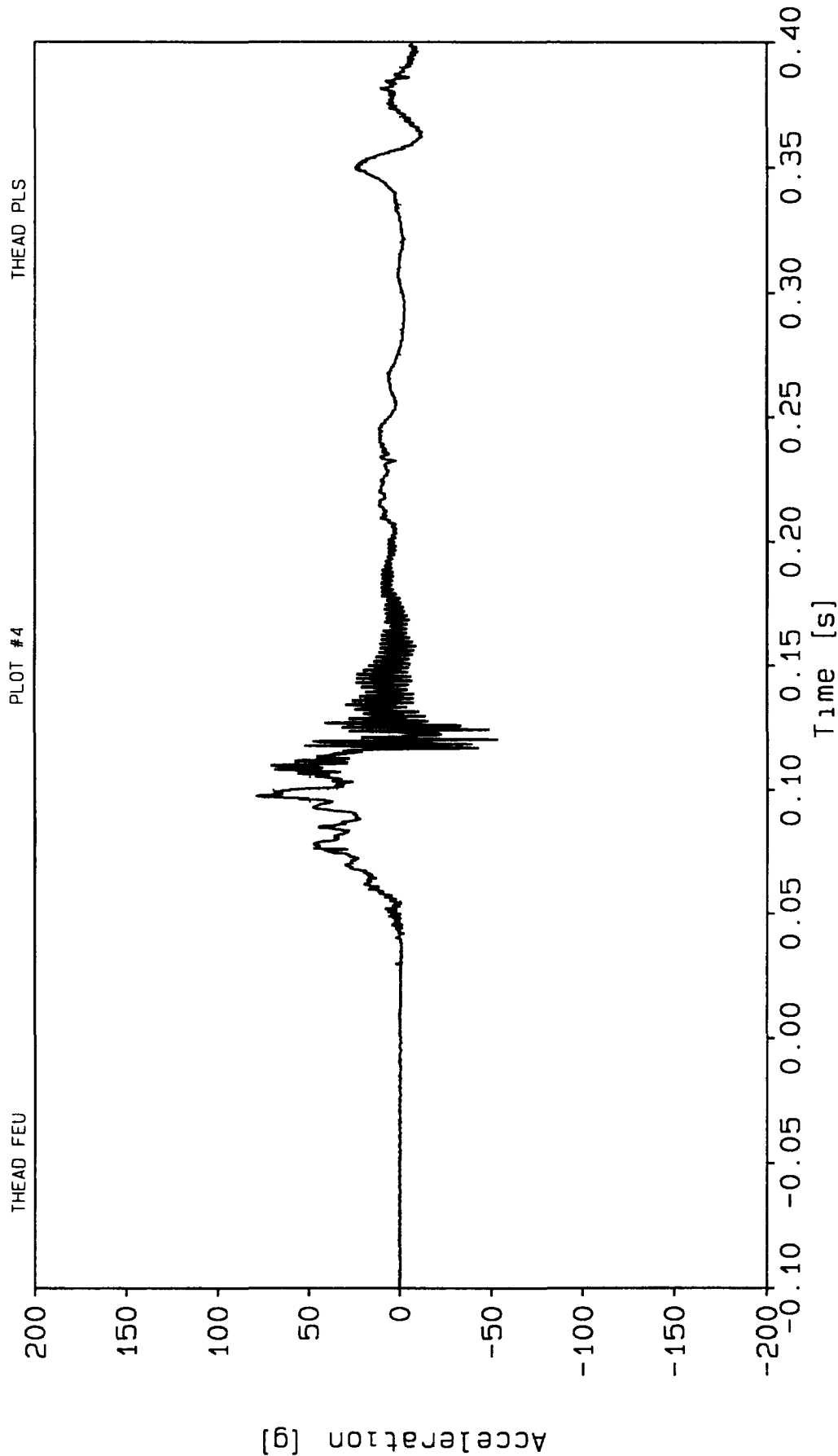
Filter Class 1000
Volpe Crash Testing
PH06608

Head Temporal Acceleration (Az) v Time

Passenger Dummy - THOR

2001 Dodge Neon

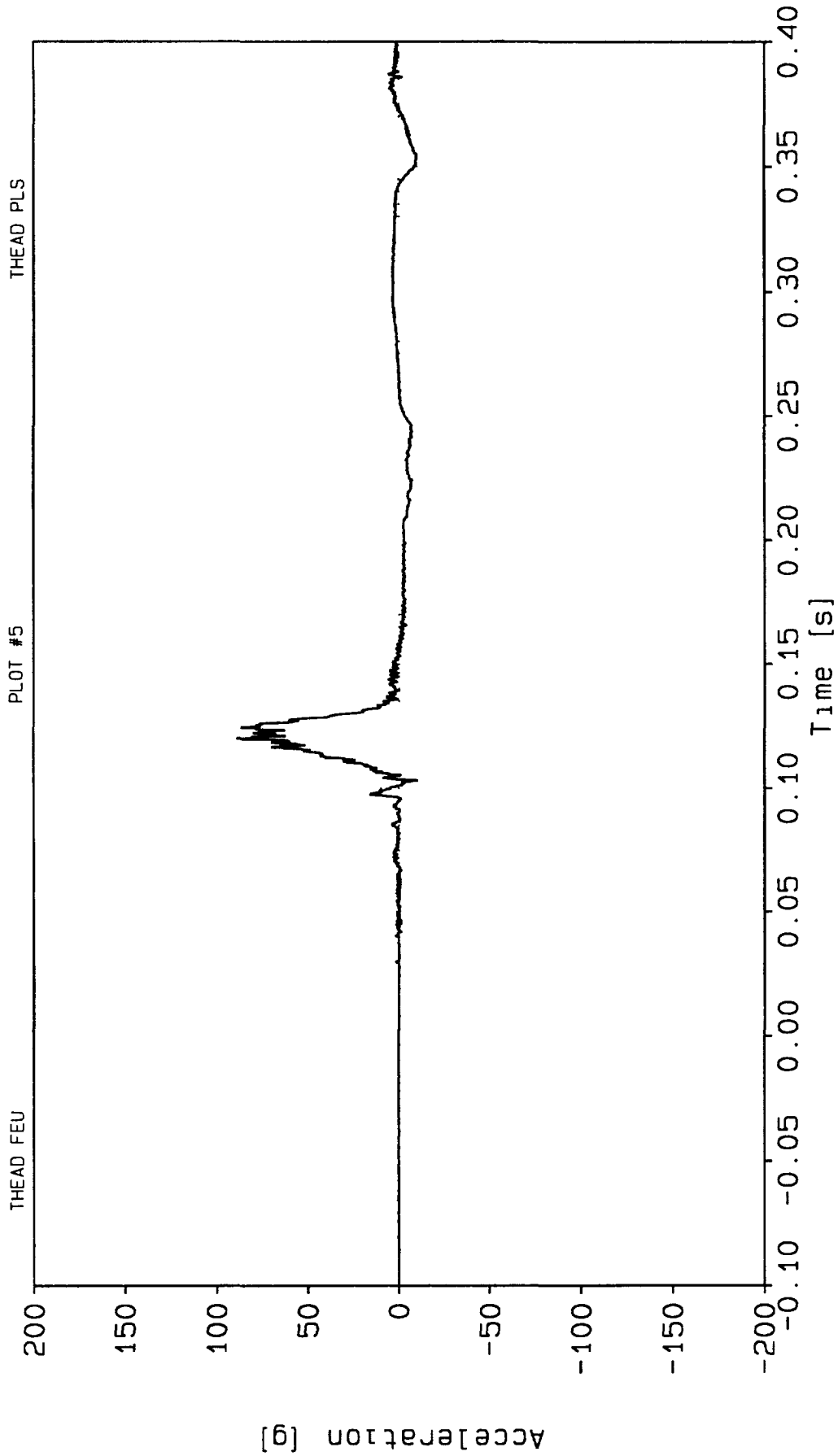
Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



Filter Class 1000
Volpe Crash Testing
PH06608

Exponent
Failure
Analysis
Associates

Head Occipital Acceleration (Ay) v Time
Passenger Dummy - THOR
2001 Dodge Neon
Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



Exponent
Failure
Analysis
Associates

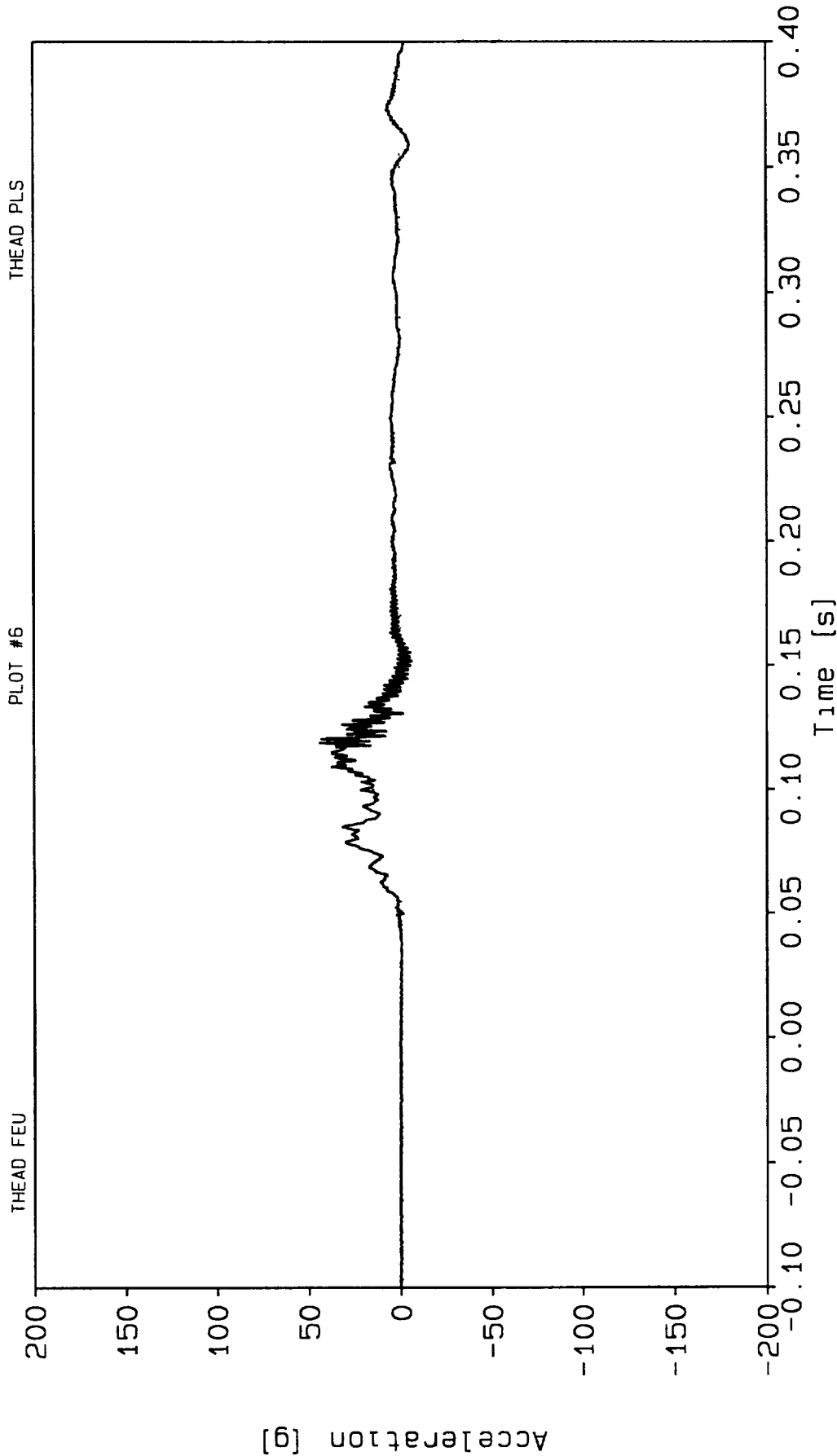
Filter Class 1000
Volpe Crash Testing
PH06608

Head Occipital Acceleration (Az) v Time

Passenger Dummy - THOR

2001 Dodge Neon

Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



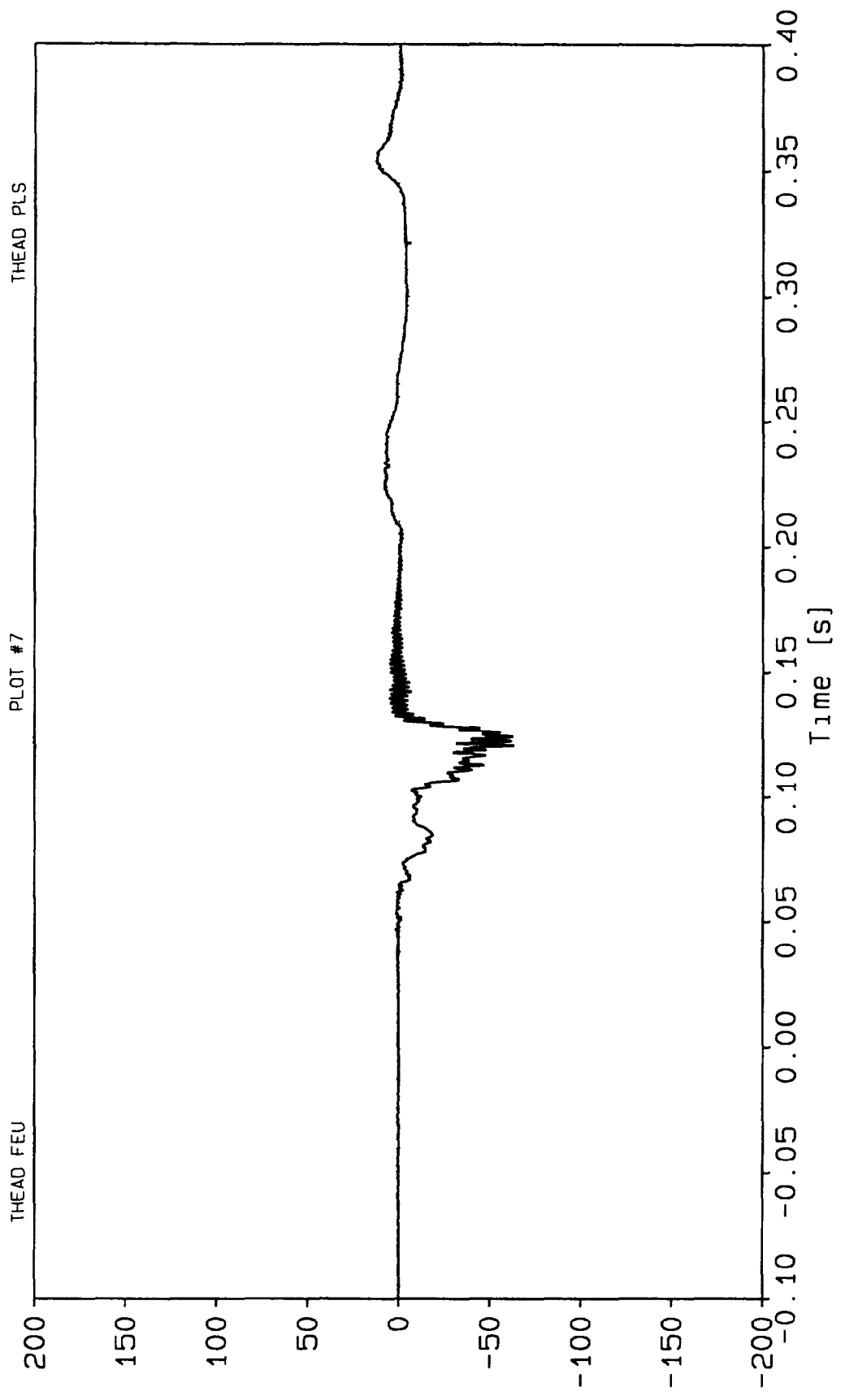
Filter Class 1000
Volpe Crash Testing
PH05608

Exponent
Failure
Analysis
Associates

Head C.G. Acceleration (Ax) v Time

Passenger Dummy - THOR
2001 Dodge Neon

Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



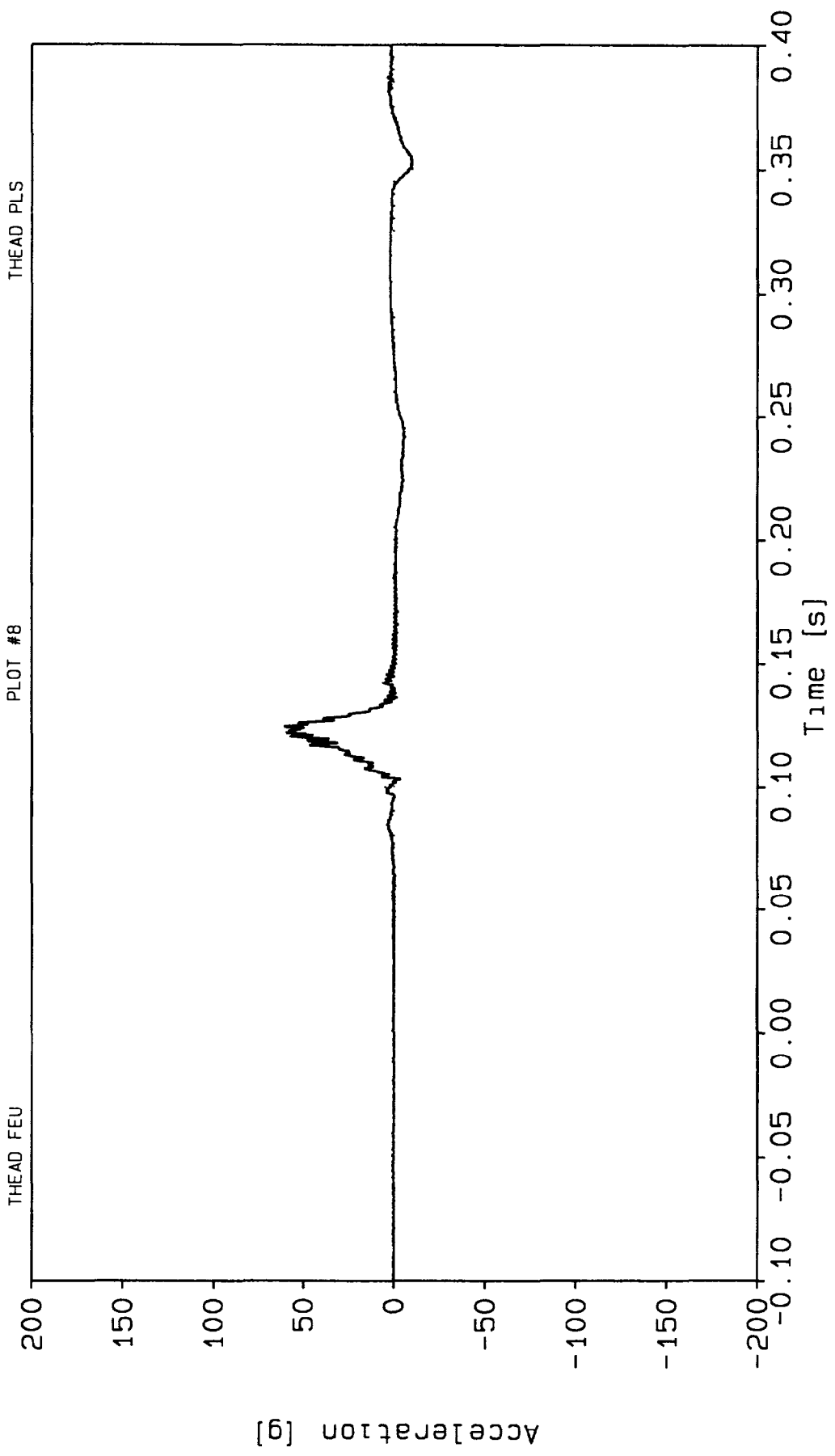
Filter Class 1000
Volpe Crash Testing
PH06608

Exponent
Failure
Analysis
Associates

Head C.G. Acceleration (Ay) v Time

Passenger Dummy - THOR
2001 Dodge Neon

Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



Filter Class 1000
Voipe Crash Testing
PH05608

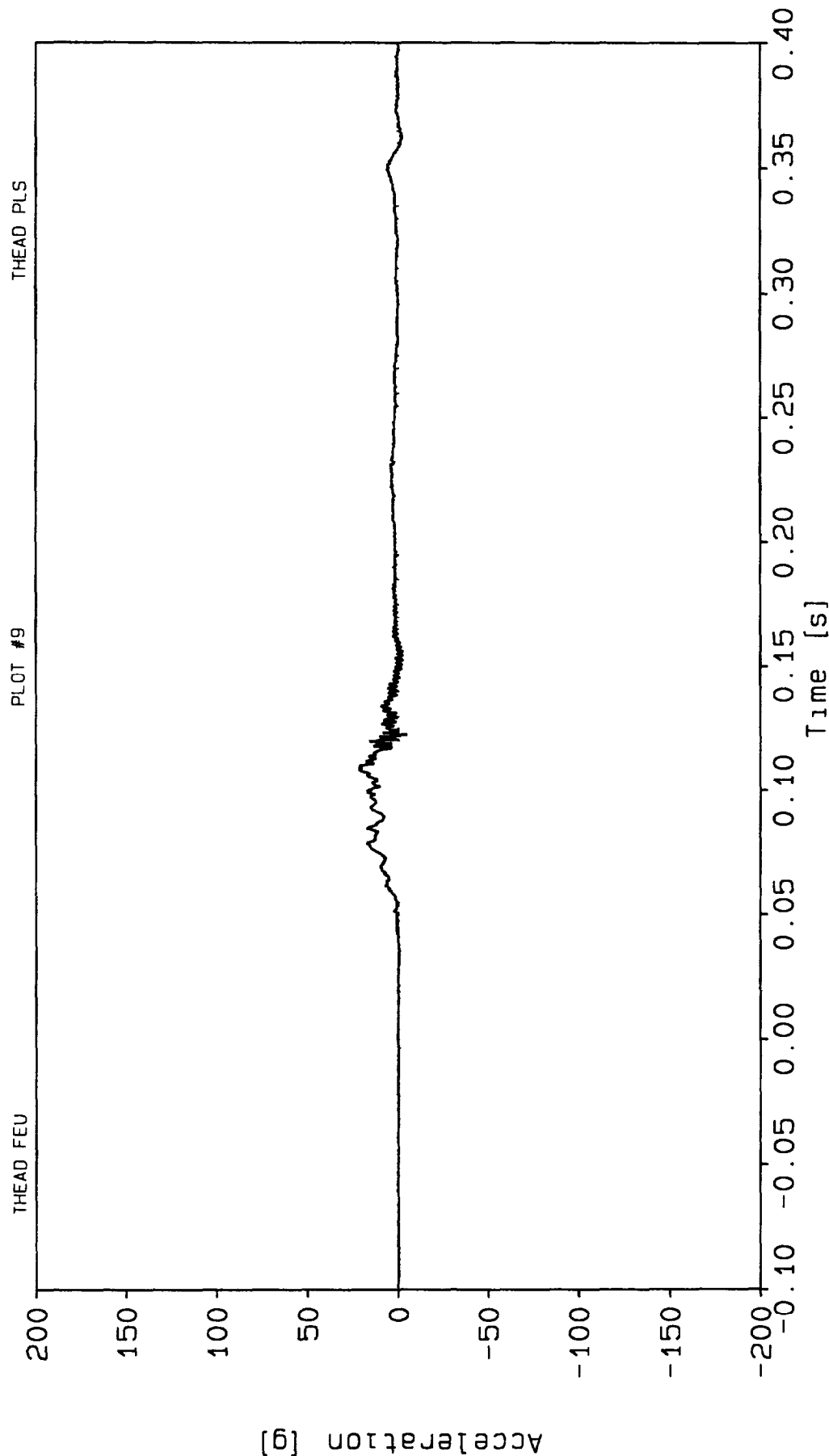
Exponent
Failure
Analysis
Associates

Head C.G. Acceleration (Az) v Time

Passenger Dummy - THOR

2001 Dodge Neon

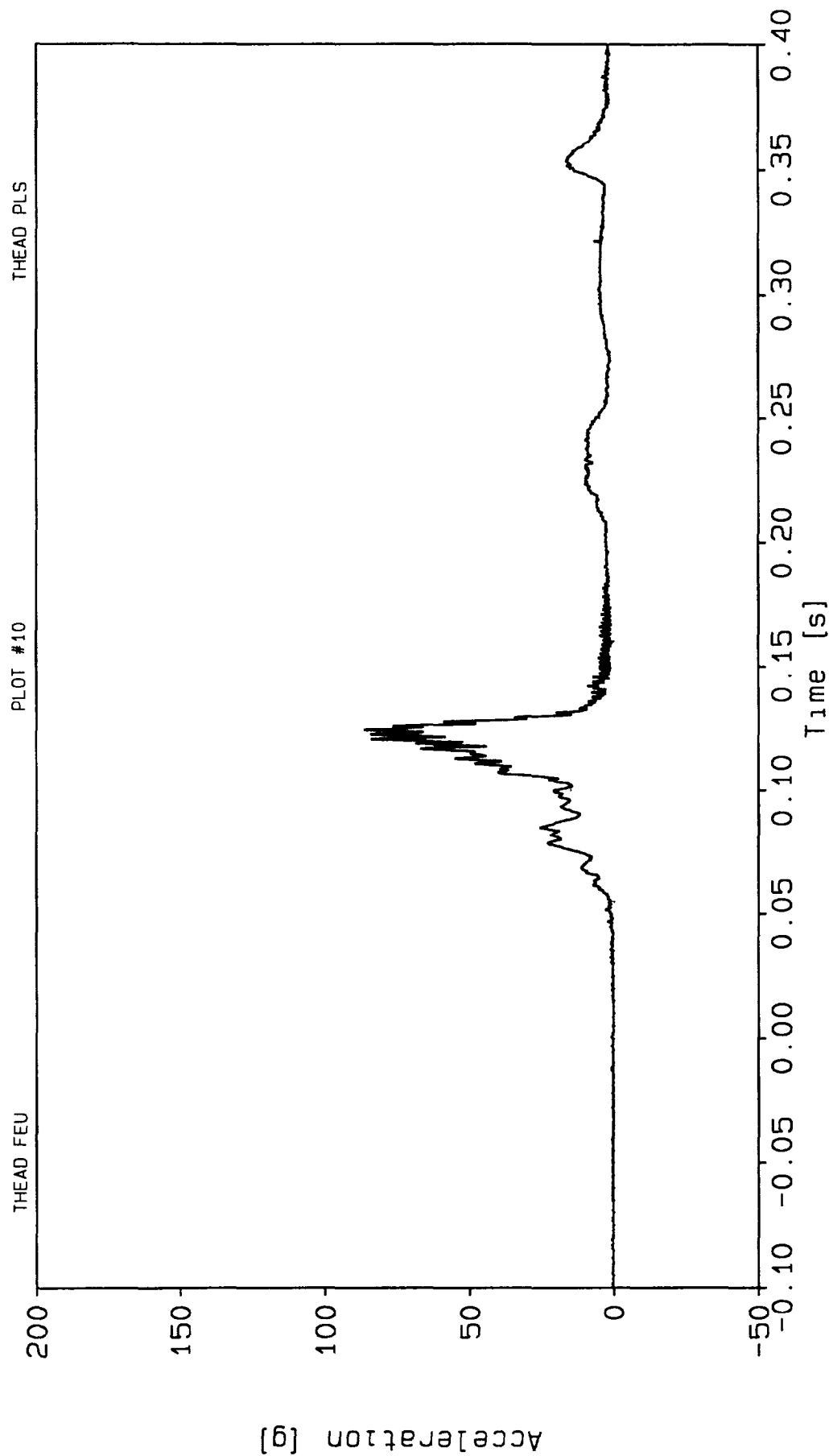
Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



Filter Class 1000
Volpe Crash Testing
PH06608

Exponent
Failure
Analysis
Associates

Head C.G. Resultant Acceleration (Ar) v Time
Passenger Dummy - THOR
2001 Dodge Neon
Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



Filter Class 1000
Volpe Crash Testing
PH05608

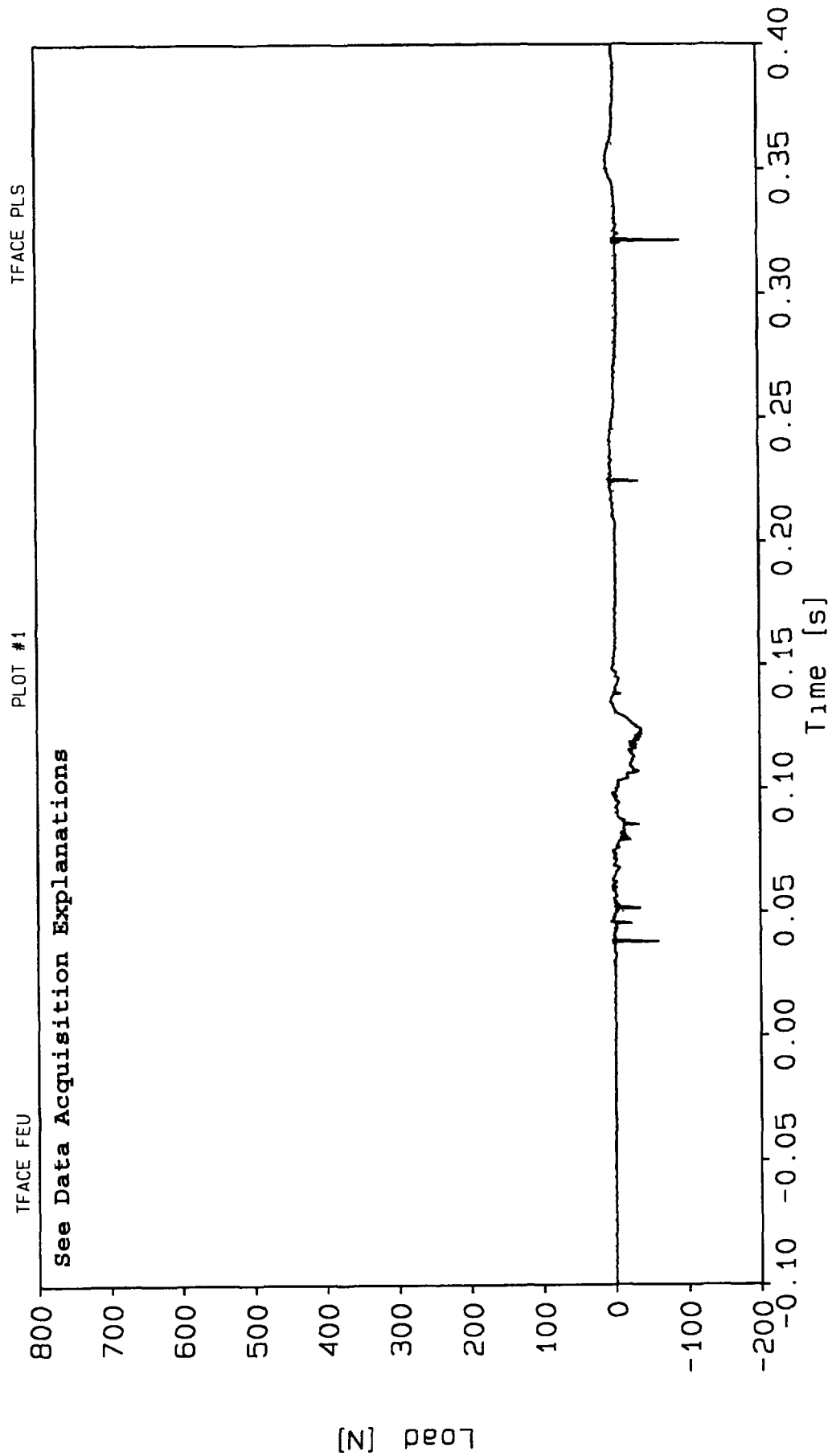
Exponent
Failure
Analysis
Associates

Right Eye Uniax Compression Load v Time

Passenger Dummy - THOR

2001 Dodge Neon

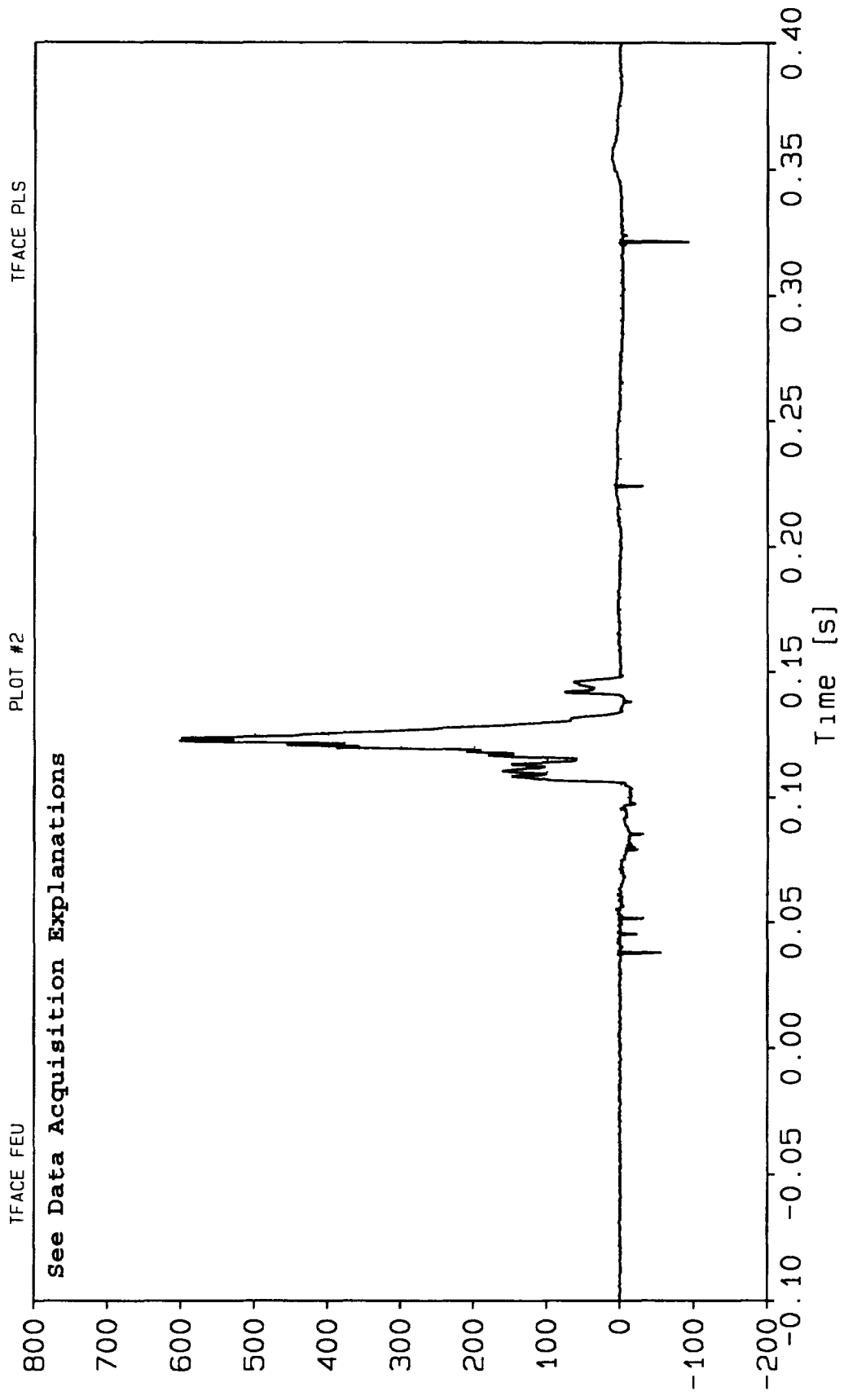
Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



Filter Class 600
Volpe Crash Testing
PH06608

Exponent
Failure
Analysis
Associates

Left Eye Uniax Compression Load v Time
Passenger Dummy - THOR
2001 Dodge Neon
Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



See Data Acquisition Explanations

Filter Class 600
Volpe Crash Testing
PH06608

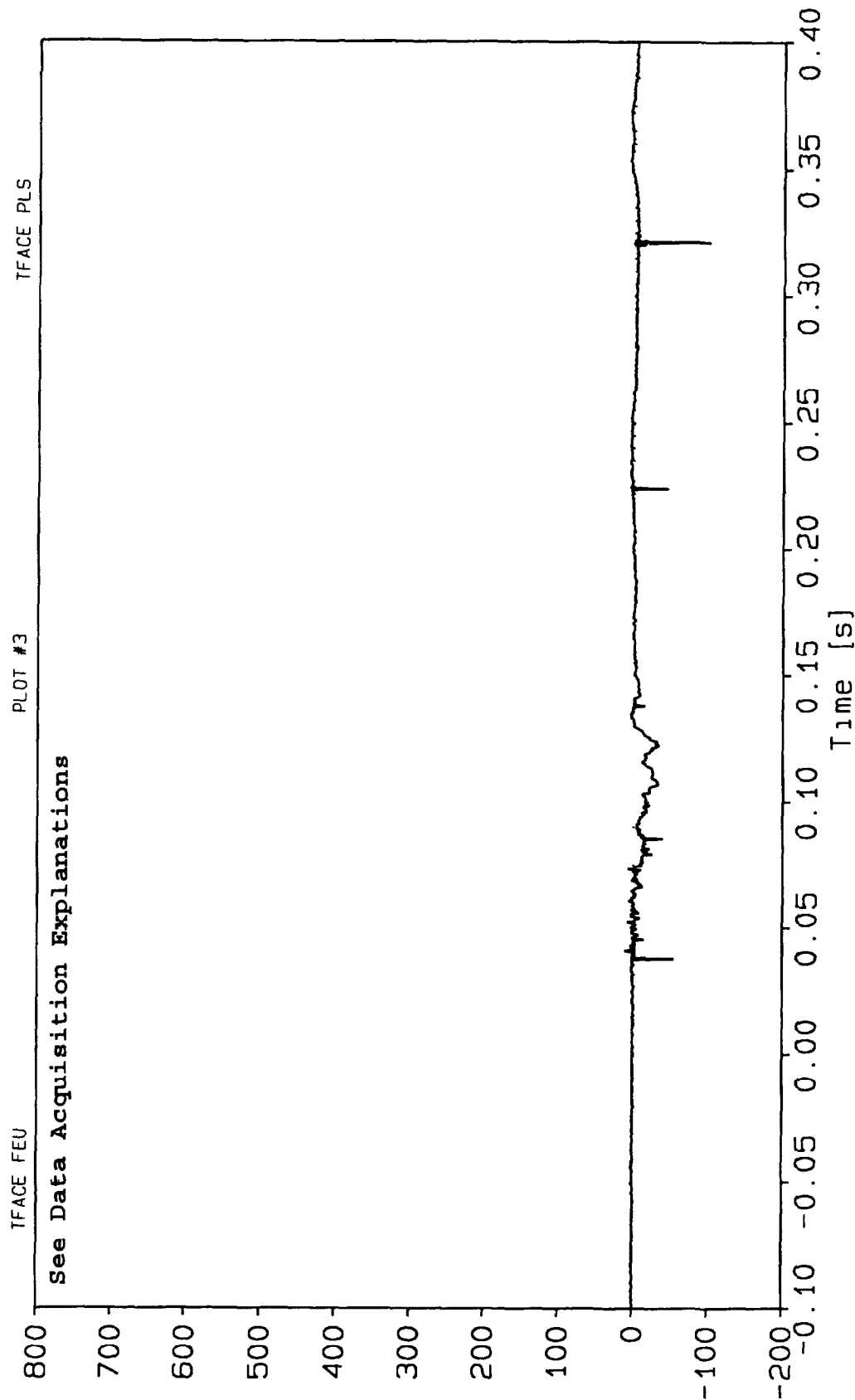
Exponent
Failure
Analysis
Associates

Right Cheek Uniax Compression Load v Time

Passenger Dummy - THOR

2001 Dodge Neon

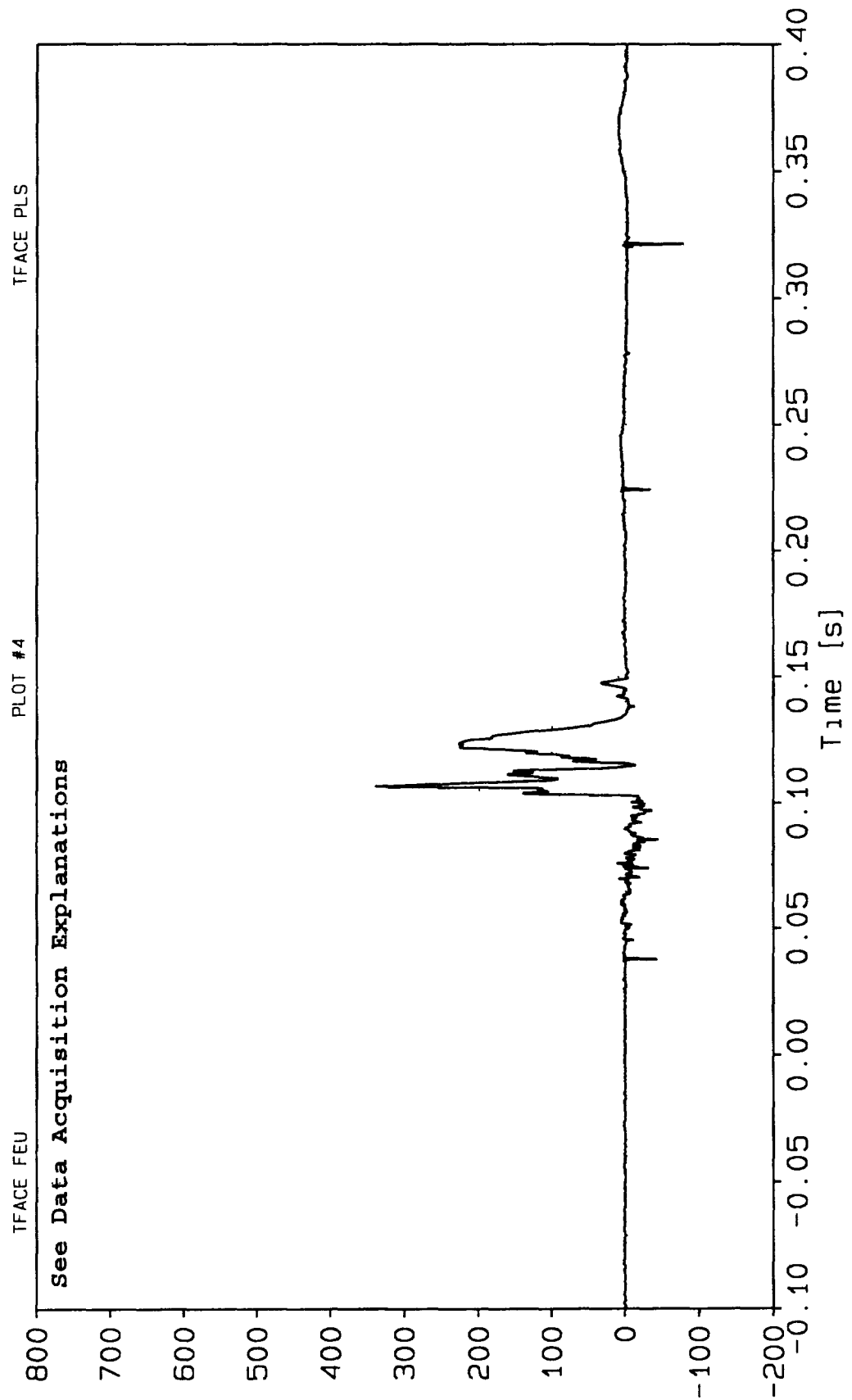
Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



Filter Class 600
Volpe Crash Testing
PH05608

Exponent
Failure
Analysis
Associates

Left Cheek Uniax Compression Load v Time
Passenger Dummy - THOR
2001 Dodge Neon
Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



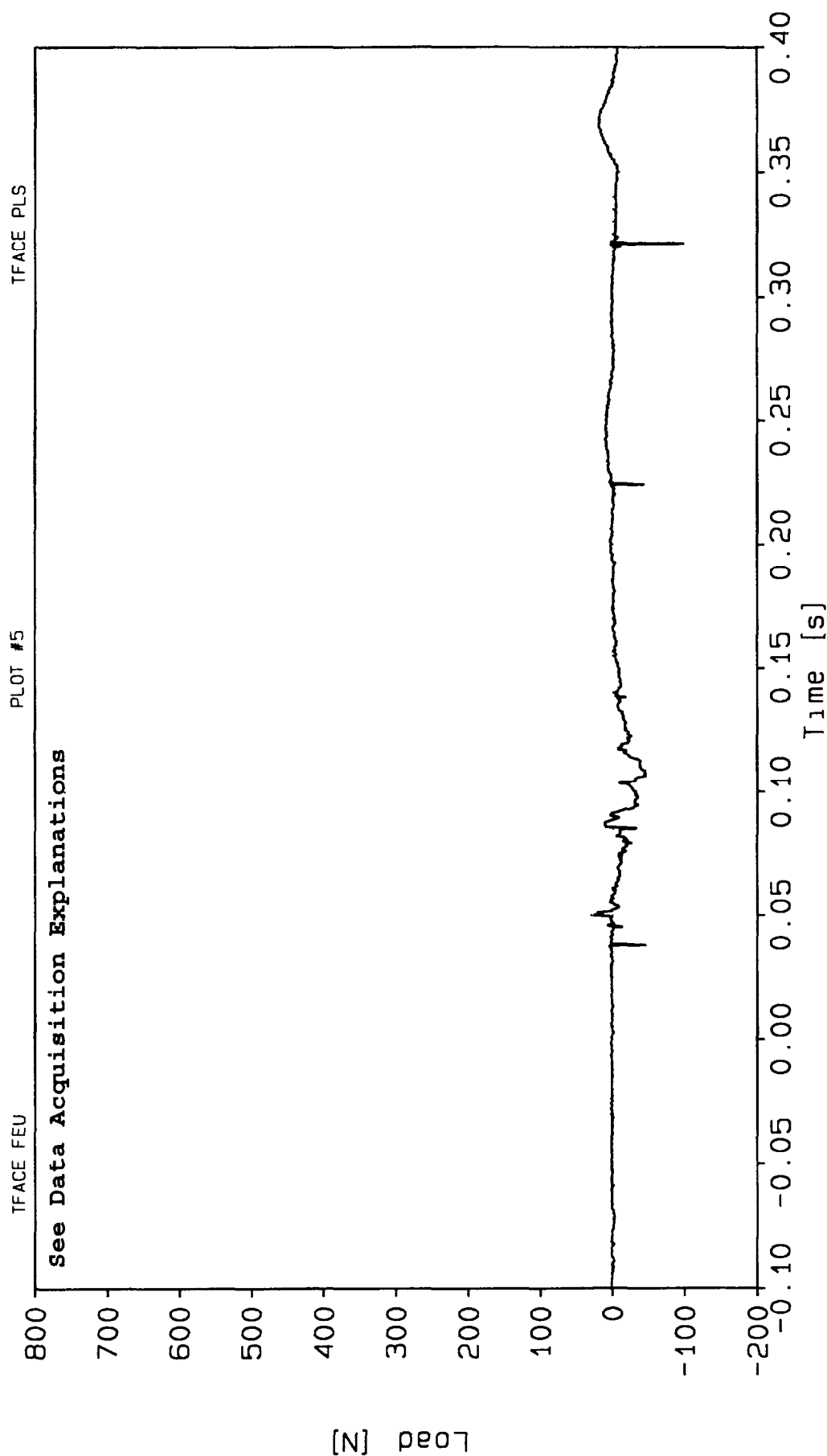
Filter Class 600
Volpe Crash Testing
PH06608

Exponent
Failure
Analysis
Associates

Chin Uniax Compression Load v Time

Passenger Dummy - THOR
2001 Dodge Neon

Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



Exponent
Failure
Analysis
Associates

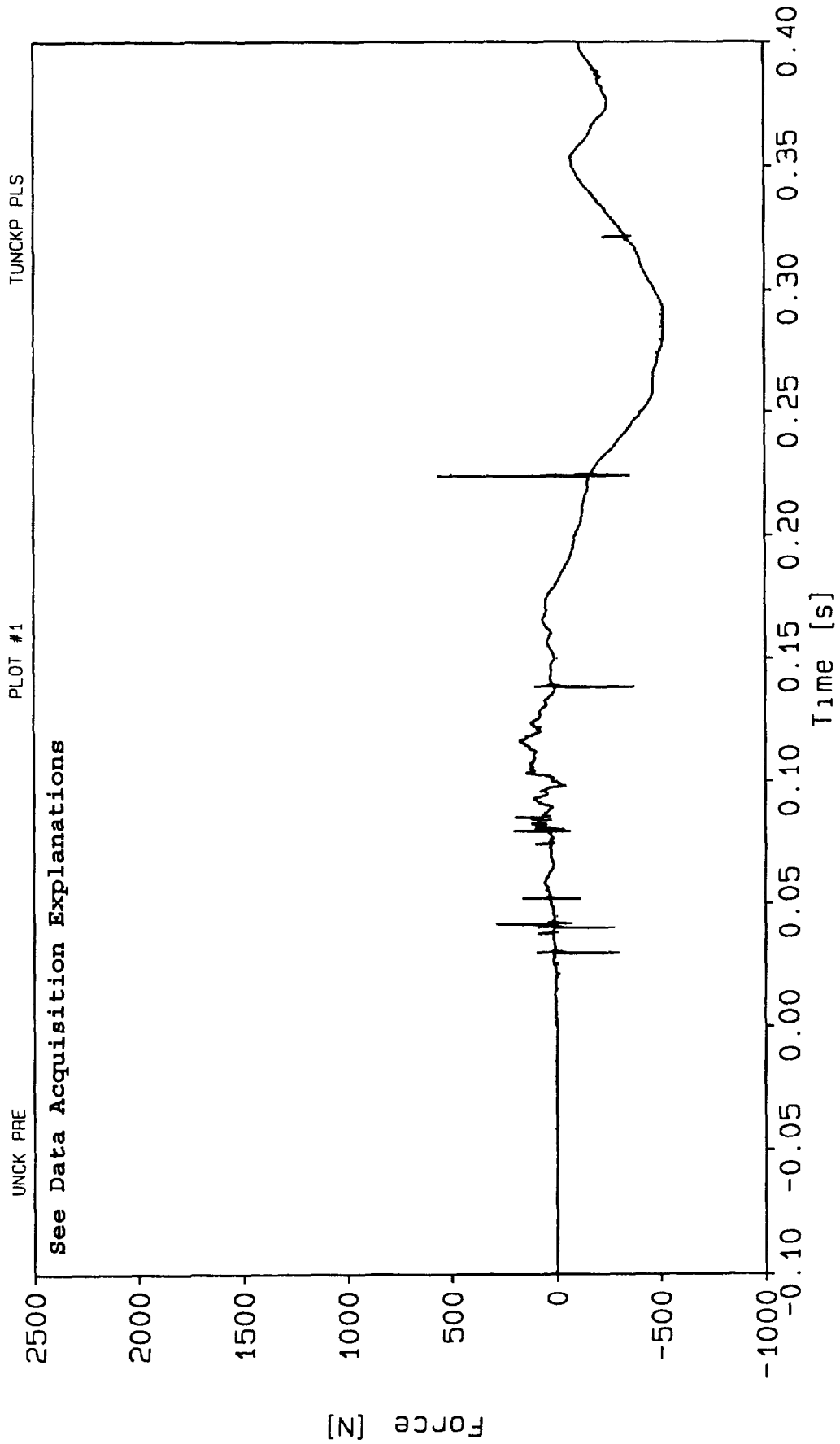
Filter Class 600
Volpe Crash Testing
PH05508

Upper Neck Force (Fx) v Time

Passenger Dummy - THOR - Pre-THORTEST Processing

2001 Dodge Neon

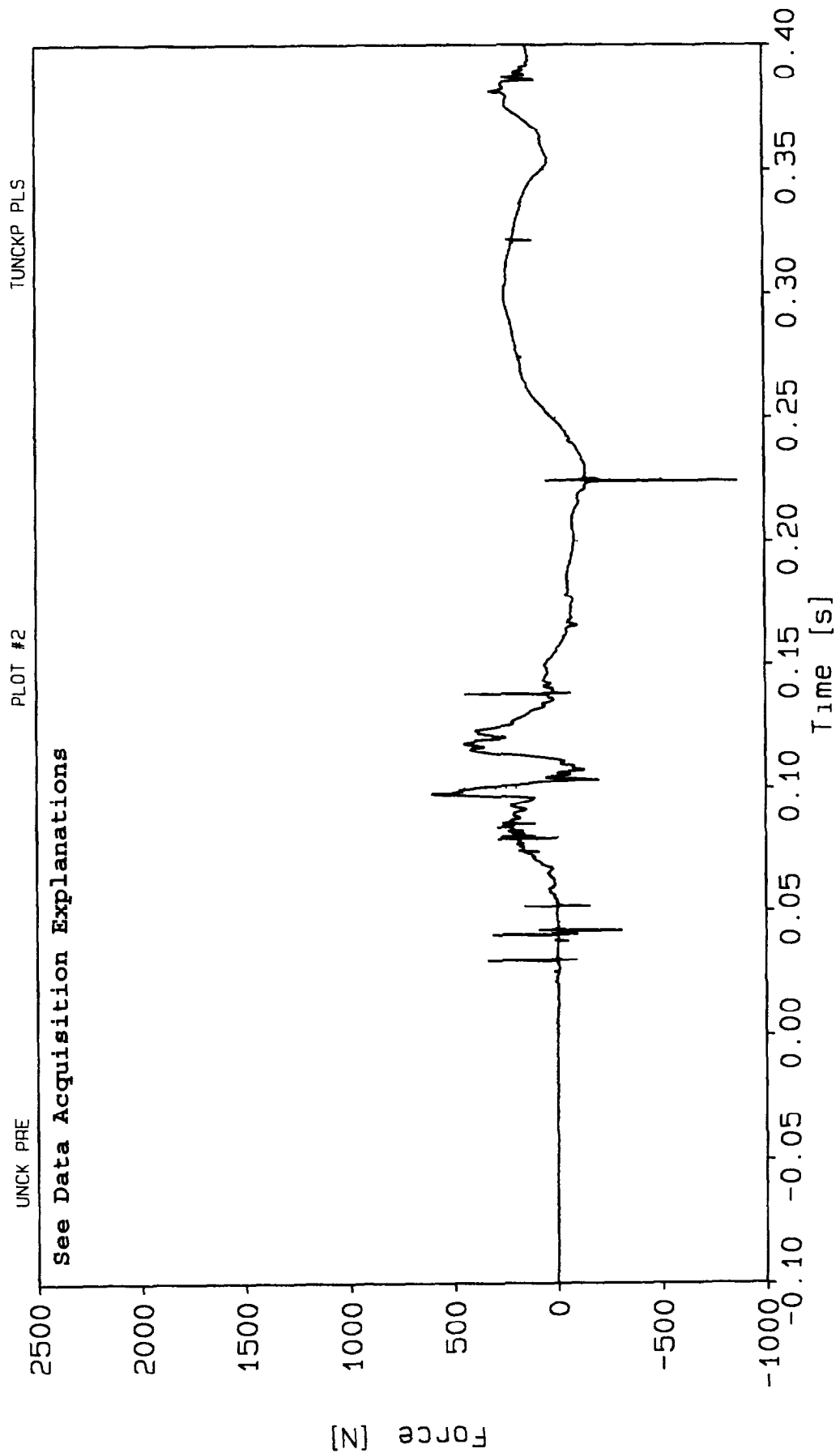
Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



Exponent
Failure
Analysis
Associates

Unfiltered
Volpe Crash Testing
PH06608

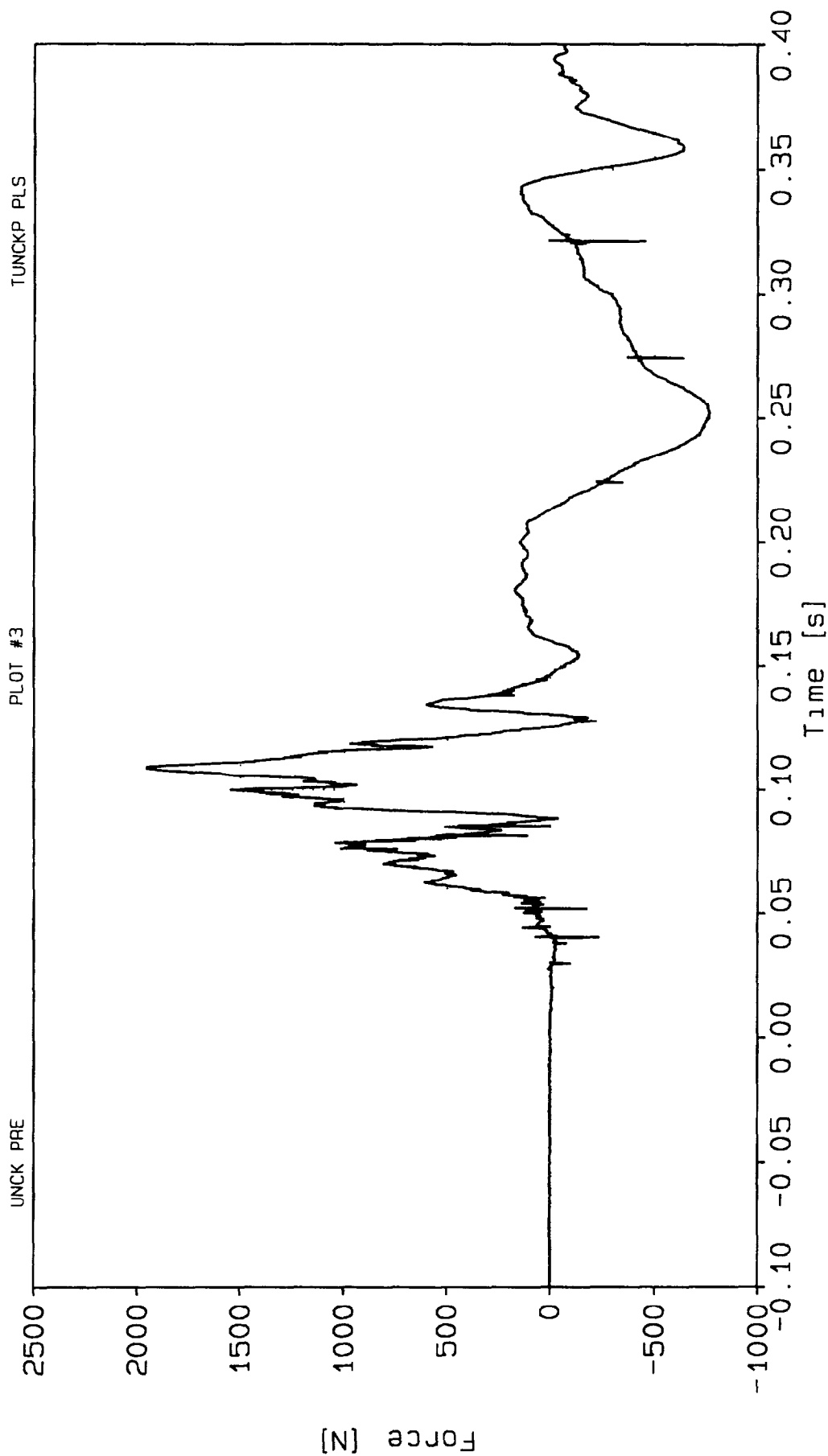
Upper Neck Force (Fy) v Time
Passenger Dummy - THOR - Pre-THORTEST Processing
2001 Dodge Neon
Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



Exponent
Failure
Analysis
Associates

Unfiltered
Volpe Crash Testing
PH06608

Upper Neck Force (Fz) v Time
Passenger Dummy - THOR - Pre-THORTEST Processing
2001 Dodge Neon
Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



Exponent
Failure
Analysis
Associates

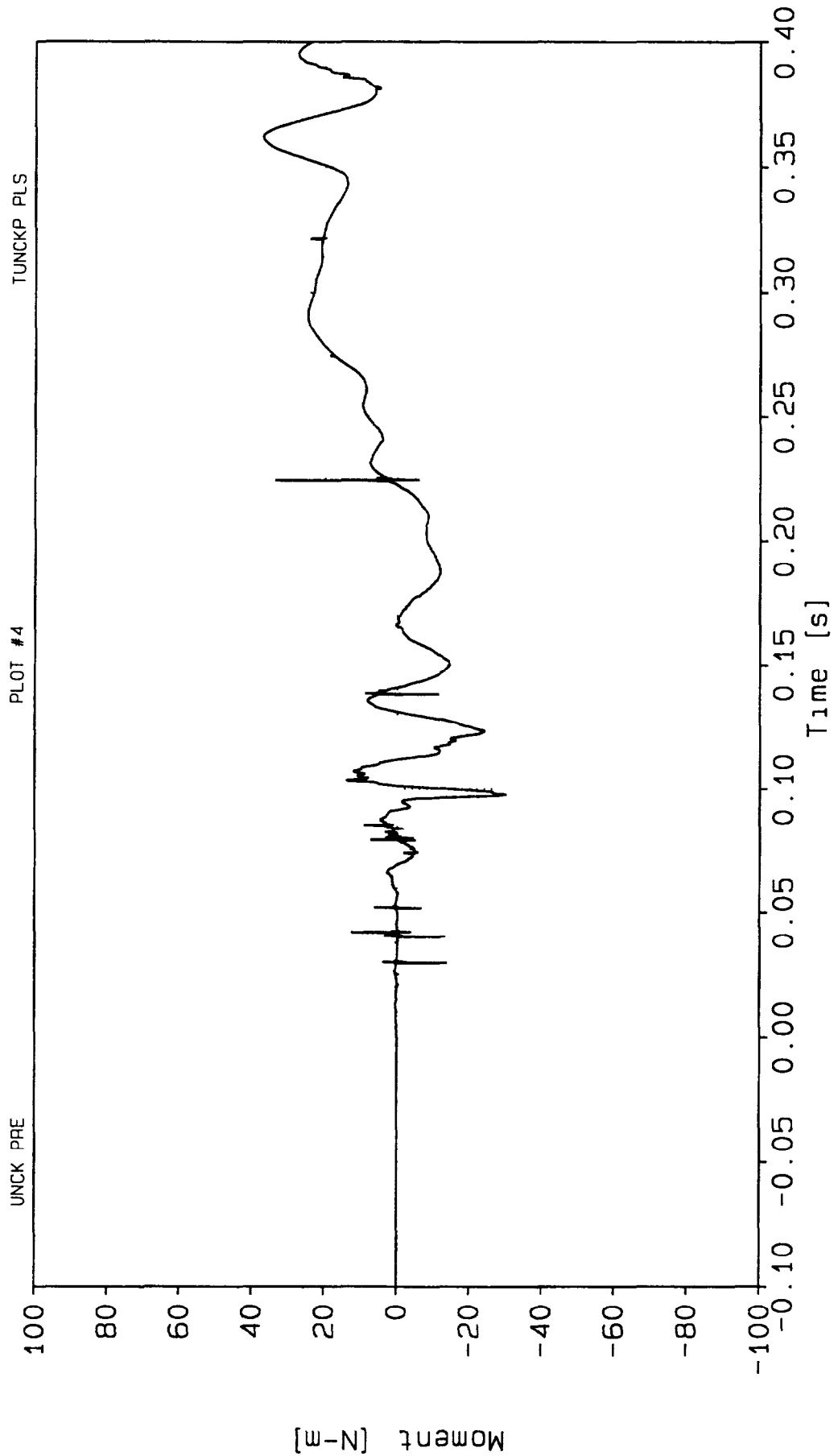
Unfiltered
Volpe Crash Testing
PH05508

Upper Neck Moment (Mx) v Time

Passenger Dummy - THOR - Pre-THORTEST Processing

2001 Dodge Neon

Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01

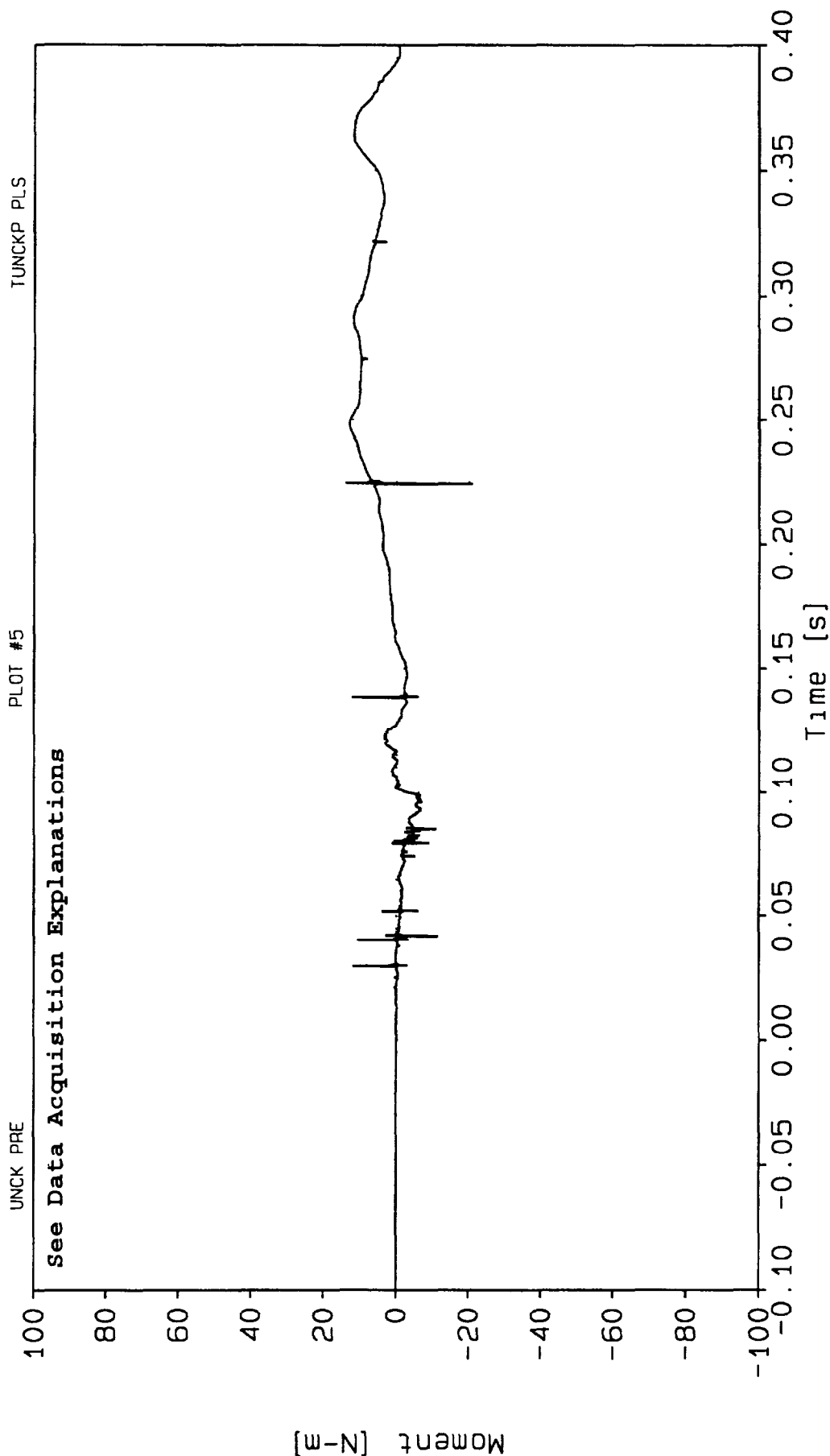


Unfiltered
Volpe Crash Testing
PH06608

Exponent
Failure
Analysis
Associates

Upper Neck Moment (My) v Time

Passenger Dummy - THOR - Pre-THORTEST Processing
2001 Dodge Neon
Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



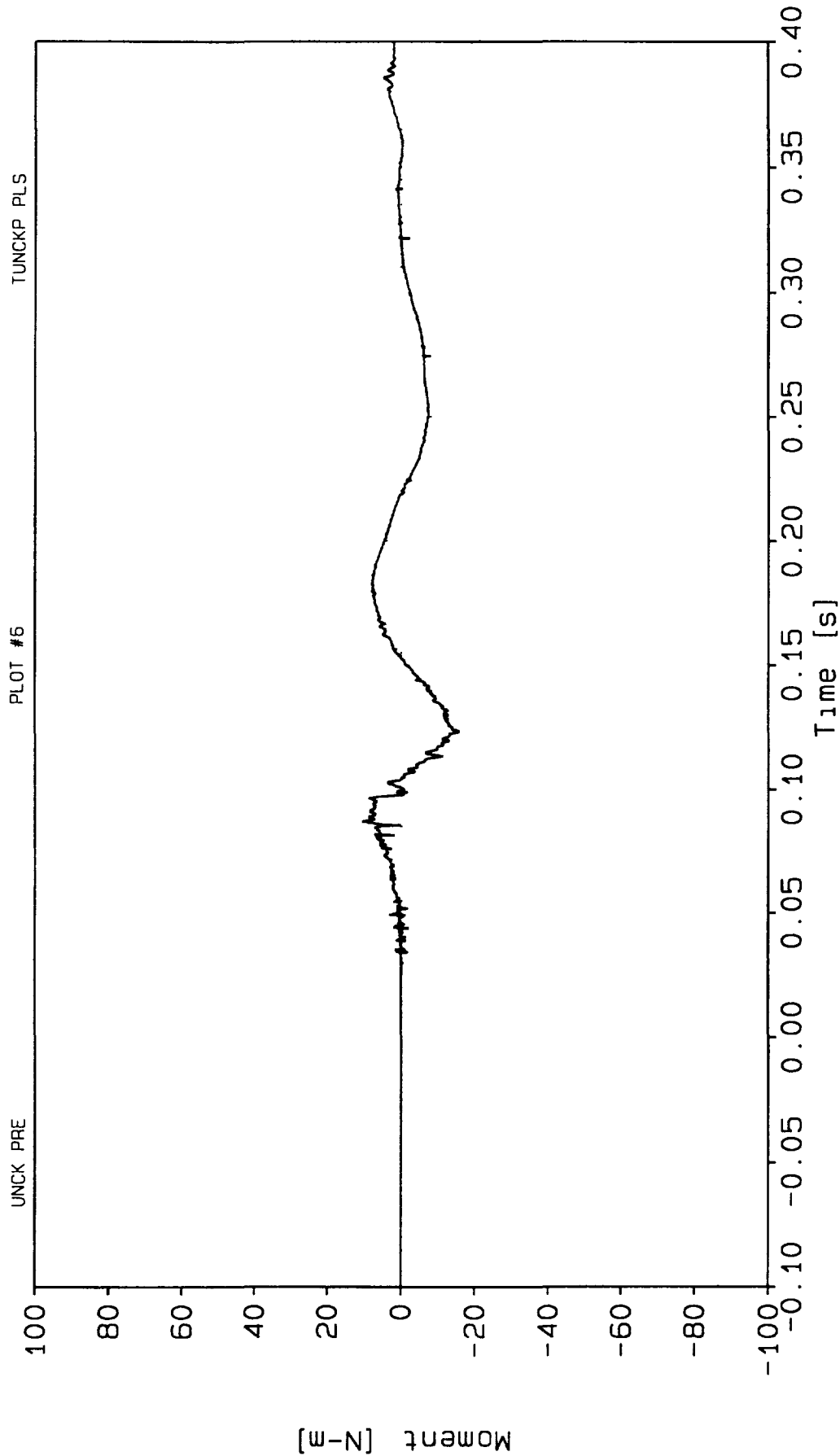
Unfiltered
Volpe Crash Testing
PH06608

Exponent
Failure
Analysis
Associates

Upper Neck Moment (Mz) v Time

Passenger Dummy - THOR - Pre-THORTEST Processing
2001 Dodge Neon

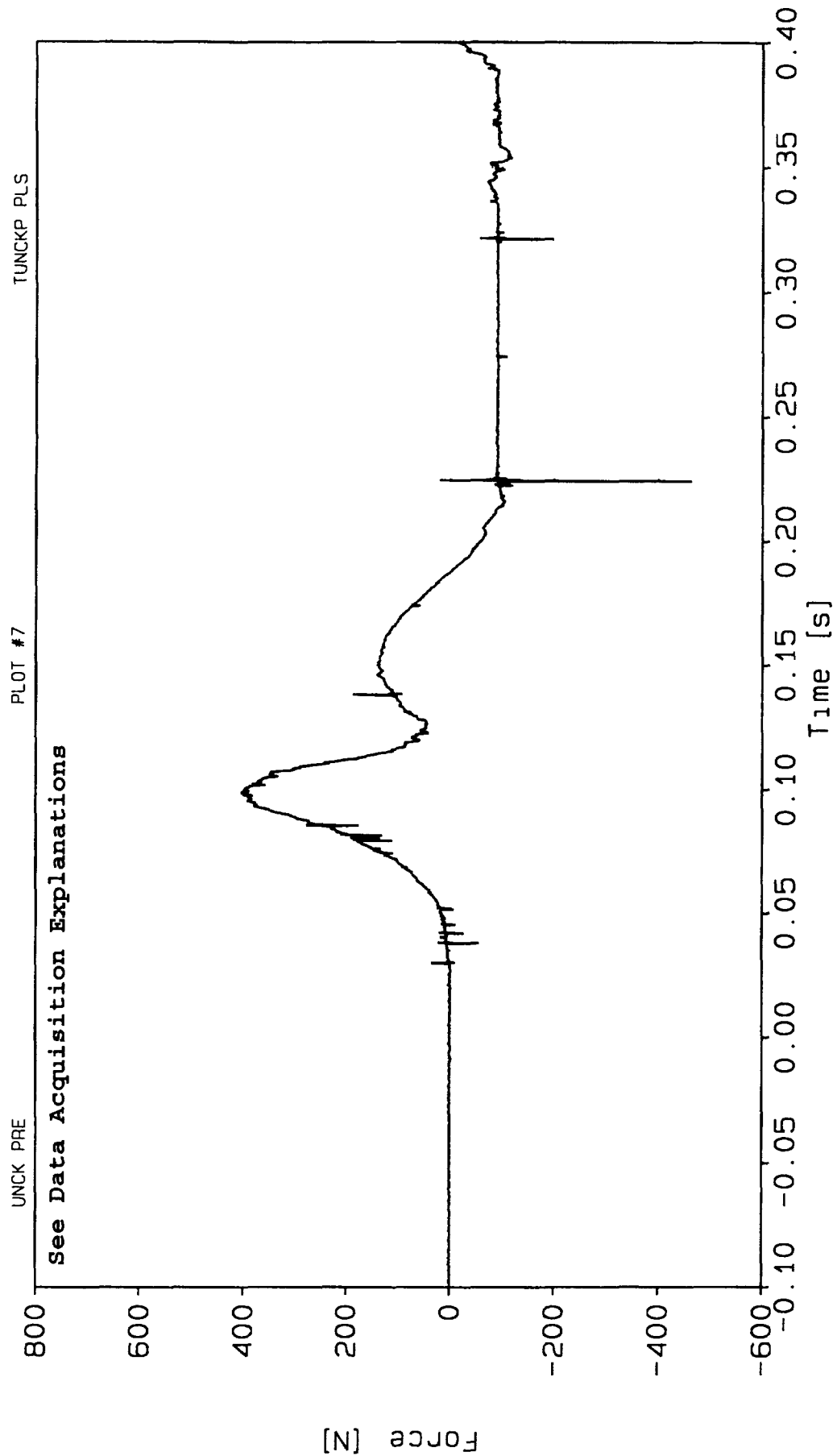
Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



Unfiltered
Volpe Crash Testing
PH06608

Exponent
Failure
Analysis
Associates

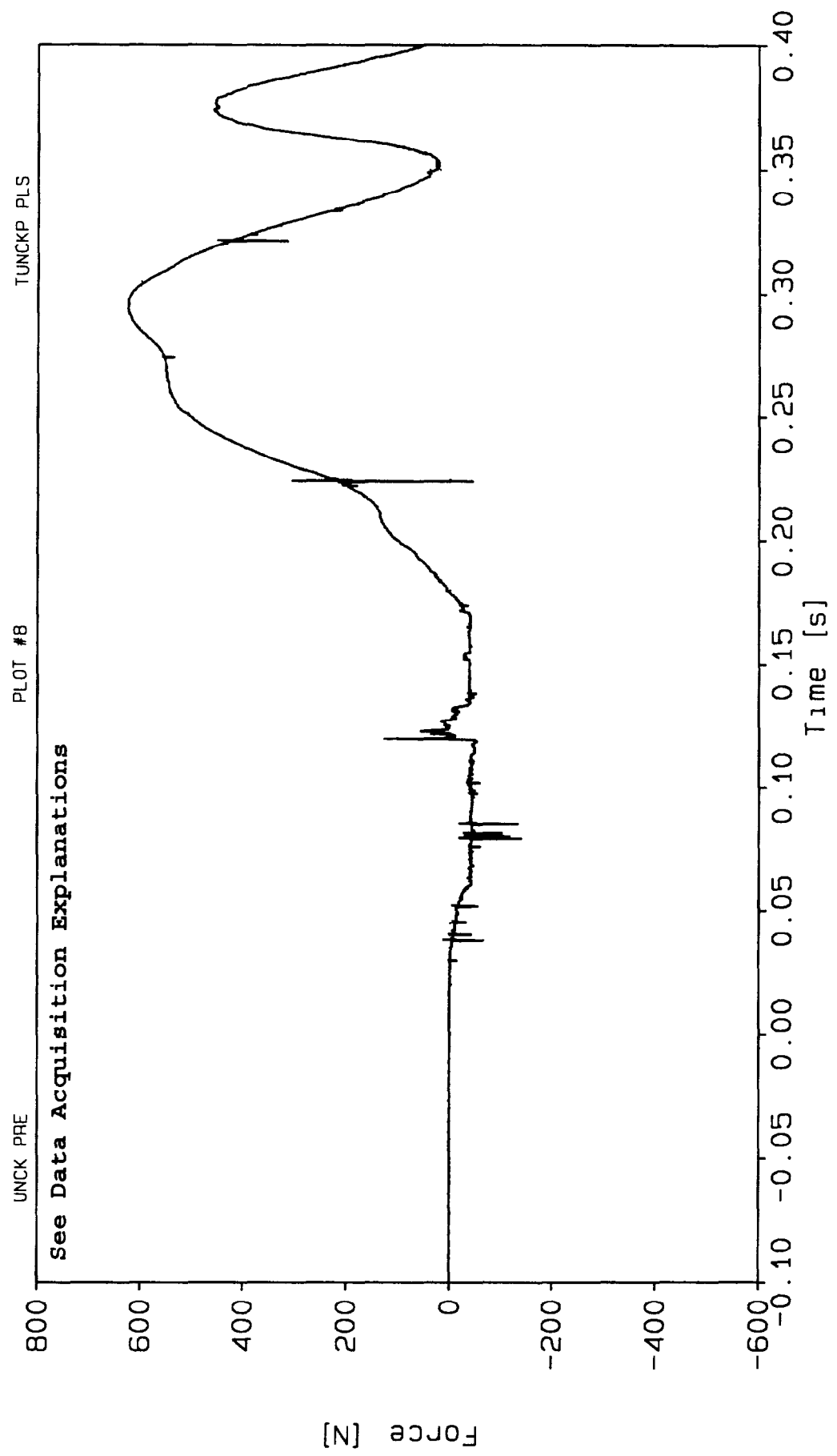
Neck Front Spring Compression v Time
Passenger Dummy - THOR - Pre-THORTEST Processing
2001 Dodge Neon
Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



Unfiltered
Volpe Crash Testing
PH06608

Exponent
Failure
Analysis
Associates

Neck Rear Spring Compression v Time
Passenger Dummy - THOR - Pre-THORTEST Processing
2001 Dodge Neon
Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



Exponent
Failure
Analysis
Associates

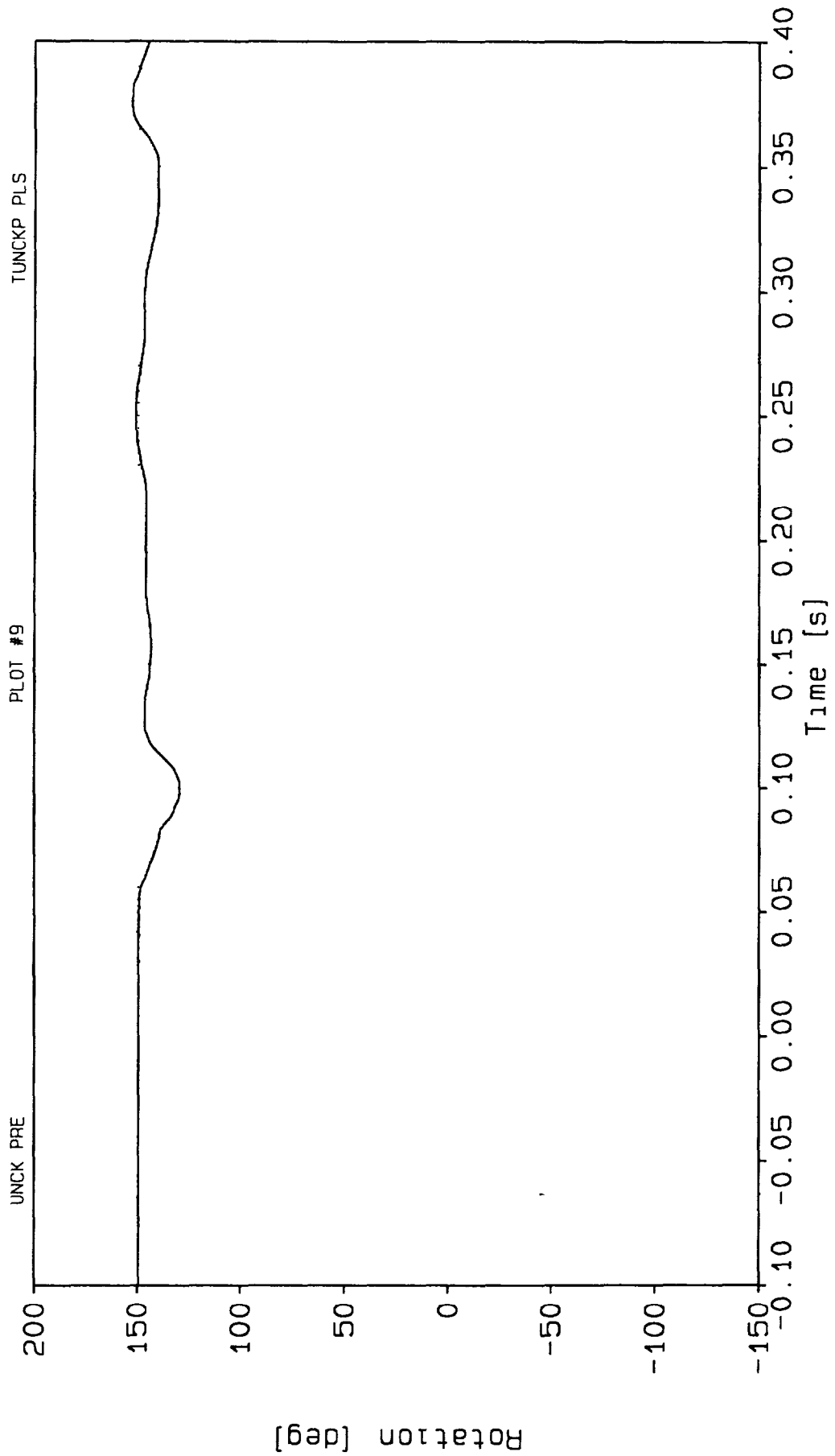
Unfiltered
Volpe Crash Testing
PH06608

Head Rotation at Occipital Condyle v Time

Passenger Dummy - THOR - Pre-THORTEST Processing

2001 Dodge Neon

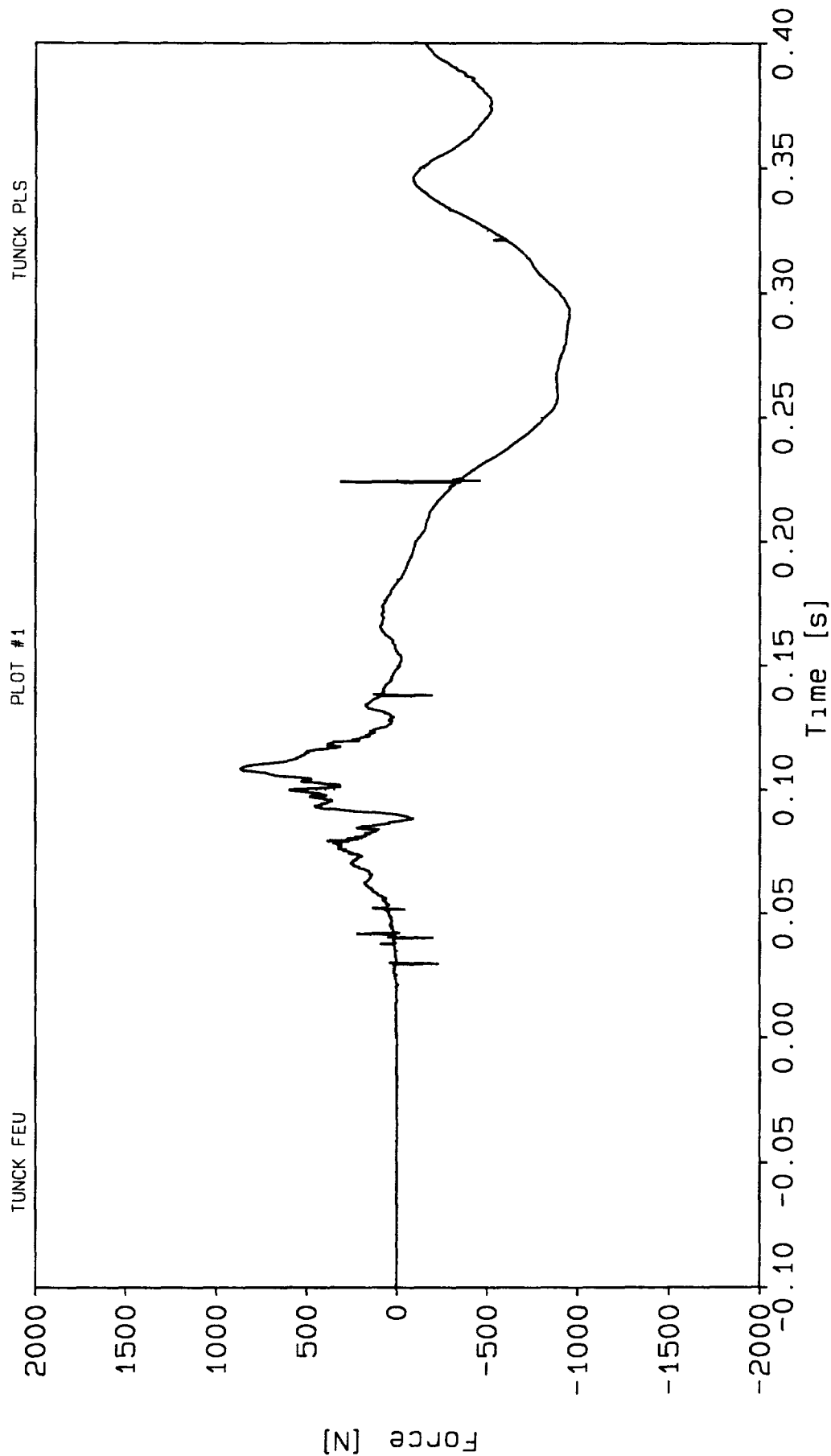
Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



Exponent
Failure
Analysis
Associates

Unfiltered
Volpe Crash Testing
PH06608

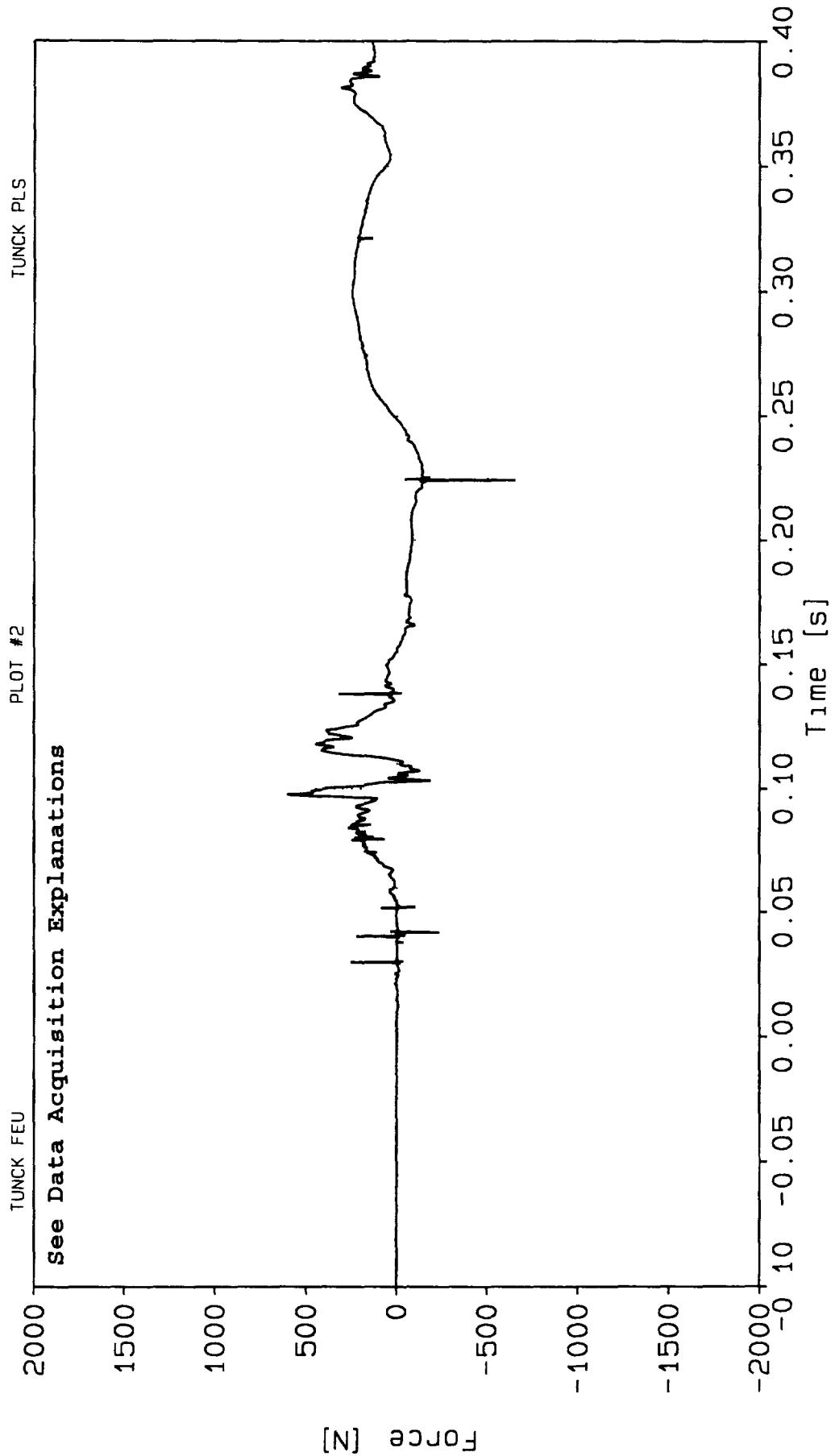
Upper Neck Force (Fx) v Time
Passenger Dummy - THOR - Post THORTEST Processing
2001 Dodge Neon
Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



Exponent
Failure
Analysis
Associates

Filter Class 1000
Volpe Crash Testing
PH05608

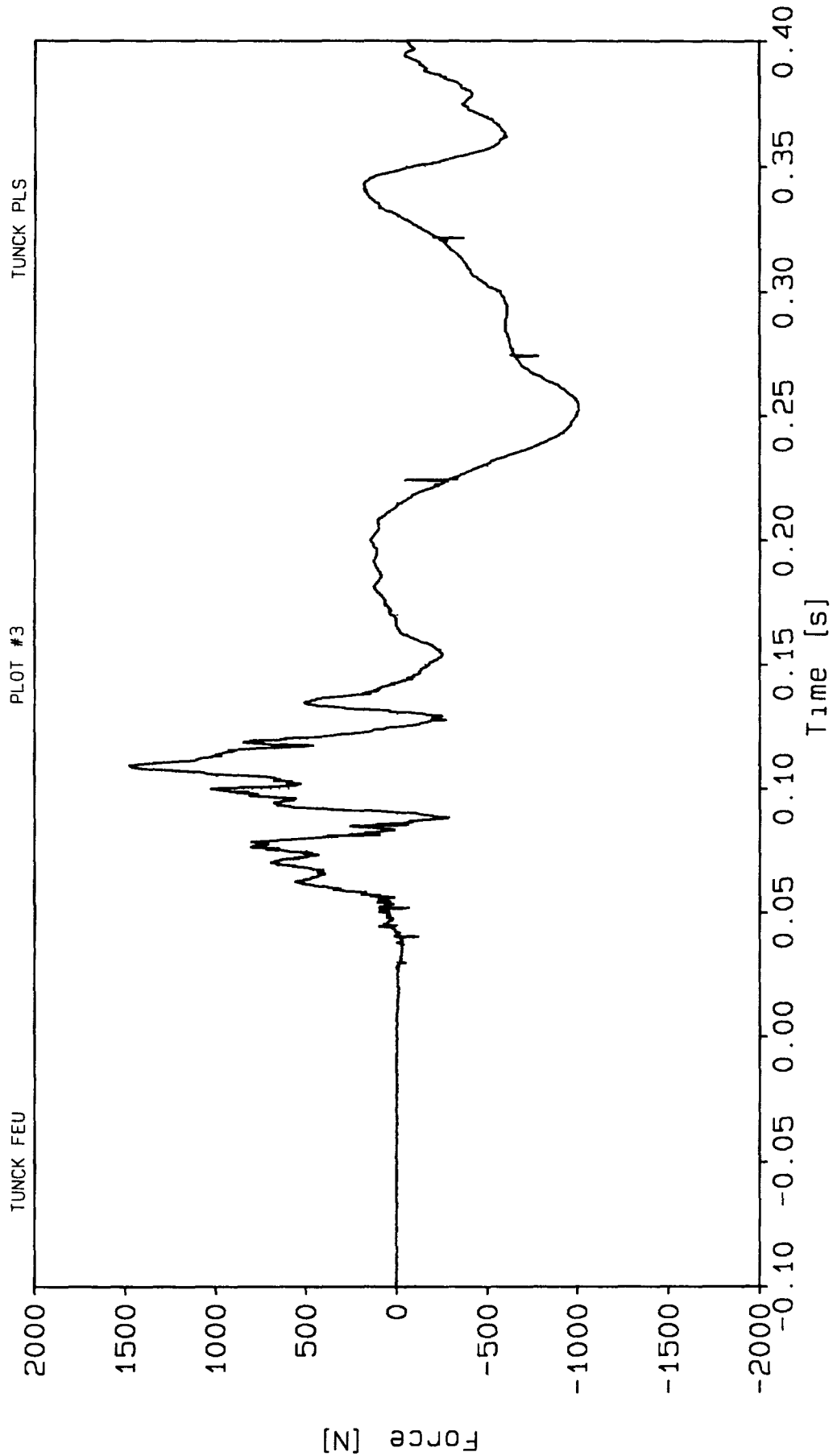
Upper Neck Force (Fy) v Time
Passenger Dummy - THOR - Post THORTEST Processing
2001 Dodge Neon
Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



Filter Class 1000
Volpe Crash Testing
PH06608

Exponent
Failure
Analysis
Associates

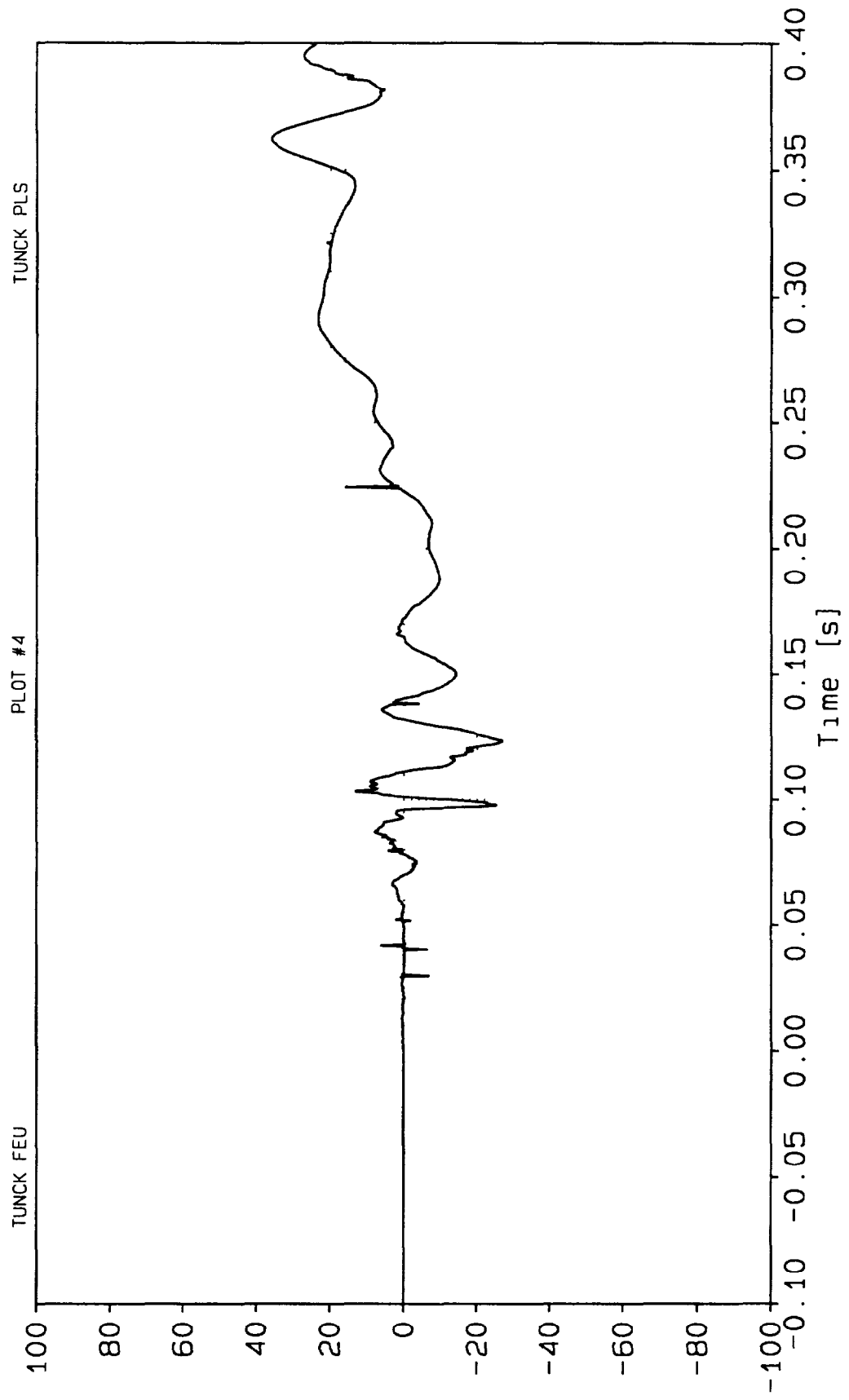
Upper Neck Force (Fz) v Time
Passenger Dummy - THOR - Post THORTEST Processing
2001 Dodge Neon
Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



Filter Class 1000
Volpe Crash Testing
PH05608

Exponent
Failure
Analysis
Associates

Upper Neck Moment (Mx) v Time
Passenger Dummy - THOR - Post THORTEST Processing
2001 Dodge Neon
Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



Exponent
Failure
Analysis
Associates

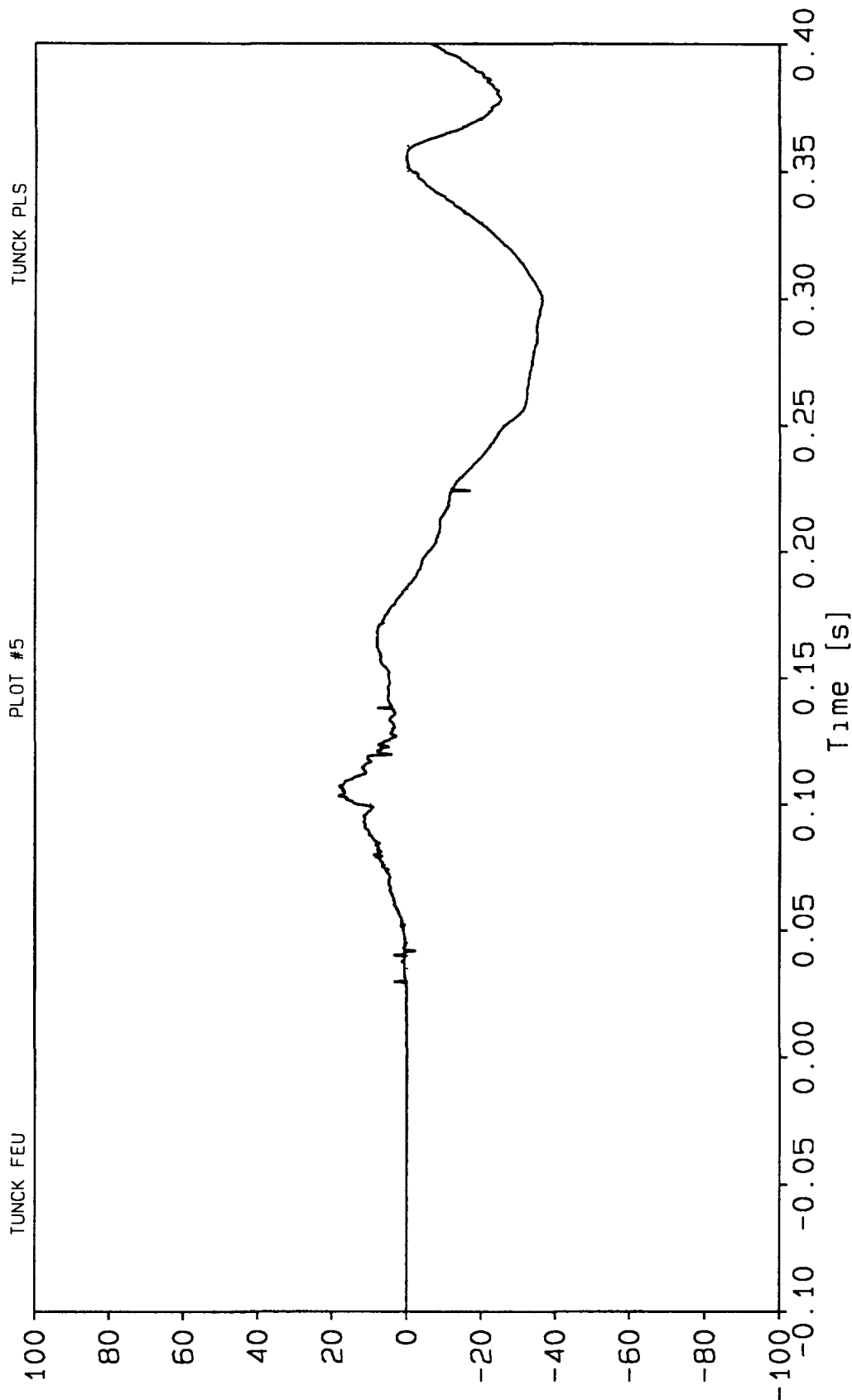
Filter Class 600
Volpe Crash Testing
PH06608

Upper Neck Moment (My) v Time

Passenger Dummy - THOR - Post THORTEST Processing

2001 Dodge Neon

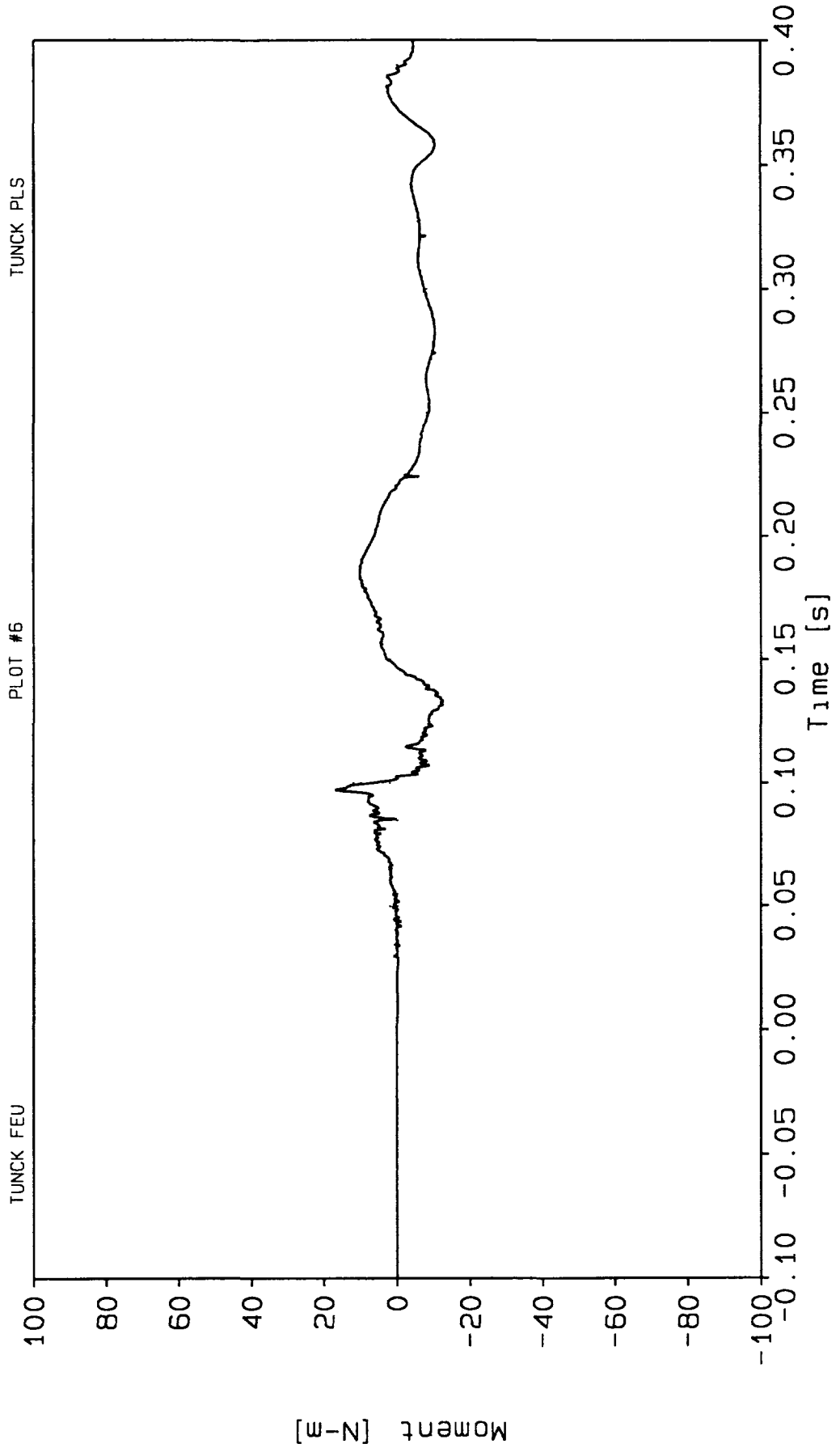
Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



Filter Class 600
Volpe Crash Testing
PH06608

Exponent
Failure
Analysis
Associates

Upper Neck Moment (Mz) v Time
Passenger Dummy - THOR - Post THORTEST Processing
2001 Dodge Neon
Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



Filter Class 600
Volpe Crash Testing
PH06608

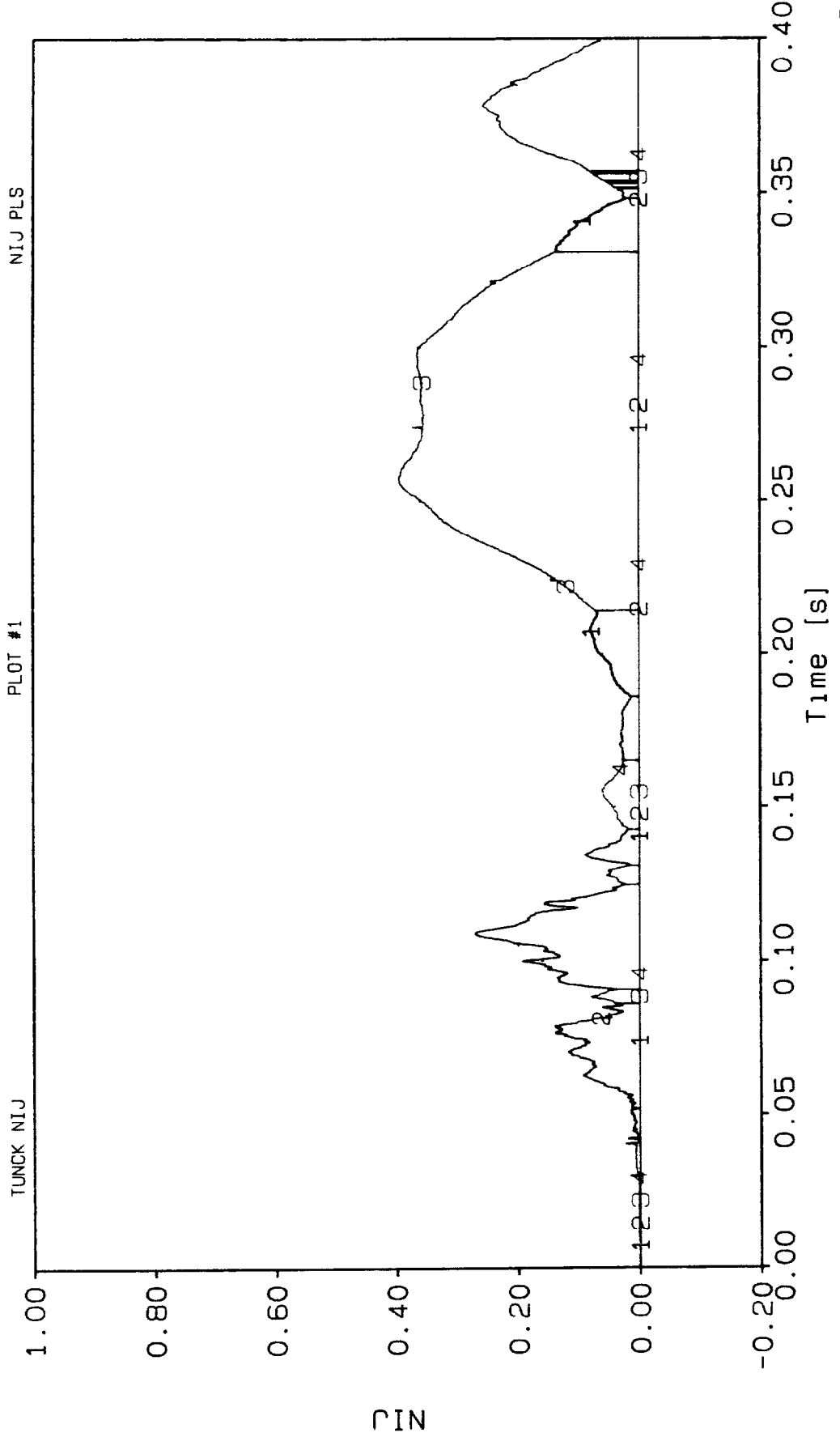
Exponent
Failure
Analysis
Associates

Neck Injury Predictor v Time

Passenger Dummy - THOR

2001 Dodge Neon

Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



Exponent
Failure
Analysis
Associates

NtF
NCF

NtF
NCF

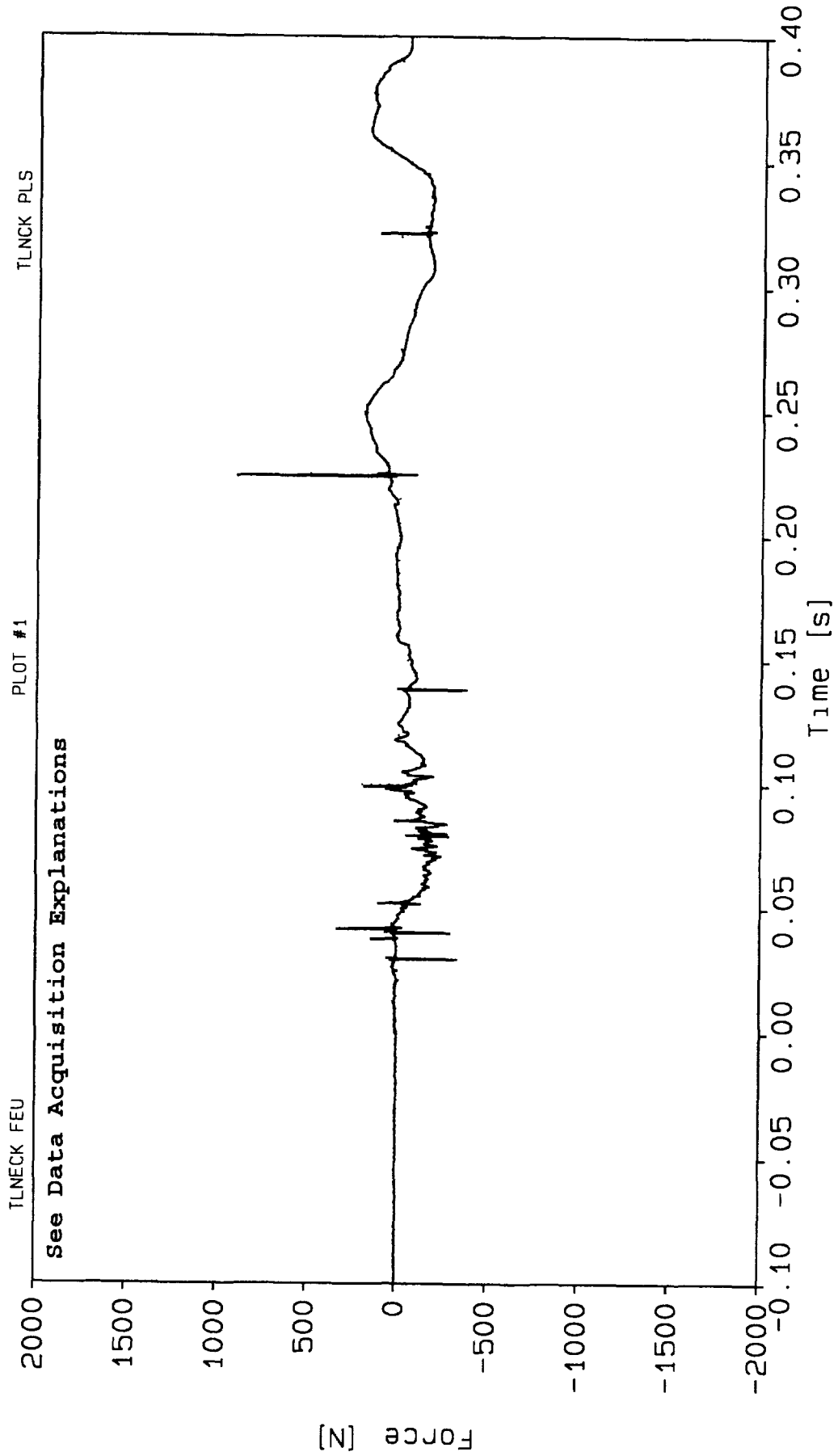
Volpe Crash Testing
PH05608

Lower Neck Force (Fx) v Time

Passenger Dummy - THOR

2001 Dodge Neon

Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



Filter Class 1000
Volpe Crash Testing
PH06608

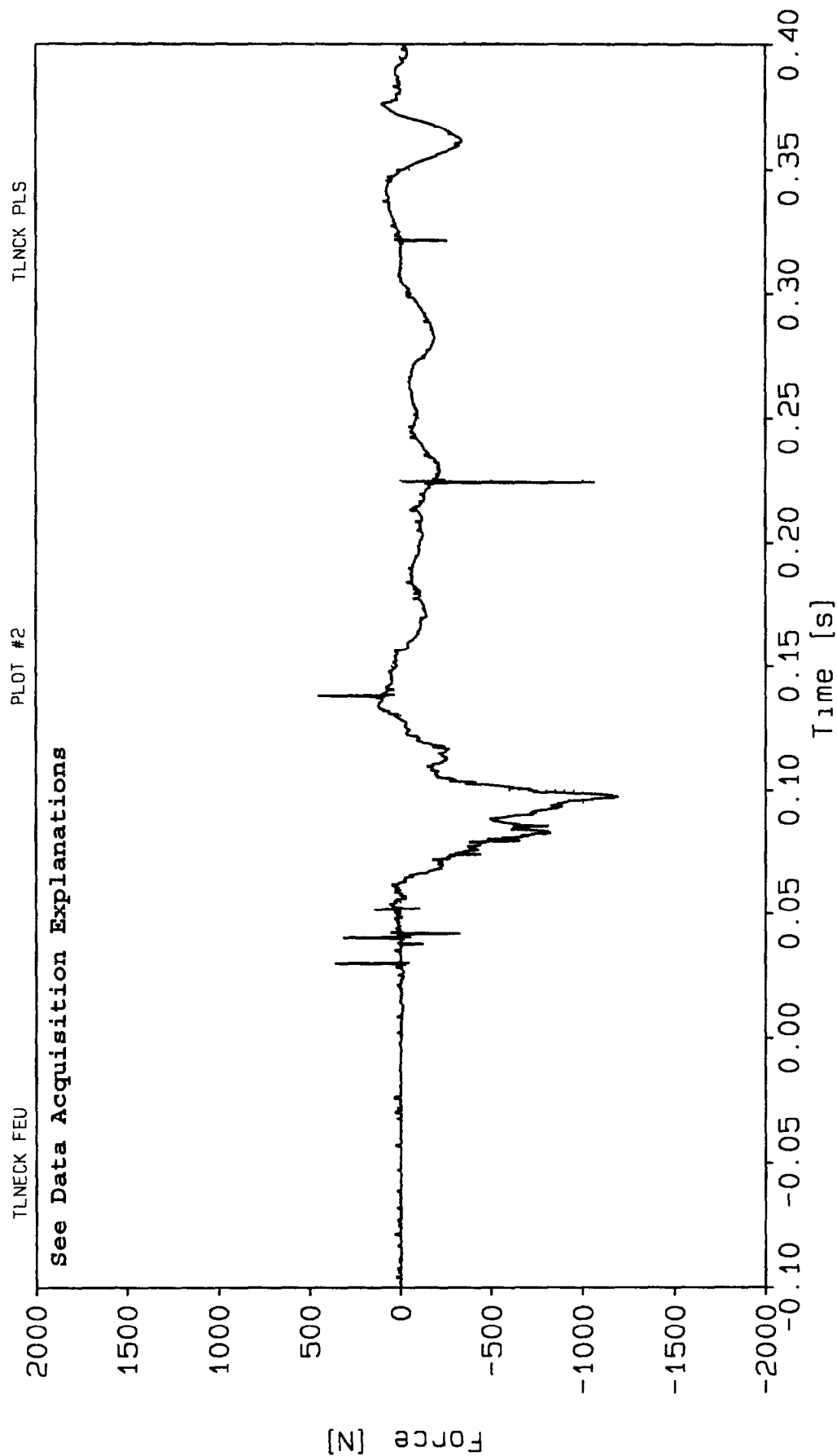
Exponent
Failure
Analysis
Associates

Lower Neck Force (Fy) v Time

Passenger Dummy - THOR

2001 Dodge Neon

Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



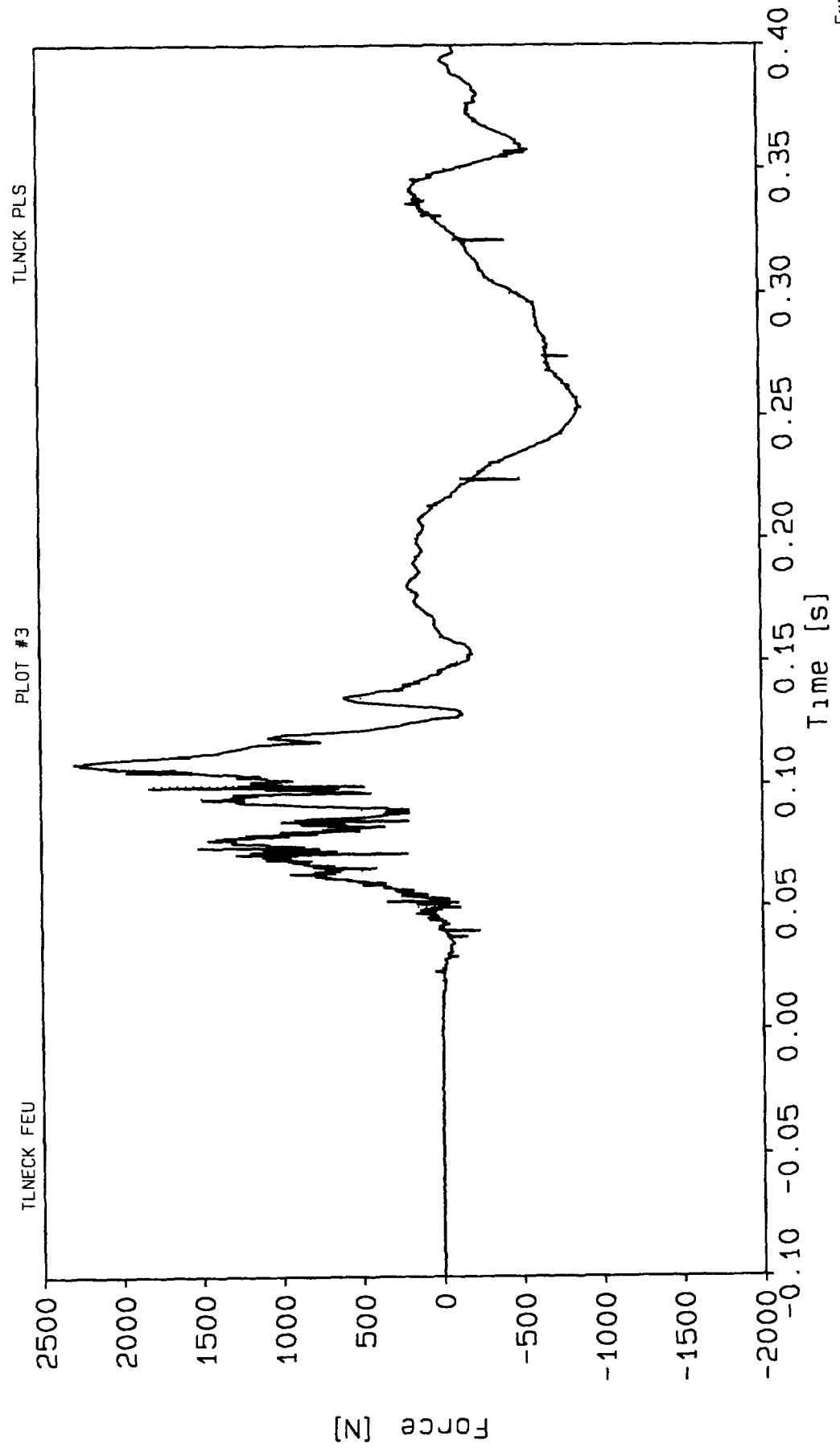
Exponent
Failure
Analysis
Associates

Filter Class 1000
Volpe Crash Testing
PH06608

Lower Neck Force (Fz) v Time

Passenger Dummy - THOR
2001 Dodge Neon

Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



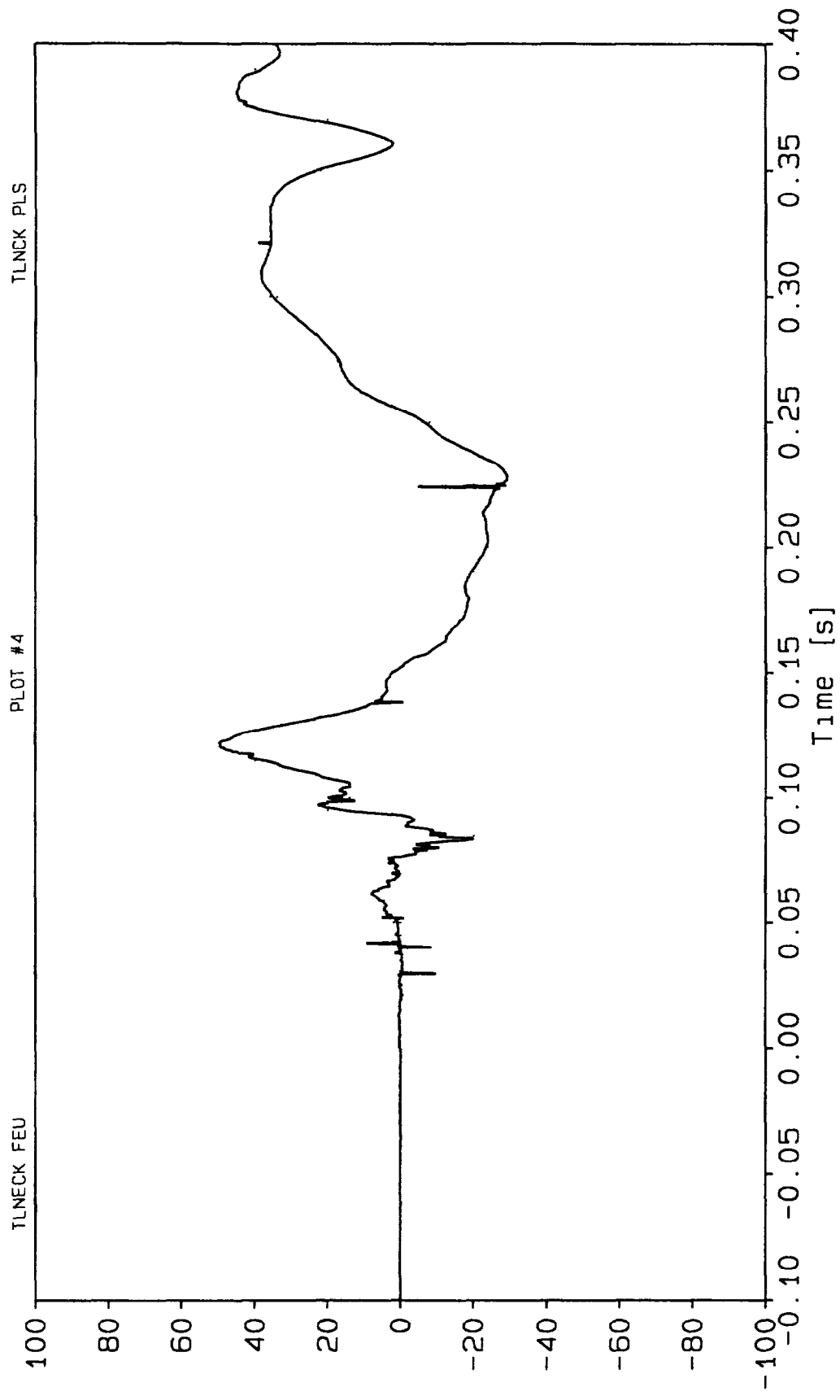
Filter Class 1000
Volpe Crash Testing
PH05608

Exponent
Failure
Analysis
Associates

Lower Neck Moment (Mx) v Time

Passenger Dummy - THOR
2001 Dodge Neon

Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



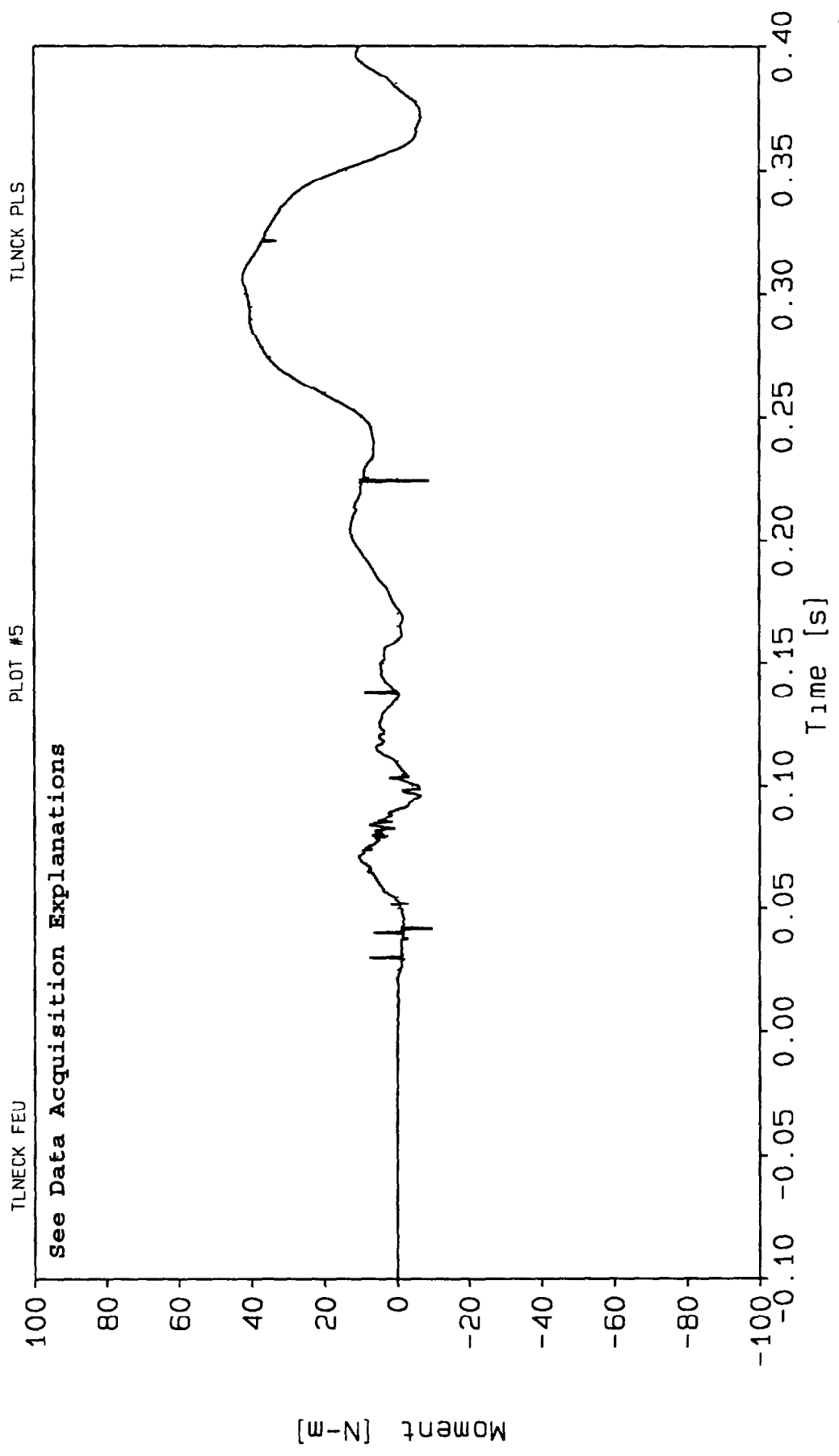
Filter Class 600
Volpe Crash Testing
PH06508

Exponent
Failure
Analysis
Associates

Lower Neck Moment (My) v Time

Passenger Dummy - THOR
2001 Dodge Neon

Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



Exponent
Failure
Analysis
Associates

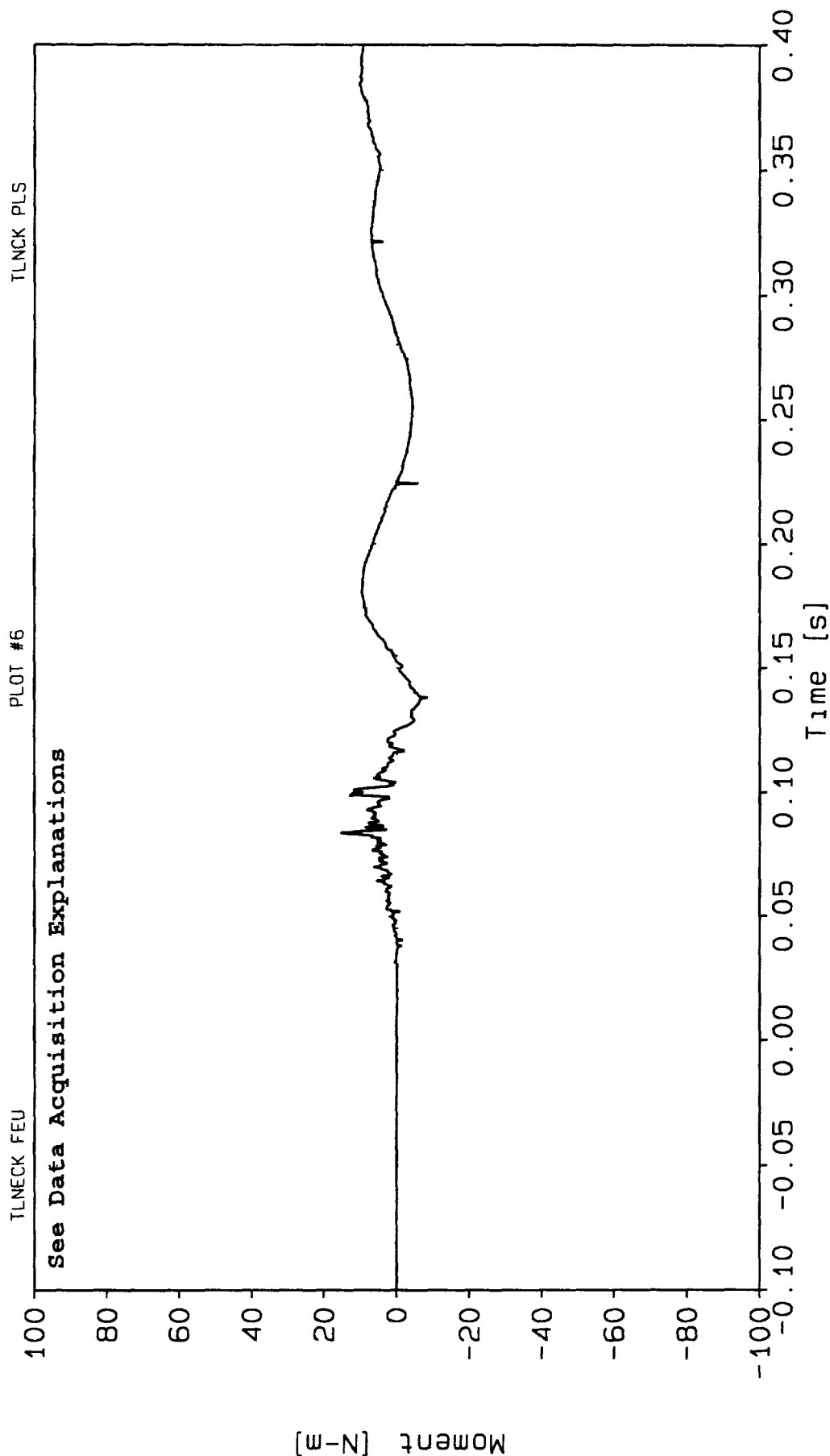
Filter Class 600
Voice Crash Testing
PH05608

Lower Neck Moment (Mz) v Time

Passenger Dummy - THOR

2001 Dodge Neon

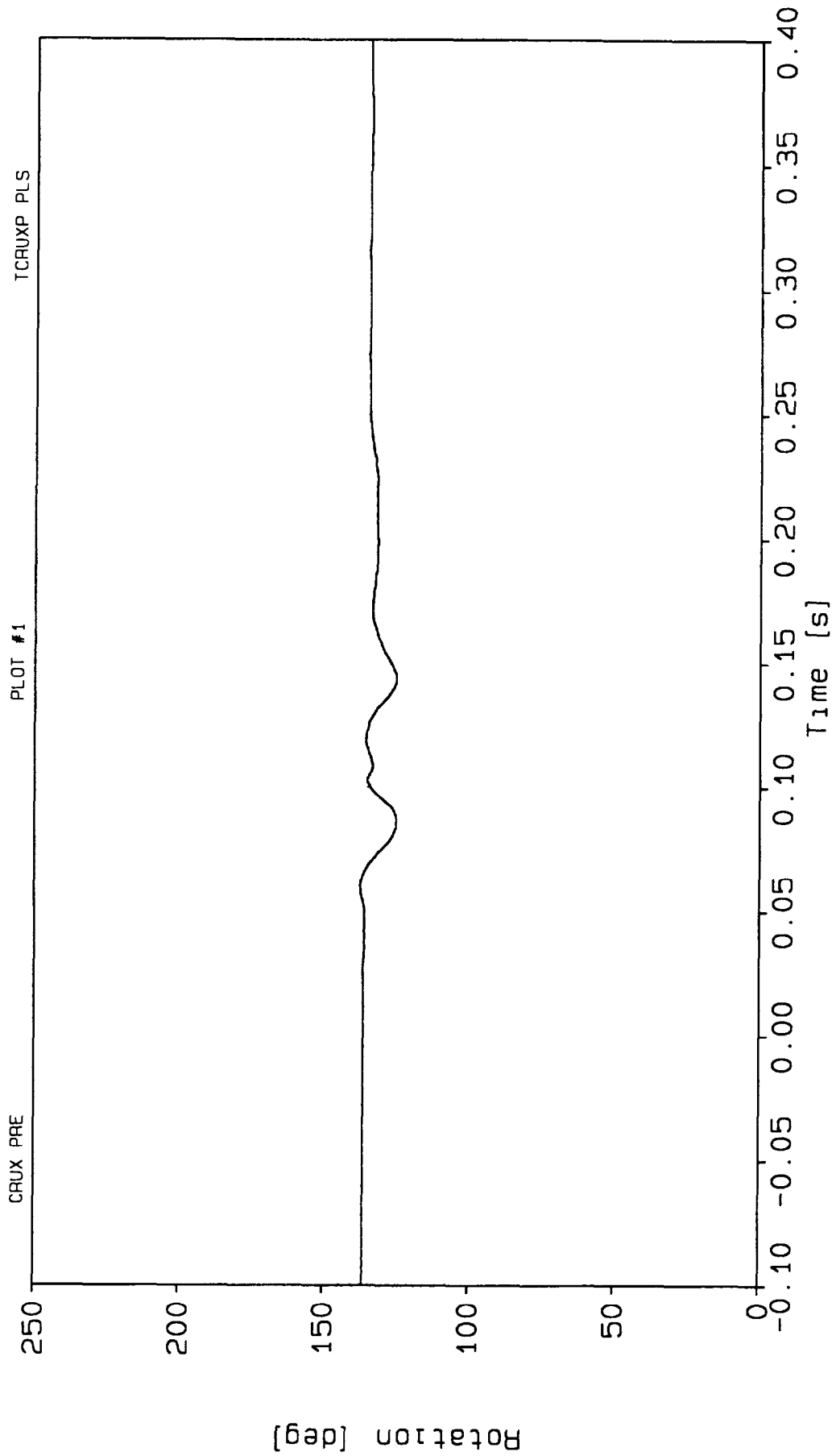
Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



Exponent
Failure
Analysis
Associates

Filter Class 500
Volpe Crash Testing
PH06608

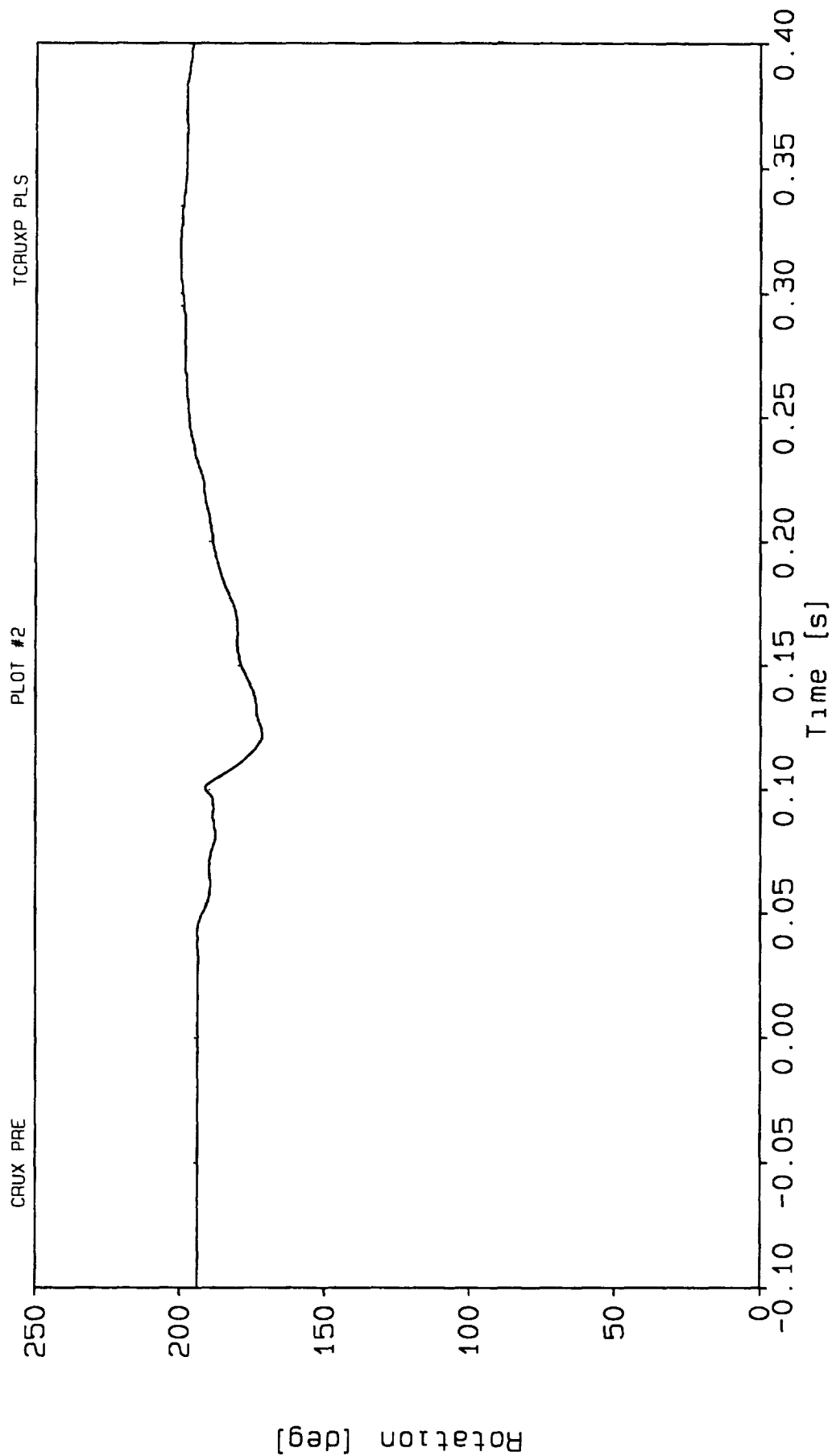
Crux Upper Left Base Rotation v Time
Passenger Dummy - THOR - Pre-THORTEST Processing
2001 Dodge Neon
Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



Exponent
Failure
Analysis
Associates

Filter Class 180
Volpe Crash Testing
PH06608

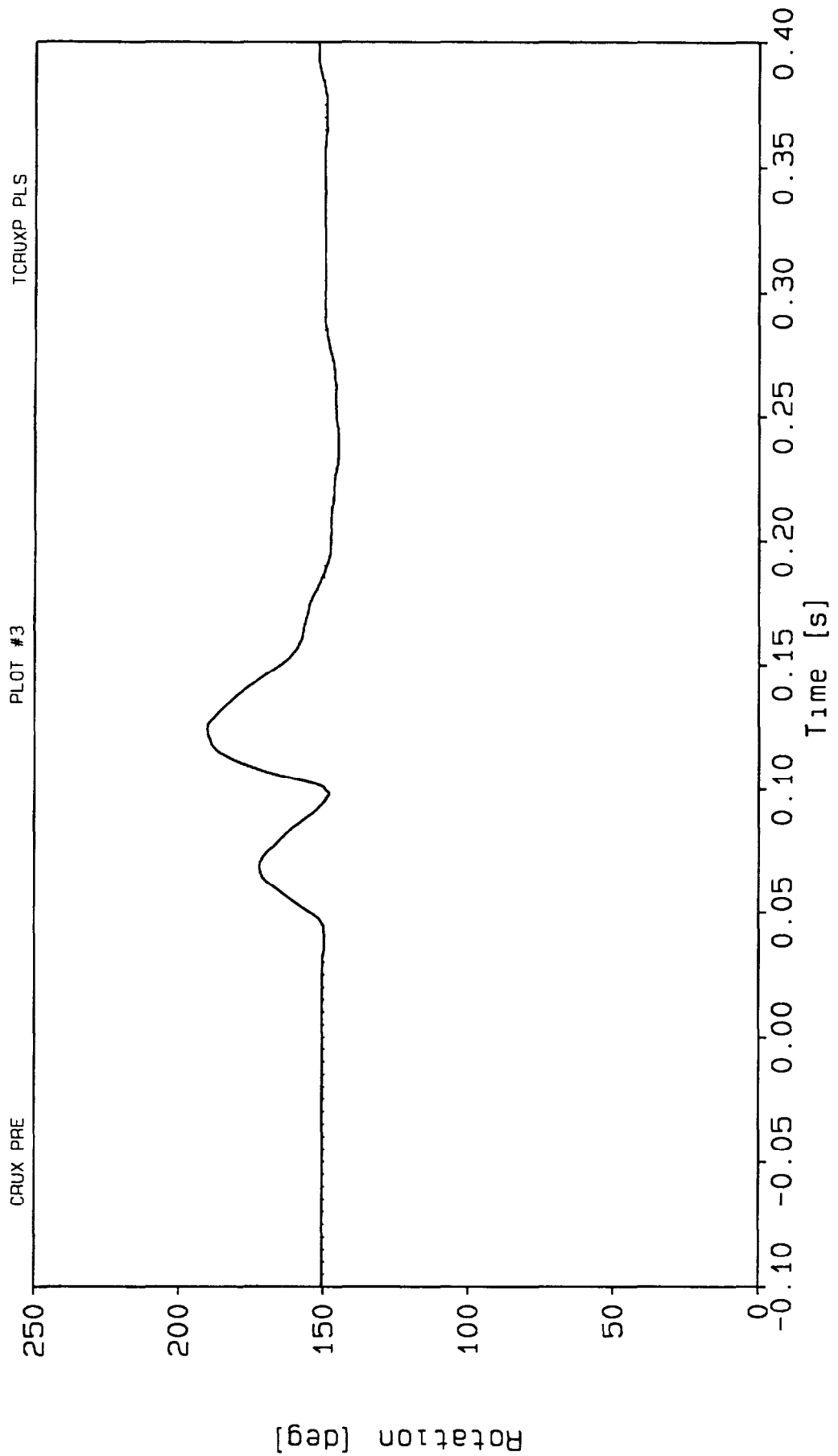
Crux Upper Left Mid Rotation v Time
Passenger Dummy - THOR - Pre-THORTEST Processing
2001 Dodge Neon
Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



Filter Class 180
Volpe Crash Testing
PH06608

Exponent
Failure
Analysis
Associates

Crux Upper Left Elbow Rotation v Time
Passenger Dummy - THOR - Pre-THORTEST Processing
2001 Dodge Neon
Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



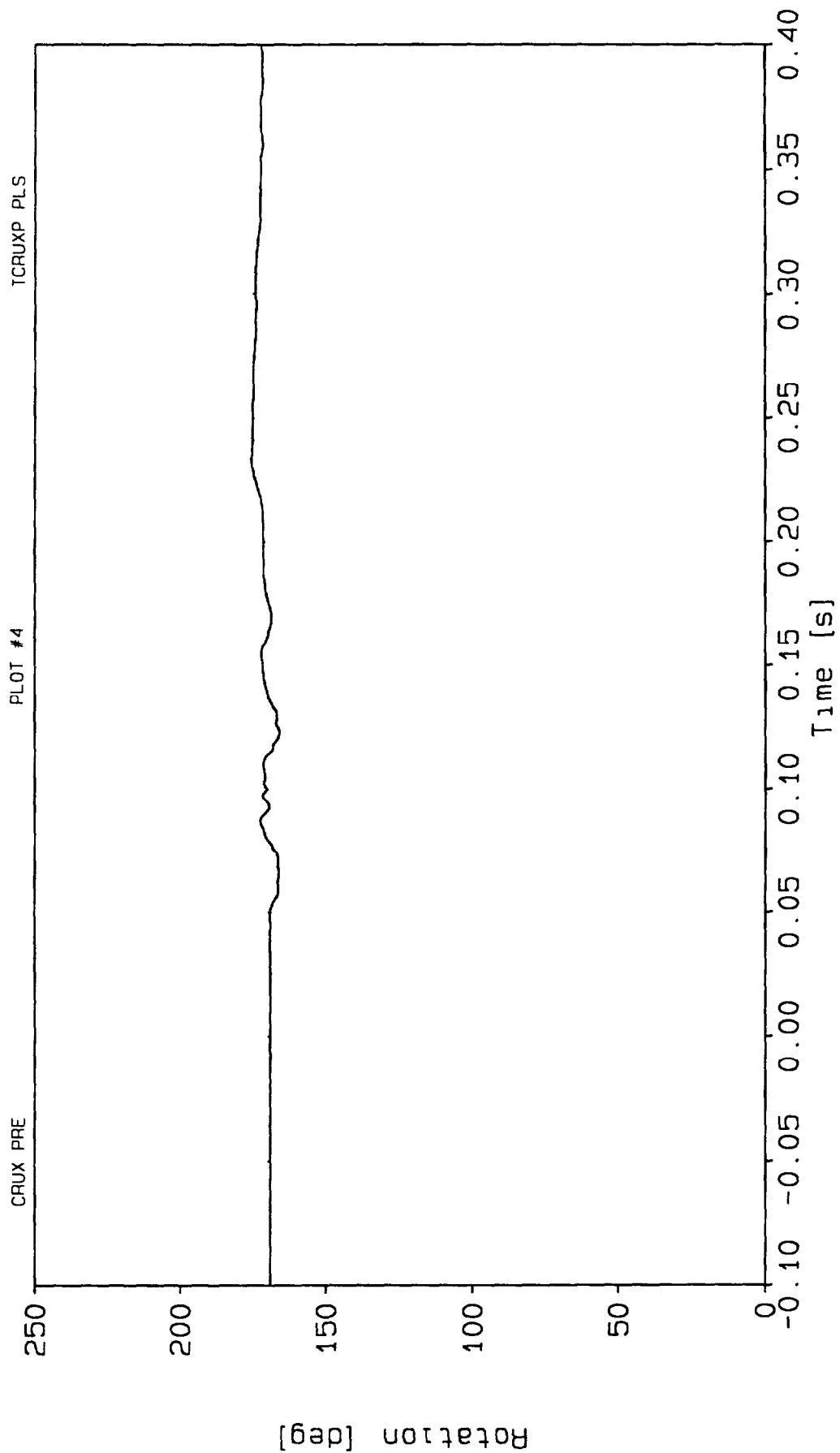
Filter Class 180
Volpe Crash Testing
PH06608

Exponent
Failure
Analysis
Associates

Crux Upper Right Base Rotation v Time

Passenger Dummy - THOR - Pre-THORTEST Processing
2001 Dodge Neon

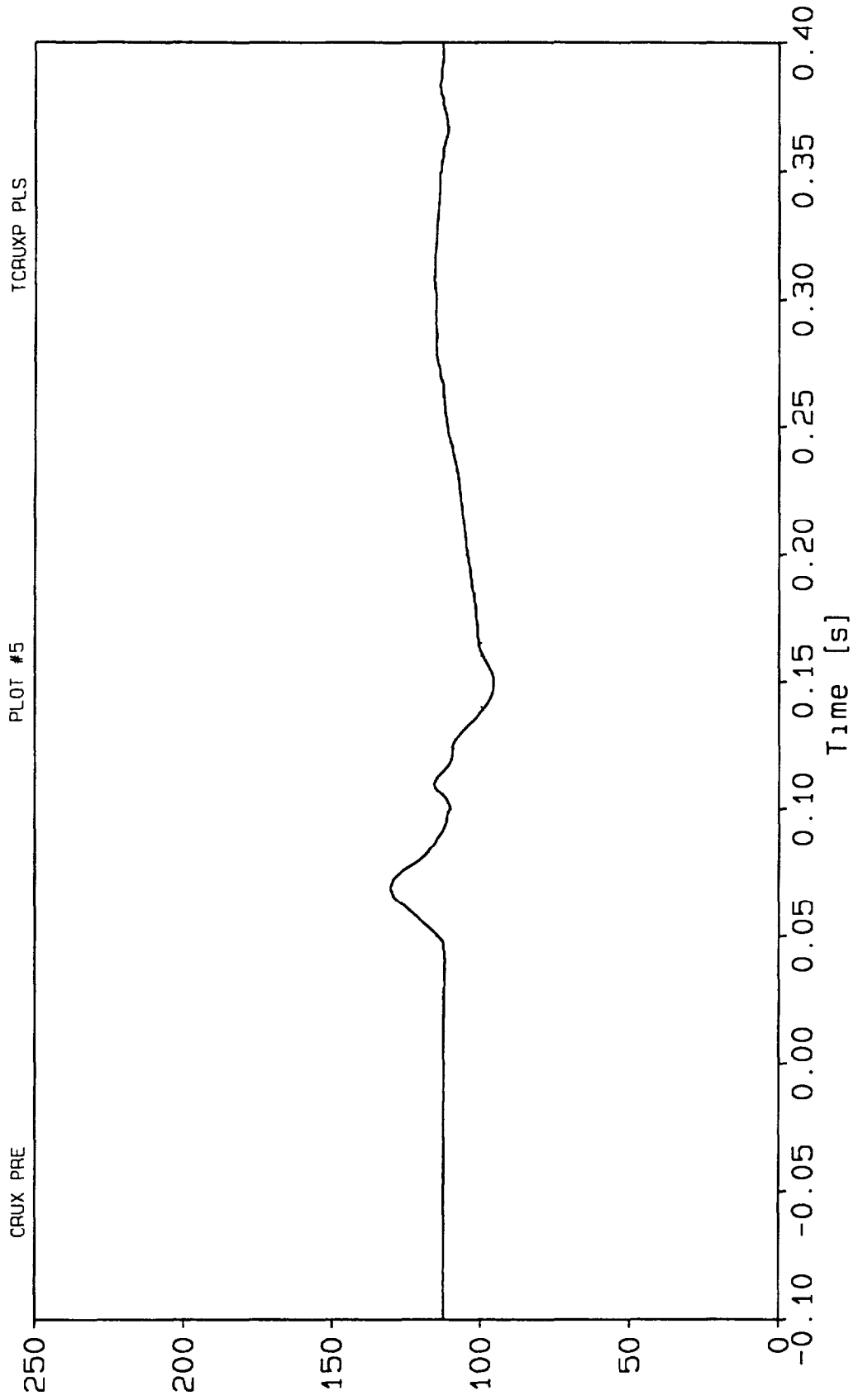
Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



Exponent
Failure
Analysis
Associates

Filter Class 180
Volpe Crash Testing
PH05608

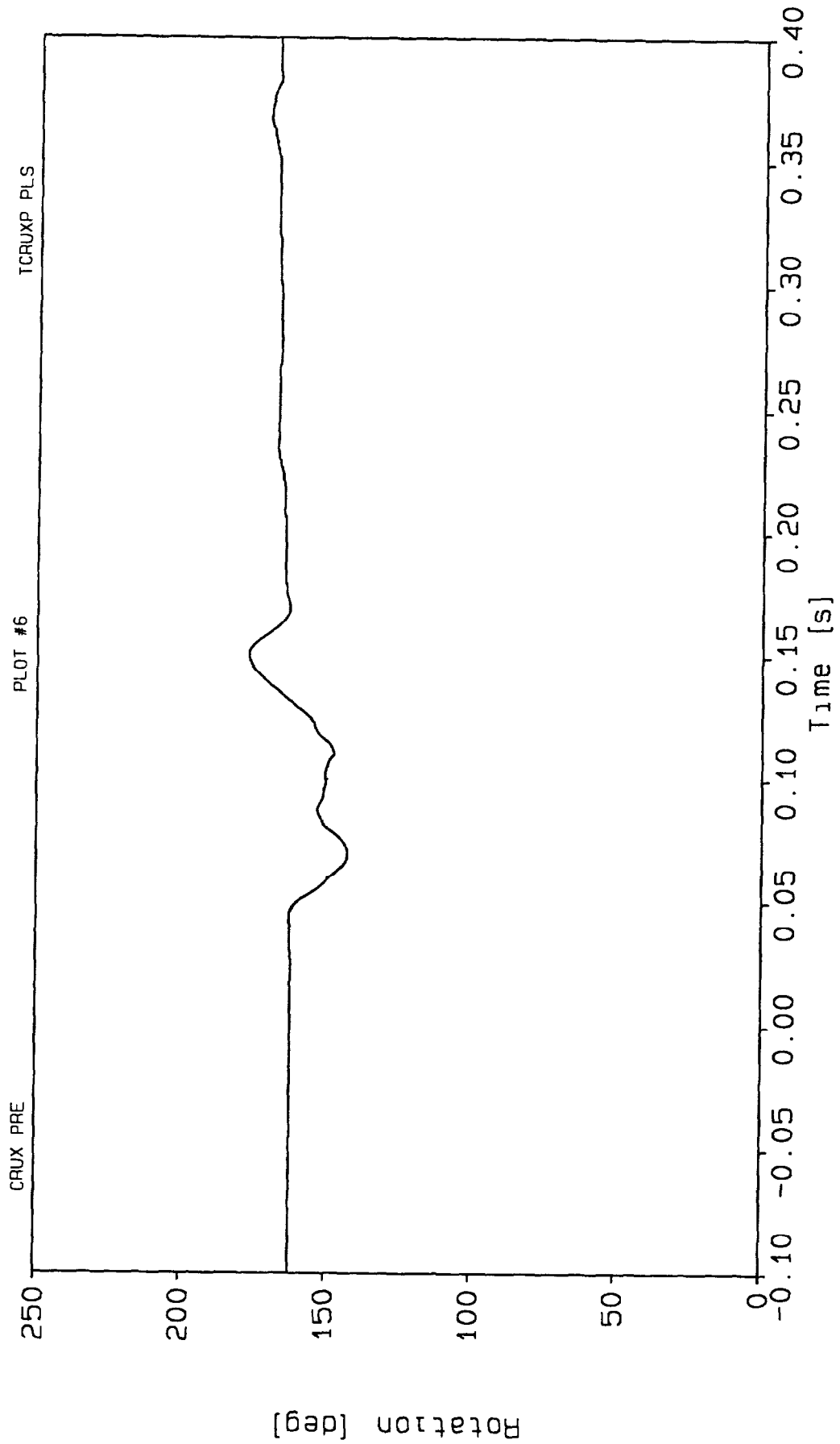
Crux Upper Right Mid Rotation v Time
Passenger Dummy - THOR - Pre-THORTEST Processing
2001 Dodge Neon
Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



Filter Class 180
Volpe Crash Testing
PH06608

Exponent
Failure
Analysis
Associates

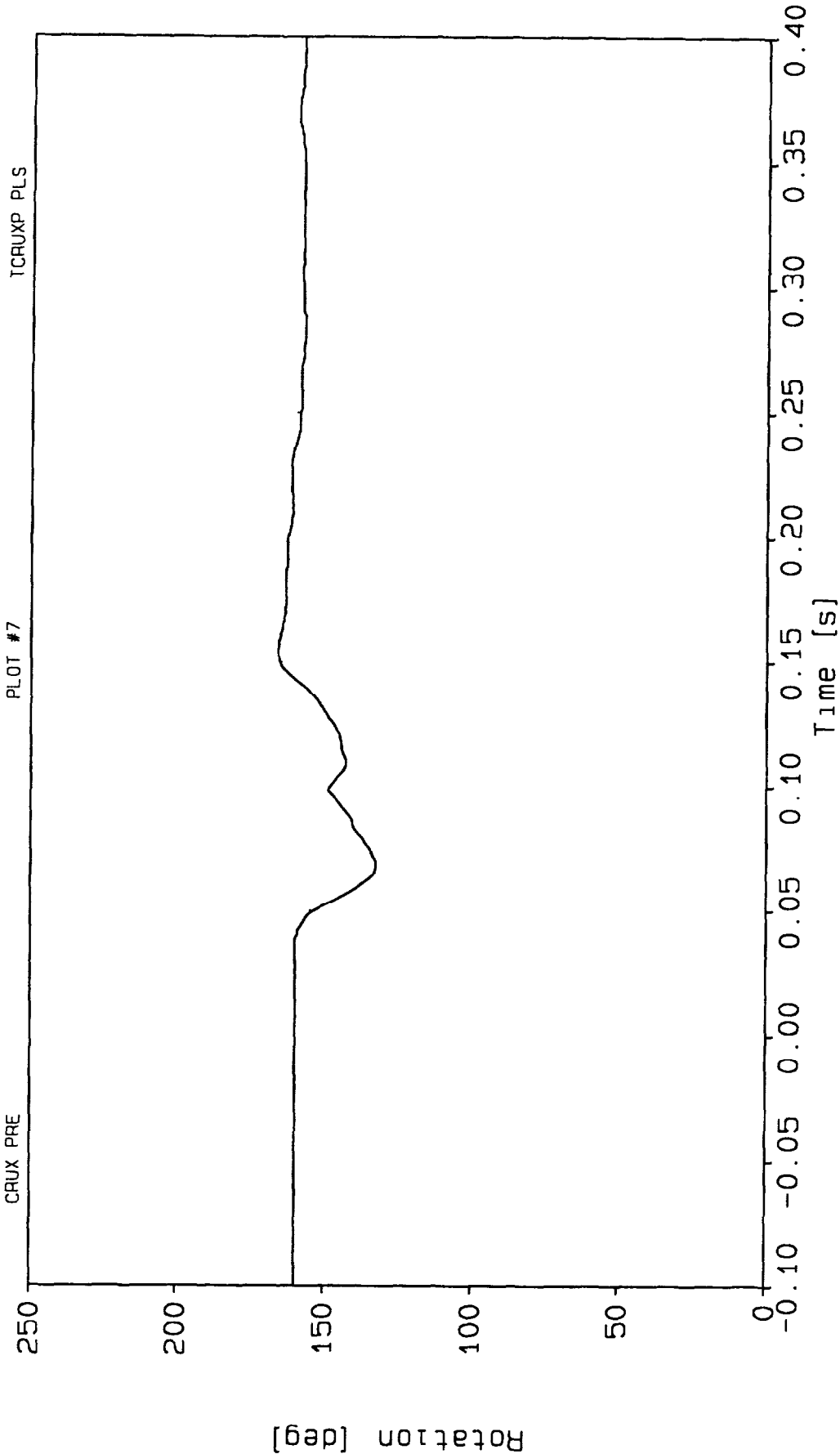
Crux Upper Right Elbow Rotation v Time
Passenger Dummy - THOR - Pre-THORTEST Processing
2001 Dodge Neon
Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



Filter Class 180
Volpe Crash Testing
PH06608

Exponent
Failure
Analysis
Associates

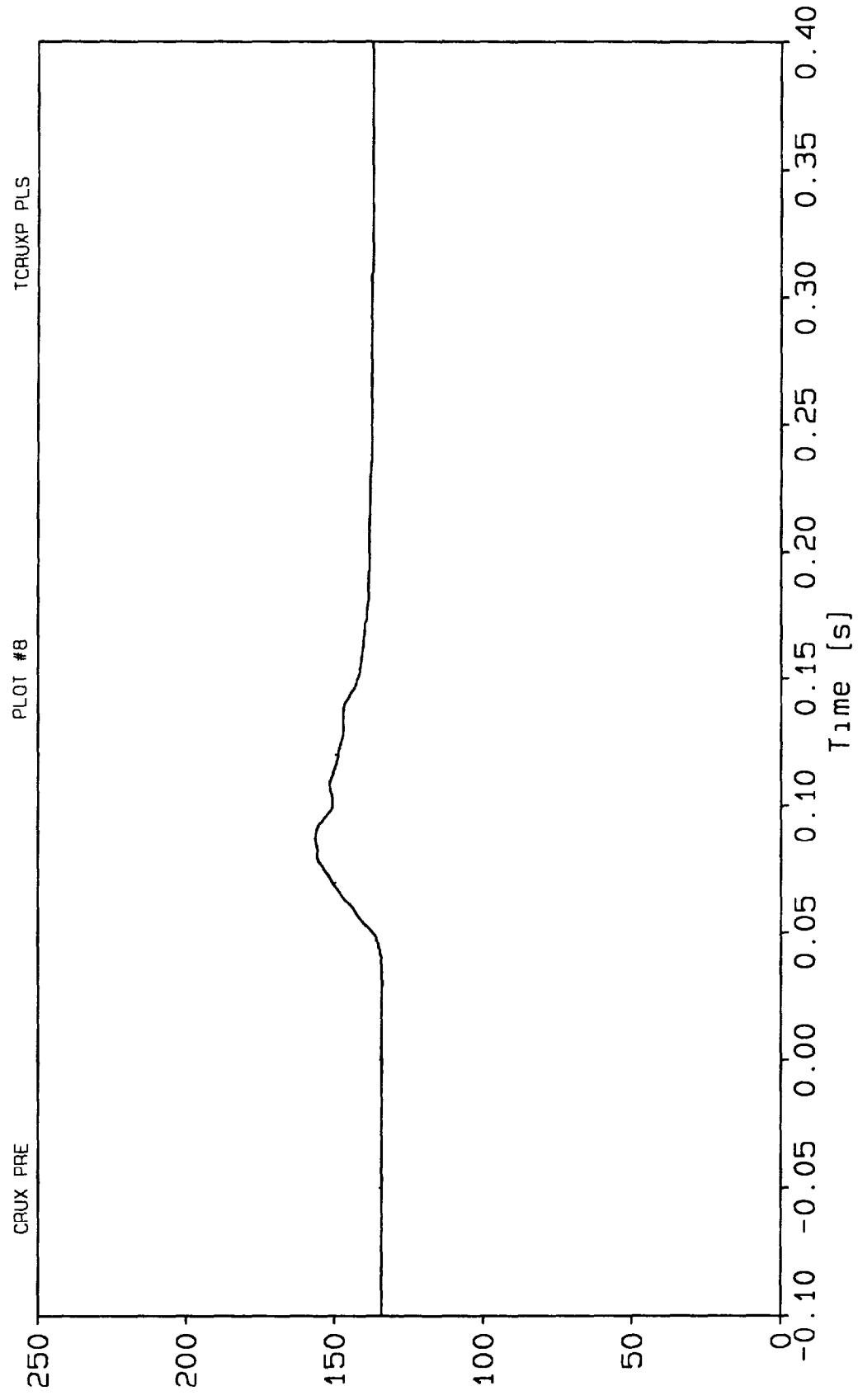
Crux Lower Left Base Rotation v Time
Passenger Dummy - THOR - Pre-THORTEST Processing
2001 Dodge Neon
Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



Filter Class 180
Volpe Crash Testing
PH06608

Exponent
Failure
Analysis
Associates

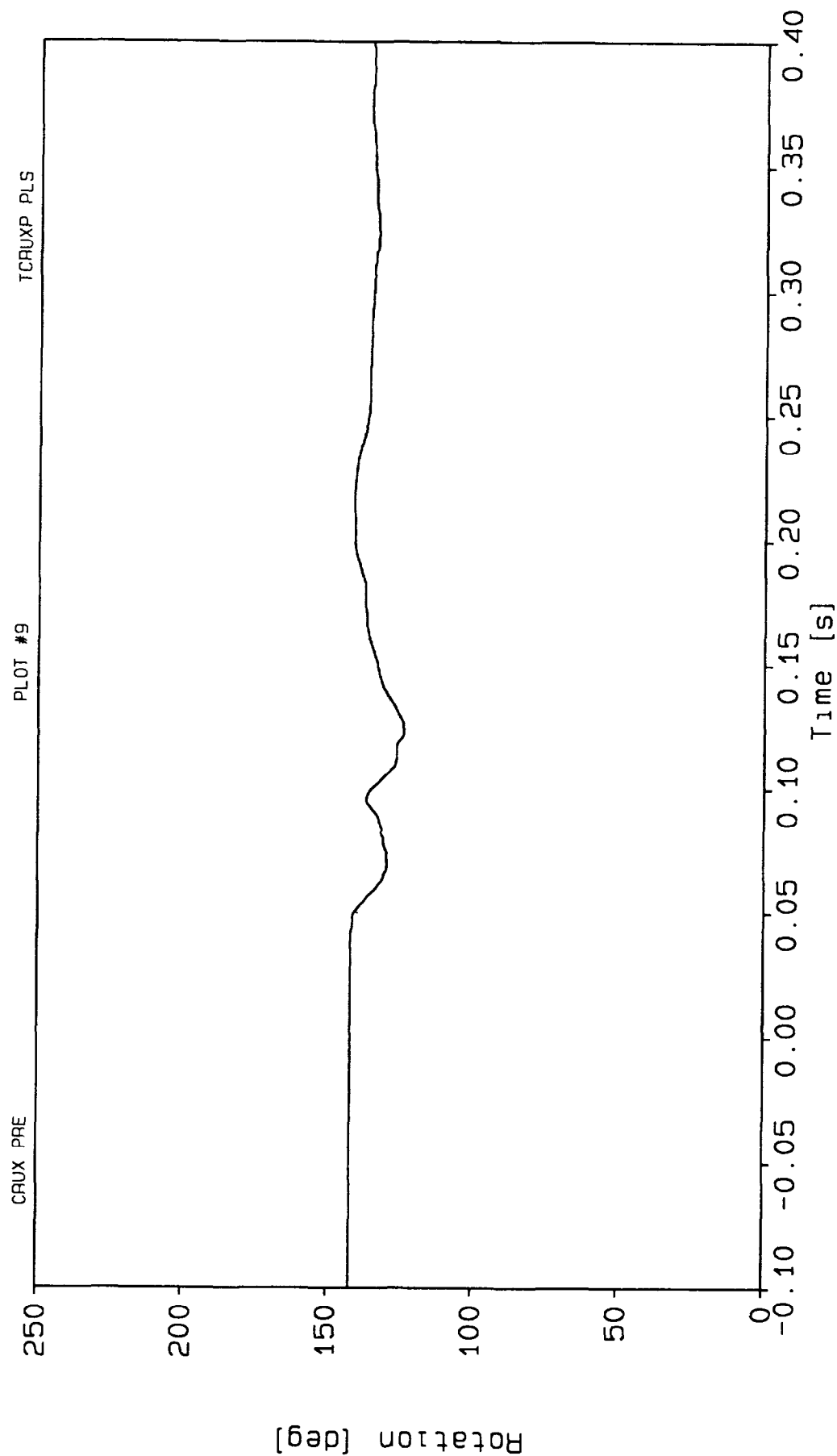
Crux Lower Left Mid Rotation v Time
Passenger Dummy - THOR - Pre-THORTEST Processing
2001 Dodge Neon
Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



Filter Class 180
Volpe Crash Testing
PH05508

Exponent
Failure
Analysis
Associates

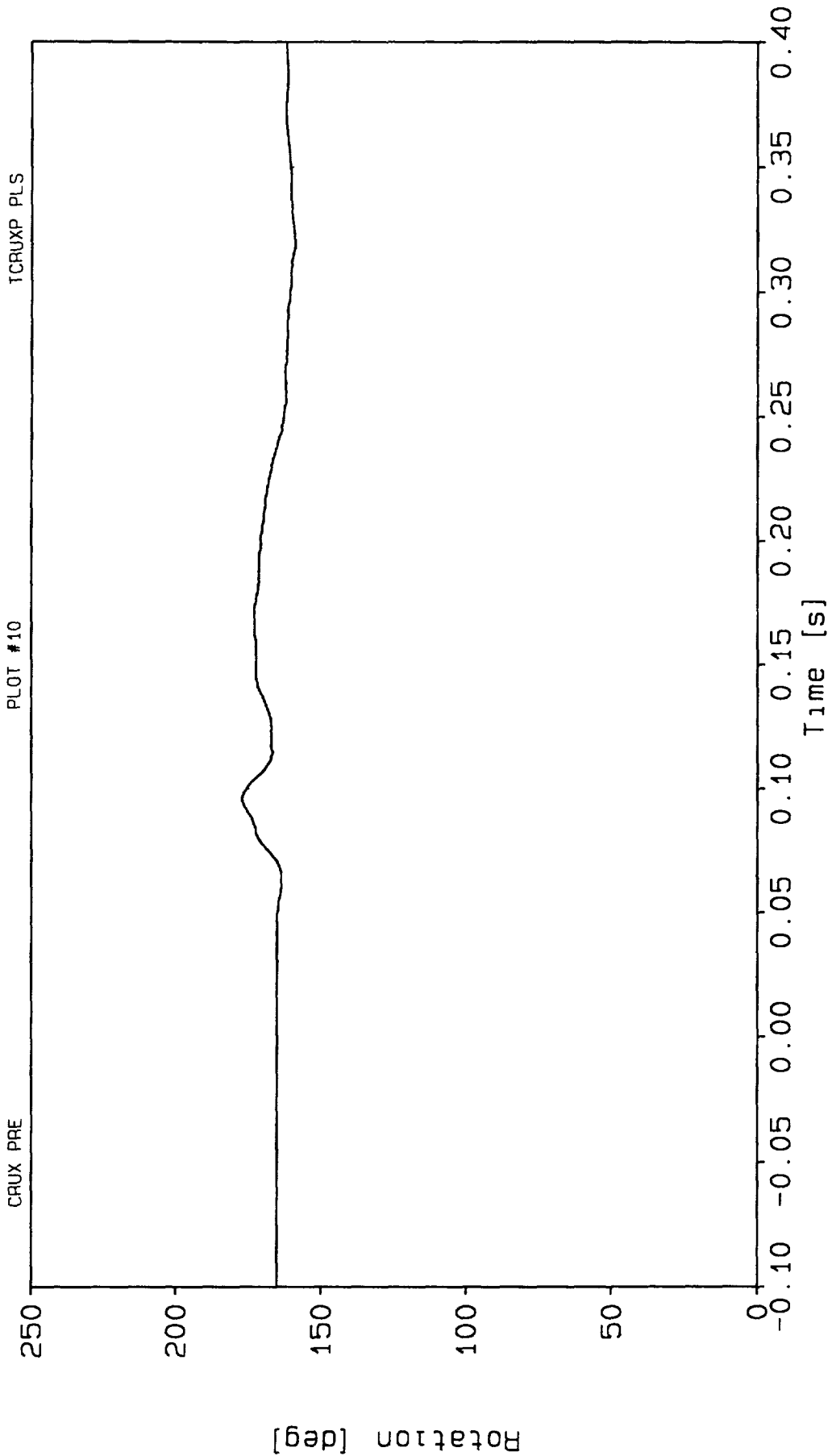
Crux Lower Left Elbow Rotation v Time
Passenger Dummy - THOR - Pre-THORTEST Processing
2001 Dodge Neon
Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



Exponent
Failure
Analysis
Associates

Filter Class 180
Volpe Crash Testing
PH06608

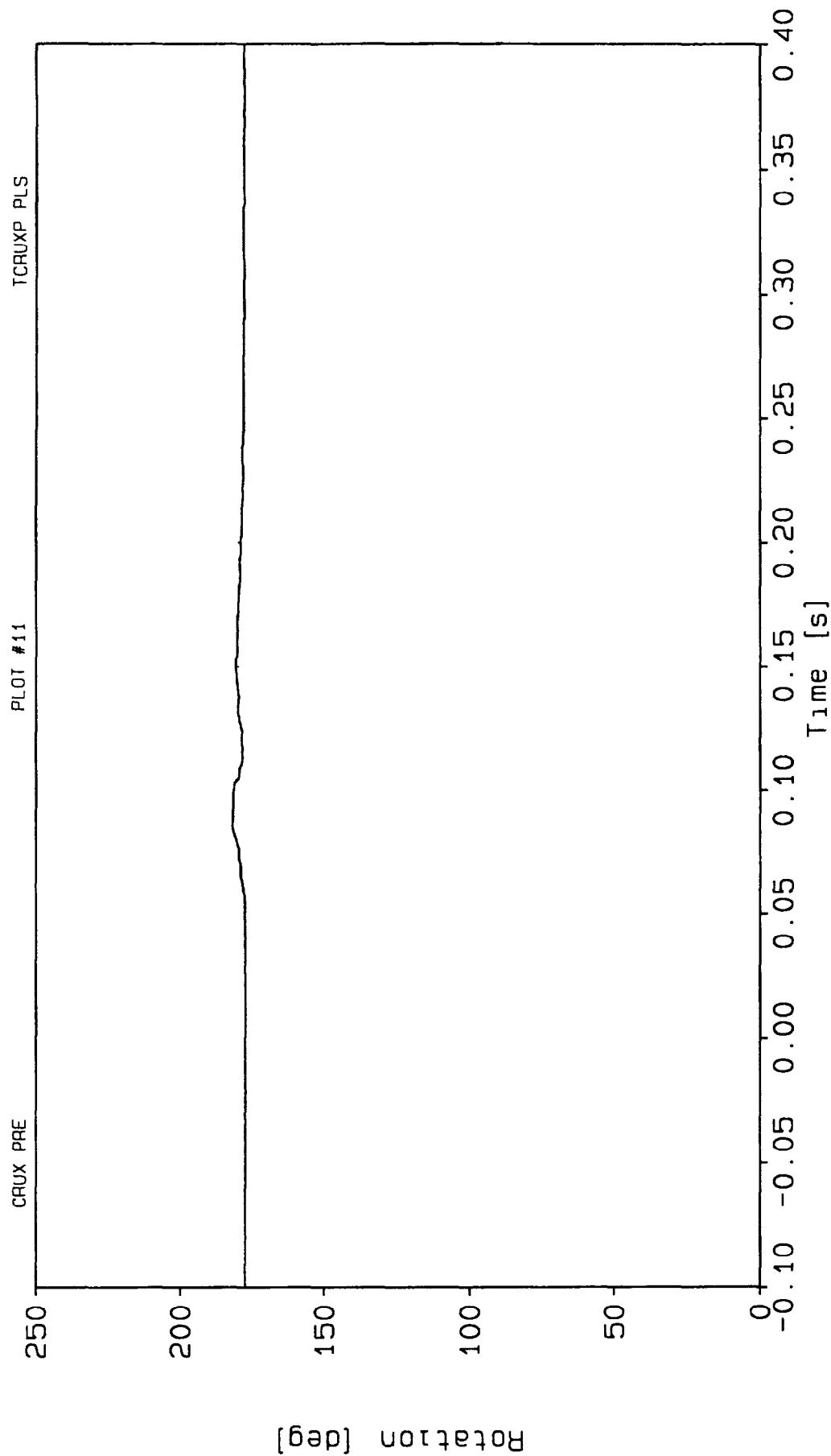
Crux Lower Right Base Rotation v Time
Passenger Dummy - THOR - Pre-THORTEST Processing
2001 Dodge Neon
Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



Filter Class 180
Volpe Crash Testing
PH05608

Exponent
Failure
Analysis
Associates

Crux Lower Right Mid Rotation v Time
Passenger Dummy - THOR - Pre-THORTEST Processing
2001 Dodge Neon
Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



Filter Class 180
Volpe Crash Testing
PH06508

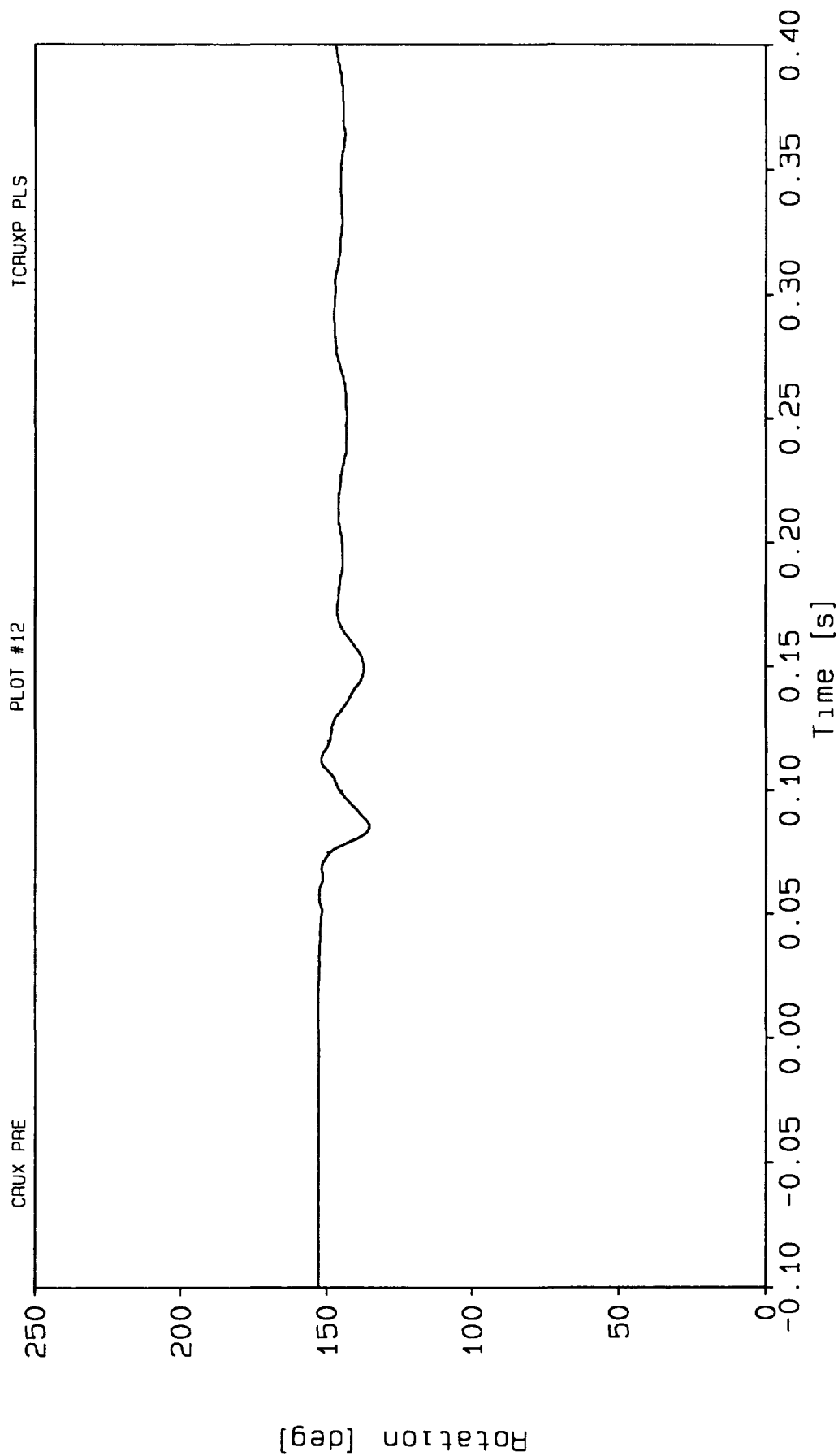
Exponent
Failure
Analysis
Associates

Crux Lower Right Elbow Rotation v Time

Passenger Dummy - THOR - Pre-THORTEST Processing

2001 Dodge Neon

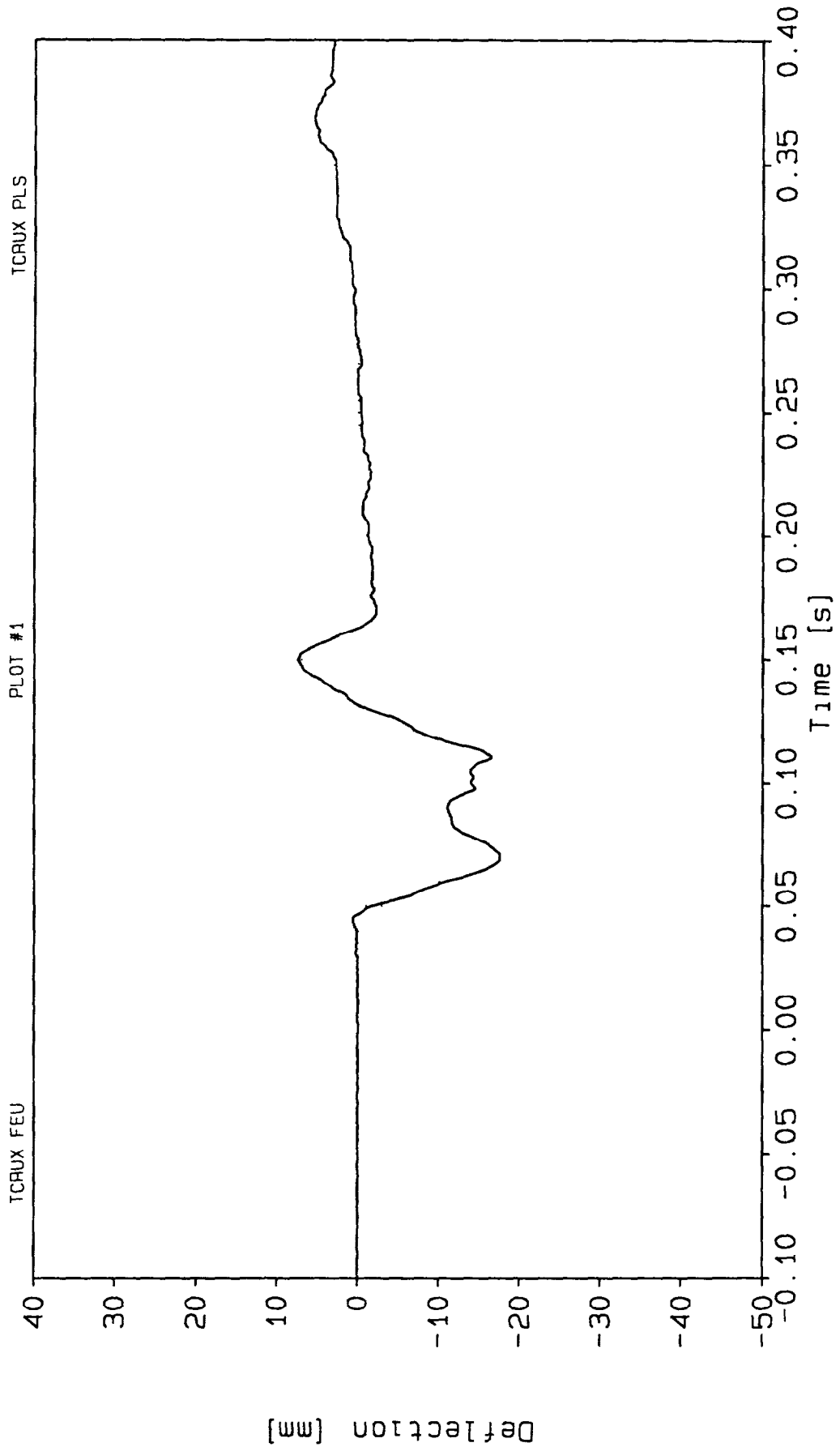
Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



Exponent
Failure
Analysis
Associates

Filter Class 180
Volpe Crash Testing
PH06608

Crux Upper Right Deflection (Dx) v Time
Passenger Dummy - THOR - Post THORTEST Processing
2001 Dodge Neon
Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



Filter Class 180
Volpe Crash Testing
PH06608

Exponent
Failure
Analysis
Associates

Deflection [mm]

B-99

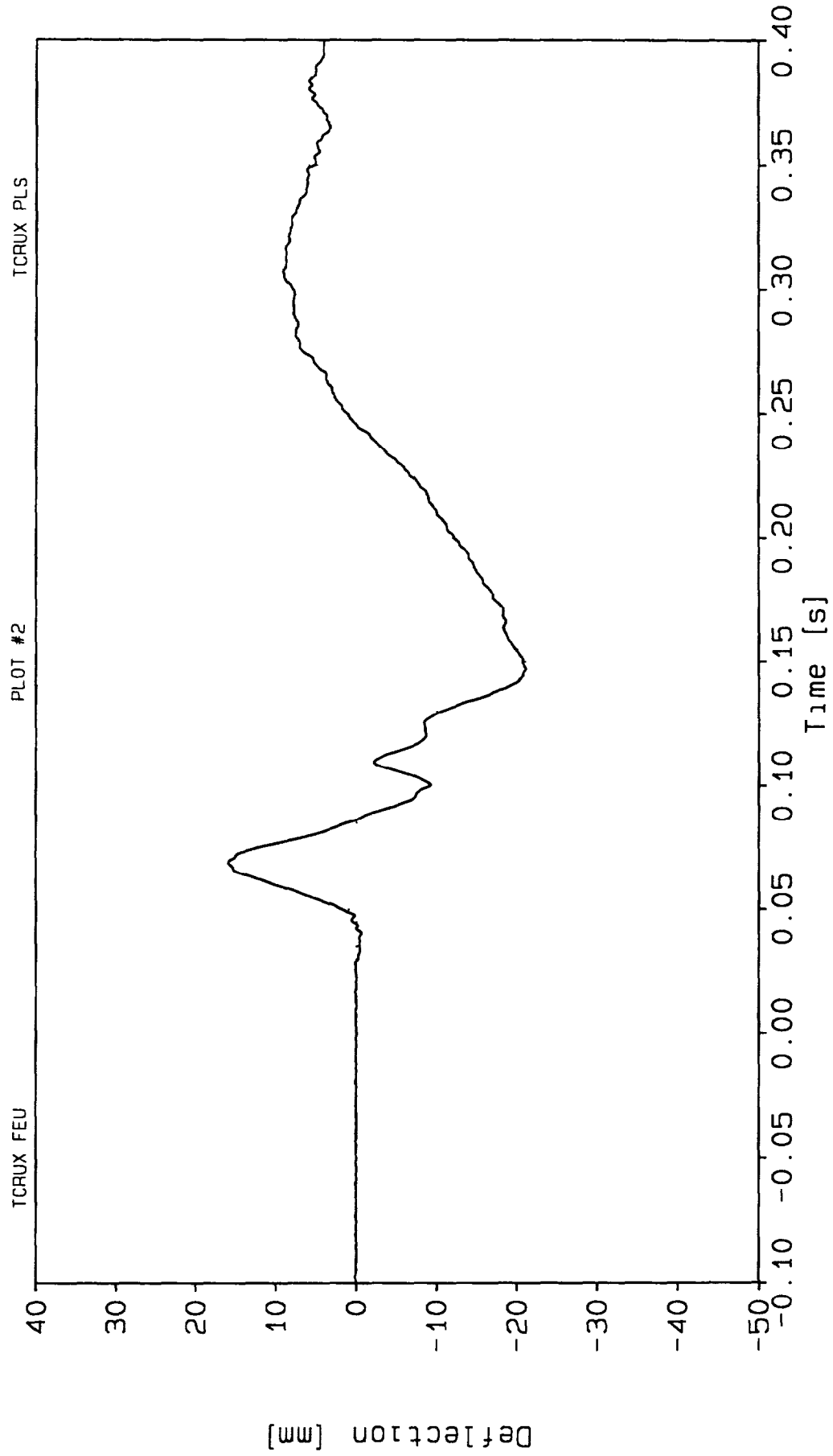
091801

Crux Upper Right Deflection (Dy) v Time

Passenger Dummy - THOR - Post THORTEST Processing

2001 Dodge Neon

Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



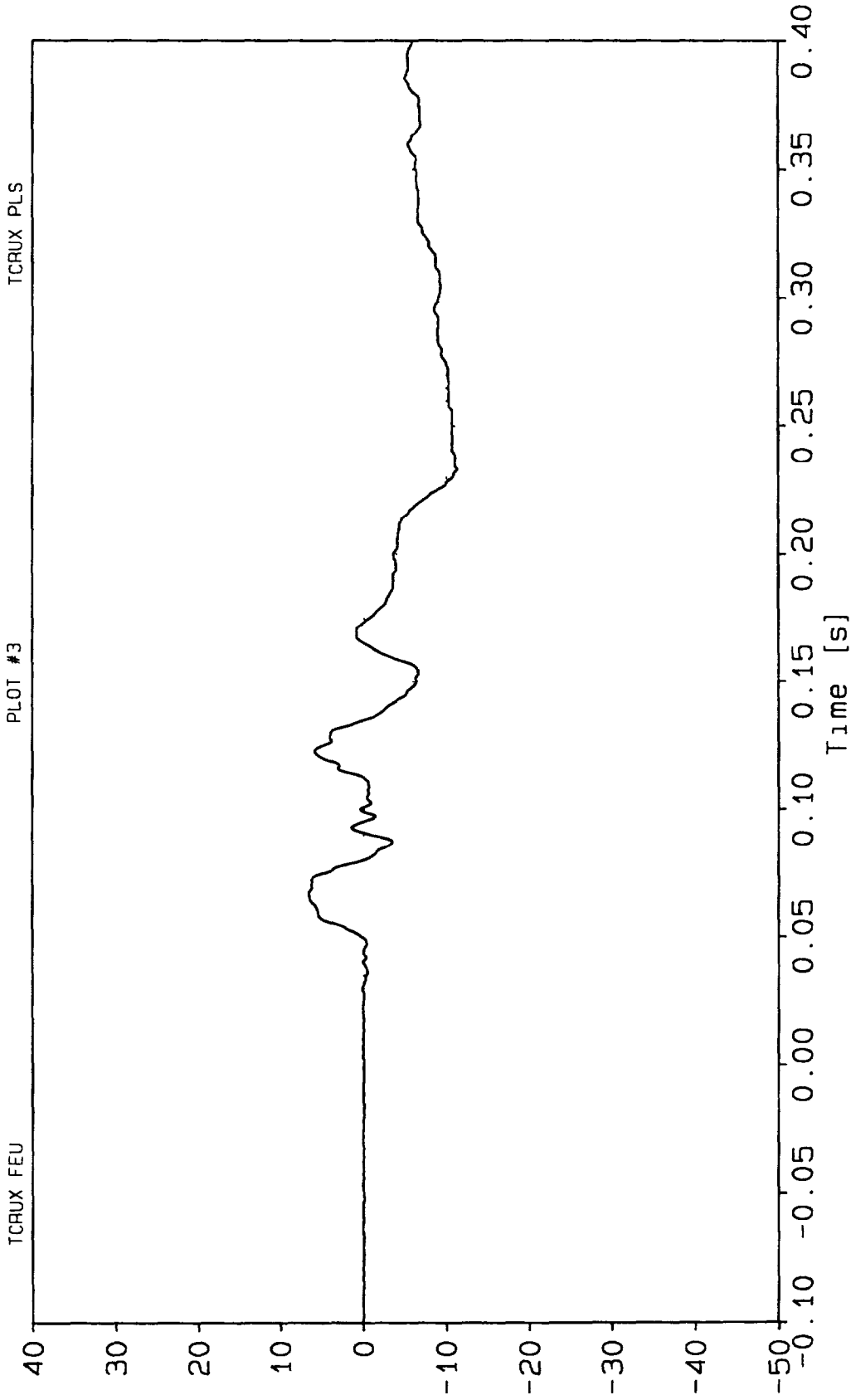
Exponent
Failure
Analysis
Associates

Filter Class 180
Volpe Crash Testing
PH06608

Crux Upper Right Deflection (Dz) v Time

Passenger Dummy - THOR - Post THORTEST Processing
2001 Dodge Neon

Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



Deflection [mm]

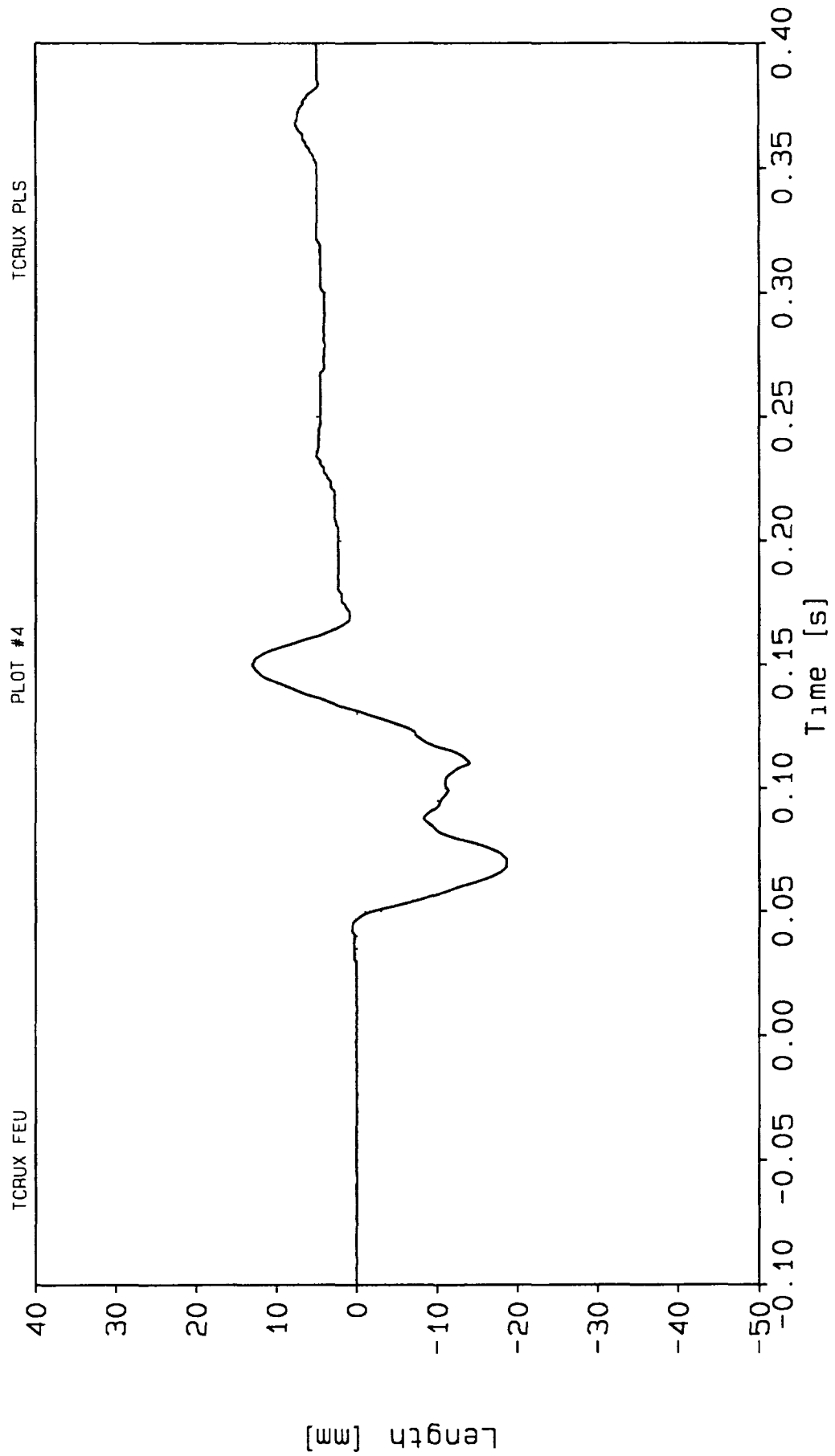
B-101

091801

Filter Class 180
Volpe Crash Testing
PH05508

Exponent
Failure
Analysis
Associates

Crux Upper Right Endpoint Length v Time
Passenger Dummy - THOR - Post THORTEST Processing
2001 Dodge Neon
Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



Filter Class 180
Volpe Crash Testing
PH06608

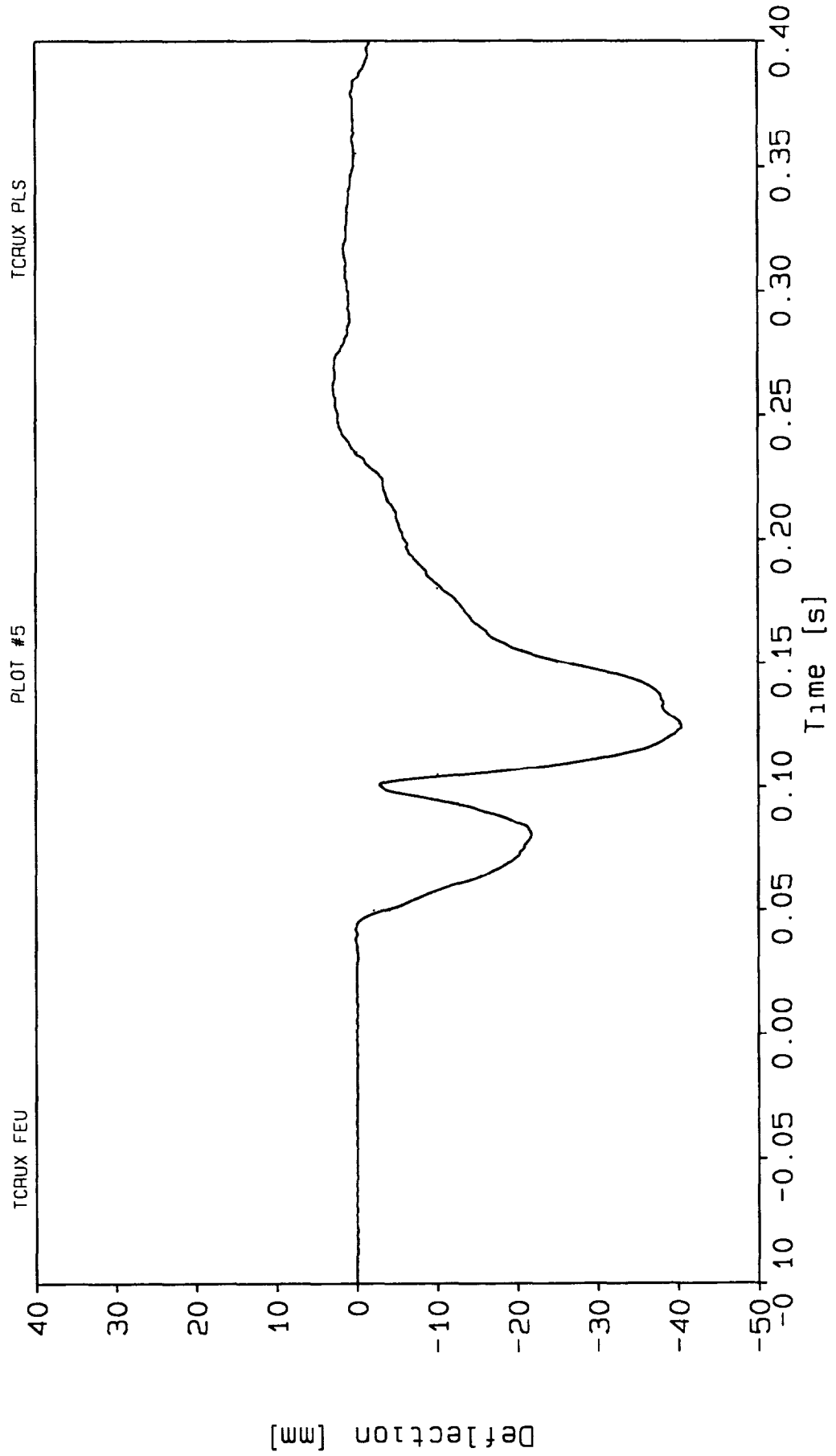
Exponent
Failure
Analysis
Associates

Crux Upper Left Deflection (Dx) v Time

Passenger Dummy - THOR - Post THORTEST Processing

2001 Dodge Neon

Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



Filter Class 180
Volpe Crash Testing
PH06608

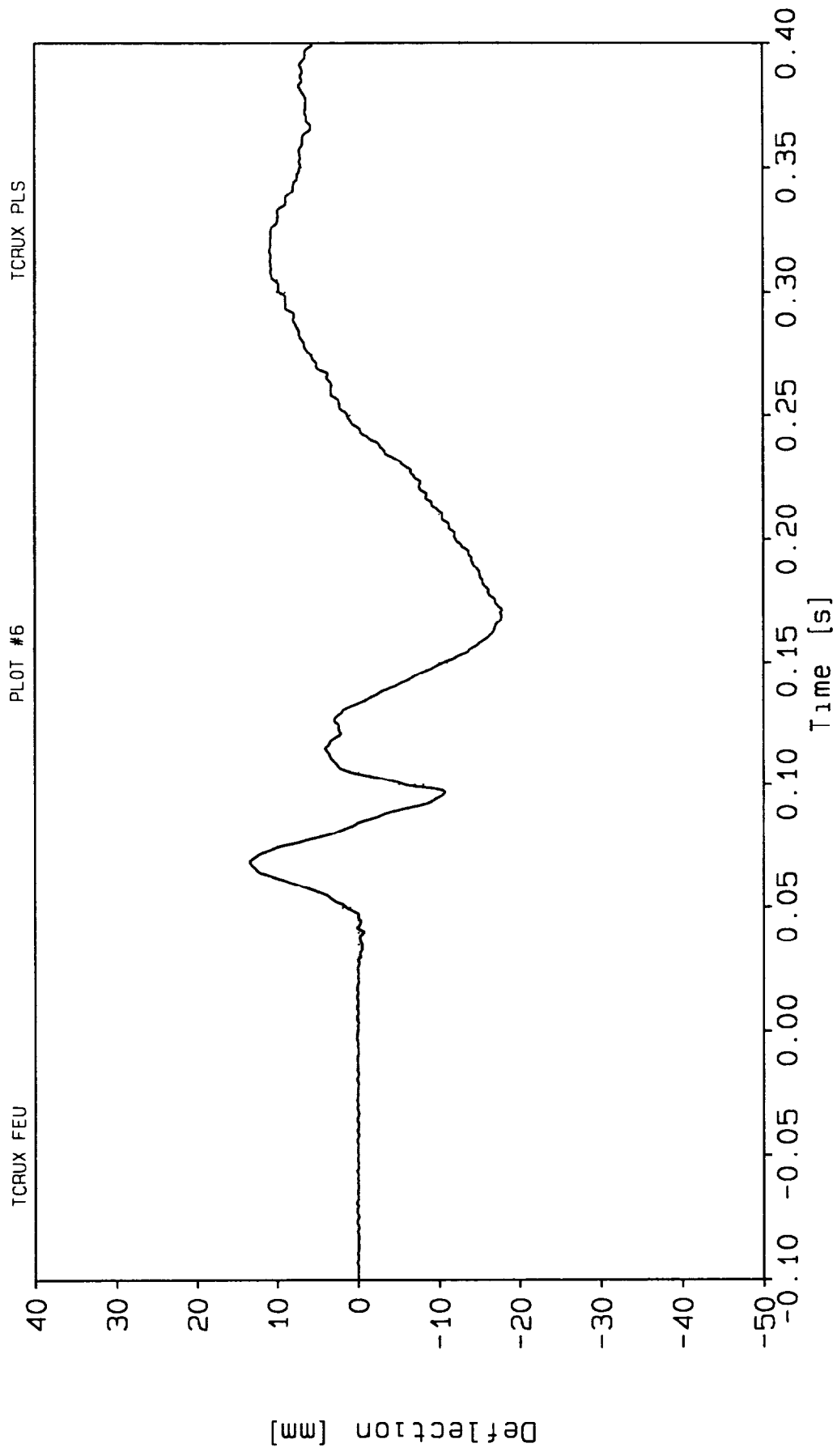
Exponent
Failure
Analysis
Associates

Deflection [mm]

B-103

091801

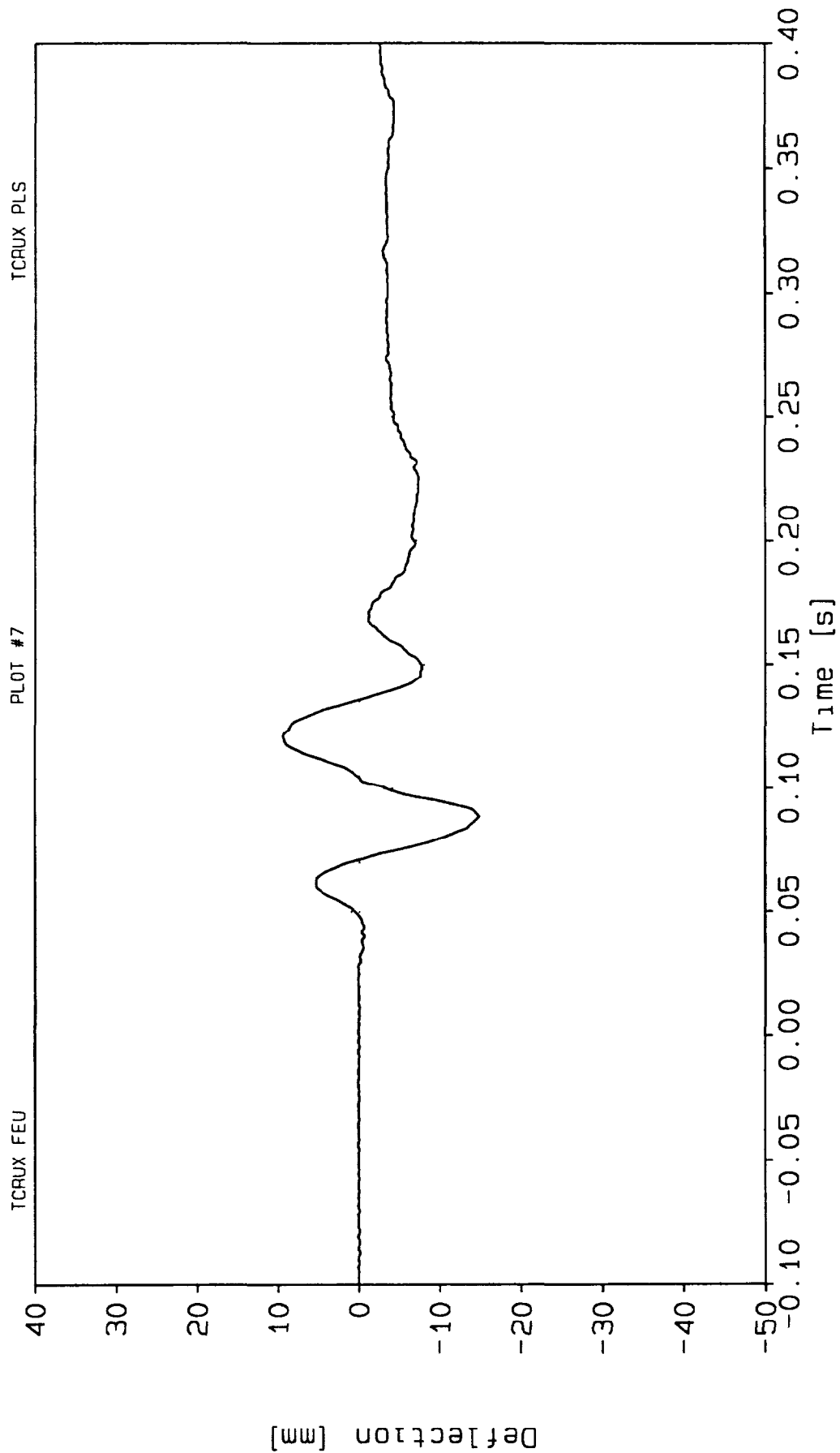
Crux Upper Left Deflection (Dy) v Time
Passenger Dummy - THOR - Post THORTEST Processing
2001 Dodge Neon
Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



Filter Class 180
Volpe Crash Testing
PH06608

Exponent
Failure
Analysis
Associates

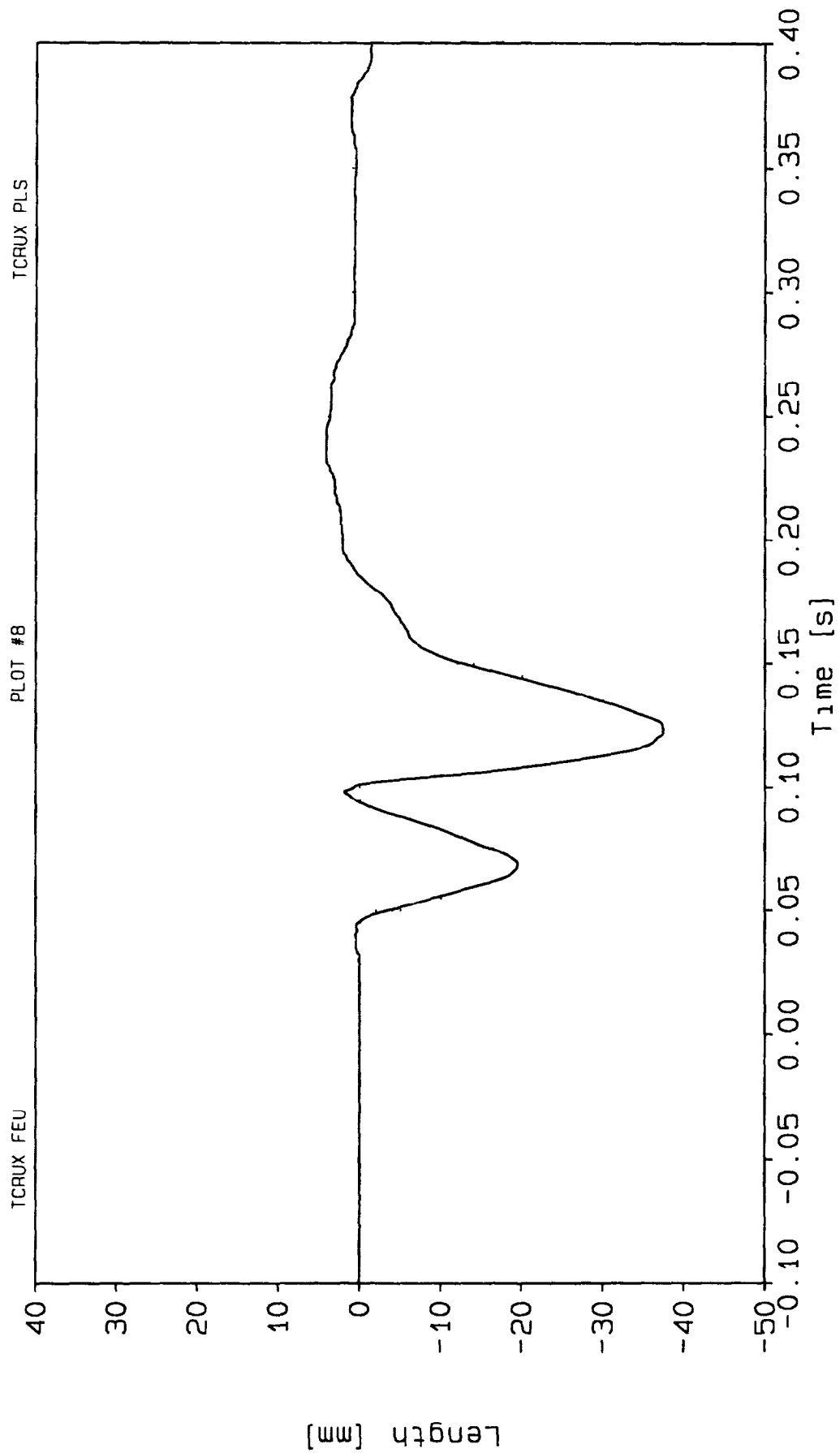
Crux Upper Left Deflection (Dz) v Time
Passenger Dummy - THOR - Post THORTEST Processing
2001 Dodge Neon
Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



Filter Class 180
Volpe Crash Testing
PH05608

Exponent
Failure
Analysis
Associates

Crux Upper Left Endpoint Length v Time
Passenger Dummy - THOR - Post THORTEST Processing
2001 Dodge Neon
Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



Exponent
Failure
Analysis
Associates

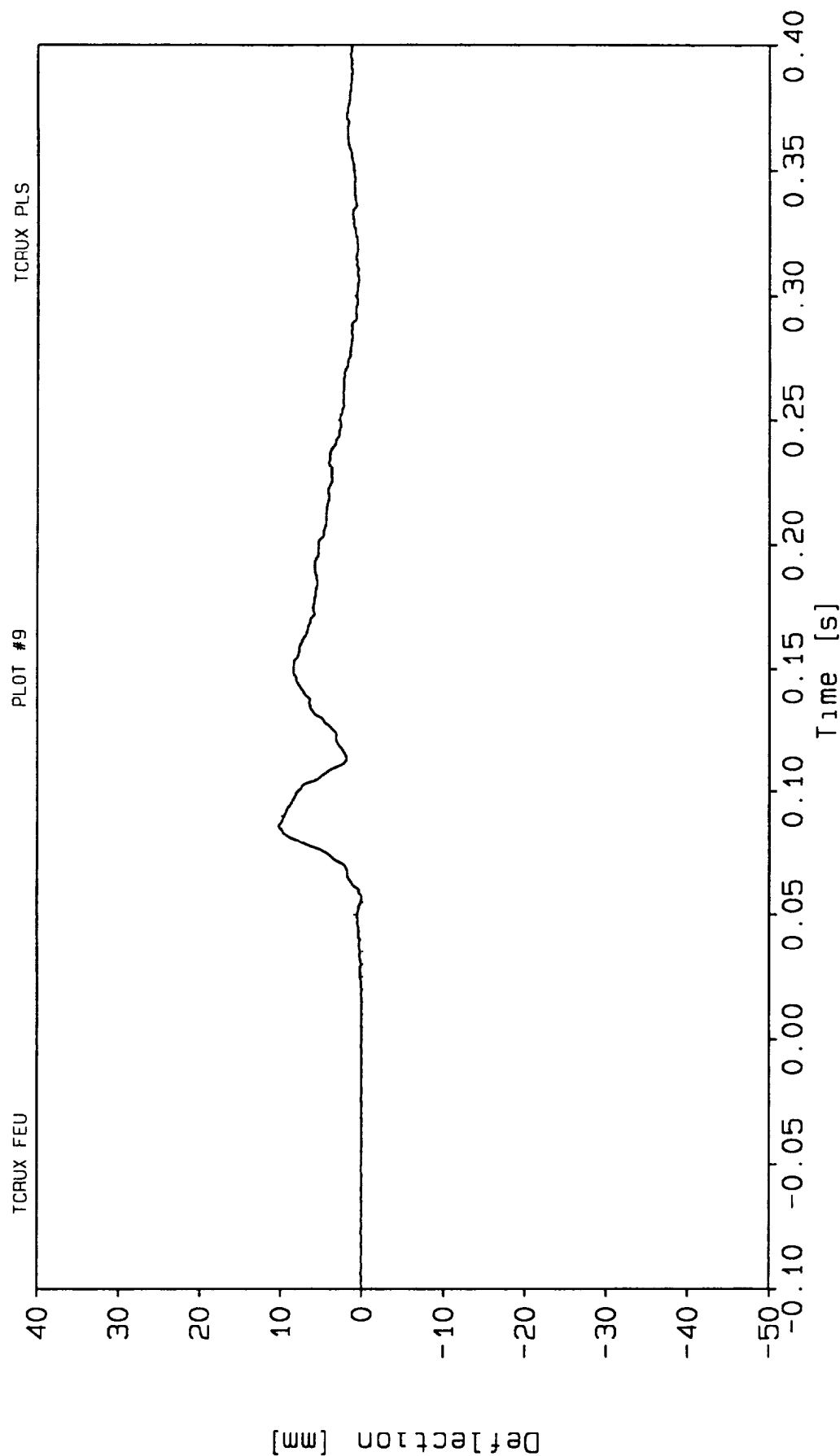
Filter Class 180
Volpe Crash Testing
PH06608

Crux Lower Right Deflection (Dx) v Time

Passenger Dummy - THOR - Post THORTEST Processing

2001 Dodge Neon

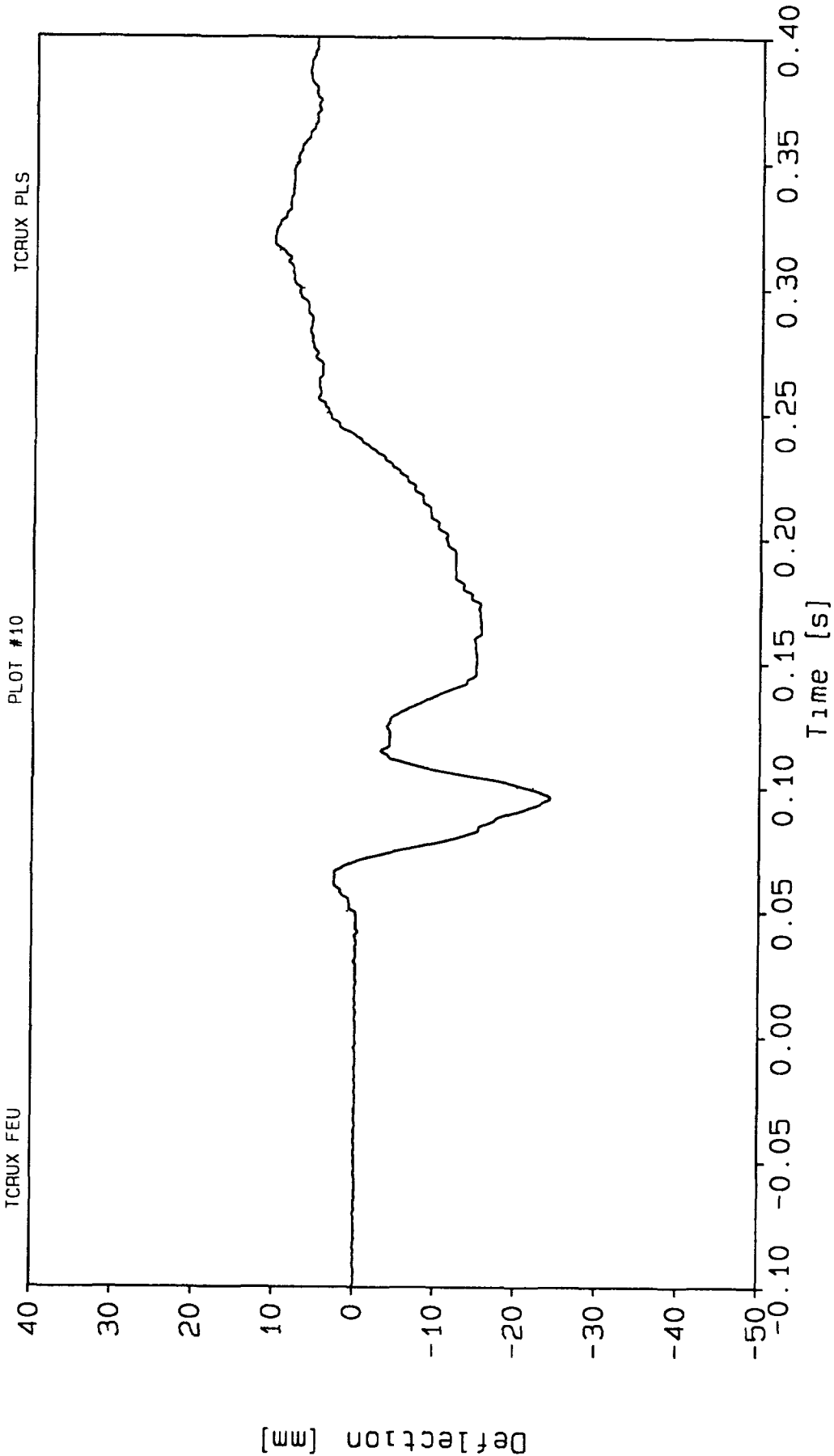
Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



Exponent
Failure
Analysis
Associates

Filter Class 180
Volpe Crash Testing
PH06608

Crux Lower Right Deflection (Dy) v Time
Passenger Dummy - THOR - Post THORTEST Processing
2001 Dodge Neon
Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01

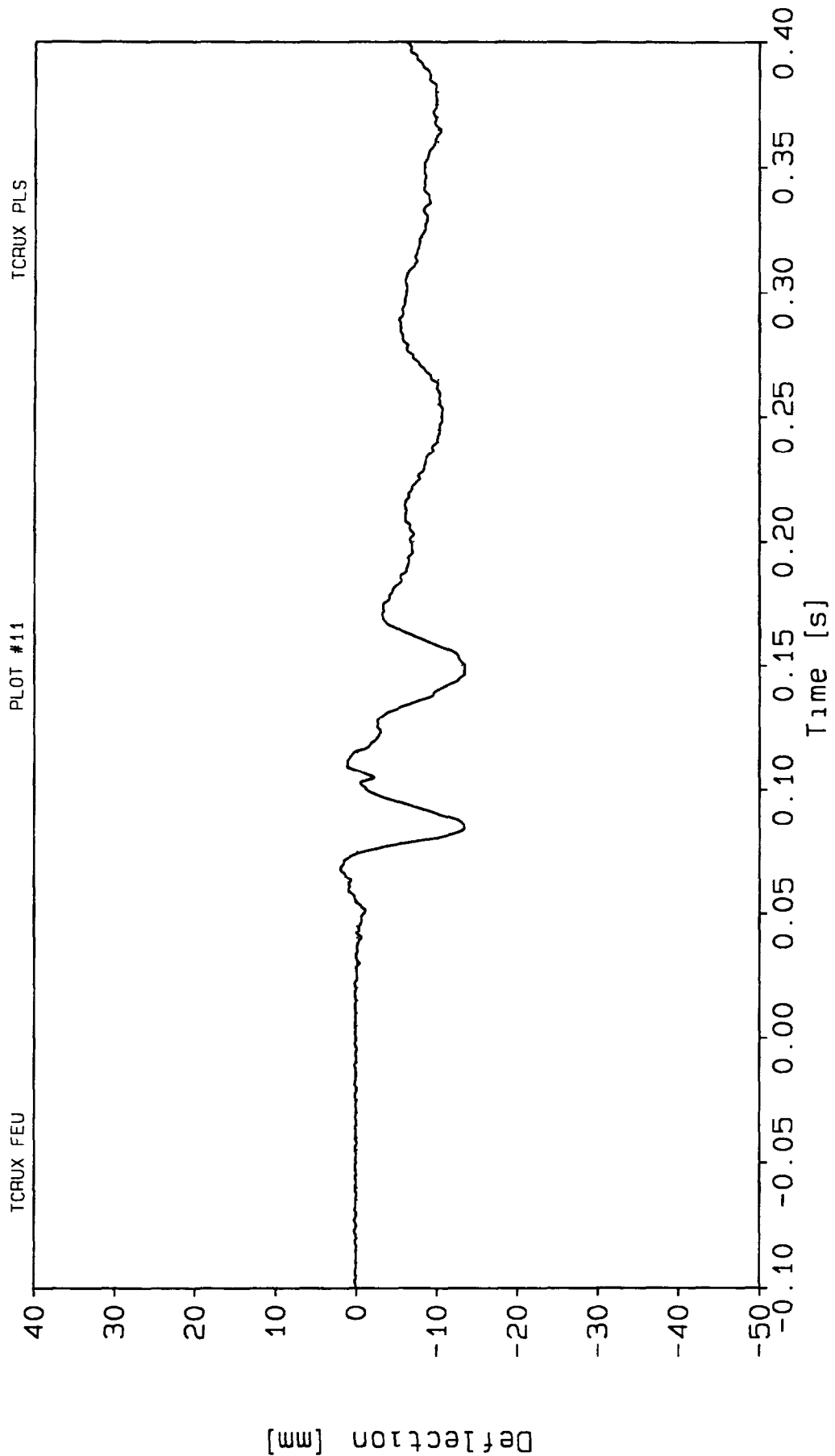


Exponent
Failure
Analysis
Associates

Filter Class 180
Voipe Crash Testing
PH05608

Deflection [mm]

Crux Lower Right Deflection (Dz) v Time
Passenger Dummy - THOR - Post THORTEST Processing
2001 Dodge Neon
Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



Exponent
Failure
Analysis
Associates

Filter Class 180
Volpe Crash Testing
PH06608

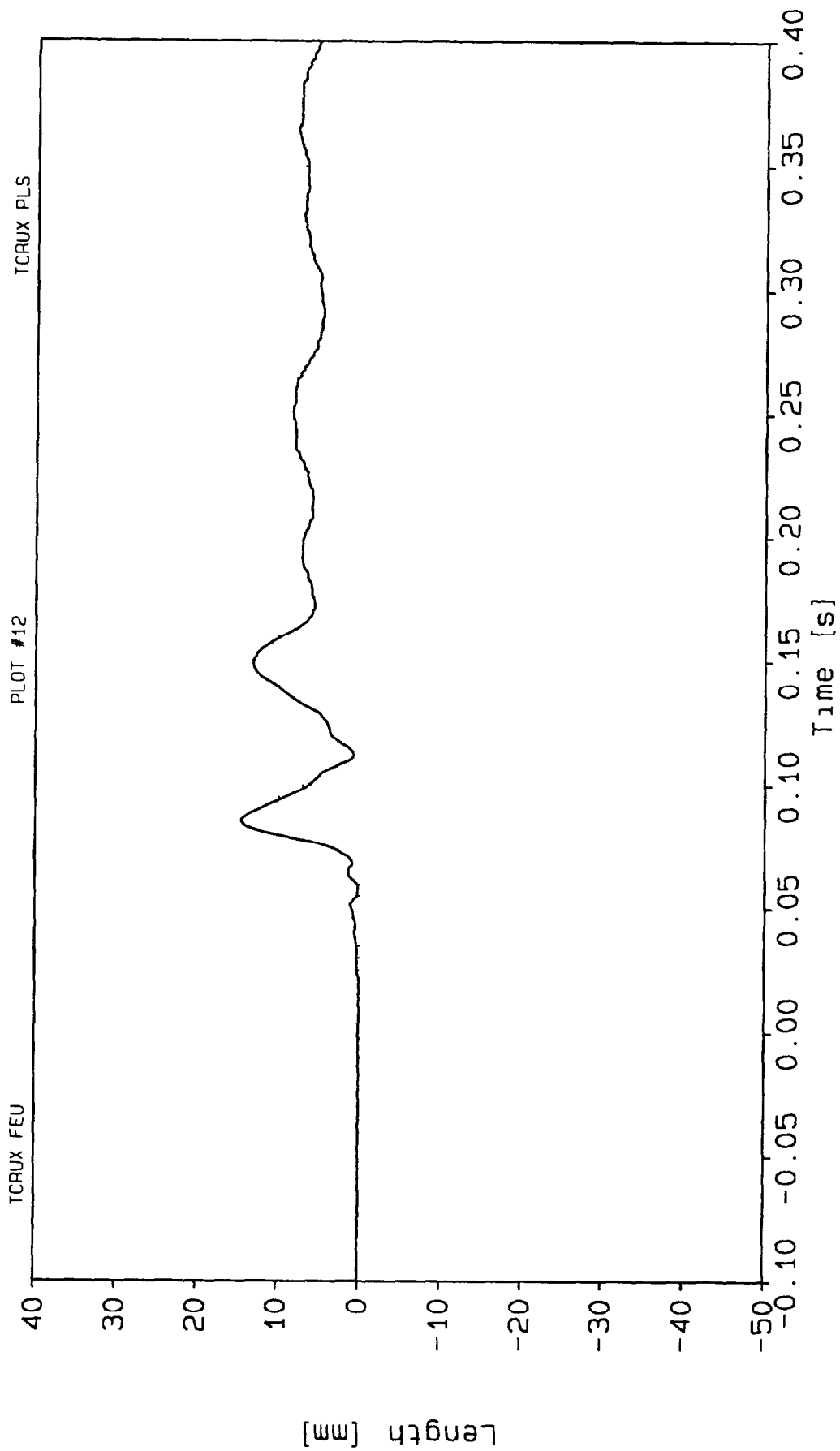
Deflection [mm]

Crux Lower Right Endpoint Length v Time

Passenger Dummy - THOR - Post THORTEST Processing

2001 Dodge Neon

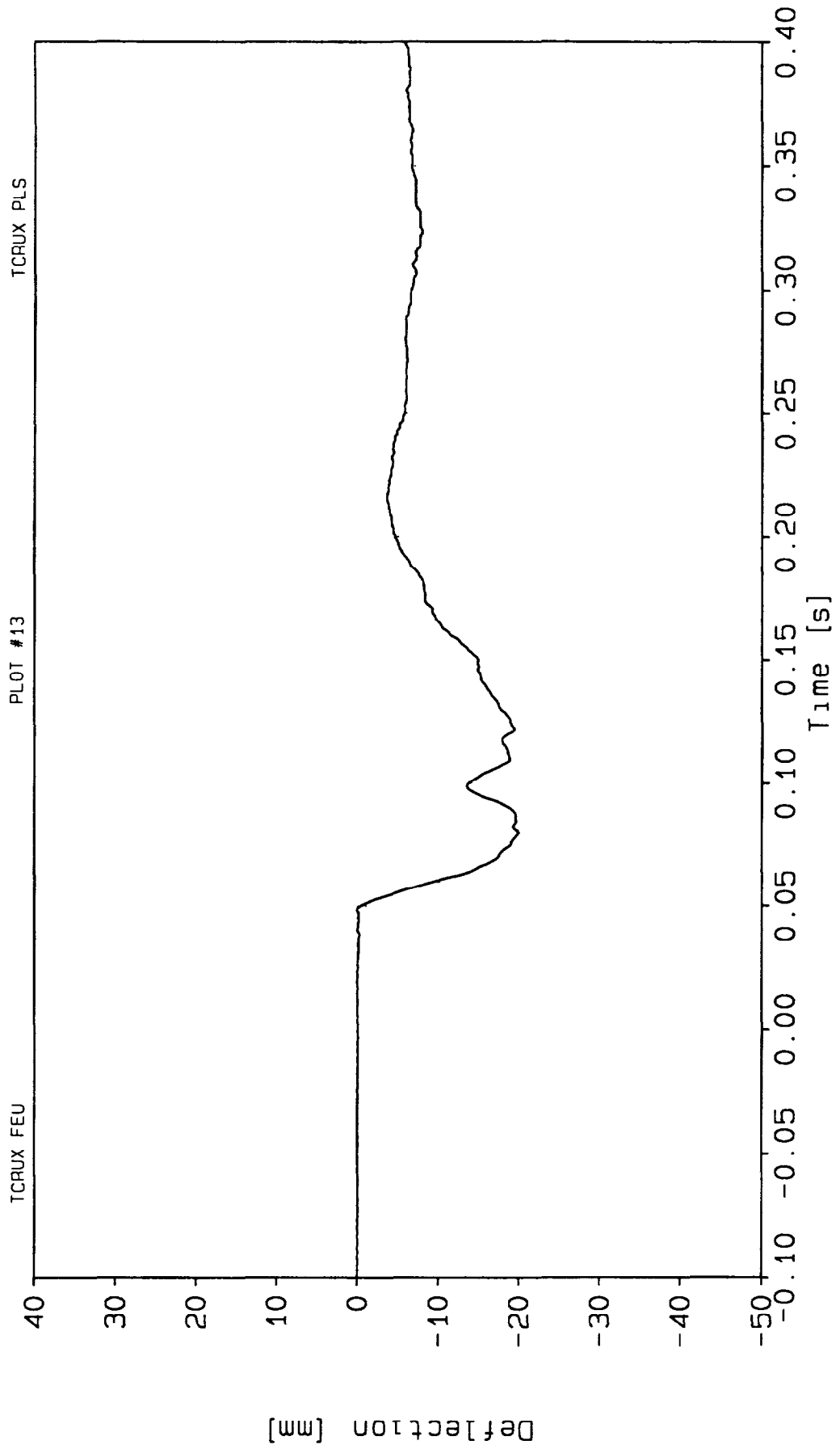
Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



Filter Class 180
Volpe Crash Testing
PH06608

Exponent
Failure
Analysis
Associates

Crux Lower Left Deflection (Dx) v Time
Passenger Dummy - THOR - Post THORTEST Processing
2001 Dodge Neon
Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



Filter Class 180
Volpe Crash Testing
PH06608

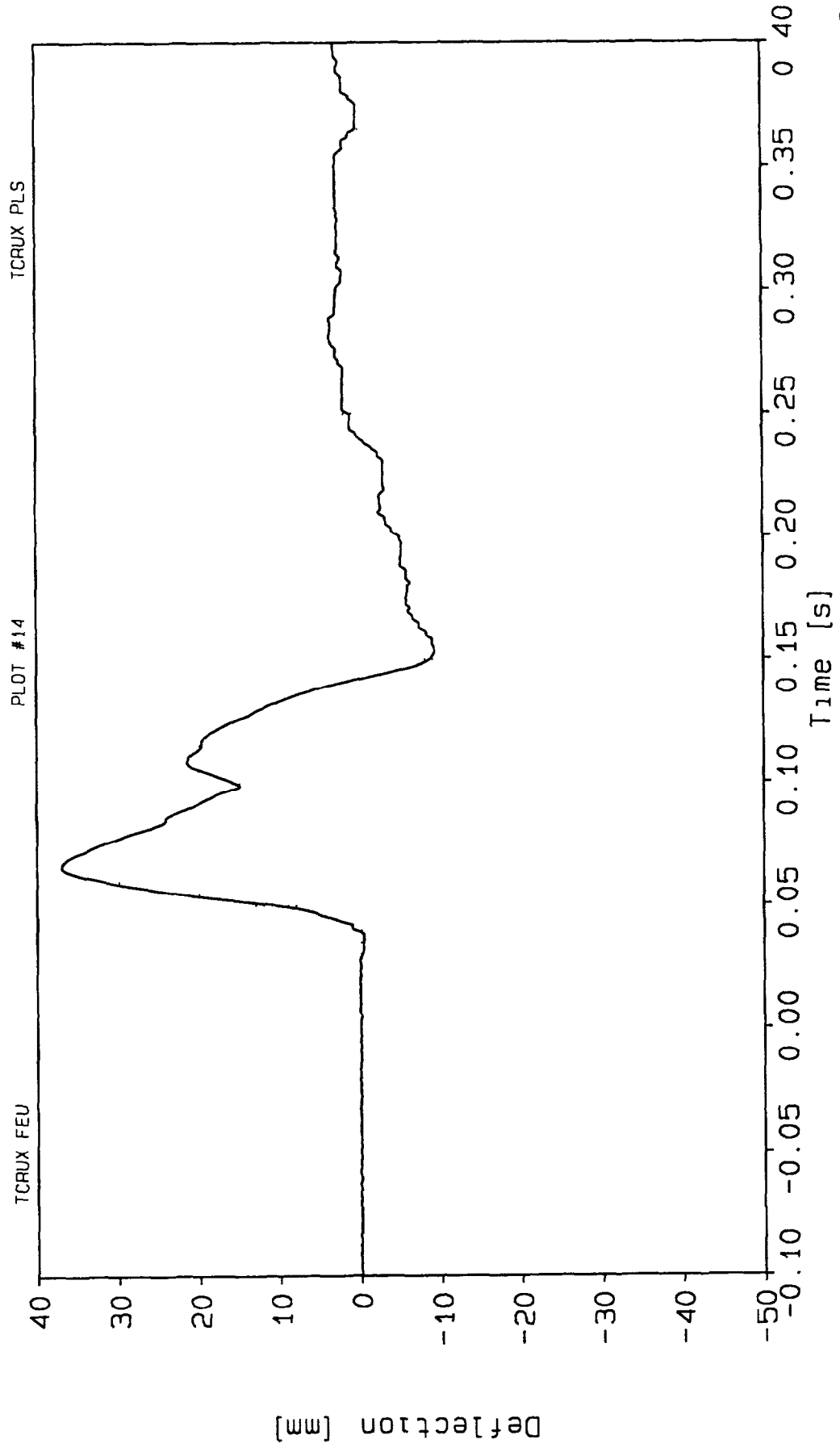
Exponent
Failure
Analysis
Associates

Crux Lower Left Deflection (Dy) v Time

Passenger Dummy - THOR - Post THORTEST Processing

2001 Dodge Neon

Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



Exponent
Failure
Analysis
Associates

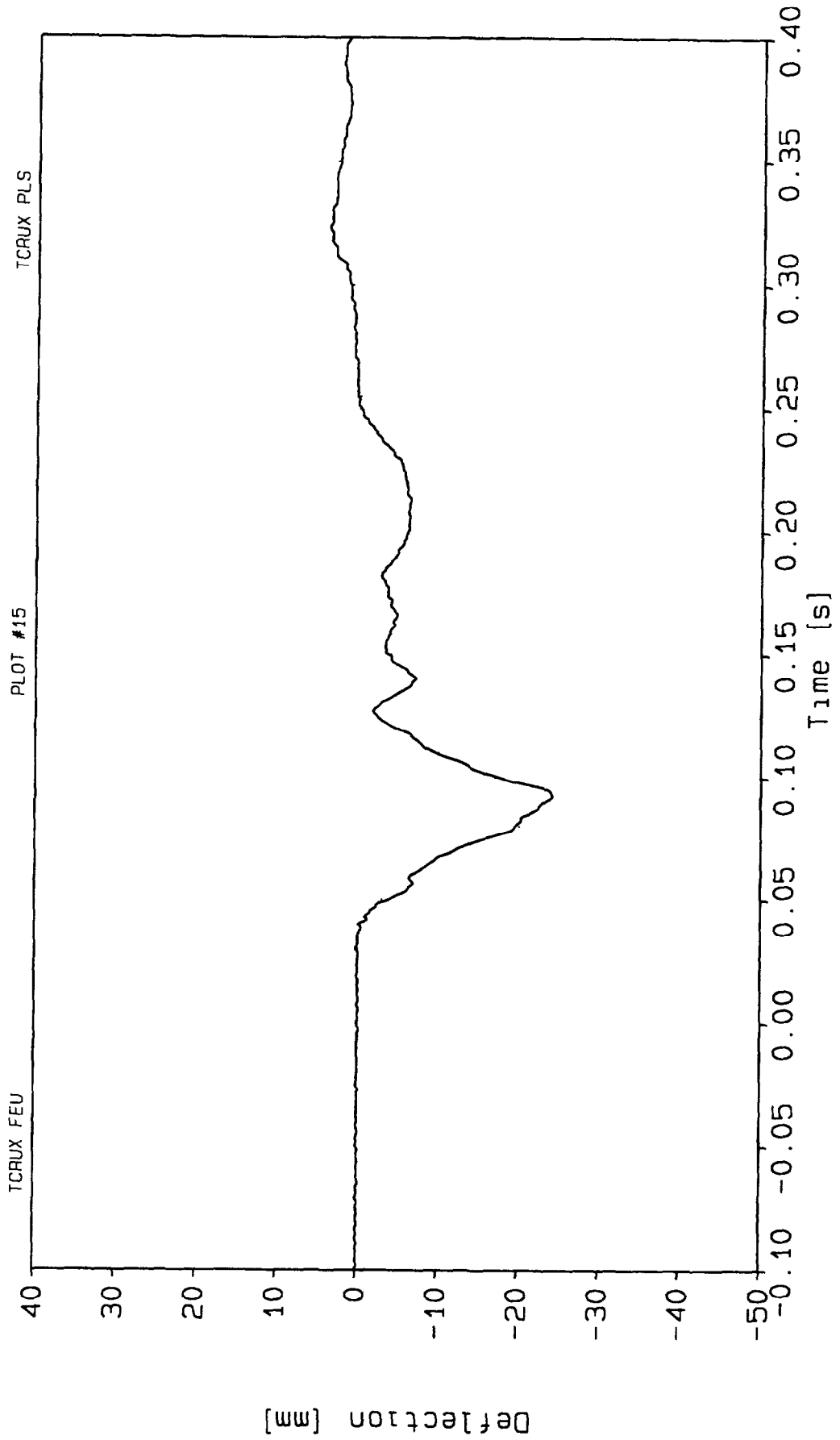
Filter Class 180
Volpe Crash Testing
PH06608

Crux Lower Left Deflection (Dz) v Time

Passenger Dummy - THOR - Post THORTEST Processing

2001 Dodge Neon

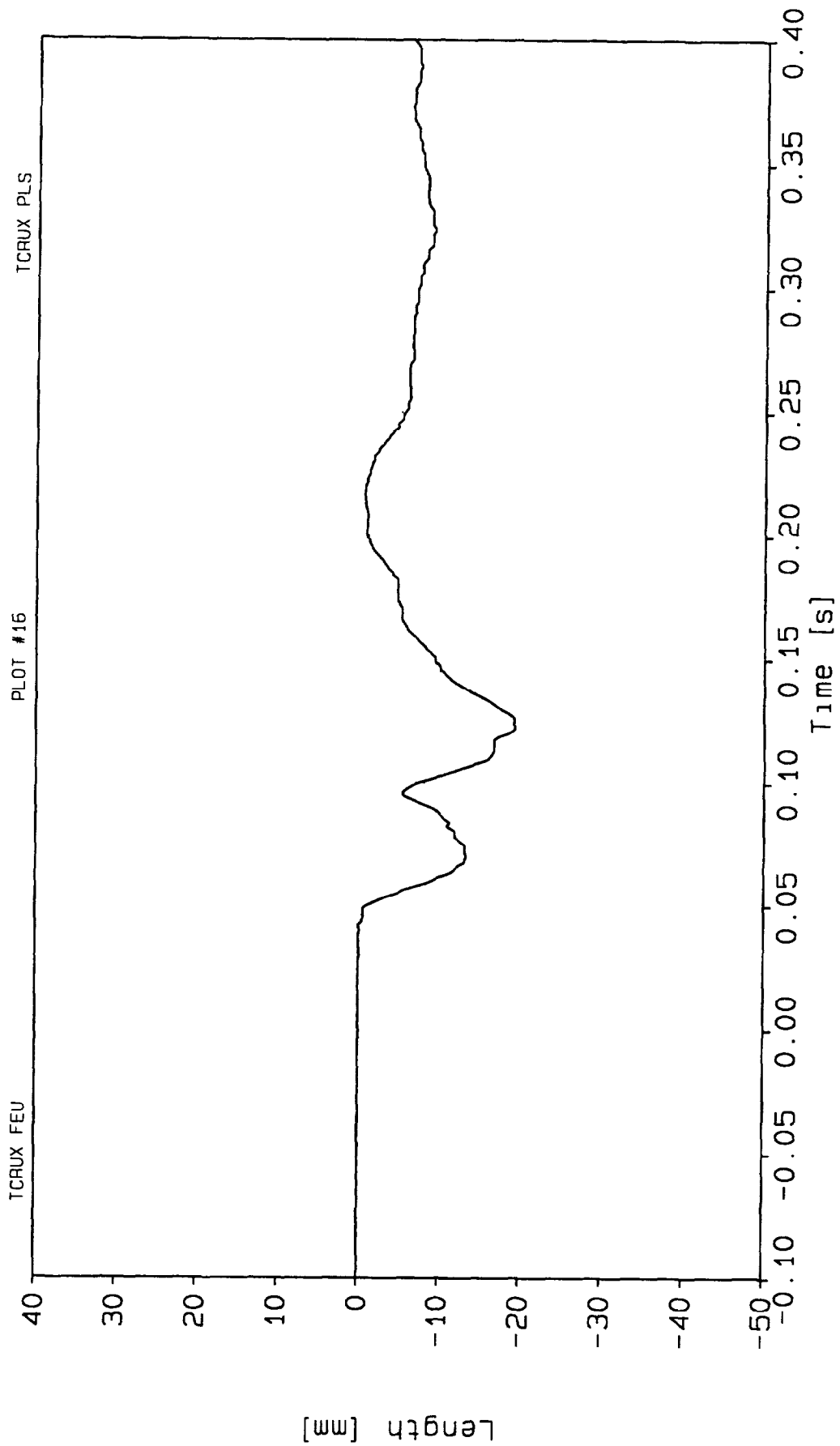
Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



Filter Class 180
Volpe Crash Testing
PH06608

Exponent
Failure
Analysis
Associates

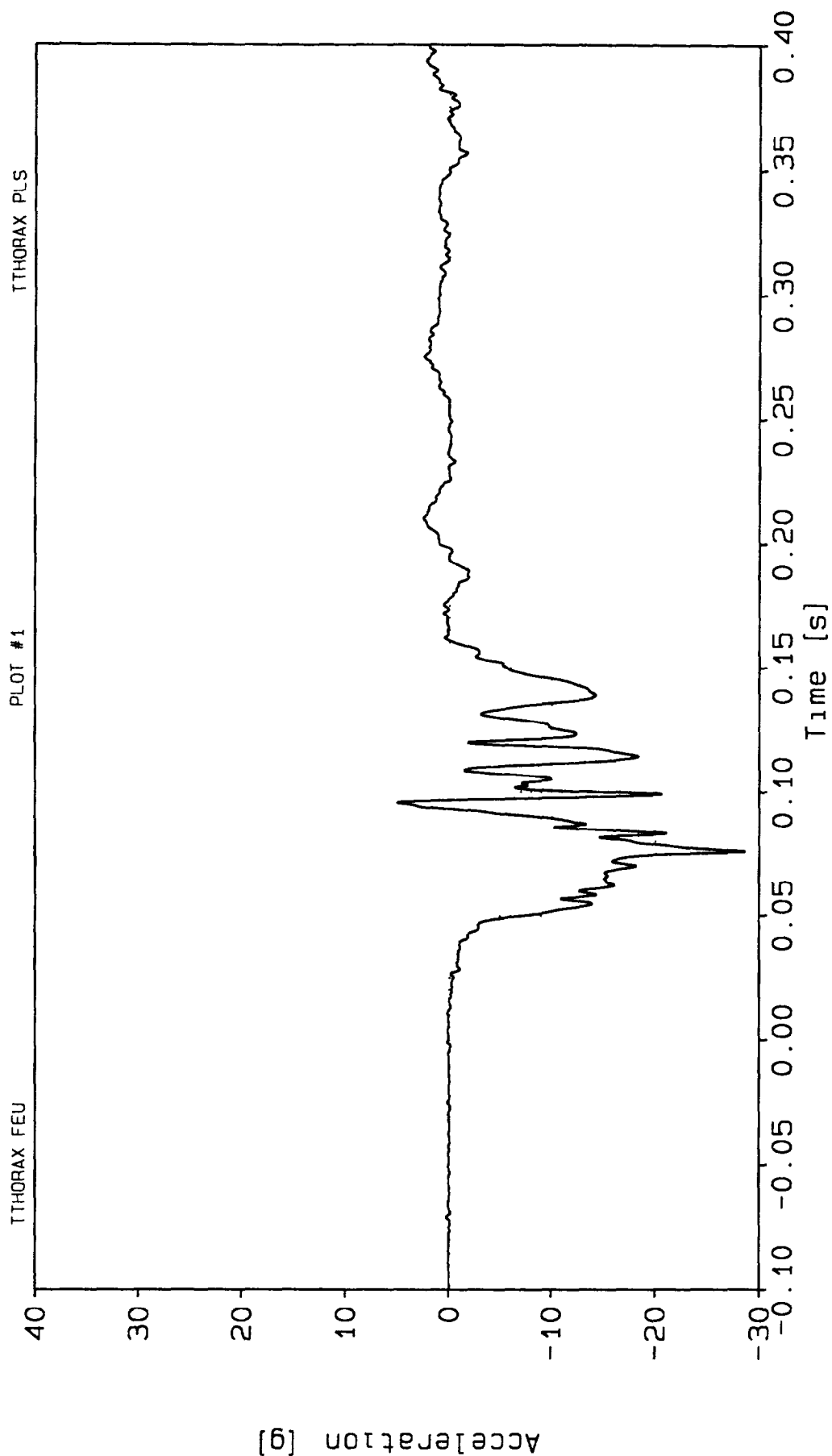
Crux Lower Left Endpoint Length v Time
Passenger Dummy - THOR - Post THORTEST Processing
2001 Dodge Neon
Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



Filter Class 180
Volpe Crash Testing
PH06608

Exponent
Failure
Analysis
Associates

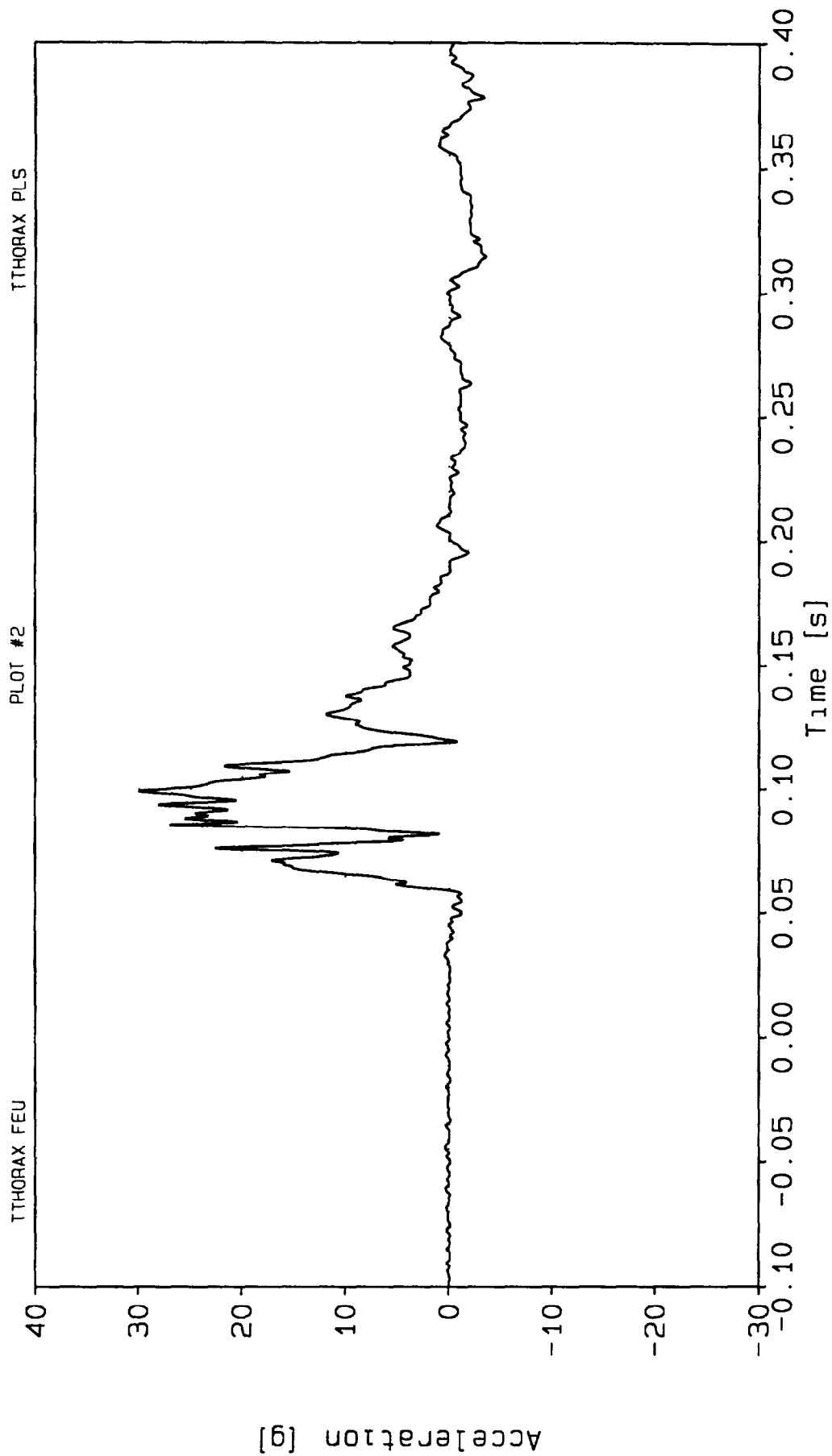
Thorax C.G. Acceleration (Ax) v Time
Passenger Dummy - THOR
2001 Dodge Neon
Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



Exponent
Failure
Analysis
Associates

Filter Class 180
Volpe Crash Testing
PH06608

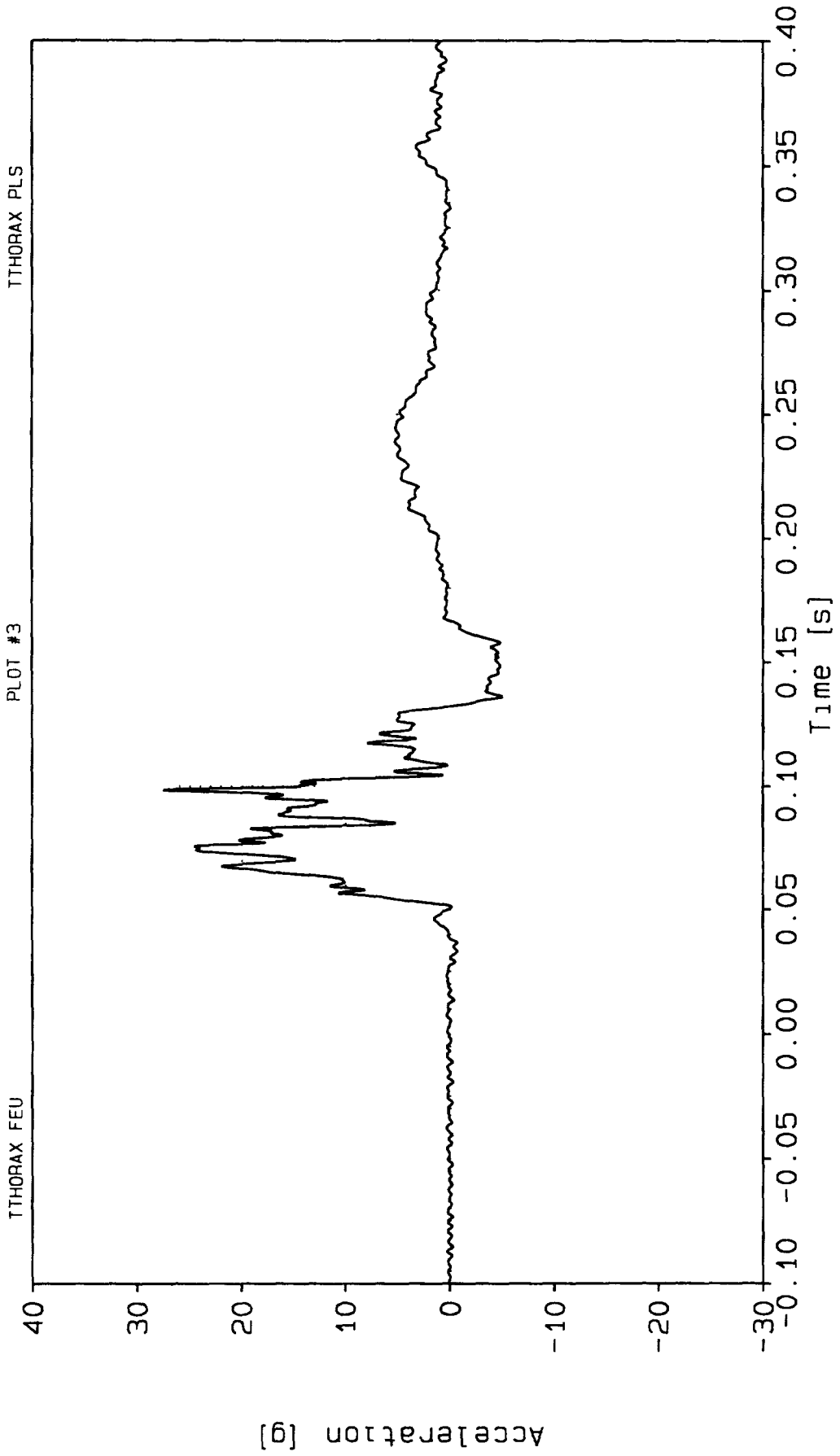
Thorax C.G. Acceleration (Ay) v Time
Passenger Dummy - THOR
2001 Dodge Neon
Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



Exponent
Failure
Analysis
Associates

Filter Class 180
Voipe Crash Testing
PH06608

Thorax C.G. Acceleration (Az) v Time
Passenger Dummy - THOR
2001 Dodge Neon
Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



Filter Class 180
Volpe Crash Testing
PH06608

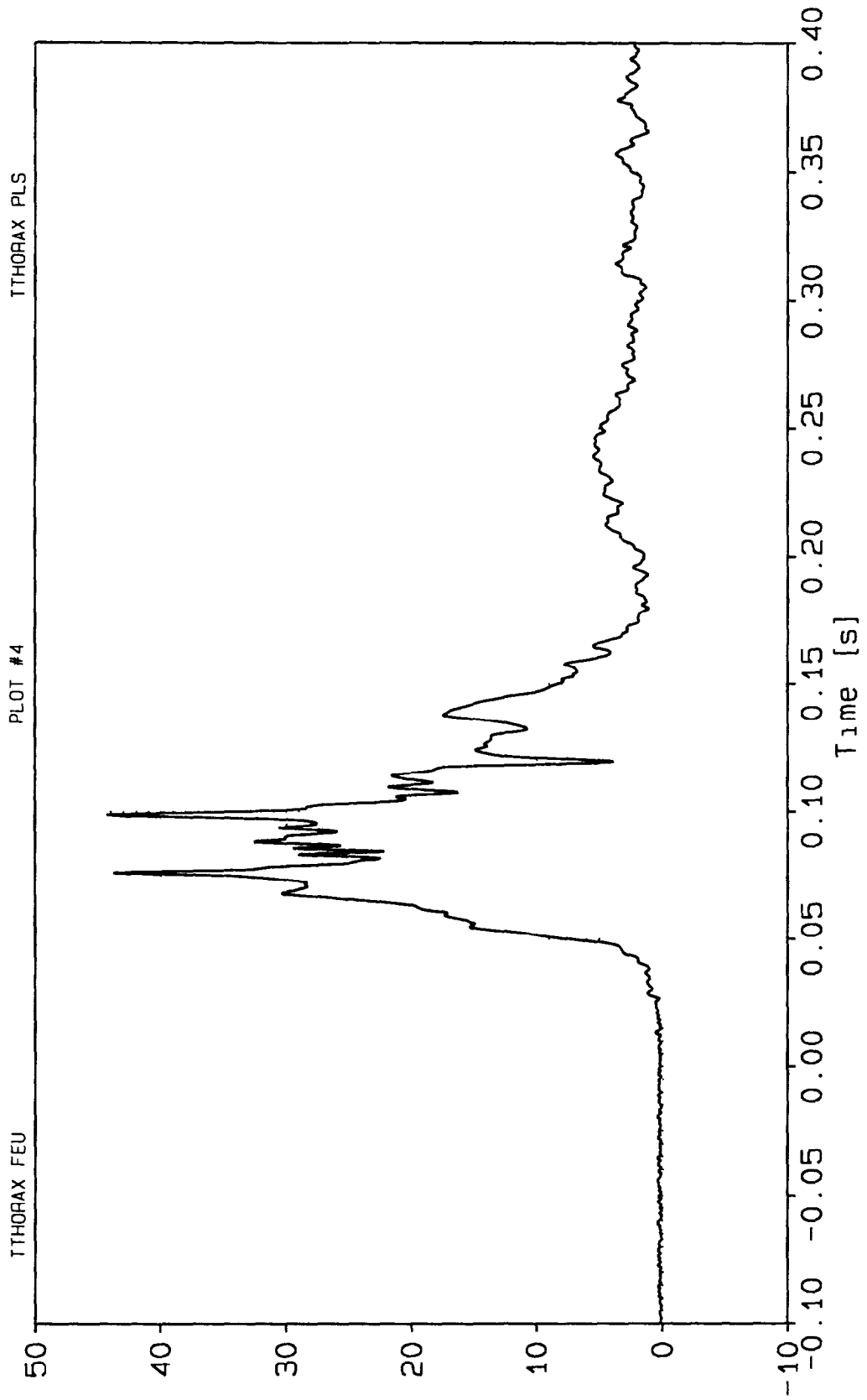
Exponent
Failure
Analysis
Associates

Thorax C.G. Resultant Acceleration (Ar) v Time

Passenger Dummy - THOR

2001 Dodge Neon

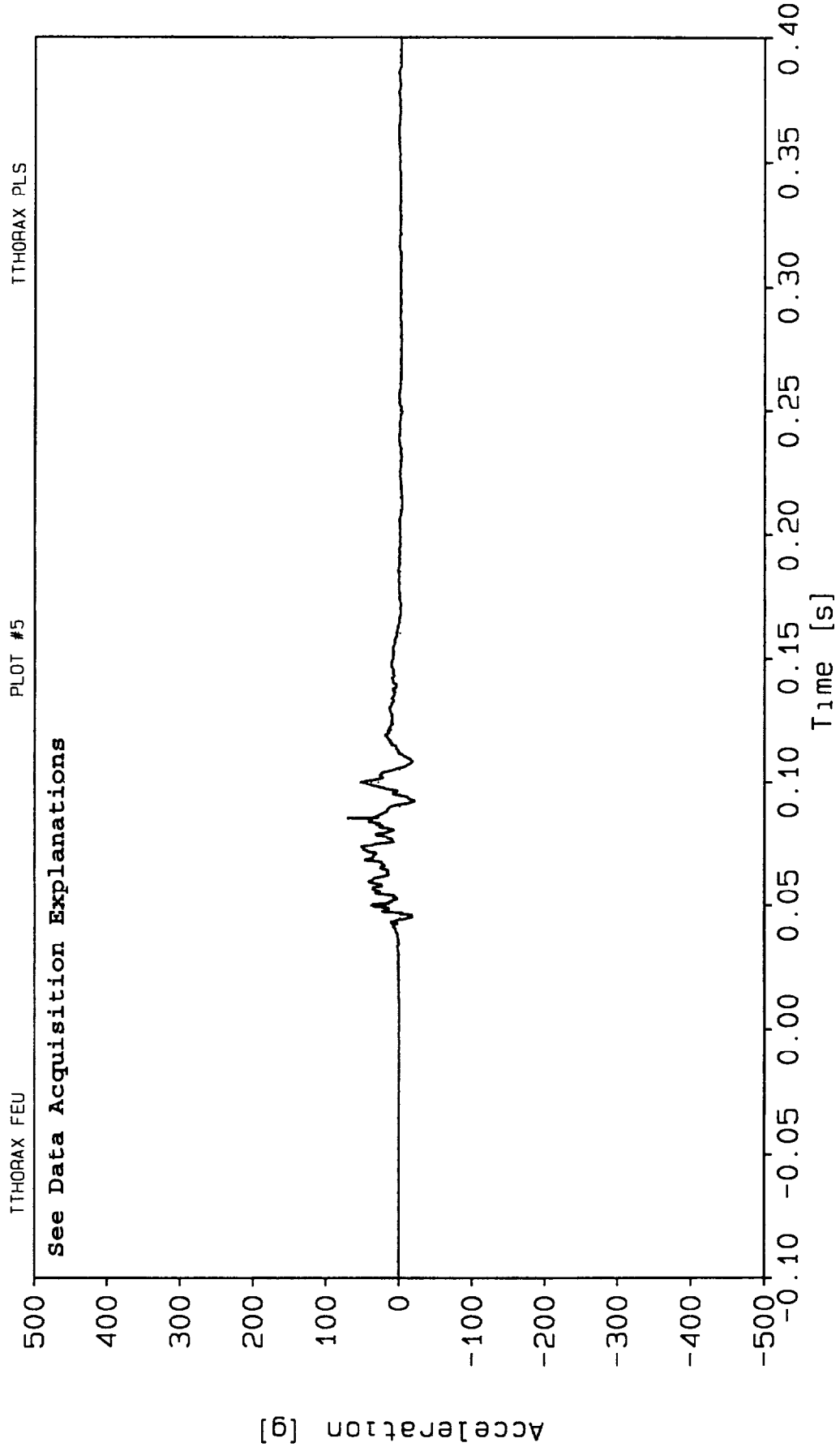
Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



Exponent
Failure
Analysis
Associates

Filter Class 180
Volpe Crash Testing
PH06608

Upper Abdomen Acceleration (Ax) v Time
Passenger Dummy - THOR
2001 Dodge Neon
Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



See Data Acquisition Explanations

Filter Class 1000
Volpe Crash Testing
PH05608

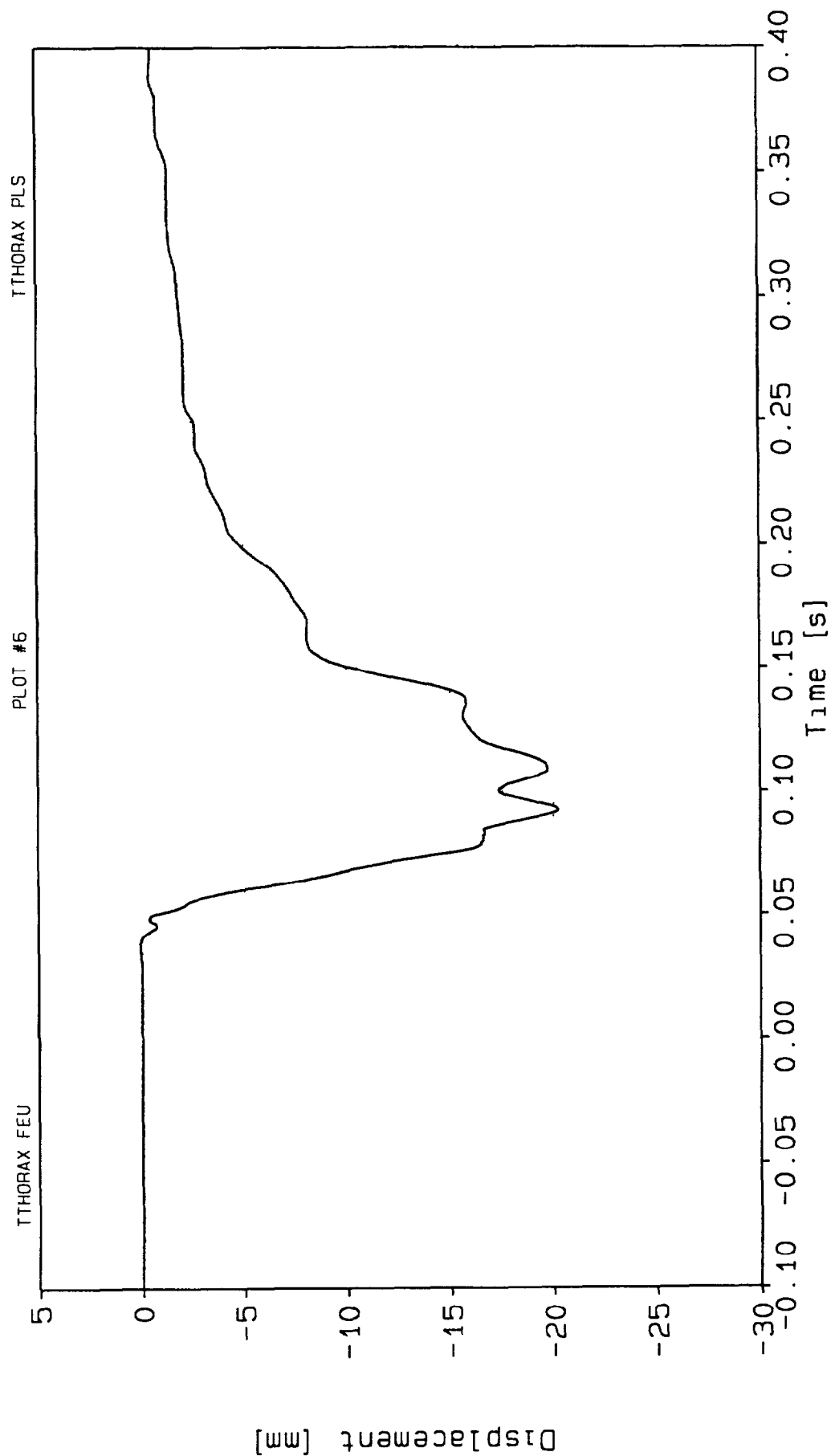
Exponent
Failure
Analysis
Associates

Upper Abdomen Displacement v Time

Passenger Dummy - THOR

2001 Dodge Neon

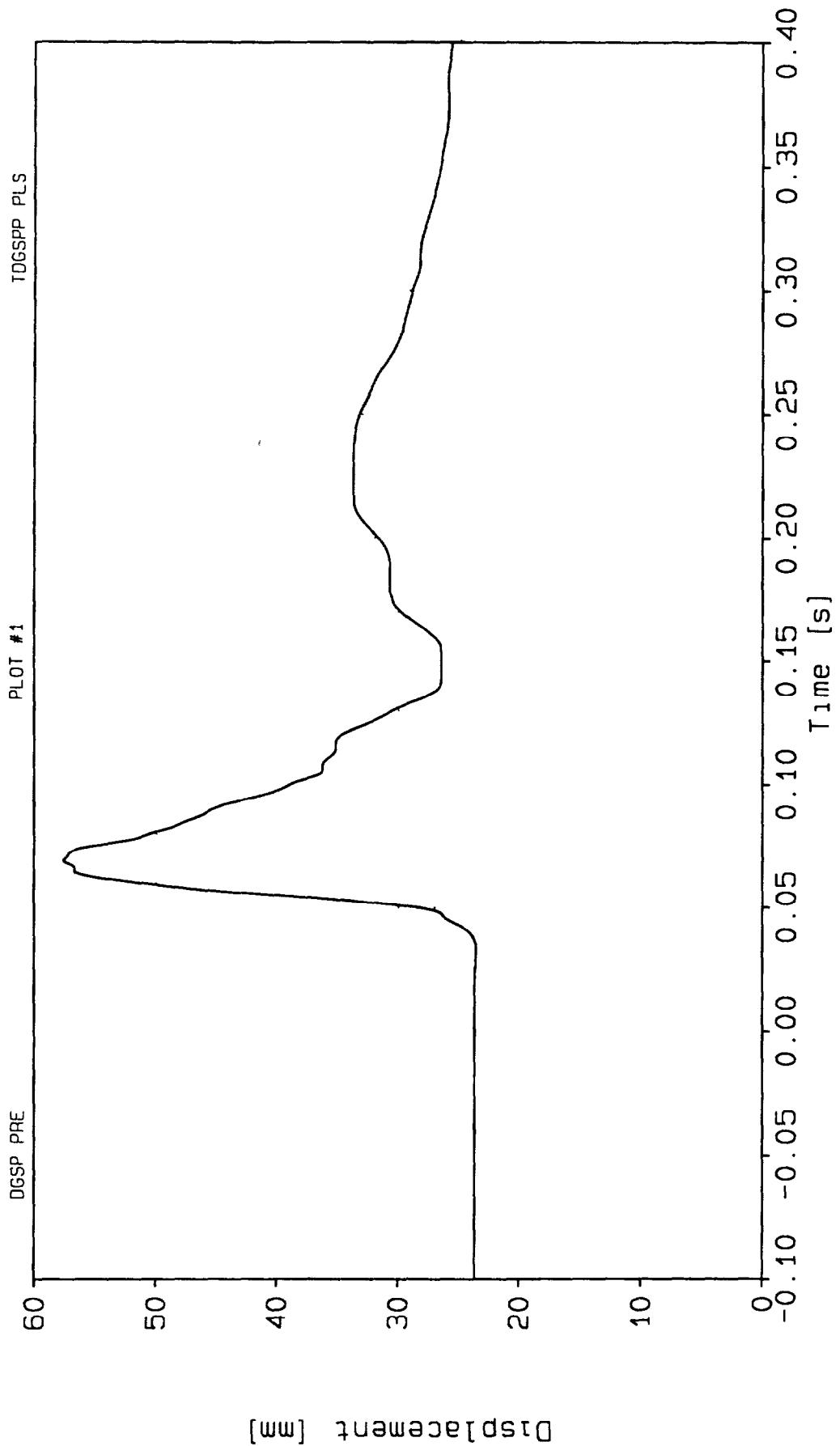
Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



Filter Class 1000
Volpe Crash Testing
PH06608

Exponent
Failure
Analysis
Associates

DGSP Left Displacement v Time
 Passenger Dummy - THOR - Pre-THORTEST Processing
 2001 Dodge Neon
 Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



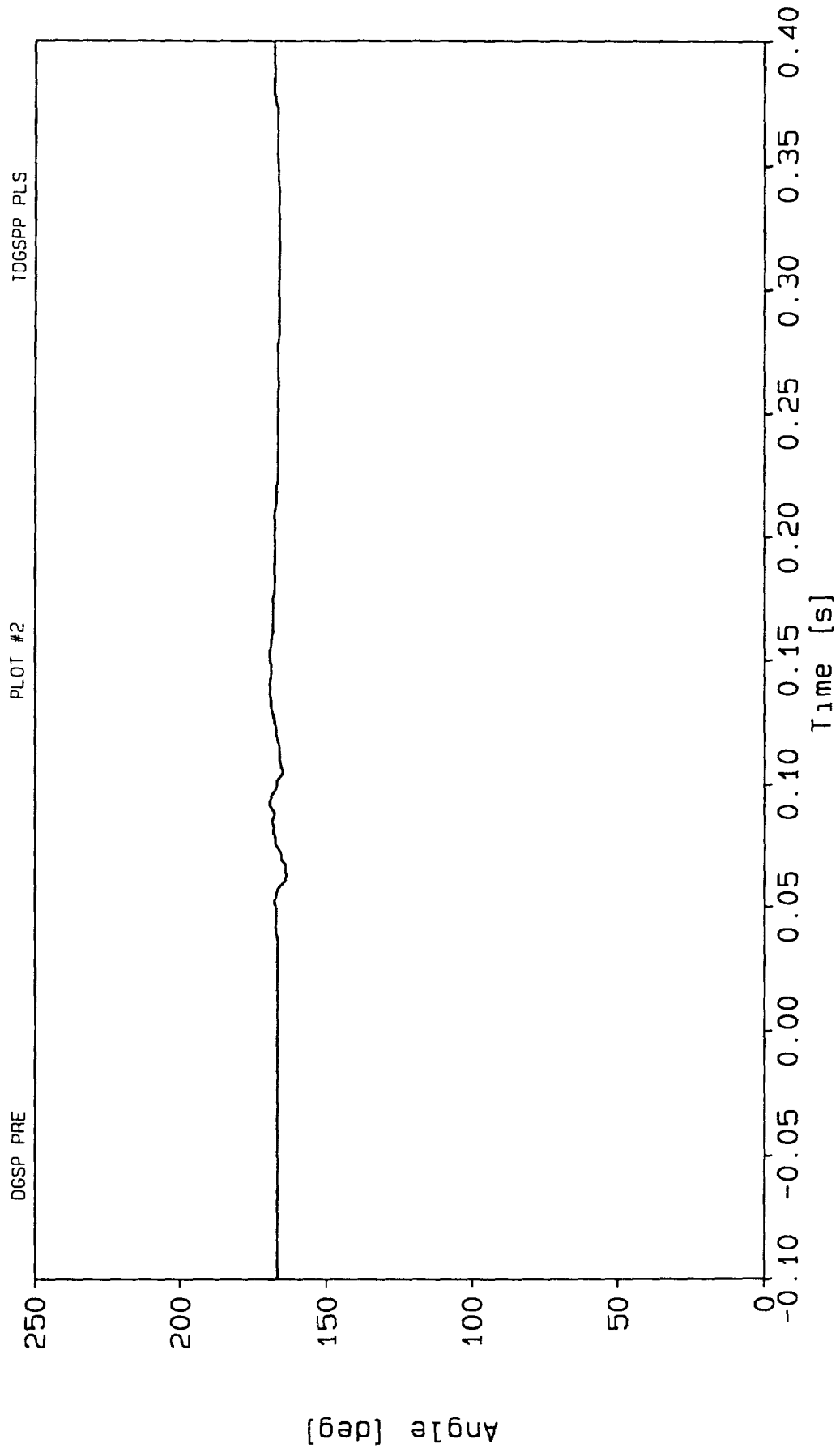
Filter Class 180
 Volpe Crash Testing
 PH06608

Exponent
 Failure
 Analysis
 Associates

DGSP Left Yaw v Time

Passenger Dummy - THOR - Pre-THORTEST Processing
2001 Dodge Neon

Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



Exponent
Failure
Analysis
Associates

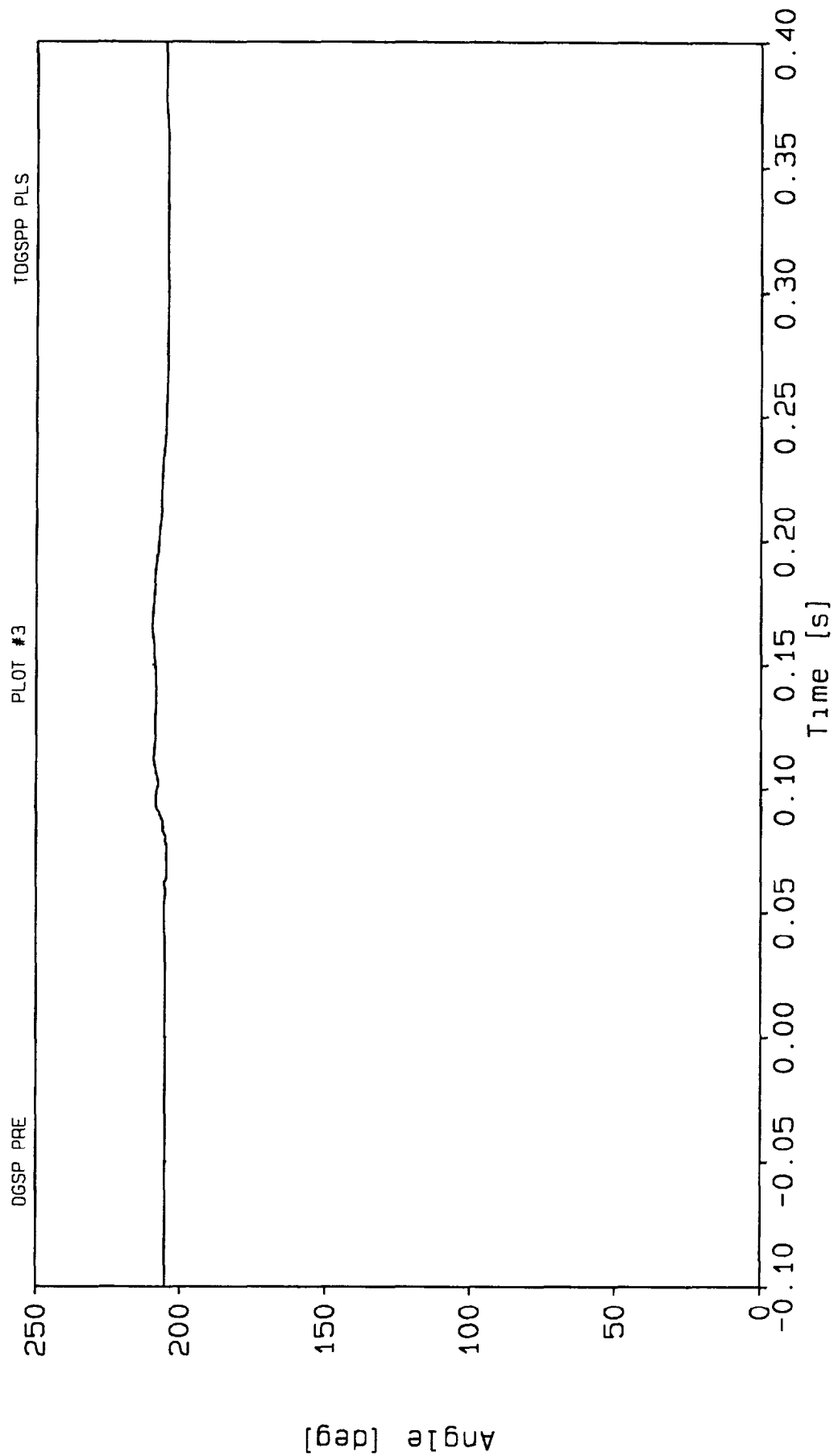
Filter Class 180
Volpe Crash Testing
PH05608

DGSP Left Pitch v Time

Passenger Dummy - THOR - Pre-THORTEST Processing

2001 Dodge Neon

Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



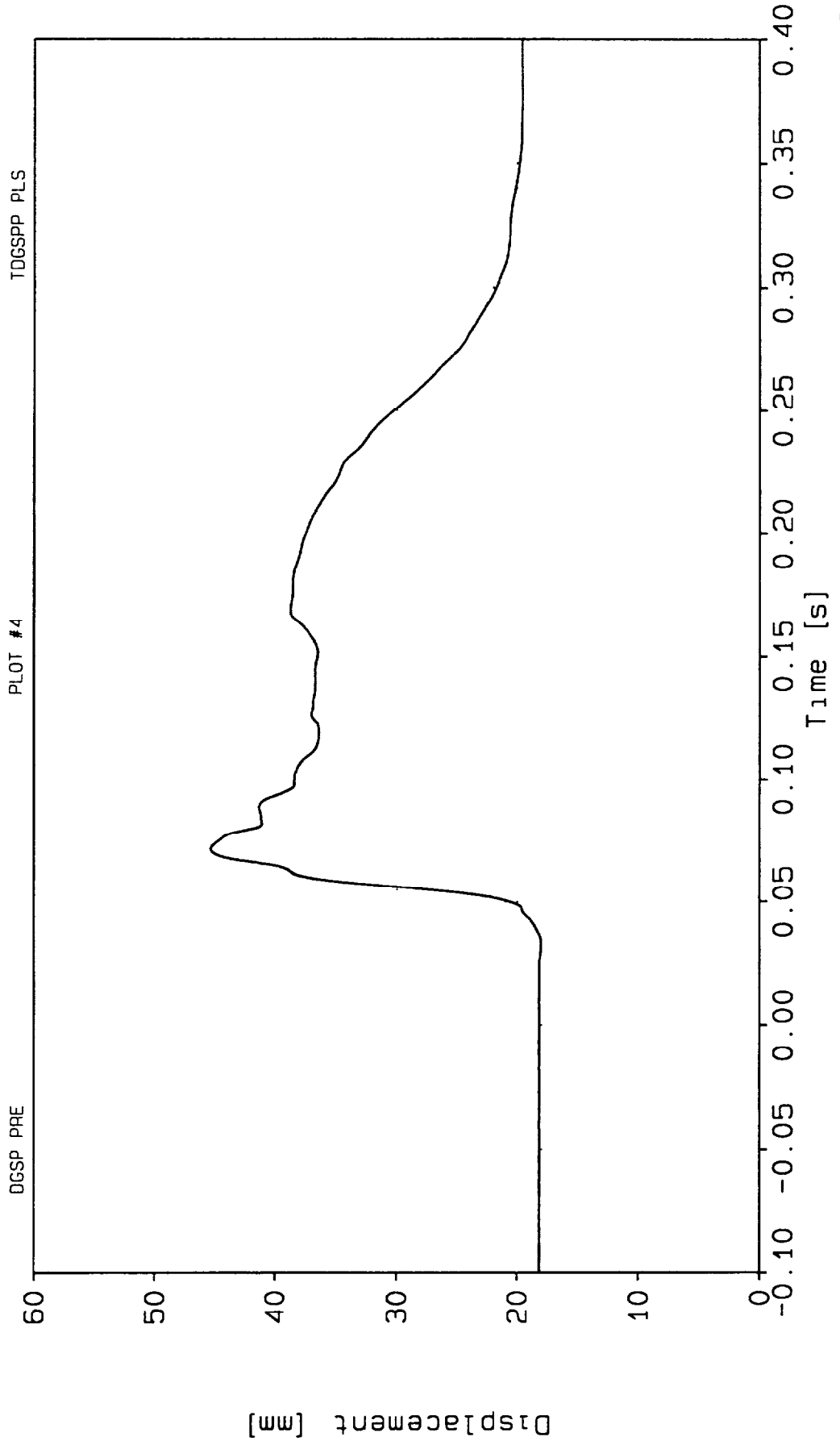
Filter Class 180
Volpe Crash Testing
PH06608

Exponent
Failure
Analysis
Associates

DGSP Right Displacement v Time

Passenger Dummy - THOR - Pre-THORTEST Processing
2001 Dodge Neon

Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



Exponent
Failure
Analysis
Associates

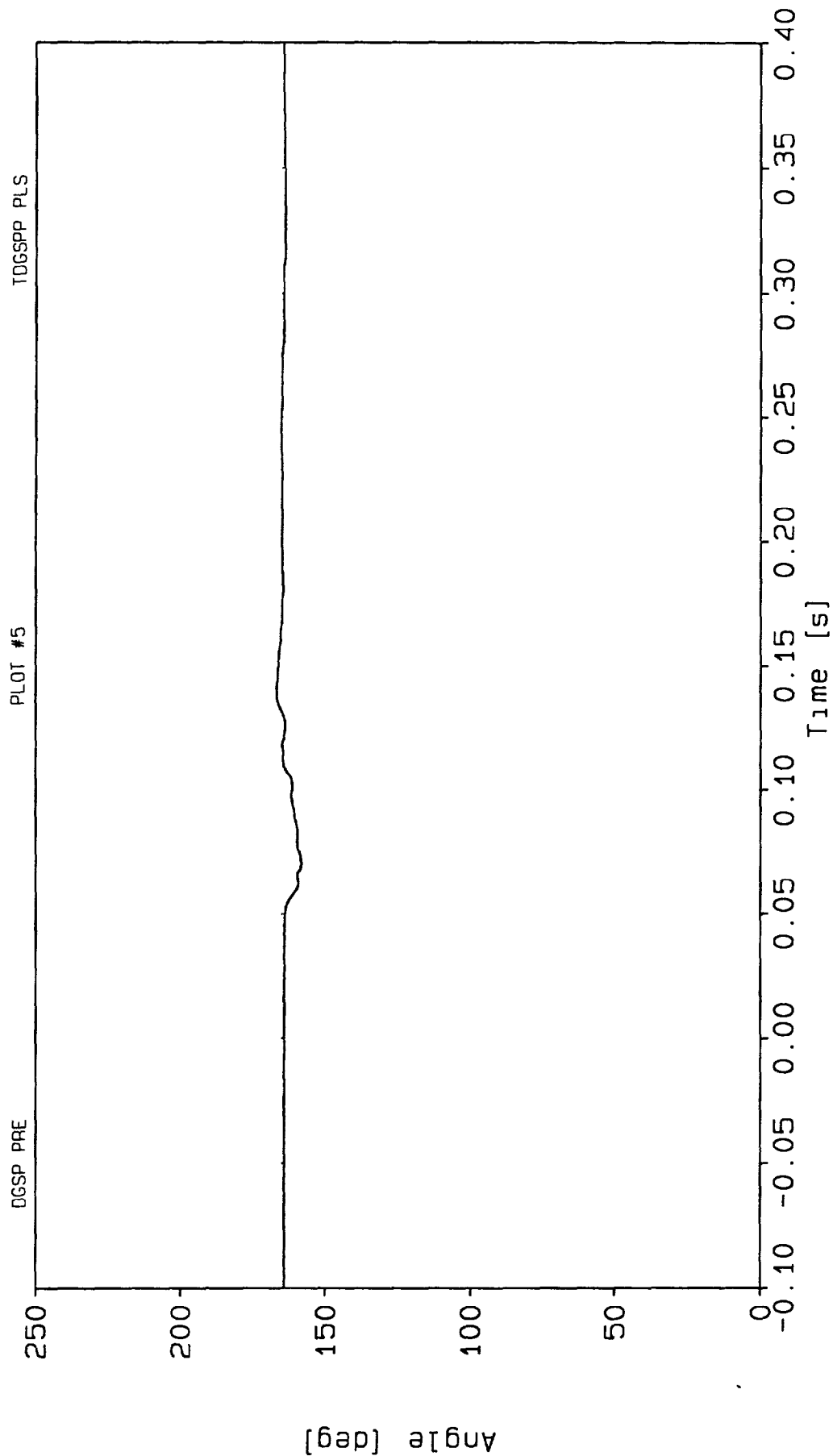
Filter Class 180
Volpe Crash Testing
PH06608

DGSP Right Yaw v Time

Passenger Dummy - THOR - Pre-THORTEST Processing

2001 Dodge Neon

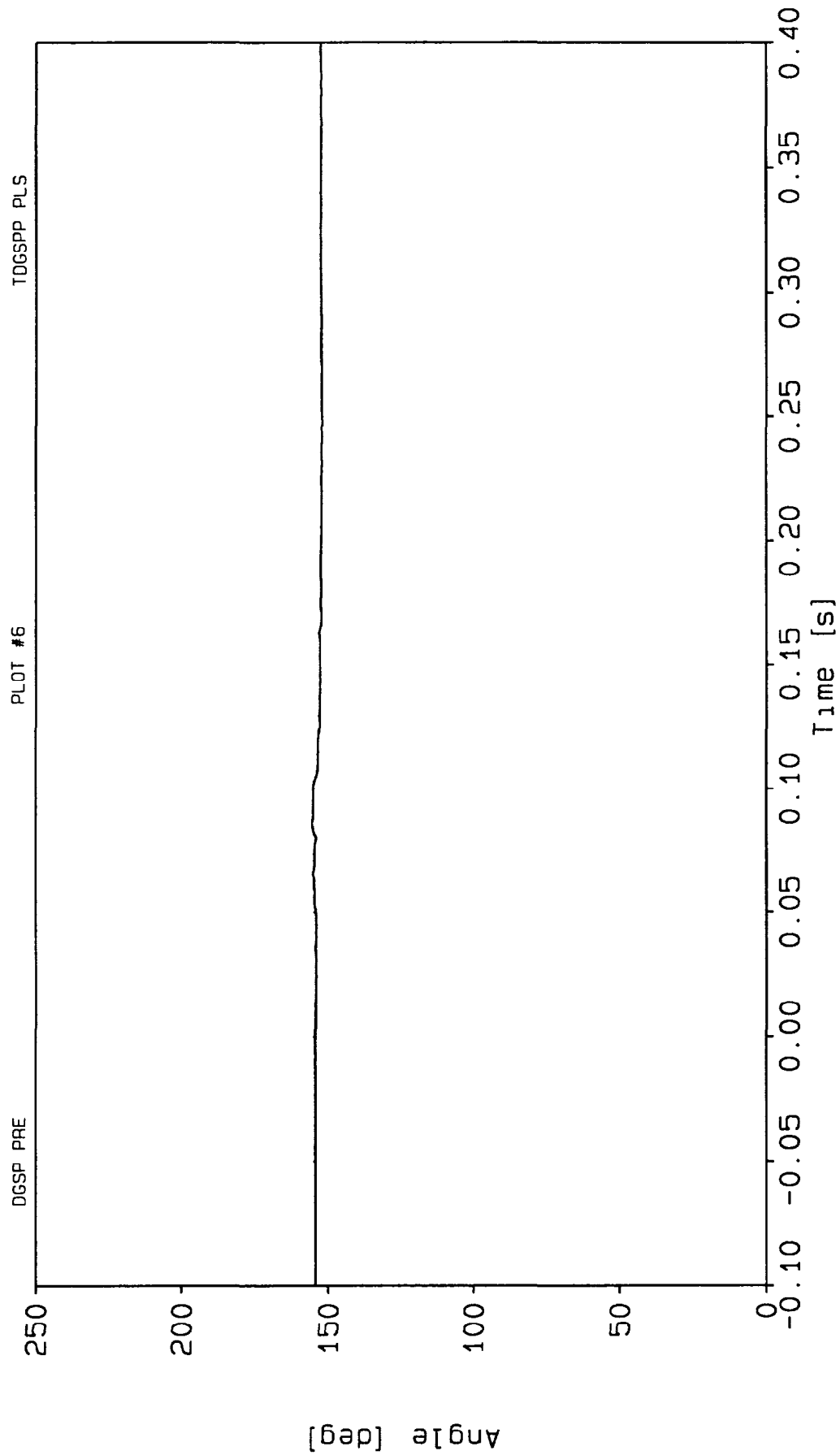
Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



Exponent
Failure
Analysis
Associates

Filter Class 180
Volpe Crash Testing
PH06608

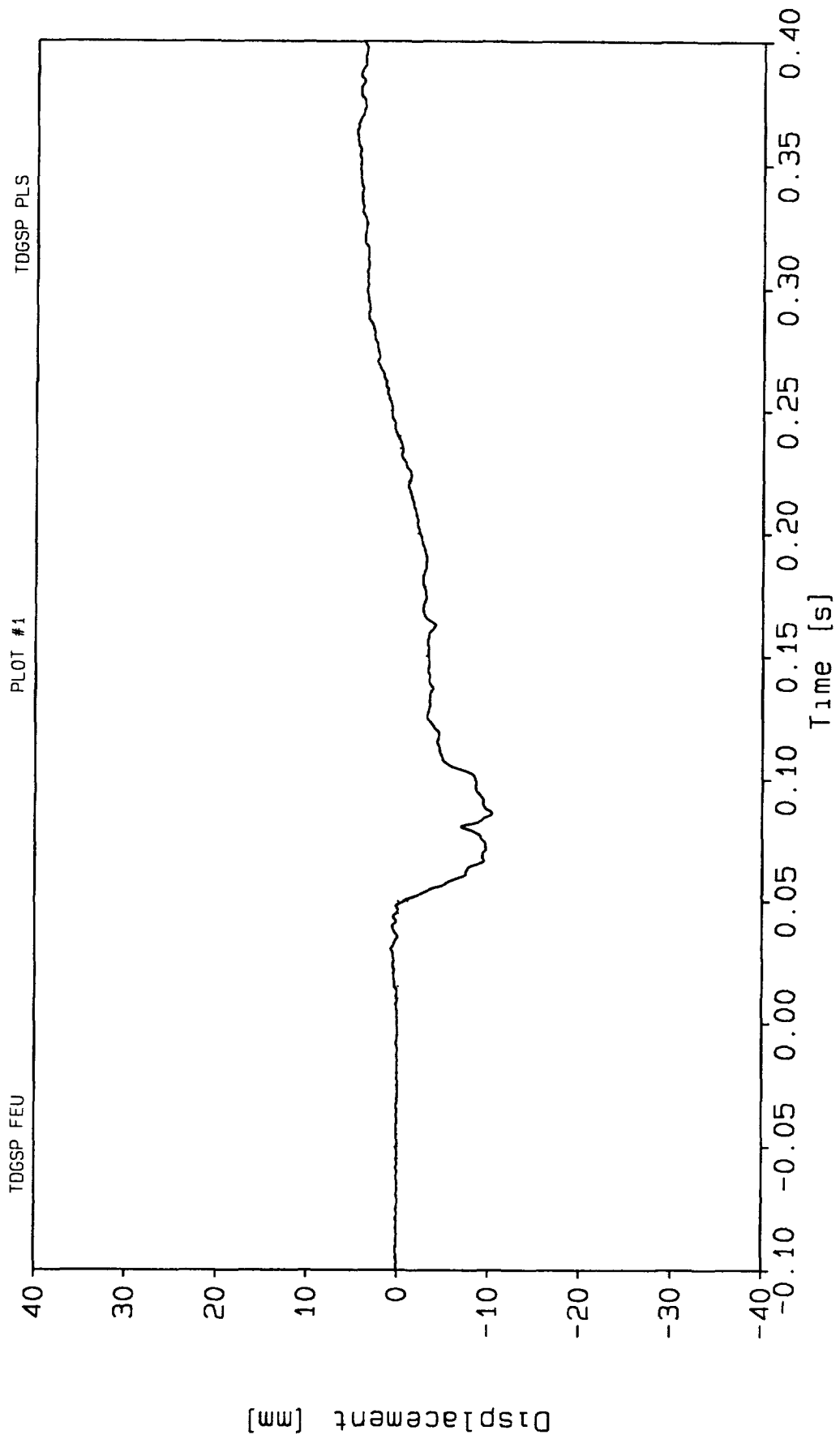
DGSP Right Pitch v Time
Passenger Dummy - THOR - Pre-THORTEST Processing
2001 Dodge Neon
Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



Filter Class 180
Volpe Crash Testing
PH06608

Exponent
Failure
Analysis
Associates

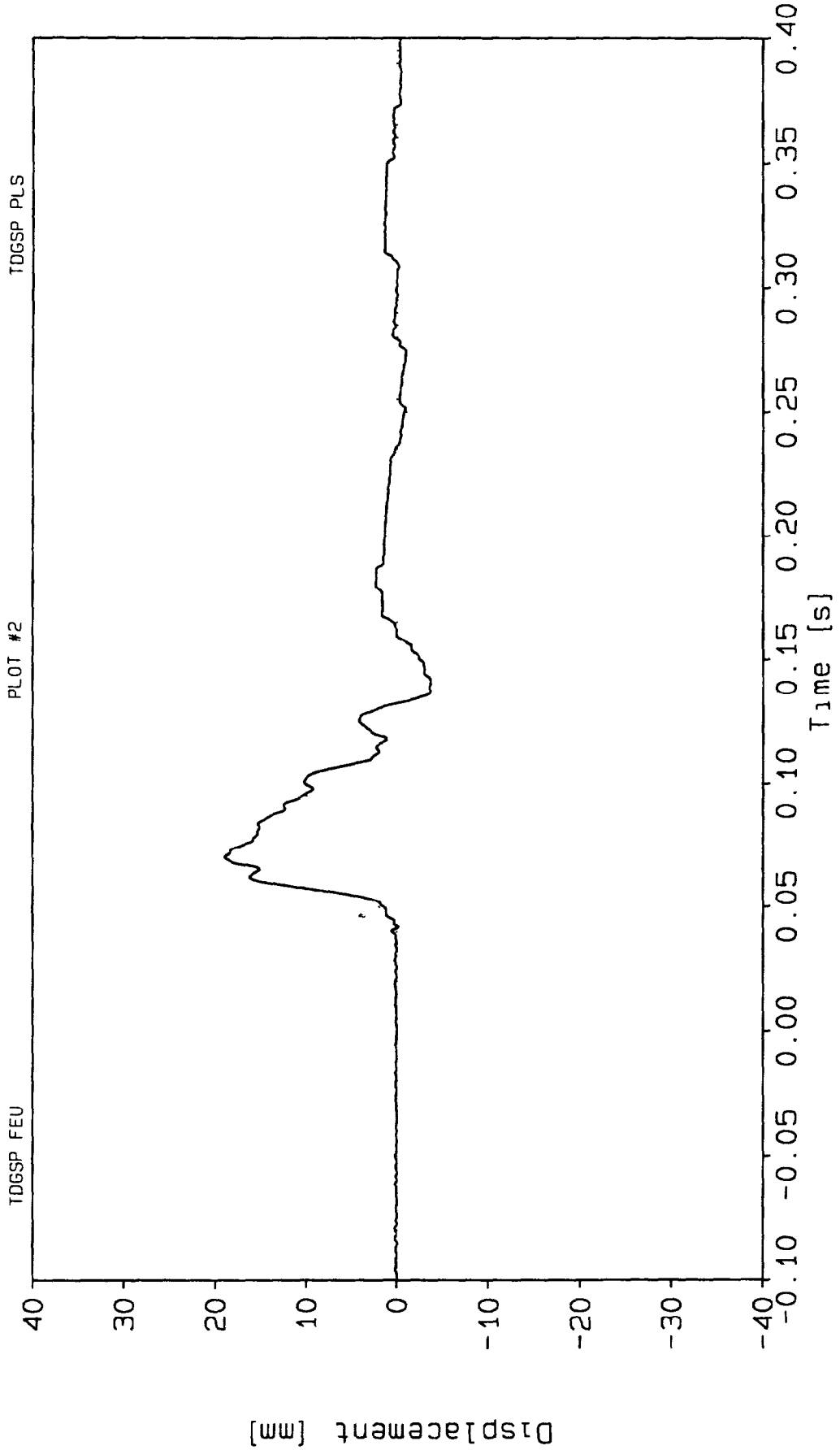
DGSP Right Displacement (Dx) v Time
Passenger Dummy - THOR - Post THORTEST Processing
2001 Dodge Neon
Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



Exponent
Failure
Analysis
Associates

Filter Class 180
Voipe Crash Testing
PH06608

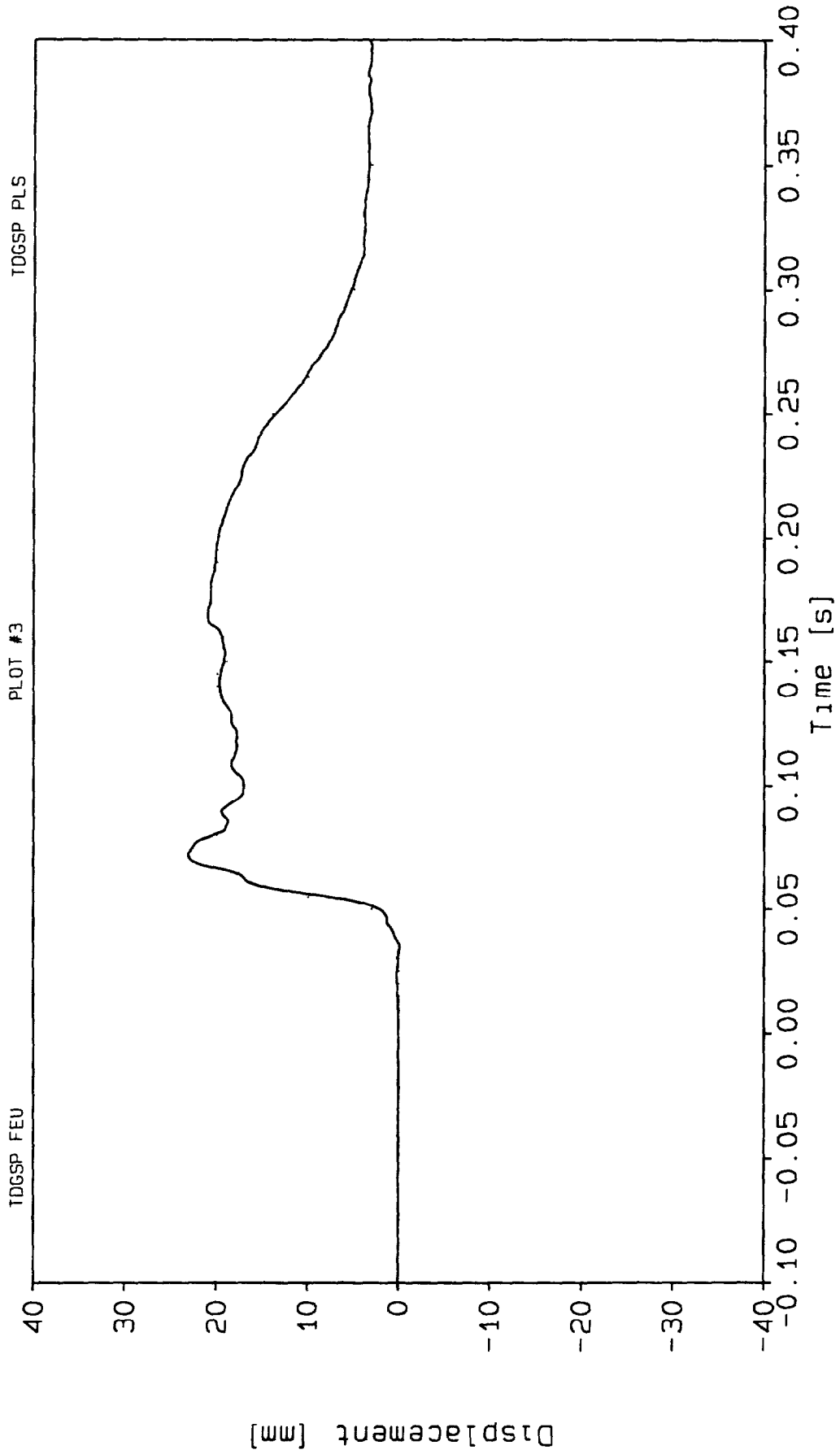
DGSP Right Displacement (Dy) v Time
 Passenger Dummy - THOR - Post THORTEST Processing
 2001 Dodge Neon
 Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



Exponent
Failure
Analysis
Associates

Filter Class 180
Valpe Crash Testing
PH06608

DGSP Right Displacement (Dz) v Time
Passenger Dummy - THOR - Post THORTEST Processing
2001 Dodge Neon
Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



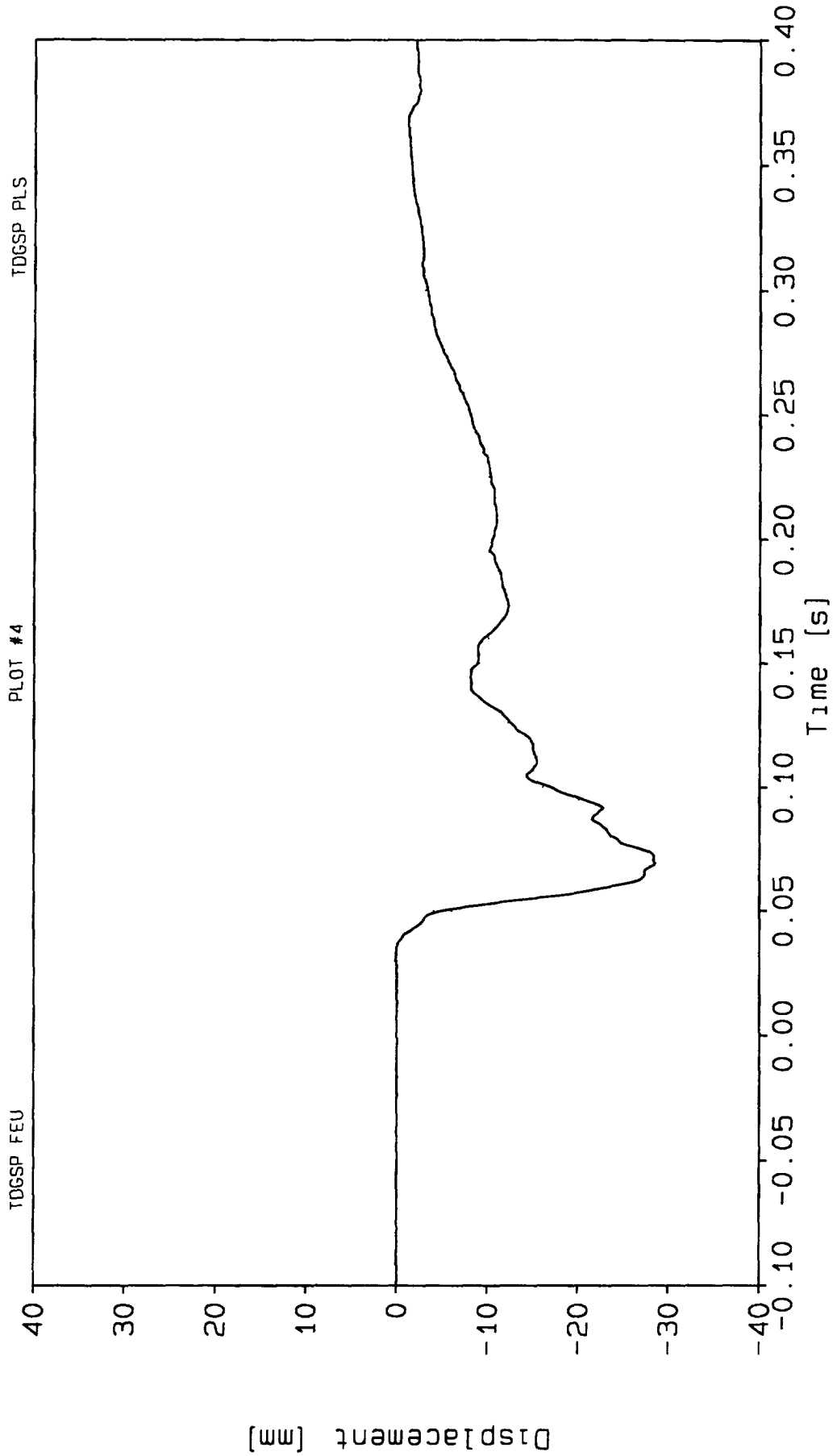
Exponent
Failure
Analysis
Associates

Filter Class 180
Volpe Crash Testing
PH06608

DGSP Left Displacement (Dx) v Time

Passenger Dummy - THOR - Post THORTEST Processing
2001 Dodge Neon

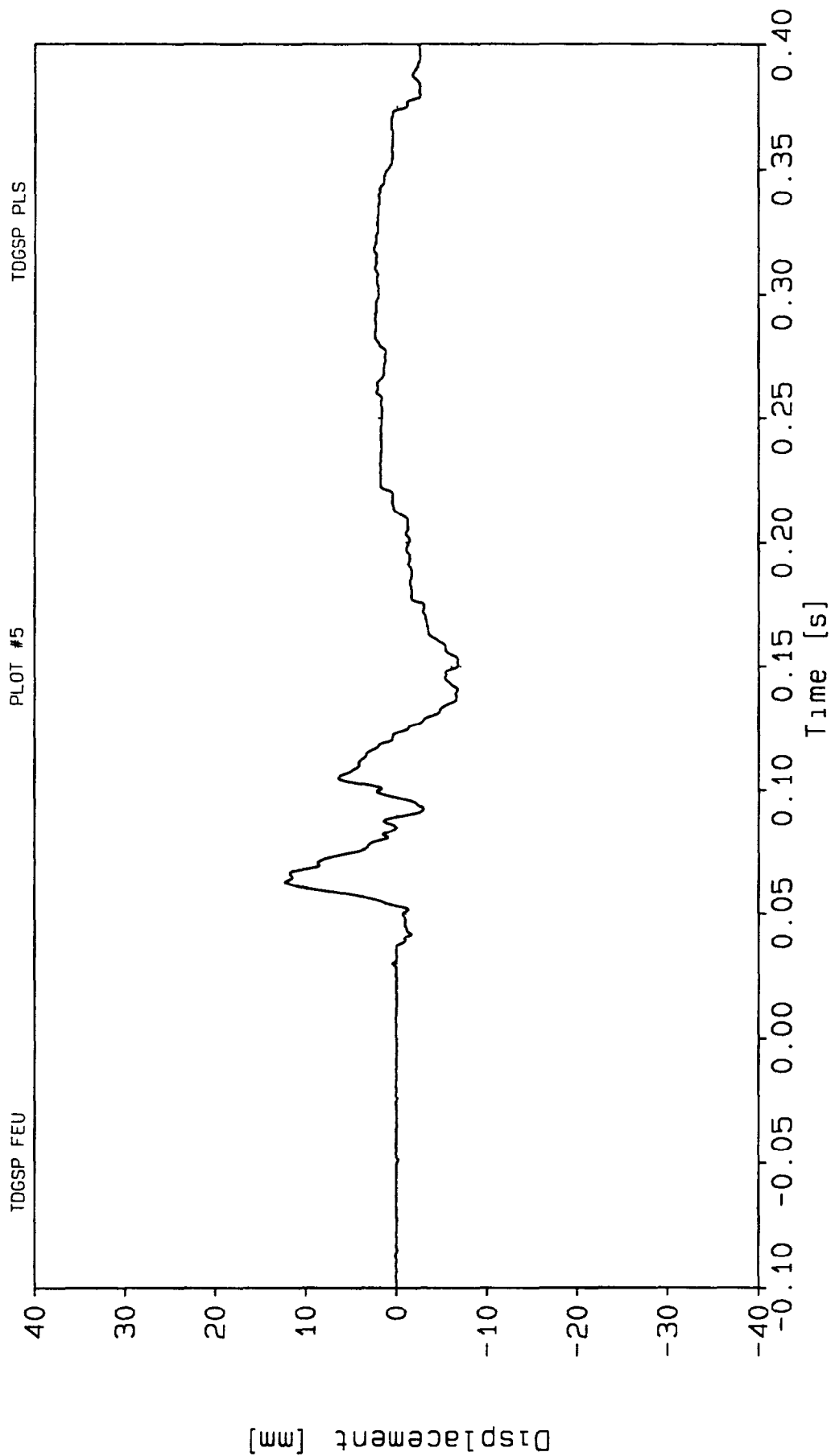
Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



Filter Class 180
Volpe Crash Testing
PH06608

Exponent
Failure
Analysis
Associates

DGSP Left Displacement (Dy) v Time
Passenger Dummy - THOR - Post THORTEST Processing
2001 Dodge Neon
Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



Filter Class 180
Volpe Crash Testing
PH05608

Exponent
Failure
Analysis
Associates

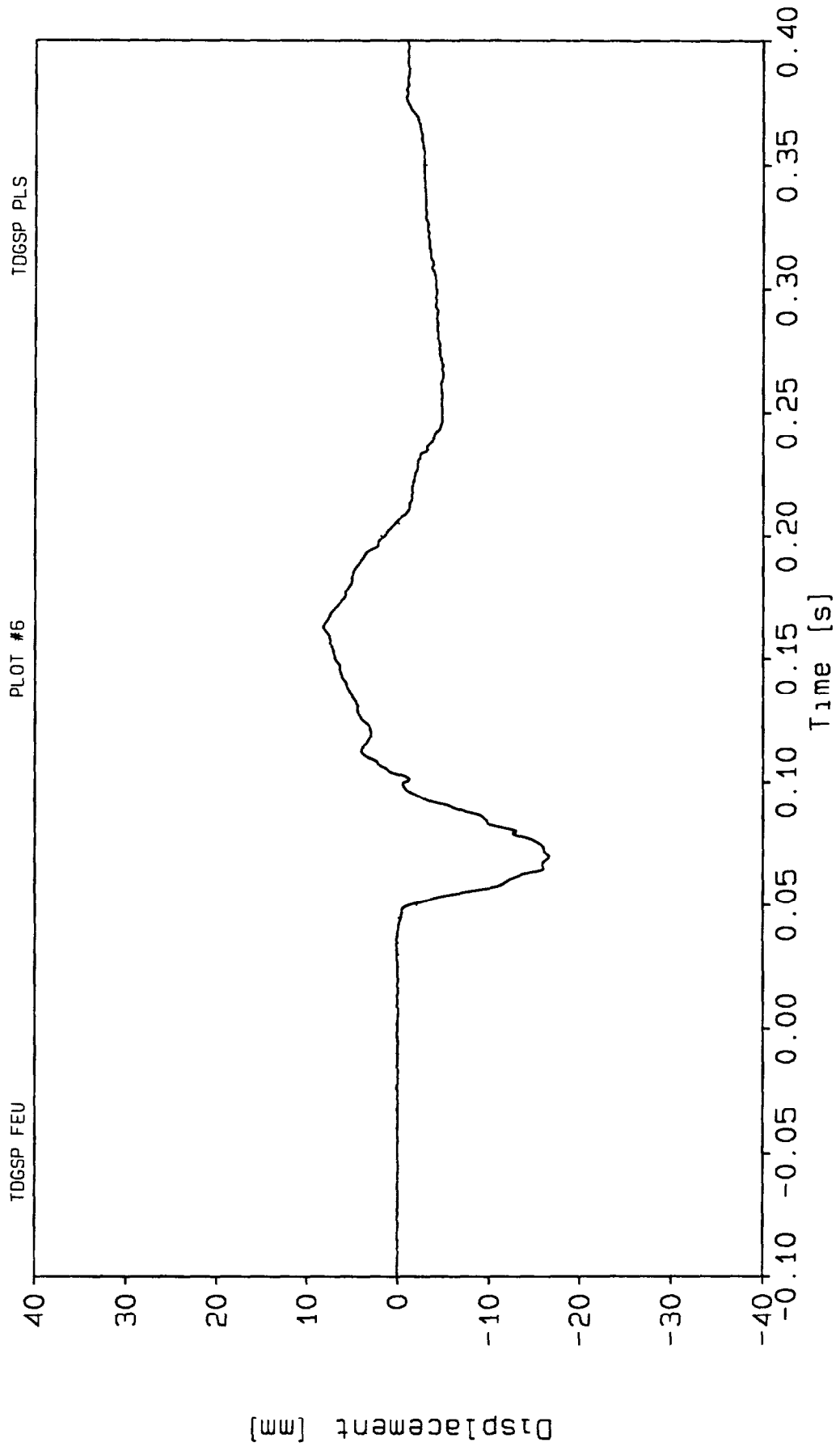
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DGSP Left Displacement (Dz) v Time

Passenger Dummy - THOR - Post THORTEST Processing

2001 Dodge Neon

Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



Exponent
Failure
Analysis
Associates

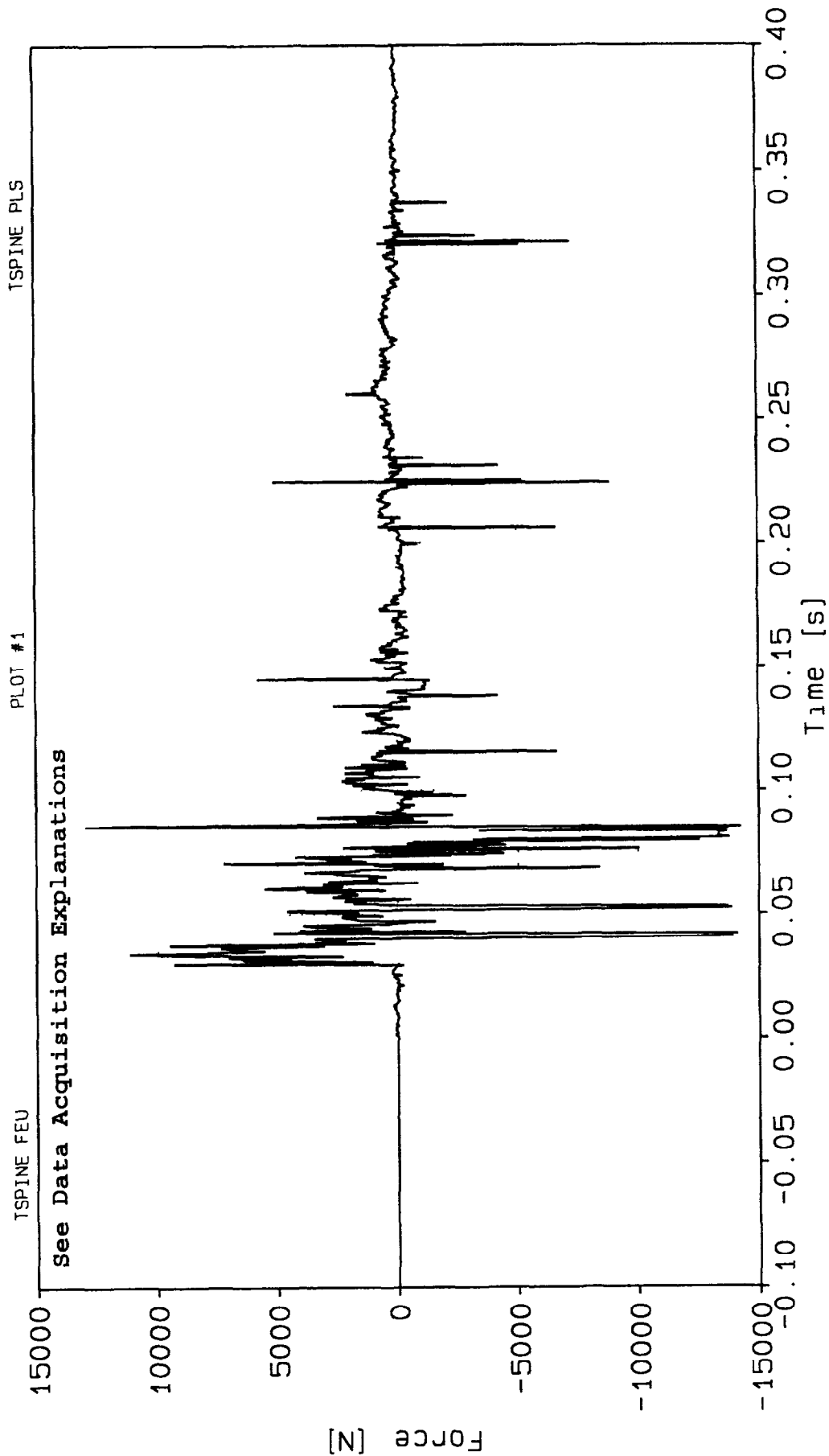
Filter Class 180
Volpe Crash Testing
PH06608

T12 Thoracic Force (Fx) v Time

Passenger Dummy - THOR

2001 Dodge Neon

Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



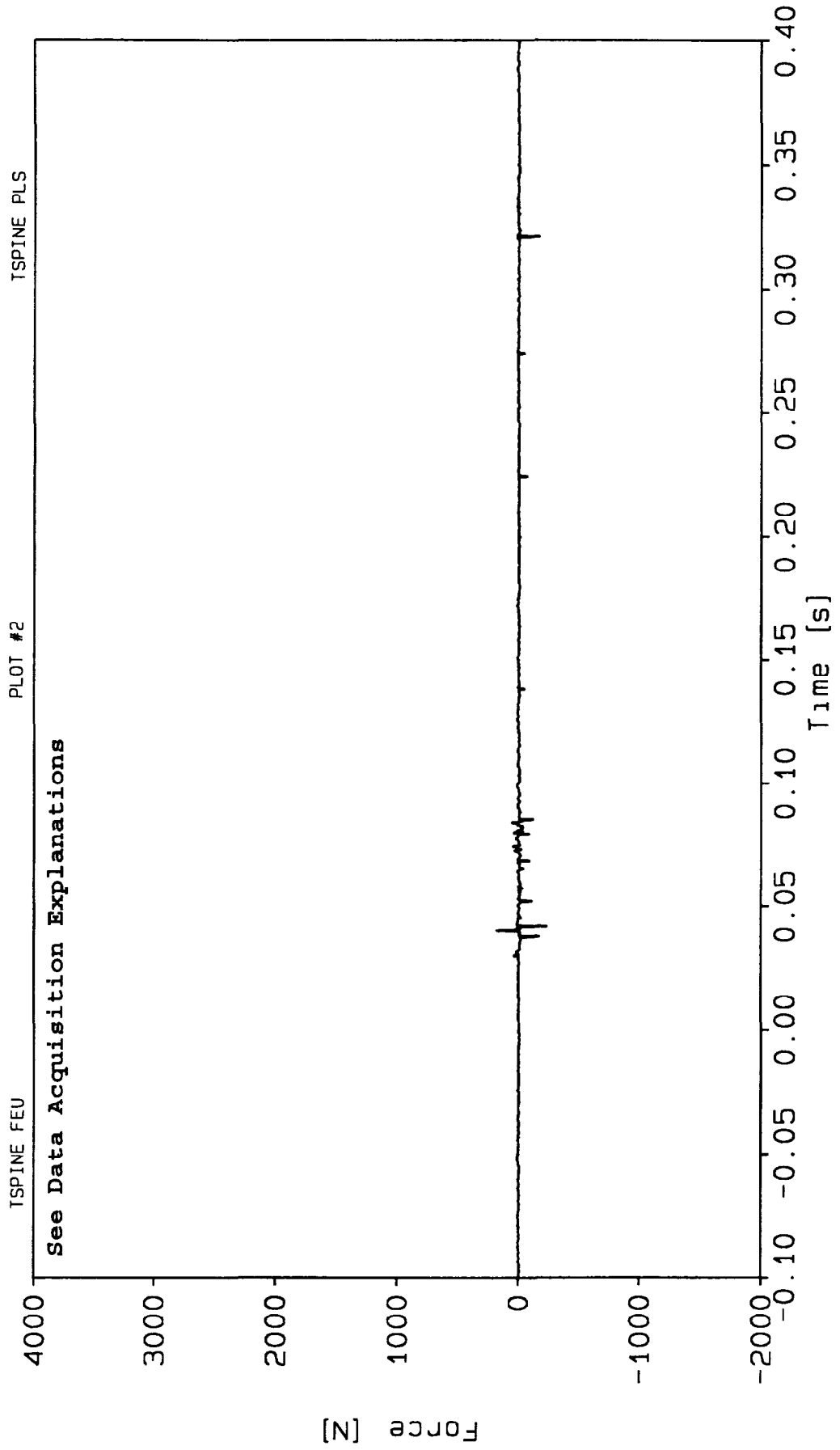
Filter Class 600
Volpe Crash Testing
PH06608

Exponent
Failure
Analysis
Associates

T12 Thoracic Force (Fy) v Time

Passenger Dummy - THOR
2001 Dodge Neon

Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



Filter Class 600
Volpe Crash Testing
PH05608

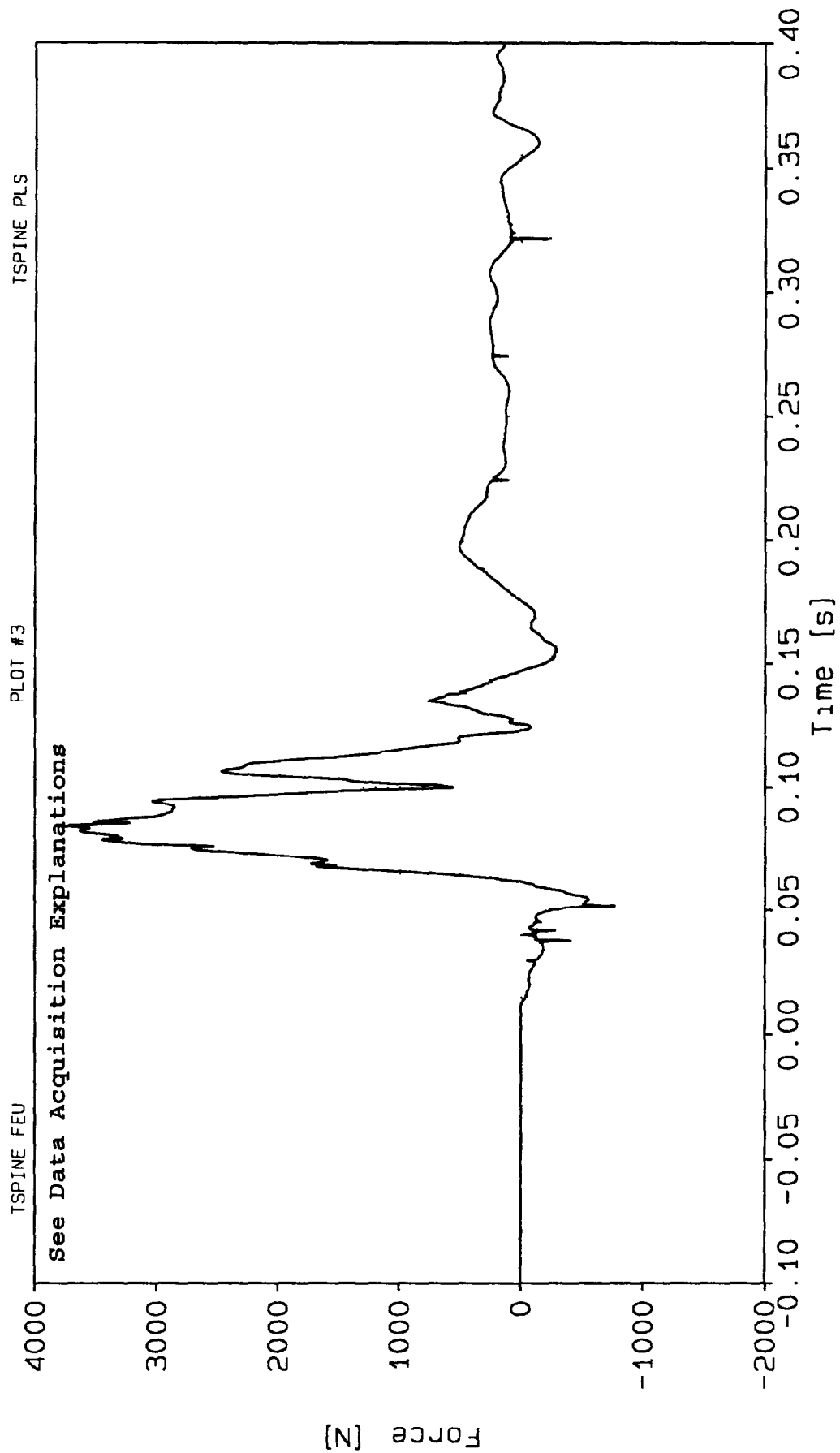
Exponent
Failure
Analysis
Associates

T12 Thoracic Force (Fz) v Time

Passenger Dummy - THOR

2001 Dodge Neon

Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



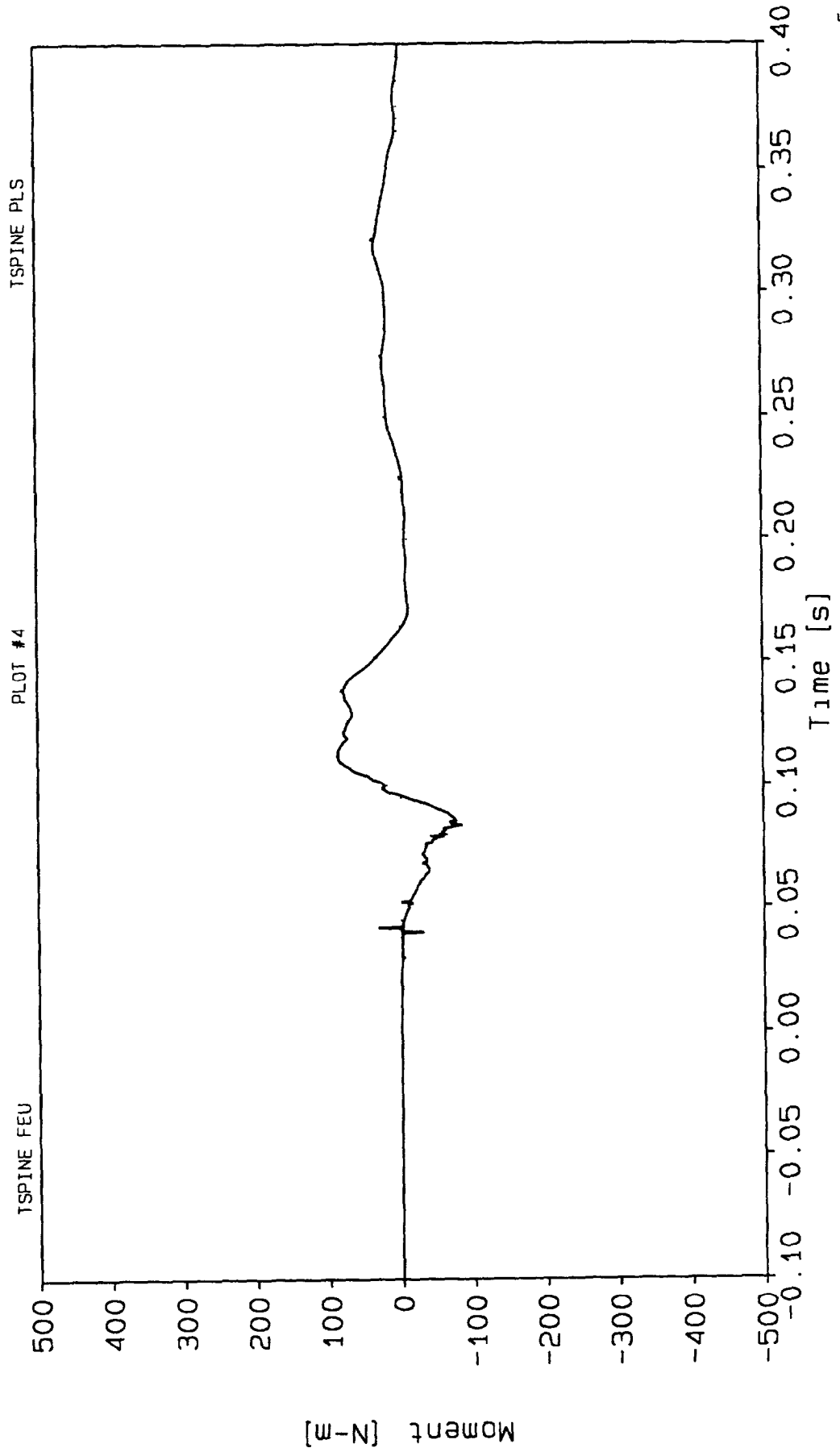
Filter Class 500
Volpe Crash Testing
PH05608

Exponent
Failure
Analysis
Associates

T12 Thoracic Moment (Mx) v Time

Passenger Dummy - THOR
2001 Dodge Neon

Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



Exponent
Failure
Analysis
Associates

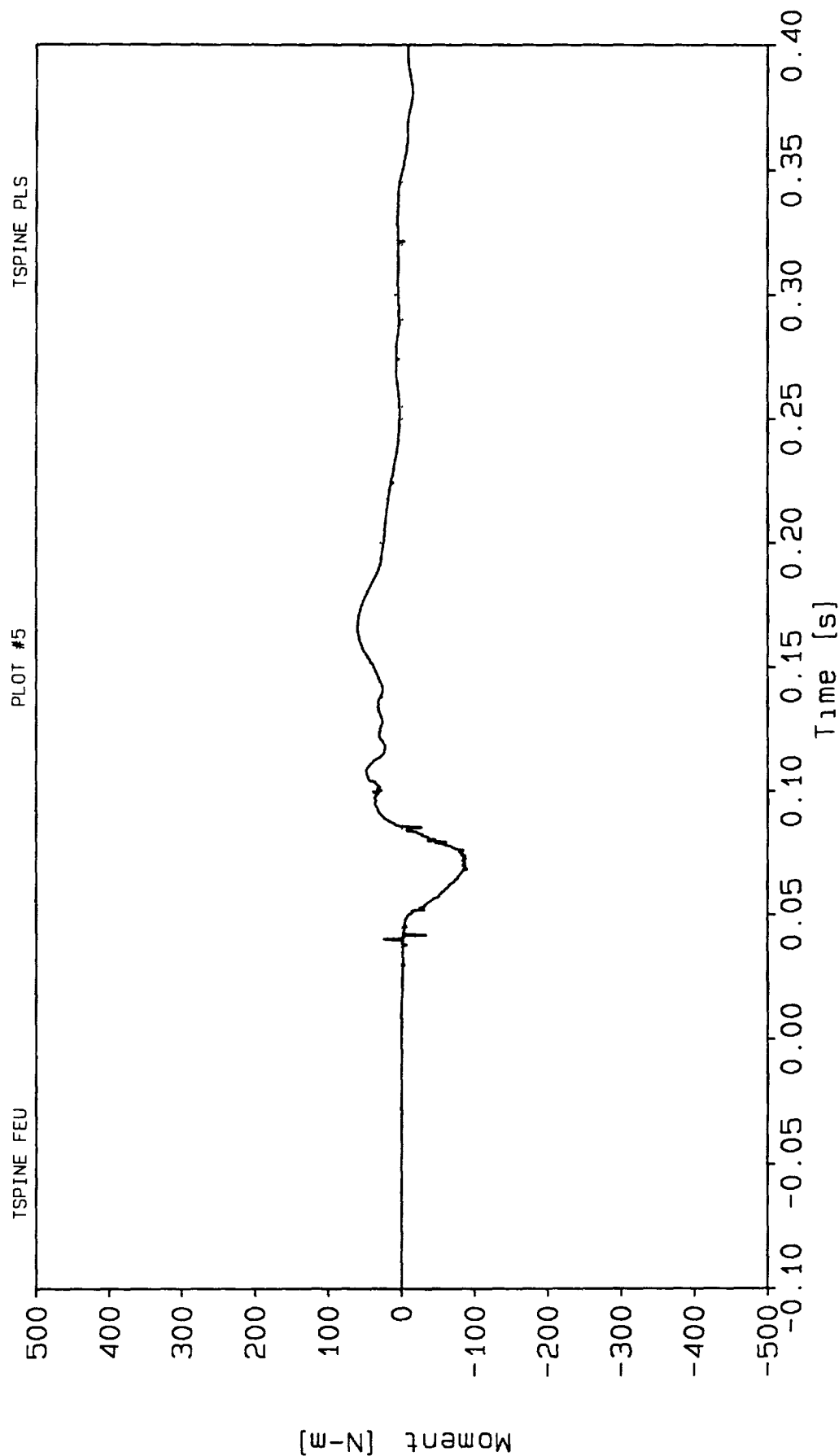
Filter Class 500
Volpe Crash Testing
PH06608

T12 Thoracic Moment (My) v Time

Passenger Dummy - THOR

2001 Dodge Neon

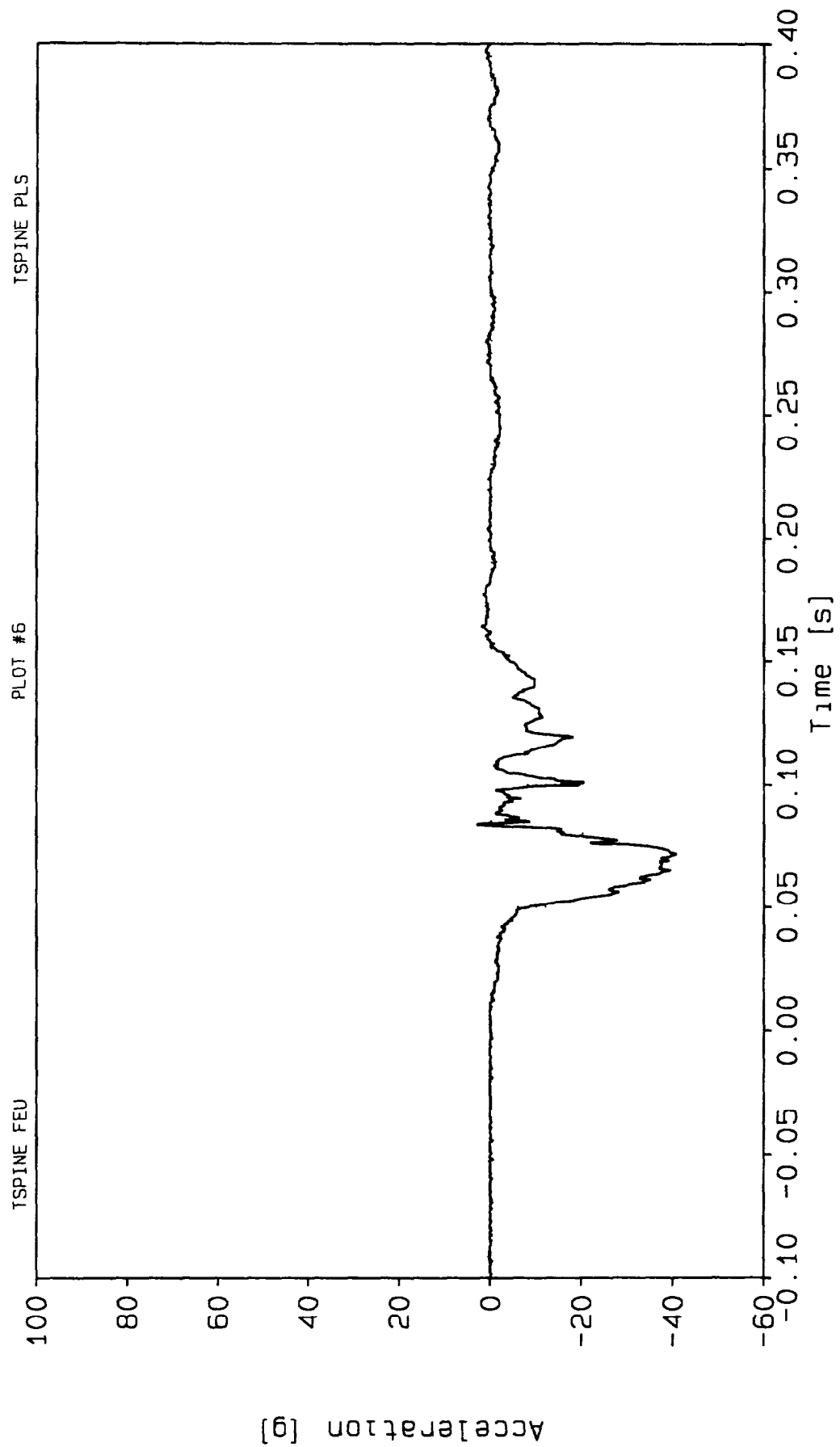
Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



Filter Class 600
Volpe Crash Testing
PH06608

Exponent
Failure
Analysis
Associates

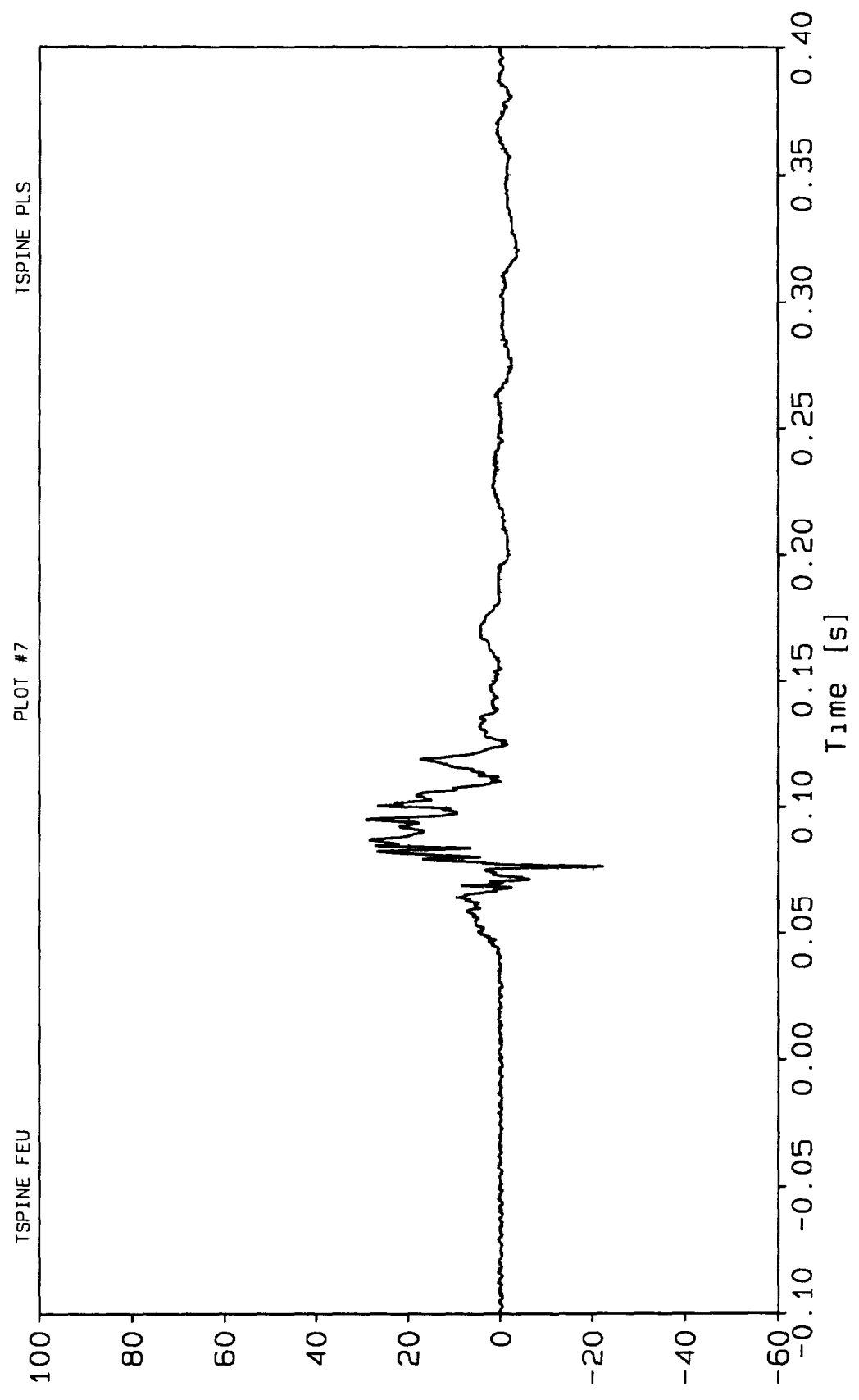
T12 Thoracic Acceleration (Ax) v Time
Passenger Dummy - THOR
2001 Dodge Neon
Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



Exponent
Failure
Analysis
Associates

Filter Class 500
Volpe Crash Testing
PH05608

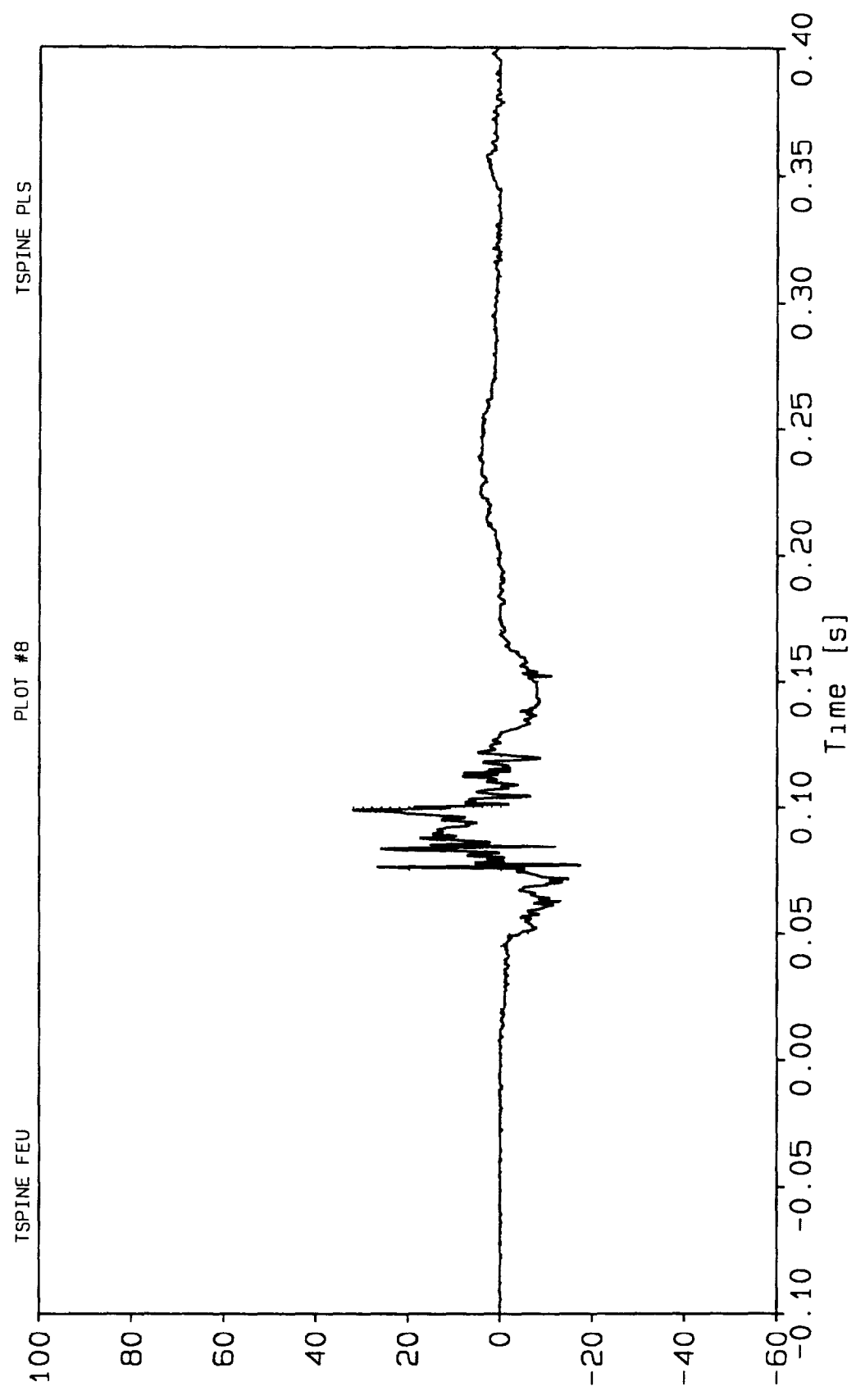
T12 Thoracic Acceleration (Ay) v Time
Passenger Dummy - THOR
2001 Dodge Neon
Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



Exponent
Failure
Analysis
Associates

Filter Class 600
VoIde Crash Testing
PH05608

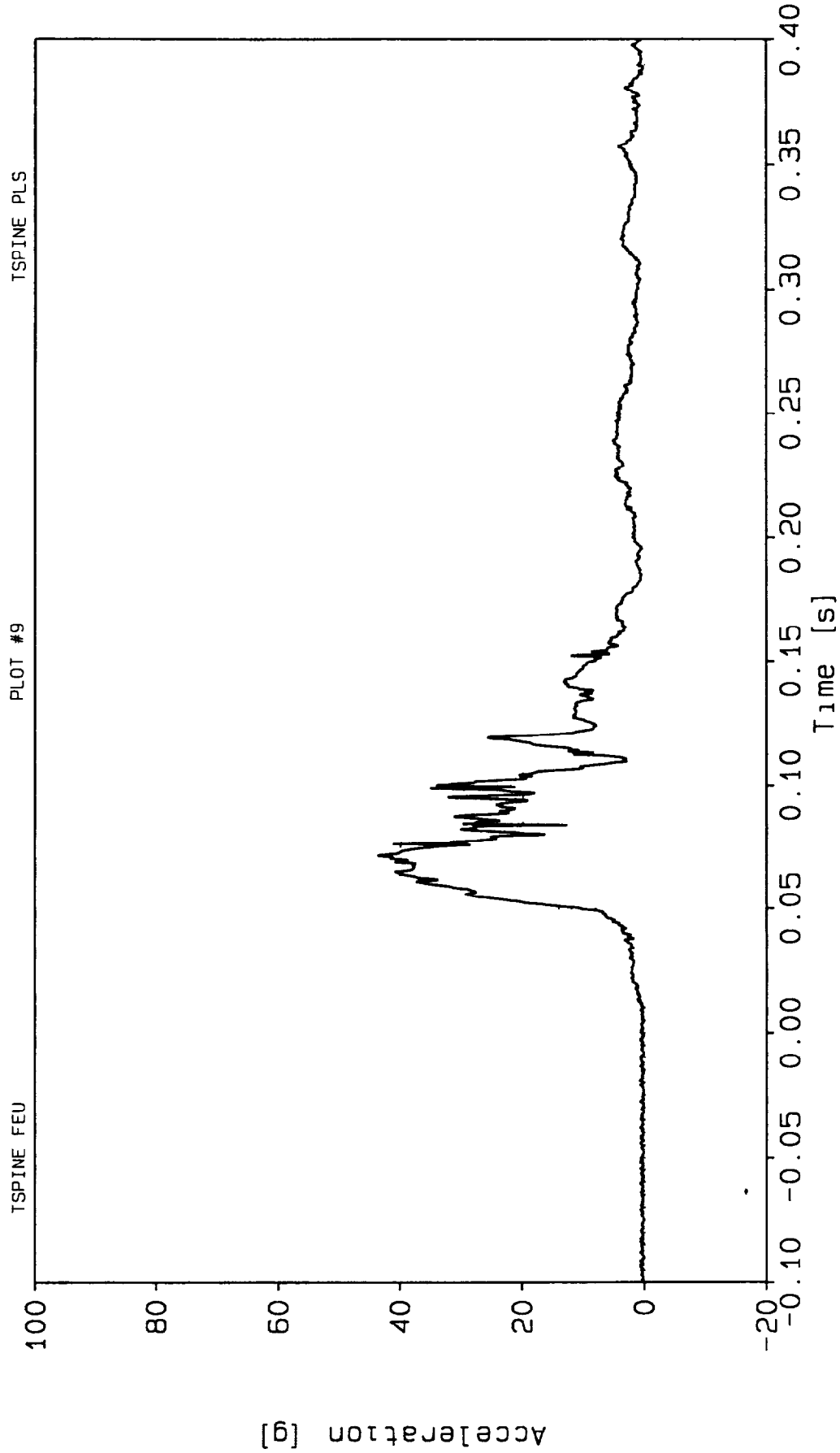
T12 Thoracic Acceleration (Az) v Time
Passenger Dummy - THOR
2001 Dodge Neon
Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



Exponent
Failure
Analysis
Associates

Filter Class 600
Voipe Crash Testing
PH06608

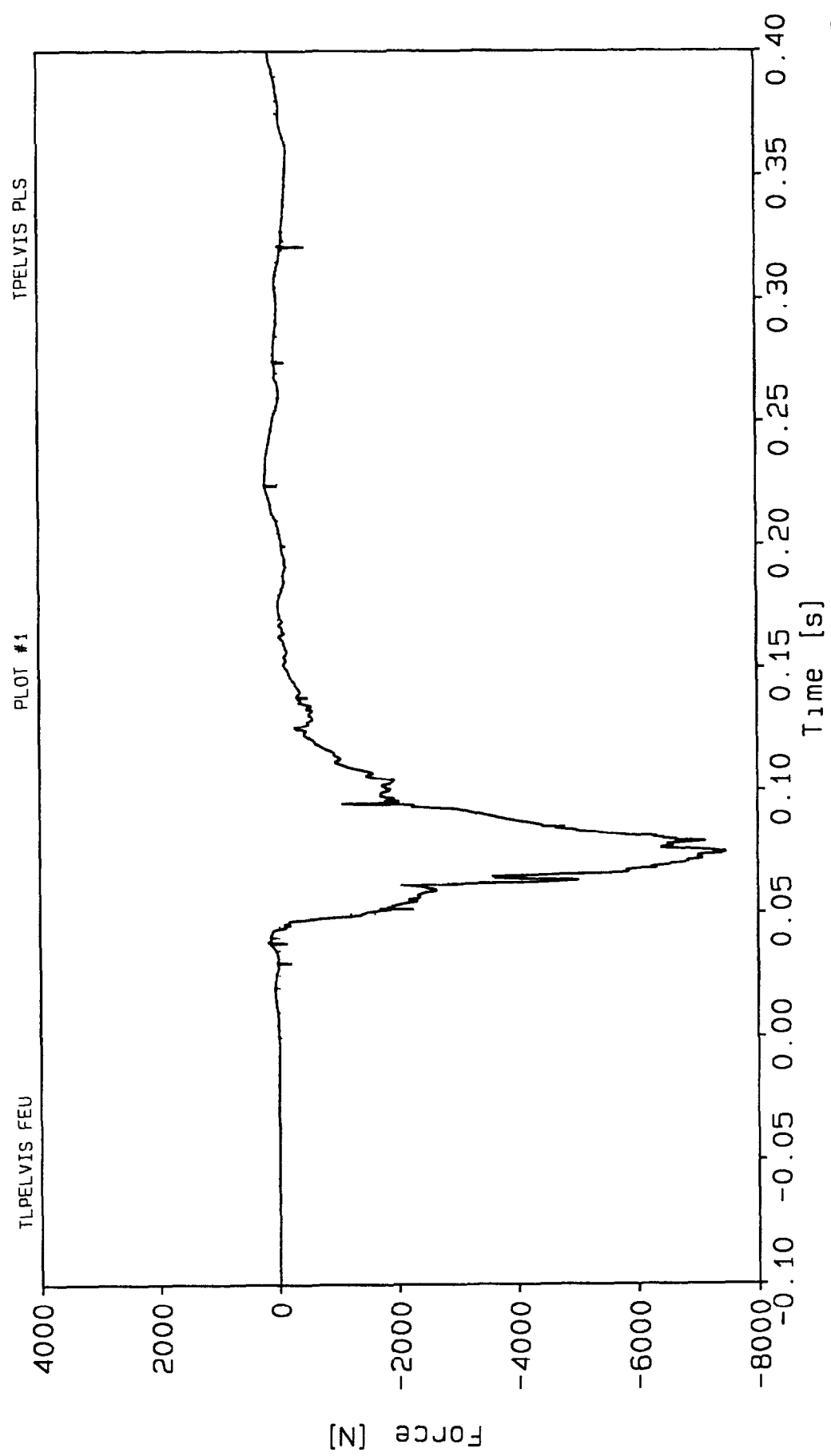
T12 Thoracic Resultant Acceleration (Ar) v Time
Passenger Dummy - THOR
2001 Dodge Neon
Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



Exponent
Failure
Analysis
Associates

Filter Class 500
Volpe Crash Testing
PH06608

Pelvis Left Acetabular Force (Fx) v Time
Passenger Dummy - THOR
2001 Dodge Neon
Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



Filter Class 1000
Volpe Crash Testing
PH06608

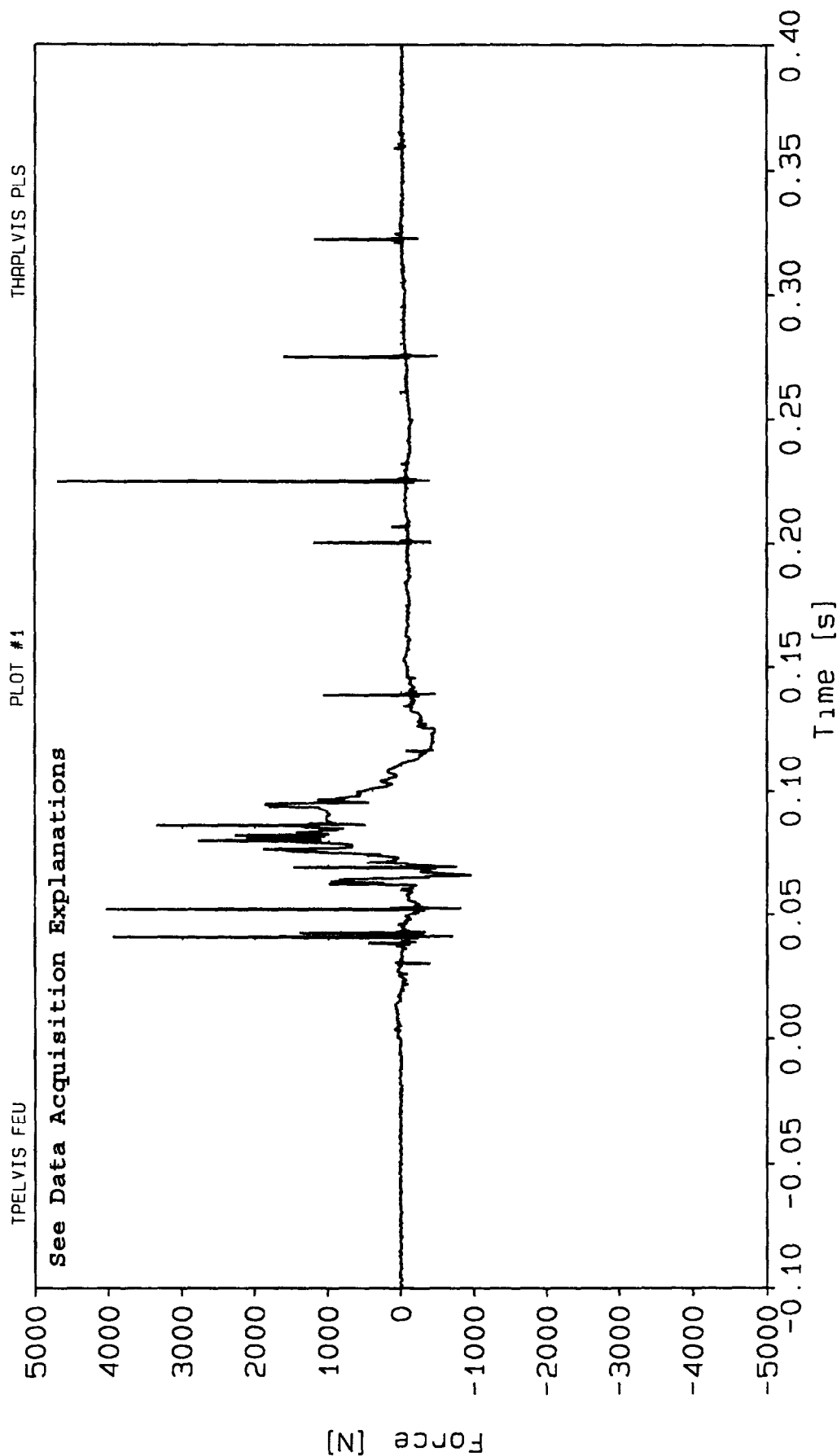
Exponent
Failure
Analysis
Associates

Pelvis Left Acetabular Force (Fy) v Time

Passenger Dummy - THOR

2001 Dodge Neon

Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



Exponent
Failure
Analysis
Associates

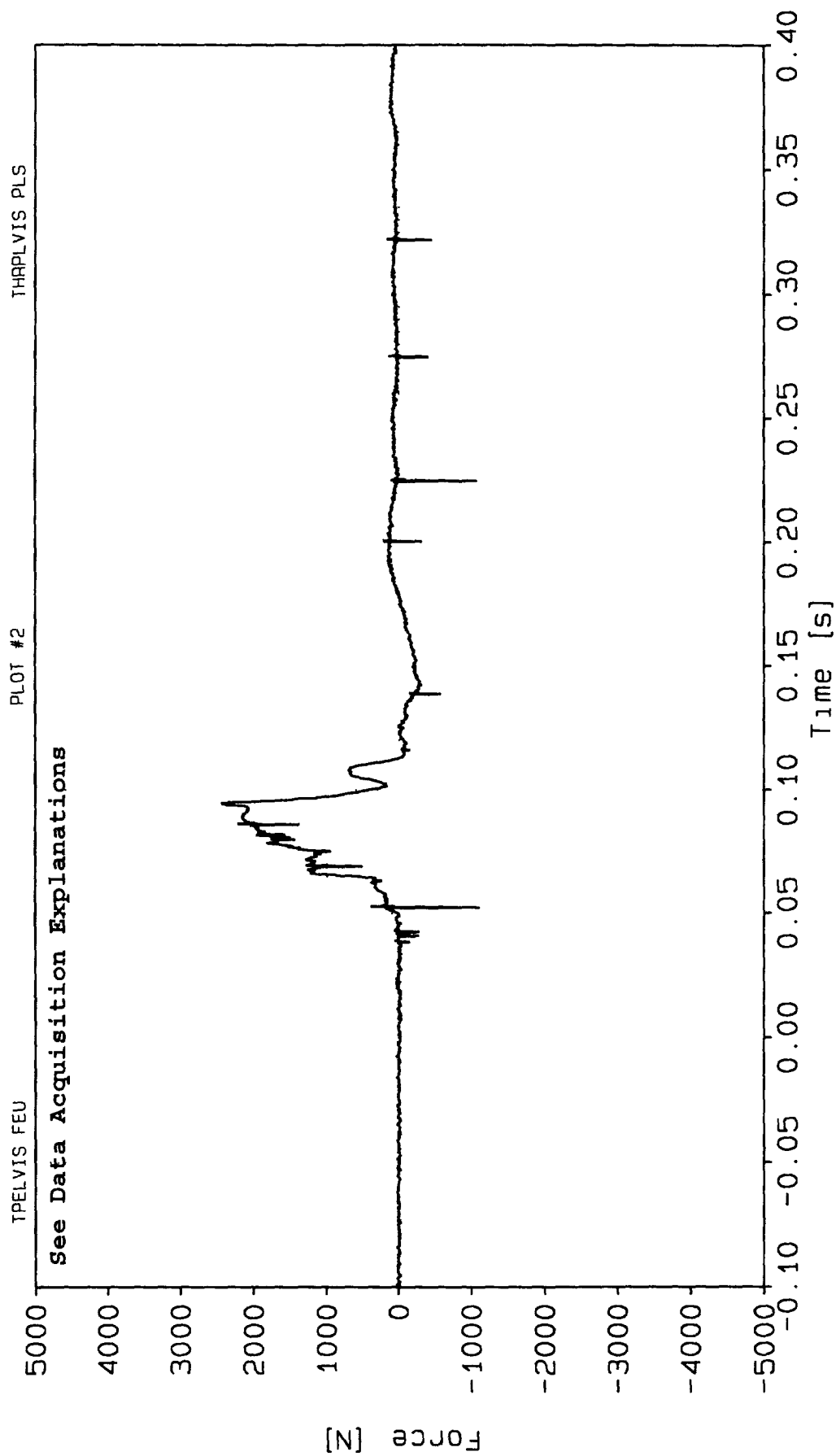
Filter Class 1000
Volpe Crash Testing
PH06608

Pelvis Left Acetabular Force (Fz) v Time

Passenger Dummy - THOR

2001 Dodge Neon

Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



Exponent
Failure
Analysis
Associates

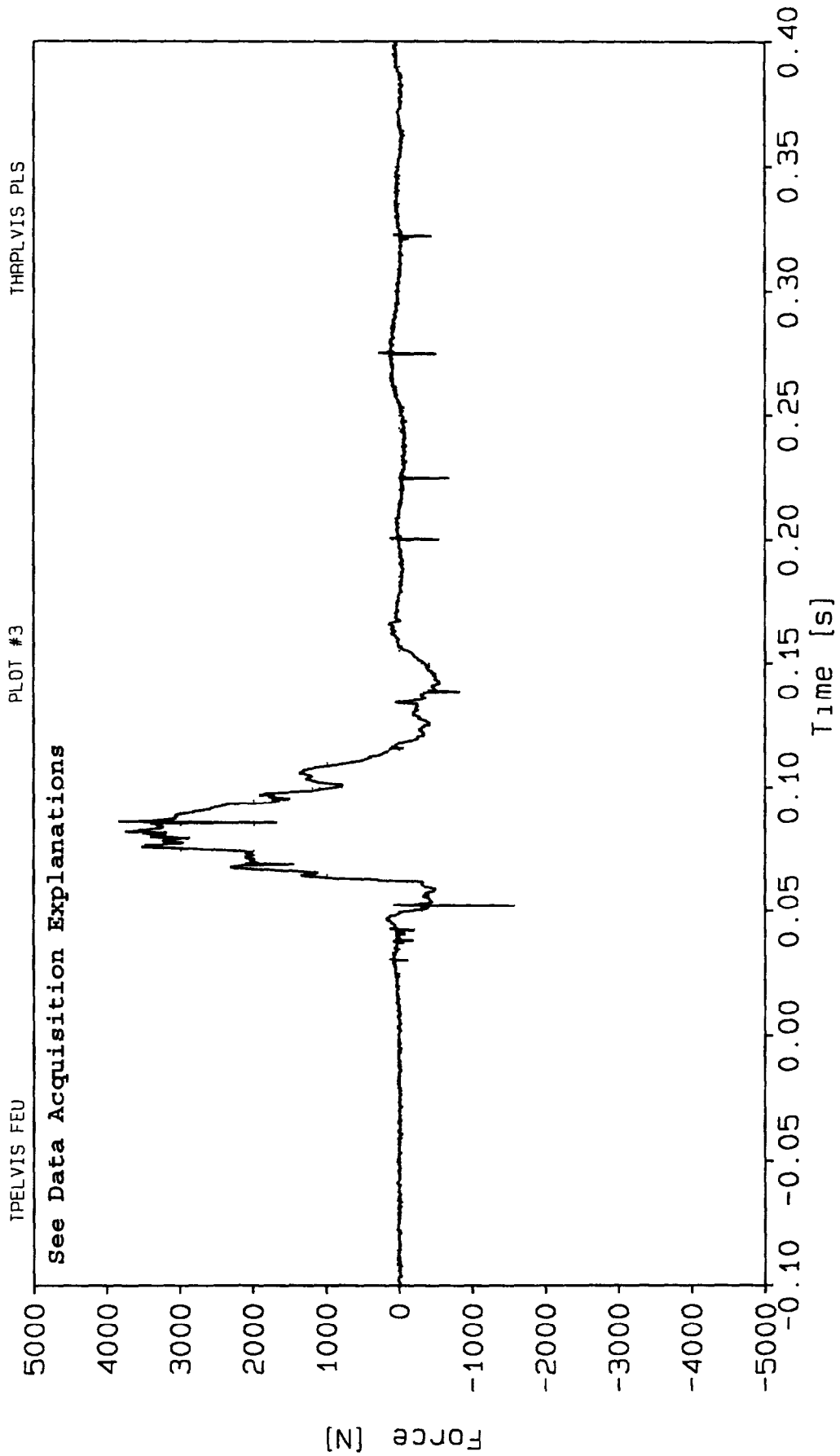
Filter Class 1000
Volpe Crash Testing
PH05608

Pelvis Right Acetabular Force (Fx) v Time

Passenger Dummy - THOR

2001 Dodge Neon

Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



Filter Class 1000
Volpe Crash Testing
PH05608

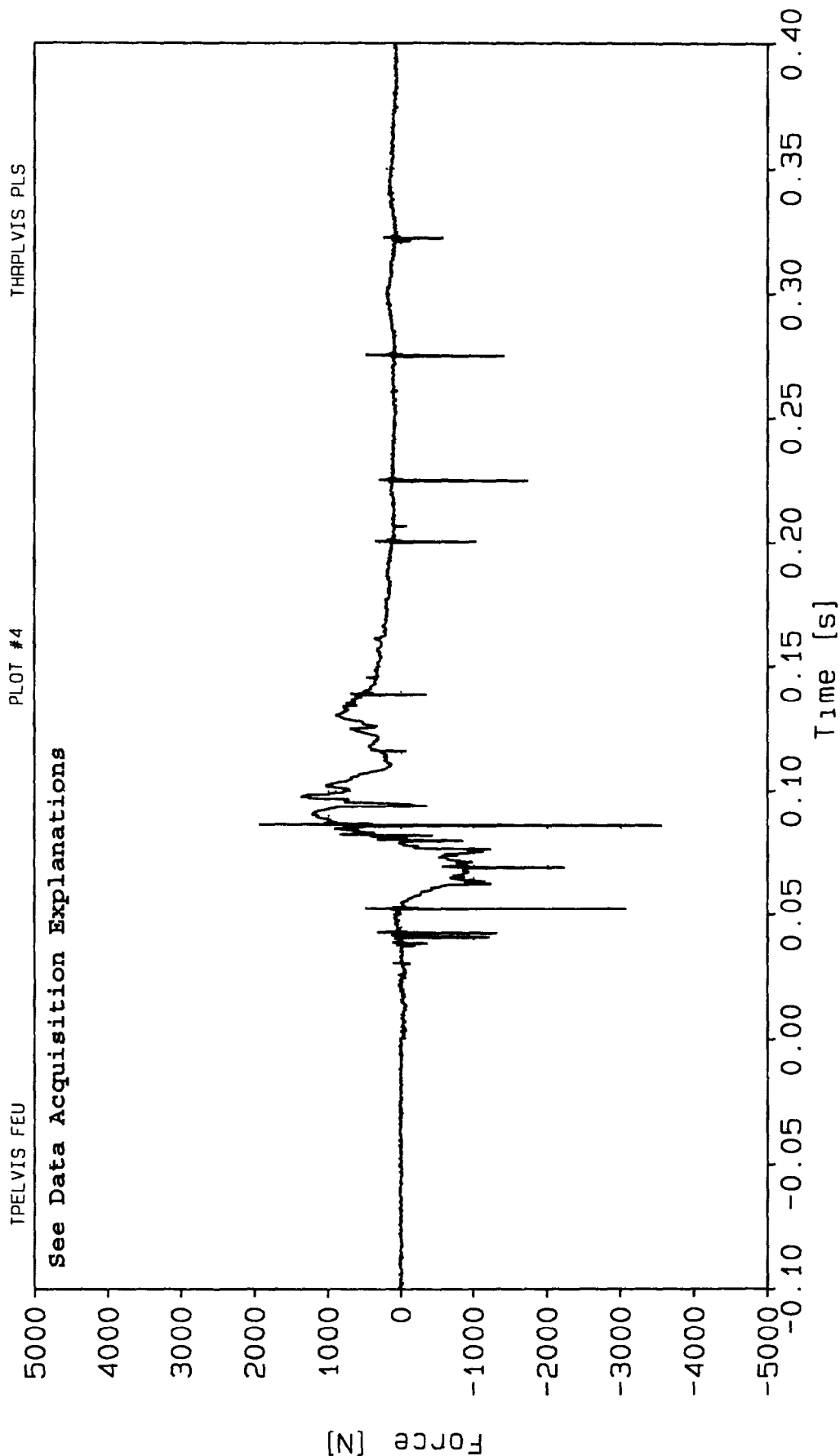
Exponent
Failure
Analysis
Associates

Pelvis Right Acetabular Force (Fy) v Time

Passenger Dummy - THOR

2001 Dodge Neon

Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



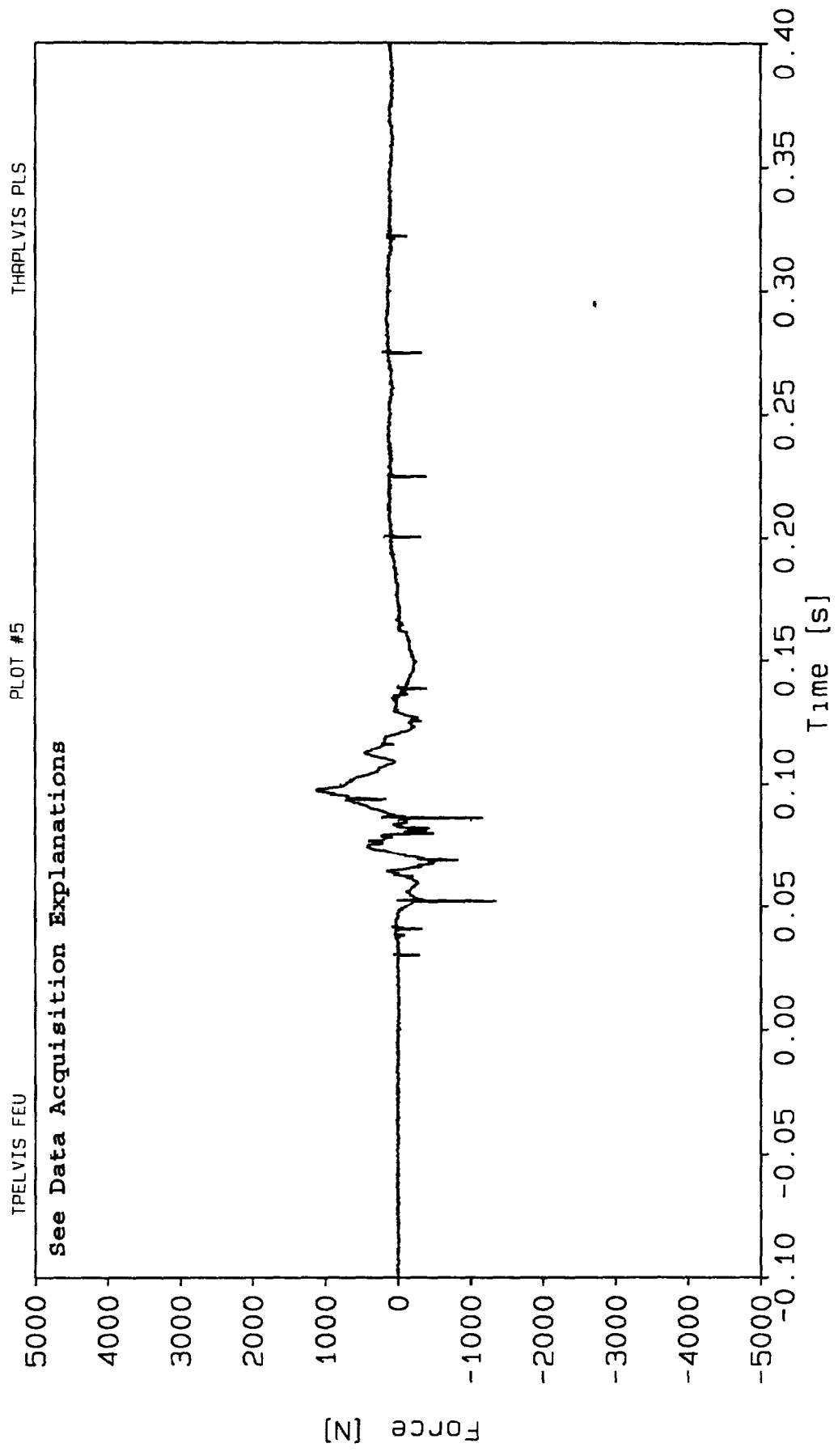
Exponent
Failure
Analysis
Associates

Filter Class 1000
Volpe Crash Testing
PH06508

Pelvis Right Acetabular Force (Fz) v Time

Passenger Dummy - THOR
2001 Dodge Neon

Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



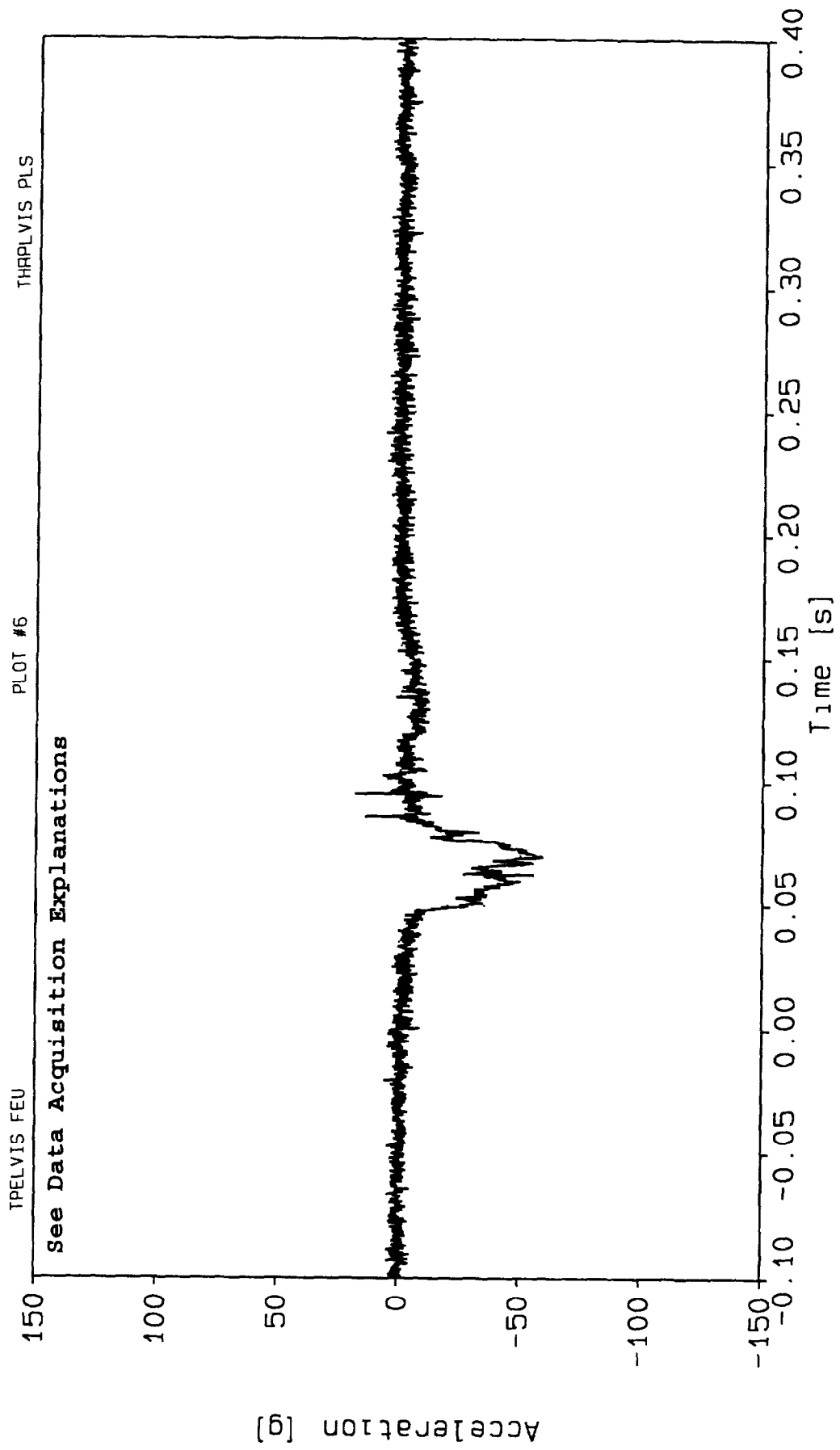
Exponent
Failure
Analysis
Associates

Filter Class 1000
Voipe Crash Testing
PH06608

Pelvis Acceleration (Ax) v Time

Passenger Dummy - THOR
2001 Dodge Neon

Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



See Data Acquisition Explanations

Exponent
Failure
Analysis
Associates

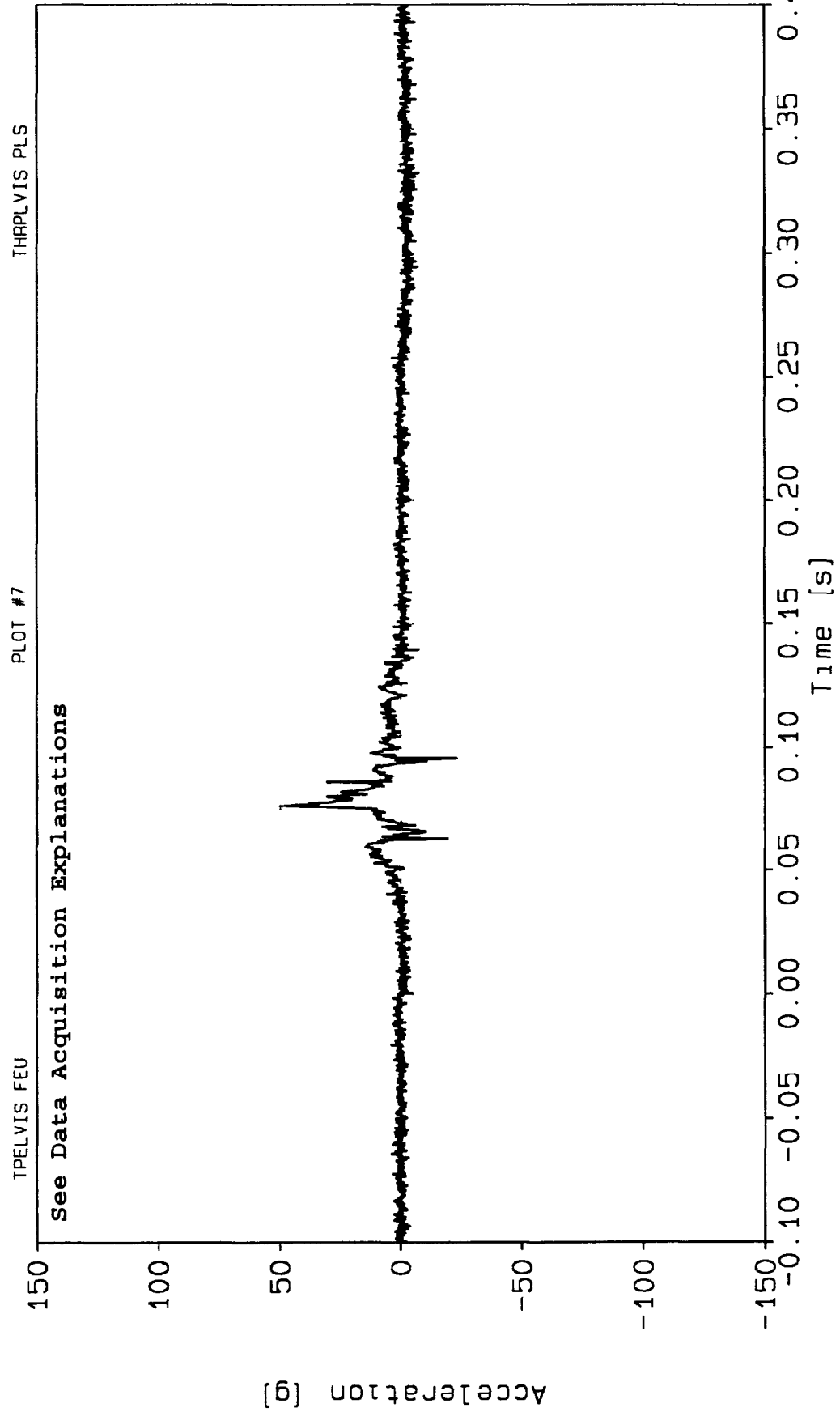
Filter Class 1000
Volpe Crash Testing
PH05608

Pelvis Acceleration (Ay) v Time

Passenger Dummy - THOR

2001 Dodge Neon

Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



Exponent
Failure
Analysis
Associates

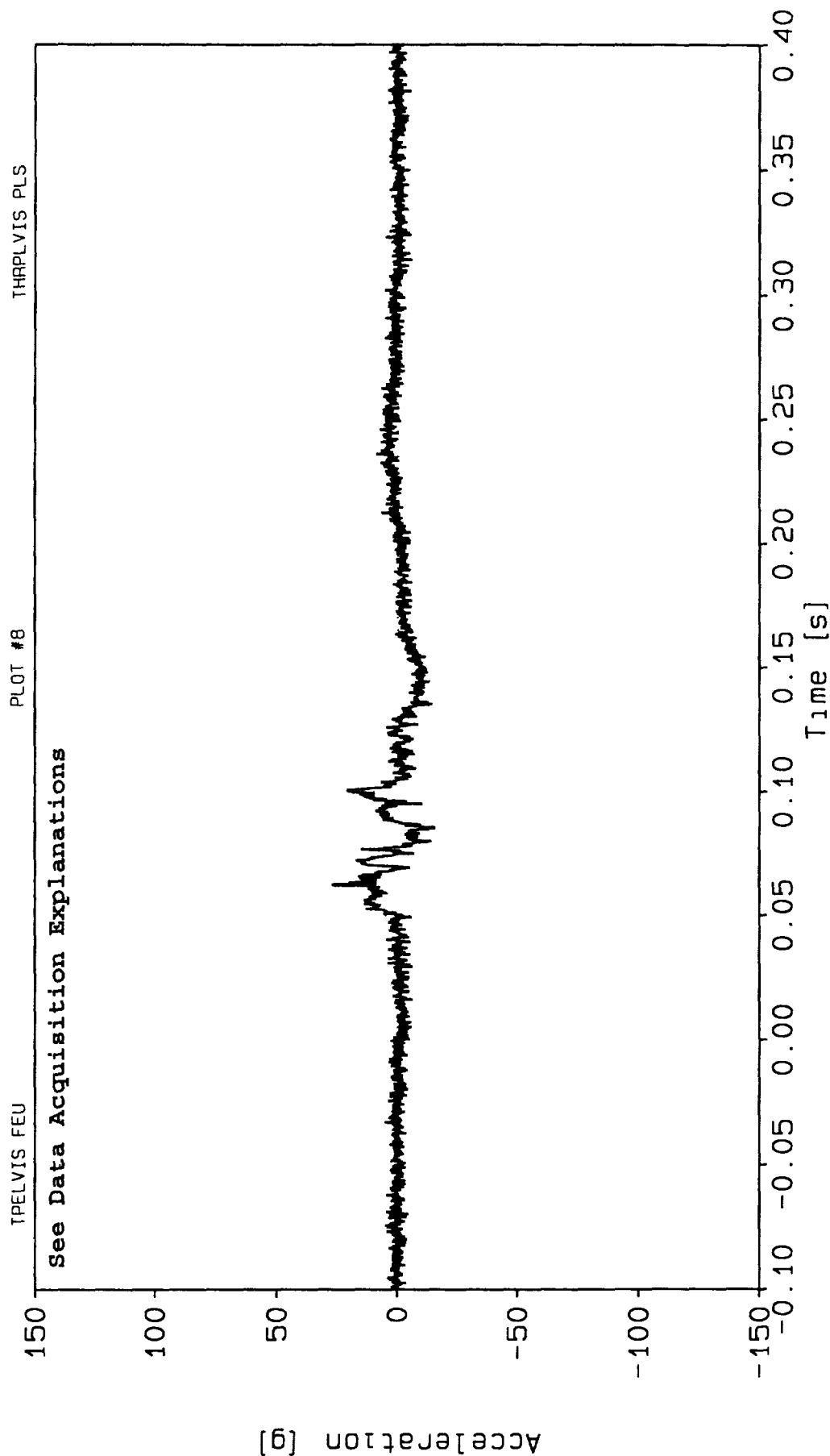
Filter Class 1000
Volpe Crash Testing
PH06508

Pelvis Acceleration (Az) v Time

Passenger Dummy - THOR

2001 Dodge Neon

Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



Exponent
Failure
Analysis
Associates

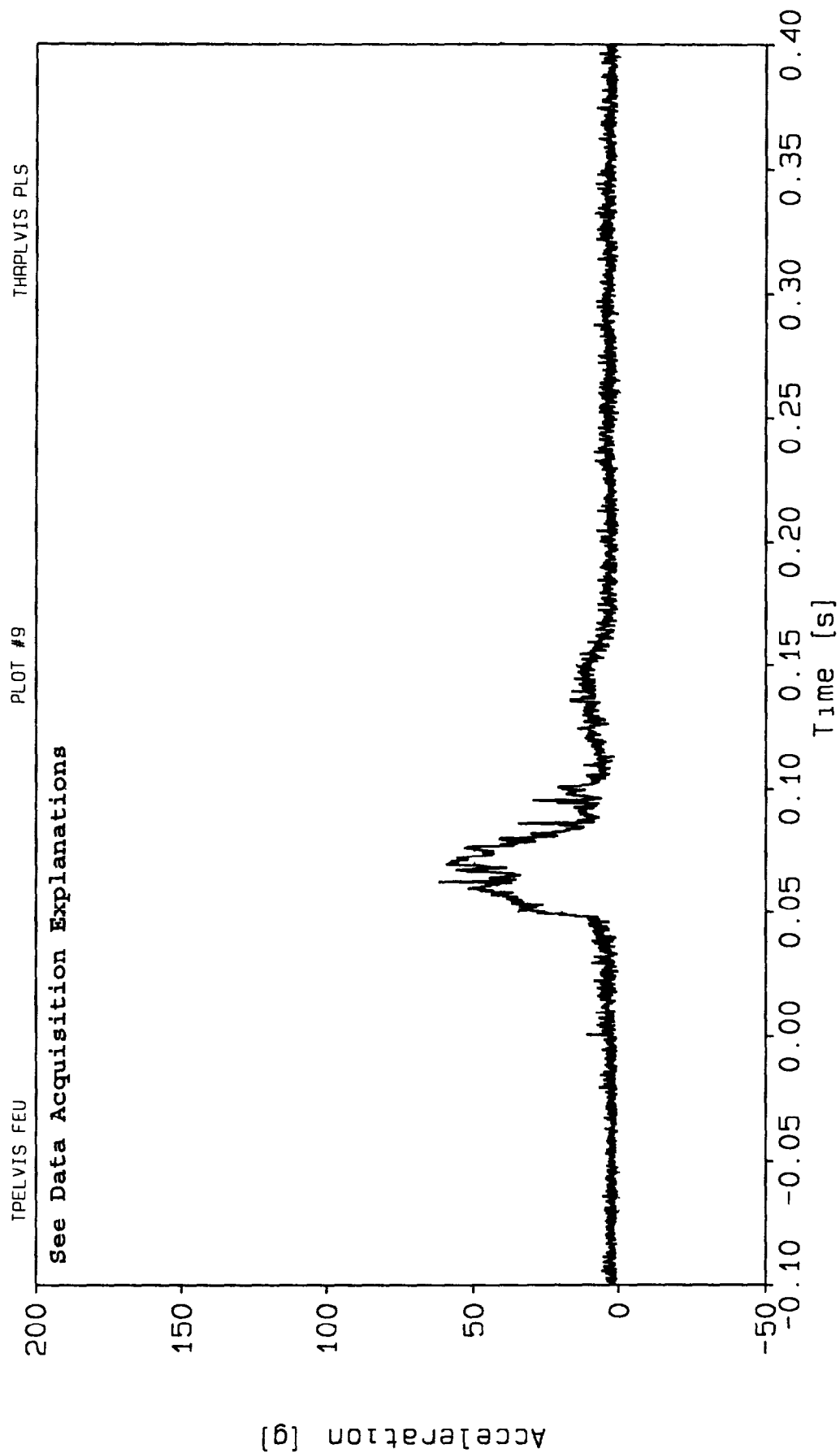
Filter Class 1000
Volpe Crash Testing
PH06608

Pelvis Resultant Acceleration (Ar) v Time

Passenger Dummy - THOR

2001 Dodge Neon

Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



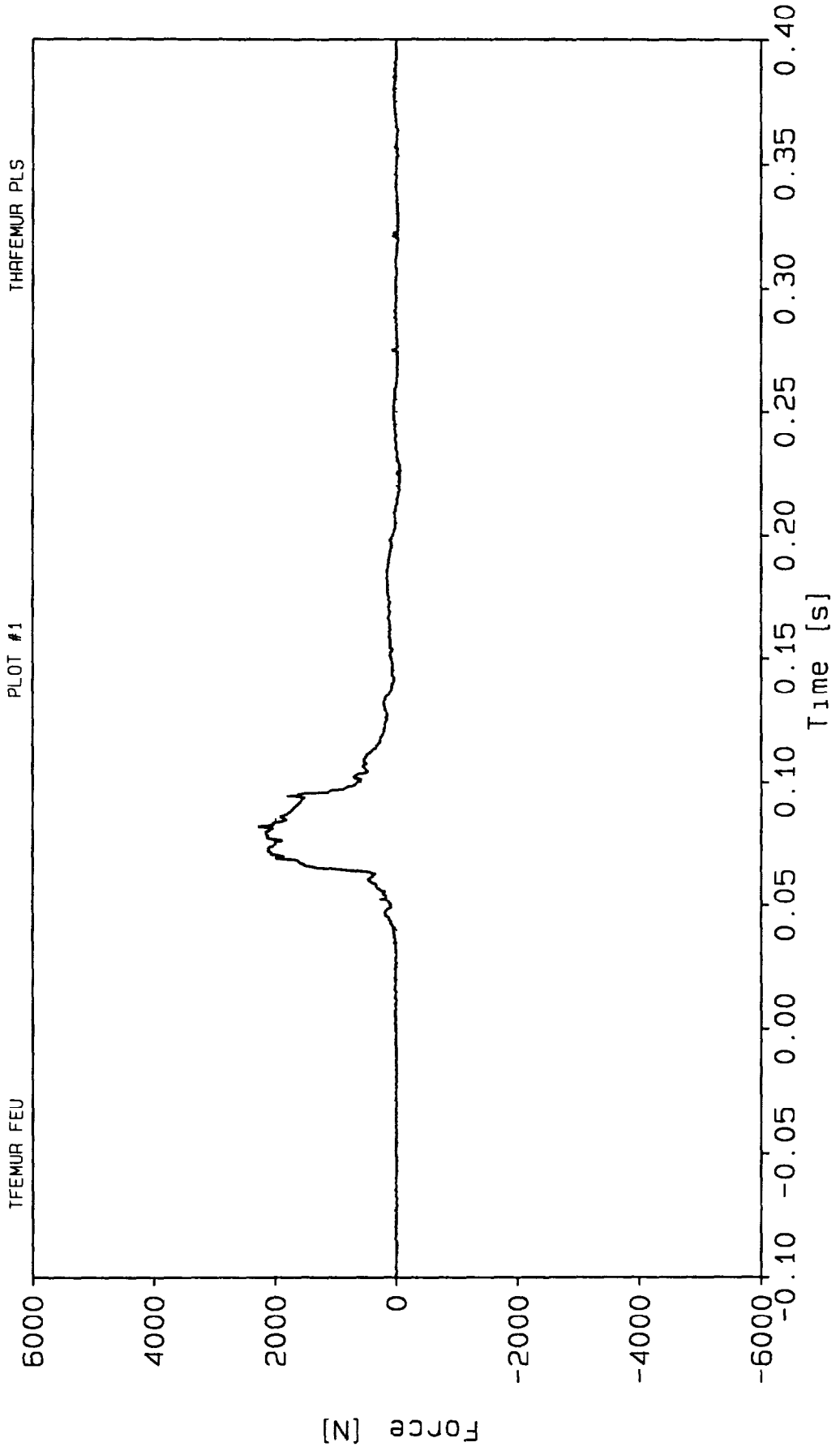
Filter Class 1000
Volpe Crash Testing
PH06608

Exponent
Failure
Analysis
Associates

Left Femur Force (Fx) v Time

Passenger Dummy - THOR
2001 Dodge Neon

Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



Exponent
Failure
Analysis
Associates

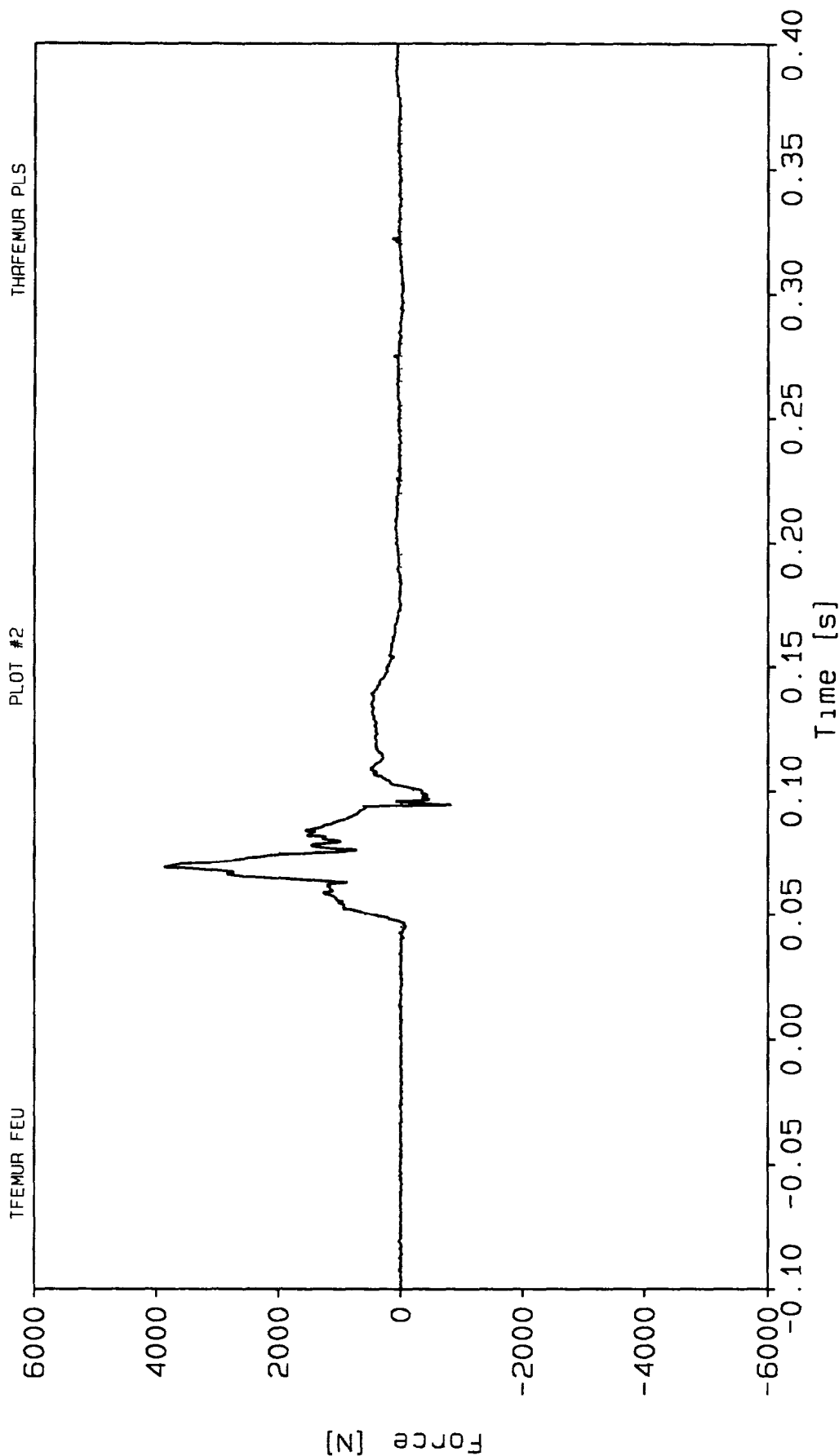
Filter Class 500
Volpe Crash Testing
PH05608

Left Femur Force (Fy) v Time

Passenger Dummy - THOR

2001 Dodge Neon

Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



Exponent
Failure
Analysis
Associates

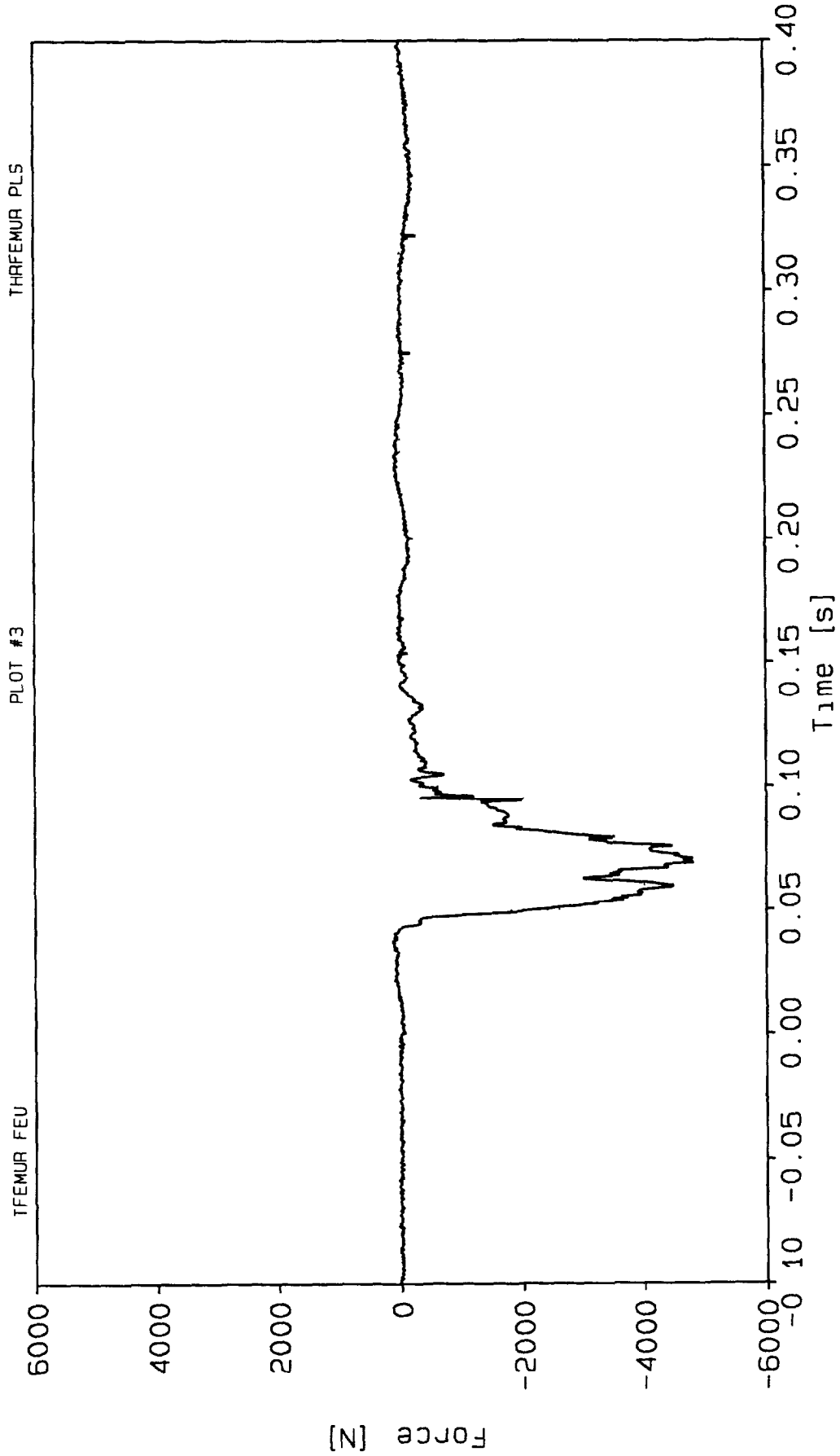
Filter Class 500
Volpe Crash Testing
PH06608

Left Femur Force (Fz) v Time

Passenger Dummy - THOR

2001 Dodge Neon

Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



Exponent
Failure
Analysis
Associates

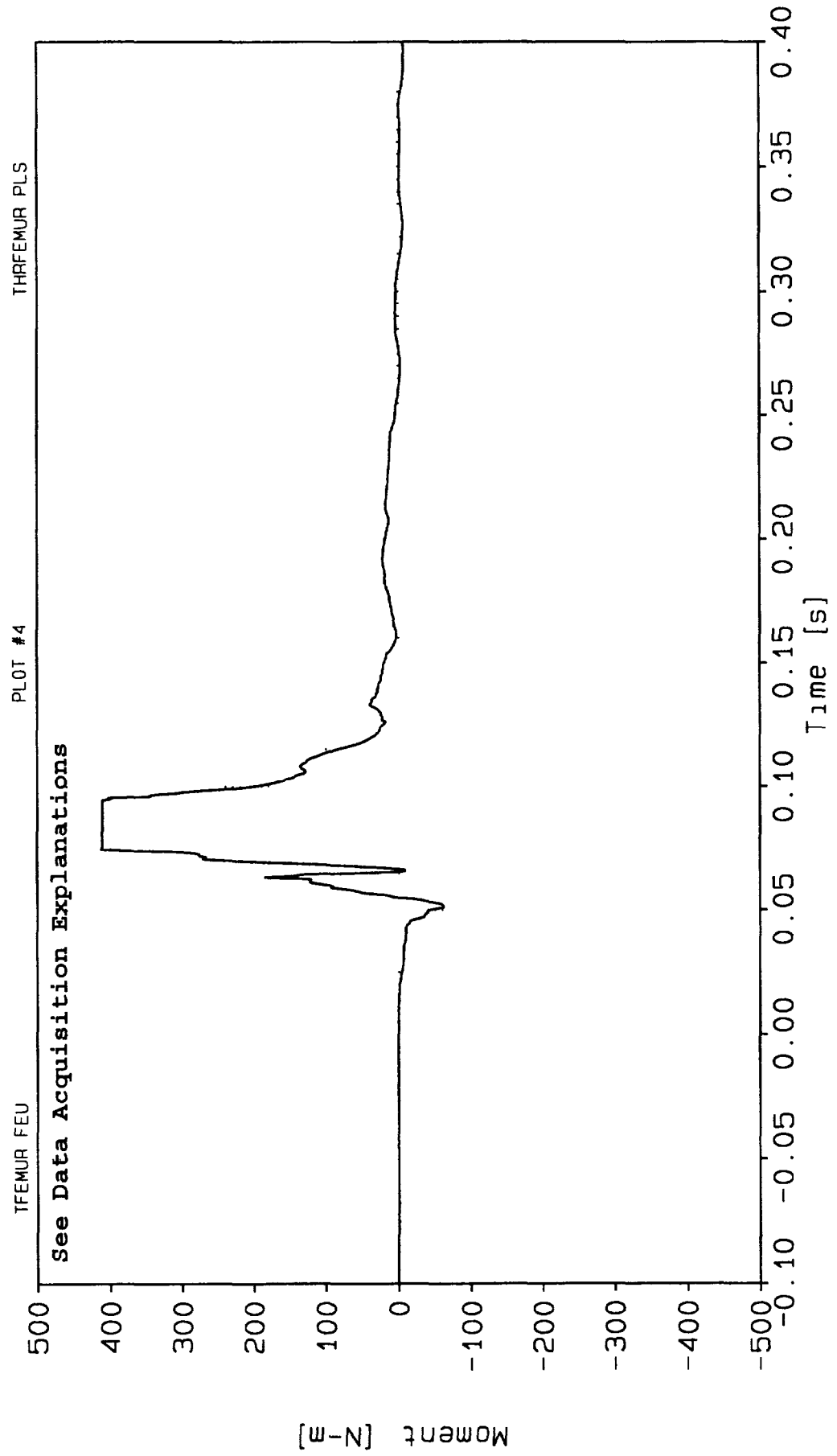
Filter Class 600
Volpe Crash Testing
PH06608

Left Femur Moment (Mx) v Time

Passenger Dummy - THOR

2001 Dodge Neon

Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



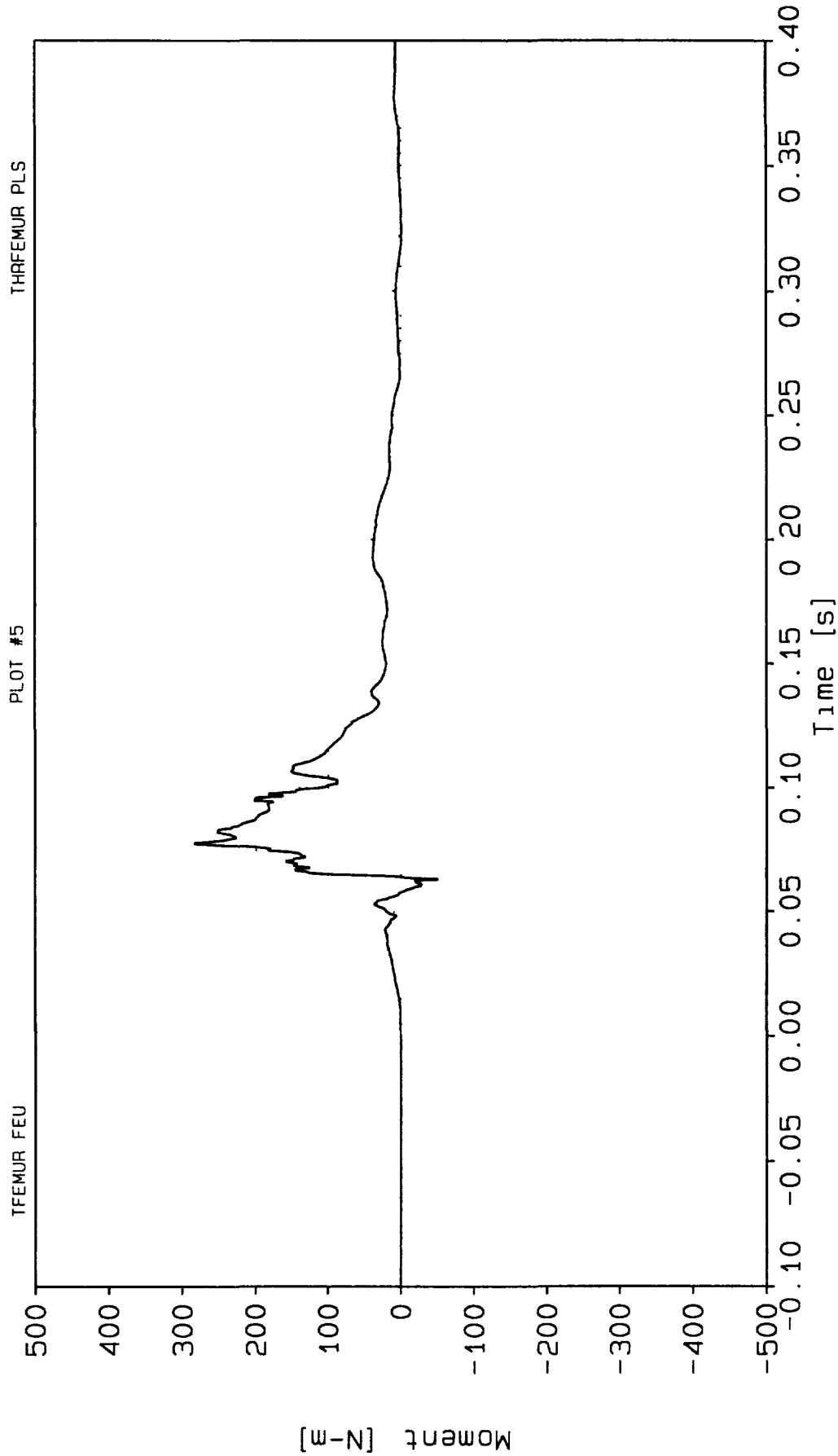
Exponent
Failure
Analysis
Associates

Filter Class 600
Volpe Crash Testing
PH06608

Left Femur Moment (My) v Time

Passenger Dummy - THOR
2001 Dodge Neon

Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



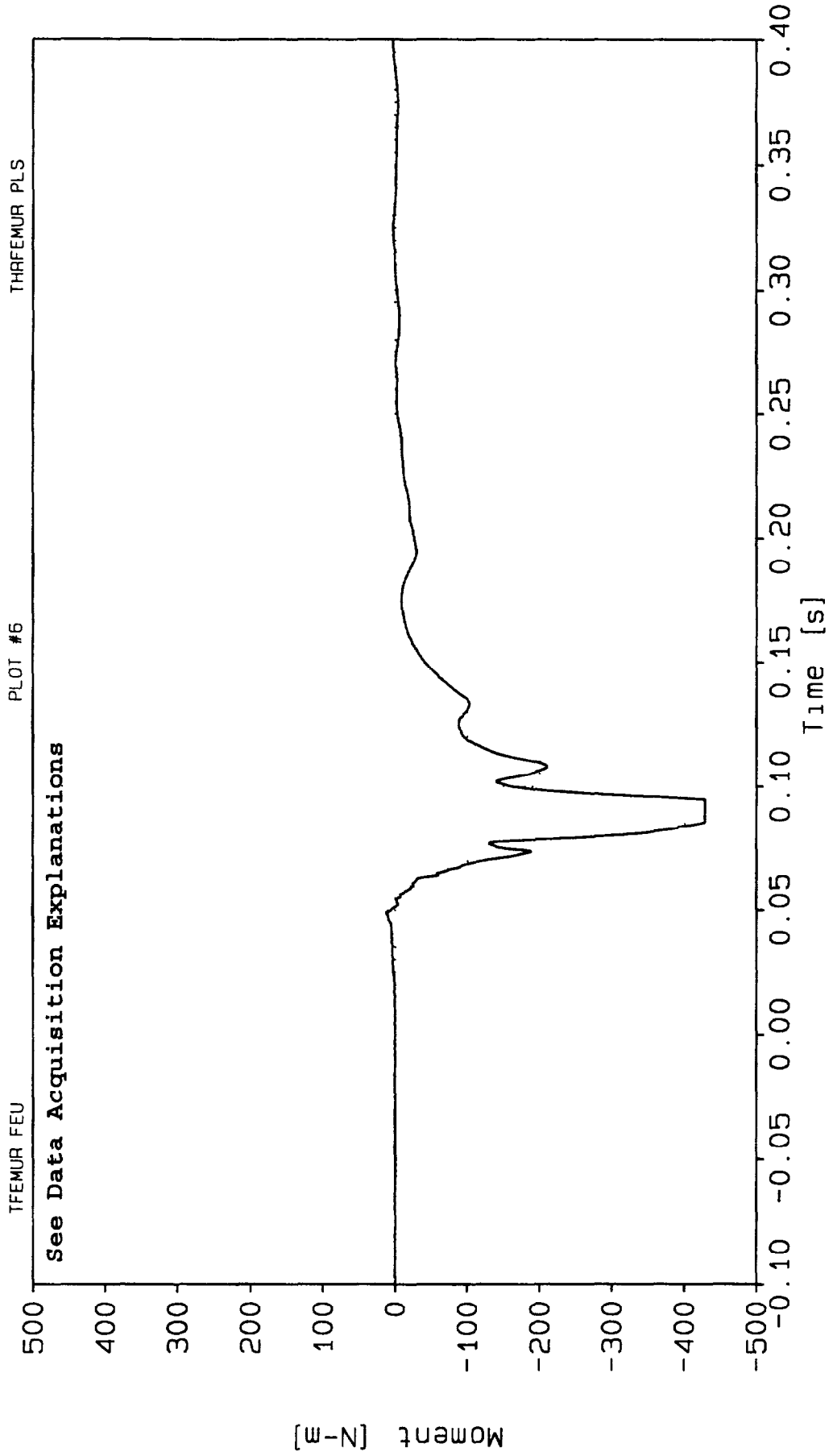
Filter Class 500
Volpe Crash Testing
PH06608

Exponent
Failure
Analysis
Associates

Left Femur Moment (Mz) v Time

Passenger Dummy - THOR
2001 Dodge Neon

Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



Filter Class 600
Volpe Crash Testing
PH05608

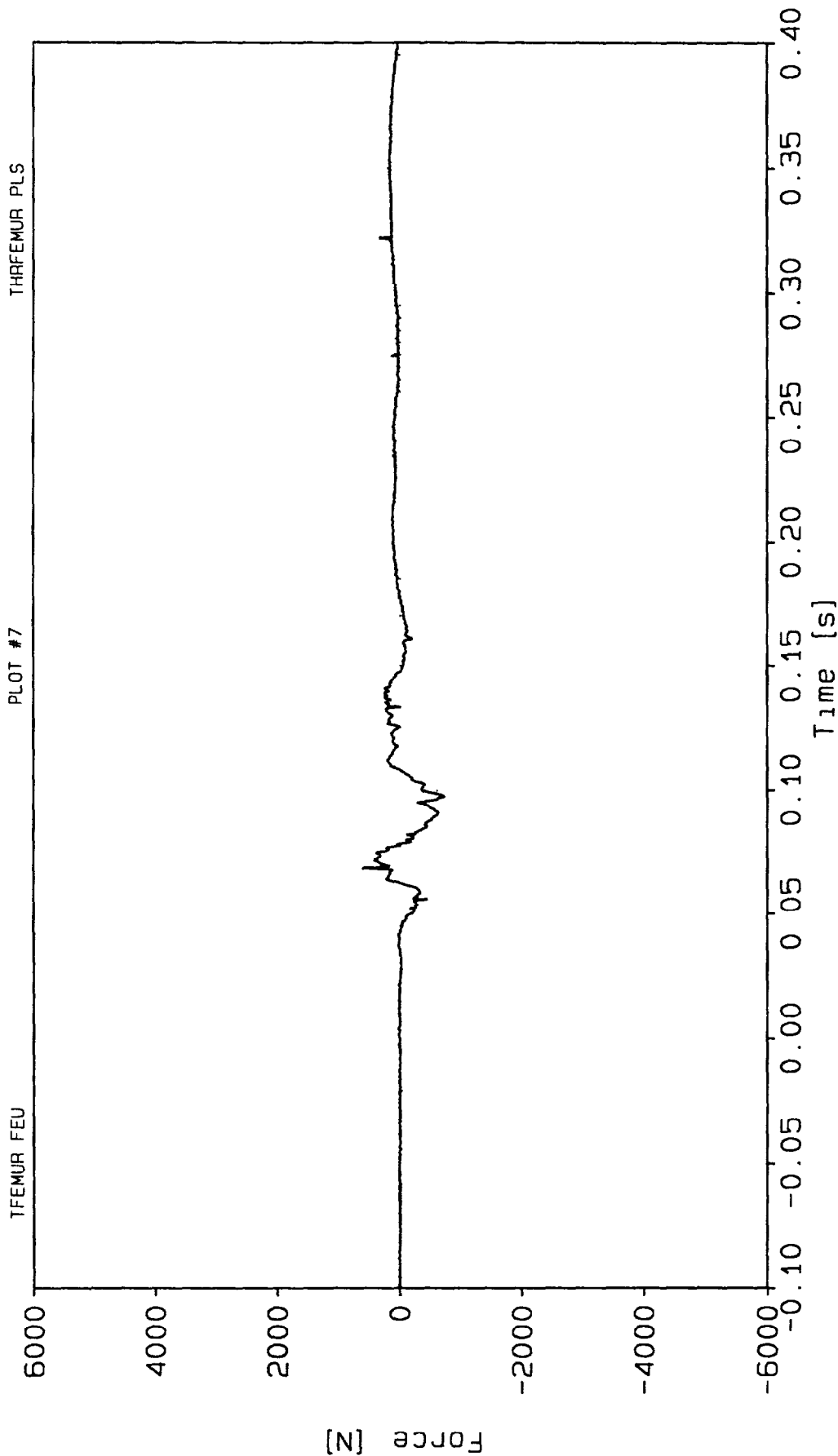
Exponent
Failure
Analysis
Associates

Right Femur Force (Fx) v Time

Passenger Dummy - THOR

2001 Dodge Neon

Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



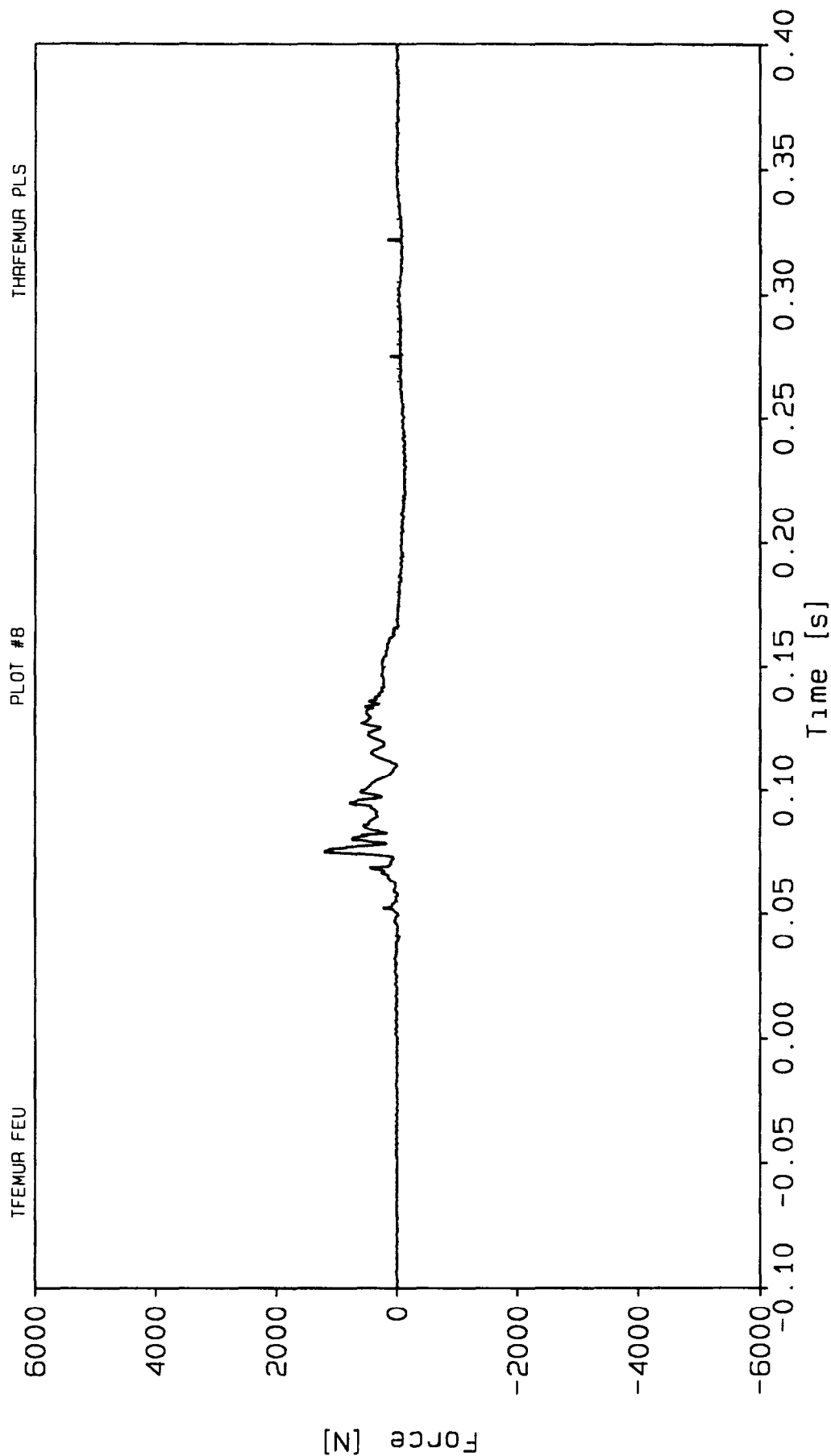
Exponent
Failure
Analysis
Associates

Filter Class 600
Volpe Crash Testing
PH06608

Right Femur Force (Fy) v Time

Passenger Dummy - THOR
2001 Dodge Neon

Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



Exponent
Failure
Analysis
Associates

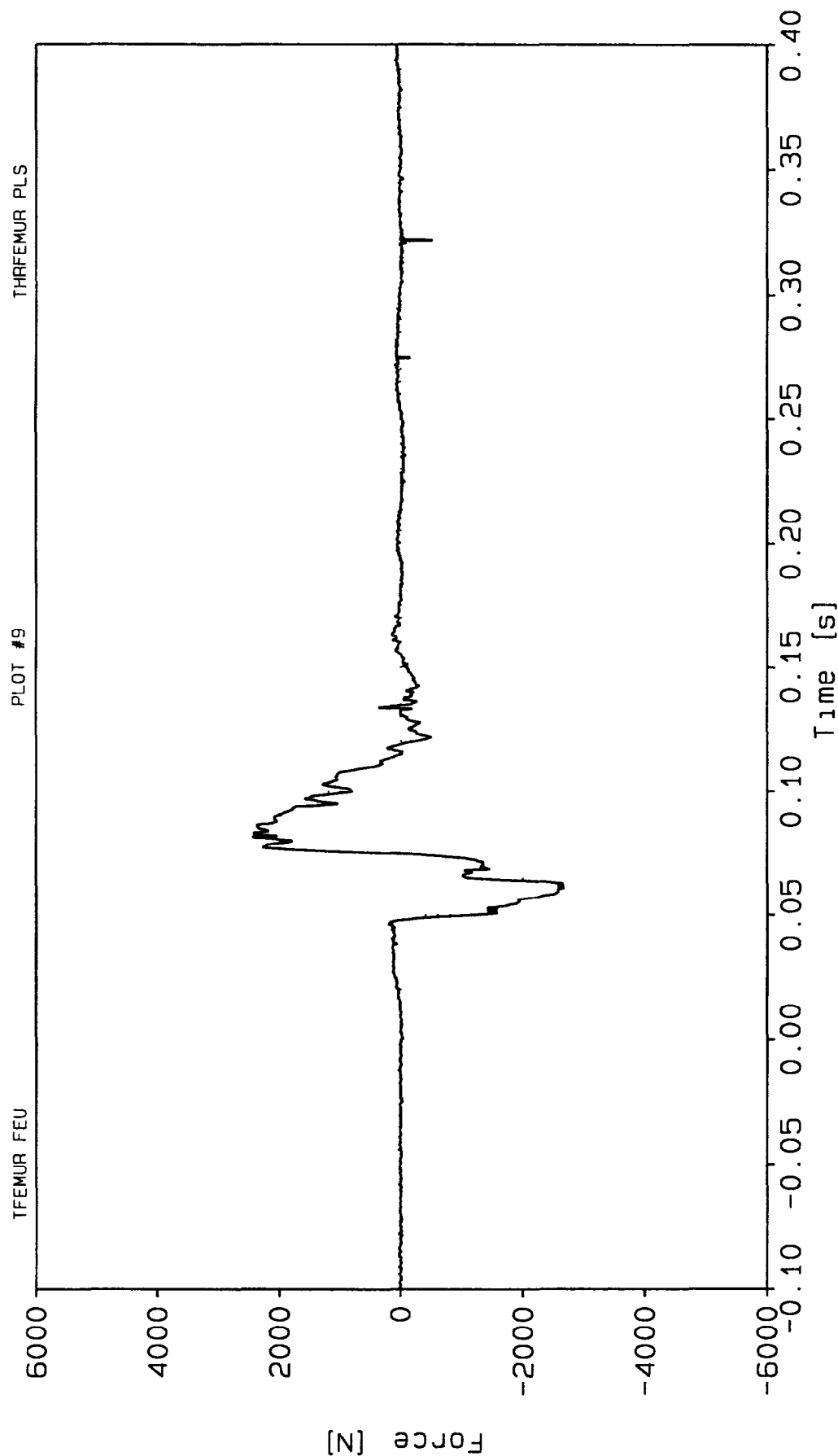
Filter Class 600
Volpe Crash Testing
PH06608

Right Femur Force (Fz) v Time

Passenger Dummy - THOR

2001 Dodge Neon

Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



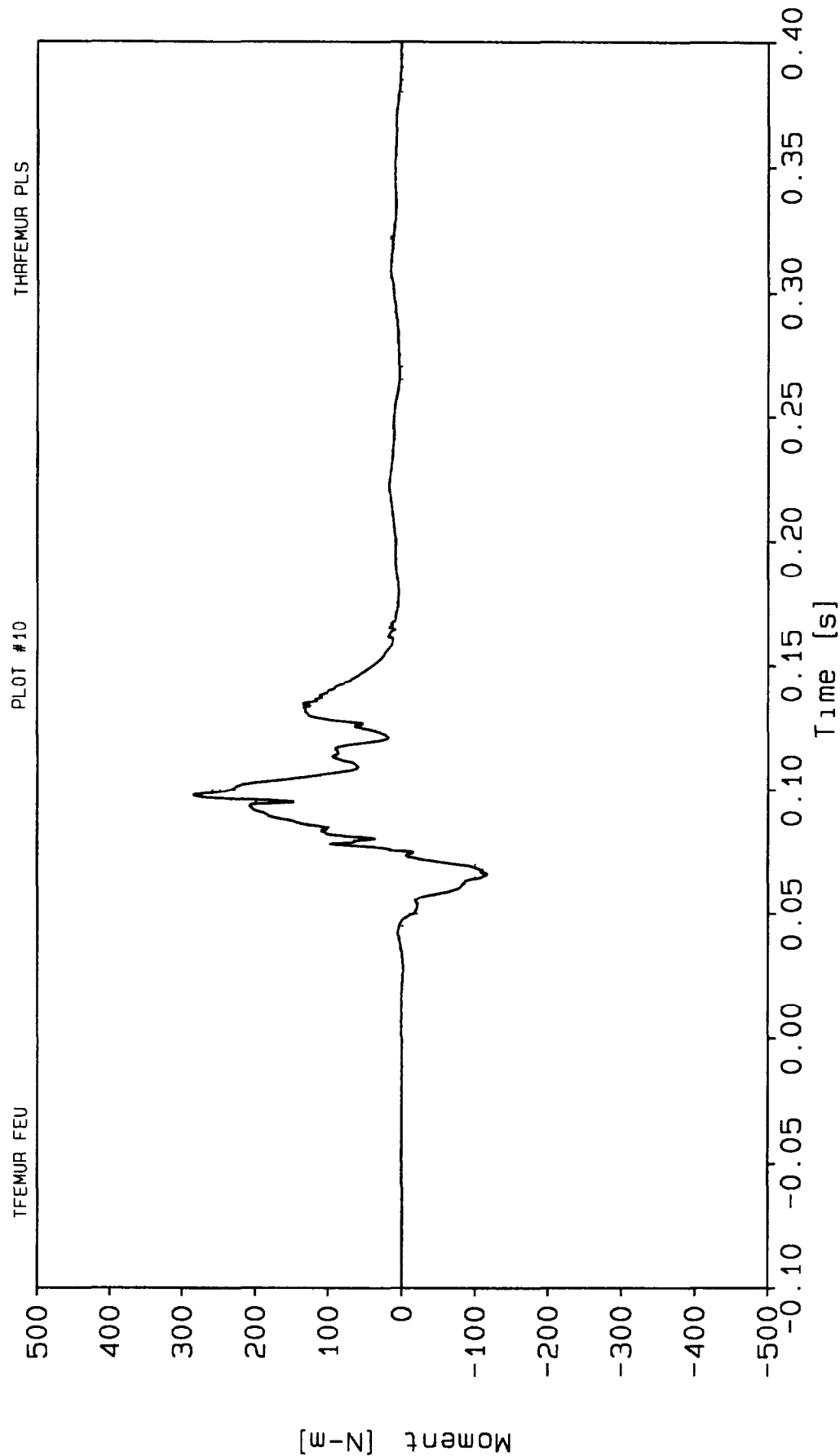
Exponent
Failure
Analysis
Associates

Filter Class 600
Volpe Crash Testing
PH06608

Right Femur Moment (Mx) v Time

Passenger Dummy - THOR
2001 Dodge Neon

Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



Filter Class 600
Volpe Crash Testing
PH06608

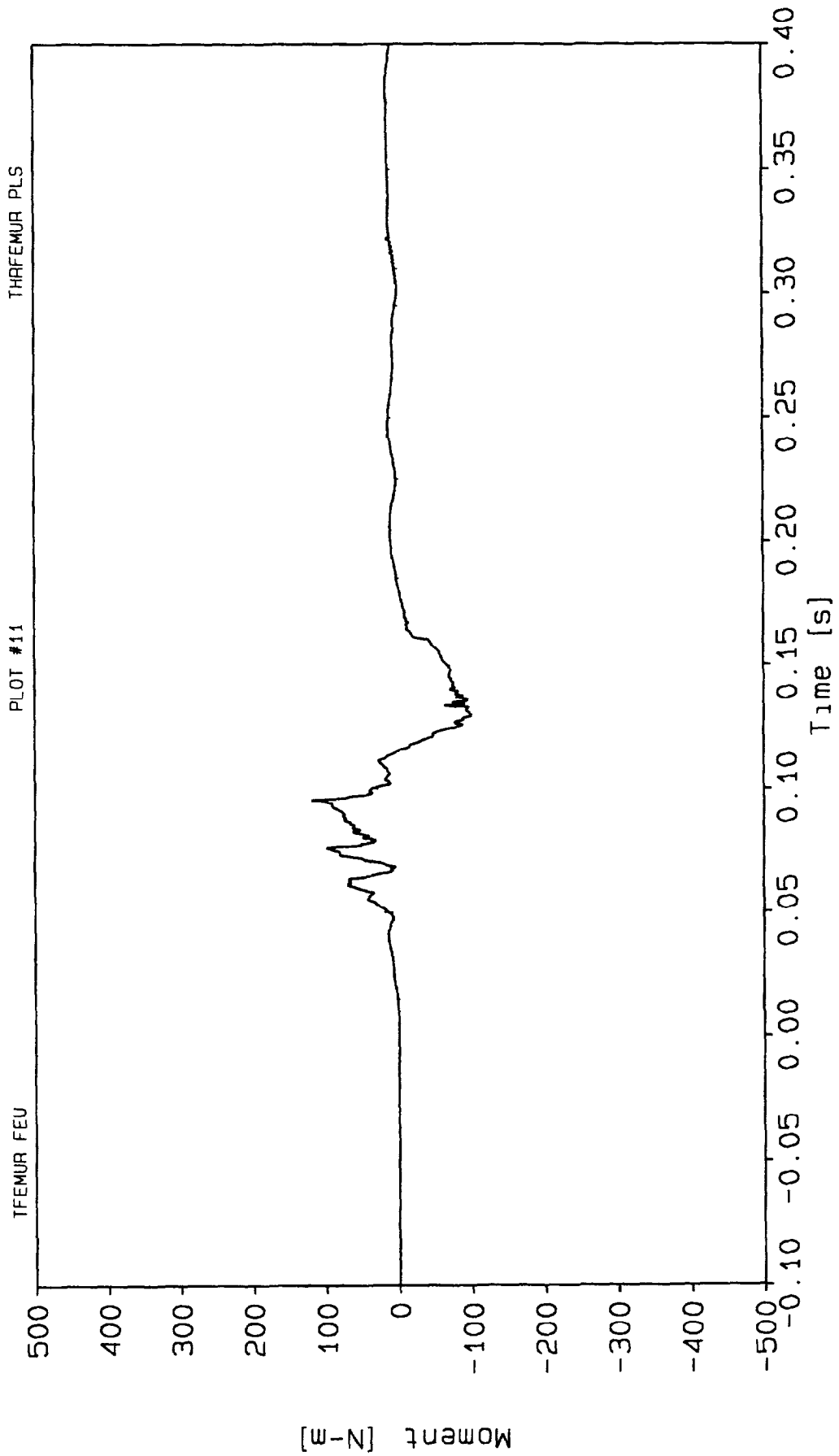
Exponent
Failure
Analysis
Associates

Right Femur Moment (My) v Time

Passenger Dummy - THOR

2001 Dodge Neon

Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



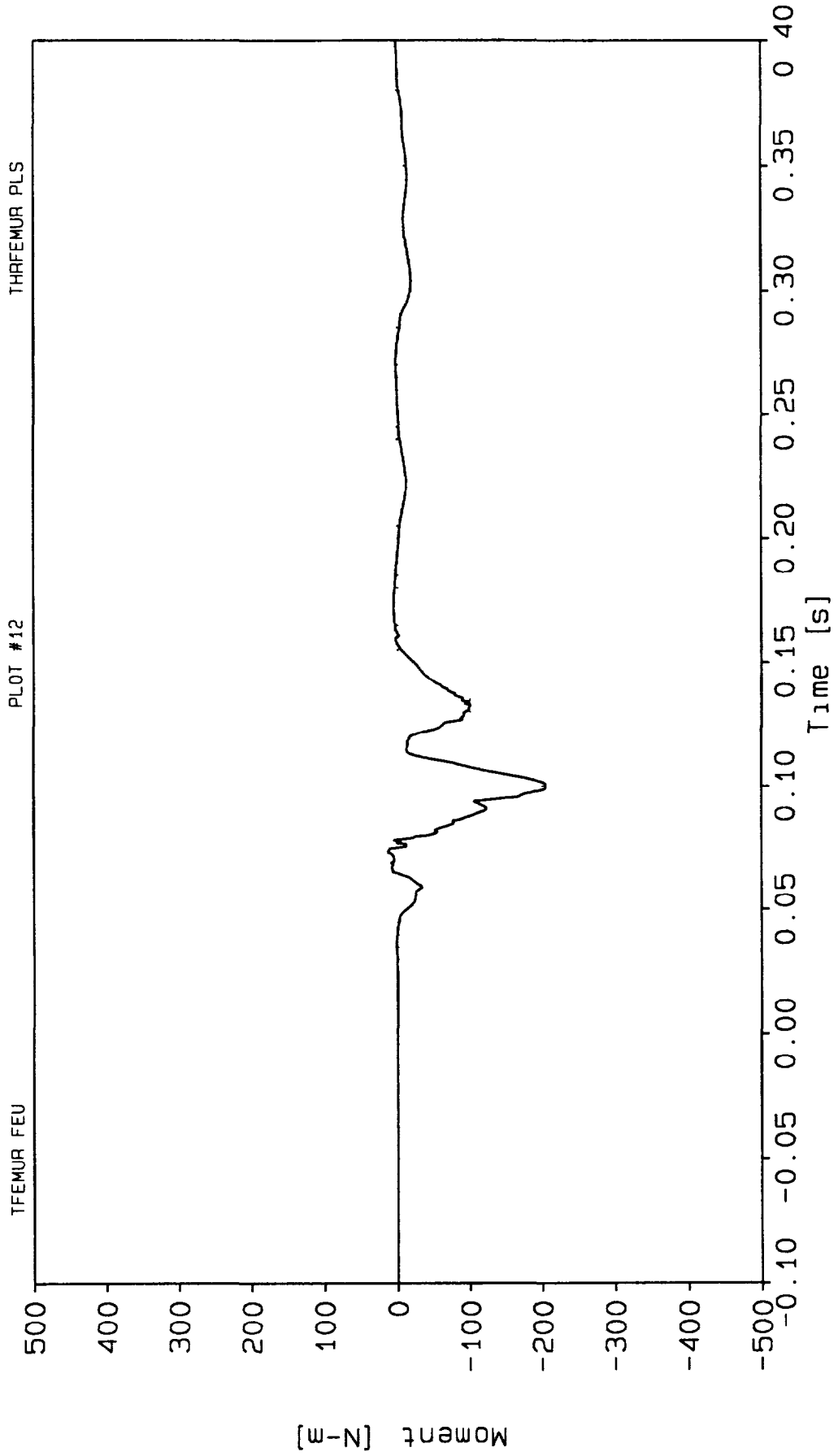
Exponent
Failure
Analysis
Associates

Filter Class 500
Volpe Crash Testing
PH06608

Right Femur Moment (Mz) v Time

Passenger Dummy - THOR
2001 Dodge Neon

Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



Filter Class 600
Volpe Crash Testing
PH06608

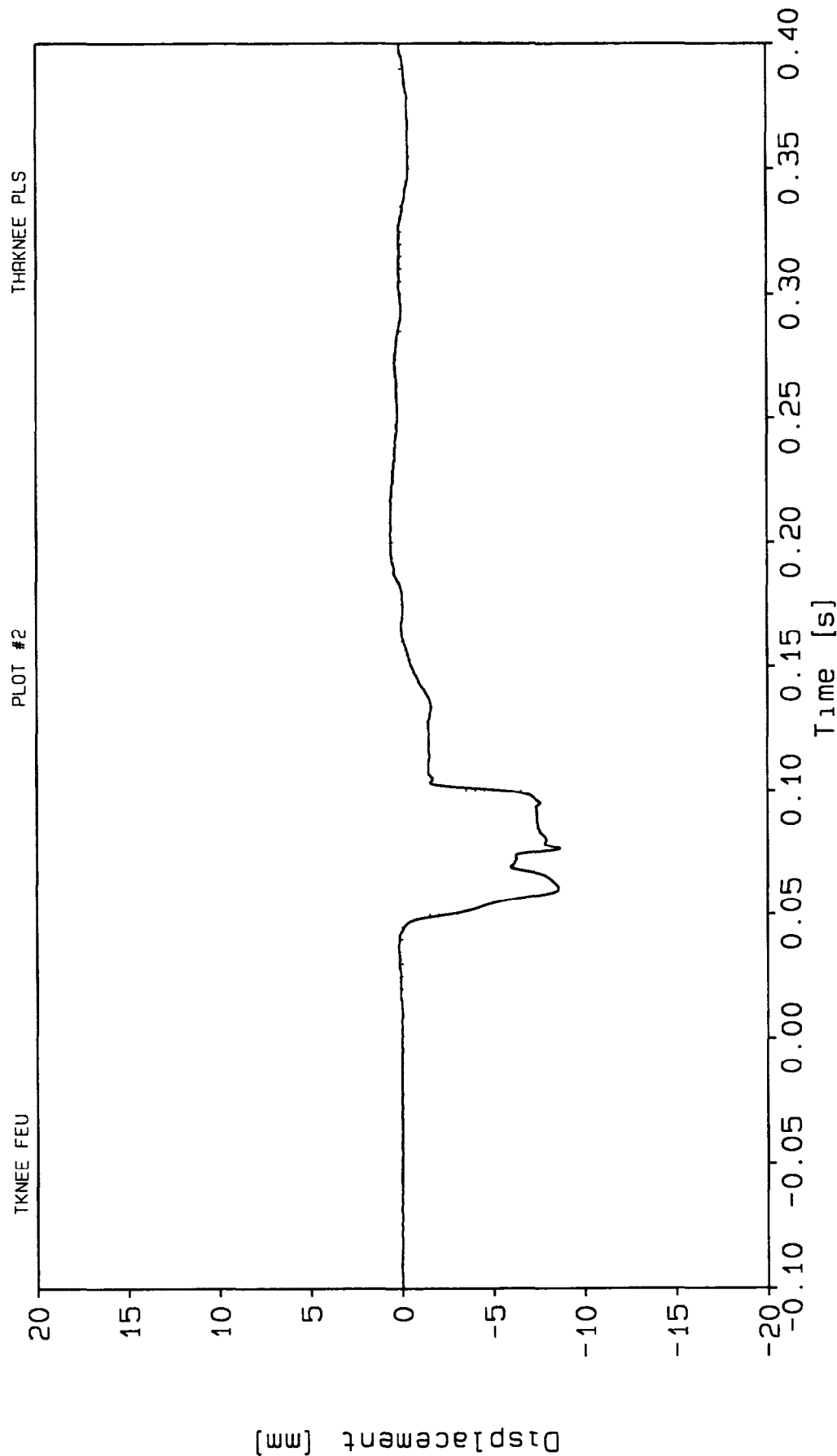
Exponent
Failure
Analysis
Associates

Left Knee Displacement v Time

Passenger Dummy - THOR

2001 Dodge Neon

Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



Filter Class 180
Volpe Crash Testing
PH06608

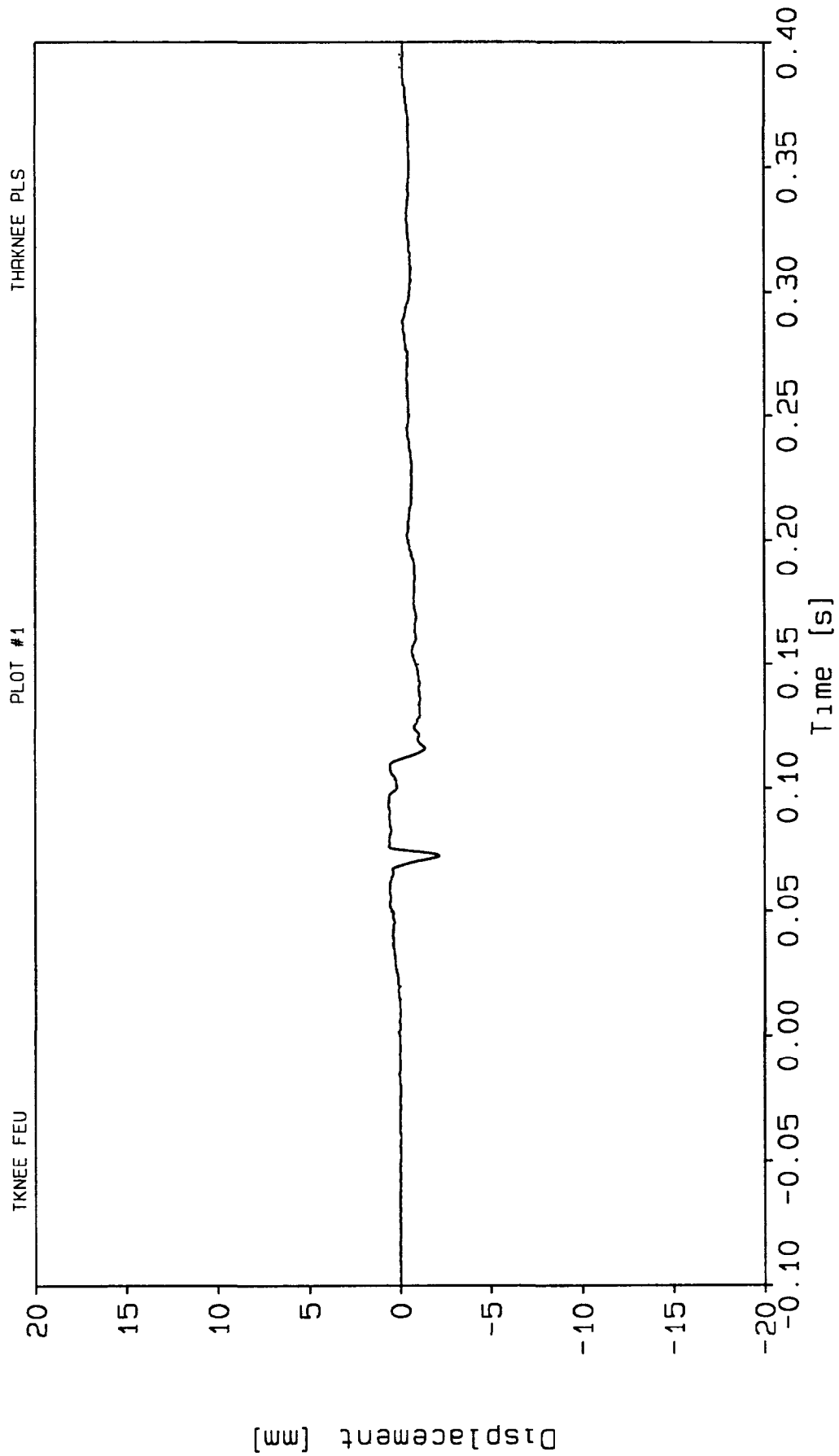
Exponent
Failure
Analysis
Associates

Right Knee Displacement v Time

Passenger Dummy - THOR

2001 Dodge Neon

Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



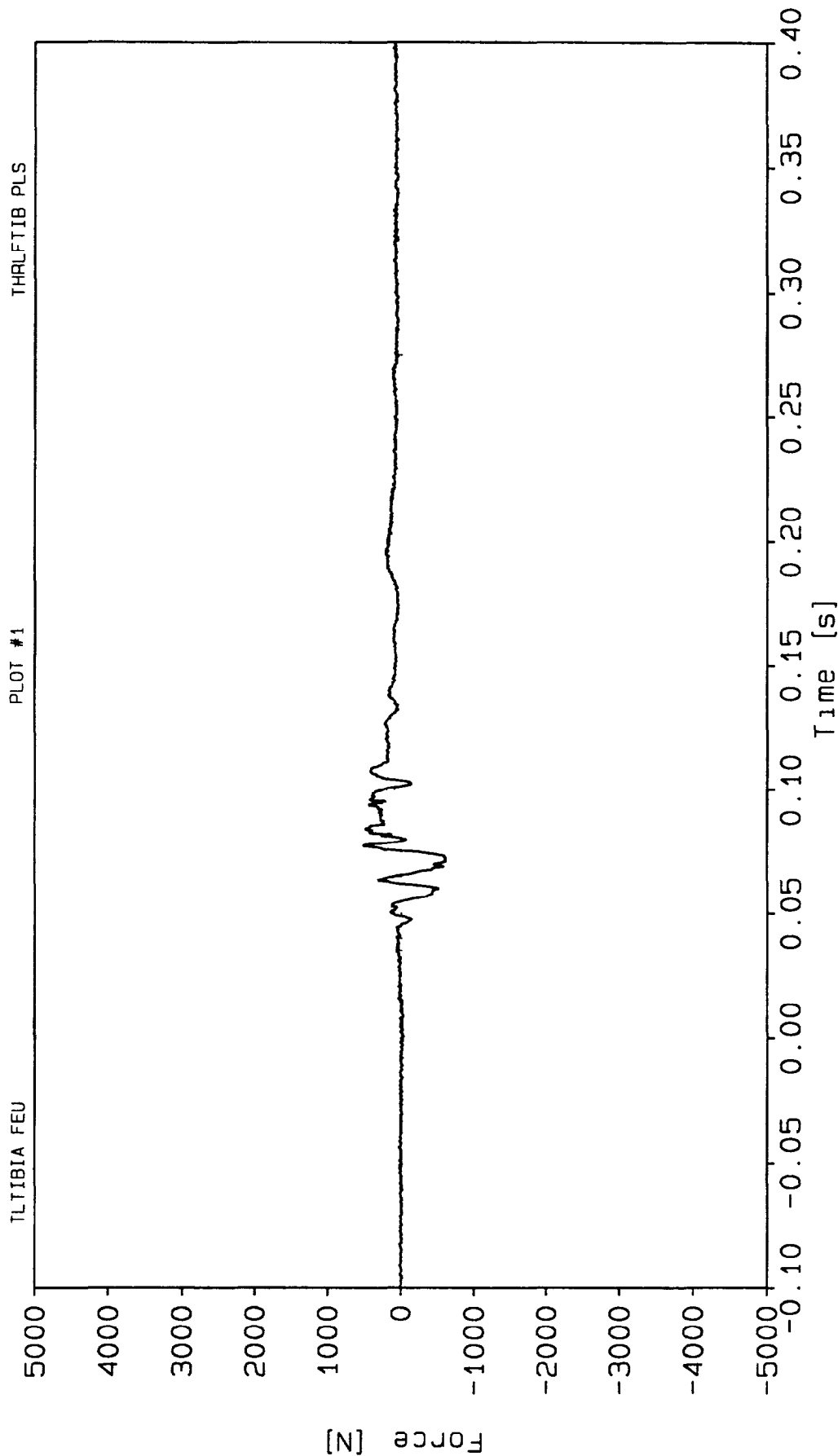
Filter Class 180
Voipe Crash Testing
PH0560B

Exponent
Failure
Analysis
Associates

Left Upper Tibia Force (Fx) v Time

Passenger Dummy - THOR
2001 Dodge Neon

Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



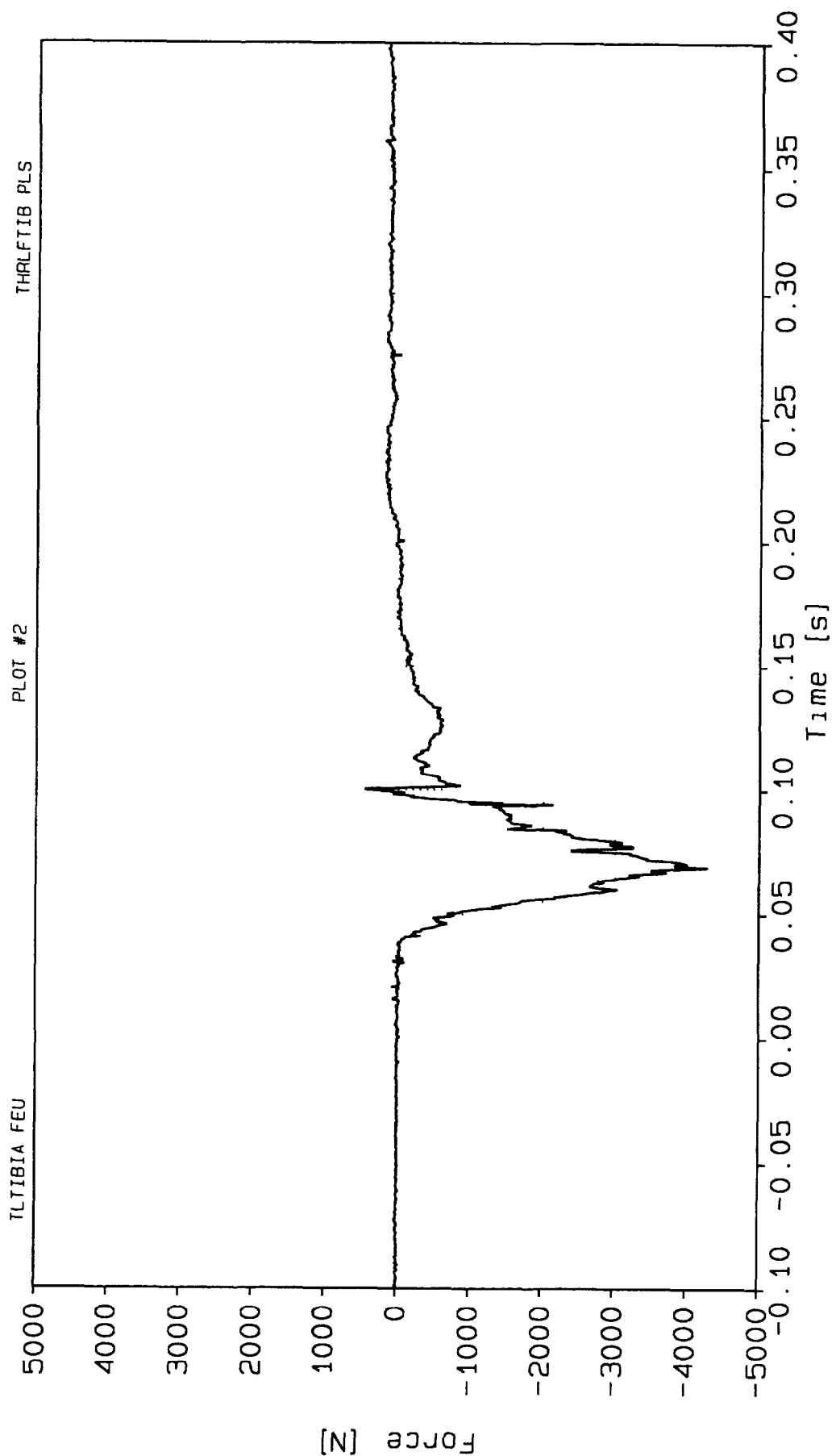
Filter Class 600
Volpe Crash Testing
PH06608

Exponent
Failure
Analysis
Associates

Left Upper Tibia Force (Fz) v Time

Passenger Dummy - THOR
2001 Dodge Neon

Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



Exponent
Failure
Analysis
Associates

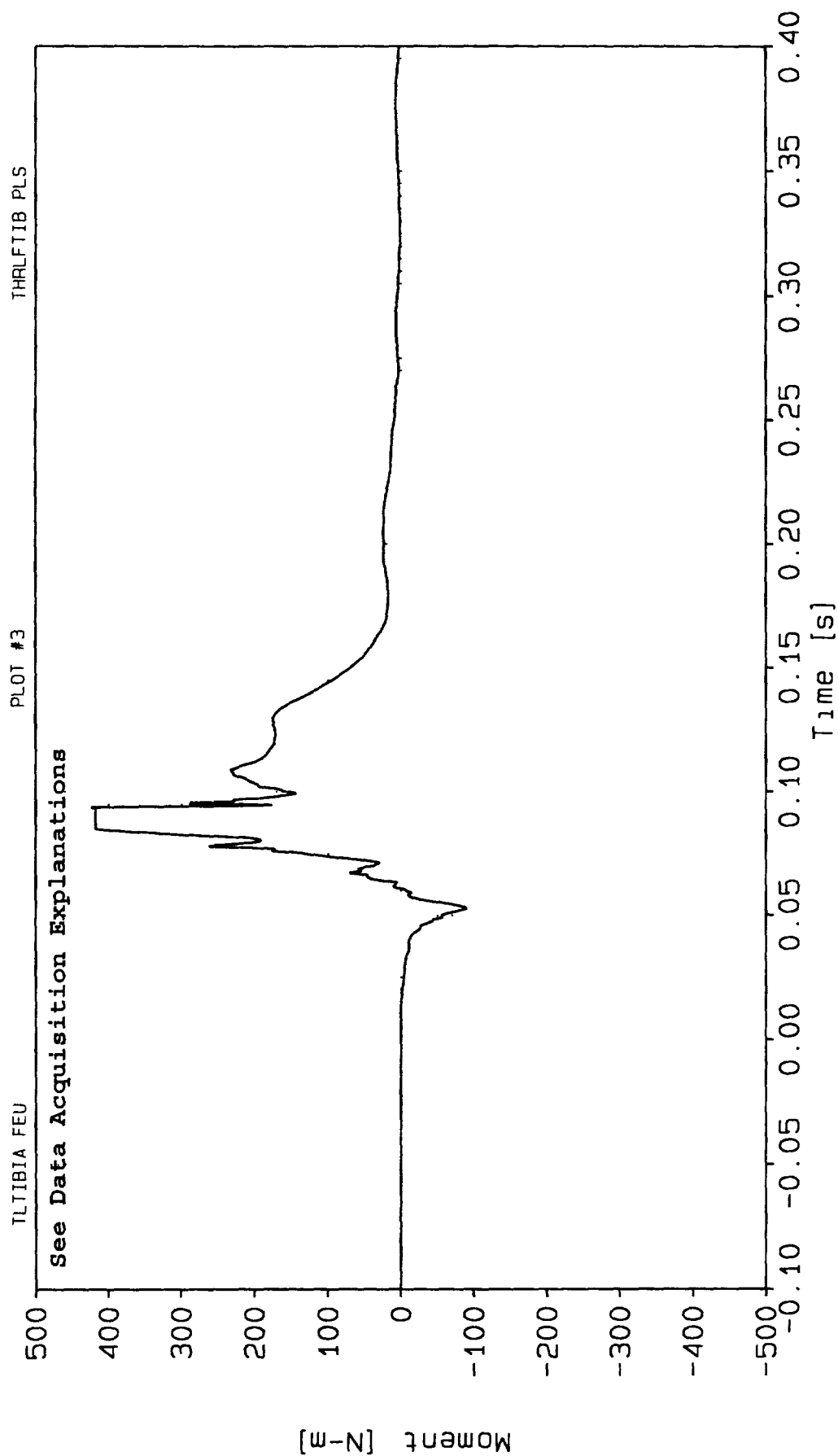
Filter Class 600
Volpe Crash Testing
PH06608

Left Upper Tibia Moment (Mx) v Time

Passenger Dummy - THOR

2001 Dodge Neon

Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



Exponent
Failure
Analysis
Associates

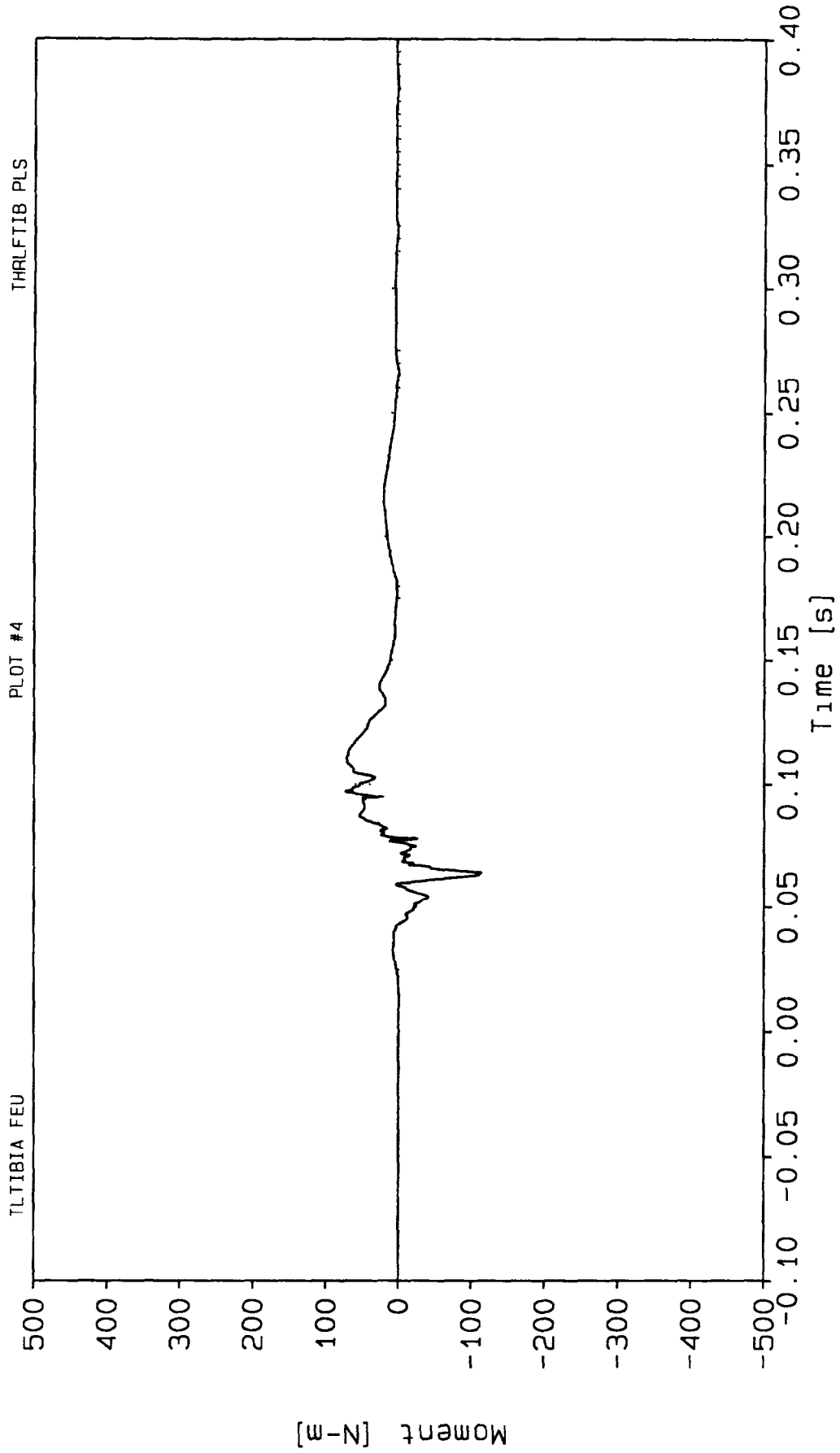
Filter Class 600
Volpe Crash Testing
PH05508

Left Upper Tibia Moment (My) v Time

Passenger Dummy - THOR

2001 Dodge Neon

Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



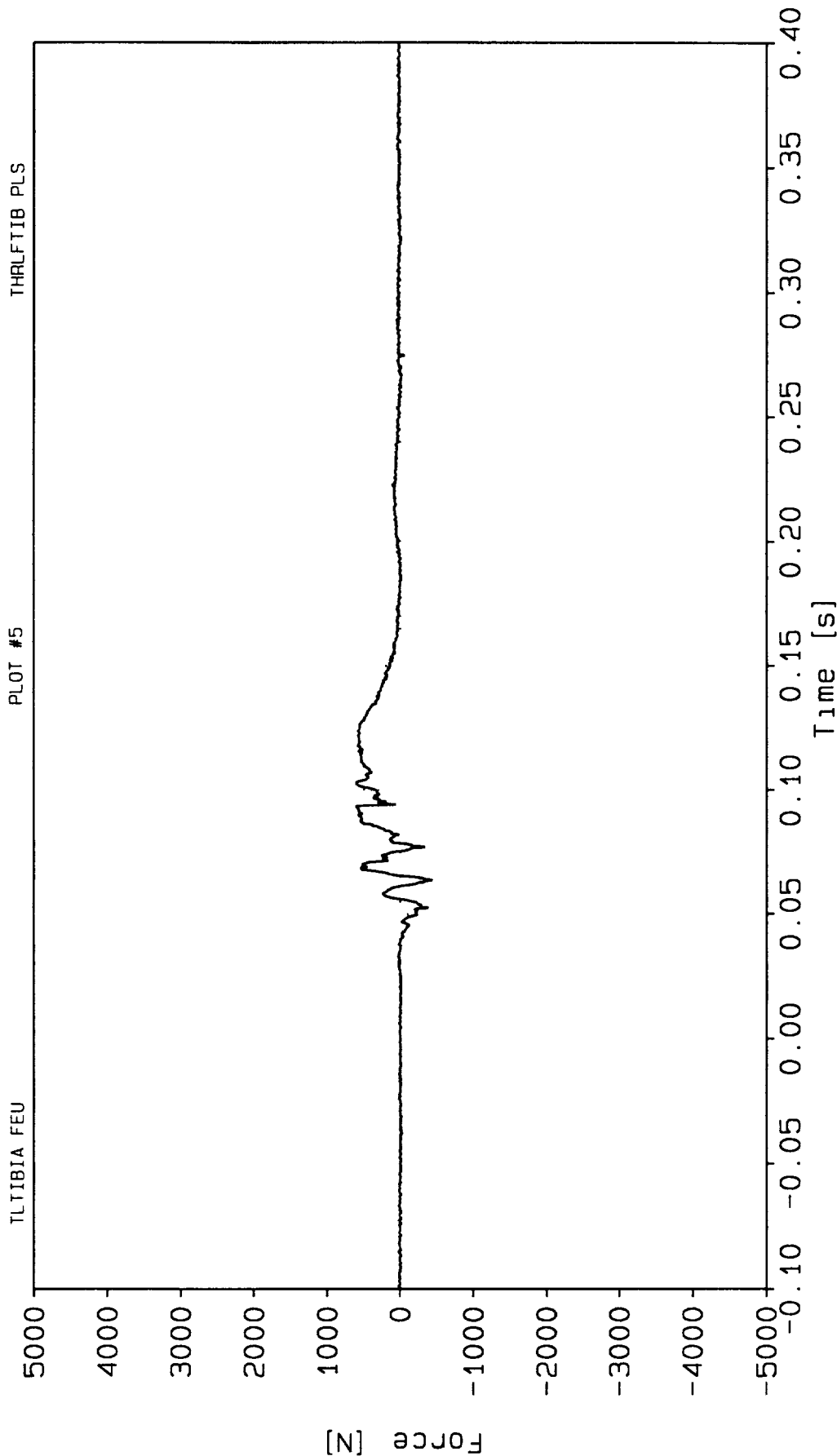
Exponent
Failure
Analysis
Associates

Filter Class 600
Volpe Crash Testing
PH05608

Left Lower Tibia Force (Fx) v Time

Passenger Dummy - THOR
2001 Dodge Neon

Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



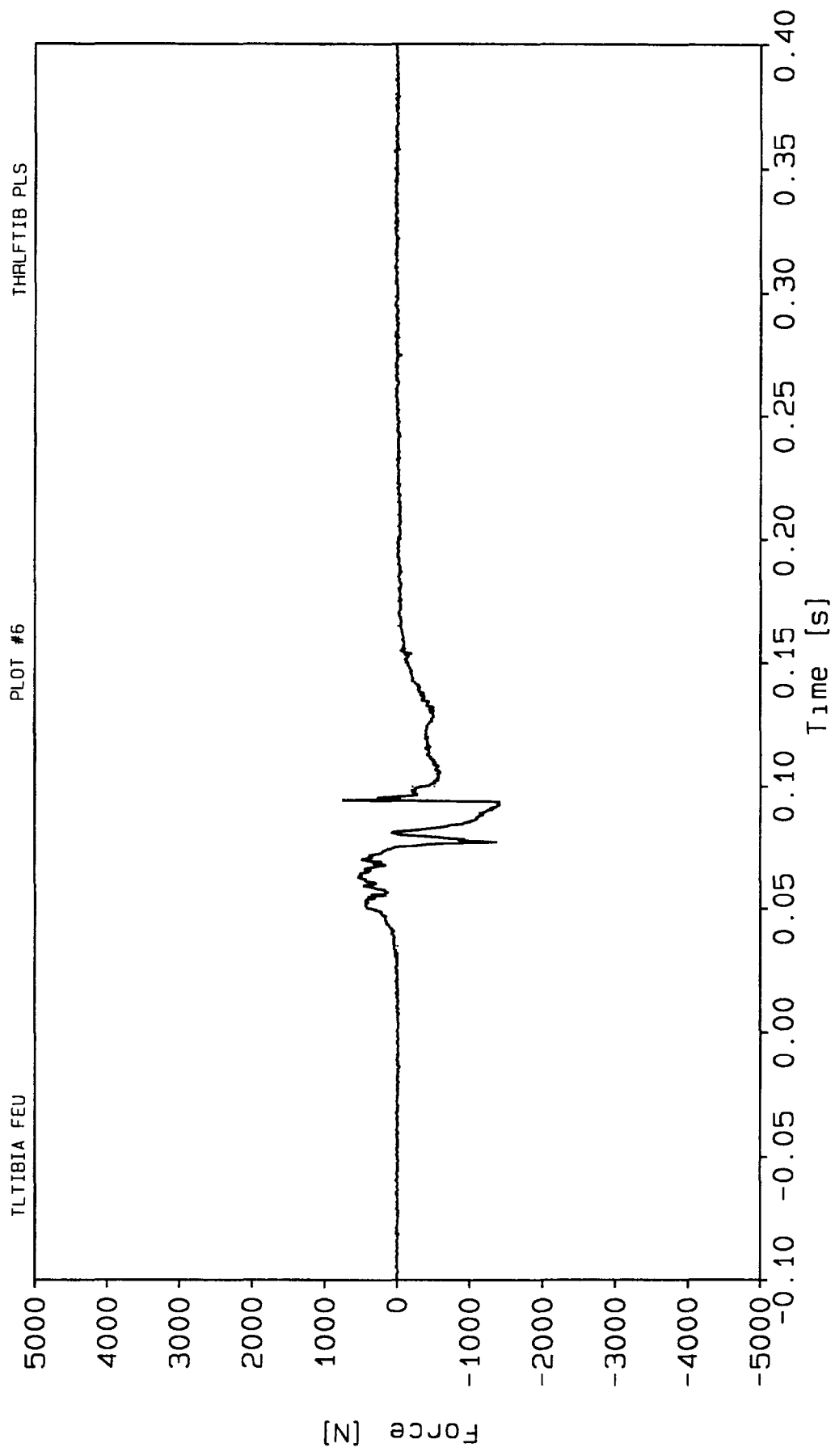
Filter Class 600
Volpe Crash Testing
PH06608

Exponent
Failure
Analysis
Associates

Left Lower Tibia Force (Fy) v Time

Passenger Dummy - THOR
2001 Dodge Neon

Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



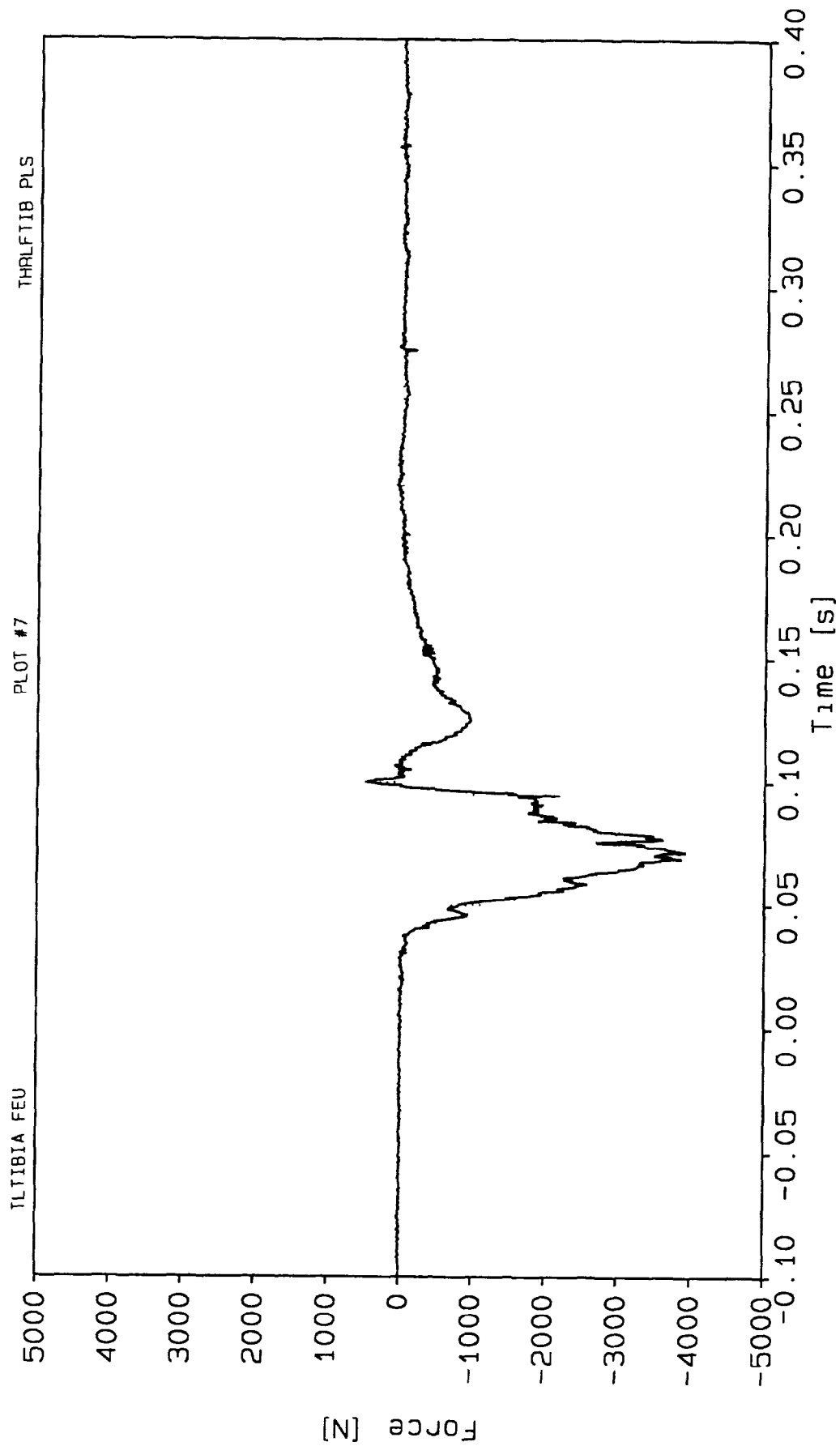
Filter Class 600
Volpe Crash Testing
PH05608

Exponent
Failure
Analysis
Associates

Left Lower Tibia Force (Fz) v Time

Passenger Dummy - THOR
2001 Dodge Neon

Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



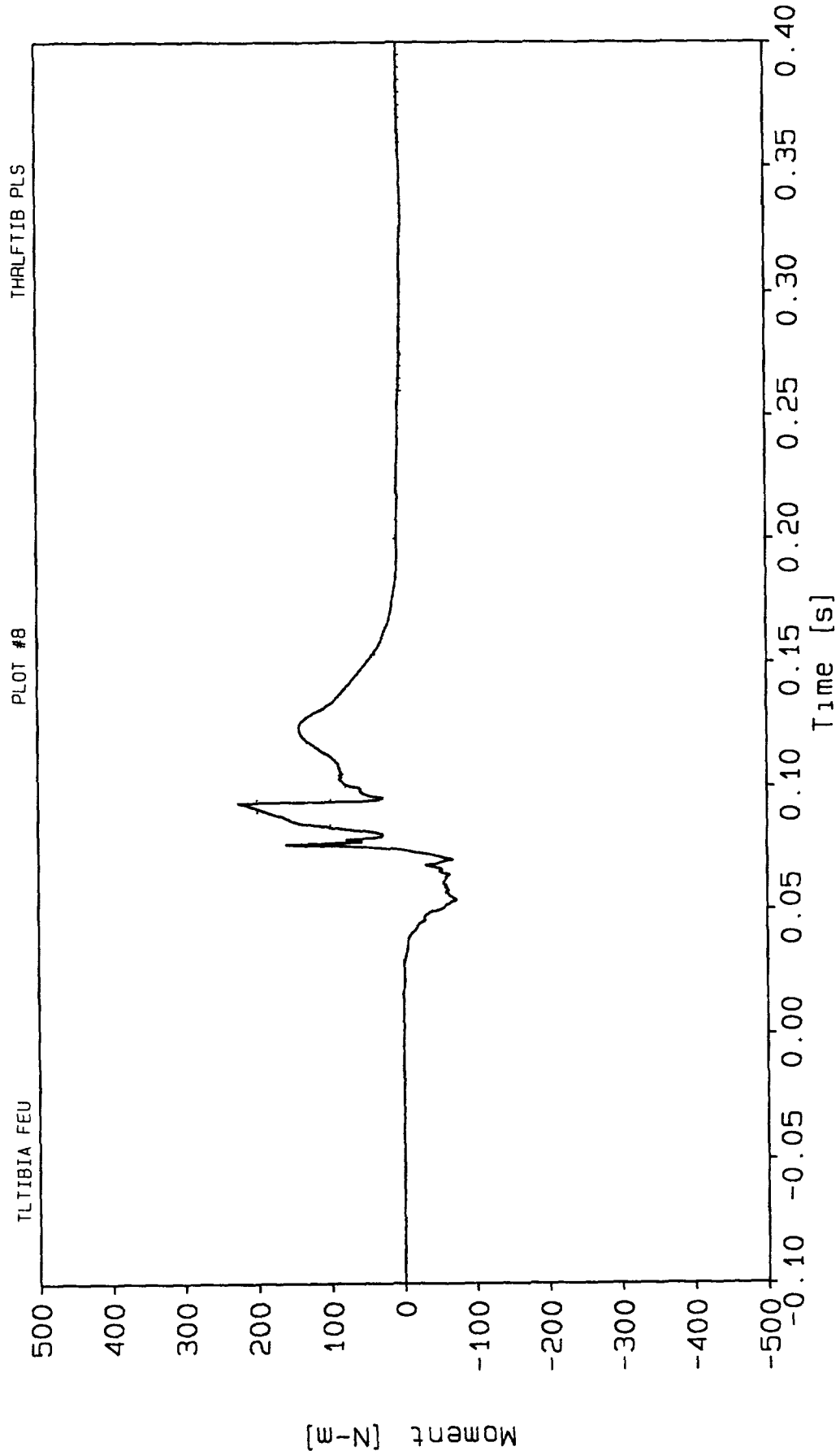
Exponent
Failure
Analysis
Associates

Filter Class 600
Volpe Crash Testing
PH06608

Left Lower Tibia Moment (Mx) v Time

Passenger Dummy - THOR
2001 Dodge Neon

Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



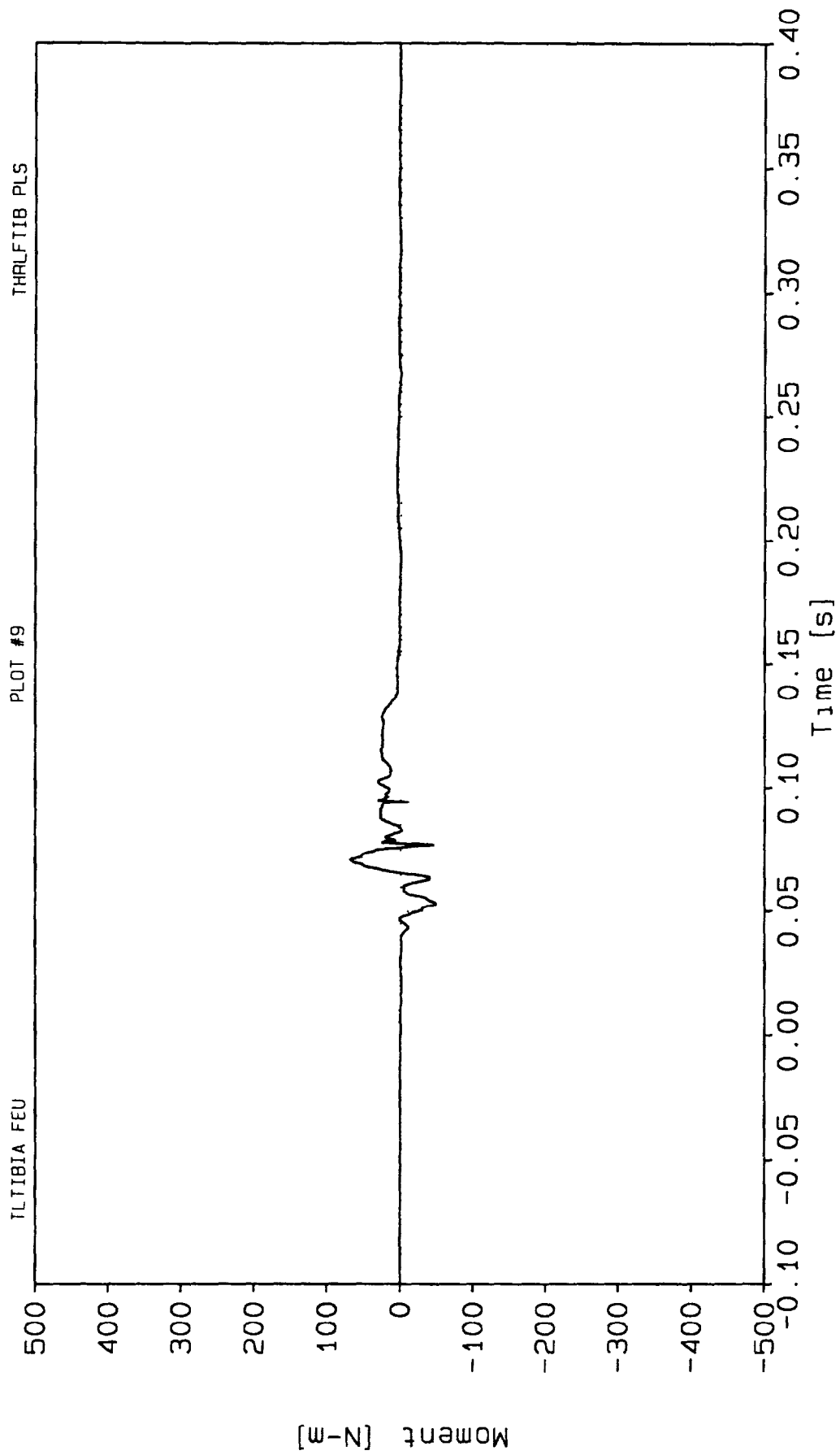
Exponent
Failure
Analysis
Associates

Filter Class 600
Volpe Crash Testing
PH06608

Left Lower Tibia Moment (My) v Time

Passenger Dummy - THOR
2001 Dodge Neon

Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



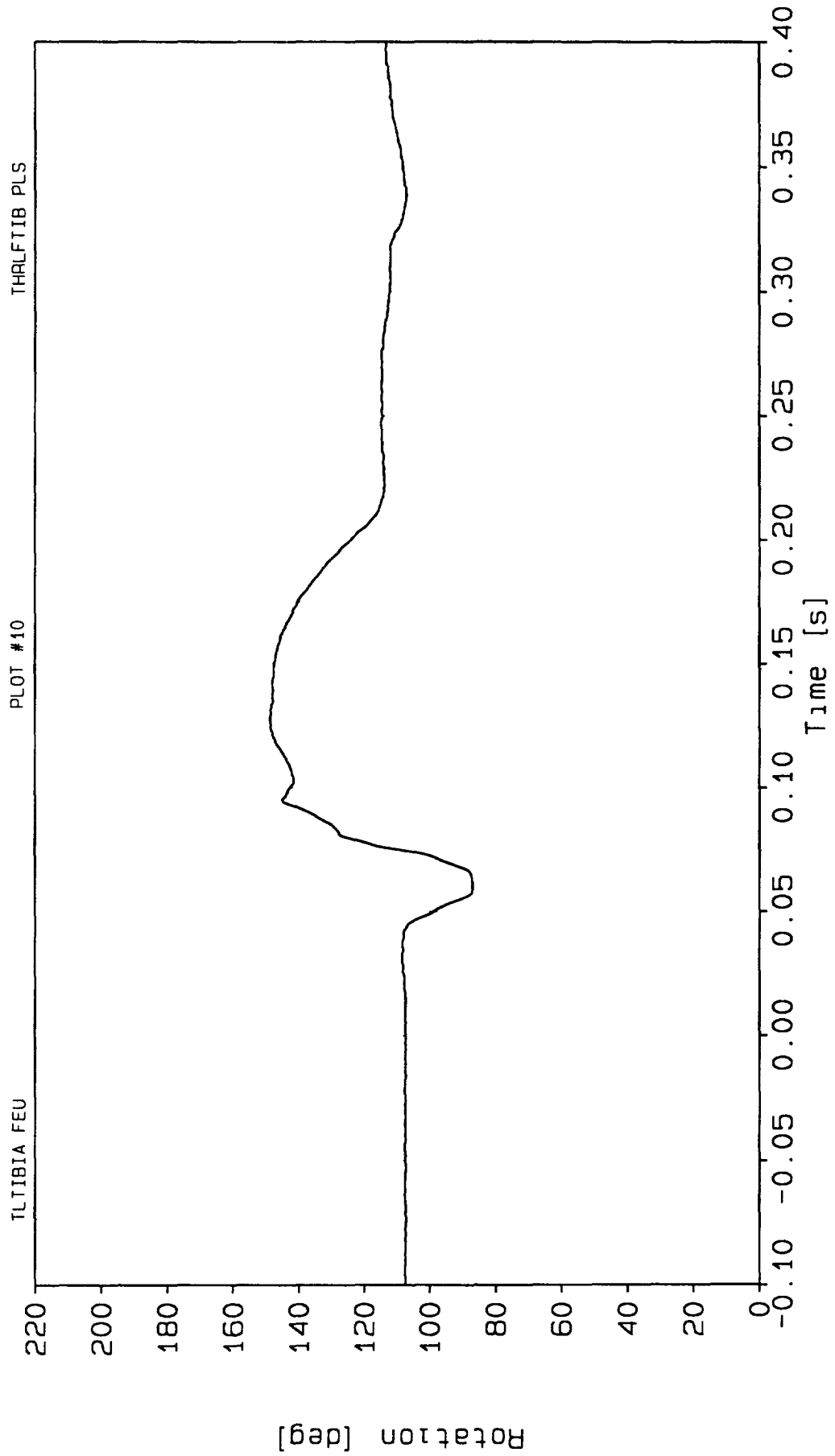
Exponent
Failure
Analysis
Associates

Filter Class 600
Volpe Crash Testing
PH05608

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Left Ankle Rotation (X Axis) v Time

Passenger Dummy - THOR
2001 Dodge Neon
Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



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Filter Class 180
Voipe Crash Testing
PH05508

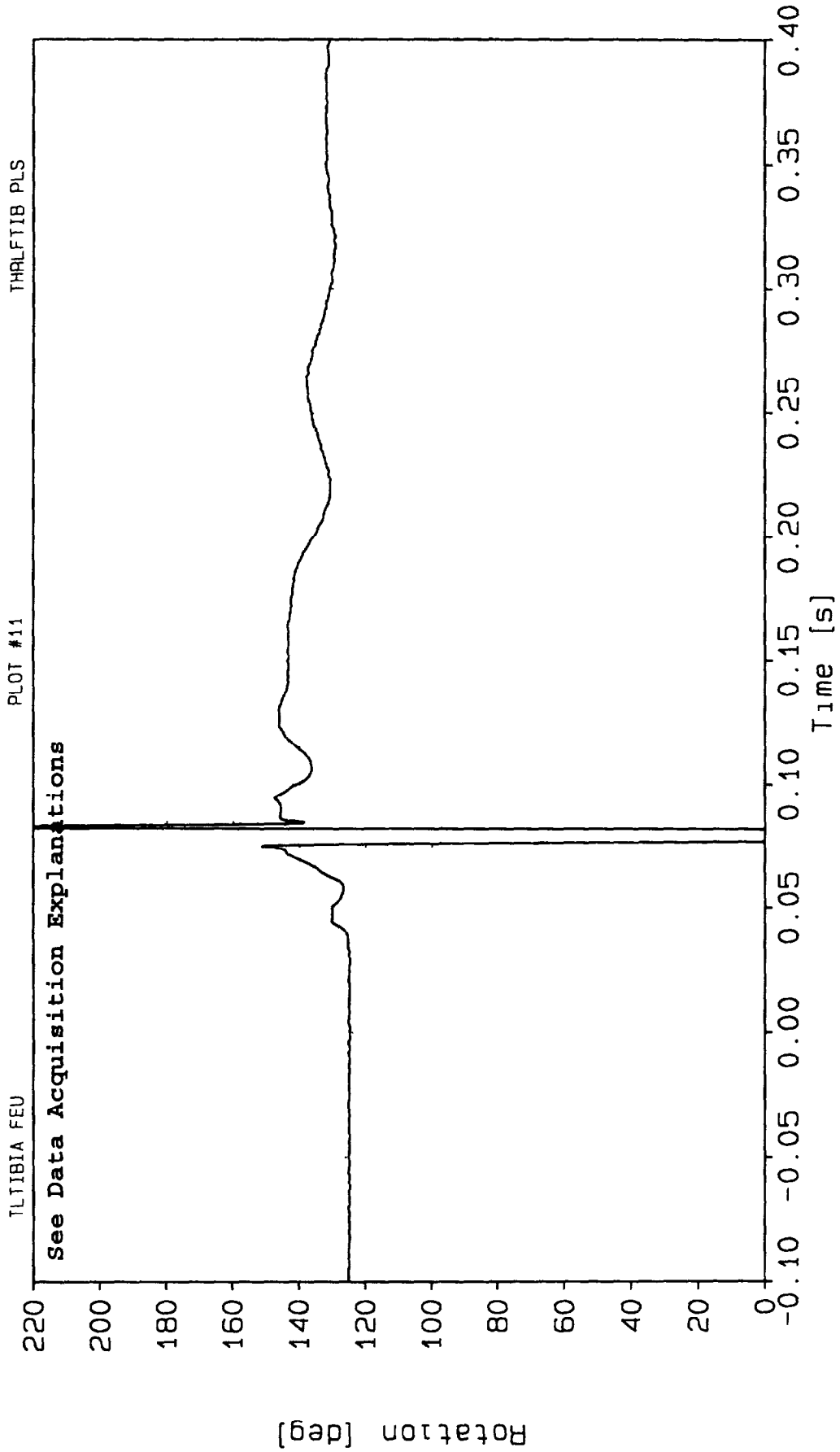
Exponent
Failure
Analysis
Associates

Left Ankle Rotation (Y Axis) v Time

Passenger Dummy - THOR

2001 Dodge Neon

Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



Exponent
Failure
Analysis
Associates

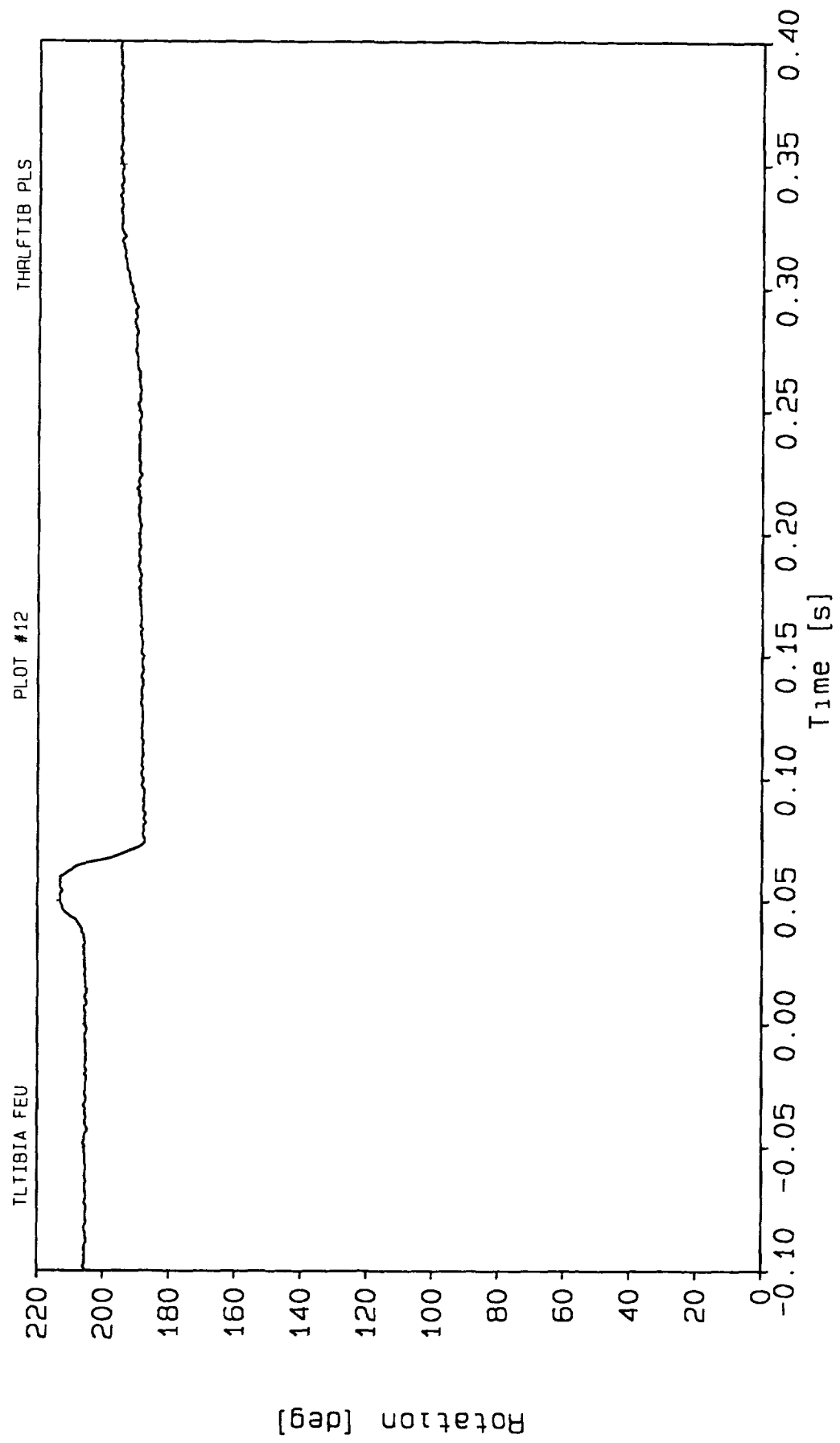
Filter Class 180
Volpe Crash Testing
PH06608

(

Left Ankle Rotation (Z Axis) v Time

Passenger Dummy - THOR
2001 Dodge Neon

Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



Filter Class 180
Volpe Crash Testing
PH06608

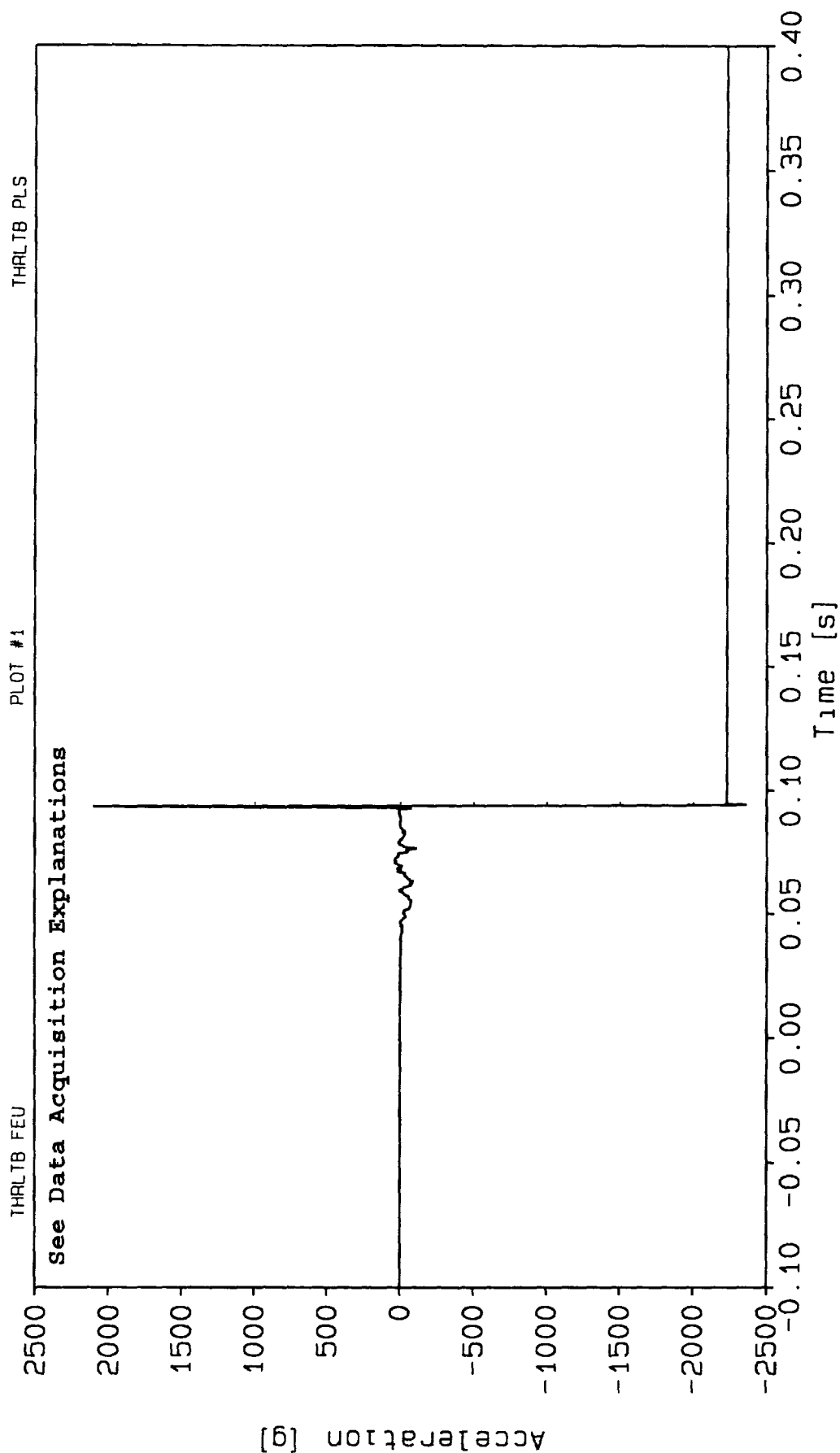
Exponent
Failure
Analysis
Associates

Left Tibia Acceleration (Ax) v Time

Passenger Dummy - THOR

2001 Dodge Neon

Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



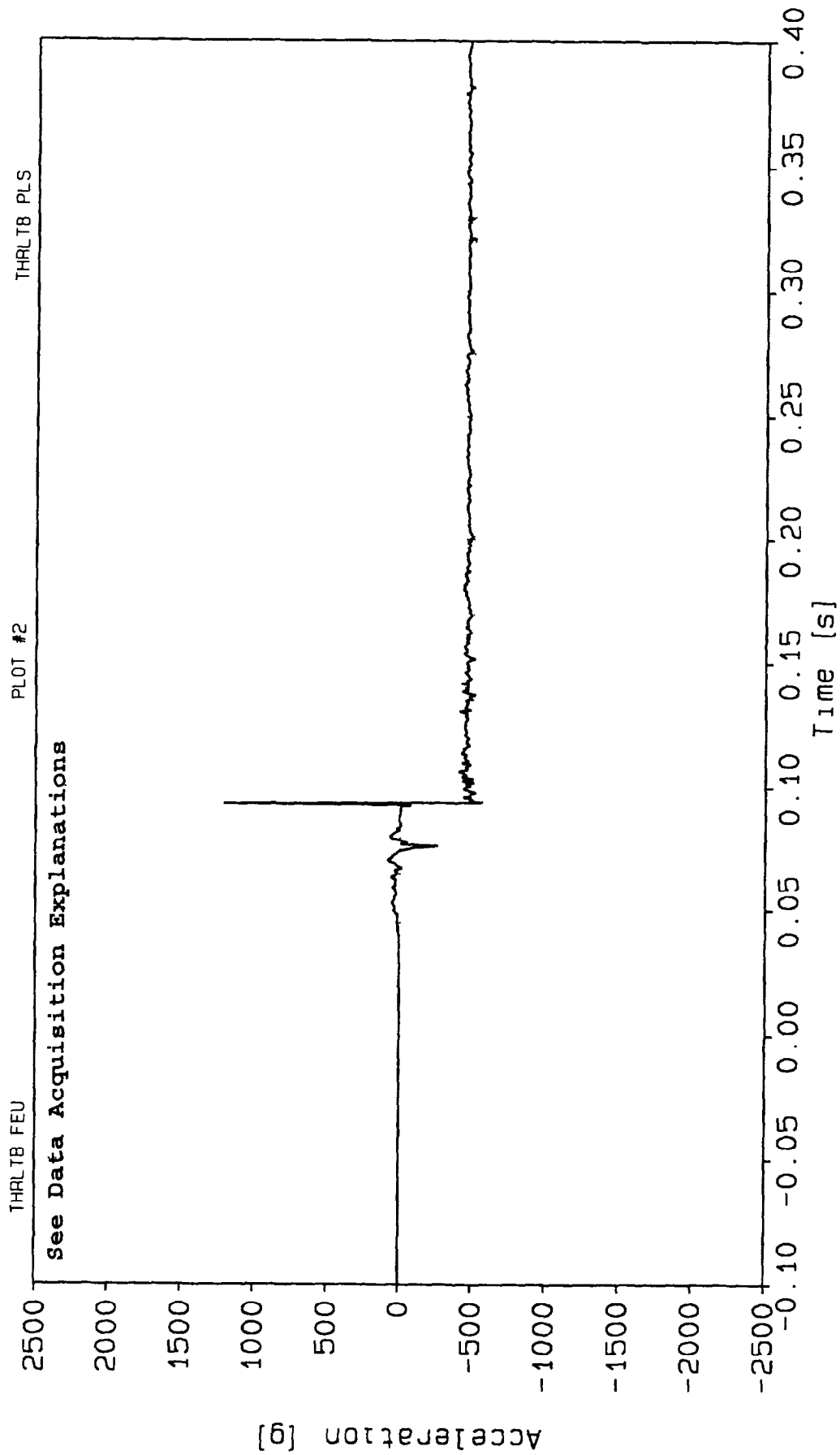
Exponent
Failure
Analysis
Associates

Filter Class 600
Volpe Crash Testing
PH06608

Left Tibia Acceleration (Ay) v Time

Passenger Dummy - THOR
2001 Dodge Neon

Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



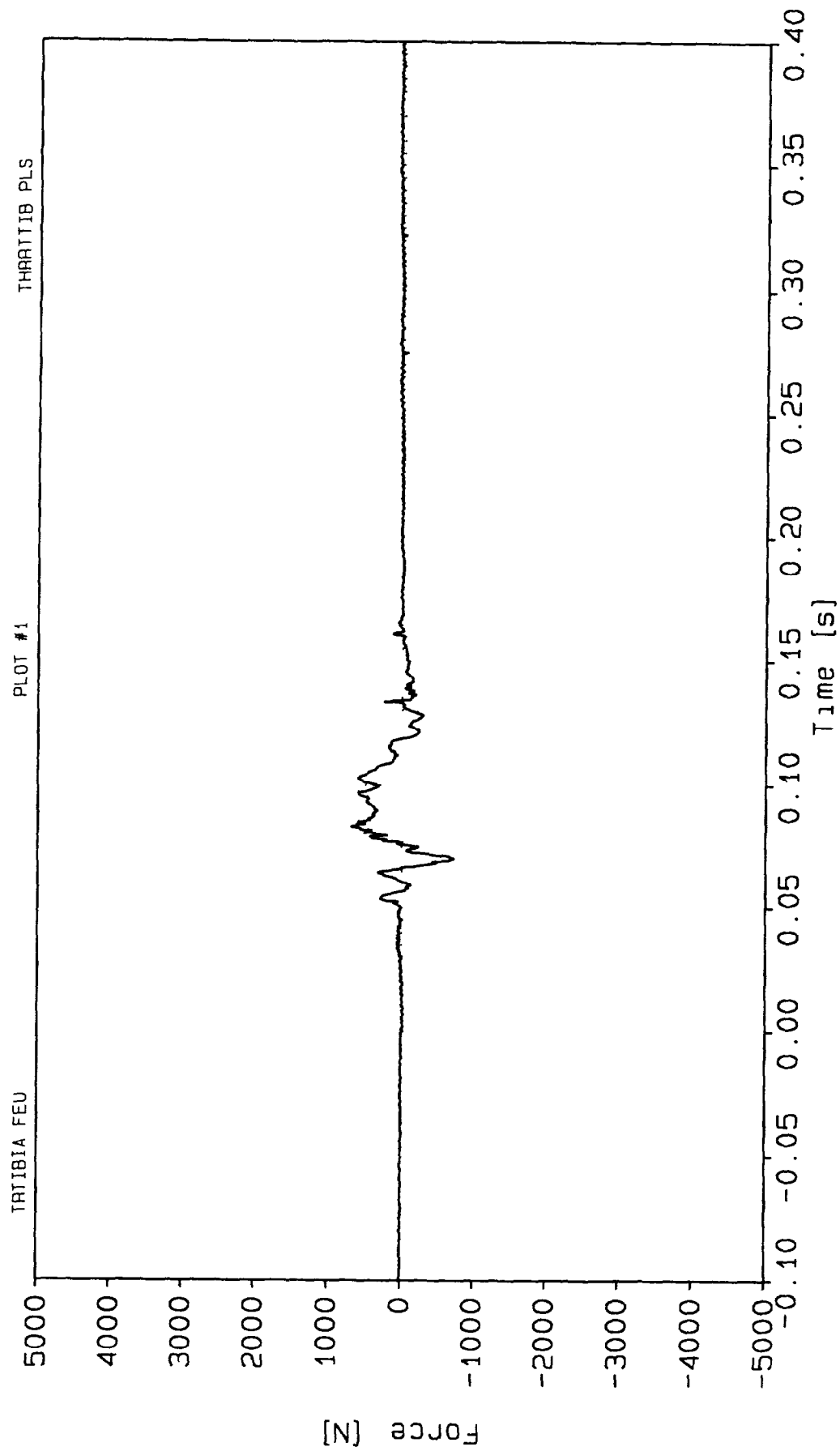
Filter Class 600
Volpe Crash Testing
PH06608

Exponent
Failure
Analysis
Associates

Right Upper Tibia Force (Fx) v Time

Passenger Dummy - THOR
2001 Dodge Neon

Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



Filter Class 600
Volpe Crash Testing
PH06608

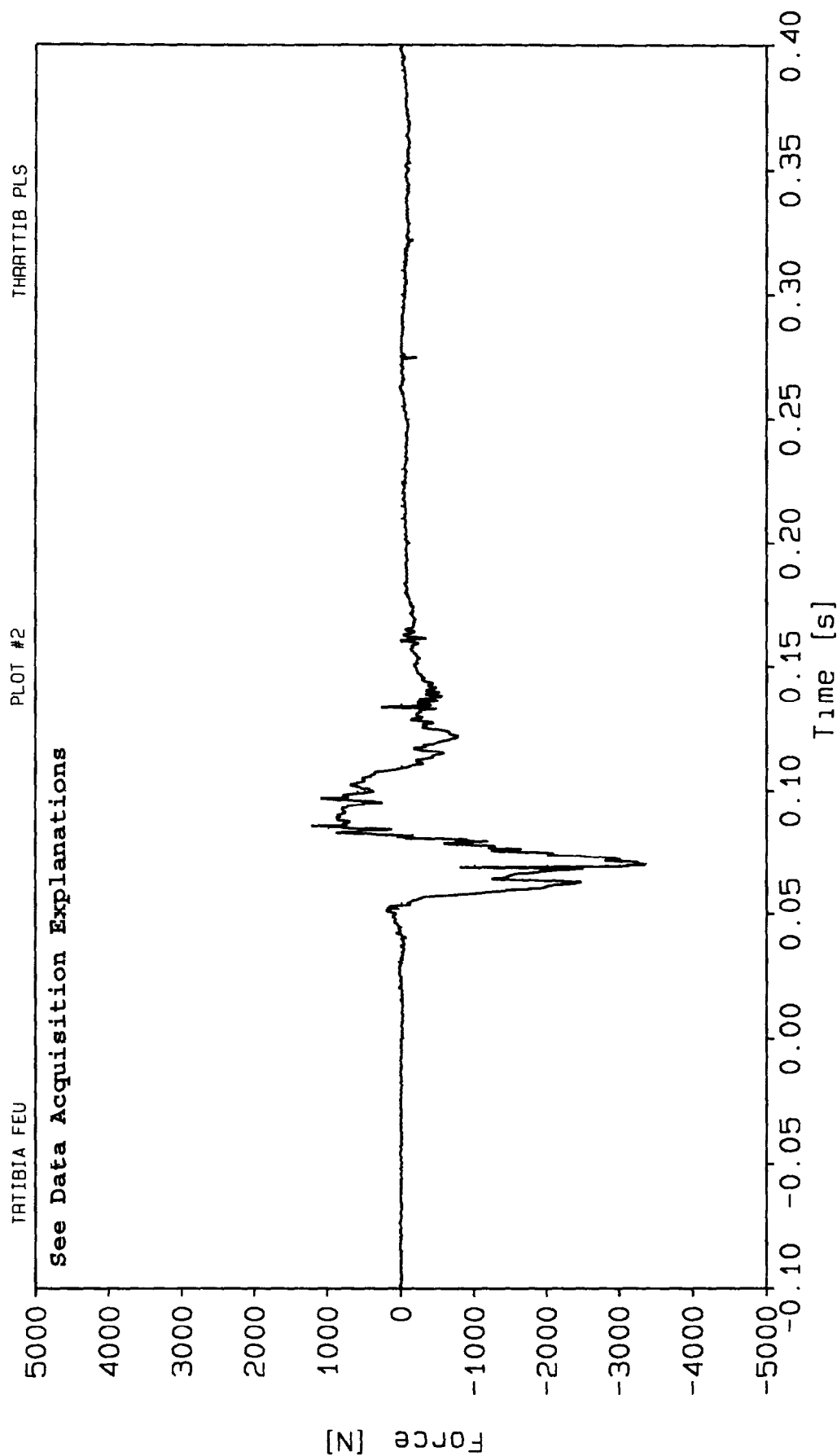
Exponent
Failure
Analysis
Associates

Right Upper Tibia Force (Fz) v Time

Passenger Dummy - THOR

2001 Dodge Neon

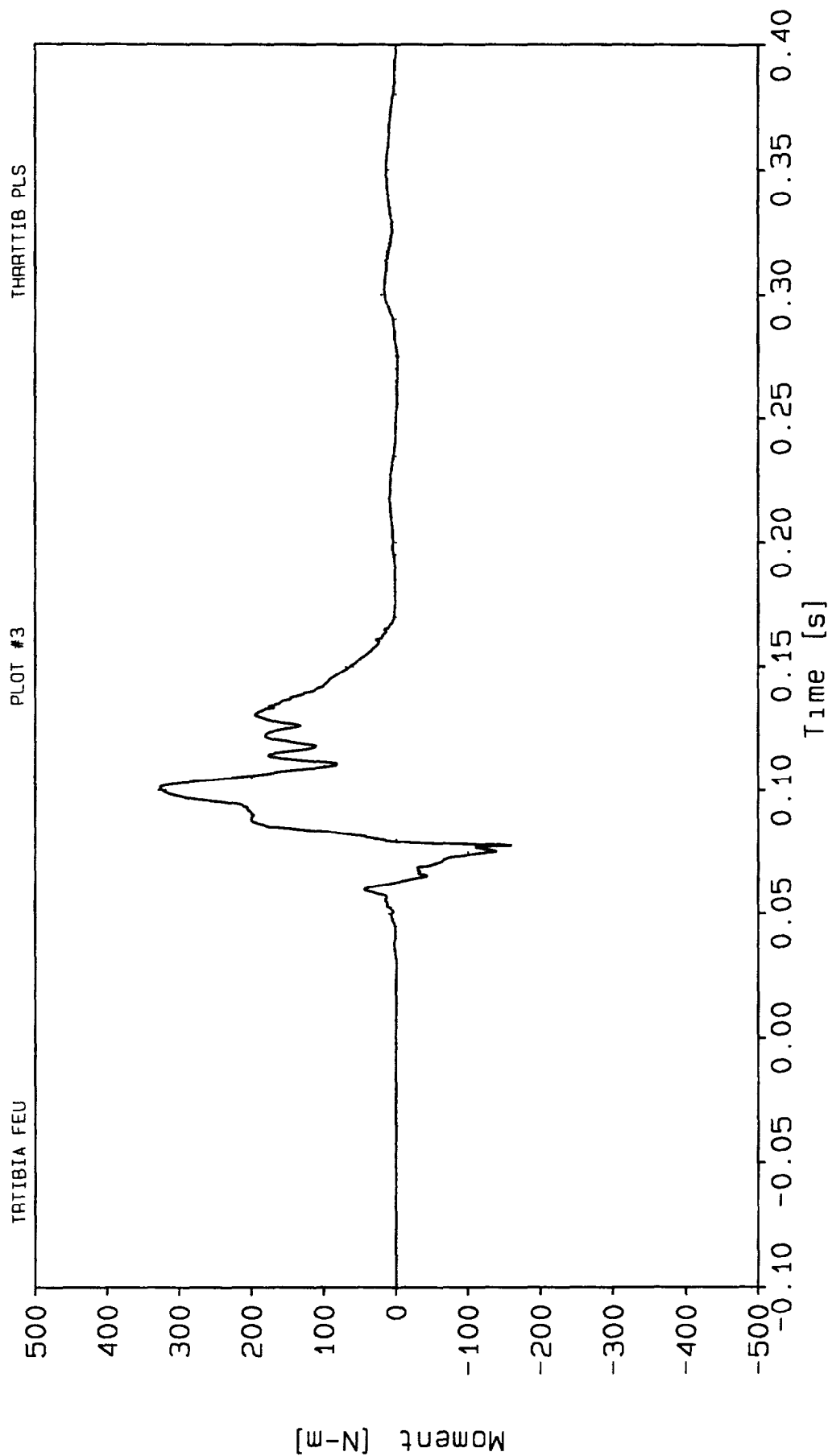
Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



Exponent
Failure
Analysis
Associates

Filter Class 600
Volpe Crash Testing
PH05608

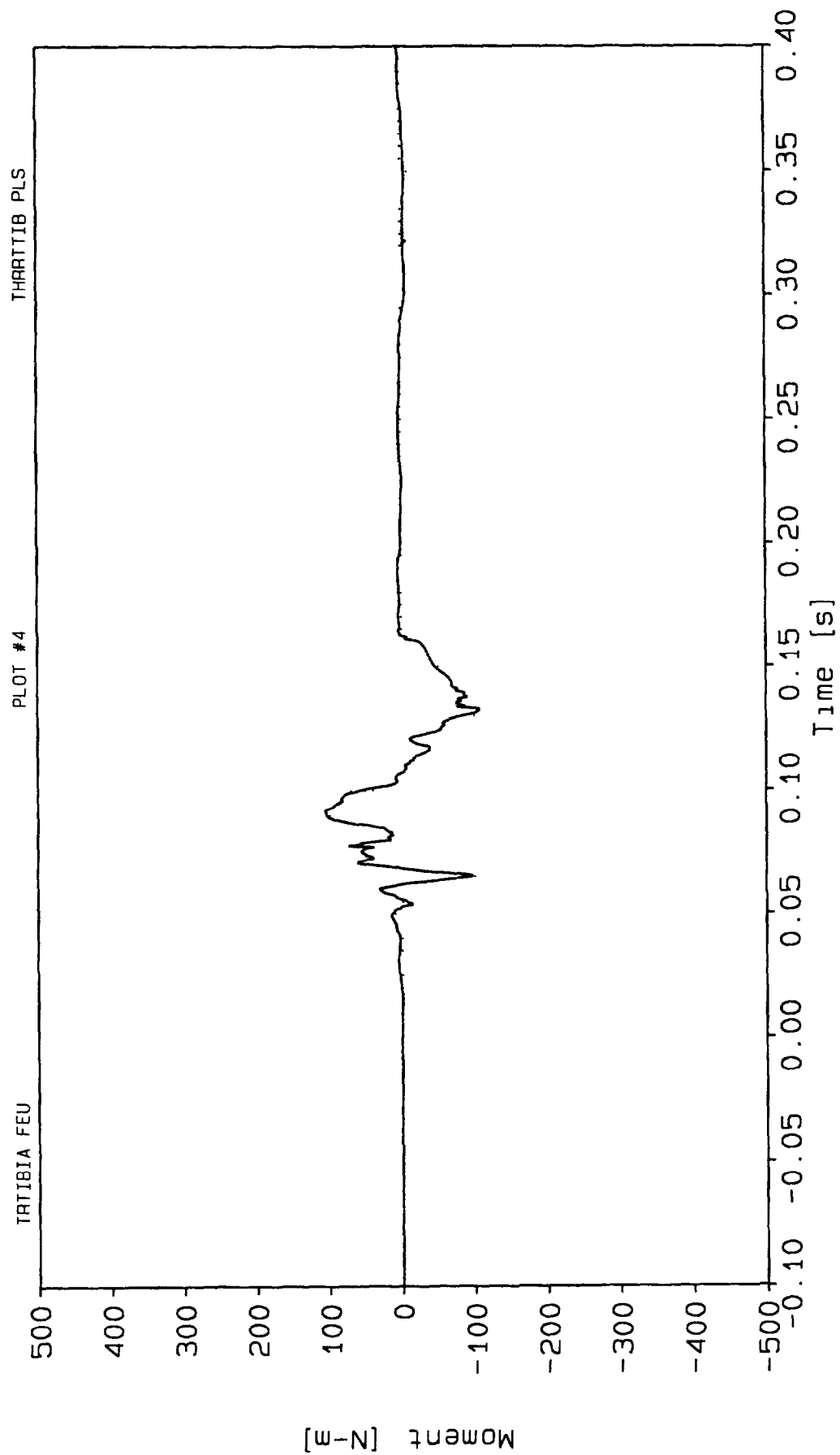
Right Upper Tibia Moment (Mx) v Time
Passenger Dummy - THOR
2001 Dodge Neon
Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



Filter Class 600
Volpe Crash Testing
PH06608

Exponent
Failure
Analysis
Associates

Right Upper Tibia Moment (My) v Time
Passenger Dummy - THOR
2001 Dodge Neon
Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



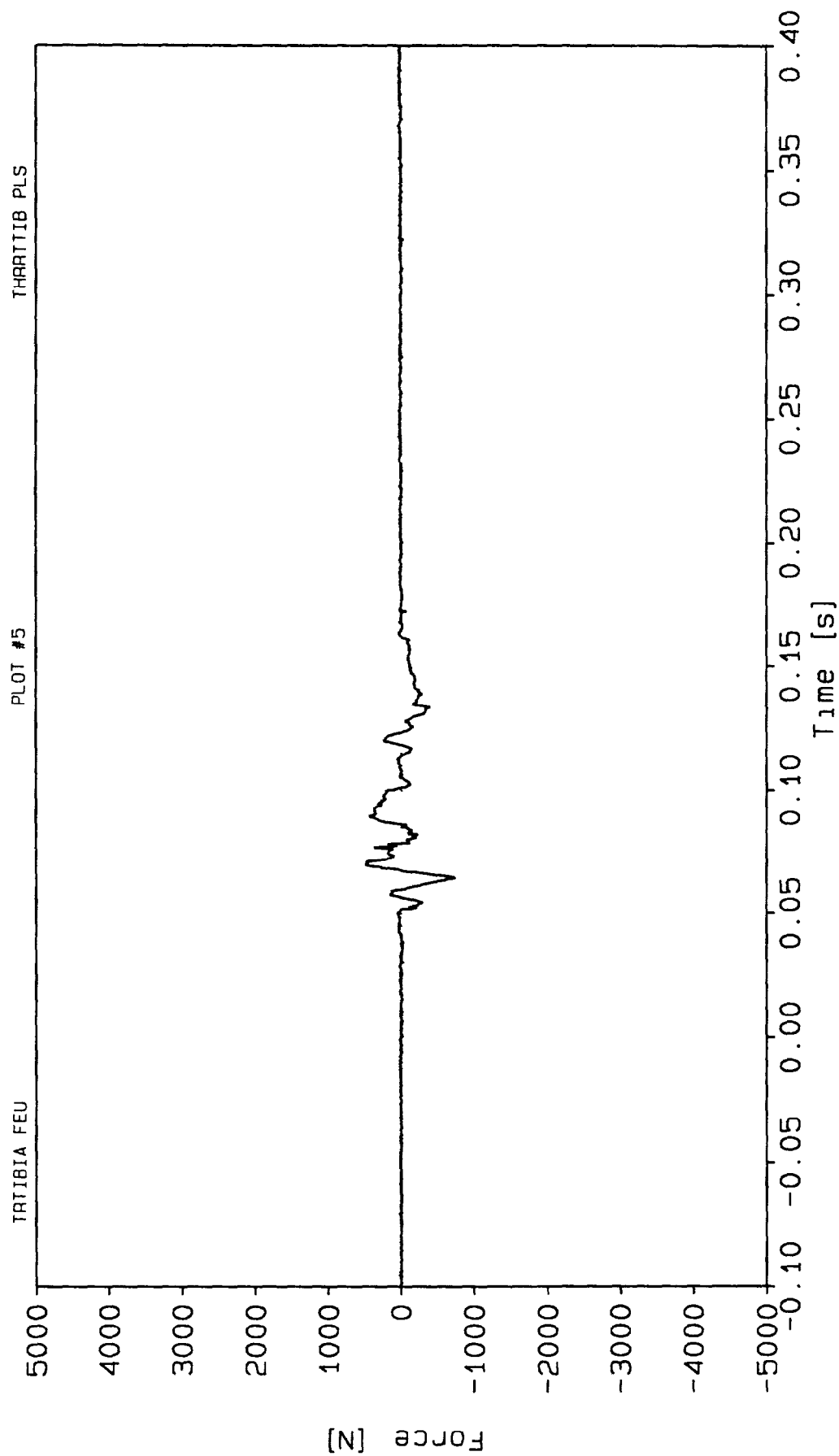
Filter Class 600
Volpe Crash Testing
PH06508

Exponent
Failure
Analysis
Associates

Right Lower Tibia Force (Fx) v Time

Passenger Dummy - THOR
2001 Dodge Neon

Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



Exponent
Failure
Analysis
Associates

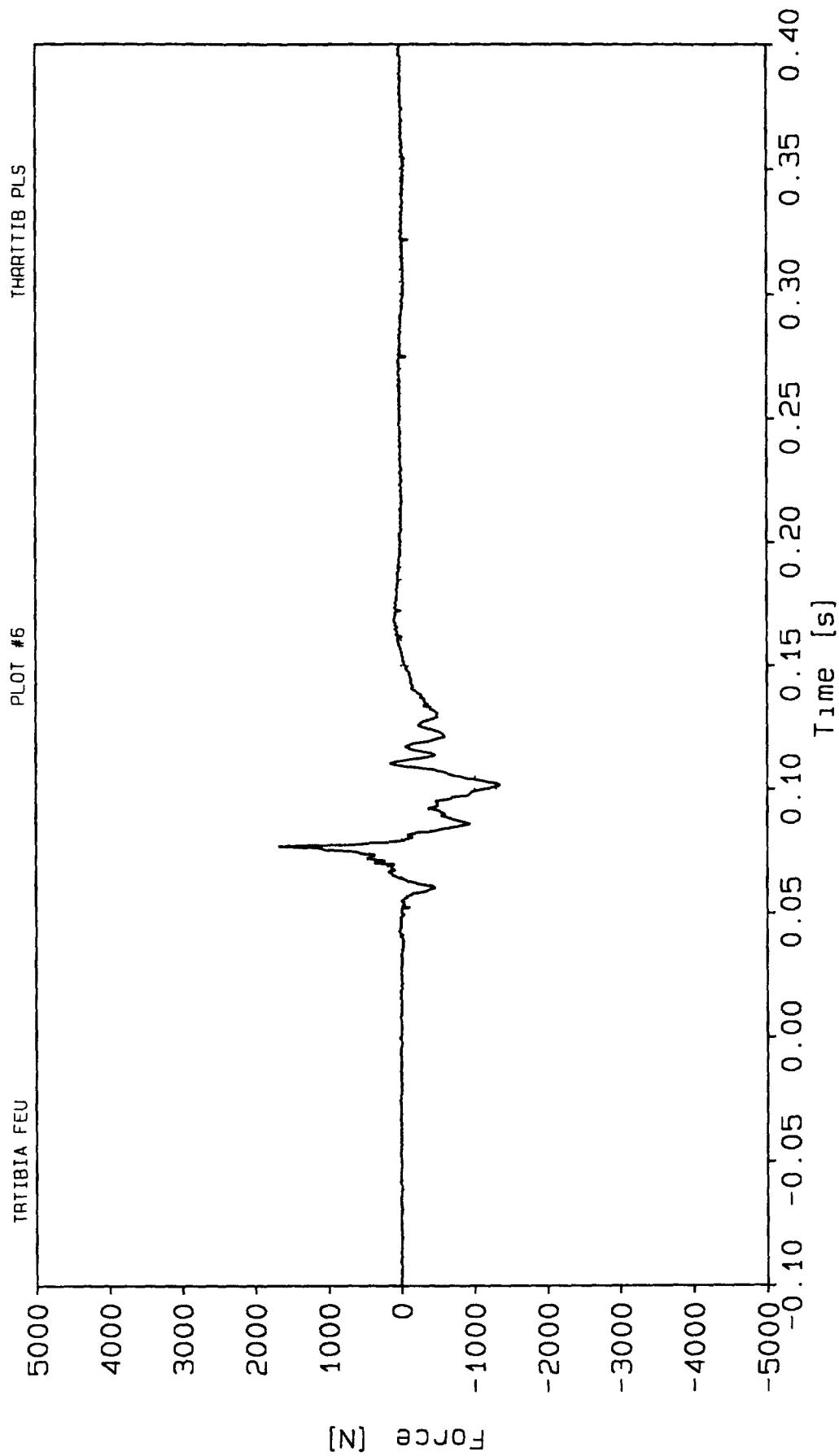
Filter Class 500
Volpe Crash Testing
PH05508

Right Lower Tibia Force (Fy) v Time

Passenger Dummy - THOR

2001 Dodge Neon

Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



Exponent
Failure
Analysis
Associates

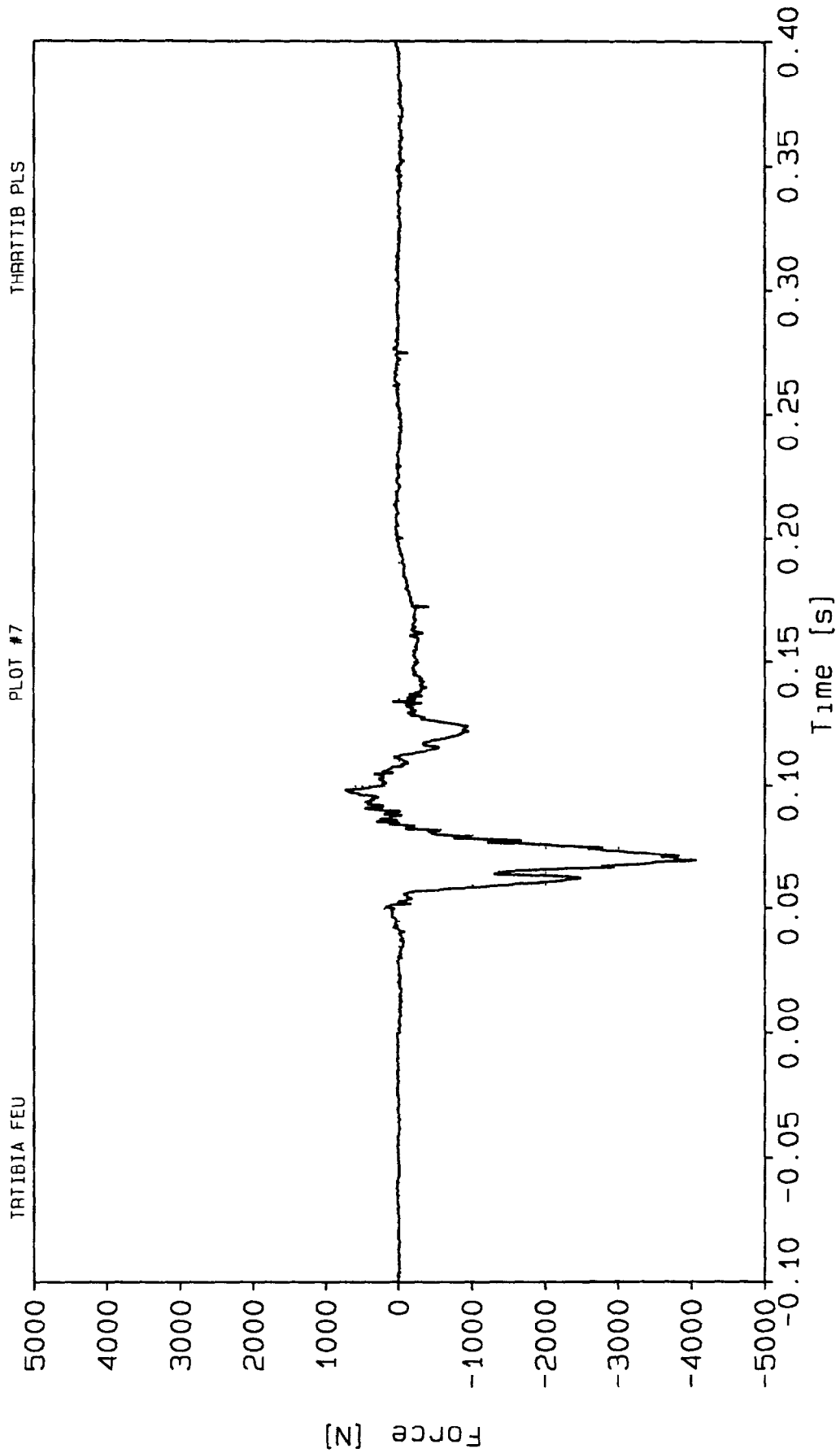
Filter Class 600
Volpe Crash Testing
PH06608

Right Lower Tibia Force (Fz) v Time

Passenger Dummy - THOR

2001 Dodge Neon

Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



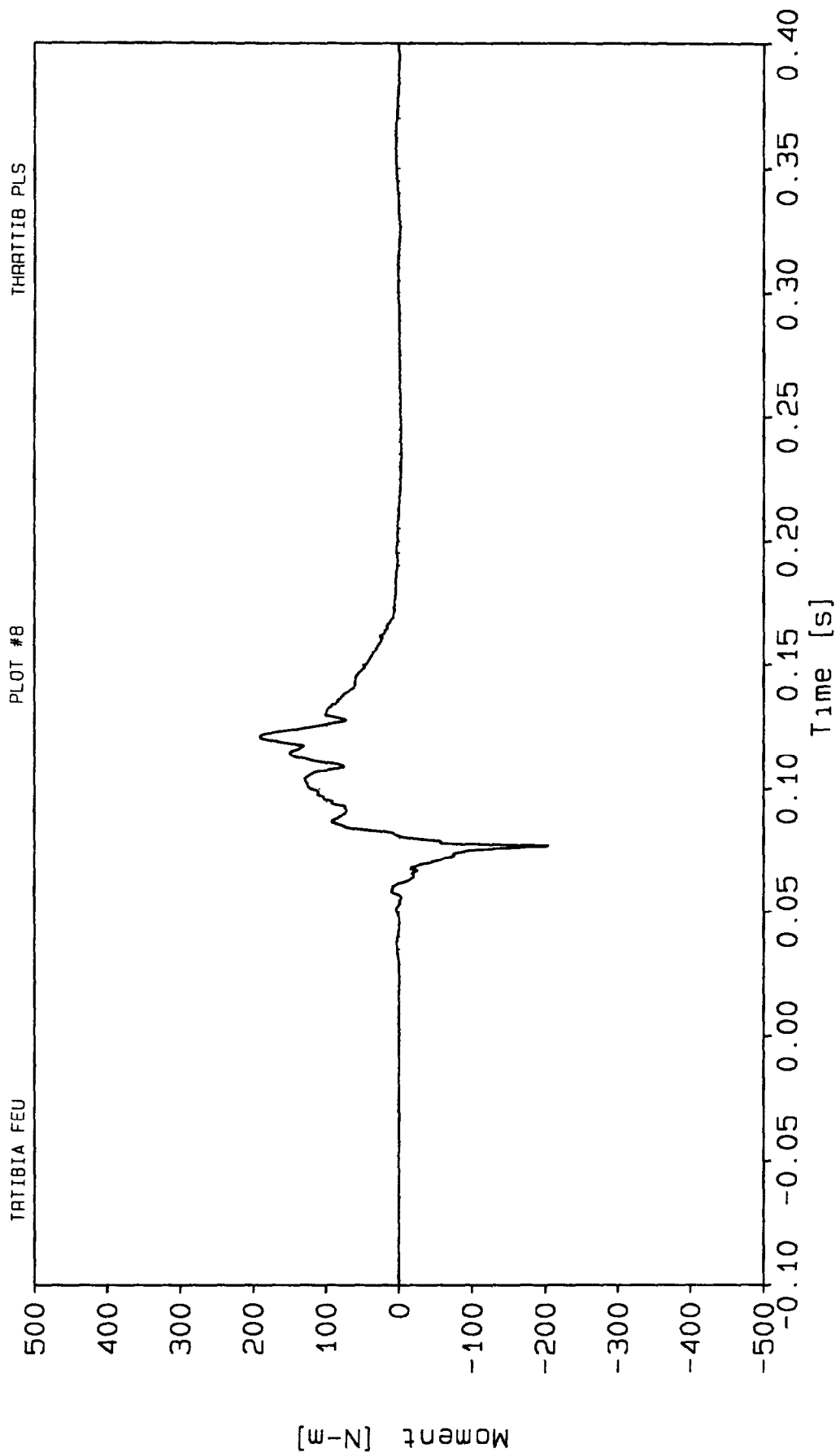
Filter Class 500
Volpe Crash Testing
PH06608

Exponent
Failure
Analysis
Associates

Right Lower Tibia Moment (Mx) v Time

Passenger Dummy - THOR
2001 Dodge Neon

Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



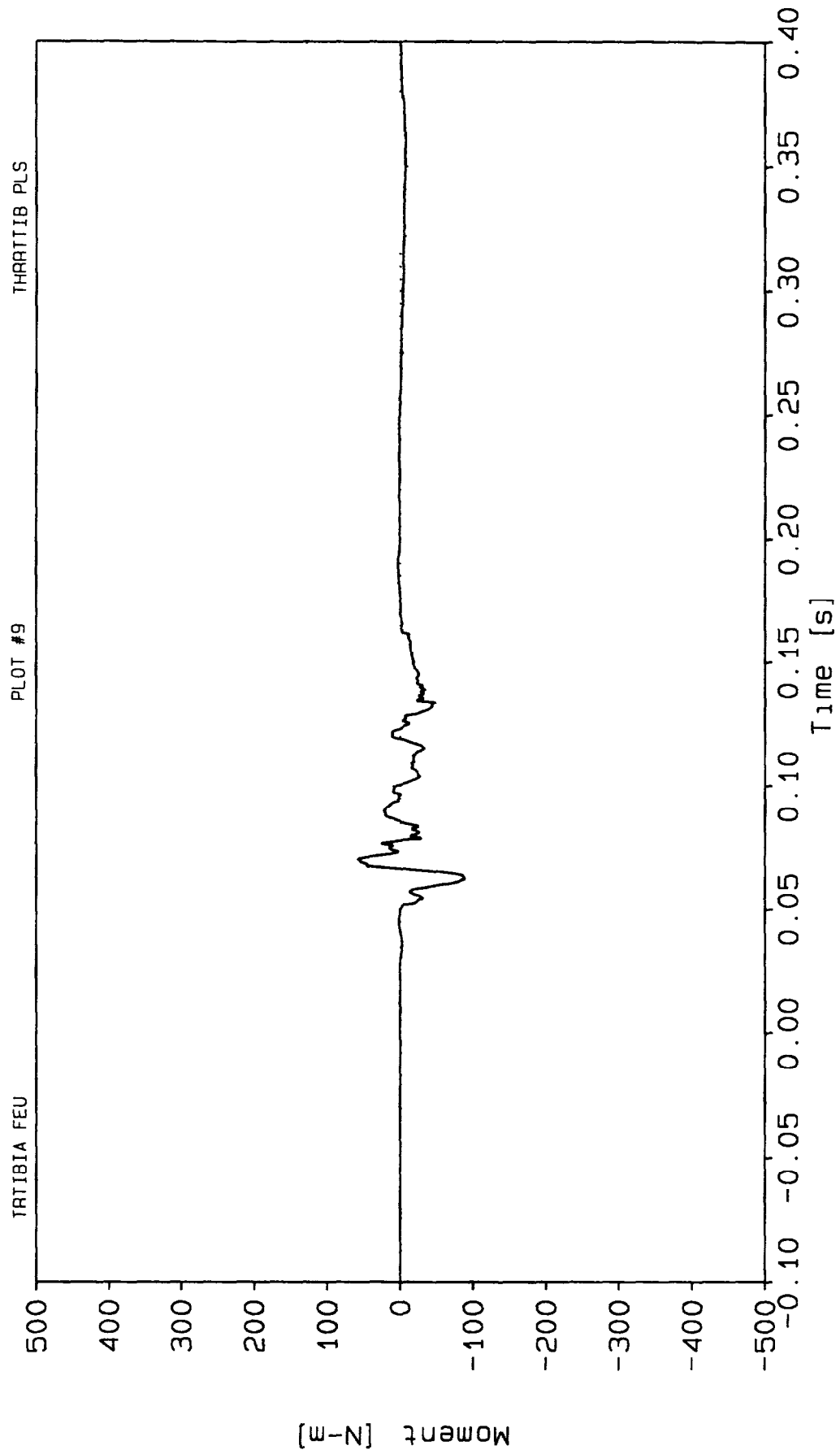
Filter Class 600
Volpe Crash Testing
PH06608

Exponent
Failure
Analysis
Associates

Right Lower Tibia Moment (My) v Time

Passenger Dummy - THOR
2001 Dodge Neon

Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



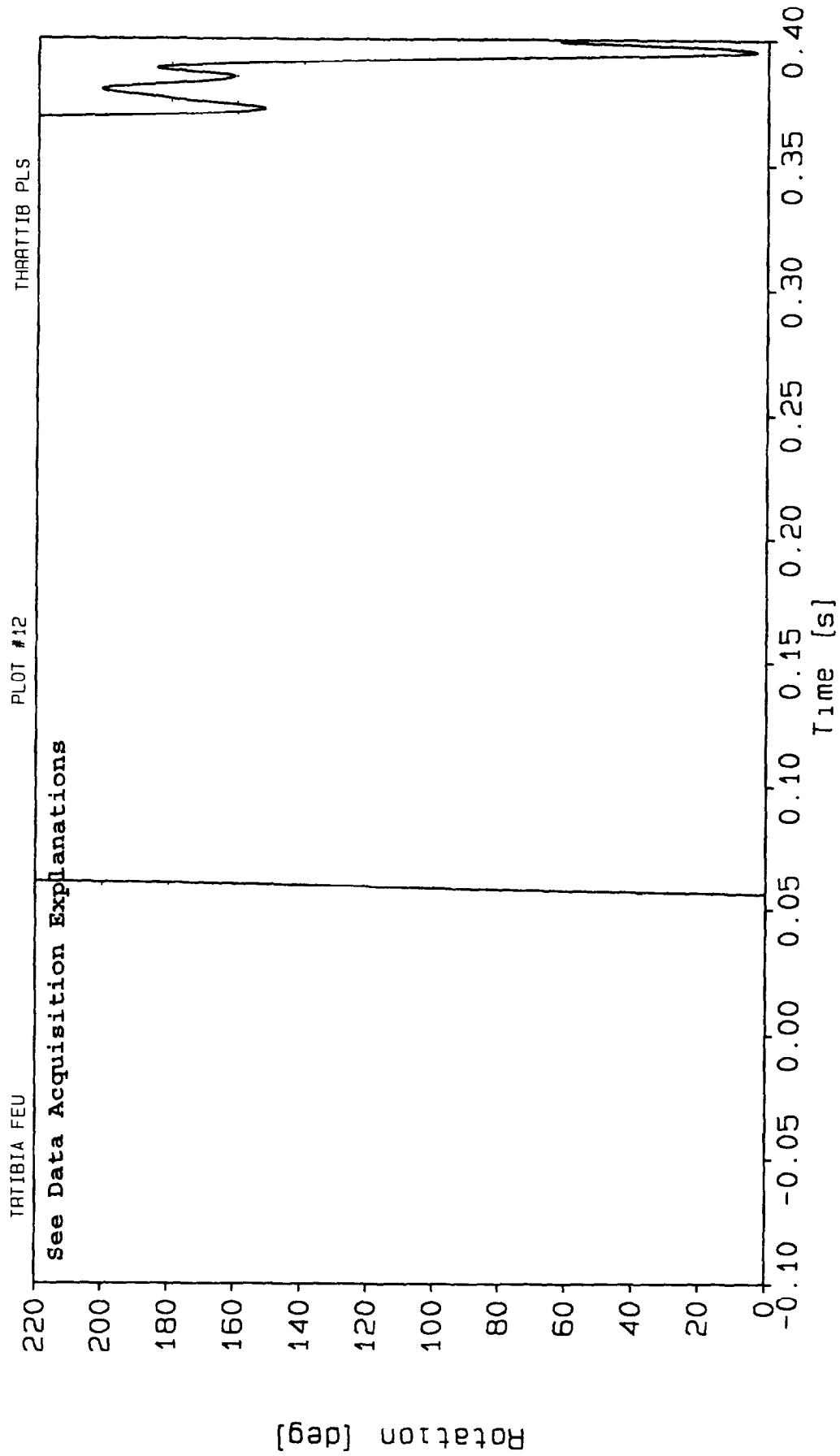
Filter Class 600
Volpe Crash Testing
PH06608

Exponent
Failure
Analysis
Associates

Right Ankle Rotation (X Axis) v Time

Passenger Dummy - THOR
2001 Dodge Neon

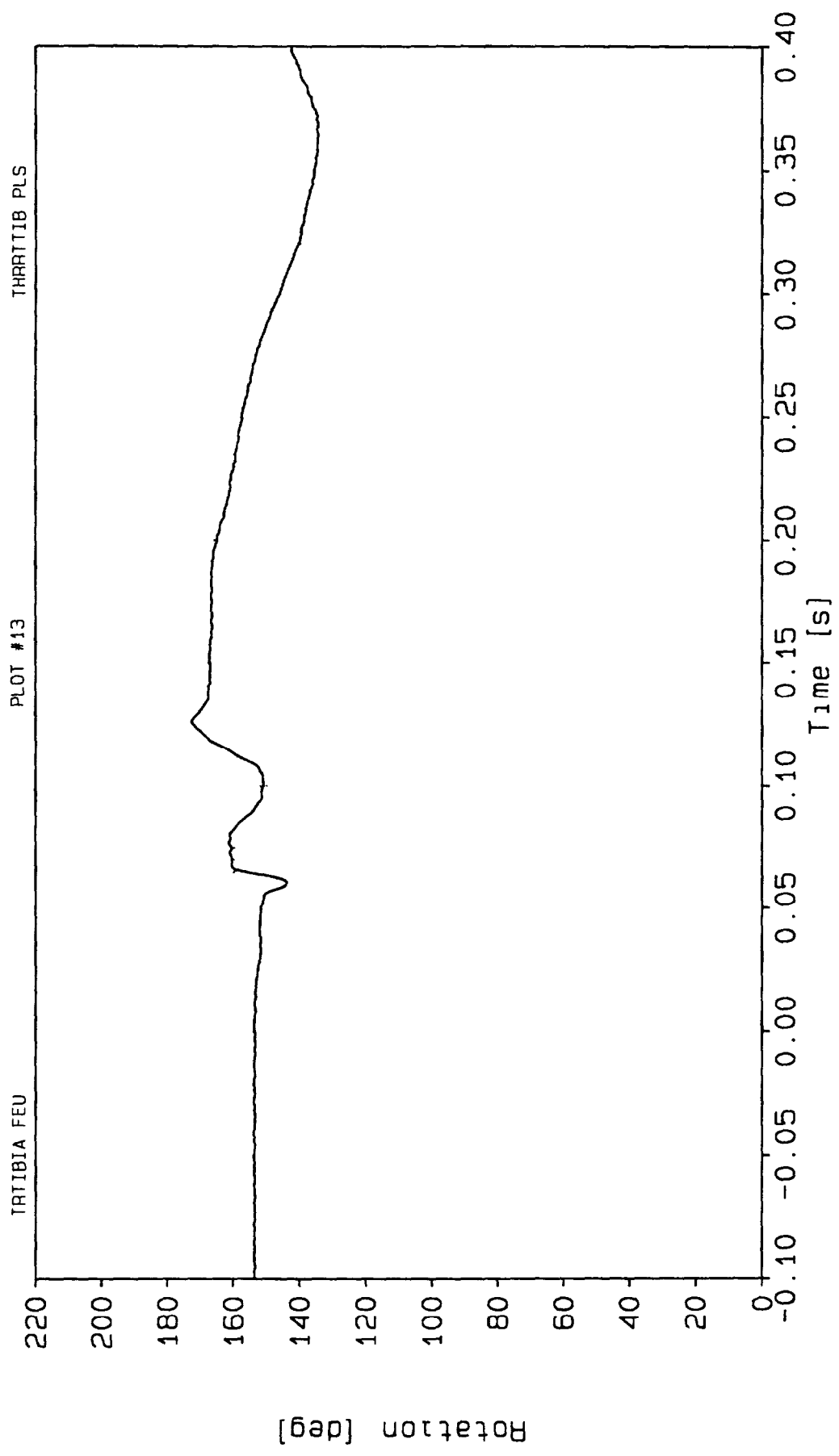
Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



Filter Class 180
Volpe Crash Testing
PH05608

Exponent
Failure
Analysis
Associates

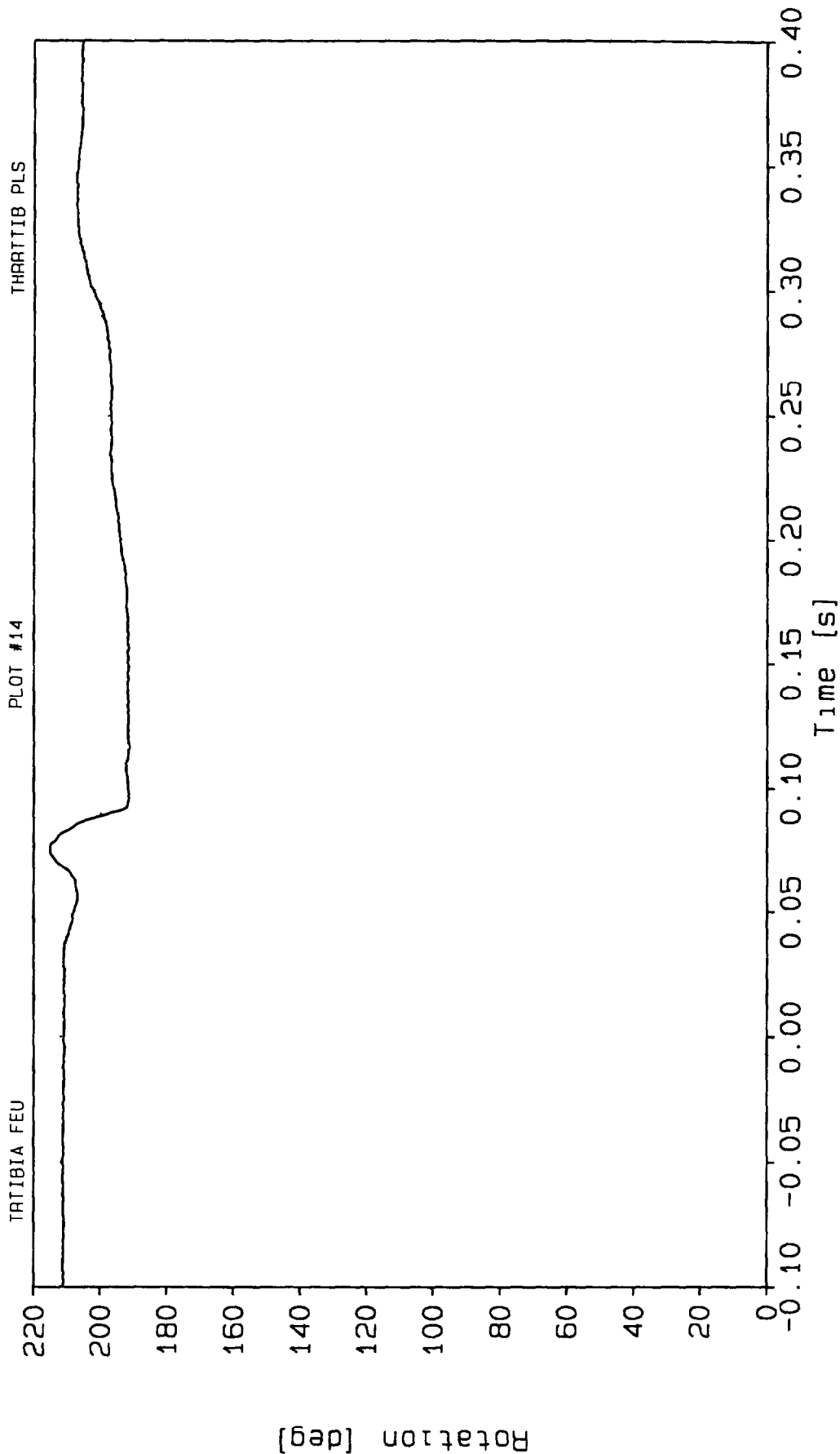
Right Ankle Rotation (Y Axis) v Time
Passenger Dummy - THOR
2001 Dodge Neon
Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



Right Ankle Rotation (Z Axis) v Time

Passenger Dummy - THOR
2001 Dodge Neon

Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



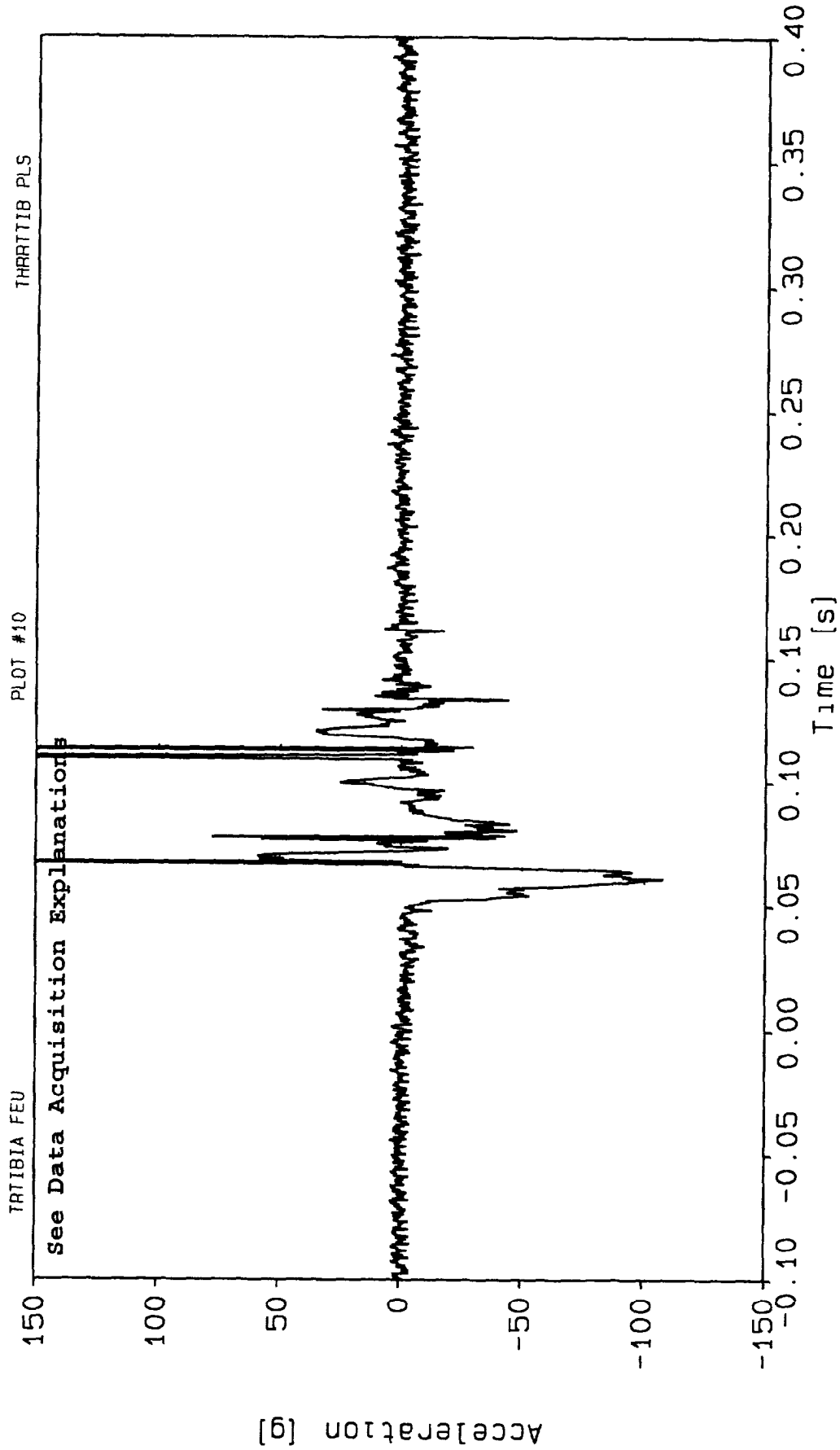
Exponent
Failure
Analysis
Associates

Filter Class 180
Volpe Crash Testing
PH06608

Right Tibia Acceleration (Ax) v Time

Passenger Dummy - THOR
2001 Dodge Neon

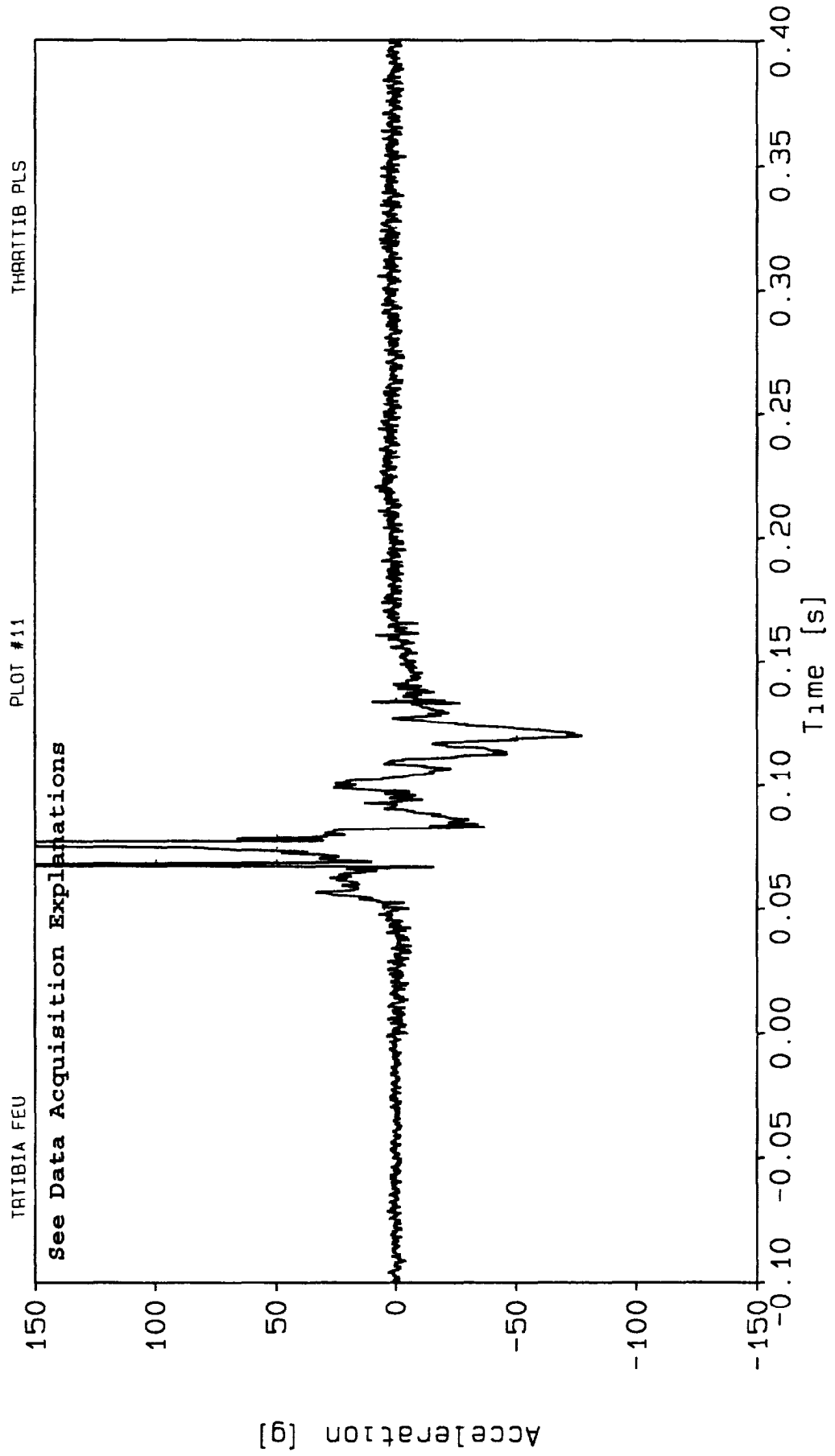
Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



Filter Class 600
Volpe Crash Testing
PH06608

Exponent
Failure
Analysis
Associates

Right Tibia Acceleration (Ay) v Time
Passenger Dummy - THOR
2001 Dodge Neon
Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



Filter Class 600
Volpe Crash Testing
PH06508

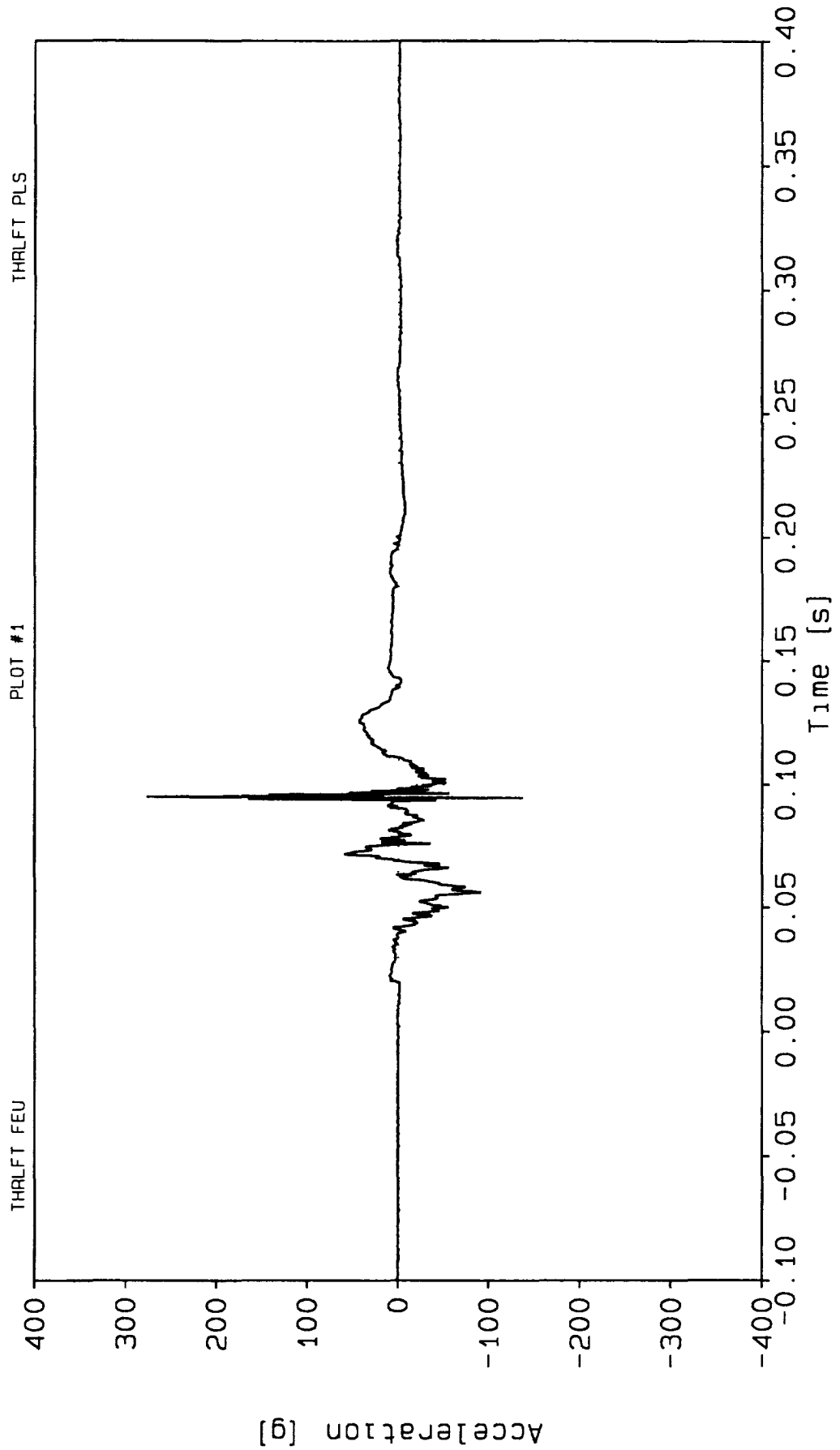
Exponent
Failure
Analysis
Associates

Left Foot Acceleration (Ax) v Time

Passenger Dummy - THOR

2001 Dodge Neon

Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



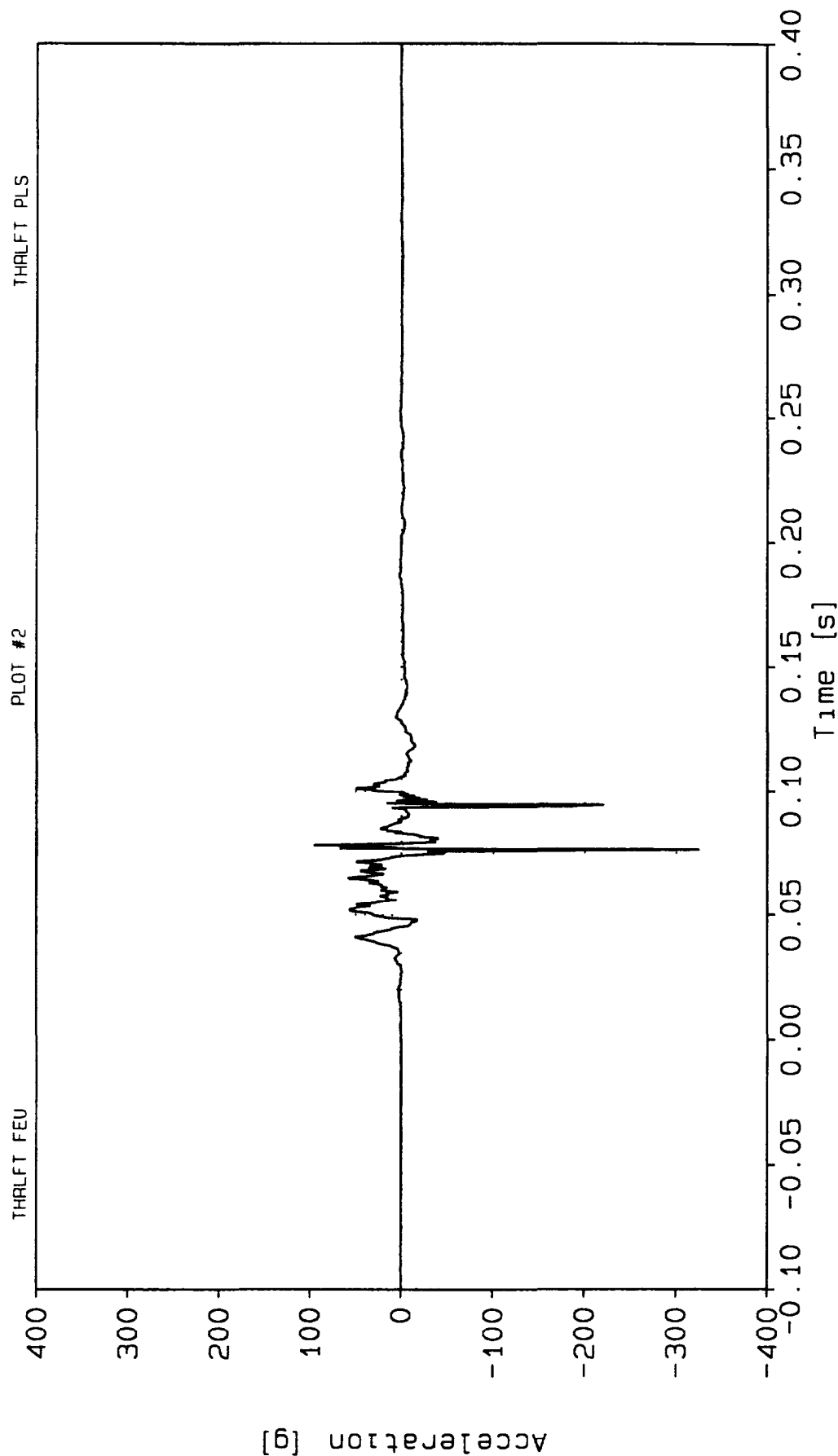
Filter Class 600
Volpe Crash Testing
PH06608

Exponent
Failure
Analysis
Associates

Left Foot Acceleration (Ay) v Time

Passenger Dummy - THOR
2001 Dodge Neon

Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



Filter Class 600
Volpe Crash Testing
PH06608

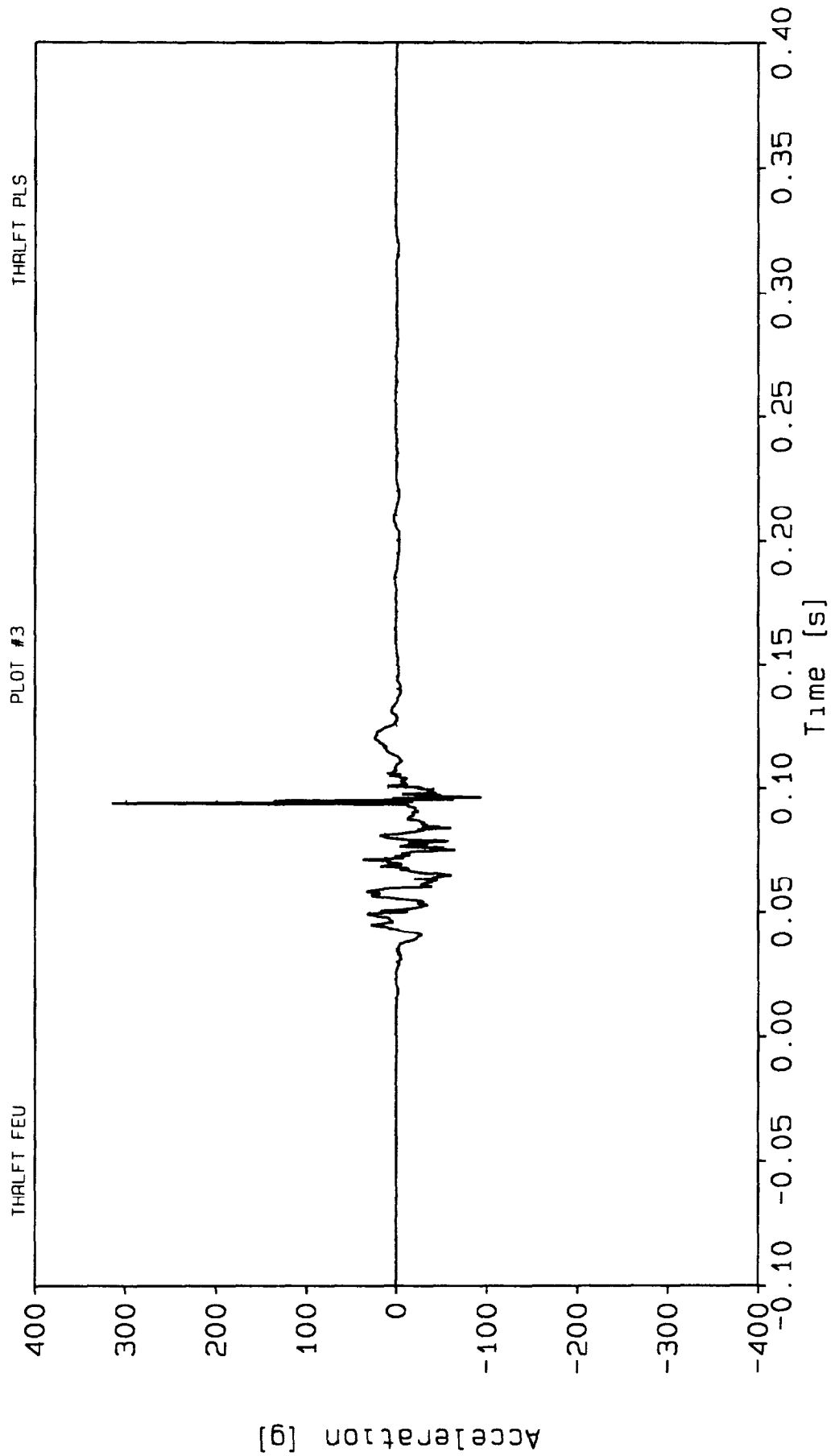
Exponent
Failure
Analysis
Associates

Left Foot Acceleration (Az) v Time

Passenger Dummy - THOR

2001 Dodge Neon

Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



Filter Class 600
Volpe Crash Testing
PH06608

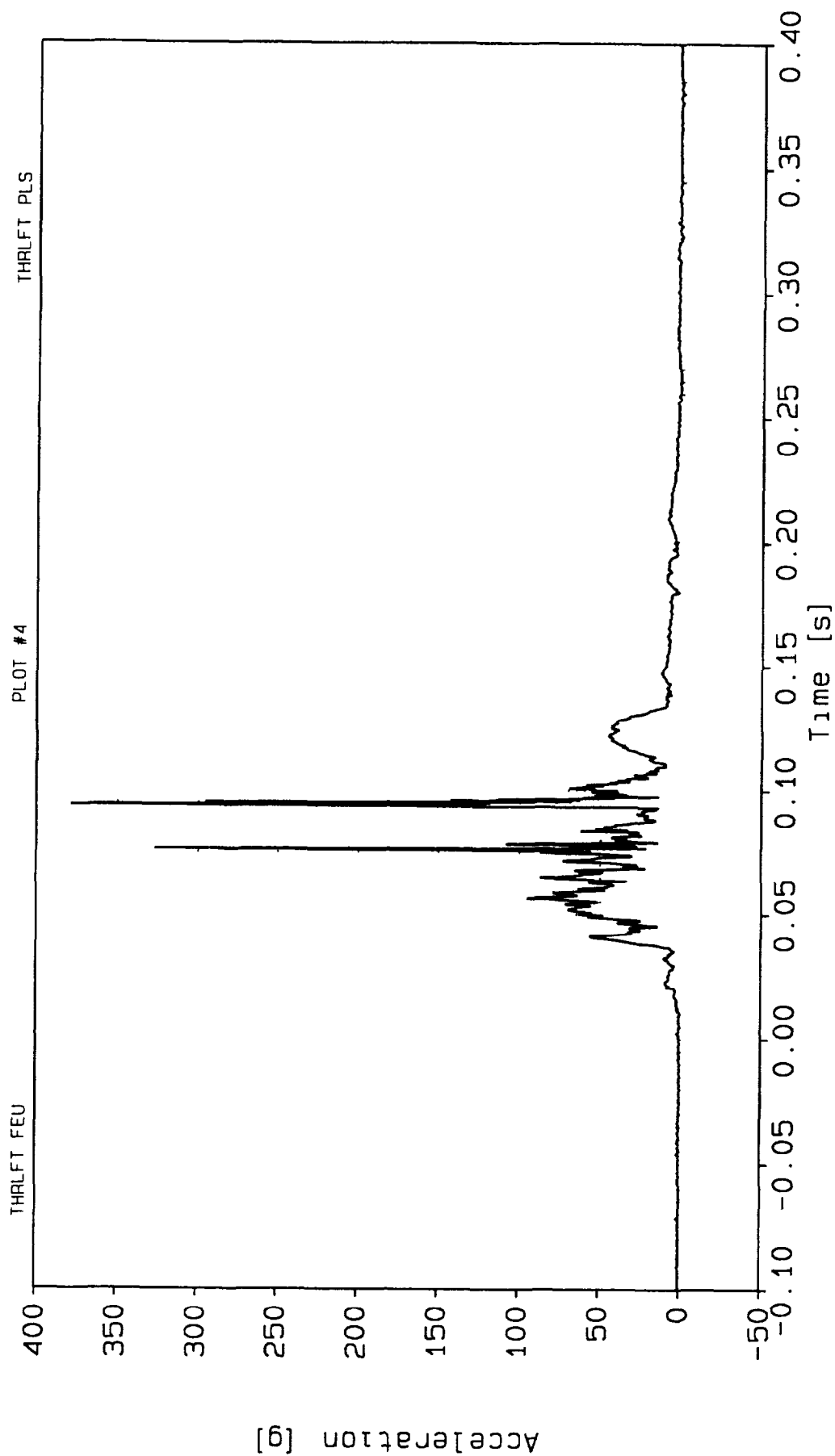
Exponent
Failure
Analysis
Associates

Left Foot Resultant Acceleration (Ar) v Time

Passenger Dummy - THOR

2001 Dodge Neon

Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



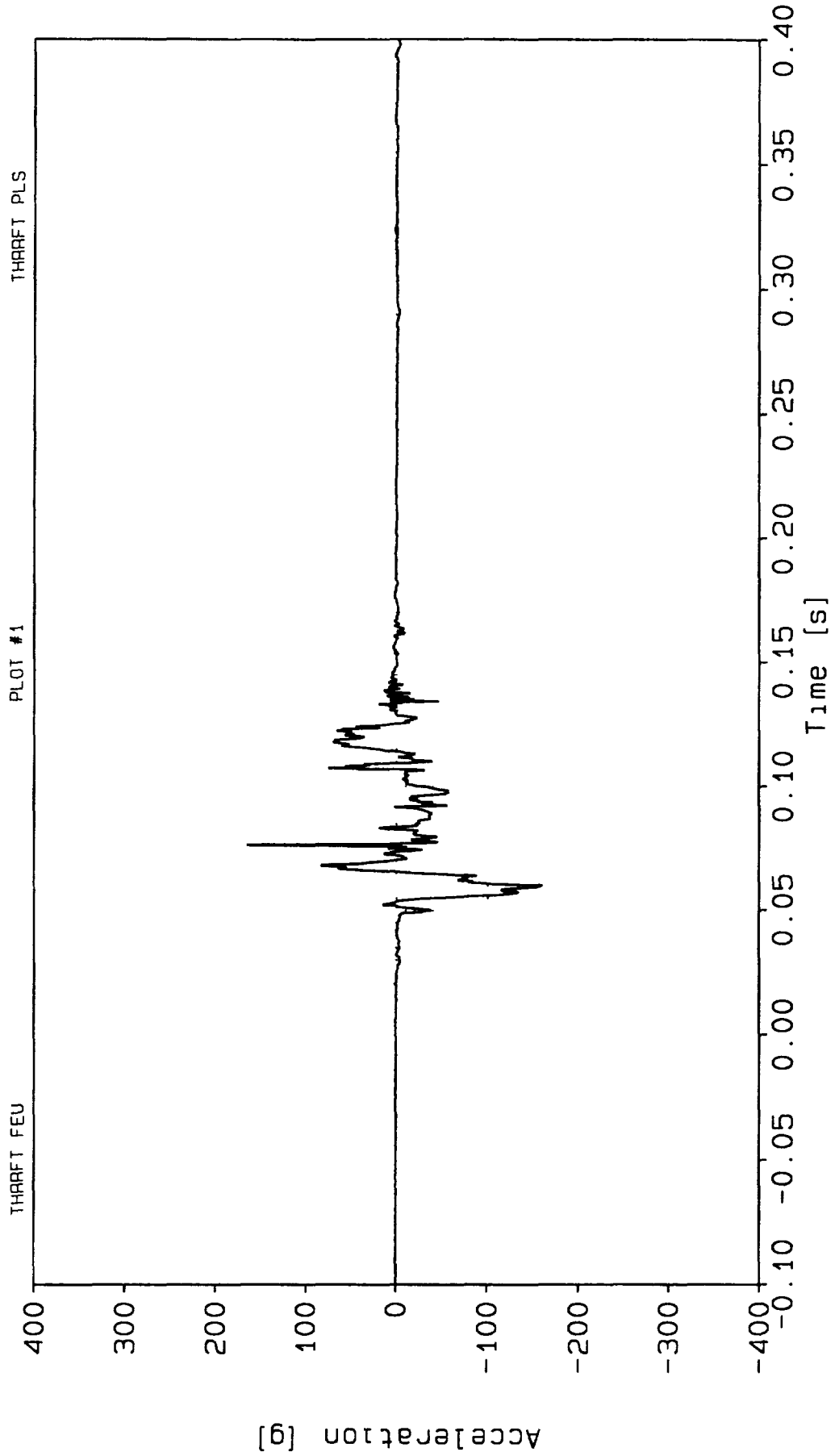
Exponent
Failure
Analysis
Associates

Filter Class 600
Volpe Crash Testing
PH06608

Right Foot Acceleration (Ax) v Time

Passenger Dummy - THOR
2001 Dodge Neon

Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



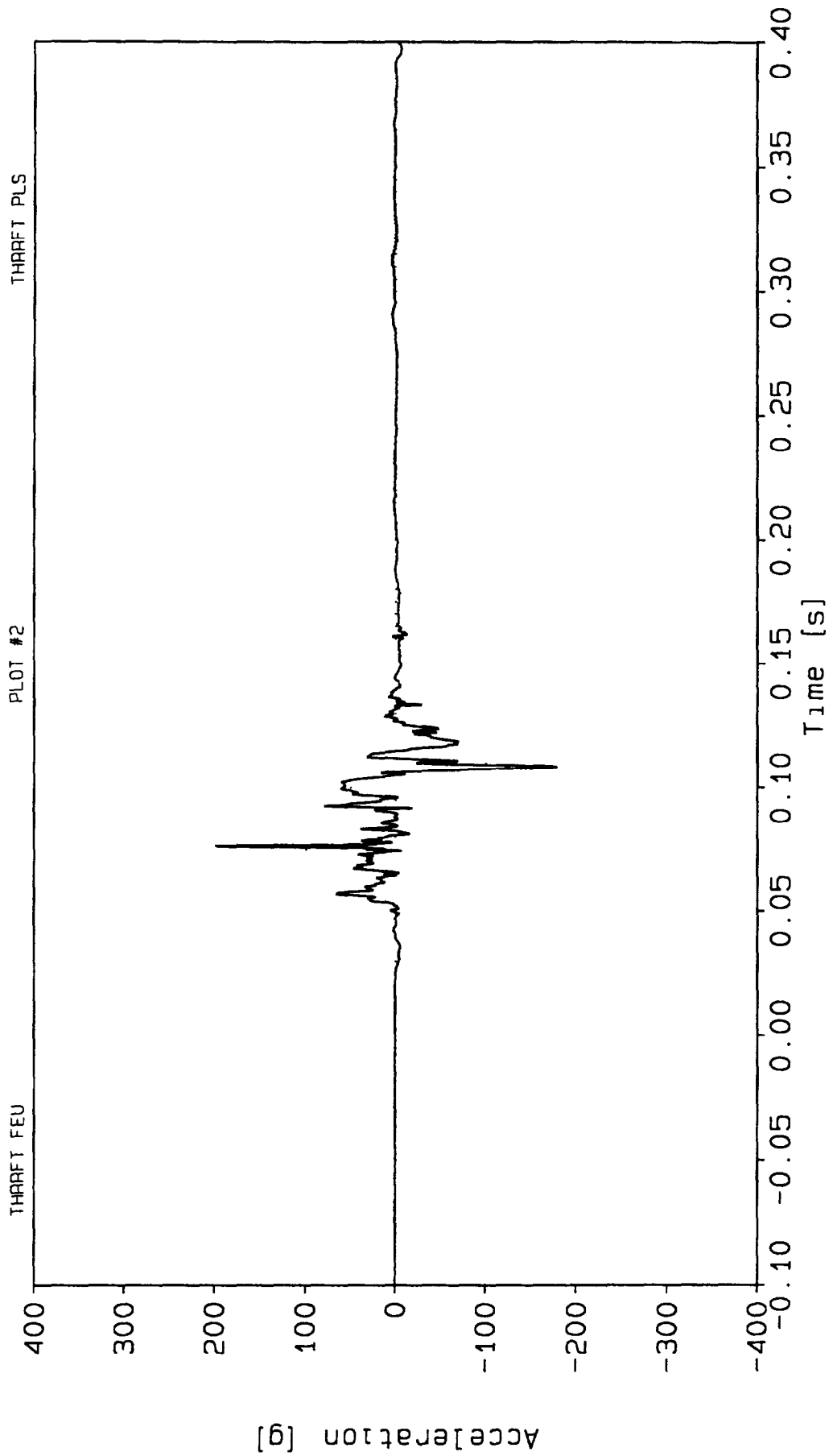
Filter Class 500
Volpe Crash Testing
PH06608

Exponent
Failure
Analysis
Associates

Right Foot Acceleration (Ay) v Time

Passenger Dummy - THOR
2001 Dodge Neon

Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



Filter Class 800
Volpe Crash Testing
PH06608

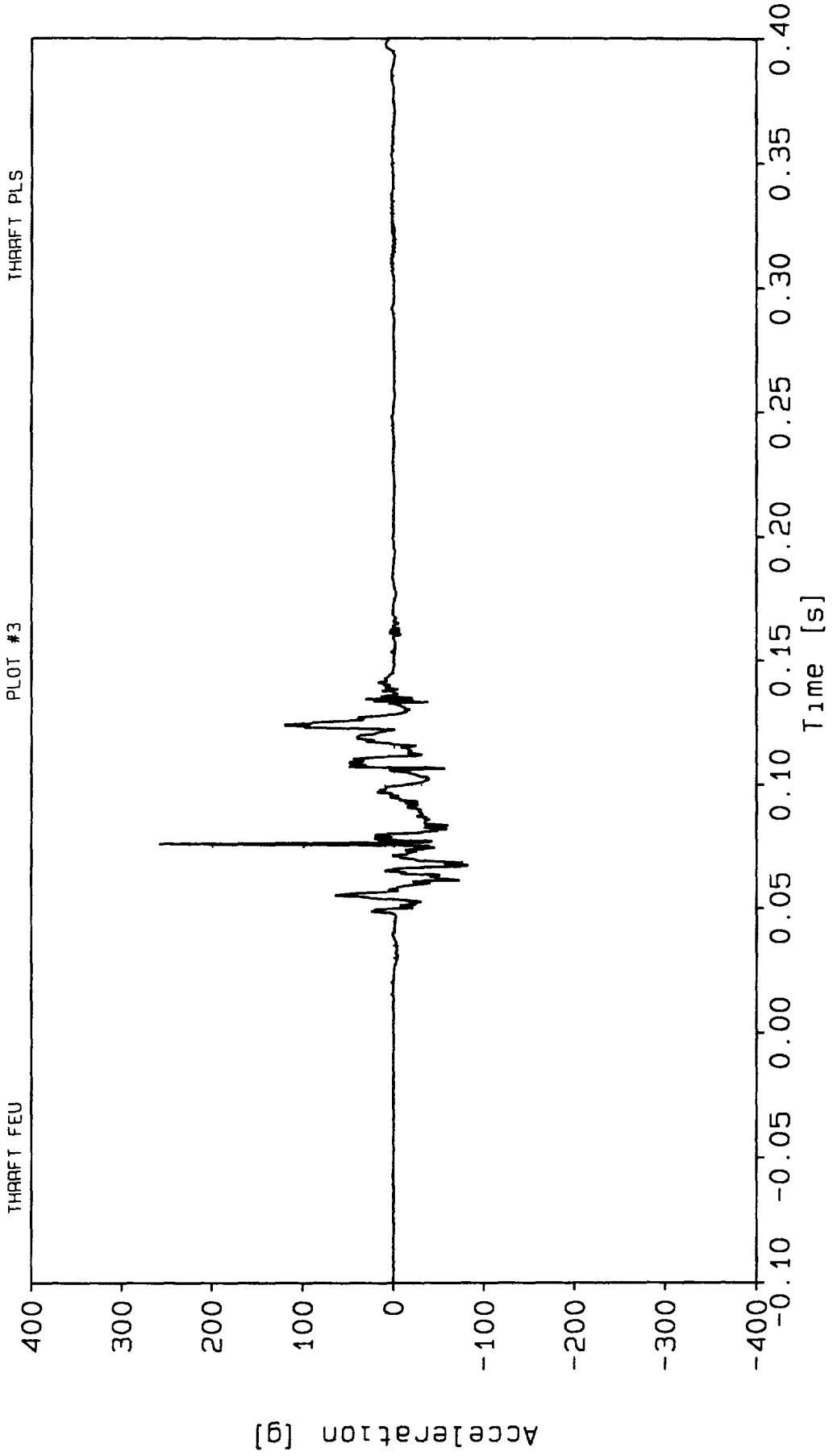
Exponent
Failure
Analysis
Associates

Right Foot Acceleration (Az) v Time

Passenger Dummy - THOR

2001 Dodge Neon

Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



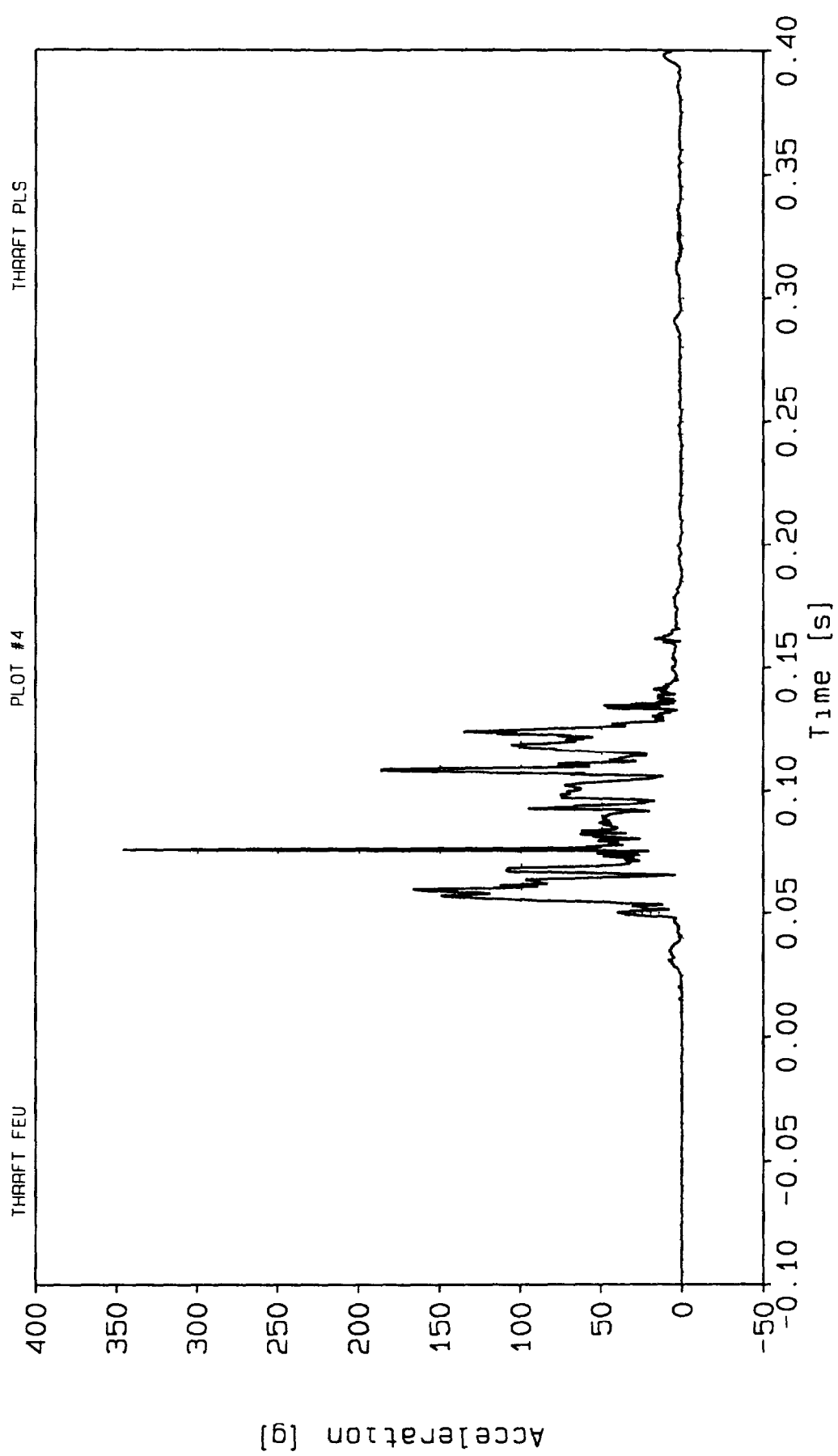
Filter Class 600
Volpe Crash Testing
PH06608

Exponent
Failure
Analysis
Associates

Right Foot Resultant Acceleration (Ar) v Time

Passenger Dummy - THOR
2001 Dodge Neon

Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



Exponent
Failure
Analysis
Associates

Filter Class 600
Volpe Crash Testing
PH06608

Acceleration [g]

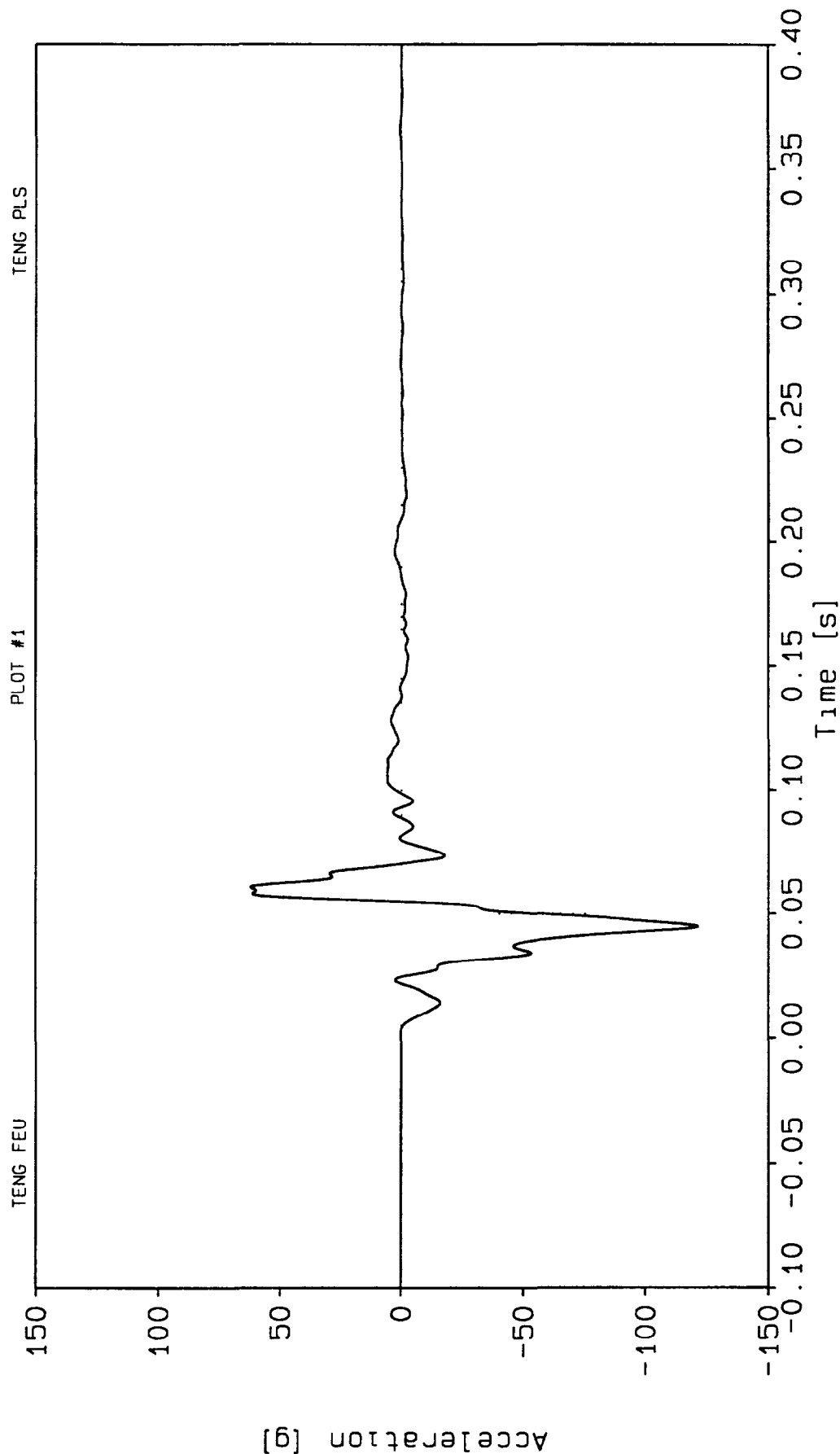
B-201

091801

Acceleration (Ax) v Time

Top of Engine
2001 Dodge Neon

Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01

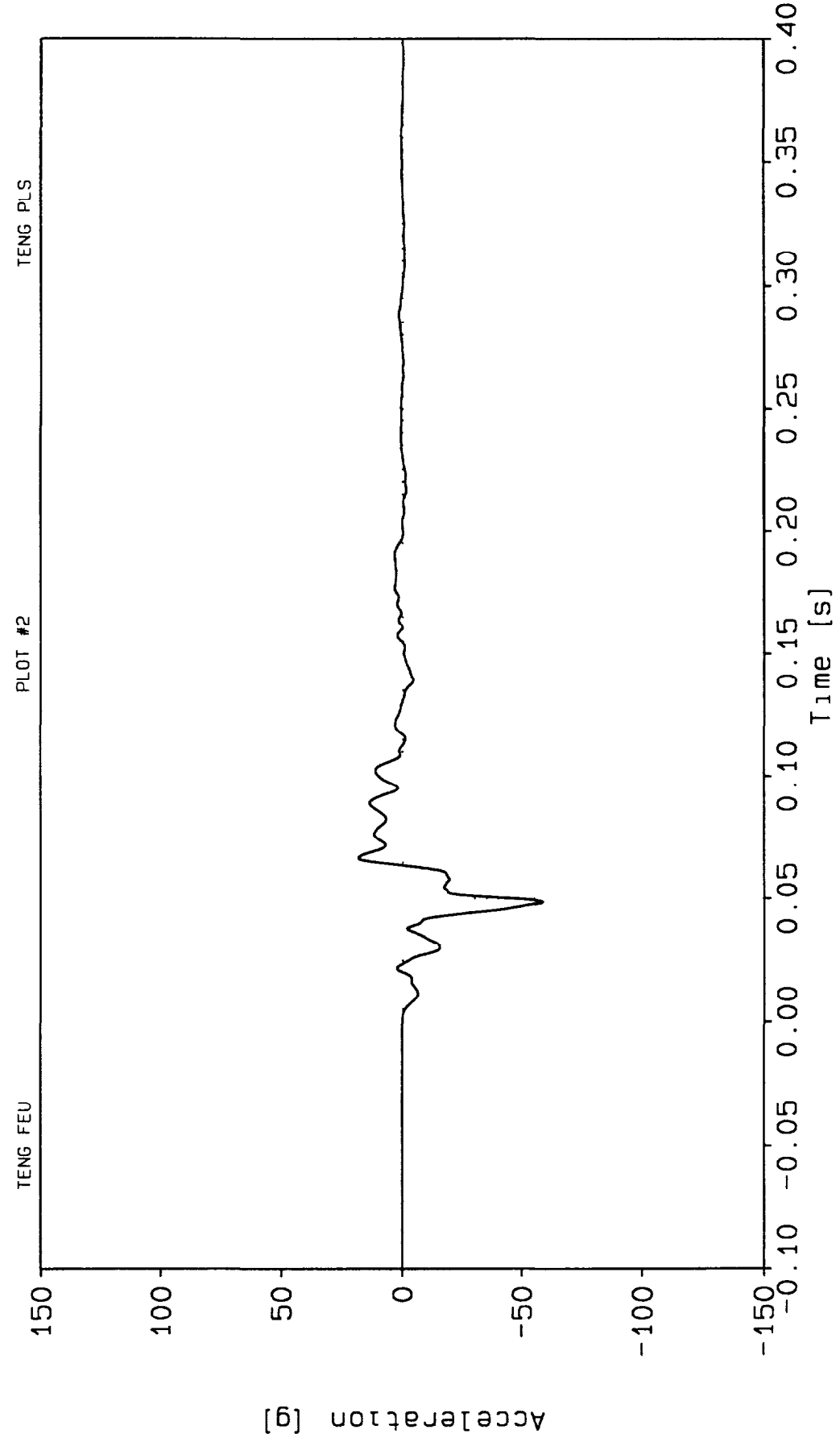


Filter Class 60
Volpe Crash Testing
PH06608

Exponent
Failure
Analysis
Associates

Acceleration (Ay) v Time

Top of Engine
2001 Dodge Neon
Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



Filter Class 60
Volpe Crash Testing
PH06608

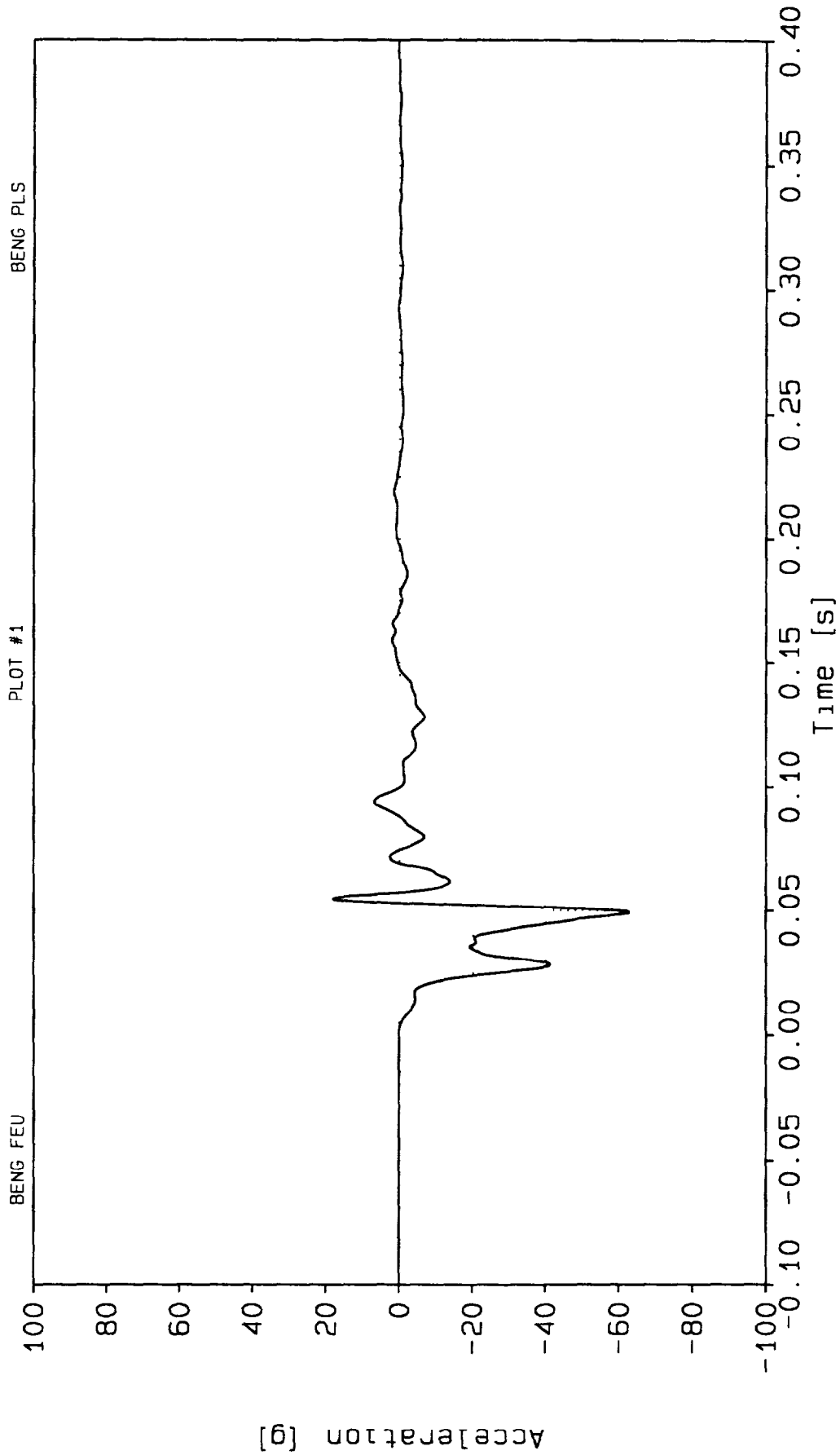
Exponent
Failure
Analysis
Associates

Acceleration (Ax) v Time

Bottom of Engine

2001 Dodge Neon

Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



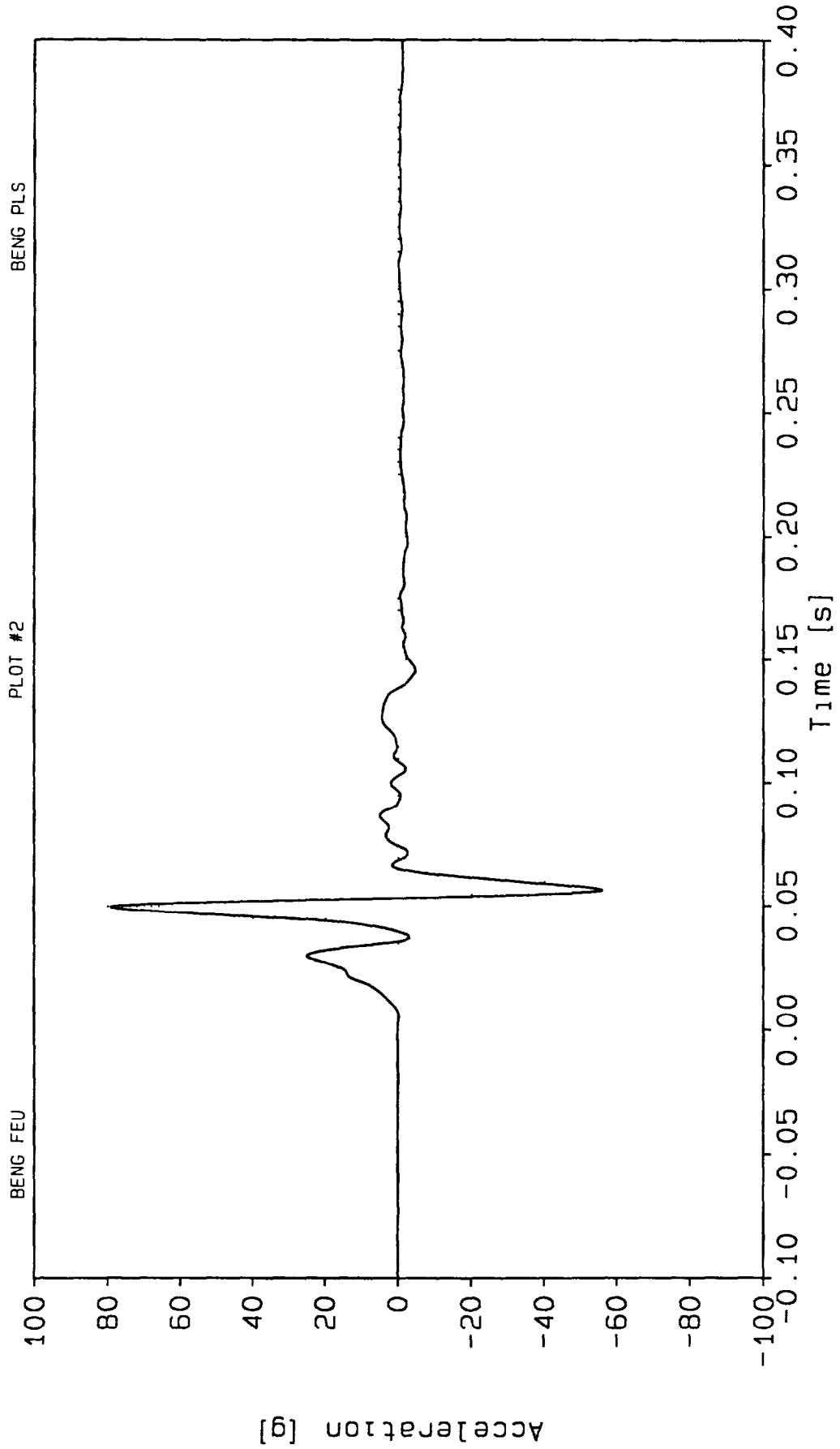
Exponent
Failure
Analysis
Associates

Filter Class 50
Volpe Crash Testing
PH06608

Acceleration (Ay) v Time

Bottom of Engine
2001 Dodge Neon

Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



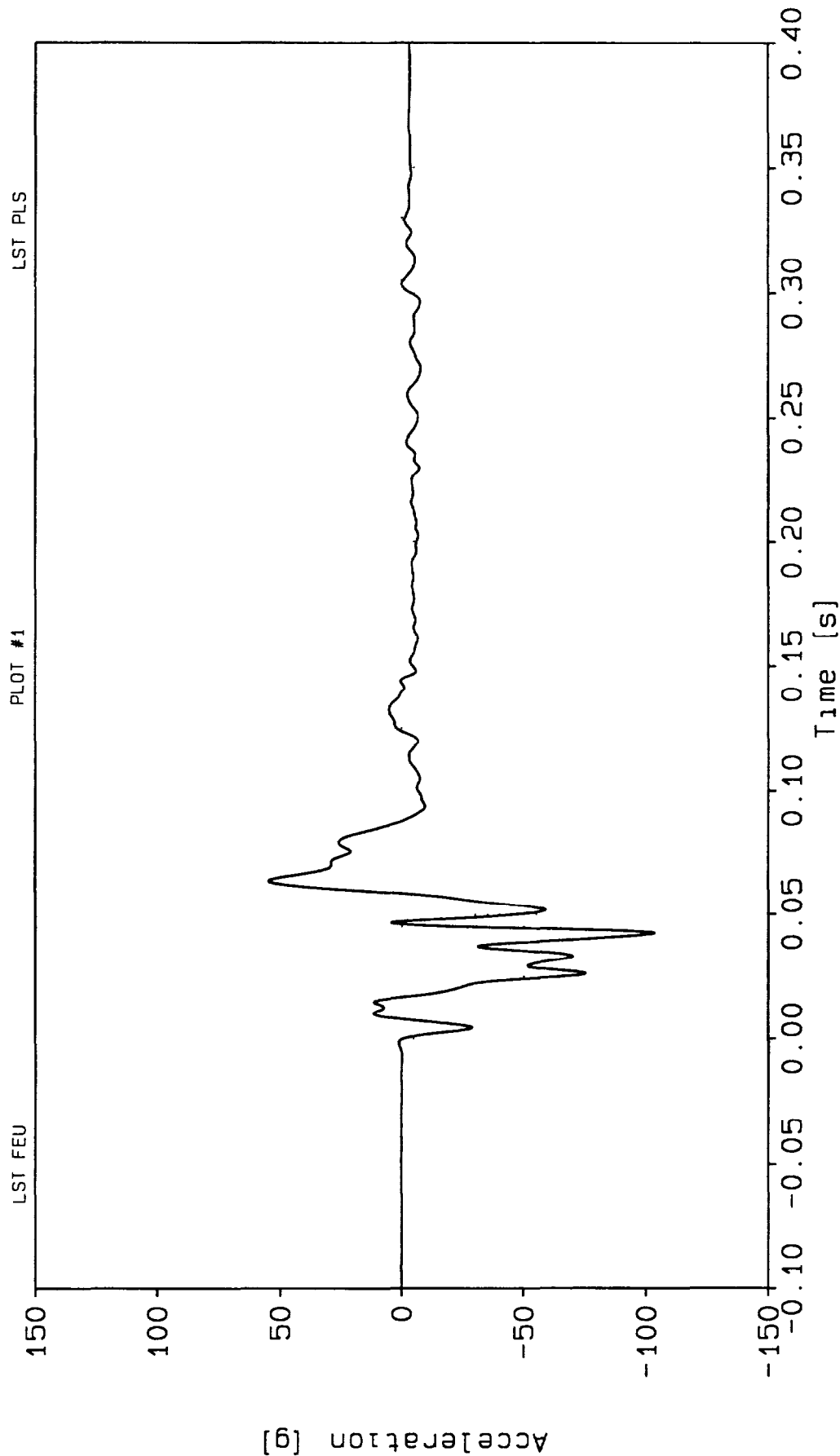
Filter Class 60
Volpe Crash Testing
PH06608

Exponent
Failure
Analysis
Associates

Acceleration (Ax) v Time

Left Shock Tower
2001 Dodge Neon

Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



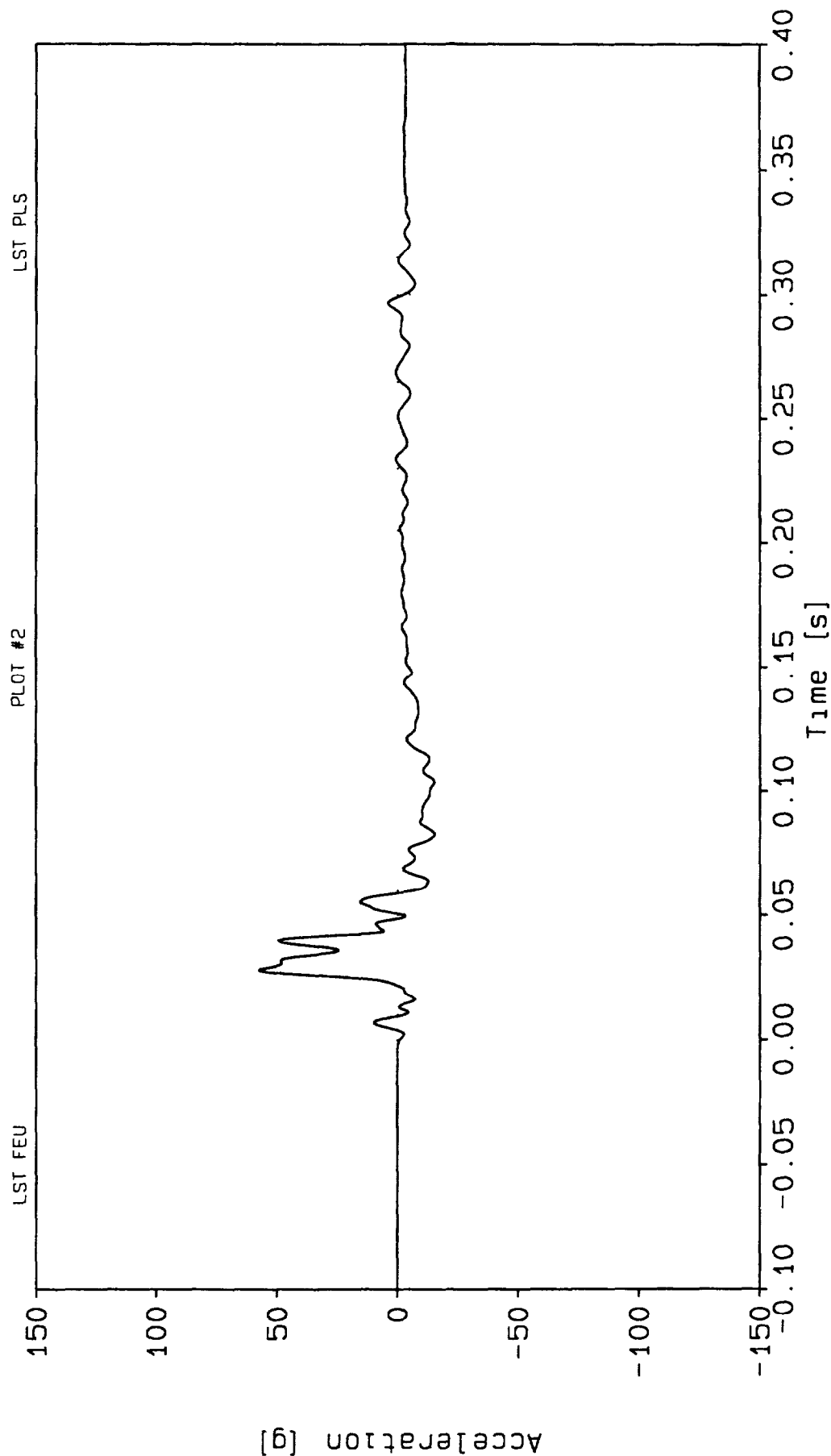
Filter Class 60
Volpe Crash Testing
PH06608

Exponent
Failure
Analysis
Associates

Acceleration (Ay) v Time

Left Shock Tower
2001 Dodge Neon

Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



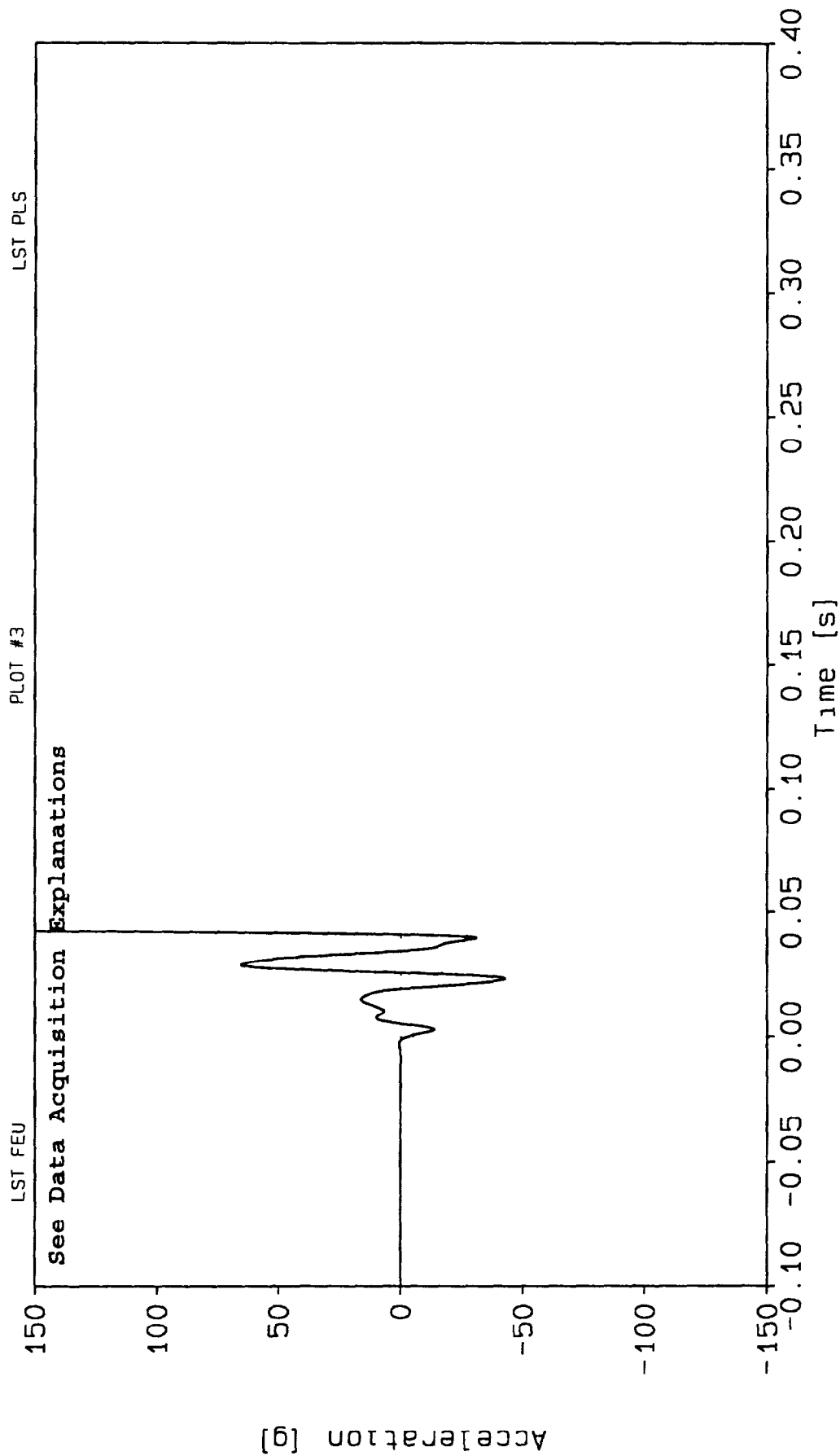
Filter Class 60
Volpe Crash Testing
PH05608

Exponent
Failure
Analysis
Associates

Acceleration (Az) v Time

Left Shock Tower
2001 Dodge Neon

Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



Exponent
Failure
Analysis
Associates

Filter Class 60
Volpe Crash Testing
PH06608

Acceleration [g]

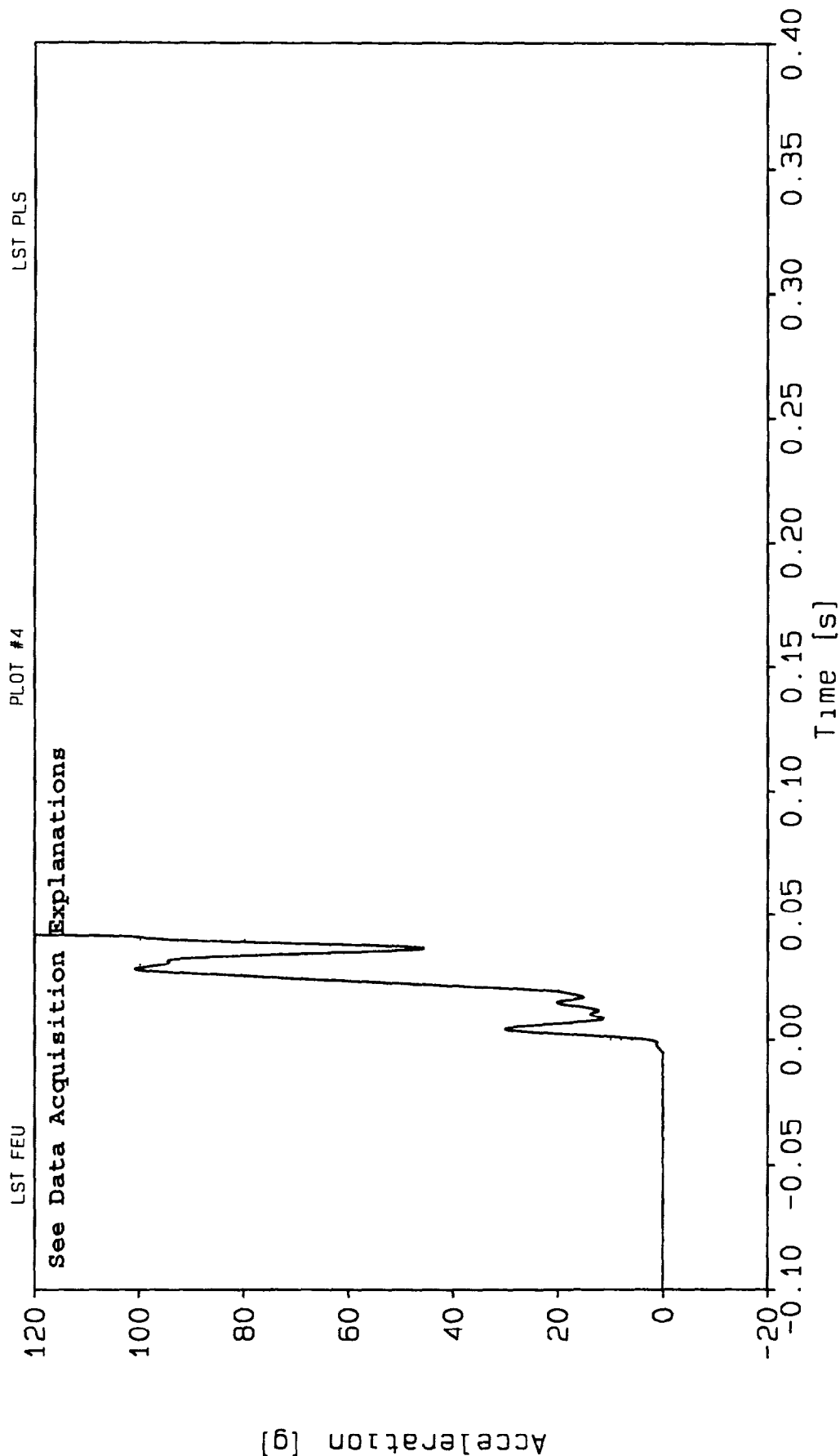
B-208

091801

Resultant Acceleration (Ar) v Time

Left Shock Tower
2001 Dodge Neon

Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



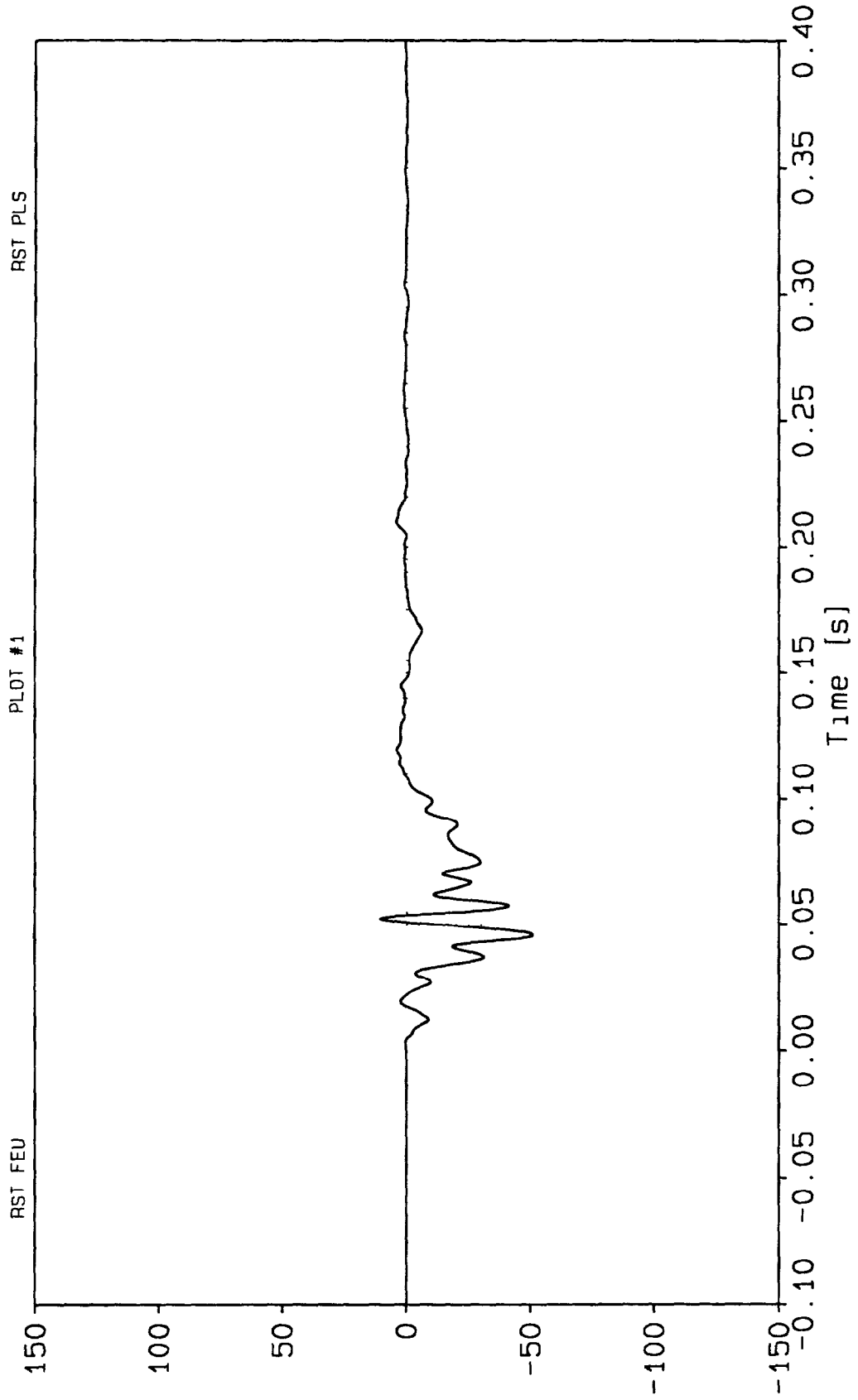
Exponent
Failure
Analysis
Associates

Filter Class 60
Volpe Crash Testing
PH06608

Acceleration (Ax) v Time

Right Shock Tower
2001 Dodge Neon

Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



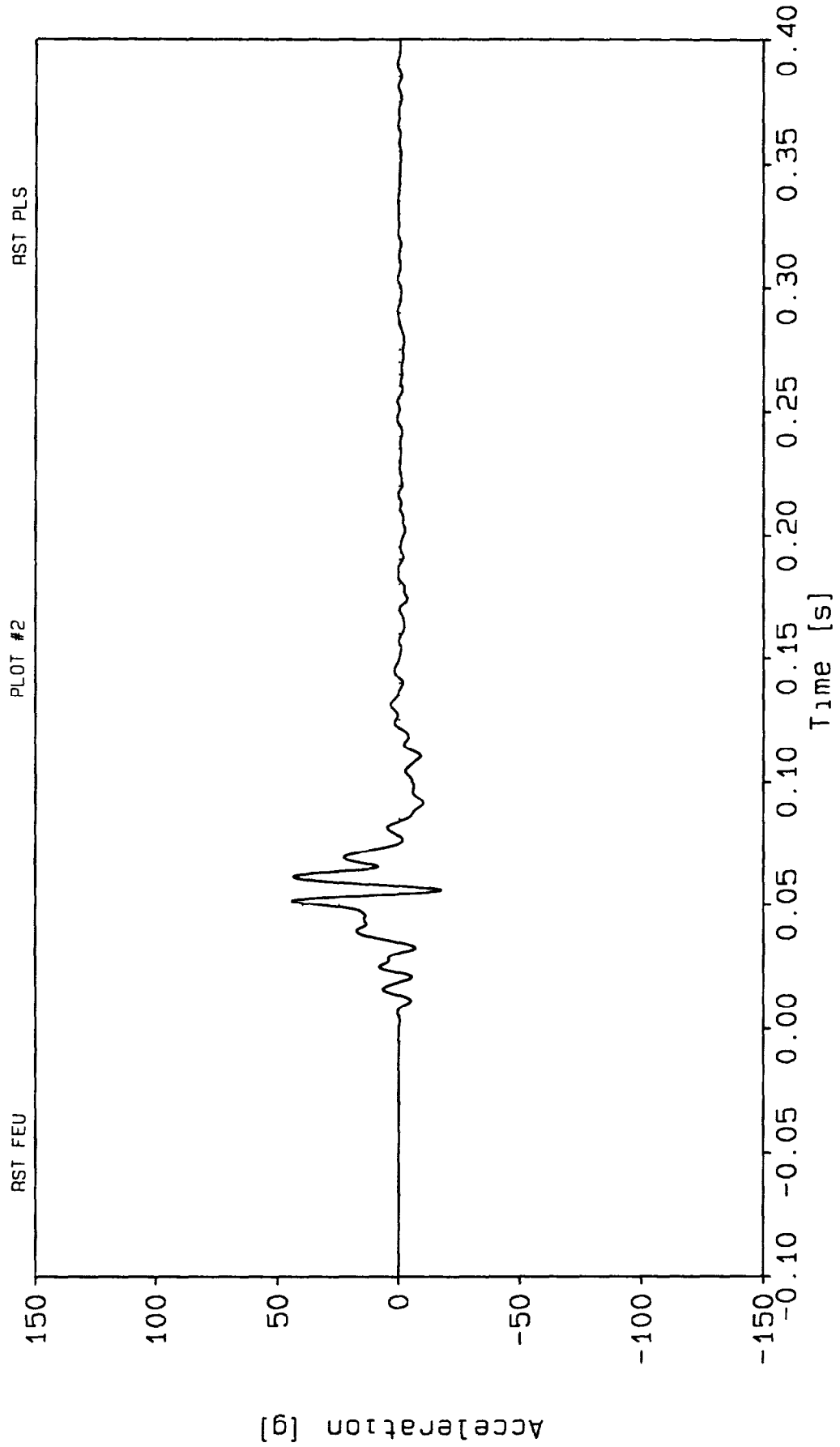
Exponent
Failure
Analysis
Associates

Filter Class 60
Volpe Crash Testing
PH06608

Acceleration (Ay) v Time

Right Shock Tower
2001 Dodge Neon

Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



Exponent
Failure
Analysis
Associates

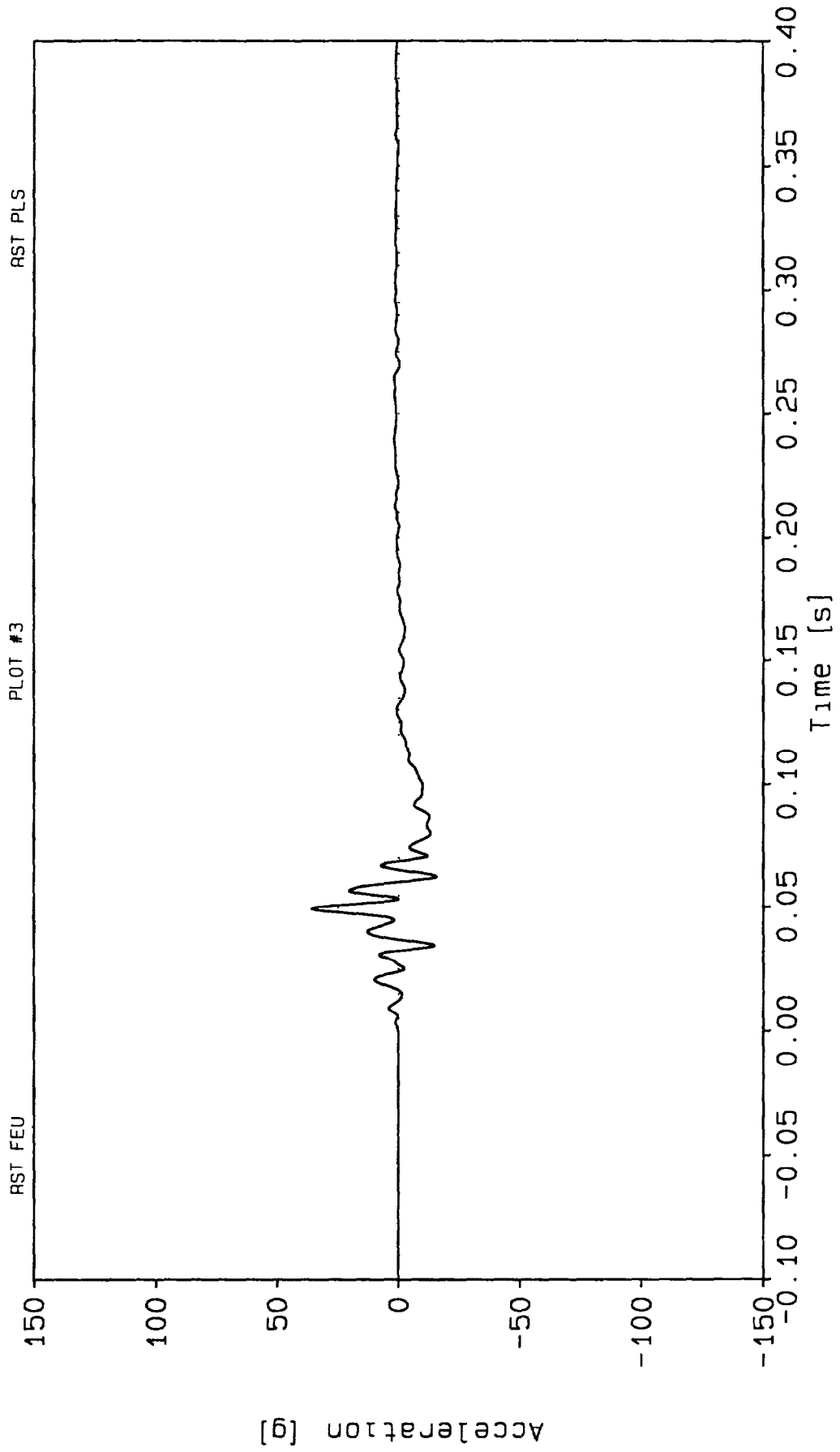
Filter Class 60
Volpe Crash Testing
PH06608

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Acceleration (Az) v Time

Right Shock Tower
2001 Dodge Neon

Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01

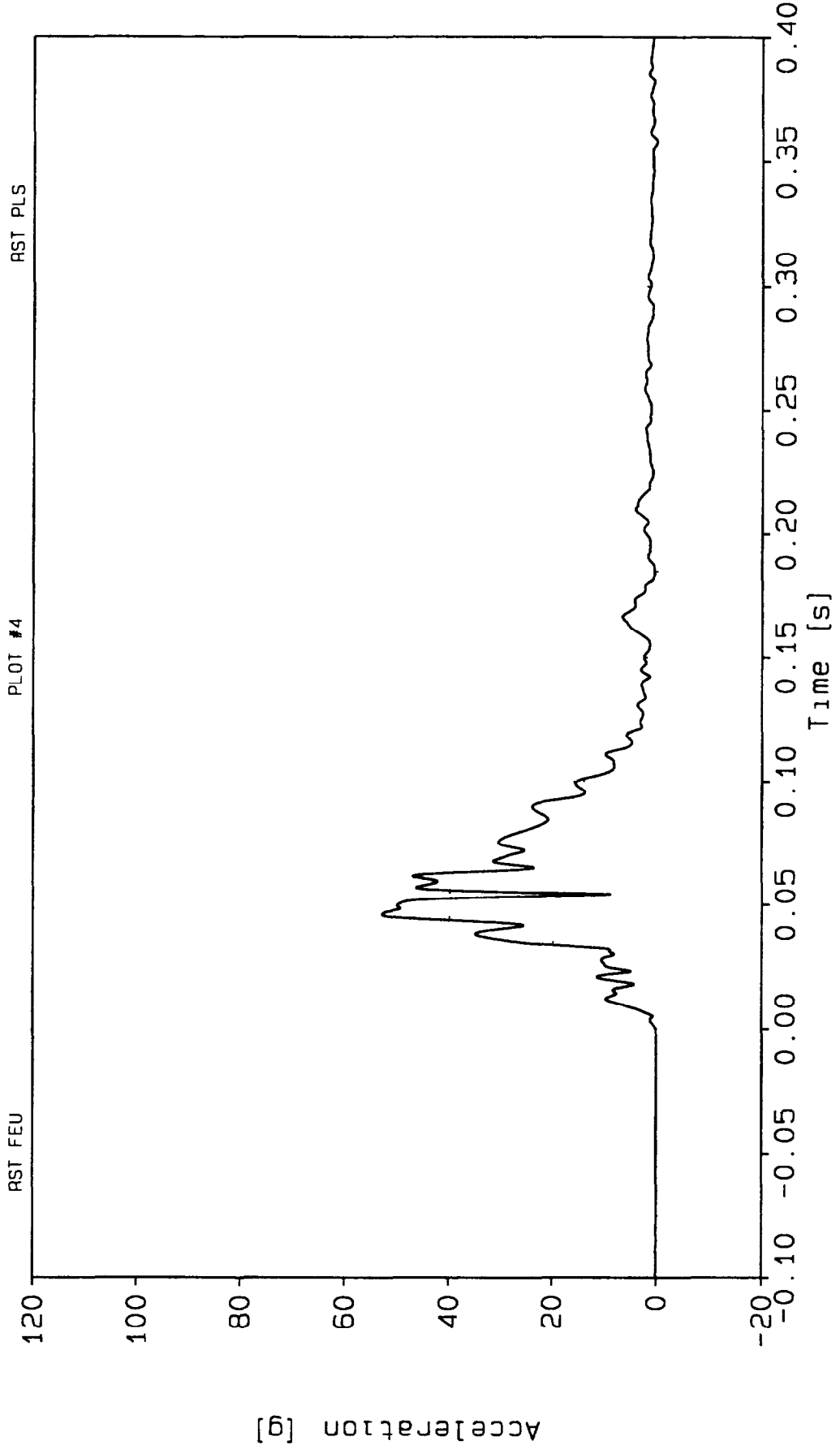


Acceleration [g]

Resultant Acceleration (Ar) v Time

Right Shock Tower
2001 Dodge Neon

Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



Filter Class 60
Volpe Crash Testing
PH06608

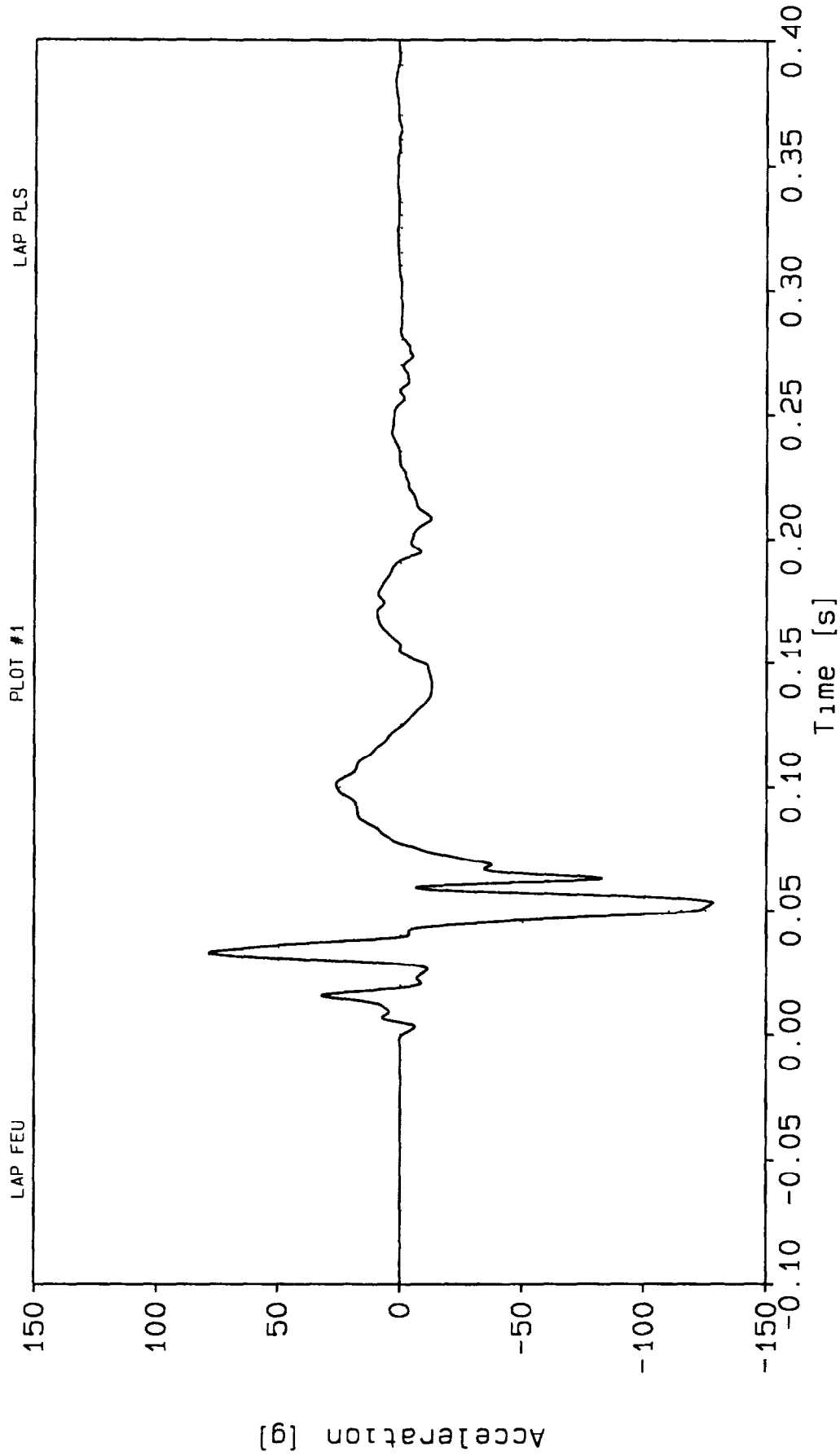
Exponent
Failure
Analysis
Associates

Acceleration (Ax) v Time

Left A-Pillar Top Hinge

2001 Dodge Neon

Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



Exponent
Failure
Analysis
Associates

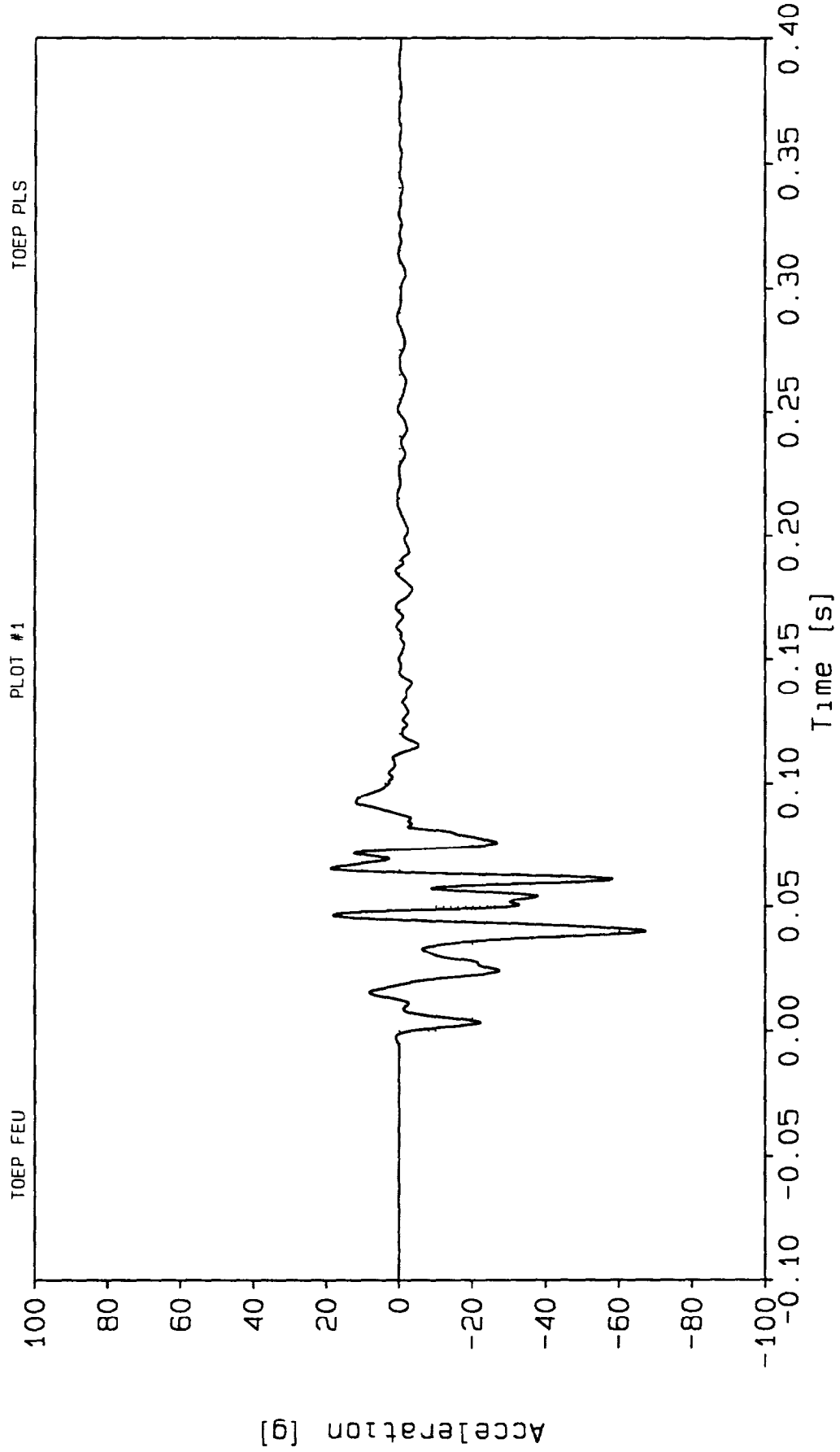
Filter Class 60
Volpe Crash Testing
PH06608

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Acceleration (Ax) v Time

Driver Side Toe Pan
2001 Dodge Neon

Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



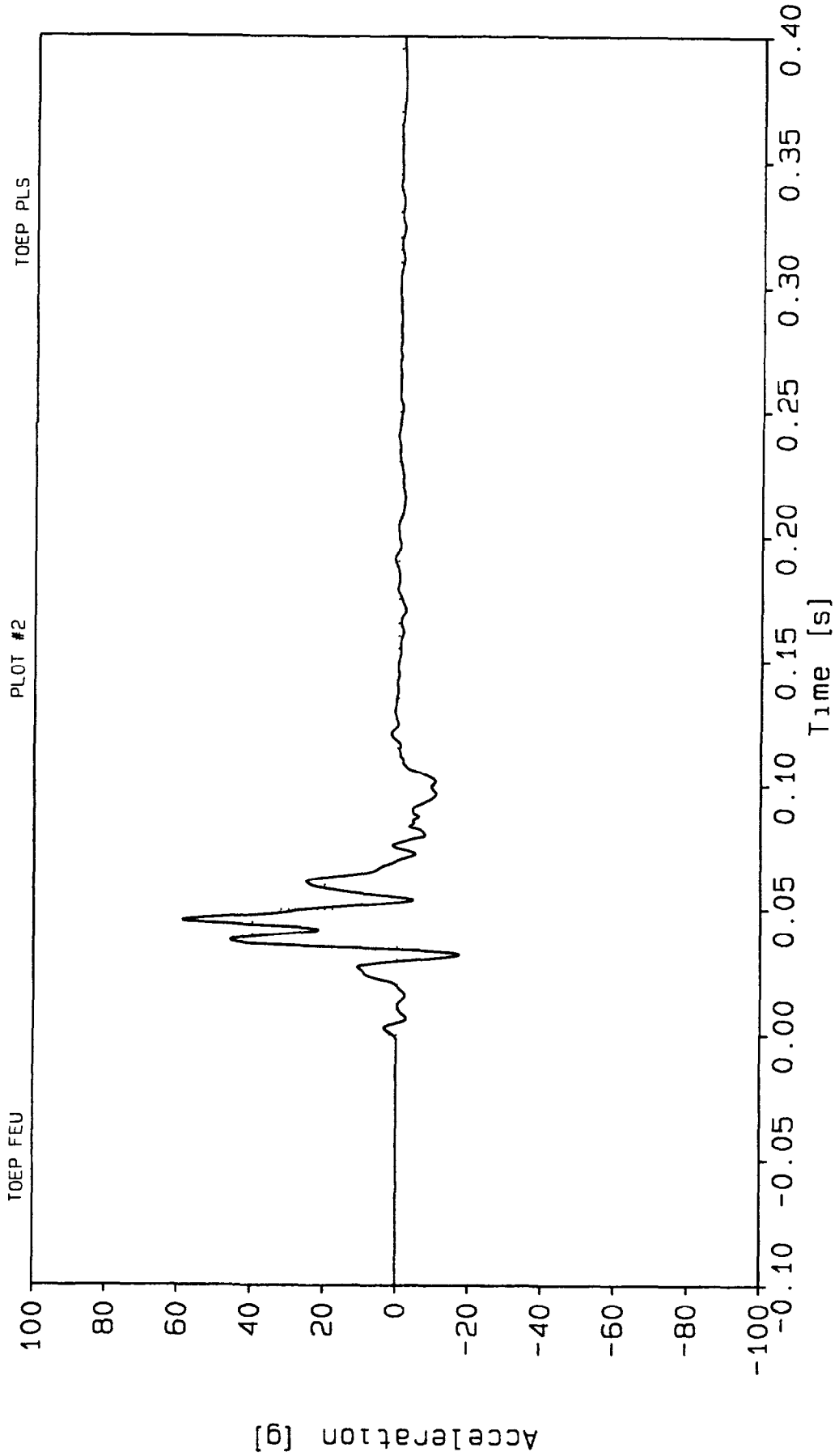
Exponent
Failure
Analysis
Associates

Filter Class 60
Volpe Crash Testing
PH05608

Acceleration (Ay) v Time

Driver Side Toe Pan
2001 Dodge Neon

Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



Filter Class 60
Valpe Crash Testing
PH06608

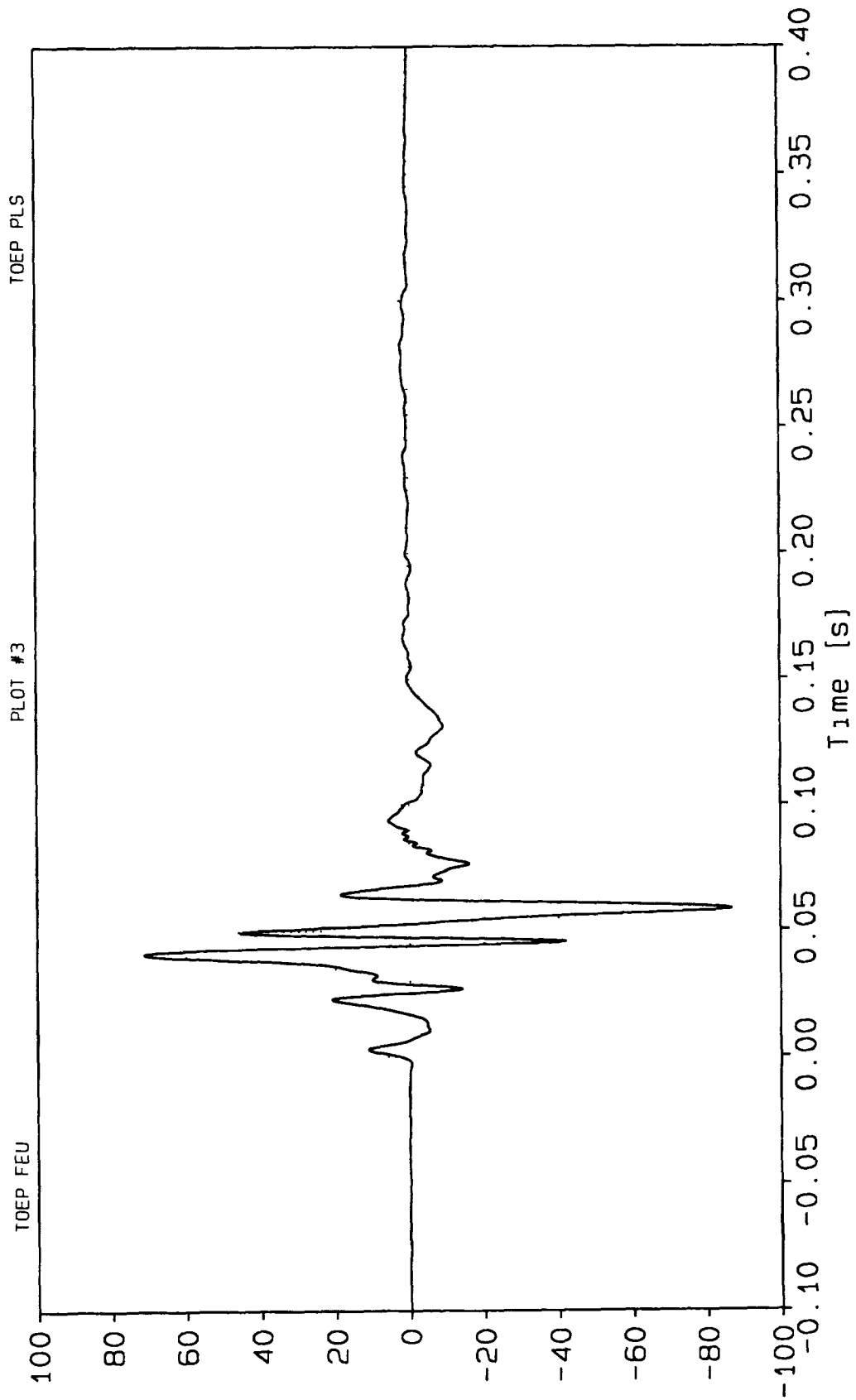
Exponent
Failure
Analysis
Associates

Acceleration (Az) v Time

Driver Side Toe Pan

2001 Dodge Neon

Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



Exponent
Failure
Analysis
Associates

Filter Class 60
Volpe Crash Testing
PH06608

Acceleration [g]

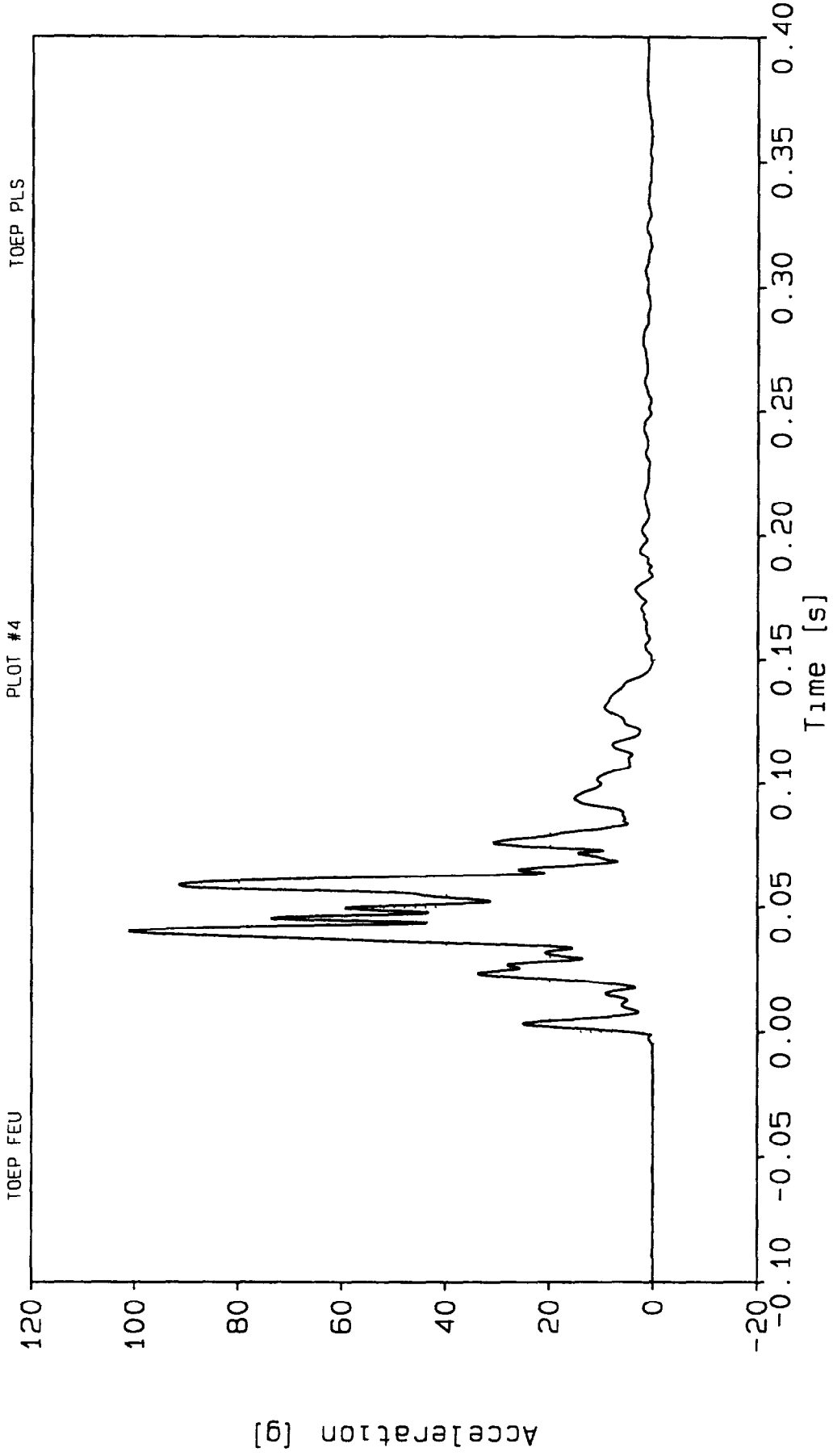
B-217

091801

Resultant Acceleration (Ar) v Time

Driver Side Toe Pan
2001 Dodge Neon

Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



Filter Class 60
Volpe Crash Testing
PH06608

Exponent
Failure
Analysis
Associates

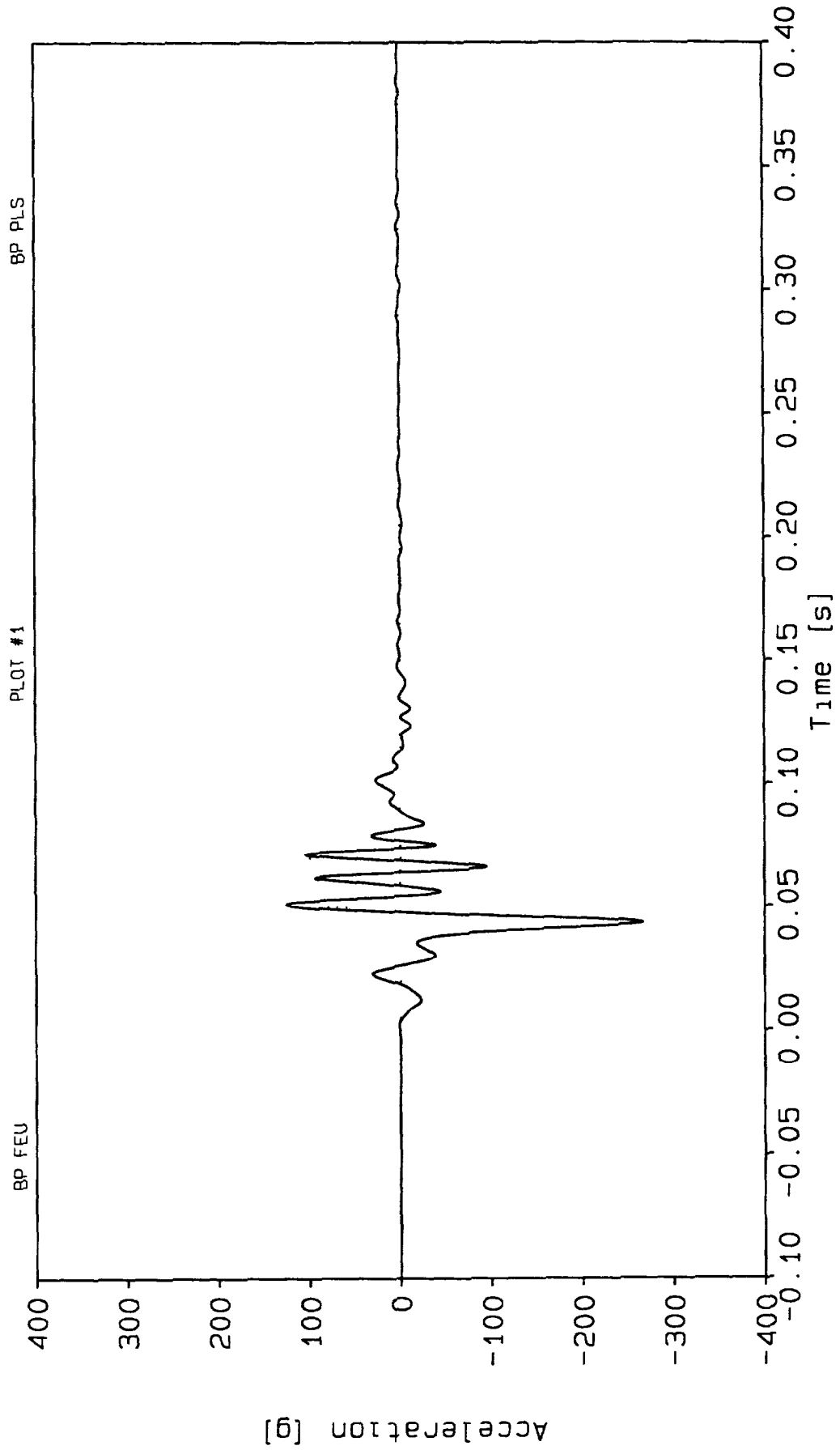
Acceleration [g]

Acceleration (Ax) v Time

Brake Pedal

2001 Dodge Neon

Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



Exponent
Failure
Analysis
Associates

Filter Class 60
Volpe Crash Testing
PH06608

Acceleration [g]

B-219

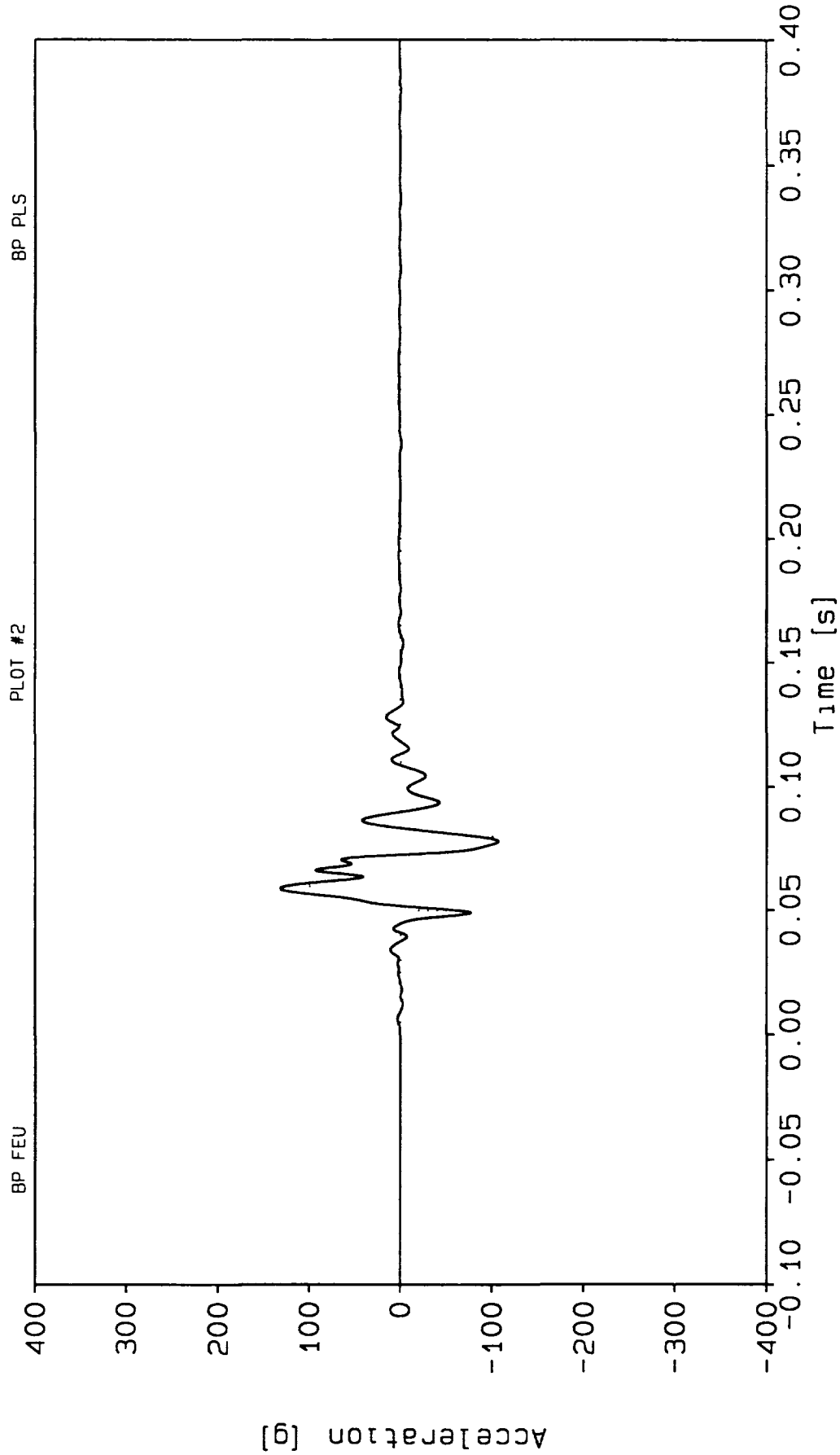
091801

Acceleration (Ay) v Time

Brake Pedal

2001 Dodge Neon

Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



Filter Class 60
Volpe Crash Testing
PH06608

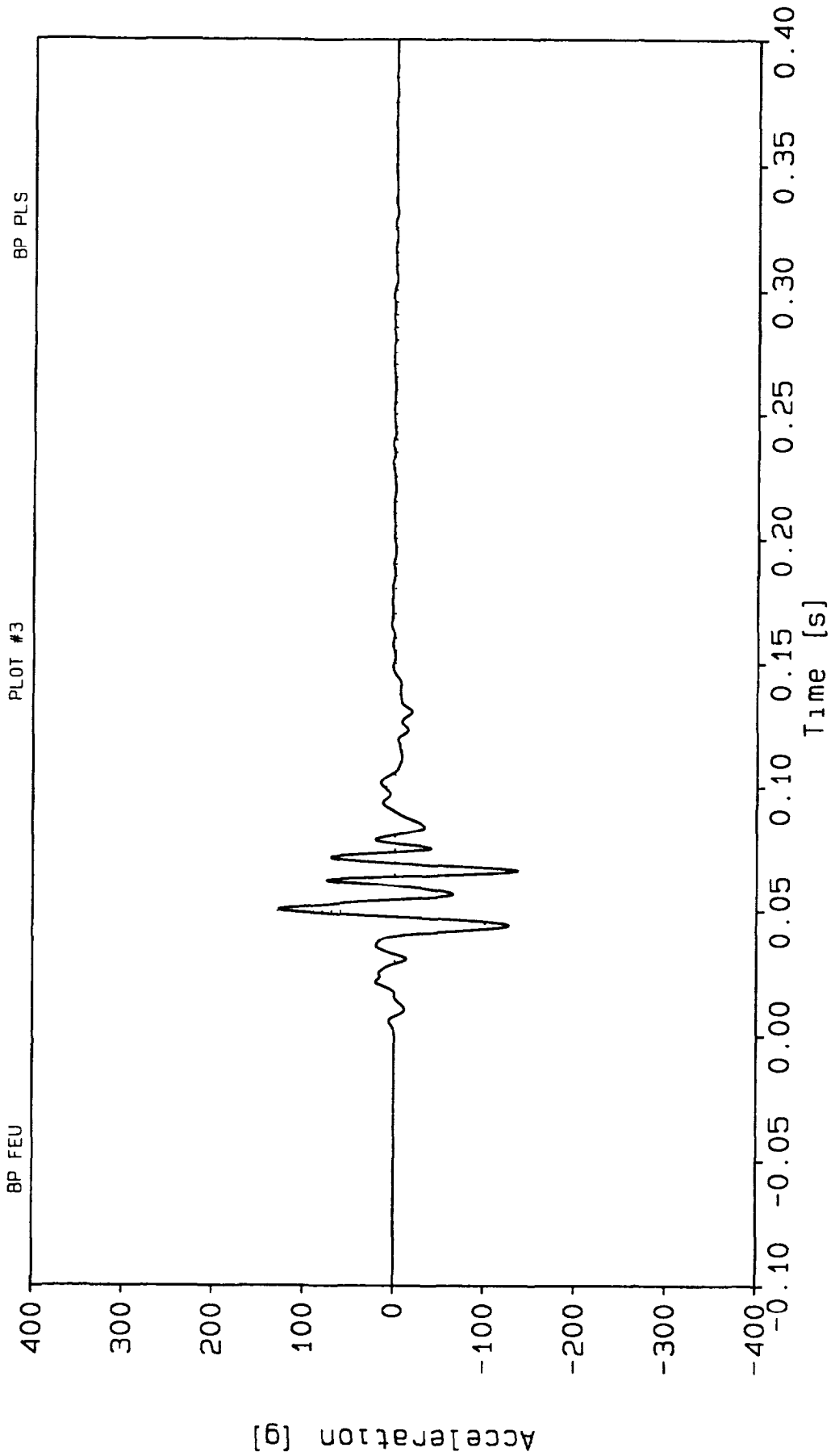
Exponent
Failure
Analysis
Associates

Acceleration (Az) v Time

Brake Pedal

2001 Dodge Neon

Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01

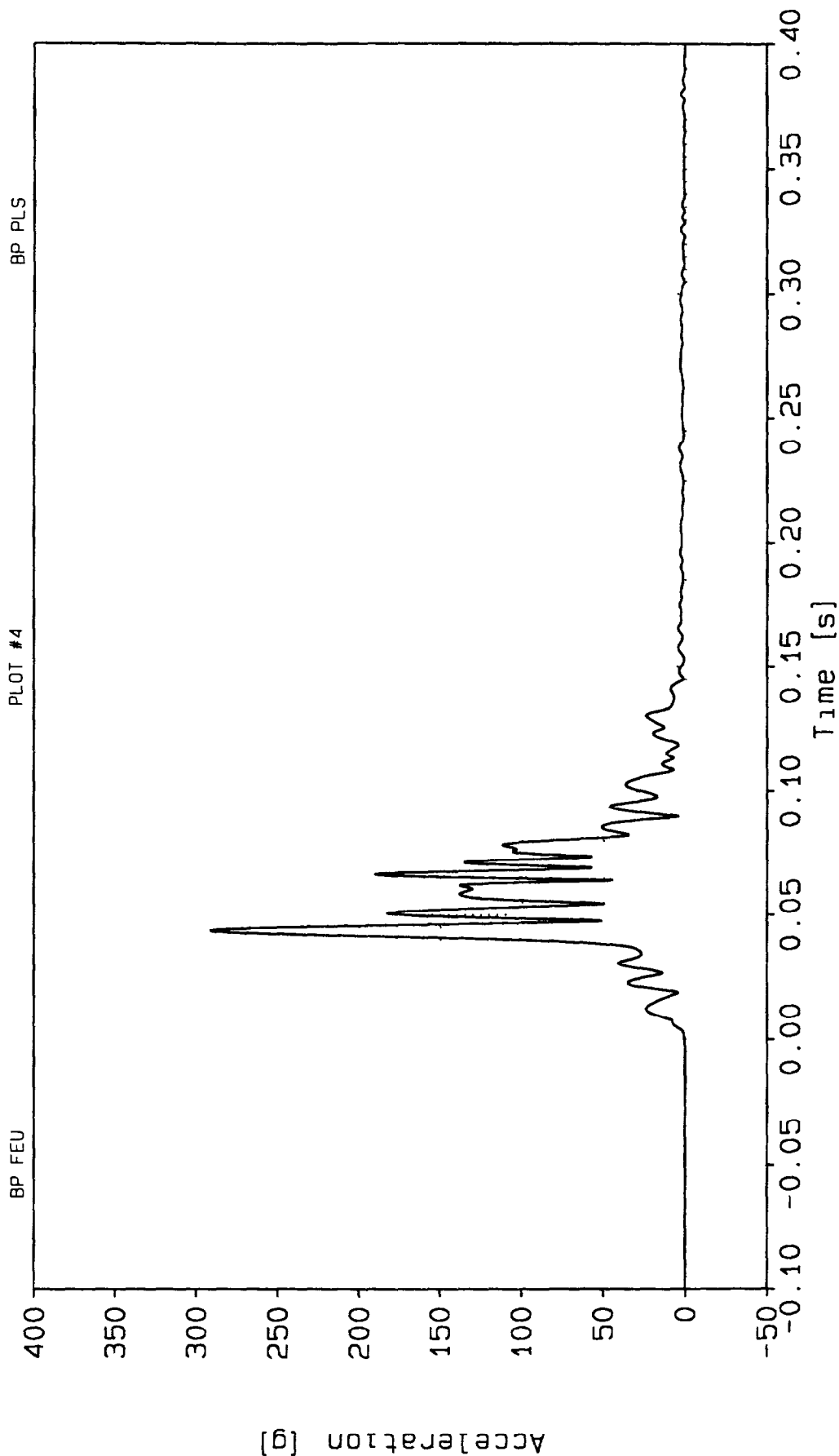


Filter Class 60
Voipe Crash Testing
PH05608

Exponent
Failure
Analysis
Associates

Resultant Acceleration (Ar) v Time

Brake Pedal
2001 Dodge Neon
Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



Exponent
Failure
Analysis
Associates

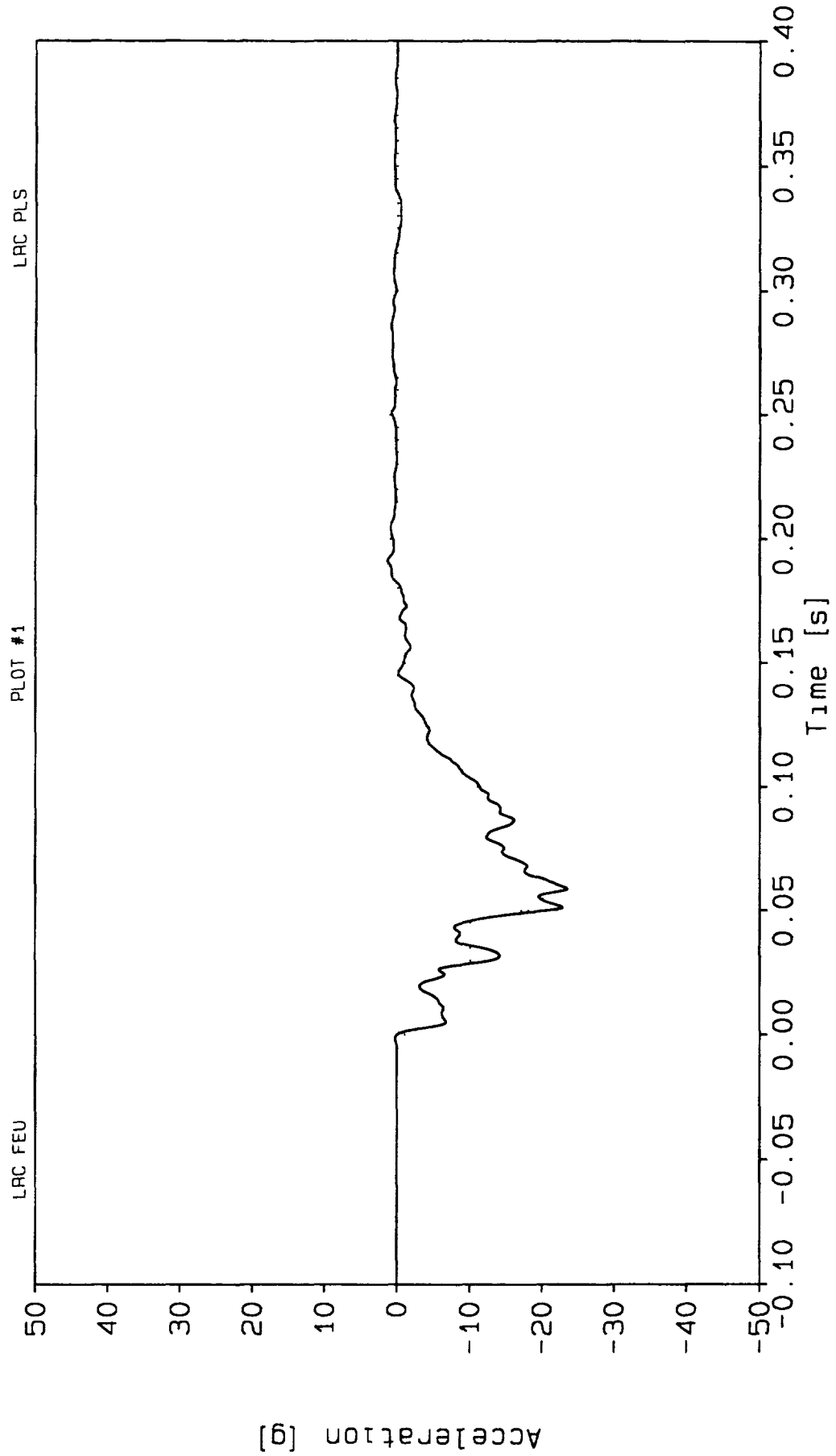
Filter Class 60
Volpe Crash Testing
PH06608

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Acceleration (Ax) v Time

Left Rear Compartment
2001 Dodge Neon

Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01

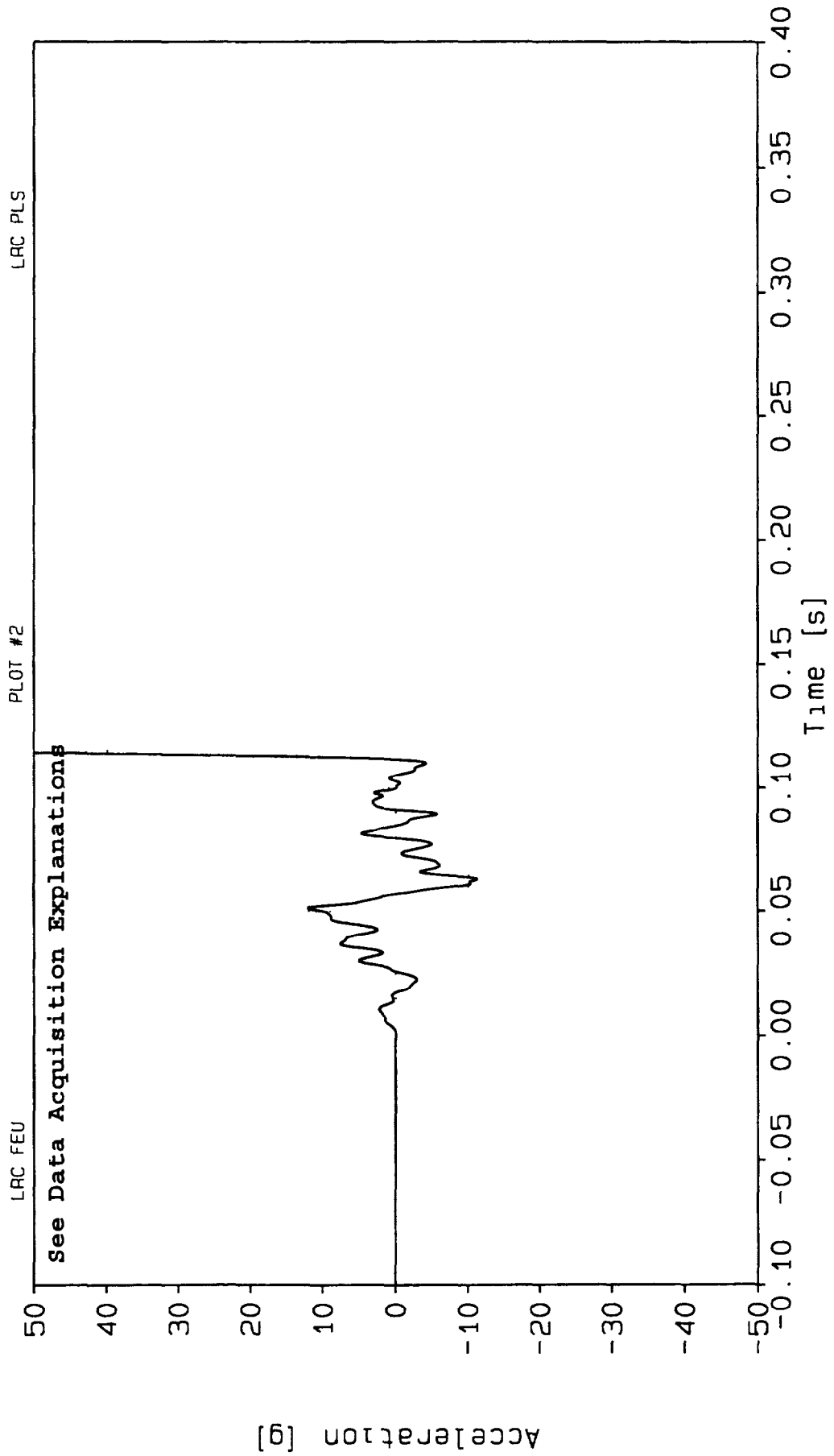


Acceleration (Ay) v Time

Left Rear Compartment

2001 Dodge Neon

Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



Exponent
Failure
Analysis
Associates

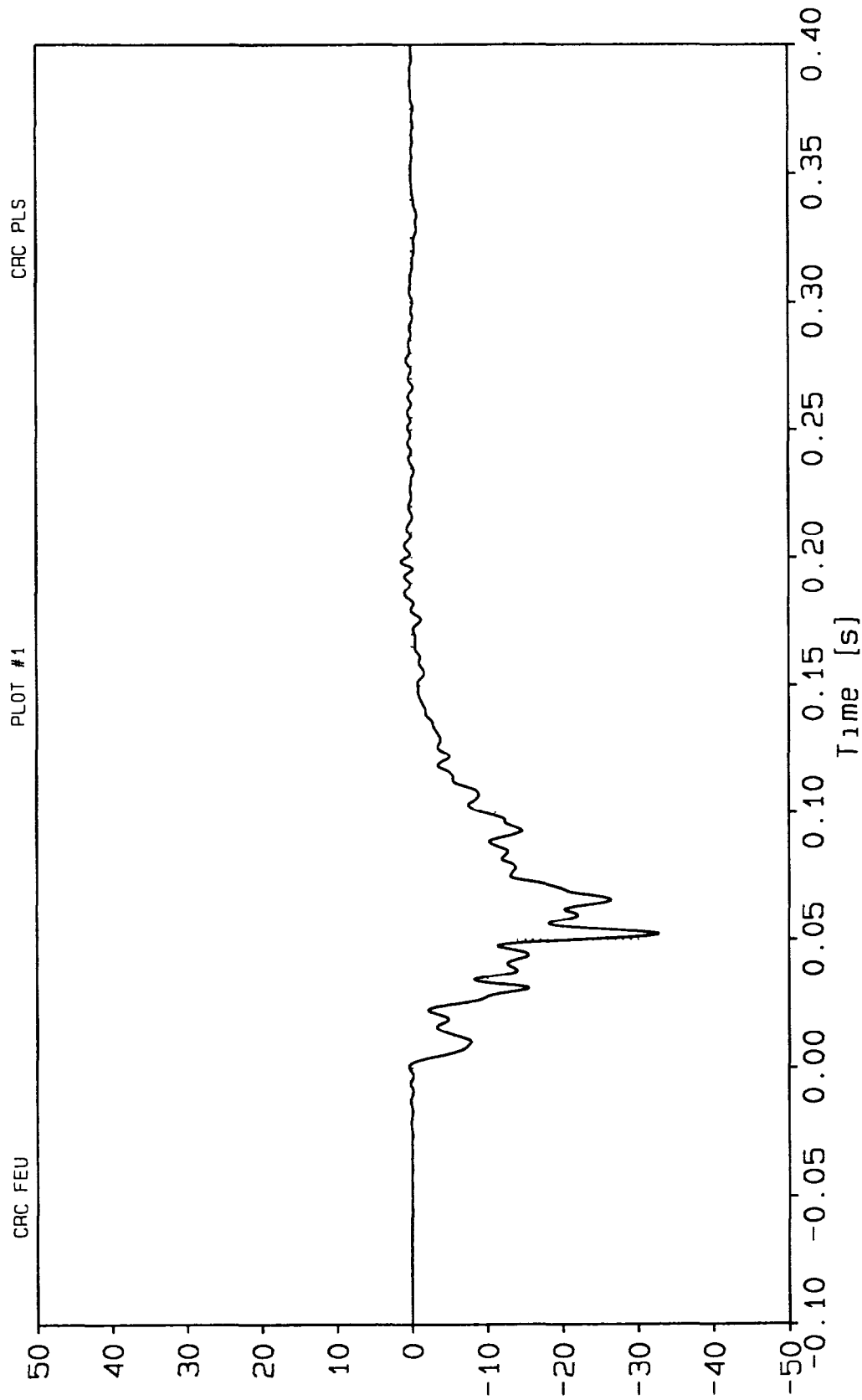
Filter Class 60
Volpe Crash Testing
PH06608

Acceleration (Ax) v Time

Center Rear Compartment

2001 Dodge Neon

Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



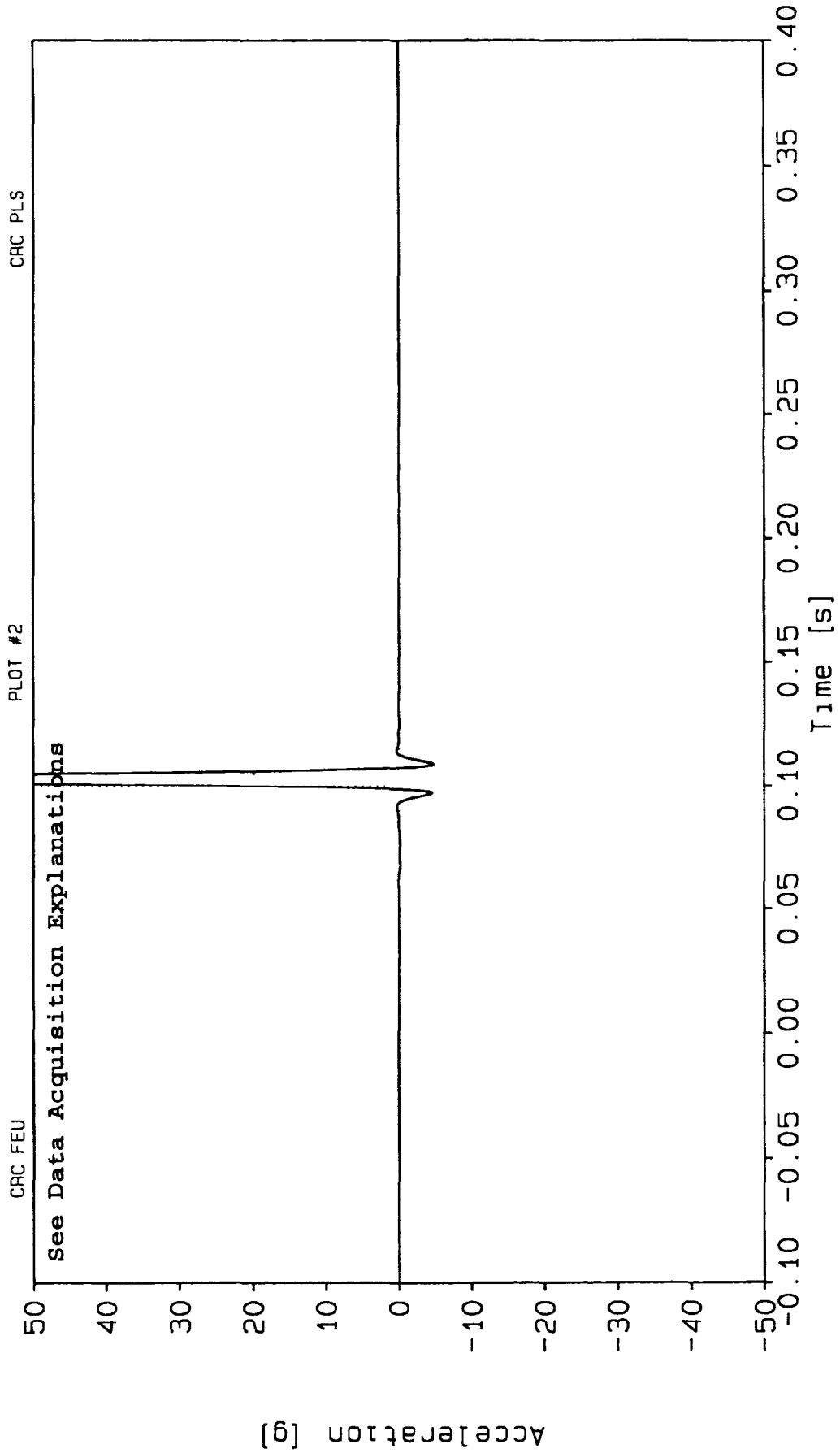
Filter Class 60
Volpe Crash Testing
PH06608

Exponent
Failure
Analysis
Associates

Acceleration (Az) v Time

Center Rear Compartment
2001 Dodge Neon

Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



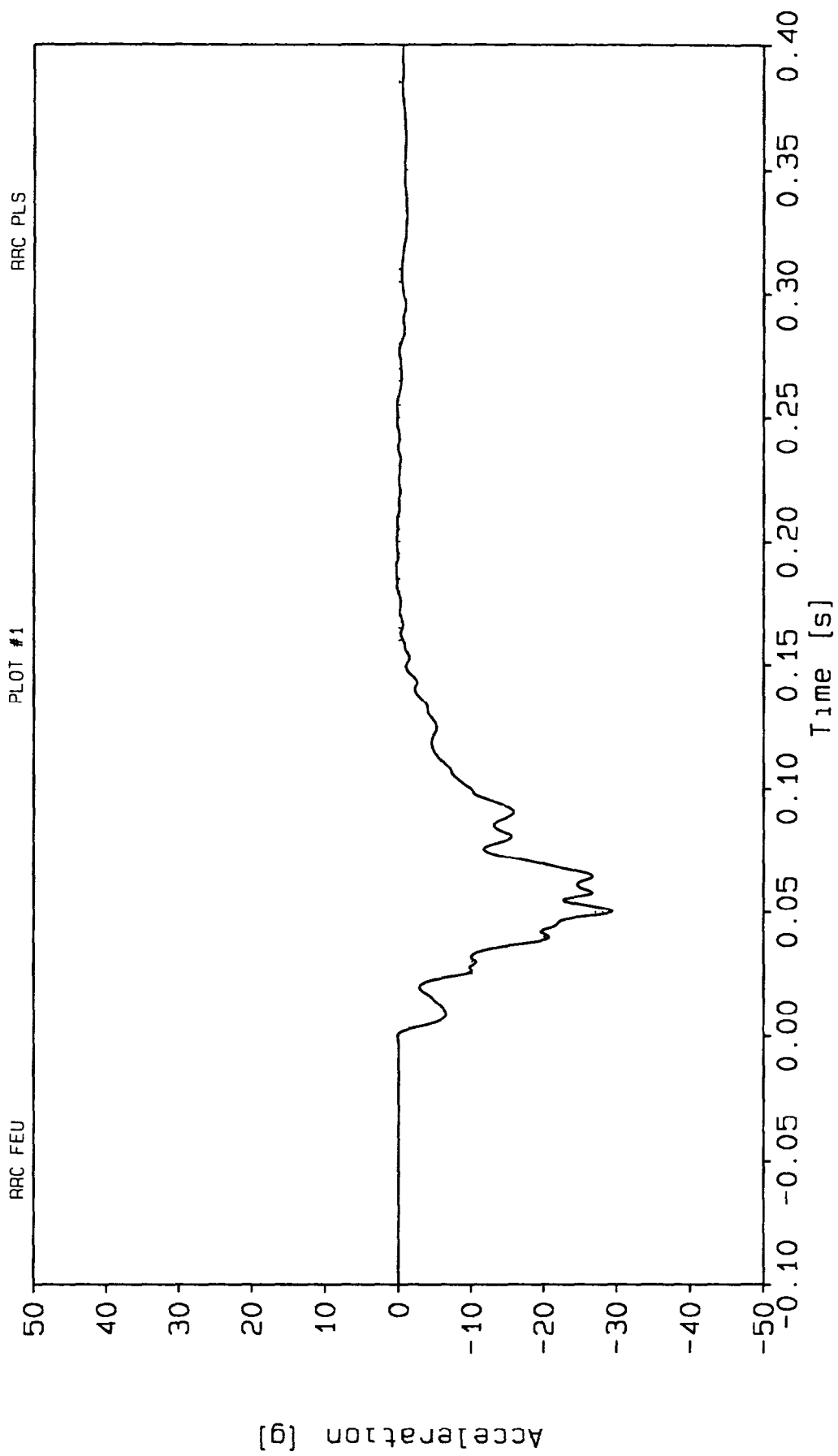
Filter Class 60
Volpe Crash Testing
PH06608

Exponent
Failure
Analysis
Associates

Acceleration (Ax) v Time

Right Rear Compartment
2001 Dodge Neon

Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



Acceleration [g]

Time [s]

Exponent
Failure
Analysis
Associates

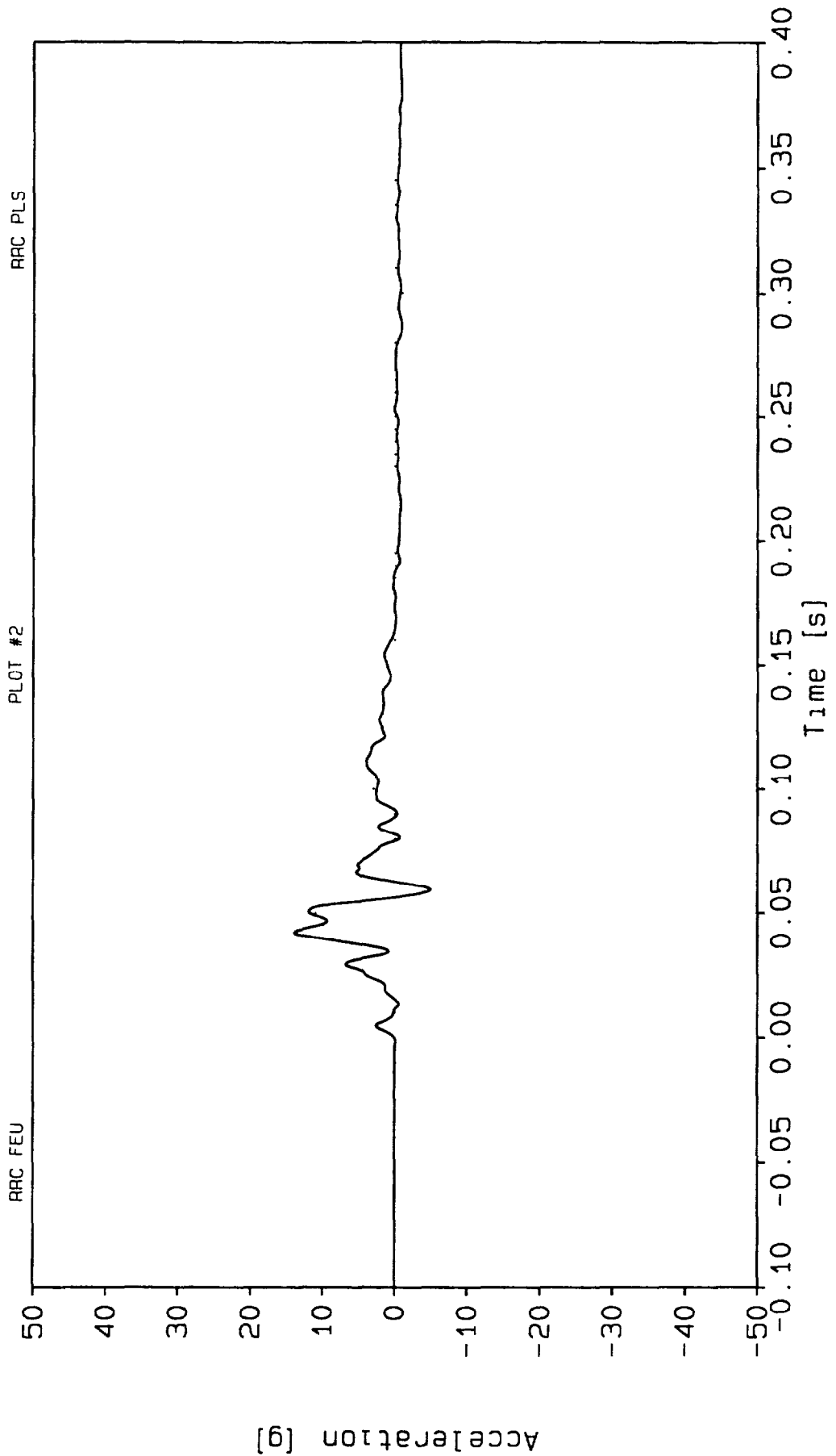
Filter Class 60
Volpe Crash Testing
PH06608

Acceleration (Ay) v Time

Right Rear Compartment

2001 Dodge Neon

Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



Filter Class 60
Volpe Crash Testing
PH06608

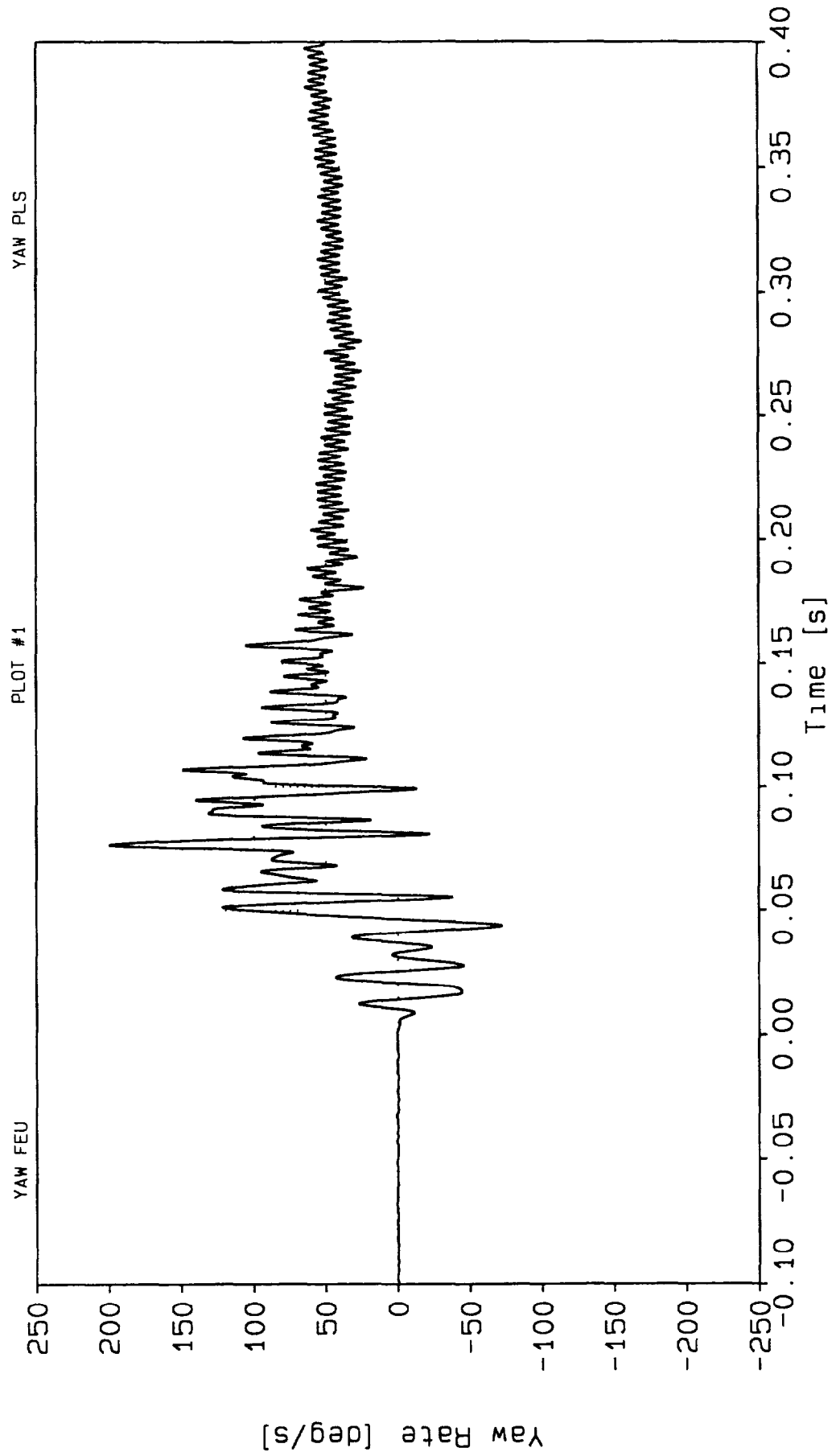
Exponent
Failure
Analysis
Associates

Vehicle Yaw Rate v Time

Vehicle Yaw Rate Sensor

2001 Dodge Neon

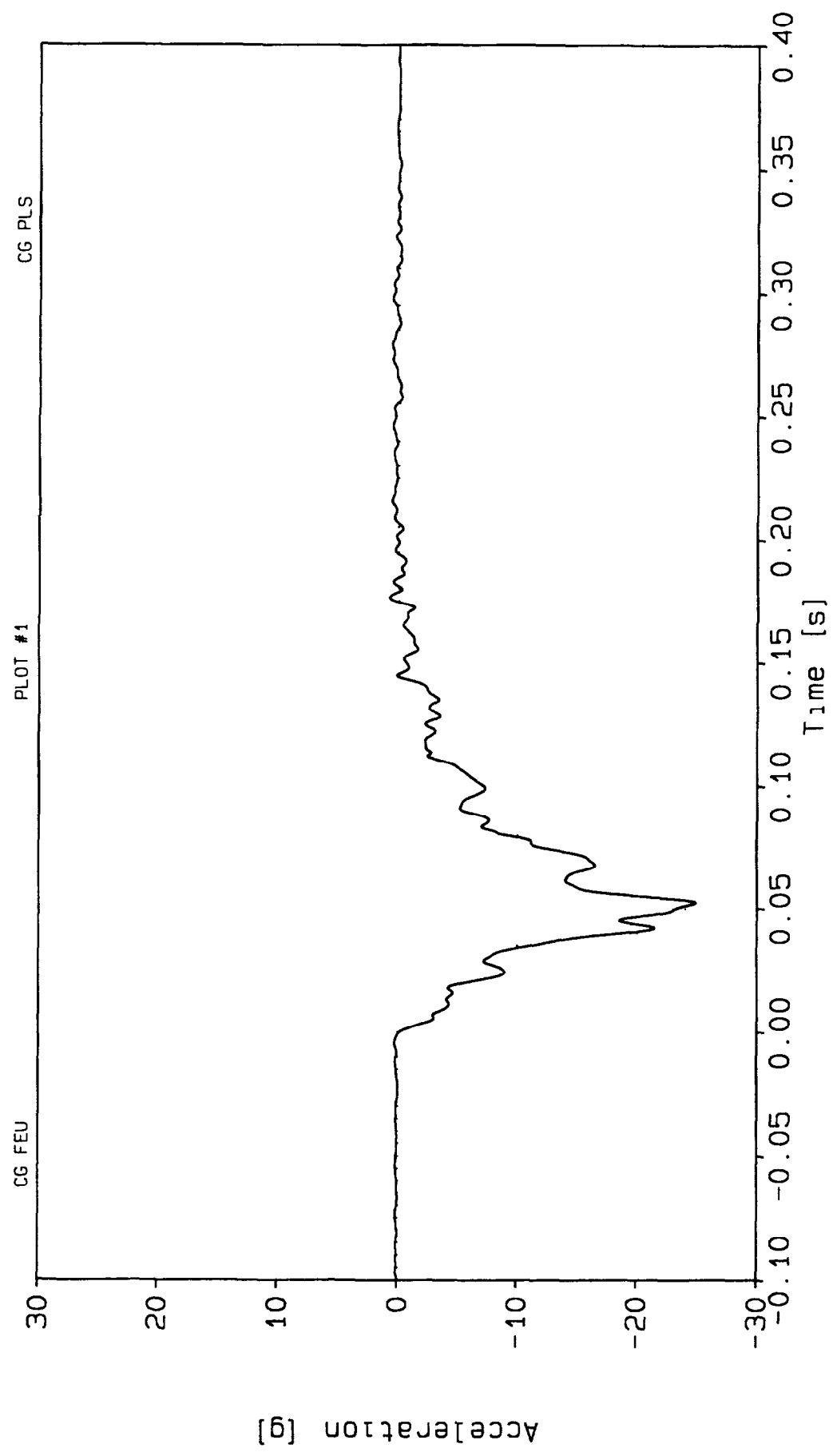
Moving Deformable Barrier into 2001 Dodge Neon - 09/18/01



Filter Class 180
Volpe Crash Testing
PH06608

Exponent
Failure
Analysis
Associates

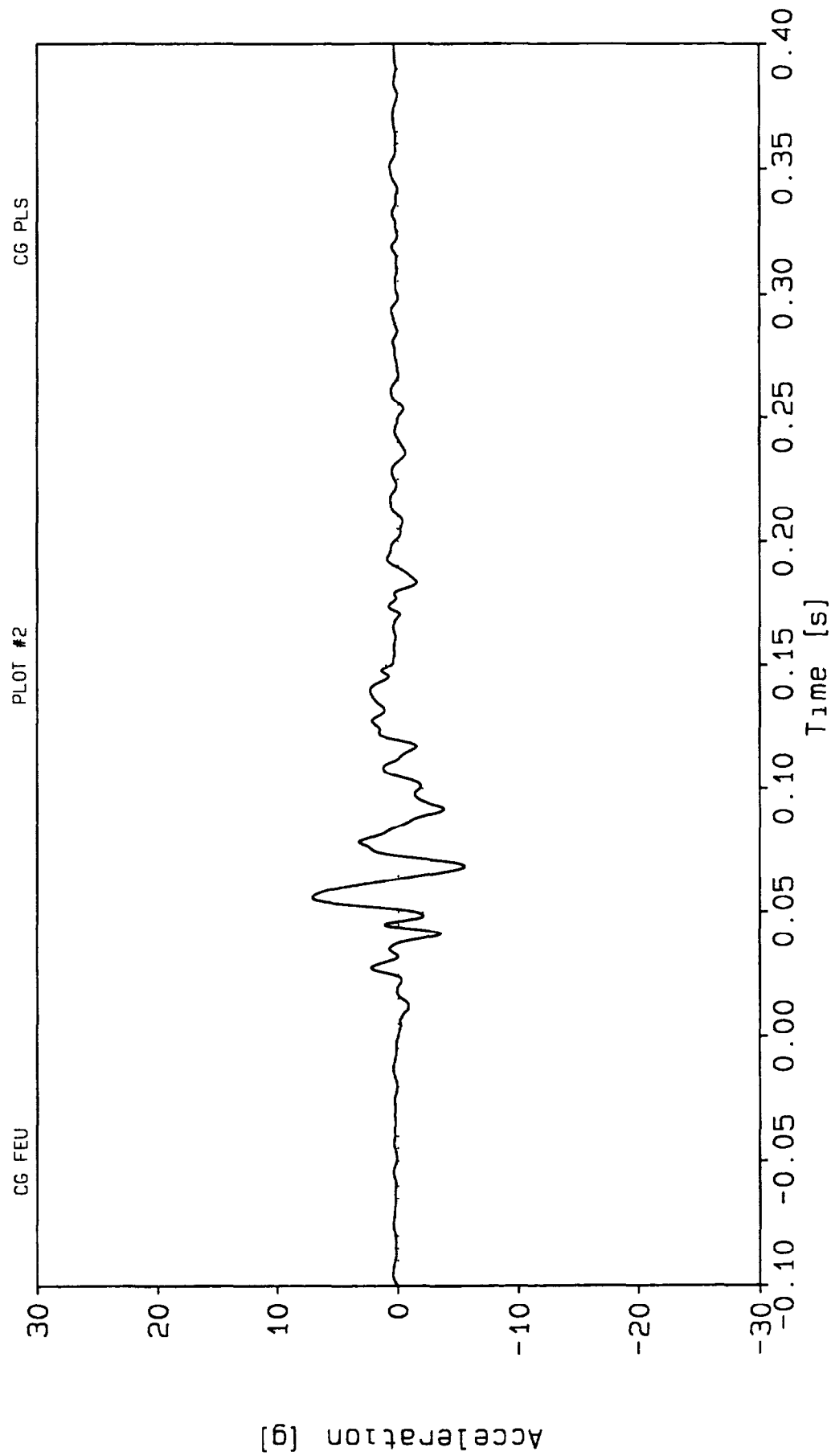
Acceleration (Ax) v Time
Center of Gravity
Moving Deformable Barrier
Moving Deformable Barrier into 2001 Dodge Neon - 9/18/01



Exponent
Failure
Analysis
Associates

Filter Class 60
Volpe Crash Testing
PH05508

Acceleration (Ay) v Time
Center of Gravity
Moving Deformable Barrier
Moving Deformable Barrier into 2001 Dodge Neon - 9/18/01



Filter Class 60
Volpe Crash Testing
PH06608

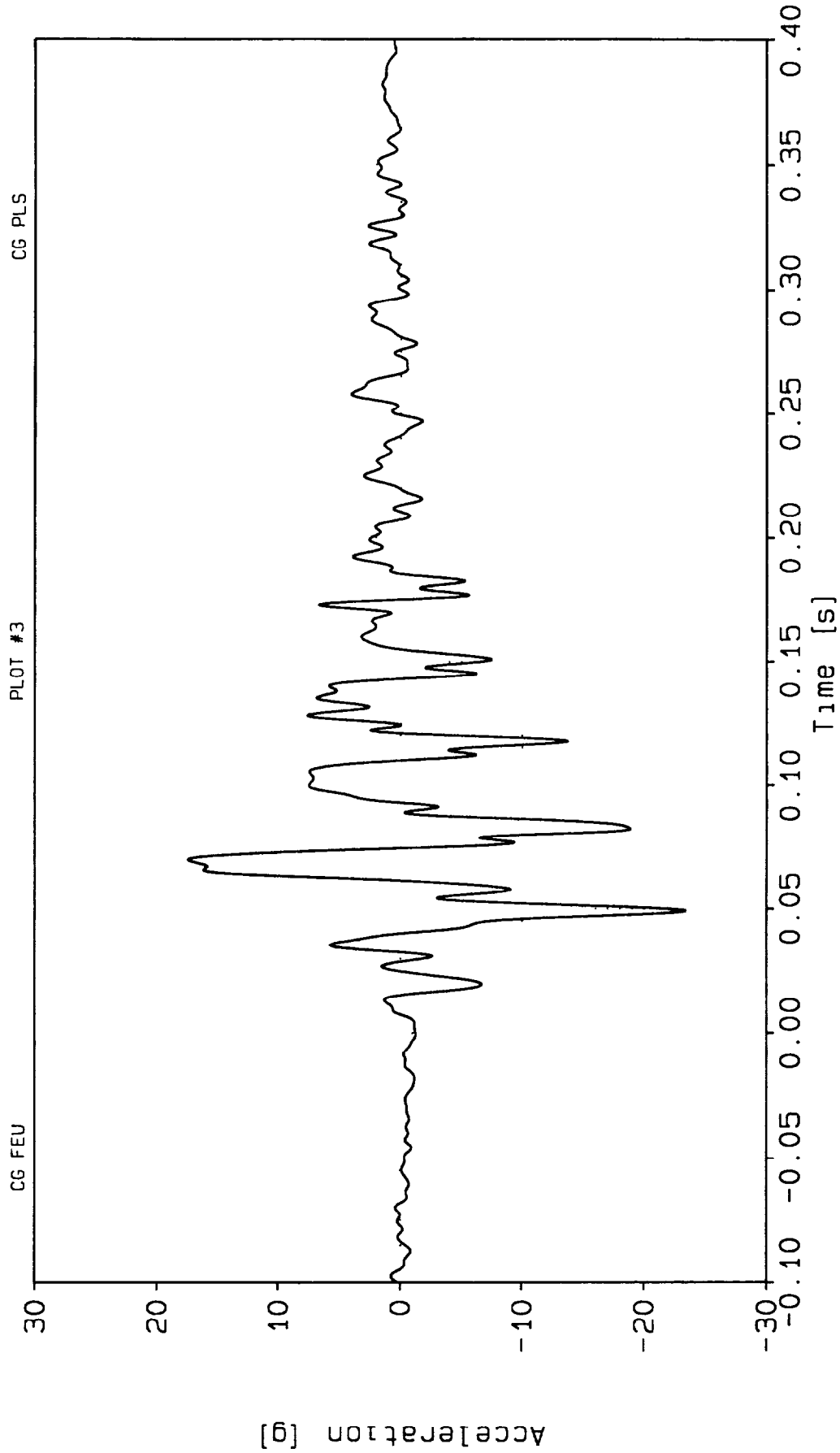
Exponent
Failure
Analysis
Associates

Acceleration (Az) v Time

Center of Gravity

Moving Deformable Barrier

Moving Deformable Barrier into 2001 Dodge Neon - 9/18/01



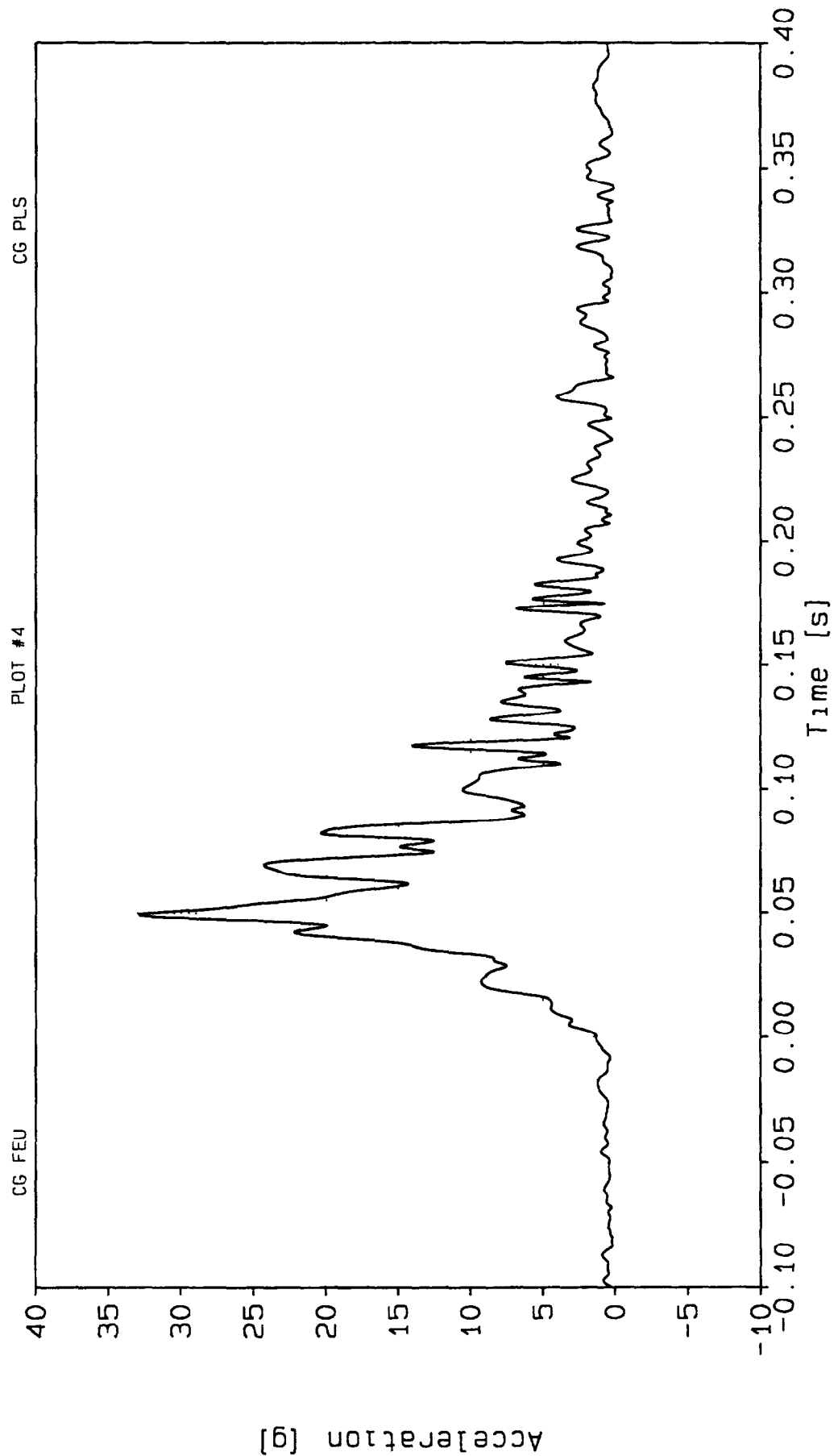
Filter Class 60
Volpe Crash Testing
PH05508

Exponent
Failure
Analysis
Associates

Resultant Acceleration (Ar) v Time

Center of Gravity
Moving Deformable Barrier

Moving Deformable Barrier into 2001 Dodge Neon - 9/18/01



Exponent
Failure
Analysis
Associates

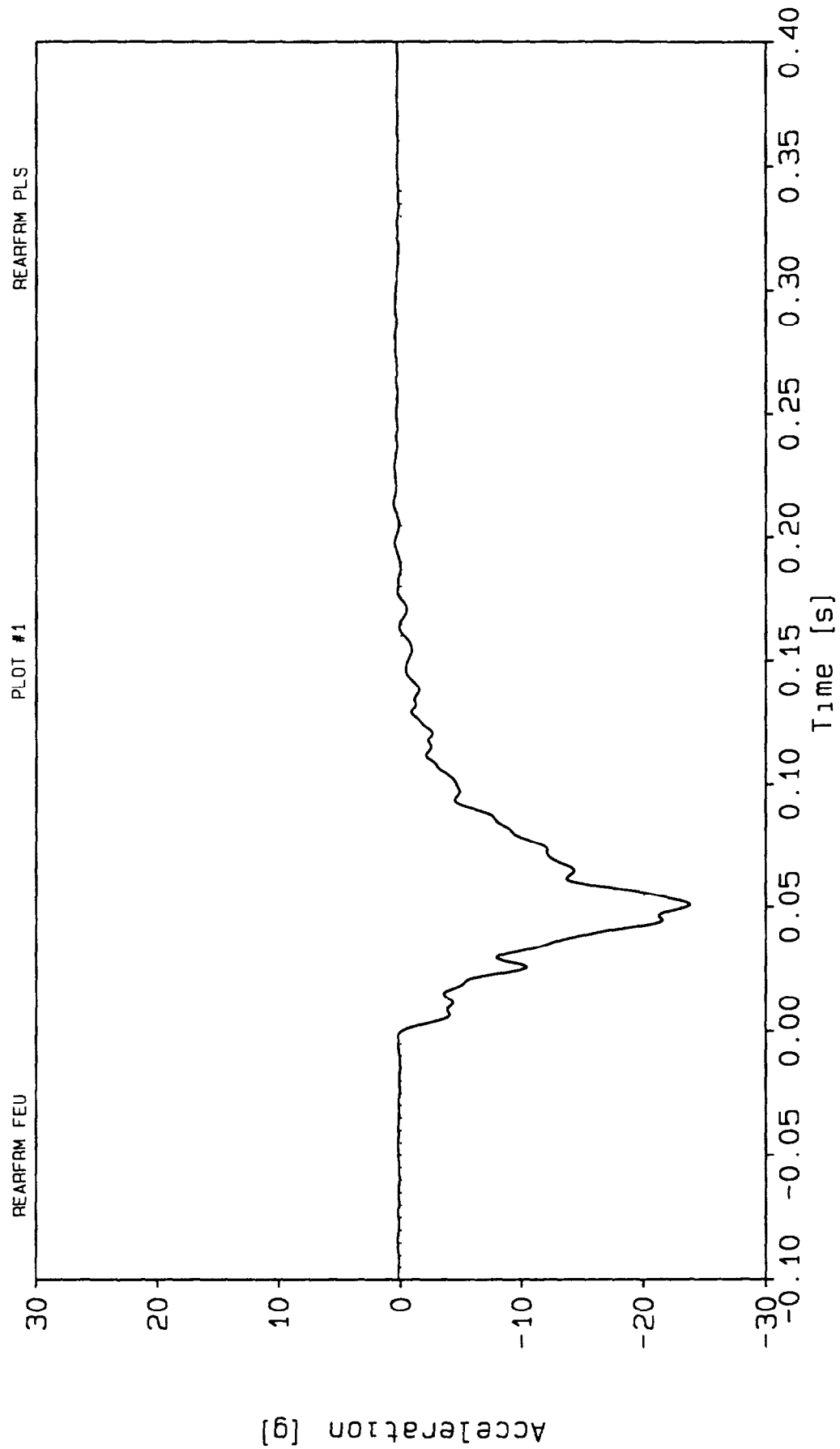
Filter Class 60
Volpe Crash Testing
PH06608

Acceleration (Ax) v Time

Rear Frame

Moving Deformable Barrier

Moving Deformable Barrier into 2001 Dodge Neon - 9/18/01



Filter Class 60
Volpe Crash Testing
PH06608

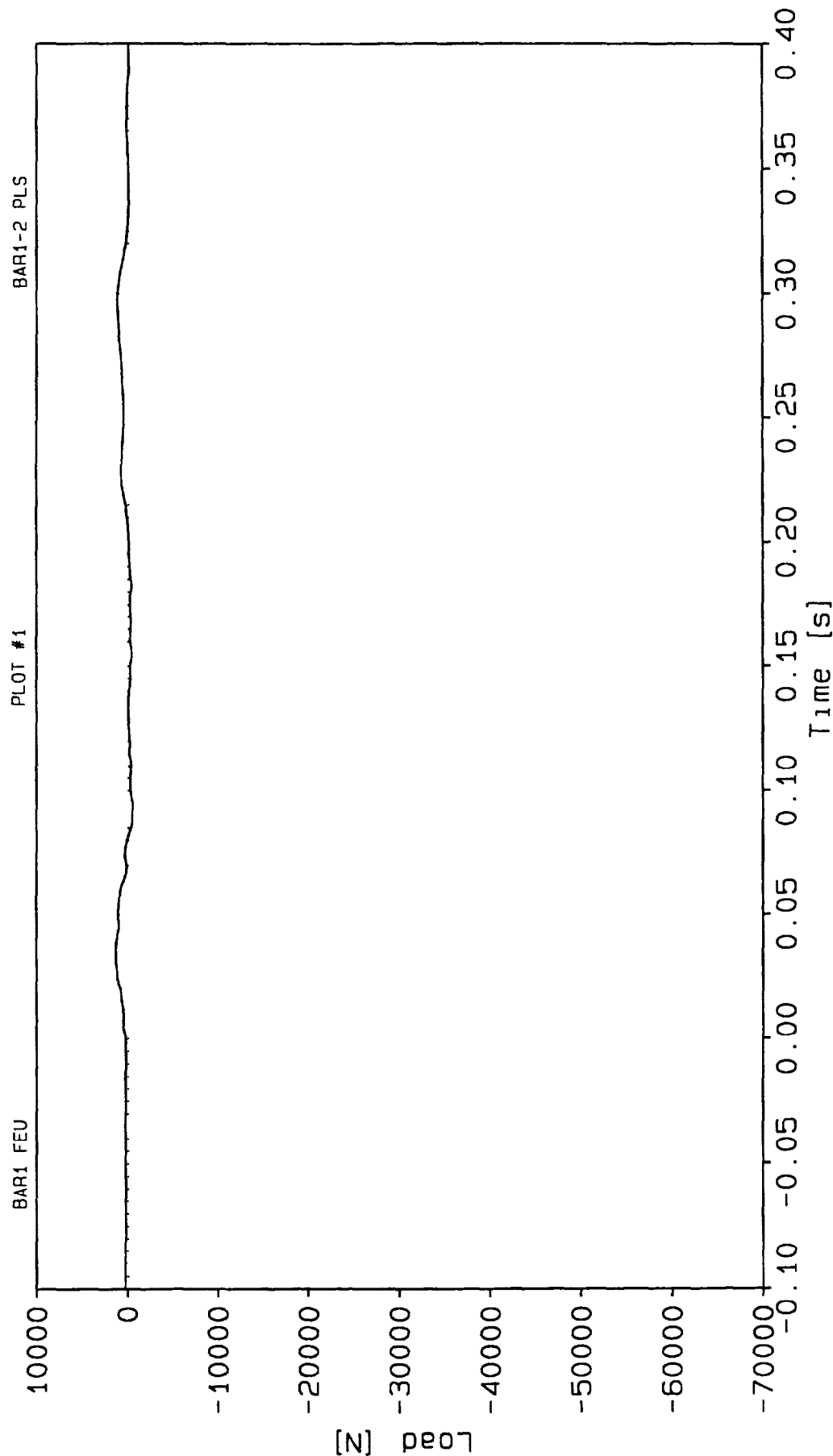
Exponent
Failure
Analysis
Associates

Barrier Face Load (Fx) v Time

Position A2

Moving Deformable Barrier

Moving Deformable Barrier into 2001 Dodge Neon - 9/18/01



Filter Class 60
Volpe Crash Testing
PH06508

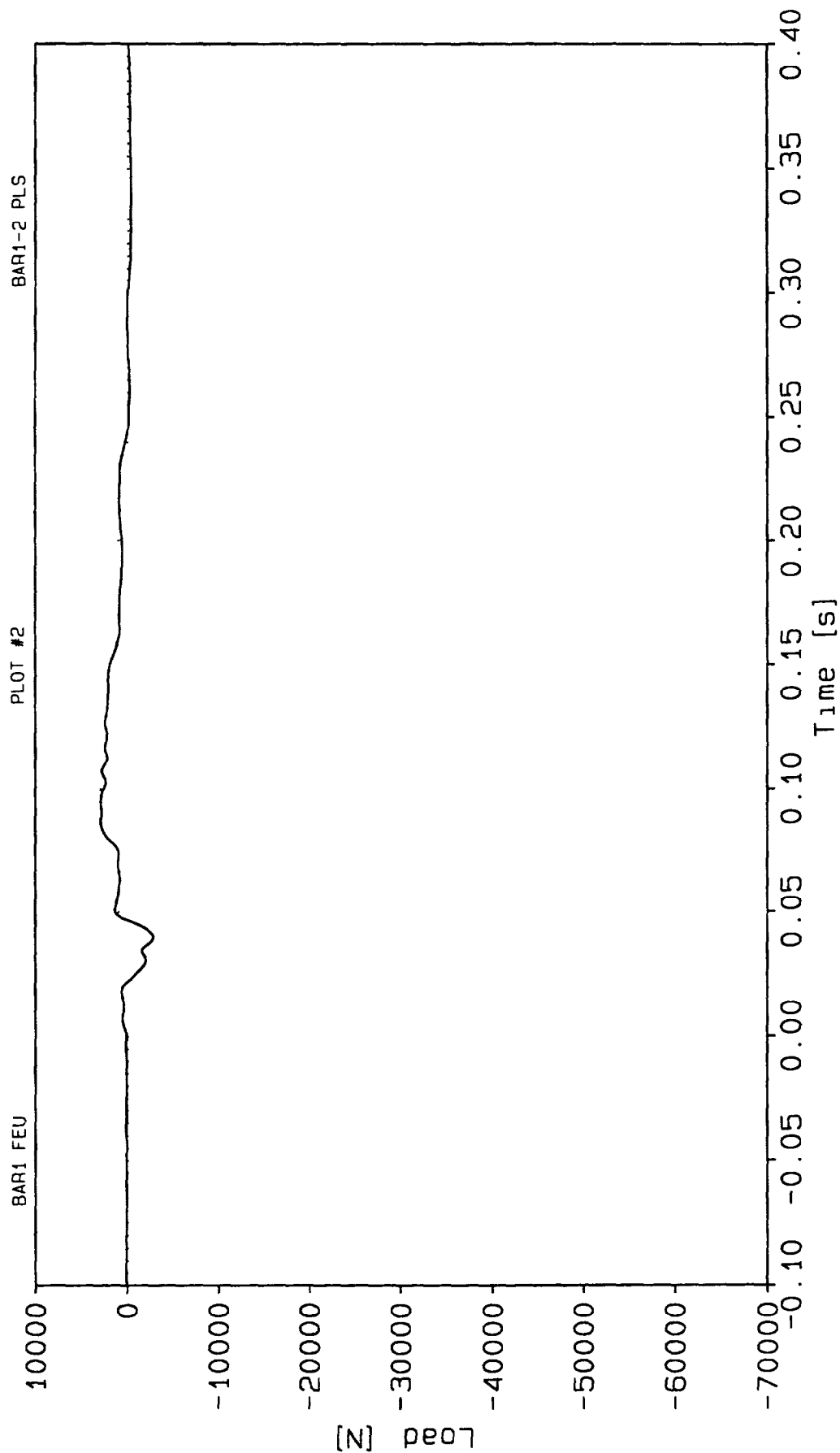
Exponent
Failure
Analysis
Associates

Barrier Face Load (Fx) v Time

Position A3

Moving Deformable Barrier

Moving Deformable Barrier into 2001 Dodge Neon - 9/18/01



Filter Class 60
Volpe Crash Testing
PH06608

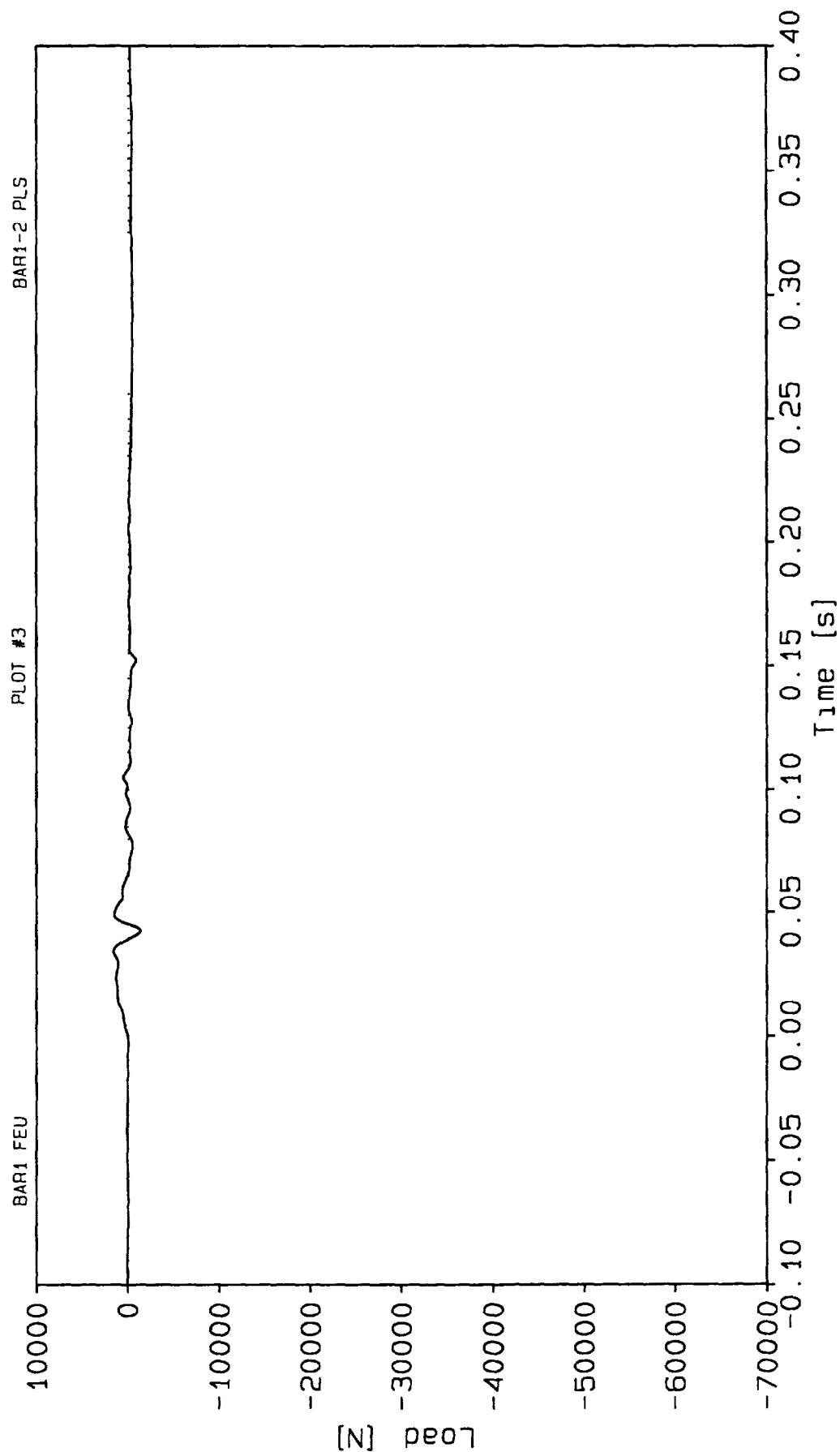
Exponent
Failure
Analysis
Associates

Barrier Face Load (Fx) v Time

Position A4

Moving Deformable Barrier

Moving Deformable Barrier into 2001 Dodge Neon - 9/18/01

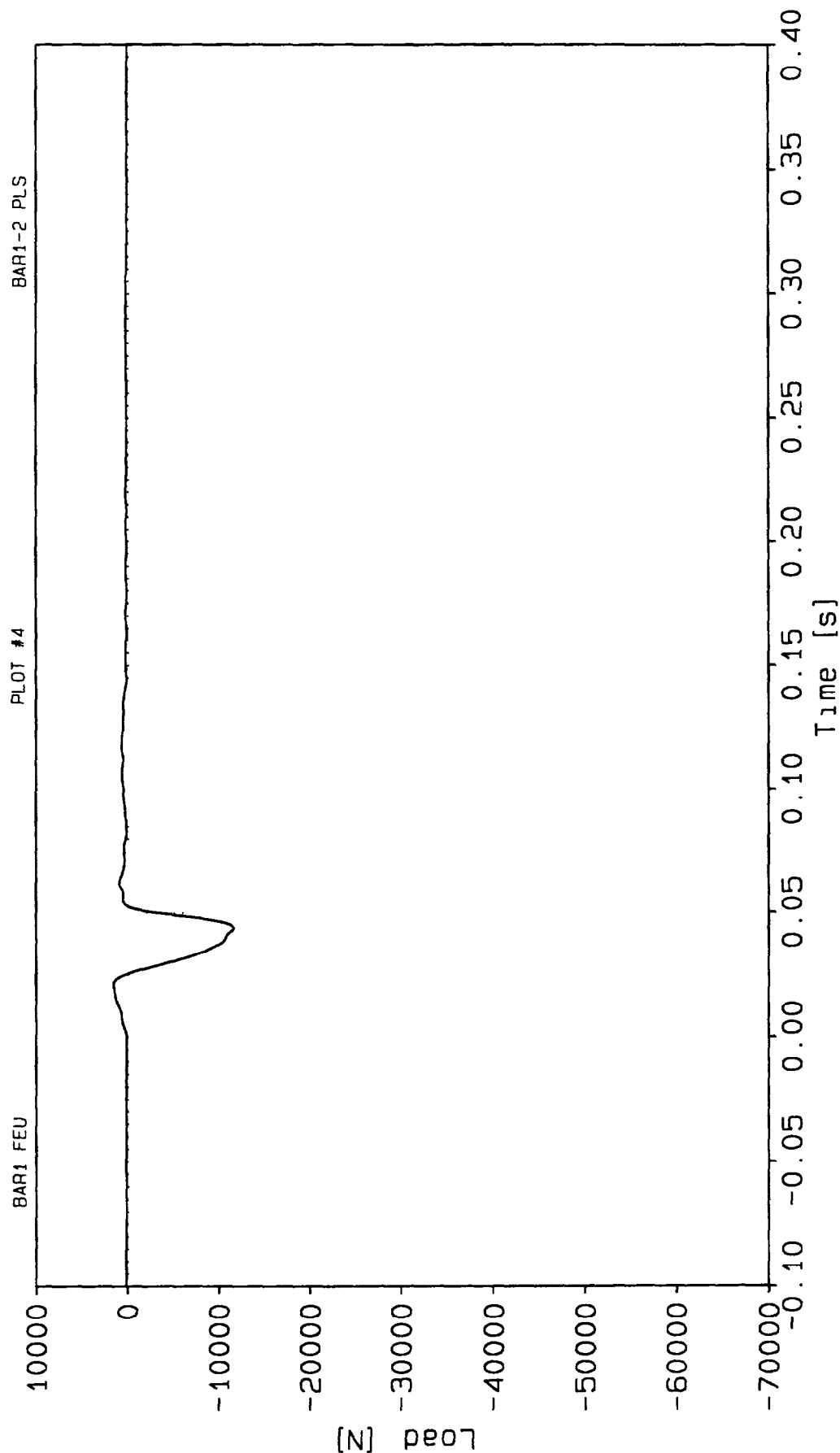


Filter Class 60
Volpe Crash Testing
PH06608

Exponent
Failure
Analysis
Associates

Barrier Face Load (Fx) v Time

Position A5
Moving Deformable Barrier
Moving Deformable Barrier into 2001 Dodge Neon - 9/18/01

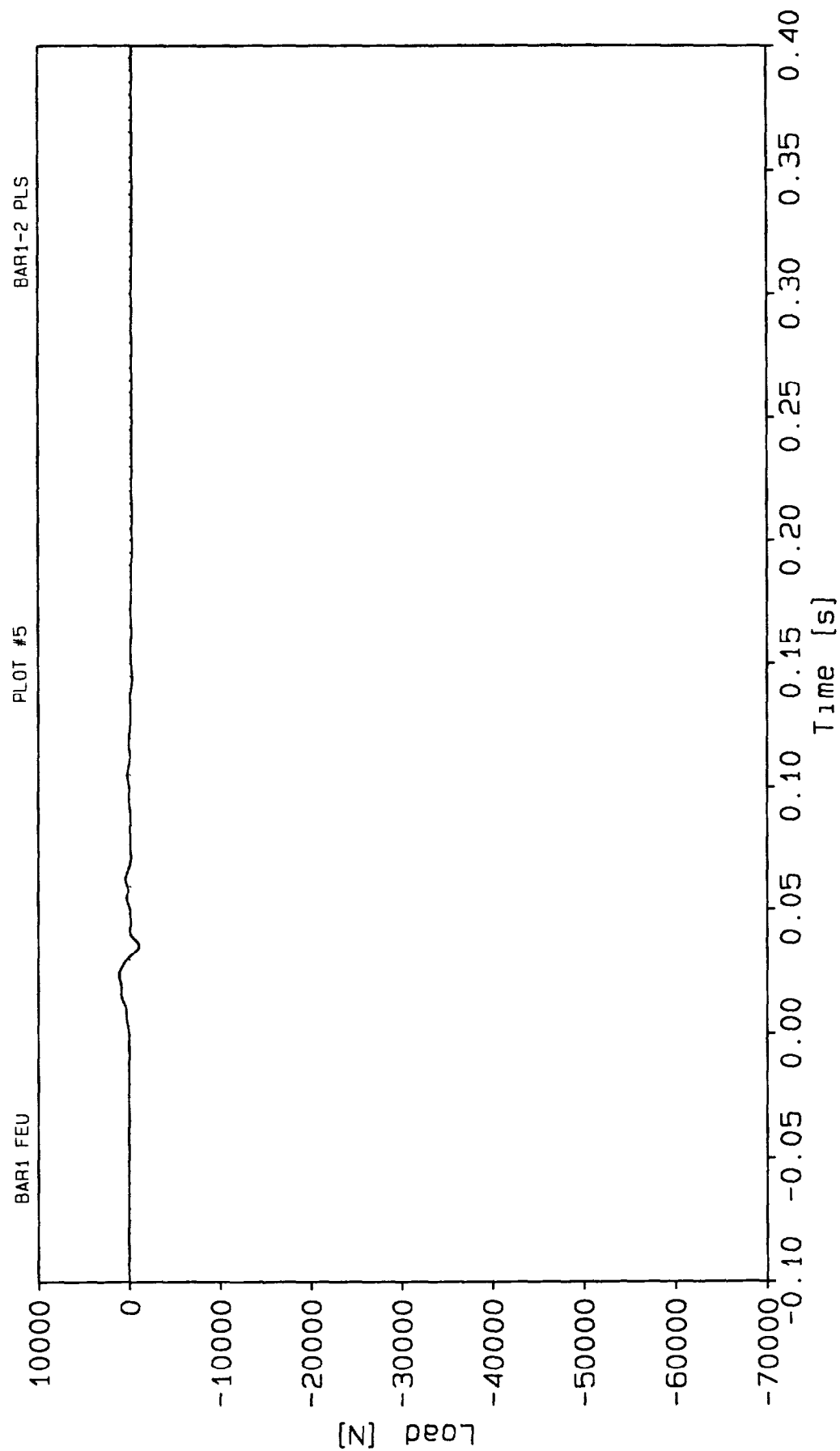


Filter Class 60
Volpe Crash Testing
PH05508

Exponent
Failure
Analysis
Associates

Barrier Face Load (Fx) v Time

Position A6
Moving Deformable Barrier
Moving Deformable Barrier into 2001 Dodge Neon - 9/18/01



Exponent
Failure
Analysis
Associates

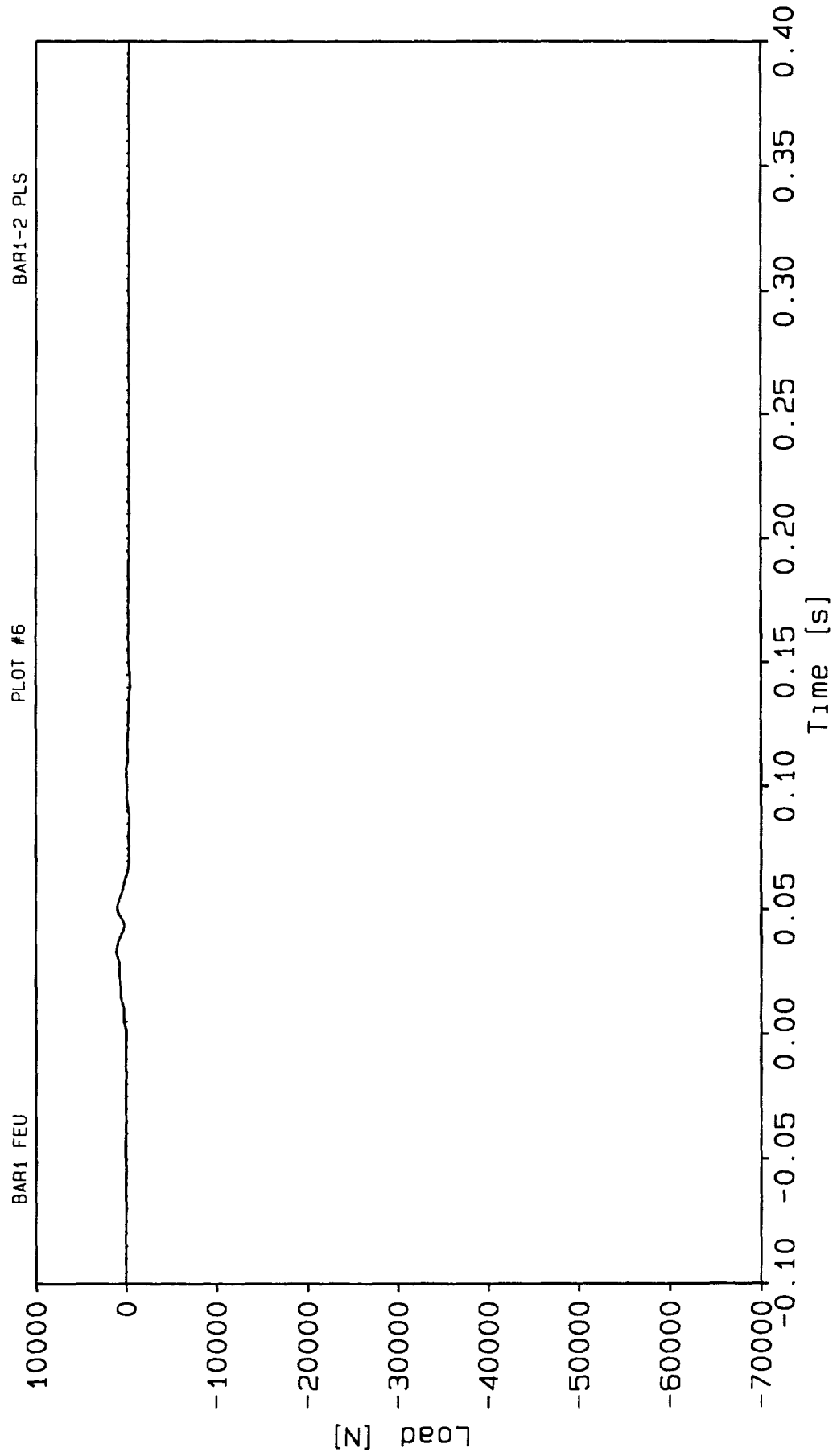
Filter Class 60
Volpe Crash Testing
PH06608

Barrier Face Load (Fx) v Time

Position A7

Moving Deformable Barrier

Moving Deformable Barrier into 2001 Dodge Neon - 9/18/01

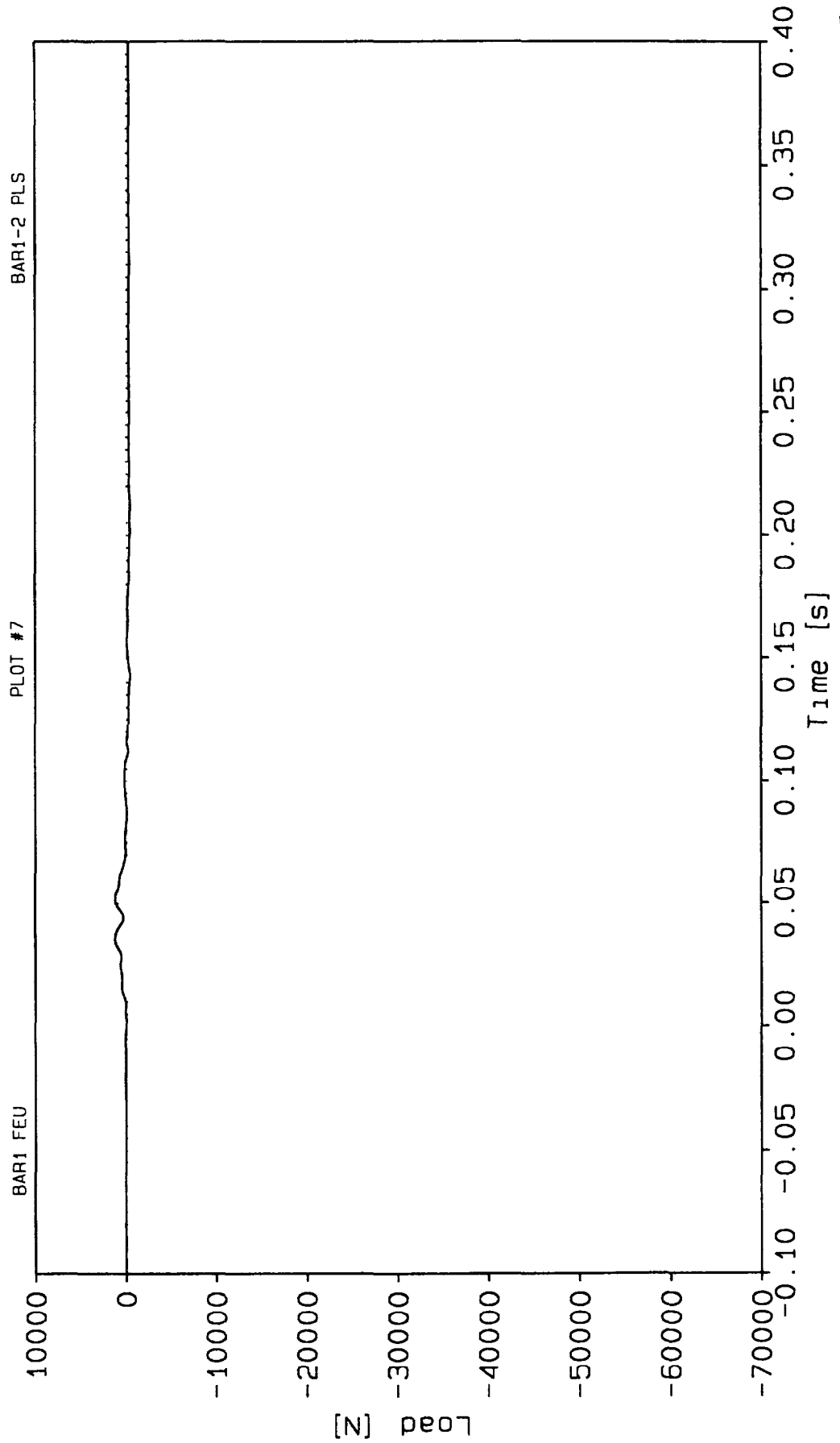


Exponent
Failure
Analysis
ASSOCIATES

Filter Class 60
Volpe Crash Testing
PH06608

Barrier Face Load (Fx) v Time

Position A8
Moving Deformable Barrier
Moving Deformable Barrier into 2001 Dodge Neon - 9/18/01

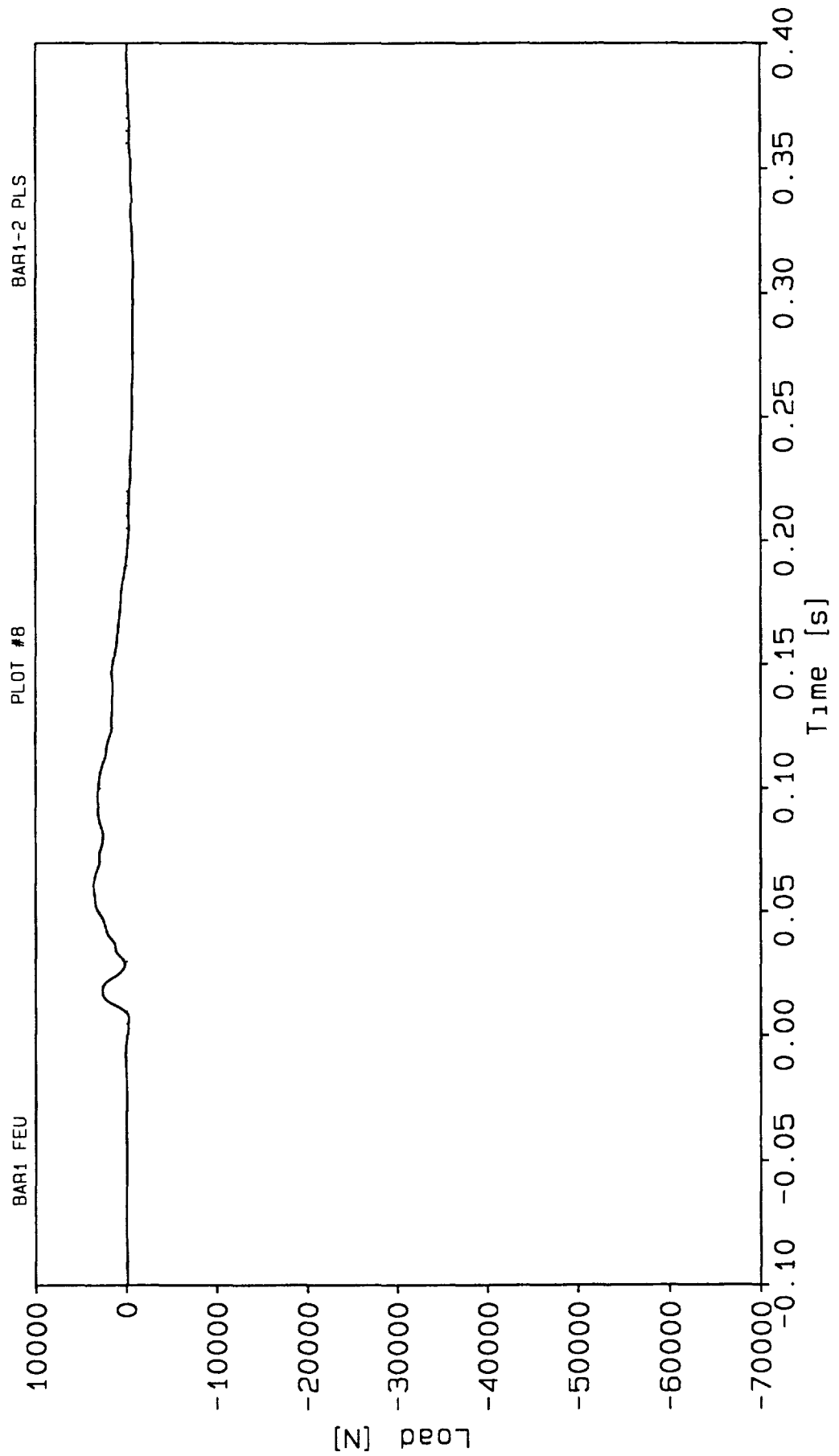


Exponent
Failure
Analysis
Associates

Filter Class 60
Volpe Crash Testing
PH055608

Barrier Face Load (Fx) v Time

Position A9
Moving Deformable Barrier
Moving Deformable Barrier into 2001 Dodge Neon - 9/18/01



Exponent
Failure
Analysis
Associates

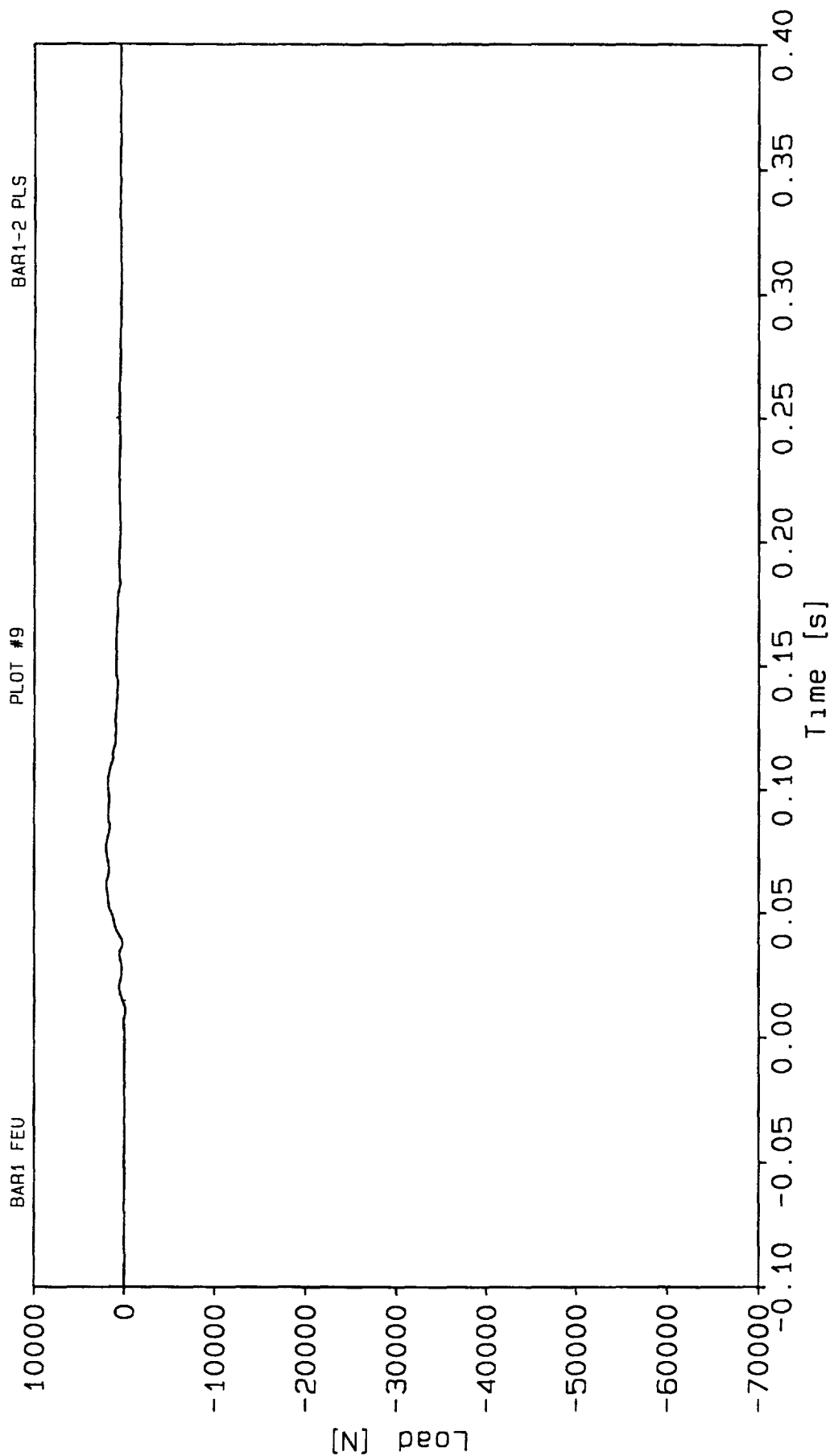
Filter Class 60
Volpe Crash Testing
PH05508

Barrier Face Load (Fx) v Time

Position A10

Moving Deformable Barrier

Moving Deformable Barrier into 2001 Dodge Neon - 9/18/01

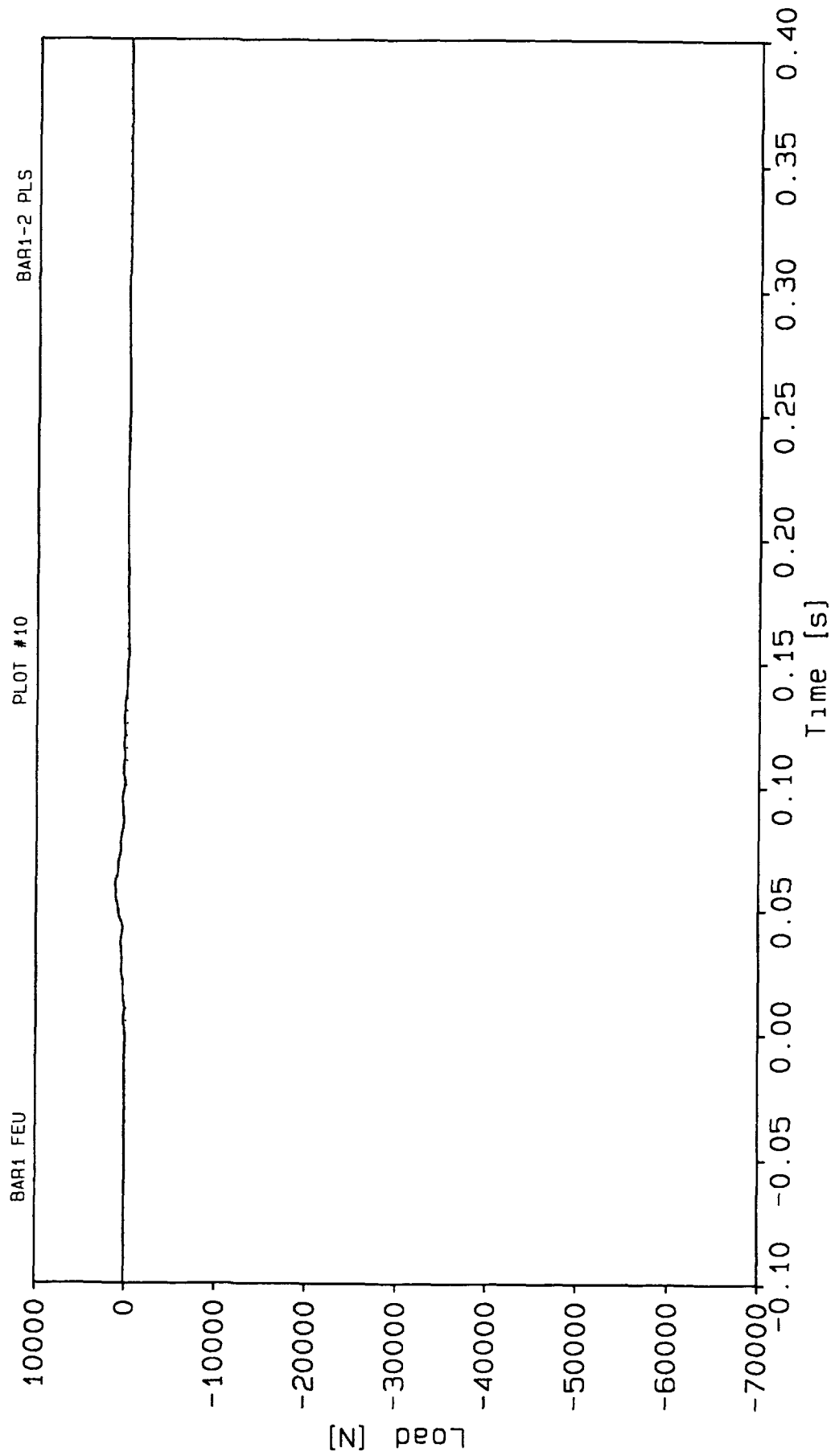


Exponent
Failure
Analysis
Associates

Filter Class 60
Volpe Crash Testing
PH06608

Barrier Face Load (Fx) v Time

Position B1
Moving Deformable Barrier
Moving Deformable Barrier into 2001 Dodge Neon - 9/18/01

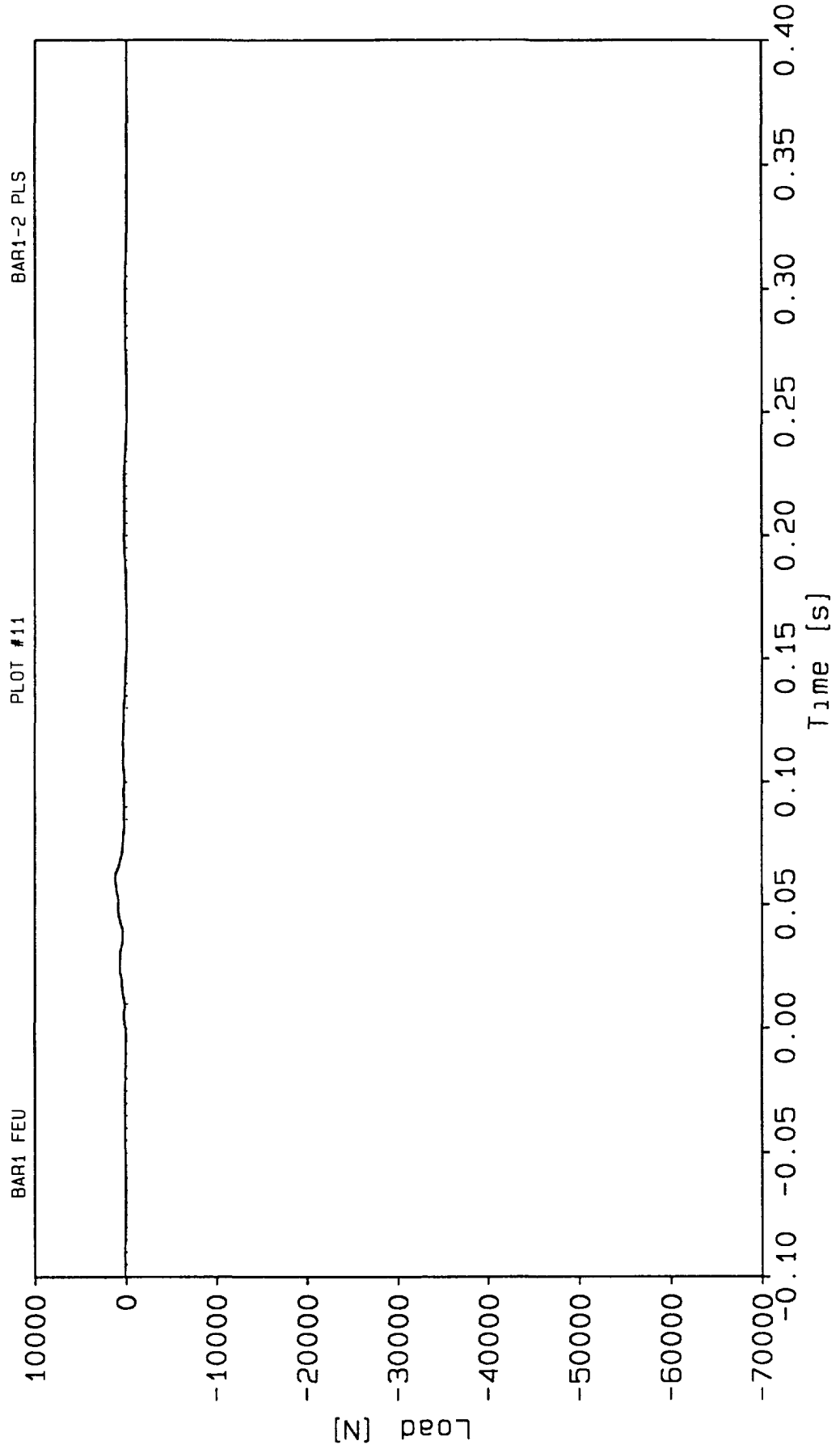


Filter Class 60
Volpe Crash Testing
PH06608

Exponent
Failure
Analysis
Associates

Barrier Face Load (Fx) v Time

Position B2
Moving Deformable Barrier
Moving Deformable Barrier into 2001 Dodge Neon - 9/18/01

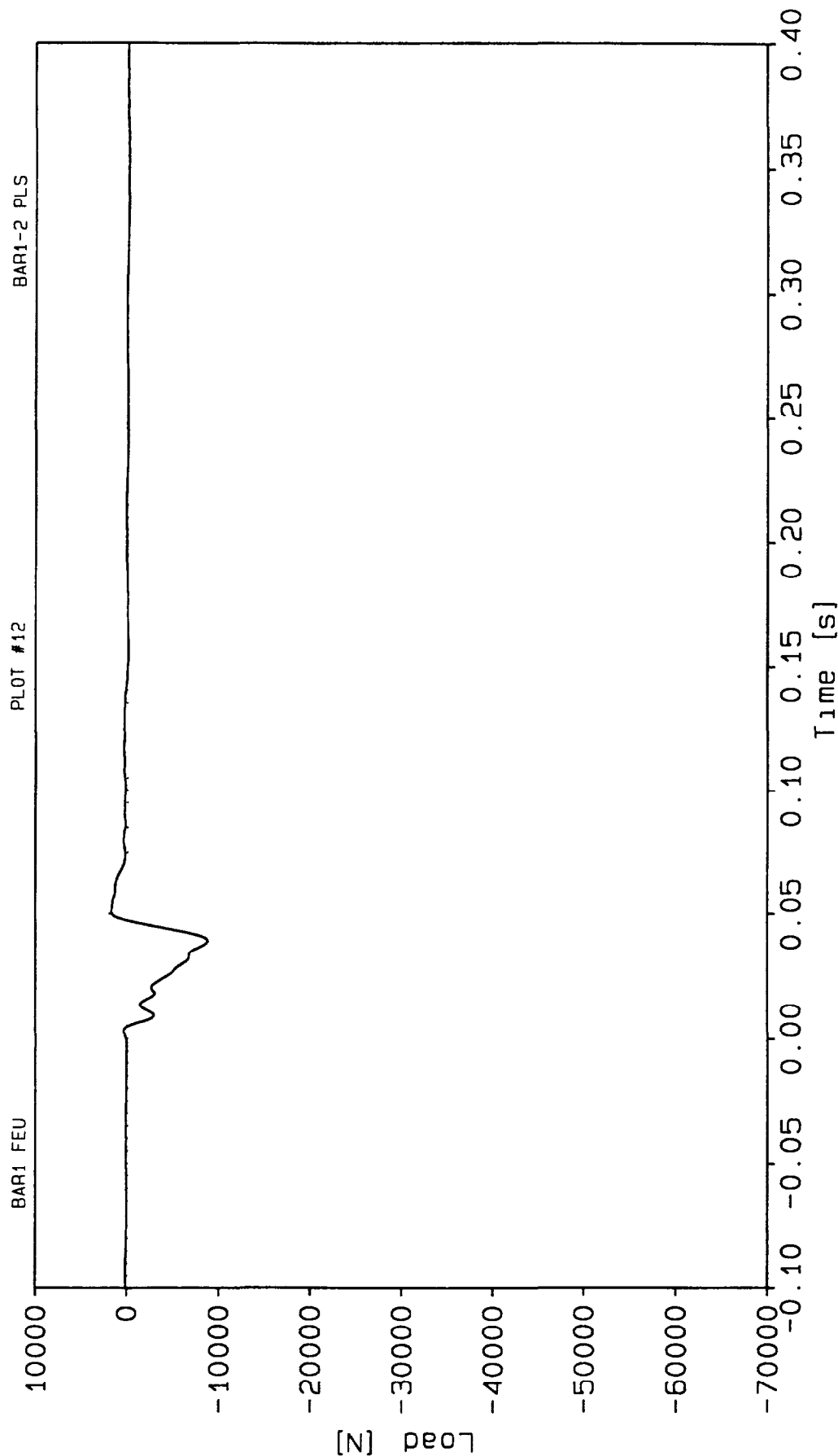


Exponent
Failure
Analysis
Associates

Filter Class 60
Volpe Crash Testing
PH06608

Barrier Face Load (Fx) v Time

Position B3
Moving Deformable Barrier
Moving Deformable Barrier into 2001 Dodge Neon - 9/18/01



Filter Class 60
Volpe Crash Testing
PH06608

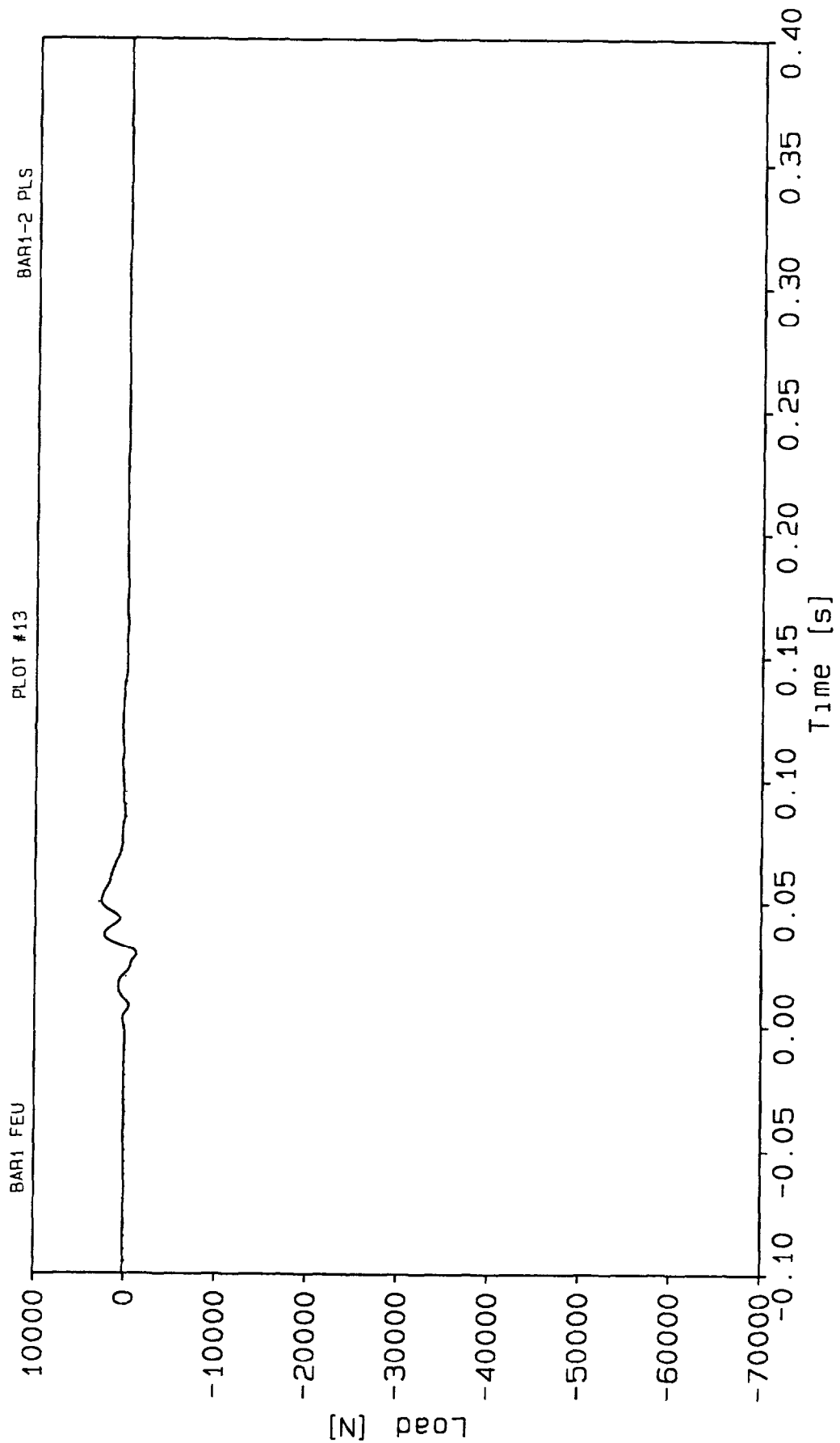
Exponent
Failure
Analysis
Associates

Barrier Face Load (Fx) v Time

Position B4

Moving Deformable Barrier

Moving Deformable Barrier into 2001 Dodge Neon - 9/18/01



Exponent
Failure
Analysis
Associates

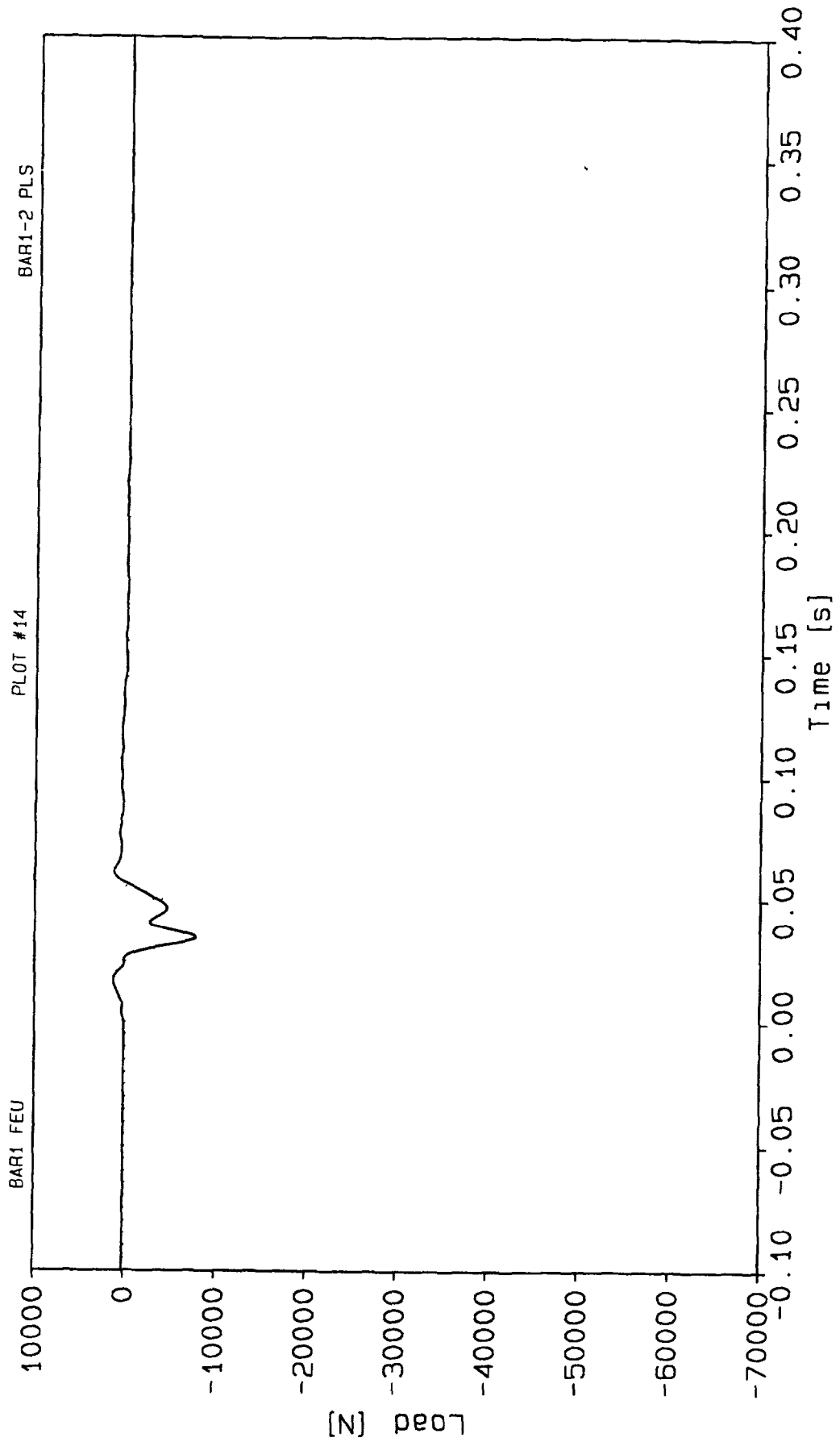
Filter Class 60
Volpe Crash Testing
PH06608

Barrier Face Load (Fx) v Time

Position B5

Moving Deformable Barrier

Moving Deformable Barrier into 2001 Dodge Neon - 9/18/01

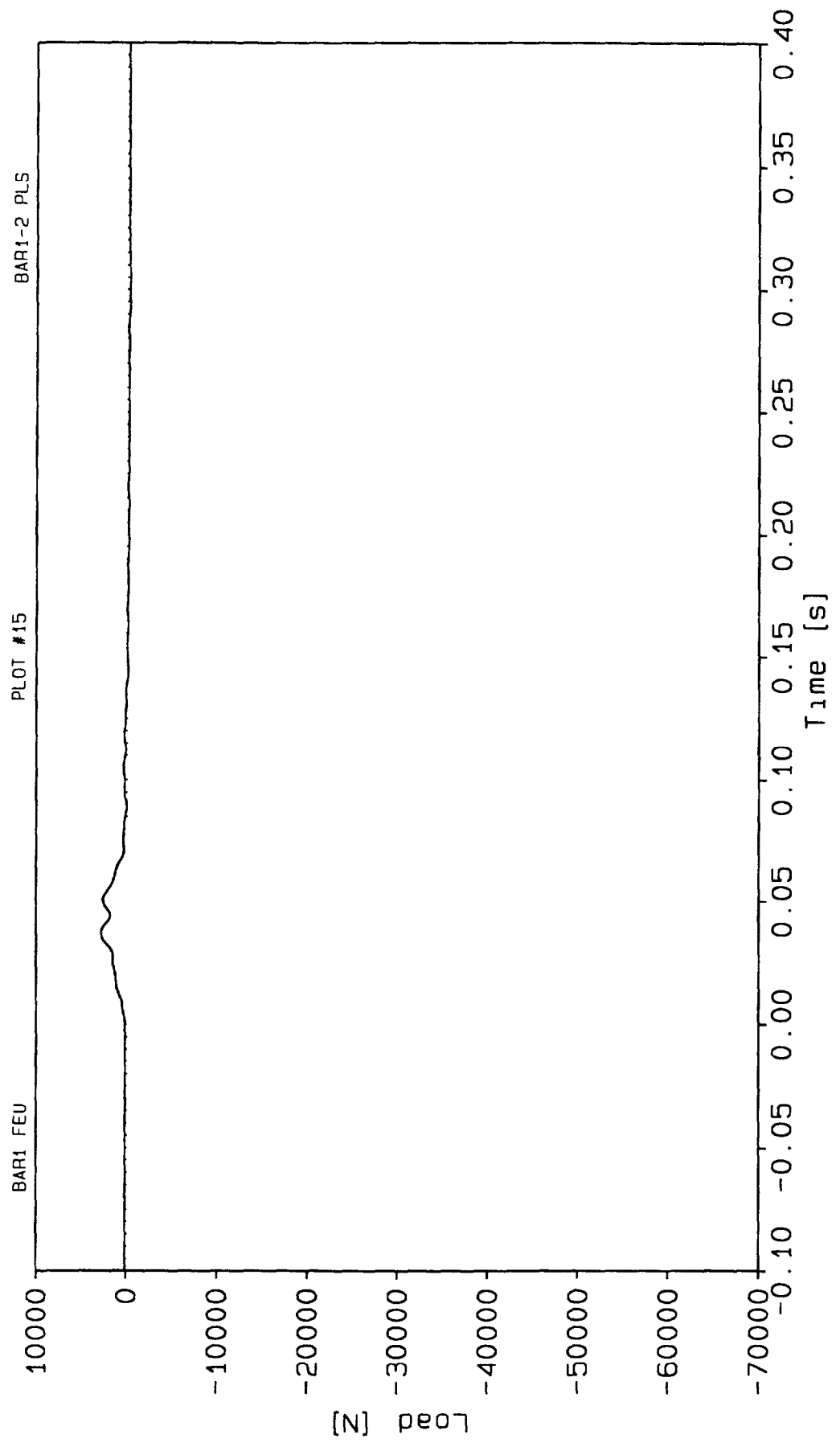


Filter Class 60
Volpe Crash Testing
PH05508

Exponent
Failure
Analysis
Associates

Barrier Face Load (Fx) v Time

Position B6
Moving Deformable Barrier
Moving Deformable Barrier into 2001 Dodge Neon - 9/18/01

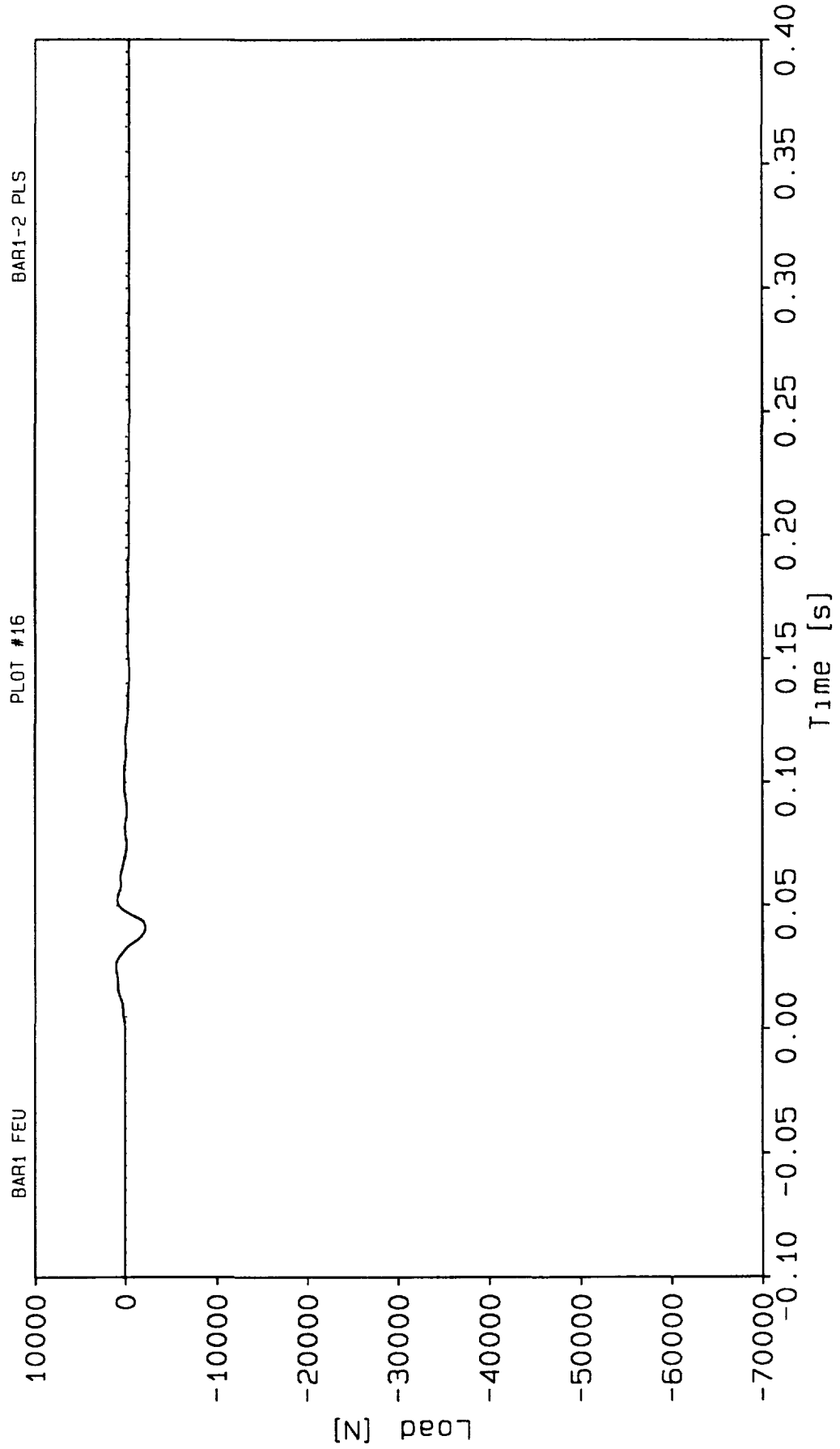


Exponent
Failure
Analysis
Associates

Filter Class 60
Volpe Crash Testing
PH06608

Barrier Face Load (Fx) v Time

Position B7
Moving Deformable Barrier
Moving Deformable Barrier into 2001 Dodge Neon - 9/18/01

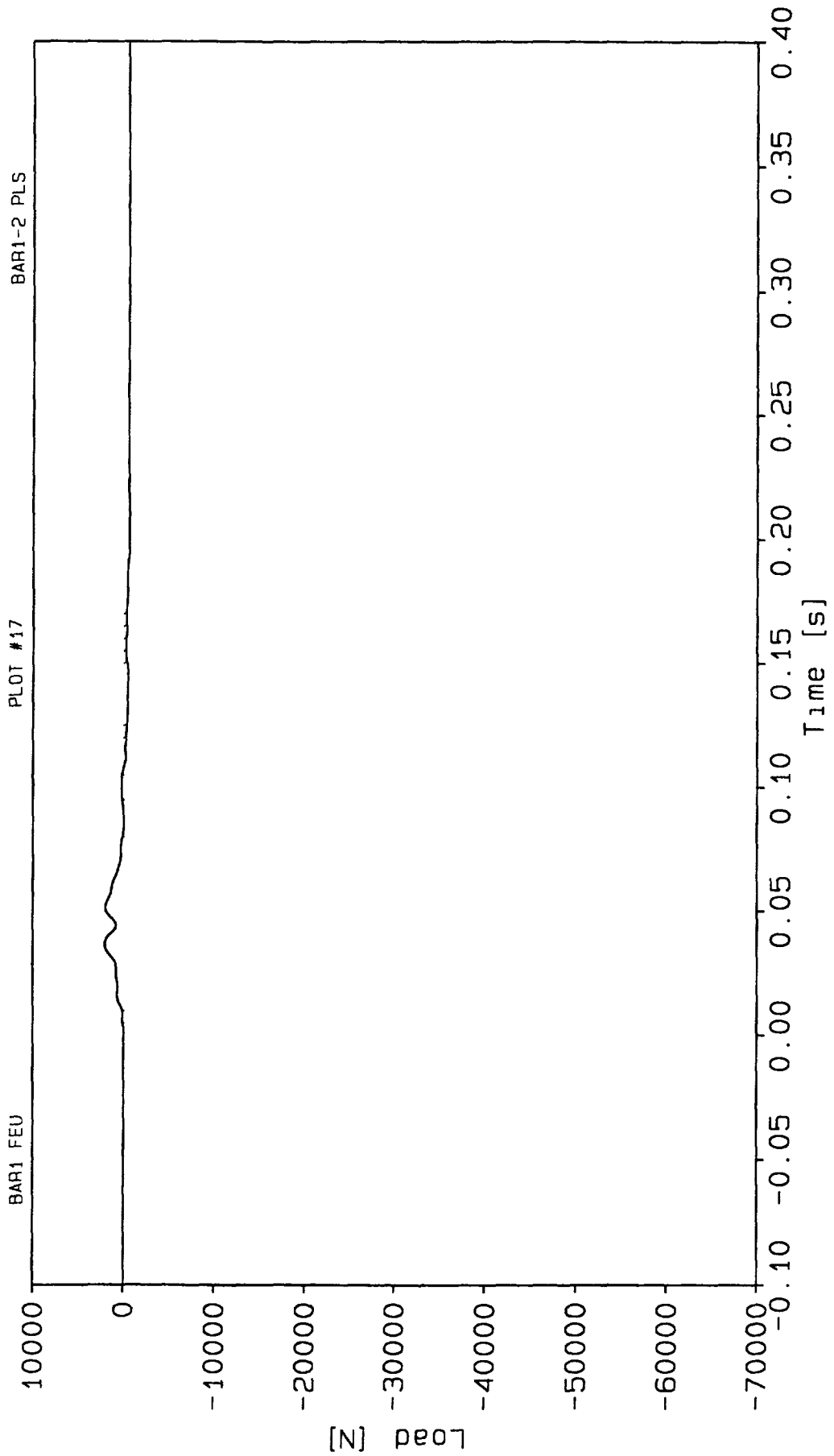


Exponent
Failure
Analysis
Associates

Filter Class 60
Volpe Crash Testing
PH06608

Barrier Face Load (Fx) v Time

Position B8
Moving Deformable Barrier
Moving Deformable Barrier into 2001 Dodge Neon - 9/18/01

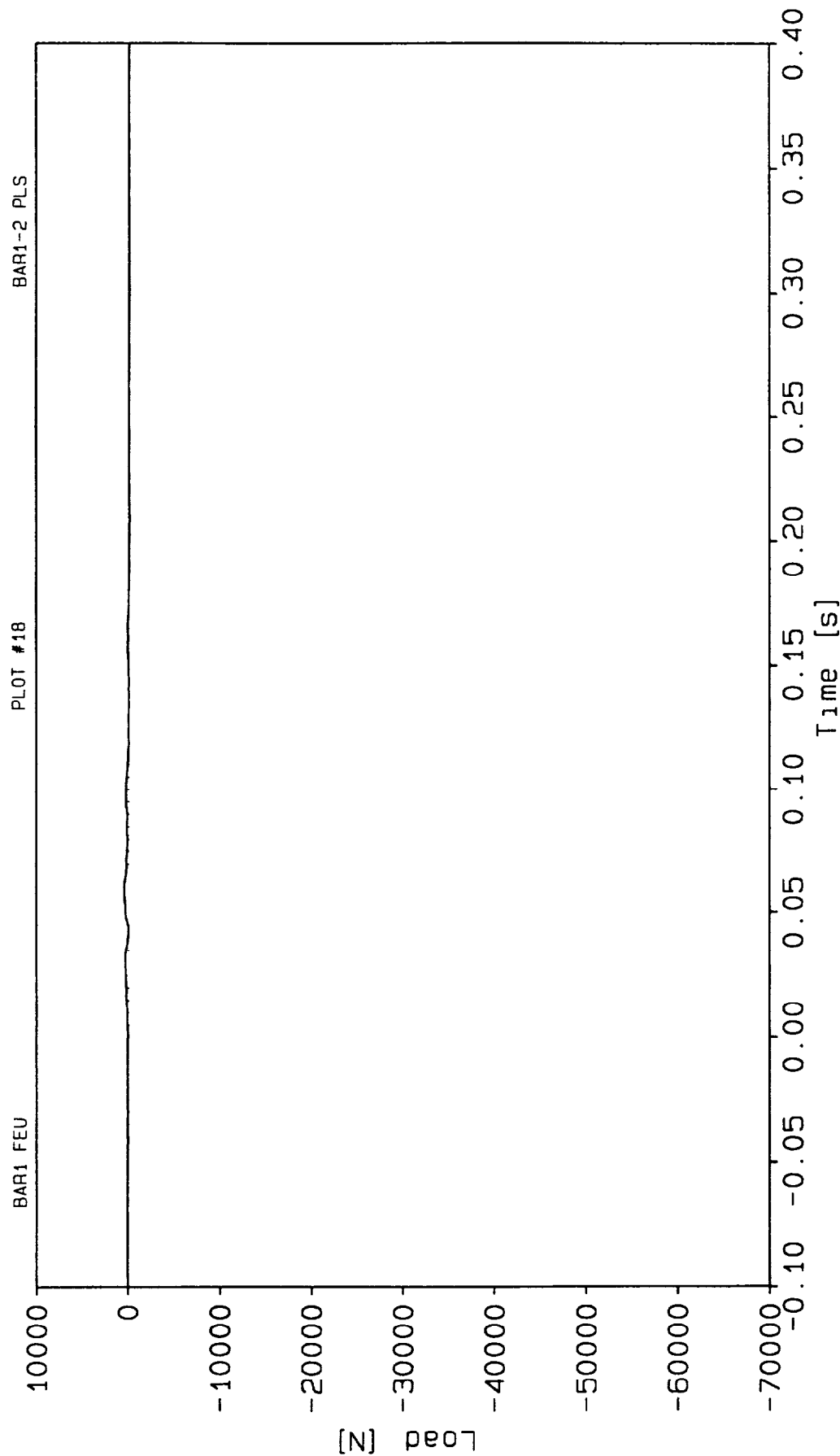


Filter Class 60
Volpe Crash Testing
PH06608

Exponent
Failure
Analysis
Associates

Barrier Face Load (Fx) v Time

Position B9
Moving Deformable Barrier
Moving Deformable Barrier into 2001 Dodge Neon - 9/18/01



Exponent
Failure
Analysis
Associates

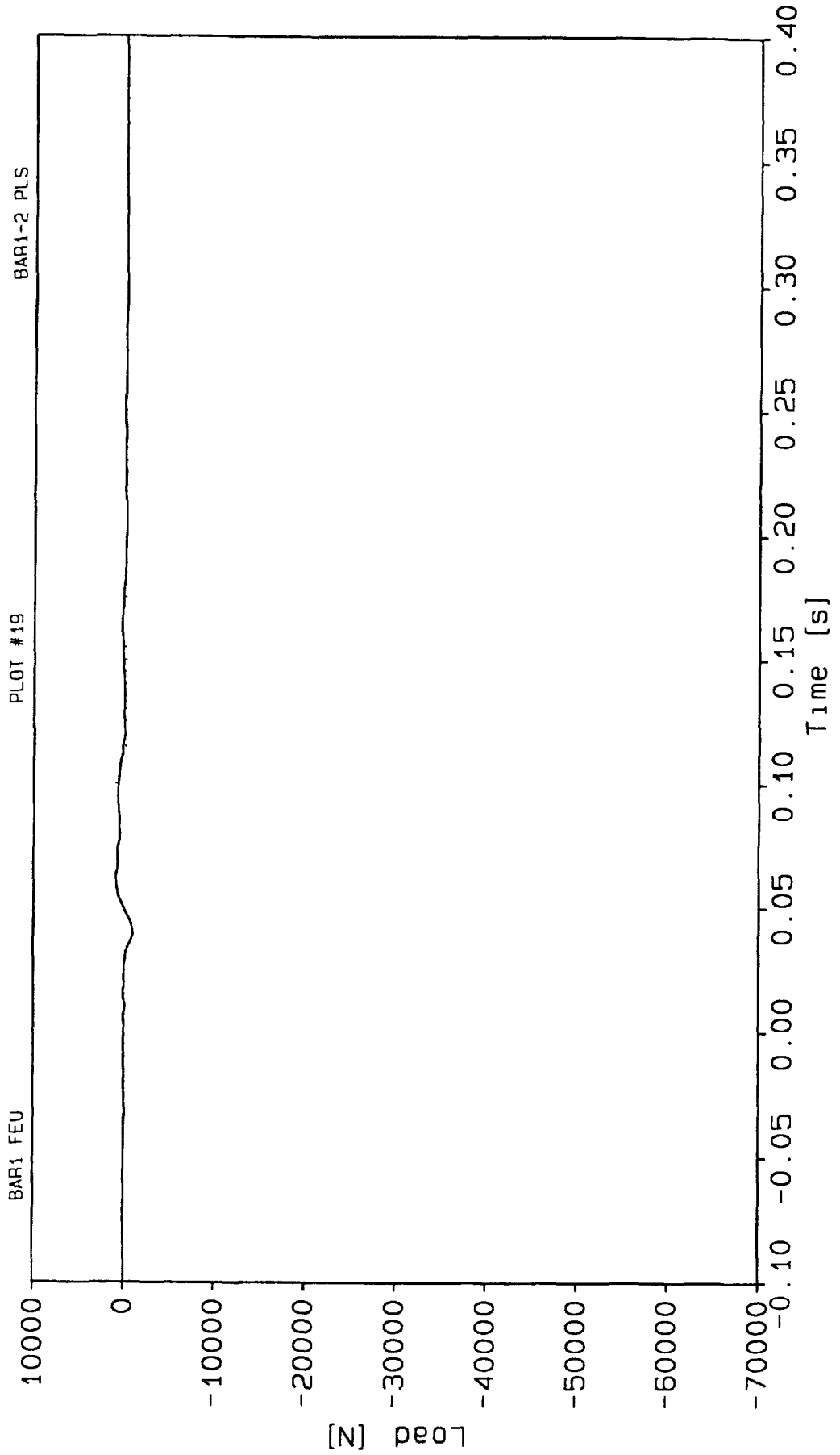
Filter Class 60
Volpe Crash Testing
PH06608

Barrier Face Load (Fx) v Time

Position B10

Moving Deformable Barrier

Moving Deformable Barrier into 2001 Dodge Neon - 9/18/01



Exponent
Failure
Analysis
Associates

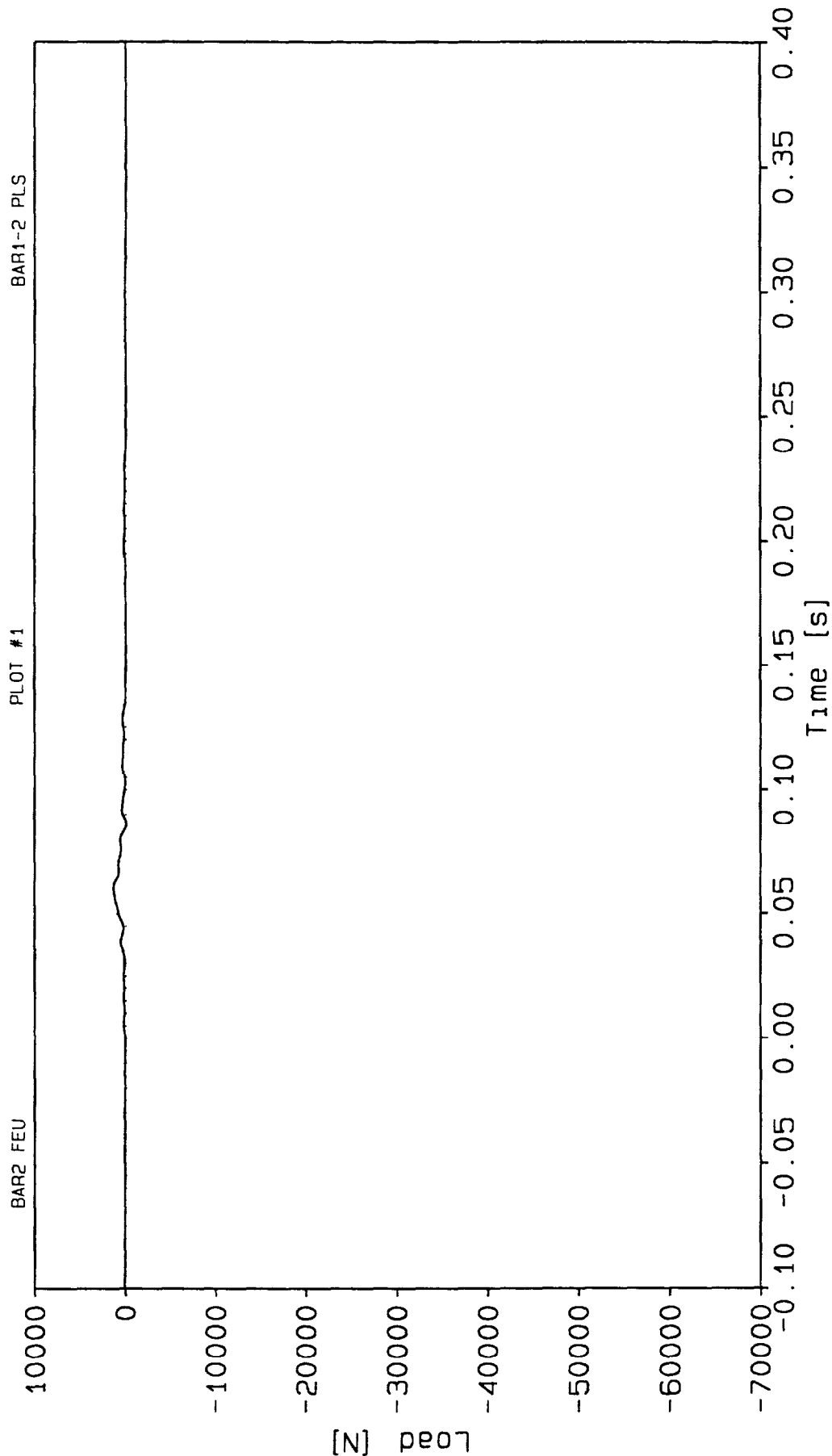
Filter Class 60
Volpe Crash Testing
PH06608

Barrier Face Load (Fx) v Time

Position C1

Moving Deformable Barrier

Moving Deformable Barrier into 2001 Dodge Neon - 9/18/01

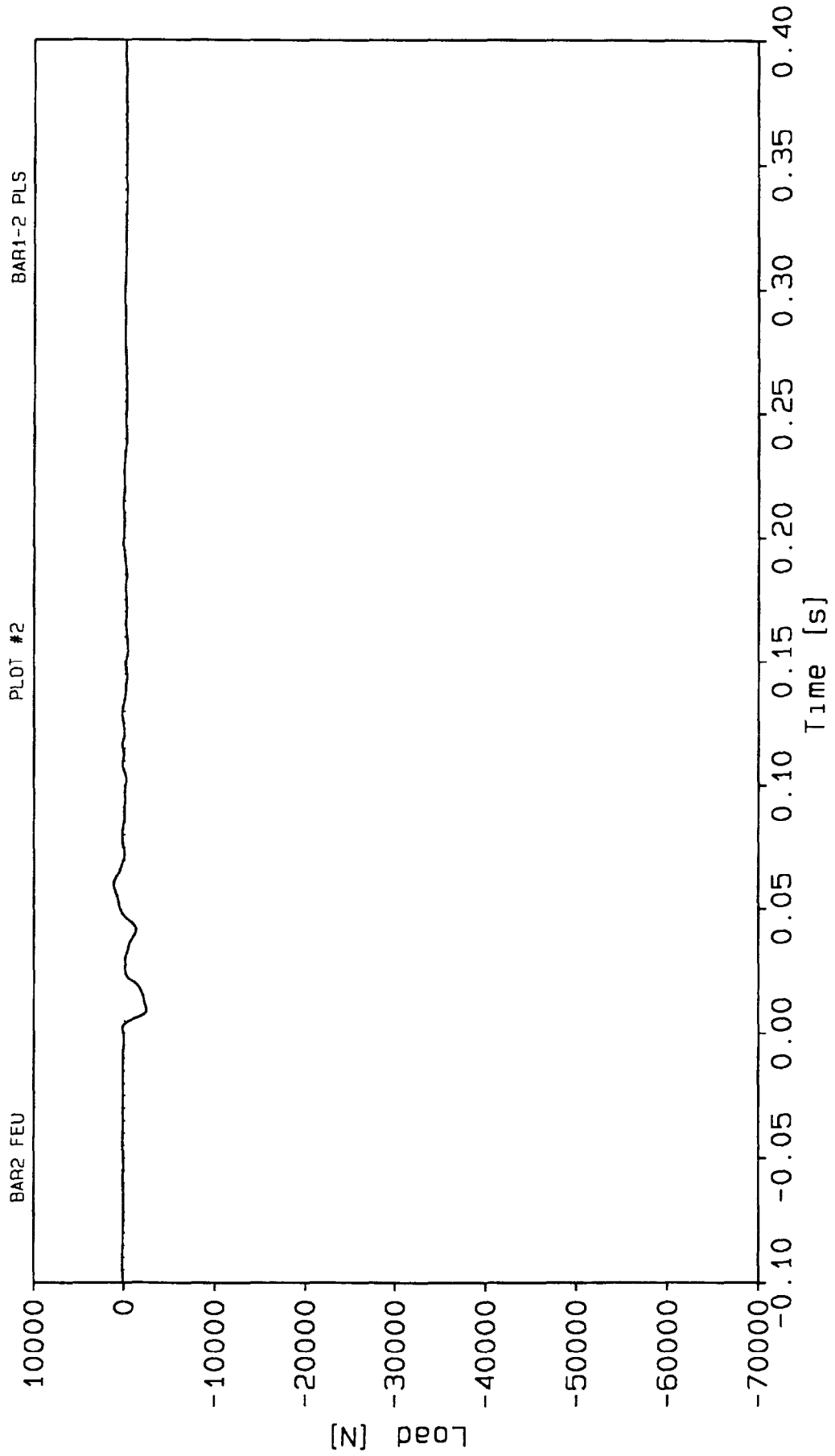


Exponent
Failure
Analysis
Associates

Filter Class 50
Volpe Crash Testing
PH06608

Barrier Face Load (Fx) v Time

Position C2
Moving Deformable Barrier
Moving Deformable Barrier into 2001 Dodge Neon - 9/18/01



Filter Class 60
Volpe Crash Testing
PH06608

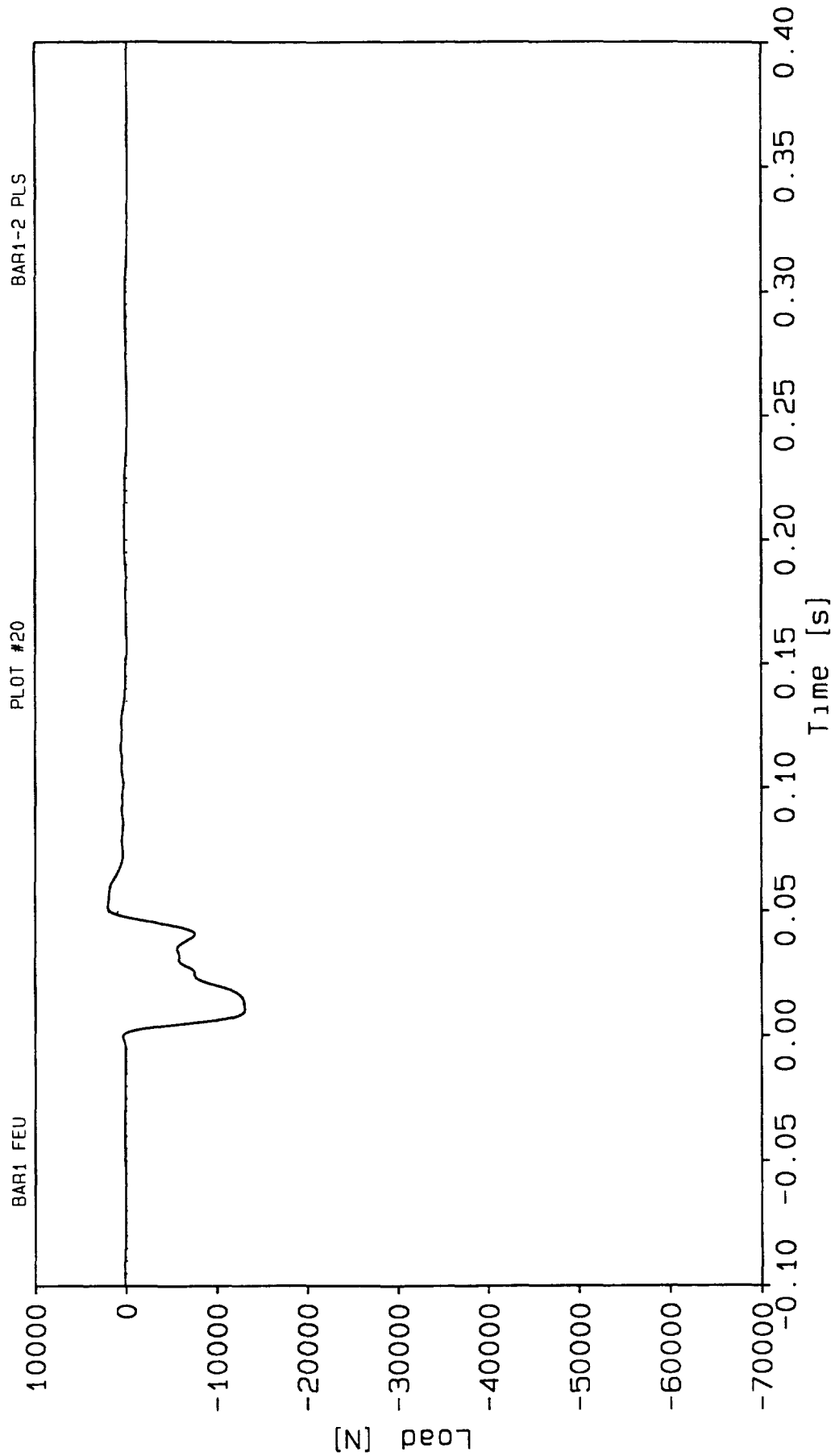
Exponent
Failure
Analysis
Associates

Barrier Face Load (Fx) v Time

Position C3

Moving Deformable Barrier

Moving Deformable Barrier into 2001 Dodge Neon - 9/18/01

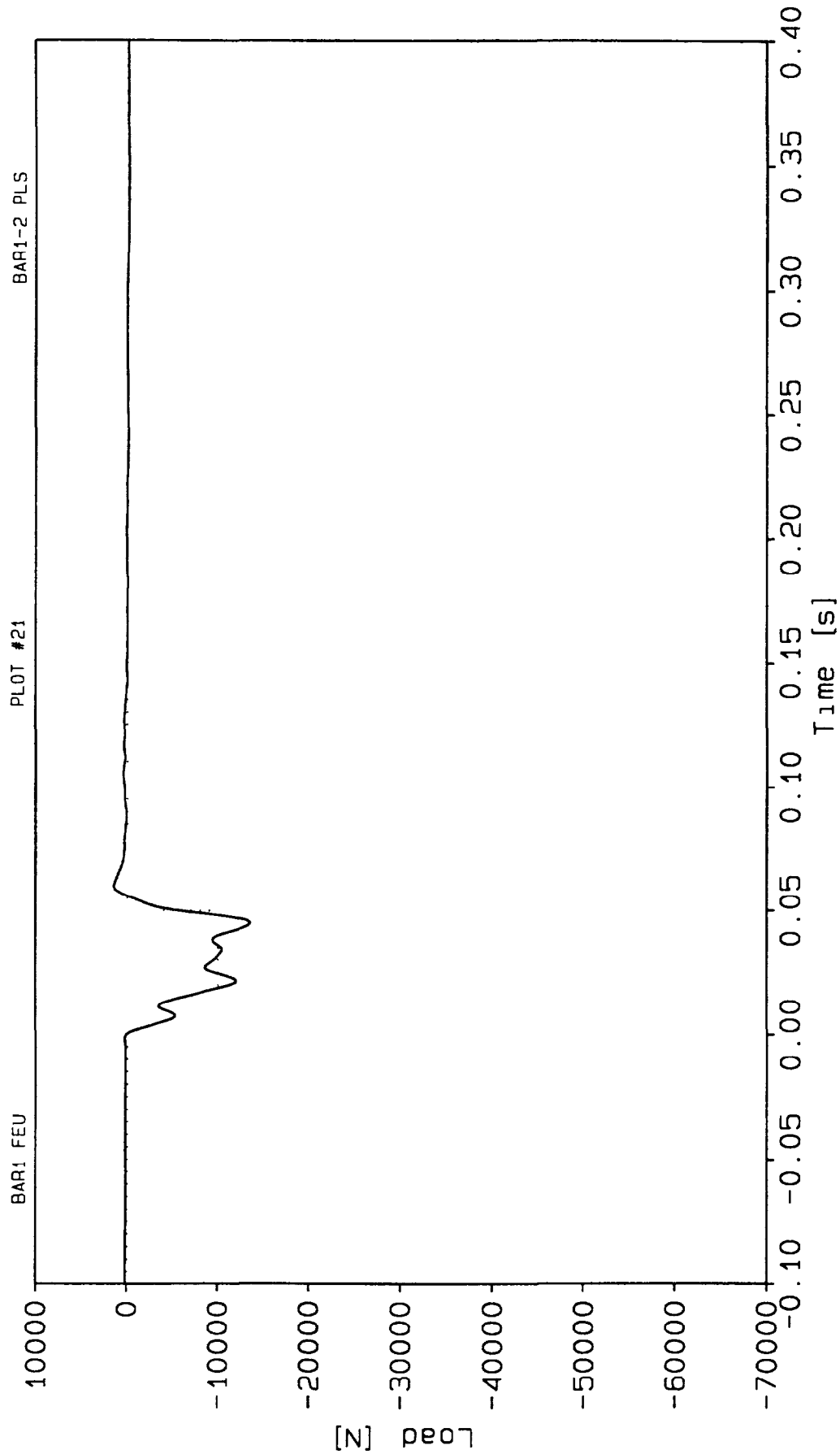


Filter Class 60
Volpe Crash Testing
PH06608

Exponent
Failure
Analysis
Associates

Barrier Face Load (Fx) v Time

Position C4
Moving Deformable Barrier
Moving Deformable Barrier into 2001 Dodge Neon - 9/18/01



Exponent
Failure
Analysis
Associates

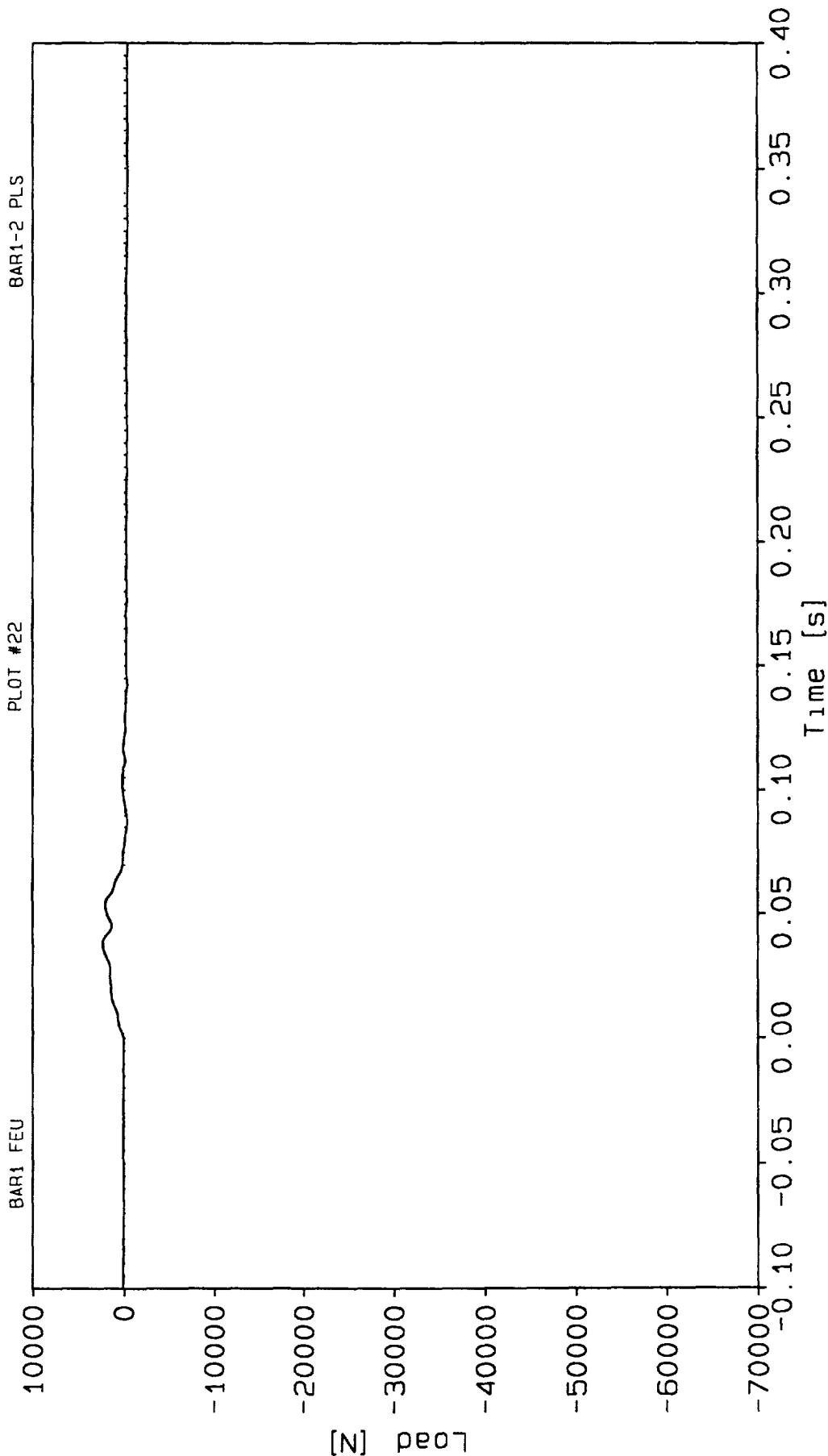
Filter Class 60
Volpe Crash Testing
PH05608

Barrier Face Load (Fx) v Time

Position C5

Moving Deformable Barrier

Moving Deformable Barrier into 2001 Dodge Neon - 9/18/01

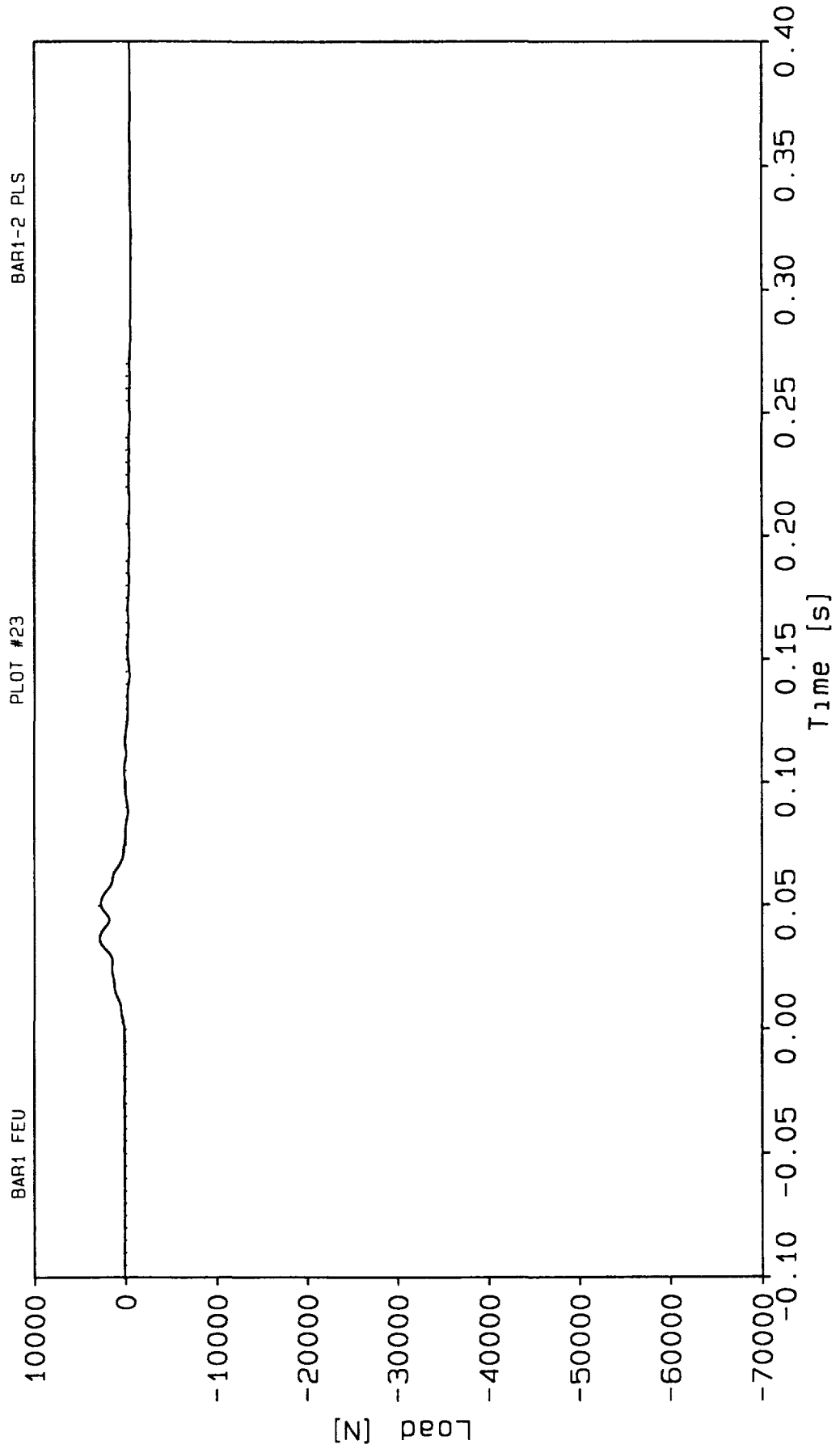


Filter Class 60
Volpe Crash Testing
PH06608

Exponent
Failure
Analysis
Associates

Barrier Face Load (Fx) v Time

Position C6
Moving Deformable Barrier
Moving Deformable Barrier into 2001 Dodge Neon - 9/18/01



Exponent
Failure
Analysis
Associates

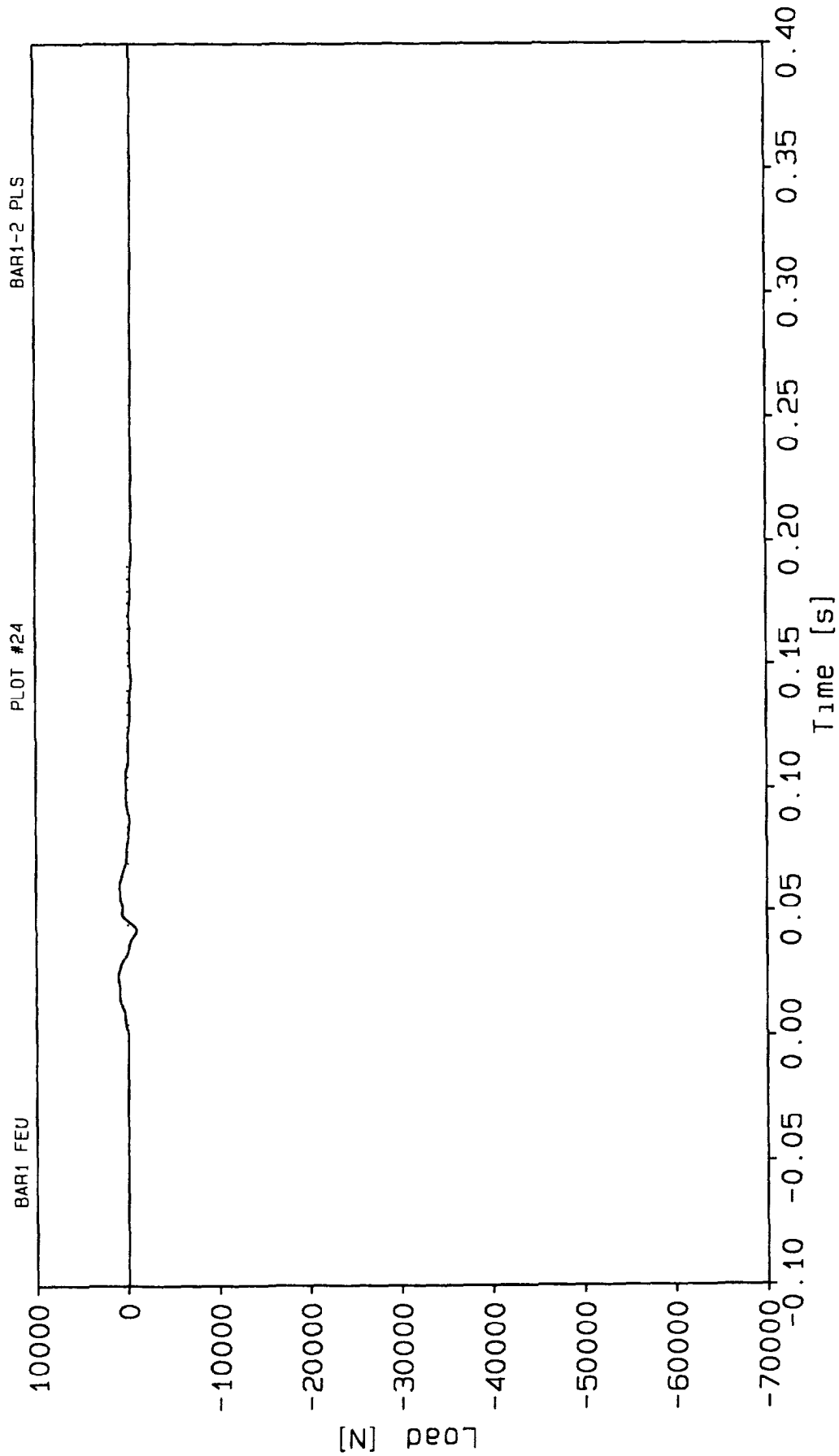
Filter Class 60
Volpe Crash Testing
PH06608

Barrier Face Load (Fx) v Time

Position C7

Moving Deformable Barrier

Moving Deformable Barrier into 2001 Dodge Neon - 9/18/01

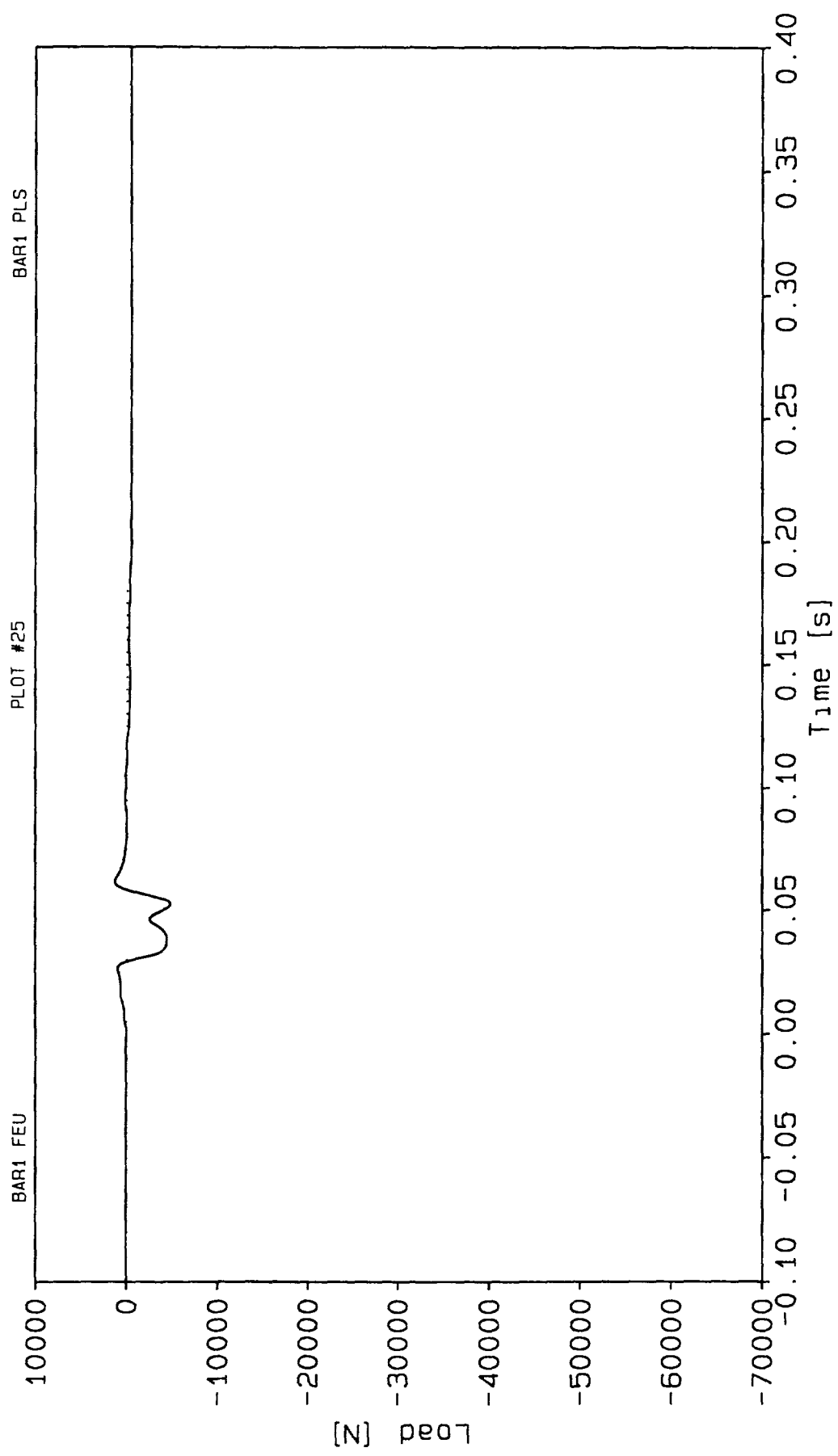


Exponent
Failure
Analysis
Associates

Filter Class 60
Volpe Crash Testing
PH06608

Barrier Face Load (Fx) v Time

Position C8
Moving Deformable Barrier
Moving Deformable Barrier into 2001 Dodge Neon - 9/18/01

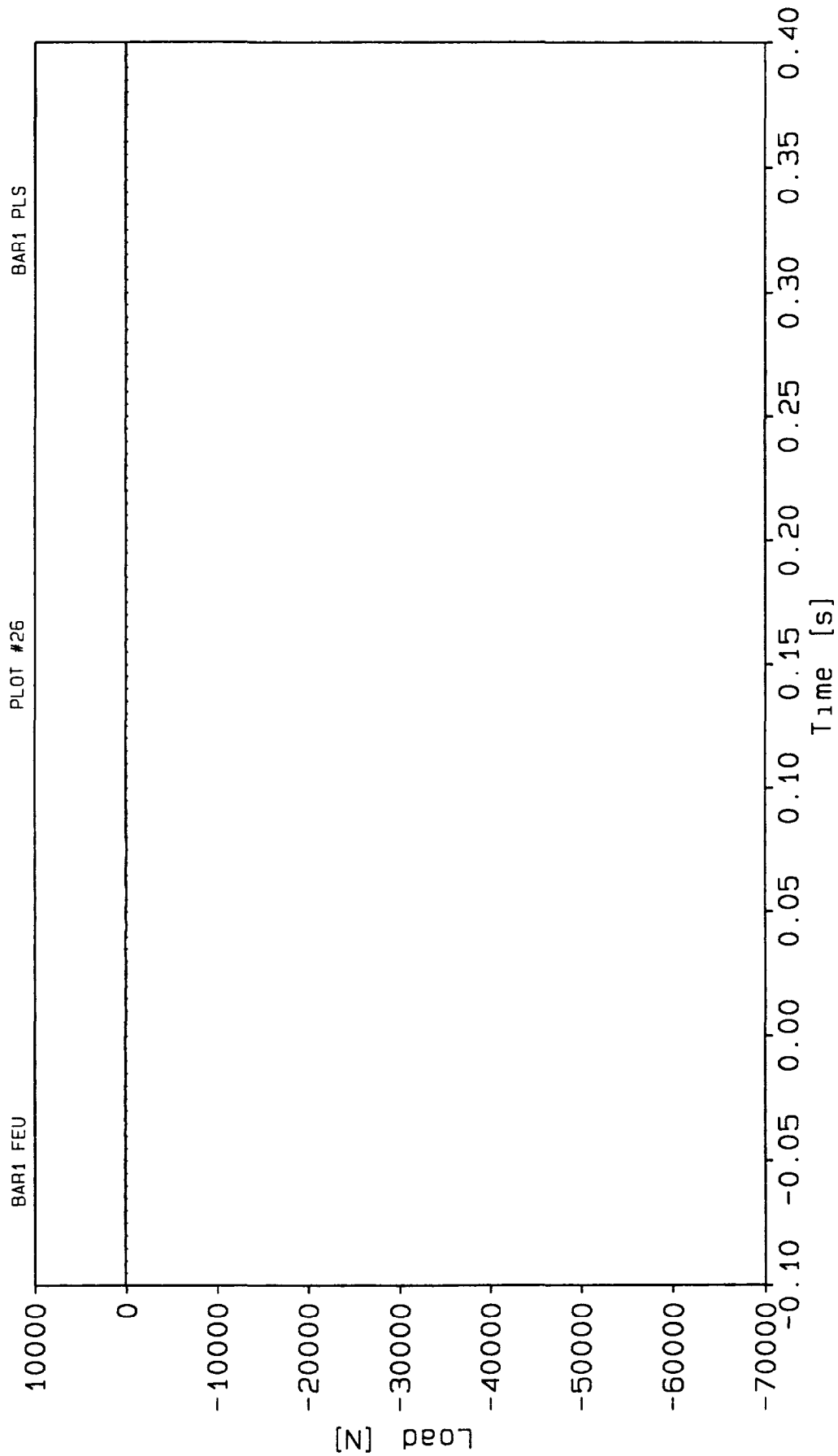


Barrier Face Load (Fx) v Time

Position C9

Moving Deformable Barrier

Moving Deformable Barrier into 2001 Dodge Neon - 9/18/01



Exponent
Failure
Analysis
Associates

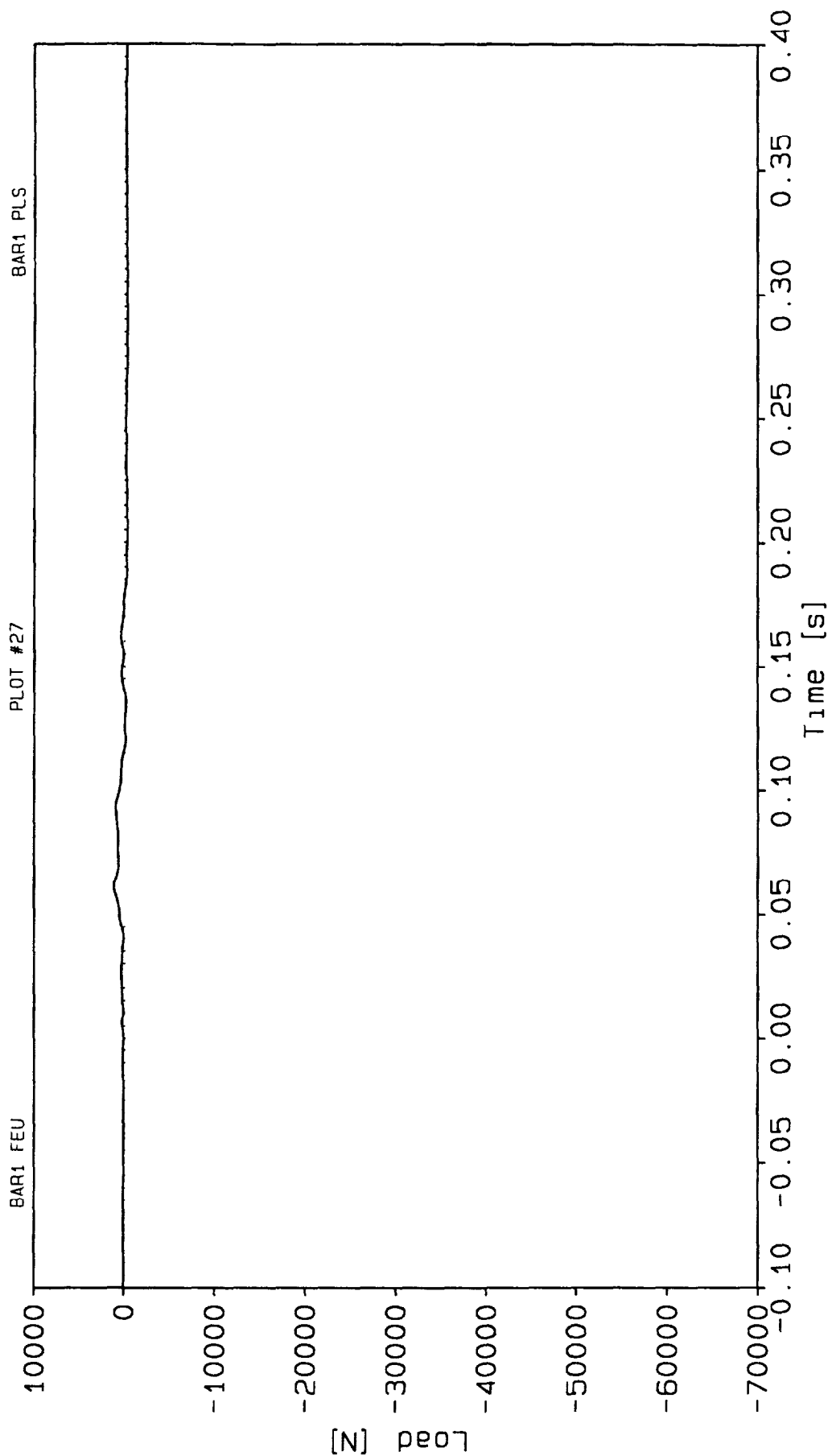
Filter Class 60
Volpe Crash Testing
PH06608

Barrier Face Load (Fx) v Time

Position C10

Moving Deformable Barrier

Moving Deformable Barrier into 2001 Dodge Neon - 9/18/01



Exponent
Failure
Analysis
Associates

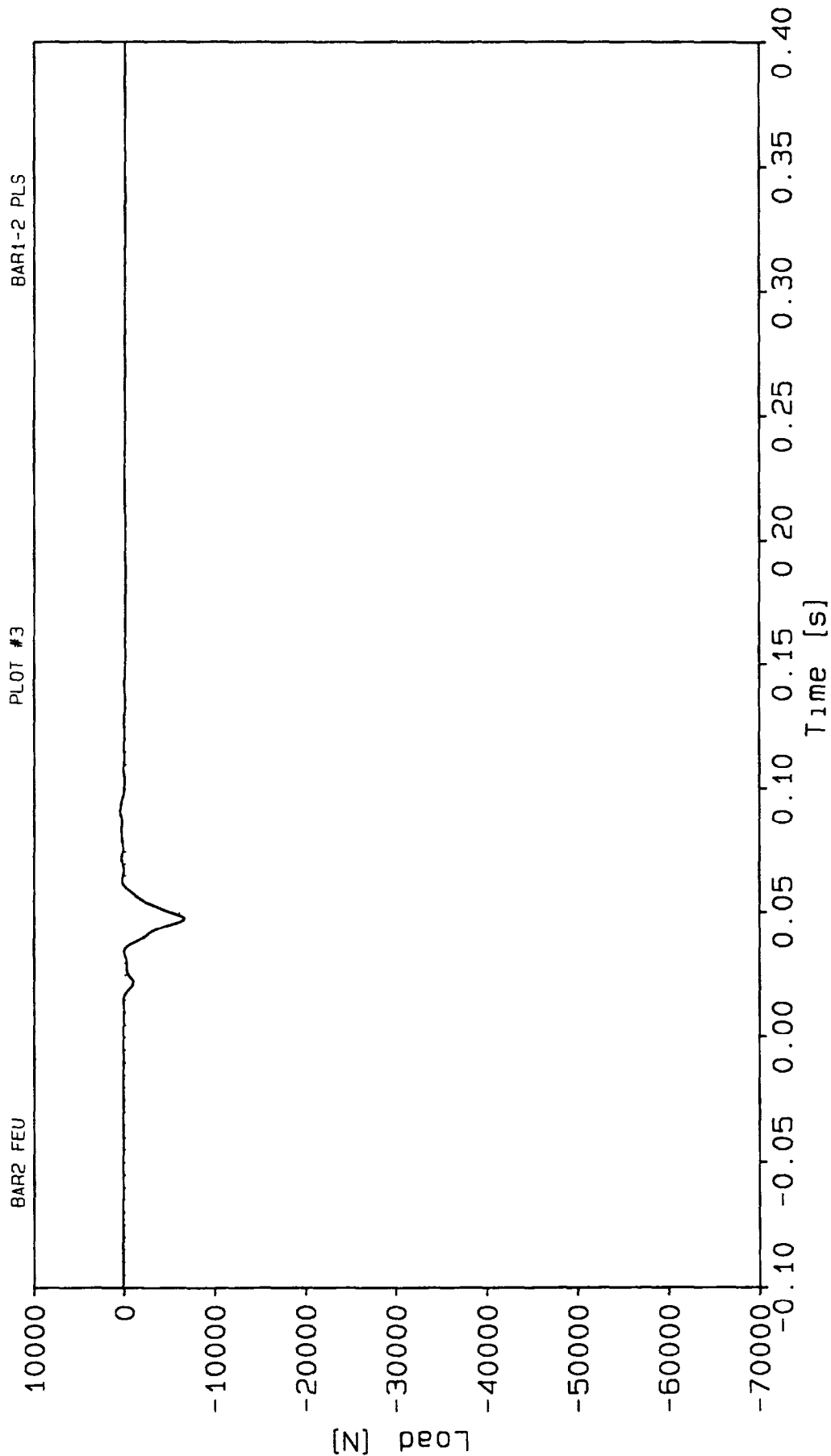
Filter Class 60
Voice Crash Testing
PH06508

Barrier Face Load (Fx) v Time

Position D1

Moving Deformable Barrier

Moving Deformable Barrier into 2001 Dodge Neon - 9/18/01



BAR2 FEU

PLOT #3

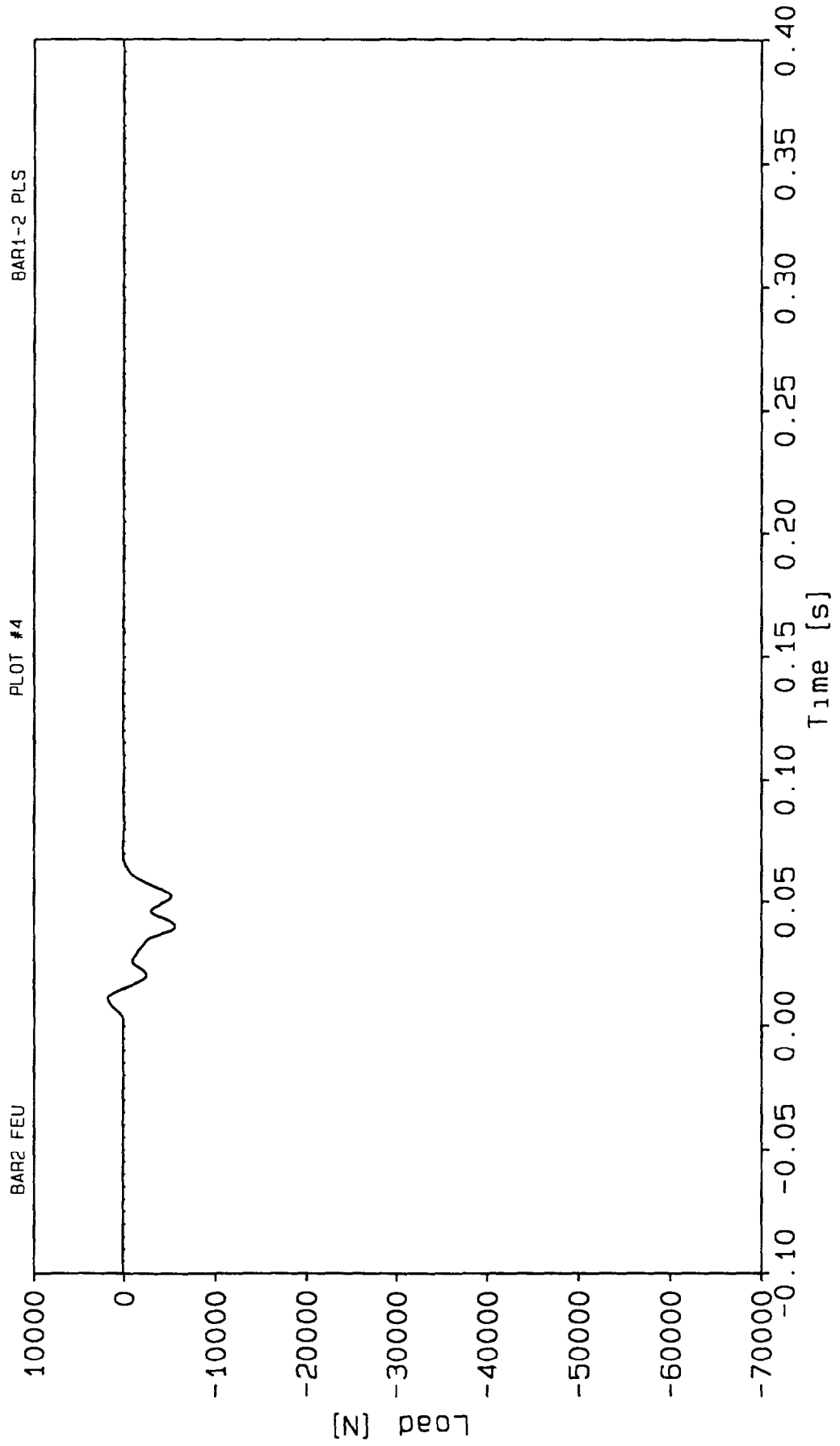
BAR1-2 PLS

Filter Class 60
Volpe Crash Testing
PH06608

Exponent
Failure
Analysis
Associates

Barrier Face Load (Fx) v Time

Position D2
Moving Deformable Barrier
Moving Deformable Barrier into 2001 Dodge Neon - 9/18/01



Filter Class 50
Volpe Crash Testing
PH05608

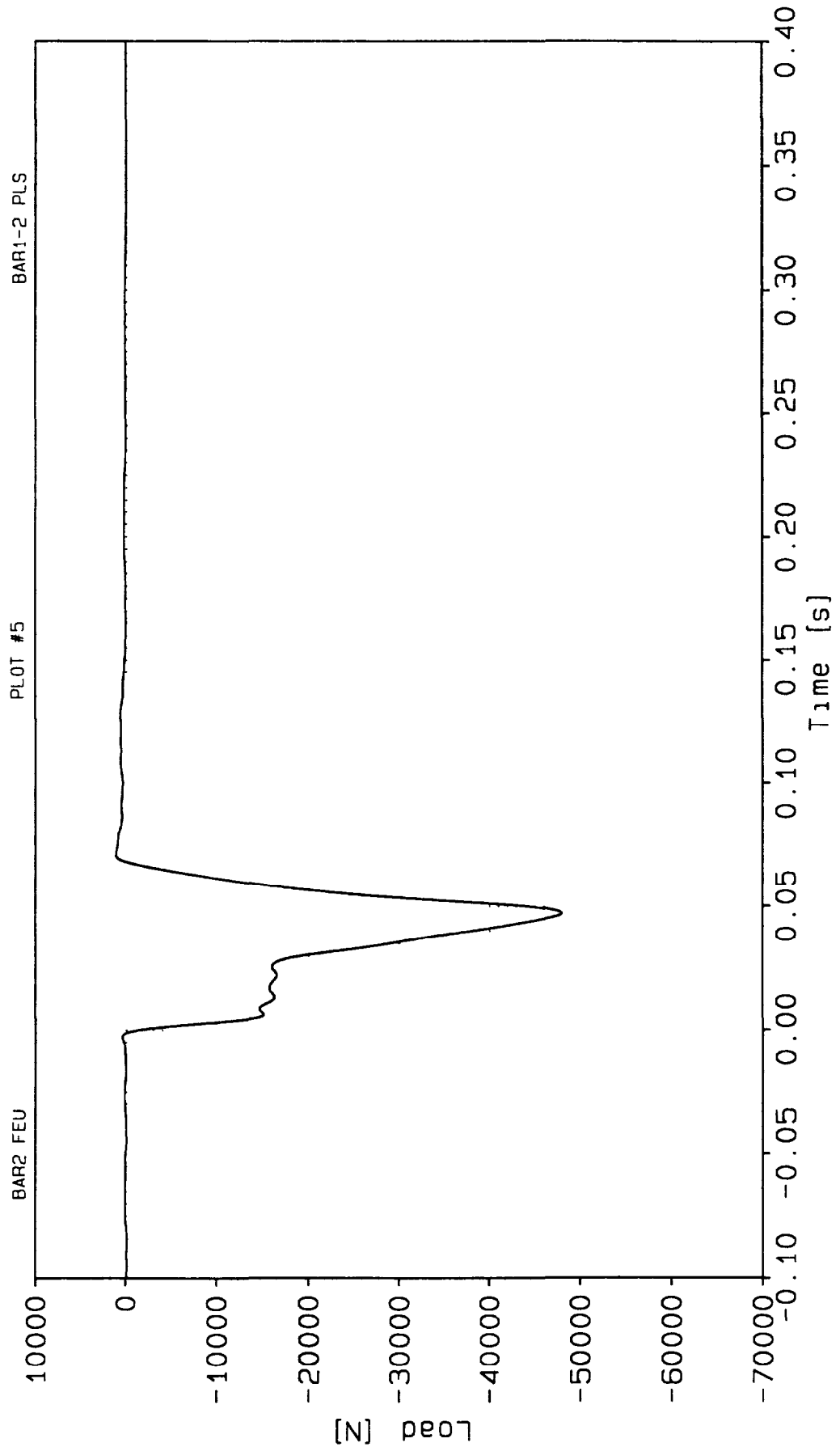
Exponent
Failure
Analysis
Associates

Barrier Face Load (Fx) v Time

Position D3

Moving Deformable Barrier

Moving Deformable Barrier into 2001 Dodge Neon - 9/18/01



Exponent
Failure
Analysis
Associates

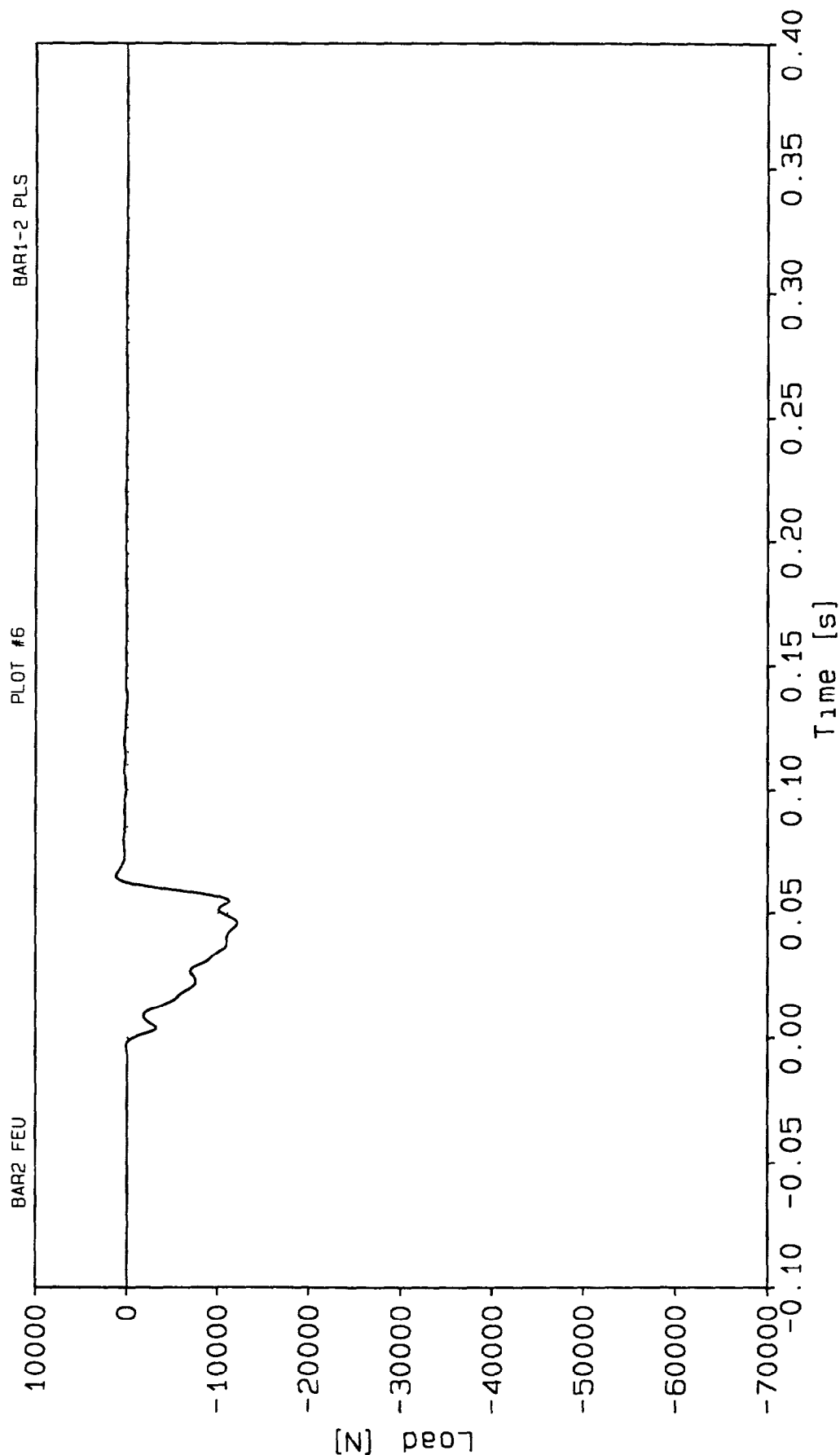
Filter Class 60
Volpe Crash Testing
PH06608

Barrier Face Load (Fx) v Time

Position D4

Moving Deformable Barrier

Moving Deformable Barrier into 2001 Dodge Neon - 9/18/01



Exponent
Failure
Analysis
Associates

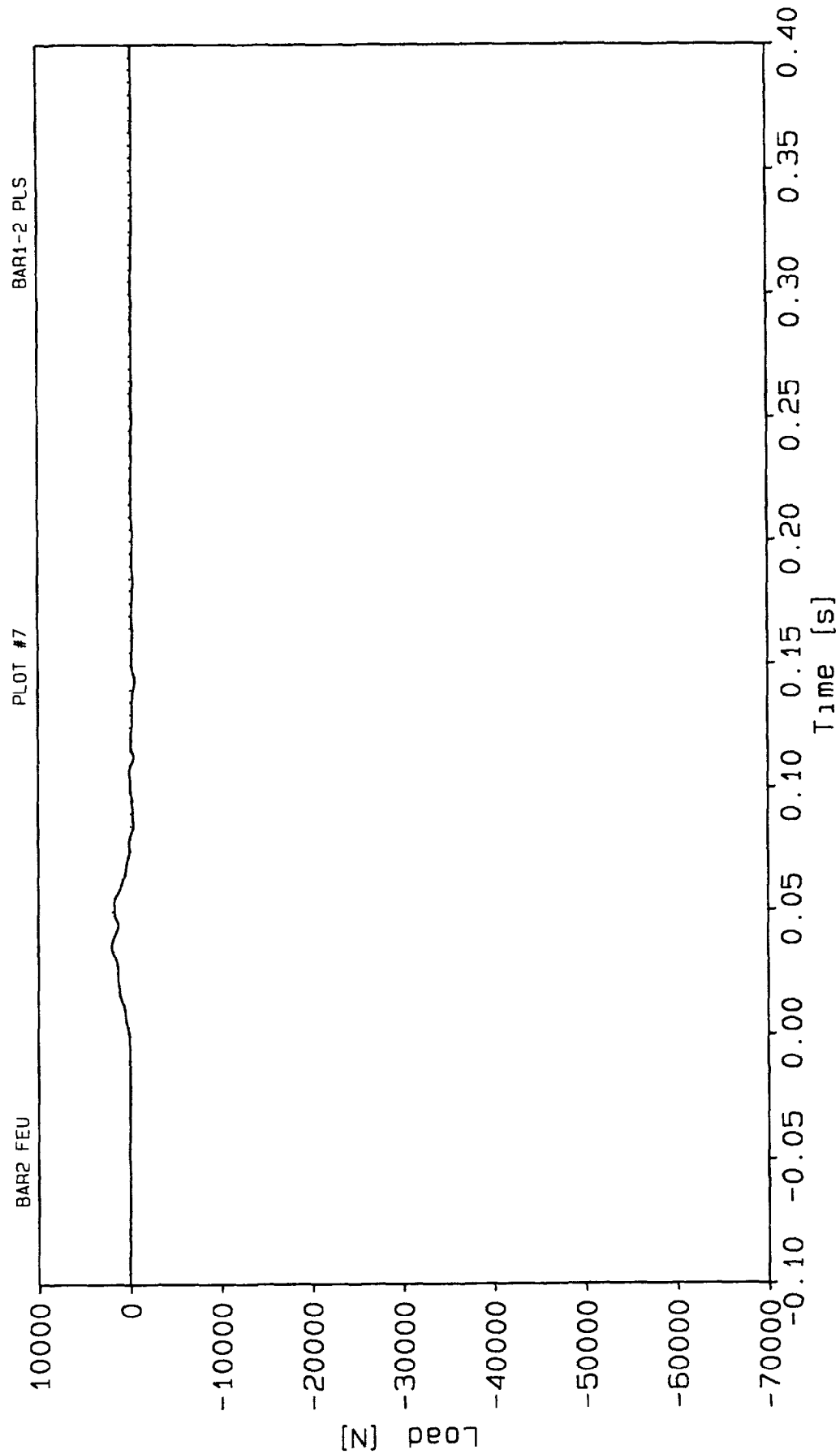
Filter Class 60
Volpe Crash Testing
PH06608

Barrier Face Load (Fx) v Time

Position D5

Moving Deformable Barrier

Moving Deformable Barrier into 2001 Dodge Neon - 9/18/01

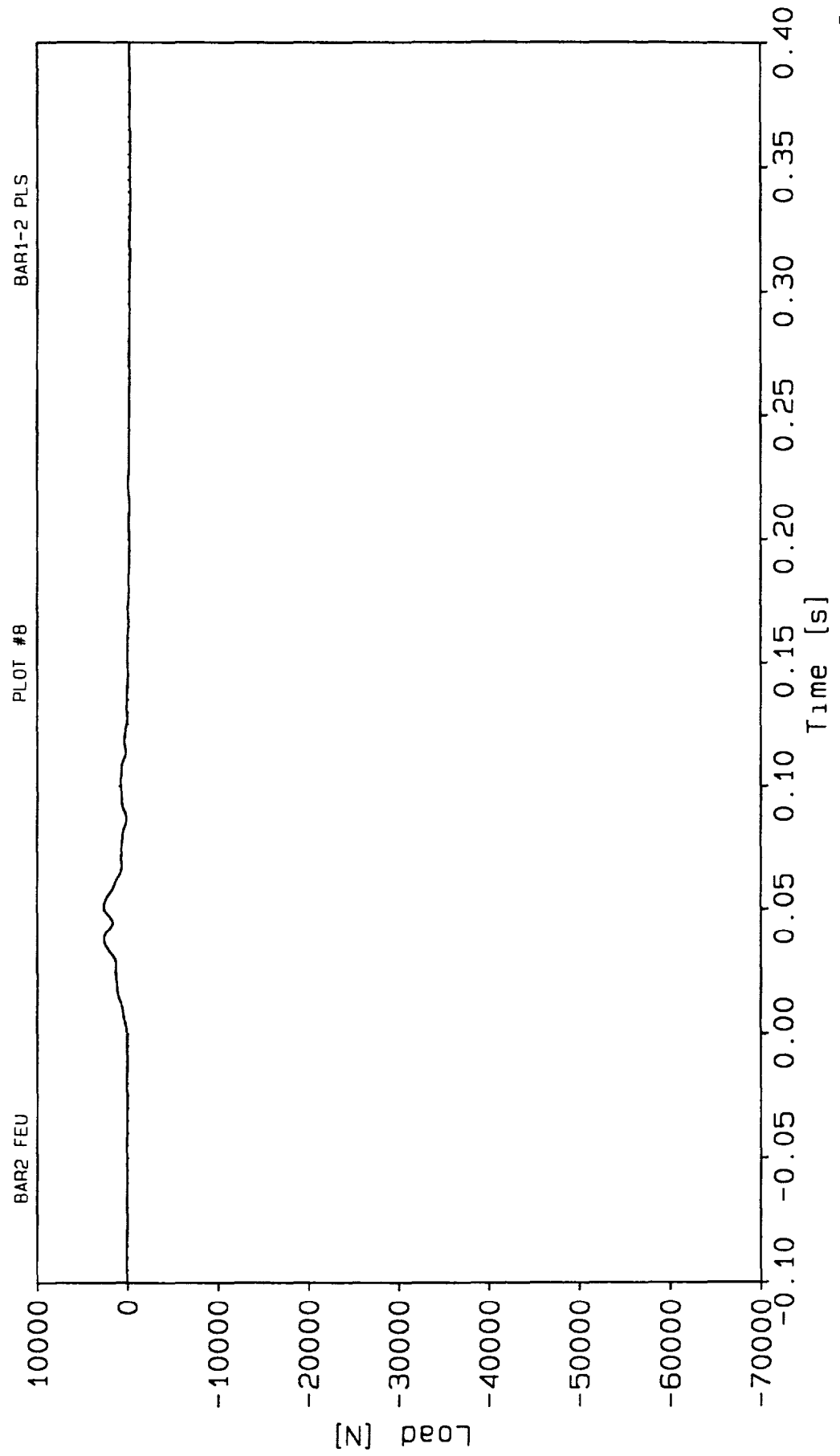


Exponent
Failure
Analysis
Associates

Filter Class 50
Volpe Crash Testing
PH05508

Barrier Face Load (Fx) v Time

Position D6
Moving Deformable Barrier
Moving Deformable Barrier into 2001 Dodge Neon - 9/18/01



Exponent
Failure
Analysis
Associates

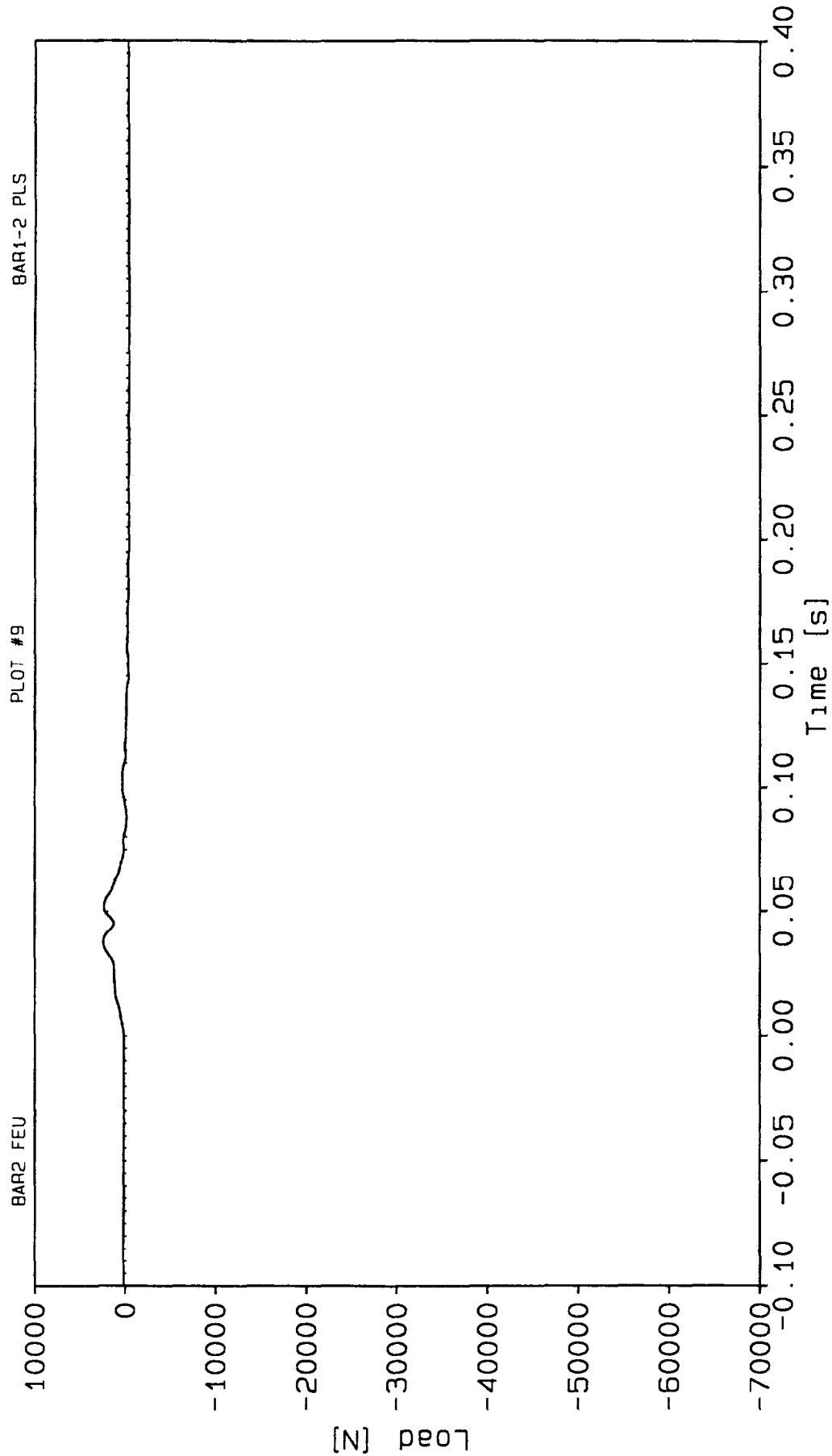
Filter Class 60
Volpe Crash Testing
PH06608

Barrier Face Load (Fx) v Time

Position D7

Moving Deformable Barrier

Moving Deformable Barrier into 2001 Dodge Neon - 9/18/01



Exponent
Failure
Analysis
Associates

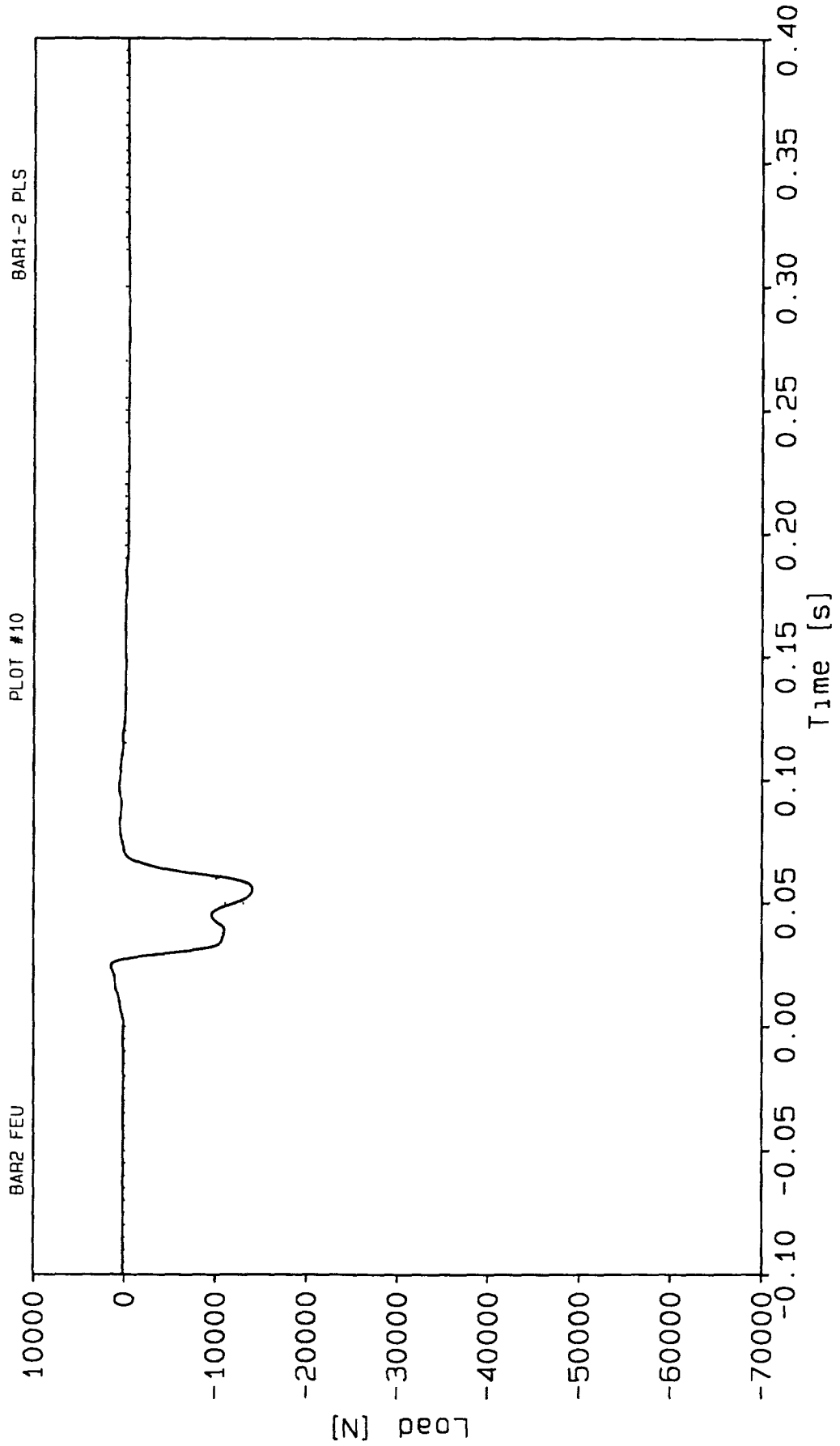
Filter Class 60
Volpe Crash Testing
PH06608

Barrier Face Load (Fx) v Time

Position D8

Moving Deformable Barrier

Moving Deformable Barrier into 2001 Dodge Neon - 9/18/01

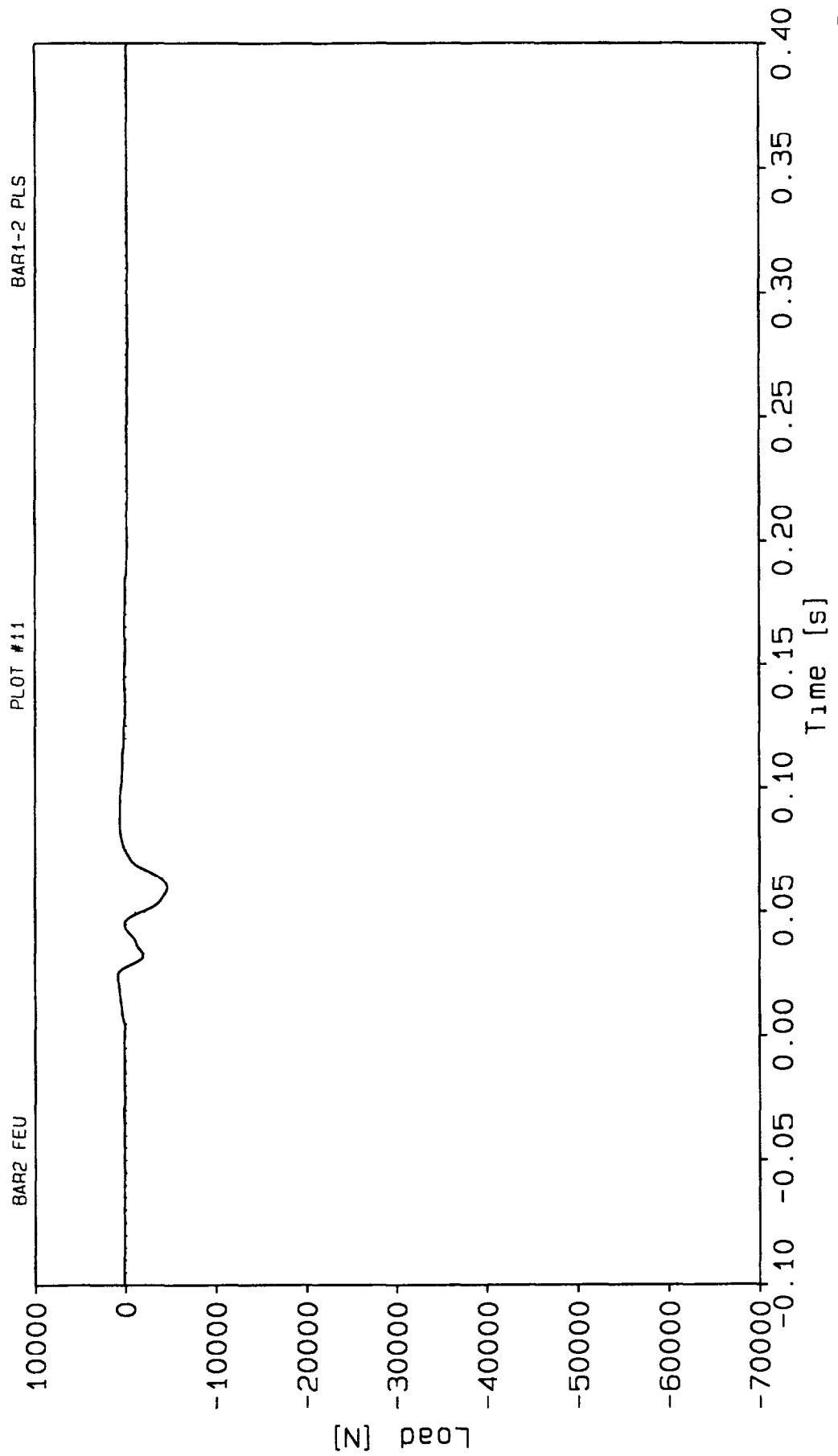


Exponent
Failure
Analysis
Associates

Filter Class 60
Volpe Crash Testing
PH06608

Barrier Face Load (Fx) v Time

Position D9
Moving Deformable Barrier
Moving Deformable Barrier into 2001 Dodge Neon - 9/18/01

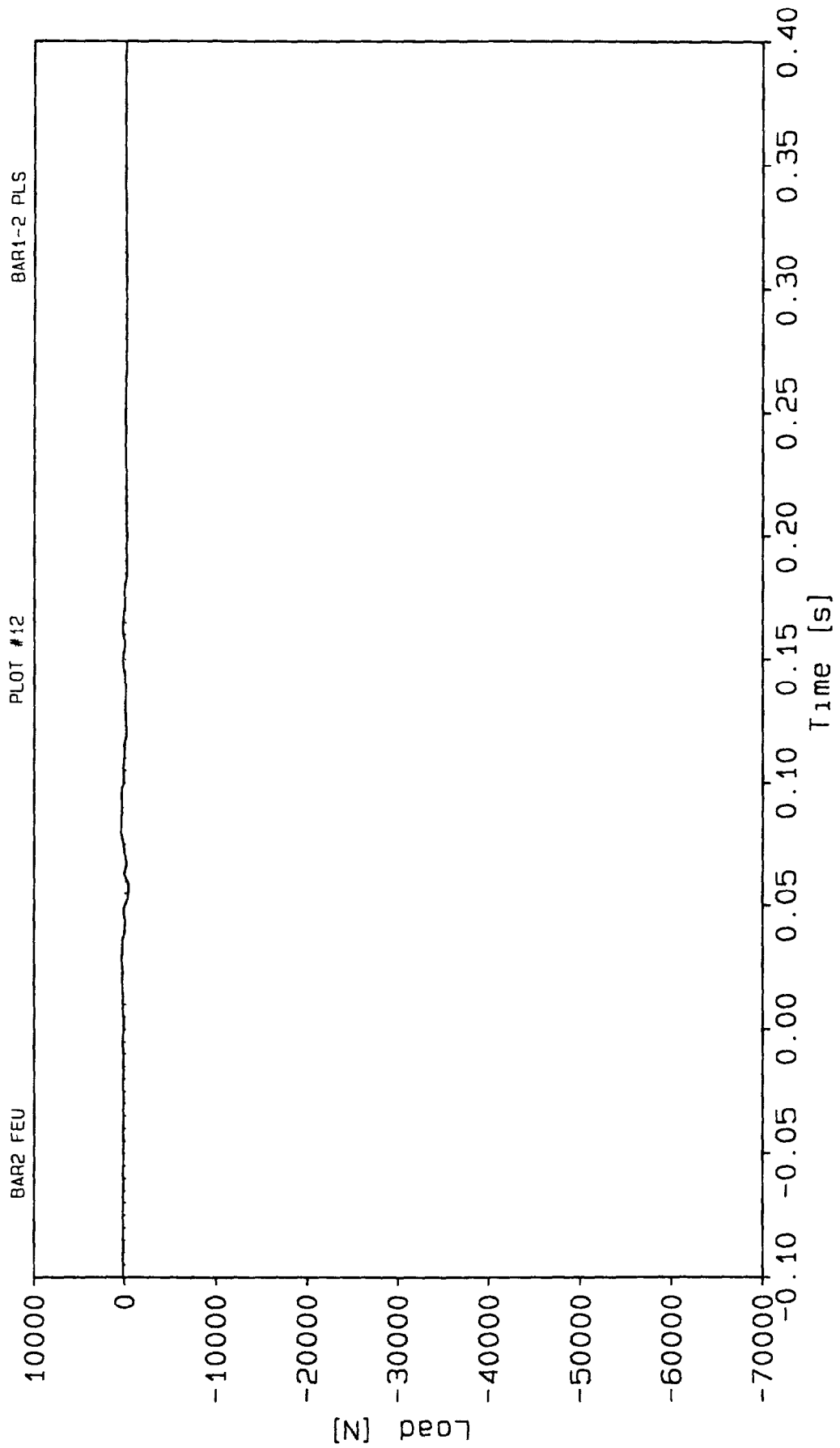


Exponent
Failure
Analysis
Associates

Filter Class 60
Volpe Crash Testing
PH06608

Barrier Face Load (Fx) v Time

Position D10
Moving Deformable Barrier
Moving Deformable Barrier into 2001 Dodge Neon - 9/18/01

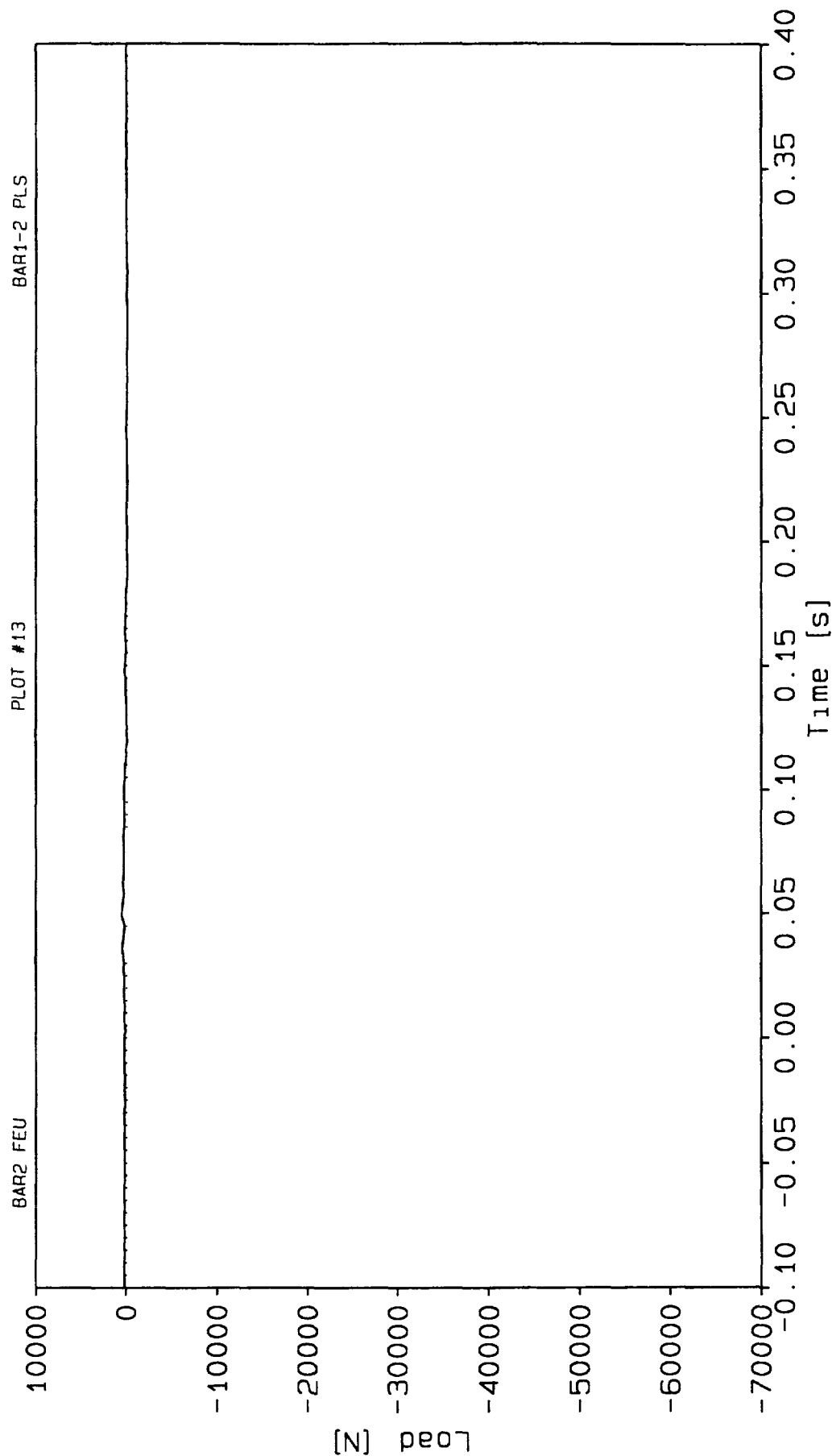


Filter Class 60
Volpe Crash Testing
PH06608

Exponent
Failure
Analysis
Associates

Barrier Face Load (Fx) v Time

Position D11
Moving Deformable Barrier
Moving Deformable Barrier into 2001 Dodge Neon - 9/18/01



Filter Class 60
Volpe Crash Testing
PH06608

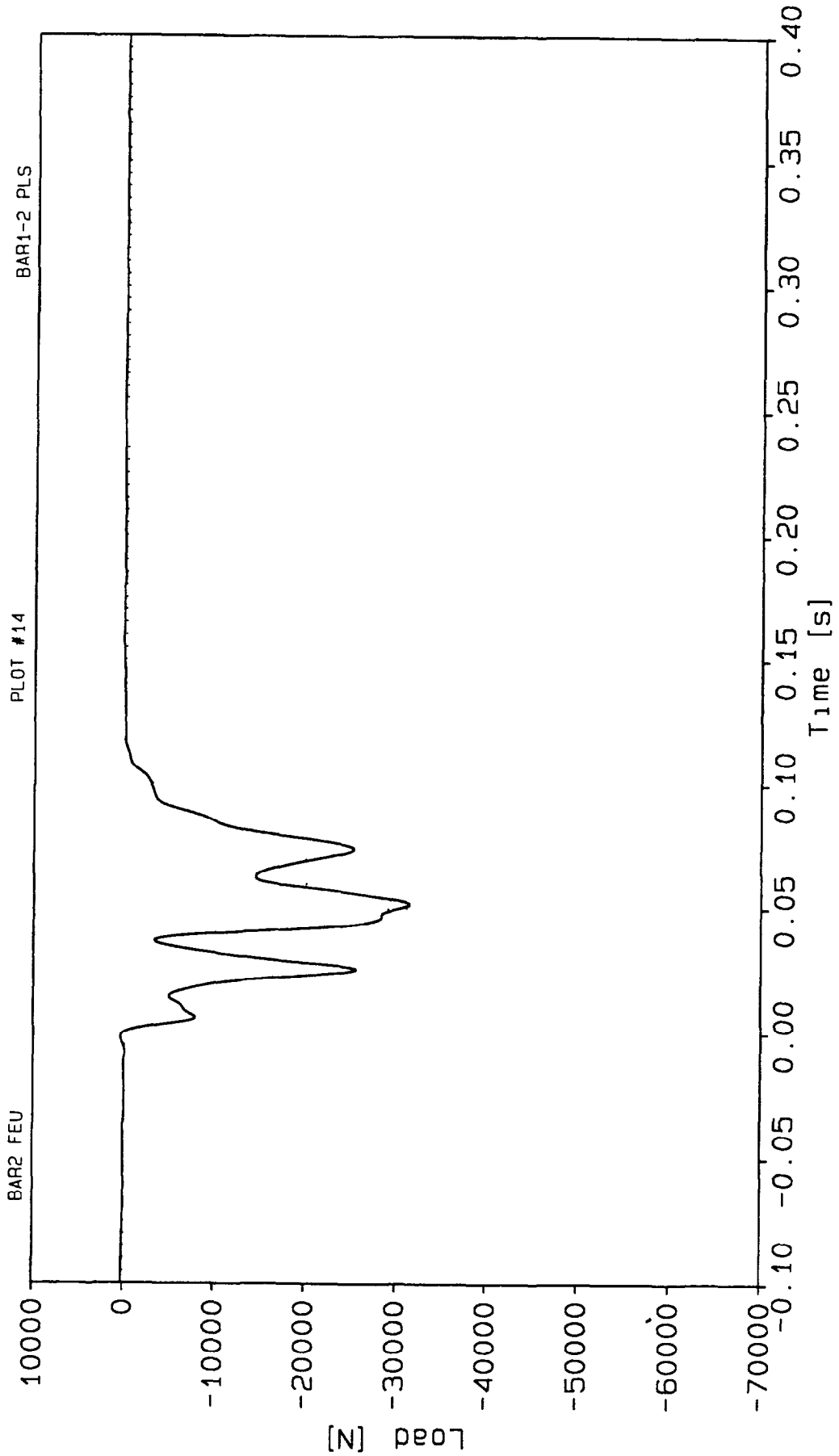
Exponent
Failure
Analysis
Associates

Barrier Face Load (Fx) v Time

Position E1

Moving Deformable Barrier

Moving Deformable Barrier into 2001 Dodge Neon - 9/18/01



Filter Class 60
Volpe Crash Testing
PH06608

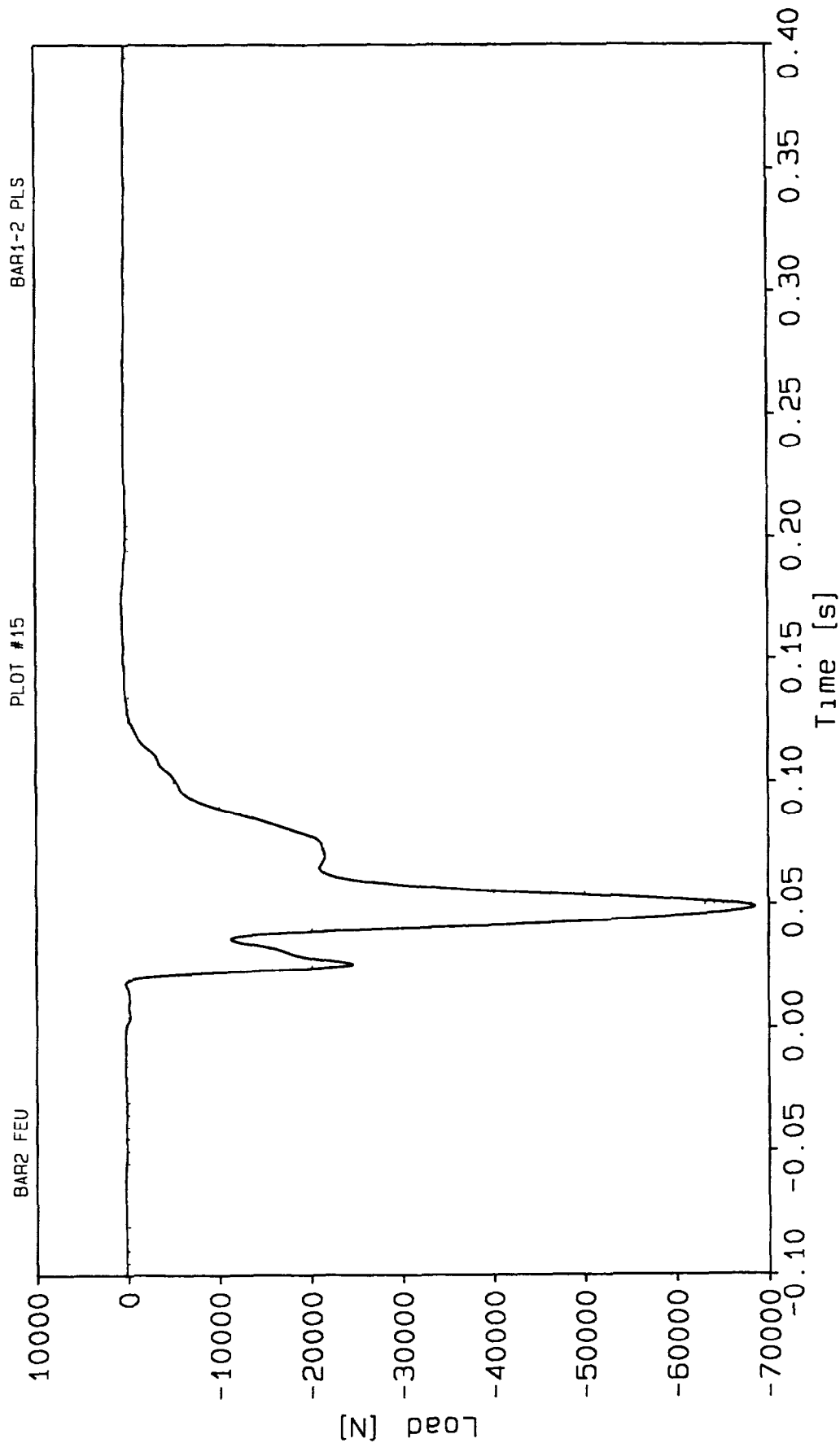
Exponent
Failure
Analysis
Associates

Barrier Face Load (Fx) v Time

Position E2

Moving Deformable Barrier

Moving Deformable Barrier into 2001 Dodge Neon - 9/18/01

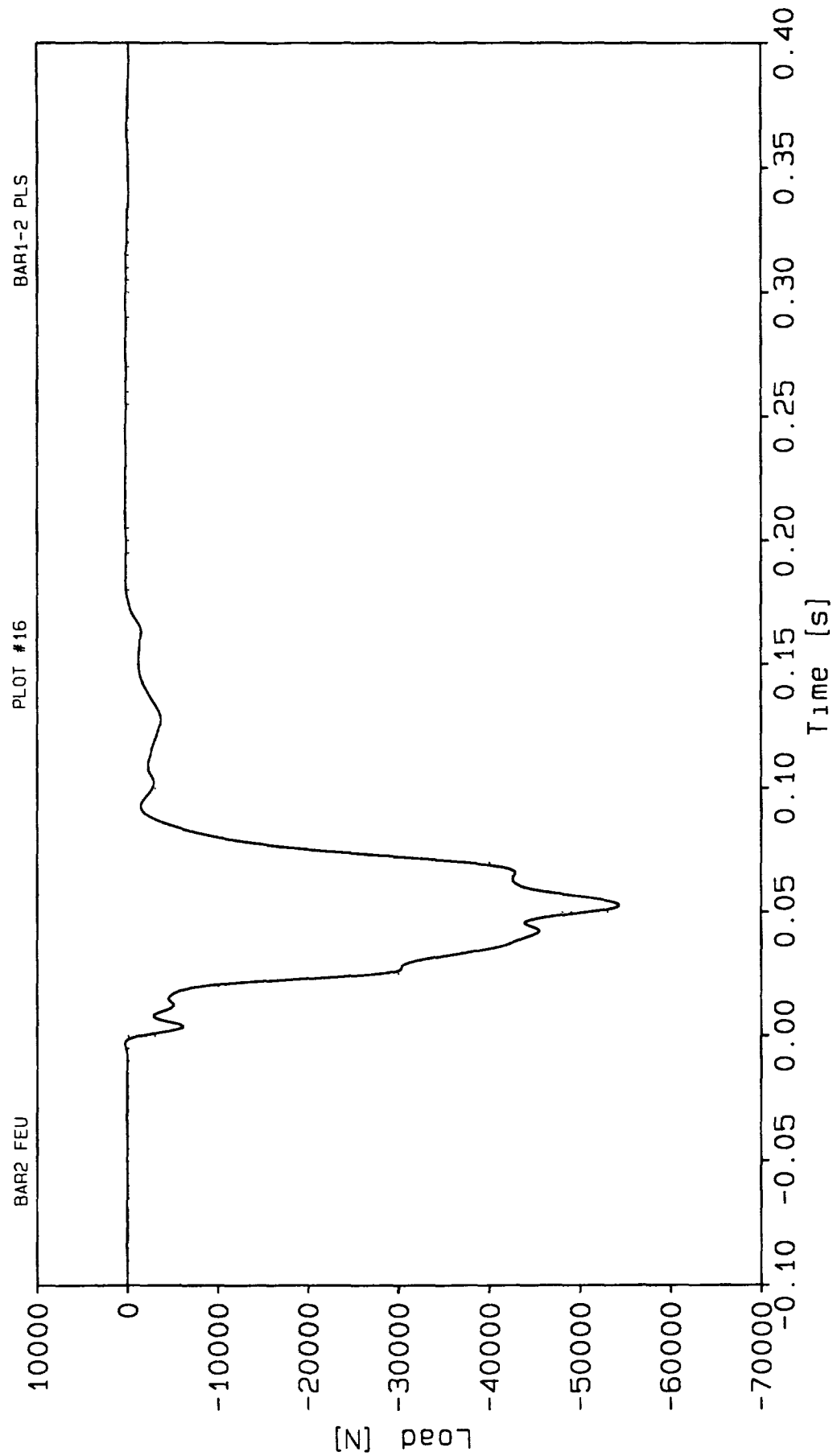


Exponent
Failure
Analysis
Associates

Filter Class 60
Volpe Crash Testing
PH06608

Barrier Face Load (Fx) v Time

Position E3
Moving Deformable Barrier
Moving Deformable Barrier into 2001 Dodge Neon - 9/18/01



Exponent
Failure
Analysis
Associates

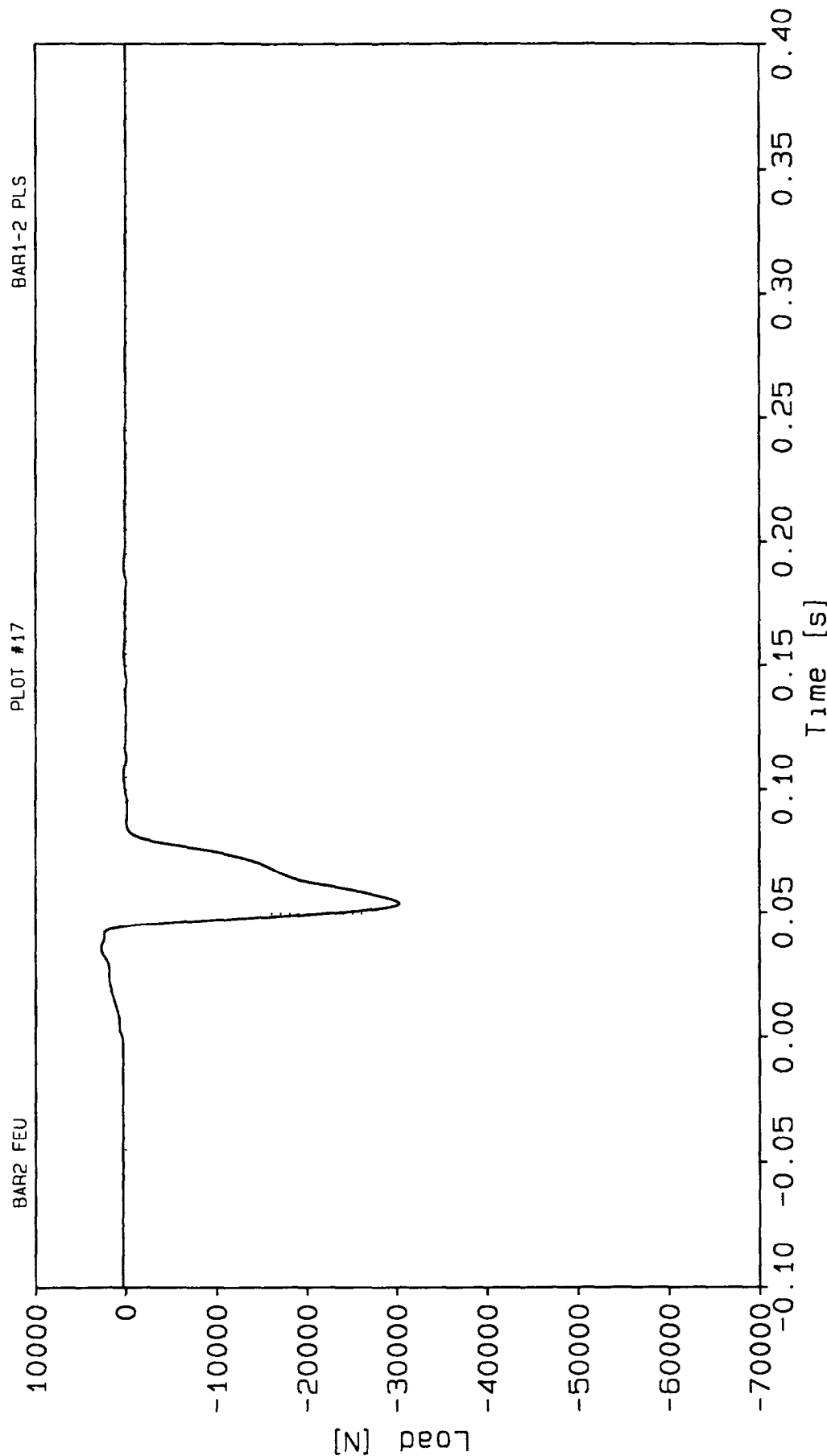
Filter Class 60
Volpe Crash Testing
PH06608

Barrier Face Load (Fx) v Time

Position E4

Moving Deformable Barrier

Moving Deformable Barrier into 2001 Dodge Neon - 9/18/01



Filter Class 60
Volpe Crash Testing
PH05508

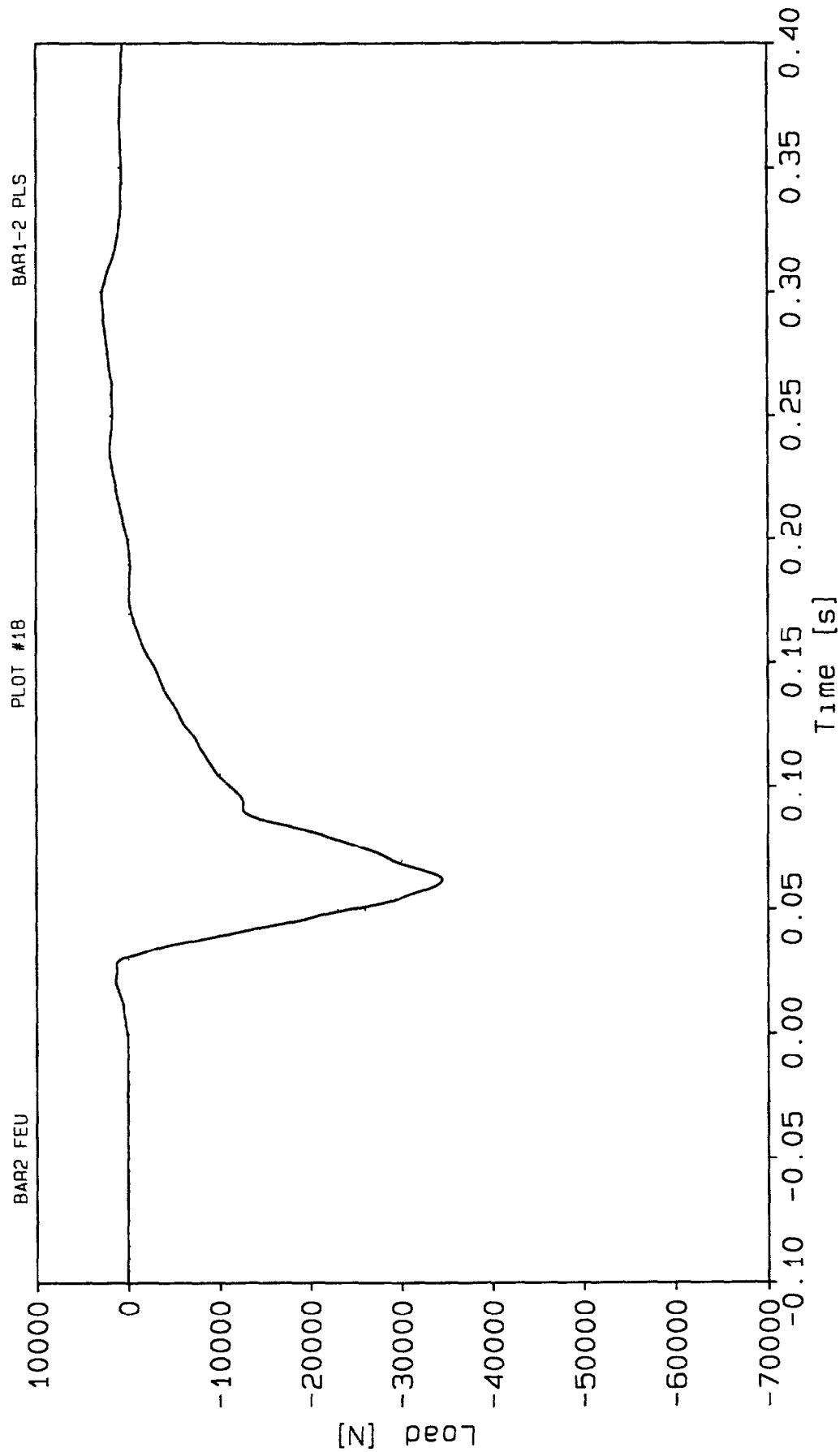
Exponent
Failure
Analysis
Associates

Barrier Face Load (Fx) v Time

Position E5

Moving Deformable Barrier

Moving Deformable Barrier into 2001 Dodge Neon - 9/18/01

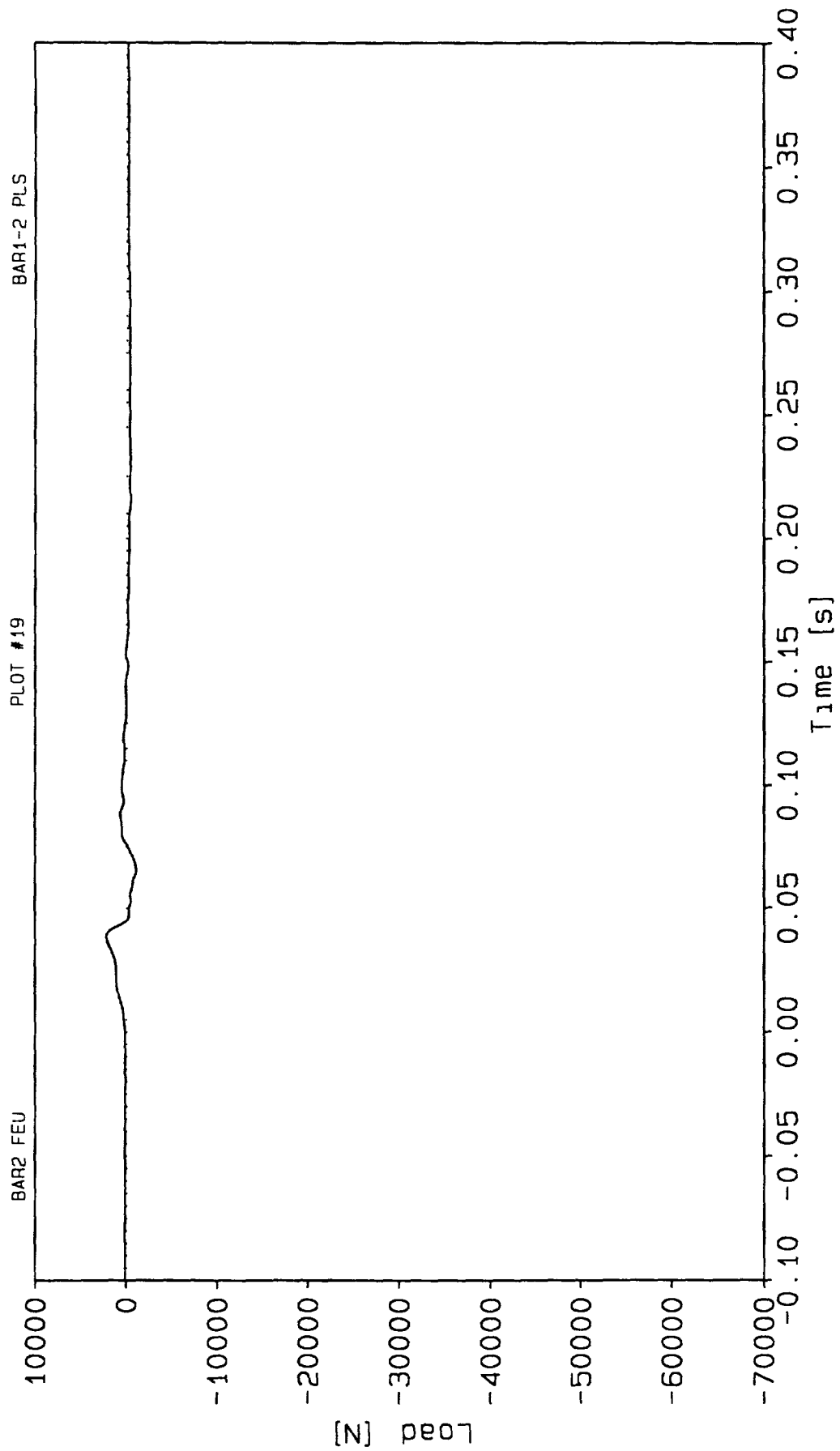


Filter Class 60
Volpe Crash Testing
PH06508

Exponent
Failure
Analysis
Associates

Barrier Face Load (Fx) v Time

Position E6
Moving Deformable Barrier
Moving Deformable Barrier into 2001 Dodge Neon - 9/18/01



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091801

Filter Class 60
Volpe Crash Testing
PH06608

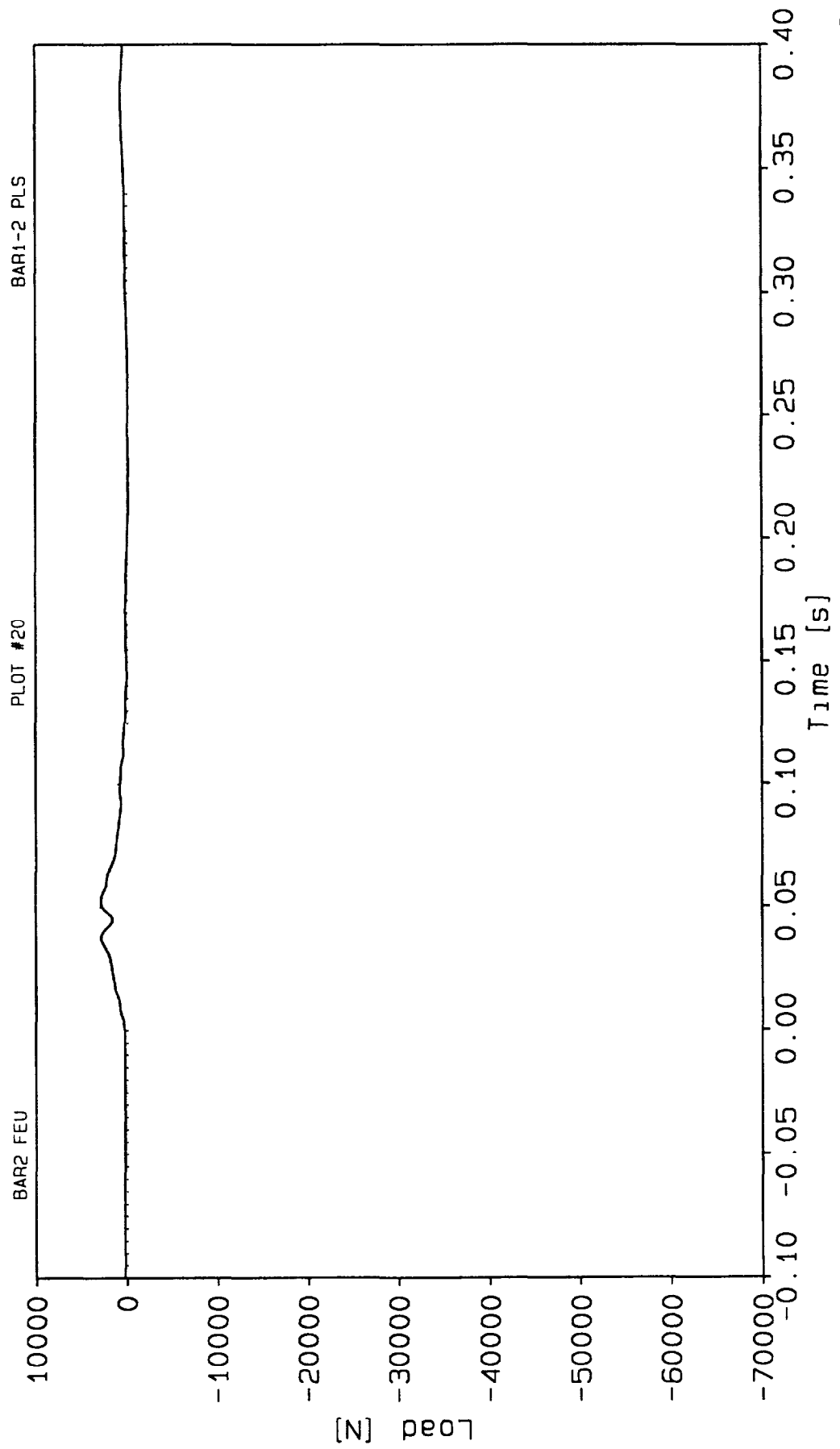
Exponent
Failure
Analysis
Associates

Barrier Face Load (Fx) v Time

Position E7

Moving Deformable Barrier

Moving Deformable Barrier into 2001 Dodge Neon - 9/18/01

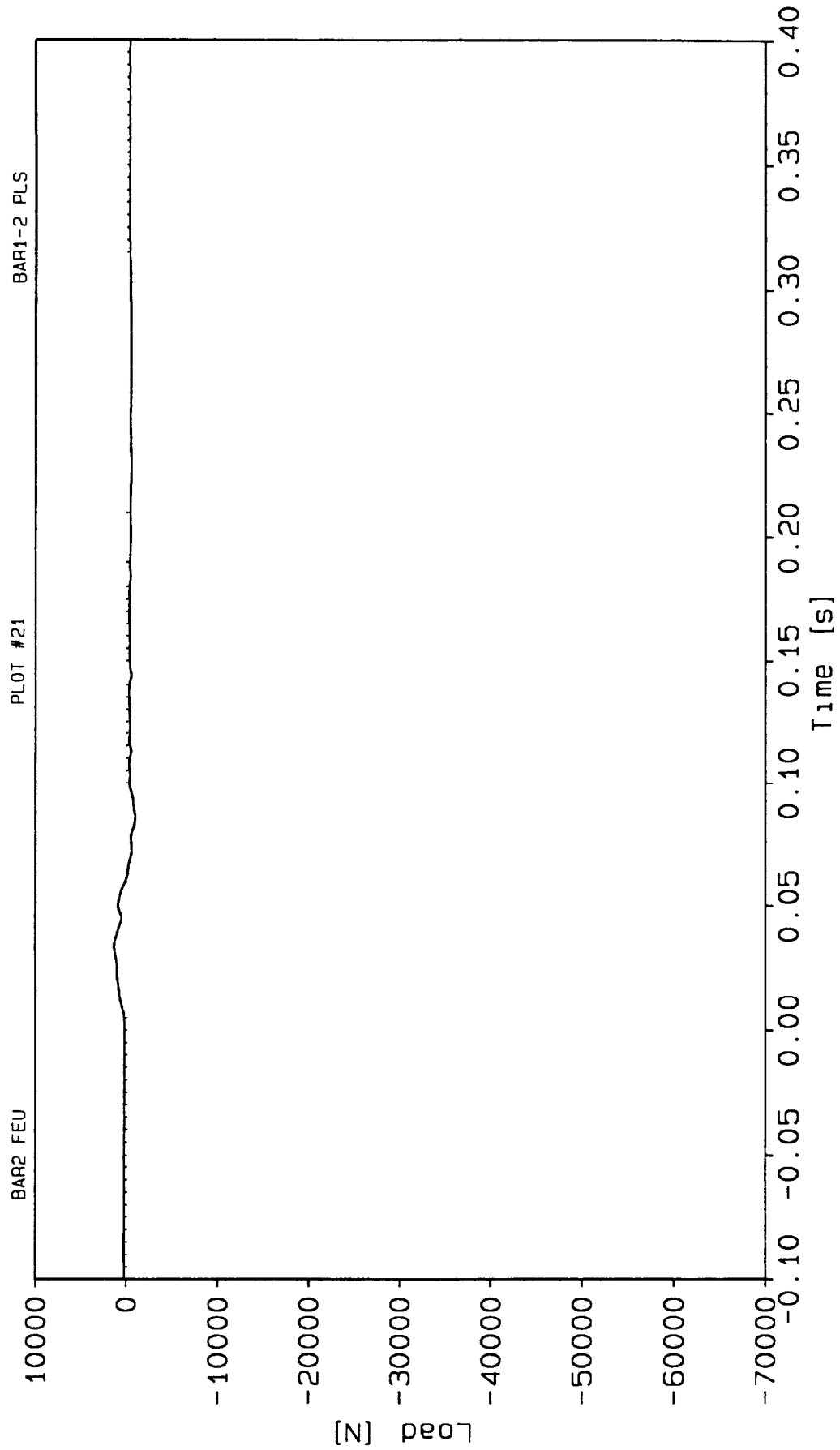


Exponent
Failure
Analysis
Associates

Filter Class 60
Volpe Crash Testing
PH06608

Barrier Face Load (Fx) v Time

Position E8
Moving Deformable Barrier
Moving Deformable Barrier into 2001 Dodge Neon - 9/18/01



Exponent
Failure
Analysis
Associates

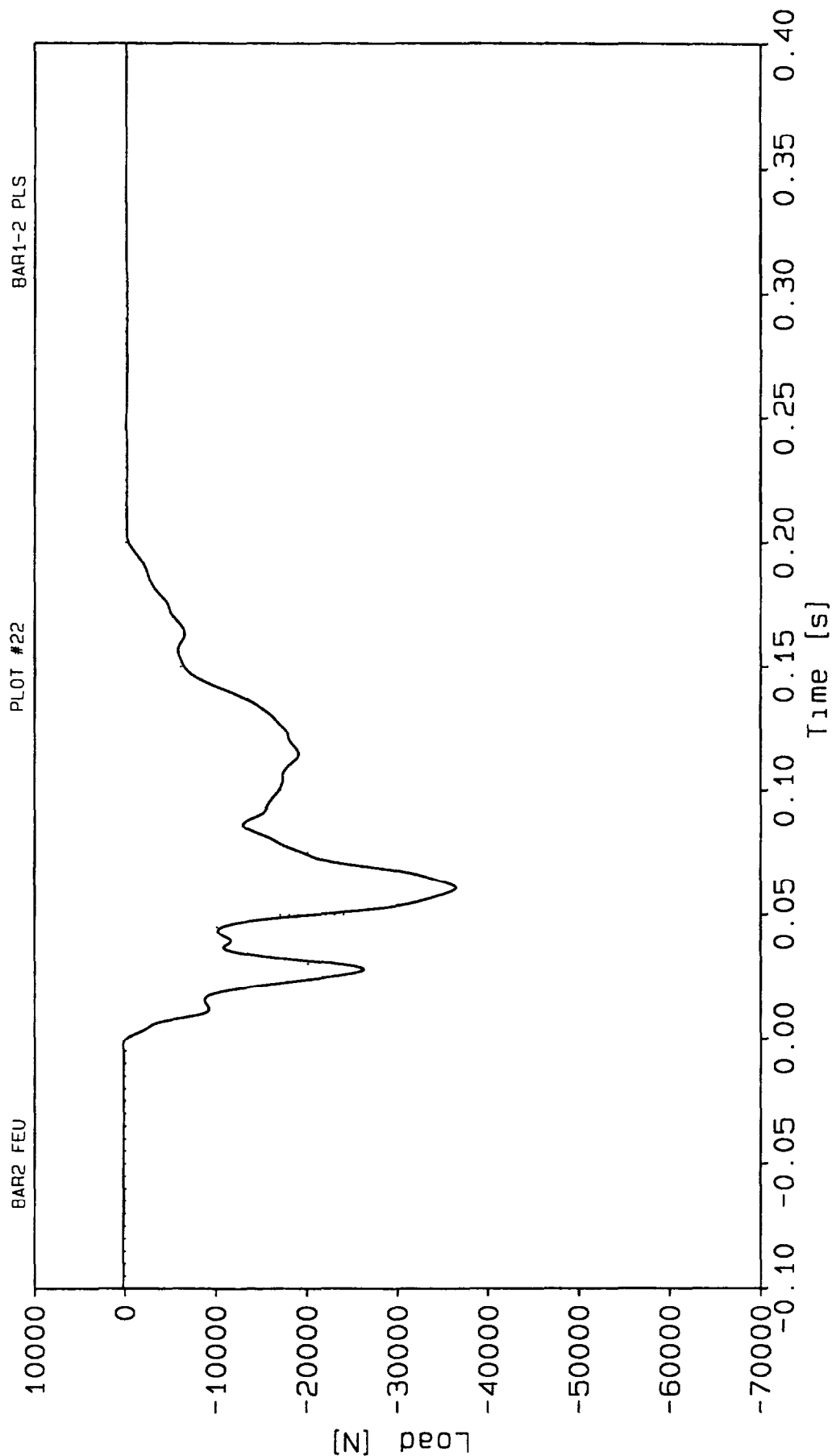
Filter Class 60
Volpe Crash Testing
PH05608

Barrier Face Load (Fx) v Time

Position E9

Moving Deformable Barrier

Moving Deformable Barrier into 2001 Dodge Neon - 9/18/01

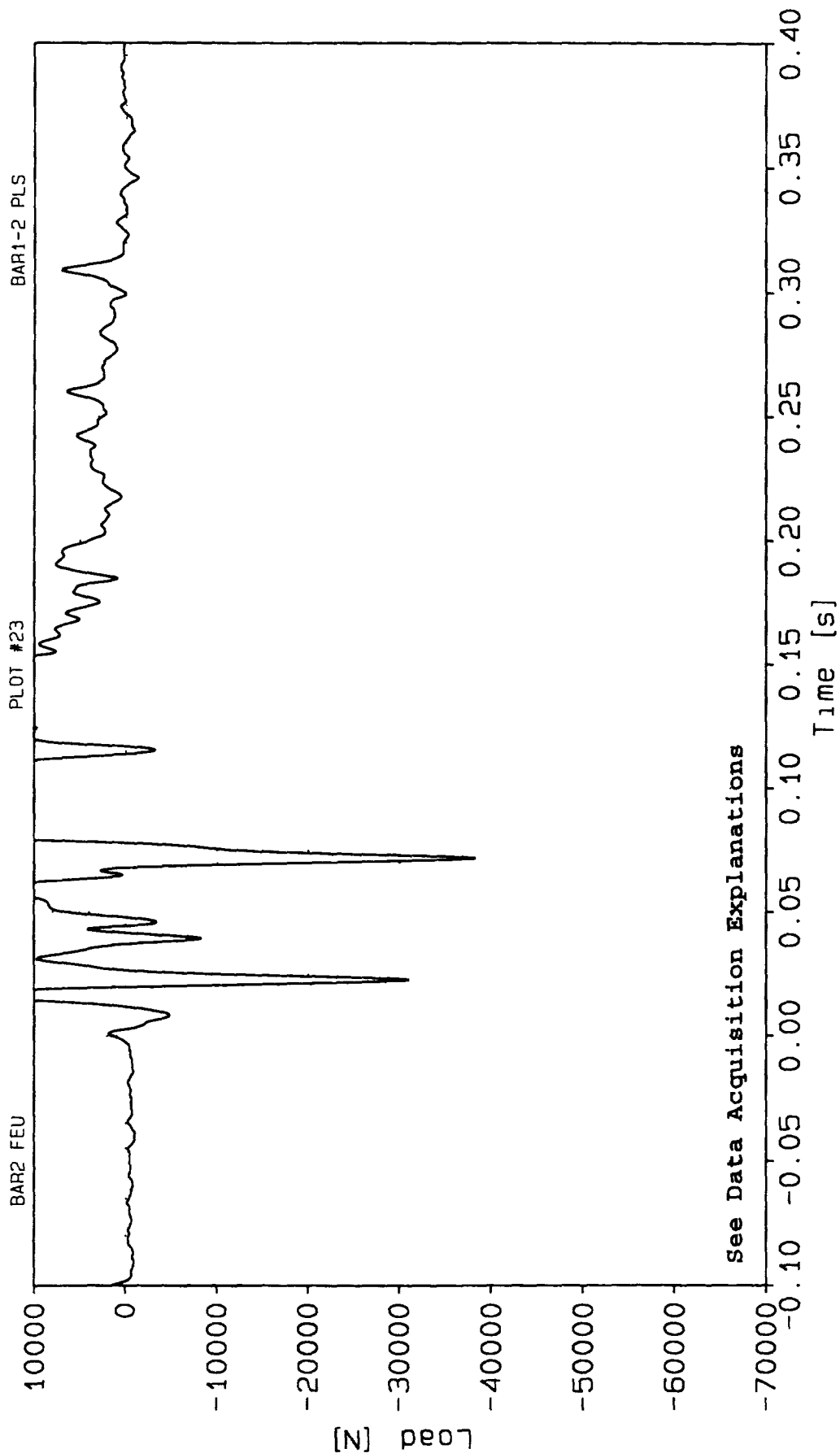


Filter Class 60
Volpe Crash Testing
PH06608

Exponent
Failure
Analysis
Associates

Barrier Face Load (Fx) v Time

Position E10
Moving Deformable Barrier
Moving Deformable Barrier into 2001 Dodge Neon - 9/18/01



Exponent
Failure
Analysis
Associates

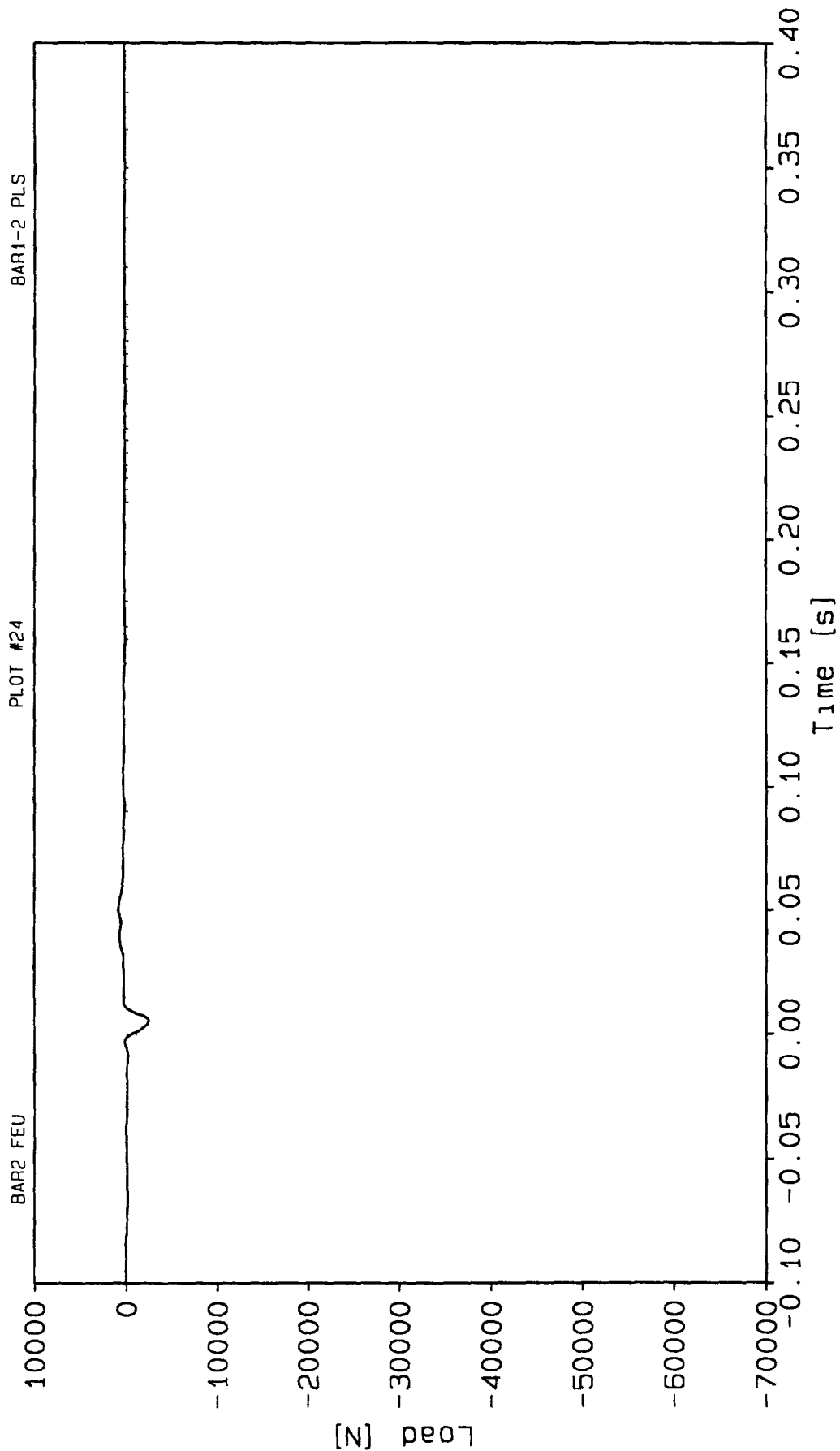
Filter Class 60
Volpe Crash Testing
PH06608

Barrier Face Load (Fx) v Time

Position E11

Moving Deformable Barrier

Moving Deformable Barrier into 2001 Dodge Neon - 9/18/01



Exponent
Failure
Analysis
Associates

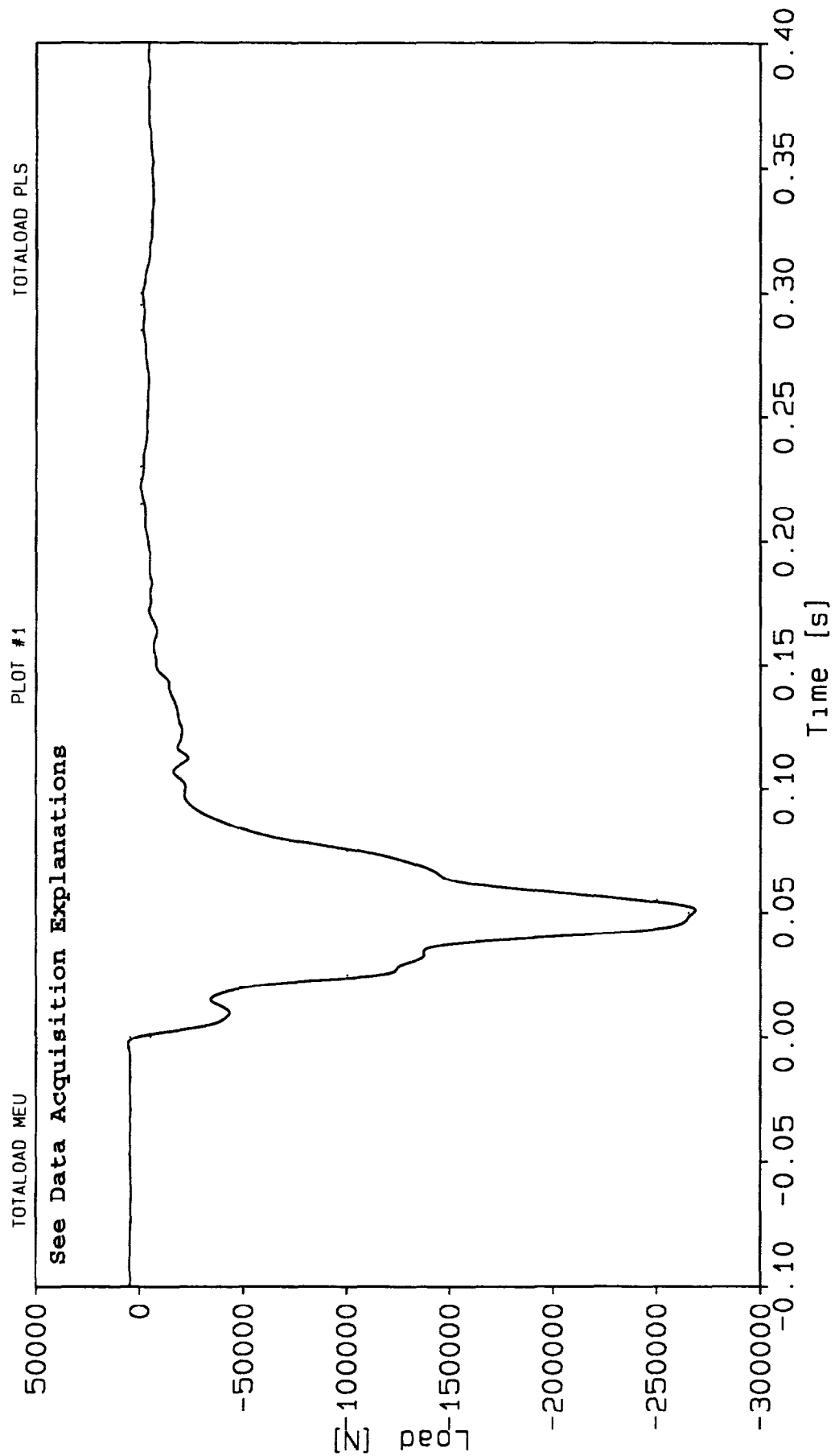
Filter Class 50
Volpe Crash Testing
PH06608

Barrier Face Total Load v Time

Sum of All Positions

Moving Deformable Barrier

Moving Deformable Barrier into 2001 Dodge Neon - 9/18/01



Filter Class 60
Volpe Crash Testing
PH06608

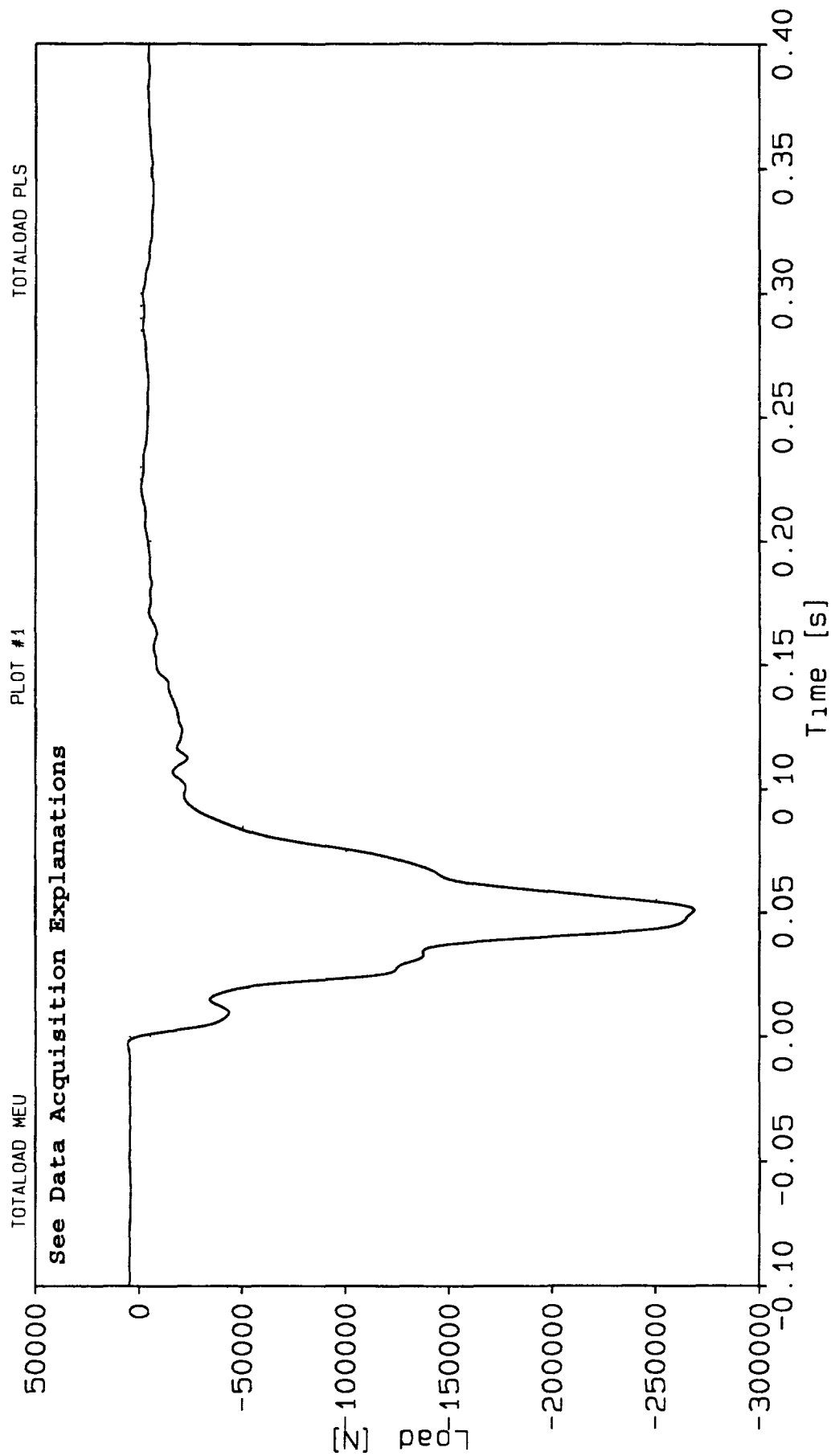
Exponent
Failure
Analysis
Associates

Barrier Face Total Load v Time

Sum of All Positions

Moving Deformable Barrier

Moving Deformable Barrier into 2001 Dodge Neon - 9/18/01



Filter Class 60
Volpe Crash Testing
PH06608

Exponent
Failure
Analysis
Associates