

**Vehicle Research and Test Center
1996 Toyota Avalon into Left Front of a
1997 Honda Accord - 50% Offset - Oblique 30°
TRC Inc. Test Number: 030514**

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Table of Contents

<u>Section</u>	<u>Description</u>	<u>Page</u>
1.0	Purpose and Test Procedure	1-1
2.0	Full Frontal Barrier Test Summary	2-1
3.0	Summary of FMVSS 208 Data	3-1
4.0	Occupant, Camera and Vehicle Information	4-1
Appendix A	Photographs	A-1
Appendix B	Data Plots	B-1
Appendix C	Dummy Configuration and Performance Verification Data	C-1
Appendix D	Miscellaneous Test Information	D-1
Appendix E	INSIA Report on Structural Measurements	E-1
Appendix F	Vehicle Manufacturer's Information	F-1

List of Tables

<u>Number</u>	<u>Title</u>	<u>Page</u>
1	Crash Test Summary	2-5
2	Target Test Vehicle Information	2-8
3	Bullet Test Vehicle Information	2-11
4	Post-Impact Data	2-14
5	Target Vehicle Accelerometer Locations and Data Summary	2-17
6	Bullet Vehicle Accelerometer Locations and Data Summary	2-20
7	Target Vehicle Dummy Injury Criteria Data	3-2
8	Bullet Vehicle Dummy Injury Criteria Data	3-4
9	Target Vehicle Post-Impact Dummy/Vehicle Data	3-6
10	Bullet Vehicle Post-Impact Dummy/Vehicle Data	3-7
11	Target Vehicle Dummy Measurement Data for Front Seat Occupants	4-5
12	Bullet Vehicle Dummy Measurement Data for Front Seat Occupants	4-7
13	Target Vehicle Structural Measurements	4-9
14	Target Vehicle Impacted Measurements	4-11
15	Target Vehicle Intrusion of Upper Instrument Panel	4-19
16	Bullet Vehicle Structural Measurements	4-21
17	Bullet Vehicle Impacted Measurements	4-23
18	Bullet Vehicle Intrusion of Upper Instrument Panel	4-31
19	Camera Information	4-34

List of Figures

<u>Number</u>	<u>Title</u>	<u>Page</u>
1	Impact Velocity Measurement System	2-15
2	Target Vehicle Accelerometer Placement	2-16
3	Target Vehicle Accelerometer Placement	2-19
4	Dummy Measurement Locations for Front Seat Occupants	4-4
5	Target Vehicle Seat Belt Positioning Data	4-6
6	Bullet Vehicle Seat Belt Positioning Data	4-8
7	Target Vehicle Pre-Test and Post-Test Measurement Points	4-10
8	Target Vehicle Crush	4-12
9	Target Vehicle Intrusion Measurements, Door Opening Width	4-14
10	Target Vehicle Intrusion Measurements, Static Footwell Deformation	4-15
11	Target Vehicle Intrusion Measurements, Static Passenger Compartment Intrusion	4-16
12	Target Vehicle Floorboard Deformation	4-17
13	Target Vehicle Toeboard Measurements	4-18
14	Target Vehicle Reference Photo Target Locations	4-20
15	Bullet Vehicle Pre-Test and Post-Test Measurement Points	4-22
16	Bullet Vehicle Crush	4-24
17	Bullet Vehicle Intrusion Measurements, Door Opening Width	4-26
18	Bullet Vehicle Intrusion Measurements, Static Footwell Deformation	4-27
19	Bullet Vehicle Intrusion Measurements, Static Passenger Compartment Intrusion	4-28
20	Bullet Vehicle Floorboard Deformation	4-29
21	Bullet Vehicle Toeboard Measurements	4-30
22	Bullet Vehicle Reference Photo Target Locations	4-32
23	Camera Positions	4-33

List of Photographs

<u>Description</u>	<u>Figure</u>
Pre-Test Overall - View 1	A-1
Pre-Test Overall - View 2	A-2
Pre-Test Impact Point Close-up View	A-3
Post-Test Impact Point Close-up View	A-4
Pre-Test Target Vehicle Front View	A-5
Post-Test Target Vehicle Front View	A-6
Pre-Test Target Vehicle Left Front View	A-7
Post-Test Target Vehicle Left Front View	A-8
Post-Test Target Vehicle Left Side View	A-9
Pre-Test Target Vehicle Left Rear View	A-10
Post-Test Target Vehicle Left Rear View	A-11
Pre-Test Target Vehicle Rear View	A-12
Post-Test Target Vehicle Rear View	A-13
Pre-Test Target Vehicle Right Rear View	A-14
Post-Test Target Vehicle Right Rear View	A-15
Pre-Test Target Vehicle Right Side View	A-16
Post-Test Target Vehicle Right Side View	A-17
Pre-Test Target Vehicle Right Front View	A-18
Post-Test Target Vehicle Right Front View	A-19
Pre-Test Target Vehicle Engine Compartment View	A-20
Post-Test Target Vehicle Engine Compartment View	A-21
Pre-Test Target Vehicle Front Underbody View	A-22
Post-Test Target Vehicle Front Underbody View	A-23
Pre-Test Target Vehicle Front Mid Underbody View	A-24
Post-Test Target Vehicle Front Mid Underbody View	A-25
Pre-Test Target Vehicle Mid Underbody View	A-26
Post-Test Target Vehicle Mid Underbody View	A-27
Pre-Test Target Vehicle Rear Mid Underbody View	A-28

List of Photographs, Cont'd.

<u>Description</u>	<u>Figure</u>
Post-Test Target Vehicle Rear Mid Underbody View	A-29
Pre-Test Target Vehicle Rear Underbody View	A-30
Post-Test Target Vehicle Rear Underbody View	A-31
Pre-Test Bullet Vehicle Front View	A-32
Post-Test Bullet Vehicle Front View	A-33
Pre-Test Bullet Vehicle Left Front View	A-34
Post-Test Bullet Vehicle Left Front View	A-35
Pre-Test Bullet Vehicle Left Side View	A-36
Post-Test Bullet Vehicle Left Side View	A-37
Pre-Test Bullet Vehicle Left Rear View	A-38
Post-Test Bullet Vehicle Left Rear View	A-39
Pre-Test Bullet Vehicle Rear View	A-40
Post-Test Bullet Vehicle Rear View	A-41
Pre-Test Bullet Vehicle Right Rear View	A-42
Post-Test Bullet Vehicle Right Rear View	A-43
Post-Test Bullet Vehicle Right Side View	A-44
Pre-Test Bullet Vehicle Right Front View	A-45
Post-Test Bullet Vehicle Right Front View	A-46
Pre-Test Bullet Vehicle Engine Compartment View	A-47
Post-Test Bullet Vehicle Engine Compartment View	A-48
Pre-Test Bullet Vehicle Front Underbody View	A-49
Post-Test Bullet Vehicle Front Underbody View	A-50
Pre-Test Bullet Vehicle Front Mid Underbody View	A-51
Post-Test Bullet Vehicle Front Mid Underbody View	A-52
Pre-Test Bullet Vehicle Mid Underbody View	A-53
Post-Test Bullet Vehicle Mid Underbody View	A-54
Pre-Test Bullet Vehicle Rear Mid Underbody View	A-55
Post-Test Bullet Vehicle Rear Mid Underbody View	A-56

List of Photographs, Cont'd.

<u>Description</u>	<u>Figure</u>
Pre-Test Bullet Vehicle Rear Underbody View	A-57
Post-Test Bullet Vehicle Rear Underbody View	A-58
Pre-Test Overhead Wide View	A-59
Post-Test Overhead Wide View	A-60
Pre-Test Overhead Close-up View	A-61
Post-Test Overhead Target Vehicle View	A-62
Post-Test Overhead Bullet Vehicle View	A-63
Pre-Test Target Vehicle Driver Dummy through Windshield View	A-64
Post-Test Target Vehicle Driver Dummy through Windshield View	A-65
Pre-Test Target Vehicle Driver Dummy - View 1	A-66
Post-Test Target Vehicle Driver Dummy - View 1	A-67
Pre-Test Target Vehicle Driver Dummy - View 2	A-68
Post-Test Target Vehicle Driver Dummy - View 2	A-69
Pre-Test Target Vehicle Driver Dummy - View 3	A-70
Post-Test Target Vehicle Driver Dummy - View 3	A-71
Pre-Test Target Vehicle Driver Dummy - View 4	A-72
Post-Test Target Vehicle Driver Dummy - View 4	A-73
Pre-Test Bullet Vehicle Driver and Passenger Dummies through Windshield View	A-74
Pre-Test Bullet Vehicle Driver Dummy - View 1	A-75
Pre-Test Bullet Vehicle Driver Dummy - View 2	A-76
Post-Test Bullet Vehicle Driver Dummy - View 2	A-77
Pre-Test Bullet Vehicle Driver Dummy - View 3	A-78
Post-Test Bullet Vehicle Driver Dummy - View 3	A-79
Pre-Test Bullet Vehicle Driver Dummy - View 4	A-80
Post-Test Bullet Vehicle Driver Dummy - View 4	A-81
Pre-Test Bullet Vehicle Passenger Dummy - View 1	A-82
Pre-Test Bullet Vehicle Passenger Dummy - View 2	A-83
Post-Test Bullet Vehicle Passenger Dummy - View 2	A-84

List of Photographs, Cont'd.

<u>Description</u>	<u>Figure</u>
Pre-Test Bullet Vehicle Passenger Dummy - View 3	A-85
Post-Test Bullet Vehicle Passenger Dummy - View 3	A-86
Pre-Test Bullet Vehicle Passenger Dummy - View 4	A-87
Post-Test Bullet Vehicle Passenger Dummy - View 4	A-88
Post-Test Target Vehicle Driver Dummy Overall Contact View	A-89
Post-Test Target Vehicle Driver Dummy Head Contact - View 1	A-90
Post-Test Target Vehicle Driver Dummy Head Contact - View 2	A-91
Post-Test Target Vehicle Driver Dummy Knee Contact - View 1	A-92
Post-Test Target Vehicle Driver Dummy Knee Contact - View 2	A-93
Post-Test Target Vehicle Driver Dummy Knee Contact - View 3	A-94
Post-Test Bullet Vehicle Driver Dummy Overall Contact View	A-95
Post-Test Bullet Vehicle Driver Dummy Head Contact - View 1	A-96
Post-Test Bullet Vehicle Driver Dummy Head Contact - View 2	A-97
Post-Test Bullet Vehicle Driver Dummy Head Contact - View 3	A-98
Post-Test Bullet Vehicle Driver Dummy Head Contact - View 4	A-99
Post-Test Bullet Vehicle Driver Dummy Knee Contact - View 1	A-100
Post-Test Target Vehicle Driver Dummy Knee Contact - View 2	A-101
Post-Test Bullet Vehicle Passenger Dummy Overall Contact View	A-102
Post-Test Bullet Vehicle Passenger Dummy Head Contact - View 1	A-103
Post-Test Bullet Vehicle Passenger Dummy Head Contact - View 2	A-104
Post-Test Bullet Vehicle Passenger Dummy Head Contact - View 3	A-105
Post-Test Bullet Vehicle Passenger Dummy Knee Contact - View 1	A-106
Post-Test Bullet Vehicle Passenger Dummy Knee Contact - View 2	A-107
Target Vehicle Certification Label View	A-108
Target Vehicle Tire Load Label View	A-109
Bullet Vehicle Certification Label View	A-110
Bullet Vehicle Tire Load Label View	A-111
Post-Test Target Vehicle Sill Deformation View	A-112

List of Photographs, Cont'd.

<u>Description</u>	<u>Figure</u>
Post-Test Target Vehicle Subframe Deformation View	A-113
Post-Test Target Vehicle Wheel Deformation View	A-114
Post-Test Target Vehicle Wheel Well Area View	A-115
Post-Test Target Vehicle Rail	A-116
Post-Test Bullet Vehicle Roof Deformation - View 1	A-117
Post-Test Bullet Vehicle Roof Deformation - View 2	A-118
Post-Test Target Vehicle Sway Bar - View 1	A-119
Post-Test Target Vehicle Sway Bar - View 2	A-120
Post-Test Bullet Vehicle Subframe Deformation - View 1	A-121
Post-Test Bullet Vehicle Subframe Deformation - View 2	A-122
Post-Test Bullet Vehicle Subframe Deformation - View 3	A-123
Post-Test Bullet Vehicle Rocker Deformation View	A-124
Post-Test Bullet Vehicle Rail Deformation - View 1	A-125
Post-Test Bullet Vehicle Rail Deformation - View 2	A-126
Post-Test Bullet Vehicle Wheel Deformation View	A-127
Post-Test Bullet Vehicle Wheel Well View	A-128

Section 1.0

Purpose and Test Procedure

Purpose

This 56.3 km/h (35 mph), 50% offset, 30° oblique, vehicle-to-vehicle impact test was conducted for the National Highway Traffic Safety Administration (NHTSA) and Vehicle Research and Test Center (VRTC) by Transportation Research Center Inc. (TRC Inc.).

The test mode was defined with both vehicles moving at 56.3 km/h to impact the bullet vehicle into the left front corner of the target, offset 50%, at an impact angle of 30 degrees. The purpose of this test was to evaluate the aggressiveness of the bullet vehicle, a 1996 Toyota Avalon 4-door sedan, and the vehicle and occupant response of the target vehicle, a 1997 Honda Accord 4-door sedan, in this vehicle-to-vehicle impact mode.

Test Procedure

This test was conducted in accordance with VRTC instructions for a 50% offset 30° oblique, vehicle-to-vehicle test. Data was obtained relative to FMVSS 208, "Occupant Crash Protection" (December 18, 2001) performance for the 35.0 mph test mode.

The target vehicle, a 1997 Honda Accord 4-door sedan, was instrumented with twenty-four (24) accelerometers to measure longitudinal, lateral and vertical axis accelerations. The driver's airbag signal was monitored with an inductive pickup. The vehicle's specified impact velocity range was 55.5 to 57.1 km/h.

The bullet vehicle, a 1996 Toyota Avalon 4-door sedan, was instrumented with twenty-four (24) accelerometers to measure longitudinal, lateral and vertical axis accelerations. The driver's and passenger's airbag signals were monitored with inductive pickups. The vehicle's specified impact velocity range was 55.5 to 57.1 km/h.

The bullet vehicle impacted the left front corner of the target, offset 50%, at an impact angle of 30 degrees. The bullet vehicle's left edge was aligned with the target vehicle's centerline.

One (1) 50th percentile adult male Hybrid III dummy was placed in the target vehicle's left front designated seating position according to NHTSA Laboratory Test Procedure TP-208-11. The driver dummy was belted and was restrained with a front single stage airbag. No dummy was placed in the target vehicle right front passenger position, but the weight of a 5th percentile female dummy was used to obtain fully loaded weight and calculate test weight.

The target vehicle's driver dummy was instrumented with six (6) accelerometers in the head, plus six (6) chest and three (3) pelvis accelerometers to measure longitudinal, lateral and vertical accelerations (primary and redundant in the head and chest). The target vehicle's driver dummy was also instrumented with upper neck moment and force load cells, a chest deflection potentiometer, left and right femur load cells to measure moments and forces, and tibia to femur displacement potentiometers at each knee. The target vehicle's driver dummy was also equipped with upper and lower tibia load cells to measure forces and moments.

One (1) 50th percentile adult male Hybrid III dummy and one (1) 5th percentile adult female dummy were placed in the bullet vehicle's front outboard designated seating positions according to NHTSA Laboratory Test Procedure TP-208-11. The driver dummy and passenger dummy were both belted and were restrained with front single stage airbags.

The bullet vehicle driver dummy was instrumented with an array of three (3) accelerometers in the head, plus three (3) chest, and three (3) pelvis accelerometers to measure longitudinal, lateral, and vertical accelerations. The bullet vehicle's driver dummy was also instrumented with upper neck moment and force load cells, a chest deflection potentiometer, left and right femur load cells to measure moments and forces, and tibia to femur displacement potentiometers at each knee.

The bullet vehicle's passenger dummy was instrumented with six (6) accelerometers in the head, plus six (6) chest and three (3) pelvis accelerometers to measure longitudinal, lateral, and vertical accelerations (primary and redundant in the head and chest). The bullet vehicle's passenger dummy was also instrumented with upper neck moment and force load cells, left and right femur load cells to measure axial forces, a chest deflection potentiometer, and tibia to femur displacement potentiometers at each knee.

The 155 data channels were digitally sampled and recorded at 12,500 samples per second and processed per SAE J211 March 1995.

The crash event was set up to be recorded by one (1) real-time panning motion picture camera and seventeen (17) high-speed motion picture cameras. The pre-test and post-test conditions were recorded by one (1) real-time motion picture camera.

The test summary data are presented in Section 2.0. The summary of FMVSS 208 data are presented in Section 3.0. The occupant, camera, and vehicle measurements are presented in Section 4.0. Appendix A contains the still photographic prints. Appendix B contains the dummy and vehicle data plots. Appendix C contains the dummy verification data. Appendix D contains miscellaneous test information. Appendix E contains an INSIA report that was the basis for the Structural Measurements presented in Tables 13 and 16 of this report. Appendix F contains the vehicle manufacturer's information.

Section 2.0

Left Front Oblique Impact Test Summary

Test Results Summary

This 56.3 km/h 30° left front oblique, 50% offset, vehicle-to-vehicle impact test was conducted by TRC Inc. on May 14, 2003.

The target test vehicle, a 1997 Honda Accord, was equipped with a 2.2-liter 4-cylinder transverse engine, 4-speed automatic transmission, power steering, power brakes, and single stage front airbags. The target vehicle's test weight was 1500 kg. The target vehicle's impact speed was 56.6 km/h. The target vehicle sustained 300 mm of static crush during the impact (measured without bumper fascia). The bullet test vehicle, a 1996 Toyota Avalon 4-door sedan, was equipped with a 3-liter 4-cylinder transverse engine, automatic transmission, power steering, power brakes, and single stage front airbags. The bullet vehicle's test weight was 1703 kg. The bullet vehicle's impact speed was 56.2 km/h. The bullet vehicle sustained 750 mm of static crush during the impact (773 measured without bumper fascia).

The target vehicle driver dummy's 36-millisecond Head Injury Criteria (HIC) was 324. The target vehicle driver dummy's 15-millisecond HIC was 162. The target vehicle driver dummy's chest maximum resultant acceleration with three (3) milliseconds minimum duration was 48.5 g. The target vehicle driver dummy's maximum chest deflection was 33 mm. The target vehicle driver dummy's left and right femur maximum axial compressive forces were 442 N and 2445 N, respectively. The target vehicle driver dummy's upper neck injury calculations were as follows: neck tension-flexion (NTF), 0.21; neck tension-extension (NTE), 0.44; neck compression-flexion (NCF), 0.01; and neck compression-extension (NCE), 0.01. The target vehicle driver dummy's peak upper neck tension force was 1048 N and peak upper neck compression force was 63 N.

The bullet vehicle driver dummy's 36-millisecond HIC was 441. The bullet vehicle driver dummy's 15-millisecond HIC was 343. The bullet vehicle driver dummy's chest maximum resultant acceleration with three (3) milliseconds minimum duration was 35.1 g. The bullet vehicle driver dummy's maximum chest deflection was 32 mm. The bullet vehicle driver dummy's left and right femur maximum axial compressive forces were 2489 N and 3667 N, respectively. The bullet vehicle driver dummy's upper neck injury calculations were as follows:

NTF, 0.38; NTE, 0.24; NCF, 0.00; and NCE, 0.26. The bullet vehicle driver dummy's peak upper neck tension force was 1606 N and peak upper neck compression force was 286 N.

The bullet vehicle right front passenger dummy's 36-millisecond HIC was 272. The bullet vehicle passenger dummy's 15-millisecond HIC was 148. The bullet vehicle passenger dummy's chest maximum resultant acceleration with three (3) milliseconds minimum duration was 38.4 g. The bullet vehicle passenger dummy's maximum chest deflection was 23 mm. The bullet vehicle passenger dummy's left and right femur maximum axial compressive forces were 2213 N and 909 N, respectively. The bullet vehicle right front passenger dummy's upper neck injury calculations were as follows: NTF, 0.18; NTE, 0.73; NCF, 0.11; and NCE, 1.03. The bullet vehicle right front passenger dummy's peak upper neck tension force was 1079 N and peak upper neck compression force was 978 N.

Data Acquisition Explanations

The target vehicle's left front sill X-axis acceleration channel, LFSXG1, recorded questionable data throughout the test.

The bullet vehicle's bottom engine X-axis acceleration channel, ENGXGB, recorded a questionable data spike at approximately 193 ms and had questionable harmonics superimposed on the data.

The bullet vehicle's bottom engine Y-axis acceleration channel, ENGYGB had questionable harmonics superimposed on the data.

Table 1 Crash Test Summary

Test mode:	Left Front Oblique Impact			
Test date:	5/14/03			
Test time:	1551			
Ambient temperature:	18° C			
Target vehicle year/make/ model/body style:	1997/Honda/Accord/4-door sedan			
Target vehicle test weight:	1500.0 kg			
Bullet vehicle year/make/ model/body style:	1996/Toyota/Avalon/4-door sedan			
Bullet vehicle test weight:	1703.0 kg			
Impact angle ¹ :	330°			
Impact velocity ² :	Target vehicle = 56.6 km/h Bullet vehicle = 56.2 km/h			
Target vehicle maximum static crush ³ :	300 mm			
Bullet vehicle maximum static crush ⁴ :	Unknown			
Total number of data channels:	155			
Number of cameras:	High-speed	14	Real-time	1
<u>Target vehicle dummies:</u>	<u>Driver #168</u>		<u>Passenger</u>	
Type:	Hybrid III 50 th (Part 572E)		None	
Location:	Left front			
Restraint:	3-point belt, single stage airbag			
<u>Bullet vehicle dummies:</u>	<u>Driver #169</u>		<u>Passenger #416</u>	
Type:	Hybrid III 50 th (Part 572E)		Hybrid III 5 th (Part 572O)	
Location:	Left Front		Right Front	
Restraint:	3-point belt, single stage airbag		3-point belt, single stage airbag	

¹ With respect to tow track centerline.

² Speed trap measurement ($\pm .08$ km/h accuracy).

³ Measured without bumper fascia. See Figure 8.

⁴ Maximum crush is at left front corner (C1), but C1 measurement point could not be located post test. See Figure 16.

Table 1 Crash Test Summary, Cont'd.

Target vehicle seat track position for test:

Driver:	Mid; 10 notches rearward of the foremost locking position
Passenger:	N/A

Target vehicle seat back position for test:

Driver:	10.5° at the head restraint; 5 th latch position rearward from the first (zero) locking position
Passenger:	N/A

Target vehicle head restraint position for test:

Driver:	Full Up
Passenger:	N/A

Target vehicle steering column
position for test:

24.9°; middle of the geometric range of adjustment for the steering column

Target vehicle D-ring position for test:

Driver:	One position below full up. (Total of 4 positions).
Passenger:	N/A

Bullet vehicle seat track position for test:

Driver:	Mid (power); 112.5mm rearward of foremost position
Passenger:	Full Forward

Bullet vehicle seat back position for test:

Driver:	16.0°; measured on the headrest post
Passenger:	15.7°; measured on the headrest post

Bullet vehicle head restraint position for test:

Driver:	Full Up
Passenger:	Full Down

Bullet vehicle steering column

<u>position for test:</u>	24.5; middle of the geometric range of adjustment for the steering column
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Bullet vehicle D-ring position for test:

Driver:	One position below full up (total 5 positions)
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Passenger:	Full Down
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Table 2 Target General Test and Vehicle Parameter Data

Vehicle year/make/ model/body style:	1997/Honda/Accord/4-door sedan
VIN:	JHMCD5630VC003162
Model year:	1997
Body style:	4-door
Color:	Tan
Engine data:	
Cylinders:	4
Displacement	2.2 liters
Cylinder placement:	Straight
Engine placement:	Transverse
Transmission data:	<u>4</u> speed, ___ manual, <u>X</u> automatic, ___ overdrive
Final drive:	<u>X</u> FWD, ___ RWD, ___ 4WD
Date vehicle received:	5/12/03
Odometer reading:	78398
Dealer's name and address:	Supplied by VRTC

Accessories:

Power steering	Yes	Automatic transmission	Yes
Power brakes	Yes	Automatic speed control	Yes
Power seats	No	Tilting steering wheel	Yes
Power windows	Yes	Telescoping steering wheel	No
Tinted glass	Yes	Air conditioning	Yes
Radio	Yes	Anti-skid brake	No
Clock	Yes	Rear window defroster	Yes
Other		Power door locks	Yes

Certification data from vehicle's label:

Vehicle manufactured by:	Honda Motor Company		
Date of manufacture:	5/97		
VIN:	JHMCD5630VC003162		
GVWR:	3915 lbs.	(1776 kg)	
GAWR: Front:	2140 lbs.	(971 kg)	
Rear:	1810 lbs.	(821 kg)	

Table 2 Target General Test and Vehicle Parameter Data, Cont'd.

Tires on vehicle (mfr., line, size): Goodyear, Regatta, P185/65R15

Tire pressure with maximum capacity vehicle load:

Front:	44 psi	(300 kPa)
Rear:	44 psi	(300 kPa)

Spare tire (mfr., line, size): Bridgestone, Temporary, T115/70D14

Type of seats:

Front	Bucket
Rear	Bench

Maximum width: 1780 mm

Wheelbase: 2716 mm

Location of “Recommended Tire Pressure” label:

Left Side B-pillar.

Data from vehicle’s “Recommended Tire Pressure” label:

Recommended tire size: 185/65R15

Recommended cold tire pressure:

Front:	32 psi	(220 kPa)
Rear:	32 psi	(220 kPa)

Vehicle Capacity Data:

Number of Occupants (Designated seating capacity):

Front	2
Rear	3
Total	5

Vehicle capacity weight: 850 lbs. (385.5 kg)

Rated cargo/luggage weight¹ 100 lbs. (45.5 kg)

Test vehicle attitude:

Delivered attitude:	LF 700 mm;	RF 690 mm;	LR 685 mm;	RR 680 mm
Fully loaded attitude:	LF 682 mm;	RF 677 mm;	LR 655 mm;	RR 650 mm
Pre-test attitude:	LF 683 mm;	RF 677 mm;	LR 643 mm;	RR 650 mm
Post-test attitude ² :	LF 632 mm;	RF 680 mm;	LR 624 mm;	RR 696 mm

¹ RCLW = Vehicle Capacity Weight - (68 kg * Designated Seating Capacity).

² Left front tire flattened.

Table 2 Target General Test and Vehicle Parameter Data, Cont'd.

Weight of test vehicle as received (with maximum fluids)=UDW:

Right front	419.5 kg	Right rear	249.0 kg
Left front	413.0 kg	Left rear	248.0 kg
Total front weight	832.5 kg	(62.6 % of total vehicle weight)	
Total rear weight	497.0 kg	(37.4 % of total vehicle weight)	
Total delivered weight	1329.5 kg		

Calculation of test vehicle's target test weight:

Total Delivered Weight (UDW) =	1329.5 kg
Rated Cargo/Luggage Weight (RCLW) ¹ =	45.5 kg
Weight of 1 Part 572E Dummy @ 76 kg and 1 Part 572O Dummy @ 49 kg =	125.0 kg
Target test weight =	1500.0 kg

Weight of test vehicle with required dummies and 45.5 kg of cargo weight:

Right front	444.4 kg	Right rear	304.0 kg
Left front	444.2 kg	Left rear	307.4 kg
Total front weight	888.6 kg	(59.2% of total vehicle weight)	
Total rear weight	611.4 kg	(40.8% of total vehicle weight)	
Total test weight	1500.0 kg	(at target test weight)	

Weight of ballast secured in vehicle: 0

Components removed to meet target test weight: Door seals, deck lid and hinges, speakers,
high mount brake light, rear interior

Location of Vehicle's CG: 1108 mm rearward of front wheel centerline

Fuel System Data:

Usable fuel system capacity	64.4 liters (from manufacturer's information)
Actual test volume ² :	0.0 liters (0.0% of usable)

¹ Cargo weight for multipurpose passenger vehicles, trucks, and buses is the vehicle's rated cargo and luggage weight from the vehicle's label or 136 kilograms, whichever is less.

² Fuel drained to achieve test weight.

Table 3 Bullet General Test and Vehicle Parameter Data

Vehicle year/make/ model/body style:	1996/Toyota/Avalon/4-door sedan
VIN:	4T1BF12B5TV071560
Model year:	1996
Body style:	4-door sedan
Color:	Red
Engine data:	
Cylinders:	4
Displacement	3.0 liters
Cylinder placement:	Straight
Engine placement:	Transverse
Transmission data:	<u>3</u> speed, ___ manual, <u>X</u> automatic, ___ overdrive
Final drive:	<u>X</u> FWD, ___ RWD, ___ 4WD
Date vehicle received:	4/4/03
Odometer reading:	Unknown
Dealer's name and address:	Supplied by VRTC

Accessories:

Power steering	Yes	Automatic transmission	Yes
Power brakes	Yes	Automatic speed control	Yes
Power seats	Yes	Tilting steering wheel	Yes
Power windows	Yes	Telescoping steering wheel	No
Tinted glass	Yes	Air conditioning	Yes
Radio	Yes	Anti-skid brake	Yes
Clock	Yes	Rear window defroster	Yes
Other		Power door locks	Yes

Certification data from vehicle's label:

Vehicle manufactured by:	Toyota Motor Company
Date of manufacture:	09/95
VIN:	4T1BF12B5TV071560
GVWR:	4520 lbs. (2050 kg)
GAWR: Front:	2665 lbs. (1209 kg)
Rear:	2665 lbs. (1209 kg)

Table 3 Bullet General Test and Vehicle Parameter Data, Cont'd.

Tires on vehicle (mfr., line, size): Goodyear, Integrity, P205/65R15

Tire pressure with maximum capacity vehicle load:

Front: 44 psi (300 kPa)

Rear: 44 psi (300 kPa)

Spare tire (mfr., line, size): Dunlop, Full size, P205/65R15

Type of seats:

Front Split Bench

Rear Bench

Maximum width: 1785 mm

Wheelbase: 2700 mm

Location of "Recommended Tire Pressure" label:

The label was located on left B-pillar.

Data from vehicle's "Recommended Tire Pressure" label:

Recommended tire size: P205/65R15

Recommended cold tire pressure:

Front: 32 psi (220 kPa)

Rear: 32 psi (220 kPa)

Vehicle Capacity Data:

Number of Occupants (Designated seating capacity):

Front 3

Rear 3

Total 6

Vehicle capacity weight: 1060 lbs. (480 kg)

Rated cargo/luggage weight¹ 160 lbs. (72.0 kg)

Test vehicle attitude:

Delivered attitude: LF 697 mm; RF 690 mm; LR 700 mm; RR 695 mm

Fully loaded attitude: LF 668 mm; RF 672 mm; LR 649 mm; RR 652 mm

Pre-test attitude: LF 656 mm; RF 671 mm; LR 655 mm; RR 660 mm

Post-test attitude²: LF 770 mm; RF 694 mm; LR 610 mm; RR 687 mm

¹ RCLW = Vehicle Capacity Weight - (68 kg * Designated Seating Capacity).

² Left front tire flattened.

Table 3 Bullet General Test and Vehicle Parameter Data Cont'd

Weight of test vehicle as received (with maximum fluids)=UDW:

Right front	463.0 kg	Right rear	288.5 kg
Left front	477.0 kg	Left rear	277.5 kg
Total front weight	940.0 kg	(62.4 % of total vehicle weight)	
Total rear weight	566.0 kg	(37.6 % of total vehicle weight)	
Total delivered weight	1506.0 kg		

Calculation of test vehicle's target test weight:

Total Delivered Weight (UDW) =	1506.0 kg
Rated Cargo/Luggage Weight (RCLW) ¹ =	72.0 kg
Weight of 1 Part 572O Dummy @ 49 kg and 1 Part 572E Dummy @ 76 kg =	125.0 kg
Target test weight =	1703.0 kg

Weight of test vehicle with required dummies and 71.4 kg of cargo weight:

Right front	488.2 kg	Right rear	335.0 kg
Left front	531.2 kg	Left rear	348.0 kg
Total front weight	1019.4 kg	(59.9% of total vehicle weight)	
Total rear weight	683.0 kg	(40.1% of total vehicle weight)	
Total test weight	1702.4 kg	(at target test weight)	

Weight of ballast secured in vehicle: None

Components removed to meet target test weight: Taillights, deck lid and hinges, rear door panels and glass, rear bumper beam and fascia, exhaust, sunroof bug shield and rubber door trims.

Location of Vehicle's CG: 1083 mm rearward of front wheel centerline

Fuel System Data:

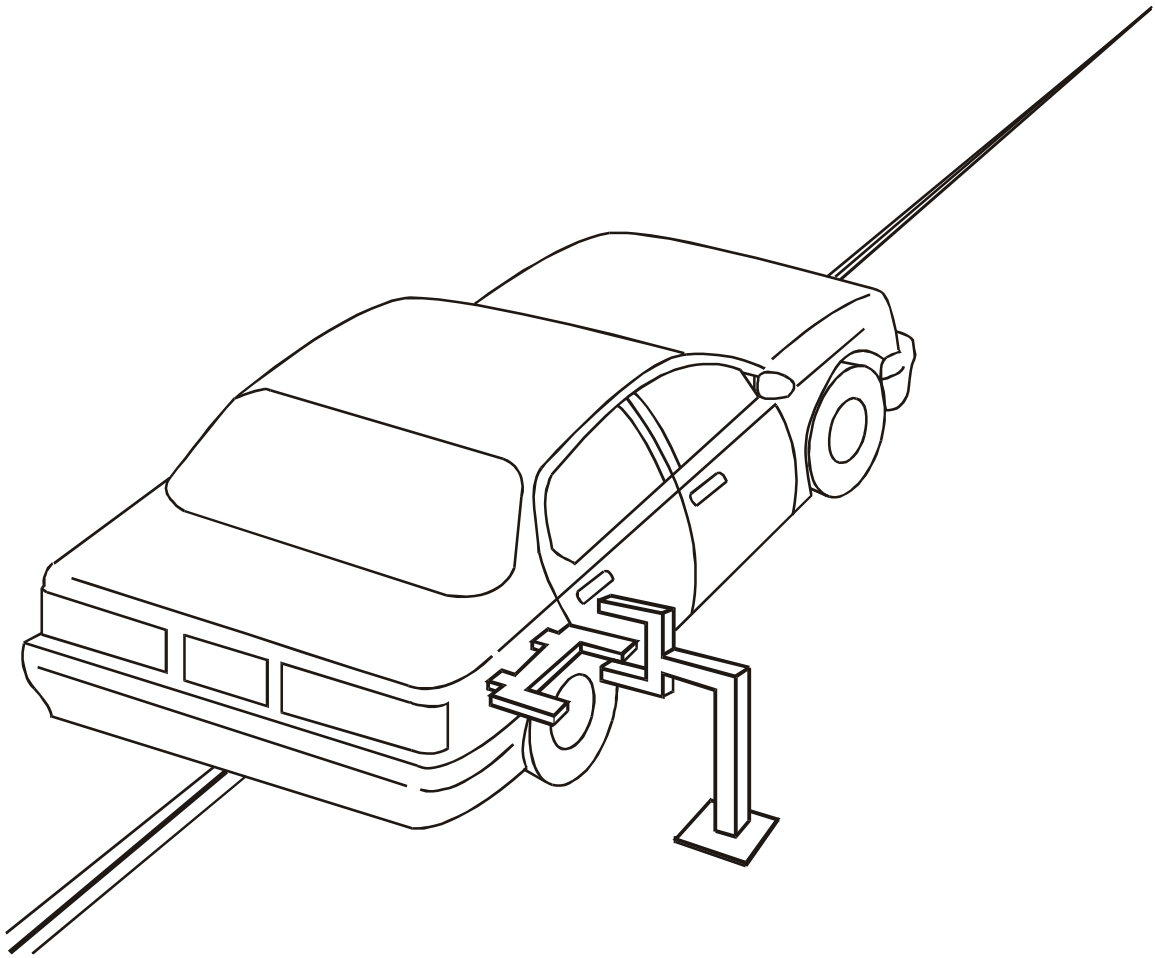
Usable fuel system capacity	70.0 liters (from owner's manual)
Actual test volume:	65.1 liters (93.0% of usable)

¹ Cargo weight for multipurpose passenger vehicles, trucks, and buses is the vehicle's rated cargo and luggage weight from the vehicle's label or 136 kilograms, whichever is less.

Table 4 Post-Impact Data

Test number:	030514
Test date:	05/14/03
Test time:	1551
Test type:	Car to Car
Impact angle:	330°
Ambient temperature at impact area:	18° C
Impact velocity:	
Target vehicle:	56.6 km/h
Bullet vehicle:	56.2 km/h
Required impact velocity range:	55.5 to 57.1 km/h
Distance from each vehicle to intended impact point:	
Entering velocity trap:	661 mm
Exiting velocity trap:	51 mm, approximately
Impact point:	35 mm left of intended impact point (referenced to target vehicle coordinate system)

Figure 1 Impact Velocity Measurement System



The final vane clears the final emitter/receiver pair approximately 51 millimeters before impact.

The vanes have 610-millimeter spacing.

Figure 2 Target Vehicle Accelerometer Placement

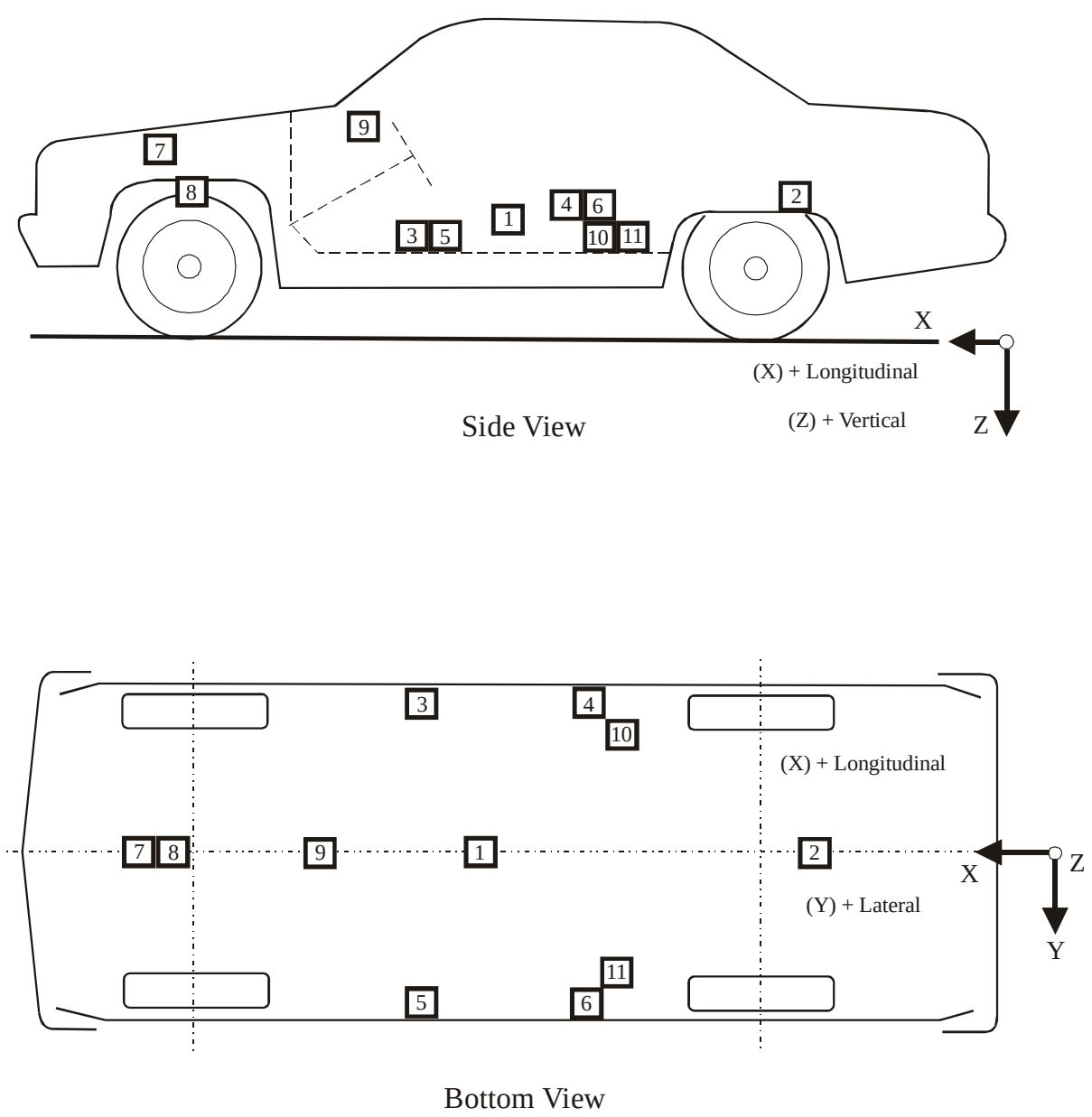


Table 5 Target Vehicle Accelerometer Locations and Data Summary

TEST NUMBER: 030514 No. LOCATION	X	Y	Z	POSITIVE DIRECTION		NEGATIVE DIRECTION	
1 VEHICLE CENTER OF GRAVITY	2671 mm	0 mm	-497 mm				
LONGITUDINAL			3.9 g	@ 141.4 ms	36.7 g	@ 48.3 ms	
LATERAL			33.0 g	@ 37.9 ms	7.4 g	@ 123.7 ms	
VERTICAL			15.2 g	@ 50.6 ms	27.3 g	@ 63.9 ms	
RESULTANT			43.8 g	@ 49.4 ms			
2 REAR DECK	NA	NA	NA				
LONGITUDINAL			3.6 g	@ 143.9 ms	29.0 g	@ 62.3 ms	
LATERAL			14.3 g	@ 66.3 ms	10.6 g	@ 37.9 ms	
VERTICAL			4.6 g	@ 76.6 ms	12.5 g	@ 46.5 ms	
RESULTANT			31.9 g	@ 62.5 ms			
3 LEFT FRONT SILL ¹	NA	NA	NA				
LONGITUDINAL ³			179.0 g	@ 101.7 ms	106.2 g	@ 180.7 ms	
LATERAL			36.5 g	@ 33.6 ms	9.9 g	@ 92.4 ms	
4 LEFT REAR SILL ¹	NA	NA	NA				
LONGITUDINAL			1.5 g	@ 131.7 ms	26.4 g	@ 59.0 ms	
LATERAL			17.6 g	@ 56.8 ms	2.9 g	@ 94.3 ms	
5 RIGHT FRONT SILL ²	NA	NA	NA				
LONGITUDINAL			1.4 g	@ 135.4 ms	28.5 g	@ 48.9 ms	
LATERAL			28.2 g	@ 51.4 ms	3.7 g	@ 6.6 ms	
6 RIGHT REAR SILL ²	NA	NA	NA				
LONGITUDINAL			1.6 g	@ 135.2 ms	27.6 g	@ 48.9 ms	
LATERAL			16.4 g	@ 34.9 ms	2.0 g	@ 149.7 ms	

Table 5 Target Vehicle Accelerometer Locations and Data Summary, Cont'd.

TEST NUMBER: 030514 No. LOCATION	X	Y	Z	POSITIVE DIRECTION		NEGATIVE DIRECTION	
7 ENGINE TOP	NA	NA	NA				
LONGITUDINAL				3.8 g	@ 70.7 ms	28.2 g	@ 29.9 ms
LATERAL				35.1 g	@ 39.8 ms	4.6 g	@ 54.4 ms
8 ENGINE BOTTOM	NA	NA	NA				
LONGITUDINAL				26.6 g	@ 54.9 ms	57.8 g	@ 21.0 ms
LATERAL				26.9 g	@ 22.5 ms	15.6 g	@ 30.8 ms
9 INSTRUMENT PANEL CENTER	NA	NA	NA				
LONGITUDINAL				8.6 g	@ 104.4 ms	37.2 g	@ 54.0 ms
LATERAL				39.0 g	@ 51.7 ms	6.1 g	@ 85.4 ms
10 LEFT REAR SEAT CROSSMEMBER	NA	NA	NA				
LONGITUDINAL				1.7 g	@ 132.3 ms	26.3 g	@ 59.2 ms
LATERAL				14.2 g	@ 56.2 ms	1.6 g	@ 149.4 ms
11 RIGHT REAR SEAT CROSSMEMBER	NA	NA	NA				
LONGITUDINAL				1.7 g	@ 149.9 ms	12.9 g	@ 56.4 ms
LATERAL				28.0 g	@ 49.0 ms	1.6 g	@ 135.5 ms

REFERENCE: X: + FORWARD FROM REAR BUMPER
 Y: + RIGHTWARD FROM VEHICLE CENTERLINE
 Z: + DOWNWARD FROM GROUND LEVEL

- ¹ The X-axis distance between the left front sill and left rear sill accelerometer locations is 1080 mm.
² The X-axis distance between the right front sill and right rear sill accelerometer locations is 1020 mm.
³ See DATA ACQUISITION EXPLANATIONS

Figure 3 Bullet Vehicle Accelerometer Placement

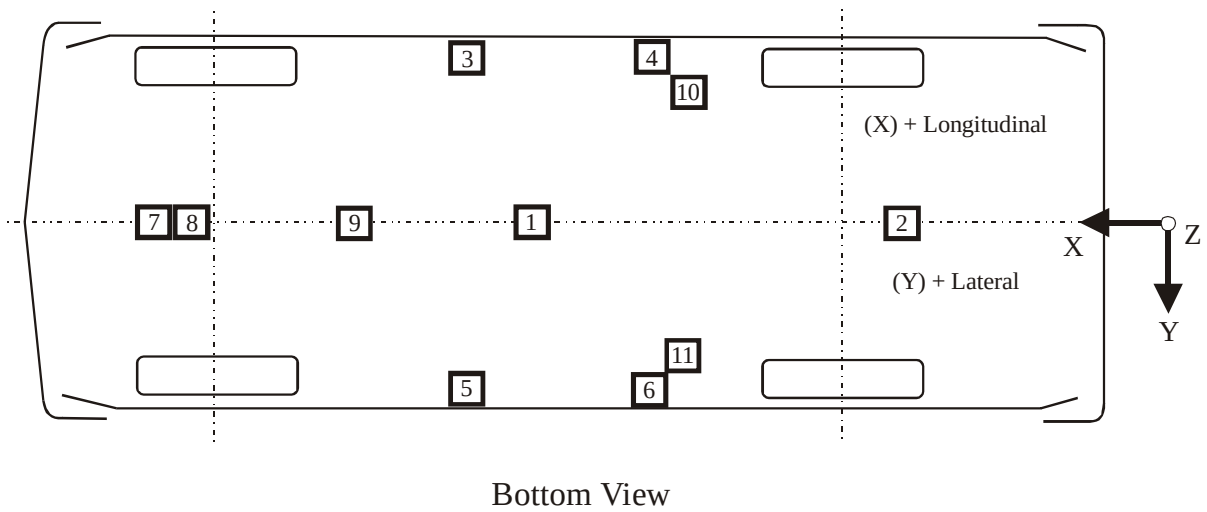
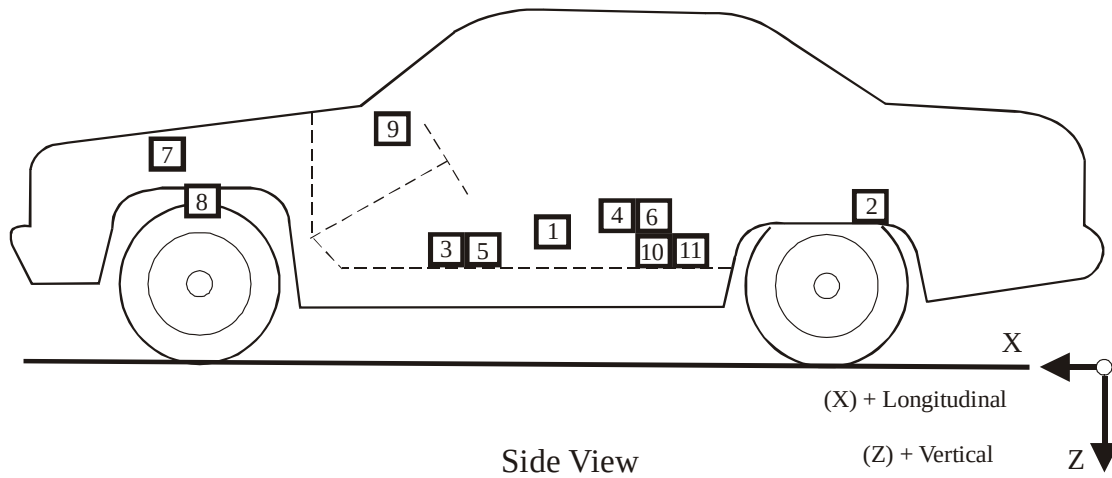


Table 6 Bullet Vehicle Accelerometer Locations and Data Summary

TEST NUMBER: 030514 No. LOCATION	X	Y	Z	POSITIVE DIRECTION		NEGATIVE DIRECTION	
1 VEHICLE CENTER OF GRAVITY	2779 mm	0 mm	-315 mm				
LONGITUDINAL				2.2 g	@ 159.6 ms	23.6 g	@ 74.8 ms
LATERAL				10.6 g	@ 52.6 ms	8.3 g	@ 69.5 ms
VERTICAL				15.3 g	@ 60.2 ms	11.3 g	@ 75.0 ms
RESULTANT				26.9 g	@ 74.9 ms		
2 REAR DECK	NA	NA	NA				
LONGITUDINAL				3.8 g	@ 144.7 ms	29.0 g	@ 60.2 ms
LATERAL				13.8 g	@ 89.1 ms	5.5 g	@ 114.3 ms
VERTICAL				14.1 g	@ 107.8 ms	14.6 g	@ 59.6 ms
RESULTANT				33.0 g	@ 60.3 ms		
3 LEFT FRONT SILL ¹	NA	NA	NA				
LONGITUDINAL				1.3 g	@ 168.9 ms	26.7 g	@ 57.8 ms
LATERAL				13.7 g	@ 47.3 ms	16.1 g	@ 76.6 ms
4 LEFT REAR SILL ¹	NA	NA	NA				
LONGITUDINAL				2.5 g	@ 150.8 ms	27.2 g	@ 58.2 ms
LATERAL				10.0 g	@ 34.2 ms	3.4 g	@ 78.0 ms
5 RIGHT FRONT SILL ²	NA	NA	NA				
LONGITUDINAL				0.7 g	@ 144.2 ms	23.0 g	@ 53.4 ms
LATERAL				14.1 g	@ 54.6 ms	13.6 g	@ 78.2 ms
6 RIGHT REAR SILL ²	NA	NA	NA				
LONGITUDINAL				1.9 g	@ 142.5 ms	21.3 g	@ 53.5 ms
LATERAL				9.4 g	@ 53.3 ms	1.4 g	@ 145.3 ms

Table 6 Bullet Vehicle Accelerometer Locations and Data Summary, Cont'd.

TEST NUMBER: 030514 No. LOCATION	X	Y	Z	POSITIVE DIRECTION		NEGATIVE DIRECTION	
7 ENGINE TOP	NA	NA	NA				
LONGITUDINAL				7.9 g	@ 63.7 ms	83.3 g	@ 38.8 ms
LATERAL				12.6 g	@ 45.1 ms	15.2 g	@ 28.5 ms
8 ENGINE BOTTOM	NA	NA	NA				
LONGITUDINAL ³				4.3 g	@ 145.1 ms	51.2 g	@ 193.1 ms
LATERAL ³				5.6 g	@ 96.2 ms	24.2 g	@ 38.7 ms
9 INSTRUMENT PANEL CENTER	NA	NA	NA				
LONGITUDINAL				36.8 g	@ 47.0 ms	56.9 g	@ 52.8 ms
LATERAL				26.2 g	@ 58.3 ms	14.5 g	@ 84.6 ms
10 LEFT REAR SEAT CROSSMEMBER	NA	NA	NA				
LONGITUDINAL				2.4 g	@ 154.1 ms	26.2 g	@ 58.8 ms
LATERAL				8.6 g	@ 34.2 ms	0.7 g	@ 69.3 ms
11 RIGHT REAR SEAT CROSSMEMBER	NA	NA	NA				
LONGITUDINAL				2.1 g	@ 149.0 ms	21.9 g	@ 59.1 ms
LATERAL				9.4 g	@ 52.7 ms	1.1 g	@ 148.2 ms

REFERENCE: X: + FORWARD FROM REAR BUMPER
 Y: + RIGHTWARD FROM VEHICLE CENTERLINE
 Z: + DOWNWARD FROM GROUND LEVEL

- ¹ The X-axis distance between the left front sill and left rear sill accelerometer locations is 1205 mm.
² The X-axis distance between the right front sill and right rear sill accelerometer locations is 1250 mm.
³ See DATA ACQUISITION EXPLANATIONS

Section 3.0

Summary of FMVSS 208 Data

Table 7 Target Vehicle Dummy Injury Criteria Data

<u>Maximum Acceleration¹</u>								
Head					Chest			
	X	Y	Z	R	X	Y	Z	R
Driver	-39.1 g	32.3 g	23.9 g	43.3 g	-43.5g	33.7 g	-18.9 g	49.0 g

<u>Maximum Femur Compressive Force</u>		
	Left Femur	Right Femur
Driver	442 N	2445 N

<u>Head Injury Criteria²</u>			
36 millisecond			
	HIC	Start Time t ₁	End Time t ₂
Driver	324	69.68 ms	105.68 ms

15 millisecond			
	HIC	Start Time t ₁	End Time t ₂
Driver	162	80.32 ms	95.36 ms

<u>Chest Maximum Resultant Acceleration³</u>			
	Acceleration	Start Time t ₁	End Time t ₂
Driver	48.5 g	75.03 ms	77.99 ms

<u>Maximum Chest Deflection</u>	
Driver	33 mm

<u>Neck Injury Calculations (Nij)²</u>				
	NTF	NTE	NCF	NCE
Driver	0.21	0.44	0.01	0.01

¹ See Report Sign Convention in Appendix D.

² As defined in FMVSS No. 208.

³ Defined as equal to or exceeding 0.003 sec. duration.

Table 7 Target Vehicle Dummy Injury Criteria Data, Cont'd.

	<u>Upper Neck Axial Force</u>	
	Tension	Compression
Driver	1048 N	63 N

	<u>Tibia Index</u>	
	Upper Tibia	Lower Tibia
Driver-left	0.51	0.86
Driver-right	1.17	1.19

Table 8 Bullet Vehicle Dummy Injury Criteria Data

<u>Maximum Acceleration¹</u>								
	Head				Chest			
	X	Y	Z	R	X	Y	Z	R
Driver	-59.8 g	-13.8 g	15.1 g	62.0 g	-34.5g	6.9 g	-8.6 g	35.5 g
Passenger	-65.4 g	-19.9 g	-14.9 g	66.7 g	-41.2 g	5.3 g	-11.9 g	41.7 g

<u>Maximum Femur Compressive Force</u>		
	Left Femur	Right Femur
Driver	2489 N	3667 N
Passenger	2213 N	909 N

<u>Head Injury Criteria²</u>			
36 millisecond			
	HIC	Start Time t ₁	End Time t ₂
Driver	441	58.32 ms	87.20 ms
Passenger	272	43.76ms	79.76 ms

15 millisecond			
	HIC	Start Time t ₁	End Time t ₂
Driver	343	65.12 ms	80.16 ms
Passenger	148	50.88 ms	65.92 ms

<u>Chest Maximum Resultant Acceleration³</u>			
	Acceleration	Start Time t ₁	End Time t ₂
Driver	35.1 g	67.00 ms	70.77 ms
Passenger	38.4 g	74.09 ms	77.05 ms

Table 8 Bullet Vehicle Dummy Injury Criteria Data, Cont'd.

Maximum Chest Deflection

Driver	32 mm
Passenger	23 mm

Upper Neck Injury Calculations (Nij)²

	NTF	NTE	NCF	NCE
Driver	0.38	0.24	0.00	0.26
Passenger	0.15	0.73	0.11	1.03

Upper Neck Axial Force

	Tension	Compression
Driver	1606 N	286 N
Passenger	1079 N	978 N

¹ See Report Sign Convention in Appendix D.

² As defined in FMVSS No. 208.

³ Defined as equal to or exceeding 0.003 sec. duration.

Table 9 Target Vehicle Post-Impact Dummy/Vehicle Data

Visible Dummy Contact Points:

	<u>Driver</u>
Head	Airbag
Chest	Airbag
Abdomen	None
Left knee	Knee Bolster
Right knee	Knee Bolster

Door opening:

	<u>Left</u>	<u>Right</u>
Front	Difficult	Easy
Rear	Easy	Easy

Seat movement:

	<u>Seat back failure</u>	<u>Seat shift</u>
Left Front	None	None
Right Front	N/A	N/A
Left Rear	N/A	N/A
Right Rear	N/A	N/A

Glazing damage: Cracked along bottom of front windshield

Other notable impact effects: Bumper fascia separated. The left front tire flattened.

Table 10 Bullet Vehicle Post-Impact Dummy/Vehicle Data

Visible Dummy Contact Points:

	<u>Driver</u>	<u>Passenger</u>
Head	Airbag, headrest, seatbelt	Airbag, headrest
Chest	Airbag	Airbag
Abdomen	None	None
Left knee	Knee Bolster	Glove Box
Right knee	Knee Bolster	Glove Box

Door opening:

	<u>Left</u>	<u>Right</u>
Front	Easy	Easy
Rear	Easy	Easy

Seat movement:

	<u>Seat back failure</u>	<u>Seat shift</u>
Left Front	None	None
Right Front	None	None
Left Rear	N/A	N/A
Right Rear	N/A	N/A

Glazing damage: Windshield broken at driver's side A-pillar

Other notable impact effects: Left front tire flattened

Section 4.0

Occupant, Camera, and Vehicle Information

Target Vehicle Dummy Kinematic Summary

Driver Dummy

Upon impact, the target driver dummy translated forward with the head and chest going into the airbag. The knees contact the dash panel. The dummy was then forced outboard and rebounded back into the seat. The dummy came to rest leaning slightly outboard in the driver's seat.

Bullet Vehicle Dummy Kinematic Summary

Driver Dummy

Upon impact, the bullet driver dummy translated forward with the head and chest going straight into the airbag. The knees contacted the dash panel. The head and neck extended back on rebound. The back of the driver dummy's head contacted the seatbelt and the outboard side of the driver's headrest. The dummy came to rest seated upright in the driver's seat.

Right Front Passenger Dummy

Upon impact, the bullet passenger dummy translated forward with the head and chest contacting the airbag. The knees contacted the dash panel. The dummy rebounded into the seatback with the head contacting the passenger head restraint. The dummy came to rest seated upright in the passenger seat.

Figure 4 Vehicle Dummy Measurement Locations for Front Seat Occupants

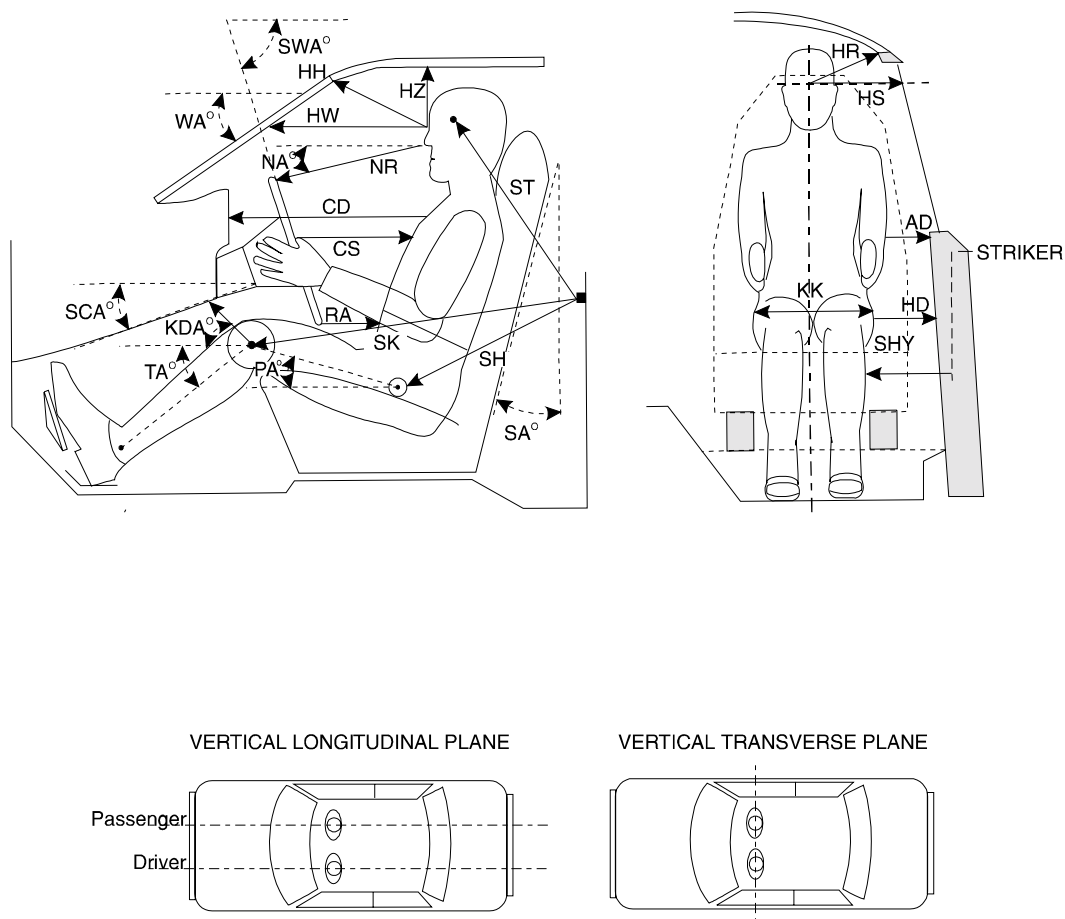


Table 11 Target Vehicle Dummy Measurement Data For Front Seat Occupants

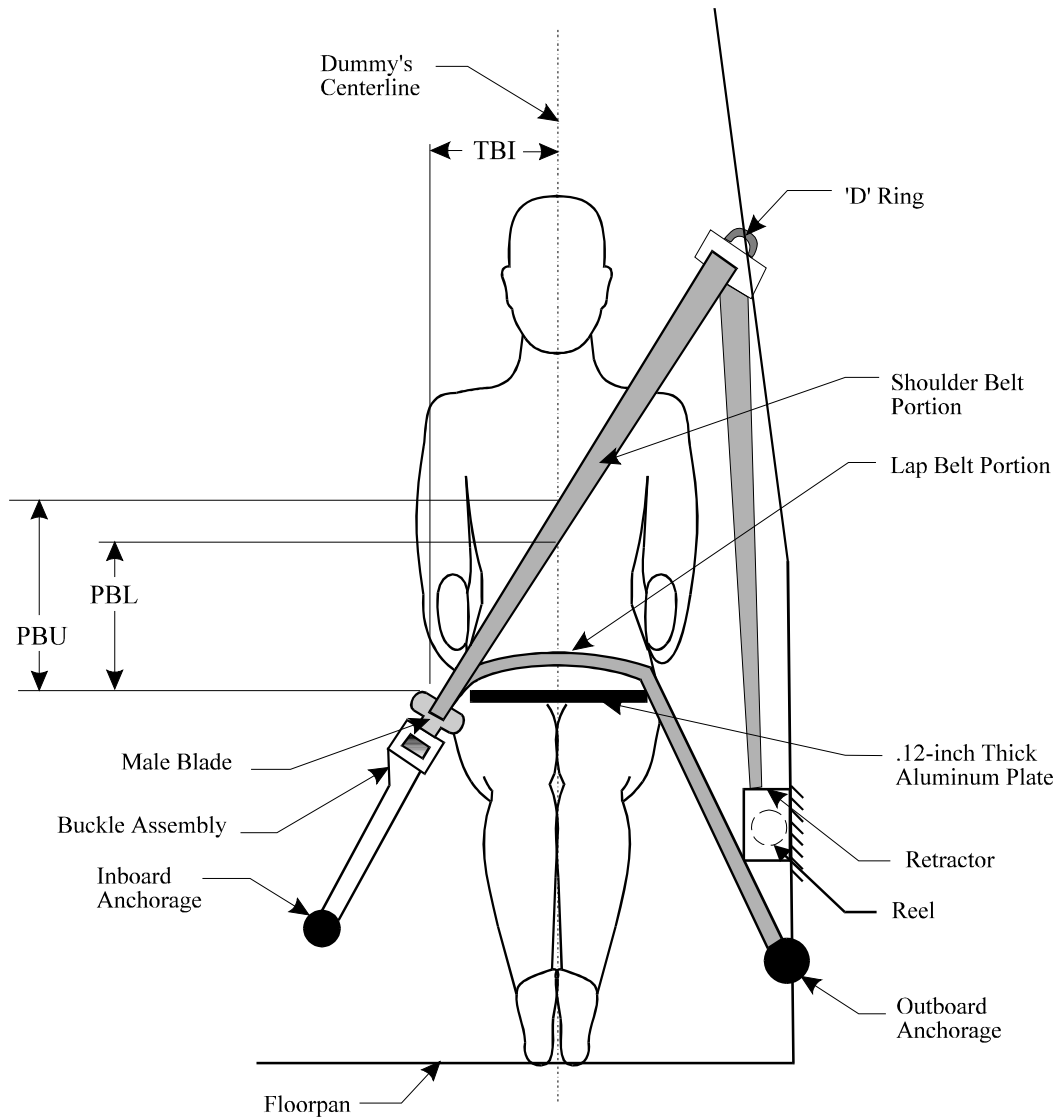
<u>Designation</u>	<u>Type of Measurement</u>	<u>Driver (Serial # 168)</u>
WA	Windshield angle	27.6°
SWA	Steering wheel angle	24.9°
SCA	Steering column angle	65.1°
SA	Seat back angle ¹	10.5°
HZ	Head to roof	200 mm
HH	Head to header	327 mm
HW	Head to windshield	544 mm
HR	Head to side header	206 mm
NR	Nose to rim	422 mm
NA	Nose to rim angle	12.6°
CD	Chest to dash	560 mm
CS	Steering wheel to chest	330 mm
RA	Rim to abdomen	201 mm
KDL	Left knee to dash	200 mm
KDR	Right knee to dash	220 mm
KDA	Outboard knee to dash angle	31.1°
PA	Pelvic angle	24.7°
TA	Tibia angle	39.2°
KK	Knee to knee	335 mm
ST ¹	Striker to head	504 mm
	Striker to head angle	-89.0°
SK ¹	Striker to knee	554 mm
	Striker to knee angle	0.2°
SH ¹	Striker to H-point	247 mm
	Striker to H-point angle	35.5°
SHY	Striker to H-point (Y dir.)	256 mm
HS	Head to side window	295 mm
HD	H-point to door	128 mm
AD	Arm to door	123 mm

The seat back angle (SA°) is measured relative to vertical, all other angles are measured relative to horizontal.

¹ Measured on the headrest post.

² A negative angle indicates the measurement point was above the striker.

Figure 5 Target Vehicle Seat Belt Positioning Data



Driver
Dummy

PBU - Top surface of aluminum plate to belt upper edge	335 mm
PBL - Top surface of aluminum plate to belt lower edge	245 mm
TBI - Dummy centerline to intersection of upper torso belt and lap belt	260 mm

Table 12 Bullet Vehicle Dummy Measurement Data For Front Seat Occupants

<u>Designation</u>	<u>Type of Measurement</u>	<u>Driver (Serial # 169)</u>	<u>Passenger (Serial # 416)</u>
WA	Windshield angle	31.2°	N/A
SWA	Steering wheel angle	24.5°	N/A
SCA	Steering column angle	65.5°	N/A
SA	Seat back angle ¹	16.0°	15.7°
HZ	Head to roof	177 mm	226 ² mm
HH	Head to header	295 mm	281 mm
HW	Head to windshield	497 mm	548 mm
HR	Head to side header	236 mm	280 mm
NR	Nose to rim	368 mm	N/A
NA	Nose to rim angle	11.6°	N/A
CD	Chest to dash	527 mm	378 mm
CS	Steering wheel to chest	281 mm	N/A
RA	Rim to abdomen	168 mm	N/A
KDL	Left knee to dash	150 mm	105 mm
KDR	Right knee to dash	148 mm	103 mm
KDA	Outboard knee to dash angle	35.5°	40.8°
PA	Pelvic angle	23.0°	23.4°
TA	Tibia angle	47.2°	49.6°
KK	Knee to knee	316 mm	165 mm
ST ³	Striker to head	476 mm	450 mm
	Striker to head angle	-81.1°	-59.8°
SK ³	Striker to knee	620 mm	713 mm
	Striker to knee angle	1.9°	4.9°
SH ³	Striker to H-point	322 mm	417 mm
	Striker to H-point angle	37.2°	22.9°
SHY	Striker to H-point (Y dir.)	255 mm	289 mm
HS	Head to side window	342 mm	375 mm
HD	H-point to door	160 mm	206 mm
AD	Arm to door	134 mm	187 mm

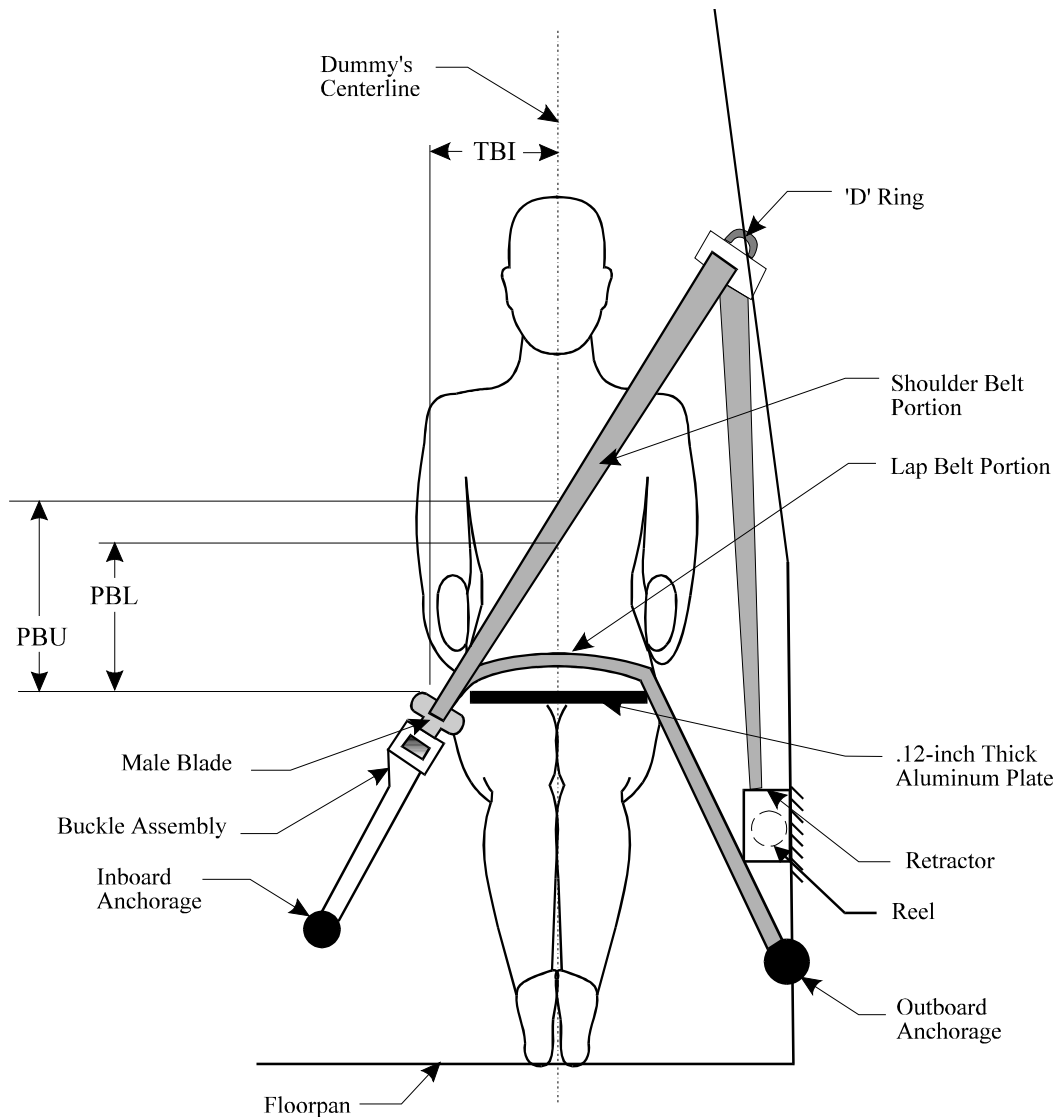
The seat back angle (SA°) is measured relative to vertical, all other angles are measured relative to horizontal.

¹ Measured on the headrest post.

² Measured to the sun visor.

³ A negative angle indicates the measurement point was above the striker.

Figure 6 Bullet Vehicle Seat Belt Positioning Data



	Driver Dummy	Passenger Dummy
PBU - Top surface of aluminum plate to belt upper edge	324 mm	270 mm
PBL - Top surface of aluminum plate to belt lower edge	235 mm	185 mm
TBI - Dummy centerline to intersection of upper torso belt and lap belt	290 mm	205 mm

Table 13 Target Vehicle Structural Measurements^{1,2}

	Elements	Pre-Test
1	Total Length	4699
2	Total Width	1780
3	Bumper Top Height	550
4	Bumper Bottom Height	410
5	Longitudinal Member Top Height	490
6	Longitudinal Member Bottom Height	280
7	Distance Between Longitudinal Members	1100
7'	Longitudinal Member Width	80
8	Engine Top Height	741
9	Engine Bottom Height	160
10	Engine and Gearbox Width	930
11	Front Bumper - Engine Distance	450
12	Front Shock Absorber Fixing Height	900
13	Bonnet Leading Edge Height	630
14	Front Shock Absorber Fixing Width	788
15	Front Bumper - Front Axle Distance	925
16	Front Axle - A Pillar Distance	540
17	A Pillar - B Pillar Distance	1105
18	B Pillar - Rear Axle Distance	1104
19	B Pillar - C Pillar Distance	1440
20	Roof Sill Bottom Height	1055
21	Roof Sill Top Height	1190
22	Floor Sill Bottom Height	166
23	Floor Sill Top Height	313

All distance measurements are in millimeters.

¹ Taken from INSIA report, “Structural Survey of Cars, Methodology of the Main Resistant Elements in the Car Body”, March 1999. This report is included in Appendix E.

² These structural measurements, except total length and width and front bumper to axle distance, are taken from a different 1997 Honda Accord; the vertical measurements from ground are adjusted based on this test vehicle’s pre-test attitude measurements.

Figure 7 Target Vehicle Pre-Test And Post-Test Measurement Points

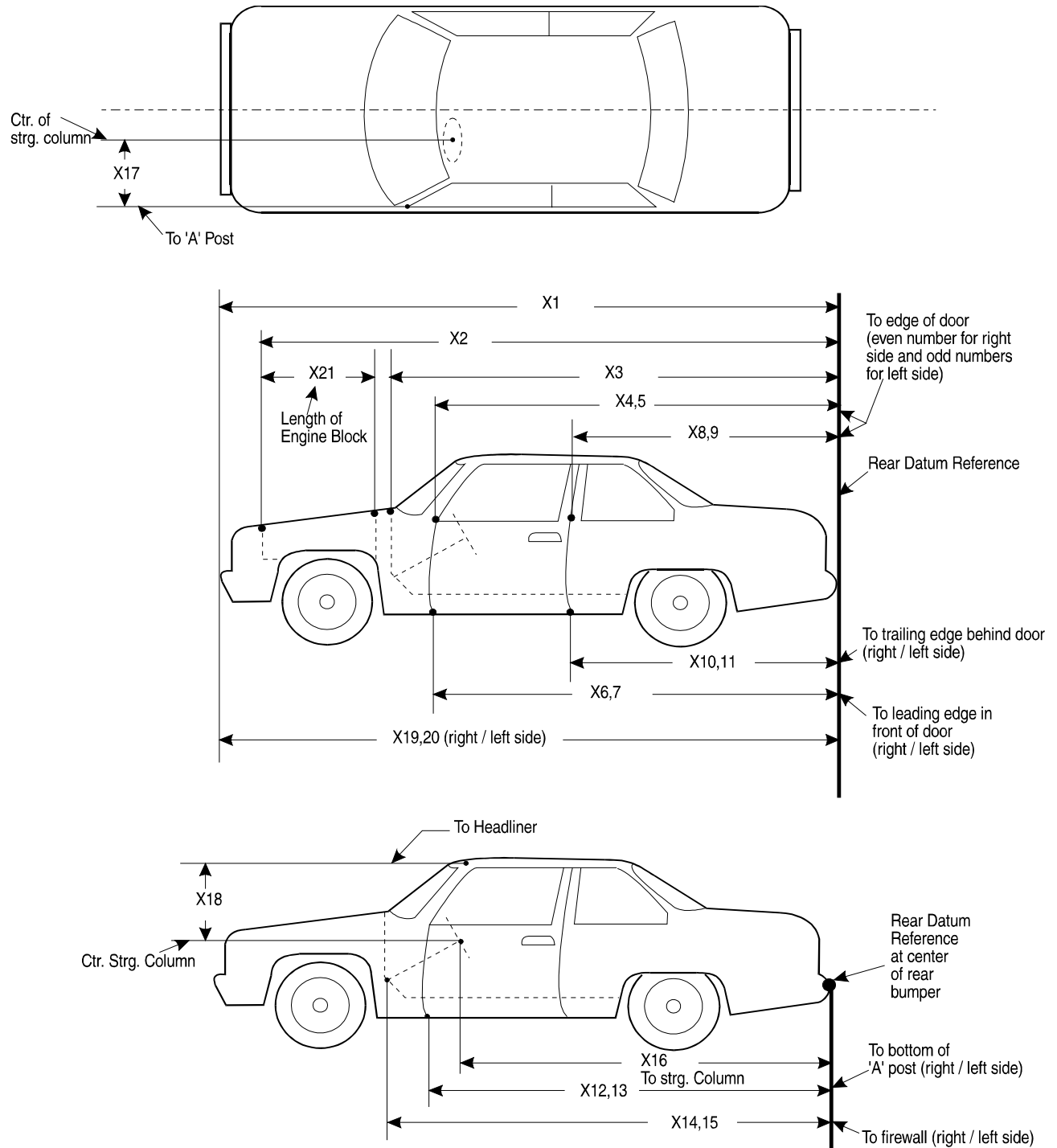


Table 14 Target Vehicle Impacted Measurements

Test number: 030514

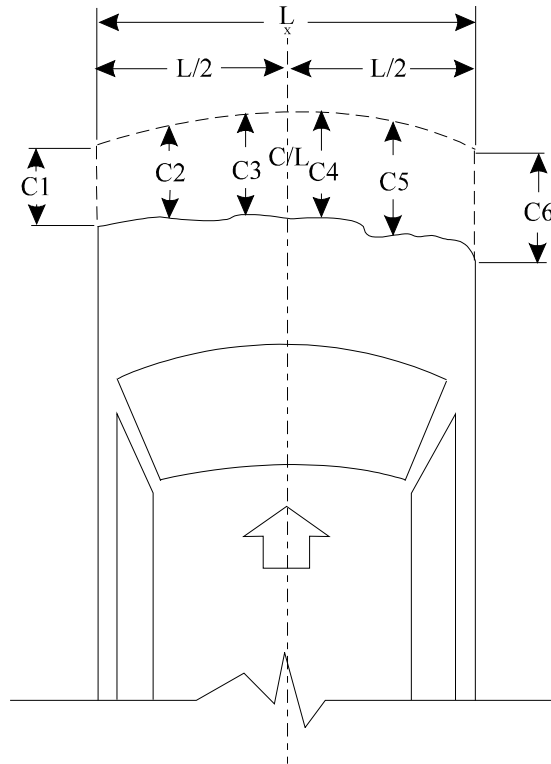
Vehicle year/make/model/body style: 1997/Honda/Accord/4-door sedan

No.	Type of measurement	Pre-Test	Post-Test	Difference
X1	Total Length of Vehicle at Centerline	4699	4512 ¹	187 ¹
X2	Rear Surface of Vehicle to Front of Engine Block	4034	3954	80
X3	Rear Surface of Vehicle to Firewall	3584	3624	-40
X4	Rear Surface of Veh. to Upper Leading Edge of Right Door	3224	3230	-6
X5	Rear Surface of Veh. to Upper Leading Edge of Left Door	3219	3205	14
X6	Rear Surface of Veh. to Lower Leading Edge of Right Door	3244	3240	4
X7	Rear Surface of Veh. to Lower Leading Edge of Left Door	3239	3222	17
X8	Rear Surface of Veh. to Upper Trailing Edge of Right Door	2178	2181	-3
X9	Rear Surface of Veh. to Upper Trailing Edge of Left Door	2171	2159	12
X10	Rear Surface of Veh. to Lower Trailing Edge of Right Door	2189	2184	5
X11	Rear Surface of Veh. to Lower Trailing Edge of Left Door	2185	2175	10
X12	Rear Surface of Veh. to Bottom of " A " Post on Right Side	3234	3239	-5
X13	Rear Surface of Veh. to Bottom of " A " Post on Left Side	3236	3222	14
X14	Rear Surface of Vehicle to Firewall - Right Side	3539	3591	-52
X15	Rear Surface of Vehicle to Firewall - Left Side	3514	3447	67
X16	Rear Surface of Vehicle to Steering Wheel Center	2730	2710	20
X17	Center of Steering Column to " A " Post	295	310	-15
X18	Center of Steering Column to Headliner	444	420	24
X19	Rear Surface of Vehicle to Right Side of Front Bumper	4519	4512 ¹	7 ¹
X20	Rear Surface of Vehicle to Left Side of Front Bumper	4519	4159 ¹	360 ¹
X21	Length of Engine Block	430	430	0
RD	Rear Surface of Vehicle to Right Side of Dash Panel	3032	3036	-4
CD	Rear Surface of Vehicle to Center of Dash Panel	3074	3059	15
LD	Rear Surface of Vehicle to Left Side of Dash Panel	3019	3009	10

All distance measurements are in millimeters.

¹ Bumper fascia separated; pre-test measured with bumper fascia; post-test measured without bumper fascia which separated during impact. The difference is affected.

Figure 8 Target Vehicle Crush



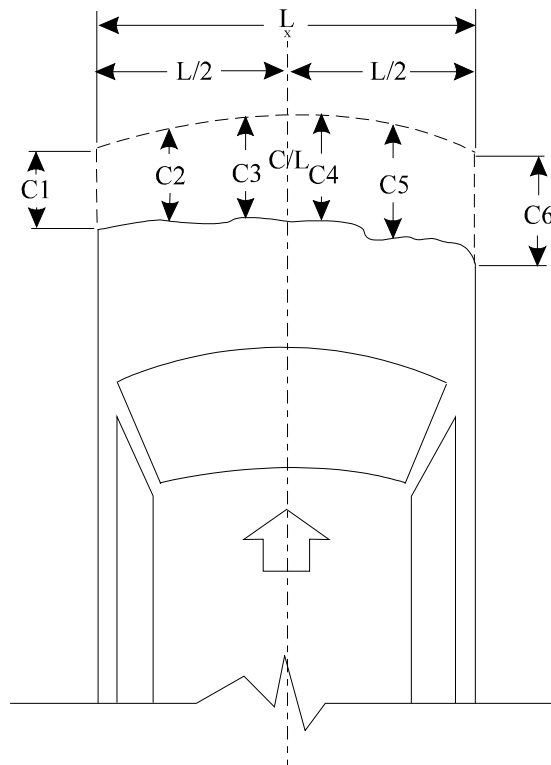
Notes: L is pre-test length of contact surface.
C1 through C6 are spaced equally apart.
CL is vehicle centerline.

Vehicle: 1997 Honda Accord
Measured with bumper fascia:

Location	Pre-test	Post-test ¹	Difference ¹
L	1525 mm		
C1	4519 mm	N/A	N/A
C2	4644 mm	N/A	N/A
C3	4684 mm	N/A	N/A
C4	4684 mm	N/A	N/A
C5	4639 mm	N/A	N/A
C6	4519 mm	N/A	N/A
CL	4699 mm	N/A	N/A

¹ Bumper fascia separated during impact.

Figure 8 Target Vehicle Crush, Cont'd.



Notes: L is pre-test length of contact surface.
C1 through C6 are spaced equally apart.
CL is vehicle centerline.

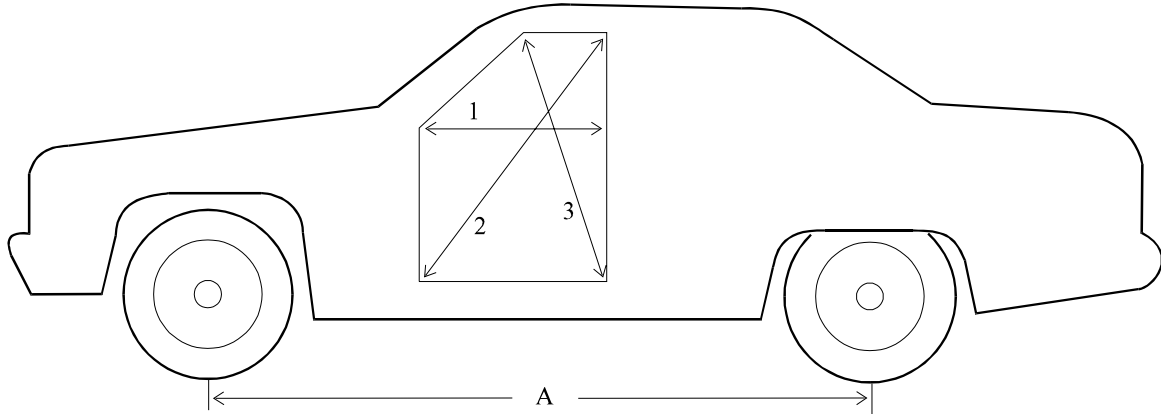
Vehicle: 1997 Honda Accord
Measured to bumper beam without bumper fascia:

Location	Pre-test	Post-test	Difference ¹
L	1525 mm		
C1	4459 mm	4159 mm	300 mm
C2	4589 mm	4349 mm	240 mm
C3	4639 mm	4469 mm	170 mm
C4	4639 mm	4543 mm	96 mm
C5	4589 mm	4563 mm	26 mm
C6	4469 mm	4512 mm	-43 mm
CL	4649 mm	4512 mm	137 mm

¹ Differences for points C1 through C6, measured without bumper fascia, are included in the NHTSA database submission as Damage Profile Distance 1-6.

Figure 9 Target Vehicle Intrusion Measurements

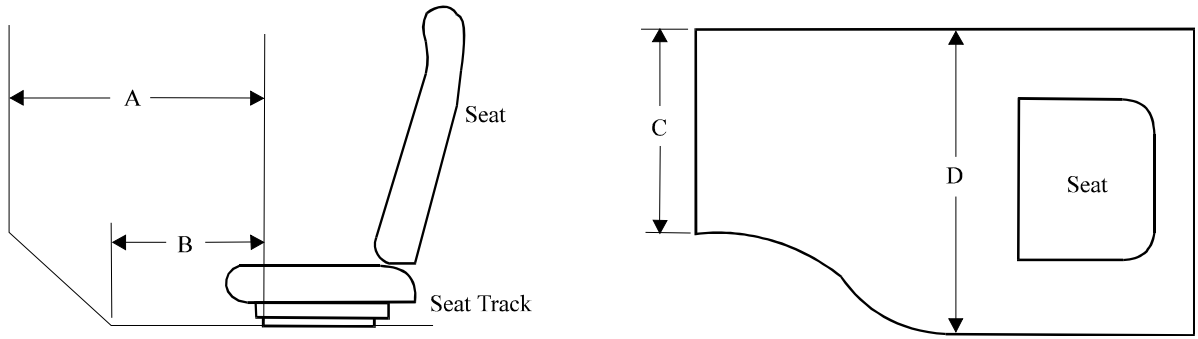
Door Opening Width



Units (mm)	Left			Right		
Measurement	1	2	3	1	2	3
Pre-Test	1021 mm	1455 mm	960 mm	1055 mm	1472 mm	950 mm
Post-Test	1005 mm	1460 mm	987 mm	1007 mm	1470 mm	960 mm
Difference	16 mm	-5 mm	-27 mm	48 mm	2 mm	-10 mm

Units (mm)	A = Wheelbase Left	A = Wheelbase Right
Pre-Test	2716 mm	2716 mm
Post-Test	2530 mm	2735 mm
Difference	186 mm	-19 mm

Figure 10 Target Vehicle Intrusion Measurements
Static Footwell Deformation



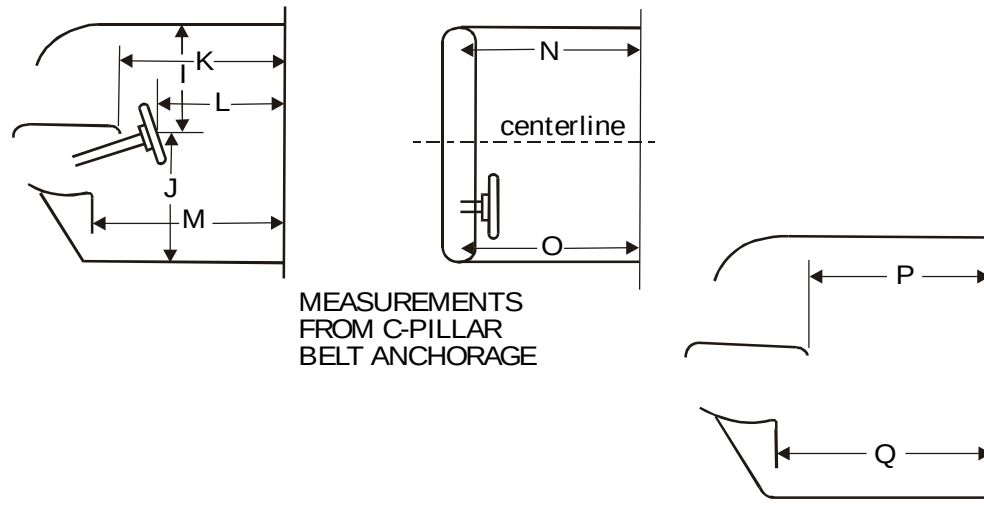
Driver's Side

Measurement	Pre-Test	Post-Test	Difference
A	745 mm	680 mm	65 mm
B	620 mm	620 mm	0 mm
C	365 mm	363 mm	2 mm
D	310 mm	315 mm	-5 mm

Passenger's Side

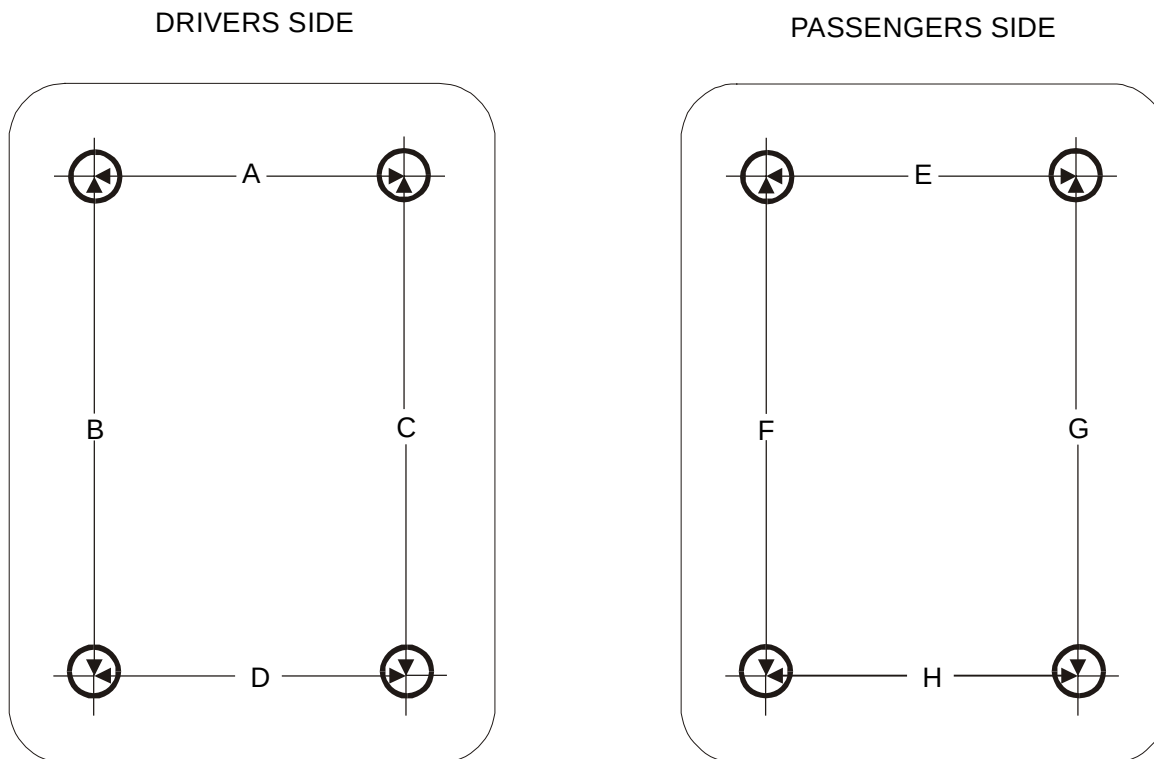
Measurement	Pre-Test	Post-Test	Difference
A	730 mm	733 mm	-3 mm
B	605 mm	606 mm	-1 mm
C	365 mm	365 mm	0 mm
D	325 mm	325 mm	0 mm

Figure 11 Target Vehicle Intrusion Measurements
Static Passenger Compartment Intrusion



Measurement	Pre-Test	Post-Test	Difference
I	440 mm	420 mm	20 mm
J	610 mm	672 mm	-62 mm
K (driver's side)	1930 mm	1915 mm	15 mm
L	1730 mm	1715 mm	15 mm
M (driver's side)	2100 mm	2058 mm	42 mm
N (passenger's side)	1920 mm	1909 mm	11 mm
O (driver's side)	1900 mm	1895 mm	5 mm
P (passenger's side)	1950 mm	1948 mm	2 mm
Q (passenger's side)	2090 mm	2085 mm	5 mm

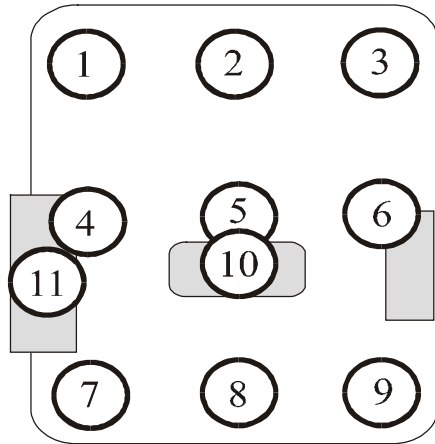
Figure 12 Target Vehicle Floorboard Deformation



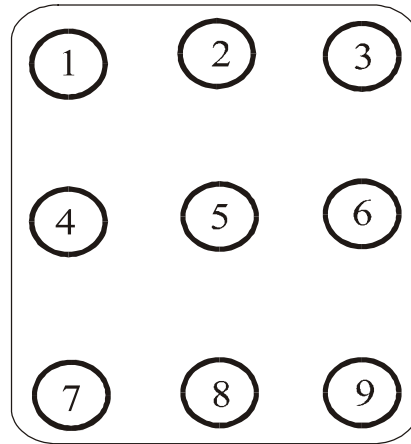
Measurement	Pre-Test	Post-Test	Difference
A	365 mm	363 mm	2 mm
B	560 mm	563 mm	-3 mm
C	570 mm	570 mm	0 mm
D	310 mm	310 mm	0 mm
E	365 mm	366 mm	-1 mm
F	586 mm	585 mm	1 mm
G	567 mm	564 mm	3 mm
H	325 mm	325 mm	0 mm

Figure 13 Target Vehicle Toeboard Measurements

DRIVERS SIDE



PASSENGERS SIDE



Pre-Test

Index	Xmm	Ymm	Zmm
1	3414	-571	202
2	3423	-397	220
3	3421	-238	230
4	3362	-576	289
5	3358	-399	289
6	3357	-219	291
7	3288	-581	361
8	3289	-399	360
9	3289	-218	366
10	3252	-385	167
11	3377	-573	273

Driver Toe Pan

Post-Test

Xmm	Ymm	Zmm
3340	-546	190
3325	-379	209
3379	-234	229
3324	-556	291
3298	-387	294
3337	-212	306
3285	-568	382
3277	-388	395
3285	-207	391
3163	-409	136
3332	-551	271

Difference

Xmm	Ymm	Zmm
74	-25	12
98	-18	11
42	-4	1
38	-21	-2
60	-13	-5
21	-8	-15
3	-14	-21
12	-12	-35
4	-11	-25
88	23	31
45	-22	2

Pre-Test

Index	Xmm	Ymm	Zmm
1	3439	182	199
2	3433	359	206
3	3441	530	196
4	3372	182	275
5	3362	363	279
6	3375	538	273
7	3301	191	346
8	3297	369	351
9	3302	550	344

Passenger Toe Pan

Post-Test

Xmm	Ymm	Zmm
3437	182	201
3437	363	211
3438	532	194
3369	185	276
3365	369	283
3374	542	273
3300	196	350
3298	375	352
3300	557	342

Difference

Xmm	Ymm	Zmm
2	-1	-2
-5	-4	-5
3	-2	2
2	-4	-1
-4	-5	-4
1	-4	0
1	-6	-4
-1	-6	-1
2	-7	2

Reference: +X forward from rear bumper; +Y rightward from vehicle centerline; +Z downward from vehicle reference point

Table 15 Target Vehicle Intrusion of Upper Instrument Panel

Driver Instrument Panel - Lower

Pre-Test				Post-Test			Difference		
Index	Xmm	Ymm	Zmm	Xmm	Ymm	Zmm	Xmm	Ymm	Zmm
Left	2988	-511	-90	2968	-503	-107	20	-7	17
Right	3001	-209	-91	2977	-201	-112	24	-8	21

Driver Knees

Pre-Test				Post-Test			Difference		
Index	Xmm	Ymm	Zmm	Xmm	Ymm	Zmm	Xmm	Ymm	Zmm
Left	2989	-524	-86	2969	-517	-104	20	-7	18
Right	2987	-229	-114	2962	-222	-135	25	-7	21

Passenger Knees

Pre-Test				Post-Test			Difference		
Index	Xmm	Ymm	Zmm	Xmm	Ymm	Zmm	Xmm	Ymm	Zmm
Left	2980	266	-120	2971	270	-128	9	-5	8
Right	2966	523	-127	2963	528	-131	2	-5	4

Steering Wheel

Pre-Test				Post-Test			Difference		
Index	Xmm	Ymm	Zmm	Xmm	Ymm	Zmm	Xmm	Ymm	Zmm
1	2730	-359	-262	2710	-359	-300	20	0	38

Driver Front Outboard Seat Attachment Bolt

Pre-Test				Post-Test			Difference		
Index	Xmm	Ymm	Zmm	Xmm	Ymm	Zmm	Xmm	Ymm	Zmm
1	2670	-600	305	2668	-591	317	2	-9	-12

Passenger Front Outboard Seat Attachment Bolt

Pre-Test				Post-Test			Difference		
Index	Xmm	Ymm	Zmm	Xmm	Ymm	Zmm	Xmm	Ymm	Zmm
1	2665	592	304	2666	597	304	-1	-5	0

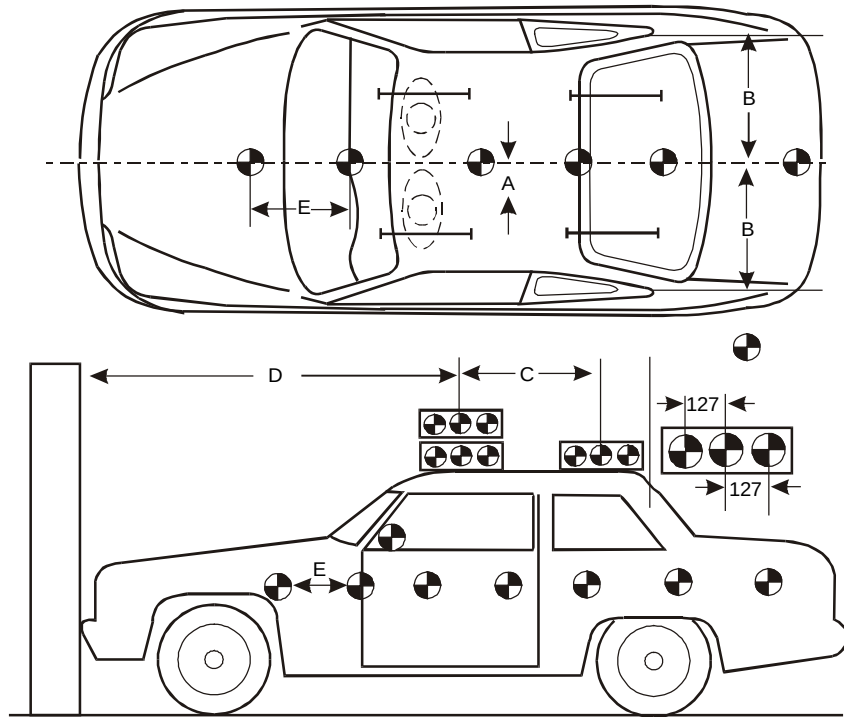
Knee intrusions are points measured pre and post, which are located just above where the four knees would be expected to contact the instrument panel.

+X: Forward from rear bumper

+Y: Rightward from centerline

+Z: Downward from vehicle reference point

Figure 14 Target Vehicle Reference Photo Target Locations



Measurement	Pre-Test
A	Left 362 mm Right 362 mm
B	N/A
C	Left 610 mm Right 610 mm
D	N/A
E ¹	300 mm

¹ The first side target is placed 600 mm from front edge of bumper, and others are at 300 mm intervals.

Table 16 Bullet Vehicle Structural Measurements^{1, 2}

	Elements	Pre-Test
1	Total Length	4811
2	Total Width	1785
3	Bumper Top Height	490
4	Bumper Bottom Height	378
5	Longitudinal Member Top Height	472
6	Longitudinal Member Bottom Height	386
7	Distance Between Longitudinal Members	930
7'	Longitudinal Member Width	71
8	Engine Top Height	839
9	Engine Bottom Height	148
10	Engine and Gearbox Width	920
11	Front Bumper - Engine Distance	452
12	Front Shock Absorber Fixing Height	828
13	Bonnet Leading Edge Height	713
14	Front Shock Absorber Fixing Width	1154
15	Front Bumper - Front Axle Distance	945
16	Front Axle - A Pillar Distance	577
17	A Pillar - B Pillar Distance	1020
18	B Pillar - Rear Axle Distance	1122
19	B Pillar - C Pillar Distance	1539
20	Roof Sill Bottom Height	1190
21	Roof Sill Top Height	1263
22	Floor Sill Bottom Height	173
23	Floor Sill Top Height	331

All distance measurements are in millimeters.

¹ Taken from INSIA report, “Structural Survey of Cars, Methodology of the Main Resistant Elements in the Car Body”, March 1999. This report is included in Appendix E.

² The vertical measurements from ground are adjusted based on the vehicle’s pre-test measurements.

Figure 15 Bullet Pre-Test And Post-Test Measurement Points

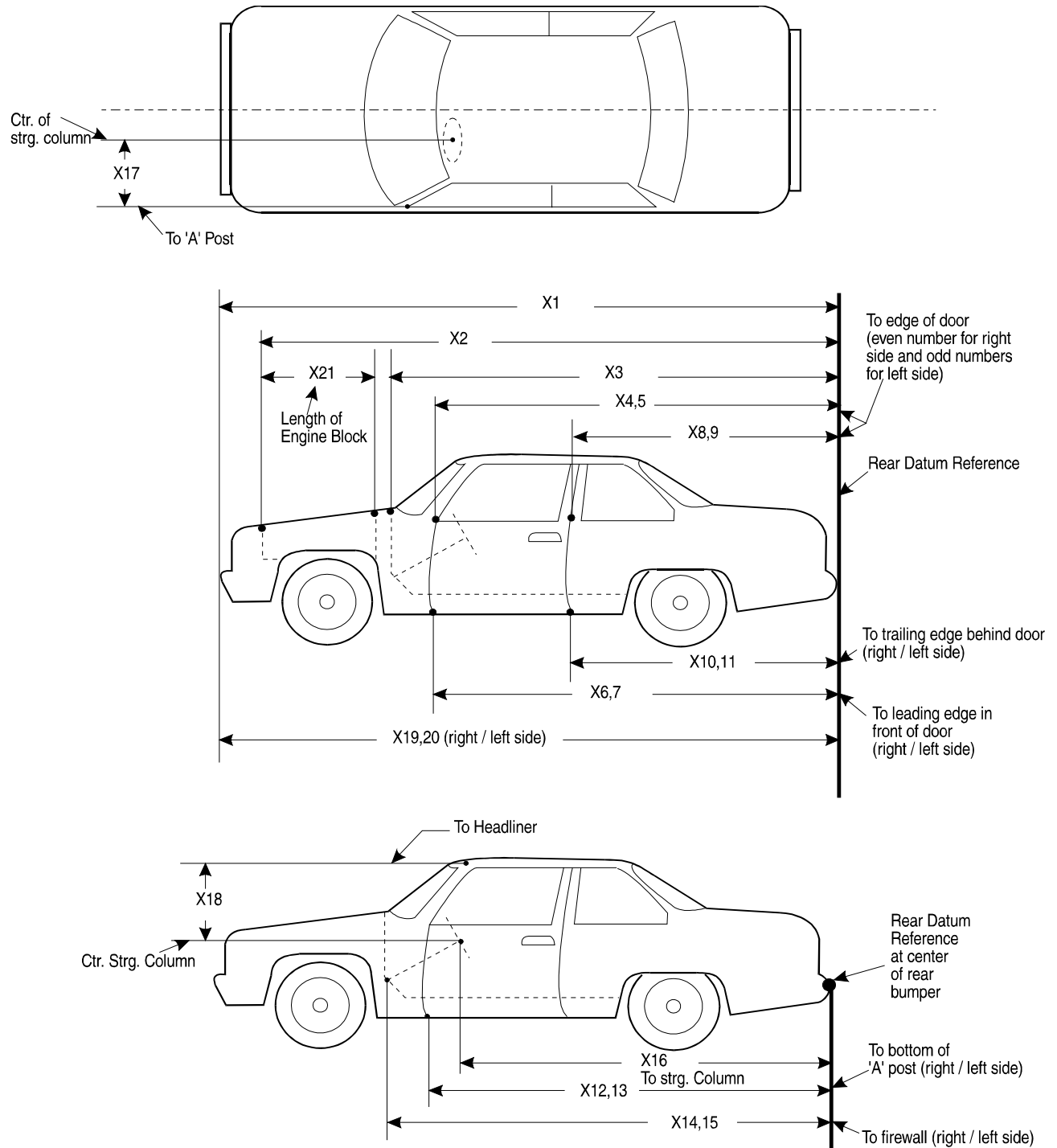


Table 17 Bullet Vehicle Impacted Measurements

Test number: 030514

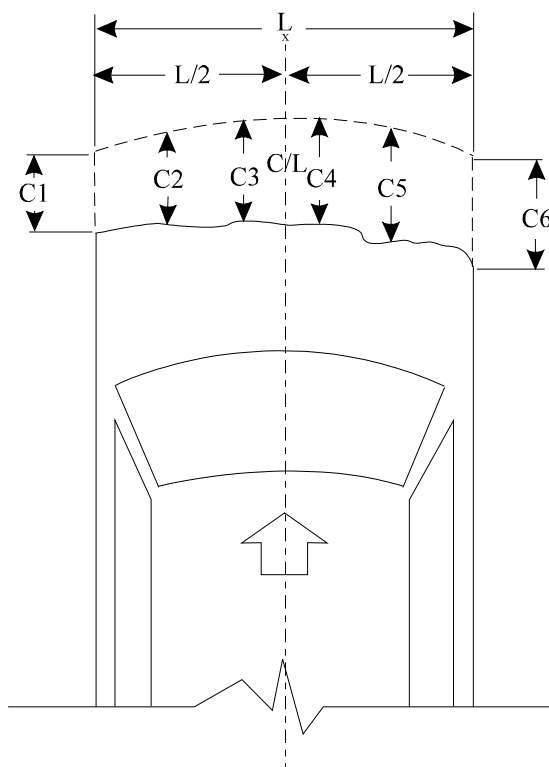
Vehicle year/make/model/body style: 1996/Toyota/Avalon/4-door

No.	Type of measurement	Pre-Test	Post-Test	Difference
X1	Total Length of Vehicle at Centerline	4811	4154	657
X2	Rear Surface of Vehicle to Front of Engine Block	4236	2470	1766
X3	Rear Surface of Vehicle to Firewall	3573	3473	100
X4	Rear Surface of Veh. to Upper Leading Edge of Right Door	3304	3300	4
X5	Rear Surface of Veh. to Upper Leading Edge of Left Door	3306	3289	17
X6	Rear Surface of Veh. to Lower Leading Edge of Right Door	3284	3276	8
X7	Rear Surface of Veh. to Lower Leading Edge of Left Door	3291	3283	8
X8	Rear Surface of Veh. to Upper Trailing Edge of Right Door	2294	2294	0
X9	Rear Surface of Veh. to Upper Trailing Edge of Left Door	2299	2274	25
X10	Rear Surface of Veh. to Lower Trailing Edge of Right Door	2294	2284	10
X11	Rear Surface of Veh. to Lower Trailing Edge of Left Door	2305	2294	11
X12	Rear Surface of Veh. to Bottom of " A " Post on Right Side	3309	3244	65
X13	Rear Surface of Veh. to Bottom of " A " Post on Left Side	3314	3254	60
X14	Rear Surface of Vehicle to Firewall - Right Side	3557	3570	-13
X15	Rear Surface of Vehicle to Firewall - Left Side	3573	3473	100
X16	Rear Surface of Vehicle to Steering Wheel Center	2857	2781	76
X17	Center of Steering Column to " A " Post	300	294	6
X18	Center of Steering Column to Headliner	440	415	25
X19	Rear Surface of Vehicle to Right Side of Front Bumper	4693	4811	-118
X20	Rear Surface of Vehicle to Left Side of Front Bumper	4696	N/A ¹	N/A ¹
X21	Length of Engine Block	480	480	0
RD	Rear Surface of Vehicle to Right Side of Dash Panel	3089	3099	-10
CD	Rear Surface of Vehicle to Center of Dash Panel	3121	3027	94
LD	Rear Surface of Vehicle to Left Side of Dash Panel	3097	3028	69

All distance measurements are in millimeters.

¹ Measurement point could not be located post-test.

Figure 16 Bullet Vehicle Crush



Notes: L is pre-test length of contact surface.
C1 through C6 are spaced equally apart.
CL is vehicle centerline.

Vehicle: 1996 Toyota Avalon

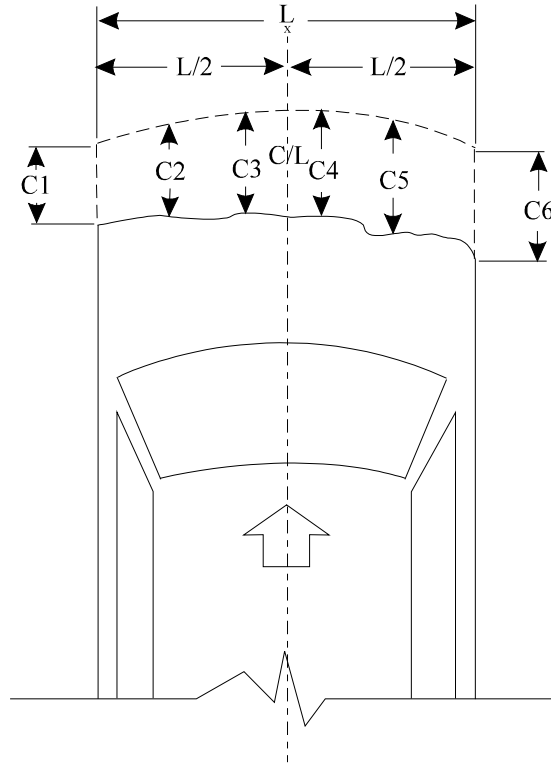
Measured with bumper fascia:

Location	Pre-test	Post-test	Difference
L	1524 mm		
C1	4696 mm	N/A ¹	N/A
C2	4775 mm	N/A ¹	N/A
C3	4806 mm	4056 mm	750 mm ²
C4	4813 mm	4247 mm	566 mm ²
C5	4775 mm	4571 mm	204 mm ²
C6	4693 mm	4811 mm	-118 mm ²
CL	4811 mm	4154 mm	657 mm

¹ Measurement point could not be located post-test.

² The differences for points C3, C4, C5 and C6, measured with bumper fascia, are included in the NHTSA database submission as Damage Profile Distance 3-6.

Figure 16 Bullet Vehicle Crush, Cont'd.



Notes: L is pre-test length of contact surface.
C1 through C6 are spaced equally apart.
CL is vehicle centerline.

Vehicle: 1996 Toyota Avalon

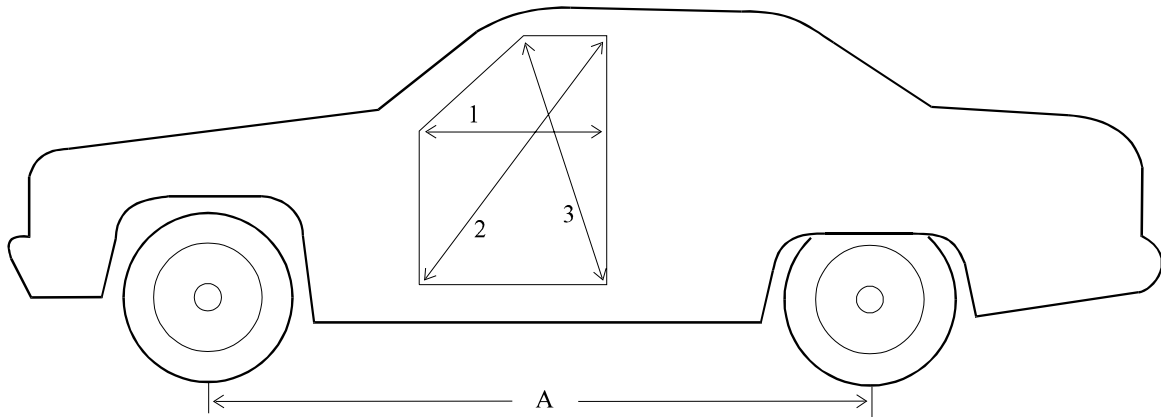
Measured to bumper beam without bumper fascia:

Location	Pre-test	Post-test	Difference
L	1524 mm		
C1	4675 mm	N/A ¹	N/A
C2	4746 mm	3973 mm	773 mm ²
C3	4746 mm	4146 mm	600 mm
C4	4748 mm	4332 mm	416 mm
C5	4747 mm	4529 mm	218 mm
C6	4680 mm	4597 mm	83 mm
CL	4747 mm	4230 mm	517 mm

¹ Measurement point could not be located post-test.

² The difference for point C2, measured without bumper fascia, is included in the NHTSA database submission as Damage Profile Distance 2.

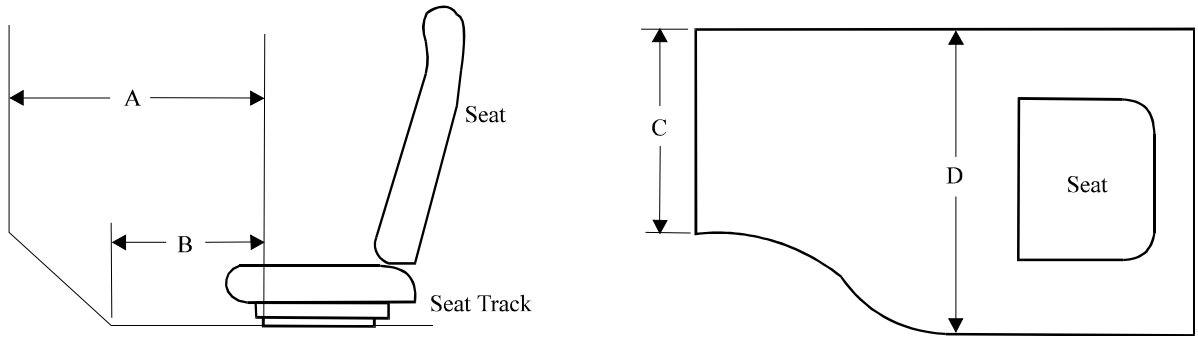
Figure 17 Bullet Vehicle Intrusion Measurements
Door Opening Width



Units (mm)	Left			Right		
Measurement	1	2	3	1	2	3
Pre-Test	982 mm	1421 mm	970 mm	983 mm	1429 mm	960 mm
Post-Test	938 mm	1401 mm	1040 mm	987 mm	1432 mm	960 mm
Difference	44 mm	20 mm	-70 mm	-4 mm	-3 mm	0 mm

Units (mm)	A = Wheelbase Left	A = Wheelbase Right
Pre-Test	2700 mm	2700 mm
Post-Test	2490 mm	2788 mm
Difference	210 mm	-88 mm

Figure 18 Bullet Vehicle Intrusion Measurements
Static Footwell Deformation



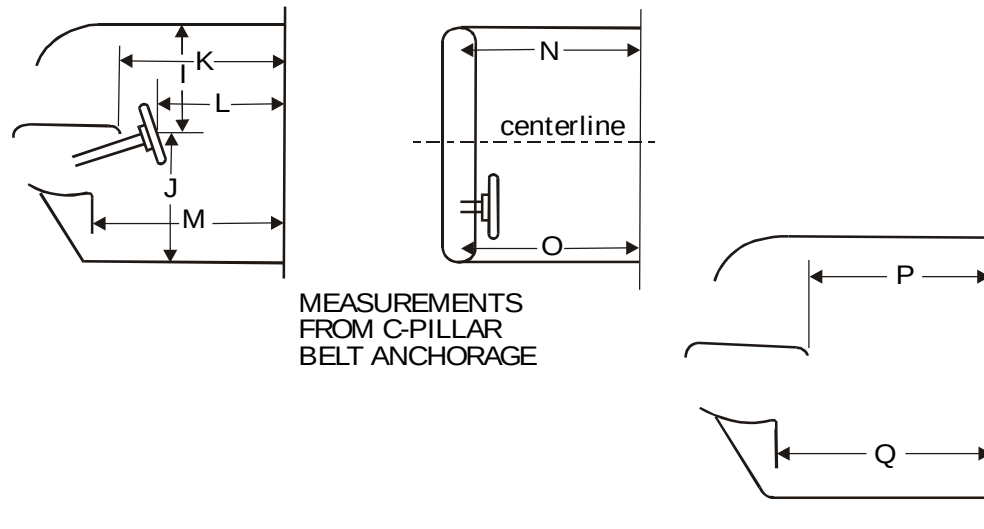
Driver's Side

Measurement	Pre-Test	Post-Test	Difference
A	730 mm	618 mm	112 mm
B	490 mm	503 mm	-13 mm
C	380 mm	365 mm	15 mm
D	406 mm	404 mm	2 mm

Passenger's Side

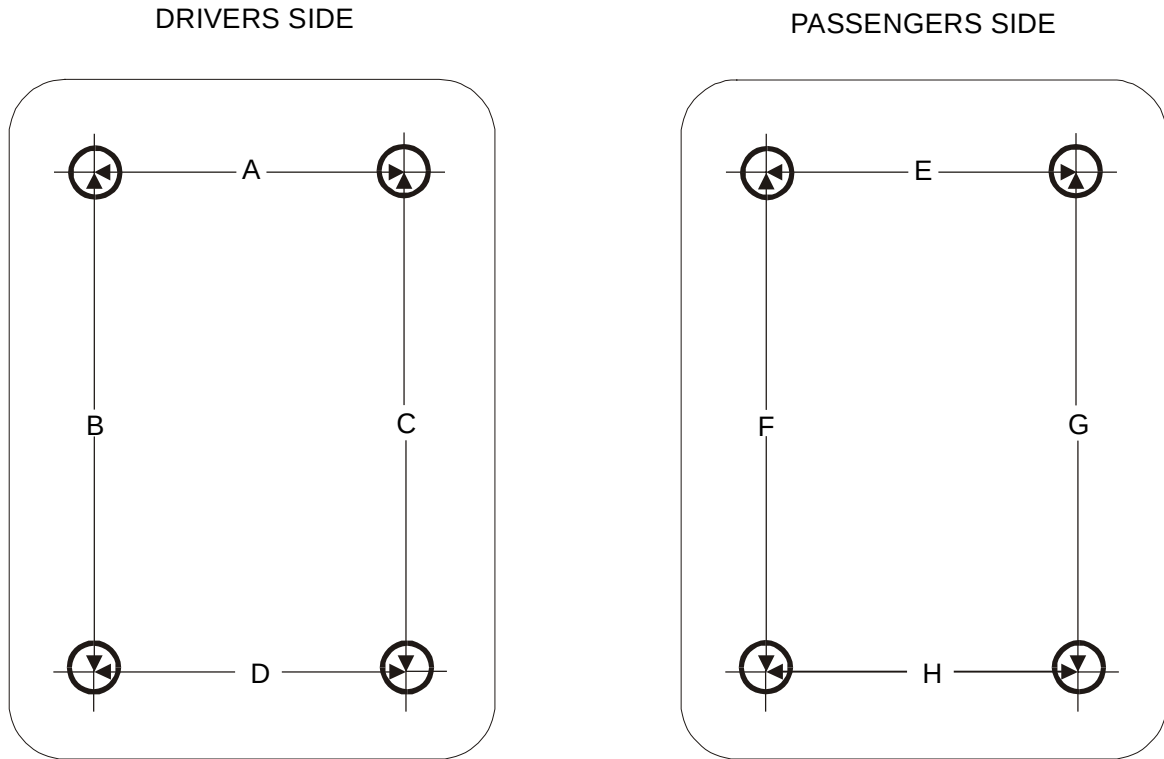
Measurement	Pre-Test	Post-Test	Difference
A	1112 mm	715 mm	397 mm
B	605 mm	603 mm	2 mm
C	345 mm	343 mm	2 mm
D	372 mm	373 mm	-1 mm

Figure 19 Bullet Vehicle Intrusion Measurements
Static Passenger Compartment Intrusion



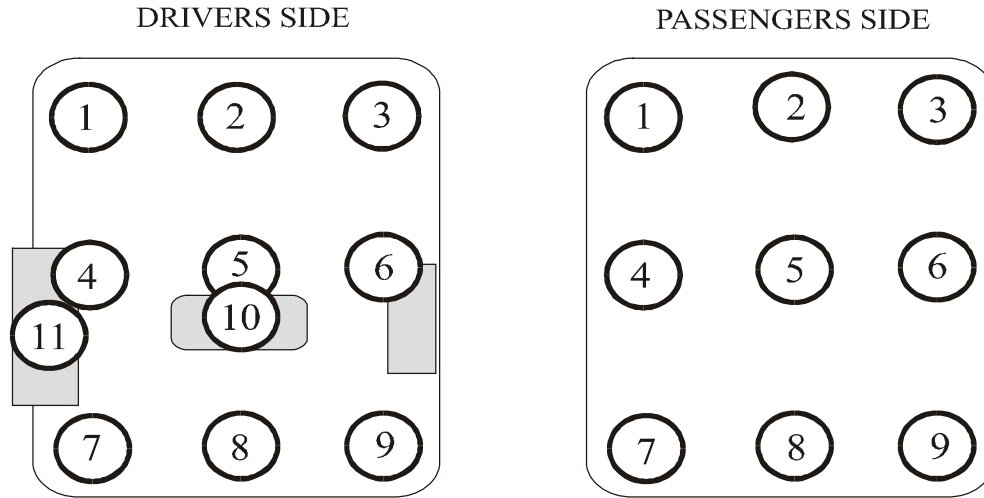
Measurement	Pre-Test	Post-Test	Difference
I	430 mm	412 mm	18 mm
J	640 mm	730 mm	-90 mm
K (driver's side)	1945 mm	1880 mm	65 mm
L	1710 mm	1632 mm	78 mm
M (driver's side)	2015 mm	1960 mm	55 mm
N (passenger's side)	1582 mm	1850 mm	-268 mm
O (driver's side)	1850 mm	1775 mm	75 mm
P (passenger's side)	1940 mm	1949 mm	-9 mm
Q (passenger's side)	1980 mm	1985 mm	-5 mm

Figure 20 Bullet Vehicle Floorboard Deformation



Measurement	Pre-Test	Post-Test	Difference
A	380 mm	367 mm	13 mm
B	315 mm	320 mm	-5 mm
C	300 mm	312 mm	-12 mm
D	406 mm	405 mm	1 mm
E	340 mm	343 mm	-3 mm
F	423 mm	415 mm	8 mm
G	430 mm	432 mm	-2 mm
H	372 mm	370 mm	2 mm

Figure 21 Bullet Vehicle Toeboard Measurements



Driver's Side Toeboard Measurements in Millimeters

Toeboard Location	Pre-Test			Post-Test			Difference		
	X	Y	Z	X	Y	Z	X	Y	Z
1	3507	-545	-335	3390	-500	-371	117	-45	36
2	3517	-400	-335	3381	-359	-379	136	-41	44
3	3519	-243	-340	3367	-185	-317	152	-58	-23
4	3442	-520	-255	3345	-508	-281	97	-12	26
5	3437	-370	-245	3311	-367	-277	126	-3	32
6	3432	-200	-250	3332	-202	-244	100	2	-6
7	3322	-599	-189	3317	-583	-181	5	-16	-8
8	3317	-395	-189	3288	-375	-247	29	-20	58
9	3327	-220	-252	3266	-215	-124	61	-5	-128
10	3397	-394	-395	3253	-300	-405	144	-94	10
11	3427	-597	-330	3335	-583	-317	92	-14	-13

Passenger's Side Toeboard Measurements in Millimeters

Toeboard Location	Pre-Test			Post-Test			Difference		
	X	Y	Z	X	Y	Z	X	Y	Z
1	3560	244	-343	3507	212	-331	53	32	-12
2	3571	398	-343	3527	360	-344	44	38	1
3	3537	550	-355	3505	525	-363	32	25	8
4	3442	226	-266	3406	202	-238	36	24	-28
5	3467	401	-263	3429	374	-264	38	27	1
6	3482	581	-265	3436	555	-261	46	26	-4
7	3357	225	-195	3330	210	-158	27	15	-37
8	3357	405	-181	3333	395	-176	24	10	-5
9	3397	580	-190	3342	561	-200	55	19	10

Pre- and post-test measurement reference: +X forward from rear bumper; +Y rightward from centerline; +Z downward from ground level

Table 18 Bullet Vehicle Intrusion of Upper Instrument Panel

Pre-Test	X	Y	Z
Driver Left Knee	3102	-495	-600
Driver Right Knee	3092	-223	-590
Passenger Left Knee	3019	305	-612
Passenger Right Knee	3019	540	-615
Steering Wheel	2857	-355	-850
Driver Front Outboard Seat Attachment Bolt	2817	-625	-285
Passenger Front Outboard Seat Attachment Bolt	2817	620	-247

Post-Test	X	Y	Z
Driver Left Knee	3042	-511	-670
Driver Right Knee	3032	-244	-675
Passenger Left Knee	3010	298	-669
Passenger Right Knee	3009	522	-662
Steering Wheel	2781	-420	-911
Driver Front Outboard Seat Attachment Bolt	2792	-625	-270
Passenger Front Outboard Seat Attachment Bolt	2792	620	-298

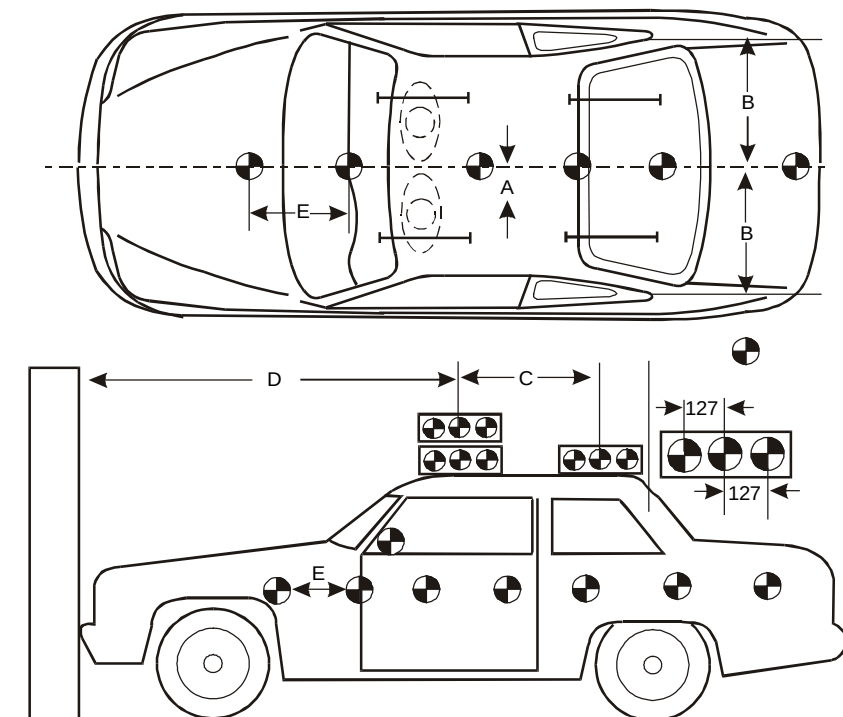
Difference	X	Y	Z
Driver Left Knee	60	16	70
Driver Right Knee	60	21	85
Passenger Left Knee	9	7	57
Passenger Right Knee	10	18	47
Steering Wheel	76	65	61
Driver Front Outboard Seat Attachment Bolt	25	0	-15
Passenger Front Outboard Seat Attachment Bolt	25	0	51

All measurements are in millimeters.

Knee intrusions are points measured pre-test and post-test, which are located just above where the four knees would be expected to contact the instrument panel.

Pre-test and post-test measurement references: +X, forward of rear bumper; +Y, rightward from vehicle centerline; +Z, downward from ground level.

Figure 22 Bullet Vehicle Reference Photo Target Locations



Measurement	Pre-Test
A	Left 507 mm Right 509 mm
B	N/A
C	Left 610 mm Right 609 mm
D	N/A
E ¹	300 mm

¹ The first side target is placed 600 mm from front edge of bumper, and others are at 300 mm intervals.

Figure 23 Camera Positions

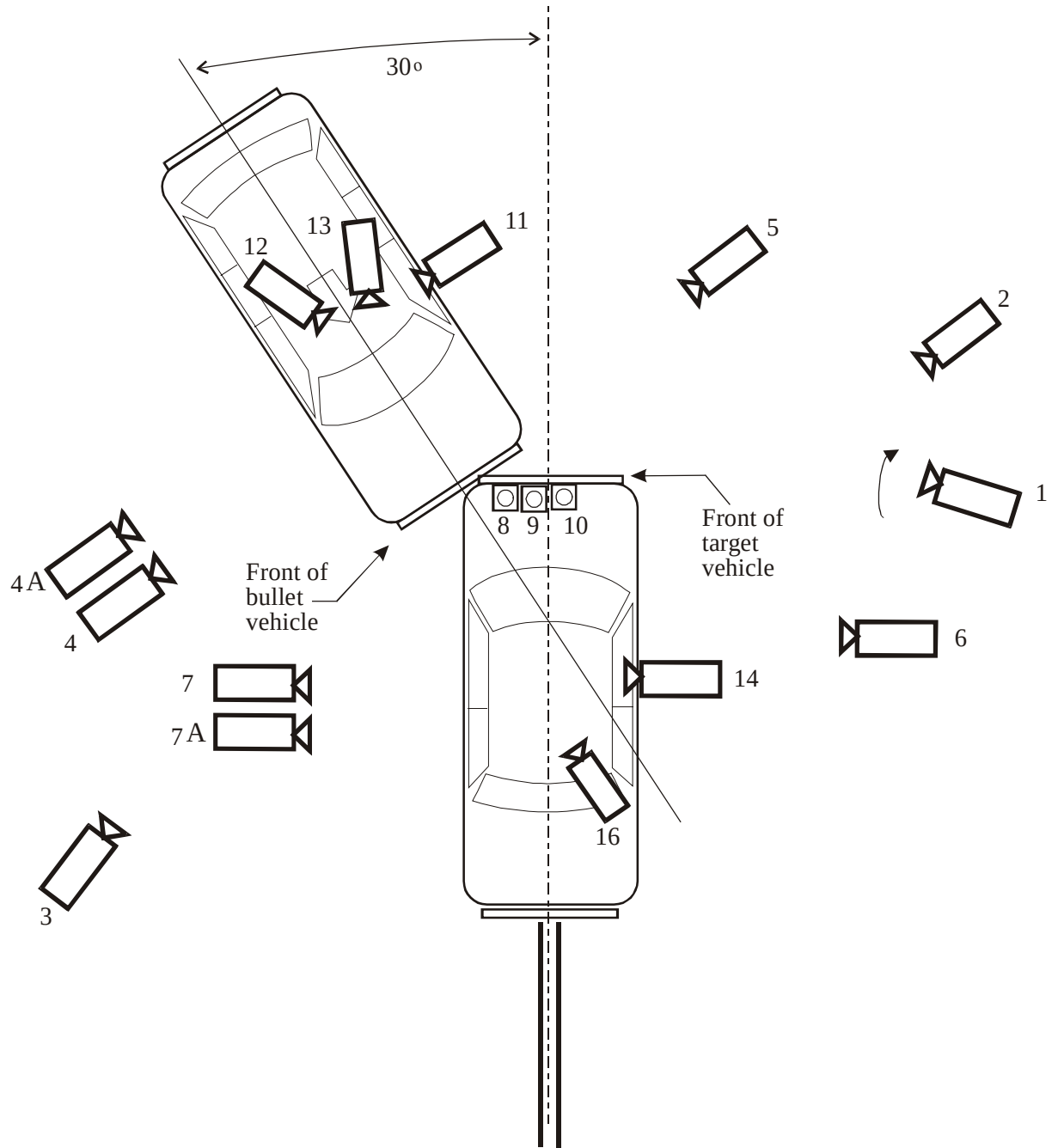


Table 19 Camera Information

Camera Number	Location	Type	Lens (mm)	Speed (fps)	Purpose of camera data
1	Panning	Bolex	Zoom	24	Vehicle dynamics
2	Right wide (reference to target vehicle)	Photosonic	13	505	Vehicle dynamics
3	Left wide (reference to target vehicle)	Photosonic	13	515	Vehicle dynamics
4	Bullet vehicle-right medium	Digital HG	25	1000	Vehicle dynamics
4A	Bullet vehicle-right medium	Photosonic	25	507	Vehicle dynamics
5	Bullet vehicle-left medium	Photosonic	25	500	Vehicle dynamics
6	Target vehicle-right medium	Photosonic	25	507	Vehicle dynamics
7	Target vehicle-left medium	Digital HG	25	1000	Vehicle dynamics
7A	Target vehicle-left medium	Photosonic	25	507	Vehicle dynamics
8	Overhead wide	Digital HG	8.5	1000	Vehicle dynamics
9	Overhead tight	Digital HG	35	1000	Vehicle alignment
10	Overhead tight	Photosonic	25	507	Vehicle alignment
11	Onboard bullet vehicle - side	Digital HG	8	1000	Dummy kinematics
12	Onboard bullet vehicle - driver	Photosonic	8	N/A ¹	Dummy kinematics
13	Onboard bullet vehicle - passenger	Photosonic	8	N/A ¹	Dummy kinematics
14	Onboard target vehicle - driver torso	Digital HG	5	1000	Dummy kinematics
15	Omitted				
16	Onboard target vehicle - driver over shoulder	Digital HG	8	1000	Dummy kinematics

¹ Camera did not run

Appendix A

Photographs



Figure A-1 Pre-Test Overall - View 1



Figure A-2 Pre-Test Overall - View 2



Figure A-3 Pre-Test Impact Point Close-up View



Figure A-4 Post-Test Impact Point Close-up View



Figure A-5 Pre-Test Target Vehicle Front View



Figure A-6 Post-Test Target Vehicle Front View



Figure A-7 Pre-Test Target Vehicle Left Front View



Figure A-8 Post-Test Target Vehicle Left Front View



Figure A-9 Post-Test Target Vehicle Left Side View

Intentionally Left Blank



Figure A-10 Pre-Test Target Vehicle Left Rear View



Figure A-11 Post-Test Target Vehicle Left Rear View



Figure A-12 Pre-Test Target Vehicle Rear View



Figure A-13 Post-Test Target Vehicle Rear View



Figure A-14 Pre-Test Target Vehicle Right Rear View



Figure A-15 Post-Test Target Vehicle Right Rear View



Figure A-16 Pre-Test Target Vehicle Right Side View



Figure A-17 Post-Test Target Vehicle Right Side View



Figure A-18 Pre-Test Target Vehicle Right Front View



Figure A-19 Post-Test Target Vehicle Right Front View



Figure A-20 Pre-Test Target Vehicle Engine Compartment View



Figure A-21 Post-Test Target Vehicle Engine Compartment View



Figure A-22 Pre-Test Target Vehicle Front Underbody View



Figure A-23 Post-Test Target Vehicle Front Underbody View

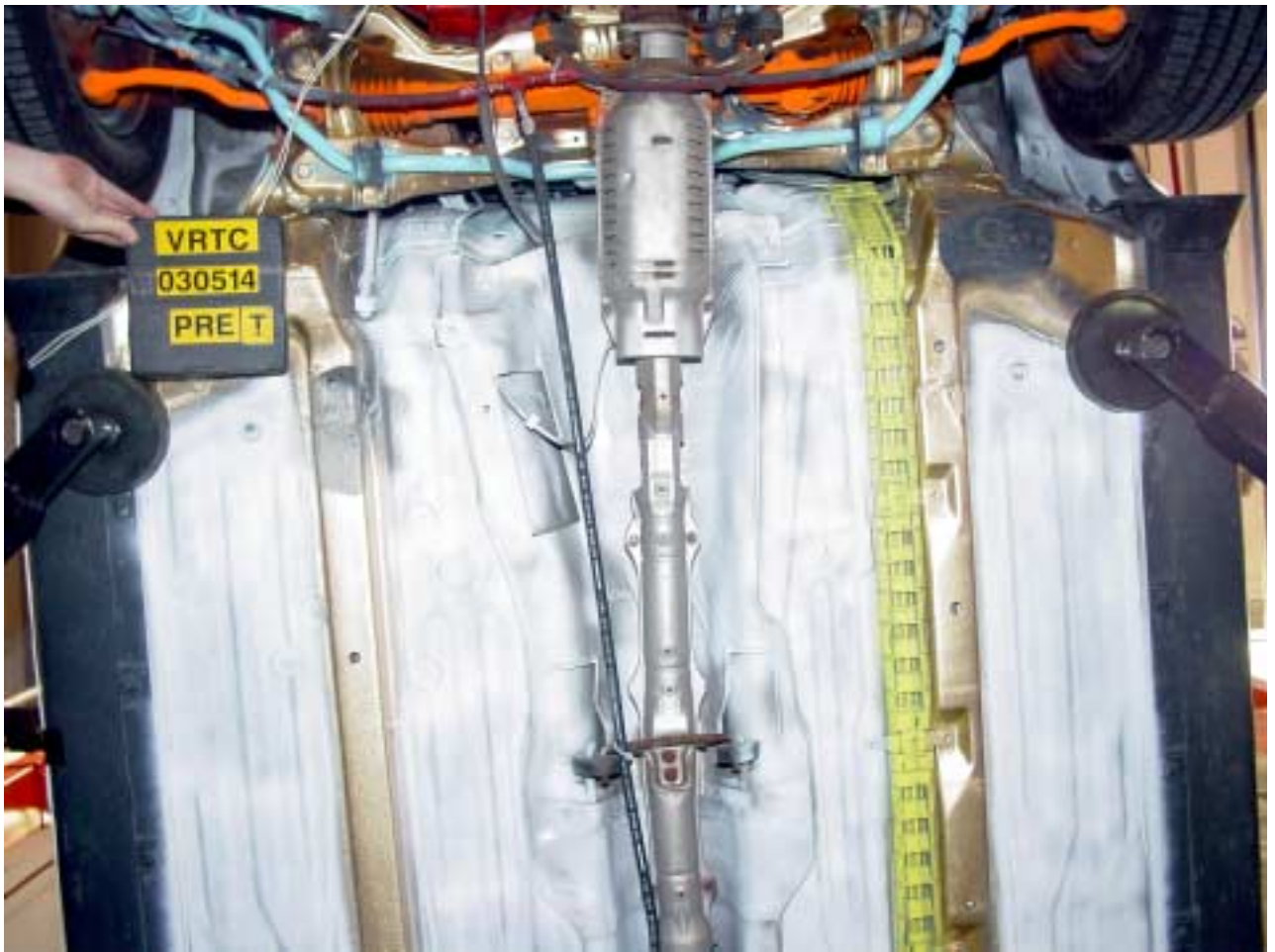


Figure A-24 Pre-Test Target Vehicle Front Mid Underbody View



Figure A-25 Post-Test Target Vehicle Front Mid Underbody View



Figure A-26 Pre-Test Target Vehicle Mid Underbody View



Figure A-27 Post-Test Target Vehicle Mid Underbody View



Figure A-28 Pre-Test Target Vehicle Rear Mid Underbody View



Figure A-29 Post-Test Target Vehicle Rear Mid Underbody View



Figure A-30 Pre-Test Target Vehicle Rear Underbody View



Figure A-31 Post-Test Target Vehicle Rear Underbody View



Figure A-32 Pre-Test Bullet Vehicle Front View



Figure A-33 Post-Test Bullet Vehicle Front View



Figure A-34 Pre-Test Bullet Vehicle Left Front View



Figure A-35 Post-Test Bullet Vehicle Left Front View



Figure A-36 Pre-Test Bullet Vehicle Left Side View



Figure A-37 Post-Test Bullet Vehicle Left Side View



Figure A-38 Pre-Test Bullet Vehicle Left Rear View



Figure A-39 Post-Test Bullet Vehicle Left Rear View



Figure A-40 Pre-Test Bullet Vehicle Rear View



Figure A-41 Post-Test Bullet Vehicle Rear View



Figure A-42 Pre-Test Bullet Vehicle Right Rear View



Figure A-43 Post-Test Bullet Vehicle Right Rear View



Figure A-44 Post-Test Bullet Vehicle Right Side View

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Figure A-45 Pre-Test Bullet Vehicle Right Front View



Figure A-46 Post-Test Bullet Vehicle Right Front View



Figure A-47 Pre-Test Bullet Vehicle Engine Compartment View



Figure A-48 Post-Test Bullet Vehicle Engine Compartment View



Figure A-49 Pre-Test Bullet Vehicle Front Underbody View



Figure A-50 Post-Test Bullet Vehicle Front Underbody View



Figure A-51 Pre-Test Bullet Vehicle Front Mid Underbody View

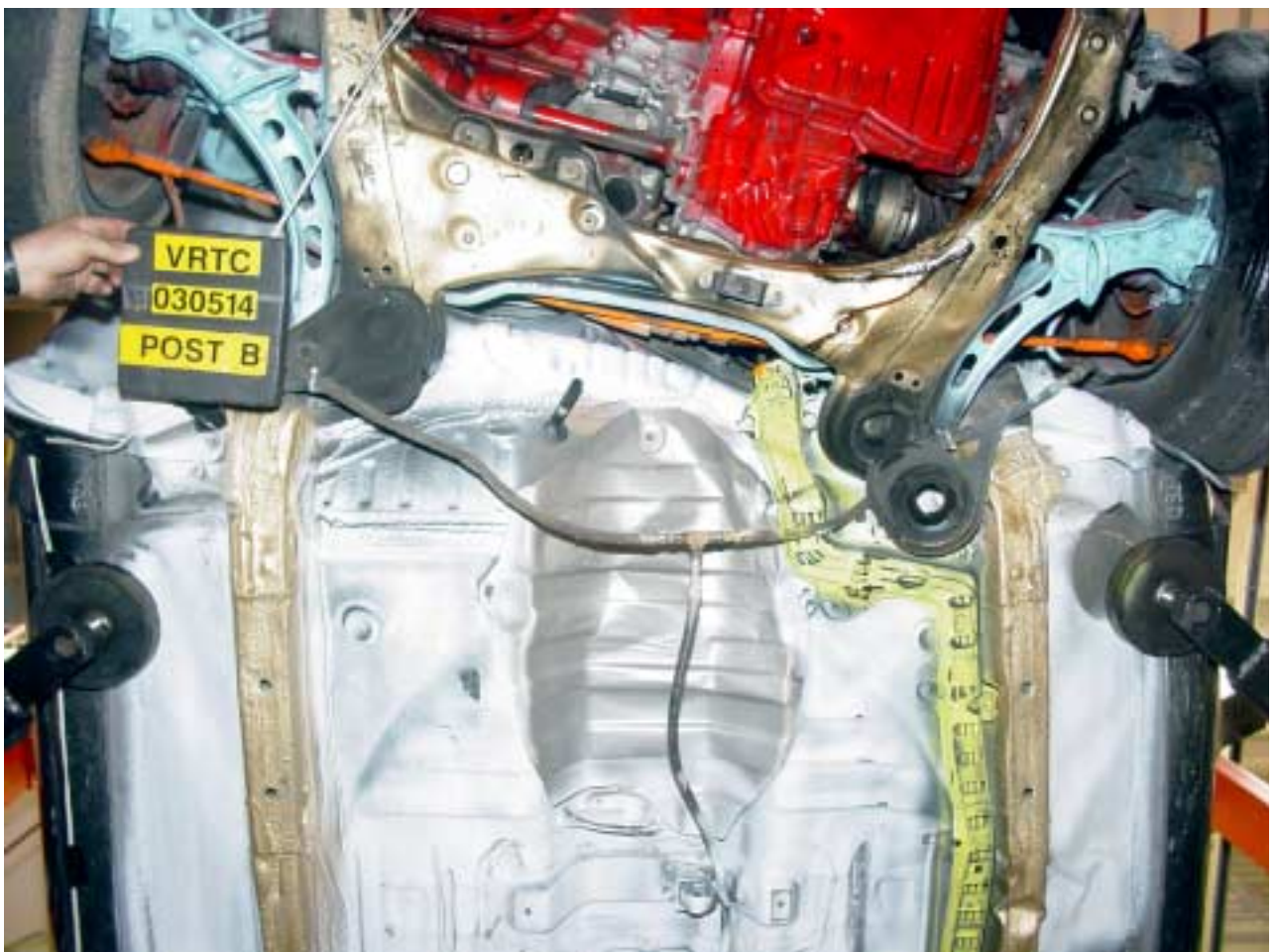


Figure A-52 Post-Test Bullet Vehicle Front Mid Underbody View



Figure A-53 Pre-Test Bullet Vehicle Mid Underbody View



Figure A-54 Post-Test Bullet Vehicle Mid Underbody View



Figure A-55 Pre-Test Bullet Vehicle Rear Mid Underbody View



Figure A-56 Post-Test Bullet Vehicle Rear Mid Underbody View



Figure A-57 Pre-Test Bullet Vehicle Rear Underbody View



Figure A-58 Post-Test Bullet Vehicle Rear Underbody View

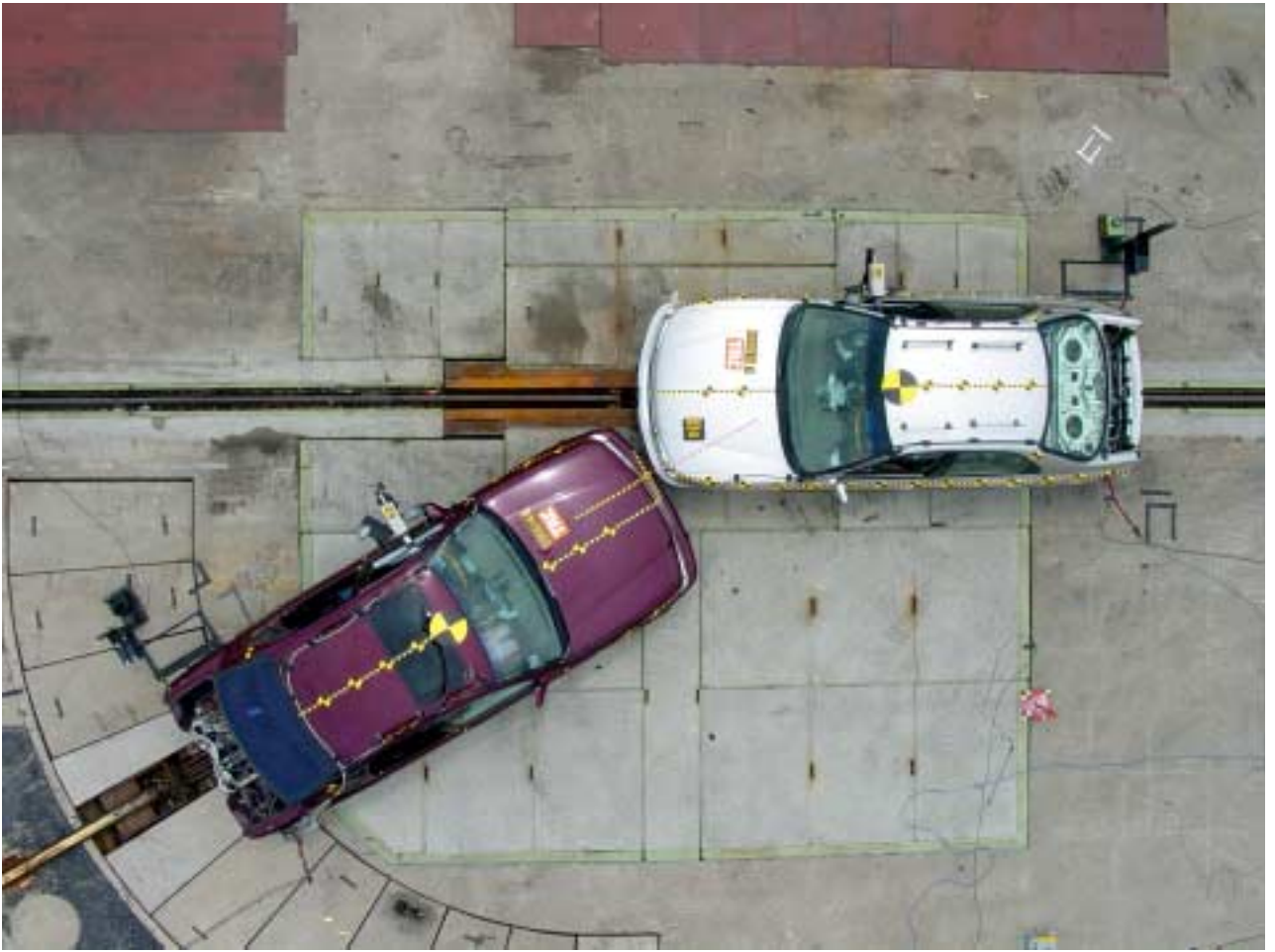


Figure A-59 Pre-Test Overhead Wide View

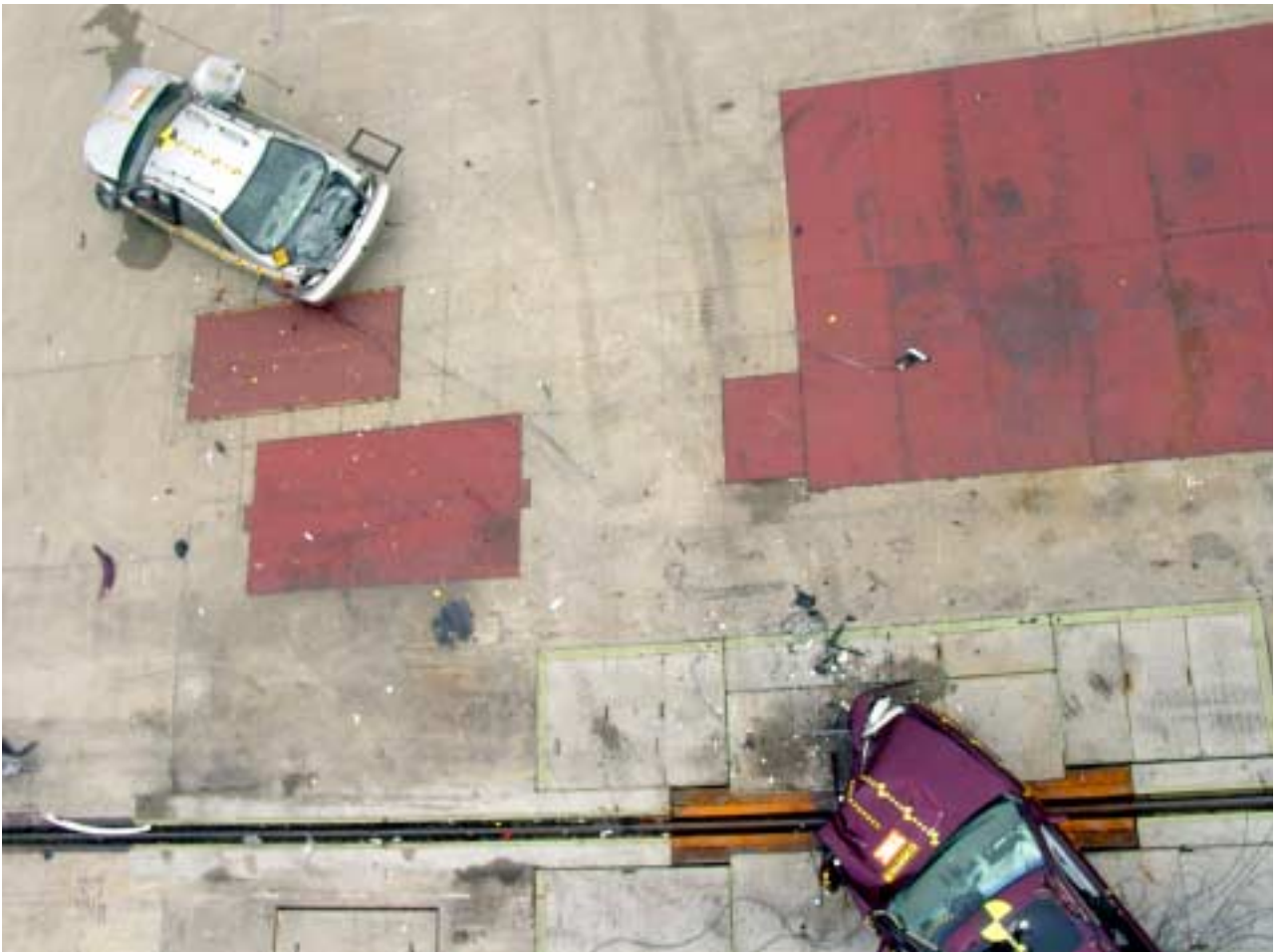


Figure A-60 Post-Test Overhead Wide View



Figure A-61 Pre-Test Overhead Close-up View

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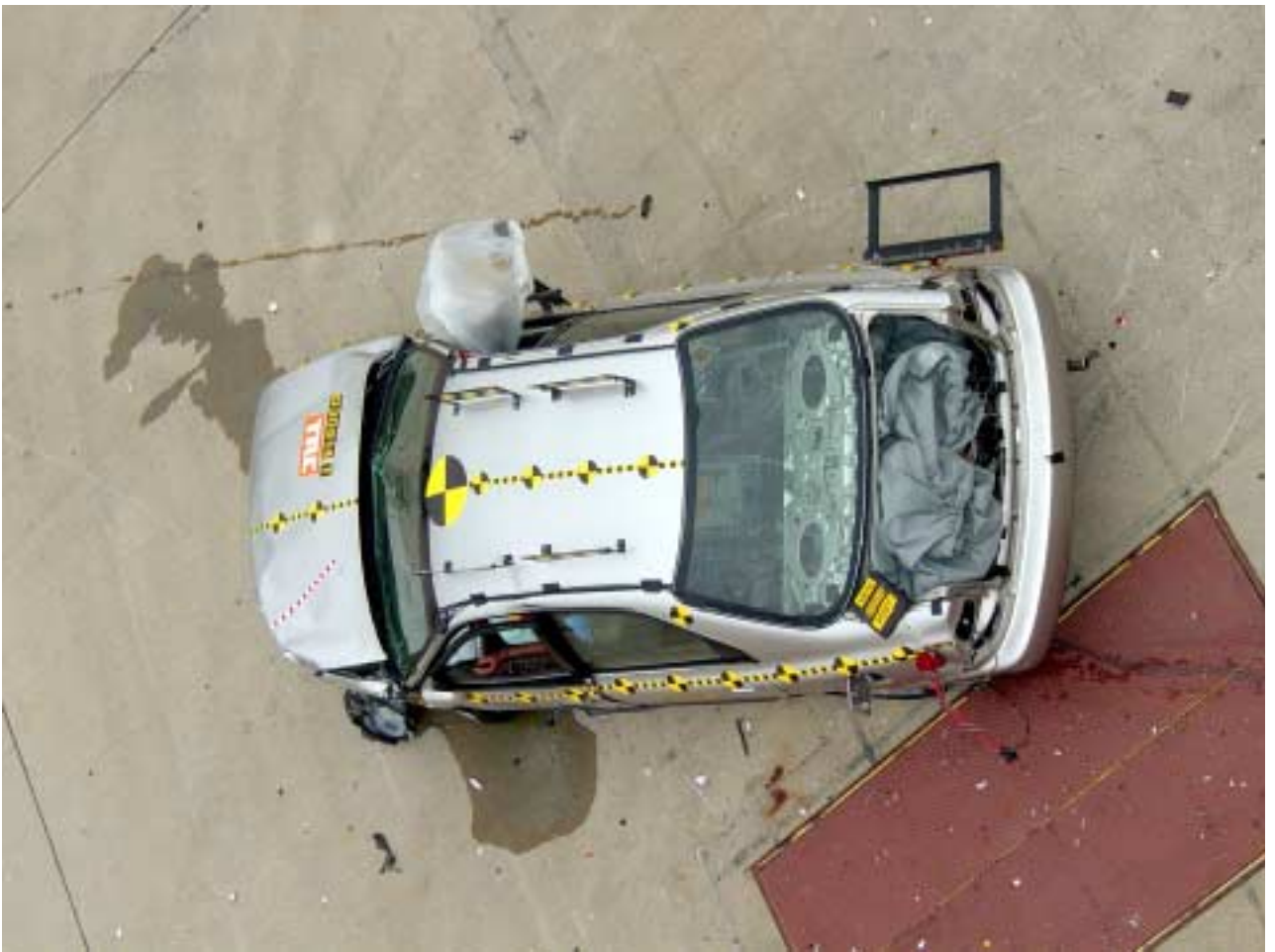


Figure A-62 Post-Test Overhead Target Vehicle View



Figure A-63 Post-Test Overhead Bullet Vehicle View



Figure A-64 Pre-Test Bullet Vehicle Driver and Passenger Dummies through Windshield View

Intentionally Left Blank



Figure A-65 Pre-Test Target Vehicle Driver Dummy through Windshield View



Figure A-66 Post-Test Target Vehicle Driver Dummy through Windshield View



Figure A-67 Pre-Test Target Vehicle Driver Dummy - View 1



Figure A-68 Post-Test Target Vehicle Driver Dummy - View 1



Figure A-69 Pre-Test Target Vehicle Driver Dummy - View 2



Figure A-70 Post-Test Target Vehicle Driver Dummy - View 2



Figure A-71 Pre-Test Target Vehicle Driver Dummy - View 3



Figure A-72 Post-Test Target Vehicle Driver Dummy - View 3



Figure A-73 Pre-Test Target Vehicle Driver Dummy - View 4



Figure A-74 Post-Test Target Vehicle Driver Dummy - View 4



Figure A-75 Pre-Test Bullet Vehicle Driver Dummy - View 1

Intentionally Left Blank



Figure A-76 Pre-Test Bullet Vehicle Driver Dummy - View 2



Figure A-77 Post-Test Bullet Vehicle Driver Dummy - View 2



Figure A-78 Pre-Test Bullet Vehicle Driver Dummy - View 3



Figure A-79 Post-Test Bullet Vehicle Driver Dummy - View 3



Figure A-80 Pre-Test Bullet Vehicle Driver Dummy - View 4



Figure A-81 Post-Test Bullet Vehicle Driver Dummy - View 4

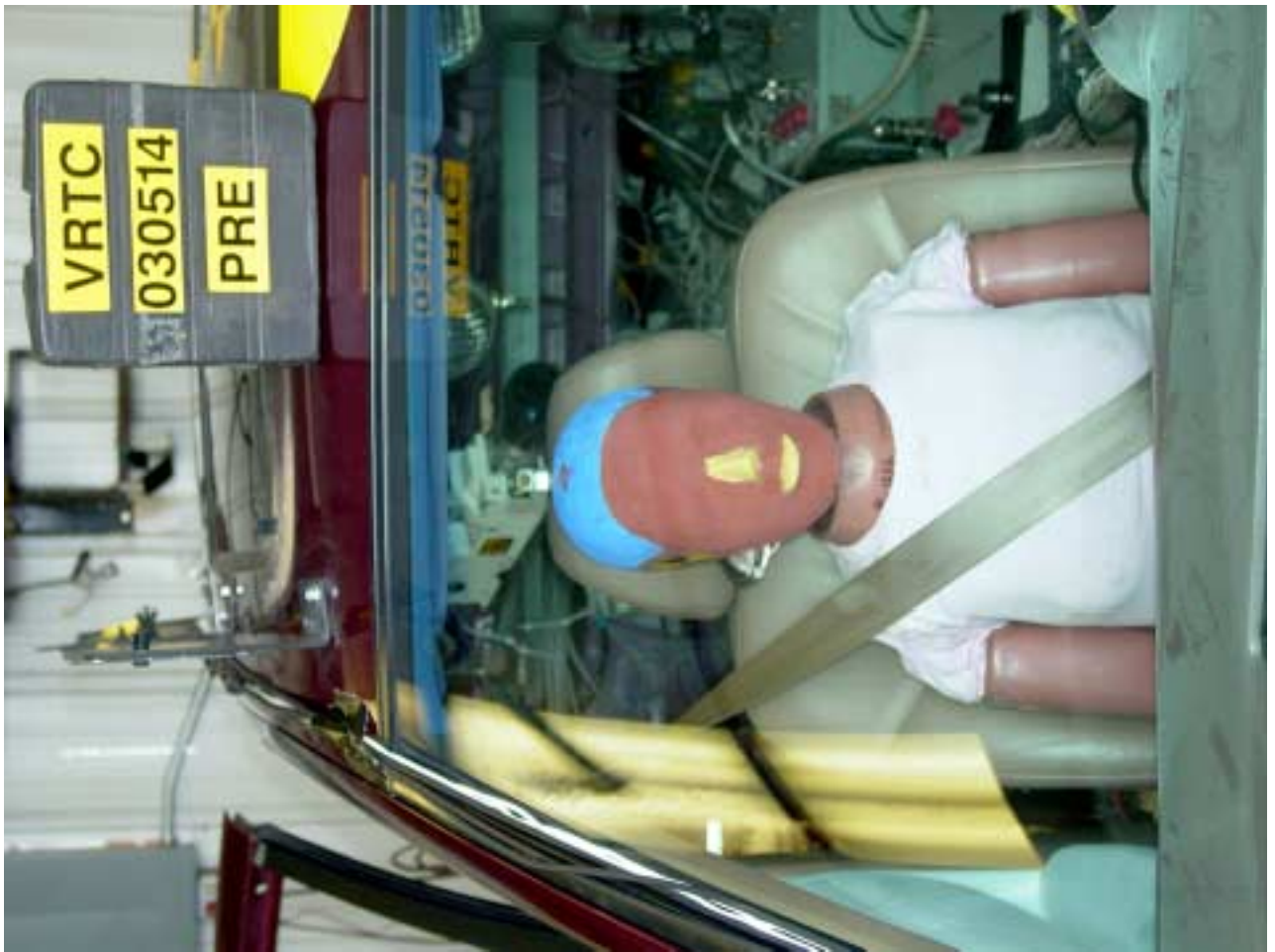


Figure A-82 Pre-Test Bullet Vehicle Passenger Dummy - View 1

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Figure A-83 Pre-Test Bullet Vehicle Passenger Dummy - View 2



Figure A-84 Post-Test Bullet Vehicle Passenger Dummy - View 2



Figure A-85 Pre-Test Bullet Vehicle Passenger Dummy - View 3



Figure A-86 Post-Test Bullet Vehicle Passenger Dummy - View 3



Figure A-87 Pre-Test Bullet Vehicle Passenger Dummy - View 4



Figure A-88 Post-Test Bullet Vehicle Passenger Dummy - View 4



Figure A-89 Post-Test Target Vehicle Driver Dummy Overall Contact View

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Figure A-90 Post-Test Target Vehicle Driver Dummy Head Contact - View 1



Figure A-91 Post-Test Target Vehicle Driver Dummy Head Contact - View 2



Figure A-92 Post-Test Target Vehicle Driver Dummy Knee Contact - View 1



Figure A-93 Post-Test Target Vehicle Driver Dummy Knee Contact - View 2



Figure A-94 Post-Test Target Vehicle Driver Dummy Knee Contact - View 3



Figure A-95 Post-Test Bullet Vehicle Driver Dummy Overall Contact View



Figure A-96 Post-Test Bullet Vehicle Driver Dummy Head Contact – View 1



Figure A-97 Post-Test Bullet Vehicle Driver Dummy Head Contact – View 2



Figure A-98 Post-Test Bullet Vehicle Driver Dummy Head Contact – View 3



Figure A-99 Post-Test Bullet Vehicle Driver Dummy Head Contact – View 4



Figure A-100 Post-Test Bullet Vehicle Driver Dummy Knee Contact – View 1



Figure A-101 Post-Test Target Vehicle Driver Dummy Knee Contact – View 2



Figure A-102 Post-Test Bullet Vehicle Passenger Dummy Overall Contact View



Figure A-103 Post-Test Bullet Vehicle Passenger Dummy Head Contact - View 1



Figure A-104 Post-Test Bullet Vehicle Passenger Dummy Head Contact - View 2



Figure A-105 Post-Test Bullet Vehicle Passenger Dummy Head Contact – View 3



Figure A-106 Post-Test Bullet Vehicle Passenger Dummy Knee Contact - View 1



Figure A-107 Post-Test Bullet Vehicle Passenger Dummy Knee Contact - View 2



Figure A-108 Target Vehicle Certification Label View

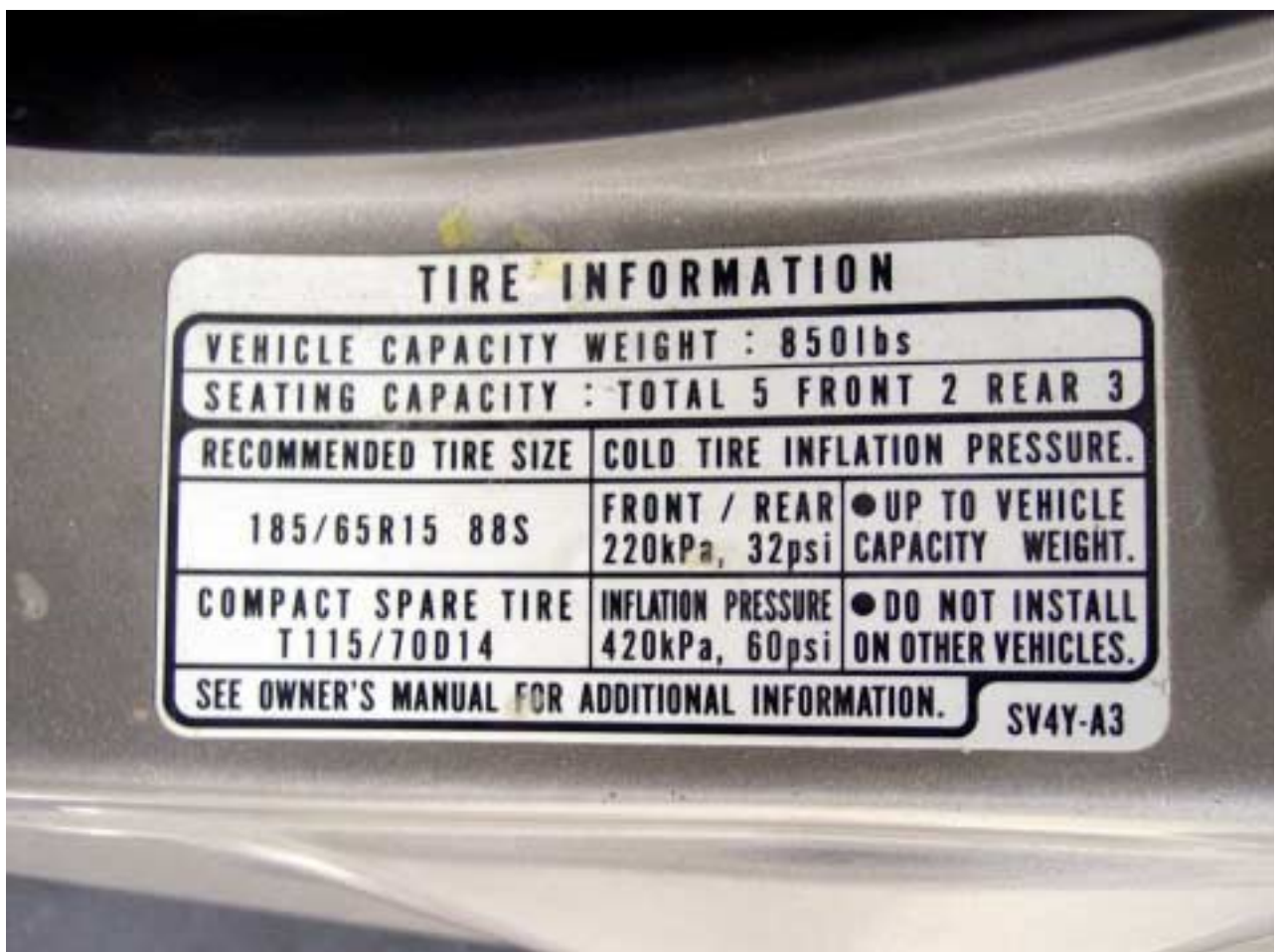


Figure A-109 Target Vehicle Tire Load Label View



Figure A-110 Bullet Vehicle Certification Label View



Figure A-111 Bullet Vehicle Tire Load Label View



Figure A-112 Post-Test Target Vehicle Sill Deformation View



Figure A-113 Post-Test Target Vehicle Subframe Deformation View



Figure A-114 Post-Test Target Vehicle Wheel Deformation View



Figure A-115 Post-Test Target Vehicle Wheel Well Area View



Figure A-116 Post-Test Target Vehicle Rail

Intentionally Left Blank



Figure A-117 Post-Test Bullet Vehicle Roof Deformation - View 1



Figure A-118 Post-Test Bullet Vehicle Roof Deformation - View 2



Figure A-119 Post-Test Target Vehicle Sway Bar - View 1



Figure A-120 Post-Test Target Vehicle Sway Bar - View 2



Figure A-121 Post-Test Bullet Vehicle Subframe Deformation - View 1

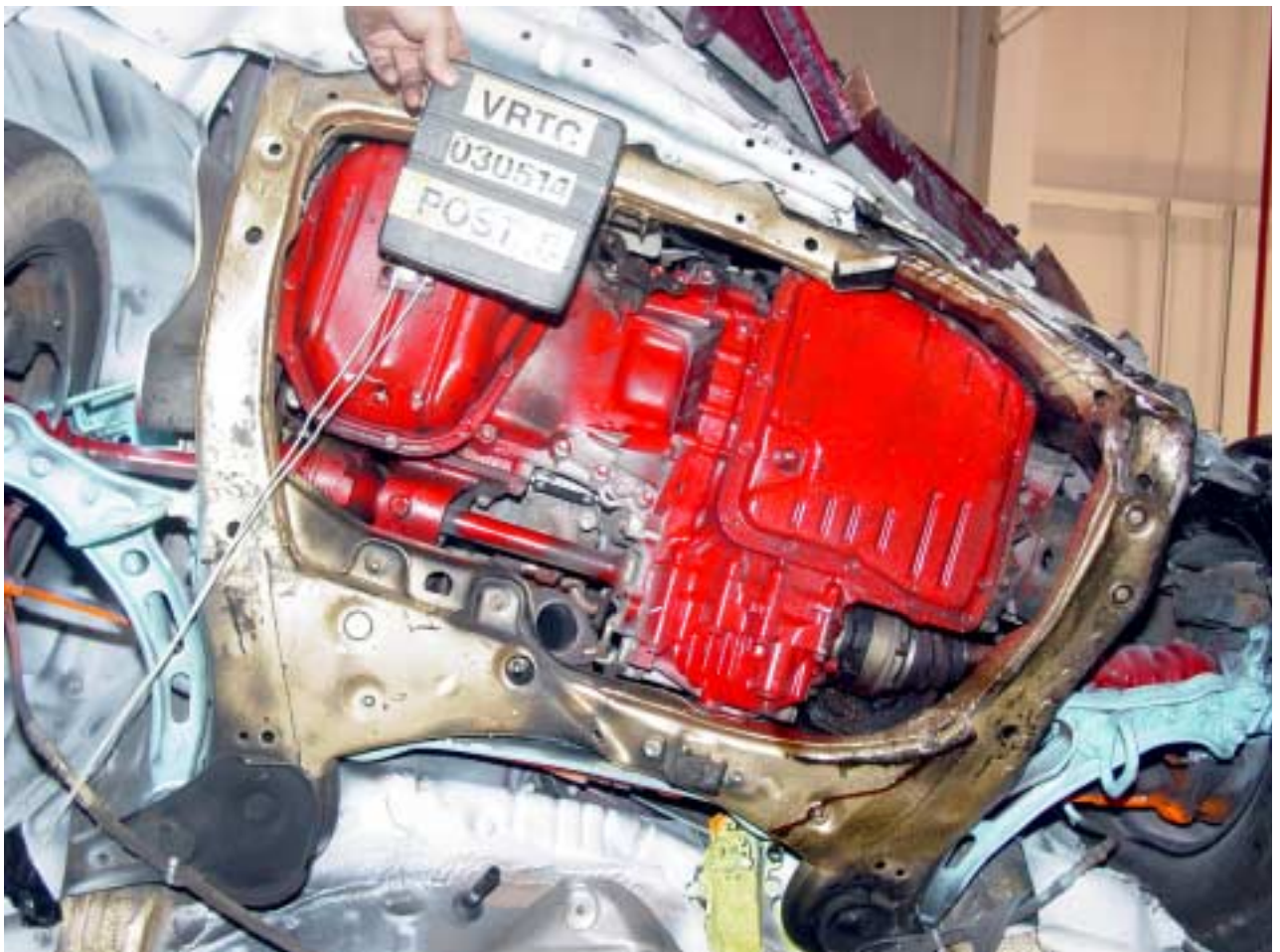


Figure A-122 Post-Test Bullet Vehicle Subframe Deformation - View 2



Figure A-123 Post-Test Bullet Vehicle Subframe Deformation - View 3



Figure A-124 Post-Test Bullet Vehicle Rocker Deformation View



Figure A-125 Post-Test Bullet Vehicle Rail Deformation - View 1



Figure A-126 Post-Test Bullet Vehicle Rail Deformation - View 2



Figure A-127 Post-Test Bullet Vehicle Wheel Deformation View



Figure A-128 Post-Test Bullet Vehicle Wheel Well View

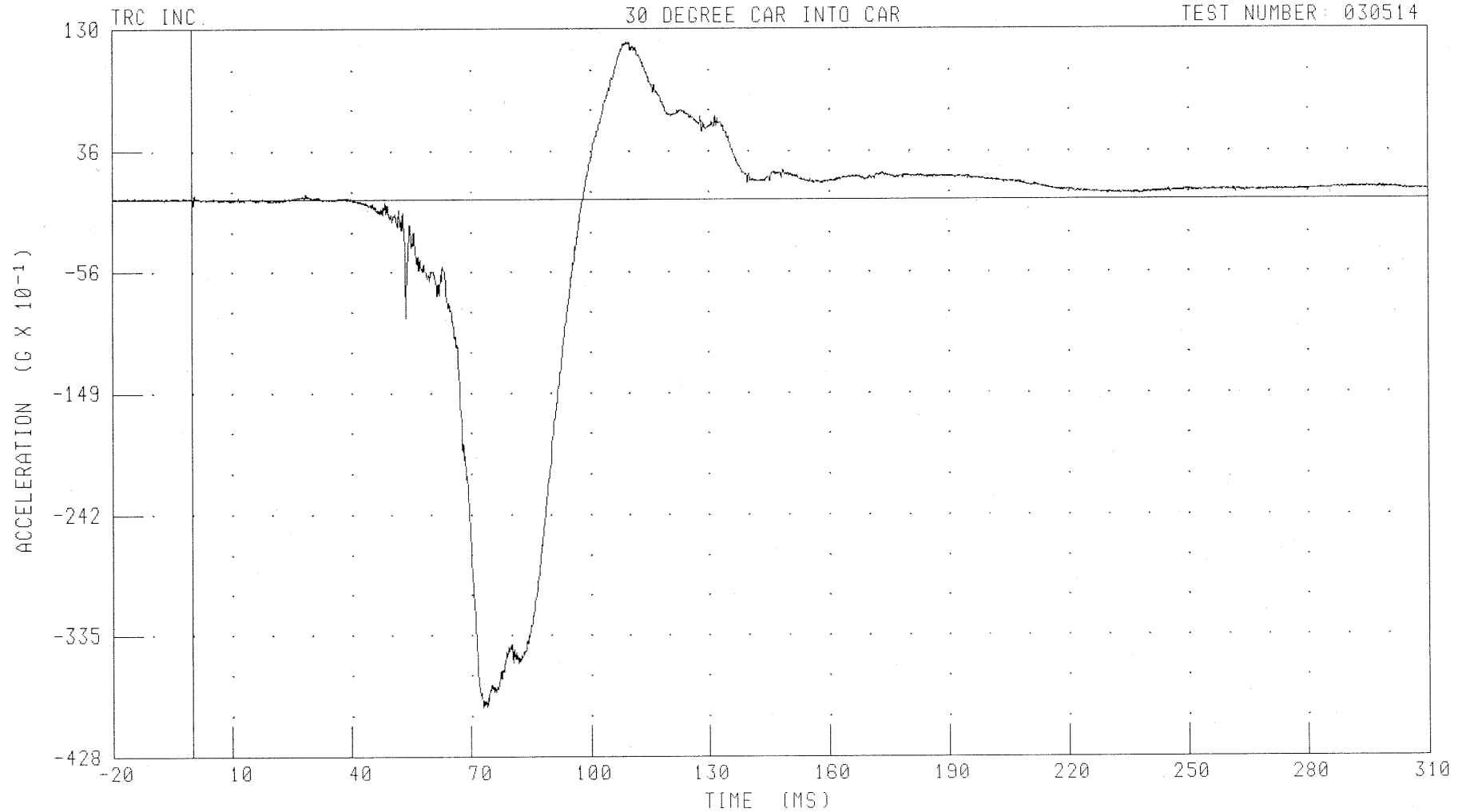
Appendix B

Data Plots

1996 TOYOTA AVALON INTO LEFT FRONT OF 1997 HONDA ACCORD - OBLIQUE 30 DEGREES

TARGET DRIVER HEAD X-AXIS ACCELERATION

TEST NUMBER: 030514



CHANNEL: HEDXG1 FILTER: CH. CLASS 1000

PEAK DATA: 11.97 G @ 109.52 MS; -39.10 G @ 73.04 MS

B-2

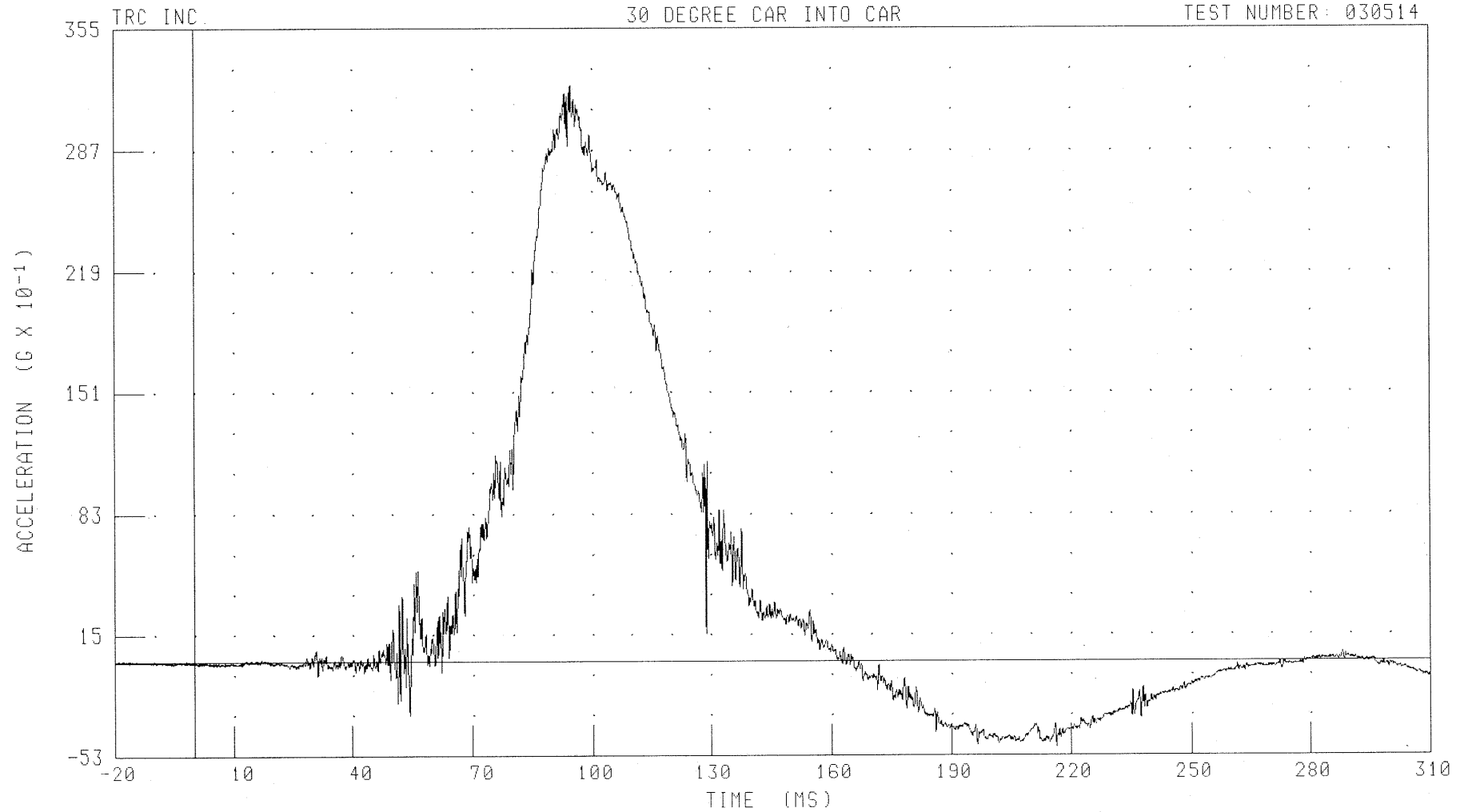
030514

1996 TOYOTA AVALON INTO LEFT FRONT OF 1997 HONDA ACCORD - OBLIQUE 30 DEGREES

TARGET DRIVER HEAD Y-AXIS ACCELERATION

30 DEGREE CAR INTO CAR

TEST NUMBER: 030514



CHANNEL: HEDYG1 FILTER: CH. CLASS 1000

PEAK DATA: 32.34 G @ 94.72 MS, -4.86 G @ 216.40 MS

B-3

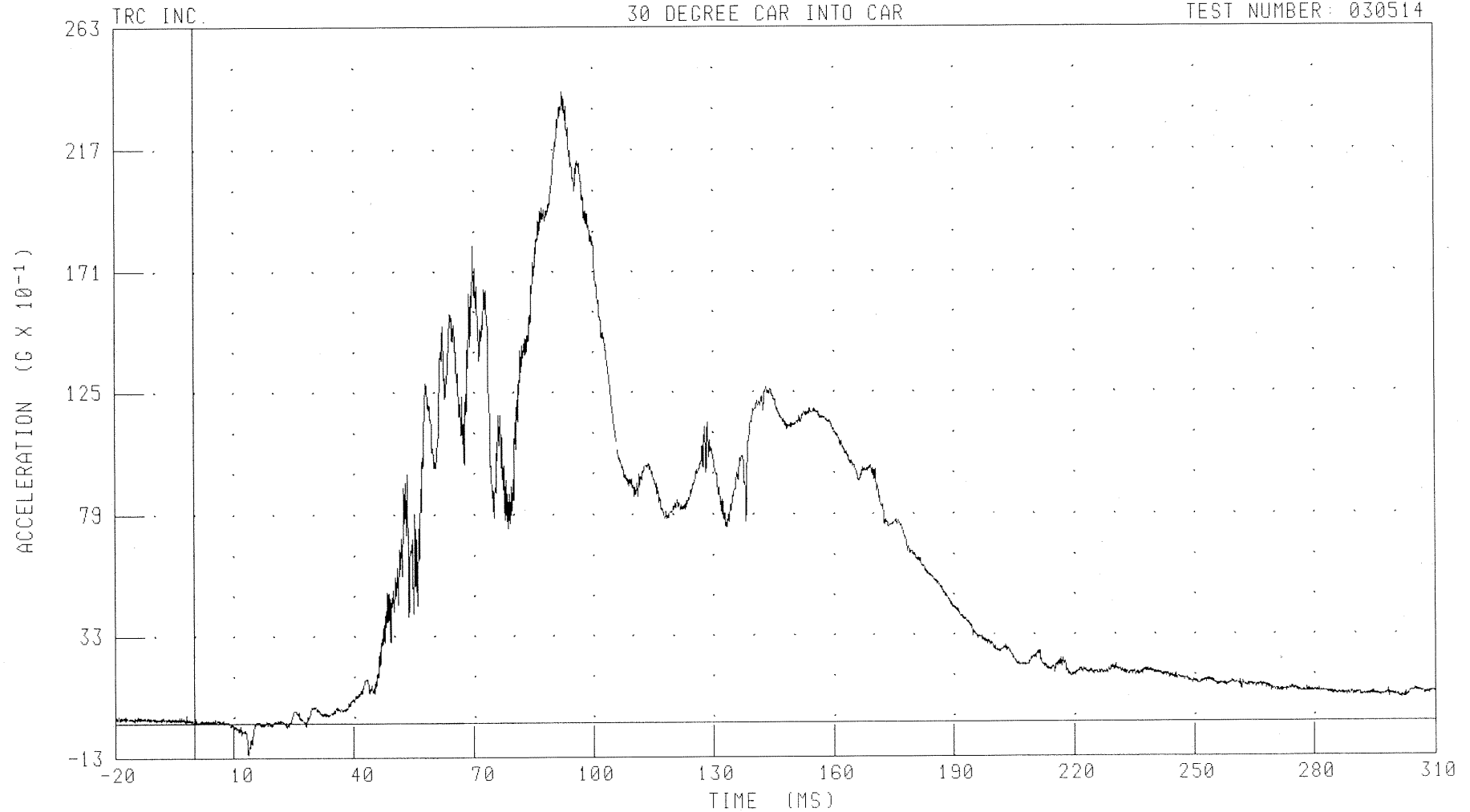
030514

1996 TOYOTA AVALON INTO LEFT FRONT OF 1997 HONDA ACCORD - OBLIQUE 30 DEGREES

TARGET DRIVER HEAD Z-AXIS ACCELERATION

30 DEGREE CAR INTO CAR

TEST NUMBER: 030514



CHANNEL: HEDZG1 FILTER: CH. CLASS 1000

B-4

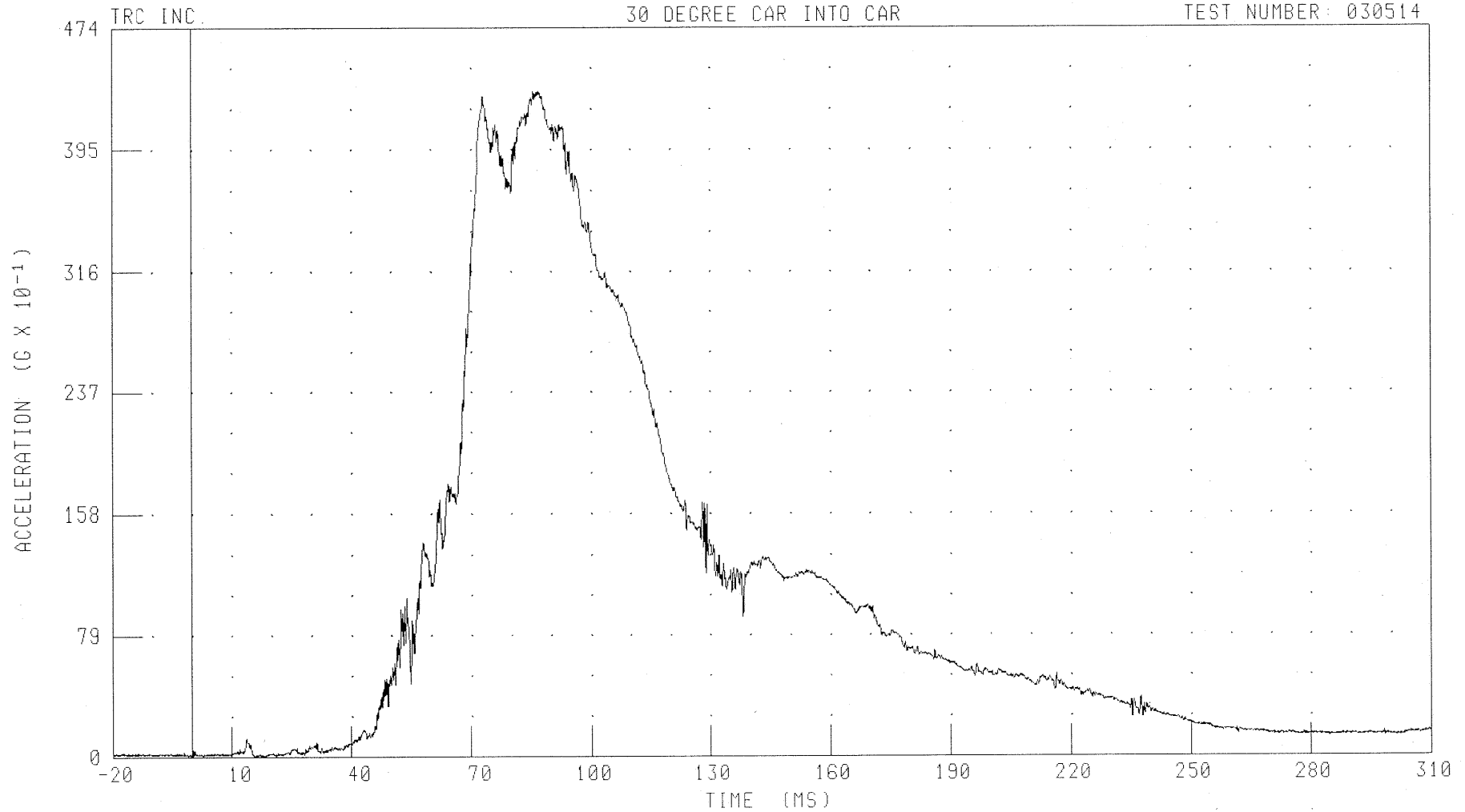
030514

1996 TOYOTA AVALON INTO LEFT FRONT OF 1997 HONDA ACCORD - OBLIQUE 30 DEGREES

TARGET DRIVER HEAD RESULTANT ACCELERATION

30 DEGREE CAR INTO CAR

TEST NUMBER: 030514



CHANNEL: HEDRG1 FILTER: CH. CLASS 1000

B-5

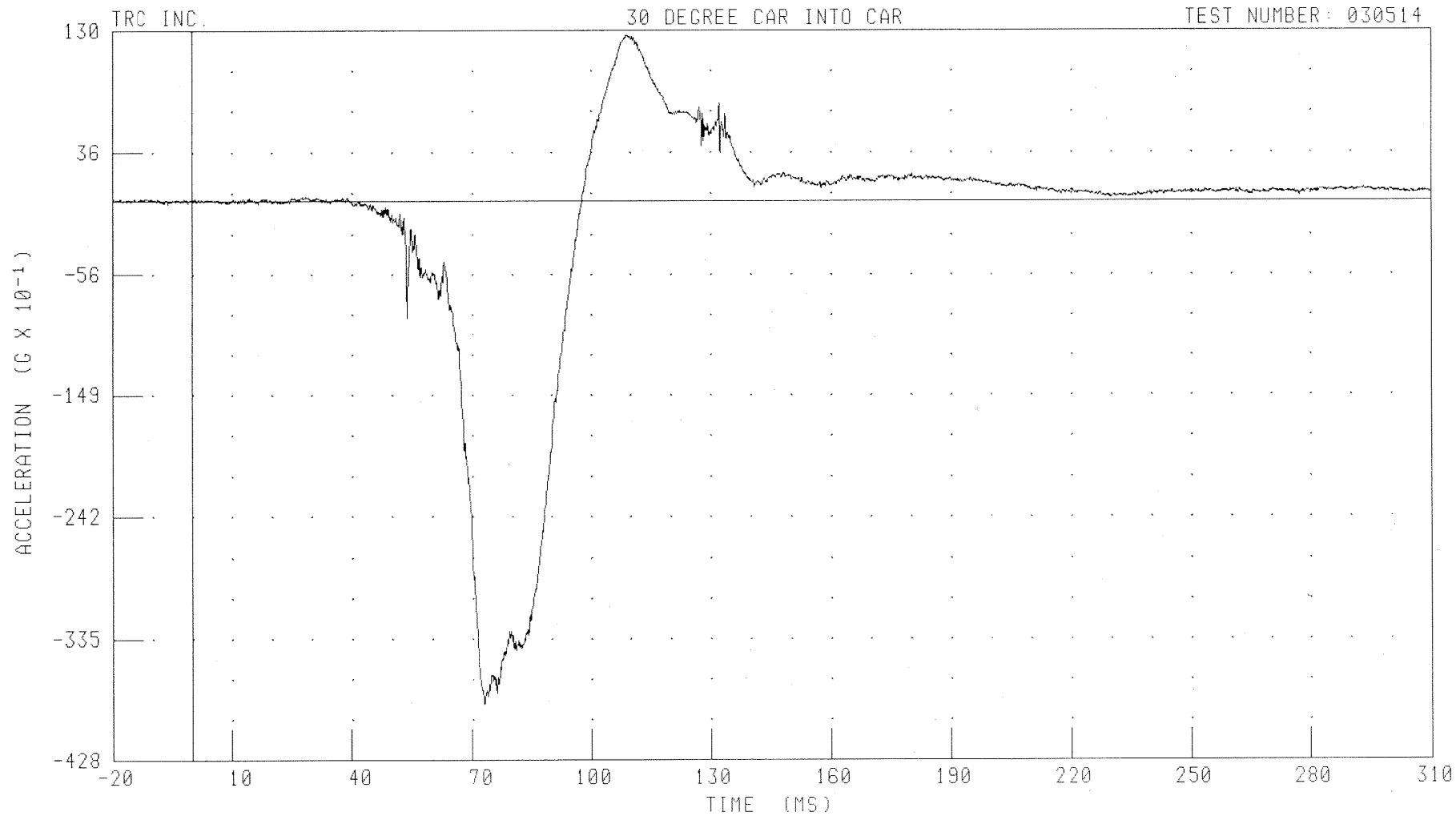
030514

1996 TOYOTA AVALON INTO LEFT FRONT OF 1997 HONDA ACCORD - OBLIQUE 30 DEGREES

TARGET DRIVER HEAD X-AXIS ACCELERATION REDUNDANT

30 DEGREE CAR INTO CAR

TEST NUMBER: 030514



CHANNEL: HEDXR1 FILTER: CH. CLASS 1000

PEAK DATA: 12.63 G @ 109.04 MS; -38.52 G @ 73.04 MS

B-6

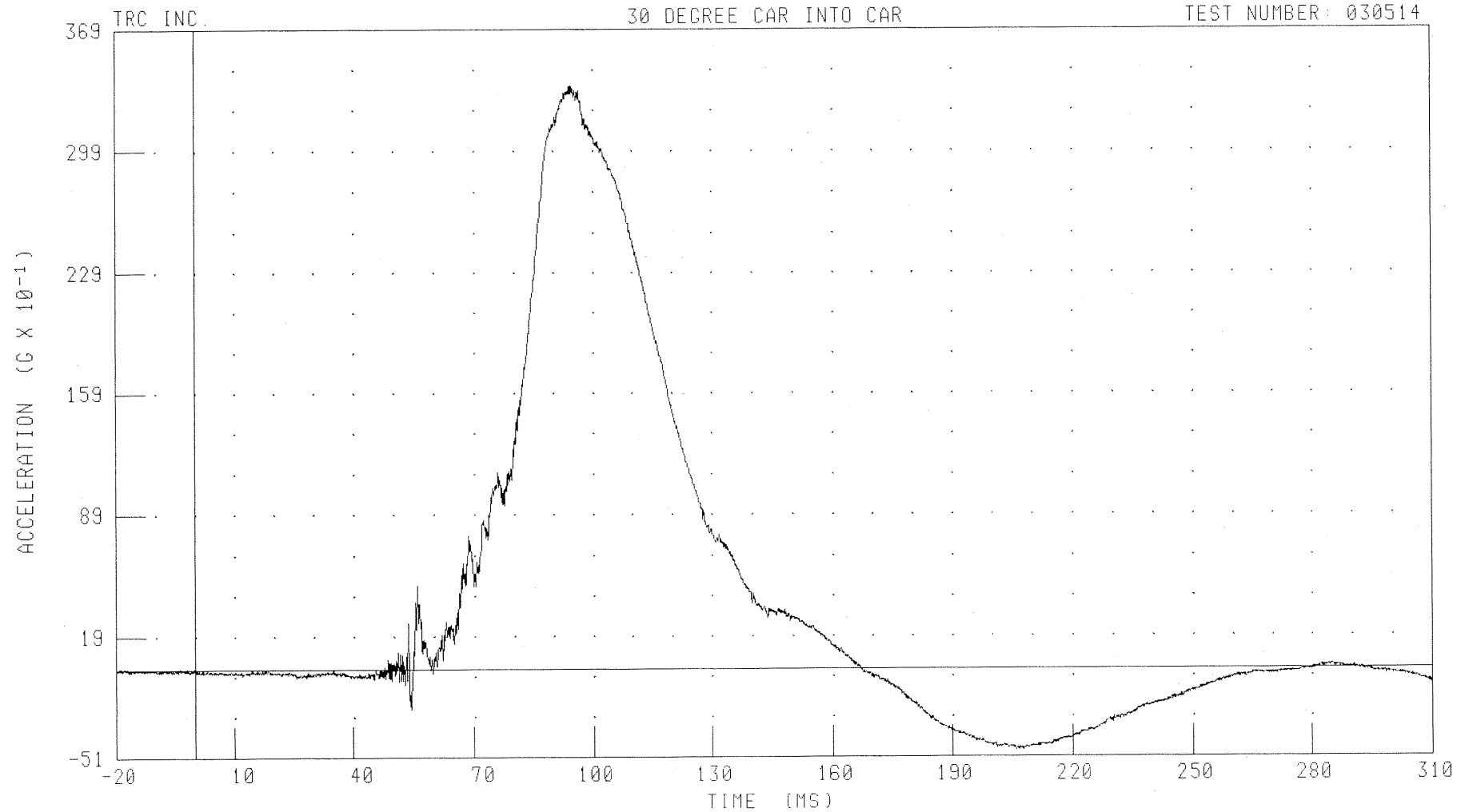
030514

1996 TOYOTA AVALON INTO LEFT FRONT OF 1997 HONDA ACCORD - OBLIQUE 30 DEGREES

TARGET DRIVER HEAD Y-AXIS ACCELERATION REDUNDANT

30 DEGREE CAR INTO CAR

TEST NUMBER: 030514



CHANNEL: HEDYR1 FILTER: CH. CLASS 1000

PEAK DATA: 33.65 G @ 94.64 MS; -4.72 G @ 206.08 MS

B-7

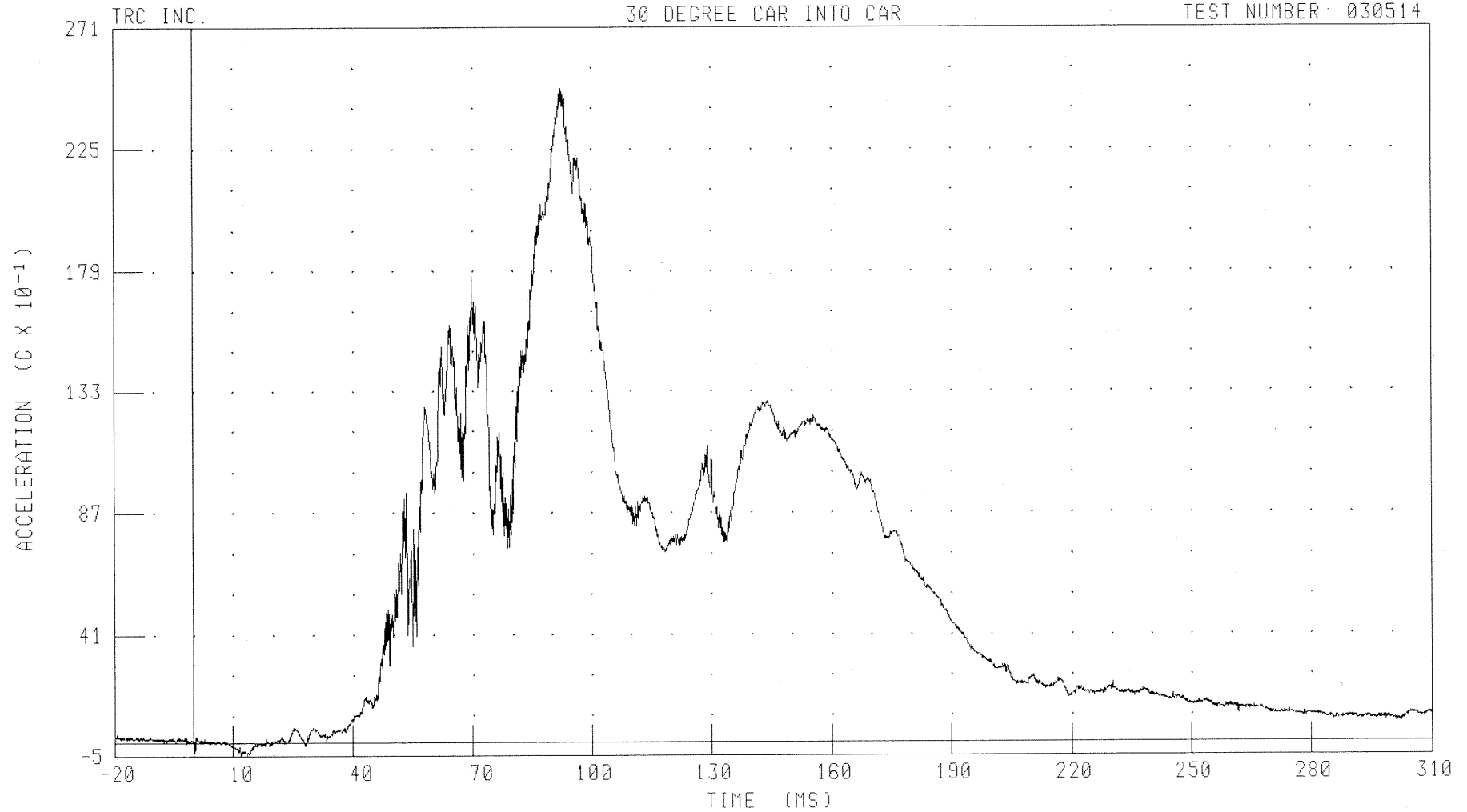
030514

1996 TOYOTA AVALON INTO LEFT FRONT OF 1997 HONDA ACCORD - OBLIQUE 30 DEGREES

TARGET DRIVER HEAD Z-AXIS ACCELERATION REDUNDANT

30 DEGREE CAR INTO CAR

TEST NUMBER: 030514



CHANNEL: HEDZR1 FILTER: CH CLASS 1000

PEAK DATA: 24.78 G @ 92.56 MS, -0.50 G @ 12.00 MS

B-8

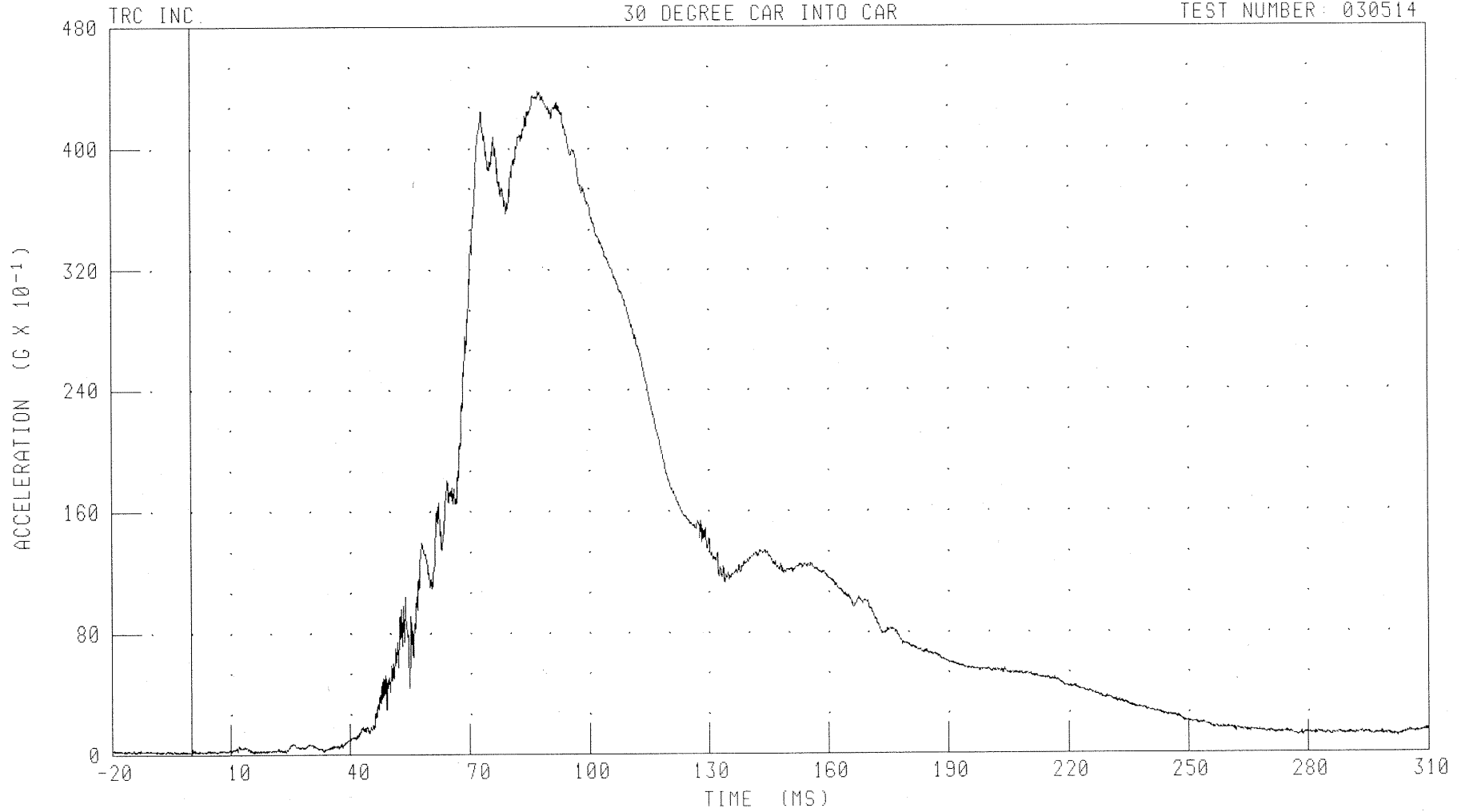
030514

1996 TOYOTA AVALON INTO LEFT FRONT OF 1997 HONDA ACCORD - OBLIQUE 30 DEGREES

TARGET DRIVER HEAD RESULTANT ACCELERATION REDUNDANT

30 DEGREE CAR INTO CAR

TEST NUMBER: 030514



CHANNEL: HEDRR1 FILTER: CH. CLASS 1000

PEAK DATA: 43.72 G @ 87.44 MS; 0.10 G @ -0.24 MS

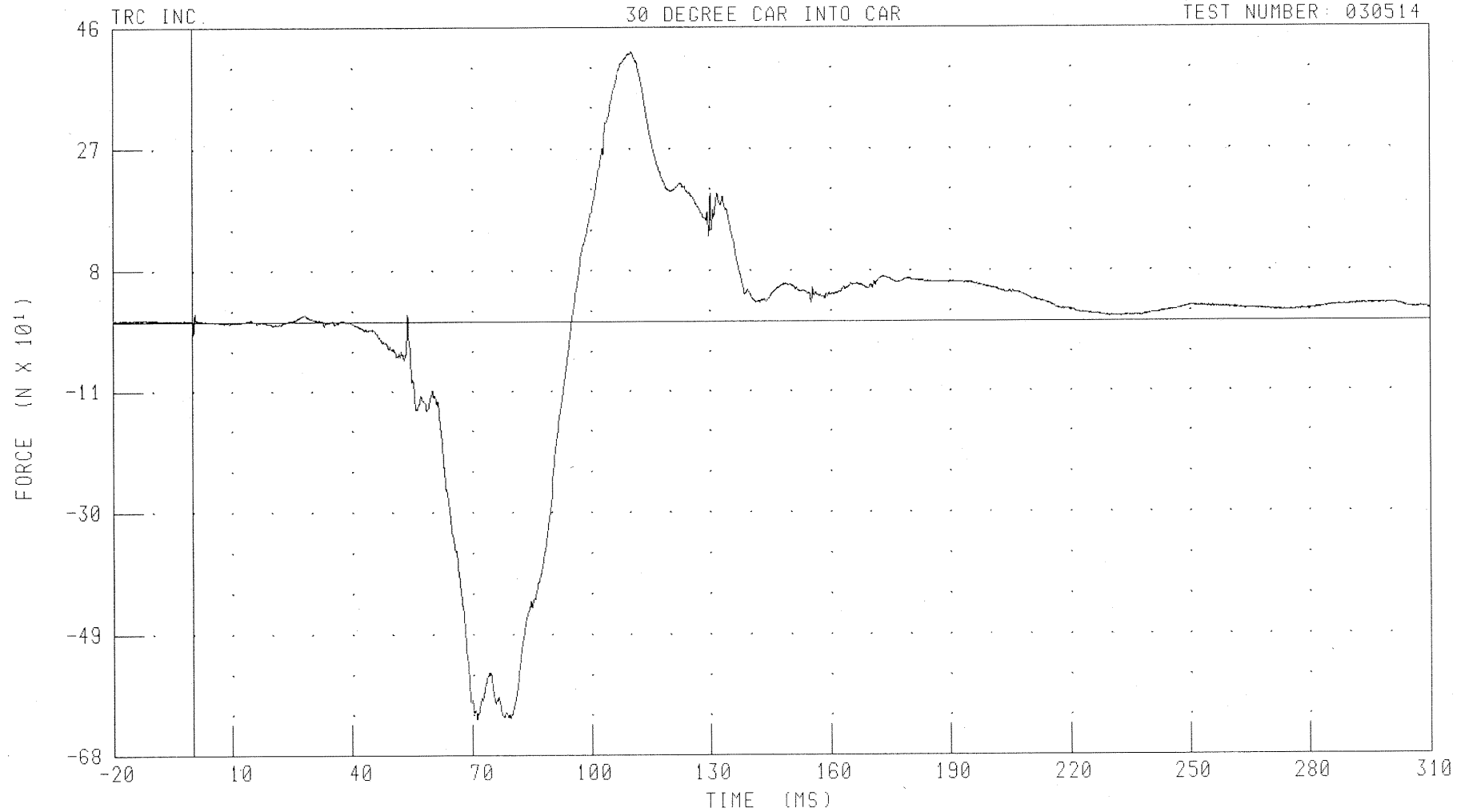
B-9

030514

1996 TOYOTA AVALON INTO LEFT FRONT OF 1997 HONDA ACCORD - OBLIQUE 30 DEGREES
TARGET DRIVER NECK X-AXIS SHEAR FORCE

30 DEGREE CAR INTO CAR

TEST NUMBER: 030514



CHANNEL: NEKXF1 FILTER: CH. CLASS 1000

PEAK DATA: 421.44 N @ 110.56 MS; -623.57 N @ 70.96 MS

B-10

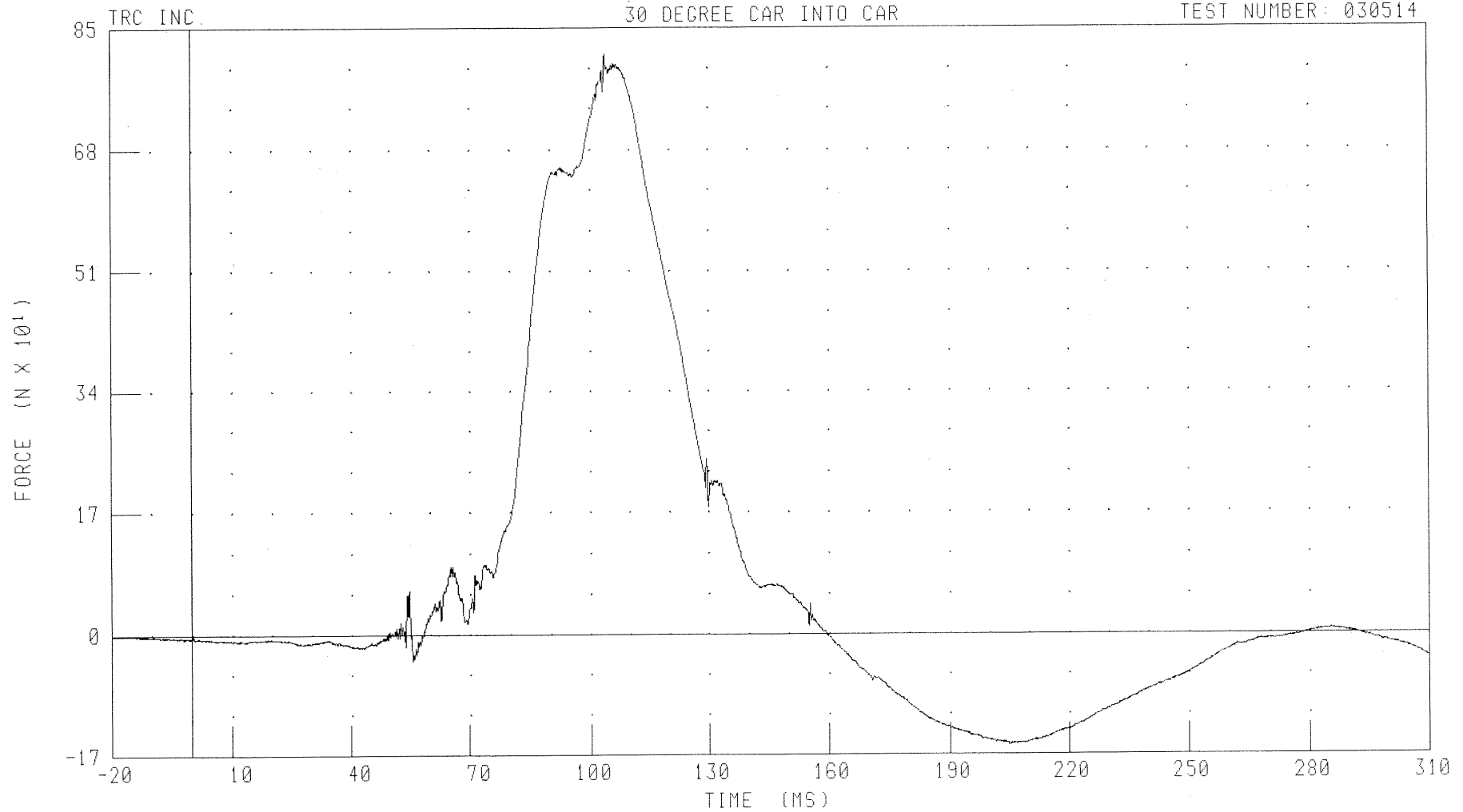
030514

1996 TOYOTA AVALON INTO LEFT FRONT OF 1997 HONDA ACCORD - OBLIQUE 30 DEGREES

TARGET DRIVER NECK Y-AXIS SHEAR FORCE

30 DEGREE CAR INTO CAR

TEST NUMBER: 030514



CHANNEL: NEKYF1 FILTER: CH. CLASS 1000

PEAK DATA: 812.33 N @ 103.84 MS; -157.44 N @ 205.04 MS

B-11

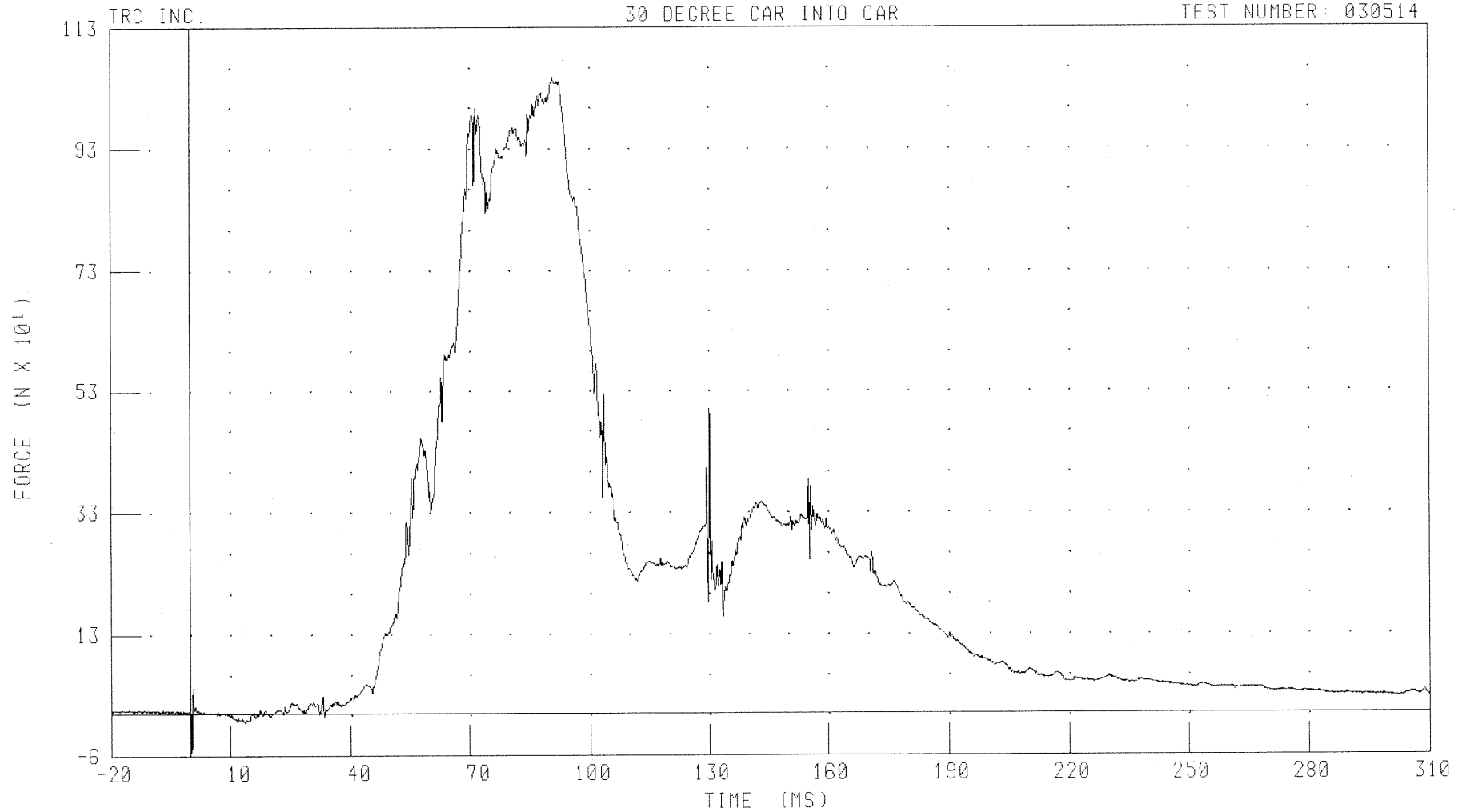
030514

1996 TOYOTA AVALON INTO LEFT FRONT OF 1997 HONDA ACCORD - OBLIQUE 30 DEGREES

TARGET DRIVER NECK Z-AXIS AXIAL FORCE

30 DEGREE CAR INTO CAR

TEST NUMBER: 030514



CHANNEL: NEKZF1 FILTER: CH. CLASS 1000

PEAK DATA: 1048.22 N @ 90.88 MS; -63.29 N @ 0.40 MS

B-12

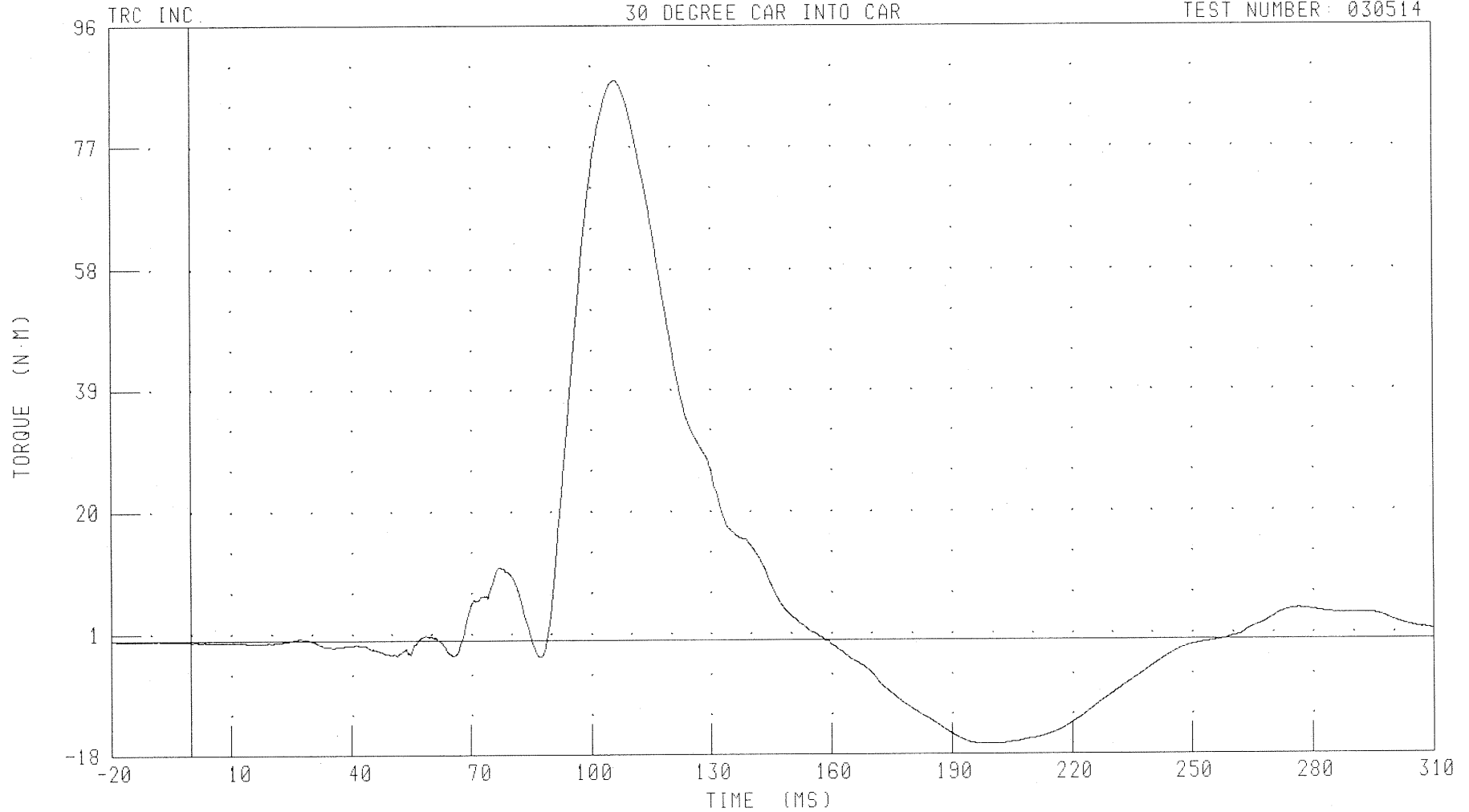
030514

1996 TOYOTA AVALON INTO LEFT FRONT OF 1997 HONDA ACCORD - OBLIQUE 30 DEGREES

TARGET DRIVER NECK MOMENT ABOUT X AXIS

30 DEGREE CAR INTO CAR

TEST NUMBER: 030514



CHANNEL: NEKXM1 FILTER: CH. CLASS 600

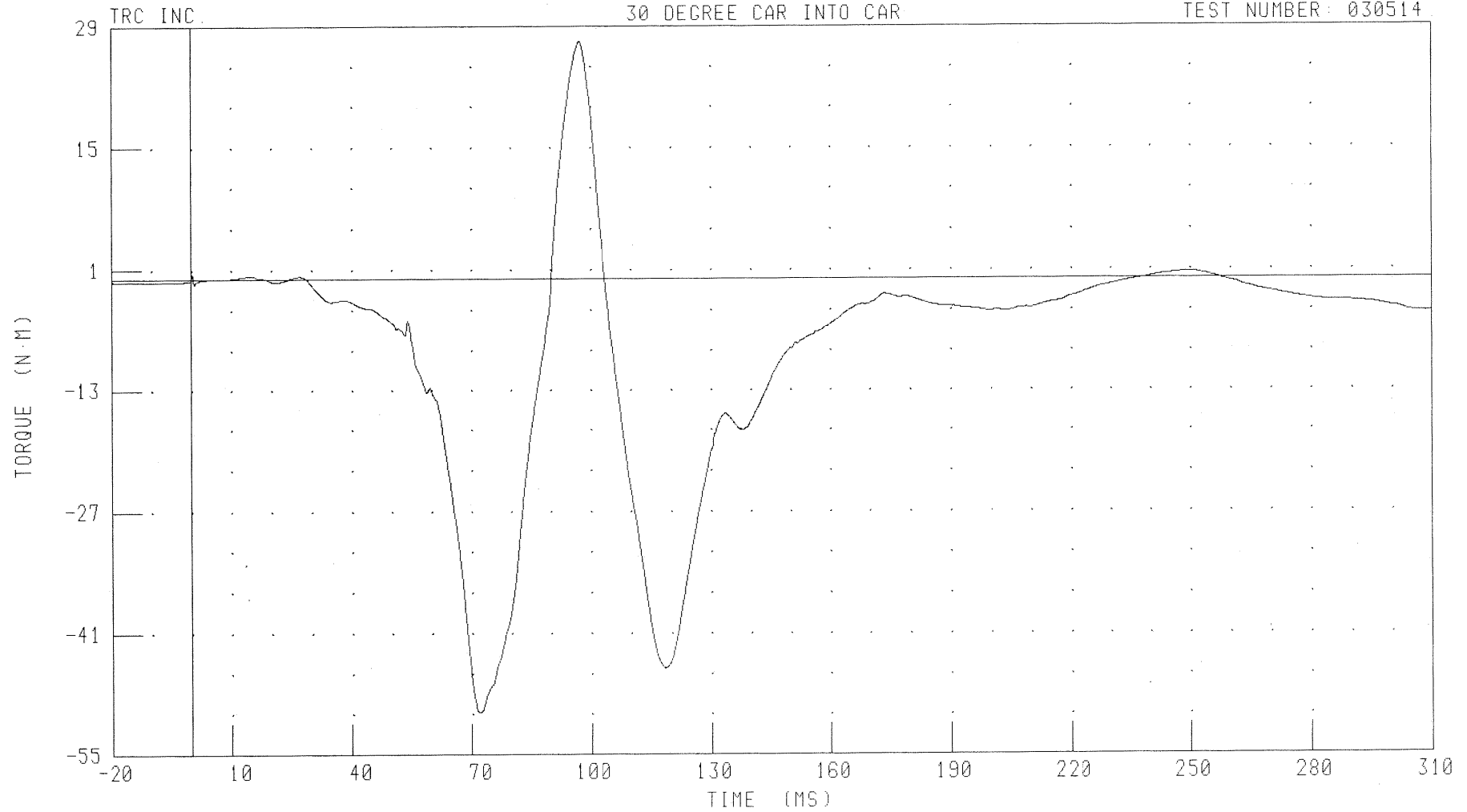
B-13

030514

1996 TOYOTA AVALON INTO LEFT FRONT OF 1997 HONDA ACCORD - OBLIQUE 30 DEGREES
TARGET DRIVER NECK MOMENT ABOUT Y AXIS

30 DEGREE CAR INTO CAR

TEST NUMBER: 030514



CHANNEL: NEKYM1 FILTER: CH. CLASS 600

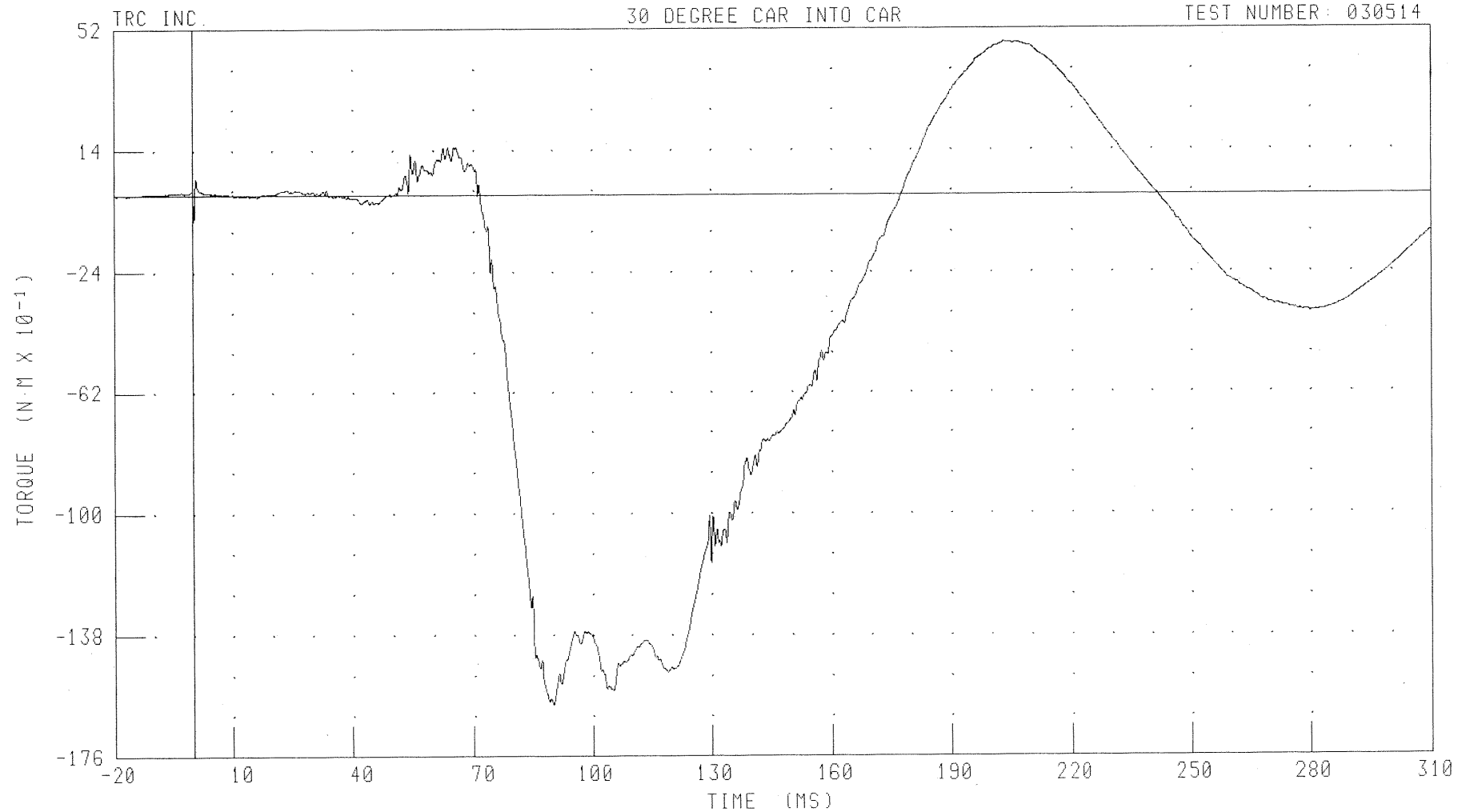
B-14

030514

1996 TOYOTA AVALON INTO LEFT FRONT OF 1997 HONDA ACCORD - OBLIQUE 30 DEGREES
TARGET DRIVER NECK MOMENT ABOUT Z AXIS

30 DEGREE CAR INTO CAR

TEST NUMBER: 030514



CHANNEL: NEKZM1 FILTER: CH. CLASS 600

PEAK DATA: 4.78 N-M @ 203.44 MS; -16.00 N-M @ 90.08 MS

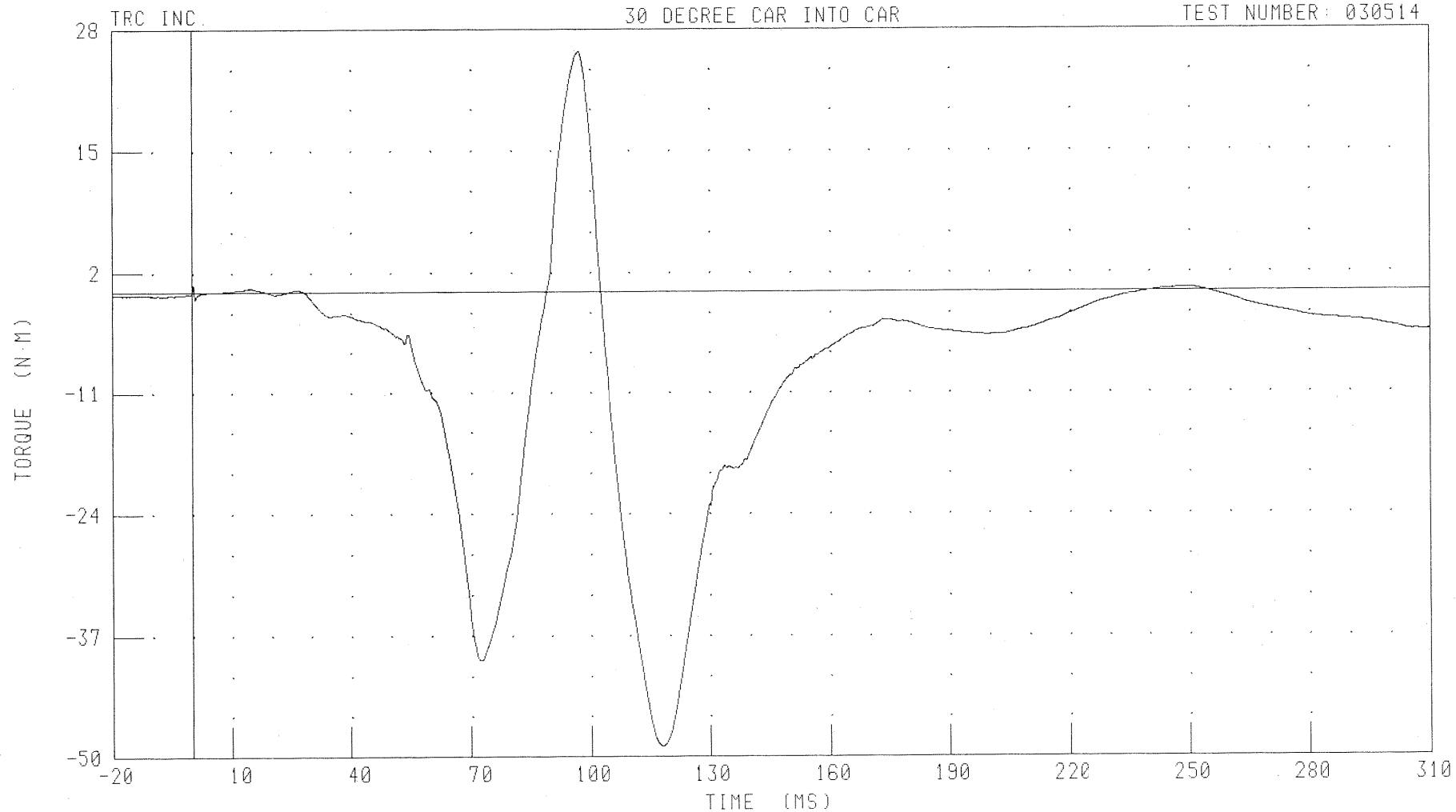
B-15

030514

1996 TOYOTA AVALON INTO LEFT FRONT OF 1997 HONDA ACCORD - OBLIQUE 30 DEGREES
TARGET DRIVER NECK OCCIPITAL CONDYLE MOMENT ABOUT Y AXIS

30 DEGREE CAR INTO CAR

TEST NUMBER: 030514



CHANNEL: NEKOM1 FILTER: CH. CLASS 600

PEAK DATA: 25.59 N·M @ 97.12 MS; -48.93 N·M @ 118.16 MS

B-16

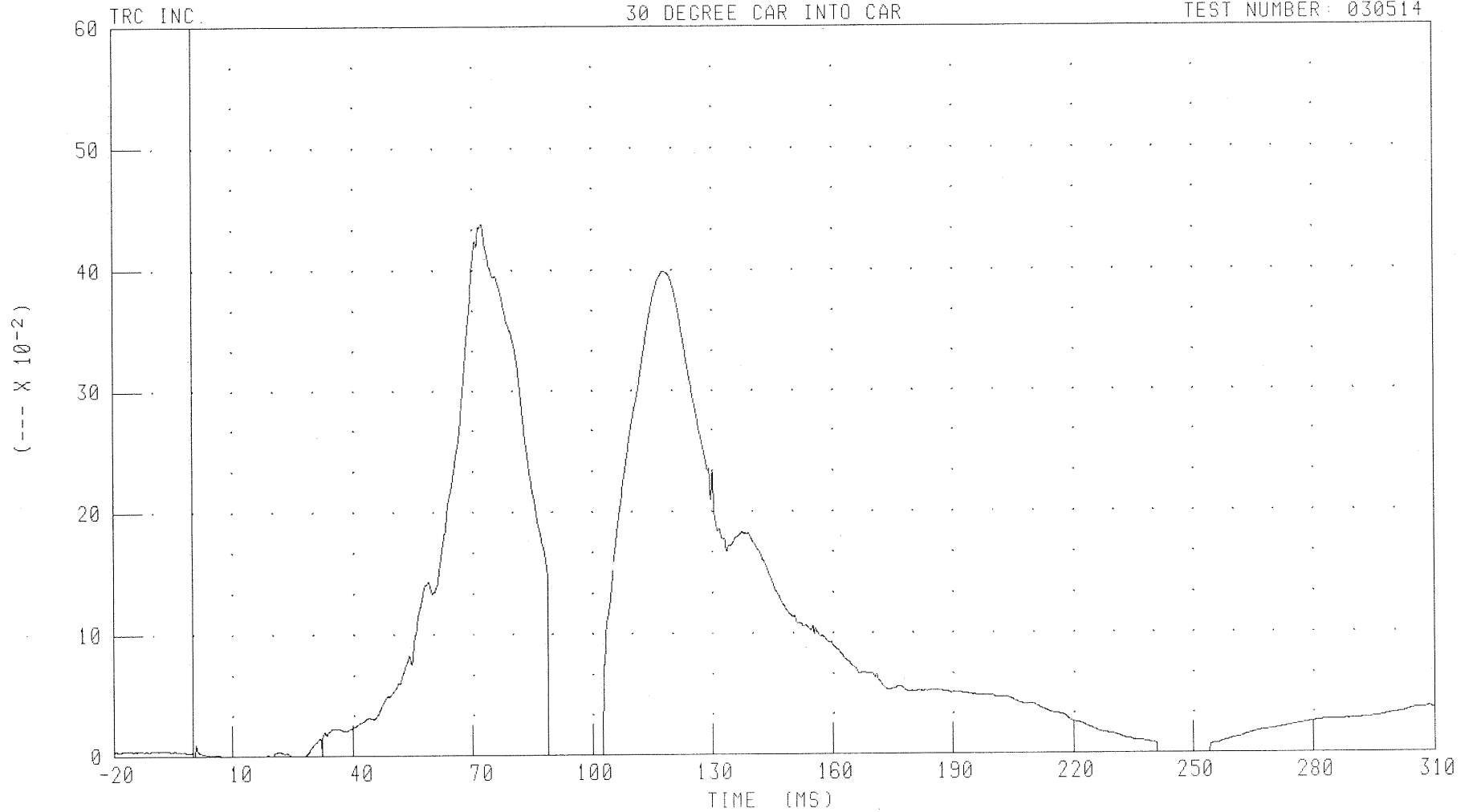
030514

1996 TOYOTA AVALON INTO LEFT FRONT OF 1997 HONDA ACCORD - OBLIQUE 30 DEGREES

TARGET DRIVER NIJ TENSION/EXTENSION

30 DEGREE CAR INTO CAR

TEST NUMBER: 030514



CHANNEL: NTE1 FILTER: CH. CLASS 600

PEAK DATA: 0.44 --- @ 72.56 MS; 0.00 --- @ 0.08 MS

B-17

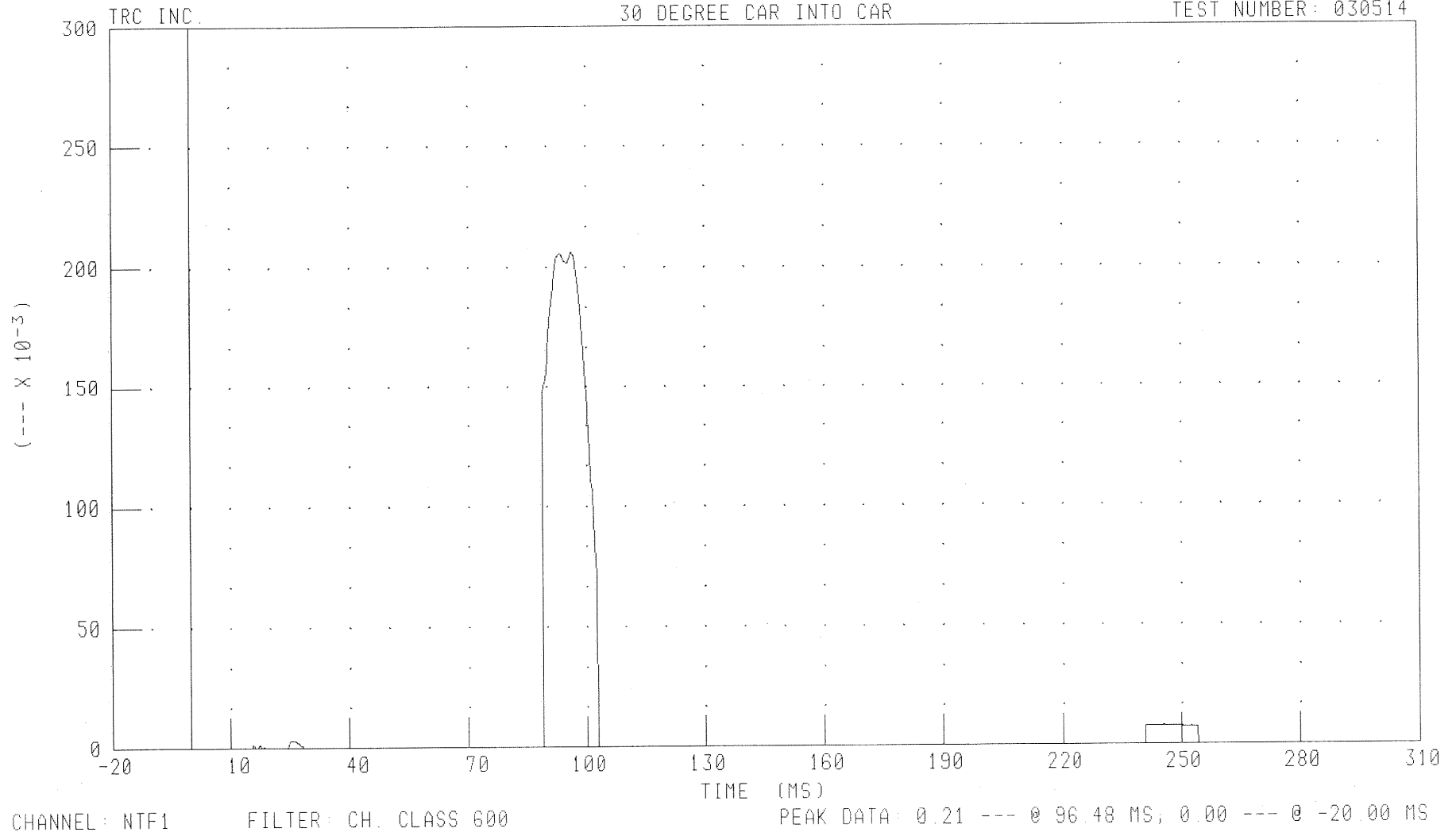
030514

1996 TOYOTA AVALON INTO LEFT FRONT OF 1997 HONDA ACCORD - OBLIQUE 30 DEGREES

TARGET DRIVER NIJ TENSION/FLEXION

30 DEGREE CAR INTO CAR

TEST NUMBER: 030514



B-18

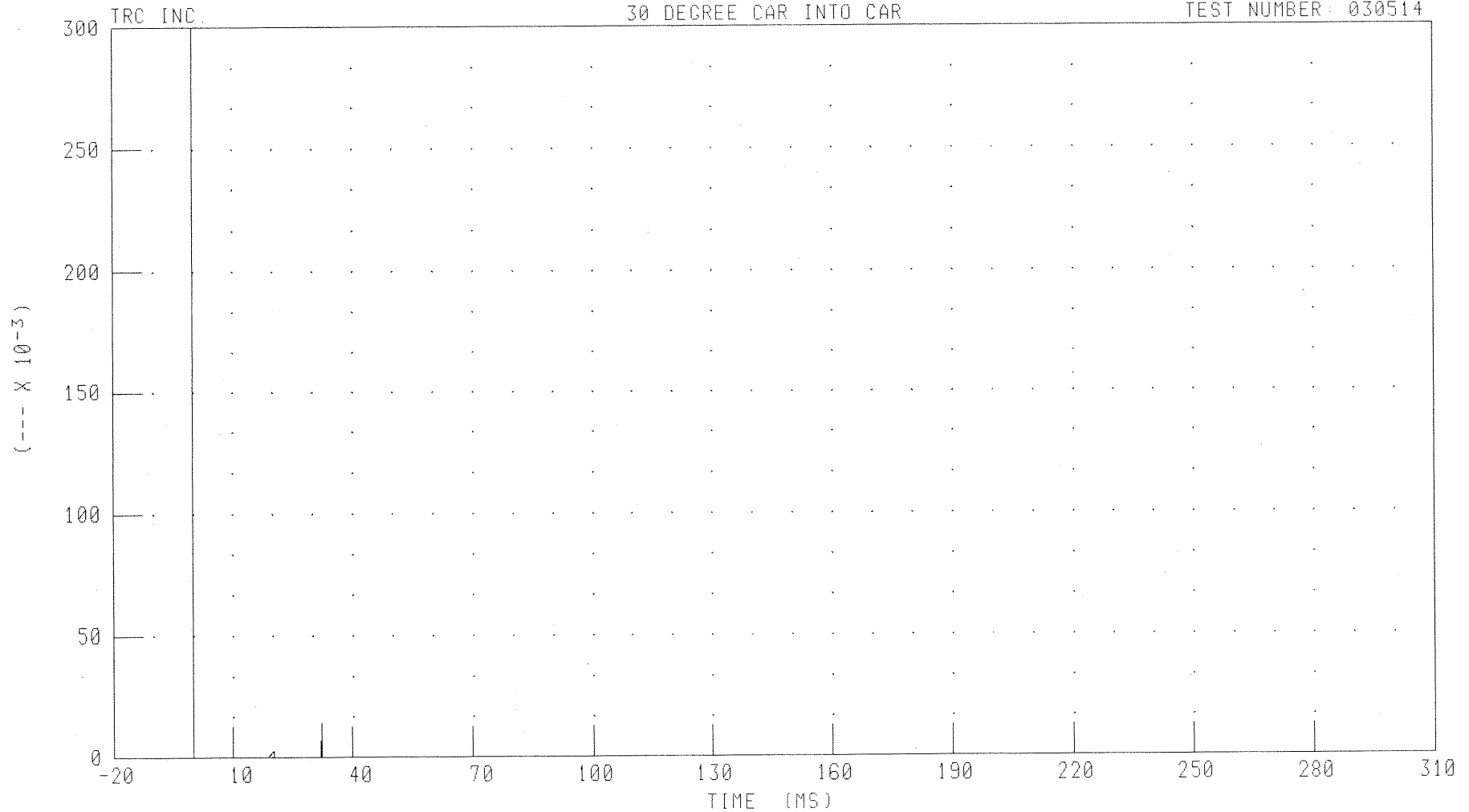
030514

1996 TOYOTA AVALON INTO LEFT FRONT OF 1997 HONDA ACCORD - OBLIQUE 30 DEGREES

TARGET DRIVER NIJ COMPRESSION/EXTENSION

30 DEGREE CAR INTO CAR

TEST NUMBER: 030514



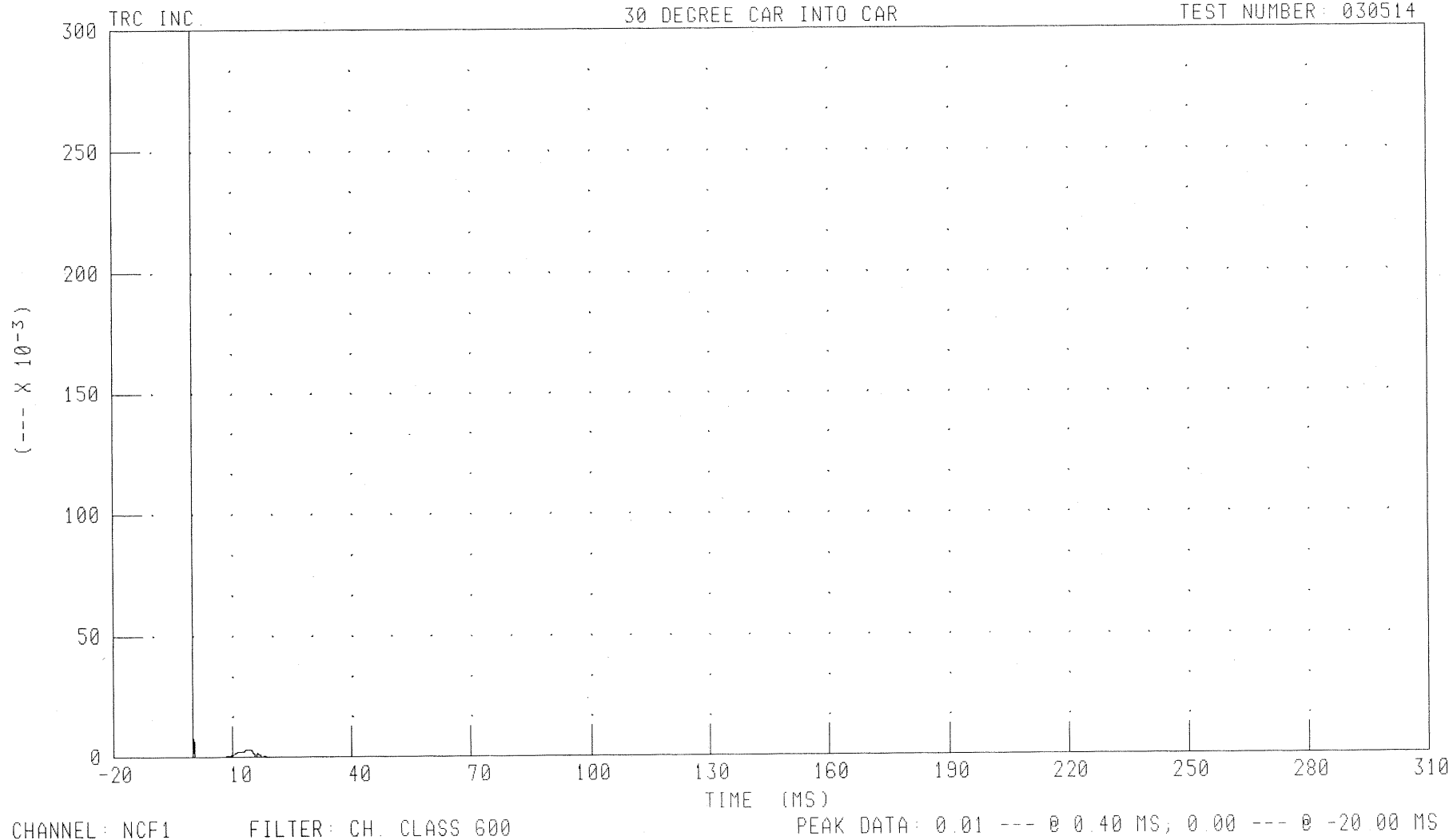
B-19

030514

1996 TOYOTA AVALON INTO LEFT FRONT OF 1997 HONDA ACCORD - OBLIQUE 30 DEGREES
TARGET DRIVER NIJ COMPRESSION/FLEXION

30 DEGREE CAR INTO CAR

TEST NUMBER: 030514



B-20

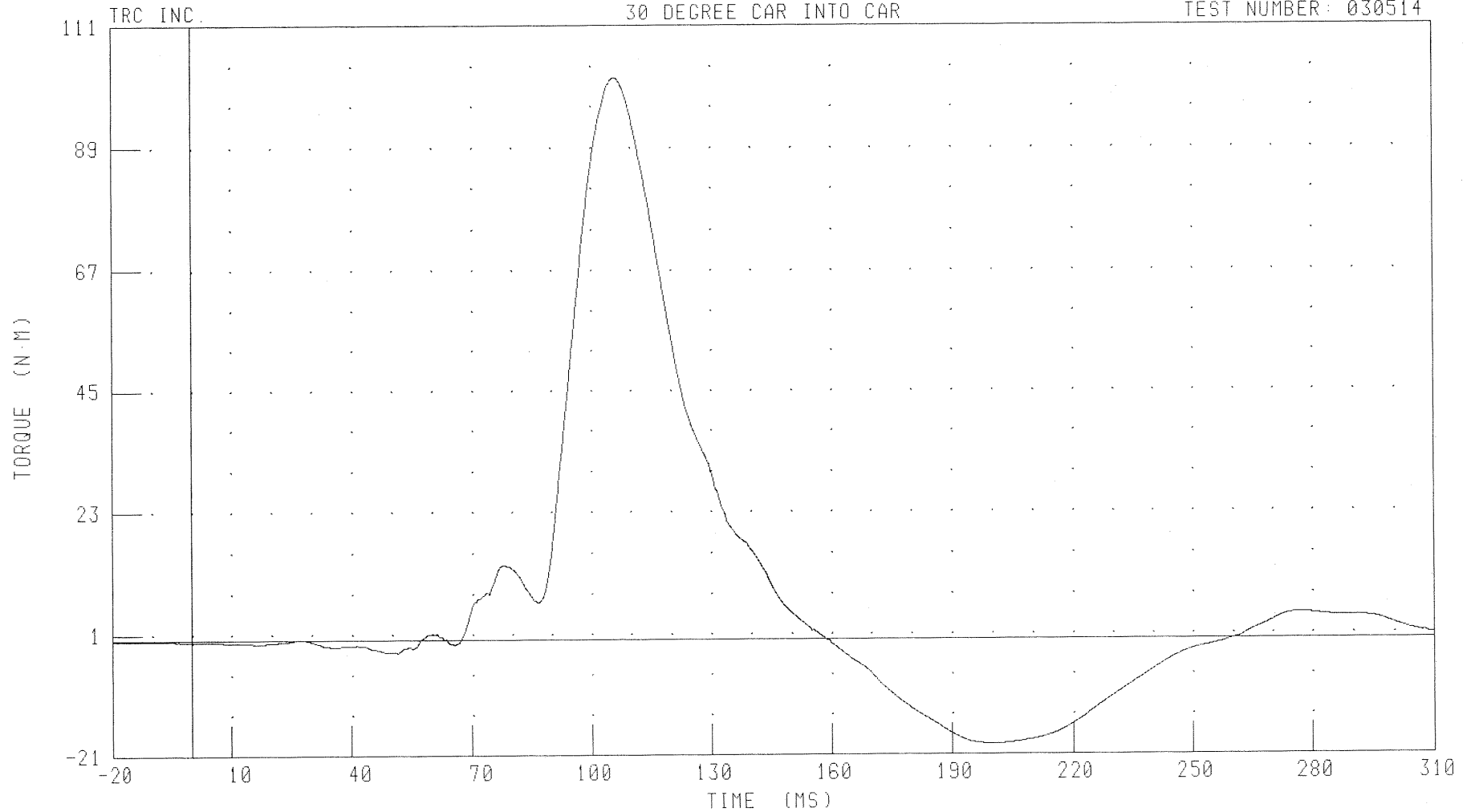
030514

1996 TOYOTA AVALON INTO LEFT FRONT OF 1997 HONDA ACCORD - OBLIQUE 30 DEGREES

TARGET DRIVER NECK OCCIPITAL CONDYLE MOMENT ABOUT X AXIS

30 DEGREE CAR INTO CAR

TEST NUMBER: 030514



CHANNEL: NK0XM1 FILTER: CH. CLASS 600

B-21

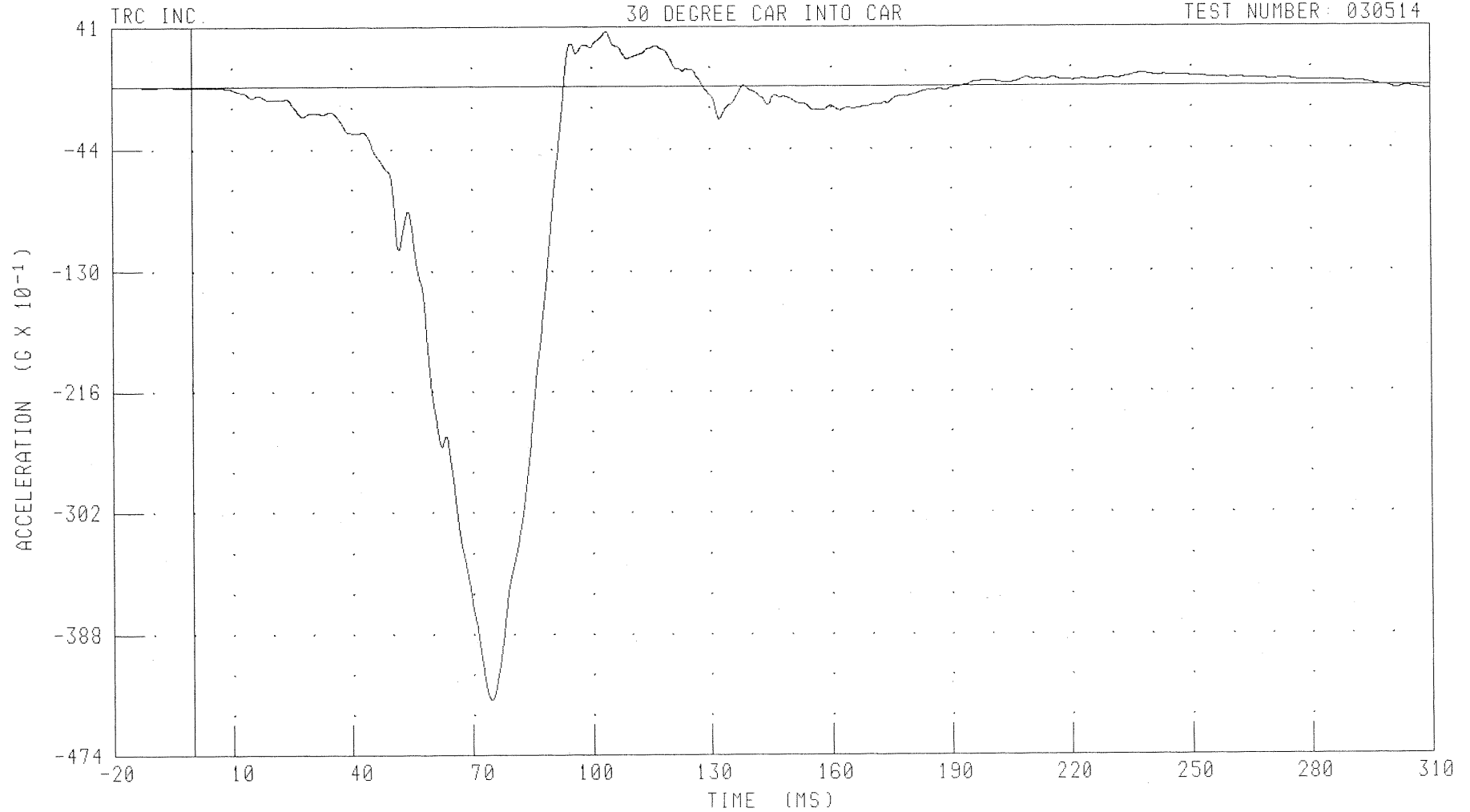
030514

1996 TOYOTA AVALON INTO LEFT FRONT OF 1997 HONDA ACCORD - OBLIQUE 30 DEGREES

TARGET DRIVER CHEST X-AXIS ACCELERATION

30 DEGREE CAR INTO CAR

TEST NUMBER: 030514



CHANNEL: CSTXG1 FILTER: CH. CLASS 180

PEAK DATA: 3.83 G @ 103.92 MS; -43.49 G @ 74.56 MS

B-22

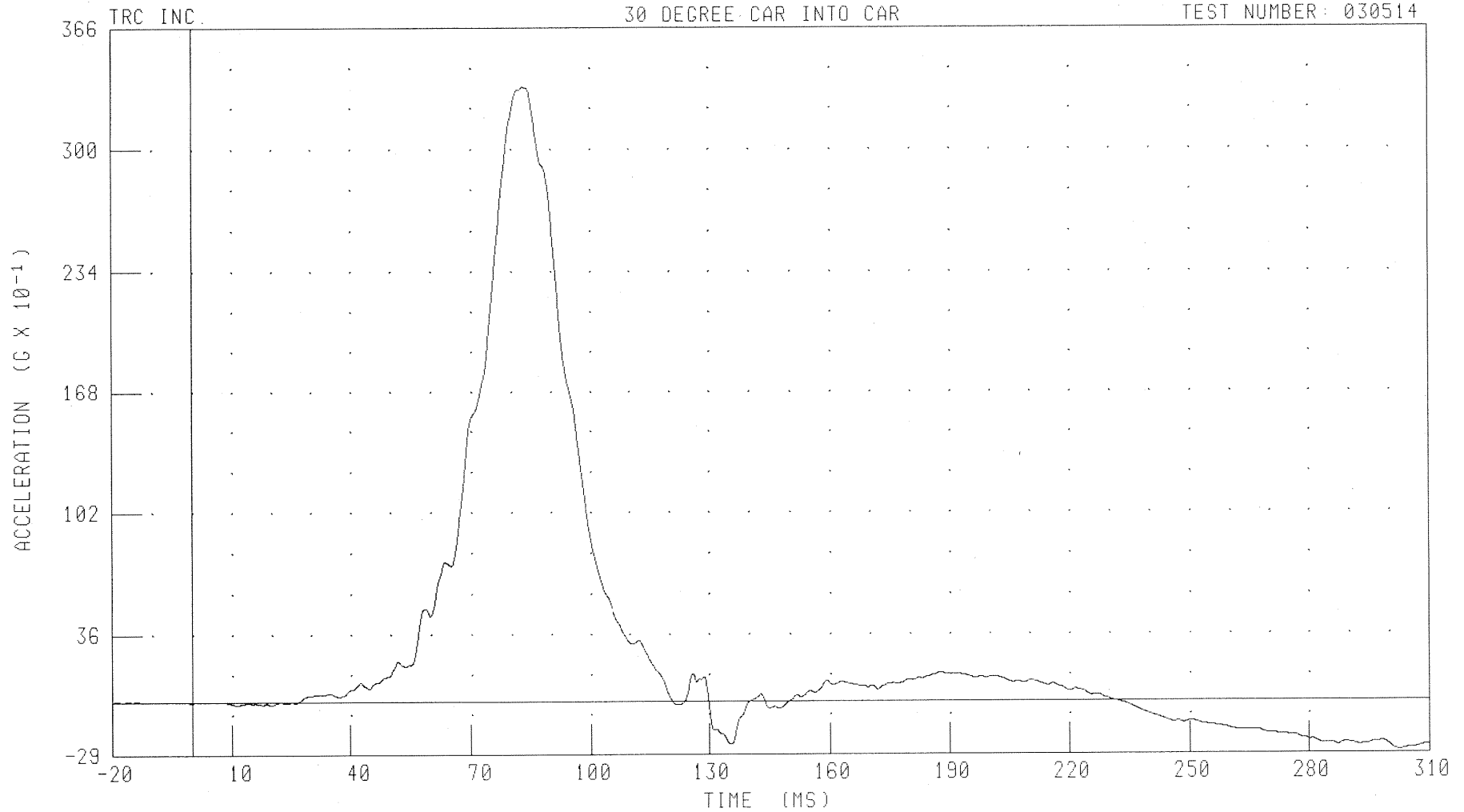
030514

1996 TOYOTA AVALON INTO LEFT FRONT OF 1997 HONDA ACCORD - OBLIQUE 30 DEGREES

TARGET DRIVER CHEST Y-AXIS ACCELERATION

30 DEGREE CAR INTO CAR

TEST NUMBER: 030514



CHANNEL: CSTYG1

FILTER: CH. CLASS 180

PEAK DATA: 33.48 G @ 83.12 MS; -2.72 G @ 302.24 MS

B-23

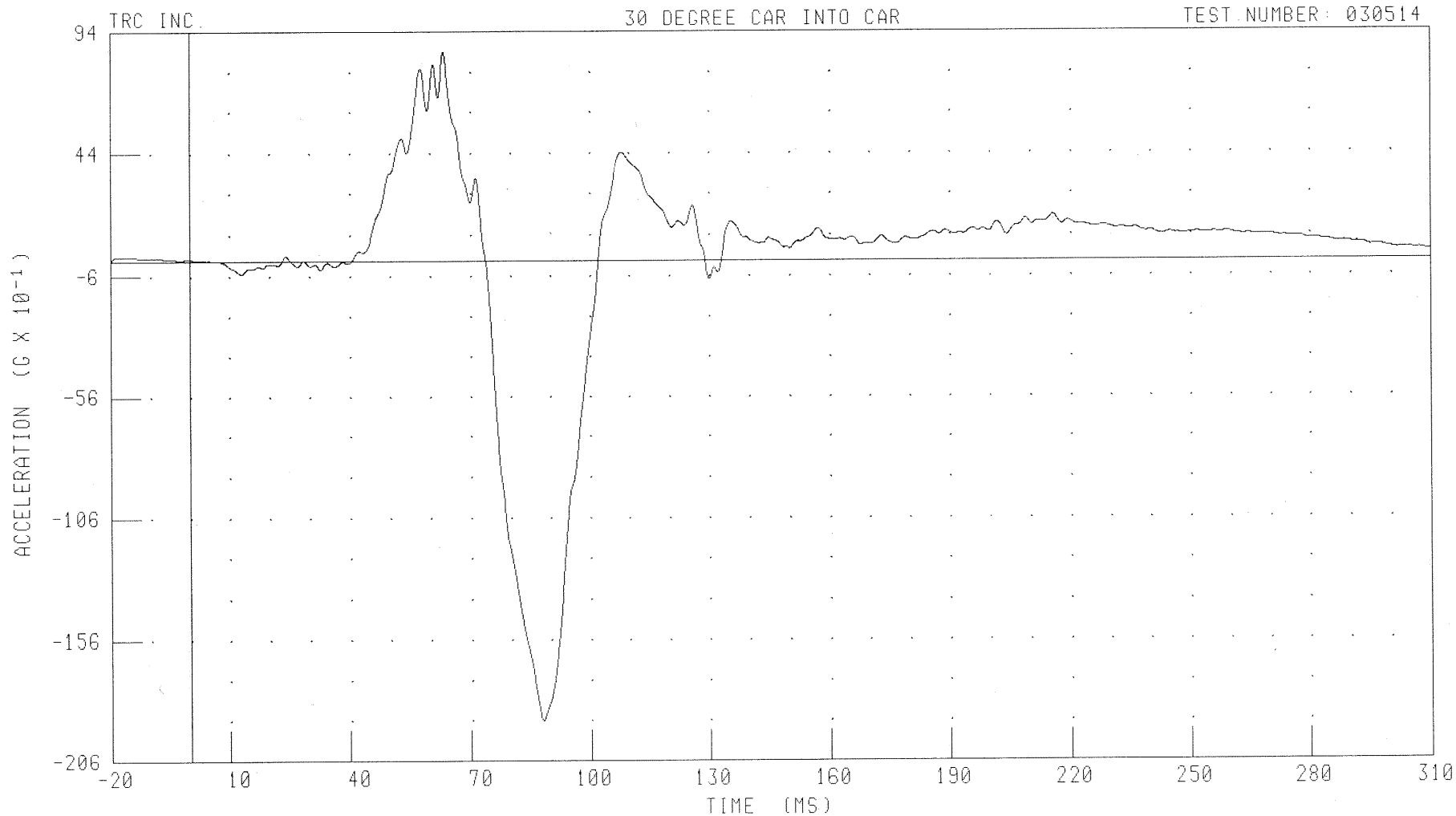
030514

1996 TOYOTA AVALON INTO LEFT FRONT OF 1997 HONDA ACCORD - OBLIQUE 30 DEGREES

TARGET DRIVER CHEST Z-AXIS ACCELERATION

30 DEGREE CAR INTO CAR

TEST NUMBER: 030514



CHANNEL: CSTZC1 FILTER: CH CLASS 180

PEAK DATA: 8.56 G @ 63.36 MS; -18.94 G @ 87.92 MS

B-24

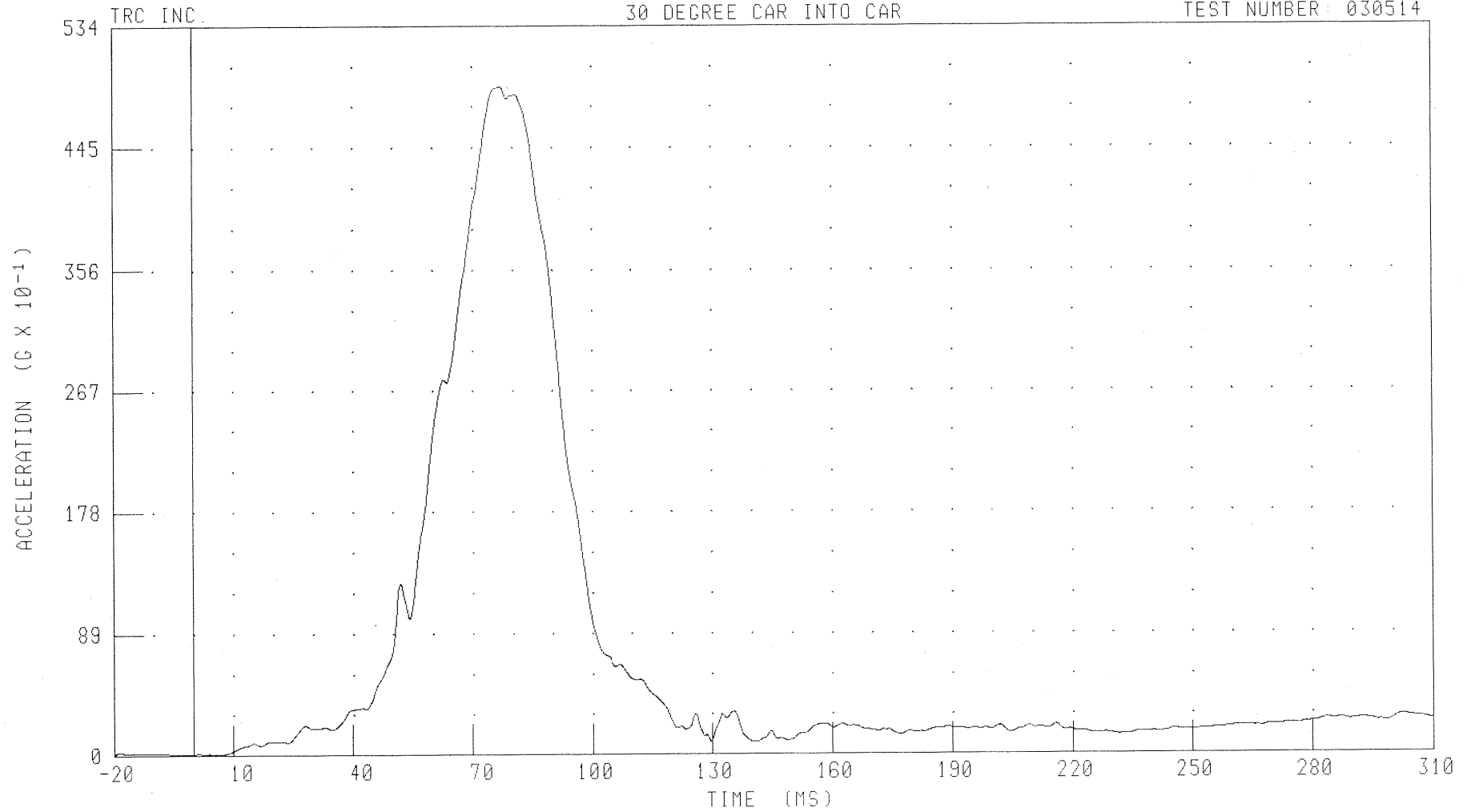
030514

1996 TOYOTA AVALON INTO LEFT FRONT OF 1997 HONDA ACCORD - OBLIQUE 30 DEGREES

TARGET DRIVER CHEST RESULTANT ACCELERATION

30 DEGREE CAR INTO CAR

TEST NUMBER: 030514



CHANNEL: CSTRG1 FILTER: CH. CLASS 180

PEAK DATA: 48.96 G @ 77.20 MS; 0.01 G @ -20.00 MS

B-25

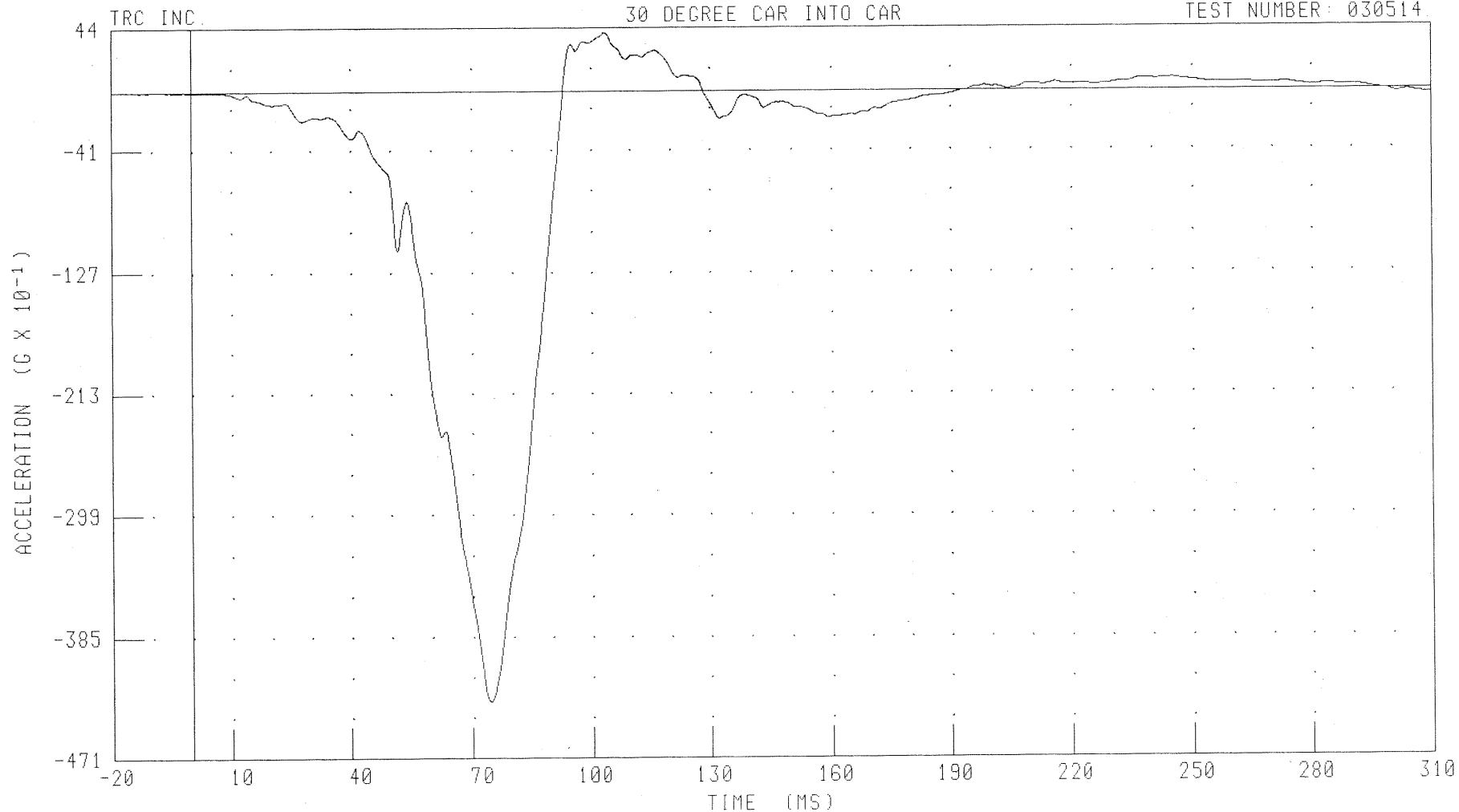
030514

1996 TOYOTA AVALON INTO LEFT FRONT OF 1997 HONDA ACCORD - OBLIQUE 30 DEGREES

TARGET DRIVER CHEST X-AXIS REDUNDANT ACCELERATION

30 DEGREE CAR INTO CAR

TEST NUMBER: 030514



CHANNEL: CSTXR1 FILTER: CH. CLASS 180

PEAK DATA: 4.17 G @ 103.52 MS; -43.13 G @ 74.40 MS

B-26

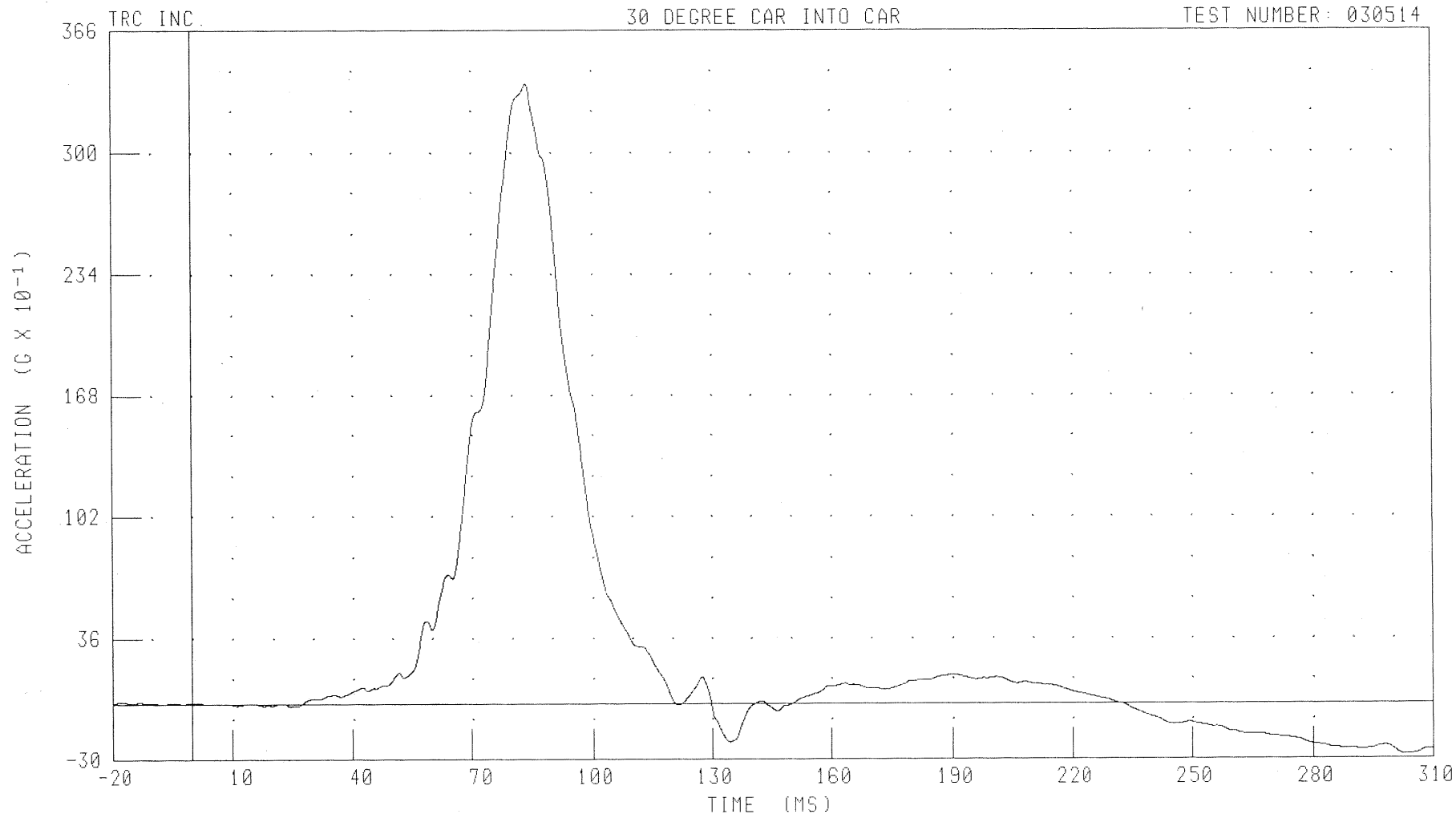
030514

1996 TOYOTA AVALON INTO LEFT FRONT OF 1997 HONDA ACCORD - OBLIQUE 30 DEGREES

TARGET DRIVER CHEST Y-AXIS REDUNDANT ACCELERATION

30 DEGREE CAR INTO CAR

TEST NUMBER: 030514



CHANNEL: CSTYR1 FILTER: CH. CLASS 180

PEAK DATA: 33.68 G @ 83.92 MS; -2.81 G @ 303.04 MS

B-27

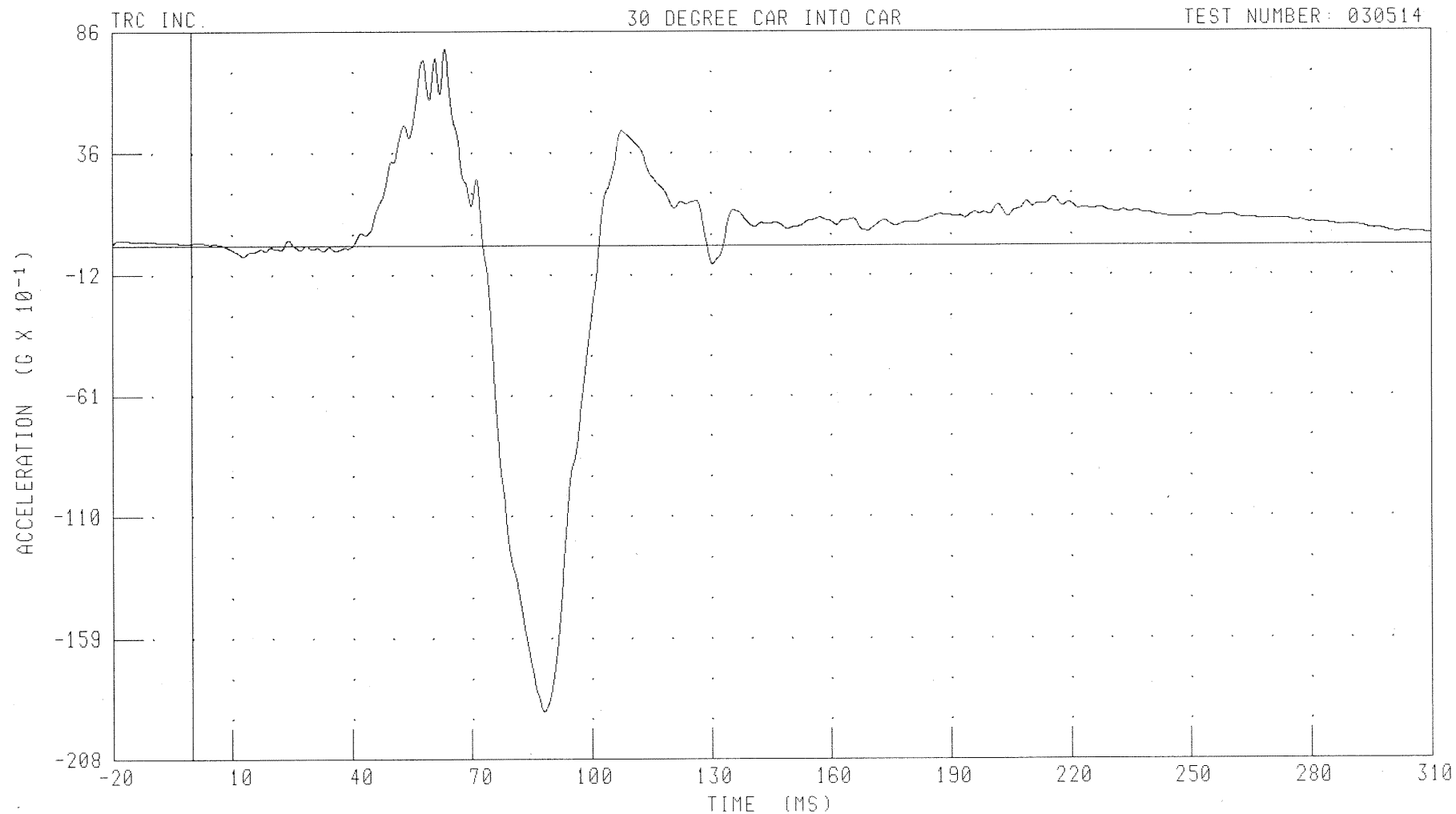
030514

1996 TOYOTA AVALON INTO LEFT FRONT OF 1997 HONDA ACCORD - OBLIQUE 30 DEGREES

TARGET DRIVER CHEST Z-AXIS REDUNDANT ACCELERATION

30 DEGREE CAR INTO CAR

TEST NUMBER: 030514



CHANNEL: CSTZR1 FILTER: CH. CLASS 180

PEAK DATA: 7.89 G @ 63.36 MS, -18.88 G @ 88.24 MS

B-28

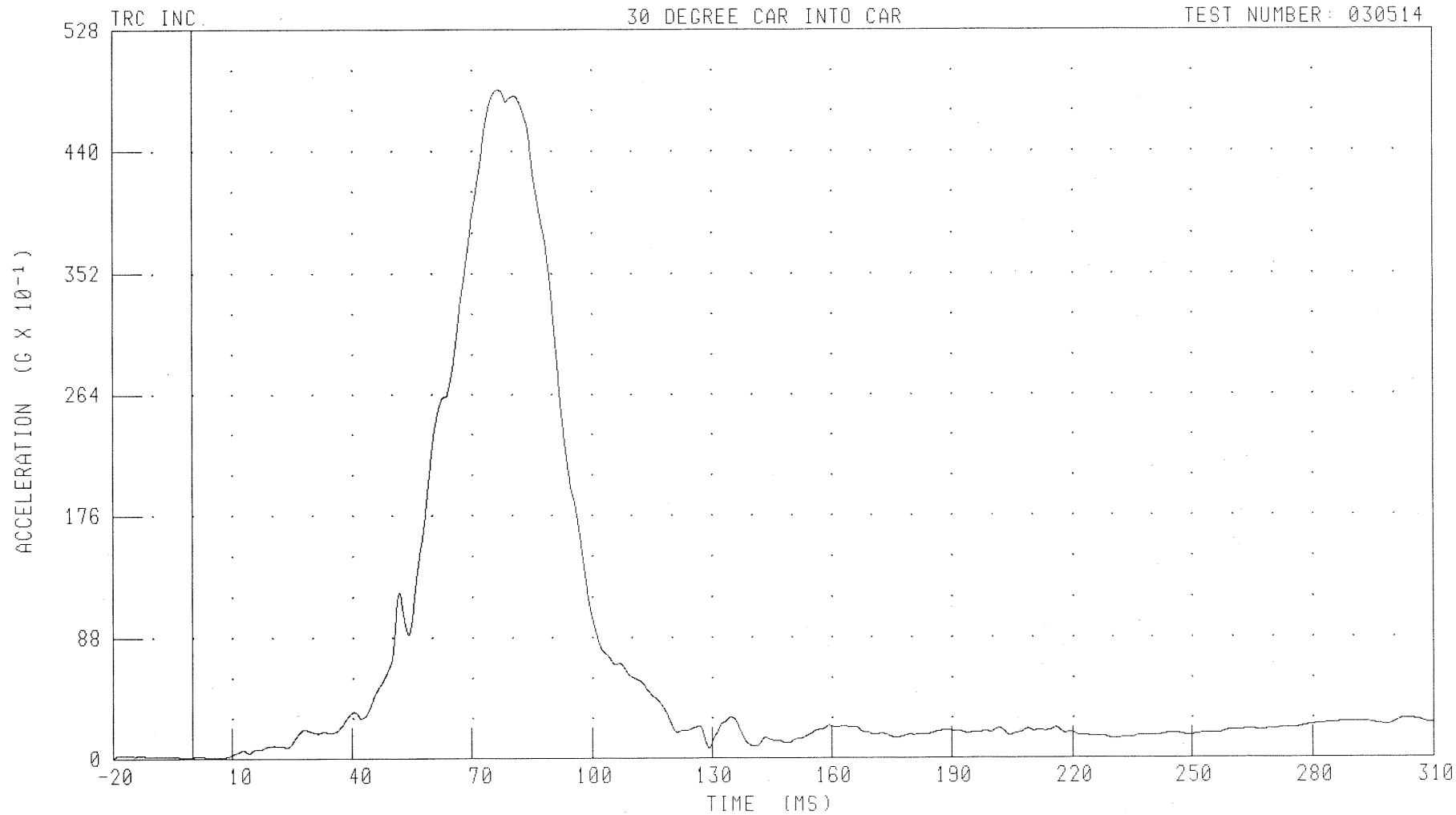
030514

1996 TOYOTA AVALON INTO LEFT FRONT OF 1997 HONDA ACCORD - OBLIQUE 30 DEGREES

TARGET DRIVER CHEST REDUNDANT RESULTANT ACCELERATION

30 DEGREE CAR INTO CAR

TEST NUMBER: 030514



CHANNEL: CSTR1 FILTER: CH. CLASS 180

PEAK DATA: 48.39 G @ 76.64 MS, 0.01 G @ -20.00 MS

B-29

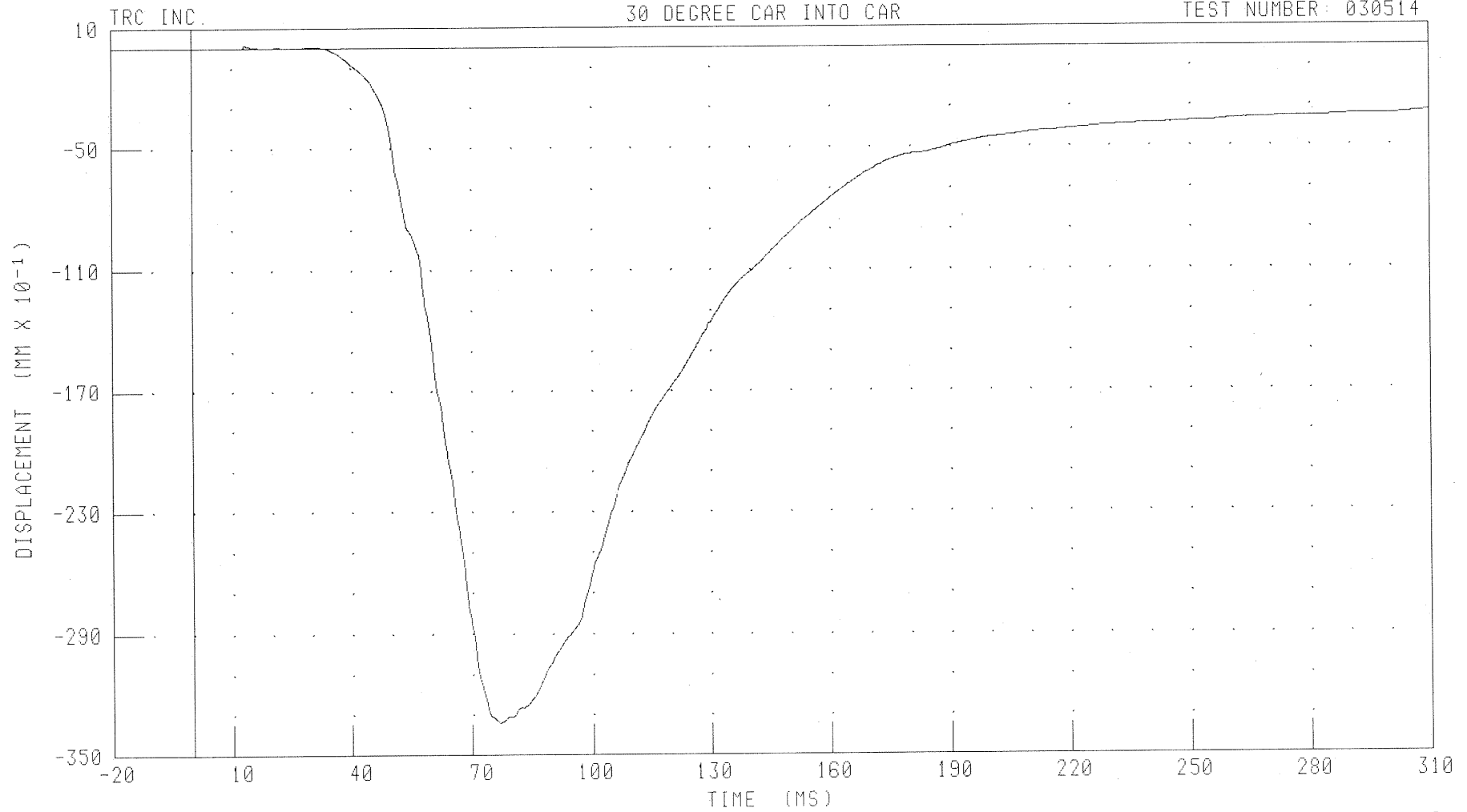
030514

1996 TOYOTA AVALON INTO LEFT FRONT OF 1997 HONDA ACCORD - OBLIQUE 30 DEGREES

TARGET DRIVER CHEST DEFLECTION

30 DEGREE CAR INTO CAR

TEST NUMBER: 030514



CHANNEL: CSTXD1 FILTER: CH. CLASS 600

PEAK DATA: 0.17 MM @ 13.52 MS; -33.44 MM @ 76.96 MS

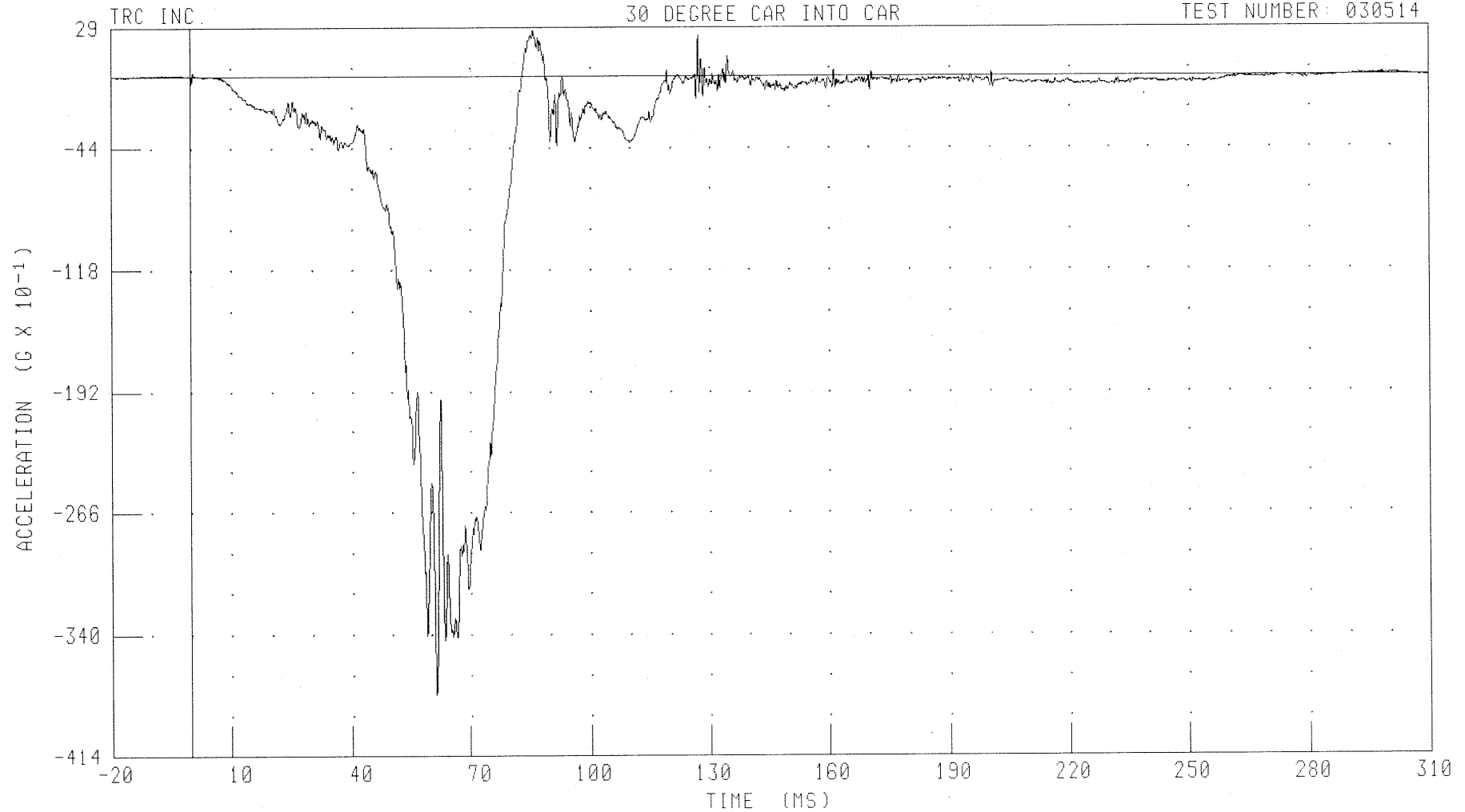
B-30

030514

1996 TOYOTA AVALON INTO LEFT FRONT OF 1997 HONDA ACCORD - OBLIQUE 30 DEGREES
TARGET DRIVER PELVIS X-AXIS ACCELERATION

30 DEGREE CAR INTO CAR

TEST NUMBER: 030514



CHANNEL: PEVXG1

FILTER: CH. CLASS 1000

PEAK DATA: 2.80 G @ 86.00 MS; -37.67 G @ 61.36 MS

B-31

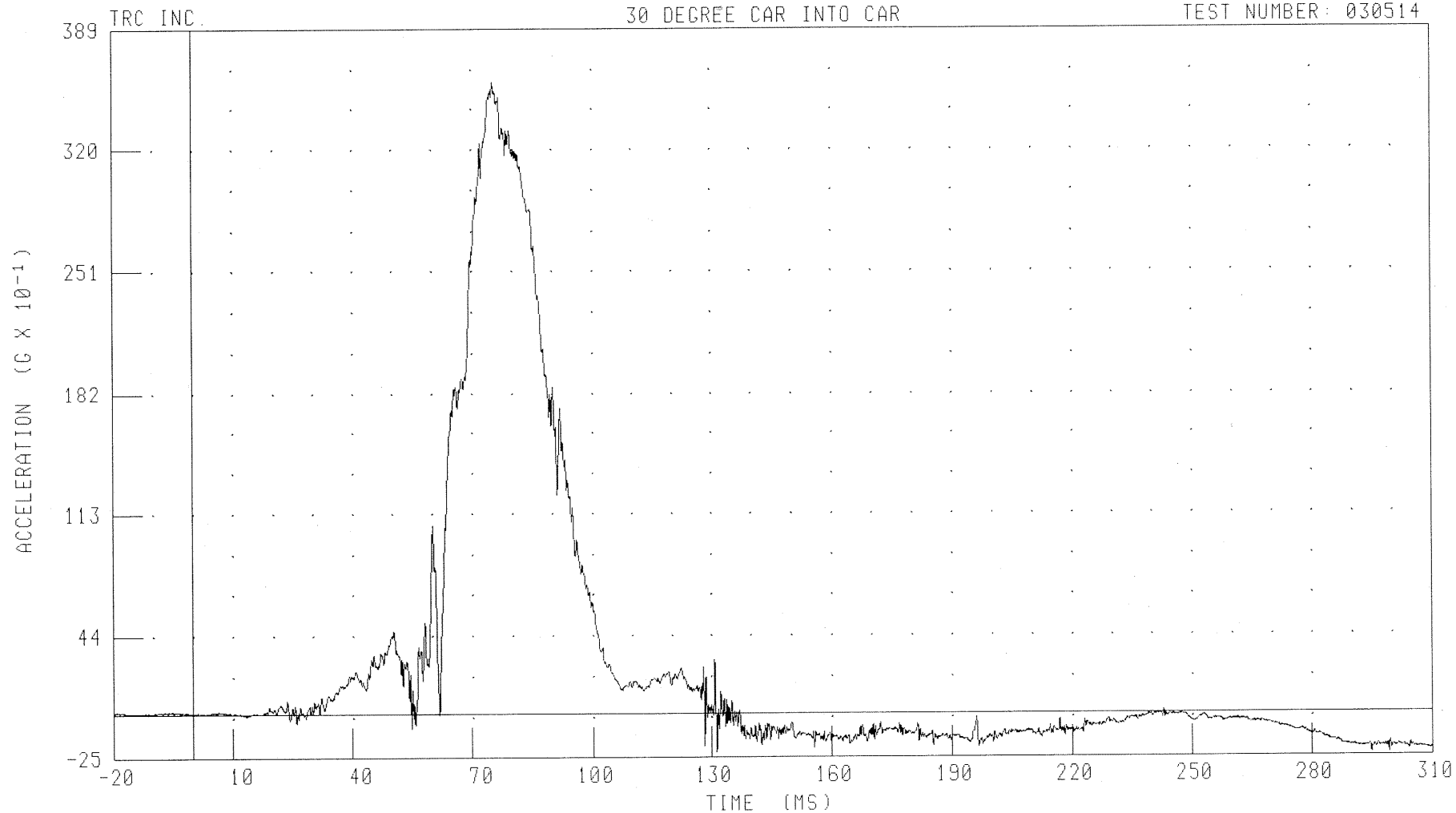
030514

1996 TOYOTA AVALON INTO LEFT FRONT OF 1997 HONDA ACCORD - OBLIQUE 30 DEGREES

TARGET DRIVER PELVIS Y-AXIS ACCELERATION

30 DEGREE CAR INTO CAR

TEST NUMBER: 030514



CHANNEL: PEVYG1 FILTER: CH. CLASS 1000

PEAK DATA: 35.86 G @ 75.44 MS; -2.30 G @ 294.80 MS

B-32

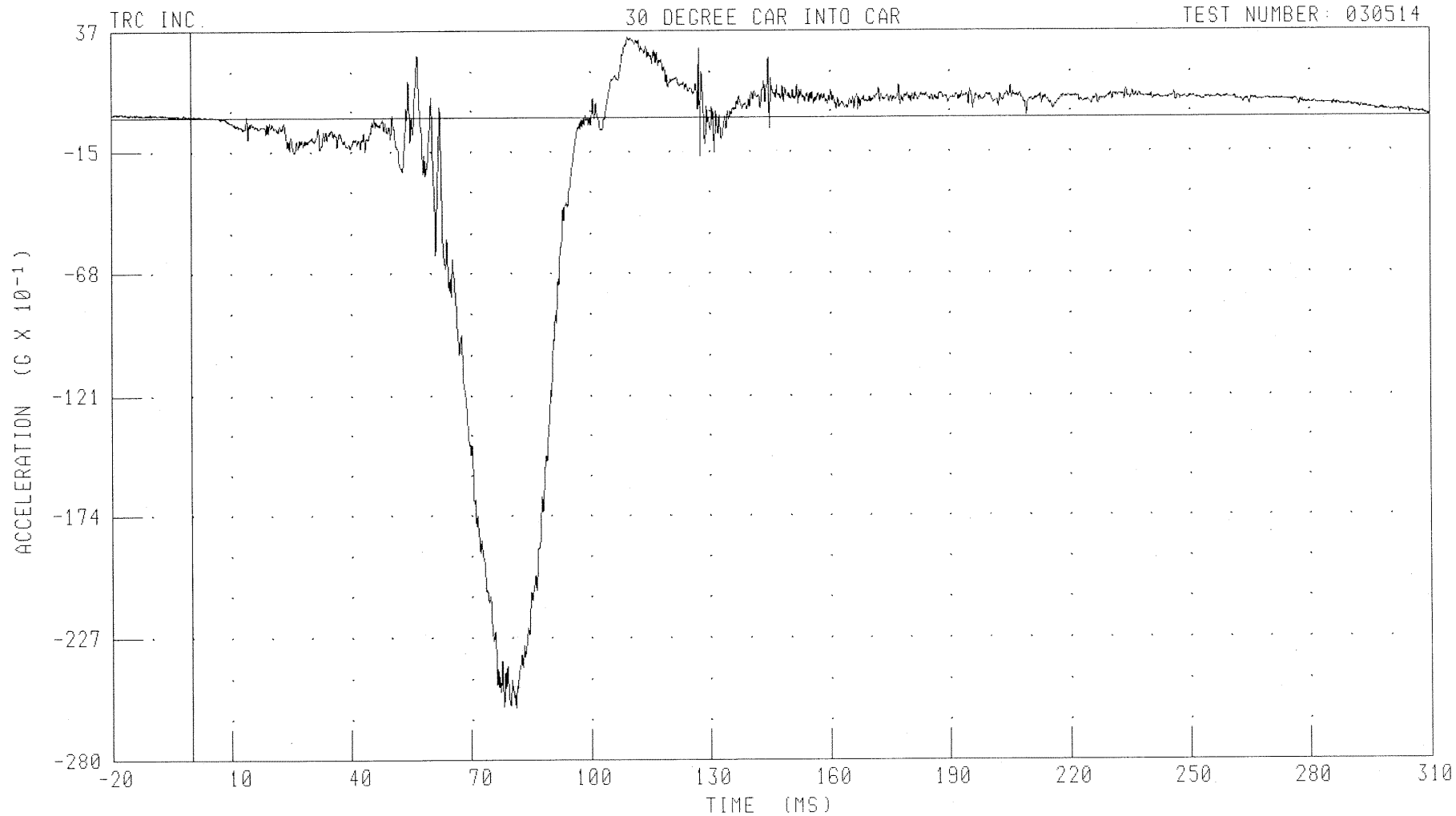
030514

1996 TOYOTA AVALON INTO LEFT FRONT OF 1997 HONDA ACCORD - OBLIQUE 30 DEGREES

TARGET DRIVER PELVIS Z-AXIS ACCELERATION

30 DEGREE CAR INTO CAR

TEST NUMBER: 030514



CHANNEL: PEVZG1 FILTER: CH. CLASS 1000

PEAK DATA: 3.54 G @ 109.76 MS; -25.71 G @ 80.96 MS

B-33

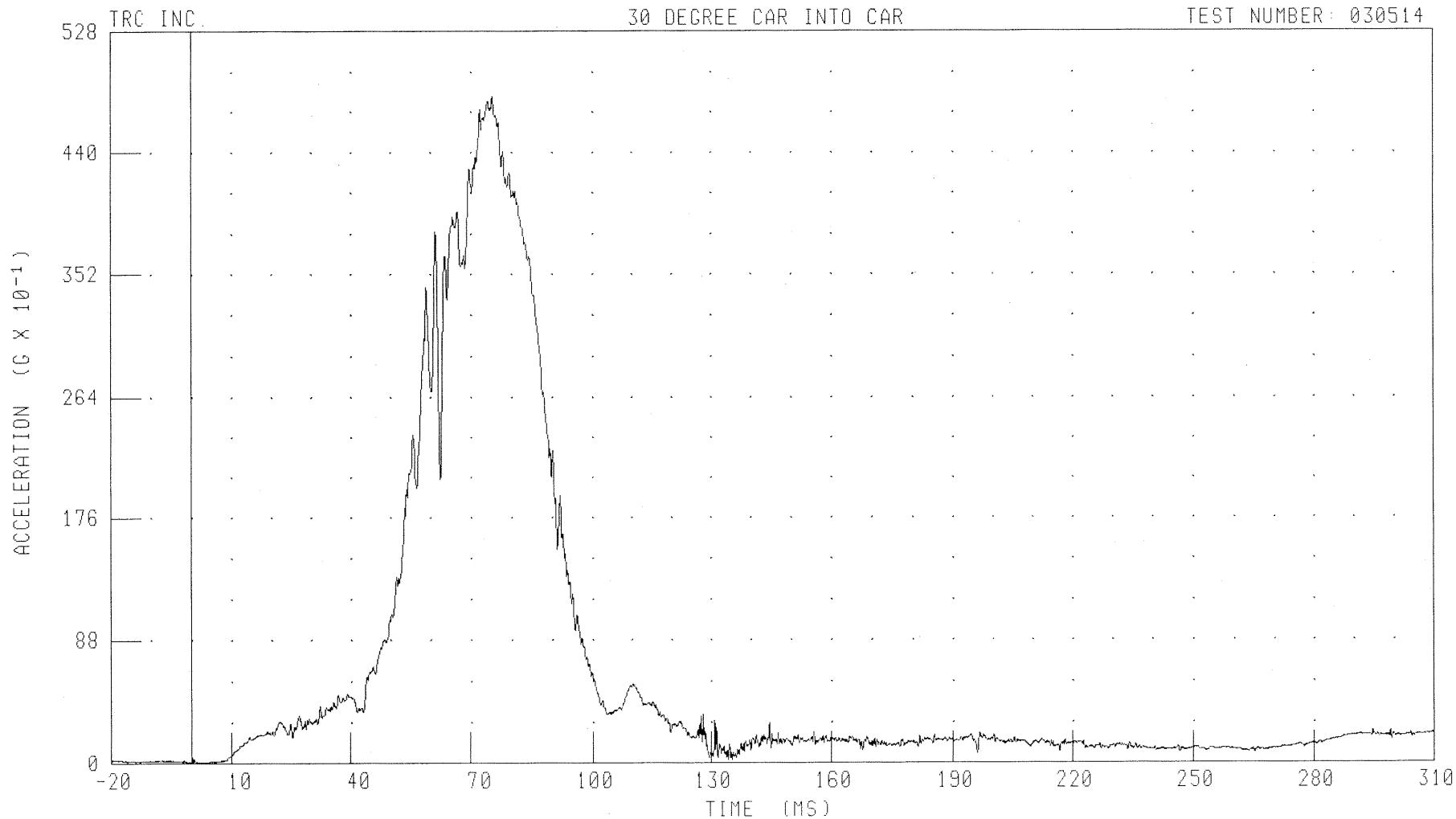
030514

1996 TOYOTA AVALON INTO LEFT FRONT OF 1997 HONDA ACCORD - OBLIQUE 30 DEGREES

TARGET DRIVER PELVIS RESULTANT ACCELERATION

30 DEGREE CAR INTO CAR

TEST NUMBER: 030514



CHANNEL: PEVRG1 FILTER: CH. CLASS 1000

PEAK DATA: 48.14 G @ 75.36 MS; 0.02 G @ 3.04 MS

B-34

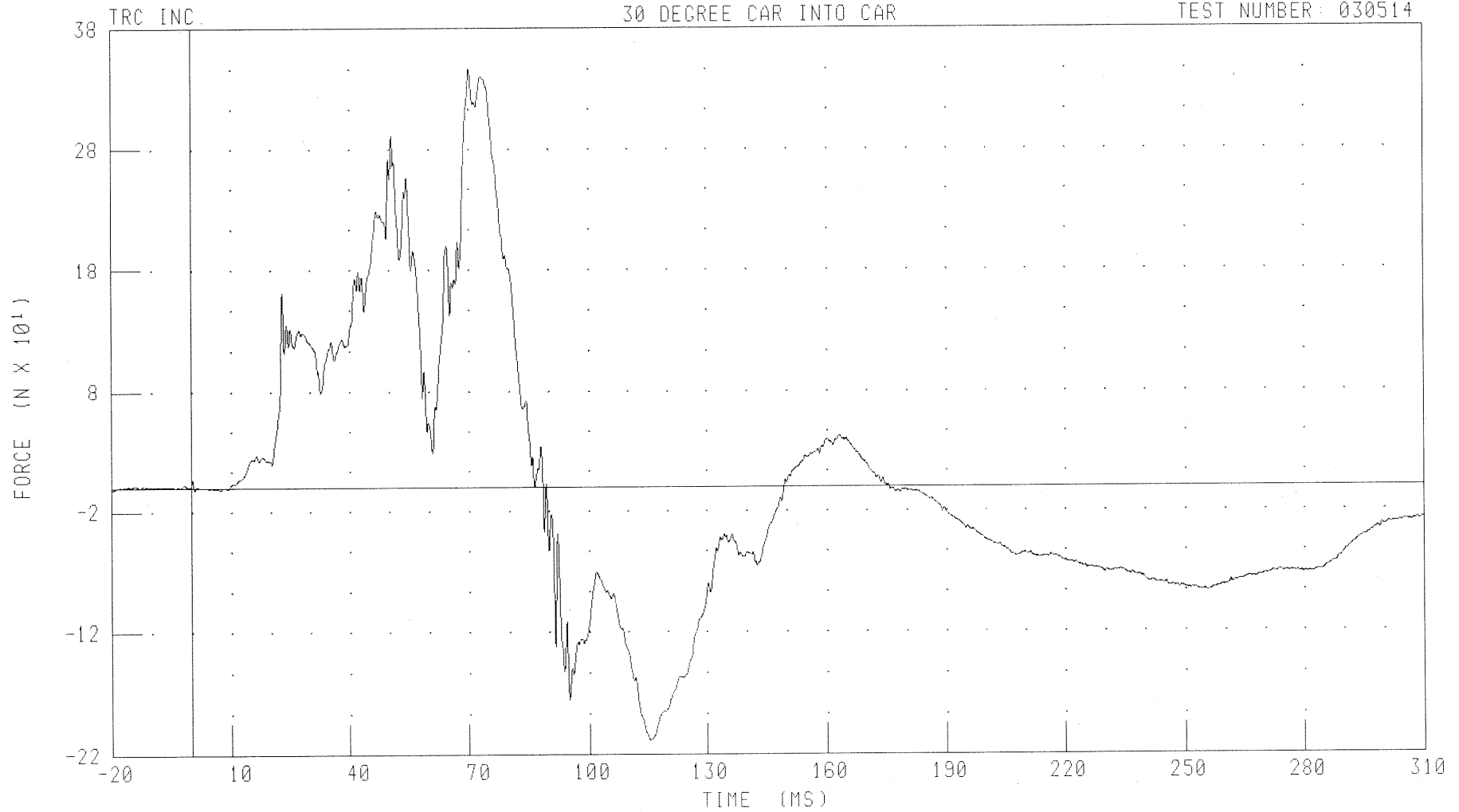
030514

1996 TOYOTA AVALON INTO LEFT FRONT OF 1997 HONDA ACCORD - OBLIQUE 30 DEGREES

TARGET DRIVER LEFT FEMUR X-AXIS FORCE

30 DEGREE CAR INTO CAR

TEST NUMBER: 030514



CHANNEL: LFMXF1 FILTER: CH. CLASS 600

PEAK DATA 346.32 N @ 70.32 MS, -208.55 N @ 115.60 MS

B-35

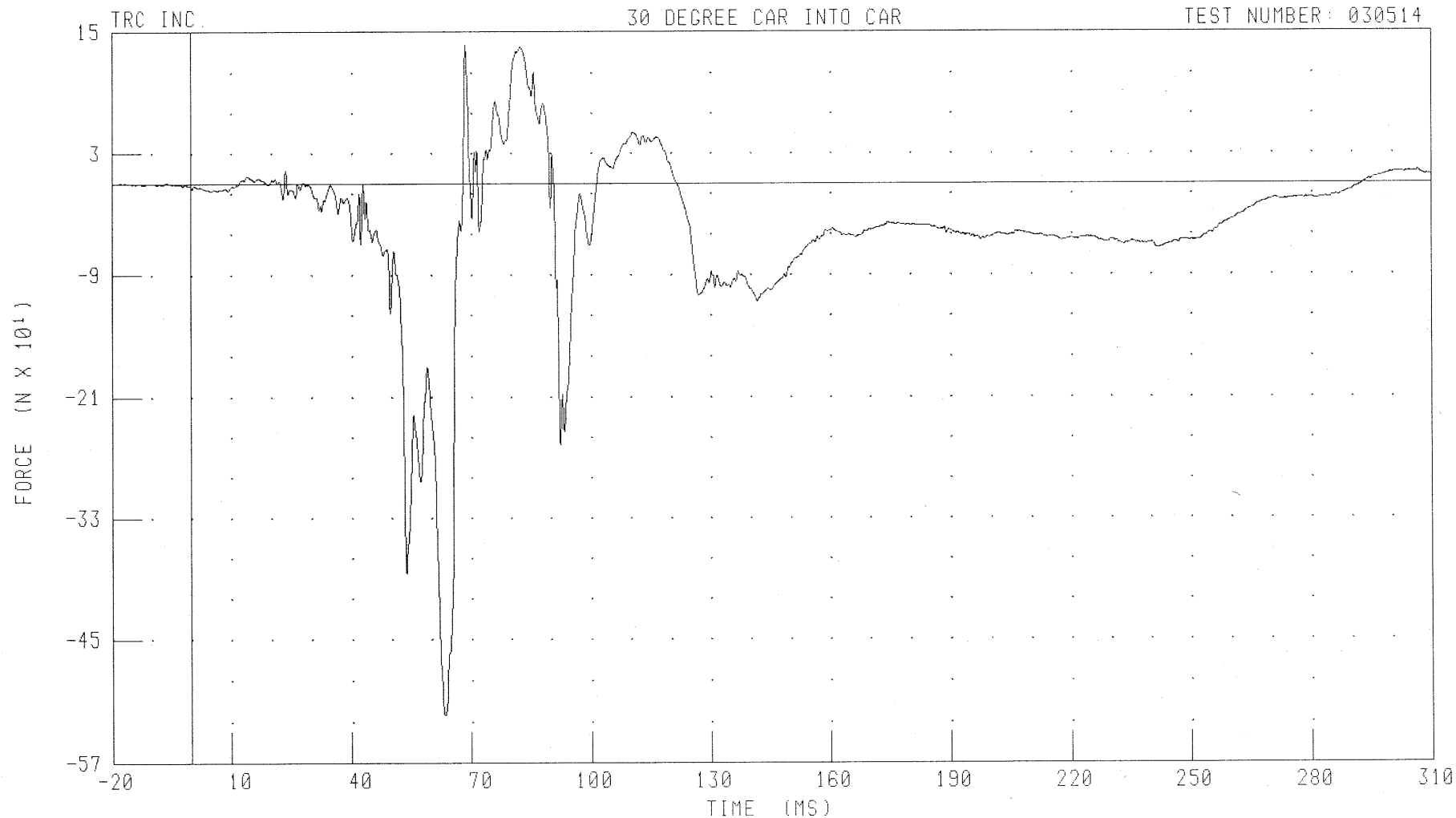
030514

1996 TOYOTA AVALON INTO LEFT FRONT OF 1997 HONDA ACCORD - OBLIQUE 30 DEGREES

TARGET DRIVER LEFT FEMUR Y-AXIS FORCE

30 DEGREE CAR INTO CAR

TEST NUMBER: 030514



CHANNEL: LFMF1

FILTER: CH. CLASS 600

PEAK DATA: 136.70 N @ 68.64 MS; -523.83 N @ 63.28 MS

B-36

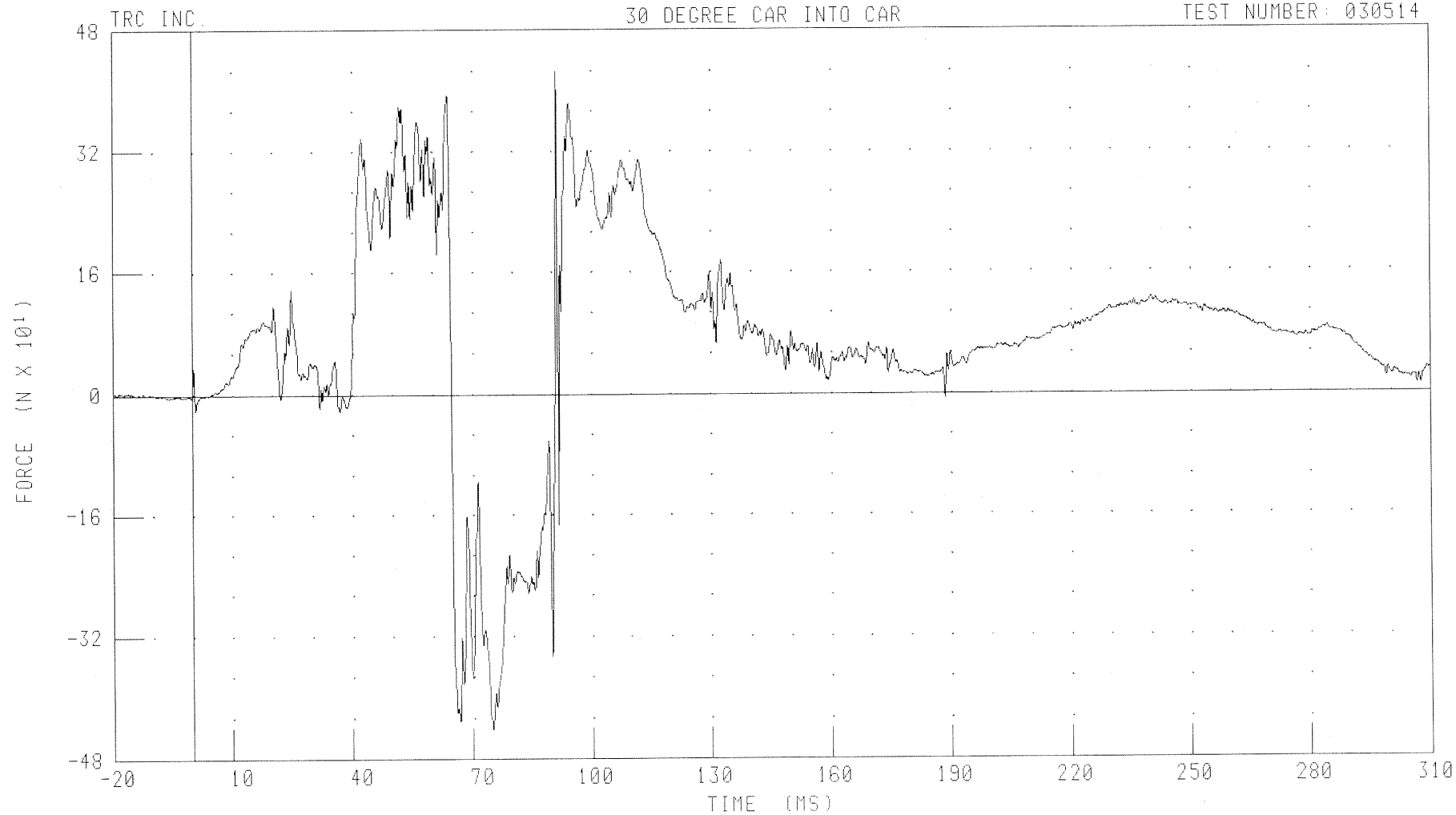
030514

1996 TOYOTA AVALON INTO LEFT FRONT OF 1997 HONDA ACCORD - OBLIQUE 30 DEGREES

TARGET DRIVER LEFT FEMUR Z-AXIS FORCE

30 DEGREE CAR INTO CAR

TEST NUMBER: 030514



CHANNEL: LFMZF1 FILTER: CH. CLASS 600

PEAK DATA: 425.85 N @ 91.28 MS, -442.28 N @ 74.88 MS

B-37

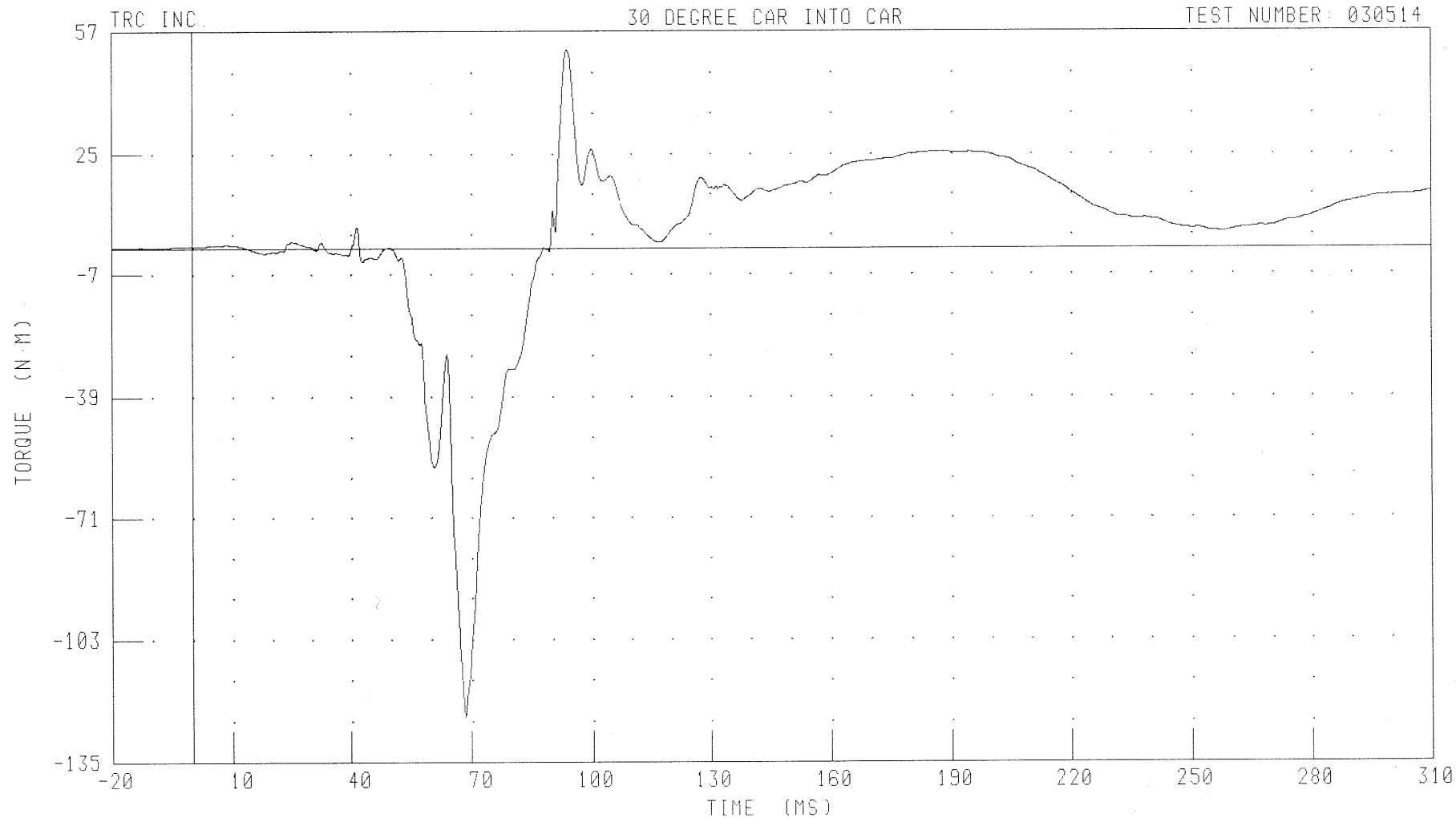
030514

1996 TOYOTA AVALON INTO LEFT FRONT OF 1997 HONDA ACCORD - OBLIQUE 30 DEGREES

TARGET DRIVER LEFT FEMUR MOMENT ABOUT X AXIS

30 DEGREE CAR INTO CAR

TEST NUMBER: 030514



CHANNEL: LFMXM1 FILTER: CH. CLASS 600

PEAK DATA: 52.17 N·M @ 93.68 MS, -123.45 N·M @ 68.40 MS

B-38

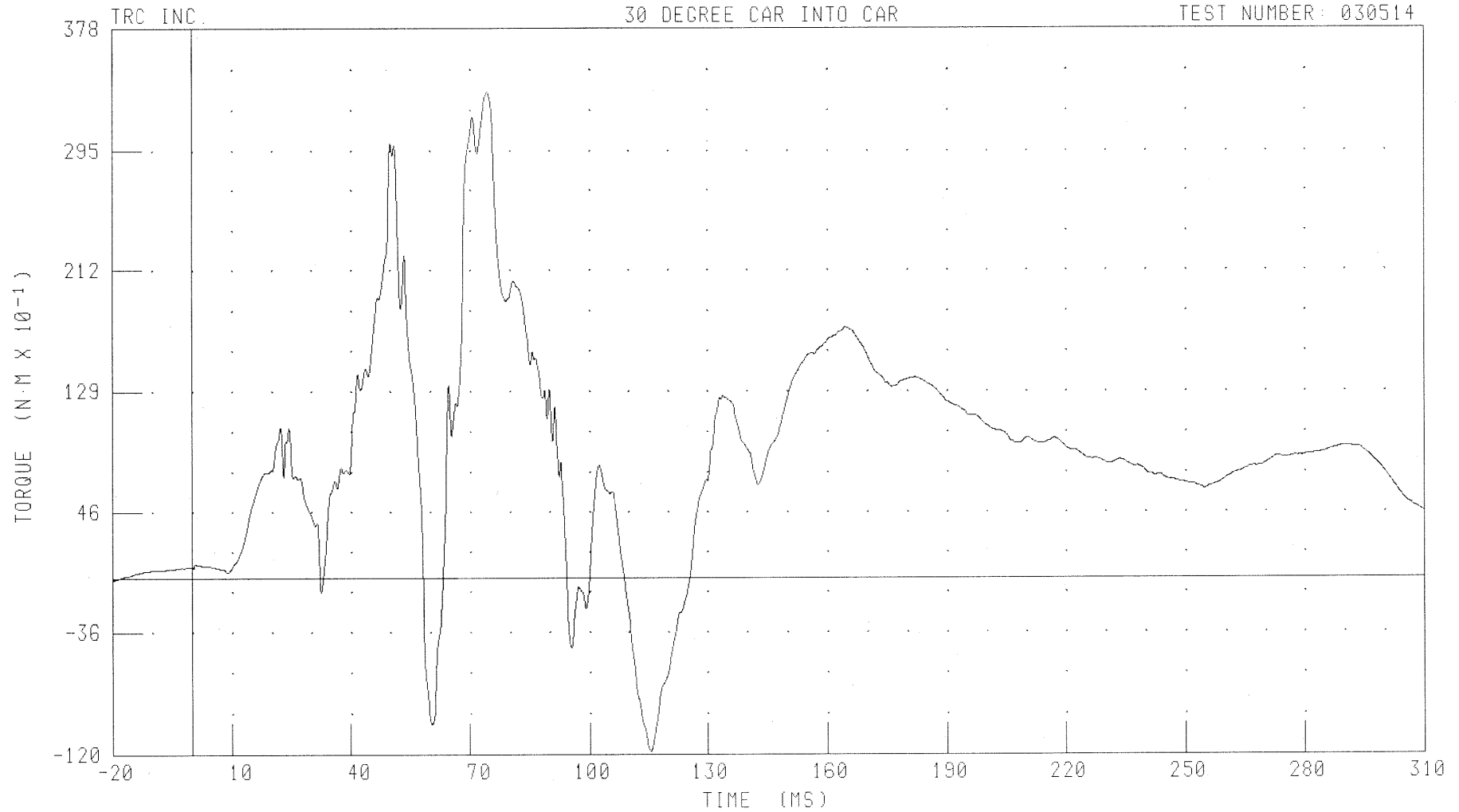
030514

1996 TOYOTA AVALON INTO LEFT FRONT OF 1997 HONDA ACCORD - OBLIQUE 30 DEGREES

TARGET DRIVER LEFT FEMUR MOMENT ABOUT Y AXIS

30 DEGREE CAR INTO CAR

TEST NUMBER: 030514



CHANNEL: LFMYM1 FILTER: CH. CLASS 600

PEAK DATA: 33.53 N·M @ 74.48 MS; -11.79 N·M @ 115.60 MS

B-39

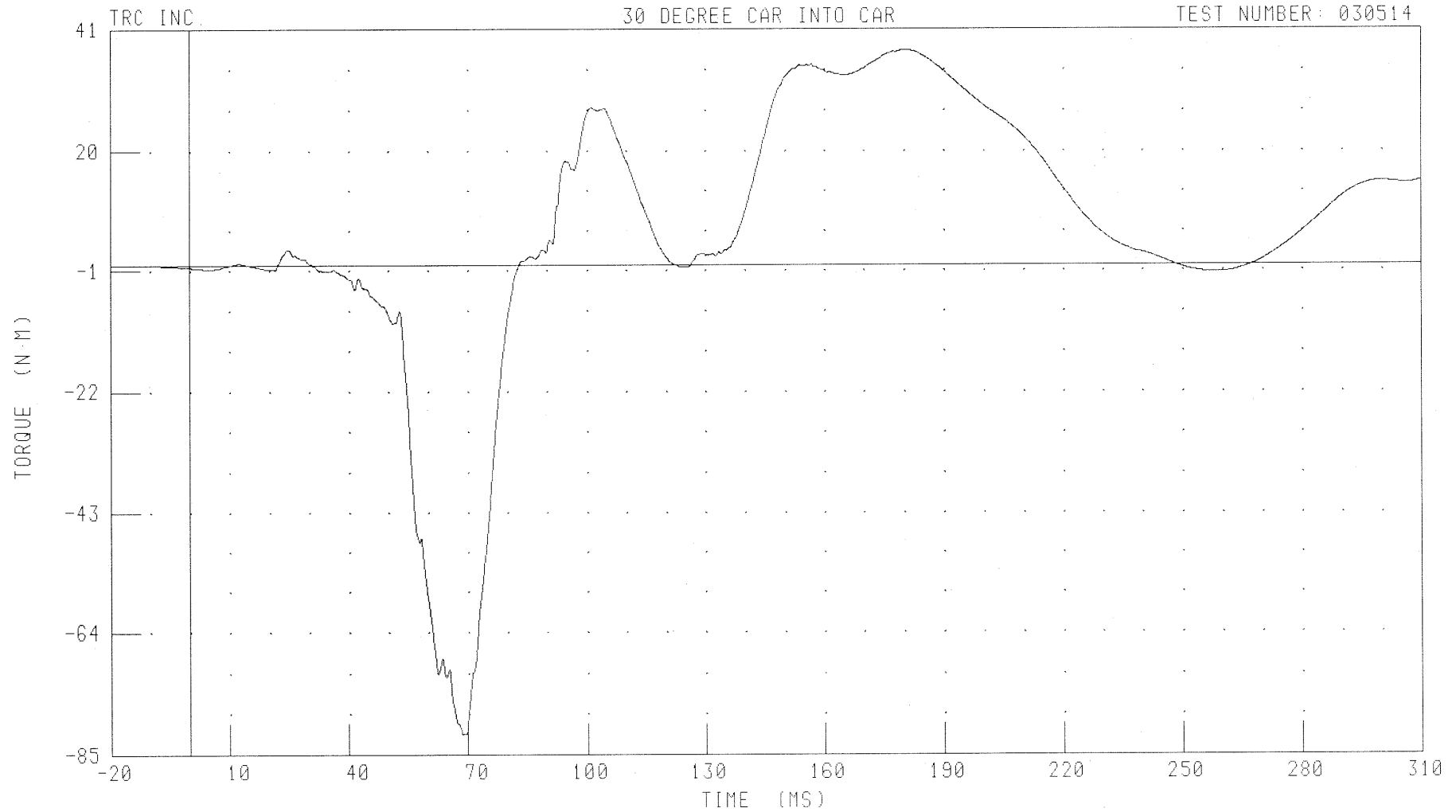
030514

1996 TOYOTA AVALON INTO LEFT FRONT OF 1997 HONDA ACCORD - OBLIQUE 30 DEGREES

TARGET DRIVER LEFT FEMUR MOMENT ABOUT Z AXIS

30 DEGREE CAR INTO CAR

TEST NUMBER: 030514



CHANNEL: LFMZM1 FILTER: CH. CLASS 600

PEAK DATA: 37.37 N·m @ 181.12 ms; -81.57 N·m @ 68.64 ms

B-40

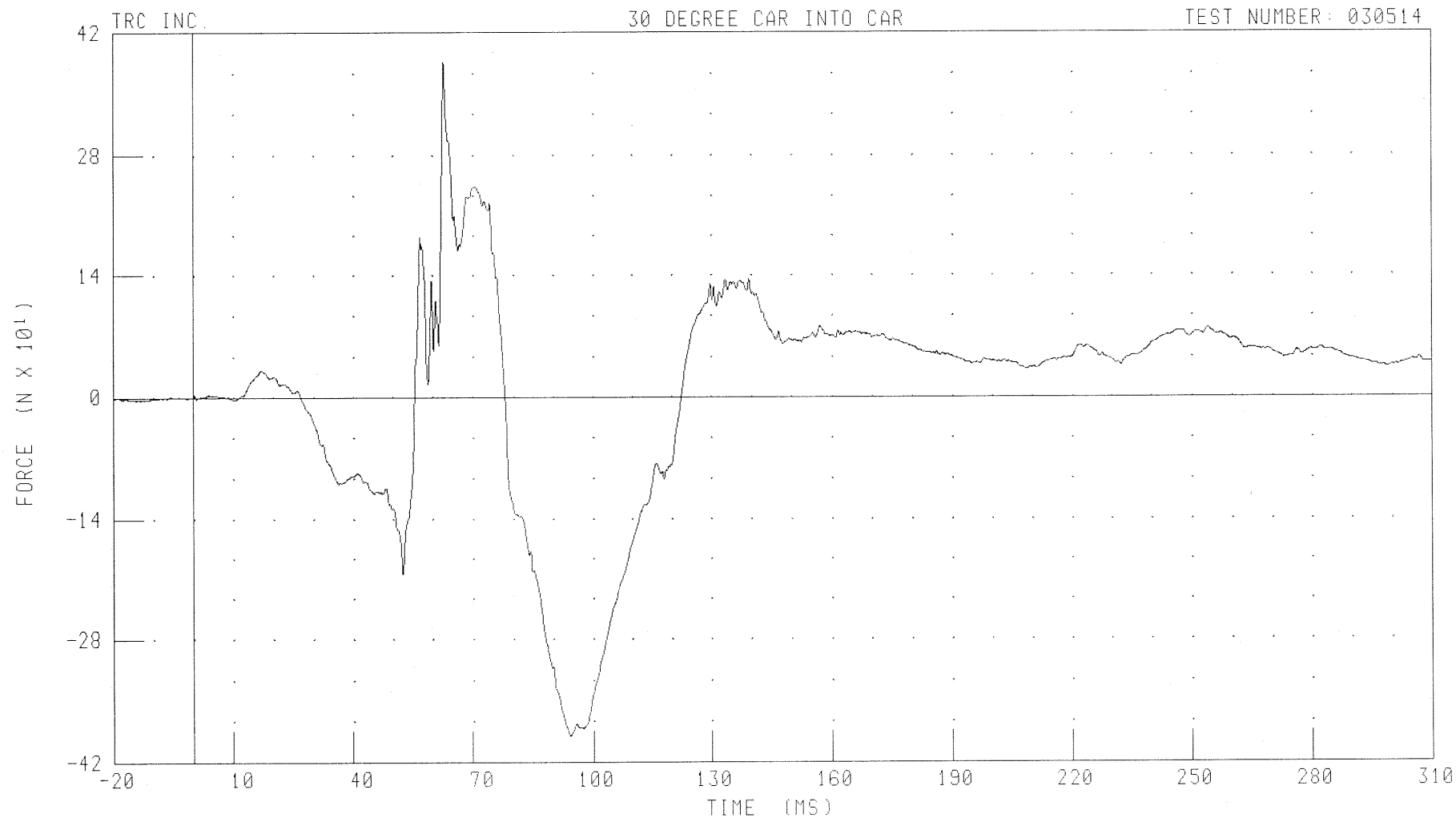
030514

1996 TOYOTA AVALON INTO LEFT FRONT OF 1997 HONDA ACCORD - OBLIQUE 30 DEGREES

TARGET DRIVER RIGHT FEMUR X-AXIS FORCE

30 DEGREE CAR INTO CAR

TEST NUMBER: 030514



CHANNEL: REMXF1 FILTER: CH. CLASS 600

PEAK DATA: 385.42 N @ 62.88 MS; -390.27 N @ 94.08 MS

B-41

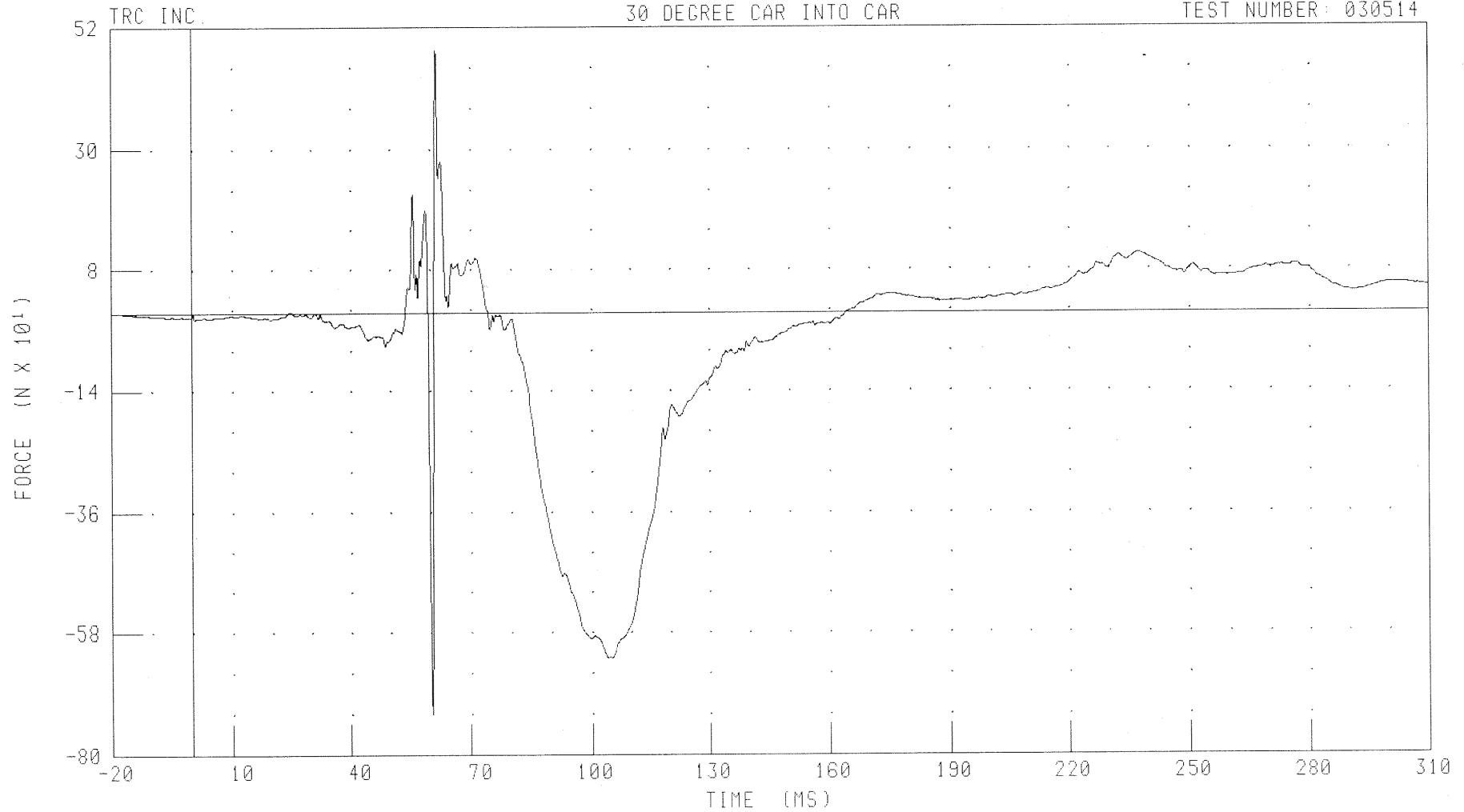
030514

1996 TOYOTA AVALON INTO LEFT FRONT OF 1997 HONDA ACCORD - OBLIQUE 30 DEGREES

TARGET DRIVER RIGHT FEMUR Y-AXIS FORCE

30 DEGREE CAR INTO CAR

TEST NUMBER: 030514



CHANNEL: RFMYF1 FILTER: CH. CLASS 600

PEAK DATA: 476.81 N @ 61.60 MS, -726.88 N @ 60.40 MS

B-42

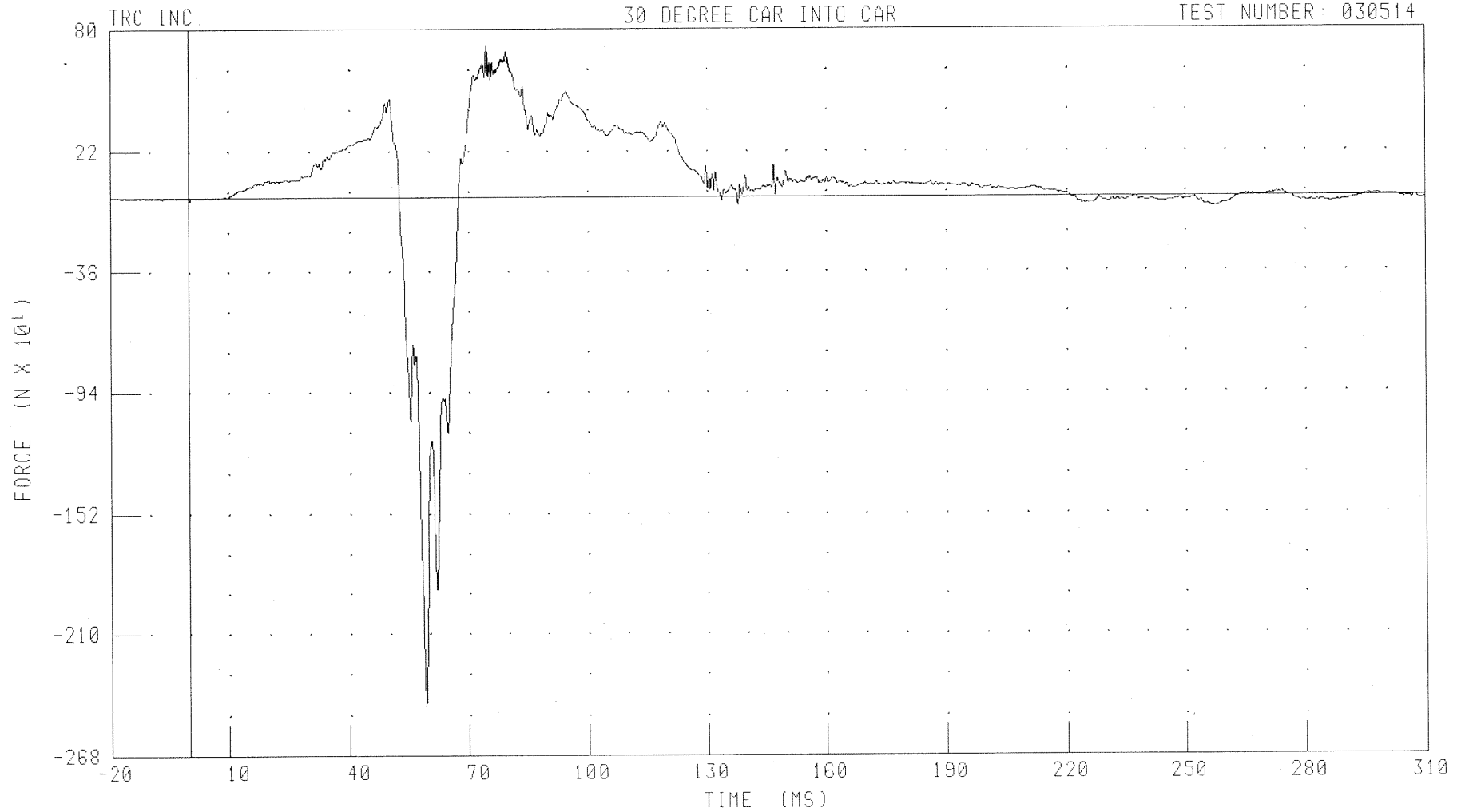
030514

1996 TOYOTA AVALON INTO LEFT FRONT OF 1997 HONDA ACCORD - OBLIQUE 30 DEGREES

TARGET DRIVER RIGHT FEMUR Z-AXIS FORCE

30 DEGREE CAR INTO CAR

TEST NUMBER: 030514



CHANNEL: RFMZFI FILTER: CH. CLASS 600

PEAK DATA: 728.00 N @ 74.72 MS, -2445.39 N @ 59.04 MS

B-43

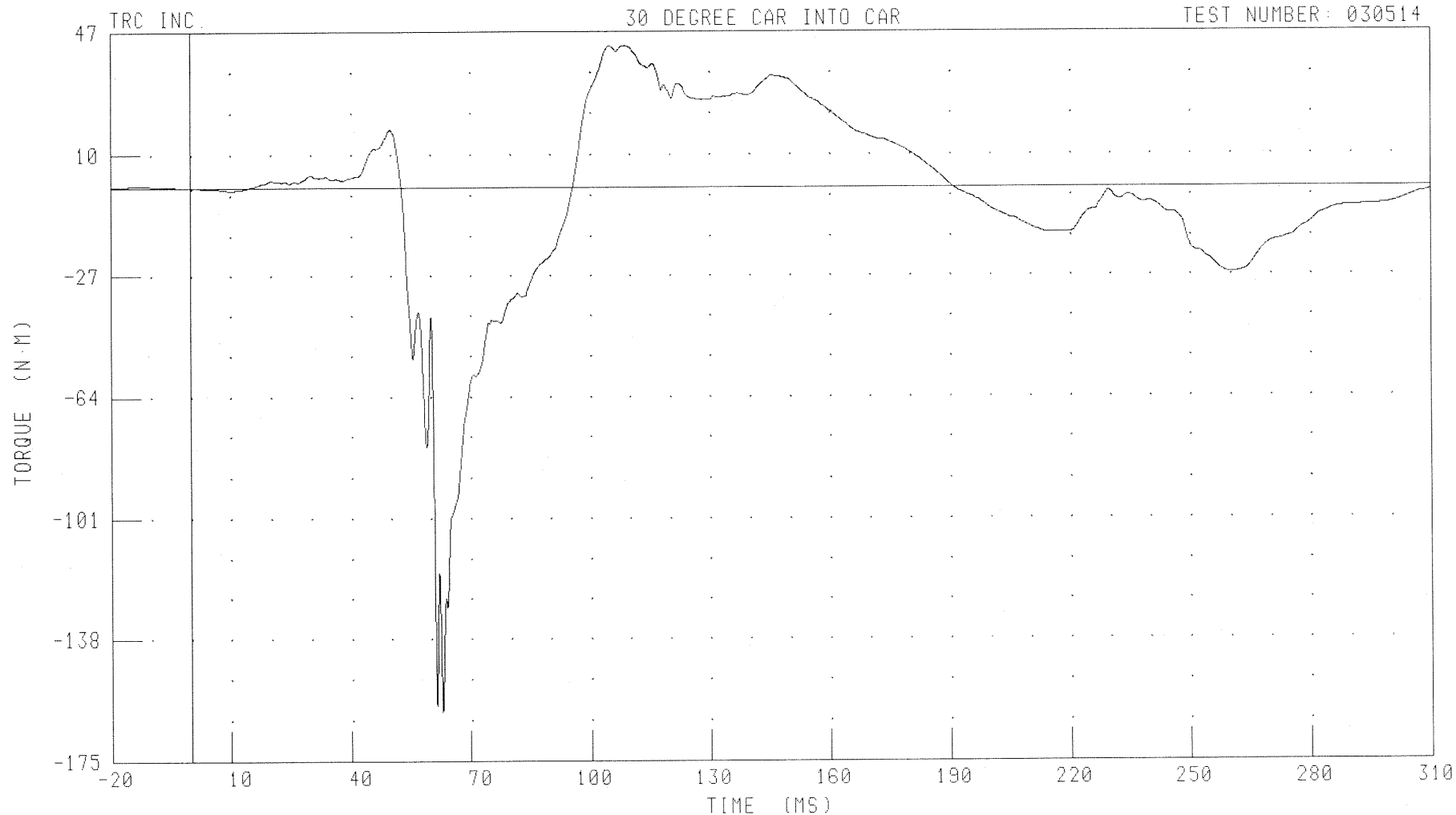
030514

1996 TOYOTA AVALON INTO LEFT FRONT OF 1997 HONDA ACCORD - OBLIQUE 30 DEGREES

TARGET DRIVER RIGHT FEMUR MOMENT ABOUT X AXIS

30 DEGREE CAR INTO CAR

TEST NUMBER: 030514



CHANNEL: RFMXM1 FILTER: CH. CLASS 600

PEAK DATA: 42.84 N·M @ 108.88 MS, -160.40 N·M @ 62.88 MS

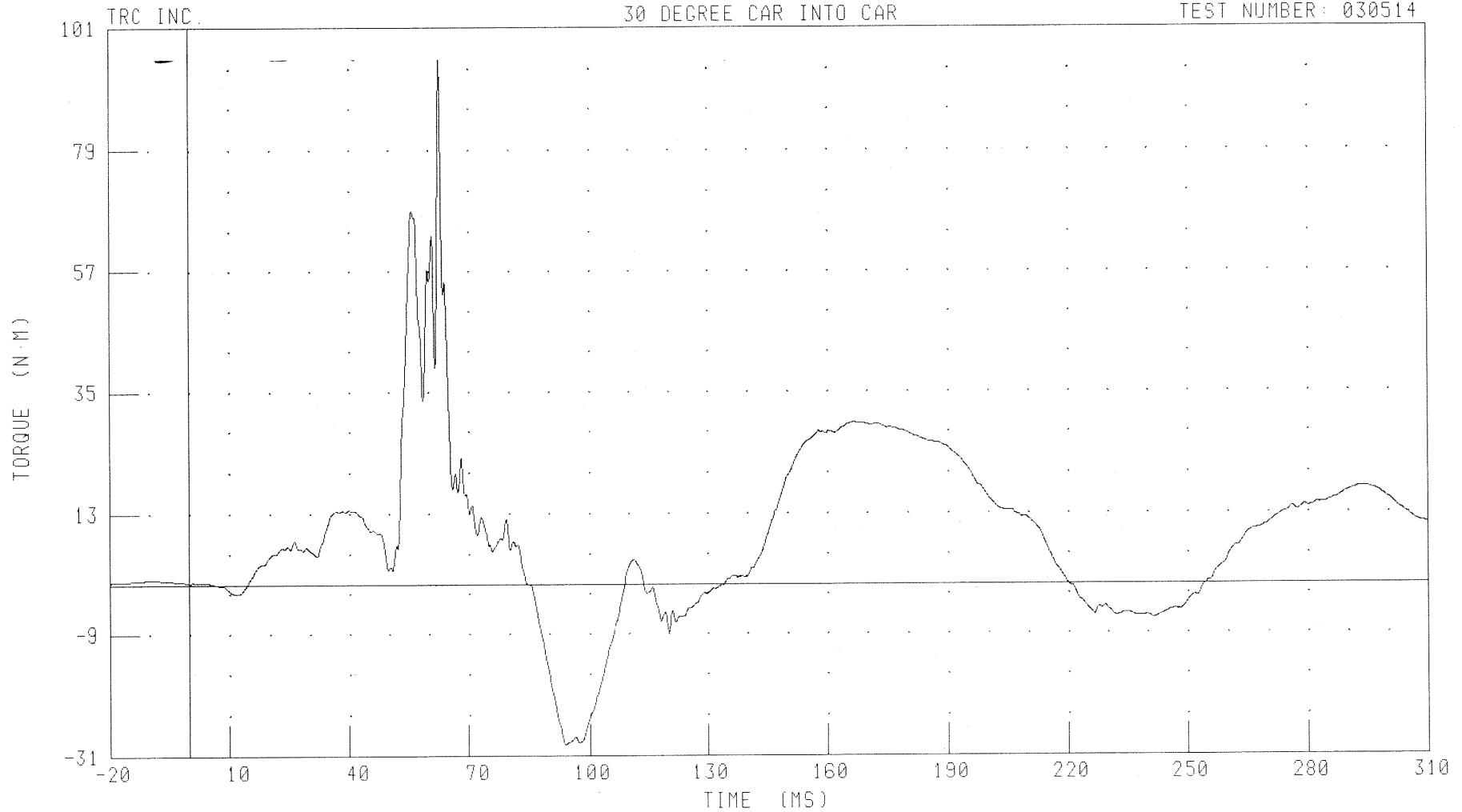
B-44

030514

1996 TOYOTA AVALON INTO LEFT FRONT OF 1997 HONDA ACCORD - OBLIQUE 30 DEGREES
TARGET DRIVER RIGHT FEMUR MOMENT ABOUT Y AXIS

30 DEGREE CAR INTO CAR

TEST NUMBER: 030514



CHANNEL: RFMYM1 FILTER: CH. CLASS 600

B-45

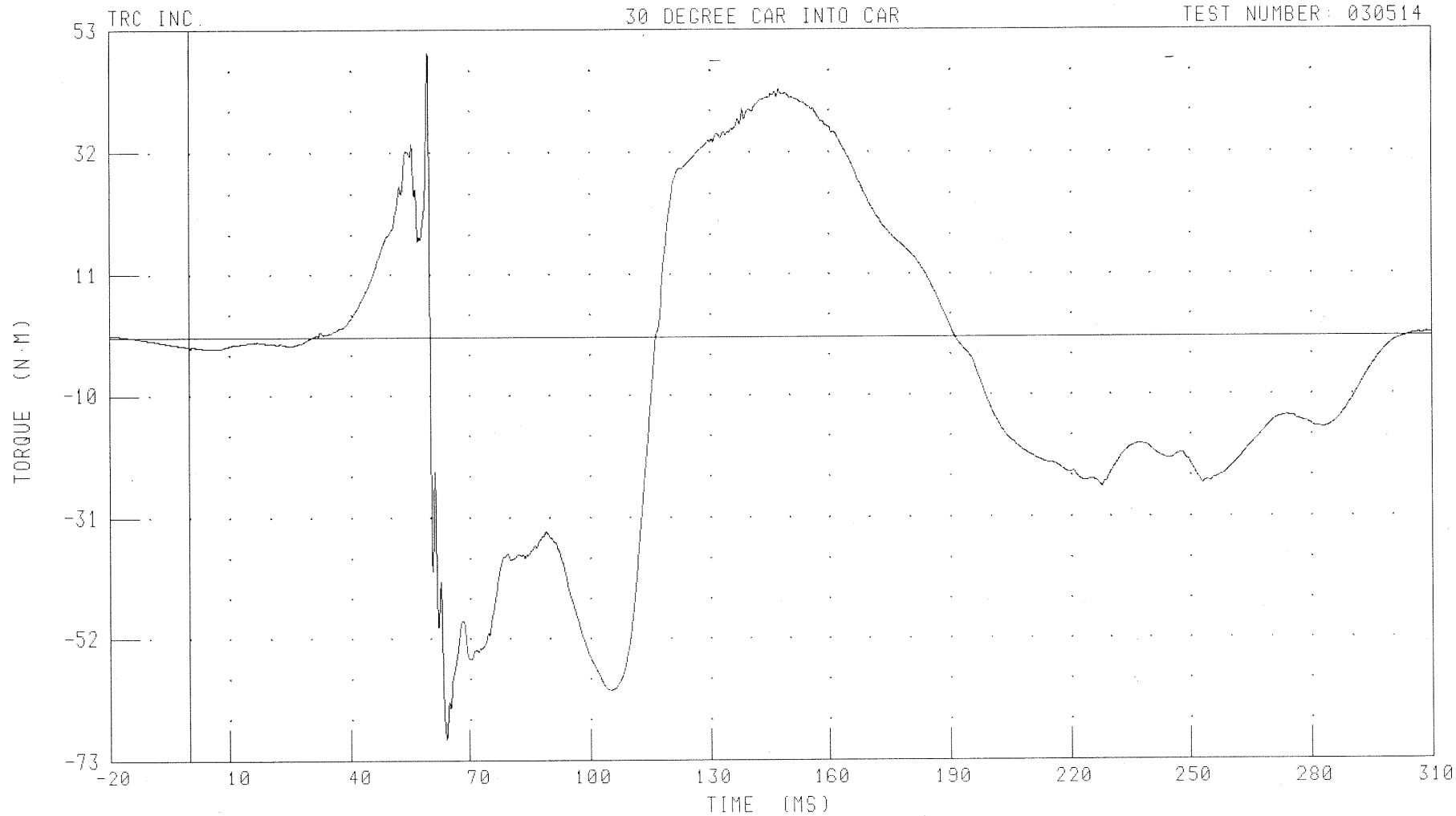
030514

1996 TOYOTA AVALON INTO LEFT FRONT OF 1997 HONDA ACCORD - OBLIQUE 30 DEGREES

TARGET DRIVER RIGHT FEMUR MOMENT ABOUT Z AXIS

30 DEGREE CAR INTO CAR

TEST NUMBER: 030514



CHANNEL: RFMZM1 FILTER: CH. CLASS 600

PEAK DATA: 48.95 N·M @ 59.52 MS; -69.52 N·M @ 64.08 MS

B-46

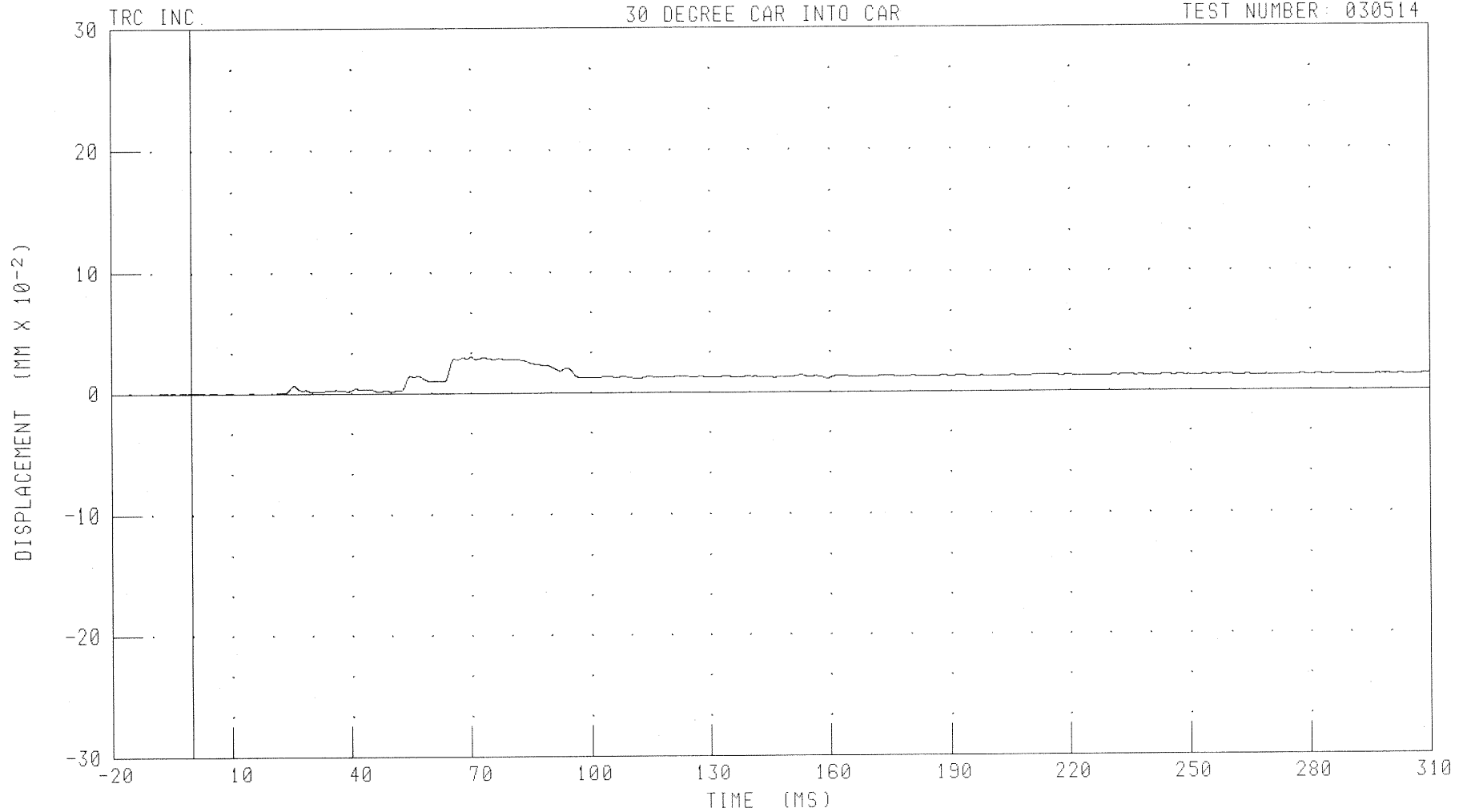
030514

1996 TOYOTA AVALON INTO LEFT FRONT OF 1997 HONDA ACCORD - OBLIQUE 30 DEGREES

TARGET DRIVER LEFT KNEE DISPLACEMENT

30 DEGREE CAR INTO CAR

TEST NUMBER: 030514



CHANNEL: KNLXD1 FILTER: CH. CLASS 180

PEAK DATA: 0.03 MM @ 70.16 MS; 0.00 MM @ 18.00 MS

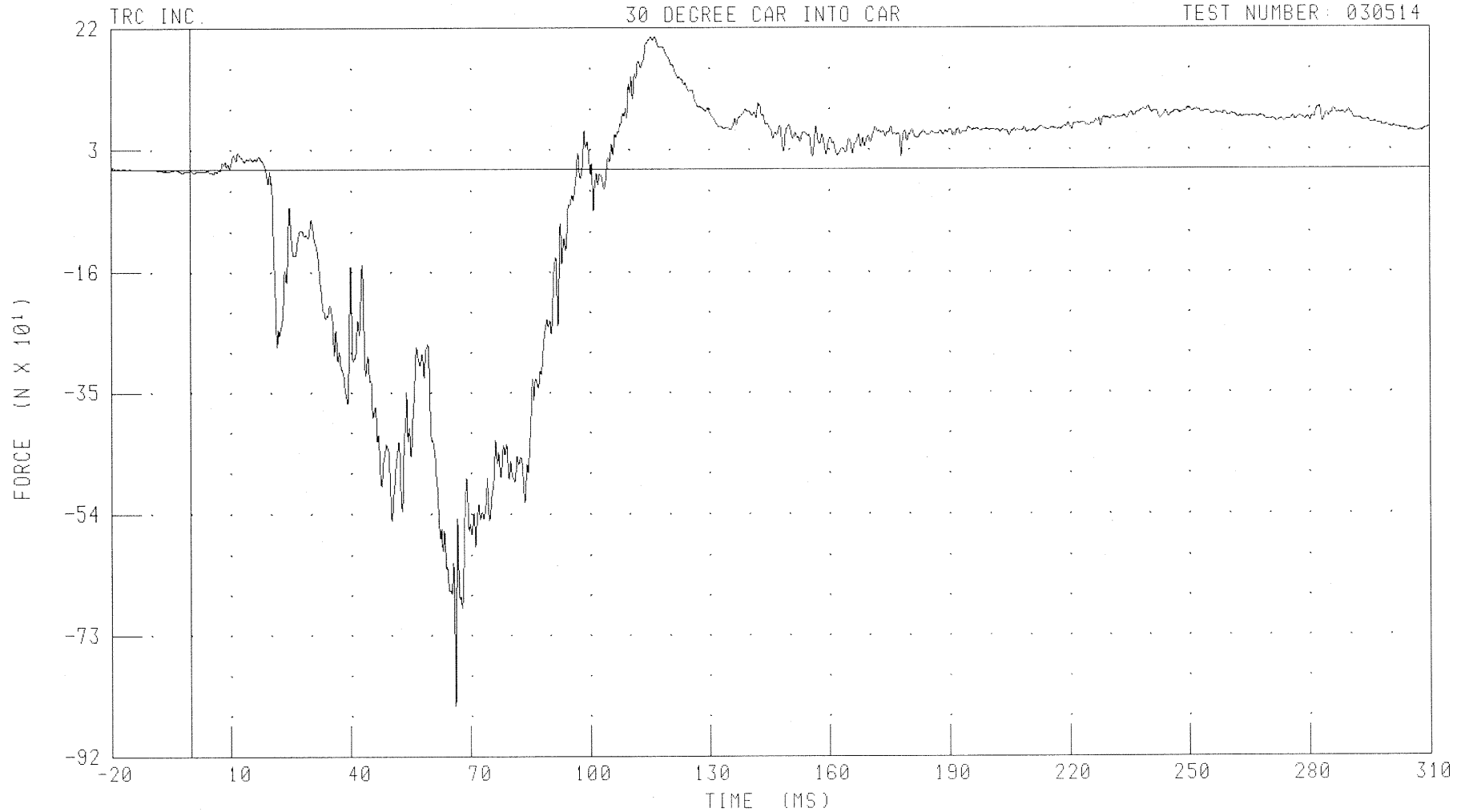
B-47

030514

1996 TOYOTA AVALON INTO LEFT FRONT OF 1997 HONDA ACCORD - OBLIQUE 30 DEGREES
TARGET DRIVER LEFT UPPER TIBIA Z-AXIS FORCE

30 DEGREE CAR INTO CAR

TEST NUMBER: 030514



CHANNEL: TBLZF1 FILTER: CH. CLASS 600

B-48

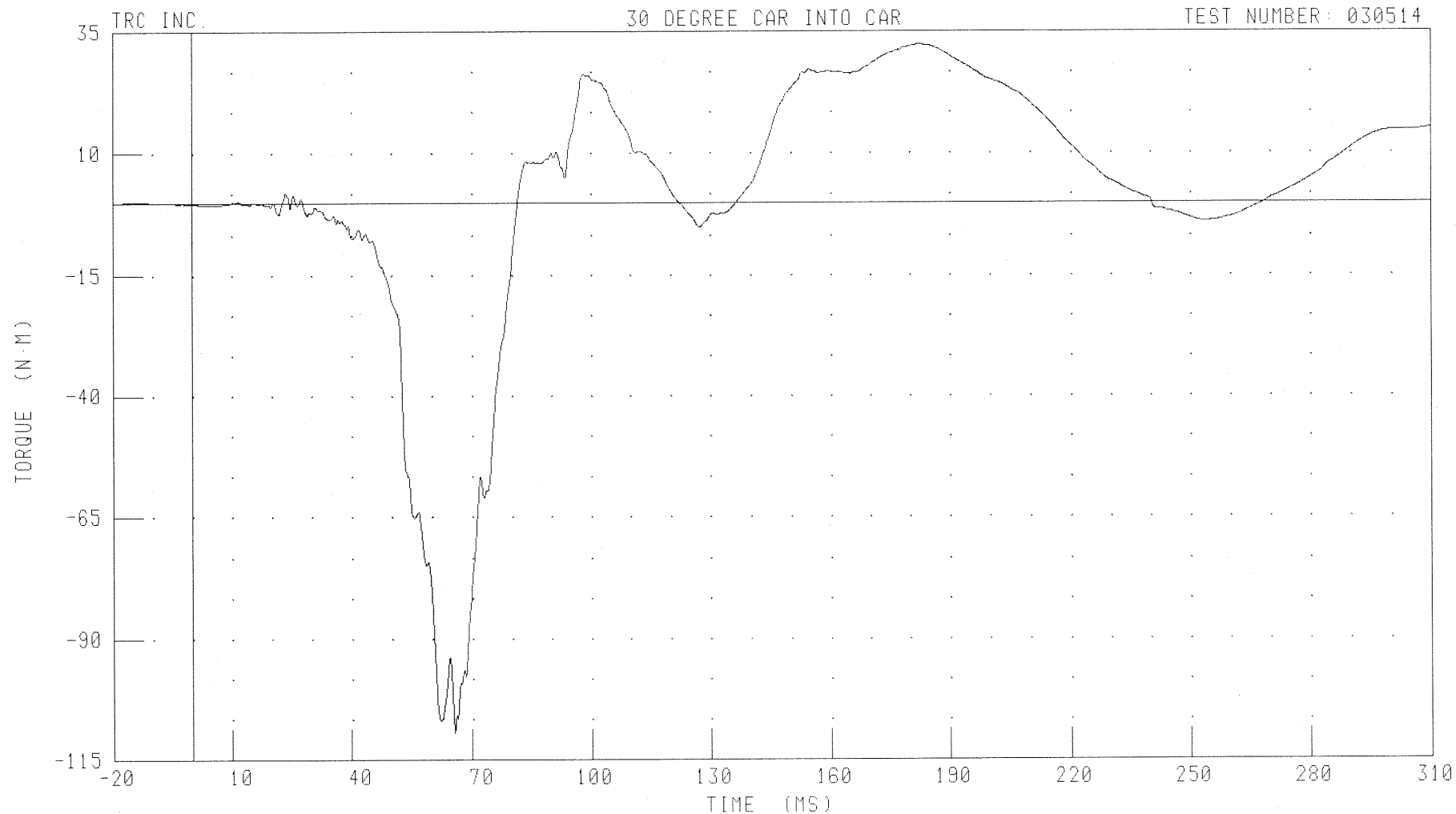
030514

1996 TOYOTA AVALON INTO LEFT FRONT OF 1997 HONDA ACCORD - OBLIQUE 30 DEGREES

TARGET DRIVER LEFT UPPER TIBIA MOMENT ABOUT X AXIS

30 DEGREE CAR INTO CAR

TEST NUMBER: 030514



CHANNEL: TBLXM1 FILTER: CH. CLASS 600

PEAK DATA: 32.24 N·M @ 182.32 MS, -109.46 N·M @ 65.60 MS

B-49

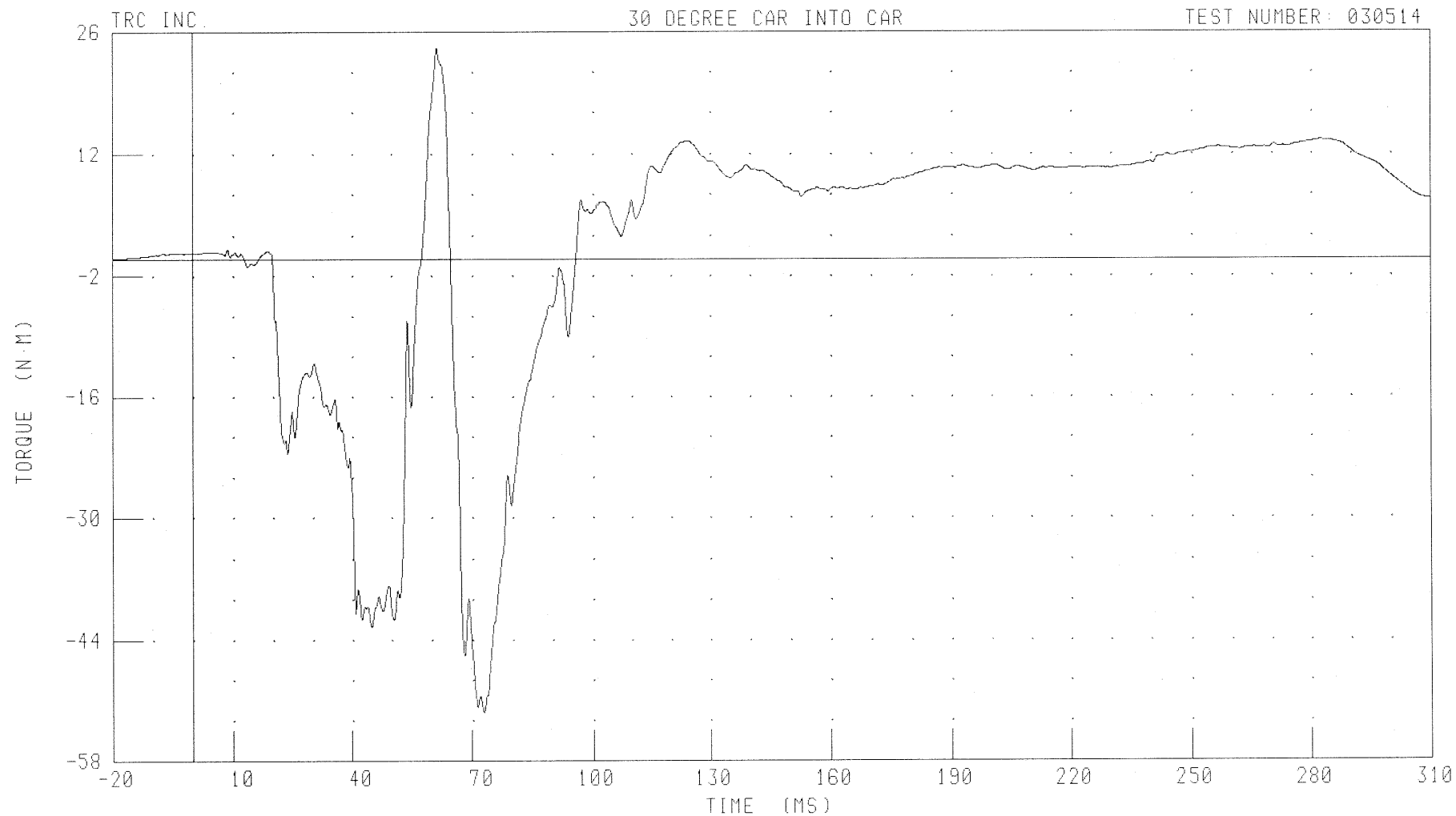
030514

1996 TOYOTA AVALON INTO LEFT FRONT OF 1997 HONDA ACCORD - OBLIQUE 30 DEGREES

TARGET DRIVER LEFT UPPER TIBIA MOMENT ABOUT Y AXIS

30 DEGREE CAR INTO CAR

TEST NUMBER: 030514



CHANNEL: TBLYM1 FILTER: CH. CLASS 600

PEAK DATA: 24.16 N·M @ 61.36 MS; -52.47 N·M @ 72.96 MS

B-50

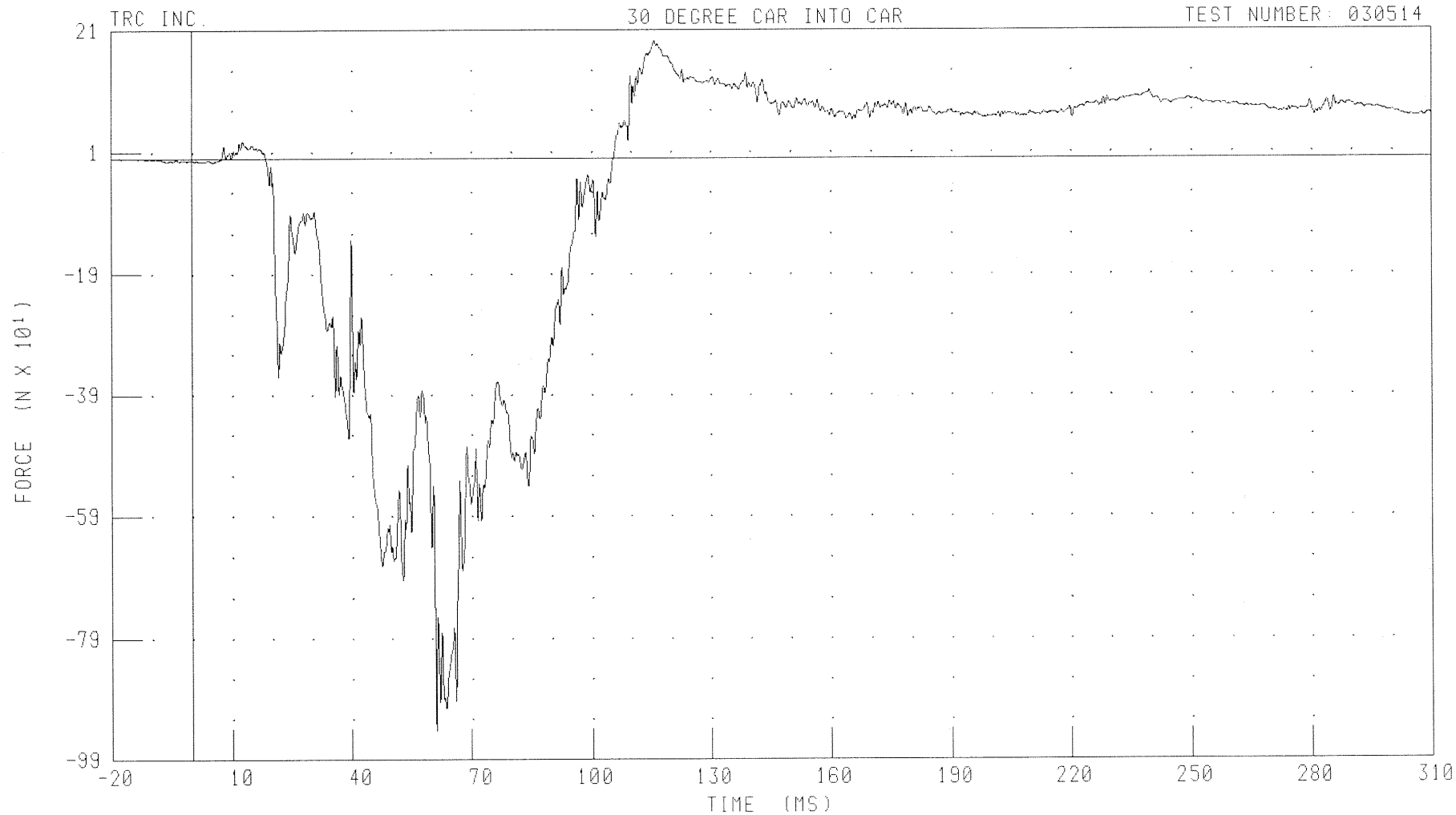
030514

1996 TOYOTA AVALON INTO LEFT FRONT OF 1997 HONDA ACCORD - OBLIQUE 30 DEGREES

TARGET DRIVER LEFT LOWER TIBIA Z-AXIS FORCE

30 DEGREE CAR INTO CAR

TEST NUMBER: 030514



CHANNEL: ANLZF1 FILTER: CH. CLASS 600

PEAK DATA: 191.50 N @ 115.92 MS, -94.71 N @ 61.12 MS

B-51

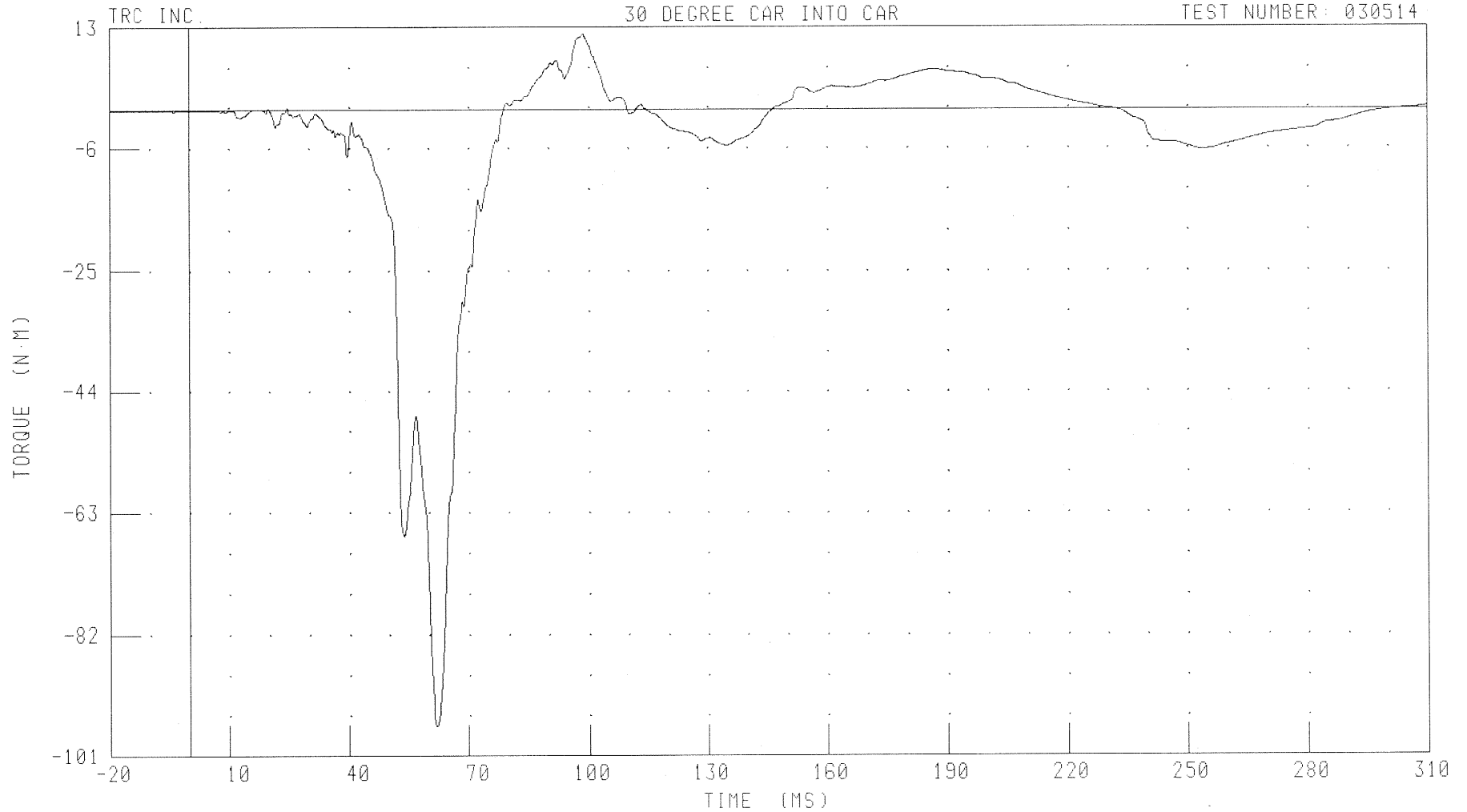
030514

1996 TOYOTA AVALON INTO LEFT FRONT OF 1997 HONDA ACCORD - OBLIQUE 30 DEGREES

TARGET DRIVER LEFT LOWER TIBIA MOMENT ABOUT X AXIS

30 DEGREE CAR INTO CAR

TEST NUMBER: 030514



CHANNEL: ANLXM1 FILTER: CH. CLASS 600

PEAK DATA: 11.90 N·M @ 98.56 MS, -96.41 N·M @ 61.92 MS

B-52

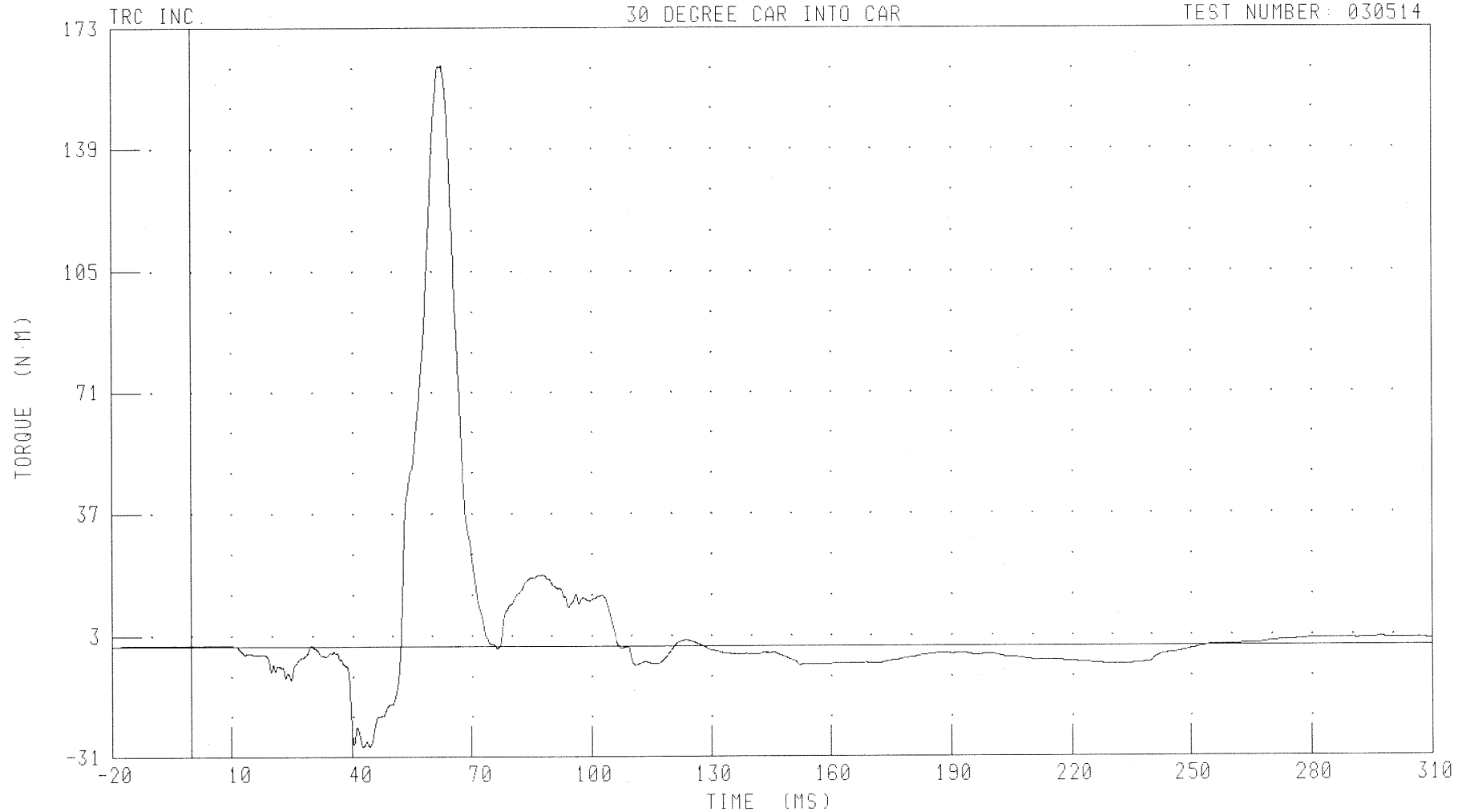
030514

1996 TOYOTA AVALON INTO LEFT FRONT OF 1997 HONDA ACCORD - OBLIQUE 30 DEGREES

TARGET DRIVER LEFT LOWER TIBIA MOMENT ABOUT Y AXIS

30 DEGREE CAR INTO CAR

TEST NUMBER: 030514



CHANNEL: ANLYM1 FILTER: CH. CLASS 600

B-53

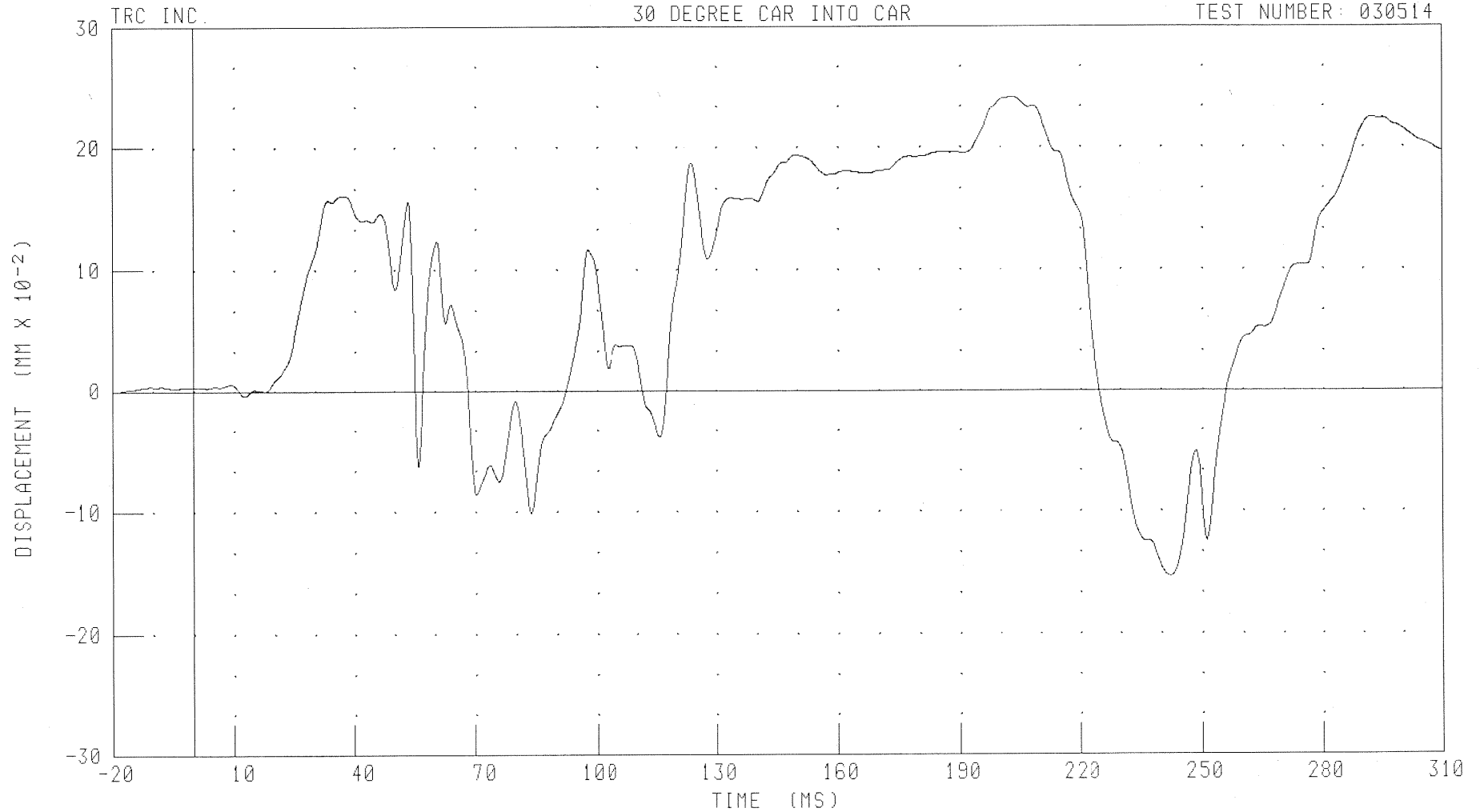
030514

1996 TOYOTA AVALON INTO LEFT FRONT OF 1997 HONDA ACCORD - OBLIQUE 30 DEGREES

TARGET DRIVER RIGHT KNEE DISPLACEMENT

30 DEGREE CAR INTO CAR

TEST NUMBER: 030514



CHANNEL: KNRXD1 FILTER: CH. CLASS 180

PEAK DATA: 0.24 MM @ 203.12 MS; -0.15 MM @ 242.24 MS

B-54

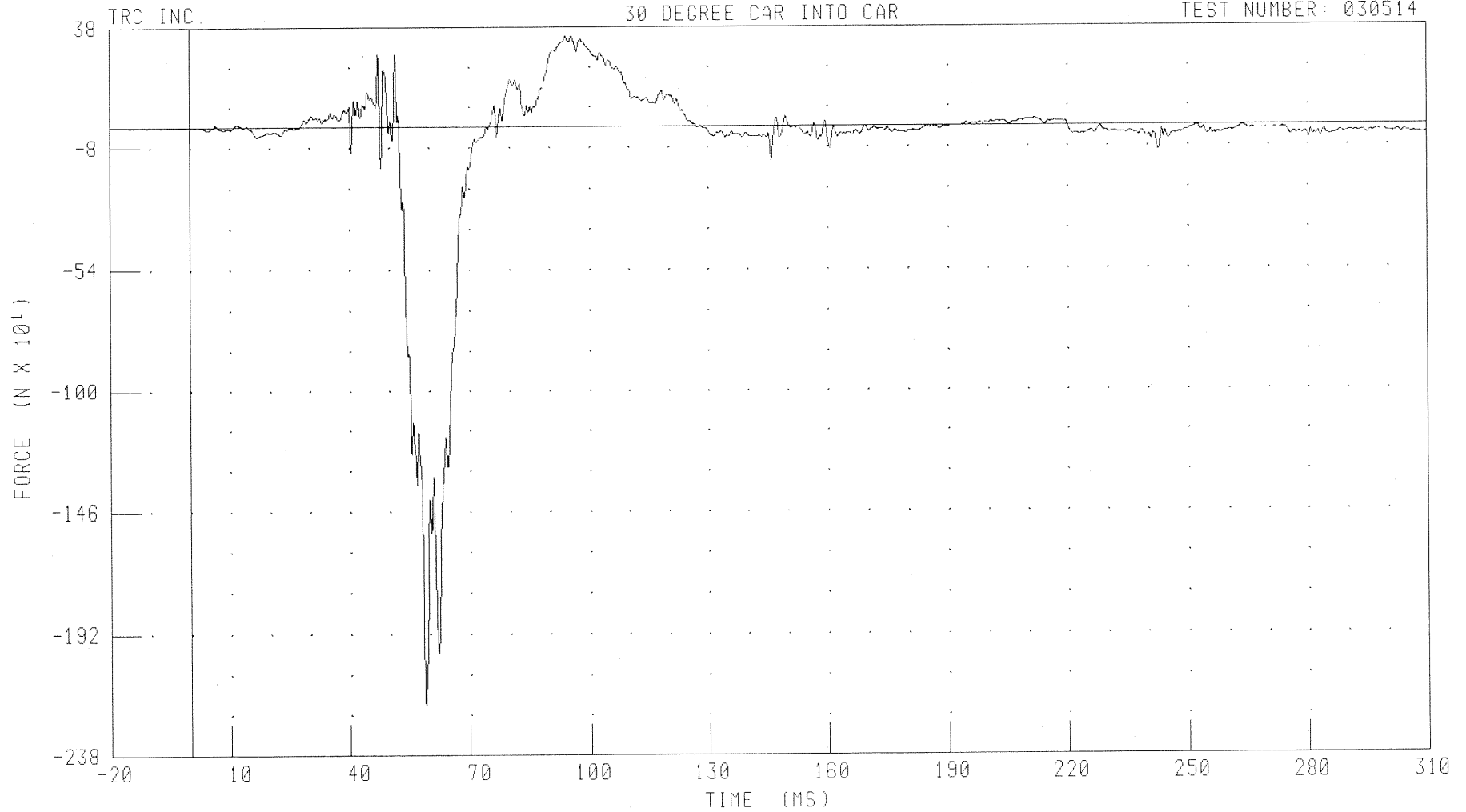
030514

1996 TOYOTA AVALON INTO LEFT FRONT OF 1997 HONDA ACCORD - OBLIQUE 30 DEGREES

TARGET DRIVER RIGHT UPPER TIBIA Z-AXIS FORCE

30 DEGREE CAR INTO CAR

TEST NUMBER: 030514



CHANNEL: TBRZF1 FILTER: CH. CLASS 600

PEAK DATA: 347.53 N @ 94.08 MS; -2188.71 N @ 58.88 MS

B-55

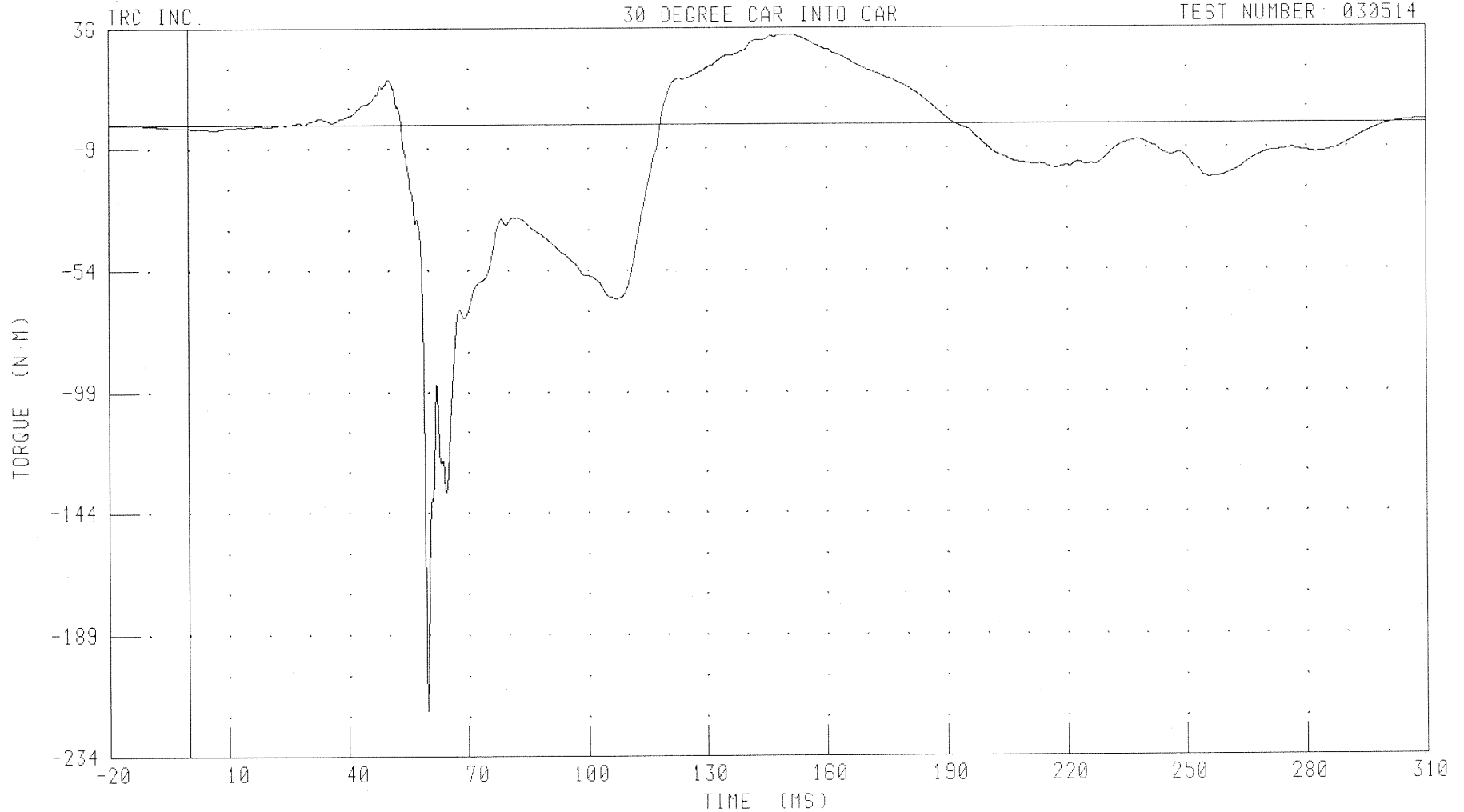
030514

1996 TOYOTA AVALON INTO LEFT FRONT OF 1997 HONDA ACCORD - OBLIQUE 30 DEGREES

TARGET DRIVER RIGHT UPPER TIBIA MOMENT ABOUT X AXIS

30 DEGREE CAR INTO CAR

TEST NUMBER: 030514



CHANNEL: TBRXM1

FILTER: CH. CLASS 600

PEAK DATA: 33.61 N·M @ 151.04 MS; -216.98 N·M @ 59.76 MS

B-56

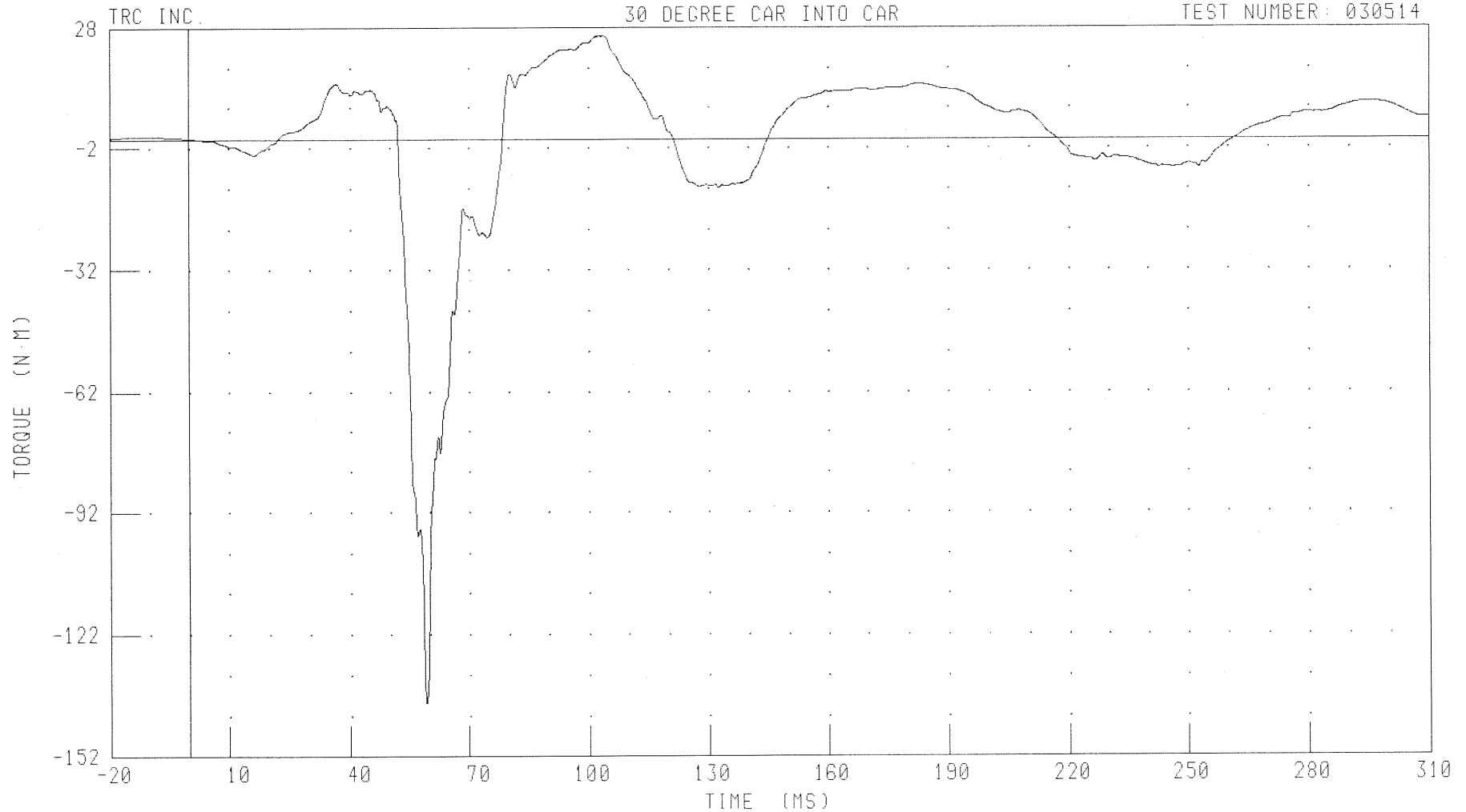
030514

1996 TOYOTA AVALON INTO LEFT FRONT OF 1997 HONDA ACCORD - OBLIQUE 30 DEGREES

TARGET DRIVER RIGHT UPPER TIBIA MOMENT ABOUT Y AXIS

30 DEGREE CAR INTO CAR

TEST NUMBER: 030514



CHANNEL: TBRYM1 FILTER: CH. CLASS 600

PEAK DATA: 26.00 N·M @ 102.72 MS; -138.78 N·M @ 59.12 MS

B-57

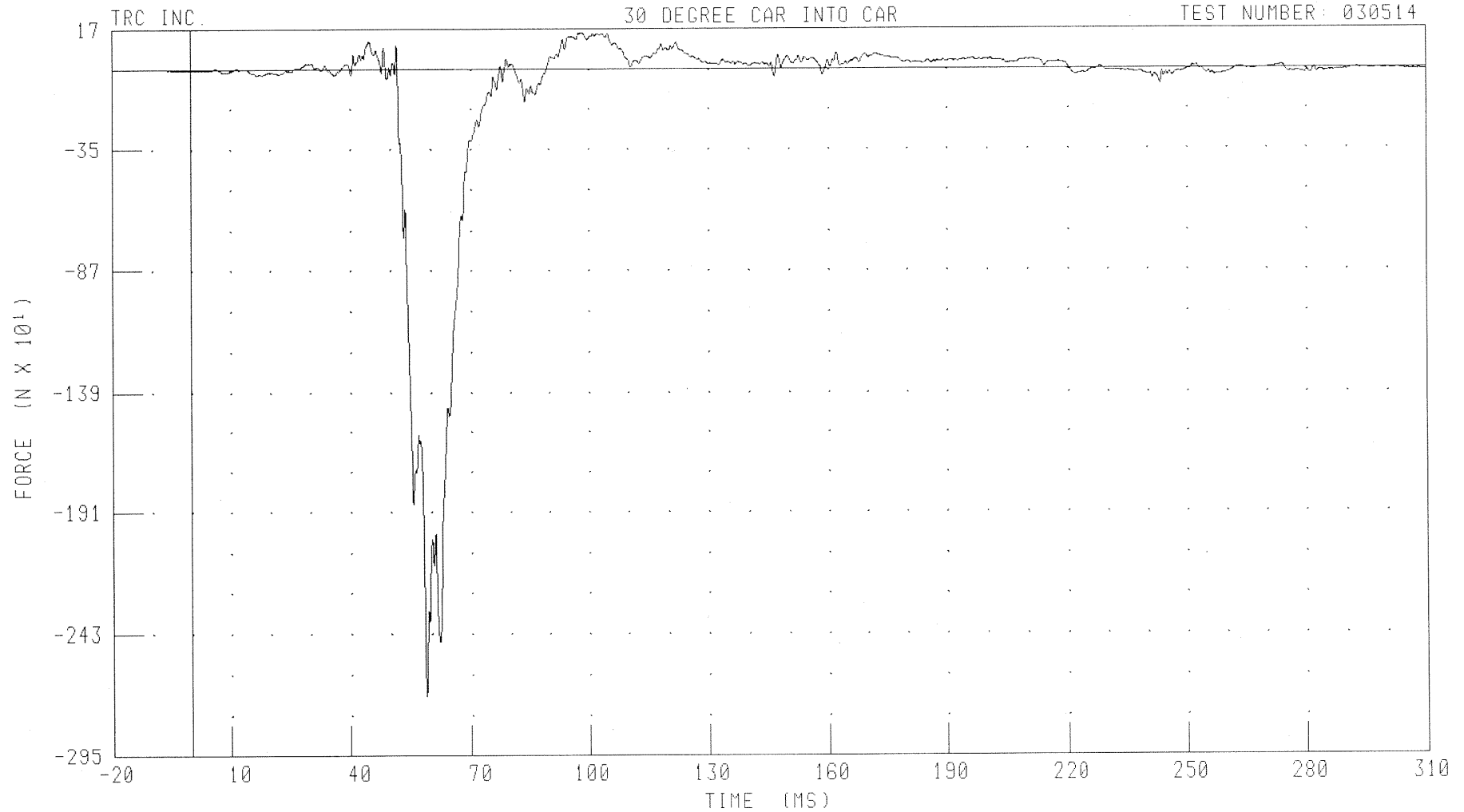
030514

1996 TOYOTA AVALON INTO LEFT FRONT OF 1997 HONDA ACCORD - OBLIQUE 30 DEGREES

TARGET DRIVER RIGHT LOWER TIBIA Z-AXIS FORCE

30 DEGREE CAR INTO CAR

TEST NUMBER: 030514



CHANNEL: ANRZF1 FILTER: CH. CLASS 600

PEAK DATA: 155.54 N @ 98.32 MS; -2695.79 N @ 58.80 MS

B-58

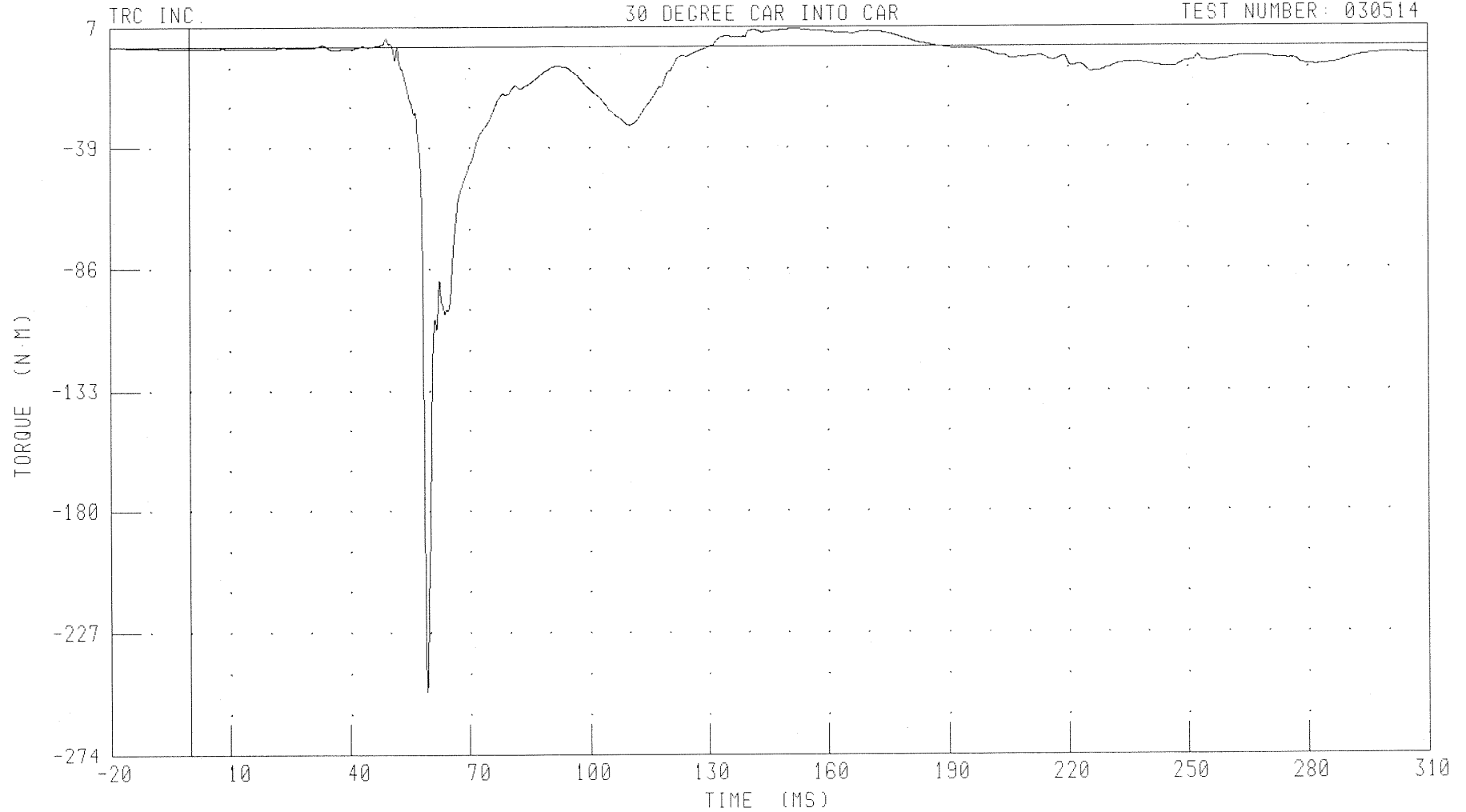
030514

1996 TOYOTA AVALON INTO LEFT FRONT OF 1997 HONDA ACCORD - OBLIQUE 30 DEGREES

TARGET DRIVER RIGHT LOWER TIBIA MOMENT ABOUT X AXIS

30 DEGREE CAR INTO CAR

TEST NUMBER: 030514



CHANNEL: ANRXM1 FILTER: CH. CLASS 600

PEAK DATA: 6.75 N·M @ 151.44 MS; -250.35 N·M @ 59.28 MS

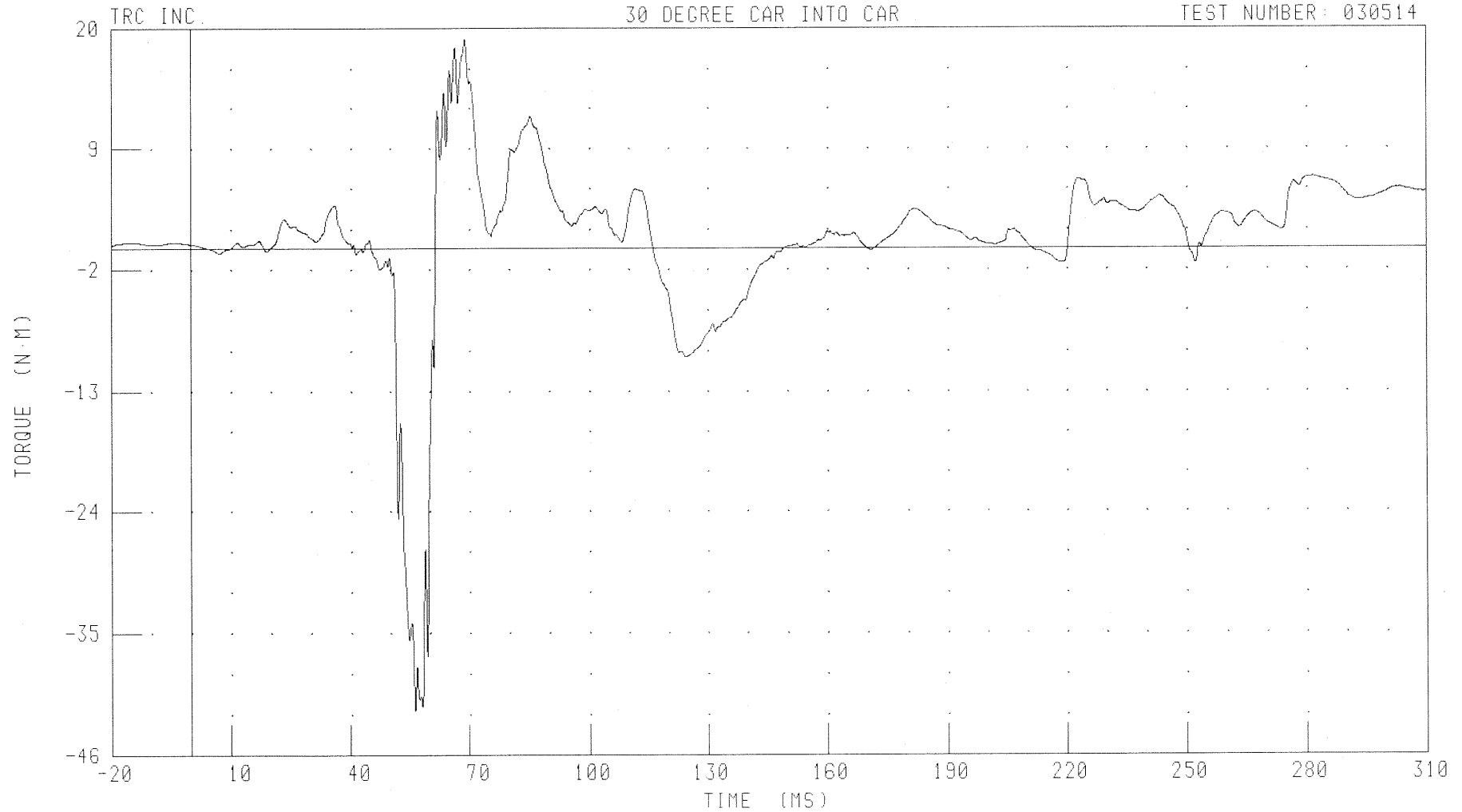
B-59

030514

1996 TOYOTA AVALON INTO LEFT FRONT OF 1997 HONDA ACCORD - OBLIQUE 30 DEGREES
TARGET DRIVER RIGHT LOWER TIBIA MOMENT ABOUT Y AXIS

30 DEGREE CAR INTO CAR

TEST NUMBER: 030514



CHANNEL: ANRYM1 FILTER: CH. CLASS 600

PEAK DATA: 19.00 N·M @ 69.04 MS; -42.05 N·M @ 56.24 MS

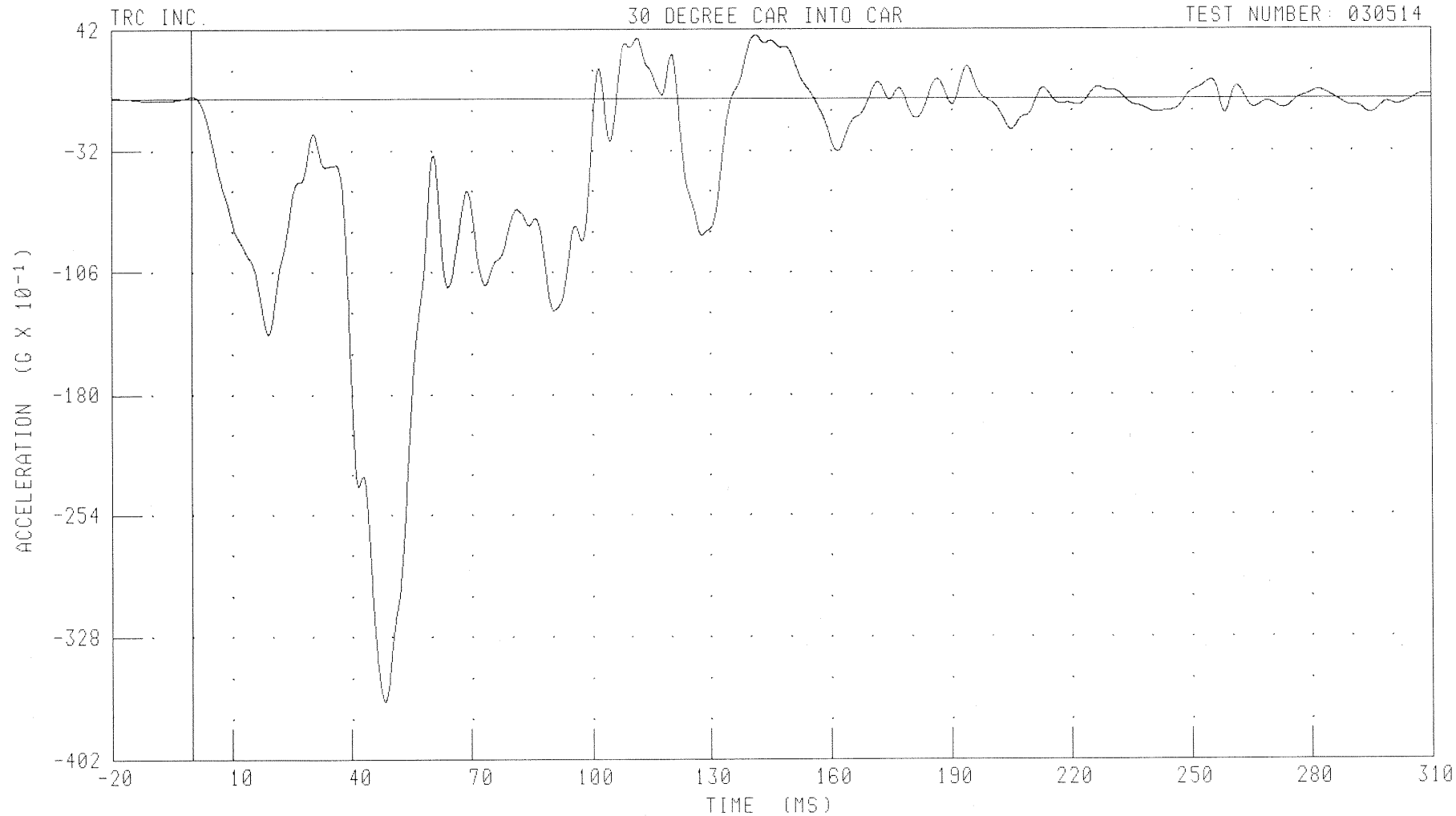
B-60

030514

1996 TOYOTA AVALON INTO LEFT FRONT OF 1997 HONDA ACCORD - OBLIQUE 30 DEGREES
TARGET VEHICLE CENTER OF GRAVITY X-AXIS ACCELERATION

30 DEGREE CAR INTO CAR

TEST NUMBER: 030514



CHANNEL: VCGXG1 FILTER: CH. CLASS 60

PEAK DATA: 3.87 G @ 141.44 MS, -36.69 G @ 48.32 MS

B-61

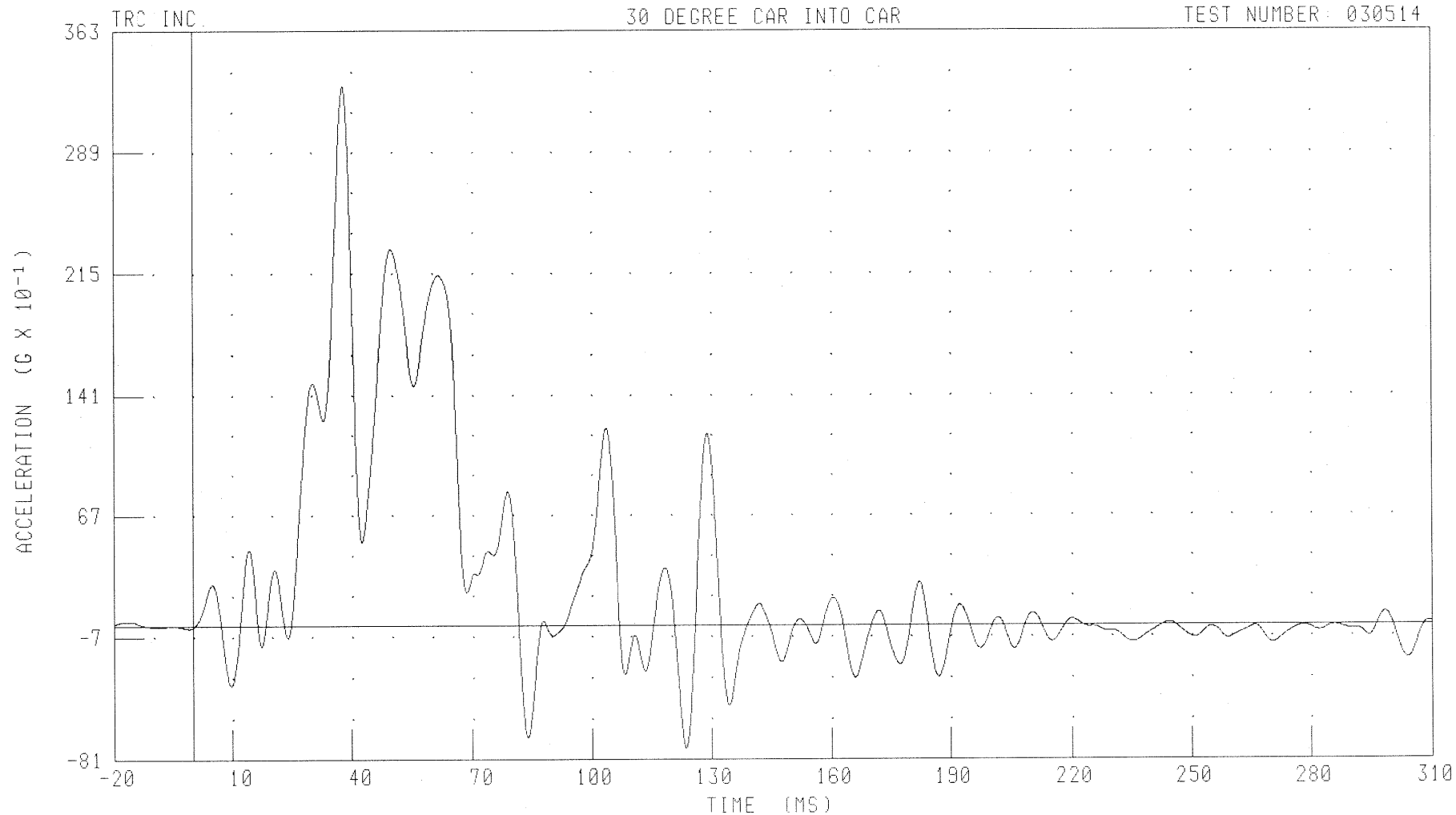
030514

1996 TOYOTA AVALON INTO LEFT FRONT OF 1997 HONDA ACCORD - OBLIQUE 30 DEGREES

TARGET VEHICLE CENTER OF GRAVITY Y-AXIS ACCELERATION

30 DEGREE CAR INTO CAR

TEST NUMBER: 030514



CHANNEL: VCCYG1 FILTER: CH. CLASS 60

PEAK DATA: 32.99 G @ 37.92 MS; -7.42 G @ 123.68 MS

B-62

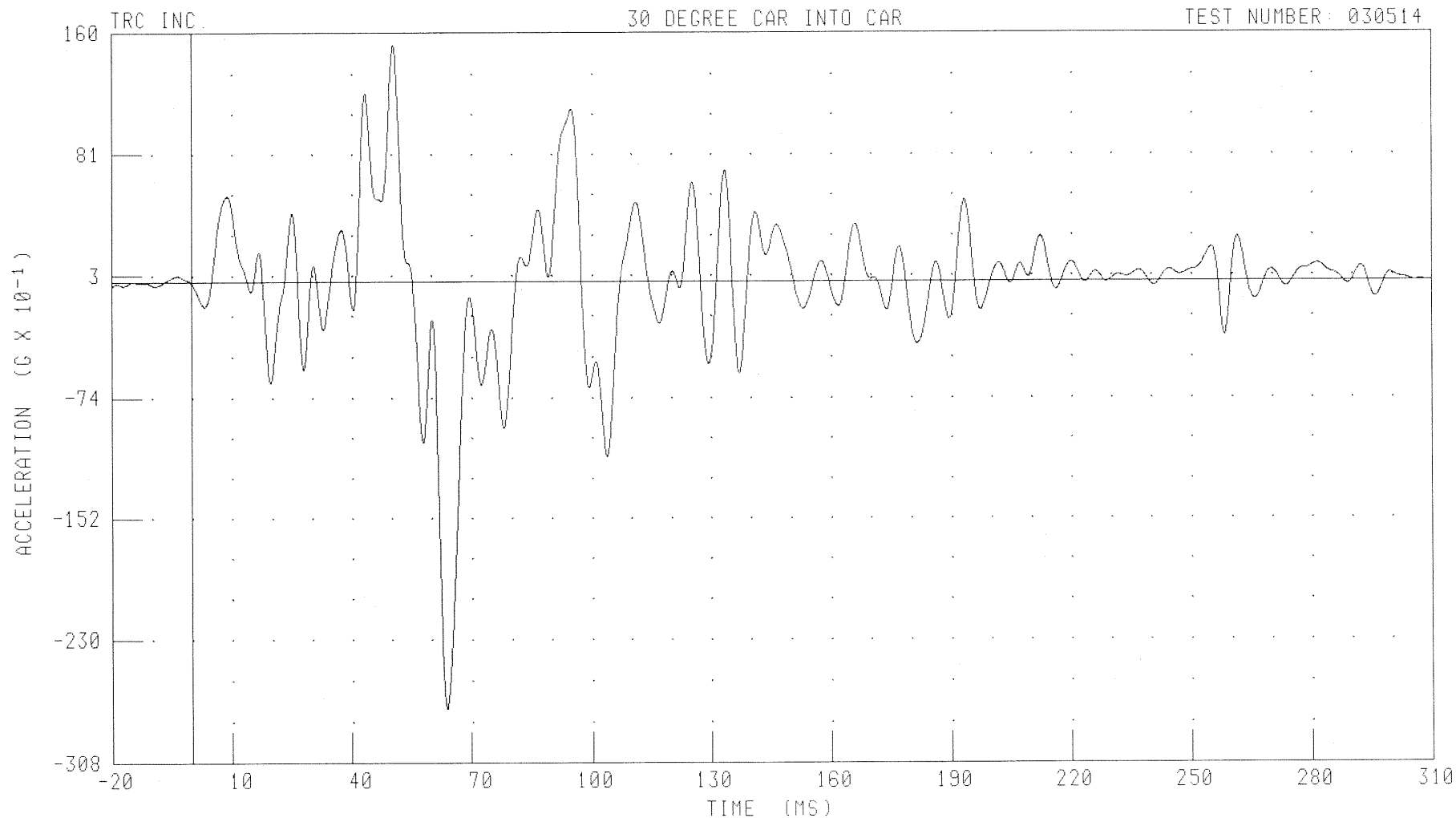
030514

1996 TOYOTA AVALON INTO LEFT FRONT OF 1997 HONDA ACCORD - OBLIQUE 30 DEGREES

TARGET VEHICLE CENTER OF GRAVITY Z-AXIS ACCELERATION

30 DEGREE CAR INTO CAR

TEST NUMBER: 030514



CHANNEL: VCGZG1 FILTER: CH. CLASS 60

PEAK DATA: 15.21 G @ 50.56 MS, -27.35 G @ 63.92 MS

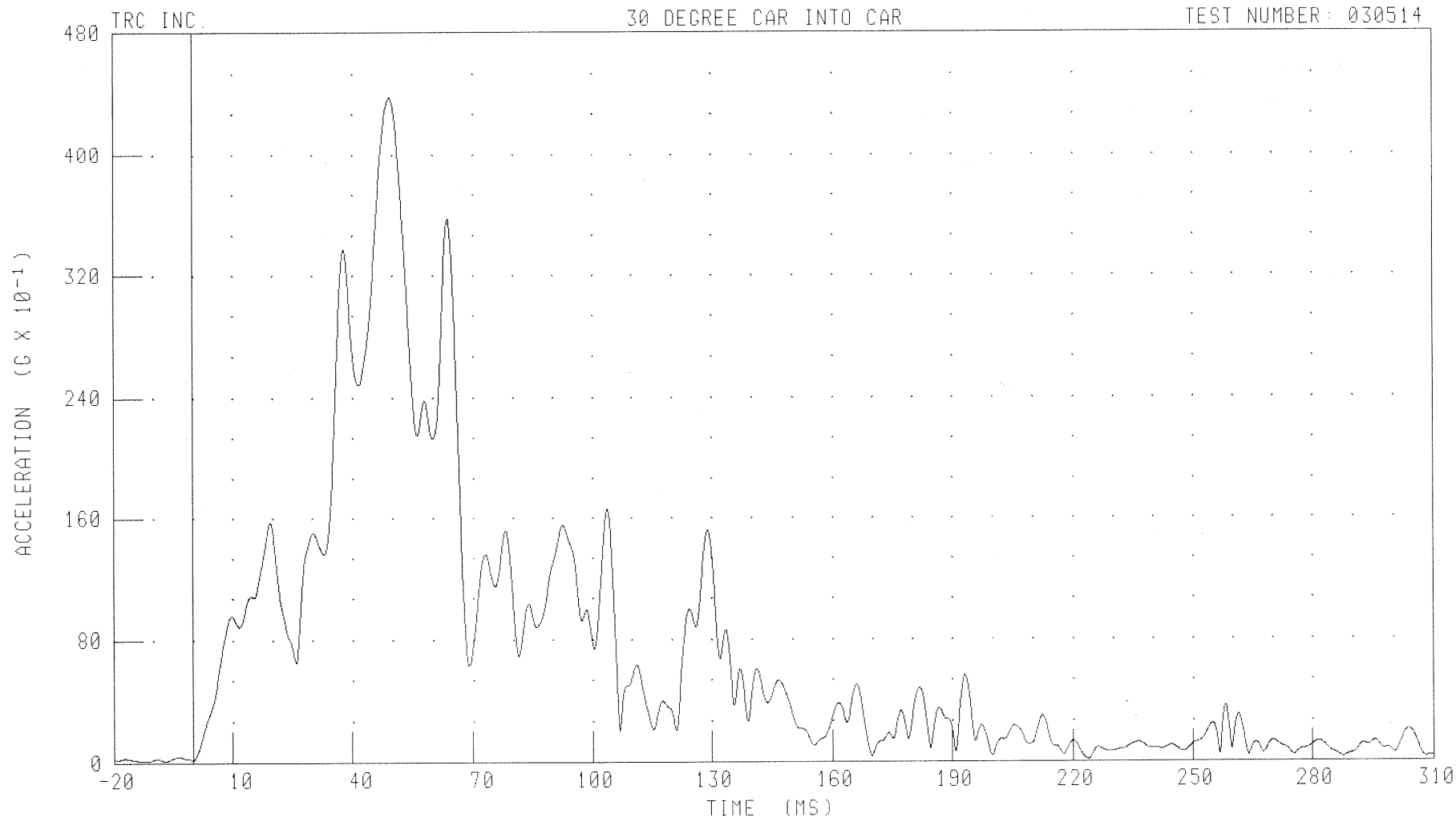
B-63

030514

1996 TOYOTA AVALON INTO LEFT FRONT OF 1997 HONDA ACCORD - OBLIQUE 30 DEGREES
TARGET VEHICLE CENTER OF GRAVITY RESULTANT ACCELERATION

30 DEGREE CAR INTO CAR

TEST NUMBER: 030514



CHANNEL: VCGRG1 FILTER: CH. CLASS 60

PEAK DATA: 43.79 G @ 49.44 MS; 0.10 G @ -12.32 MS

B-64

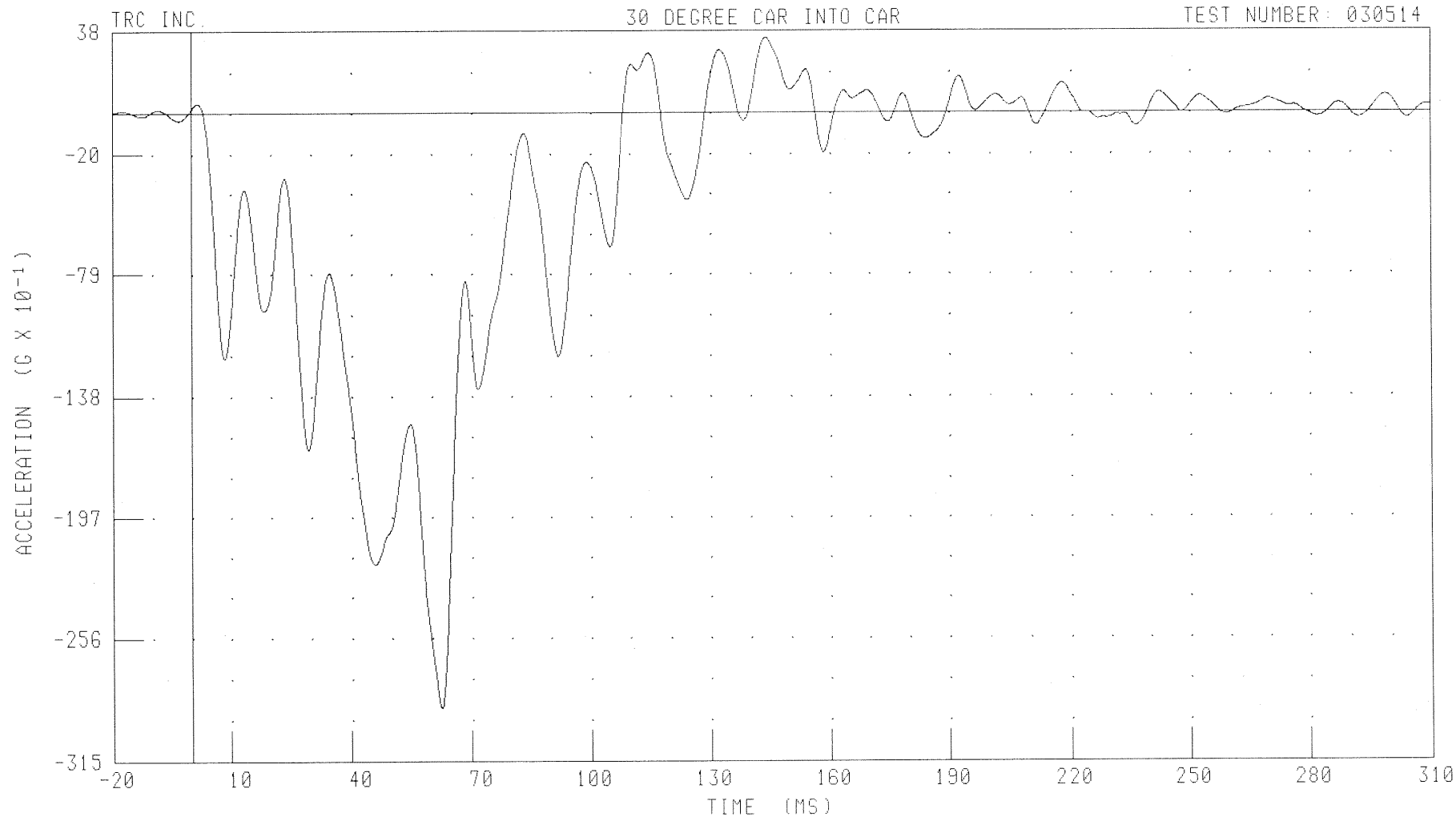
030514

1996 TOYOTA AVALON INTO LEFT FRONT OF 1997 HONDA ACCORD - OBLIQUE 30 DEGREES

TARGET REAR DECK X-AXIS ACCELERATION

30 DEGREE CAR INTO CAR

TEST NUMBER: 030514



CHANNEL: RDKXG1 FILTER: CH. CLASS 60

PEAK DATA: 3.57 G @ 143.92 MS, -28.97 G @ 62.32 MS

B-65

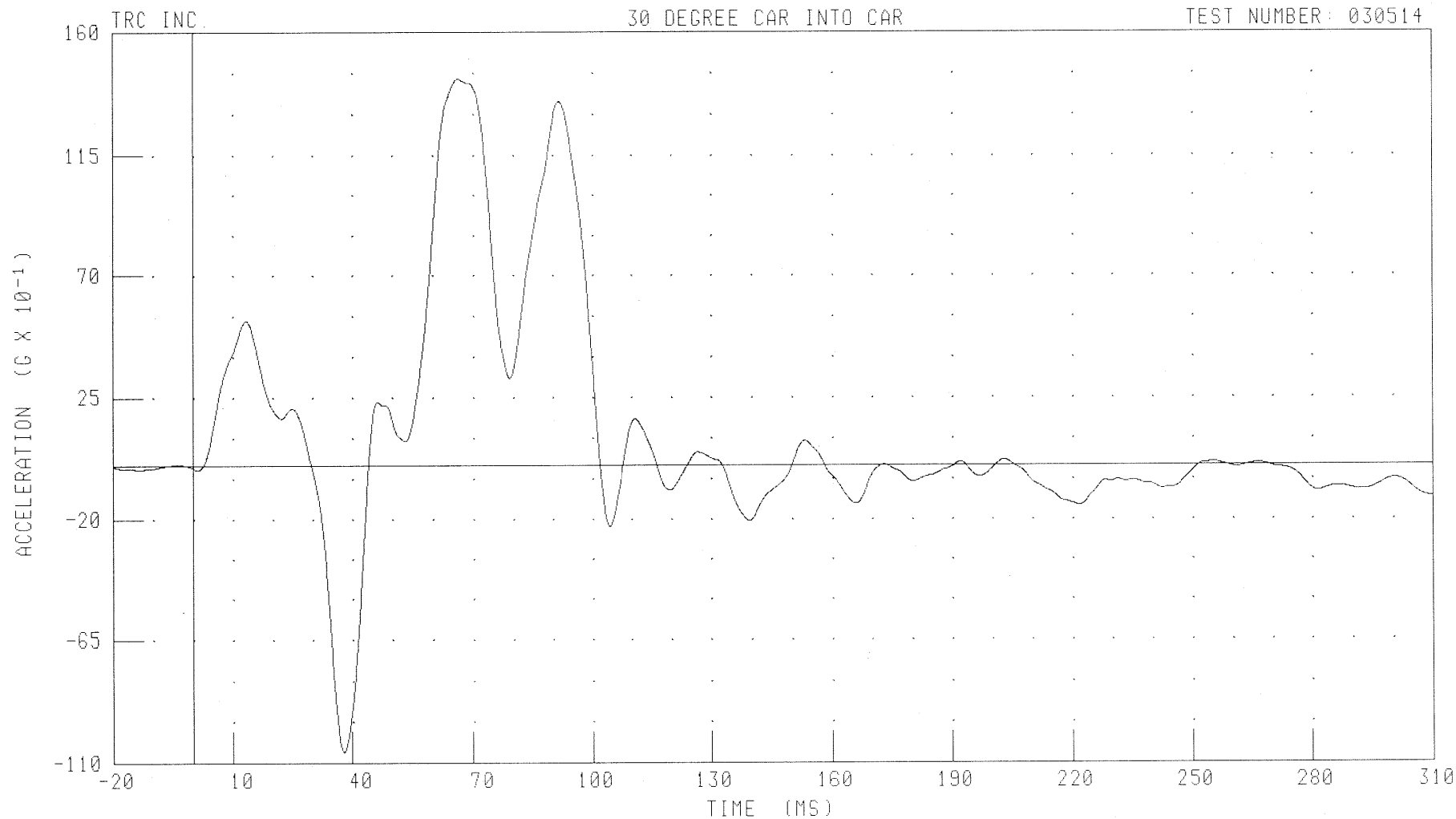
030514

1996 TOYOTA AVALON INTO LEFT FRONT OF 1997 HONDA ACCORD - OBLIQUE 30 DEGREES

TARGET REAR DECK Y-AXIS ACCELERATION

30 DEGREE CAR INTO CAR

TEST NUMBER: 030514



CHANNEL: RDKYG1 FILTER: CH. CLASS 60

PEAK DATA: 14.29 G @ 66.32 MS, -10.61 G @ 37.92 MS

B-66

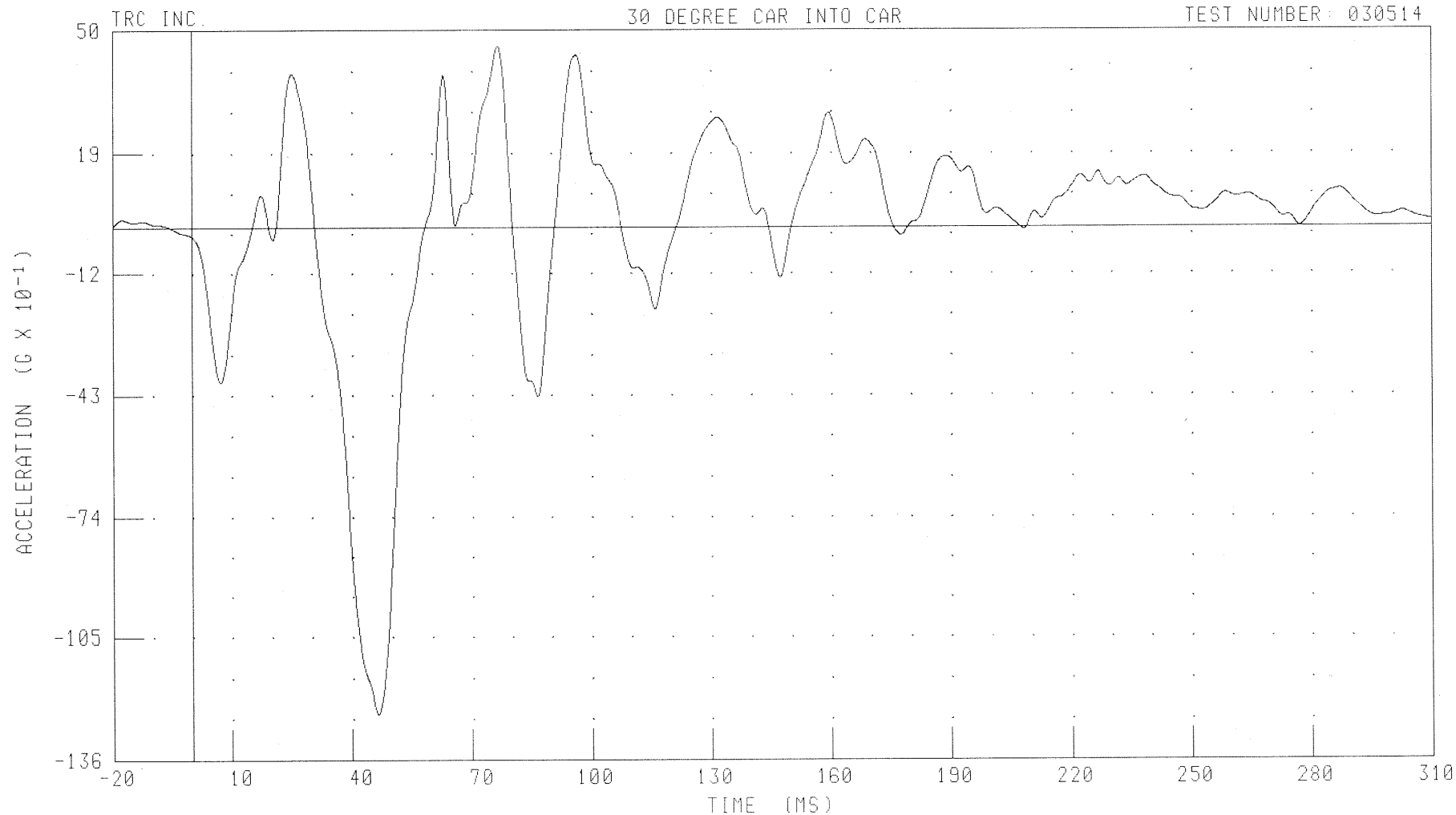
030514

1996 TOYOTA AVALON INTO LEFT FRONT OF 1997 HONDA ACCORD - OBLIQUE 30 DEGREES

TARGET REAR DECK Z-AXIS ACCELERATION

30 DEGREE CAR INTO CAR

TEST NUMBER: 030514



CHANNEL: RJKZG1 FILTER: CH. CLASS 60

PEAK DATA: 4.60 G @ 76.64 MS, -12.45 G @ 46.48 MS

B-67

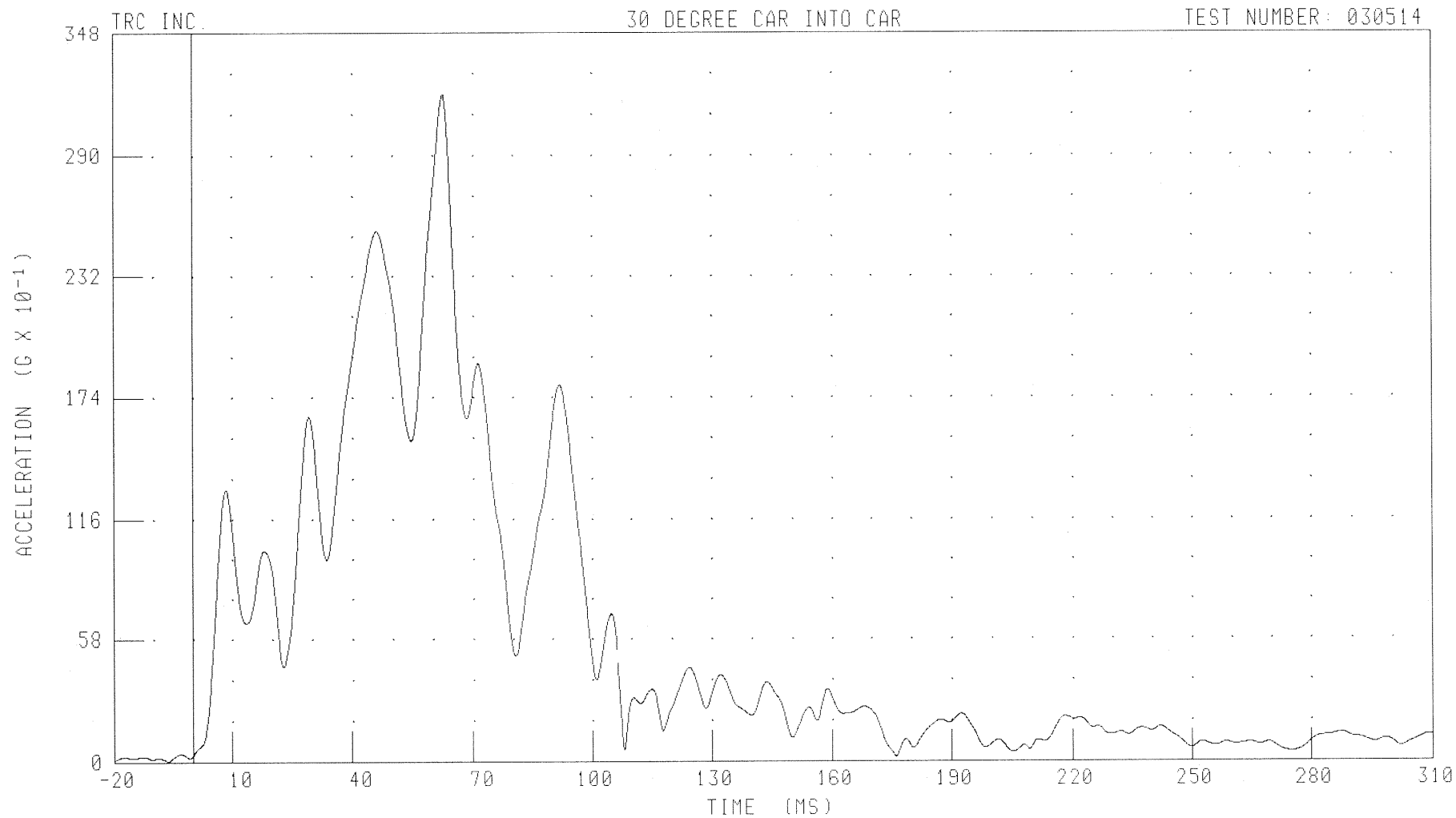
030514

1996 TOYOTA AVALON INTO LEFT FRONT OF 1997 HONDA ACCORD - OBLIQUE 30 DEGREES

TARGET REAR DECK RESULTANT ACCELERATION

30 DEGREE CAR INTO CAR

TEST NUMBER: 030514



CHANNEL: RDKRG1 FILTER: CH. CLASS 60

B-68

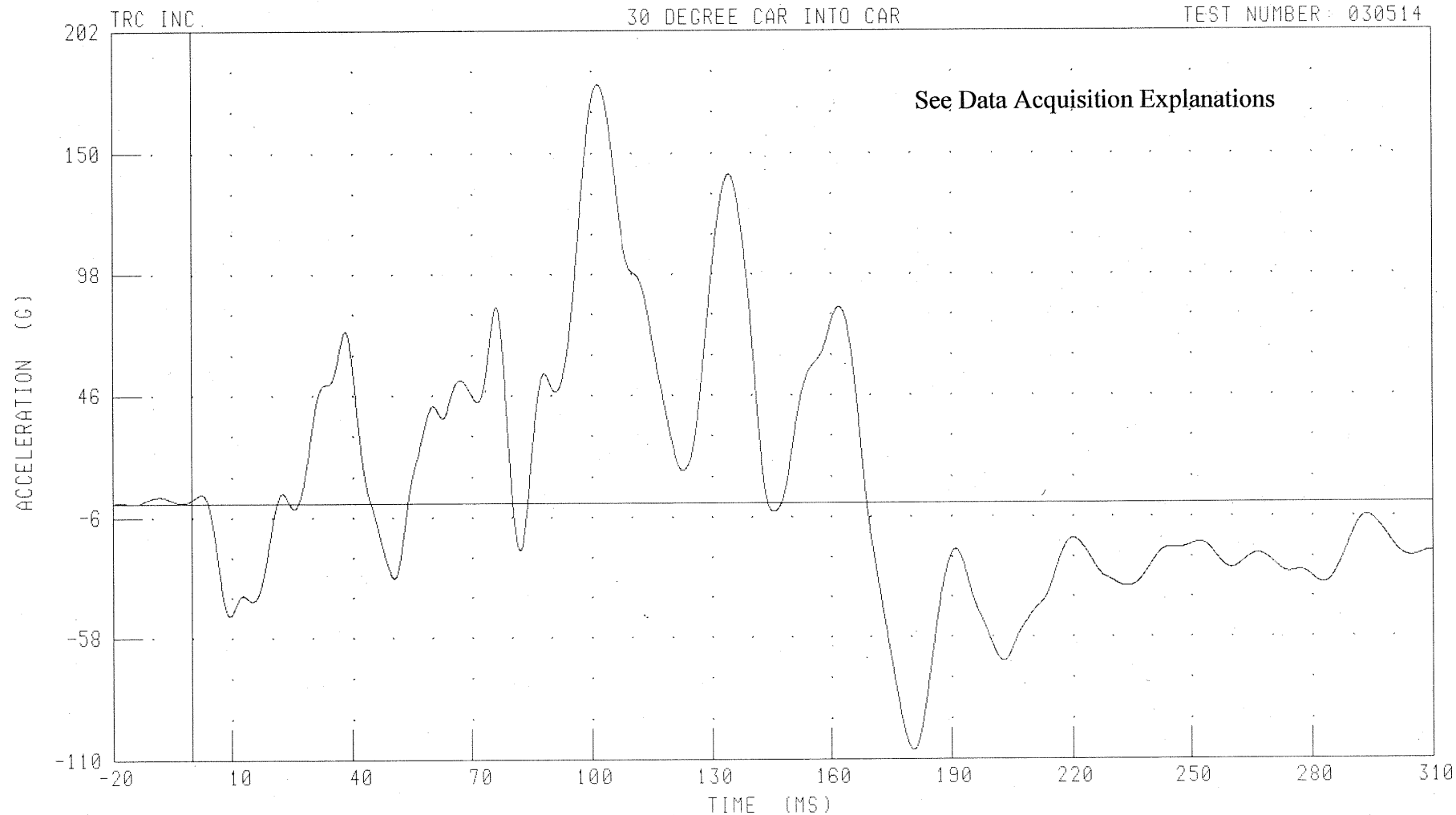
030514

1996 TOYOTA AVALON INTO LEFT FRONT OF 1997 HONDA ACCORD - OBLIQUE 30 DEGREES

TARGET LEFT FRONT SILL X-AXIS ACCELERATION

30 DEGREE CAR INTO CAR

TEST NUMBER: 030514



CHANNEL: LFSXG1 FILTER: CH. CLASS 60

PEAK DATA: 178.99 G @ 101.68 MS, -106.25 G @ 180.72 MS

B-69

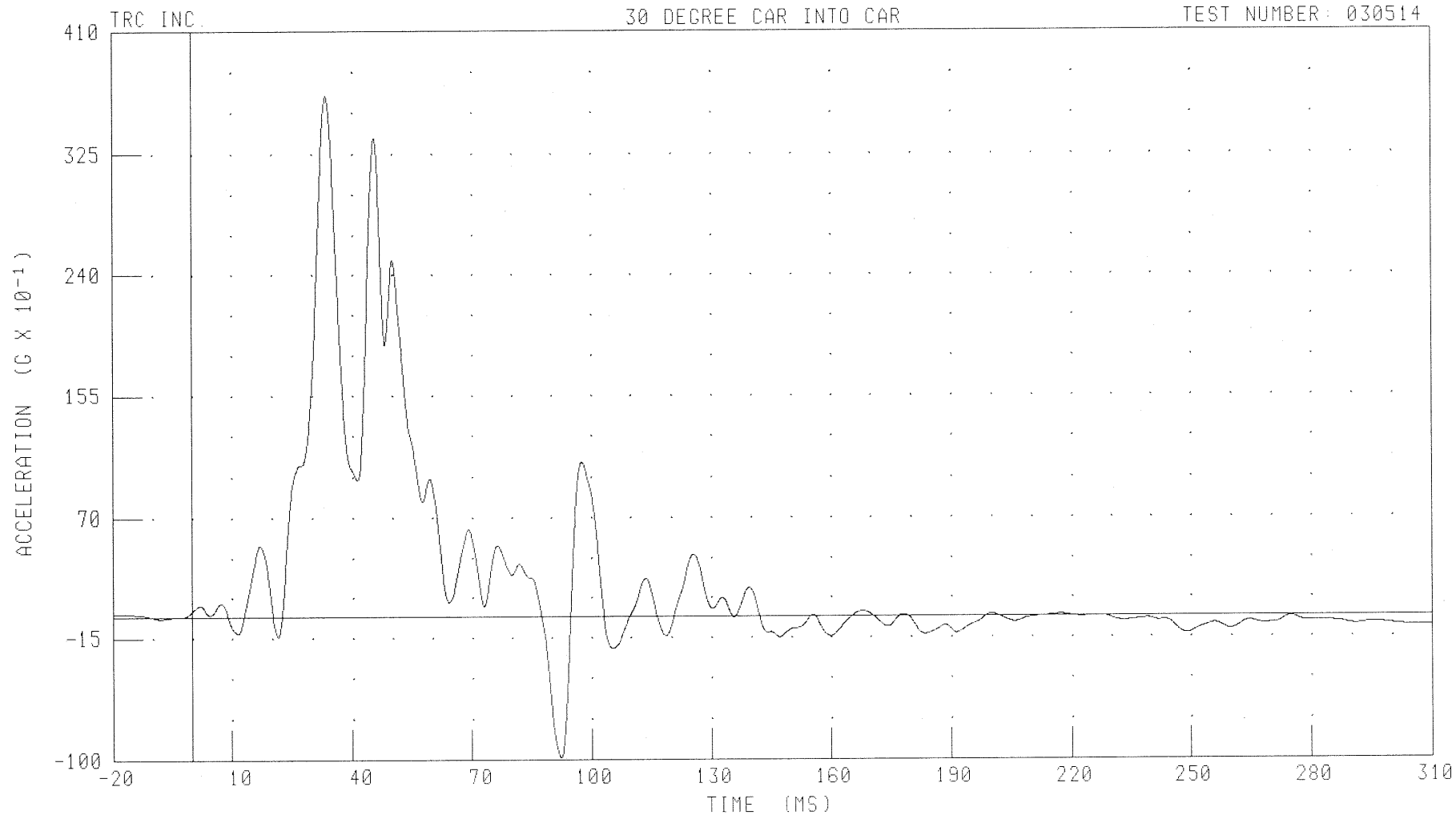
030514

1996 TOYOTA AVALON INTO LEFT FRONT OF 1997 HONDA ACCORD - OBLIQUE 30 DEGREES

TARGET LEFT FRONT SILL Y-AXIS ACCELERATION

30 DEGREE CAR INTO CAR

TEST NUMBER: 030514



CHANNEL: LFSYG1 FILTER: CH. CLASS 60

PEAK DATA: 36.53 G @ 33.60 MS; -9.88 G @ 92.40 MS

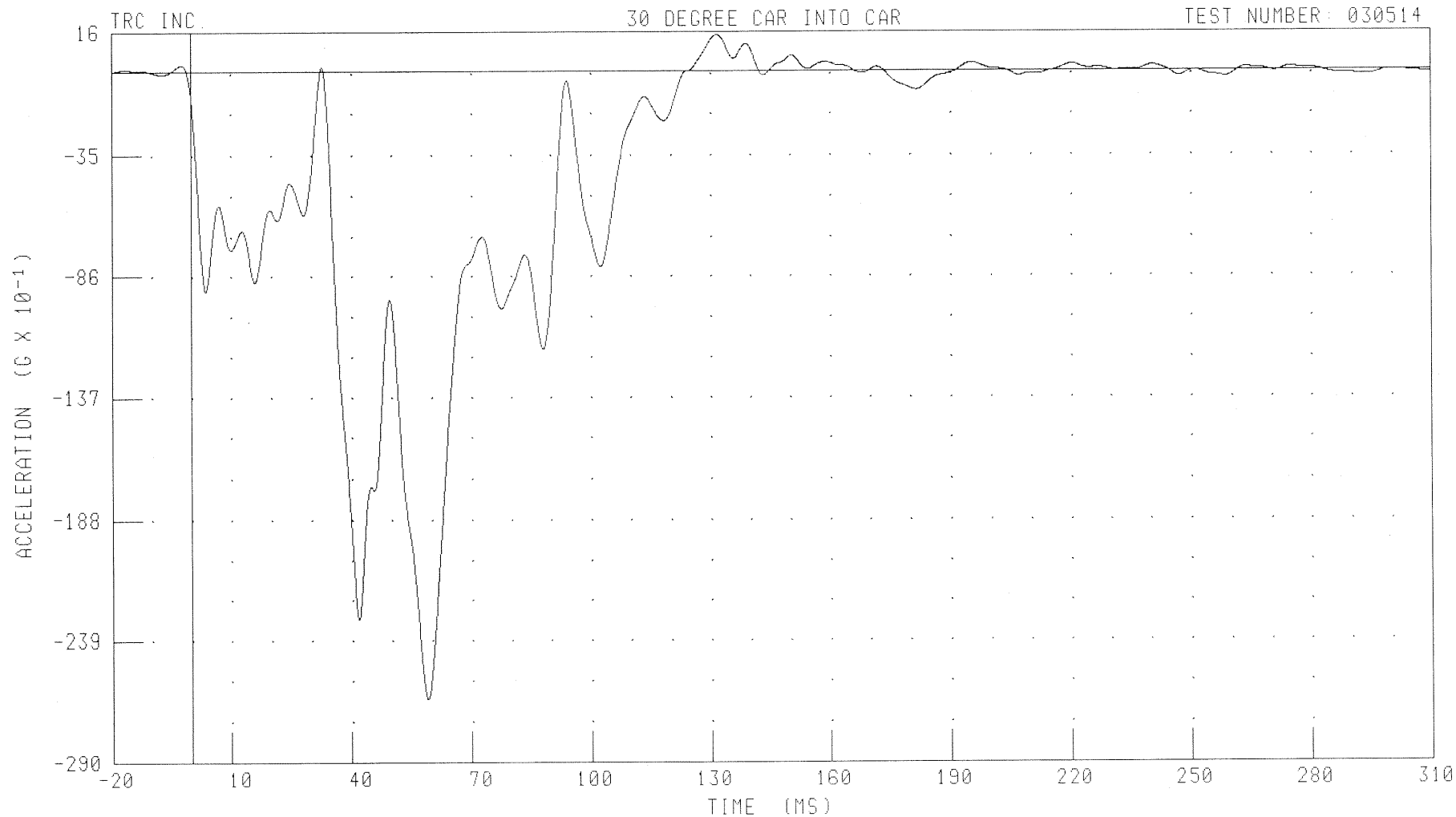
B-70

030514

1996 TOYOTA AVALON INTO LEFT FRONT OF 1997 HONDA ACCORD - OBLIQUE 30 DEGREES

TARGET LEFT REAR SILL X-AXIS ACCELERATION

TEST NUMBER: 030514



CHANNEL: LRSXG1

FILTER: CH. CLASS 60

PEAK DATA: 1.48 G @ 131.68 MS; -26.37 G @ 58.96 MS

B-71

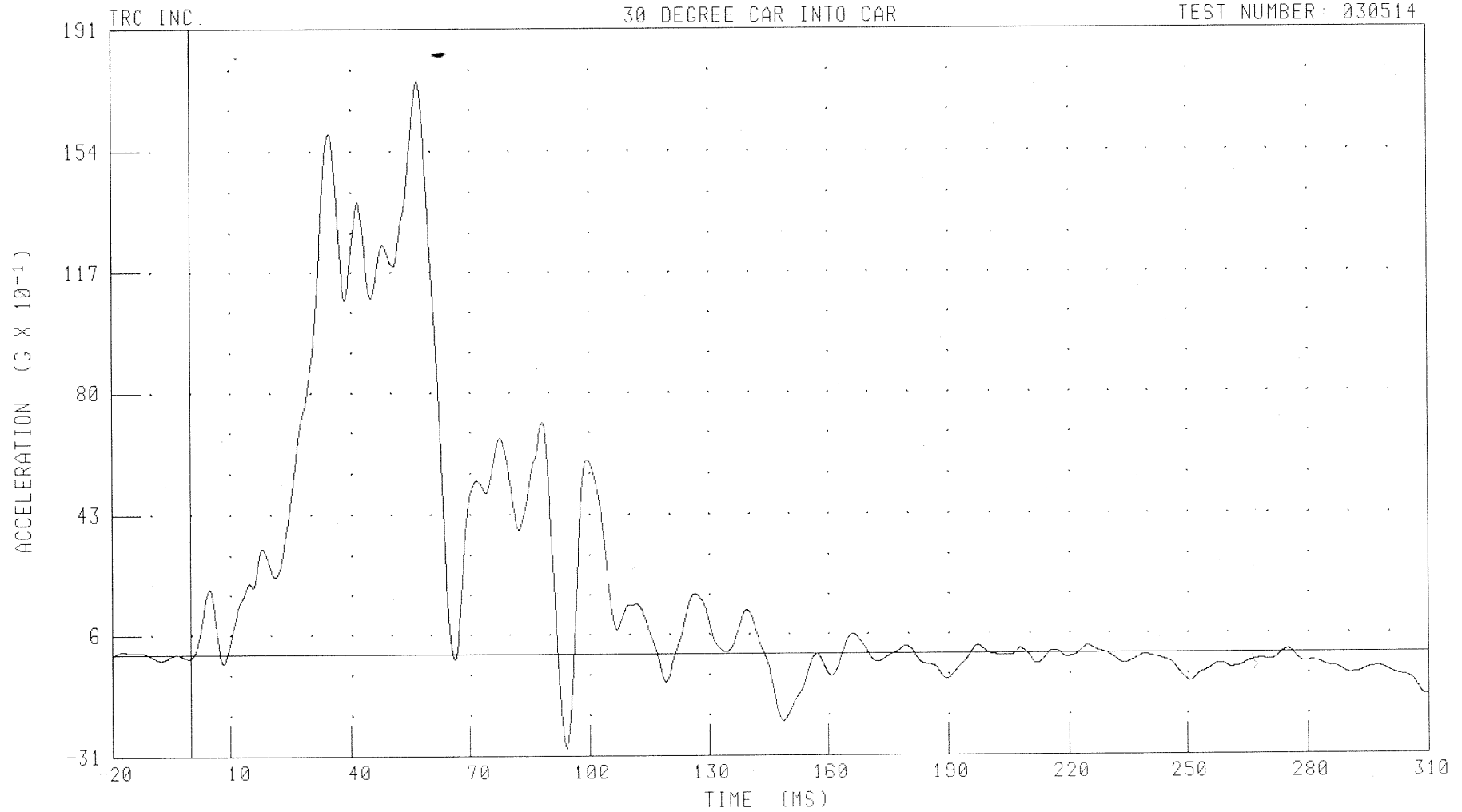
030514

1996 TOYOTA AVALON INTO LEFT FRONT OF 1997 HONDA ACCORD - OBLIQUE 30 DEGREES

TARGET LEFT REAR SILL Y-AXIS ACCELERATION

30 DEGREE CAR INTO CAR

TEST NUMBER: 030514



CHANNEL: LRSYG1 FILTER: CH. CLASS 60

PEAK DATA: 17.56 G @ 56.80 MS; -2.88 G @ 94.32 MS

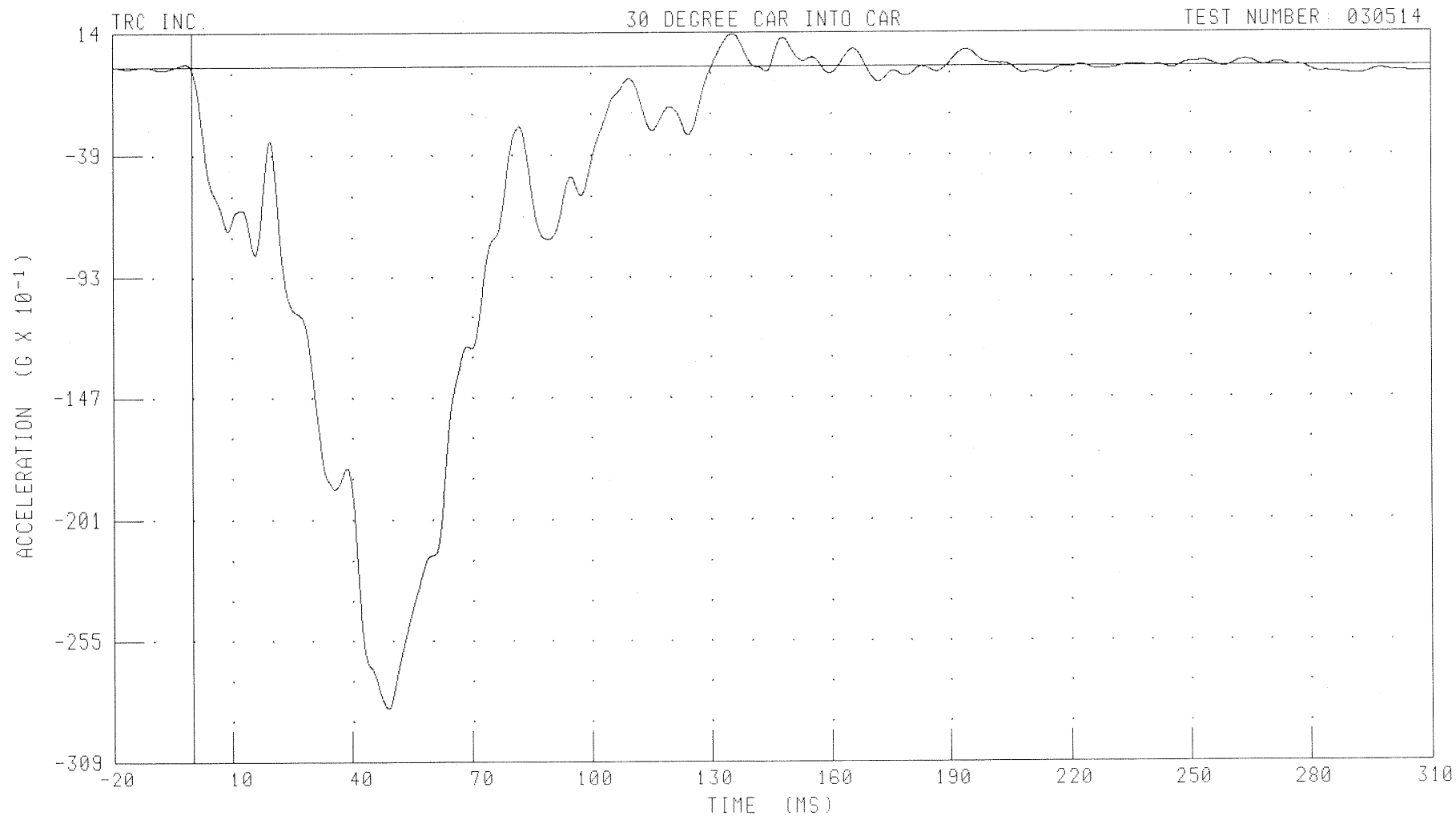
B-72

030514

1996 TOYOTA AVALON INTO LEFT FRONT OF 1997 HONDA ACCORD - OBLIQUE 30 DEGREES

TARGET RIGHT FRONT SILL X-AXIS ACCELERATION

TEST NUMBER: 030514



CHANNEL: RFSXG1 FILTER: CH. CLASS 60

PEAK DATA: 1.43 G @ 135.44 MS, -28.54 G @ 48.88 MS

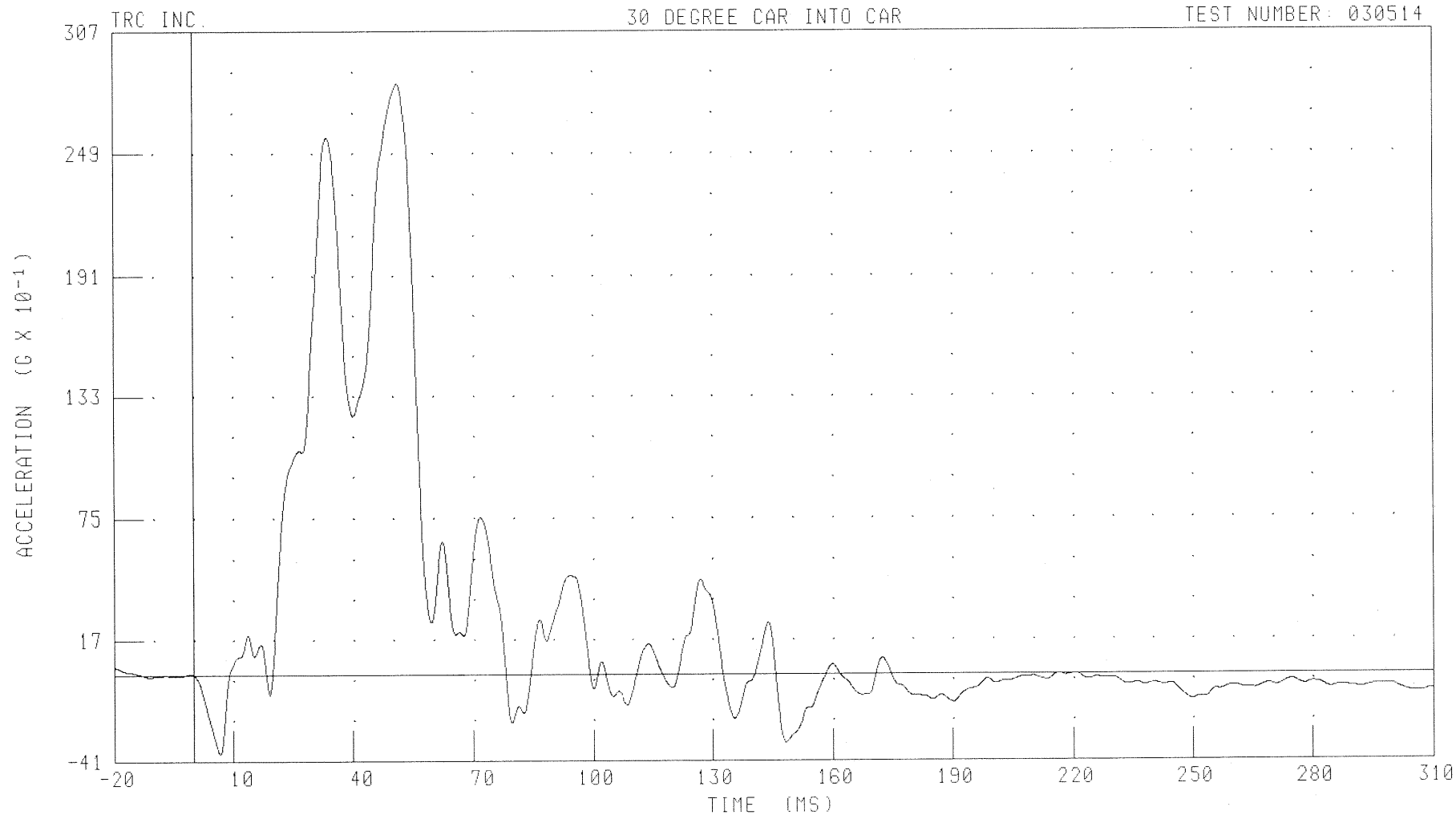
B-73

030514

1996 TOYOTA AVALON INTO LEFT FRONT OF 1997 HONDA ACCORD - OBLIQUE 30 DEGREES
TARGET RIGHT FRONT SILL Y-AXIS ACCELERATION

30 DEGREE CAR INTO CAR

TEST NUMBER: 030514



CHANNEL: RFSYG1 FILTER: CH, CLASS 60

PEAK DATA: 28.20 G @ 51.36 MS; -3.75 G @ 6.64 MS

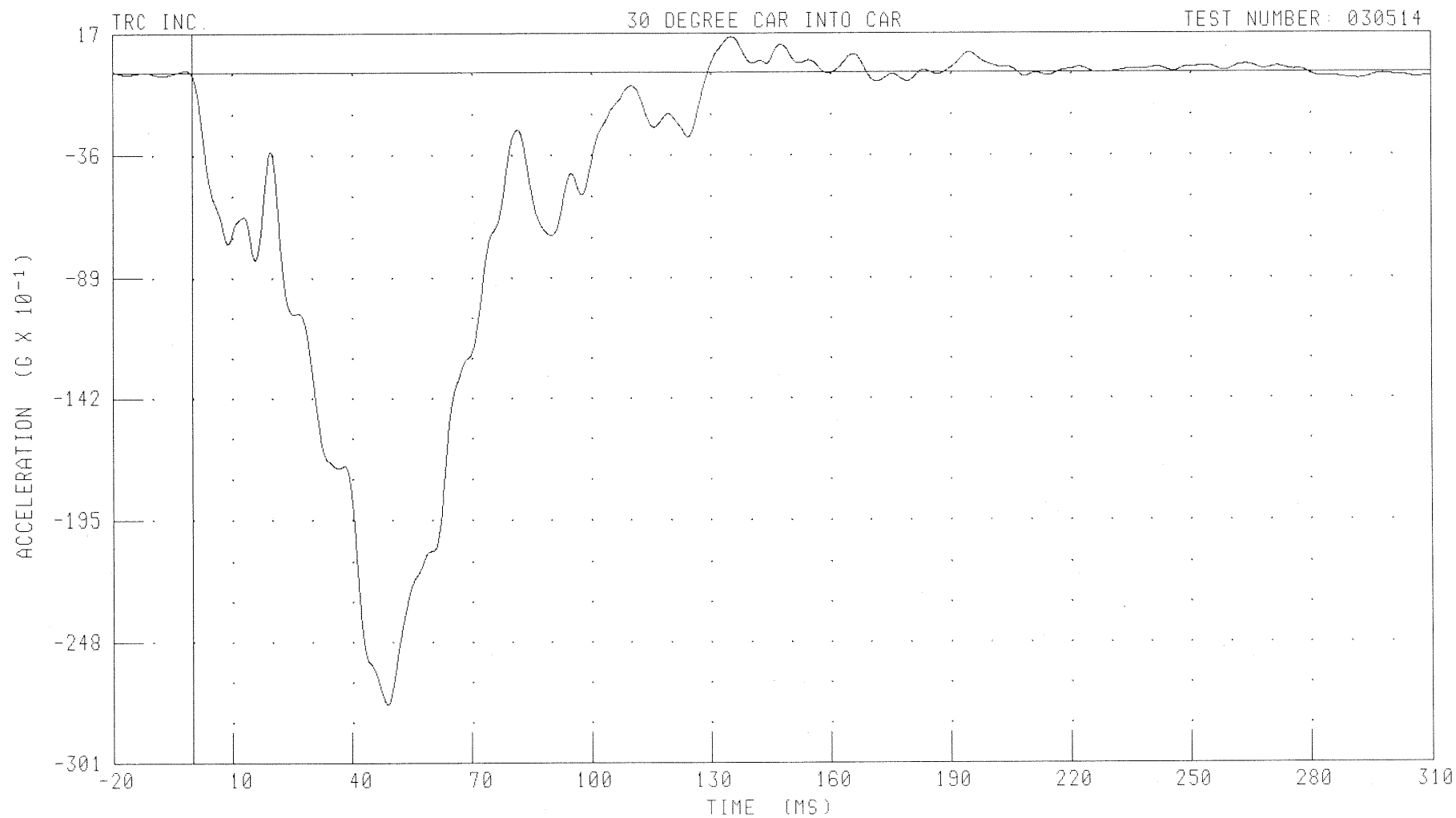
B-74

030514

1996 TOYOTA AVALON INTO LEFT FRONT OF 1997 HONDA ACCORD - OBLIQUE 30 DEGREES

TARGET RIGHT REAR SILL X-AXIS ACCELERATION

TEST NUMBER: 030514



CHANNEL: RRSXG1

FILTER: CH. CLASS 60

PEAK DATA: 1.55 G @ 135.20 MS; -27.55 G @ 48.88 MS

B-75

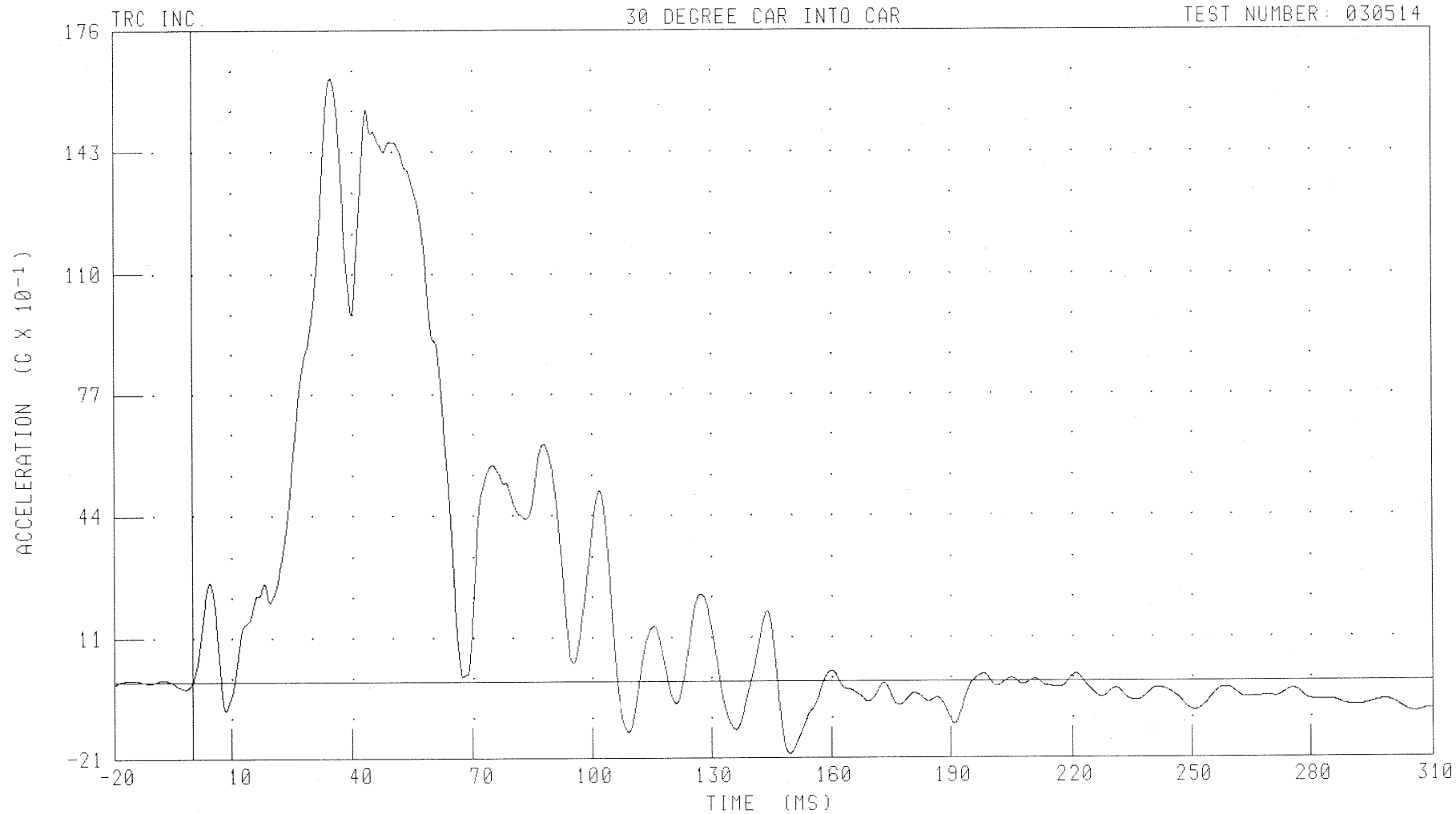
030514

1996 TOYOTA AVALON INTO LEFT FRONT OF 1997 HONDA ACCORD - OBLIQUE 30 DEGREES

TARGET RIGHT REAR SILL Y-AXIS ACCELERATION

30 DEGREE CAR INTO CAR

TEST NUMBER: 030514



CHANNEL: RRSYG1 FILTER: CH. CLASS 60

B-76

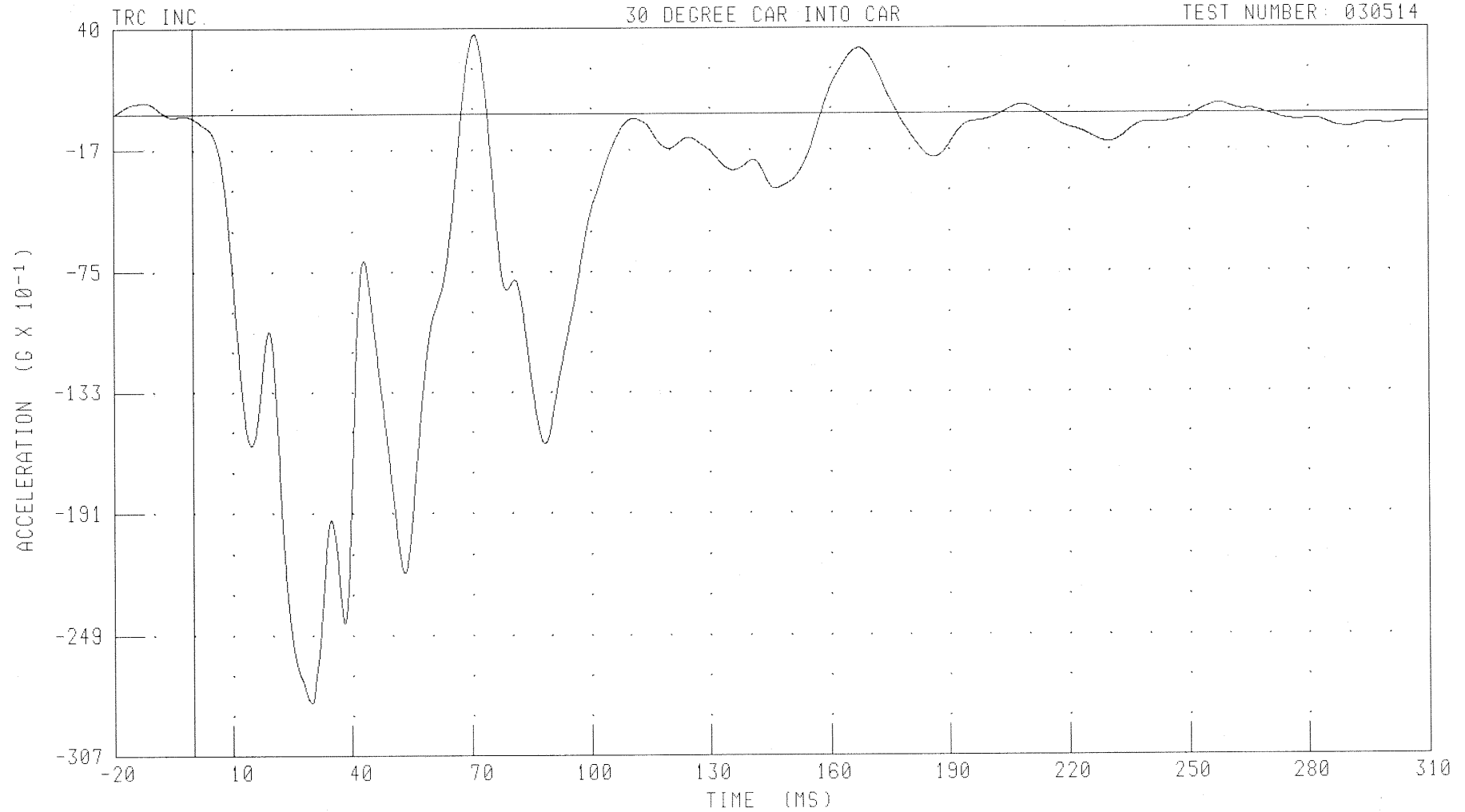
030514

1996 TOYOTA AVALON INTO LEFT FRONT OF 1997 HONDA ACCORD - OBLIQUE 30 DEGREES

TARGET ENGINE TOP X-AXIS ACCELERATION

30 DEGREE CAR INTO CAR

TEST NUMBER: 030514



CHANNEL: ENGXC1 FILTER: CH. CLASS 60

B-77

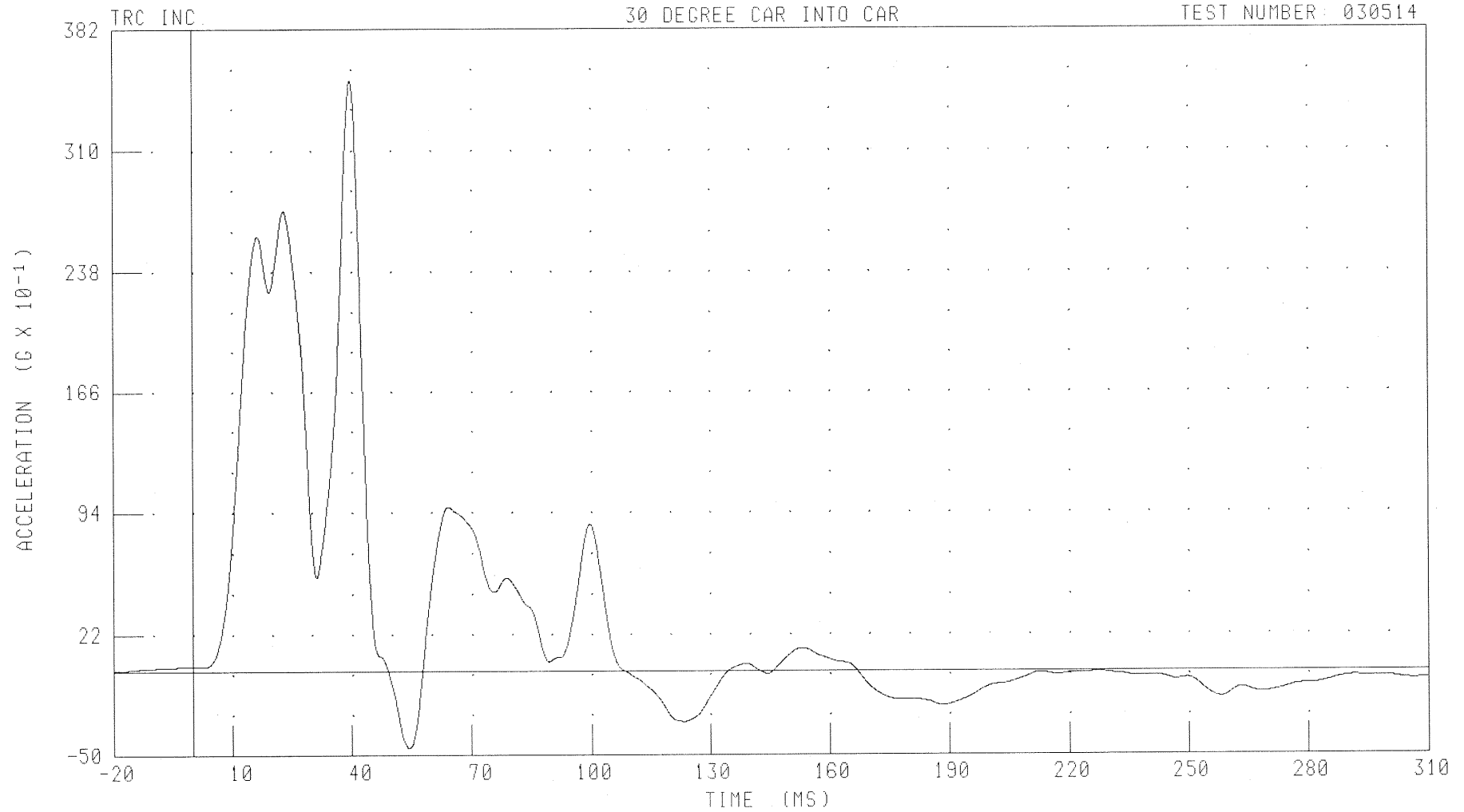
030514

1996 TOYOTA AVALON INTO LEFT FRONT OF 1997 HONDA ACCORD - OBLIQUE 30 DEGREES

TARGET ENGINE TOP Y-AXIS ACCELERATION

30 DEGREE CAR INTO CAR

TEST NUMBER: 030514



CHANNEL: ENCYG1 FILTER: CH. CLASS 60

PEAK DATA: 35.12 G @ 39.84 MS, -4.59 G @ 54.40 MS

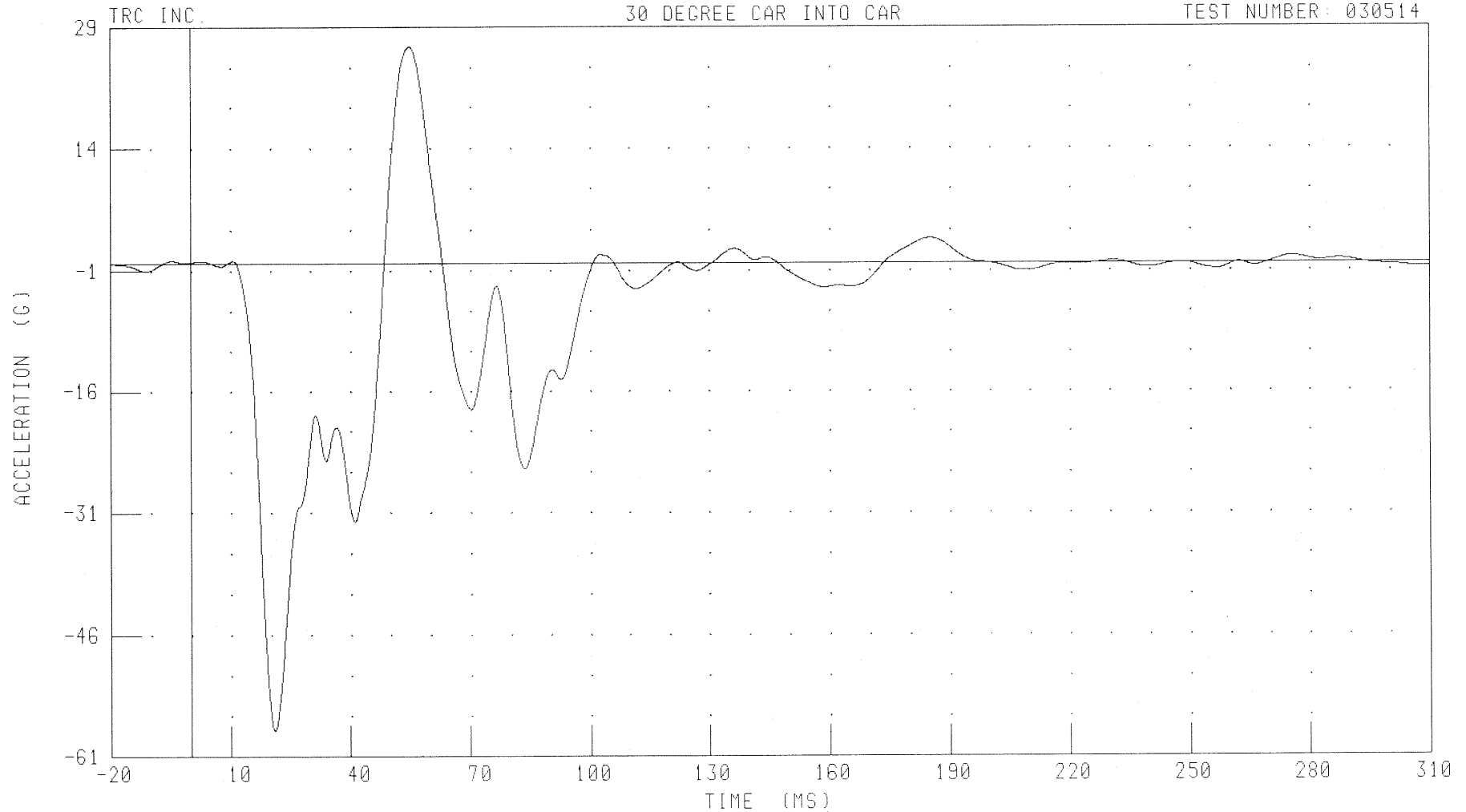
B-78

030514

1996 TOYOTA AVALON INTO LEFT FRONT OF 1997 HONDA ACCORD - OBLIQUE 30 DEGREES
TARGET ENGINE BOTTOM X-AXIS ACCELERATION

30 DEGREE CAR INTO CAR

TEST NUMBER: 030514



CHANNEL: ENGXC2 FILTER: CH. CLASS 60

PEAK DATA: 26.57 G @ 54.88 MS; -57.81 G @ 20.96 MS

B-79

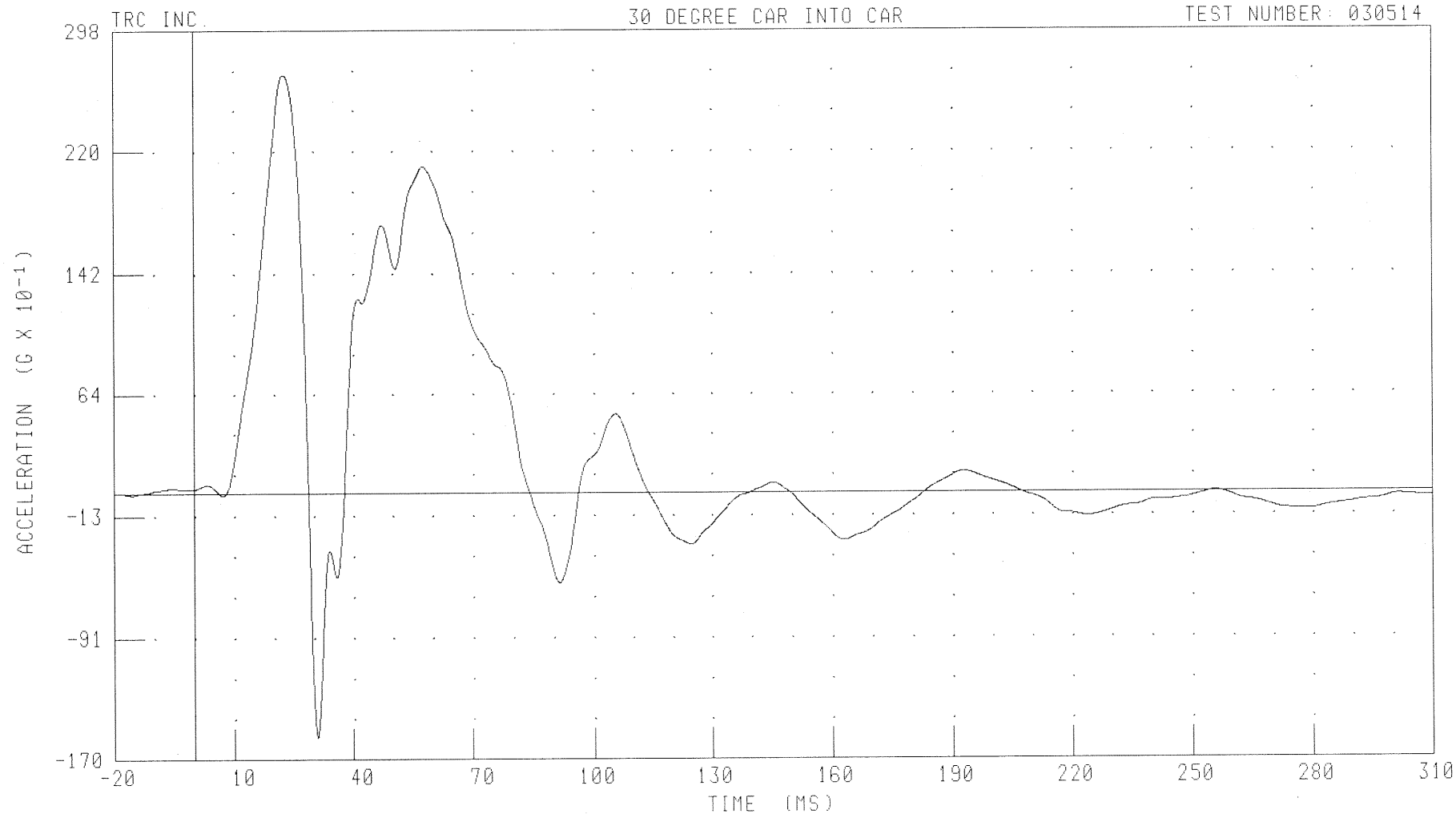
030514

1996 TOYOTA AVALON INTO LEFT FRONT OF 1997 HONDA ACCORD - OBLIQUE 30 DEGREES

TARGET ENGINE BOTTOM Y-AXIS ACCELERATION

30 DEGREE CAR INTO CAR

TEST NUMBER: 030514



CHANNEL: ENCYG2 FILTER: CH. CLASS 60

PEAK DATA: 26.93 G @ 22.48 MS; -15.63 G @ 30.80 MS

B-80

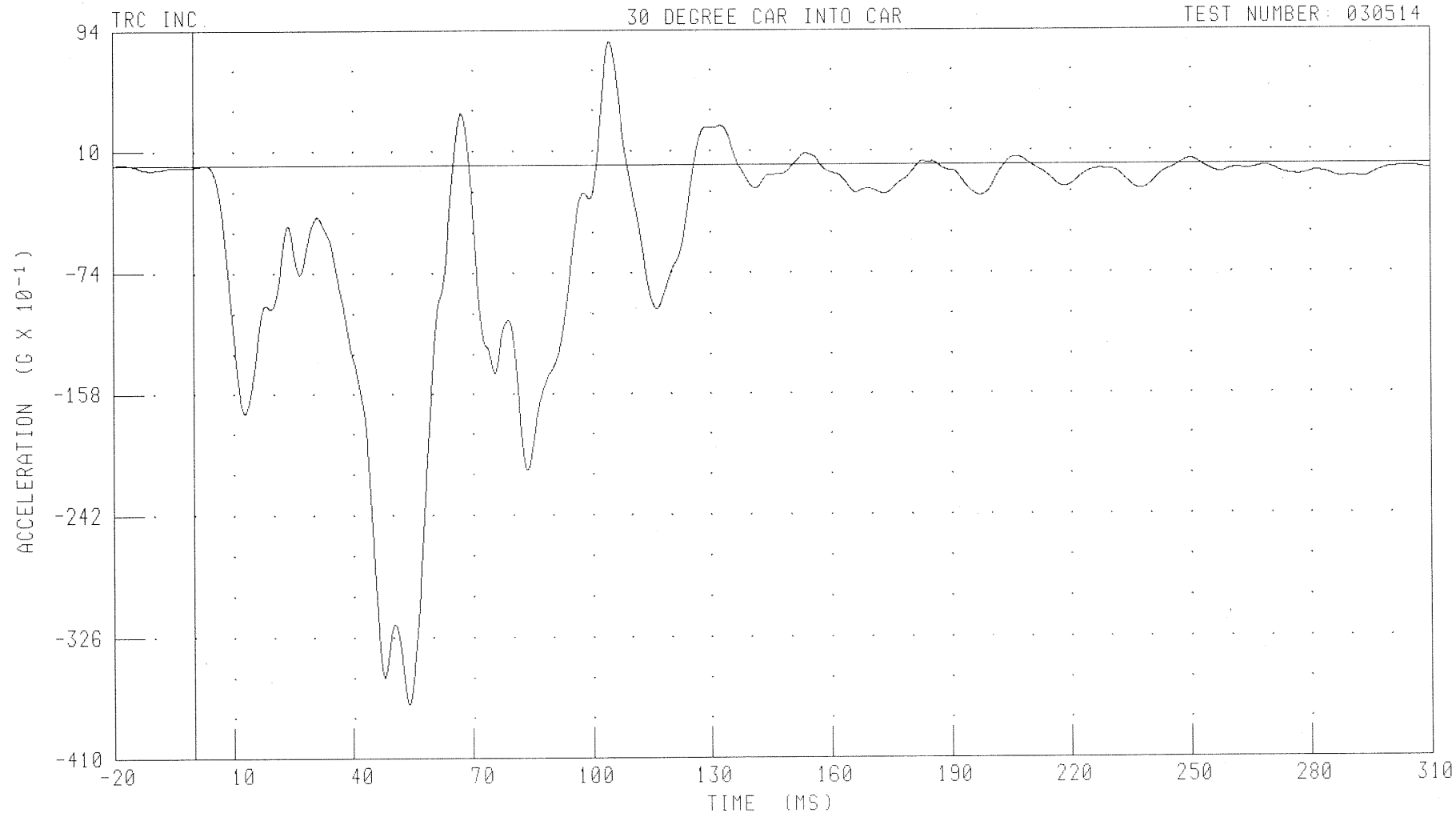
030514

1996 TOYOTA AVALON INTO LEFT FRONT OF 1997 HONDA ACCORD - OBLIQUE 30 DEGREES

TARGET INSTRUMENT PANEL CENTER X-AXIS ACCELERATION

30 DEGREE CAR INTO CAR

TEST NUMBER: 030514



CHANNEL: DPCXG1

FILTER: CH. CLASS 60

PEAK DATA: 8.59 G @ 104.40 MS; -37.24 G @ 54.00 MS

B-81

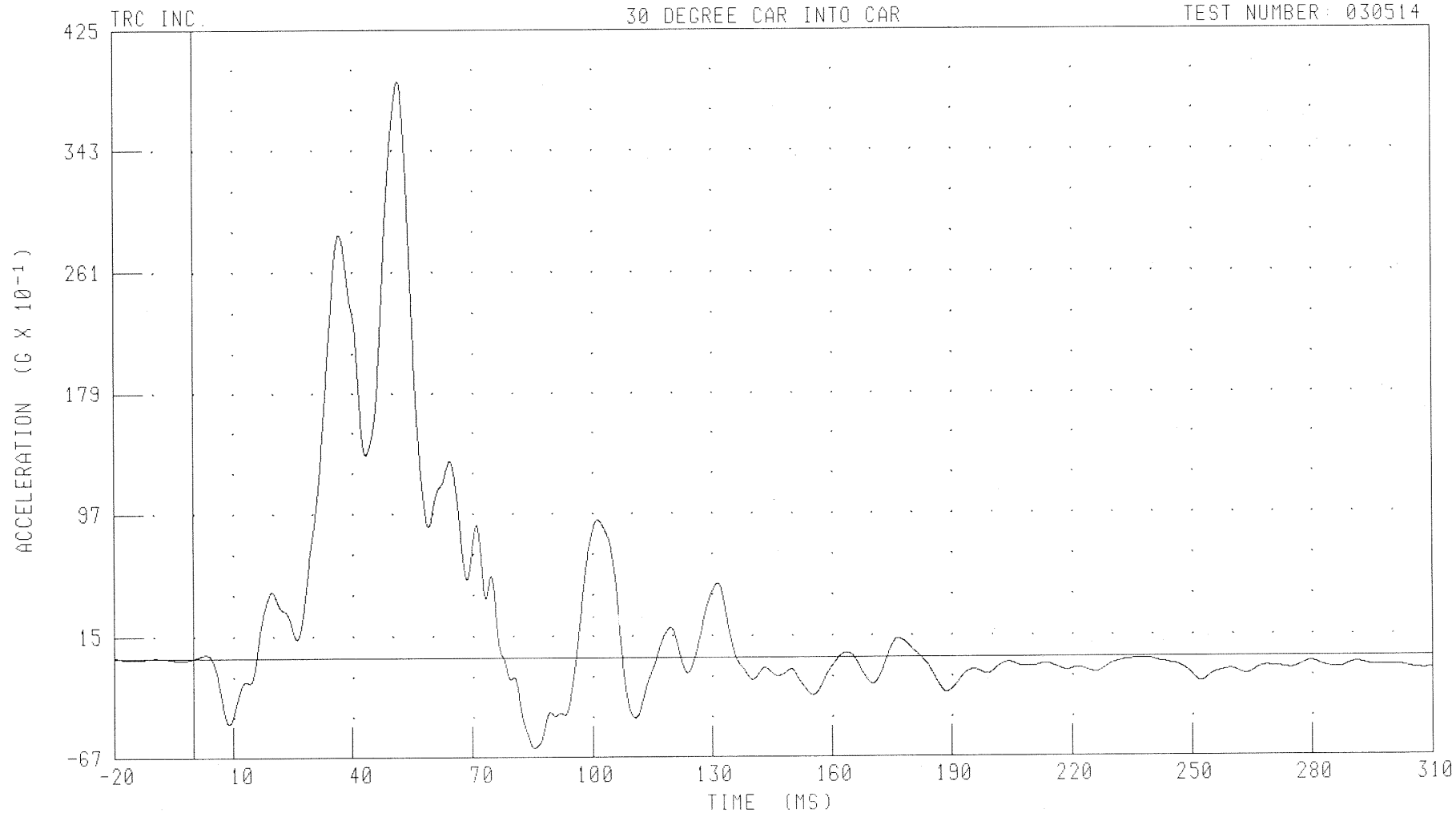
030514

1996 TOYOTA AVALON INTO LEFT FRONT OF 1997 HONDA ACCORD - OBLIQUE 30 DEGREES

TARGET INSTRUMENT PANEL CENTER Y-AXIS ACCELERATION

30 DEGREE CAR INTO CAR

TEST NUMBER: 030514



CHANNEL: DPCYG1

FILTER: CH. CLASS 60

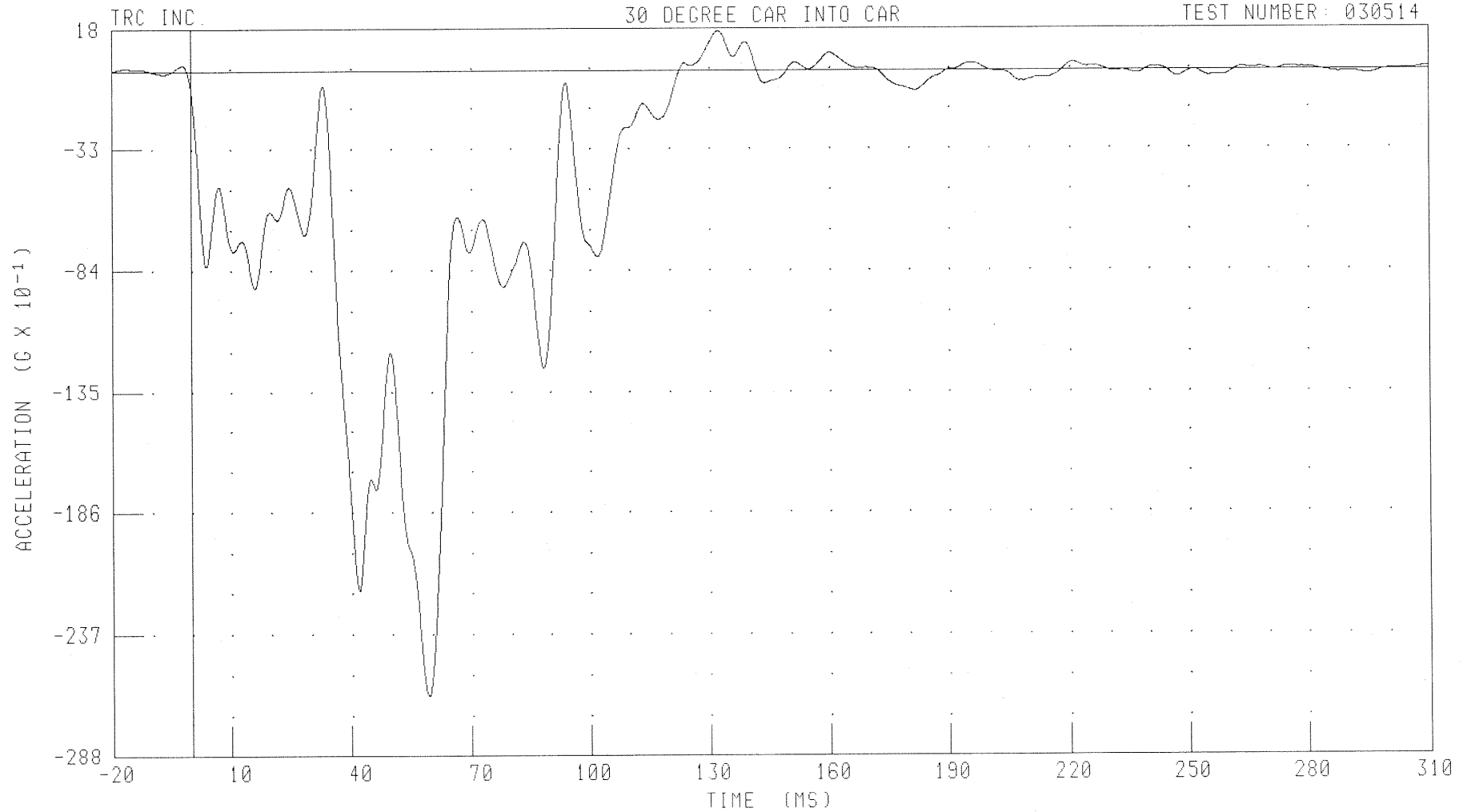
PEAK DATA: 38.95 G @ 51.68 MS, -6.11 G @ 85.44 MS

B-82

030514

1996 TOYOTA AVALON INTO LEFT FRONT OF 1997 HONDA ACCORD - OBLIQUE 30 DEGREES
TARGET LEFT REAR SEAT CROSSMEMBER X-AXIS ACCELERATION

TEST NUMBER: 030514



CHANNEL: LRXXG1 FILTER: CH. CLASS 60

PEAK DATA: 1.69 G @ 132.32 MS; -26.26 G @ 59.20 MS

B-83

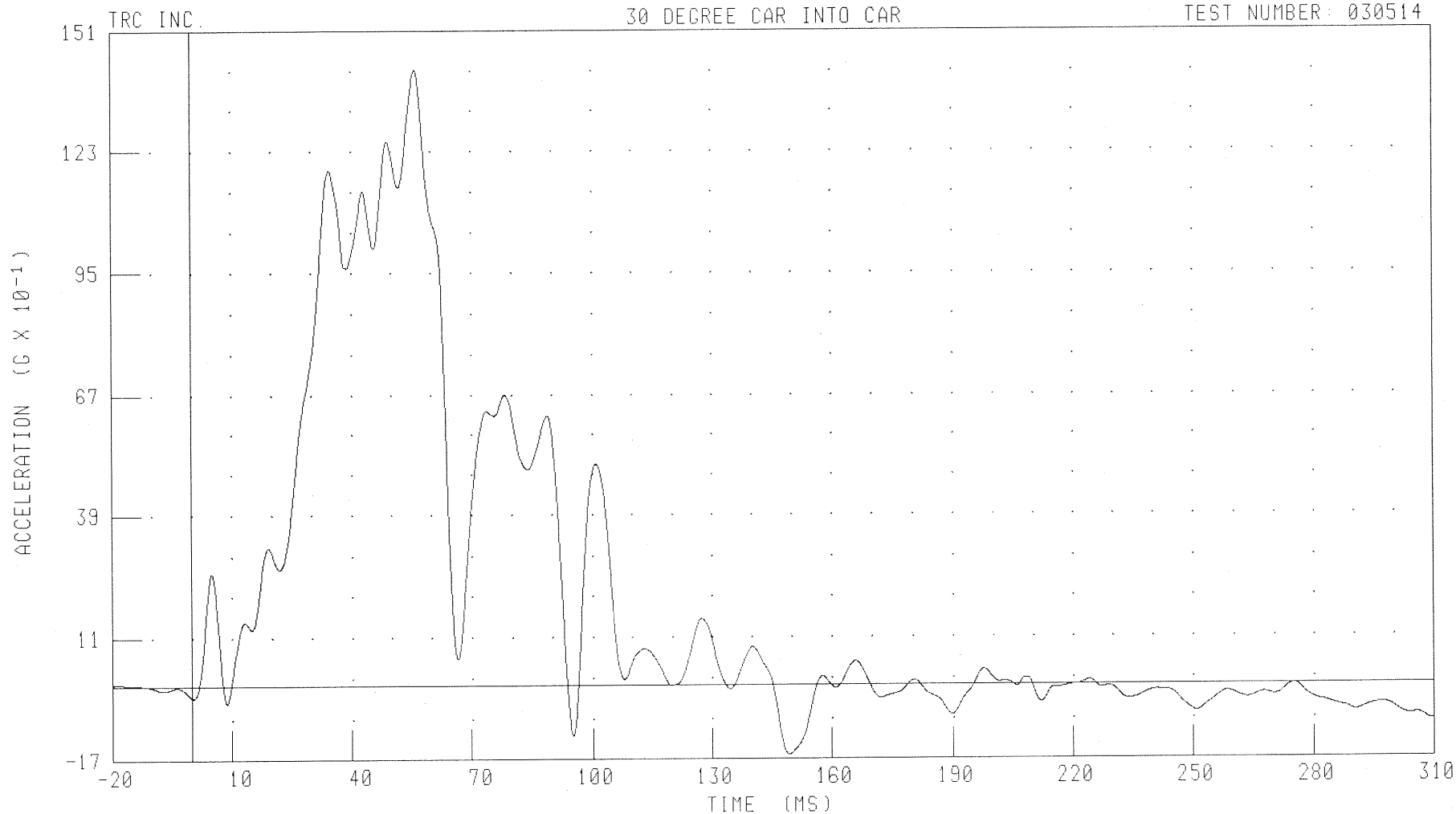
030514

1996 TOYOTA AVALON INTO LEFT FRONT OF 1997 HONDA ACCORD - OBLIQUE 30 DEGREES

TARGET LEFT REAR SEAT CROSSMEMBER Y-AXIS ACCELERATION

30 DEGREE CAR INTO CAR

TEST NUMBER: 030514



CHANNEL: LRXYG1 FILTER: CH. CLASS 60

PEAK DATA: 14.19 G @ 56.24 MS, -1.62 G @ 149.44 MS

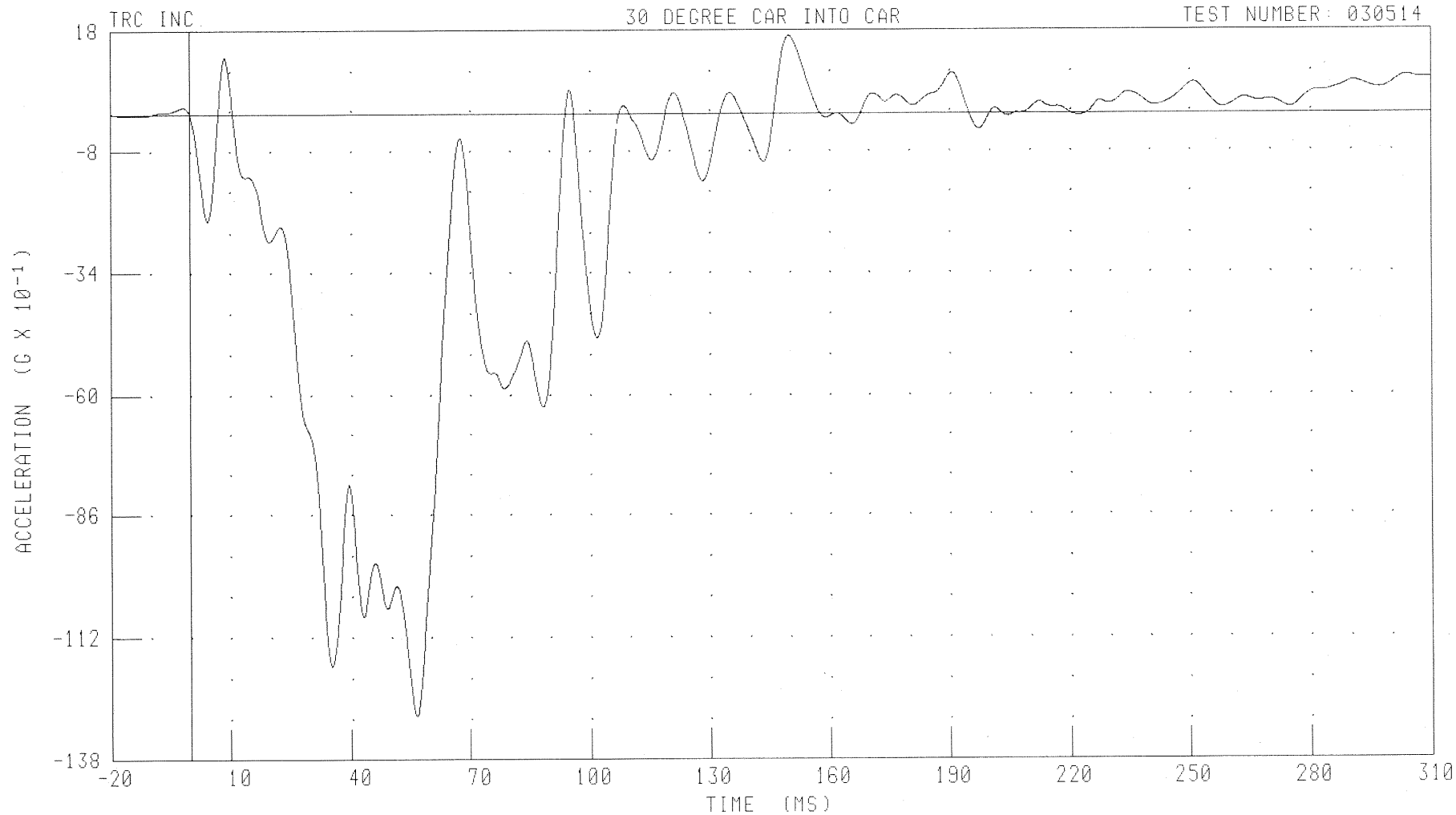
B-84

030514

1996 TOYOTA AVALON INTO LEFT FRONT OF 1997 HONDA ACCORD - OBLIQUE 30 DEGREES
TARGET RIGHT REAR SEAT CROSSMEMBER X-AXIS ACCELERATION

30 DEGREE CAR INTO CAR

TEST NUMBER: 030514



CHANNEL: RRXXG1 FILTER: CH. CLASS 60

PEAK DATA: 1.69 G @ 149.92 MS, -12.87 G @ 56.40 MS

B-85

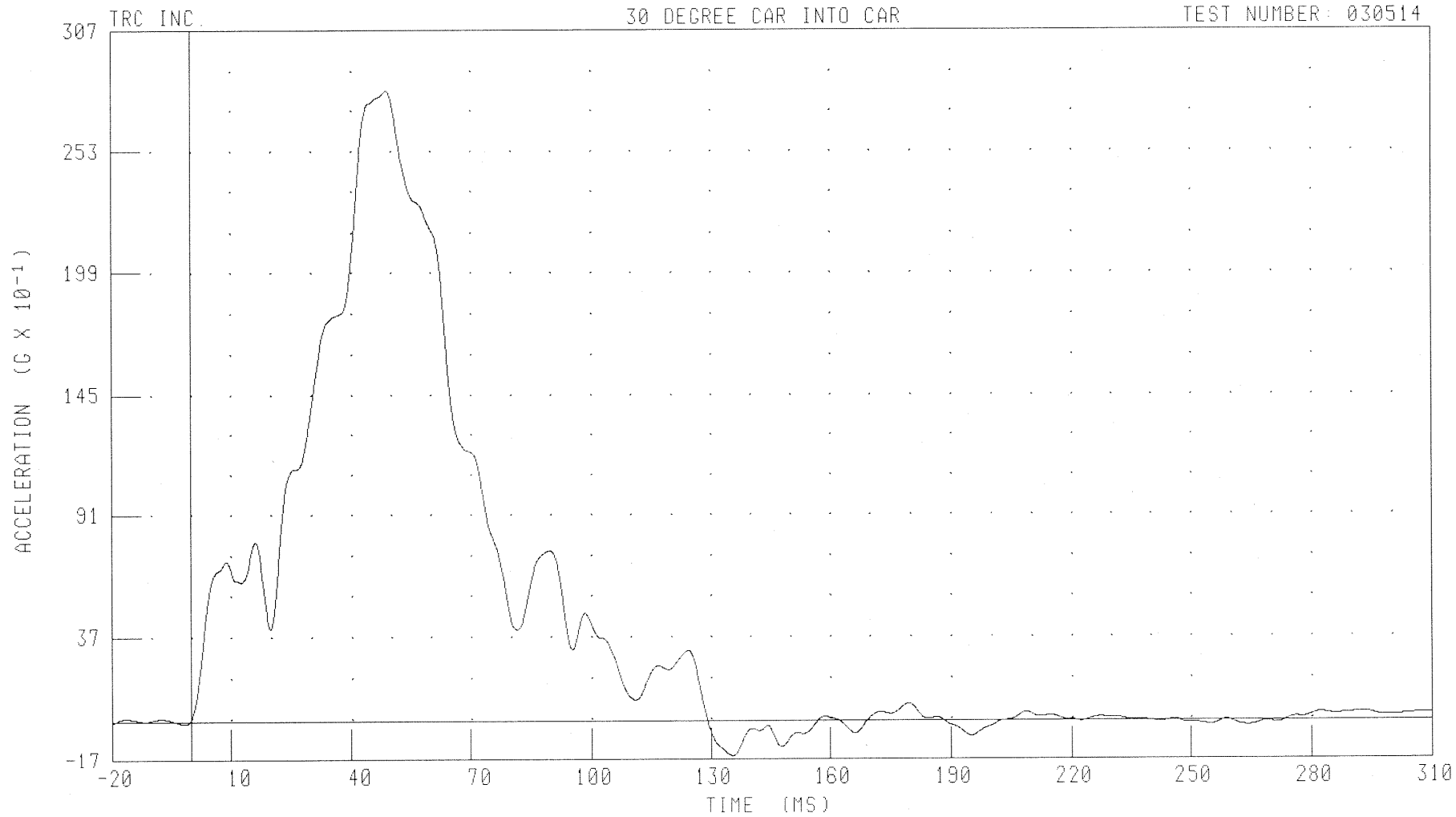
030514

1996 TOYOTA AVALON INTO LEFT FRONT OF 1997 HONDA ACCORD - OBLIQUE 30 DEGREES

TARGET RIGHT REAR SEAT CROSSMEMBER Y-AXIS ACCELERATION

30 DEGREE CAR INTO CAR

TEST NUMBER: 030514



CHANNEL: RRXYG1 FILTER: CH. CLASS 60

PEAK DATA: 28.01 G @ 48.96 MS, -1.55 G @ 135.52 MS

B-86

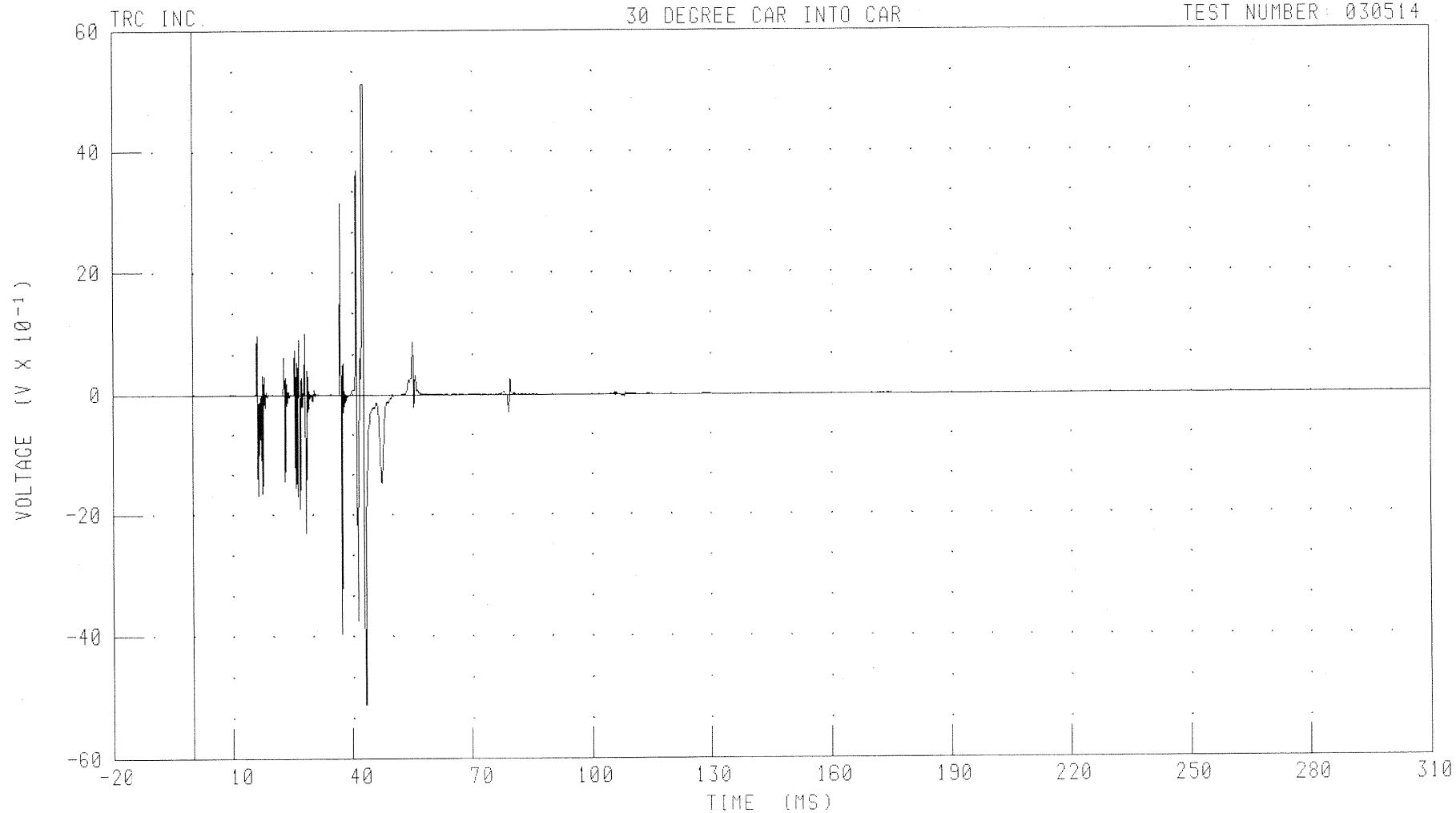
030514

1996 TOYOTA AVALON INTO LEFT FRONT OF 1997 HONDA ACCORD - OBLIQUE 30 DEGREES

TARGET DRIVER AIRBAG EVENT

30 DEGREE CAR INTO CAR

TEST NUMBER: 030514



CHANNEL: DABET1 FILTER: CH. CLASS 1000

PEAK DATA: 5.12 V @ 42.56 MS; -5.12 V @ 43.12 MS

B-87

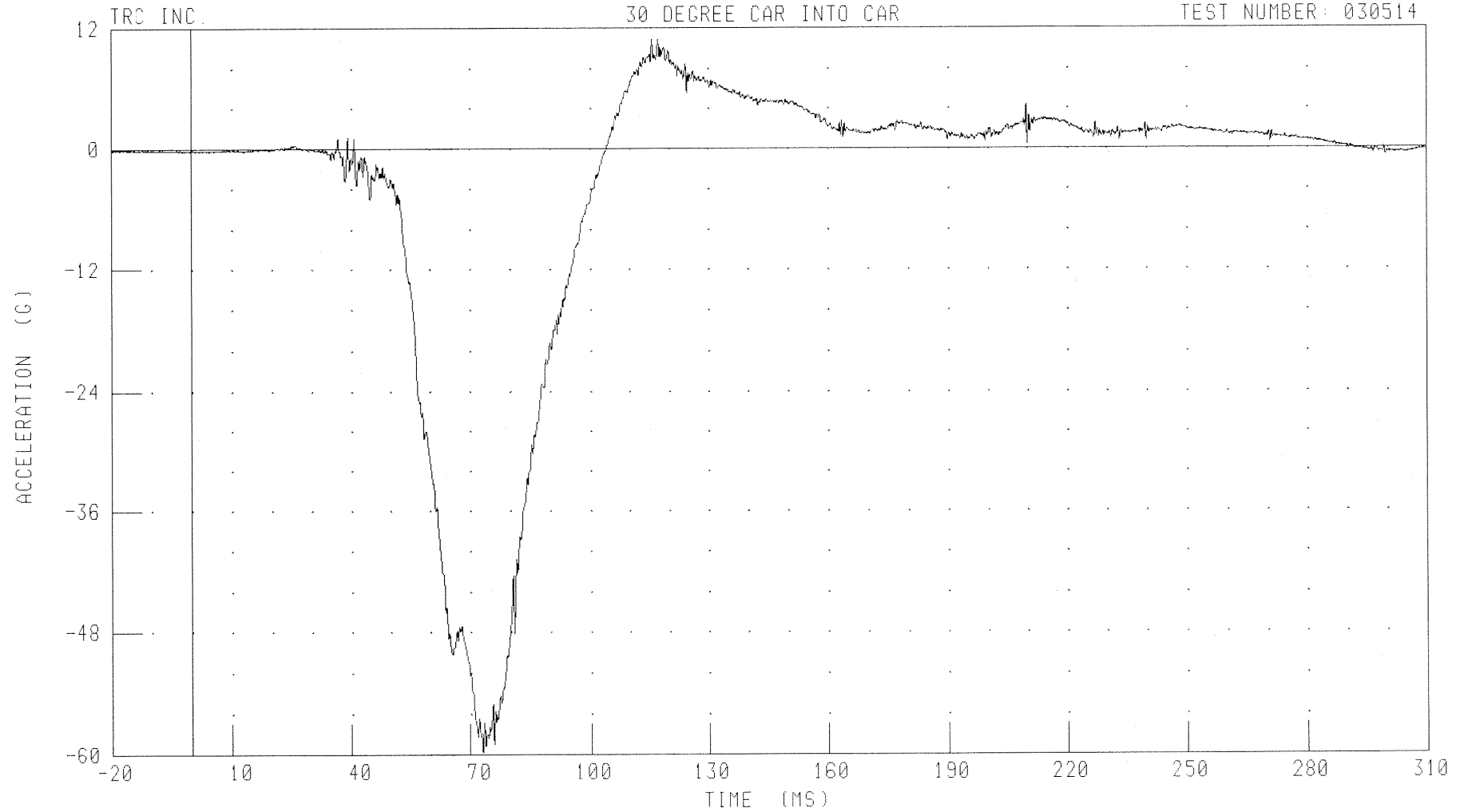
030514

1996 TOYOTA AVALON INTO LEFT FRONT OF 1997 HONDA ACCORD - OBLIQUE 30 DEGREES

BULLET DRIVER HEAD X-AXIS ACCELERATION

30 DEGREE CAR INTO CAR

TEST NUMBER: 030514



CHANNEL: HEDXGA FILTER: CH. CLASS 1000

PEAK DATA: 10.92 G @ 115.84 MS, -59.83 G @ 73.12 MS

B-88

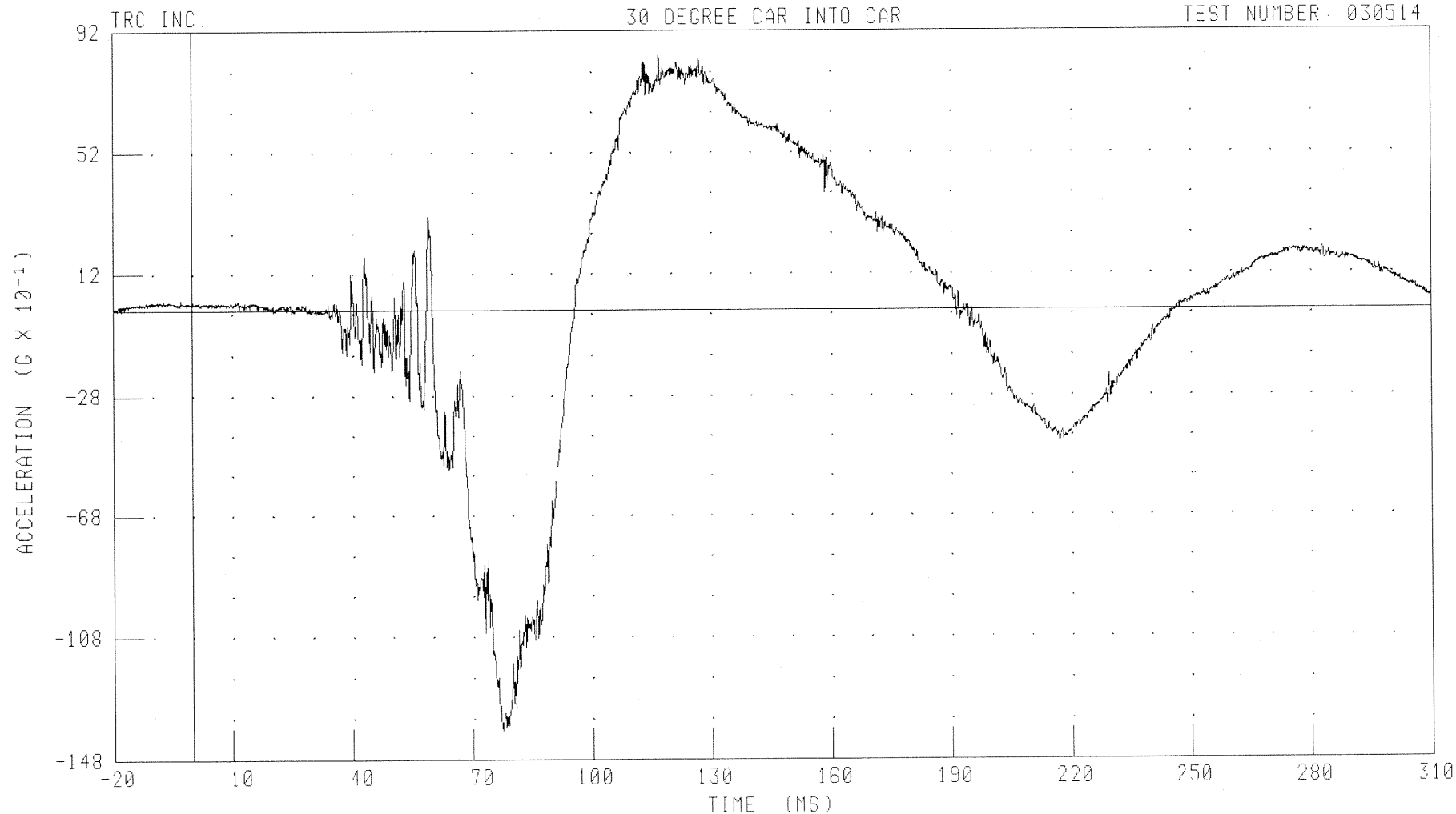
030514

1996 TOYOTA AVALON INTO LEFT FRONT OF 1997 HONDA ACCORD - OBLIQUE 30 DEGREES

BULLET DRIVER HEAD Y-AXIS ACCELERATION

30 DEGREE CAR INTO CAR

TEST NUMBER: 030514



CHANNEL: HEDYCA FILTER: CH. CLASS 1000

PEAK DATA: 8.38 G @ 117.20 MS; -13.84 G @ 77.44 MS

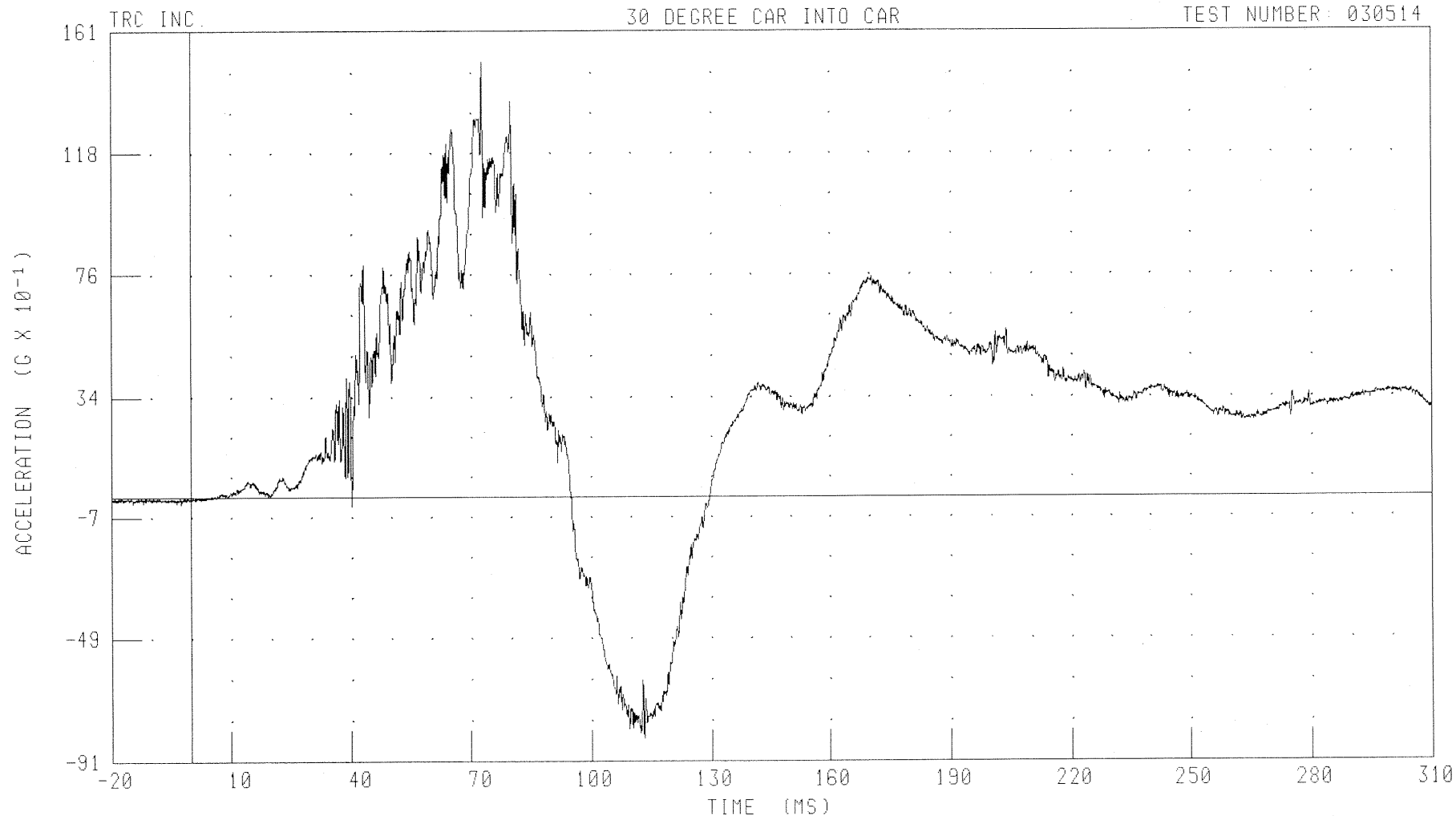
B-89

030514

1996 TOYOTA AVALON INTO LEFT FRONT OF 1997 HONDA ACCORD - OBLIQUE 30 DEGREES
BULLET DRIVER HEAD Z-AXIS ACCELERATION

30 DEGREE CAR INTO CAR

TEST NUMBER: 030514



CHANNEL: HEDZGA FILTER: CH. CLASS 1000

PEAK DATA: 15.06 G @ 72.96 MS; -8.32 G @ 113.20 MS

B-90

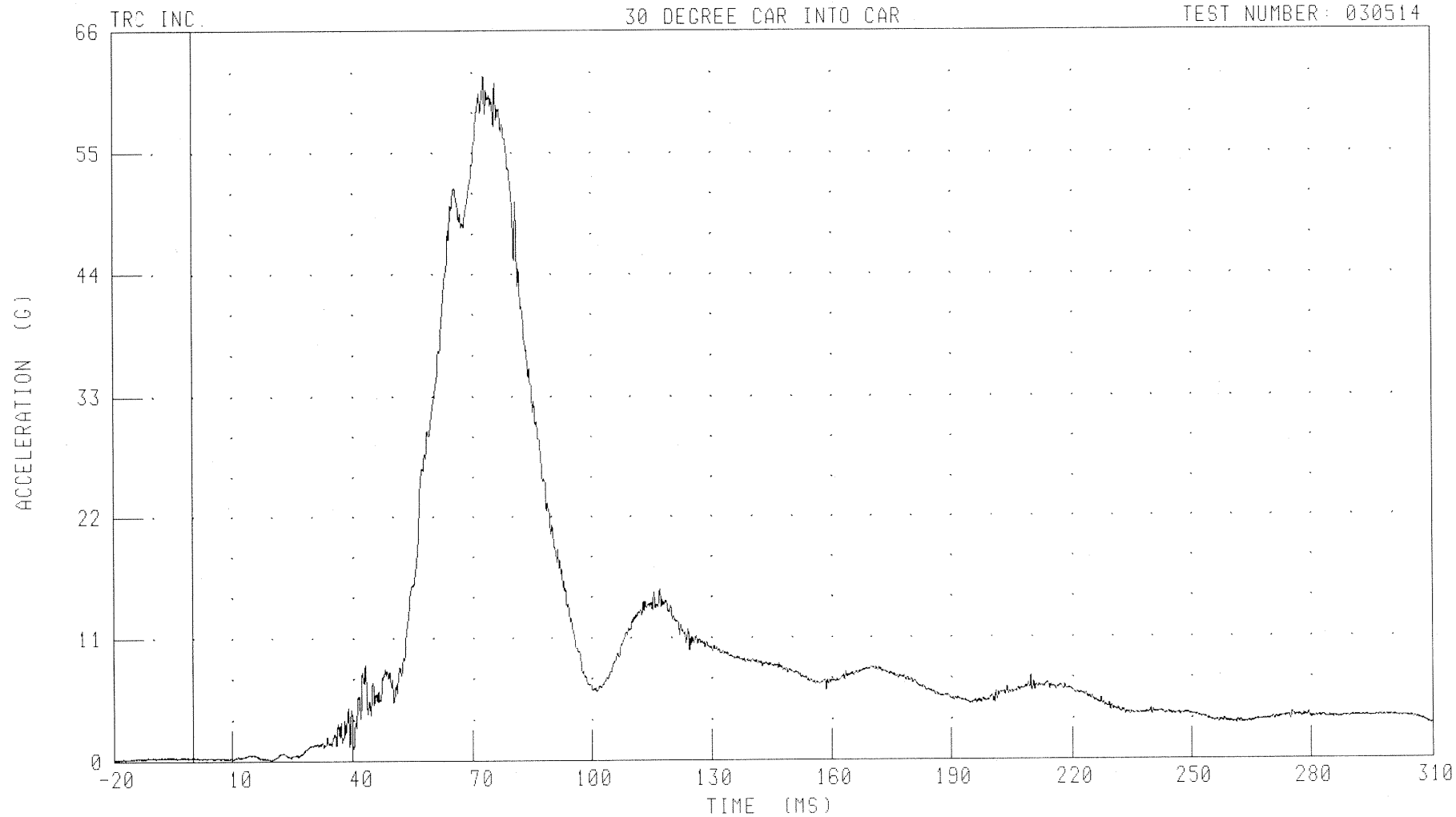
030514

1996 TOYOTA AVALON INTO LEFT FRONT OF 1997 HONDA ACCORD - OBLIQUE 30 DEGREES

BULLET DRIVER HEAD RESULTANT ACCELERATION

30 DEGREE CAR INTO CAR

TEST NUMBER: 030514



CHANNEL: HEDRGA FILTER: CH CLASS 1000

PEAK DATA: 62.02 G @ 73.04 MS; 0.02 G @ 19.76 MS

B-91

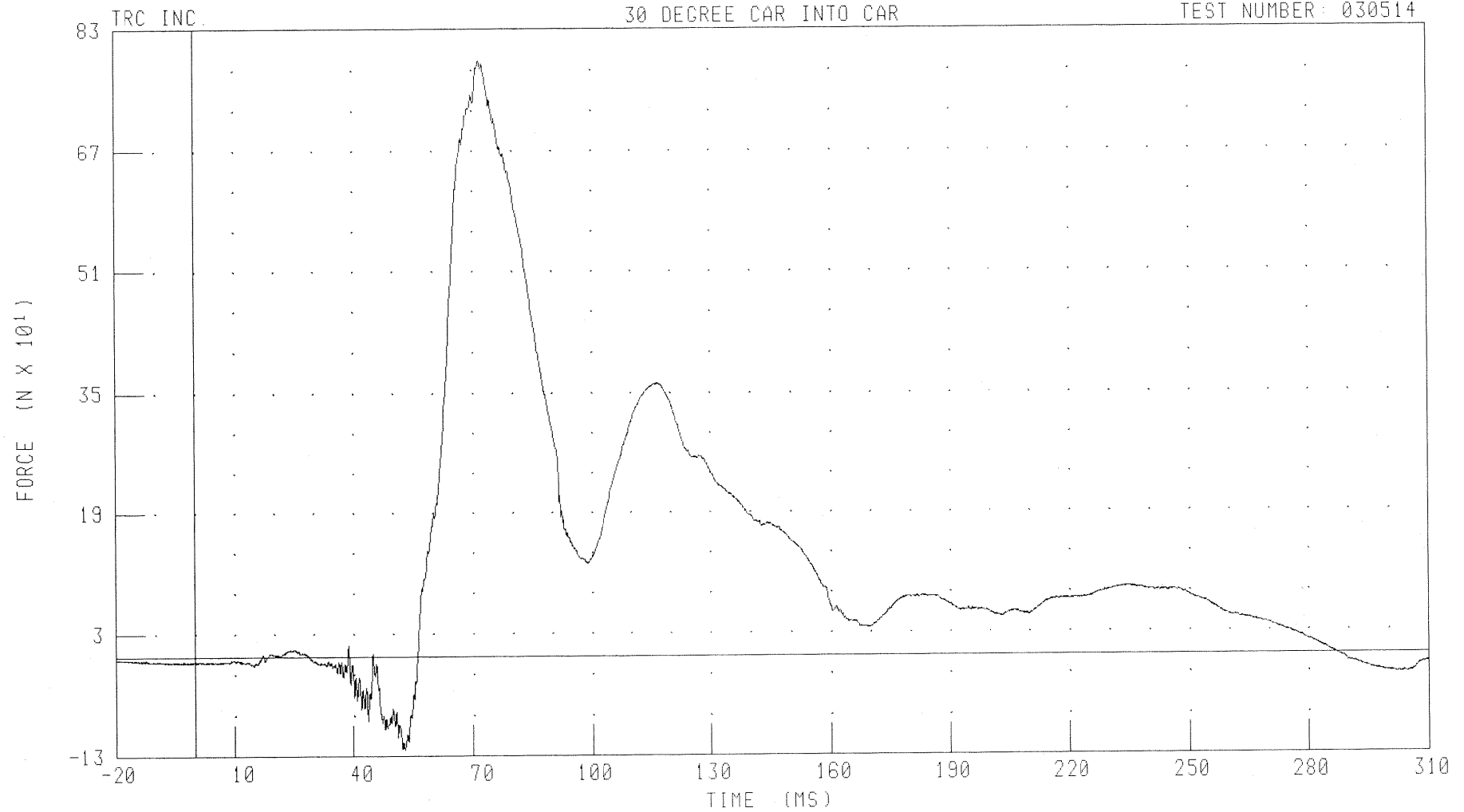
030514

1996 TOYOTA AVALON INTO LEFT FRONT OF 1997 HONDA ACCORD - OBLIQUE 30 DEGREES

BULLET DRIVER NECK X-AXIS SHEAR FORCE

30 DEGREE CAR INTO CAR

TEST NUMBER: 030514



B-92

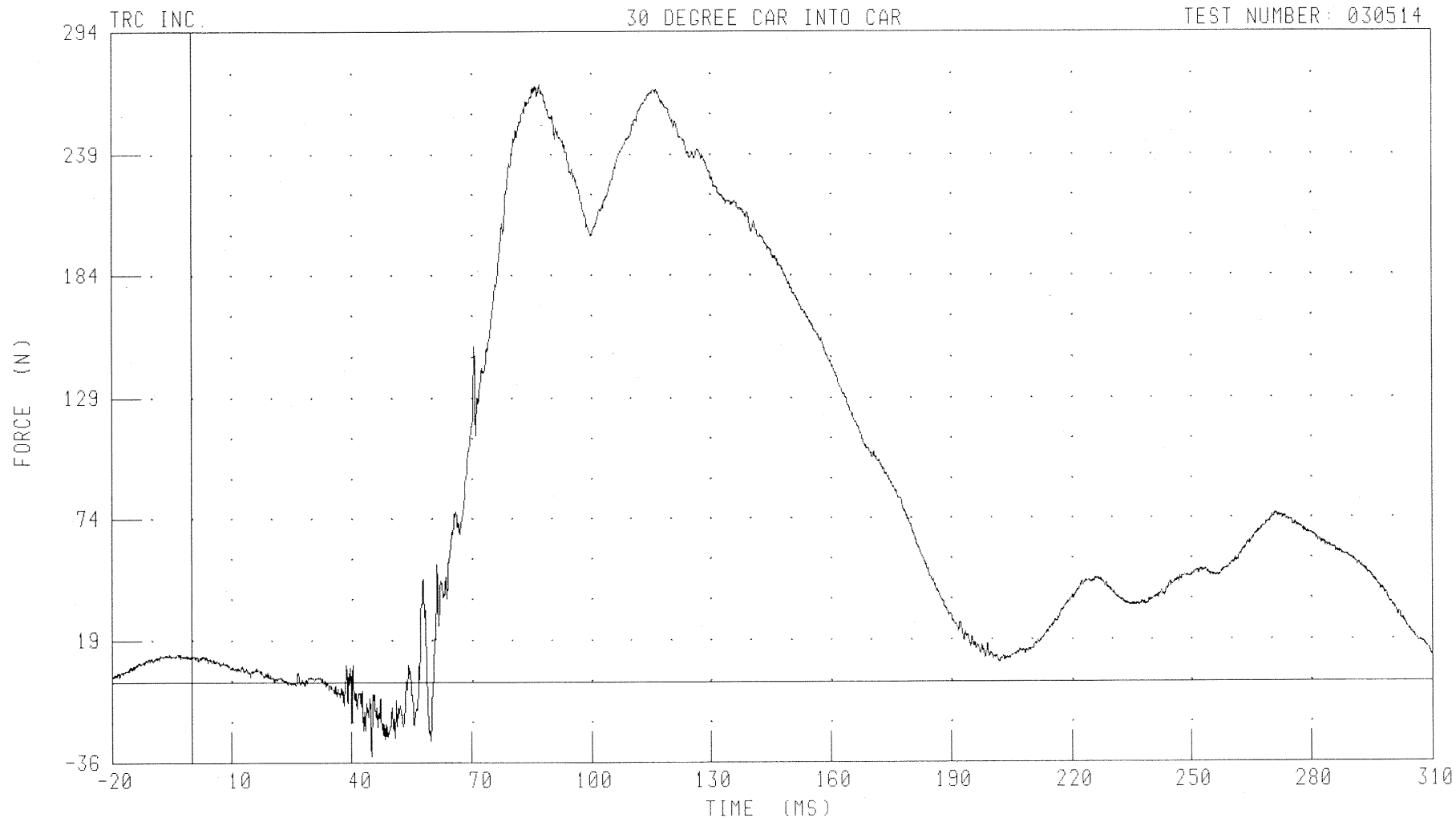
030514

1996 TOYOTA AVALON INTO LEFT FRONT OF 1997 HONDA ACCORD - OBLIQUE 30 DEGREES

BULLET DRIVER NECK Y-AXIS SHEAR FORCE

30 DEGREE CAR INTO CAR

TEST NUMBER: 030514



CHANNEL: NEKYFA FILTER: CH. CLASS 1000

PEAK DATA: 270.93 N @ 87.12 MS, -33.20 N @ 44.88 MS

B-93

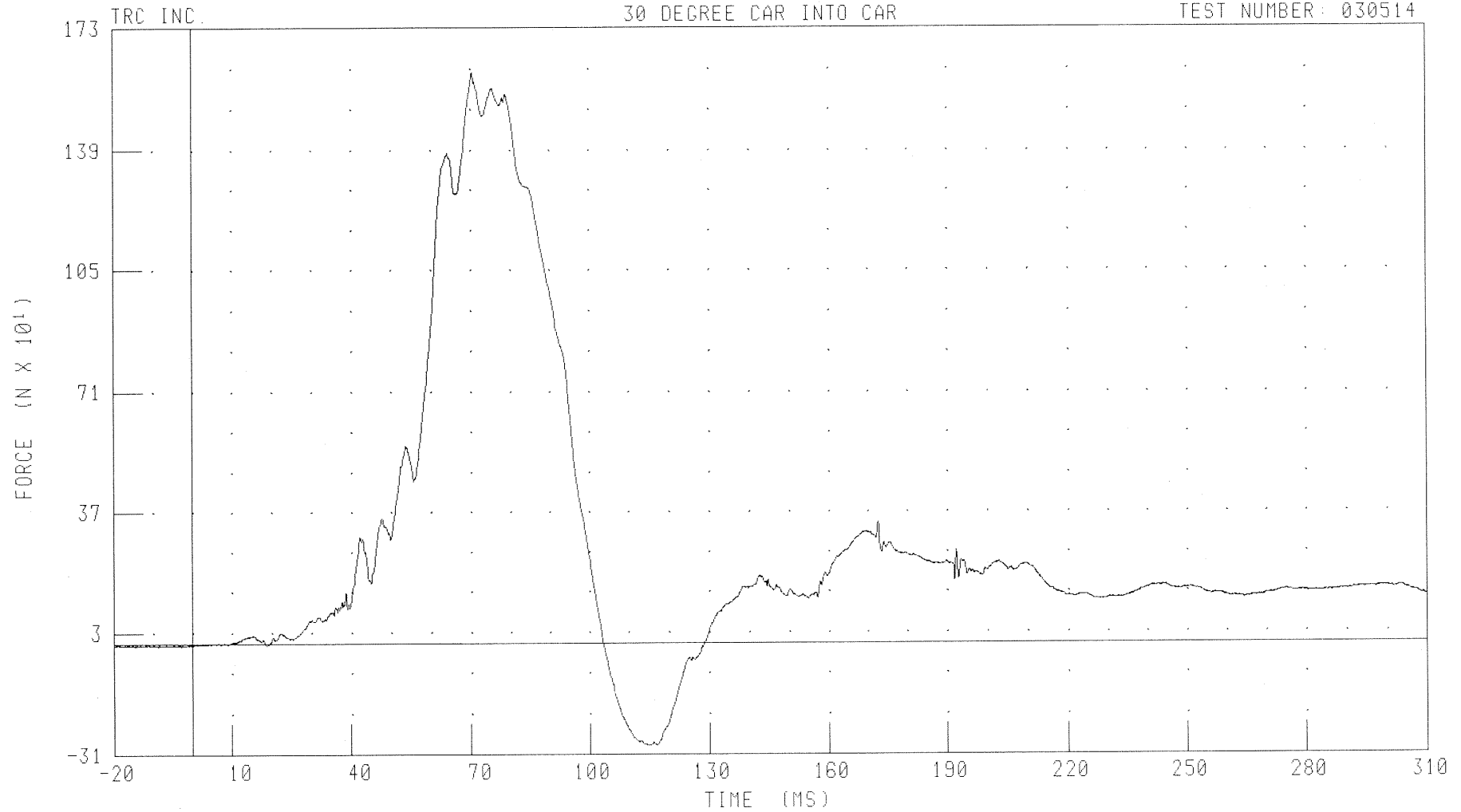
030514

1996 TOYOTA AVALON INTO LEFT FRONT OF 1997 HONDA ACCORD - OBLIQUE 30 DEGREES

BULLET DRIVER NECK Z-AXIS AXIAL FORCE

30 DEGREE CAR INTO CAR

TEST NUMBER: 030514



CHANNEL: NEKZFA FILTER: CH. CLASS 1000

B-94

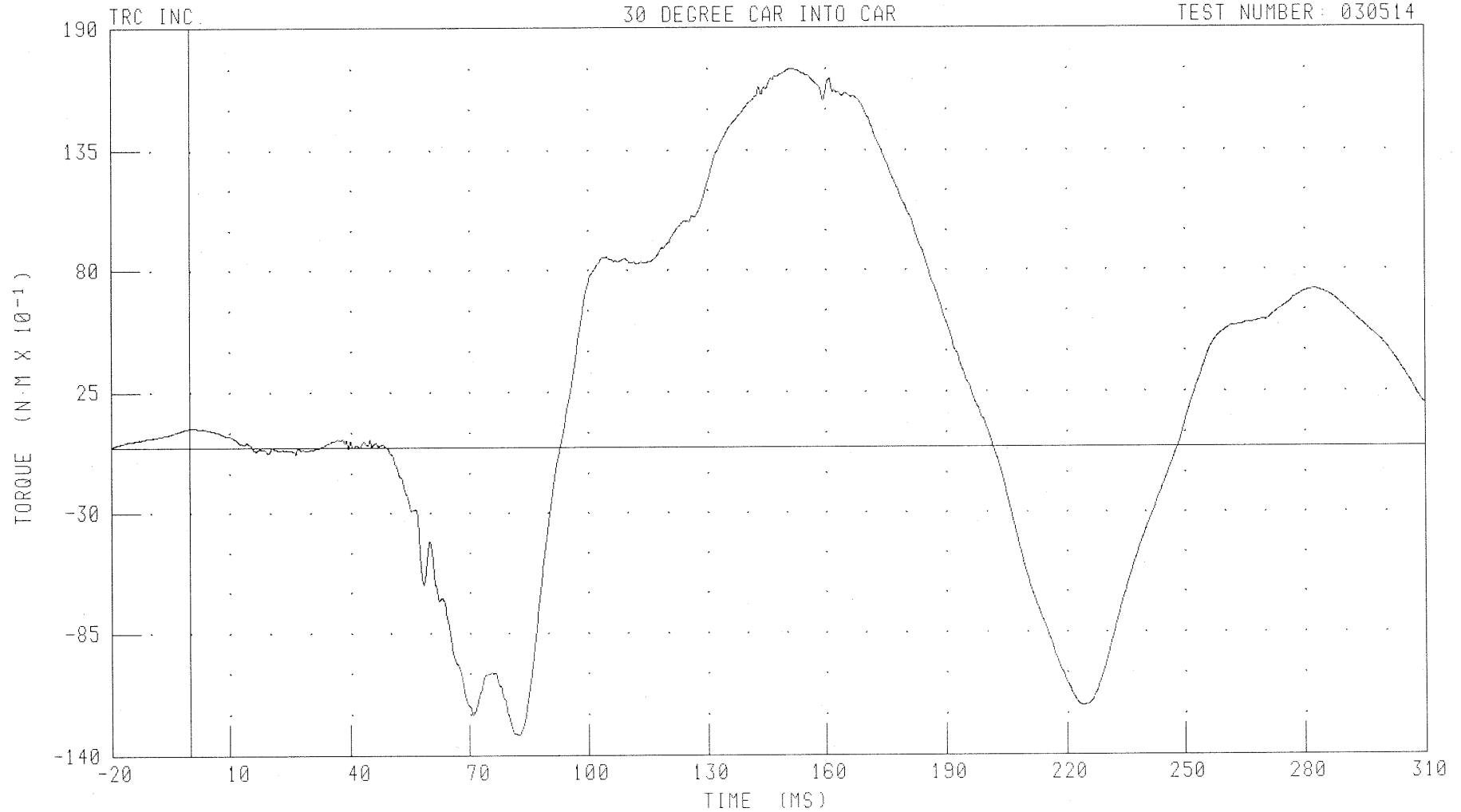
030514

1996 TOYOTA AVALON INTO LEFT FRONT OF 1997 HONDA ACCORD - OBLIQUE 30 DEGREES

BULLET CRIVER NECK MOMENT ABOUT X AXIS

30 DEGREE CAR INTO CAR

TEST NUMBER: 030514



CHANNEL: NEKXMA FILTER: CH. CLASS 600

PEAK DATA: 17.15 N·m @ 151.28 MS; -13.07 N·m @ 82.72 MS

B-95

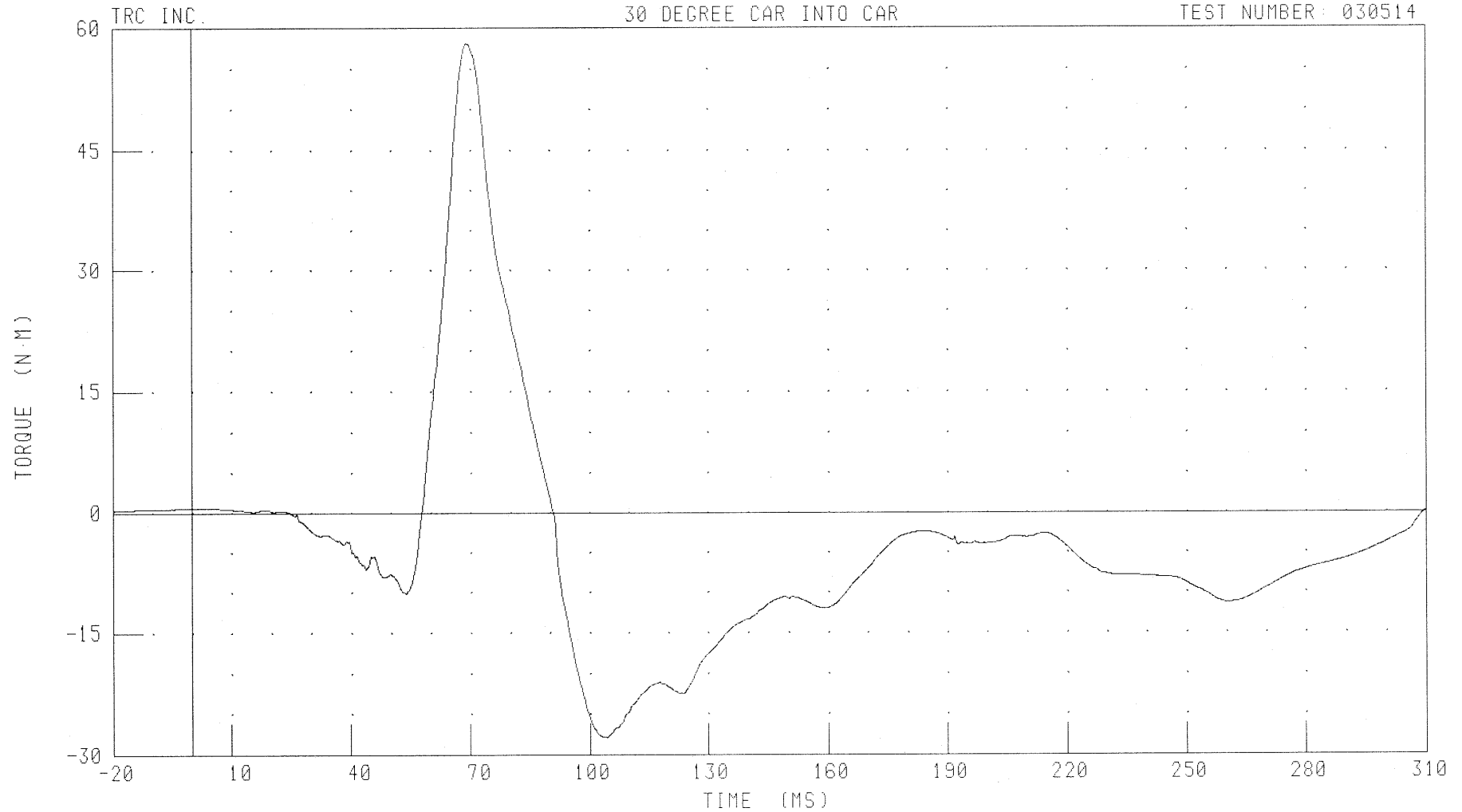
030514

1996 TOYOTA AVALON INTO LEFT FRONT OF 1997 HONDA ACCORD - OBLIQUE 30 DEGREES

BULLET DRIVER NECK MOMENT ABOUT Y AXIS

30 DEGREE CAR INTO CAR

TEST NUMBER: 030514



CHANNEL: NEKYMA FILTER: CH. CLASS 600

PEAK DATA: 58.06 N·M @ 69.20 MS; -27.92 N·M @ 104.40 MS

B-96

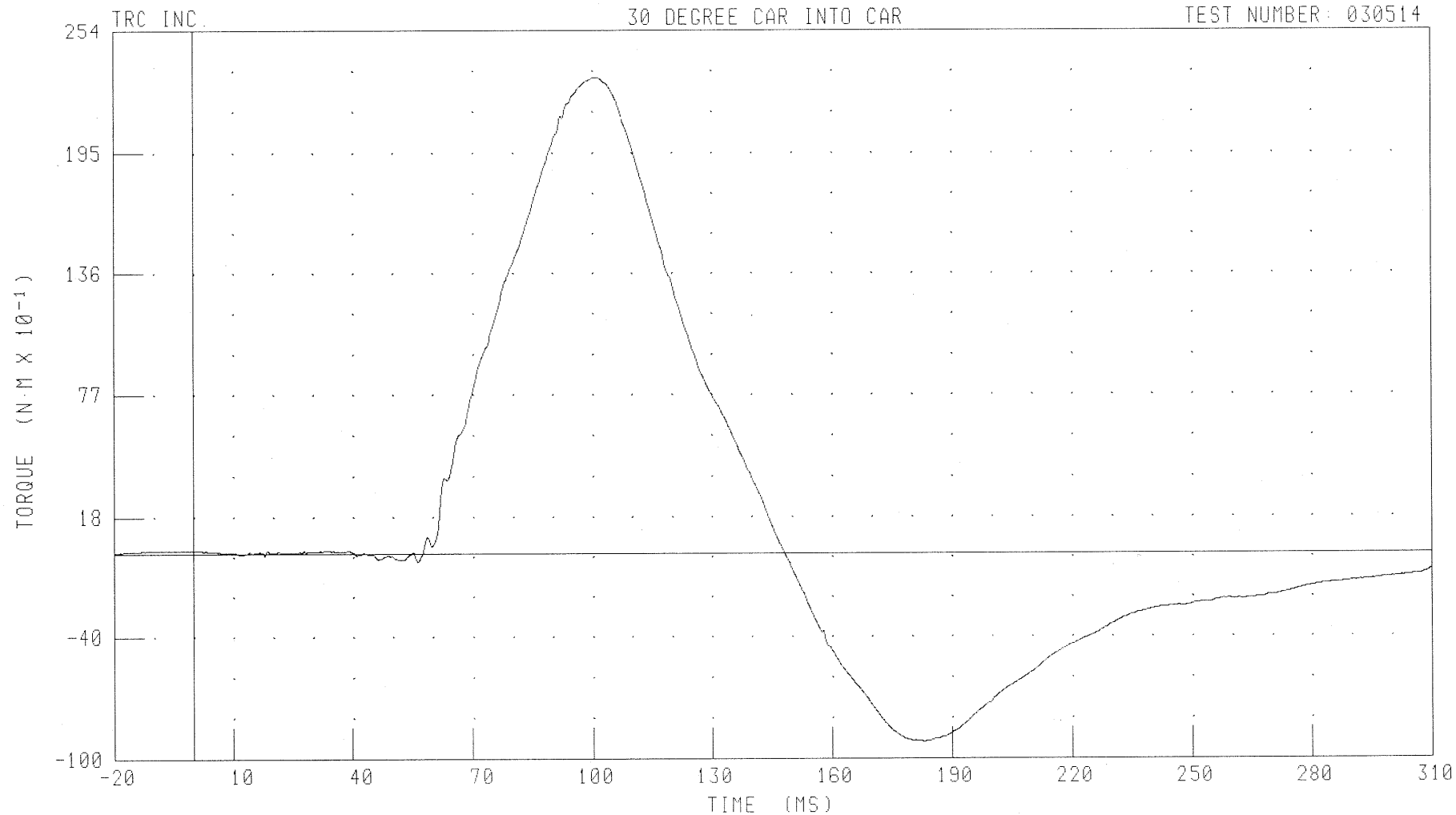
030514

1996 TOYOTA AVALON INTO LEFT FRONT OF 1997 HONDA ACCORD - OBLIQUE 30 DEGREES

BULLET DRIVER NECK MOMENT ABOUT Z AXIS

30 DEGREE CAR INTO CAR

TEST NUMBER: 030514



CHANNEL: NEKZMA FILTER: CH. CLASS 600

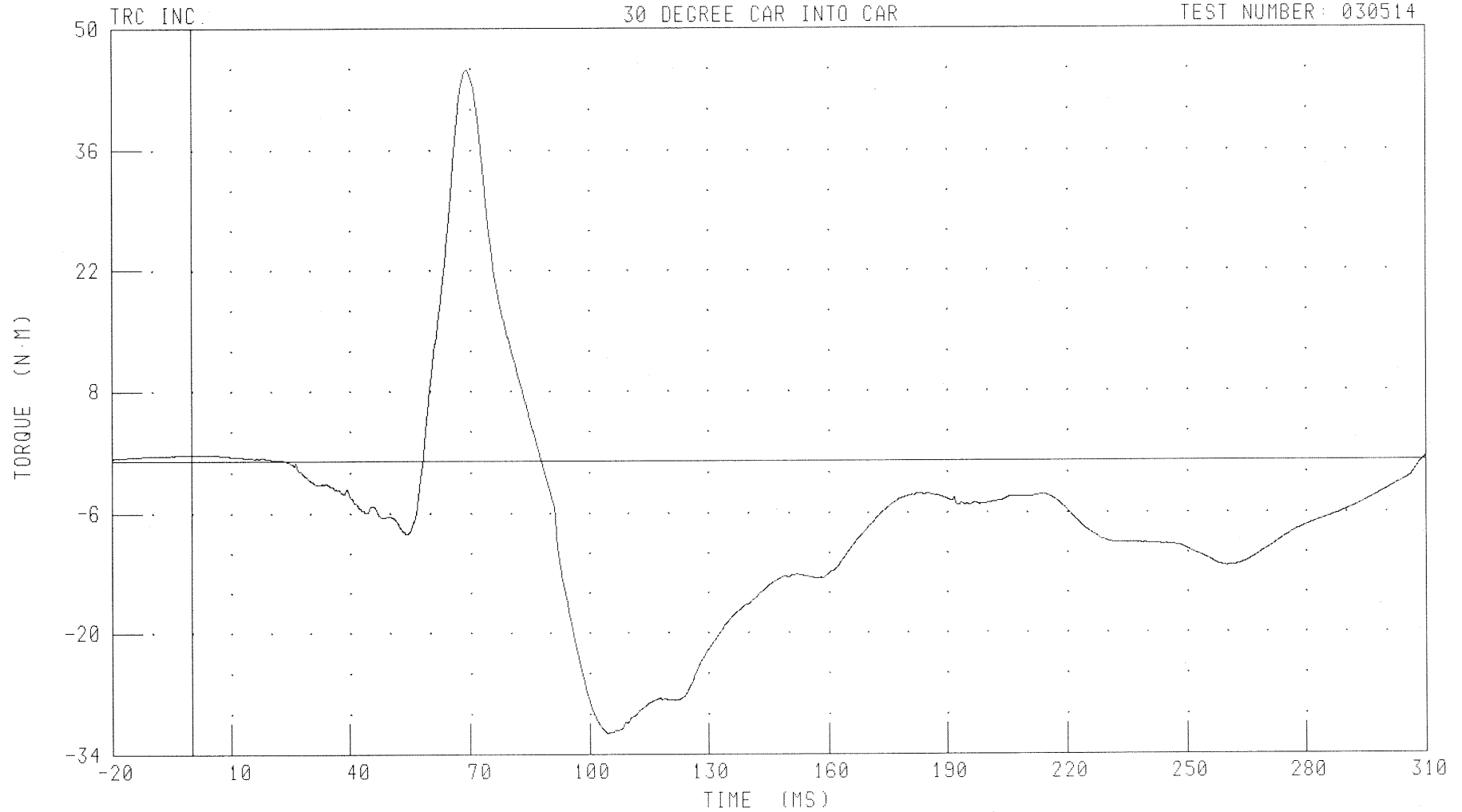
B-97

030514

1996 TOYOTA AVALON INTO LEFT FRONT OF 1997 HONDA ACCORD - OBLIQUE 30 DEGREES
BULLET DRIVER NECK OCCIPITAL CONDYLE MOMENT ABOUT Y AXIS

30 DEGREE CAR INTO CAR

TEST NUMBER: 030514



CHANNEL: NEKOMA FILTER: CH. CLASS 600

PEAK DATA: 45.15 N·M @ 69.12 MS; -31.64 N·M @ 104.72 MS

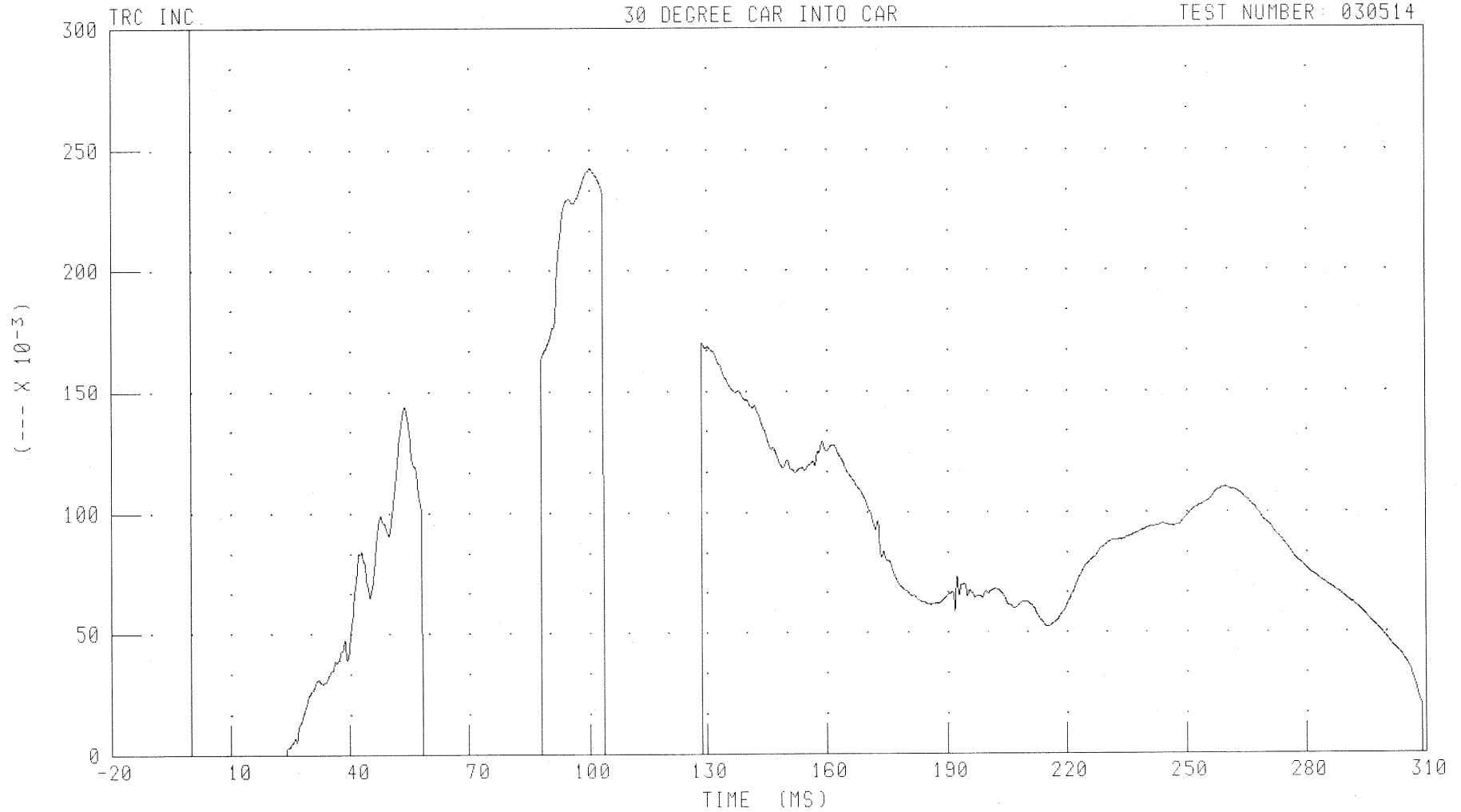
B-98

030514

1996 TOYOTA AVALON INTO LEFT FRONT OF 1997 HONDA ACCORD - OBLIQUE 30 DEGREES
BULLET DRIVER NIJ TENSION/EXTENSION

30 DEGREE CAR INTO CAR

TEST NUMBER: 030514



CHANNEL: NTEA

FILTER: CH. CLASS 600

PEAK DATA: 0.24 --- @ 100.24 MS; 0.00 --- @ -20.00 MS

B-99

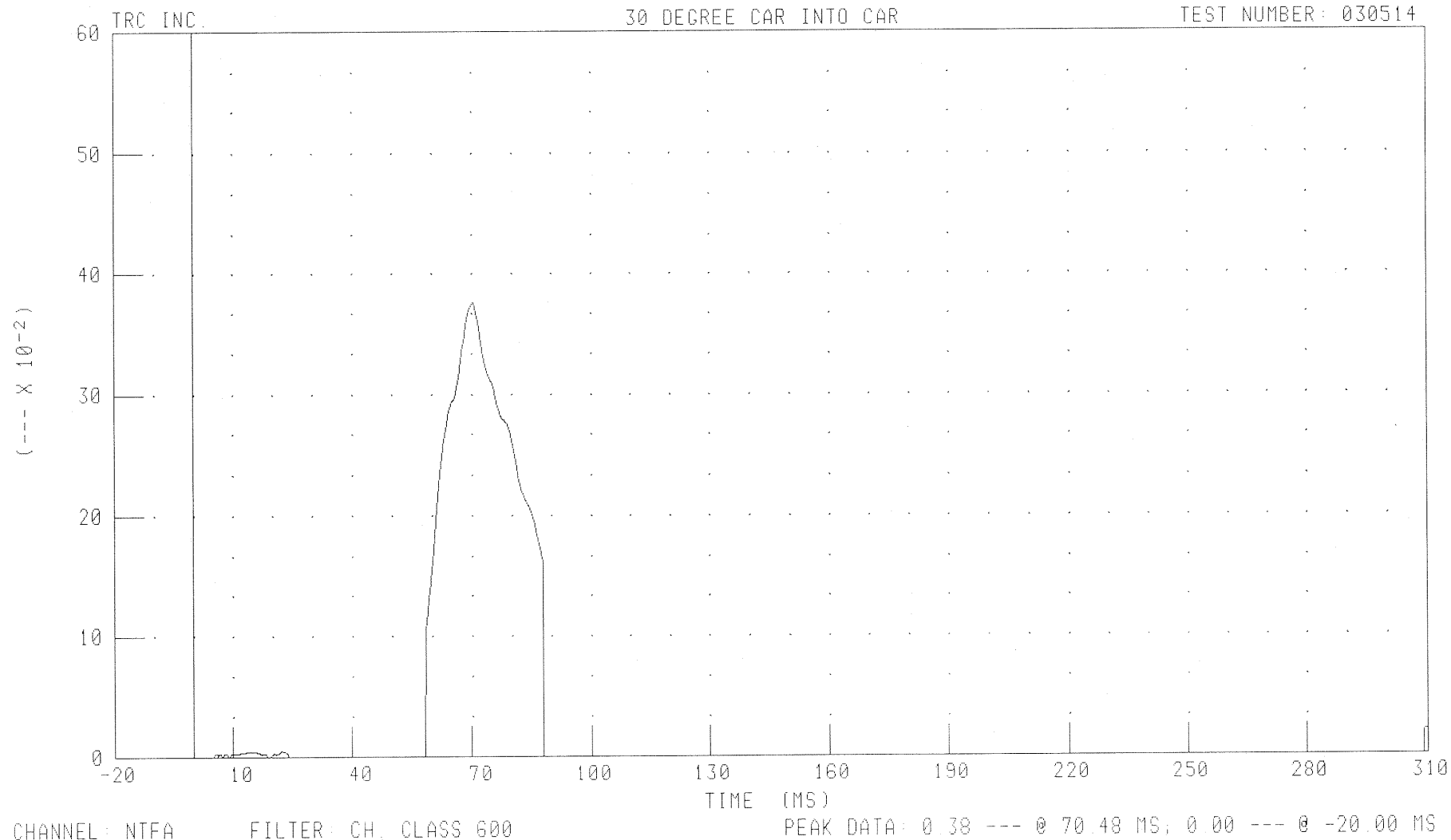
030514

1996 TOYOTA AVALON INTO LEFT FRONT OF 1997 HONDA ACCORD - OBLIQUE 30 DEGREES

BULLET DRIVER NIJ TENSION/FLEXION

30 DEGREE CAR INTO CAR

TEST NUMBER: 030514



B-100

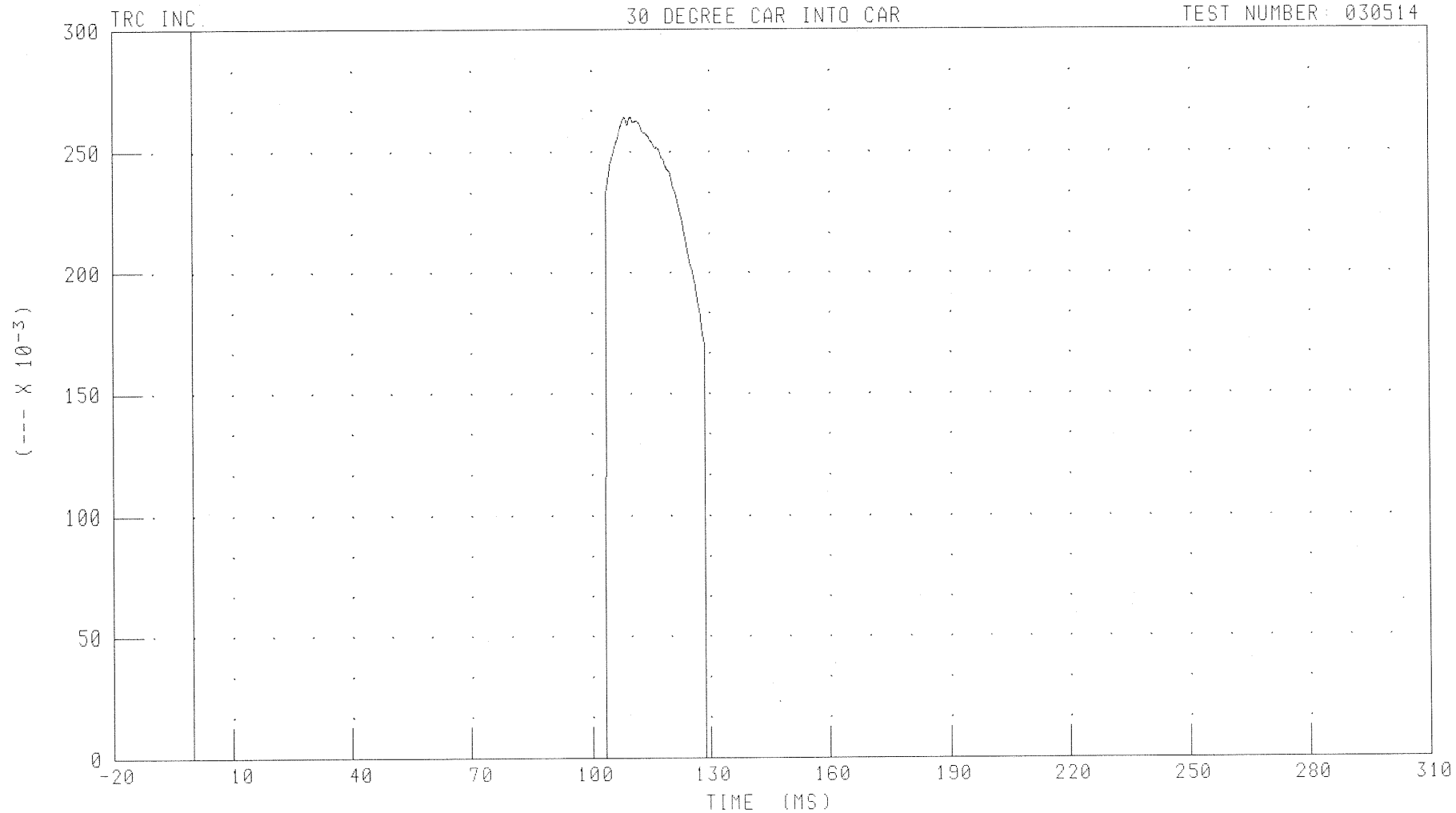
030514

1996 TOYOTA AVALON INTO LEFT FRONT OF 1997 HONDA ACCORD - OBLIQUE 30 DEGREES

BULLET DRIVER NIJ COMPRESSION/EXTENSION

30 DEGREE CAR INTO CAR

TEST NUMBER: 030514



CHANNEL: NCEA

FILTER: CH. CLASS 600

PEAK DATA: 0.26 --- @ 110.08 MS; 0.00 --- @ -20.00 MS

B-101

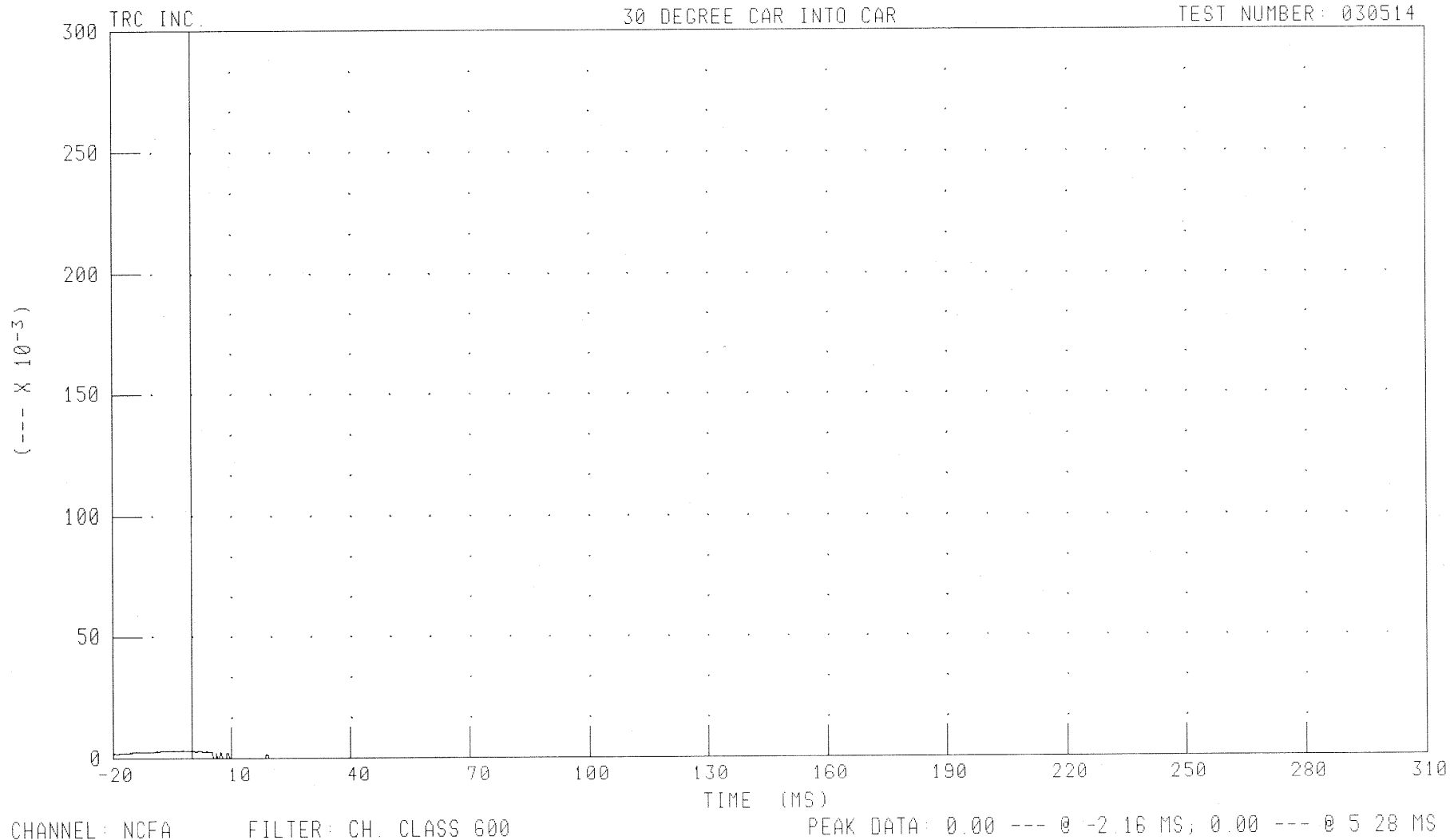
030514

1996 TOYOTA AVALON INTO LEFT FRONT OF 1997 HONDA ACCORD - OBLIQUE 30 DEGREES

BULLET DRIVER NIJ COMPRESSION/FLEXION

30 DEGREE CAR INTO CAR

TEST NUMBER: 030514



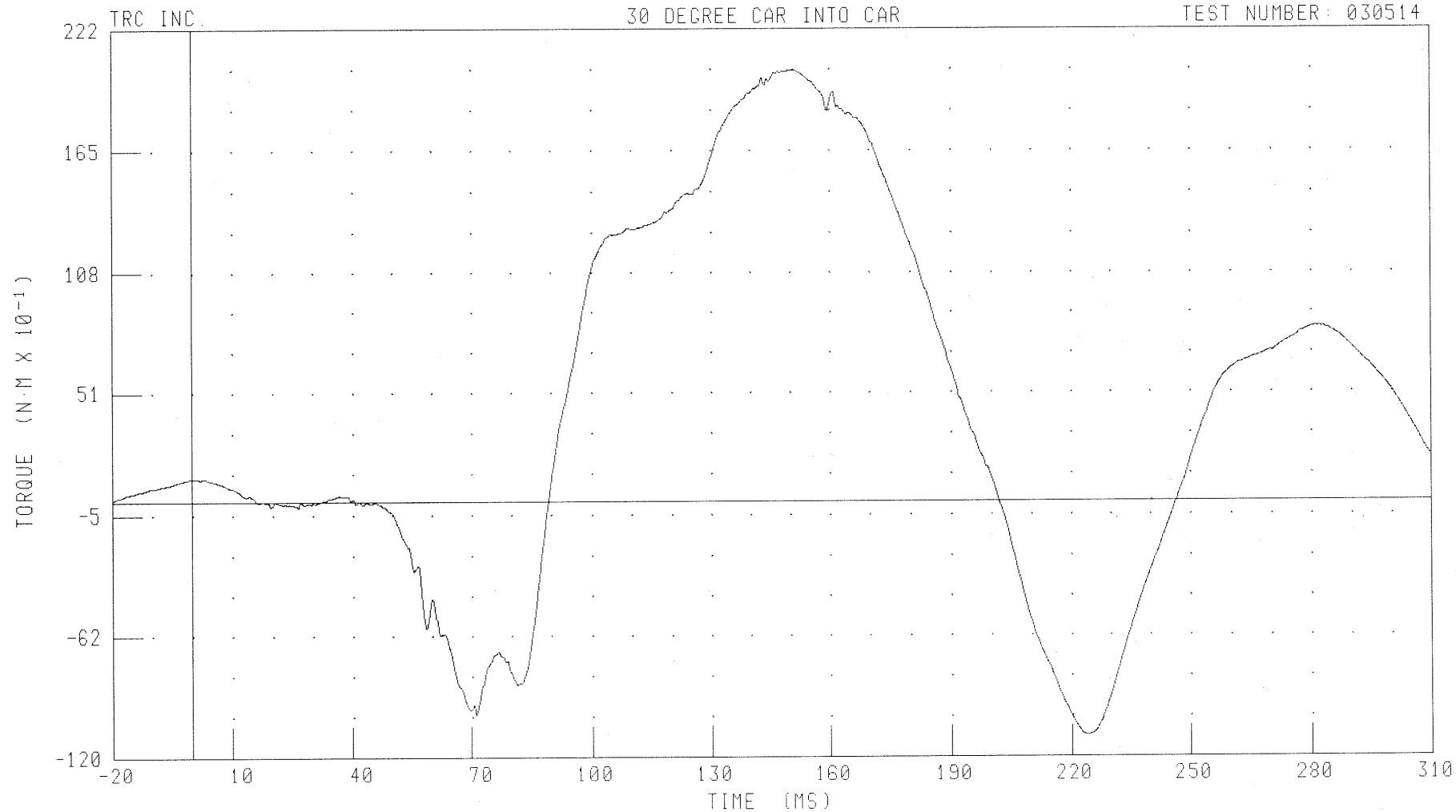
B-102

030514

1996 TOYOTA AVALON INTO LEFT FRONT OF 1997 HONDA ACCORD - OBLIQUE 30 DEGREES
BULLET DRIVER NECK OCCIPITAL CONDYLE MOMENT ABOUT X AXIS

30 DEGREE CAR INTO CAR

TEST NUMBER: 030514



CHANNEL: NK0XMA FILTER: CH. CLASS 600

PEAK DATA: 20.26 N-M @ 151.28 MS, -11.01 N-M @ 224.08 MS

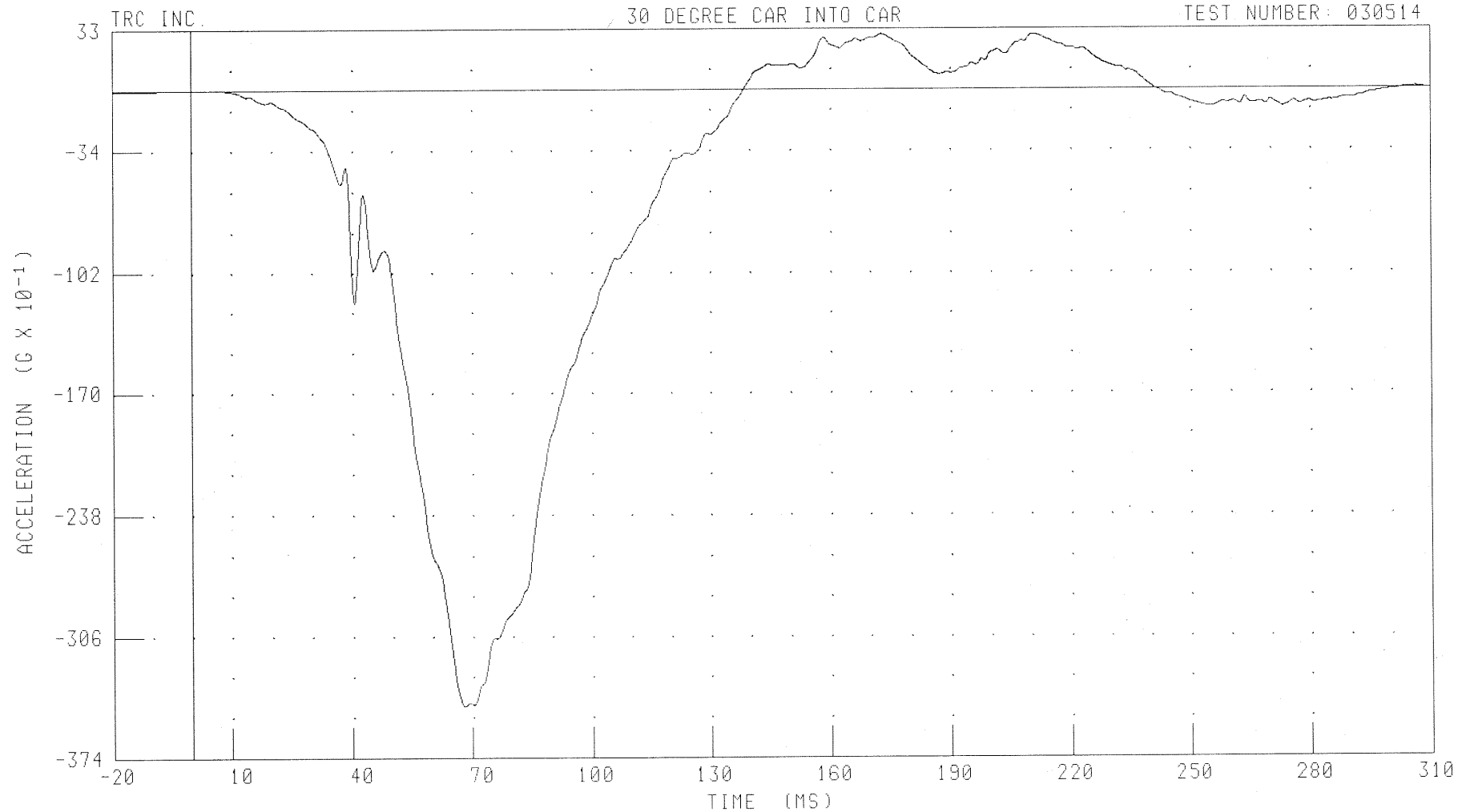
B-103

030514

1996 TOYOTA AVALON INTO LEFT FRONT OF 1997 HONDA ACCORD - OBLIQUE 30 DEGREES
BULLET DRIVER CHEST X-AXIS ACCELERATION

30 DEGREE CAR INTO CAR

TEST NUMBER: 030514



CHANNEL: CSTXGA FILTER: CH. CLASS 180

PEAK DATA: 3.10 G @ 172.88 MS, -34.52 G @ 68.16 MS

B-104

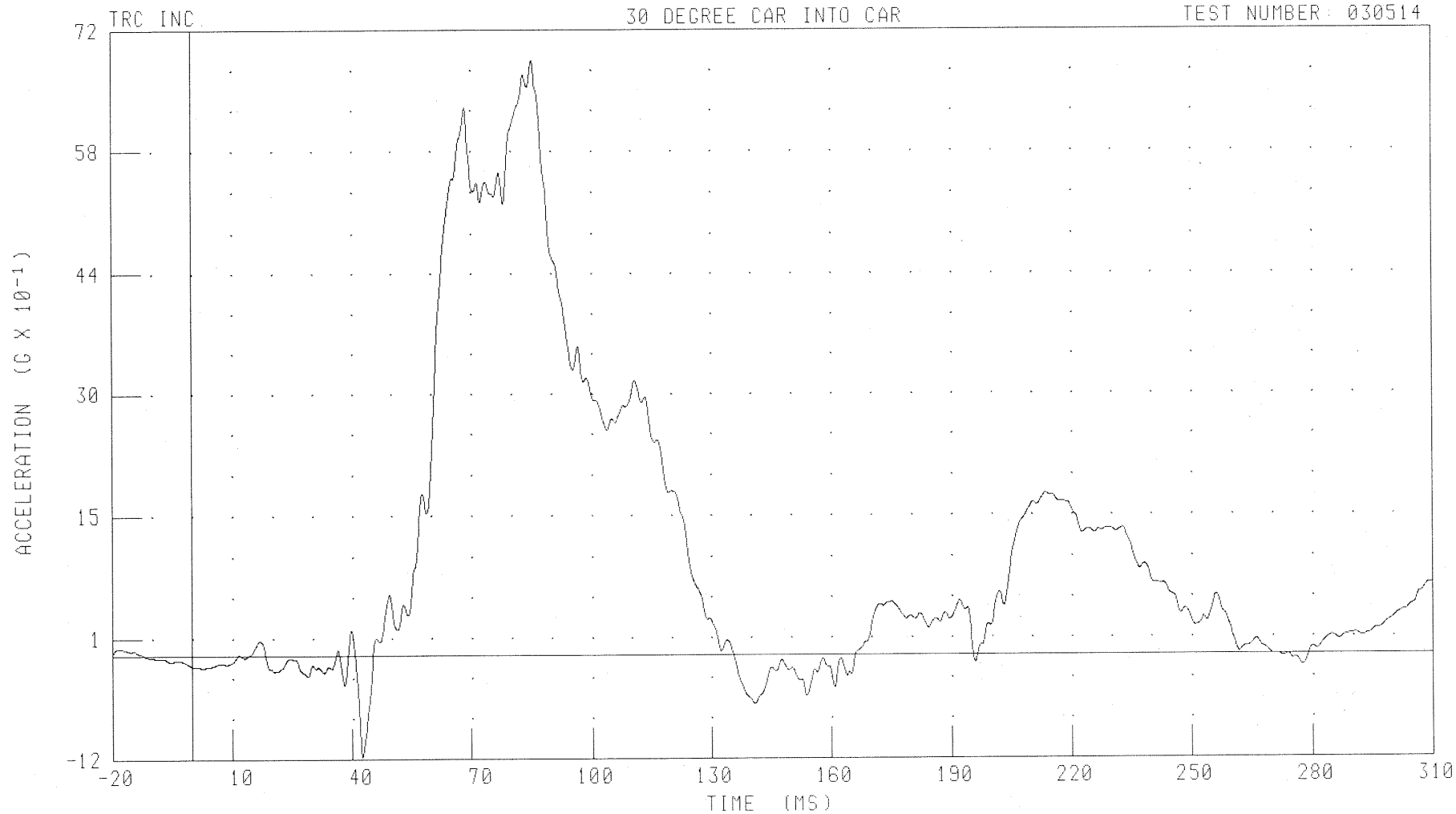
030514

1996 TOYOTA AVALON INTO LEFT FRONT OF 1997 HONDA ACCORD - OBLIQUE 30 DEGREES

BULLET DRIVER CHEST Y-AXIS ACCELERATION

30 DEGREE CAR INTO CAR

TEST NUMBER: 030514



CHANNEL: CSTYGA FILTER: CH. CLASS 180

PEAK DATA: 6.85 G @ 85.36 MS, -1.17 G @ 42.56 MS

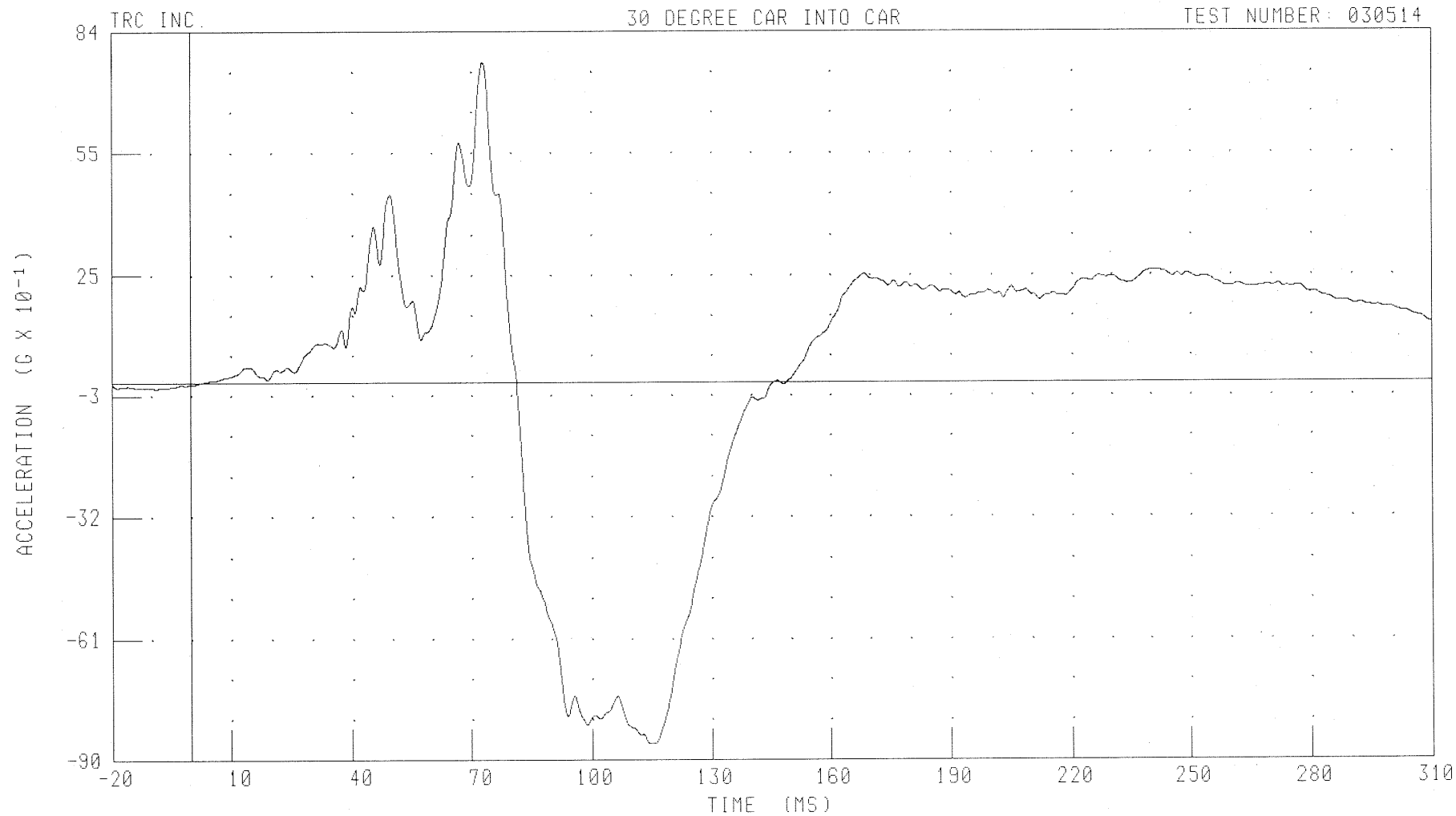
B-105

030514

1996 TOYOTA AVALON INTO LEFT FRONT OF 1997 HONDA ACCORD - OBLIQUE 30 DEGREES
BULLET DRIVER CHEST Z-AXIS ACCELERATION

30 DEGREE CAR INTO CAR

TEST NUMBER: 030514



CHANNEL: CSTZCA FILTER: CH. CLASS 180

PEAK DATA: 7.66 G @ 73.04 MS, -8.62 G @ 114.64 MS

B-106

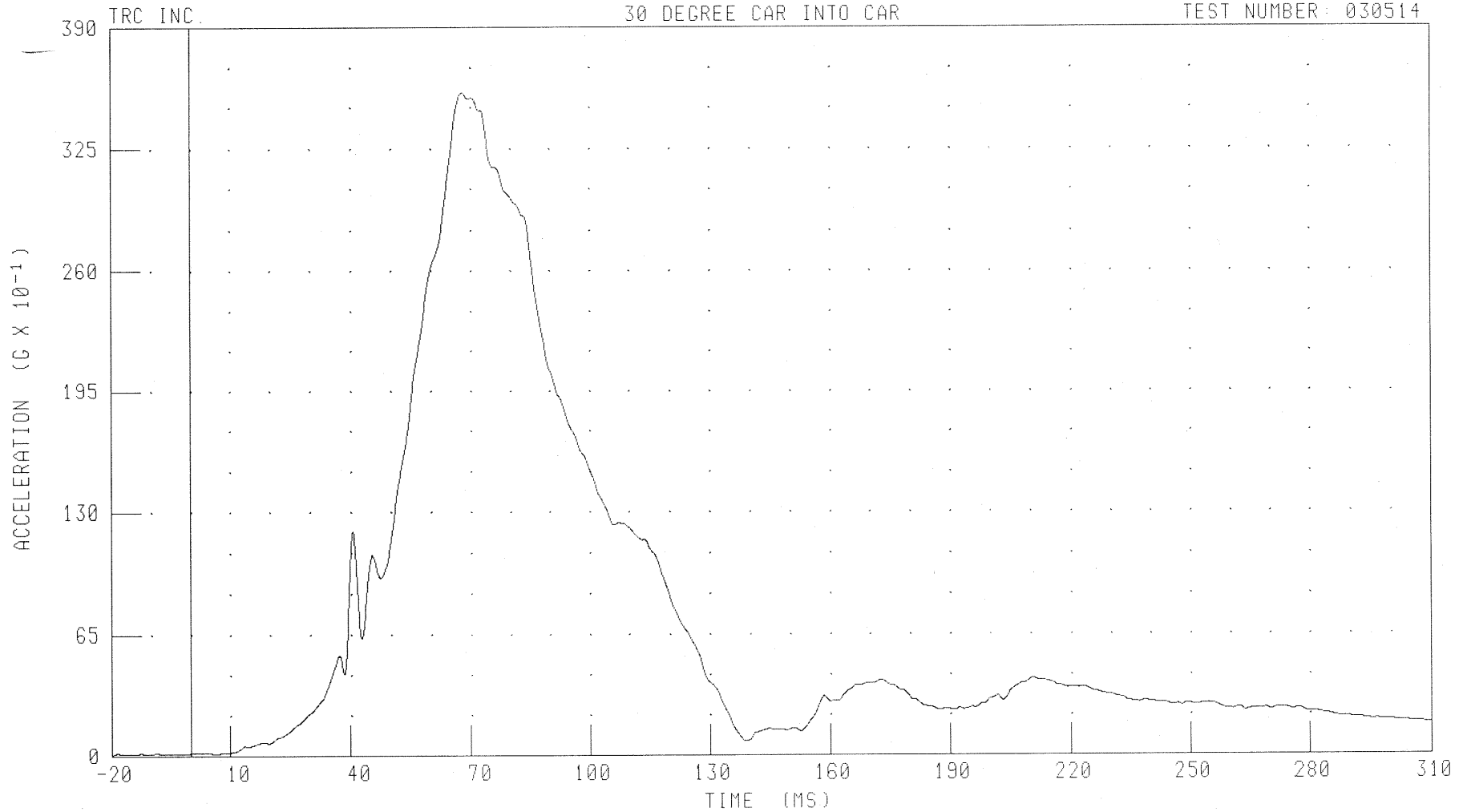
030514

1996 TOYOTA AVALON INTO LEFT FRONT OF 1997 HONDA ACCORD - OBLIQUE 30 DEGREES

BULLET DRIVER CHEST RESULTANT ACCELERATION

30 DEGREE CAR INTO CAR

TEST NUMBER: 030514



CHANNEL: CSTRGA FILTER: CH. CLASS 180

PEAK DATA: 35.47 G @ 68.08 MS; 0.01 G @ -20.00 MS

B-107

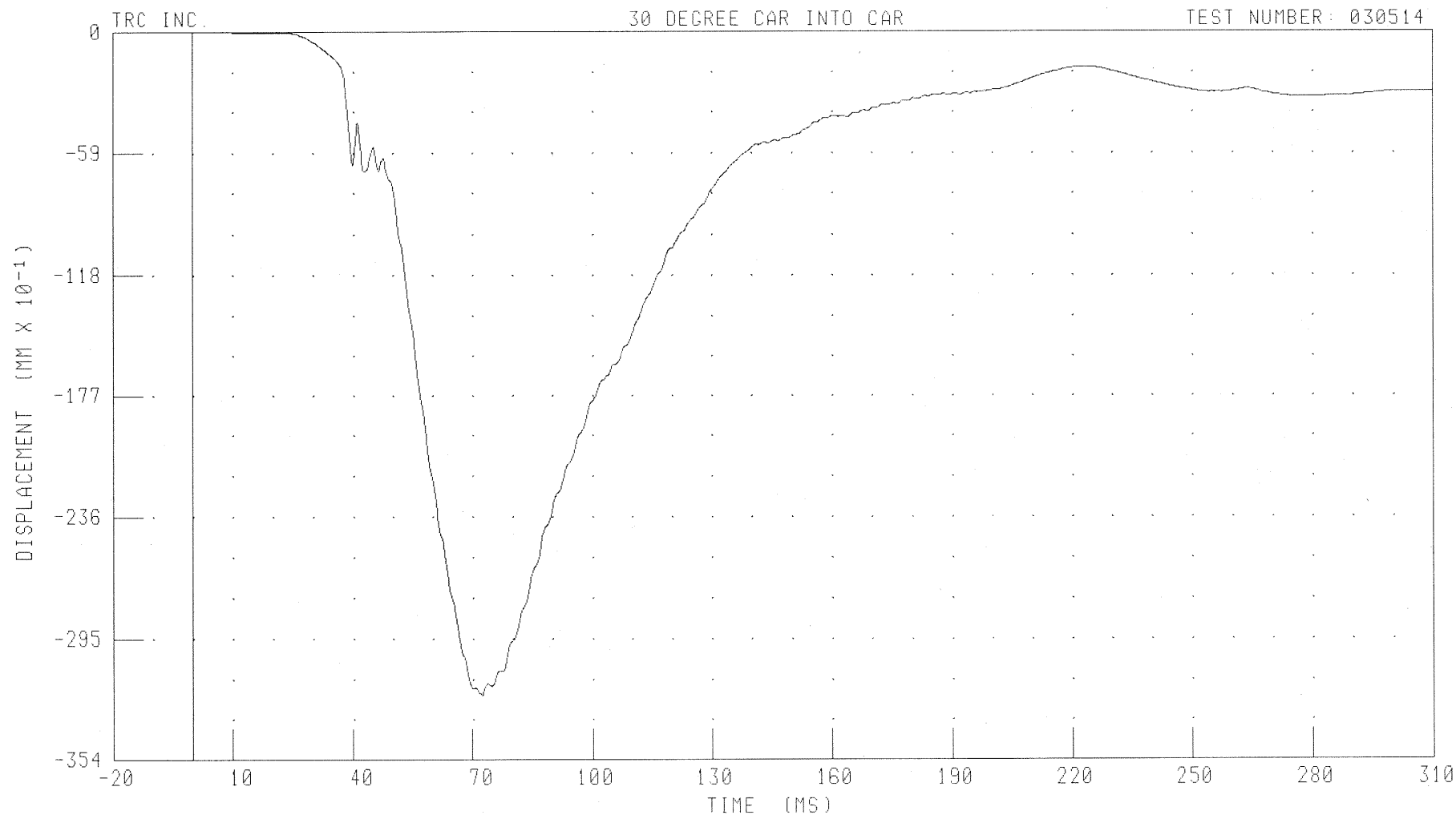
030514

1996 TOYOTA AVALON INTO LEFT FRONT OF 1997 HONDA ACCORD - OBLIQUE 30 DEGREES

BULLET DRIVER CHEST DEFLECTION

30 DEGREE CAR INTO CAR

TEST NUMBER: 030514



CHANNEL: CSTXDA FILTER: CH. CLASS 600

PEAK DATA: 0.01 MM @ -5.04 MS, -32.26 MM @ 72.48 MS

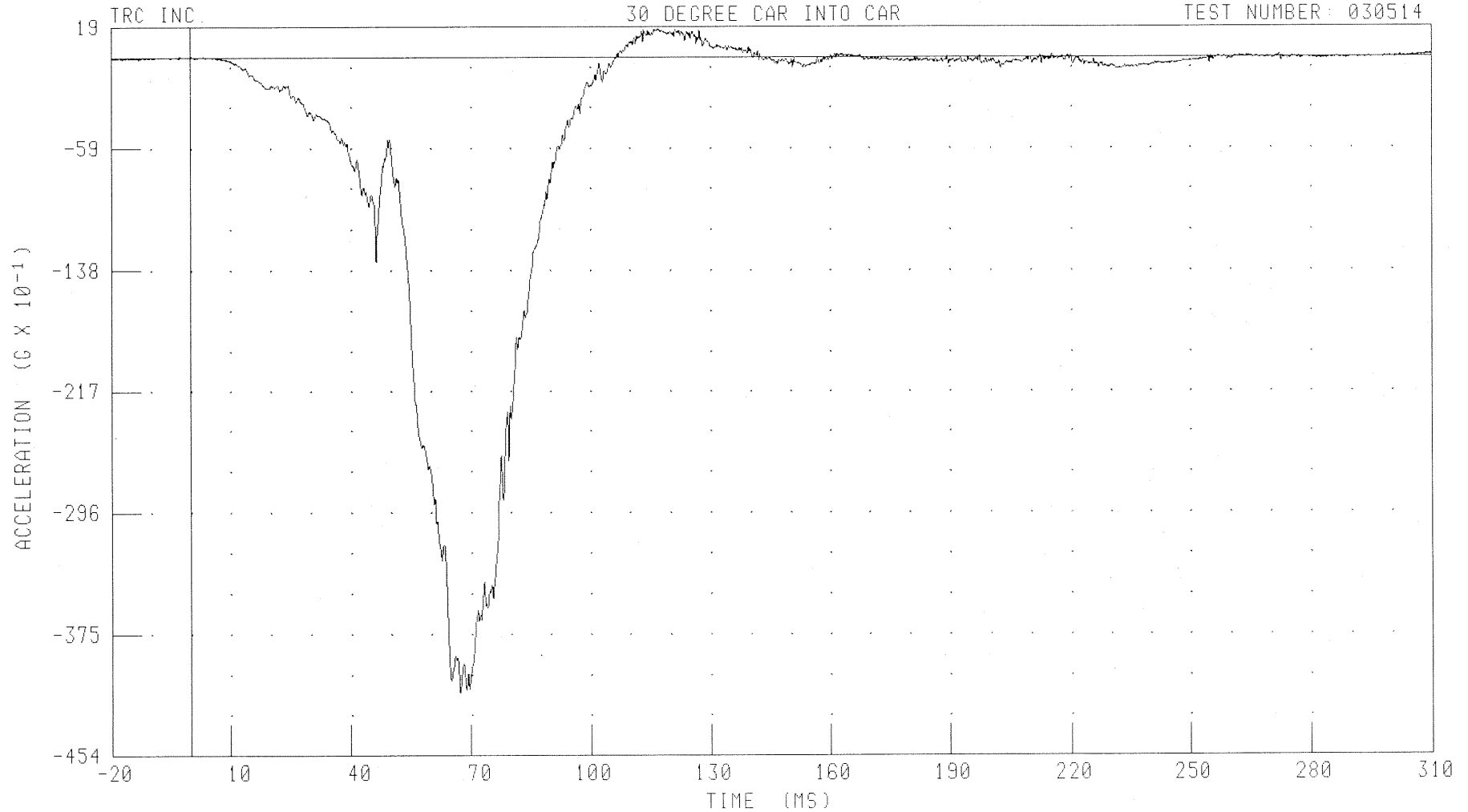
B-108

030514

1996 TOYOTA AVALON INTO LEFT FRONT OF 1997 HONDA ACCORD - OBLIQUE 30 DEGREES
BULLET DRIVER PELVIS X-AXIS ACCELERATION

30 DEGREE CAR INTO CAR

TEST NUMBER: 030514



CHANNEL: PEVXGA FILTER: CH. CLASS 1000

PEAK DATA: 1.86 G @ 117.04 MS; -41.32 G @ 67.28 MS

B-109

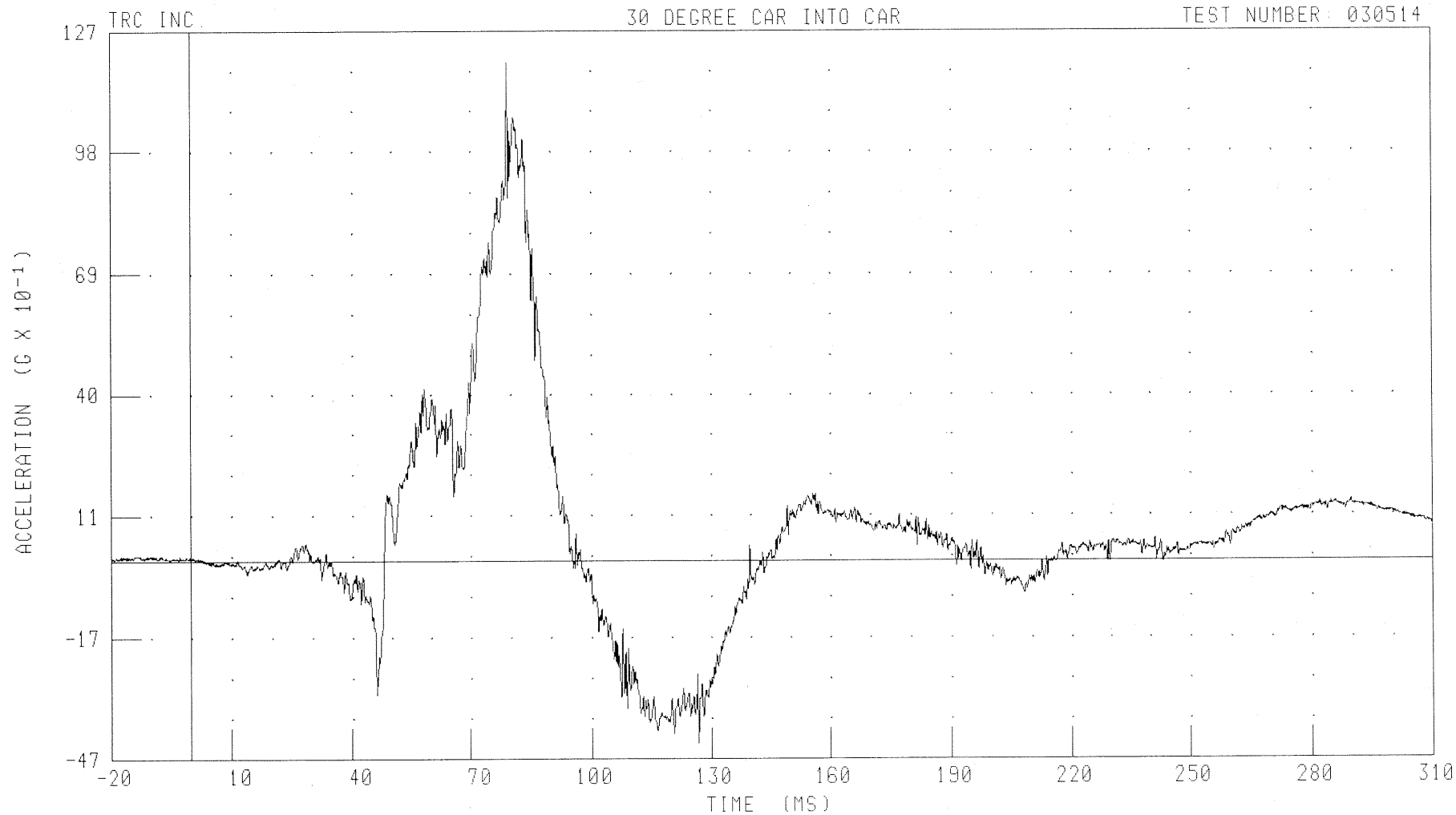
030514

1996 TOYOTA AVALON INTO LEFT FRONT OF 1997 HONDA ACCORD - OBLIQUE 30 DEGREES

BULLET DRIVER PELVIS Y-AXIS ACCELERATION

30 DEGREE CAR INTO CAR

TEST NUMBER: 030514



CHANNEL: PEVYGA FILTER: CH. CLASS 1000

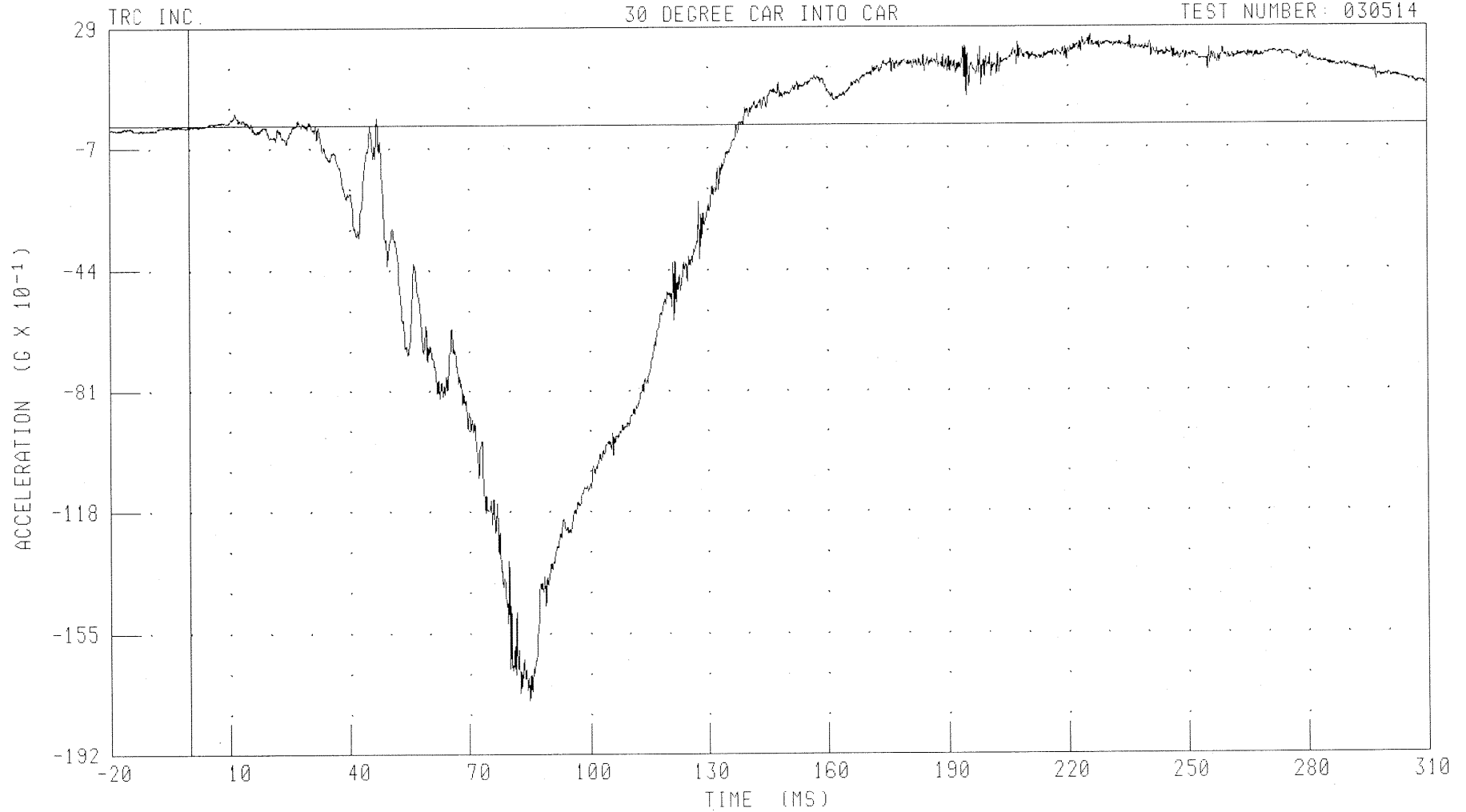
B-110

030514

1996 TOYOTA AVALON INTO LEFT FRONT OF 1997 HONDA ACCORD - OBLIQUE 30 DEGREES
BULLET DRIVER PELVIS Z-AXIS ACCELERATION

30 DEGREE CAR INTO CAR

TEST NUMBER: 030514



CHANNEL: PEVZGA FILTER: CH CLASS 1000

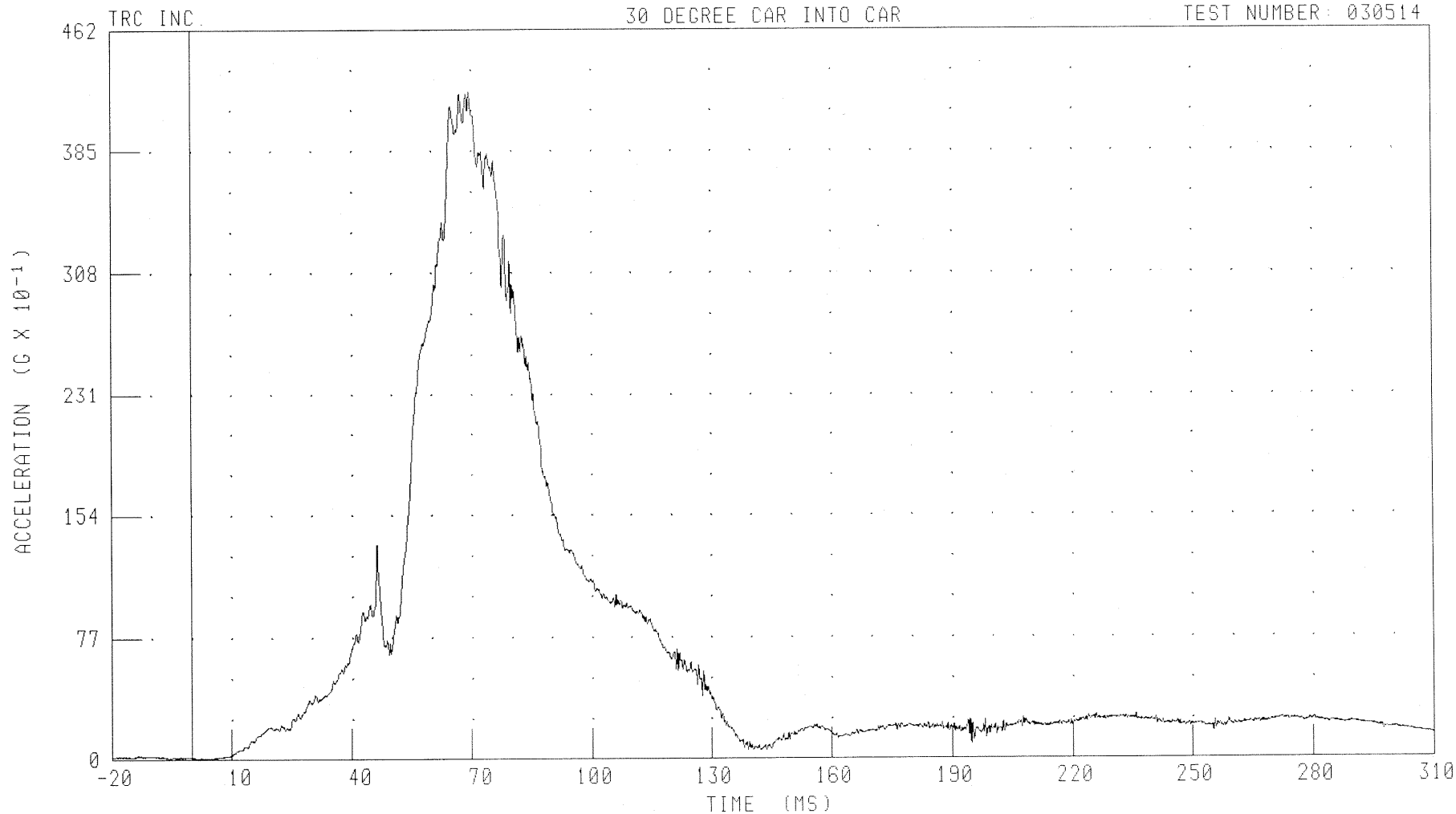
B-111

030514

1996 TOYOTA AVALON INTO LEFT FRONT OF 1997 HONDA ACCORD - OBLIQUE 30 DEGREES
BULLET DRIVER PELVIS RESULTANT ACCELERATION

30 DEGREE CAR INTO CAR

TEST NUMBER: 030514



CHANNEL: PEVRGA FILTER: CH. CLASS 1000

PEAK DATA: 42.26 G @ 69.60 MS; 0.02 G @ 4.32 MS

B-112

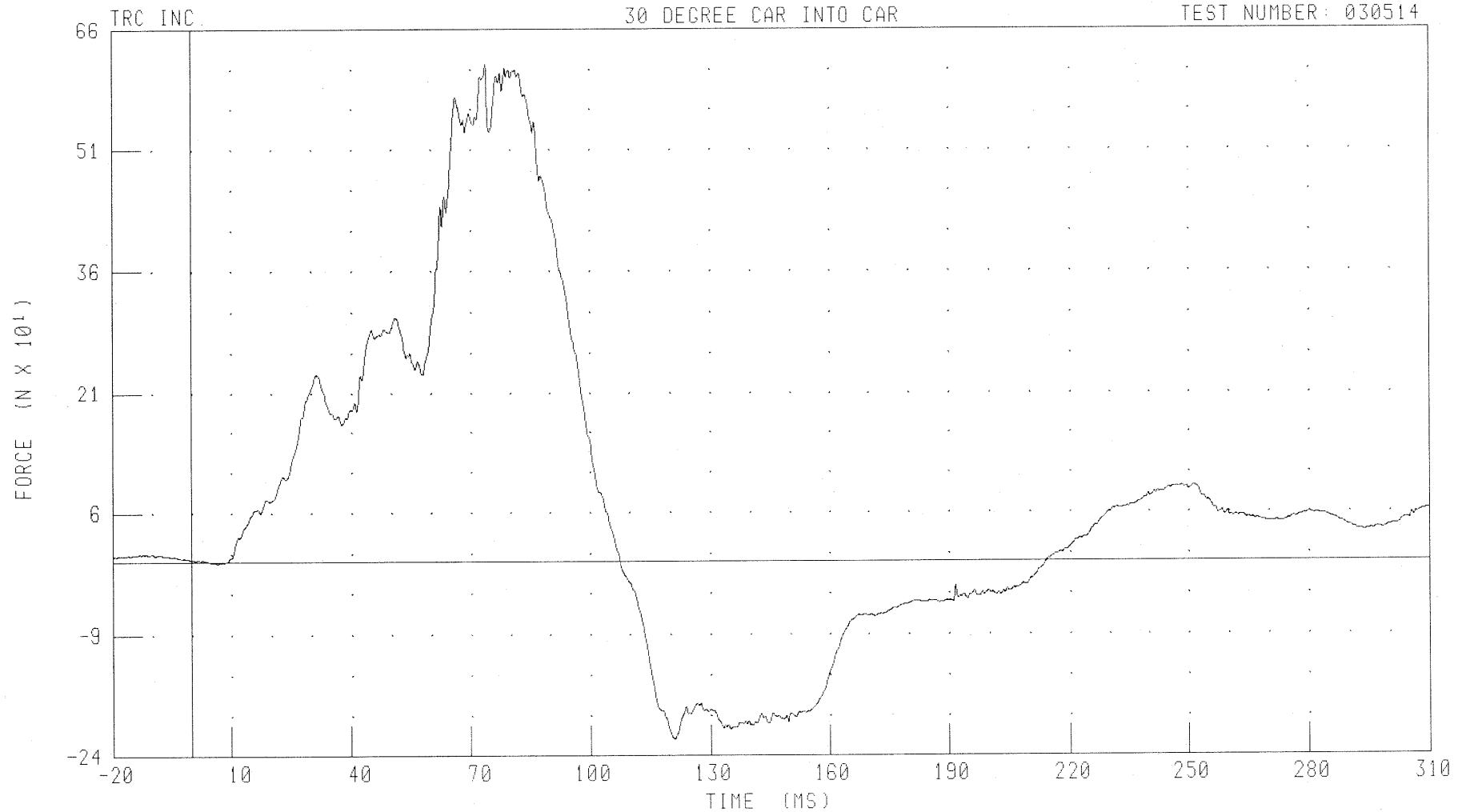
030514

1996 TOYOTA AVALON INTO LEFT FRONT OF 1997 HONDA ACCORD - OBLIQUE 30 DEGREES

BULLET DRIVER LEFT FEMUR X-AXIS FORCE

30 DEGREE CAR INTO CAR

TEST NUMBER: 030514



CHANNEL: LFMXFA FILTER: CH. CLASS 600

PEAK DATA: 617.24 N @ 73.92 MS, -219.99 N @ 121.12 MS

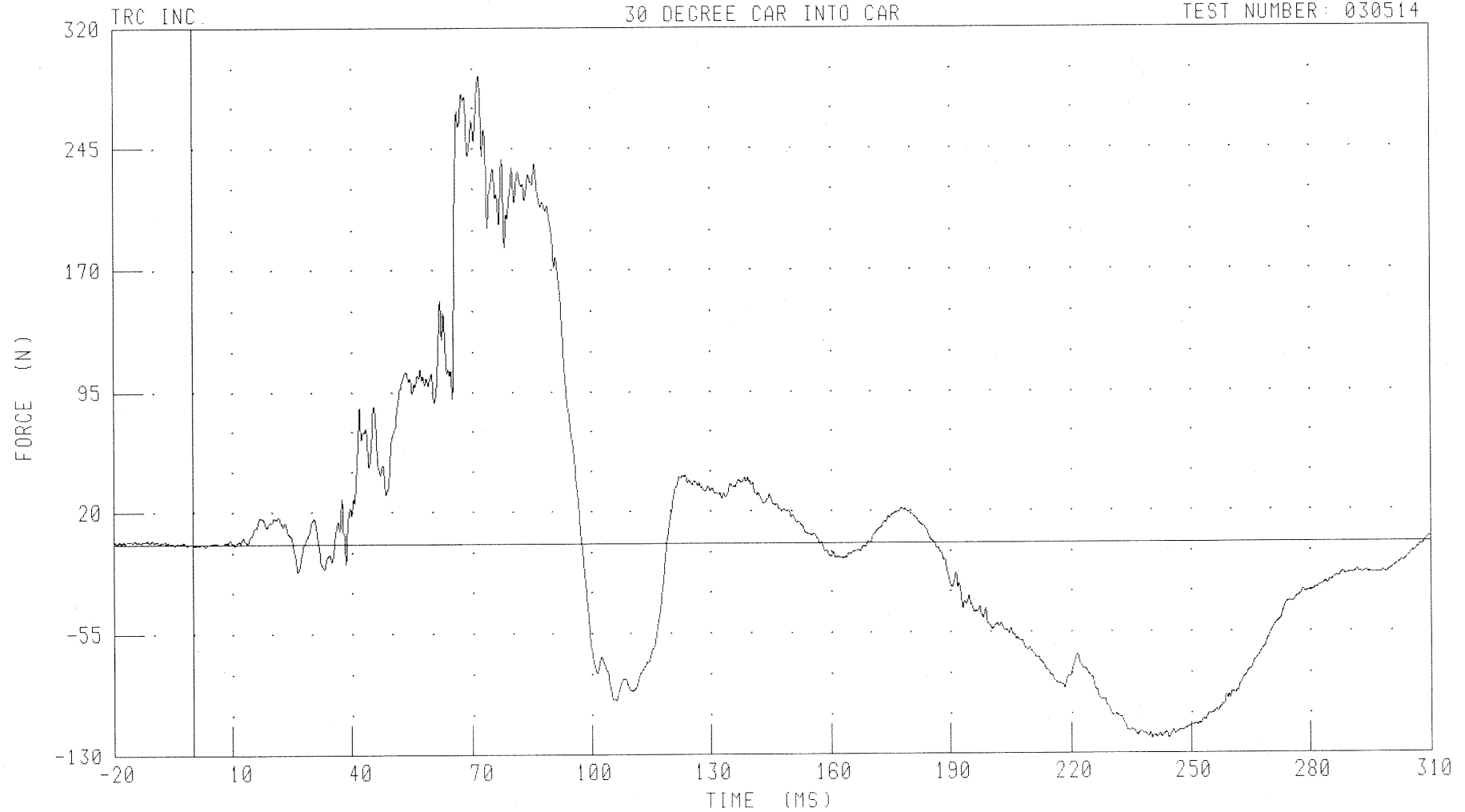
B-113

030514

1996 TOYOTA AVALON INTO LEFT FRONT OF 1997 HONDA ACCORD - OBLIQUE 30 DEGREES
BULLET DRIVER LEFT FEMUR Y-AXIS FORCE

30 DEGREE CAR INTO CAR

TEST NUMBER: 030514



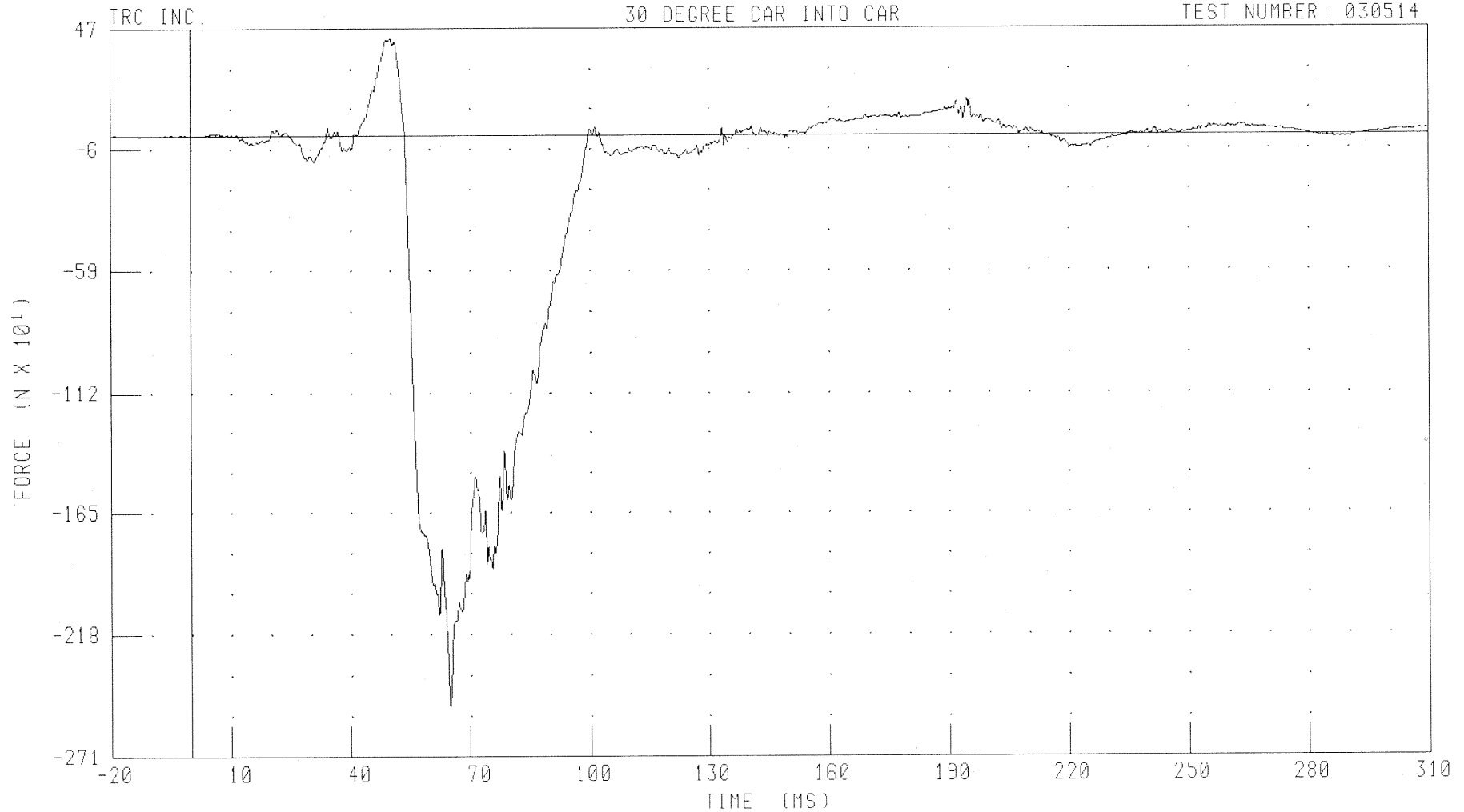
B-114

030514

1996 TOYOTA AVALON INTO LEFT FRONT OF 1997 HONDA ACCORD - OBLIQUE 30 DEGREES
BULLET DRIVER LEFT FEMUR Z-AXIS FORCE

30 DEGREE CAR INTO CAR

TEST NUMBER: 030514



CHANNEL: LFMZFA FILTER: CH. CLASS 600

PEAK DATA: 428.14 N @ 50.16 MS; -2489.49 N @ 64.96 MS

B-115

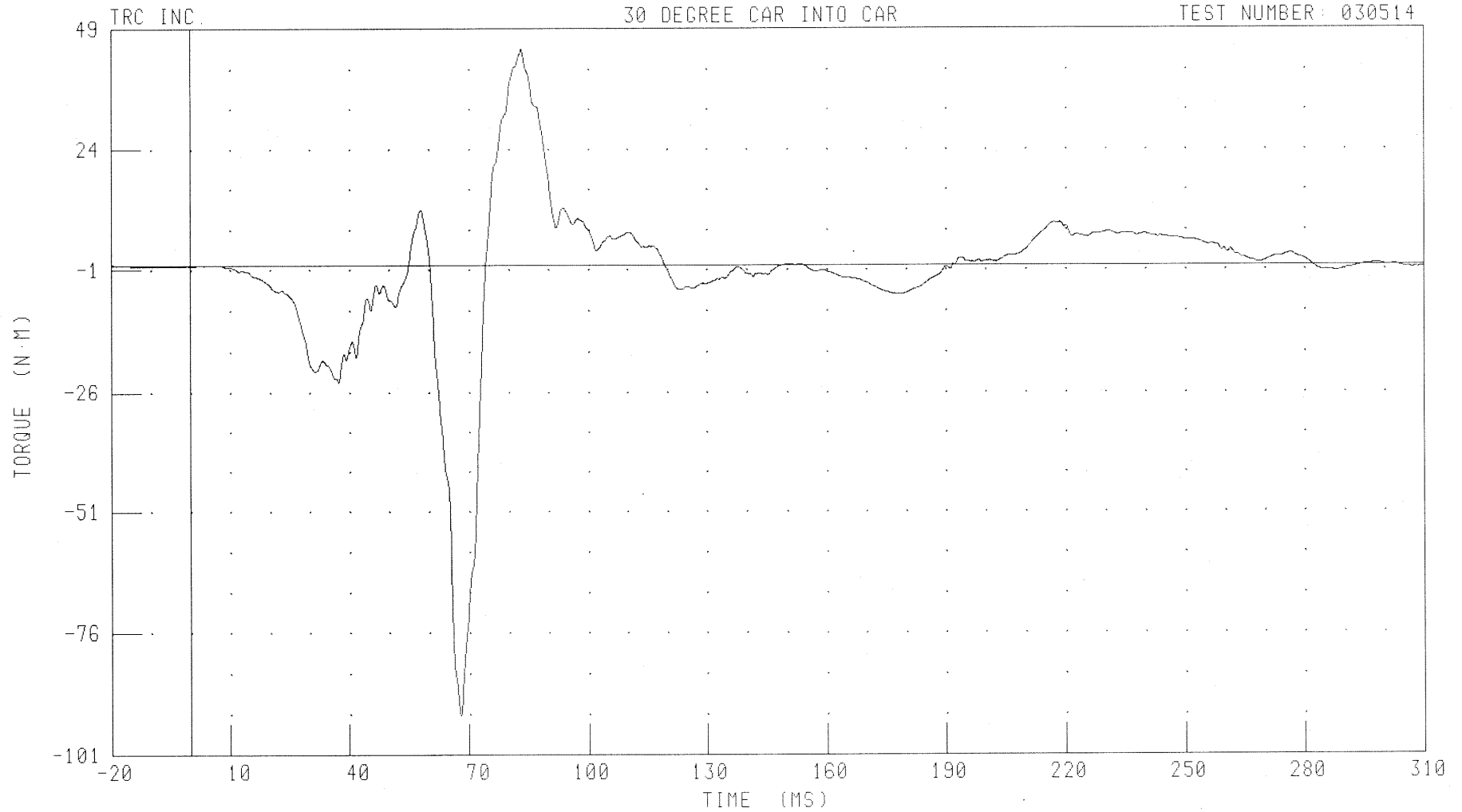
030514

1996 TOYOTA AVALON INTO LEFT FRONT OF 1997 HONDA ACCORD - OBLIQUE 30 DEGREES

BULLET DRIVER LEFT FEMUR MOMENT ABOUT X AXIS

30 DEGREE CAR INTO CAR

TEST NUMBER: 030514



CHANNEL: LFMXMA FILTER: CH. CLASS 600

PEAK DATA: 44.76 N·M @ 83.28 MS, -92.99 N·M @ 67.84 MS

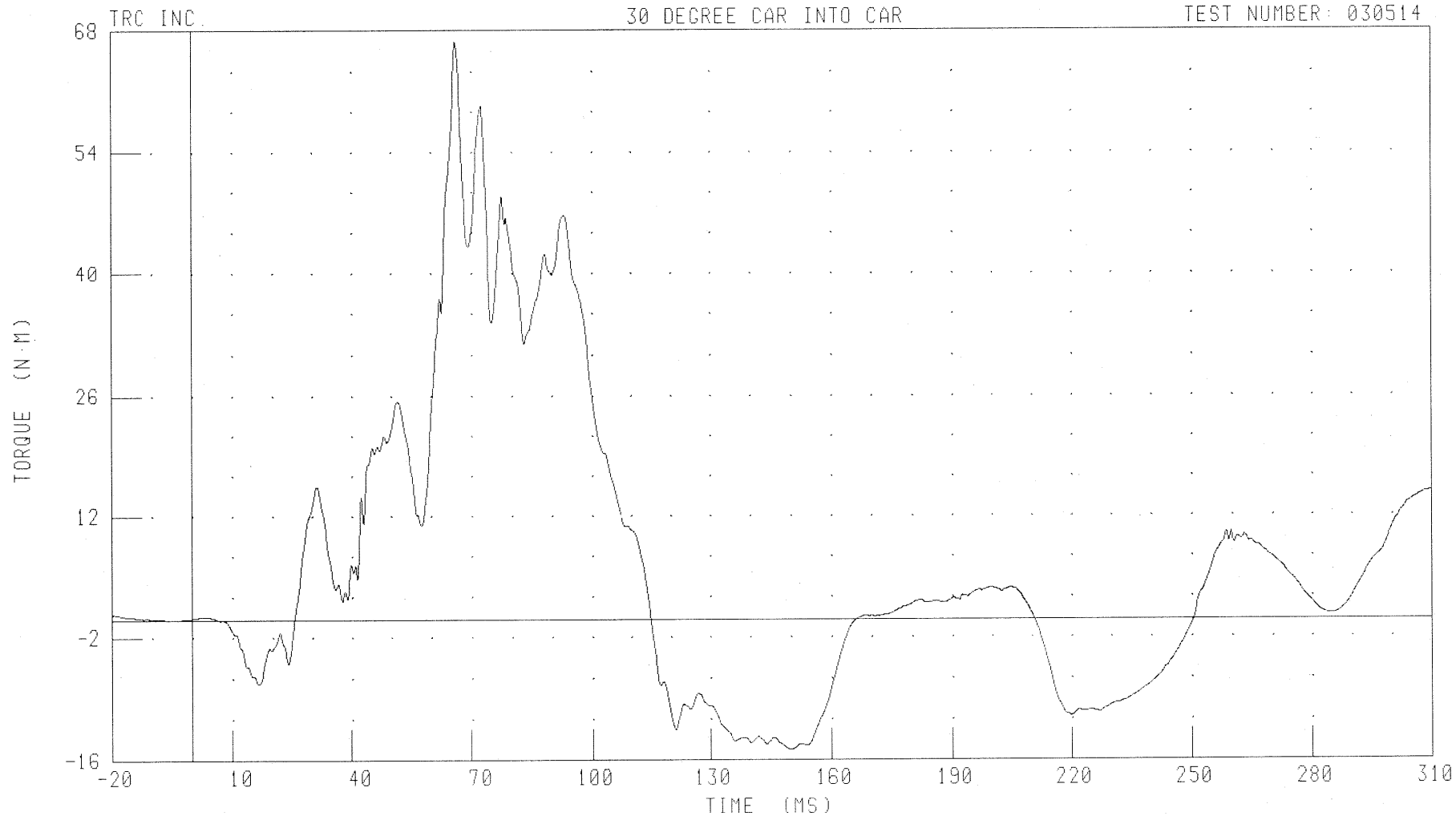
B-116

030514

1996 TOYOTA AVALON INTO LEFT FRONT OF 1997 HONDA ACCORD - OBLIQUE 30 DEGREES
BULLET DRIVER LEFT FEMUR MOMENT ABOUT Y AXIS

30 DEGREE CAR INTO CAR

TEST NUMBER: 030514



CHANNEL: LFMYYA FILTER: CH. CLASS 600

PEAK DATA: 66.70 N-M @ 66.16 MS; -14.88 N-M @ 149.84 MS

B-117

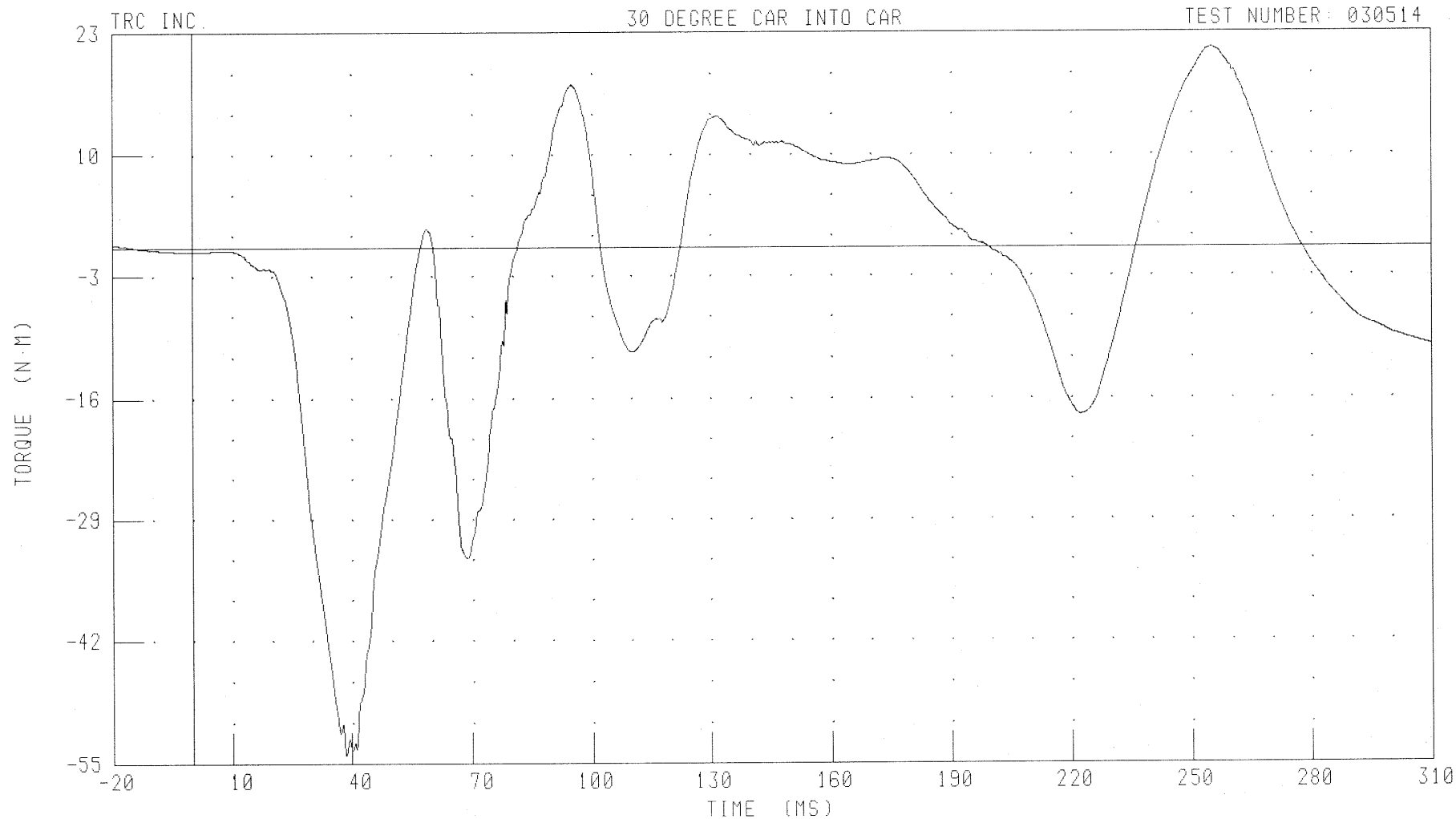
030514

1996 TOYOTA AVALON INTO LEFT FRONT OF 1997 HONDA ACCORD - OBLIQUE 30 DEGREES

BULLET DRIVER LEFT FEMUR MOMENT ABOUT Z AXIS

30 DEGREE CAR INTO CAR

TEST NUMBER: 030514



CHANNEL: LFMZMA FILTER: CH. CLASS 600

B-118

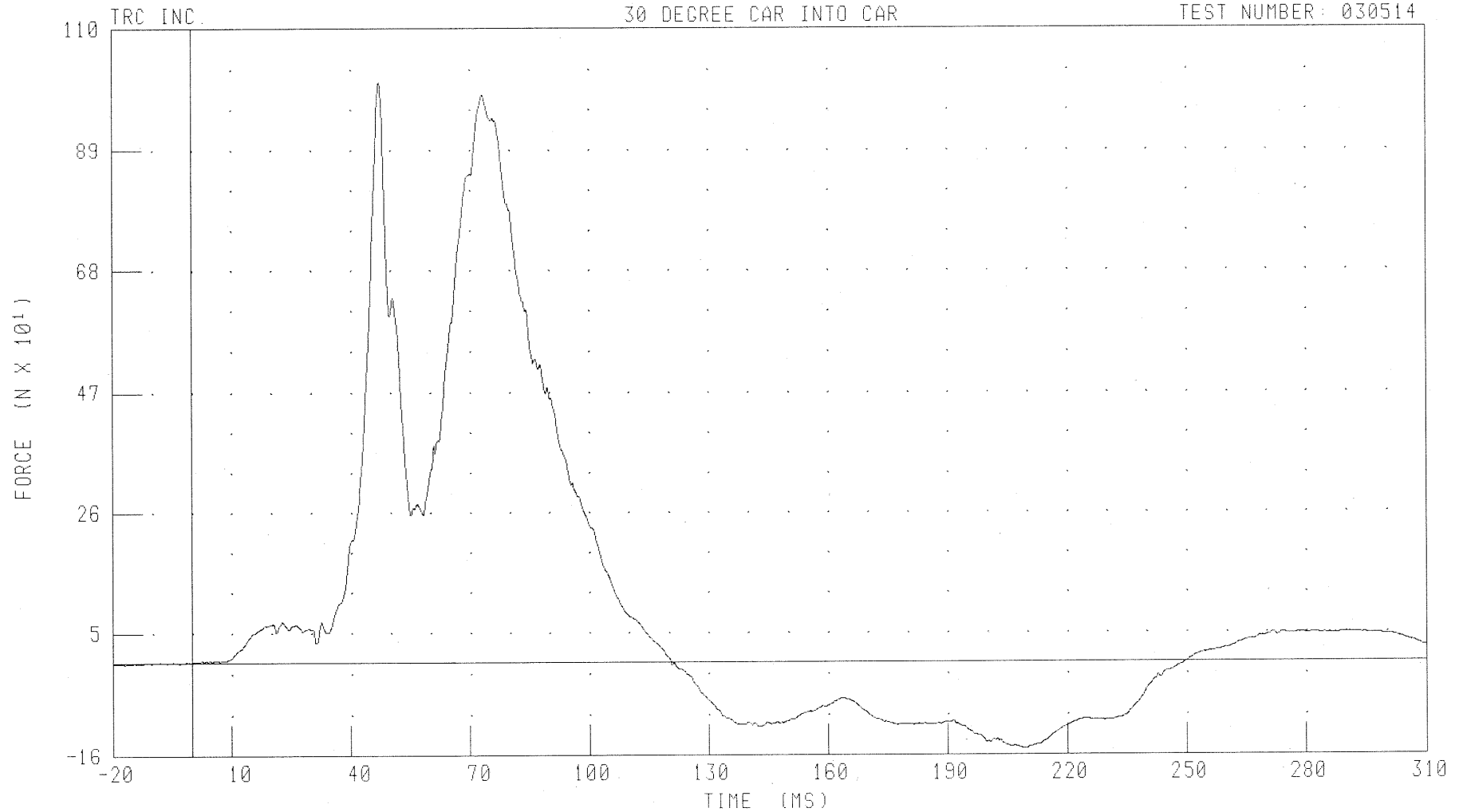
030514

1996 TOYOTA AVALON INTO LEFT FRONT OF 1997 HONDA ACCORD - OBLIQUE 30 DEGREES

BULLET DRIVER RIGHT FEMUR X-AXIS FORCE

30 DEGREE CAR INTO CAR

TEST NUMBER: 030514



CHANNEL: RFMXFA FILTER: CH. CLASS 600

B-119

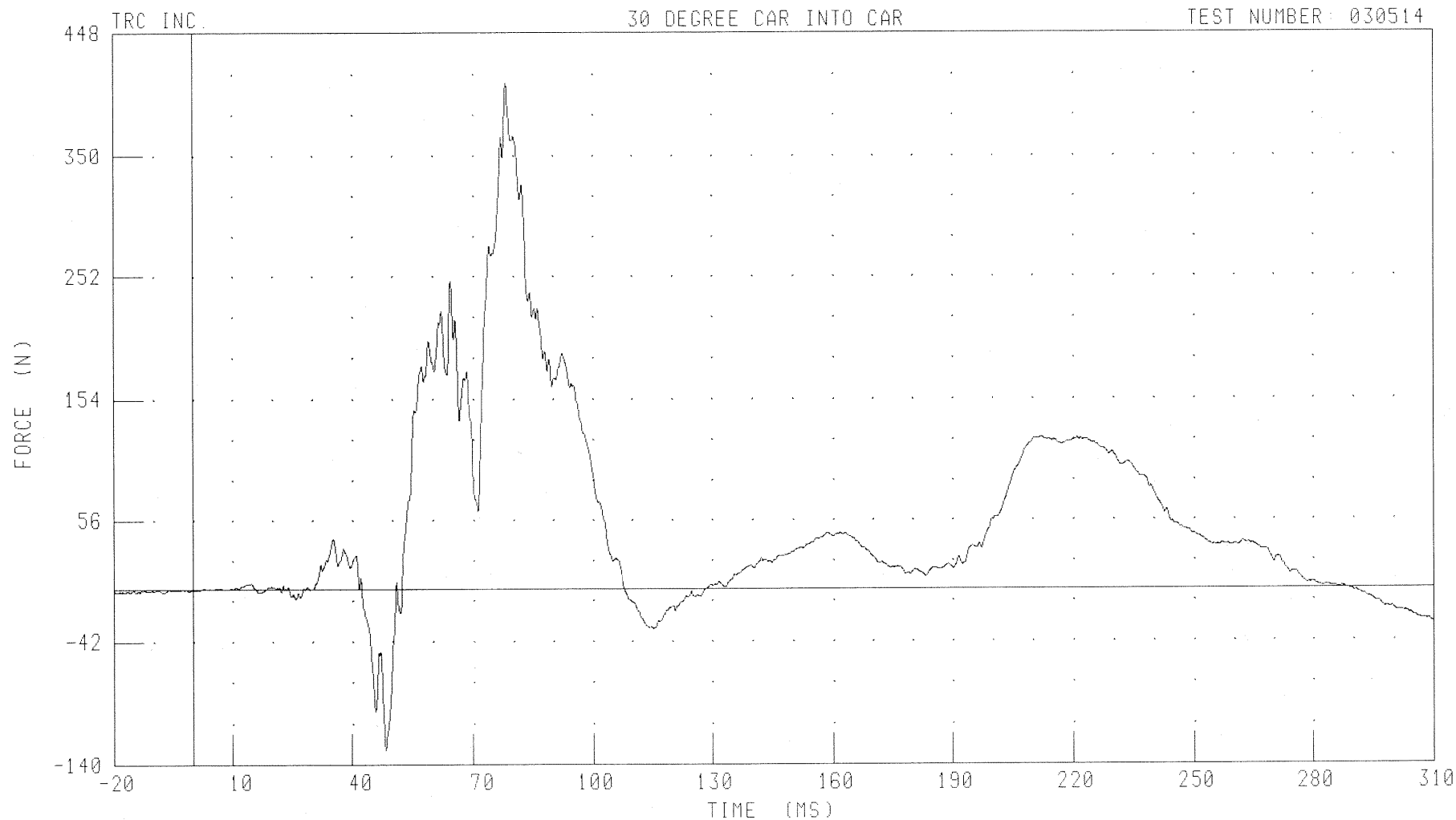
030514

1996 TOYOTA AVALON INTO LEFT FRONT OF 1997 HONDA ACCORD - OBLIQUE 30 DEGREES

BULLET DRIVER RIGHT FEMUR Y-AXIS FORCE

30 DEGREE CAR INTO CAR

TEST NUMBER: 030514



CHANNEL: RFMYFA FILTER: CH. CLASS 600

PEAK DATA: 408.63 N @ 78.24 MS; -128.44 N @ 48.32 MS

B-120

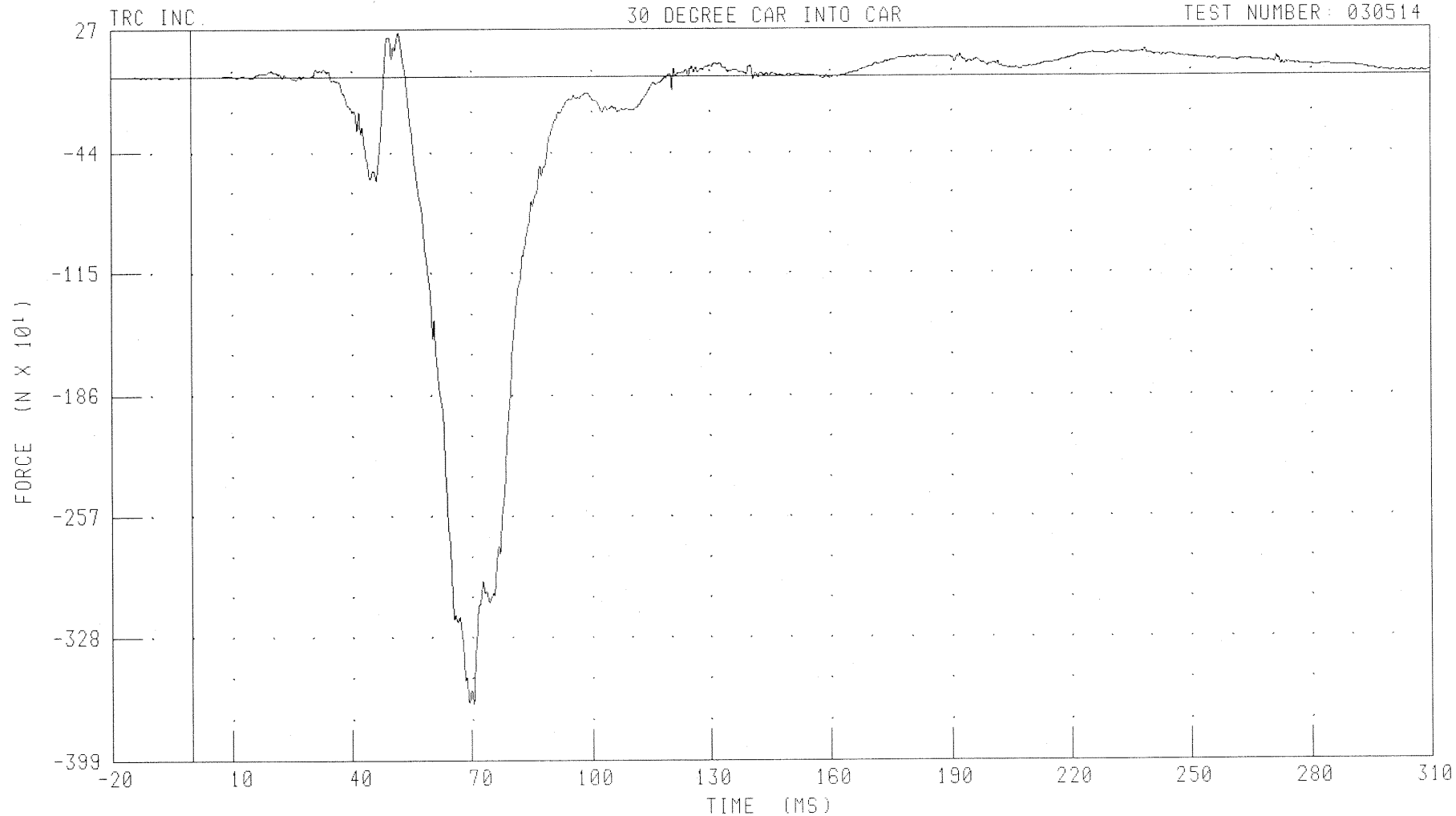
030514

1996 TOYOTA AVALON INTO LEFT FRONT OF 1997 HONDA ACCORD - OBLIQUE 30 DEGREES

BULLET DRIVER RIGHT FEMUR Z-AXIS FORCE

30 DEGREE CAR INTO CAR

TEST NUMBER: 030514



CHANNEL: RFMZFA FILTER: CH. CLASS 600

PEAK DATA: 250.95 N @ 52.00 MS; -366.85 N @ 70.48 MS

B-121

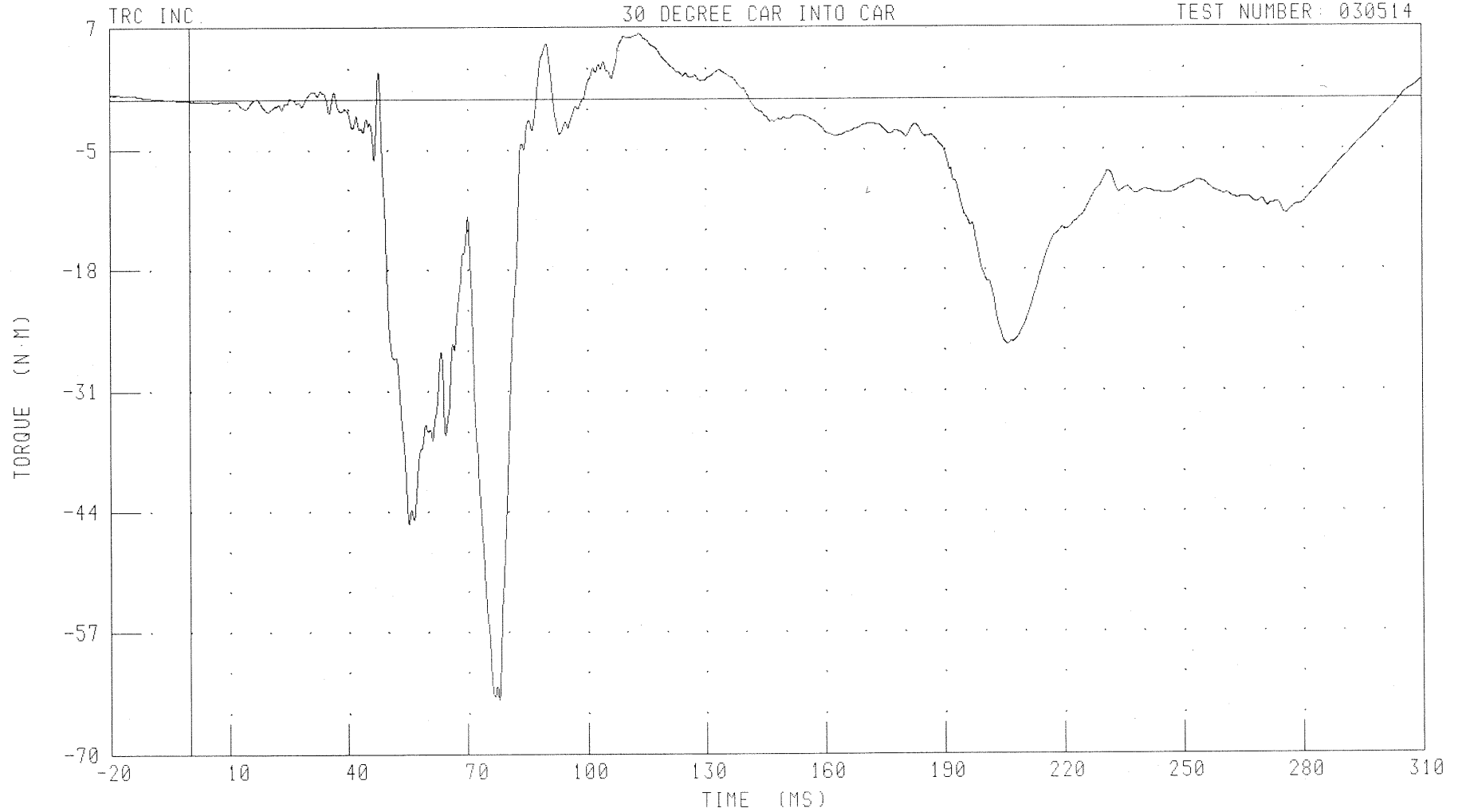
030514

1996 TOYOTA AVALON INTO LEFT FRONT OF 1997 HONDA ACCORD - OBLIQUE 30 DEGREES

BULLET DRIVER RIGHT FEMUR MOMENT ABOUT X AXIS

30 DEGREE CAR INTO CAR

TEST NUMBER: 030514



CHANNEL: RFMXMA FILTER: CH. CLASS 600

PEAK DATA: 6.93 N·M @ 113.28 MS; -64.72 N·M @ 77.76 MS

B-122

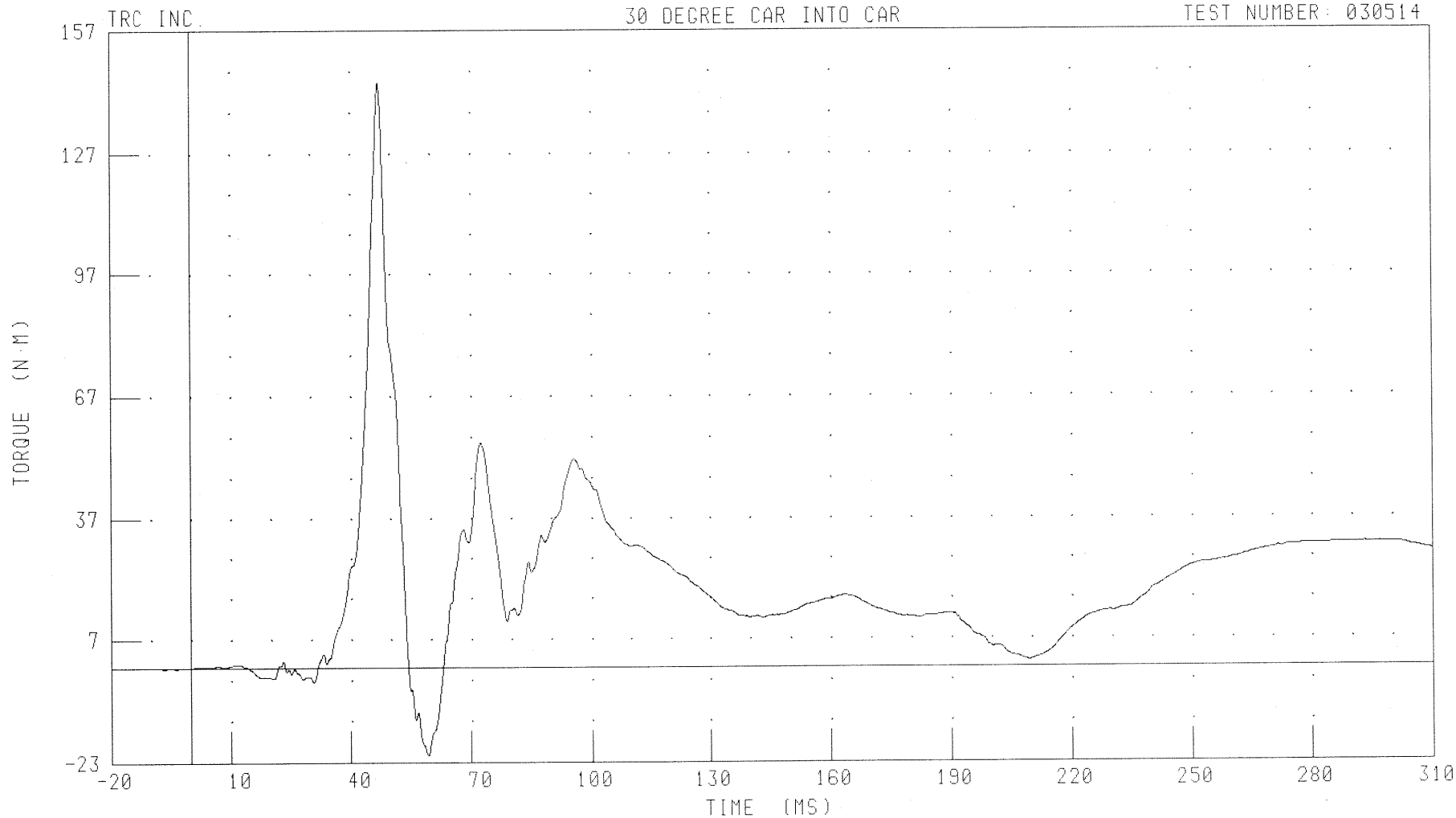
030514

1996 TOYOTA AVALON INTO LEFT FRONT OF 1997 HONDA ACCORD - OBLIQUE 30 DEGREES

BULLET DRIVER RIGHT FEMUR MOMENT ABOUT Y AXIS

30 DEGREE CAR INTO CAR

TEST NUMBER: 030514



CHANNEL: RFMYMA FILTER: CH. CLASS 600

PEAK DATA: 144.30 N·M @ 47.20 MS, -21.34 N·M @ 59.28 MS

B-123

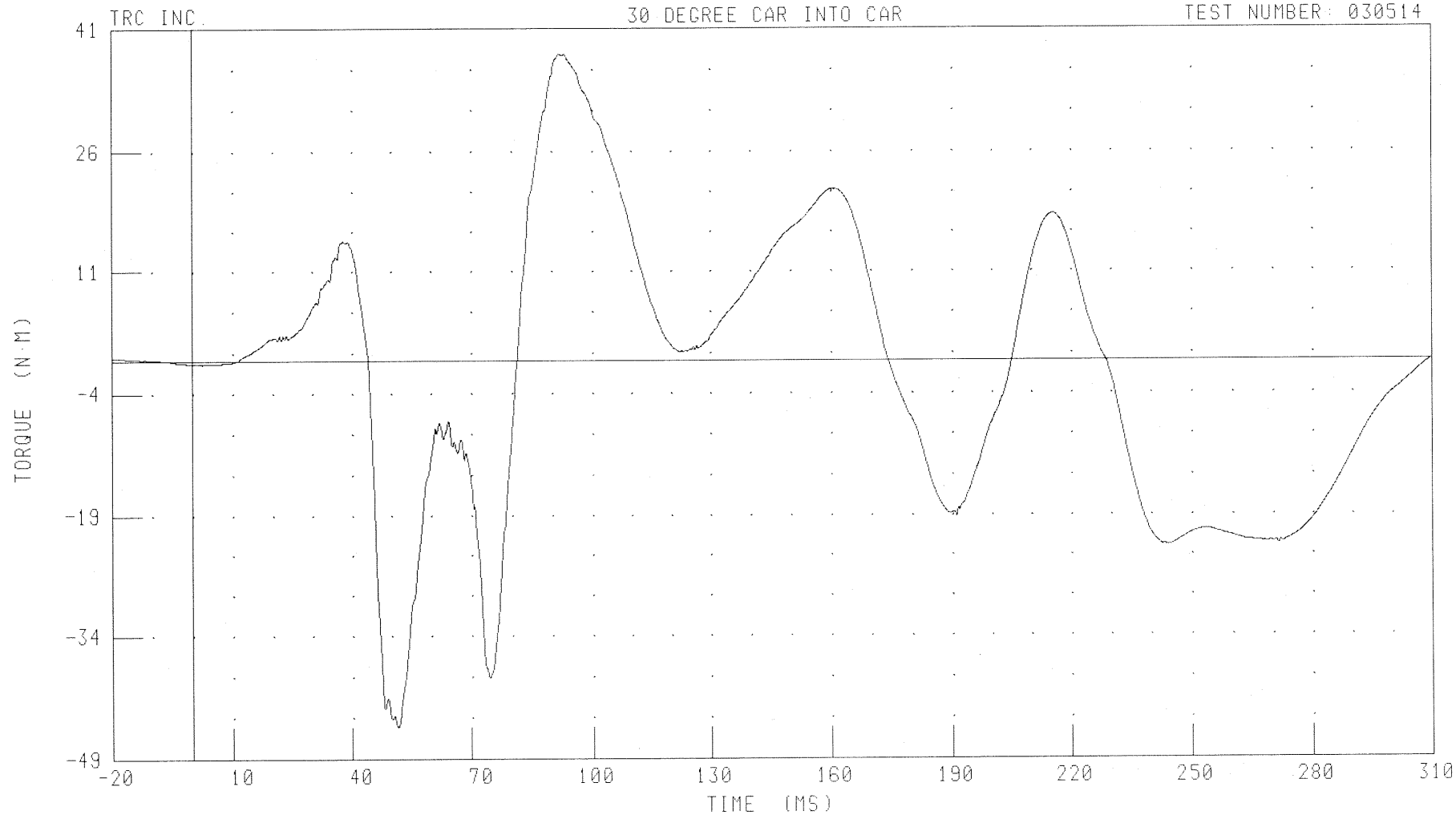
030514

1996 TOYOTA AVALON INTO LEFT FRONT OF 1997 HONDA ACCORD - OBLIQUE 30 DEGREES

BULLET DRIVER RIGHT FEMUR MOMENT ABOUT Z AXIS

30 DEGREE CAR INTO CAR

TEST NUMBER: 030514



CHANNEL: RFMZMA FILTER: CH. CLASS 600

B-124

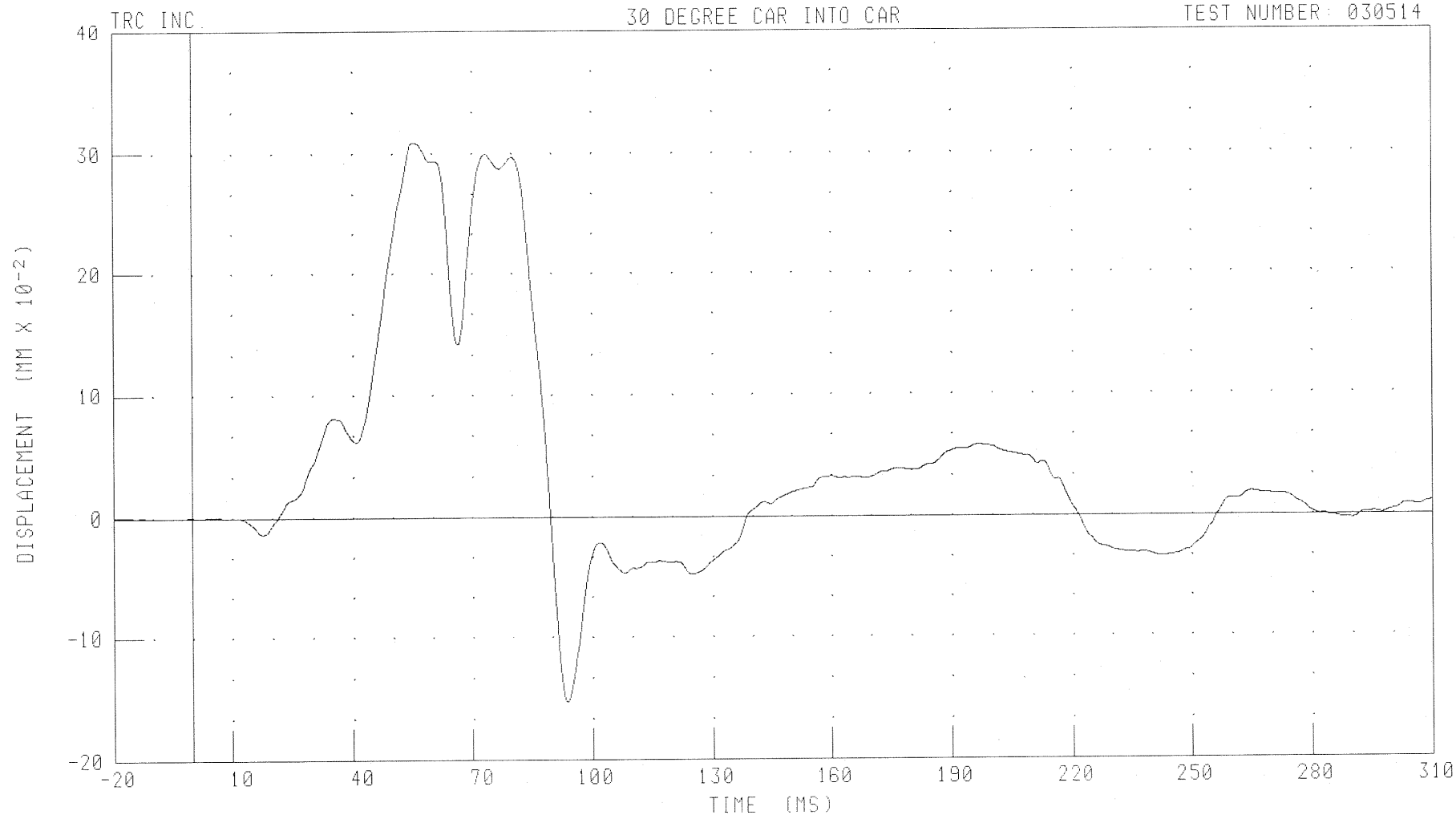
030514

1996 TOYOTA AVALON INTO LEFT FRONT OF 1997 HONDA ACCORD - OBLIQUE 30 DEGREES

BULLET DRIVER LEFT KNEE DISPLACEMENT

30 DEGREE CAR INTO CAR

TEST NUMBER: 030514



CHANNEL: KNLXDA FILTER: CH. CLASS 180

PEAK DATA: 0.31 MM @ 55.28 MS, -0.15 MM @ 93.76 MS

B-125

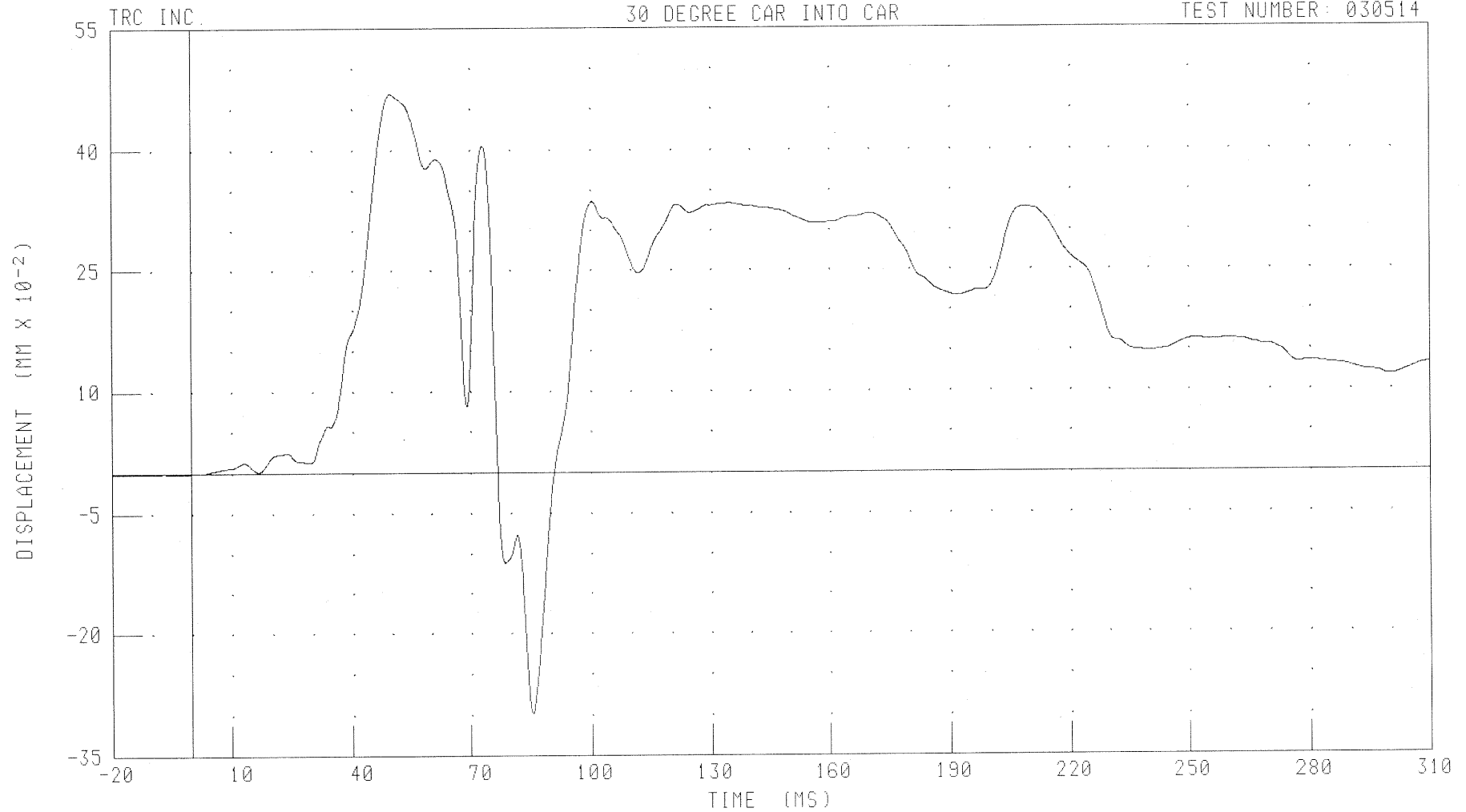
030514

1996 TOYOTA AVALON INTO LEFT FRONT OF 1997 HONDA ACCORD - OBLIQUE 30 DEGREES

BULLET DRIVER RIGHT KNEE DISPLACEMENT

30 DEGREE CAR INTO CAR

TEST NUMBER: 030514



CHANNEL: KNRXDA FILTER: CH. CLASS 180

PEAK DATA: 0.47 MM @ 49.84 MS; -0.30 MM @ 85.44 MS

B-126

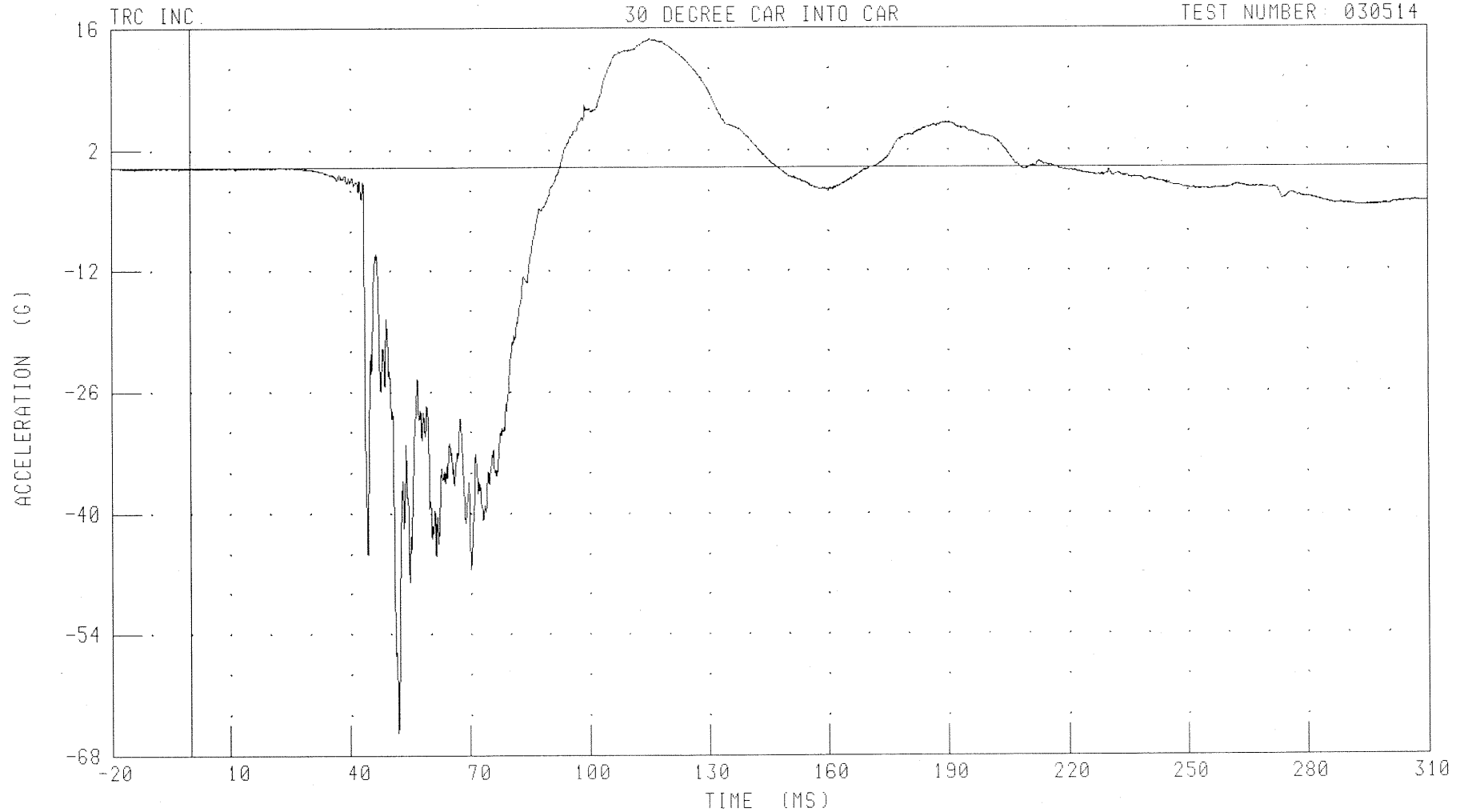
030514

1996 TOYOTA AVALON INTO LEFT FRONT OF 1997 HONDA ACCORD - OBLIQUE 30 DEGREES

BULLET PASSENGER HEAD X-AXIS ACCELERATION

30 DEGREE CAR INTO CAR

TEST NUMBER: 030514



CHANNEL: HEDXGB FILTER: CH. CLASS 1000

PEAK DATA: 14.80 G @ 115.44 MS, -65.37 G @ 51.92 MS

B-127

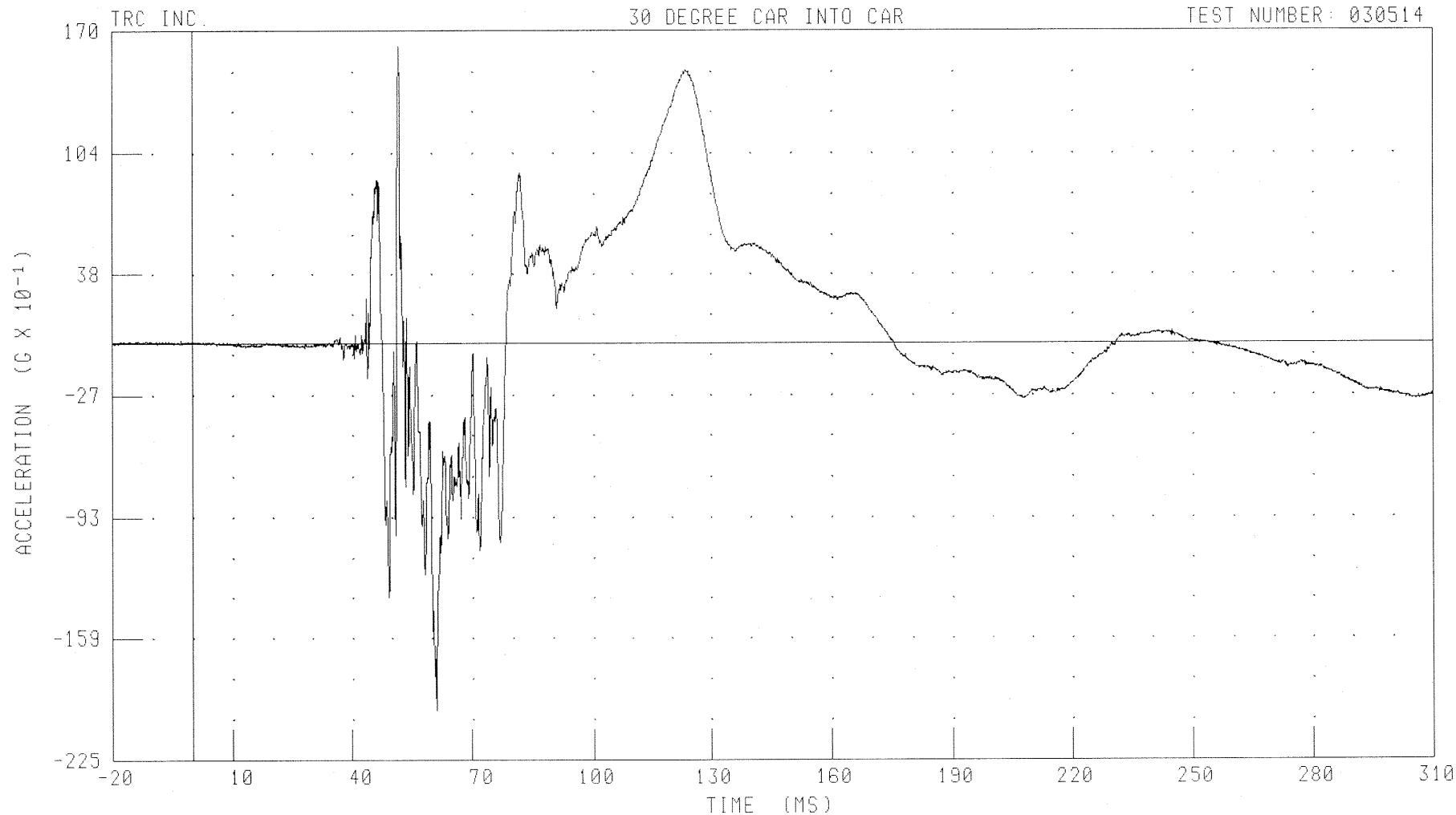
030514

1996 TOYOTA AVALON INTO LEFT FRONT OF 1997 HONDA ACCORD - OBLIQUE 30 DEGREES

BULLET PASSENGER HEAD Y-AXIS ACCELERATION

30 DEGREE CAR INTO CAR

TEST NUMBER: 030514



CHANNEL: HEDYGB FILTER: CH. CLASS 1000

PEAK DATA: 16.18 G @ 51.84 MS, -19.92 G @ 61.12 MS

B-128

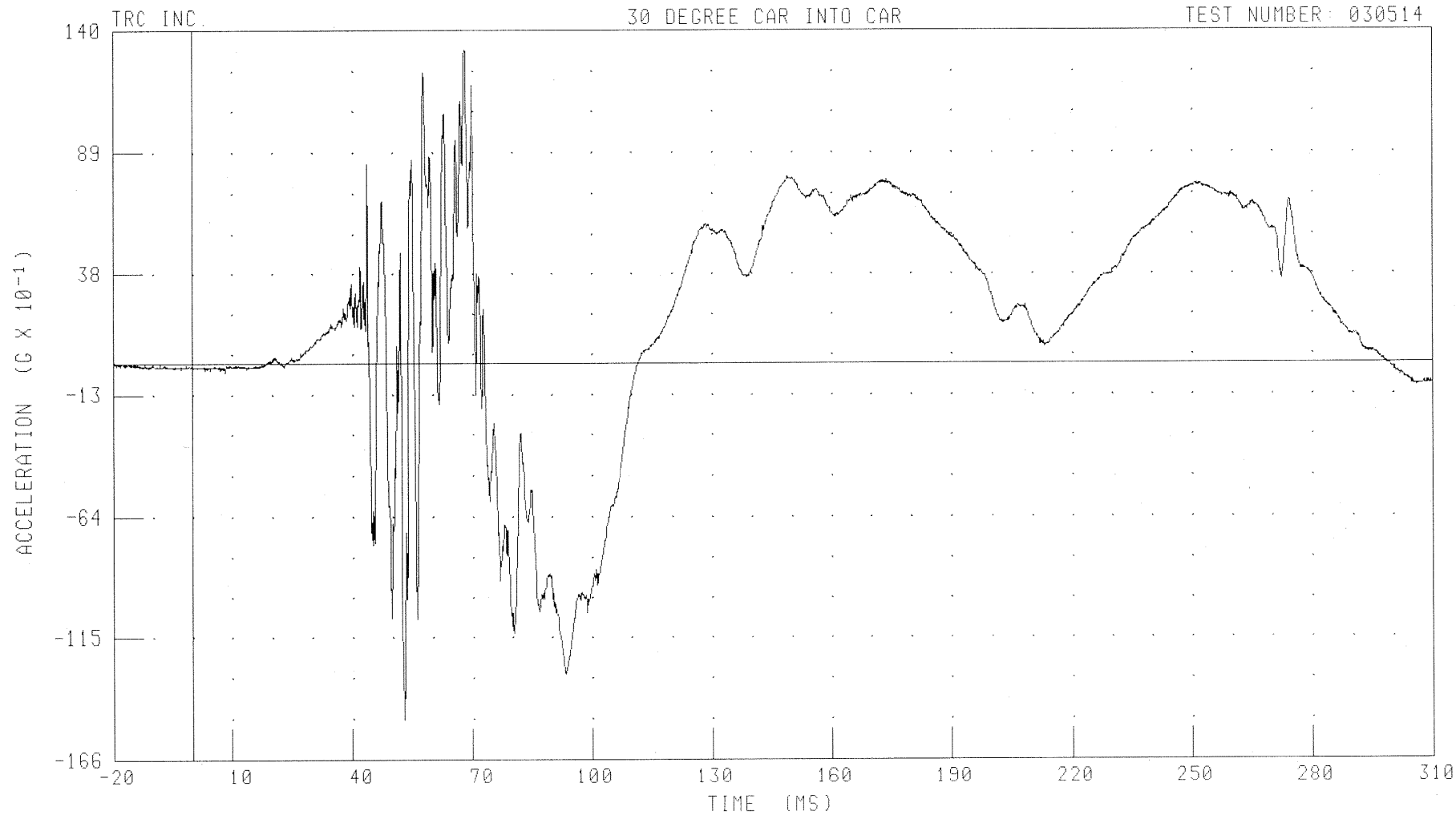
030514

1996 TOYOTA AVALON INTO LEFT FRONT OF 1997 HONDA ACCORD - OBLIQUE 30 DEGREES

BULLET PASSENGER HEAD Z-AXIS ACCELERATION

30 DEGREE CAR INTO CAR

TEST NUMBER: 030514



CHANNEL: HEDZGB FILTER: CH. CLASS 1000

PEAK DATA: 13.21 G @ 68.16 MS; -14.95 G @ 52.88 MS

B-129

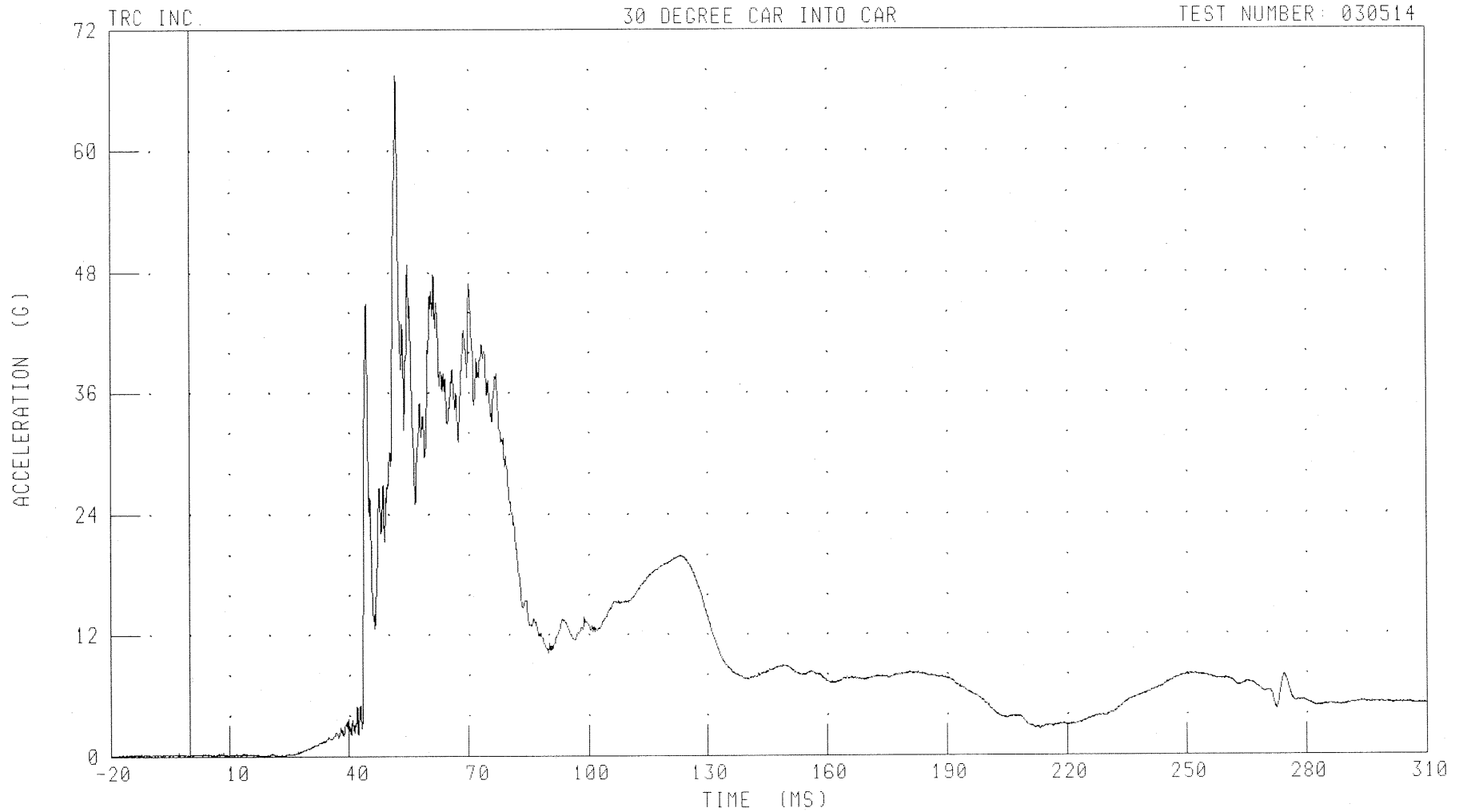
030514

1996 TOYOTA AVALON INTO LEFT FRONT OF 1997 HONDA ACCORD - OBLIQUE 30 DEGREES

BULLET PASSENGER HEAD RESULTANT ACCELERATION

30 DEGREE CAR INTO CAR

TEST NUMBER: 030514



CHANNEL: HEDRGB FILTER: CH. CLASS 1000

PEAK DATA: 67.41 G @ 51.92 MS; 0.02 G @ -18.56 MS

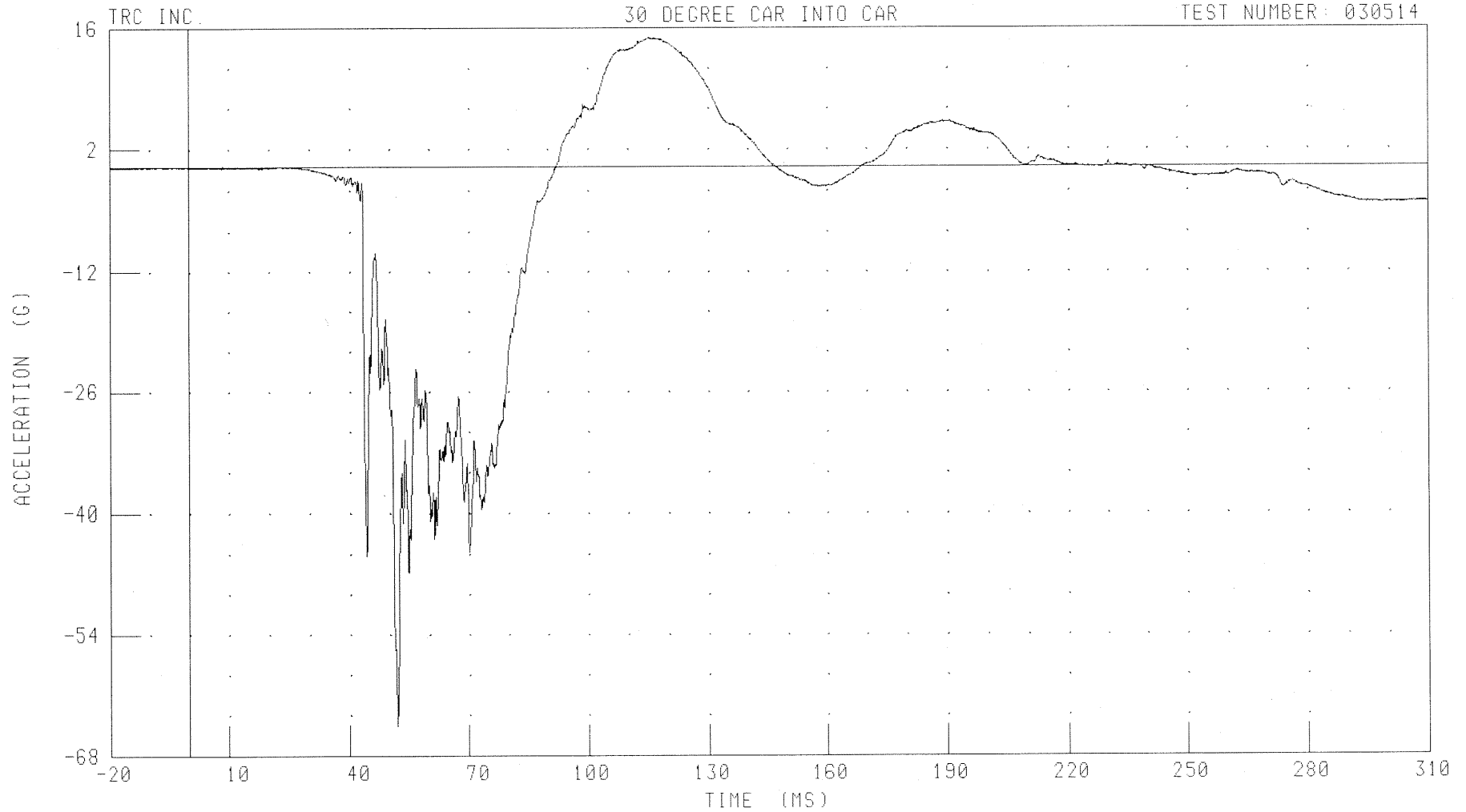
B-130

030514

1996 TOYOTA AVALON INTO LEFT FRONT OF 1997 HONDA ACCORD - OBLIQUE 30 DEGREES
BULLET PASSENGER HEAD X-AXIS ACCELERATION REDUNDANT

30 DEGREE CAR INTO CAR

TEST NUMBER: 030514



CHANNEL: HEDXRB FILTER: CH. CLASS 1000

PEAK DATA: 14.93 G @ 115.44 MS, -64.56 G @ 51.84 MS

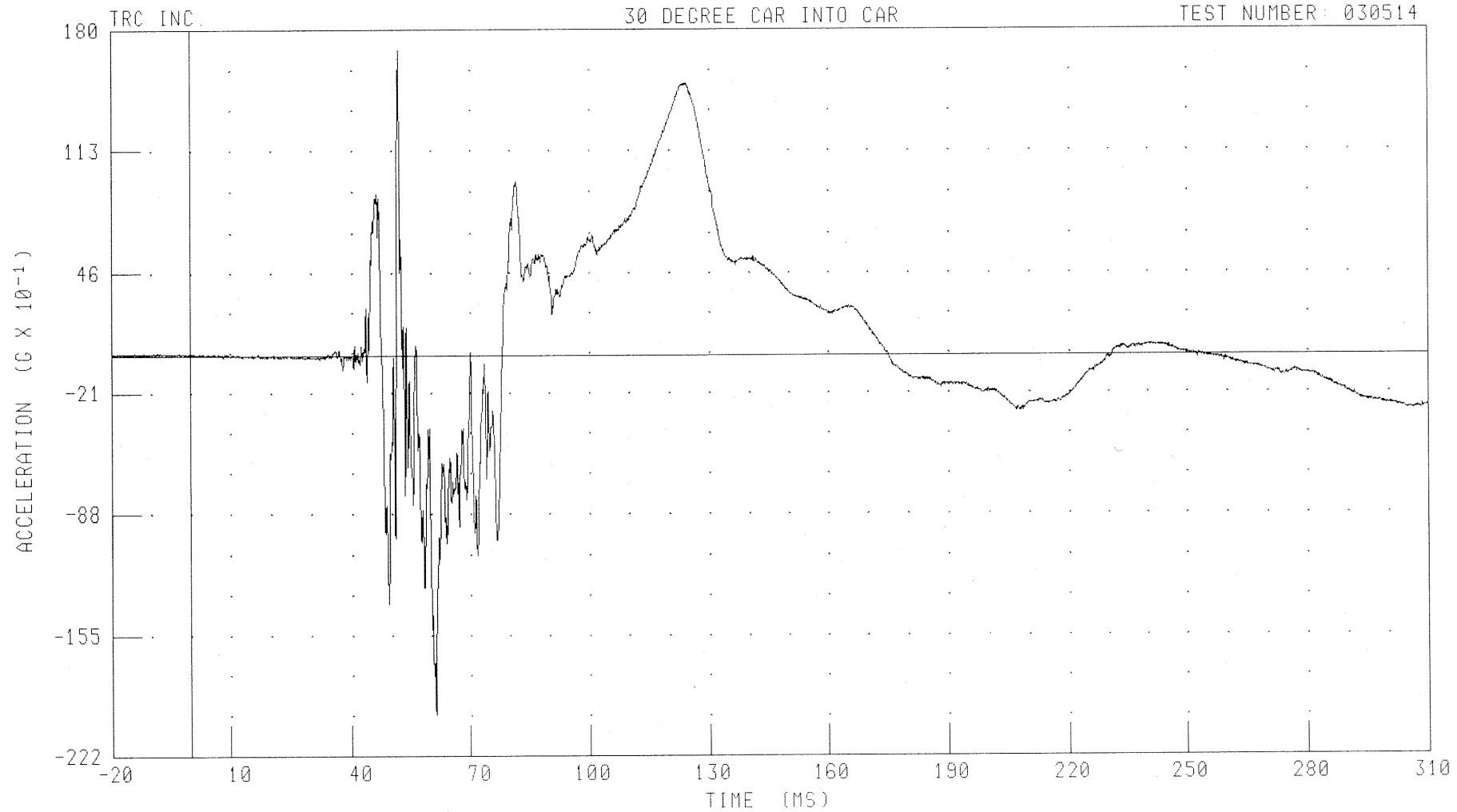
B-131

030514

1996 TOYOTA AVALON INTO LEFT FRONT OF 1997 HONDA ACCORD - OBLIQUE 30 DEGREES
BULLET PASSENGER HEAD Y-AXIS ACCELERATION REDUNDANT

30 DEGREE CAR INTO CAR

TEST NUMBER: 030514



CHANNEL: HEDYRB FILTER: CH. CLASS 1000

B-132

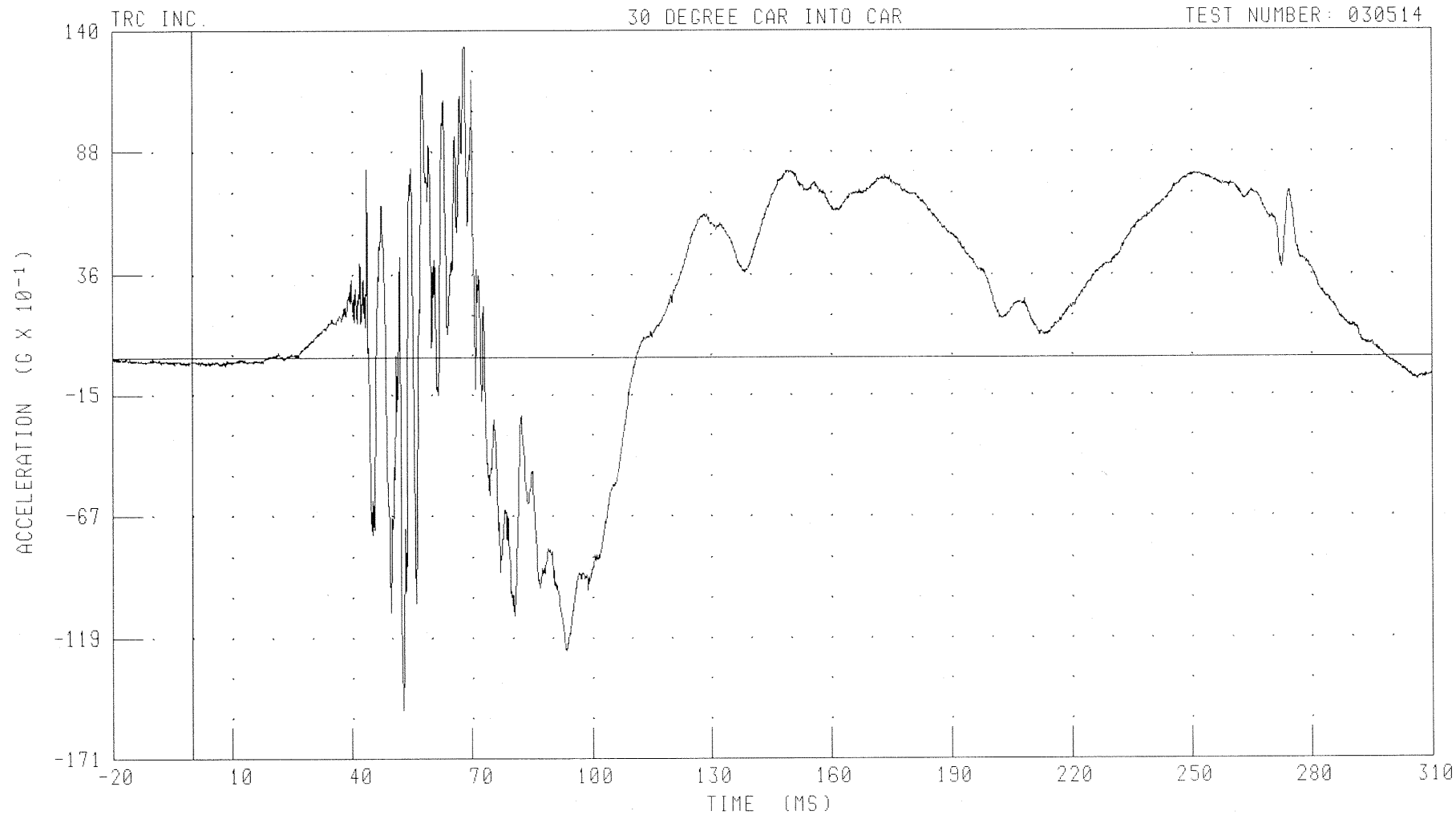
030514

1996 TOYOTA AVALON INTO LEFT FRONT OF 1997 HONDA ACCORD - OBLIQUE 30 DEGREES

BULLET PASSENGER HEAD Z-AXIS ACCELERATION REDUNDANT

30 DEGREE CAR INTO CAR

TEST NUMBER: 030514



CHANNEL: HEDZRB FILTER: CH. CLASS 1000

PEAK DATA: 13.33 G @ 68.00 MS, -15.12 G @ 52.88 MS

B-133

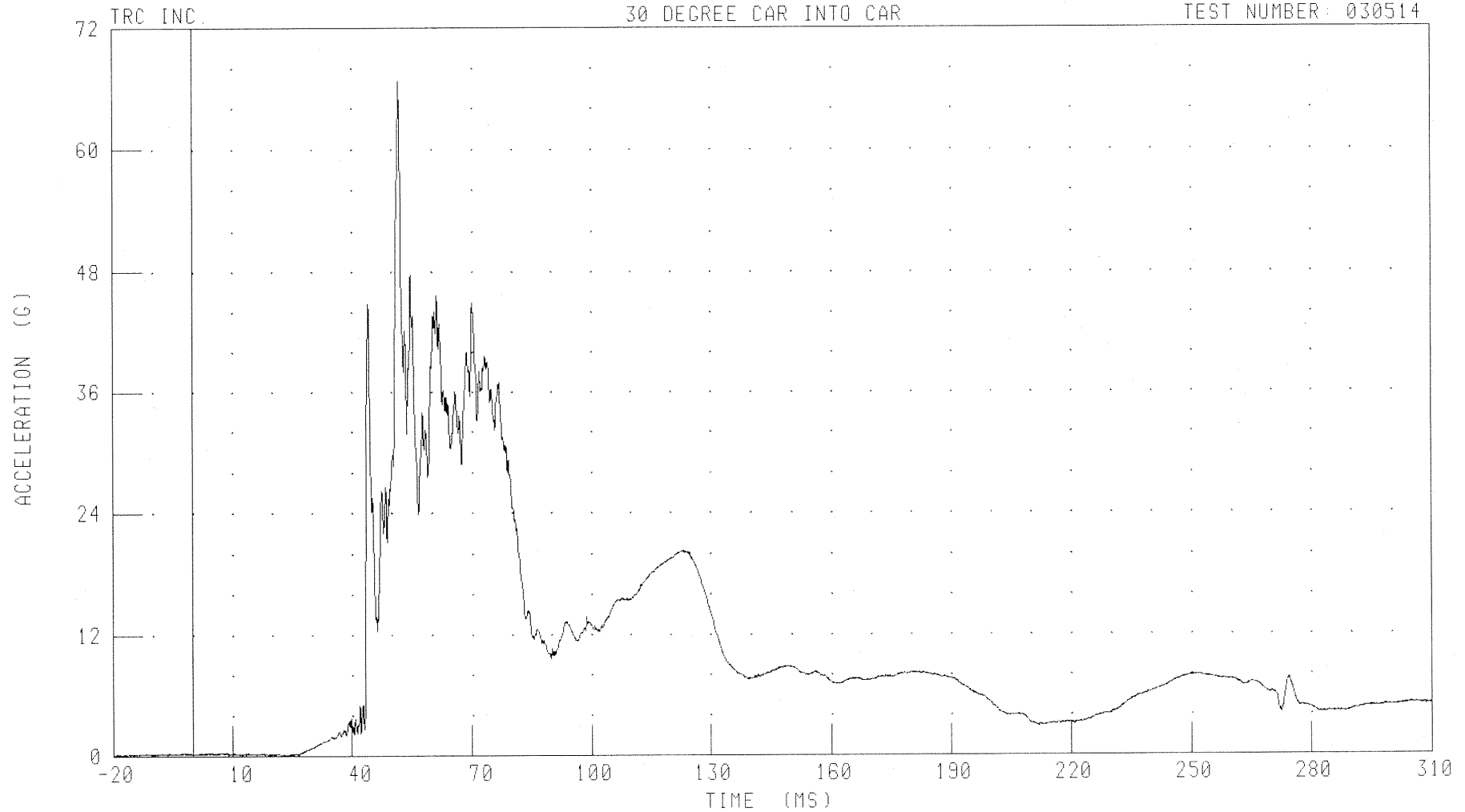
030514

1996 TOYOTA AVALON INTO LEFT FRONT OF 1997 HONDA ACCORD - OBLIQUE 30 DEGREES

BULLET PASSENGER HEAD RESULTANT ACCELERATION REDUNDANT

30 DEGREE CAR INTO CAR

TEST NUMBER: 030514



CHANNEL: HEDRRB FILTER: CH. CLASS 1000

PEAK DATA: 66.75 G @ 51.84 MS; 0.02 G @ 23.68 MS

B-134

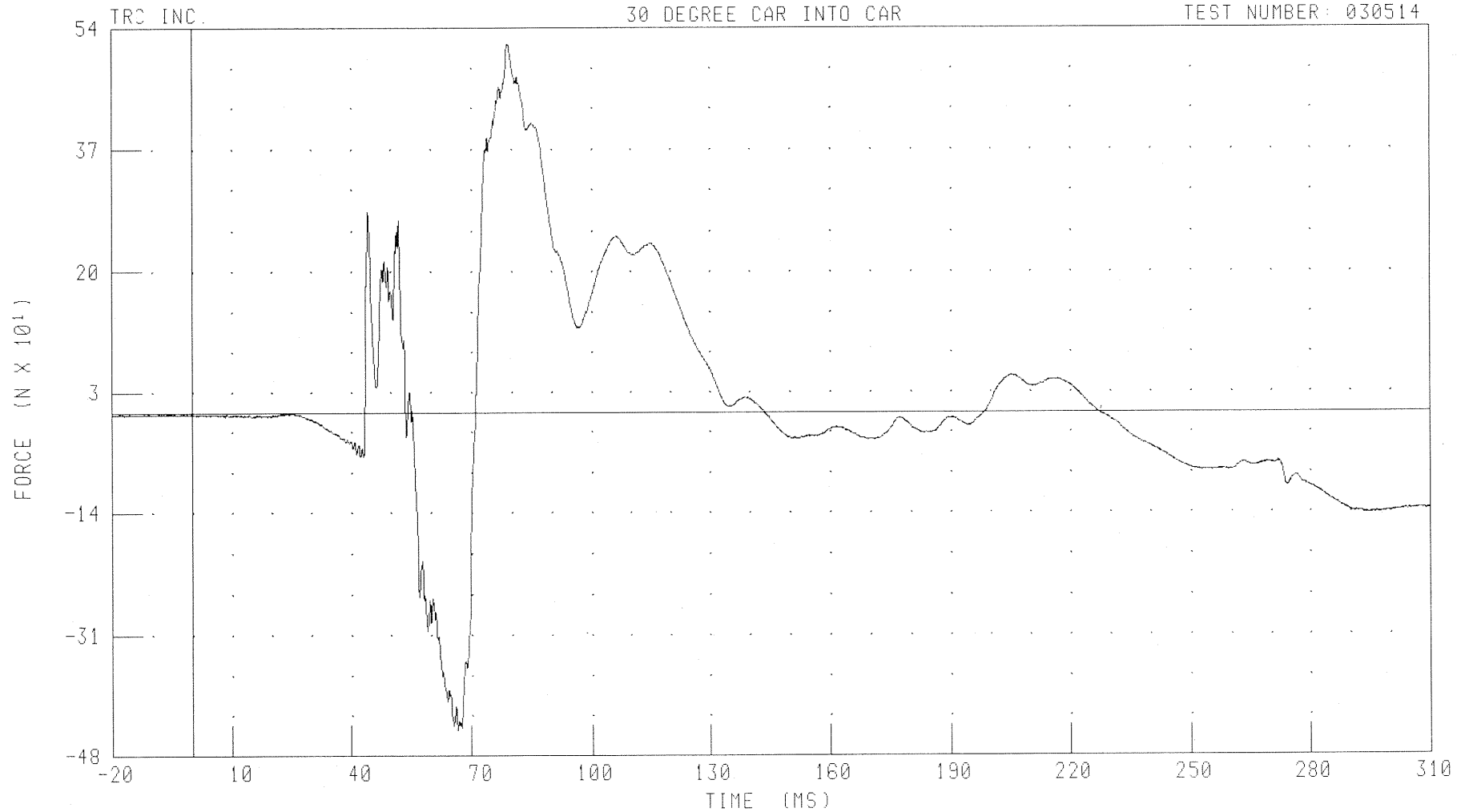
030514

1996 TOYOTA AVALON INTO LEFT FRONT OF 1997 HONDA ACCORD - OBLIQUE 30 DEGREES

BULLET PASSENGER NECK X-AXIS SHEAR FORCE

30 DEGREE CAR INTO CAR

TEST NUMBER: 030514



CHANNEL: NEKXFB FILTER: CH. CLASS 1000

PEAK DATA: 517.90 N @ 79.36 MS, -443.48 N @ 66.56 MS

B-135

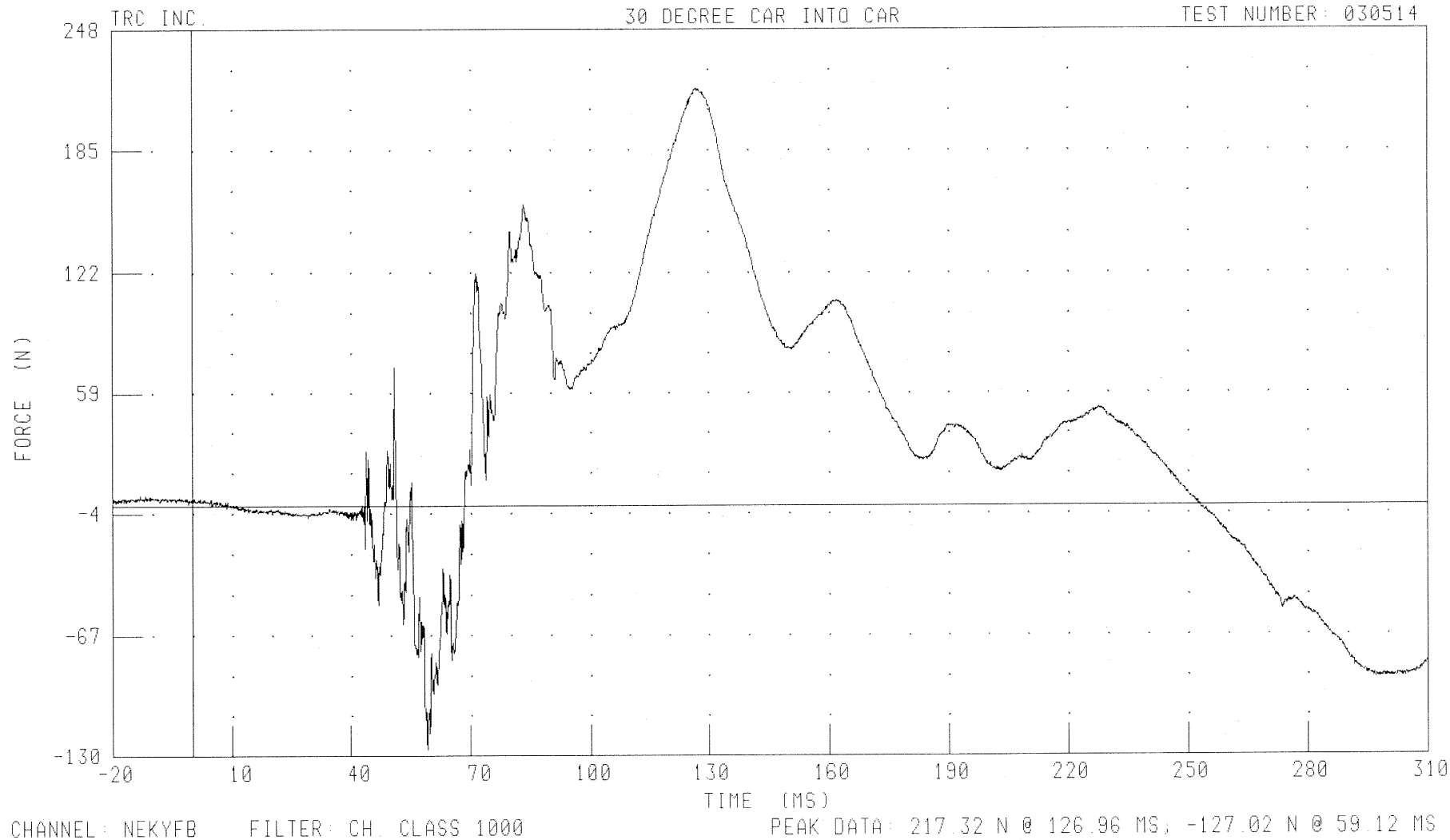
030514

1996 TOYOTA AVALON INTO LEFT FRONT OF 1997 HONDA ACCORD - OBLIQUE 30 DEGREES

BULLET PASSENGER NECK Y-AXIS SHEAR FORCE

30 DEGREE CAR INTO CAR

TEST NUMBER: 030514



B-136

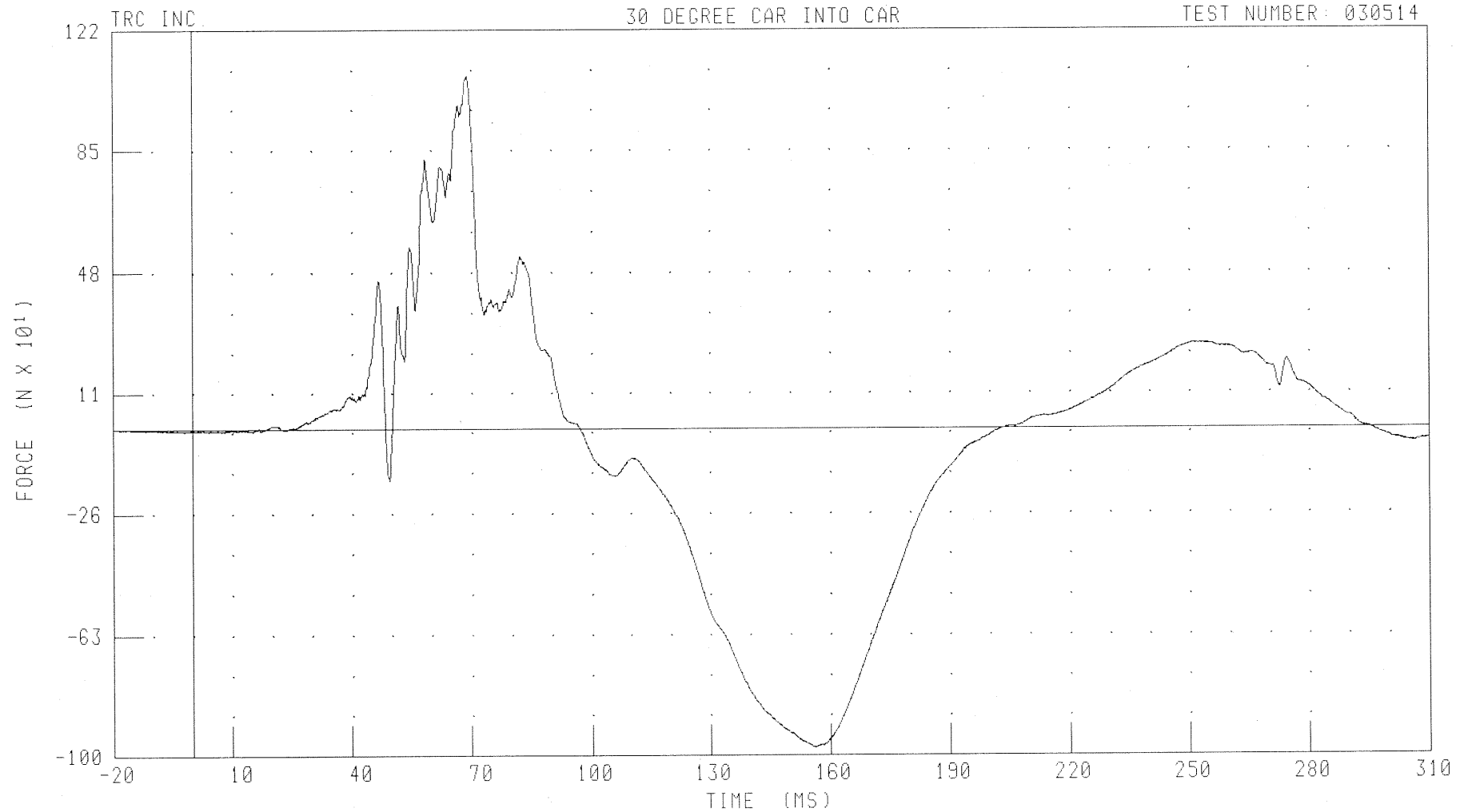
030514

1996 TOYOTA AVALON INTO LEFT FRONT OF 1997 HONDA ACCORD - OBLIQUE 30 DEGREES

BULLET PASSENGER NECK Z-AXIS AXIAL FORCE

30 DEGREE CAR INTO CAR

TEST NUMBER: 030514



CHANNEL: NEKZFB FILTER: CH. CLASS 1000

PEAK DATA: 107.04 N @ 69.04 MS; -97.64 N @ 156.16 MS

B-137

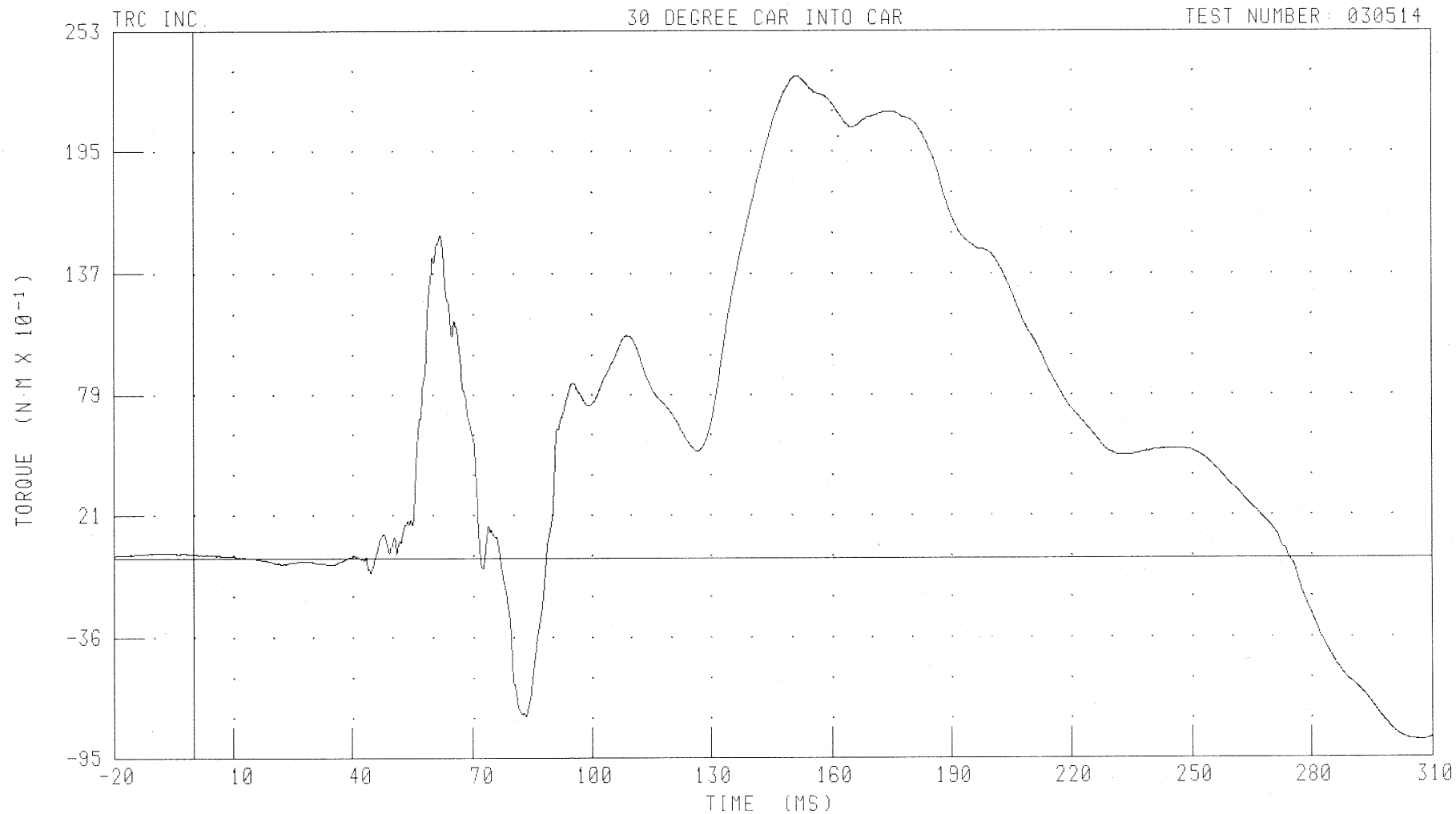
030514

1996 TOYOTA AVALON INTO LEFT FRONT OF 1997 HONDA ACCORD - OBLIQUE 30 DEGREES

BULLET PASSENGER NECK MOMENT ABOUT X AXIS

30 DEGREE CAR INTO CAR

TEST NUMBER: 030514



CHANNEL: NEKXMB FILTER: CH. CLASS 600

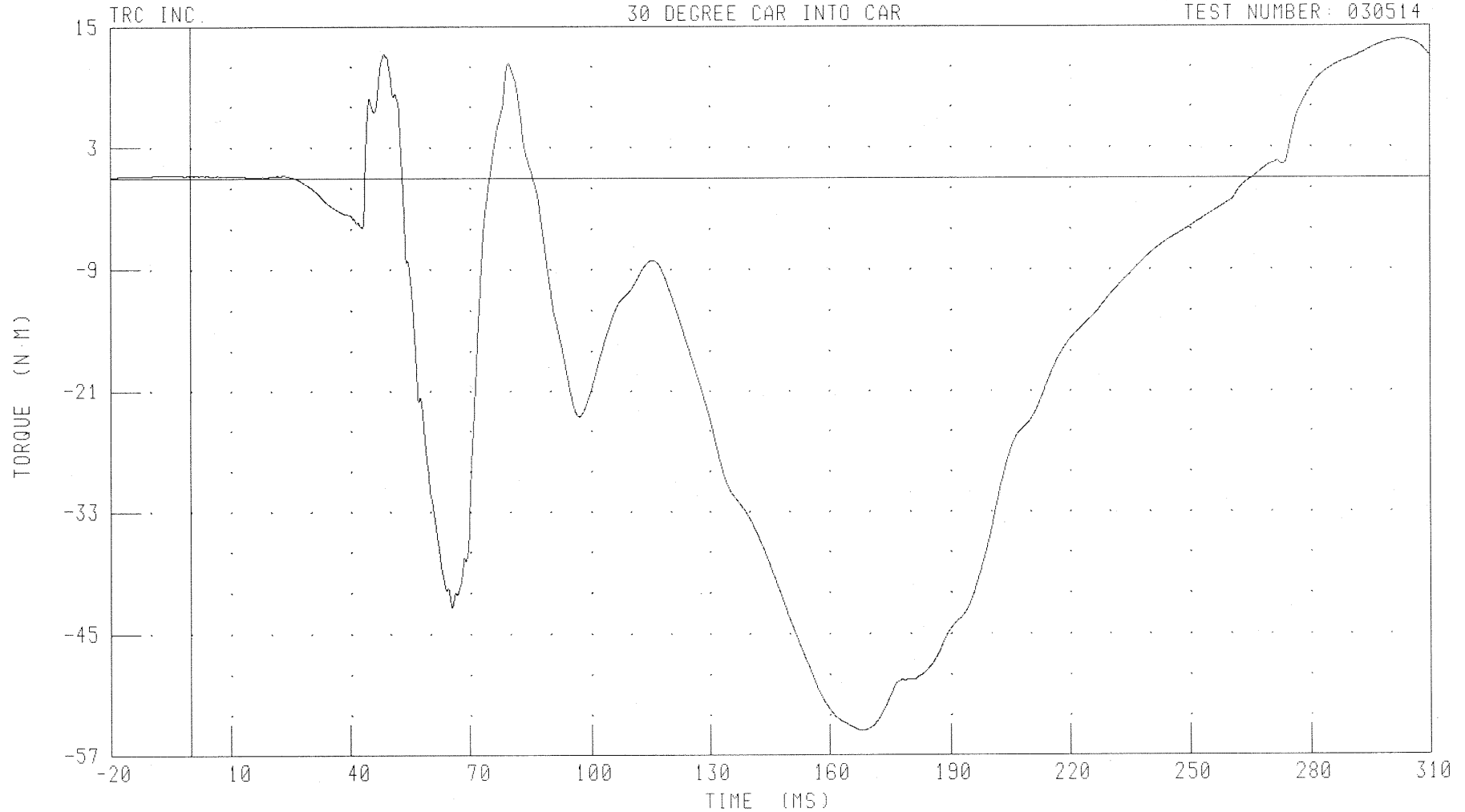
B-138

030514

1996 TOYOTA AVALON INTO LEFT FRONT OF 1997 HONDA ACCORD - OBLIQUE 30 DEGREES
BULLET PASSENGER NECK MOMENT ABOUT Y AXIS

30 DEGREE CAR INTO CAR

TEST NUMBER: 030514



CHANNEL: NEKYMB

FILTER: CH. CLASS 600

PEAK DATA: 13.72 N·M @ 303.28 MS; -54.57 N·M @ 168.08 MS

B-139

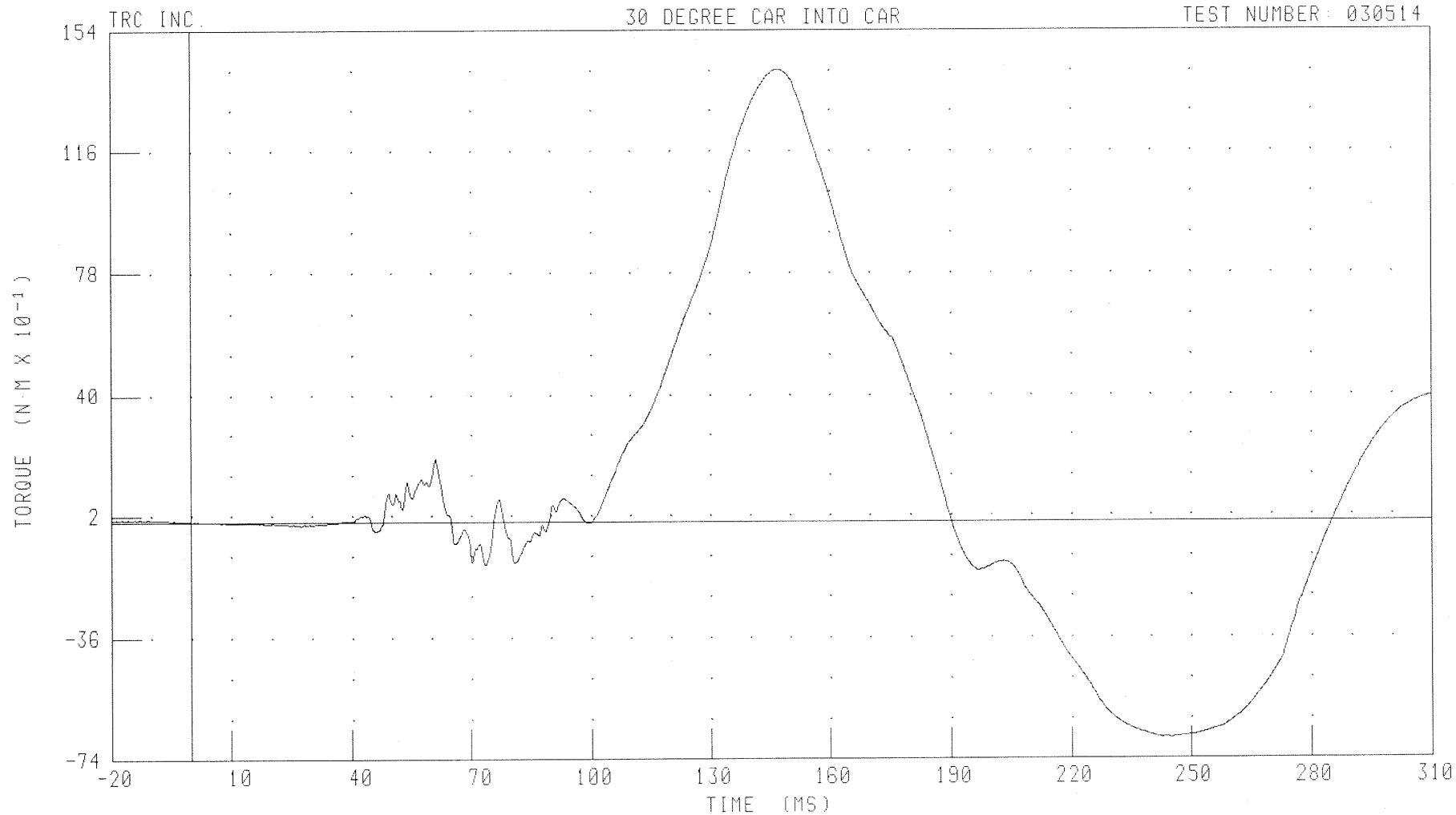
030514

1996 TOYOTA AVALON INTO LEFT FRONT OF 1997 HONDA ACCORD - OBLIQUE 30 DEGREES

BULLET PASSENGER NECK MOMENT ABOUT Z AXIS

30 DEGREE CAR INTO CAR

TEST NUMBER: 030514



CHANNEL: NEKZMB FILTER: CH. CLASS 600

PEAK DATA: 14.16 N·M @ 147.60 MS; -6.76 N·M @ 244.88 MS

B-140

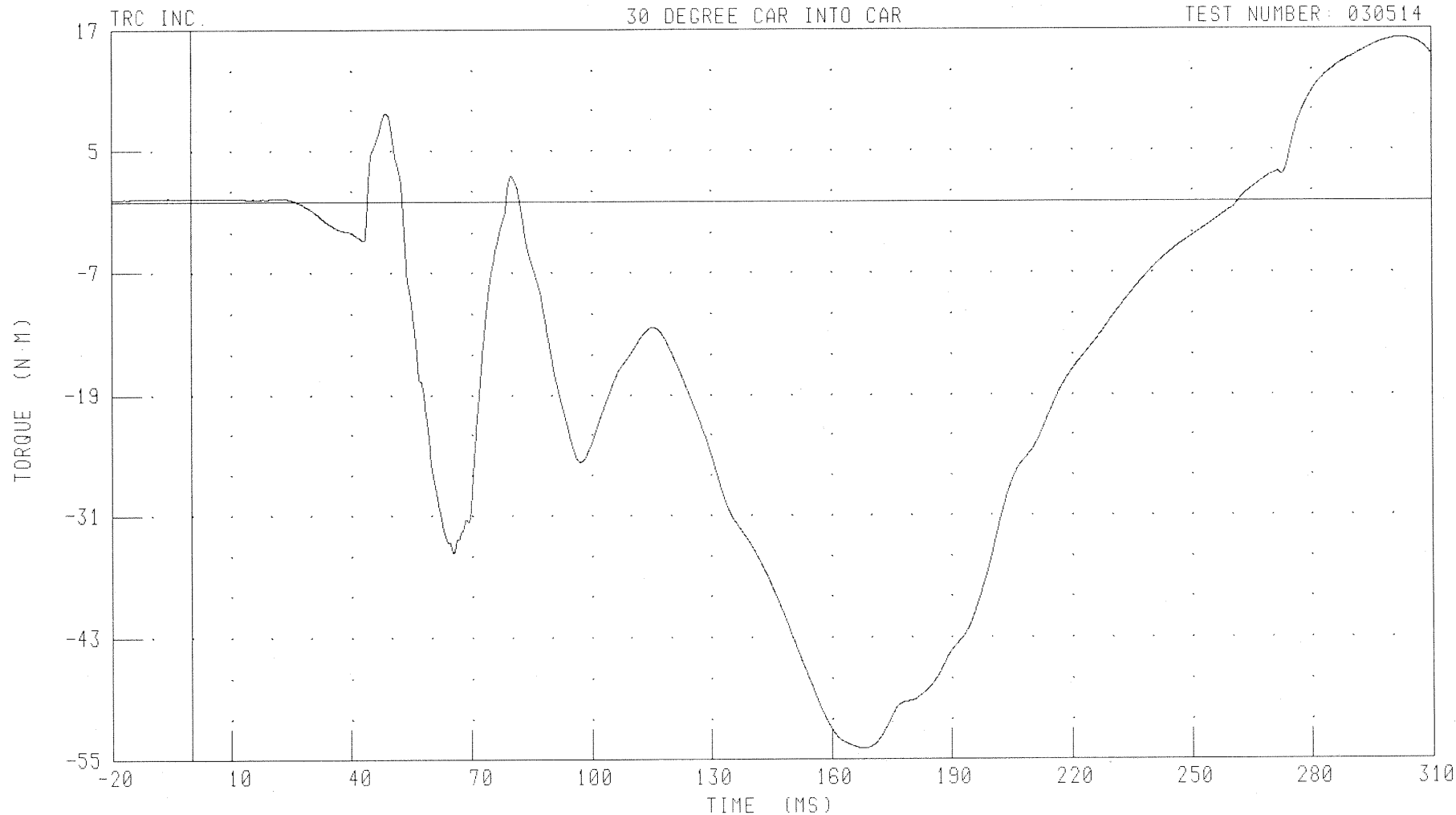
030514

1996 TOYOTA AVALON INTO LEFT FRONT OF 1997 HONDA ACCORD - OBLIQUE 30 DEGREES

BULLET PASSENGER NECK OCCIPITAL CONDYLE MOMENT ABOUT Y AXIS

30 DEGREE CAR INTO CAR

TEST NUMBER: 030514



CHANNEL: NEKOMB FILTER: CH. CLASS 600

PEAK DATA: 16.14 N·M @ 303.28 MS; -53.94 N·M @ 168.00 MS

B-141

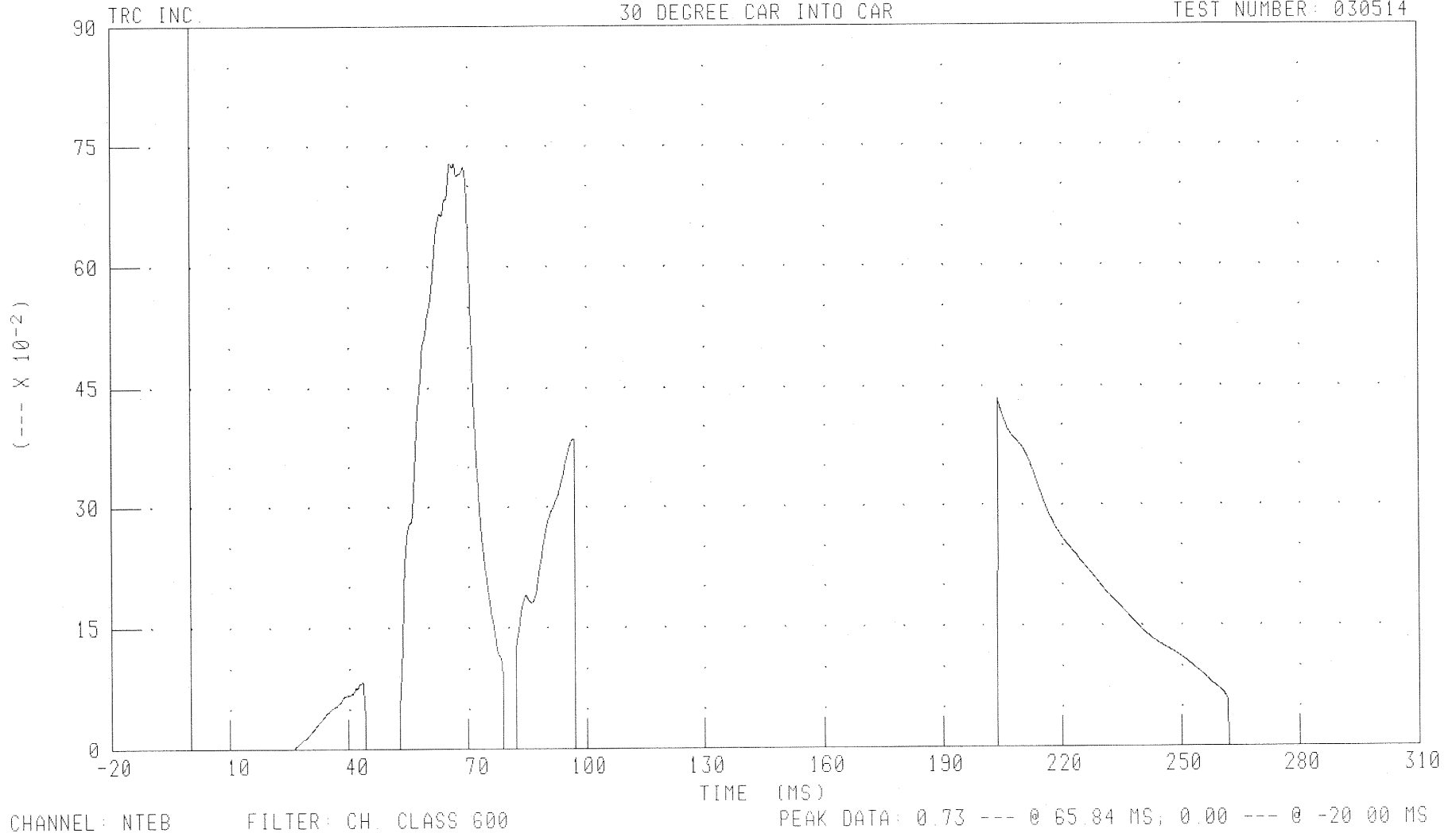
030514

1996 TOYOTA AVALON INTO LEFT FRONT OF 1997 HONDA ACCORD - OBLIQUE 30 DEGREES

BULLET PASSENGER NIJ TENSION/EXTENSION

30 DEGREE CAR INTO CAR

TEST NUMBER: 030514



B-142

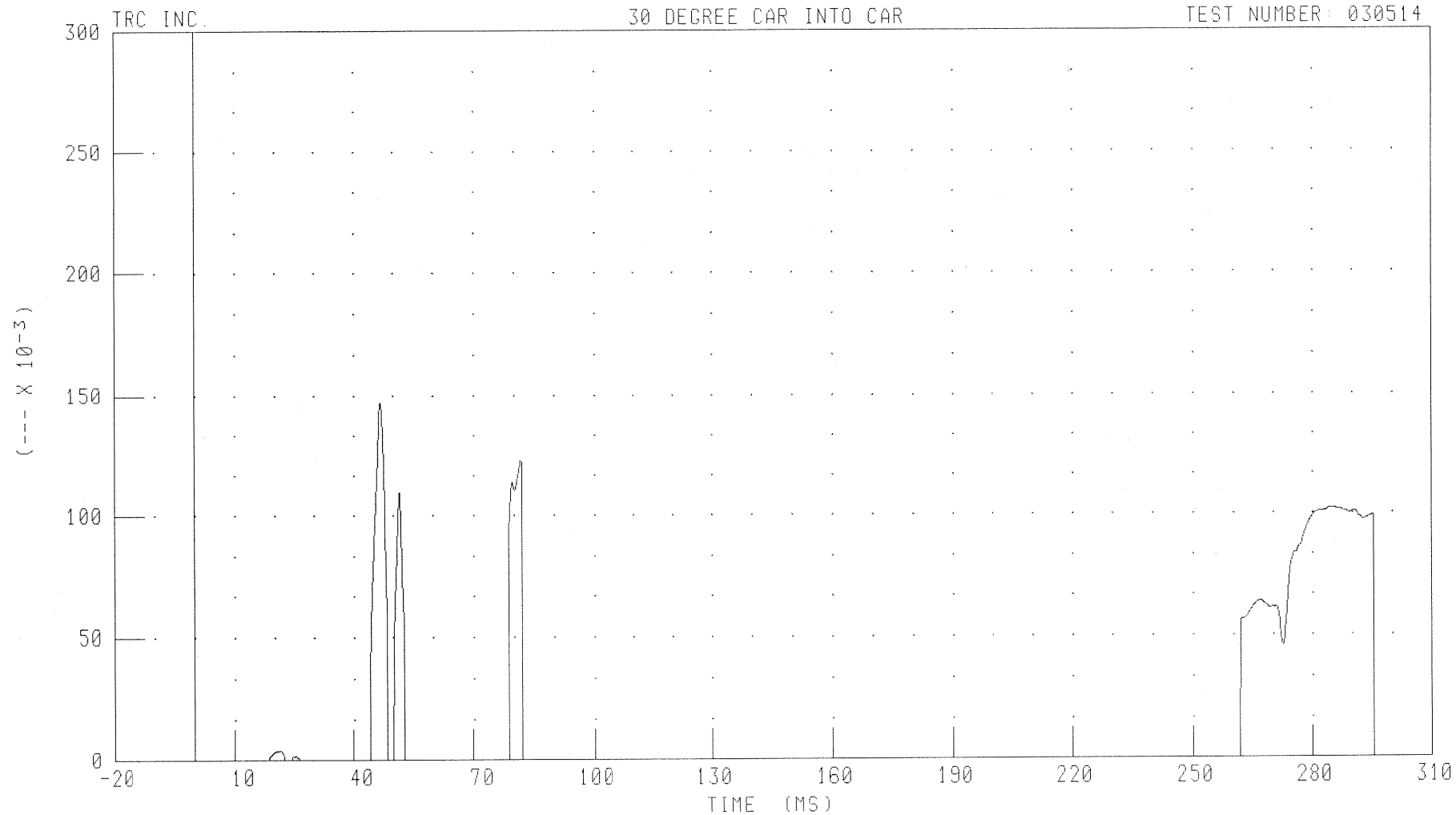
030514

1996 TOYOTA AVALON INTO LEFT FRONT OF 1997 HONDA ACCORD - OBLIQUE 30 DEGREES

BULLET PASSENGER NIJ TENSION/FLEXION

30 DEGREE CAR INTO CAR

TEST NUMBER: 030514



CHANNEL: NTFB

FILTER: CH. CLASS 600

PEAK DATA: 0.15 --- @ 46.96 MS; 0.00 --- @ -20.00 MS

B-143

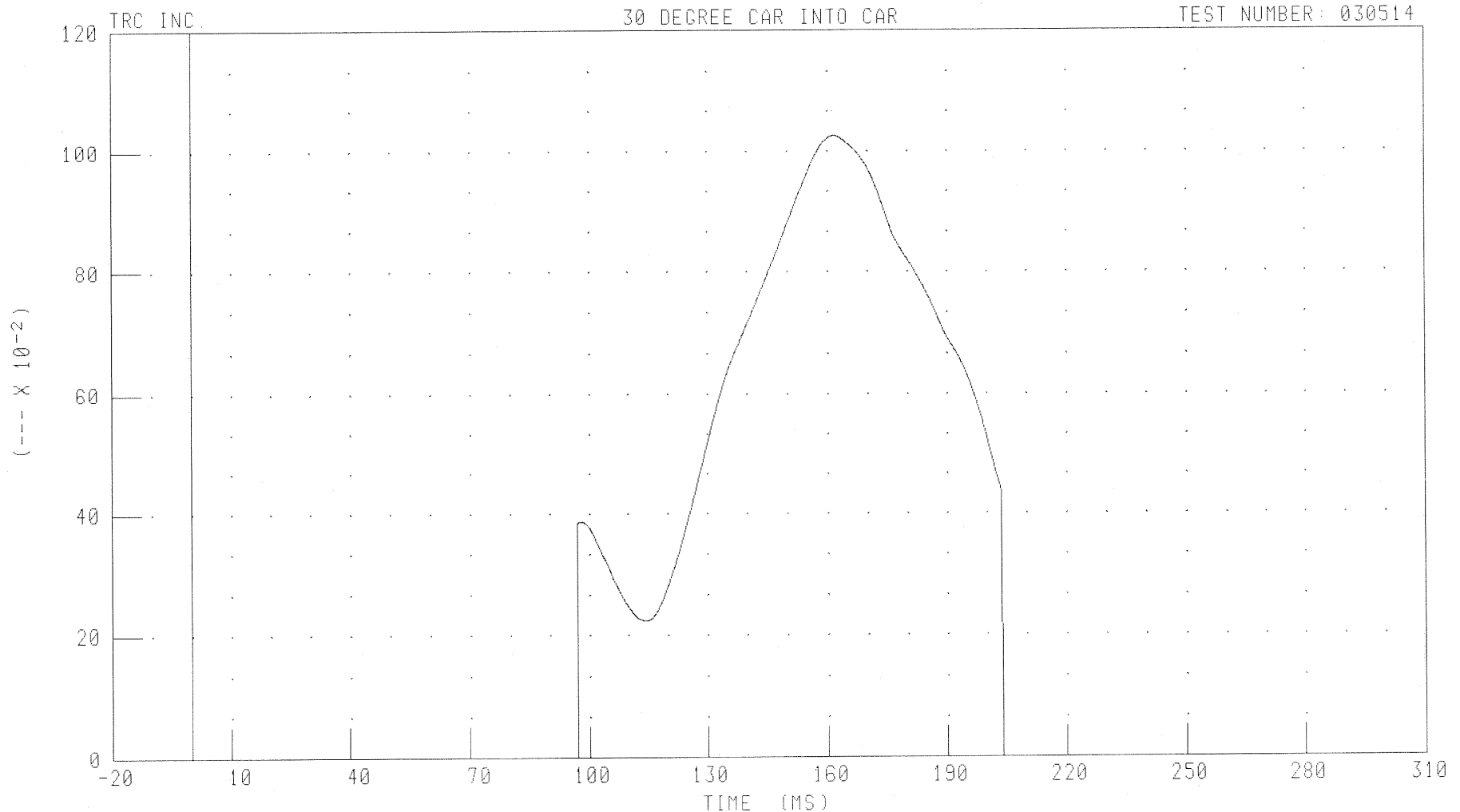
030514

1996 TOYOTA AVALON INTO LEFT FRONT OF 1997 HONDA ACCORD - OBLIQUE 30 DEGREES

BULLET PASSENGER NIJ COMPRESSION/EXTENSION

30 DEGREE CAR INTO CAR

TEST NUMBER: 030514



CHANNEL: NCEB

FILTER: CH. CLASS 600

PEAK DATA: 1.03 --- @ 161.76 MS; 0.00 --- @ -20.00 MS

B-144

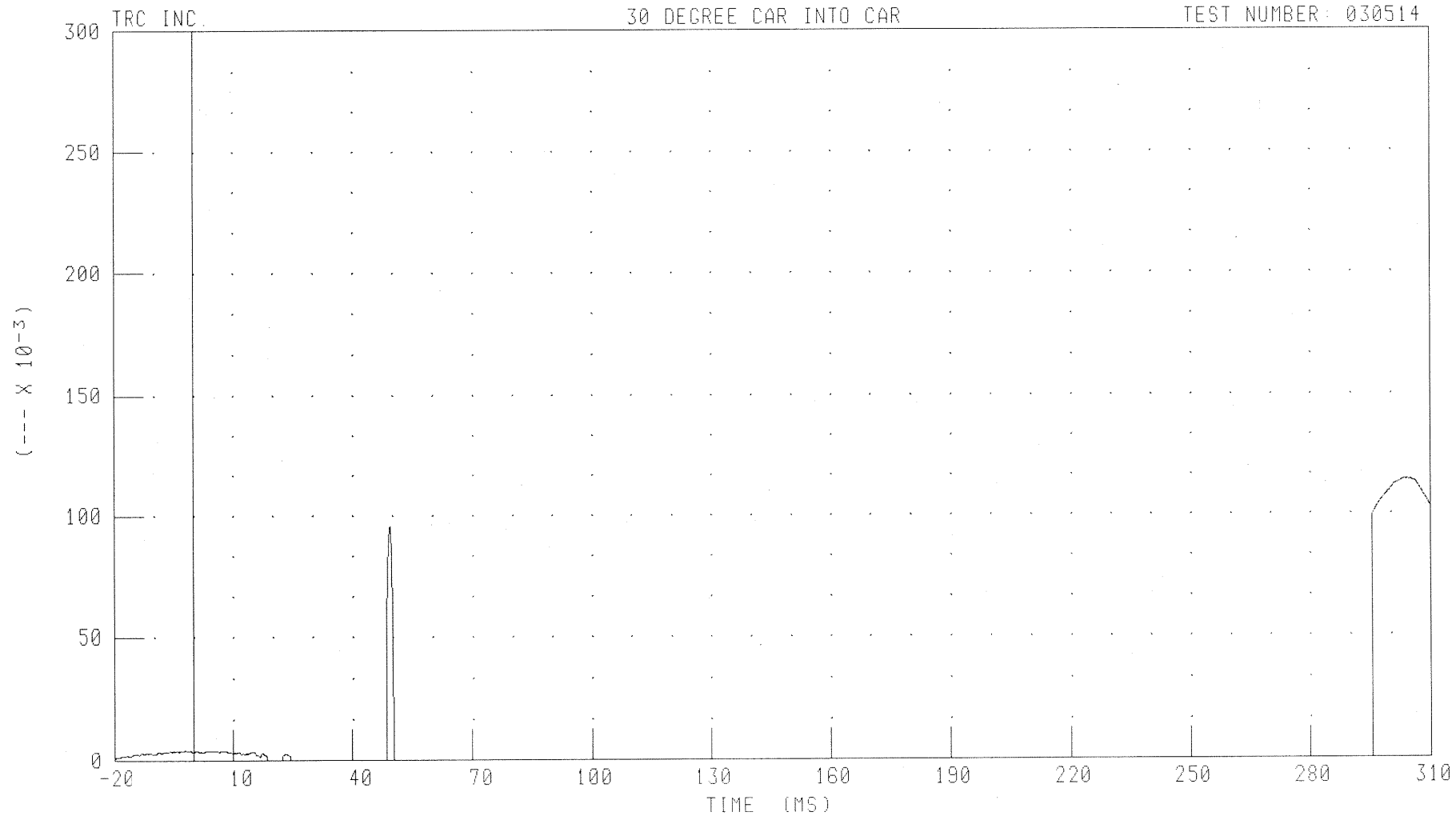
030514

1996 TOYOTA AVALON INTO LEFT FRONT OF 1997 HONDA ACCORD - OBLIQUE 30 DEGREES

BULLET PASSENGER NIJ COMPRESSION/FLEXION

30 DEGREE CAR INTO CAR

TEST NUMBER: 030514



CHANNEL: NCFB

FILTER: CH. CLASS 600

PEAK DATA: 0.11 --- @ 303.52 MS; 0.00 --- @ 18.64 MS

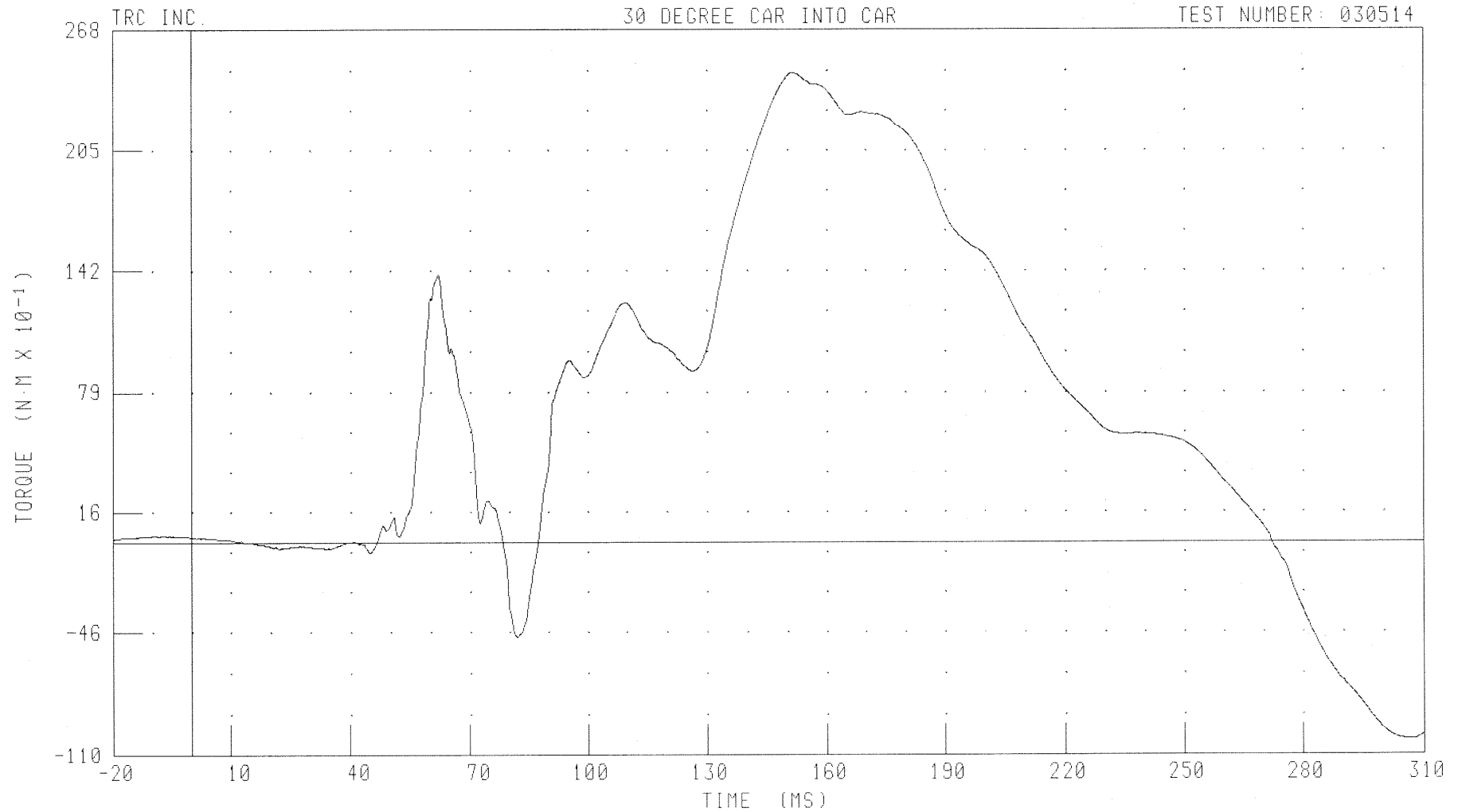
B-145

030514

1996 TOYOTA AVALON INTO LEFT FRONT OF 1997 HONDA ACCORD - OBLIQUE 30 DEGREES
BULLET PASSENGER NECK OCCIPITAL CONDYLE MOMENT ABOUT X AXIS

30 DEGREE CAR INTO CAR

TEST NUMBER: 030514



CHANNEL: NK0XMB FILTER: CH. CLASS 600

PEAK DATA: 24.59 N-M @ 151.68 MS; -10.21 N-M @ 305.92 MS

B-146

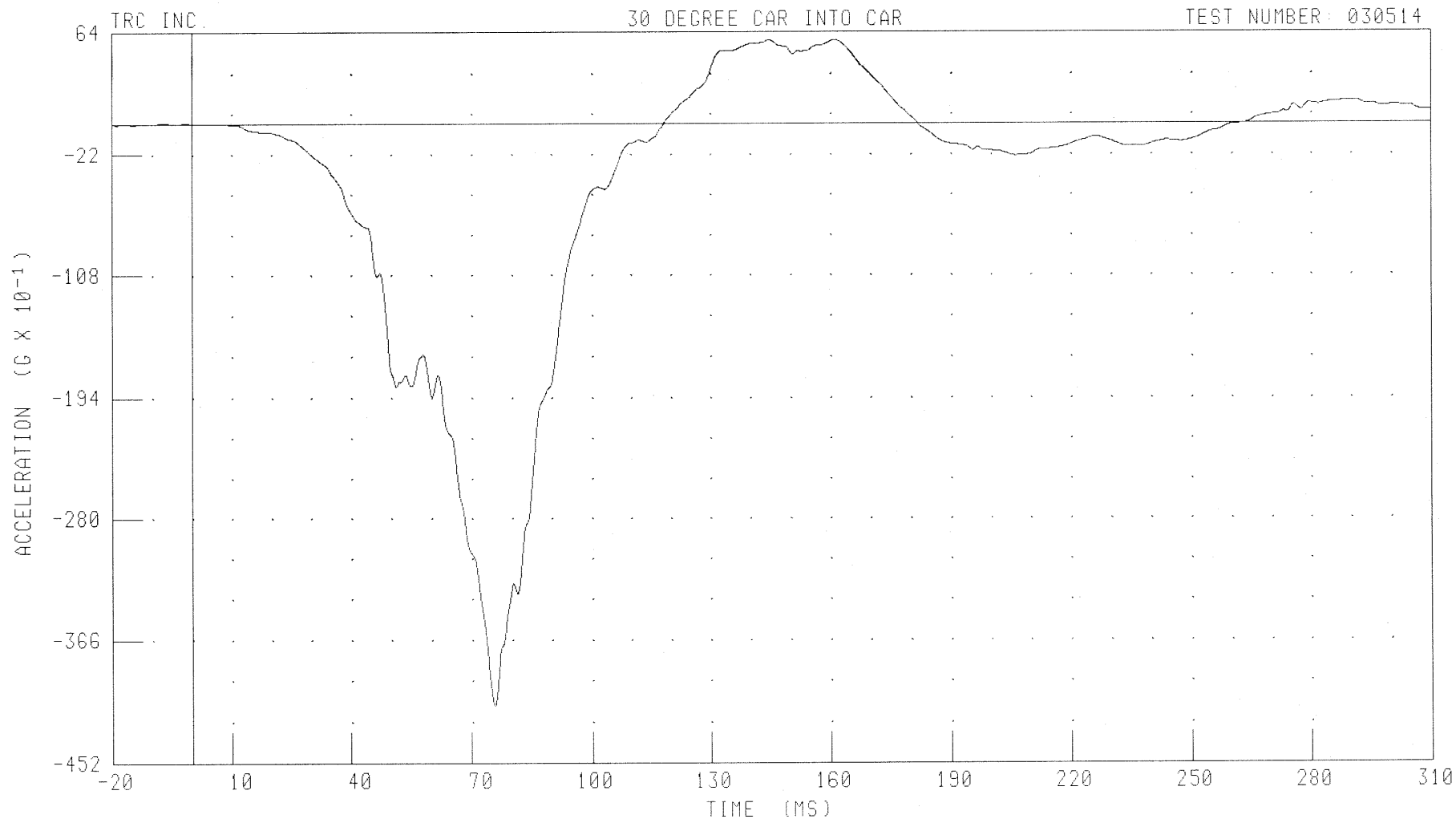
030514

1996 TOYOTA AVALON INTO LEFT FRONT OF 1997 HONDA ACCORD - OBLIQUE 30 DEGREES

BULLET PASSENGER CHEST X-AXIS ACCELERATION

30 DEGREE CAR INTO CAR

TEST NUMBER: 030514



CHANNEL: CSTXGB FILTER: CH. CLASS 180

PEAK DATA: 5.85 G @ 161.20 MS, -41.21 G @ 75.68 MS

B-147

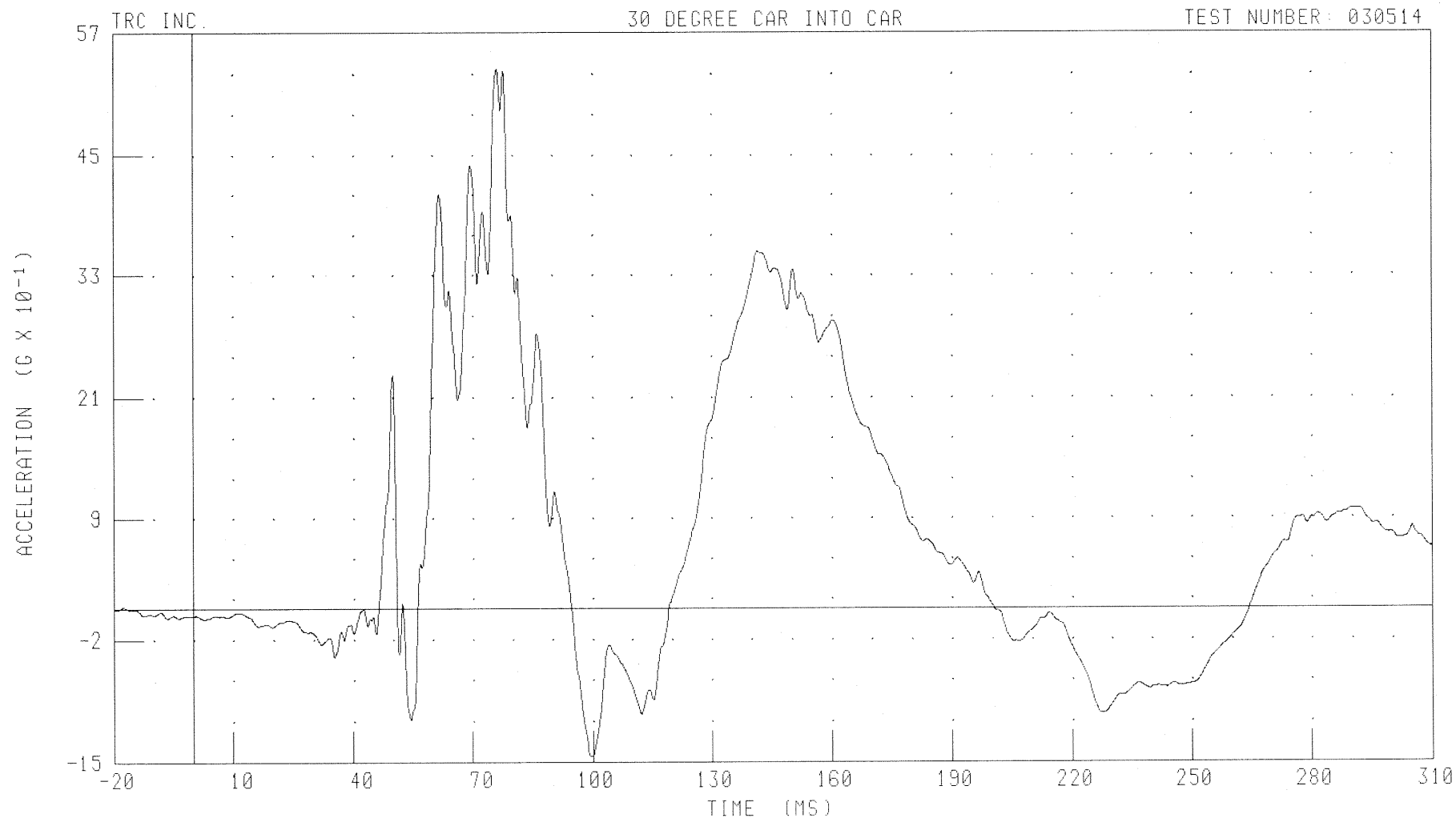
030514

1996 TOYOTA AVALON INTO LEFT FRONT OF 1997 HONDA ACCORD - OBLIQUE 30 DEGREES

BULLET PASSENGER CHEST Y-AXIS ACCELERATION

30 DEGREE CAR INTO CAR

TEST NUMBER: 030514



CHANNEL: CSTYGB FILTER: CH. CLASS 180

B-148

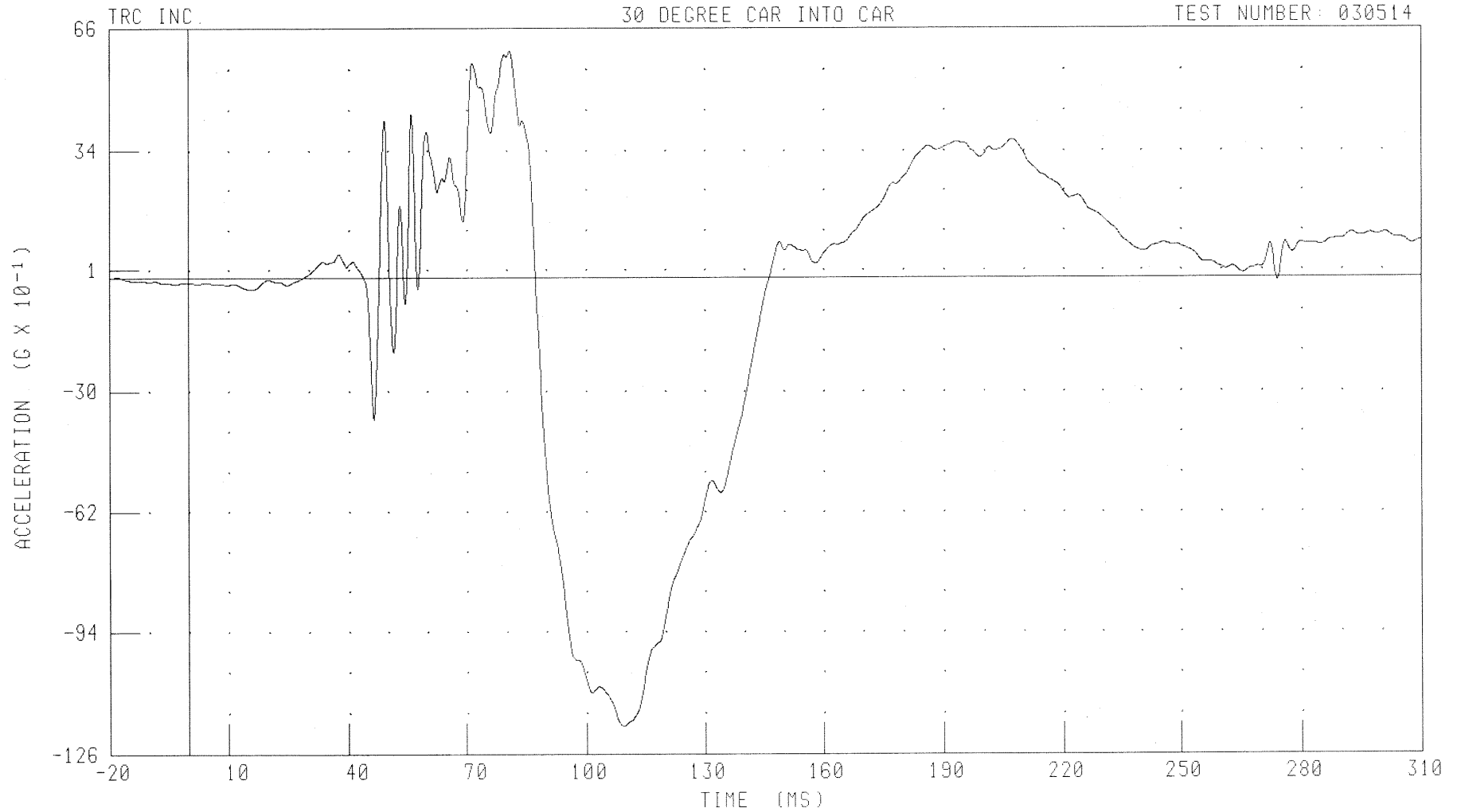
030514

1996 TOYOTA AVALON INTO LEFT FRONT OF 1997 HONDA ACCORD - OBLIQUE 30 DEGREES

BULLET PASSENGER CHEST Z-AXIS ACCELERATION

30 DEGREE CAR INTO CAR

TEST NUMBER: 030514



CHANNEL: CSTZGB FILTER: CH. CLASS 180

B-149

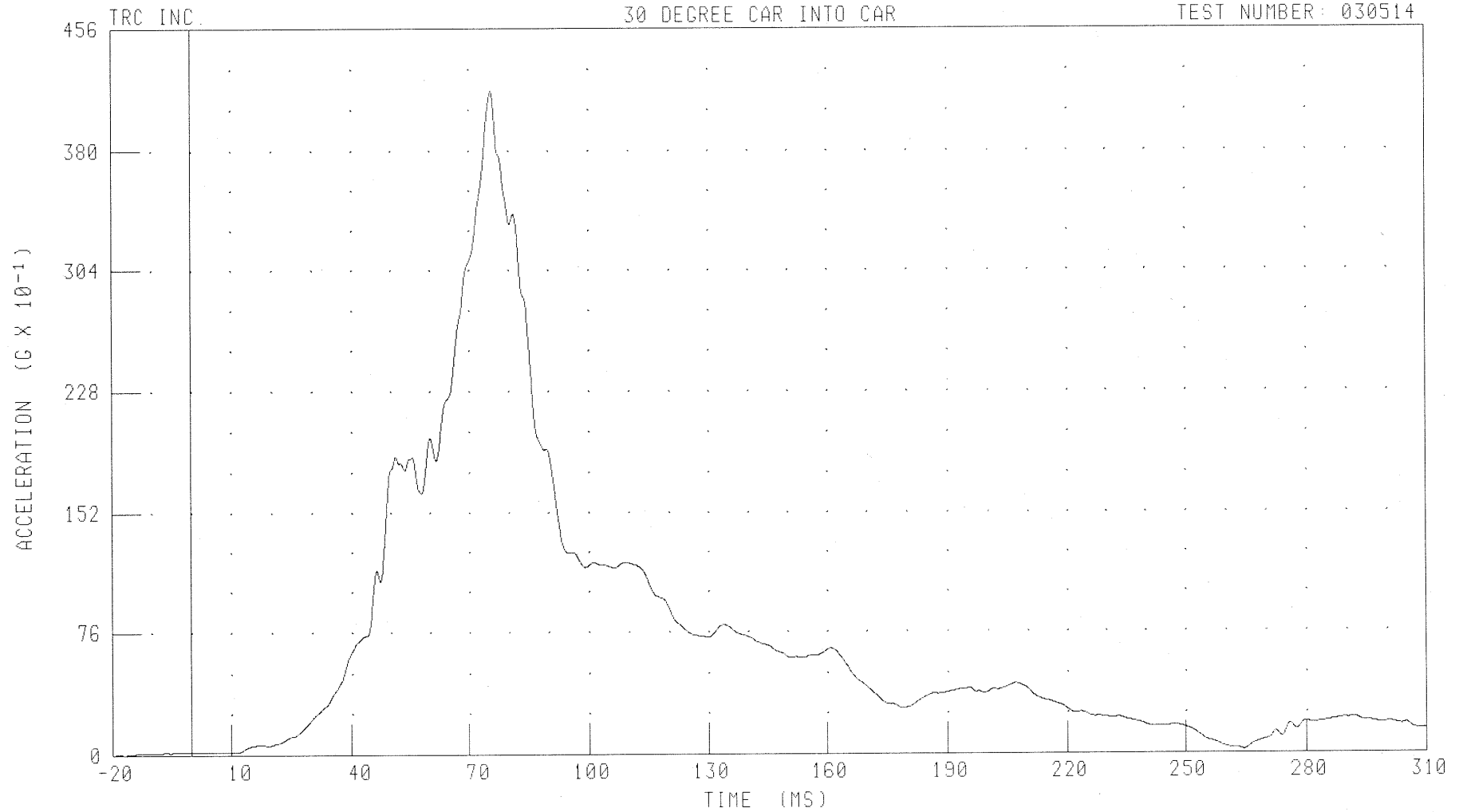
030514

1996 TOYOTA AVALON INTO LEFT FRONT OF 1997 HONDA ACCORD - OBLIQUE 30 DEGREES

BULLET PASSENGER CHEST RESULTANT ACCELERATION

30 DEGREE CAR INTO CAR

TEST NUMBER: 030514



CHANNEL: CSTRGB FILTER: CH. CLASS 180

PEAK DATA: 41.73 G @ 75.76 MS; 0.00 G @ -20.00 MS

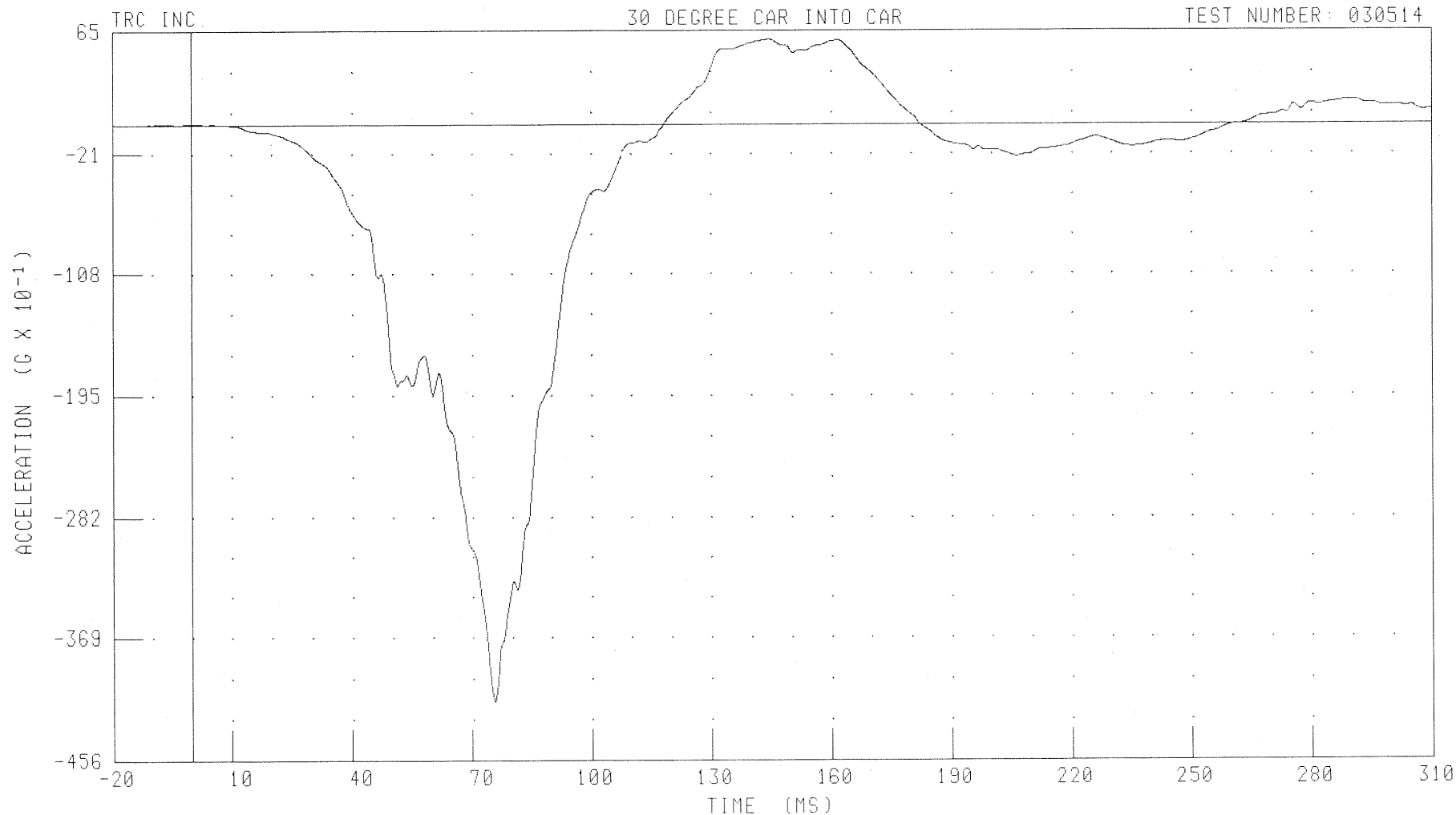
B-150

030514

1996 TOYOTA AVALON INTO LEFT FRONT OF 1997 HONDA ACCORD - OBLIQUE 30 DEGREES
BULLET PASSENGER CHEST X-AXIS ACCELERATION REDUNDANT

30 DEGREE CAR INTO CAR

TEST NUMBER: 030514



CHANNEL: CSTXRB

FILTER: CH. CLASS 180

PEAK DATA: 6.02 G @ 144.40 MS; -41.45 G @ 75.68 MS

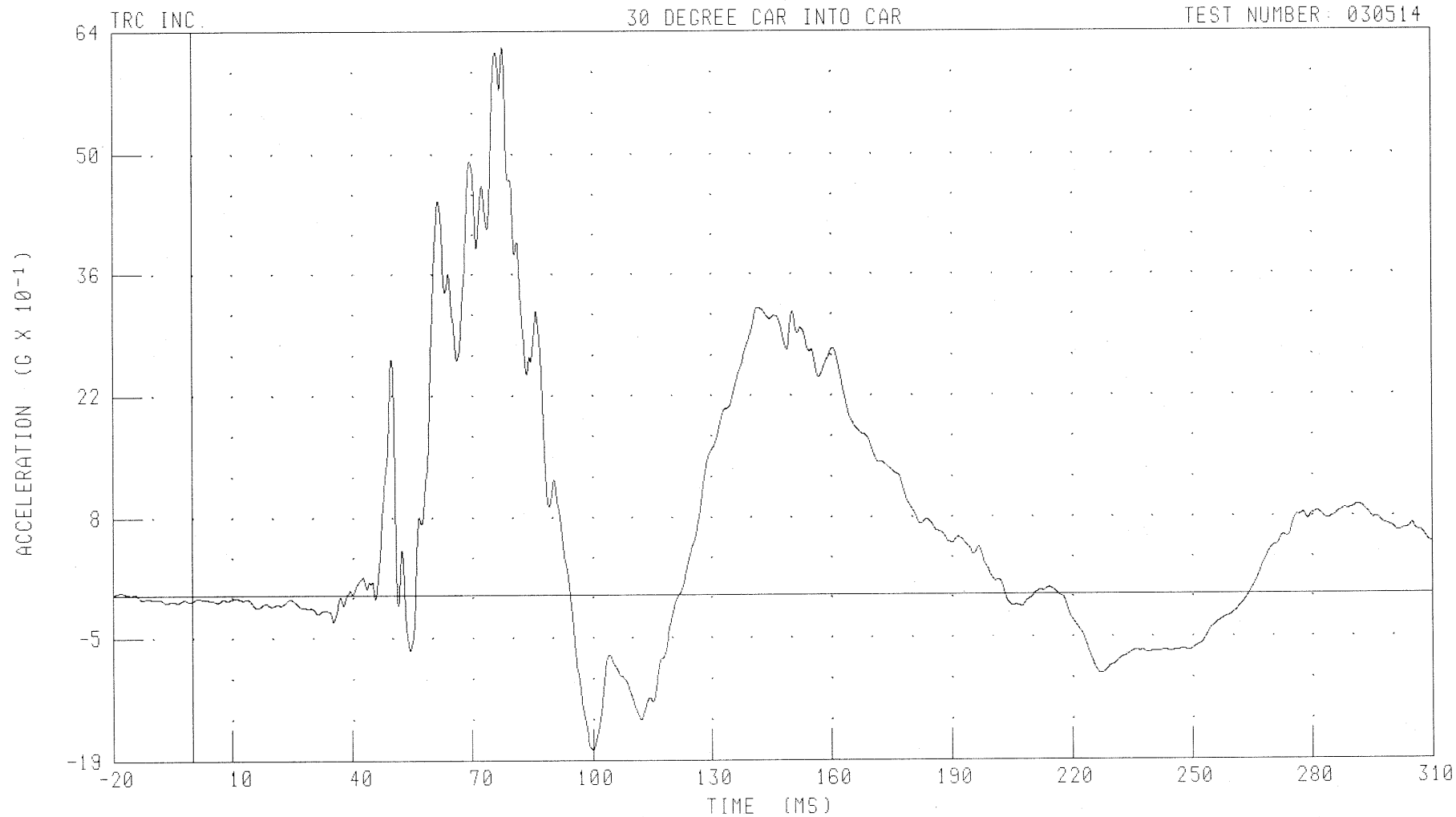
B-151

030514

1996 TOYOTA AVALON INTO LEFT FRONT OF 1997 HONDA ACCORD - OBLIQUE 30 DEGREES
BULLET PASSENGER CHEST Y-AXIS ACCELERATION REDUNDANT

30 DEGREE CAR INTO CAR

TEST NUMBER: 030514



CHANNEL: CSTYRB FILTER: CH. CLASS 180

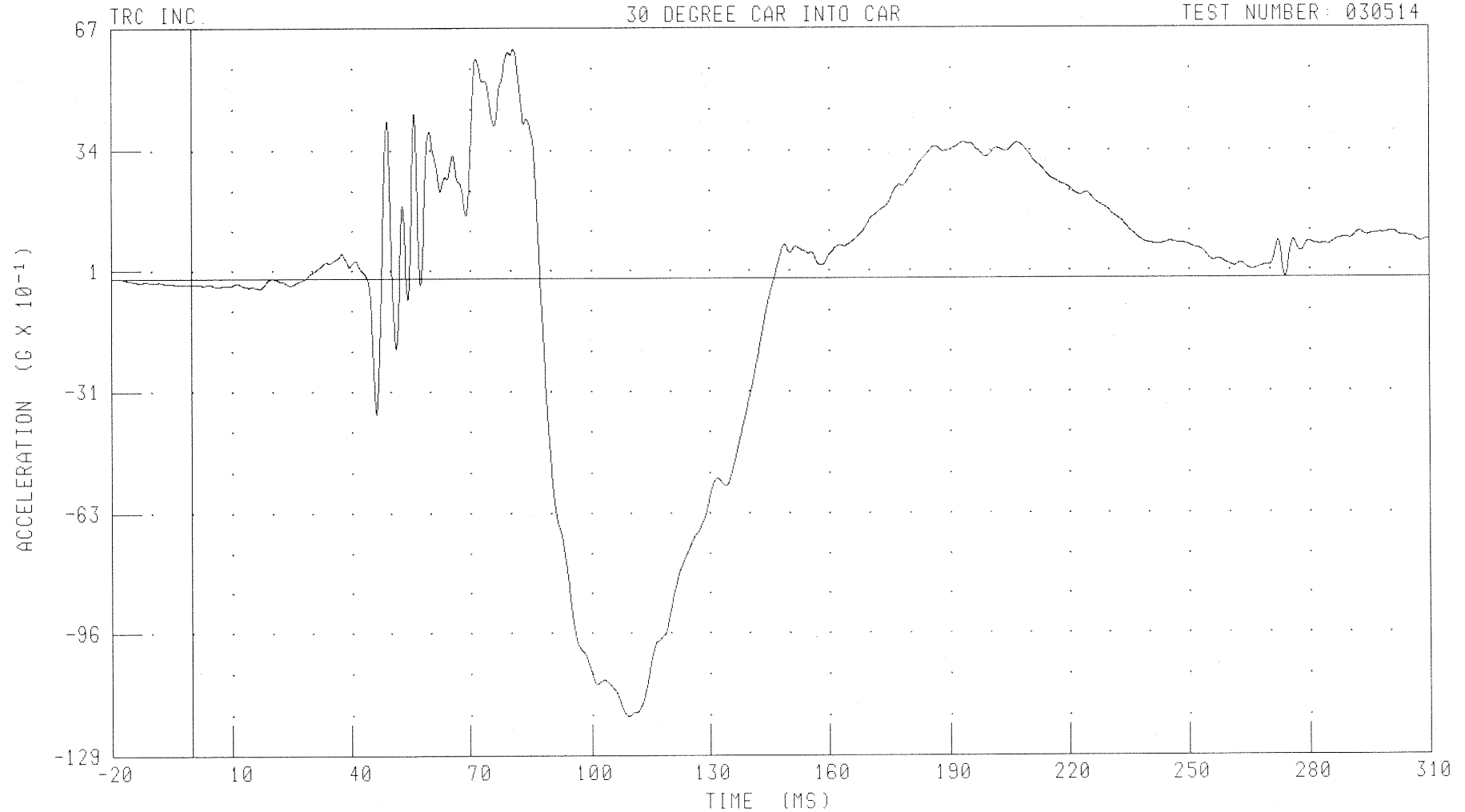
B-152

030514

1996 TOYOTA AVALON INTO LEFT FRONT OF 1997 HONDA ACCORD - OBLIQUE 30 DEGREES
BULLET PASSENGER CHEST Z-AXIS ACCELERATION REDUNDANT

30 DEGREE CAR INTO CAR

TEST NUMBER: 030514



CHANNEL: CSTZRB FILTER: CH. CLASS 180

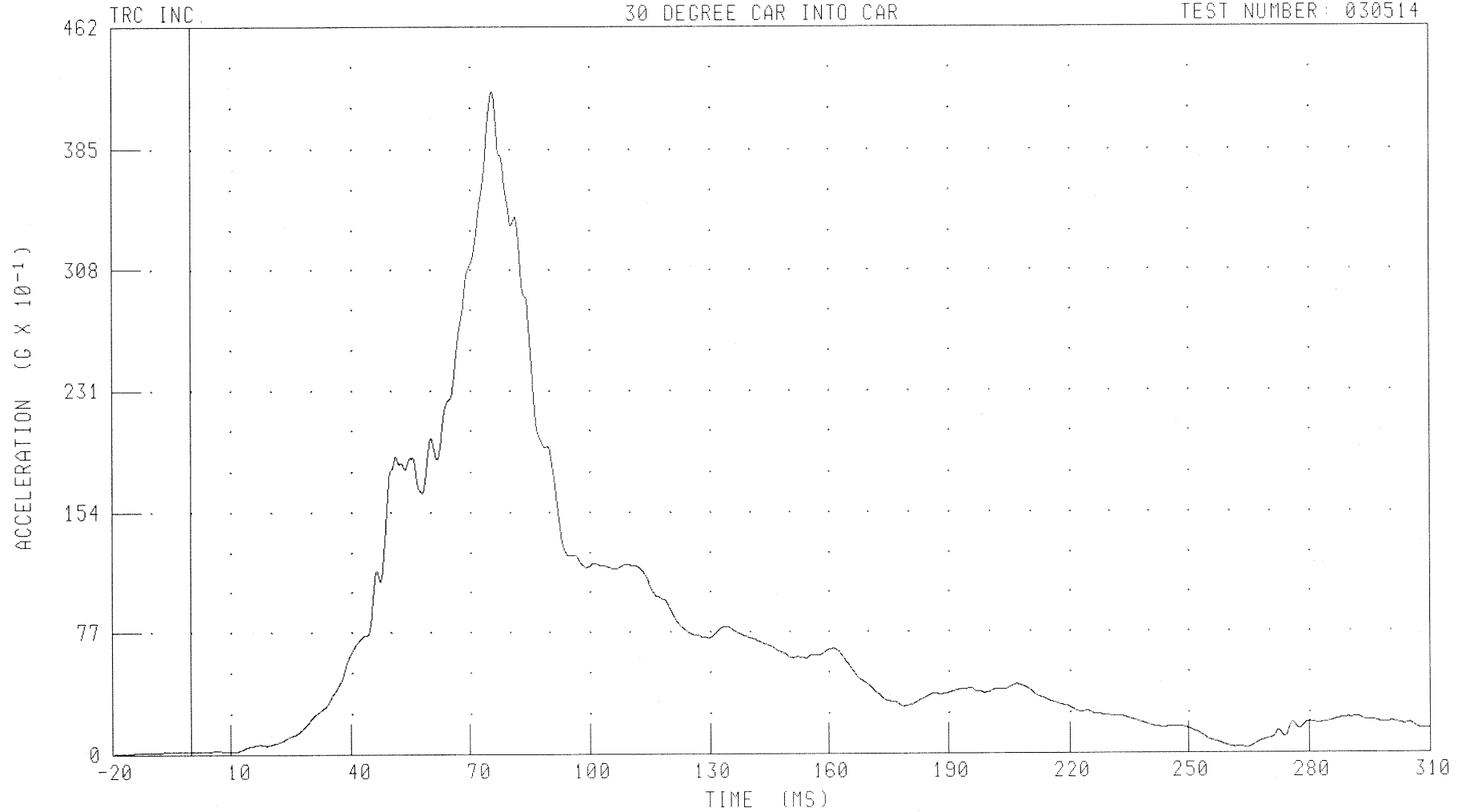
PEAK DATA: 6.21 G @ 80.88 MS, -11.94 G @ 109.44 MS

1996 TOYOTA AVALON INTO LEFT FRONT OF 1997 HONDA ACCORD - OBLIQUE 30 DEGREES

BULLET PASSENGER CHEST RESULTANT ACCELERATION REDUNDANT

30 DEGREE CAR INTO CAR

TEST NUMBER: 030514



CHANNEL: CSTRRB FILTER: CH. CLASS 180

PEAK DATA: 42.13 G @ 75.68 MS; 0.00 G @ -20.00 MS

B-154

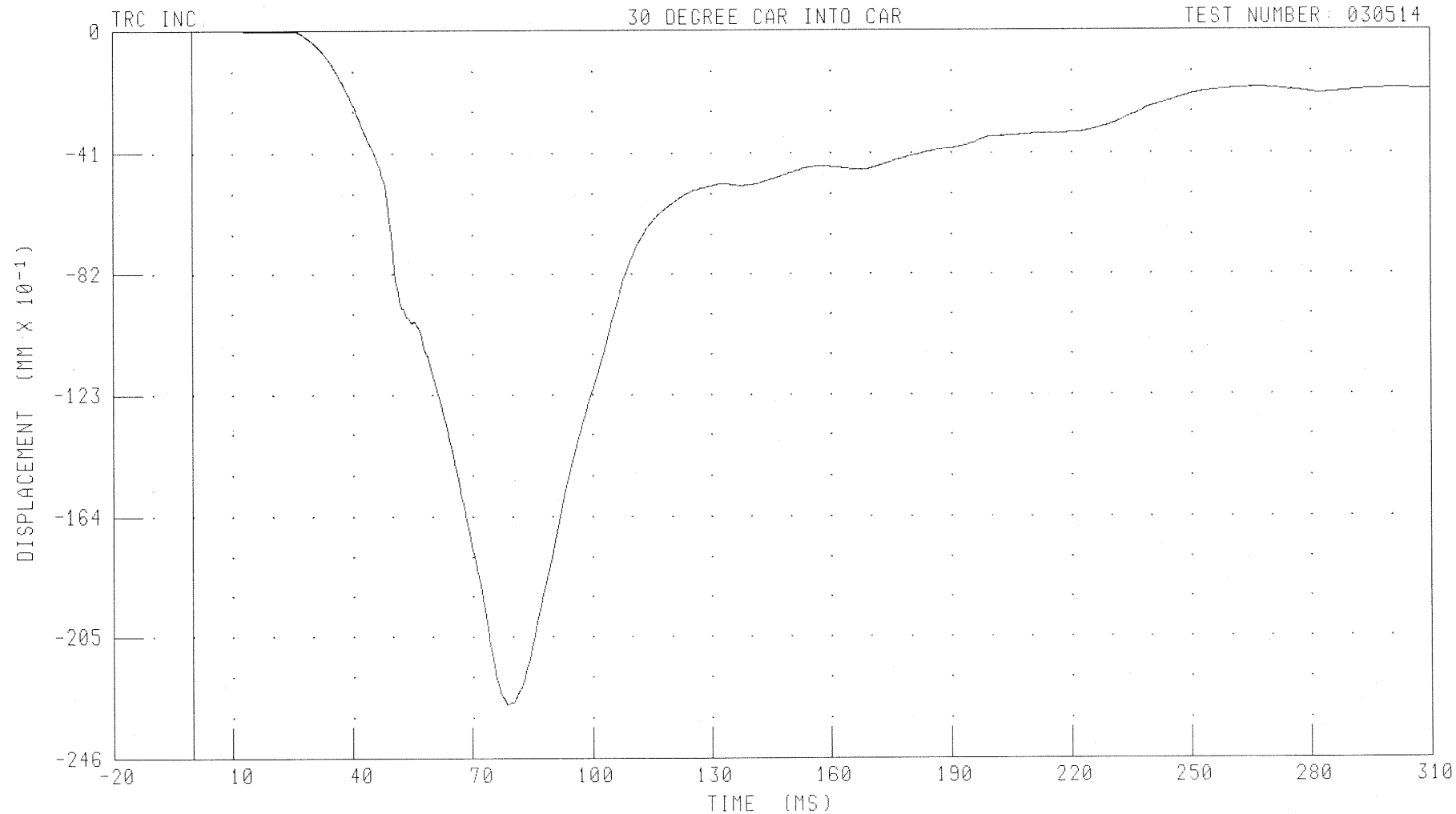
030514

1996 TOYOTA AVALON INTO LEFT FRONT OF 1997 HONDA ACCORD - OBLIQUE 30 DEGREES

BULLET PASSENGER CHEST DEFLECTION

30 DEGREE CAR INTO CAR

TEST NUMBER: 030514



CHANNEL: CSTXDB FILTER: CH. CLASS 600

PEAK DATA: 0.00 MM @ 0.80 MS, -22.80 MM @ 78.88 MS

B-155

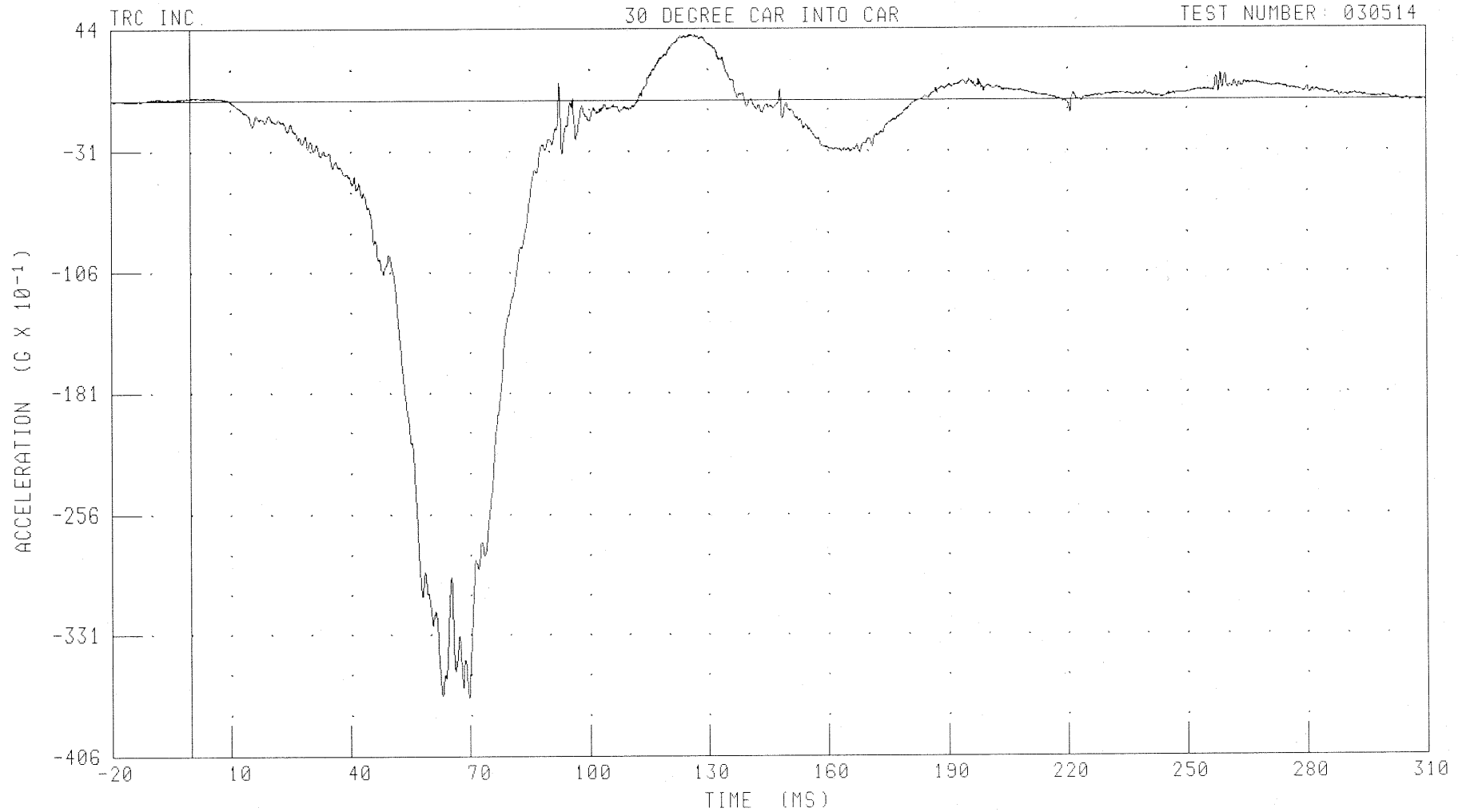
030514

1996 TOYOTA AVALON INTO LEFT FRONT OF 1997 HONDA ACCORD - OBLIQUE 30 DEGREES

BULLET PASSENGER PELVIS X-AXIS ACCELERATION

30 DEGREE CAR INTO CAR

TEST NUMBER: 030514



CHANNEL: PEVXGB FILTER: CH. CLASS 1000

PEAK DATA: 4.05 G @ 125.60 MS; -37.08 G @ 69.68 MS

B-156

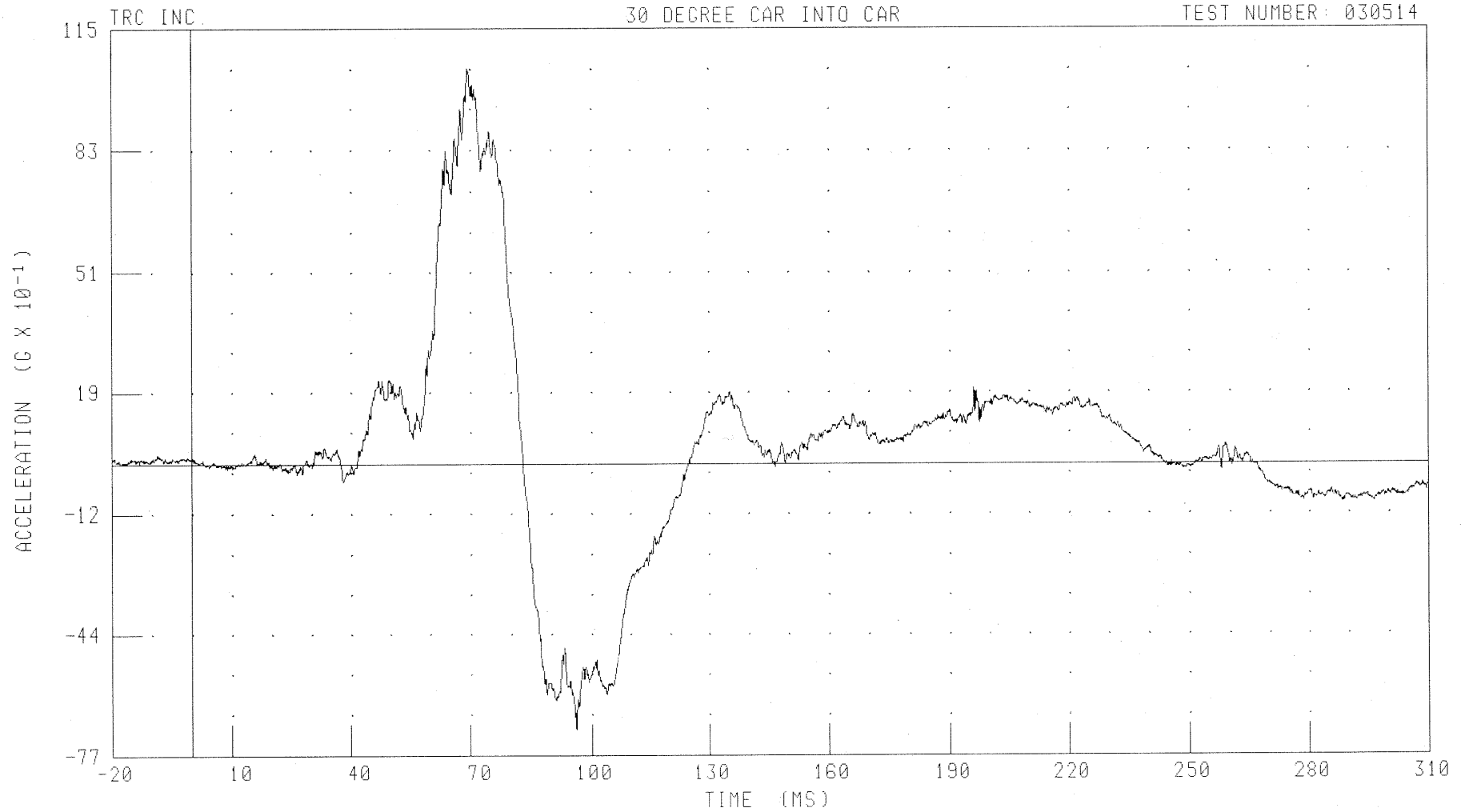
030514

1996 TOYOTA AVALON INTO LEFT FRONT OF 1997 HONDA ACCORD - OBLIQUE 30 DEGREES

BULLET PASSENGER PELVIS Y-AXIS ACCELERATION

30 DEGREE CAR INTO CAR

TEST NUMBER: 030514



CHANNEL: PEVYGB FILTER: CH. CLASS 1000

B-157

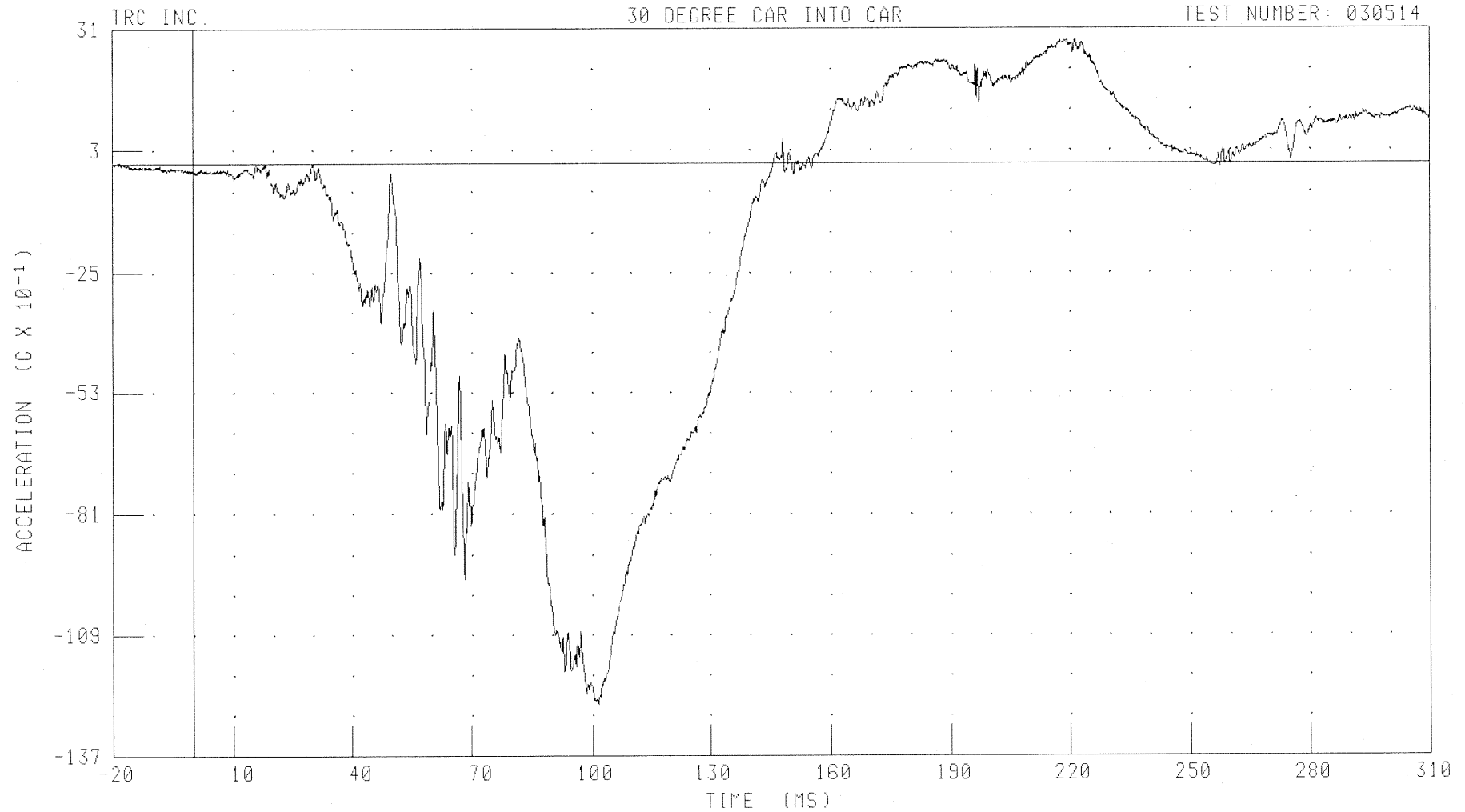
030514

1996 TOYOTA AVALON INTO LEFT FRONT OF 1997 HONDA ACCORD - OBLIQUE 30 DEGREES

BULLET PASSENGER PELVIS Z-AXIS ACCELERATION

30 DEGREE CAR INTO CAR

TEST NUMBER: 030514



CHANNEL: PEVZGB FILTER: CH. CLASS 1000

B-158

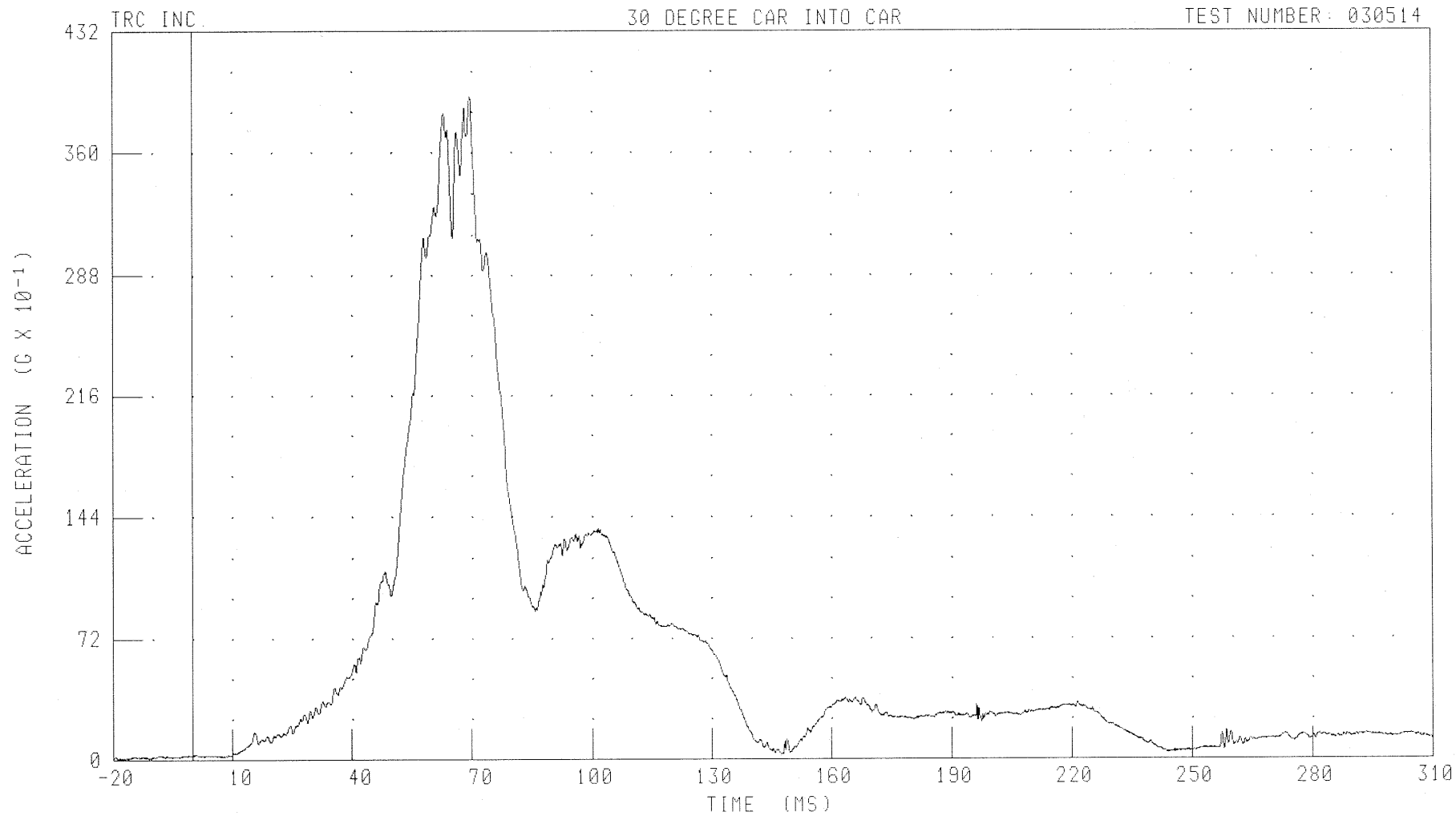
030514

1996 TOYOTA AVALON INTO LEFT FRONT OF 1997 HONDA ACCORD - OBLIQUE 30 DEGREES

BULLET PASSENGER PELVIS RESULTANT ACCELERATION

30 DEGREE CAR INTO CAR

TEST NUMBER: 030514



CHANNEL: PEVRGB FILTER: CH. CLASS 1000

PEAK DATA: 39.29 G @ 69.68 MS; 0.04 G @ -18.80 MS

B-159

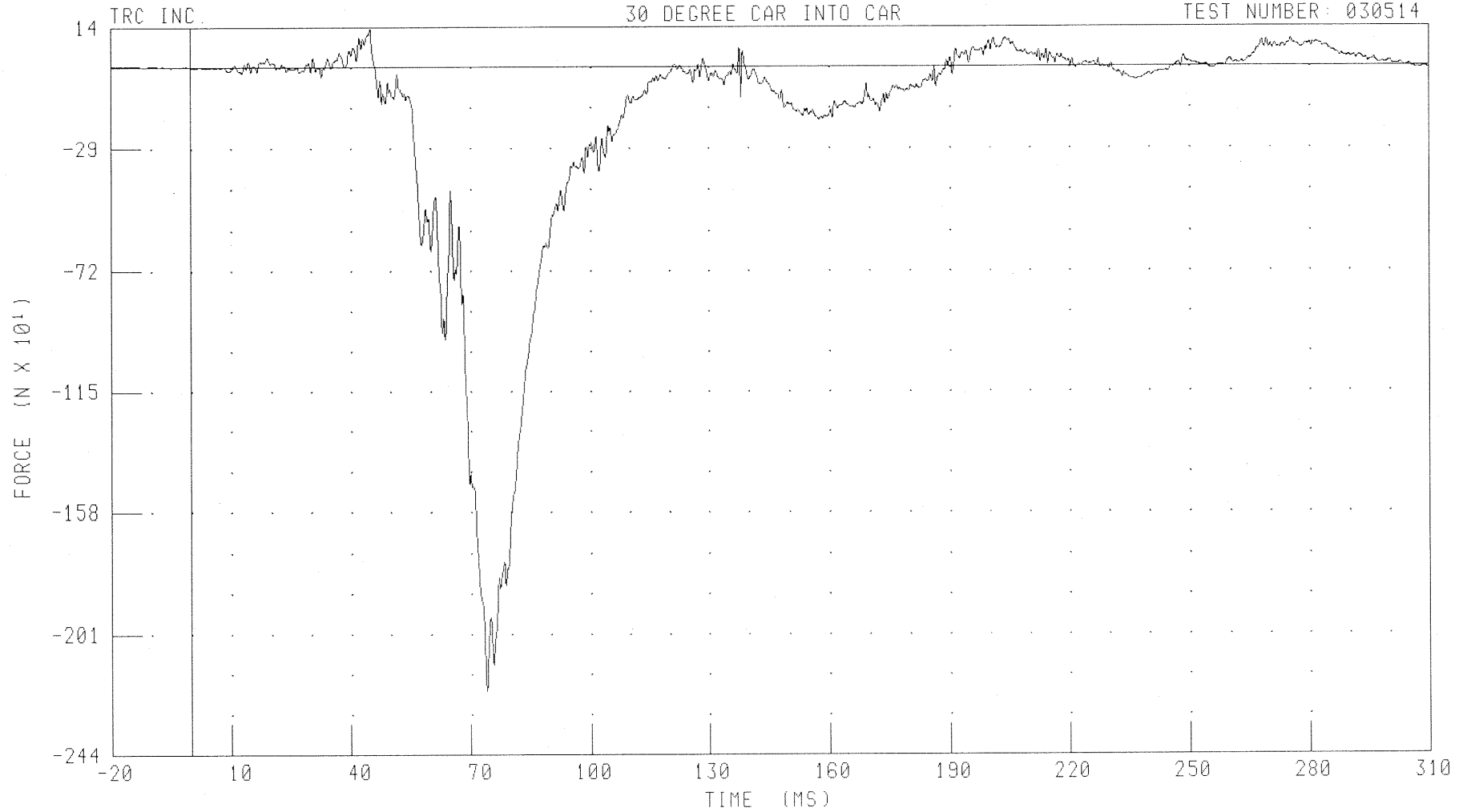
030514

1996 TOYOTA AVALON INTO LEFT FRONT OF 1997 HONDA ACCORD - OBLIQUE 30 DEGREES

BULLET PASSENGER LEFT FEMUR FORCE

30 DEGREE CAR INTO CAR

TEST NUMBER: 030514



CHANNEL: LFMZFB FILTER: CH. CLASS 600

PEAK DATA 134.67 N @ 45.04 MS, -2213.46 N @ 73.92 MS

B-160

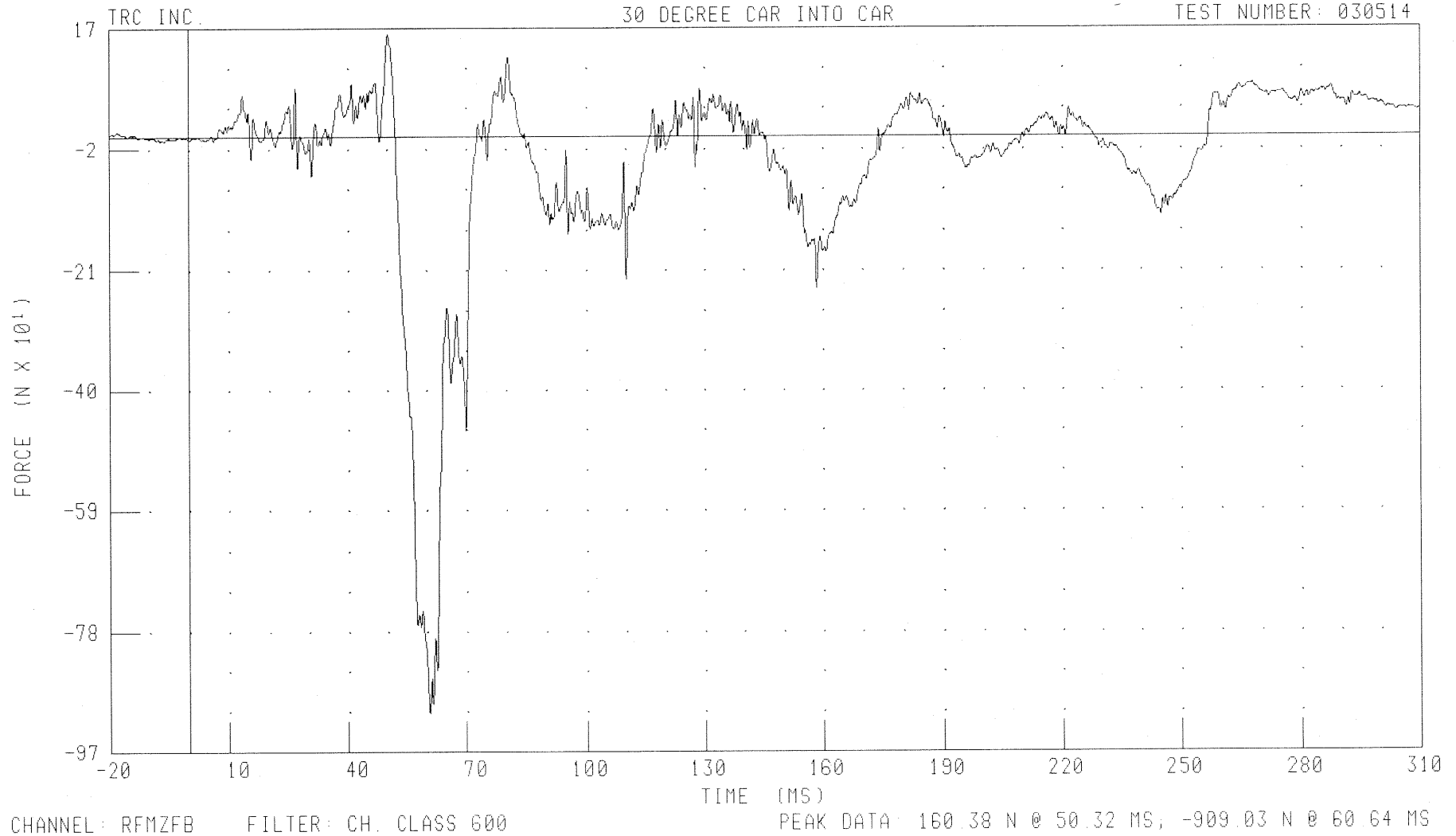
030514

1996 TOYOTA AVALON INTO LEFT FRONT OF 1997 HONDA ACCORD - OBLIQUE 30 DEGREES

BULLET PASSENGER RIGHT FEMUR FORCE

30 DEGREE CAR INTO CAR

TEST NUMBER: 030514



B-161

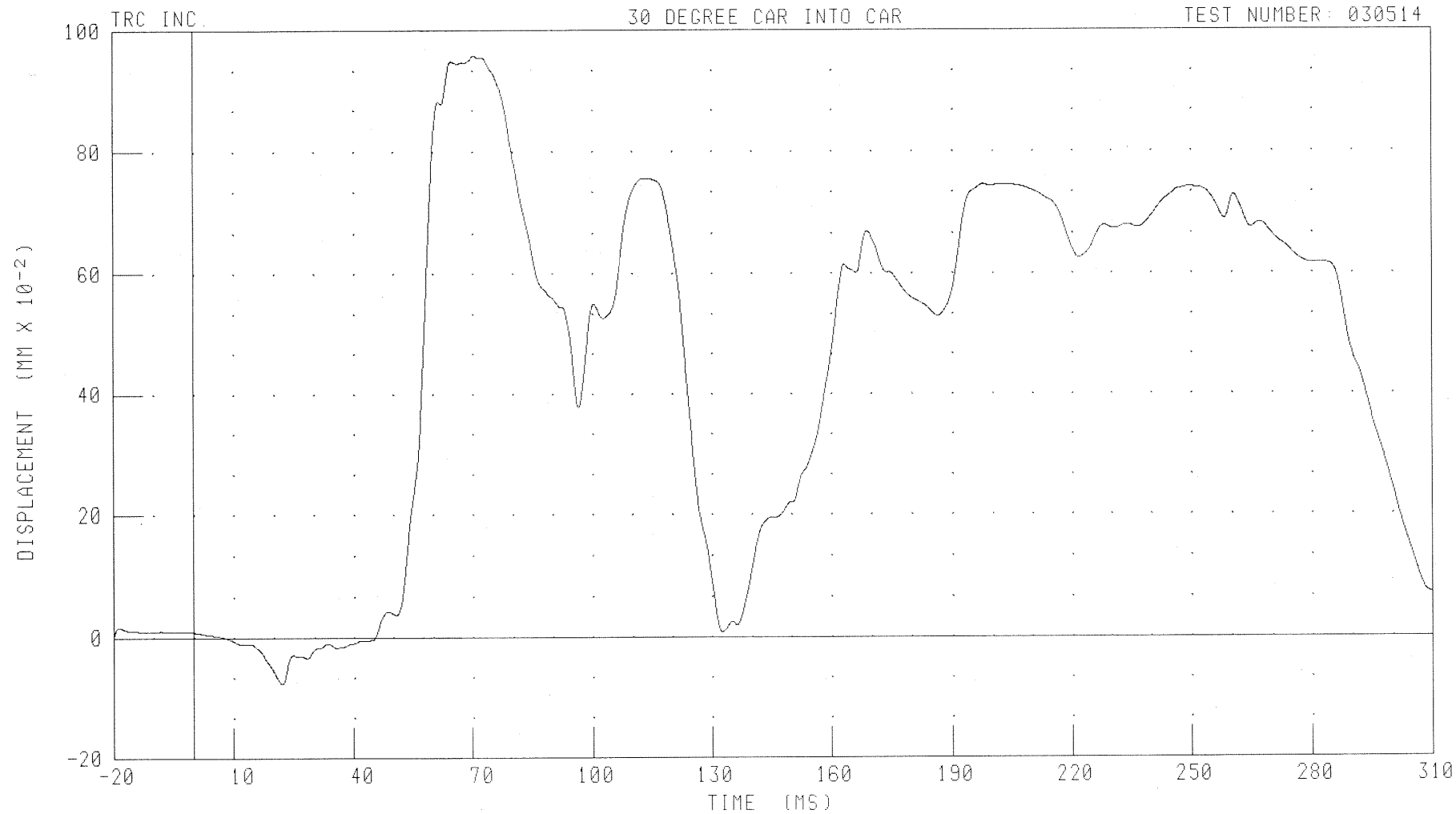
030514

1996 TOYOTA AVALON INTO LEFT FRONT OF 1997 HONDA ACCORD - OBLIQUE 30 DEGREES

BULLET PASSENGER LEFT KNEE DISPLACEMENT

30 DEGREE CAR INTO CAR

TEST NUMBER: 030514



CHANNEL: KNLXDB FILTER: CH. CLASS 180

PEAK DATA: 0.96 MM @ 70.56 MS; -0.08 MM @ 22.08 MS

B-162

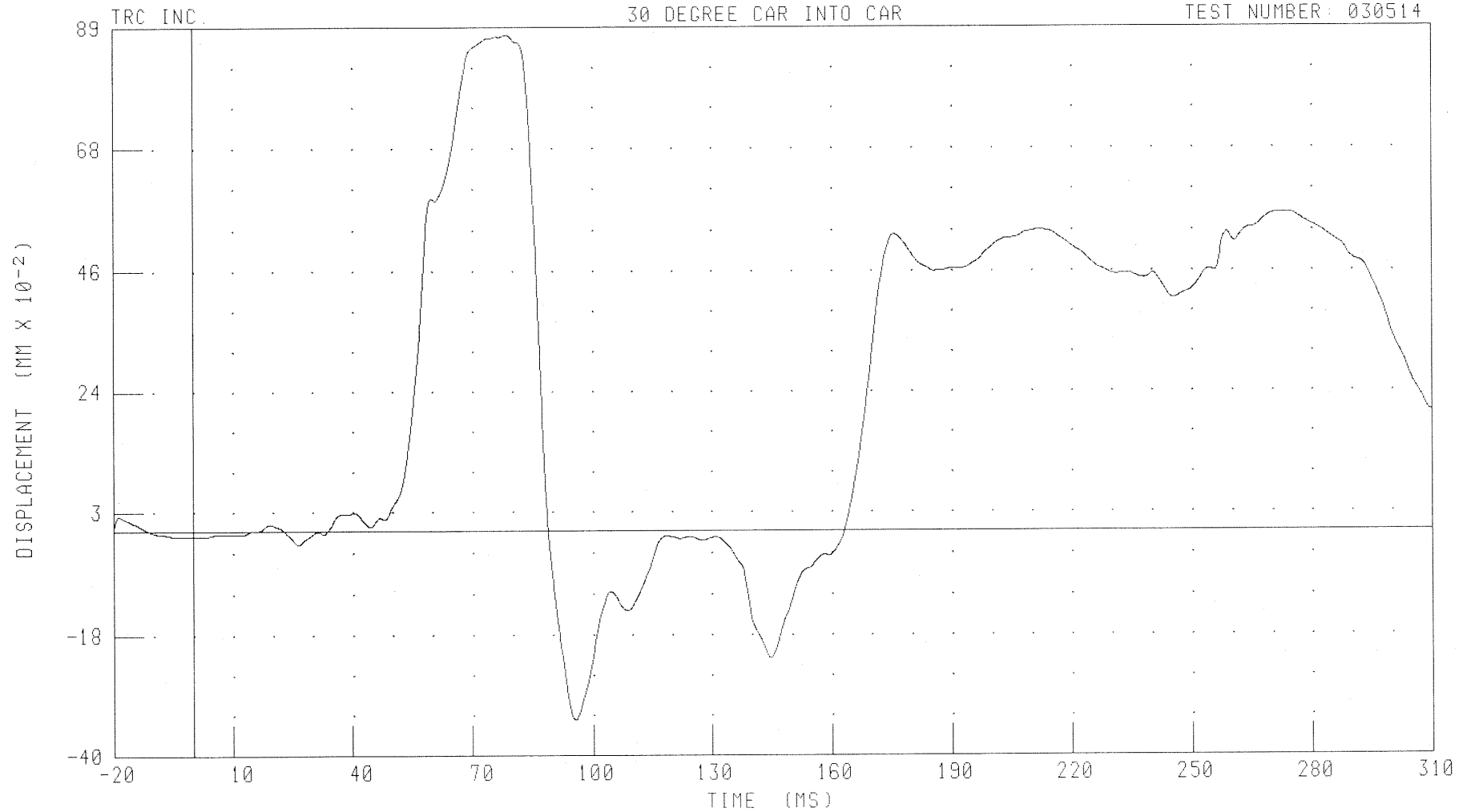
030514

1996 TOYOTA AVALON INTO LEFT FRONT OF 1997 HONDA ACCORD - OBLIQUE 30 DEGREES

BULLET PASSENGER RIGHT KNEE DISPLACEMENT

30 DEGREE CAR INTO CAR

TEST NUMBER: 030514



CHANNEL: KVRXDB FILTER: CH. CLASS 180

PEAK DATA: 0.89 MM @ 78.64 MS, -0.34 MM @ 95.60 MS

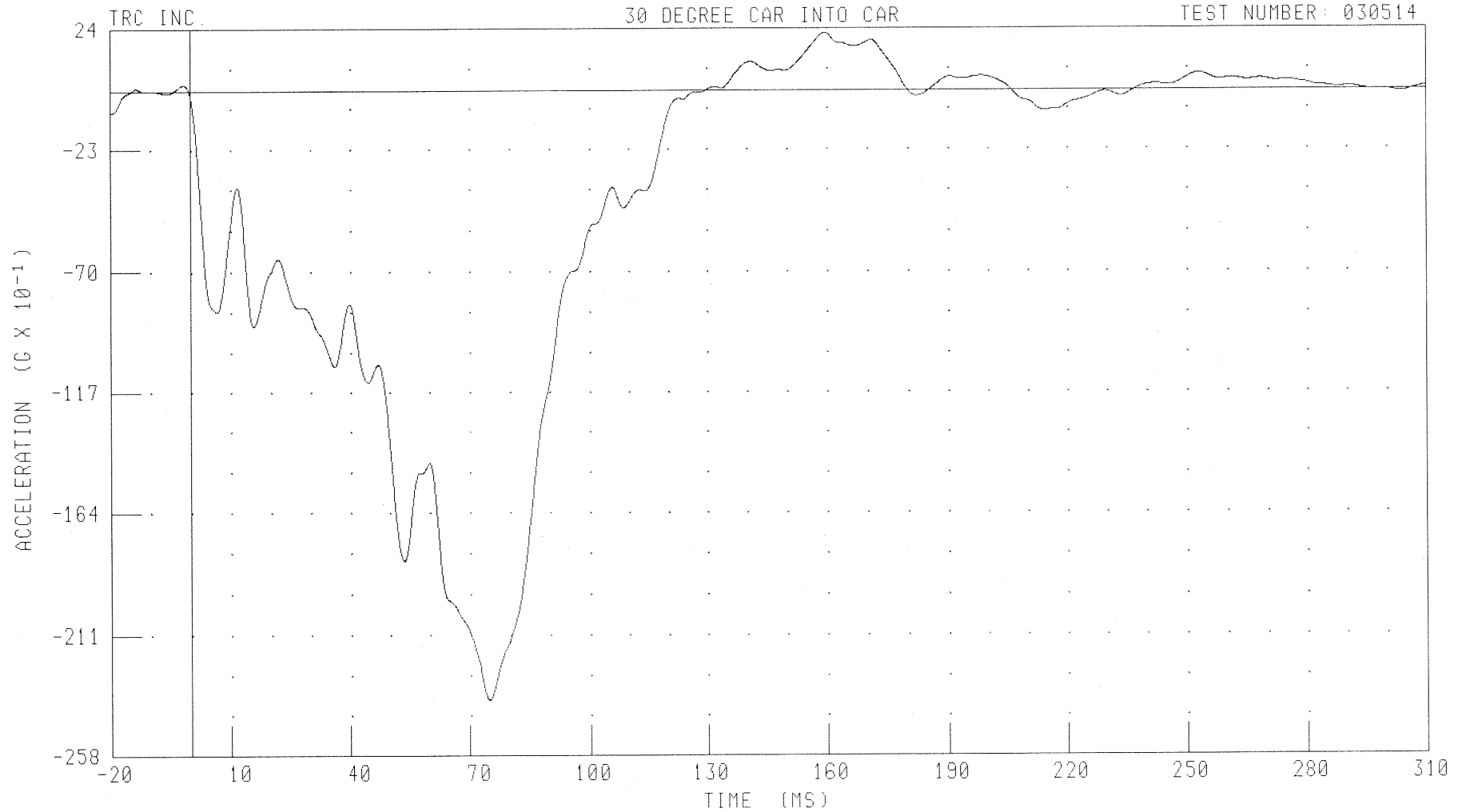
B-163

030514

1996 TOYOTA AVALON INTO LEFT FRONT OF 1997 HONDA ACCORD - OBLIQUE 30 DEGREES
BULLET VEHICLE CENTER OF GRAVITY X-AXIS ACCELERATION

30 DEGREE CAR INTO CAR

TEST NUMBER: 030514



CHANNEL: VCGXGA FILTER: CH. CLASS 60

PEAK DATA: 2.22 G @ 159.60 MS; -23.64 G @ 74.80 MS

B-164

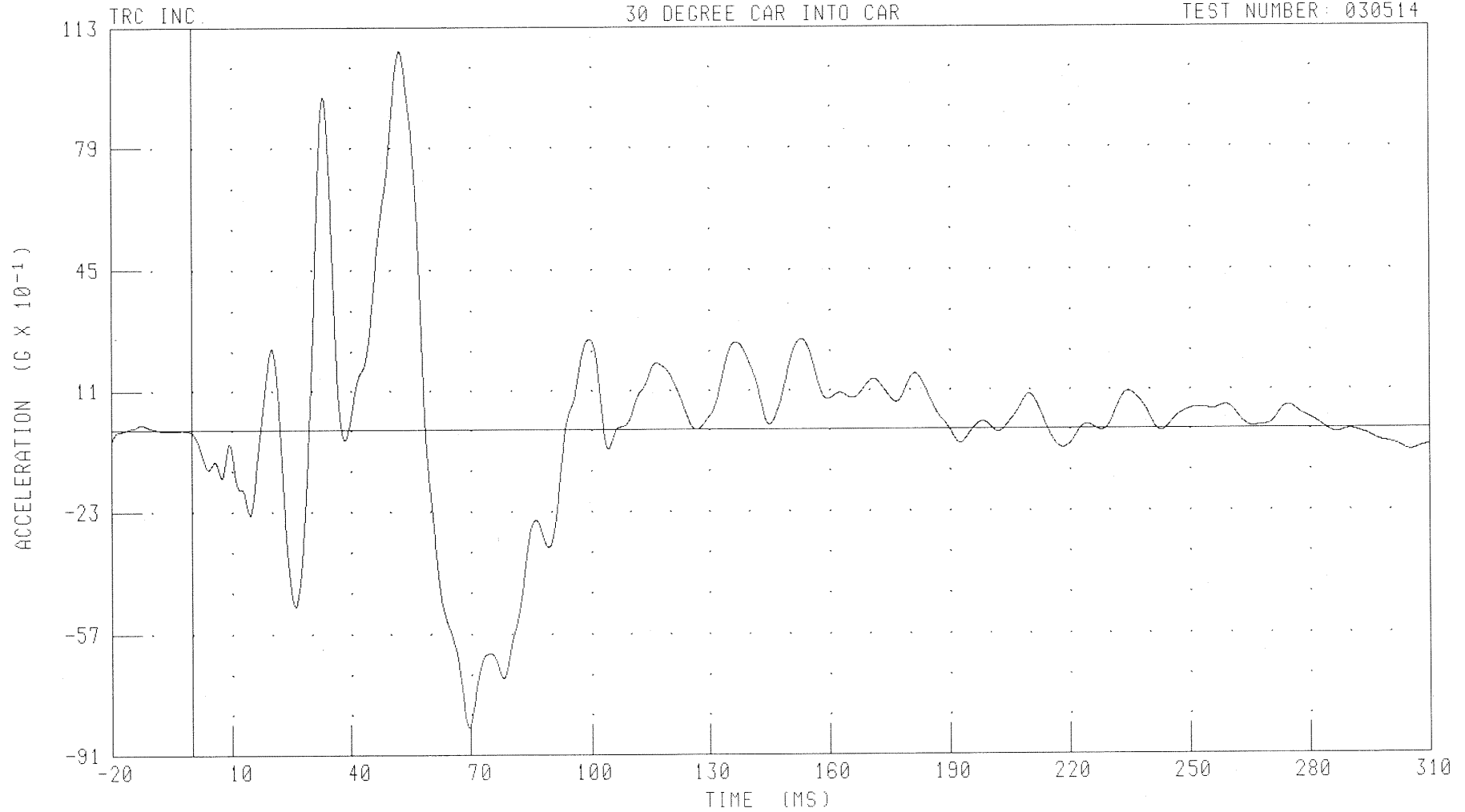
030514

1996 TOYOTA AVALON INTO LEFT FRONT OF 1997 HONDA ACCORD - OBLIQUE 30 DEGREES

BULLET VEHICLE CENTER OF GRAVITY Y-AXIS ACCELERATION

30 DEGREE CAR INTO CAR

TEST NUMBER: 030514



CHANNEL: VCGYGA FILTER: CH. CLASS 60

PEAK DATA: 10.61 G @ 52.56 MS; -8.33 G @ 69.52 MS

B-165

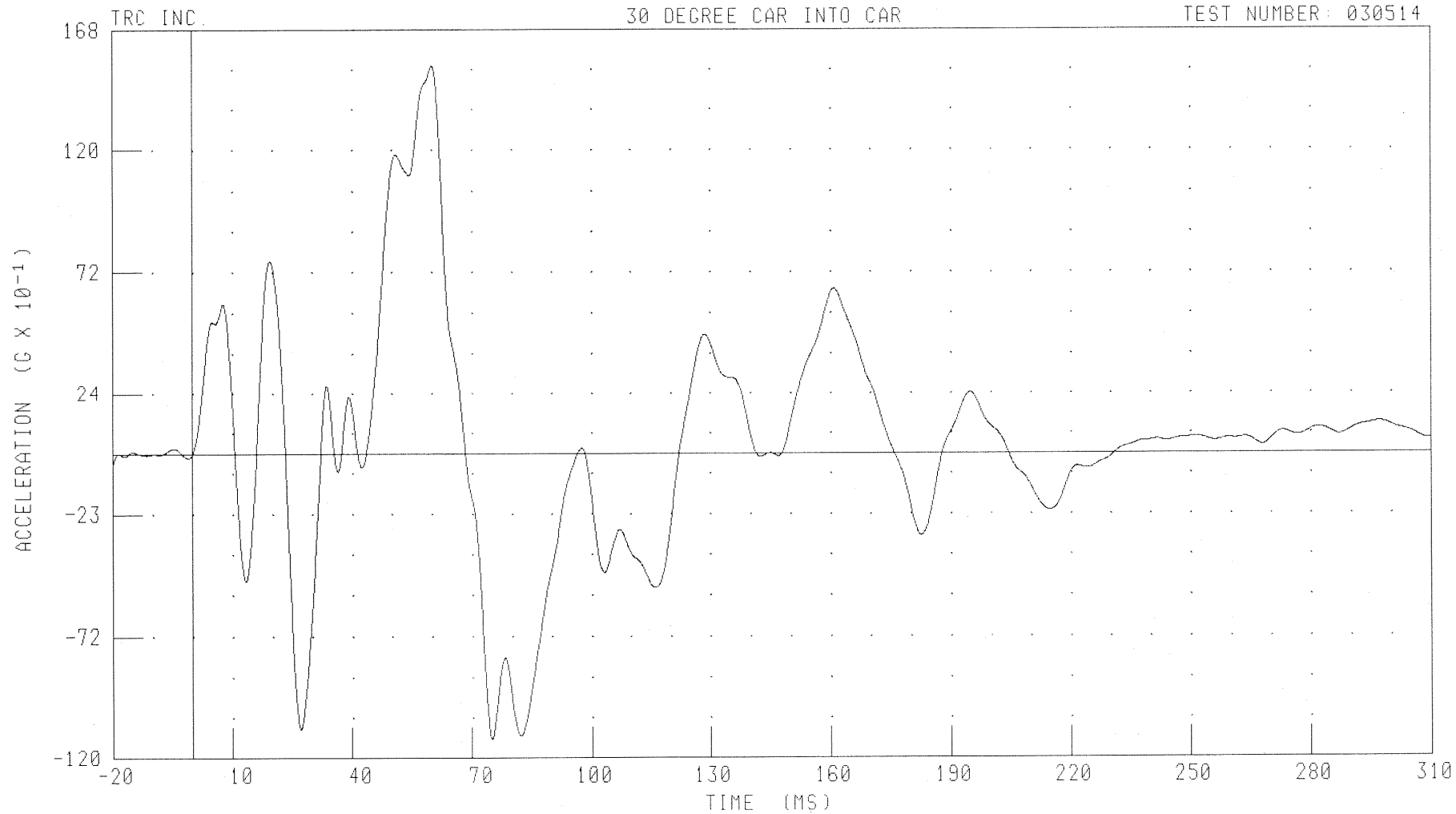
030514

1996 TOYOTA AVALON INTO LEFT FRONT OF 1997 HONDA ACCORD - OBLIQUE 30 DEGREES

BULLET VEHICLE CENTER OF GRAVITY Z-AXIS ACCELERATION

30 DEGREE CAR INTO CAR

TEST NUMBER: 030514



CHANNEL: VCGZGA FILTER: CH. CLASS 60

PEAK DATA: 15.35 G @ 60.16 MS; -11.26 G @ 74.96 MS

B-166

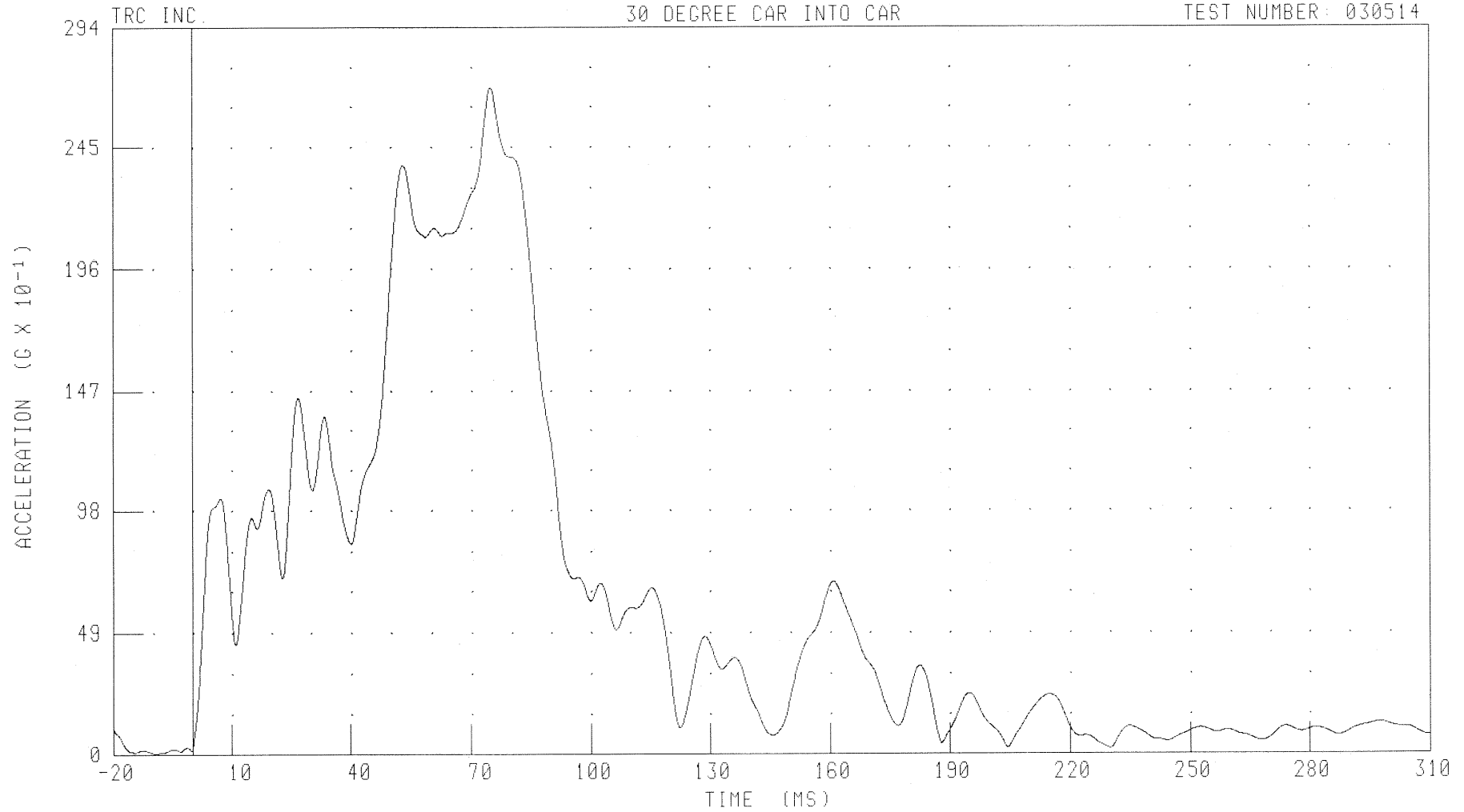
030514

1996 TOYOTA AVALON INTO LEFT FRONT OF 1997 HONDA ACCORD - OBLIQUE 30 DEGREES

BULLET VEHICLE CENTER OF GRAVITY RESULTANT ACCELERATION

30 DEGREE CAR INTO CAR

TEST NUMBER: 030514



B-167

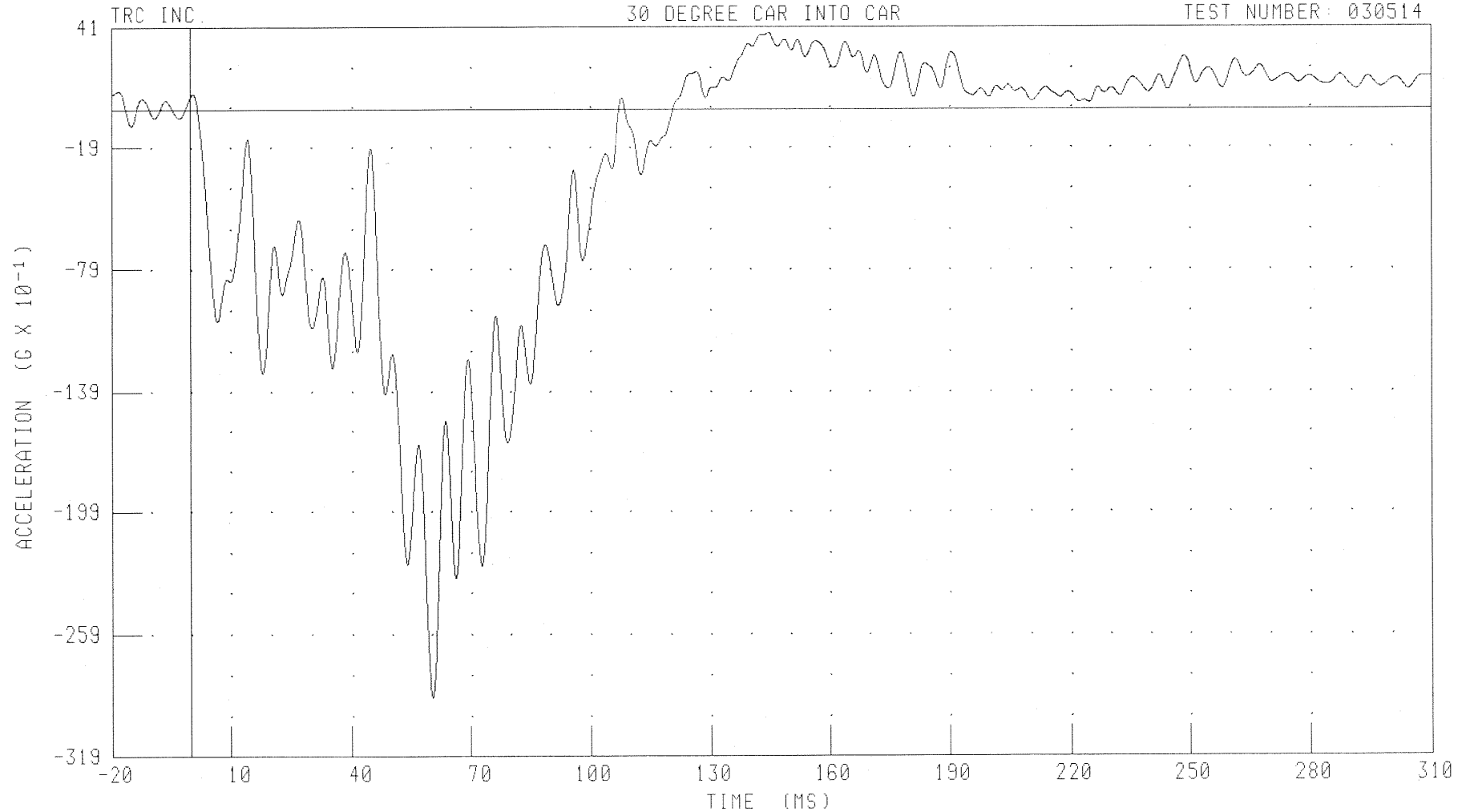
030514

1996 TOYOTA AVALON INTO LEFT FRONT OF 1997 HONDA ACCORD - OBLIQUE 30 DEGREES

BULLET REAR DECK X-AXIS ACCELERATION

30 DEGREE CAR INTO CAR

TEST NUMBER: 030514



CHANNEL: RDKXGA

FILTER: CH. CLASS 60

PEAK DATA: 3.80 G @ 144.72 MS; -29.01 G @ 60.24 MS

B-168

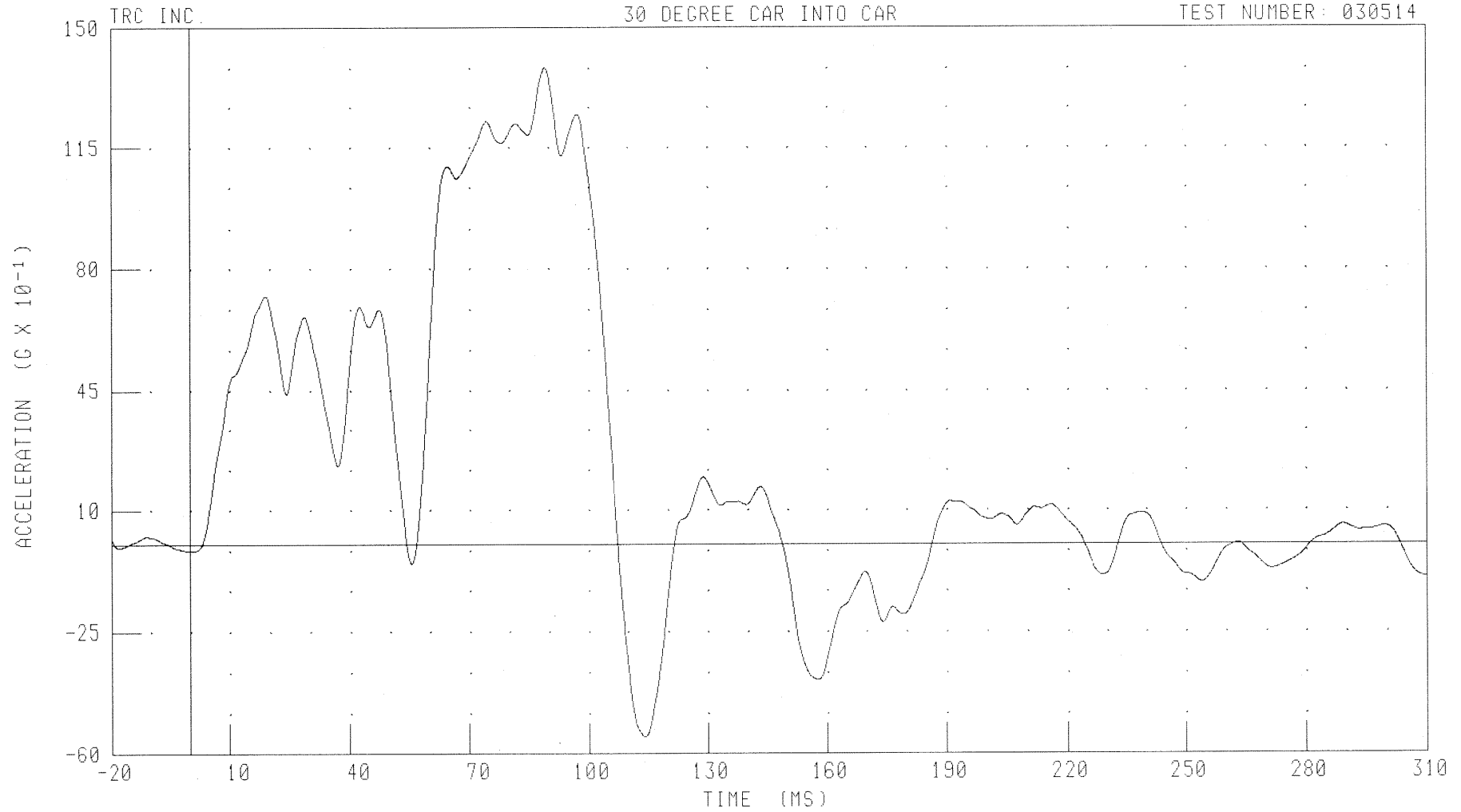
030514

1996 TOYOTA AVALON INTO LEFT FRONT OF 1997 HONDA ACCORD - OBLIQUE 30 DEGREES

BULLET REAR DECK Y-AXIS ACCELERATION

30 DEGREE CAR INTO CAR

TEST NUMBER: 030514



CHANNEL: RDKYGA FILTER: CH. CLASS 60

PEAK DATA: 13.85 G @ 89.12 MS; -5.50 G @ 114.32 MS

B-169

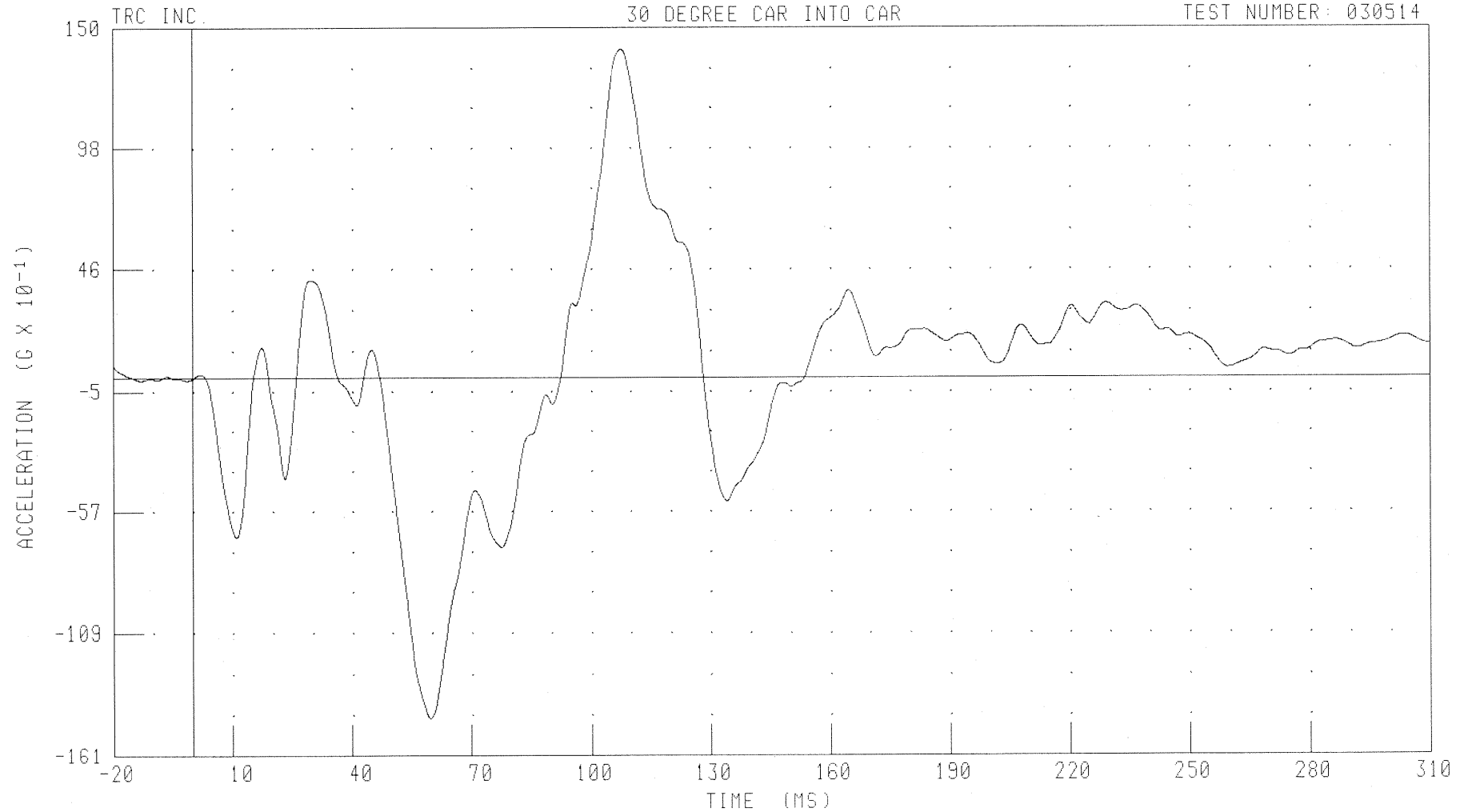
030514

1996 TOYOTA AVALON INTO LEFT FRONT OF 1997 HONDA ACCORD - OBLIQUE 30 DEGREES

BULLET REAR DECK Z-AXIS ACCELERATION

30 DEGREE CAR INTO CAR

TEST NUMBER: 030514



CHANNEL: RDKZGA FILTER: CH. CLASS 60

PEAK DATA: 14.09 G @ 107.76 MS, -14.62 G @ 59.60 MS

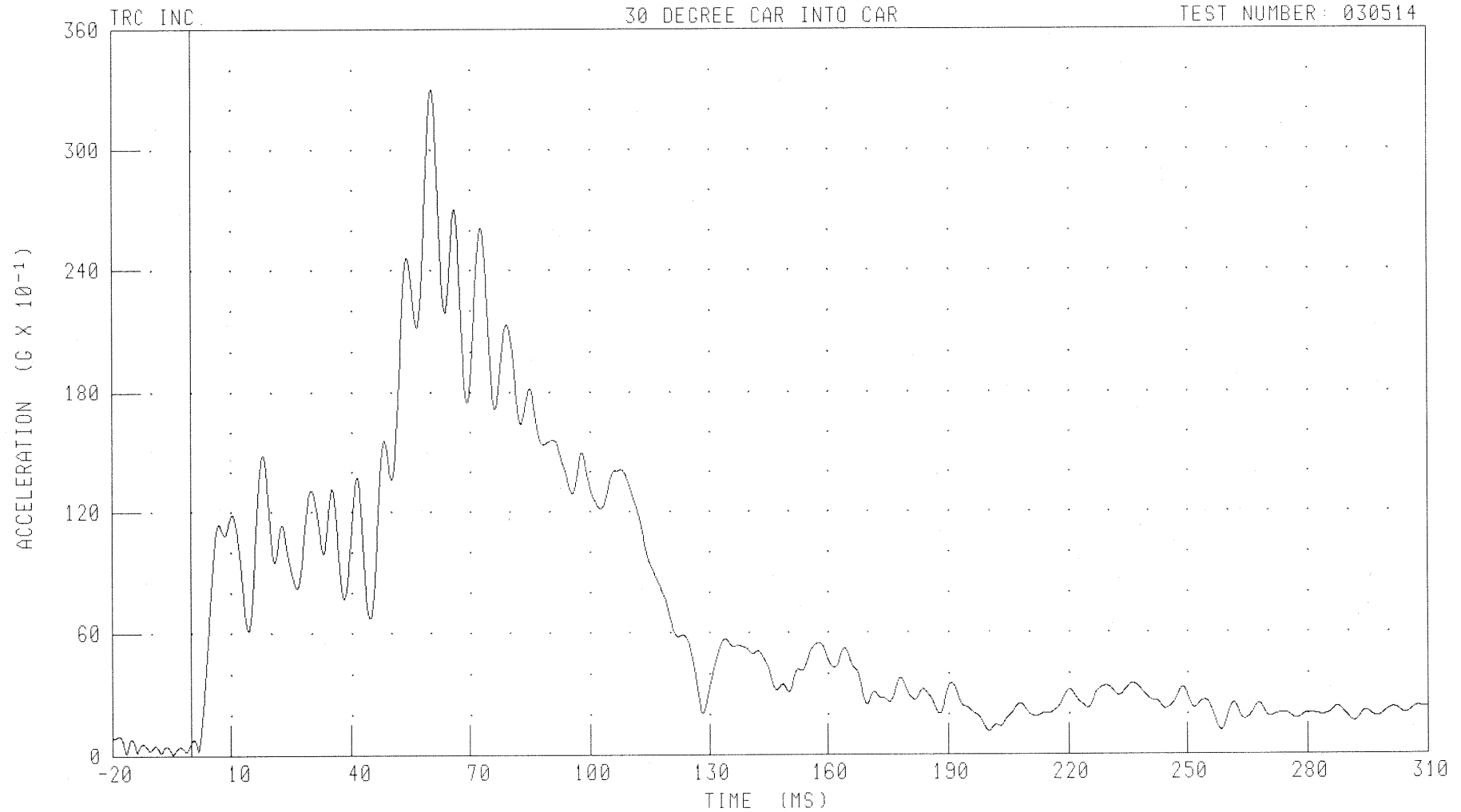
B-170

030514

1996 TOYOTA AVALON INTO LEFT FRONT OF 1997 HONDA ACCORD - OBLIQUE 30 DEGREES
BULLET REAR DECK RESULTANT ACCELERATION

30 DEGREE CAR INTO CAR

TEST NUMBER: 030514



CHANNEL: RDKRGA FILTER: CH. CLASS 60

PEAK DATA: 33.04 G @ 60.32 MS, 0.06 G @ -4.48 MS

B-171

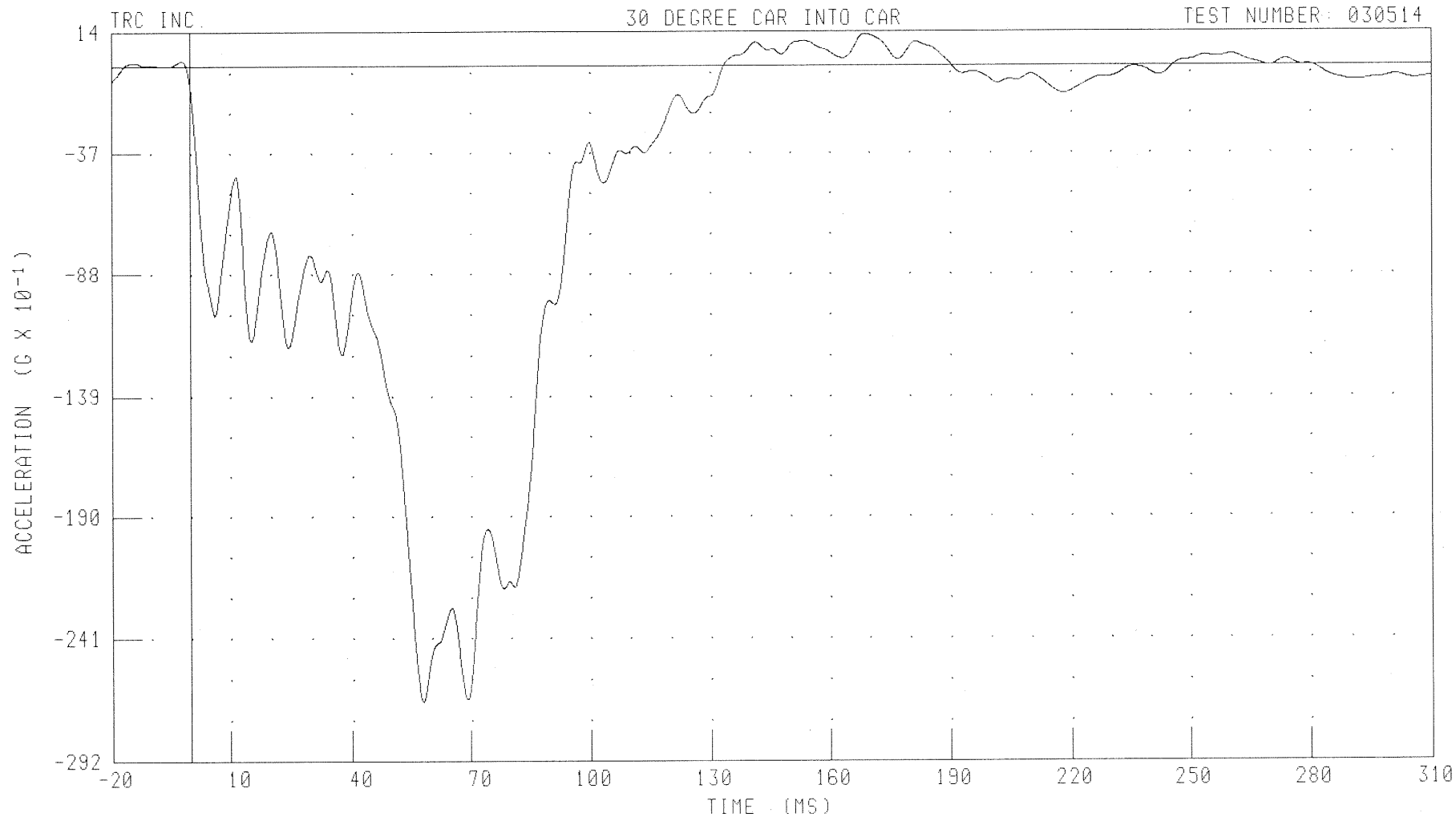
030514

1996 TOYOTA AVALON INTO LEFT FRONT OF 1997 HONDA ACCORD - OBLIQUE 30 DEGREES

BULLET LEFT FRONT SILL X-AXIS ACCELERATION

30 DEGREE CAR INTO CAR

TEST NUMBER: 030514



CHANNEL: LFSXGA FILTER: CH. CLASS 60

PEAK DATA: 1.29 G @ 168.88 MS, -26.72 G @ 57.84 MS

B-172

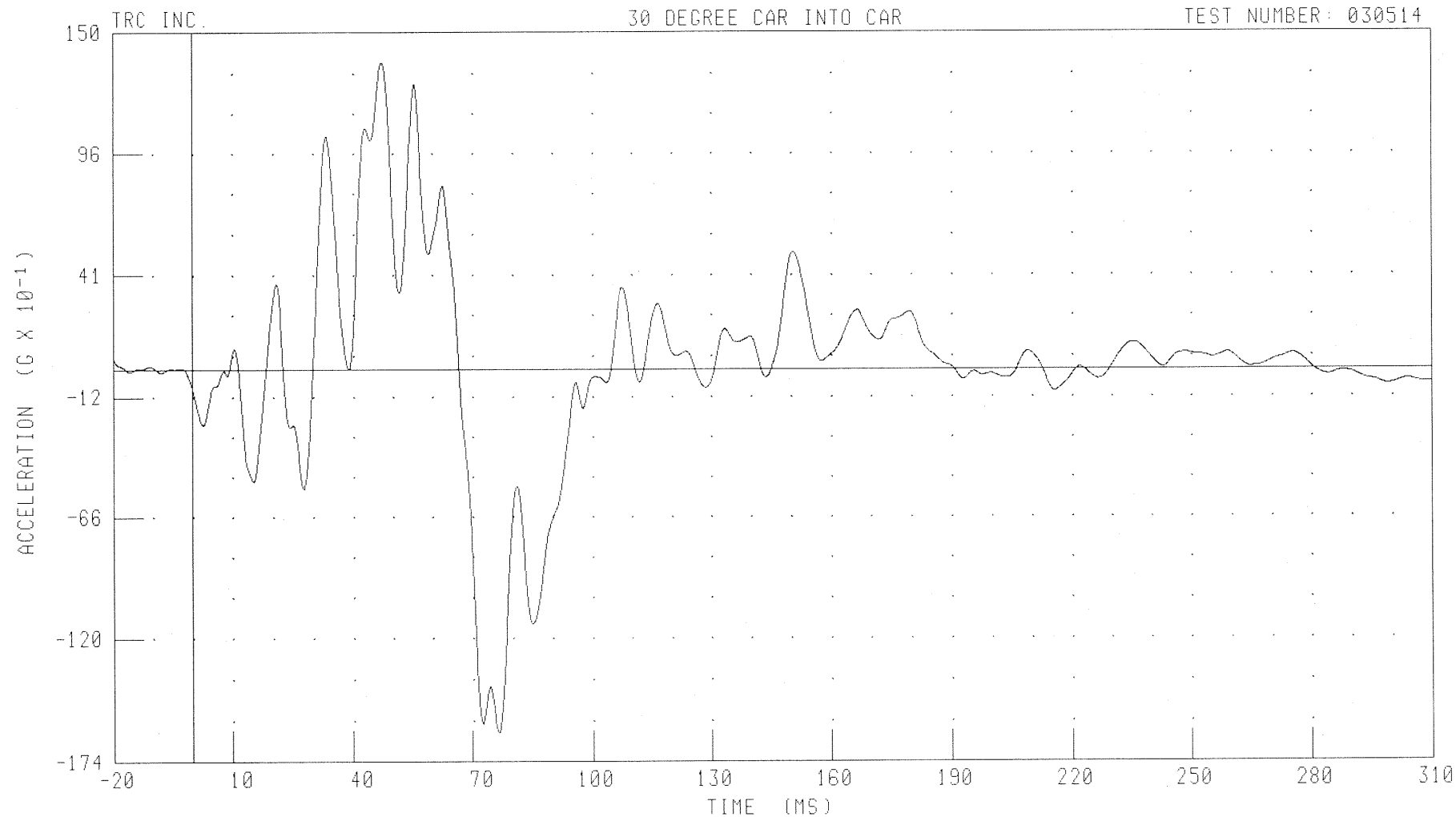
030514

1996 TOYOTA AVALON INTO LEFT FRONT OF 1997 HONDA ACCORD - OBLIQUE 30 DEGREES

BULLET LEFT FRONT SILL Y-AXIS ACCELERATION

30 DEGREE CAR INTO CAR

TEST NUMBER: 030514



CHANNEL: LFSYGA

FILTER: CH. CLASS 60

PEAK DATA 13.70 G @ 47.28 MS, -16.12 G @ 76.56 MS

B-173

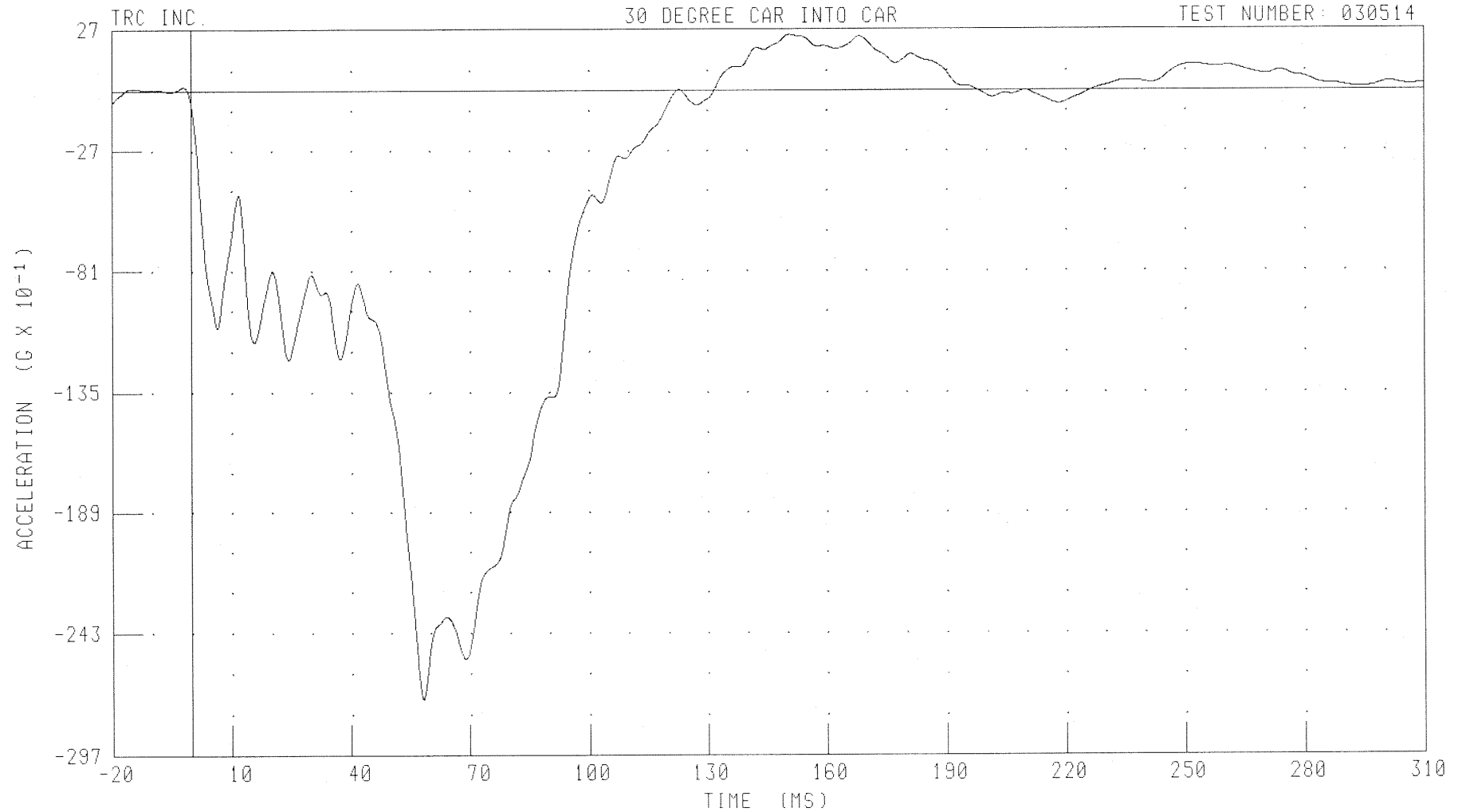
030514

1996 TOYOTA AVALON INTO LEFT FRONT OF 1997 HONDA ACCORD - OBLIQUE 30 DEGREES

BULLET LEFT REAR SILL X-AXIS ACCELERATION

30 DEGREE CAR INTO CAR

TEST NUMBER: 030514



CHANNEL: LRSXGA FILTER: CH. CLASS 60

PEAK DATA: 2.46 G @ 150.80 MS; -27.23 G @ 58.24 MS

B-174

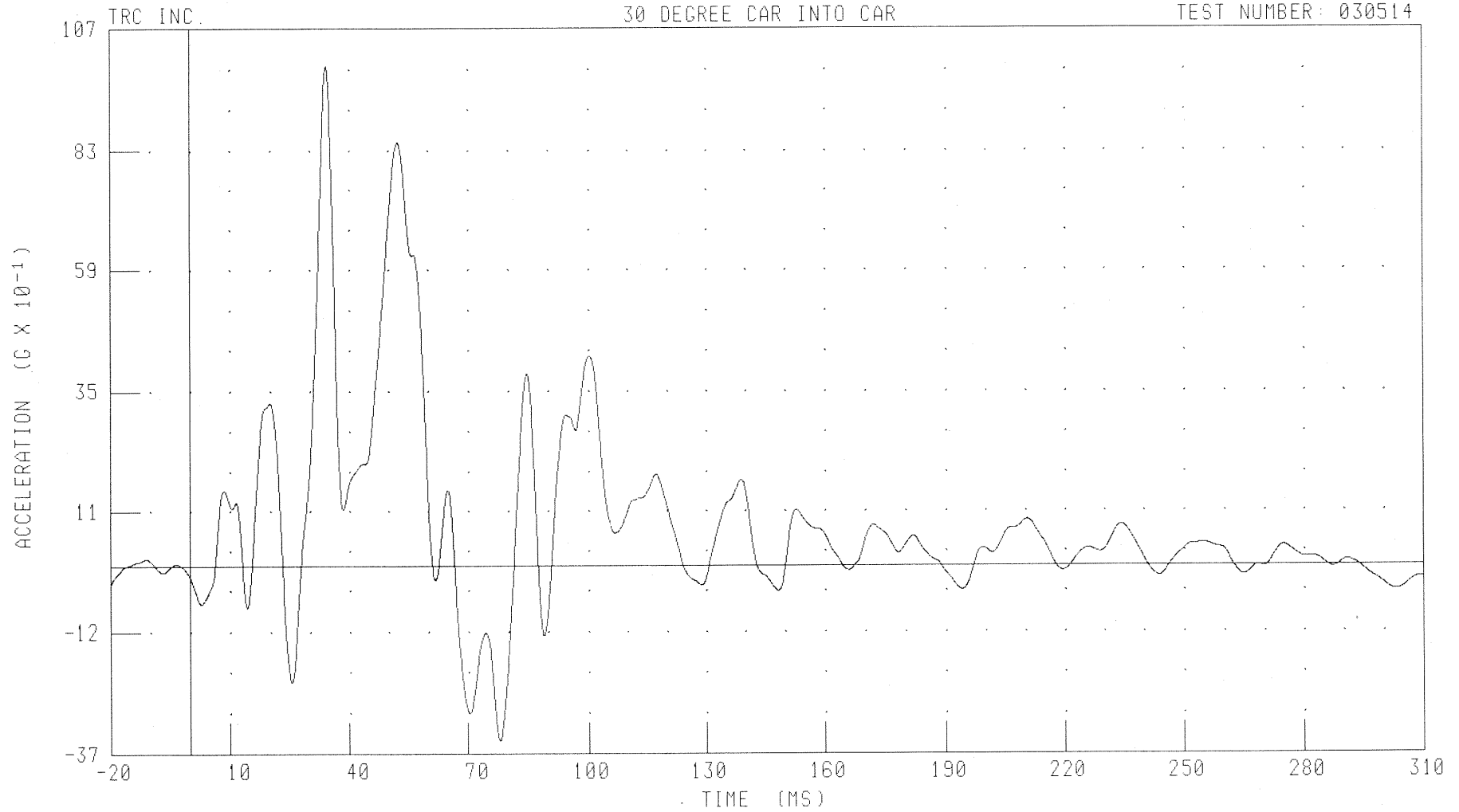
030514

1996 TOYOTA AVALON INTO LEFT FRONT OF 1997 HONDA ACCORD - OBLIQUE 30 DEGREES

BULLET LEFT REAR SILL Y-AXIS ACCELERATION

30 DEGREE CAR INTO CAR

TEST NUMBER: 030514



CHANNEL: LRSYGA FILTER: CH. CLASS 60

PEAK DATA: 9.97 G @ 34.24 MS; -3.45 G @ 78.00 MS

B-175

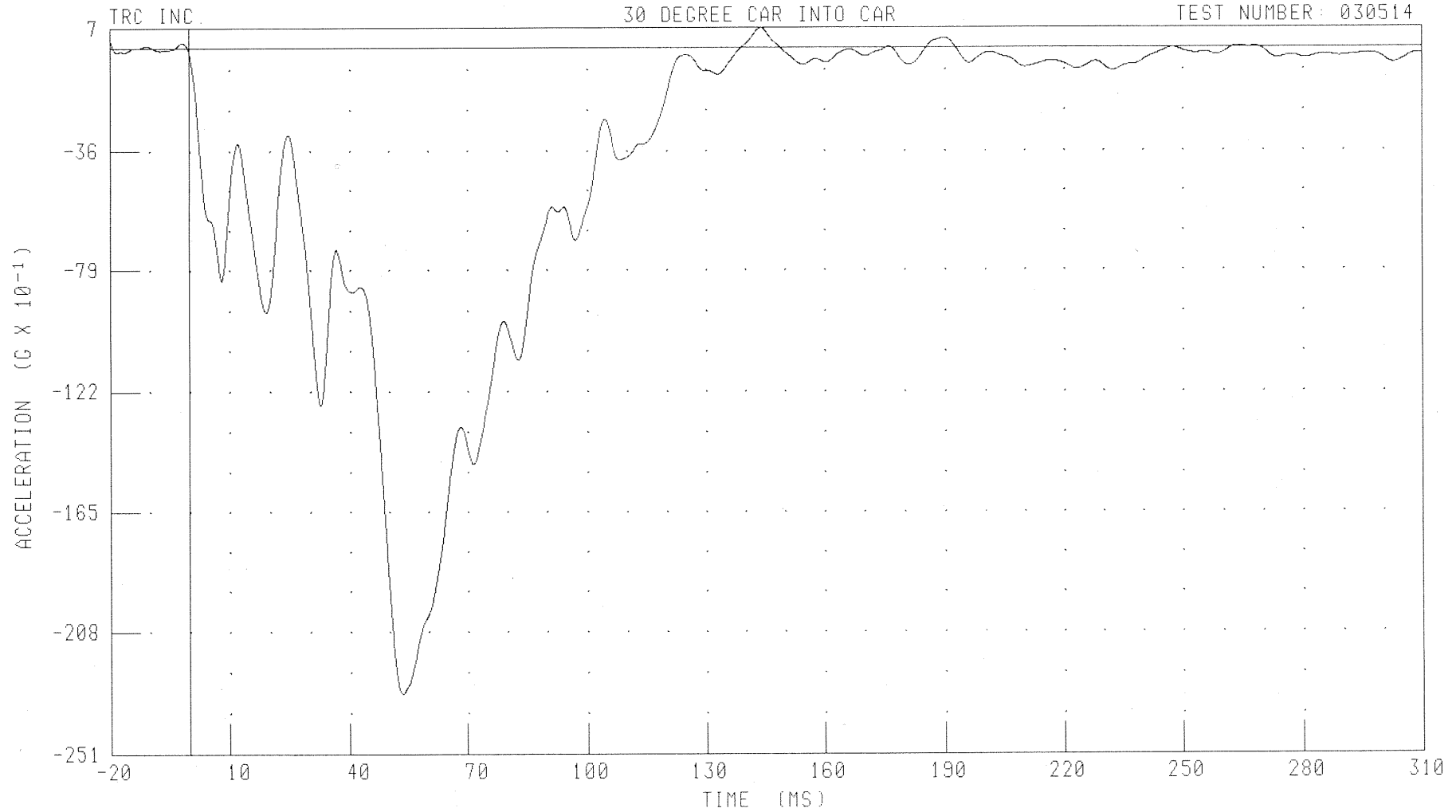
030514

1996 TOYOTA AVALON INTO LEFT FRONT OF 1997 HONDA ACCORD - OBLIQUE 30 DEGREES

BULLET RIGHT FRONT SILL X-AXIS ACCELERATION

30 DEGREE CAR INTO CAR

TEST NUMBER: 030514



CHANNEL: RFSXGA FILTER: CH. CLASS 60

PEAK DATA: 0.70 G @ 144.16 MS, -22.98 G @ 53.44 MS

B-176

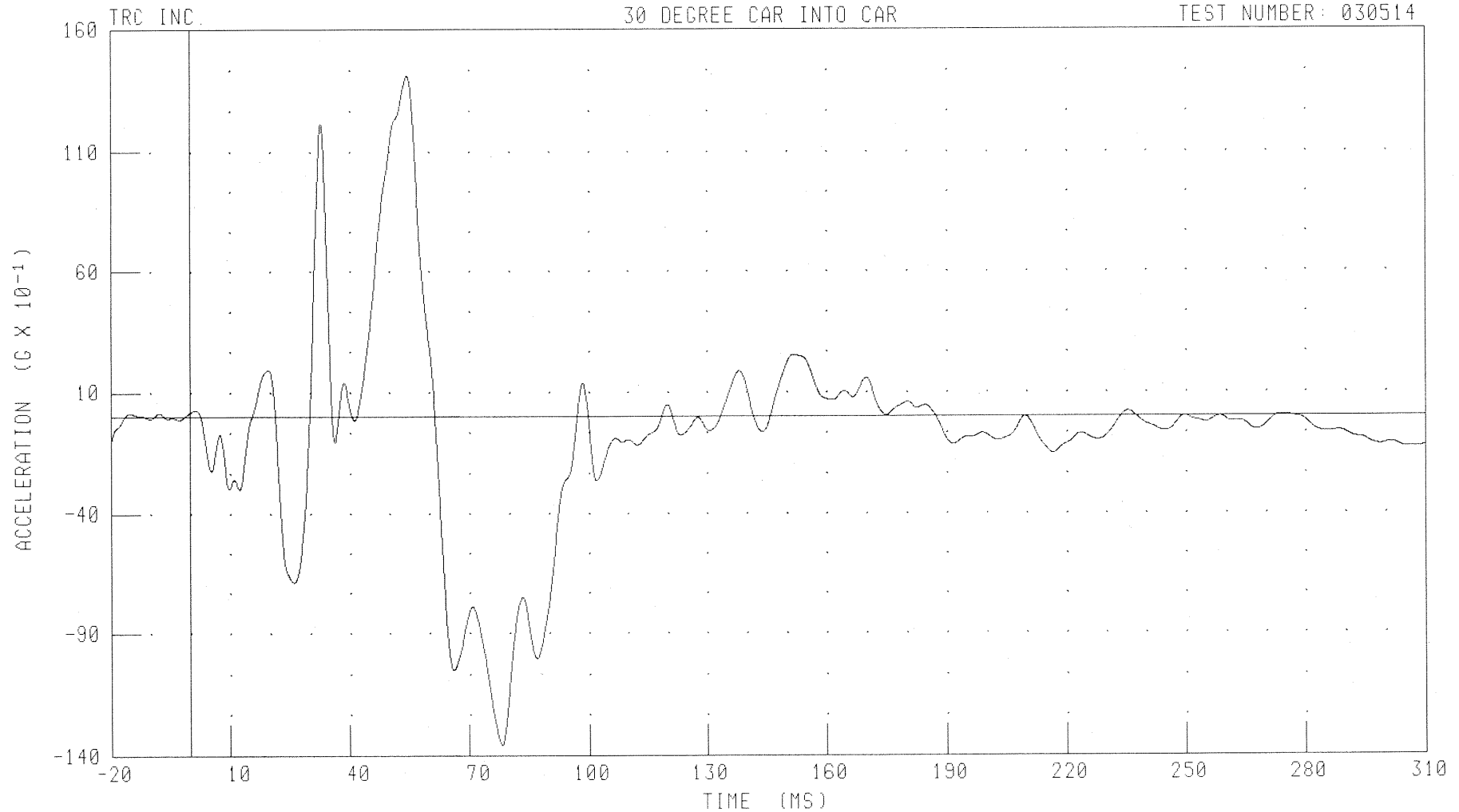
030514

1996 TOYOTA AVALON INTO LEFT FRONT OF 1997 HONDA ACCORD - OBLIQUE 30 DEGREES

BULLET RIGHT FRONT SILL Y-AXIS ACCELERATION

30 DEGREE CAR INTO CAR

TEST NUMBER: 030514



CHANNEL: RFSYGA FILTER: CH. CLASS 60

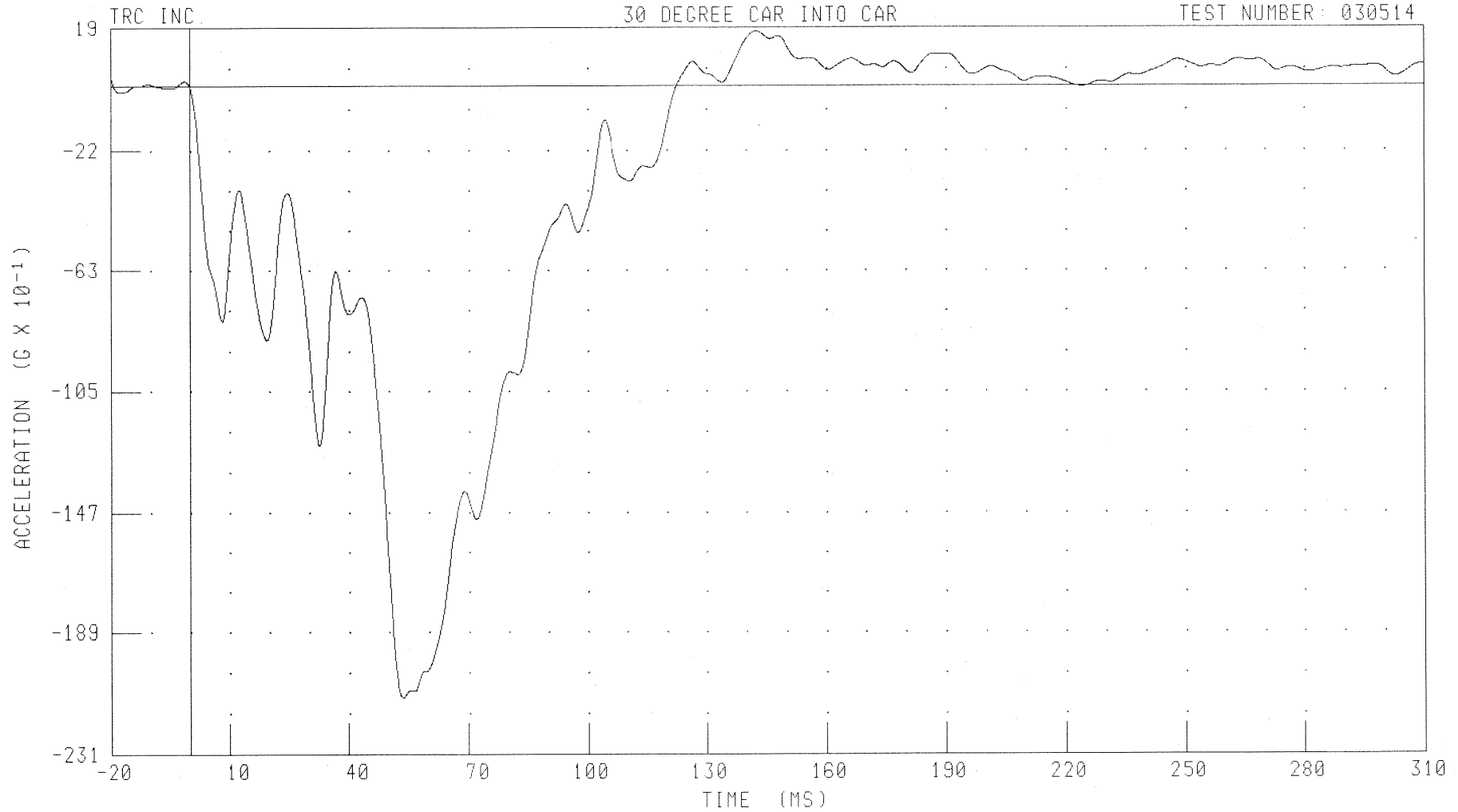
B-177

030514

1996 TOYOTA AVALON INTO LEFT FRONT OF 1997 HONDA ACCORD - OBLIQUE 30 DEGREES

BULLET RIGHT REAR SILL X-AXIS ACCELERATION

TEST NUMBER: 030514



CHANNEL: RRSXGA FILTER: CH. CLASS 60

PEAK DATA: 1.86 G @ 142.48 MS; -21.25 G @ 53.52 MS

B-178

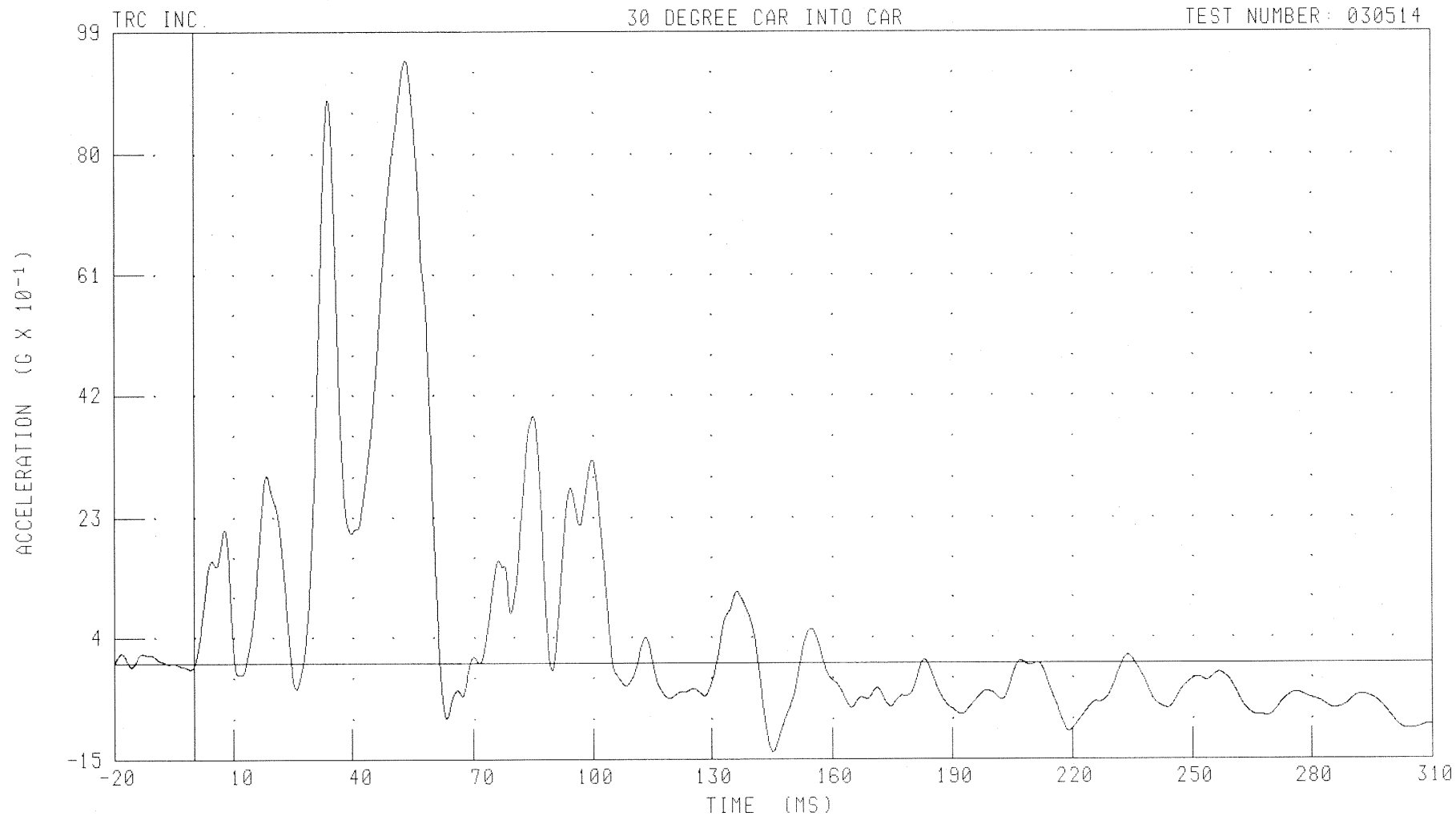
030514

1996 TOYOTA AVALON INTO LEFT FRONT OF 1997 HONDA ACCORD - OBLIQUE 30 DEGREES

BULLET RIGHT REAR SILL Y-AXIS ACCELERATION

30 DEGREE CAR INTO CAR

TEST NUMBER: 030514



CHANNEL: RRSYGA FILTER: CH. CLASS 60

B-179

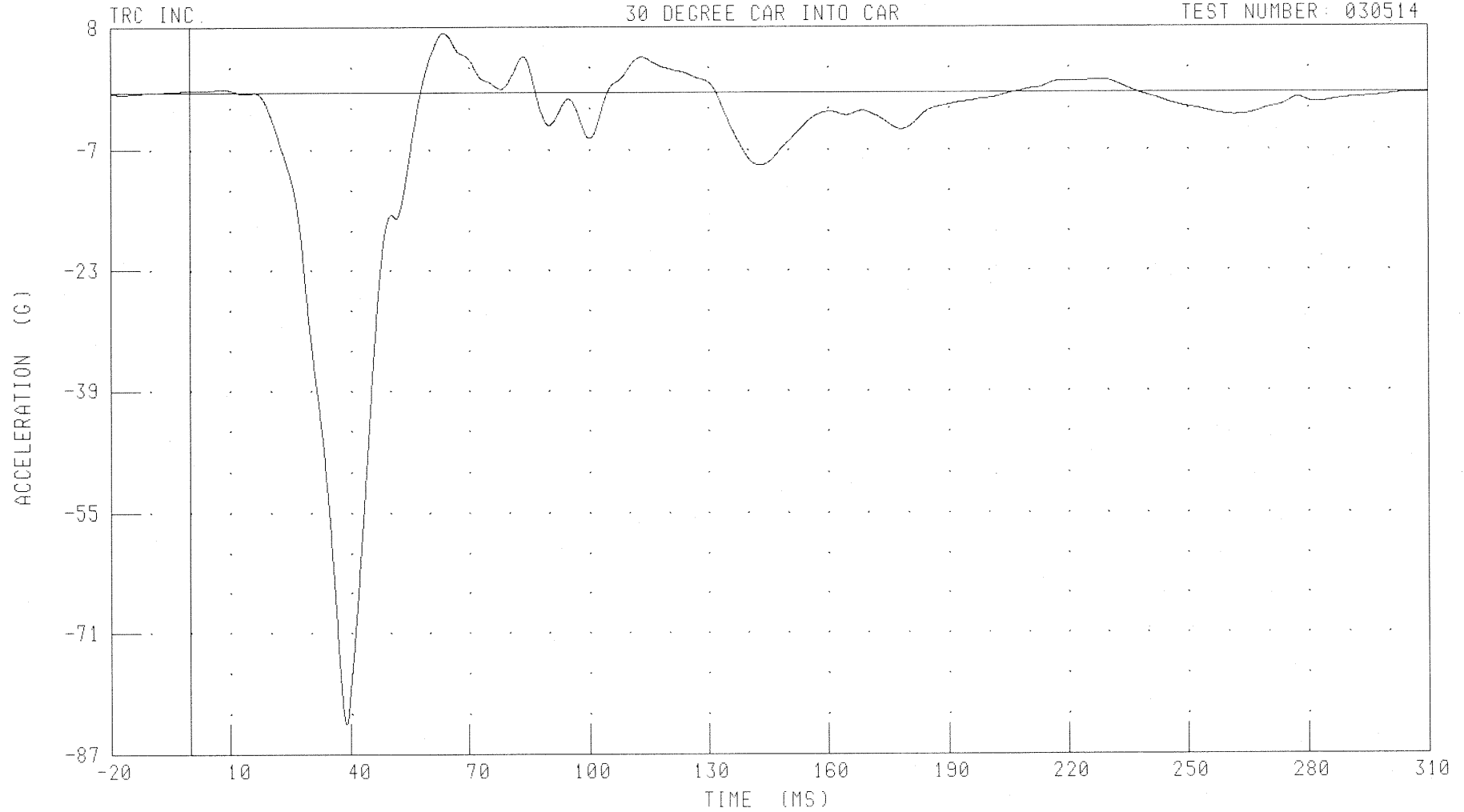
030514

1996 TOYOTA AVALON INTO LEFT FRONT OF 1997 HONDA ACCORD - OBLIQUE 30 DEGREES

BULLET ENGINE TOP X-AXIS ACCELERATION

30 DEGREE CAR INTO CAR

TEST NUMBER: 030514



CHANNEL: ENGXGA FILTER: CH. CLASS 60

PEAK DATA: 7.95 G @ 63.68 MS, -83.25 G @ 38.80 MS

B-180

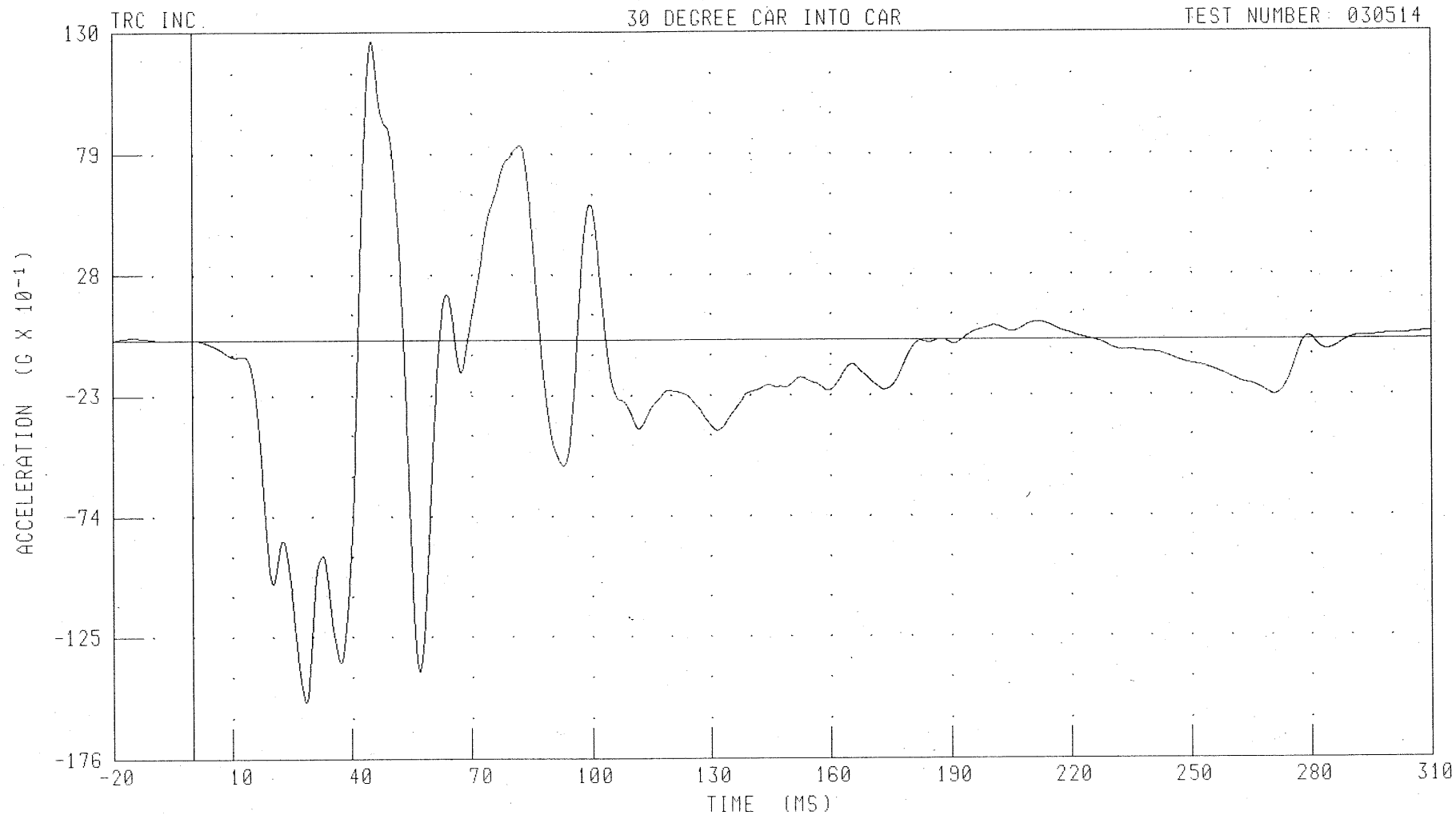
030514

1996 TOYOTA AVALON INTO LEFT FRONT OF 1997 HONDA ACCORD - OBLIQUE 30 DEGREES

BULLET ENGINE TOP Y-AXIS ACCELERATION

30 DEGREE CAR INTO CAR

TEST NUMBER: 030514



CHANNEL: ENGYCA FILTER: CH. CLASS 60

PEAK DATA: 12.61 G @ 45.12 MS; -15.24 G @ 28.48 MS

B-181

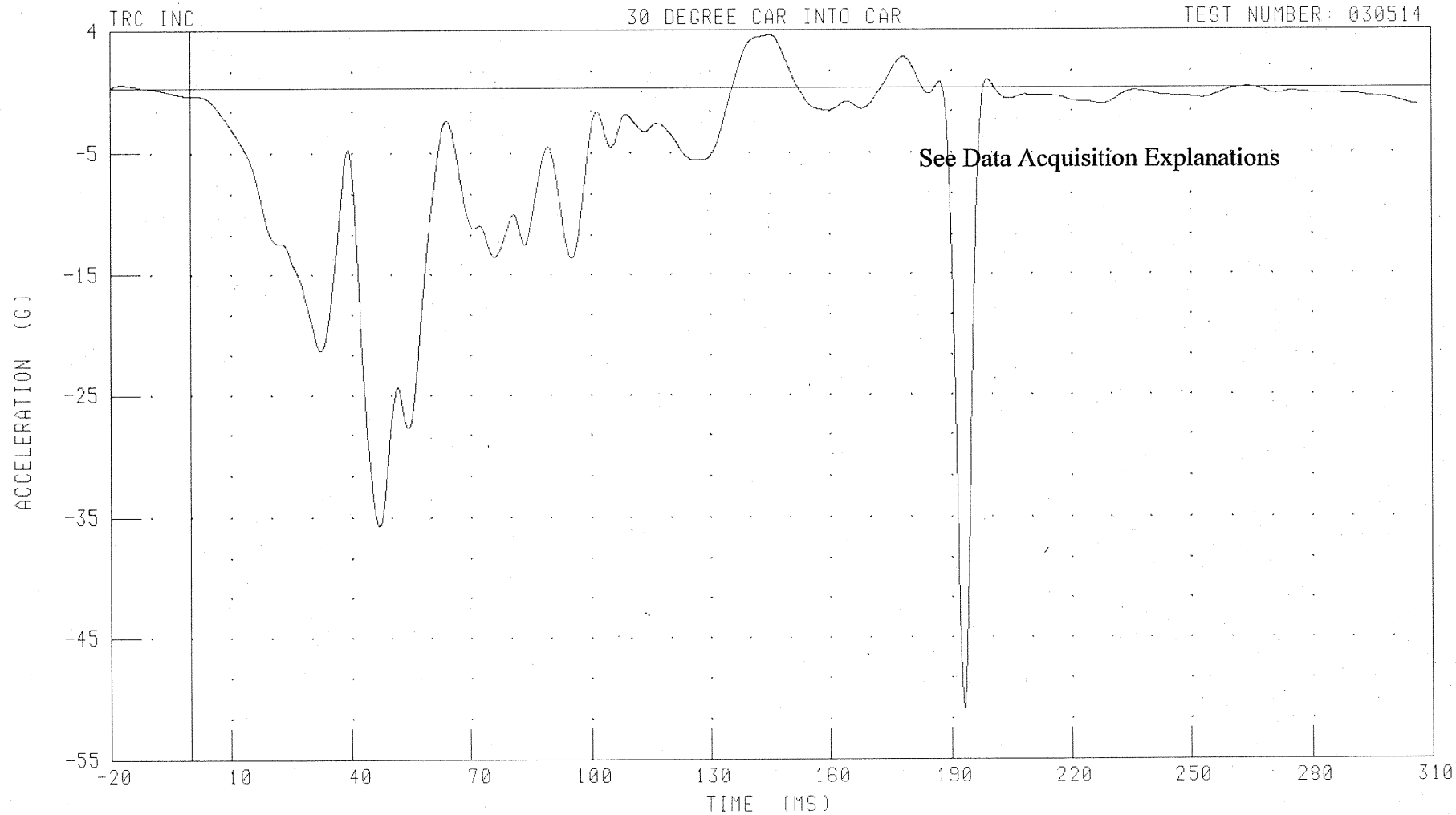
030514

1996 TOYOTA AVALON INTO LEFT FRONT OF 1997 HONDA ACCORD - OBLIQUE 30 DEGREES

BULLET ENGINE BOTTOM X-AXIS ACCELERATION

30 DEGREE CAR INTO CAR

TEST NUMBER: 030514



CHANNEL: ENGXGB FILTER: CH. CLASS 60

PEAK DATA: 4.30 G @ 145.12 MS, -51.21 G @ 193.12 MS

B-182

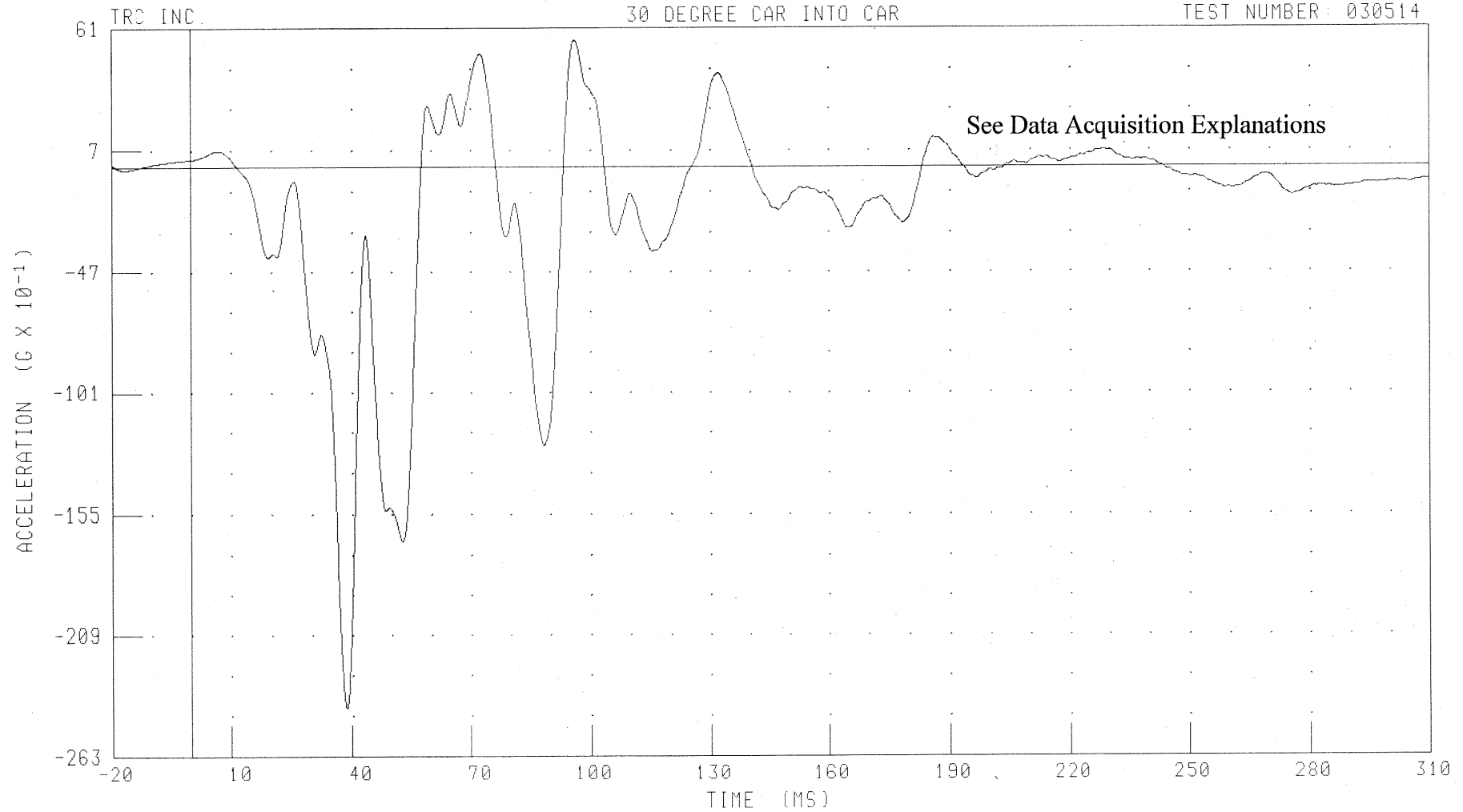
030514

1996 TOYOTA AVALON INTO LEFT FRONT OF 1997 HONDA ACCORD - OBLIQUE 30 DEGREES

BULLET ENGINE BOTTOM Y-AXIS ACCELERATION

30 DEGREE CAR INTO CAR

TEST NUMBER: 030514



CHANNEL: ENCYGB FILTER: CH. CLASS 60

PEAK DATA: 5.57 G @ 96.16 MS, -24.17 G @ 38.72 MS

B-183

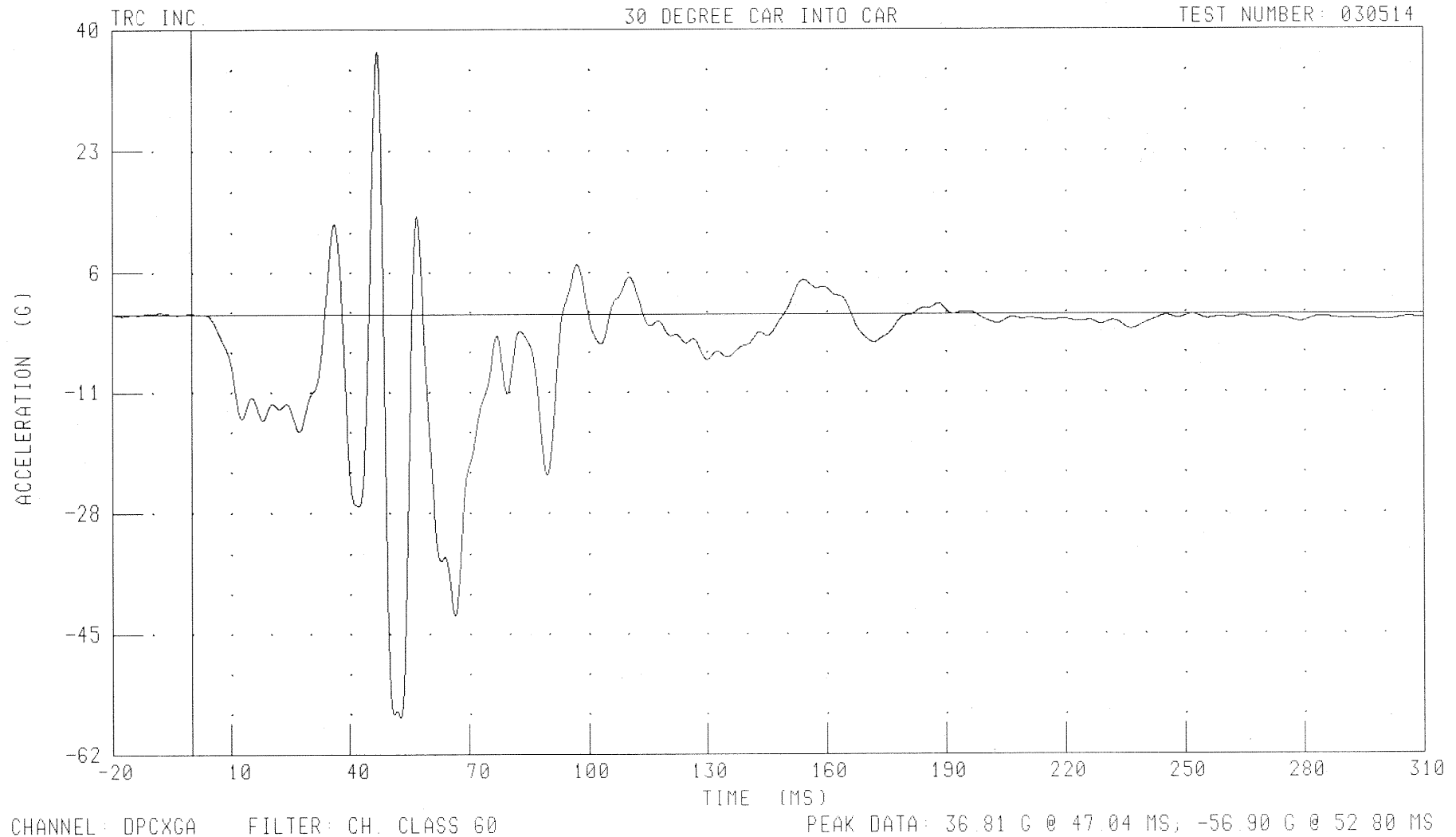
030514

1996 TOYOTA AVALON INTO LEFT FRONT OF 1997 HONDA ACCORD - OBLIQUE 30 DEGREES

BULLET INSTRUMENT PANEL CENTER X-AXIS ACCELERATION

30 DEGREE CAR INTO CAR

TEST NUMBER: 030514



B-184

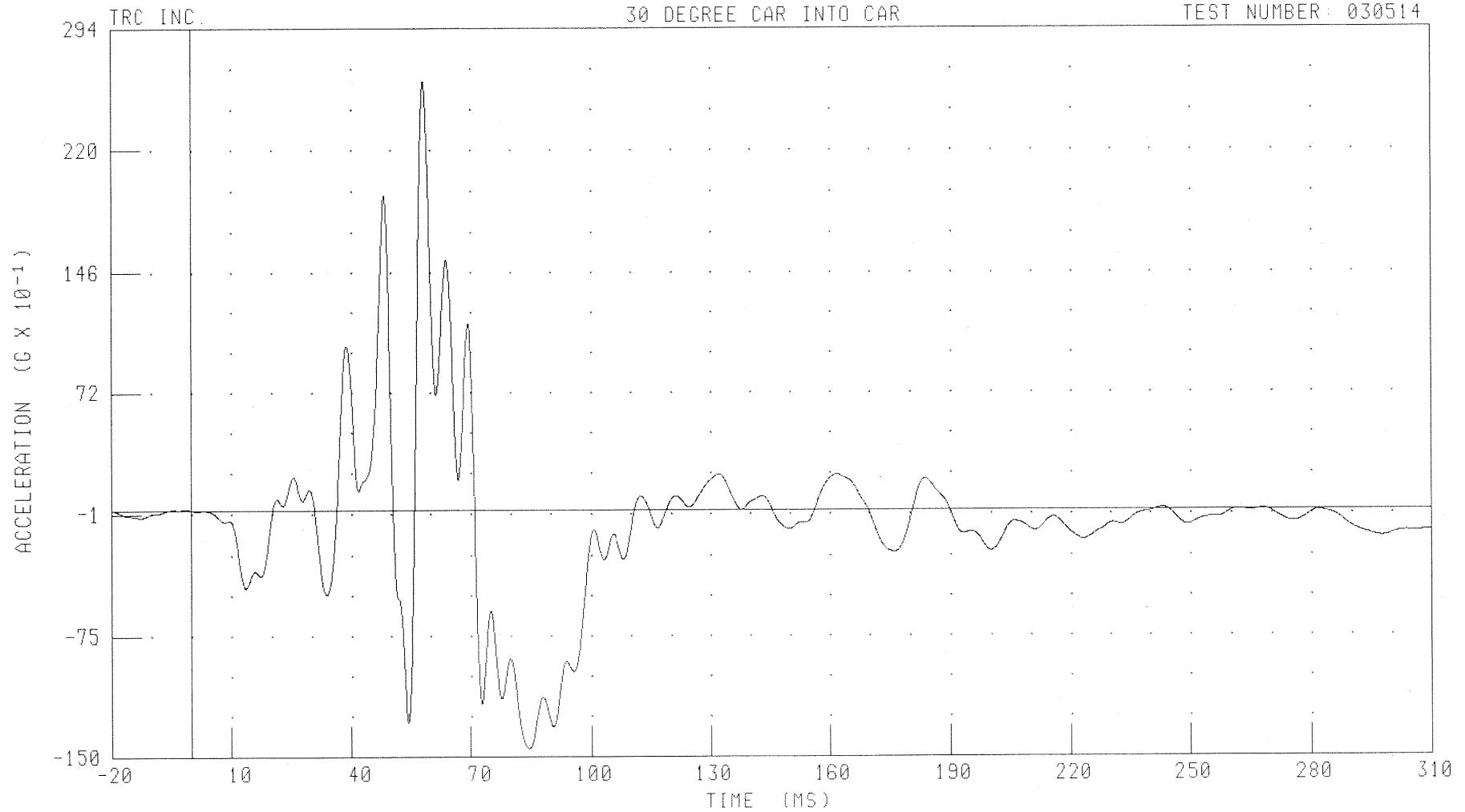
030514

1996 TOYOTA AVALON INTO LEFT FRONT OF 1997 HONDA ACCORD - OBLIQUE 30 DEGREES

BULLET INSTRUMENT PANEL CENTER Y-AXIS ACCELERATION

30 DEGREE CAR INTO CAR

TEST NUMBER: 030514



CHANNEL: DPCYGA FILTER: CH. CLASS 60

PEAK DATA: 26.16 G @ 58.32 MS, -14.53 G @ 84.56 MS

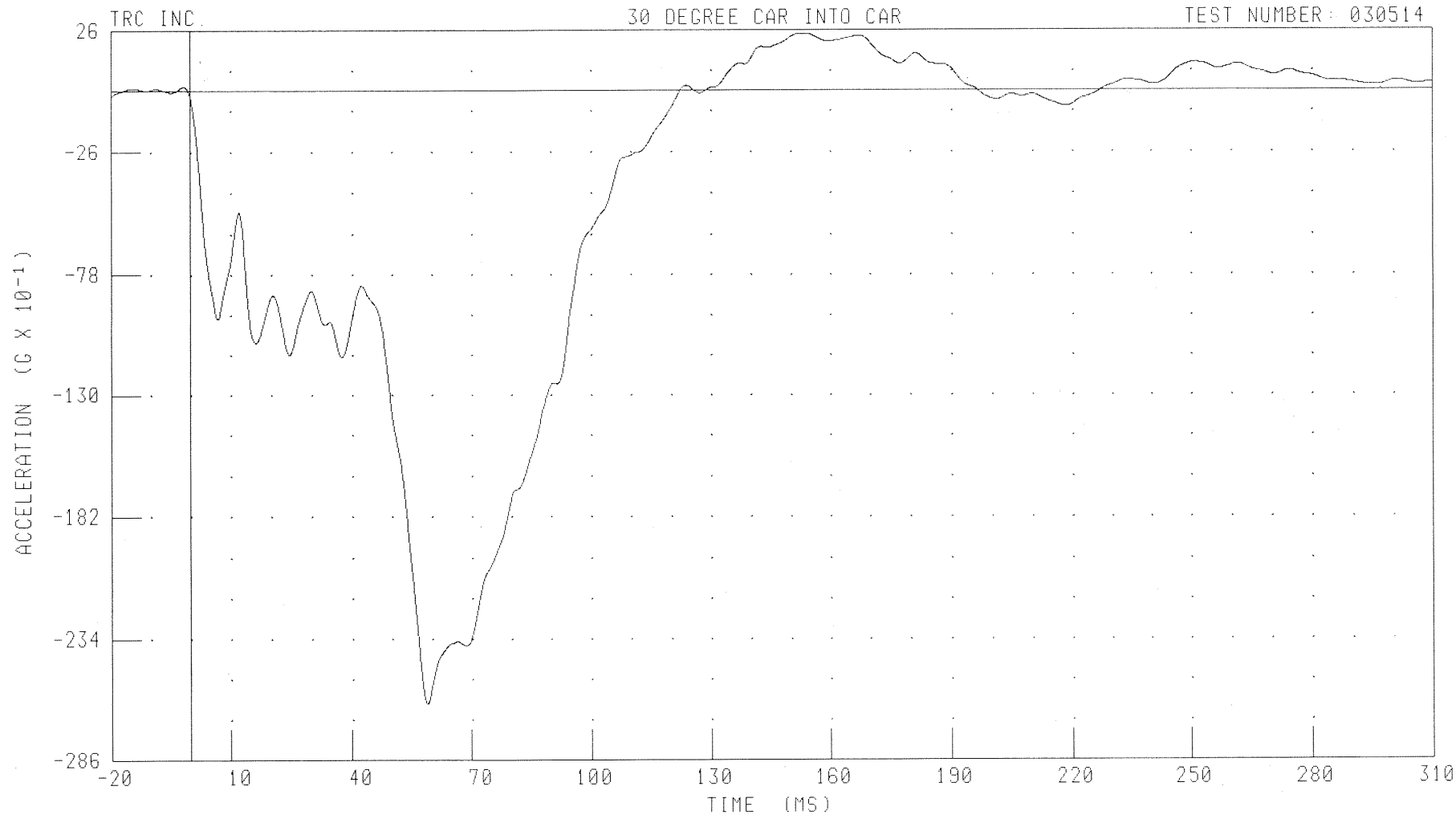
B-185

030514

1996 TOYOTA AVALON INTO LEFT FRONT OF 1997 HONDA ACCORD - OBLIQUE 30 DEGREES
BULLET LEFT REAR SEAT CROSSMEMBER X-AXIS ACCELERATION

30 DEGREE CAR INTO CAR

TEST NUMBER: 030514



CHANNEL: LRXXGA FILTER: CH. CLASS 60

PEAK DATA: 2.44 G @ 154.08 MS, -26.19 G @ 58.80 MS

B-186

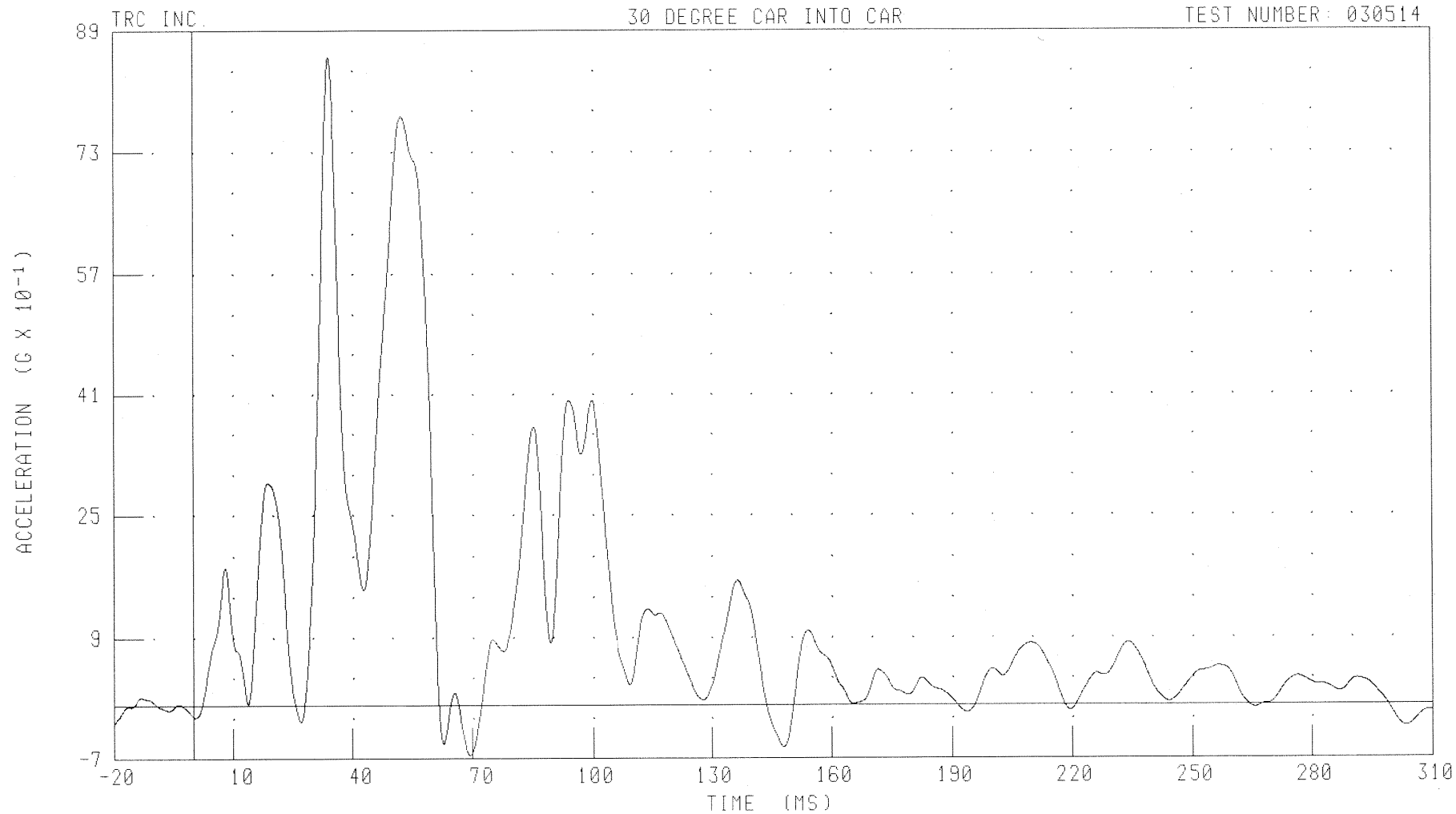
030514

1996 TOYOTA AVALON INTO LEFT FRONT OF 1997 HONDA ACCORD - OBLIQUE 30 DEGREES

BULLET LEFT REAR SEAT CROSSMEMBER Y-AXIS ACCELERATION

30 DEGREE CAR INTO CAR

TEST NUMBER: 030514



CHANNEL: LRXYGA FILTER: CH. CLASS 60

PEAK DATA: 8.56 G @ 34.16 MS; -0.66 G @ 69.28 MS

B-187

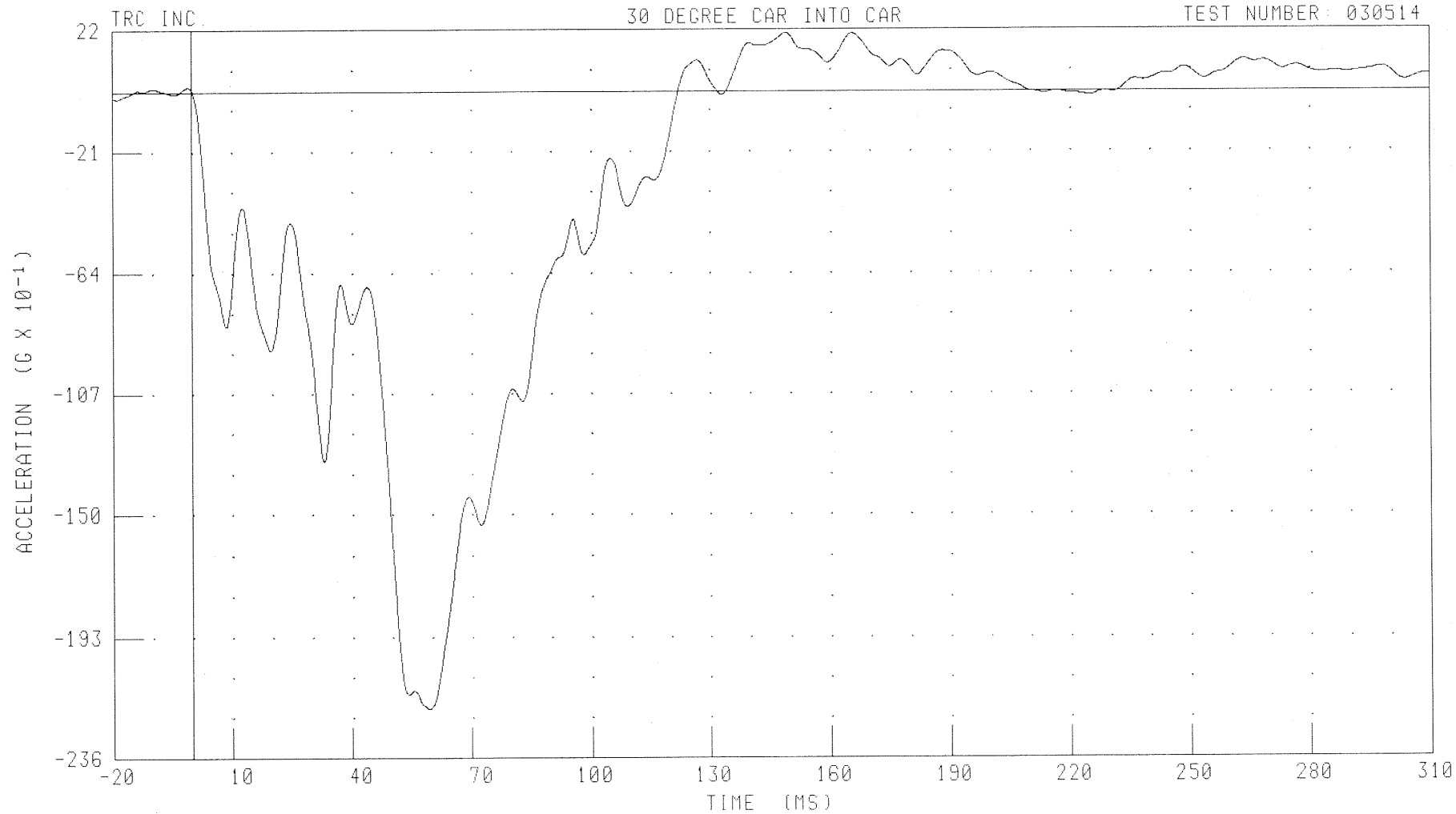
030514

1996 TOYOTA AVALON INTO LEFT FRONT OF 1997 HONDA ACCORD - OBLIQUE 30 DEGREES

BULLET RIGHT REAR SEAT CROSSMEMBER X-AXIS ACCELERATION

30 DEGREE CAR INTO CAR

TEST NUMBER: 030514



CHANNEL: RRXXGA FILTER: CH. CLASS 60

PEAK DATA: 2.06 G @ 149.04 MS, -21.86 G @ 59.12 MS

B-188

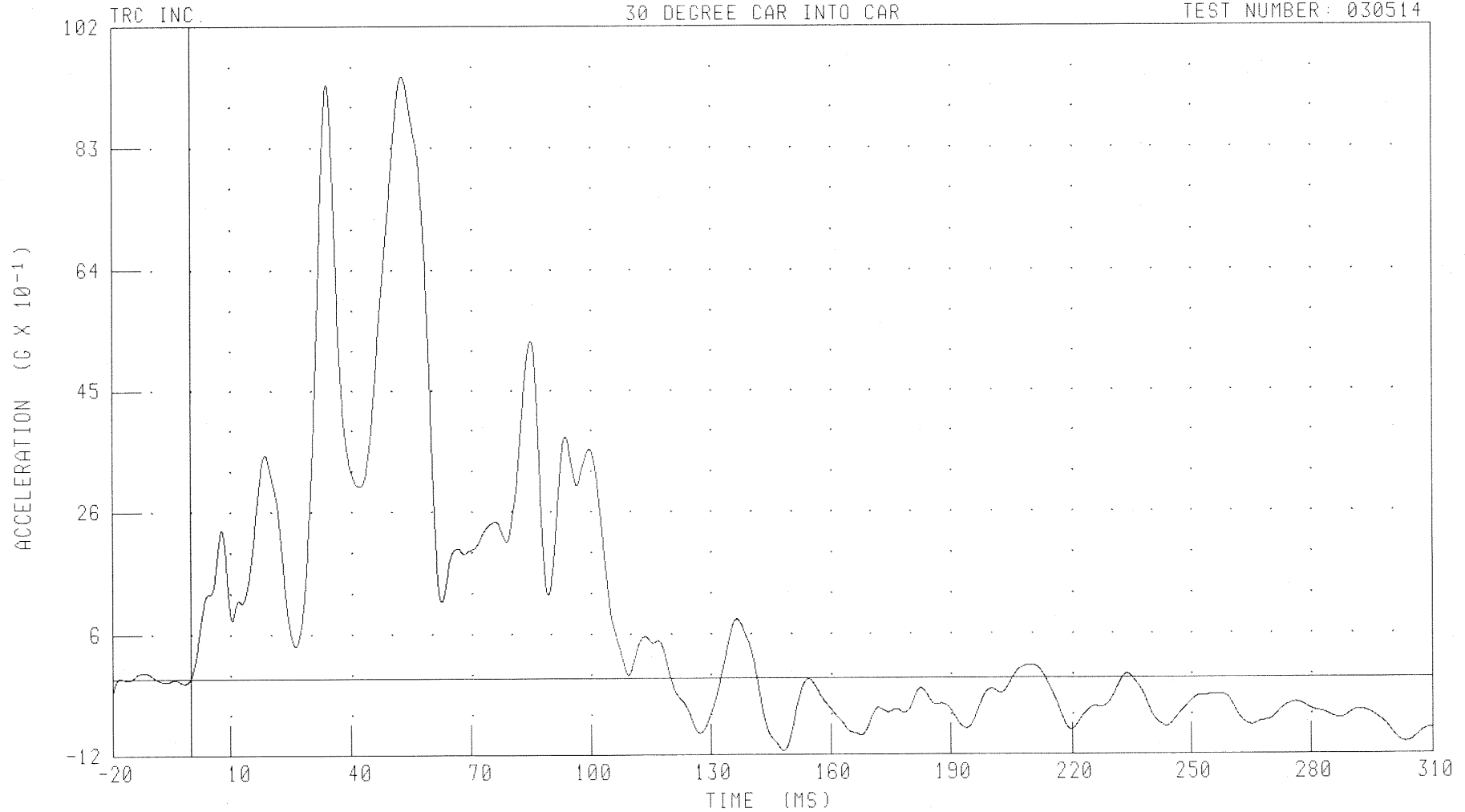
030514

1996 TOYOTA AVALON INTO LEFT FRONT OF 1997 HONDA ACCORD - OBLIQUE 30 DEGREES

BULLET RIGHT REAR SEAT CROSSMEMBER Y-AXIS ACCELERATION

30 DEGREE CAR INTO CAR

TEST NUMBER: 030514



CHANNEL: RRXYGA FILTER: CH. CLASS 60

PEAK DATA: 9.41 G @ 52.72 MS; -1.14 G @ 148.16 MS

B-189

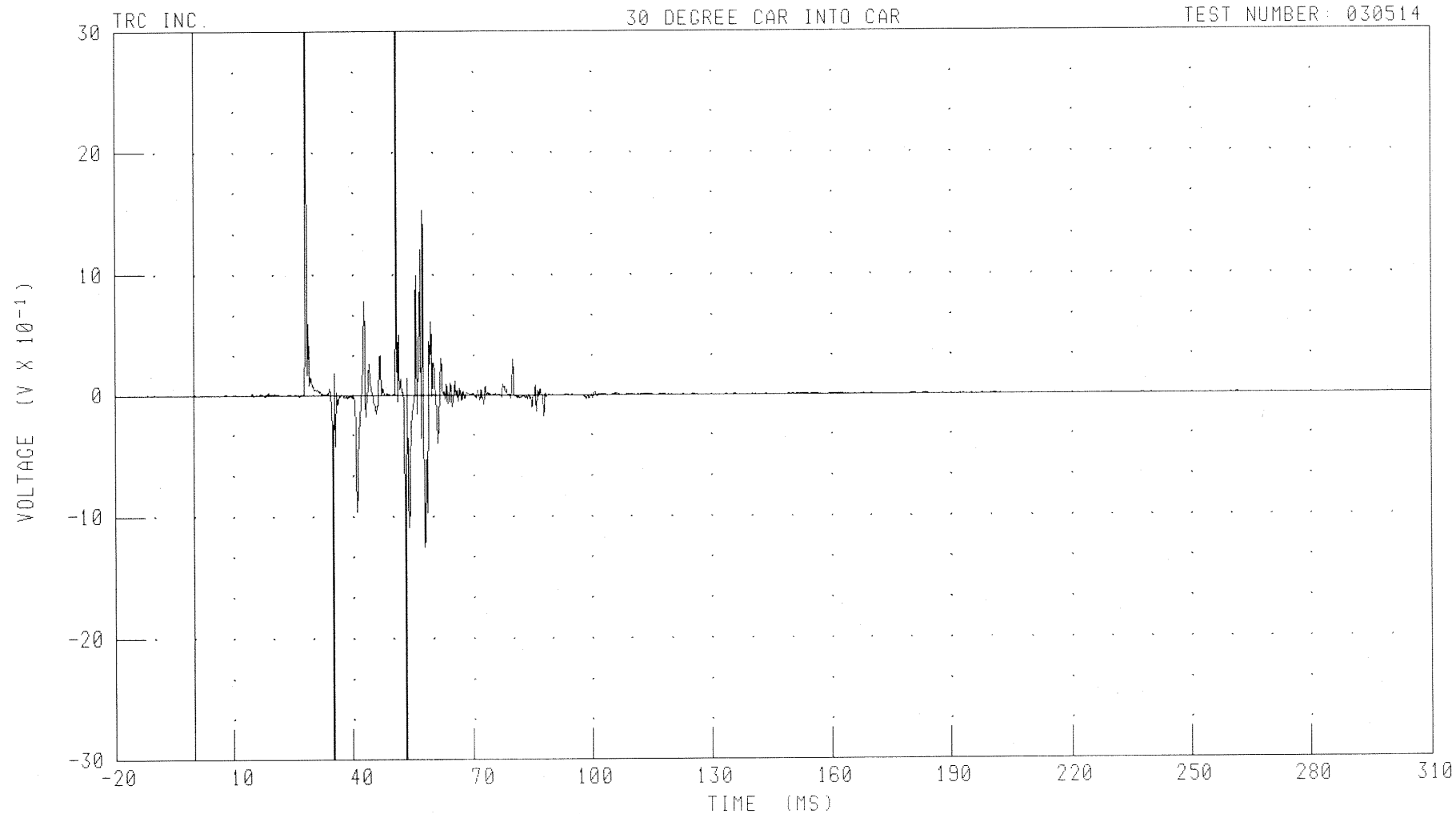
030514

1996 TOYOTA AVALON INTO LEFT FRONT OF 1997 HONDA ACCORD - OBLIQUE 30 DEGREES

BULLET DRIVER AIRBAG EVENT

30 DEGREE CAR INTO CAR

TEST NUMBER: 030514



CHANNEL: DABETA FILTER: CH. CLASS 1000

PEAK DATA: 4.12 V @ 28.40 MS; -3.92 V @ 35.20 MS

B-190

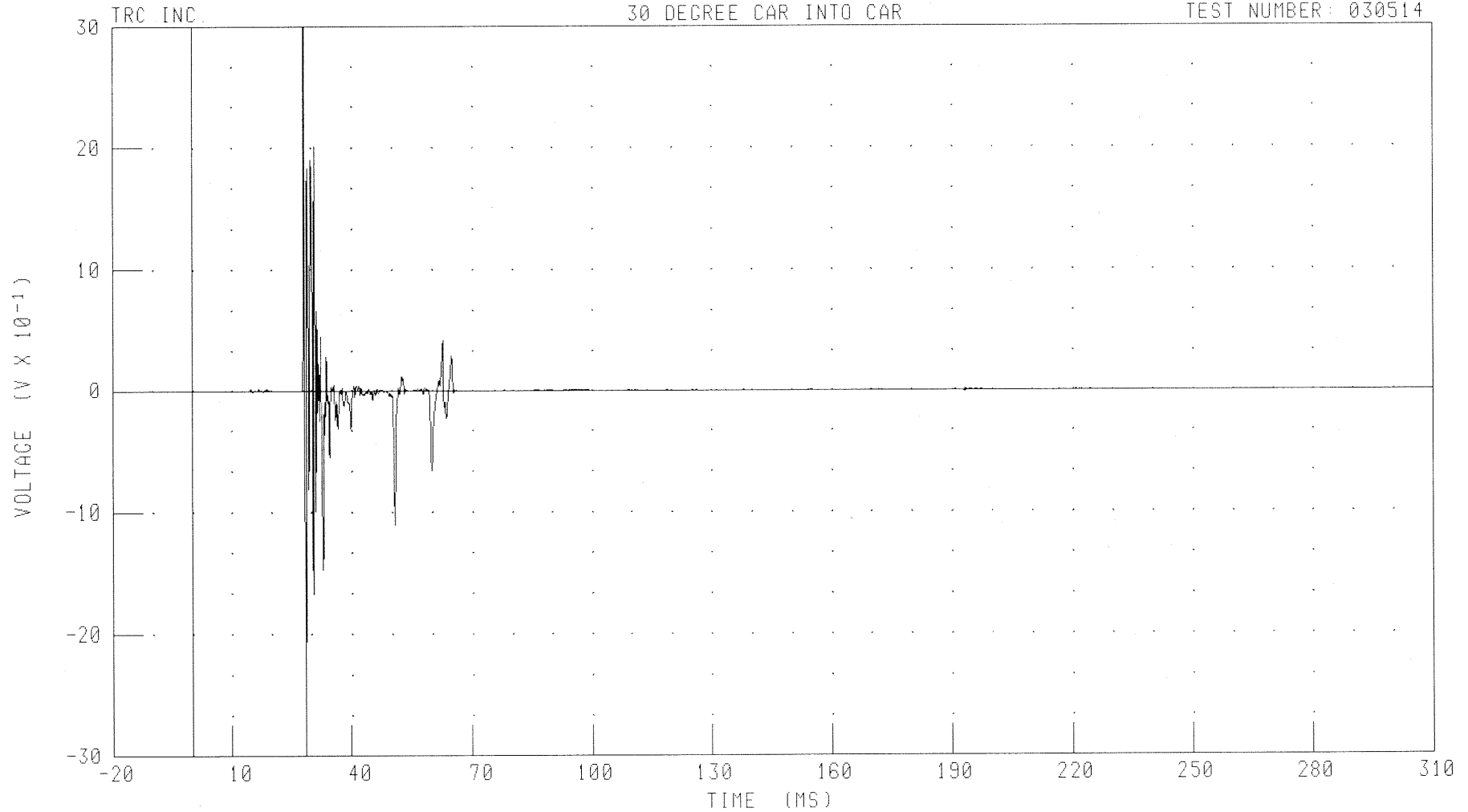
030514

1996 TOYOTA AVALON INTO LEFT FRONT OF 1997 HONDA ACCORD - OBLIQUE 30 DEGREES

BULLET PASSENGER AIRBAG EVENT

30 DEGREE CAR INTO CAR

TEST NUMBER: 030514



CHANNEL: PABETA FILTER: CH. CLASS 1000

B-191

030514

Appendix C

Dummy Configuration and Performance Verification Data

Pre-Test Dummy Configuration and Performance Verification Data

Target Vehicle Driver Dummy S/N: 168

Transportation Research Center Inc.
572E HIII 50th Male Dummy
External Dimensions
Serial No. 168 Calibration No. 20

Symbol	Description	Specification	Results	Pass
		mm	mm	
A	Total Sitting Height	878.8 - 889.0	881	Yes
B	Shoulder Pivot Height	505.5 - 520.7	516	Yes
C	H-Point Height	83.8 - 88.9	86	Yes
D	H-Point From Seatback	134.6 - 139.7	139	Yes
E	Shoulder Pivot From Backline	83.8 - 94.0	91	Yes
F	Thigh Clearance	139.7 - 154.9	148	Yes
G	Back Of Elbow To Wrist Pivot	289.6 - 304.8	298	Yes
H	Skull Cap To Backline	40.6 - 45.7	43	Yes
I	Shoulder-Elbow Length	330.2 - 345.4	341	Yes
J	Elbow Rest Height	190.5 - 210.8	208	Yes
K	Buttock Knee Length	579.1 - 604.5	587	Yes
L	Popliteal Height	429.3 - 454.7	445	Yes
M	Knee Pivot Height	485.1 - 500.4	490	Yes
N	Buttock Popliteal Length	452.1 - 477.5	474	Yes
O	Chest Depth	213.4 - 228.6	225	Yes
P	Foot Length	251.5 - 266.7	254	Yes
V	Shoulder Breadth	421.6 - 436.9	427	Yes
W	Foot Breadth	91.4 - 106.7	104	Yes
Y	Chest Circumference	970.3 - 1000.8	980	Yes
Z	Waist Circumference	835.7 - 866.1	854	Yes
AA	Location For Chest Circumference	429.3 - 434.3	432	Yes
BB	Location For Waist Circumference	226.1 - 231.1	229	Yes

Technician



Approved



Transportation Research Center Inc.

572E Head Drop Test

HIII 50th Male Serial No. 168 Calibration No. 20 - 1

Test Date 04/24/2003

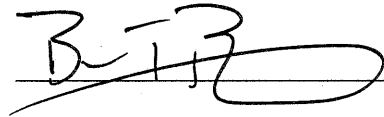
Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.6 °C	21.1 °C	Yes
Relative Humidity	10 - 70 %	20 %	Yes
Peak Resultant Acceleration	225 - 275 g	241.2 g	Yes
Peak Lateral Acceleration	15 g Max	4.8 g	Yes
Oscillations After Main Pulse	Less Than 10% of Peak Resultant Acceleration?	Yes	Yes

Comments:

Technician



Approved



04.24.2003 10:49:09 610

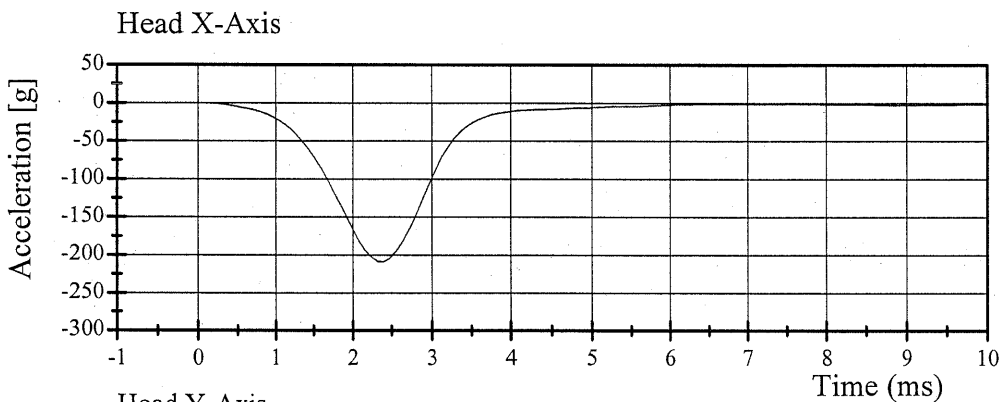


Transportation Research Center Inc.

572E Head Drop Test

HIII 50th Male Serial No. 168 Calibration No. 20 - 1

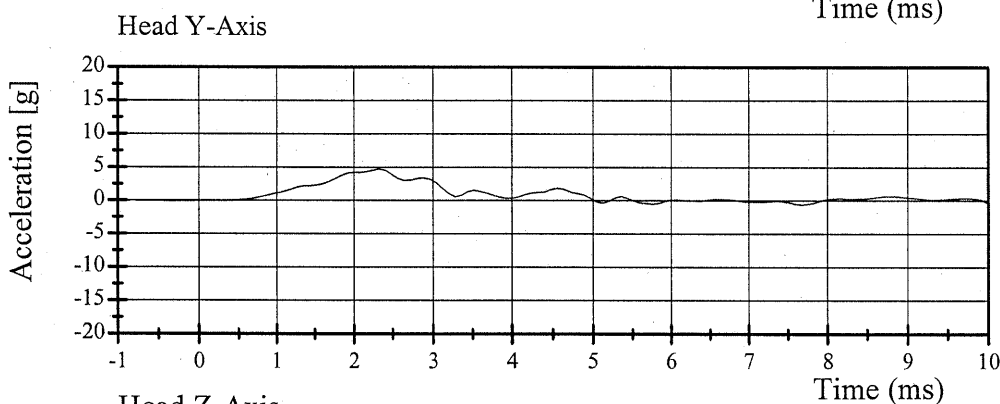
Test Date 04/24/2003



Filter Class: 1000

Max: 0.0 g at 0.0 ms

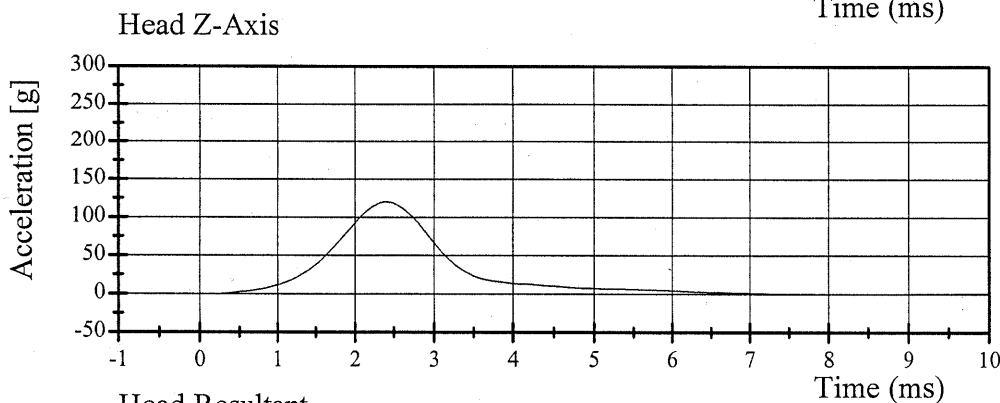
Min: -208.8 g at 2.4 ms



Filter Class: 1000

Max: 4.8 g at 2.3 ms

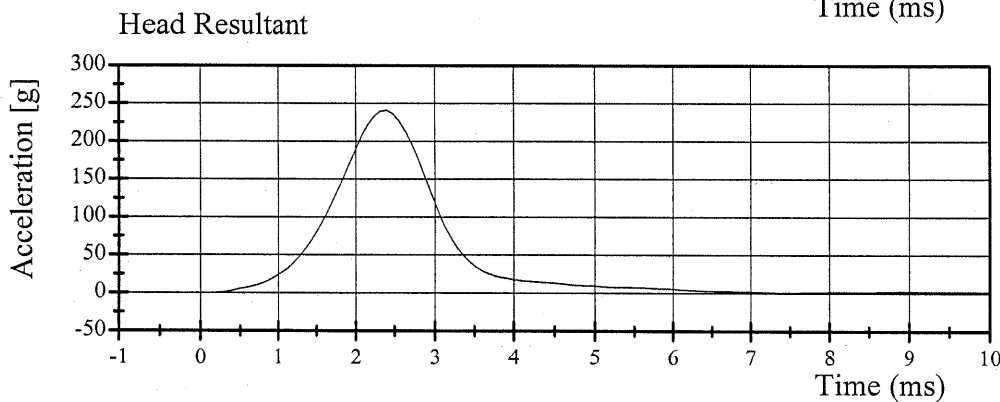
Min: -0.6 g at 7.7 ms



Filter Class: 1000

Max: 120.5 g at 2.4 ms

Min: 0.0 g at 0.0 ms



Filter Class: 1000

Max: 241.2 g at 2.4 ms

Min: 0.0 g at 1.4 ms

04.24.2003 10:49:10 610



Transportation Research Center Inc.

572E Neck Flexion Test - 6 Channel Transducer

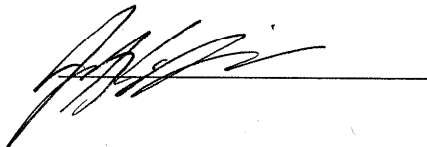
HHH 50th Male Serial No. 168 Calibration No. 20 - 1

Test Date 04/24/2003

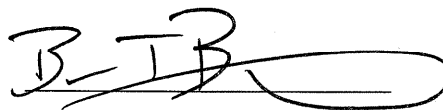
Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.1 °C	Yes
Relative Humidity	10 - 70 %	20 %	Yes
Impact Velocity	6.89 - 7.13 m/s	7.01 m/s	Yes
Pendulum Deceleration			
10 ms	22.50 - 27.50 g	24.62 g	Yes
20 ms	17.60 - 22.60 g	21.50 g	Yes
30 ms	12.50 - 18.50 g	17.05 g	Yes
Max Pendulum Deceleration	29.00 g	25.93 g	Yes
Max Pendulum Deceleration After 30 ms	29.00 g	16.97 g	Yes
Deceleration-Time Curve Decay Time To 5g	34 - 42 ms	36.48 ms	Yes
D Plane Rotation			
Max	64 - 78 °	70.21 °	Yes
Time	57 - 64 ms	57.68 ms	Yes
Moment About Occipital Condyle			
Max	88.1 - 108.5 N·m	94.70 N·m	Yes
Time	47 - 58 ms	49.36 ms	Yes
Rotation Angle-Time Curve Decay Time To Zero	113 - 128 ms	114.32 ms	Yes
Positive Moment-Time Curve Decay Time To Zero	97 - 107 ms	99.84 ms	Yes

Comments:

Technician



Approved



04.24.2003 11:16:54 493



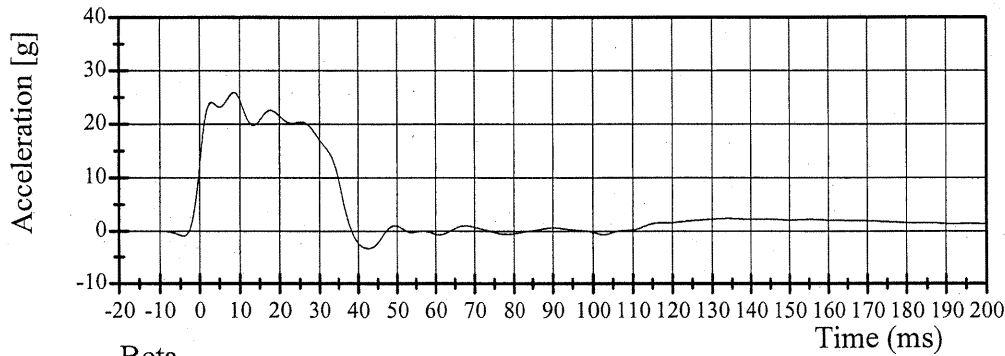
Transportation Research Center Inc.

572E Neck Flexion Test

HIII 50th Male Serial No. 168 Calibration No. 20 - 1

Test Date 04/24/2003

Pendulum Deceleration

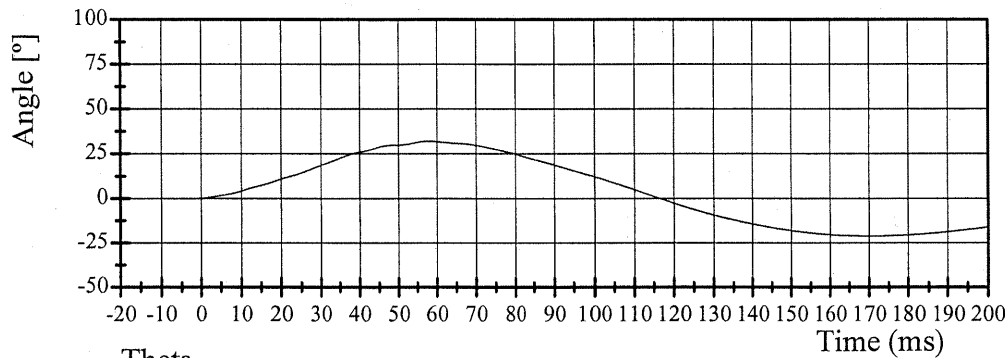


Filter Class: 60

Max: 25.9 g at 8.6 ms

Min: -3.2 g at 42.6 ms

Beta

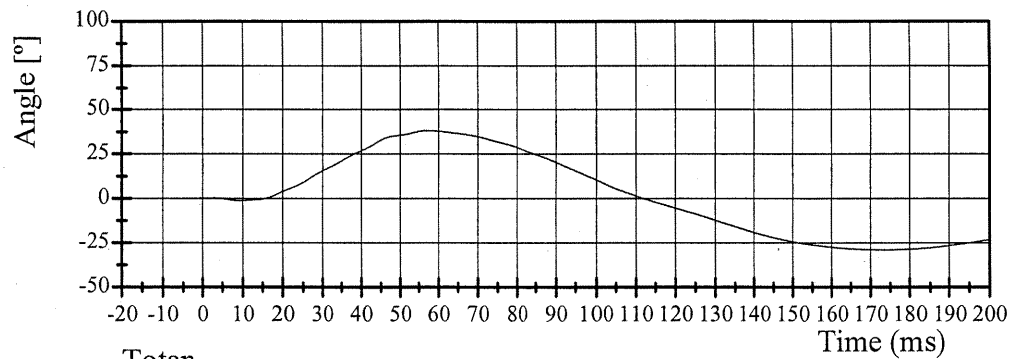


Filter Class: 60

Max: 32.0 ° at 57.8 ms

Min: -21.1 ° at 170.4 ms

Theta

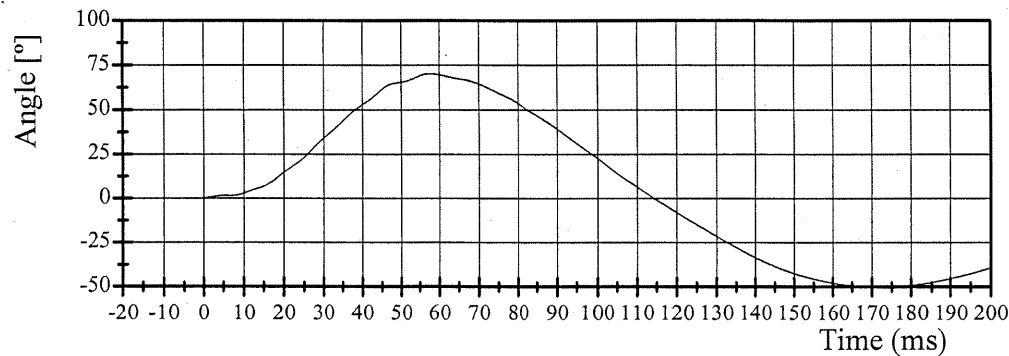


Filter Class: 60

Max: 38.2 ° at 57.5 ms

Min: -29.0 ° at 173.9 ms

Totan



Filter Class: 60

Max: 70.2 ° at 57.7 ms

Min: -50.0 ° at 172.9 ms

04.24.2003 11:16:55 493

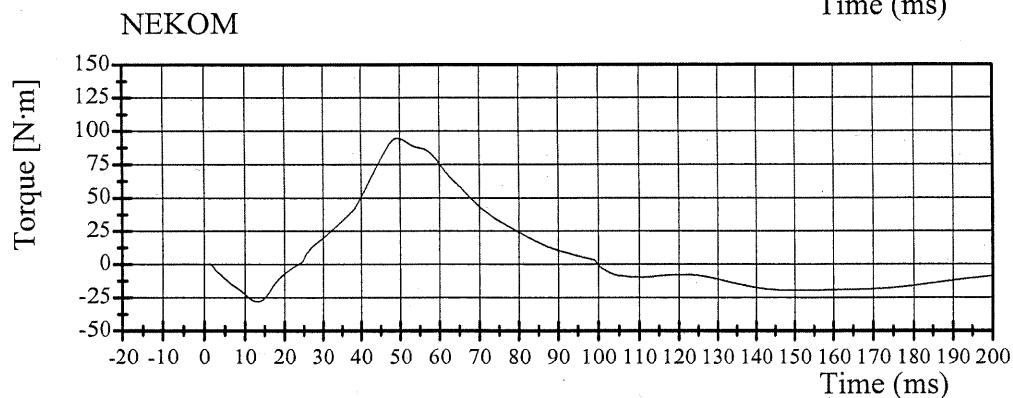
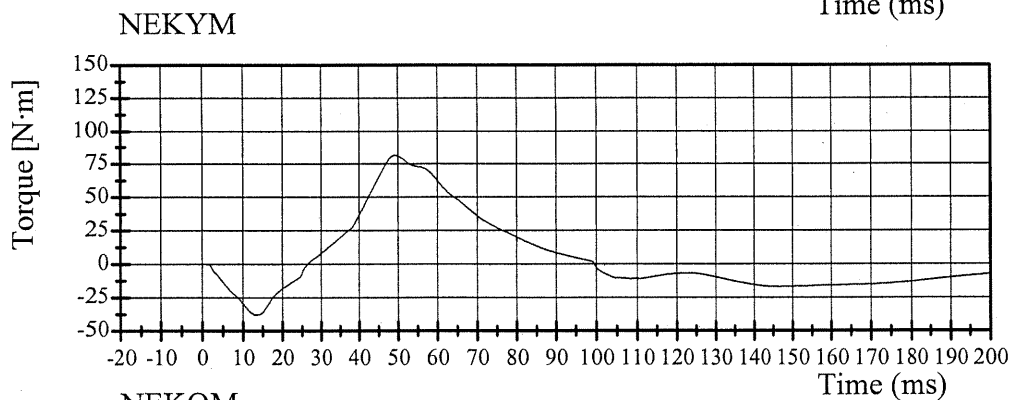
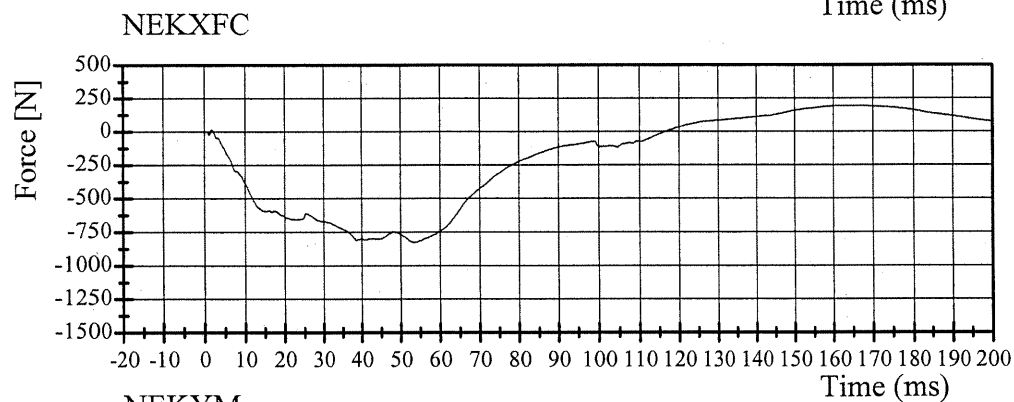
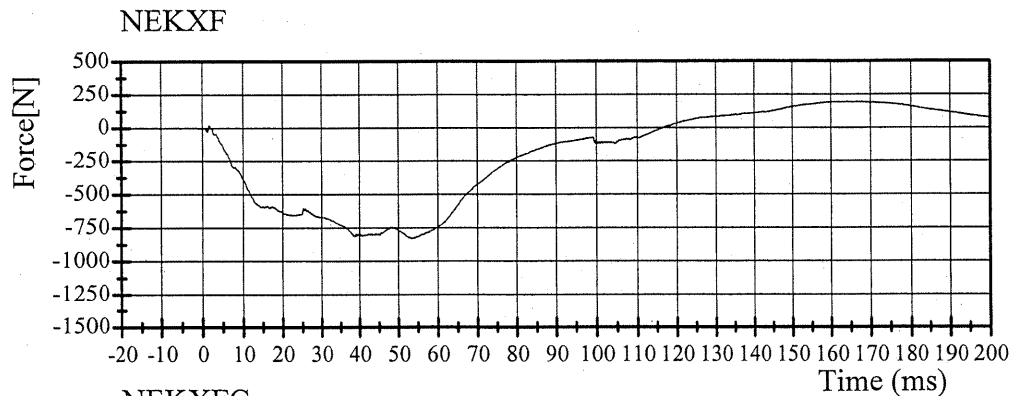


Transportation Research Center Inc.

572E Neck Flexion Test

HIII 50th Male Serial No. 168 Calibration No. 20 - 1

Test Date 04/24/2003



04.24.2003 11:16:56 493



Transportation Research Center Inc.

572E Neck Extension Test - 6 Channel Transducer

HIH 50th Male Serial No. 168 Calibration No. 20 - 1

Test Date 04/24/2003

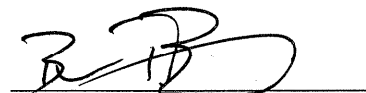
Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.1 °C	Yes
Relative Humidity	10 - 70 %	19 %	Yes
Impact Velocity	5.95 - 6.19 m/s	6.02 m/s	Yes
Pendulum Deceleration			
10 ms	17.20 - 21.20 g	18.10 g	Yes
20 ms	14.00 - 19.00 g	17.14 g	Yes
30 ms	11.00 - 16.00 g	14.17 g	Yes
Max Pendulum Deceleration	22.00 g	18.42 g	Yes
Max Pendulum Deceleration After 30 ms	22.00 g	14.13 g	Yes
Deceleration-Time Curve Decay Time To 5g	38 - 46 ms	41.68 ms	Yes
D Plane Rotation			
Max	81 - 106 °	92.69 °	Yes
Time	72 - 82 ms	75.60 ms	Yes
Moment About Occipital Condyle			
Min	-80.0 - (-52.9) N·m	-68.19 N·m	Yes
Time	65 - 79 ms	71.36 ms	Yes
Rotation Angle-Time Curve Decay Time To Zero	147 - 174 ms	152.08 ms	Yes
Negative Moment-Time Curve Decay Time To Zero	120 - 148 ms	141.36 ms	Yes

Comments:

Technician



Approved



04.24.2003 12:09:51 574



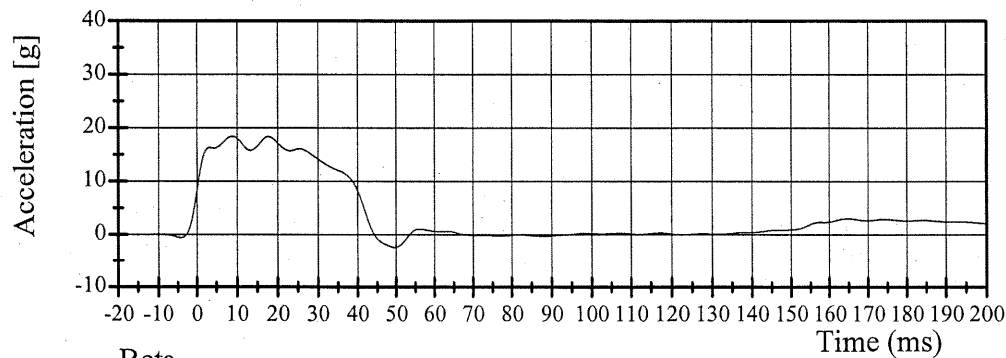
Transportation Research Center Inc.

572E Neck Extension Test

HIH 50th Male Serial No. 168 Calibration No. 20 - 1

Test Date 04/24/2003

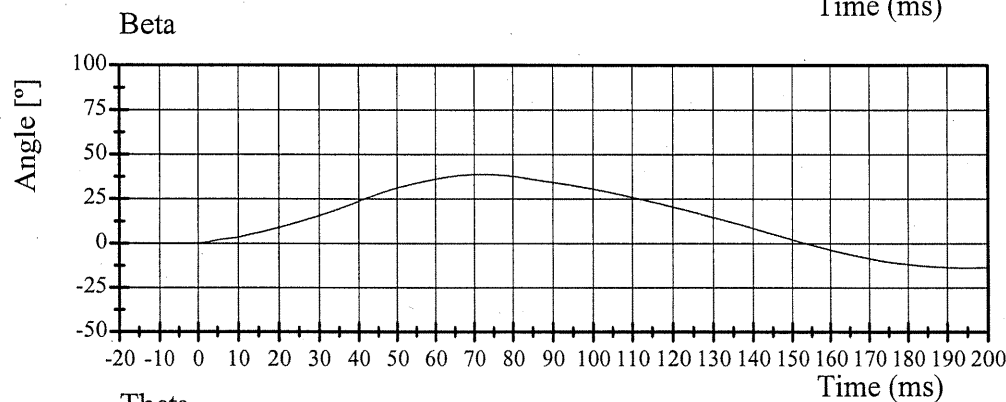
Pendulum Deceleration



Filter Class: 60

Max: 18.4 g at 8.9 ms

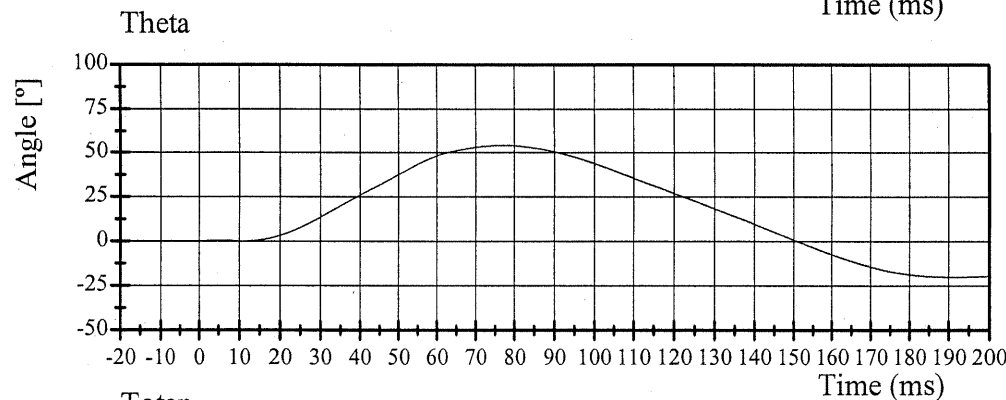
Min: -2.4 g at 49.6 ms



Filter Class: 60

Max: 38.8 ° at 72.4 ms

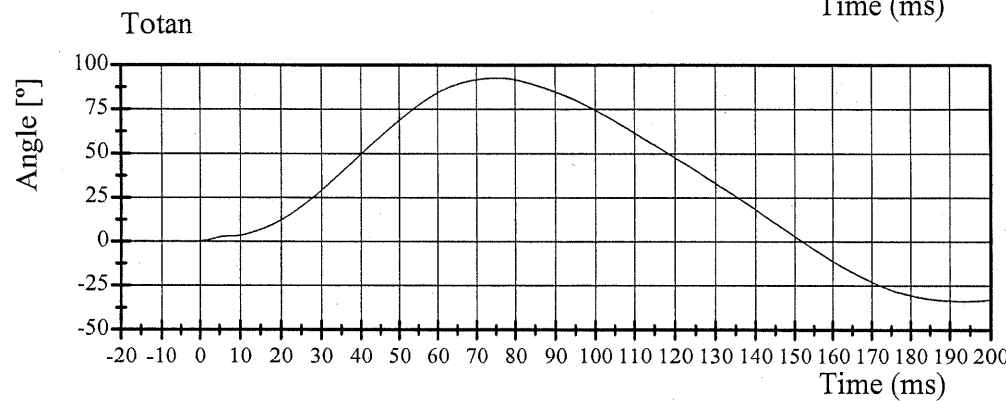
Min: -13.7 ° at 194.6 ms



Filter Class: 60

Max: 54.1 ° at 77.4 ms

Min: -20.1 ° at 191.8 ms



Filter Class: 60

Max: 92.7 ° at 75.6 ms

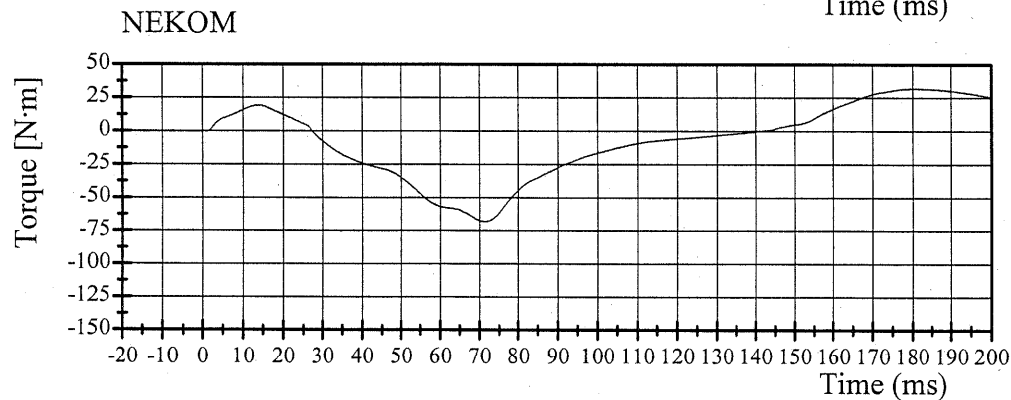
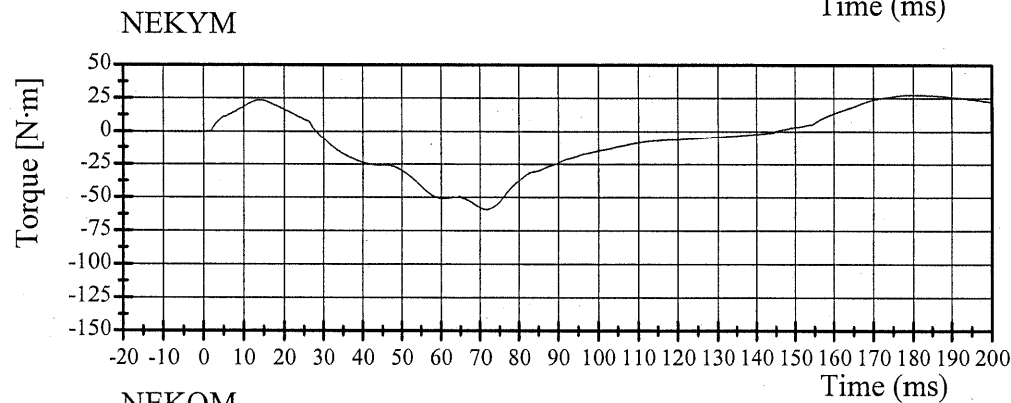
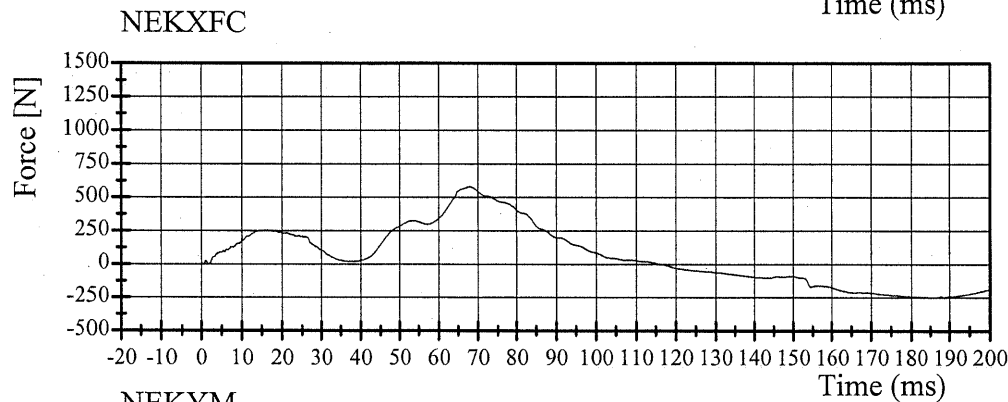
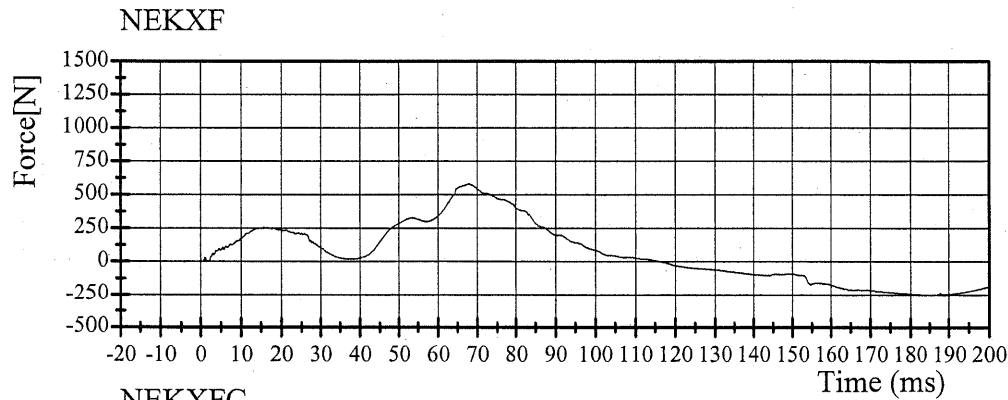
Min: -33.8 ° at 193.2 ms

Transportation Research Center Inc.

572E Neck Extension Test

HIII 50th Male Serial No. 168 Calibration No. 20 - 1

Test Date 04/24/2003



04.24.2003 12:09:53 574



Transportation Research Center Inc.

572E Thorax Test

HIII 50th Male Serial No. 168 Calibration No. 20 - 1

Test Date 04/24/2003

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.1 °C	Yes
Relative Humidity	10 - 70 %	20 %	Yes
Pendulum Velocity	6.59 - 6.83 m/s	6.63 m/s	Yes
Maximum Chest Deflection	-72.6 - (-63.5) mm	-70.1 mm	Yes
Maximum Resistive Force	5160 - 5894 N	5641 N	Yes
Internal Hysteresis	69 - 85 %	70 %	Yes

Comments:

Technician



Approved



04.24.2003 08:52:27 970



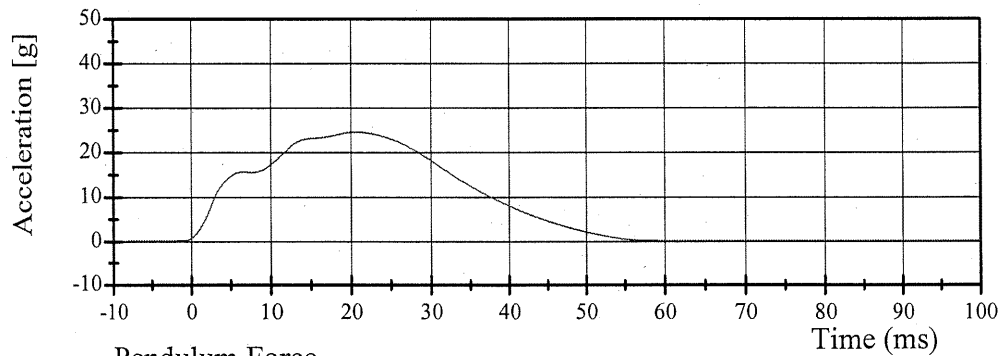
Transportation Research Center Inc.

572E Thorax Test

HIH 50th Male Serial No. 168 Calibration No. 20 - 1

Test Date 04/24/2003

Pendulum Deceleration

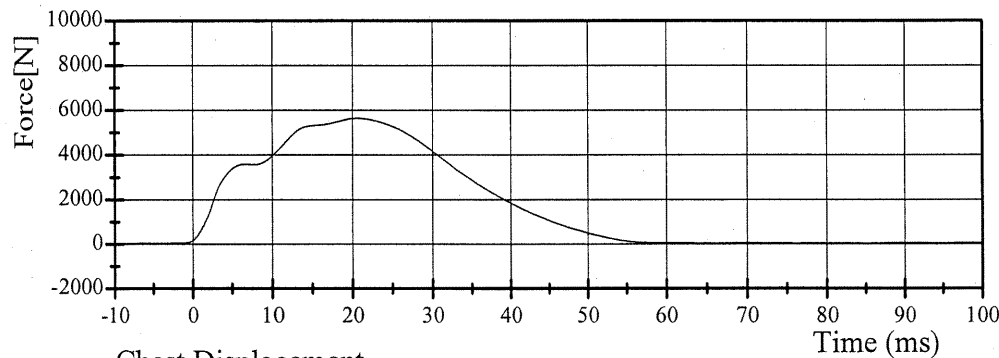


Filter Class: 180

Max: 24.6 g at 20.7 ms

Min: -0.1 g at -77.5 ms

Pendulum Force

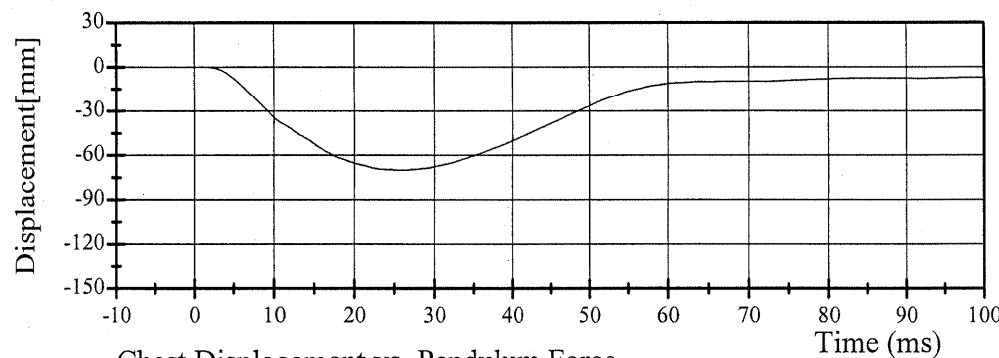


Filter Class: 180

Max: 5641.4 N at 20.7 ms

Min: -14.2 N at -77.5 ms

Chest Displacement

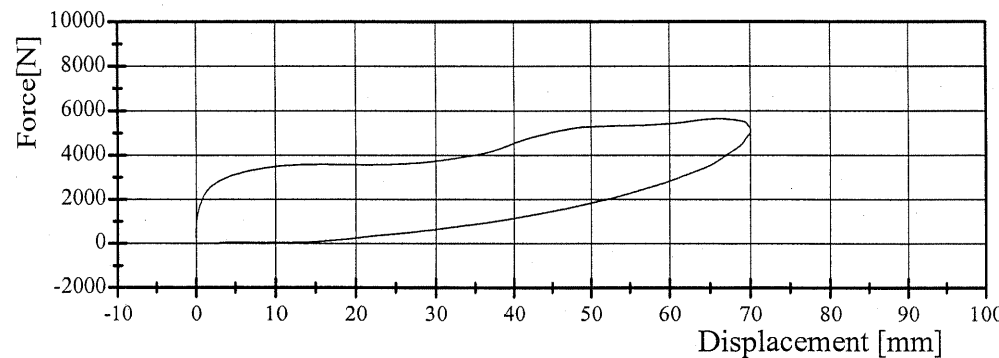


Filter Class: 180

Max: 0.0 mm at 0.9 ms

Min: -70.1 mm at 26.0 ms

Chest Displacement vs. Pendulum Force



04.24.2003 08:52:28 970



Transportation Research Center Inc

Hybrid III Hip Range of Motion

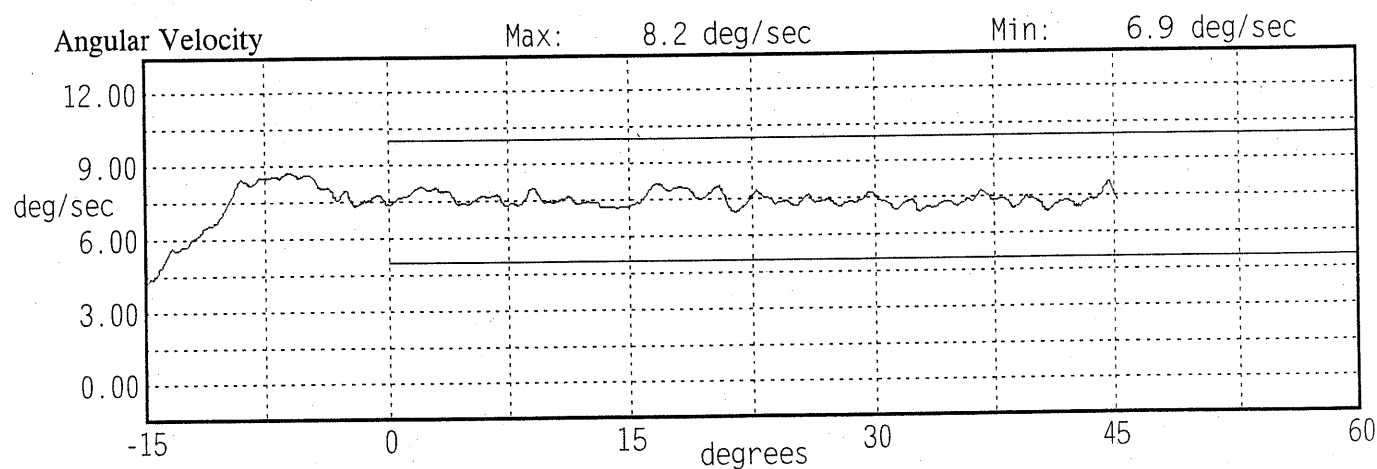
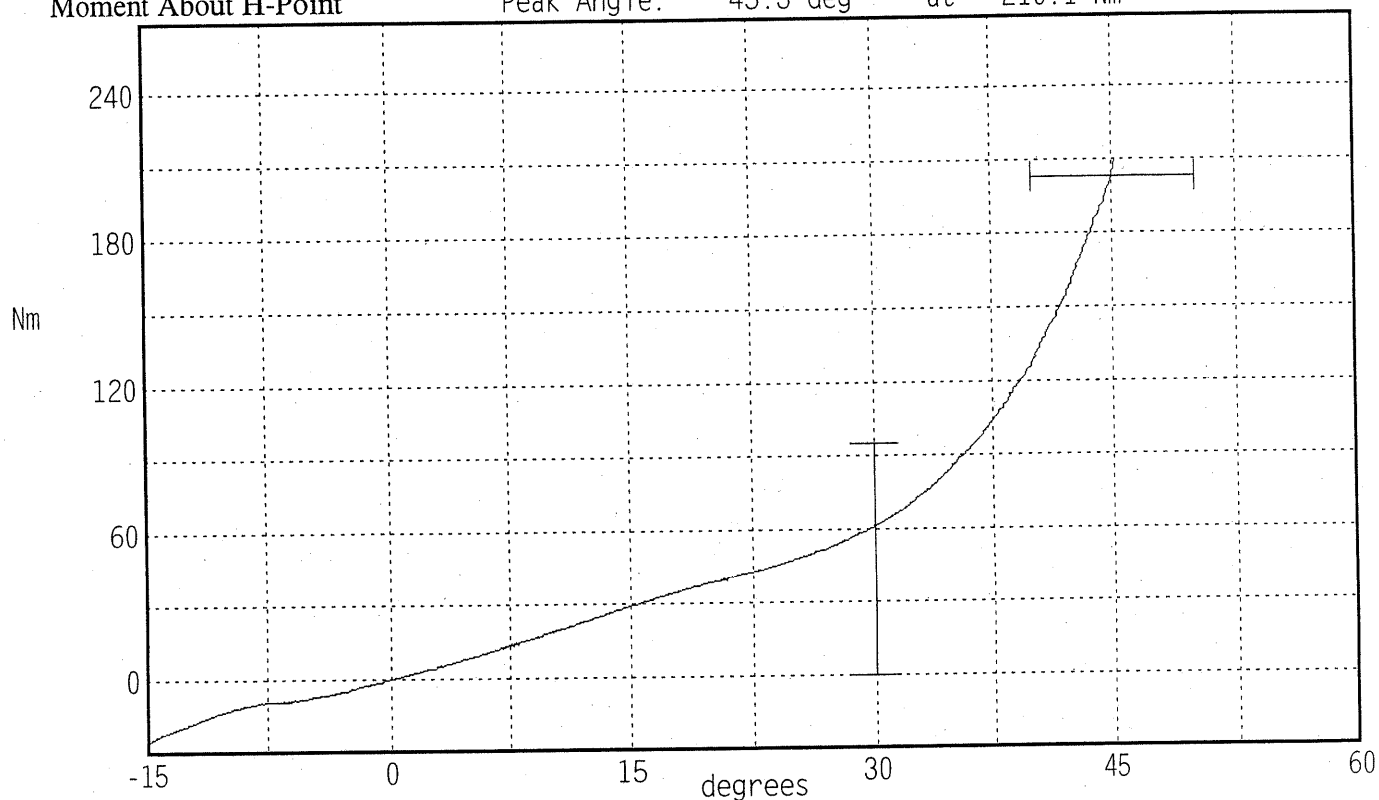
Serial Number: 168L
Test Number: 168C20

Date: 04/24/2003
Time: 09:12

Comments:

TEST PARAMETER	SPECIFICATION	TEST RESULTS	
Temperature	18.9 - 25.6	21.1 °C	Pass
Humidity	10 - 70	20 %	Pass
Moment at 30 deg	<= 94.9	61.5 Nm	Pass
Angle at 203 Nm	40.0 - 50.0	45.0 deg	Pass
Average Velocity	5.0 - 10.0	7.4 deg/sec	Pass

Moment About H-Point
Peak Moment: 210.1 Nm at 45.3 deg
Peak Angle: 45.3 deg at 210.1 Nm



Transportation Research Center Inc

Hybrid III Hip Range of Motion

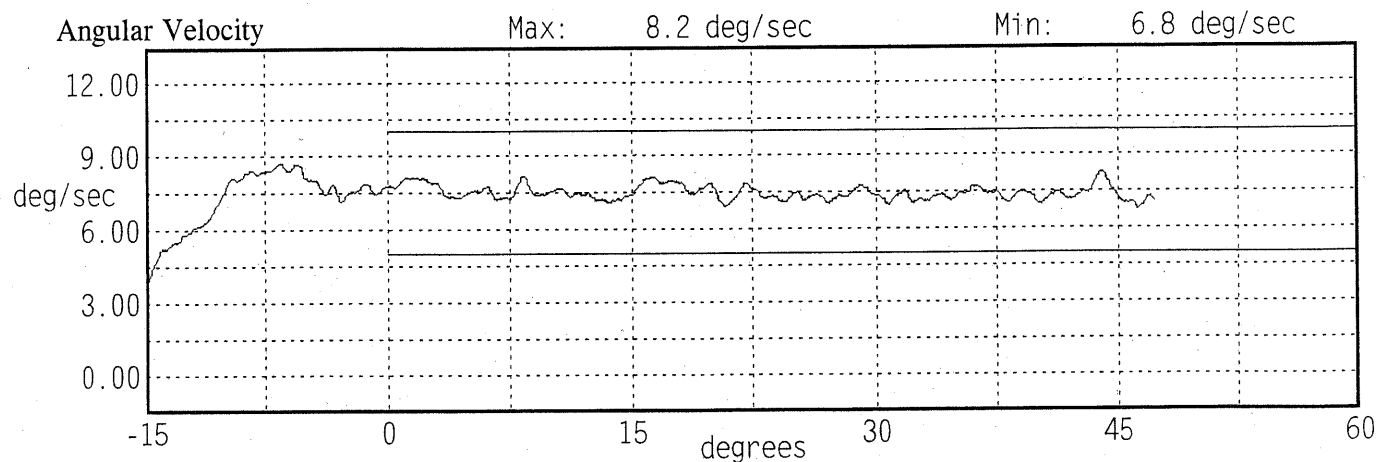
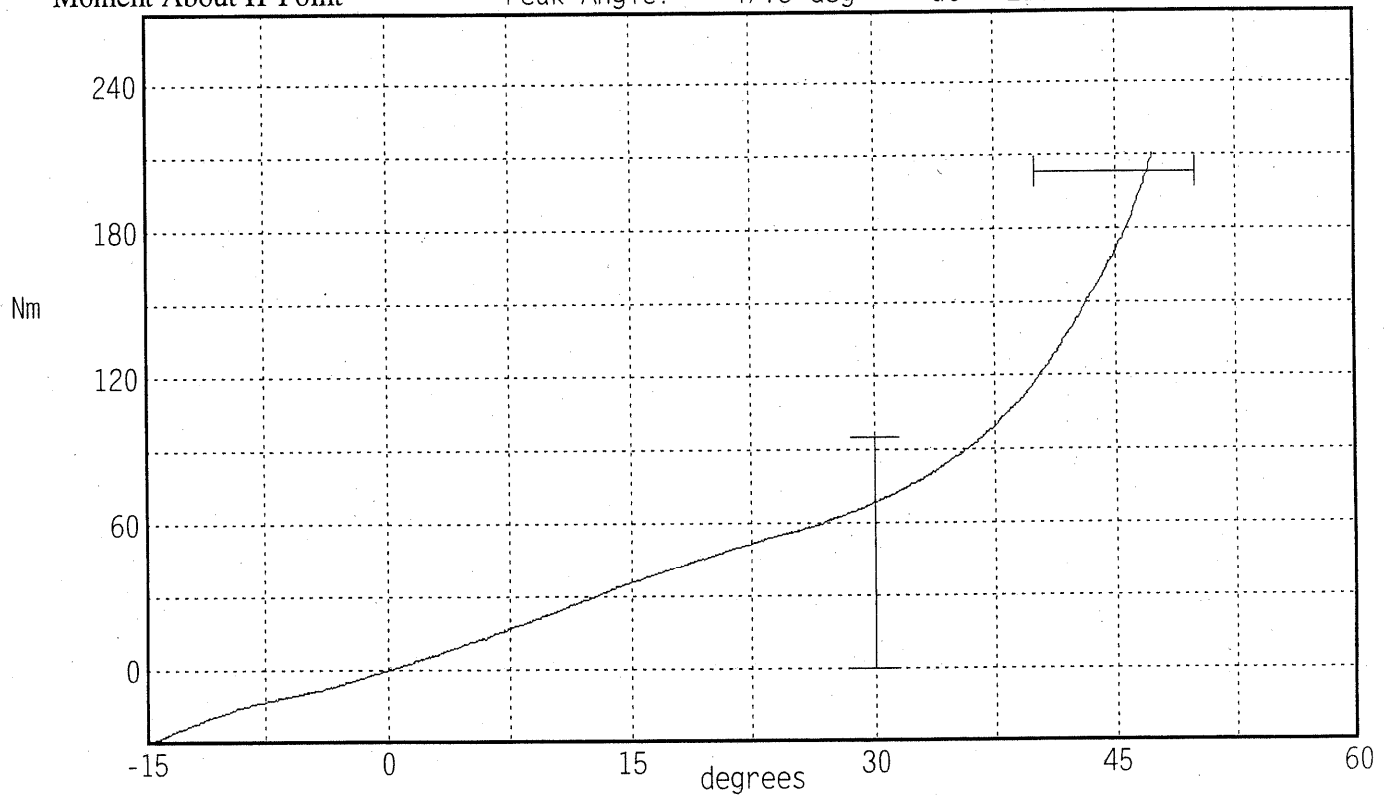
Serial Number: 168R
Test Number: 168C20

Date: 04/24/2003
Time: 09:01

Comments:

TEST PARAMETER	SPECIFICATION	TEST RESULTS	
Temperature	18.9 - 25.6	21.1 °C	Pass
Humidity	10 - 70	20 %	Pass
Moment at 30 deg	<= 94.9	68.7 Nm	Pass
Angle at 203 Nm	40.0 - 50.0	47.0 deg	Pass
Average Velocity	5.0 - 10.0	7.4 deg/sec	Pass

Moment About H-Point
Peak Moment: 210.6 Nm at 47.3 deg
Peak Angle: 47.3 deg at 210.6 Nm



Transportation Research Center Inc.

572E Left Knee Slider Test

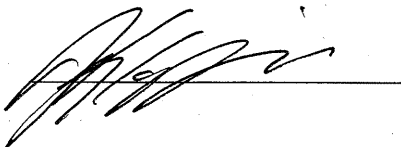
HIII 50th Male Serial No. 168 Calibration No. 20 - 1

Test Date 04/24/2003

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.5 °C	21.1 °C	Yes
Relative Humidity	10 - 70 %	19 %	Yes
Pendulum Velocity	2.70 - 2.80 m/s	2.74 m/s	Yes
Force At 10 mm Displacement	-1259 - (-1721) N	-1620 N	Yes
Force At 18 mm Displacement	-2268 - (-3096) N	-3079 N	Yes

Comments:

Technician



Approved



04.24.2003 13:33:30 830

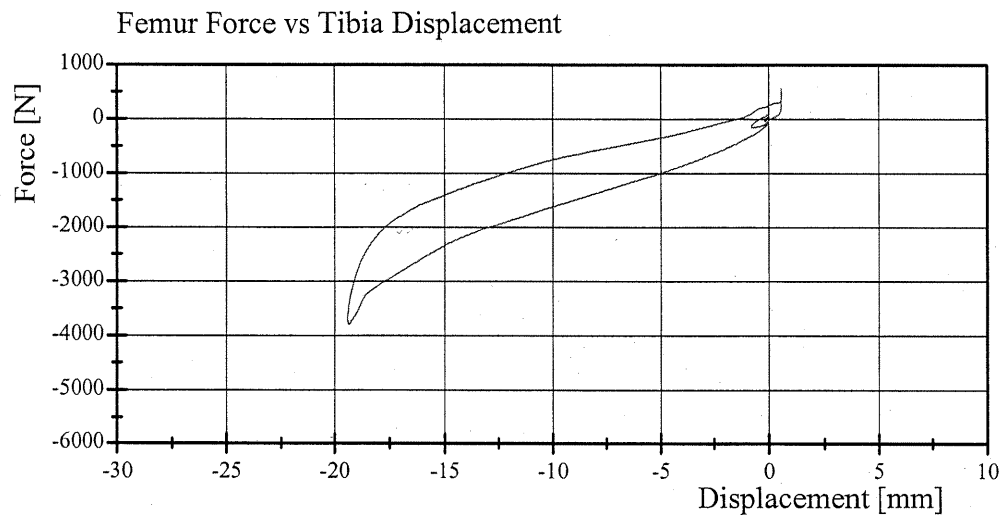
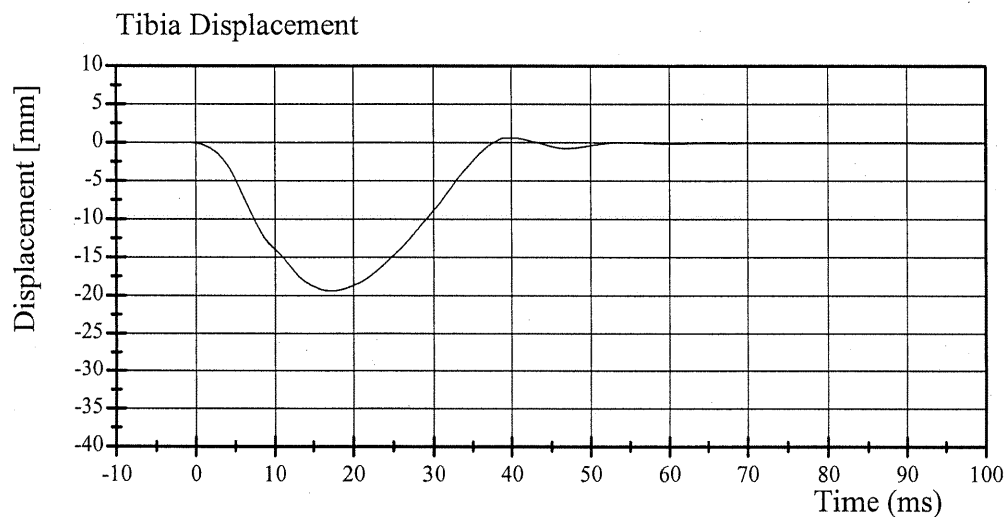
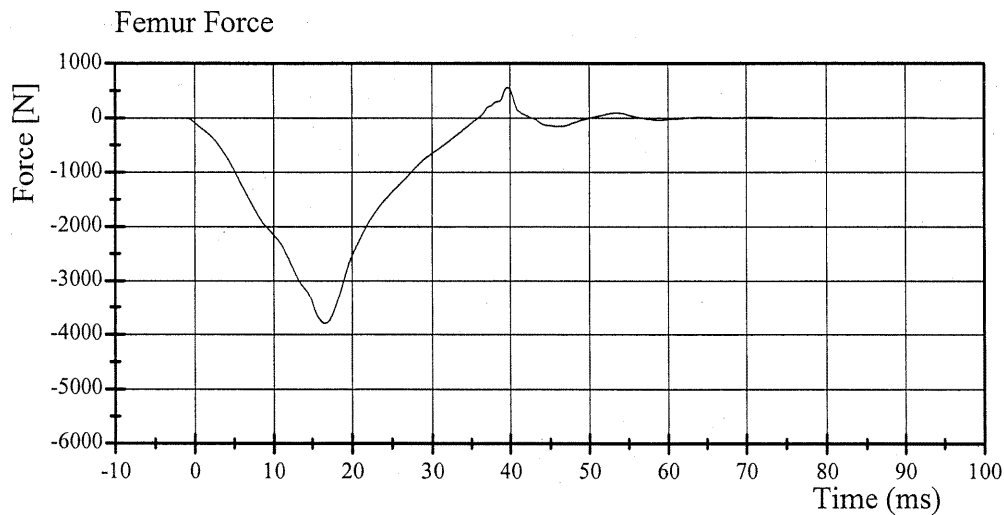


Transportation Research Center Inc.

572E Left Knee Slider Test

HIII 50th Male Serial No. 168 Calibration No. 20 - 1

Test Date 04/24/2003



04.24.2003 13:33:31 830



Transportation Research Center Inc.

572E Right Knee Slider Test

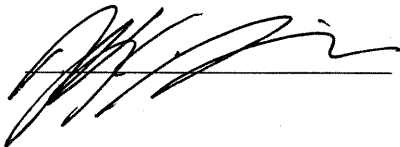
HIII 50th Male Serial No. 168 Calibration No. 20 - 1

Test Date 04/24/2003

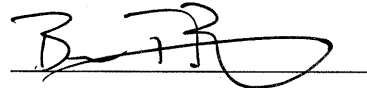
Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.5 °C	21.1 °C	Yes
Relative Humidity	10 - 70 %	19 %	Yes
Pendulum Velocity	2.70 - 2.80 m/s	2.74 m/s	Yes
Force At 10 mm Displacement	-1259 - (-1721) N	-1575 N	Yes
Force At 18 mm Displacement	-2268 - (-3096) N	-2856 N	Yes

Comments:

Technician



Approved



04.24.2003 14:45:01 832



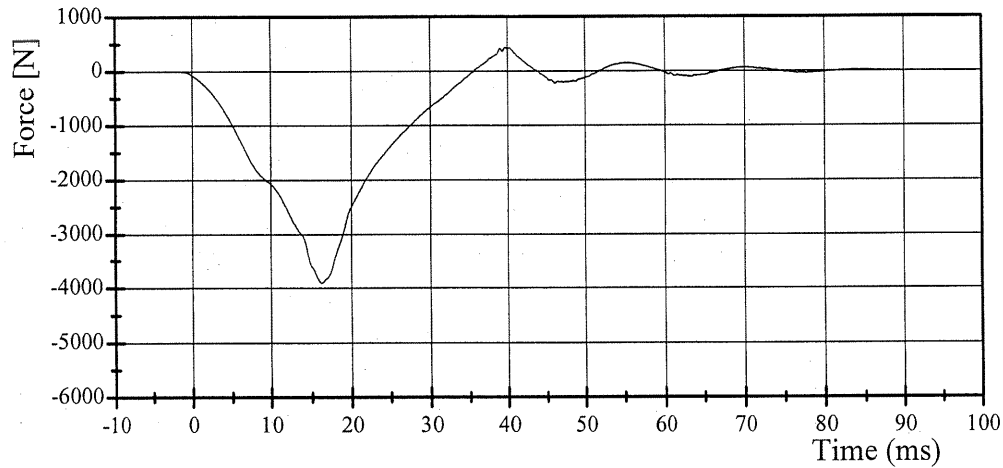
Transportation Research Center Inc.

572E Right Knee Slider Test

HIII 50th Male Serial No. 168 Calibration No. 20 - 1

Test Date 04/24/2003

Femur Force

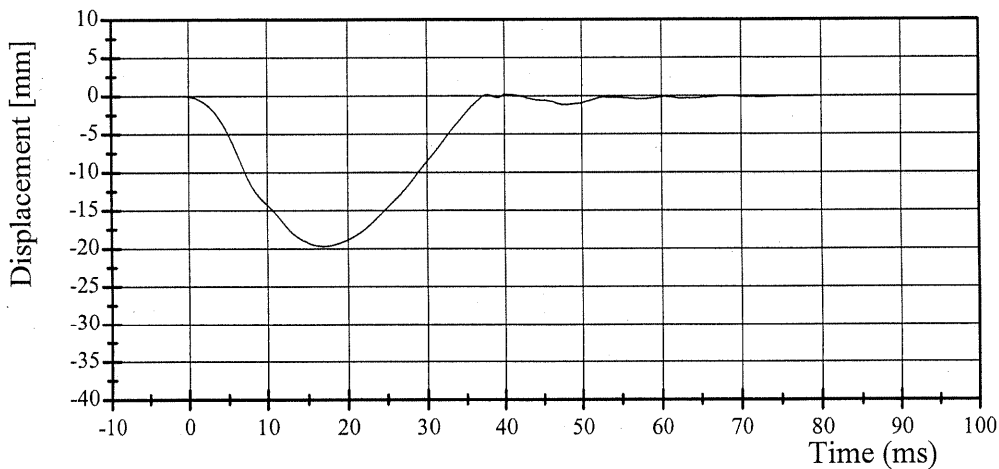


Filter Class: 600

Max: 433.0 N at 39.7 ms

Min: -3909.2 N at 16.2 ms

Tibia Displacement

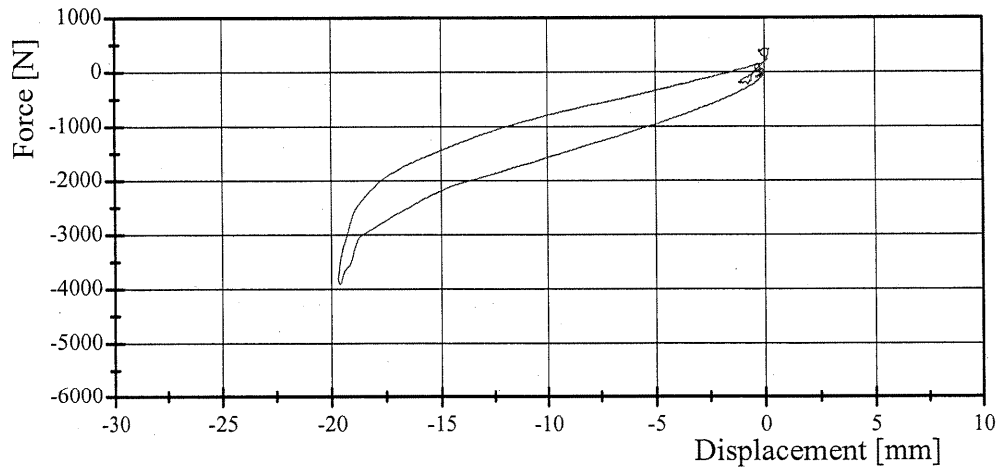


Filter Class: 600

Max: 0.2 mm at 40.1 ms

Min: -19.7 mm at 17.0 ms

Femur Force vs Tibia Displacement



04.24.2003 14:45:02 832



Transportation Research Center Inc.

572E Left Knee Test

HIH 50th Male Serial No. 168 Calibration No. 20 - 1

Test Date 04/24/2003

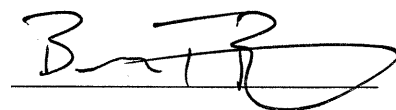
Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.6 °C	21.1 °C	Yes
Relative Humidity	10 - 70 %	19 %	Yes
Pendulum Velocity	2.07 - 2.13 m/s	2.10 m/s	Yes
Maximum Pendulum Force	4715 - 5783 N	5261 N	Yes

Comments:

Technician



Approved



04.24.2003 15:12:53 2187



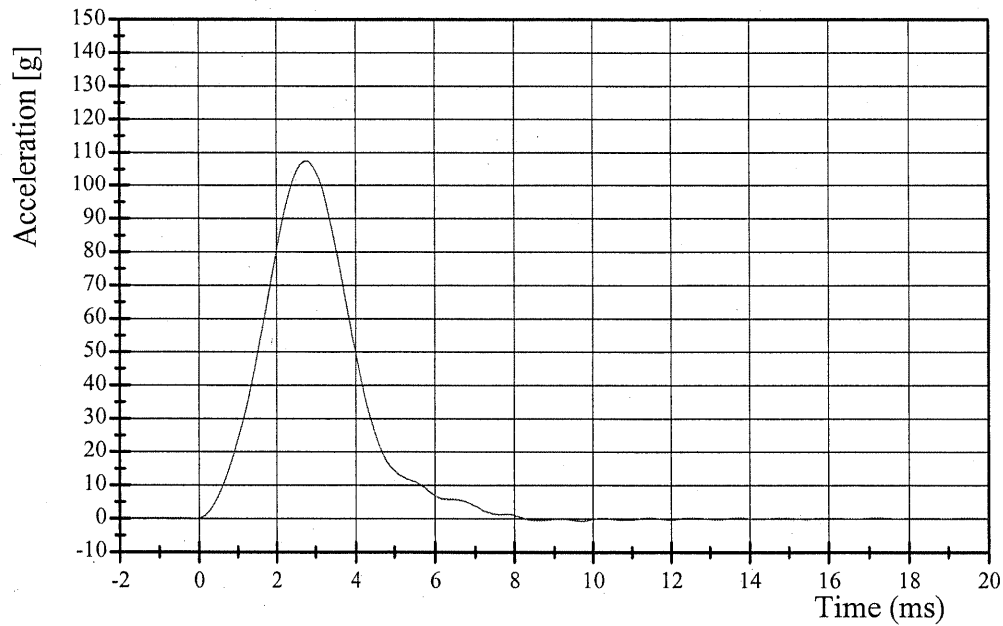
Transportation Research Center Inc.

572E Left Knee Test

HIII 50th Male Serial No. 168 Calibration No. 20 - 1

Test Date 04/24/2003

Pendulum Deceleration

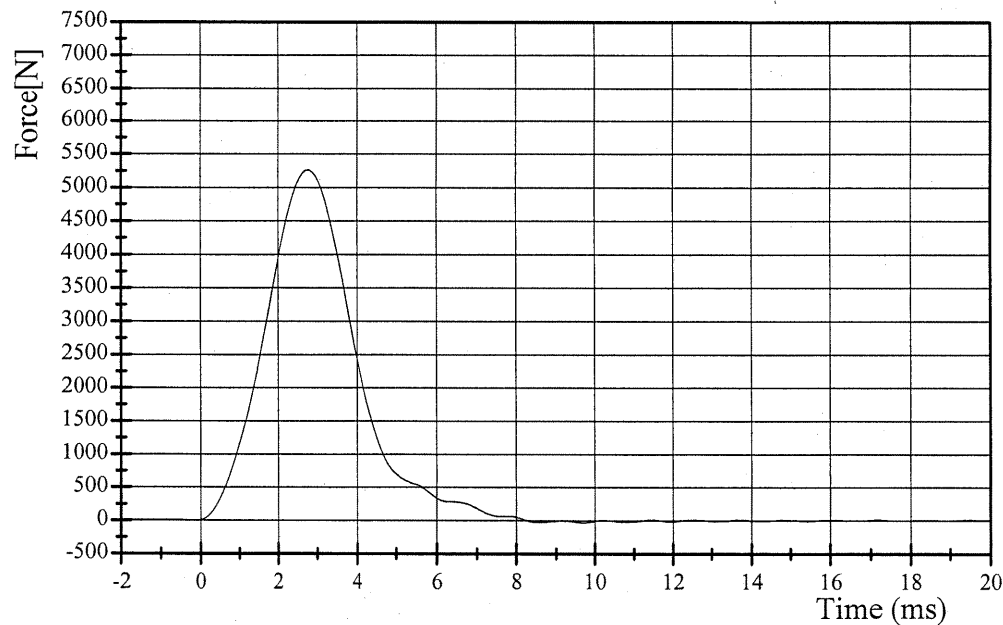


Filter Class: 600

Max: 107.5 g at 2.8 ms

Min: -0.7 g at 9.7 ms

Pendulum Force



Filter Class: 600

Max: 5260.7 N at 2.8 ms

Min: -33.1 N at 9.7 ms

04.24.2003 15:12:54 2187



Transportation Research Center Inc.

572E Right Knee Test

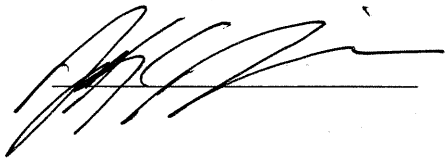
HHI 50th Male Serial No. 168 Calibration No. 20 - 1

Test Date 04/24/2003

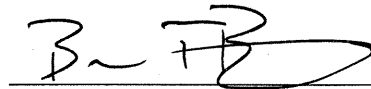
Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.6 °C	21.1 °C	Yes
Relative Humidity	10 - 70 %	19 %	Yes
Pendulum Velocity	2.07 - 2.13 m/s	2.10 m/s	Yes
Maximum Pendulum Force	4715 - 5783 N	4912 N	Yes

Comments:

Technician



Approved



04.24.2003 15:05:04 2189



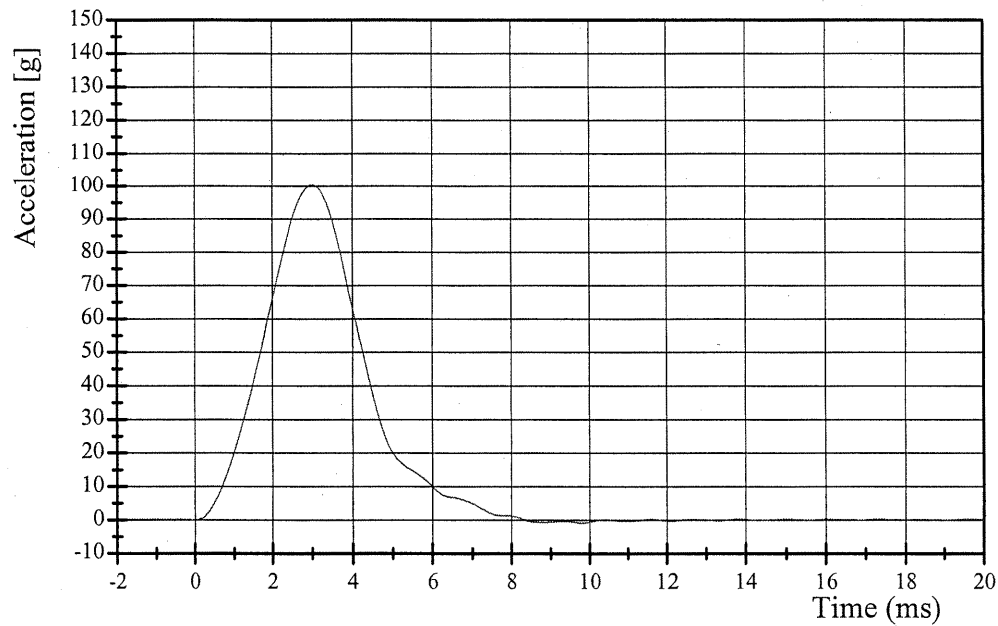
Transportation Research Center Inc.

572E Right Knee Test

HIII 50th Male Serial No. 168 Calibration No. 20 - 1

Test Date 04/24/2003

Pendulum Deceleration

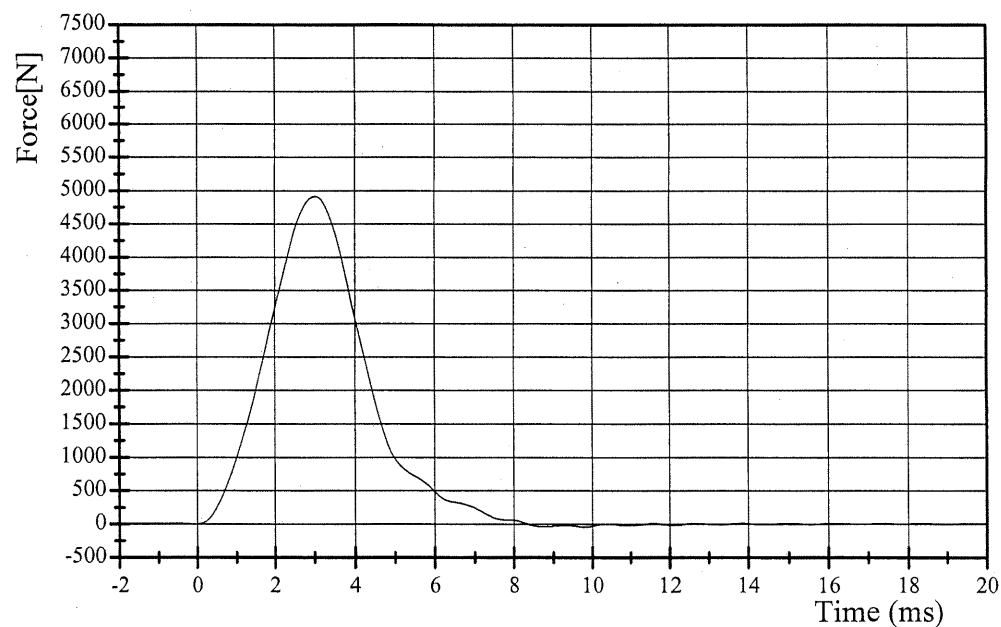


Filter Class: 600

Max: 100.4 g at 3.0 ms

Min: -0.9 g at 9.8 ms

Pendulum Force



Filter Class: 600

Max: 4912.5 N at 3.0 ms

Min: -42.0 N at 9.8 ms

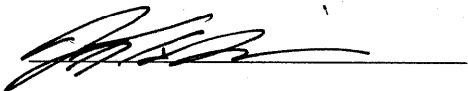
Pre-Test Dummy Configuration and Performance Verification Data

Bullet Vehicle Driver Dummy S/N: 169

Transportation Research Center Inc.
572E HIII 50th Male Dummy
External Dimensions
Serial No. 169 Calibration No. 18

Symbol	Description	Specification	Results	Pass
		mm	mm	
A	Total Sitting Height	878.8 - 889.0	880	Yes
B	Shoulder Pivot Height	505.5 - 520.7	518	Yes
C	H-Point Height	83.8 - 88.9	88	Yes
D	H-Point From Seatback	134.6 - 139.7	138	Yes
E	Shoulder Pivot From Backline	83.8 - 94.0	92	Yes
F	Thigh Clearance	139.7 - 154.9	149	Yes
G	Back Of Elbow To Wrist Pivot	289.6 - 304.8	297	Yes
H	Skull Cap To Backline	40.6 - 45.7	43	Yes
I	Shoulder-Elbow Length	330.2 - 345.4	344	Yes
J	Elbow Rest Height	190.5 - 210.8	209	Yes
K	Buttock Knee Length	579.1 - 604.5	594	Yes
L	Popliteal Height	429.3 - 454.7	439	Yes
M	Knee Pivot Height	485.1 - 500.4	493	Yes
N	Buttock Popliteal Length	452.1 - 477.5	477	Yes
O	Chest Depth	213.4 - 228.6	221	Yes
P	Foot Length	251.5 - 266.7	252	Yes
V	Shoulder Breadth	421.6 - 436.9	429	Yes
W	Foot Breadth	91.4 - 106.7	102	Yes
Y	Chest Circumference	970.3 - 1000.8	990	Yes
Z	Waist Circumference	835.7 - 866.1	856	Yes
AA	Location For Chest Circumference	429.3 - 434.3	432	Yes
BB	Location For Waist Circumference	226.1 - 231.1	229	Yes

Technician



Approved



Transportation Research Center Inc.

572E Head Drop Test

HIII 50th Male Serial No. 169 Calibration No. 18 - 1

Test Date 04/30/2003

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.6 °C	21.7 °C	Yes
Relative Humidity	10 - 70 %	35 %	Yes
Peak Resultant Acceleration	225 - 275 g	252.4 g	Yes
Peak Lateral Acceleration	15 g Max	-5.3 g	Yes
Oscillations After Main Pulse	Less Than 10% of Peak Resultant Acceleration?	Yes	Yes

Comments:

Technician



Approved



04.30.2003 10:54:52 616

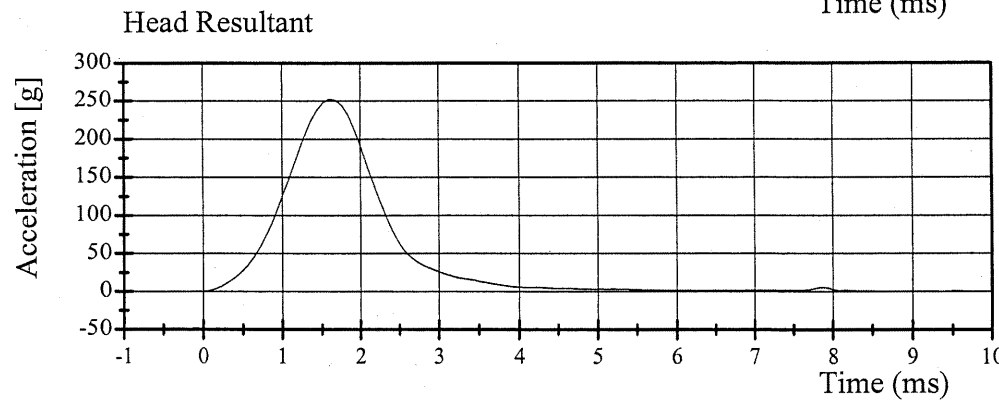
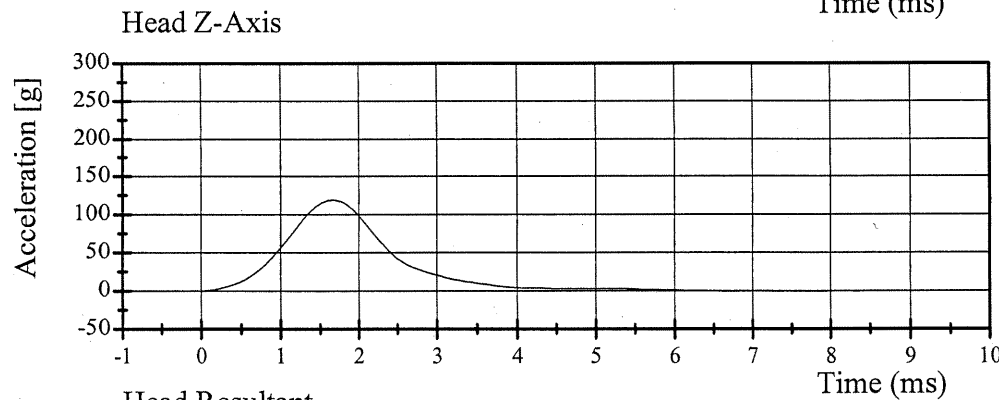
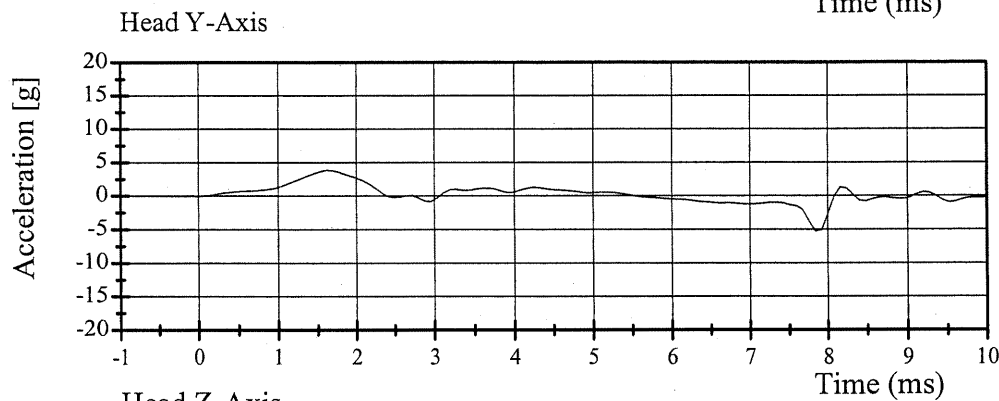
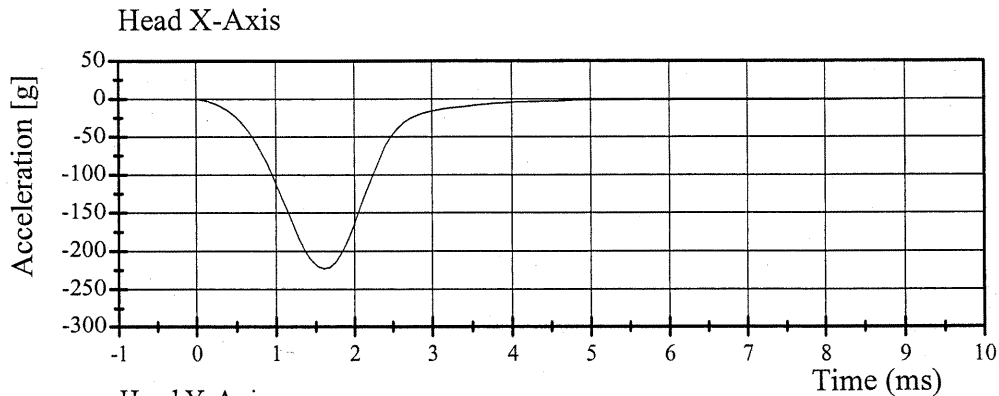


Transportation Research Center Inc.

572E Head Drop Test

HIH 50th Male Serial No. 169 Calibration No. 18 - 1

Test Date 04/30/2003



04.30.2003 10:54:53 616



Transportation Research Center Inc.

572E Neck Flexion Test - 6 Channel Transducer

HIII 50th Male Serial No. 169 Calibration No. 18 - 1

Test Date 05/02/2003

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.7 °C	Yes
Relative Humidity	10 - 70 %	47 %	Yes
Impact Velocity	6.89 - 7.13 m/s	6.97 m/s	Yes
Pendulum Deceleration			
10 ms	22.50 - 27.50 g	26.25 g	Yes
20 ms	17.60 - 22.60 g	21.94 g	Yes
30 ms	12.50 - 18.50 g	18.09 g	Yes
Max Pendulum Deceleration	29.00 g	27.57 g	Yes
Max Pendulum Deceleration After 30 ms	29.00 g	17.98 g	Yes
Deceleration-Time Curve			
Decay Time To 5g	34 - 42 ms	34.24 ms	Yes
D Plane Rotation			
Max	64 - 78 °	71.52 °	Yes
Time	57 - 64 ms	60.00 ms	Yes
Moment About Occipital Condyle			
Max	88.1 - 108.5 N·m	97.91 N·m	Yes
Time	47 - 58 ms	47.12 ms	Yes
Rotation Angle-Time Curve			
Decay Time To Zero	113 - 128 ms	113.36 ms	Yes
Positive Moment-Time Curve			
Decay Time To Zero	97 - 107 ms	100.40 ms	Yes

Comments:

Technician



Approved



05.02.2003 07:49:50 497



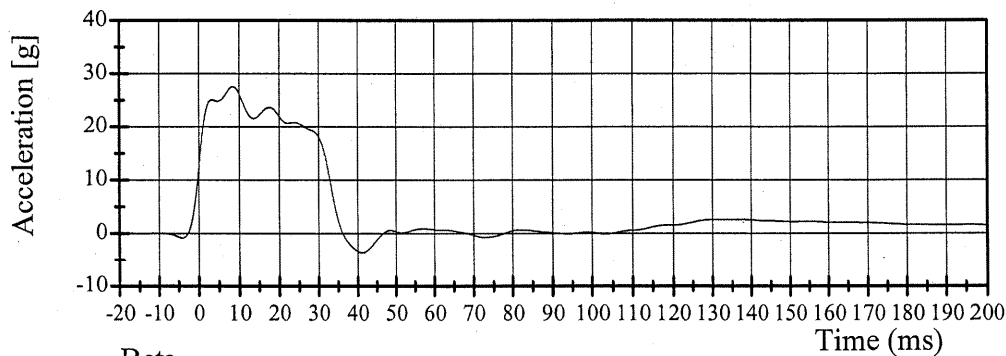
Transportation Research Center Inc.

572E Neck Flexion Test

HIII 50th Male Serial No. 169 Calibration No. 18 - 1

Test Date 05/02/2003

Pendulum Deceleration

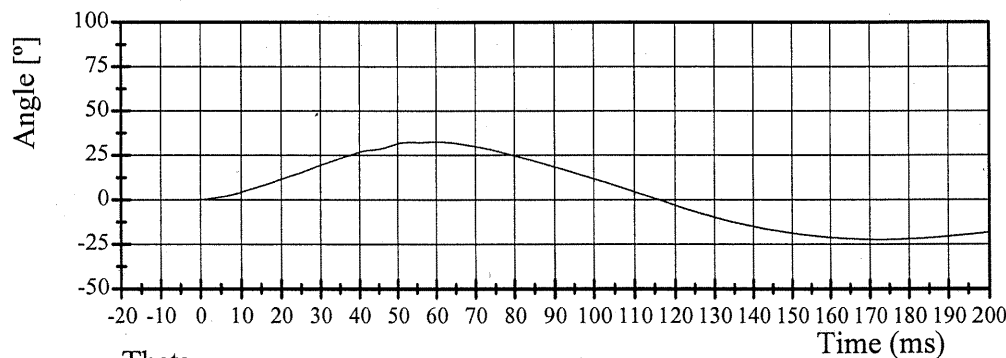


Filter Class: 60

Max: 27.6 g at 8.5 ms

Min: -3.6 g at 41.2 ms

Beta

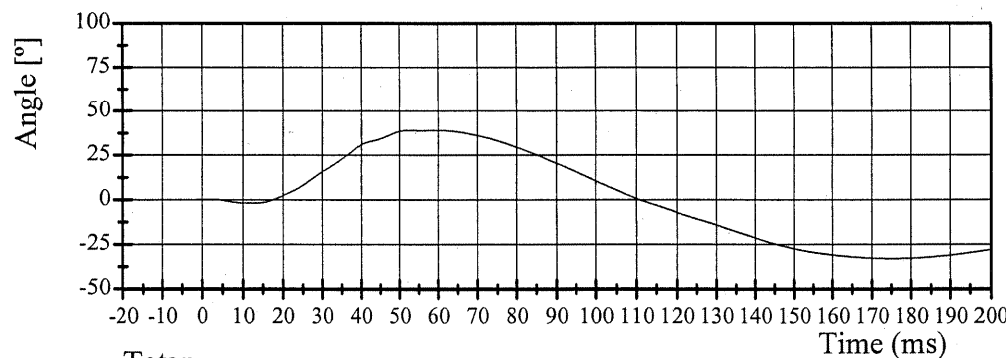


Filter Class: 60

Max: 32.5 ° at 60.4 ms

Min: -22.4 ° at 172.7 ms

Theta

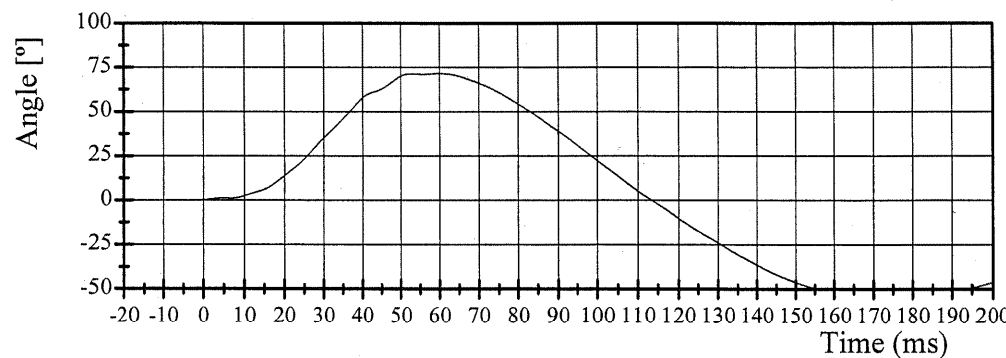


Filter Class: 60

Max: 39.0 ° at 59.5 ms

Min: -32.9 ° at 175.4 ms

Totan



Filter Class: 60

Max: 71.5 ° at 60.0 ms

Min: -55.3 ° at 174.0 ms

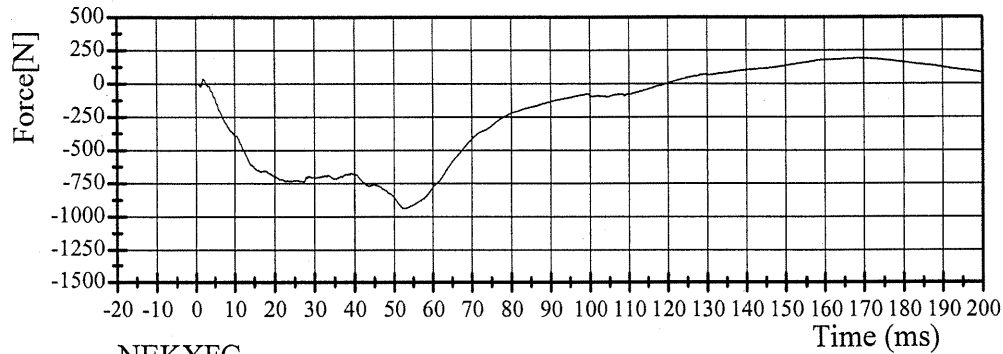
Transportation Research Center Inc.

572E Neck Flexion Test

HIII 50th Male Serial No. 169 Calibration No. 18 - 1

Test Date 05/02/2003

NEKXF

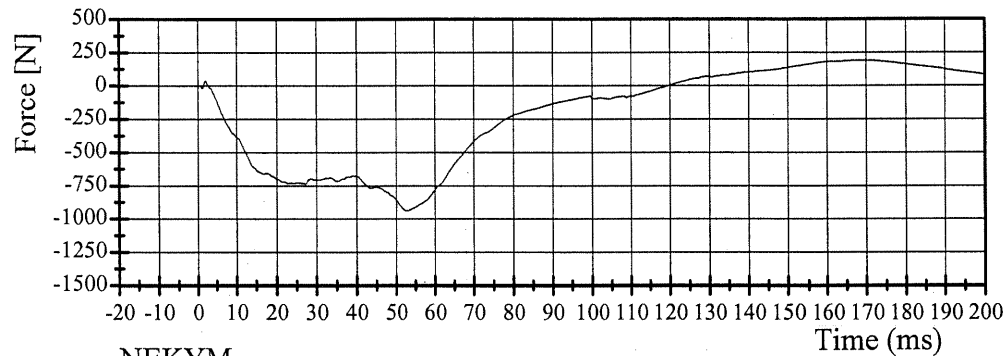


Filter Class: 1000

Max: 190.0 N at 168.9 ms

Min: -938.7 N at 52.9 ms

NEKXFC

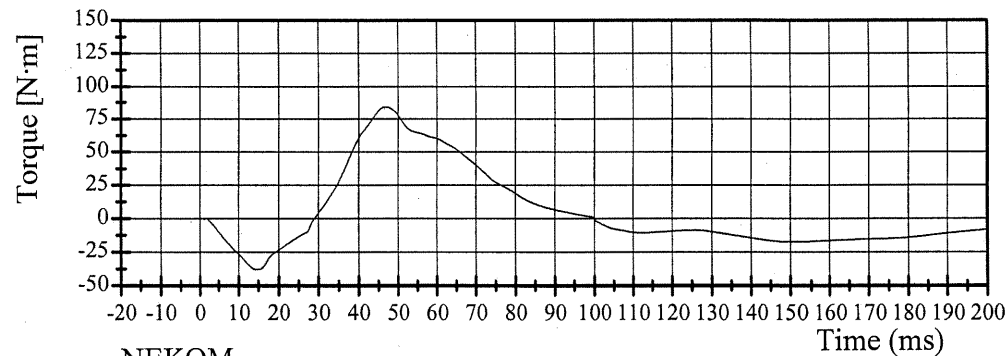


Filter Class: 600

Max: 189.5 N at 169.0 ms

Min: -938.1 N at 52.8 ms

NEKYM

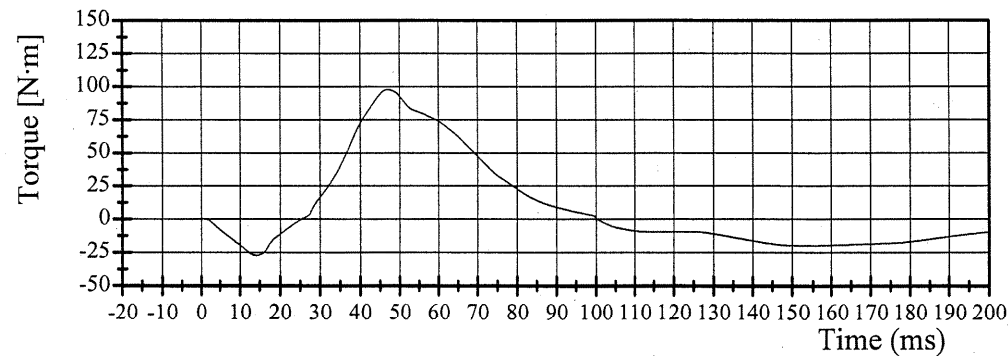


Filter Class: 600

Max: 84.0 N·m at 46.7 ms

Min: -38.0 N·m at 14.5 ms

NEKOM



Filter Class: 600

Max: 97.9 N·m at 47.1 ms

Min: -27.1 N·m at 14.2 ms

Transportation Research Center Inc.

572E Neck Extension Test - 6 Channel Transducer

HIII 50th Male Serial No. 169 Calibration No. 18 - 1

Test Date 05/02/2003

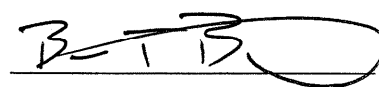
Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.1 °C	Yes
Relative Humidity	10 - 70 %	46 %	Yes
Impact Velocity	5.95 - 6.19 m/s	6.02 m/s	Yes
Pendulum Deceleration			
10 ms	17.20 - 21.20 g	19.28 g	Yes
20 ms	14.00 - 19.00 g	16.56 g	Yes
30 ms	11.00 - 16.00 g	14.47 g	Yes
Max Pendulum Deceleration	22.00 g	19.76 g	Yes
Max Pendulum Deceleration After 30 ms	22.00 g	14.42 g	Yes
Deceleration-Time Curve			
Decay Time To 5g	38 - 46 ms	39.92 ms	Yes
D Plane Rotation			
Max	81 - 106 °	98.85 °	Yes
Time	72 - 82 ms	74.56 ms	Yes
Moment About Occipital Condyle			
Min	-80.0 - (-52.9) N·m	-71.42 N·m	Yes
Time	65 - 79 ms	69.76 ms	Yes
Rotation Angle-Time Curve			
Decay Time To Zero	147 - 174 ms	155.52 ms	Yes
Negative Moment-Time Curve			
Decay Time To Zero	120 - 148 ms	144.88 ms	Yes

Comments:

Technician



Approved



05.02.2003 08:21:19 575



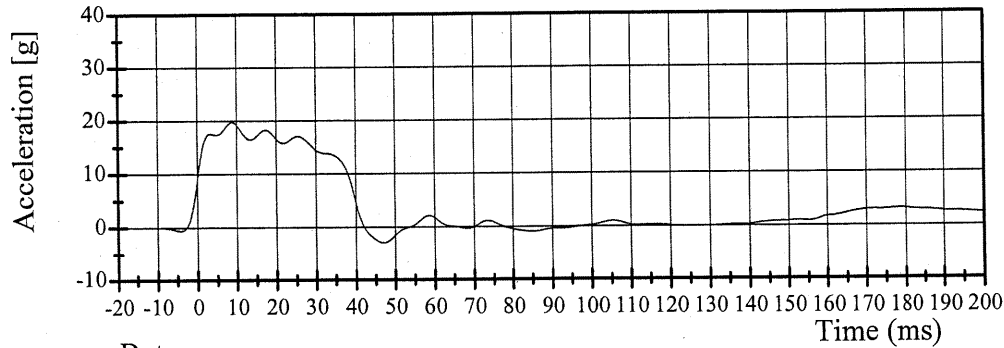
Transportation Research Center Inc.

572E Neck Extension Test

HIII 50th Male Serial No. 169 Calibration No. 18 - 1

Test Date 05/02/2003

Pendulum Deceleration

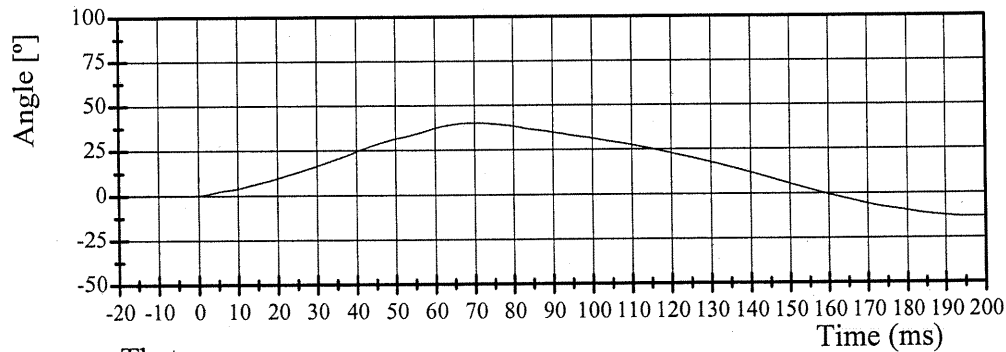


Filter Class: 60

Max: 19.8 g at 8.9 ms

Min: -2.9 g at 47.1 ms

Beta

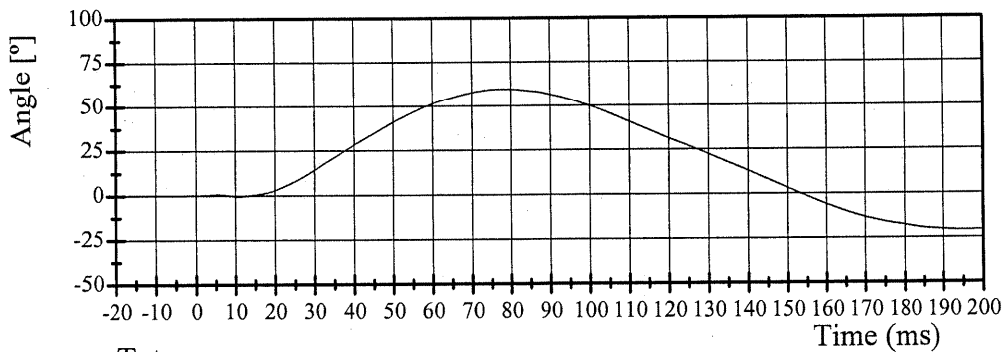


Filter Class: 60

Max: 40.2 ° at 69.9 ms

Min: -13.3 ° at 201.0 ms

Theta

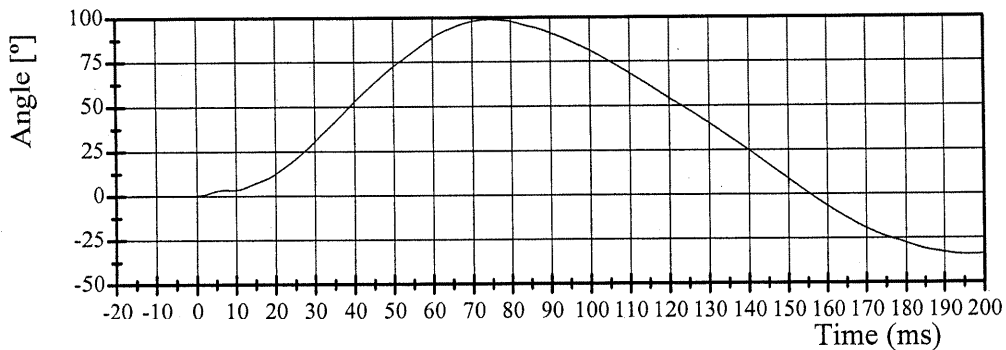


Filter Class: 60

Max: 59.5 ° at 78.7 ms

Min: -20.8 ° at 195.1 ms

Totan



Filter Class: 60

Max: 98.8 ° at 74.6 ms

Min: -34.2 ° at 195.8 ms

05.02.2003 08:21:20 575

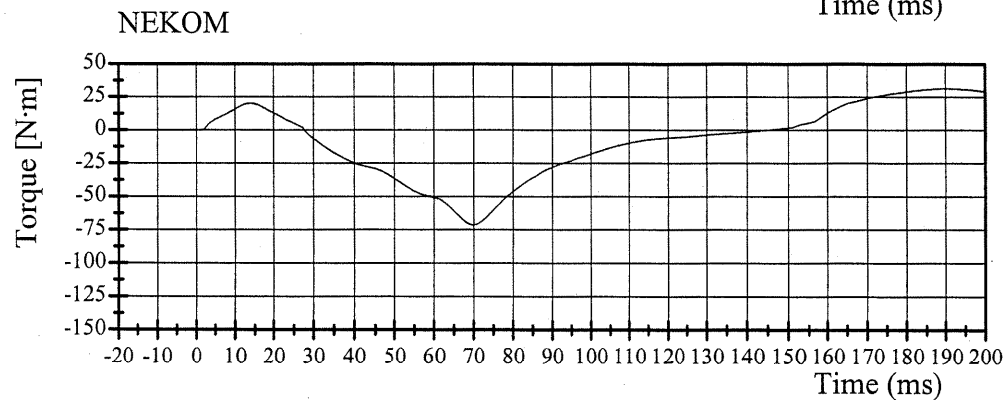
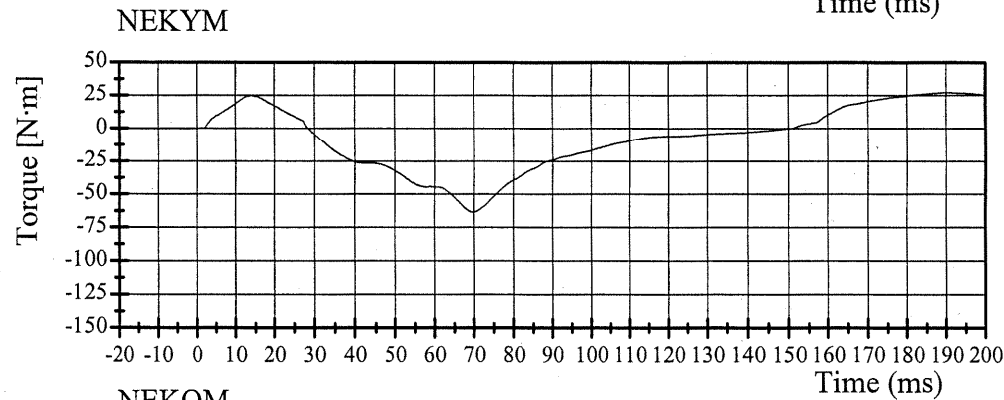
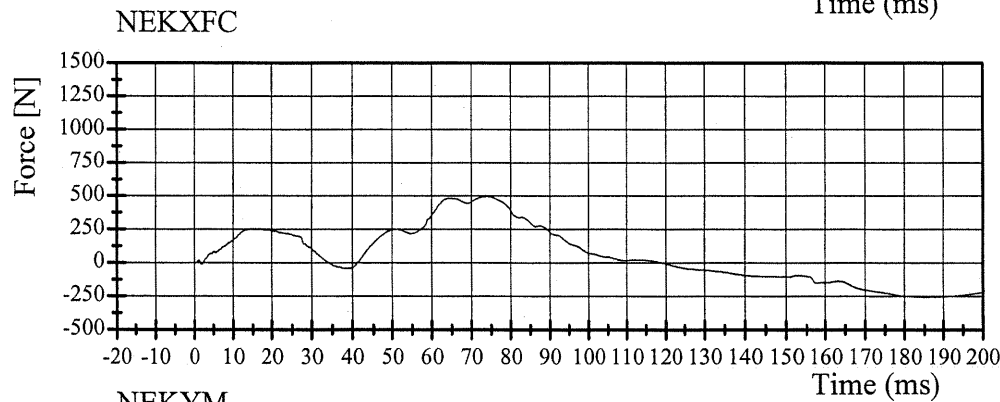
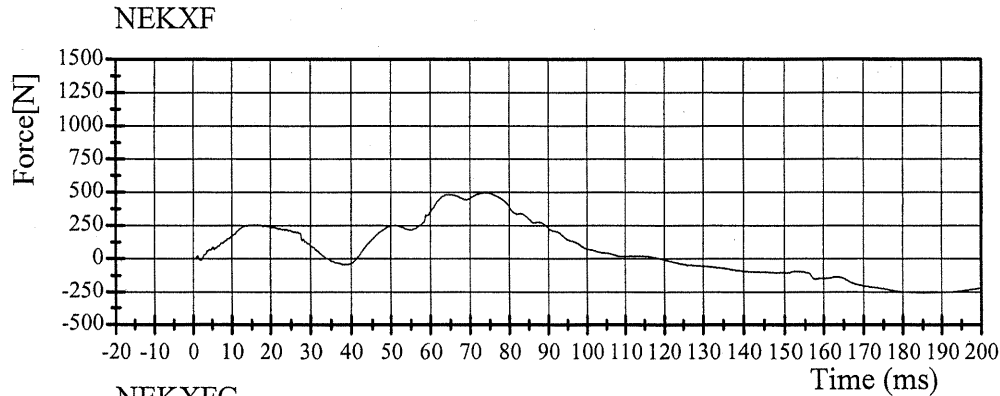


Transportation Research Center Inc.

572E Neck Extension Test

HIII 50th Male Serial No. 169 Calibration No. 18 - 1

Test Date 05/02/2003



05.02.2003 08:21:22 575



Transportation Research Center Inc.

572E Thorax Test

HHH 50th Male Serial No. 169 Calibration No. 18 - 1

Test Date 05/02/2003

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.1 °C	Yes
Relative Humidity	10 - 70 %	46 %	Yes
Pendulum Velocity	6.59 - 6.83 m/s	6.66 m/s	Yes
Maximum Chest Deflection	-72.6 - (-63.5) mm	-67.3 mm	Yes
Maximum Resistive Force	5160 - 5894 N	5609 N	Yes
Internal Hysteresis	69 - 85 %	72 %	Yes

Comments:

Technician



Approved



05.02.2003 13:47:00 963



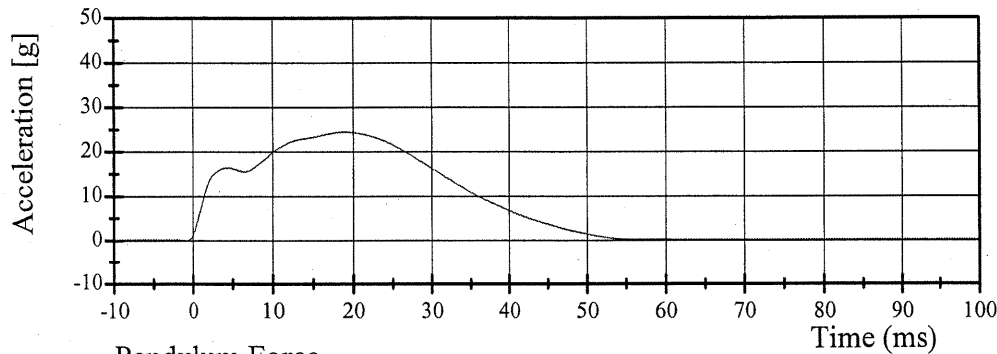
Transportation Research Center Inc.

572E Thorax Test

HIII 50th Male Serial No. 169 Calibration No. 18 - 1

Test Date 05/02/2003

Pendulum Deceleration

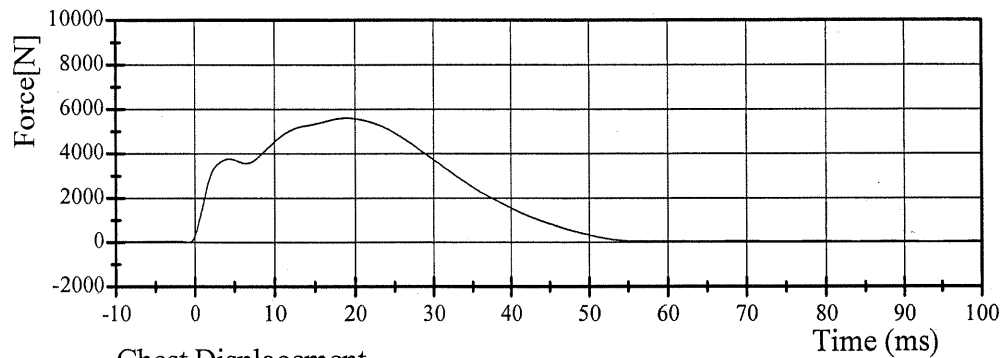


Filter Class: 180

Max: 24.5 g at 18.9 ms

Min: -0.1 g at 261.0 ms

Pendulum Force

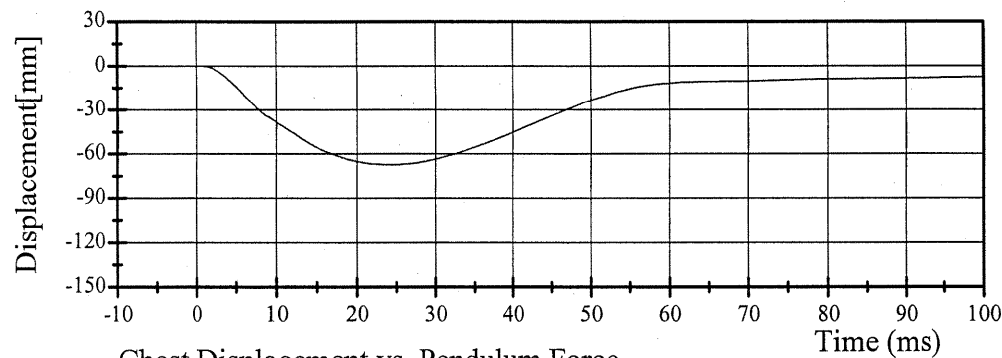


Filter Class: 180

Max: 5608.6 N at 18.9 ms

Min: -19.0 N at 261.0 ms

Chest Displacement

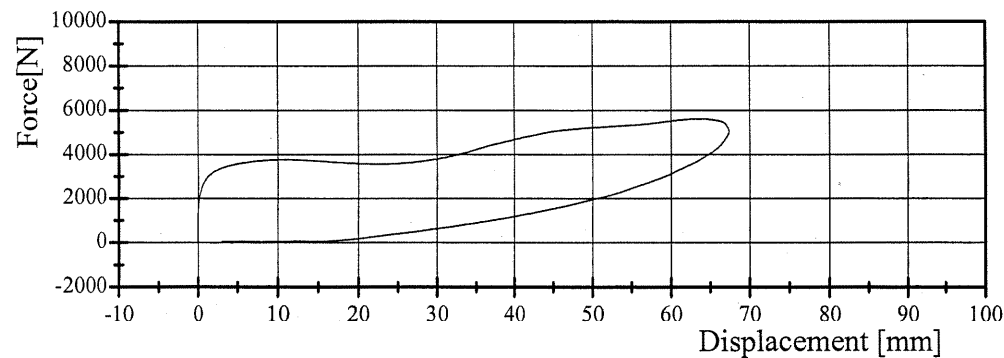


Filter Class: 180

Max: 0.1 mm at 0.5 ms

Min: -67.3 mm at 24.5 ms

Chest Displacement vs. Pendulum Force



05.02.2003 13:47:01 963



Transportation Research Center Inc

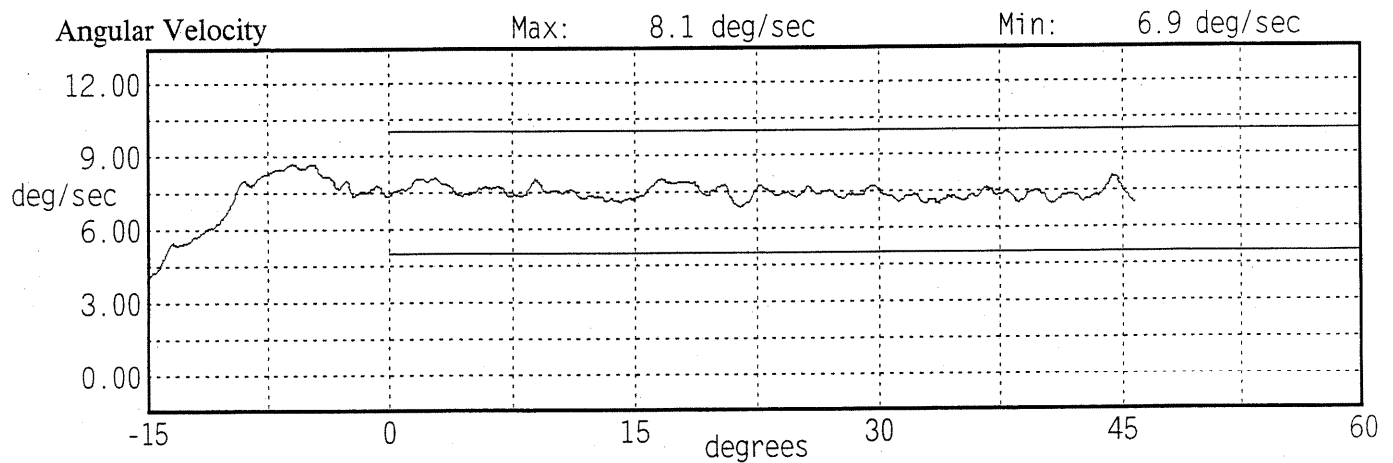
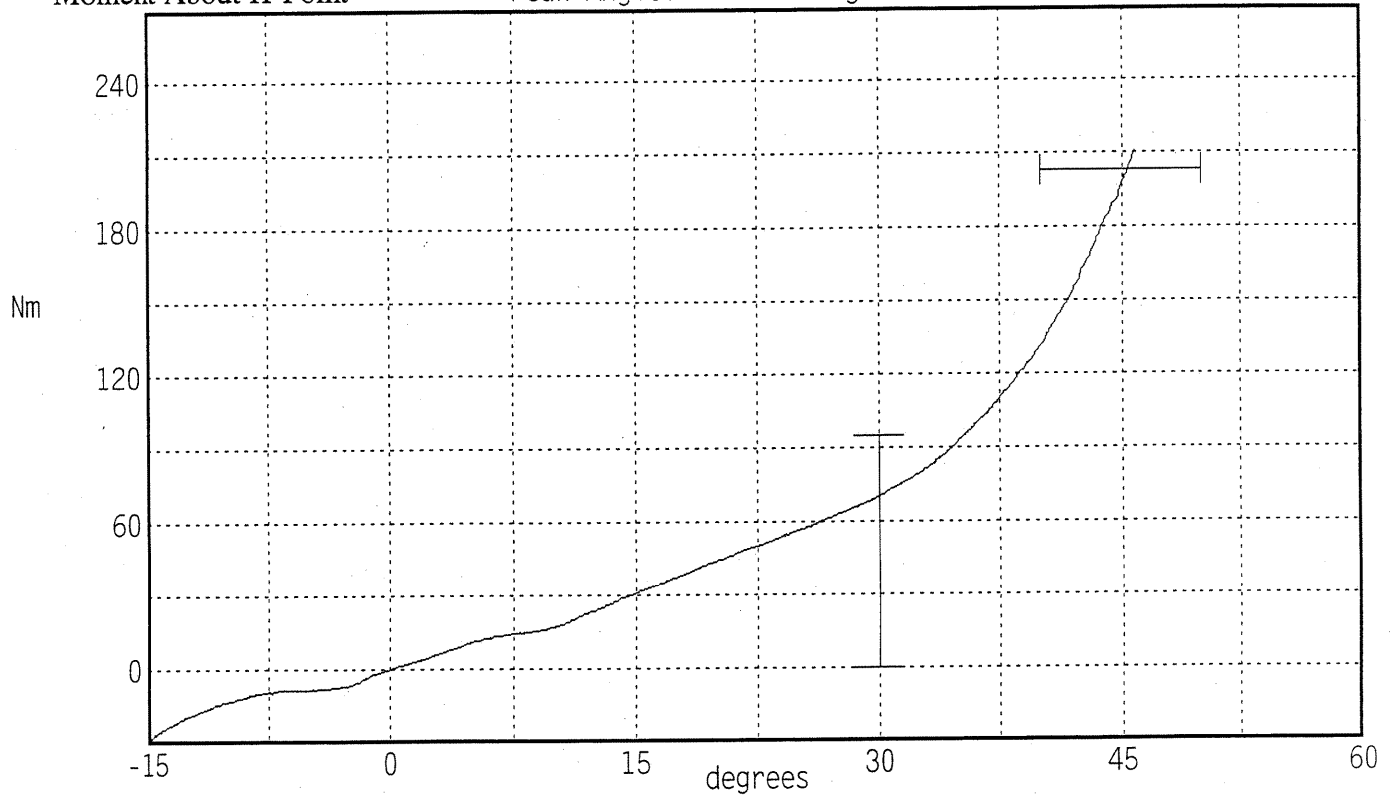
Hybrid III Hip Range of Motion

Serial Number: 169L
Test Number: 169C18
Comments:

Date: 04/30/2003
Time: 08:00

TEST PARAMETER	SPECIFICATION	TEST RESULTS	
Temperature	18.9 - 25.6	21.7 °C	Pass
Humidity	10 - 70	34 %	Pass
Moment at 30 deg	<= 94.9	70.4 Nm	Pass
Angle at 203 Nm	40.0 - 50.0	45.4 deg	Pass
Average Velocity	5.0 - 10.0	7.4 deg/sec	Pass

Moment About H-Point
Peak Moment: 210.7 Nm at 45.7 deg
Peak Angle: 45.7 deg at 210.7 Nm



Transportation Research Center Inc

Hybrid III Hip Range of Motion

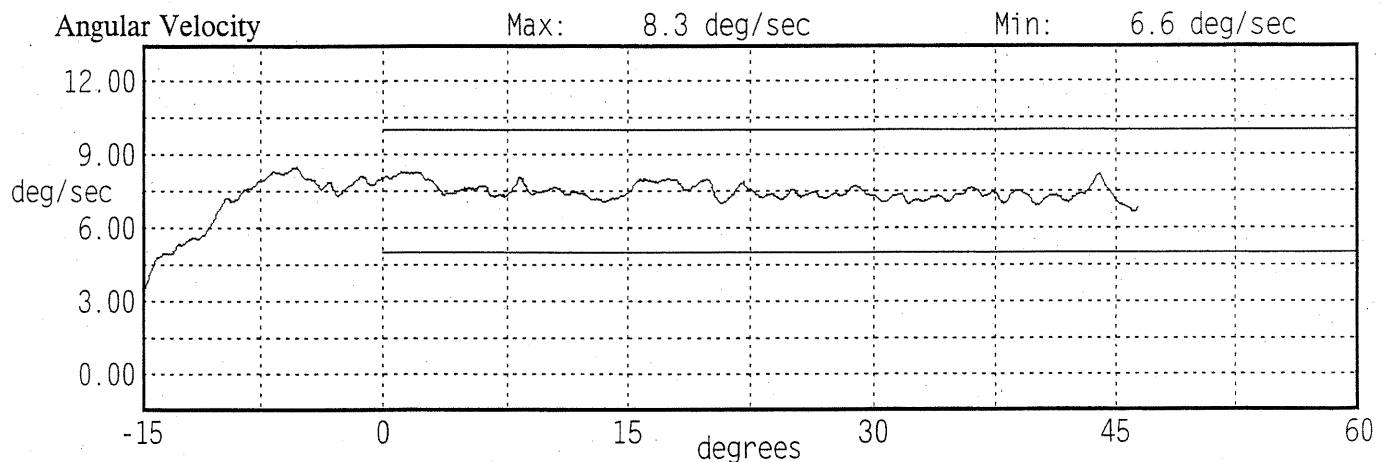
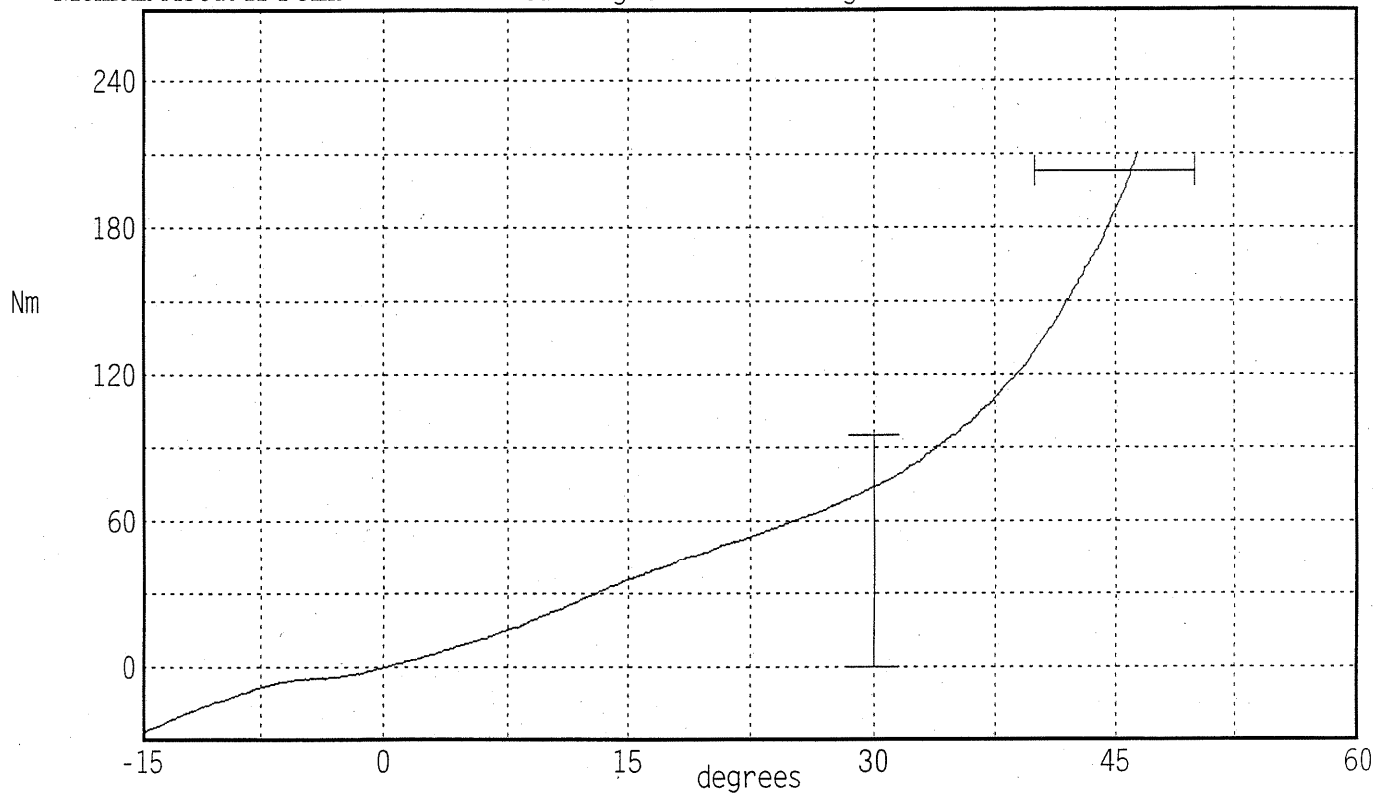
Serial Number: 169R
Test Number: 169C18

Date: 04/30/2003
Time: 08:04

Comments:

TEST PARAMETER	SPECIFICATION	TEST RESULTS	
Temperature	18.9 - 25.6	21.7 °C	Pass
Humidity	10 - 70	34 %	Pass
Moment at 30 deg	<= 94.9	74.1 Nm	Pass
Angle at 203 Nm	40.0 - 50.0	46.1 deg	Pass
Average Velocity	5.0 - 10.0	7.4 deg/sec	Pass

Moment About H-Point
Peak Moment: 210.4 Nm at 46.4 deg
Peak Angle: 46.4 deg at 210.4 Nm



Transportation Research Center Inc.

572E Left Knee Slider Test

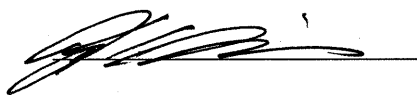
HIII 50th Male Serial No. 169 Calibration No. 18 - 4

Test Date 05/01/2003

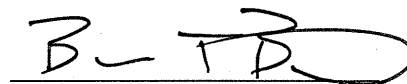
Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.5 °C	21.7 °C	Yes
Relative Humidity	10 - 70 %	43 %	Yes
Pendulum Velocity	2.70 - 2.80 m/s	2.73 m/s	Yes
Force At 10 mm Displacement	-1259 - (-1721) N	-1478 N	Yes
Force At 18 mm Displacement	-2268 - (-3096) N	-3083 N	Yes

Comments:

Technician



Approved



05.01.2003 14:48:48 1824

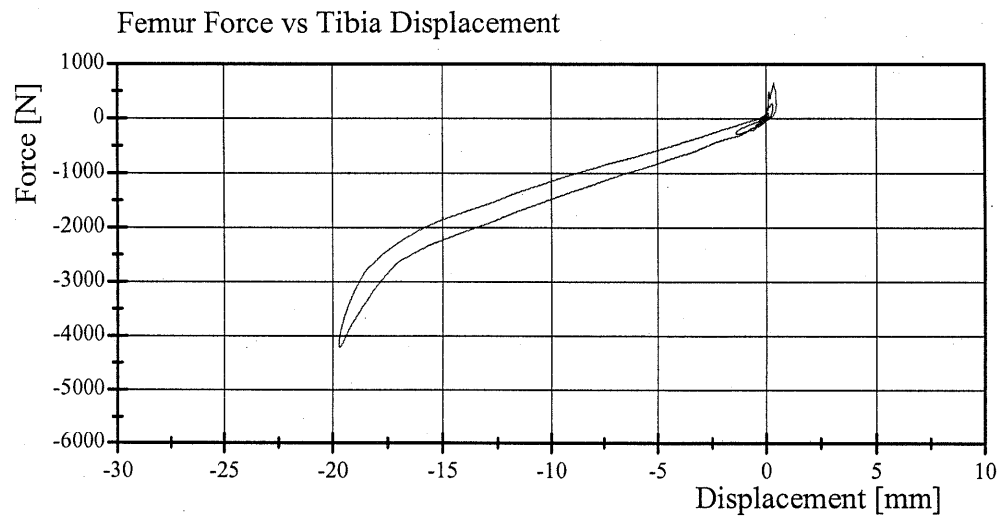
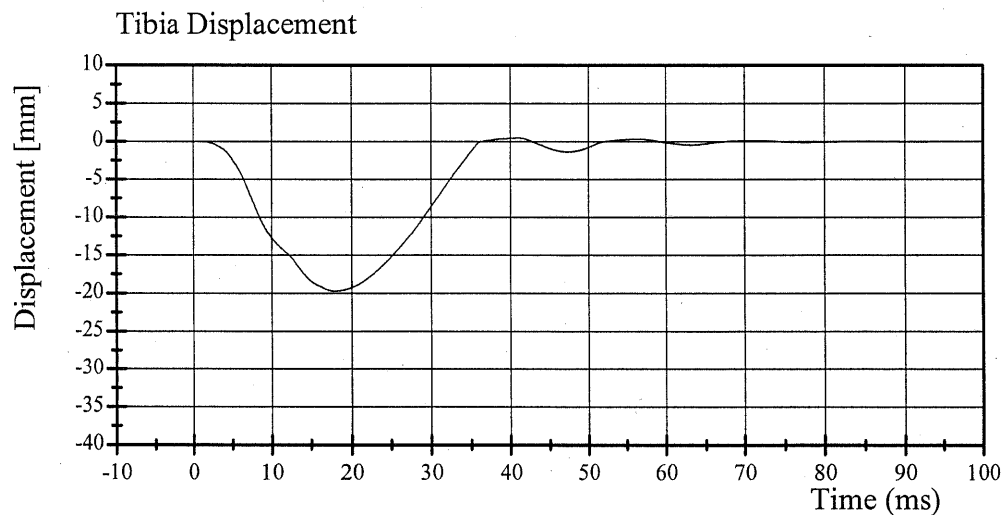
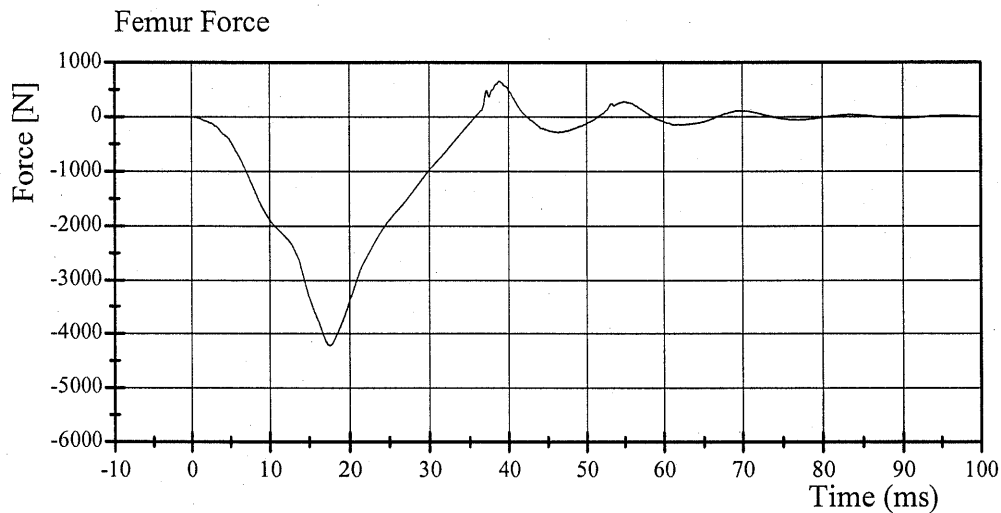


Transportation Research Center Inc.

572E Left Knee Slider Test

HIII 50th Male Serial No. 169 Calibration No. 18 - 4

Test Date 05/01/2003



05.01.2003 14:48:49 1824



Transportation Research Center Inc.

572E Right Knee Slider Test

HHH 50th Male Serial No. 169 Calibration No. 18 - 1

Test Date 05/01/2003

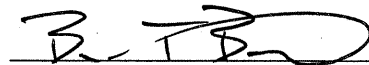
Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.5 °C	21.7 °C	Yes
Relative Humidity	10 - 70 %	43 %	Yes
Pendulum Velocity	2.70 - 2.80 m/s	2.73 m/s	Yes
Force At 10 mm Displacement	-1259 - (-1721) N	-1379 N	Yes
Force At 18 mm Displacement	-2268 - (-3096) N	-2486 N	Yes

Comments:

Technician



Approved



05.01.2003 15:48:54 1834

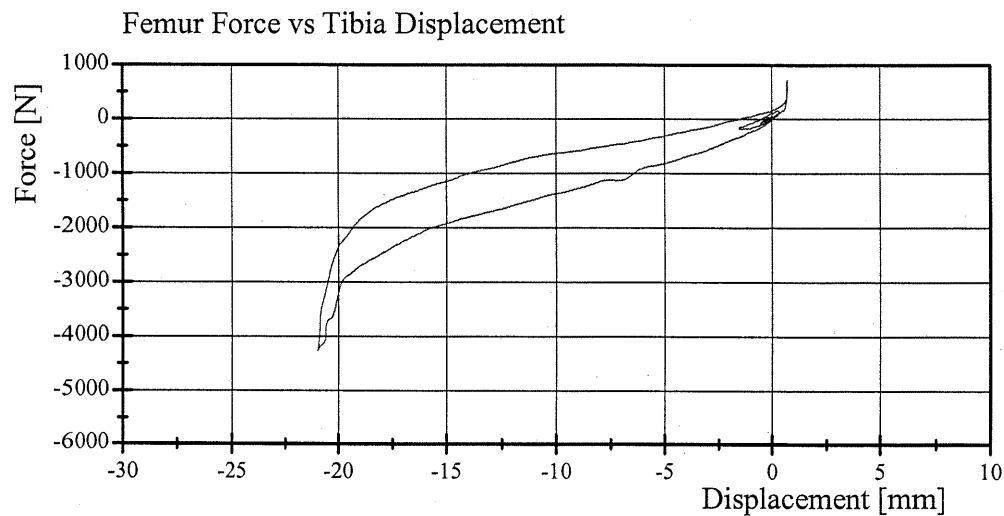
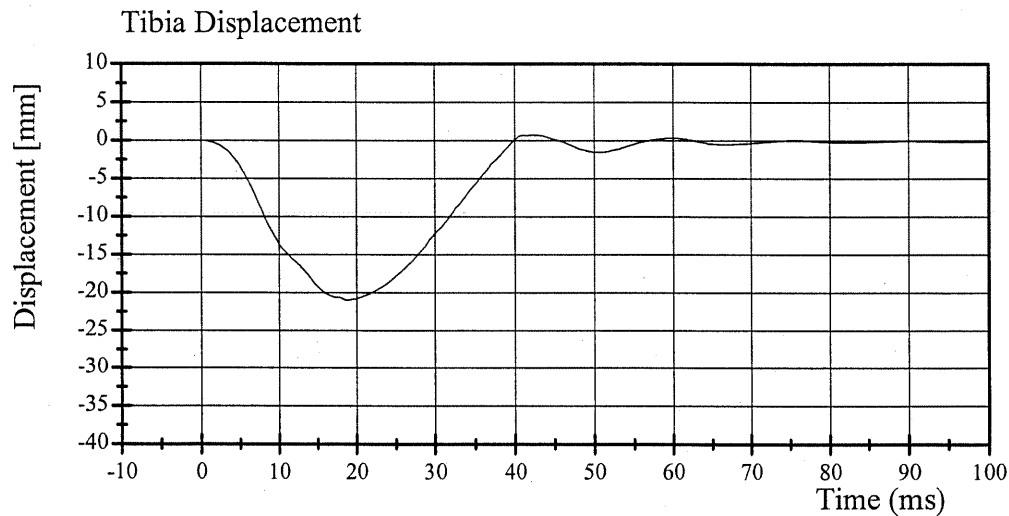
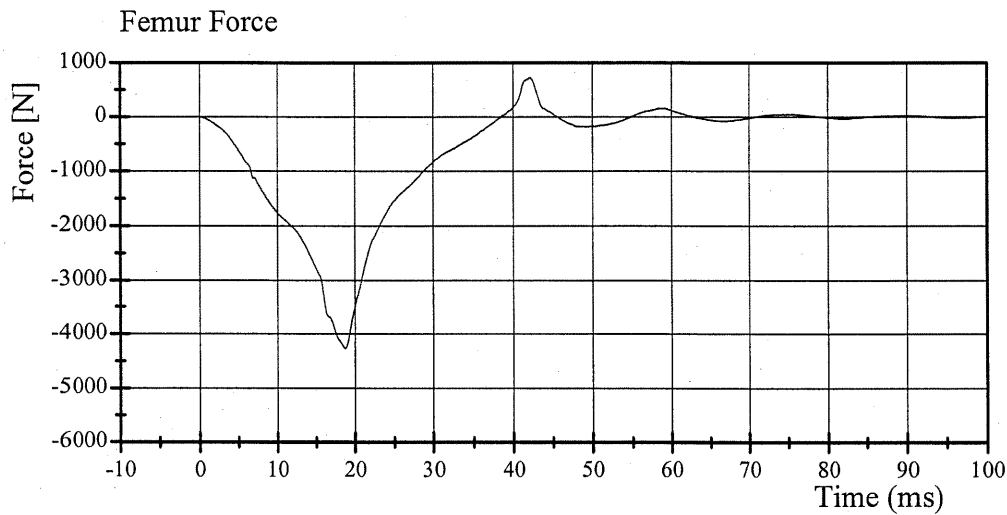


Transportation Research Center Inc.

572E Right Knee Slider Test

HIII 50th Male Serial No. 169 Calibration No. 18 - 1

Test Date 05/01/2003



05.01.2003 15:48:55 1834



Transportation Research Center Inc.

572E Left Knee Test

HIII 50th Male Serial No. 169 Calibration No. 18 - 1

Test Date 04/30/2003

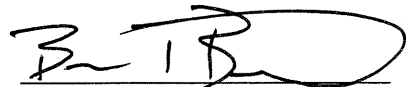
Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.6 °C	21.7 °C	Yes
Relative Humidity	10 - 70 %	37 %	Yes
Pendulum Velocity	2.07 - 2.13 m/s	2.11 m/s	Yes
Maximum Pendulum Force	4715 - 5783 N	5521 N	Yes

Comments:

Technician



Approved



05.02.2003 14:47:20 2173



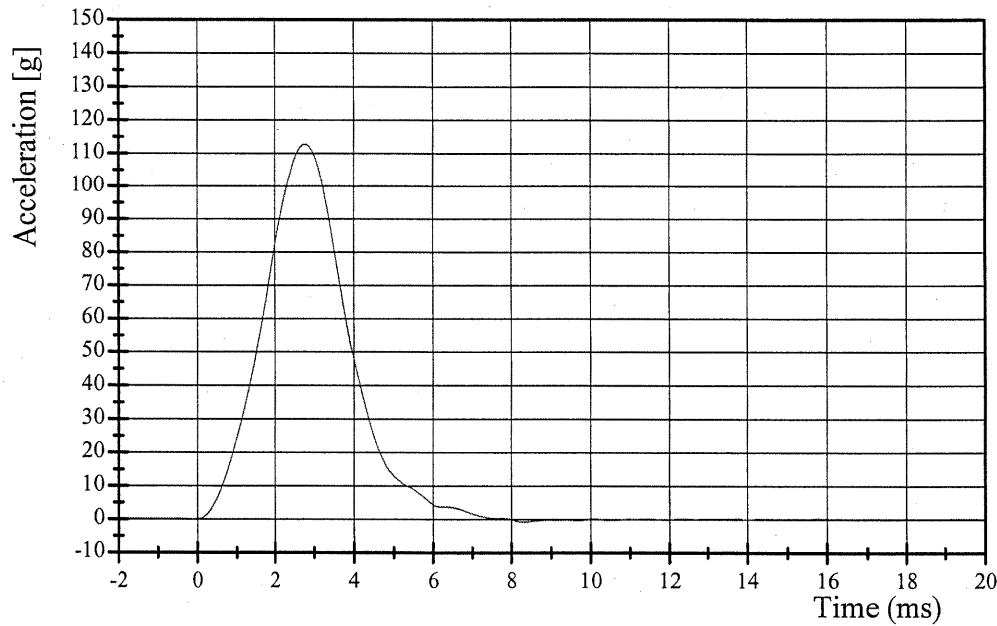
Transportation Research Center Inc.

572E Left Knee Test

HIII 50th Male Serial No. 169 Calibration No. 18 - 1

Test Date 04/30/2003

Pendulum Deceleration

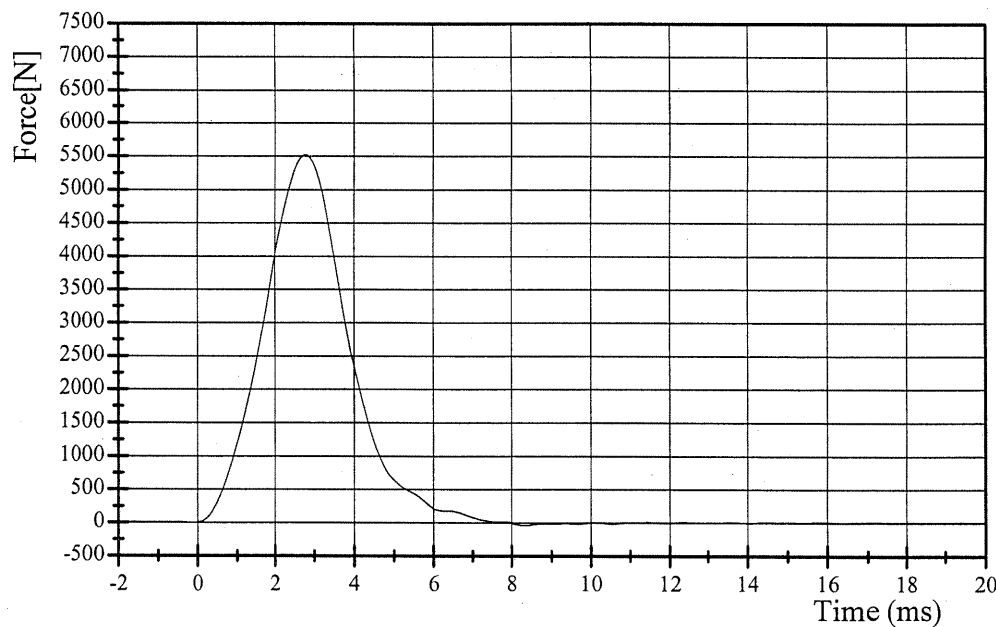


Filter Class: 600

Max: 112.8 g at 2.8 ms

Min: -0.8 g at 8.3 ms

Pendulum Force



Filter Class: 600

Max: 5520.9 N at 2.8 ms

Min: -37.7 N at 8.3 ms

Transportation Research Center Inc.

572E Right Knee Test

HIII 50th Male Serial No. 169 Calibration No. 18 - 1

Test Date 04/30/2003

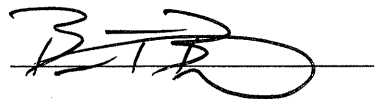
Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.6 °C	21.7 °C	Yes
Relative Humidity	10 - 70 %	36 %	Yes
Pendulum Velocity	2.07 - 2.13 m/s	2.10 m/s	Yes
Maximum Pendulum Force	4715 - 5783 N	5383 N	Yes

Comments:

Technician



Approved



04.30.2003 12:24:26 2171



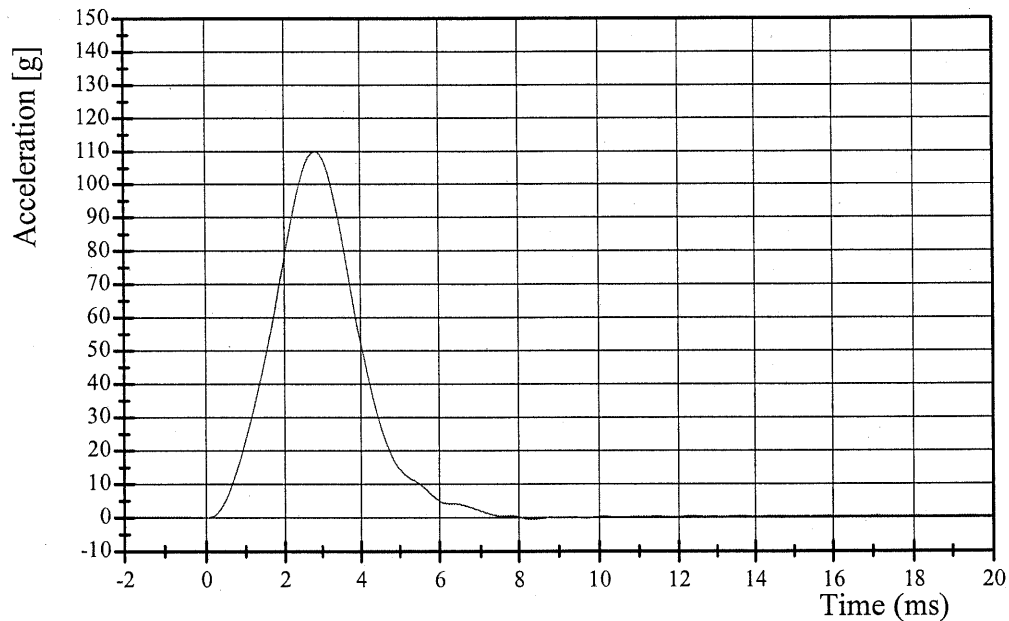
Transportation Research Center Inc.

572E Right Knee Test

HIII 50th Male Serial No. 169 Calibration No. 18 - 1

Test Date 04/30/2003

Pendulum Deceleration

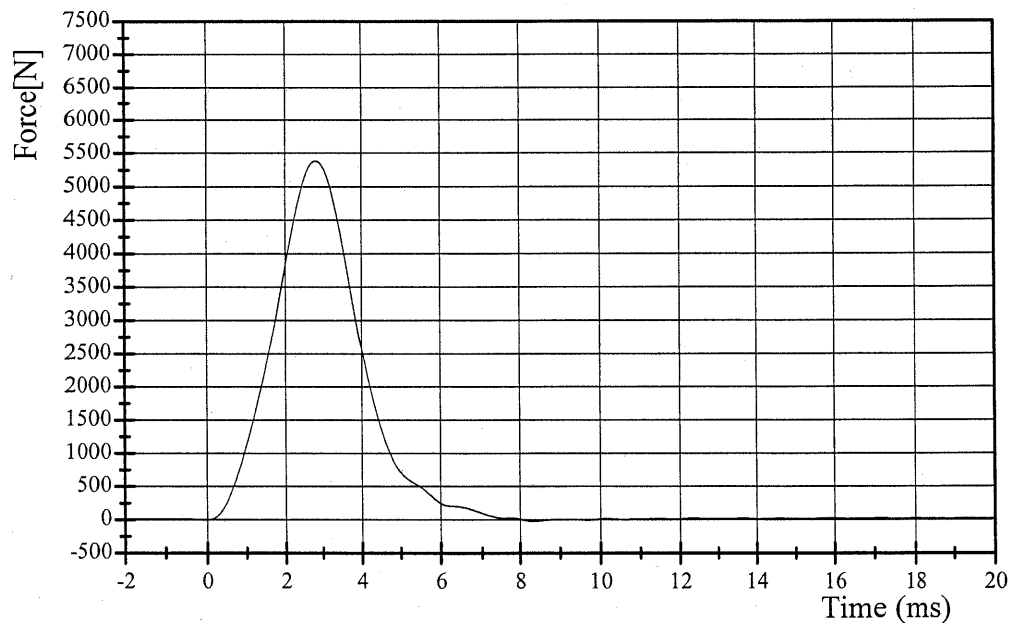


Filter Class: 600

Max: 110.0 g at 2.8 ms

Min: -0.5 g at 8.3 ms

Pendulum Force



Filter Class: 600

Max: 5382.6 N at 2.8 ms

Min: -25.1 N at 8.3 ms

04.30.2003 12:24:27 2171



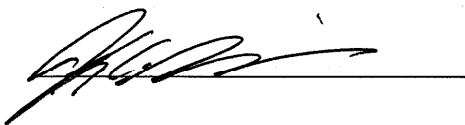
Pre-Test Dummy Configuration and Performance Verification Data

Bullet Vehicle Passenger Dummy S/N: 416

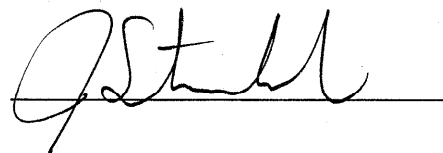
Transportation Research Center Inc.
5720 HIII 5th Female Dummy
External Dimensions
Serial No. 416 Calibration No. 19

Symbol	Description	Specification	Results	Pass
		mm	mm	
A	Total Sitting Height	774.7 - 800.1	783	Yes
B	Shoulder Pivot Height	431.8 - 457.2	444	Yes
C	Hip Pivot Height	81.3 - 86.3	83	Yes
D	Hip Pivot from Backline	144.8 - 149.8	146	Yes
E	Shoulder Pivot from Backline	68.6 - 83.8	74	Yes
F	Thigh Clearance	119.4 - 134.6	128	Yes
G	Back of Elbow to Wrist Pivot	243.9 - 259.1	251	Yes
H	Head Back to Backline	43.2 - 48.2	46	Yes
I	Shoulder to Elbow Length	276.8 - 297.2	286	Yes
J	Elbow Rest Height	182.8 - 203.2	193	Yes
K	Buttock Knee Length	520.7 - 546.1	544	Yes
L	Popliteal Height	355.6 - 376.0	362	Yes
M	Knee Pivot Height	393.7 - 419.1	400	Yes
N	Buttock Popliteal Height	414.0 - 439.4	427	Yes
O	Chest Depth without Jacket	175.3 - 190.5	184	Yes
P	Foot Length	218.5 - 233.7	226	Yes
R	Buttock to Knee Pivot Length	457.2 - 482.6	465	Yes
S	Head Breadth	137.1 - 147.3	142	Yes
T	Head Depth	177.8 - 188.0	187	Yes
U	Hip Breadth	299.7 - 314.9	301	Yes
V	Shoulder Breadth	350.5 - 365.7	365	Yes
W	Foot Breadth	78.8 - 94.0	92	Yes
X	Head Circumference	528.3 - 548.7	545	Yes
Y	Chest Circumference with Jacket	850.9 - 881.3	872	Yes
Z	Waist Circumference	759.5 - 789.9	781	Yes
AA	Reference Location for Chest Circumference	332.7 - 358.1	346	Yes
BB	Reference Location for Waist Circumference	160.0 - 170.2	165	Yes

Technician



Approved



Transportation Research Center Inc.

5720 Head Drop Test

HIII 5th Female Serial No. 416 Calibration No. 19 - 1

Test Date 04/07/2003

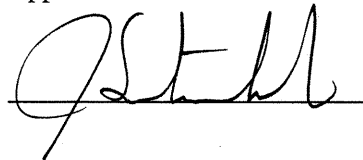
Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.5 °C	21.7 °C	Yes
Relative Humidity	10 - 70 %	40 %	Yes
Peak Resultant Acceleration	250 - 300 g	262.5 g	Yes
Peak Lateral Acceleration	15 g Max	7.6 g	Yes
Oscillations After Main Pulse	Less Than 10% of Peak Resultant Acceleration?	Yes	Yes

Comments:

Technician



Approved



04.07.2003 10:47:26 605



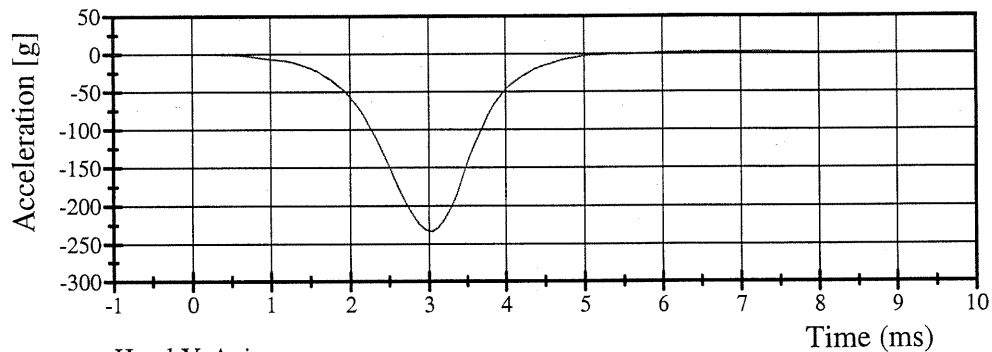
Transportation Research Center Inc.

5720 Head Drop Test

HIII 5th Female Serial No. 416 Calibration No. 19 - 1

Test Date 04/07/2003

Head X-Axis

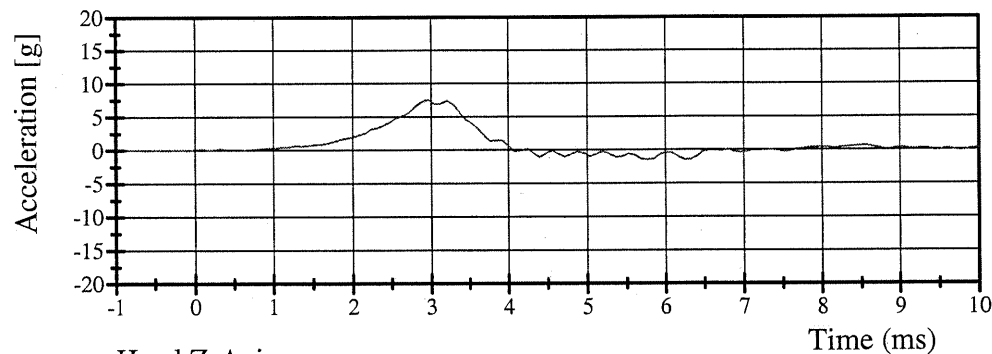


Filter Class: 1000

Max: 3.0 g at 7.3 ms

Min: -233.4 g at 3.0 ms

Head Y-Axis

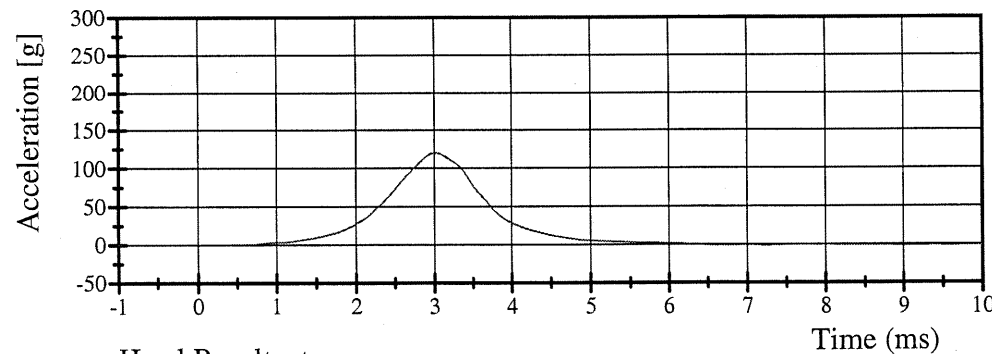


Filter Class: 1000

Max: 7.6 g at 3.0 ms

Min: -1.5 g at 5.8 ms

Head Z-Axis

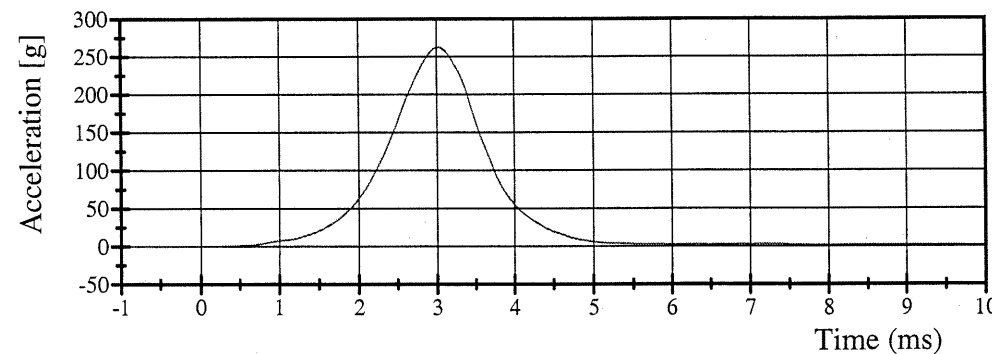


Filter Class: 1000

Max: 120.0 g at 3.0 ms

Min: -1.4 g at 7.2 ms

Head Resultant



Filter Class: 1000

Max: 262.5 g at 3.0 ms

Min: 0.0 g at 0.1 ms

04.07.2003 10:47:28 605



Transportation Research Center Inc.

5720 Neck Flexion Test - 6 Channel Transducer

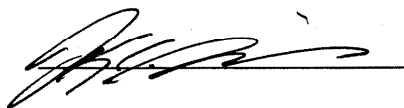
HIII 5th Female Serial No. 416 Calibration No. 19 - 1

Test Date 04/07/2003

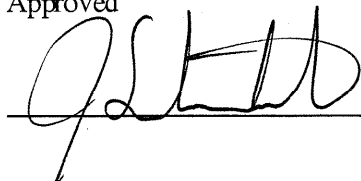
Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.7 °C	Yes
Relative Humidity	10 - 70 %	39 %	Yes
Impact Velocity	6.89 - 7.13 m/s	7.06 m/s	Yes
Integrated Pendulum Velocity			
10 ms	2.10 - 2.50 m/s	2.36 m/s	Yes
20 ms	4.00 - 5.00 m/s	4.56 m/s	Yes
30 ms	5.80 - 7.00 m/s	6.45 m/s	Yes
Peak D Plane Rotation	77 - 91 °	83.4 °	Yes
Peak Moment About Occipital Condyles (During time interval rotation is within specified corridors)	69.0 - 83.0 N·m	75.27 N·m	Yes
Positive Moment Decay Time To 10 N·m	80 - 100 ms	88.48 ms	Yes

Comments:

Technician



Approved



04.07.2003 12:33:07 491



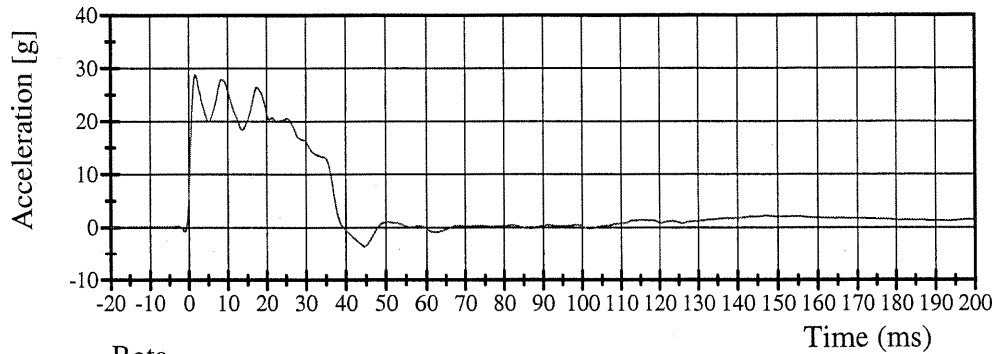
Transportation Research Center Inc.

5720 Neck Flexion Test

HIII 5th Female Serial No. 416 Calibration No. 19 - 1

Test Date 04/07/2003

Pendulum Deceleration

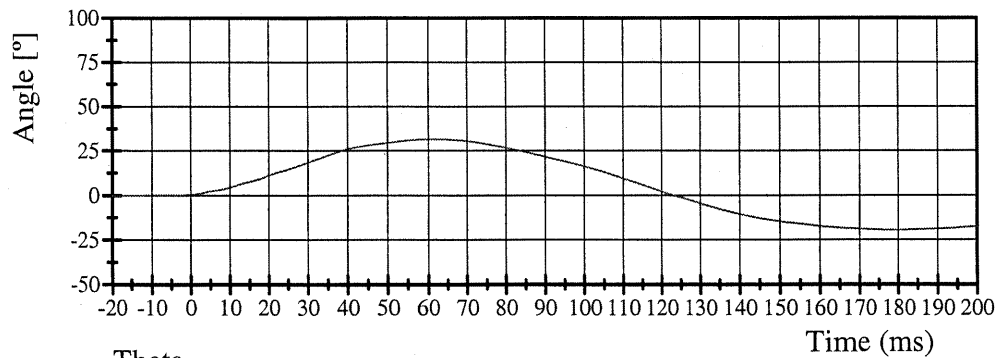


Filter Class: 180

Max: 28.8 g at 1.7 ms

Min: -3.6 g at 44.5 ms

Beta

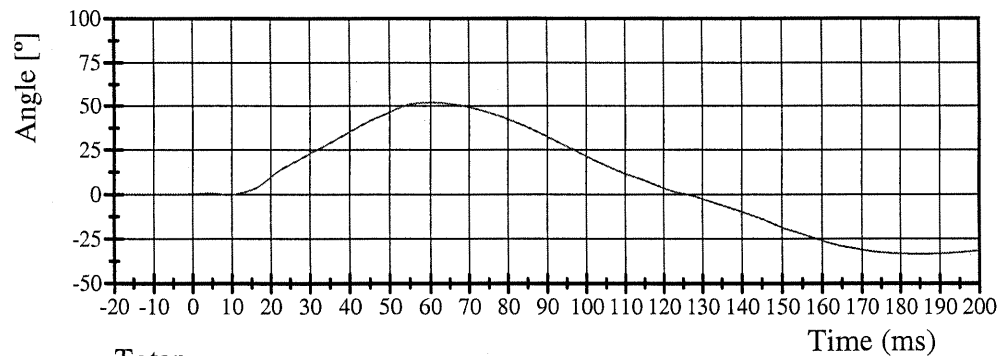


Filter Class: 60

Max: 31.5 ° at 61.0 ms

Min: -19.4 ° at 180.0 ms

Theta

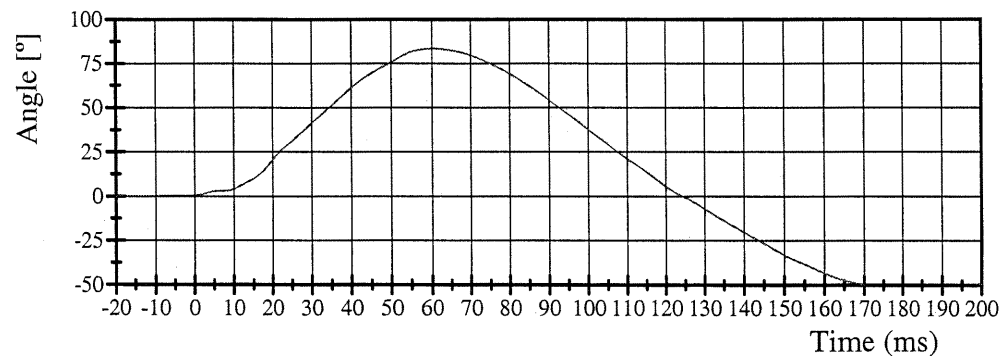


Filter Class: 60

Max: 51.9 ° at 60.3 ms

Min: -33.5 ° at 185.0 ms

Totan



Filter Class: 60

Max: 83.4 ° at 60.6 ms

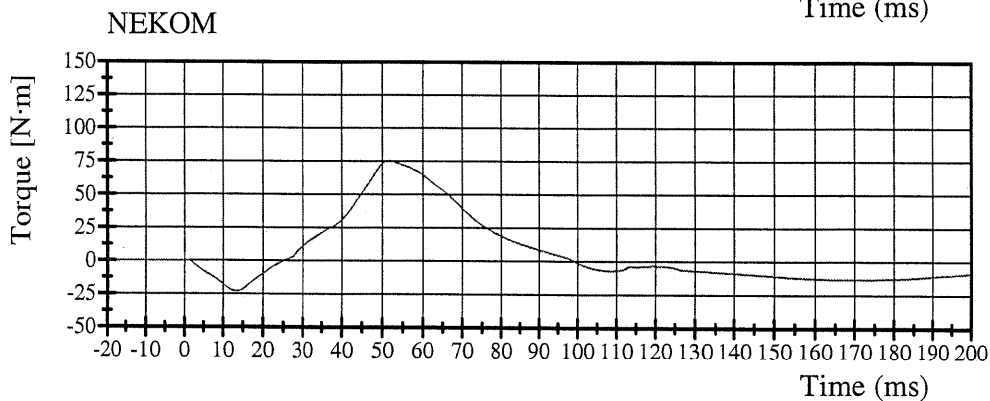
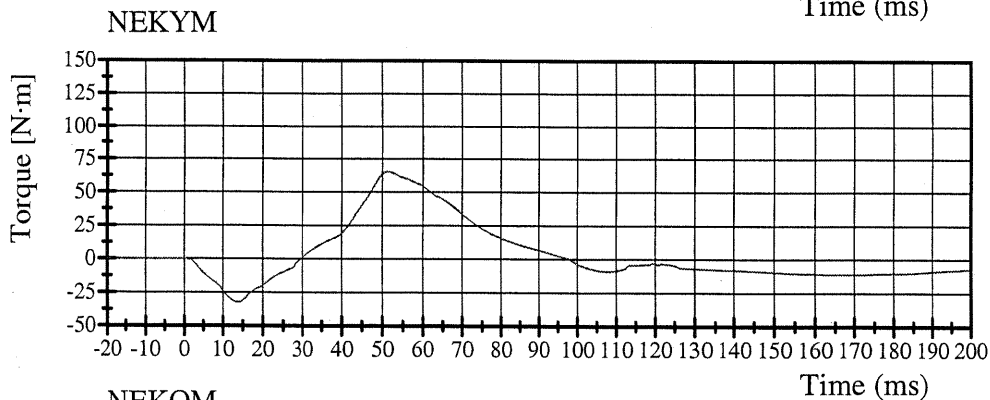
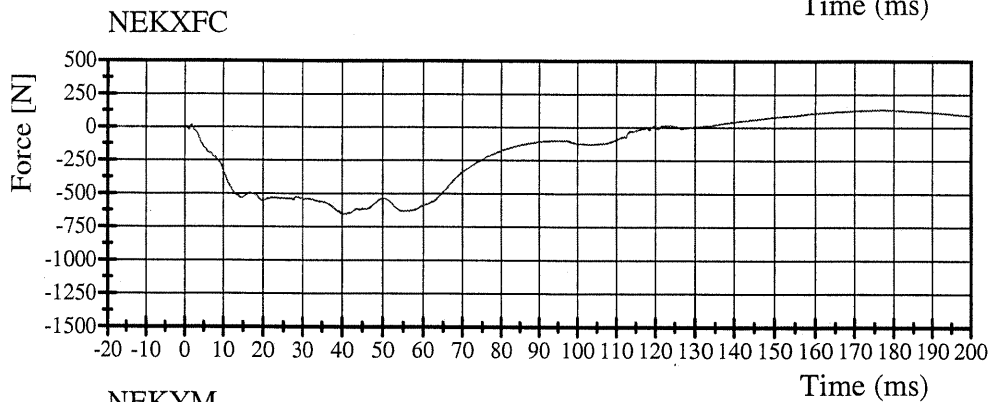
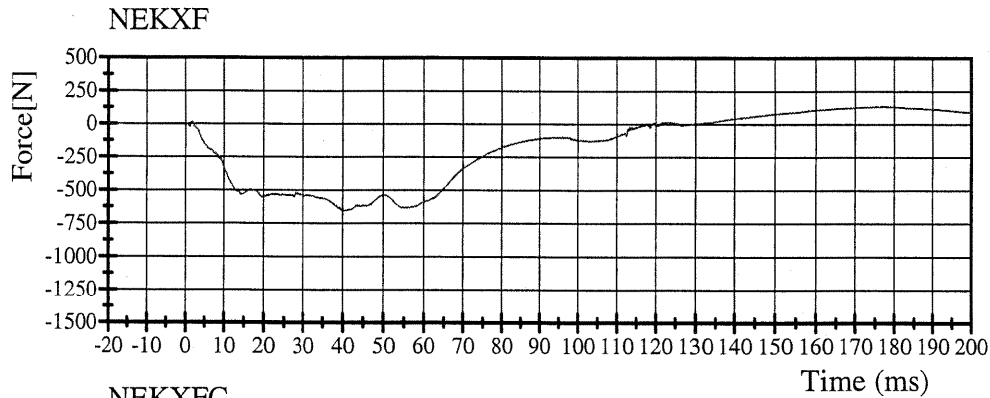
Min: -52.8 ° at 183.0 ms

Transportation Research Center Inc.

5720 Neck Flexion Test

HIII 5th Female Serial No. 416 Calibration No. 19 - 1

Test Date 04/07/2003



04.07.2003 12:33:10 491



Transportation Research Center Inc.

5720 Neck Extension Test - 6 Channel Transducer

HIII 5th Female Serial No. 416 Calibration No. 19 - 2

Test Date 04/07/2003

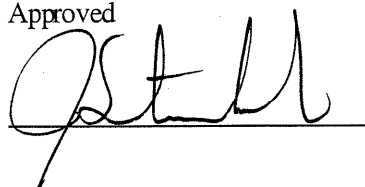
Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.7 °C	Yes
Relative Humidity	10 - 70 %	41 %	Yes
Impact Velocity	5.95 - 6.19 m/s	6.11 m/s	Yes
Integrated Pendulum Velocity			
10 ms	1.50 - 1.90 m/s	1.89 m/s	Yes
20 ms	3.10 - 3.90 m/s	3.73 m/s	Yes
30 ms	4.60 - 5.60 m/s	5.40 m/s	Yes
Peak D Plane Rotation	99 - 114 °	103.3 °	Yes
Peak Moment About Occipital Condyles (During time interval rotation is within specified corridors)	-65.0 - (-53.0) N·m	-60.72 N·m	Yes
Negative Moment Decay Time To -10 N·m	94 - 114 ms	100.96 ms	Yes

Comments:

Technician



Approved



04.07.2003 14:52:22 570



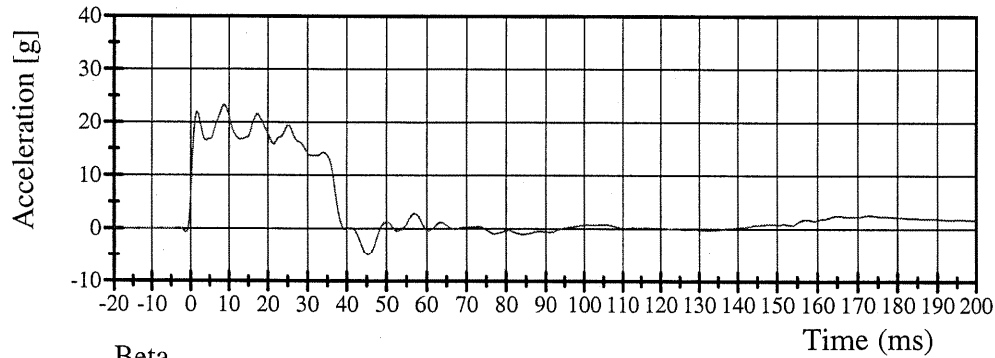
Transportation Research Center Inc.

5720 Neck Extension Test

HIII 5th Female Serial No. 416 Calibration No. 19 - 2

Test Date 04/07/2003

Pendulum Deceleration

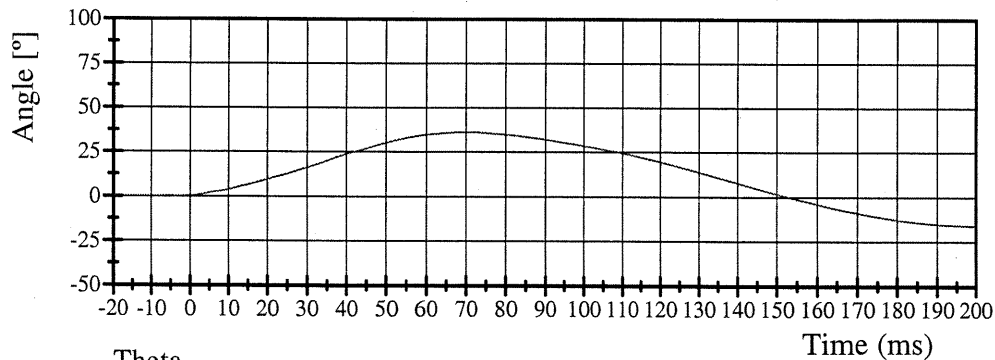


Filter Class: 180

Max: 23.3 g at 8.7 ms

Min: -5.0 g at 45.4 ms

Beta

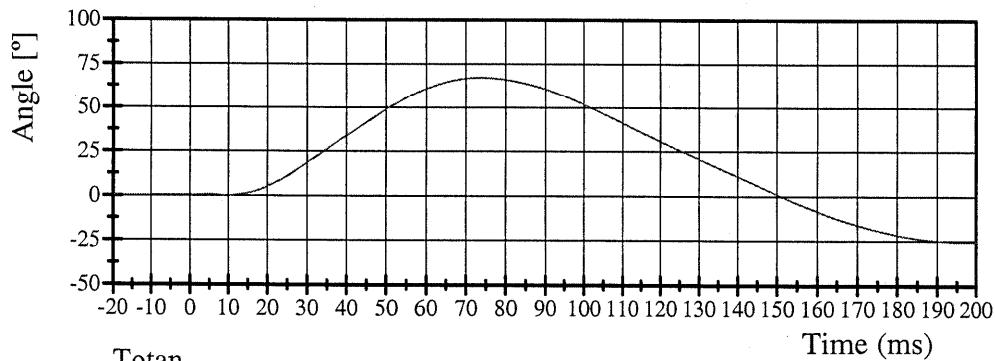


Filter Class: 60

Max: 36.2 ° at 70.6 ms

Min: -16.0 ° at 200.4 ms

Theta

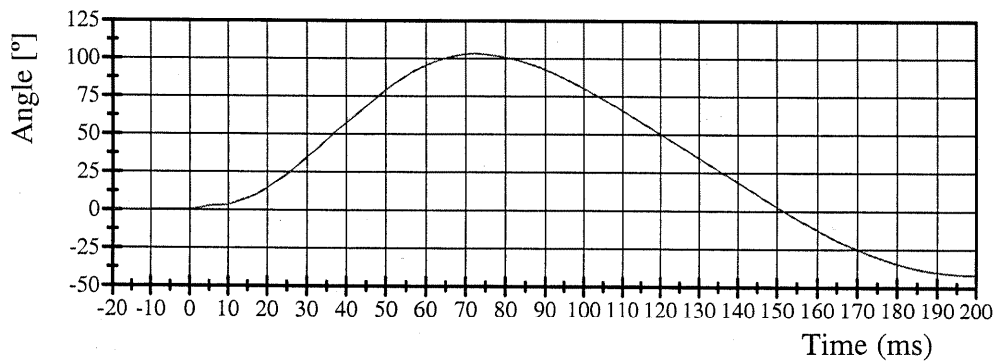


Filter Class: 60

Max: 67.2 ° at 73.7 ms

Min: -25.6 ° at 198.2 ms

Totan



Filter Class: 60

Max: 103.3 ° at 72.3 ms

Min: -41.5 ° at 199.1 ms

04.07.2003 14:52:23 570

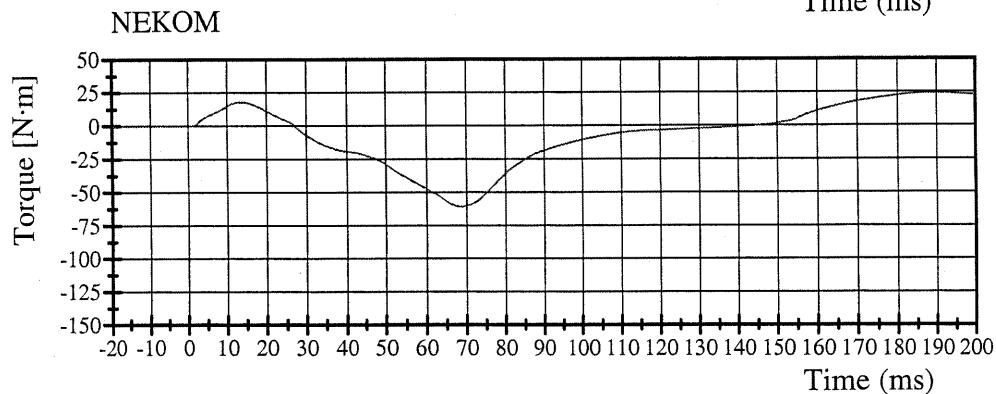
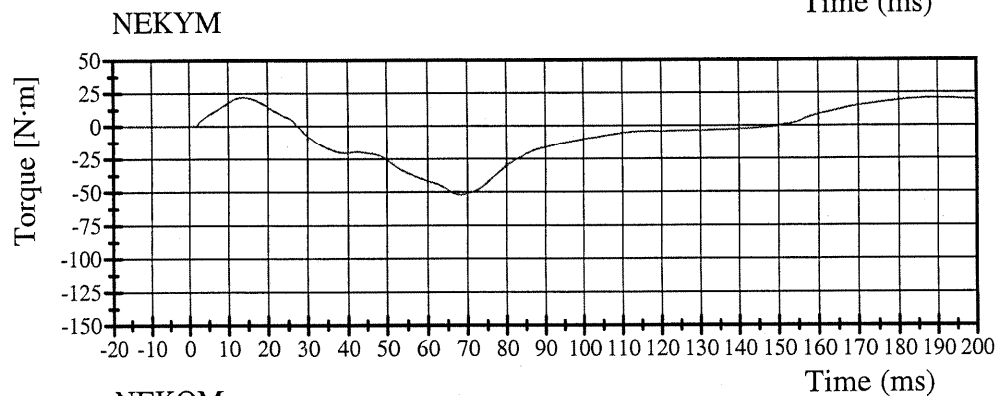
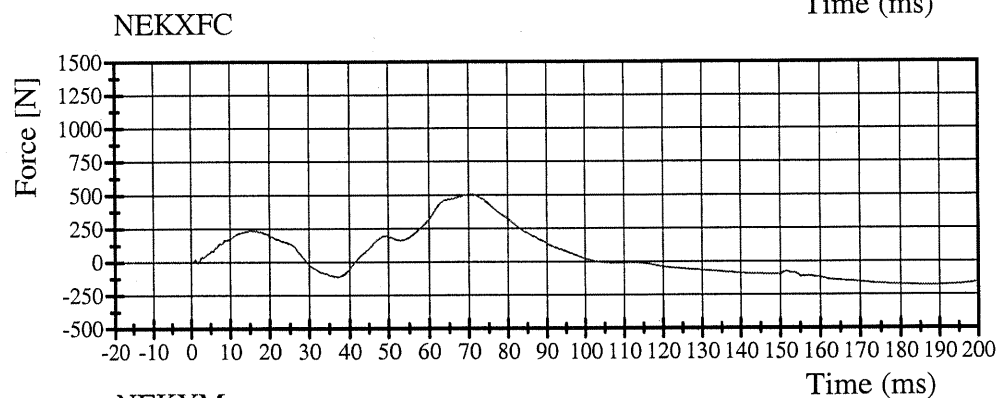
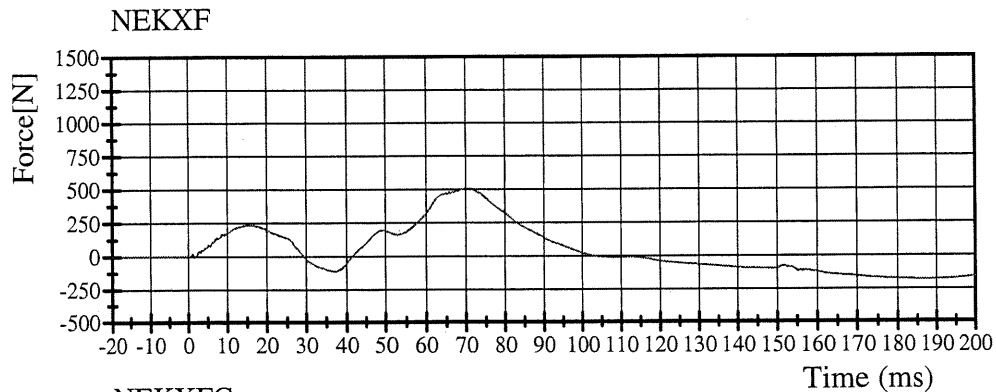


Transportation Research Center Inc.

5720 Neck Extension Test

HIII 5th Female Serial No. 416 Calibration No. 19 - 2

Test Date 04/07/2003



04.07.2003 14:52:24 570



Transportation Research Center Inc.

5720 Thorax Test

HIII 5th Female Serial No. 416 Calibration No. 19 - 2

Test Date 04/08/2003

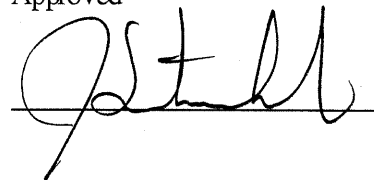
Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.7 °C	Yes
Relative Humidity	10 - 70 %	39 %	Yes
Pendulum Velocity	6.59 - 6.83 m/s	6.60 m/s	Yes
Maximum Chest Deflection	-58.0 - (-50.0) mm	-54.0 mm	Yes
Peak Impact Probe Force Within Compression Corridor	3900 - 4400 N	4294 N	Yes
Peak Force Between 18 mm and 50 mm	4600 N	4205 N	Yes
Internal Hysteresis	69 - 85 %	73 %	Yes

Comments:

Technician



Approved



04.08.2003 10:50:26 937



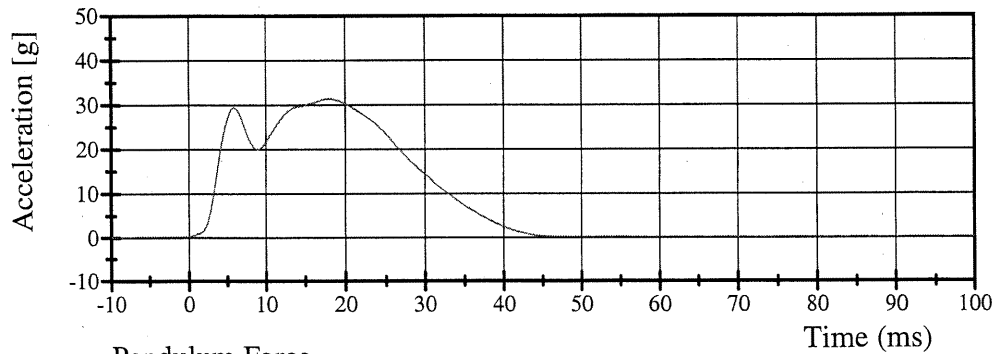
Transportation Research Center Inc.

5720 Thorax Test

HIII 5th Female Serial No. 416 Calibration No. 19 - 2

Test Date 04/08/2003

Pendulum Deceleration

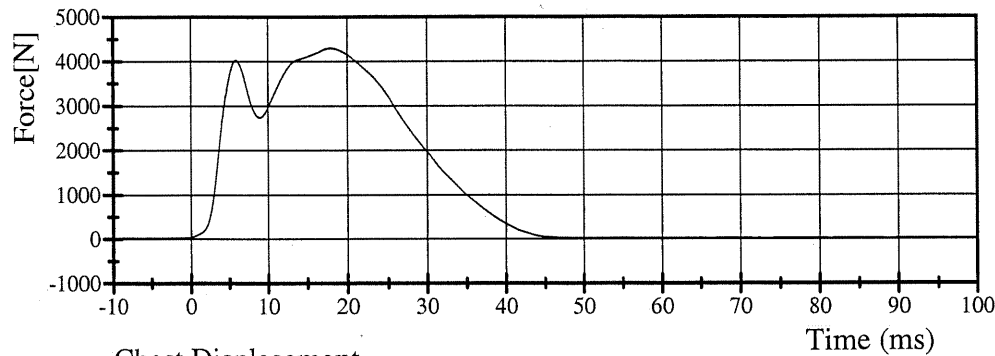


Filter Class: 180

Max: 31.3 g at 18.0 ms

Min: -0.1 g at 425.0 ms

Pendulum Force

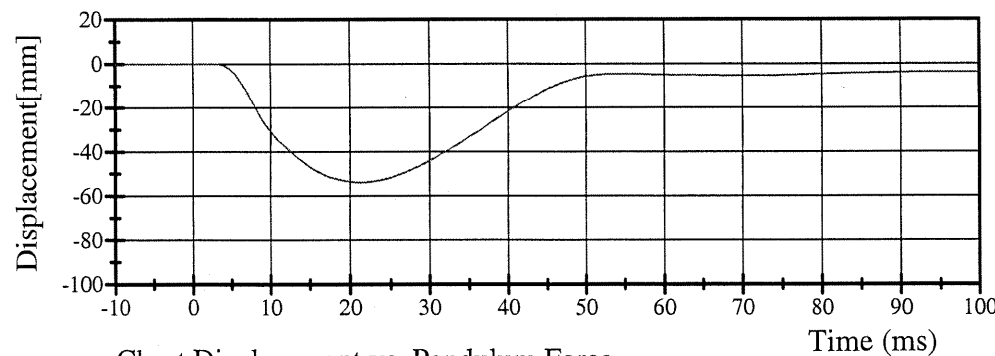


Filter Class: 180

Max: 4294.2 N at 18.0 ms

Min: -14.6 N at 425.0 ms

Chest Displacement

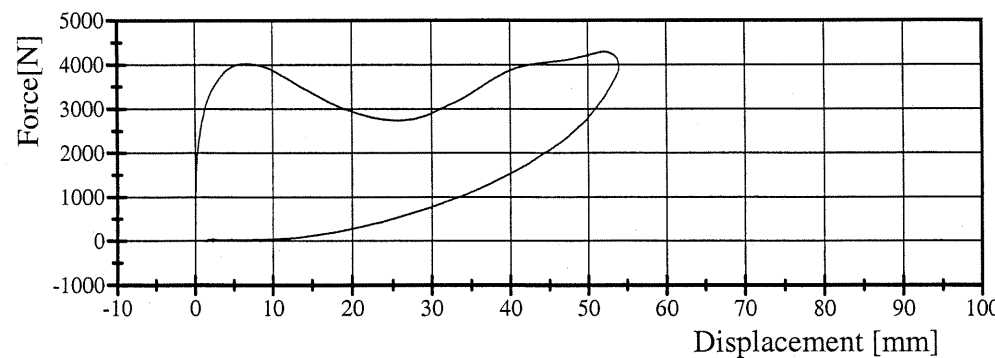


Filter Class: 600

Max: 0.0 mm at -22.6 ms

Min: -54.0 mm at 21.4 ms

Chest Displacement vs. Pendulum Force



04.08.2003 10:50:28 937



TRANSPORTATION RESEARCH CENTER INC.

TORSO FLEXION TEST

HYBRID III SMALL FEMALE

CAL DATE: 07-Apr-03

TRC, INC. TEST NO: 416C19TF1 572 O SN416 TORSO FLEX CAL 19

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	20.6 – 22.2° C	21.7 ° C
RELATIVE HUMIDITY	10 – 70 %	40 %
INITIAL ANGLE OF UNSUPPORTRED DUMMY	<= 20° REFERENCED TO VERTICAL	13.2 °
MAXIMUM FORCE AT 45 DEG. DURING 10 SECOND PERIOD	320 – 390 N	375.7 N
RETURN ANGLE		6.9 °
DIFFERENCE BETWEEN RETURN ANGLE & INTIAL ANGLE	+/- 8 ° OF INTIAL ANGLE	20.1 °
RATE	0.5° - 1.5°/sec	1.0 °/sec

TEST MEETS SPECIFICATIONS

Comments:

TECHNICIAN 

Transportation Research Center Inc.

5720 Left Knee Slider Test

HIII 5th Female Serial No. 416 Calibration No. 19 - 1

Test Date 04/07/2003

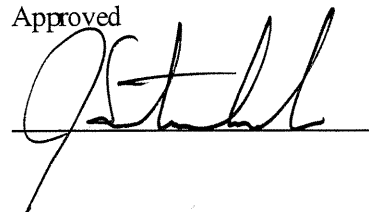
Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.6 °C	21.7 °C	Yes
Relative Humidity	10 - 70 %	41 %	Yes
Pendulum Velocity	2.70 - 2.80 m/s	2.76 m/s	Yes
Knee Displacement	-15.5 - (-12.7) mm	-13.7 mm	Yes

Comments:

Technician



Approved



04.07.2003 14:47:54 1327

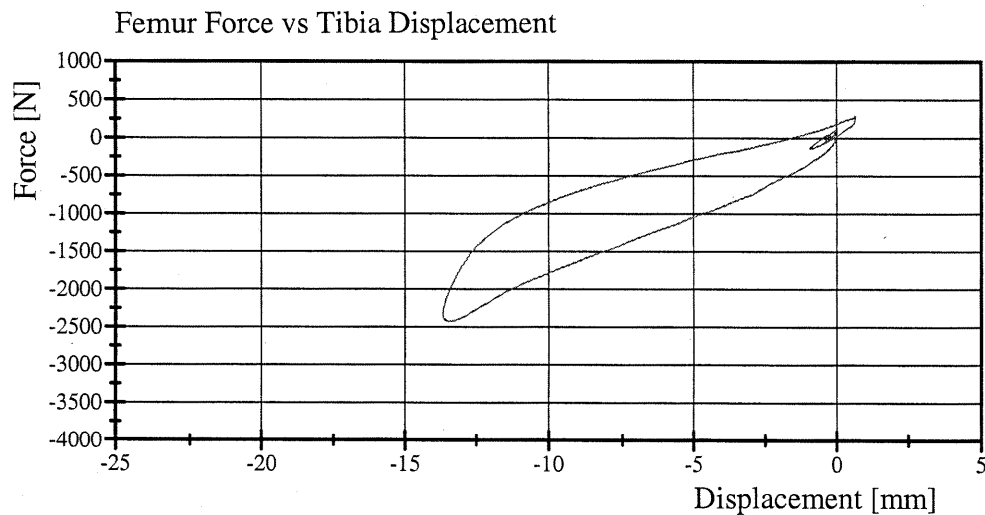
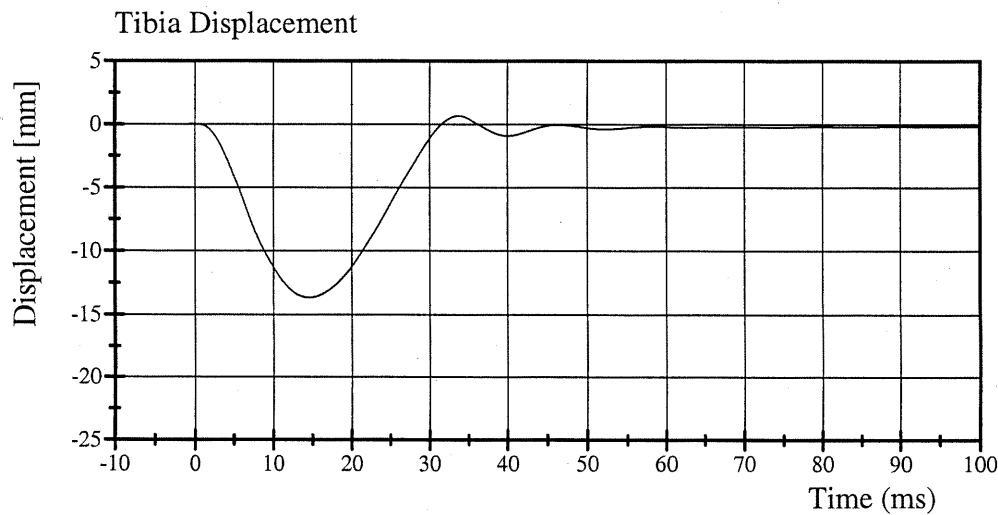
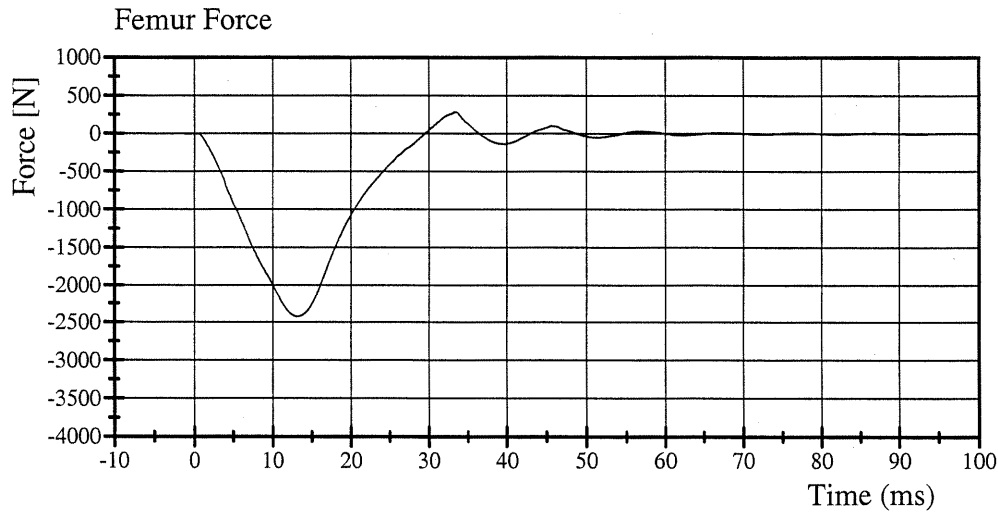


Transportation Research Center Inc.

5720 Left Knee Slider Test

HIII 5th Female Serial No. 416 Calibration No. 19 - 1

Test Date 04/07/2003



04.07.2003 14:47:55 1327



Transportation Research Center Inc.

5720 Right Knee Slider Test

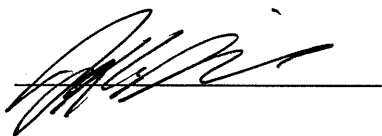
HIII 5th Female Serial No. 416 Calibration No. 19 - 1

Test Date 04/08/2003

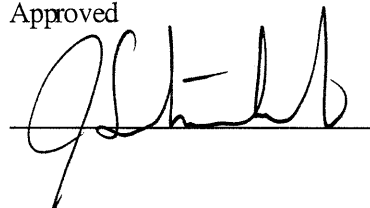
Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.6 °C	21.7 °C	Yes
Relative Humidity	10 - 70 %	38 %	Yes
Pendulum Velocity	2.70 - 2.80 m/s	2.76 m/s	Yes
Knee Displacement	-15.5 - (-12.7) mm	-13.3 mm	Yes

Comments:

Technician



Approved



04.08.2003 09:04:28 1331

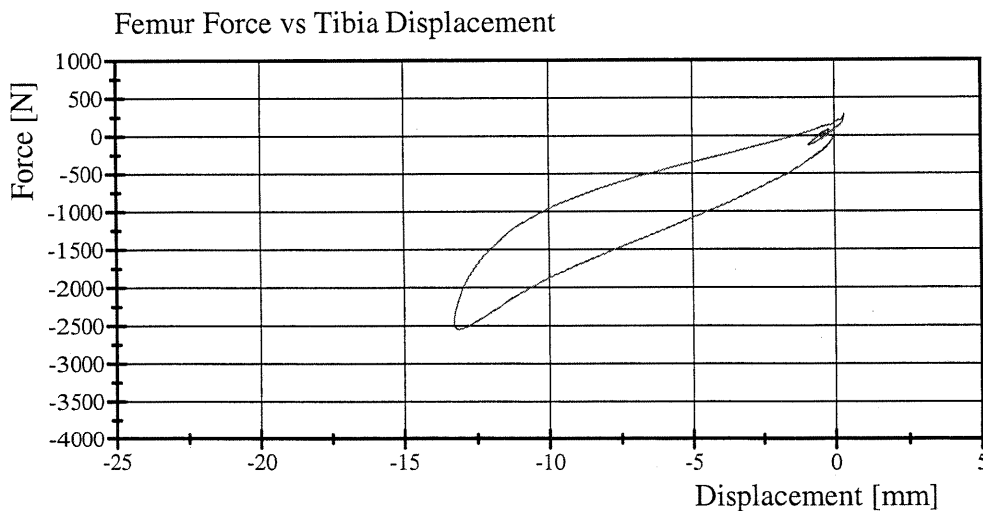
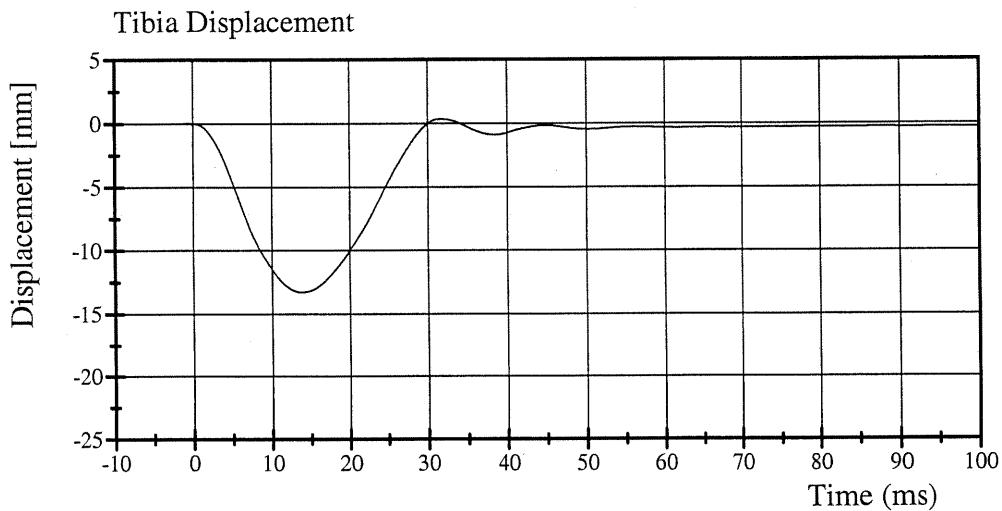
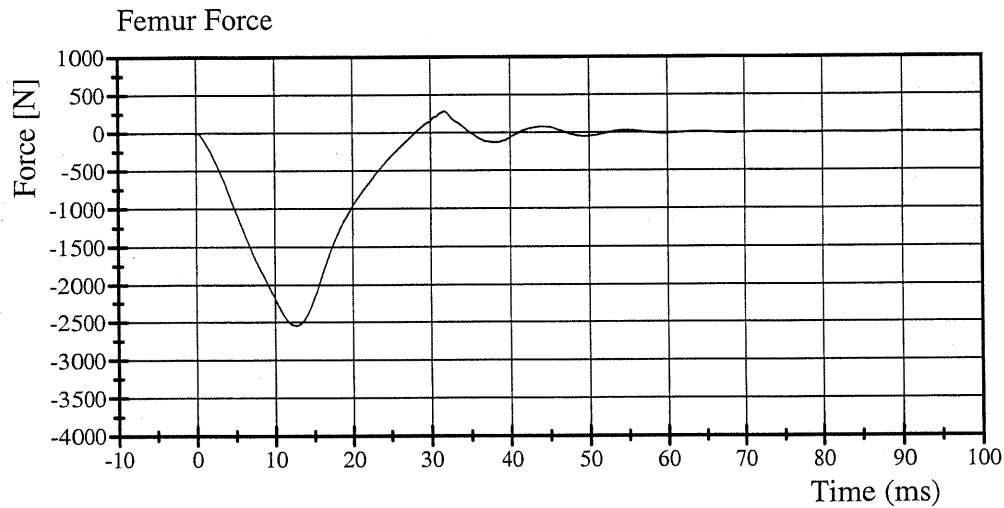


Transportation Research Center Inc.

5720 Right Knee Slider Test

HIII 5th Female Serial No. 416 Calibration No. 19 - 1

Test Date 04/08/2003



04.08.2003 09:04:30 1331



Transportation Research Center Inc.

5720 Left Knee Test

HIII 5th Female Serial No. 416 Calibration No. 19 - 1

Test Date 04/07/2003

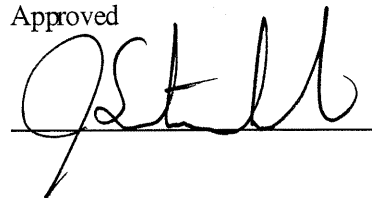
Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.6 °C	21.7 °C	Yes
Relative Humidity	10 - 70 %	38 %	Yes
Pendulum Velocity	2.07 - 2.13 m/s	2.10 m/s	Yes
Maximum Pendulum Force	3450 - 4060 N	3669 N	Yes

Comments:

Technician



Approved



04.07.2003 11:17:05 1685



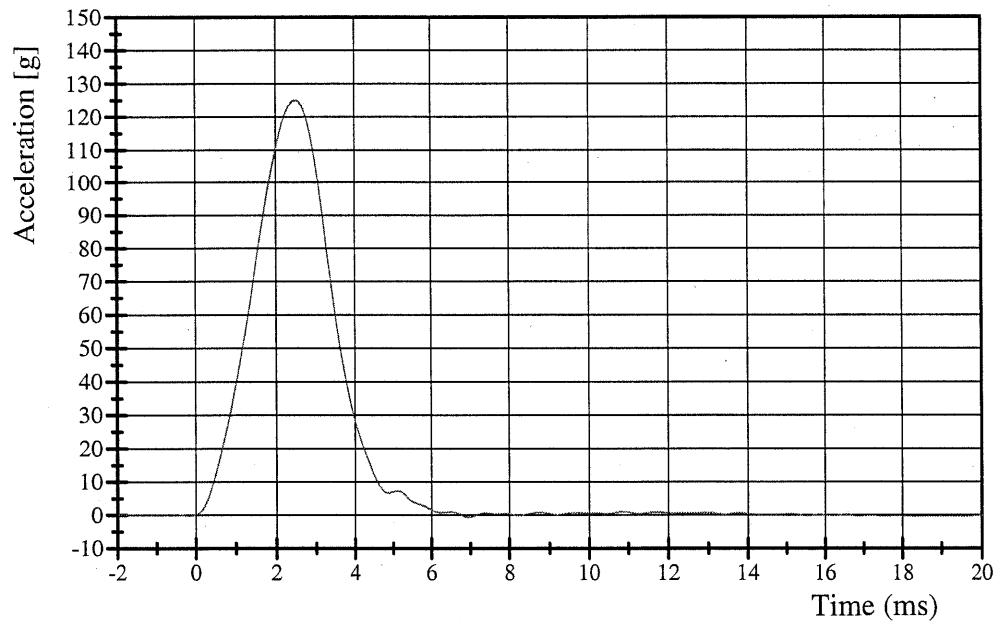
Transportation Research Center Inc.

5720 Left Knee Test

HIII 5th Female Serial No. 416 Calibration No. 19 - 1

Test Date 04/07/2003

Pendulum Deceleration

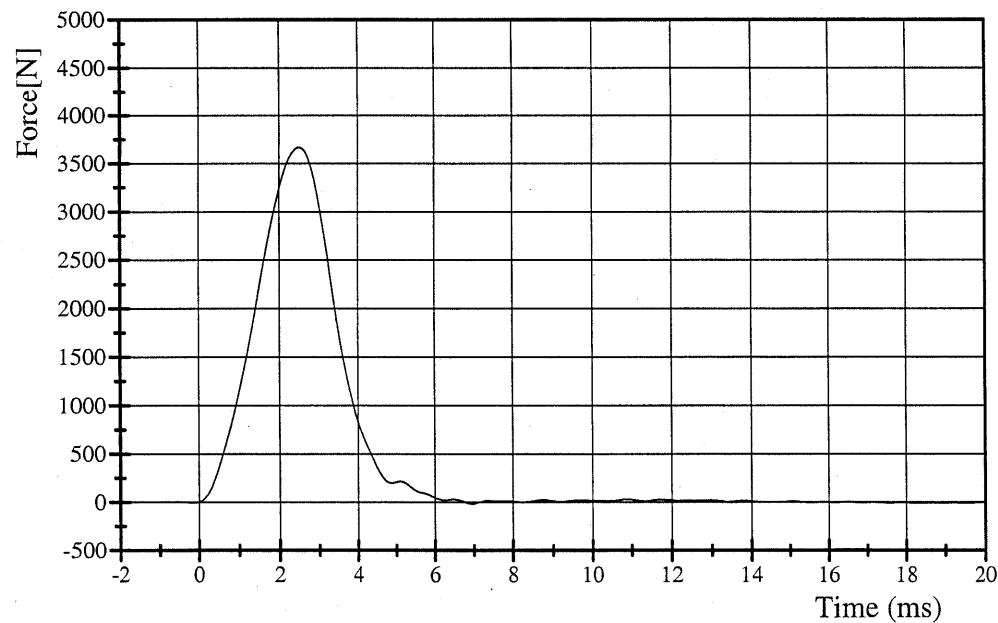


Filter Class: 600

Max: 125.1 g at 2.5 ms

Min: -0.6 g at 7.0 ms

Pendulum Force



Filter Class: 600

Max: 3668.7 N at 2.5 ms

Min: -18.7 N at 7.0 ms

04.07.2003 11:17:06 1685



Transportation Research Center Inc.

5720 Right Knee Test

HIII 5th Female Serial No. 416 Calibration No. 19 - 1

Test Date 04/07/2003

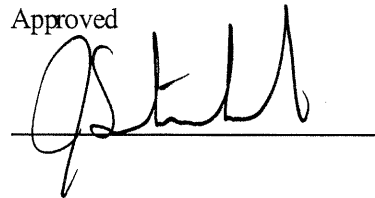
Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.6 °C	21.7 °C	Yes
Relative Humidity	10 - 70 %	38 %	Yes
Pendulum Velocity	2.07 - 2.13 m/s	2.11 m/s	Yes
Maximum Pendulum Force	3450 - 4060 N	3721 N	Yes

Comments:

Technician



Approved



04.07.2003 11:20:34 1677



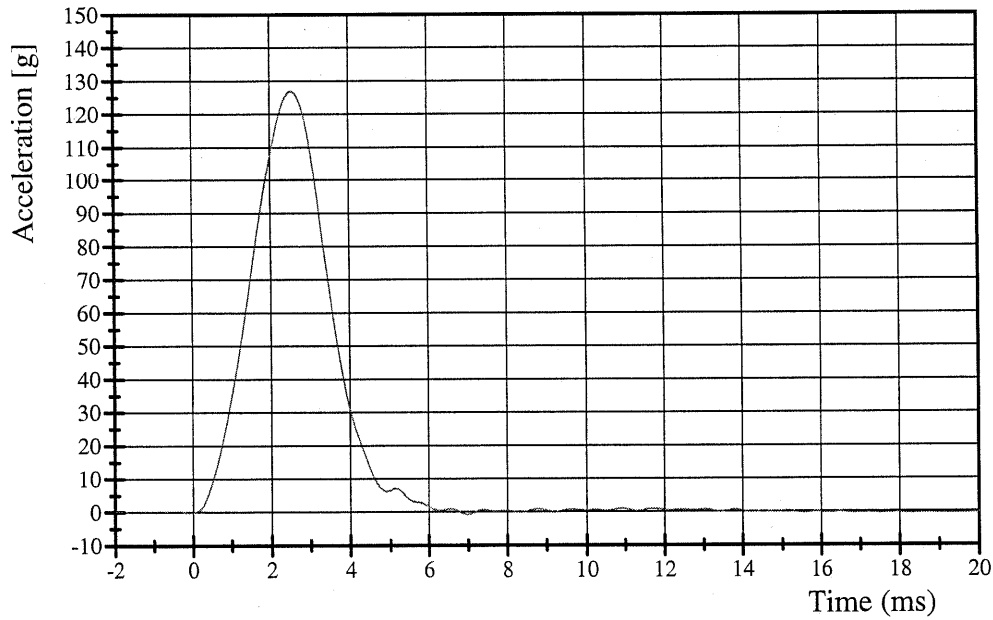
Transportation Research Center Inc.

5720 Right Knee Test

HIII 5th Female Serial No. 416 Calibration No. 19 - 1

Test Date 04/07/2003

Pendulum Deceleration

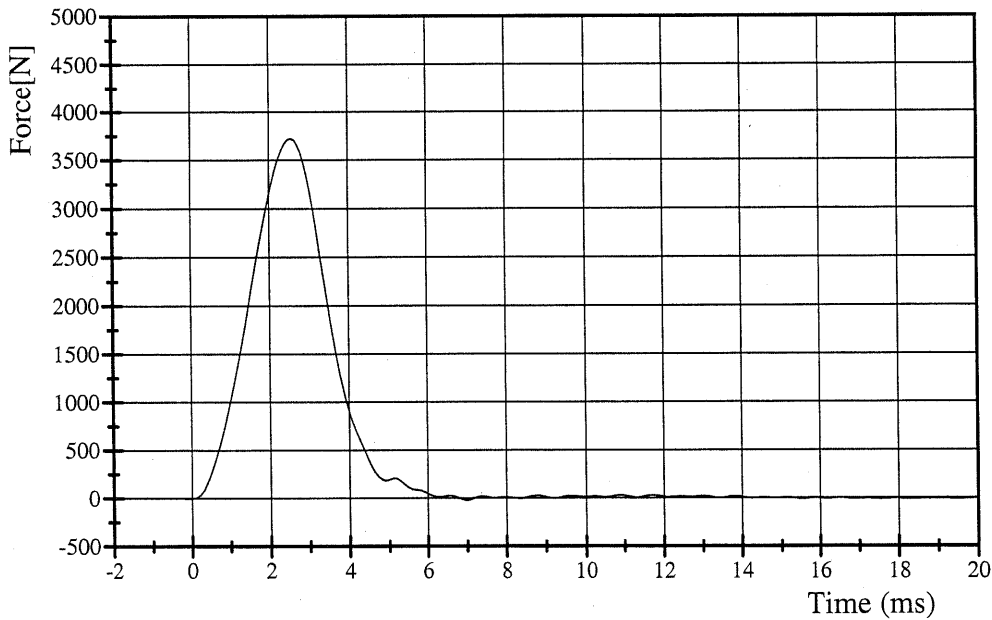


Filter Class: 600

Max: 126.9 g at 2.6 ms

Min: -0.8 g at 7.0 ms

Pendulum Force



Filter Class: 600

Max: 3721.4 N at 2.6 ms

Min: -22.9 N at 7.0 ms

Post-Test Dummy Configuration and Performance Verification Data

Bullet Vehicle Passenger Dummy S/N: 416

(No post-test verification performed at this time.)

Target Vehicle Driver Dummy S/N 168

(No post-test verification performed at this time.)

Target Vehicle Passenger Dummy S/N 169

(No post-test verification performed at this time.)

Appendix D

Miscellaneous Information

Sign Convention
SAE J211 MAR95

Accelerometers:

+X: Forward
+Y: Rightward
+Z: Downward

Potentiometers:

+Chest longitudinal deflection: Outward
+Chest lateral deflection: Rightward
+Seat belt displacement: Outward
+Seat belt extension: Elongation
+Knee slider displacement: Distance between femur and tibia
increased (in relation to a seated
dummy)

Rotation potentiometers:

+About the X-axis: Left foot-eversion
Right foot-inversion
+About the Y-axis: Left/right foot-dorsiflexion
+About the Z-axis: Left foot-internal
Right foot-external

Load cells:

+Femur force: Tension
+Seat belt force: Tension
+Barrier force: Tension

Neck load cells:

+X force: Head pushed rearward
+Y force: Head pushed leftward
+Z force: Head pulled upward (tension on neck)
+X moment: Left ear rotating toward left shoulder
+Y moment: Chin rotating toward chest
+Z moment: Chin rotating toward left shoulder

Tibia load cells:

+X force: Ankle forward, knee rearward
+Y force: Ankle rightward, knee leftward
+Z force: Tension
+X moment: Bottom of tibia moving leftward
+Y moment: Bottom of tibia moving rearward

Frequency Response Classes
SAE J211 MAR95

<u>Typical Test Measurements</u>	<u>Channel Class</u>
Vehicle Structural Accelerations for use in:	
Total vehicle comparison	60
Collision simulation input	60
Component analysis	600
Integration for velocity or displacement	180
Barrier Face Forces	60
Belt Restraint System Loads	60
Anthropomorphic Test Device	
Head accelerations (linear and angular)	1000
Neck	
Forces	1000
Moments	600
Thorax	
Spine accelerations	180
Rib accelerations	1000
Sternum accelerations	1000
Deflections	600
Lumbar	
Forces	1000
Moments	1000
Pelvis	
Accelerations	1000
Forces	1000
Moments	1000
Femur/Knee/Tibia/Ankle	
Forces	600
Moments	600
Displacements	180
Sled Accelerations	60
Steering Column Loads	600
Head form Accelerations	1000

Description Of Timing Marks On TRC Inc. High-Speed Film

All TRC Inc. high-speed cameras are equipped with red LEDs which put timing marks on the right edge of the film. TRC Inc. uses a single timing generator to generate the timing for all cameras. This allows the timing marks to be common to all cameras. The timing marks can be used to measure camera speed (frames per second) or to locate a point in time before or after the time-zero event.

The timing marks appear on the film as small red marks on the right edge of the film. Round marks are left by the Photosonic and Stalex cameras while horizontal bars are left by the Hycam, Locam, and Fastax II cameras.

The timing generator puts out a pulse for every millisecond plus it generates additional pulses for hundredths and tenths of seconds. To explain this further, we can use an example of a camera running at 1000 frames per second.

1. Every frame will have **one** LED appear in it. This indicates a *millisecond* pulse.
2. Every ten frames will have **two** LEDs appear in it. These indicate a *millisecond* pulse plus a *hundredth of a second* pulse.
3. Every one hundred frames will have **three** LEDs appear in it. These indicate a *millisecond* pulse, a *hundredth of a second* pulse, and a *tenth of a second* pulse.

To locate time-zero, observe the continuous LED that is visible on the left side of the frame at the beginning of each view. Locate the frame where the left side LED is fully extinguished and reverse 4 frames for the Photosonic cameras; reverse 5 frames for Hycam cameras; reverse 2 frames for Stalex cameras. This frame is time-zero.

The direction column on the following sheets describes the transducer output as mounted and wired in the test location. The polarity column indicates whether a polarity change occurred during data acquisition to conform to J211 MAR95. See Report Sign Convention sheet for description of data output as presented in the report: occasionally channels have been adjusted in post-acquisition processing to conform to J211 MAR95.

Dummy	168v	Type	HIH 50TH	Descriptio	VRTC - 168v HIH 50TH ICAL'd 1-24-02 (DKS 3-19-03)J211					
Chsnam	Location		Model	Name	Manufacturer	Sens./mV/V/	Fullscal	Caldat	Pos Output	Flip
HEDXG	Head Accel X		7264-2KM5T	J17649	Endevco	0.03243 g	2000	3/12/2003	Rwd	1
HEDYG	Head Accel Y		7264-2000T	AJ454	Endevco	0.02856 g	2000	3/12/2003	Lft	1
HEDZG	Head Accel Z		7264-2000T	J14189	Endevco	0.03309 g	2000	3/12/2003	Up	1
HEDXR	Head Accel Red X	S39	7264C-2KLC-2	P17196	Endevco	0.02117 g	2000	3/12/2003	Rwd	1
HEDYR	Head Accel Red Y		EGE-73B6Q-20	B02A25-N09	Entran	0.01897 g	2000	3/12/2003	Lft	1
HEDZR	Head Accel Red Z		EGE-73B6Q-20	01G25-N09	Entran	0.01947 g	2000	3/12/2003	Up	1
NEKXF	Neck Force X		1716A	1716A-851-FX	Denton	0.000193999 N	8896.4	5/29/2002	Hd Fd,Cst Rr	1
NEKYF	Neck Force Y		1716A	1716A-851-FY	Denton	0.000188289 N	8896.4	5/29/2002	Hd Lt,Cst Rt	0
NEKZF	Neck Force Z		1716A	1716A-851-FZ	Denton	0.000147643 N	13344.6	5/29/2002	Hd Up,Cst Dn	0
NEKXM	Neck Moment X		1716A	1716A-851-MX	Denton	0.005989734 N	282.5	5/29/2002	Rt Ear to Rt Shld	1
NEKYM	Neck Moment Y		1716A	1716A-851-MY	Denton	0.005981947 N	282.5	5/29/2002	Chn to Strnm	0
NEKZM	Neck Moment Z		1716A	1716A-851-MZ	Denton	0.008568142 N	282.5	5/29/2002	Chn to Lt Shld	0
CSTXG	Chest Accel X		7264-2000TZ	J35921	Endevco	0.03035 g	2000	3/12/2003	Fwd	0
CSTYG	Chest Accel Y		7264-2000T	AJ7F7	Endevco	0.03042 g	2000	3/12/2003	Lft	1
CSTZG	Chest Accel Z		7264-2000TZ	J36723	Endevco	0.02516 g	2000	3/12/2003	Up	1
CSTXR	Chest Accel Red X		EGE-73BQE0-	99H30-Z14	Entran	0.02071 g	2000	3/12/2003	Rwd	1
CSTYR	Chest Accel Red Y		EGE-73BQ-200	98H14-K05	Entran	0.01747 g	2000	3/12/2003	Lft	1
CSTZR	Chest Accel Red Z		EGE-73BQ-200	98H13-F03	Entran	0.02086 g	2000	3/12/2003	Up	1
CSTXD	Chest Deflection X		14CB1-2847	14CB1-2847-168	Servo	1.1291 m	100	3/19/2003	Strnm Away Frm Spn	0
PEVXG	Pelvis Accel X		7264-2000T	ACCY2	Endevco	0.0237 g	2000	3/12/2003	Rwd	1
PEVYG	Pelvis Accel Y		7264-2KM5T	J27490	Endevco	0.02212 g	2000	3/12/2003	Lft	1
PEVZG	Pelvis Accel Z		7264-2KM5T	J21963	Endevco	0.02531 g	2000	3/12/2003	Up	1
LFMXF	Left Femur Force X		1914A	1914A-362-FX	Denton	0.000143968 N	13344	5/24/2002	Knee Dn,Fem Up	1
LFMYF	Left Femur Force Y		1914A	1914A-362-FY	Denton	0.000144523 N	13344	5/24/2002	Knee Rt,Fem Lt	0
LFMZG	Left Femur Force Z		1914A	1914A-362-FZ	Denton	0.000059074 N	22240	5/24/2002	Knee Fd,Pel Rr	0
LFMXM	Left Femur Moment X		1914A	1914A-362-MX	Denton	0.004464012 N	339	5/24/2002	Knee Rt,Hld Fem	1

Wednesday, May 14, 2003 168v

Page 1 of 2

Chsnam	Location	Model	Name	Manufacturer	Sens./mV/V/	Fullscal	Caldat	Pos Output	Flip
LFMYM	Left Femur Moment Y	1914A	1914A-362-MY	Denton	0.004409145 N	339	5/24/2002	Knee Up,Hld Fem	0
LFMZM	Left Femur Moment Z	1914A	1914A-362-MZ	Denton	0.00790413 N	339	5/24/2002	Tib Lt,Hld Pel	0
RFMXF	Right Femur Force X	1914A	1914A-376-FX	Denton	0.000146666 N	13344	5/24/2002	Knee Dn,Fem Up	1
RFMYF	Right Femur Force Y	1914A	1914A-376-FY	Denton	0.000146629 N	13344	5/24/2002	Knee Rt,Fem Lt	0
RFMZF	Right Femur Force Z	1914A	1914A-376-FZ	Denton	0.000059876 N	22240	5/24/2002	Knee Fd,Pel Rr	0
RFMXM	Right Femur Moment X	1914A	1914A-376-MX	Denton	0.004443068 N	339	5/24/2002	Knee Rt,Hld Fem	1
RFMYM	Right Femur Moment Y	1914A	1914A-376-MY	Denton	0.003790977 N	339	5/24/2002	Knee Up,Hld Fem	0
RFMZM	Right Femur Moment Z	1914A	1914A-376-MZ	Denton	0.006787469 N	339	5/24/2002	Tib Lt,Hld Pel	0
KNLXD	Left Knee Displacement	150-0121VR	150-0121VR-18026	Space Age	22.993 m	40	3/19/2003	Tib Rr,Hld Fem	1
TBLZF	Left Upper Tibia Force Z	3115	3115-268-FZ	Denton	0.0000946 N	11120.6	5/29/2002	Tib Dn,Knee Up	0
TBLXM	Left Upper Tibia Moment X	3115	3115-268-MX	Denton	0.007285179 N	395.4	5/29/2002	Tib Rt,Hld Knee	1
TBLYM	Left Upper Tibia Moment Y	3115	3115-268-MY	Denton	0.007361801 N	395.4	5/29/2002	Tib Fd,Hld Knee	0
ANLZF	Left Lower Tibia Force Z	3287	3287-196-FZ	Denton	0.000094932 N	11120.5	5/29/2002	Ank Dn,Knee Up	0
ANLXM	Left Lower Tibia Moment X	3287	3287-196-MX	Denton	0.007515551 N	395.4	5/29/2002	Ank Rt,Hld Knee	1
ANLYM	Left Lower Tibia Moment Y	3287	3287-196-MY	Denton	0.007504678 N	395.4	5/29/2002	Ank Fd,Hld Knee	0
KNRXD	Right Knee Displacement	150-0121VL	150-0121VL-23106	Space Age	23.682 m	40	6/13/2002	Tib Rr,Hld Fem	1
TBRZF	Right Upper Tibia Force Z	3115	3115-274-FZ	Denton	0.00009486 N	11120.6	5/29/2002	Tib Dn,Knee Up	0
TBRXM	Right Upper Tibia Moment X	3115	3115-274-MX	Denton	0.007417687 N	395.4	5/29/2002	Tib Rt,Hld Knee	1
TBRYM	Right Upper Tibia Moment Y	3115	3115-274-MY	Denton	0.007392652 N	395.4	5/29/2002	Tib Fd,Hld Knee	0
ANRZF	Right Lower Tibia Force Z	3287	3287-185-FZ	Denton	0.000095265 N	11120.5	5/29/2002	Ank Dn,Knee Up	0
ANRXM	Right Lower Tibia Moment X	3287	3287-185-MX	Denton	0.007630864 N	395.4	5/29/2002	Ank Rt,Hld Knee	1
ANRYM	Right Lower Tibia Moment Y	3287	3287-185-MY	Denton	0.007560817 N	395.4	5/29/2002	Ank Fd,Hld Knee	0

Dummy	169v-	Type	HIH 50TH	Descriptio	VRTC - 169v HIH 50TH ICAL'd 5-24-02 (DKS 3-19-03)J211					
Chsnam	Location	Model	Name	Manufacturer	Sens./mV/V/	Fullscal	Caldat	Pos Output	Flip	
HEDXG	Head Accel X	7264-2000T	J20083	Endevco	0.02184 g	2000	3/11/2003	Rwd	1	
HEDYG	Head Accel Y	7264-2000T	J19843	Endevco	0.02239 g	2000	3/11/2003	Lft	1	
HEDZG	Head Accel Z	7264-2KM5T	J20027	Endevco	0.02586 g	2000	3/11/2003	Up	1	
NEKXF	Neck Force X	1716A	1716A-782-FX	Denton	0.000190504 N	8896	5/30/2002	Hd Fd,Cst Rr	1	
NEKYF	Neck Force Y	1716A	1716A-782-FY	Denton	0.000186052 N	8896	5/30/2002	Hd Lt,Cst Rt	0	
NEKZF	Neck Force Z	1716A	1716A-782-FZ	Denton	0.000096548 N	13344	5/30/2002	Hd Up,Cst Dn	0	
NEKXM	Neck Moment X	1716A	1716A-782-MX	Denton	0.005812389 N	282.5	5/30/2002	Rt Ear to Rt Shld	1	
NEKYM	Neck Moment Y	1716A	1716A-782-MY	Denton	0.005816283 N	282.5	5/30/2002	Chn to Strnm	0	
NEKZM	Neck Moment Z	1716A	1716A-782-MZ	Denton	0.008224071 N	282.5	5/30/2002	Chn to Lt Shld	0	
CSTXG	Chest Accel X	7264-2000T	J23757	Endevco	0.02807 g	2000	3/12/2003	Fwd	0	
CSTYG	Chest Accel Y	7264-2KM5T	J21989	Endevco	0.02343 g	2000	3/12/2003	Lft	1	
CSTZG	Chest Accel Z	7264-2000TZ	J35747	Endevco	0.02829 g	2000	3/12/2003	Up	1	
CSTXD	Chest Deflection X	14CB1-2847	14CB1-2847-169	Servo	1.1417 m	100	3/19/2003	Strnm Away Frm Spn	0	
PEVXG	Pelvis Accel X	7264-2000TZ	J36741	Endevco	0.02309 g	2000	3/11/2003	Rwd	1	
PEVYG	Pelvis Accel Y	7264-2000TZ	J36605	Endevco	0.02678 g	2000	3/11/2003	Lft	1	
PEVZG	Pelvis Accel Z	7264-2000LC	AAMD7	Endevco	0.0268 g	2000	3/11/2003	Up	1	
LFMXF	Left Femur Force X	1914	1914-0261-FX	Denton	0.000144725 N	13344	5/24/2002	Knee Dn,Fem Up	1	
LFMYF	Left Femur Force Y	1914	1914-0261-FY	Denton	0.000145182 N	13344	5/24/2002	Knee Rt,Fem Lt	0	
LFMZG	Left Femur Force Z	1914	1914-0261-FZ	Denton	0.000053289 N	22240	5/24/2002	Knee Fd,Pel Rr	0	
LFMXM	Left Femur Moment X	1914	1914-0261-MX	Denton	0.004356637 N	339	5/24/2002	Knee Rt,Hld Fem	1	
LFMYM	Left Femur Moment Y	1914	1914-0261-MY	Denton	0.004435398 N	339	5/24/2002	Knee Up,Hld Fem	0	
LFMZM	Left Femur Moment Z	1914	1914-0261-MZ	Denton	0.007827729 N	339	5/24/2002	Tib Lt,Hld Pel	0	
RFMXF	Right Femur Force X	1914A	1914A-383-FX	Denton	0.000147685 N	13344	5/24/2002	Knee Dn,Fem Up	1	
RFMYF	Right Femur Force Y	1914A	1914A-383-FY	Denton	0.00014785 N	13344	5/24/2002	Knee Rt,Fem Lt	0	
RFMZG	Right Femur Force Z	1914A	1914A-383-FZ	Denton	0.00006006 N	22240	5/24/2002	Knee Fd,Pel Rr	0	
RFMXM	Right Femur Moment X	1914A	1914A-383-MX	Denton	0.004435103 N	339	5/24/2002	Knee Rt,Hld Fem	1	

Wednesday, May 14, 2003 169v-

Page 1 of 2

Chsnam	Location	Model	Name	Manufacturer	Sens./mV/V/	Fullscal	Caldat	Pos Output	Flip
RFMYM	Right Femur Moment Y	1914A	1914A-383-MY	Denton	0.004437463 N	339	5/24/2002	Knee Up,Hld Fem	0
RFMZM	Right Femur Moment Z	1914A	1914A-383-MZ	Denton	0.008078761 N	339	5/24/2002	Tib Lt,Hld Pel	0
KNLXD	Left Knee Displacement	150-0121VR	150-0121VR-17169	Space Age	23.348 m	40	3/11/2003	Tib Rr,Hld Fem	1
KNRXD	Right Knee Displacement	150-0121VL	150-0121VL-21033	Space Age	23.862 m	40	3/11/2003	Tib Rr,Hld Fem	1

D-9

030514

Wednesday, May 14, 2003 169v-

Page 2 of 2

Dummy 416v- Type HYBRID III 5th Descriptio VRTC - 416v HYBRID III 5th w/o THOR LEGS ICAL'd 6-1-01(DKS 3-19-03)J211

Chsnam	Location	Model	Name	Manufacturer	Sens./mV/V/	Fullscal	Caldat	Pos Output	Flip
HEDXG	Head Accel X	EGE-73B6Q-20	02A02-F02	Entran	0.0252 g	2000	3/18/2003	Fwd	0
HEDYG	Head Accel Y	EGE-73B6Q-20	02A18-N10	Entran	0.01973 g	2000	3/18/2003	Lft	1
HEDZG	Head Accel Z	EGE-73B6Q-20	02A09-F15	Entran	0.02131 g	2000	3/18/2003	Up	1
HEDXR	Head Accel Red X	EGE-73B6Q-20	01L26-F02	Entran	0.0202 g	2000	3/18/2003	Rwd	1
HEDYR	Head Accel Red Y	EGE-73B6Q-20	02A09-F13	Entran	0.01966 g	2000	3/18/2003	Lft	1
HEDZR	Head Accel Red Z	EGE-73B6Q-20	02A16-A06	Entran	0.0195 g	2000	3/18/2003	Up	1
NEKXF	Neck Force X	IF-205	IF-205-161-FX	FTSS	0.000186275 N	8896	3/18/2003	Hd Fd,Cst Rr	1
NEKYF	Neck Force Y	IF-205	IF-205-161-FY	FTSS	0.000183678 N	8896	3/18/2003	Hd Lt,Cst Rt	0
NEKZF	Neck Force Z	IF-205	IF-205-161-FZ	FTSS	0.000094155 N	13344	3/18/2003	Hd Up,Cst Dn	0
NEKXM	Neck Moment X	IF-205	IF-205-161-MX	FTSS	0.005903009 N	282.5	3/18/2003	Rt Ear to Rt Shld	1
NEKYM	Neck Moment Y	IF-205	IF-205-161-MY	FTSS	0.005938407 N	282.5	3/18/2003	Chin to Strnm	0
NEKZM	Neck Moment Z	IF-205	IF-205-161-MZ	FTSS	0.008475752 N	282.5	3/18/2003	Chn to Lt Shld	0
CSTXG	Chest Accel X	EGE-73B6Q-20	02A16-A04	Entran	0.02105 g	2000	3/18/2003	Fwd	0
CSTYG	Chest Accel Y	EGE-73B6Q-20	C02B19-F02	Entran	0.01886 g	2000	3/18/2003	Lft	1
CSTZG	Chest Accel Z	EGE-73B6Q-20	C02B19-F06	Entran	0.01905 g	2000	3/18/2003	Up	1
CSTXR	Chest Accel Red X	EGE-73B6Q-20	B02A25-N08	Entran	0.01971 g	2000	3/18/2003	Rwd	1
CSTYR	Chest Accel Red Y	EGE-73B6Q-20	01L17-F09	Entran	0.01947 g	2000	3/18/2003	Lft	1
CSTZR	Chest Accel Red Z	EGE-73B6Q-20	C02B19-F04	Entran	0.01779 g	2000	3/18/2003	Up	1
CSTXD	Chest Deflection X 516	14CB1-2897	14CB1-2897-416	Servo	1.6963 m	100	3/19/2003	Strnm Away Frm Spn	0
PEVXG	Pelvis Accel X	EGE-73B6Q-20	C02B19-F03	Entran	0.01761 g	2000	3/18/2003	Rwd	1
PEVYG	Pelvis Accel Y	EGE-73B6Q-20	02A16-A27	Entran	0.02163 g	2000	3/18/2003	Lft	1
PEVZG	Pelvis Accel Z	EGE-73B6Q-20	C02B19-F01	Entran	0.01962 g	2000	3/18/2003	Up	1
LFMZF	Left Femur Force Z #8	2430	2430-736	GSE	0.000070556 N	13344	3/19/2003	Knee Fd,Pel Rr	0
RFMZF	Right Femur Force Z 507	2430	2430-742	GSE	0.000066105 N	13344	3/19/2003	Knee Fd,Pel Rr	0
KNLXD	Left Knee Displacement	150-0121VR	150-0121VR-5556	Space Age	22.966 m	40	3/19/2003	Tib Rr,Hld Fem	1
KNRXD	Right Knee Displacement	150-0121VL	150-0121VL-5482	Space Age	23.491 m	40	3/19/2003	Tib Rr,Hld Fem	1

Wednesday, May 14, 2003 416v-

Page 1 of 1

D-10

030514

Channel Report

5/19/2003 12:41:14 PM

Name of Test 030514

System MINIDAU

Name of DAU DAU6

Chan.#	Sensor #	Mnemonic	Description	Dir.	Range		Pol.	Cal.	Group	Mfg.	Model
6001	J17649	HEDXG1	Head Accel X	Rwd	1214.4500	g	-	3/12/2003	OK	168v	Endevco 7264-2KM5T
6002	AJ454	HEDYG1	Head Accel Y	Lft	1195.1447	g	-	3/12/2003	OK	168v	Endevco 7264-2000T
6003	J14189	HEDZG1	Head Accel Z	Up	1190.2271	g	-	3/12/2003	OK	168v	Endevco 7264-2000T
6004	P17196	HEDXR1	Head Accel Red X S39	Rwd	1209.2583	g	-	3/12/2003	OK	168v	Endevco 7264C-2KLC-2-
6005	B02A25-N09	HEDYR1	Head Accel Red Y	Lft	1226.8174	g	-	3/12/2003	OK	168v	Entran EGE-73B6Q-200
6006	01G25-N09	HEDZR1	Head Accel Red Z	Up	1195.3121	g	-	3/12/2003	OK	168v	Entran EGE-73B6Q-200
6007	1716A-851-FX	NEKXF1	Neck Force X	Hd	13329.236	N	-	5/29/2002	OK	168v	Denton 1716A
6008	1716A-851-FY	NEKYF1	Neck Force Y	Hd	13329.530	N	+	5/29/2002	OK	168v	Denton 1716A
6009	1716A-851-FZ	NEKZF1	Neck Force Z	Hd	20045.227	N	+	5/29/2002	OK	168v	Denton 1716A
6010	1716A-851-MX	NEKXM1	Neck Moment X	Rt Ear	423.16624	N·m	-	5/29/2002	OK	168v	Denton 1716A
6011	1716A-851-MY	NEKYM1	Neck Moment Y	Chn	423.71713	N·m	+	5/29/2002	OK	168v	Denton 1716A
6012	1716A-851-MZ	NEKZM1	Neck Moment Z	Chn	423.80316	N·m	+	5/29/2002	OK	168v	Denton 1716A
6013	J35921	CSTXG1	Chest Accel X	Fwd	602.49470	g	+	3/12/2003	OK	168v	Endevco 7264-2000TZ
6014	AJ7F7	CSTYG1	Chest Accel Y	Lft	601.10829	g	-	3/12/2003	OK	168v	Endevco 7264-2000T
6015	J36723	CSTZG1	Chest Accel Z	Up	598.52239	g	-	3/12/2003	OK	168v	Endevco 7264-2000TZ
6016	99H30-Z14	CSTXR1	Chest Accel Red X	Rwd	602.98430	g	-	3/12/2003	OK	168v	Entran EGE-73BQE0-20
6017	98H14-K05	CSTYR1	Chest Accel Red Y	Lft	598.10987	g	-	3/12/2003	OK	168v	Entran EGE-73BQ-2000
6018	98H13-F03	CSTZR1	Chest Accel Red Z	Up	598.64836	g	-	3/12/2003	OK	168v	Entran EGE-73BQ-2000
6019	14CB1-2847-168	CSTXD1	Chest Deflection X	Strnm	99.661210	mm	+	3/19/2003	OK	168v	Servo 14CB1-2847
6020	ACCY2	PEVXG1	Pelvis Accel X	Rwd	600.09376	g	-	3/12/2003	OK	168v	Endevco 7264-2000T
6021	J27490	PEVYG1	Pelvis Accel Y	Lft	593.49932	g	-	3/12/2003	OK	168v	Endevco 7264-2KM5T
6022	J21963	PEVZG1	Pelvis Accel Z	Up	594.97524	g	-	3/12/2003	OK	168v	Endevco 7264-2KM5T
6024	1914A-362-FX	LFMXF1	Left Femur Force X	Knee	19979.471	N	-	5/24/2002	OK	168v	Denton 1914A
6025	1914A-362-FY	LFMYF1	Left Femur Force Y	Knee	20015.190	N	+	5/24/2002	OK	168v	Denton 1914A
6026	1914A-362-FZ	LFMZF1	Left Femur Force Z	Knee	33334.982	N	+	5/24/2002	OK	168v	Denton 1914A
6027	1914A-362-MX	LFMXM1	Left Femur Moment X	Knee	509.75569	N·m	-	5/24/2002	OK	168v	Denton 1914A
6028	1914A-362-MY	LFMYM1	Left Femur Moment Y	Knee	509.30827	N·m	+	5/24/2002	OK	168v	Denton 1914A
6029	1914A-362-MZ	LFMZM1	Left Femur Moment Z	Tib	510.04931	N·m	+	5/24/2002	OK	168v	Denton 1914A
6030	150-0121VR-180	KNLXD1	Left Knee Displacement	Tib	24.741829	mm	-	3/19/2003	OK	168v	Space Age 150-0121VR
6031	3115-268-FZ	TBLZF1	Left Upper Tibia Force Z	Tib	16704.512	N	+	5/29/2002	OK	168v	Denton 3115
6032	3115-268-MX	TBLXM1	Left Upper Tibia Moment X	Tib	590.58548	N·m	-	5/29/2002	OK	168v	Denton 3115

Channel Report

5/19/2003 12:41:14 PM

Name of Test 030514

System MINIDAU

Name of DAU DAU7

Chan.#	Sensor #	Mnemonic	Description	Dir.	Range		Pol.	Cal.		Group	Mfg.	Model
7001	3115-268-MY	TBLYM1	Left Upper Tibia Moment Y	Tib	594.42905	N·m	+	5/29/2002	OK	168v	Denton	3115
7002	3287-196-FZ	ANLZF1	Left Lower Tibia Force Z	Ank	16697.629	N	+	5/29/2002	OK	168v	Denton	3287
7003	3287-196-MX	ANLXM1	Left Lower Tibia Moment X	Ank	592.39487	N·m	-	5/29/2002	---	168v	Denton	3287
7004	3287-196-MY	ANLYM1	Left Lower Tibia Moment Y	Ank	593.25315	N·m	+	5/29/2002	---	168v	Denton	3287
7005	1914A-376-FX	RFMXF1	Right Femur Force X	Knee	20062.787	N	-	5/24/2002	OK	168v	Denton	1914A
7006	1914A-376-FY	RFMYF1	Right Femur Force Y	Knee	20067.849	N	+	5/24/2002	OK	168v	Denton	1914A
7007	1914A-376-FZ	RFMZF1	Right Femur Force Z	Knee	33402.364	N	+	5/24/2002	OK	168v	Denton	1914A
7008	1914A-376-MX	RFMXM1	Right Femur Moment X	Knee	509.89242	N·m	-	5/24/2002	OK	168v	Denton	1914A
7009	1914A-376-MY	RFMYM1	Right Femur Moment Y	Knee	509.65106	N·m	+	5/24/2002	OK	168v	Denton	1914A
7010	1914A-376-MZ	RFMZM1	Right Femur Moment Z	Tib	509.68327	N·m	+	5/24/2002	OK	168v	Denton	1914A
7011	150-0121VL-231	KNRDX1	Right Knee Displacement	Tib	25.435053	mm	-	6/13/2002	OK	168v	Space Age	150-0121VL
7012	3115-274-FZ	TBRZF1	Right Upper Tibia Force Z	Tib	16658.727	N	+	5/29/2002	OK	168v	Denton	3115
7013	3115-274-MX	TBRXM1	Right Upper Tibia Moment X	Tib	595.03631	N·m	-	5/29/2002	OK	168v	Denton	3115
7014	3115-274-MY	TBRYM1	Right Upper Tibia Moment Y	Tib	591.94838	N·m	+	5/29/2002	OK	168v	Denton	3115
7015	3287-185-FZ	ANRZF1	Right Lower Tibia Force Z	Ank	16690.936	N	+	5/29/2002	OK	168v	Denton	3287
7016	3287-185-MX	ANRXM1	Right Lower Tibia Moment X	Ank	593.76938	N·m	-	5/29/2002	---	168v	Denton	3287
7017	3287-185-MY	ANRYM1	Right Lower Tibia Moment Y	Ank	594.01359	N·m	+	5/29/2002	---	168v	Denton	3287
7018	P26429	VCGXG1	VEHICLE CG X-AXIS	FWD	1006.2893	g	+	3/20/2003	OK	-1	Endevco	7264C-2K-2-180
7019	03D03C28-N14	VCGYG1	VEHICLE CG Y-AXIS	RT	984.61538	g	+	4/3/2003	OK	-1	Entran	EGE-73B6Q-200
7020	03C03C14-N07	VCGZG1	VEHICLE CG Z-AXIS	UP	984.61538	g	-	3/24/2003	OK	-1	Entran	EGE-73B6Q-200
7021	03D03C27-N11	RDKXG1	REAR DECK X-AXIS	FWD	989.37198	g	+	4/3/2003	OK	-1	Entran	EGE-73B6Q-200
7022	03D03C27-N14	RDKYG1	REAR DECK Y-AXIS	RT	1020.7336	g	+	4/3/2003	---	-1	Entran	EGE-73B6Q-200
7023	03D03C27-N10	RDKZG1	REAR DECK Z-AXIS	UP	994.17475	g	-	4/3/2003	OK	-1	Entran	EGE-73B6Q-200
7024	03D03C27-N28	LFSXG1	LEFT FRONT SILL X-AXIS	FWD	1513.4496	g	+	5/15/2003	OK	-1	Entran	EGE-73B6Q-200
7025	P25313	LFSYG1	LEFT FRONT SILL Y-AXIS	RT	1537.3990	g	+	5/16/2003	OK	-1	Endevco	7264C-2K-2-180
7026	P23707	LRSXG1	LEFT REAR SILL X-AXIS	FWD	1473.8054	g	+	4/23/2003	OK	-1	Endevco	7264C-2K-2-180
7027	P23416	LRSYG1	LEFT REAR SILL Y-AXIS	RT	1539.7570	g	+	3/3/2003	OK	-1	Endevco	7264C-2K-2-180
7028	P23201	RFSXG1	RIGHT FRONT SILL X-AXIS	RR	595.62587	g	-	3/3/2003	OK	-1	Endevco	7264C-2K-2-180
7029	J33398	RFSYG1	RIGHT FRONT SILL Y-AXIS	LT	602.89199	g	-	3/4/2003	OK	-1	Endevco	7264-2000TZ
7030	P24592	RRSXG1	RIGHT REAR SILL X-AXIS	RR	599.13873	g	-	11/20/2002	OK	-1	Endevco	7264C-2K-2-180
7031	P23384	RRSYG1	RIGHT REAR SILL Y-AXIS	LT	599.65098	g	-	3/3/2003	OK	-1	Endevco	7264C-2K-2-180
7032	03D03C27-N17	ENGXG1	ENGINE TOP X-AXIS	RR	1545.8937	g	-	4/3/2003	OK	-1	Entran	EGE-73B6Q-200

Channel Report

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Name of Test 030514

System MINIDAU

Name of DAU DAUA

Chan.#	Sensor #	Mnemonic	Description	Dir.	Range		Pol.	Cal.		Group	Mfg.	Model
0001	J20083	HEDXGA	Head Accel X	Rwd	1172.1611	g	-	3/11/2003	OK	169v-	Endevco	7264-2000T
0002	J19843	HEDYGA	Head Accel Y	Lft	1203.5448	g	-	3/11/2003	OK	169v-	Endevco	7264-2000T
0003	J20027	HEDZGA	Head Accel Z	Up	1237.4323	g	-	3/11/2003	OK	169v-	Endevco	7264-2KM5T
0004	1716A-782-FX	NEKXFA	Neck Force X	Hd	13371.182	N	-	5/30/2002	OK	169v-	Denton	1716A
0005	1716A-782-FY	NEKYFA	Neck Force Y	Hd	13358.829	N	+	5/30/2002	OK	169v-	Denton	1716A
0006	1716A-782-FZ	NEKZFA	Neck Force Z	Hd	20011.553	N	+	5/30/2002	OK	169v-	Denton	1716A
0007	1716A-782-MX	NEKXMA	Neck Moment X	Rt Ear	423.49857	N-m	-	5/30/2002	OK	169v-	Denton	1716A
0008	1716A-782-MY	NEKYMA	Neck Moment Y	Chn	423.21504	N-m	+	5/30/2002	OK	169v-	Denton	1716A
0009	1716A-782-MZ	NEKZMA	Neck Moment Z	Chn	423.51205	N-m	+	5/30/2002	OK	169v-	Denton	1716A
0010	J23757	CSTXGA	Chest Accel X	Fwd	608.00380	g	+	3/12/2003	OK	169v-	Endevco	7264-2000T
0011	J21989	CSTYGA	Chest Accel Y	Lft	607.00905	g	-	3/12/2003	OK	169v-	Endevco	7264-2KM5T
0012	J35747	CSTZGA	Chest Accel Z	Up	603.27559	g	-	3/12/2003	OK	169v-	Endevco	7264-2000TZ
0013	14CB1-2847-169	CSTXDA	Chest Deflection X	Strnm	99.656457	mm	+	3/19/2003	OK	169v-	Servo	14CB1-2847
0014	J36741	PEVXGA	Pelvis Accel X	Rwd	599.30003	g	-	3/11/2003	OK	169v-	Endevco	7264-2000TZ
0015	J36605	PEVYGA	Pelvis Accel Y	Lft	597.46079	g	-	3/11/2003	OK	169v-	Endevco	7264-2000TZ
0016	AAMD7	PEVZGA	Pelvis Accel Z	Up	597.01492	g	-	3/11/2003	OK	169v-	Endevco	7264-2000LC
0017	1914-0261-FX	LFMXFA	Left Femur Force X	Knee	19987.254	N	-	5/24/2002	OK	169v-	Denton	1914
0018	1914-0261-FY	LFMYFA	Left Femur Force Y	Knee	20037.545	N	+	5/24/2002	OK	169v-	Denton	1914
0019	1914-0261-FZ	LFMZFA	Left Femur Force Z	Knee	33361.064	N	+	5/24/2002	OK	169v-	Denton	1914
0020	1914-0261-MX	LFMXMA	Left Femur Moment X	Knee	508.75255	N-m	-	5/24/2002	OK	169v-	Denton	1914
0021	1914-0261-MY	LFMYMA	Left Femur Moment Y	Knee	508.52406	N-m	+	5/24/2002	OK	169v-	Denton	1914
0022	1914-0261-MZ	LFMZMA	Left Femur Moment Z	Tib	507.04262	N-m	+	5/24/2002	OK	169v-	Denton	1914
0023	150-0121VR-171	KNLXDA	Left Knee Displacement	Tib	24.365636	mm	-	3/11/2003	OK	169v-	Space Age	150-0121VR
0024	1914A-383-FX	RFXFA	Right Femur Force X	Knee	20039.527	N	-	5/24/2002	OK	169v-	Denton	1914A
0025	1914A-383-FY	RFXMYFA	Right Femur Force Y	Knee	20017.163	N	+	5/24/2002	OK	169v-	Denton	1914A
0026	1914A-383-FZ	RFXMZFA	Right Femur Force Z	Knee	33300.033	N	+	5/24/2002	OK	169v-	Denton	1914A
0027	1914A-383-MX	RFXMA	Right Femur Moment X	Knee	508.55788	N-m	-	5/24/2002	OK	169v-	Denton	1914A
0028	1914A-383-MY	RFXMYMA	Right Femur Moment Y	Knee	508.28741	N-m	+	5/24/2002	OK	169v-	Denton	1914A
0029	1914A-383-MZ	RFXMZMA	Right Femur Moment Z	Tib	507.00843	N-m	+	5/24/2002	OK	169v-	Denton	1914A
0030	150-0121VL-210	KNRXDA	Right Knee Displacement	Tib	25.243187	mm	-	3/11/2003	OK	169v-	Space Age	150-0121VL
0031	02A02-F02	HEDXGB	Head Accel X	Fwd	1195.1447	g	+	3/18/2003	OK	416v-	Entran	EGE-73B6Q-200
0032	02A18-N10	HEDYGB	Head Accel Y	Lft	1179.5604	g	-	3/18/2003	OK	416v-	Entran	EGE-73B6Q-200

Channel Report

5/19/2003 12:41:15 PM

Name of Test 030514

System MINIDAU

Name of DAU DAUB

Chan.#	Sensor #	Mnemonic	Description	Dir.	Range		Pol.	Cal.		Group	Mfg.	Model
0001	02A09-F15	HEDZGB	Head Accel Z	Up	1201.3139	g	-	3/18/2003	OK	416v-	Entran	EGE-73B6Q-200
0002	01L26-F02	HEDXRB	Head Accel Red X	Rwd	1206.9778	g	-	3/18/2003	OK	416v-	Entran	EGE-73B6Q-200
0003	02A09-F13	HEDYRB	Head Accel Red Y	Lft	1183.7602	g	-	3/18/2003	OK	416v-	Entran	EGE-73B6Q-200
0004	02A16-A06	HEDZRB	Head Accel Red Z	Up	1193.4731	g	-	3/18/2003	OK	416v-	Entran	EGE-73B6Q-200
0005	IF-205-161-FX	NEKXFB	Neck Force X	Hd	13342.836	N	-	3/18/2003	OK	416v-	FTSS	IF-205
0006	IF-205-161-FY	NEKYFB	Neck Force Y	Hd	13337.257	N	+	3/18/2003	OK	416v-	FTSS	IF-205
0007	IF-205-161-FZ	NEKZFB	Neck Force Z	Hd	19992.065	N	+	3/18/2003	OK	416v-	FTSS	IF-205
0008	IF-205-161-MX	NEKXMB	Neck Moment X	Rt Ear	423.09963	N·m	-	3/18/2003	OK	416v-	FTSS	IF-205
0009	IF-205-161-MY	NEKYMB	Neck Moment Y	Chin	424.72122	N·m	+	3/18/2003	OK	416v-	FTSS	IF-205
0010	IF-205-161-MZ	NEKZMB	Neck Moment Z	Chn	425.40576	N·m	+	3/18/2003	OK	416v-	FTSS	IF-205
0011	02A16-A04	CSTXGB	Chest Accel X	Fwd	593.24488	g	+	3/18/2003	OK	416v-	Entran	EGE-73B6Q-200
0012	C02B19-F02	CSTYGB	Chest Accel Y	Lft	603.27559	g	-	3/18/2003	OK	416v-	Entran	EGE-73B6Q-200
0013	C02B19-F06	CSTZGB	Chest Accel Z	Up	597.25867	g	-	3/18/2003	OK	416v-	Entran	EGE-73B6Q-200
0014	B02A25-N08	CSTXRB	Chest Accel Red X	Rwd	604.10840	g	-	3/18/2003	OK	416v-	Entran	EGE-73B6Q-200
0015	01L17-F09	CSTYRB	Chest Accel Red Y	Lft	597.65606	g	-	3/18/2003	OK	416v-	Entran	EGE-73B6Q-200
0016	C02B19-F04	CSTZRB	Chest Accel Red Z	Up	599.58778	g	-	3/18/2003	OK	416v-	Entran	EGE-73B6Q-200
0017	14CB1-2897-416	CSTXDB	Chest Deflection X	Strnm	100.61113	mm	+	3/19/2003	OK	416v-	Servo	14CB1-2897
0018	C02B19-F03	PEVXGB	Pelvis Accel X	Rwd	605.71644	g	-	3/18/2003	OK	416v-	Entran	EGE-73B6Q-200
0020	02A16-A27	PEVYGB	Pelvis Accel Y	Lft	606.94429	g	-	3/18/2003	OK	416v-	Entran	EGE-73B6Q-200
0021	C02B19-F01	PEVZGB	Pelvis Accel Z	Up	606.87954	g	-	3/18/2003	OK	416v-	Entran	EGE-73B6Q-200
0022	2430-736	LFMZFB	Left Femur Force Z	Knee	19990.763	N	+	3/19/2003	OK	416v-	GSE	2430
0023	2430-742	RFMZFB	Right Femur Force Z	Knee	20013.575	N	+	3/19/2003	OK	416v-	GSE	2430
0024	150-0121VR-555	KNLXDB	Left Knee Displacement	Tib	40.534228	mm	-	3/19/2003	OK	416v-	Space Age	150-0121VR
0025	150-0121VL-548	KNRXDB	Right Knee Displacement	Tib	39.628329	mm	-	3/19/2003	OK	416v-	Space Age	150-0121VL
0026	03C03C14-F20	VCGXGA	VEHICLE CG X-AXIS	FWD	1011.0584	g	+	3/27/2003	OK	-1	Entran	EGE-73B6Q-200
0027	03C03C14-F02	VCGYGA	VEHICLE CG Y-AXIS	RT	999.02439	g	+	3/31/2003	OK	-1	Entran	EGE-73B6Q-200
0028	03C03C14-F18	VCGZGA	VEHICLE CG Z-AXIS	UP	1007.2791	g	-	3/27/2003	OK	-1	Entran	EGE-73B6Q-200
0029	03C03C14-F12	RDKXGA	REAR DECK X-AXIS	FWD	980.65504	g	+	3/27/2003	OK	-1	Entran	EGE-73B6Q-200
0030	J33395	RDKYGA	REAR DECK Y-AXIS	LT	984.61538	g	-	3/4/2003	OK	-1	Endevco	7264-2000TZ
0031	P25322	RDKZGA	REAR DECK Z-AXIS	DN	995.95393	g	+	1/22/2003	OK	-1	Endevco	7264C-2K-2-180
0032	03C03C14-N20	LFSXGA	LEFT FRONT SILL X-AXIS	FWD	1516.5876	g	+	3/28/2003	OK	-1	Entran	EGE-73B6Q-200

D-14

030514

Channel Report

5/19/2003 12:41:15 PM

Name of Test 030514

System MINIDAU

Name of DAU DAUC

Chan.#	Sensor #	Mnemonic	Description	Dir.	Range		Pol.	Cal.	Group	Mfg.	Model
0001	03C03C14-N13	LFSYGA	LEFT FRONT SILL Y-AXIS	RT	1468.7320	g	+	3/24/2003	OK -1	Entran	EGE-73B6Q-200
0002	03D03C27-N05	LRSXGA	LEFT REAR SILL X-AXIS	FWD	1545.8937	g	+	4/3/2003	OK -1	Entran	EGE-73B6Q-200
0003	03D03C28-N04	LRSYGA	LEFT REAR SILL Y-AXIS	RT	1505.8823	g	+	4/4/2003	OK -1	Entran	EGE-73B6Q-200
0004	03D03C28-N26	RFSXGA	RIGHT FRONT SILL X-AXIS	FWD	603.27559	g	+	4/4/2003	OK -1	Entran	EGE-73B6Q-200
0005	03D03C28-N28	RFSYGA	RIGHT FRONT SILL Y-AXIS	LT	597.50262	g	-	5/9/2003	OK -1	Entran	EGE-73B6Q-200
0006	J34118	RRSXGA	RIGHT REAR SILL X-AXIS	RR	599.77742	g	-	5/16/2003	OK -1	Endevco	7264-2000TZ
0007	J33401	RRSYGA	RIGHT REAR SILL Y-AXIS	LT	597.00796	g	-	3/4/2003	OK -1	Endevco	7264-2000TZ
0008	03D03C28-N11	ENGXGA	ENGINE TOP X-AXIS	FWD	598.13084	g	+	4/4/2003	OK -1	Entran	EGE-73B6Q-200
0009	03D03C28-N05	ENGYGA	ENGINE TOP Y-AXIS	LT	1521.0932	g	-	5/15/2003	OK -1	Entran	EGE-73B6Q-200
0010	P23460	ENGXGB	ENGINE BOTTOM X-AXIS	FWD	1490.1481	g	+	3/3/2003	OK -1	Endevco	7264C-2K-2-180
0011	P23362	ENGYGB	ENGINE BOTTOM Y-AXIS	RT	1516.2283	g	+	3/3/2003	OK -1	Endevco	7264C-2K-2-180
0012	J34877	DPCXGA	INSTRUMENT PANEL	FWD	987.80676	g	+	3/4/2003	OK -1	Endevco	7264-2000TZ
0013	J37150	DPCYGA	INSTRUMENT PANEL	LT	983.21619	g	-	3/6/2003	OK 1000	Endevco	7264-2000TZ
0014	03C03C14-F01	LRXXGA	LEFT REAR SEAT	FWD	1008.8669	g	+	3/28/2003	OK -1	Entran	EGE-73B6Q-200
0015	03C03C14-F24	LRXYGA	LEFT REAR SEAT	LT	1020.7336	g	-	3/31/2003	OK -1	Entran	EGE-73B6Q-200
0016	03C03C14-F08	RRXXGA	RIGHT REAR SEAT	FWD	602.21124	g	+	3/28/2003	OK -1	Entran	EGE-73B6Q-200
0017	03C03C14-F06	RRXYGA	RIGHT REAR SEAT	LT	595.34883	g	-	3/31/2003	OK -1	Entran	EGE-73B6Q-200
0018	ABFire1	DABETA	DRIVER AIRBAG EVENT -	69	5.12	V	+	8/20/2002	OK VRTC	FLUKE	Y8101A
0019	ABFire2	PABETA	PASSENGER AIRBAG EVENT	A	5.12	V	+	8/20/2002	OK VRTC	FLUKE	Y8101A

D-15

030514

Channel Report

5/19/2003 12:41:15 PM

Name of Test 030514

System MINIDAU

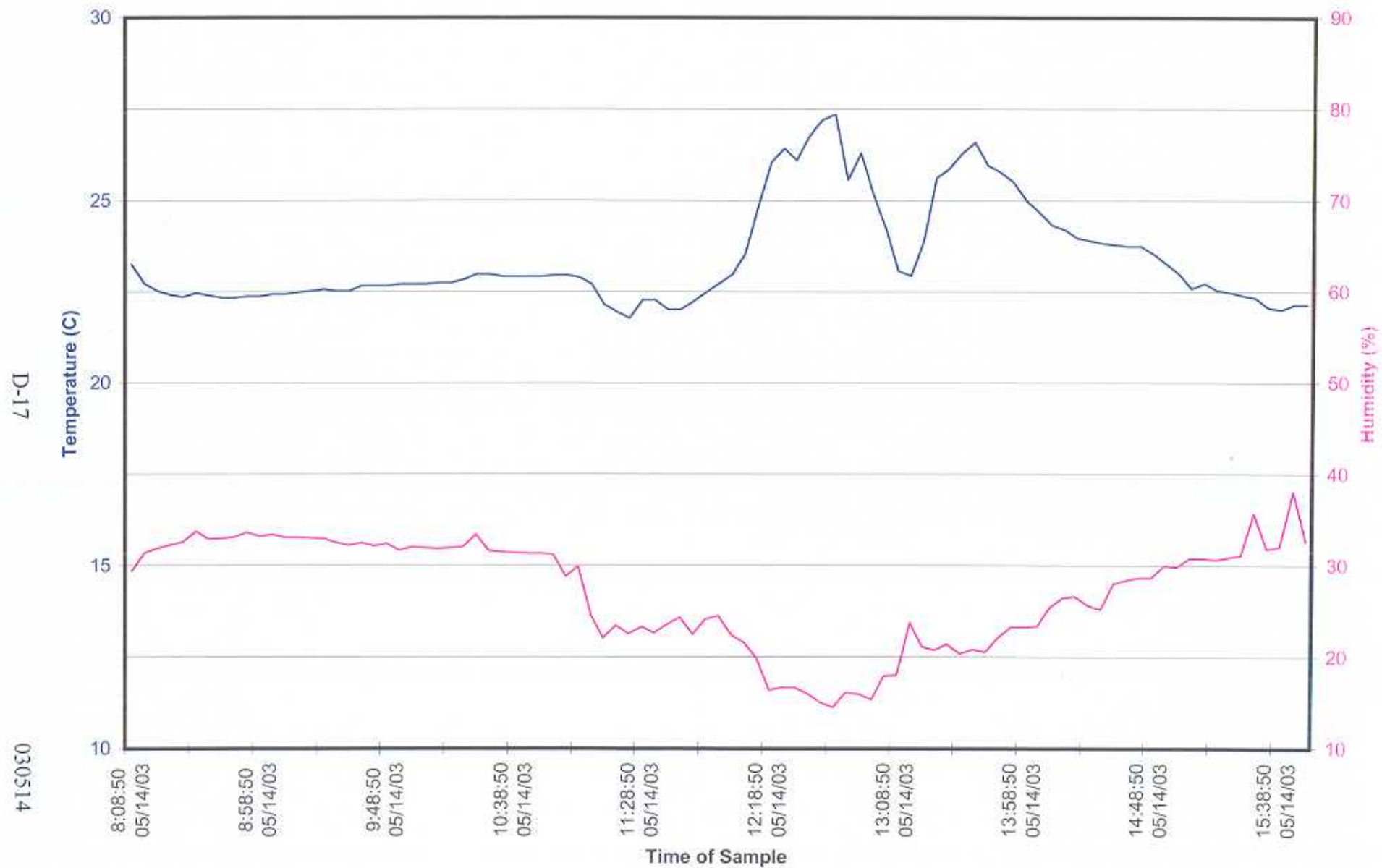
Name of DAU DAUD

Chan.#	Sensor #	Mnemonic	Description	Dir.	Range	Pol.	Cal.	Group	Mfg.	Model
0001	03D03C27-N13	ENGYG1	ENGINE TOP Y-AXIS	RT	1545.8937	g	+ 4/3/2003	OK -1	Entran	EGE-73B6Q-200
0002	P23188	ENGXG2	ENGINE BOTTOM X-AXIS	FWD	1498.6535	g	+ 3/3/2003	OK -1	Endevco	7264C-2K-2-180
0003	P23380	ENGYG2	ENGINE BOTTOM Y-AXIS	LT	1526.4899	g	- 3/3/2003	OK -1	Endevco	7264C-2K-2-180
0004	03C03C14-N26	DPCXG1	INSTRUMENT PANEL	FWD	1015.0674	g	+ 3/24/2003	OK -1	Entran	EGE-73B6Q-200
0005	03D03C27-N24	DPCYG1	INSTRUMENT PANEL	LT	1018.9054	g	- 4/3/2003	OK -1	Entran	EGE-73B6Q-200
0006	03C03C14-F14	LRXXG1	LEFT REAR SEAT	FWD	1016.2763	g	+ 5/9/2003	OK -1	Entran	EGE-73B6Q-200
0007	P23292	LRXYG1	LEFT REAR SEAT	LT	1000.9775	g	+ 3/25/2003	OK -1	Endevco	7264C-2K-2-180
0008	03C03C14-F15	RRXXG1	RIGHT REAR SEAT	FWD	603.48892	g	+ 3/27/2003	OK -1	Entran	EGE-73B6Q-200
0009	03D03C27-N12	RRXYG1	RIGHT REAR SEAT	LT	594.03643	g	- 4/3/2003	OK -1	Entran	EGE-73B6Q-200
0010	ABFire3	DABET1	DRIVER AIRBAG EVENT	J	5.12	V	+ 8/20/2002	OK -1	FLUKE	Y8101A

D-16

030514

1996 Toyota Avalon into Left Front of a 1997 Honda Accord
50% Offset - Oblique 30°/030514



Appendix E

INSIA Report on Structural Measurements

STRUCTURAL SURVEY OF CARS. MEASUREMENT METHODOLOGY OF THE MAIN RESISTANT ELEMENTS IN THE CAR BODY

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March, 1999

REPORT DOCUMENTATION PAGE**Title:**

STRUCTURAL SURVEY OF CARS. MEASUREMENT METHODOLOGY OF THE MAIN RESISTANT ELEMENTS IN THE CAR BODY

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28031 – Madrid – Spain

Supplementary notes:

Under contract to:

THE EUROPEAN COMMUNITY

Project: "Improvement of Crash Compatibility between Cars"

Contract N°: RO – 97 – SC.1064

Abstract:

The main aim of this working package -*Structural Survey of Cars*- is the reduction of incompatibilities, both structural and geometric, between passenger vehicles and their potential collision partners. The understanding of these incompatibilities needs a previous step for the knowledge of the existing car fleet.

Firstly, it is necessary to select the main resistant elements in the car body. These elements have to be chosen from the point of view of the sort of collision that we want to study, that is to say, frontal and side impacts.

Detailed measurements have been taken from exterior and interior elements, spread to a total number of 74 models selected from the main vehicle manufacturers at Spain. All of them are being sold this year. Using the information available from the previous measurements in vehicles, the geometric characteristics of the main resistant elements involved in the geometric compatibility between cars will be defined.

This report shows the methodology followed to get these measurements.

Subject terms:

Crash compatibility, geometric compatibility, resistant elements, measure methodology

Date:

March, 1999

1.- METHODOLOGY.

Detailed measurements have been taken from exterior and interior elements. Using the information available from the previous measurements in vehicles, the geometric characteristics of the main resistant elements involved in the geometric compatibility between cars have been defined. These elements are presented in the following figures, and have been divided in two main groups according to the vehicle zones studied in this project.

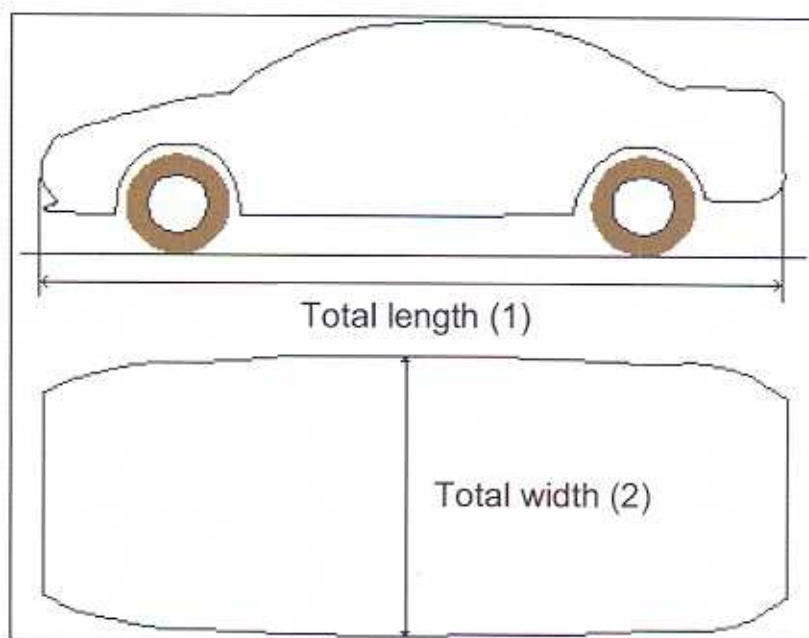


Figure 1.- Definition of the main resistant elements. General dimensions.

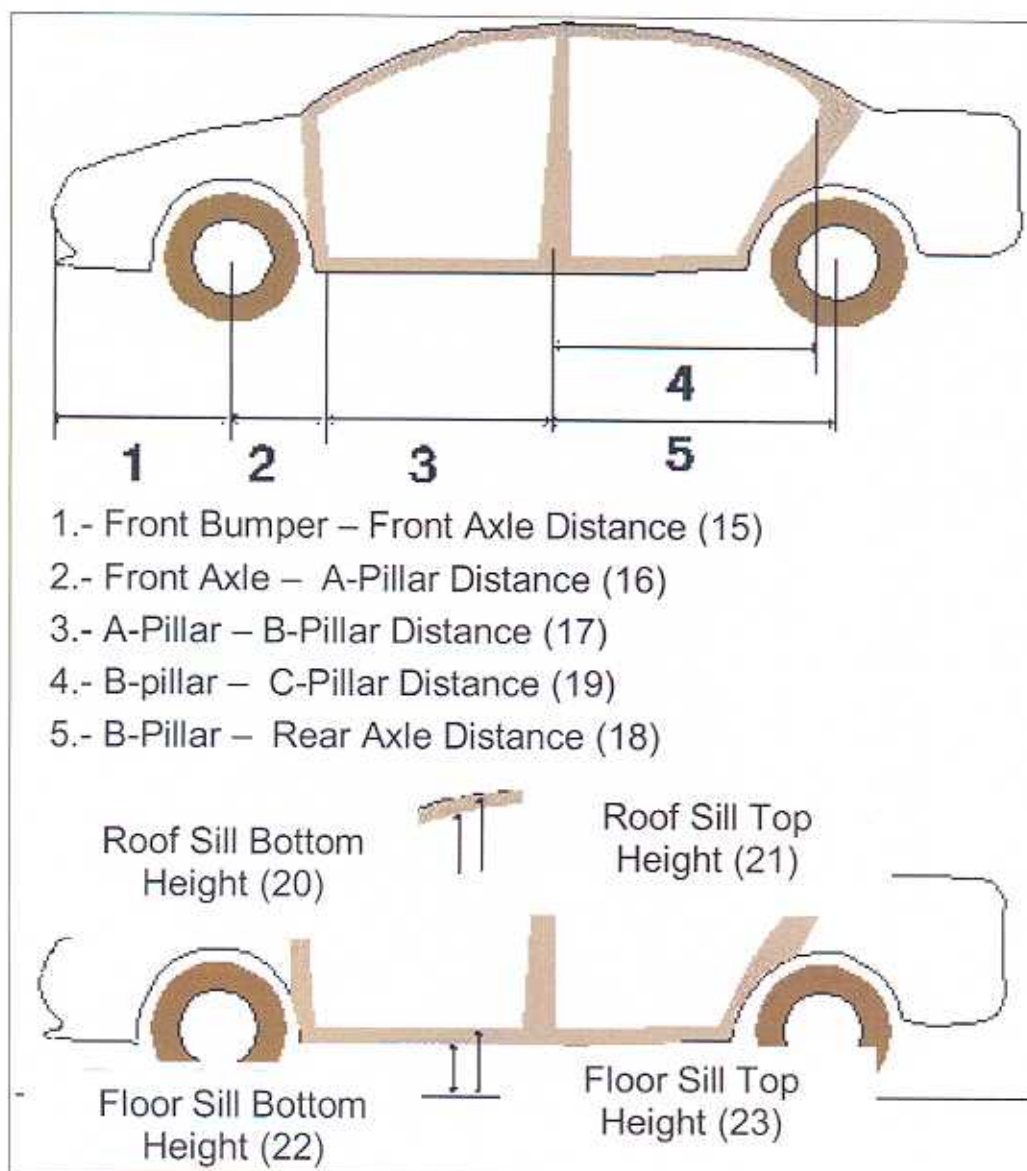


Figure 2.- Definition of the main resistant elements. Side elements.

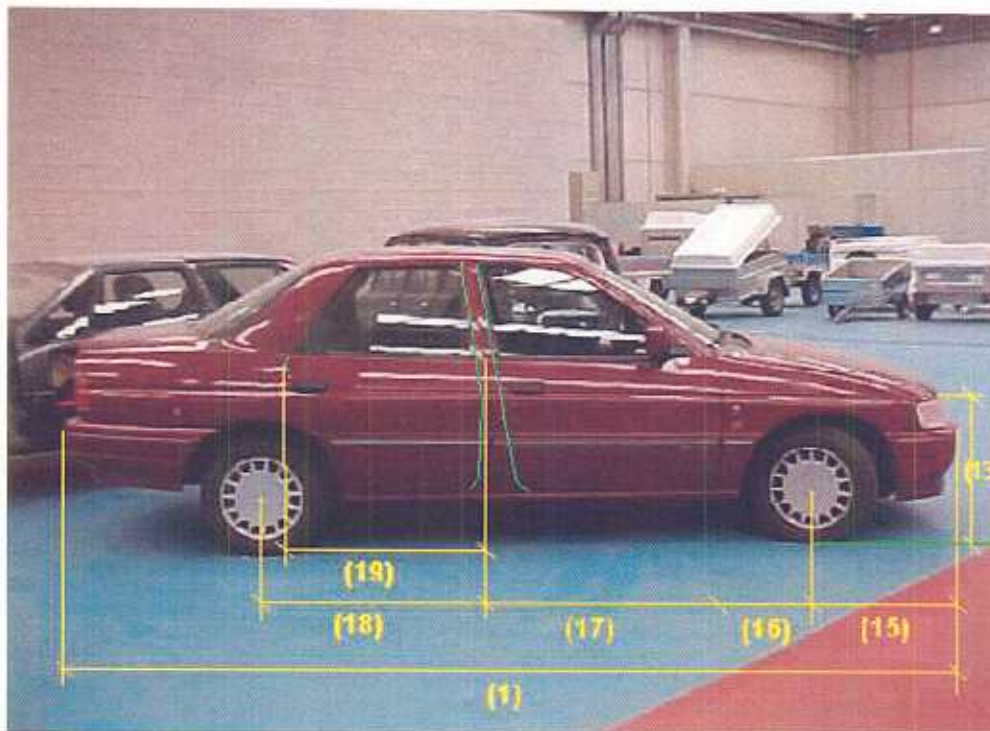


Figure 3.-
Measurements of
the side resistant
elements (outer).

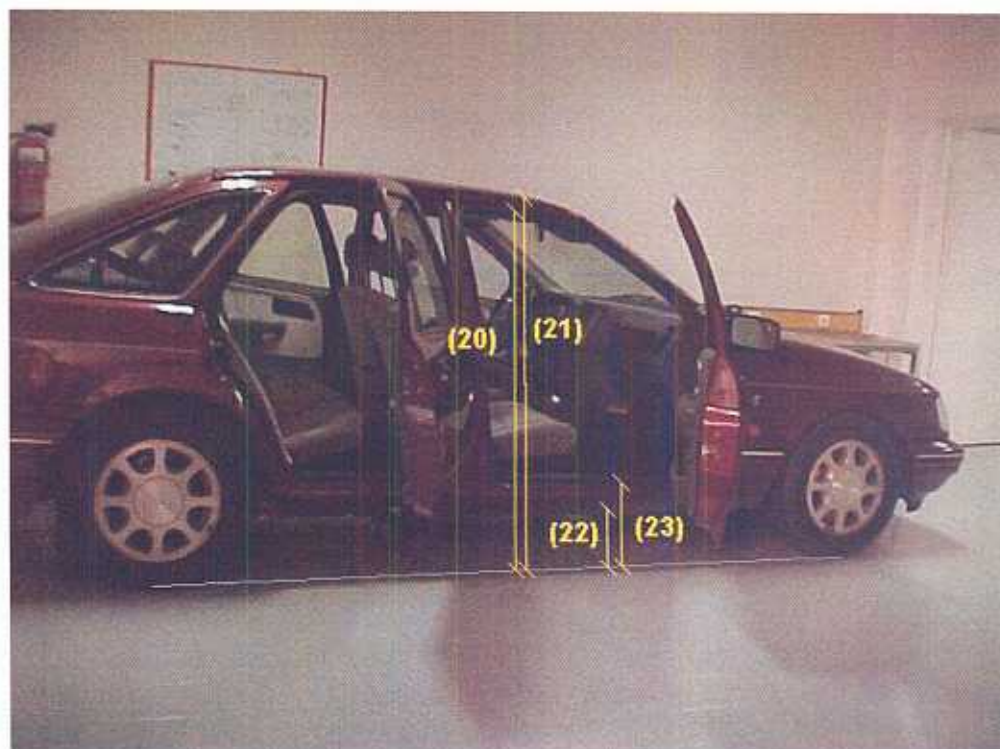


Figure 4.- Measurements
of the side resistant
elements (inner).

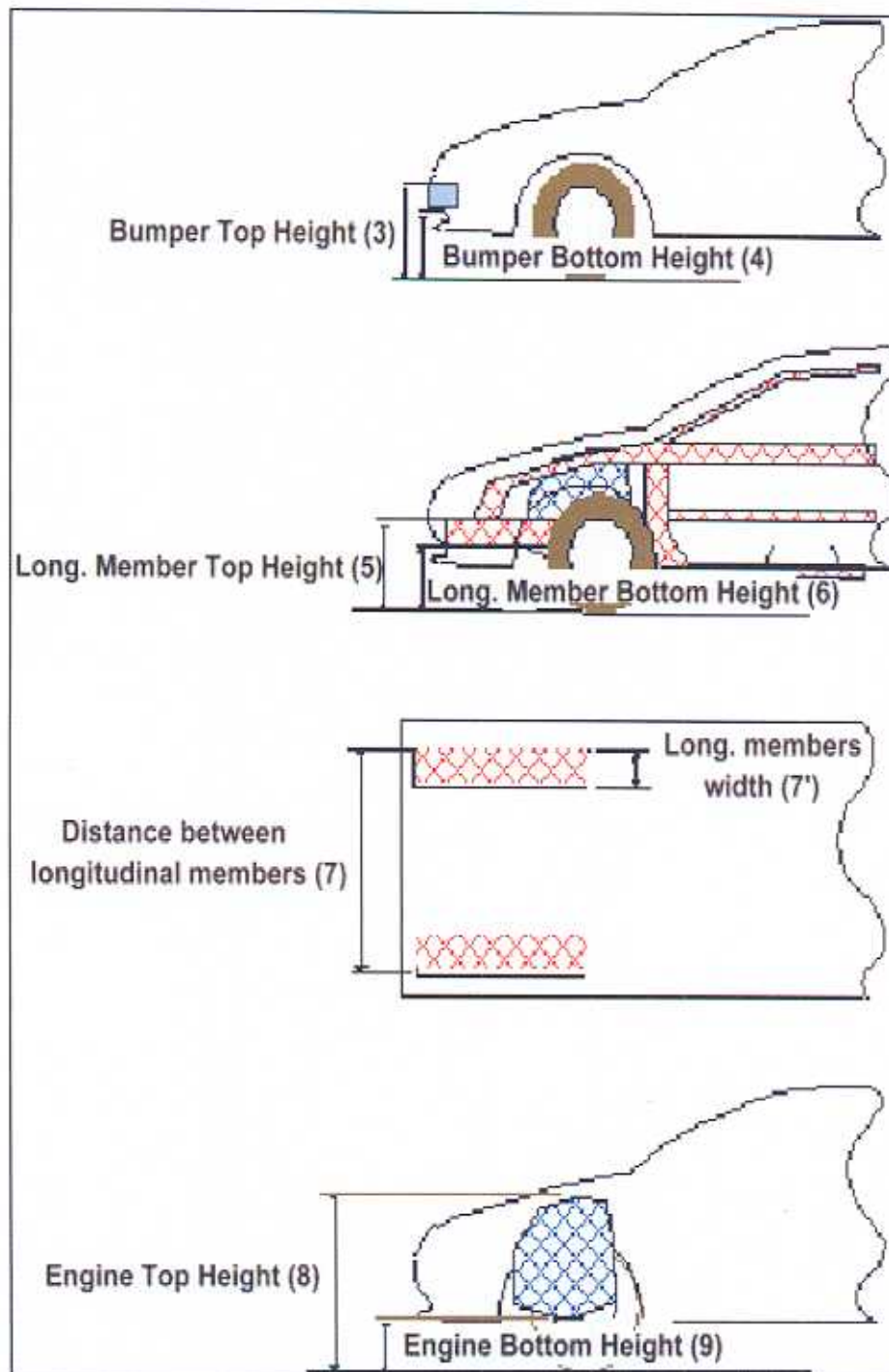


Figure 5.- Definition of the main resistant elements. Front elements.

Figure 6.-
Measurements of the
main resistant elements.
Front elements 1.

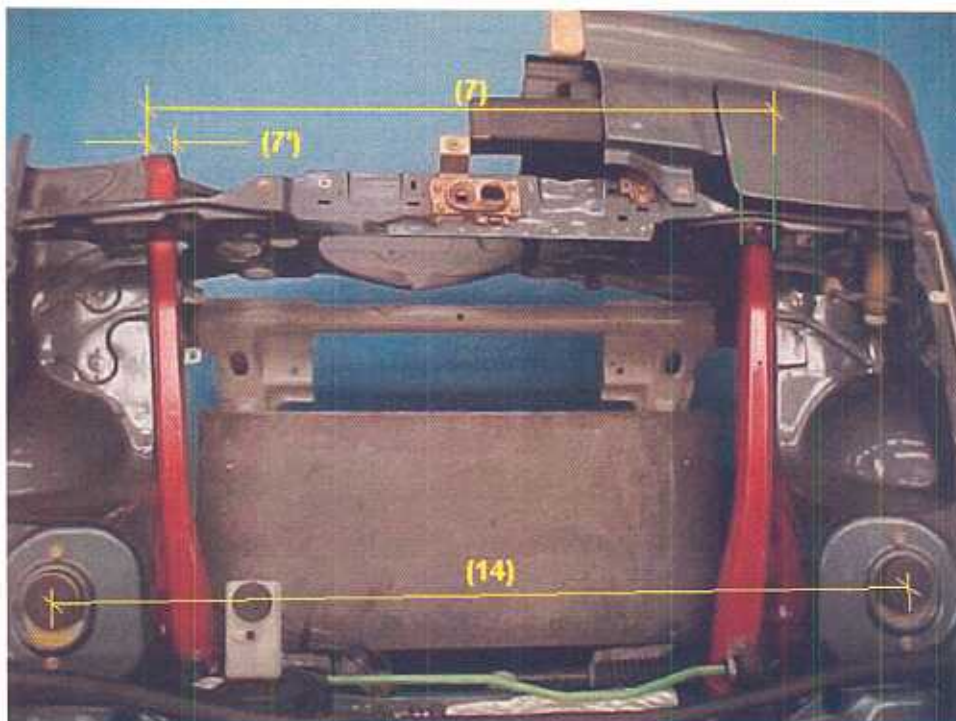
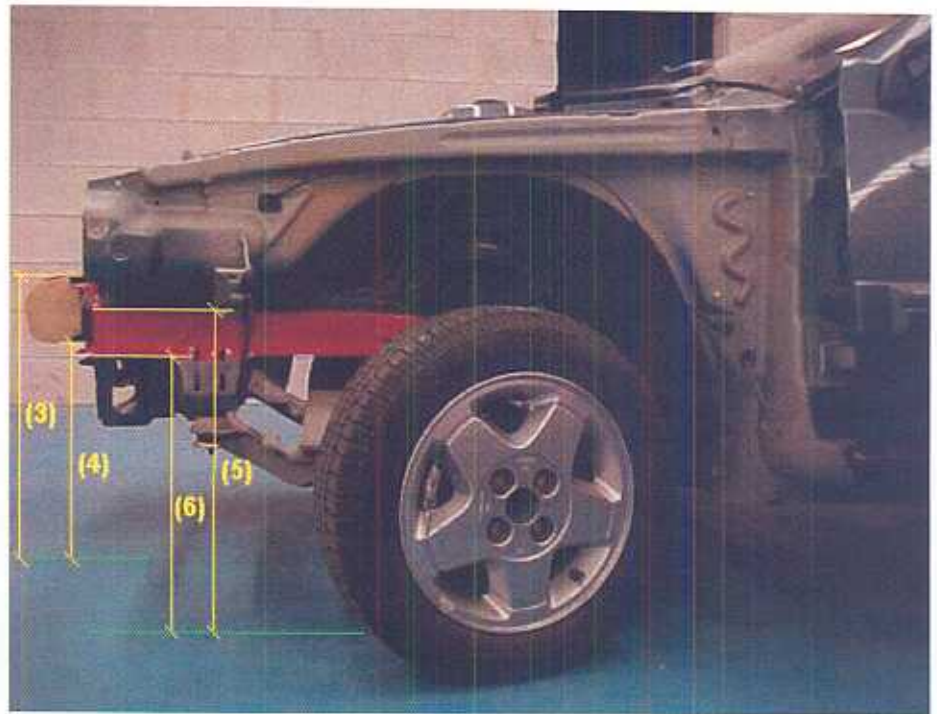


Figure 7.-
Measurements
of the main
resistant
elements. Front
elements 2.

Figure 8.-
Measurements of
the main resistant
elements. Front
elements 3.

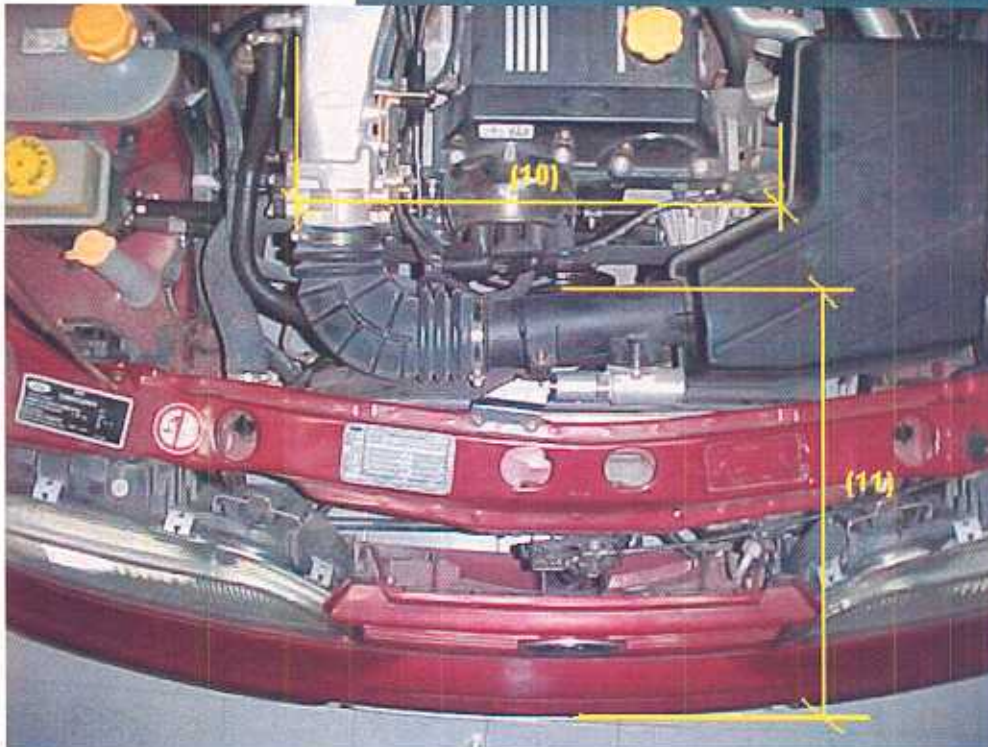
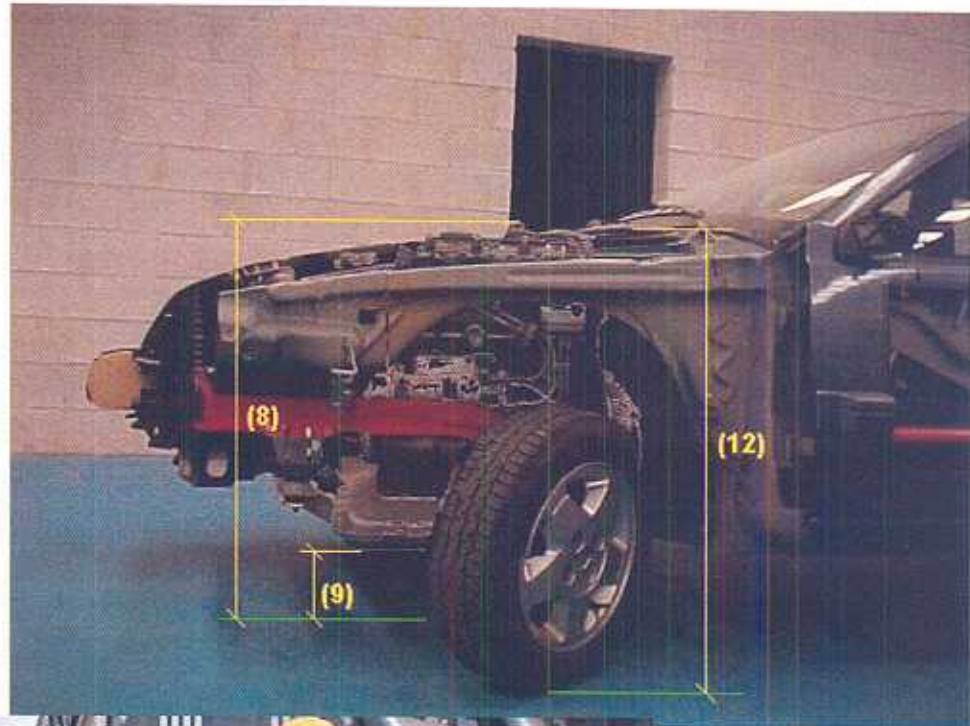


Figure 9.-
Definition of
the main
resistant
elements. Front
elements
(Longitudinal
engine).

The procedure considered to measure these elements is described as follows, where it is indicated the location of these ones in the Excel Sheet (SURVEY.XLS) into brackets:

FRONT ELEMENTS

- **Total Length –(1)- (Side & Front Sheets - C column):** distance between the point in the front bumper further on and the point in the rear bumper further back.
- **Weight (Side & Front Sheets - D column):** mass, including an average driver weight (70 kg), and the fuel tank mass (at half-capacity).
- **Total Width –(2)- (Side & Front Sheets - E column):** distance between the outer side points in a transverse plane of the vehicle (middle plane between the front and rear axles).
- **Bumper bottom height –(4)- (Front Sheet G column):** distance between the ground and the lowest point on the front bumper, being a resistant member (aerodynamic elements under the front bumper are not considered).
- **Bumper top height –(3)- (Front Sheet H column):** distance between the ground and the highest point on the front bumper, being a resistant member (aerodynamic elements are not considered).
- **Longitudinal member top height –(5)- (Front Sheet I column):** distance between the ground and the highest point on the longitudinal members, measured approximately in the front bumper-longitudinal member joint (when accessible).
- **Longitudinal member bottom height –(6)- (Front Sheet J column):** distance between the ground and the lowest point on the longitudinal members, measured approximately in the front bumper-longitudinal member joint.
- **Distance between longitudinal members (Front Sheet K column):** transverse distance between extreme points in longitudinal members, measured approximately in the front bumper-longitudinal member joint.

Depending on the accessibility of these members, the extreme points are the inner points (I) or the outer points (O).

- **Longitudinal member width -7'- (Front Sheet L column):** width of one of the longitudinal members, measured approximately in the front bumper-longitudinal member joint.

- **Engine top height (8) (Front Sheet N column):** distance between the ground and the highest point on the engine that can be a resistant member in case of accident (usually, the highest point on the head, or the highest point of the inlet or exhaust manifolds).
- **Engine bottom height (9) (Front Sheet M column):** distance between the ground and the lowest point on the engine (usually, the lowest point on the crankcase).
- **Engine and Gearbox width (10) (Front Sheet O & P columns):**
 - *Transverse configuration engine:* distance between extreme points in the gearbox-cylinder block unit or others resistant members attached to the cylinder block unit, i.e. fan belts (from a front point of view).
 - *Longitudinal configuration engine:* distance between extreme points in the cylinder block unit (from a front point of view).
- **Front bumper - Engine distance (11) (Front Sheet Q column):** distance between the point in the front bumper further on and the point in the engine further on that is a resistant element, i.e. the further on point of the exhaust manifold placed in the front of the engine.
- **Front shock absorber fixing width (14) (Front Sheet R column):** transverse distance between the front shock absorber - body car joints.
- **Front shock absorber fixing height (12) (Front Sheet S column):** distance between the ground and the front shock absorber-body car joint.
- **Bonnet leading edge height (Front Sheet T column):** distance between the ground and the bonnet edge further on.

SIDE ELEMENTS

- **Front bumper - Front axle distance (15) (Side Sheet G column):** distance between the point in the front bumper further on and the middle point in the front tyre-road contact patch.
- **Front axle - A Pillar distance (16) (Side Sheet H column):** distance between the middle point in the front tyre-road contact patch and the point in the A-pillar further back.
- **A Pillar - B Pillar distance (17) (Side Sheet I column):** distance between the point in the A-pillar further back and the middle point in the B-pillar.
- **B Pillar - C Pillar distance (19) (Side Sheet J column):** distance between the middle point in the B-pillar and the point in the C-pillar further back (only 4/5-door vehicles).
- **B Pillar - Rear axle distance (18) (Side Sheet K column):** distance between the middle point in the B-pillar and the middle point in the rear tyre-road contact patch.
- **Roof sill bottom height (20) (Side Sheet L column):** distance between the ground and the lowest point on the roof sill, measured in the front door middle point.
- **Roof sill top height (21) (Side Sheet M column):** distance between the ground and the highest point on the roof sill (usually located in the sill-roof joint), measured in the front door middle point.
- **Floor sill bottom height (22) (Side Sheet N column):** distance between the ground and the lowest point on the floor sill, measured in the front door middle point.
- **Floor sill top height (23) (Side Sheet O column):** distance between the ground and the highest point on the floor sill, measured in the front door middle point.

NOTE

- N/A: dimension not available.

Appendix F

Vehicle Manufacturer's Information

Same as 1997
per VRTC

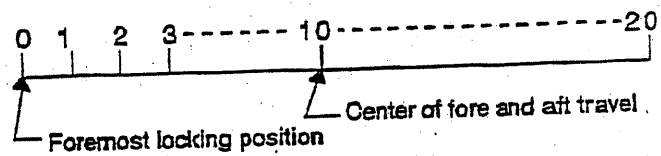
96 HONDA ACCORD COU
NSA-31JMG TR1683

g. (cont.)

(4) Position of adjustable seats (S6.3)

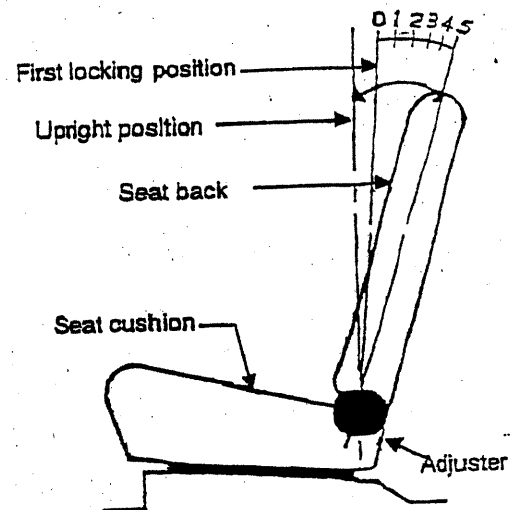
10th steps from the Foremost locking position for Passenger's seat. Fit and Controlled to use power SW of Driver's seat to the same position as passenger's seat.

Locking position of side adjuster



(5) Position of adjustable seat backs (S6.4)

Nominal design riding position is located with seat back adjusted to the 5th latch position from the first locking position.



LEFT SIDE VIEW

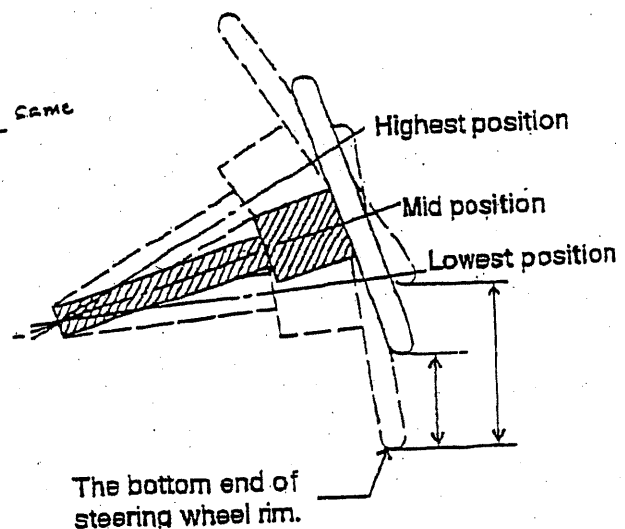
(6) Position of adjustable steering wheel (S6.5)

A : 1.76 inch (Highest position)

B : 0.87 inch (Mid position)

LEFT SIDE VIEW

STEERING COULUM ASSEMBLY



94-97 same

4962-NCAP

g. Information and data relating to the test conditions (S6)

(1) Test weight measured at each wheel (S6.1)

Fr.: 1896 lbs.

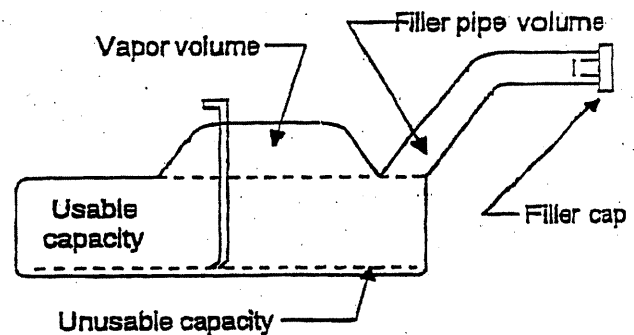
Rr.: 1506 lbs.

(2) Fuel tank capacity and the amount of Stoddard solvent added (S6.1)

Usable capacity : 17.0 gallons.

Amount of Stoddard solvent : 15.8 gallons.

VEHICLE FUEL TANK ASSEMBLY



(3) Vehicle test attitude immediately prior to testing including measurements to the reference points in the "as delivered" and "fully loaded" conditions (S6.2)

Wheel Opening Height

Unit : inch

	Front		Rear	
	L	R	L	R
As delivered	27.2	27.4	27.1	27.0
Fully loaded	26.4	27.4	24.9	25.9

1995-1996 Toyota Avalon

INFORMATION FOR NHTSA REGARDING THE 1995 AVALON
(TEST CONDITIONS FOR CRASH TEST)

The following are design-related matters necessary for conducting the barrier crash test.

1. Useable Fuel Tank Volume : 18.5 gallons

92% of useable volume : 17.0 gallons

Stoddard solvent amount: 17.58 gallons

94% of useable volume : 17.4 gallons

Condition for fuel pump operation: Electric fuel pump operates only during engine is running

2. Vehicle Capacity Weight : 905 lbs.

Designated Seating Capacity : 5

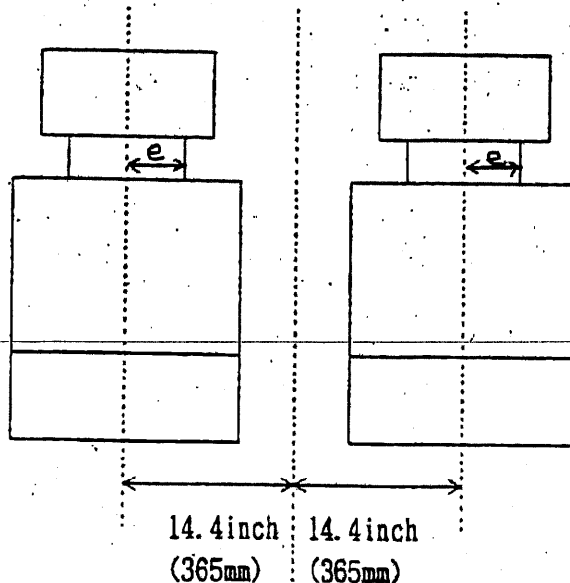
Rated Cargo & Luggage Weight : 155 lbs.

3. Tire Inflation Pressure : 205/65R15 (Fr&Rr 30psi)

4. Outboard Designated Seating Position :

1) Separate Seat

14.4inch (365mm) outboard of the vertical plane which include vehicle center.



e: 3.0inch (75mm)

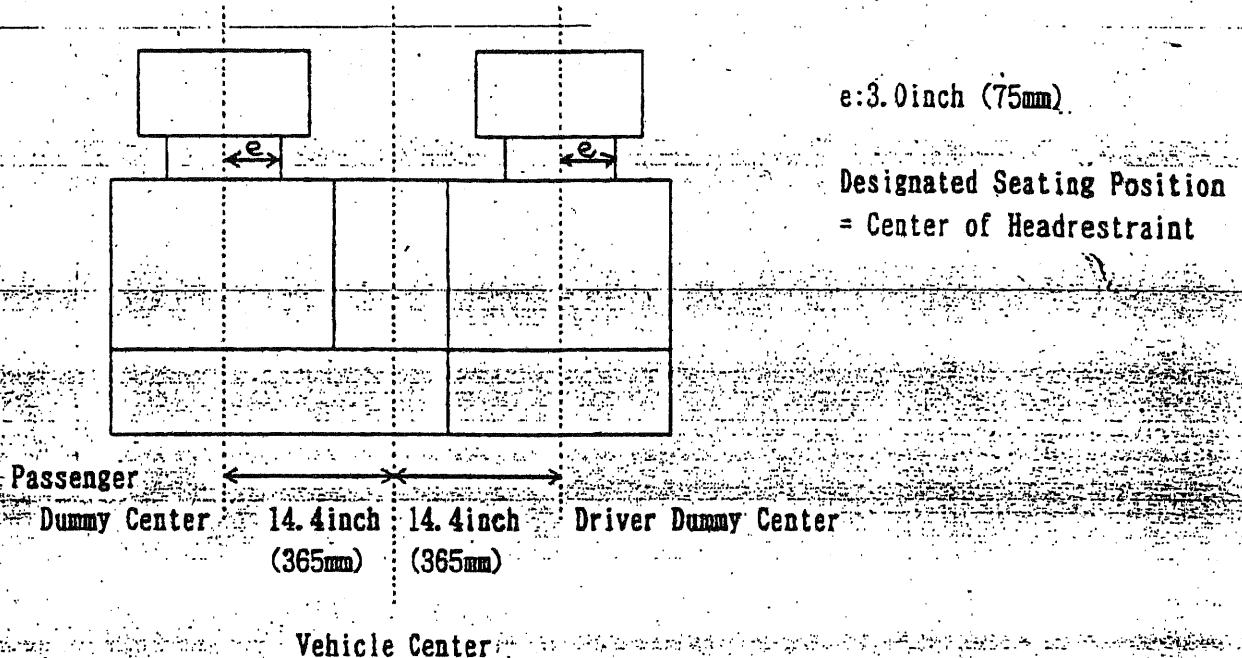
Designated Seating Position
= Center of Headrestraint

Vehicle Center

2) Split Bench Seat

The center line of driver dummy is set at the center of steering wheel rim. In this vehicle(AVALON), the center of steering wheel rim is 14.4inch (365mm) outboard of the vertical plane which include vehicle center.

The center line of passenger dummy is setted at the equal distance of driver dummy from the vertical plane which include vehicle-center(14.4inch: 365mm).



3) Foot Rest

AVALON has foot rest for driver side passenger. So, the left foot of driver side dummy will be set on foot rest.

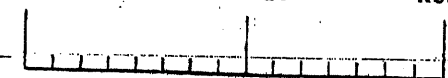
5. Designated Seat Slide Position

Driver's Seat

(Manual Seat)

Move the seat ninth notches rearward from the foremost position.

Foremost Neutral Rearmost

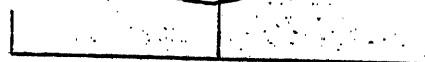


1 4.7inch 9 4.1inch 16
(120mm) (105mm)

(Power Seat)

4.4inch rearward from the foremost position

Foremost Neutral Rearmost



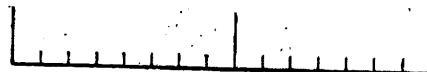
4.4inch 4.4inch
(112.5mm) (112.5mm)

Passenger's Seat

(Manual Seat)

Move the seat ninth notches rearward from the foremost position.

Foremost Neutral Rearmost



1 4.7inch 9 4.1inch 16
(120mm) (105mm)

(Power Seat)

4.4inch rearward from the foremost position

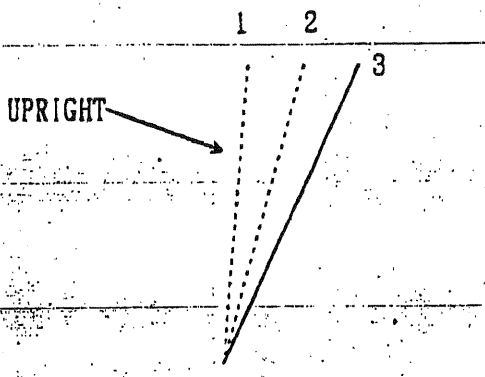
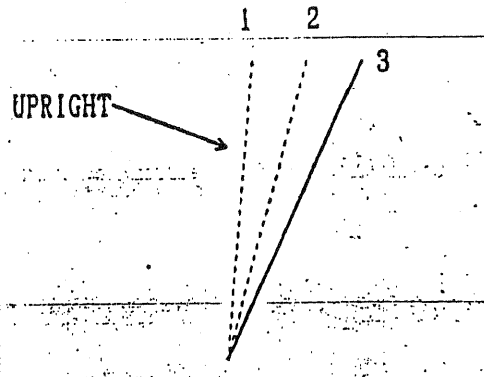
Foremost Neutral Rearmost



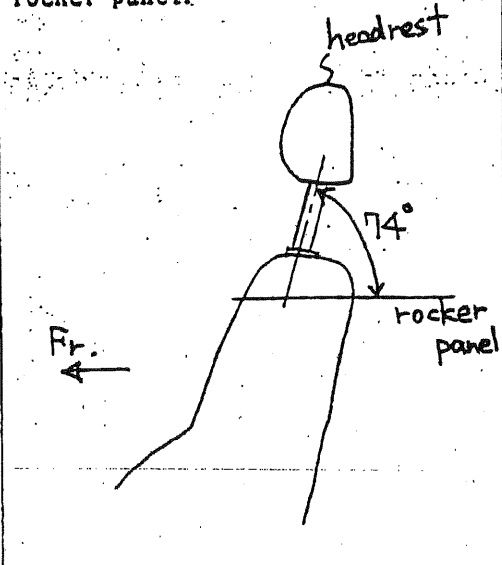
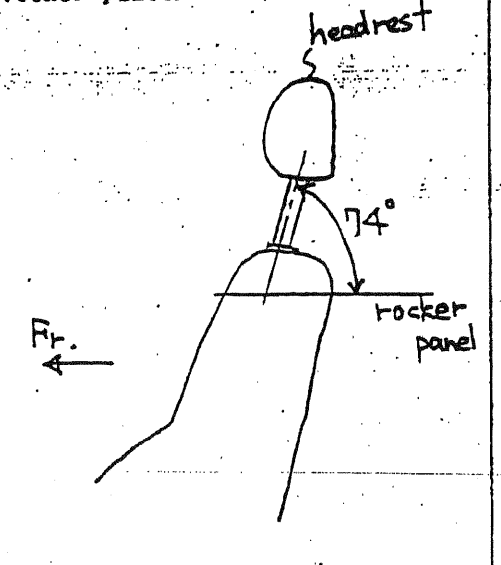
4.4inch 4.4inch
(112.5mm) (112.5mm)

6. Designated Seat Back Positions :

1) Manual Seat

Driver's Seat	Passenger's Seat
Recline two notches rearward from the most upright position.	Recline two notches rearward from the most upright position.
	

2) Power Seat

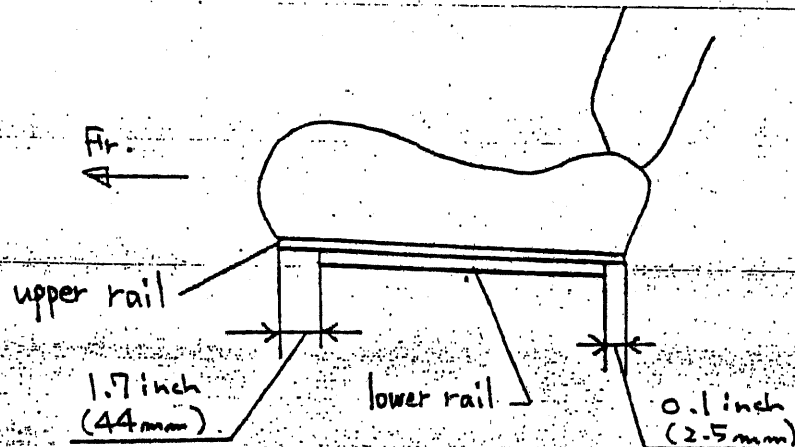
Driver's Seat	Passenger's Seat
Headrest angle is 74° to the rocker panel.	Headrest angle is 74° to the rocker panel.
	

SUPPLEMENTARY EXPLANATION FOR FRONT SEAT ADJUSTMENT

1. SEAT SLIDE POSITION

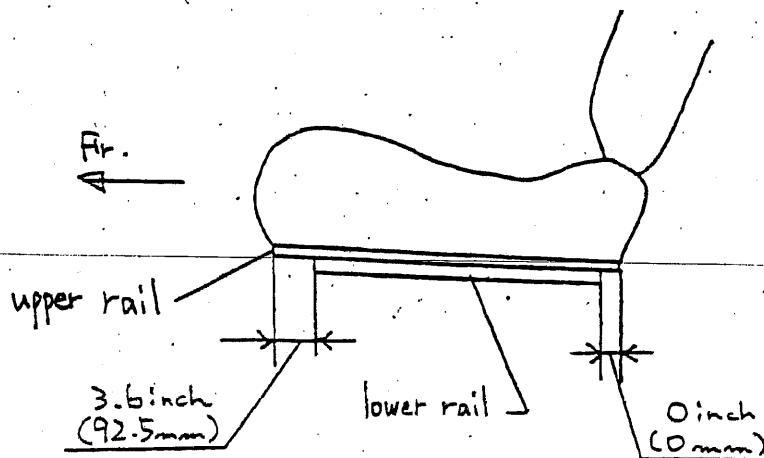
1) Manual Seat (without vertical adjuster: Driver, Passenger)

The relationship of the location between the outer seat track upper rail and lower rail at the ninth notch rearward from the foremost position.



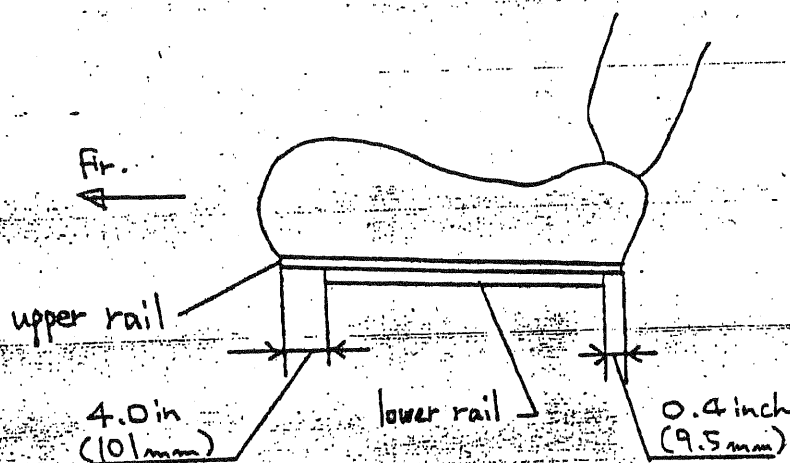
2) Manual Seat (with vertical adjuster: Driver, Passenger)

The relationship of the location between the outer seat track upper rail and lower rail at the ninth notch rearward from the foremost position.



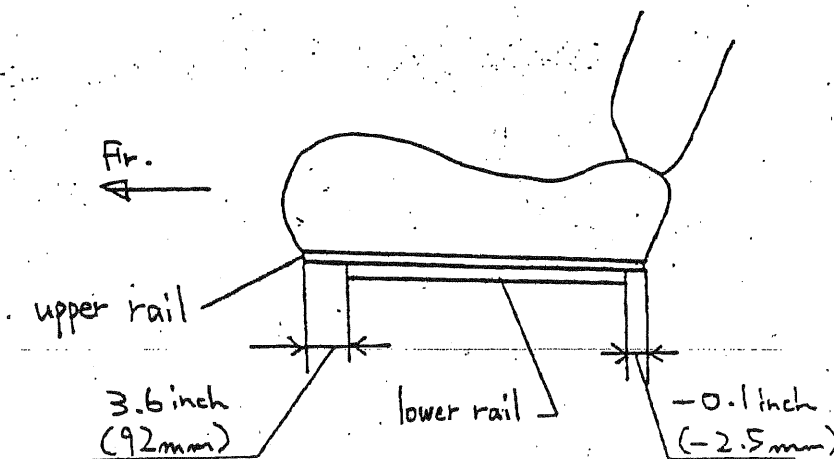
3) Power Seat (Separate Seat: Driver, Passenger)

The relationship of the location between the outer seat track upper rail and lower rail at the neutral position.



4) Power Seat (Split Bench Seat : Driver, Passenger)

The relationship of the location between the outer seat track upper rail and lower rail at the neutral position.

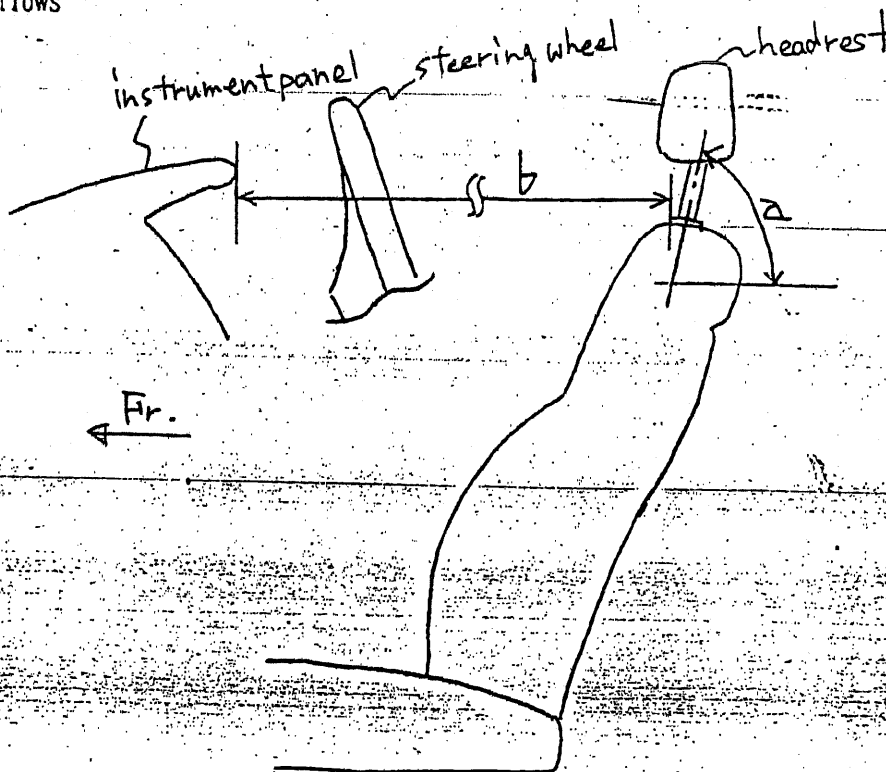


2. SEAT BACK POSITION

1) Manual Seat (with & without vertical adjuster:Driver)

If seatback is reclined two notches rearward from the most upright positions, the dimensions are as follows

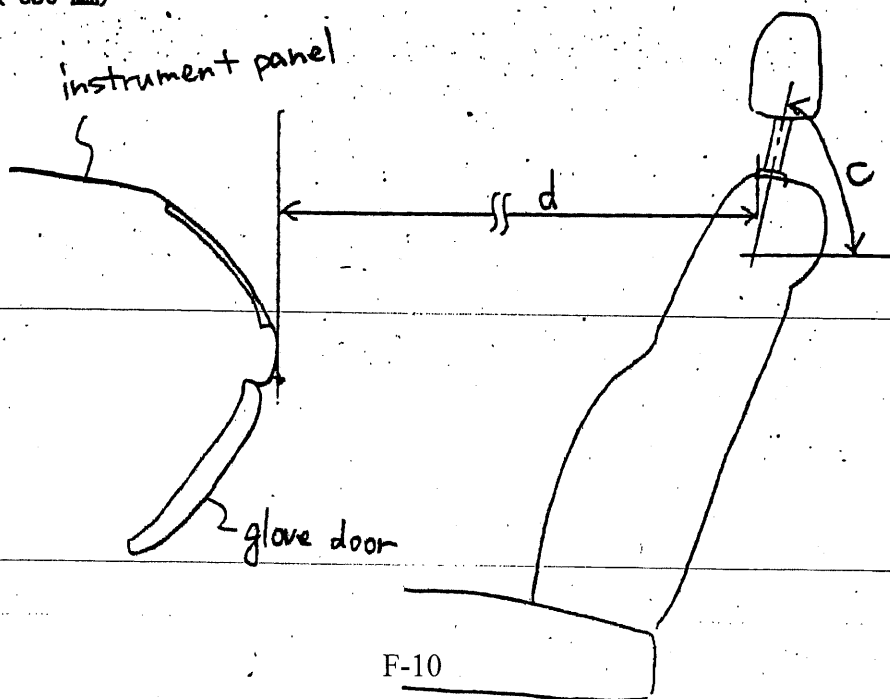
a: 74°
b: 34.1 inch (866 mm)



2) Manual Seat (with & without vertical adjuster:Passenger)

If seatback is reclined two notches rearward from the most upright positions, the dimensions are as follows

c: 74° /
d: 32.9 inch (836 mm)

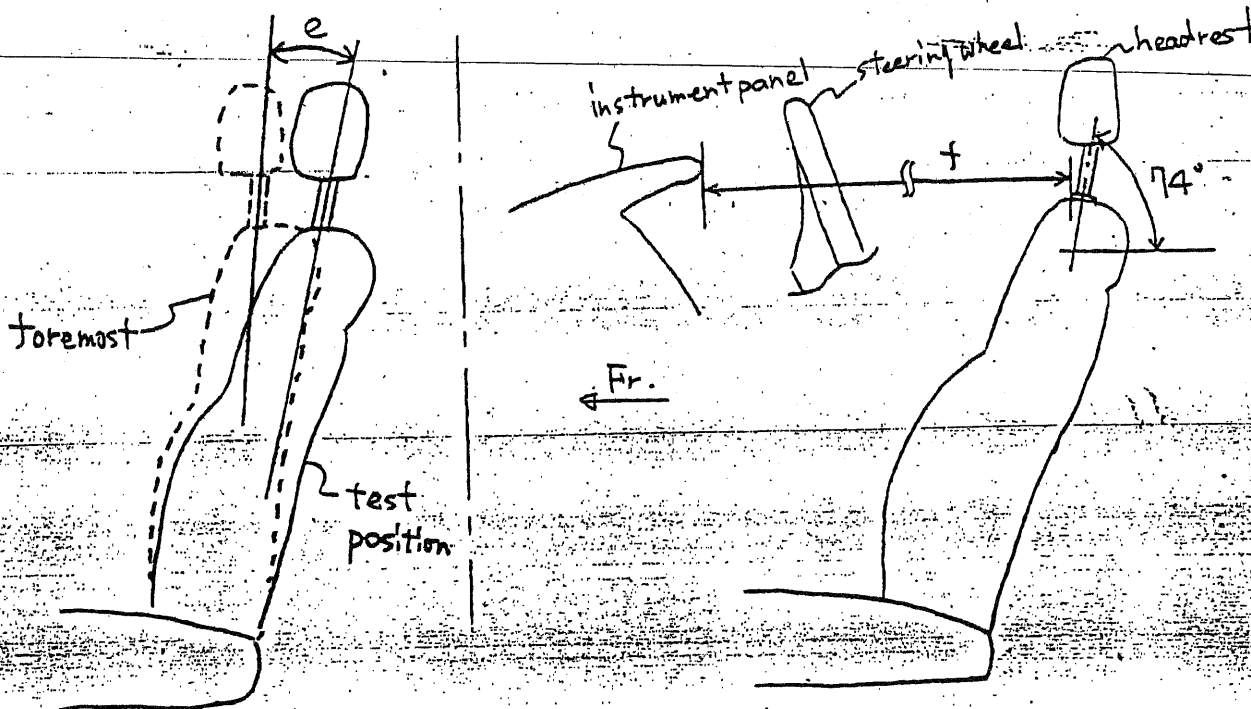


3) Power Seat (Separate Seat:Driver)

If headrest angle is 74° to the rocker panel, the dimensions are as follows.

e: 4°

f: 33.8 inch (858 mm)

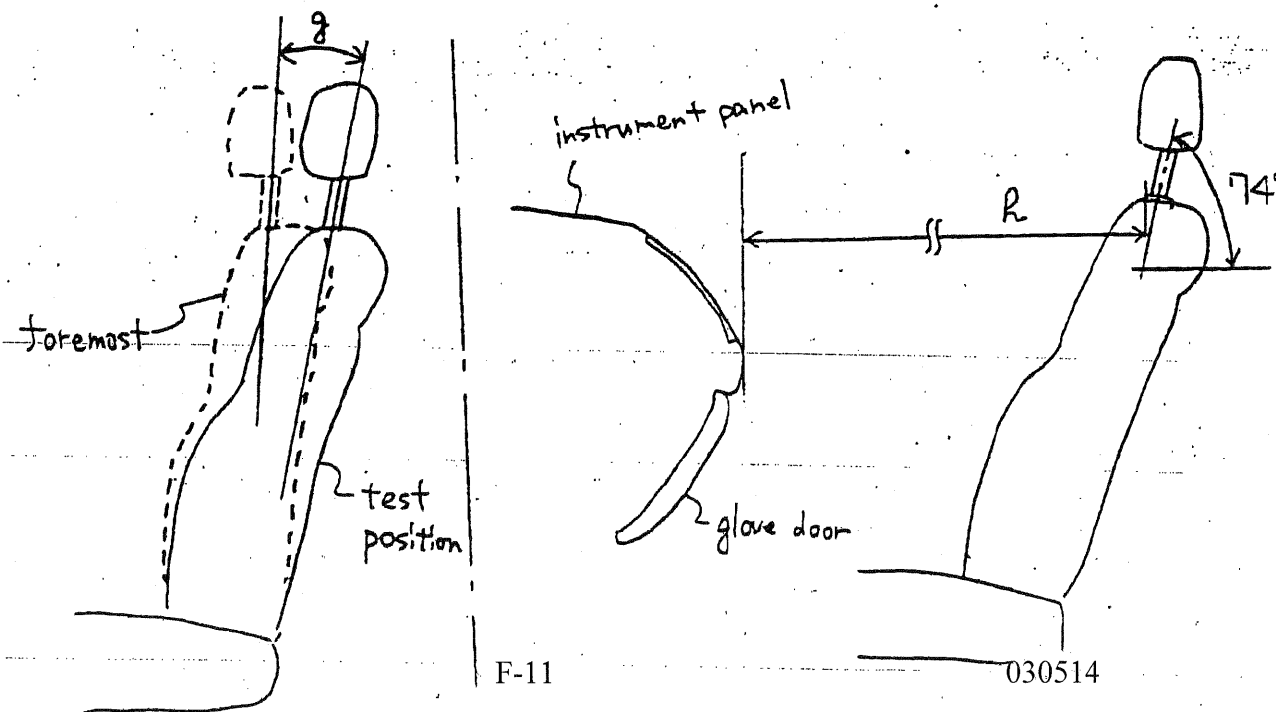


4) Power Seat (Separate Seat:Passenger)

If headrest angle is 74° to the rocker panel, the dimensions are as follows.

g: 4°

h: 32.6 inch (828 mm)

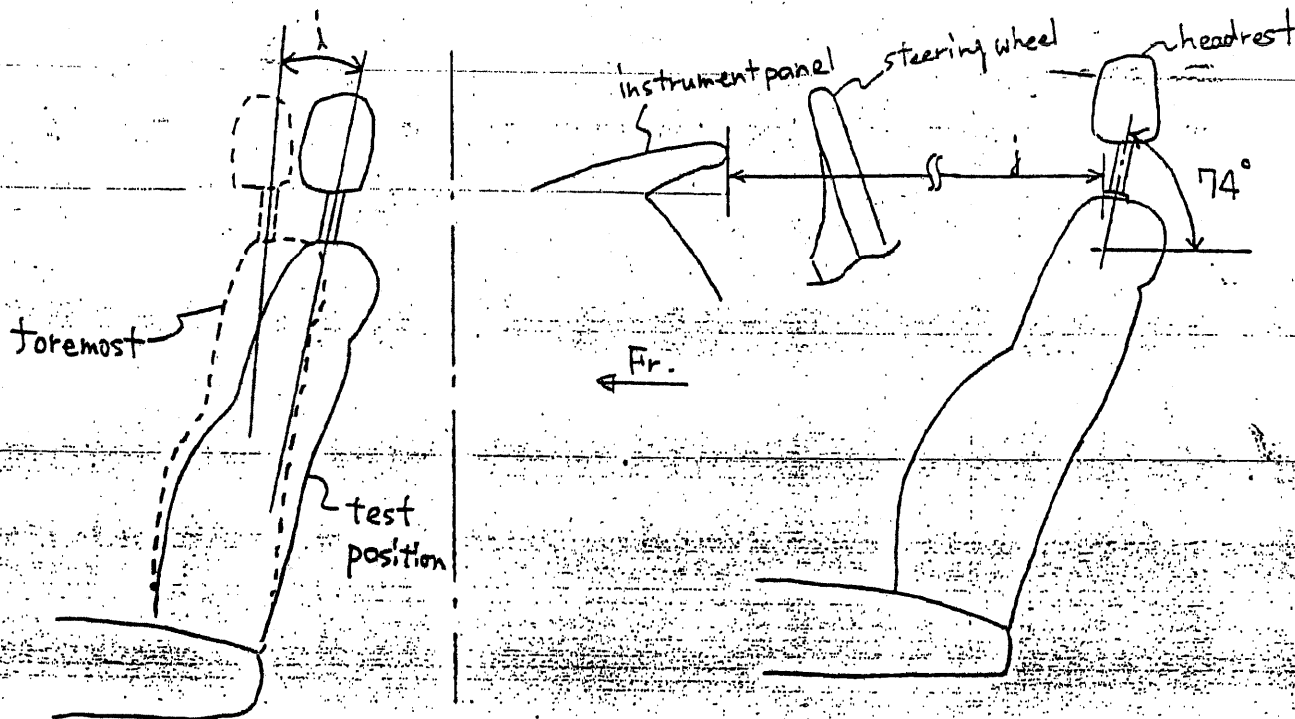


5) Power Seat (Split Bench Seat:Driver)

If headrest angle is 74° to the rocker panel, the dimensions are as follows.

i: 6°

j: 33.8 inch (858 mm)

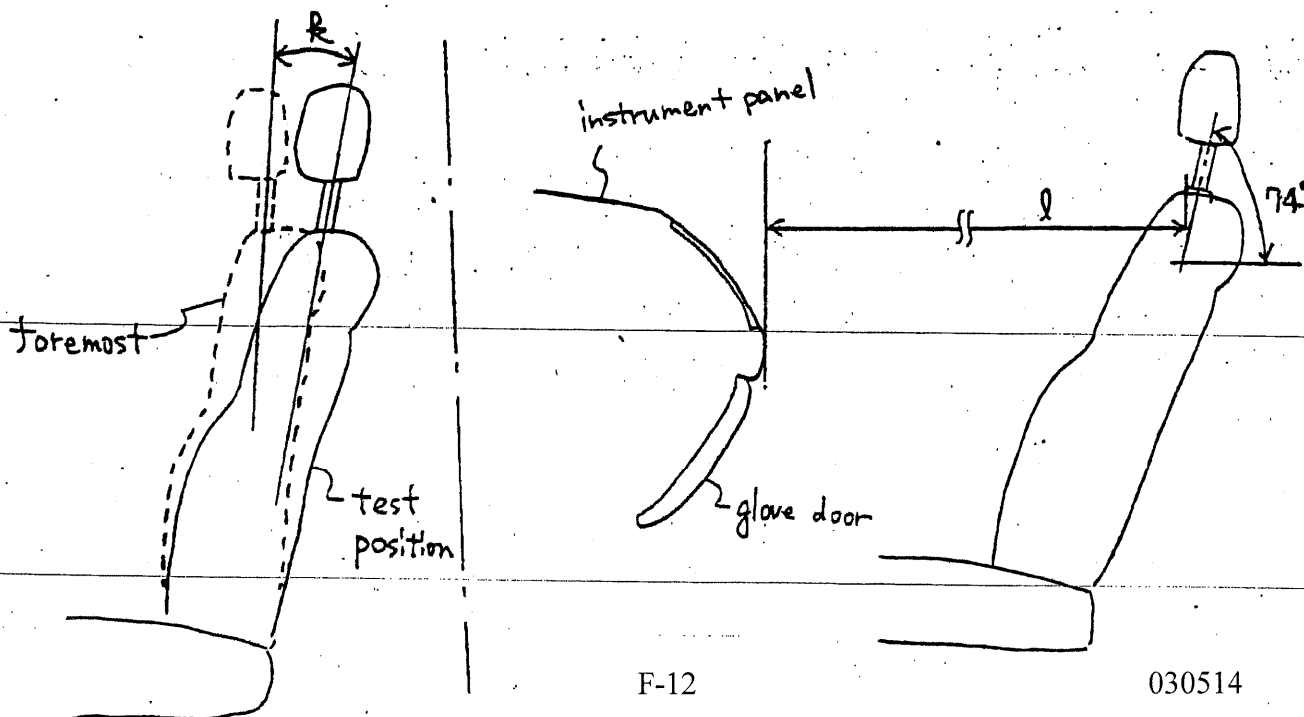


6) Power Seat (Split Bench Seat:Passenger)

If headrest angle is 74° to the rocker panel, the dimensions are as follows.

R: 6°

1: 32.6 inch (828 mm)



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7. Other seat adjustment :

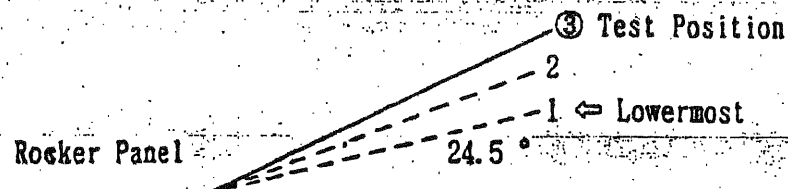
1 Lumbar support : Rearmost

2 Seat cushion height position is the lowermost position

8. Steering column angle :

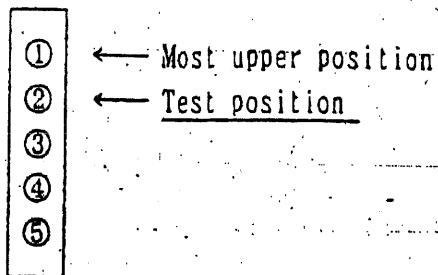
Tilt third notch upward from the lowermost position.

Steering column angle is 24.5° to the rocker panel.



9. Shoulder Belt Anchor Position

Lock on the second position from the most upper position.

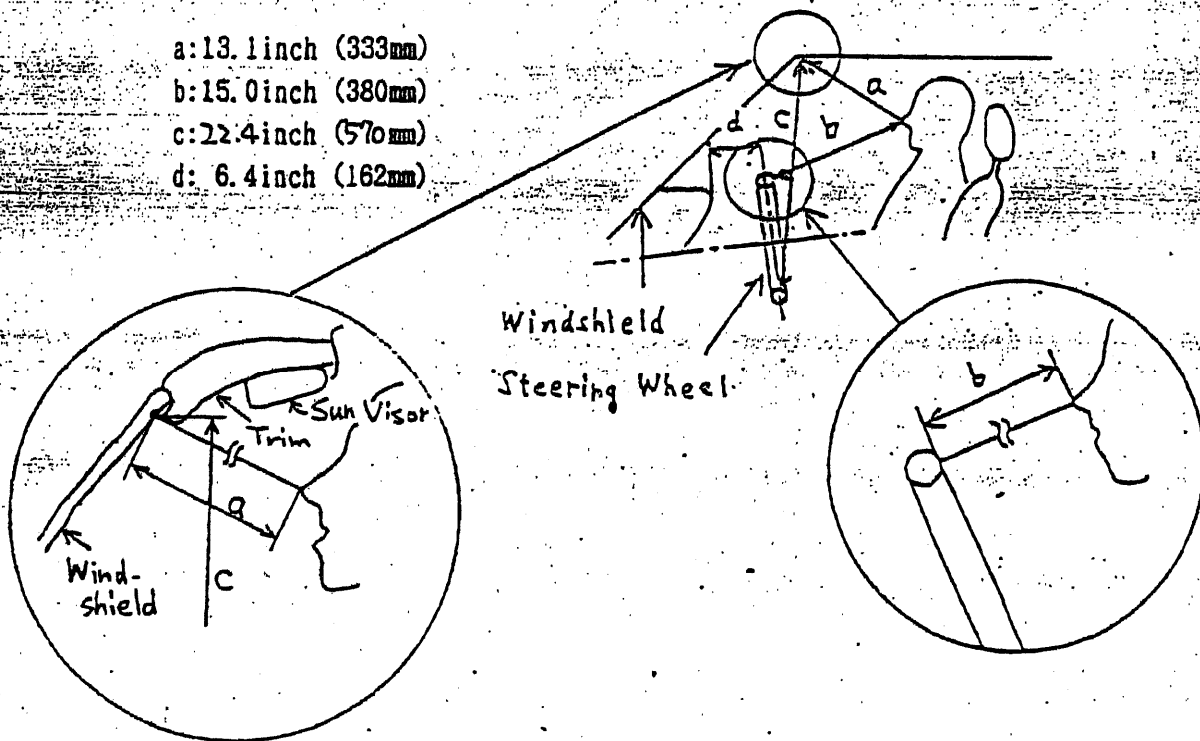


10. Dummy Clearance Dimensions

If the dummy are properly positioned on the seat, the dimensions are as follows:

Driver:

- a: 13.1 inch (333mm)
- b: 15.0 inch (380mm)
- c: 22.4 inch (570mm)
- d: 6.4 inch (162mm)



Interval of the knee

- e: 5.7 inch (145mm)
- f: 4.3 inch (110mm)

