

Exponent[®]

*Failure Analysis Associates
Test and Engineering Center*

#3896

**Frontal Offset
Oblique Crash Test**

**2001 Ford F-150 at 95.9 kph
into a Stationary 2001 Dodge Neon
Positioned at a 17° Angle
with an Impact Overlap of 45%**

Exponent Test Number: 091401

Report Number: PH06608/ESG0/0102/R004

**Frontal Offset
Oblique Crash Test**

**2001 Ford F-150 at 95.9 kph
into a Stationary 2001 Dodge Neon
Positioned at a 17° Angle
with an Impact Overlap of 45%
Exponent Test Number: 091401**

Prepared By:

**Exponent™ Failure Analysis
1850 West Pinnacle Peak Road
Phoenix, Arizona 85027**



January 4, 2002

Final Report

Prepared for:

**John A. Volpe National Transportation Systems Center
Vehicle Crashworthiness Division, DTS-74
Kendall Square
Cambridge, MA 02142-1093**

Technical Report Documentation Page

1	Report No PH06608/ESG0/0102/R004	2	Government Accession No	3	Recipient's Catalog No
4	Title and Subtitle Frontal Offset Oblique Crash Test 2001 Ford F-150 into 2001 Dodge Neon	5	Report Date January 4, 2002	6	Performing Organization Code
7	Author(s) Jim Smith, Project Manager, Mitch Klann, Test Engineer	8	Performing Organization Report No PH06608/ESG0/0102/R004	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 Final Report September 2001	14	Sponsoring Agency Code	15	Supplemental Notes
16	Abstract A frontal offset oblique crash test of a 2001 Ford F-150 pickup into a stationary 2001 Dodge Neon was conducted at the Exponent Failure Analysis Associates Test and Engineering Center on September 14, 2001. The Ford F-150's velocity was 95.9 kph. The Ford F-150's test weight was 2014 kg and that of the Dodge Neon was 1495 kg. The Dodge Neon's maximum crush was 666 mm measured on the left side of the hood. The ambient temperature was 32°C. A Hybrid III dummy was placed in the driver position. The driver's Head Injury Criteria (HIC36) was 276.8. The driver's chest maximum resultant acceleration with three (3) milliseconds minimum duration was 57.0 g. The driver's maximum upper neck injury criteria was 0.28 (N_{if}). The driver's chest maximum deflection was -29.9 mm and viscous response was 0.39 m/s. The driver's left and right femur maximum axial forces were -6354.0 N and -5358.3 N, respectively. A THOR dummy was placed in the passenger position. The passenger's Head Injury Criteria (HIC36) was 218.5. The passenger's chest maximum resultant acceleration with three (3) milliseconds minimum duration was 33.1 g. The passenger's maximum upper neck injury criteria was 0.32 (N_{te}). The passenger's chest maximum deflection was -8.3 mm and viscous response was 0.03 m/s. The passenger's left and right femur maximum axial forces were -4191.0 N and -3763.3 N, respectively.				
17	Key Words Frontal Offset Oblique Crash Test	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 330
				22	Price

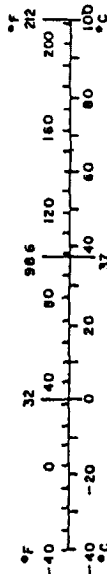
METRIC CONVERSION FACTORS

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	miles	mi
		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	ac
MASS (weight)				
g	grams	0.035	ounces	oz
kg	kilograms	2.2	pounds	lb
t	tonnes (1000 kg)	1.1	short tons	st
VOLUME				
ml	milliliters	0.03	fluid ounces	fl oz
l	liters	2.1	pints	pt
l	liters	1.06	quarts	qt
l	liters	0.26	gallons	gal
m ³	cubic meters	35	cubic feet	ft ³
m ³	cubic meters	1.3	cubic yards	yd ³
TEMPERATURE (exact)				
°C	Celsius temperature	9/5 (then add 32)	Fahrenheit temperature	°F



1 in x 2.54 exactly. For other exact conversions and more detailed tables, see NIST Spec. Publ. 280, Units of Weights and Measures. Price \$2.25. SO Catalog No. C13 10-286.

Table of Contents

<u>Section</u>	<u>Description</u>	<u>Page</u>
1 0	Purpose and Test Procedure	1-1
2 0	Test Summary and Forms	2-1
3 0	Test Data Summary	3-1
4 0	Camera, Occupant, and Vehicle Measurements	4-1
Appendix A	Photographs	A-1
Appendix B	Data Plots	B-1

List of Tables

<u>Description</u>	<u>Page</u>
Vehicle Receiving Summary (2001 Dodge Neon)	2-6
Vehicle Receiving Summary (2001 Ford F-150)	2-7
Vehicle Crash Test Condition (2001 Dodge Neon)	2-8
Vehicle Crash Test Condition (2001 Ford F-150)	2-9
Test Vehicle Ballast Record (2001 Dodge Neon)	2-10
Test Vehicle Ballast Record (2001 Ford F-150)	2-11
Speed Trap Counter Log	2-12
Post Test Inspection Summary (2001 Dodge Neon)	2-13
Post Test Inspection Summary (2001 Ford F-150)	2-14
Test Data Summary	3-2
Camera Set-Up Record	4-2
Occupant Interior Clearance Summary (2001 Dodge Neon)	4-5
Occupant Interior Clearance Summary (2001 Ford F-150)	4-6
Vehicle Transducer Location Record (2001 Dodge Neon)	4-7
Vehicle Transducer Location Record (2001 Ford F-150)	4-8
Vehicle Frontal Crush Profile (2001 Dodge Neon)	4-10
Vehicle Frontal Crush Profile (2001 Ford F-150)	4-12
Vehicle Intrusion Measurements (2001 Dodge Neon)	4-14
Vehicle Intrusion Measurements (2001 Ford F-150)	4-16
Impacted Vehicle Measurements (2001 Dodge Neon)	4-20
Impacted Vehicle Measurements (2001 Ford F-150)	4-21

List of Figures

<u>Description</u>	<u>Page</u>
Vehicle Target Locations – 2001 Dodge Neon	4-3
Vehicle Target Locations – 2001 Ford F-150	4-4
Vehicle Frontal Crush and Intrusion Measure Point Locations	4-9
Impacted Vehicle Measurement Points	4-18

List of 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

List of Photographs, Cont'd.

Figure A-32 Pre-Test Left Side View – 2001 Ford F-150

Figure A-33. Post-Test Left Side View – 2001 Ford F-150

Figure A-34 Pre-Test Right Side View – 2001 Ford F-150

Figure A-35. Post-Test Right Side View – 2001 Ford F-150

Figure A-36. Pre-Test Underbody View #1 – 2001 Ford F-150

Figure A-37 Post-Test Underbody View #1 – 2001 Ford F-150

Figure A-38. Pre-Test Underbody View #2 – 2001 Ford F-150

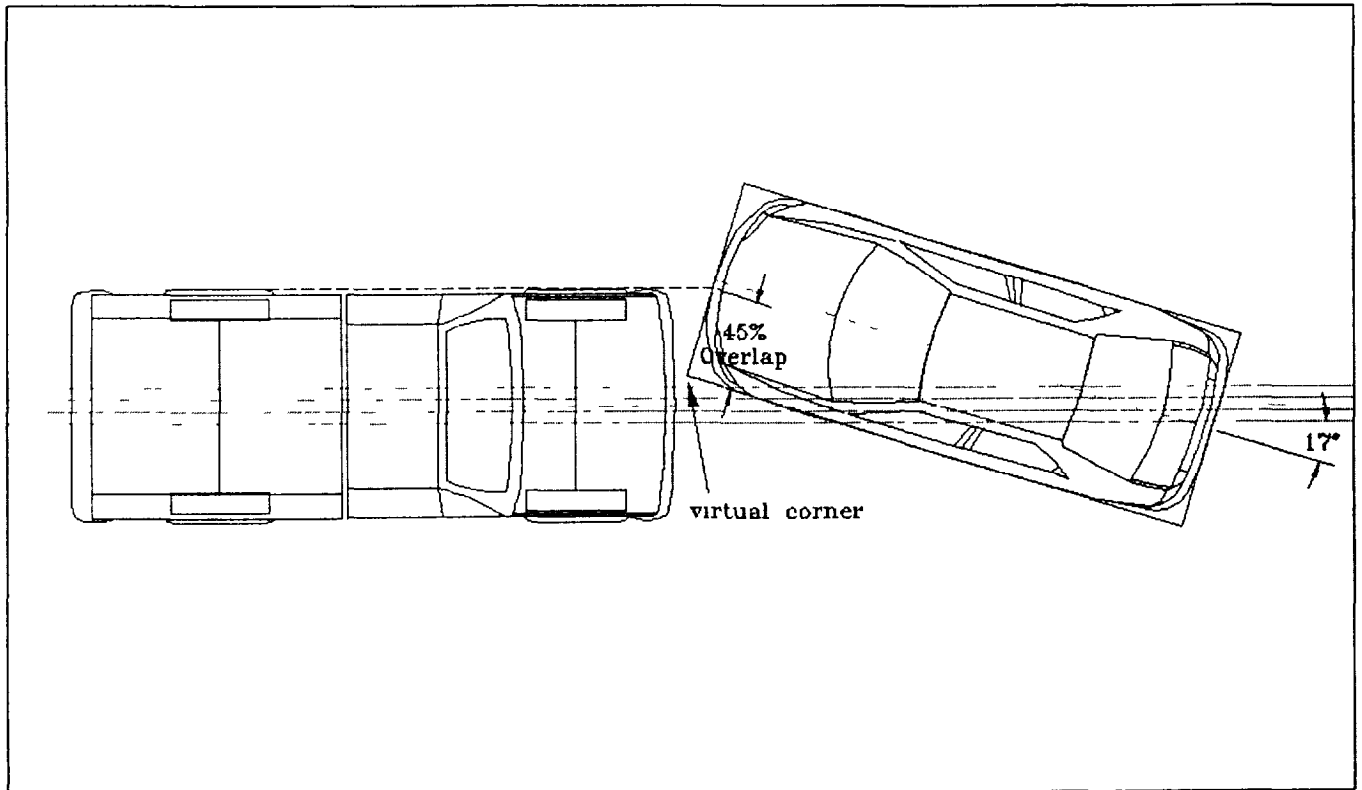
Figure A-39 Post-Test Underbody View #2 – 2001 Ford F-150

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 2001 Ford F-150, 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 Human Occupant Restraint) 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 2001 Ford F-150, was instrumented with eight accelerometers. Four of the accelerometers were oriented to measure longitudinal axis accelerations, three of the accelerometers were oriented to measure lateral axis accelerations; and one of the accelerometers was oriented to measure vertical axis acceleration. The bullet vehicle contained one Hybrid II 50th-percentile adult male anthropomorphic test device, positioned in the driver seat. The test dummy was not instrumented

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

In total, 192 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.

Section 2.0

Test Summary and Forms

Test Results Summary

A frontal offset oblique crash test of a 2001 Ford F-150 pickup into a stationary 2001 Dodge Neon was conducted at the Exponent Failure Analysis Associates Test and Engineering Center on September 14, 2001. The Ford F-150's velocity was 95.9 kph. The Ford F-150's test weight was 2014 kg and that of the Dodge Neon was 1495 kg. The Dodge Neon's maximum crush was 666 mm measured on the left side of the hood. The ambient temperature was 32°C.

A Hybrid III dummy was placed in the driver position. The driver's Head Injury Criteria (HIC36) was 276.8. The driver's chest maximum resultant acceleration with three (3) milliseconds minimum duration was 57.0 g. The driver's maximum upper neck injury criteria was 0.28 (N_{tr}). The driver's chest maximum deflection was -29.9 mm and viscous response was 0.39 m/s. The driver's left and right femur maximum axial forces were -6354.0 N and -5358.3 N, respectively.

A THOR dummy was placed in the passenger position. The passenger's Head Injury Criteria (HIC36) was 218.5. The passenger's chest maximum resultant acceleration with three (3) milliseconds minimum duration was 33.1 g. The passenger's maximum upper neck injury criteria was 0.32 (N_{te}). The passenger's chest maximum deflection was -8.3 mm and viscous response was 0.03 m/s. The passenger's left and right femur maximum axial forces were -4191.0 N and -3763.3 N, respectively.

Data Acquisition Explanations

THOR Upper Abdomen Acceleration (Ax) – data dropouts after 260 ms. Transducer verified as functioning properly in post-test checkout

THOR Left Upper Tibia Force (Fz) – transducer not functioning due to broken wire in cable

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

THOR Left Foot Acceleration (Ax) – transducer damaged during test

THOR Left Foot Resultant Acceleration (Ar) – calculated resultant erroneous due to damaged Ax transducer

THOR Right Foot Acceleration (Ay) – data dropouts due to broken wire in transducer cable

THOR Right Foot Acceleration (Ar) – calculated resultant erroneous due to damaged Ay transducer

Dodge Neon Driver Side Toe Pan Acceleration (Az) – data dropouts after 165 ms. Transducer verified as functioning properly in post-test checkout

Dodge Neon Driver Side Toe Pan Acceleration (Ar) – calculated resultant erroneous due to dropouts in Az transducer

Dodge Neon Left Rear Compartment Acceleration (Ay) – not recorded due to failed data acquisition system channel

Ford F-150 Bottom of Engine (Ay) – transducer damaged during test

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

IIII Pelvis Acceleration (Az)

IIII Pelvis Resultant Acceleration (Ar)

IIII Right Lower Tibia Moment (My)

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 Force (Fz) - 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 (Fz) - post-THORTEST

THOR Lower Neck Force (Fx)
THOR Lower Neck Force (Fy)
THOR Lower Neck Moment (Mx)
THOR Lower Neck Moment (My)
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)

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

HIII Upper Neck Force (Fz)
HIII Right Femur Force
HIII Left Knee Left Force
HIII Left Knee Right Force
HIII Right Knee Left Force
HIII Right Knee Right Force
HIII Right Upper Tibia Force (Fx)
HIII Right Upper Tibia Force (Fy)
HIII Right Upper Tibia Force (Fz)
HIII Right Upper Tibia Moment (Mx)
HIII Right Upper Tibia Moment (My)
HIII Right Lower Tibia Force (Fx)
HIII Right Lower Tibia Force (Fy)
HIII Right Lower Tibia Force (Fz)
HIII Right Lower Tibia Moment (Mx)
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 (Fy) - post-THORTEST
THOR Upper Neck Moment (Mx) - post-THORTEST
THOR Upper Neck Moment (My) - post-THORTEST
THOR Upper Neck Moment (Mz) - post-THORTEST
THOR Lower Neck Force (Fz)
THOR Lower Neck Moment (Mz)
THOR T12 Thoracic Force (Fx)
THOR T12 Thoracic Force (Fy)
THOR T12 Thoracic Force (Fz)
THOR T12 Thoracic Moment (Mx)
THOR T12 Thoracic Moment (My)
THOR T12 Thoracic Acceleration (Ax)
THOR T12 Thoracic Acceleration (Ay)
THOR T12 Thoracic Acceleration (Az)
THOR T12 Thoracic Acceleration (Ar)
THOR Pelvis Left Acetabular Force (Fx)
THOR Left Femur Force (Fx)
THOR Left Femur Force (Fy)

THOR Left Femur Force (Fz)
THOR Right Femur Force (Fx)
THOR Right Femur Force (Fy)
THOR Right Femur Force (Fz)
THOR Left Upper Tibia Force (Fx)
THOR Left Upper Tibia Moment (Mx)
THOR Left Upper Tibia Moment (My)
THOR Left Lower Tibia Force (Fx)
THOR Left Lower Tibia Force (Fy)
THOR Left Lower Tibia Force (Fz)
THOR Left Lower Tibia Moment (Mx)
THOR Left Lower Tibia Moment (My)
THOR Right Upper Tibia Force (Fx)
THOR Right Upper Tibia Force (Fz)
THOR Right Upper Tibia Moment (Mx)
THOR Right Upper Tibia Moment (My)
THOR Right Lower Tibia Force (Fx)
THOR Right Lower Tibia Force (Fy)
THOR Right Lower Tibia Force (Fz)
THOR Right Lower Tibia Moment (Mx)
THOR Right Lower Tibia Moment (My)
THOR Left Foot Acceleration (Az)

VEHICLE RECEIVING SUMMARY

VEHICLE FILE NUMBER		4597		DATE RECEIVED		8/9/01							
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				1B3ES46C71D112928				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)		29			
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		N/A		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				REAR SPOILER															
SIGNIFICANT BODY DAMAGE/CORROSION				NONE															

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

LEFT FRONT		379		RIGHT FRONT		393		TOTAL FRONT		772		PERCENT FRONT		63%	
LEFT REAR		229		RIGHT REAR		219		TOTAL REAR		448		PERCENT REAR		37%	
								TOTAL WEIGHT		1220					

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

LEFT FRONT		660 AT WHL WELL @ AXLE		RIGHT FRONT		659 AT WHL WELL @ AXLE	
LEFT REAR		678 AT WHL WELL @ AXLE		RIGHT REAR		680 AT WHL WELL @ AXLE	

VEHICLE EXTERIOR DIMENSIONS (mm)

OVERALL LENGTH		4409		OVERALL WIDTH		1719		OVERALL HEIGHT		1415					
WHEELBASE		2669		FRONT TRACK		1483		REAR TRACK		1478					
REAR OVERHANG		898		OTHER		NONE									
COMMENTS				NONE											
EIGHT POINT PHOTOS TAKEN? (Y/N)				Y				FORM COMPLETED BY				BH			
								CHECKED BY				JS/MK			

VEHICLE RECEIVING SUMMARY

VEHICLE FILE NUMBER	4602	DATE RECEIVED	8/10/01
PROJECT NO	PH06608	PROJECT NAME	VOLPE CRASH TESTING TASK ORDER 1
VEHICLE YEAR	2001	VEHICLE MAKE	FORD
VEHICLE BODY STYLE	2-DOOR PICKUP	VEHICLE MODEL	F-150
VEHICLE IDENTIFICATION NUMBER	1FTRF17W71NA65535	DATE OF MANUFACTURE	11/00
GVWR (kgs)	2744	FRONT GAWR (kgs)	1270
		REAR GAWR (kgs)	1587
RECOMMENDED TIRE SIZE F/R	P235/70R16 SL	RECOMMENDED TIRE PRESSURE F/R (kPa)	241
ENGINE TYPE	V-8	ENGINE DISPLACEMENT	4 6 LITER
TRANSMISSION TYPE	AUTOMATIC W/OVERDRIVE	SHIFT LEVER LOCATION	COLUMN
FUEL TANK LOC	CENTER FORWARD OF REAR AXLE	FILLER CAP LOC	LEFT REAR QUARTER PANEL
DESIGNATED SEATING	FRONT 3 REAR 0 TOTAL 3	FRONT SEAT TYPE	60 / 40 BENCH

RESTRAINT SYSTEM DESCRIPTION

DRIVER	3-PT ACTIVE BELT	CENTER FRONT	2-PT ACTIVE BELT	RIGHT FRONT	3-PT ACTIVE BELT
LEFT REAR	N/A	CENTER REAR	N/A	RIGHT REAR	N/A

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	N	FRONT WHEEL DRIVE	N	4 WHEEL DRIVE	N
TELESCOPING WHEEL	N	TILT WHEEL	Y	FRONT DISK BRAKES	Y	REAR DISK BRAKES	Y	ANTI LOCK BRAKES F	Y
DRIVER AIRBAG	Y	RF PASSENGER AIRBAG	Y	SIDE AIRBAGS	N	PRE TENSIONERS	N	ANTI LOCK BRAKES R	Y

ADDITIONAL SIGNIFICANT OPTIONS/ACCESSORIES RECEIVED WITH GENERAL AMERI 550 AS, P235/70R16 104S M+S

SIGNIFICANT BODY DAMAGE/CORROSION NONE

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

LEFT FRONT	556	RIGHT FRONT	540	TOTAL FRONT	1096	PERCENT FRONT	58%
LEFT REAR	405	RIGHT REAR	399	TOTAL REAR	804	PERCENT REAR	42%
				TOTAL WEIGHT	1900		

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

LEFT FRONT	836 AT WHL WELL @ AXLE	RIGHT FRONT	842 AT WHL WELL @ AXLE
LEFT REAR	906 AT WHL WELL @ AXLE	RIGHT REAR	913 AT WHL WELL @ AXLE

VEHICLE EXTERIOR DIMENSIONS (mm)

OVERALL LENGTH	5230	OVERALL WIDTH	1989	OVERALL HEIGHT	1840
WHEELBASE	3046	FRONT TRACK	1670	REAR TRACK	1656
REAR OVERHANG	1228	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	9/14/01
VEHICLE YEAR	2001	VEHICLE MAKE	DODGE	VEHICLE MODEL	NEON
VEHICLE BODY STYLE	4-DOOR SEDAN	VEHICLE COLOR	BLUE		
VEHICLE IDENTIFICATION NUMBER	1B3ES46C71D112928	ODOMETER (mi)	31		
INSTALLED TIRES	LEFT SIZE / PRESSURE (kPa)		RIGHT SIZE / PRESSURE (kPa)		
FRONT	P185/65R14 / 220 kPa		P185/64R14 / 220 kPa		
REAR	P185/65R14 / 220 kPa		P185/64R14 / 220 kPa		

VEHICLE TEST WEIGHT (kgs)					
LEFT FRONT	423	RIGHT FRONT	431	TOTAL FRONT	854
LEFT REAR	320	RIGHT REAR	321	TOTAL REAR	641
				TOTAL WEIGHT	1495

VEHICLE TEST ATTITUDE MEASUREMENTS (mm)					
LEFT FRONT	640	AT	WHL WELL @ AXLE	RIGHT FRONT	647
LEFT REAR	637	AT	WHL WELL @ AXLE	RIGHT REAR	630
SUSPENSION ADJUSTMENTS	NONE				
OTHER MEASUREMENTS	NONE				

VEHICLE MODIFICATIONS & ADDITIONS	
TOW SHOE LOCATION(S)	NONE
BRAKE ABORT SYSTEM	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
OTHER	NONE	DOOR LOCKS	UNLOCKED
		BRAKES	PARKING BRAKE OFF

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	9/14/01
VEHICLE YEAR	2001	VEHICLE MAKE	FORD	VEHICLE MODEL	F-150
VEHICLE BODY STYLE	2-DOOR PICKUP	VEHICLE COLOR	WHITE		
VEHICLE IDENTIFICATION NUMBER	1FTRF17W71NA65535	ODOMETER (mi)	105		
INSTALLED TIRES	LEFT SIZE / PRESSURE (kPa)		RIGHT - SIZE / PRESSURE (kPa)		
BF GOODRICH FRONT	P235/70R16 104S / 241 kPa		P235/70R16 104S / 241 kPa		
GENERAL REAR	P235/70R16 / 241 kPa		P235/70R16 / 241 kPa		

VEHICLE TEST WEIGHT (kgs)

LEFT FRONT	571	RIGHT FRONT	529	TOTAL FRONT	1100	PERCENT FRONT	55%
LEFT REAR	463	RIGHT REAR	451	TOTAL REAR	914	PERCENT REAR	45%
				TOTAL WEIGHT	2014		

VEHICLE TEST ATTITUDE MEASUREMENTS (mm)

LEFT FRONT	837	AT	WHL WELL @ AXLE	RIGHT FRONT	850	AT	WHL WELL @ AXLE
LEFT REAR	890	AT	WHL WELL @ AXLE	RIGHT REAR	902	AT	WHL WELL @ AXLE
SUSPENSION ADJUSTMENTS	NONE						
OTHER MEASUREMENTS	NONE						

VEHICLE MODIFICATIONS & ADDITIONS

TOW SHOE LOCATION(S)	FRAME RAILS FORWARD OF STABILIZER BAR		
BRAKE ABORT SYSTEM	AUTOMATIC AND REMOTE MANUAL	TIME DELAY (sec)	0 2
ONBOARD CAMERA LOCATION(S)	NONE		
EVENT FLASH LOCATION(S)	DRIVER SIDE UPPER AND LOWER A-PILLAR		
TARGET LOCATION(S)	LEFT & RIGHT SIDES, HOOD & ROOF CENTERLINE/12" CENTER-TO-CENTER/SEE VEHICLE TARGET LOCATION PAGE		
INSTALLED TRANSDUCER(S)	SEE VEHICLE TRANSDUCER LOCATION RECORD		
INSTRUMENTATION PACKAGE LOCATION	CARGO BOX OF PICKUP		
OTHER	NONE		

VEHICLE CONDITION

TRANSMISSION GEAR	NEUTRAL	WINDOW POSITION	OPEN	DOOR LOCKS	UNLOCKED
FUEL TANK LEVEL	93% OF CAPACITY	FLUID TYPE	STODDARD	BRAKES	PARKING BRAKE OFF
OTHER	NONE				

ANTHROPOMORPHIC DUMMIES / RESTRAINTS

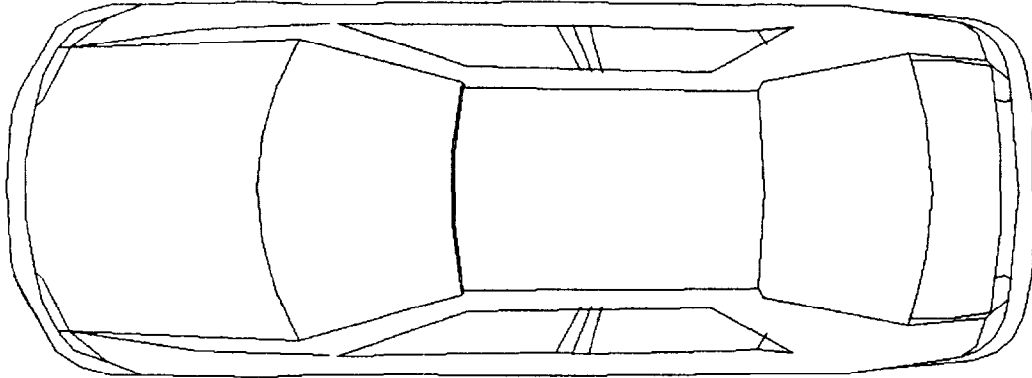
LEFT FRONT	H-II / 3-PT ACTIVE BELT	LEFT REAR	NONE
CENTER FRONT	NONE	CENTER REAR	NONE
RIGHT FRONT	NONE	RIGHT REAR	NONE

COMMENTS

NONE	FORM COMPLETED BY	MK	CHECKED BY	JS
------	-------------------	----	------------	----

TEST VEHICLE BALLAST RECORD

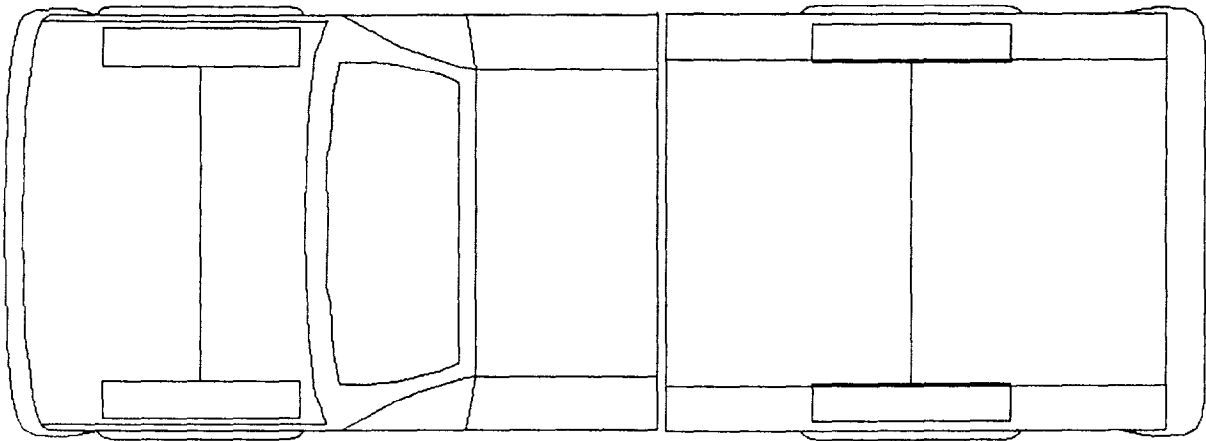
PROJECT NO	PH06608	PROJECT NAME	VOLPE CRASH TESTING TASK ORDER 1	TEST DATE	9/14/01
VEHICLE YEAR	2001	VEHICLE MAKE	DODGE	VEHICLE MODEL	NEON
VEHICLE IDENTIFICATION NUMBER	1B3ES46C71D112928				



LOCATION (Shown on sketch)	TYPE	AMOUNT (kg)	SECURING METHOD
A NO BALLAST			

TEST VEHICLE BALLAST RECORD

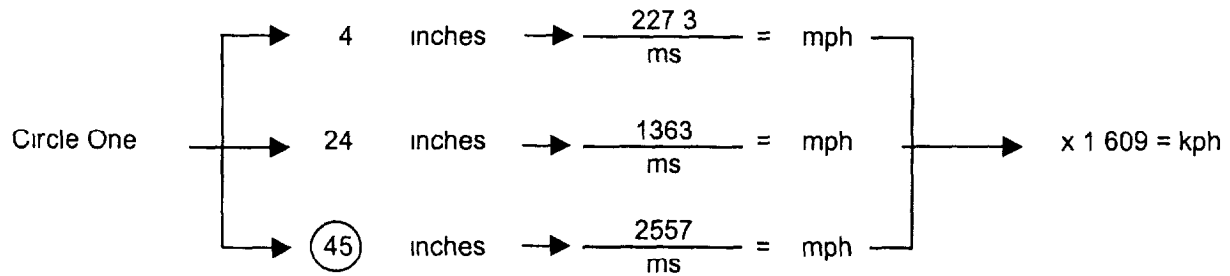
PROJECT NO	PH06608	PROJECT NAME	VOLPE CRASH TESTING TASK ORDER 1	TEST DATE	9/11/01
VEHICLE YEAR	2001	VEHICLE MAKE	FORD	VEHICLE MODEL	F-150
VEHICLE IDENTIFICATION NUMBER	1FTRF17W91KB46831				



	LOCATION (Shown on sketch)	TYPE	AMOUNT (kg)	SECURING METHOD
A	NO BALLAST			

SPEED TRAP COUNTER LOG

PROJECT NO	PH06608	PROJECT NAME	VOLPE CRASH TESTING TASK ORDER 1	TEST DATE	9/14/01
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 90	59 6		JS
	Channel 2	42 92	59 6		
	Average	--	59 6	95 9	
	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	9/14/01
TARGET VEHICLE					
VEHICLE YEAR	2001	VEHICLE MAKE	DODGE	VEHICLE MODEL	NEON
VEHICLE IDENTIFICATION NUMBER			1B3ES46C71D112928	DATE OF MANUFACTURE	
7/00					
TEST DESCRIPTION					
TEST TYPE OBLIQUE OFFSET FRONTAL IMPACT TESTING					
TEST TIME	12 12 PM	AMBIENT TEMPERATURE (°C)	32	MEASUREMENT LOCATION	73 m NORTH OF CRASH RAIL
VISIBLE DUMMY CONTACT POINTS					
	DRIVER DUMMY		PASSENGER DUMMY		
HEAD	WINDOW FRAME, AIR BAG, HEAD REST		AIRBAG, INTERIOR A-PILLAR TRIM, VISOR, HEADLINER, HEADREST, INSTRUMENT PANEL, DOOR OPENING, PASSENGER DUMMY RIGHT SHOULDER		
CHEST	AIRBAG, STEERING WHEEL		AIRBAG		
ABDOMEN	NO PAINT		NO PAINT		
LEFT KNEE	INSTRUMENT PANEL		AIRBAG, INSTRUMENT PANEL		
RIGHT KNEE	INSTRUMENT PANEL		AIRBAG, INSTRUMENT PANEL		
OTHER	NONE		NONE		
VEHICLE DOOR OPENING INFORMATION					
	LEFT SIDE DOORS		RIGHT SIDE DOORS		
FRONT	TOOLS NEEDED		EASY		
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

POST TEST INSPECTION SUMMARY

PROJECT NO	PH06608	PROJECT NAME	VOLPE CRASH TESTING TASK ORDER 1	TEST DATE	9/14/01
BULLET VEHICLE					
VEHICLE YEAR	2001	VEHICLE MAKE	FORD	VEHICLE MODEL	F-150
VEHICLE IDENTIFICATION NUMBER	1FTRF17W71NA65535			DATE OF MANUFACTURE	11/00
TEST DESCRIPTION					
TEST TYPE	OBLIQUE OFFSET FRONTAL IMPACT TESTING				
TEST TIME	12.12 PM	AMBIENT TEMPERATURE (°C)	32	MEASUREMENT LOCATION	73 m NORTH OF CRASH RAIL
VISIBLE DUMMY CONTACT POINTS					
	DRIVER DUMMY		PASSENGER DUMMY		
HEAD	NO PAINT		N/A		
CHEST	NO PAINT		N/A		
ABDOMEN	NO PAINT		N/A		
LEFT KNEE	NO PAINT		N/A		
RIGHT KNEE	NO PAINT		N/A		
OTHER	NO PAINT		N/A		
VEHICLE DOOR OPENING INFORMATION					
	LEFT SIDE DOORS		RIGHT SIDE DOORS		
FRONT	TOOLS NEEDED		EASY		
REAR	N/A		N/A		
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							
<i>H3HEAD (results calculated between 0 1 and 0 4)</i>							
HIII Head Acceleration (Ax)	g	1650 Hz	10 6	0 127	-32 8	0 065	
HIII Head Acceleration (Ay)	g	1650 Hz	59 5	0 096	-15 5	0 216	
HIII Head Acceleration (Az)	g	1650 Hz	25 4	0 065	-3 9	-0 072	
HIII Head Resultant Acceleration (Ar)	g	1650 Hz	64 0	0 096	0 1	-0 048	
HIII HIC (36 ms) 276 8 from 0 093 to 0 129 sec							
HIII HIC (15 ms) 155 3 from 0 095 to 0 110 sec							
<i>H3UNCK (results calculated between -0 1 and 0 4)</i>							
HIII Upper Neck Force (Fx)	N	1650 Hz	545 8	0 072	-164 5	0 107	
HIII Upper Neck Force (Fy)	N	1650 Hz	921 8	0 114	-469 8	0 223	
HIII Upper Neck Force (Fz)	N	1650 Hz	1500 6	0 076	-67 2	0 001	
HIII Upper Neck Moment (Mx)	N-m	1000 Hz	64 3	0 122	-49 8	0 219	
HIII Upper Neck Moment (My)	N-m	1000 Hz	33 3	0 117	-21 3	0 142	
HIII Upper Neck Moment (Mz)	N-m	1000 Hz	12 3	0 167	-23 6	0 117	
HIII Upper Neck Force (Fx)	N	1000 Hz	545 0	0 072	-163 2	0 107	
HIII Upper Neck Force (Fz)	N	1000 Hz	1495 2	0 076	-52 8	0 001	
HIII Upper Neck Moment (My)	N-m	1000 Hz	33 3	0 117	-21 2	0 142	
HIII NIJ Nte 0 20 @ 0 192 sec							
Ntf 0 28 @ 0 070 sec							
Nce 0 05 @ 0 224 sec							
Ncf 0 00 @ 0 004 sec							
<i>H3CHEST (results calculated between -0 1 and 0 4)</i>							
HIII Chest Acceleration (Ax)	g	300 Hz	3 2	0 112	-41 8	0 072	
HIII Chest Acceleration (Ay)	g	300 Hz	56 3	0 104	-9 4	0 151	
HIII Chest Acceleration (Az)	g	300 Hz	14 6	0 079	-14 8	0 106	
HIII Chest Resultant Acceleration (Ar)	g	300 Hz	58 7	0 104	0 1	-0 068	
HIII CIC 57 0 from 0 103 to 0 106 sec							
<i>H3CHSDFL (results calculated between 0 1 and 0 4)</i>							
HIII Chest Deflection (Dx)	mm	1000 Hz	0 3	-0 094	-29 9	0 075	
HIII Chest Compression (Dx)	mm	1000 Hz	29 9	0 075	-0 3	-0 094	
<i>H3CHSDFL VCF (results calculated between 0 1 and 0 4)</i>							
HIII Chest Compression (Dx)	mm	1000 Hz	29 9	0 075	-0 3	-0 094	
HIII Chest Compressive Velocity	m/s	per J211	3 0	0 068	-2 6	0 097	
HIII Chest V°C	m/s	per J211	0 39	0 068	-0 24	0 079	
<i>H3PELVIS (results calculated between -0 1 and 0 4)</i>							
HIII Pelvis Acceleration (Ax)	g	1650 Hz	18 0	0 101	-47 6	0 056	
HIII Pelvis Acceleration (Ay)	g	1650 Hz	39 1	0 095	-23 9	0 056	
HIII Pelvis Acceleration (Az)	g	1650 Hz	12 5	0 049	-29 7	0 145	1
HIII Pelvis Acceleration Resultant (Ar)	g	1650 Hz	52 7	0 056	0 2	0 366	1
<i>H3FEMUR (results calculated between -0 1 and 0 4)</i>							
HIII Left Femur Force	N	1000 Hz	193 1	0 040	-6354 0	0 058	
HIII Right Femur Force	N	1000 Hz	1115 9	0 085	-5358 3	0 066	
<i>H3KNEE (results calculated between -0 1 and 0 4)</i>							
HIII Left Knee Displacement	mm	300 Hz	0 4	0 045	-3 8	0 388	
HIII Right Knee Displacement	mm	300 Hz	0 3	0 394	-1 5	0 072	
HIII Left Knee Left Force	N	1000 Hz	603 1	0 070	-2579 5	0 050	
HIII Left Knee Right Force	N	1000 Hz	575 4	0 105	-2273 7	0 051	
HIII Right Knee Left Force	N	1000 Hz	631 6	0 055	-1436 6	0 067	
HIII Right Knee Right Force	N	1000 Hz	932 2	0 093	-4129 1	0 051	
<i>H3LTIBIA (results calculated between -0 1 and 0 4)</i>							
HIII Left Upper Tibia Force (Fx)	N	1000 Hz	133 4	0 040	-984 9	0 081	
HIII Left Upper Tibia Force (Fy)	N	1000 Hz	144 7	0 048	-1046 7	0 051	
HIII Left Upper Tibia Force (Fz)	N	1000 Hz	48 8	0 036	-3833 4	0 050	
HIII Left Upper Tibia Moment (Mx)	N-m	1000 Hz	71 2	0 050	-112 2	0 053	
HIII Left Upper Tibia Moment (My)	N-m	1000 Hz	46 2	0 152	-168 7	0 050	
HIII Left Lower Tibia Force (Fx)	N	1000 Hz	43 6	0 038	-1358 7	0 051	
HIII Left Lower Tibia Force (Fy)	N	1000 Hz	398 1	0 053	-1277 2	0 049	
HIII Left Lower Tibia Force (Fz)	N	1000 Hz	60 6	0 037	-4982 4	0 050	
HIII Left Lower Tibia Moment (Mx)	N-m	1000 Hz	42 8	0 048	-229 2	0 051	
HIII Left Lower Tibia Moment (My)	N-m	1000 Hz	220 8	0 080	-19 3	0 051	
<i>H3RTIBIA (results calculated between 0 1 and 0 4)</i>							
HIII Right Upper Tibia Force (Fx)	N	1000 Hz	194 4	0 082	-427 0	0 049	
HIII Right Upper Tibia Force (Fy)	N	1000 Hz	64 4	0 054	-1372 9	0 050	
HIII Right Upper Tibia Force (Fz)	N	1000 Hz	68 3	0 229	-4387 6	0 050	
HIII Right Upper Tibia Moment (Mx)	N-m	1000 Hz	79 0	0 093	-209 0	0 051	
HIII Right Upper Tibia Moment (My)	N-m	1000 Hz	22 8	0 095	-203 3	0 051	

Description	Units	Filter	Maximum	Time@Max	Minimum	Time@Min	±
HIII Right Lower Tibia Force (Fx)	N	1000 Hz	39 5	0 095	-2124 8	0 051	
HIII Right Lower Tibia Force (Fy)	N	1000 Hz	724 4	0 051	-319 7	0 096	
HIII Right Lower Tibia Force (Fz)	N	1000 Hz	217 6	0 096	-5491 0	0 050	
HIII Right Lower Tibia Moment (Mx)	N-m	1000 Hz	12 3	0 092	-338 5	0 050	
HIII Right Lower Tibia Moment (My)	N-m	1000 Hz	39 6	0 066	-47 2	0 113	1
THOR, Passenger Position							
<i>THEAD (results calculated between -0 1 and 0 4)</i>							
THOR Head Vertex Acceleration (Ax)	g	1650 Hz	8 7	0 140	-36 6	0 128	
THOR Head Vertex Acceleration (Ay)	g	1650 Hz	39 4	0 116	-2 5	0 173	
THOR Head Temporal Acceleration (Ax)	g	1650 Hz	2 9	0 199	-34 5	0 128	
THOR Head Temporal Acceleration (Az)	g	1650 Hz	90 1	0 120	-7 0	0 156	
THOR Head Occipital Acceleration (Ay)	g	1650 Hz	74 7	0 132	-3 2	0 184	
THOR Head Occipital Acceleration (Az)	g	1650 Hz	59 5	0 121	-5 8	0 154	
THOR Head C G Acceleration (Ax)	g	1650 Hz	5 1	0 138	-51 7	0 115	
THOR Head C G Acceleration (Ay)	g	1650 Hz	36 4	0 128	-1 6	0 051	
THOR Head C G Acceleration (Az)	g	1650 Hz	26 6	0 119	-2 3	0 155	
THOR Head C G Resultant Acceleration (Ar)	g	1650 Hz	59 5	0 115	0 0	-0 070	
THOR HIC (36 ms) 218 5 from 0 104 to 0 139 sec							
THOR HIC (15 ms) 143 6 from 0 115 to 0 130 sec							
<i>TFACE (results calculated between -0 1 and 0 4)</i>							
THOR Right Eye Compression Load	N	1000 Hz	5 8	0 135	-81 7	0 144	1
THOR Left Eye Compression Load	N	1000 Hz	1036 9	0 115	-54 2	0 144	1
THOR Right Cheek Compression Load	N	1000 Hz	10 1	0 135	-91 1	0 144	1
THOR Left Cheek Compression Load	N	1000 Hz	868 1	0 114	-59 9	0 144	1
THOR Chin Compression Load	N	1000 Hz	469 8	0 106	-92 8	0 144	1
<i>UNCK PRE (results calculated between -0 1 and 0 4)</i>							
THOR Upper Neck Force (Fx) - pre-THORTEST	N	(unfiltered)	555 7	0 189	-308 7	0 125	1
THOR Upper Neck Force (Fy) - pre-THORTEST	N	(unfiltered)	443 1	0 126	-395 5	0 189	1
THOR Upper Neck Force (Fz) - pre-THORTEST	N	(unfiltered)	1684 0	0 120	-206 3	0 189	1
THOR Upper Neck Moment (Mx) - pre-THORTEST	N-m	(unfiltered)	50 6	0 114	-10 6	0 239	
THOR Upper Neck Moment (My) - pre-THORTEST	N-m	(unfiltered)	19 5	0 125	-18 6	0 189	1
THOR Upper Neck Moment (Mz) - pre-THORTEST	N-m	(unfiltered)	7 8	0 201	-18 5	0 144	
THOR Neck Front Spring Compression - pre-THORTEST	N	(unfiltered)	399 8	0 200	-132 4	0 128	1
THOR Neck Rear Spring Compression - pre-THORTEST	N	(unfiltered)	558 3	0 126	-125 9	0 144	1
THOR Head Rotation at O C - pre-THORTEST	deg	(unfiltered)	159 4	0 126	137 5	0 087	
<i>TUNCK (results calculated between -0 1 and 0 4)</i>							
THOR Upper Neck Force (Fx) - post-THORTEST	N	1650 Hz	587 6	0 108	-588 7	0 125	
THOR Upper Neck Force (Fy) - post-THORTEST	N	1650 Hz	437 6	0 126	-369 6	0 115	
THOR Upper Neck Force (Fz) - post-THORTEST	N	1650 Hz	1512 9	0 109	-551 0	0 189	1
THOR Upper Neck Moment (Mx) - post-THORTEST	N-m	1000 Hz	49 9	0 115	-10 5	0 241	
THOR Upper Neck Moment (My) - post-THORTEST	N-m	1000 Hz	17 3	0 178	-24 7	0 131	
THOR Upper Neck Moment (Mz) - post-THORTEST	N-m	1000 Hz	9 0	0 206	-19 0	0 144	
THOR Upper Neck Force (Fz) - post-THORTEST	N	1000 Hz	1501 3	0 109	-525 2	0 188	
THOR NIJ Nte 0 32 @ 0 120 sec							
Ntf 0 25 @ 0 108 sec							
Nce 0 18 @ 0 131 sec							
Ncf 0 13 @ 0 183 sec							
<i>TLNECK (results calculated between 0 1 and 0 4)</i>							
THOR Lower Neck Force (Fx)	N	1650 Hz	298 6	0 189	-410 4	0 088	1
THOR Lower Neck Force (Fy)	N	1650 Hz	59 4	0 011	-990 8	0 102	1
THOR Lower Neck Force (Fz)	N	1650 Hz	1842 2	0 109	-226 9	0 129	
THOR Lower Neck Moment (Mx)	N-m	1000 Hz	37 5	0 128	-21 7	0 226	1
THOR Lower Neck Moment (My)	N-m	1000 Hz	17 0	0 084	-35 8	0 188	1
THOR Lower Neck Moment (Mz)	N-m	1000 Hz	12 5	0 109	-13 5	0 132	
<i>CRUX PRE (results calculated between -0 1 and 0 4)</i>							
THOR Crux Upper Left Base Rotation - pre-THORTEST	deg	300 Hz	138 4	0 127	128 3	0 081	
THOR Crux Upper Left Mid Rotation - pre-THORTEST	deg	300 Hz	194 9	0 039	178 9	0 102	
NULL CHANNEL	--	--	--	--	--	--	
THOR Crux Upper Left Elbow Rotation - pre-THORTEST	deg	300 Hz	169 7	0 066	147 4	0 250	
NULL CHANNEL	--	--	--	--	--	--	
THOR Crux Upper Right Base Rotation - pre-THORTEST	deg	300 Hz	172 7	0 399	161 5	0 099	
THOR Crux Upper Right Mid Rotation - pre-THORTEST	deg	300 Hz	126 5	0 067	101 3	0 153	
THOR Crux Upper Right Elbow Rotation - pre-THORTEST	deg	300 Hz	164 9	0 214	145 2	0 099	
THOR Crux Lower Left Base Rotation - pre-THORTEST	deg	300 Hz	166 2	0 172	140 1	0 065	
THOR Crux Lower Left Mid Rotation - pre-THORTEST	deg	300 Hz	149 8	0 092	134 8	0 001	
THOR Crux Lower Left Elbow Rotation - pre-THORTEST	deg	300 Hz	142 2	-0 087	133 1	0 069	
THOR Crux Lower Right Base Rotation - pre-THORTEST	deg	300 Hz	175 6	0 102	164 1	0 058	
THOR Crux Lower Right Mid Rotation - pre-THORTEST	deg	300 Hz	179 1	0 075	174 3	0 057	
THOR Crux Lower Right Elbow Rotation - pre-THORTEST	deg	300 Hz	161 4	0 061	139 1	0 076	

Description	Units	Filter	Maximum	Time@Max	Minimum	Time@Min	*
<i>CRUX (results calculated between -0 1 and 0 4)</i>							
THOR Crux Upper Right Deflection (Dx) - post-THORTEST	mm	300 Hz	2 0	0 213	-14 7	0 109	
THOR Crux Upper Right Deflection (Dy) - post-THORTEST	mm	300 Hz	12 6	0 068	-19 0	0 152	
THOR Crux Upper Right Deflection (Dz) - post-THORTEST	mm	300 Hz	13 0	0 099	-6 2	0 399	
THOR Crux Upper Right Endpoint Length - post-THORTEST	mm	300 Hz	3 0	0 214	-15 7	0 099	
THOR Crux Upper Left Deflection (Dx) - post-THORTEST	mm	300 Hz	0 3	0 037	-18 8	0 092	
THOR Crux Upper Left Deflection (Dy) - post-THORTEST	mm	300 Hz	10 0	0 069	-19 2	0 145	
THOR Crux Upper Left Deflection (Dz) - post-THORTEST	mm	300 Hz	6 0	0 063	-9 8	0 079	
THOR Crux Upper Left Endpoint Length - post-THORTEST	mm	300 Hz	3 0	0 250	-16 5	0 066	
THOR Crux Lower Right Deflection (Dx) - post-THORTEST	mm	300 Hz	10 1	0 077	-2 2	0 060	
THOR Crux Lower Right Deflection (Dy) - post-THORTEST	mm	300 Hz	2 4	0 058	-19 3	0 100	
THOR Crux Lower Right Deflection (Dz) - post-THORTEST	mm	300 Hz	6 9	0 061	-12 9	0 076	
THOR Crux Lower Right Endpoint Length - post-THORTEST	mm	300 Hz	14 8	0 075	-5 0	0 061	
THOR Crux Lower Left Deflection (Dx) - post-THORTEST	mm	300 Hz	0 3	0 050	-12 5	0 134	
THOR Crux Lower Left Deflection (Dy) - post-THORTEST	mm	300 Hz	31 0	0 064	-8 3	0 172	
THOR Crux Lower Left Deflection (Dz) - post-THORTEST	mm	300 Hz	0 1	0 011	-19 3	0 102	
THOR Crux Lower Left Endpoint Length - post-THORTEST	mm	300 Hz	0 0	-0 087	-9 5	0 069	
<i>TVC FEU (results calculated between -0 1 and 0 4)</i>							
THOR Chest Deflection (Dx)	mm	1000 Hz	0 2	0 039	-8 3	0 096	
THOR Chest Compression (Dx)	mm	1000 Hz	8 3	0 096	-0 2	0 039	
<i>TVC VCF (results calculated between 0 1 and 0 4)</i>							
THOR Chest Compression (Dx)	mm	1000 Hz	8 3	0 096	-0 2	0 039	
THOR Chest Compressive Velocity	m/s	per J211	1 3	0 054	-0 4	0 073	
THOR Chest V*C	m/s	per J211	0 03	0 056	-0 02	0 070	
<i>TTHORAX (results calculated between 0 1 and 0 4)</i>							
THOR Thorax C G Acceleration (Ax)	g	300 Hz	3 6	0 101	-25 1	0 071	
THOR Thorax C G Acceleration (Ay)	g	300 Hz	28 9	0 120	-3 3	0 054	
THOR Thorax C G Acceleration (Az)	g	300 Hz	20 0	0 063	-10 0	0 144	
THOR Thorax C G Resultant Acceleration (Ar)	g	300 Hz	34 8	0 120	0 0	-0 097	
THOR Upper Abdomen Acceleration (Ax)	g	1650 Hz	471 3	0 262	-466 6	0 298	1
THOR Upper Abdomen Displacement	mm	1650 Hz	0 0	-0 038	-10 8	0 114	
THOR CIC 33 1 from 0 070 to 0 122 sec							
<i>DGSP PRE (results calculated between 0 1 and 0 4)</i>							
THOR DGSP Left Displacement - pre-THORTEST	mm	300 Hz	52 6	0 076	21 2	0 035	
THOR DGSP Left Yaw - pre-THORTEST	deg	300 Hz	168 5	0 162	164 3	0 062	
THOR DGSP Left Pitch - pre-THORTEST	deg	300 Hz	211 5	0 106	205 1	0 400	
THOR DGSP Right Displacement - pre-THORTEST	mm	300 Hz	38 5	0 099	16 6	0 031	
THOR DGSP Right Yaw - pre-THORTEST	deg	300 Hz	166 6	0 156	161 1	0 060	
THOR DGSP Right Pitch - pre-THORTEST	deg	300 Hz	154 7	0 058	153 2	0 101	
<i>DGSP (results calculated between 0 1 and 4)</i>							
THOR DGSP Right Displacement (Dx) - post-THORTEST	mm	300 Hz	0 3	0 038	-7 2	0 118	
THOR DGSP Right Displacement (Dy) - post-THORTEST	mm	300 Hz	10 8	0 060	-3 6	0 156	
THOR DGSP Right Displacement (Dz) - post-THORTEST	mm	300 Hz	20 6	0 101	-0 1	0 030	
THOR DGSP Left Displacement (Dx) - post-THORTEST	mm	300 Hz	0 2	0 032	-30 0	0 087	
THOR DGSP Left Displacement (Dy) - post-THORTEST	mm	300 Hz	11 6	0 062	-2 2	0 162	
THOR DGSP Left Displacement (Dz) - post-THORTEST	mm	300 Hz	3 5	0 180	-14 5	0 075	
<i>THORT12X (results calculated between -0 1 and 0 4)</i>							
THOR T12 Thoracic Force (Fx)	N	1650 Hz	130 8	0 301	-1226 3	0 075	
<i>TSPINE (results calculated between -0 1 and 0 4)</i>							
THOR T12 Thoracic Force (Fy)	N	1000 Hz	1686 9	0 097	-42 4	0 393	
THOR T12 Thoracic Force (Fz)	N	1000 Hz	2697 9	0 111	-174 9	0 038	
THOR T12 Thoracic Moment (Mx)	N-m	1000 Hz	122 3	0 134	-45 1	0 086	
THOR T12 Thoracic Moment (My)	N-m	1000 Hz	88 4	0 103	-78 7	0 066	
THOR T12 Thoracic Acceleration (Ax)	g	1000 Hz	3 3	0 100	-45 9	0 065	
THOR T12 Thoracic Acceleration (Ay)	g	1000 Hz	18 7	0 101	-6 6	0 069	
THOR T12 Thoracic Acceleration (Az)	g	1000 Hz	13 4	0 119	-14 1	0 065	
THOR T12 Thoracic Resultant Acceleration (Ar)	g	1000 Hz	47 9	0 065	0 0	-0 064	
<i>TLPELVIS (results calculated between -0 1 and 0 4)</i>							
THOR Pelvis Left Acetabular Force (Fx)	N	1650 Hz	299 7	0 288	-5781 9	0 080	
<i>TPELVIS (results calculated between -0 1 and 0 4)</i>							
THOR Pelvis Left Acetabular Force (Fy)	N	1650 Hz	5146 2	0 145	-1169 2	0 145	1
THOR Pelvis Left Acetabular Force (Fz)	N	1650 Hz	863 4	0 113	-1707 2	0 145	1
THOR Pelvis Right Acetabular Force (Fx)	N	1650 Hz	3199 6	0 085	-2424 9	0 145	1
THOR Pelvis Right Acetabular Force (Fy)	N	1650 Hz	1879 2	0 145	-4537 6	0 145	1
THOR Pelvis Right Acetabular Force (Fz)	N	1650 Hz	575 9	0 118	-1074 2	0 145	1
THOR Pelvis Acceleration (Ax)	g	1650 Hz	6 2	0 359	-51 2	0 060	
THOR Pelvis Acceleration (Ay)	g	1650 Hz	24 6	0 072	-16 1	0 065	
THOR Pelvis Acceleration (Az)	g	1650 Hz	24 4	0 059	-15 6	0 084	
THOR Pelvis Resultant Acceleration (Ar)	g	1650 Hz	53 1	0 062	0 2	-0 028	

Description	Units	Filter	Maximum	Time@Max	Minimum	Time@Min	*
<i>TFEMUR (results calculated between -0.1 and 0.4)</i>							
THOR Left Femur Force (Fx)	N	1000 Hz	1515.5	0.086	-154.6	0.368	
THOR Left Femur Force (Fy)	N	1000 Hz	2726.6	0.066	-105.6	0.048	
THOR Left Femur Force (Fz)	N	1000 Hz	219.2	0.181	-4191.0	0.064	
THOR Left Femur Moment (Mx)	N-m	1000 Hz	398.3	0.112	-145.4	0.069	
THOR Left Femur Moment (My)	N-m	1000 Hz	166.2	0.115	-54.4	0.060	
THOR Left Femur Moment (Mz)	N-m	1000 Hz	5.0	0.399	-332.9	0.107	
THOR Right Femur Force (Fx)	N	1000 Hz	1141.9	0.163	-420.9	0.104	
THOR Right Femur Force (Fy)	N	1000 Hz	960.5	0.071	-975.4	0.162	
THOR Right Femur Force (Fz)	N	1000 Hz	3056.8	0.163	-3763.3	0.162	
THOR Right Femur Moment (Mx)	N-m	1000 Hz	138.9	0.101	-151.0	0.071	
THOR Right Femur Moment (My)	N-m	1000 Hz	130.6	0.113	-56.5	0.162	
THOR Right Femur Moment (Mz)	N-m	1000 Hz	51.7	0.068	-70.6	0.102	
<i>TKNEE (results calculated between -0.1 and 0.4)</i>							
THOR Right Knee Displacement	mm	300 Hz	0.6	0.120	-1.1	0.165	
THOR Left Knee Displacement	mm	300 Hz	0.4	0.277	-11.9	0.072	
<i>TLTIBIA (results calculated between -0.1 and 0.4)</i>							
THOR Left Upper Tibia Force (Fx)	N	1000 Hz	778.3	0.168	-1228.3	0.172	
THOR Left Upper Tibia Force (Fz)	N	1000 Hz	0.0	-0.100	0.0	-0.100	1
THOR Left Upper Tibia Moment (Mx)	N-m	1000 Hz	413.9	0.109	-91.7	0.055	
THOR Left Upper Tibia Moment (My)	N-m	1000 Hz	62.9	0.116	-89.8	0.061	
THOR Left Lower Tibia Force (Fx)	N	1000 Hz	603.1	0.150	-524.4	0.187	
THOR Left Lower Tibia Force (Fy)	N	1000 Hz	804.5	0.077	-919.7	0.107	
THOR Left Lower Tibia Force (Fz)	N	1000 Hz	476.6	0.150	-2850.2	0.076	
THOR Left Lower Tibia Moment (Mx)	N-m	1000 Hz	201.2	0.115	-72.5	0.055	
THOR Left Lower Tibia Moment (My)	N-m	1000 Hz	32.0	0.156	-52.5	0.062	
THOR Left Ankle Rotation (X Axis)	deg	300 Hz	150.1	0.122	104.6	0.056	
THOR Left Ankle Rotation (Y Axis)	deg	300 Hz	142.3	0.116	117.1	0.056	
THOR Left Ankle Rotation (Z Axis)	deg	300 Hz	214.6	0.151	187.6	0.079	
<i>THRLTBC1 (results calculated between -0.1 and 0.4)</i>							
THOR Left Tibia Acceleration (Ax)	g	1000 Hz	16.8	0.154	-65.8	0.071	
THOR Left Tibia Acceleration (Ay)	g	1000 Hz	61.8	0.055	-90.4	0.071	
<i>TRTIBIA (results calculated between -0.1 and 0.4)</i>							
THOR Right Upper Tibia Force (Fx)	N	1000 Hz	812.2	0.062	-607.8	0.073	
THOR Right Upper Tibia Force (Fz)	N	1000 Hz	515.7	0.100	-3473.8	0.071	
THOR Right Upper Tibia Moment (Mx)	N-m	1000 Hz	127.9	0.102	-225.3	0.072	
THOR Right Upper Tibia Moment (My)	N-m	1000 Hz	135.3	0.110	-94.5	0.063	
THOR Right Lower Tibia Force (Fx)	N	1000 Hz	522.5	0.111	-933.7	0.062	
THOR Right Lower Tibia Force (Fy)	N	1000 Hz	1353.2	0.072	-1055.5	0.160	
THOR Right Lower Tibia Force (Fz)	N	1000 Hz	709.4	0.161	-3019.2	0.071	
THOR Right Lower Tibia Moment (Mx)	N-m	1000 Hz	72.6	0.161	-158.7	0.072	
THOR Right Lower Tibia Moment (My)	N-m	1000 Hz	44.4	0.110	-108.0	0.062	
THOR Right Tibia Acceleration (Ax)	g	1000 Hz	47.2	0.097	-102.9	0.062	
THOR Right Tibia Acceleration (Ay)	g	1000 Hz	125.6	0.071	-28.3	0.066	
THOR Right Ankle Rotation (X Axis)	deg	300 Hz	292.5	0.074	-205.8	0.028	1
THOR Right Ankle Rotation (Y Axis)	deg	300 Hz	169.4	0.139	131.7	0.375	
THOR Right Ankle Rotation (Z Axis)	deg	300 Hz	211.9	0.380	191.7	0.110	
<i>THRLFTC1 (results calculated between -0.1 and 0.4)</i>							
THOR Left Foot Acceleration (Ax)	g	1000 Hz	0.8	-0.008	-142.3	0.150	1
THOR Left Foot Acceleration (Ay)	g	1000 Hz	56.6	0.046	-97.8	0.149	
THOR Left Foot Acceleration (Az)	g	1000 Hz	77.2	0.149	-52.9	0.072	
THOR Left Foot Resultant Acceleration (Ar)	g	1000 Hz	181.6	0.149	0.0	0.004	1
<i>THRRFTC1 (results calculated between -0.1 and 0.4)</i>							
THOR Right Foot Acceleration (Ax)	g	1000 Hz	66.2	0.071	-115.0	0.057	
THOR Right Foot Acceleration (Ay)	g	1000 Hz	39.7	0.059	-352.0	0.206	1
THOR Right Foot Acceleration (Az)	g	1000 Hz	50.5	0.070	-59.9	0.071	
THOR Right Foot Resultant Acceleration (Ar)	g	1000 Hz	352.0	0.206	0.0	-0.065	1
2001 Dodge Neon							
<i>TENG1 (results calculated between -0.1 and 0.4)</i>							
Top of Engine Acceleration (Ax)	g	100 Hz	7.5	0.059	-52.8	0.036	
Top of Engine Acceleration (Ay)	g	100 Hz	25.1	0.031	-7.7	0.127	
<i>BENG1 (results calculated between -0.1 and 0.4)</i>							
Bottom of Engine Acceleration (Ax)	g	100 Hz	9.5	0.054	-70.4	0.036	
Bottom of Engine Acceleration (Ay)	g	100 Hz	25.8	0.028	-22.5	0.041	
<i>LSTC1 (results calculated between -0.1 and 0.4)</i>							
Left Shock Tower Acceleration (Ax)	g	100 Hz	27.0	0.043	-72.0	0.048	
Left Shock Tower Acceleration (Ay)	g	100 Hz	76.4	0.046	-24.6	0.052	
Left Shock Tower Acceleration (Az)	g	100 Hz	36.6	0.044	-50.0	0.027	
Left Shock Tower Resultant Acceleration (Ar)	g	100 Hz	95.0	0.047	0.0	-0.068	

Description	Units	Filter	Maximum	Time@Max	Minimum	Time@Min	*
<i>RSTC1 (results calculated between 0 1 and 0 4)</i>							
Right Shock Tower Acceleration (Ax)	g	100 Hz	6 5	0 038	-44 5	0 045	
Right Shock Tower Acceleration (Ay)	g	100 Hz	43 6	0 039	-8 8	0 120	
Right Shock Tower Acceleration (Az)	g	100 Hz	14 7	0 048	-13 6	0 066	
Right Shock Tower Resultant Acceleration (Ar)	g	100 Hz	44 9	0 045	0 0	-0 019	
<i>LAPC1 (results calculated between -0 1 and 0 4)</i>							
Left A-Pillar Top Hinge Acceleration (Ax)	g	100 Hz	37 0	0 082	-72 4	0 055	
<i>TOEPC1 (results calculated between -0 1 and 4)</i>							
Driver Side Toe Pan Acceleration (Ax)	g	100 Hz	66 1	0 045	-120 9	0 049	
Driver Side Toe Pan Acceleration (Ay)	g	100 Hz	73 9	0 041	-20 6	0 046	
Driver Side Toe Pan Acceleration (Az)	g	100 Hz	41 4	0 045	-1222 0	0 302	1
Driver Side Toe Pan Resultant Acceleration (Ar)	g	100 Hz	1222 0	0 302	0 0	-0 078	1
<i>BPC1 (results calculated between -0 1 and 0 4)</i>							
Brake Pedal Acceleration (Ax)	g	100 Hz	52 2	0 050	-108 4	0 039	
Brake Pedal Acceleration (Ay)	g	100 Hz	171 4	0 062	-108 1	0 053	
Brake Pedal Acceleration (Az)	g	100 Hz	95 3	0 050	-33 7	0 061	
Brake Pedal Resultant Acceleration (Ar)	g	100 Hz	173 9	0 062	0 0	-0 020	
<i>LRCC1 (results calculated between -0 1 and 0 4)</i>							
Left Rear Compartment Acceleration (Ax)	g	100 Hz	1 8	0 321	-20 3	0 052	
<i>CRCC1 (results calculated between -0 1 and 0 4)</i>							
Center Rear Compartment Acceleration (Ax)	g	100 Hz	1 3	0 249	-27 0	0 055	
Center Rear Compartment Acceleration (Az)	g	100 Hz	9 5	0 041	-11 4	0 059	
<i>RRCC1 (results calculated between -0 1 and 0 4)</i>							
Right Rear Compartment Acceleration (Ax)	g	100 Hz	0 9	0 246	-26 2	0 053	
Right Rear Compartment Acceleration (Ay)	g	100 Hz	13 8	0 049	-0 5	0 163	
<i>YAW (results calculated between -0 1 and 0 4)</i>							
Vehicle Yaw Rate	deg/s	300 Hz	137 8	0 053	-68 1	0 045	
2001 Ford F-150							
<i>TENGT1 (results calculated between 0 1 and 0 4)</i>							
Top of Engine Acceleration (Ax)	g	100 Hz	2 8	0 202	-33 1	0 051	
Top of Engine Acceleration (Ay)	g	100 Hz	31 9	0 053	-30 7	0 069	
<i>BENGT1 (results calculated between -0 1 and 0 4)</i>							
Bottom of Engine Acceleration (Ay)	g	100 Hz	49 7	0 047	-1141 9	0 055	1
Bottom of Engine Acceleration (Ax)	g	100 Hz	17 4	0 083	-40 1	0 067	
<i>CRCT1 (results calculated between 0 1 and 0 4)</i>							
Center Rear Compartment Acceleration (Ax)	g	100 Hz	1 2	0 370	-19 8	0 053	
Center Rear Compartment Acceleration(Ay)	g	100 Hz	9 4	0 082	-7 7	0 105	
Center Rear Compartment Acceleration (Az)	g	100 Hz	5 2	0 167	-19 9	0 087	
Center Rear Compartment Resultant Acceleration (Ar)	g	100 Hz	27 3	0 088	0 2	0 329	
<i>CRC2T1 (results calculated between -0 1 and 0 4)</i>							
Center Rear Compartment Acceleration (Ax) - Secondary	g	100 Hz	6 9	0 087	-22 3	0 061	

* 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 NIJ)

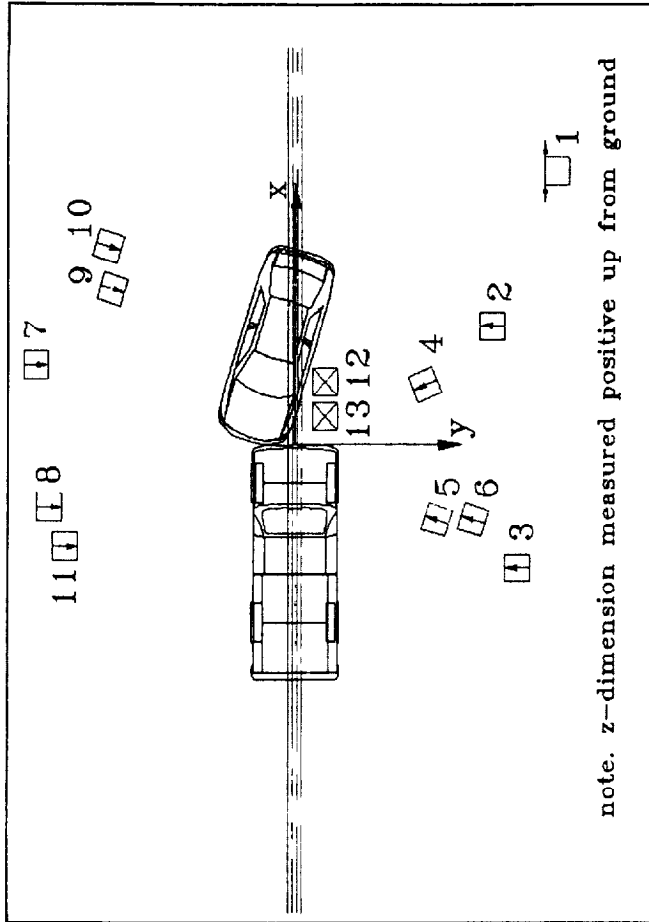
Section 4 0

Camera, Occupant, and Vehicle Measurements

CAMERA SET-UP RECORD

PROJECT NO:	PH06608	TEST DATE	9/14/01
PROJECT NAME	VOLPE CRASH TESTING TASK ORDER 1		
TEST TYPE	FRONTAL OFFSET OBLIQUE CRASH TEST		
TARGET VEHICLE (T)	2001 DODGE NEON		
BULLET VEHICLE (B)	2001 FORD F-150		
APPROX. TEST SPEEDS (T)	0	(B)	95.9 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		

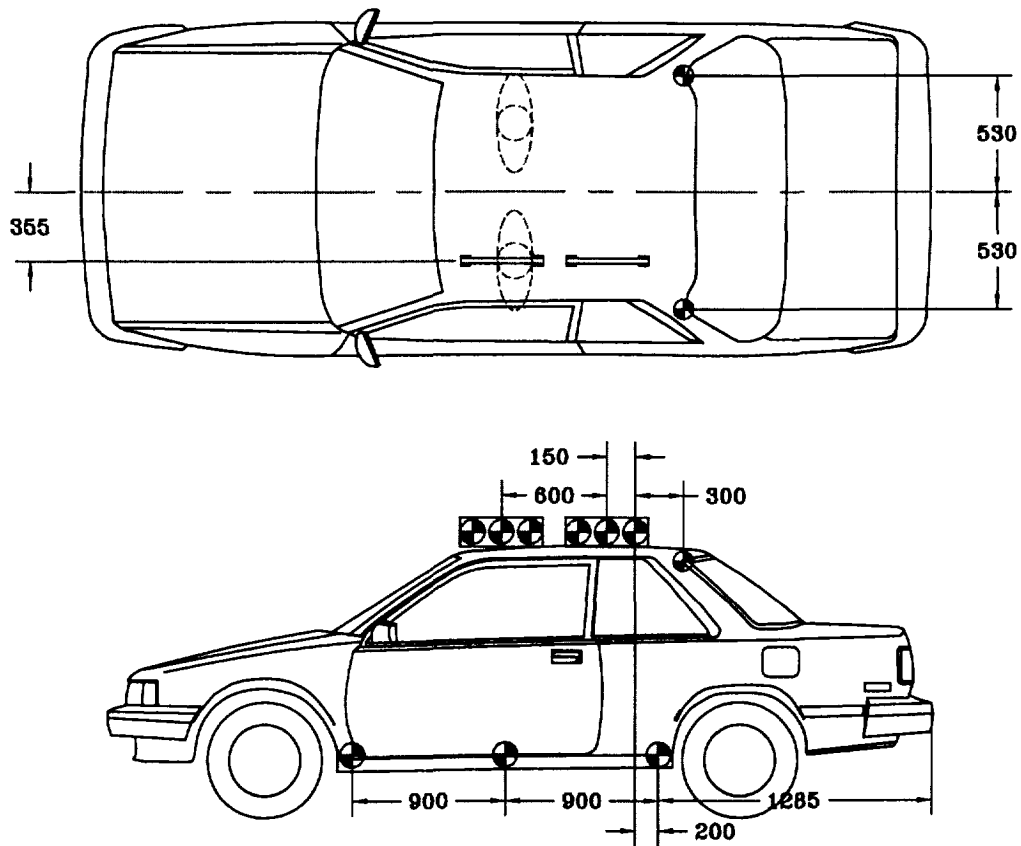
LEGEND: ☒ OVERHEAD ☐ PIT ☒ ONBOARD ☐ GROUND ☒ PANNING



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 PASSENGER 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 DRIVER 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 OF BULLET VEHICLE DRIVER DUMMY	-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



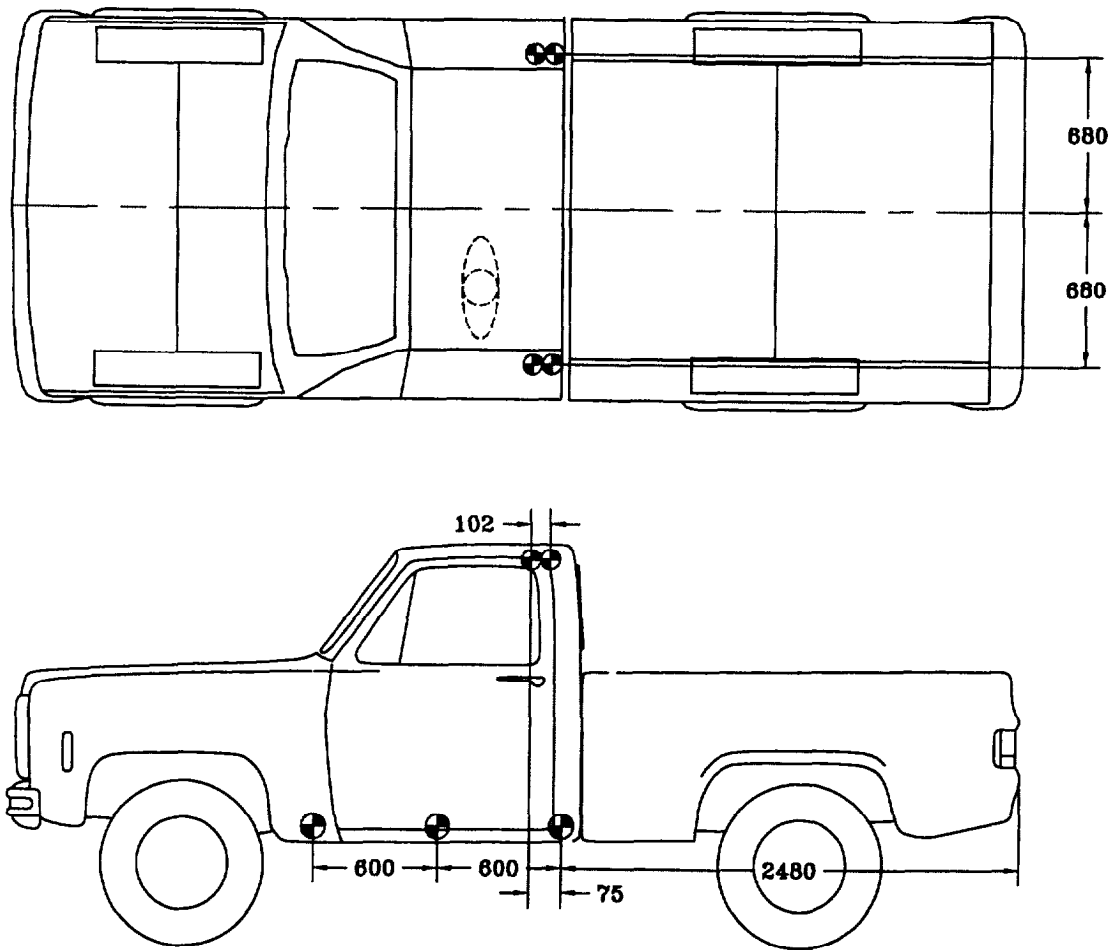
Notes

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 – 2001 Ford F-150



Notes

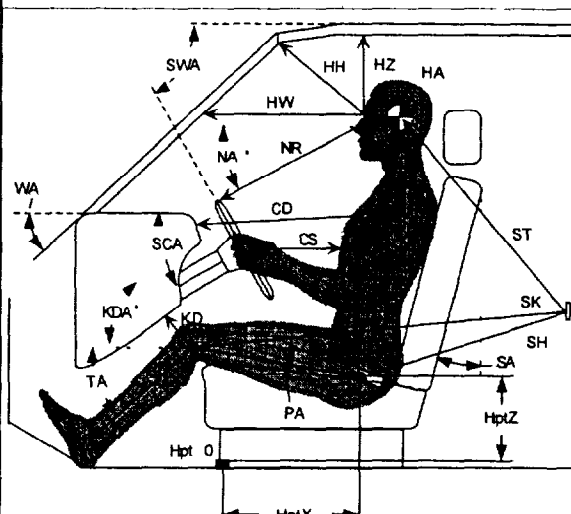
All dimensions in millimeters

Right side targets positioned symmetrically to left side

At impact, center rearmost point of 2001 Ford F-150 is directly over the crash rail centerline

OCCUPANT INTERIOR CLEARANCE SUMMARY

PROJECT NO	PH06608	PROJECT NAME	VOLPE CRASH TESTING TASK ORDER 1	TEST DATE	9/14/01
VEHICLE YEAR	2001	VEHICLE MAKE	DODGE	VEHICLE MODEL	NEON
VEHICLE BODY STYLE	4-DOOR SEDAN	VEHICLE COLOR	BLUE		
VEHICLE IDENTIFICATION NUMBER	1B3ES46C71D112928				

FORE / AFT CLEARANCE MEASUREMENTS			VEHICLE MEASUREMENTS		
	DRIVER DUMMY	PASSENGER DUMMY		DRIVER	PASSENGER
CD = CHEST TO DASH	475 mm	520 mm	SA = SEAT BACK ANGLE	22 5 deg	22 5 deg
CS = STEERING WHEEL TO CHEST	272 mm	N/A	SCA = STEERING COLUMN ANGLE		24 0 deg
HZ = HEAD TO ROOF	168 mm	144 mm	SWA = STEERING WHEEL ANGLE		67 0 deg
HH = HEAD TO HEADER	320 mm	342 mm	WA = WINDSHIELD ANGLE		25 0 deg
HW = HEAD TO WINDSHIELD	600 mm	610 mm			
NR = NOSE TO RIM	352 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	120 mm	105 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	36 0 deg			
SH = STRIKER TO Hpt	260 mm	260 mm			
SHA = STRIKER TO Hpt ANGLE (wrt horiz.)	27 0 deg	24 0 deg			
SK = STRIKER TO KNEE	628 mm	630 mm			
SKA = STRIKER TO KNEE ANGLE (wrt horiz.)	2 0 deg	1 0 deg			
ST = STRIKER TO HEAD	540 mm	574 mm			
STA = STRIKER TO HEAD ANGLE (wrt horiz.)	76 0 deg	81 0 deg			
HptX = Hpt X (to seat mount bolt)	193 mm	189 mm			
HptZ = Hpt Z (to seat mount bolt)	222 mm	229 mm			
LATERAL CLEARANCE MEASUREMENTS					
	DRIVER DUMMY	PASSENGER DUMMY			
AD = ARM TO DOOR	88 mm	97 mm			
HD = Hpt TO DOOR	195 mm	193 mm			
HR = HEAD TO SIDE HEADER	198 mm	200 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)	210 mm	215 mm			

COMMENTS

DRIVER HIII-50TH PERCENTILE / PASSENGER THOR

*FEMUR ANGLE 16 0°

FORM COMPLETED BY BN

CHECKED BY MK

OCCUPANT INTERIOR CLEARANCE SUMMARY

PROJECT NO	PH06608	PROJECT NAME	VOLPE CRASH TESTING TASK ORDER 1	TEST DATE	9/14/01
VEHICLE YEAR	2001	VEHICLE MAKE	FORD	VEHICLE MODEL	F-150
VEHICLE BODY STYLE	2-DOOR PICKUP		VEHICLE COLOR	WHITE	
VEHICLE IDENTIFICATION NUMBER	1FTRF17W71NA65535				

FORE / AFT CLEARANCE MEASUREMENTS			VEHICLE MEASUREMENTS	
	DRIVER DUMMY	PASSENGER DUMMY	DRIVER	PASSENGER
CD = CHEST TO DASH	572 mm	N/A mm	SA = SEAT BACK ANGLE	25 0 deg N/A deg
CS = STEERING WHEEL TO CHEST	295 mm	N/A	SCA = STEERING COLUMN ANGLE	20 0 deg
HZ = HEAD TO ROOF	212 mm	N/A mm	SWA = STEERING WHEEL ANGLE	70 0 deg
HH = HEAD TO HEADER	384 mm	N/A mm	WA = WINDSHIELD ANGLE	34 0 deg
HW = HEAD TO WINDSHIELD	592 mm	N/A mm		
NR = NOSE TO RIM	380 mm	N/A		
NA = NOSE TO RIM ANGLE	20 0 deg	N/A		
HA = HEAD ANGLE	0 0 deg	N/A deg		
KDL = LEFT KNEE TO DASH	170 mm	N/A mm		
KDR = RIGHT KNEE TO DASH	175 mm	N/A mm		
KDA = KNEE (outboard) TO DASH ANGLE	28 0 deg	N/A deg		
PA = PELVIS ANGLE (FEMUR)	10 0 deg	N/A deg		
TA = TIBIA ANGLE	47 0 deg	N/A deg		
SH = STRIKER TO Hpt	NR* mm	N/A mm		
SHA = STRIKER TO Hpt ANGLE (wrt horiz.)	NR* deg	N/A deg		
SK = STRIKER TO KNEE	750 mm	N/A mm		
SKA = STRIKER TO KNEE ANGLE (wrt horiz.)	10 0 deg	N/A deg		
ST = STRIKER TO HEAD	670 mm	N/A mm		
STA = STRIKER TO HEAD ANGLE (wrt horiz.)	70 0 deg	N/A deg		
HptX = Hpt X (to seat mount bolt)	NR* mm	N/A mm		
HptZ = Hpt Z (to seat mount bolt)	NR* mm	N/A mm		

LATERAL CLEARANCE MEASUREMENTS		
	DRIVER DUMMY	PASSENGER DUMMY
AD = ARM TO DOOR	127 mm	N/A mm
HD = Hpt TO DOOR	NR* mm	N/A mm
HR = HEAD TO SIDE HEADER	226 mm	N/A mm
HS = HEAD TO SIDE WINDOW	N/A mm	N/A mm
KK = KNEE TO KNEE (OUTER FLANGES)	269 mm	N/A mm
SHY = STRIKER TO Hpt (Y)	NR* mm	N/A mm

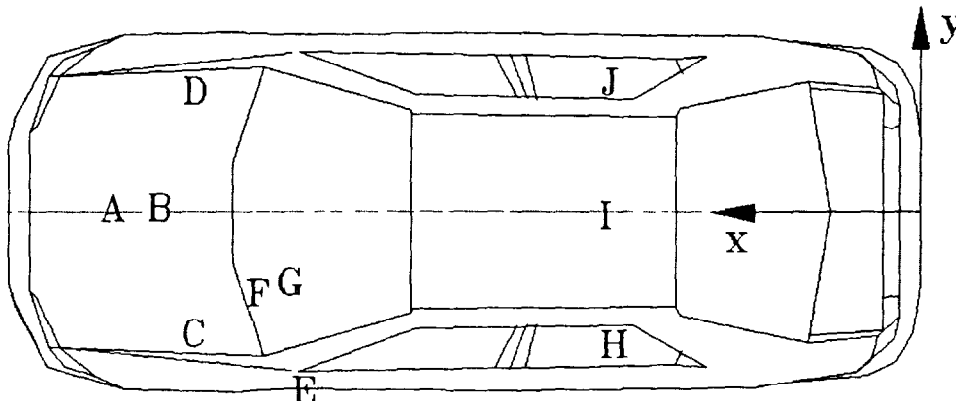
COMMENTS

*H-PT MEASUREMENTS NOT POSSIBLE ON HII-50TH PERCENTILE

FORM COMPLETED BY CCR CHECKED BY MK

VEHICLE TRANSDUCER LOCATION RECORD

PROJECT NO	PH06608	PROJECT NAME	VOLPE CRASH TESTING TASK ORDER 1	TEST DATE	9/14/01
VEHICLE YEAR	2001	VEHICLE MAKE	DODGE	VEHICLE MODEL	NEON
VEHICLE IDENTIFICATION NUMBER	1B3ES46C71D112928				

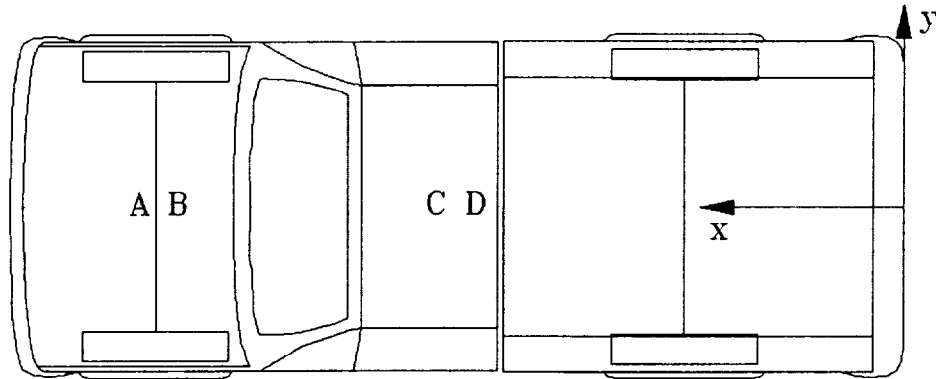


NOTE Z-DIMENSION MEASURED POSITIVE UP FROM GROUND

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	3713	3560	-153	124	123	-1	744	782	38
B Bottom of Engine - Ax, Ay	3687	3532	-155	-46	-78	-32	256	340	84
C Left Shock Tower - Ax, Ay, Az	3529	3158	-371	-478	-400	78	792	842	50
D Right Shock Tower - Ax, Ay, Az	3535	3523	-12	487	461	-26	783	789	6
E Left A-Pillar, Top Hinge - Ax	3059	2750	-309	-744	-658	86	758	747	-11
F Driver Side Toe Pan - Ax, Ay, Az	3210	2981	-229	-297	-274	23	283	332	49
G Brake Pedal - Ax, Ay, Az	3107	2844	-263	-324	-290	34	387	418	31
H Left Rear Compartment - Ax, Ay	1656	1655	-1	-599	-598	1	292	281	-11
I Center Rear Compartment - Ax, Az	1694	1694	0	-6	-6	0	335	335	0
J Right Rear Compartment - Ax, Ay	1659	1687	28	596	588	-8	301	300	-1
K									
L									

VEHICLE TRANSDUCER LOCATION RECORD

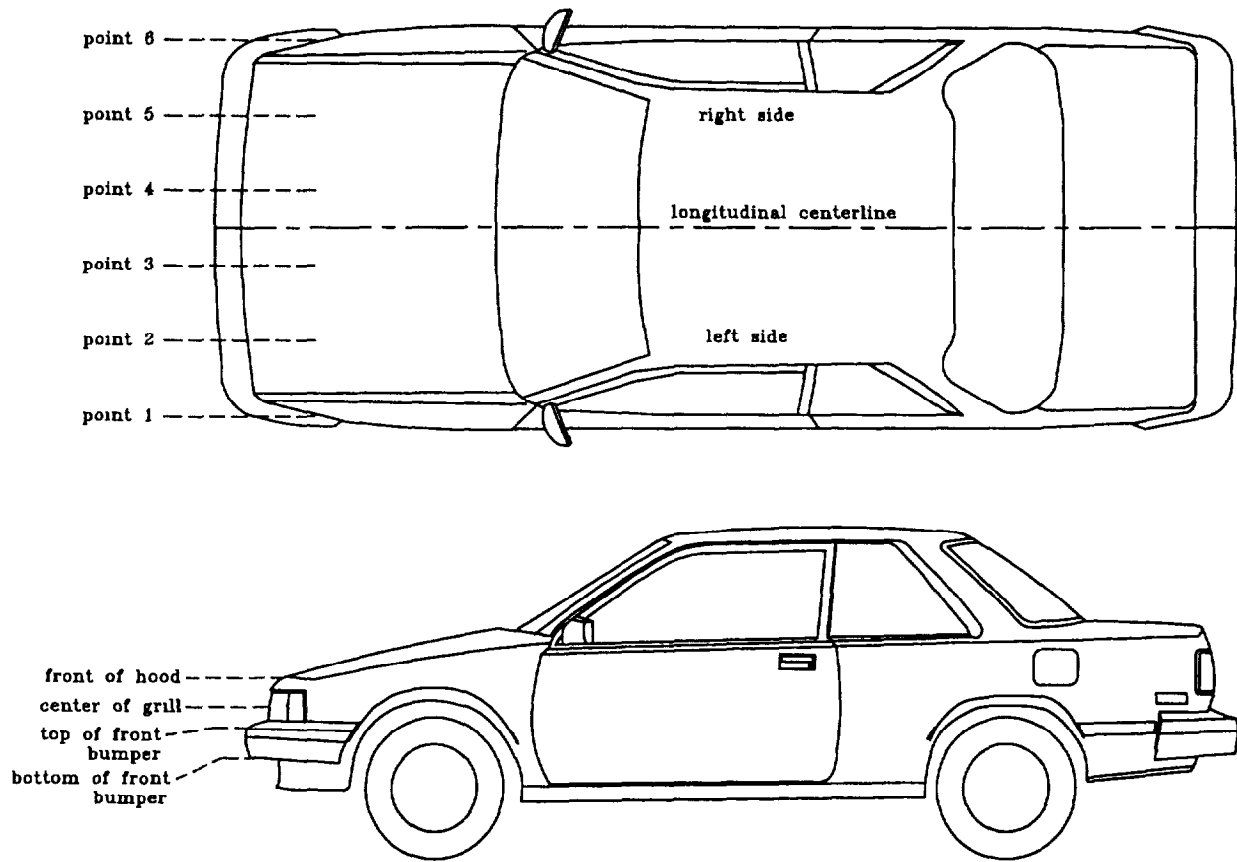
PROJECT NO	PH06608	PROJECT NAME	VOLPE CRASH TESTING TASK ORDER 1	TEST DATE	9/14/01
VEHICLE YEAR	2001	VEHICLE MAKE	FORD	VEHICLE MODEL	F-150
VEHICLE IDENTIFICATION NUMBER	1FTRF17W71NA65535				



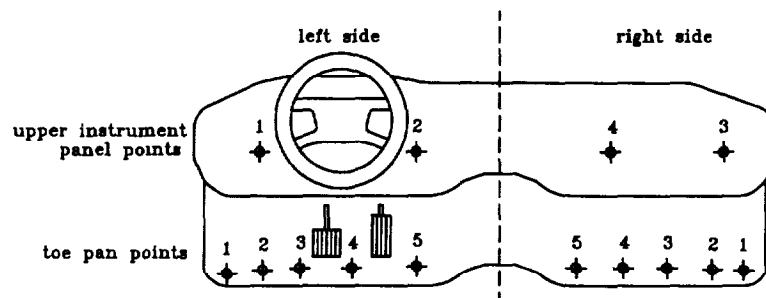
NOTE Z-DIMENSION MEASURED POSITIVE UP FROM GROUND

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	4220	4188	-32	117	82	-35	1041	1065	24
B	Bottom of Engine - Ax, Ay	3895	3856	-39	-181	-244	-63	541	634	93
C	Center Rear Compart - Ax, Ay, Az	2485	2478	-7	-7	-8	-1	682	678	-4
D	Center Rear Compart - Ax (redundant)	2385	2381	-4	-9	-7	2	687	659	-28
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
(page 1 of 2)

PROJECT NO	PH06608	PROJECT NAME	VOLPE CRASH TESTING TASK ORDER 1	TEST DATE	9/14/01
VEHICLE YEAR	2001	VEHICLE MAKE	DODGE	VEHICLE MODEL	NEON
VEHICLE IDENTIFICATION NUMBER	1B3ES46C71D112928				

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	4258	4346	4392	4391	4346	4262
	Y	-633	-379	-126	121	377	631
	Z	250	250	252	255	255	256
TOP OF FRONT BUMPER	X	4266	4350	4397	4398	4353	4271
	Y	-632	-380	-127	120	376	630
	Z	479	481	483	484	485	486
CENTER OF GRILL	X	4179	4268	4311	4312	4271	4181
	Y	-632	-378	-126	122	377	632
	Z	550	558	553	556	558	559
FRONT OF HOOD	X	4035	4259	4308	4309	4261	4037
	Y	-634	-380	-126	120	378	633
	Z	721	596	597	601	603	730

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	3762	3958	4117	4235	4290	4288
	Y	-687	-504	-306	-88	163	431
	Z	353	331	321	313	319	332
TOP OF FRONT BUMPER	X	3685	3924	4083	4202	4279	4278
	Y	-586	-490	-288	-73	166	431
	Z	493	501	519	539	561	563
CENTER OF GRILL	X	NM	NM	NM	NM	4265	4203
	Y	NM	NM	NM	NM	195	458
	Z	NM	NM	NM	NM	702	671
FRONT OF HOOD	X	3394	3593	3822	3947	4021	3913
	Y	-535	-330	-226	-16	230	550
	Z	993	808	866	922	969	1107

VEHICLE FRONTAL CRUSH PROFILE

(page 2 of 2)

PROJECT NO	PH06608	PROJECT NAME	VOLPE CRASH TESTING TASK ORDER 1			TEST DATE	9/14/01
VEHICLE YEAR	2001	VEHICLE MAKE	DODGE			VEHICLE MODEL	NEON
VEHICLE IDENTIFICATION NUMBER		1B3ES46C71D112928					
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	-496	-388	-275	-156	-56	26
	Y	-54	-125	-180	-209	-214	-200
	Z	103	81	69	58	64	76
TOP OF FRONT BUMPER	X	-581	-426	-314	-196	-74	7
	Y	46	-110	-161	-193	-210	-199
	Z	14	20	36	55	76	77
CENTER OF GRILL	X	NM	NM	NM	NM	-6	22
	Y	NM	NM	NM	NM	-182	-174
	Z	NM	NM	NM	NM	144	112
FRONT OF HOOD	X	-641	-666	-486	-362	-240	-124
	Y	99	50	-100	-136	-148	-83
	Z	272	212	269	321	366	377
COMMENTS							
NM - NOT MEASURED DUE TO DAMAGE							
				FORM COMPLETED BY	JS	CHECKED BY	MK

VEHICLE FRONTAL CRUSH PROFILE
(page 1 of 2)

PROJECT NO	PH06608	PROJECT NAME	VOLPE CRASH TESTING TASK ORDER 1	TEST DATE	9/14/01
VEHICLE YEAR	2001	VEHICLE MAKE	FORD	VEHICLE MODEL	F-150
VEHICLE IDENTIFICATION NUMBER	1FTRF17W71NA65535				

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	5032	5164	5211	5214	5167	5040
	Y	-765	-459	-156	159	463	771
	Z	502	516	535	540	529	516
TOP OF FRONT BUMPER	X	5033	5160	5210	5212	5163	5044
	Y	-765	-460	-155	157	463	769
	Z	619	618	621	624	626	627
CENTER OF GRILL	X	4917	5066	5093	5093	5068	4914
	Y	-767	-461	-156	157	463	779
	Z	779	781	780	783	785	788
FRONT OF HOOD	X	4849	5020	5069	5069	5019	4872
	Y	-764	-461	-156	156	463	760
	Z	983	988	997	999	994	1015

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	4358	4457	4653	4839	5078	5254
	Y	-918	-628	-398	-172	60	338
	Z	496	573	591	606	624	608
TOP OF FRONT BUMPER	X	4364	4488	4632	4813	5043	5223
	Y	-941	-647	-383	-158	83	355
	Z	611	665	676	687	714	715
CENTER OF GRILL	X	4454	4509	4694	4888	5028	4925
	Y	-900	-578	-359	-113	194	523
	Z	683	814	807	810	835	838
FRONT OF HOOD	X	4574	4767	4867	4941	4963	4849
	Y	-978	-708	-421	-118	222	555
	Z	1149	1044	1023	1023	1036	1077

VEHICLE FRONTAL CRUSH PROFILE
(page 2 of 2)

PROJECT NO	PH06608	PROJECT NAME	VOLPE CRASH TESTING TASK ORDER 1			TEST DATE	9/14/01
VEHICLE YEAR	2001	VEHICLE MAKE	FORD			VEHICLE MODEL	F-150
VEHICLE IDENTIFICATION NUMBER		1FTRF17W71NA65535					

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	-674	-707	-558	-375	-89	214
	Y	-153	-169	-242	-331	-403	-433
	Z	-6	57	56	66	95	92
TOP OF FRONT BUMPER	X	-669	-672	-578	-399	-120	179
	Y	-176	-187	-228	-315	-380	-414
	Z	-8	47	55	63	88	88
CENTER OF GRILL	X	-463	-557	-399	-205	-40	11
	Y	-133	-117	-203	-270	-269	-256
	Z	-96	33	27	27	50	50
FRONT OF HOOD	X	-275	-253	-202	-128	-56	-23
	Y	-214	-247	-265	-274	-241	-205
	Z	166	56	26	24	42	62

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	9/14/01
VEHICLE YEAR	2001	VEHICLE MAKE	DODGE	VEHICLE MODEL	NEON
VEHICLE IDENTIFICATION NUMBER	1B3ES46C71D112928				

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	3165	3196	3264	3262	3282
	Y	-572	-509	-439	-302	-148
	Z	235	257	300	303	326
POST-TEST	X	2999	2977	3026	3003	NM
	Y	-520	-451	-390	-274	NM
	Z	283	298	343	343	NM
DIFFERENCE	X	-166	-219	-238	-259	NM
	Y	52	58	49	28	NM
	Z	48	41	43	40	NM

MEASUREMENT COMMENTS

TOE PAN - RIGHT SIDE (mm)

		PT 1	PT 2	PT 3	PT 4	PT 5
PRE-TEST	X	3173	3217	3258	3255	3253
	Y	550	491	419	314	211
	Z	256	282	309	307	304
POST-TEST	X	3178	3220	3259	3252	3221
	Y	527	468	395	292	206
	Z	264	290	317	317	340
DIFFERENCE	X	5	3	1	-3	-32
	Y	-23	-23	-24	-22	-5
	Z	8	8	8	10	36

MEASUREMENT COMMENTS

VEHICLE INTRUSION MEASUREMENTS
(page 2 of 2)

PROJECT NO	PH06608	PROJECT NAME	VOLPE CRASH TESTING TASK ORDER 1	TEST DATE	9/14/01
VEHICLE YEAR	2001	VEHICLE MAKE	DODGE	VEHICLE MODEL	NEON
VEHICLE IDENTIFICATION NUMBER	1B3ES46C71D112928				

UPPER INSTRUMENT PANEL MEASUREMENTS (mm)					
		LEFT SIDE		RIGHT SIDE	
		PT 1	PT 2	PT 3	PT 4
PRE-TEST	X	2775	2763	2774	2765
	Y	-553	-161	499	198
	Z	688	703	696	700
POST-TEST	X	2535	2590	2747	2693
	Y	-430	-38	568	281
	Z	639	658	666	680
DIFFERENCE	X	-240	-173	-27	-72
	Y	123	123	69	83
	Z	-49	-45	-30	-20
MEASUREMENT COMMENTS					
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	3107	-975	-965
	Y	-324	10	16
	Z	387	-141	215
POST-TEST	X	2844	-697	-794
	Y	-290	-86	-27
	Z	418	-148	191
DIFFERENCE	X	-263	278	171
	Y	34	-96	-43
	Z	31	-7	-24
MEASUREMENT COMMENTS				
* DRIVER SIDE				

COMMENTS
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	9/14/01
VEHICLE YEAR	2001	VEHICLE MAKE	FORD	VEHICLE MODEL	F-150
VEHICLE IDENTIFICATION NUMBER	1FTRF17W71NA65535				

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	3736	3786	3737	3733	3732
	Y	-699	-594	-494	-393	-290
	Z	564	591	567	565	565
POST-TEST	X	3525	3594	3590	3635	NM
	Y	-669	-583	-474	-435	NM
	Z	634	678	639	620	NM
DIFFERENCE	X	-211	-192	-147	-98	NM
	Y	30	11	20	-42	NM
	Z	70	87	72	55	NM
MEASUREMENT COMMENTS						

TOE PAN - RIGHT SIDE (mm)

		PT 1	PT 2	PT 3	PT 4	PT 5
PRE-TEST	X	3770	3793	3763	3760	3756
	Y	700	598	498	396	293
	Z	577	589	575	575	571
POST-TEST	X	3777	3795	3757	3738	3726
	Y	632	527	428	331	229
	Z	545	553	536	550	551
DIFFERENCE	X	7	2	-6	-22	-30
	Y	-68	-71	-70	-65	-64
	Z	-32	-36	-39	-25	-20
MEASUREMENT COMMENTS						

VEHICLE INTRUSION MEASUREMENTS
(page 2 of 2)

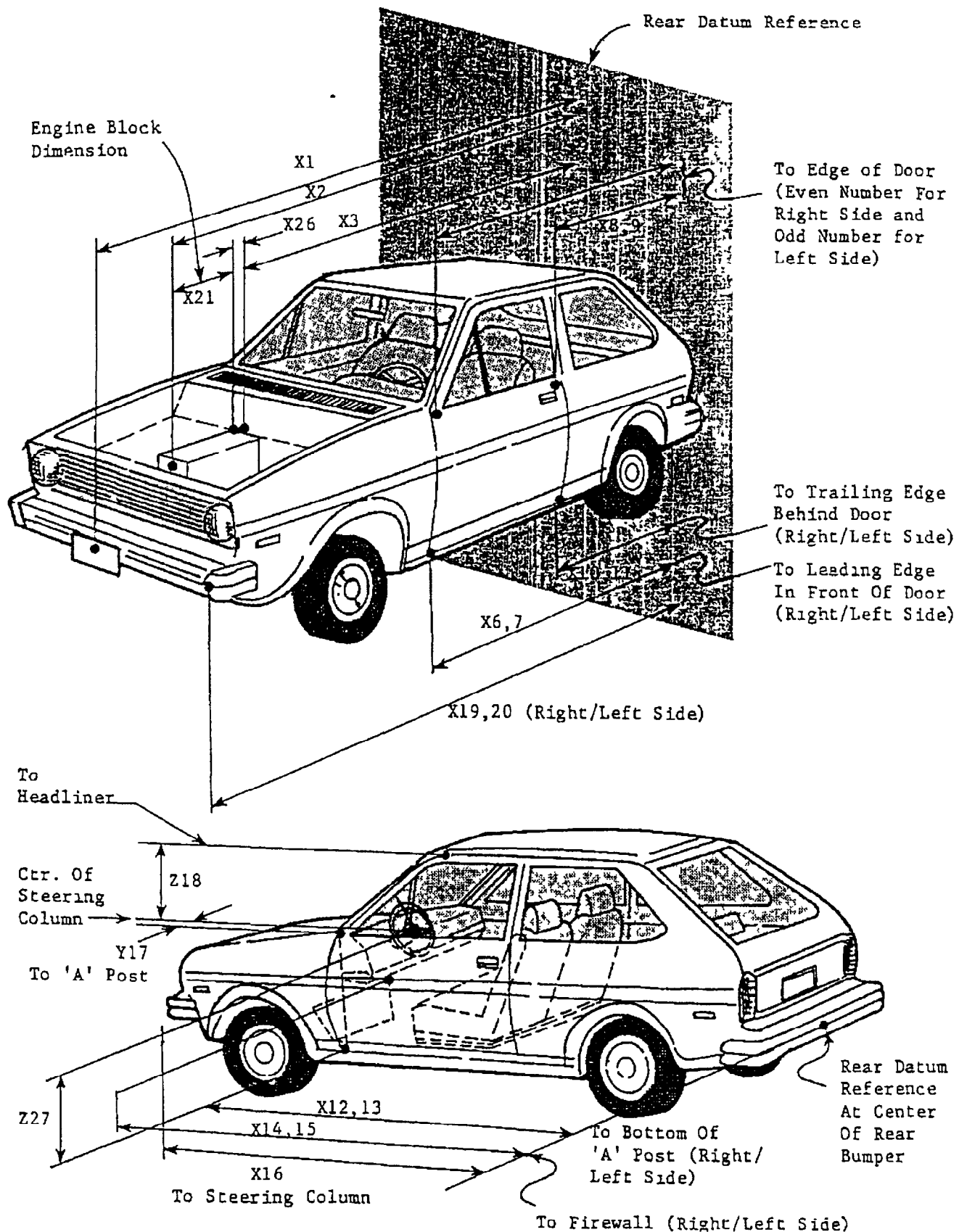
PROJECT NO	PH06608	PROJECT NAME	VOLPE CRASH TESTING TASK ORDER 1	TEST DATE	9/14/01
VEHICLE YEAR	2001	VEHICLE MAKE	FORD	VEHICLE MODEL	F-150
VEHICLE IDENTIFICATION NUMBER	1FTRF17W71NA65535				

UPPER INSTRUMENT PANEL MEASUREMENTS (mm)					
		LEFT SIDE		RIGHT SIDE	
		PT 1	PT 2	PT 3	PT 4
PRE-TEST	X	3363	3371	NM	NM
	Y	-613	-280	NM	NM
	Z	1102	1104	NM	NM
POST-TEST	X	3257	3314	NM	NM
	Y	-654	-339	NM	NM
	Z	1172	1180	NM	NM
DIFFERENCE	X	-106	-57	NM	NM
	Y	-41	-59	NM	NM
	Z	70	76	NM	NM
MEASUREMENT COMMENTS NM NOT MEASURED					
NOTE MEASUREMENT TAKEN ON UPPER IP WHERE DUMMY S KNEES CONTACT DASH					

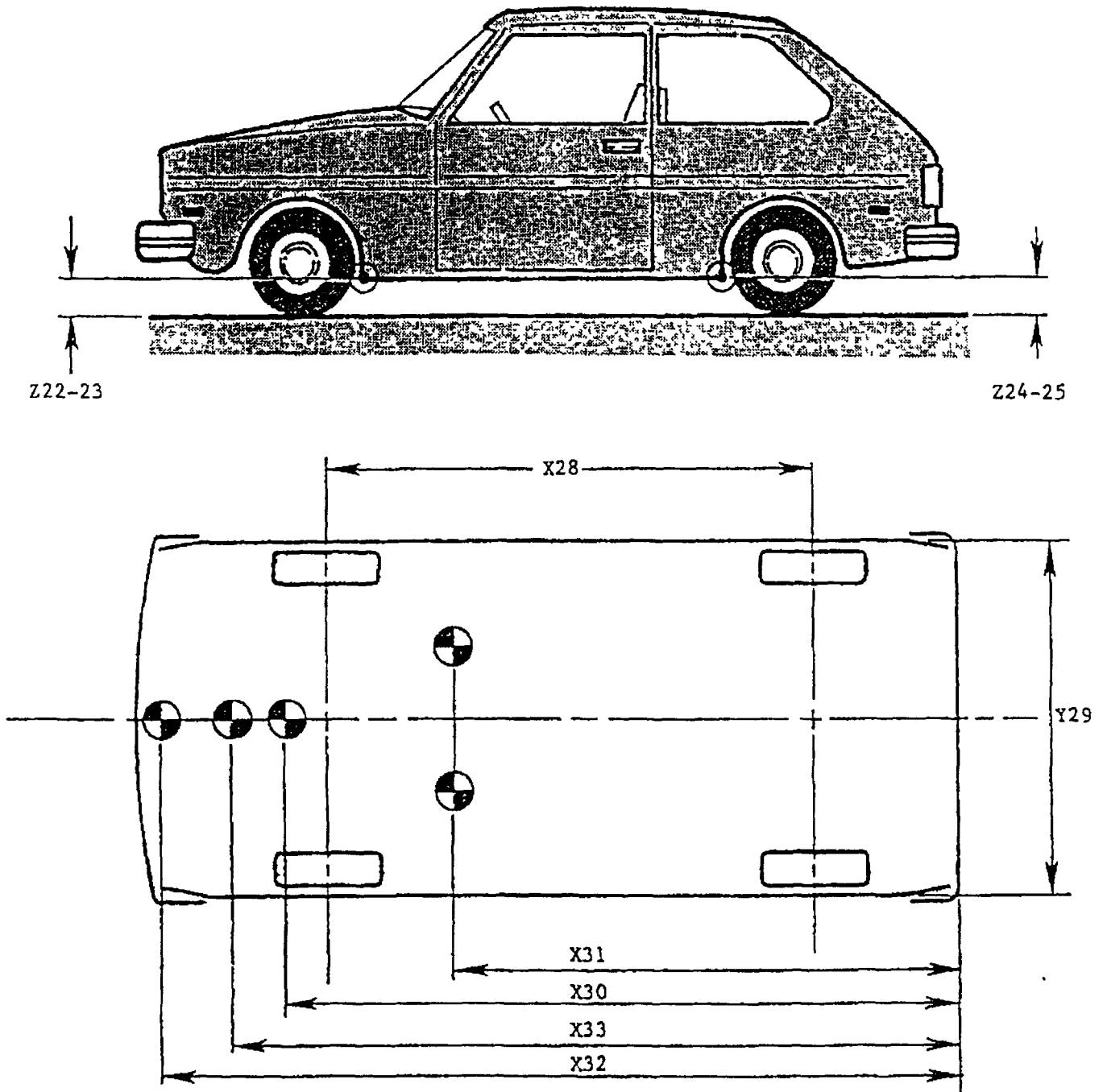
MISCELLANEOUS MEASUREMENTS (mm)				
		BRAKE PEDAL	A PILLAR HINGE TO DOOR STRIKER*	
			TOP	BOTTOM
PRE-TEST	X	3653	-1176	-1145
	Y	-454	12	35
	Z	704	-156	239
POST-TEST	X	3517	-1132	-1057
	Y	-487	101	81
	Z	769	-154	238
DIFFERENCE	X	-136	44	88
	Y	-33	89	46
	Z	65	2	-1
MEASUREMENT COMMENTS				
* DRIVER SIDE				

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	9/14/01
VEHICLE YEAR	2001	VEHICLE MAKE	DODGE	VEHICLE MODEL	NEON
VEHICLE IDENTIFICATION NUMBER	1B3ES46C71D112928				
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	4409	4195	-214
X2	REAR SURFACE OF VEHICLE TO ENGINE AT CENTERLINE	3628	3437	-191
X3	REAR SURFACE OF VEHICLE TO FIREWALL	3462	3372	-90
X4	REAR SURFACE OF VEHICLE TO LEADING EDGE OF RIGHT DOOR	3099	3123	24
X5	REAR SURFACE OF VEHICLE TO LEADING EDGE OF LEFT DOOR	3100	2788	-312
X6	REAR SURFACE OF VEHICLE TO LOWER LEADING EDGE OF RIGHT DOOR	3098	3112	14
X7	REAR SURFACE OF VEHICLE TO LOWER LEADING EDGE OF LEFT DOOR	3095	2929	-166
X8	REAR SURFACE OF VEHICLE TO UPPER TRAILING EDGE OF RIGHT DOOR	2004	2037	33
X9	REAR SURFACE OF VEHICLE TO UPPER TRAILING EDGE OF LEFT DOOR	2007	NM	NM
X10	REAR SURFACE OF VEHICLE TO LOWER TRAILING EDGE OF RIGHT DOOR	2011	2032	21
X11	REAR SURFACE OF VEHICLE TO LOWER TRAILING EDGE OF LEFT DOOR	2014	1910	-104
X12	REAR SURFACE OF VEHICLE TO BOTTOM OF "A" POST OF RIGHT SIDE	3036	3047	11
X13	REAR SURFACE OF VEHICLE TO BOTTOM OF "A" POST OF LEFT SIDE	3041	NM	NM
X14	REAR SURFACE OF VEHICLE TO FIREWALL - RIGHT SIDE	3317	3313	-4
X15	REAR SURFACE OF VEHICLE TO FIREWALL - LEFT SIDE	3309	3019	-290
X16	REAR SURFACE OF VEHICLE TO STEERING WHEEL CENTER	2729	2497	-232
Y17	STEERING COLUMN TO "A" POST	-310	-330	-20
Z18	STEERING COLUMN TO HEAD LINER	473	663	190
X19	REAR SURFACE OF VEHICLE TO RIGHT SIDE OF FRONT BUMPER	4271	4278	7
X20	REAR SURFACE OF VEHICLE TO LEFT SIDE OF FRONT BUMPER	4266	3685	-581
X21	WIDTH OF ENGINE BLOCK	224	225	1
Z22	RIGHT FRONT SILL TO GROUND PLANE	145	151	6
Z23	LEFT FRONT SILL TO GROUND PLANE	136	182	46
Z24	RIGHT REAR SILL TO GROUND PLANE	165	166	1
Z25	LEFT REAR SILL TO GROUND PLANE	154	142	-12
X26	FIREWALL TO ENGINE OR TRANSAXLE	166	65	-101
Z27	VERTICAL DIMENSION FROM DOOR SILL TO CENTERLINE OF STEERING COLUMN	-182	-267	-85
X28	WHEELBASE OF VEHICLE*	2664	2352	-312
Y29	WIDTH OF VEHICLE AT MAXIMUM WIDTH POINT	1719	1728	9
X30	REAR SURFACE OF VEHICLE TO ENGINE TARGET	3802	3664	-138
X31	REAR SURFACE OF VEHICLE TO COMPARTMENT TARGET*	2923	2817	-106
X32	REAR SURFACE OF VEHICLE TO BUMPER TARGET	4263	4064	-199
X33	REAR SURFACE OF VEHICLE TO FRAME CROSSMEMBER	3431	3342	-89

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

IMPACTED VEHICLE MEASUREMENTS

PROJECT NO	PH06608	PROJECT NAME	VOLPE CRASH TESTING TASK ORDER 1	TEST DATE	9/14/01
VEHICLE YEAR	2001	VEHICLE MAKE	FORD	VEHICLE MODEL	F-150
VEHICLE IDENTIFICATION NUMBER	1FTRF17W71NA65535				
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	5230	4725	-505
X2	REAR SURFACE OF VEHICLE TO ENGINE AT CENTERLINE	4144	4112	-32
X3	REAR SURFACE OF VEHICLE TO FIREWALL	3961	3855	-106
X4	REAR SURFACE OF VEHICLE TO LEADING EDGE OF RIGHT DOOR	3673	3709	36
X5	REAR SURFACE OF VEHICLE TO LEADING EDGE OF LEFT DOOR	3663	3599	-64
X6	REAR SURFACE OF VEHICLE TO LOWER LEADING EDGE OF RIGHT DOOR	3566	3604	38
X7	REAR SURFACE OF VEHICLE TO LOWER LEADING EDGE OF LEFT DOOR	3571	3522	-49
X8	REAR SURFACE OF VEHICLE TO UPPER TRAILING EDGE OF RIGHT DOOR	2403	2443	40
X9	REAR SURFACE OF VEHICLE TO UPPER TRAILING EDGE OF LEFT DOOR	2394	2317	-77
X10	REAR SURFACE OF VEHICLE TO LOWER TRAILING EDGE OF RIGHT DOOR	2480	2508	28
X11	REAR SURFACE OF VEHICLE TO LOWER TRAILING EDGE OF LEFT DOOR	2476	2413	-63
X12	REAR SURFACE OF VEHICLE TO BOTTOM OF "A" POST OF RIGHT SIDE	3579	3598	19
X13	REAR SURFACE OF VEHICLE TO BOTTOM OF "A" POST OF LEFT SIDE	3573	3398	-175
X14	REAR SURFACE OF VEHICLE TO FIREWALL RIGHT SIDE	3836	3801	-35
X15	REAR SURFACE OF VEHICLE TO FIREWALL LEFT SIDE	3941	3761	-180
X16	REAR SURFACE OF VEHICLE TO STEERING WHEEL CENTER	3334	3269	-65
Y17	STEERING COLUMN TO "A" POST	-338	-400	-62
Z18	STEERING COLUMN TO HEAD LINER	536	529	-7
X19	REAR SURFACE OF VEHICLE TO RIGHT SIDE OF FRONT BUMPER	5044	5223	179
X20	REAR SURFACE OF VEHICLE TO LEFT SIDE OF FRONT BUMPER	5033	4364	-669
X21	WIDTH OF ENGINE BLOCK	429	404	-25
Z22	RIGHT FRONT SILL TO GROUND PLANE	348	413	65
Z23	LEFT FRONT SILL TO GROUND PLANE	336	434	98
Z24	RIGHT REAR SILL TO GROUND PLANE	388	375	-13
Z25	LEFT REAR SILL TO GROUND PLANE	383	401	18
X26	FIREWALL TO ENGINE OR TRANSAXLE	-9	76	85
Z27	VERTICAL DIMENSION FROM DOOR SILL TO CENTERLINE OF STEERING COLUMN	-100	-77	23
X28	WHEELBASE OF VEHICLE*	3025	2558	-467
Y29	WIDTH OF VEHICLE AT MAXIMUM WIDTH POINT	1989	1983	-6
X30	REAR SURFACE OF VEHICLE TO ENGINE TARGET	3959	3916	-43
X31	REAR SURFACE OF VEHICLE TO COMPARTMENT TARGET*	3553	NM	NM
X32	REAR SURFACE OF VEHICLE TO BUMPER TARGET	5090	NM	NM
X33	REAR SURFACE OF VEHICLE TO FRAME CROSSMEMBER	4285	4168	-117

COMMENTS

* LEFT SIDE

NM - NOT MEASURED DUE TO DAMAGE

FORM COMPLETED BY JS

CHECKED BY MK

Appendix A

Photographs

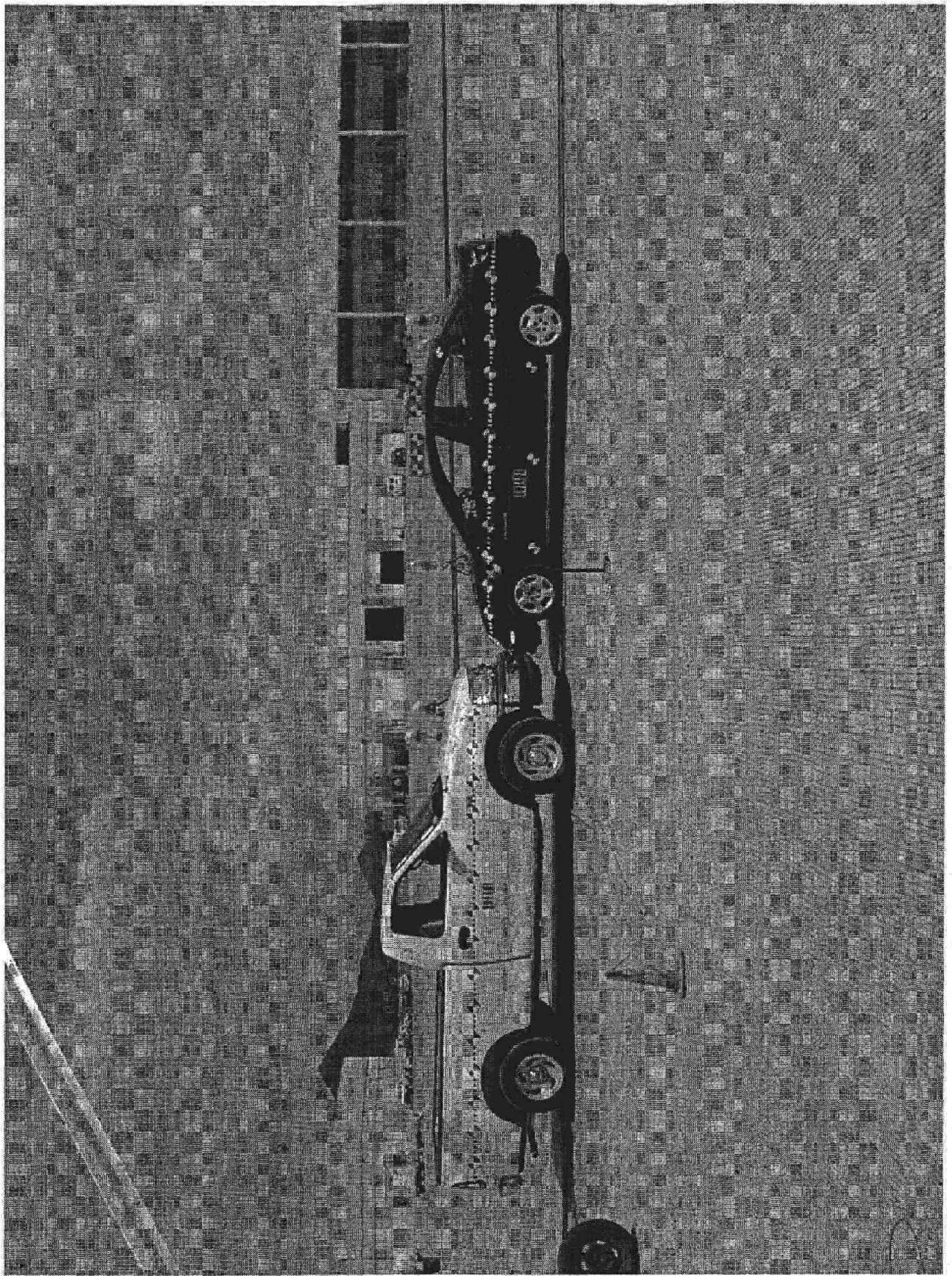


Figure A-1. Impact Configuration Left Side View

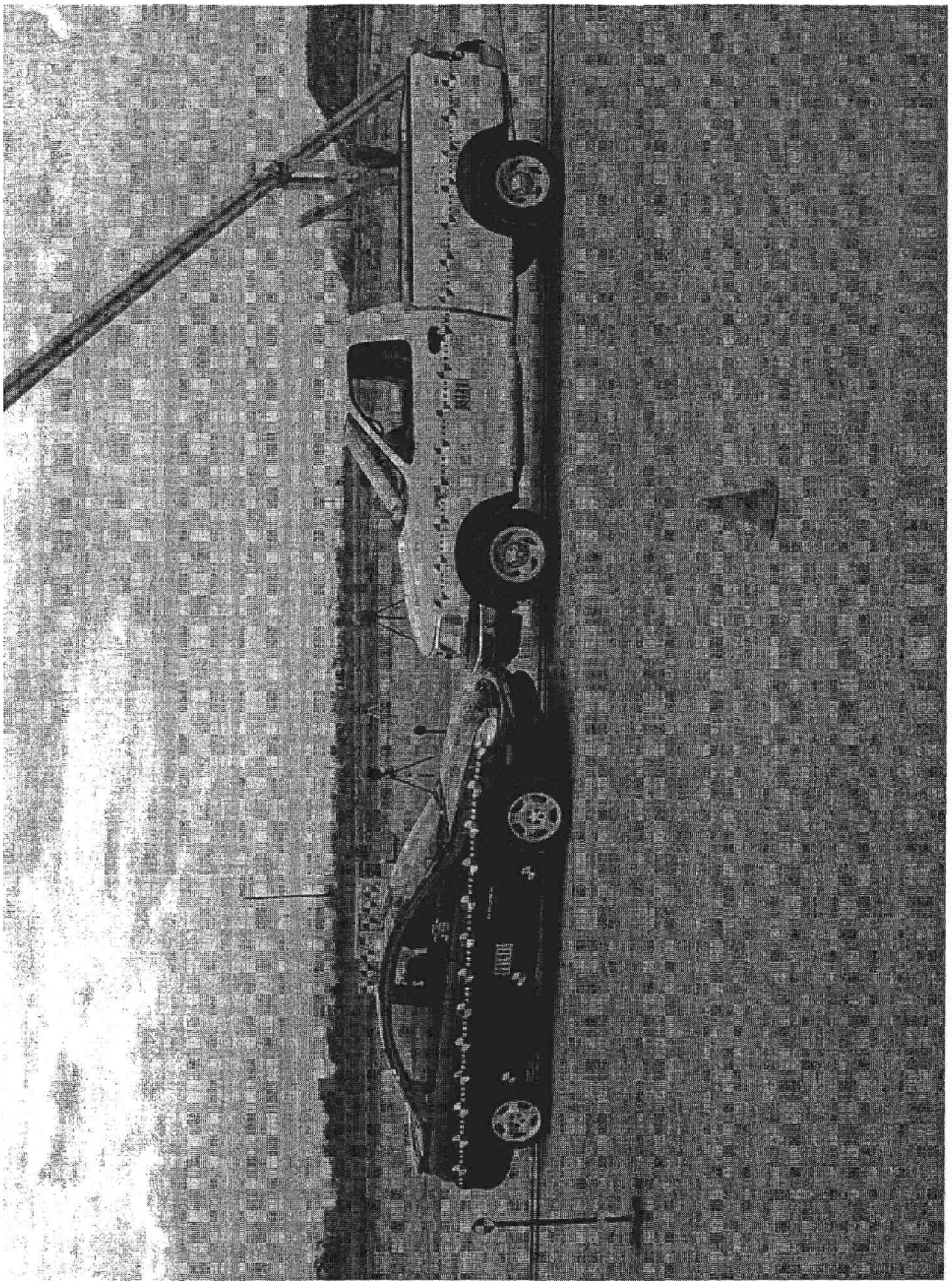


Figure A-2. Impact Configuration Right Side View

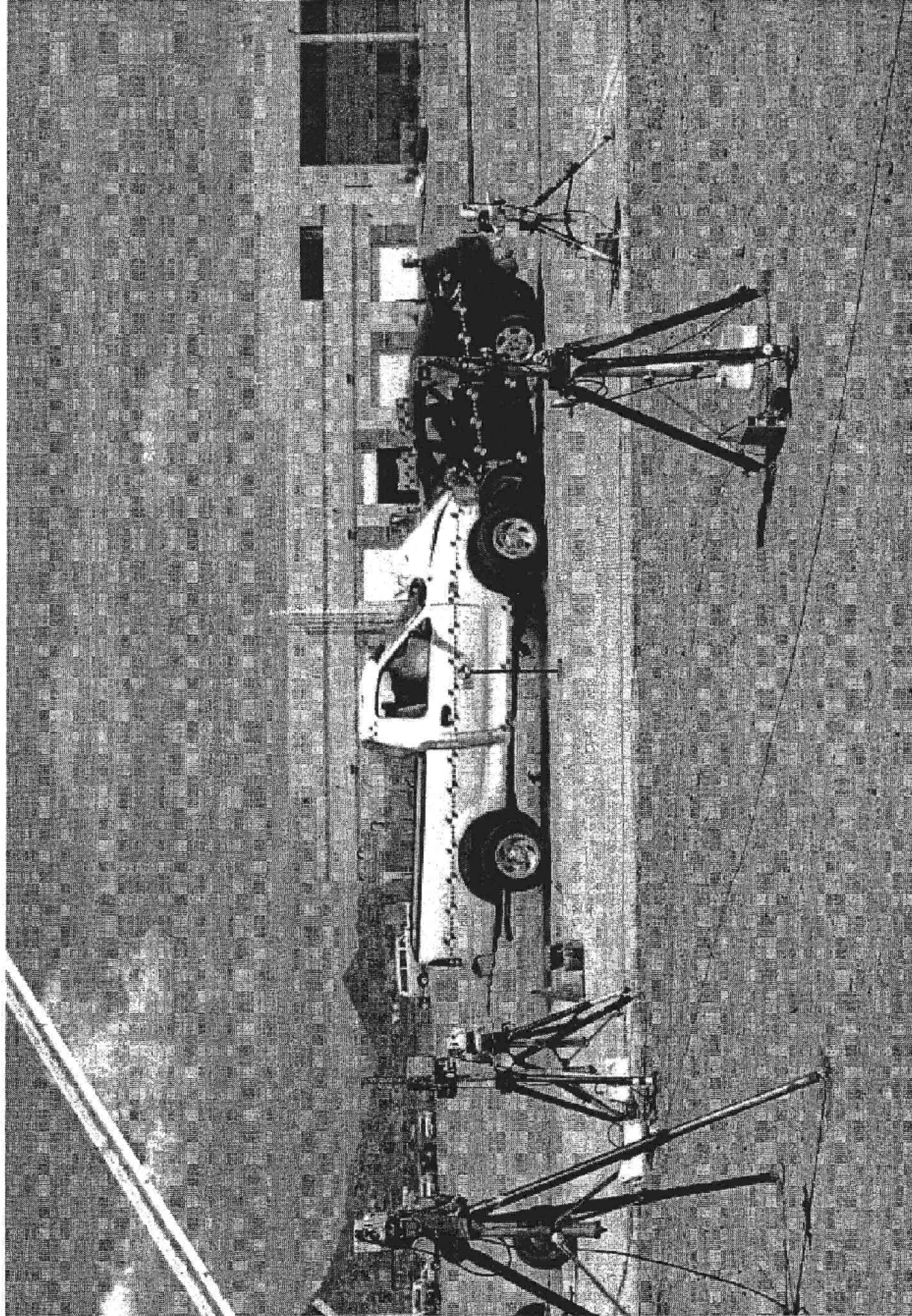


Figure A-3. Moment of Impact

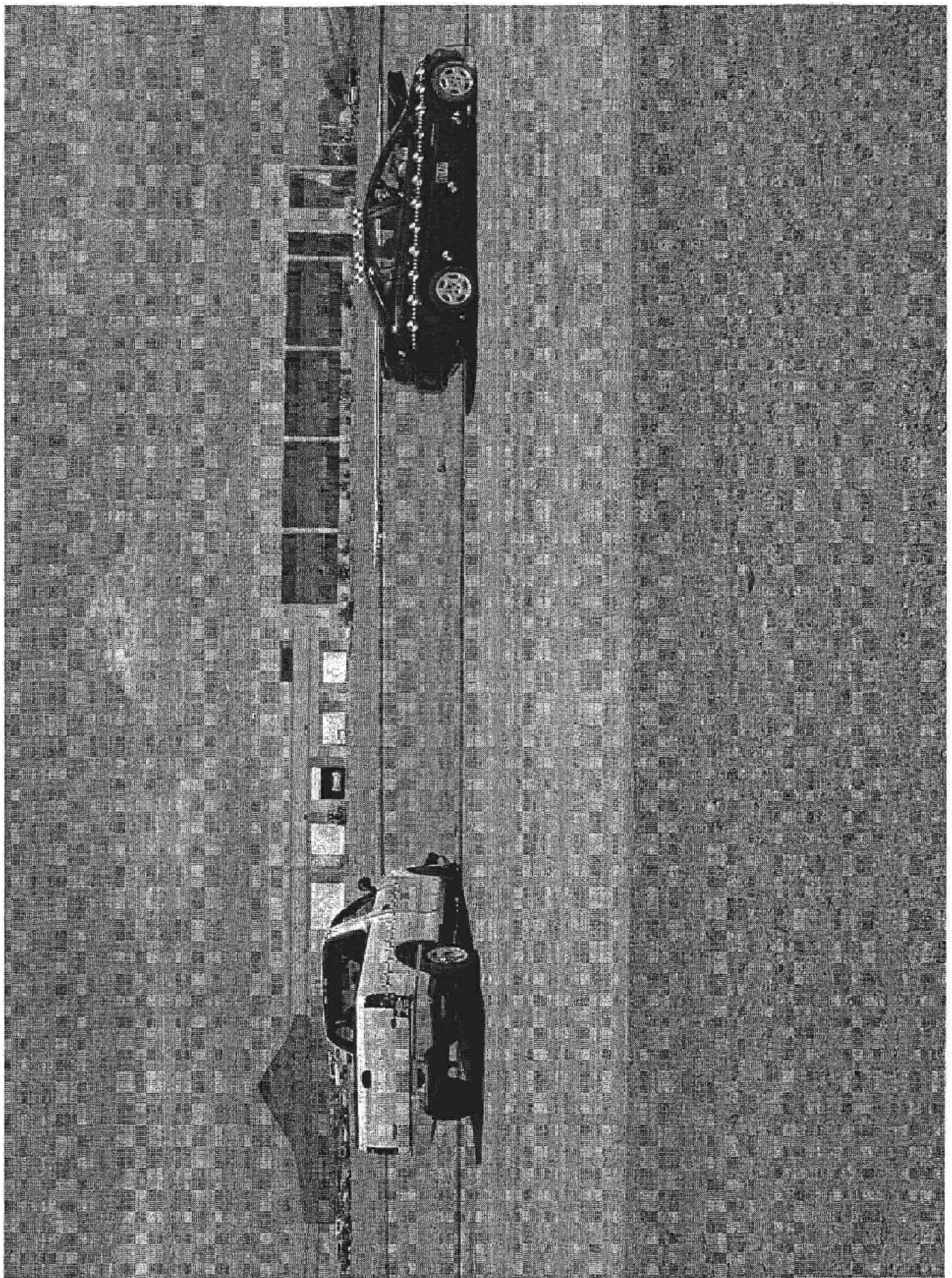


Figure A-4. Post-Test Rest Position Left Side View

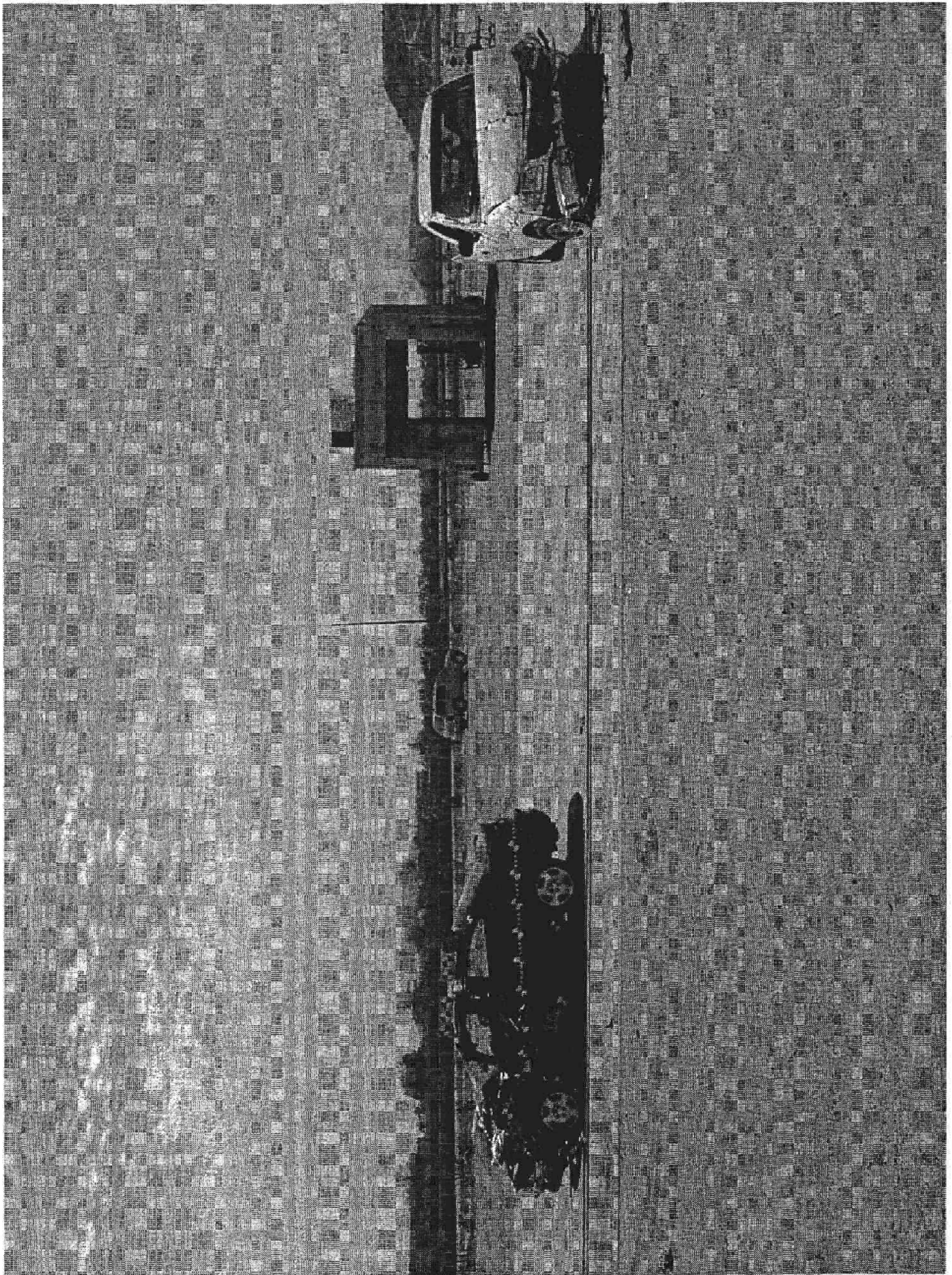


Figure A-5. Post-Test Rest Position Right Side View

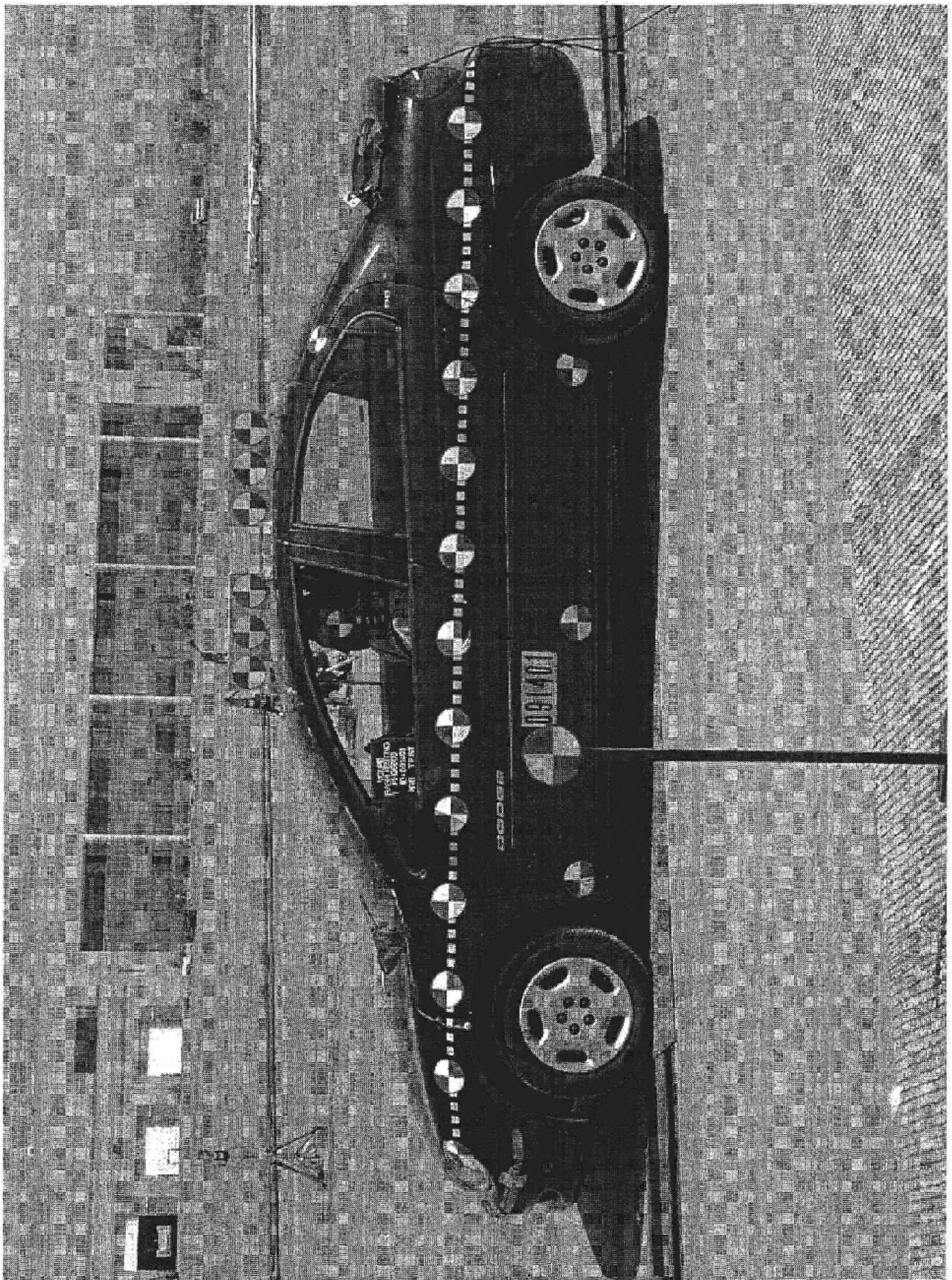


Figure A-6. Pre-Test Left Side View – 2001 Dodge Neon

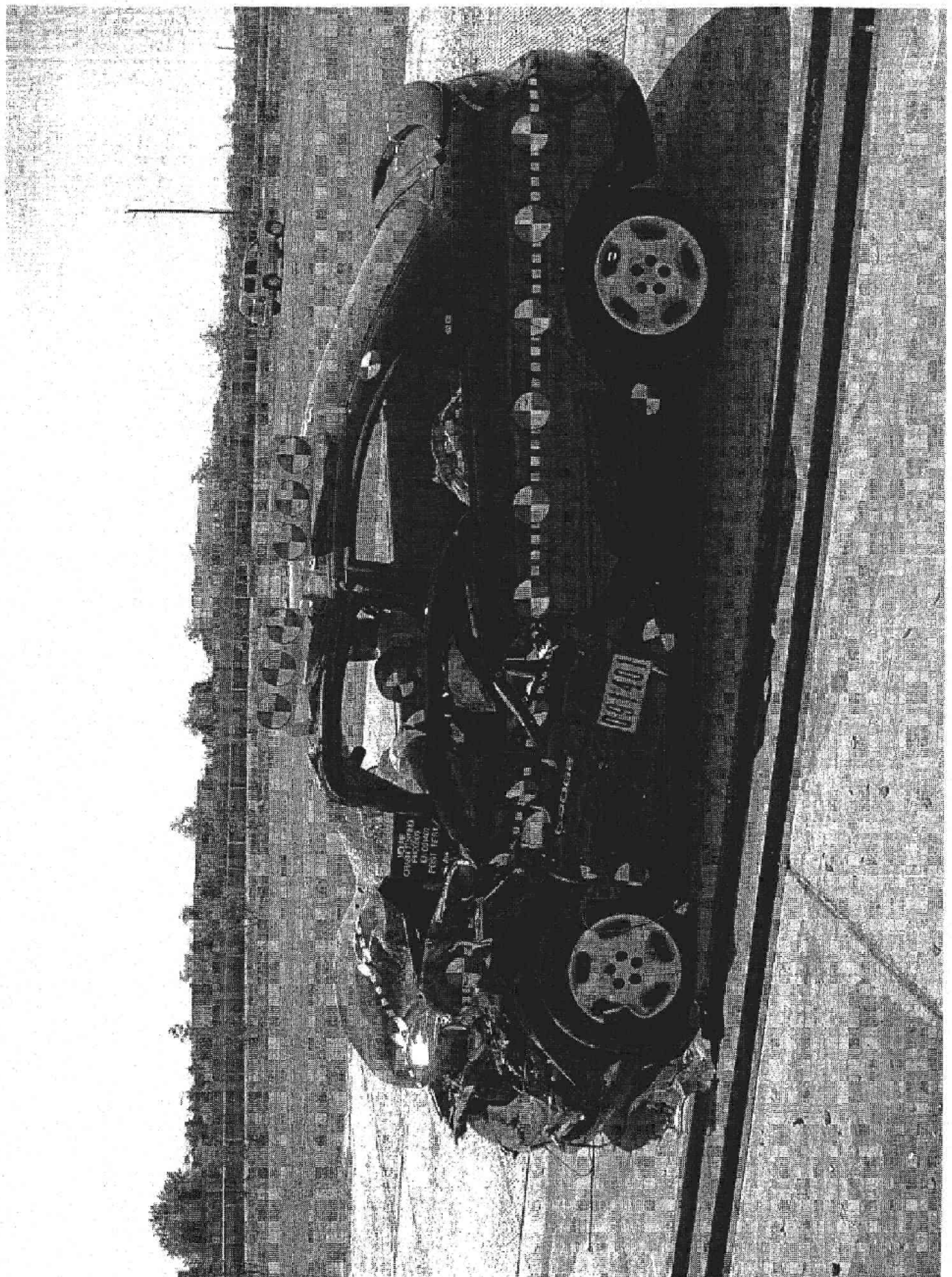


Figure A-7. Post-Test Left Side View – 2001 Dodge Neon

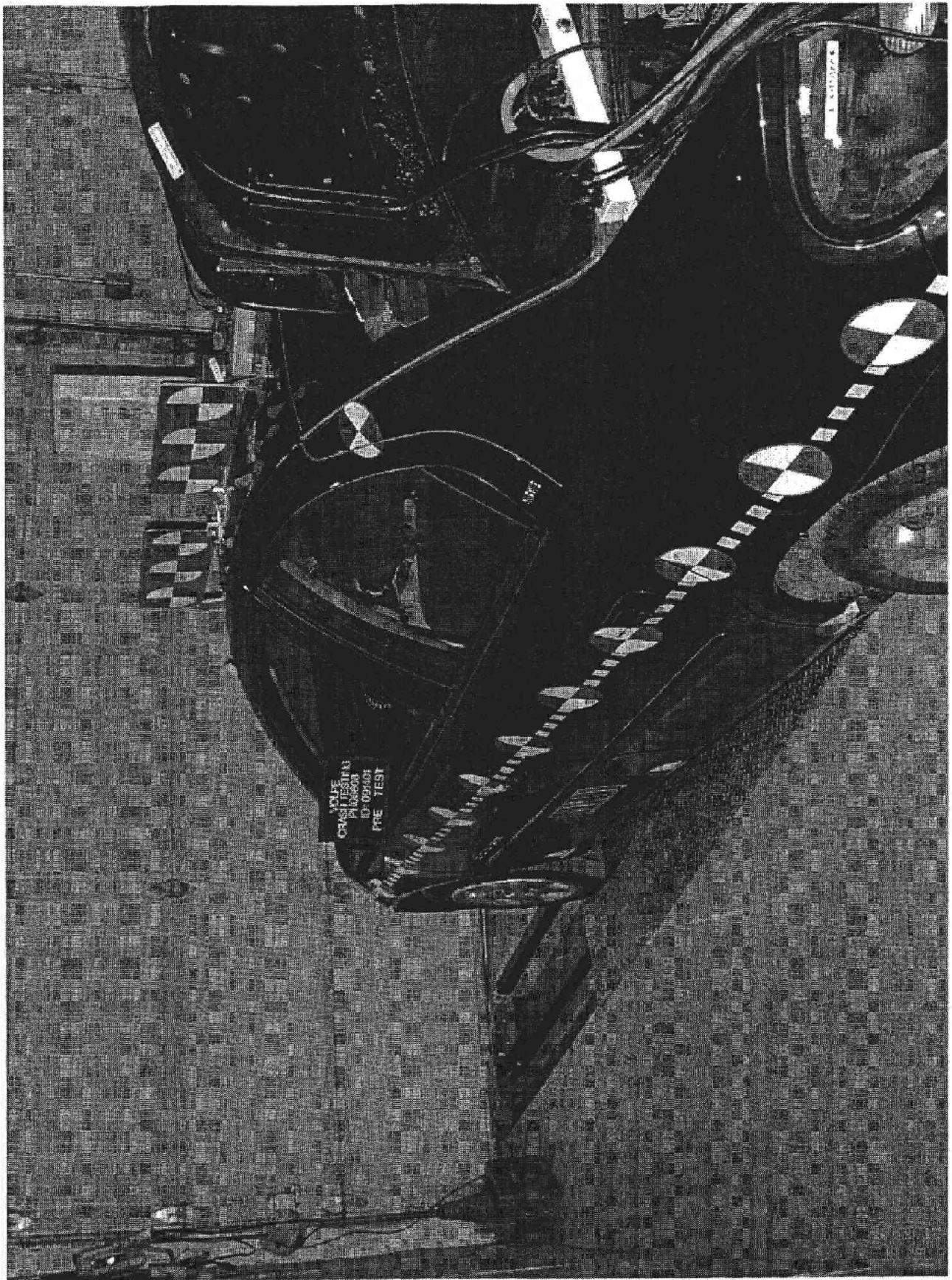


Figure A-8. Pre-Test Driver Close-up with Door Closed – 2001 Dodge Neon

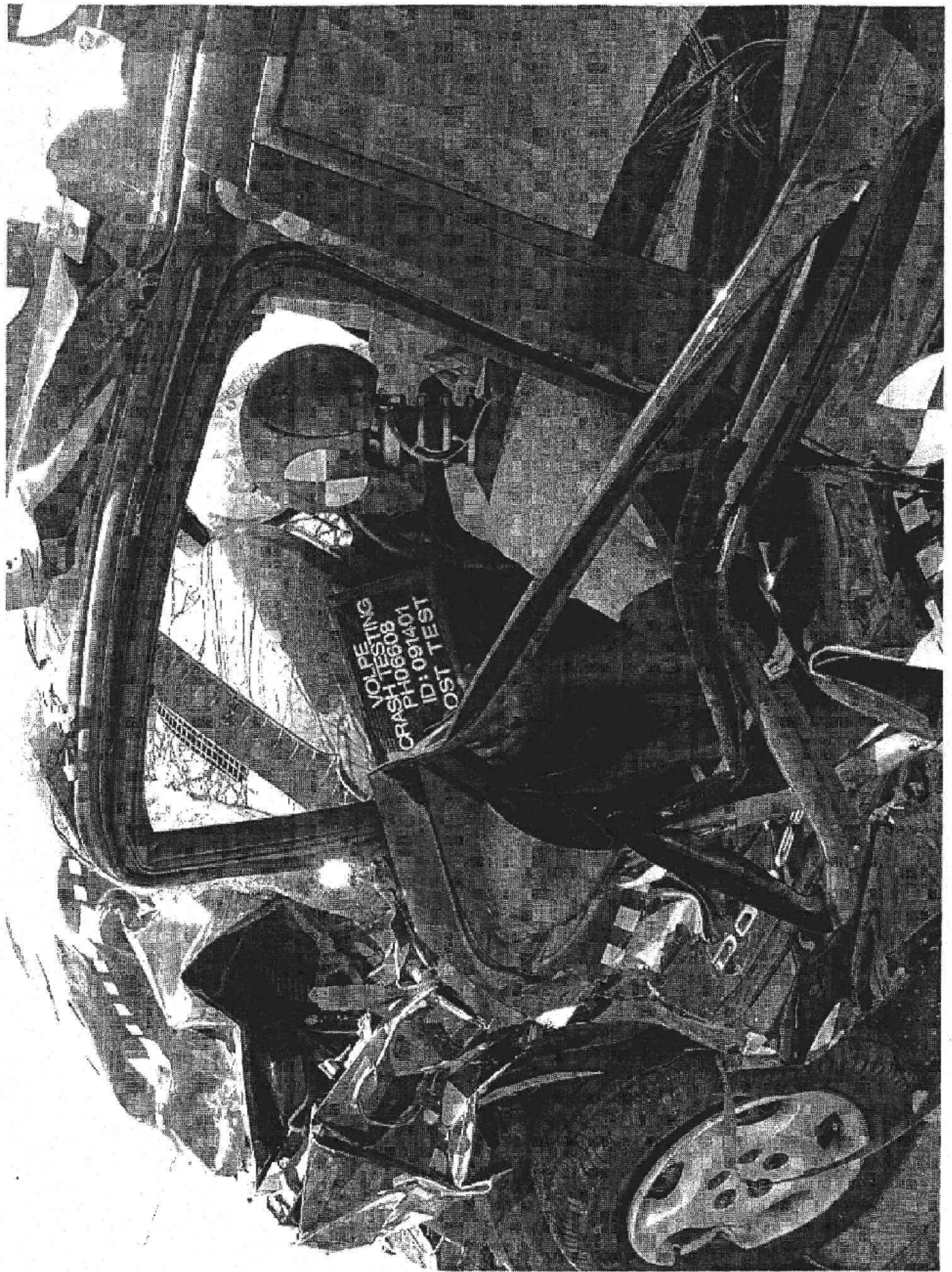


Figure A-9. Post-Test Driver Close-up with Door Closed – 2001 Dodge Neon

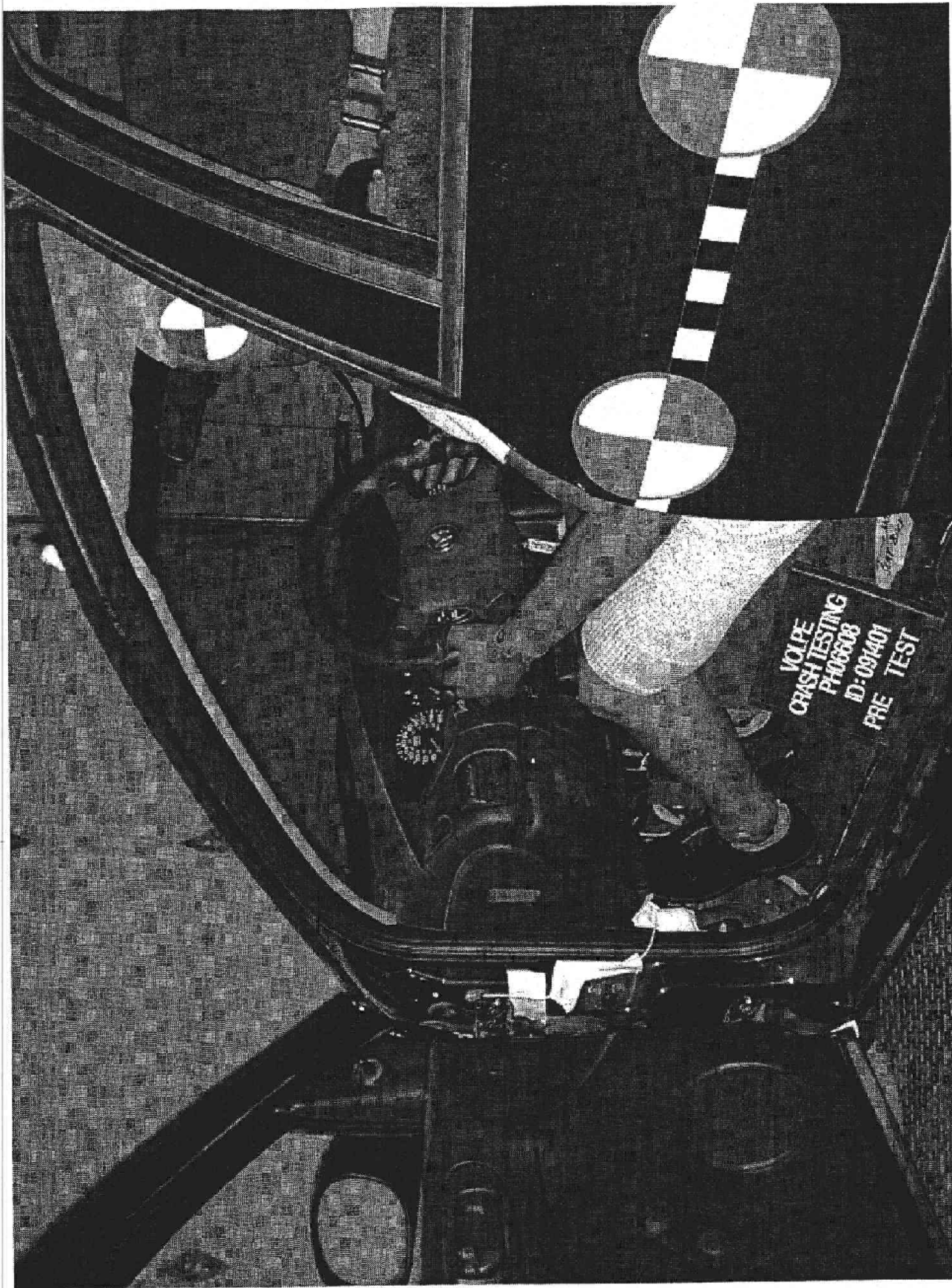


Figure A-10. Pre-Test Driver Close-up with Door Open – 2001 Dodge Neon

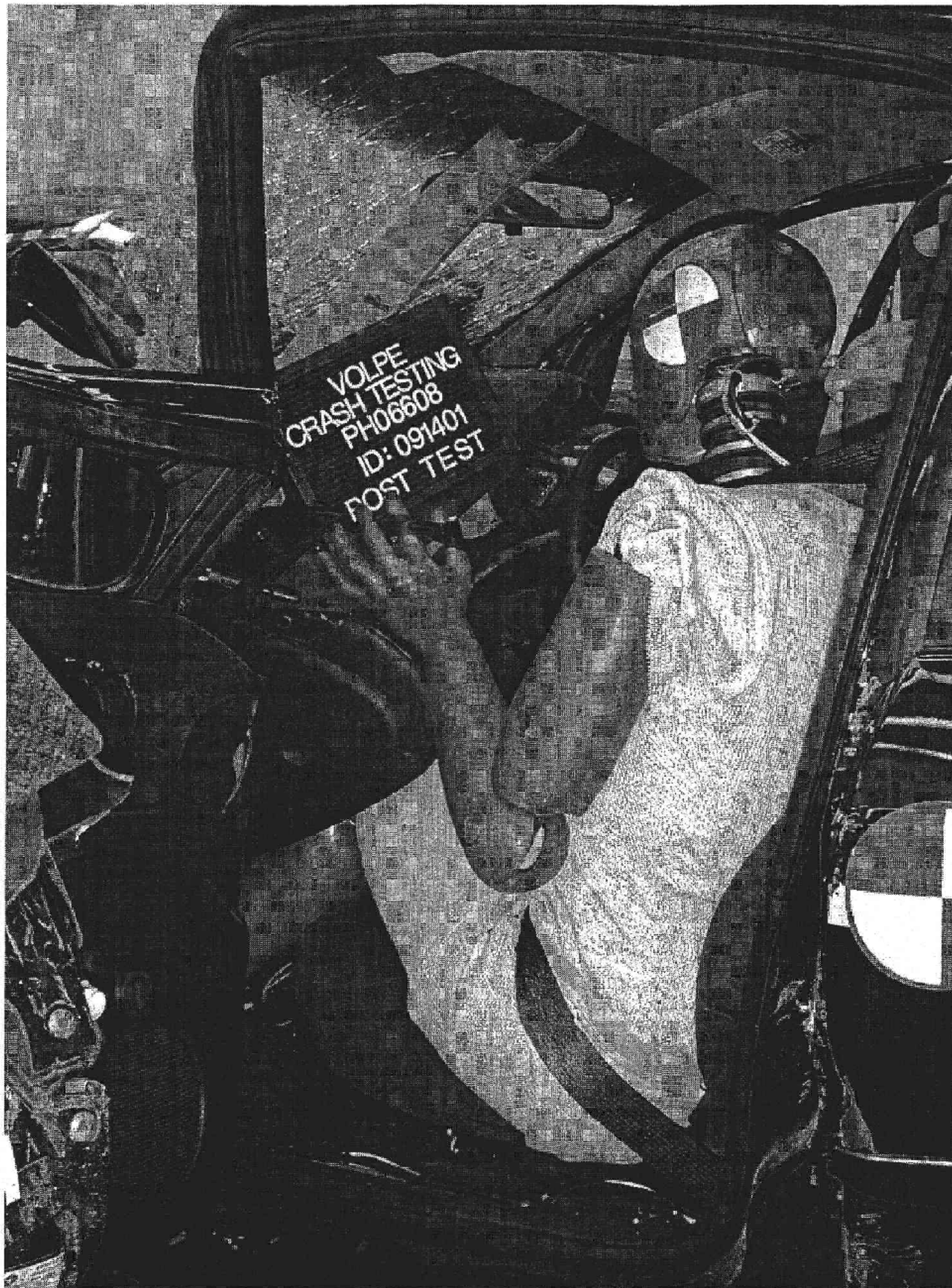


Figure A-11. Post-Test Driver Close-up with Door Open – 2001 Dodge Neon

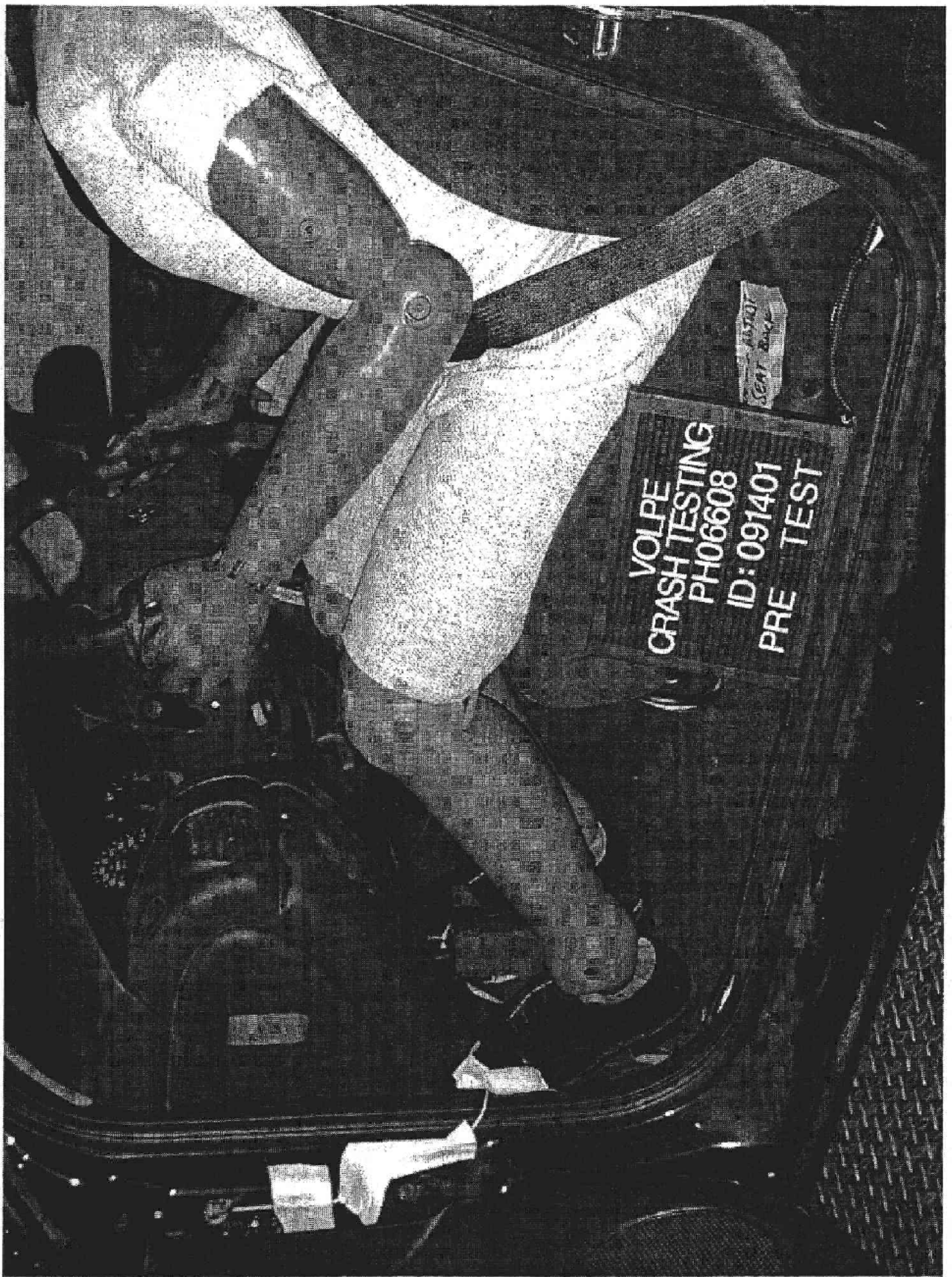


Figure A-12. Pre-Test Driver Foot/Leg Close-up with Door Open – 2001 Dodge Neon

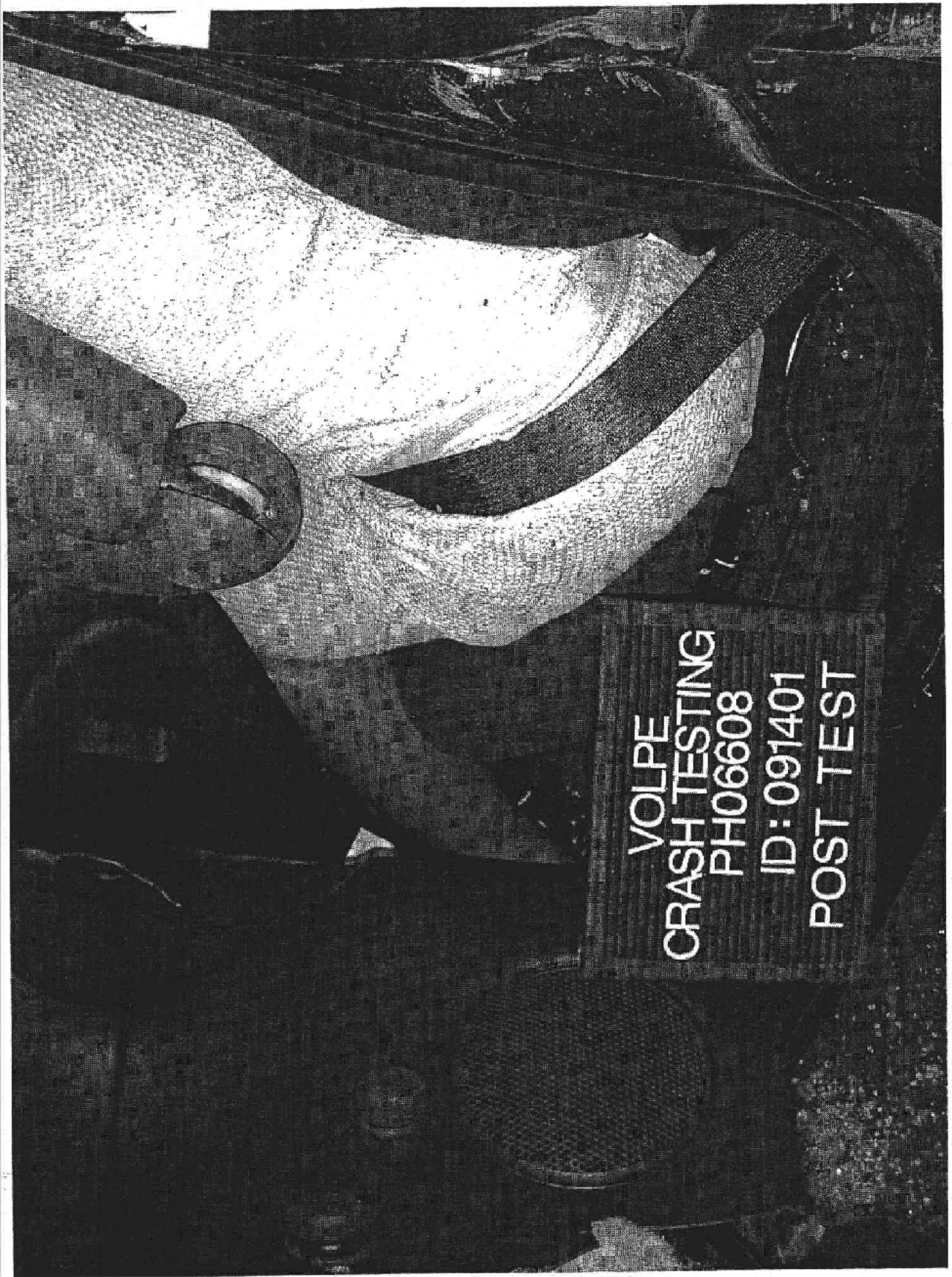


Figure A-13. Post-Test Driver Foot/Leg Close-up with Door Open – 2001 Dodge Neon

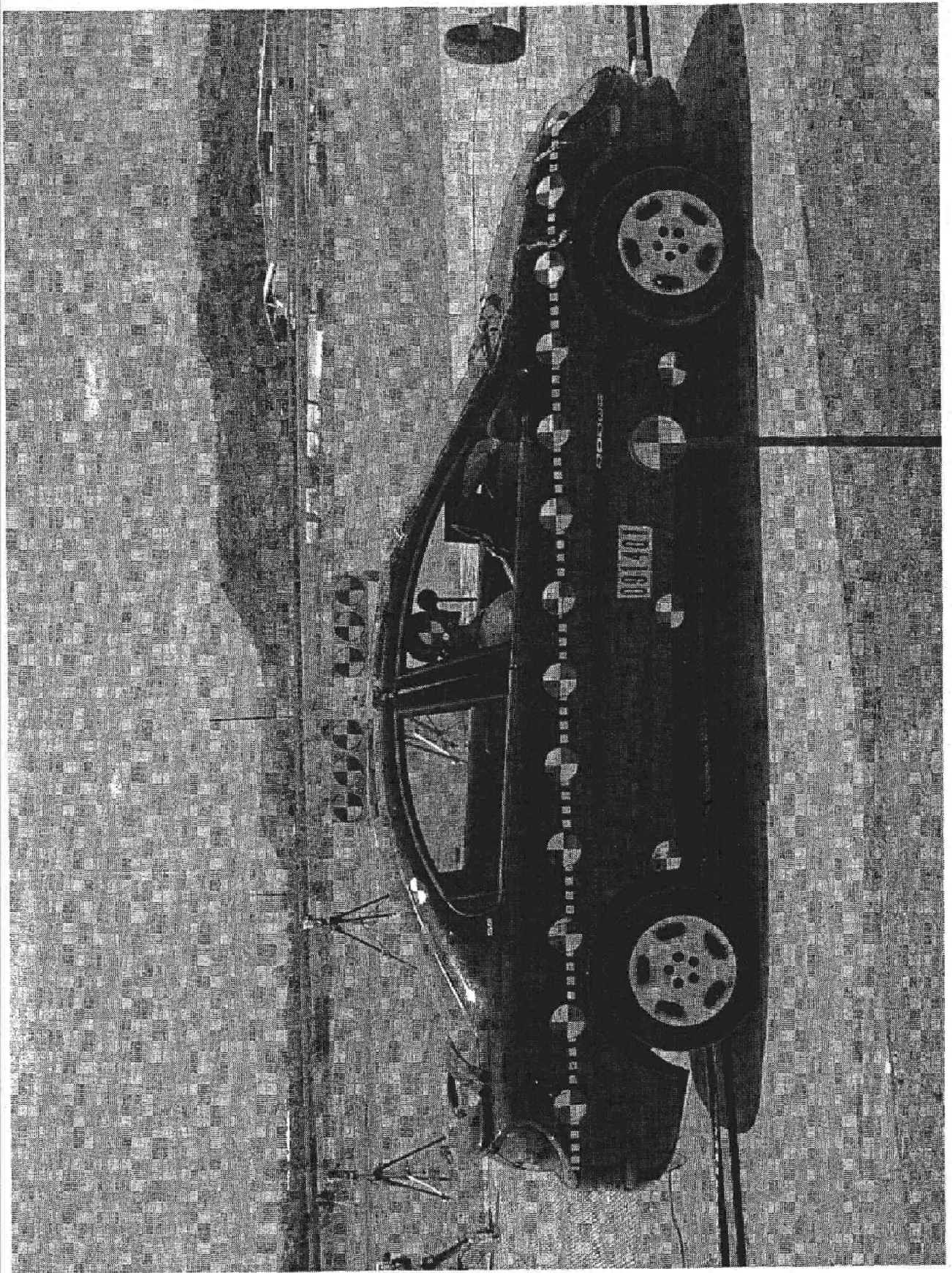


Figure A-14. Pre-Test Right Side View – 2001 Dodge Neon

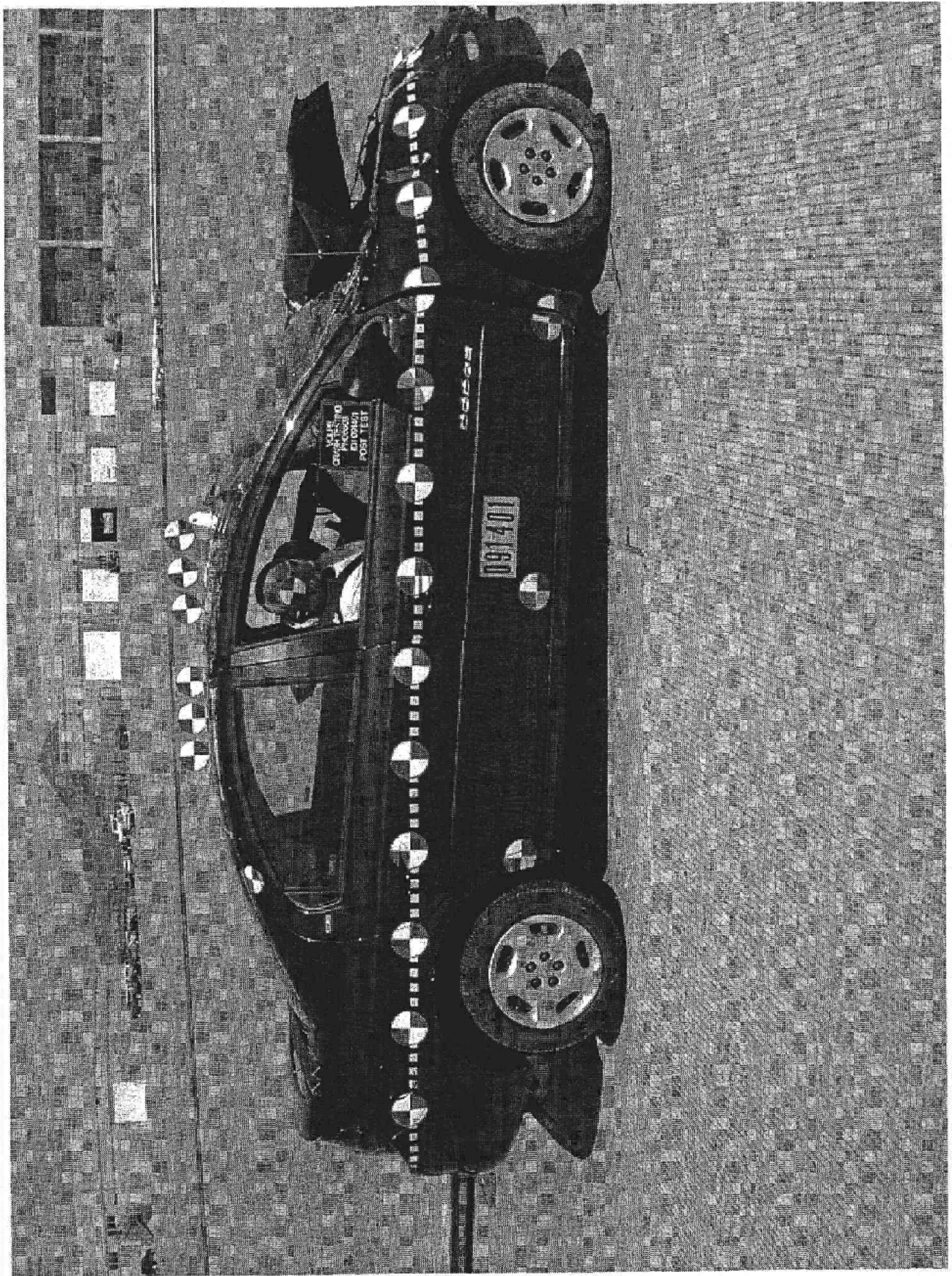


Figure A-15. Post-Test Right Side View – 2001 Dodge Neon

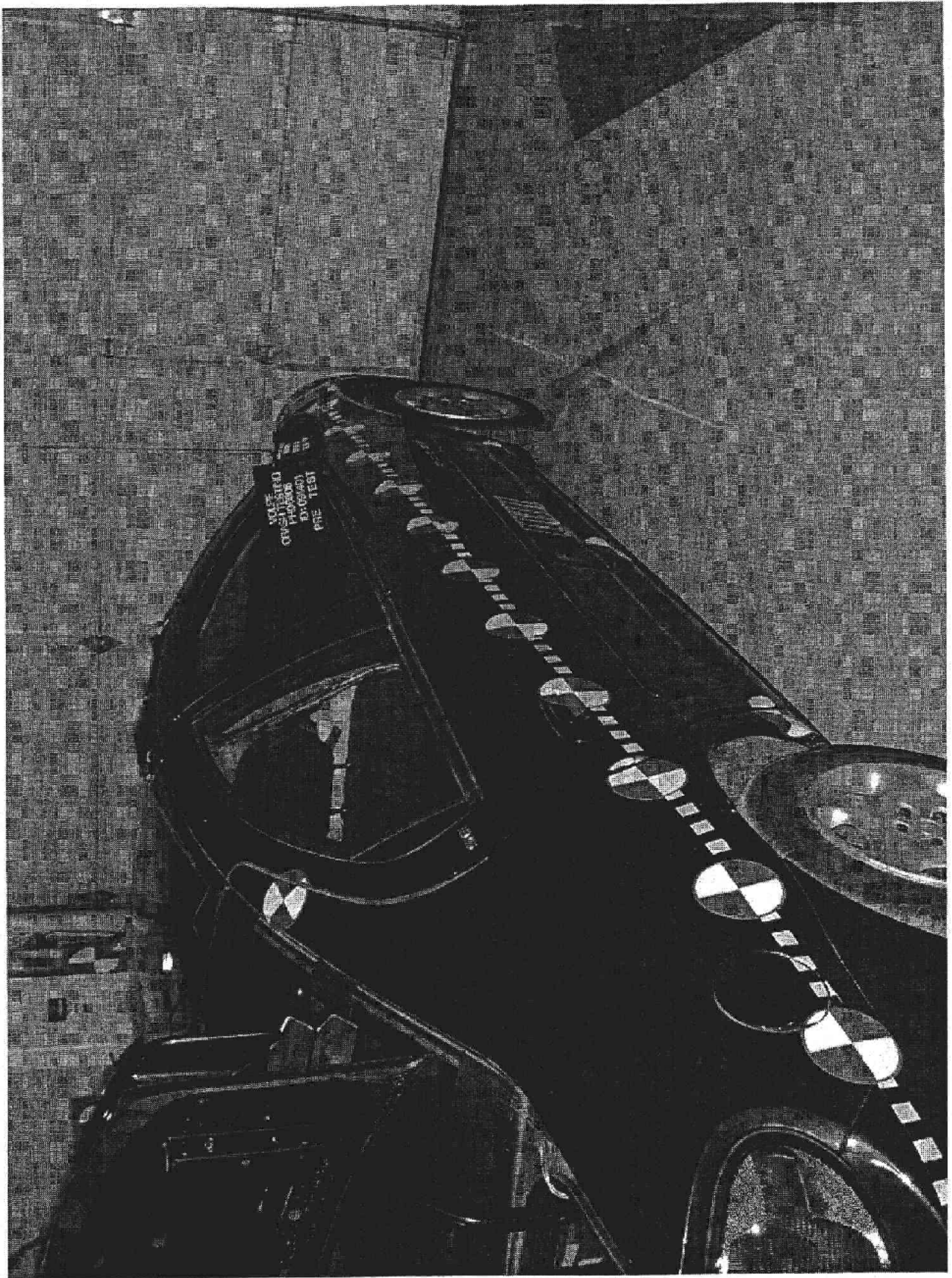


Figure A-16. Pre-Test Passenger Close-up with Door Closed – 2001 Dodge Neon

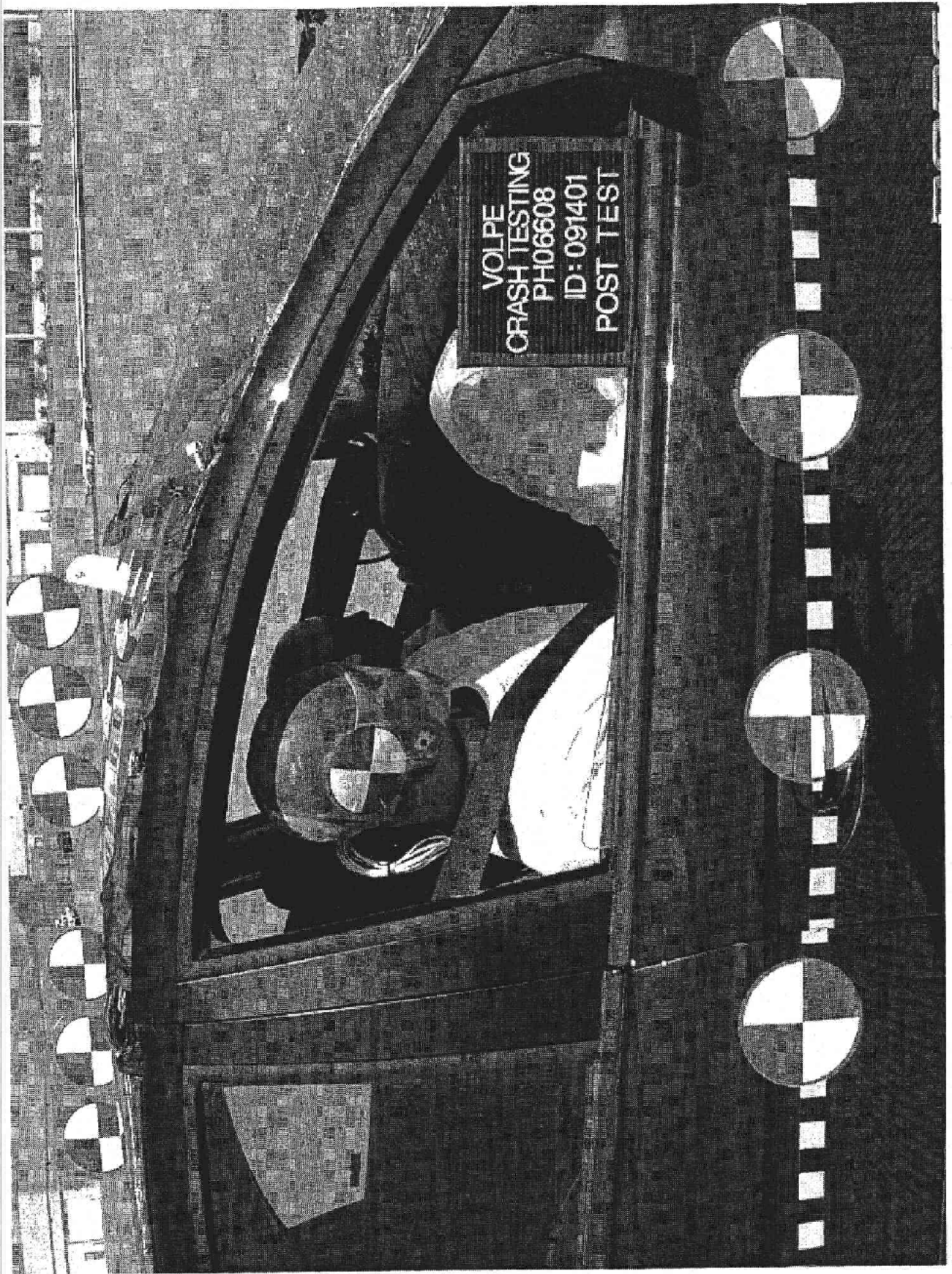


Figure A-17. Post-Test Passenger Close-up with Door Closed – 2001 Dodge Neon

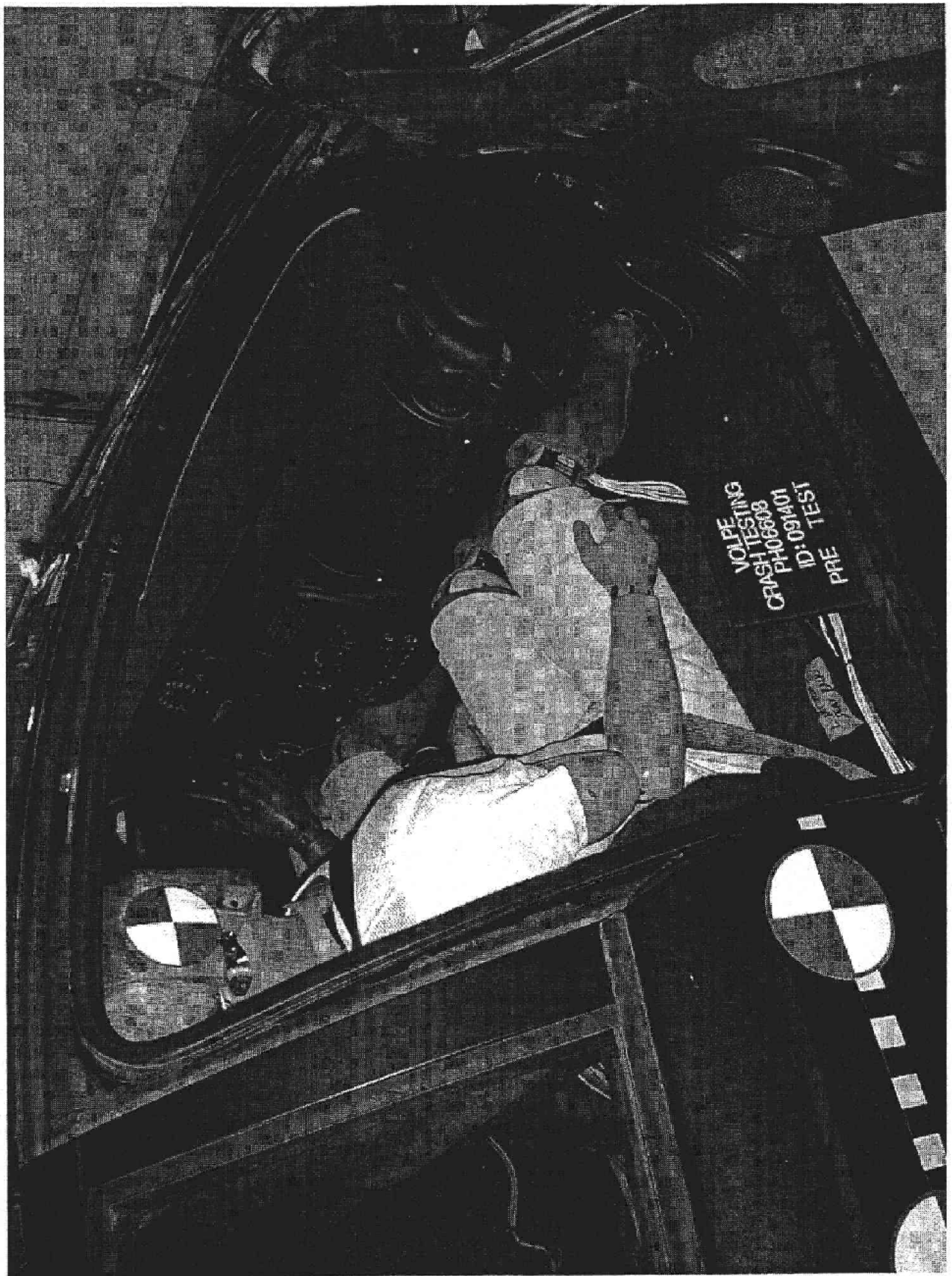


Figure A-18. Pre-Test Passenger Close-up with Door Open – 2001 Dodge Neon



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

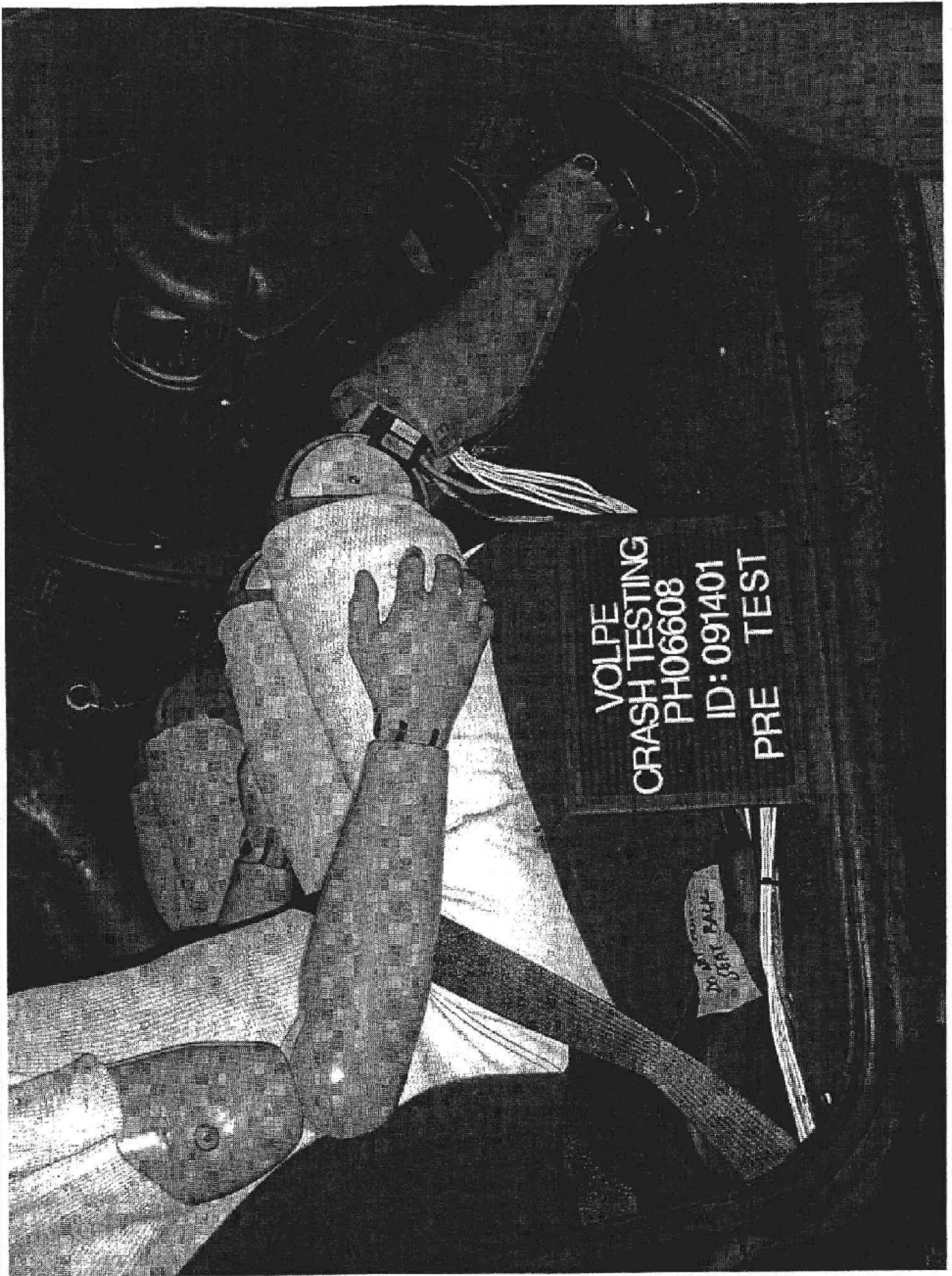


Figure A-20. Pre-Test Passenger Foot/Leg Close-up with Door Open – 2001 Dodge Neon

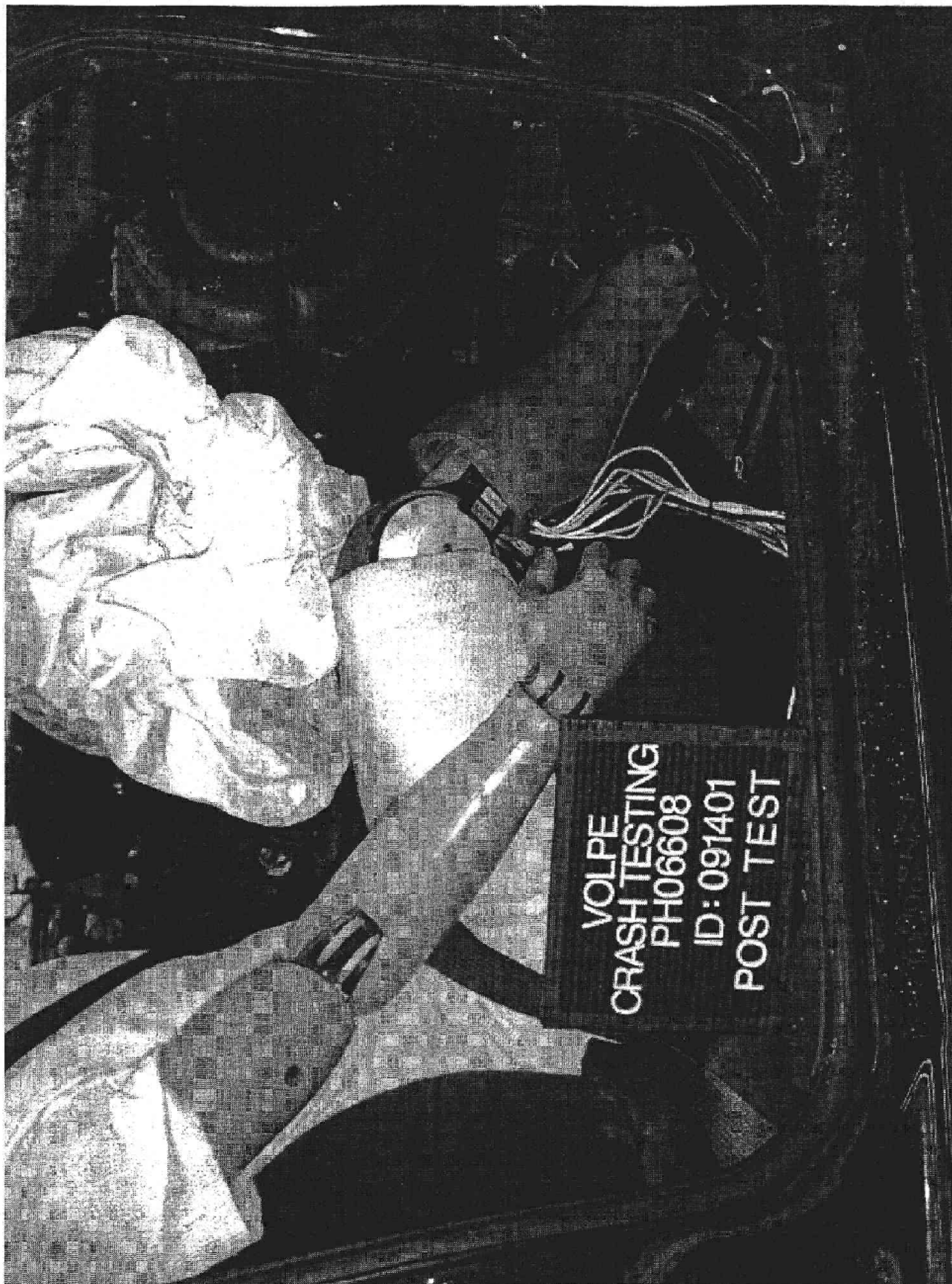


Figure A-21. Post-Test Passenger Foot/Leg Close-up with Door Open – 2001 Dodge Neon

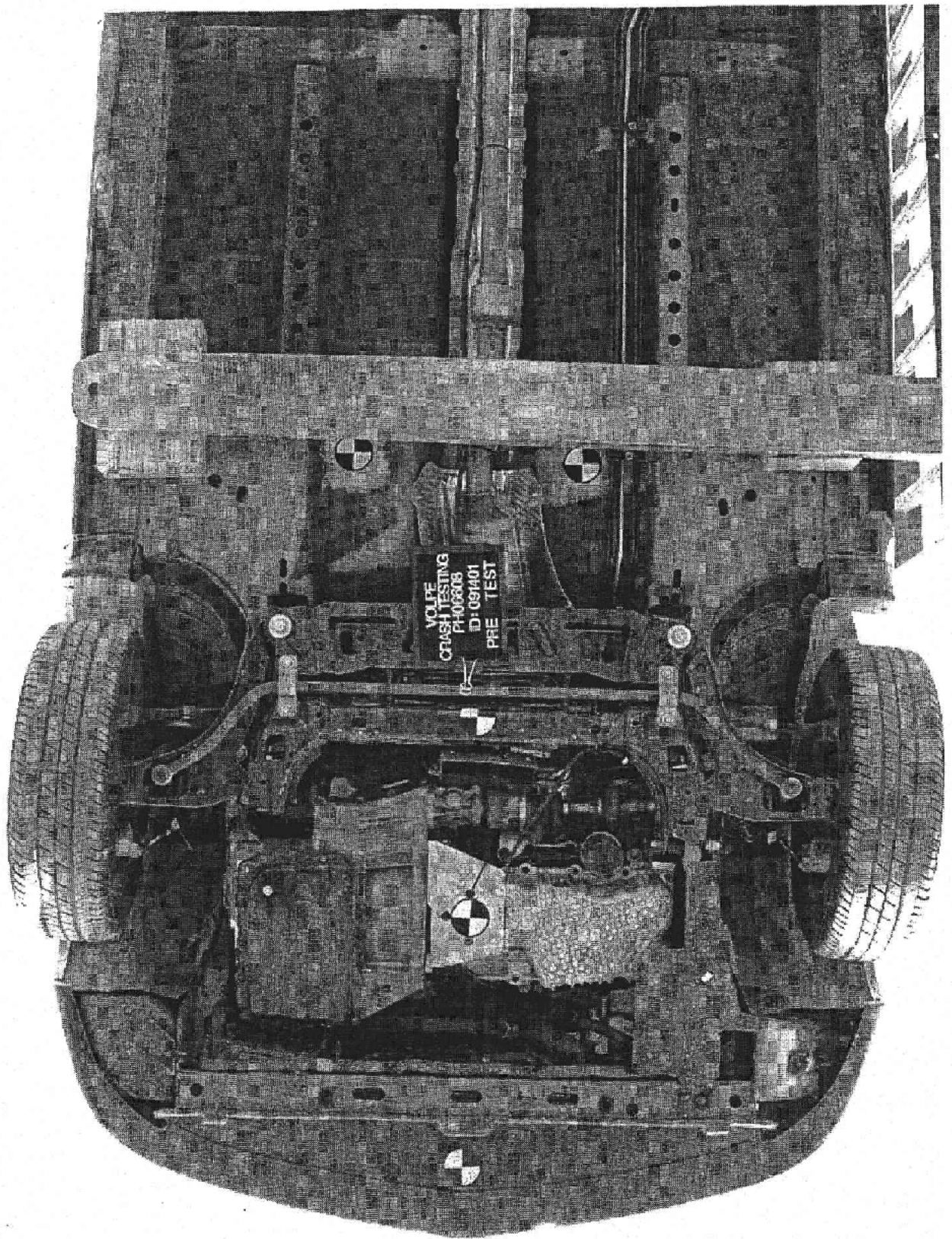


Figure A-22. Pre-Test Underbody View #1 – 2001 Dodge Neon

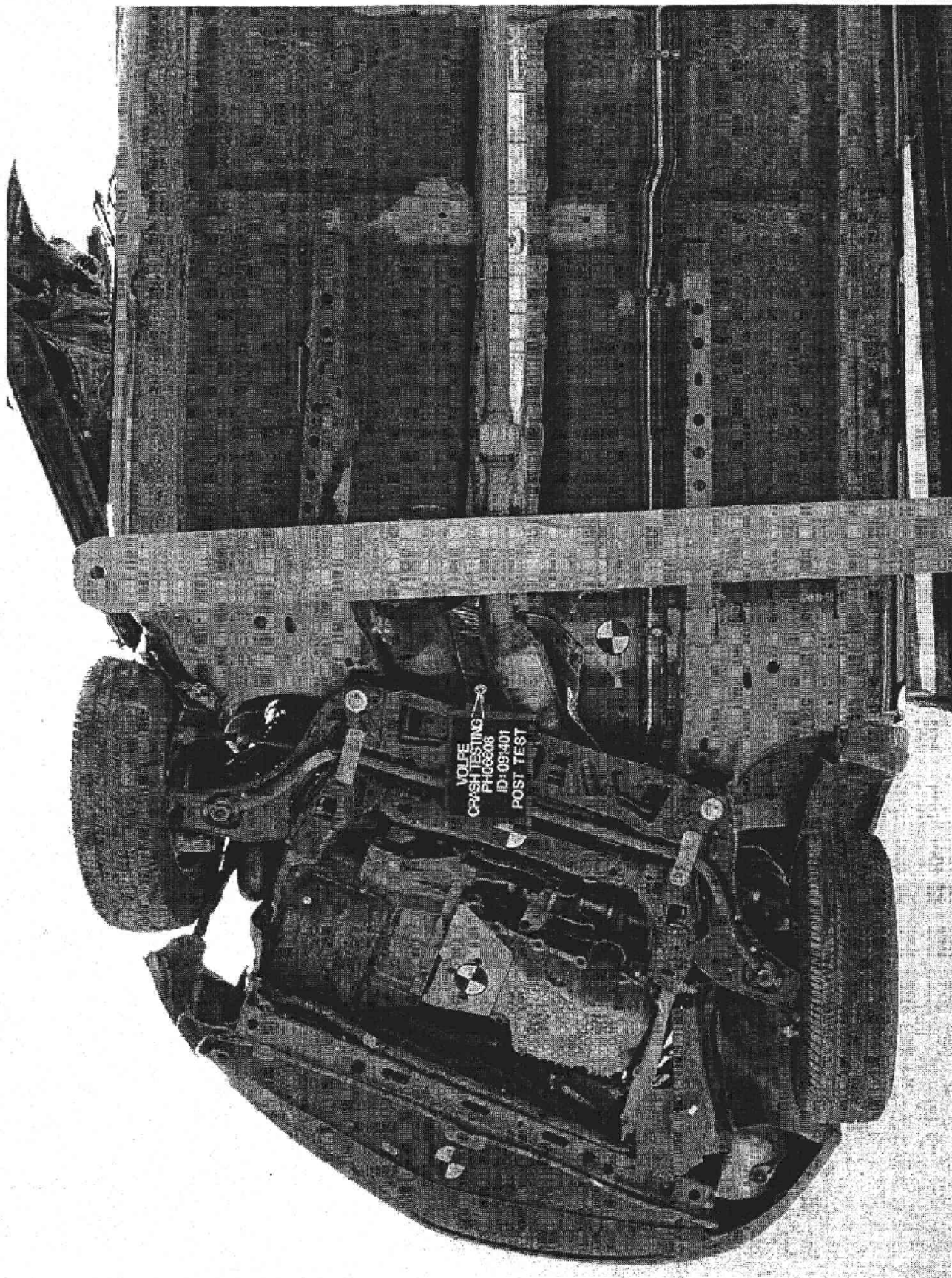


Figure A-23. Post-Test Underbody View #1 – 2001 Dodge Neon

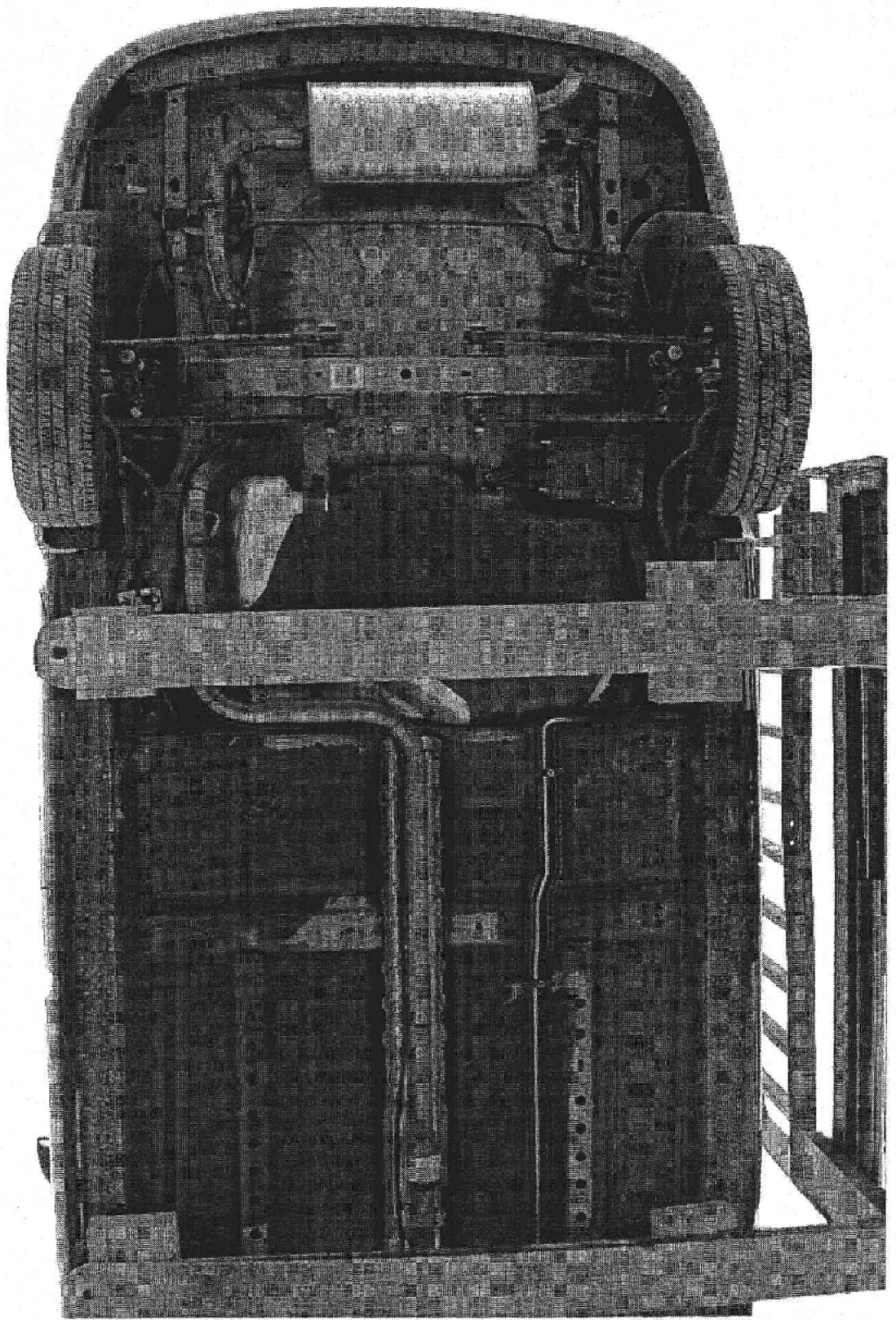


Figure A-24. Pre-Test Underbody View #2 – 2001 Dodge Neon

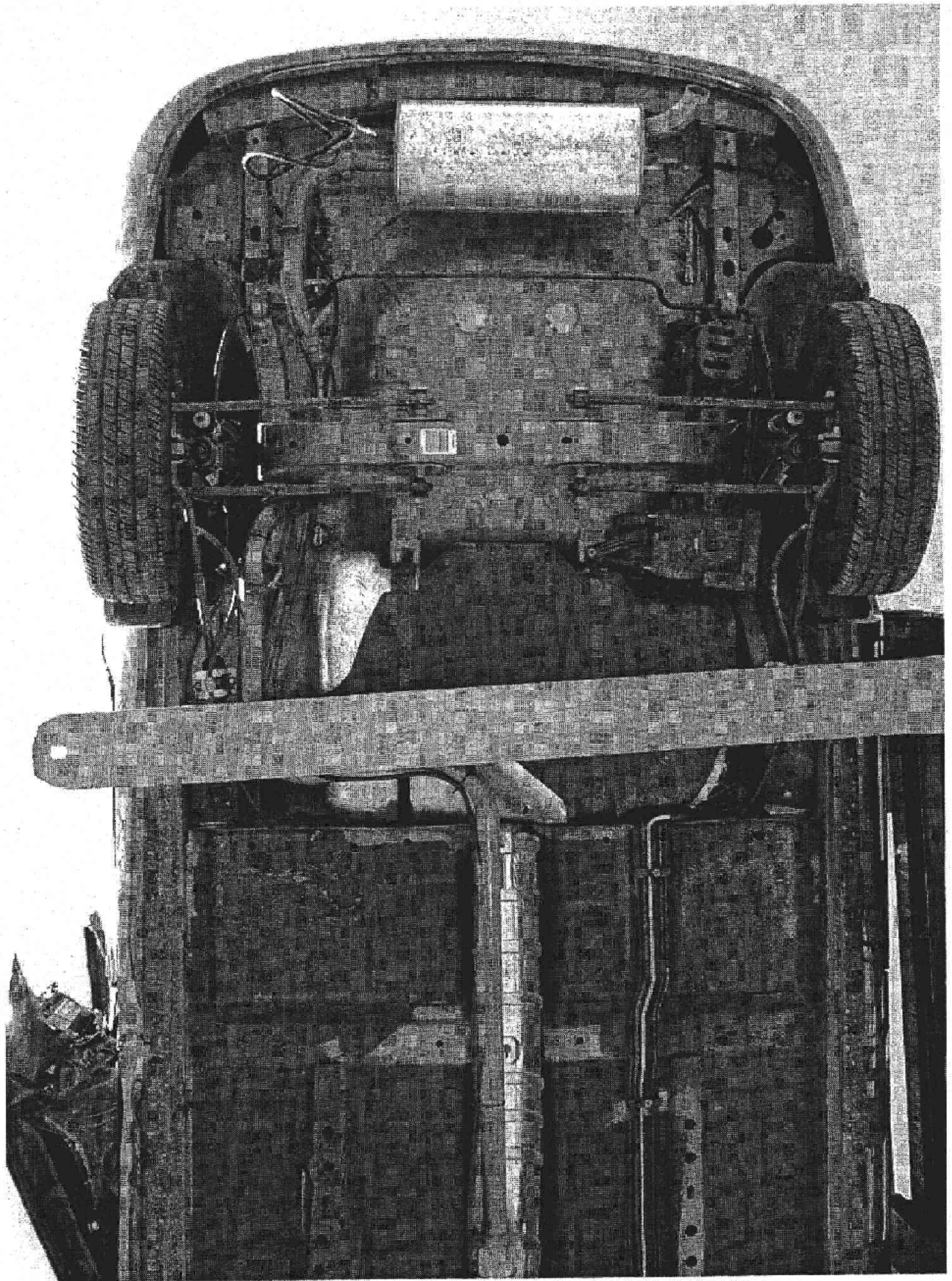


Figure A-25. Post-Test Underbody View #2 – 2001 Dodge Neon

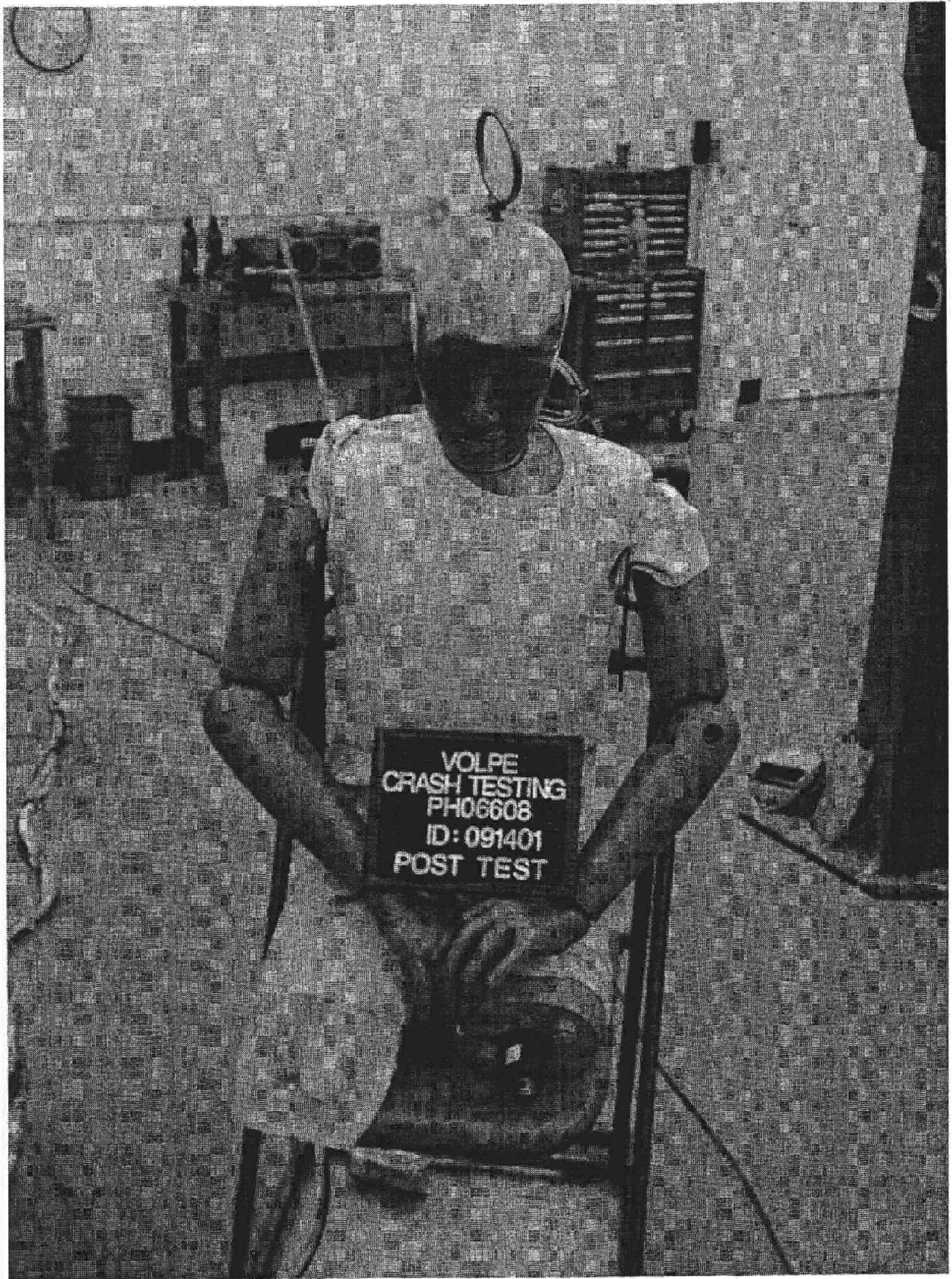


Figure A-26. Post-Test Driver Dummy Contact View #1 – 2001 Dodge Neon

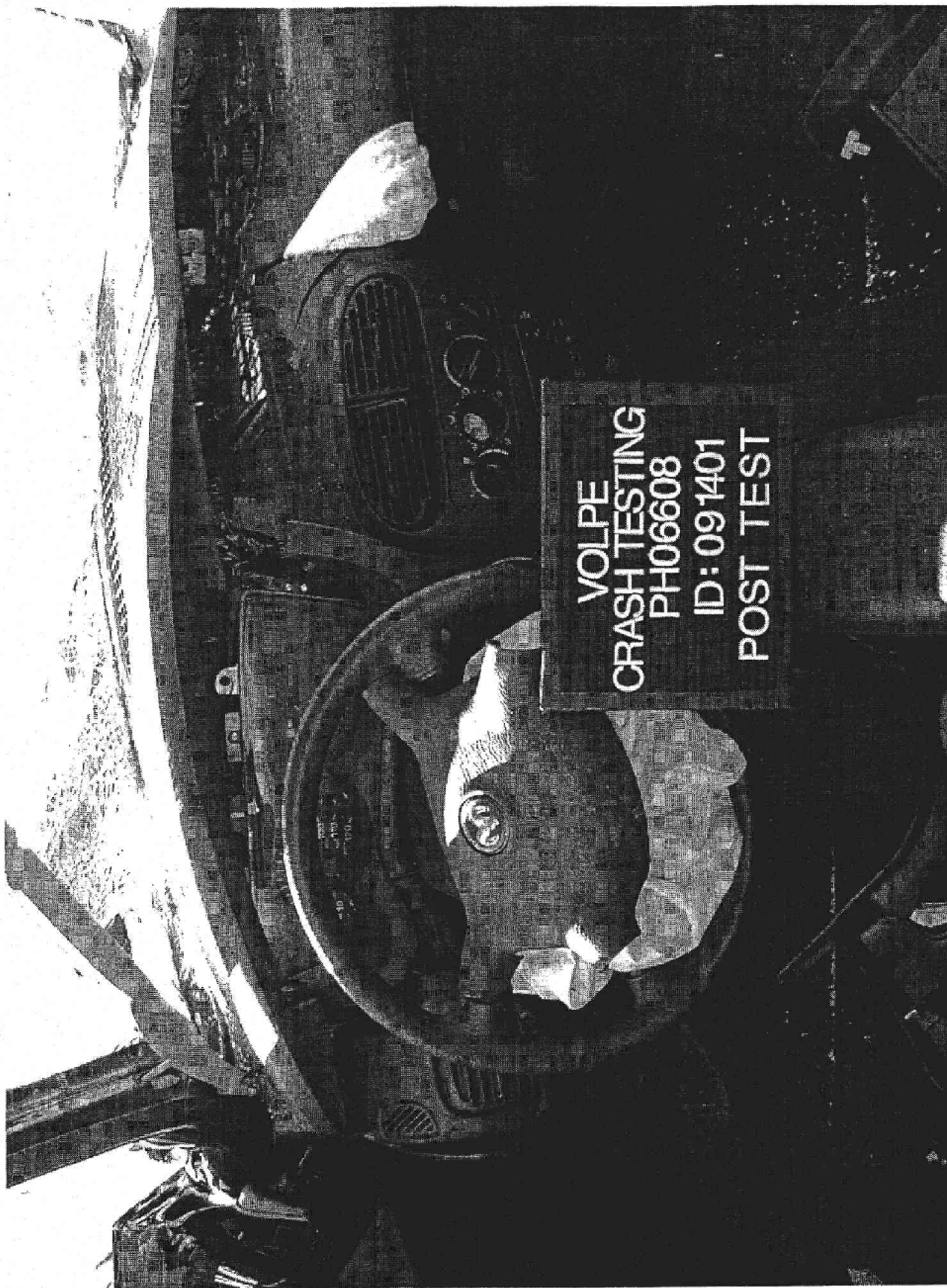


Figure A-27. Post-Test Driver Dummy Contact View #2 – 2001 Dodge Neon



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

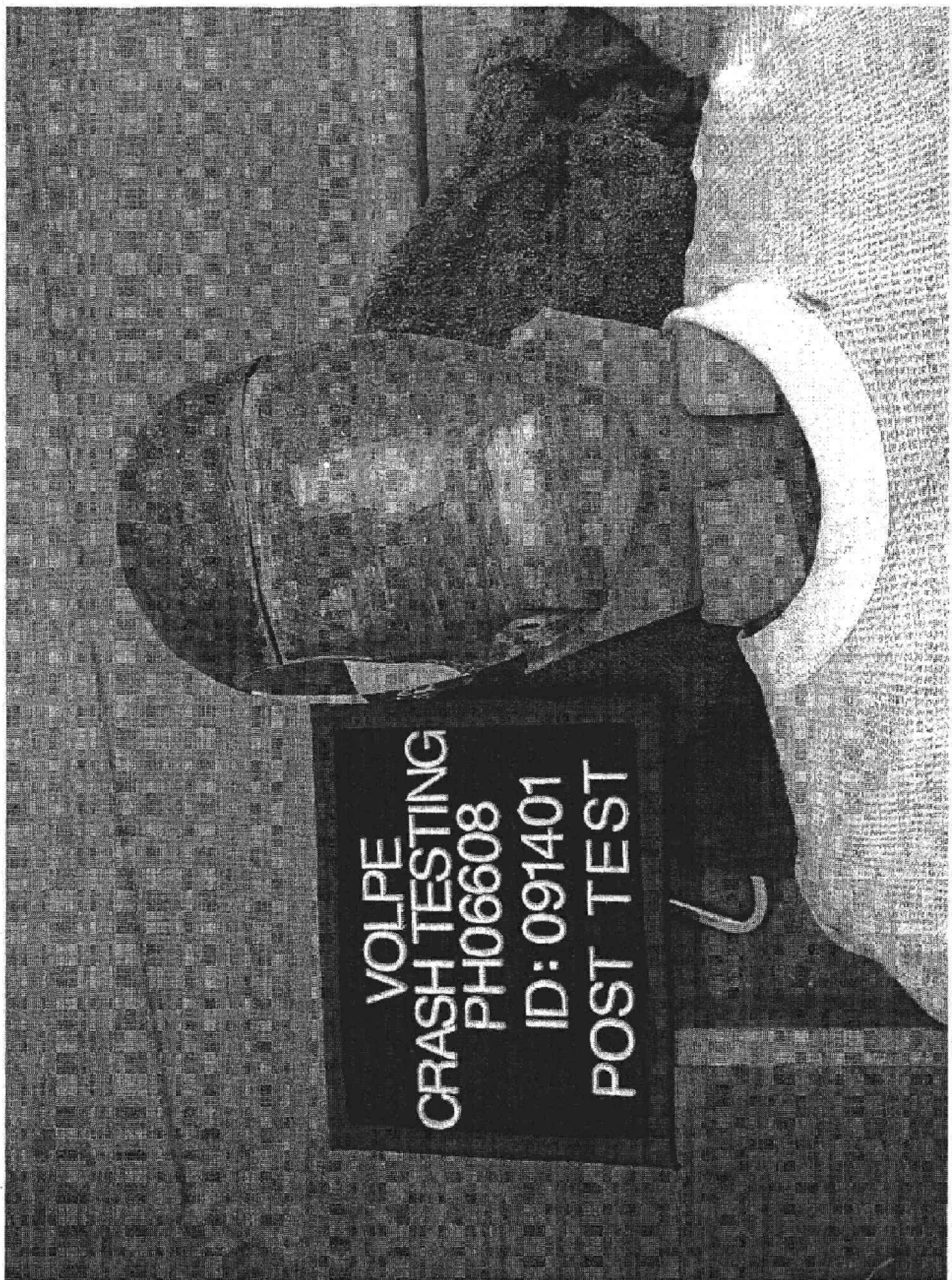


Figure A-29. Post-Test Passenger Dummy Contact View #1 – 2001 Dodge Neon

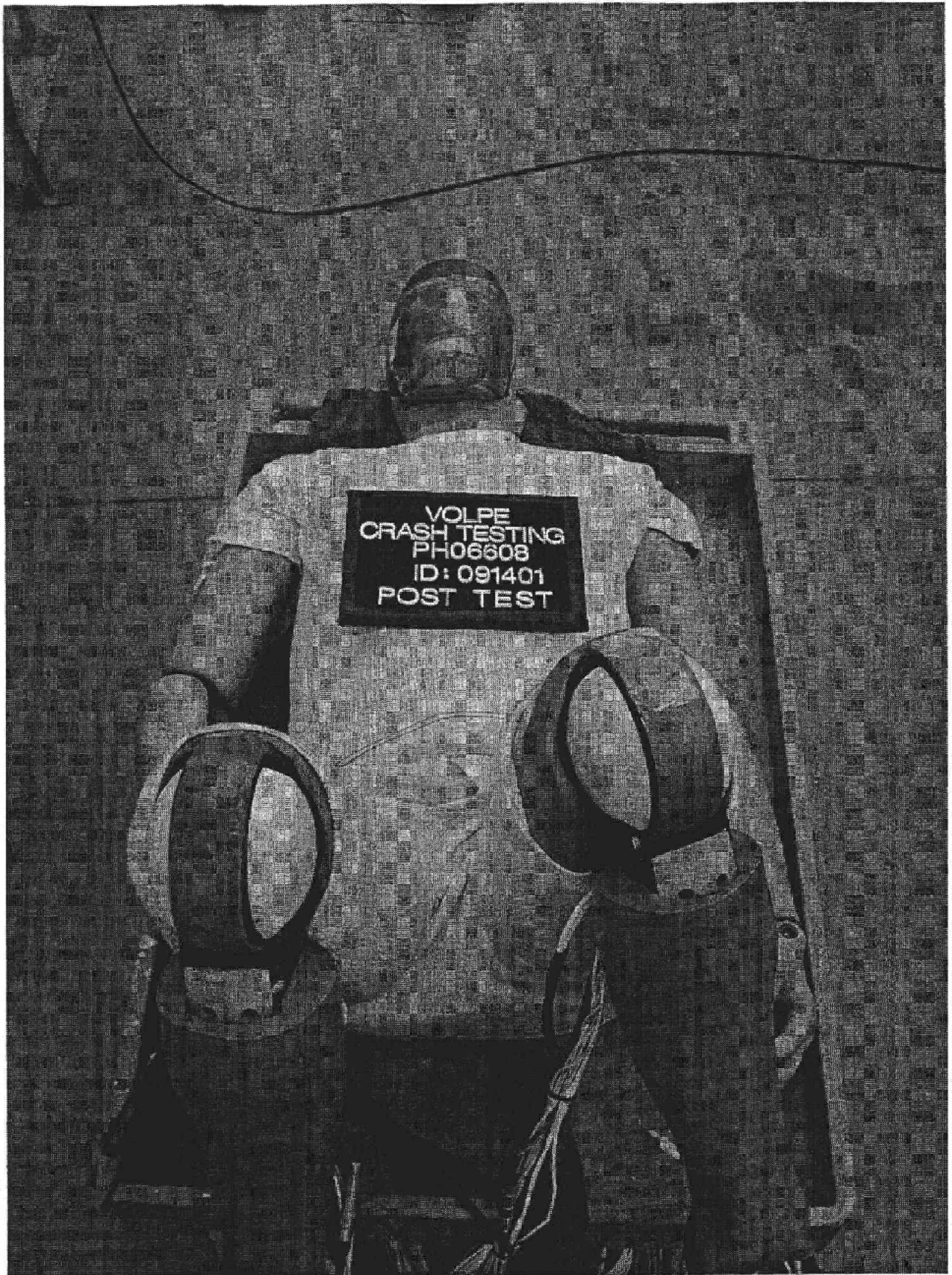


Figure A-30. Post-Test Passenger Dummy Contact View #2 – 2001 Dodge Neon

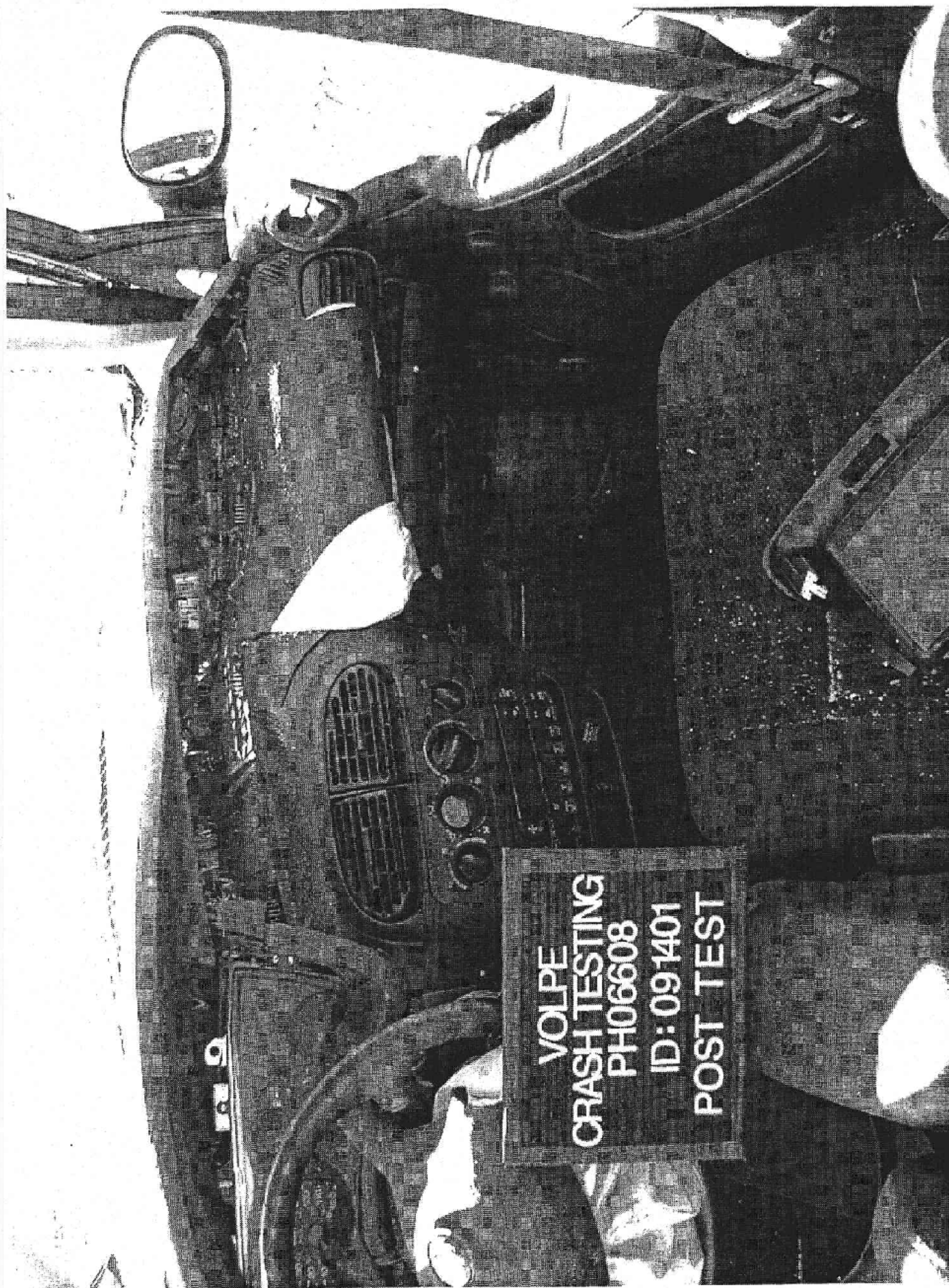


Figure A-31. Post-Test Passenger Dummy Contact View #3 – 2001 Dodge Neon

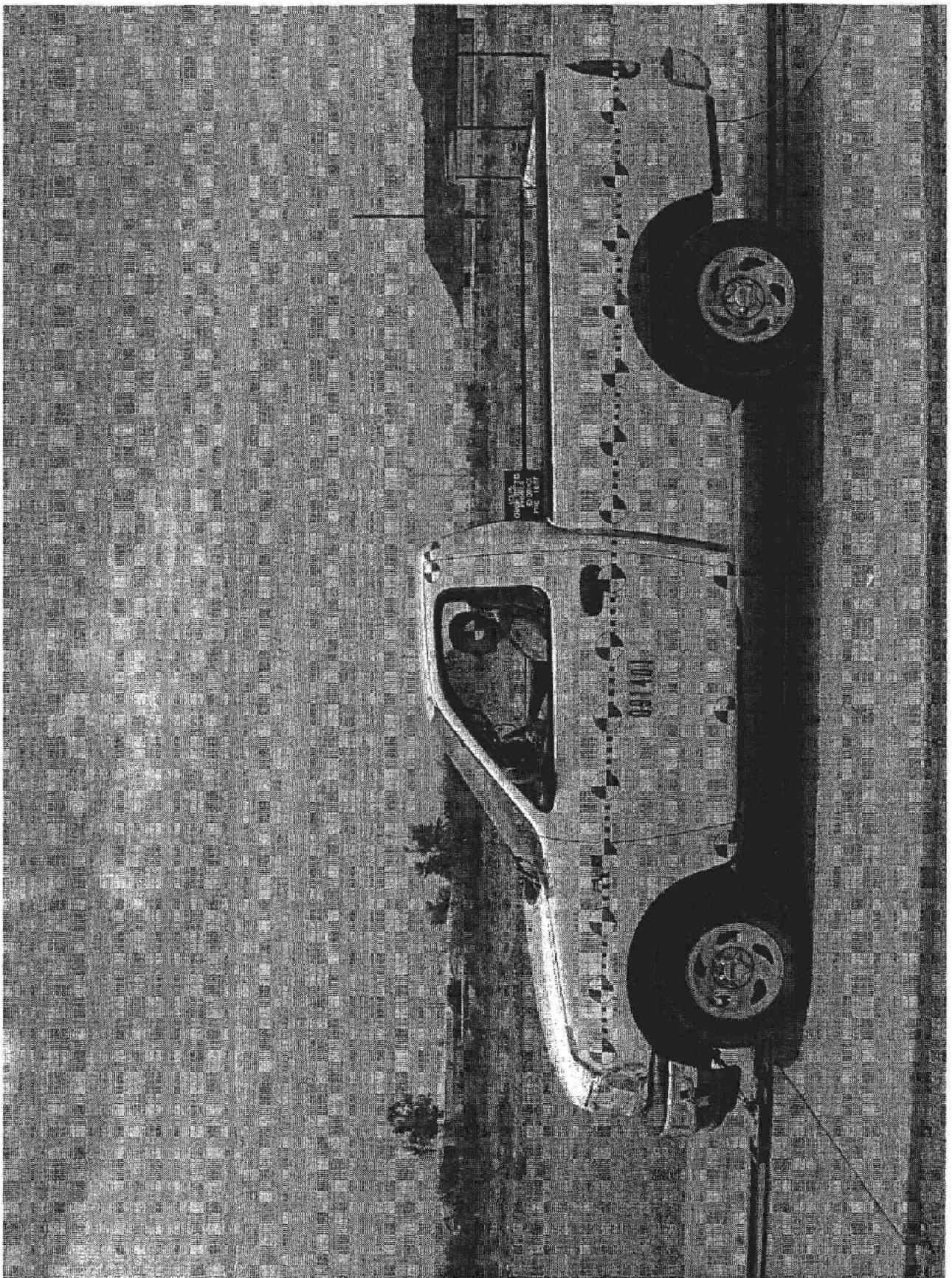


Figure A-32. Pre-Test Left Side View – 2001 Ford F-150

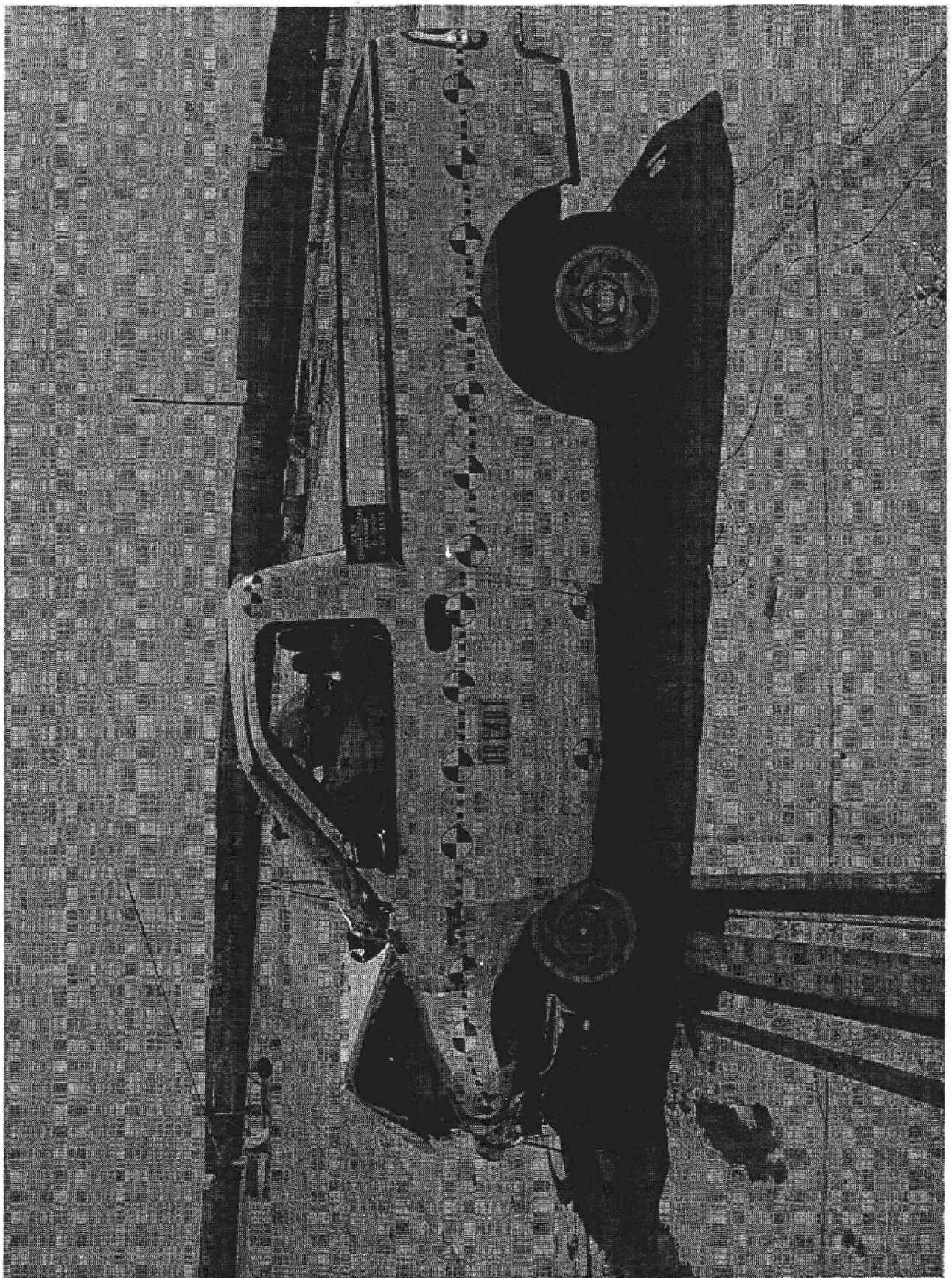


Figure A-33. Post-Test Left Side View – 2001 Ford F-150

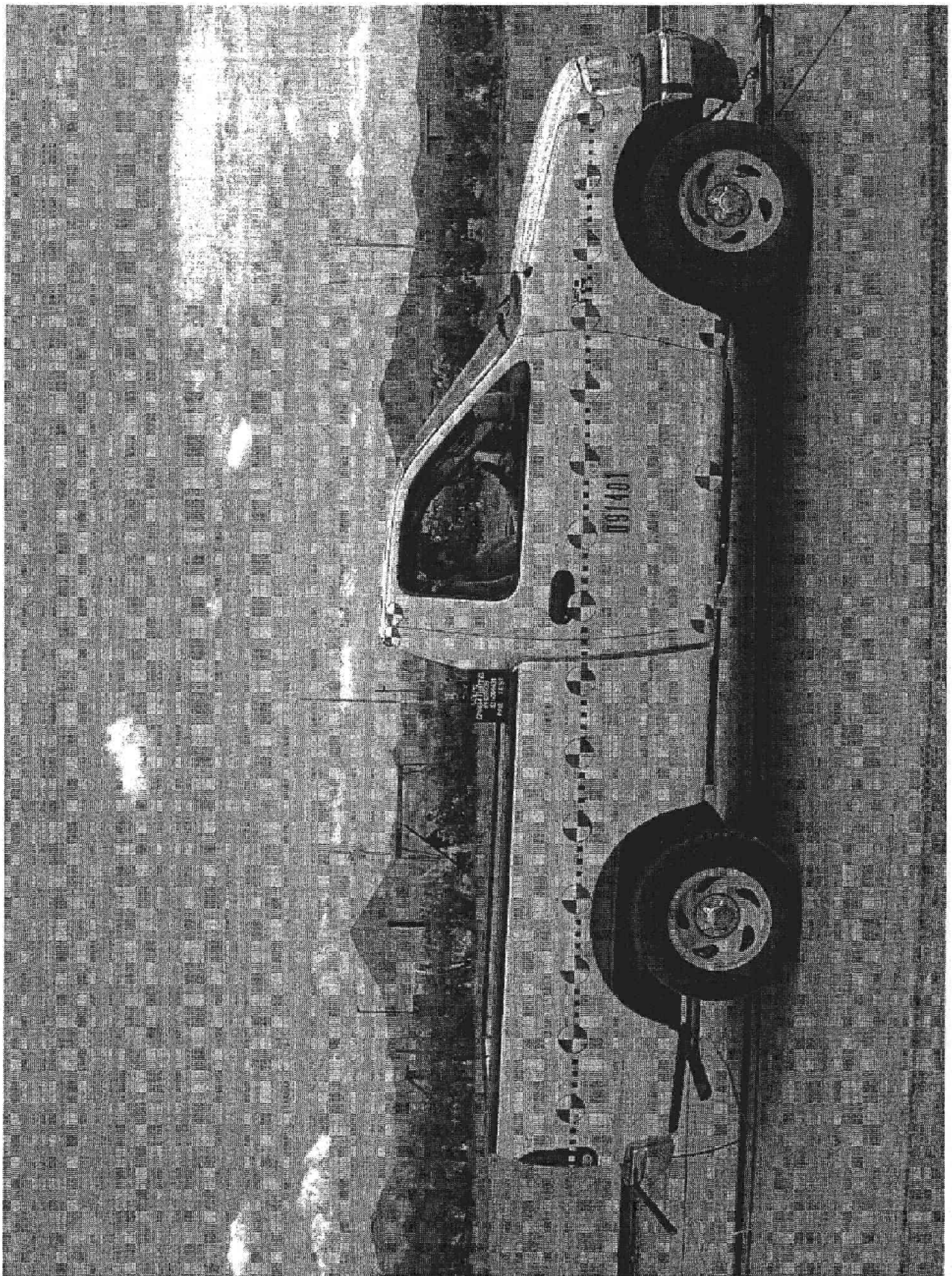


Figure A-34. Pre-Test Right Side View – 2001 Ford F-150

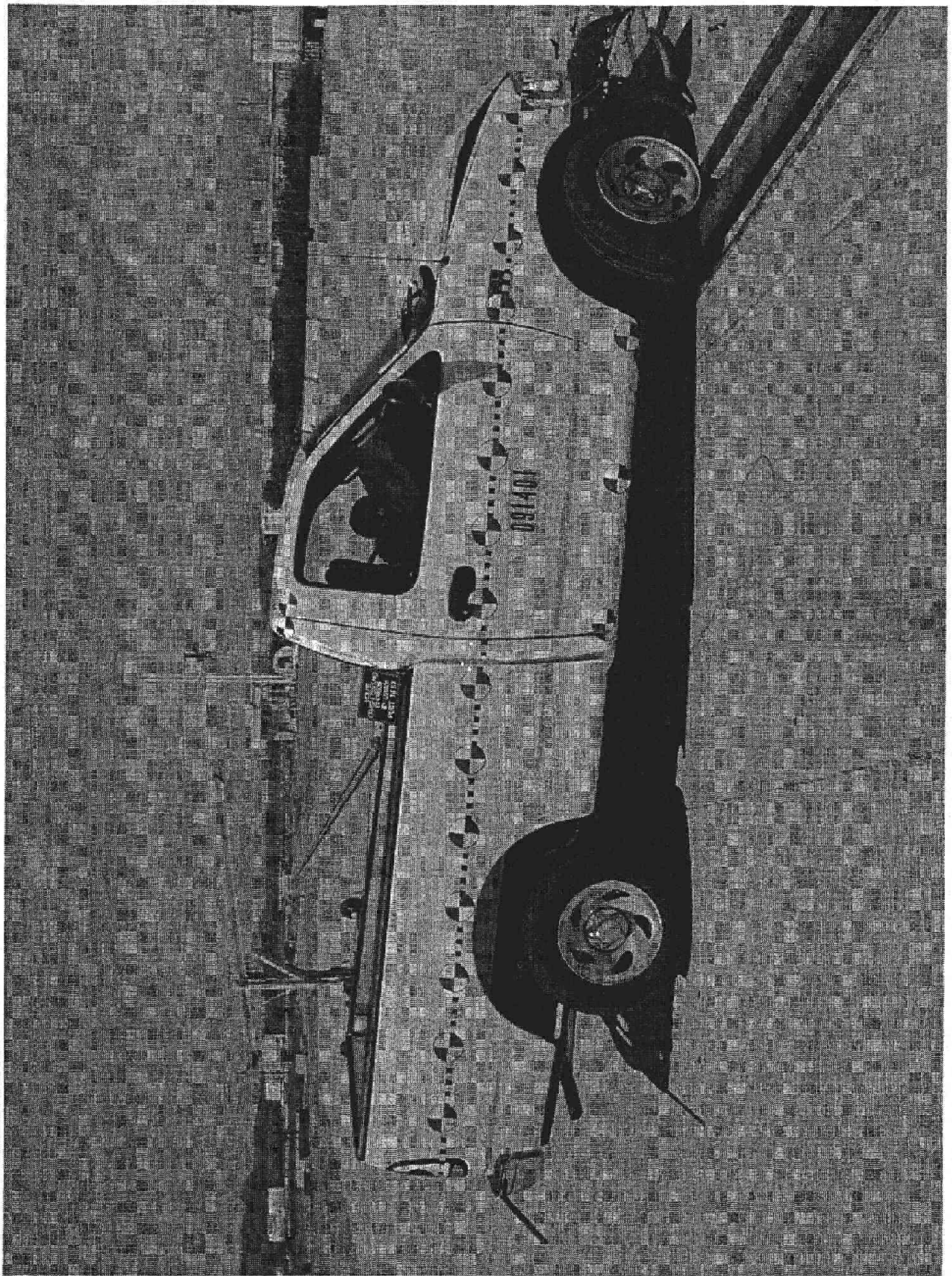


Figure A-35. Post-Test Right Side View – 2001 Ford F-150

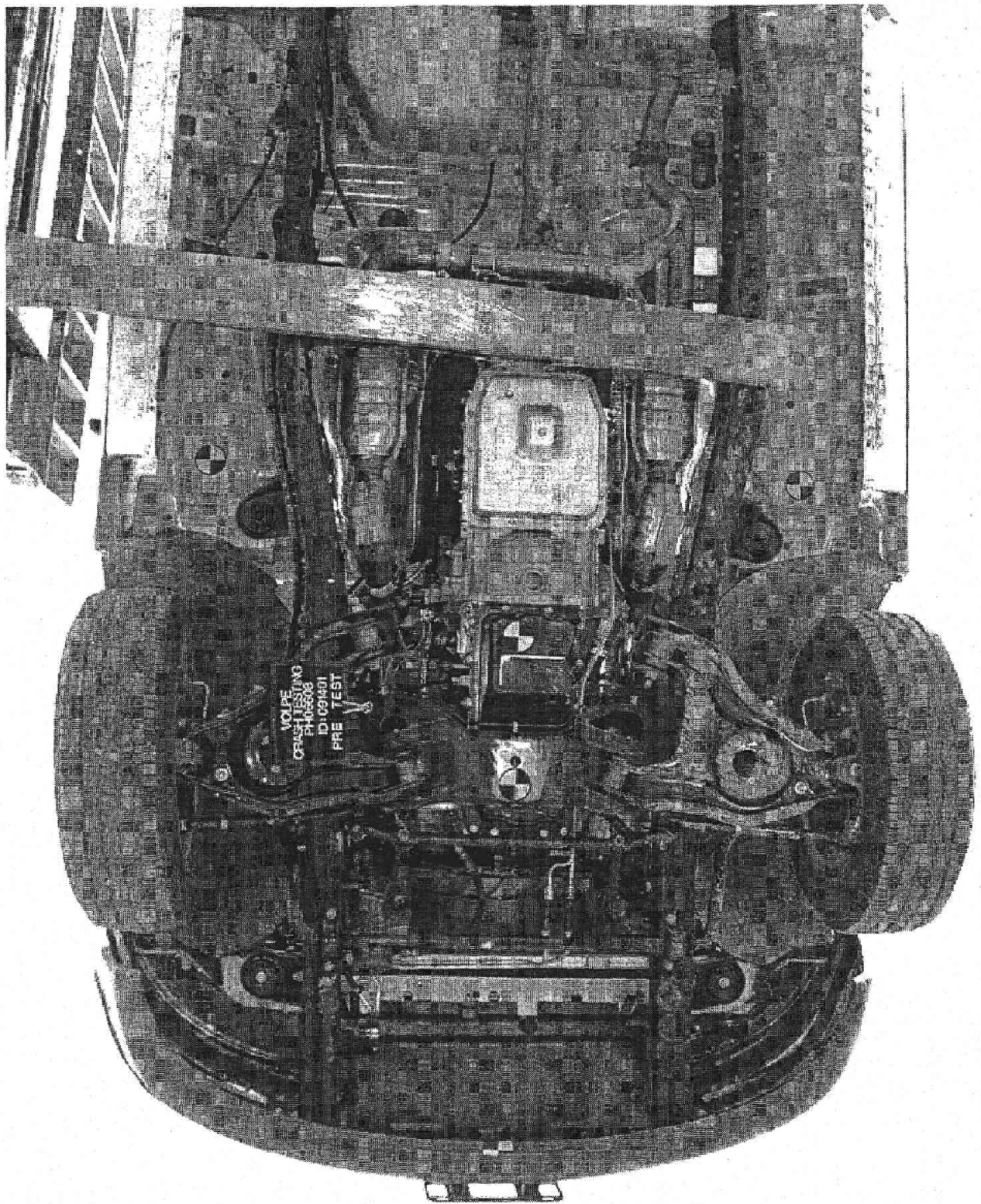


Figure A-36. Pre-Test Underbody View #1 – 2001 Ford F-150

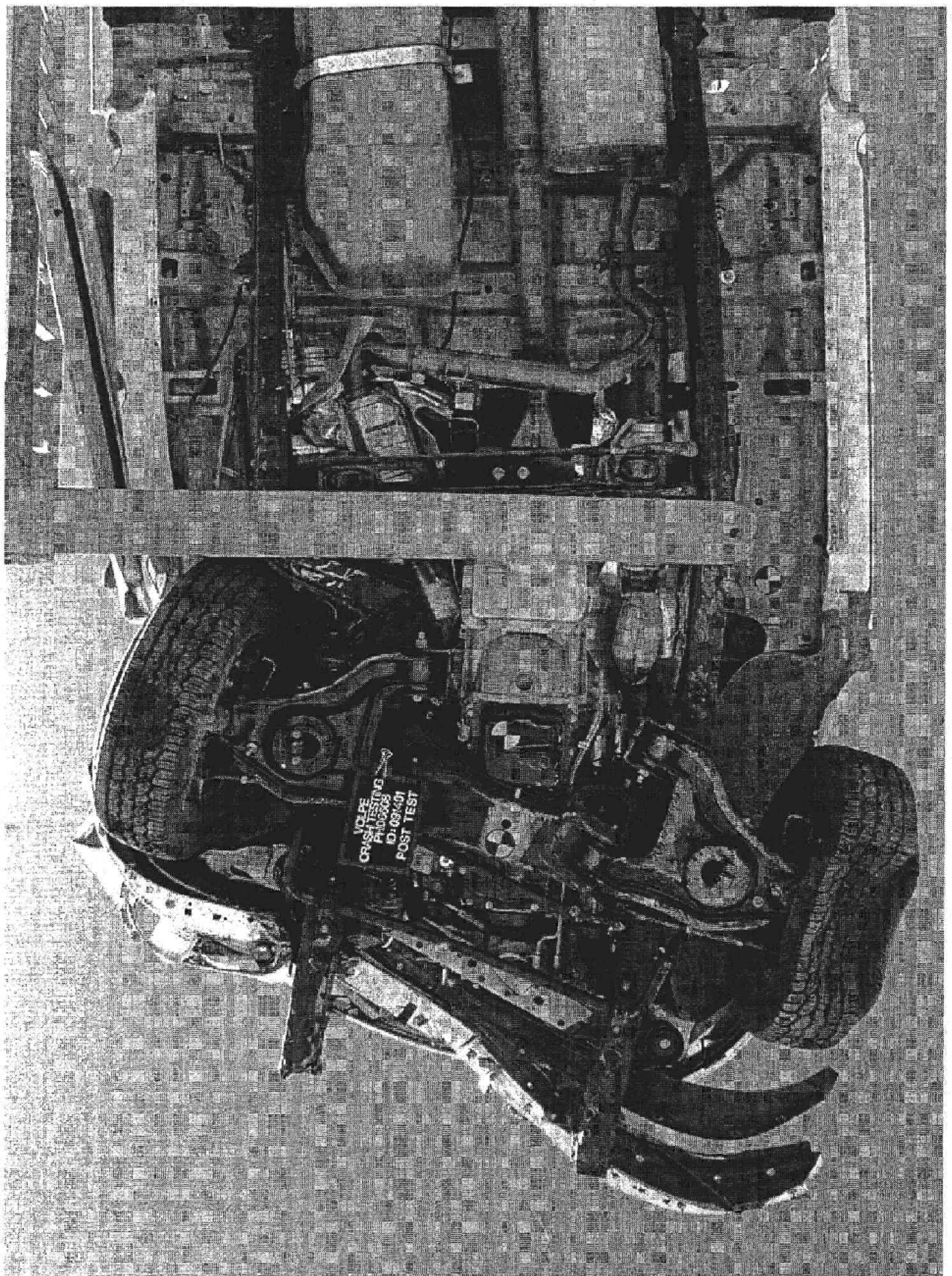


Figure A-37. Post-Test Underbody View #1 – 2001 Ford F-150

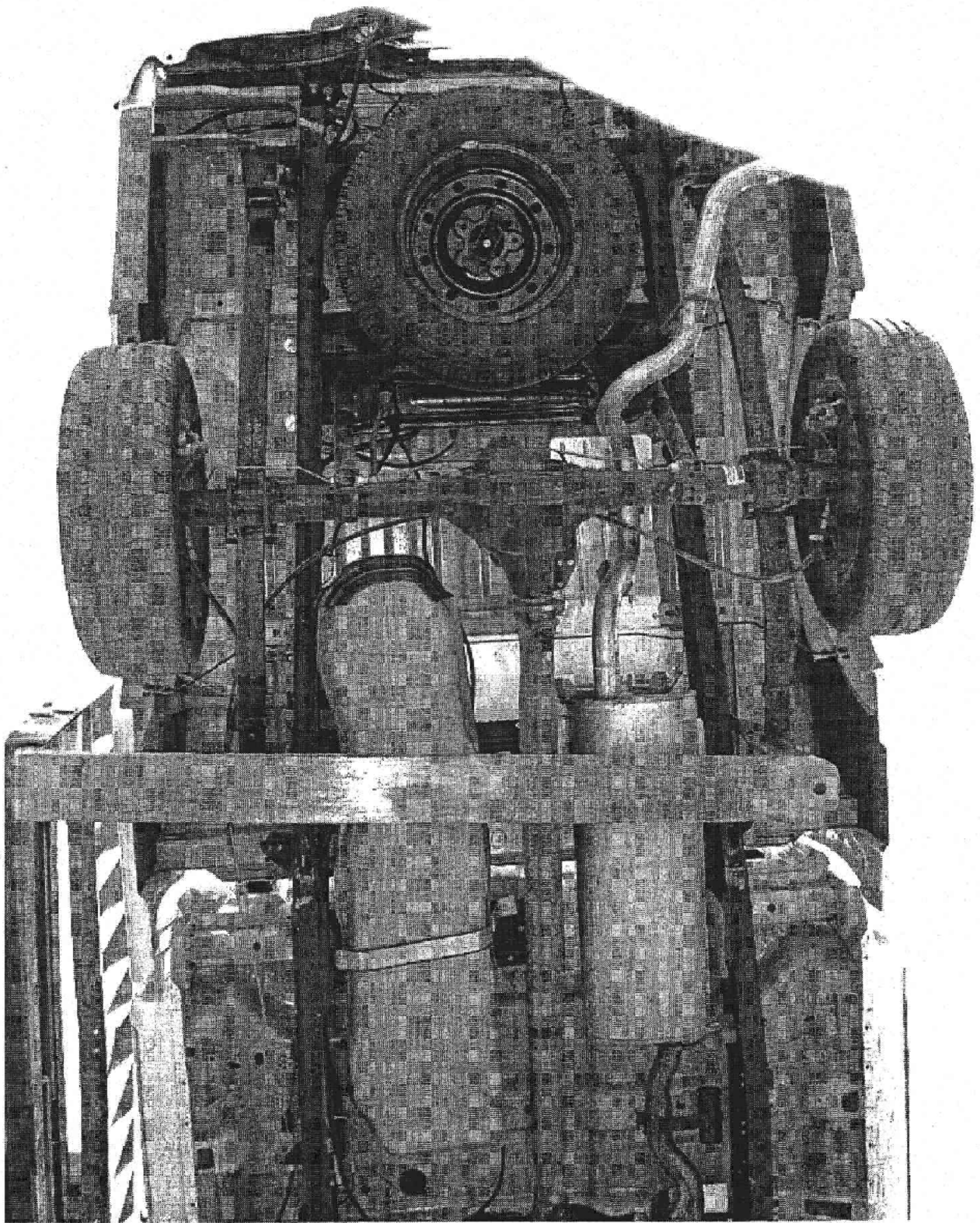


Figure A-38. Pre-Test Underbody View #2 – 2001 Ford F-150

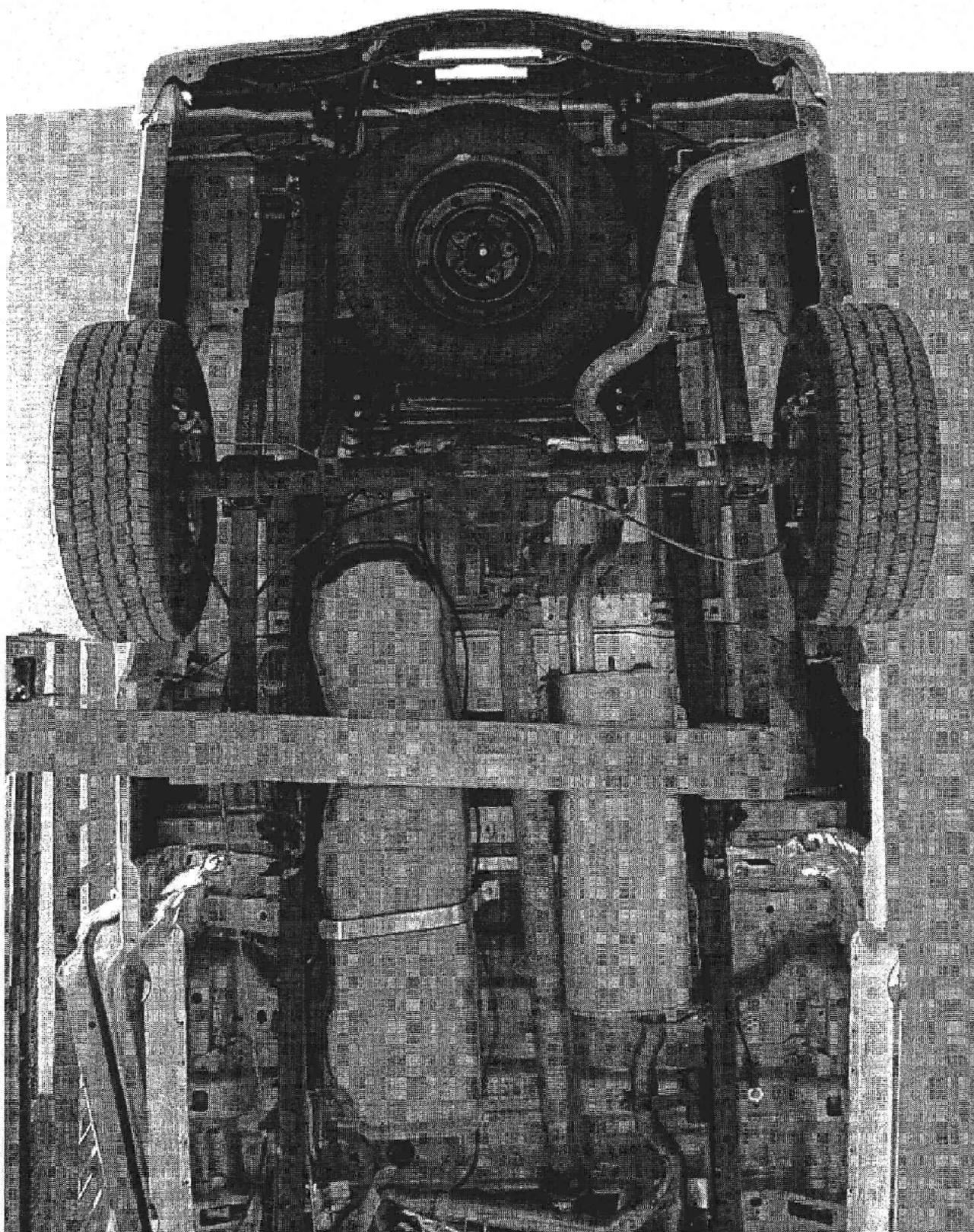


Figure A-39. Post-Test Underbody View #2 – 2001 Ford F-150

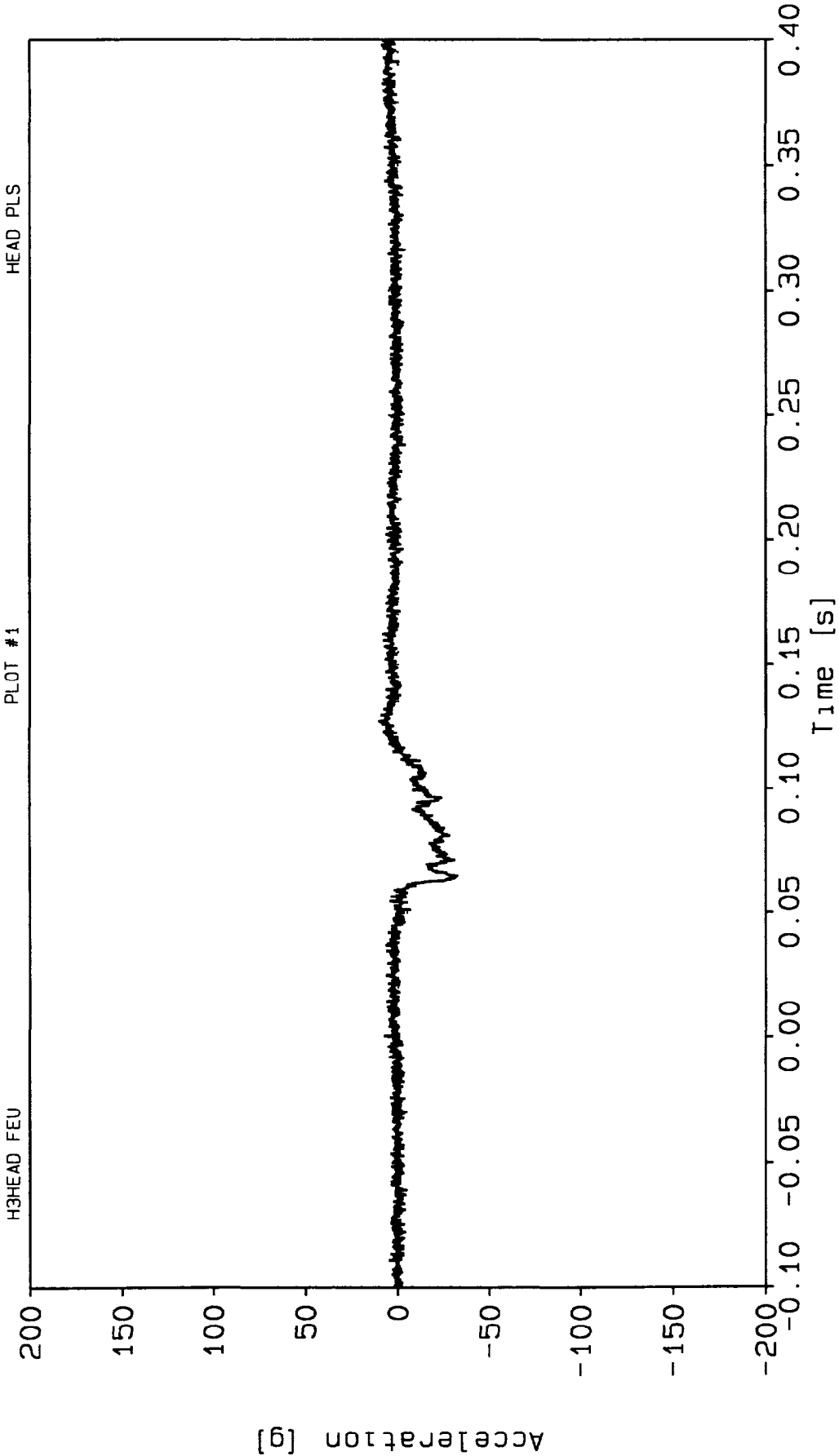
Appendix B

Data Plots

Head Acceleration (Ax) v Time

Driver Dummy - HIII
2001 Dodge Neon

2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Filter Class 1000
Volpe Crash Testing
PH06608

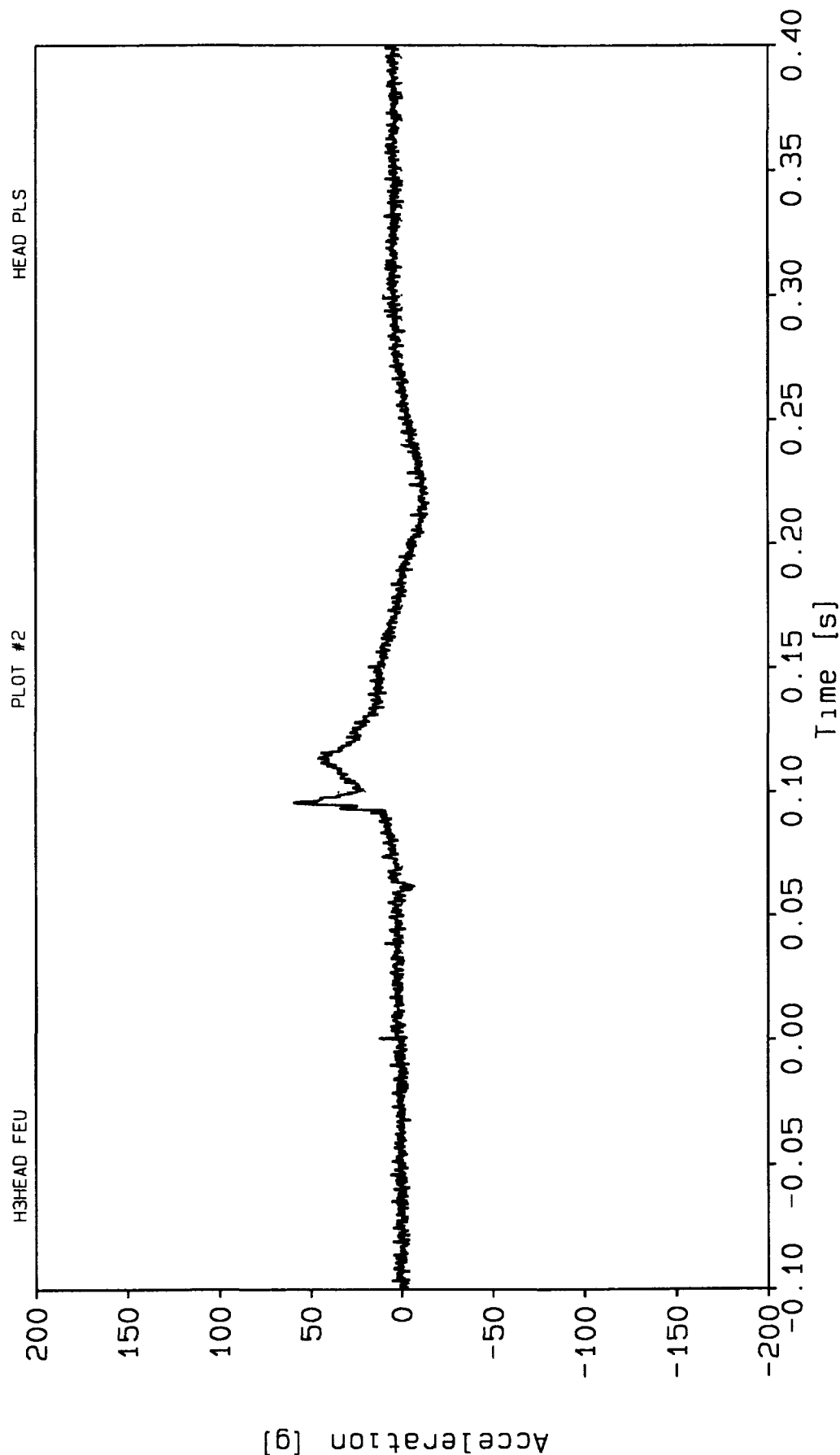
Exponent
Failure
Analysis
Associates

Head Acceleration (Ay) v Time

Driver Dummy - HIII

2001 Dodge Neon

2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Filter Class 1000
Volpe Crash Testing
PH06608

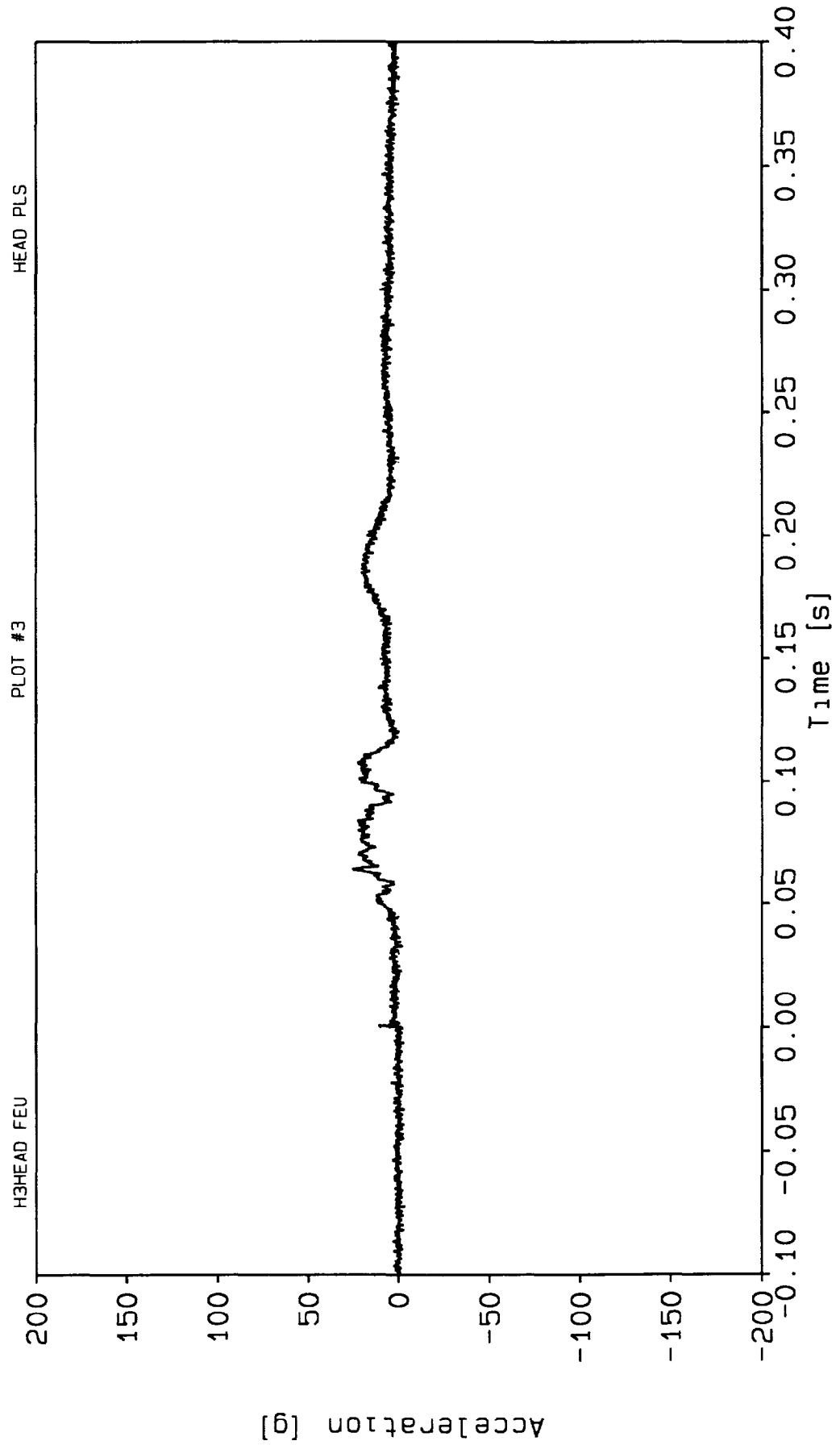
Exponent
Failure
Analysis
Associates

Head Acceleration (Az) v Time

Driver Dummy - HIII

2001 Dodge Neon

2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Exponent
Failure
Analysis
Associates

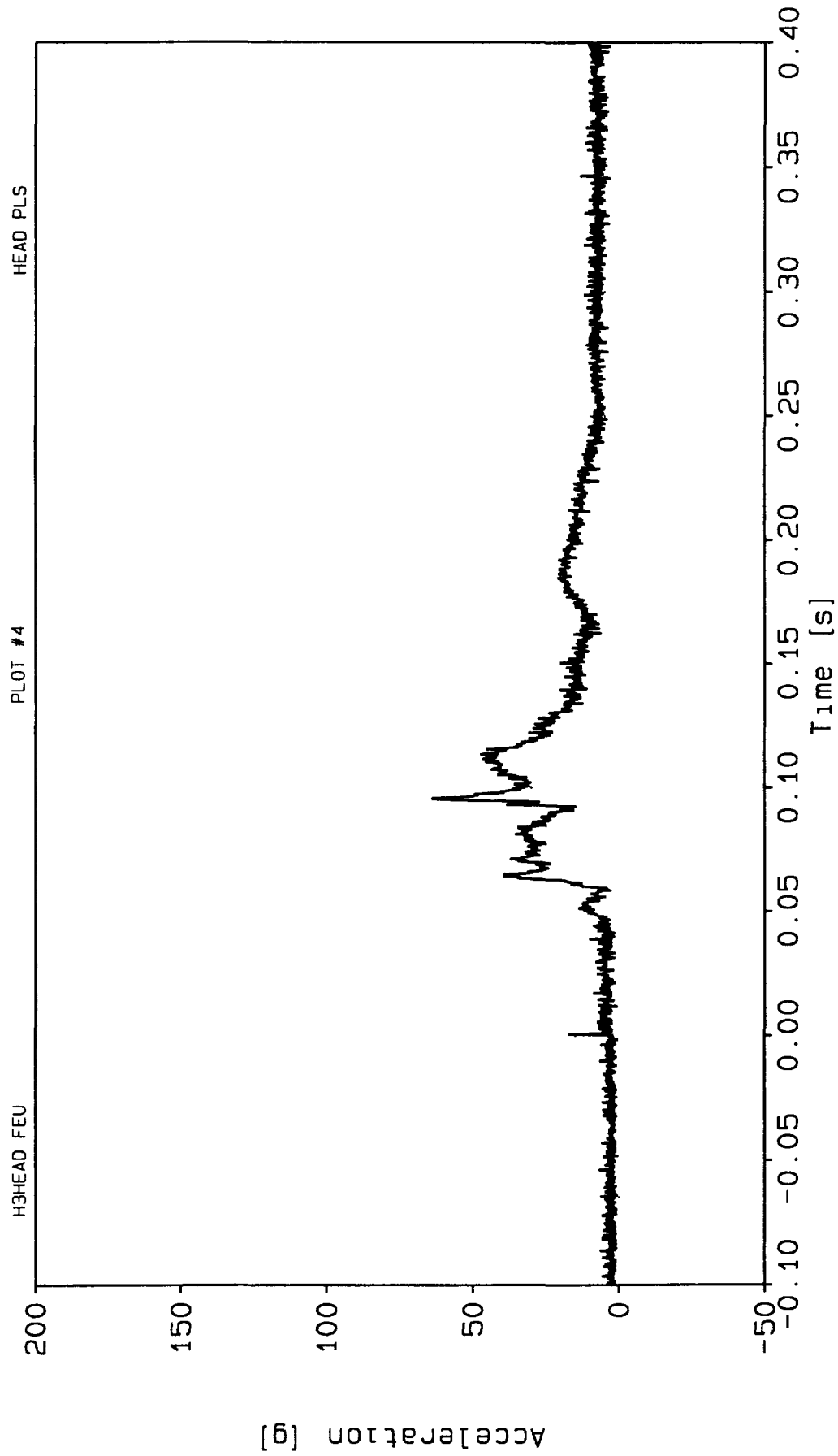
Filter Class 1000
Volpe Crash Testing
PH06608

Head Resultant Acceleration (Ar) v Time

Driver Dummy - HIII

2001 Dodge Neon

2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Filter Class 1000
Volpe Crash Testing
PH06608

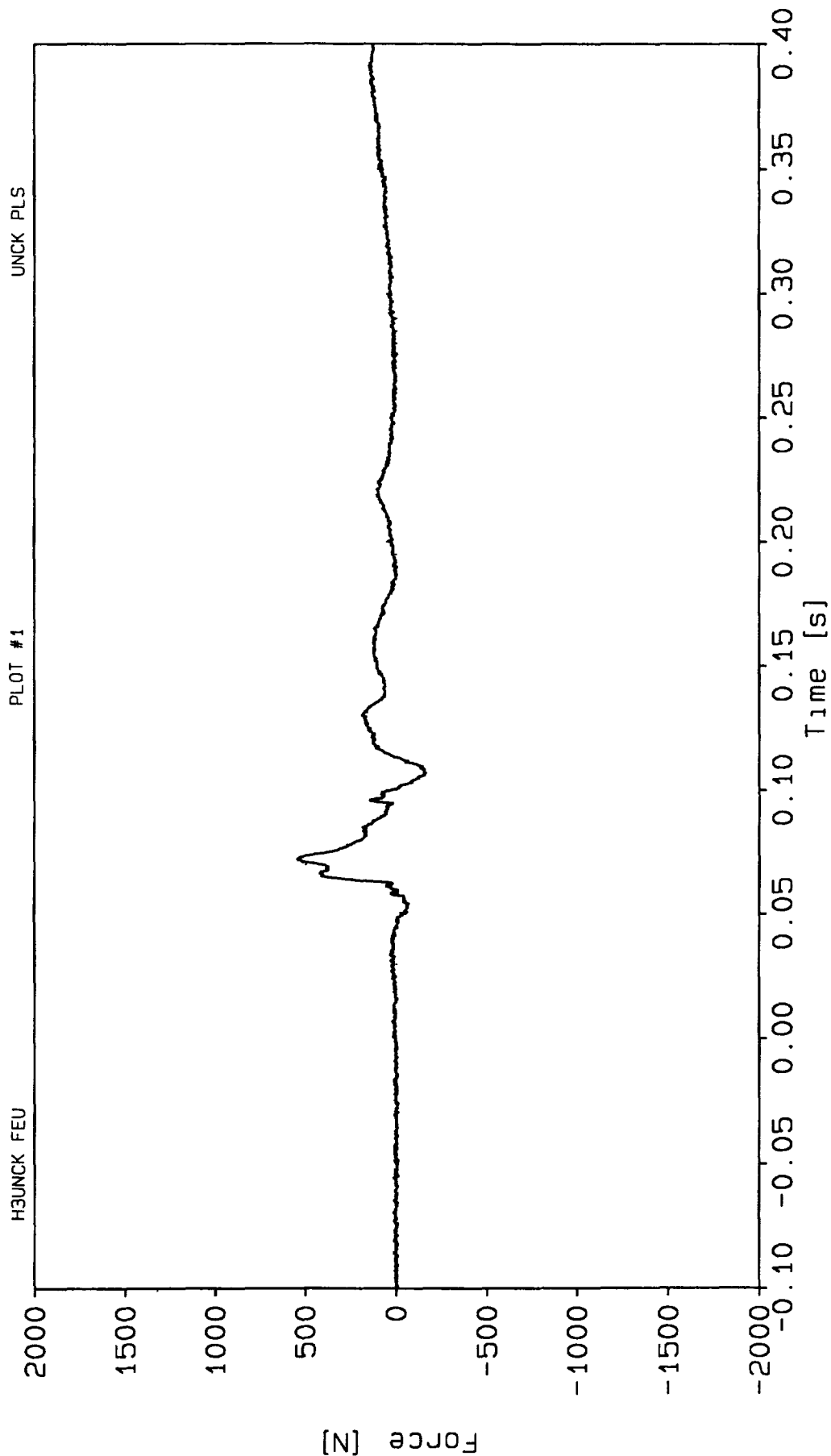
Exponent
Failure
Analysis
Associates

Upper Neck Force (Fx) v Time

Driver Dummy - HIII

2001 Dodge Neon

2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Exponent
Failure
Analysis
Associates

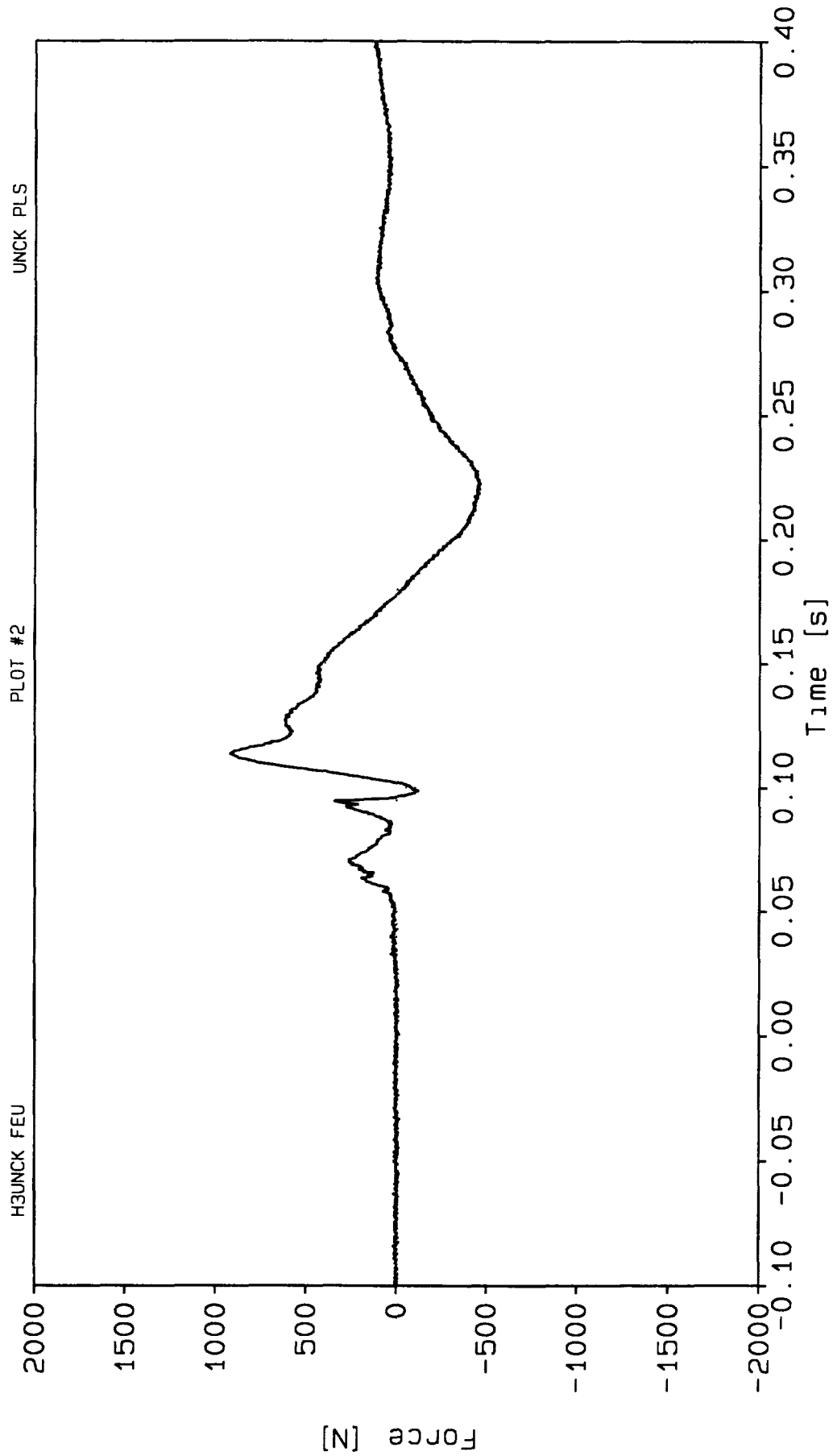
Filter Class 1000
Volpe Crash Testing
PH06608

Upper Neck Force (Fy) v Time

Driver Dummy - HIII

2001 Dodge Neon

2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Exponent
Failure
Analysis
Associates

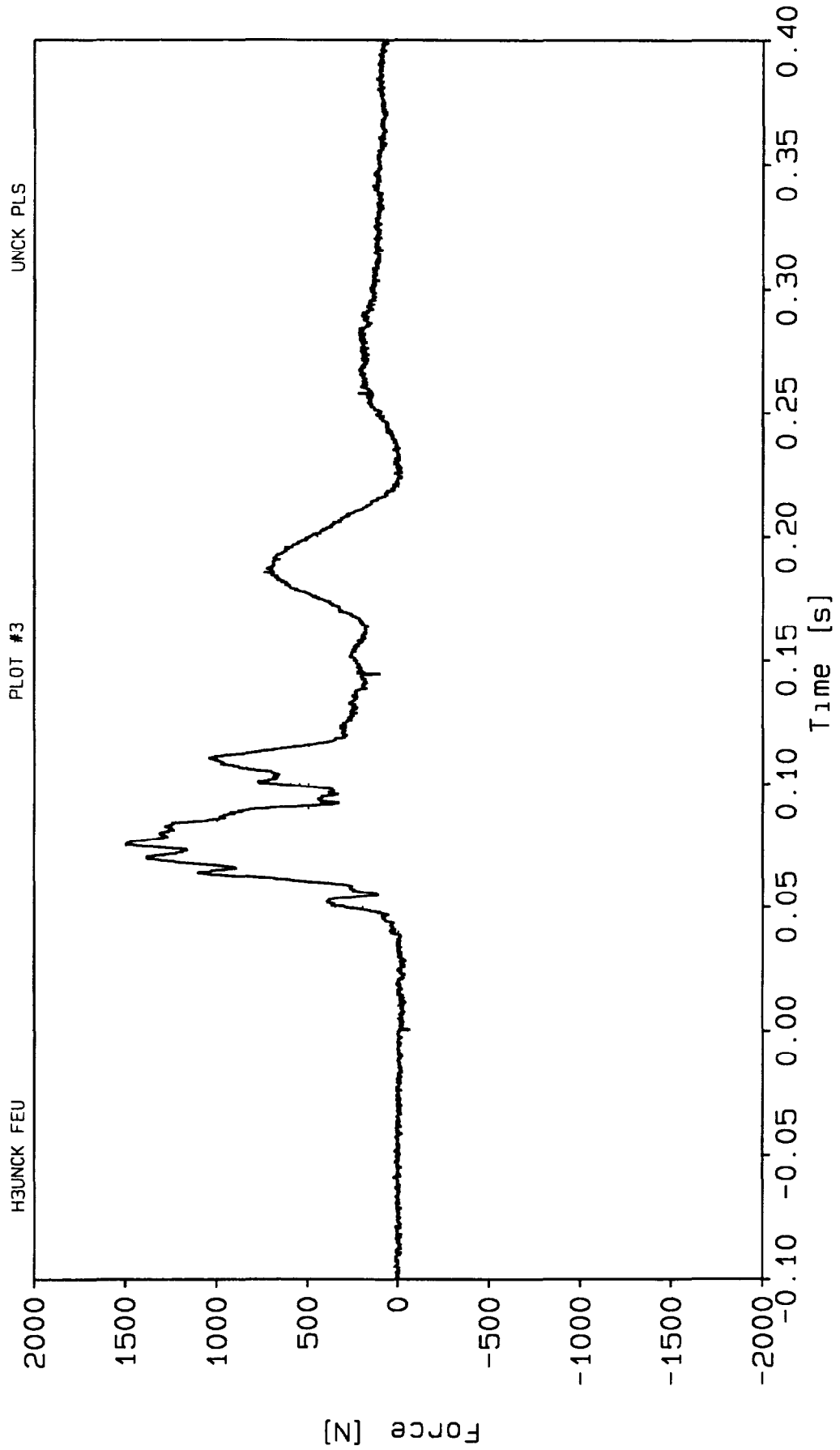
Filter Class 1000
Volpe Crash Testing
PH06608

Upper Neck Force (Fz) v Time

Driver Dummy - HIII

2001 Dodge Neon

2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Filter Class 1000
Volpe Crash Testing
PH06608

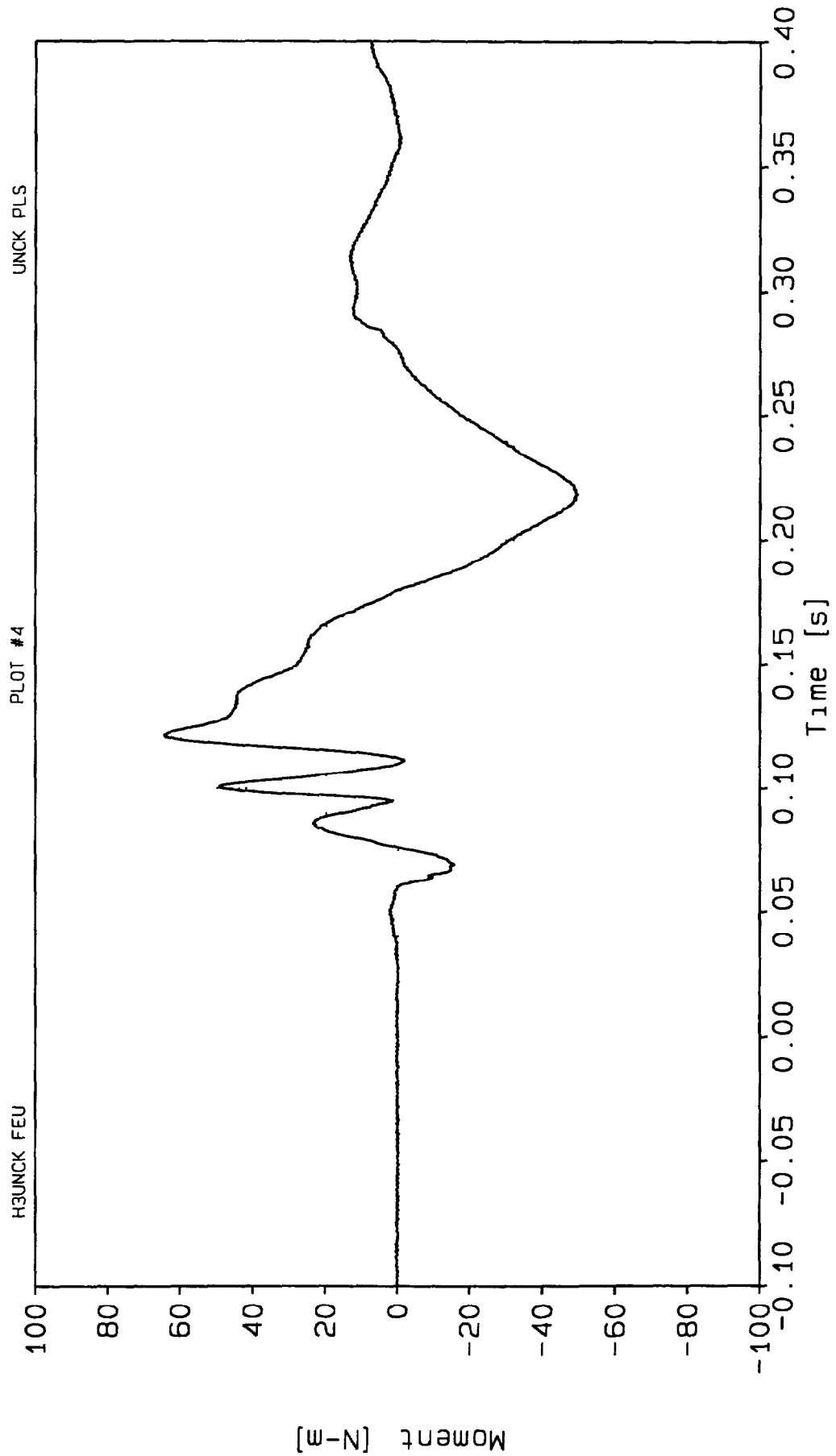
Exponent
Failure
Analysis
Associates

Upper Neck Moment (Mx) v Time

Driver Dummy - HIII

2001 Dodge Neon

2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



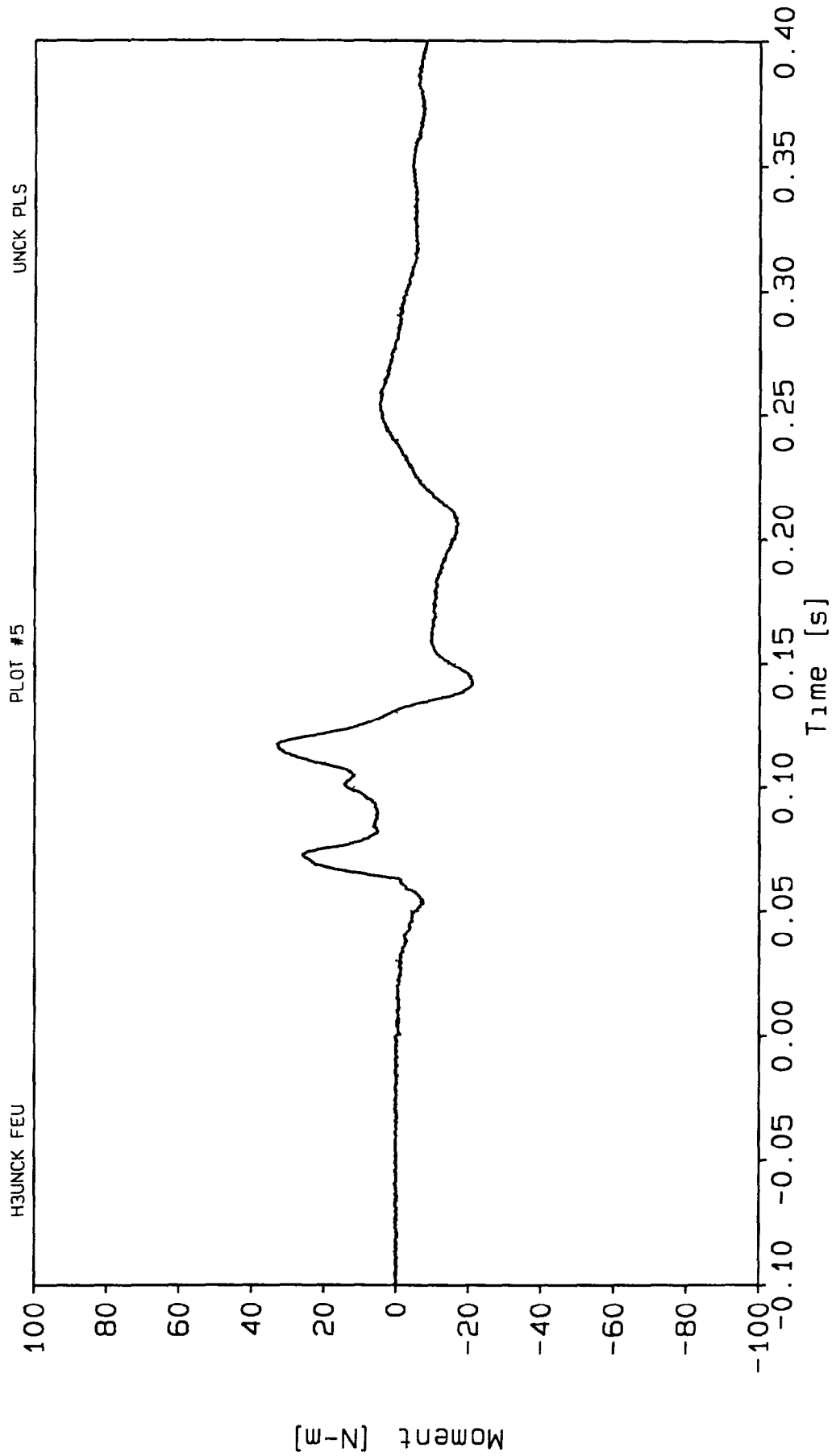
Exponent
Failure
Analysis
Associates

Filter Class 600
Volpe Crash Testing
PH05508

Upper Neck Moment (My) v Time

Driver Dummy - HIII
2001 Dodge Neon

2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



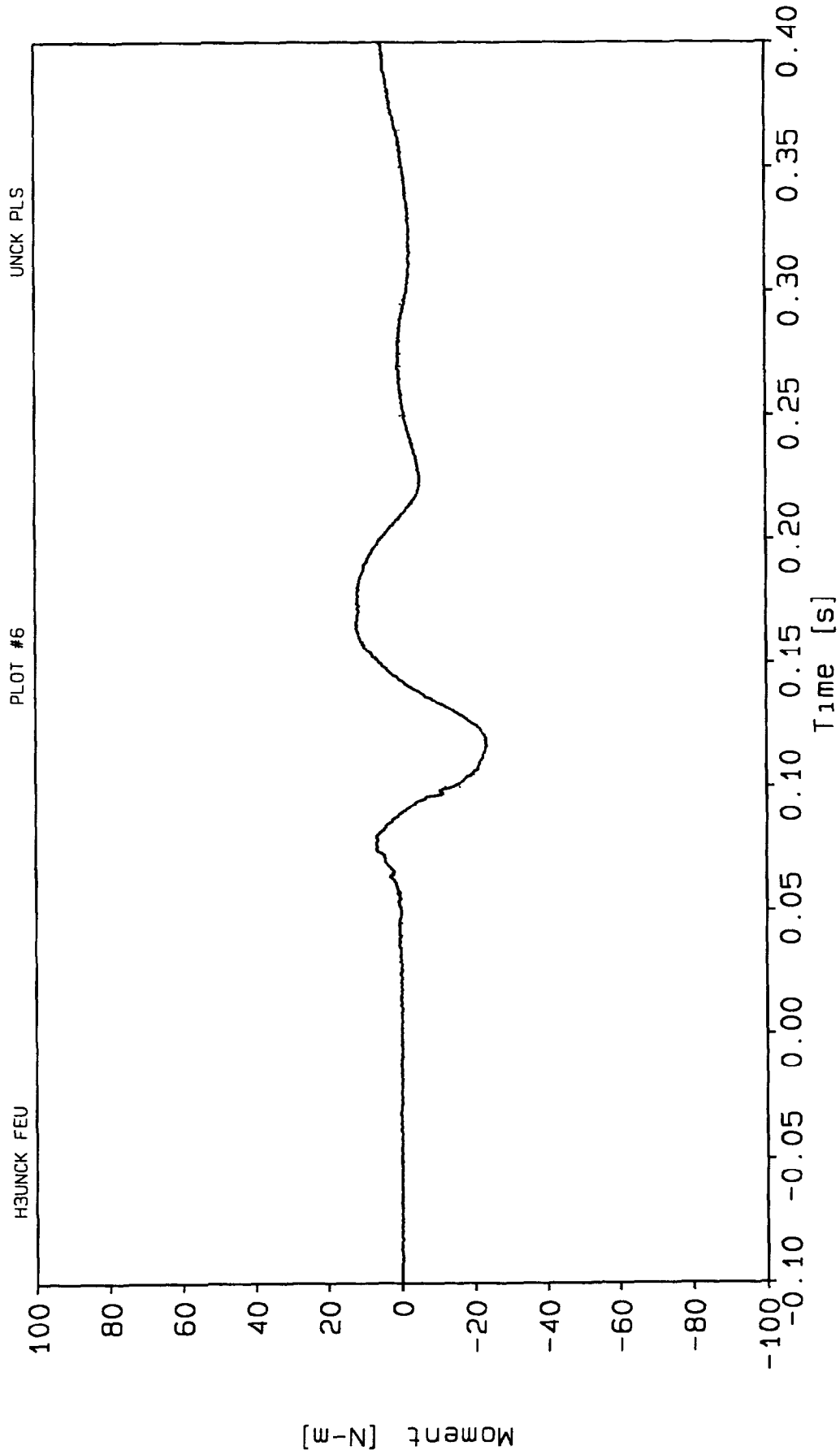
Filter Class 600
Volpe Crash Testing
PH06608

Exponent
Failure
Analysis
Associates

Upper Neck Moment (Mz) v Time

Driver Dummy - HIII
2001 Dodge Neon

2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



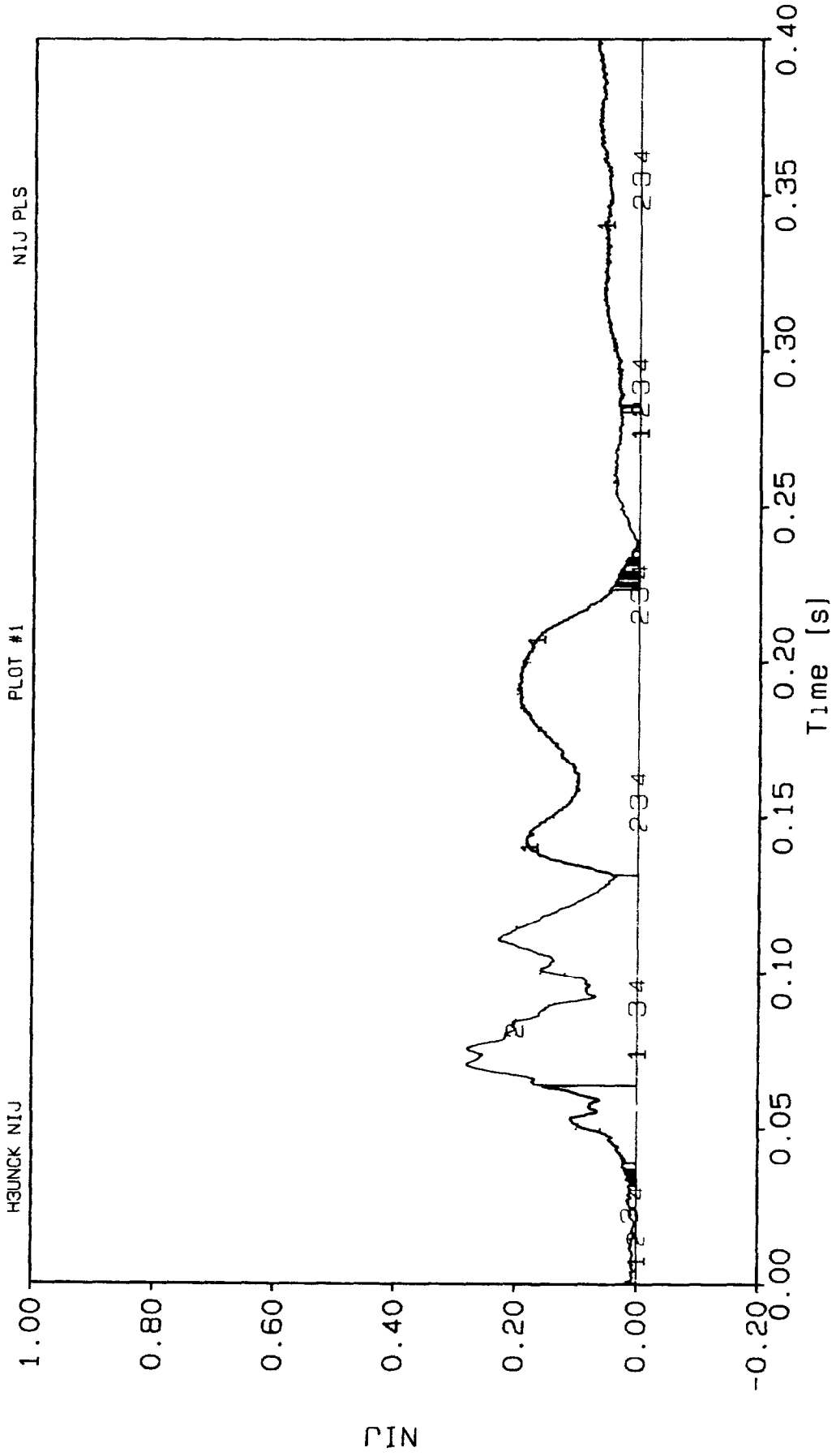
Exponent
Failure
Analysis
Associates

Filter Class 600
Volpe Crash Testing
PH06608

Neck Injury Predictor v Time

Driver Dummy - HIII
2001 Dodge Neon

2001 Ford F-150 into 2001 Dodge Neon - 09/14/01

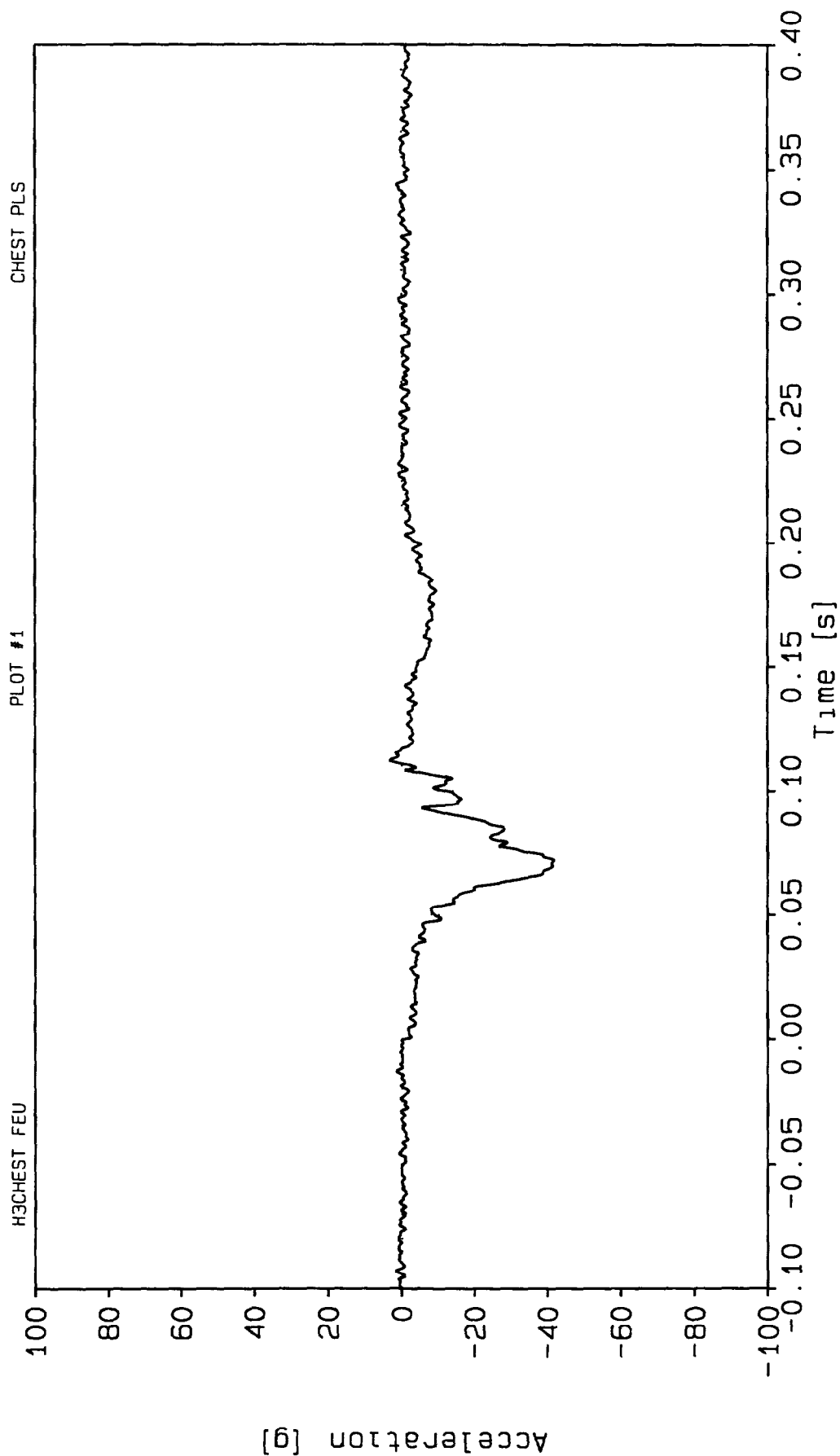


Chest Acceleration (Ax) v Time

Driver Dummy - HIII

2001 Dodge Neon

2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Exponent
Failure
Analysis
Associates

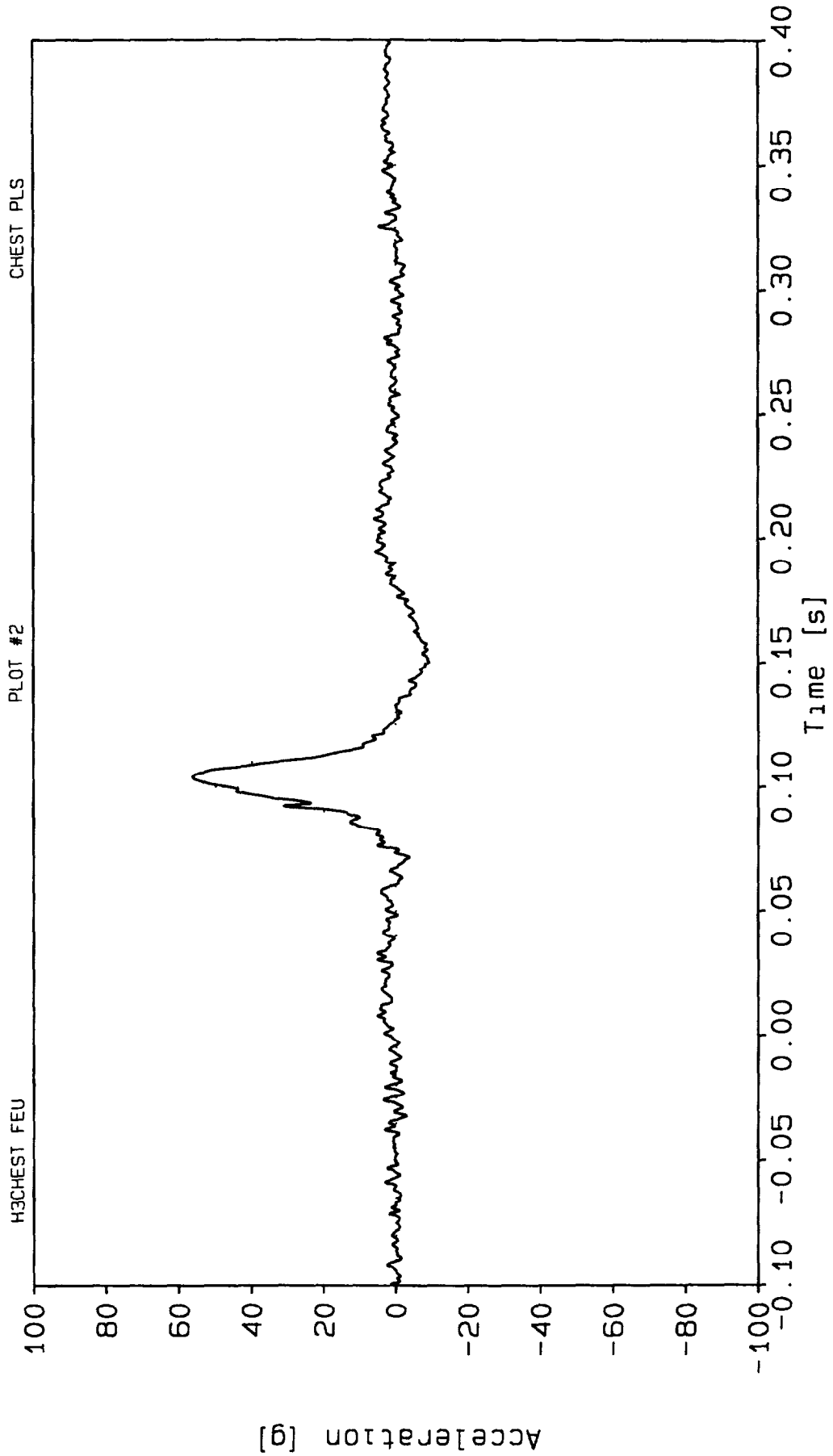
Filter Class 180
Volpe Crash Testing
PH05608

Chest Acceleration (Ay) v Time

Driver Dummy - HIII

2001 Dodge Neon

2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Exponent
Failure
Analysis
Associates

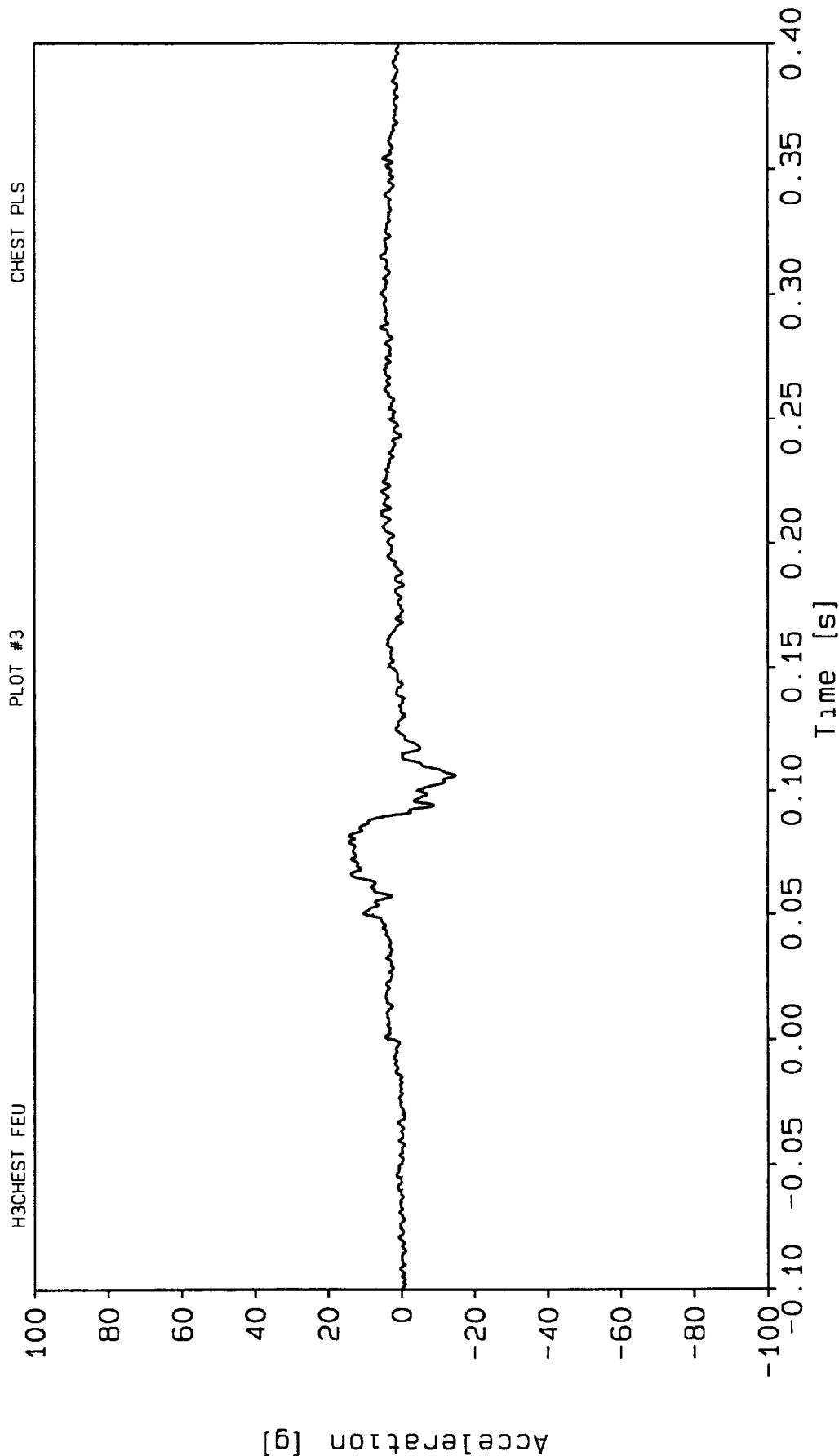
Filter Class 180
Volpe Crash Testing
PH06608

Chest Acceleration (Az) v Time

Driver Dummy - HI II

2001 Dodge Neon

2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Filter Class 180
Volpe Crash Testing
PH06608

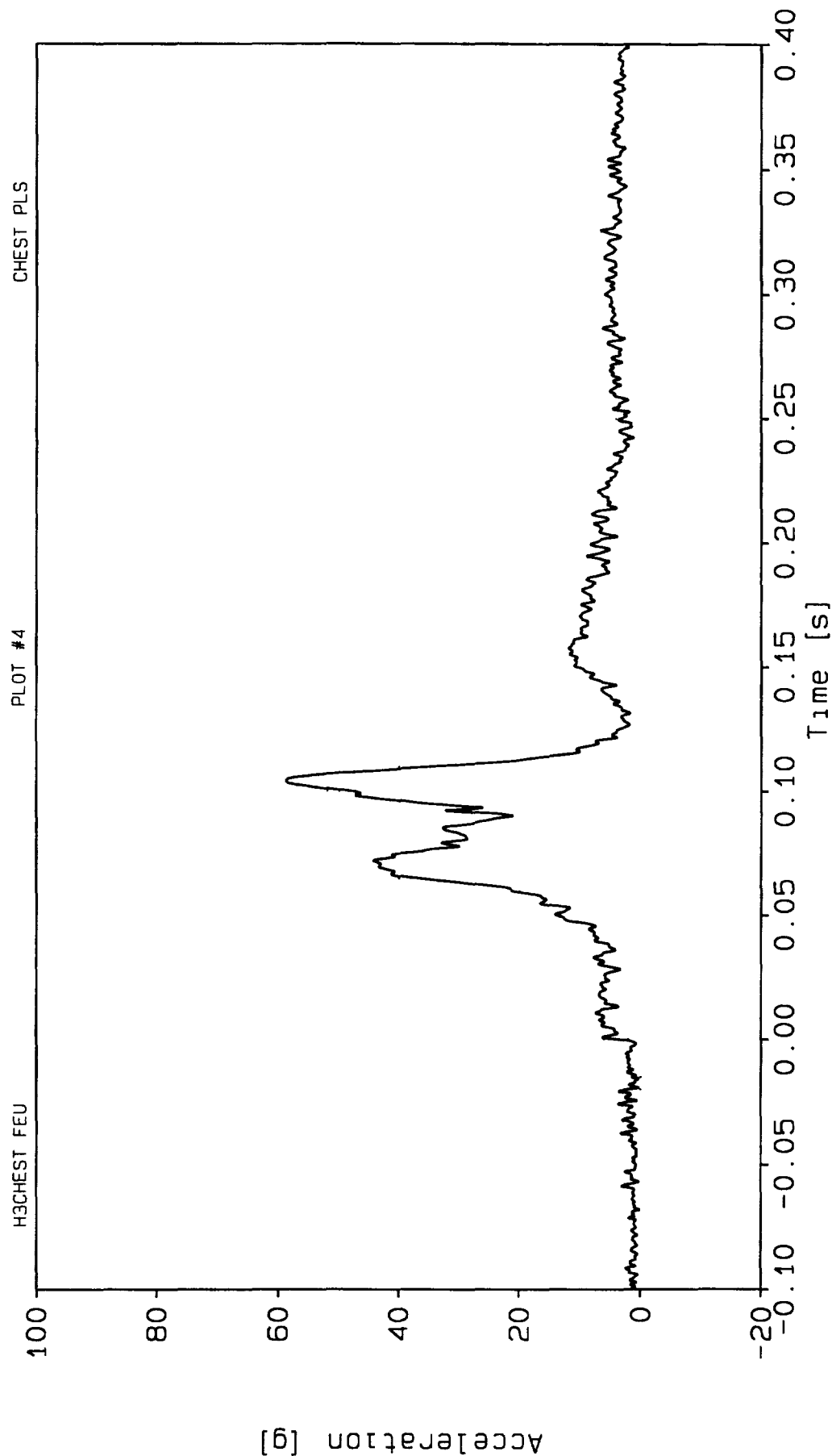
Exponent
Failure
Analysis
Associates

Chest Resultant Acceleration (Ar) v Time

Driver Dummy - HIII

2001 Dodge Neon

2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Filter Class 180
Volpe Crash Testing
PH05508

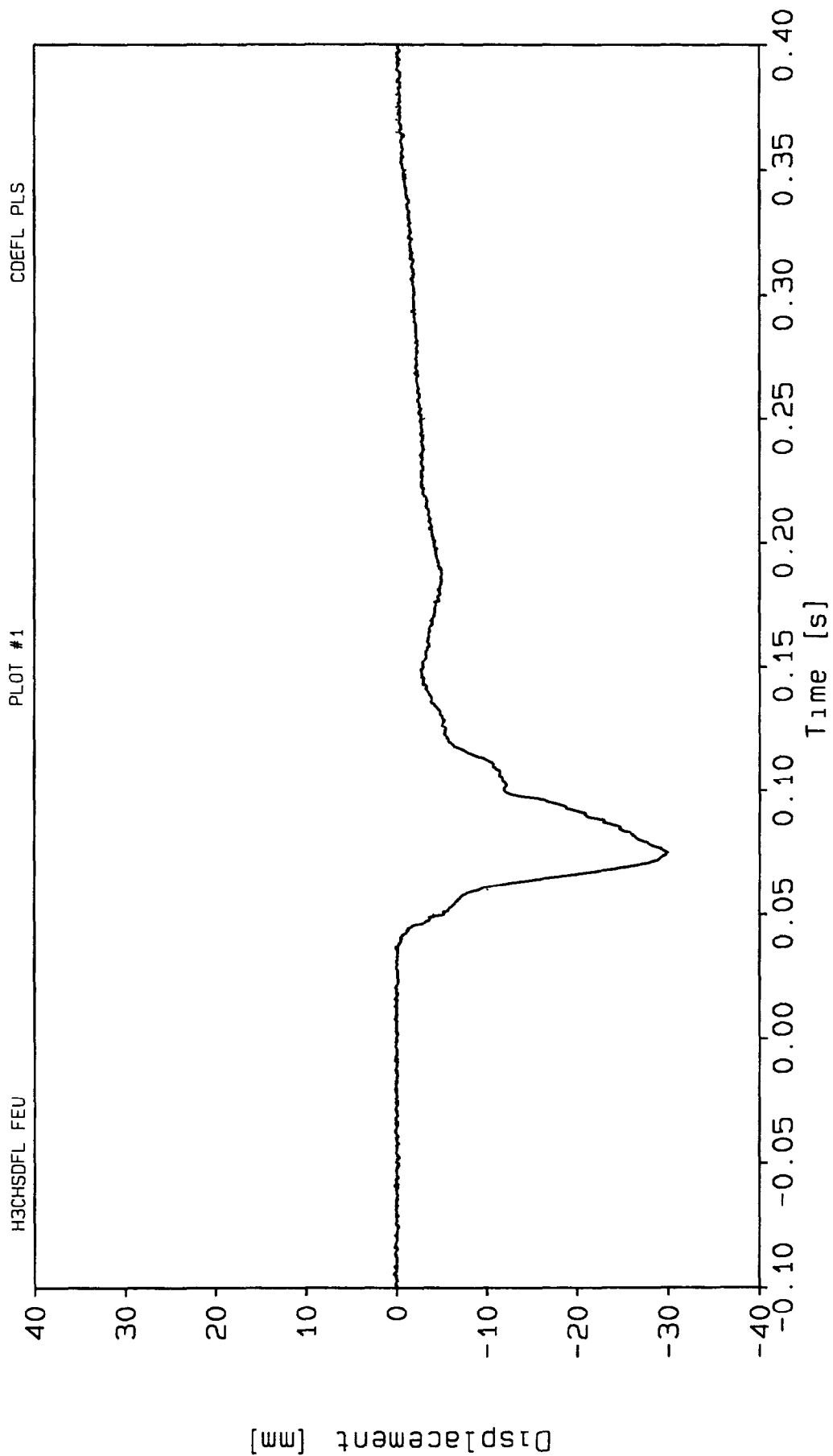
Exponent
Failure
Analysis
Associates

Chest Deflection (Dx) v Time

Driver Dummy - HIII

2001 Dodge Neon

2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Filter Class 600
Volpe Crash Testing
PH05608

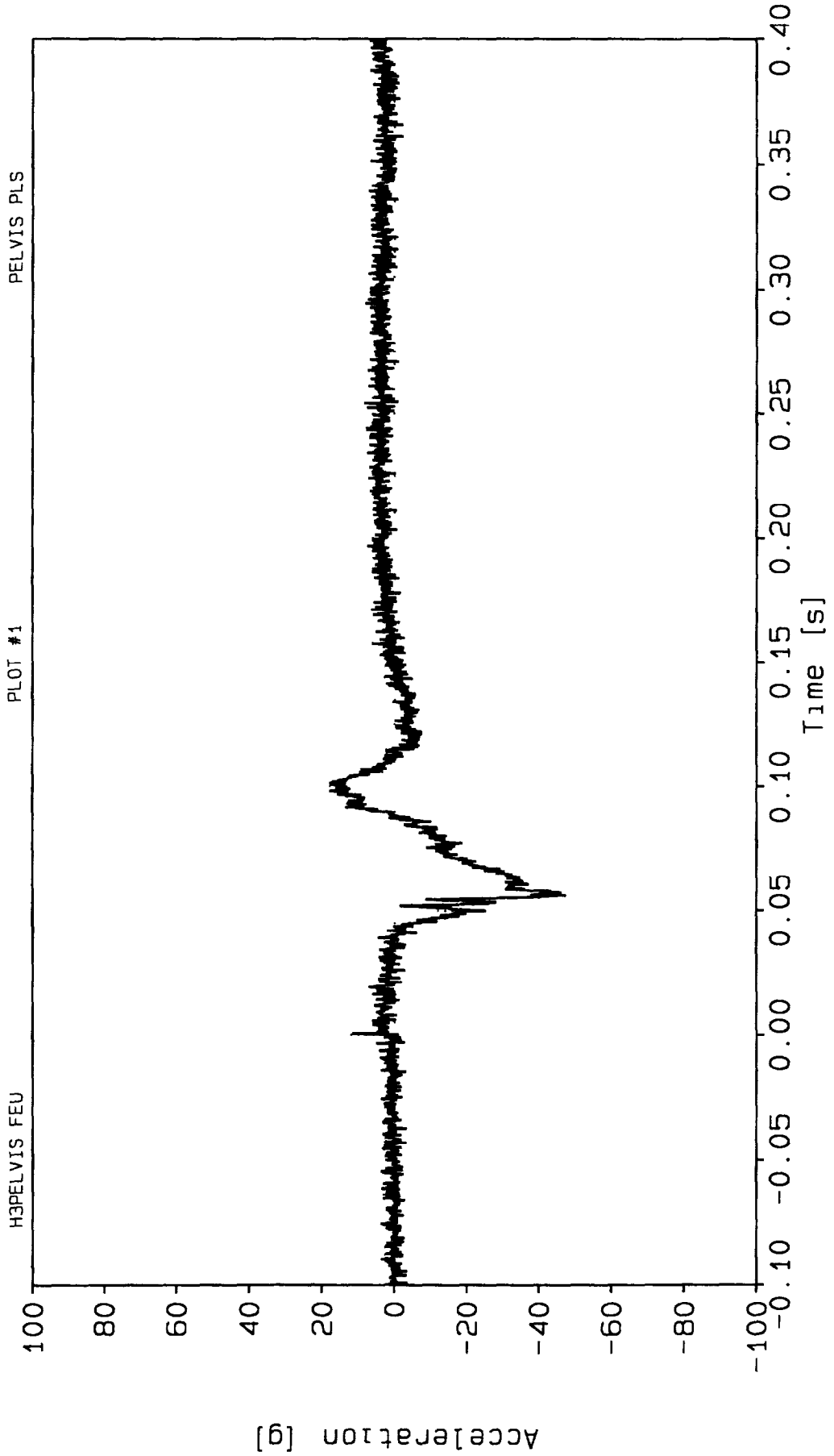
Exponent
Failure
Analysis
Associates

Pelvis Acceleration (Ax) v Time

Driver Dummy - HIII

2001 Dodge Neon

2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Filter Class 1000
Volpe Crash Testing
PH06608

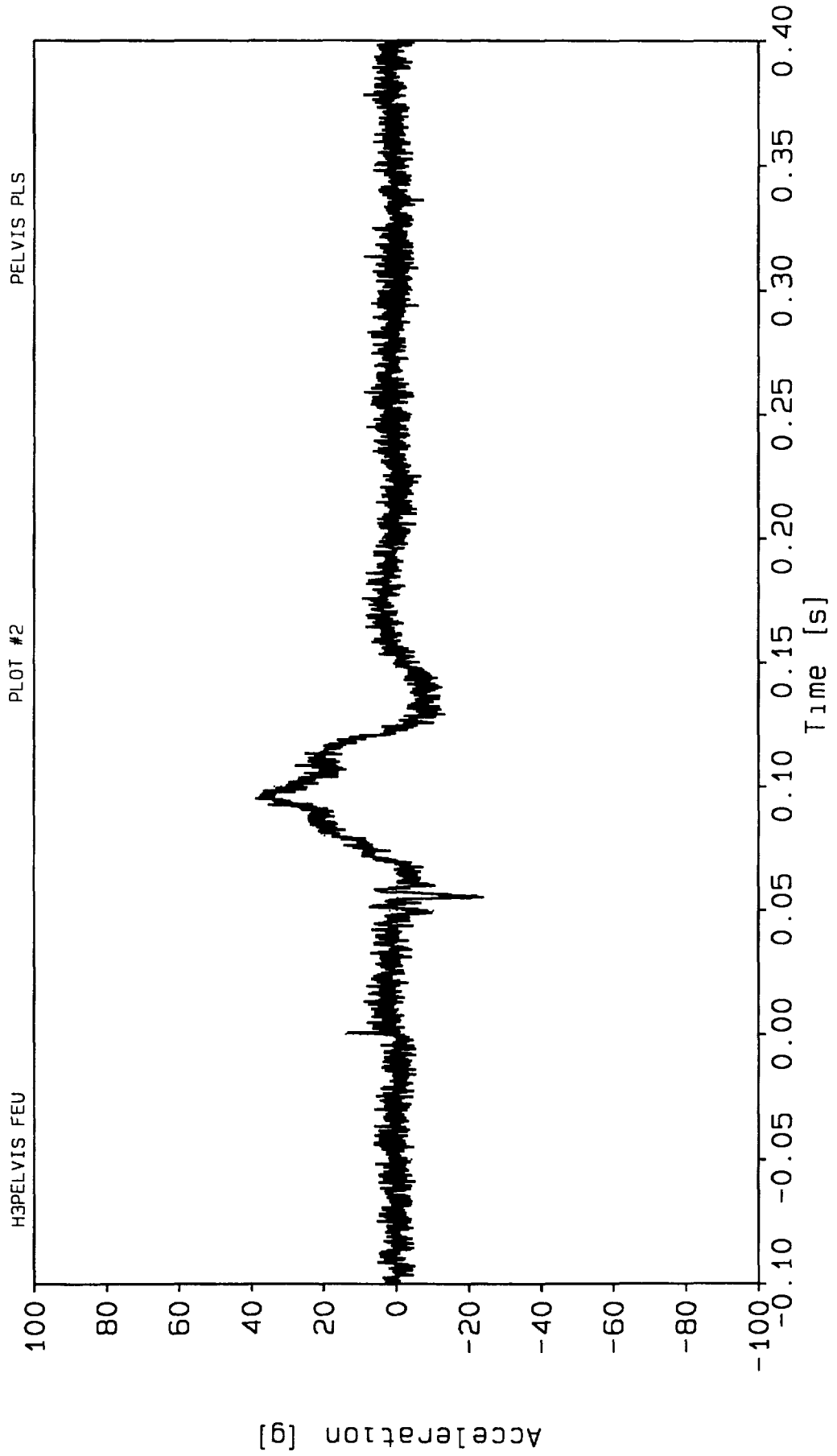
Exponent
Failure
Analysis
Associates

Pelvis Acceleration (Ay) v Time

Driver Dummy - HIII

2001 Dodge Neon

2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Filter Class 1000
VoIpe Crash Testing
PH06608

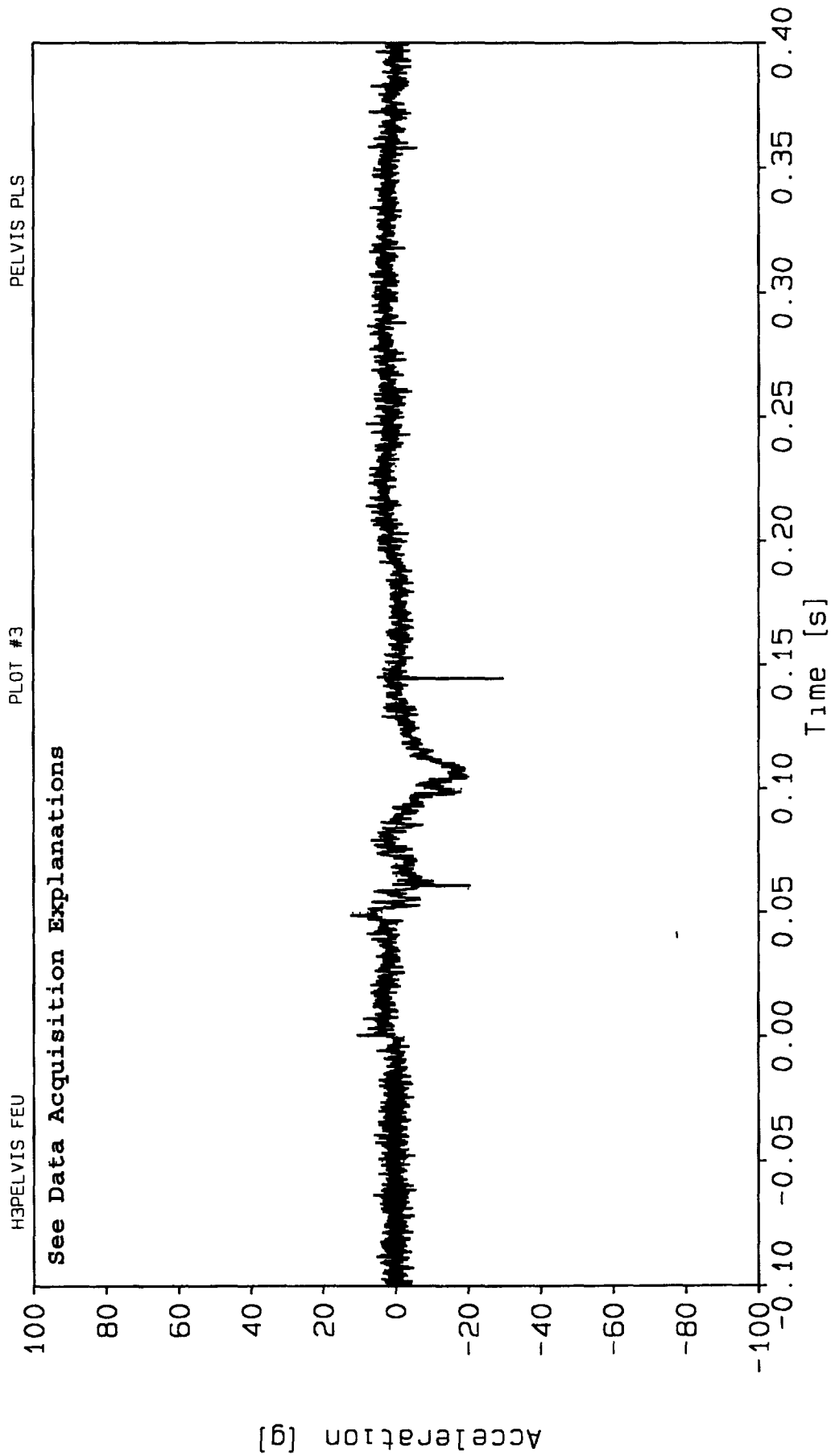
Exponent
Failure
Analysis
Associates

Pelvis Acceleration (Az) v Time

Driver Dummy - HIII

2001 Dodge Neon

2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Filter Class 1000
Volpe Crash Testing
PH05608

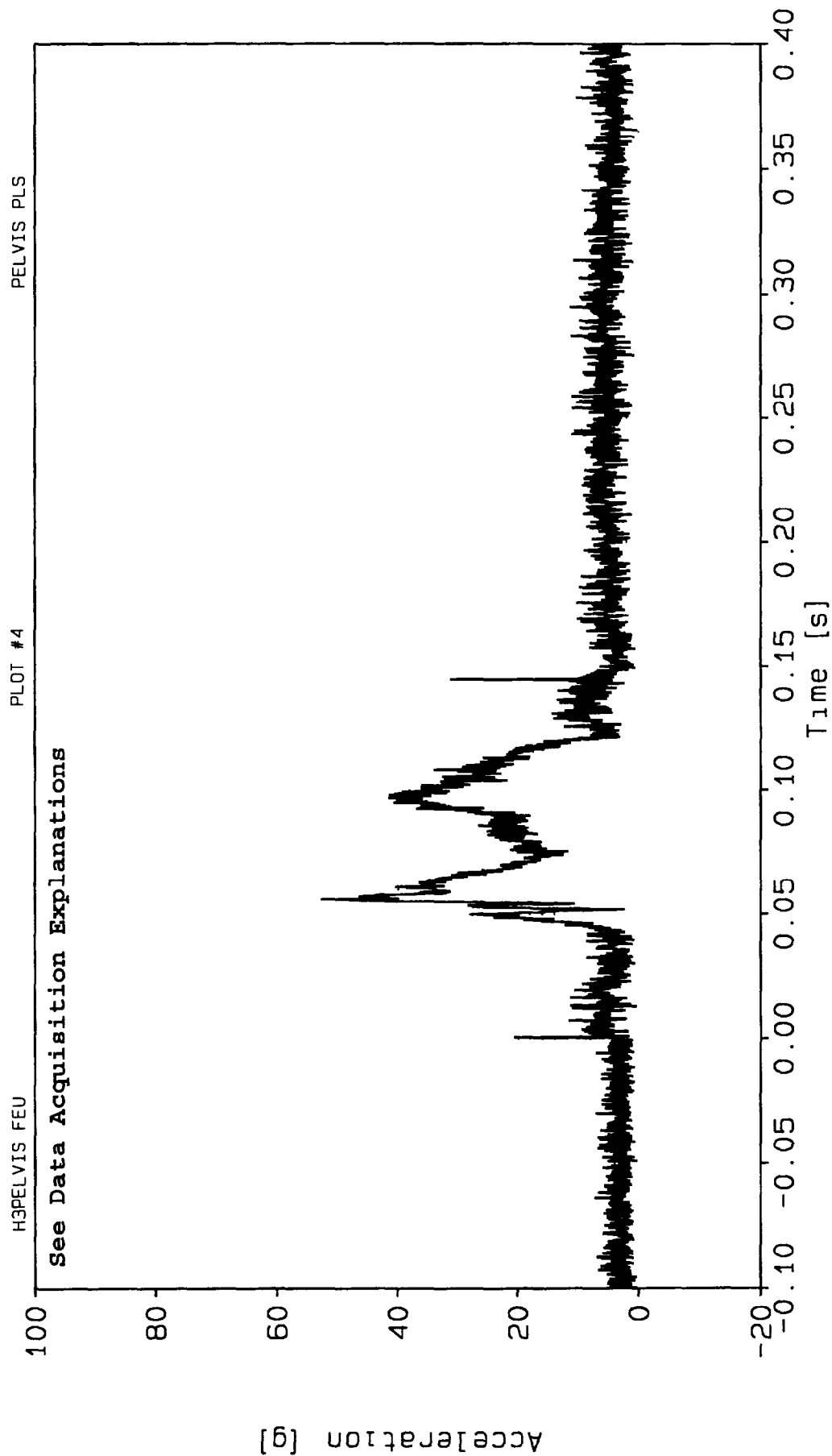
Exponent
Failure
Analysis
Associates

Pelvis Resultant Acceleration (Ar) v Time

Driver Dummy - HIII

2001 Dodge Neon

2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Exponent
Failure
Analysis
Associates

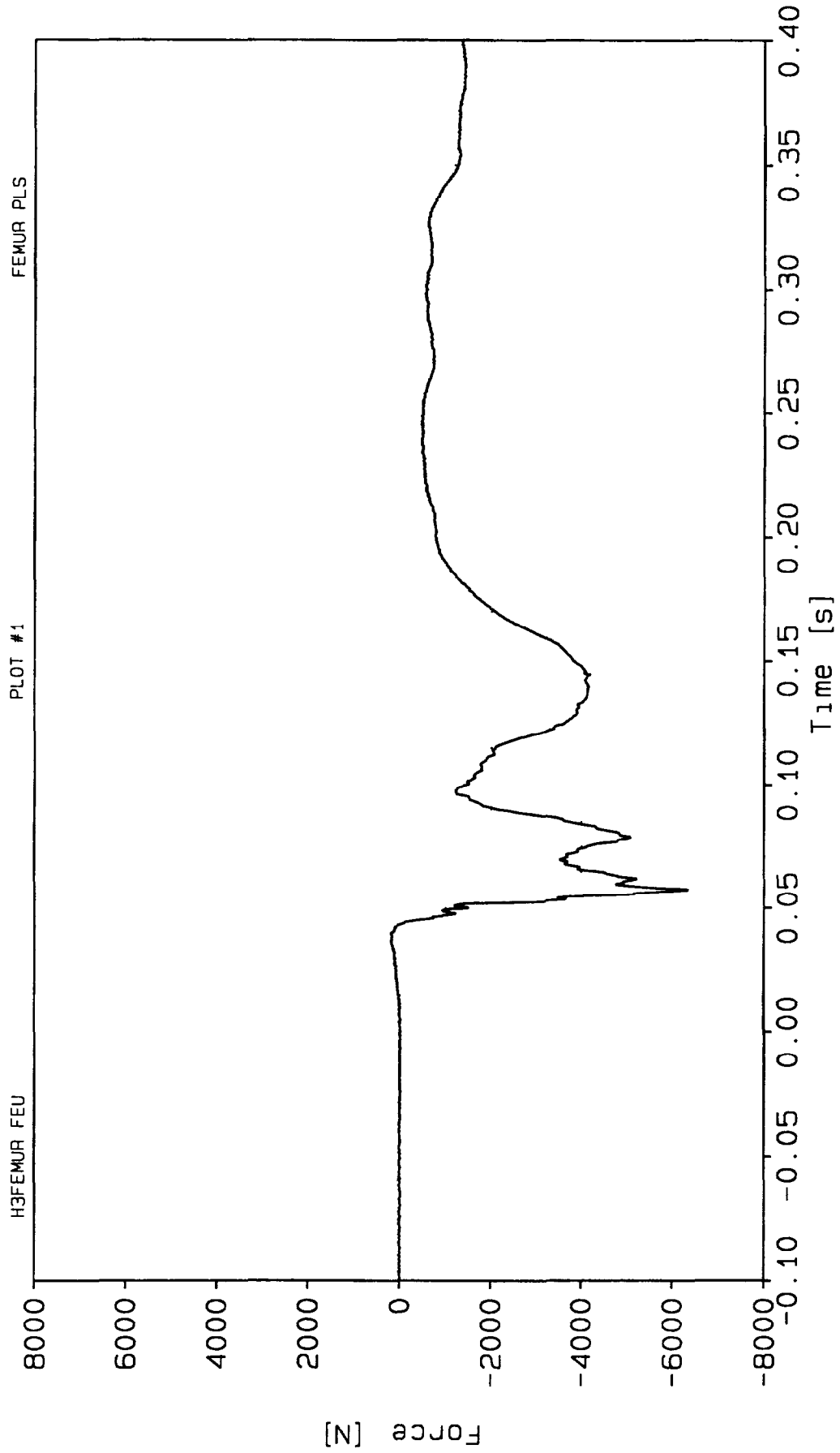
Filter Class 1000
Volpe Crash Testing
PH06608

Left Femur Force v Time

Driver Dummy - HIII

2001 Dodge Neon

2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



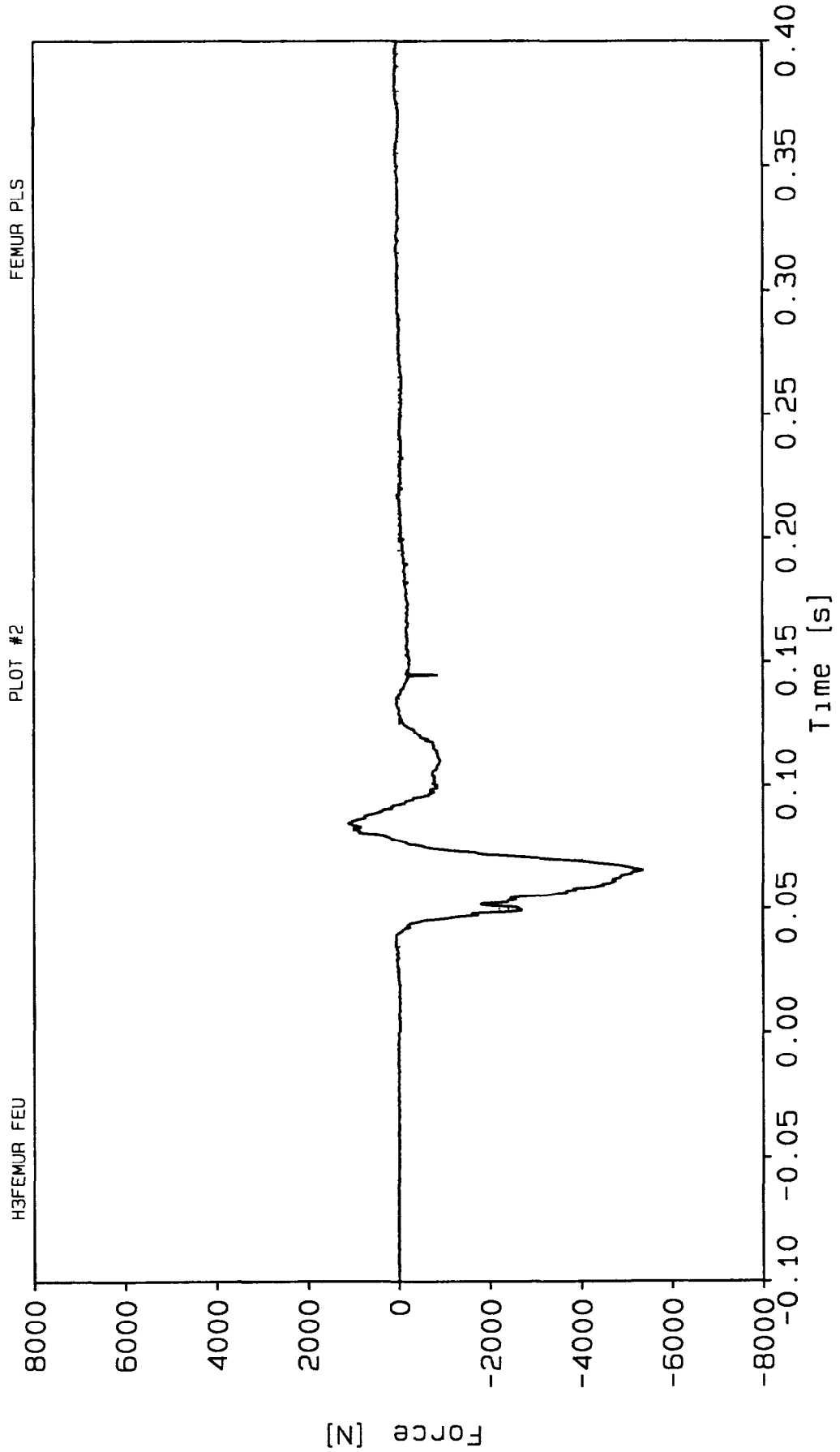
Filter Class 600
Volpe Crash Testing
PH05608

Exponent
Failure
Analysis
Associates

Right Femur Force v Time

Driver Dummy - HIII
2001 Dodge Neon

2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Filter Class 600
Volpe Crash Testing
PH06608

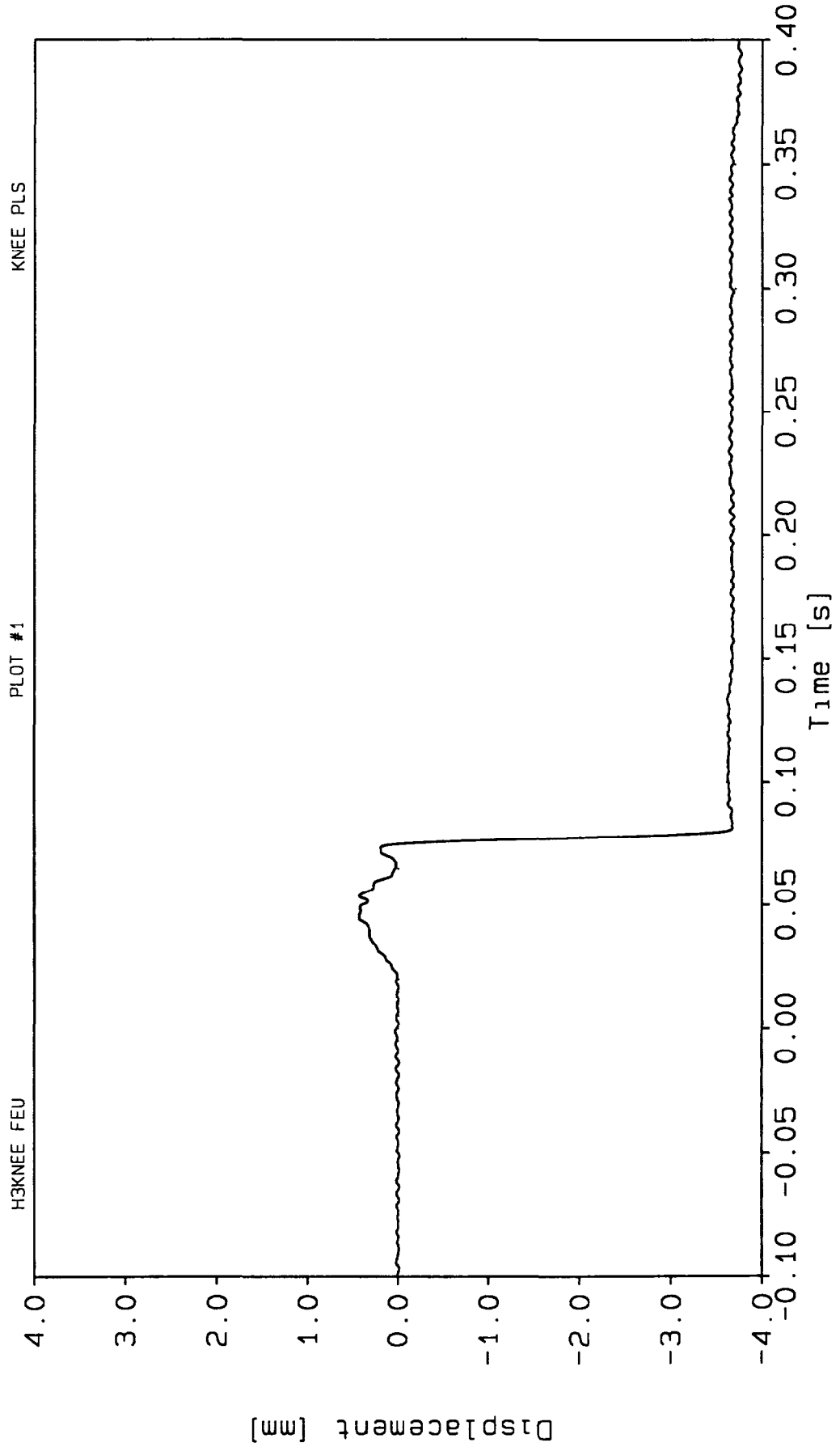
Exponent
Failure
Analysis
Associates

Left Knee Displacement v Time

Driver Dummy - HIII

2001 Dodge Neon

2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Filter Class 180
Volpe Crash Testing
PH06608

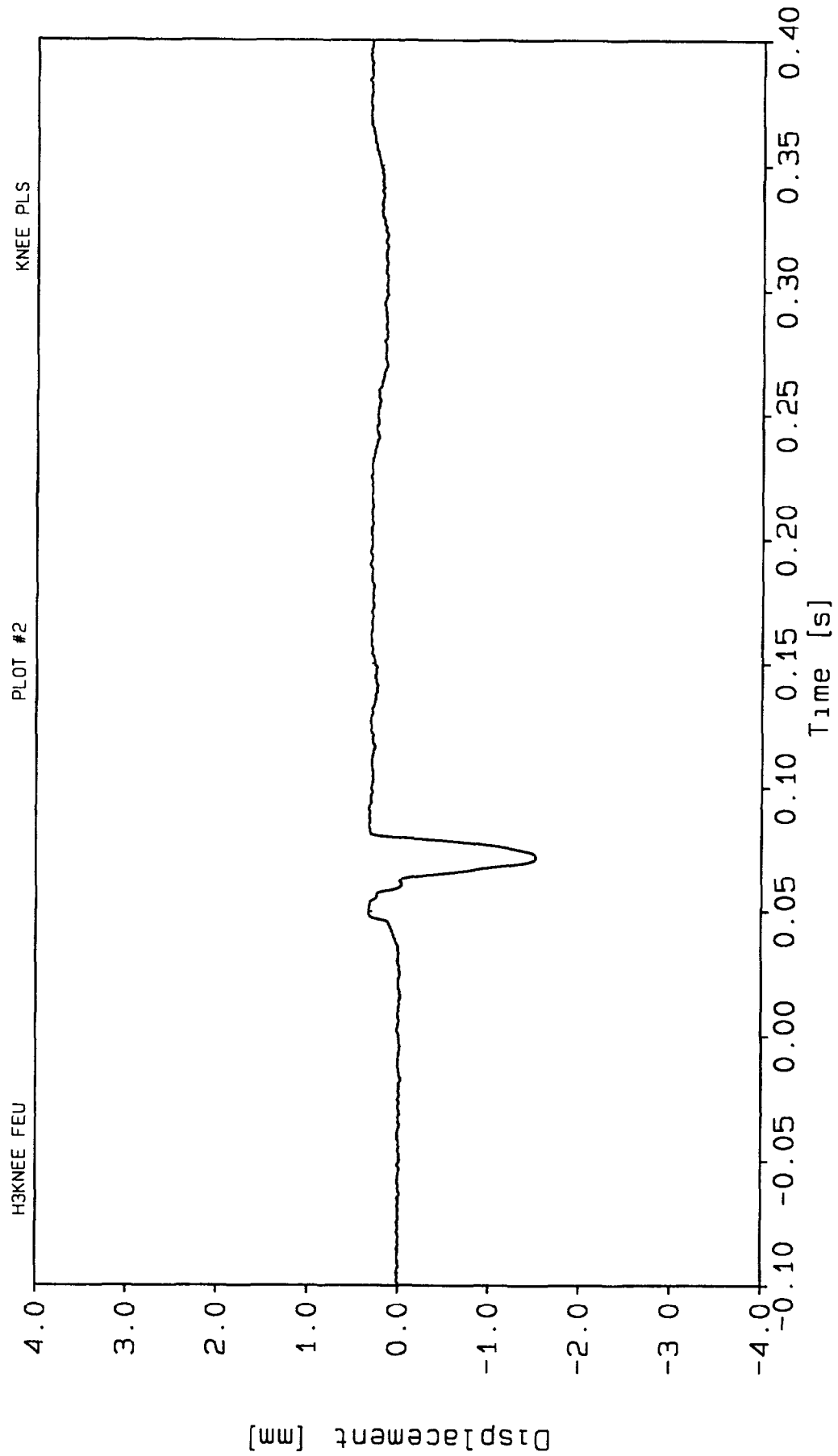
Exponent
Failure
Analysis
Associates

Right Knee Displacement v Time

Driver Dummy - HIII

2001 Dodge Neon

2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Filter Class 180
Volpe Crash Testing
PH06608

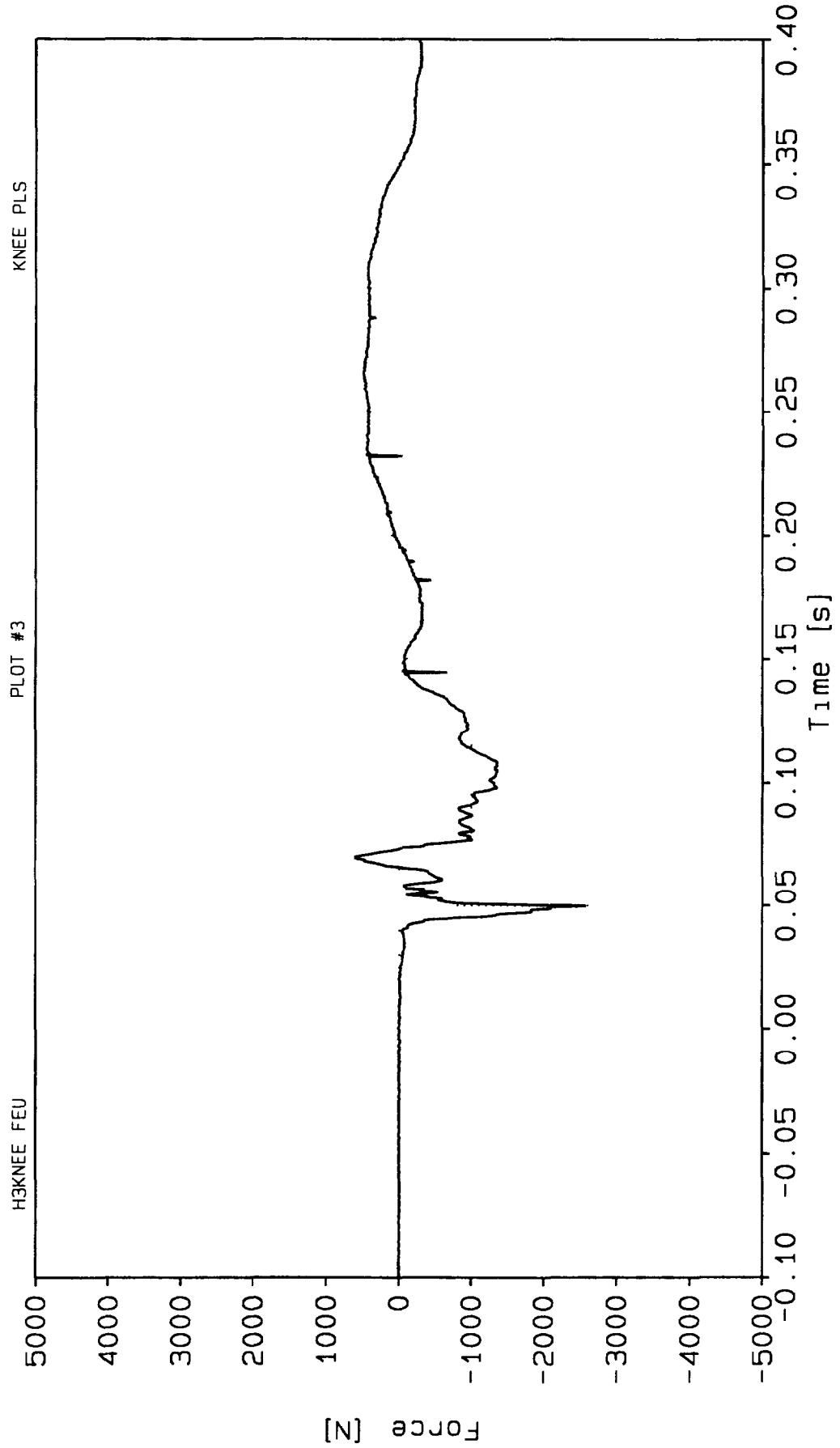
Exponent
Failure
Analysis
Associates

Left Knee Left Force v Time

Driver Dummy - HIII

2001 Dodge Neon

2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Filter Class 600
Volpe Crash Testing
PH06608

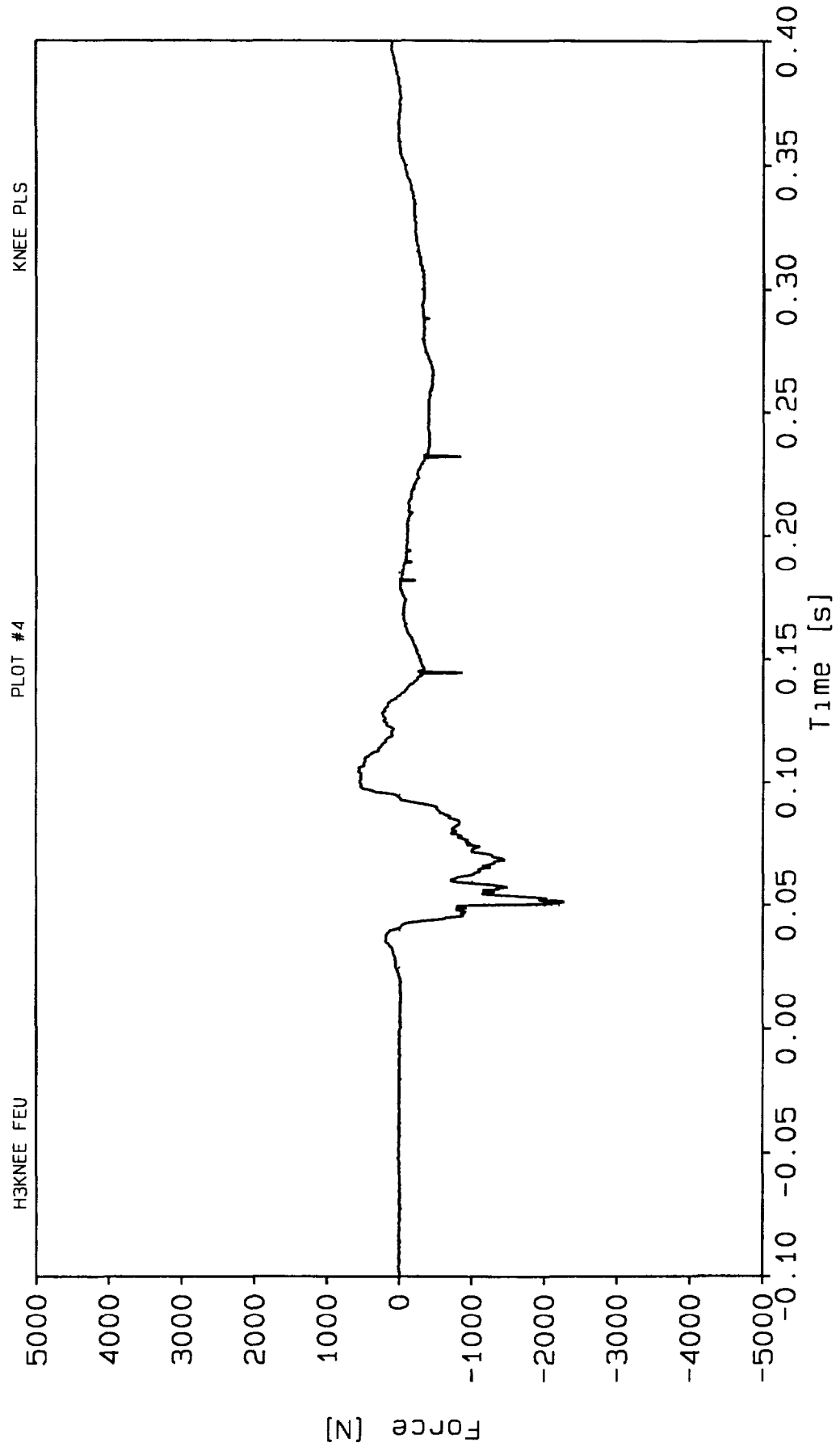
Exponent
Failure
Analysis
Associates

Left Knee Right Force v Time

Driver Dummy - HIII

2001 Dodge Neon

2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Filter Class 600
Volpe Crash Testing
PH05608

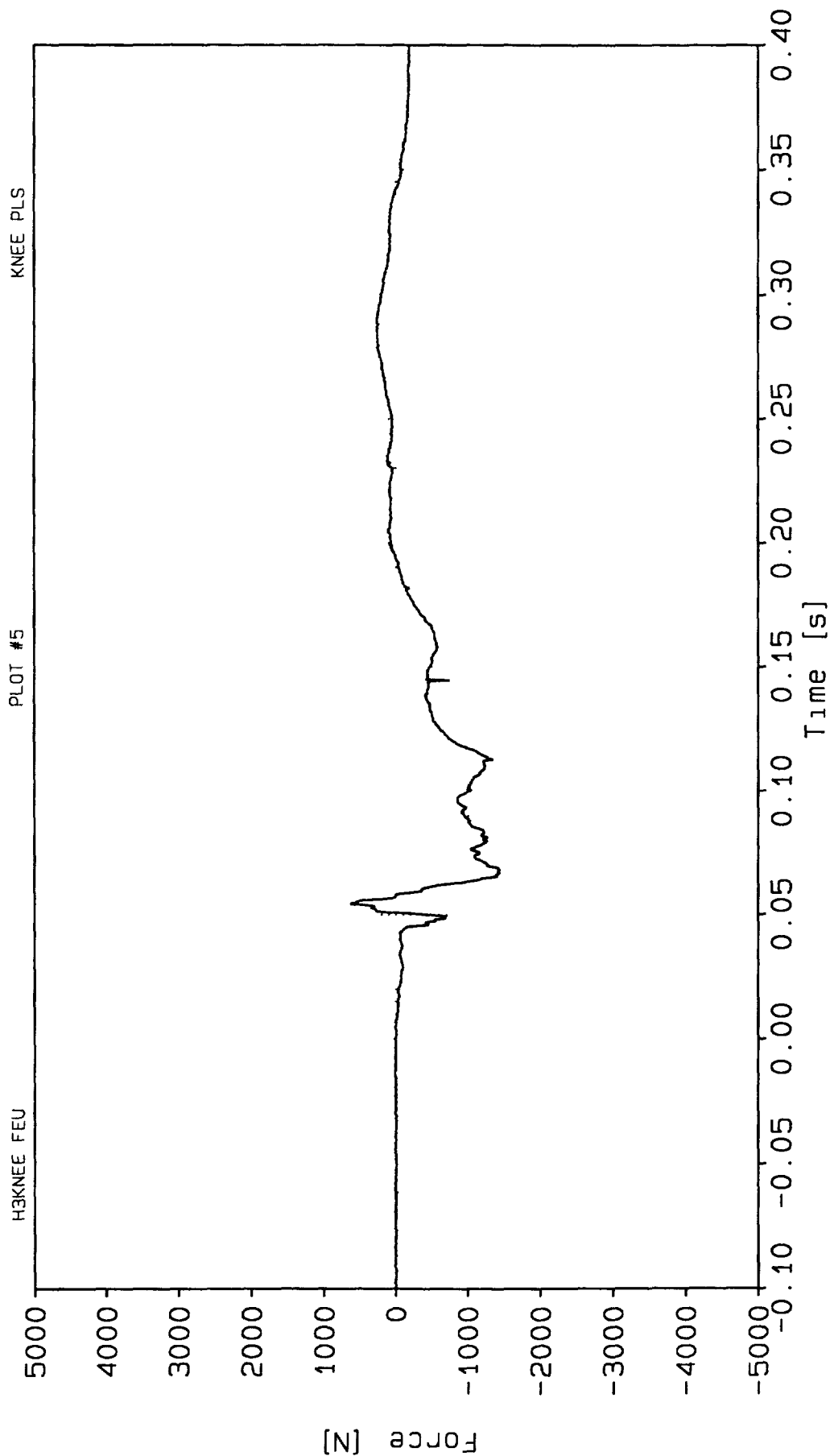
Exponent
Failure
Analysis
Associates

Right Knee Left Force v Time

Driver Dummy - HIII

2001 Dodge Neon

2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Filter Class 600
Volpe Crash Testing
PH06608

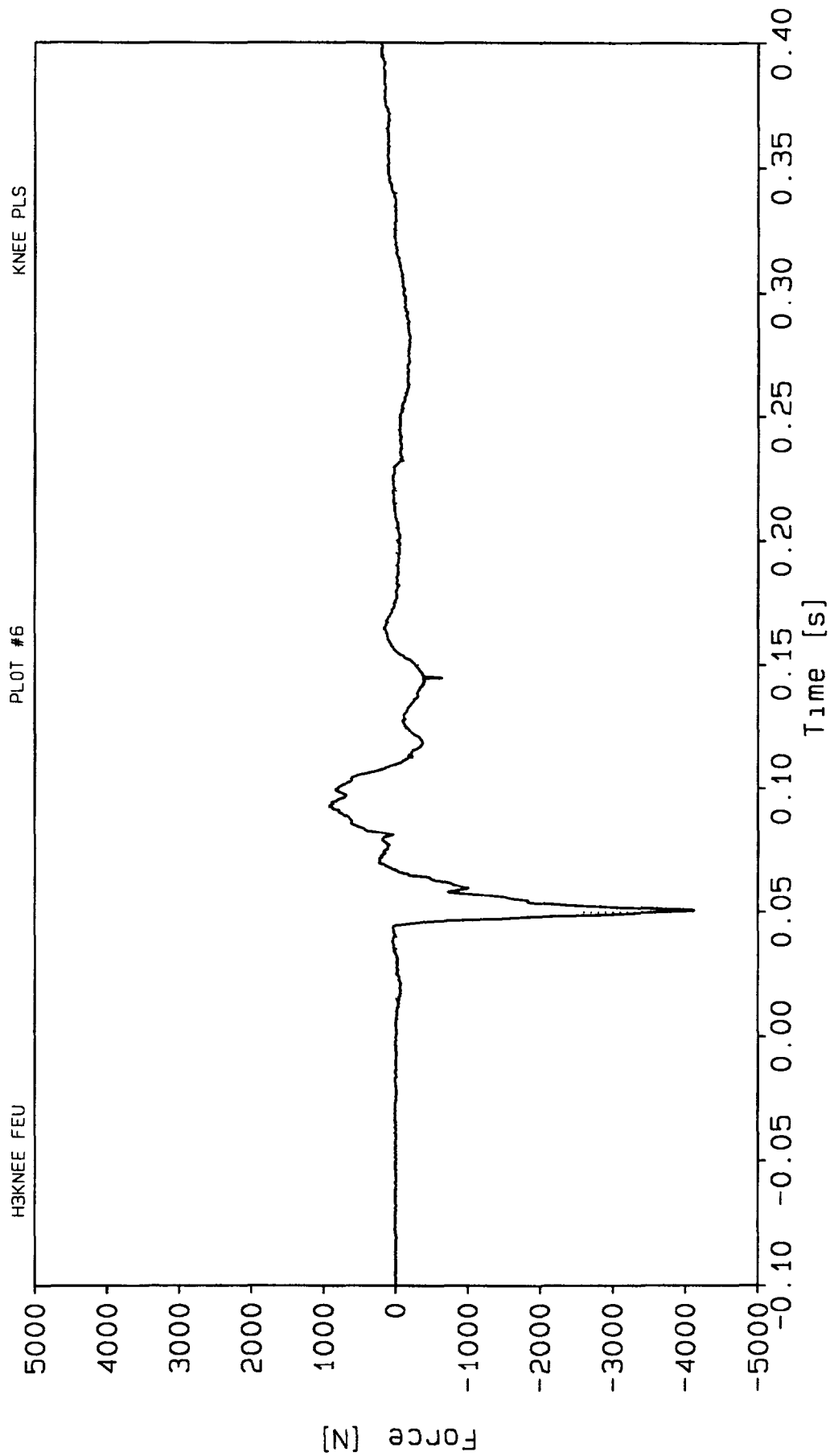
Exponent
Failure
Analysis
Associates

Right Knee Right Force v Time

Driver Dummy - HIII

2001 Dodge Neon

2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Exponent
Failure
Analysis
Associates

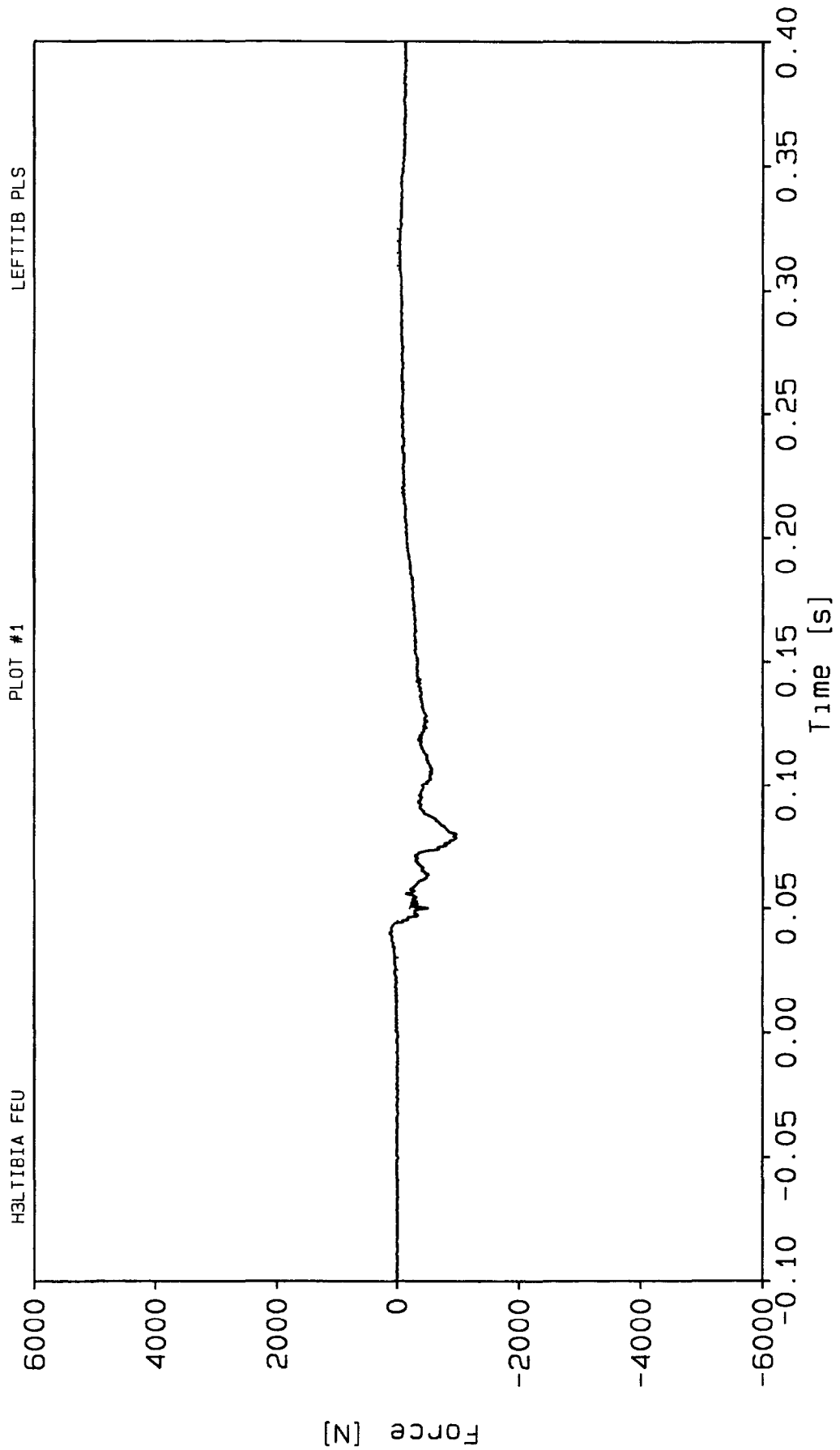
Filter Class 600
Volpe Crash Testing
PH05608

Left Upper Tibia Force (Fx) v Time

Driver Dummy - HIII

2001 Dodge Neon

2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Filter Class 600
Volpe Crash Testing
PH06608

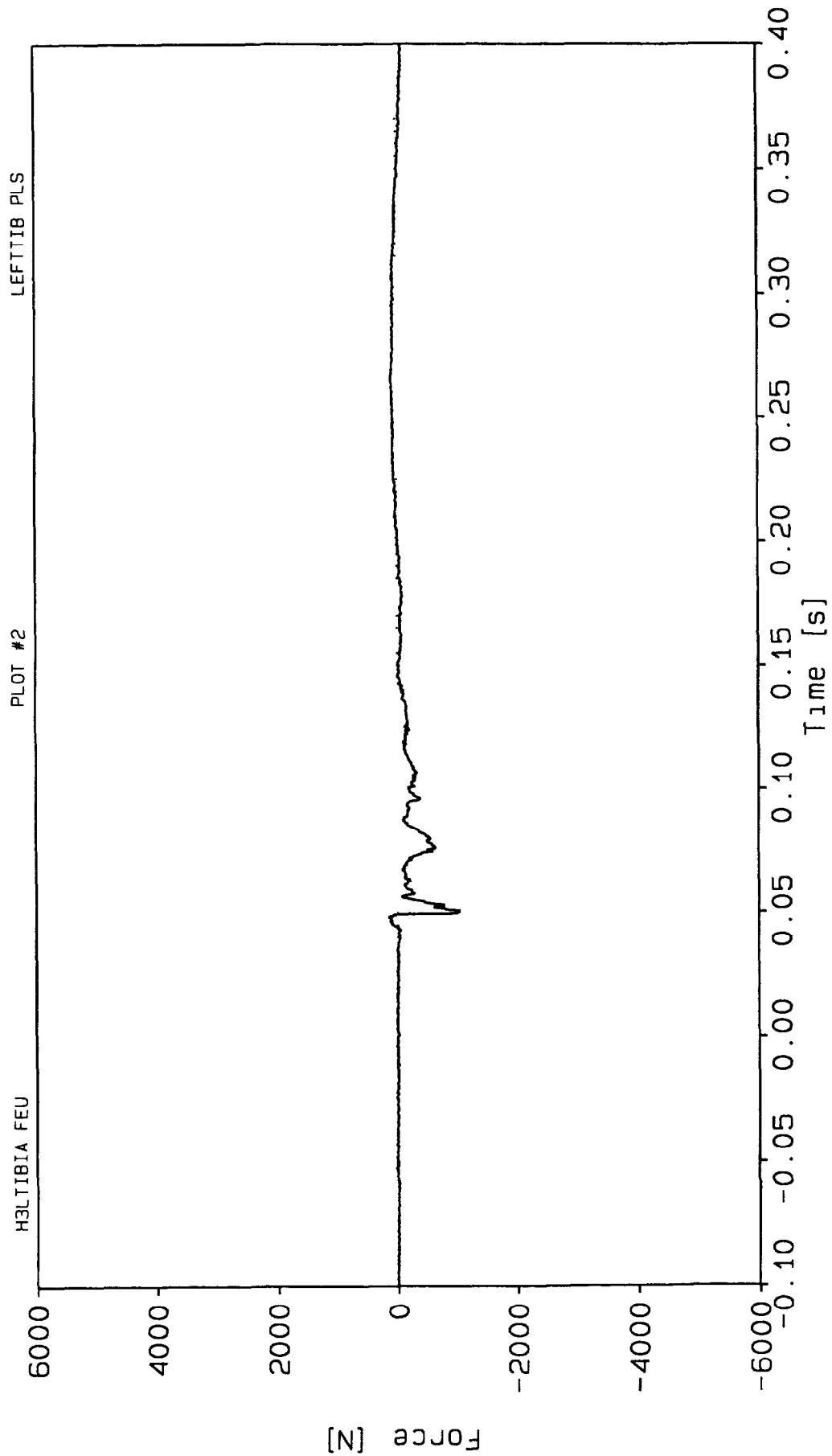
Exponent
Failure
Analysis
Associates

Left Upper Tibia Force (Fy) v Time

Driver Dummy - HIII

2001 Dodge Neon

2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Exponent
Failure
Analysis
Associates

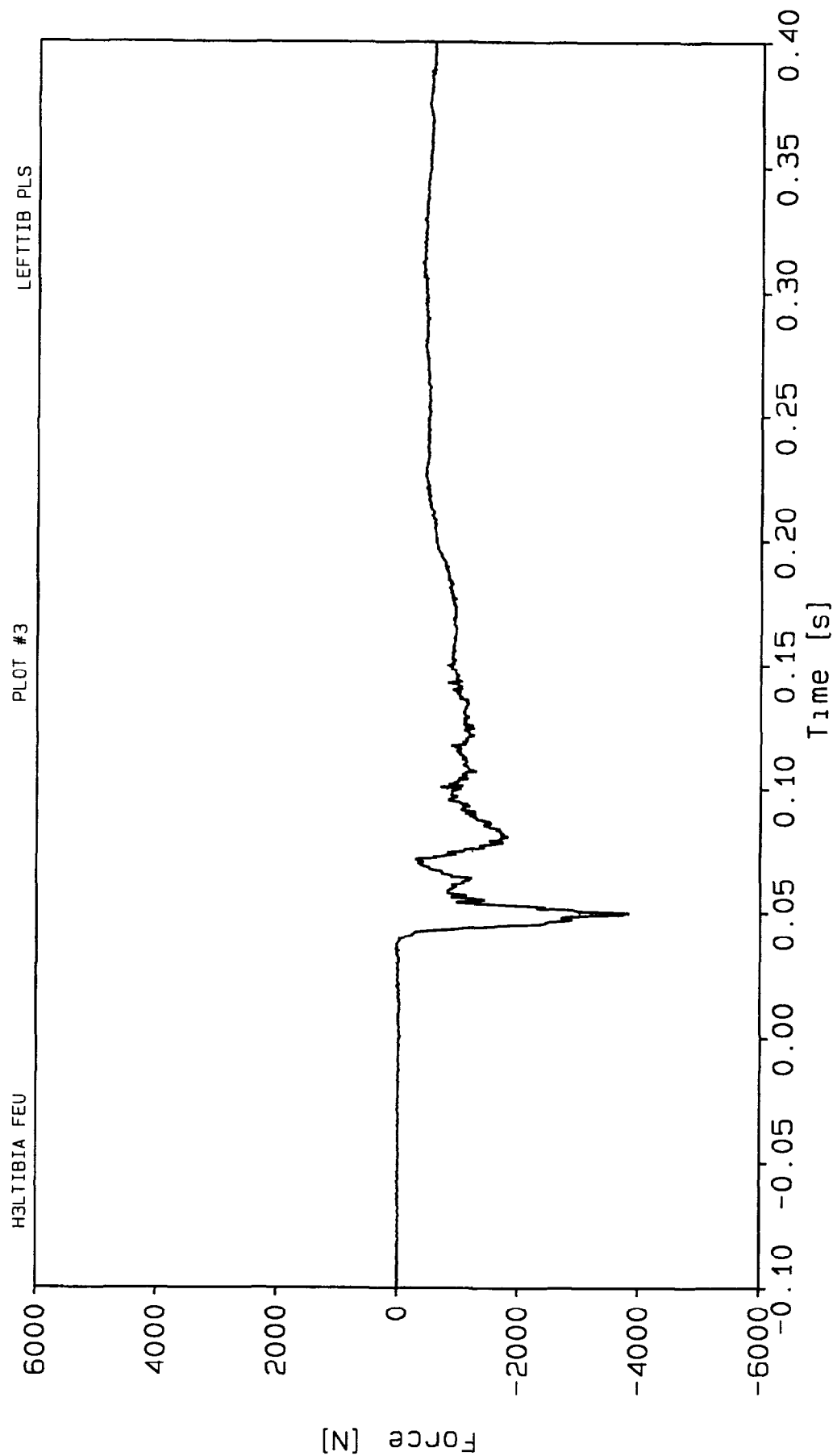
Filter Class 600
Voipe Crash Testing
PH06608

Left Upper Tibia Force (Fz) v Time

Driver Dummy - HIII

2001 Dodge Neon

2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Exponent
Failure
Analysis
Associates

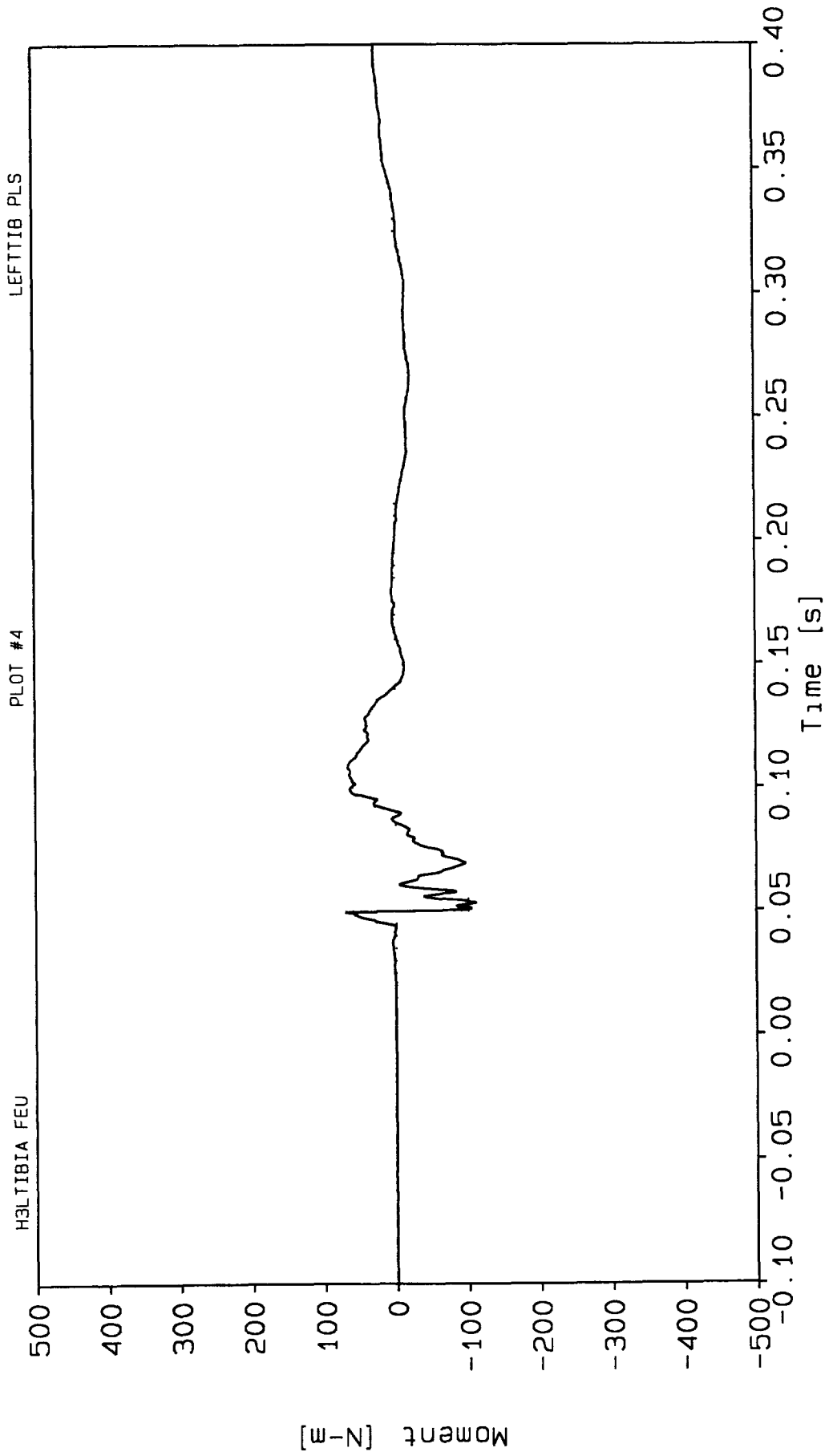
Filter Class 500
Volpe Crash Testing
PH06608

Left Upper Tibia Moment (Mx) v Time

Driver Dummy - HIII

2001 Dodge Neon

2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Exponent
Failure
Analysis
Associates

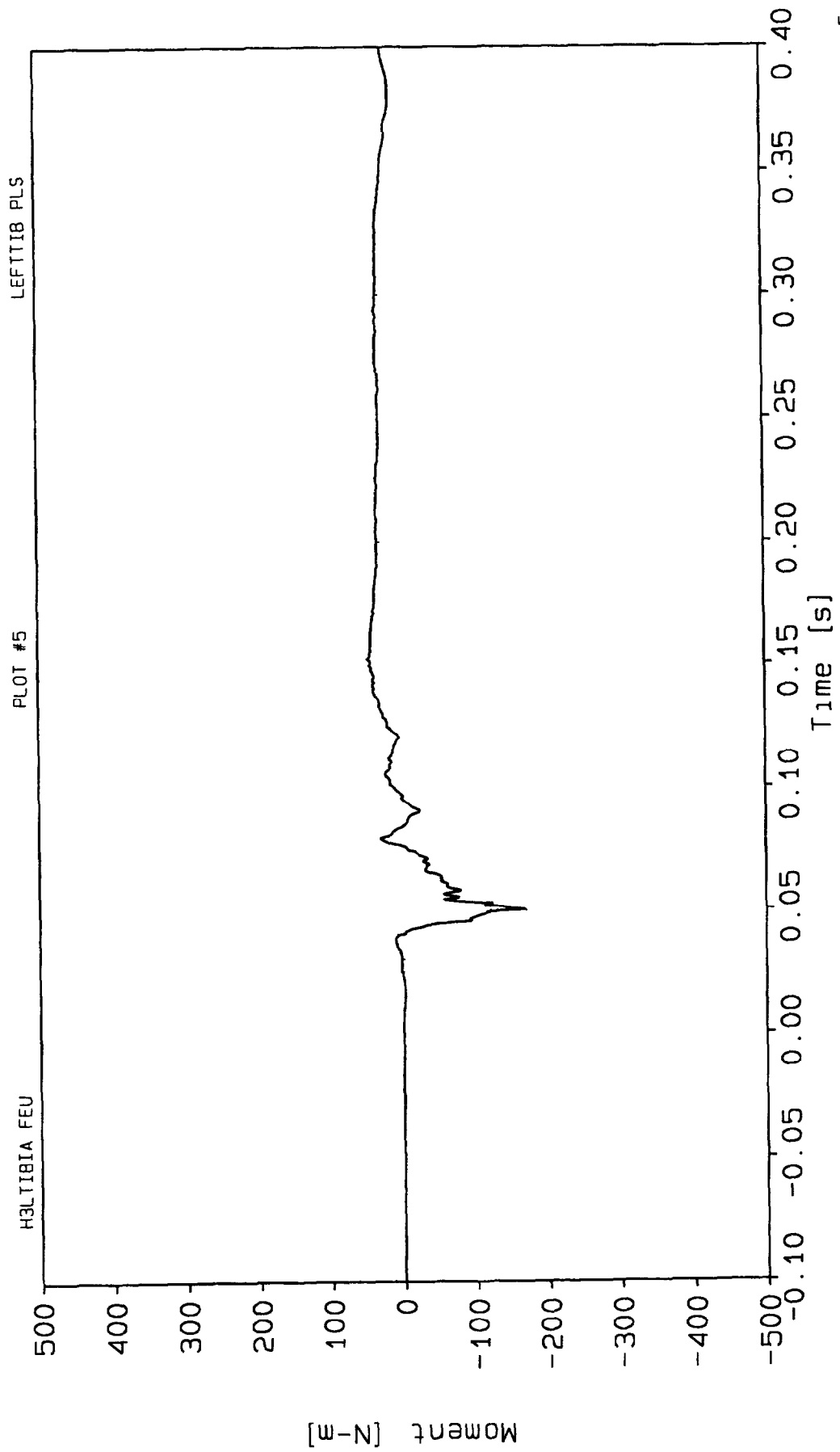
Filter Class 600
Volpe Crash Testing
PH06608

Left Upper Tibia Moment (My) v Time

Driver Dummy - HIII

2001 Dodge Neon

2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Exponent
Failure
Analysis
Associates

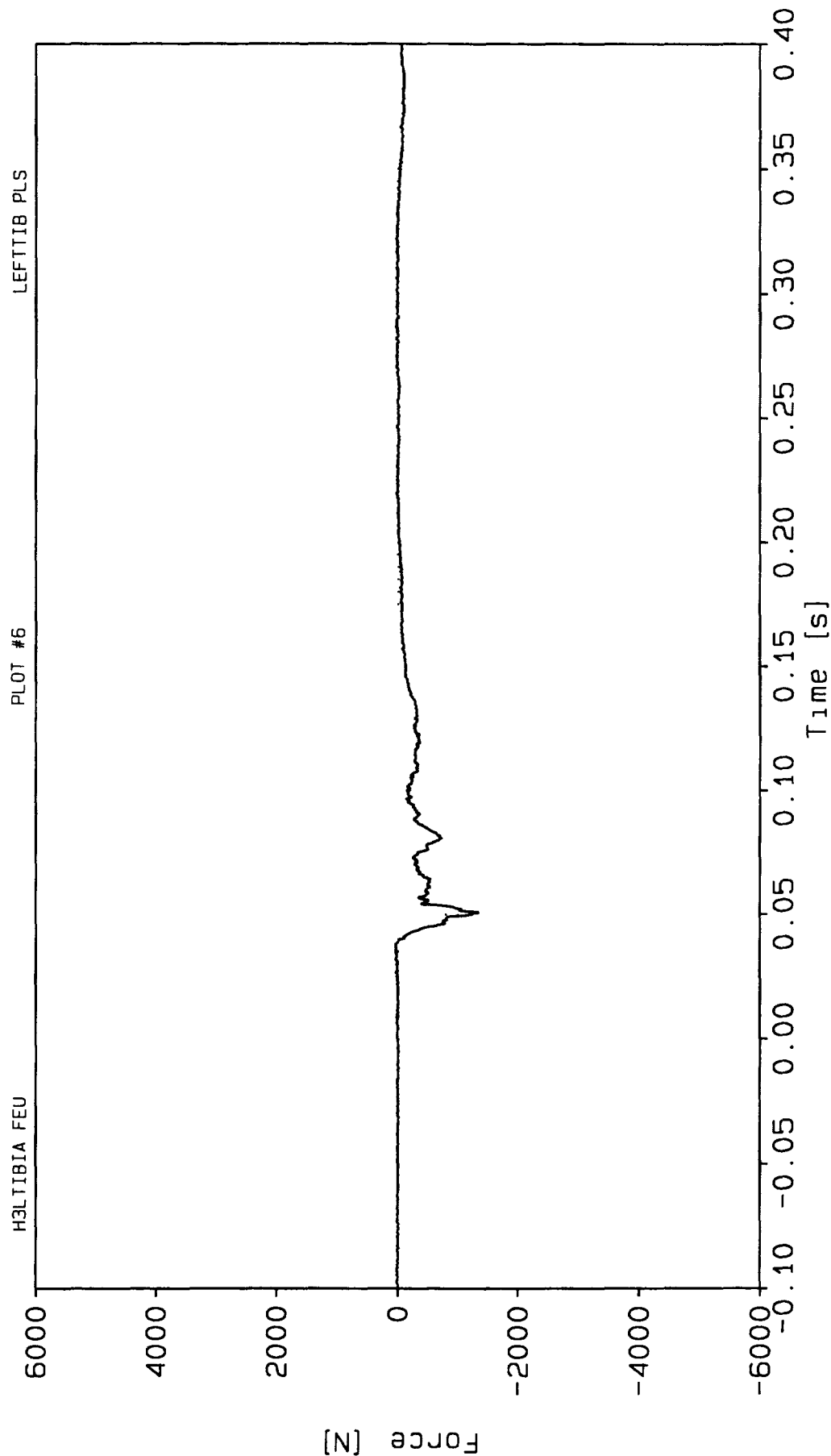
Filter Class 600
Volpe Crash Testing
PH06608

Left Lower Tibia Force (Fx) v Time

Driver Dummy - HIII

2001 Dodge Neon

2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Exponent
Failure
Analysis
Associates

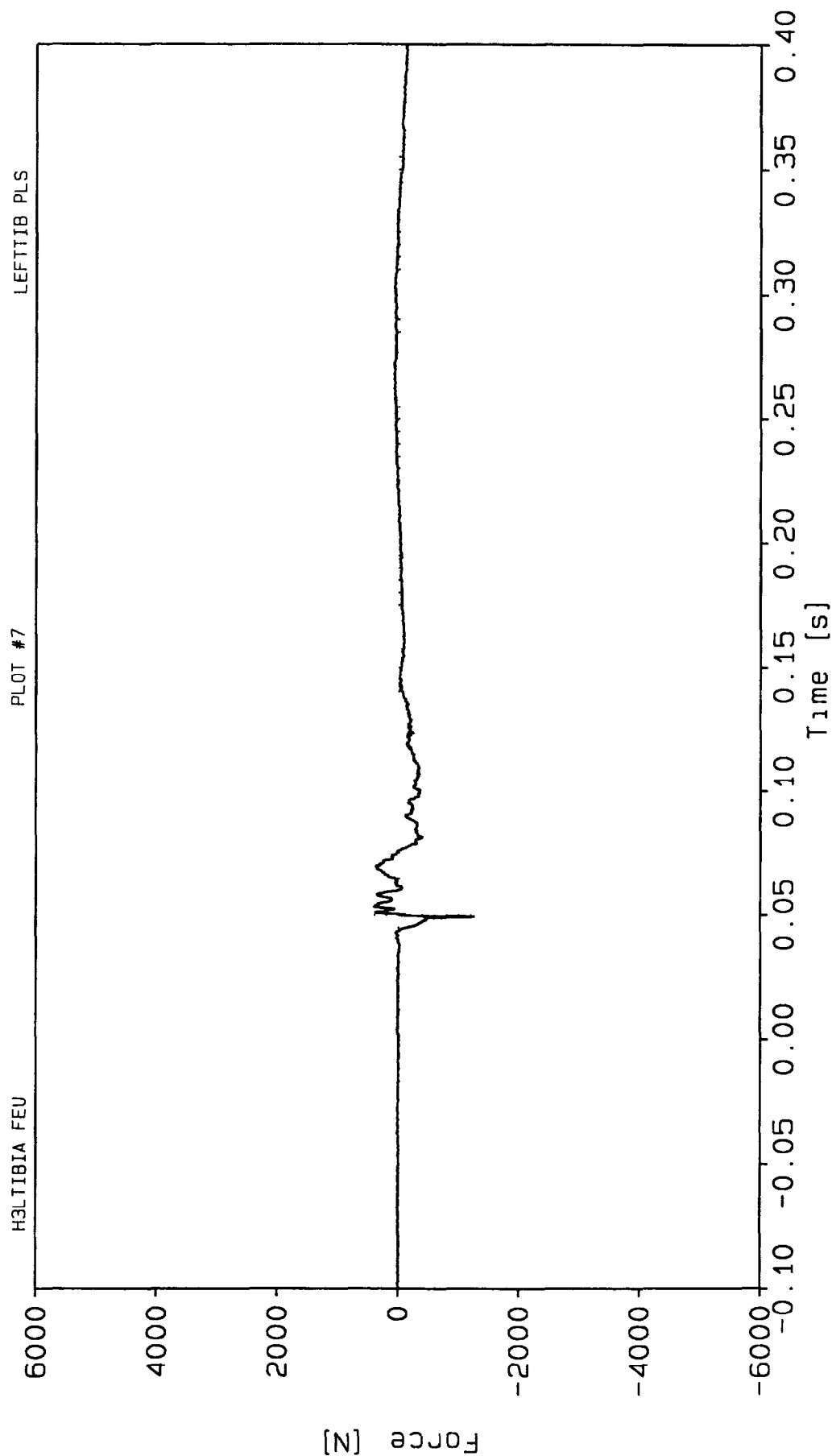
Filter Class 600
Volpe Crash Testing
PH06608

Left Lower Tibia Force (Fy) v Time

Driver Dummy - HIII

2001 Dodge Neon

2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Exponent
Failure
Analysis
Associates

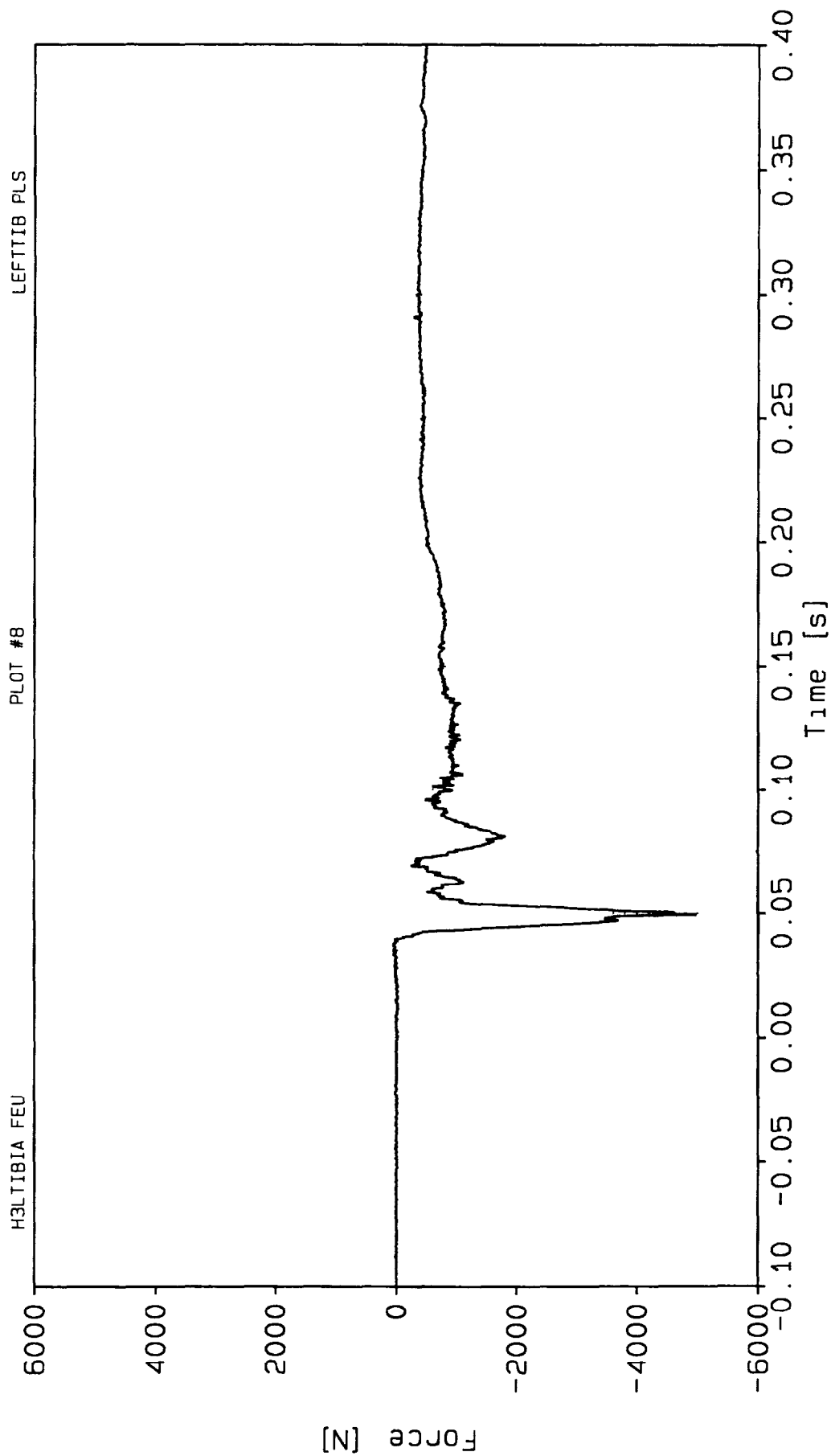
Filter Class 600
Volpe Crash Testing
PH06608

Left Lower Tibia Force (Fz) v Time

Driver Dummy - HIII

2001 Dodge Neon

2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Filter Class 600
Volpe Crash Testing
PH05608

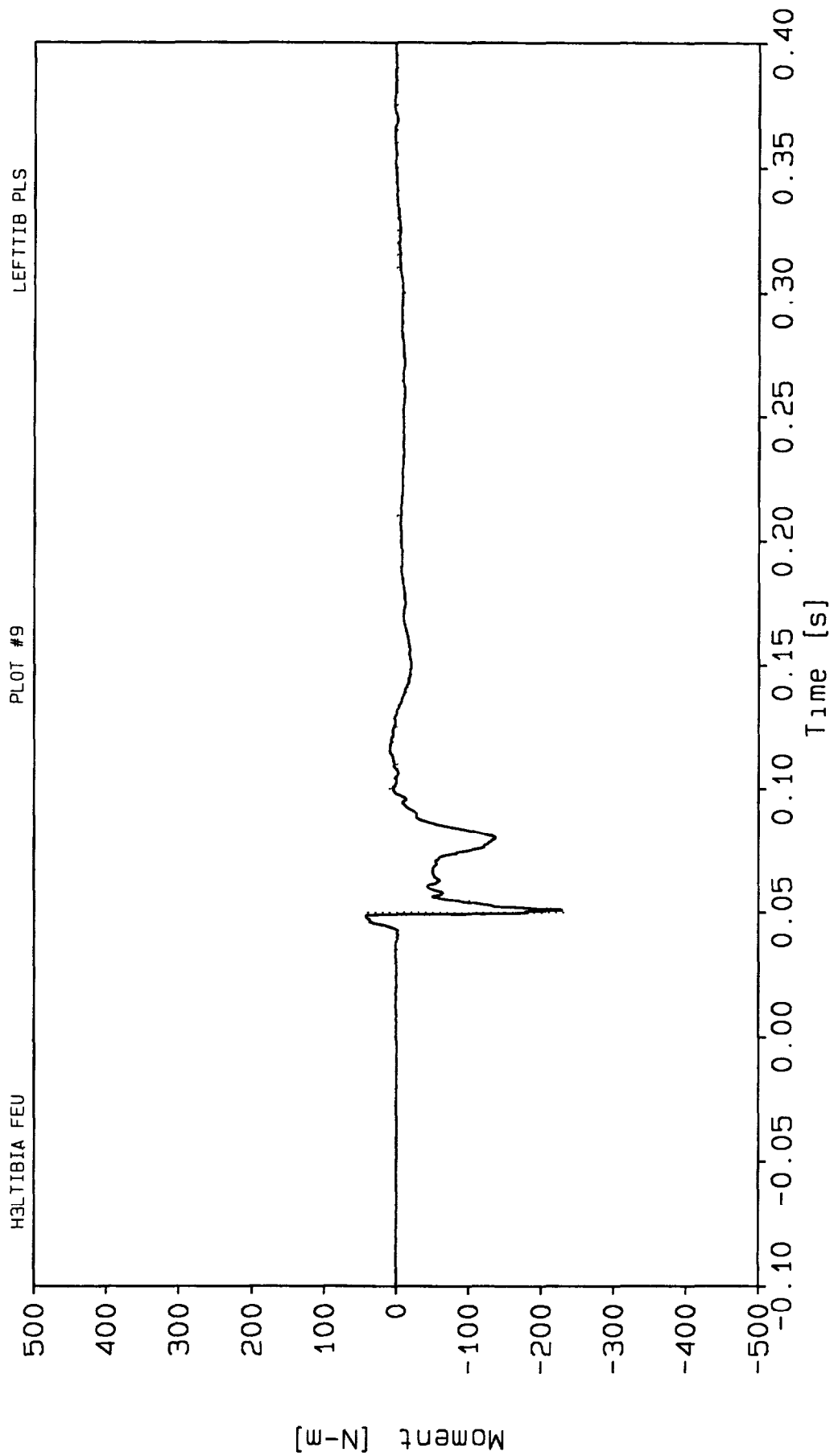
Exponent
Failure
Analysis
Associates

Left Lower Tibia Moment (Mx) v Time

Driver Dummy - HIII

2001 Dodge Neon

2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



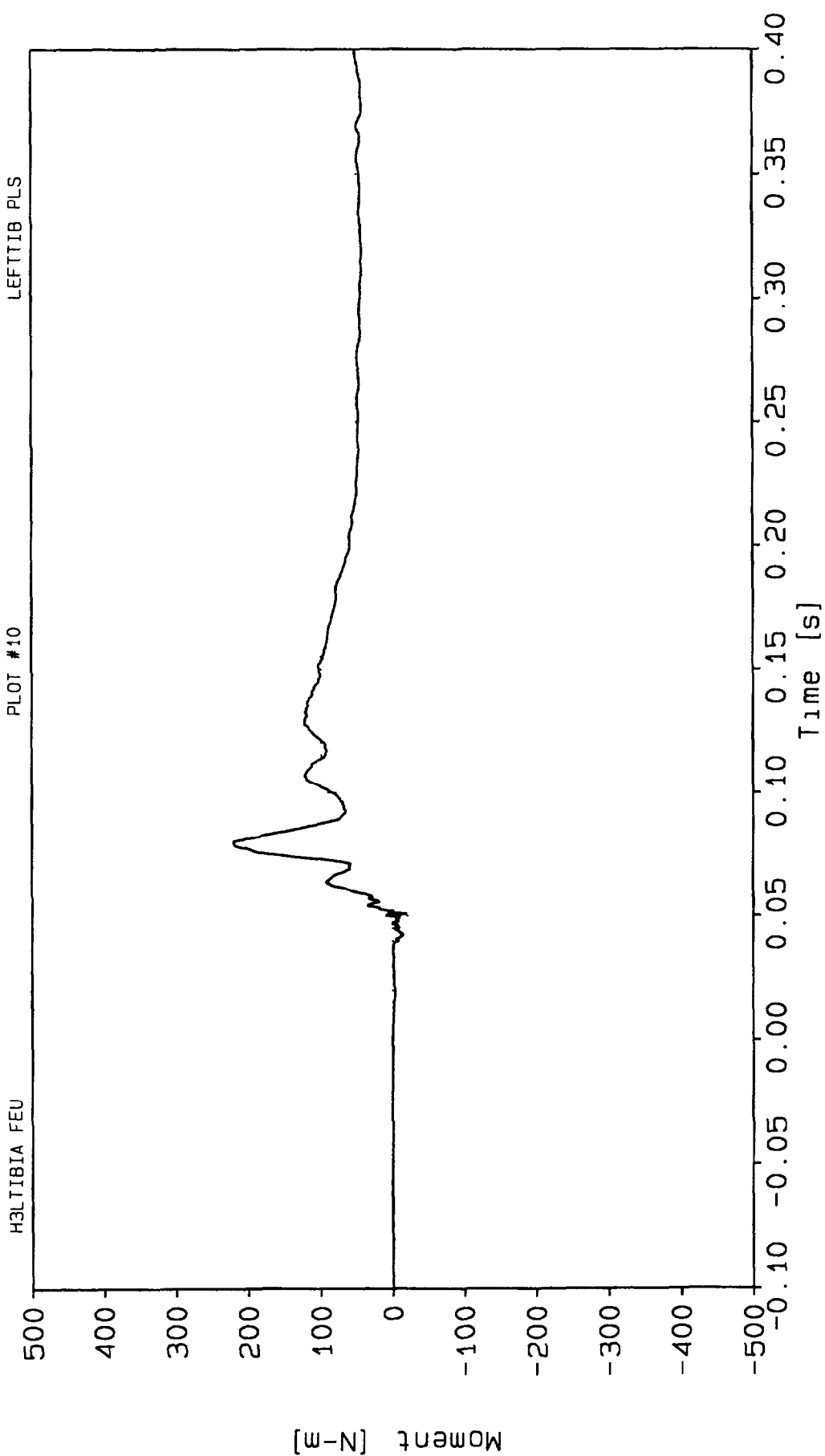
Filter Class 600
Voipe Crash Testing
PH06608

Exponent
Failure
Analysis
Associates

Left Lower Tibia Moment (My) v Time

Driver Dummy - HIII
2001 Dodge Neon

2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Filter Class 600
Volpe Crash Testing
PH06608

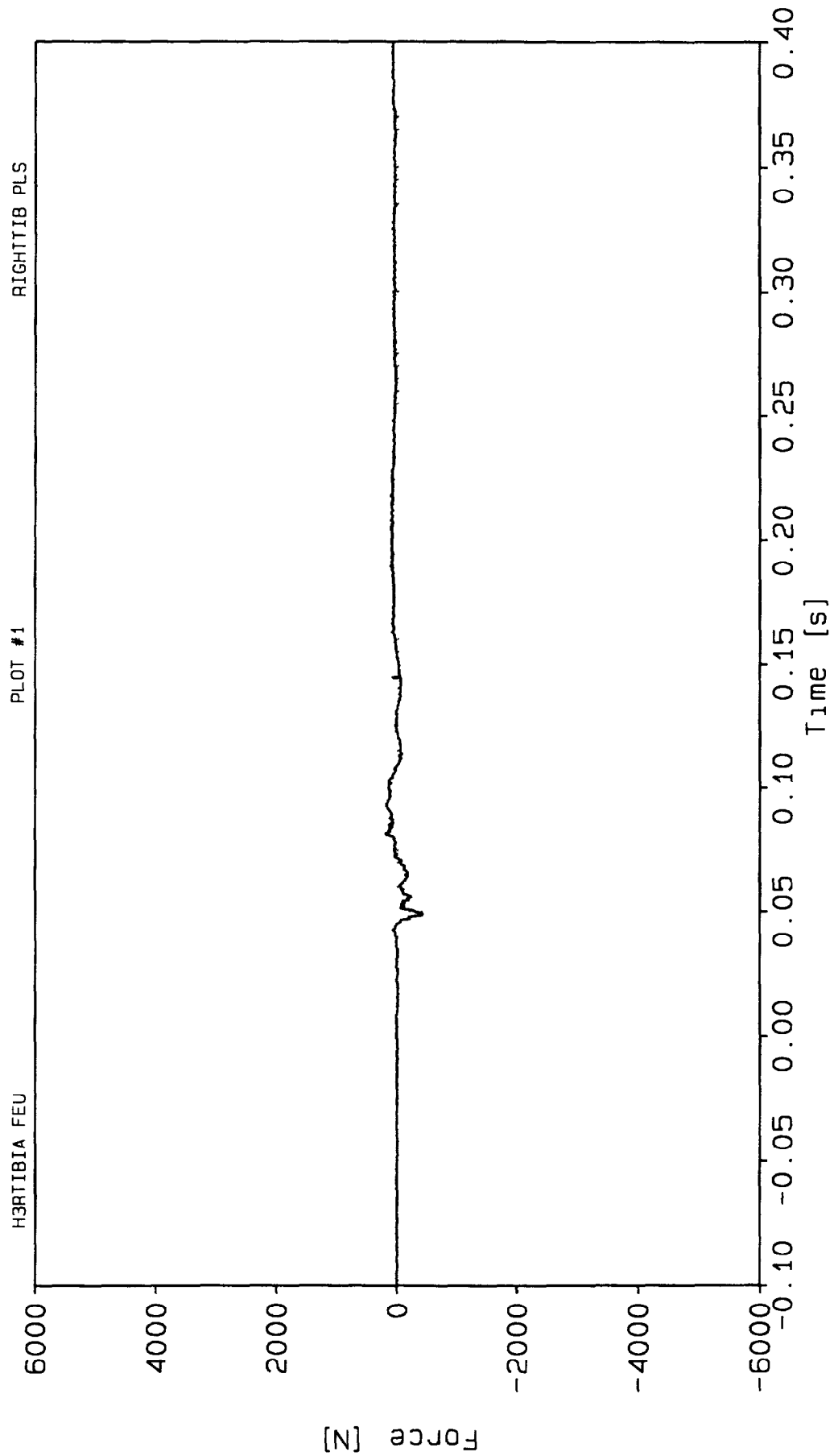
Exponent
Failure
Analysis
Associates

Right Upper Tibia Force (Fx) v Time

Driver Dummy - HIII

2001 Dodge Neon

2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Exponent
Failure
Analysis
Associates

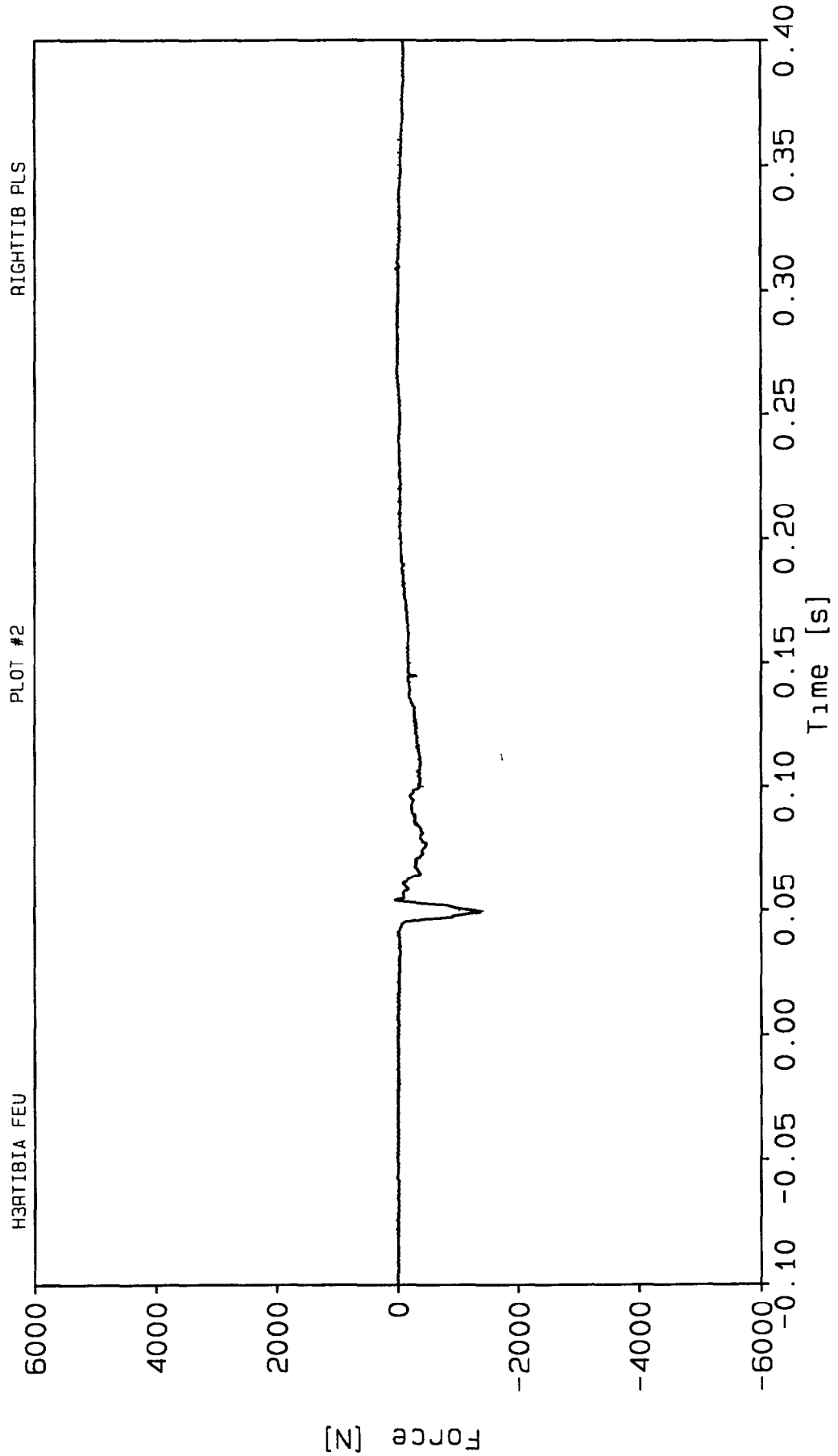
Filter Class 500
Volpe Crash Testing
PH06508

Right Upper Tibia Force (Fy) v Time

Driver Dummy - HIII

2001 Dodge Neon

2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Filter Class 500
Volpe Crash Testing
PH06608

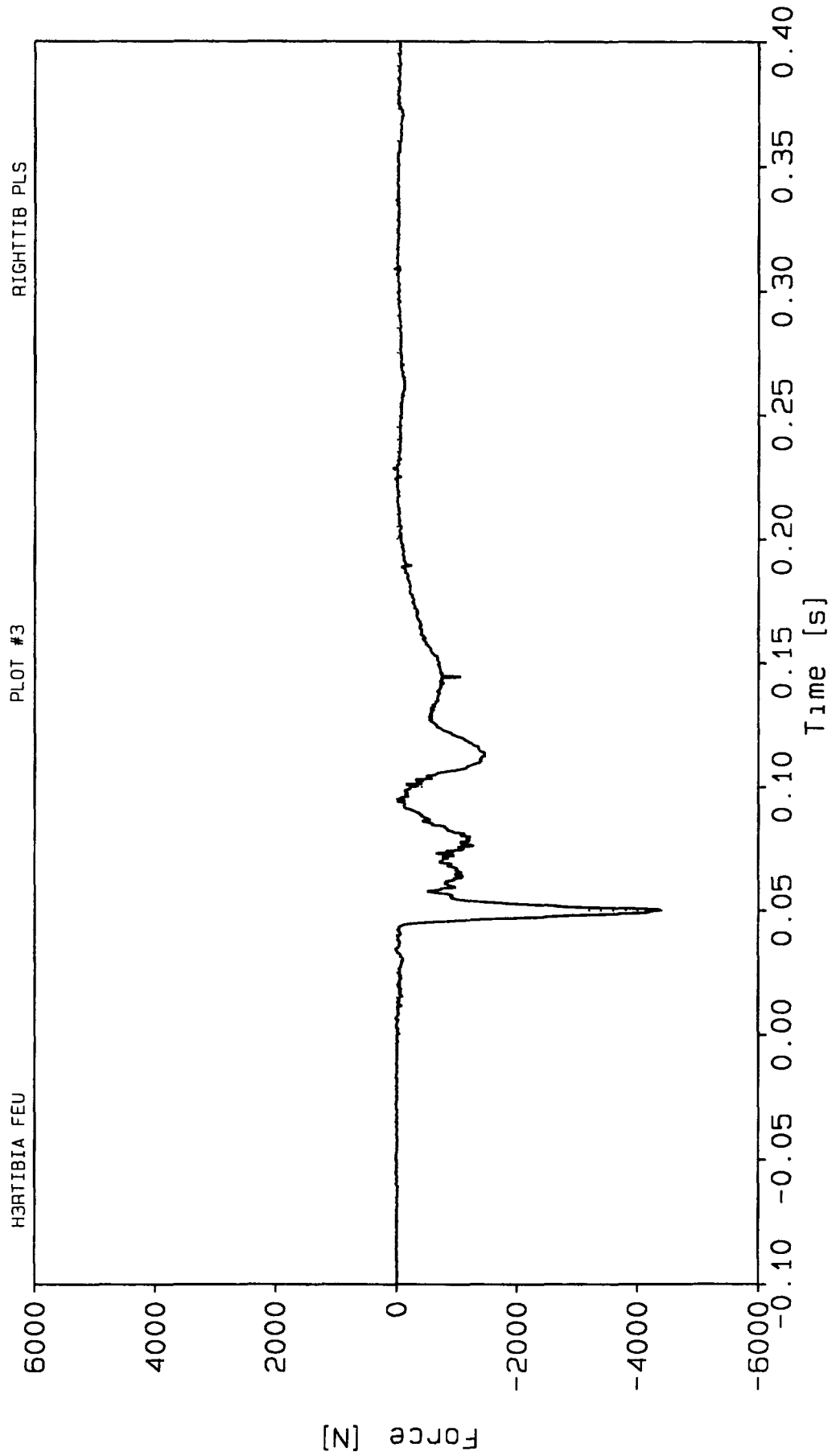
Exponent
Failure
Analysis
Associates

Right Upper Tibia Force (Fz) v Time

Driver Dummy - HIII

2001 Dodge Neon

2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Filter Class 500
Volpe Crash Testing
PH06608

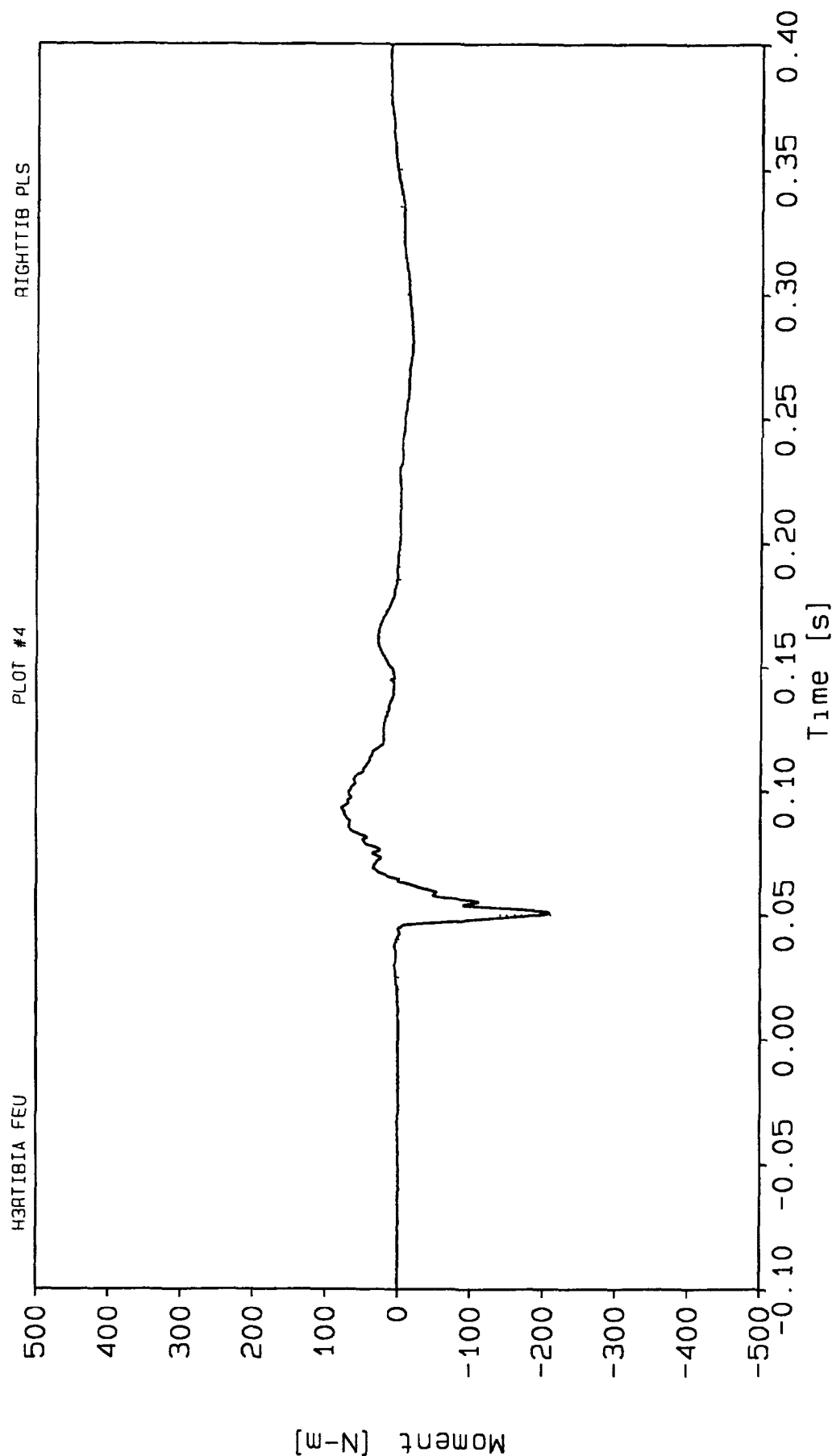
Exponent
Failure
Analysis
Associates

Right Upper Tibia Moment (Mx) v Time

Driver Dummy - HIII

2001 Dodge Neon

2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Exponent
Failure
Analysis
Associates

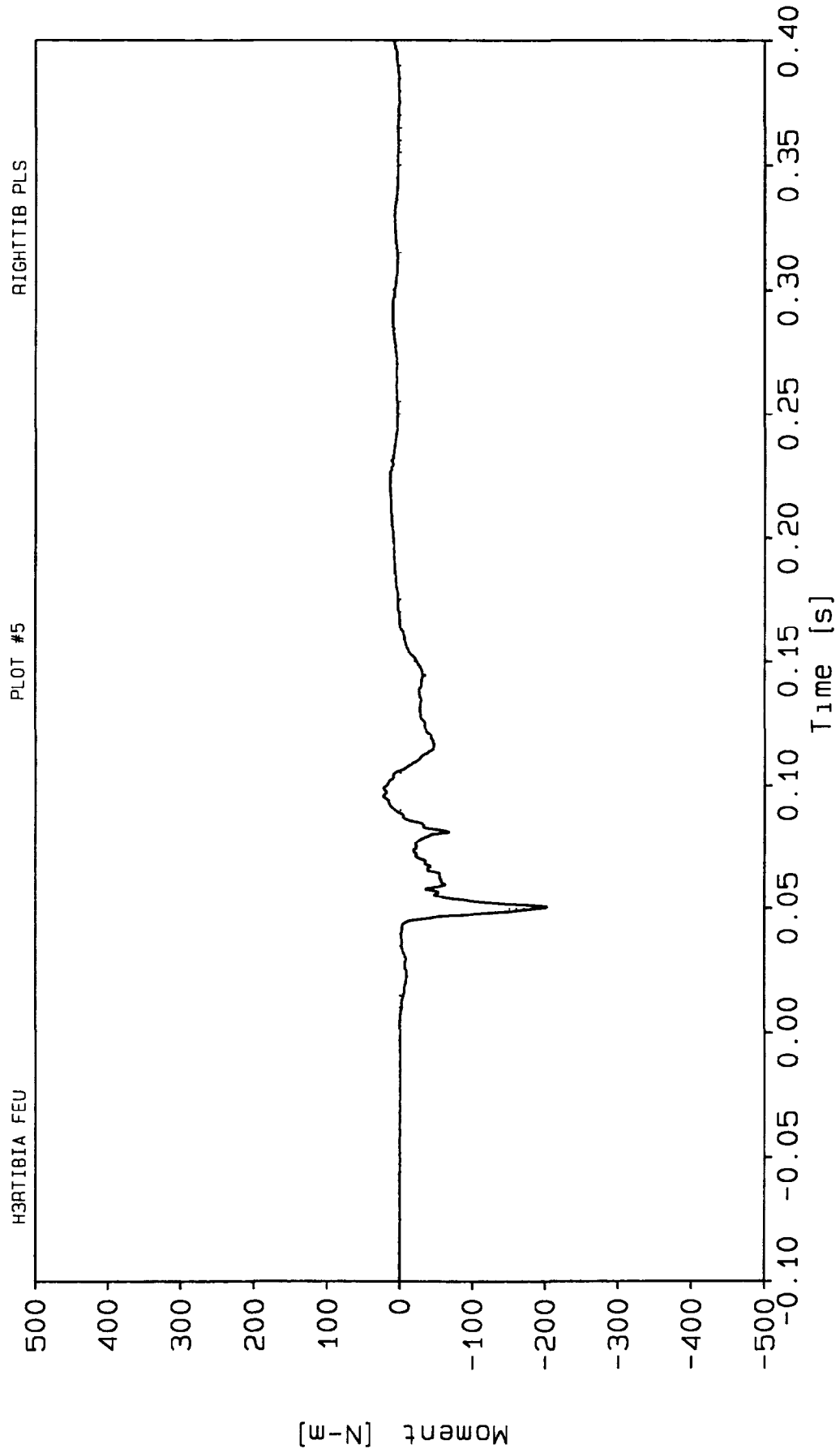
Filter Class 600
Volpe Crash Testing
PH06608

Right Upper Tibia Moment (My) v Time

Driver Dummy - HIII

2001 Dodge Neon

2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Filter Class 500
Volpe Crash Testing
PH06608

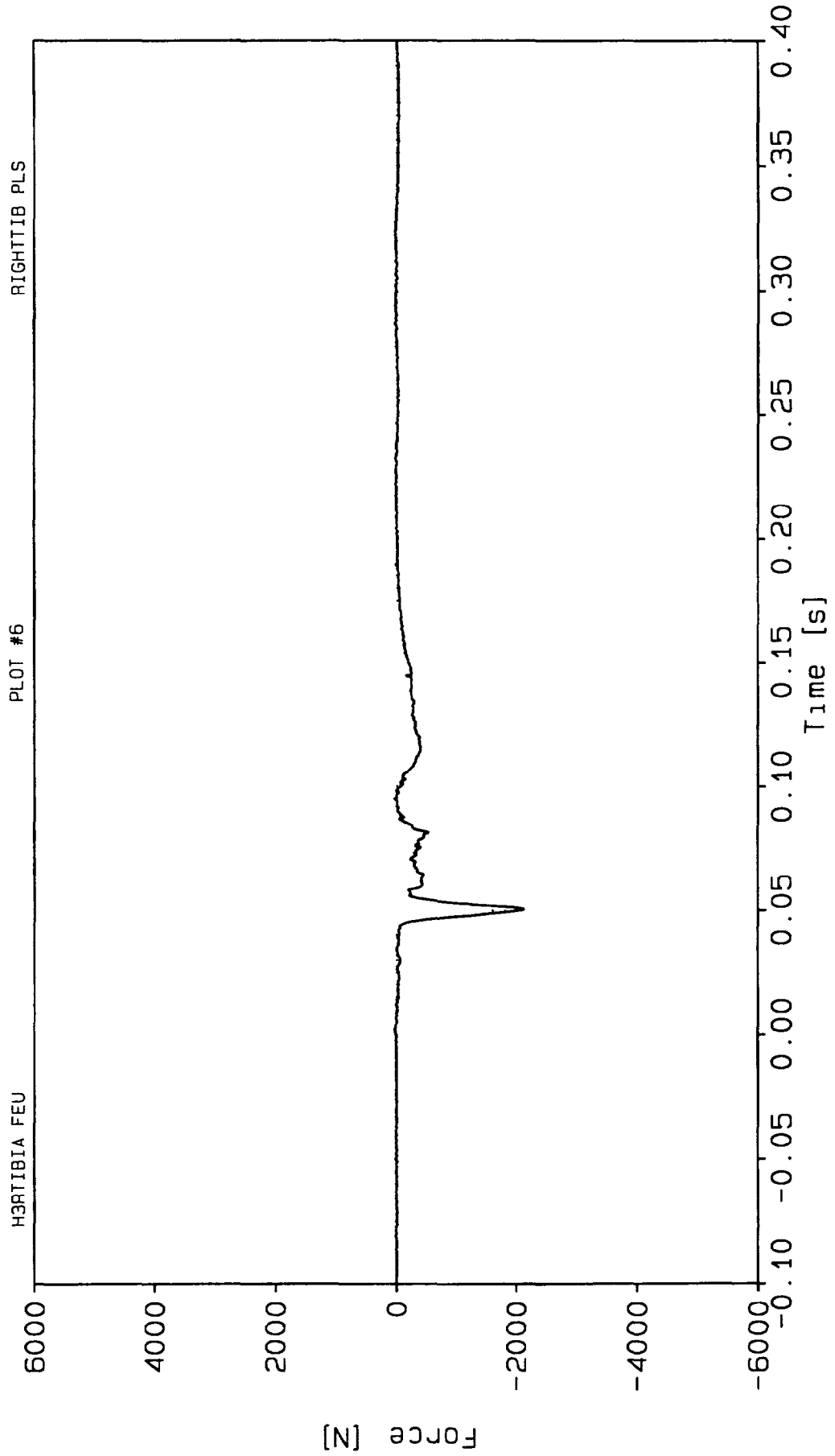
Exponent
Failure
Analysis
Associates

Right Lower Tibia Force (Fx) v Time

Driver Dummy - HIII

2001 Dodge Neon

2001 Ford F-150 into 2001 Dodge Neon - 09/14/01

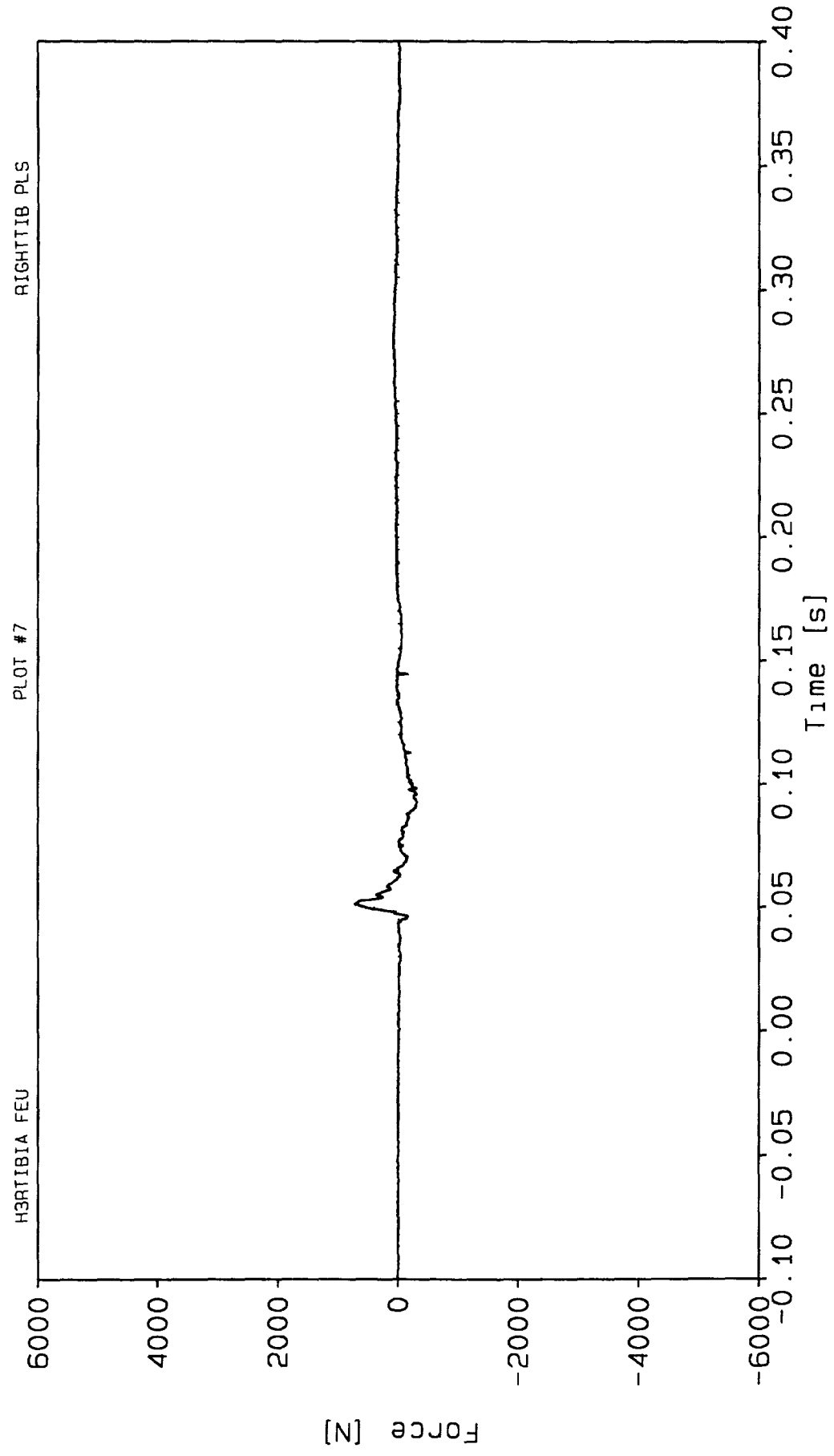


Filter Class 600
Volpe Crash Testing
PH05608

Exponent
Failure
Analysis
Associates

Right Lower Tibia Force (Fy) v Time

Driver Dummy - HIII
2001 Dodge Neon
2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Filter Class 600
Volpe Crash Testing
PH06608

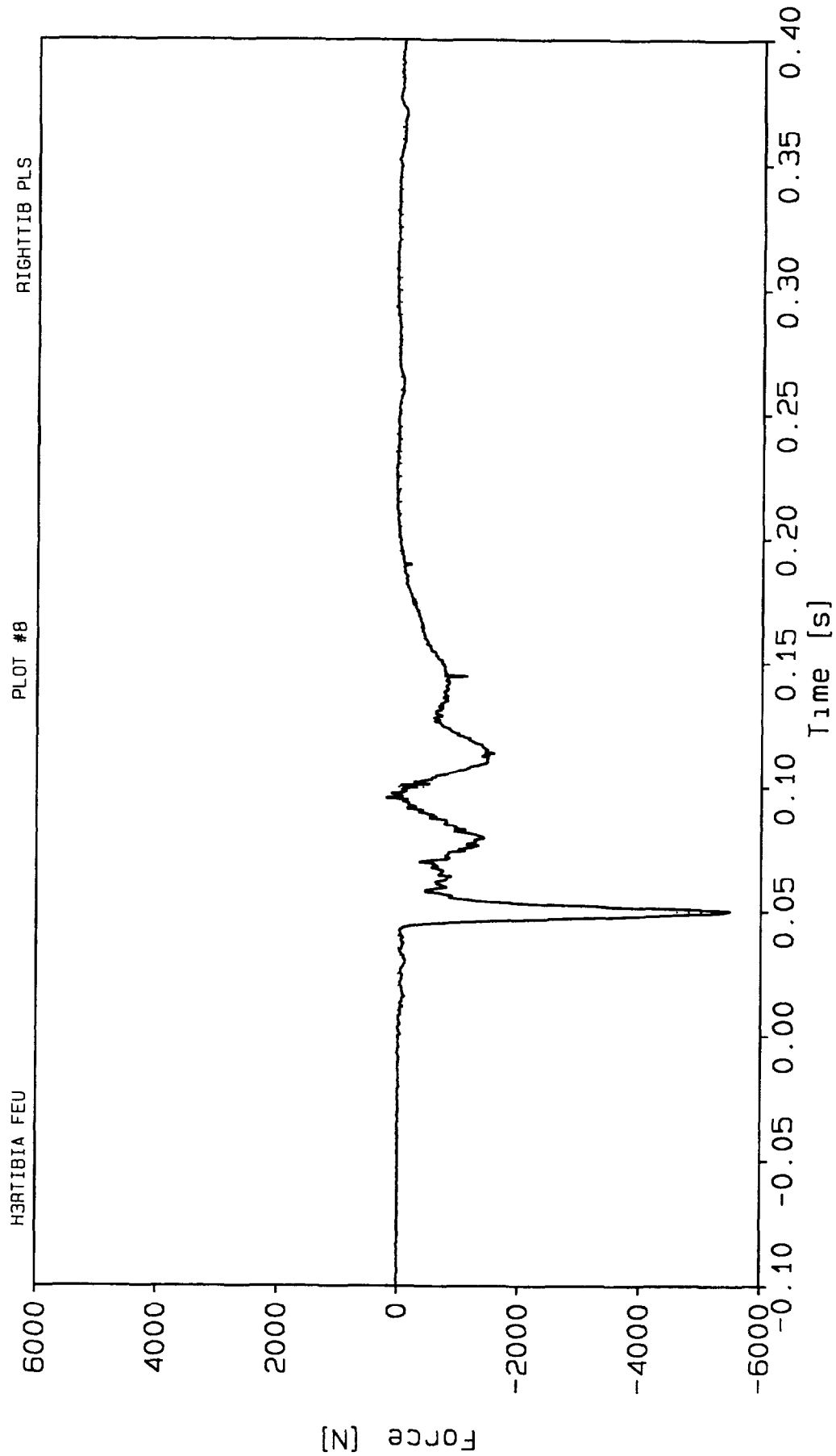
Exponent
Failure
Analysis
Associates

Right Lower Tibia Force (Fz) v Time

Driver Dummy - HIII

2001 Dodge Neon

2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Exponent
Failure
Analysis
Associates

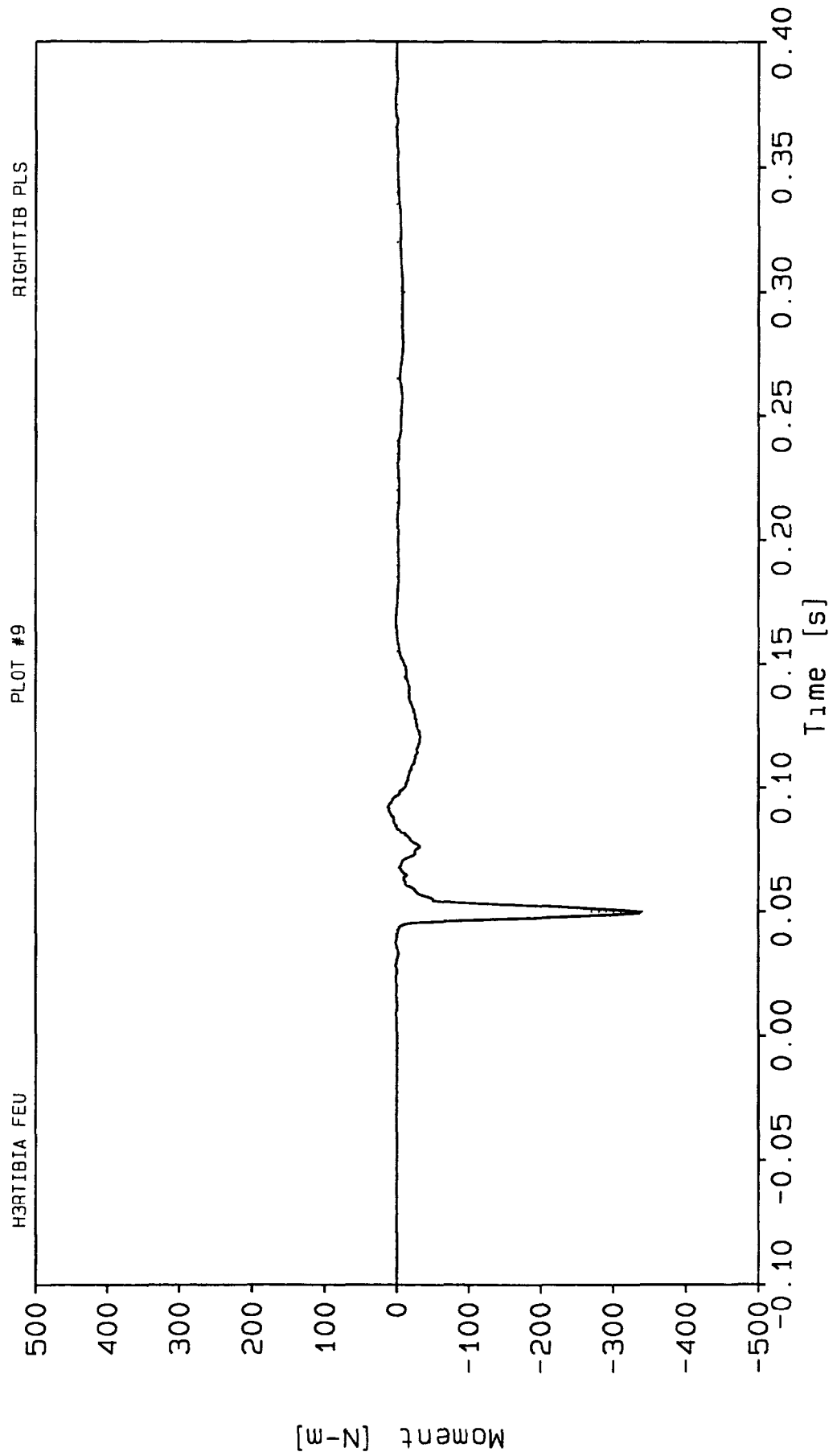
Filter Class 600
Volpe Crash Testing
PH06608

Right Lower Tibia Moment (Mx) v Time

Driver Dummy - HIII

2001 Dodge Neon

2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Filter Class 600
Volpe Crash Testing
PH06608

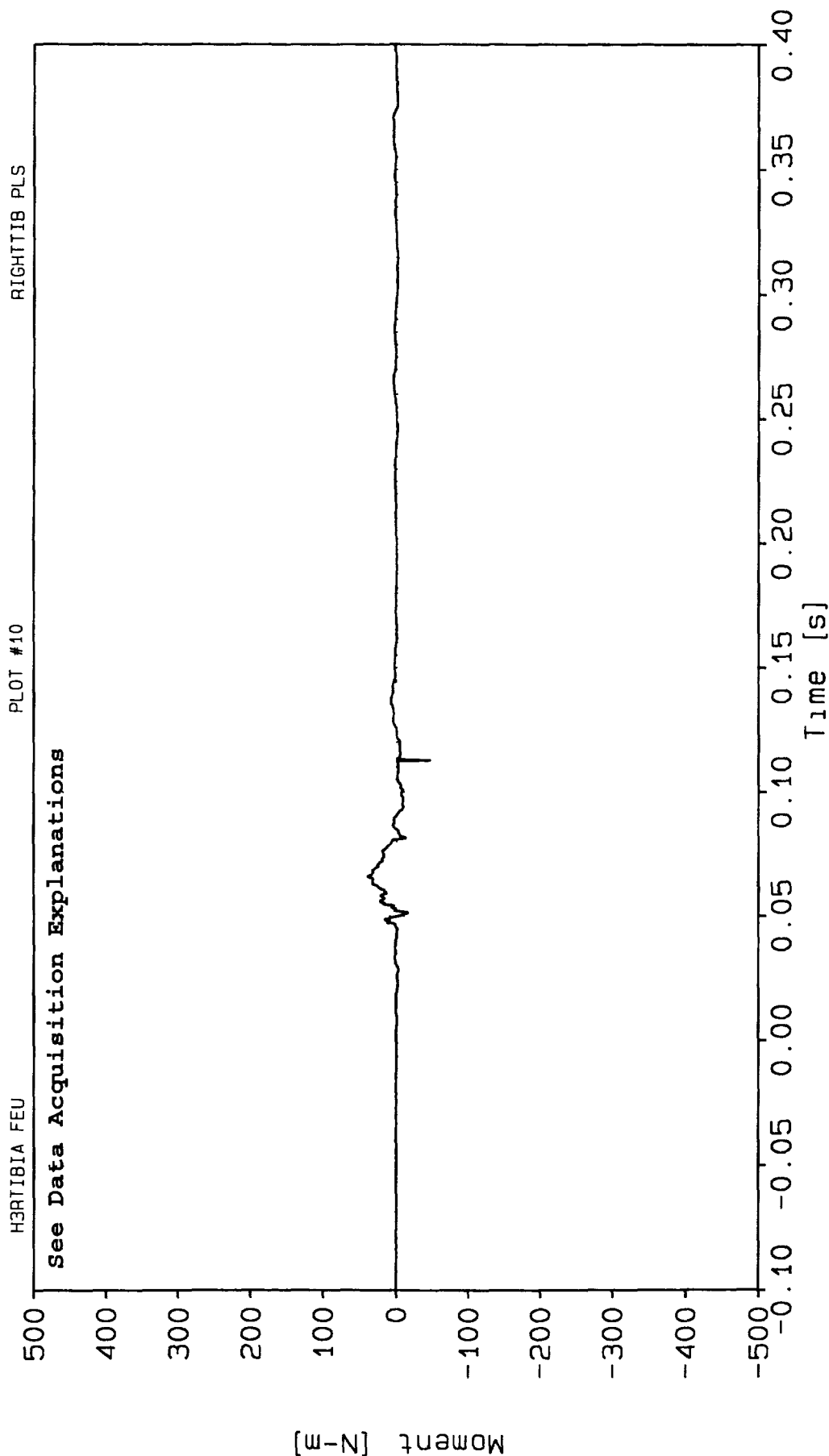
Exponent
Failure
Analysis
Associates

Right Lower Tibia Moment (My) v Time

Driver Dummy - HIII

2001 Dodge Neon

2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Exponent
Failure
Analysis
Associates

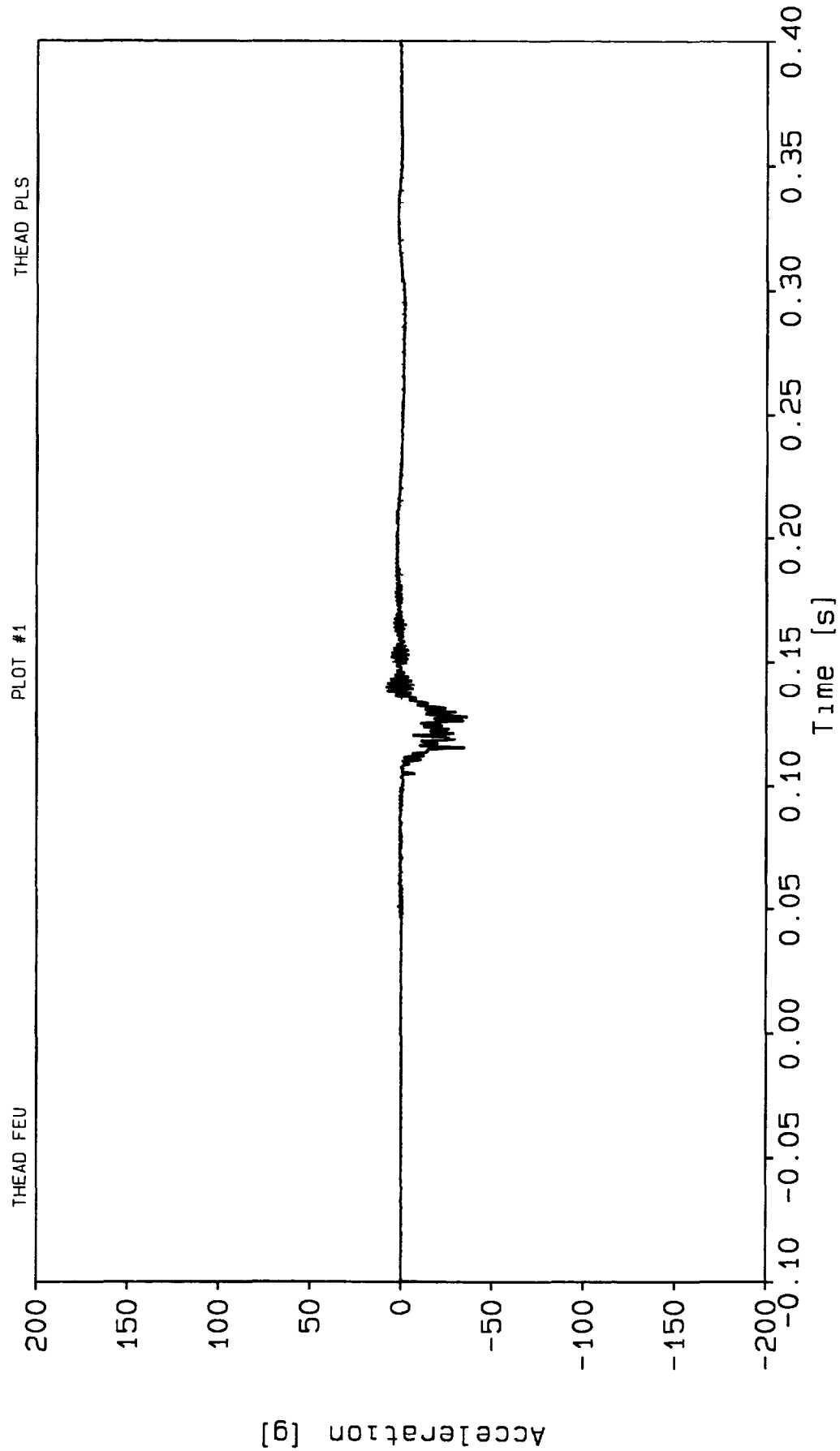
Filter Class 600
Volpe Crash Testing
PH06608

Head Vertex Acceleration (Ax) v Time

Passenger Dummy - THOR

2001 Dodge Neon

2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Filter Class 1000
Volpe Crash Testing
PH05508

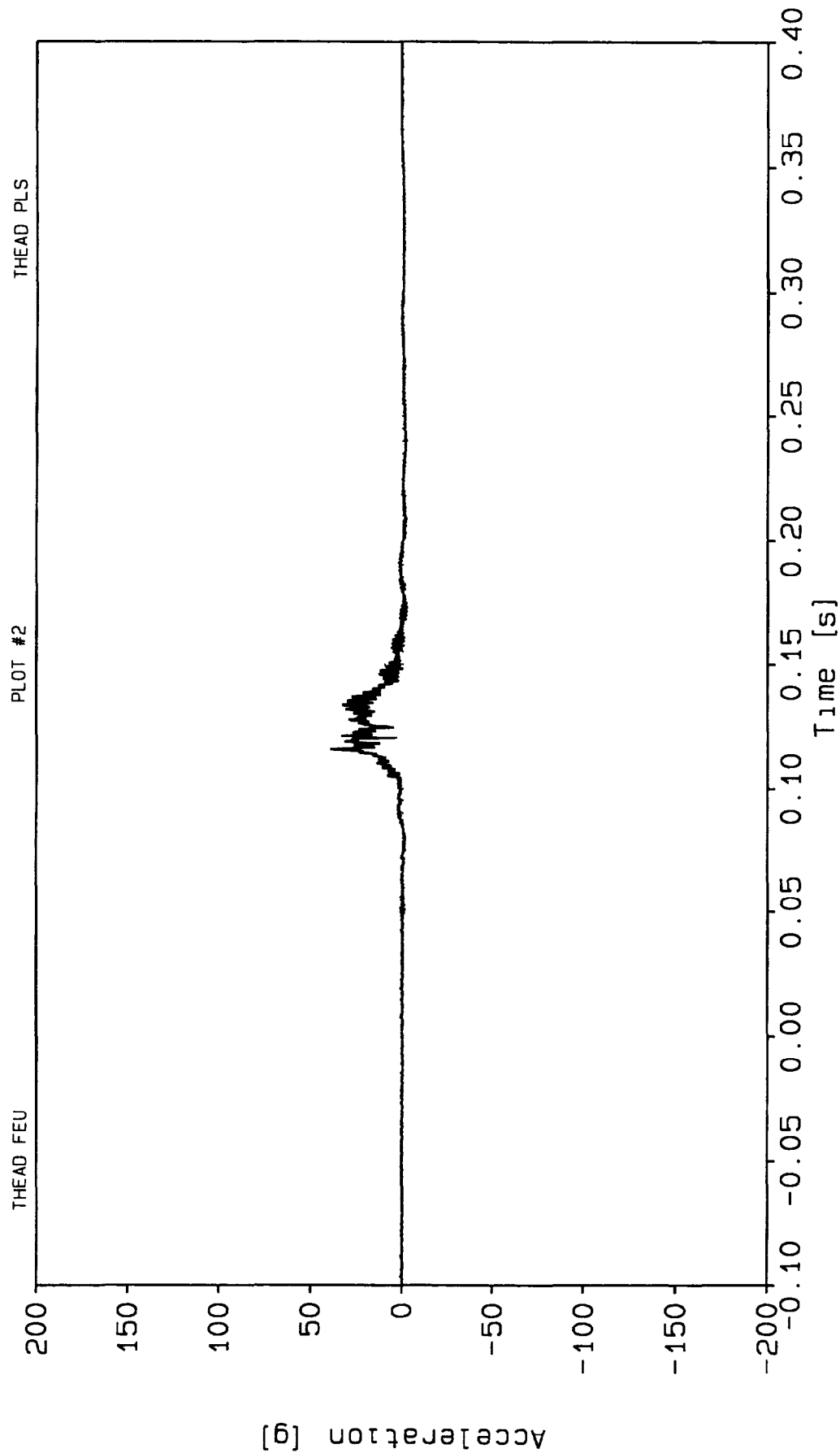
Exponent
Failure
Analysis
Associates

Head Vertex Acceleration (Ay) v Time

Passenger Dummy - THOR

2001 Dodge Neon

2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Filter Class 1000
Volpe Crash Testing
PH06608

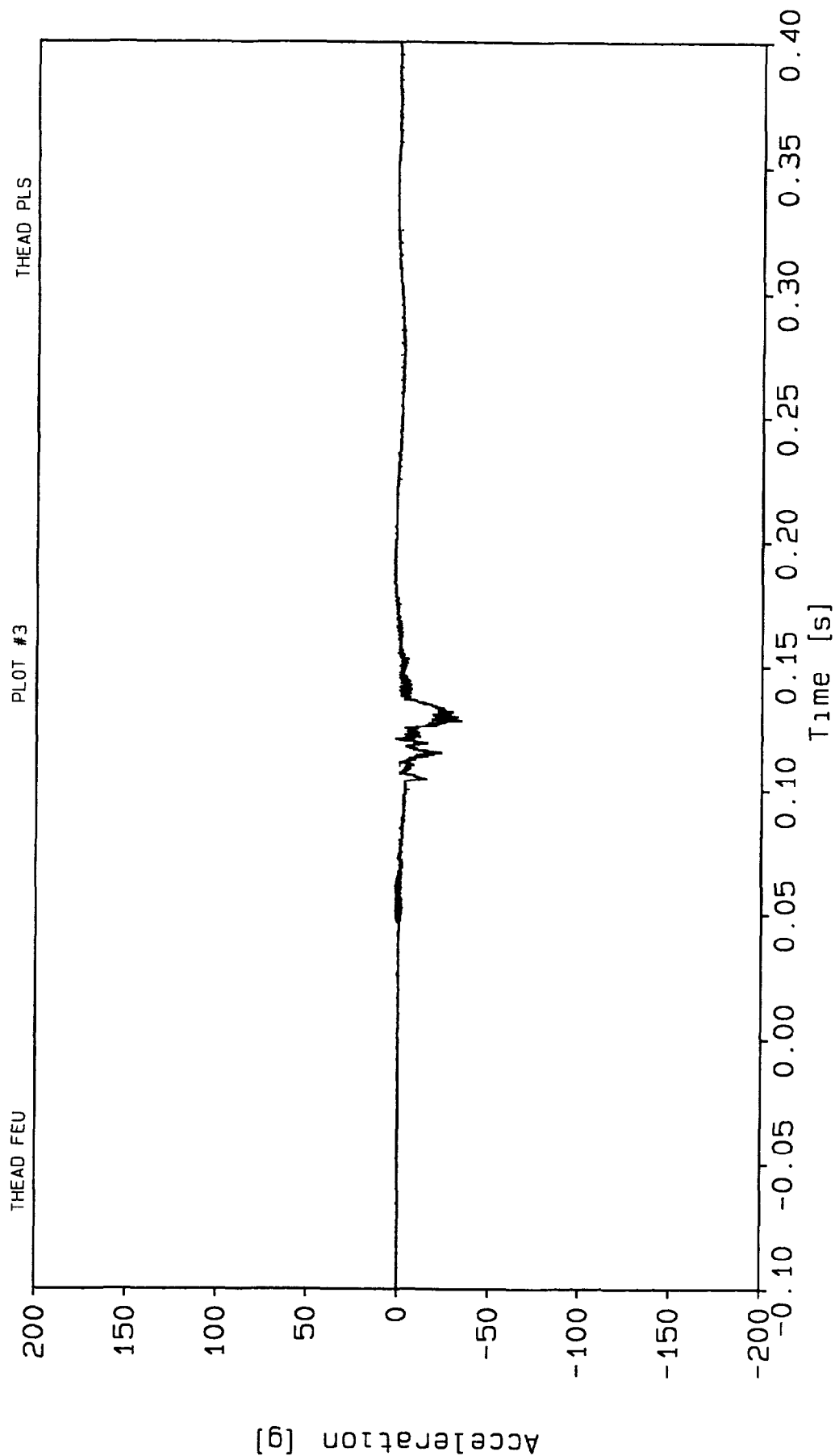
Exponent
Failure
Analysis
Associates

Head Temporal Acceleration (Ax) v Time

Passenger Dummy - THOR

2001 Dodge Neon

2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Exponent
Failure
Analysis
Associates

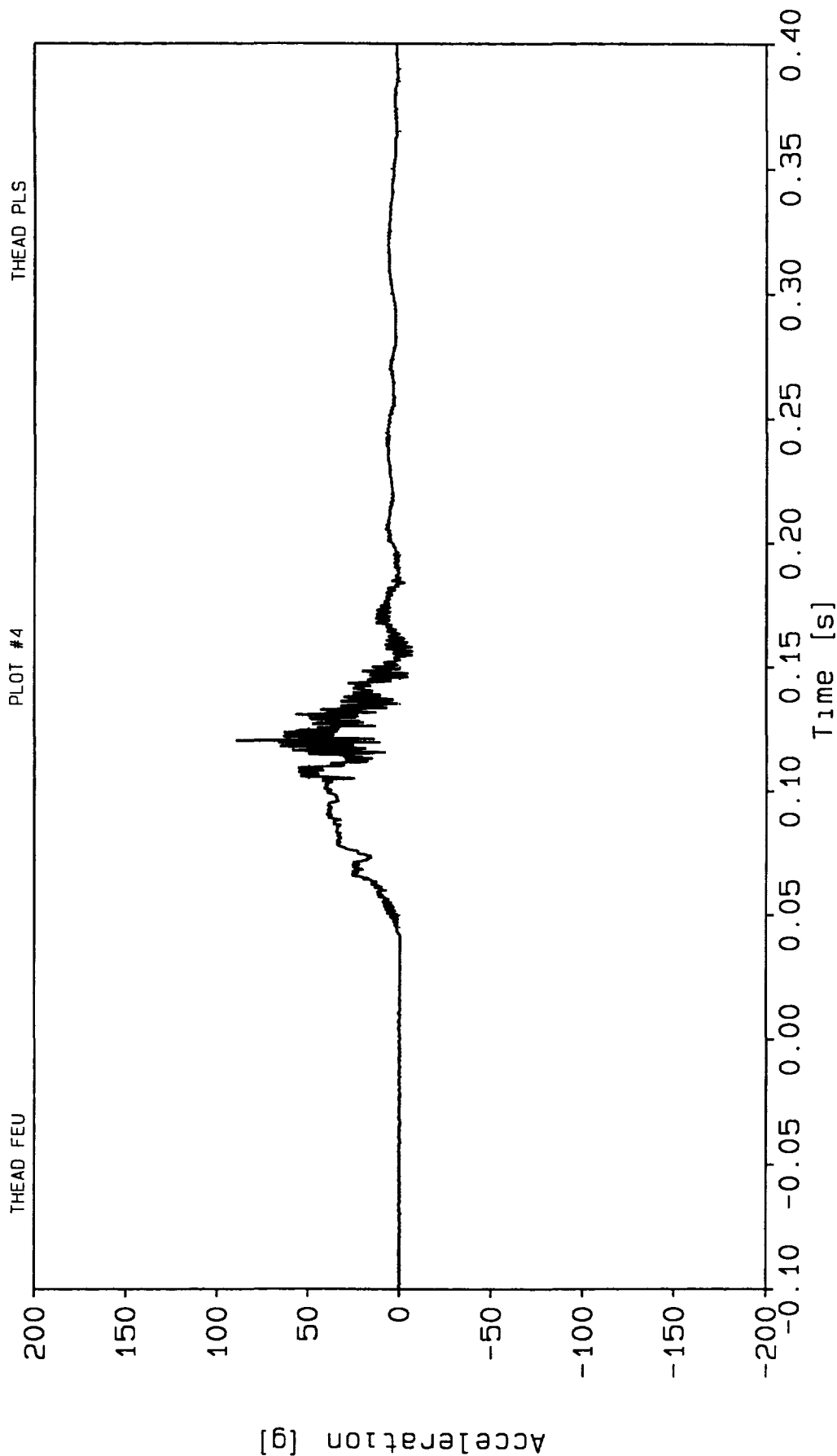
Filter Class 1000
Volpe Crash Testing
PH06608

Head Temporal Acceleration (Az) v Time

Passenger Dummy - THOR

2001 Dodge Neon

2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Exponent
Failure
Analysis
Associates

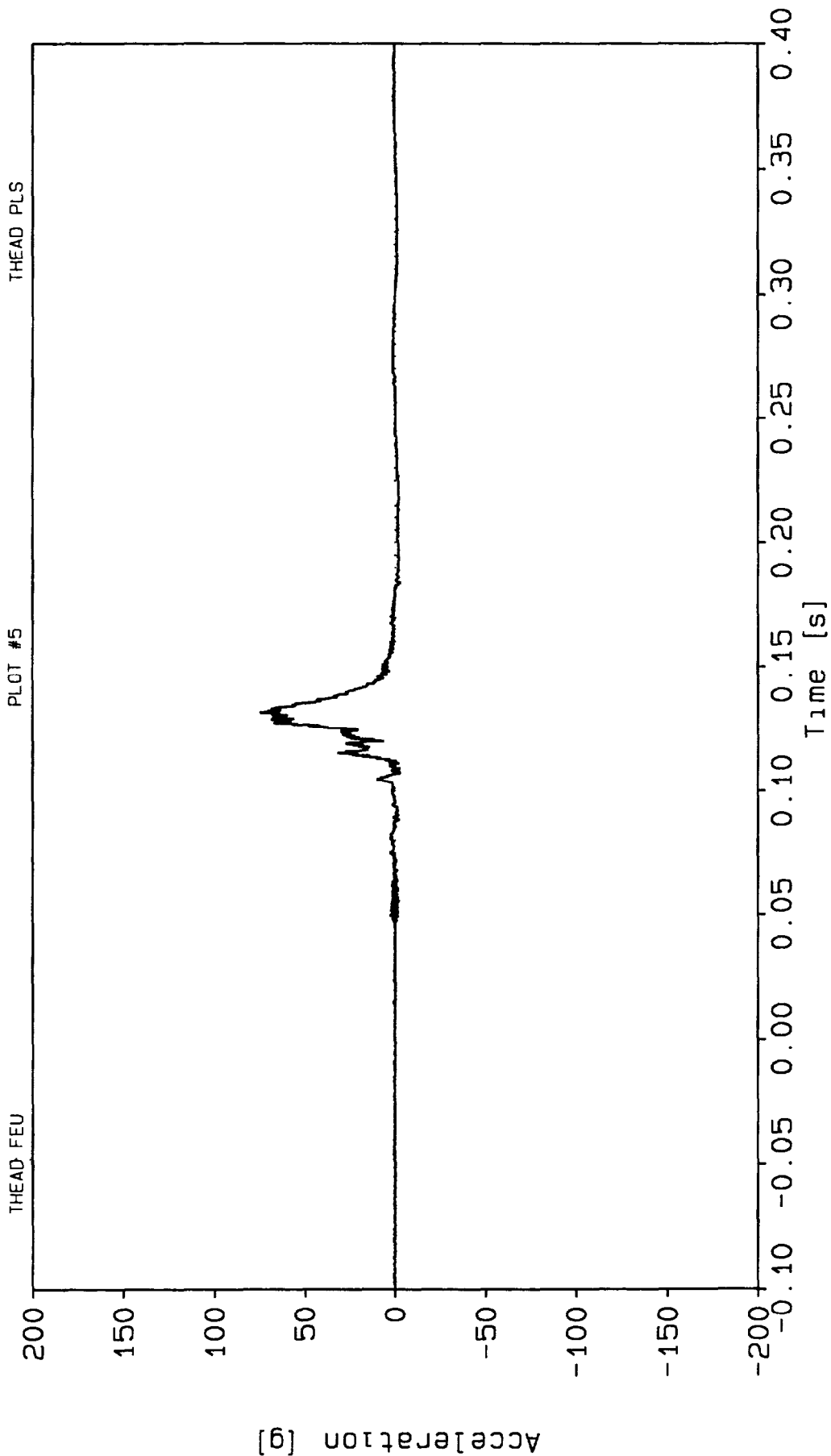
Filter Class 1000
Voipe Crash Testing
PH05608

Head Occipital Acceleration (Ay) v Time

Passenger Dummy - THOR

2001 Dodge Neon

2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Filter Class 1000
Volpe Crash Testing
PH05608

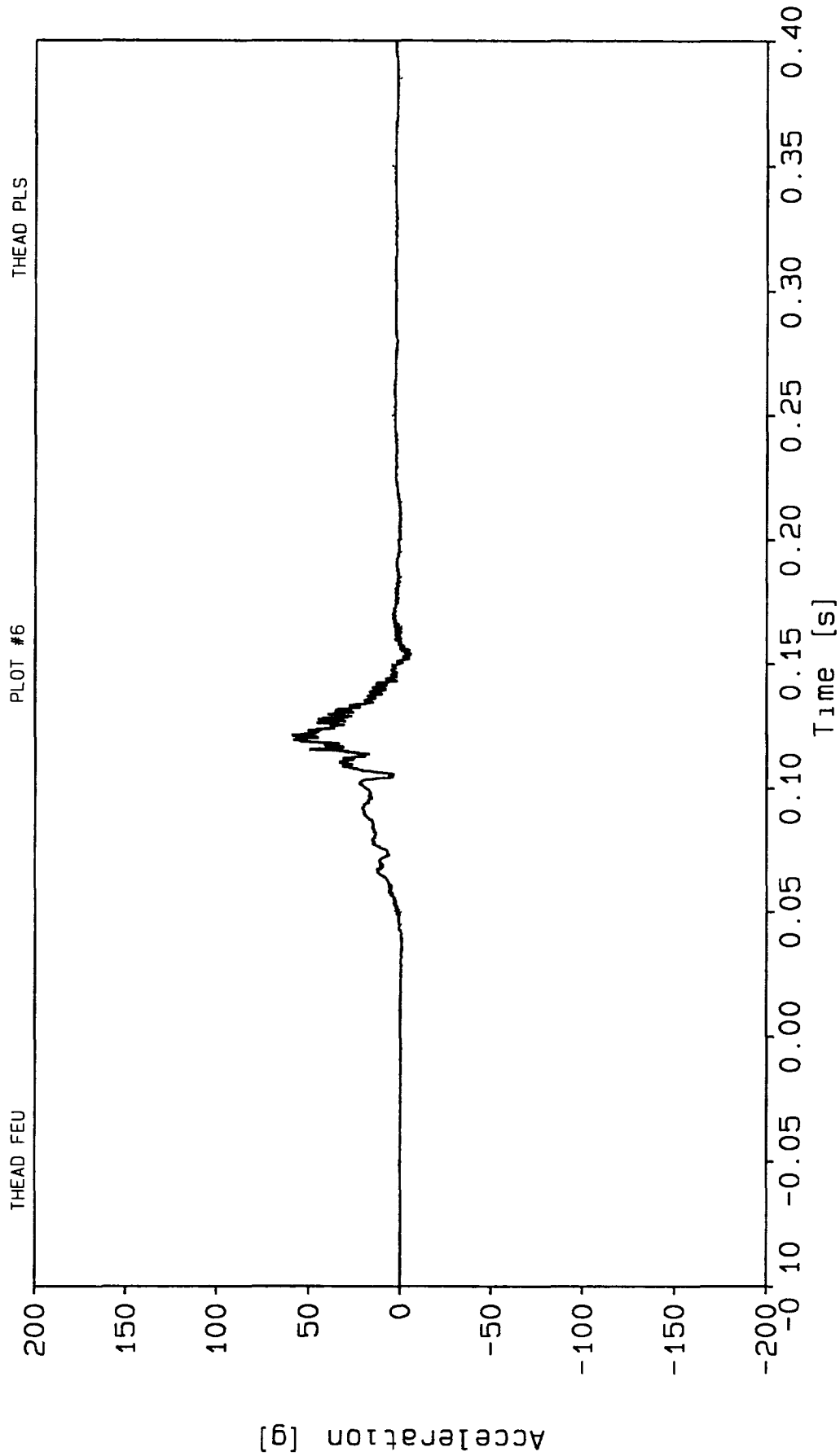
Exponent
Failure
Analysis
Associates

Head Occipital Acceleration (Az) v Time

Passenger Dummy - THOR

2001 Dodge Neon

2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Exponent
Failure
Analysis
Associates

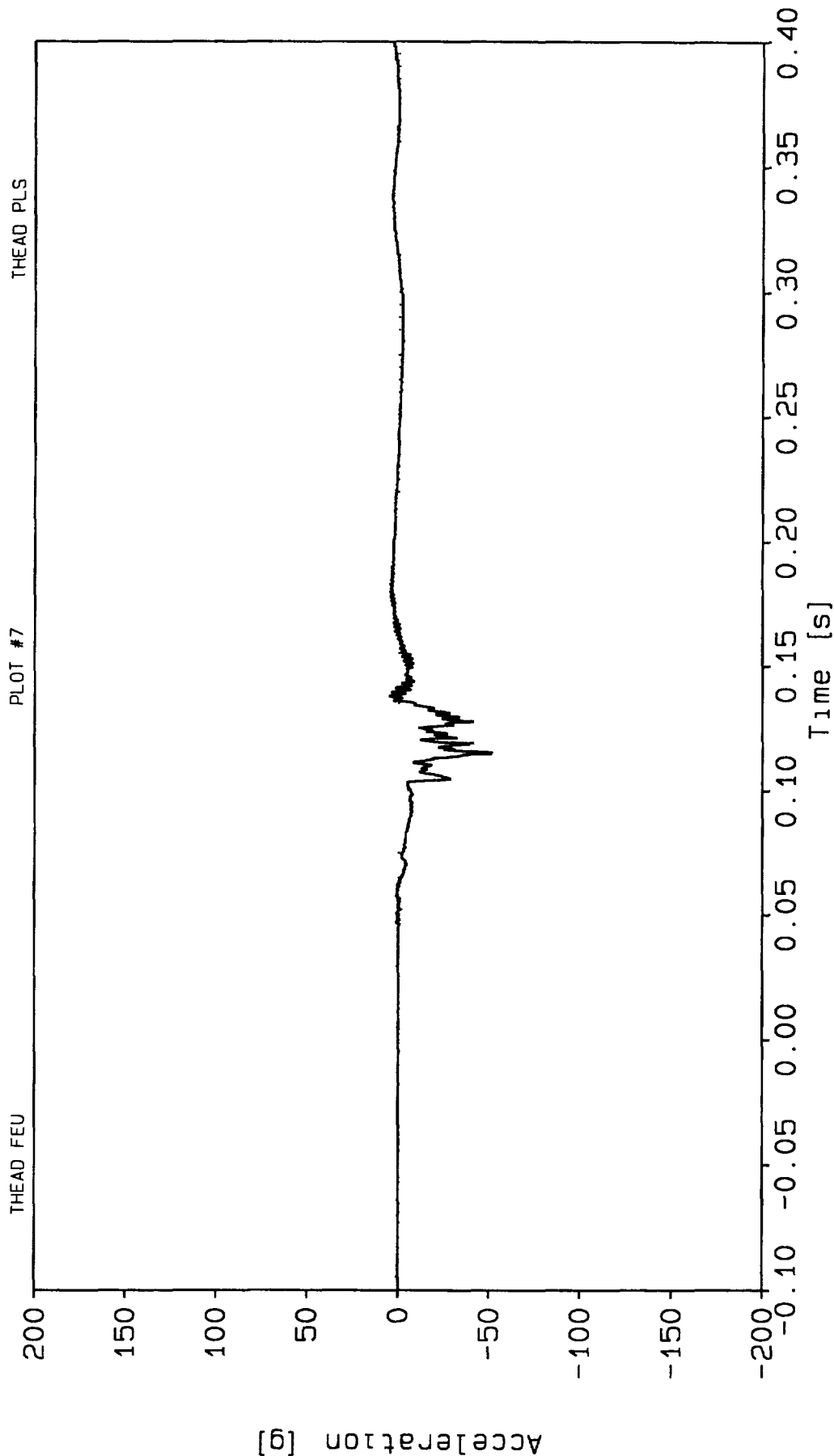
Filter Class 1000
Volpe Crash Testing
PH06608

Head C.G. Acceleration (Ax) v Time

Passenger Dummy - THOR

2001 Dodge Neon

2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Filter Class 1000
Volpe Crash Testing
PH06608

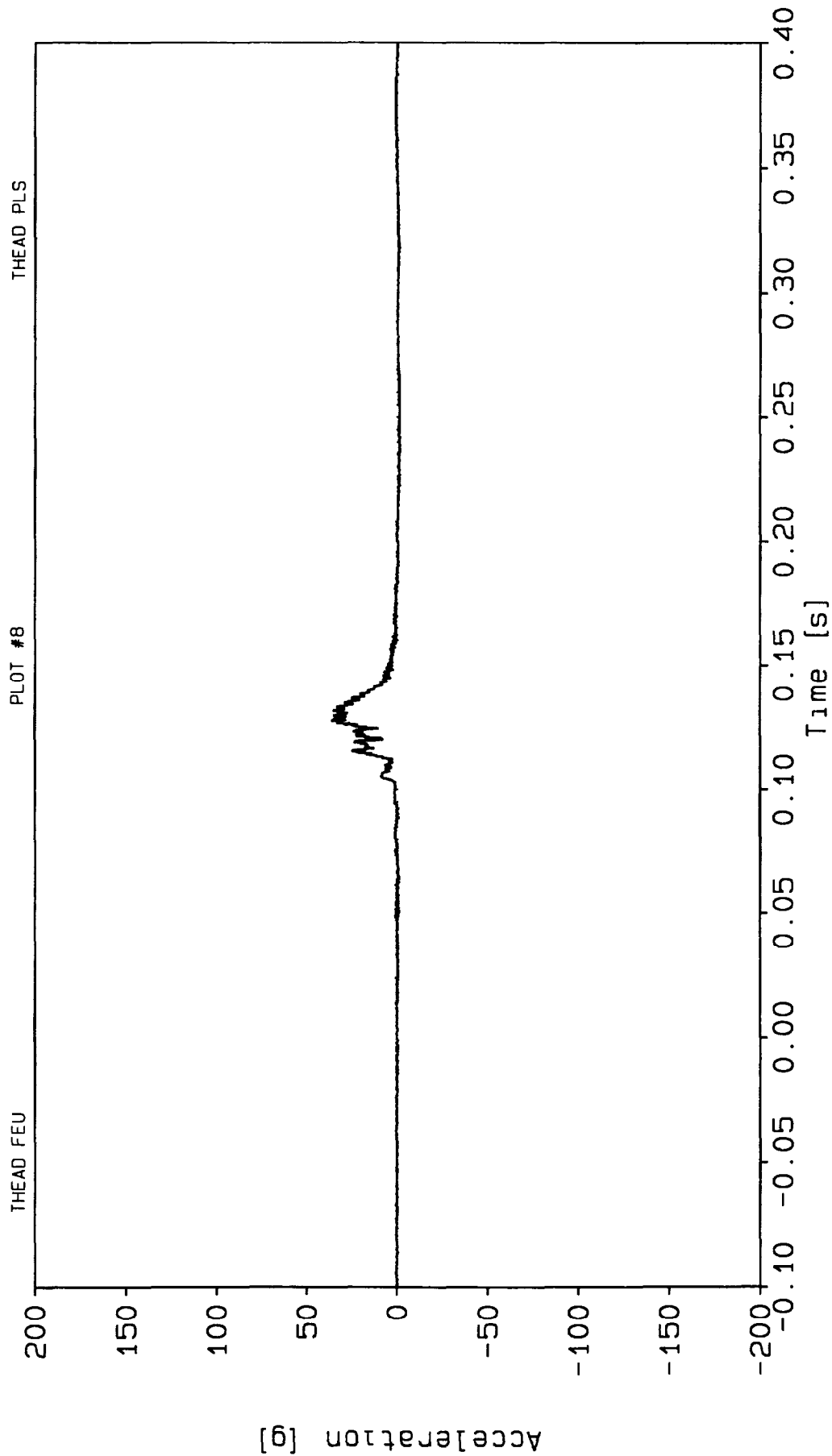
Exponent
Failure
Analysis
Associates

Head C.G. Acceleration (Ay) v Time

Passenger Dummy - THOR

2001 Dodge Neon

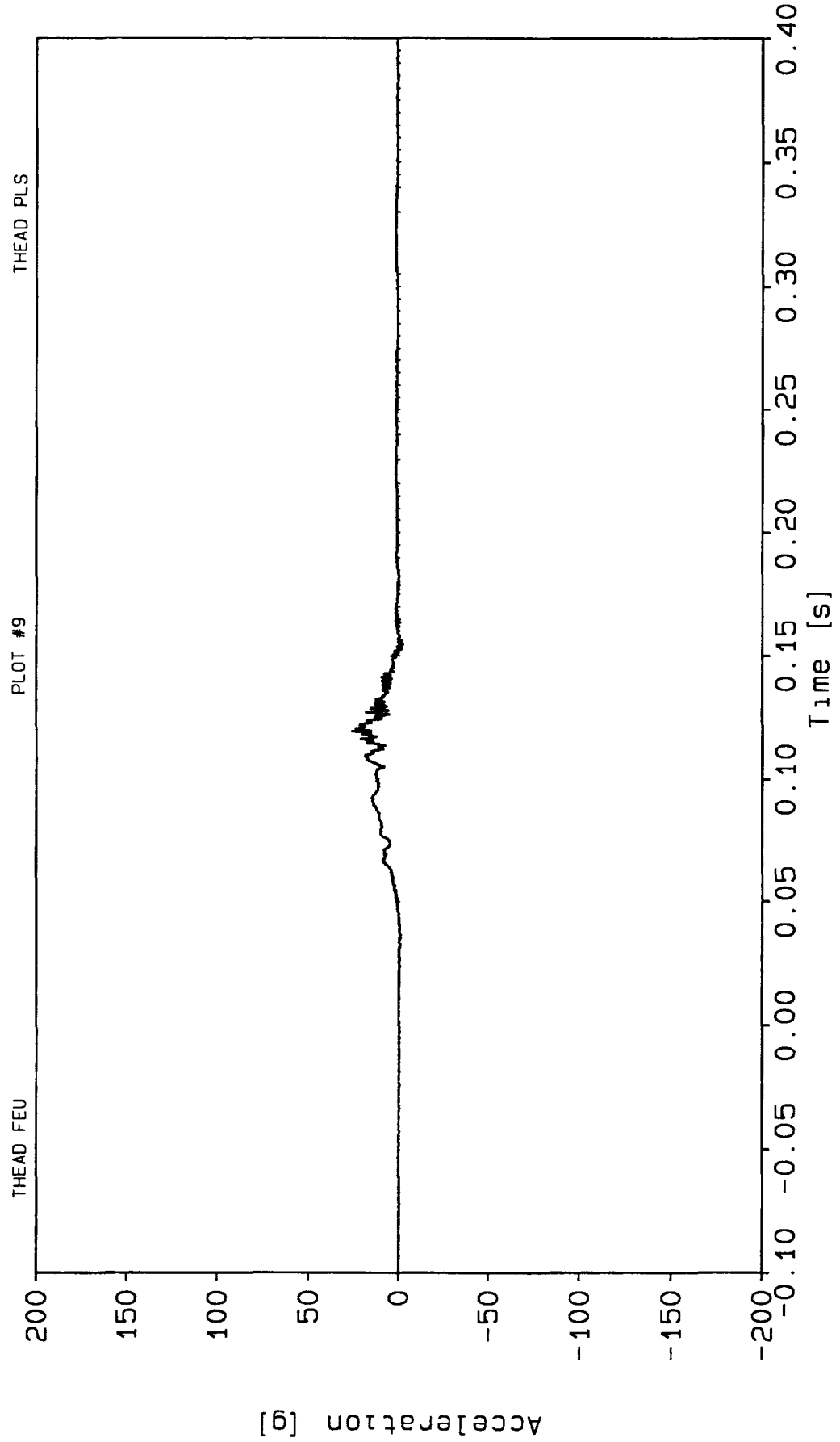
2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Exponent
Failure
Analysis
Associates

Filter Class 1000
Volpe Crash Testing
PH06608

Head C.G. Acceleration (Az) v Time
Passenger Dummy - THOR
2001 Dodge Neon
2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Filter Class 1000
Volpe Crash Testing
PH06608

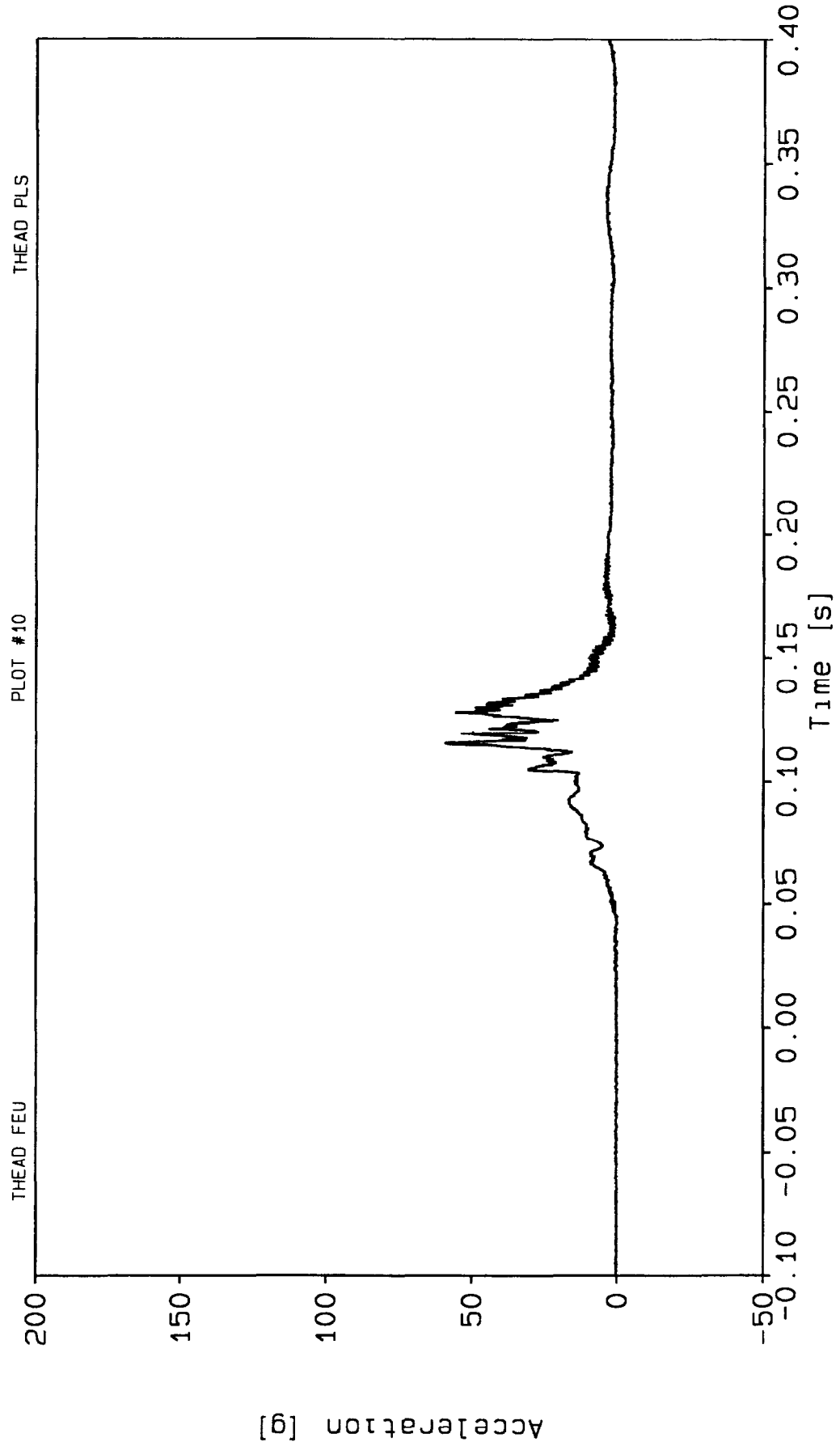
Exponent
Failure
Analysis
Associates

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

Passenger Dummy - THOR

2001 Dodge Neon

2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Filter Class 1000
Voipe Crash Testing
PH05608

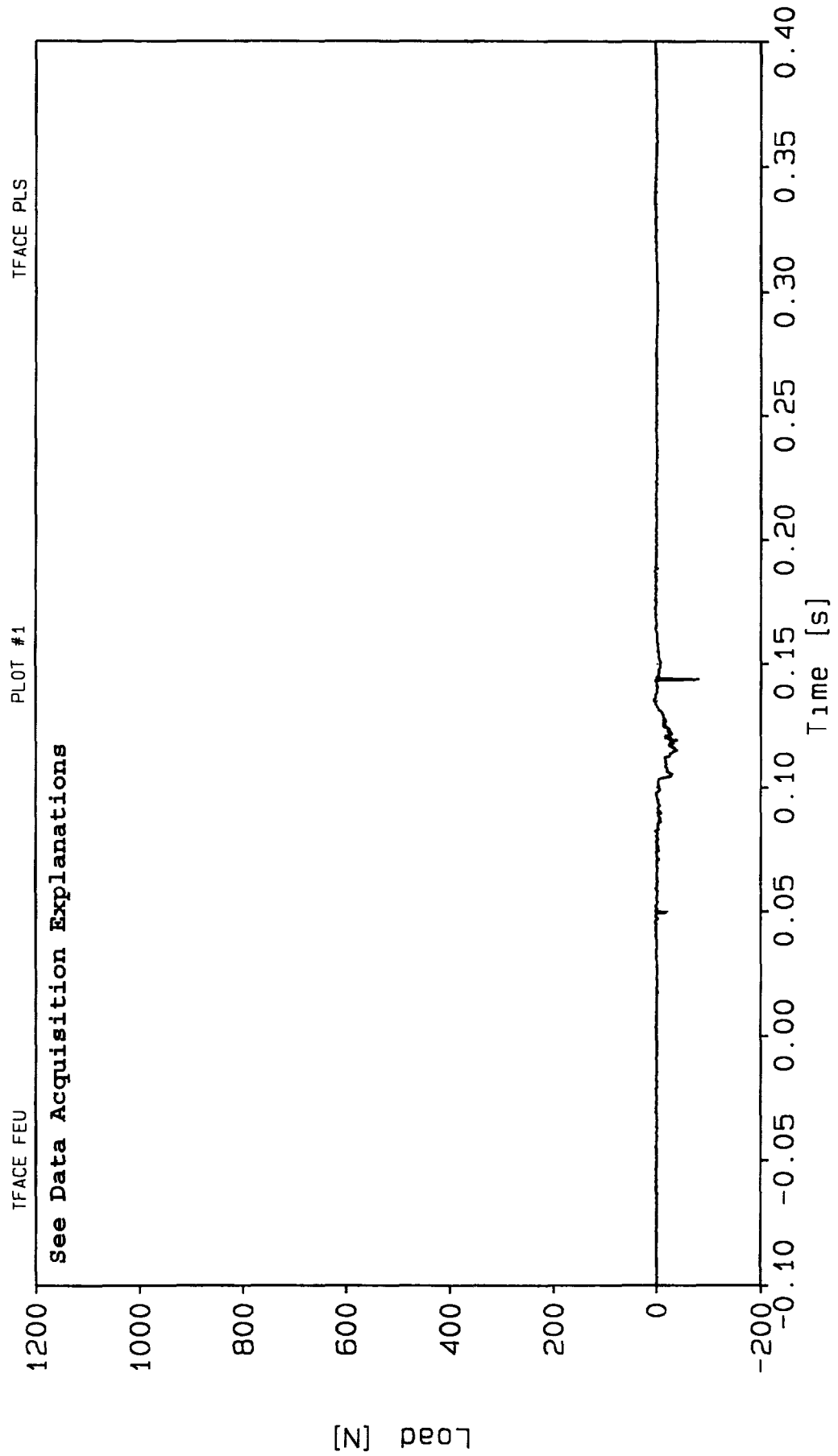
Exponent
Failure
Analysis
Associates

Right Eye Uniax Compression Load v Time

Passenger Dummy - THOR

2001 Dodge Neon

2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Filter Class 600
Volpe Crash Testing
PH06608

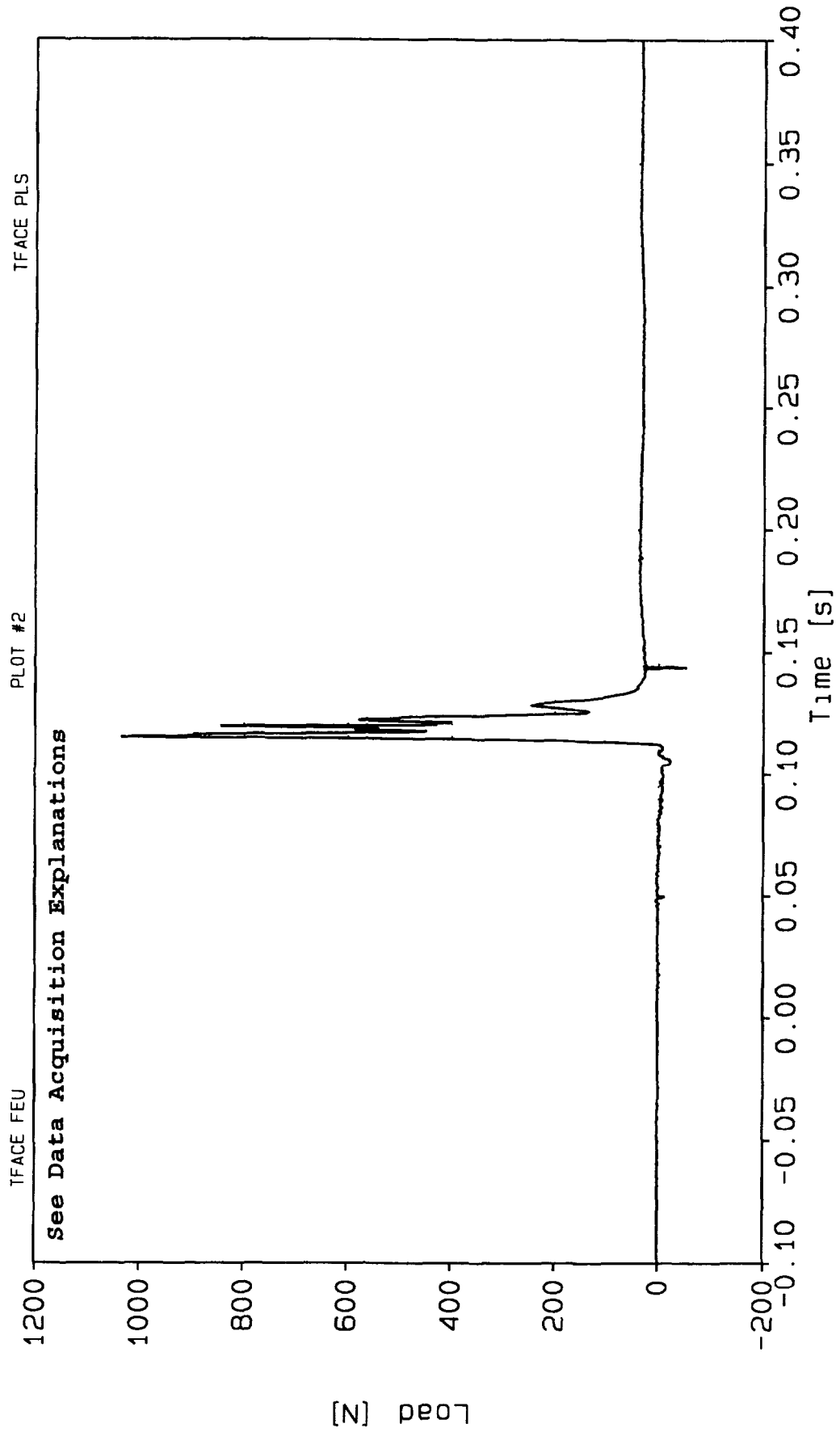
Exponent
Failure
Analysis
Associates

Left Eye Uniax Compression Load v Time

Passenger Dummy - THOR

2001 Dodge Neon

2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Filter Class 600
Volpe Crash Testing
PH06608

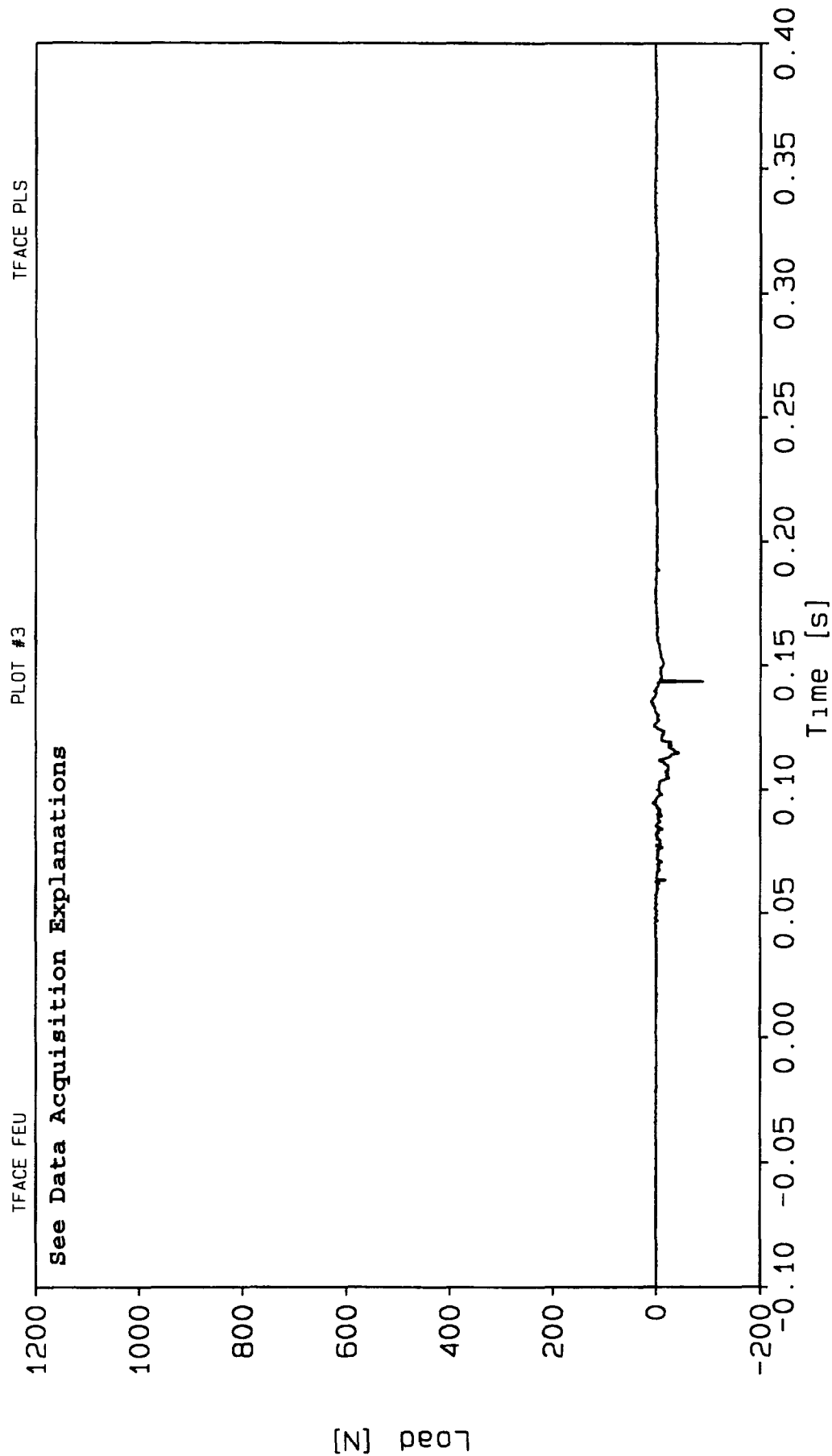
Exponent
Failure
Analysis
Associates

Right Cheek Uniax Compression Load v Time

Passenger Dummy - THOR

2001 Dodge Neon

2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Filter Class 600
Volpe Crash Testing
PH06608

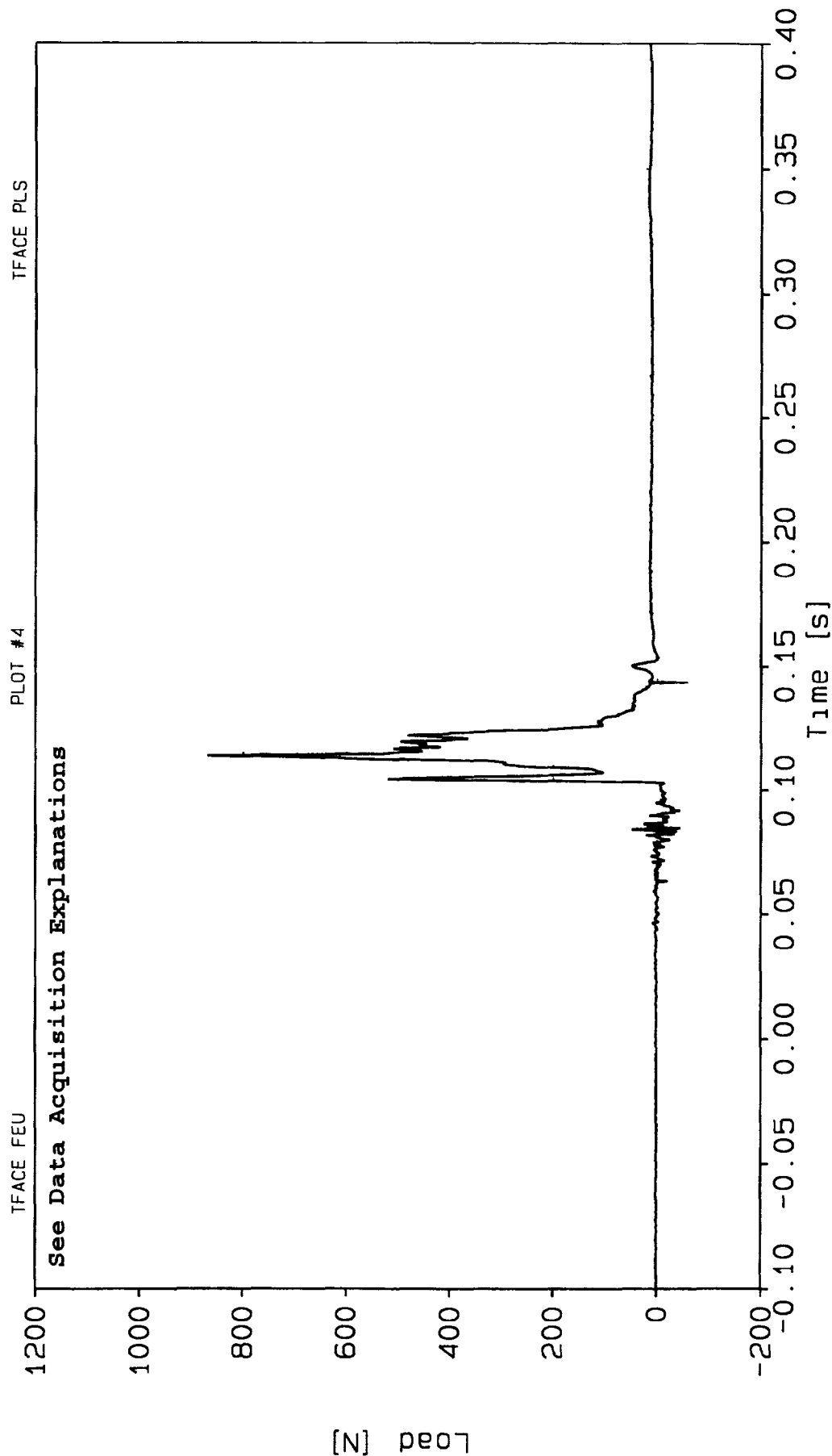
Exponent
Failure
Analysis
Associates

Left Cheek Uniax Compression Load v Time

Passenger Dummy - THOR

2001 Dodge Neon

2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Filter Class 600
Volpe Crash Testing
PH06608

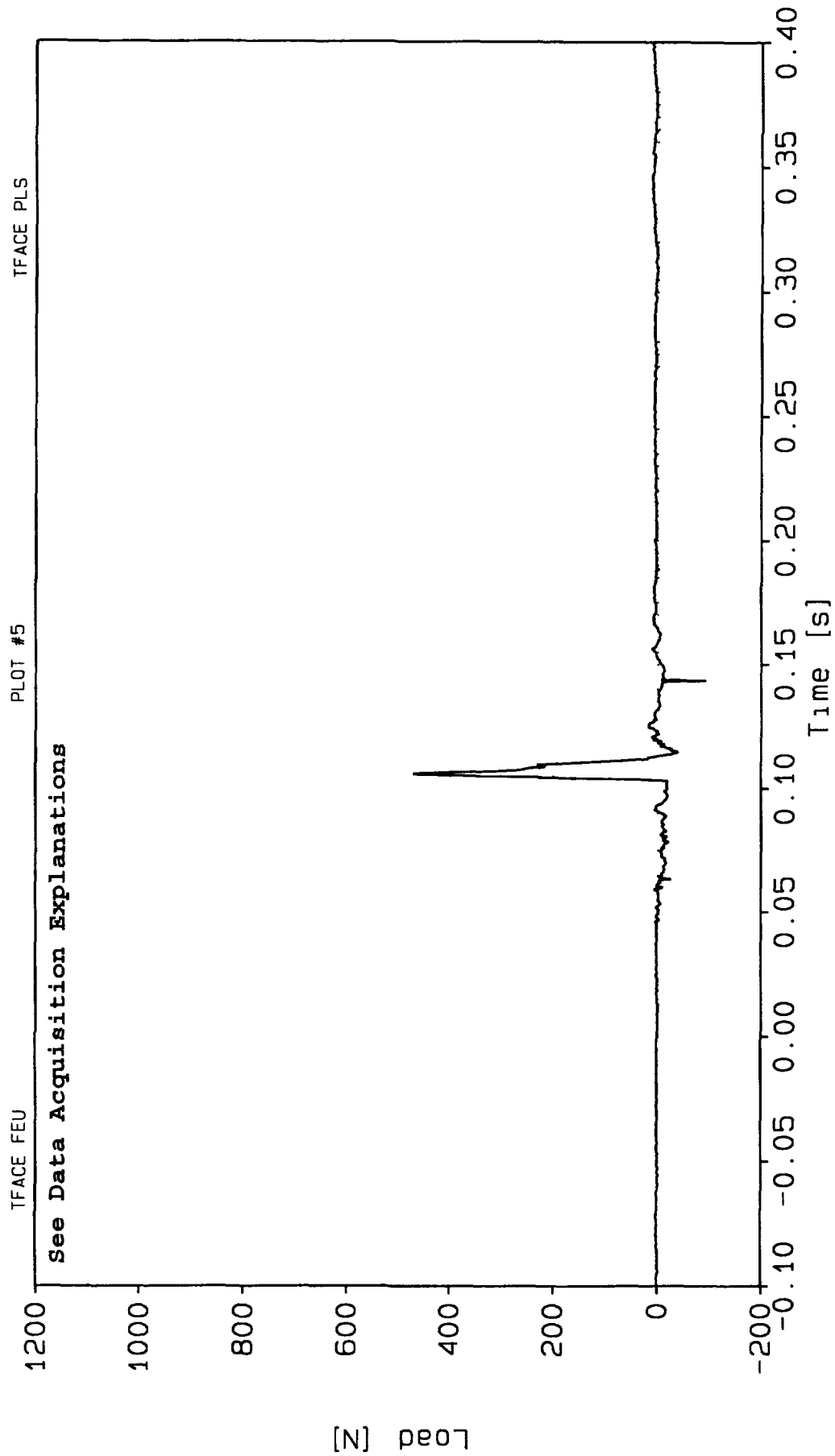
Exponent
Failure
Analysis
Associates

Chin Uniax Compression Load v Time

Passenger Dummy - THOR

2001 Dodge Neon

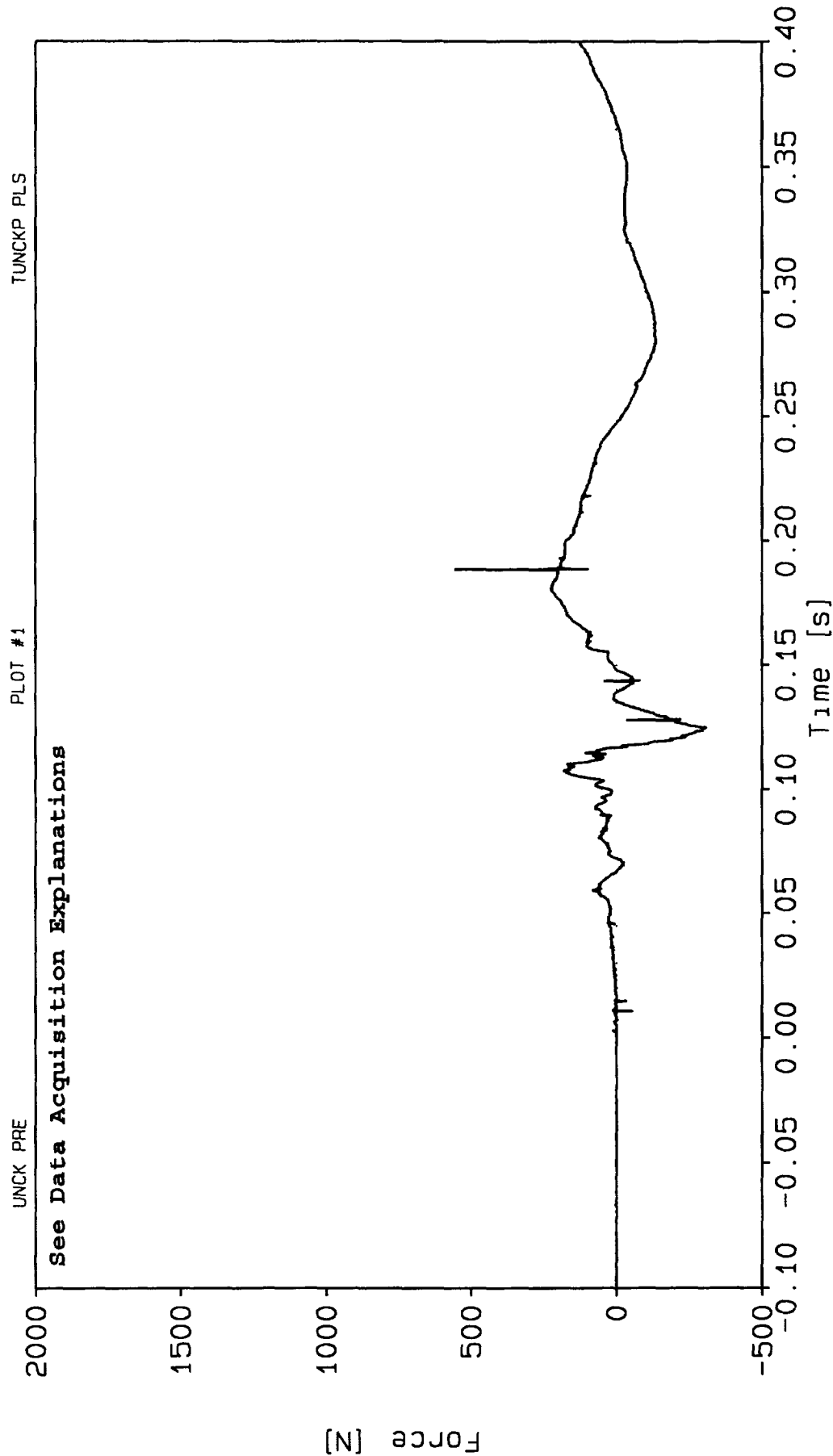
2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Filter Class 600
Voipe Crash Testing
PH05508

Exponent
Failure
Analysis
Associates

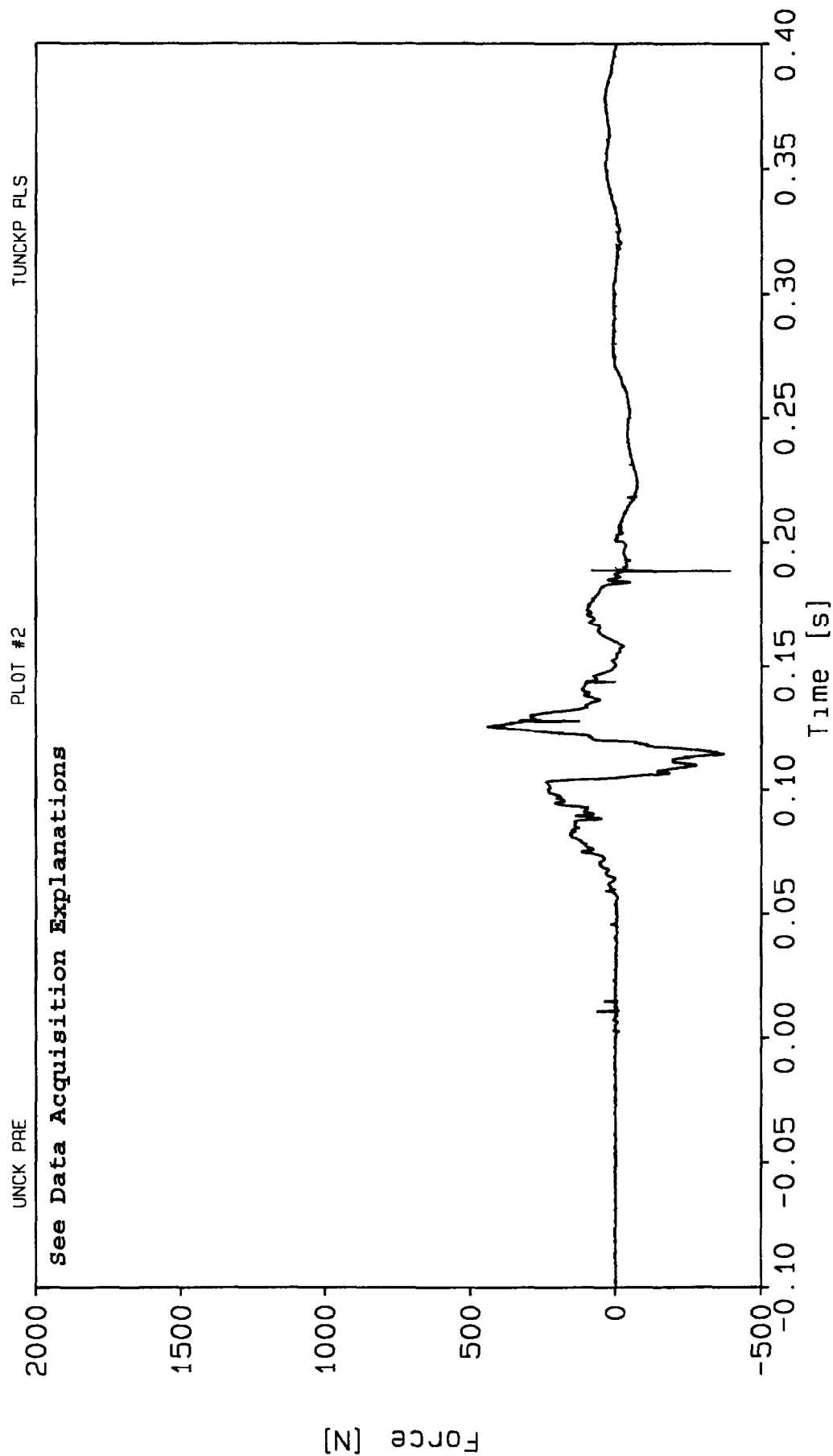
Upper Neck Force (Fx) v Time
Passenger Dummy - THOR - Pre-THORTEST Processing
2001 Dodge Neon
2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Exponent
Failure
Analysis
Associates

Unfiltered
Volpe Crash Testing
PH06608

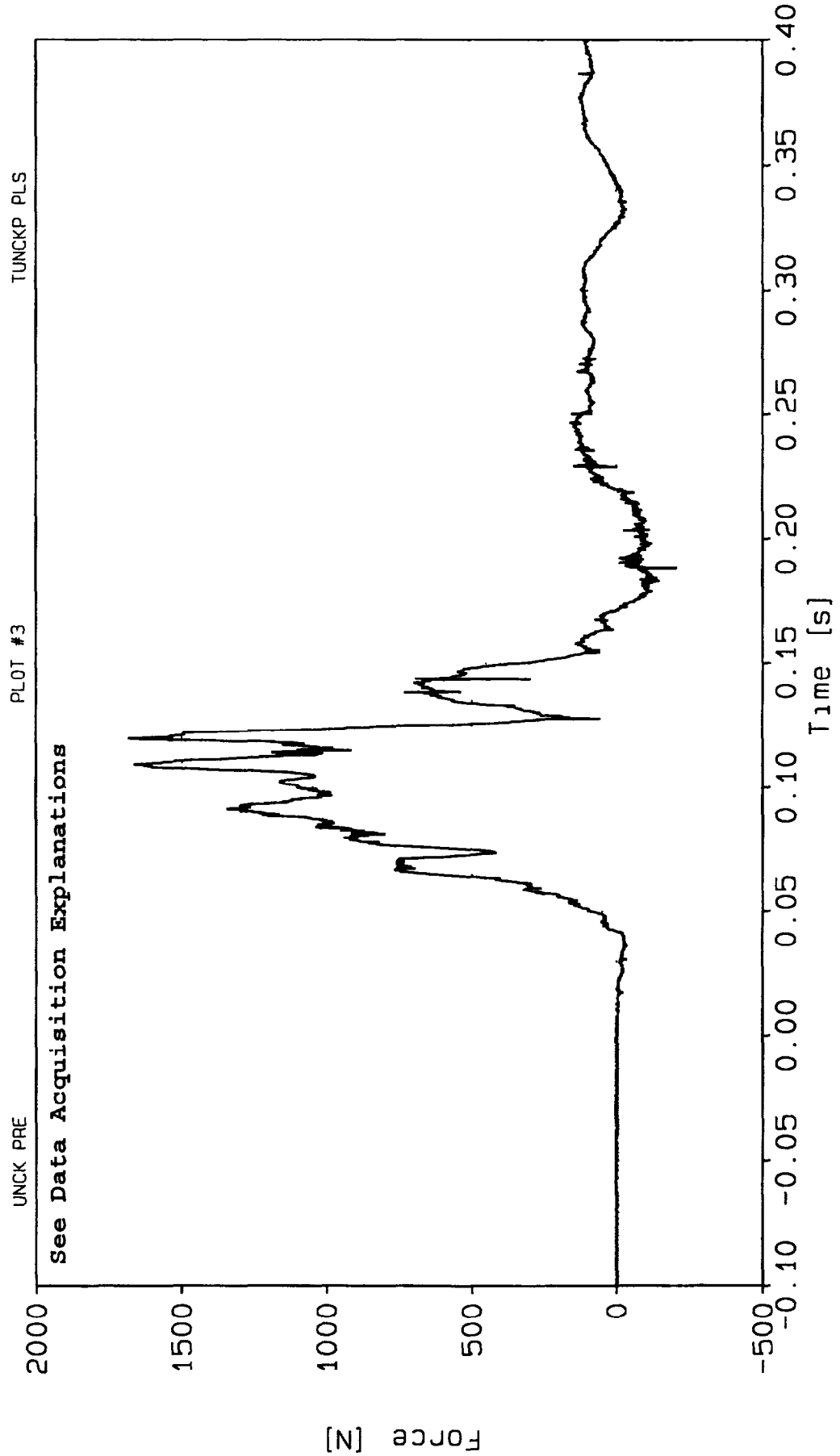
Upper Neck Force (Fy) v Time
Passenger Dummy - THOR - Pre-THORTEST Processing
2001 Dodge Neon
2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Exponent
Failure
Analysis
Associates

Unfiltered
Volpe Crash Testing
PH06608

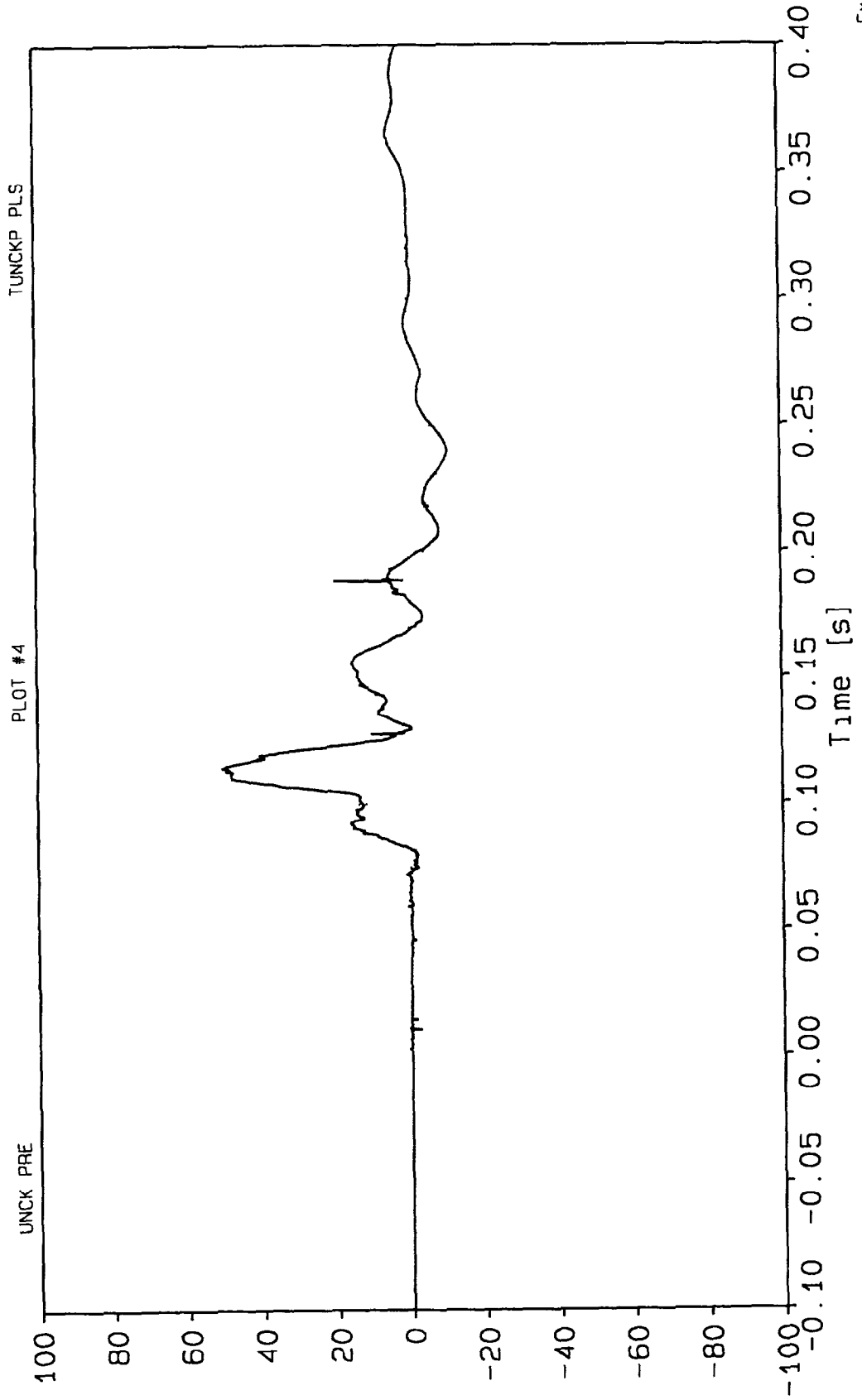
Upper Neck Force (Fz) v Time
Passenger Dummy - THOR - Pre-THORTEST Processing
2001 Dodge Neon
2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Exponent
Failure
Analysis
Associates

Unfiltered
Volpe Crash Testing
PH06608

Upper Neck Moment (Mx) v Time
Passenger Dummy - THOR - Pre-THORTEST Processing
2001 Dodge Neon
2001 Ford F-150 into 2001 Dodge Neon - 09/14/01

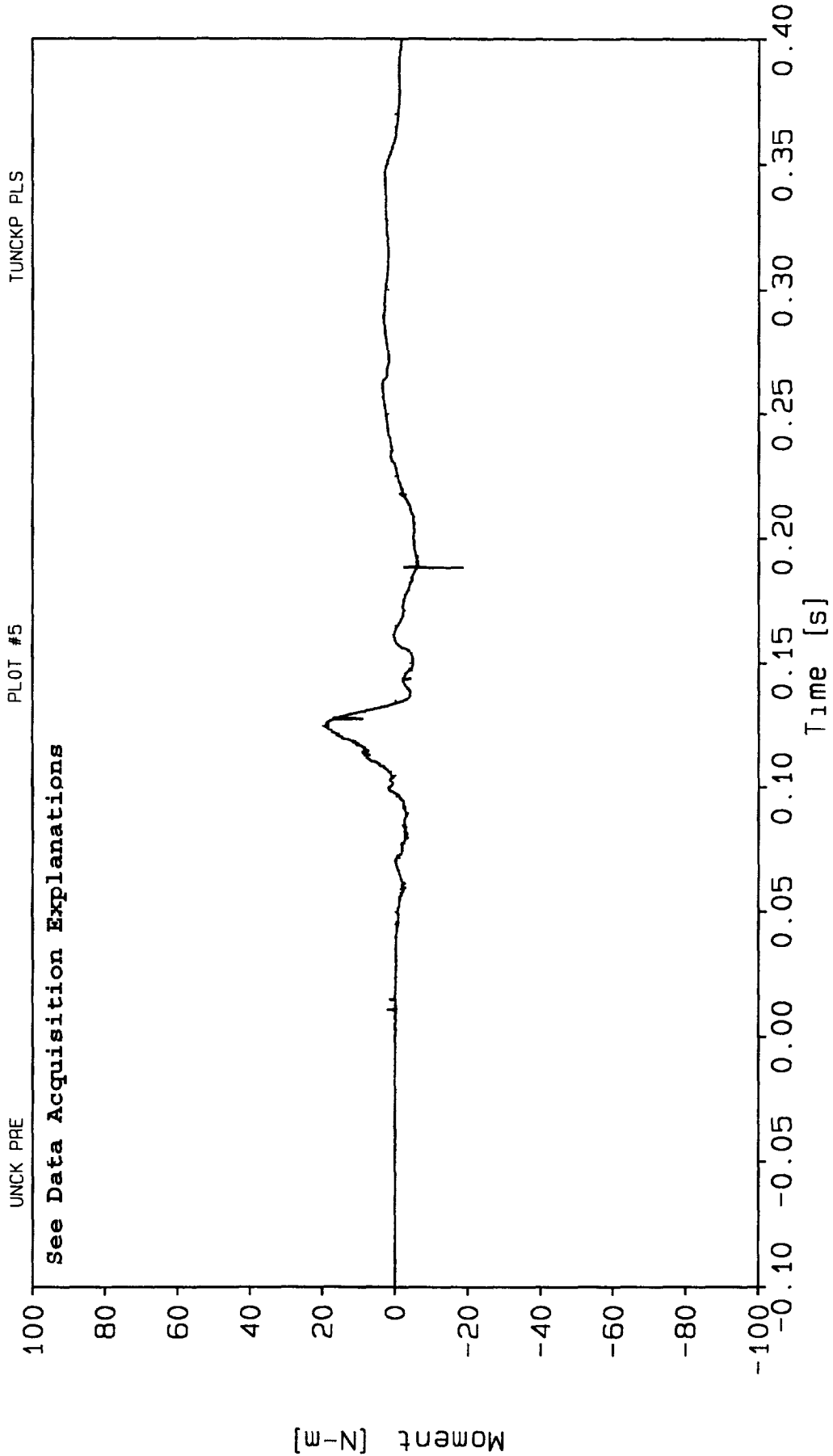


Exponent
Failure
Analysis
Associates

Unfiltered
Volpe Crash Testing
PH05508

Upper Neck Moment (My) v Time

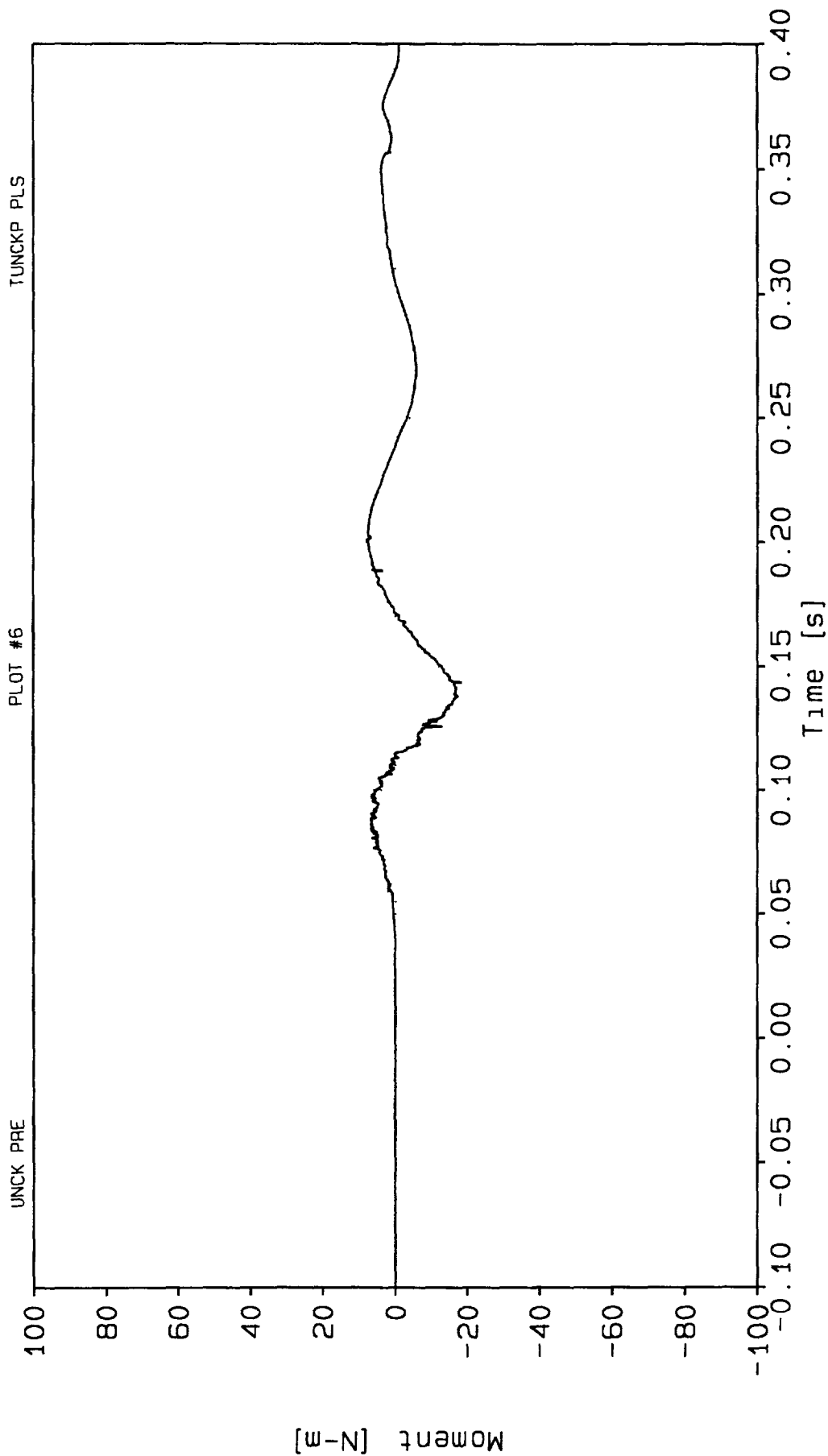
Passenger Dummy - THOR - Pre-THORTEST Processing
2001 Dodge Neon
2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Exponent
Failure
Analysis
Associates

Unfiltered
Volpe Crash Testing
PH06608

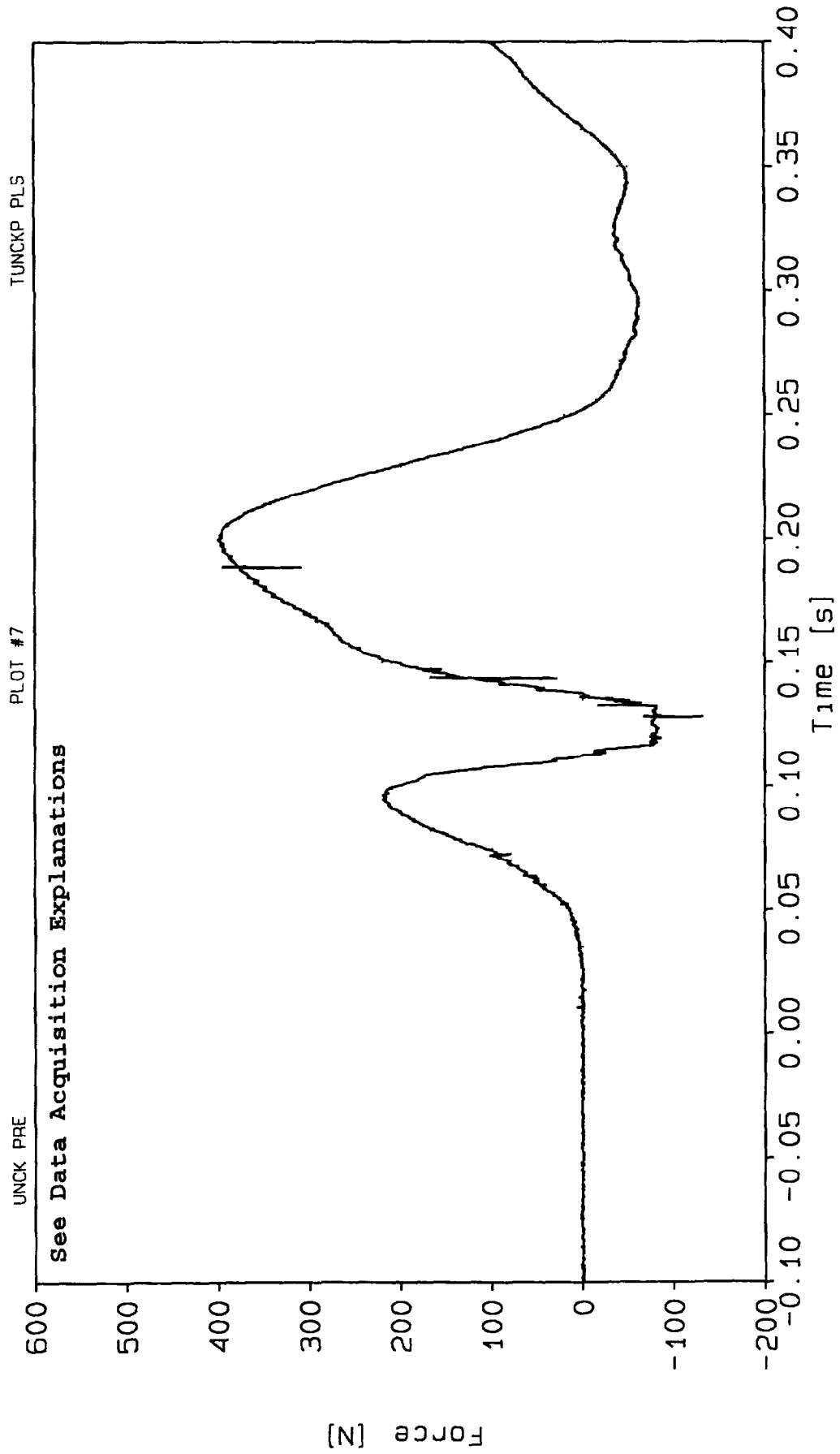
Upper Neck Moment (Mz) v Time
Passenger Dummy - THOR - Pre-THORTEST Processing
2001 Dodge Neon
2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Exponent
Failure
Analysis
Associates

Unfiltered
Volpe Crash Testing
PH06608

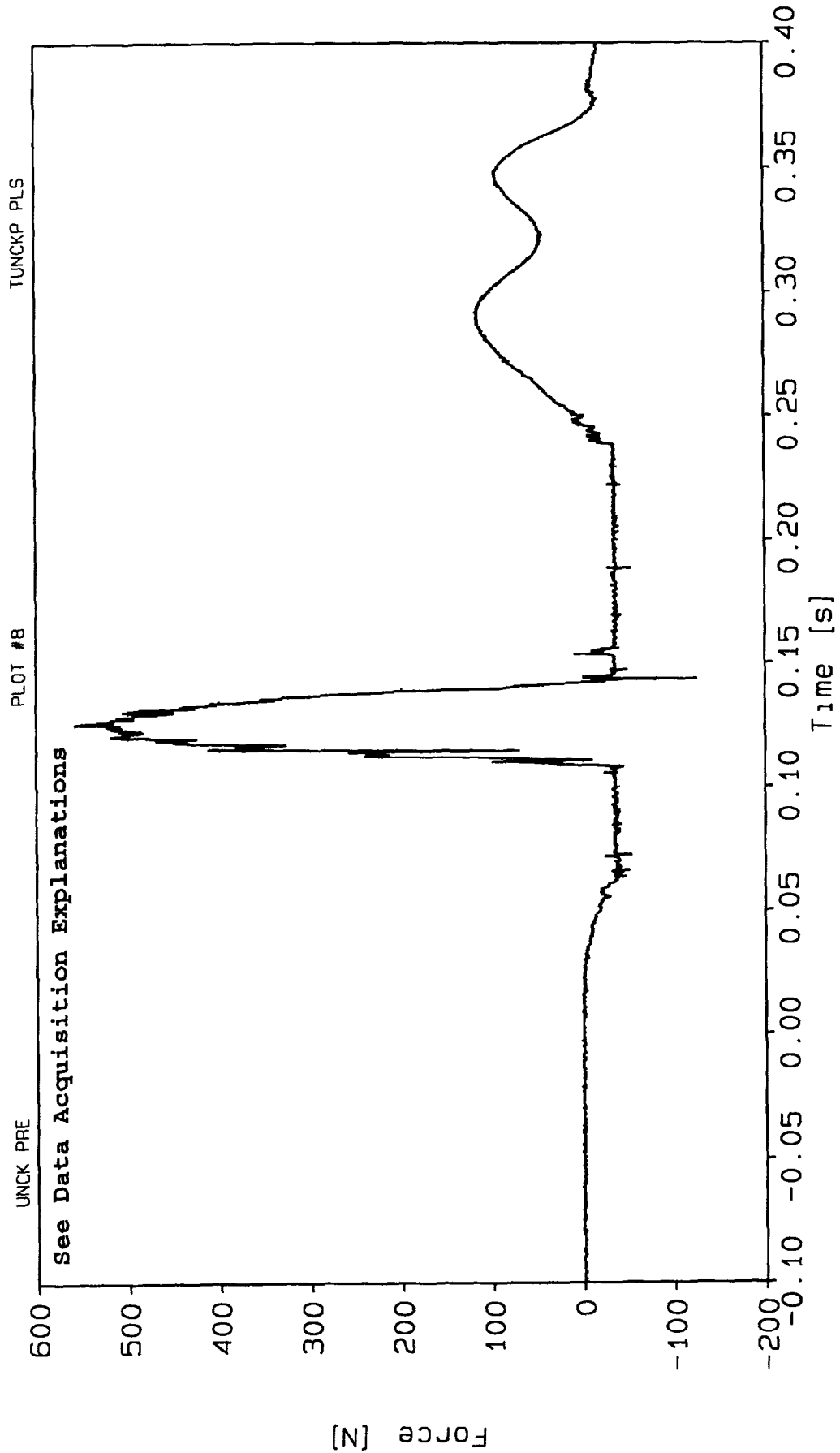
Neck Front Spring Compression v Time
Passenger Dummy - THOR - Pre-THORTEST Processing
2001 Dodge Neon
2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Unfiltered
Volpe Crash Testing
PH06608

Exponent
Failure
Analysis
Associates

Neck Rear Spring Compression v Time
Passenger Dummy - THOR - Pre-THORTEST Processing
2001 Dodge Neon
2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Exponent
Failure
Analysis
Associates

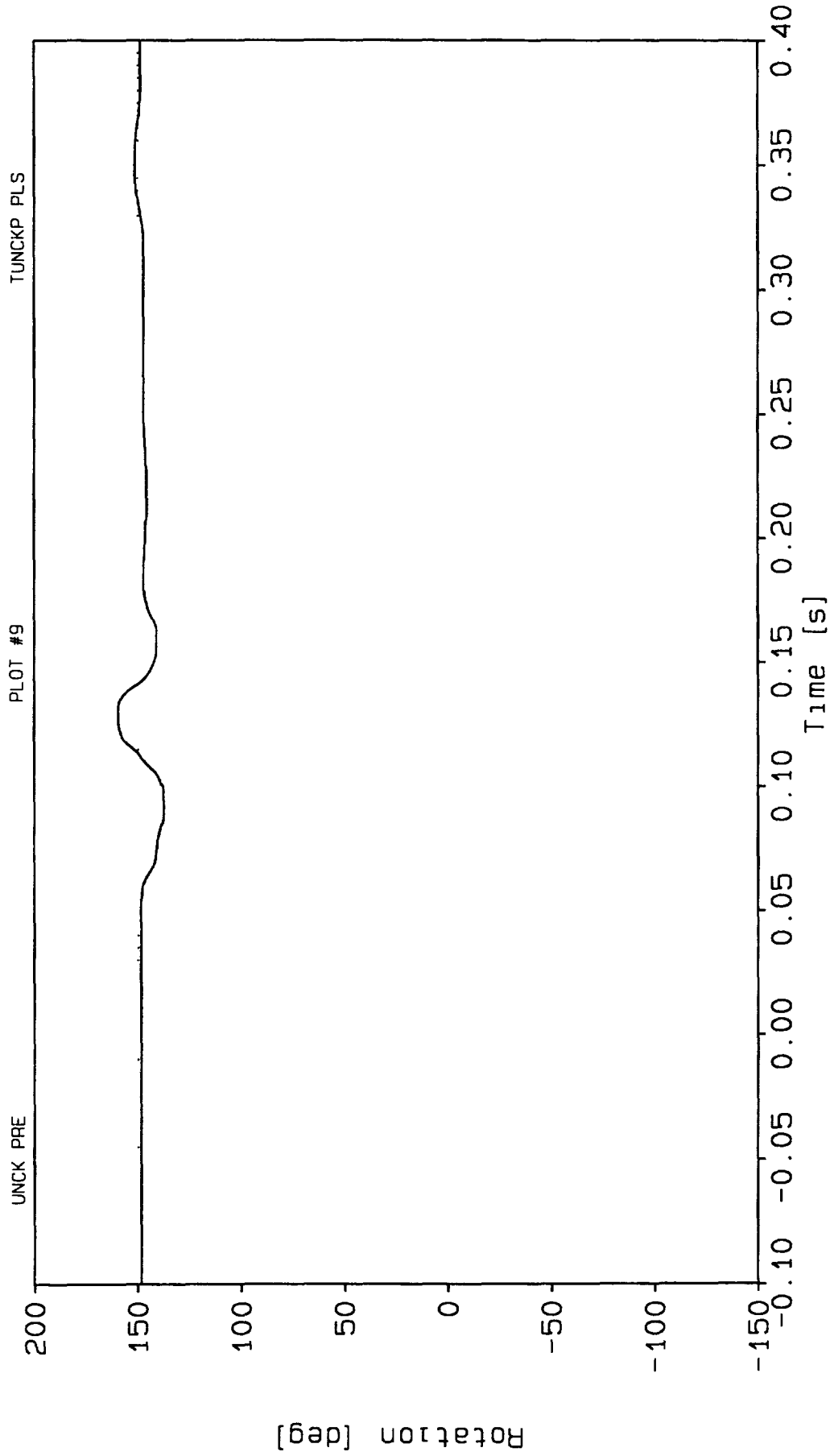
Unfiltered
Volpe Crash Testing
PH06608

Head Rotation at Occipital Condyle v Time

Passenger Dummy - THOR - Pre-THORTEST Processing

2001 Dodge Neon

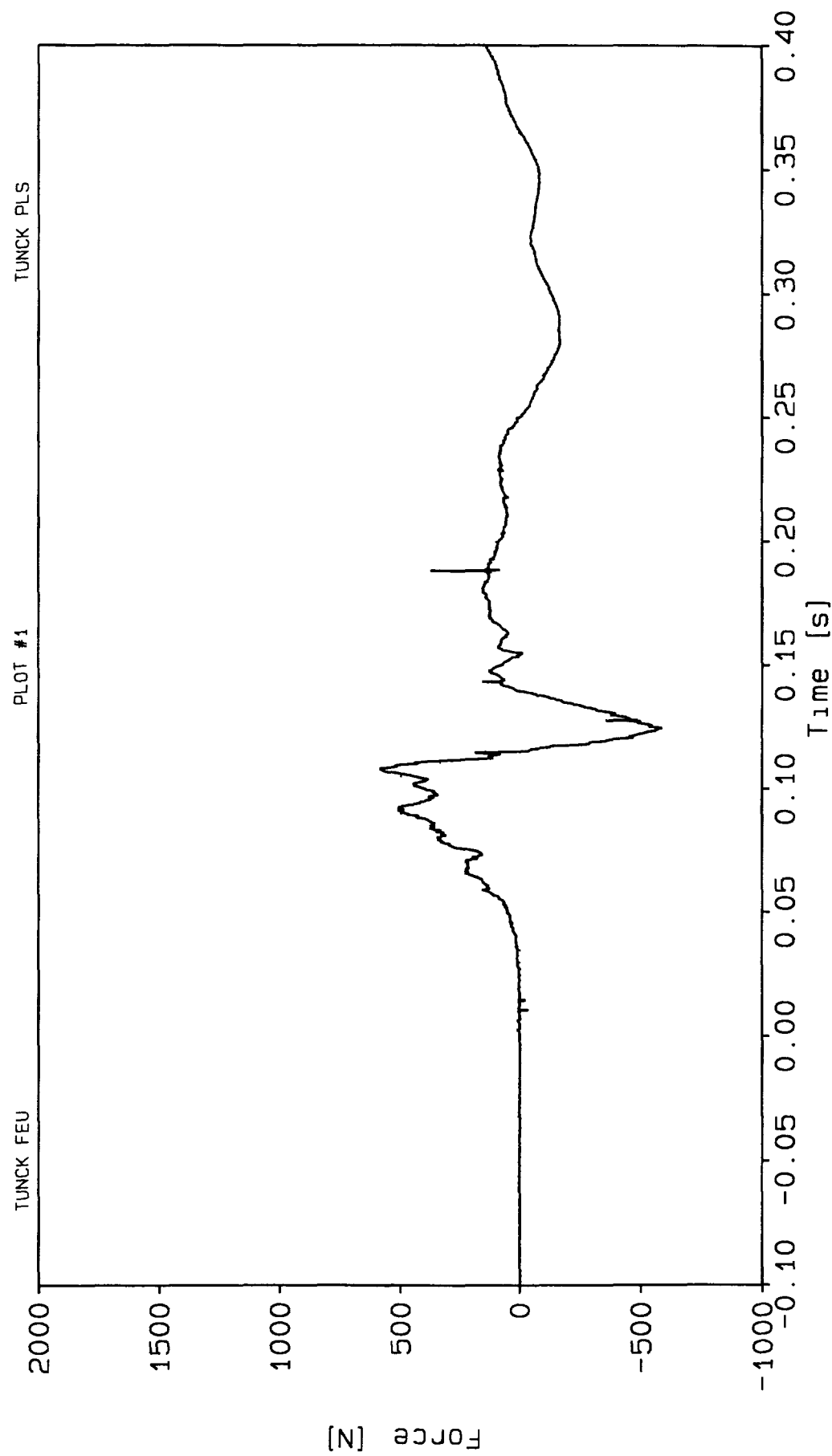
2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Exponent
Failure
Analysis
Associates

Unfiltered
Volpe Crash Testing
PH06608

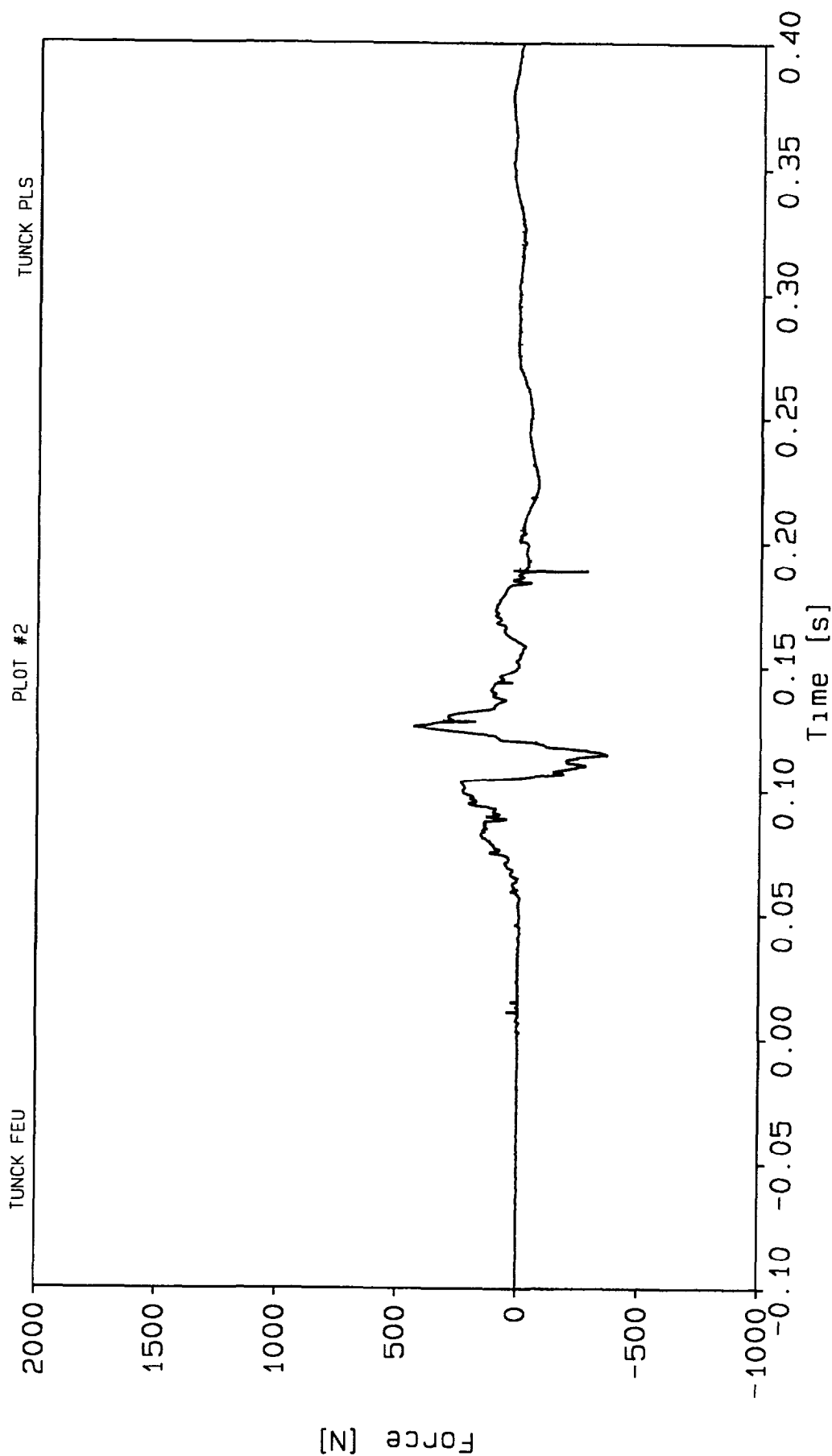
Upper Neck Force (Fx) v Time
Passenger Dummy - THOR - Post THORTEST Processing
2001 Dodge Neon
2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Exponent
Failure
Analysis
Associates

Filter Class 1000
Volpe Crash Testing
PH06508

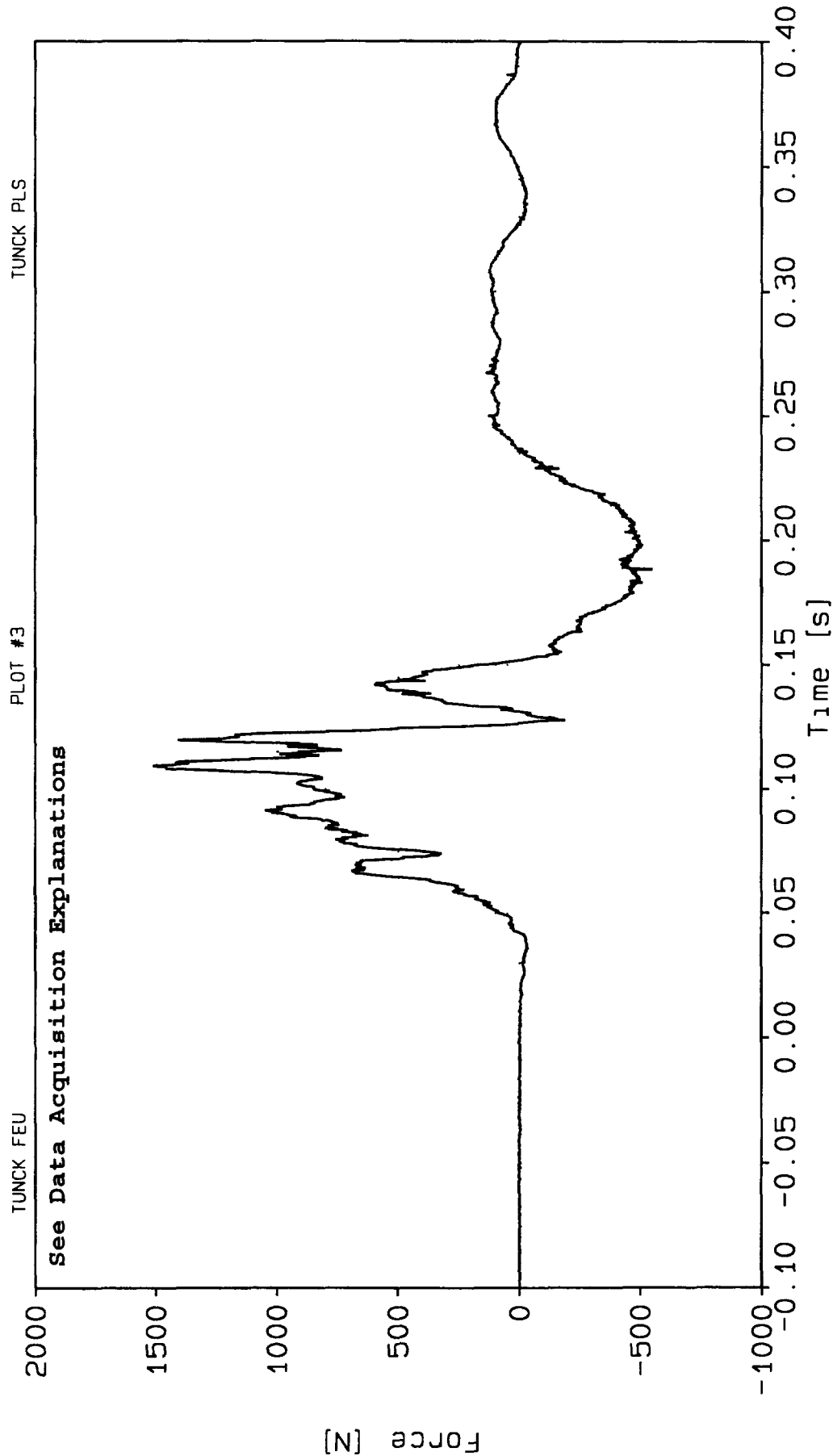
Upper Neck Force (Fy) v Time
Passenger Dummy - THOR - Post THORTEST Processing
2001 Dodge Neon
2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Filter Class 1000
Volpe Crash Testing
PH05608

Exponent
Failure
Analysis
Associates

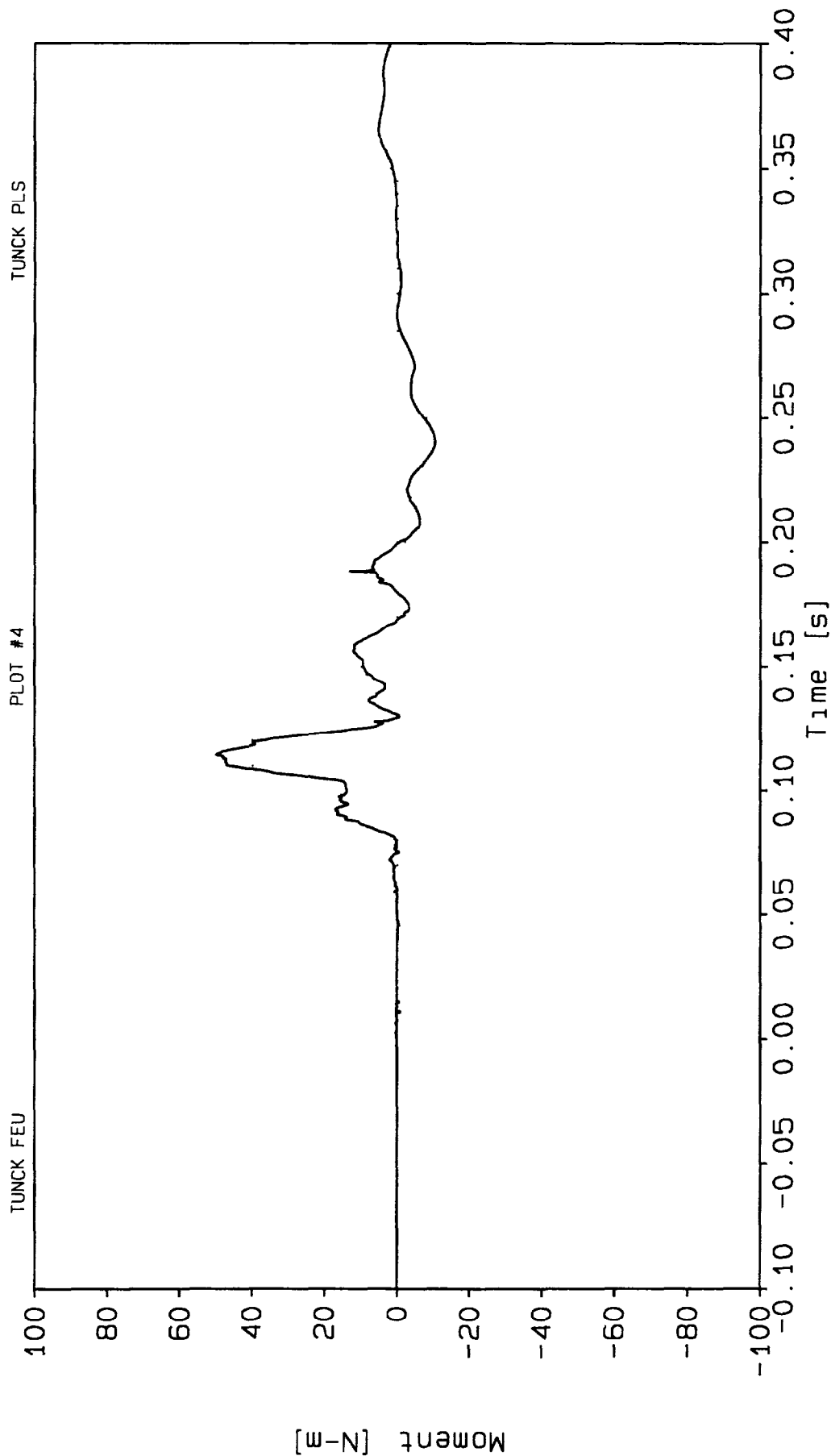
Upper Neck Force (Fz) v Time
Passenger Dummy - THOR - Post THORTEST Processing
2001 Dodge Neon
2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Exponent
Failure
Analysis
Associates

Filter Class 1000
Volpe Crash Testing
PH06608

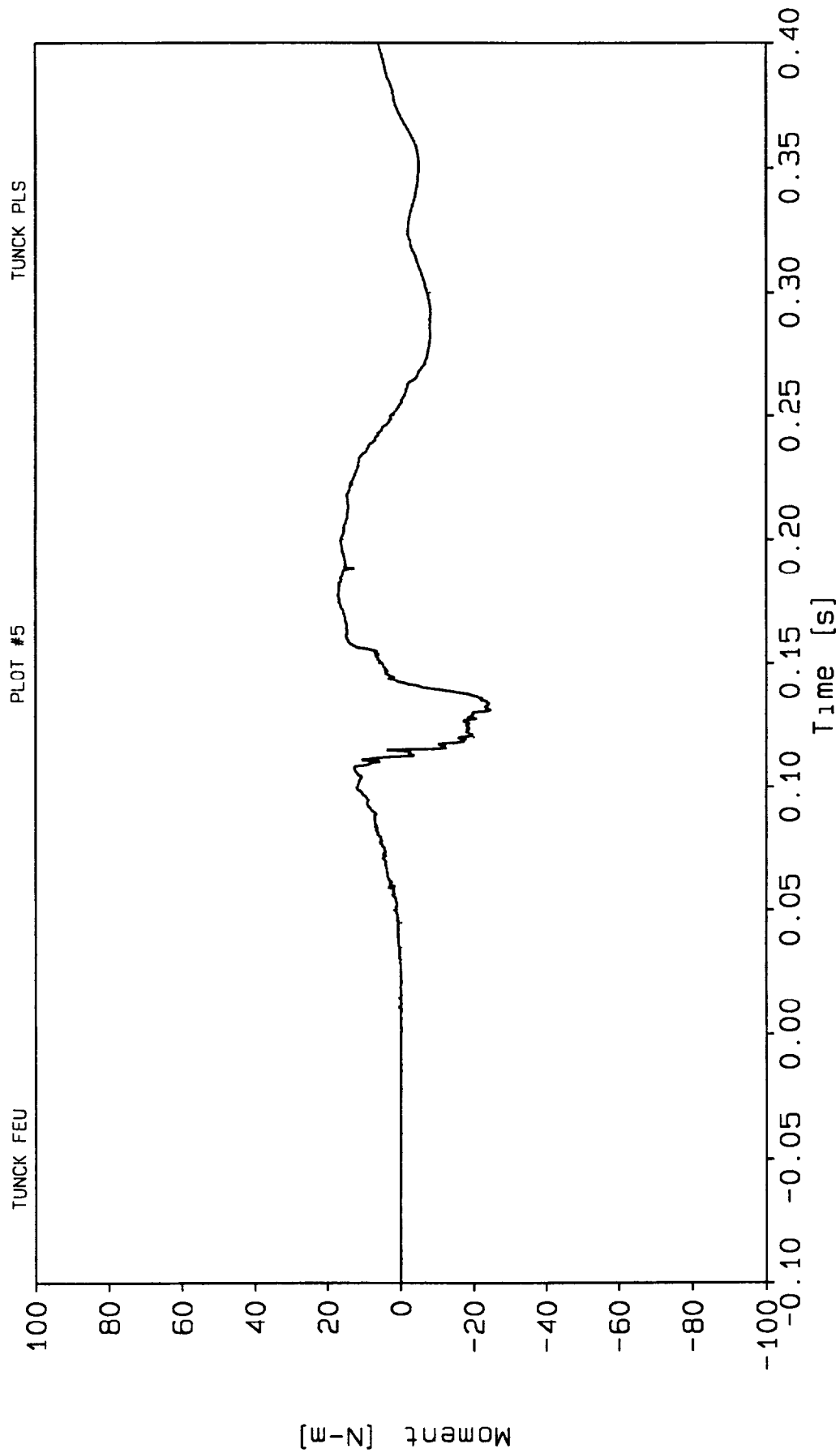
Upper Neck Moment (Mx) v Time
Passenger Dummy - THOR - Post THORTEST Processing
2001 Dodge Neon
2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Filter Class 600
Volpe Crash Testing
PH06508

Exponent
Failure
Analysis
Associates

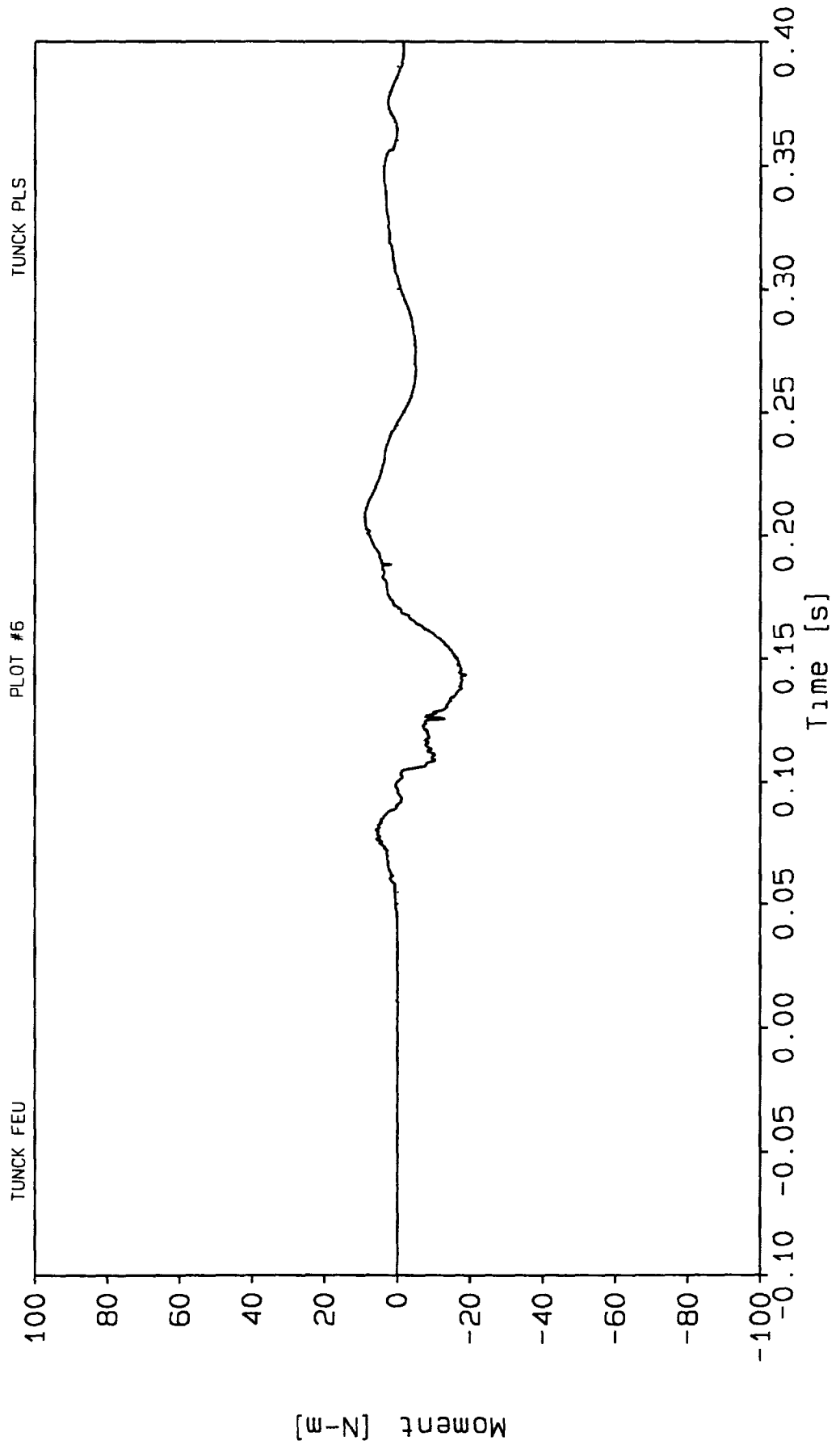
Upper Neck Moment (My) v Time
Passenger Dummy - THOR - Post THORTEST Processing
2001 Dodge Neon
2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



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
2001 Ford F-150 into 2001 Dodge Neon - 09/14/01

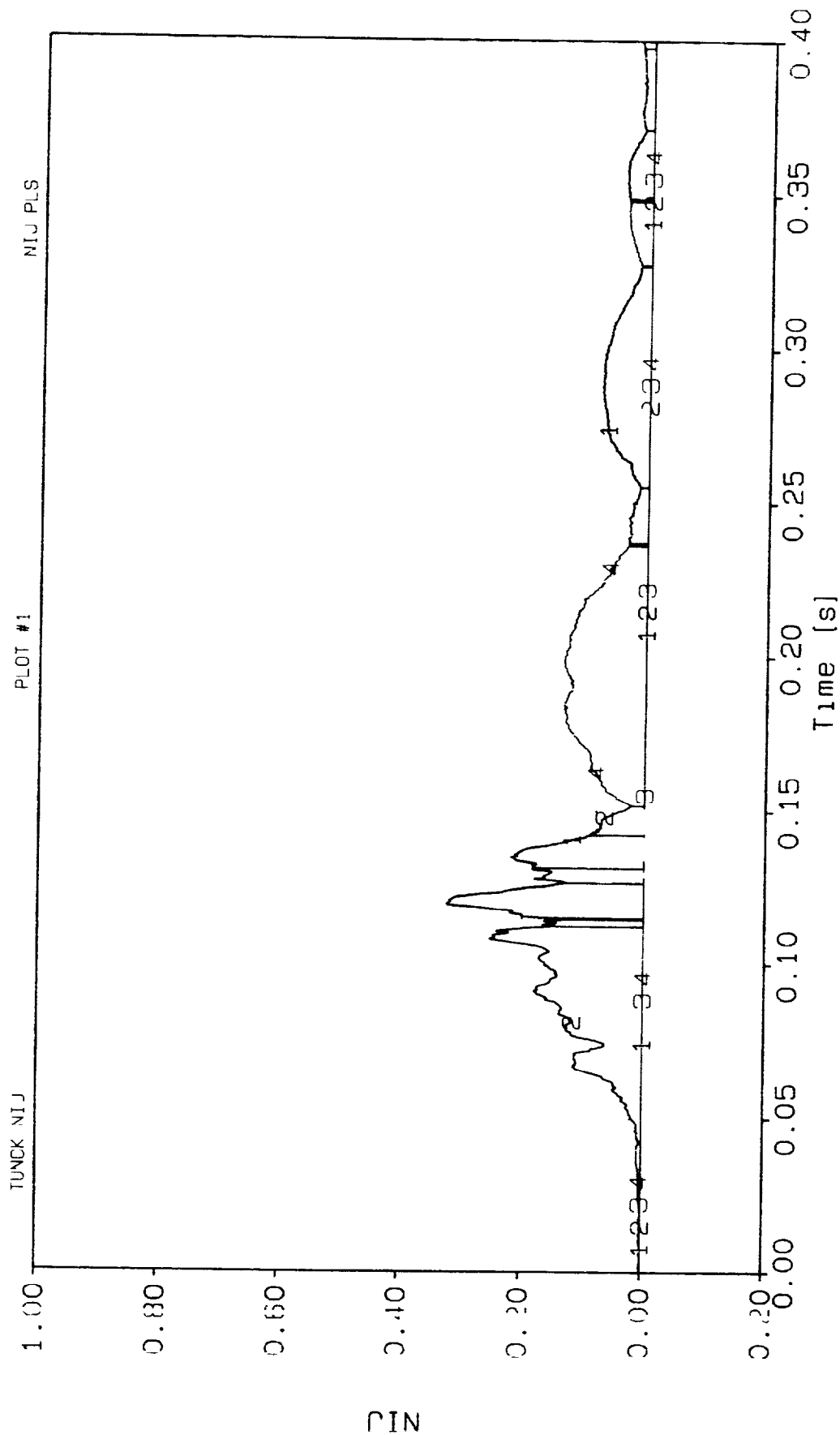


Exponent
Failure
Analysis
Associates

Filter Class 600
Volpe Crash Testing
PH06608

Neck Injury Predictor v Time

Passenger Dummy - THOR
2001 Dodge Neon
2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



E power
Fellur
Analys
45 30 3 'S

2- Nrf
4- Nrf

1- Nrf
3- Nrf

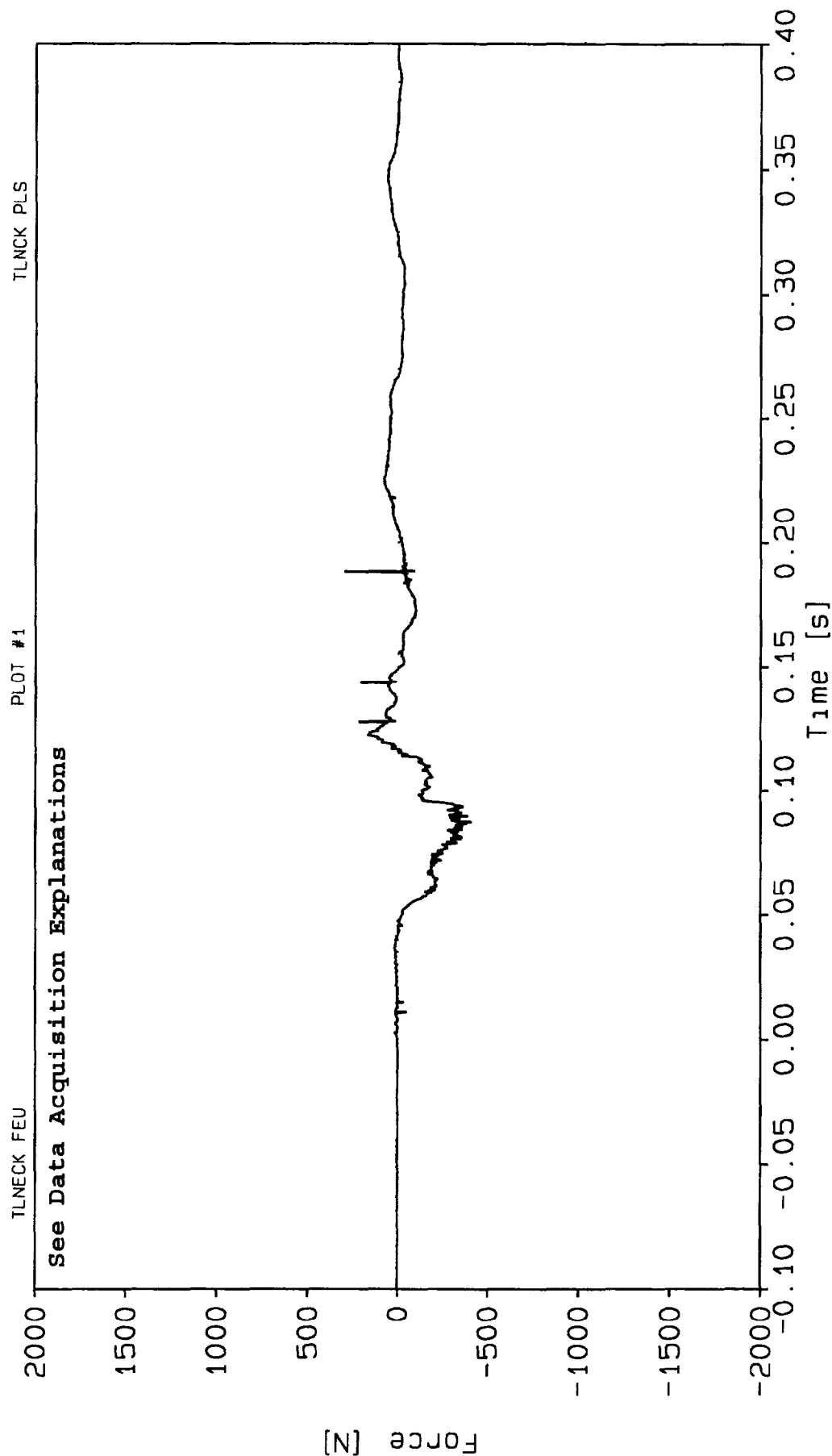
ulp Crash Testing

Lower Neck Force (Fx) v Time

Passenger Dummy - THOR

2001 Dodge Neon

2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Exponent
Failure
Analysis
Associates

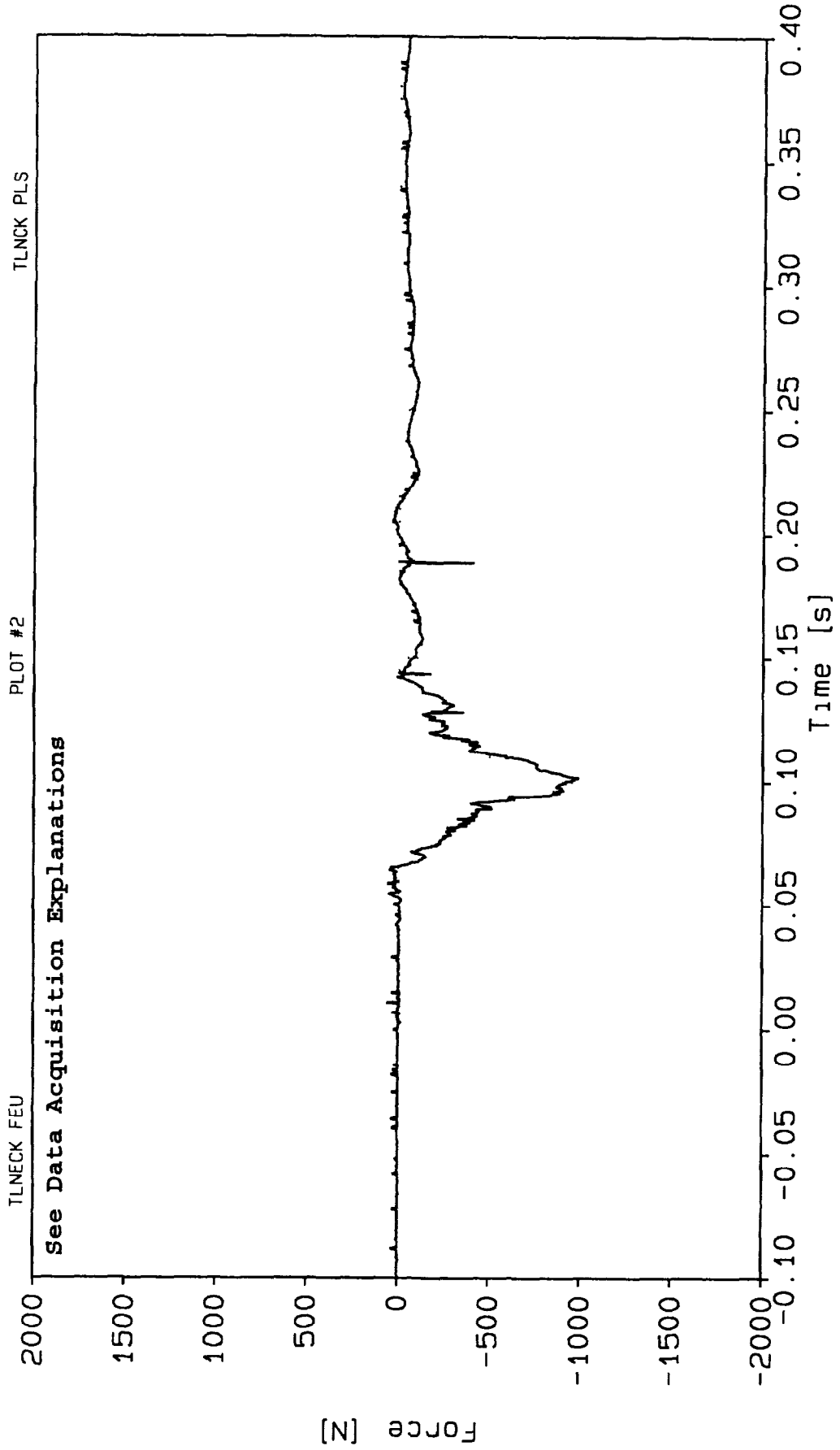
Filter Class 1000
Volpe Crash Testing
PH06608

Lower Neck Force (Fy) v Time

Passenger Dummy - THOR

2001 Dodge Neon

2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Filter Class 1000
Volpe Crash Testing
PH06608

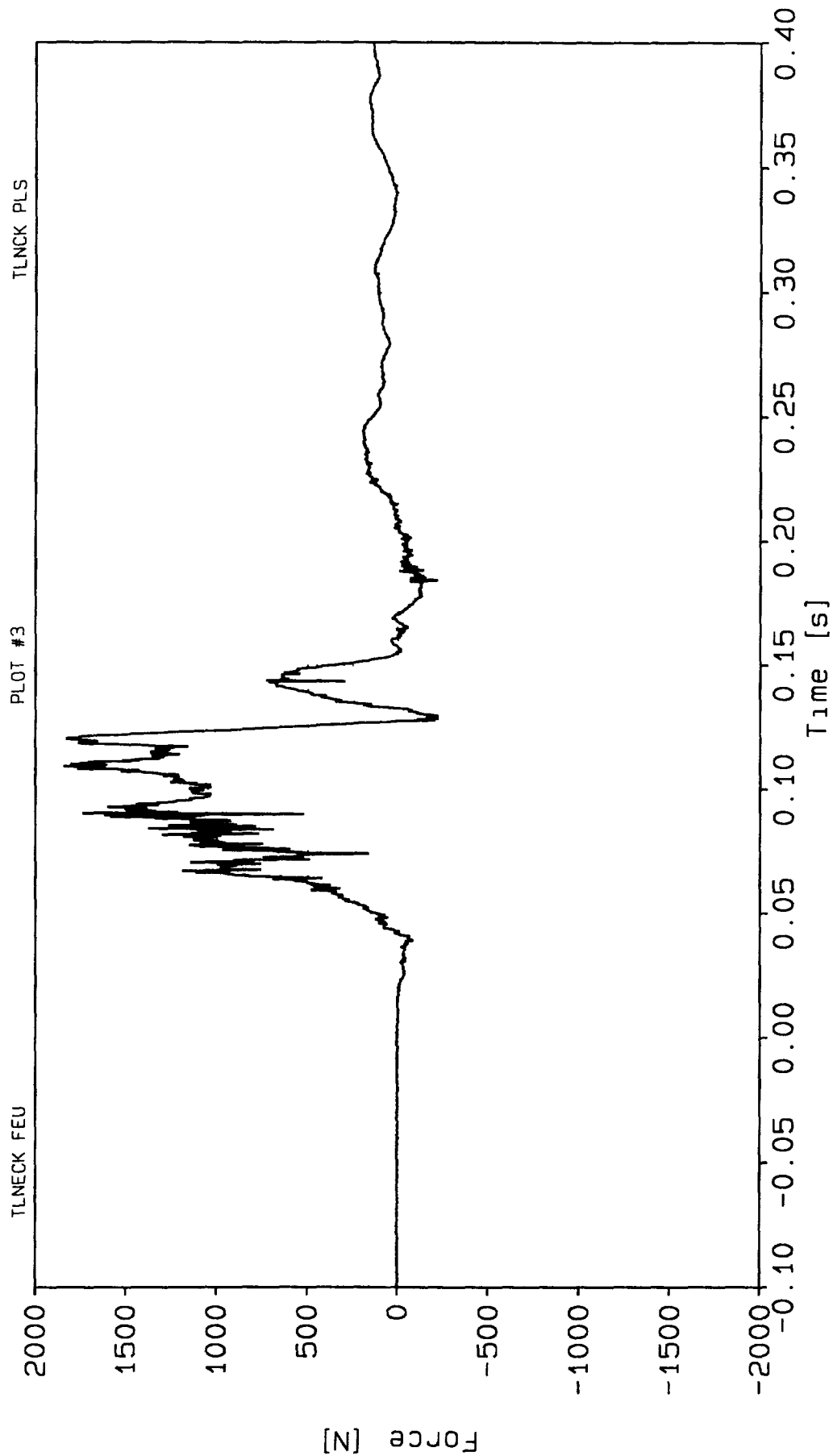
Exponent
Failure
Analysis
Associates

Lower Neck Force (Fz) v Time

Passenger Dummy - THOR

2001 Dodge Neon

2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Exponent
Failure
Analysis
Associates

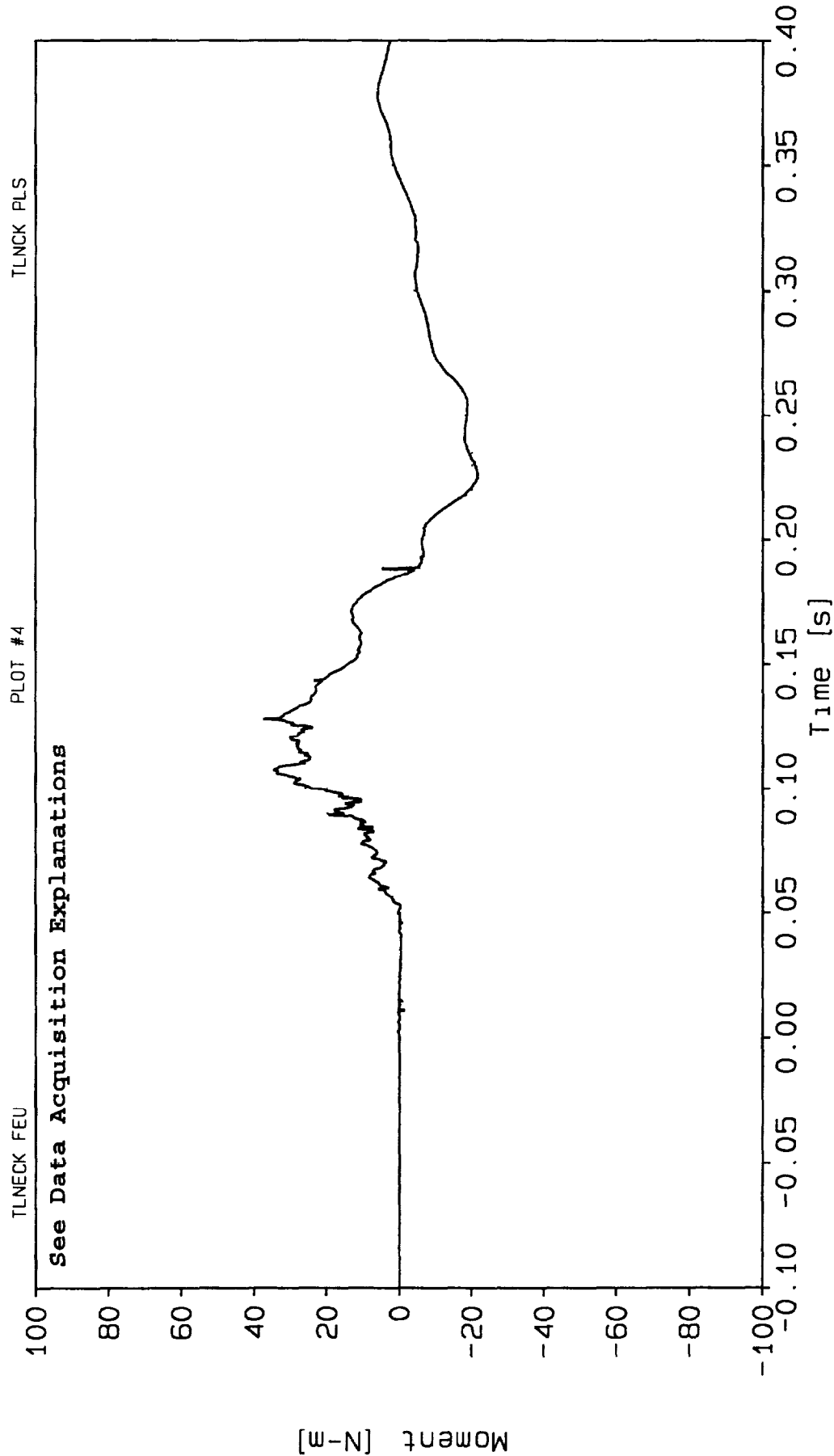
Filter Class 1000
Volpe Crash Testing
PH06608

Lower Neck Moment (Mx) v Time

Passenger Dummy - THOR

2001 Dodge Neon

2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Exponent
Failure
Analysis
Associates

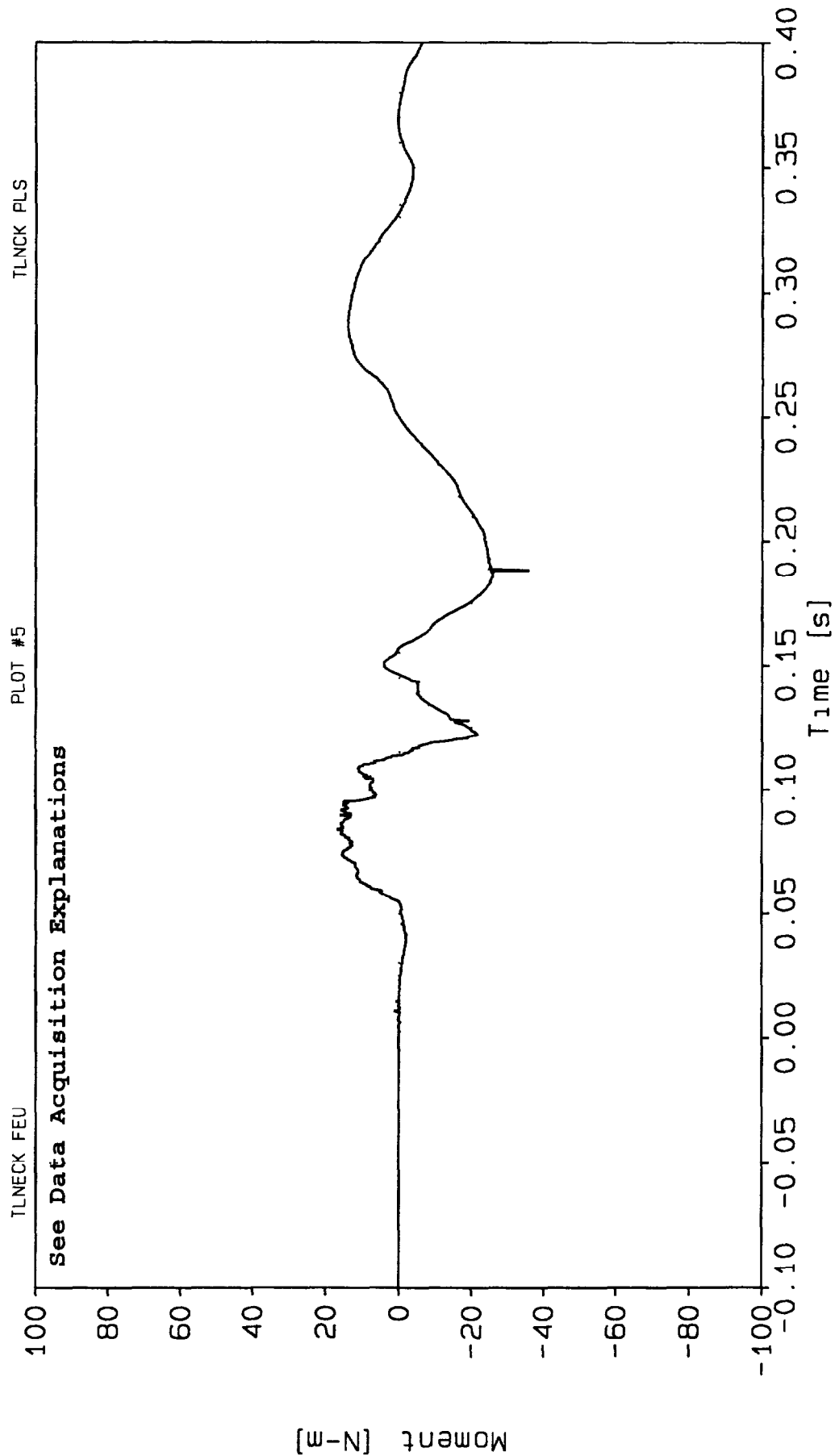
Filter Class 600
Volpe Crash Testing
PH06608

Lower Neck Moment (My) v Time

Passenger Dummy - THOR

2001 Dodge Neon

2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Filter Class 600
Volpe Crash Testing
PH05608

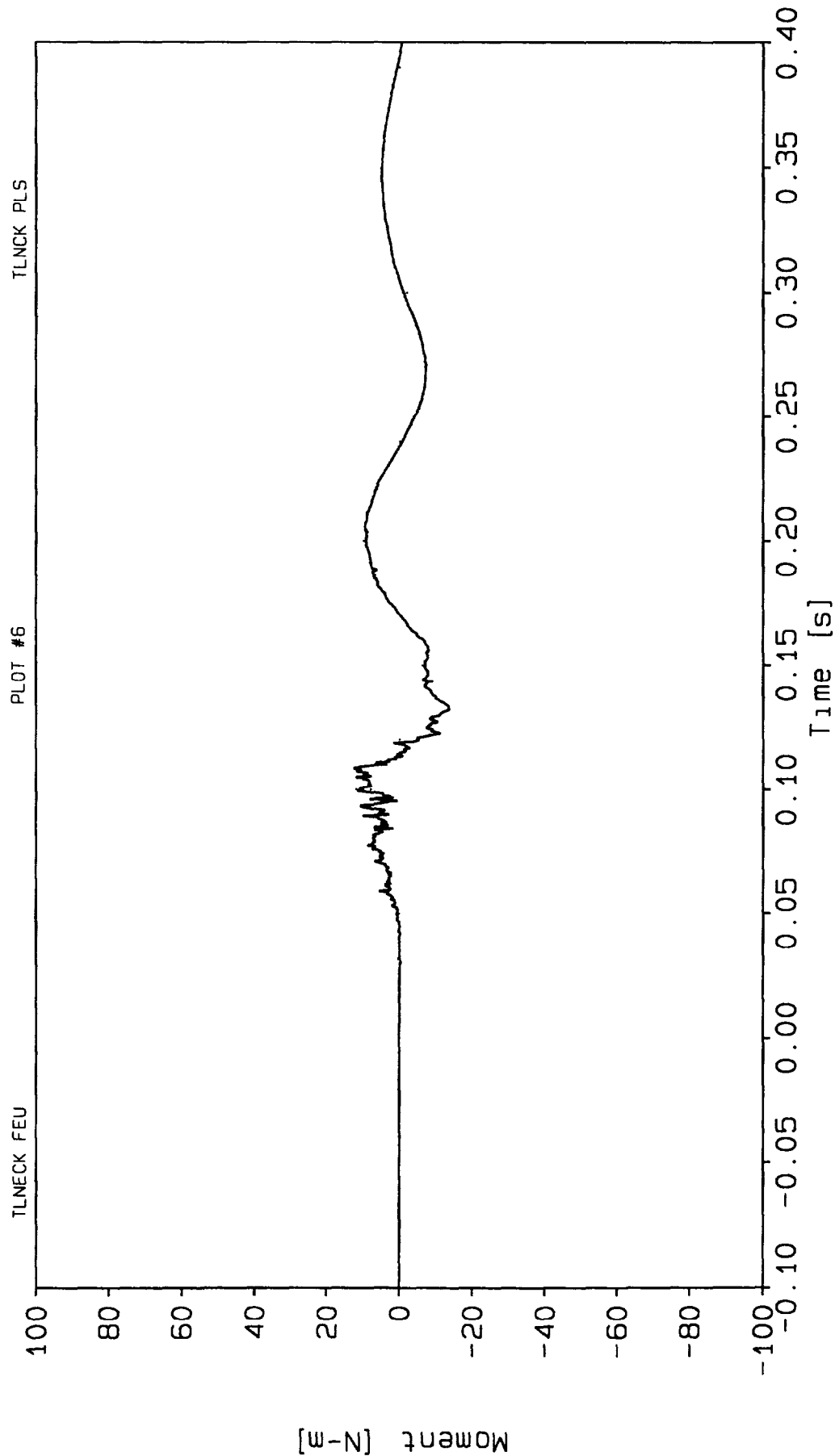
Exponent
Failure
Analysis
Associates

Lower Neck Moment (Mz) v Time

Passenger Dummy - THOR

2001 Dodge Neon

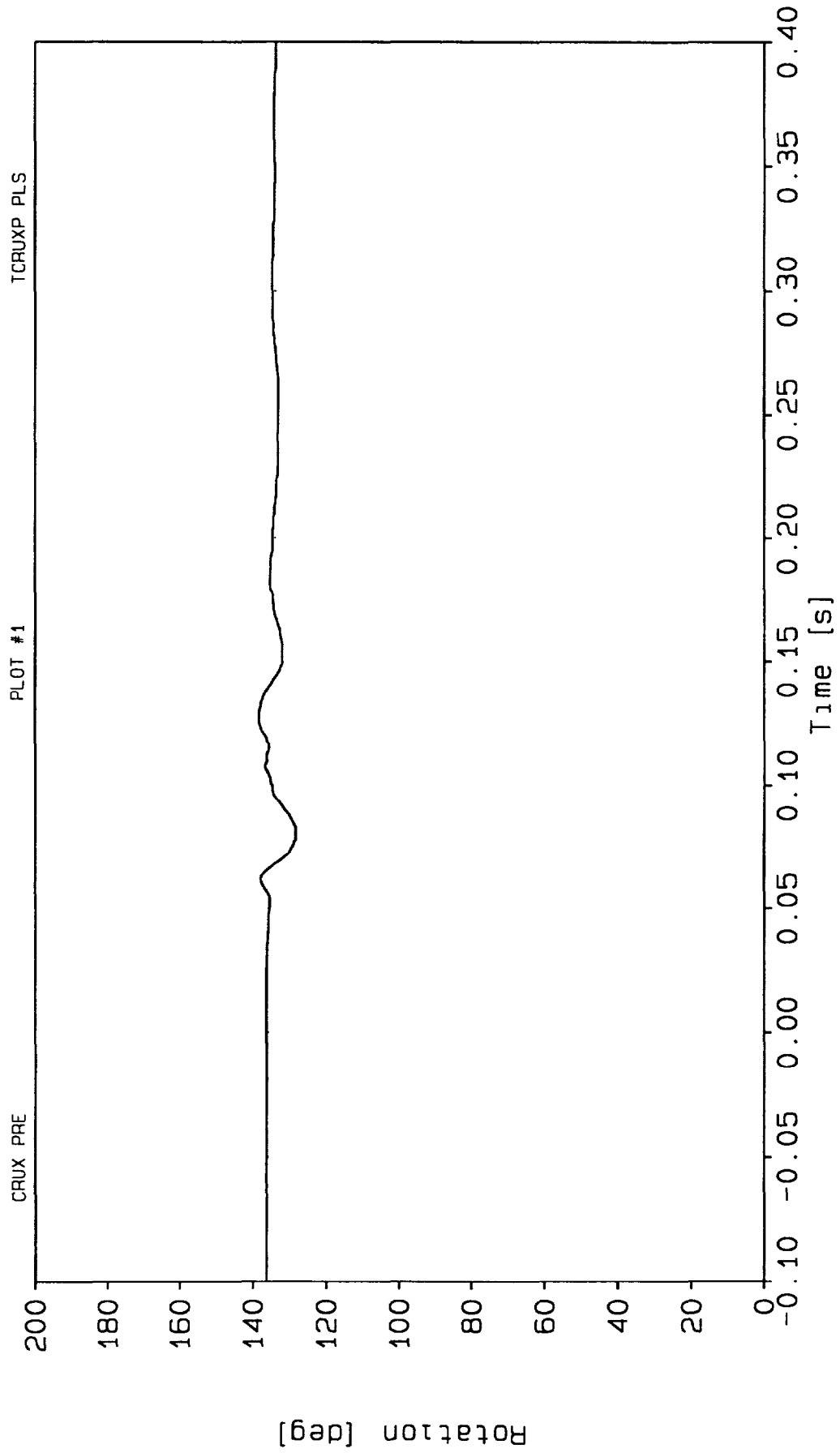
2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Filter Class 500
Volpe Crash Testing
PH05508

Exponent
Failure
Analysis
Associates

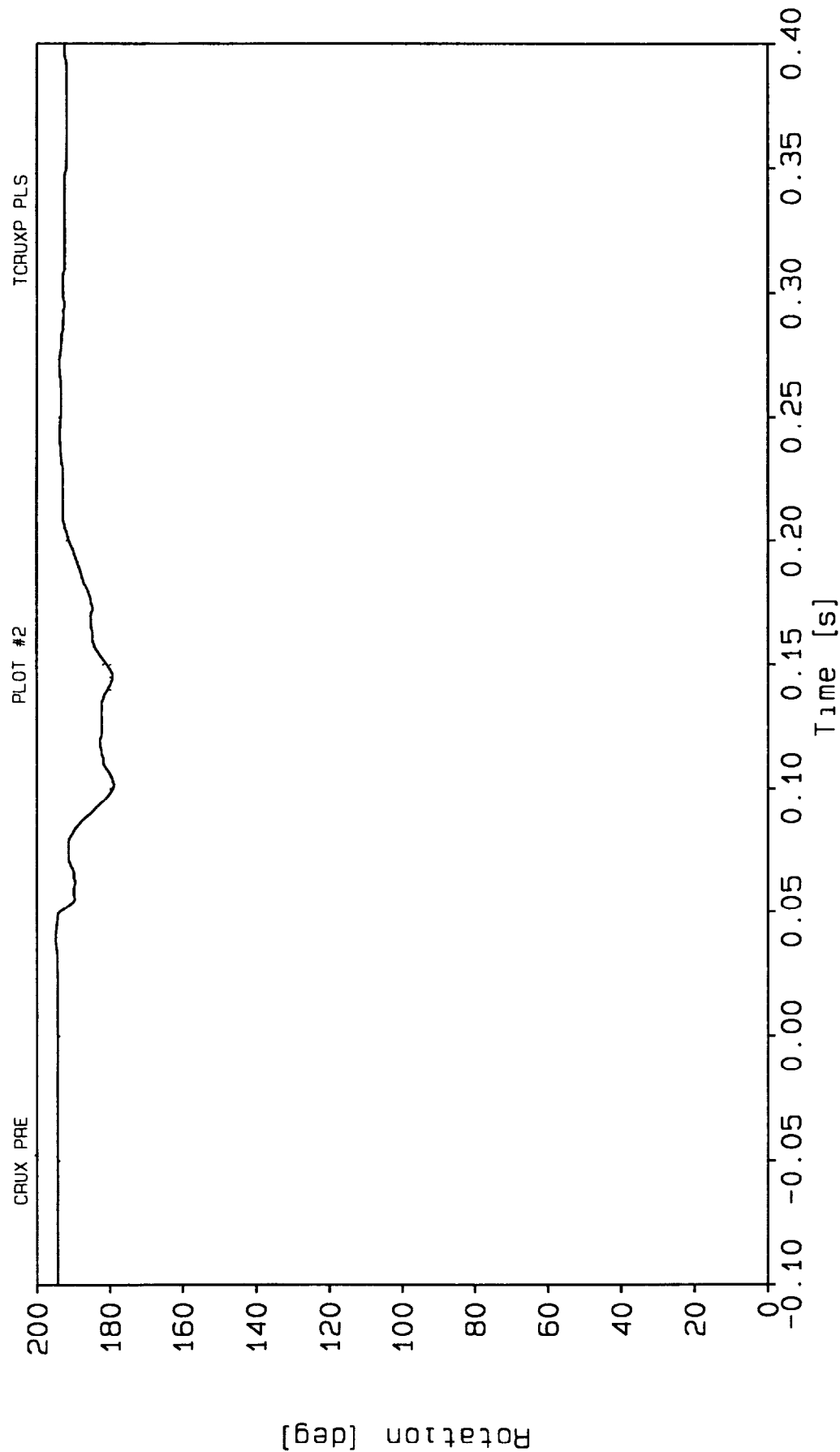
Crux Upper Left Base Rotation v Time
Passenger Dummy - THOR - Pre-THORTEST Processing
2001 Dodge Neon
2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Filter Class 180
Volpe Crash Testing
PH06608

Exponent
Failure
Analysis
Associates

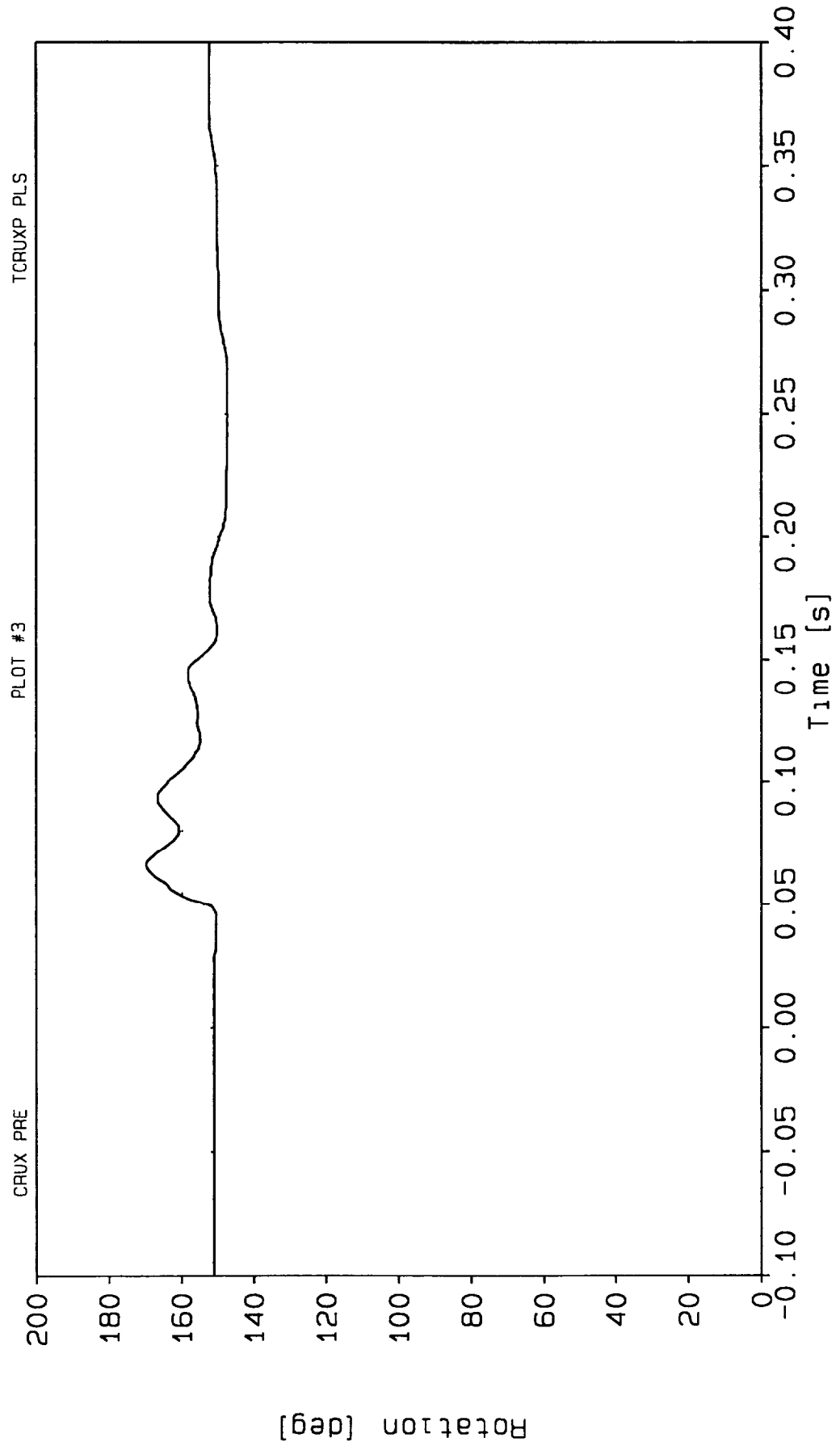
Crux Upper Left Mid Rotation v Time
Passenger Dummy - THOR - Pre-THORTEST Processing
2001 Dodge Neon
2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Filter Class 180
Volpe Crash Testing
PH06608

Exponent
Failure
Analysis
Associates

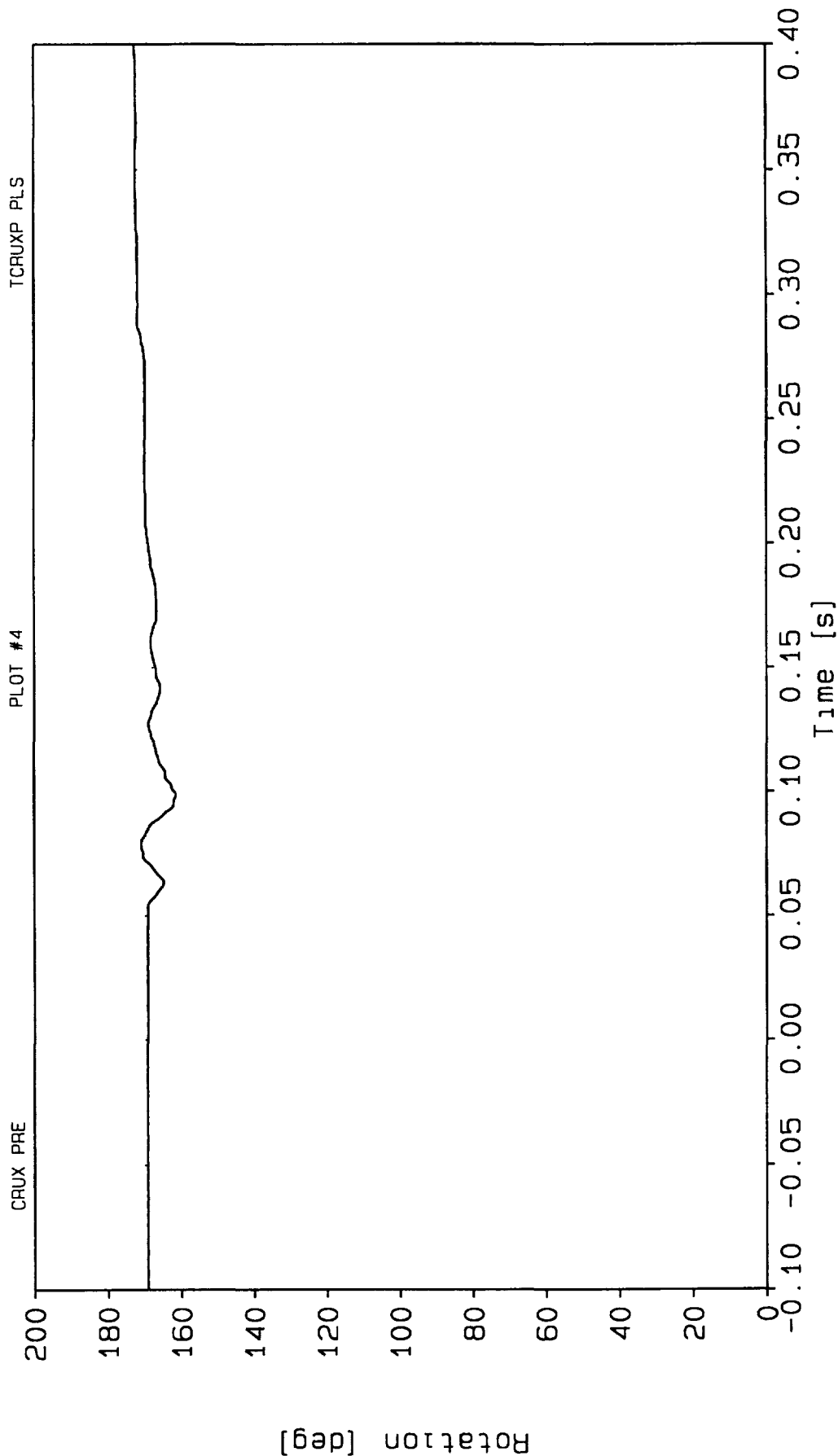
Crux Upper Left Elbow Rotation v Time
Passenger Dummy - THOR - Pre-THORTEST Processing
2001 Dodge Neon
2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Filter Class 180
Volpe Crash Testing
PH06608

Exponent
Failure
Analysis
Associates

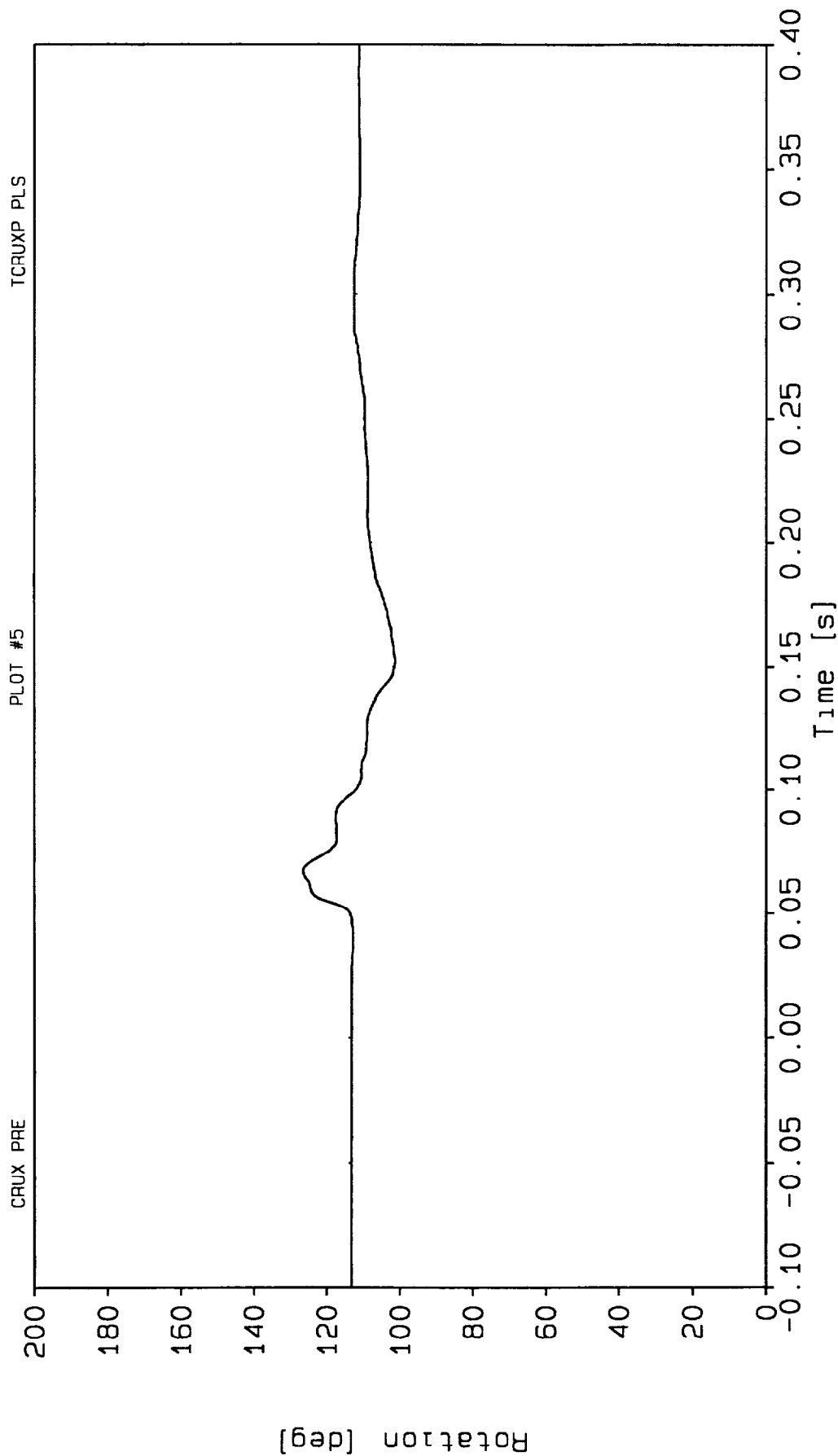
Crux Upper Right Base Rotation v Time
Passenger Dummy - THOR - Pre-THORTEST Processing
2001 Dodge Neon
2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Filter Class 180
Volpe Crash Testing
PH06608

Exponent
Failure
Analysis
Associates

Crux Upper Right Mid Rotation v Time
Passenger Dummy - THOR - Pre-THORTEST Processing
2001 Dodge Neon
2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



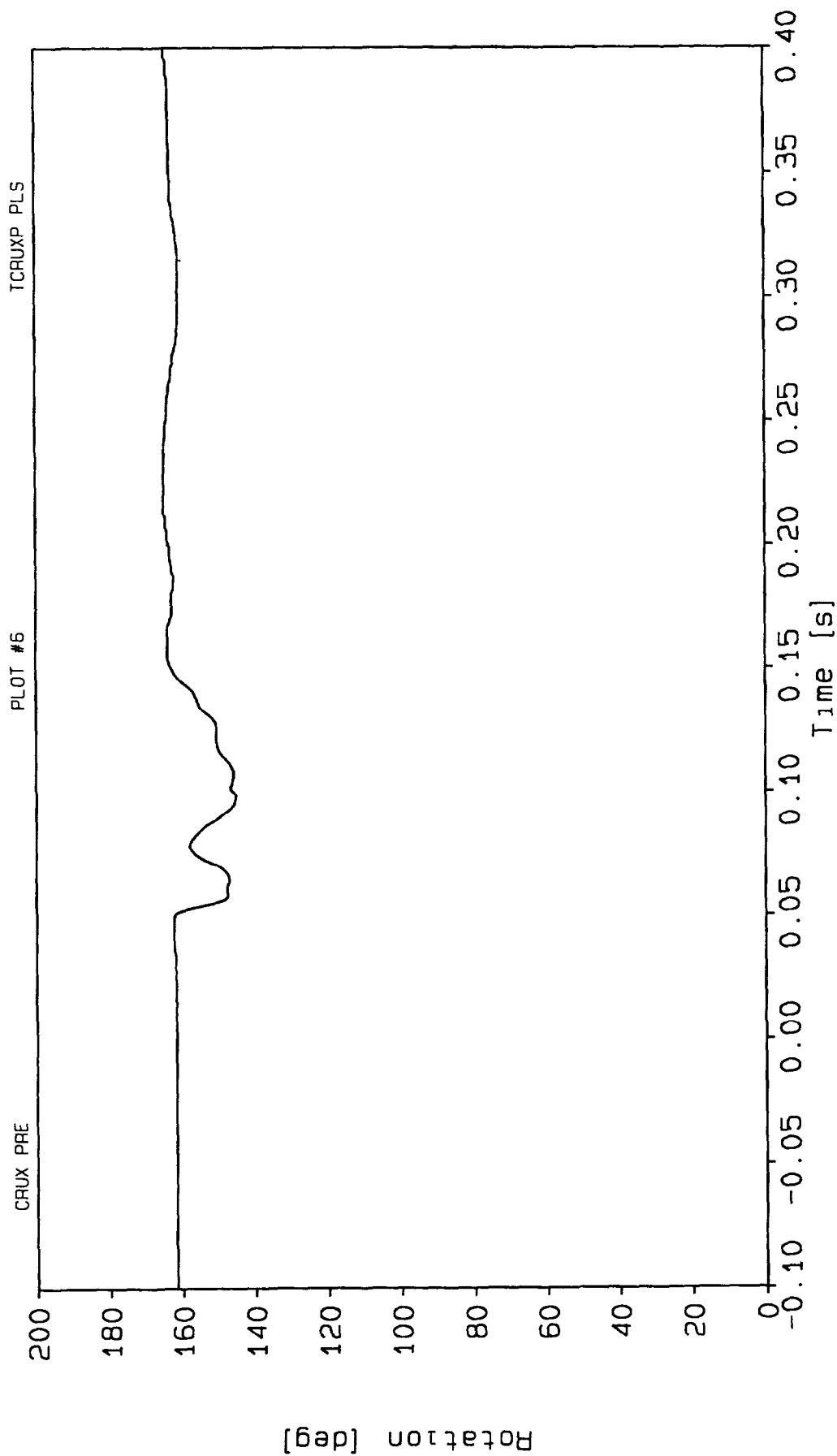
Filter Class 180
Volpe Crash Testing
PH06608

Exponent
Failure
Analysis
Associates

Crux Upper Right Elbow Rotation v Time

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

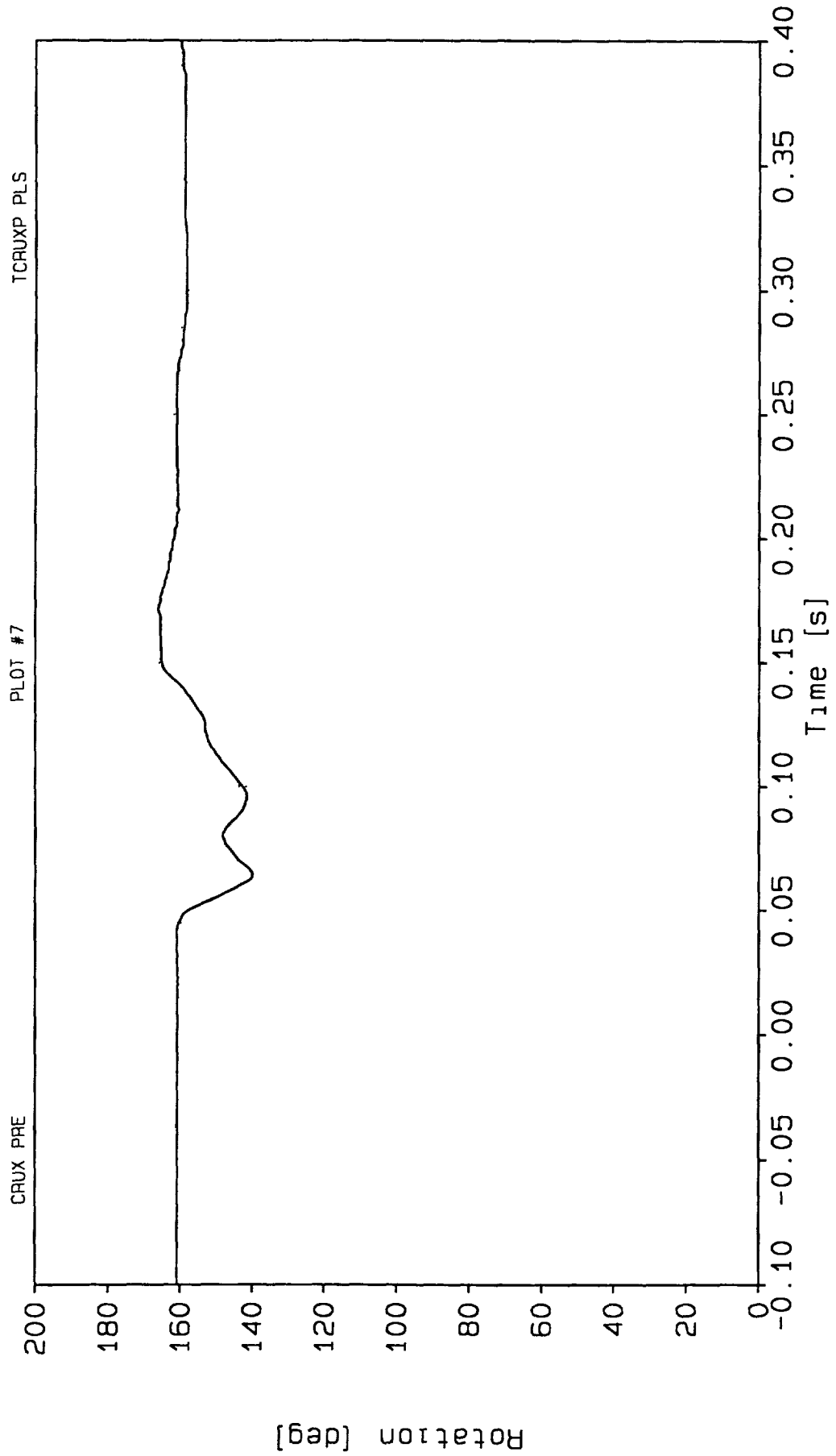
2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Exponent
Failure
Analysis
Associates

Filter Class 180
Volpe Crash Testing
PH06608

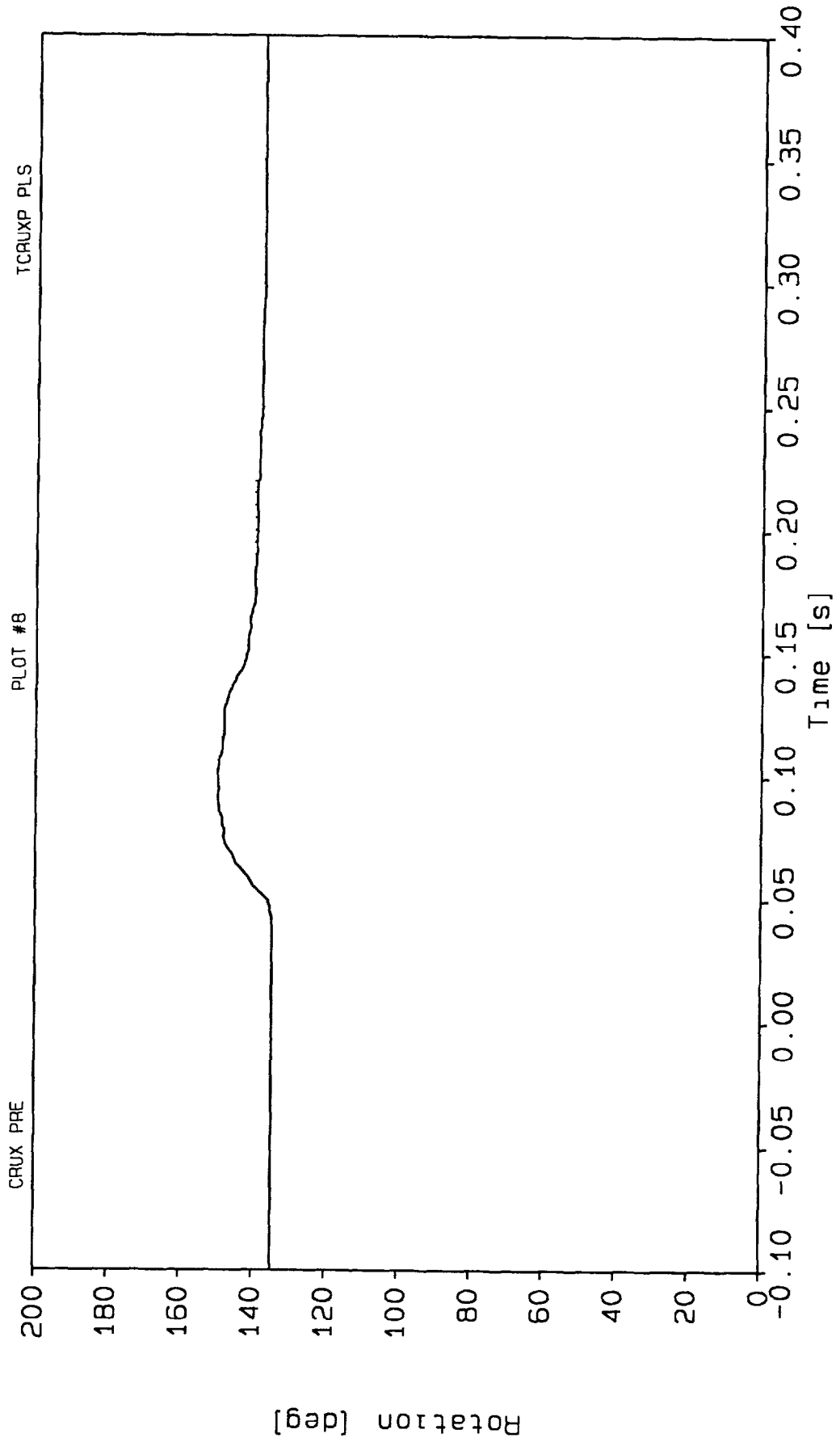
Crux Lower Left Base Rotation v Time
Passenger Dummy - THOR - Pre-THORTEST Processing
2001 Dodge Neon
2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Filter Class 180
Volpe Crash Testing
PH05608

Exponent
Failure
Analysis
Associates

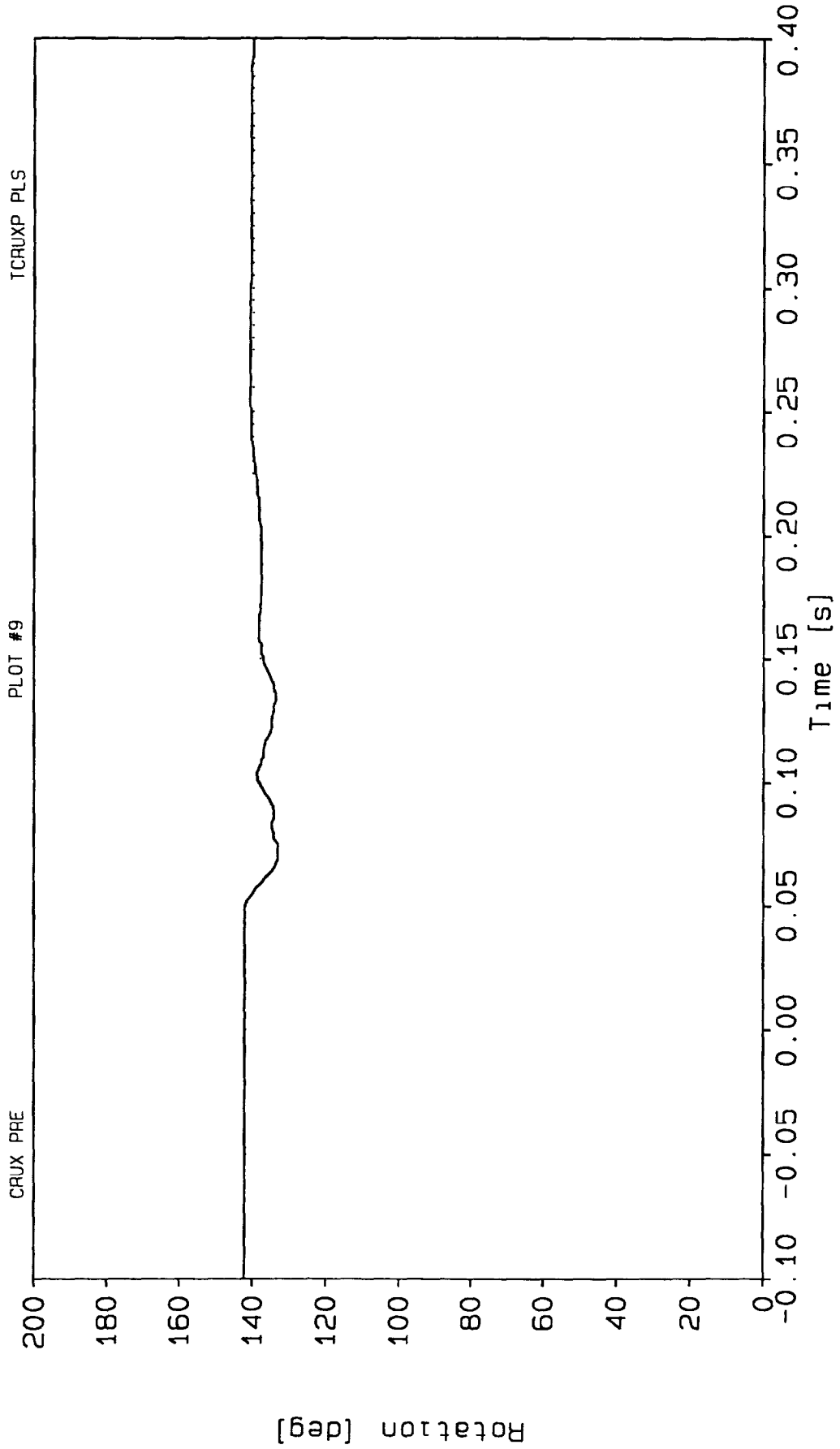
Crux Lower Left Mid Rotation v Time
Passenger Dummy - THOR - Pre-THORTEST Processing
2001 Dodge Neon
2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Filter Class 180
Volpe Crash Testing
PH06608

Exponent
Failure
Analysis
Associates

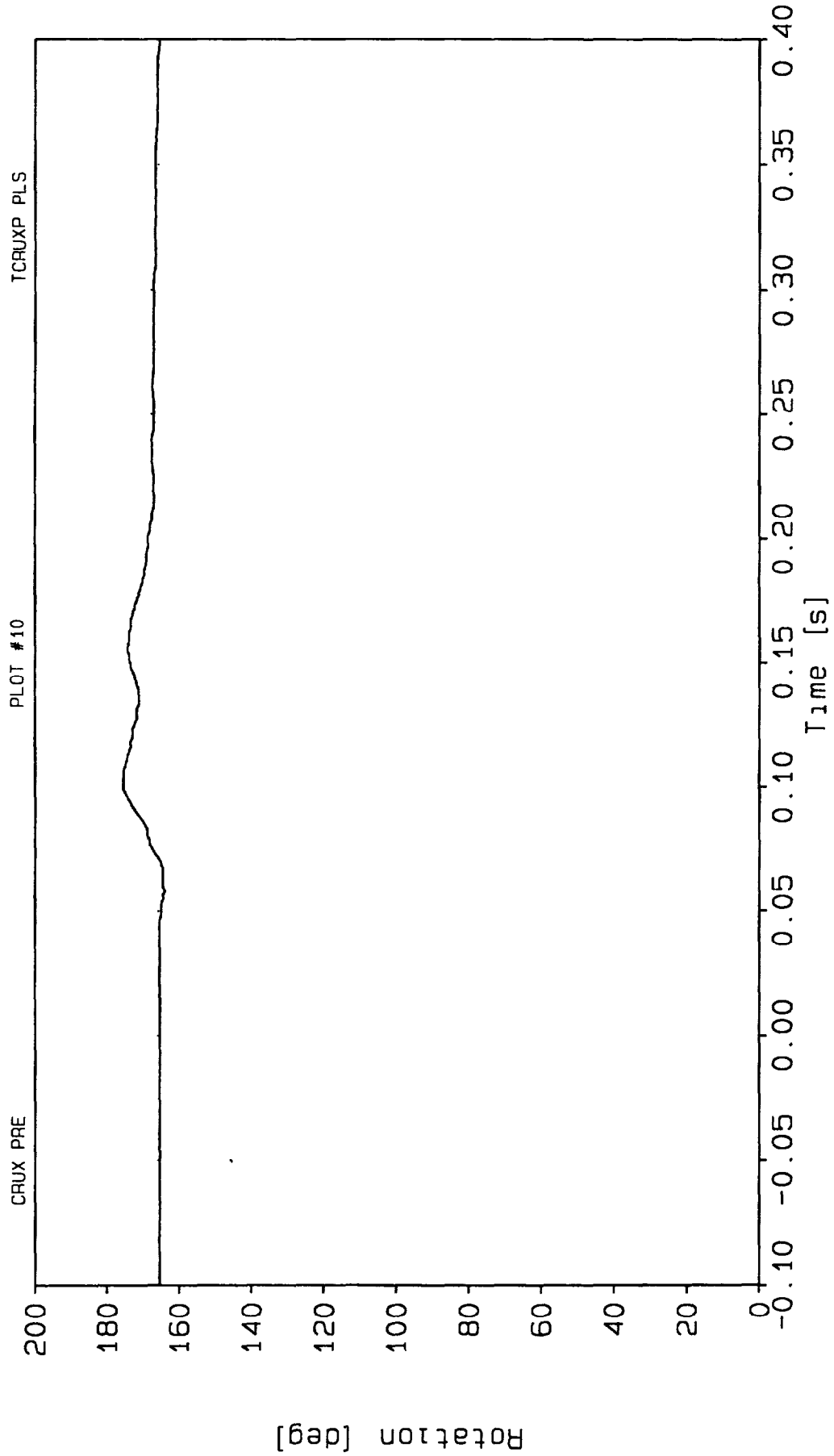
Crux Lower Left Elbow Rotation v Time
Passenger Dummy - THOR - Pre-THORTEST Processing
2001 Dodge Neon
2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Exponent
Failure
Analysis
Associates

Filter Class 180
Volpe Crash Testing
PH06608

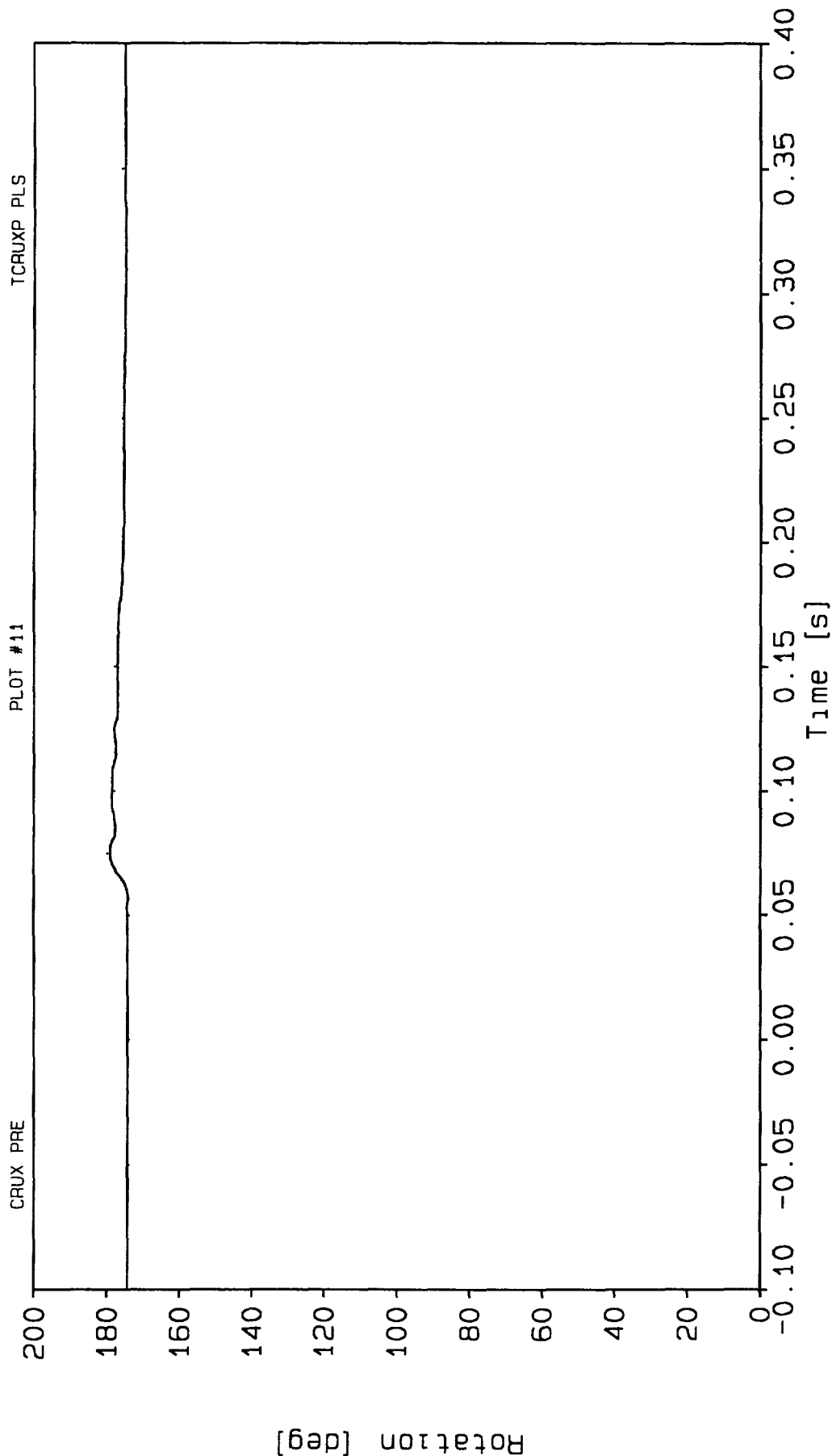
Crux Lower Right Base Rotation v Time
Passenger Dummy - THOR - Pre-THORTEST Processing
2001 Dodge Neon
2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Filter Class 180
Volpe Crash Testing
PH06608

Exponent
Failure
Analysis
Associates

Crux Lower Right Mid Rotation v Time
Passenger Dummy - THOR - Pre-THORTEST Processing
2001 Dodge Neon
2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Exponent
Failure
Analysis
Associates

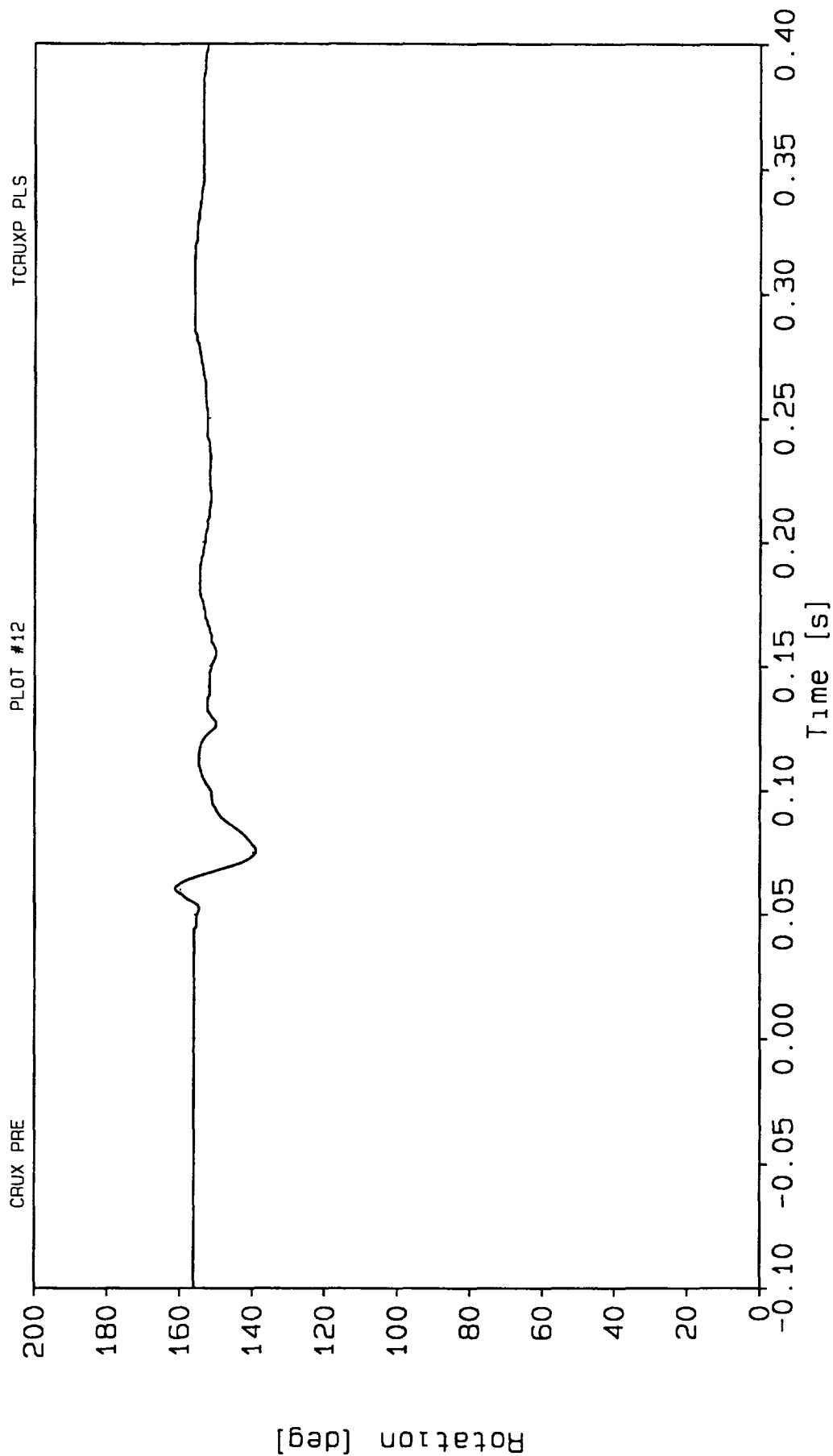
Filter Class 180
Volpe Crash Testing
PH06608

Crux Lower Right Elbow Rotation v Time

Passenger Dummy - THOR - Pre-THORTEST Processing

2001 Dodge Neon

2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Exponent
Failure
Analysis
Associates

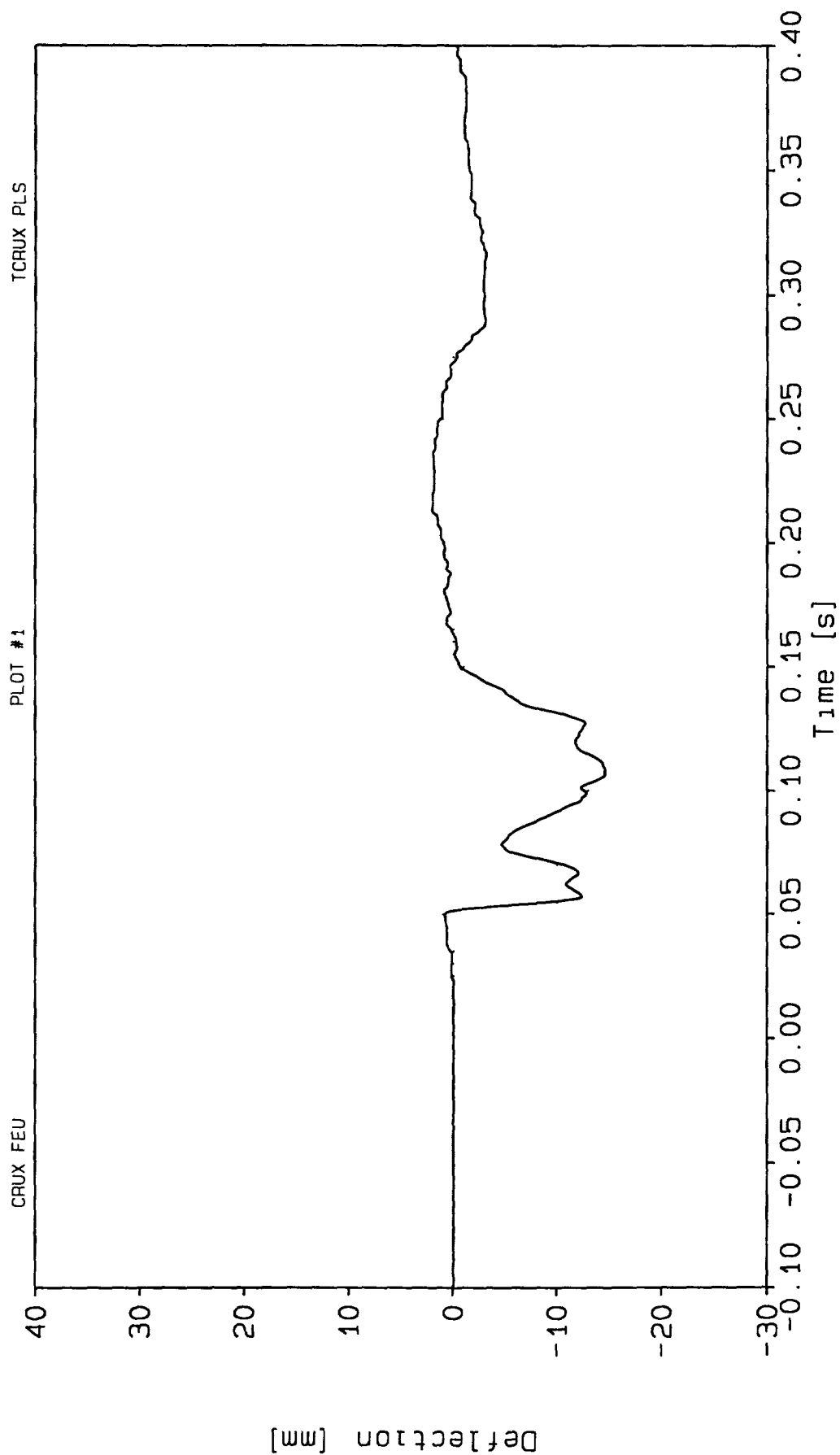
Filter Class 180
Volpe Crash Testing
PH05608

Crux Upper Right Deflection (Dx) v Time

Passenger Dummy - THOR - Post THORTEST Processing

2001 Dodge Neon

2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Exponent
Failure
Analysis
Associates

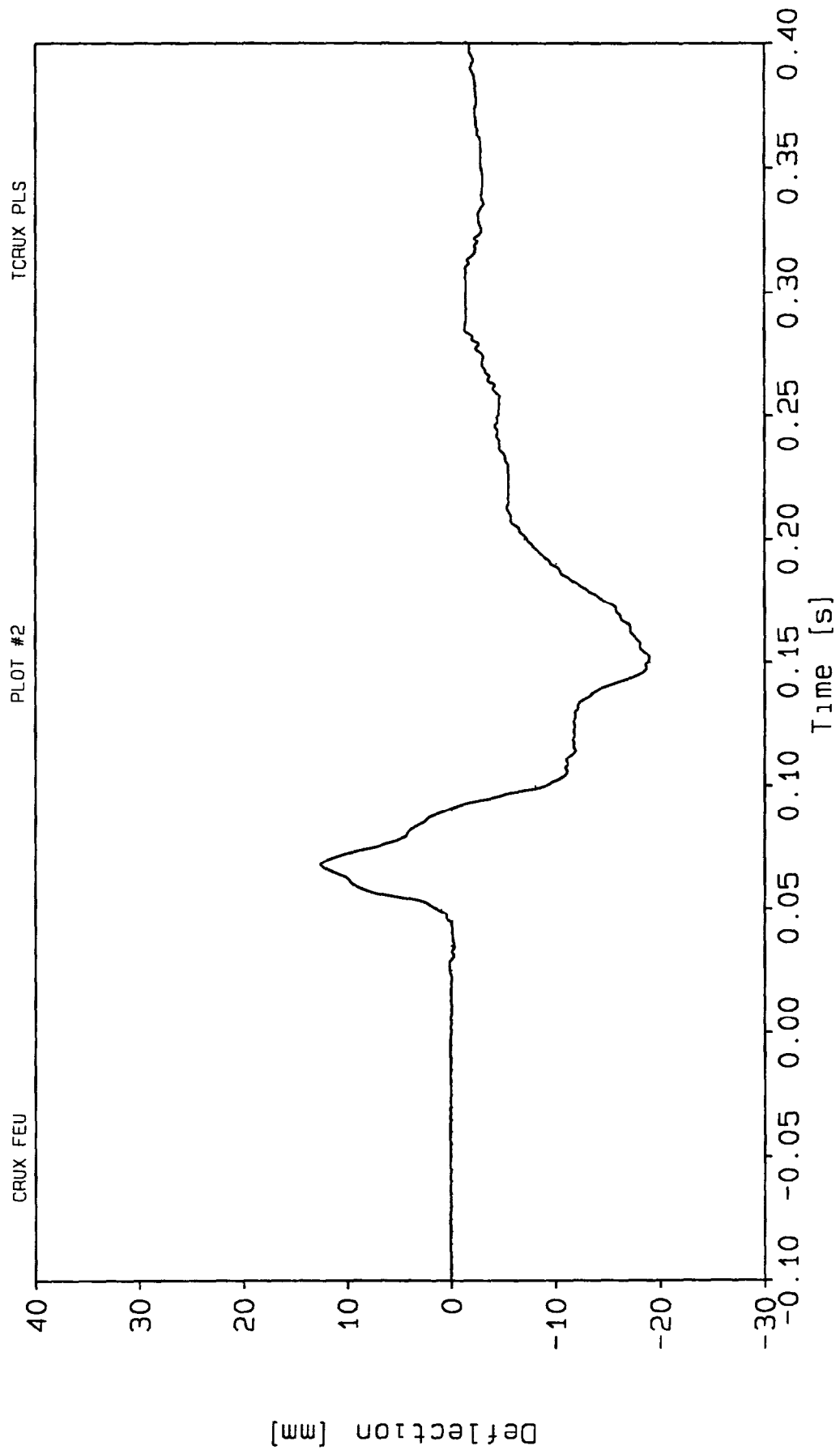
Filter Class 180
Volpe Crash Testing
PH06608

Crux Upper Right Deflection (Dy) v Time

Passenger Dummy - THOR - Post THORTEST Processing

2001 Dodge Neon

2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



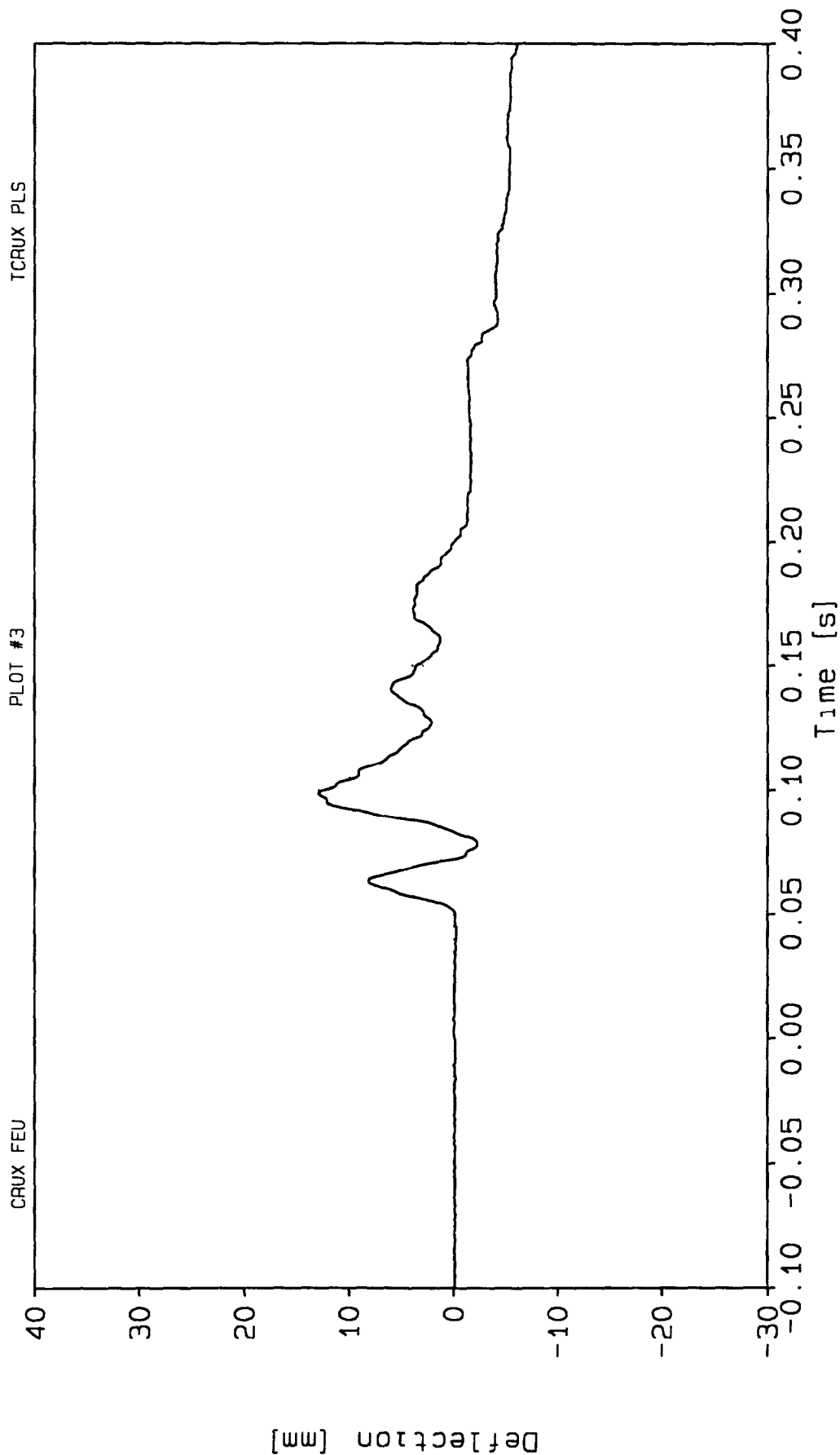
Exponent
Failure
Analysis
Associates

Filter Class 180
Volpe Crash Testing
PH06608

Crux Upper Right Deflection (Dz) v Time

Passenger Dummy - THOR - Post THORTEST Processing
2001 Dodge Neon

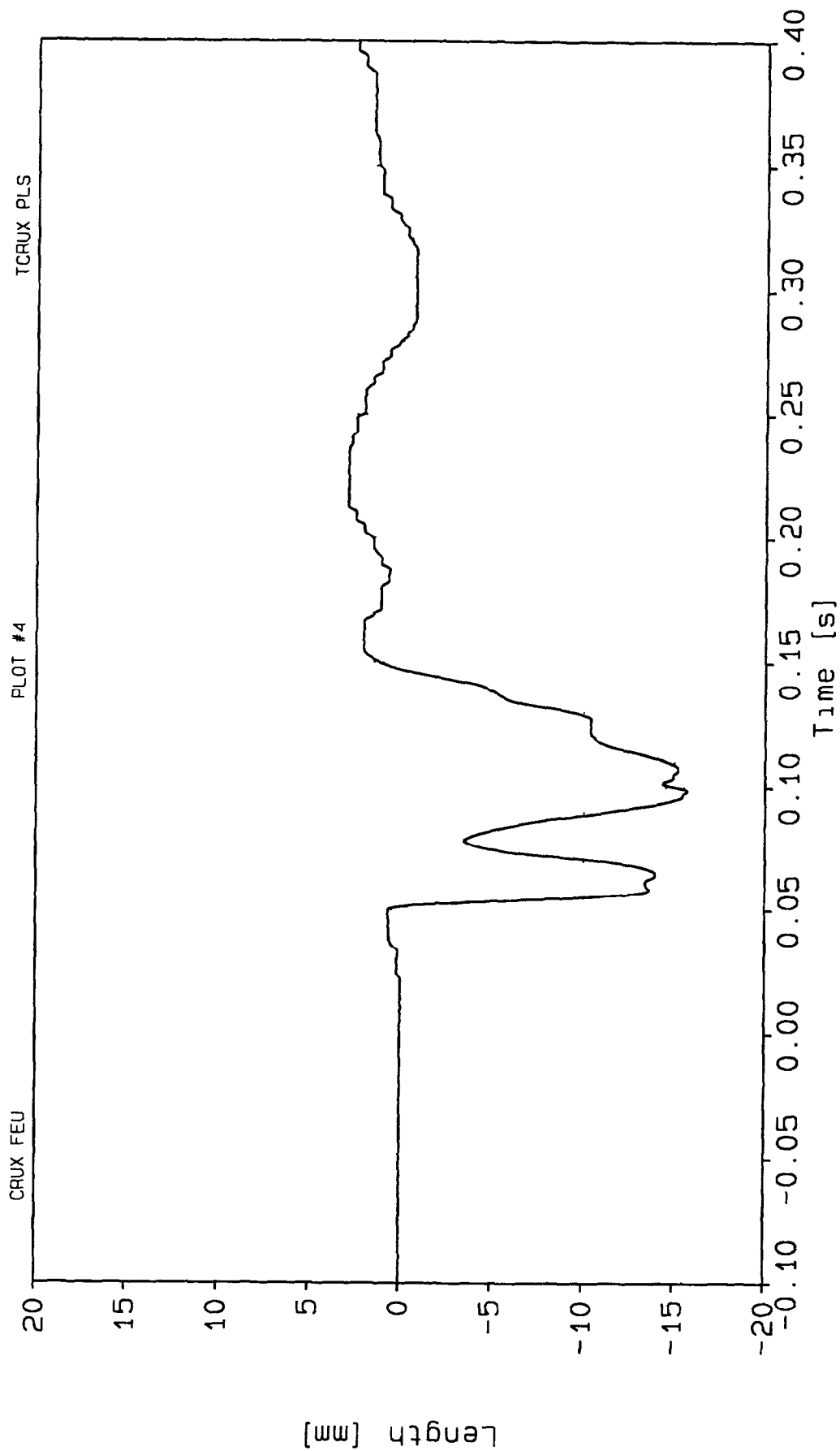
2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Exponent
Failure
Analysis
Associates

Filter Class 180
Volpe Crash Testing
PH06608

Crux Upper Right Endpoint Length v Time
Passenger Dummy - THOR - Post THORTEST Processing
2001 Dodge Neon
2001 Ford F-150 into 2001 Dodge Neon - 09/14/01

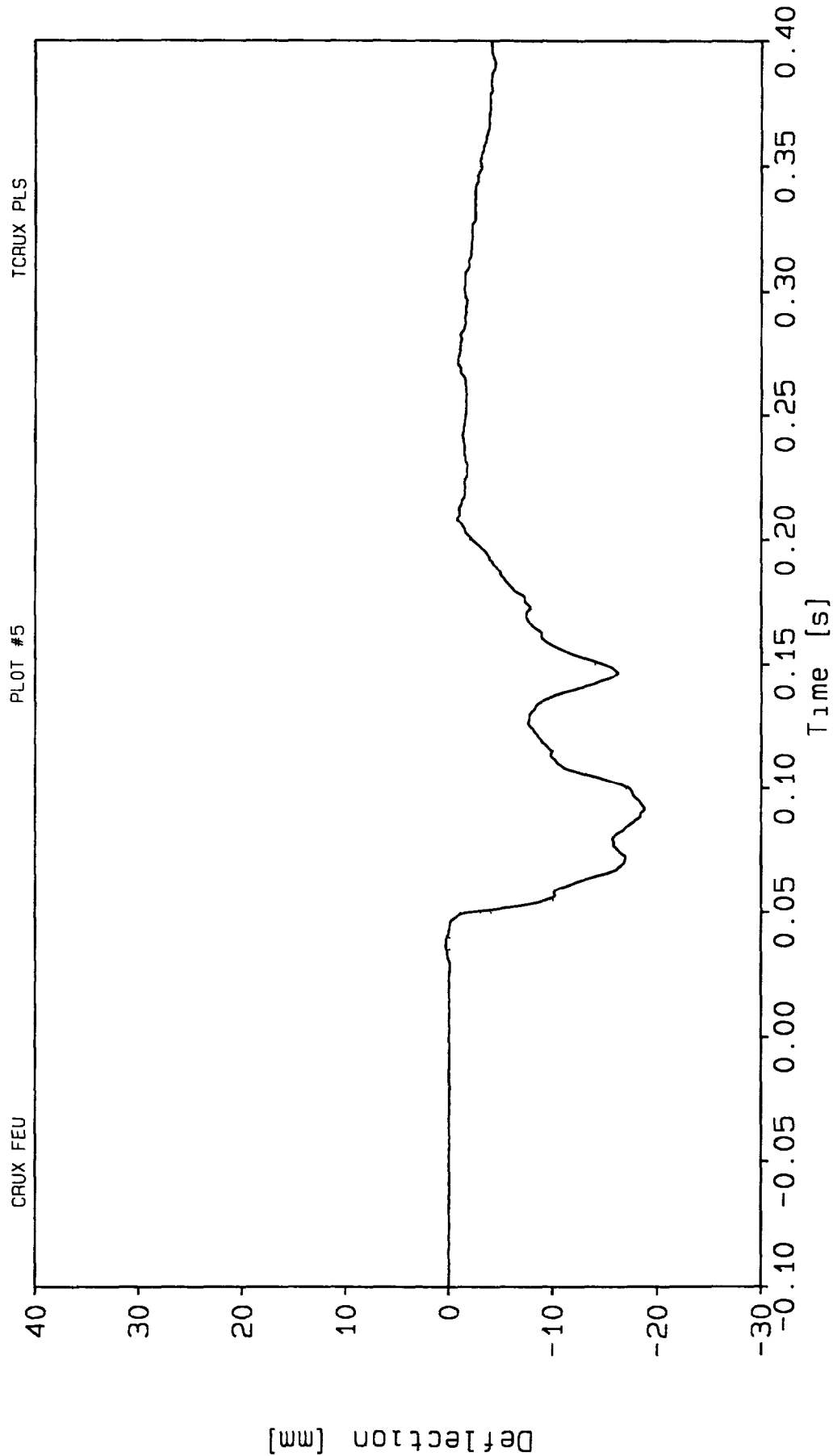


Filter Class 180
Volpe Crash Testing
PH06608

Exponent
Failure
Analysis
Associates

Crux Upper Left Deflection (Dx) v Time

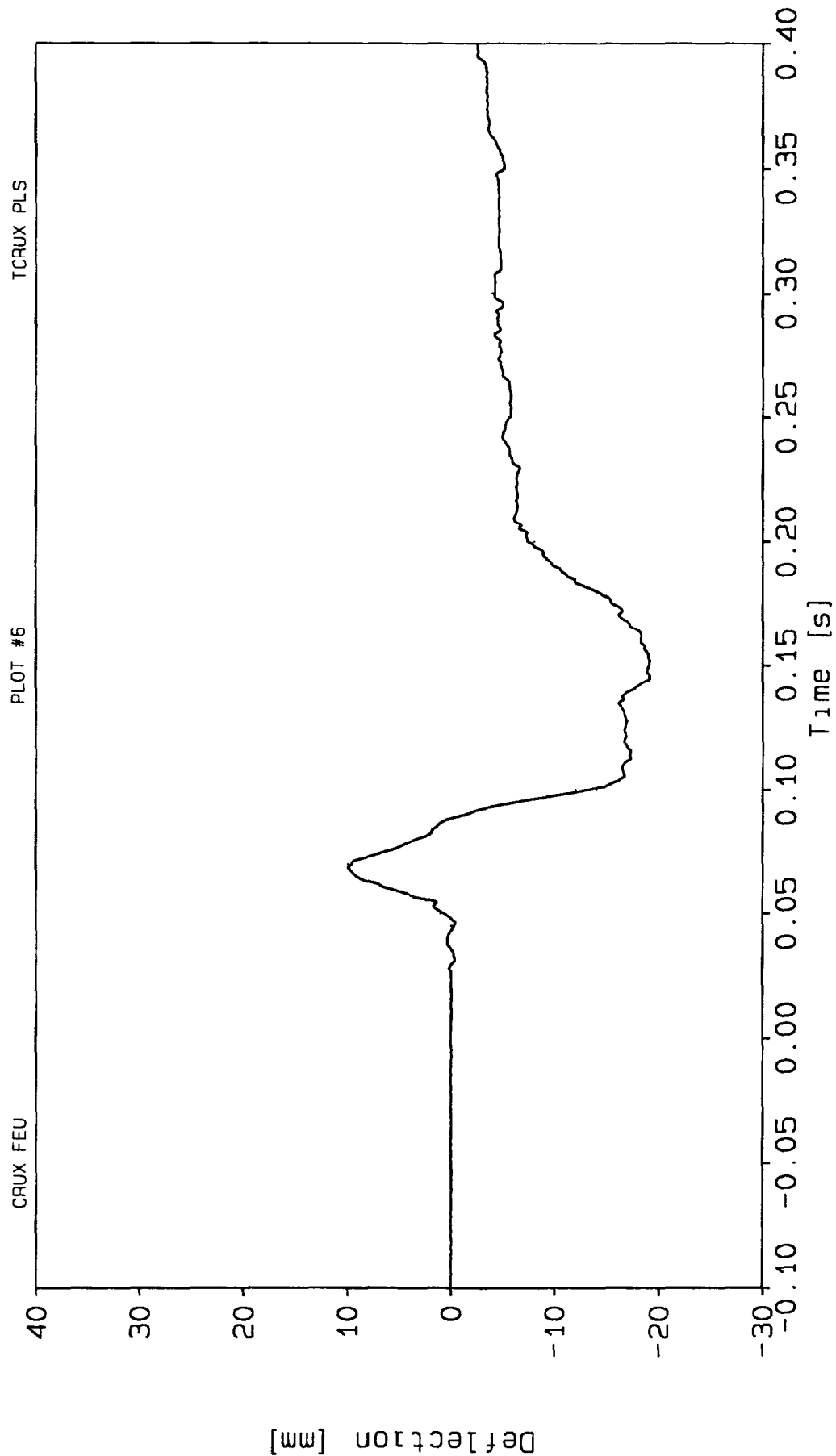
Passenger Dummy - THOR - Post THORTEST Processing
2001 Dodge Neon
2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Filter Class 180
Volpe Crash Testing
PH06608

Exponent
Failure
Analysis
Associates

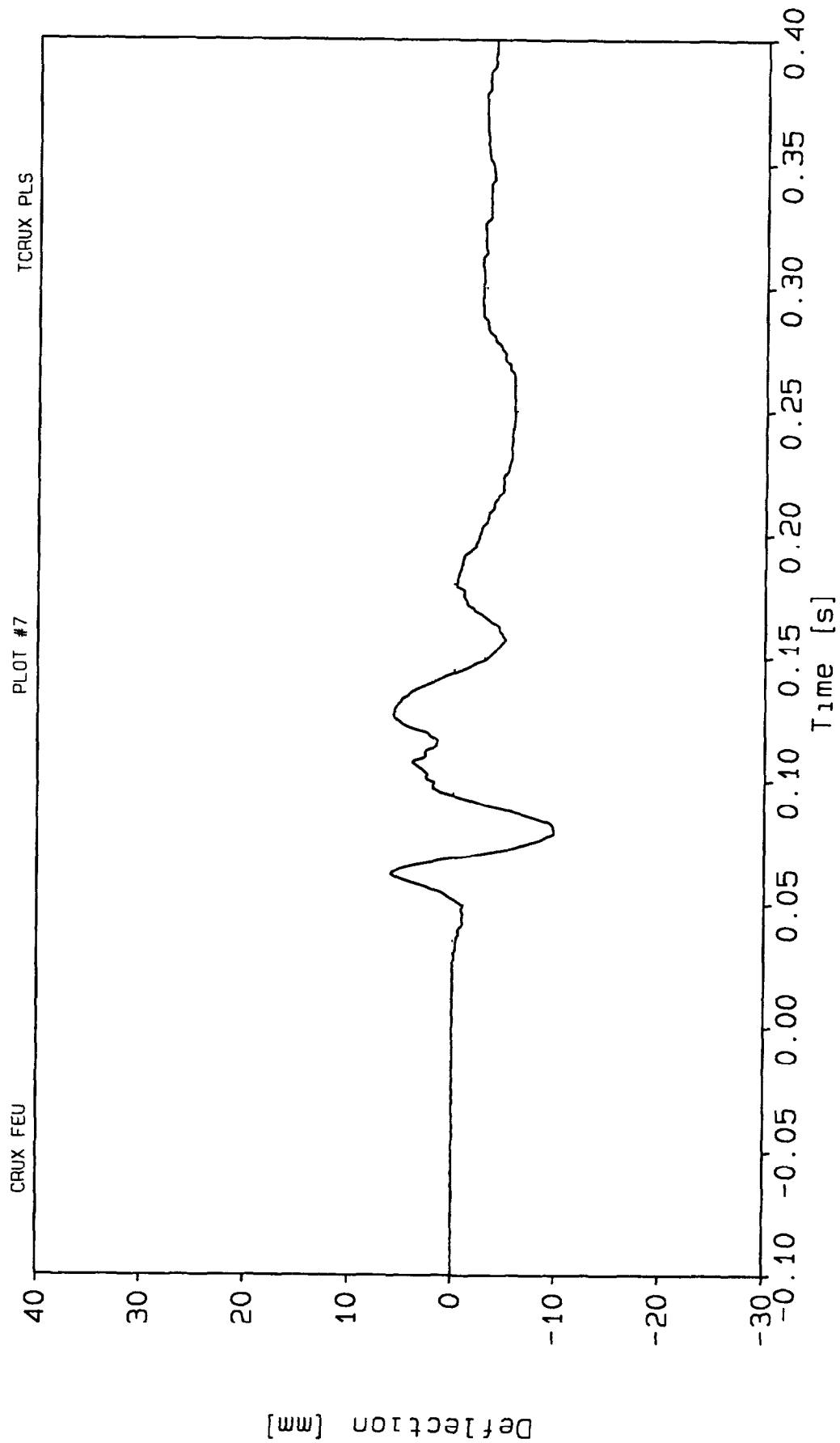
Crux Upper Left Deflection (Dy) v Time
Passenger Dummy - THOR - Post THORTEST Processing
2001 Dodge Neon
2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Filter Class 180
Volpe Crash Testing
PH06608

Exponent
Failure
Analysis
Associates

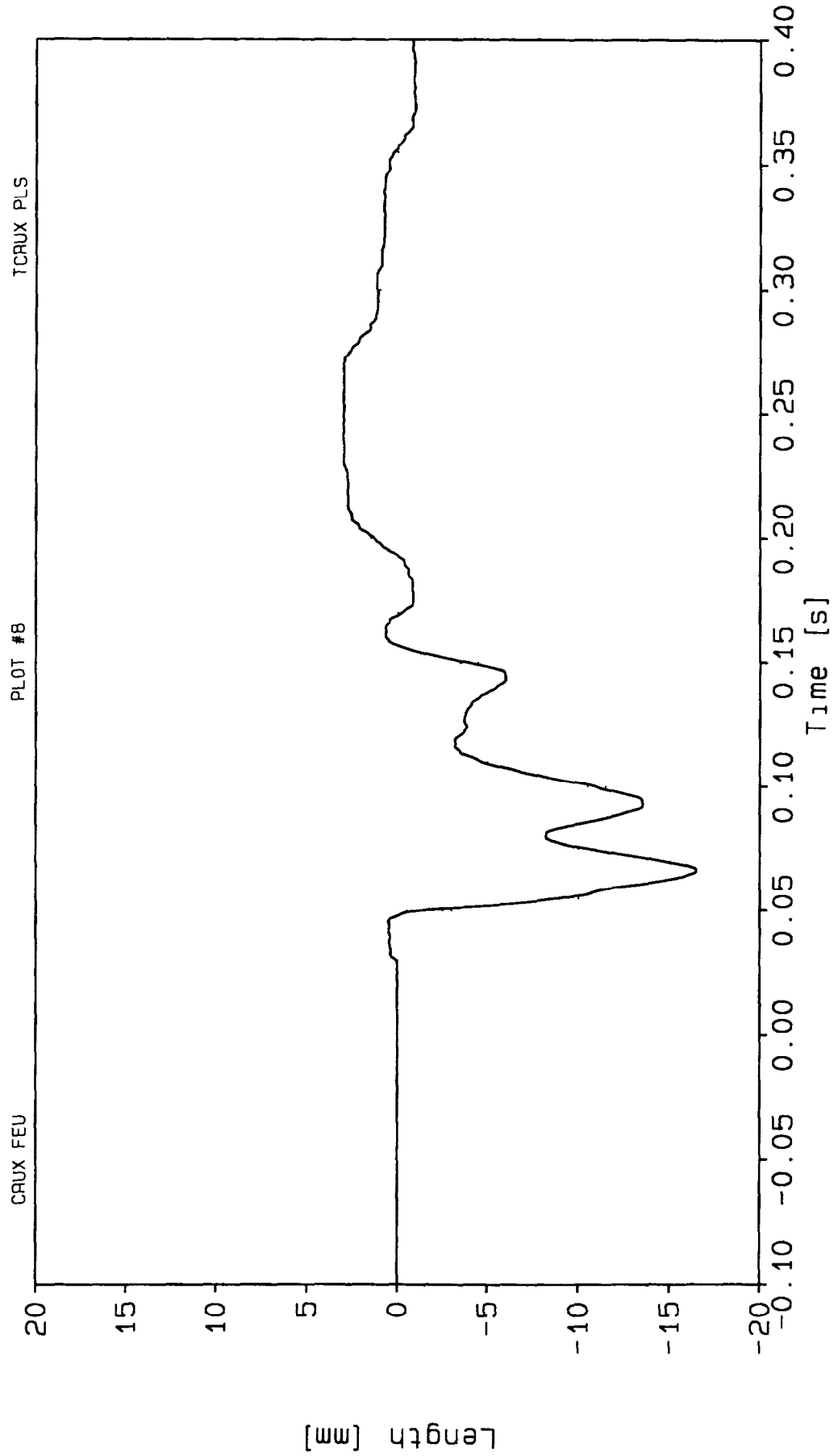
Crux Upper Left Deflection (Dz) v Time
Passenger Dummy - THOR - Post THORTEST Processing
2001 Dodge Neon
2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Filter Class 180
Voipe Crash Testing
PH06608

Exponent
Failure
Analysis
Associates

Crux Upper Left Endpoint Length v Time
Passenger Dummy - THOR - Post THORTEST Processing
2001 Dodge Neon
2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



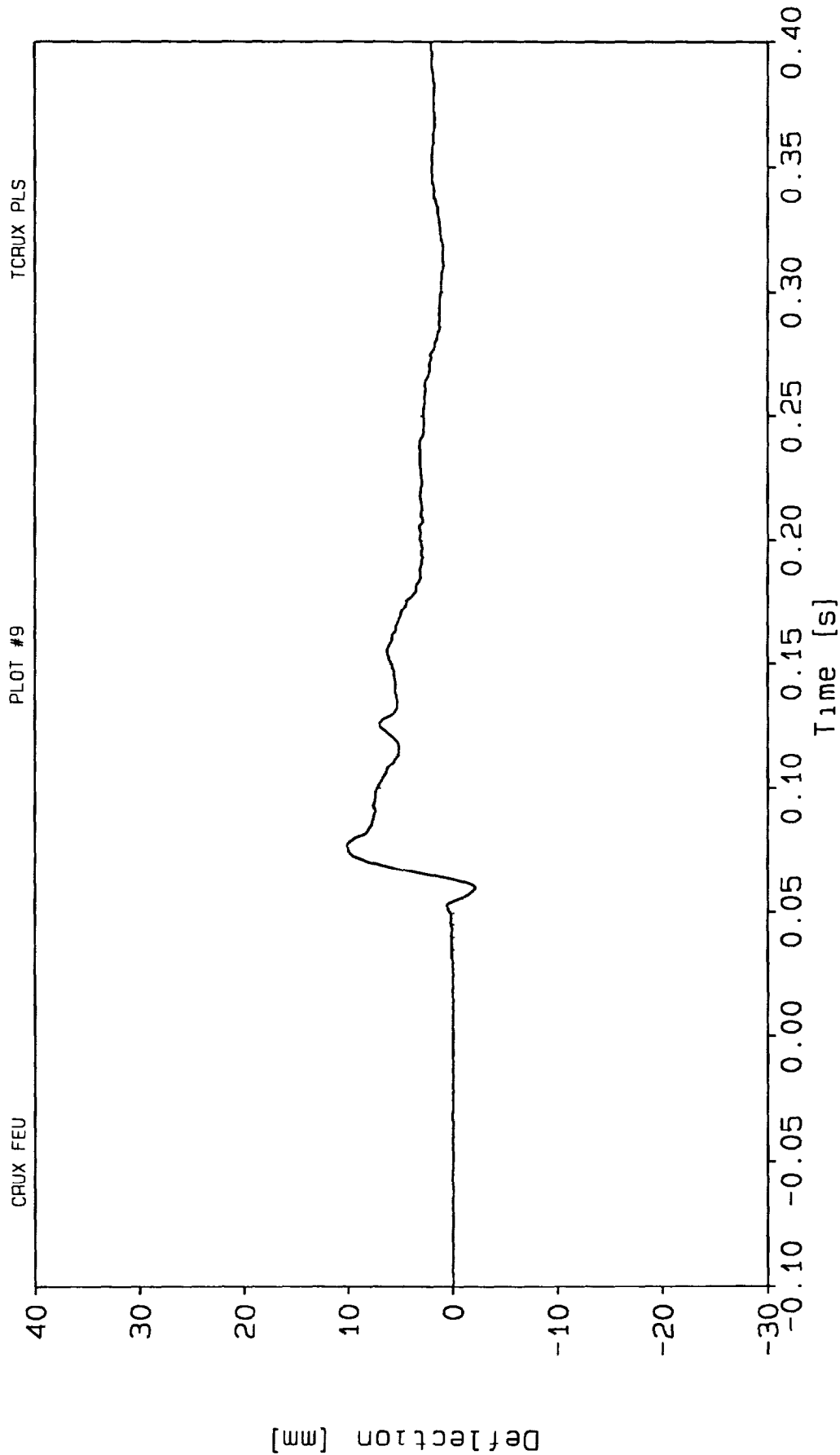
Filter Class 180
Volpe Crash Testing
PH06608

Exponent
Failure
Analysis
Associates

Crux Lower Right Deflection (Dx) v Time

Passenger Dummy - THOR - Post THORTEST Processing
2001 Dodge Neon

2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



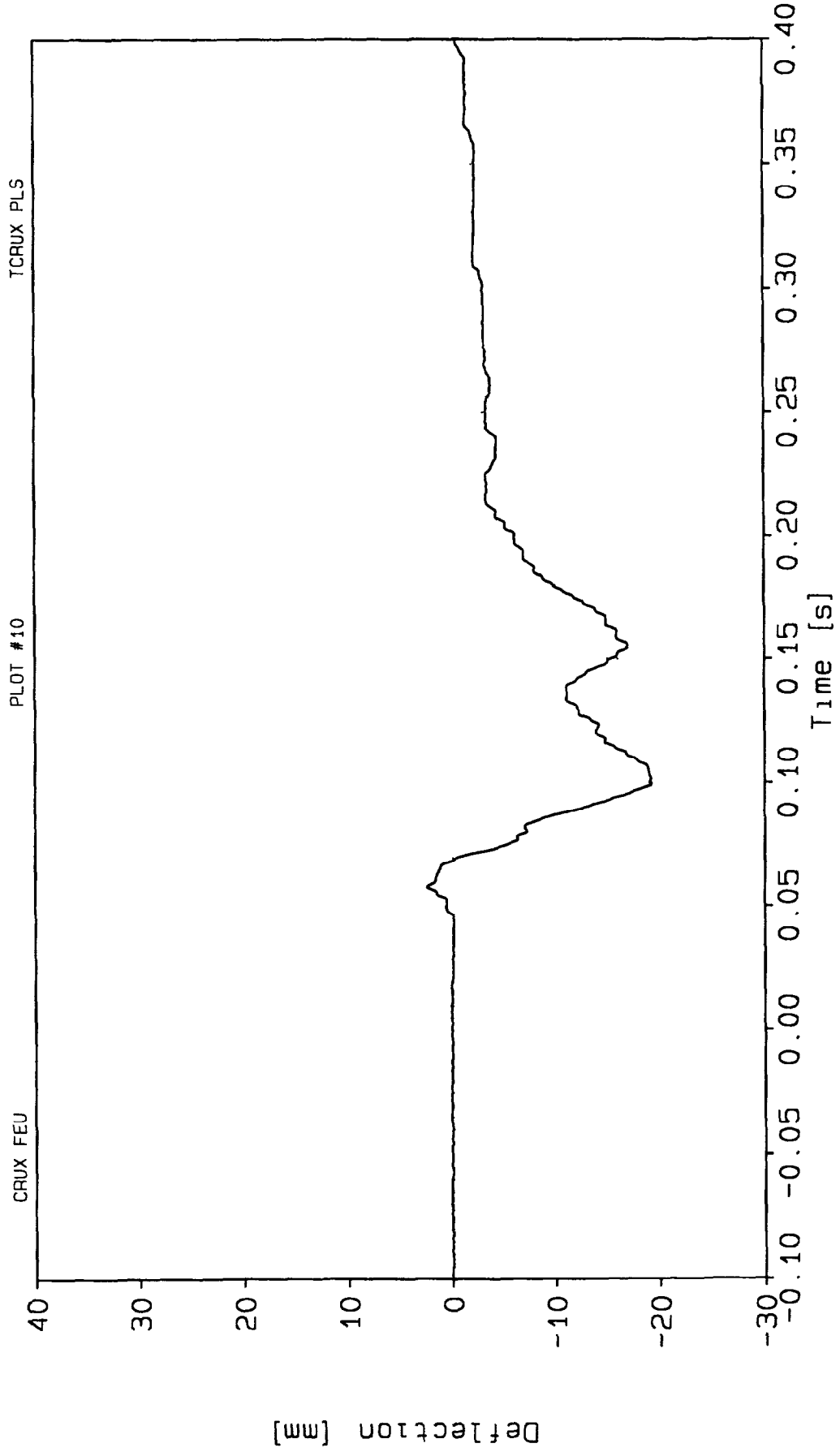
Filter Class 180
Volpe Crash Testing
PH06608

Exponent
Failure
Analysis
Associates

Crux Lower Right Deflection (Dy) v Time

Passenger Dummy - THOR - Post THORTEST Processing
2001 Dodge Neon

2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



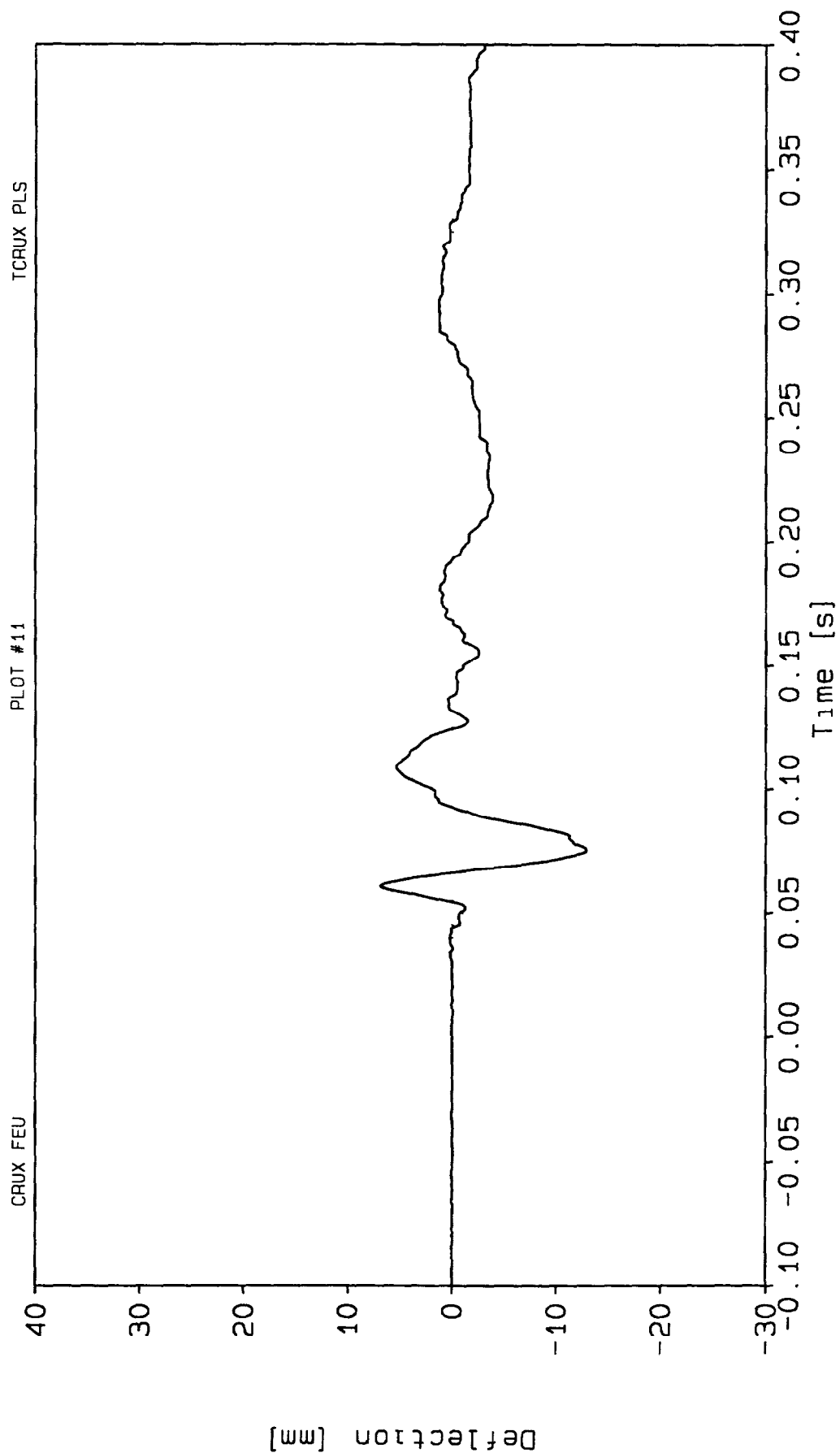
Exponent
Failure
Analysis
Associates

Filter Class 180
Volpe Crash Testing
PH06508

Crux Lower Right Deflection (Dz) v Time

Passenger Dummy - THOR - Post THORTEST Processing
2001 Dodge Neon

2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Filter Class 180
Volpe Crash Testing
PH06508

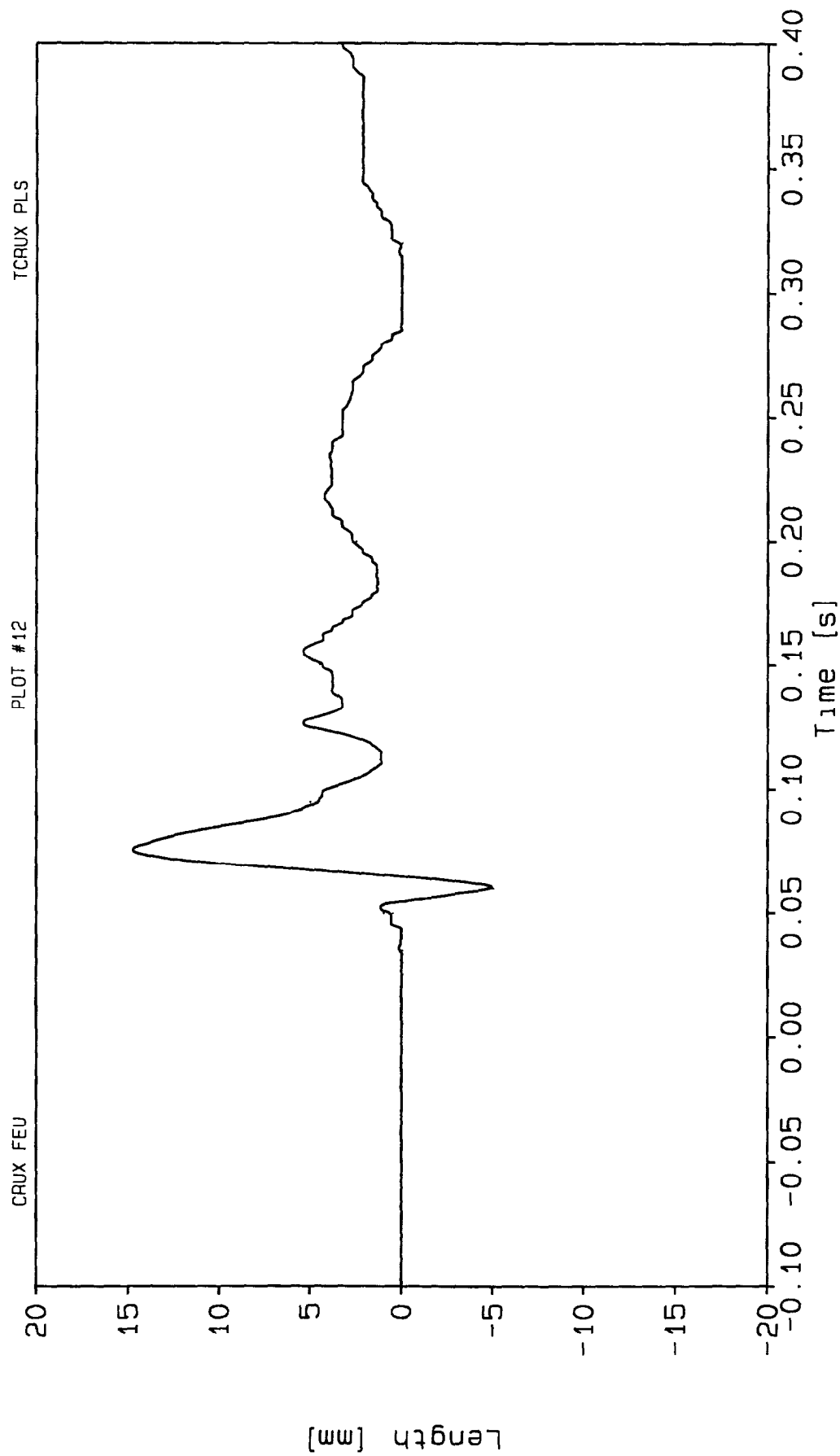
Exponent
Failure
Analysis
Associates

Crux Lower Right Endpoint Length v Time

Passenger Dummy - THOR - Post THORTEST Processing

2001 Dodge Neon

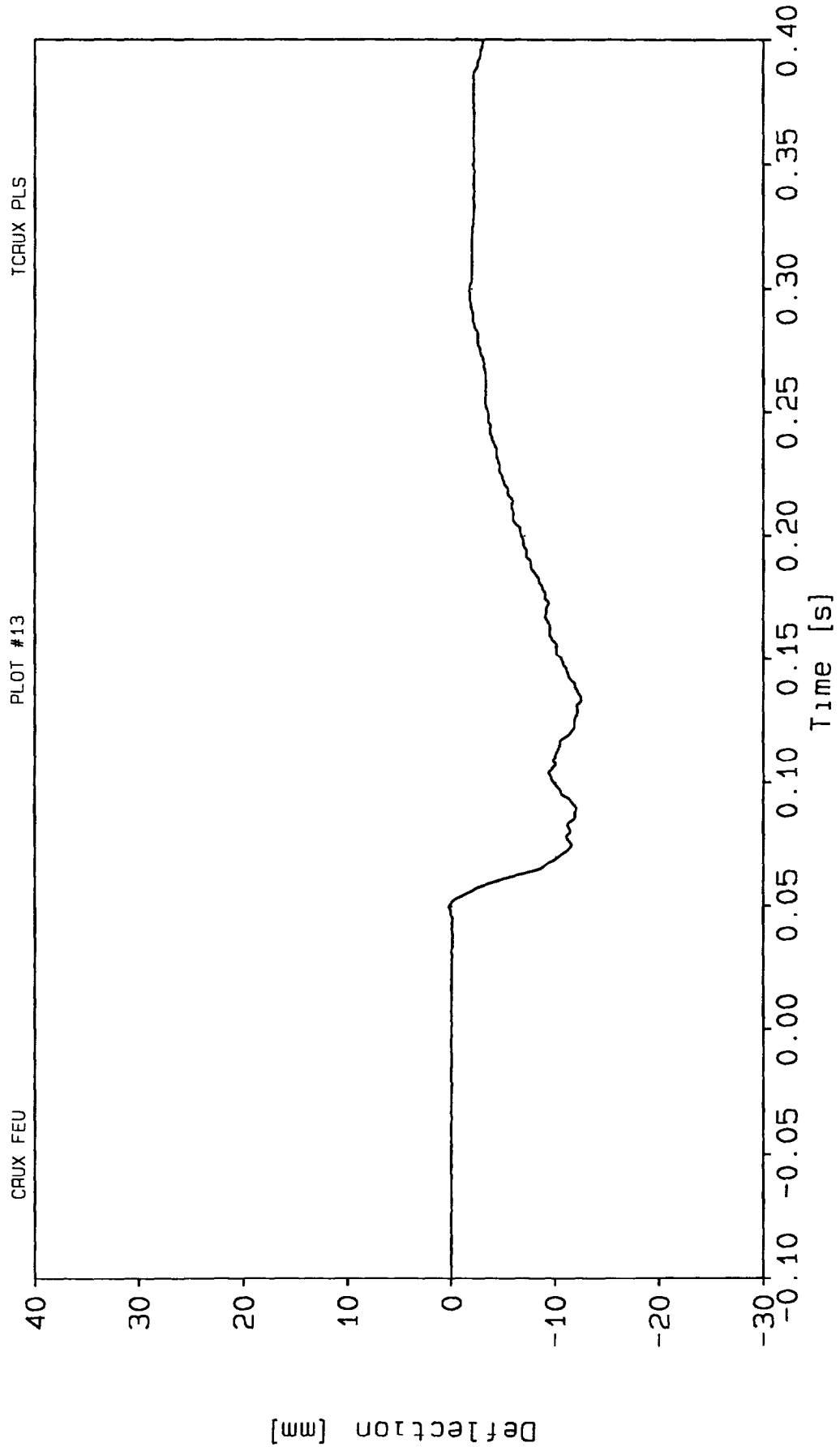
2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Exponent
Failure
Analysis
Associates

Filter Class 180
Volpe Crash Testing
PH06608

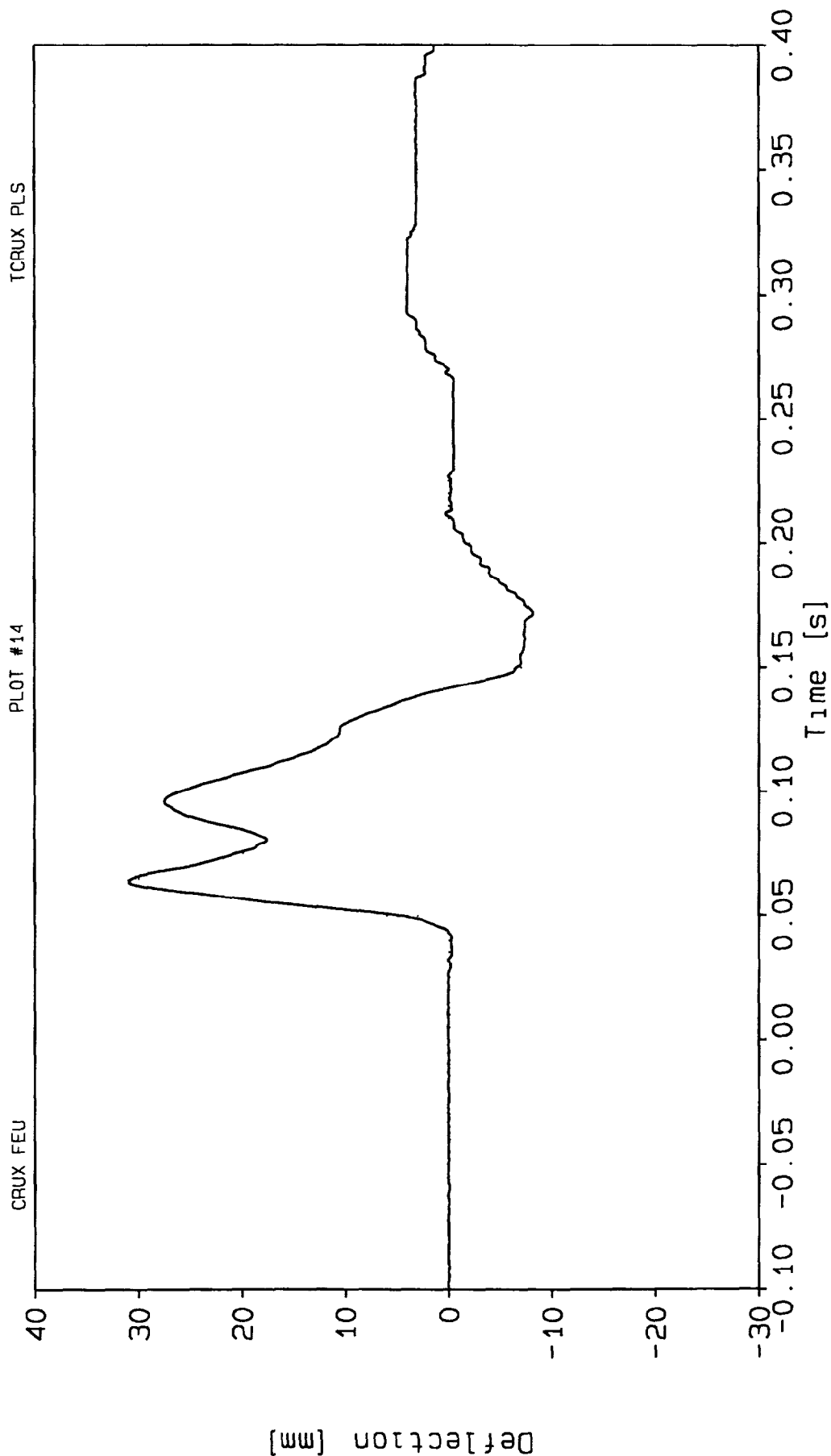
Crux Lower Left Deflection (Dx) v Time
Passenger Dummy - THOR - Post THORTEST Processing
2001 Dodge Neon
2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Filter Class 180
Volpe Crash Testing
PH06608

Exponent
Failure
Analysis
Associates

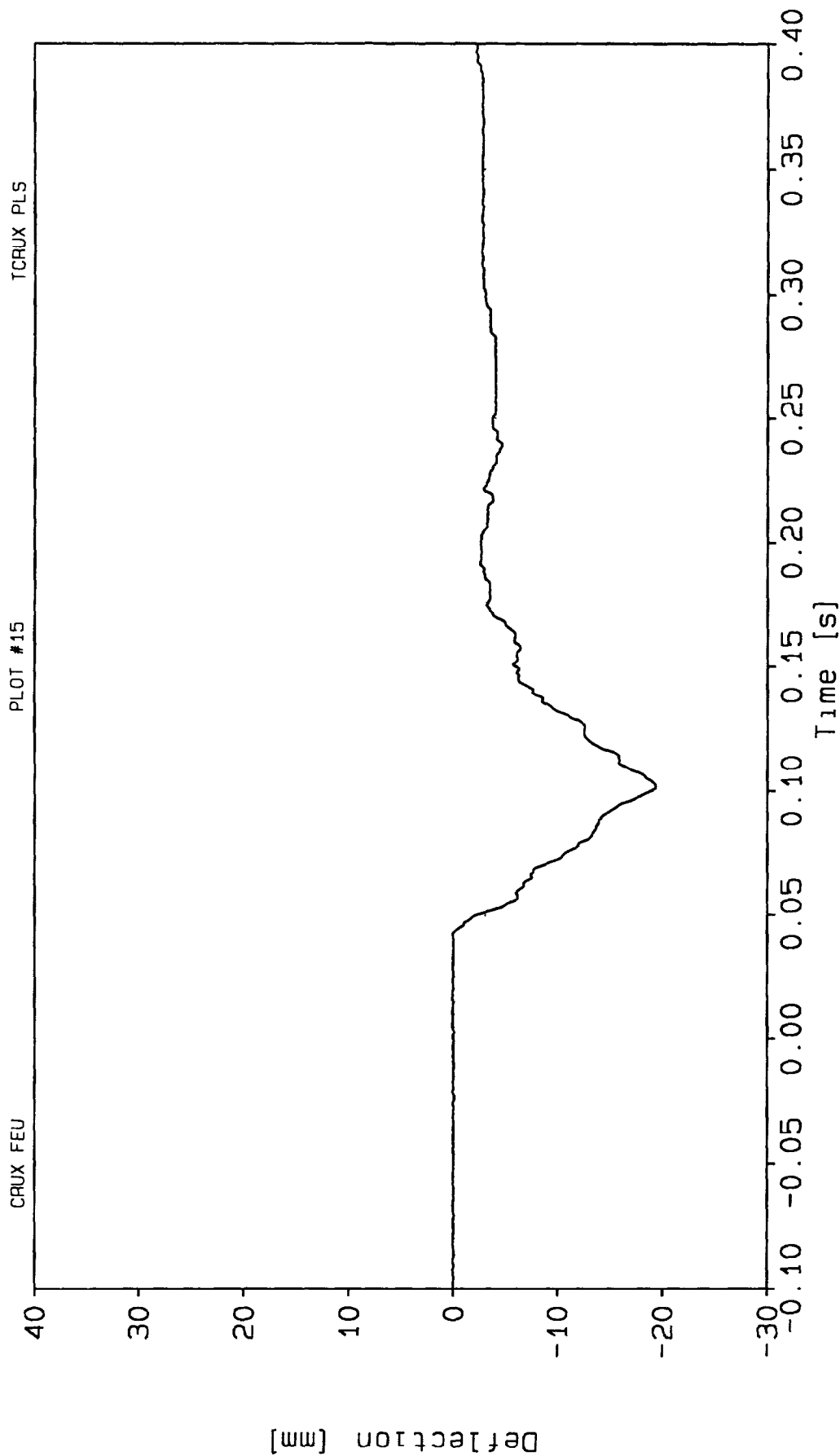
Crux Lower Left Deflection (Dy) v Time
Passenger Dummy - THOR - Post THORTEST Processing
2001 Dodge Neon
2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Exponent
Failure
Analysis
Associates

Filter Class 180
Volpe Crash Testing
PH06608

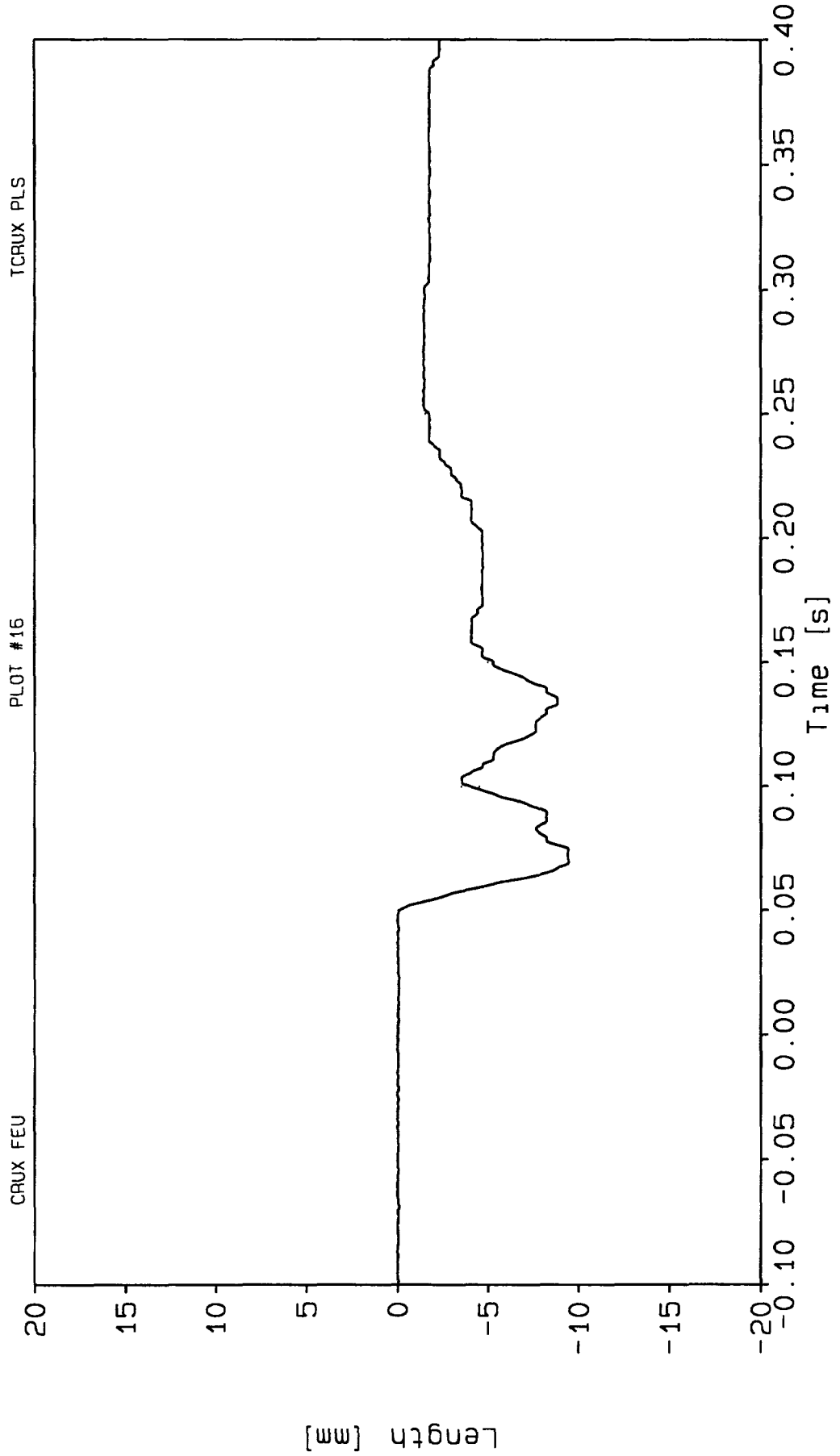
Crux Lower Left Deflection (Dz) v Time
Passenger Dummy - THOR - Post THORTEST Processing
2001 Dodge Neon
2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



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
2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Filter Class 180
Volpe Crash Testing
PH05608

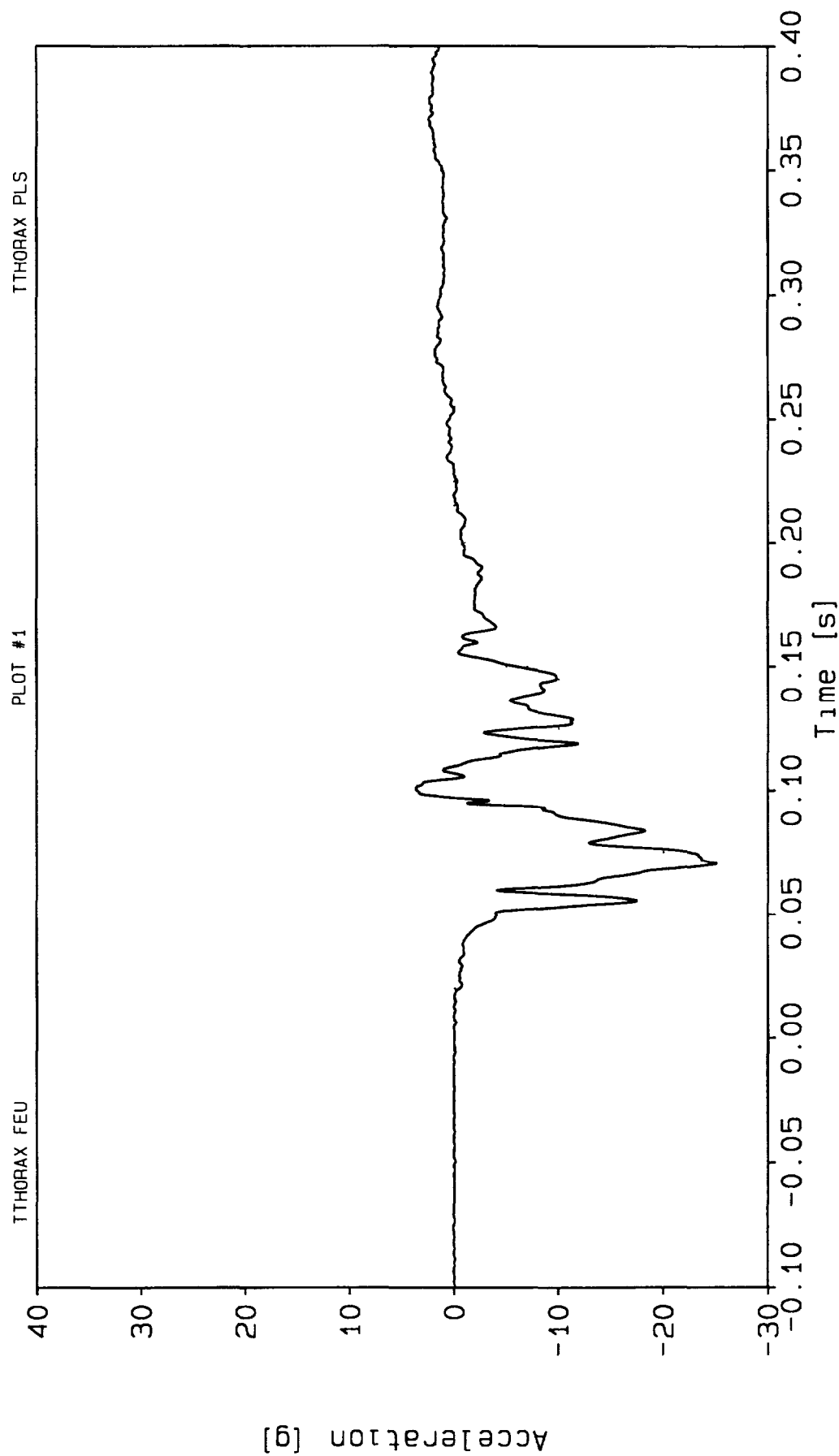
Exponent
Failure
Analysis
Associates

Thorax C.G. Acceleration (Ax) v Time

Passenger Dummy - THOR

2001 Dodge Neon

2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Filter Class 180
Voipe Crash Testing
PH05608

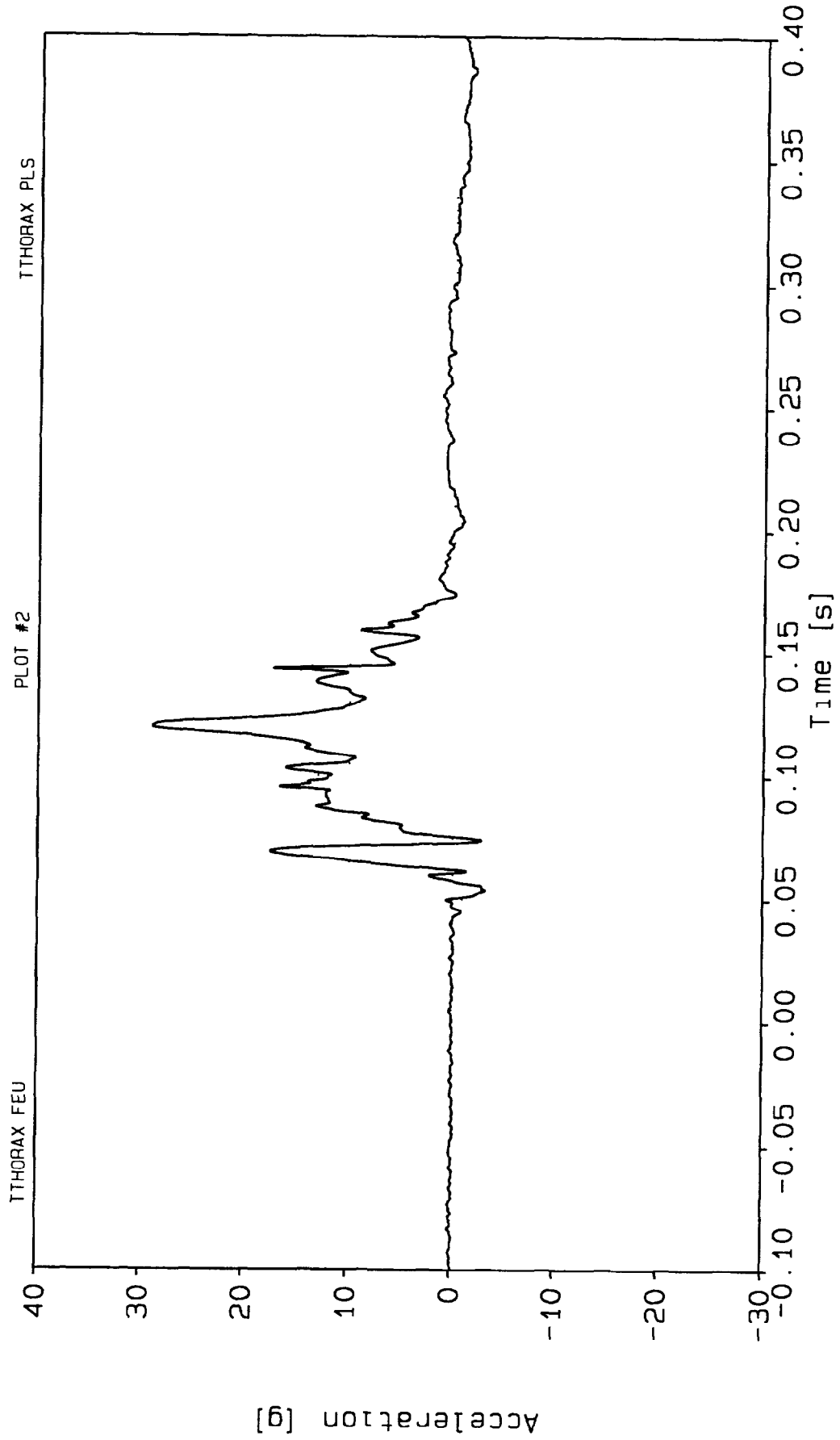
Exponent
Failure
Analysis
Associates

Thorax C.G. Acceleration (Ay) v Time

Passenger Dummy - THOR

2001 Dodge Neon

2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Filter Class 180
Voice Crash Testing
PH06508

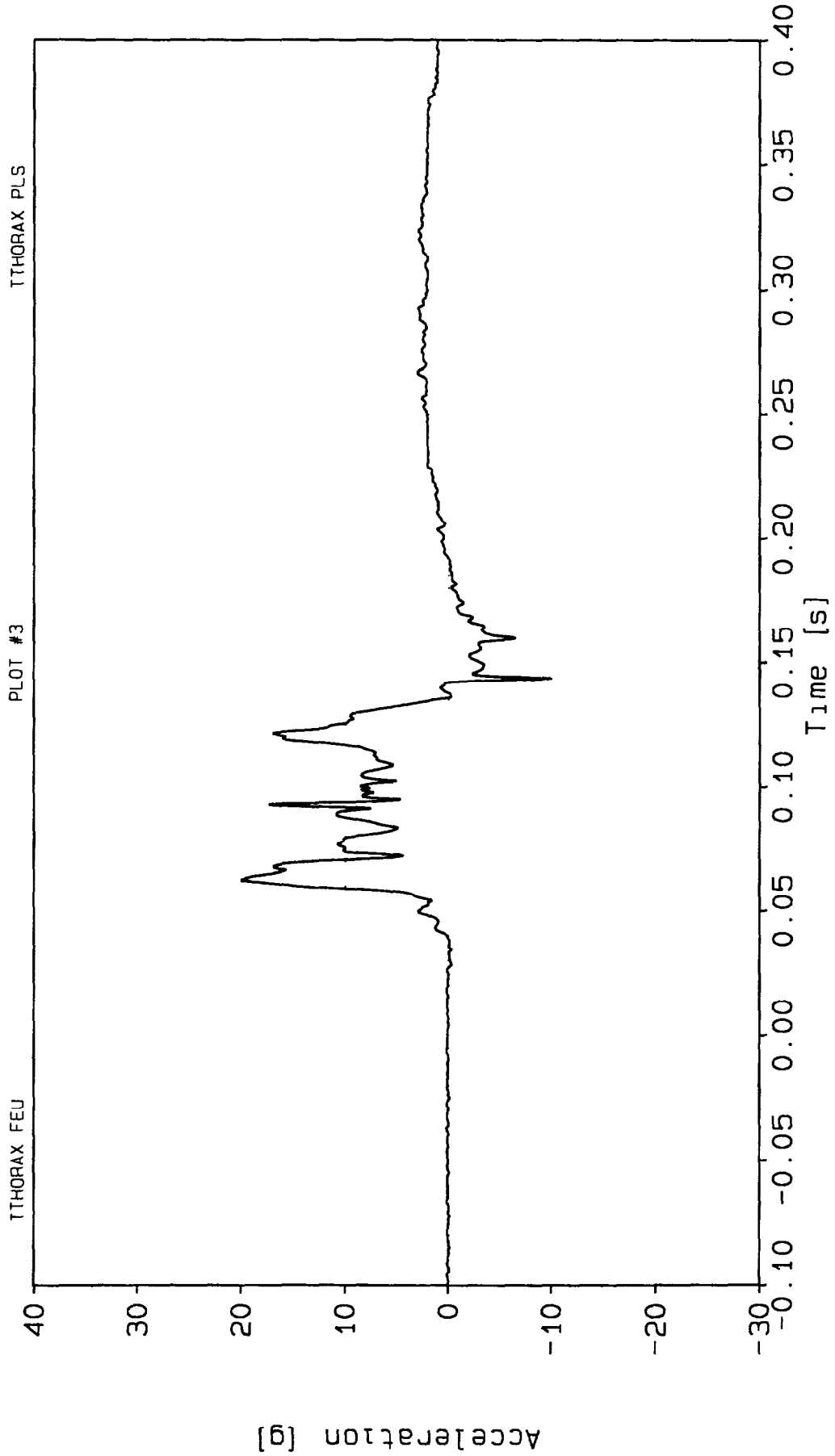
Exponent
Failure
Analysis
Associates

Thorax C.G. Acceleration (Az) v Time

Passenger Dummy - THOR

2001 Dodge Neon

2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Exponent
Failure
Analysis
Associates

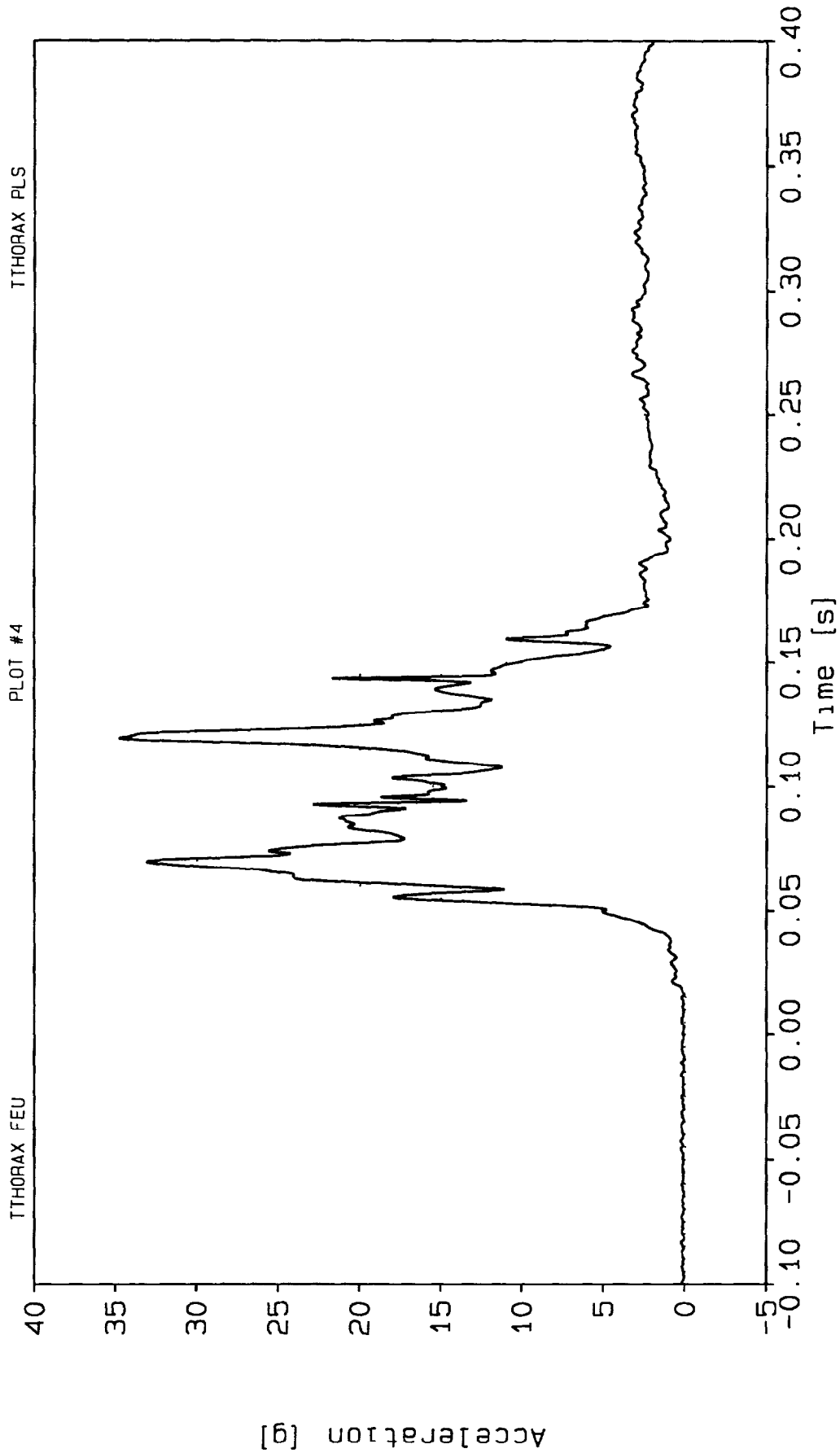
Filter Class 180
Volpe Crash Testing
PH05608

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

Passenger Dummy - THOR

2001 Dodge Neon

2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Exponent
Failure
Analysis
Associates

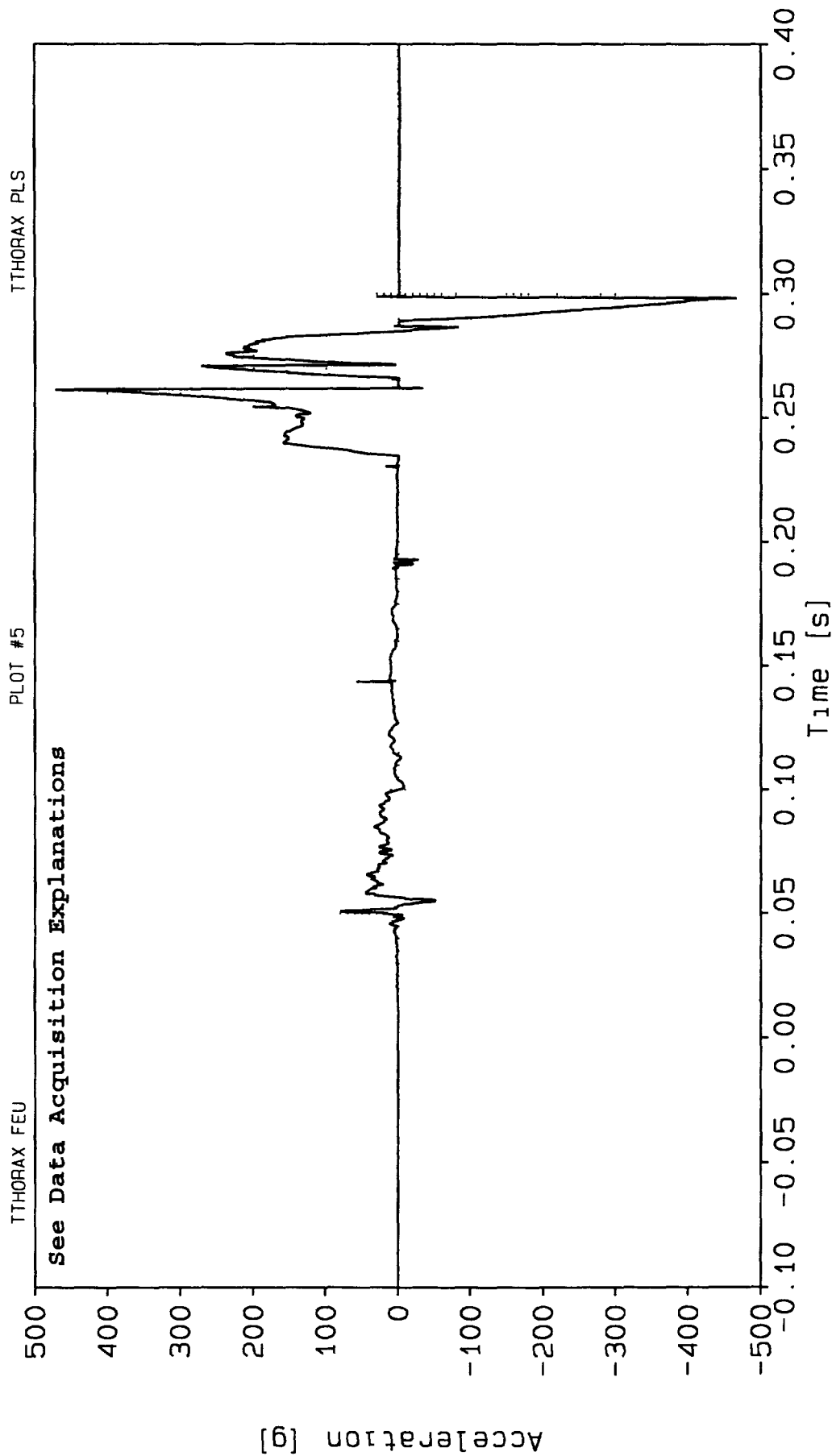
Filter Class 180
Volpe Crash Testing
PH06608

Upper Abdomen Acceleration (Ax) v Time

Passenger Dummy - THOR

2001 Dodge Neon

2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Exponent
Failure
Analysis
Associates

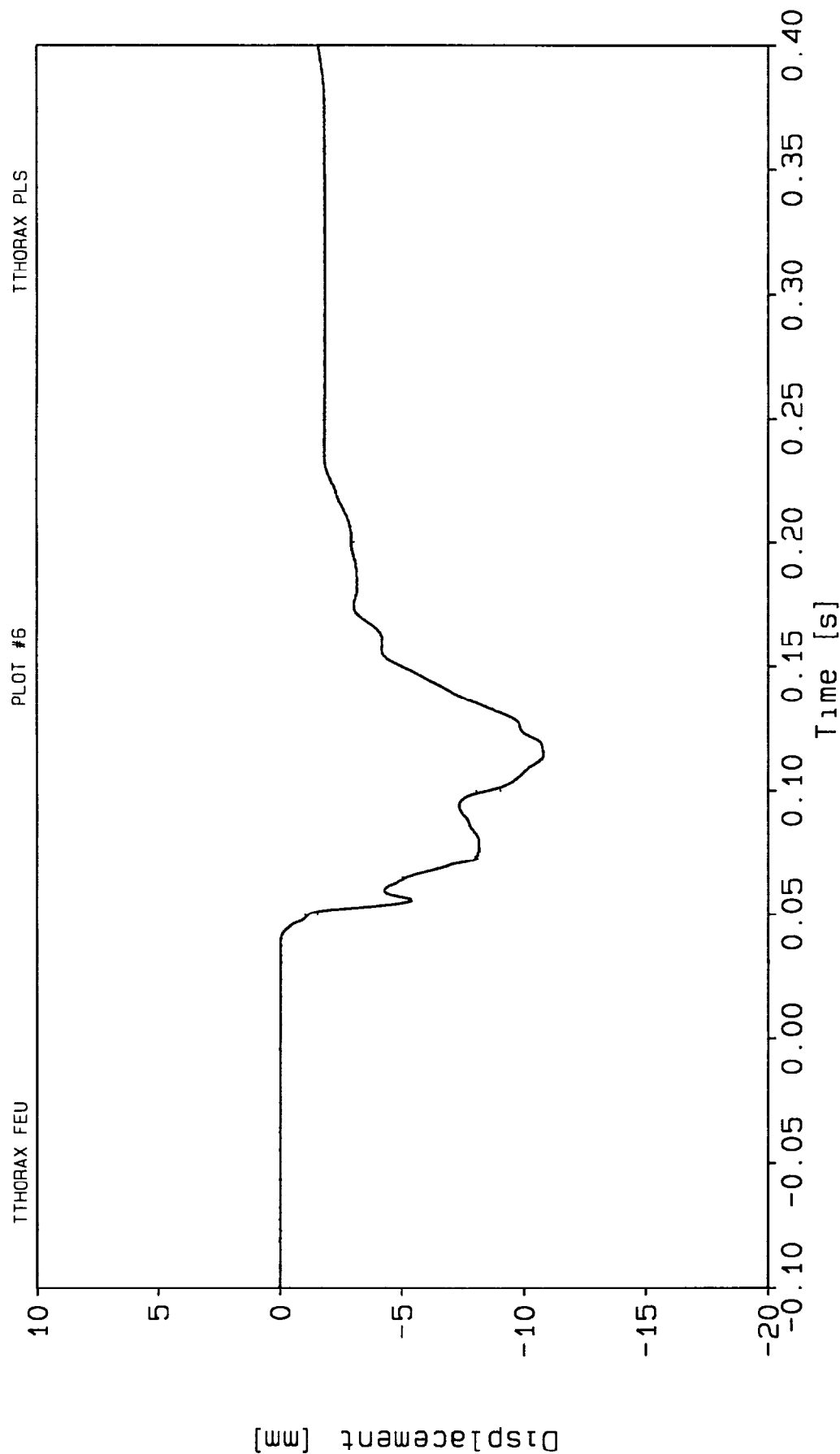
Filter Class 1000
Voipe Crash Testing
PH05608

Upper Abdomen Displacement v Time

Passenger Dummy - THOR

2001 Dodge Neon

2001 Ford F-150 into 2001 Dodge Neon - 09/14/01

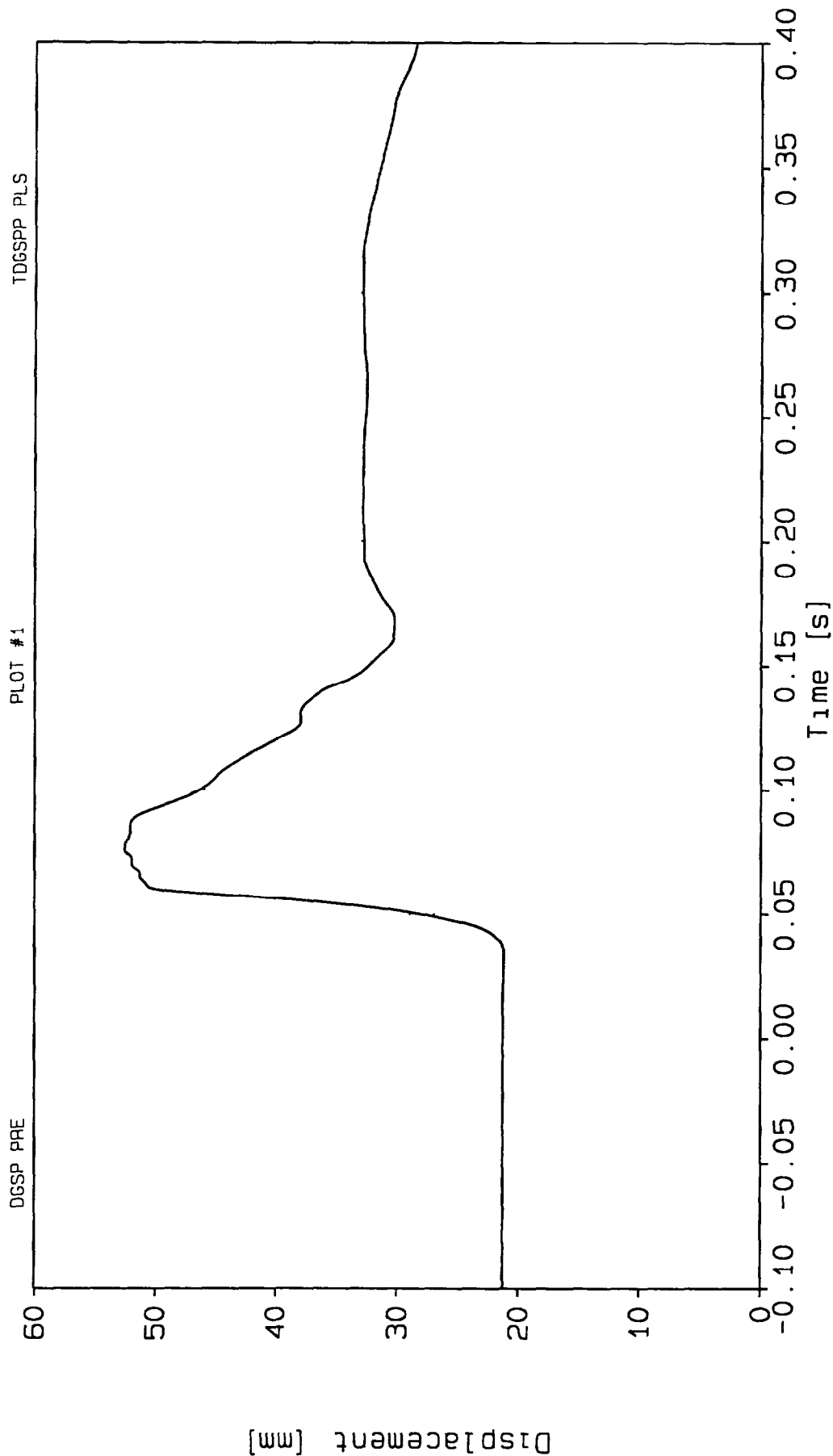


Filter Class 1000
Volpe Crash Testing
PH06608

Exponent
Failure
Analysis
Associates

DGSP Left Displacement v Time

Passenger Dummy - THOR - Pre-THORTEST Processing
2001 Dodge Neon
2001 Ford F-150 into 2001 Dodge Neon - 09/14/01

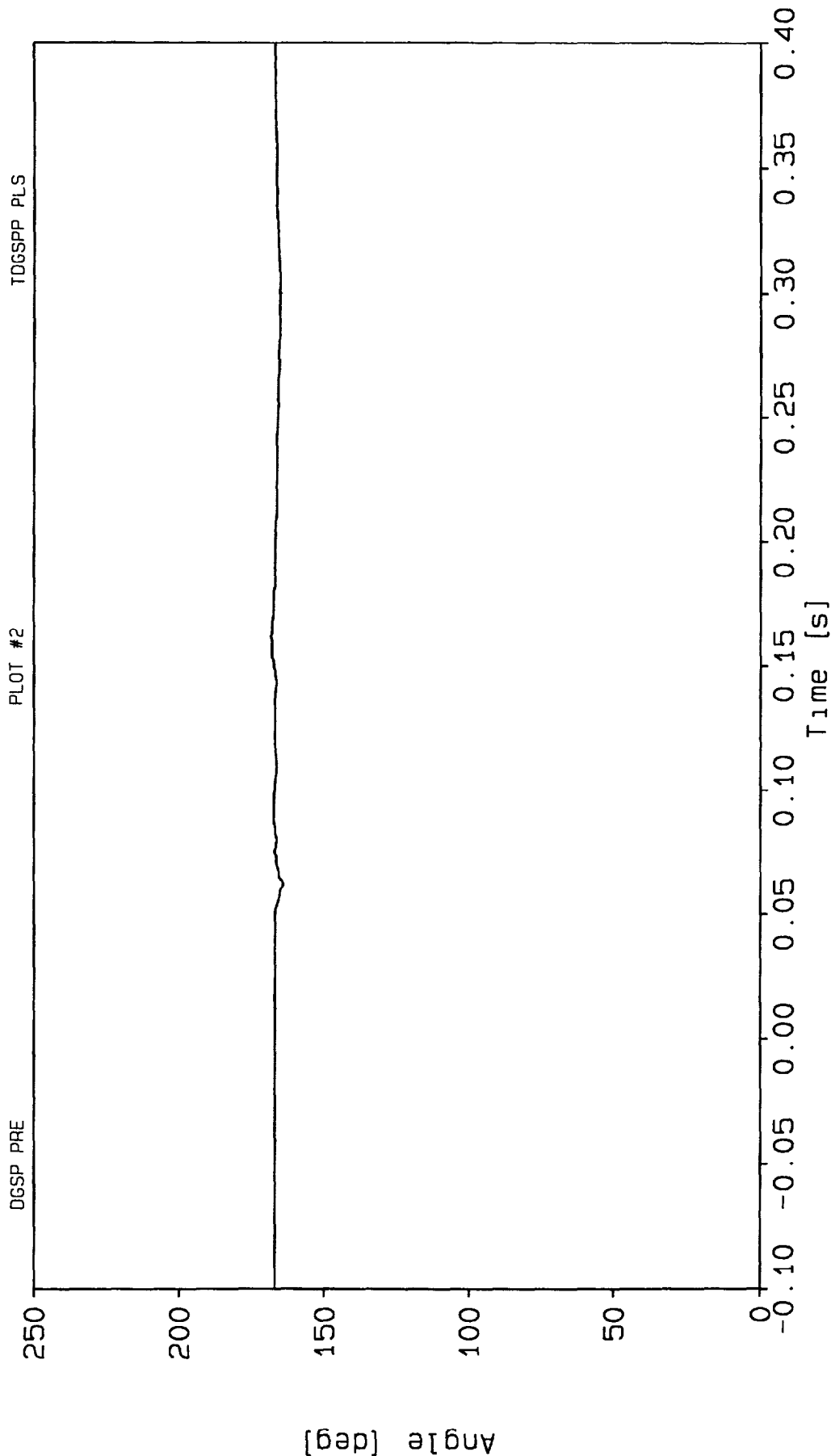


Filter Class 180
Volpe Crash Testing
PH06608

Exponent
Failure
Analysis
Associates

DGSP Left Yaw v Time

Passenger Dummy - THOR - Pre-THORTEST Processing
2001 Dodge Neon
2001 Ford F-150 into 2001 Dodge Neon - 09/14/01

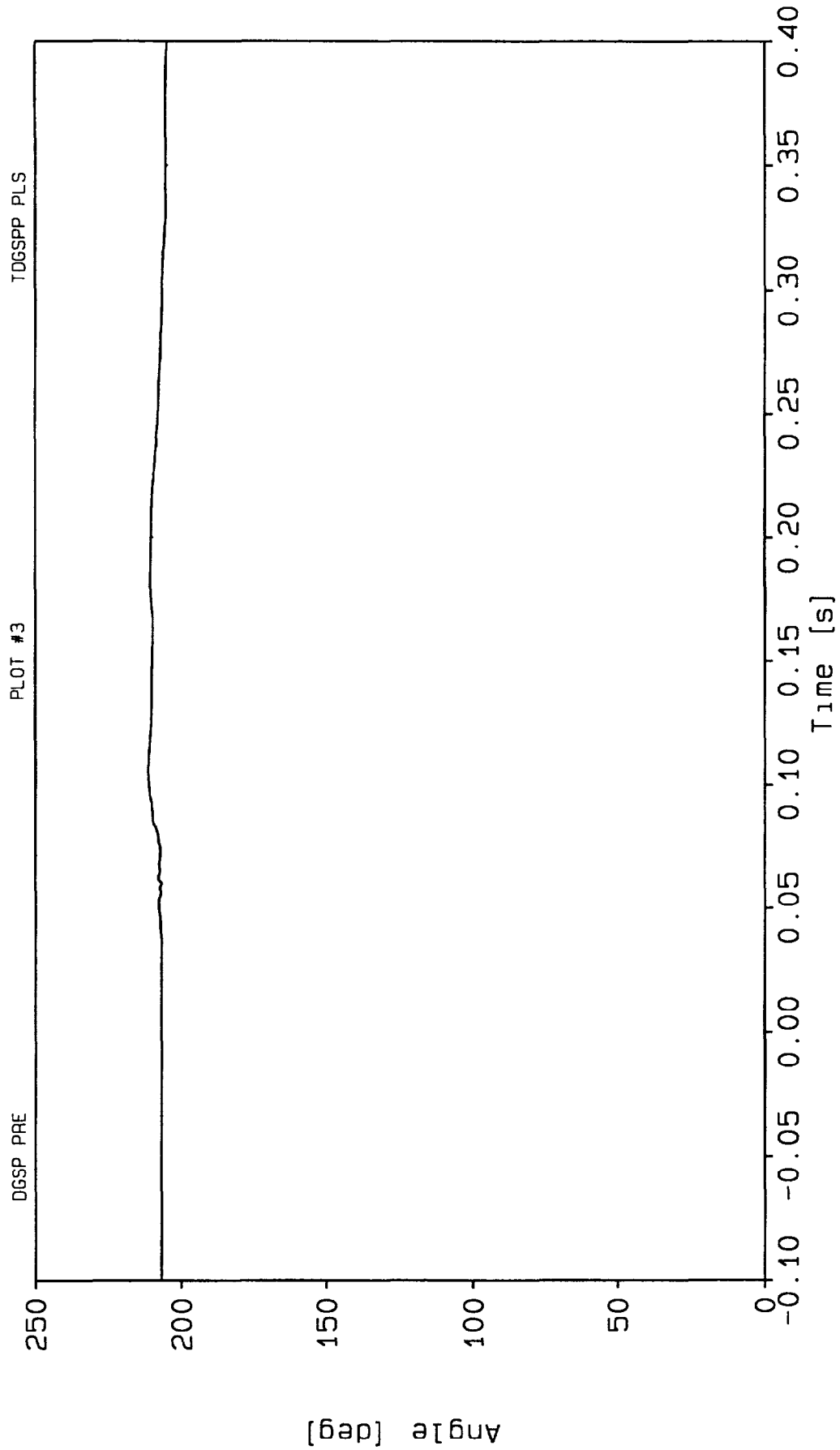


Filter Class 180
Volpe Crash Testing
PH05608

Exponent
Failure
Analysis
Associates

DGSP Left Pitch v Time

Passenger Dummy - THOR - Pre-THORTEST Processing
2001 Dodge Neon
2001 Ford F-150 into 2001 Dodge Neon - 09/14/01

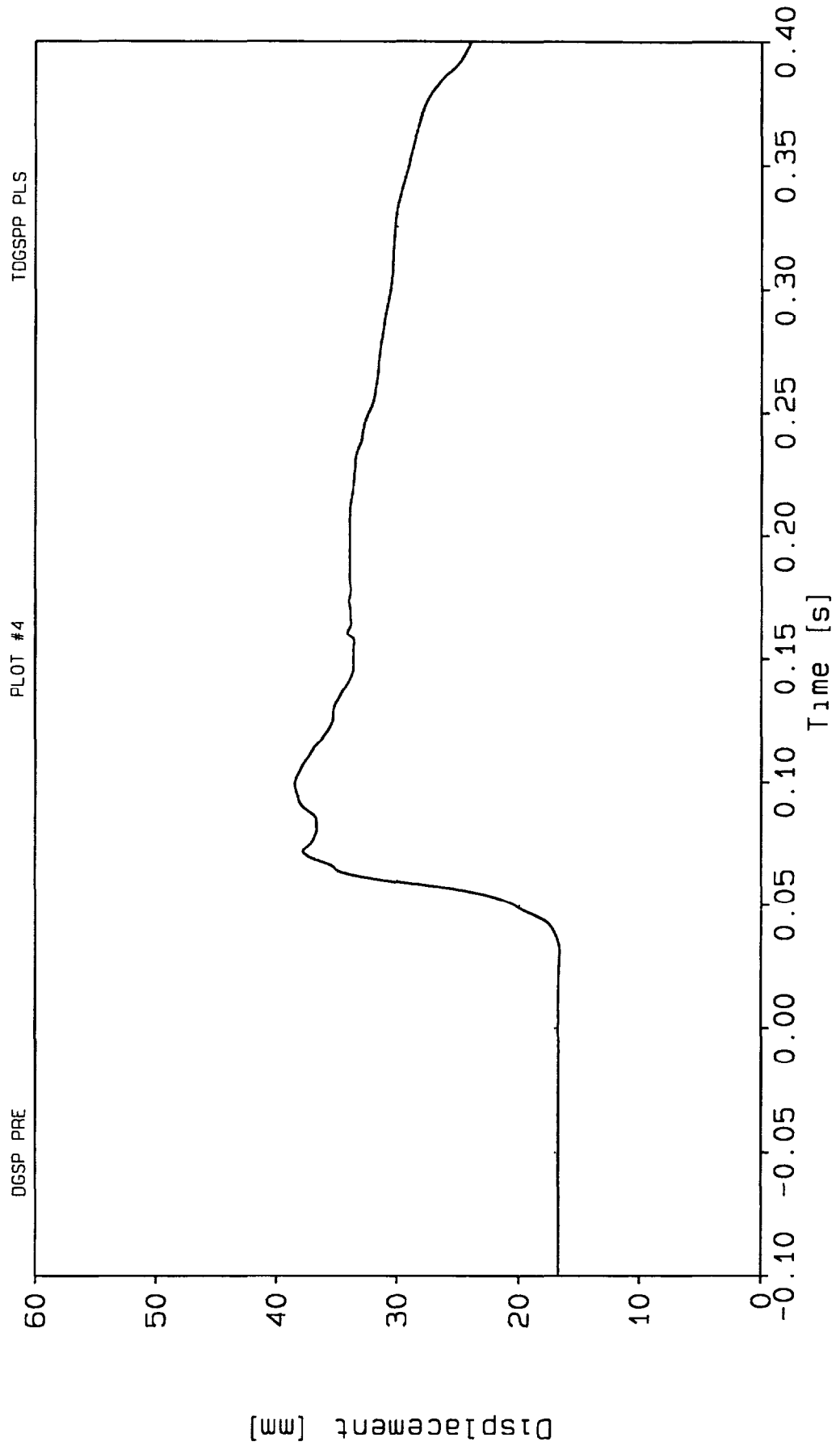


Filter Class 180
Volpe Crash Testing
PH06608

Exponent
Failure
Analysis
Associates

DGSP Right Displacement v Time

Passenger Dummy - THOR - Pre-THORTEST Processing
2001 Dodge Neon
2001 Ford F-150 into 2001 Dodge Neon - 09/14/01

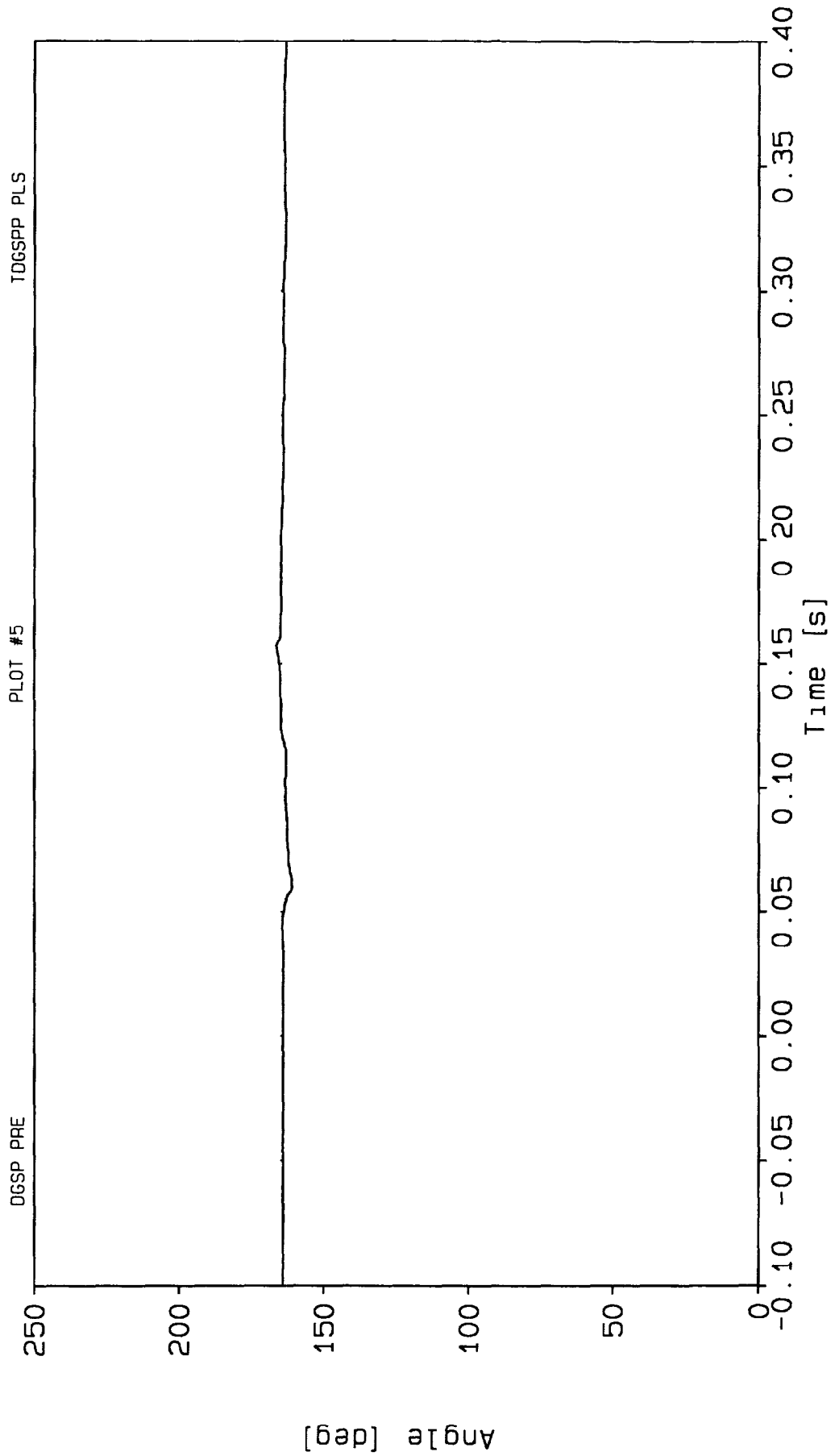


Filter Class 180
Volpe Crash Testing
PH06608

Exponent
Failure
Analysis
Associates

DGSP Right Yaw v Time

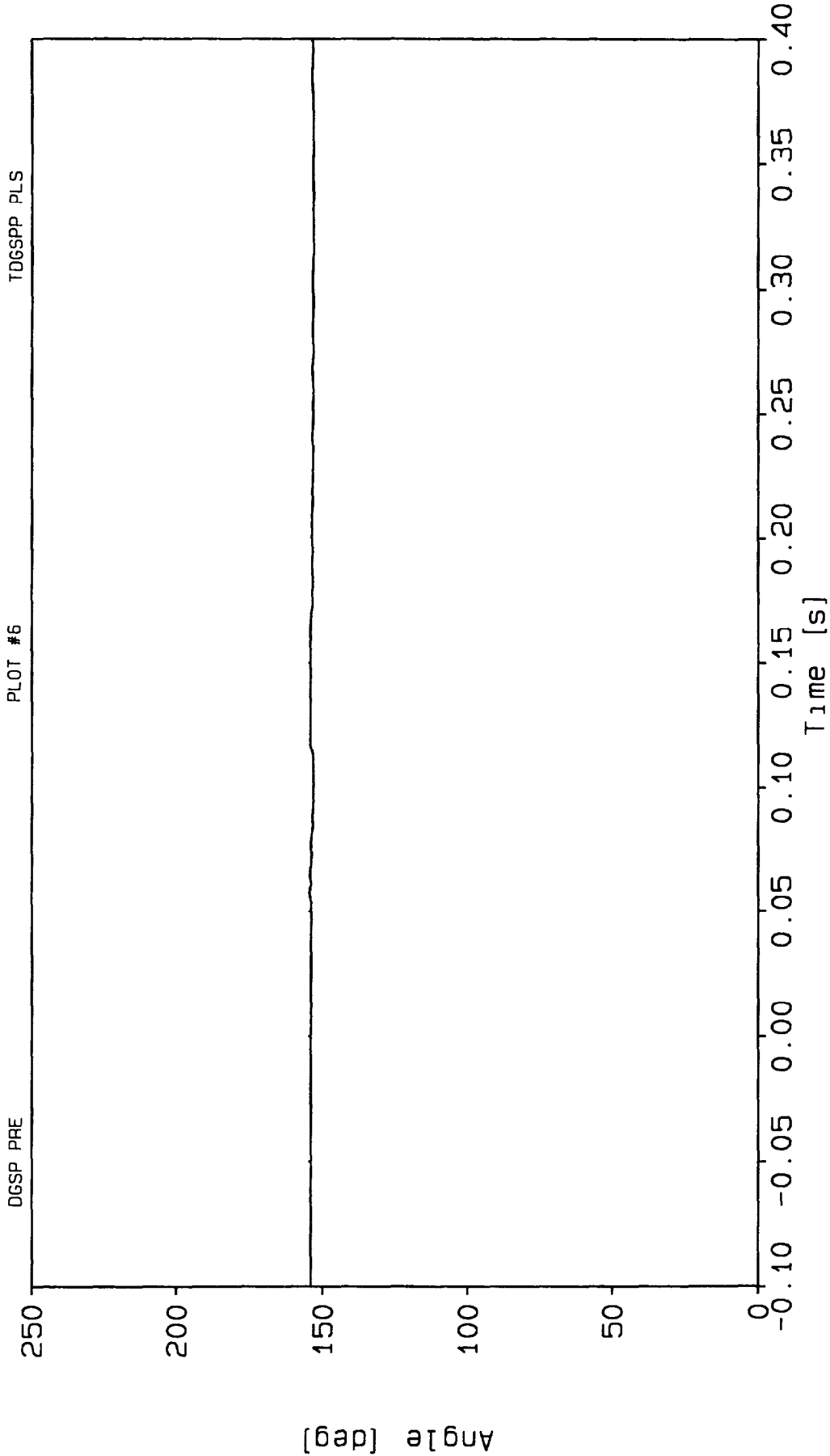
Passenger Dummy - THOR - Pre-THORTEST Processing
2001 Dodge Neon
2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Exponent
Failure
Analysis
Associates

Filter Class 180
Volpe Crash Testing
PH06608

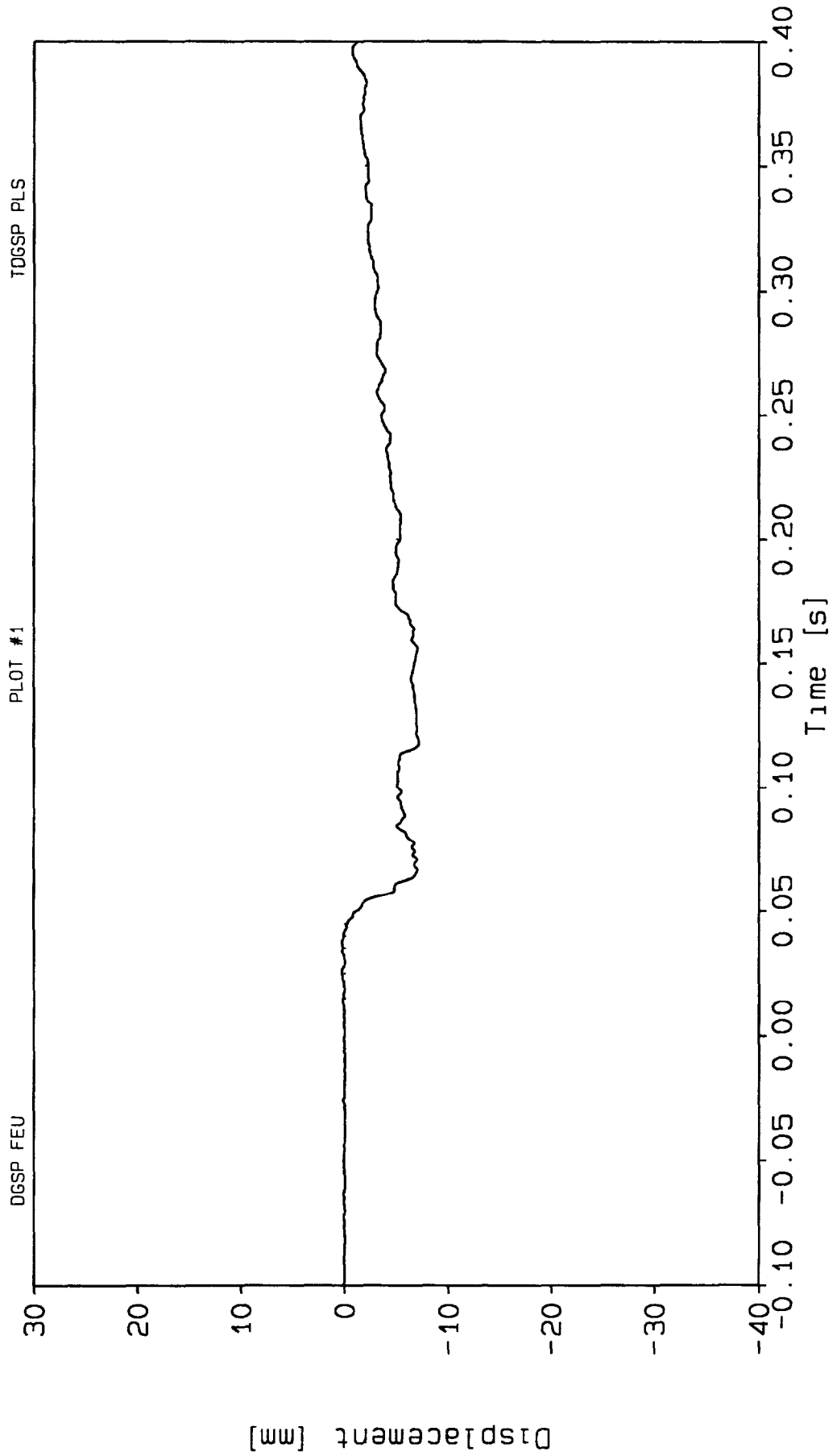
DGSP Right Pitch v Time
Passenger Dummy - THOR - Pre-THORTEST Processing
2001 Dodge Neon
2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Filter Class 180
Volpe Crash Testing
PH06608

Exponent
Failure
Analysis
Associates

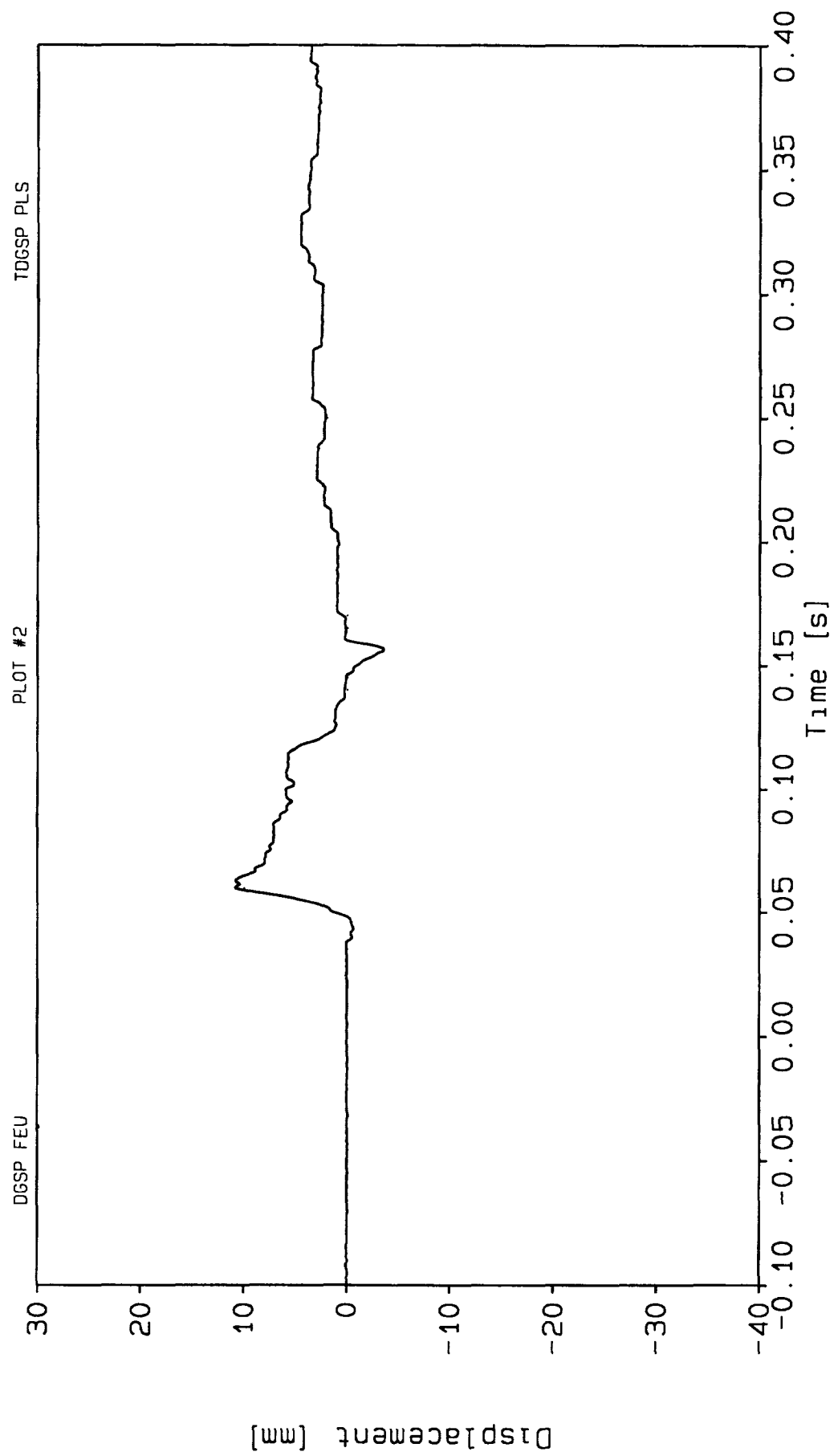
DGSP Right Displacement (Dx) v Time
Passenger Dummy - THOR - Post THORTEST Processing
2001 Dodge Neon
2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Filter Class 180
Volpe Crash Testing
PH06608

Exponent
Failure
Analysis
Associates

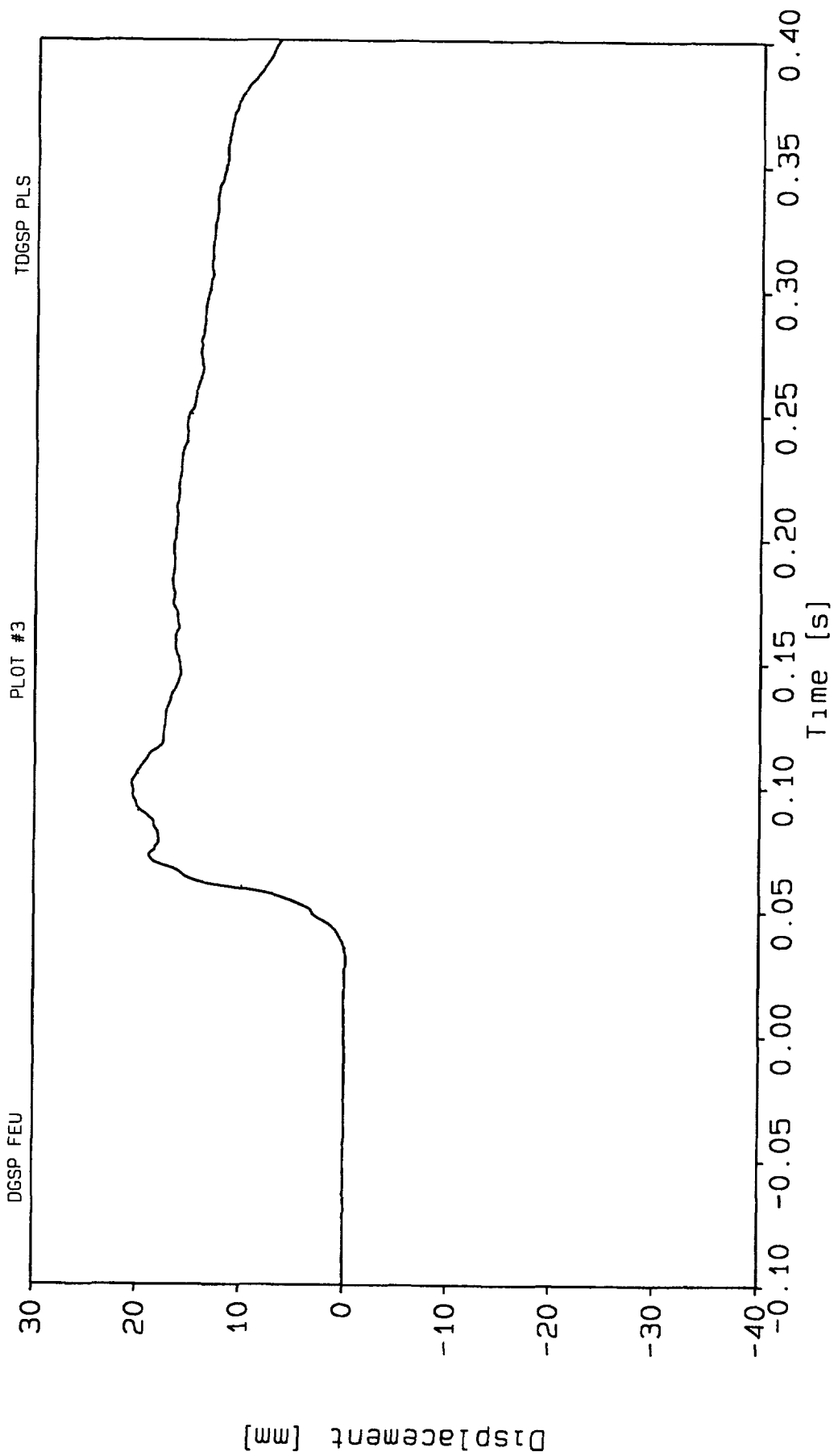
DGSP Right Displacement (Dy) v Time
Passenger Dummy - THOR - Post THORTEST Processing
2001 Dodge Neon
2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Filter Class 180
Volpe Crash Testing
PH05608

Exponent
Failure
Analysis
Associates

DGSP Right Displacement (Dz) v Time
 Passenger Dummy - THOR - Post THORTEST Processing
 2001 Dodge Neon
 2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



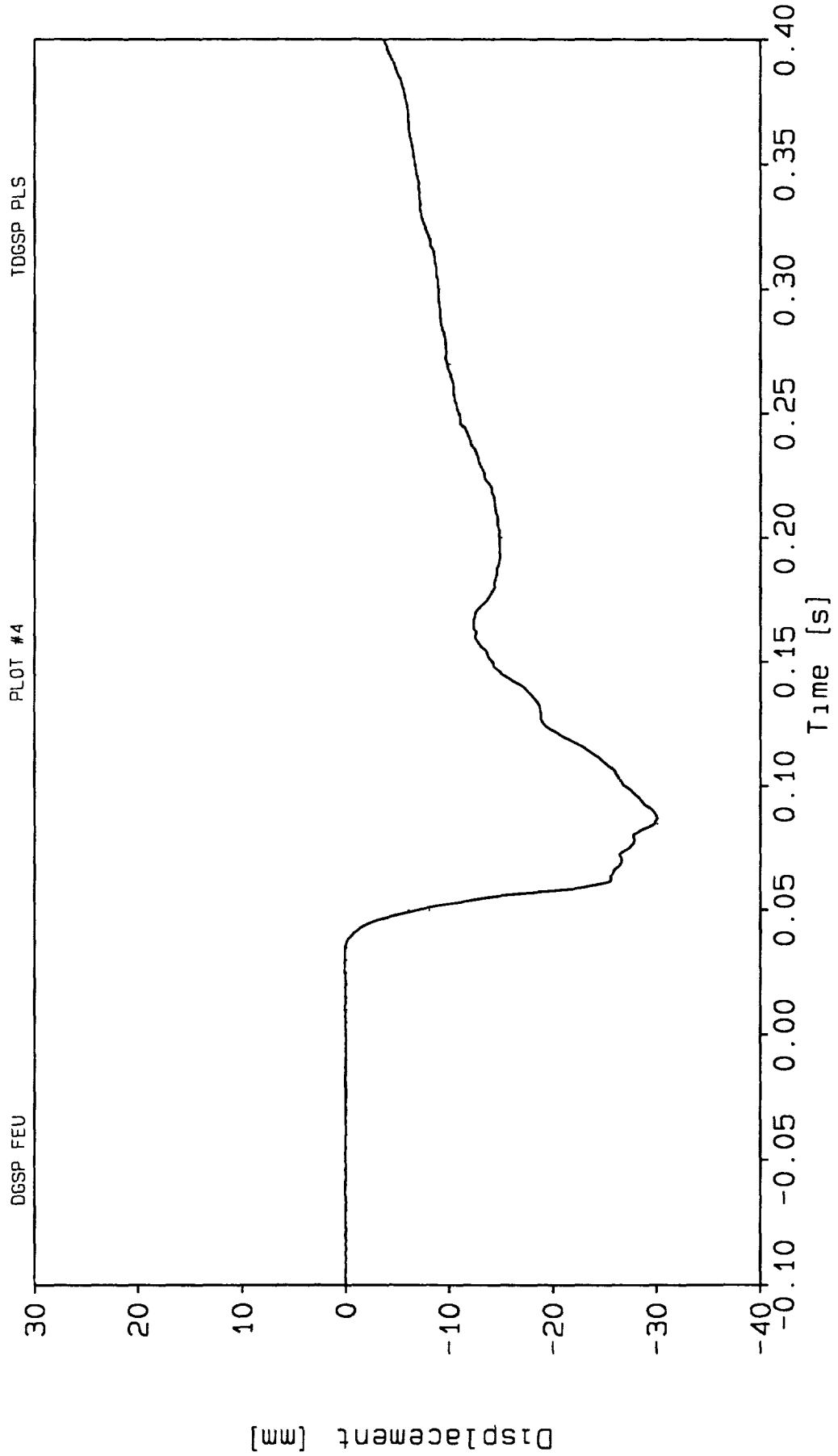
Displacement [mm]

Time [s]

Filter Class 180
 Voipe Crash Testing
 PH06608

Exponent
 Failure
 Analysis
 Associates

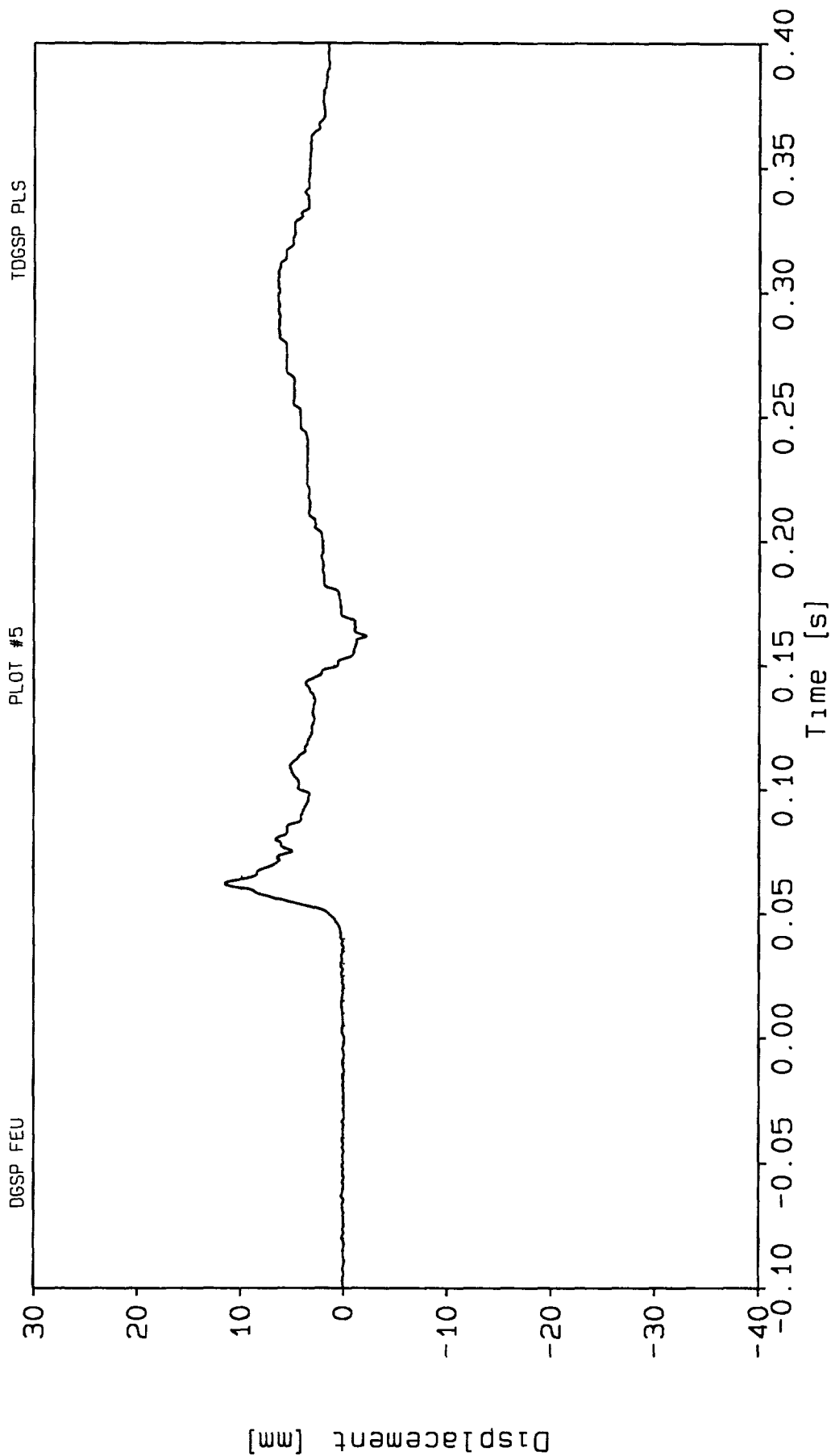
DGSP Left Displacement (Dx) v Time
Passenger Dummy - THOR - Post THORTEST Processing
2001 Dodge Neon
2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Filter Class 180
Volpe Crash Testing
PH06608

Exponent
Failure
Analysis
Associates

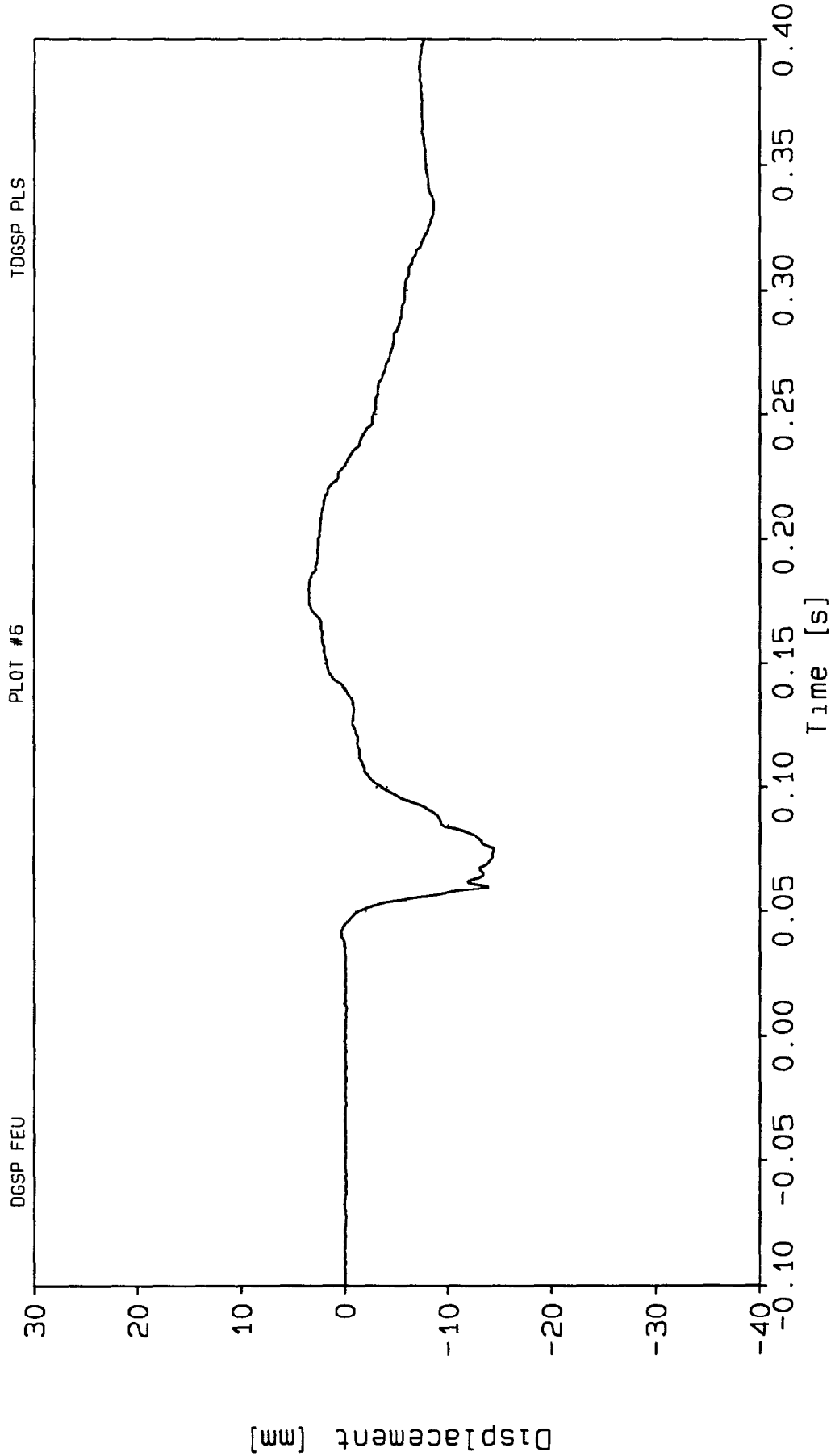
DGSP Left Displacement (Dy) v Time
Passenger Dummy - THOR - Post THORTEST Processing
2001 Dodge Neon
2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Exponent
Failure
Analysis
Associates

Filter Class 180
Volpe Crash Testing
PH05608

DGSP Left Displacement (Dz) v Time
Passenger Dummy - THOR - Post THORTEST Processing
2001 Dodge Neon
2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Filter Class 180
Volpe Crash Testing
PH05508

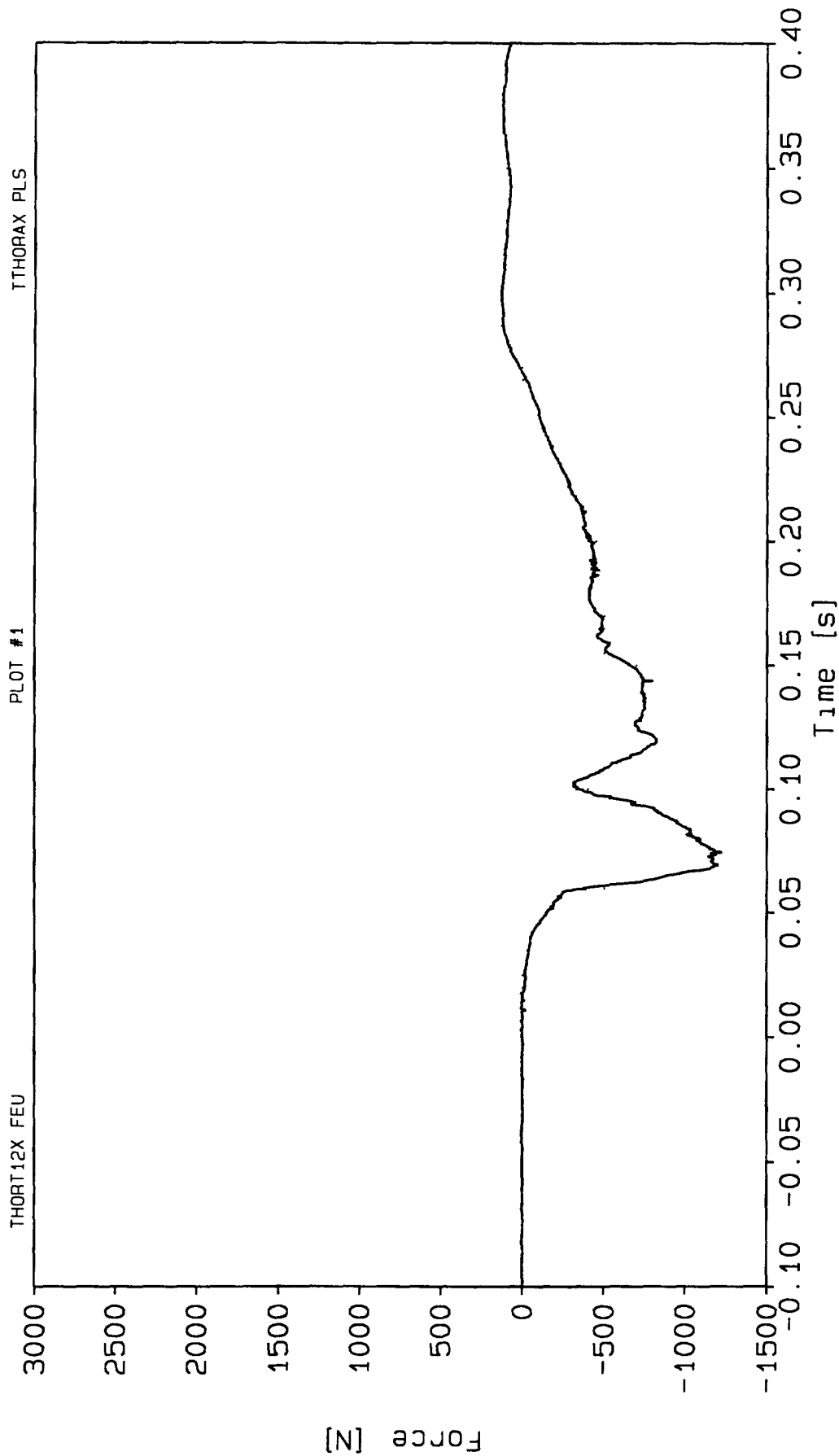
Exponent
Failure
Analysis
Associates

T12 Thoracic Force (Fx) v Time

Passenger Dummy - THOR

2001 Dodge Neon

2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Exponent
Failure
Analysis
Associates

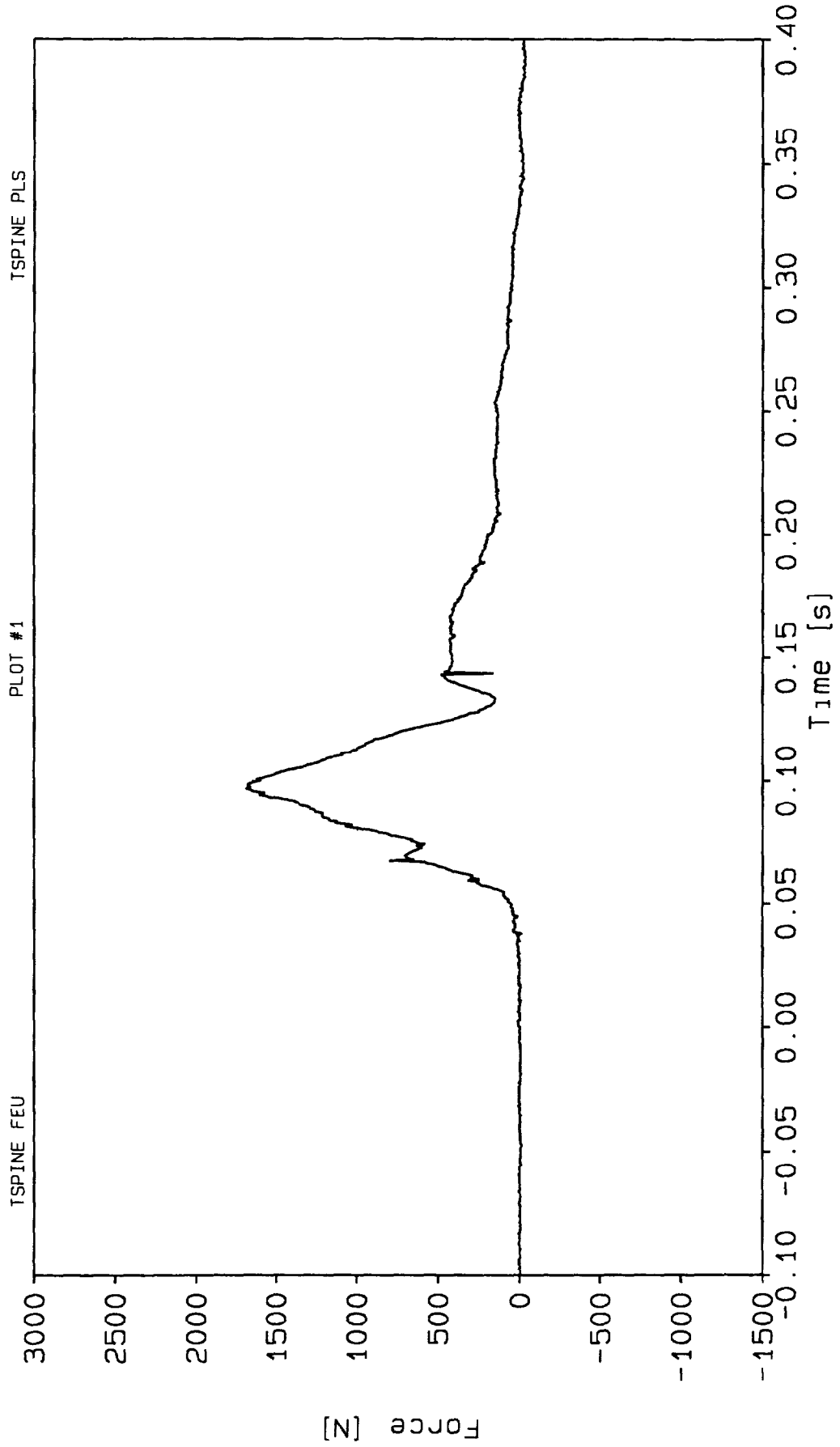
Filter Class 1000
Voipe Crash Testing
PH06608

T12 Thoracic Force (Fy) v Time

Passenger Dummy - THOR

2001 Dodge Neon

2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Filter Class 500
Volpe Crash Testing
PH06608

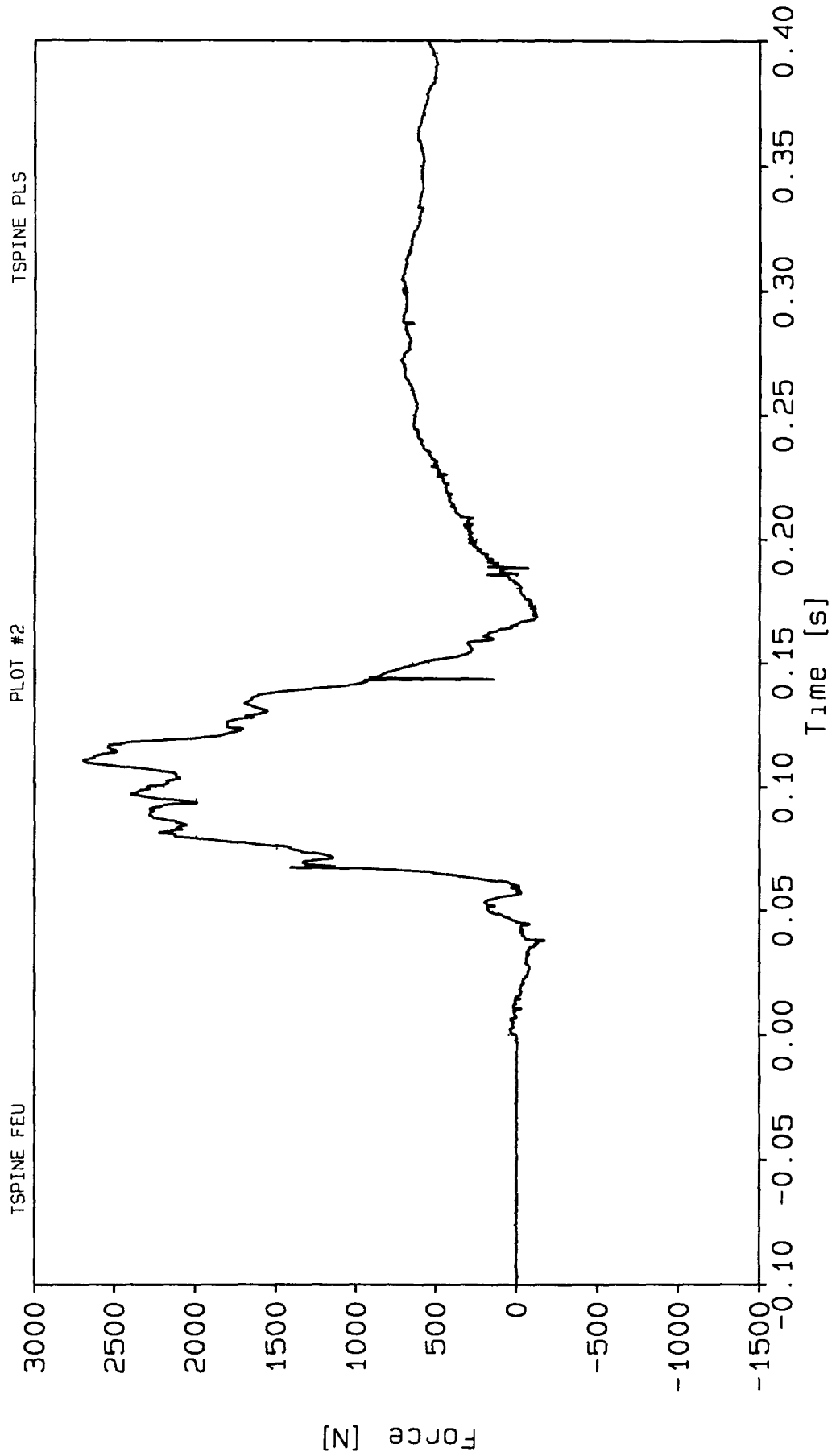
Exponent
Failure
Analysis
Associates

T12 Thoracic Force (Fz) v Time

Passenger Dummy - THOR

2001 Dodge Neon

2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



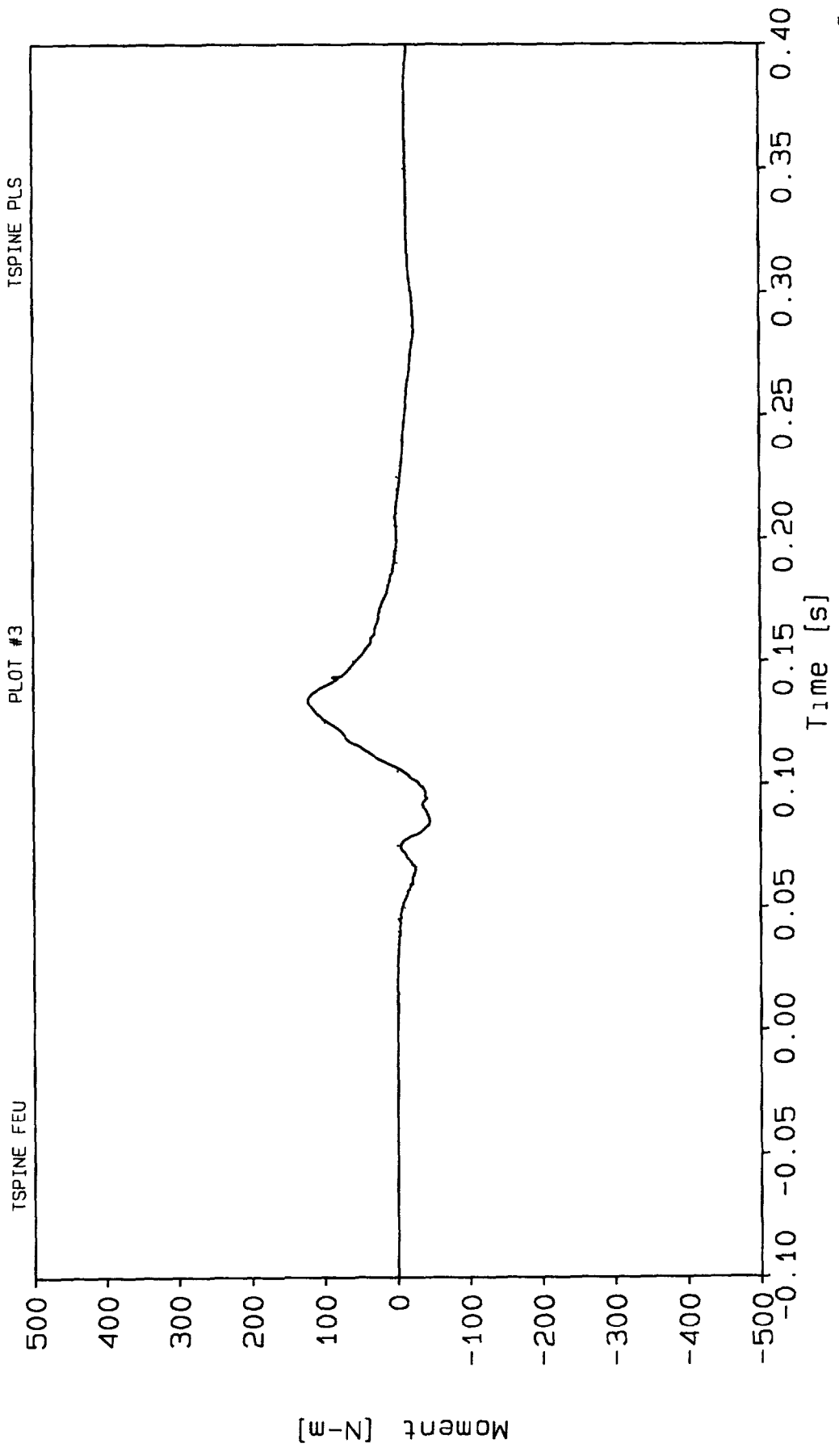
Filter Class 600
Volpe Crash Testing
PH06608

Exponent
Failure
Analysis
Associates

T12 Thoracic Moment (Mx) v Time

Passenger Dummy - THOR
2001 Dodge Neon

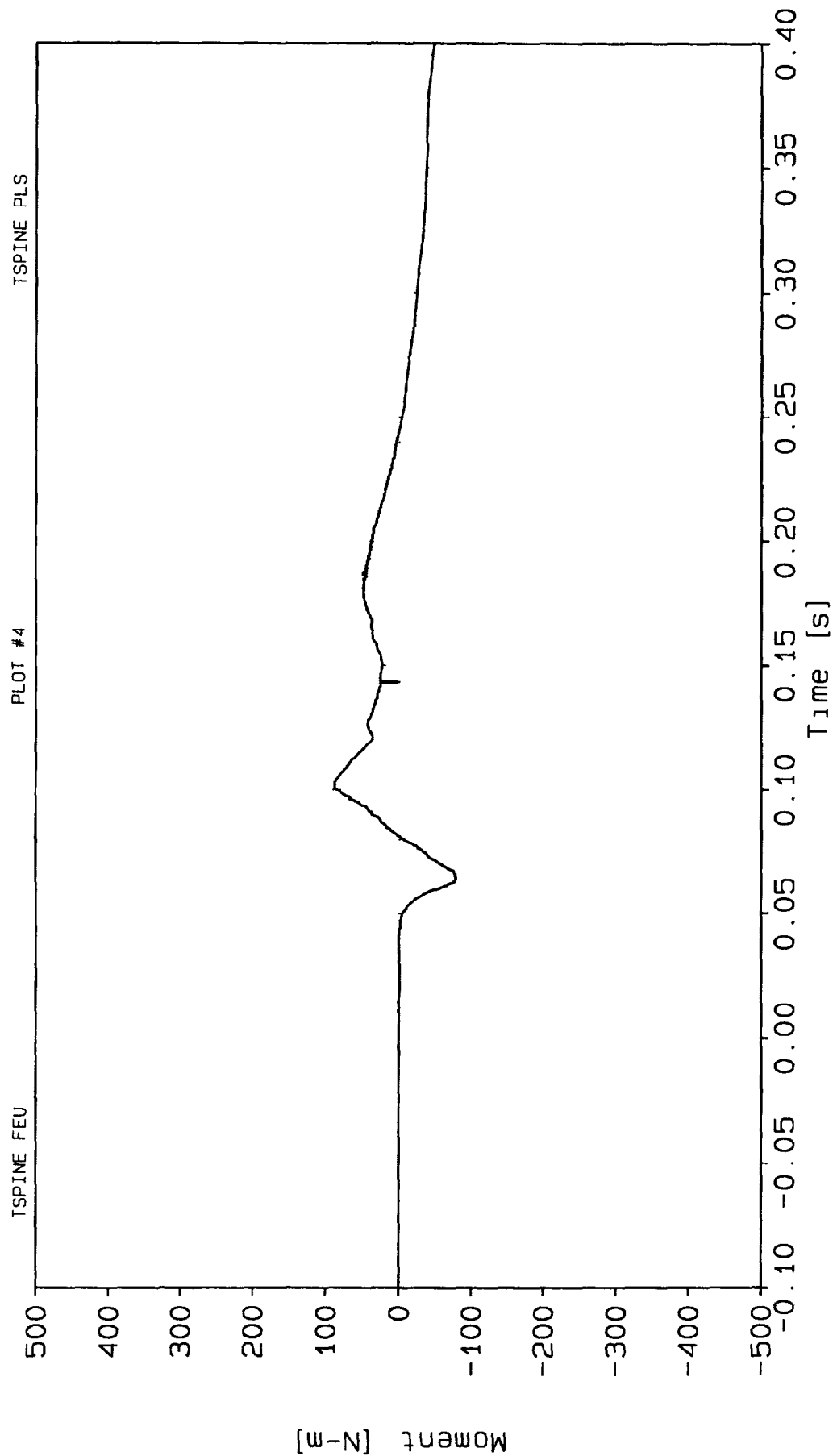
2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Filter Class 600
Volpe Crash Testing
PH05508

Exponent
Failure
Analysis
Associates

T12 Thoracic Moment (My) v Time
Passenger Dummy - THOR
2001 Dodge Neon
2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Filter Class 600
Volpe Crash Testing
PH06608

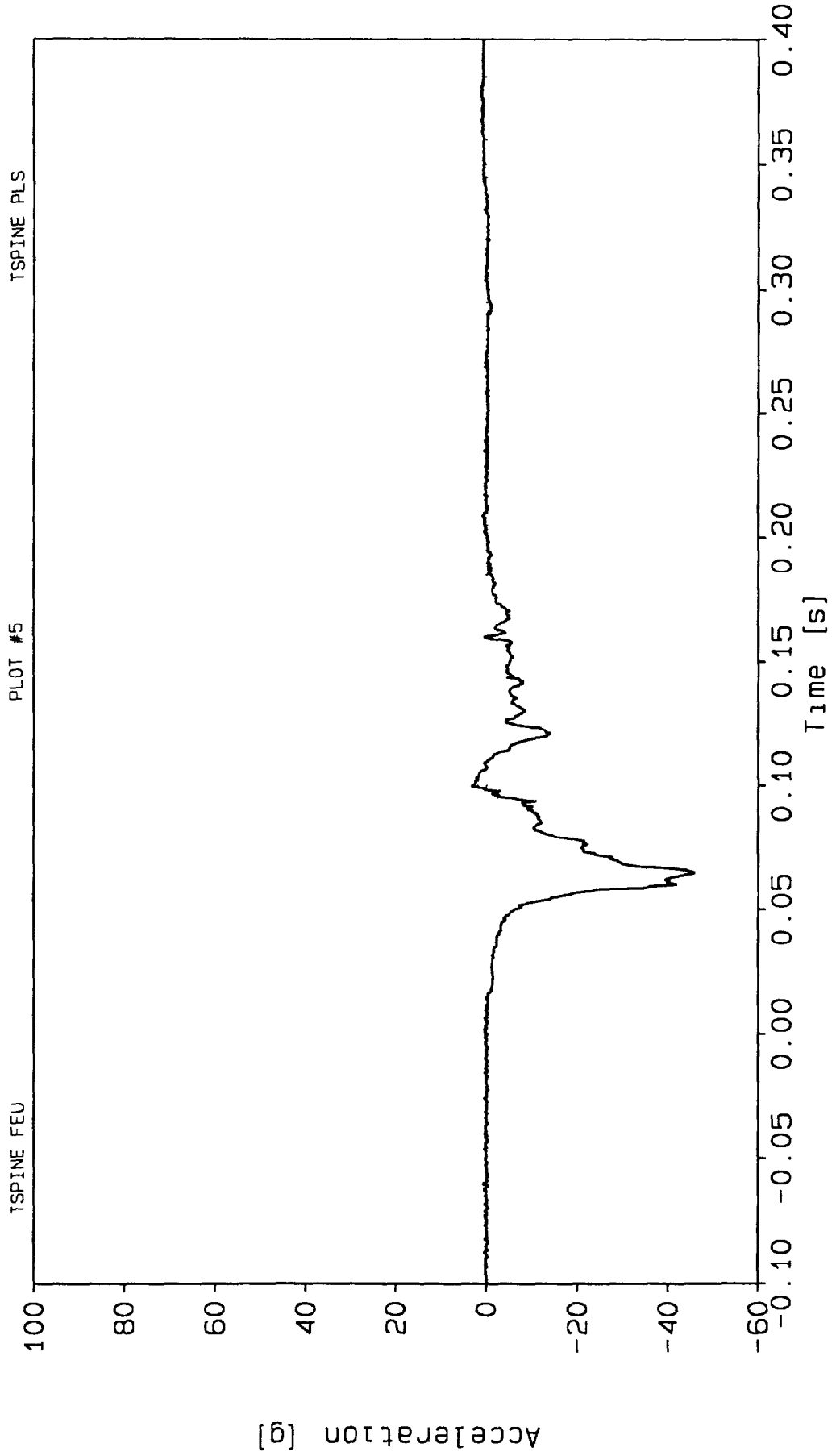
Exponent
Failure
Analysis
Associates

T12 Thoracic Acceleration (Ax) v Time

Passenger Dummy - THOR

2001 Dodge Neon

2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Filter Class 600
Voipe Crash Testing
PH06608

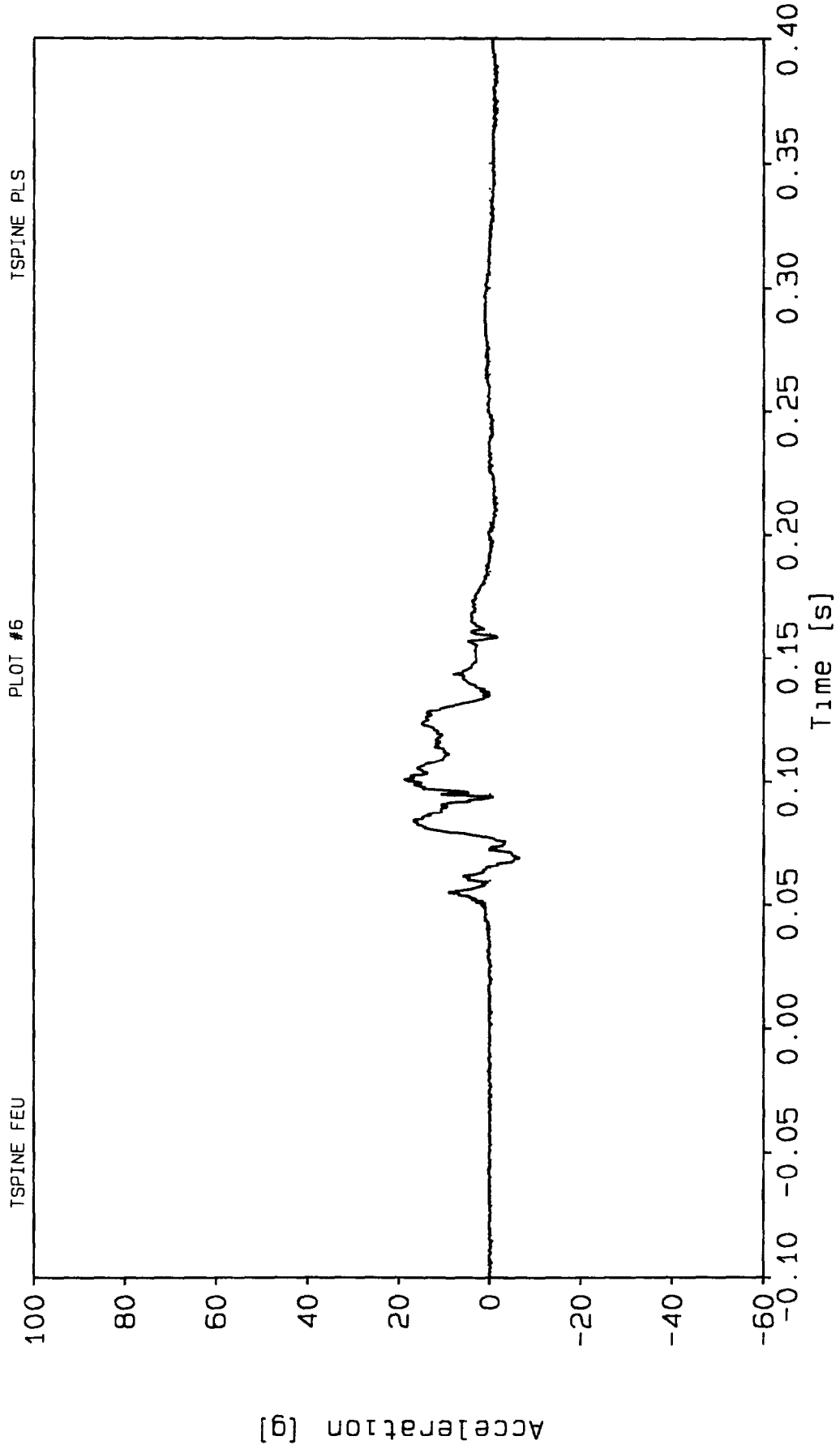
Exponent
Failure
Analysis
Associates

T12 Thoracic Acceleration (Ay) v Time

Passenger Dummy - THOR

2001 Dodge Neon

2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Filter Class 600
Volpe Crash Testing
PH05608

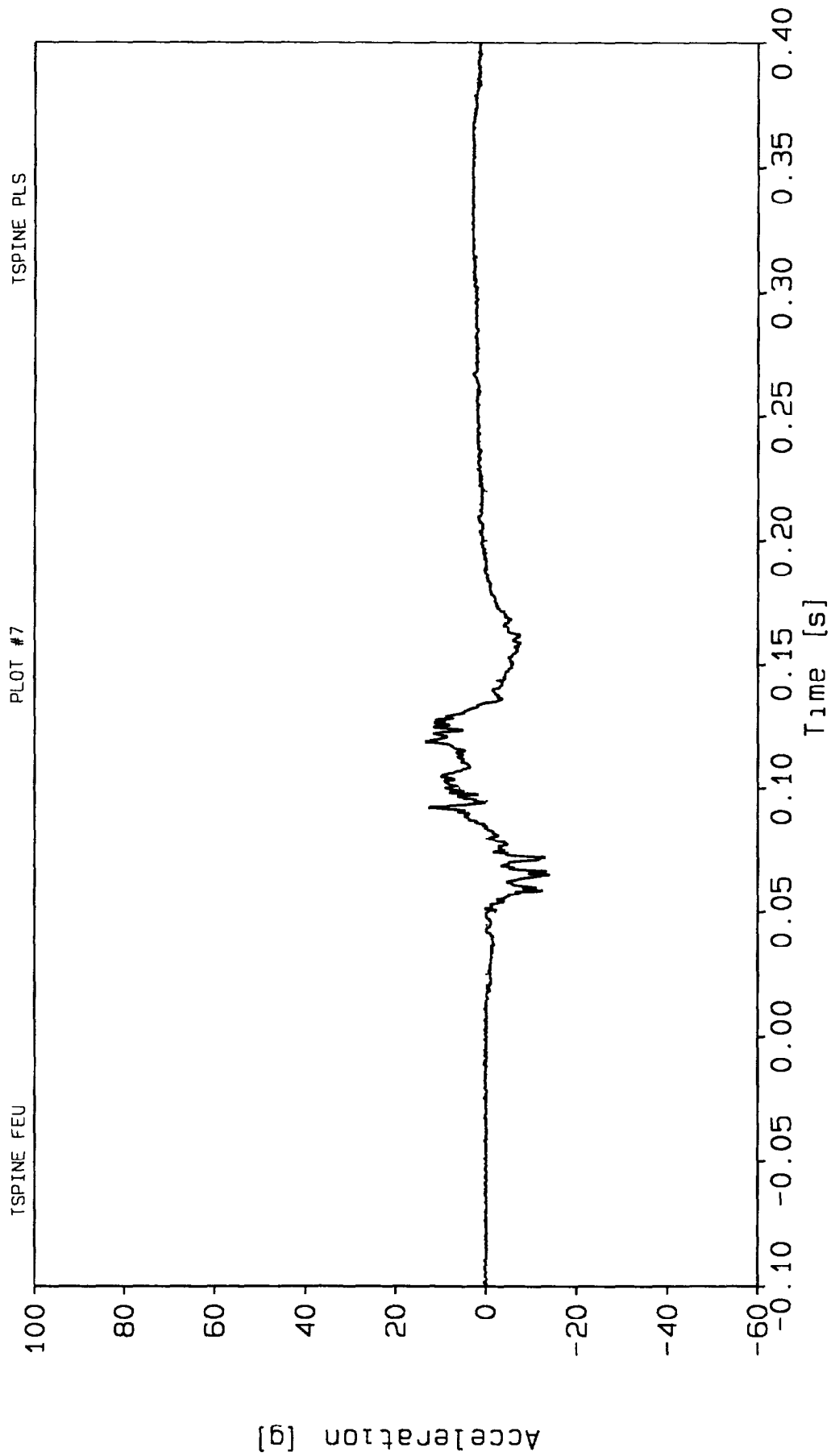
Exponent
Failure
Analysis
Associates

T12 Thoracic Acceleration (Az) v Time

Passenger Dummy - THOR

2001 Dodge Neon

2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Exponent
Failure
Analysis
Associates

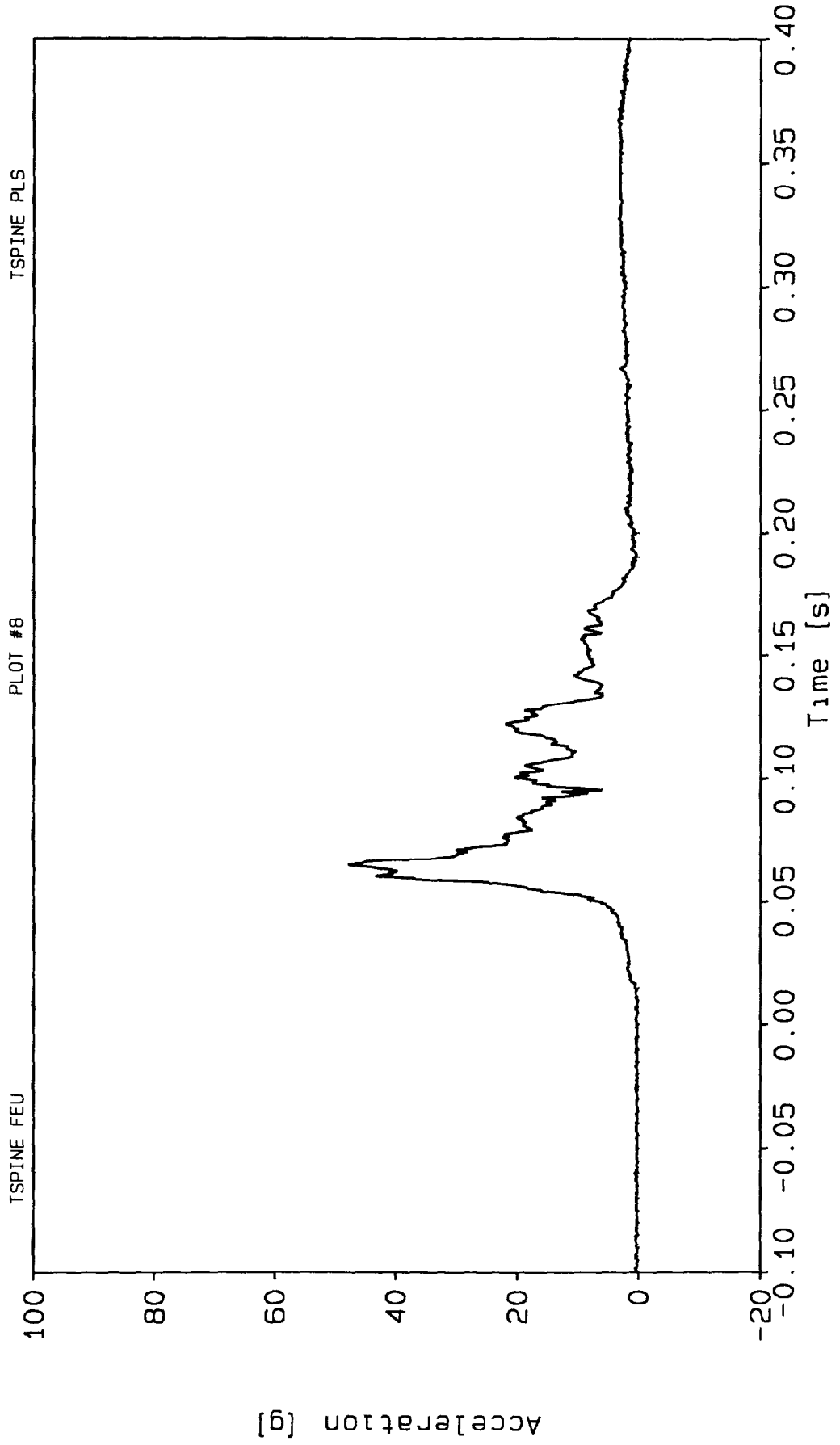
Filter Class 500
Volpe Crash Testing
PH05608

T12 Thoracic Resultant Acceleration (Ar) v Time

Passenger Dummy - THOR

2001 Dodge Neon

2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Filter Class 600
Volpe Crash Testing
PH06608

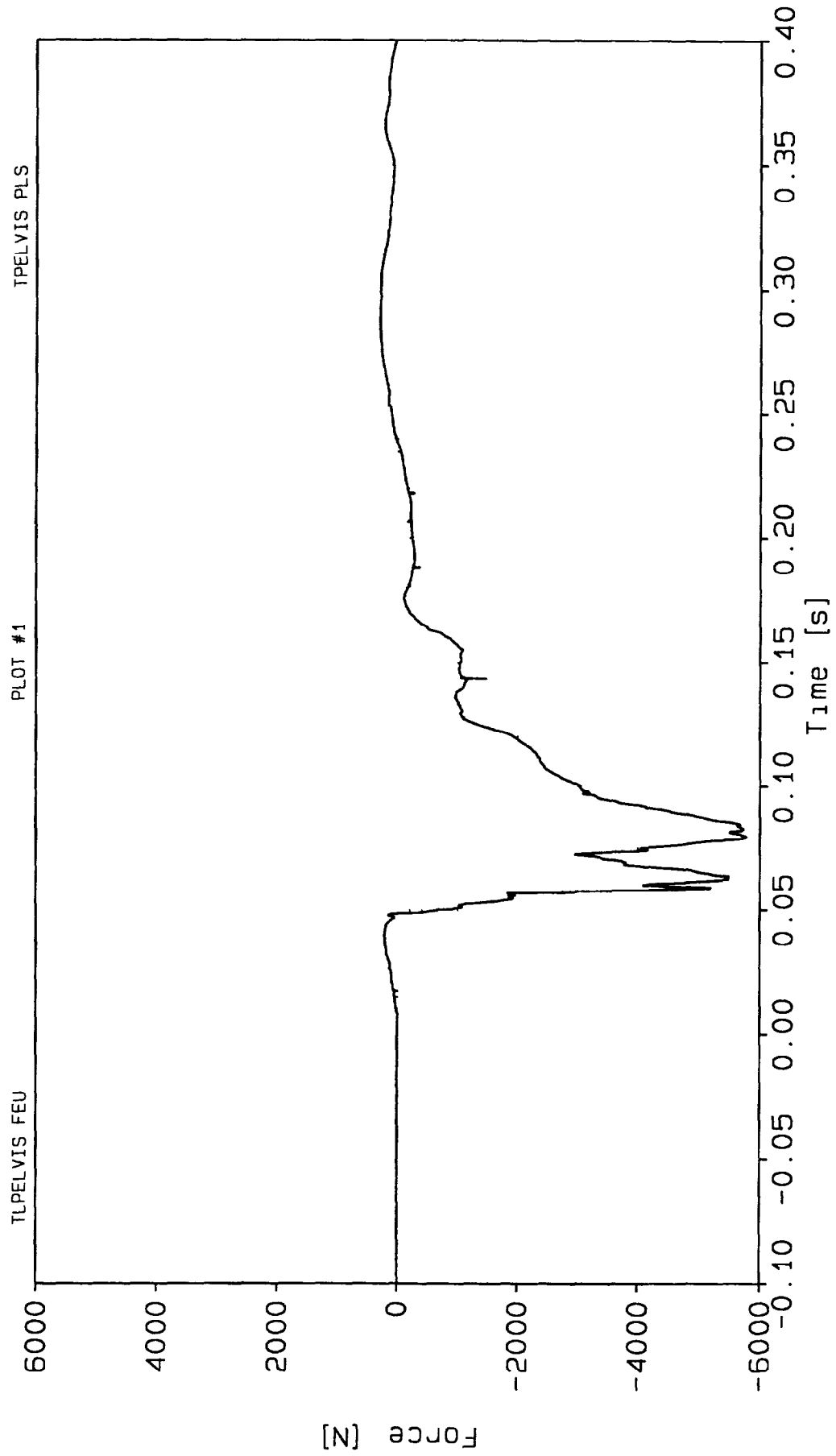
Exponent
Failure
Analysis
Associates

Pelvis Left Acetabular Force (Fx) v Time

Passenger Dummy - THOR

2001 Dodge Neon

2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Filter Class 1000
Volpe Crash Testing
PH05608

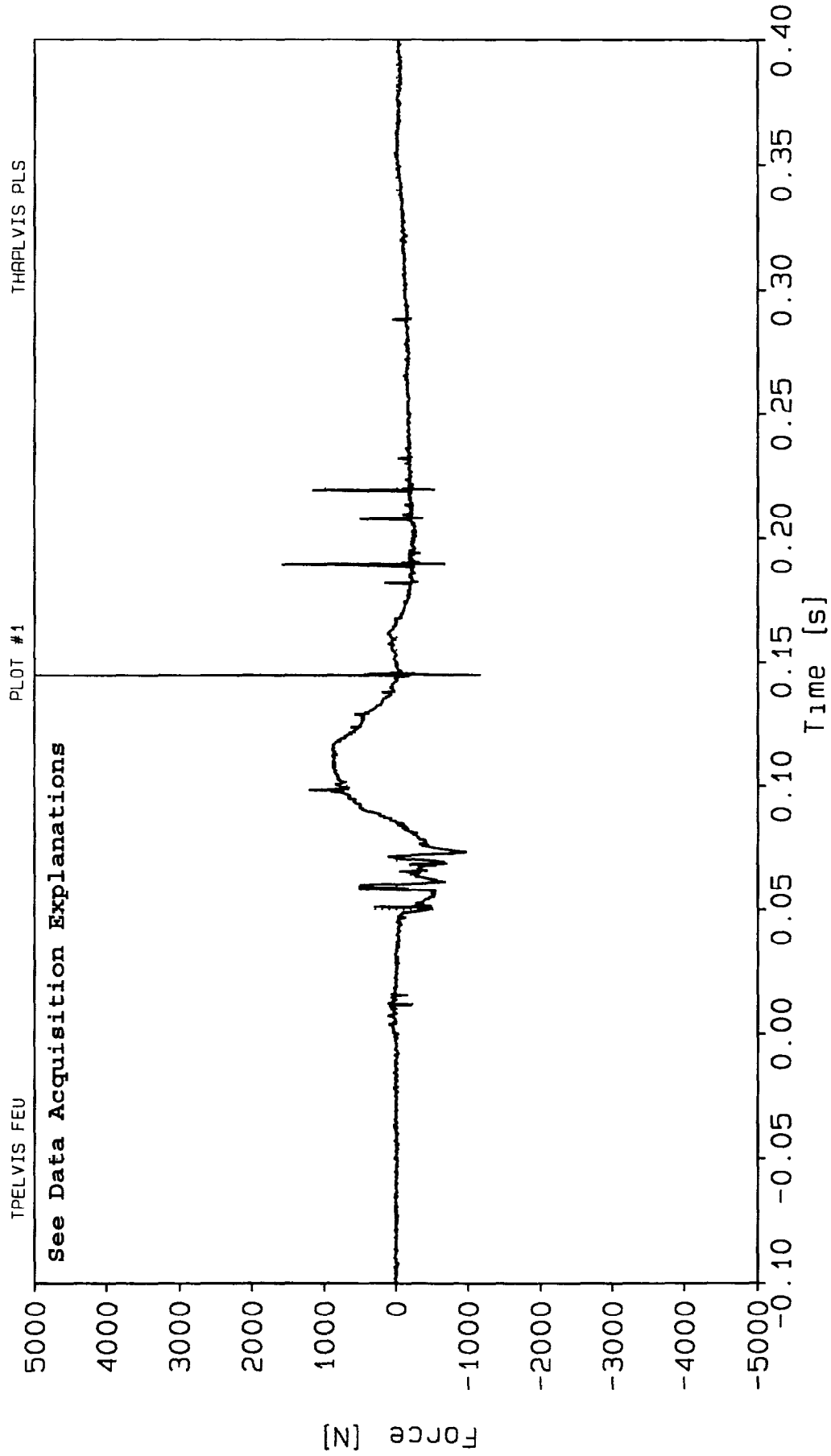
Exponent
Failure
Analysis
Associates

Pelvis Left Acetabular Force (Fy) v Time

Passenger Dummy - THOR

2001 Dodge Neon

2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Filter Class 1000
Volpe Crash Testing
PH05508

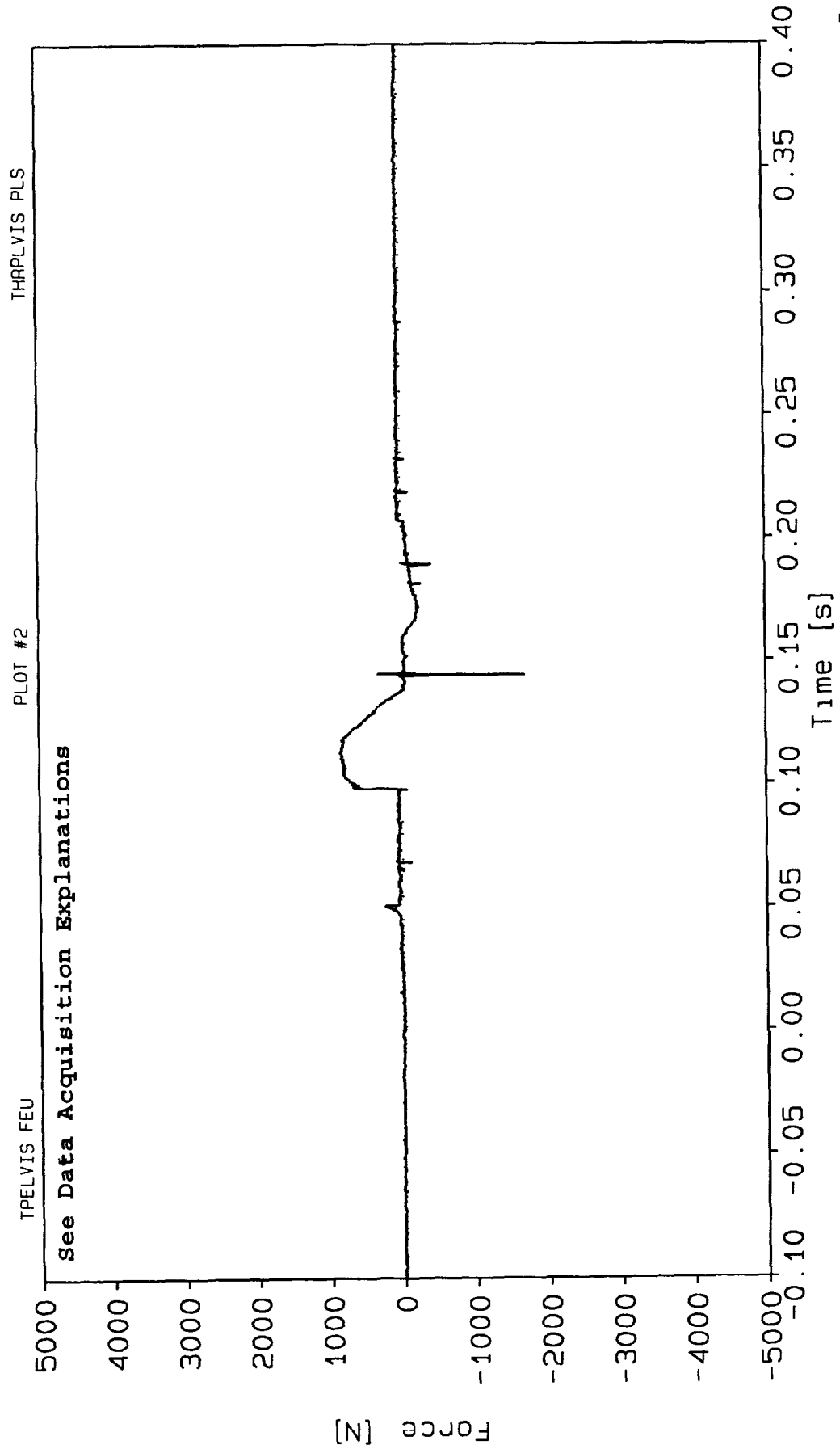
Exponent
Failure
Analysis
Associates

Pelvis Left Acetabular Force (Fz) v Time

Passenger Dummy - THOR

2001 Dodge Neon

2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Filter Class 1000
Volpe Crash Testing
PH06608

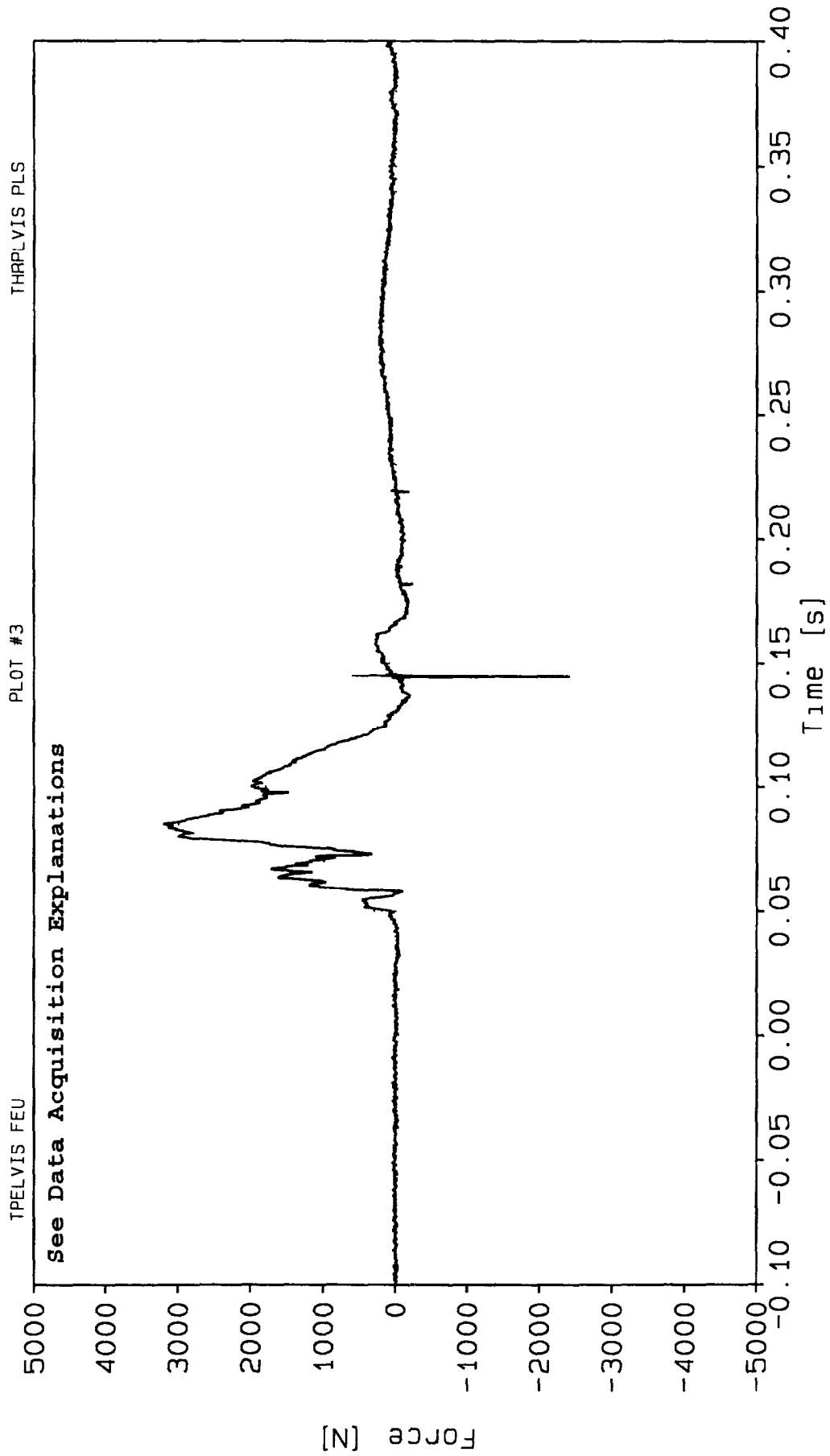
Exponent
Failure
Analysis
Associates

Pelvis Right Acetabular Force (Fx) v Time

Passenger Dummy - THOR

2001 Dodge Neon

2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Exponent
Failure
Analysis
Associates

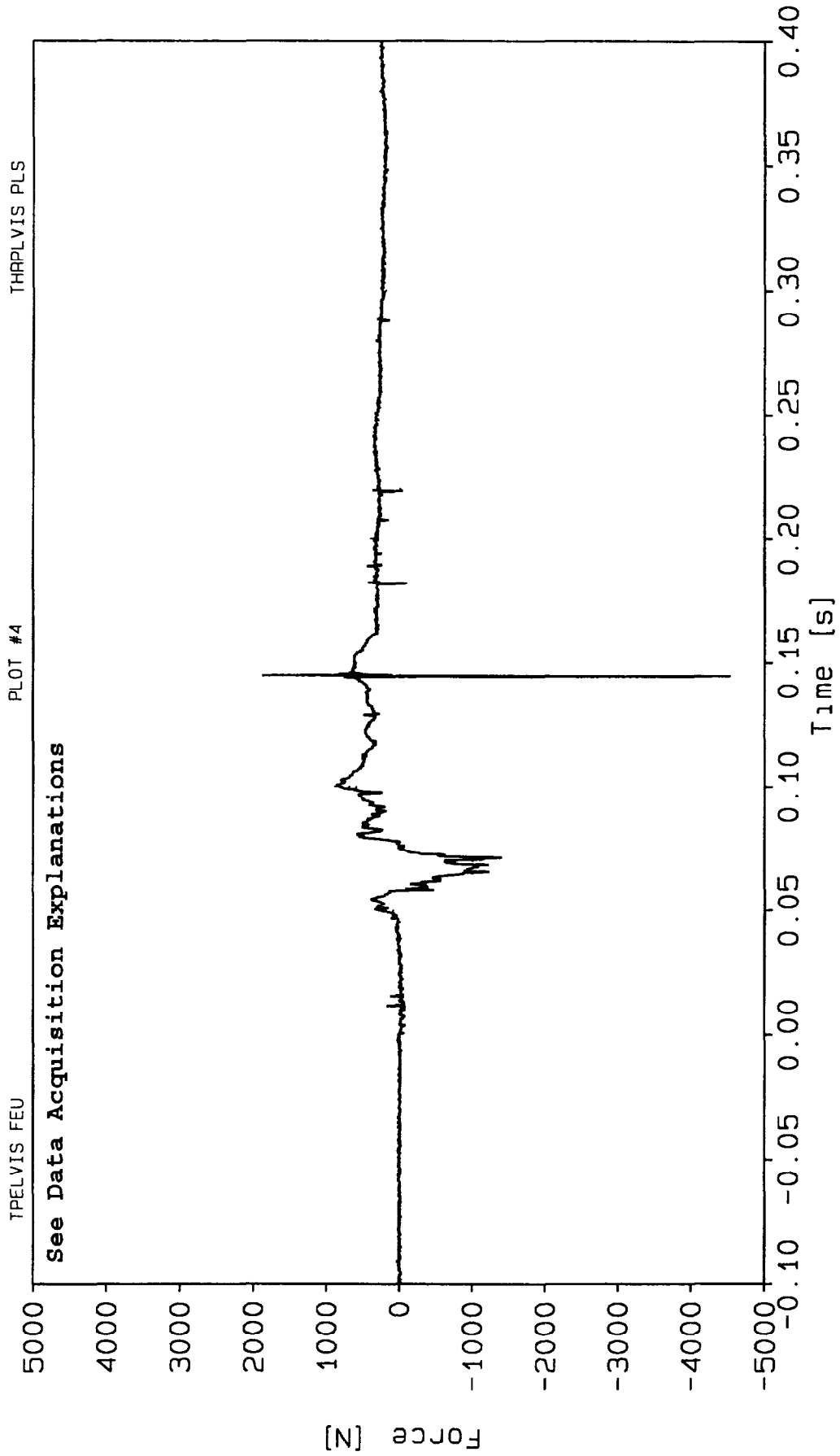
Filter Class 1000
Volpe Crash Testing
PH06608

Pelvis Right Acetabular Force (Fy) v Time

Passenger Dummy - THOR

2001 Dodge Neon

2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Filter Class 1000
Volpe Crash Testing
PH05608

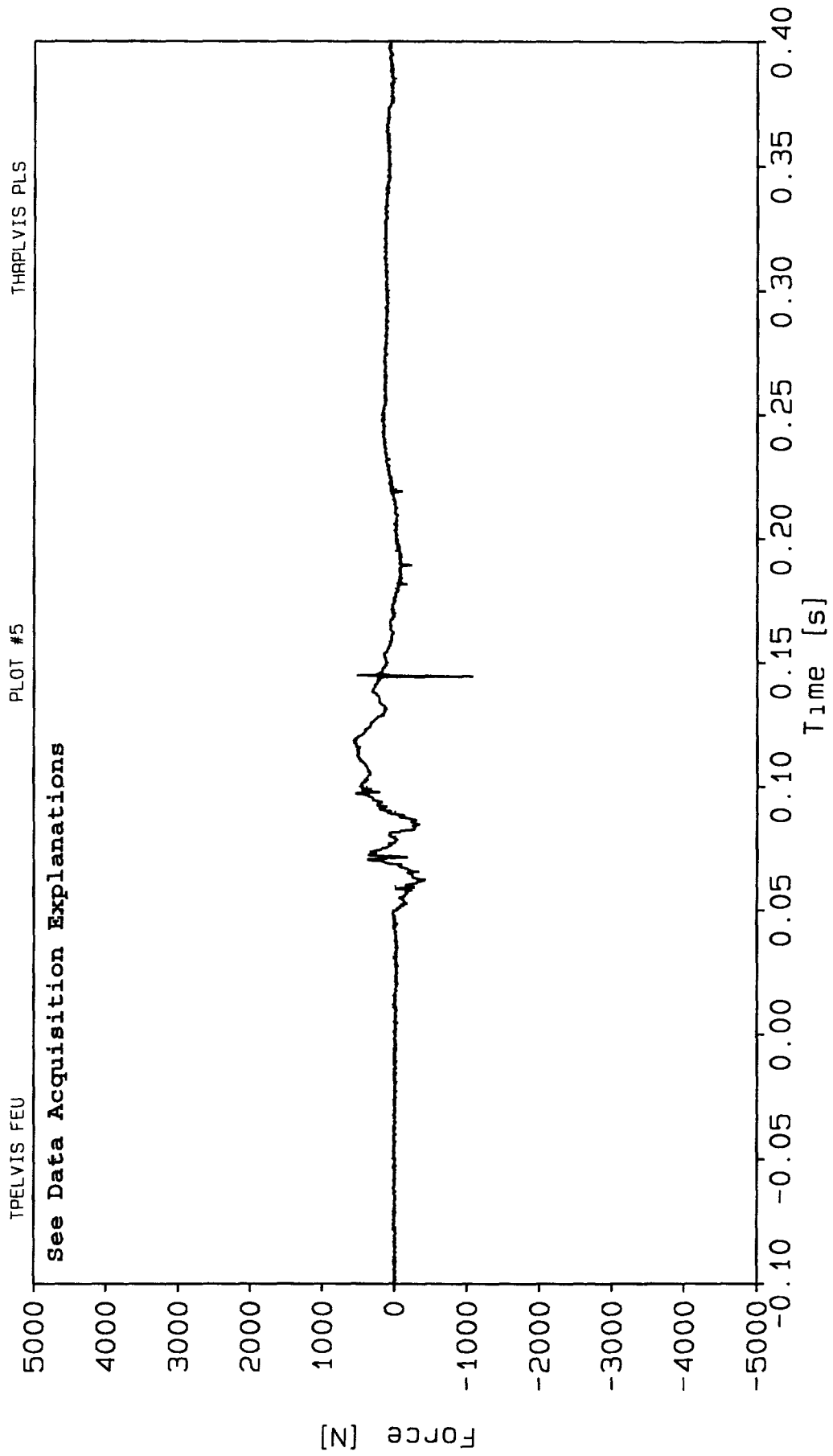
Exponent
Failure
Analysis
Associates

Pelvis Right Acetabular Force (Fz) v Time

Passenger Dummy - THOR

2001 Dodge Neon

2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Filter Class 1000
Volpe Crash Testing
PH06608

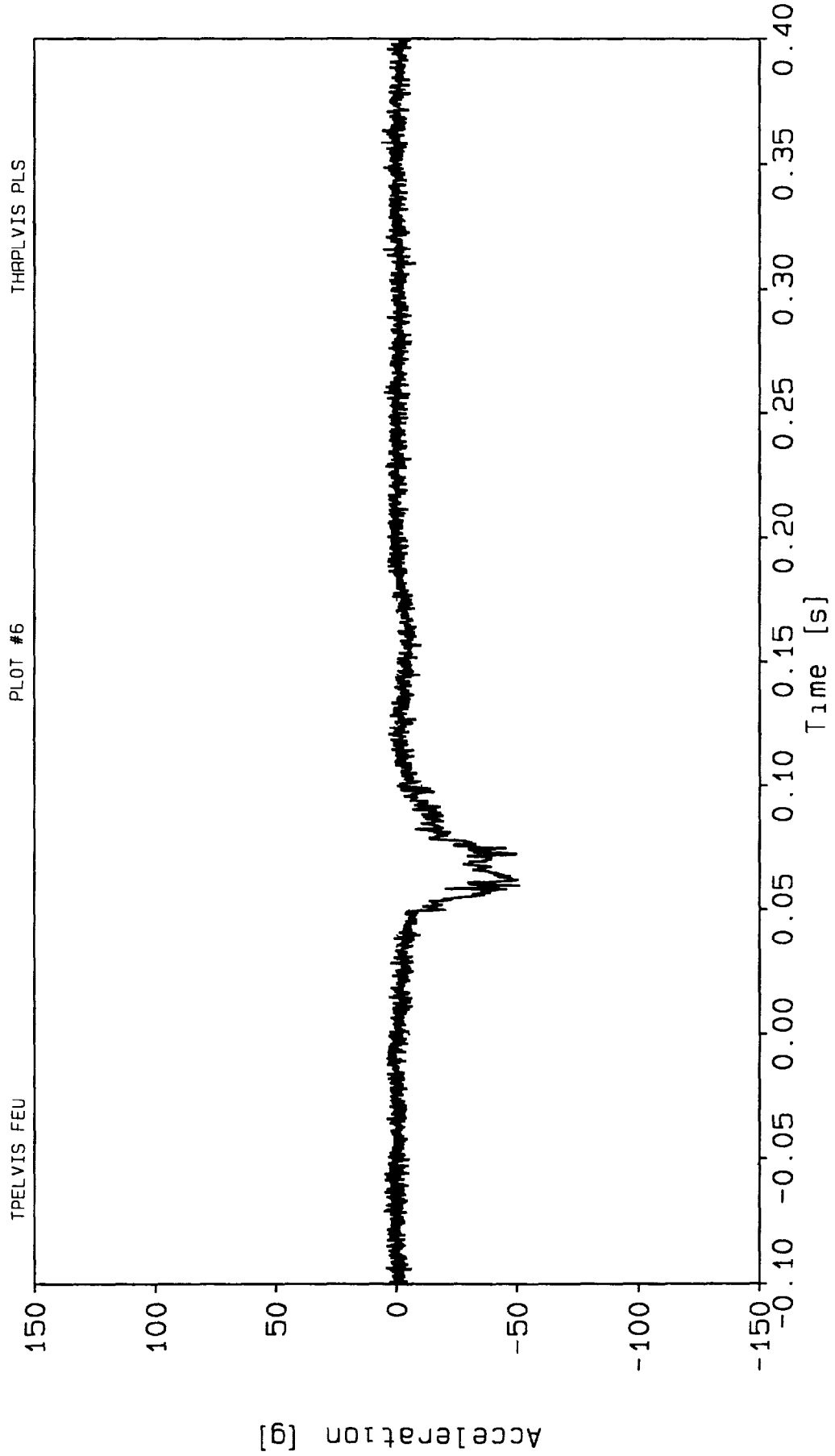
Exponent
Failure
Analysis
Associates

Pelvis Acceleration (Ax) v Time

Passenger Dummy - THOR

2001 Dodge Neon

2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Exponent
Failure
Analysis
Associates

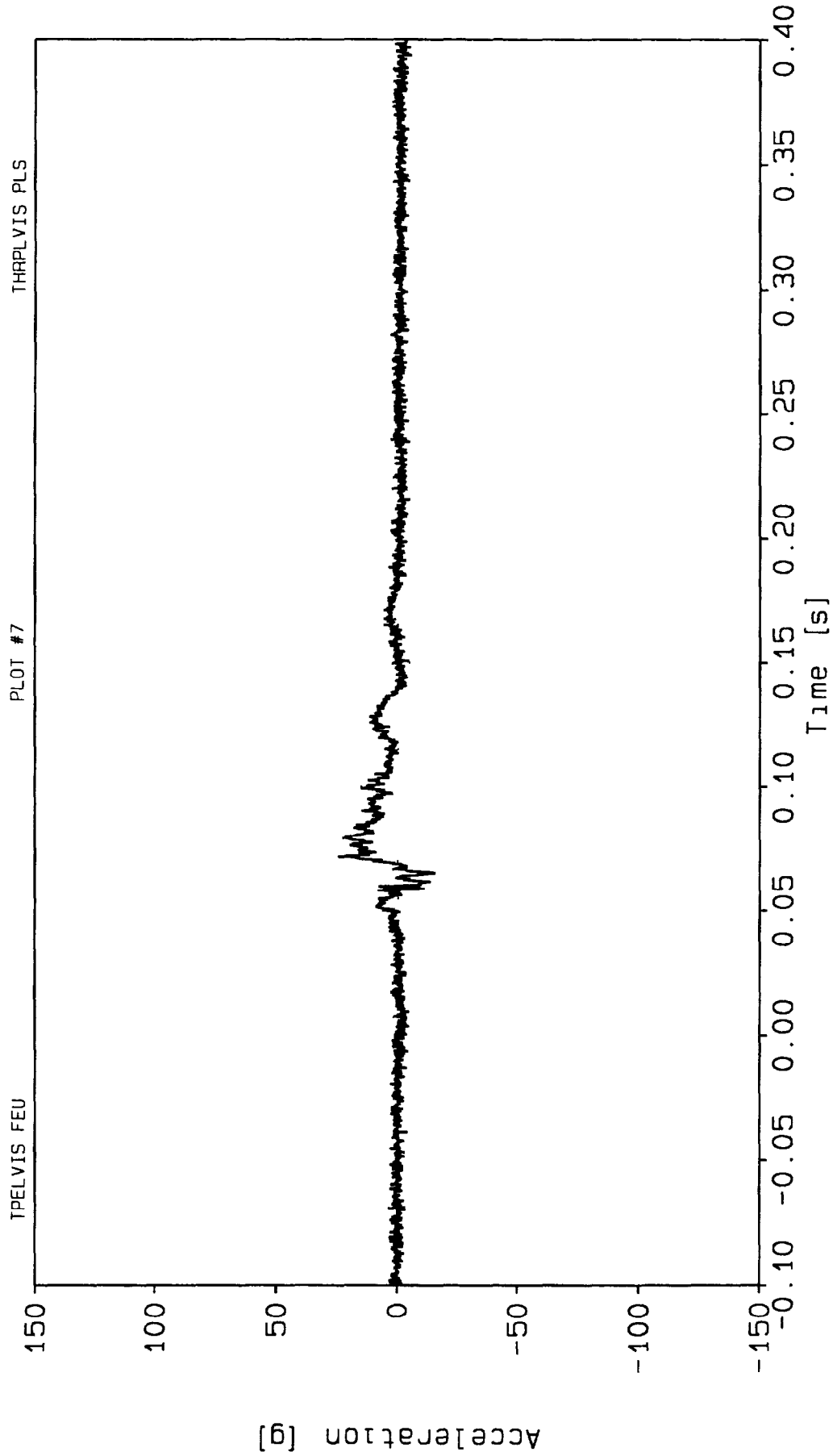
Filter Class 1000
Volpe Crash Testing
PH05608

Pelvis Acceleration (Ay) v Time

Passenger Dummy - THOR

2001 Dodge Neon

2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Filter Class 1000
Volpe Crash Testing
PH05608

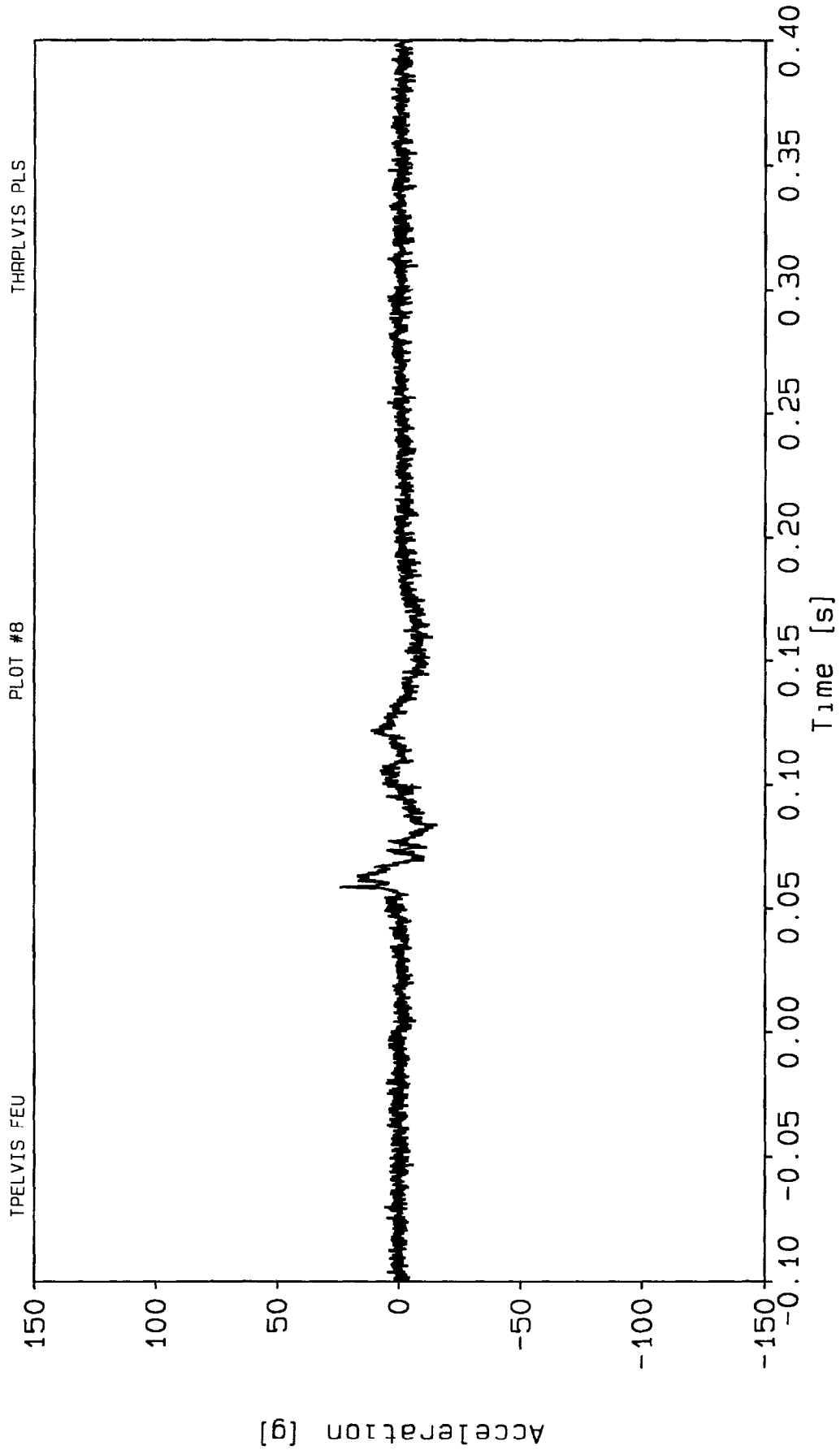
Exponent
Failure
Analysis
Associates

Pelvis Acceleration (Az) v Time

Passenger Dummy - THOR

2001 Dodge Neon

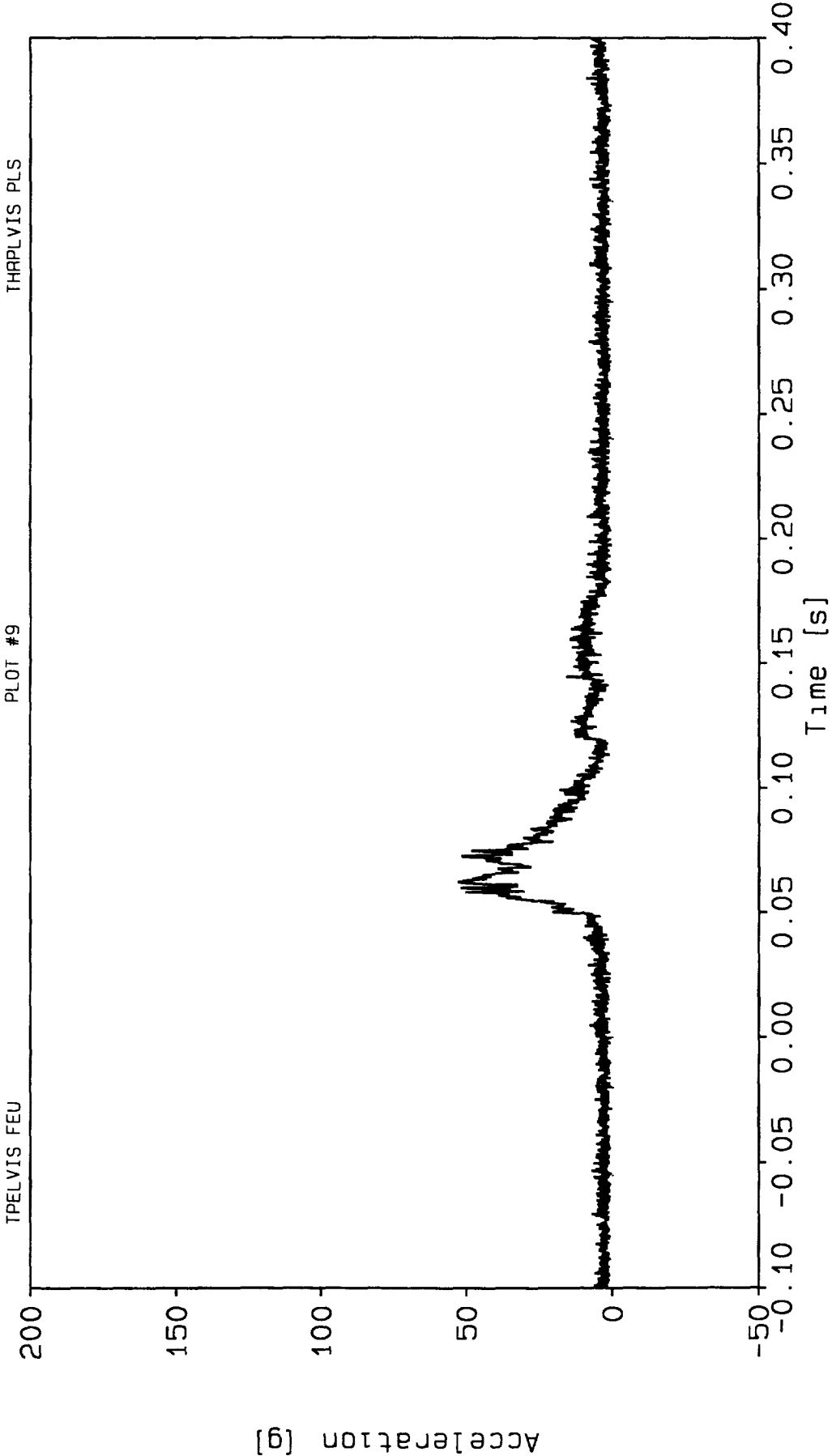
2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Filter Class 1000
Volpe Crash Testing
PH06608

Exponent
Failure
Analysis
Associates

Pelvis Resultant Acceleration (Ar) v Time
Passenger Dummy - THOR
2001 Dodge Neon
2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Filter Class 1000
Volpe Crash Testing
PH06608

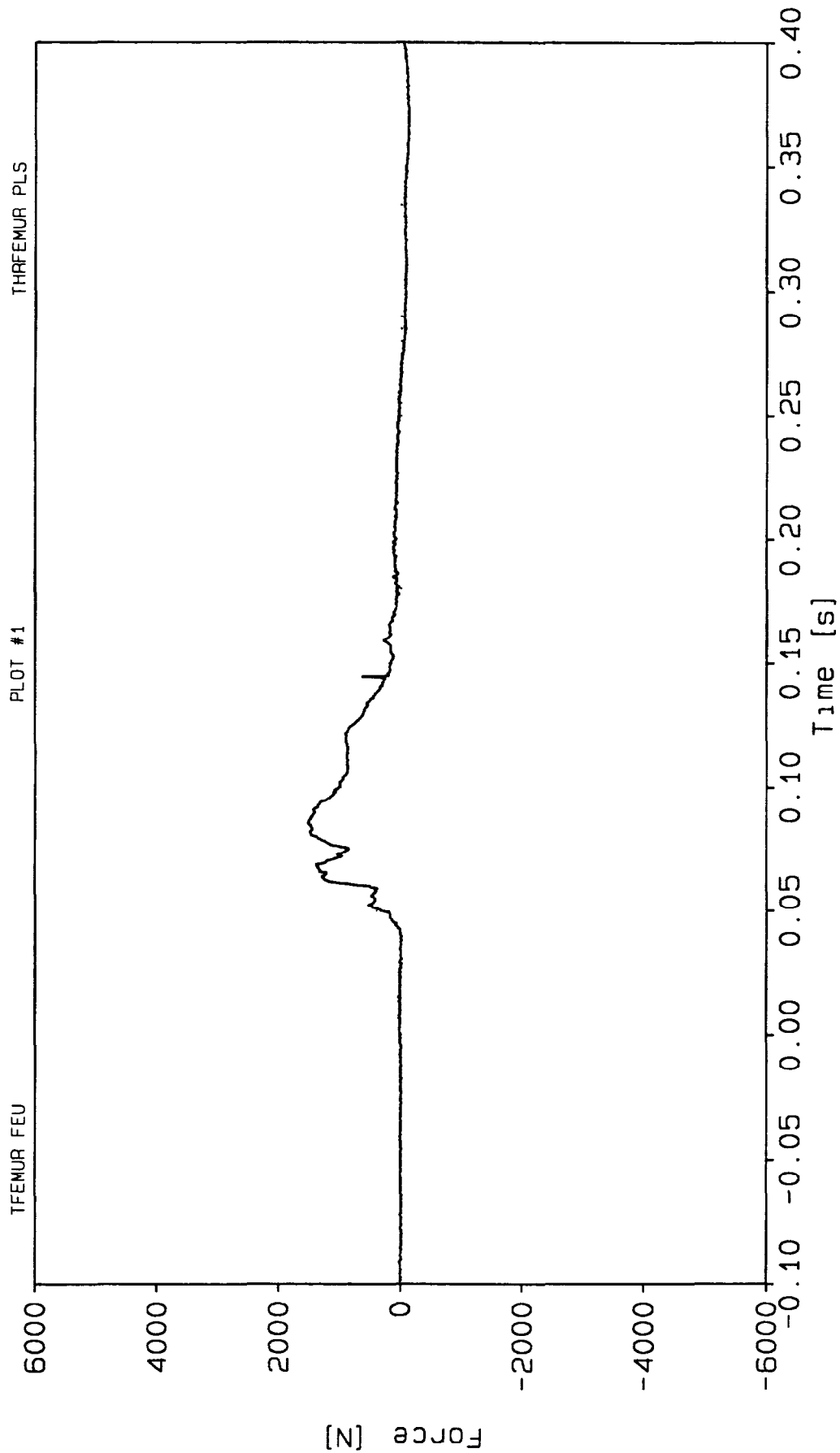
Exponent
Failure
Analysis
Associates

Left Femur Force (Fx) v Time

Passenger Dummy - THOR

2001 Dodge Neon

2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Filter Class 600
Volpe Crash Testing
PH06608

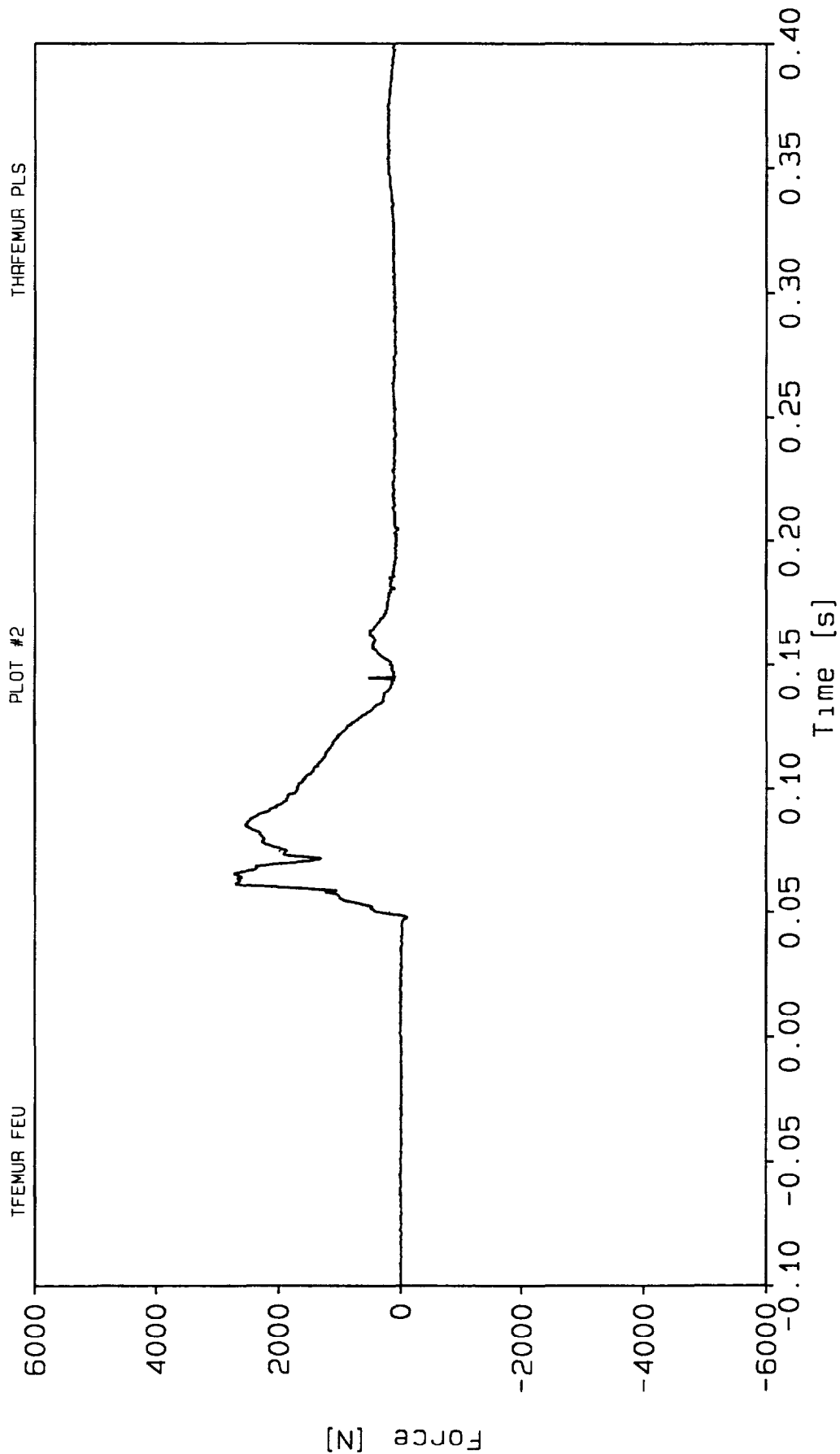
Exponent
Failure
Analysis
Associates

Left Femur Force (Fy) v Time

Passenger Dummy - THOR

2001 Dodge Neon

2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Exponent
Failure
Analysis
Associates

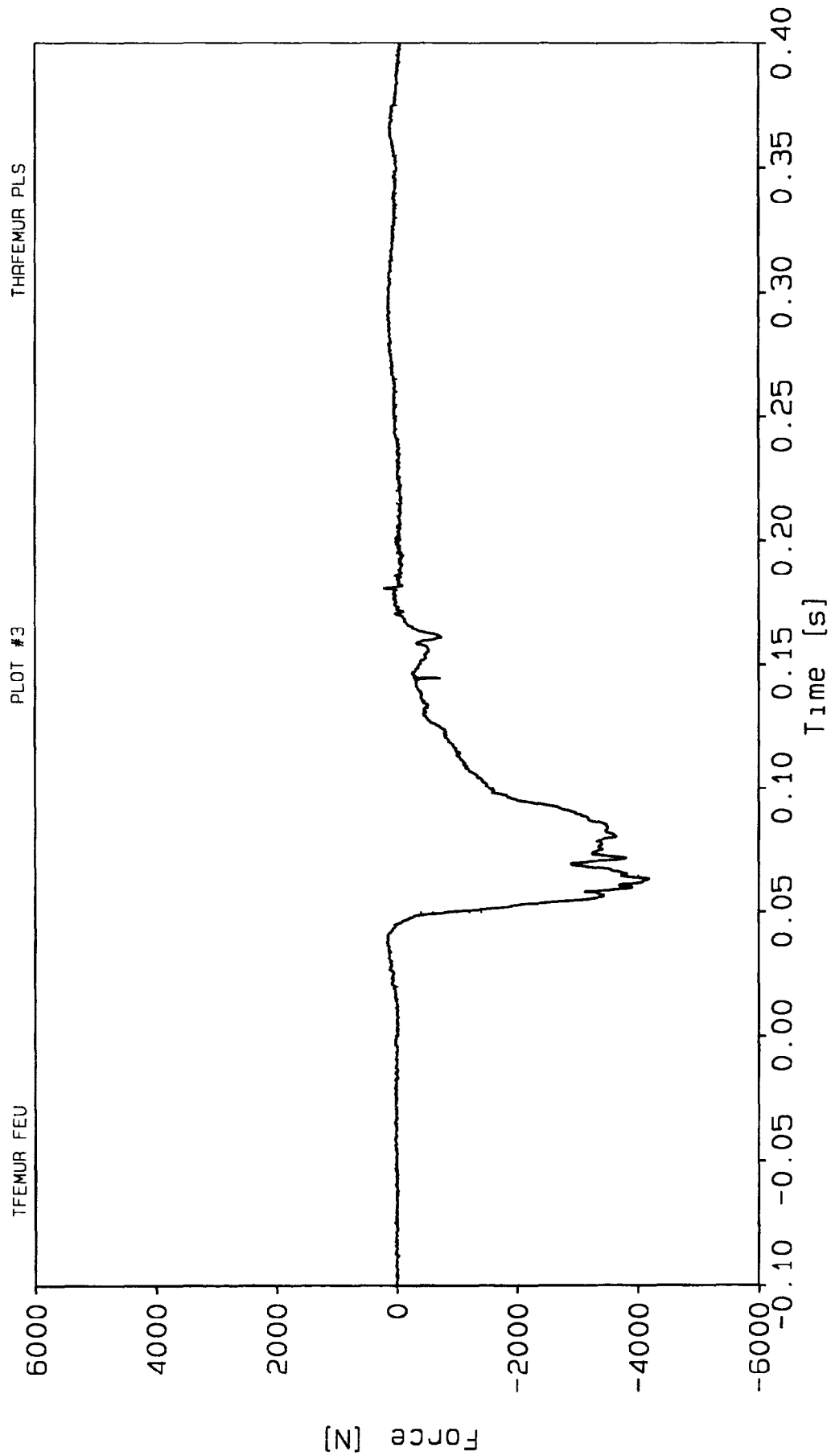
Filter Class 600
Volpe Crash Testing
PH06608

Left Femur Force (Fz) v Time

Passenger Dummy - THOR

2001 Dodge Neon

2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Filter Class 600
Volpe Crash Testing
PH06608

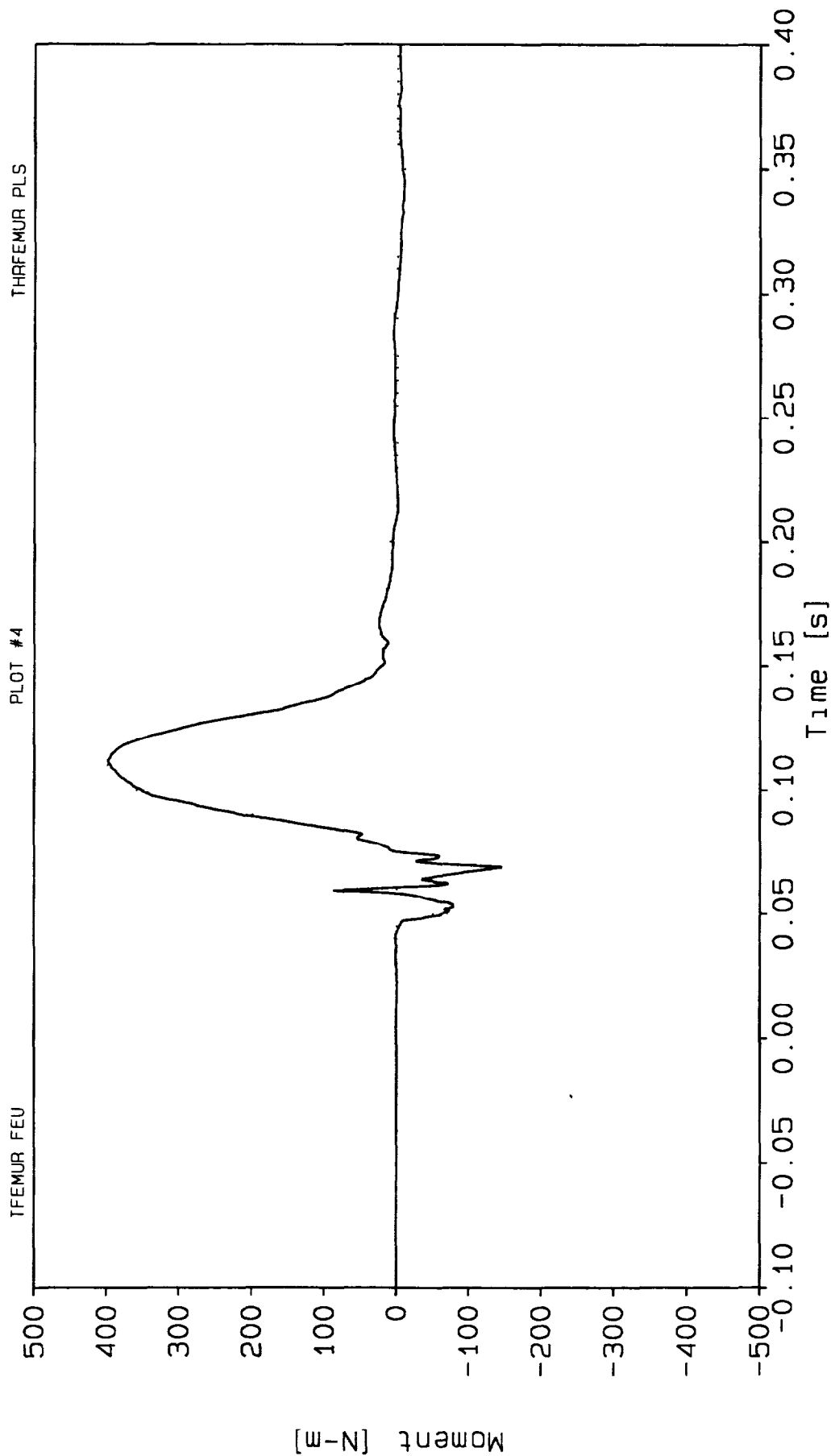
Exponent
Failure
Analysis
Associates

Left Femur Moment (Mx) v Time

Passenger Dummy - THOR

2001 Dodge Neon

2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Filter Class 600
Volpe Crash Testing
PH06608

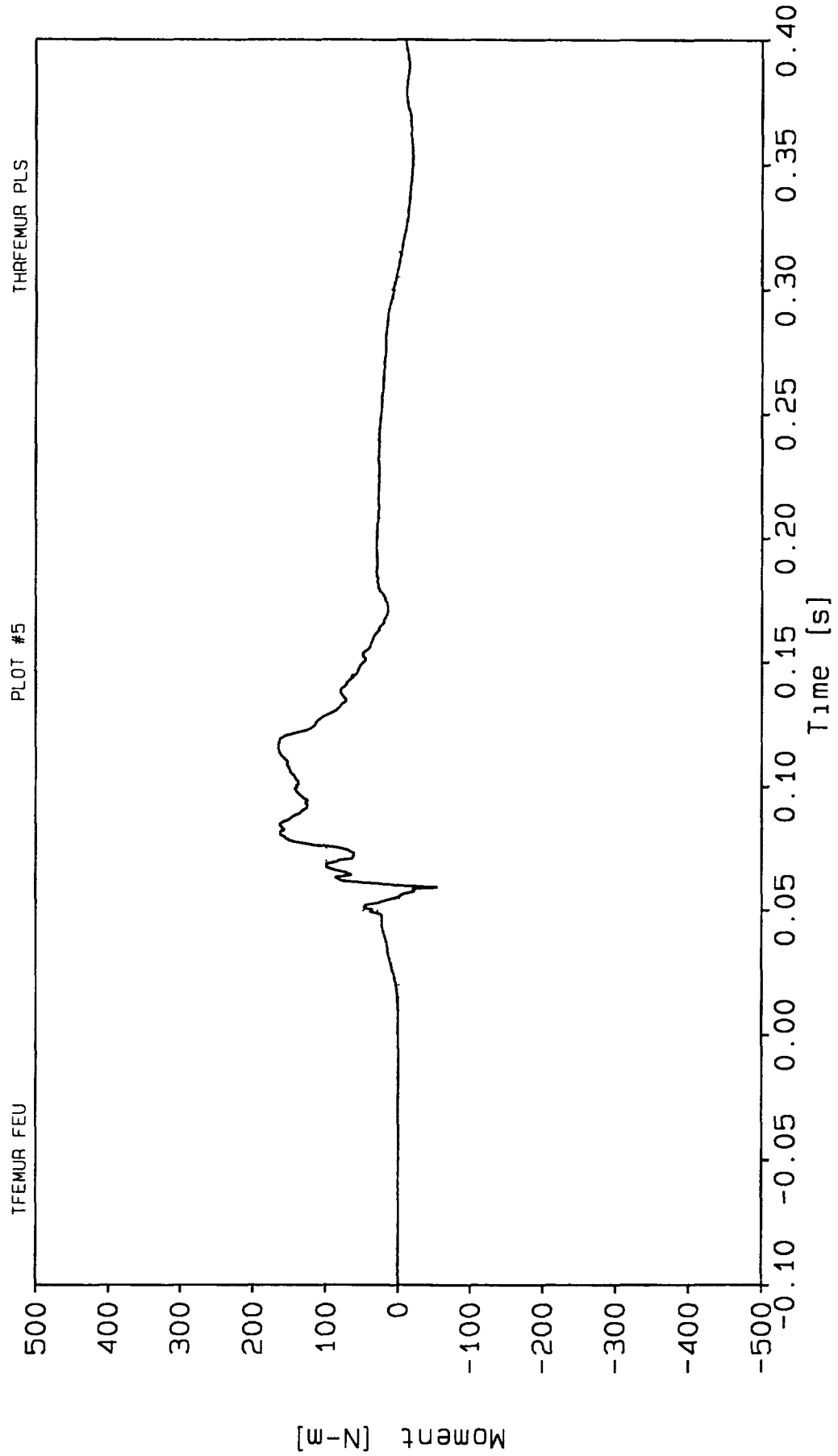
Exponent
Failure
Analysis
Associates

Left Femur Moment (My) v Time

Passenger Dummy - THOR

2001 Dodge Neon

2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Filter Class 600
Volpe Crash Testing
PH06608

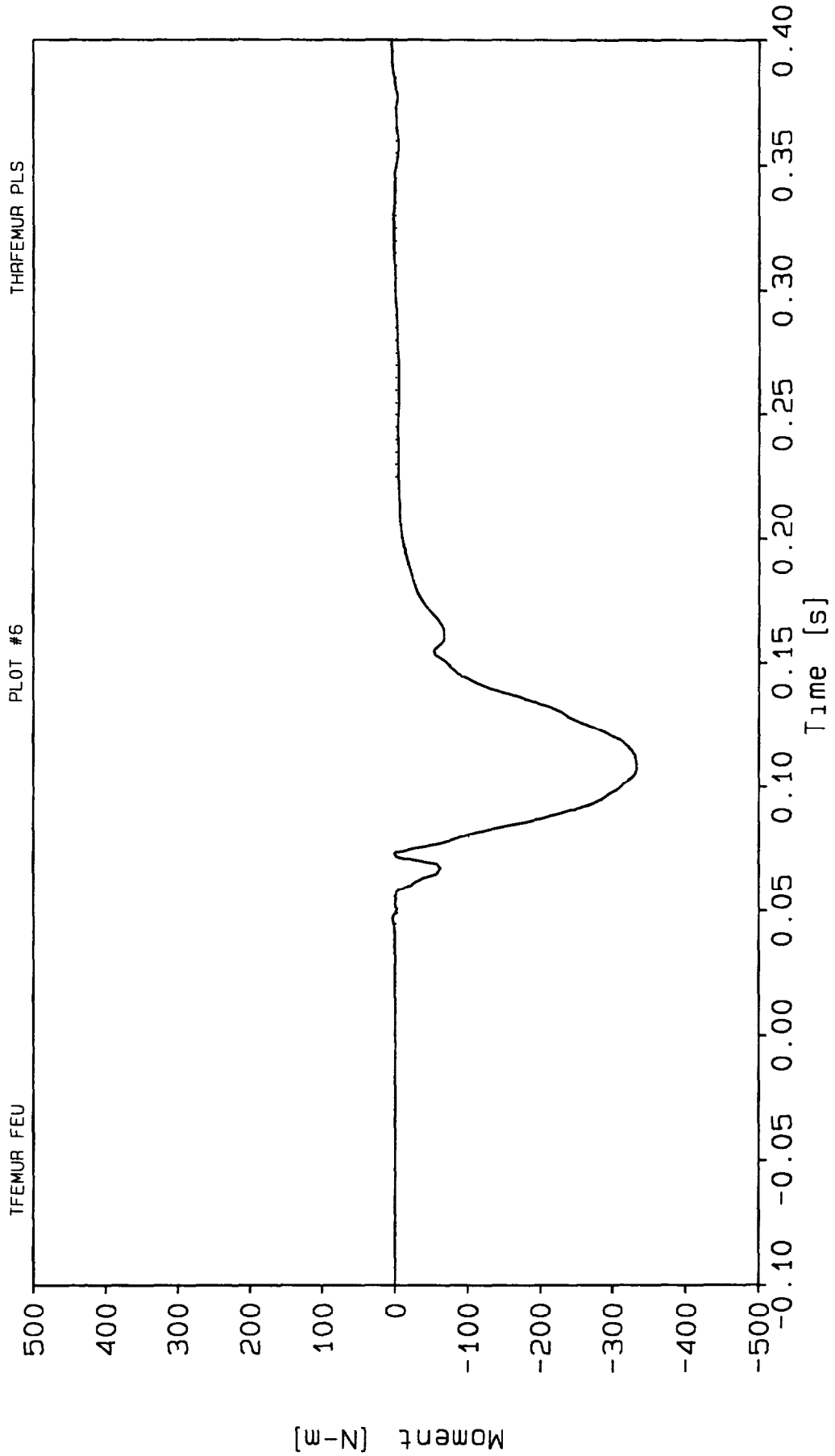
Exponent
Failure
Analysis
Associates

Left Femur Moment (Mz) v Time

Passenger Dummy - THOR

2001 Dodge Neon

2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Exponent
Failure
Analysis
Associates

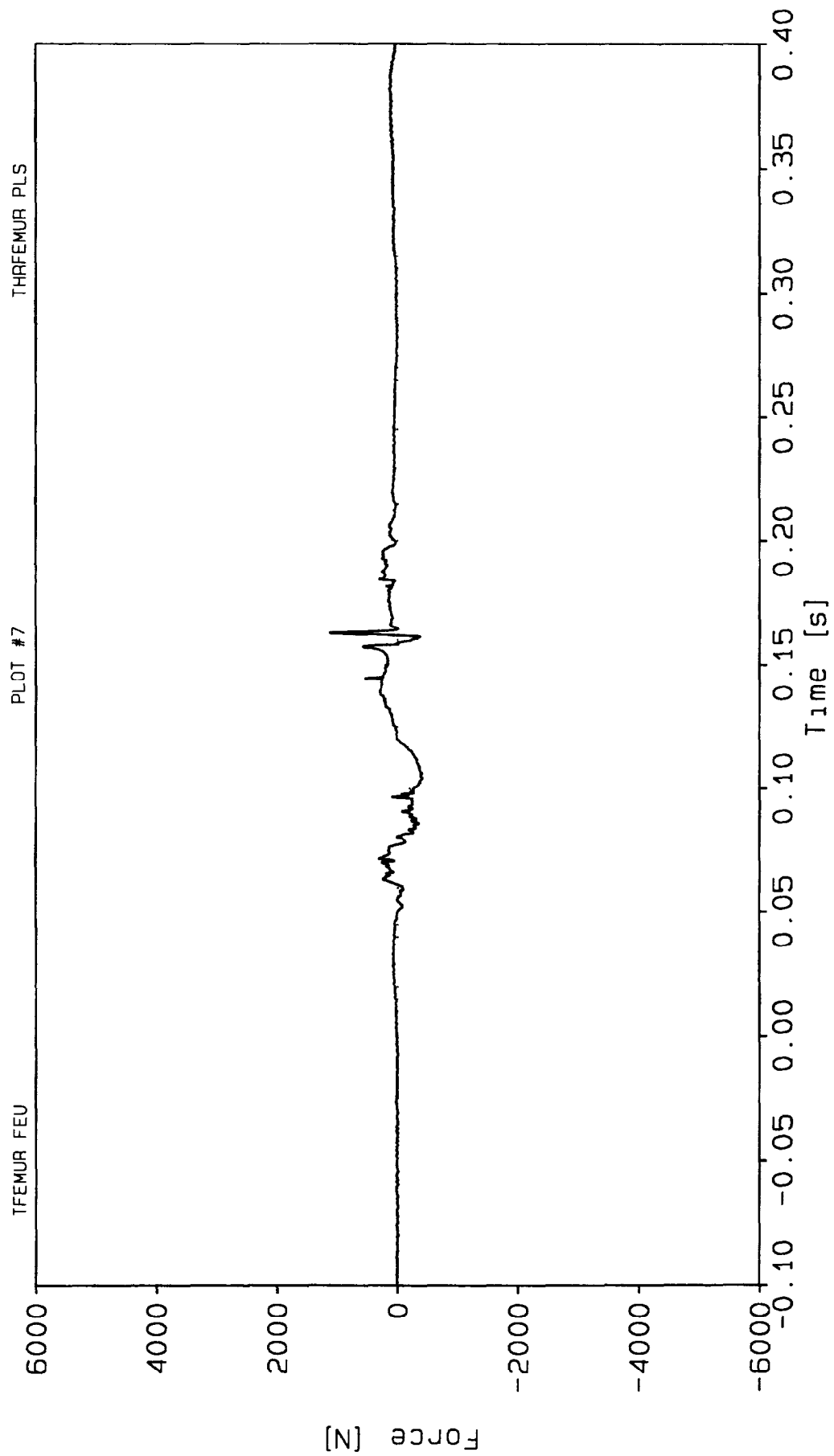
Filter Class 600
Volpe Crash Testing
PH05508

Right Femur Force (Fx) v Time

Passenger Dummy - THOR

2001 Dodge Neon

2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Exponent
Failure
Analysis
Associates

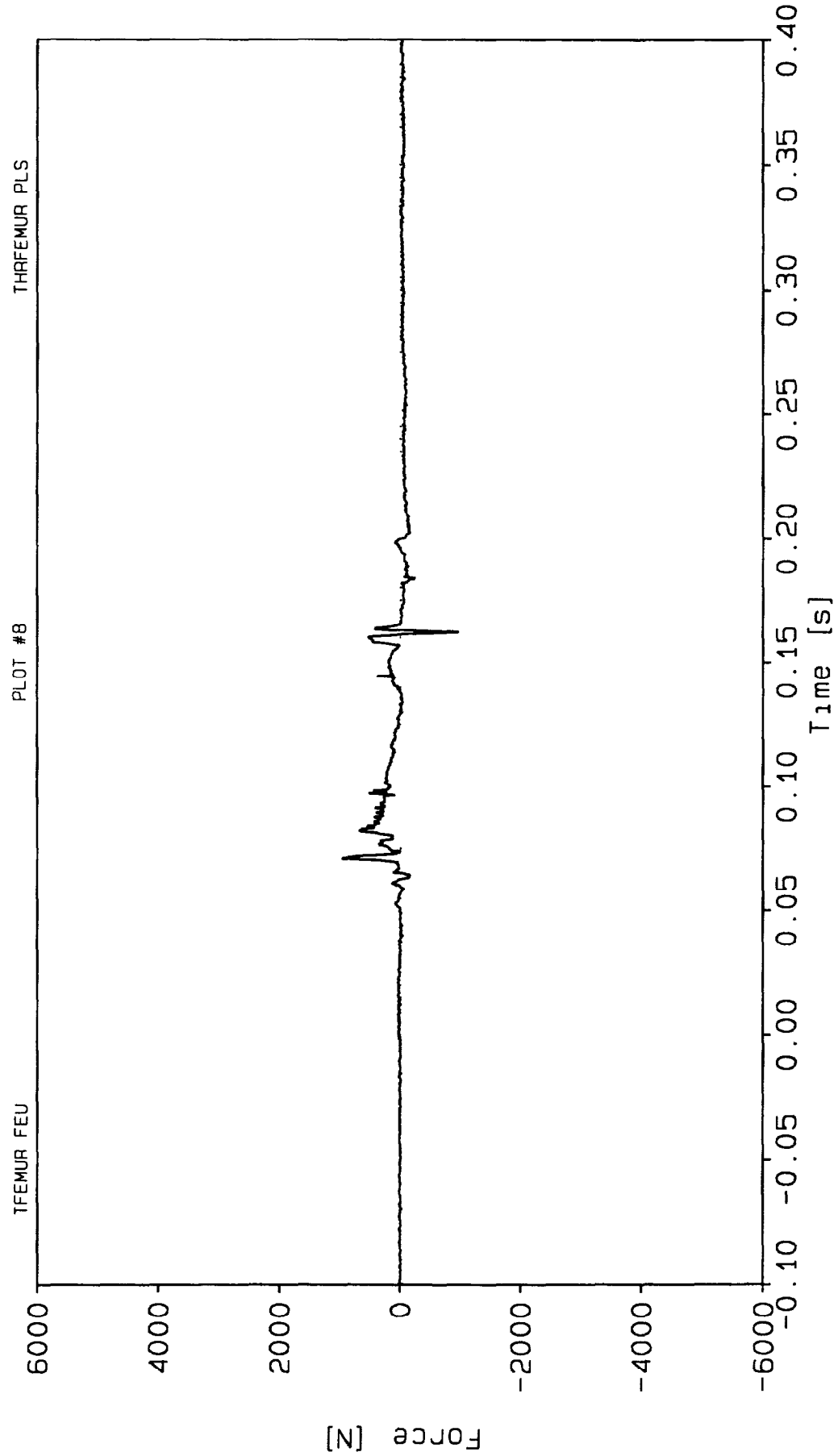
Filter Class 600
Volpe Crash Testing
PH06608

Right Femur Force (Fy) v Time

Passenger Dummy - THOR

2001 Dodge Neon

2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Exponent
Failure
Analysis
Associates

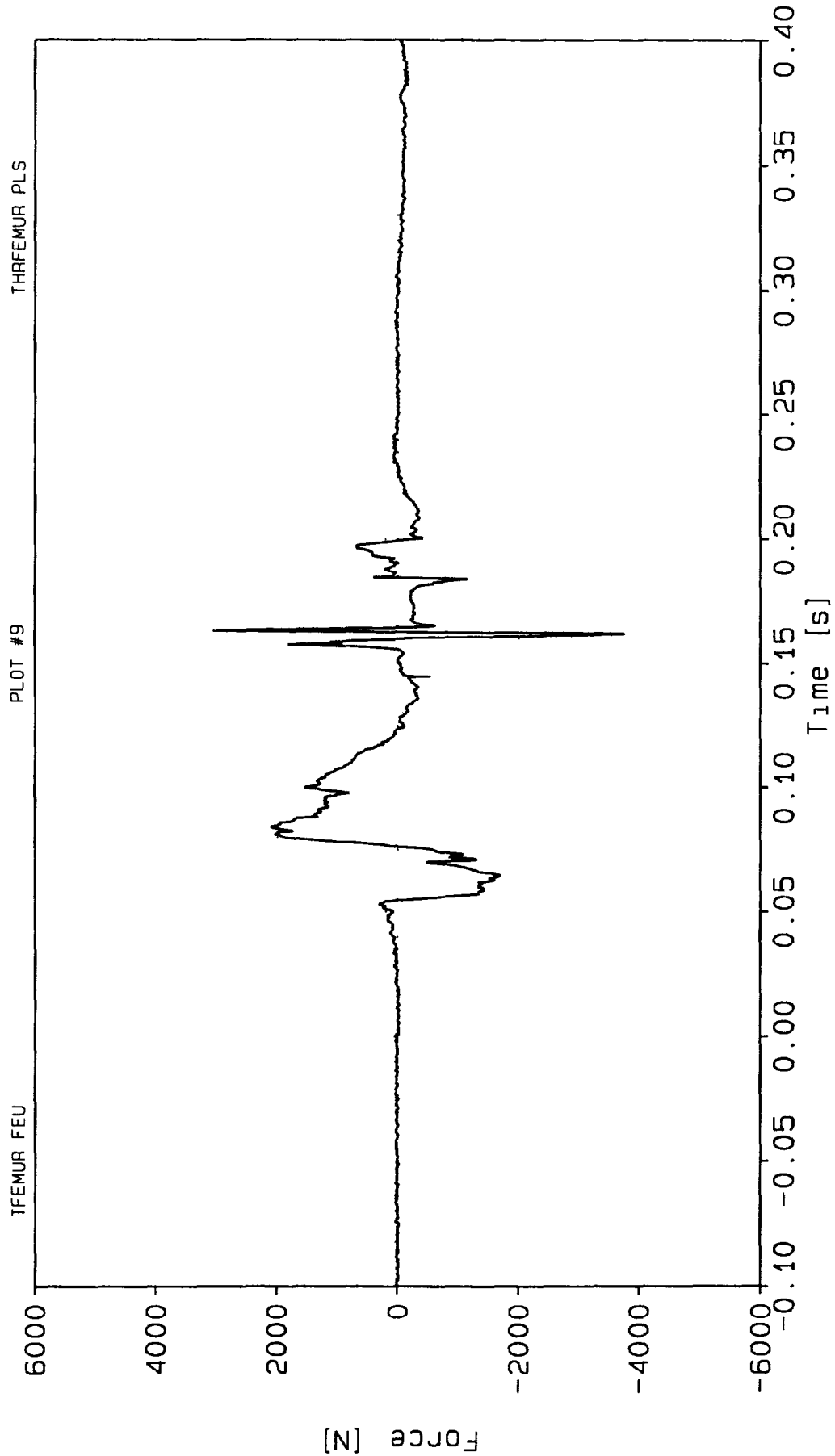
Filter Class 600
Voipe Crash Testing
PH06608

Right Femur Force (Fz) v Time

Passenger Dummy - THOR

2001 Dodge Neon

2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Filter Class 600
Volpe Crash Testing
PH06608

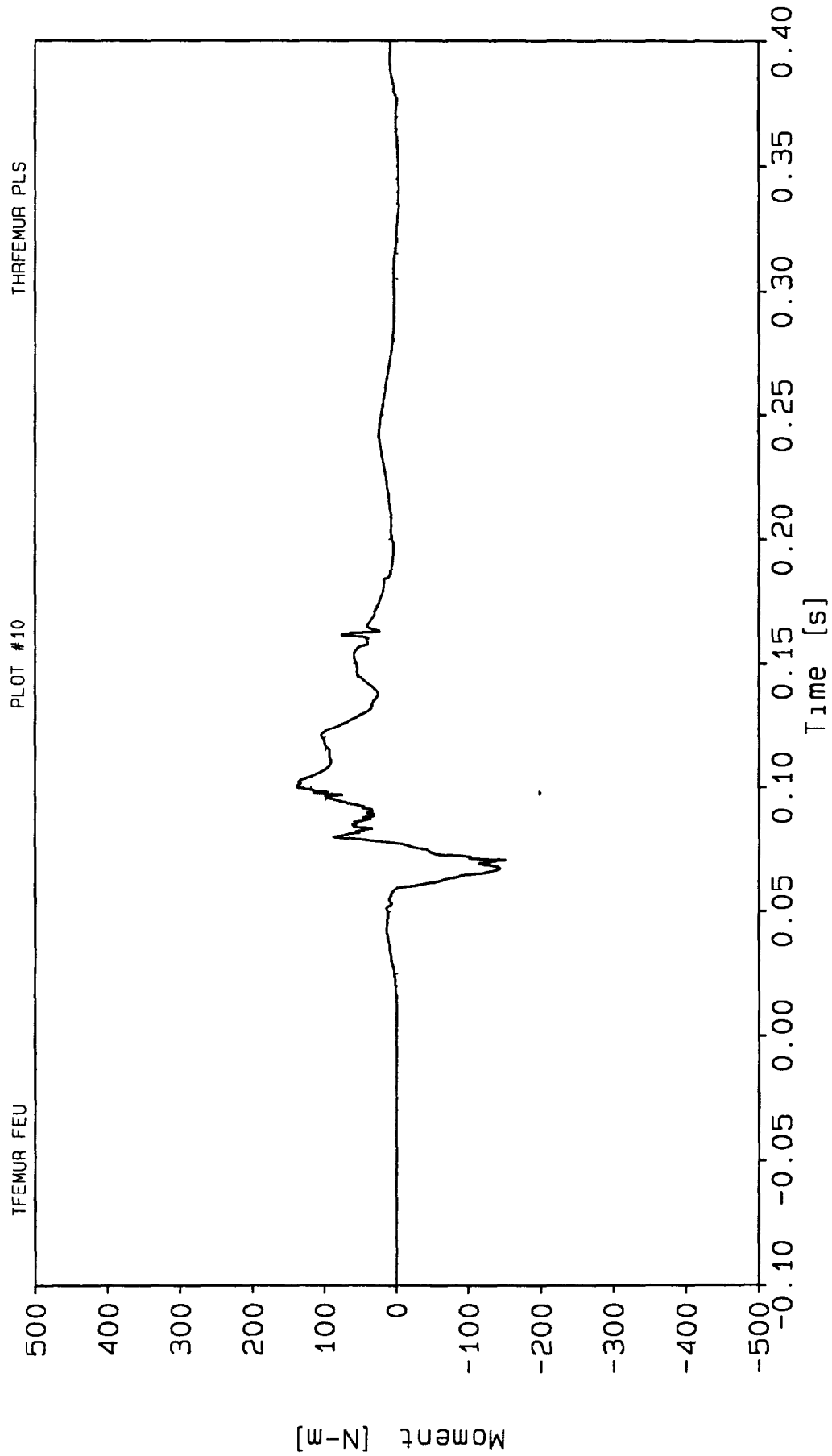
Exponent
Failure
Analysis
Associates

Right Femur Moment (Mx) v Time

Passenger Dummy - THOR

2001 Dodge Neon

2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Exponent
Failure
Analysis
Associates

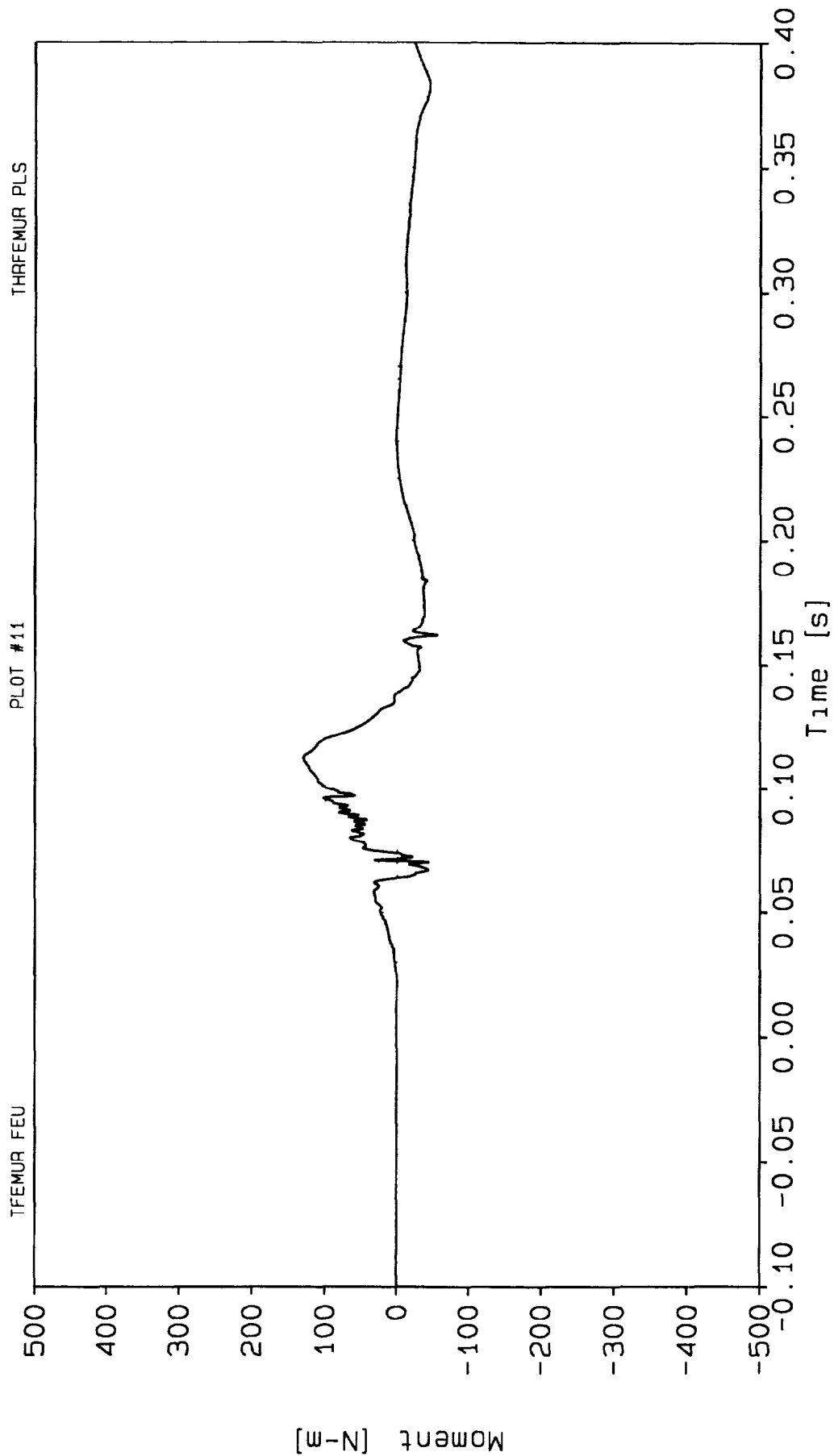
Filter Class 600
Volpe Crash Testing
PH06508

Right Femur Moment (My) v Time

Passenger Dummy - THOR

2001 Dodge Neon

2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Filter Class 600
Volpe Crash Testing
PH06608

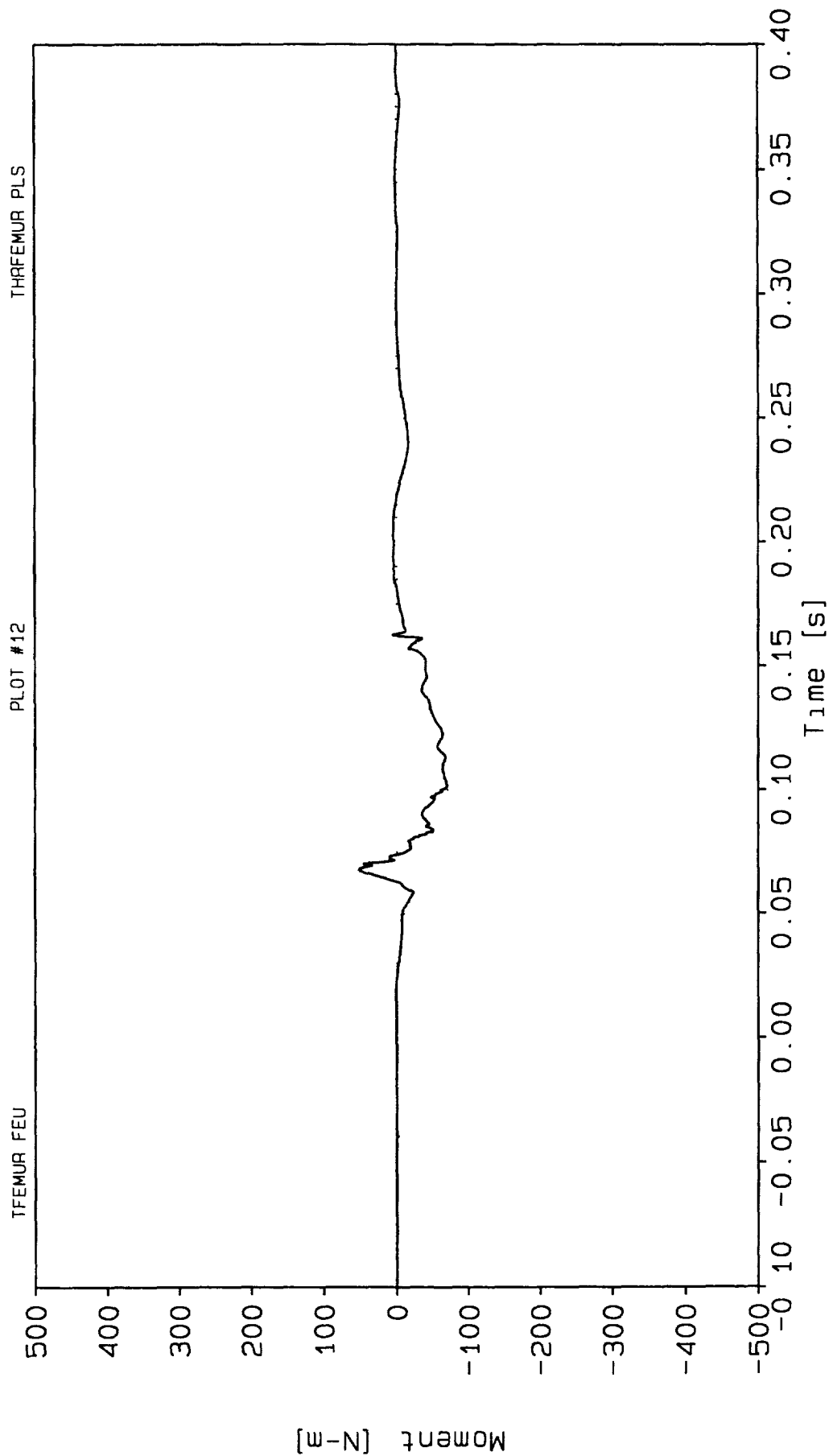
Exponent
Failure
Analysis
Associates

Right Femur Moment (Mz) v Time

Passenger Dummy - THOR

2001 Dodge Neon

2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Filter Class 600
Volpe Crash Testing
PH06608

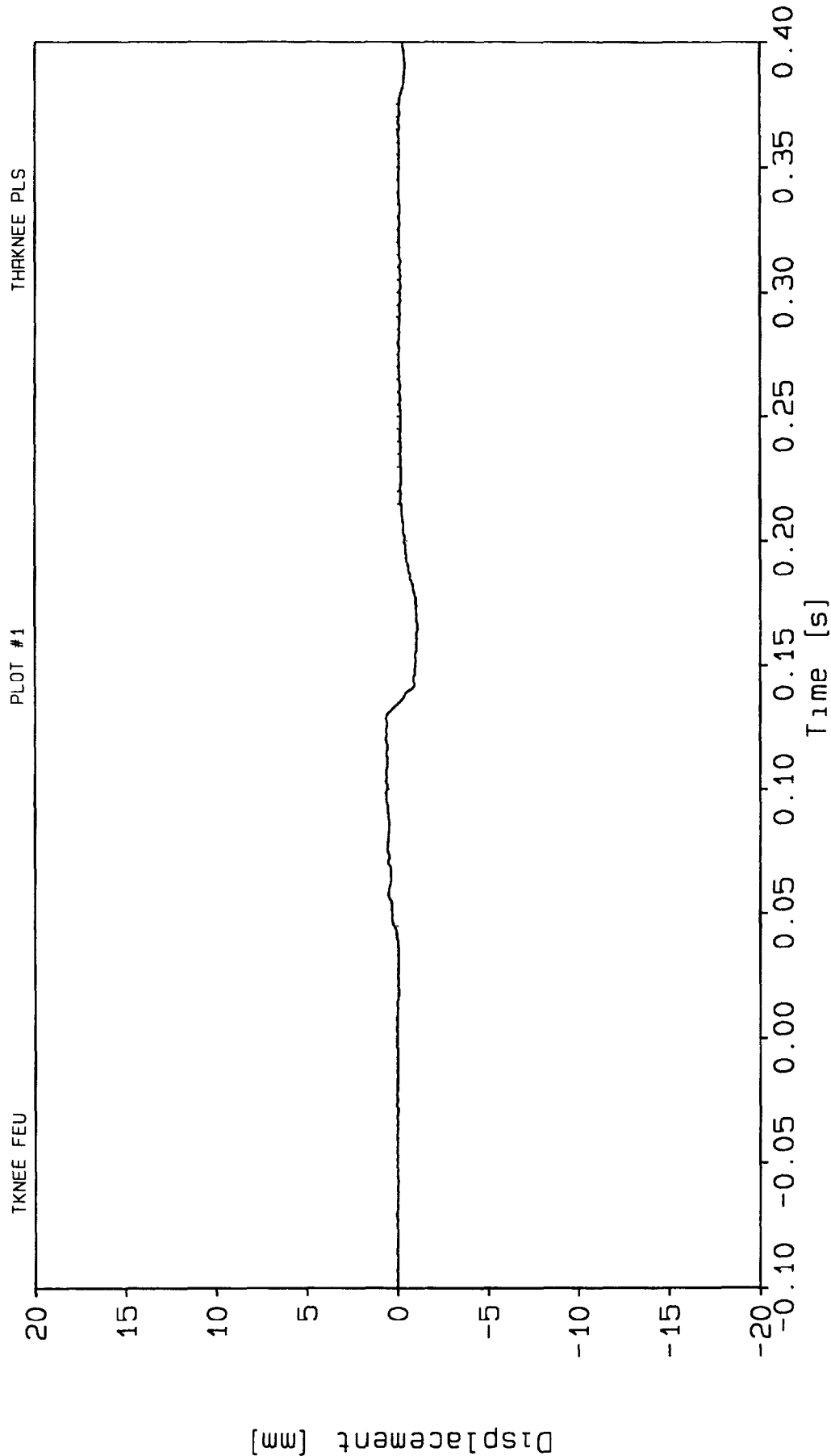
Exponent
Failure
Analysis
Associates

Right Knee Displacement v Time

Passenger Dummy - THOR

2001 Dodge Neon

2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Exponent
Failure
Analysis
Associates

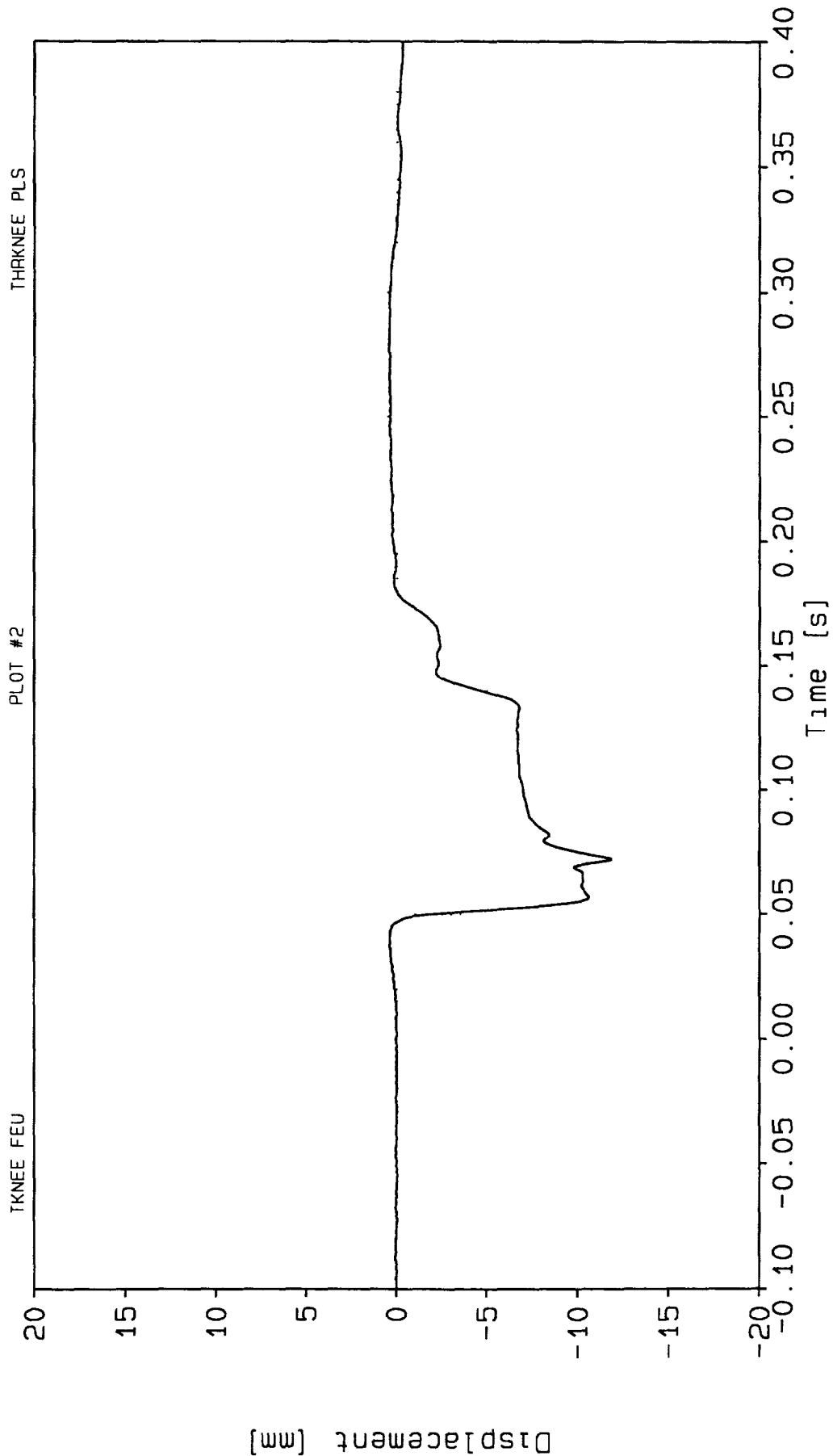
Filter Class 180
Volpe Crash Testing
PH06608

Left Knee Displacement v Time

Passenger Dummy - THOR

2001 Dodge Neon

2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Exponent
Failure
Analysis
Associates

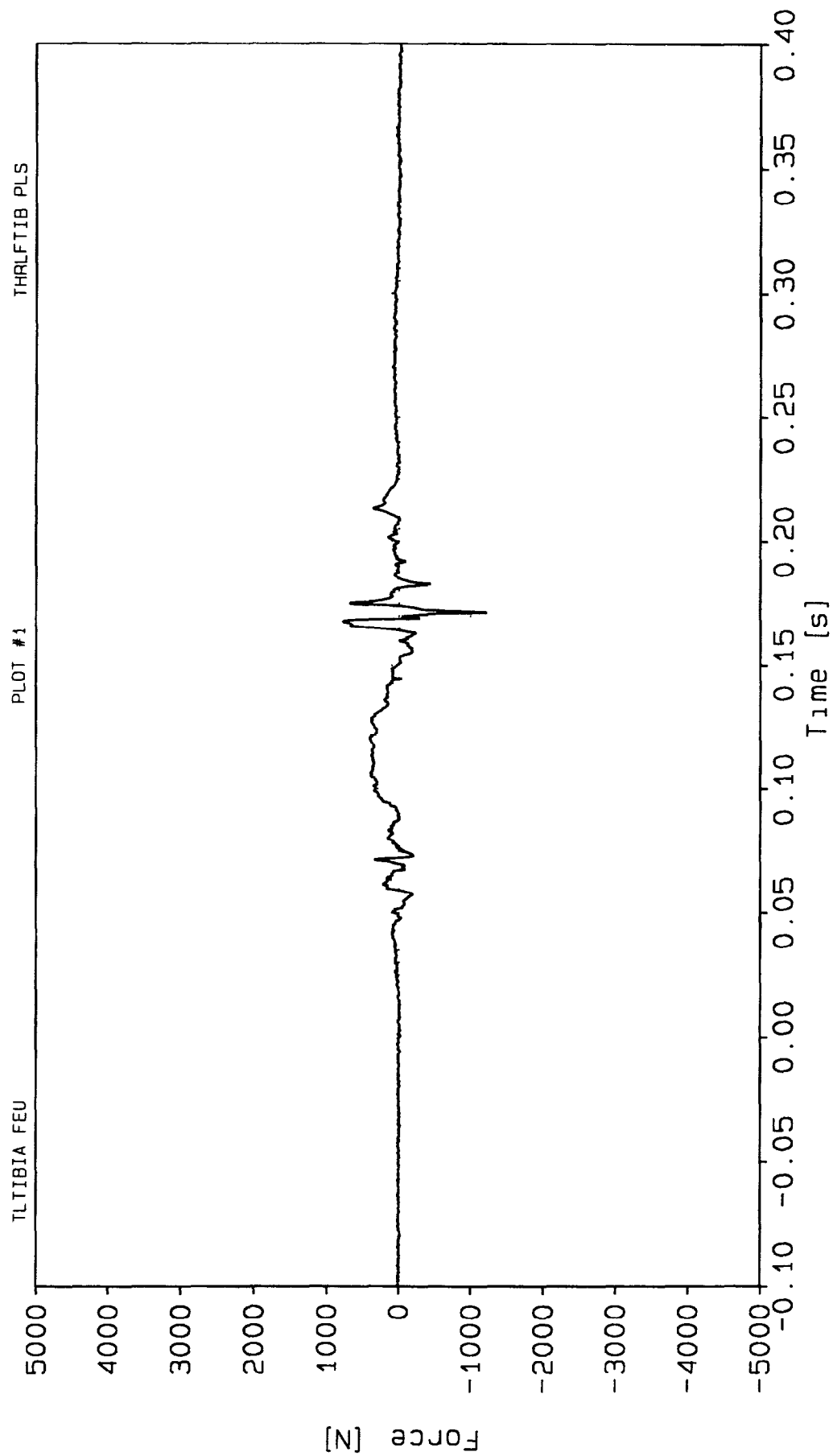
Filter Class 180
Volpe Crash Testing
PH06608

Left Upper Tibia Force (Fx) v Time

Passenger Dummy - THOR

2001 Dodge Neon

2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Filter Class 600
Volpe Crash Testing
PH05608

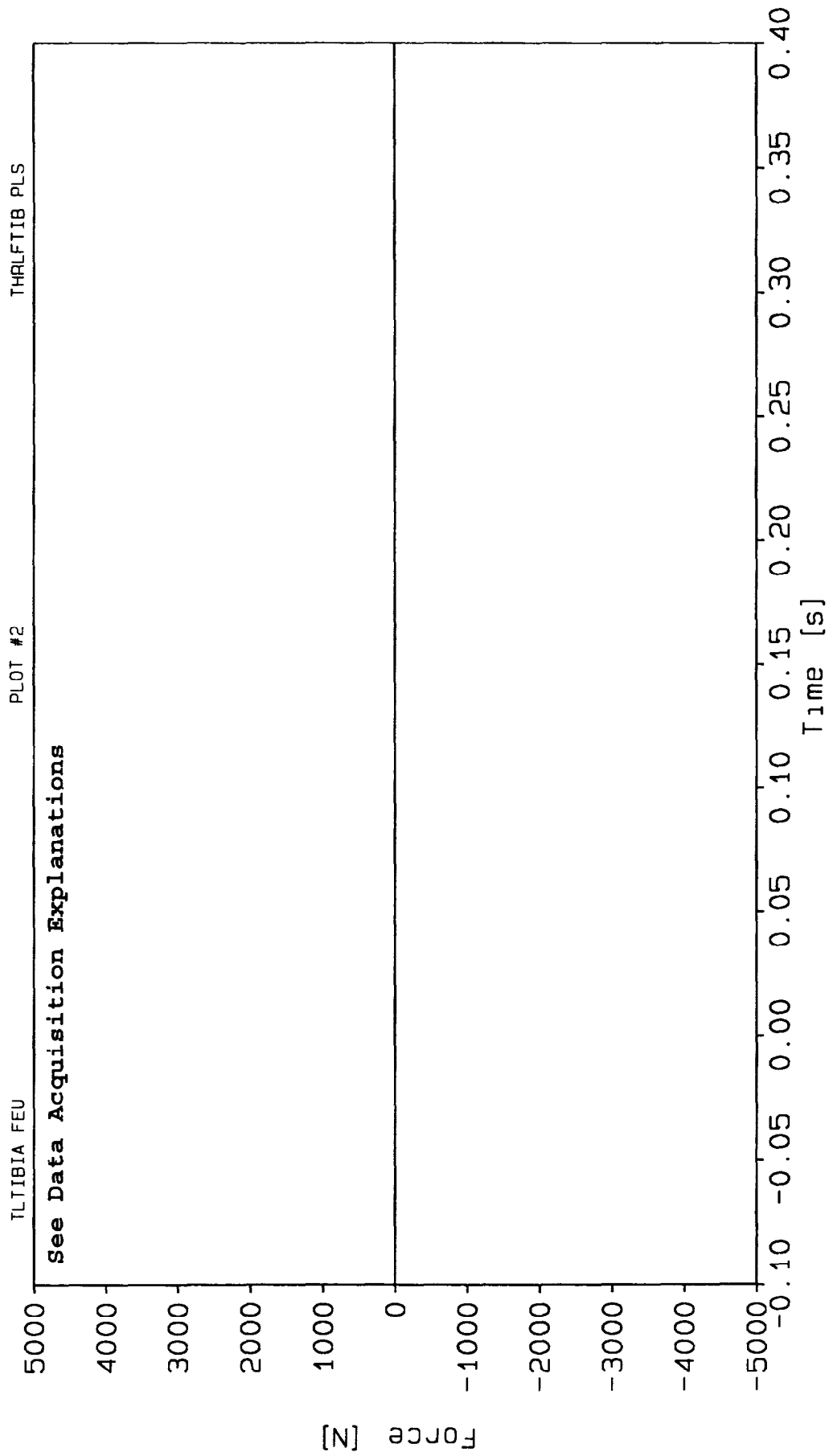
Exponent
Failure
Analysis
Associates

Left Upper Tibia Force (Fz) v Time

Passenger Dummy - THOR

2001 Dodge Neon

2001 Ford F-150 into 2001 Dodge Neon - 09/14/01

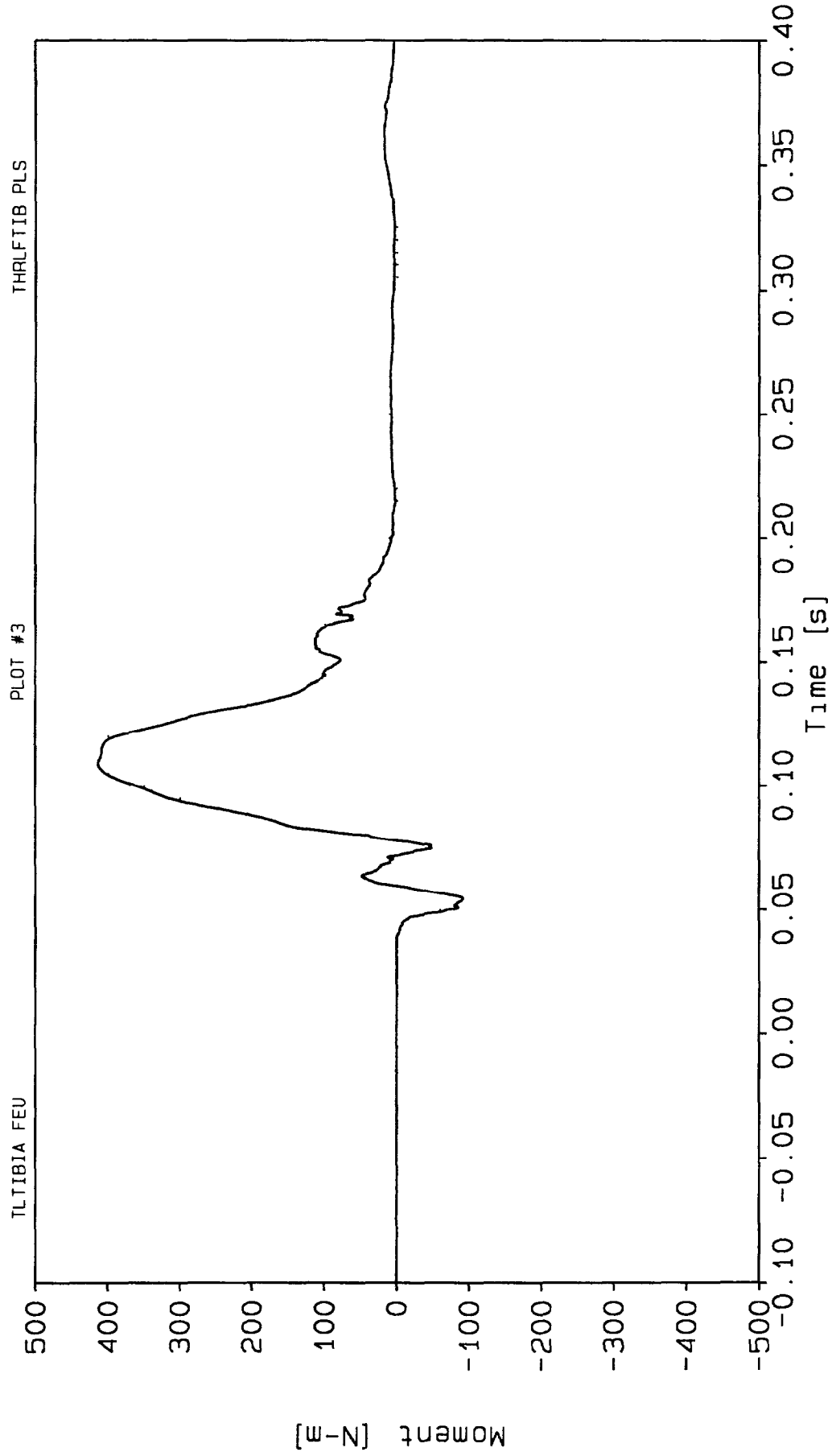


Filter Class 600
Volpe Crash Testing
PH06608

Exponent
Failure
Analysis
Associates

Left Upper Tibia Moment (Mx) v Time

Passenger Dummy - THOR
2001 Dodge Neon
2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Exponent
Failure
Analysis
Associates

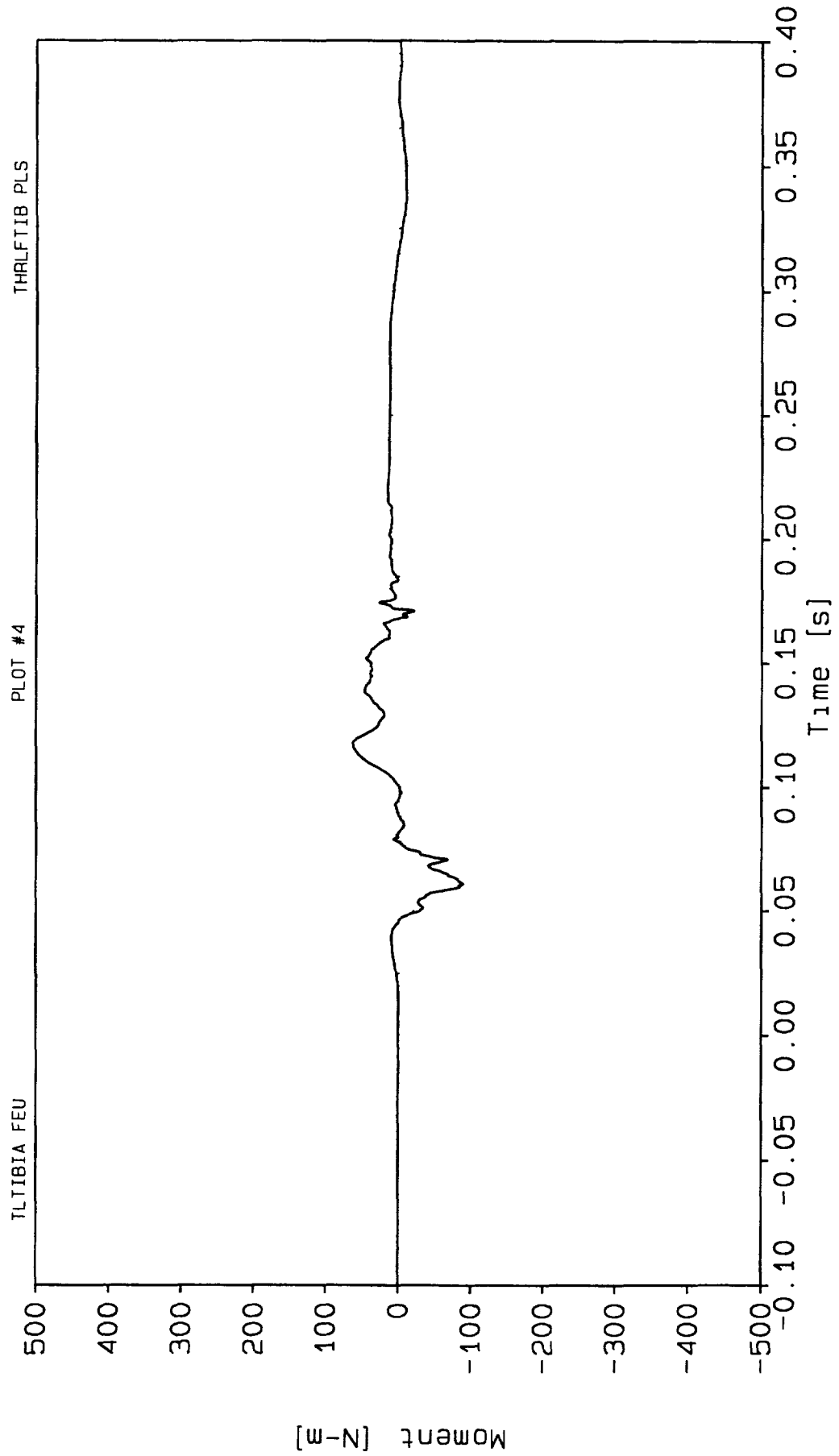
Filter Class 600
Volpe Crash Testing
PH06608

Left Upper Tibia Moment (My) v Time

Passenger Dummy - THOR

2001 Dodge Neon

2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Filter Class 500
Volpe Crash Testing
PH06608

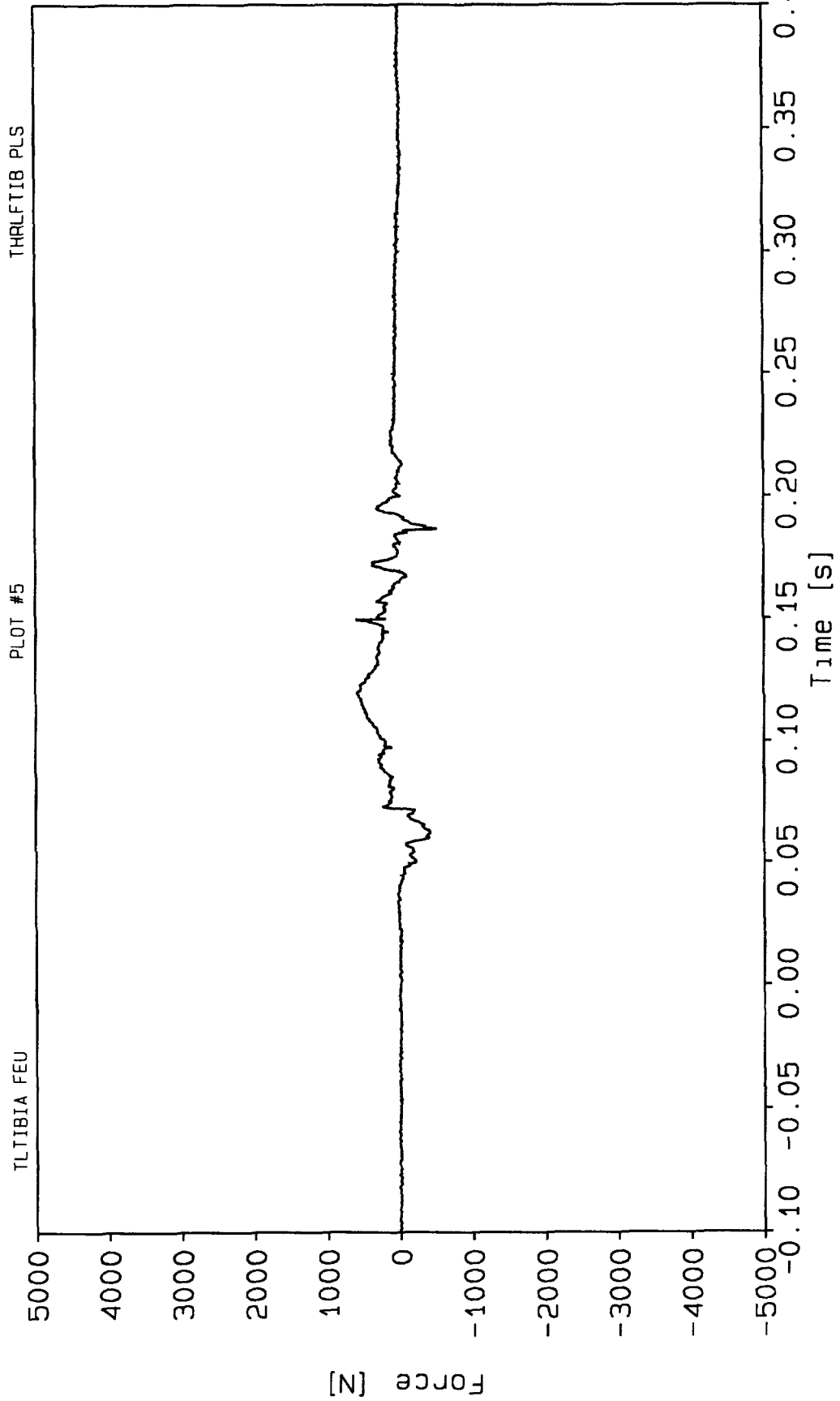
Exponent
Failure
Analysis
Associates

Left Lower Tibia Force (Fx) v Time

Passenger Dummy - THOR

2001 Dodge Neon

2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Filter Class 600
Volpe Crash Testing
PH06608

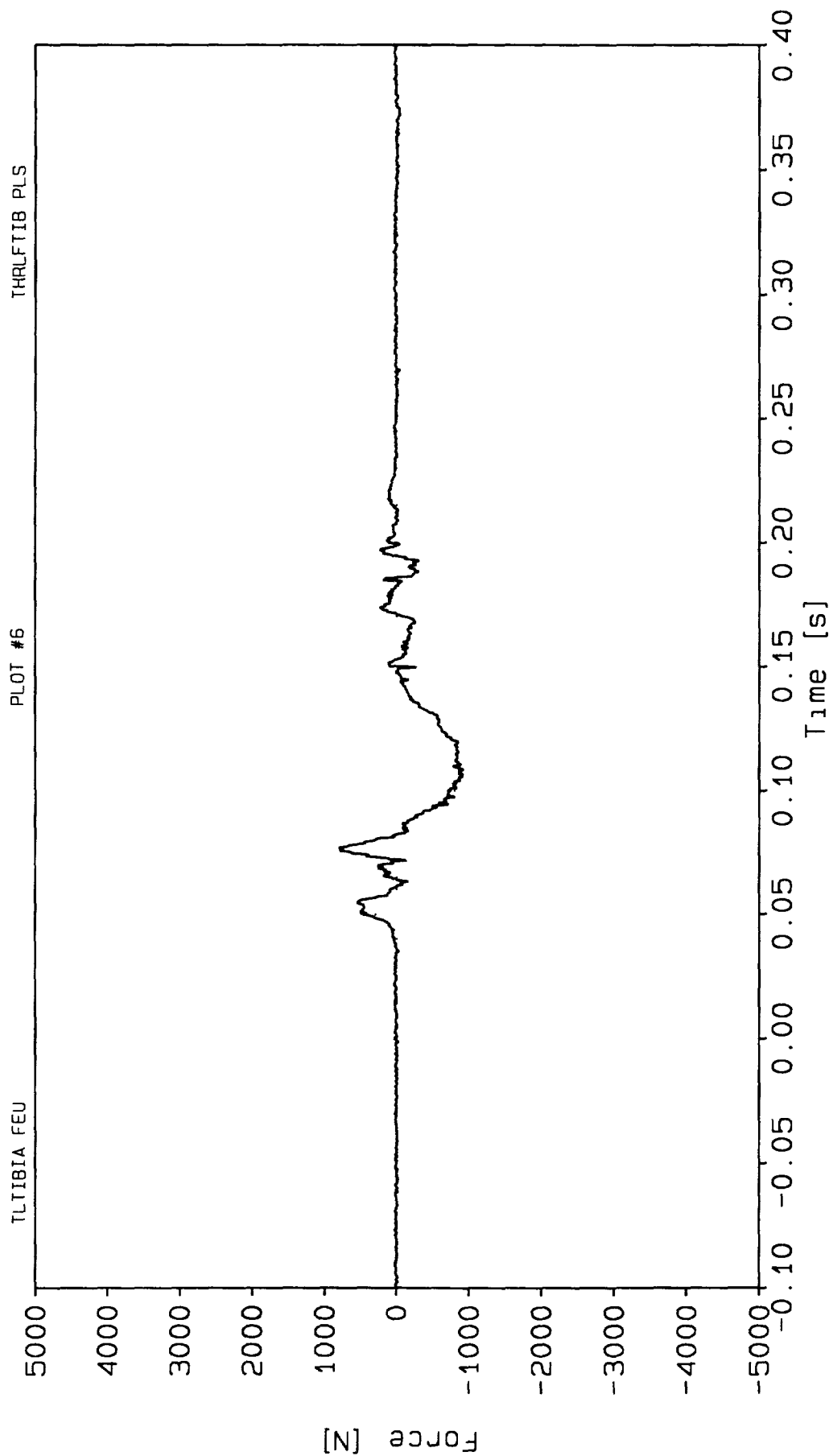
Exponent
Failure
Analysis
Associates

Left Lower Tibia Force (Fy) v Time

Passenger Dummy - THOR

2001 Dodge Neon

2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Exponent
Failure
Analysis
Associates

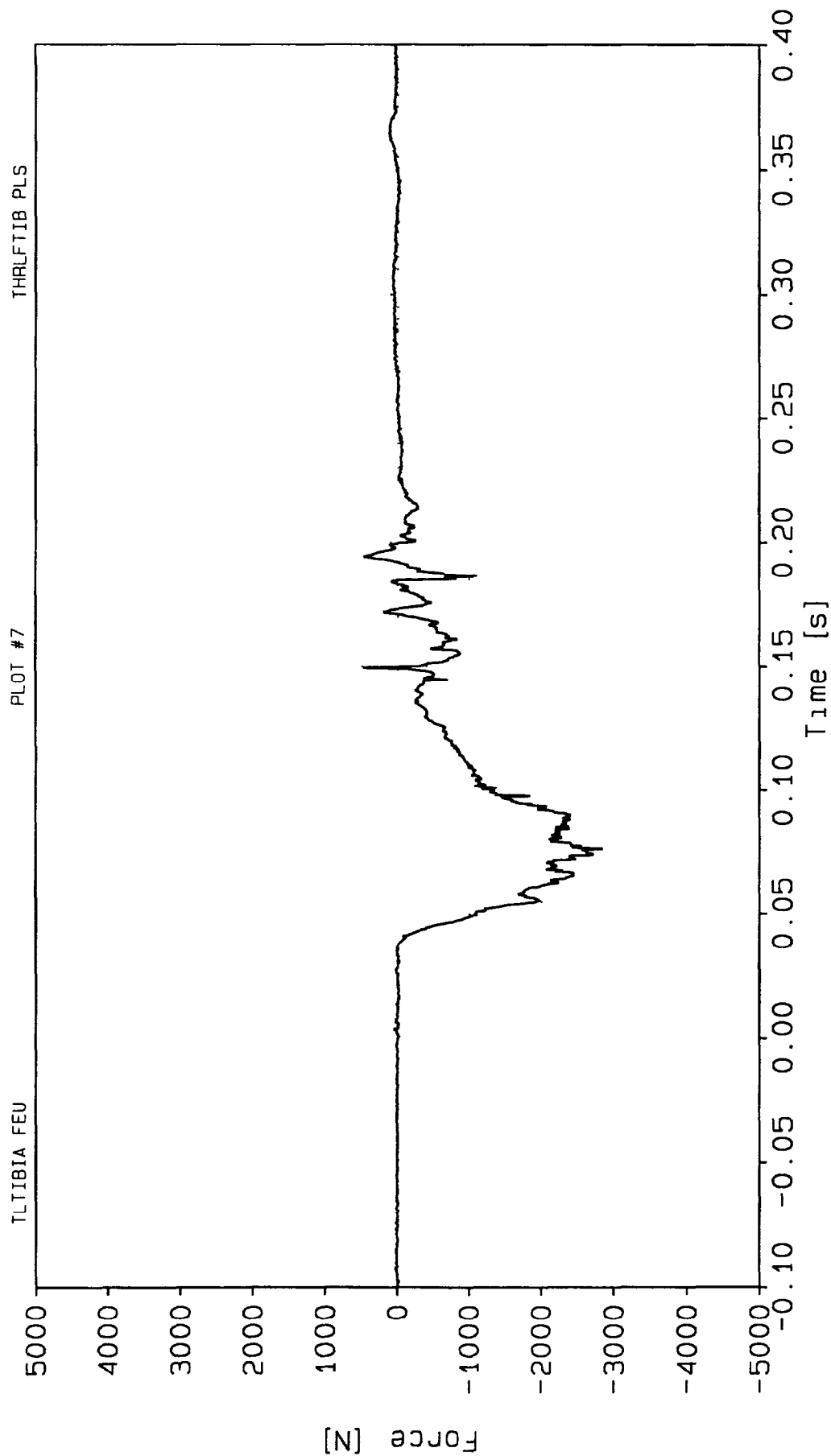
Filter Class 600
Volpe Crash Testing
PH06608

Left Lower Tibia Force (Fz) v Time

Passenger Dummy - THOR

2001 Dodge Neon

2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Exponent
Failure
Analysis
Associates

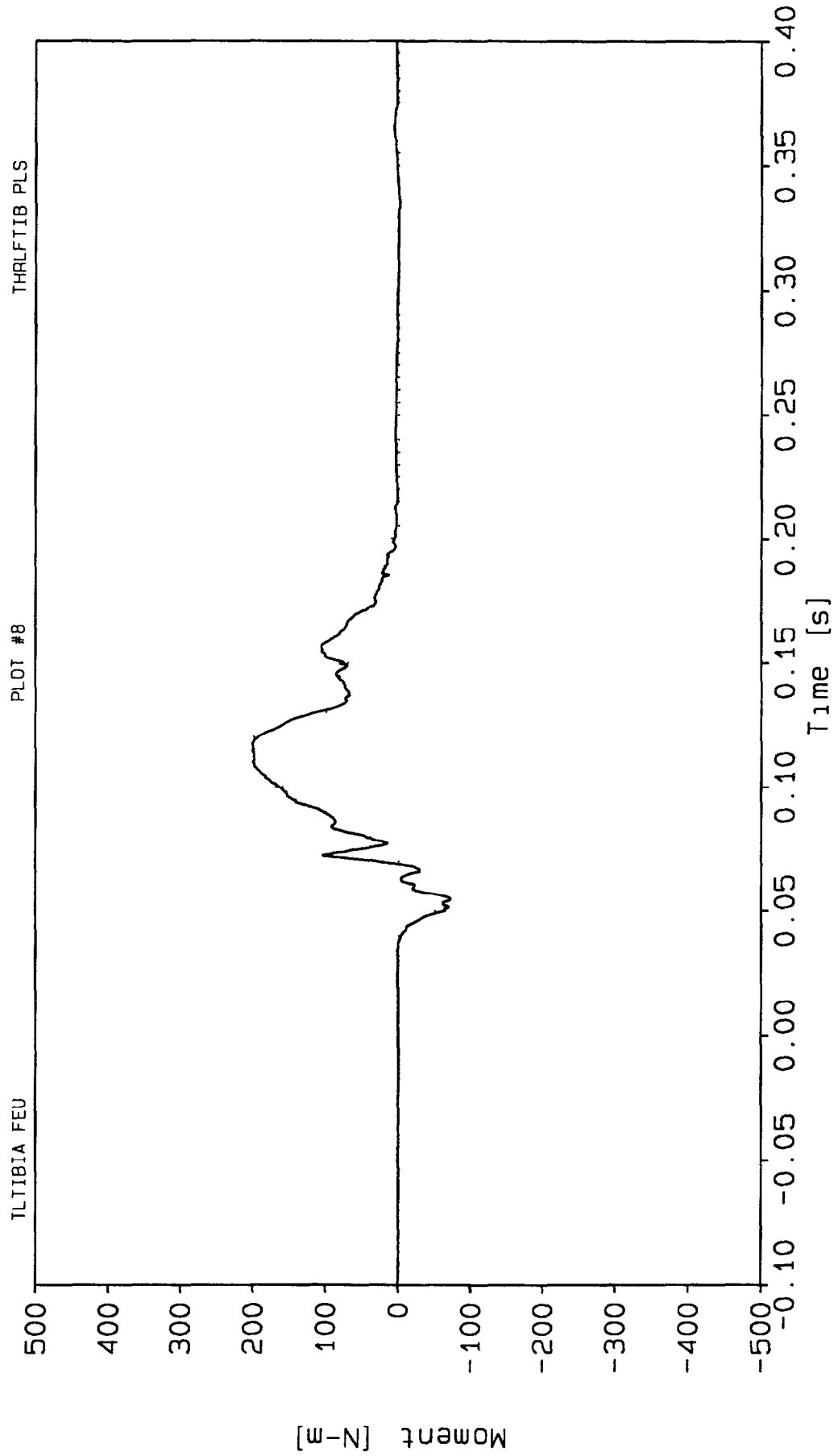
Filter Class 600
Volpe Crash Testing
PH06608

Left Lower Tibia Moment (Mx) v Time

Passenger Dummy - THOR

2001 Dodge Neon

2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Filter Class 600
Volpe Crash Testing
PH06608

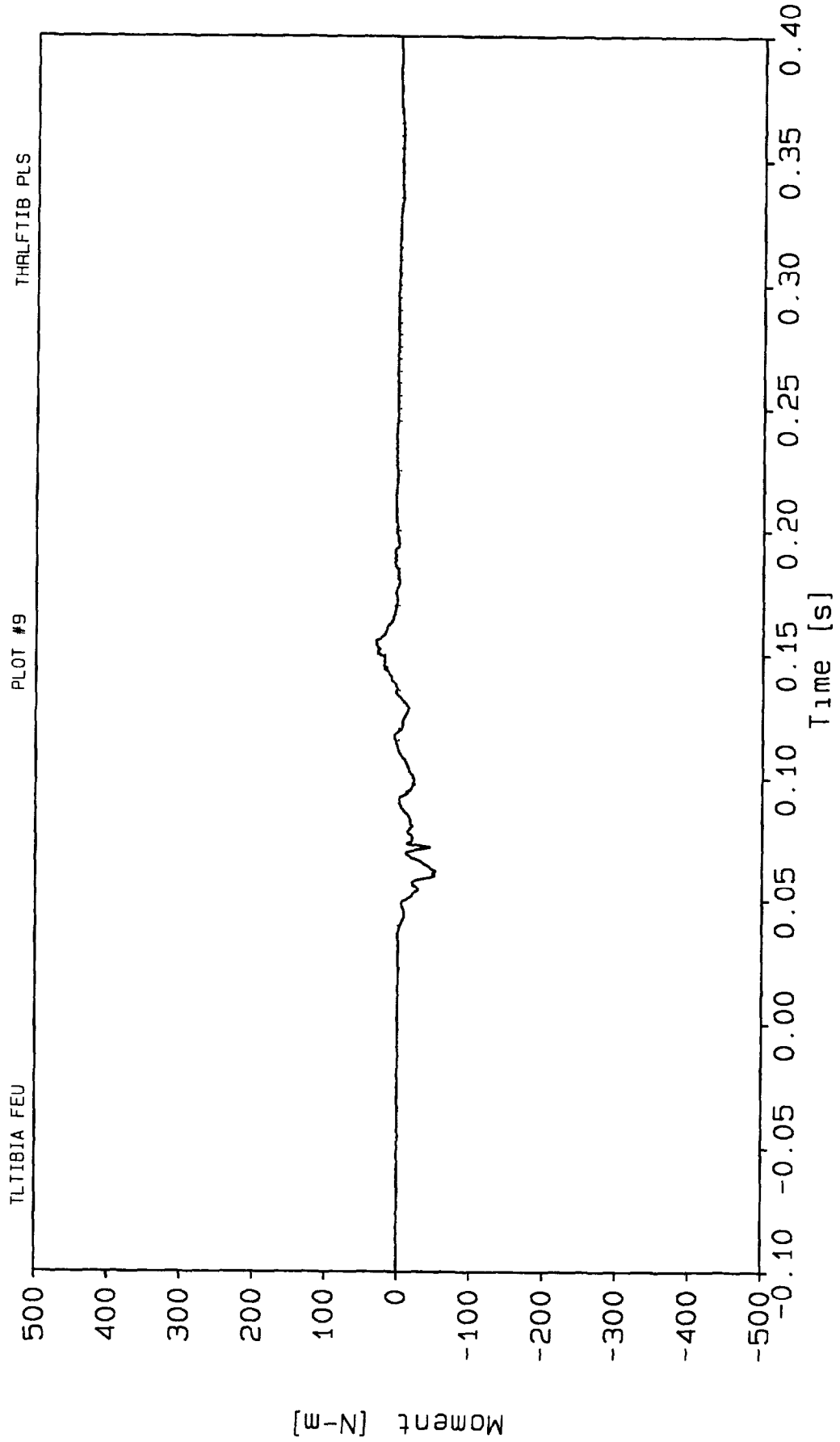
Exponent
Failure
Analysis
Associates

Left Lower Tibia Moment (My) v Time

Passenger Dummy - THOR

2001 Dodge Neon

2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Exponent
Failure
Analysis
Associates

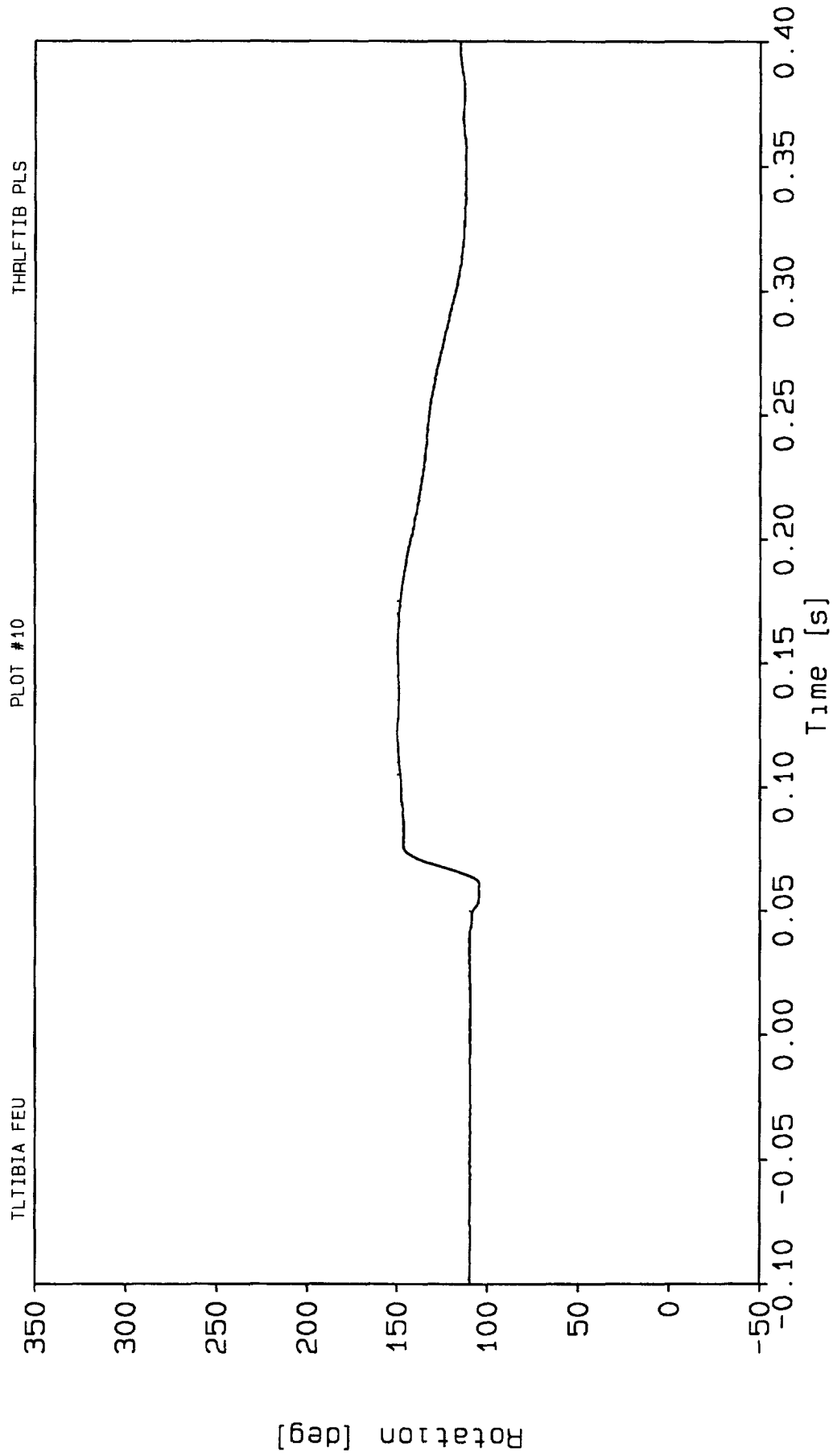
Filter Class 600
Volpe Crash Testing
PH05608

Left Ankle Rotation (X Axis) v Time

Passenger Dummy - THOR

2001 Dodge Neon

2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Exponent
Failure
Analysis
Associates

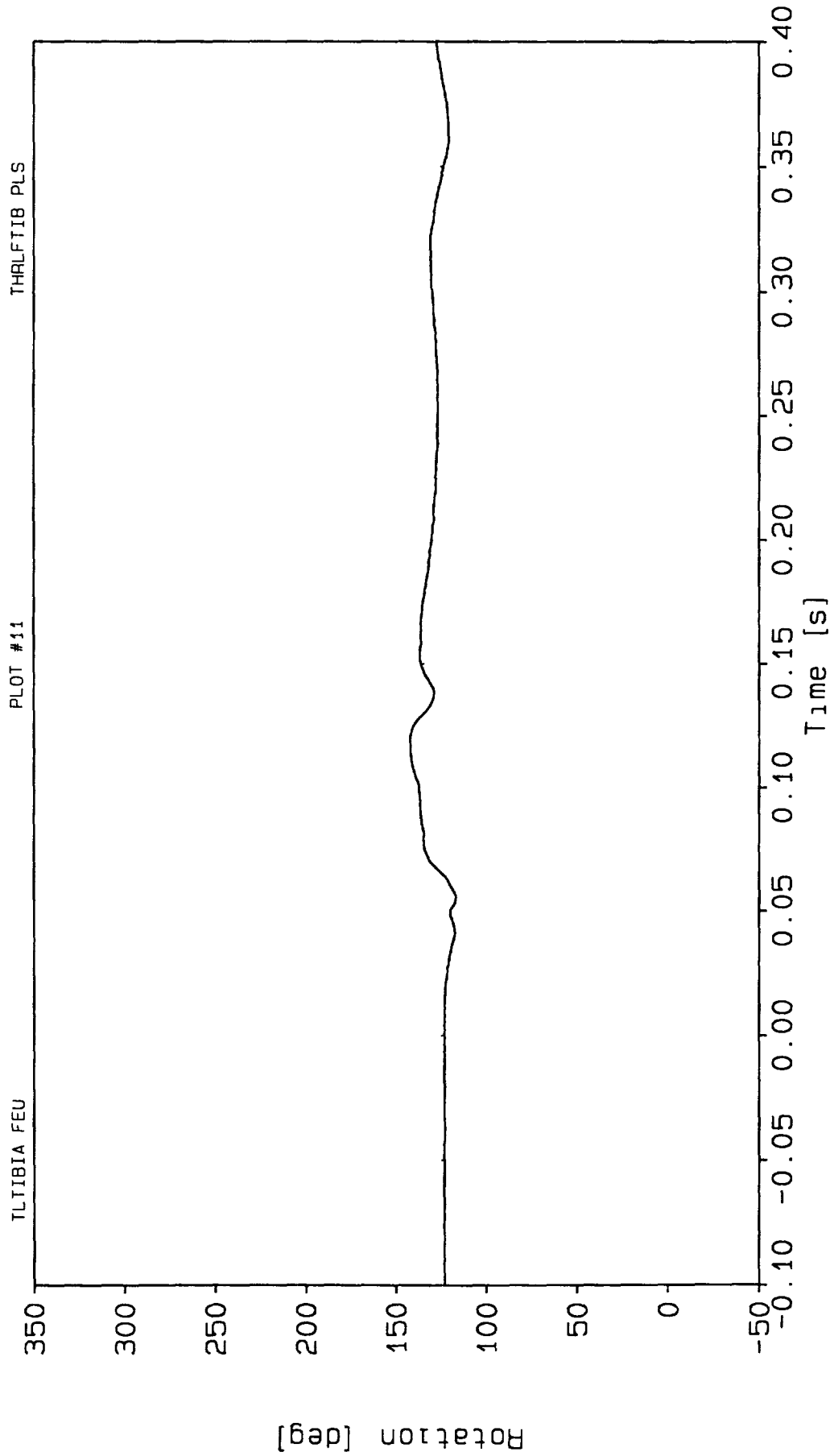
Filter Class 180
Volpe Crash Testing
PH06608

Left Ankle Rotation (Y Axis) v Time

Passenger Dummy - THOR

2001 Dodge Neon

2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Exponent
Failure
Analysis
Associates

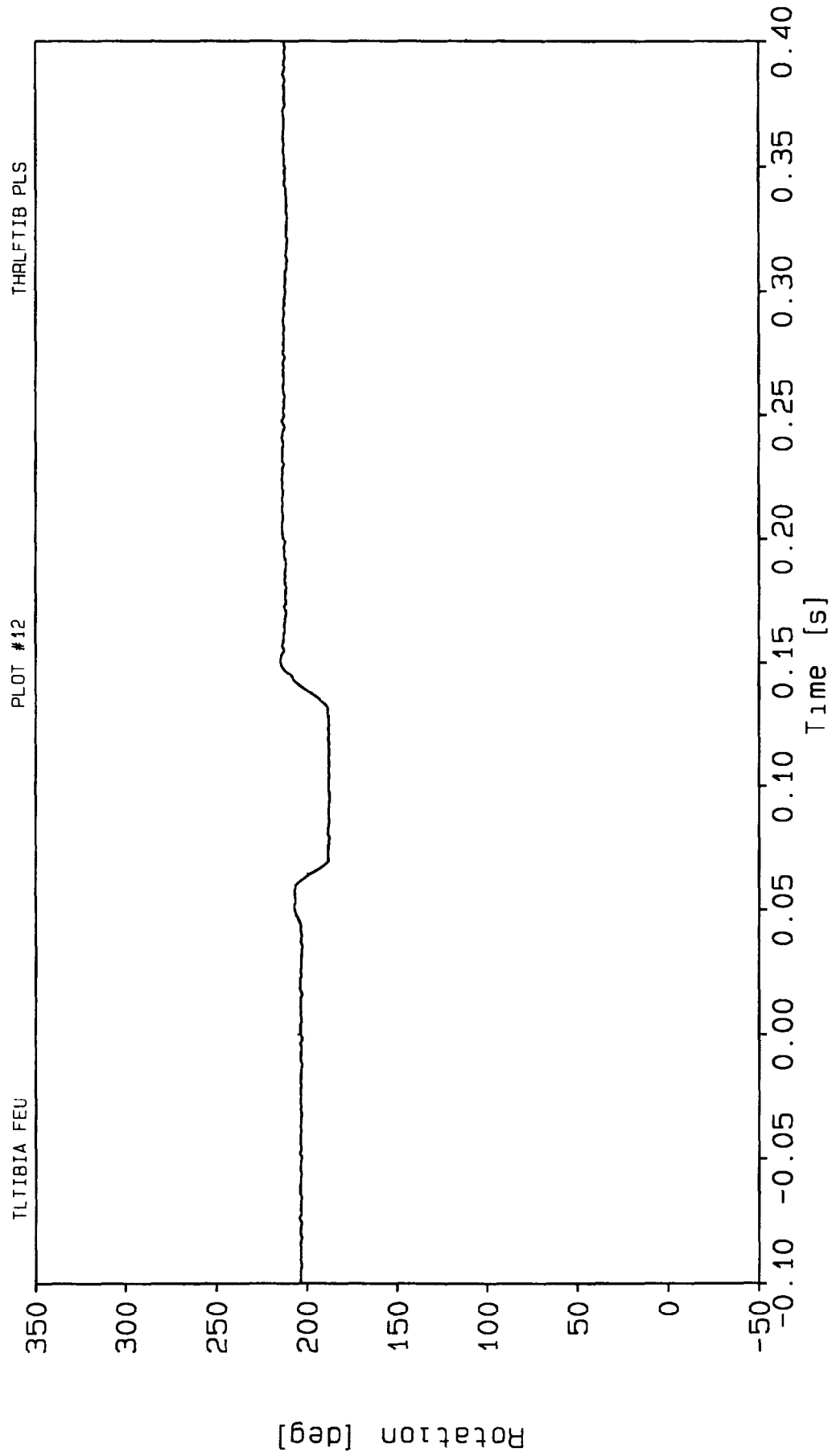
Filter Class 180
Voipe Crash Testing
PH06608

Left Ankle Rotation (Z Axis) v Time

Passenger Dummy - THOR

2001 Dodge Neon

2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Exponent
Failure
Analysis
Associates

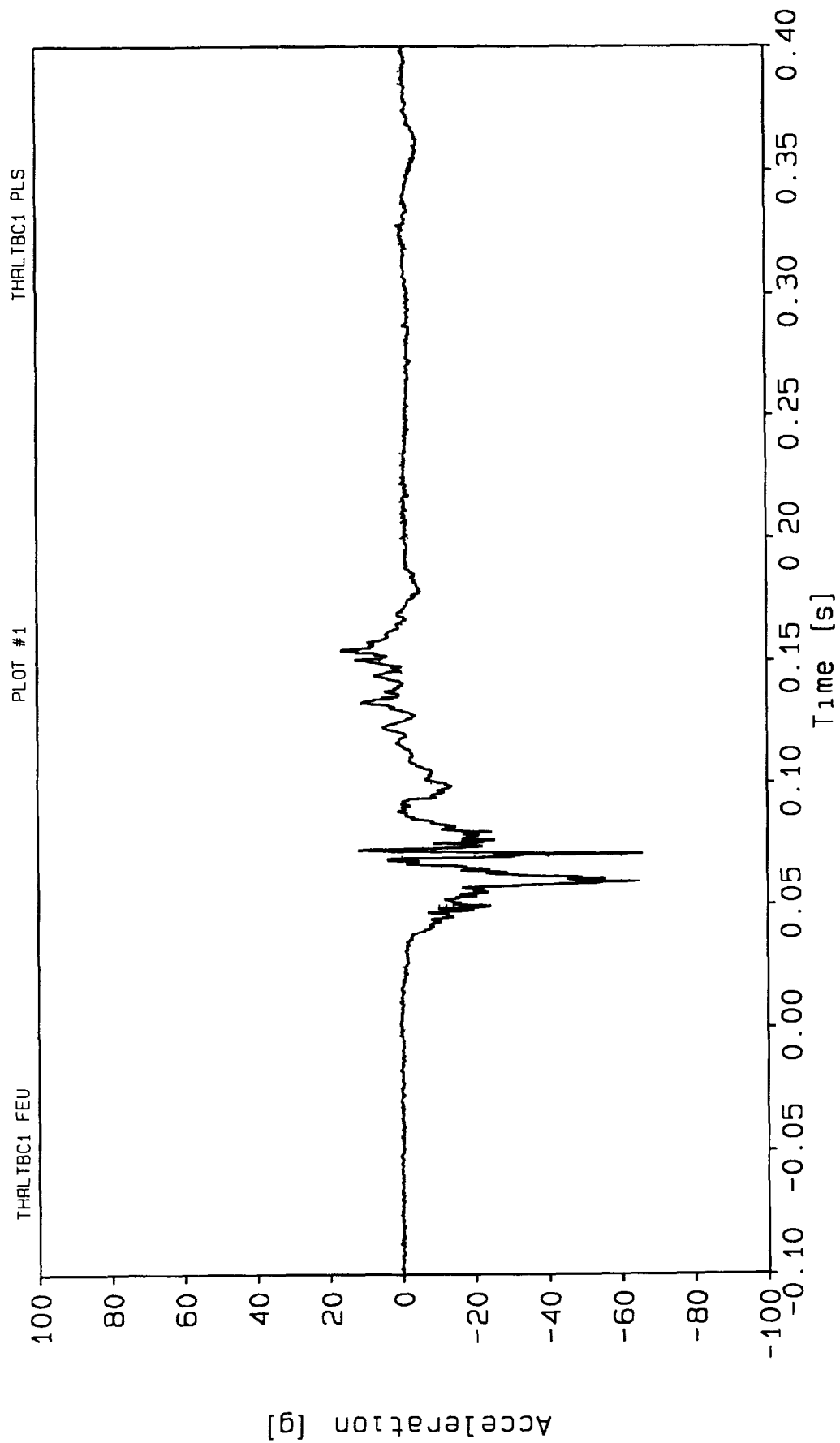
Filter Class 180
Volpe Crash Testing
PH06608

Left Tibia Acceleration (Ax) v Time

Passenger Dummy - THOR

2001 Dodge Neon

2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Exponent
Failure
Analysis
Associates

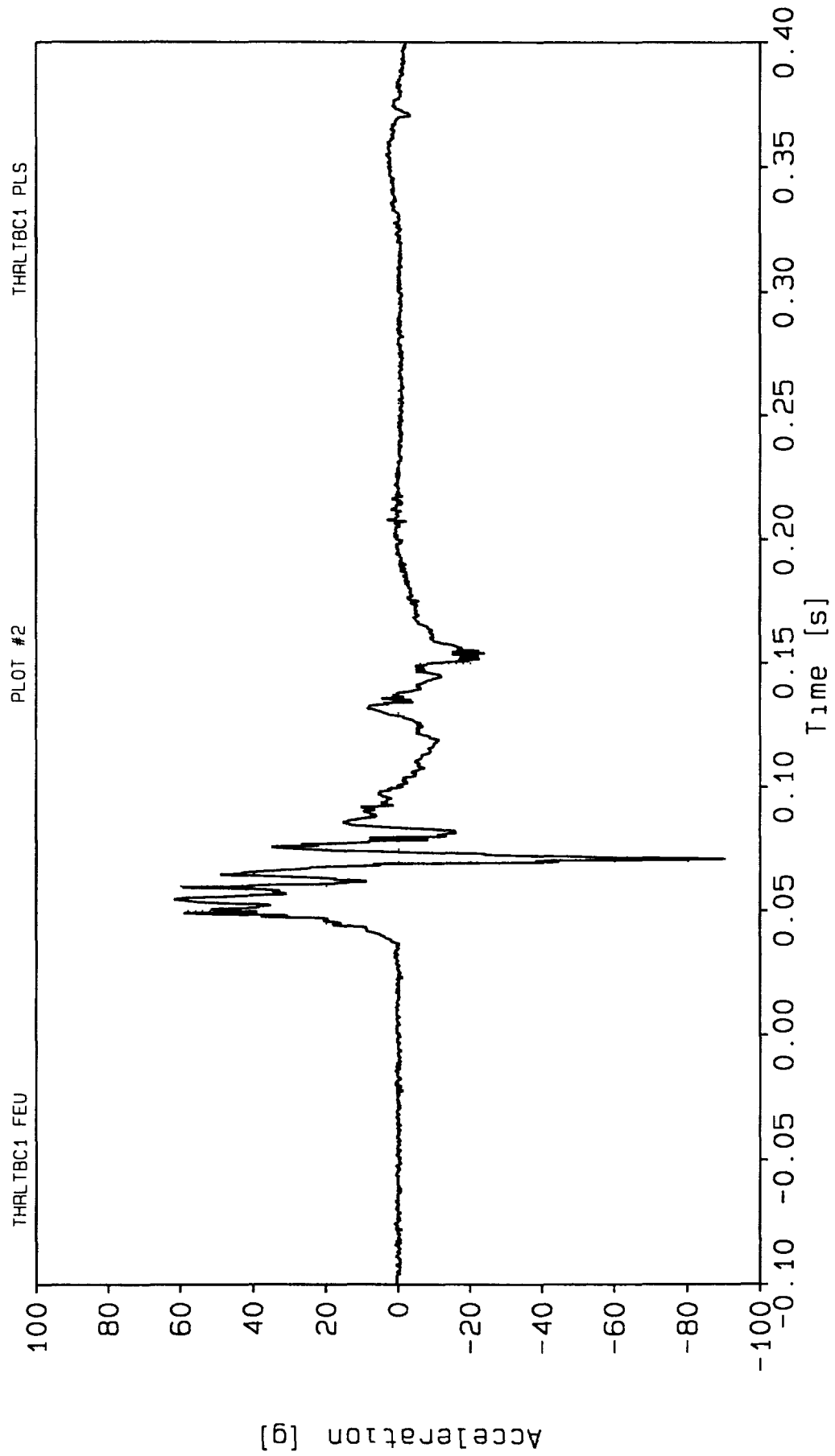
Filter Class 600
Volpe Crash Testing
PH06608

Left Tibia Acceleration (Ay) v Time

Passenger Dummy - THOR

2001 Dodge Neon

2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Filter Class 500
Volpe Crash Testing
PH06608

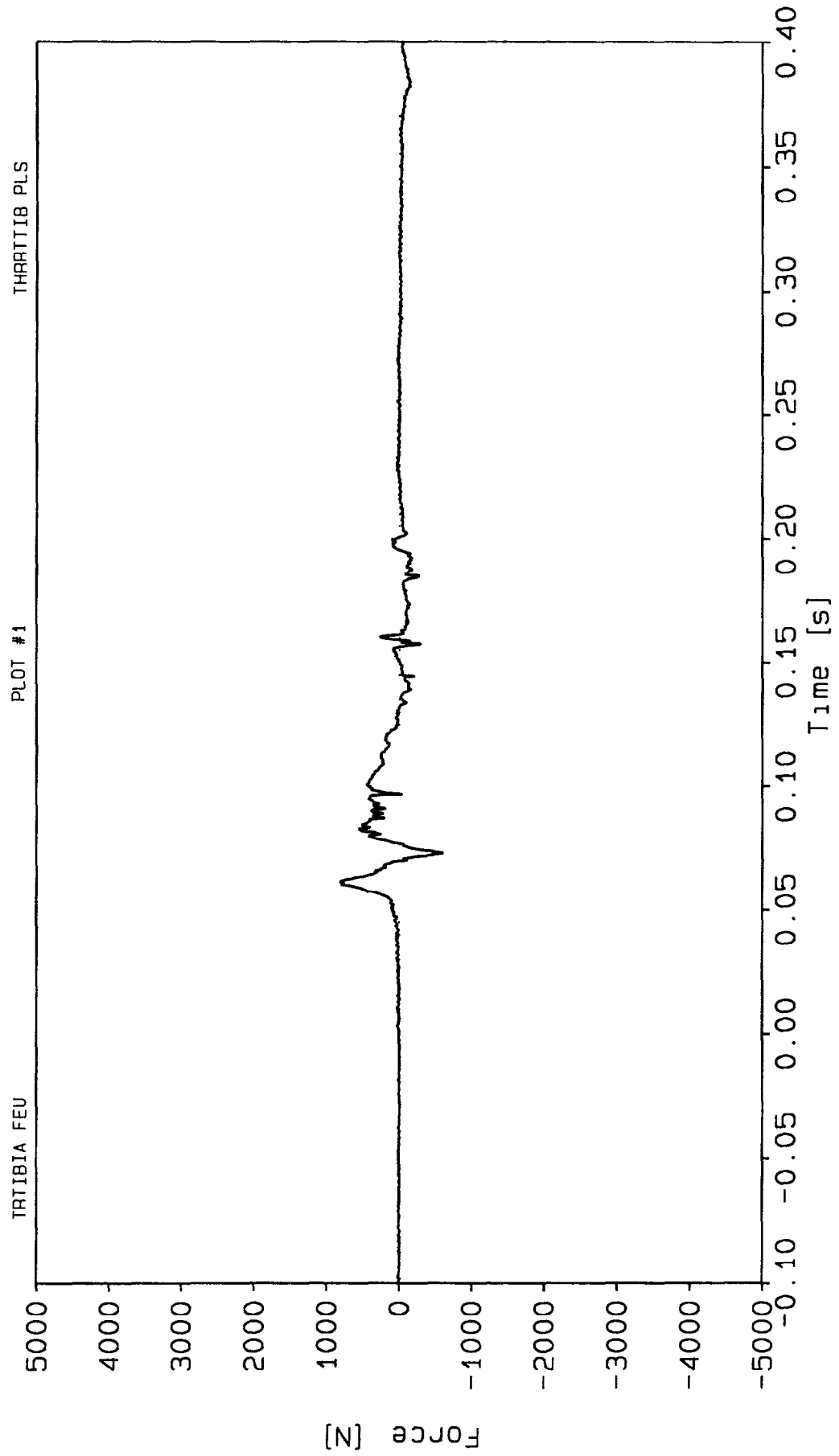
Exponent
Failure
Analysis
Associates

Right Upper Tibia Force (Fx) v Time

Passenger Dummy - THOR

2001 Dodge Neon

2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Filter Class 600
Volpe Crash Testing
PH06608

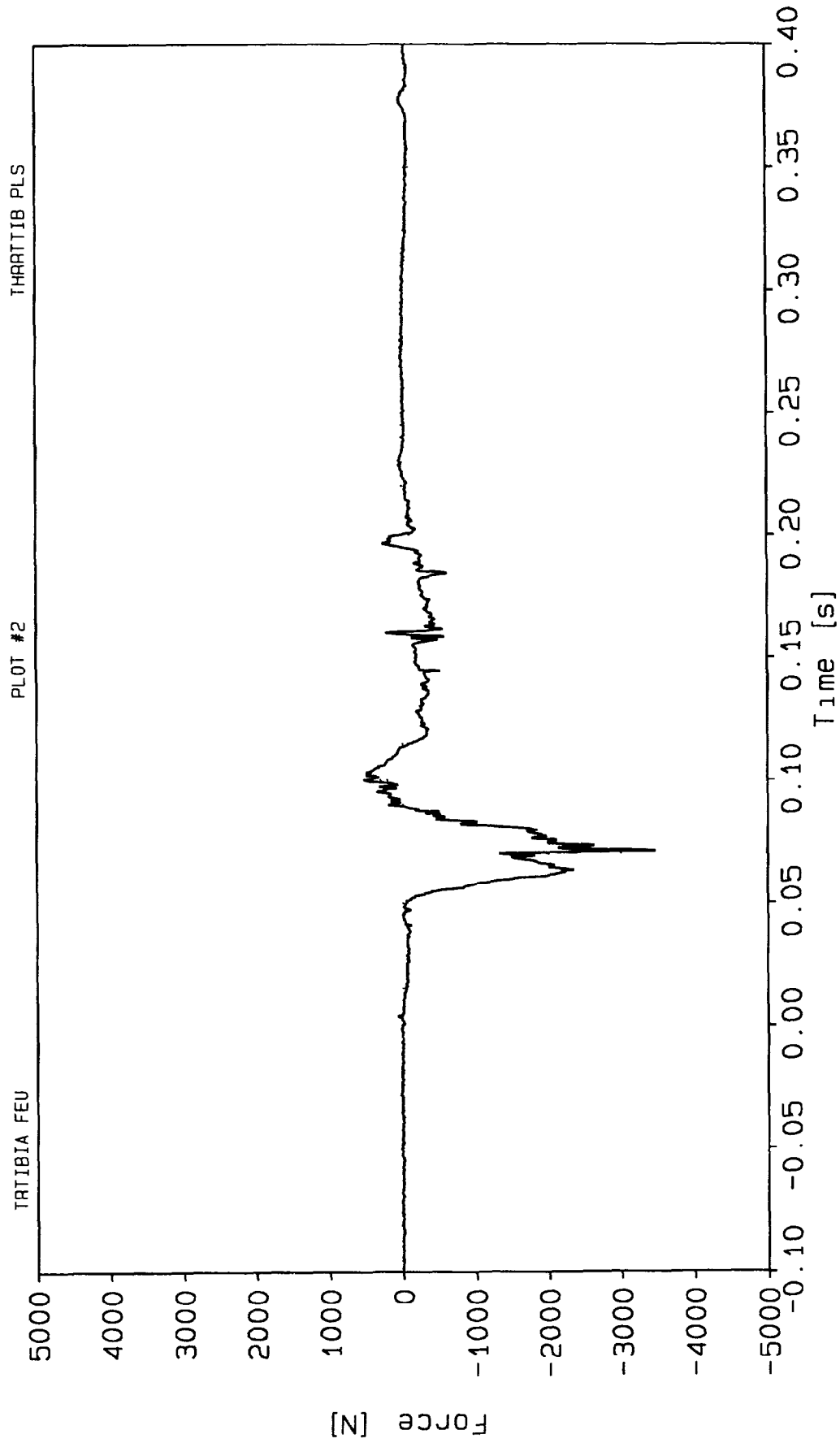
Exponent
Failure
Analysis
Associates

Right Upper Tibia Force (Fz) v Time

Passenger Dummy - THOR

2001 Dodge Neon

2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Exponent
Failure
Analysis
Associates

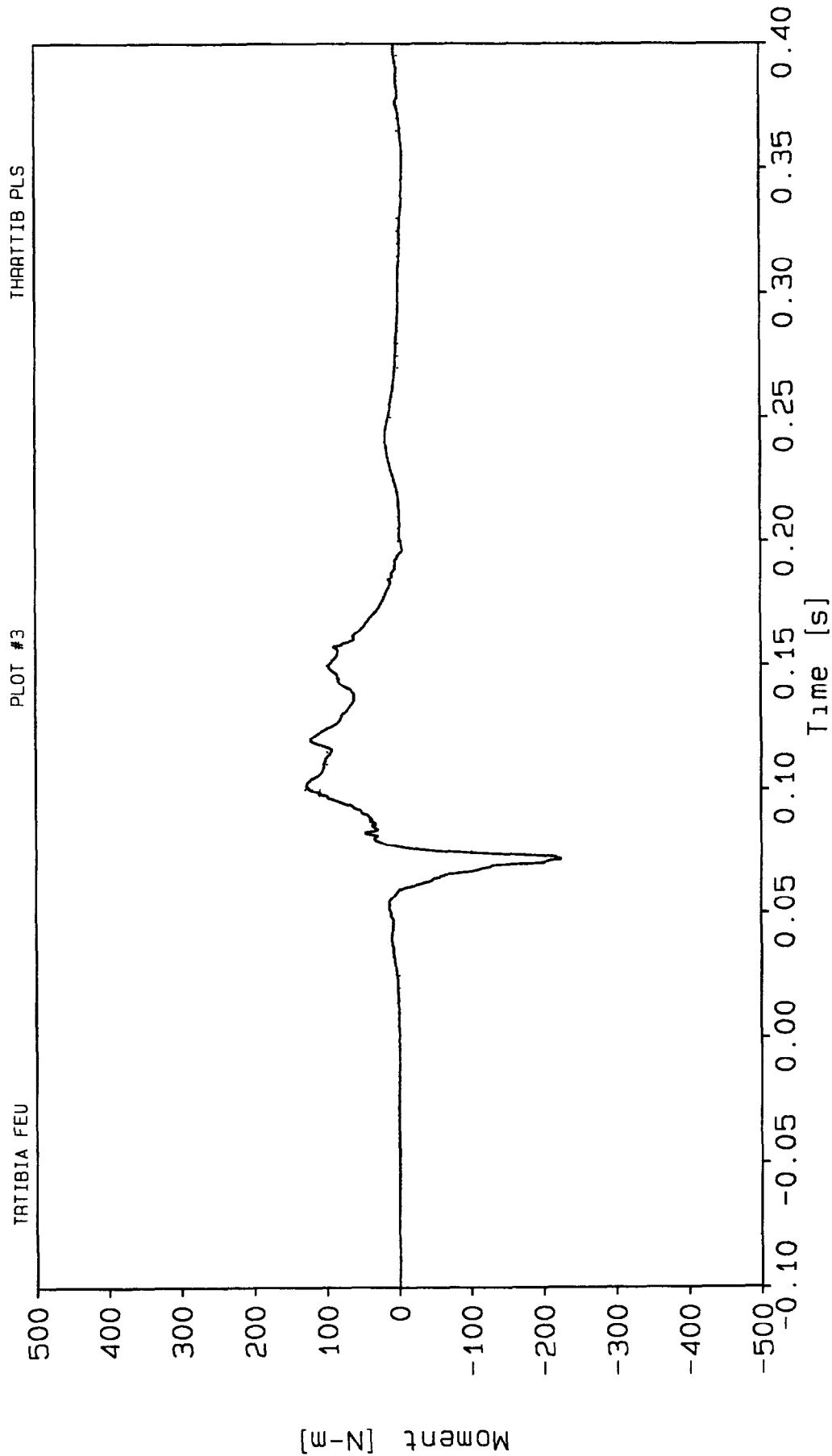
Filter Class 600
Volpe Crash Testing
PH06608

Right Upper Tibia Moment (Mx) v Time

Passenger Dummy - THOR

2001 Dodge Neon

2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Filter Class 500
Volpe Crash Testing
PH06608

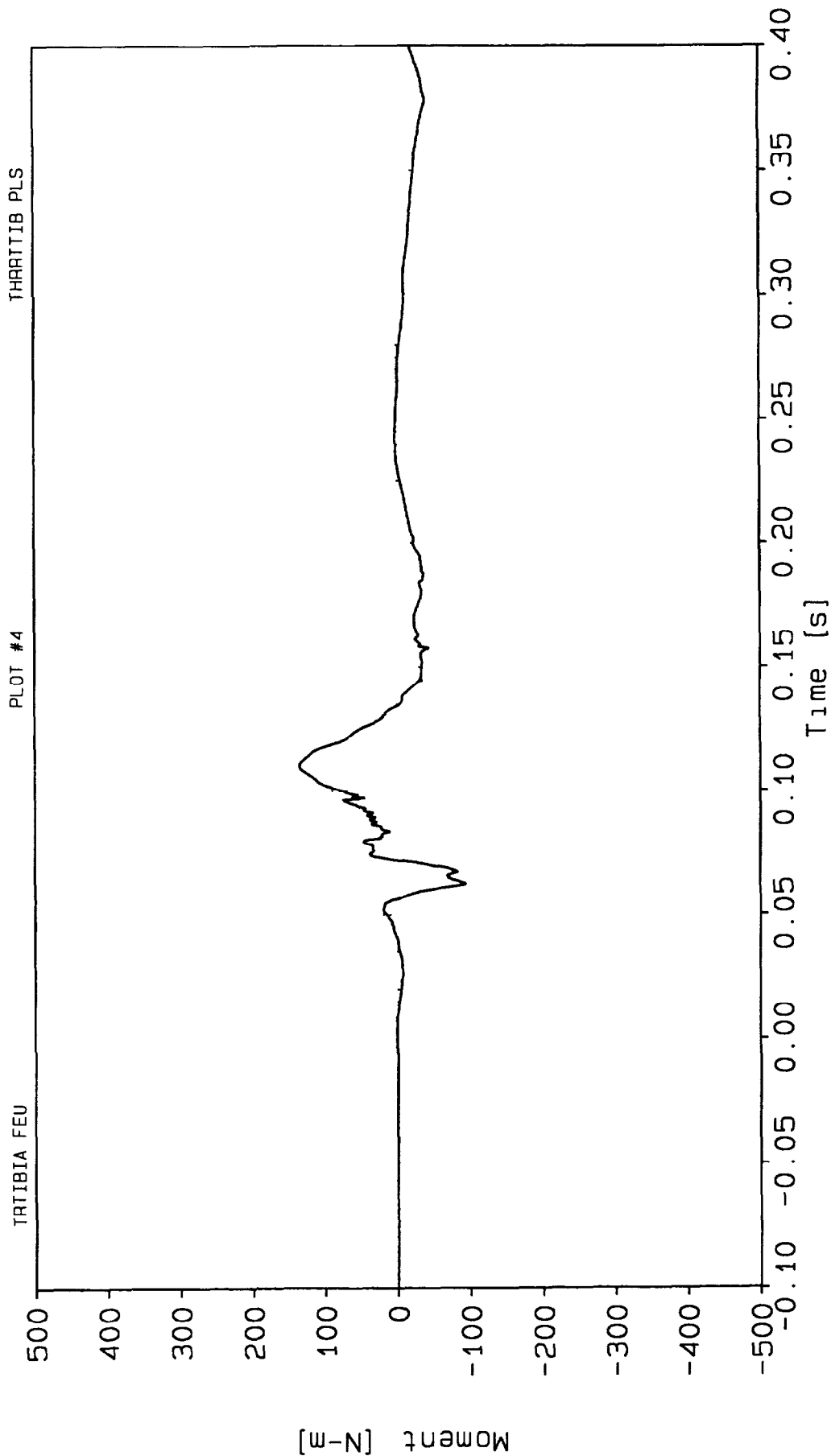
Exponent
Failure
Analysis
Associates

Right Upper Tibia Moment (My) v Time

Passenger Dummy - THOR

2001 Dodge Neon

2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Exponent
Failure
Analysis
Associates

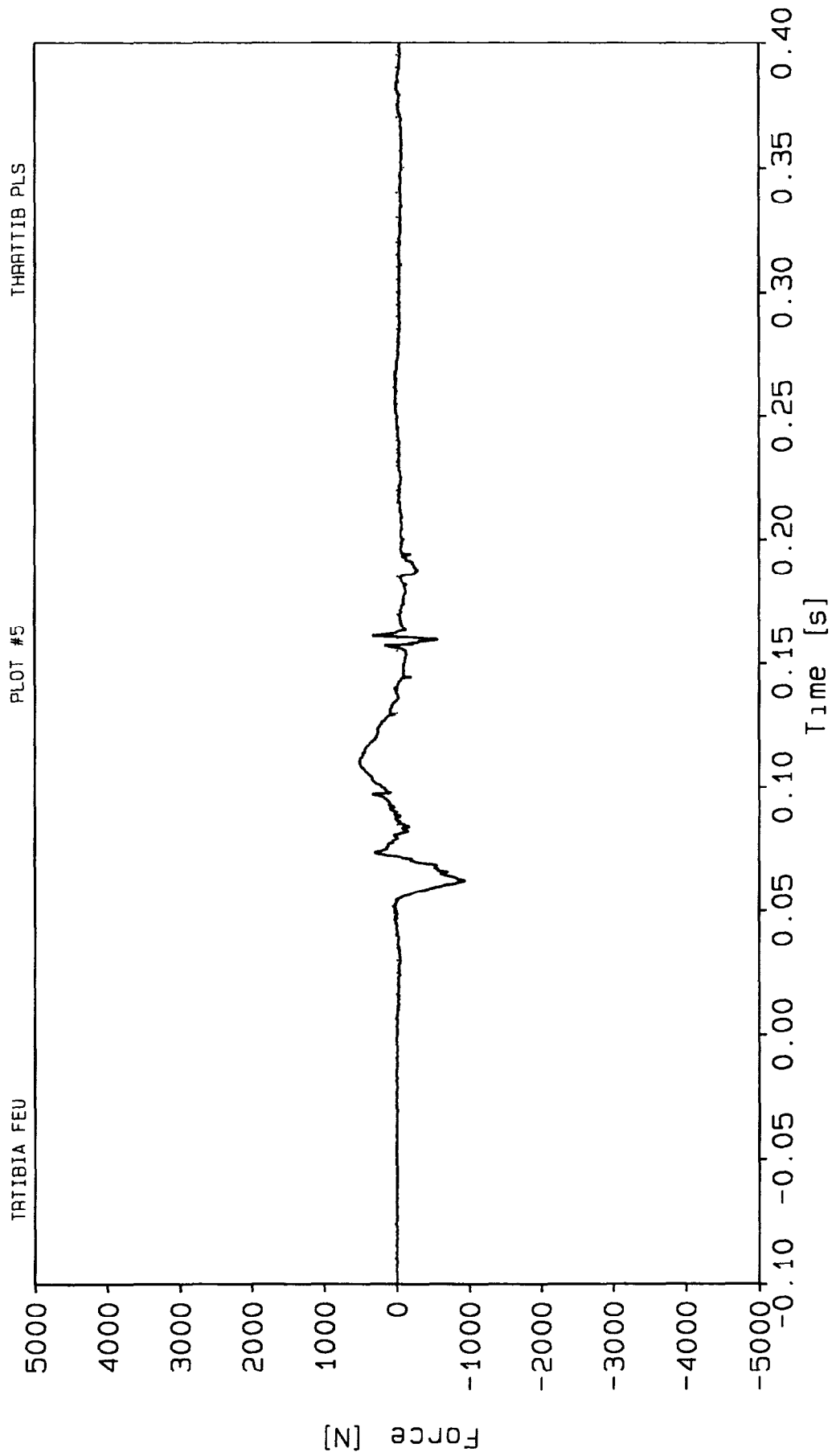
Filter Class 600
Voipe Crash Testing
PH05508

Right Lower Tibia Force (Fx) v Time

Passenger Dummy - THOR

2001 Dodge Neon

2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Exponent
Failure
Analysis
Associates

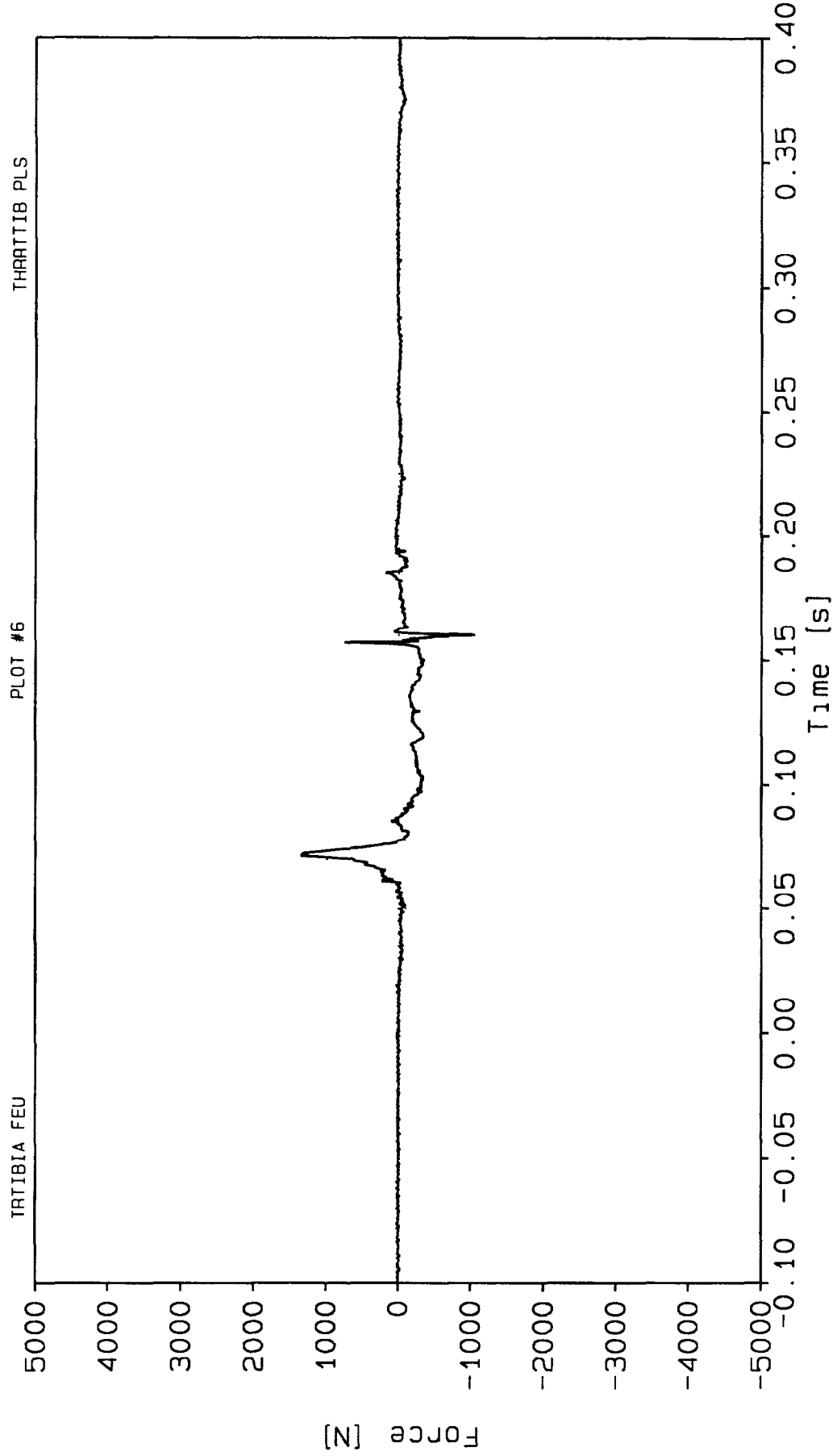
Filter Class 600
Volpe Crash Testing
PH06608

Right Lower Tibia Force (Fy) v Time

Passenger Dummy - THOR

2001 Dodge Neon

2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Filter Class 600
Volpe Crash Testing
PH05608

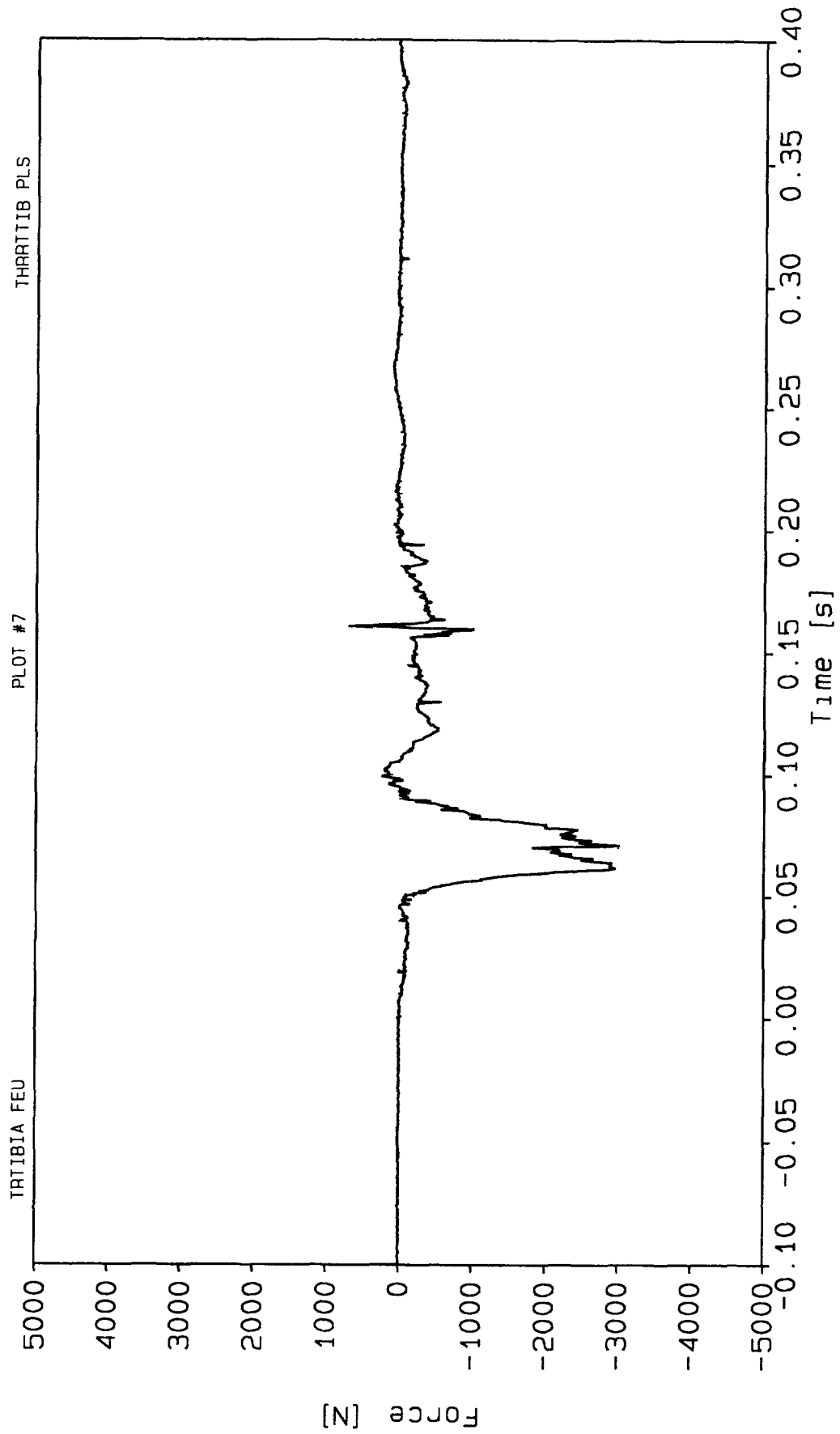
Exponent
Failure
Analysis
Associates

Right Lower Tibia Force (Fz) v Time

Passenger Dummy - THOR

2001 Dodge Neon

2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Exponent
Failure
Analysis
Associates

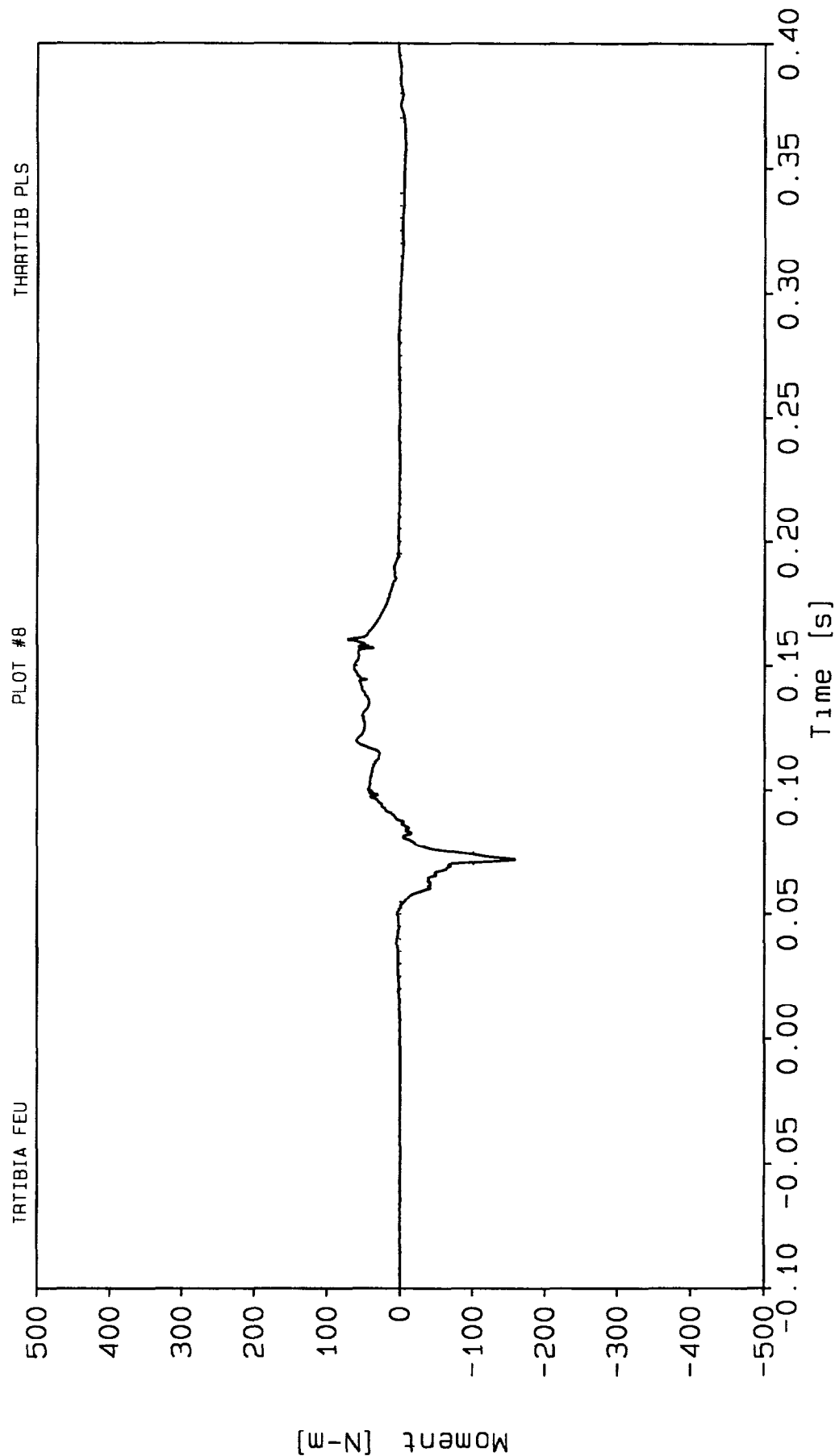
Filter Class 600
Volpe Crash Testing
PH06608

Right Lower Tibia Moment (Mx) v Time

Passenger Dummy - THOR

2001 Dodge Neon

2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Exponent
Failure
Analysis
Associates

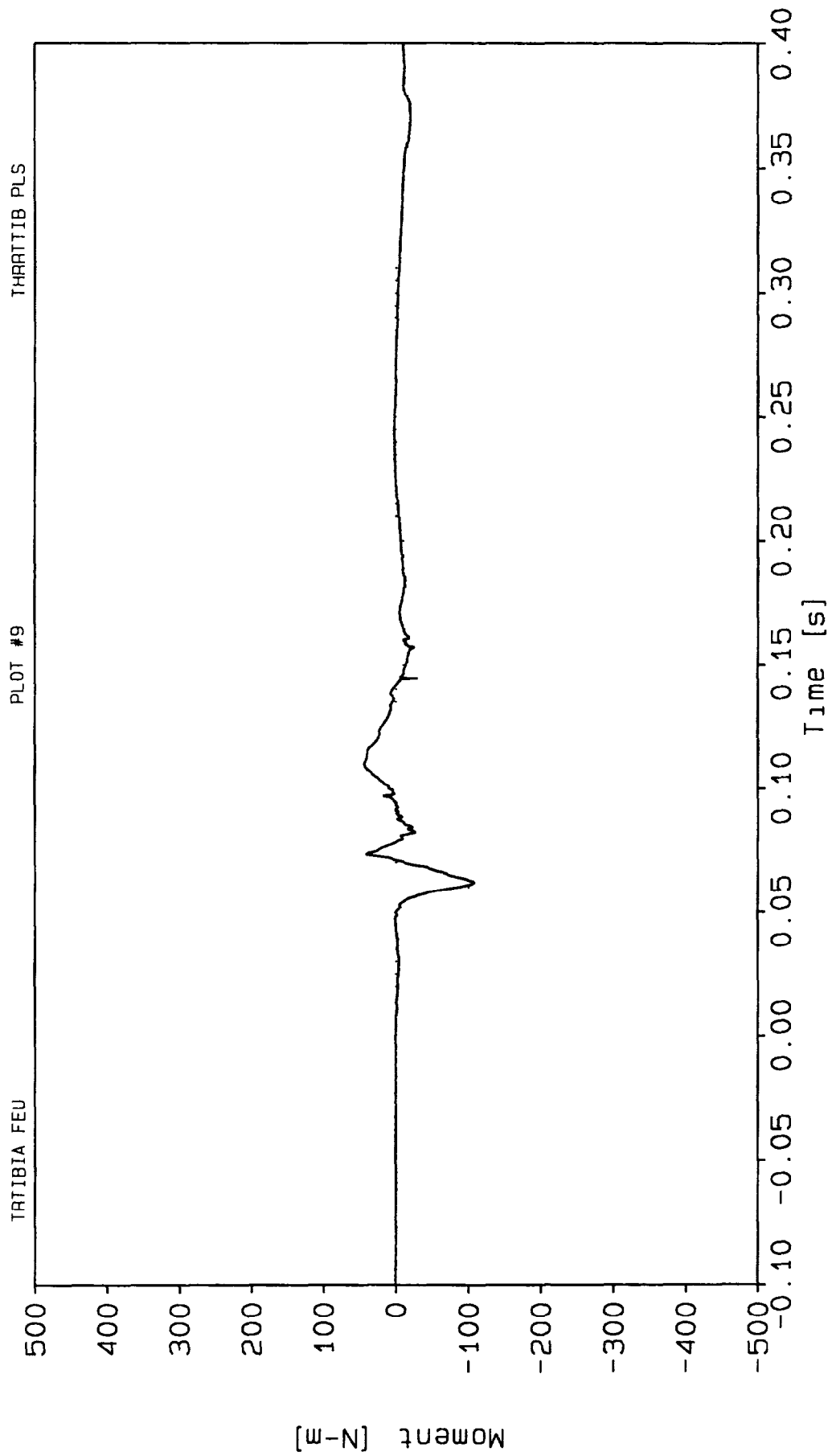
Filter Class 600
Volpe Crash Testing
PH06608

Right Lower Tibia Moment (My) v Time

Passenger Dummy - THOR

2001 Dodge Neon

2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Exponent
Failure
Analysis
Associates

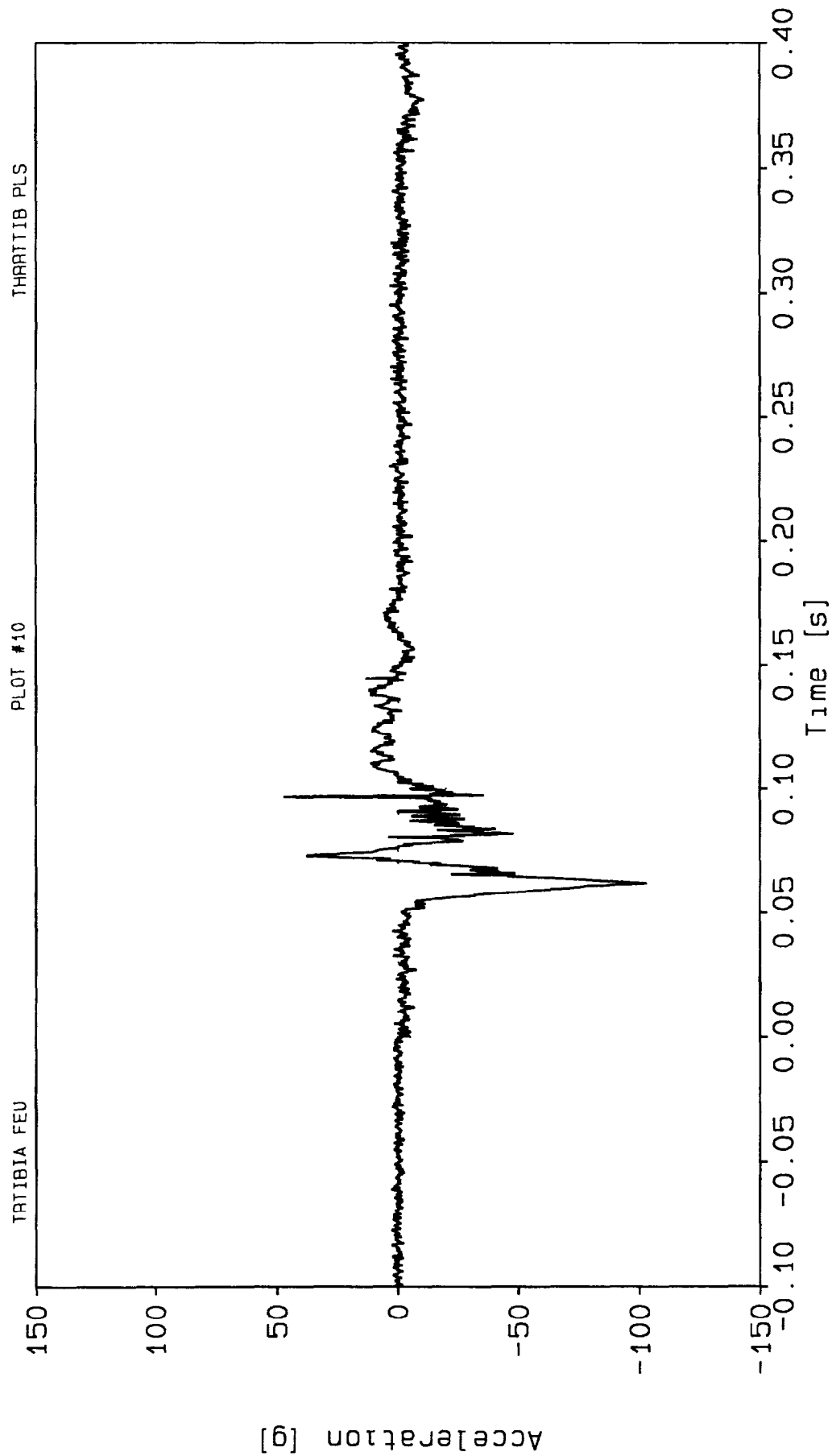
Filter Class 600
Volpe Crash Testing
PH06608

Right Tibia Acceleration (Ax) v Time

Passenger Dummy - THOR

2001 Dodge Neon

2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Exponent
Failure
Analysis
Associates

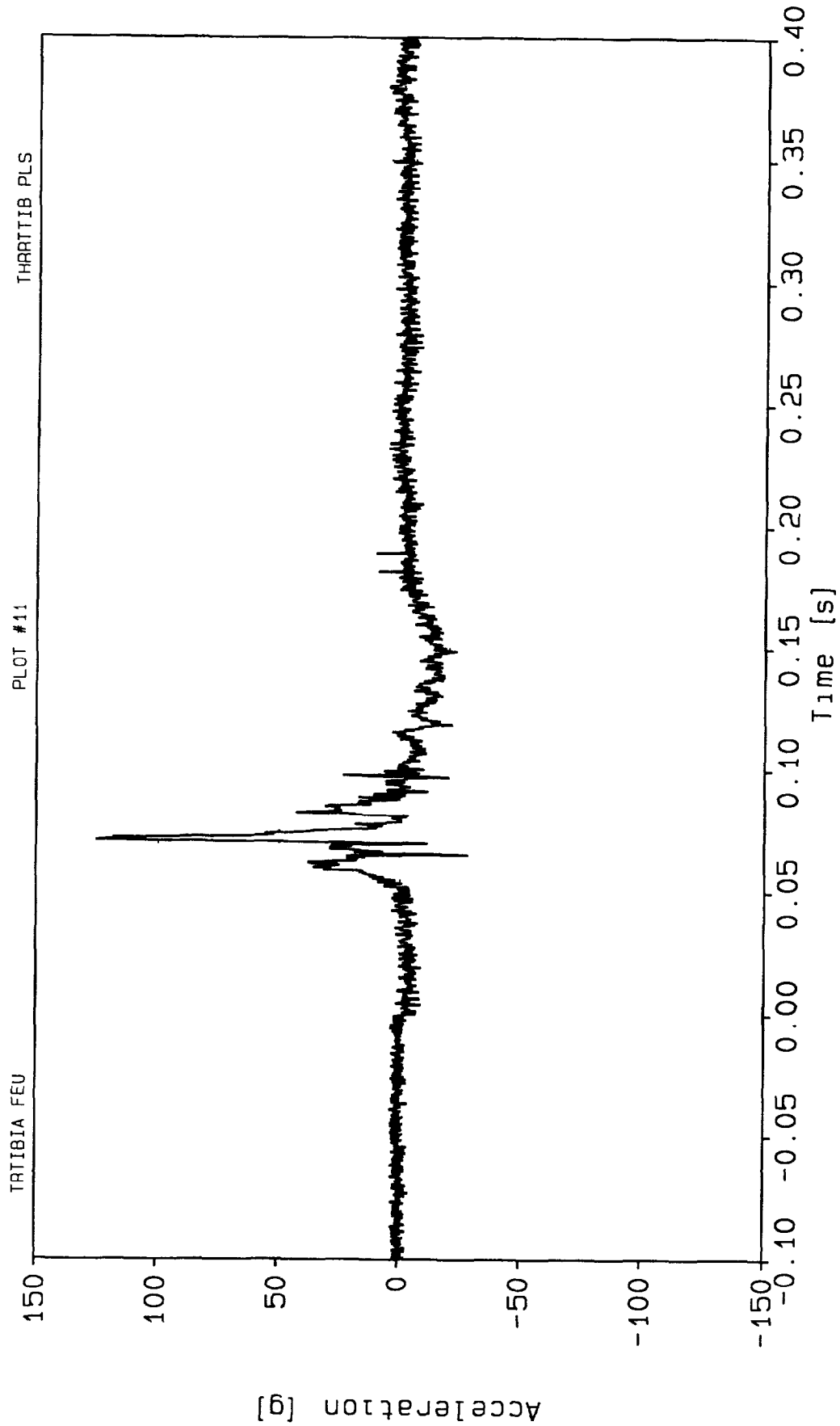
Filter Class 600
Volpe Crash Testing
PH06608

Right Tibia Acceleration (Ay) v Time

Passenger Dummy - THOR

2001 Dodge Neon

2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Exponent
Failure
Analysis
Associates

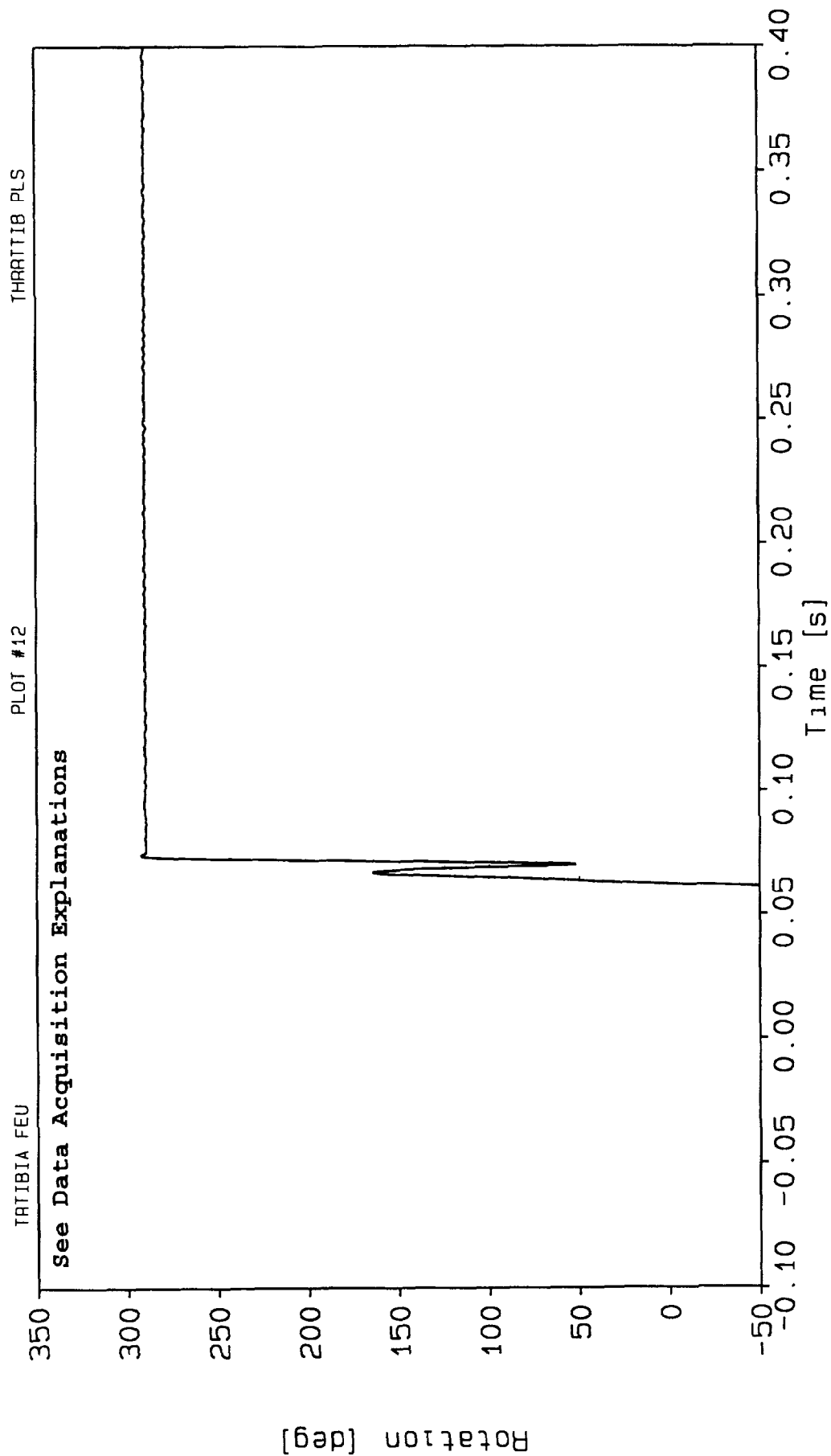
Filter Class 600
Volpe Crash Testing
PH06608

Right Ankle Rotation (X Axis) v Time

Passenger Dummy - THOR

2001 Dodge Neon

2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Exponent
Failure
Analysis
Associates

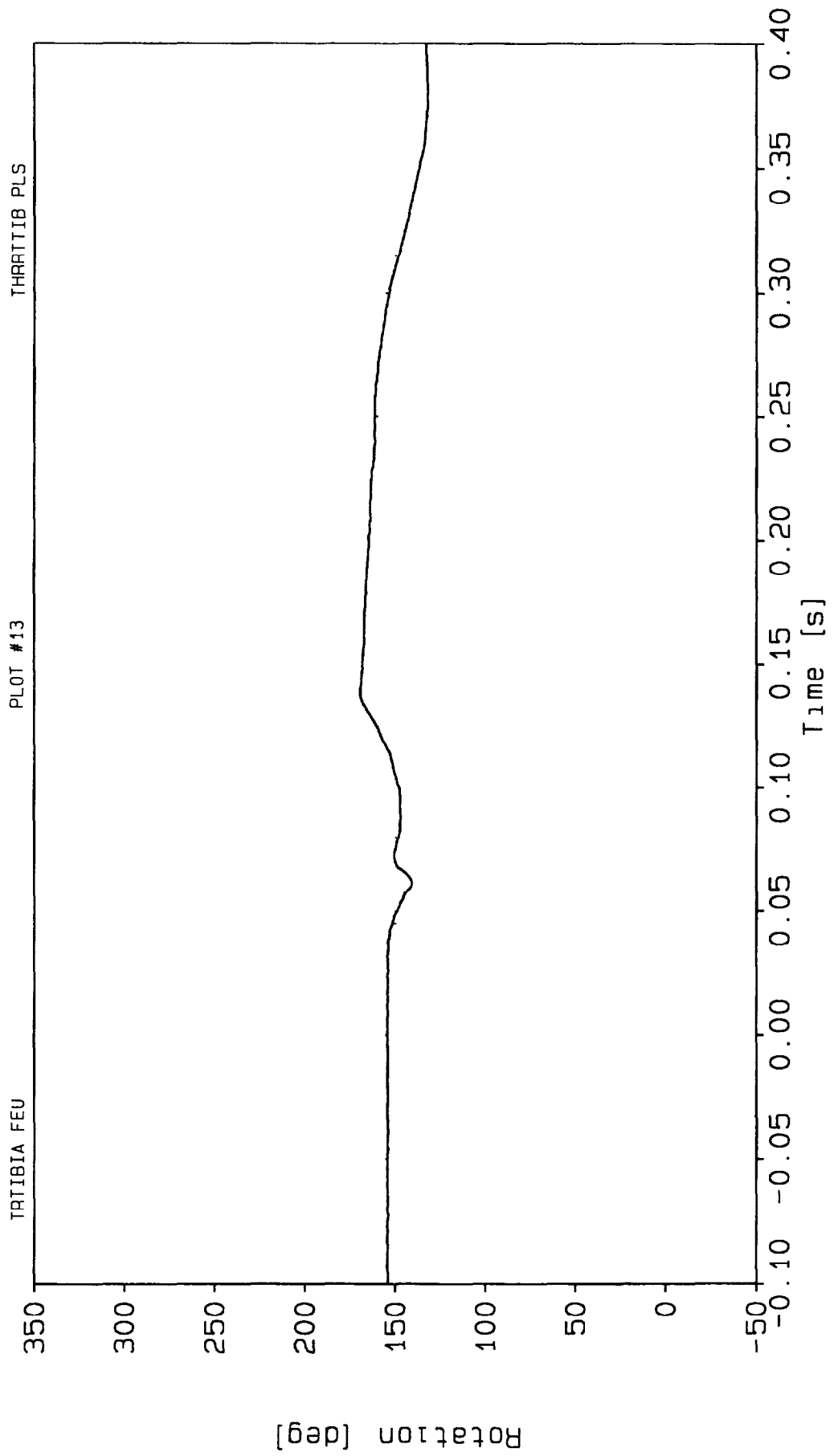
Filter Class 180
Volpe Crash Testing
PH06508

Right Ankle Rotation (Y Axis) v Time

Passenger Dummy - THOR

2001 Dodge Neon

2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Filter Class 180
Volpe Crash Testing
PH06608

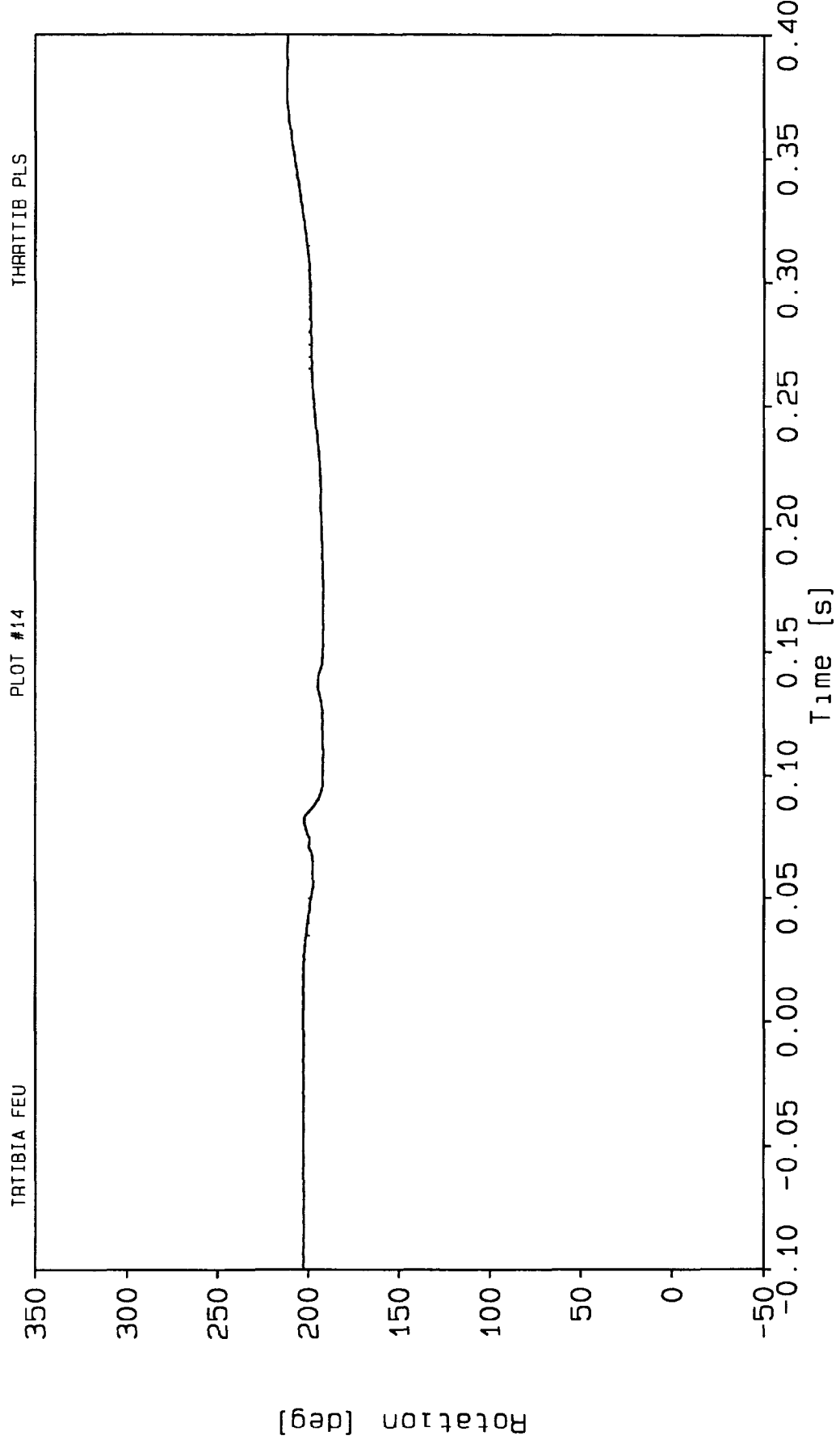
Exponent
Failure
Analysis
Associates

Right Ankle Rotation (Z Axis) v Time

Passenger Dummy - THOR

2001 Dodge Neon

2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Filter Class 180
Volpe Crash Testing
PH06608

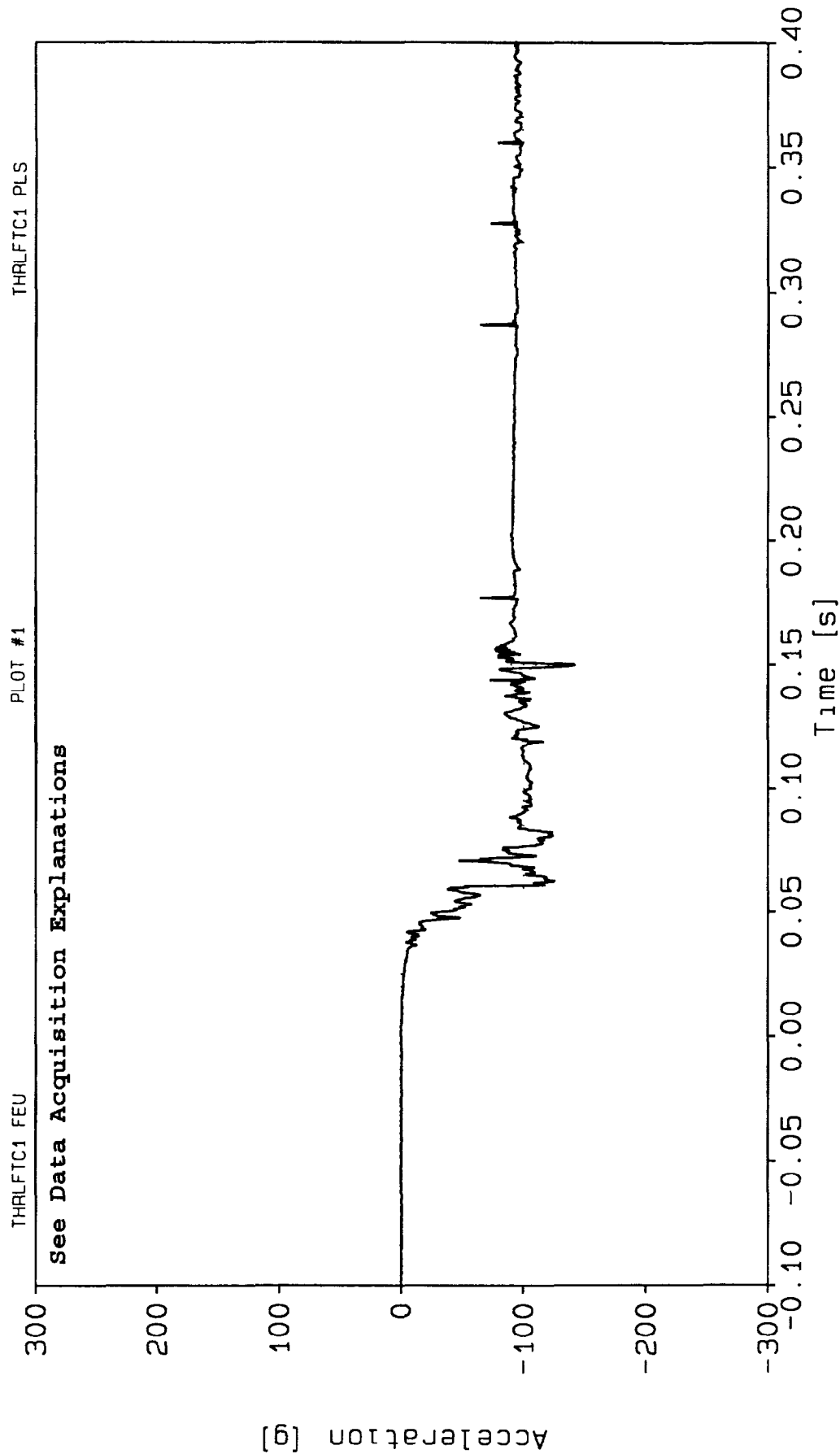
Exponent
Failure
Analysis
Associates

Left Foot Acceleration (Ax) v Time

Passenger Dummy - THOR

2001 Dodge Neon

2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Filter Class 600
Volpe Crash Testing
PH06608

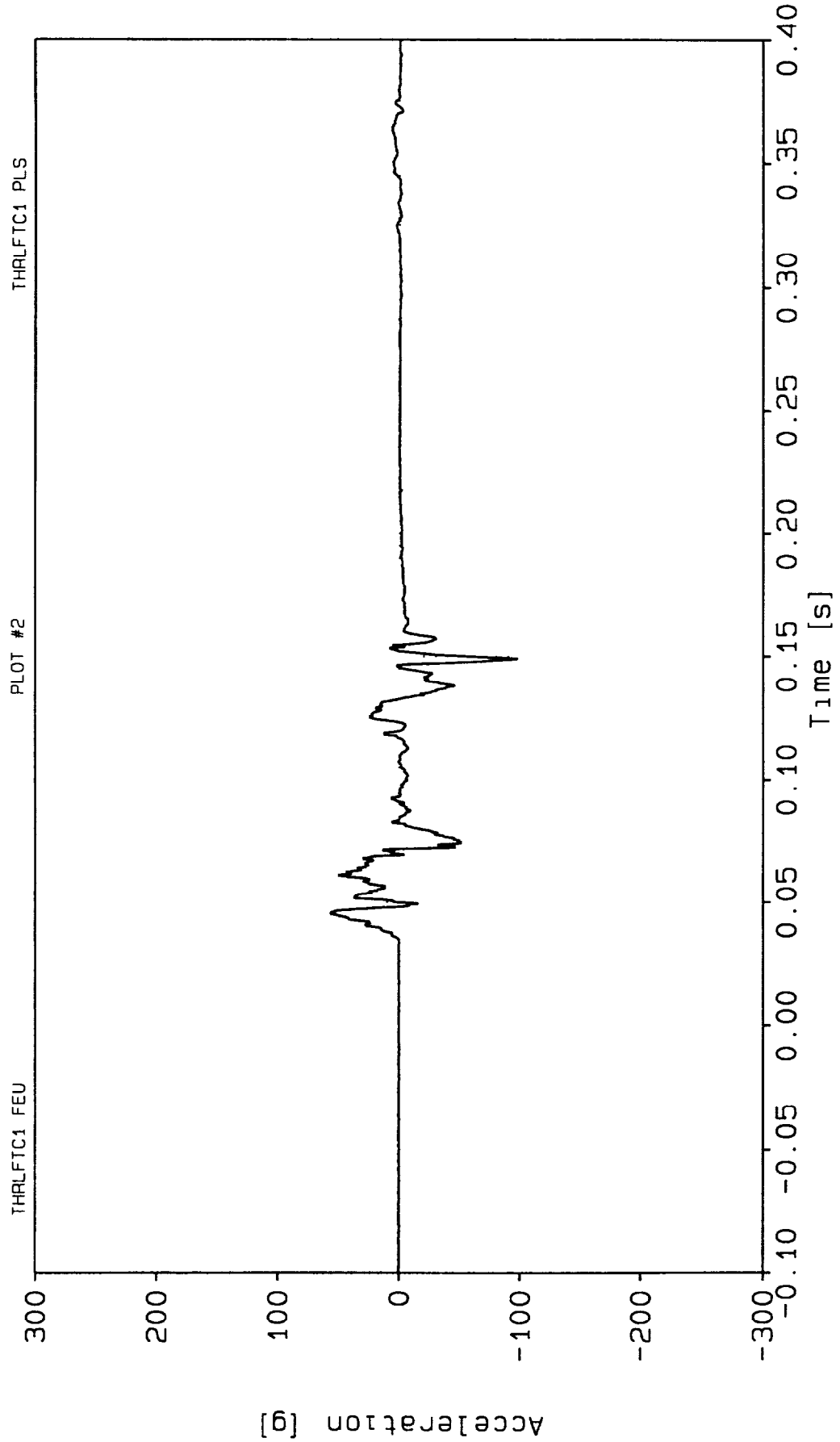
Exponent
Failure
Analysis
Associates

Left Foot Acceleration (Ay) v Time

Passenger Dummy - THOR

2001 Dodge Neon

2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Filter Class 600
Voipe Crash Testing
PH06608

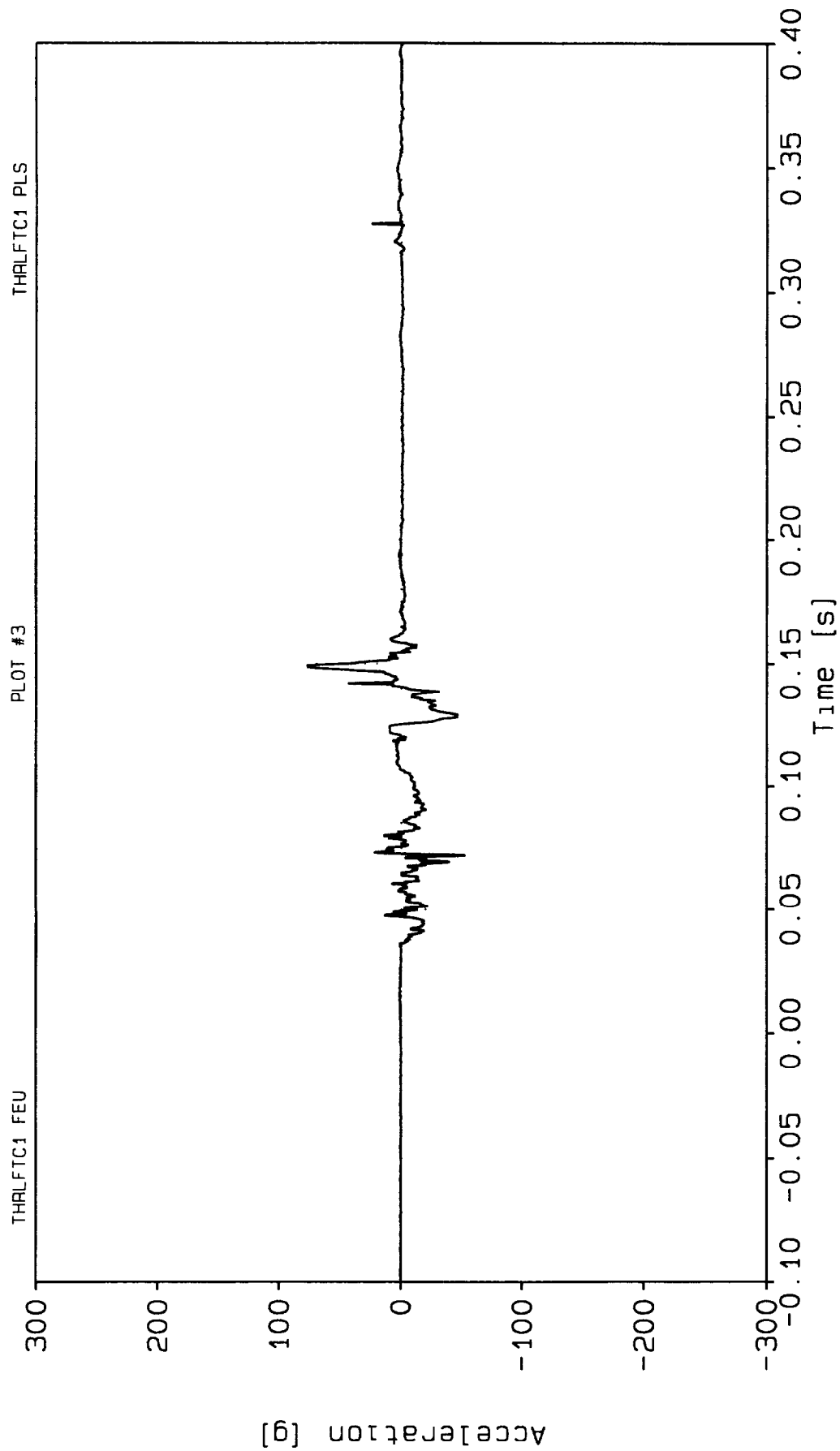
Exponent
Failure
Analysis
Associates

Left Foot Acceleration (Az) v Time

Passenger Dummy - THOR

2001 Dodge Neon

2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Filter Class 600
Volpe Crash Testing
PH06608

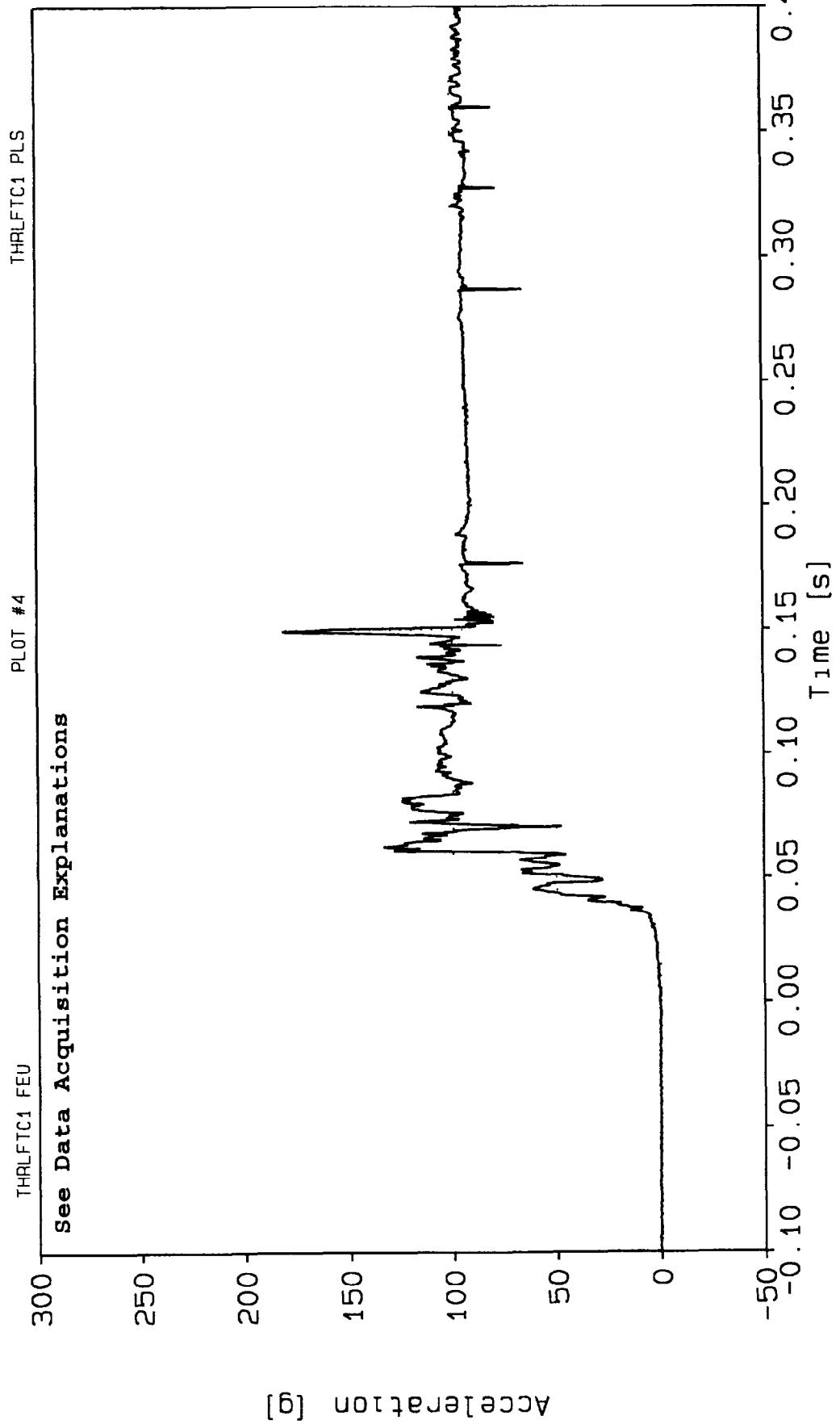
Exponent
Failure
Analysis
Associates

Left Foot Resultant Acceleration (Ar) v Time

Passenger Dummy - THOR

2001 Dodge Neon

2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Filter Class 600
Volpe Crash Testing
PH06608

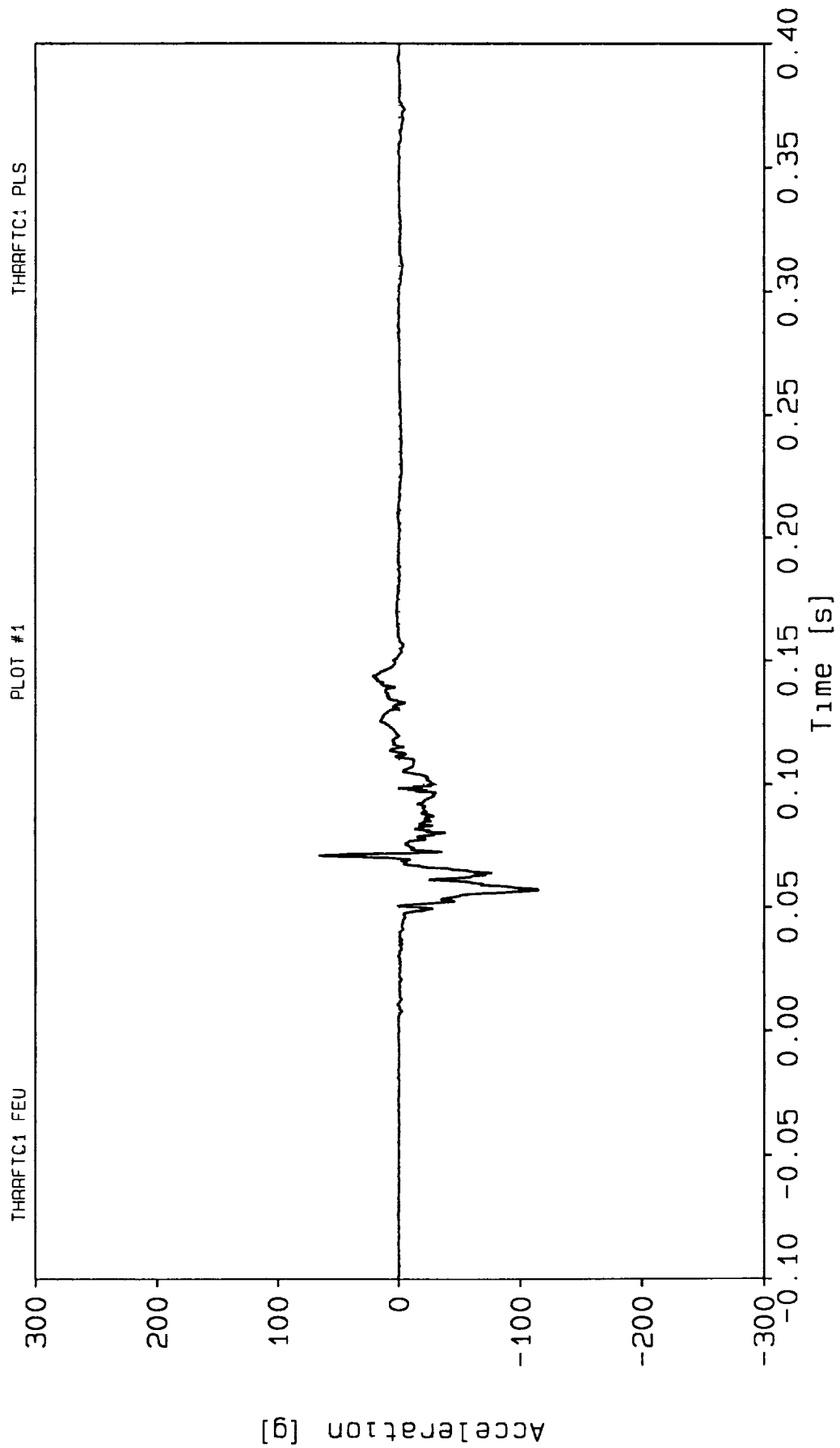
Exponent
Failure
Analysis
Associates

Right Foot Acceleration (Ax) v Time

Passenger Dummy - THOR

2001 Dodge Neon

2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Filter Class 600
Volpe Crash Testing
PH06608

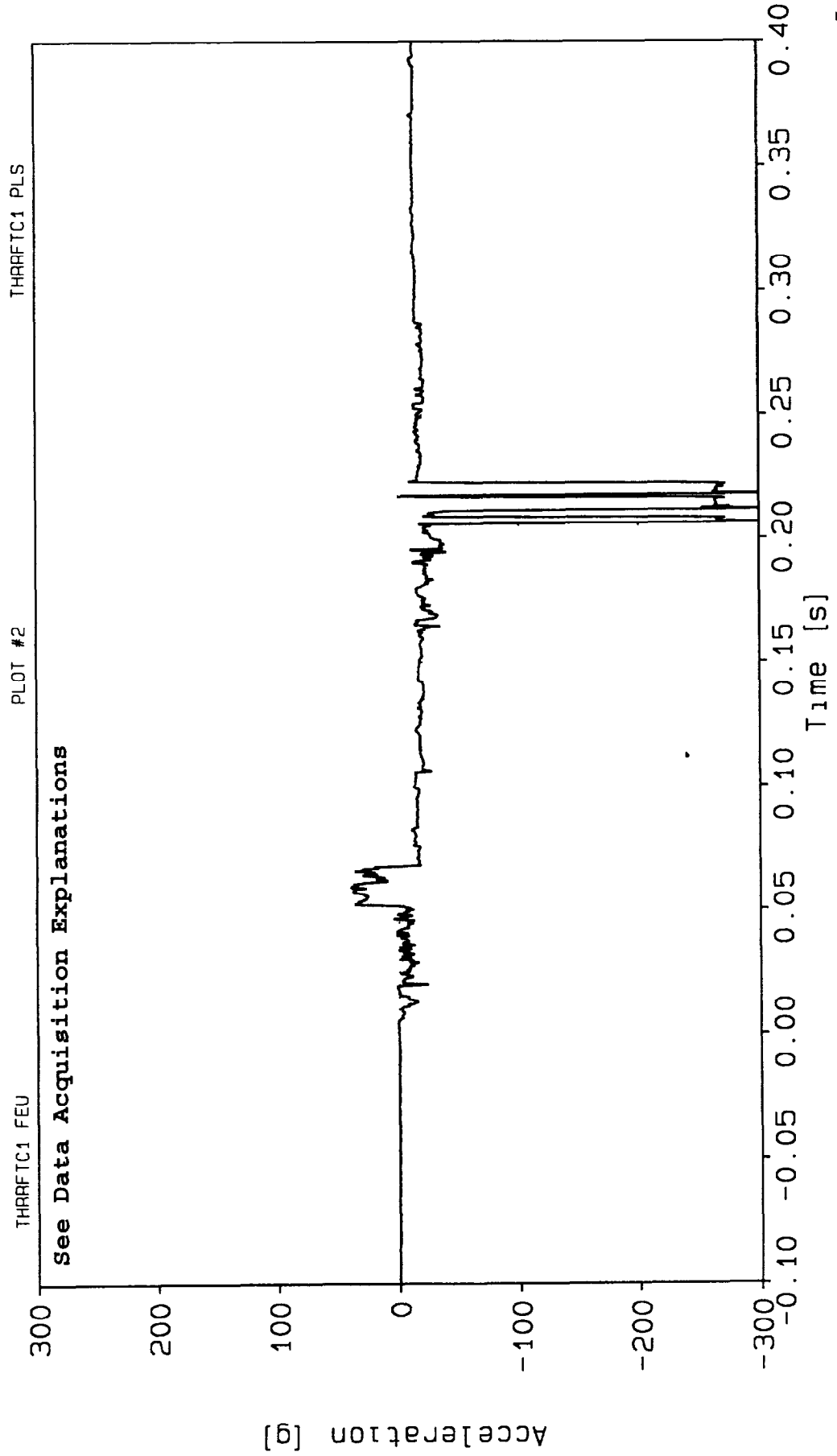
Exponent
Failure
Analysis
Associates

Right Foot Acceleration (Ay) v Time

Passenger Dummy - THOR

2001 Dodge Neon

2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Exponent
Failure
Analysis
Associates

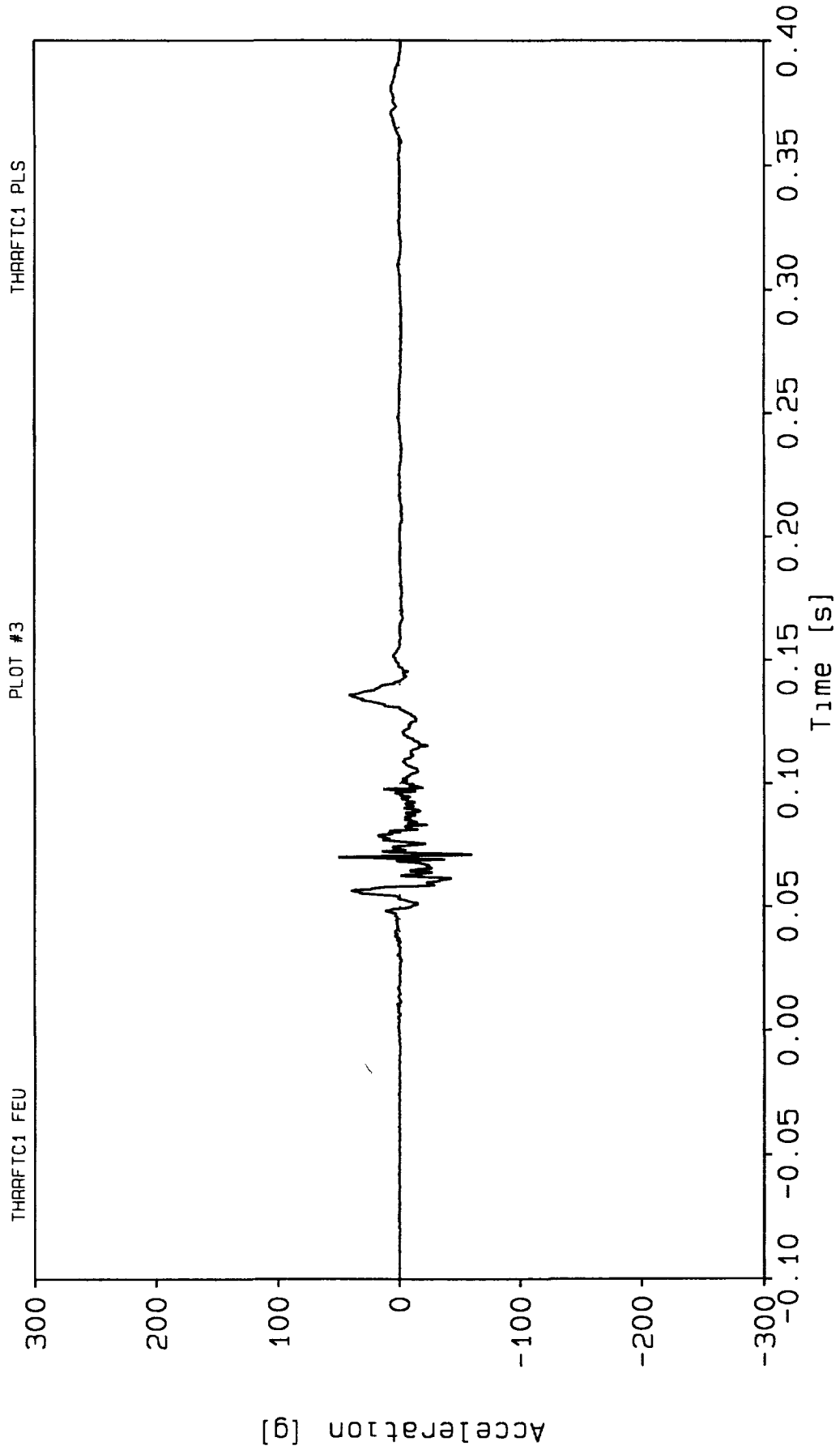
Filter Class 600
Volpe Crash Testing
PH06608

Right Foot Acceleration (Az) v Time

Passenger Dummy - THOR

2001 Dodge Neon

2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Filter Class 500
Volpe Crash Testing
PH06608

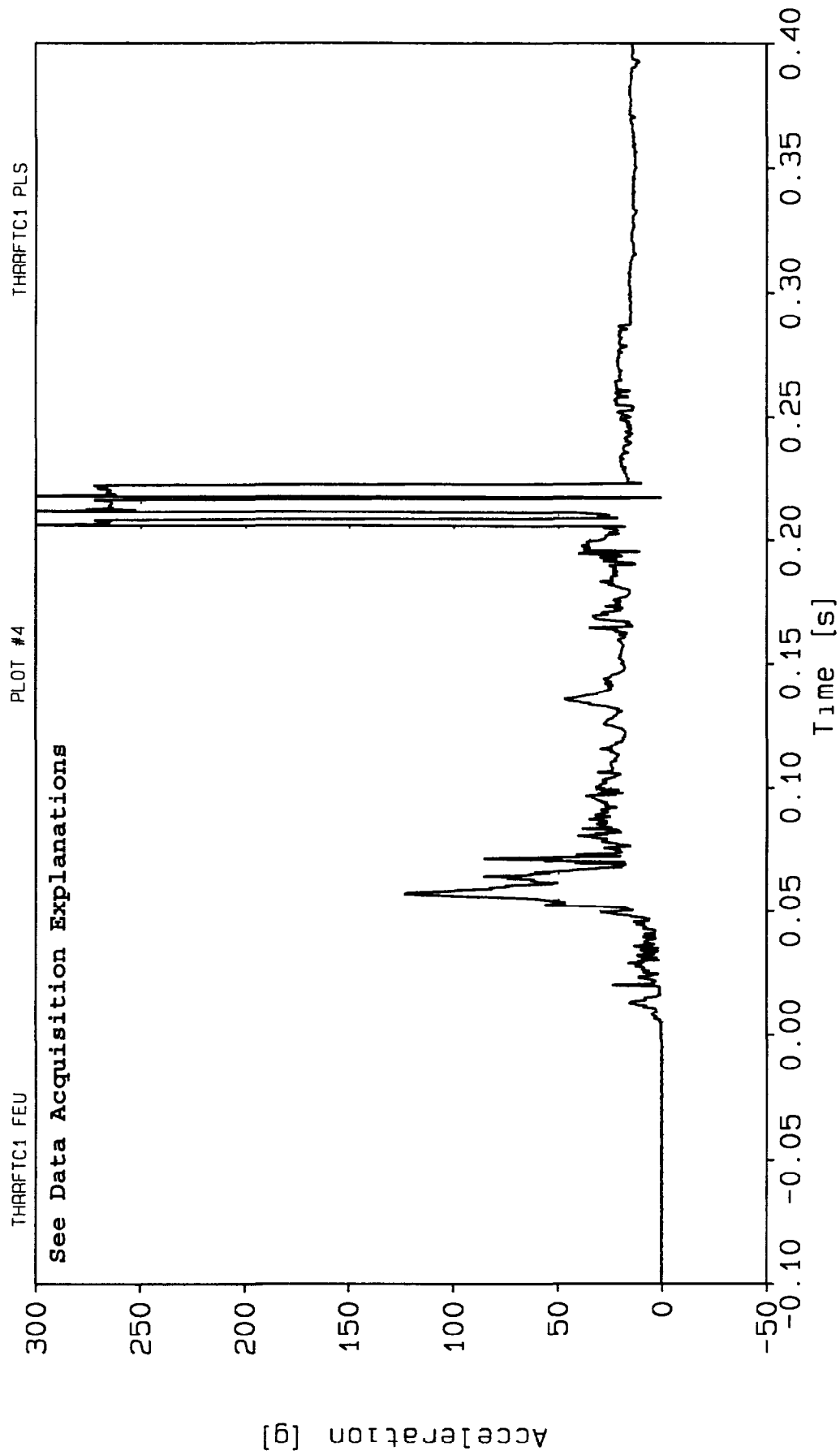
Exponent
Failure
Analysis
Associates

Right Foot Resultant Acceleration (Ar) v Time

Passenger Dummy - THOR

2001 Dodge Neon

2001 Ford F-150 into 2001 Dodge Neon - 09/14/01

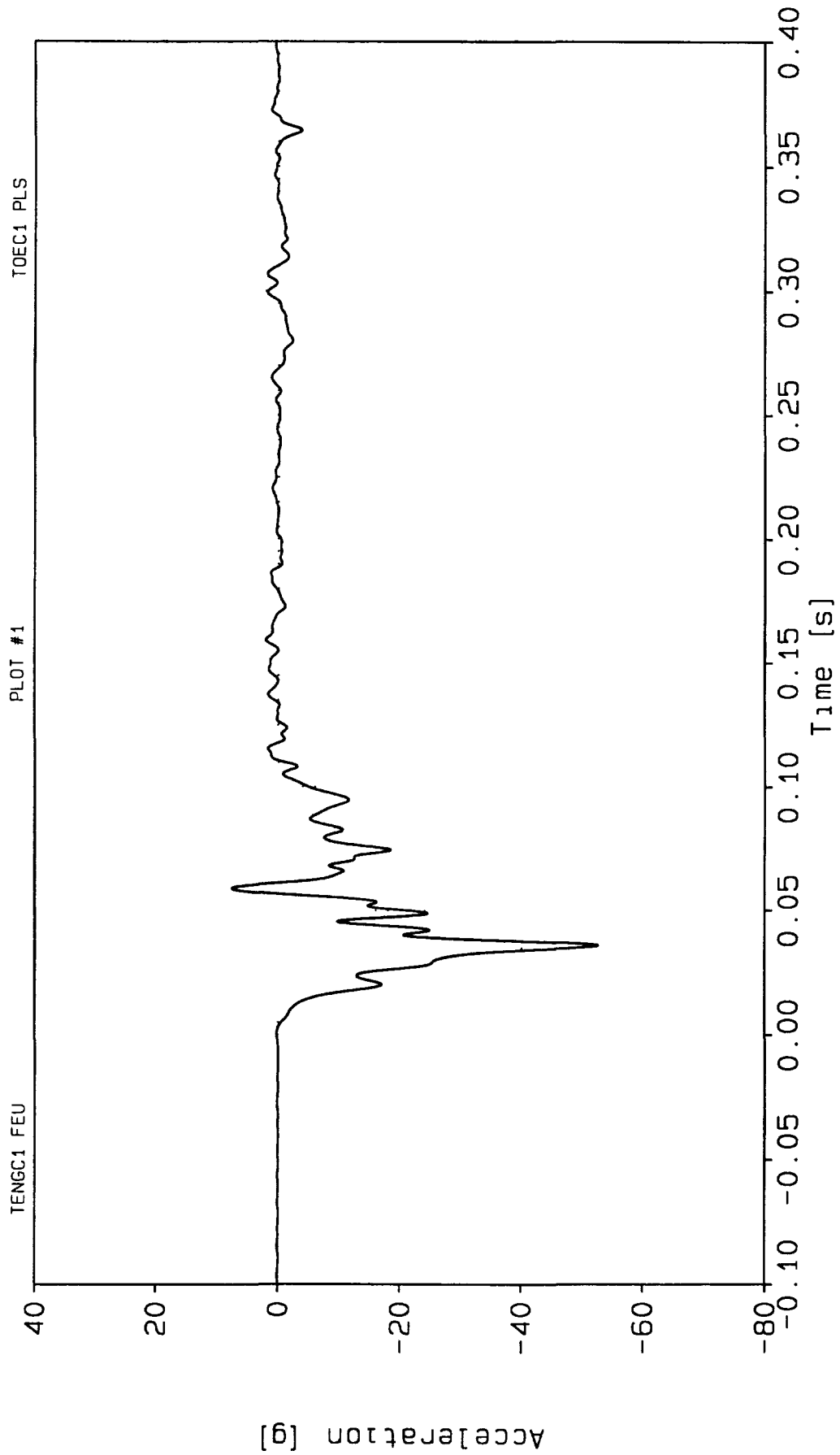


Filter Class 600
Volpe Crash Testing
PH06608

Exponent
Failure
Analysis
Associates

Acceleration (Ax) v Time

Top of Engine
2001 Dodge Neon
2001 Ford-150 into 2001 Dodge Neon - 09/14/01

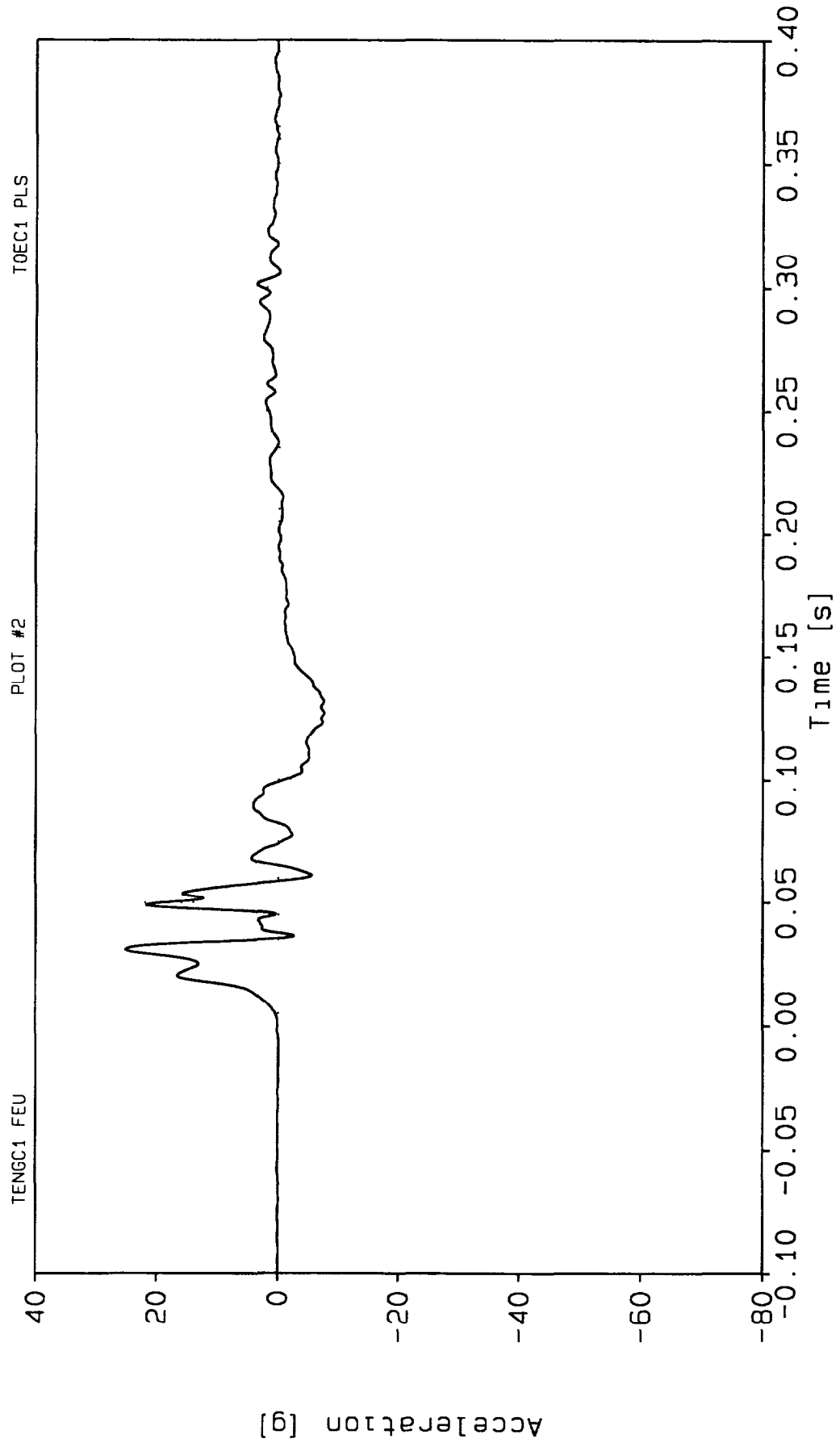


Filter Class 60
Volpe Crash Testing
PH06608

Exponent
Failure
Analysis
Associates

Acceleration (Ay) v Time

Top of Engine
2001 Dodge Neon
2001 Ford-150 into 2001 Dodge Neon - 09/14/01



Filter Class 60
Volpe Crash Testing
PH06608

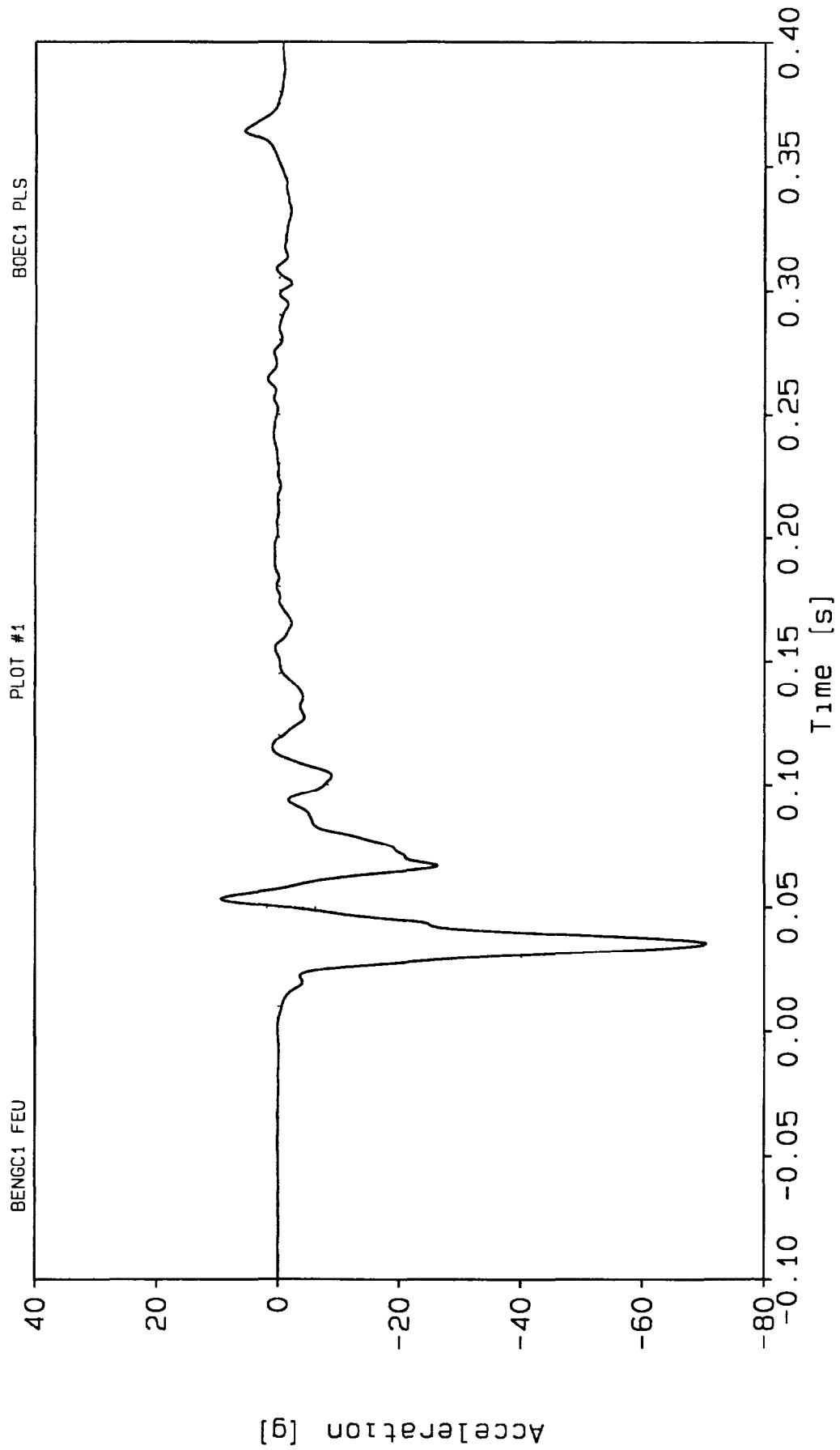
Exponent
Failure
Analysis
Associates

Acceleration (Ax) v Time

Bottom of Engine

2001 Dodge Neon

2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Filter Class 60
Volpe Crash Testing
PH06508

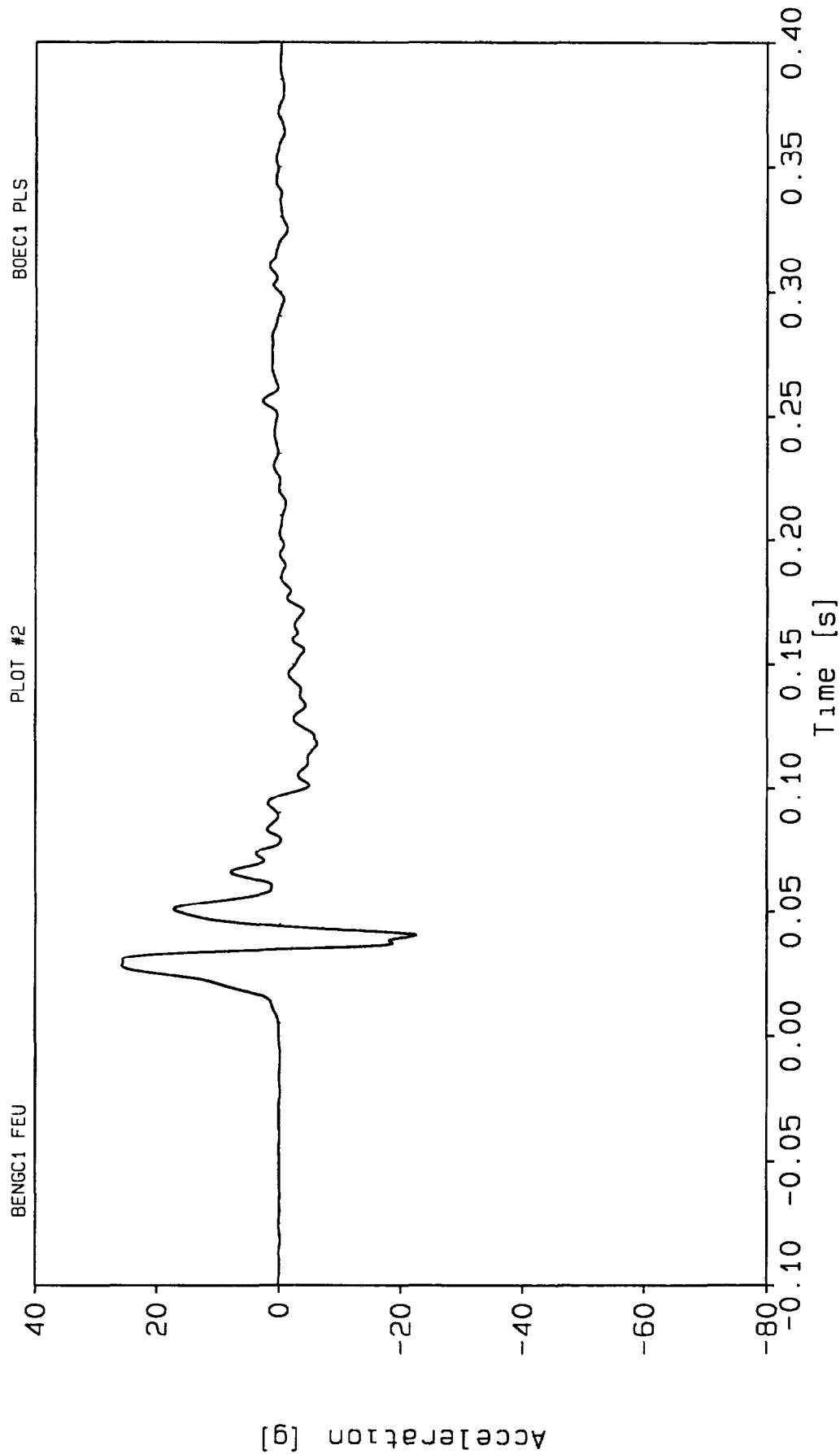
Exponent
Failure
Analysis
Associates

Acceleration (Ay) v Time

Bottom of Engine

2001 Dodge Neon

2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Exponent
Failure
Analysis
Associates

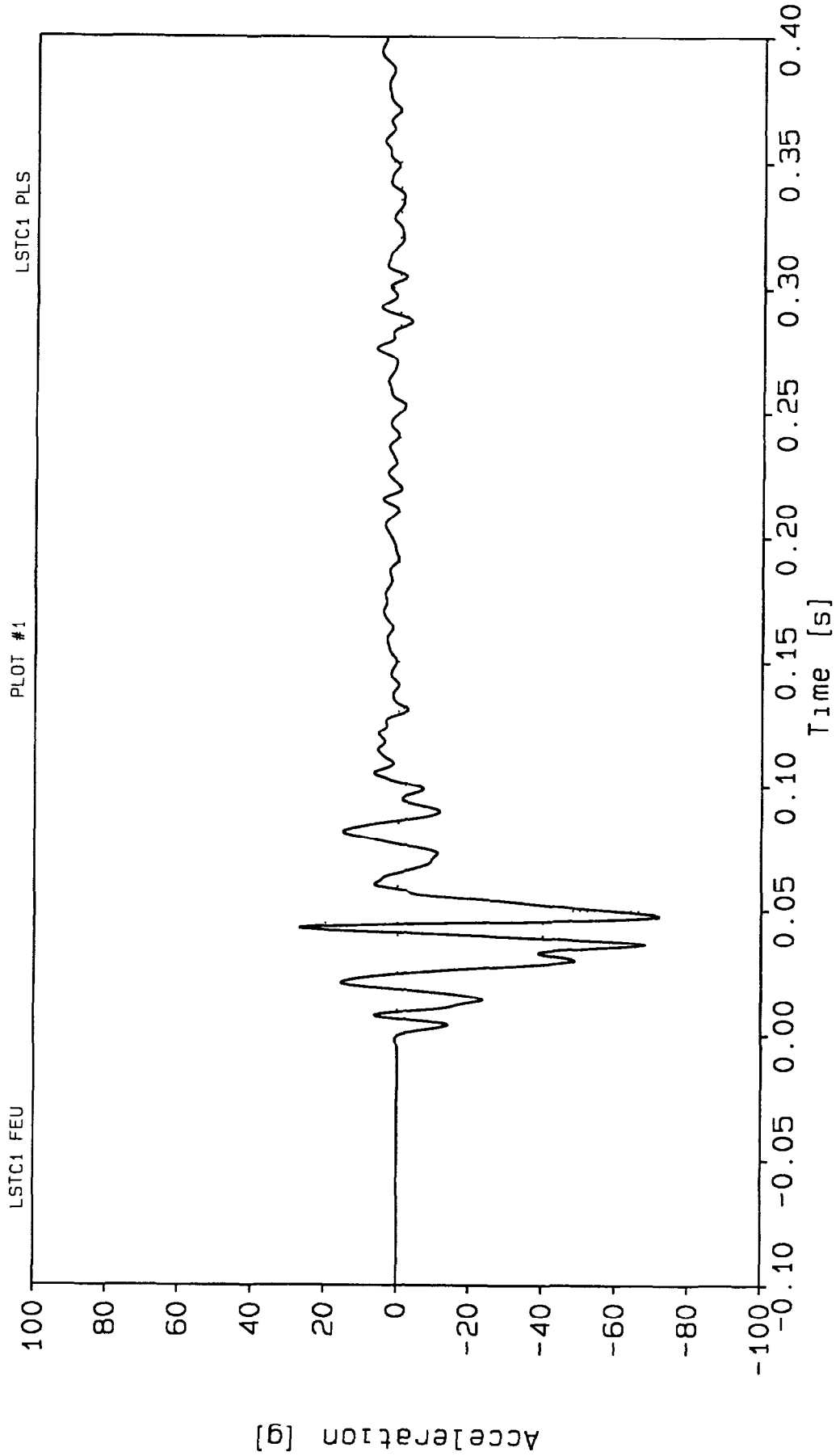
Filter Class 60
Volpe Crash Testing
PH06608

Acceleration (Ax) v Time

Left Shock Tower

2001 Dodge Neon

2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Filter Class 60
Volpe Crash Testing
PH06608

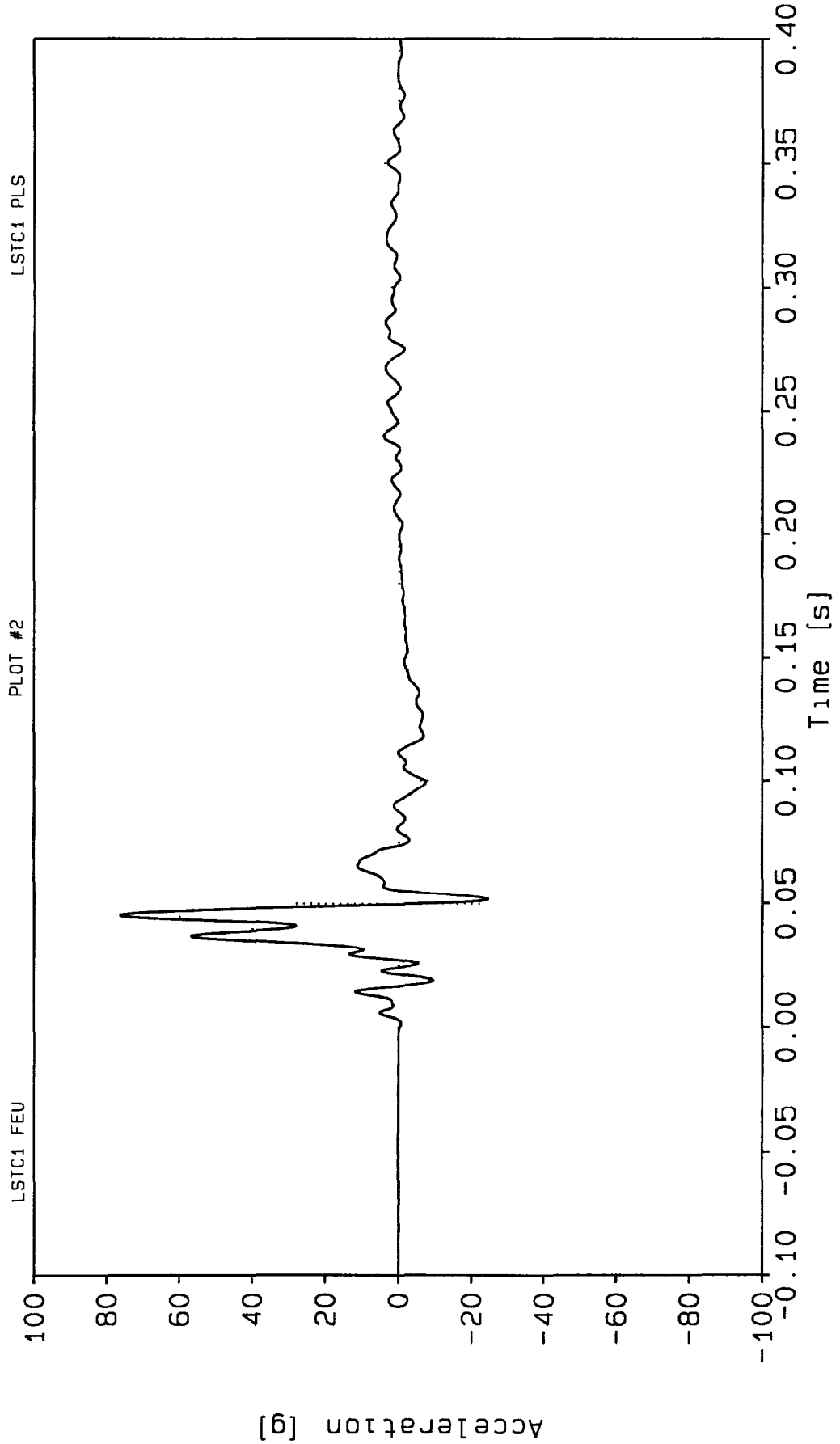
Exponent
Failure
Analysis
Associates

Acceleration (Ay) v Time

Left Shock Tower

2001 Dodge Neon

2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Filter Class 60
Volpe Crash Testing
PH06508

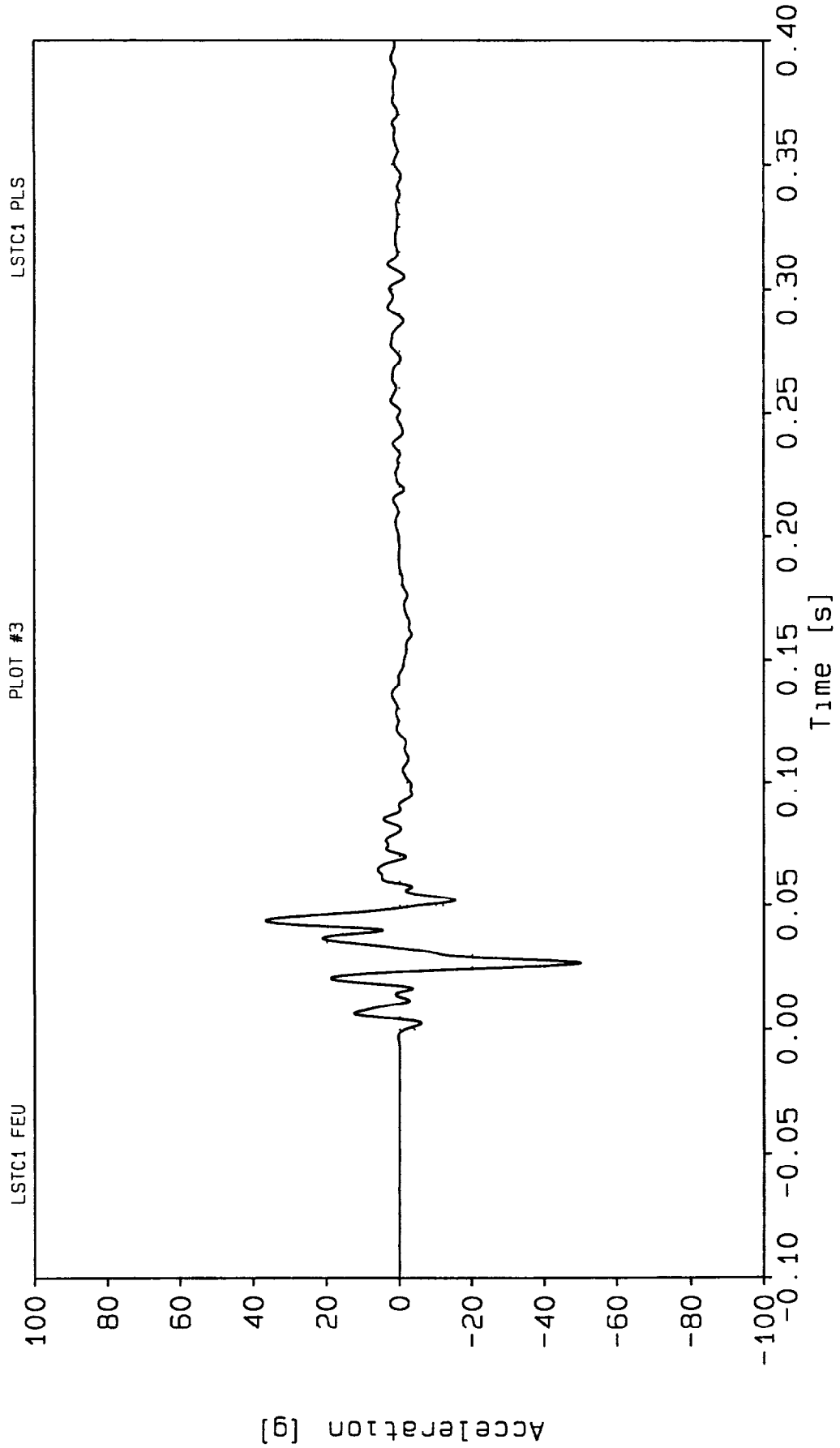
Exponent
Failure
Analysis
Associates

Acceleration (Az) v Time

Left Shock Tower

2001 Dodge Neon

2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Exponent
Failure
Analysis
Associates

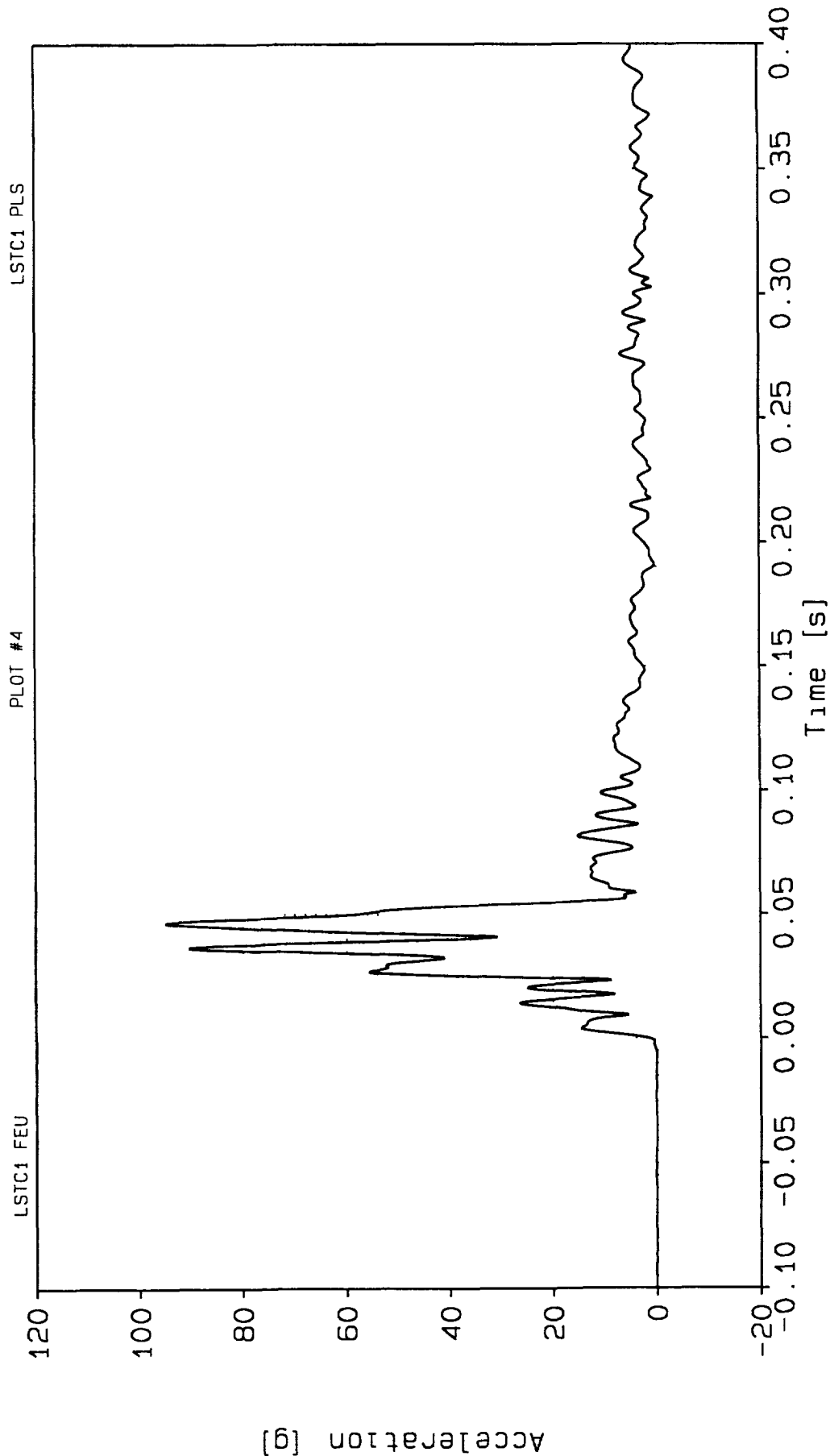
Filter Class 60
Volpe Crash Testing
PH06608

Resultant Acceleration (Ar) v Time

Left Shock Tower

2001 Dodge Neon

2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Filter Class 60
Volpe Crash Testing
PH06608

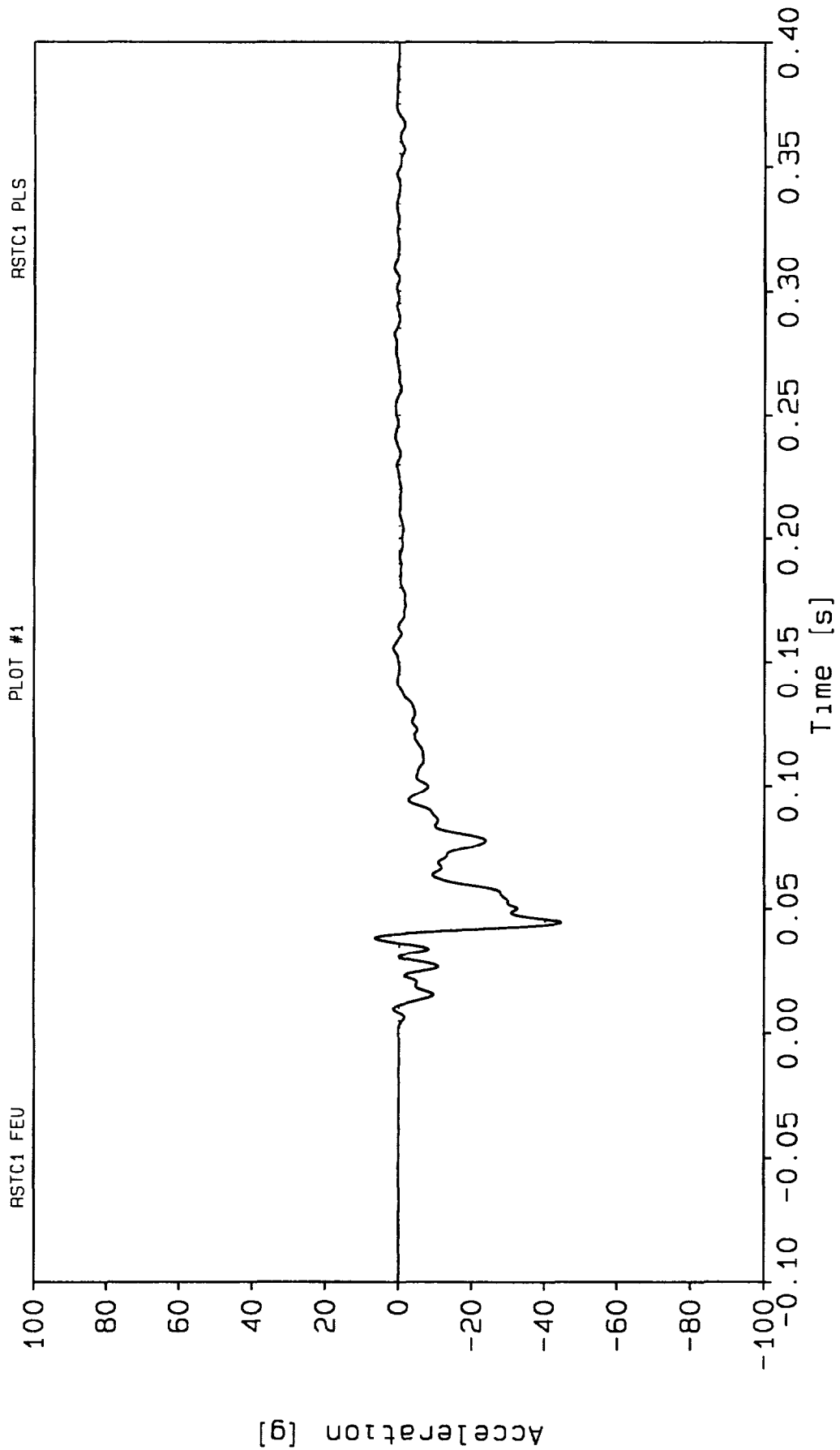
Exponent
Failure
Analysis
Associates

Acceleration (Ax) v Time

Right Shock Tower

2001 Dodge Neon

2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Filter Class 60
Volpe Crash Testing
PH06508

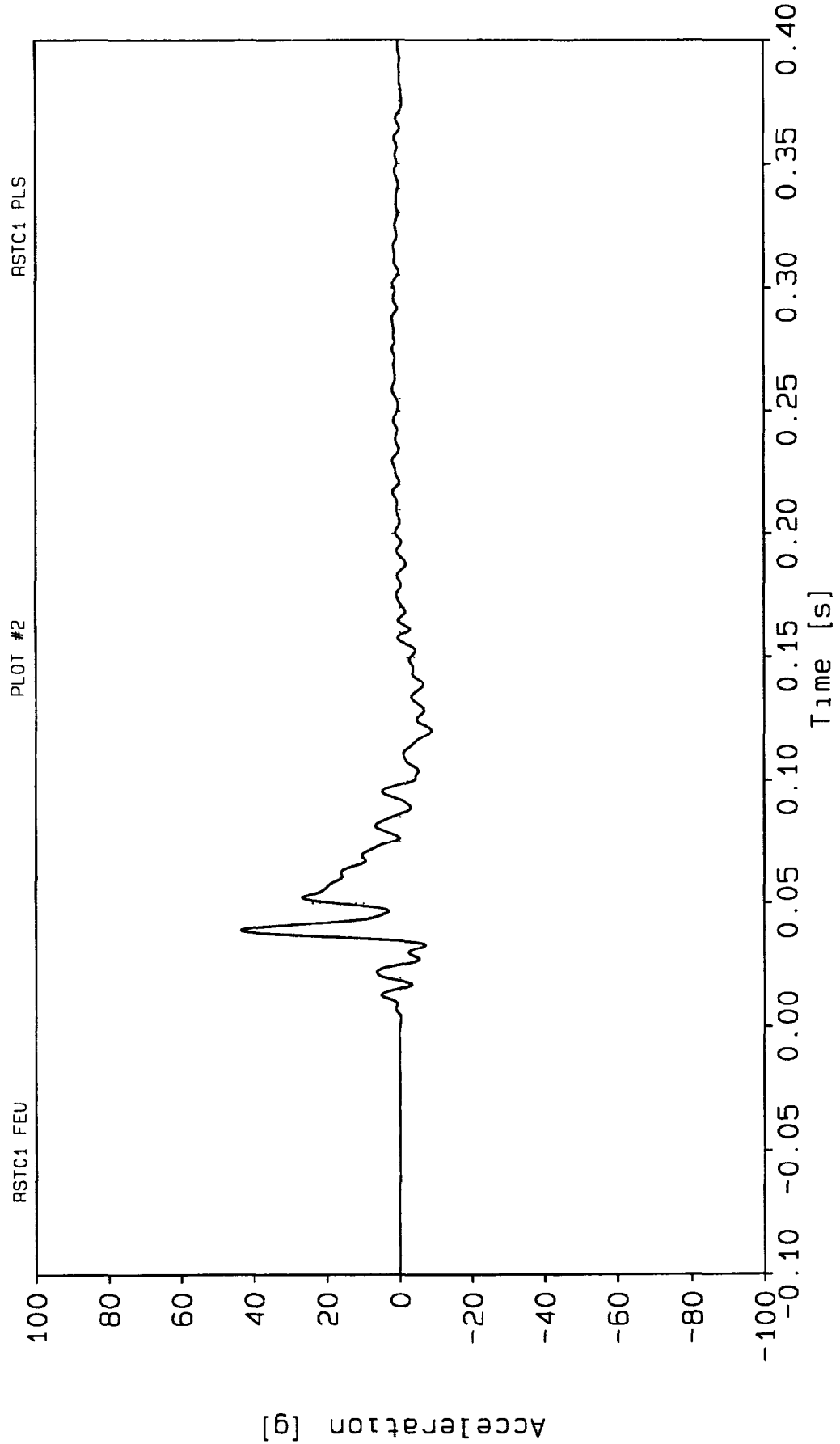
Exponent
Failure
Analysis
Associates

Acceleration (Ay) v Time

Right Shock Tower

2001 Dodge Neon

2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Filter Class 60
Volpe Crash Testing
PH06608

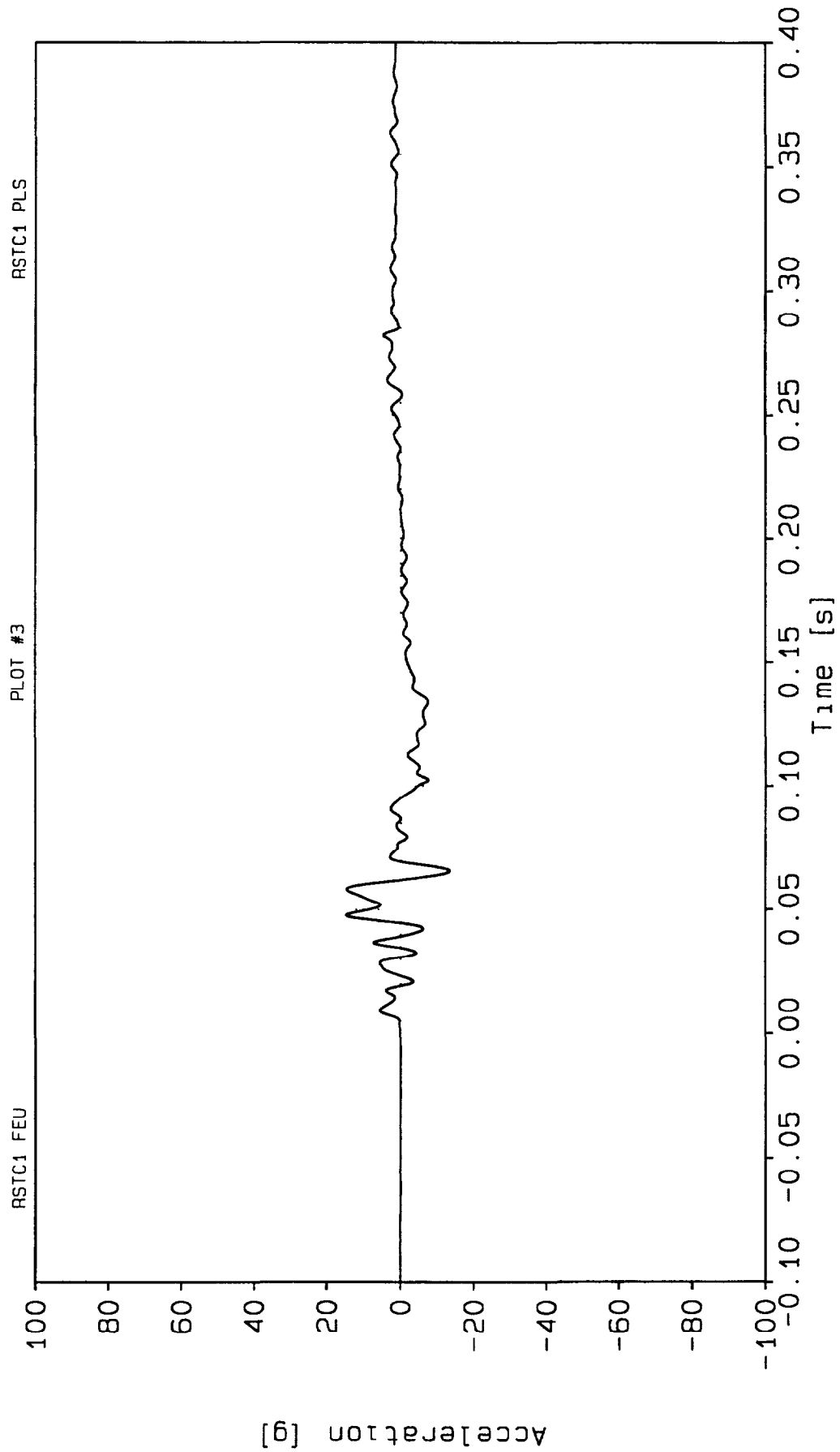
Exponent
Failure
Analysis
Associates

Acceleration (Az) v Time

Right Shock Tower

2001 Dodge Neon

2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Exponent
Failure
Analysis
Associates

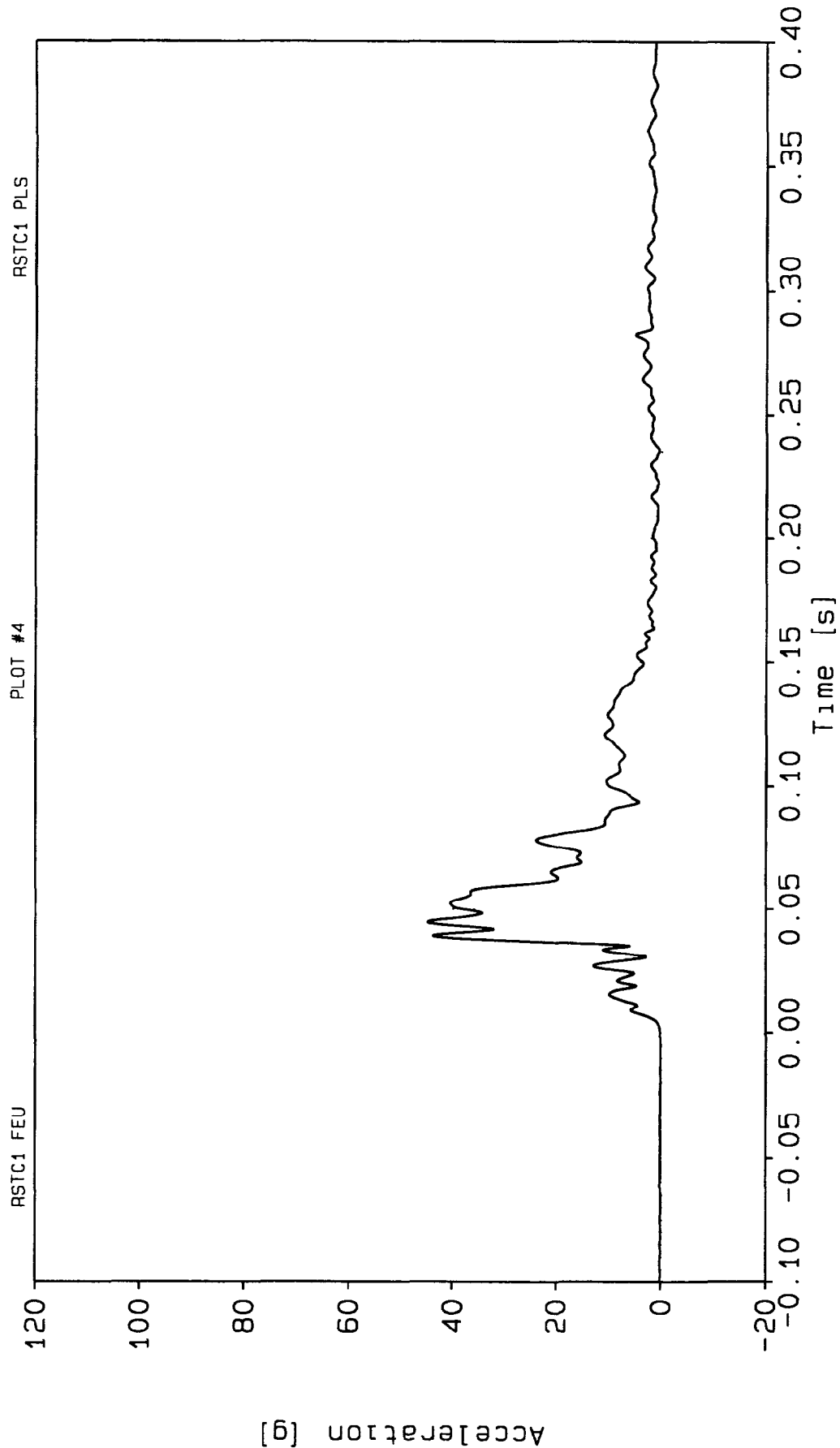
Filter Class 60
Volpe Crash Testing
PH06608

Resultant Acceleration (Ar) v Time

Right Shock Tower

2001 Dodge Neon

2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Filter Class 60
Volpe Crash Testing
PH06608

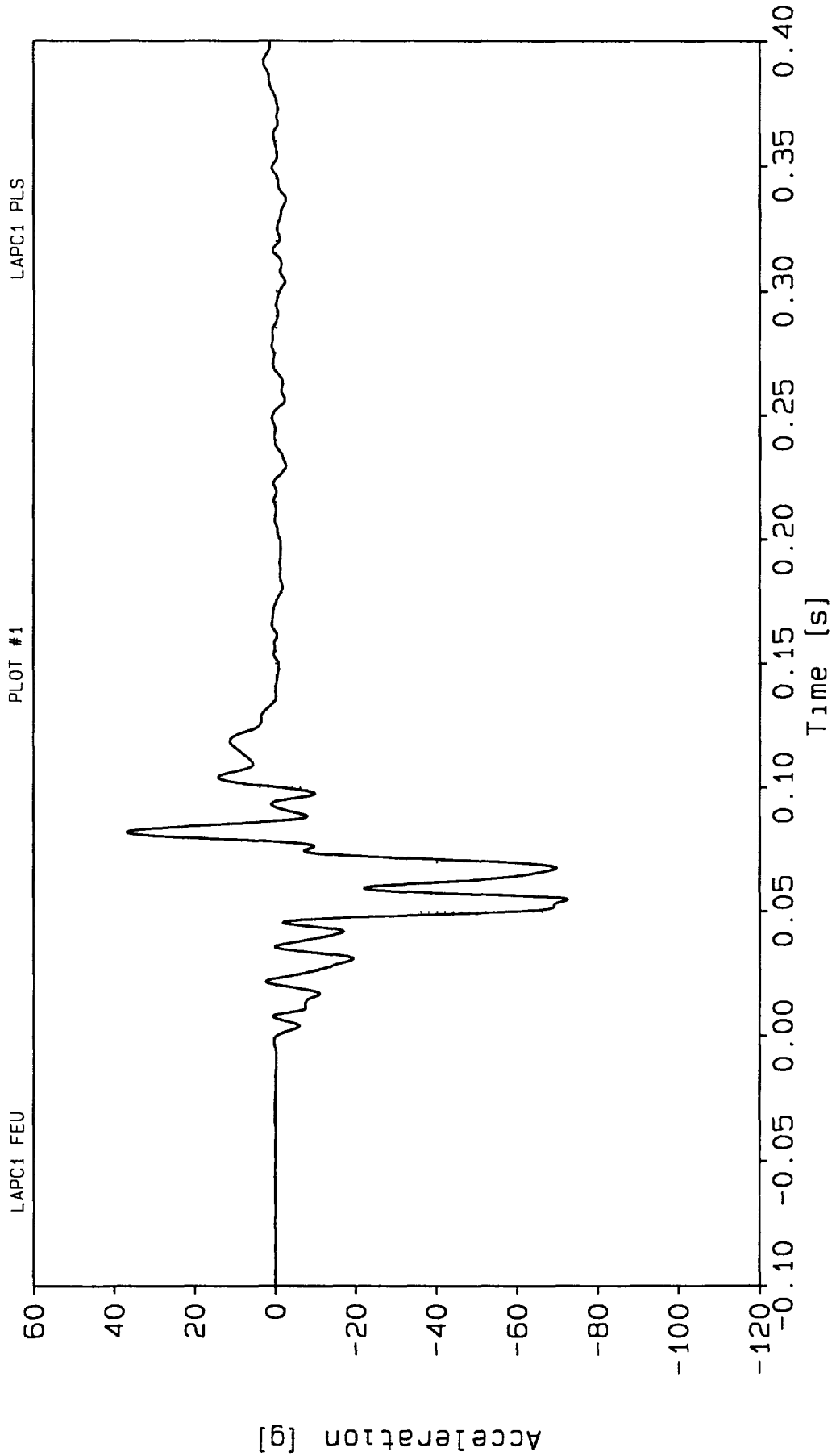
Exponent
Failure
Analysis
Associates

Acceleration (Ax) v Time

Left A-Pillar Top Hinge

2001 Dodge Neon

2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Exponent
Failure
Analysis
Associates

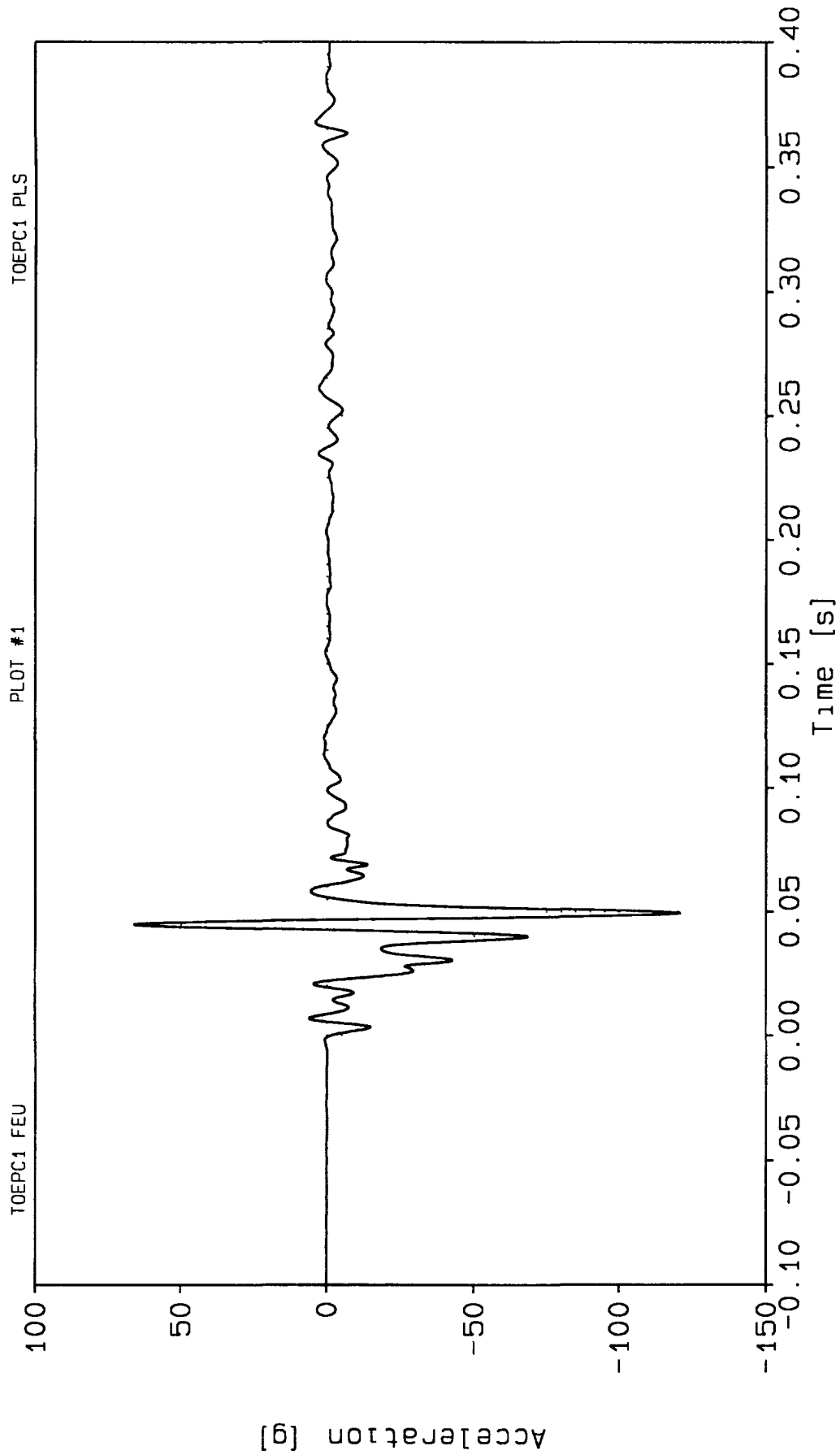
Filter Class 60
Volpe Crash Testing
PH05508

Acceleration (Ax) v Time

Driver Side Toe Pan

2001 Dodge Neon

2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Exponent
Failure
Analysis
Associates

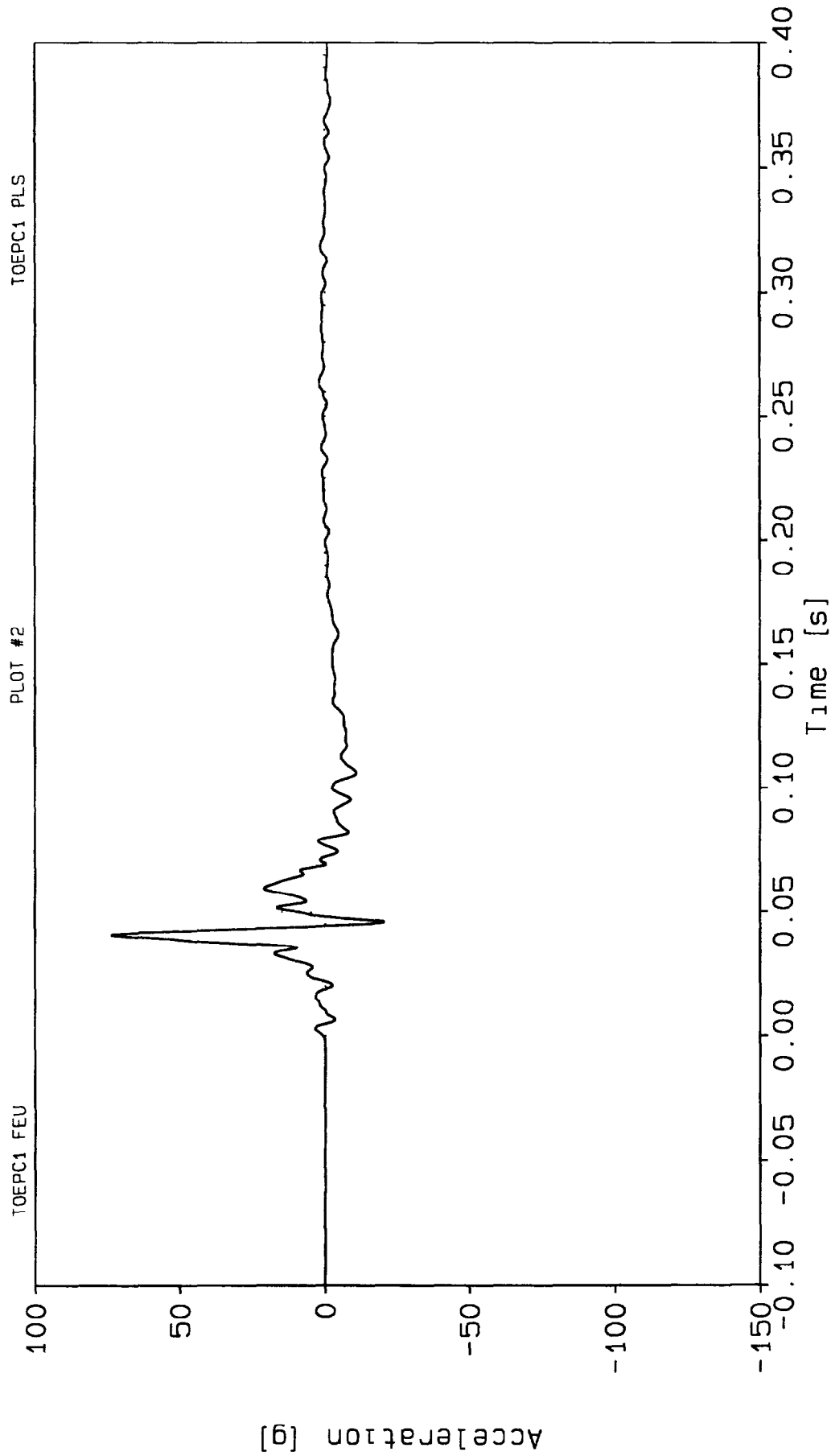
Filter Class 60
Volpe Crash Testing
PH06608

Acceleration (Ay) v Time

Driver Side Toe Pan

2001 Dodge Neon

2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Exponent
Failure
Analysis
Associates

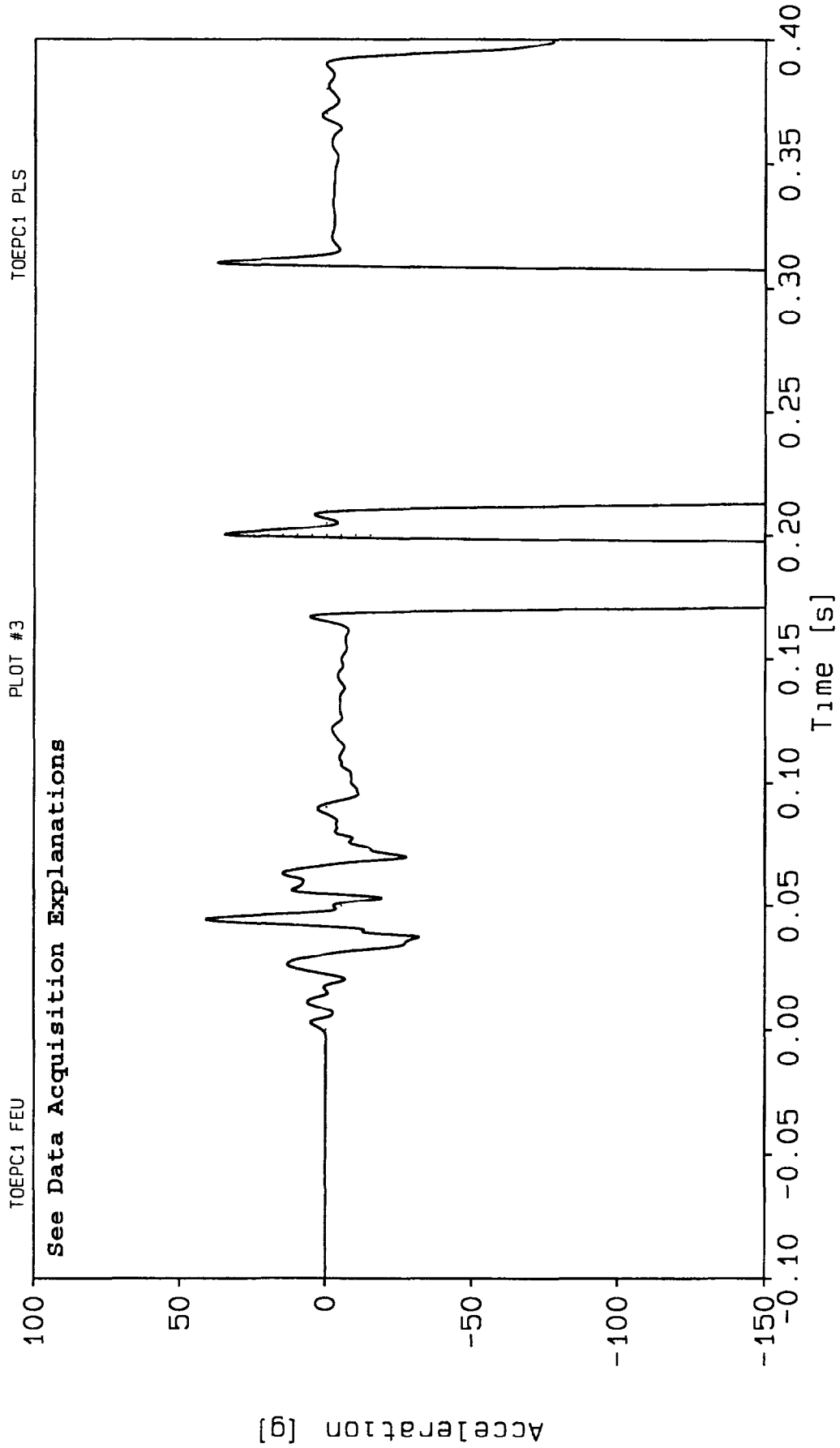
Filter Class 60
Volpe Crash Testing
PH06608

Acceleration (Az) v Time

Driver Side Toe Pan

2001 Dodge Neon

2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Exponent
Failure
Analysis
Associates

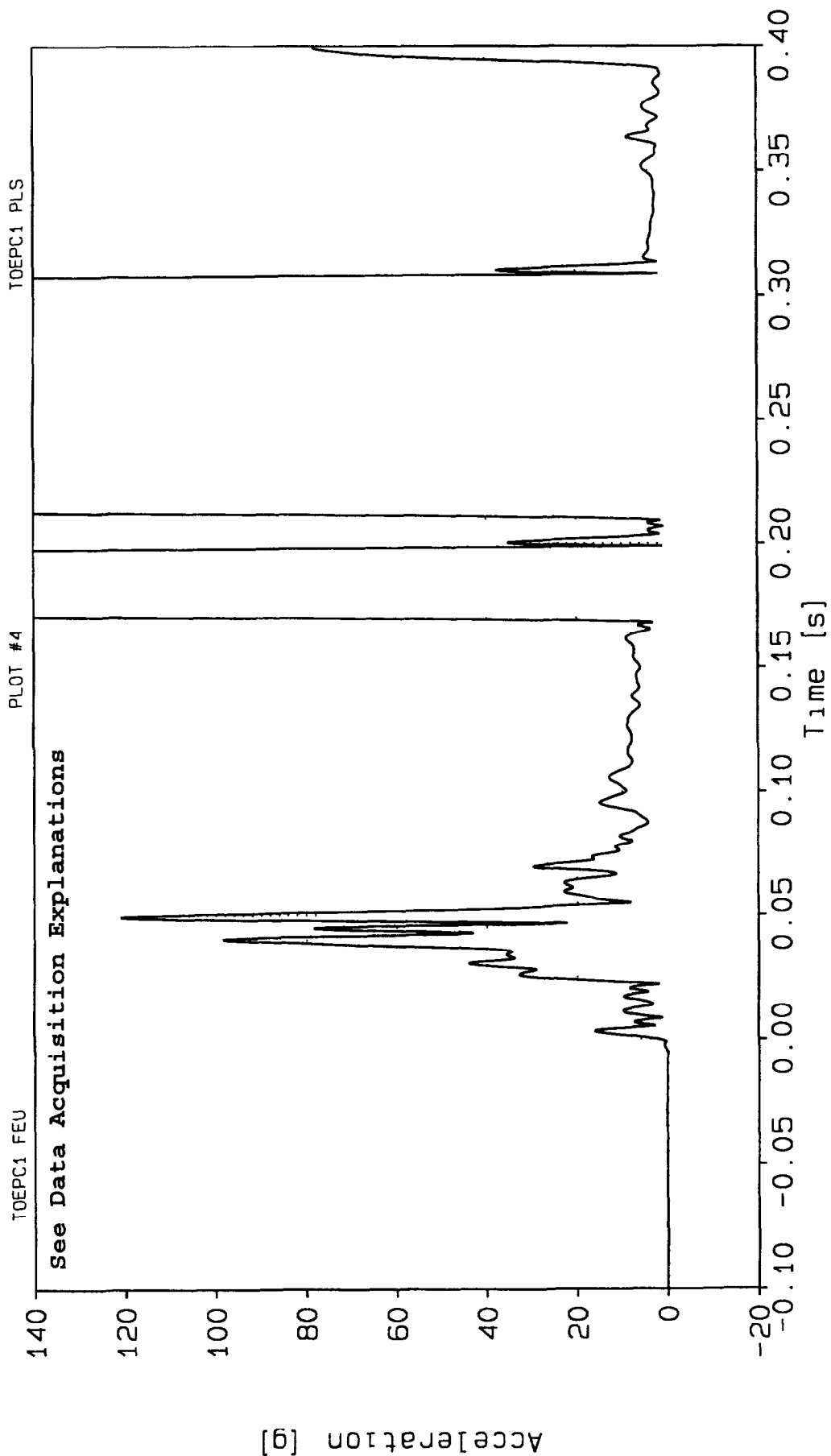
Filter Class 60
Volpe Crash Testing
PH06608

Resultant Acceleration (Ar) v Time

Driver Side Toe Pan

2001 Dodge Neon

2001 Ford F-150 into 2001 Dodge Neon - 09/14/01

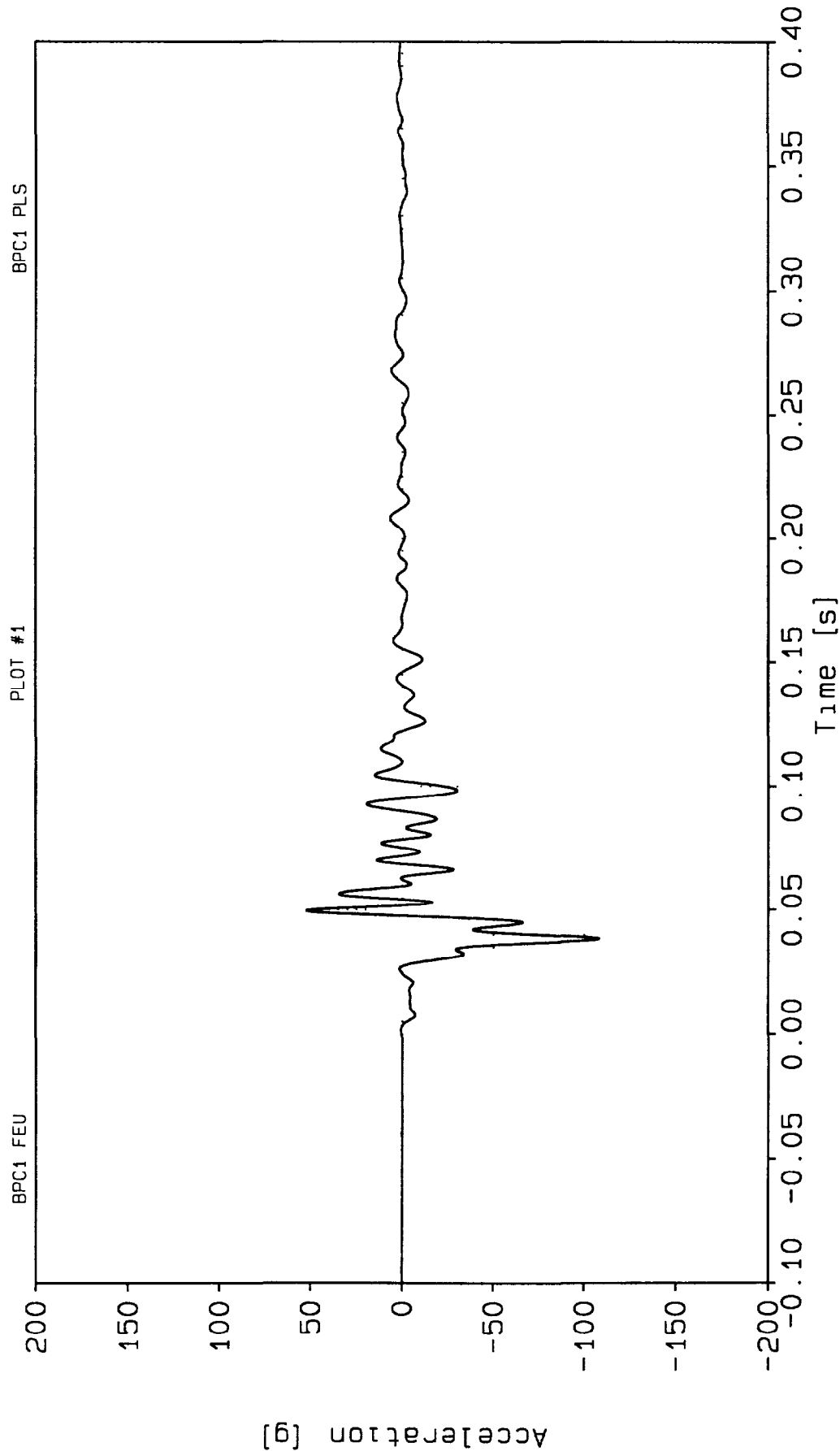


Filter Class 60
Volpe Crash Testing
PH06608

Exponent
Failure
Analysis
Associates

Acceleration (Ax) v Time

Brake Pedal
2001 Dodge Neon
2001 Ford F-150 into 2001 Dodge Neon - 09/14/01

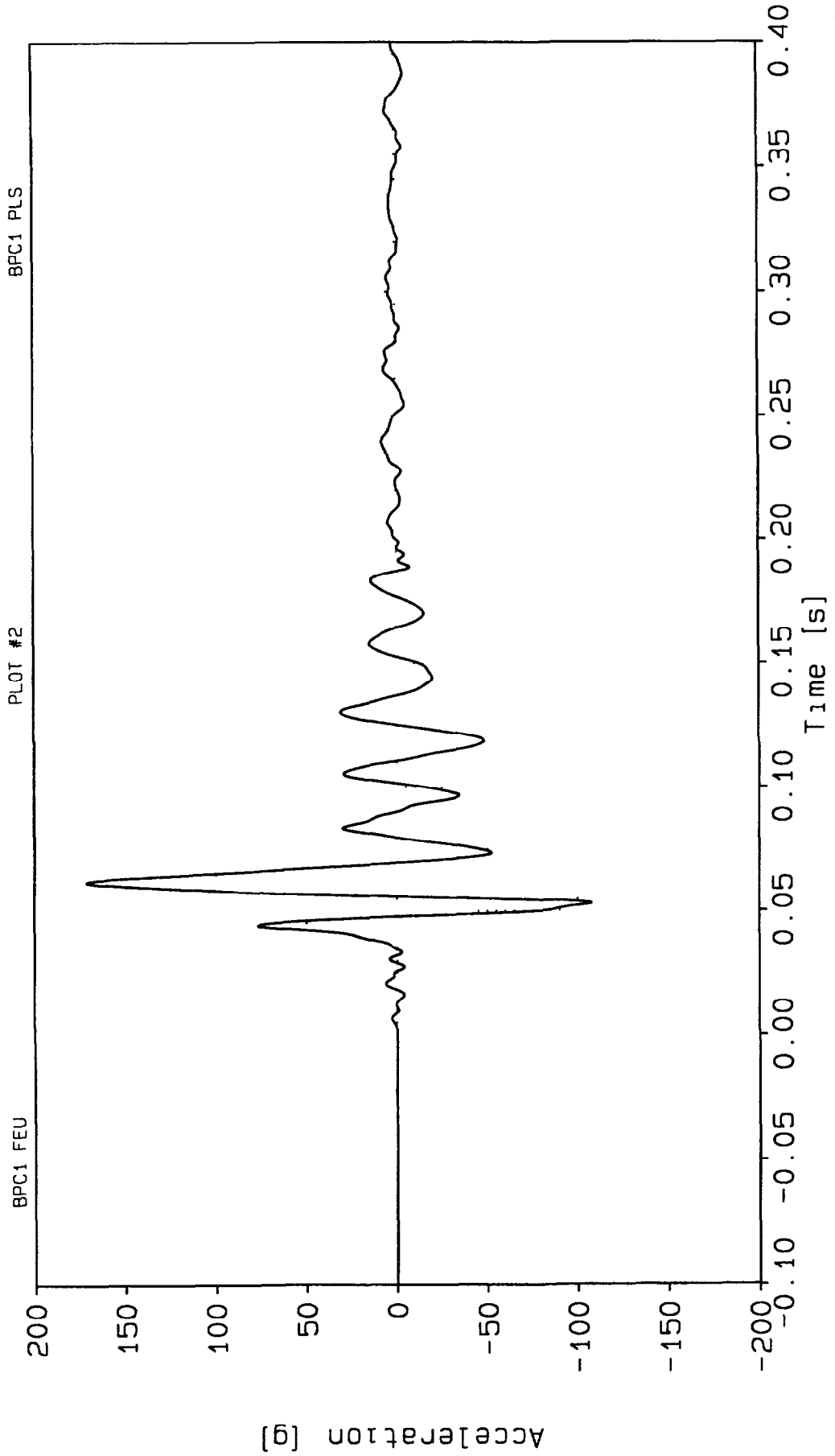


Exponent
Failure
Analysis
Associates

Filter Class 60
Volpe Crash Testing
PH06608

Acceleration (Ay) v Time

Brake Pedal
2001 Dodge Neon
2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Filter Class 60
Volpe Crash Testing
PH06608

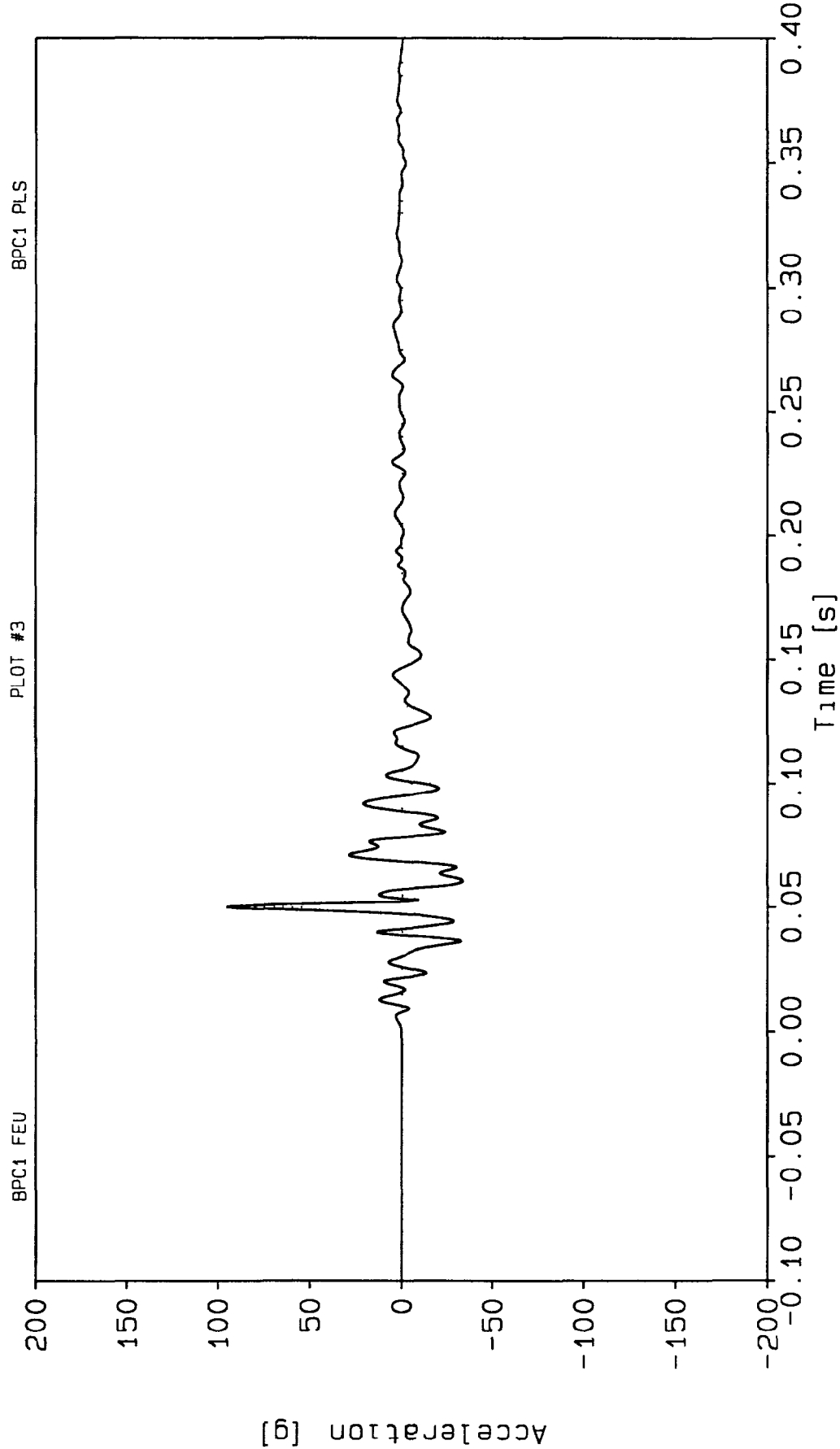
Exponent
Failure
Analysis
Associates

Acceleration (Az) v Time

Brake Pedal

2001 Dodge Neon

2001 Ford F-150 into 2001 Dodge Neon - 09/14/01

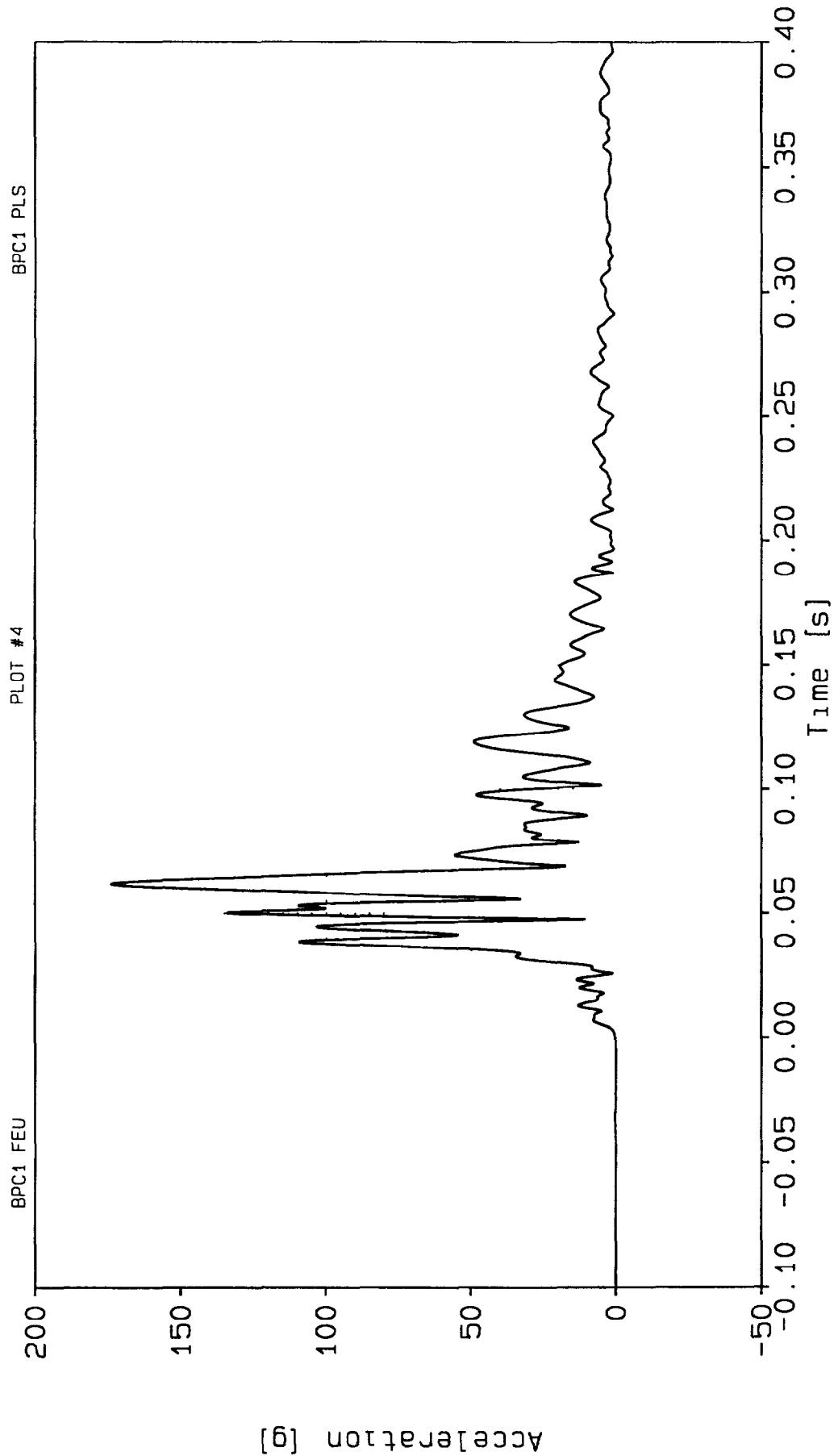


Exponent
Failure
Analysis
Associates

Filter Class 50
Volpe Crash Testing
PH06608

Resultant Acceleration (Ar) v Time

Brake Pedal
2001 Dodge Neon
2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Exponent
Failure
Analysis
Associates

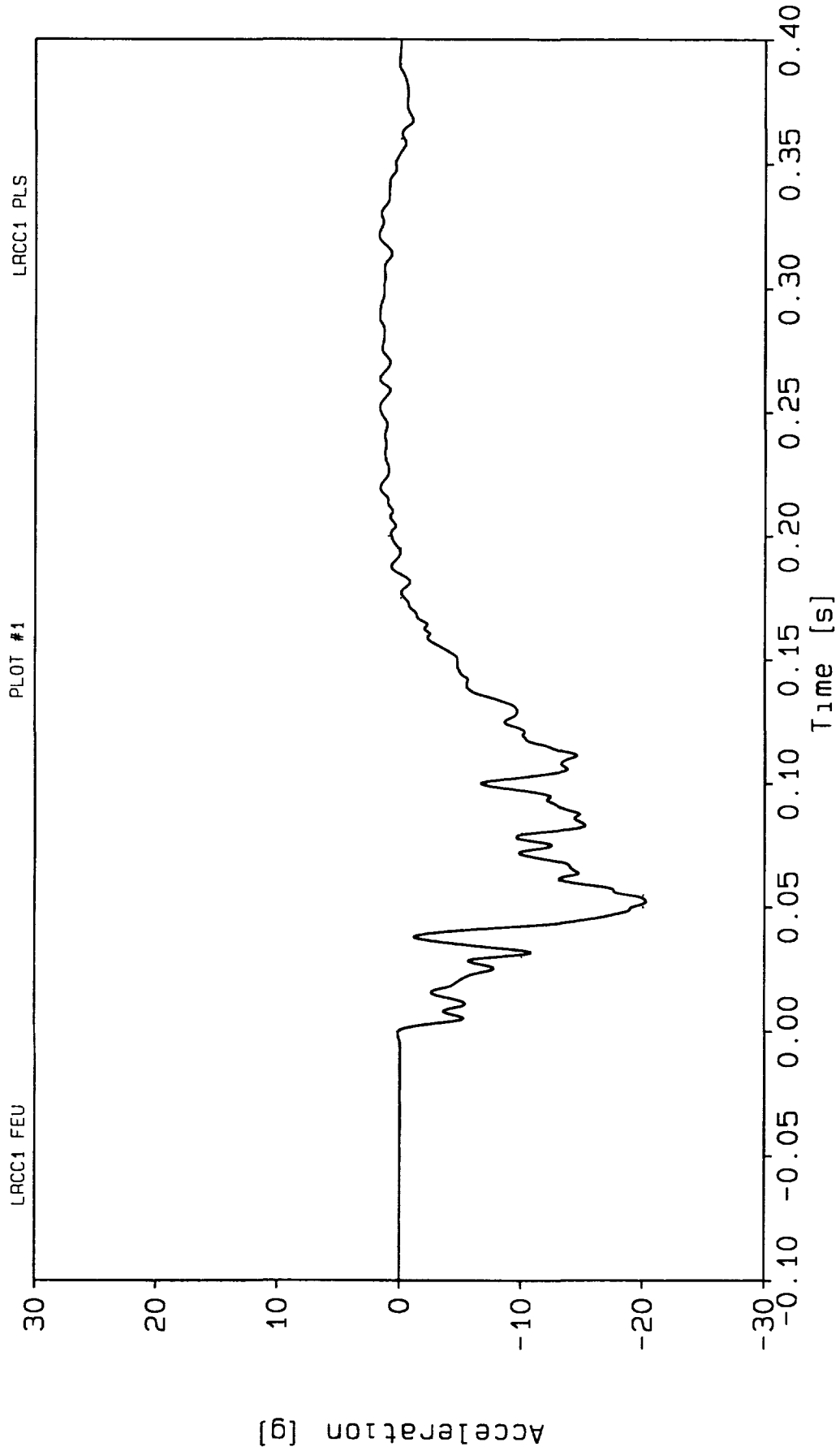
Filter Class 60
Volpe Crash Testing
PH06608

Acceleration (Ax) v Time

Left Rear Compartment

2001 Dodge Neon

2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Exponent
Failure
Analysis
Associates

Filter Class 60
Volpe Crash Testing
PH05608

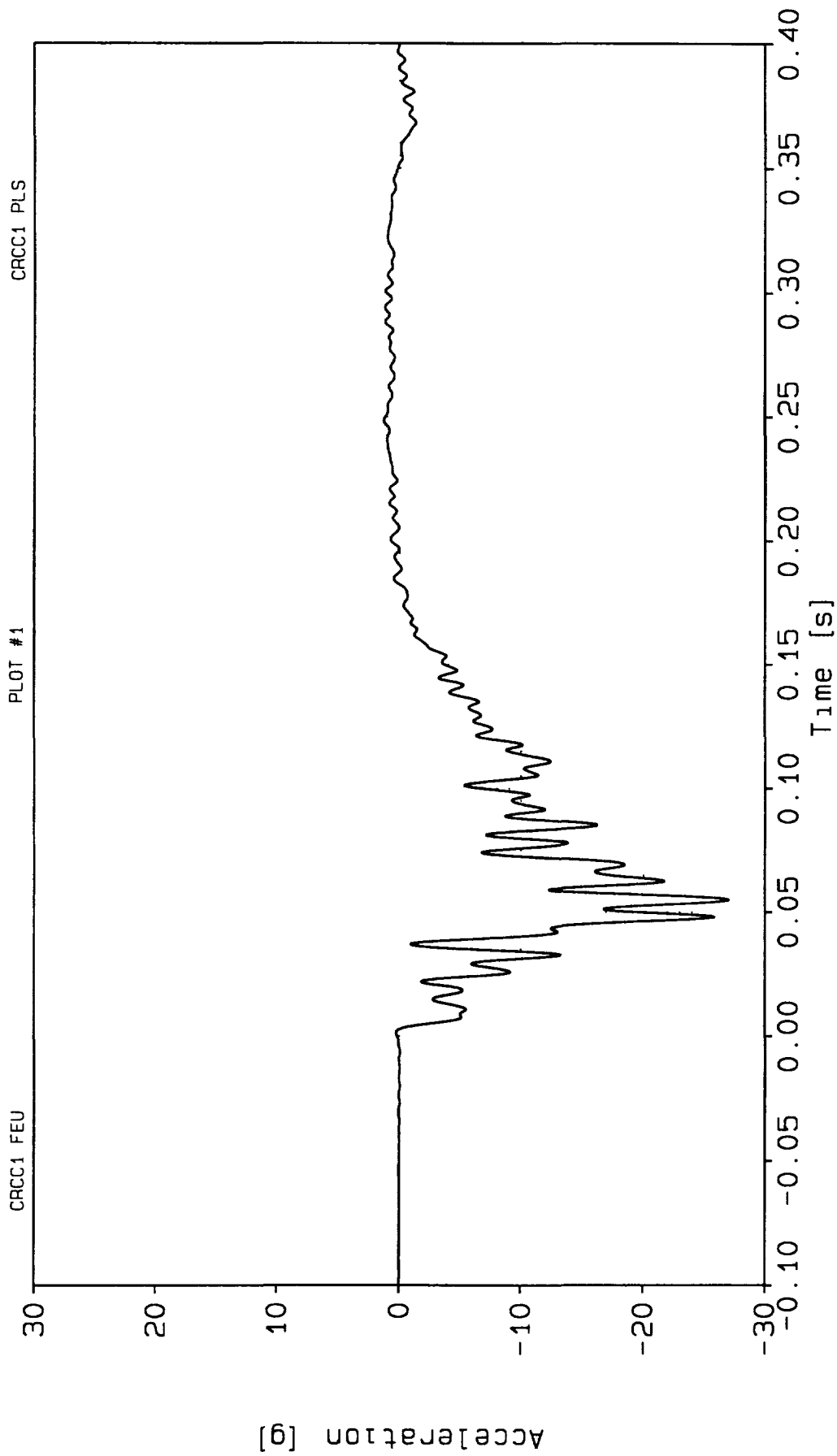
Left Rear Compartment Acceleration (Ay) Not Recorded
See Data Acquisition Explanations

Acceleration (Ax) v Time

Center Rear Compartment

2001 Dodge Neon

2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Exponent
Failure
Analysis
Associates

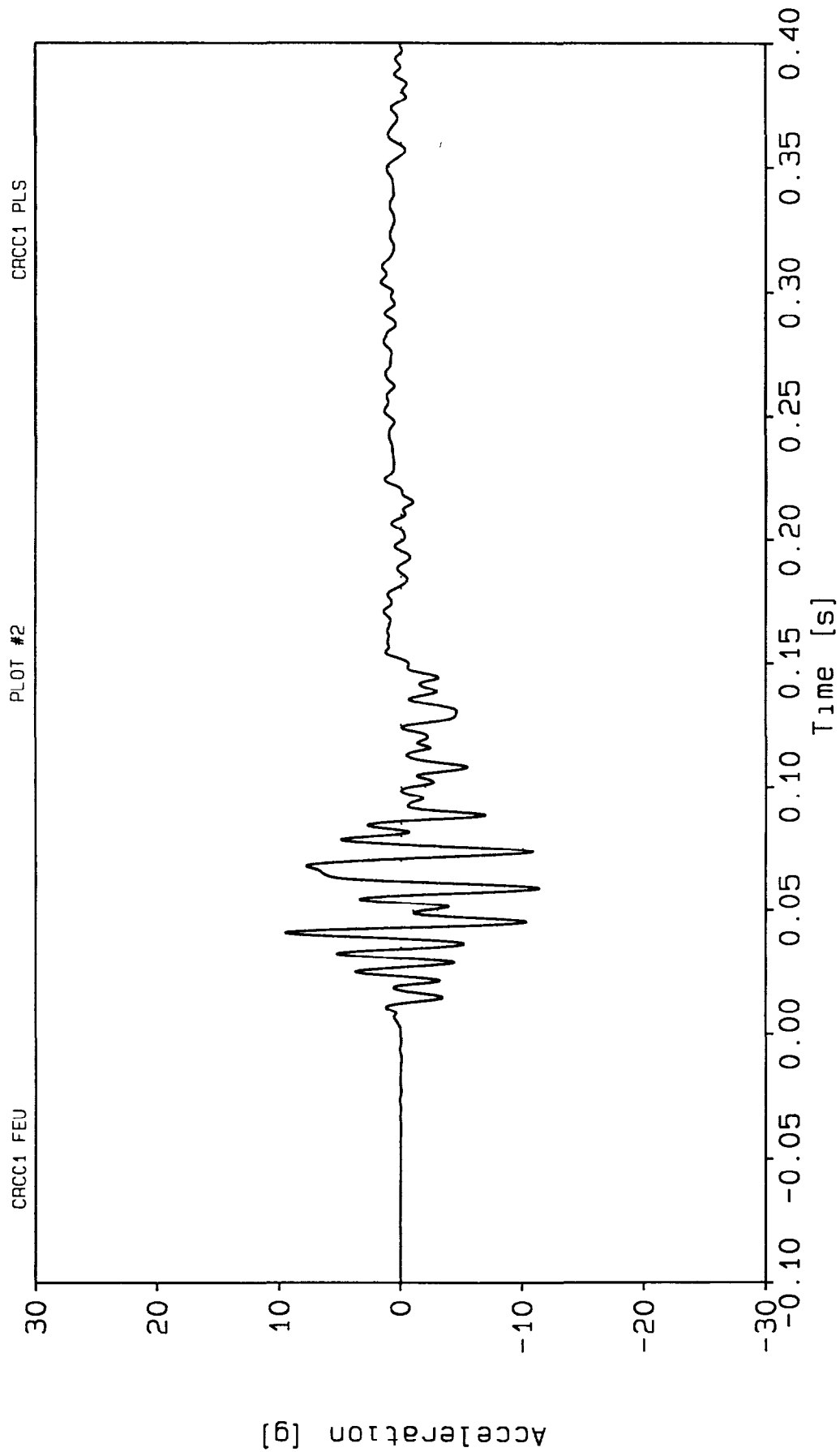
Filter Class 50
Volpe Crash Testing
PH05508

Acceleration (Az) v Time

Center Rear Compartment

2001 Dodge Neon

2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Exponent
Failure
Analysis
Associates

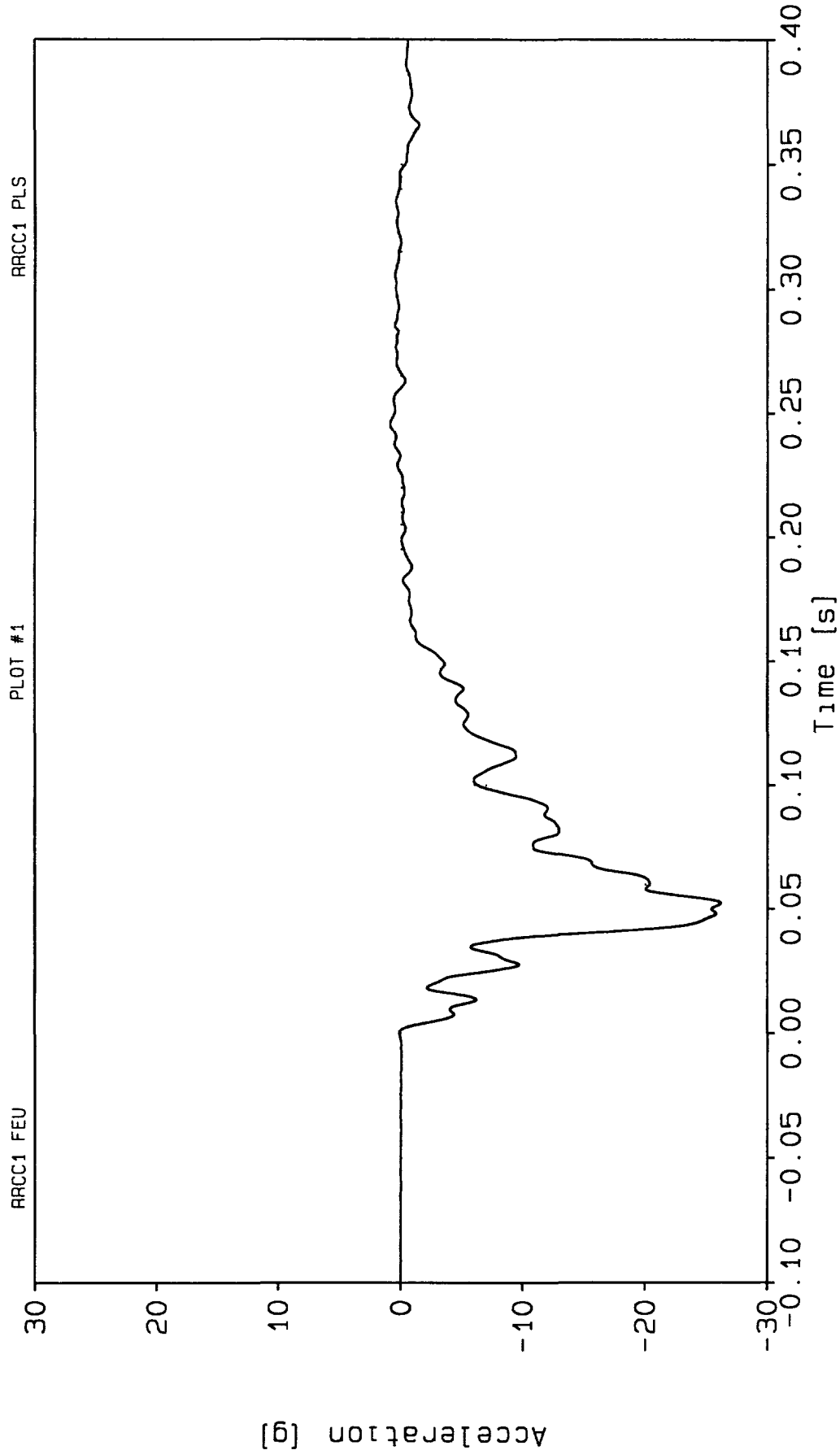
Filter Class 60
Volpe Crash Testing
PH06608

Acceleration (Ax) v Time

Right Rear Compartment

2001 Dodge Neon

2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Filter Class 60
Volpe Crash Testing
PH06608

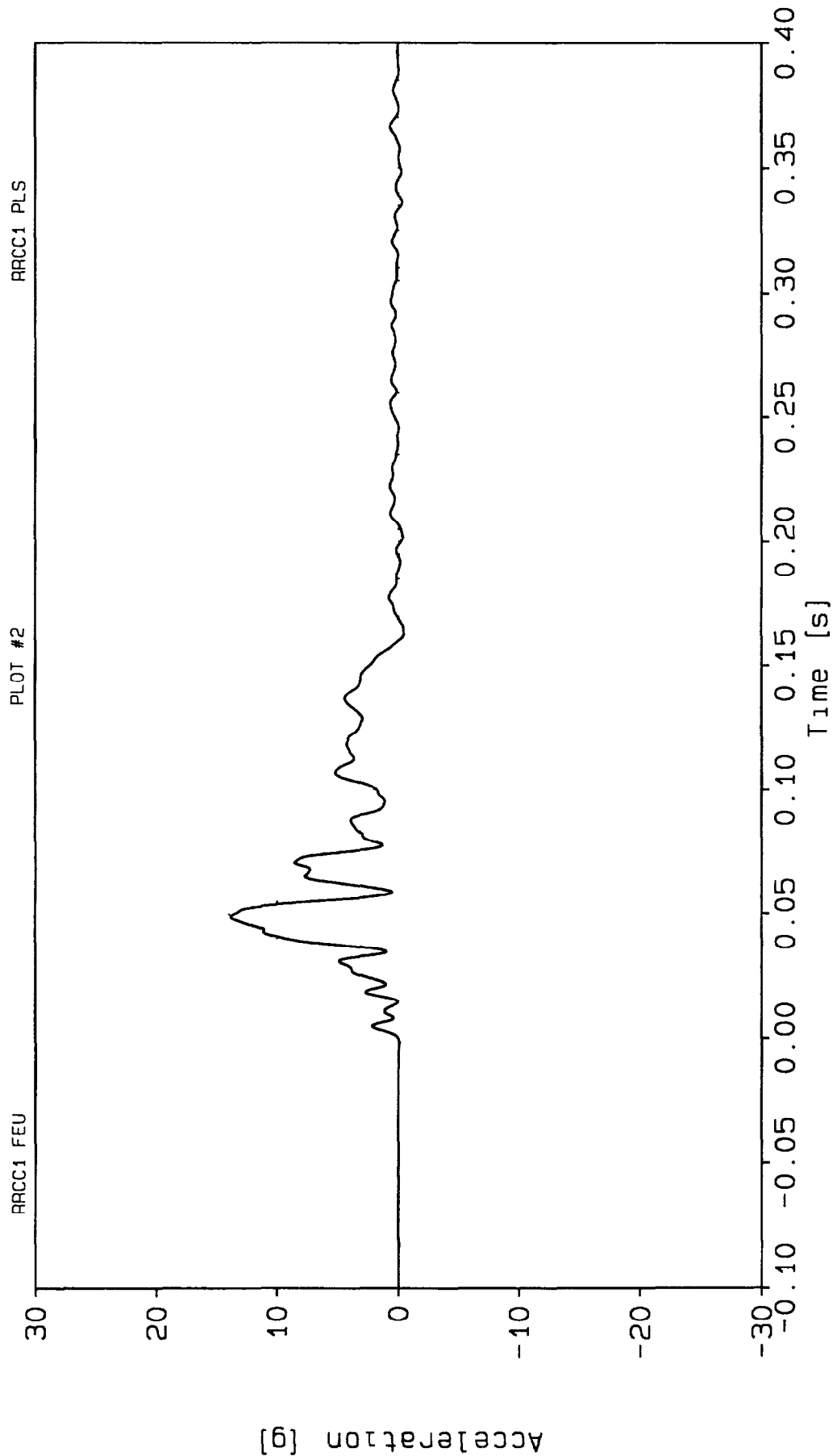
Exponent
Failure
Analysis
Associates

Acceleration (Ay) v Time

Right Rear Compartment

2001 Dodge Neon

2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Exponent
Failure
Analysis
Associates

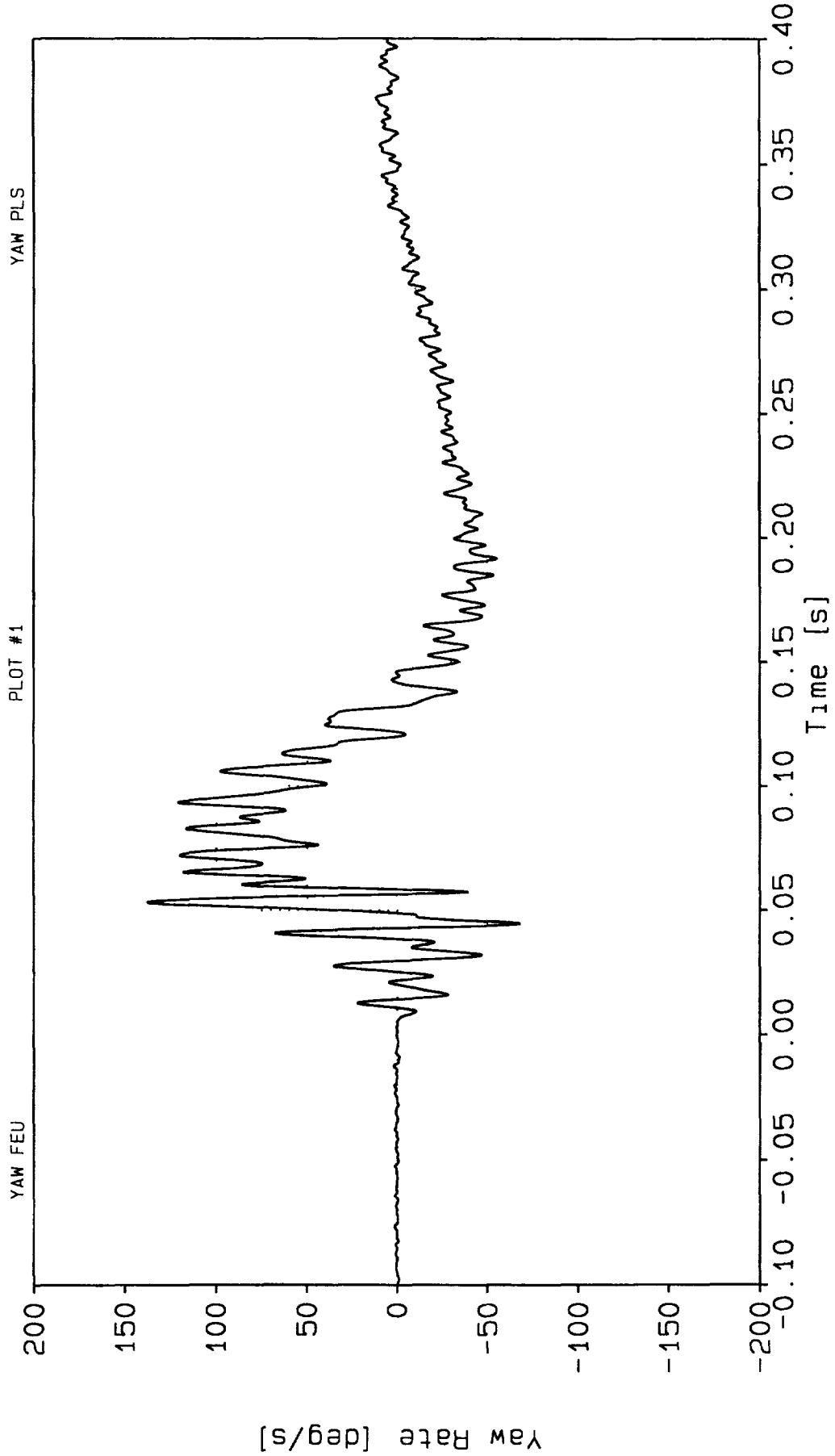
Filter Class 60
Volpe Crash Testing
PH06608

Vehicle Yaw Rate v Time

Vehicle Yaw Rate Sensor

2001 Dodge Neon

2001 Ford F-150 into 2001 Dodge Neon - 09/14/01

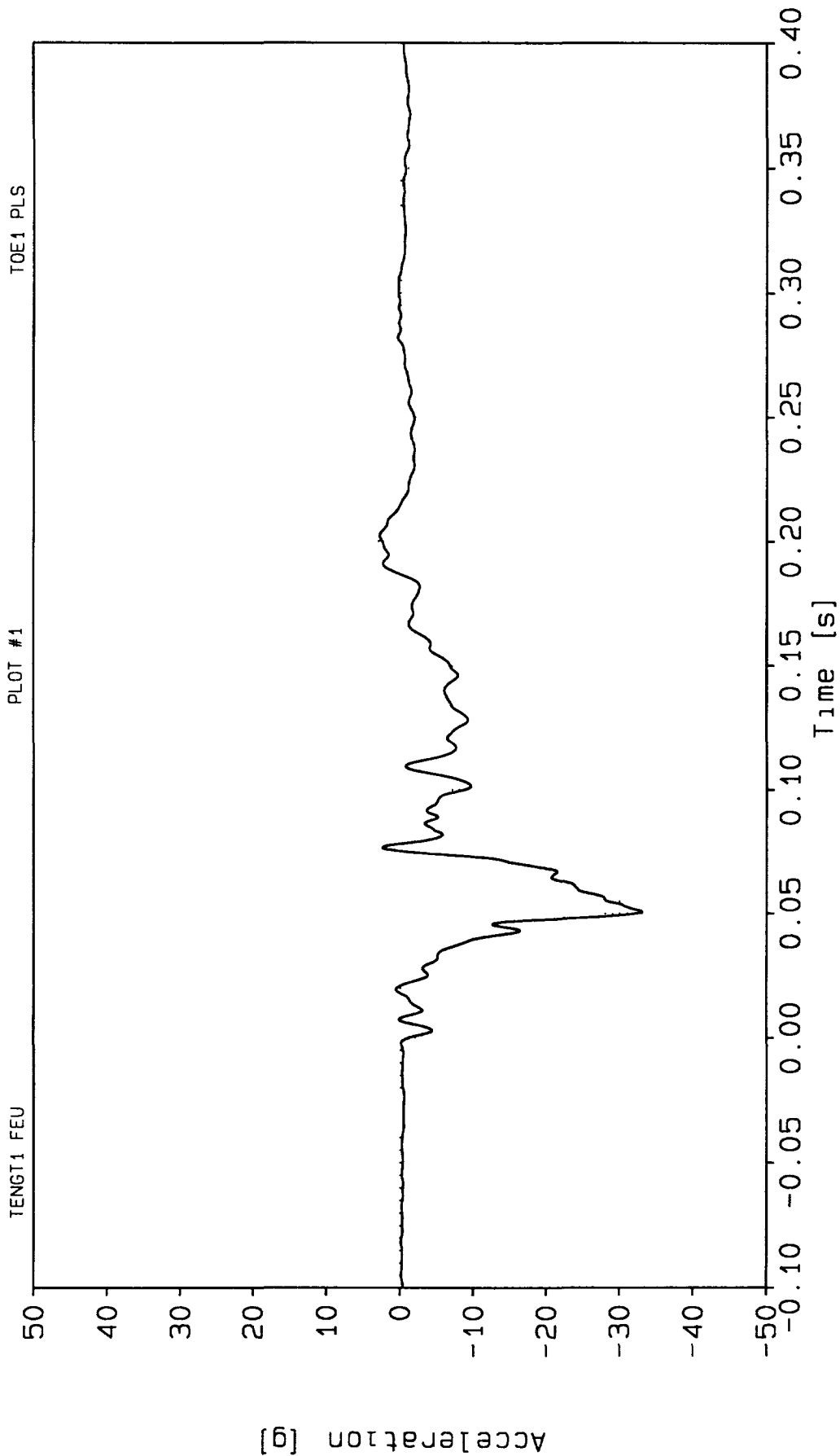


Exponent
Failure
Analysis
Associates

Filter Class 180
Volpe Crash Testing
PH06608

Acceleration (Ax) v Time

Top of Engine
2001 Ford F-150
2001 Ford F-150 into 2001 Dodge Neon - 09/14/01

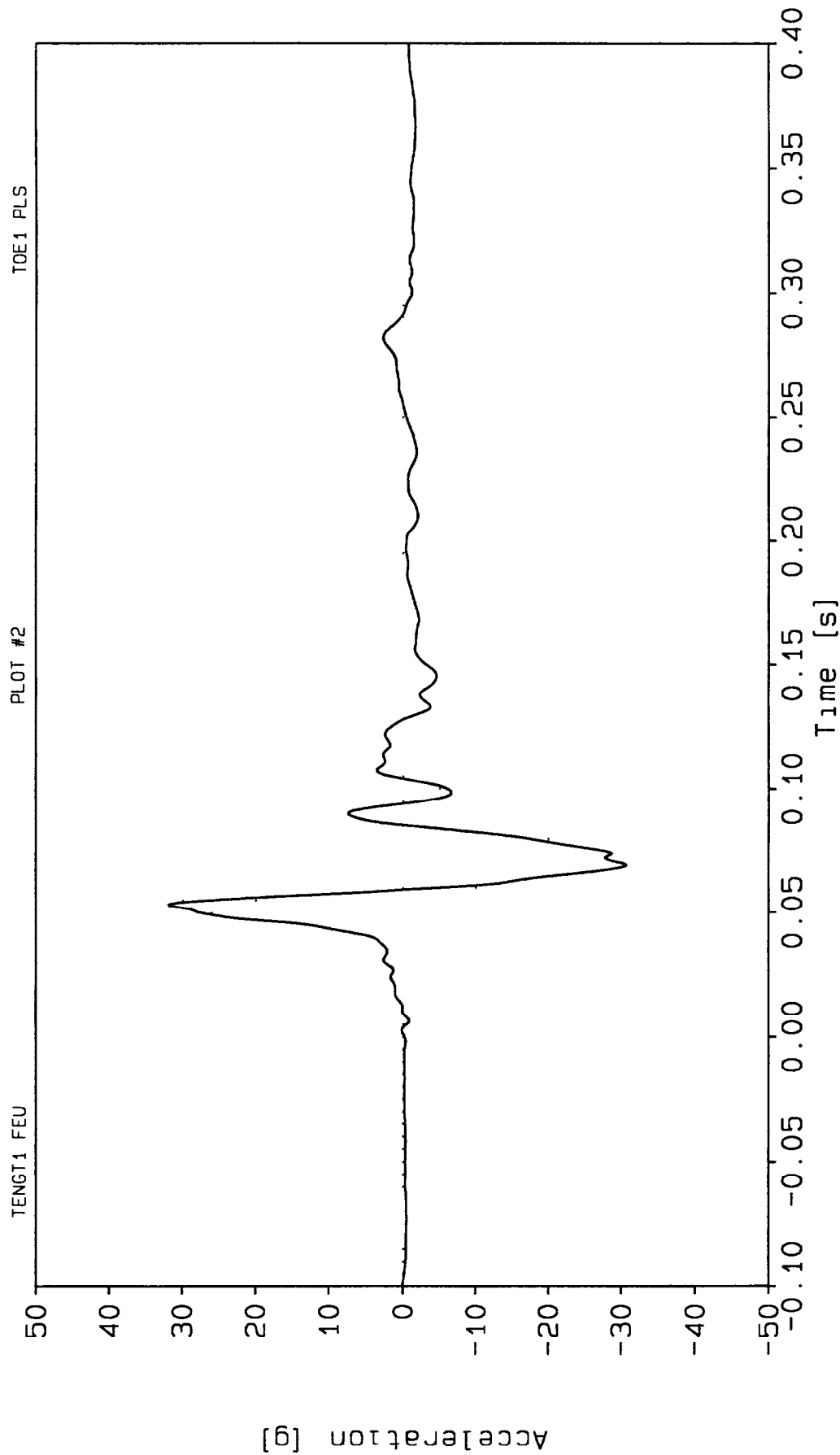


Exponent
Failure
Analysis
Associates

Filter Class 60
Volpe Crash Testing
PH06608

Acceleration (Ay) v Time

Top of Engine
2001 Ford F-150
2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Exponent
Failure
Analysis
Associates

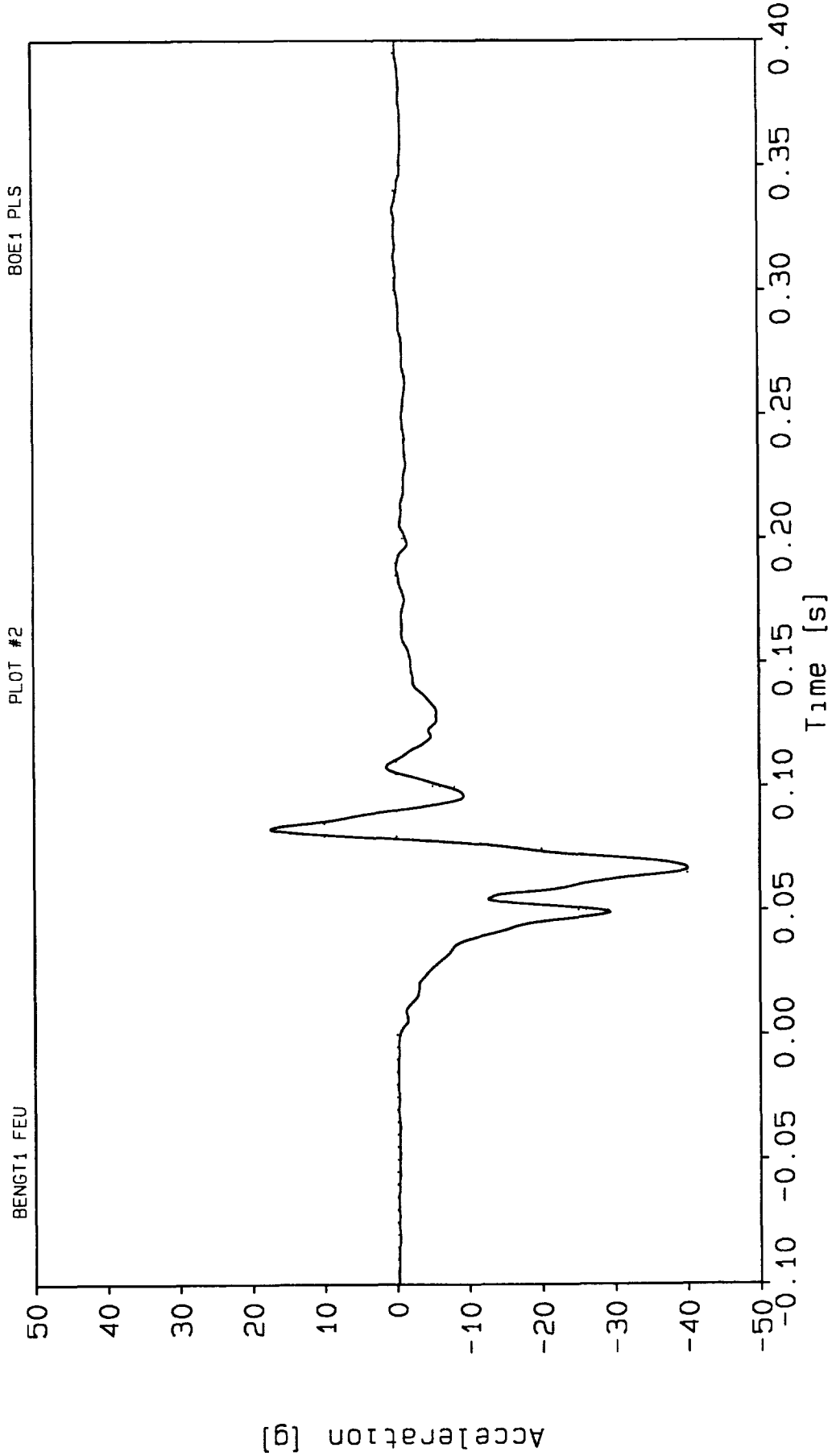
Filter Class 60
Volpe Crash Testing
PH06608

Acceleration (Ax) v Time

Bottom of Engine

2001 Ford F-150

2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Exponent
Failure
Analysis
Associates

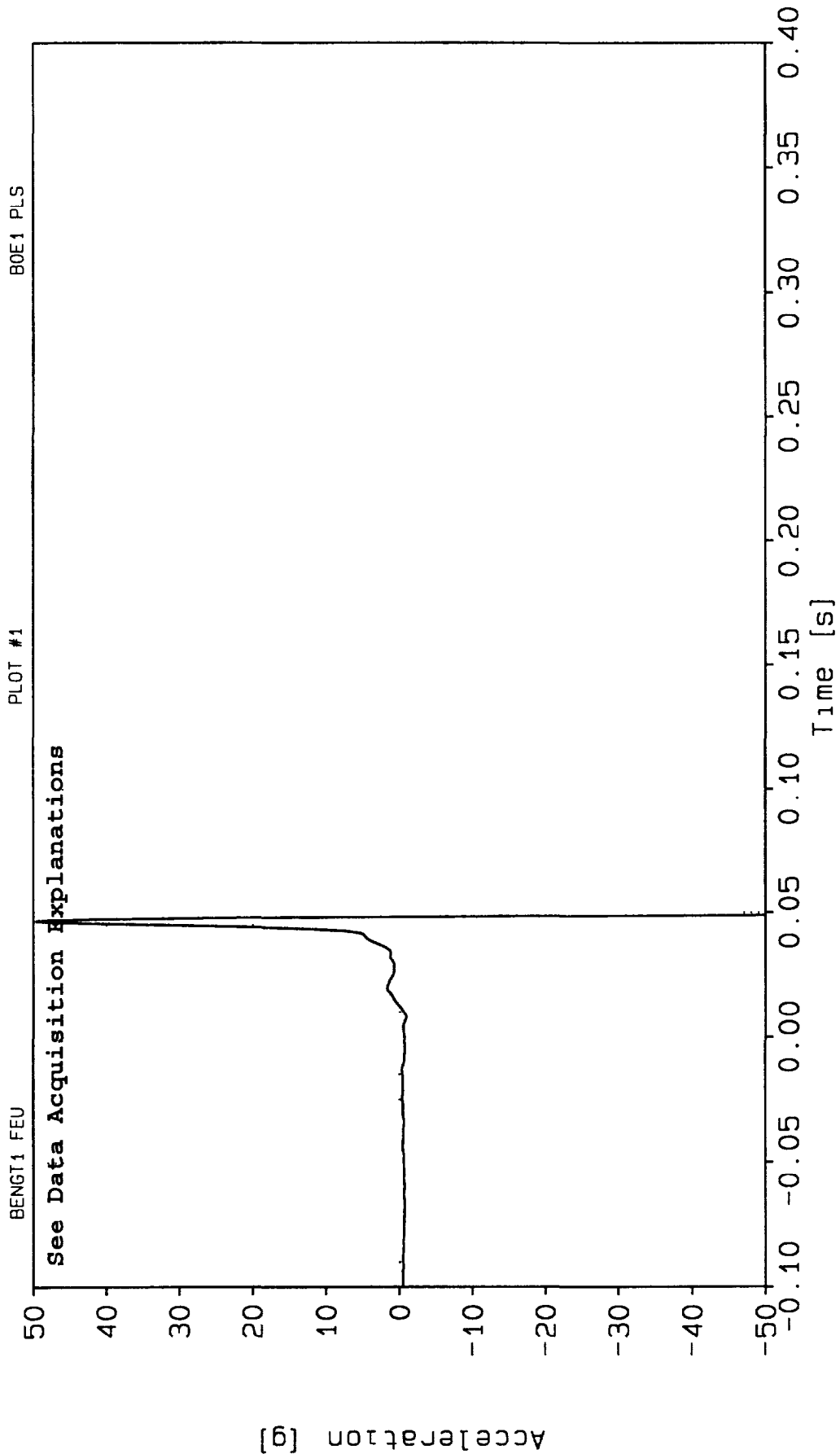
Filter Class 60
Volpe Crash Testing
PH05608

Acceleration (Ay) v Time

Bottom of Engine

2001 Ford F-150

2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Exponent
Failure
Analysis
Associates

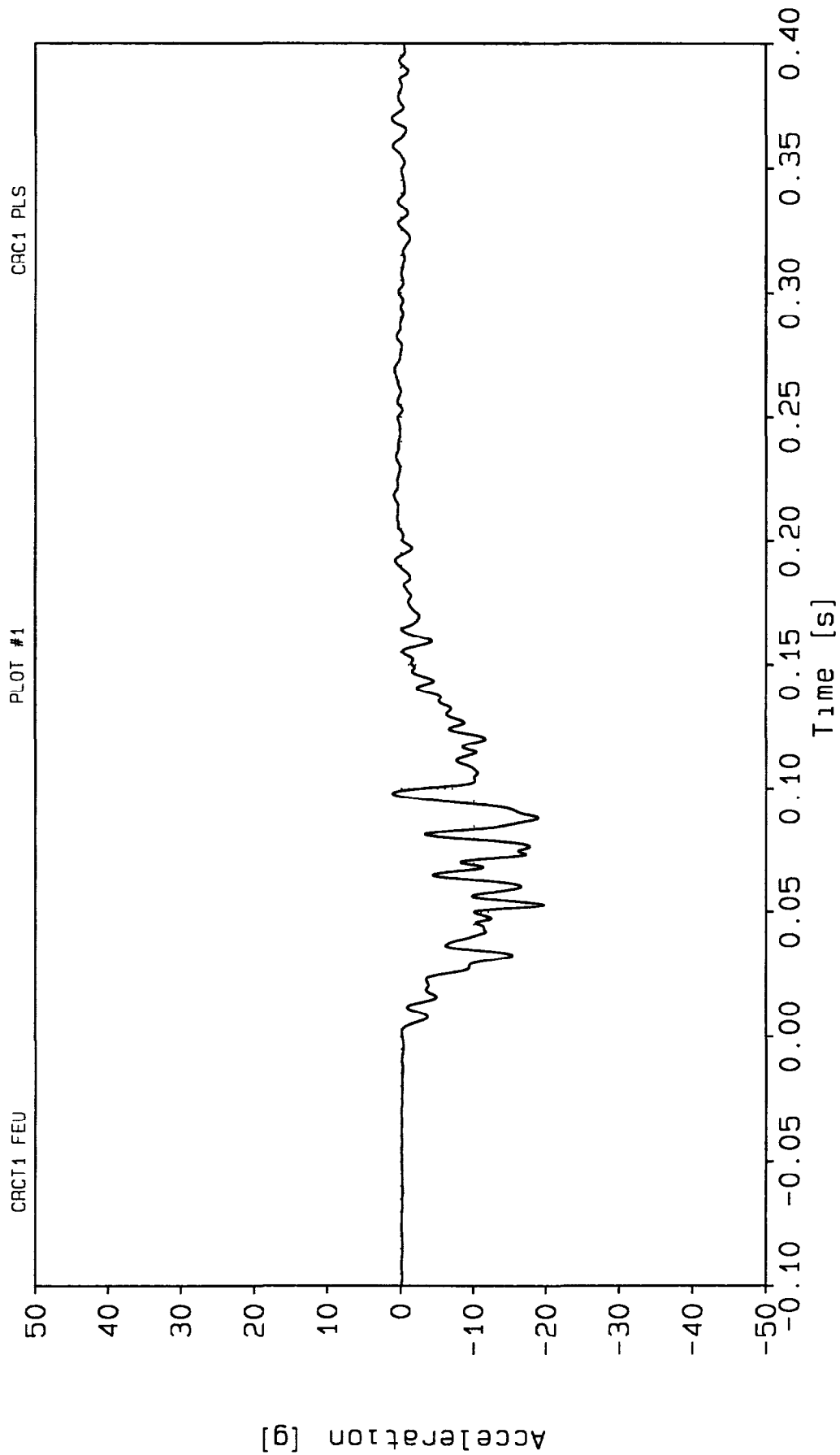
Filter Class 60
Volpe Crash Testing
PH06608

Acceleration (Ax) v Time

Center Rear Compartment

2001 Ford F-150

2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Exponent
Failure
Analysis
Associates

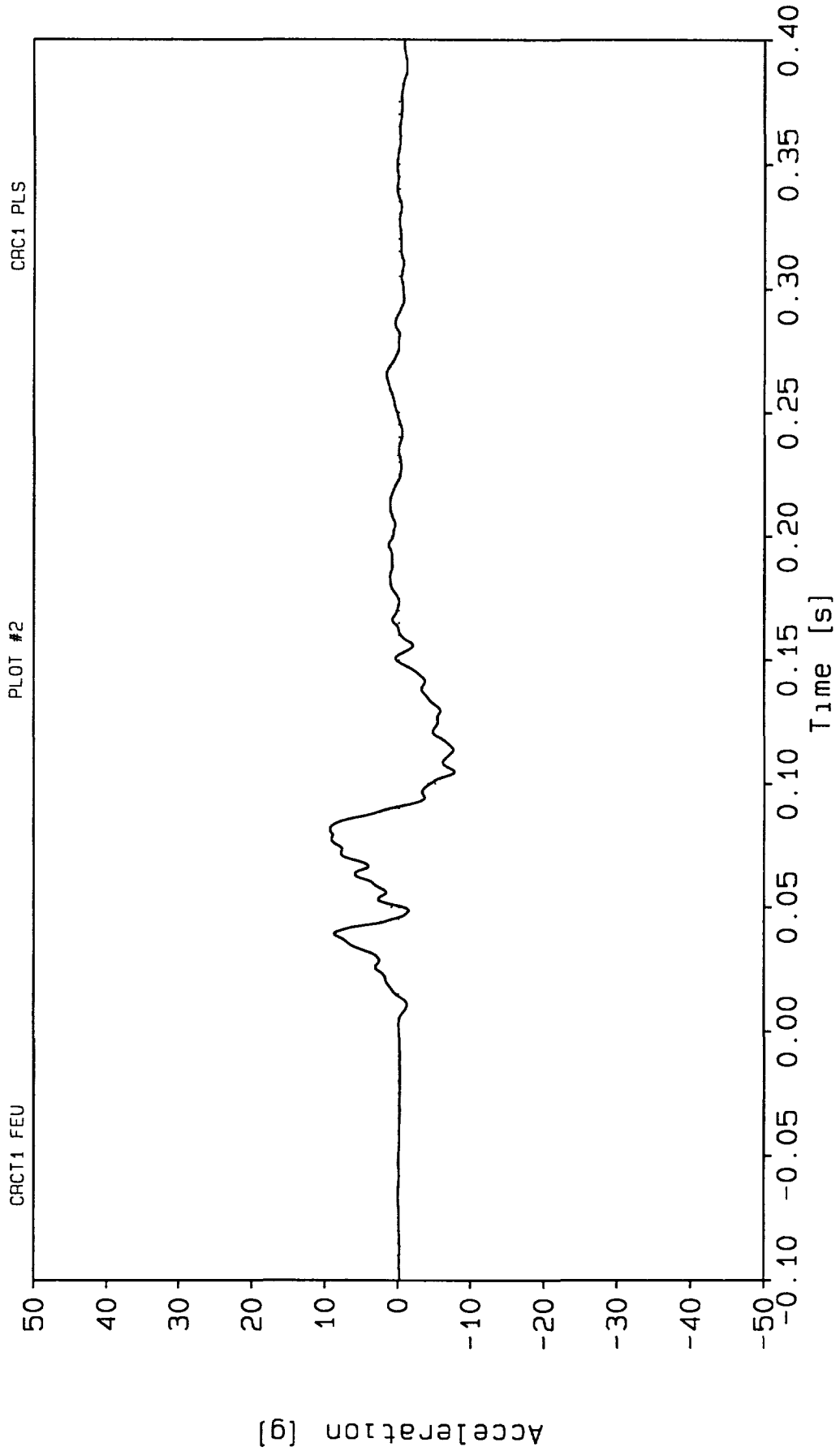
Filter Class 60
Volpe Crash Testing
PH06608

Acceleration (Ay) v Time

Center Rear Compartment

2001 Ford F-150

2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Exponent
Failure
Analysis
Associates

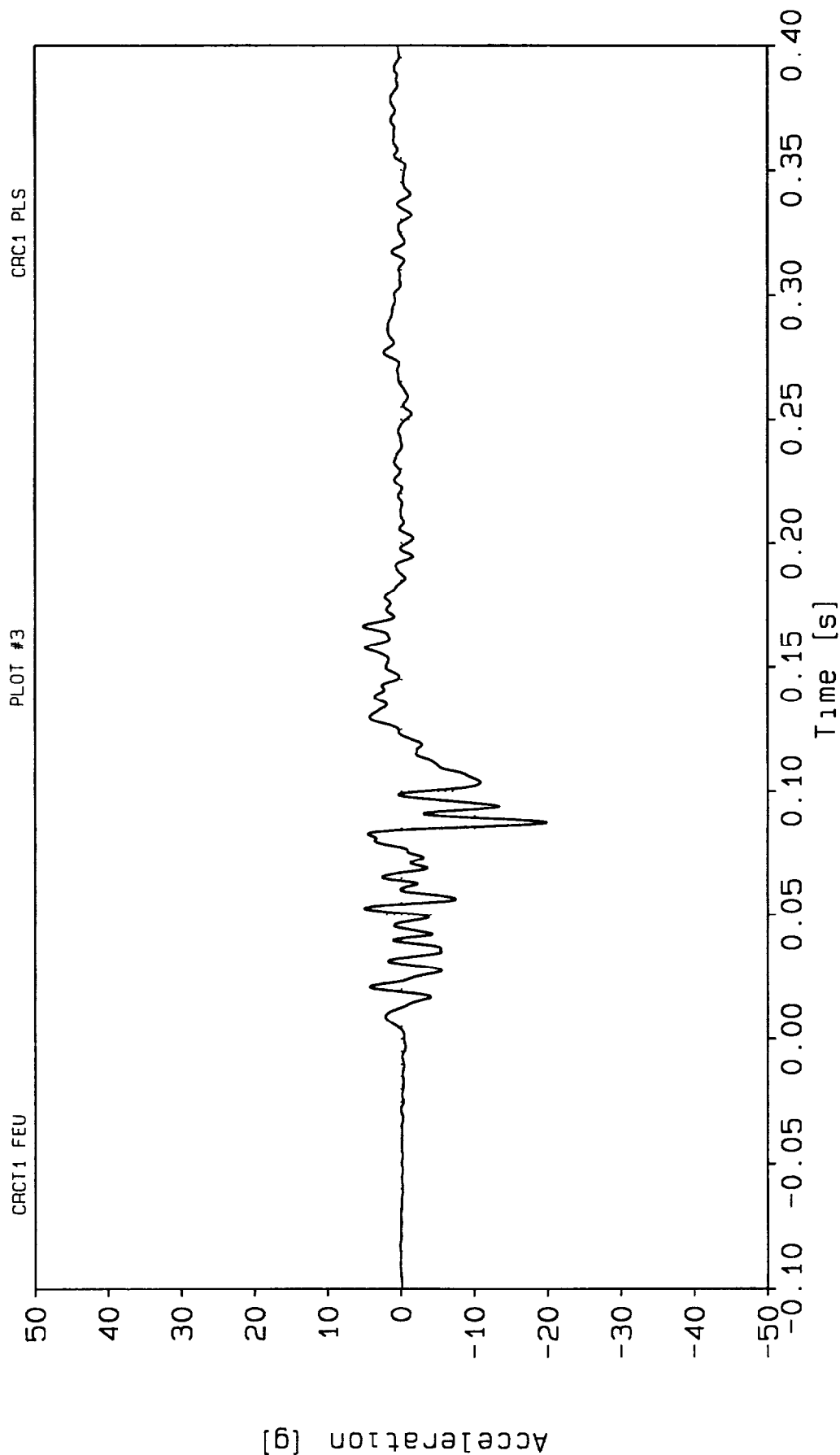
Filter Class 60
Volpe Crash Testing
PH06608

Acceleration (Az) v Time

Center Rear Compartment

2001 Ford F-150

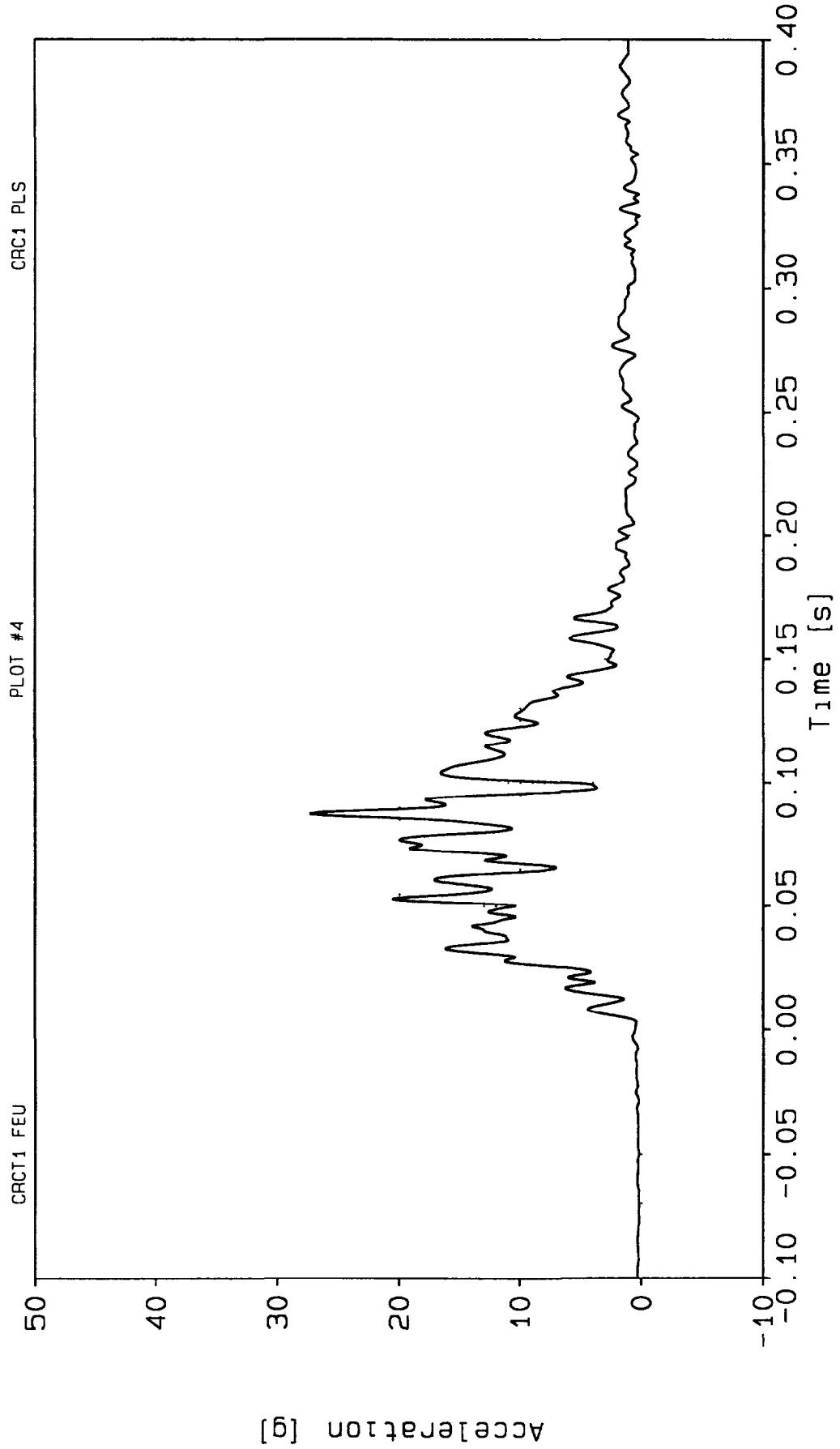
2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Exponent
Failure
Analysis
Associates

Filter Class 60
Volpe Crash Testing
PH05608

Resultant Acceleration (Ar) v Time
Center Rear Compartment
2001 Ford F-150
2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Exponent
Failure
Analysis
Associates

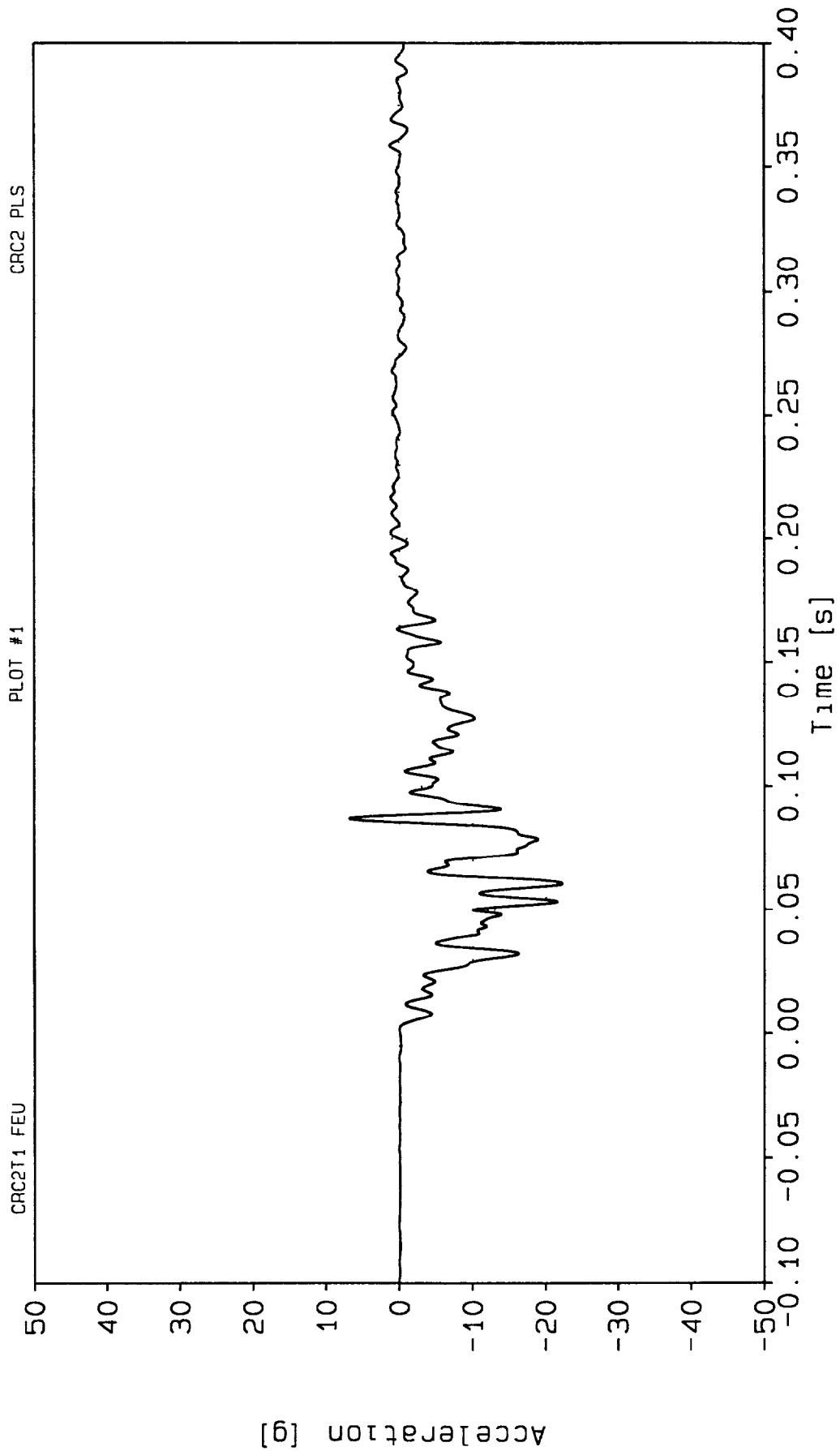
Filter Class 60
Volpe Crash Testing
PH06608

Acceleration (Ax) v Time

Center Rear Compartment - Secondary

2001 Ford F-150

2001 Ford F-150 into 2001 Dodge Neon - 09/14/01



Exponent
Failure
Analysis
Associates

Filter Class 60
Volpe Crash Testing
PH05608

*Failure Analysis Associates
Test and Engineering Center*

Exponent[®]

**Frontal Offset
Oblique Crash Test**

**2001 Ford F-150 at 95.9 kph
into a Stationary 2001 Dodge Neon
Positioned at a 17° Angle
with an Impact Overlap of 45%**

Exponent Test Number: 091401