

**Vehicle Research and Test Center
2002 Dodge Ram Truck
into a Frontal Load Cell Barrier
TRC Inc. Test Number: 040415-1**

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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	Impact Test Summary	2-1
3.0	Vehicle, Occupant, and Camera Measurements	3-1
Appendix A	Photographs	A-1
Appendix B	Data Plots	B-1
Appendix C	Dummy Certification Data	C-1
Appendix D	Miscellaneous Test Information	D-1
Appendix E	INSIA Report on Structural Measurements	E-1

List of Tables

<u>Number</u>	<u>Description</u>	<u>Page</u>
1	Crash Test Summary	2-4
2	Test Vehicle Information	2-5
3	Vehicle Accelerometer Locations and Data Summary	2-12
4	Post-Impact Test Data	2-14
5	Dummy Data Summary	2-15
6	Load Cell Barrier Data Summary	2-19
7	Fuel System Data	3-2
8	Impacted Vehicle Measurements	3-4
9	Vehicle Structural Measurements	3-5
10	Vehicle Intrusion of Upper Instrument Panel	3-11
11	Frontal Profile Measurements	3-12
12	Additional Required Measurements	3-13
13	Dummy Measurement Data for Front Seat Occupants	3-14
14	Camera Information	3-17

List of Figures

<u>Number</u>	<u>Description</u>	<u>Page</u>
1	Impact Velocity Measurement System	2-8
2	Vehicle Crush	2-9
3	Vehicle Accelerometer Placement	2-11
4	Load Cell Barrier Mnemonics	2-17
5	Load Cell Barrier Instrumentation	2-18
6	Pre-Test and Post-Test Measurement Points	3-3
7	Vehicle Intrusion Measurements, Door Opening Width	3-6
8	Vehicle Intrusion Measurements, Static Footwell Deformation	3-7
9	Vehicle Intrusion Measurements, Static Passenger Compartment Intrusion	3-8
10	Vehicle Floorboard Deformation	3-9
11	Vehicle Toeboard Measurements	3-10
12	Seat Belt Positioning Data	3-15
13	Camera Positions	3-16

List of Photographs

<u>Description</u>	<u>Figure</u>
Pre-Test Front View	A-1
Post-Test Front View	A-2
Pre-Test Left Front Three-Quarter View	A-3
Post-Test Left Front Three-Quarter View	A-4
Pre-Test Left Side View	A-5
Post-Test Left Side View	A-6
Pre-Test Right Rear Three-Quarter View	A-7
Pre-Test Right Side View	A-8
Post-Test Right Side View	A-9
Pre-Test Overhead View	A-10
Post-Test Overhead View	A-11
Pre-Test Front Underbody View	A-12
Post-Test Front Underbody View	A-13
Pre-Test Mid Front Underbody View	A-14
Post-Test Mid Front Underbody View	A-15
Pre-Test Mid Underbody View	A-16
Post-Test Mid Underbody View	A-17
Pre-Test Mid Rear Underbody View	A-18
Post-Test Mid Rear Underbody View	A-19
Pre-Test Rear Underbody View	A-20
Post-Test Rear Underbody View	A-21
Pre-Test Fuel Tank View	A-22
Post-Test Fuel Tank View	A-23
Pre-Test Fuel Filler Neck View	A-24
Post-Test Fuel Filler Neck View	A-25
Pre-Test Fuel Filler Cap View	A-26
Post-Test Fuel Filler Cap View	A-27
Pre-Test Engine Compartment View	A-28

List of Photographs, Cont'd.

<u>Title</u>	<u>Figure</u>
Pre-Test Windshield View	A-29
Post-Test Windshield View	A-30
Pre-Test Windshield View - Driver and Passenger Dummies	A-31
Post-Test Windshield View - Driver and Passenger Dummies	A-32
Pre-Test Driver Dummy - View 1	A-33
Post-Test Driver Dummy - View 1	A-34
Pre-Test Driver Dummy - View 2	A-35
Post-Test Driver Dummy - View 2	A-36
Pre-Test Driver Dummy - View 3	A-37
Post-Test Driver Dummy - View 3	A-38
Pre-Test Driver Dummy - View 4	A-39
Post-Test Driver Dummy - View 4	A-40
Post-Test Driver Dummy Overall View	A-41
Post-Test Driver Dummy Head Contact - View 1	A-42
Post-Test Driver Dummy Head Contact - View 2	A-43
Post-Test Driver Dummy Head Contact - View 3	A-44
Post-Test Driver Dummy Head Contact - View 4	A-45
Post-Test Driver Dummy Knee Contact - View 1	A-46
Post-Test Driver Dummy Knee Contact - View 2	A-47
Pre-Test Passenger Dummy - View 1	A-48
Post-Test Passenger Dummy - View 1	A-49
Pre-Test Passenger Dummy - View 2	A-50
Post-Test Passenger Dummy - View 2	A-51
Pre-Test Passenger Dummy - View 3	A-52
Post-Test Passenger Dummy - View 3	A-53
Pre-Test Passenger Dummy - View 4	A-54
Post-Test Passenger Dummy - View 4	A-55
Post-Test Passenger Overall Dummy View	A-56

List of Photographs, Cont'd.

<u>Title</u>	<u>Figure</u>
Post-Test Passenger Dummy Head Contact - View 1	A-57
Post-Test Passenger Dummy Head Contact - View 2	A-58
Post-Test Passenger Dummy Head Contact - View 3	A-59
Post-Test Passenger Dummy Knee Contact - View 1	A-60
Post-Test Passenger Dummy Knee Contact - View 2	A-61
Vehicle Certification Label View	A-62
Pre-Test Ballast View	A-63
Pre-Test Barrier View	A-64
Post-Test Barrier View	A-65

Section 1.0

Purpose and Test Procedure

Purpose

This test was conducted for National Highway Traffic Safety Administration (NHTSA) and Vehicle Research and Test Center (VRTC) by Transportation Research Center Inc. (TRC Inc). The purpose of this test was to determine the vehicle and occupant response of the subject vehicle, a 2002 Dodge Ram Truck in the 35 mph frontal impact mode.

Test Procedure

This test was conducted per VRTC instructions. Data was obtained relative to FMVSS 208, "Occupant Crash Protection".

The test vehicle was instrumented with nine (9) accelerometers to measure longitudinal axis accelerations; two (2) accelerometers to measure lateral axis accelerations; two (2) accelerometers to measure vertical axis accelerations, two (2) airbag event data channels. The vehicle's specified impact velocity range was 55.5 to 57.1 km/h. The vehicle impacted a flat frontal barrier equipped with one hundred thirty-four (134) load cells.

The test vehicle contained one (1) Part 572E adult male, and one (1) Part 572O adult female anthropomorphic test devices (dummies). The dummies were positioned in the left front and right front outboard designated seating positions according to the dummy placement procedure specified in NHTSA Laboratory Test Procedure TP-208-12.

The driver dummy was instrumented with head, chest, and pelvis accelerometers to measure longitudinal, lateral, and vertical accelerations; upper neck and femur load cells to measure forces and moments and a chest displacement potentiometer to measure chest deflection.

The right front passenger dummy was equipped with head, chest and pelvis accelerometers to measure longitudinal, lateral and vertical accelerations; upper neck load cells to measure forces and moments; a chest displacement potentiometer to measure chest deflection; and left and right femur load cells to measure axial forces. The dummy was also equipped with redundant head and chest accelerometers.

The 209 data channels were digitally sampled and recorded at 12,500 samples per second and processed per the NHTSA Laboratory Test Procedure.

The crash event was recorded by one (1) real-time panning motion picture camera, nine (9) high-speed digital motion picture cameras operating at 1000 frames per second.

The vehicle and occupant data are summarized in Section 2.0. The vehicle, occupant, and camera measurements are presented in Section 3.0. Appendix A contains the still photographic prints. Appendix B contains the dummy, vehicle, and load cell barrier data plots. Appendix C contains the dummy certification data. Appendix D contains miscellaneous test information. Appendix E contains an INSIA report that was the basis for the Structural Measurements presented in Table 9 of this report.

Section 2.0

Flat Frontal Load Cell Barrier Test Summary

Test Results Summary

This 35 mph frontal barrier test was conducted by TRC Inc. on April 15, 2004.

The test vehicle, a 2002 Dodge Ram Truck, was equipped with an 8-cylinder engine, automatic transmission, power steering, and power brakes. The vehicle's test weight was 2581.8 kg. The vehicle's fuel system contained 90.8 liters of stoddard for the test. The vehicle's impact speed was 56.4 km/h. The vehicle's maximum static crush was 540 mm.

The driver's 36 ms Head Injury Criteria (HIC) was 573. The driver's 15 ms Head Injury Criteria (HIC) was 383. The driver's chest maximum resultant acceleration with three (3) milliseconds minimum duration was 48.0 g. The driver's maximum chest deflection was 34 mm. The driver's left and right femur maximum axial compression forces were 2366 N and 3508 N, respectively. The driver's neck injury criteria (NIJ) were: tension-extension 0.30, tension-flexion 0.28, compression-extension 0.15 and compression-flexion 0.24.

The right front passenger's 36 ms HIC was 401. The right front passenger's 15 ms HIC was 277. The right front passenger's chest maximum resultant acceleration with three (3) milliseconds minimum duration was 50.3 g. The right front passenger's maximum chest deflection was 37 mm. The right front passenger's left and right femur maximum axial compression forces were 4878 N and 1199 N, respectively. The right front passenger's NIJ were: tension-extension 1.17, tension-flexion 0.24, compression-extension 0.29 and compression-flexion 0.26.

Data Acquisition Explanations

The right front passenger's pelvis Z-axis acceleration data channel, PEVZG2, lost data after 45 milliseconds. This affected the resultant acceleration calculation.

Table 1 Crash Test Summary

Test type:	Frontal load cell barrier	
Test date:	04/15/04	
Test time:	9:58	
Ambient temperature:	21° C	
Vehicle:	2002 Dodge Ram Truck	
Vehicle test weight:	2581.8 kg	
Impact angle: ¹	0°	
Impact velocity: ²	Primary = 56.4 km/h Secondary = 56.4 km/h	
Maximum static crush:	595 mm	
Number of data channels:	207	
Dummies:	Driver #169	Passenger #416
Type:	Hybrid III 50th	Hybrid III 5th
Location:	Left front	Right front
Restraint:	Seat belt, airbag	Seat belt, airbag
Number of cameras:		
High-speed digital	9	
Real-time	1	

¹ With respect to tow track centerline.

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

Table 2 Test Vehicle Information

Vehicle manufacturer:	DaimlerChrysler		
Make/model:	Dodge/Ram		
VIN:	1B7HA18N22J102645		
Model year:	2002		
Body style:	Truck		
Color:	Black		
Engine data:			
Type:	V		
Cylinders:	8		
Displacement:	4.7 liters		
Transmission data:	<u> 3 </u> Speed, <u> </u> FWD,	<u> </u> Manual, <u> X </u> RWD,	<u> X </u> Automatic, <u> </u> 4WD
Date vehicle received:	4/6/2004		
Odometer reading:	19,320		
Dealer's name and address:	Vehicle supplied by VRTC		

Accessories:

Power steering	Yes	Automatic transmission	Yes
Power brakes	Yes	Automatic speed control	Yes
Power seats	Driver only	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	No
Other	None		

Certification data from vehicle's label:

Vehicle manufactured by:	DaimlerChrysler	
Date of manufacture:	07/01	
VIN:	1B7HA18N22J102645	
GVWR:	6650 lbs. (3017 kg)	
GAWR: Front:	3650 lbs. (1656 kg)	
Rear:	3900 lbs. (1770 kg)	

Table 2 Test Vehicle Information, continued

Tires on vehicle (mfr., line, size): Goodyear, Wrangler, P265/70R17

Tire pressure with maximum
capacity vehicle load:

Front: 300 kPa
Rear: 300 kPa

Spare tire (mfr., line, size): Goodyear, Wrangler, P265/70R17

Type of seats: Front: Split bench
Rear: Split bench

Type of front seat backs: Manual adjustable

Maximum width: 2025 mm

Wheelbase: 3570 mm

Location of "Recommended Tire Pressure" label:

The label was located on the left front door

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

Recommended tire size: P245/70R17

Recommended cold

tire pressure: Front: 35 psi (241 kPa)
tire pressure: Rear: 35 psi (240 kPa)

Seating capacity: Front: 3
Rear: 3
Total: 6

Vehicle capacity weight: 691.5 kg

Test vehicle attitude:

Delivered attitude:	LF	898 mm;	RF	898 mm;	LR	981 mm;	RR	985 mm
Fully loaded attitude	LF	870 mm;	RF	878 mm;	LR	950 mm;	RR	950 mm
Pre-test attitude:	LF	872 mm;	RF	875 mm;	LR	950 mm;	RR	943 mm
Post-test attitude:	LF	832 mm;	RF	846 mm;	LR	938 mm;	RR	951 mm

Table 2 Test Vehicle Information, continued

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

Right front	631.5	kg	Right rear	510.0	kg
Left front	660.0	kg	Left rear	524.0	kg
Total front weight	1291.5	kg	(55.5 % of total vehicle weight)		
Total rear weight	1034.0	kg	(44.5 % of total vehicle weight)		
Total delivered weight	2325.5	kg			

Calculation of test vehicle's target test weight:

GVWR = Gross Vehicle Weight Rating = 3017 kg

UDW = Unloaded Delivered Weight = 2325.5 kg

VCW = Vehicle Capacity Weight = 691.5 kg

DSC = Designated Seating Capacity = 6

RCLW¹ = Rated Cargo and Luggage Weight = 136 kg

Target test weight = UDW + RCLW + (No. of Part 572E dummies x 76 kg + No. of Part 572O dummies x 49 kg)

Target test weight = 2325.5 + 136.0 + (1) 76.0 + (1) 49.0 = 2586.5 kg

Weight of test vehicle with required dummies and 131.3 kg of cargo weight:

Right front	671.4	kg	Right rear	588.4	kg
Left front	730.0	kg	Left rear	592.0	kg
Total front weight	1401.4	kg	(54.3% of total vehicle weight)		
Total rear weight	1180.4	kg	(45.7% of total vehicle weight)		
Total test weight	2581.8	kg			

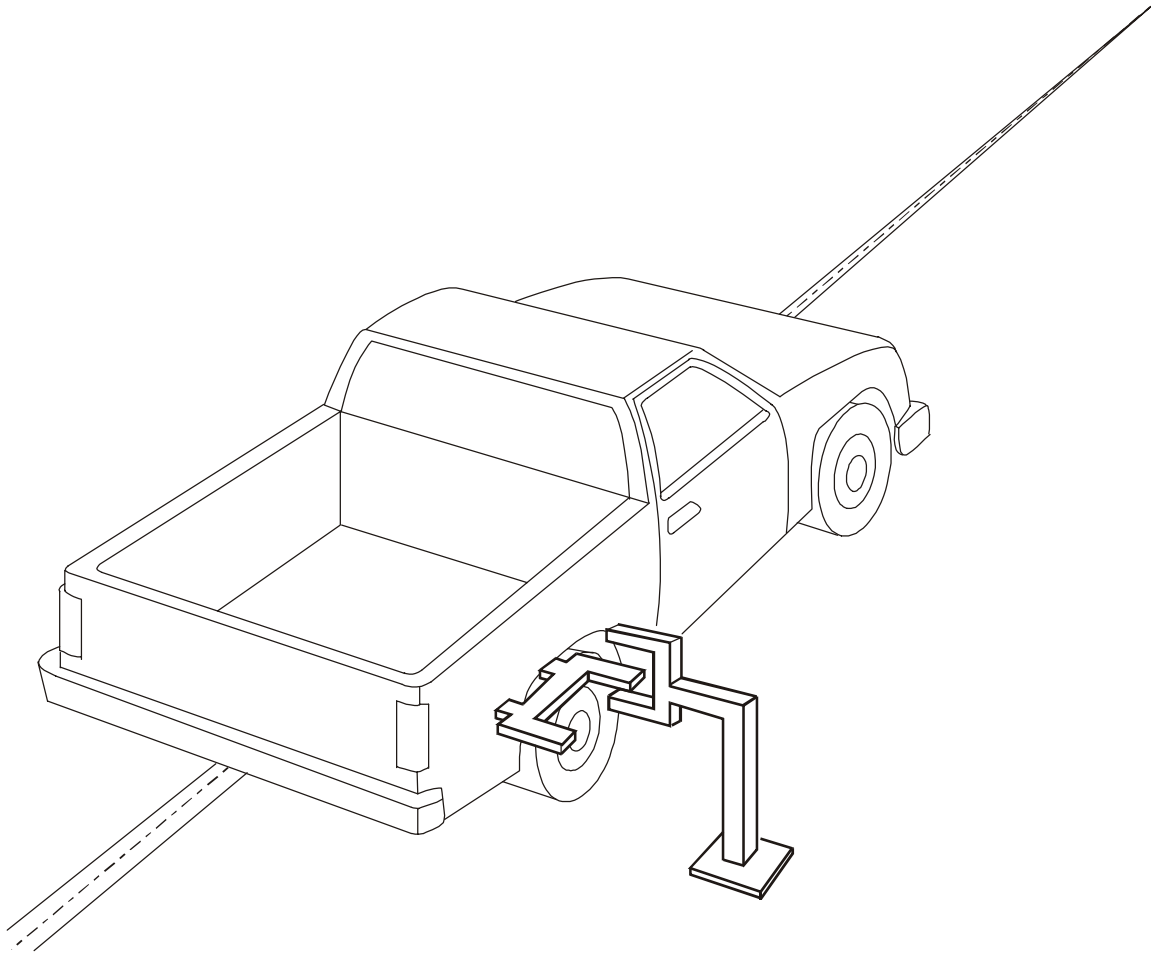
Location of vehicle CG: 1632 mm rearward of front wheel centerline

Weight of ballast secured in vehicle: 39.5 kg of steel plate on rear passenger compartment floor

Components removed to meet target test weight: None

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

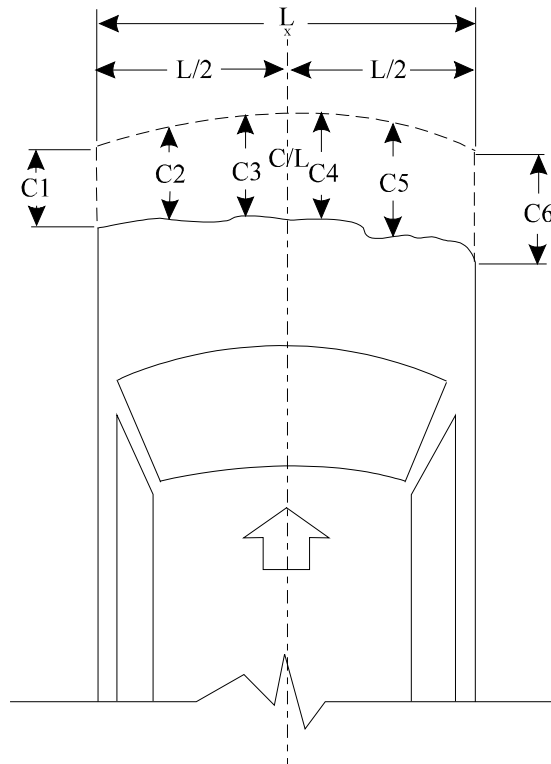
Figure 1 Impact Velocity Measurement System



The final vane clears the final emitter/receiver pair 50 mm before impact.

The vanes have 610 mm spacing.

Figure 2 Vehicle Crush

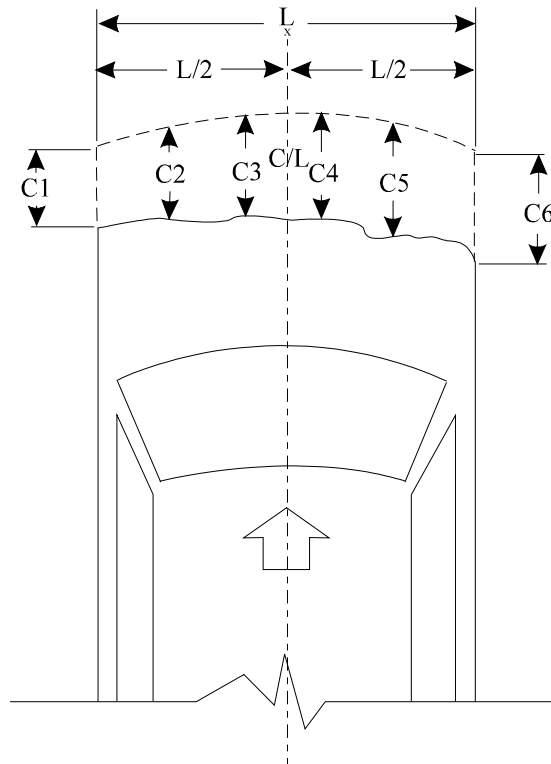


Notes: L is pre-test length of contact surface.
 C1 through C6 are spaced equally apart.
 CL is vehicle centerline.
 Measured with bumper fascia.

Vehicle: 2002 Dodge Ram Truck

	Pre-test	Post-test	Crush
L	1524 mm		
C1	5650 mm	5277 mm	373 mm
C2	5740 mm	5260 mm	480 mm
C3	5780 mm	5241 mm	539 mm
C4	5780 mm	5247 mm	533 mm
C5	5740 mm	5260 mm	480 mm
C6	5650 mm	5271 mm	379 mm
CL	5780 mm	5240 mm	540 mm

Figure 2 Vehicle Crush, continued



Notes: L is pre-test length of contact surface.
 $C1$ through $C6$ are spaced equally apart.
 CL is vehicle centerline.
 Measured without bumper fascia.

Vehicle: 2002 Dodge Ram Truck

	Pre-test	Post-test	Crush
L	N/A^1		
$C1$	N/A^1	N/A^1	N/A^1
$C2$	N/A^1	N/A^1	N/A^1
$C3$	N/A^1	N/A^1	N/A^1
$C4$	N/A^1	N/A^1	N/A^1
$C5$	N/A^1	N/A^1	N/A^1
$C6$	N/A^1	N/A^1	N/A^1
CL	N/A^1	N/A^1	N/A^1

¹ Vehicle was not equipped with a bumper fascia.

Figure 3 Vehicle Accelerometer Placement

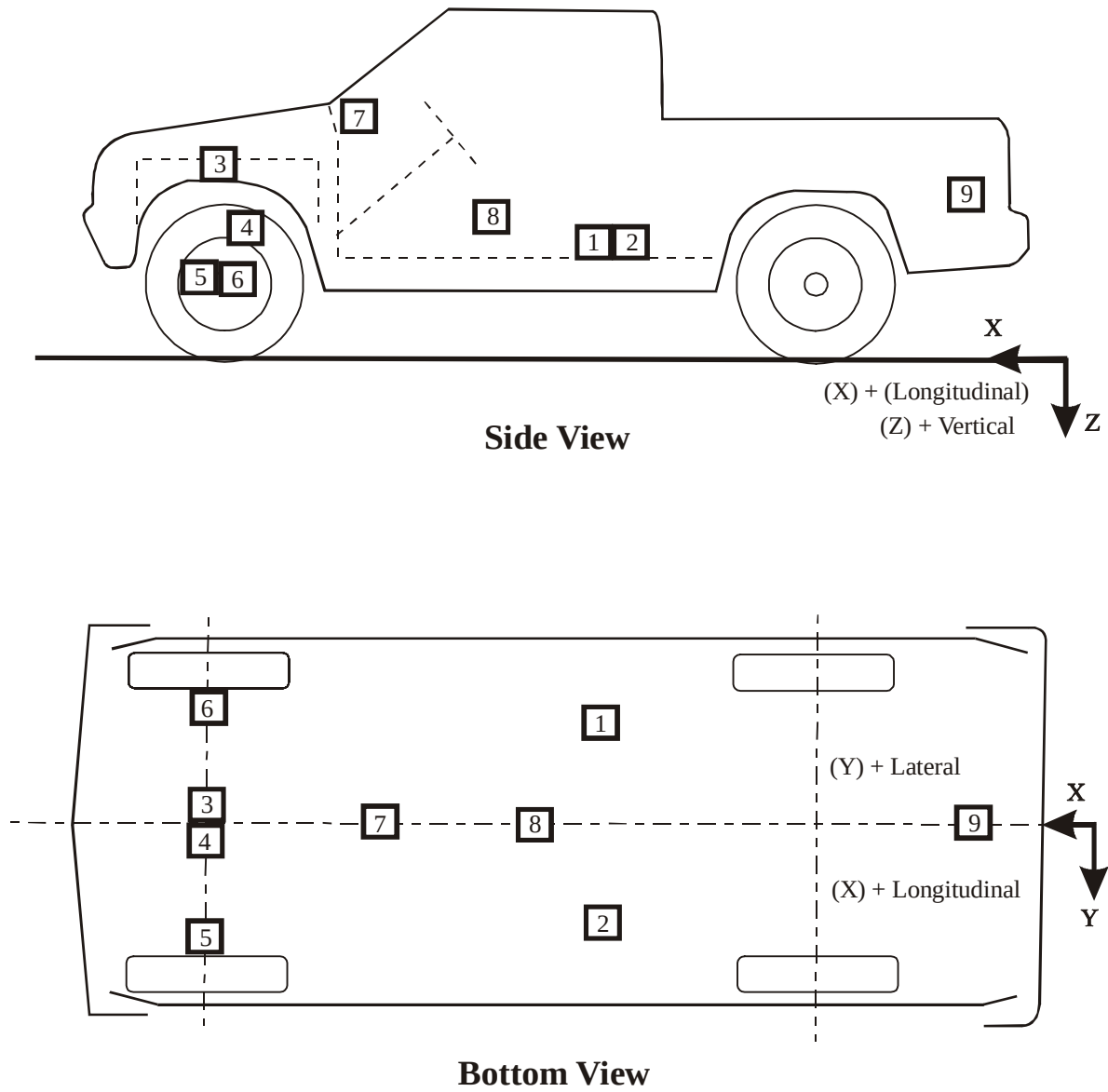


Table 3 Vehicle Accelerometer Locations and Data Summary

Accel. No.	Location	Coordinates (millimeters)			Positive Direction		Negative Direction	
		X*	Y*	Z*	Max. (g)	Time (ms)	Max. (g)	Time (ms)
1	Left Rear Seat Crossmember	2765	-735	-580				
	Longitudinal X				2.86	105.04	-36.02	15.68
2	Right Rear Seat Crossmember	2720	735	-570				
	Longitudinal X				1.87	98.00	-38.07	15.20
3	Top of Engine	4880	-250	-903				
	Longitudinal X				5.67	146.32	-50.43	44.88
4	Bottom of Engine	4541	25	-306				
	Longitudinal X				4.29	179.20	-47.81	59.12
5	Right Front Brake Caliper	4620	731	-395				
	Longitudinal X				31.19	48.24	-63.95	55.68
6	Left Front Brake Caliper	4620	-731	-395				
	Longitudinal X				20.50	64.40	-76.37	41.92
7	Instrument Panel Top Center	4243	0	-1350				
	Longitudinal X				16.06	90.16	-52.72	19.92

Table 3 Vehicle Accelerometer Locations and Data Summary, continued

Accel. No.	Location	Coordinates (millimeters)			Positive Direction		Negative Direction	
		X*	Y*	Z*	Max. (g)	Time (ms)	Max. (g)	Time (ms)
8	Vehicle Center of Gravity	4186	-60	-680				
	Longitudinal X				2.51	123.04	-37.13	16.00
	Lateral Y				7.40	49.12	-8.11	77.68
	Vertical Z				32.69	65.28	-41.68	77.20
	Resultant							
9	Rear Deck	240	0	-854				
	Longitudinal X				9.67	25.60	-49.28	14.08
	Lateral Y				4.44	36.88	-2.98	47.76
	Vertical Z				17.48	131.28	-22.57	13.60
	Resultant							

*Reference: X = Rear Bumper (+ Forward)

Y = Vehicle Centerline (+ To Right)

Z = Ground Level (+ Down)

All measurements accurate to within ± 3 mm.

Table 4 Post-Impact Data

Visible dummy contact points:

	<u>Driver</u>	<u>Right Front Passenger</u>
Head	Airbag, head restraint, D-ring	Airbag, head restraint, seat back
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 back failure:

Left	None
Right	None

Seat track shift:

Left	None
Right	None

Glazing damage:

Damaged at lower A-pillars

Other notable impact effects:

None

Table 5 Dummy Data Summary

<u>Maximum Acceleration¹</u>								
	Head				Chest			
	X	Y	Z	R	X	Y	Z	R
Driver	-57.6 g	8.2 g	25.4 g	61.5 g	-47.5 g	12.9 g	-8.1 g	49.0 g
Passenger	78.8 g	-9.8 g	30.5 g	85.0 g	-56.4 g	27.4 g	-9.0 g	57.2 g

<u>Maximum Femur Compressive Force</u>		
	Left Femur	Right Femur
Driver	2366 N	3508 N
Passenger	4878 N	1199 N

<u>Head Injury Criteria²</u>			
36 millisecond			
	HIC	Start Time t ₁	End Time t ₂
Driver	573	61.4 ms	96.6 ms
Passenger	401	54.5 ms	87.0 ms

15 millisecond			
	HIC	Start Time t ₁	End Time t ₂
Driver	383	73.9 ms	89.0 ms
Passenger	277	63.2 ms	78.2 ms

<u>Chest Maximum Resultant Acceleration³</u>			
	Acceleration	Start Time t ₁	End Time t ₂
Driver	48.0 g	76.0 ms	79.0 ms
Passenger	50.3 g	52.0 ms	55.0 ms

Table 5 Dummy Data Summary, continued

<u>Maximum Chest Deflection</u>				
Driver	34 mm			
Passenger	37 mm			
<u>Neck Injury Calculations (Nij)²</u>				
	NTF	NTE	NCF	NCE
Driver	0.28	0.30	0.24	0.15
Passenger	0.24	1.17	0.26	0.29
<u>Upper Neck Axial Force</u>				
	Tension		Compression	
Driver	1666 N		1341 N	
Passenger	1944 N		346 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.

Figure 4 Load Cell Barrier Mnemonics

		Column															
Row		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
9									LC0906	LC0907	LC0908	LC0909	LC0910	LC0911			
8		LC0801	LC0802	LC0803	LC0804	LC0805	LC0806	LC0807	LC0808	LC0809	LC0810	LC0811	LC0812	LC0813	LC0814	LC0815	LC0816
7		LC0701	LC0702	LC0703	LC0704	LC0705	LC0706	LC0707	LC0708	LC0709	LC0710	LC0711	LC0712	LC0713	LC0714	LC0715	LC0716
6		LC0601	LC0602	LC0603	LC0604	LC0605	LC0606	LC0607	LC0608	LC0609	LC0610	LC0611	LC0612	LC0613	LC0614	LC0615	LC0616
5		LC0501	LC0502	LC0503	LC0504	LC0505	LC0506	LC0507	LC0508	LC0509	LC0510	LC0511	LC0512	LC0513	LC0514	LC0515	LC0516
4		LC0401	LC0402	LC0403	LC0404	LC0405	LC0406	LC0407	LC0408	LC0409	LC0410	LC0411	LC0412	LC0413	LC0414	LC0415	LC0416
3		LC0301	LC0302	LC0303	LC0304	LC0305	LC0306	LC0307	LC0308	LC0309	LC0310	LC0311	LC0312	LC0313	LC0314	LC0315	LC0316
2		LC0201	LC0202	LC0203	LC0204	LC0205	LC0206	LC0207	LC0208	LC0209	LC0210	LC0211	LC0212	LC0213	LC0214	LC0215	LC0216
1		LC0101	LC0102	LC0103	LC0104	LC0105	LC0106	LC0107	LC0108	LC0109	LC0110	LC0111	LC0112	LC0113	LC0114	LC0115	LC0116

Figure 5 Load Cell Barrier Instrumentation

					109	044	134	115	110	064					
133	039	085	059	116	013	119	107	095	103	129	058	126	108	025	070
027	111	072	106	056	114	068	157	049	131	018	084	062	078	127	021
036	052	010	034	026	022	030	016	035	092	043	076	001	087	096	015
090	065	079	055	031	054	050	089	130	082	083	123	032	121	009	037
040	007	071	094	067	086	118	101	073	047	099	080	097	048	061	005
125	004	051	042	011	117	066	045	077	029	100	102	091	012	017	081
120	063	124	093	046	122	002	060	105	020	069	041	112	074	128	075
053	008	028	038	003	014	024	006	132	023	033	019	113	098	104	088

LOAD CELL SERIAL NUMBERS



Track C/L

Table 6 Load Cell Barrier Data Summary

Location	Column	Positive Direction		Negative Direction	
		Max. (N)	Time (ms)	Max. (N)	Time (ms)
Load Cell Row 1	1	299	16.2	483	10.4
	2	463	16.2	459	10.3
	3	650	15.8	501	10.4
	4	517	5.2	983	10.5
	5	496	4.7	1,121	10.5
	6	571	15.0	1,559	10.6
	7	609	14.8	1,805	10.6
	8	824	14.6	1,639	10.7
	9	811	14.4	12,741	50.9
	10	753	14.6	2,918	51.1
	11	641	14.7	1,345	10.8
	12	611	14.9	984	10.7
	13	785	15.0	472	10.6
	14	697	15.2	222	10.6
	15	373	15.3	182	10.5
	16	268	15.5	98	18.4

Table 6 Load Cell Barrier Data Summary, continued

Location	Column	Positive Direction		Negative Direction	
		Max. (N)	Time (ms)	Max. (N)	Time (ms)
Load Cell Row 2	1	305	6.2	463	10.3
	2	385	5.9	569	10.3
	3	434	5.5	725	10.3
	4	503	5.3	993	10.3
	5	579	5.0	1,114	10.4
	6	587	15.2	1,077	10.4
	7	548	15.1	1,431	10.5
	8	724	15.0	1,288	10.6
	9	708	14.8	1,309	10.6
	10	618	14.9	1,163	10.6
	11	487	3.0	1,007	10.6
	12	439	3.7	752	10.5
	13	462	15.0	466	10.3
	14	448	15.2	224	10.3
	15	308	15.4	724	93.6
	16	255	15.4	81	18.2

Table 6 Load Cell Barrier Data Summary, continued

Location	Column	Positive Direction		Negative Direction	
		Max. (N)	Time (ms)	Max. (N)	Time (ms)
Load Cell Row 3	1	343	6.1	496	10.3
	2	386	5.9	3,577	107.7
	3	418	5.6	3,164	92.9
	4	920	4.1	22,604	34.6
	5	2,818	1.5	107,492	11.4
	6	862	1.1	42,279	12.2
	7	298	-1.8	7,887	4.7
	8	555	15.1	5,654	2.6
	9	466	15.0	5,890	2.8
	10	441	14.6	8,986	4.5
	11	523	0.2	14,801	12.6
	12	2,867	1.7	111,350	12.4
	13	1,510	3.0	42,686	10.9
	14	343	3.4	6,960	91.8
	15	244	15.4	333	93.0
	16	93	15.4	3,251	104.2

Table 6 Load Cell Barrier Data Summary, continued

Location	Column	Positive Direction		Negative Direction	
		Max. (N)	Time (ms)	Max. (N)	Time (ms)
Load Cell Row 4	1	299	6.2	422	10.2
	2	365	6.0	17,556	77.6
	3	800	6.2	23,627	23.0
	4	664	2.7	15,993	18.2
	5	524	3.0	144,288	17.5
	6	100	-1.6	25,171	47.2
	7	251	-2.4	6,585	8.7
	8	177	-4.1	5,014	2.2
	9	130	-3.8	4,334	42.3
	10	104	-3.0	5,089	7.7
	11	179	-2.4	11,512	12.2
	12	702	5.0	142,602	43.8
	13	525	2.2	29,010	20.1
	14	548	4.2	20,334	20.8
	15	86	4.2	14,893	57.5
	16	120	14.6	7,767	82.3

Table 6 Load Cell Barrier Data Summary, continued

Location	Column	Positive Direction		Negative Direction	
		Max. (N)	Time (ms)	Max. (N)	Time (ms)
Load Cell Row 5	1	271	6.1	3,623	61.0
	2	319	6.0	1,651	52.3
	3	447	5.8	10,561	60.6
	4	537	5.3	9,539	20.2
	5	727	3.4	10,677	18.1
	6	460	3.3	3,735	48.0
	7	362	1.9	6,248	62.4
	8	201	22.9	6,959	62.5
	9	179	0.3	12,619	62.2
	10	318	1.6	6,730	62.4
	11	339	2.4	1,299	62.9
	12	505	2.7	6,706	17.4
	13	460	3.2	12,599	19.1
	14	156	5.6	10,695	66.2
	15	176	14.2	3,754	67.0
	16	29	21.1	6,729	71.8

Table 6 Load Cell Barrier Data Summary, continued

Location	Column	Positive Direction		Negative Direction	
		Max. (N)	Time (ms)	Max. (N)	Time (ms)
Load Cell Row 6	1	277	6.4	16,020	62.0
	2	304	6.0	3,731	60.6
	3	379	6.0	1,501	24.7
	4	495	5.6	3,684	22.9
	5	400	4.7	712	11.1
	6	412	4.1	759	11.3
	7	327	3.0	751	11.2
	8	351	15.4	665	11.0
	9	297	2.0	52,870	61.4
	10	262	2.3	461	10.6
	11	241	2.6	411	10.1
	12	180	2.9	411	10.0
	13	167	3.8	1,808	16.2
	14	89	11.7	2,323	22.9
	15	105	20.7	3,096	52.3
	16	230	21.4	14,421	70.6

Table 6 Load Cell Barrier Data Summary, continued

Location	Column	Positive Direction		Negative Direction	
		Max. (N)	Time (ms)	Max. (N)	Time (ms)
Load Cell Row 7	1	153	5.8	21,433	61.2
	2	333	7.0	3,997	60.2
	3	296	6.0	2,327	28.2
	4	401	5.4	7,468	17.8
	5	299	6.0	700	11.4
	6	332	3.8	981	11.1
	7	289	2.9	912	11.4
	8	240	2.6	697	11.4
	9	220	1.9	936	6.6
	10	207	2.3	1,845	62.7
	11	197	2.8	612	26.6
	12	126	3.1	471	10.2
	13	154	3.9	2,991	17.2
	14	273	11.3	4,509	35.7
	15	186	21.1	2,092	33.8
	16	202	21.3	21,126	67.9

Table 6 Load Cell Barrier Data Summary, continued

Location	Column	Positive Direction		Negative Direction	
		Max. (N)	Time (ms)	Max. (N)	Time (ms)
Load Cell Row 8	1	183	13.4	3,181	68.7
	2	254	7.5	2,663	69.0
	3	289	7.2	6,712	67.6
	4	320	6.3	17,429	31.5
	5	360	5.5	9,709	19.2
	6	293	4.9	5,440	19.4
	7	320	3.4	6,763	11.6
	8	180	2.5	2,963	11.6
	9	337	2.6	5,591	9.6
	10	264	3.1	7,143	11.8
	11	186	3.5	4,345	12.7
	12	168	3.9	6,249	17.5
	13	174	4.9	18,675	17.7
	14	108	13.1	24,168	29.8
	15	216	13.0	3,332	48.3
	16	218	13.0	3,787	45.0

Table 6 Load Cell Barrier Data Summary, continued

Location	Column	Positive Direction		Negative Direction	
		Max. (N)	Time (ms)	Max. (N)	Time (ms)
Load Cell Row 9	6	324	7.6	3,539	61.3
	7	275	7.8	2,217	47.4
	8	335	54.8	1,455	29.2
	9	326	55.0	1,860	10.8
	10	102	0.0	2,061	35.7
	11	92	8.3	3,782	59.2

Section 3.0

Vehicle, Occupant, and Camera Measurements

Table 7 Fuel System Data

Vehicle year/make/ model/body style:	2002/Dodge/Ram/Truck
Fuel system capacity:	98.4 liters (from owner's manual)
Usable capacity:	98.4 liters
Test volume range:	90.5 liters to 92.5 liters (92% to 94% of usable)
Actual test volume:	90.8 liters
Test fluid type:	Stoddard
Specific gravity:	0.764
Kinematic viscosity:	0.99 centistoke
Test fluid color:	Purple
Did electric fuel pump operate with ignition switch "on" and the engine not operating?	No
Details of fuel system:	The fuel tank is located under the vehicle's bed area. The fuel filler neck is located in the left rear quarter panel. The fuel filler cap is located at the end of the fuel filler neck. This fuel lines run forward inside of the forward inside left frame rail.

Figure 6 Pre-Test And Post-Test Measurement Points

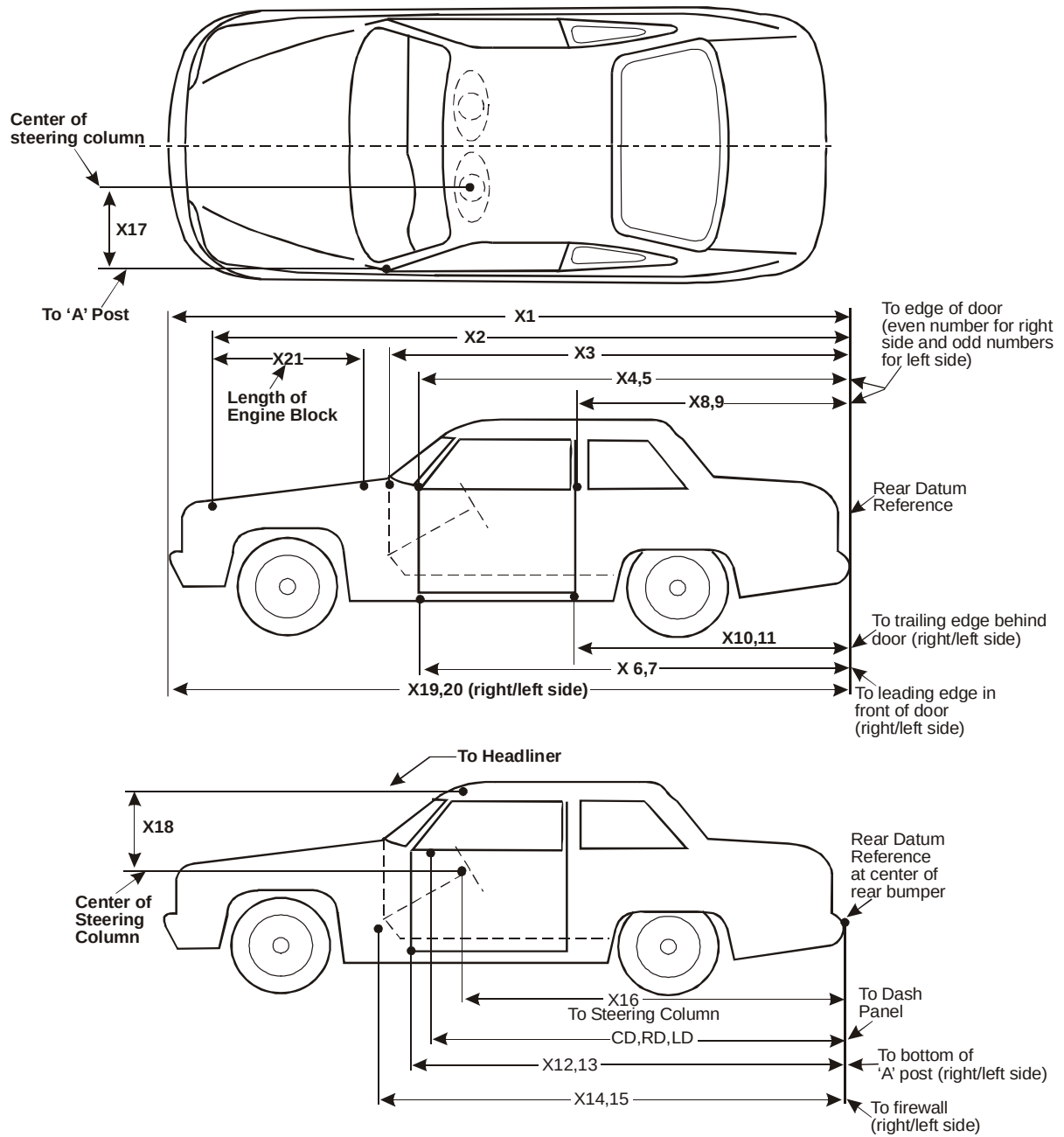


Table 8 Impacted Vehicle Measurements

Vehicle Make/Model: 2002 Dodge Ram Truck

Test Number: 040415-1

No.	Type of measurement	Pre-Test	Post-Test	Difference
X1	Total Length of Vehicle at Centerline	5780	5240	540
X2	Rear Surface of Vehicle to Front of Engine Block	5000	4969	31
X3	Rear Surface of Vehicle to Firewall	4700	N/A ¹	N/A ¹
X4	Rear Surface of Vehicle to Upper Leading Edge of Right Door	4267	4261	6
X5	Rear Surface of Vehicle to Upper Leading Edge of Left Door	4277	4275	2
X6	Rear Surface of Vehicle to Lower Leading Edge of Right Door	4156	4145	11
X7	Rear Surface of Vehicle to Lower Leading Edge of Left Door	4173	4171	2
X8	Rear Surface of Vehicle to Upper Trailing Edge of Right Door	3125	3120	5
X9	Rear Surface of Vehicle to Upper Trailing Edge of Left Door	3135	3140	-5
X10	Rear Surface of Vehicle to Lower Trailing Edge of Right Door	3105	3086	19
X11	Rear Surface of Vehicle to Lower Trailing Edge of Left Door	3123	3119	4
X12	Rear Surface of Vehicle to Bottom of " A " Post on Right Side	4206	4210	-4
X13	Rear Surface of Vehicle to Bottom of " A " Post on Left Side	4230	4224	6
X14	Rear Surface of Vehicle to Firewall-Right Side	4620	4614	6
X15	Rear Surface of Vehicle to Firewall-Left Side	4620	4611	9
X16	Rear Surface of Vehicle to Steering Wheel Center	3730	3717	13
X17	Center of Steering Column to " A " Post	253	269	-16
X18	Center of Steering Column to Headliner	490	499	-9
X19	Rear Surface of Vehicle to Right Side of Front Bumper	5650	5271	379
X20	Rear Surface of Vehicle to Left Side of Front Bumper	5650	5277	373
X21	Length of Engine Block	460	460	0

All measurements are in millimeters.

¹ Measurement point not accessible after impact.

Table 9 Vehicle Structural Measurements¹

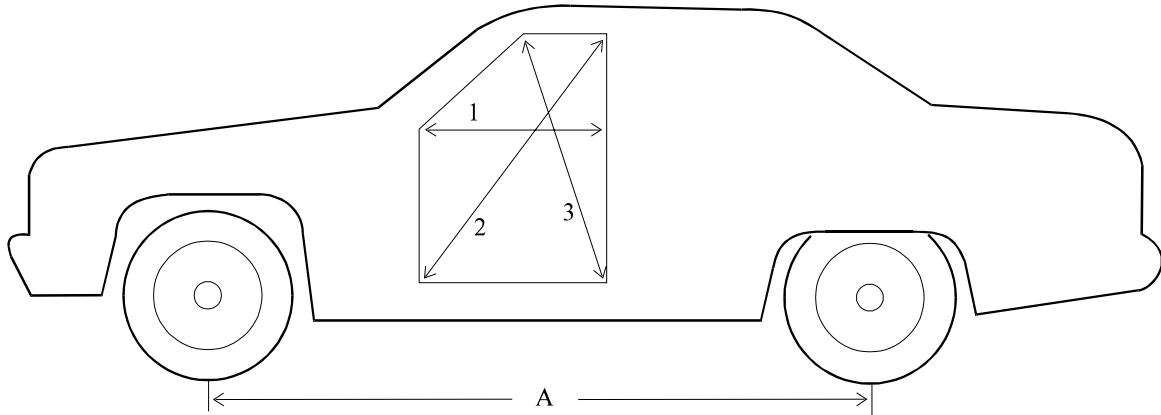
	Elements	Pre-Test
1	Total Length	5780
2	Total Width	2025
3	Bumper Top Height	634
4	Bumper Bottom Height	349
5	Longitudinal Member Top Height	569
6	Longitudinal Member Bottom Height	429
7	Distance Between Longitudinal Members	910
7'	Longitudinal Member Width	65
8	Engine Top Height	1022
9	Engine Bottom Height	294
10	Engine and Gearbox Width	630
11	Front Bumper - Engine Distance	770
12	Front Shock Absorber Fixing Height	622
13	Bonnet Leading Edge Height	1079
14	Front Shock Absorber Fixing Width	1015
15	Front Bumper - Front Axle Distance	1010
16	Front Axle - A Pillar Distance	685
17	A Pillar - B Pillar Distance	1000
18	B Pillar - Rear Axle Distance	1900
19	B Pillar - C Pillar Distance	840
20	Roof Sill Bottom Height	1725
21	Roof Sill Top Height	1807
22	Floor Sill Bottom Height	484
23	Floor Sill Top Height	527

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.

Figure 7 Vehicle Intrusion Measurements

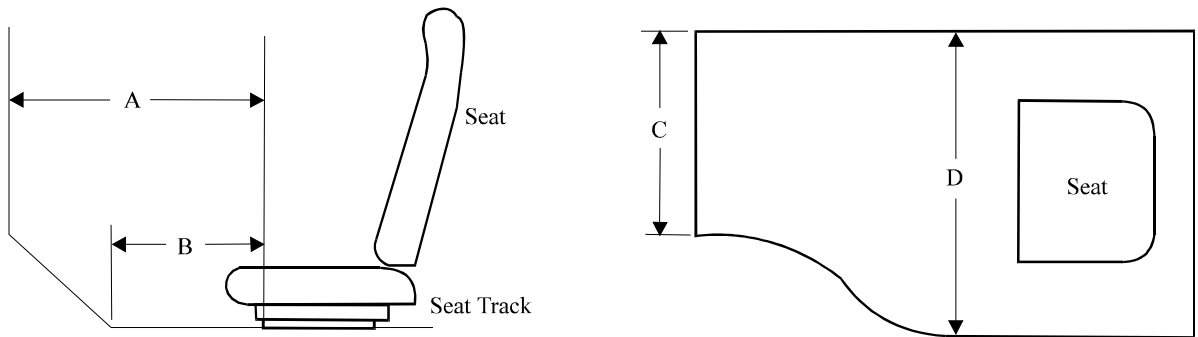
Door Opening Width



Units (mm)	Left			Right		
Measurement	1	2	3	1	2	3
Pre-Test	990 mm	1600 mm	1250 mm	980 mm	1600 mm	1240 mm
Post-Test	990 mm	1602 mm	1264 mm	975mm	1600 mm	1242 mm
Difference	0 mm	-2 mm	-14 mm	5 mm	0 mm	-2 mm

Units (mm)	A = Wheelbase Left	A = Wheelbase Right
Pre-Test	3570 mm	3570 mm
Post-Test	3543 mm	3560 mm
Difference	27 mm	10 mm

Figure 8 Vehicle Intrusion Measurements
Static Footwell Deformation



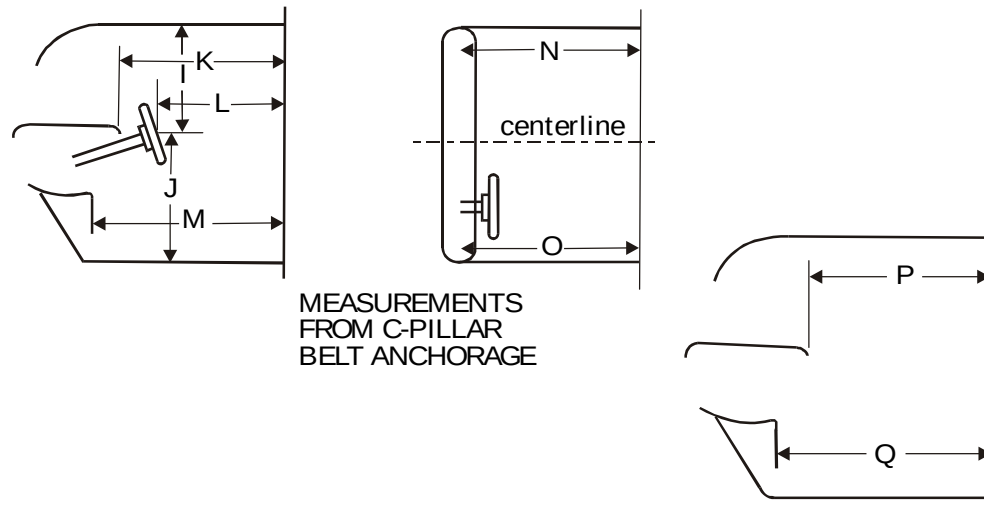
Driver's Side

Measurement	Pre-Test	Post-Test	Difference
A	710 mm	713 mm	-3 mm
B	460 mm	453 mm	7 mm
C	410 mm	414 mm	-4 mm
D	412 mm	411 mm	1 mm

Passenger's Side

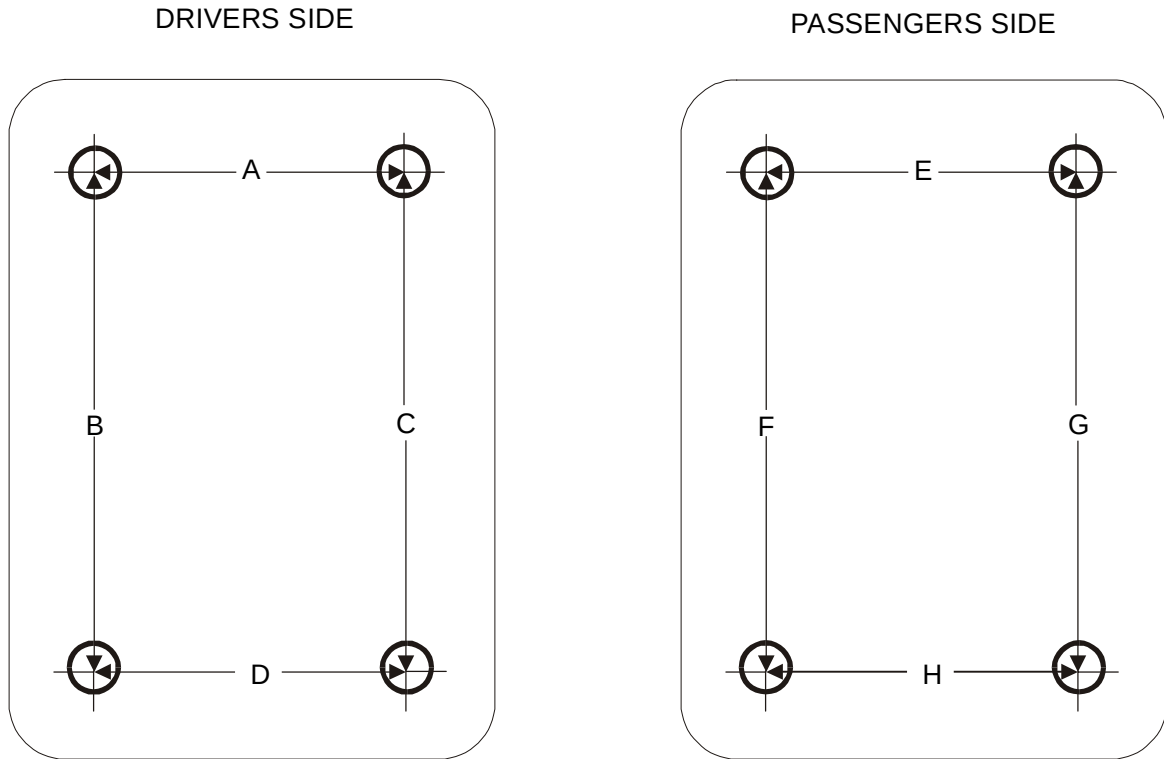
Measurement	Pre-Test	Post-Test	Difference
A	720 mm	718 mm	2 mm
B	495 mm	488 mm	7 mm
C	300 mm	300 mm	0 mm
D	455 mm	450 mm	5 mm

Figure 9 Vehicle Intrusion Measurements
Static Passenger Compartment Intrusion



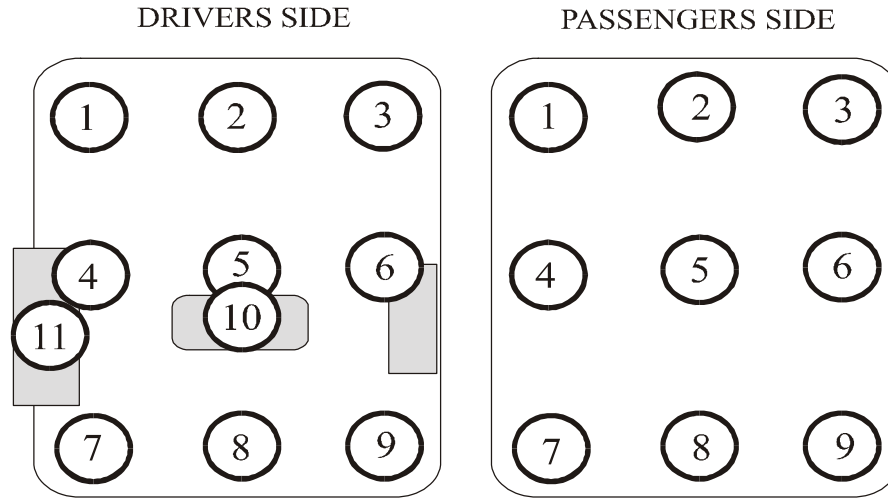
Measurement	Pre-Test	Post-Test	Difference
I	490 mm	499 mm	-9 mm
J	685 mm	743 mm	-58 mm
K (driver's side)	1677 mm	1677 mm	0 mm
L	1482 mm	1492 mm	-10 mm
M (driver's side)	1840 mm	1854 mm	-14 mm
N (passenger's side)	1717 mm	1717 mm	0 mm
O (driver's side)	1658 mm	1657 mm	1 mm
P (passenger's side)	1117 mm	1721 mm	-604 mm
Q (passenger's side)	1860 mm	1871 mm	-11 mm

Figure 10 Vehicle Floorboard Deformation



Measurement	Pre-Test	Post-Test	Difference
A	410 mm	414 mm	-4 mm
B	360 mm	360 mm	0 mm
C	350 mm	345 mm	5 mm
D	412 mm	411 mm	1 mm
E	300 mm	300 mm	0 mm
F	460 mm	460 mm	0 mm
G	435 mm	435 mm	0 mm
H	455 mm	450 mm	5 mm

Figure 11 Vehicle Toeboard Measurements



Pre-Test

Index	Xmm	Ymm	Zmm
1	4395	-659	-216
2	4410	-509	-181
3	4385	-360	-207
4	4298	-661	-127
5	4297	-513	-128
6	4298	-357	-128
7	4194	-665	-74
8	4193	-515	-72
9	4192	-352	-71
10	4197	-487	-278
11	4331	-758	-188

Driver Toe Pan

Post-Test

Xmm	Ymm	Zmm
4413	-644	-277
4426	-495	-244
4400	-345	-274
4318	-644	-185
4315	-499	-188
4316	-340	-192
4216	-650	-129
4213	-499	-130
4212	-338	-131
4213	-474	-339
4349	-743	-246

Difference

Xmm	Ymm	Zmm
-18	-15	61
-16	-14	63
-15	-15	67
-20	-17	58
-18	-14	60
-18	-17	64
-22	-15	55
-20	-16	58
-20	-14	60
-16	-13	61
-18	-15	58

Pre-Test

Index	Xmm	Ymm	Zmm
1	4411	470	-248
2	4442	598	-243
3	4395	748	-285
4	4304	468	-154
5	4308	600	-136
6	4306	761	-140
7	4171	465	-63
8	4168	604	-58
9	4174	764	-59

Passenger Toe Pan

Post-Test

Xmm	Ymm	Zmm
4431	454	-328
4464	581	-324
4416	730	-363
4327	453	-228
4334	584	-212
4332	747	-216
4200	452	-132
4198	593	-128
4204	752	-131

Difference

Xmm	Ymm	Zmm
-20	16	80
-22	17	81
-21	18	78
-23	15	74
-26	16	76
-26	14	76
-29	13	69
-30	11	70
-30	12	72

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

Table 10 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	4039	-622	-503	4073	-610	-554	-34	-12	51
Right	4034	-317	-510	4063	-305	-559	-29	-12	49

Driver Knees

Pre-Test				Post-Test			Difference		
Index	Xmm	Ymm	Zmm	Xmm	Ymm	Zmm	Xmm	Ymm	Zmm
Left	3959	-617	-603	3989	-605	-652	-30	-12	49
Right	3960	-346	-605	3991	-335	-656	-31	-11	51

Passenger Knees

Pre-Test				Post-Test			Difference		
Index	Xmm	Ymm	Zmm	Xmm	Ymm	Zmm	Xmm	Ymm	Zmm
Left	3972	448	-575	3991	434	-637	-19	14	62
Right	3973	603	-576	3998	589	-641	-25	14	65

Steering Column

Pre-Test				Post-Test			Difference		
Index	Xmm	Ymm	Zmm	Xmm	Ymm	Zmm	Xmm	Ymm	Zmm
1	3765	-490	-787	3780	-484	-828	-15	-6	41

Driver Front Outboard Seat Attachment Bolt

Pre-Test				Post-Test			Difference		
Index	Xmm	Ymm	Zmm	Xmm	Ymm	Zmm	Xmm	Ymm	Zmm
1	3697	-666	-137	3718	-654	-164	-21	-12	27

Passenger Front Outboard Seat Attachment Bolt

Pre-Test				Post-Test			Difference		
Index	Xmm	Ymm	Zmm	Xmm	Ymm	Zmm	Xmm	Ymm	Zmm
1	3697	667	-134	3724	657	-181	-27	10	47

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

Table 11 Frontal Profile Measurements

Bottom of Front Bumper

Pre-Test				Post-Test			Difference ²		
Index	Xmm	Ymm	Zmm	Xmm	Ymm	Zmm	Xmm	Ymm	Zmm
1	5630	-765	-386	5225	-740	-362	405	-25	-24
2	5725	-458	-467	5218	-452	-465	507	-6	-2
3	5750	-150	-460	5155	-153	-482	595	3	22
4	5755	155	-470	5162	130	-491	593	25	21
5	5730	455	-470	5218	425	-479	512	30	9
6	5630	755	-394	5223	718	-383	407	37	-11

Top of Front Bumper

Pre-Test				Post-Test			Difference ³		
Index	Xmm	Ymm	Zmm	Xmm	Ymm	Zmm	Xmm	Ymm	Zmm
1	5650	-765	-618	5277	-761	-589	373	-4	-29
2	5740	-460	-613	5260	-455	-548	480	-5	-65
3	5780	-150	-615	5241	-151	-535	539	1	-80
4	5780	150	-620	5247	151	-546	533	-1	-74
5	5780	455	-617	5260	450	-559	520	5	-58
6	5740	760	-618	5271	753	-605	469	7	-13

Center of Grill

Pre-Test				Post-Test			Difference		
Index	Xmm	Ymm	Zmm	Xmm	Ymm	Zmm	Xmm	Ymm	Zmm
1	5550	-740	-871	5211	-659	-835	339	-81	-36
2	5650	-445	-898	5220	-432	-886	430	-13	-12
3	5690	-150	-901	5207	-135	-875	483	-15	-26
4	5685	145	-900	5228	148	-877	457	-3	-23
5	5655	440	-902	5231	446	-894	424	-6	-8
6	5560	710	-884	N/A ¹	N/A ¹	N/A ¹	N/A ¹	N/A ¹	N/A ¹

Front of Hood

Pre-Test				Post-Test			Difference		
Index	Xmm	Ymm	Zmm	Xmm	Ymm	Zmm	Xmm	Ymm	Zmm
1	5535	-706	-946	5195	-639	-910	340	-67	-36
2	5650	-445	-1065	5188	-434	-1043	462	-11	-22
3	5690	-150	-1082	5193	-142	-1035	497	-8	-47
4	5685	145	-1083	5205	150	-1034	480	-5	-49
5	5655	444	-1068	5195	446	-1051	460	-2	-17
6	5540	700	-952	5190	657	-930	350	43	-22

¹ Measurement point could not located post-test.

² The difference for point C1-4, measured at the bottom of the front bumper, are included in the NHTSA Database submission as Damage Profile Distance 1-4.

³ The difference for point C5-6, measured at the top of the front bumper, are included in the NHTSA Database submission as Damage Profile Distance 5-6.

Table 12 Additional Requested Measurements

Type of measurement	
Height of the lowest edge of the bottom row of load cells	130 mm
Height of lowest structure on test vehicle	215 mm
Mid-hood height of test vehicle	1248 mm
Height of test vehicle hood 2 feet rearward of front bumper	1250 mm

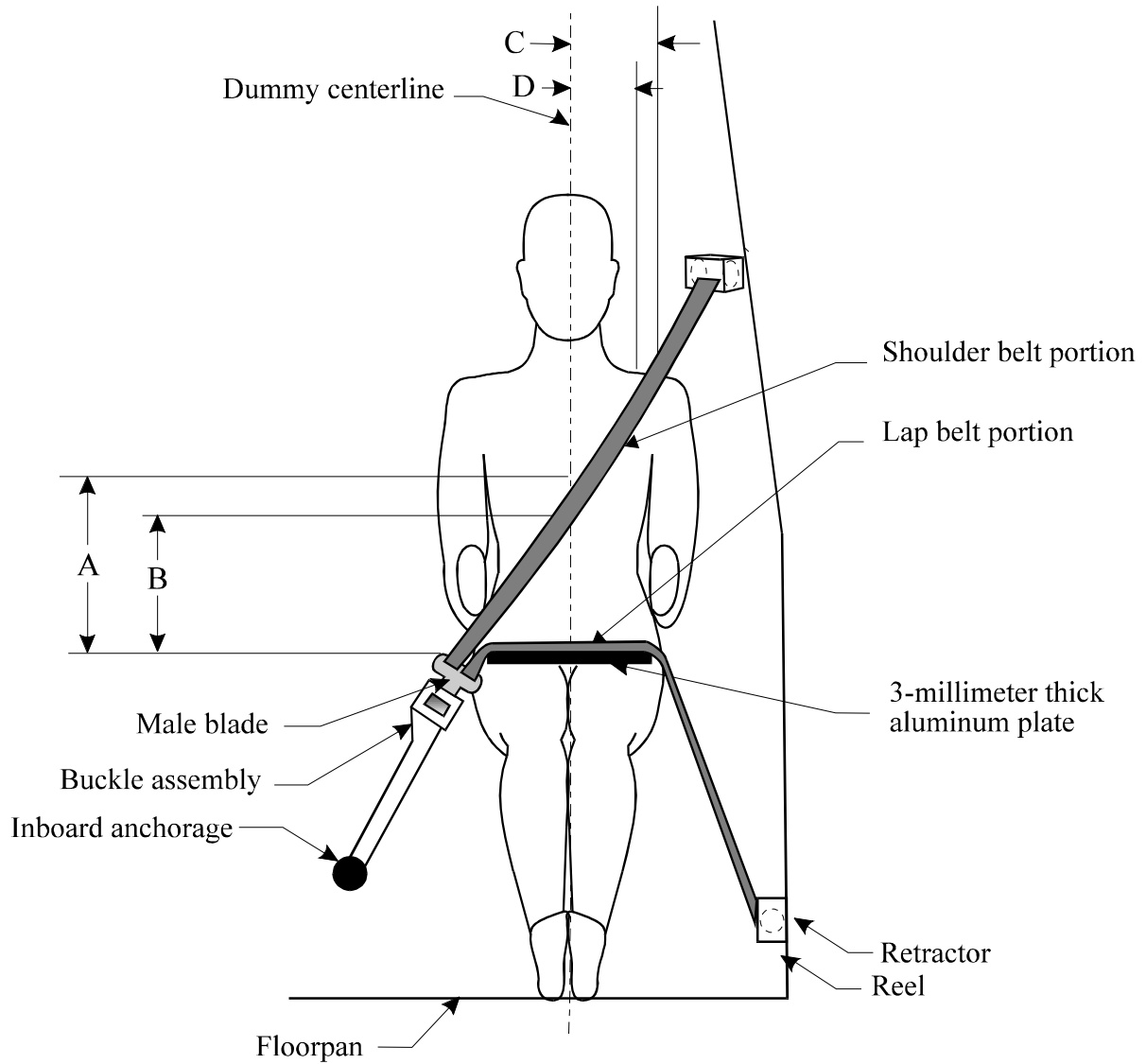
Table 10 Dummy Measurement Data for Front Seat Occupants

Designation	Type of Measurement	Driver (Serial #169)	Passenger (Serial #416)
WA	Windshield angle	30.0°	N/A
SWA	Steering wheel angle	64.3°	N/A
SCA	Steering column angle	20.7°	N/A
SA	Seat back angle	12.2°	13.9°
HZ	Head to roof	270 mm	270 mm
HH	Head to header	445 mm	390 mm
HW	Head to windshield	740 mm	700 mm
HR	Head to side header	220 mm	265 mm
NR	Nose to rim	420 mm	N/A
NA	Nose to rim angle	12.7°	N/A
CD	Chest to dash	550 mm	470 mm
CS	Steering wheel to chest	355 mm	N/A
RA	Rim to abdomen	180 mm	N/A
KDL	Left knee to dash	155 mm	115 mm
KDR	Right knee to dash	155 mm	115 mm
KDA	Outboard knee to dash angle	28.2°	36.7°
PA	Pelvic angle	23.3°	21.0°
TA	Tibia angle	59.1°	68.6°
KK	Knee to knee	285 mm	170 mm
ST	Striker to head	645 mm	615 mm
	Striker to head angle ¹	-80.0°	-74.3°
SK	Striker to knee	615 mm	672 mm
	Striker to knee angle ¹	-11.5°	-8.5°
SH	Striker to H-point	230 mm	355 mm
	Striker to H-point angle ¹	5.1°	6.3°
SHY	Striker to H-point (Y dir.)	235 mm	258 mm
HS	Head to side window	320 mm	327 mm
HD	H-point to door	165 mm	195 mm
AD	Arm to door	135 mm	105 mm

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

¹ A negative angle indicates that the measurement point was located above the striker.

Figure 9 Seat Belt Positioning Data



	Driver Dummy	Passenger Dummy
A - Top surface of aluminum plate to belt upper edge	370 mm	290 mm
B - Top surface of aluminum plate to belt lower edge	285 mm	200 mm
C - Dummy centerline to outer edge of belt at chest flesh top	90 mm	130 mm
D - Dummy centerline to inner edge of belt at chest flesh top	30 mm	75 mm

Figure 10 Camera Positions

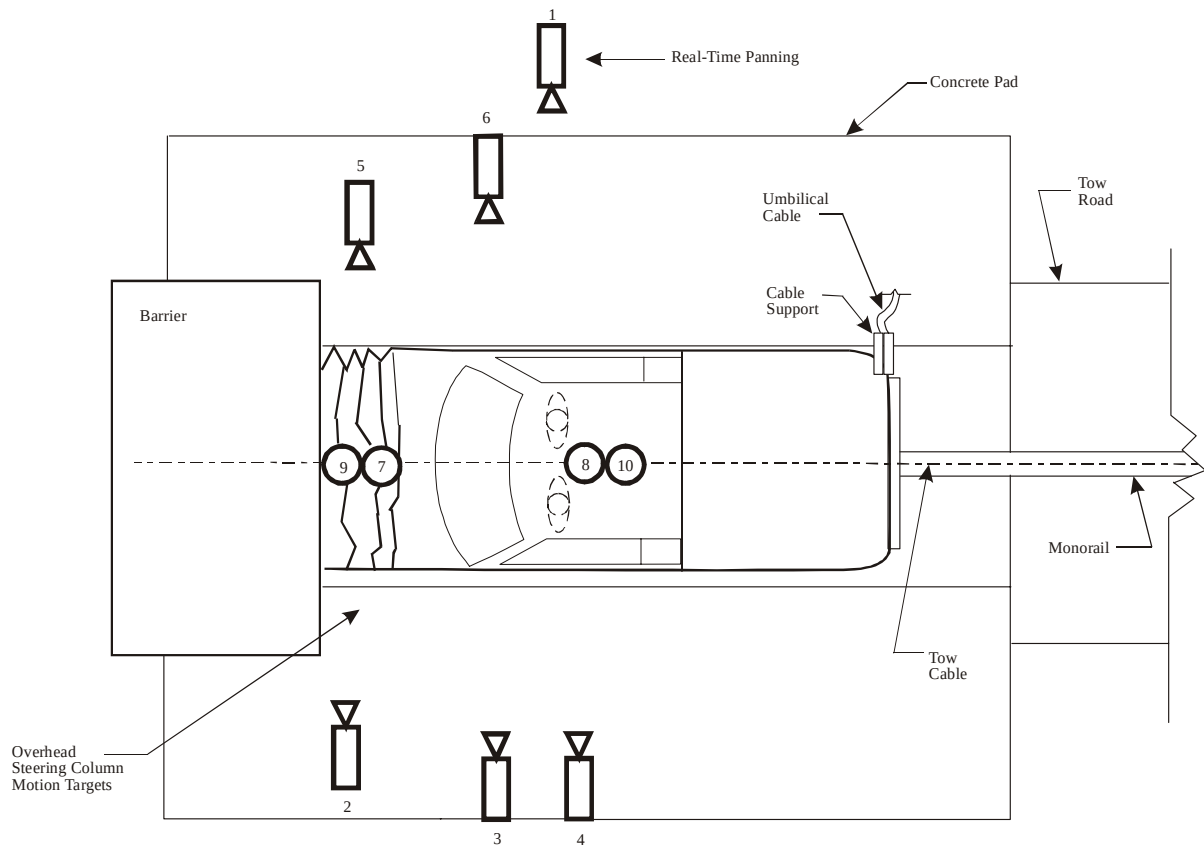


Table 11 Camera Information

Vehicle year/make/model/body style: 2002/Dodge/Ram/Truck

Test Number: 040415-1

Camera Number	View	Camera Positions ¹			Camera Angle, °	Film Plane to Head Target, mm	Camera Lens, mm	Film Speed, frames/s
		X, mm	Y, mm	Z, mm				
1	Panning	---	---	---	---	---	Zoom	24
2	Left side barrier face to vehicle contact tight	500	-7050	910	-3.0	6450	50	1000
3	Left side perpendicular overall	2380	-6000	1100	-1.0	5400	12	1000
4	Left side - dummy movement	1600	-8150	1510	0.0	7550	Zoom	1000
5	Right side barrier face to vehicle contact tight	360	7000	860	-2.0	6750	50	1000
6	Right side perpendicular overall	1290	8700	950	0.0	8400	25	1000
7	Overhead tight	0	0	5650	-80.0	N/A	50	1000
8	Overhead wide	1410	0	5650	-88.0	N/A	13	1000
9	Underbody tight	260	0	630	91.0	N/A	17	1000
10	Underbody wide	1290	90	500	90.0	N/A	13	1000

¹ X: Film plane to front bumper
Y: Film plane to monorail centerline
Z: Film plane to ground

Appendix A

Photographs



Figure A-1 Pre-Test Front View



Figure A-2 Post-Test Front View



Figure A-3 Pre-Test Left Front Three-Quarter View



Figure A-4 Post-Test Left Front Three-Quarter View



Figure A-5 Pre-Test Left Side View



Figure A-6 Post-Test Left Side View



Figure A-7 Pre-Test Right Rear Three-Quarter View

Intentionally Left Blank



Figure A-8 Pre-Test Right Side View



Figure A-9 Post-Test Right Side View



Figure A-10 Pre-Test Overhead View



Figure A-11 Post-Test Overhead View



Figure A-12 Pre-Test Front Underbody View

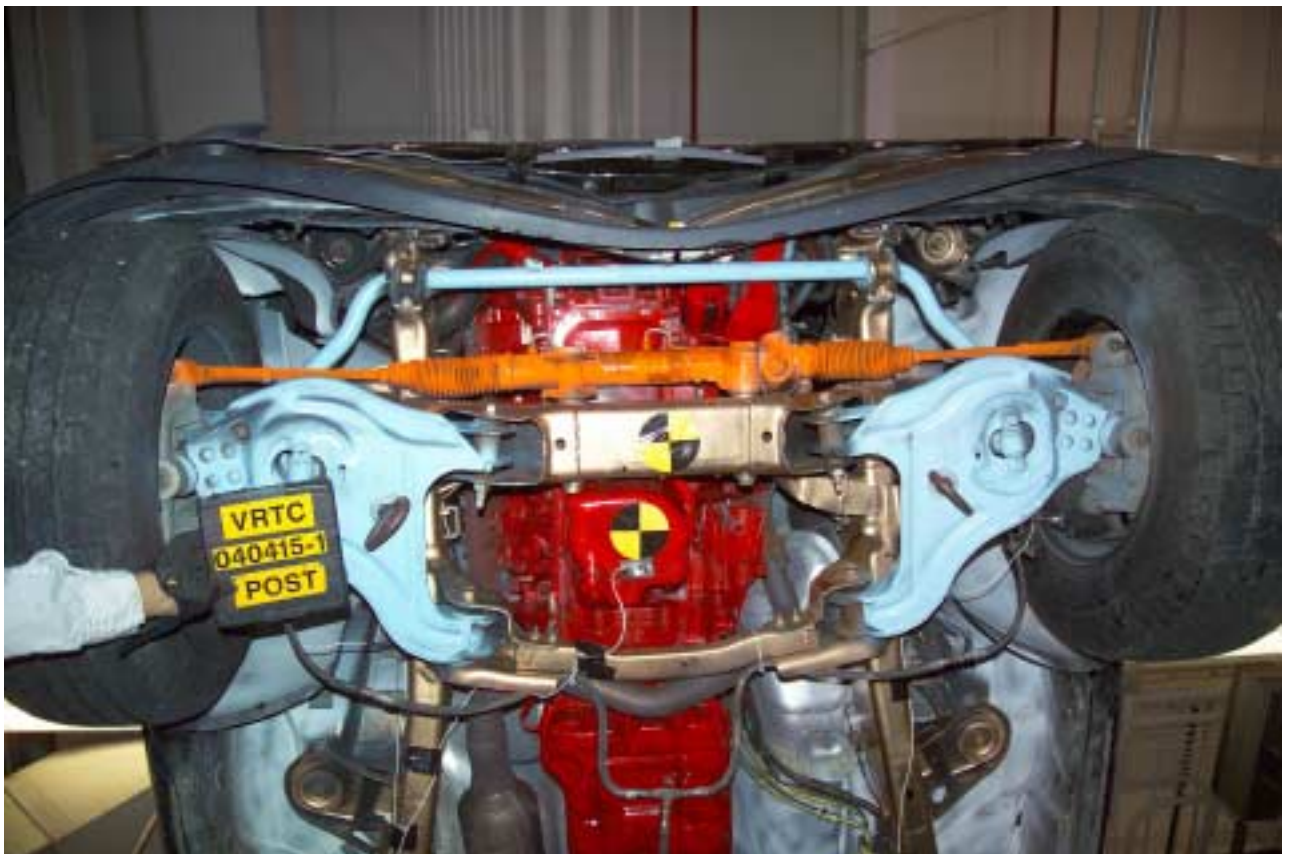


Figure A-13 Post-Test Front Underbody View

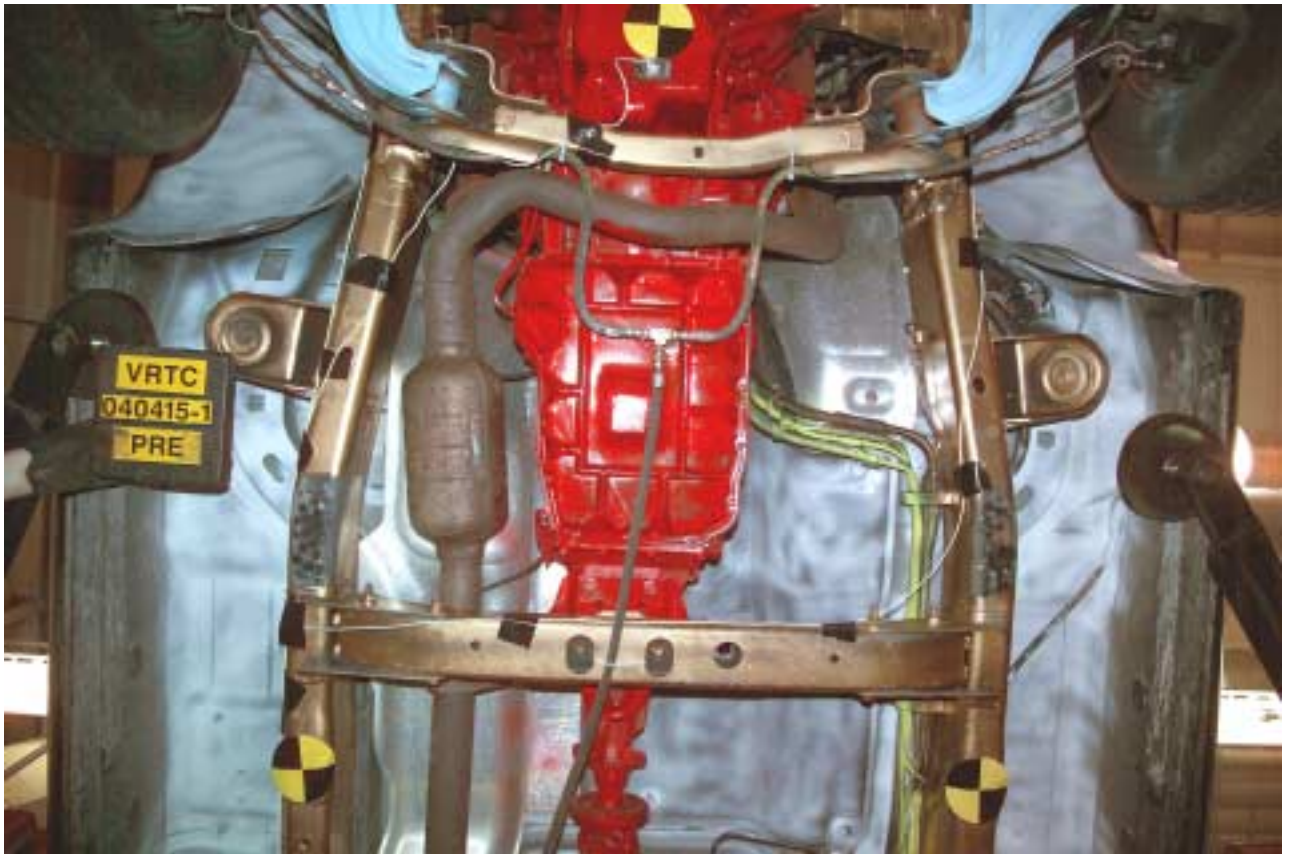


Figure A-14 Pre-Test Mid Front Underbody View

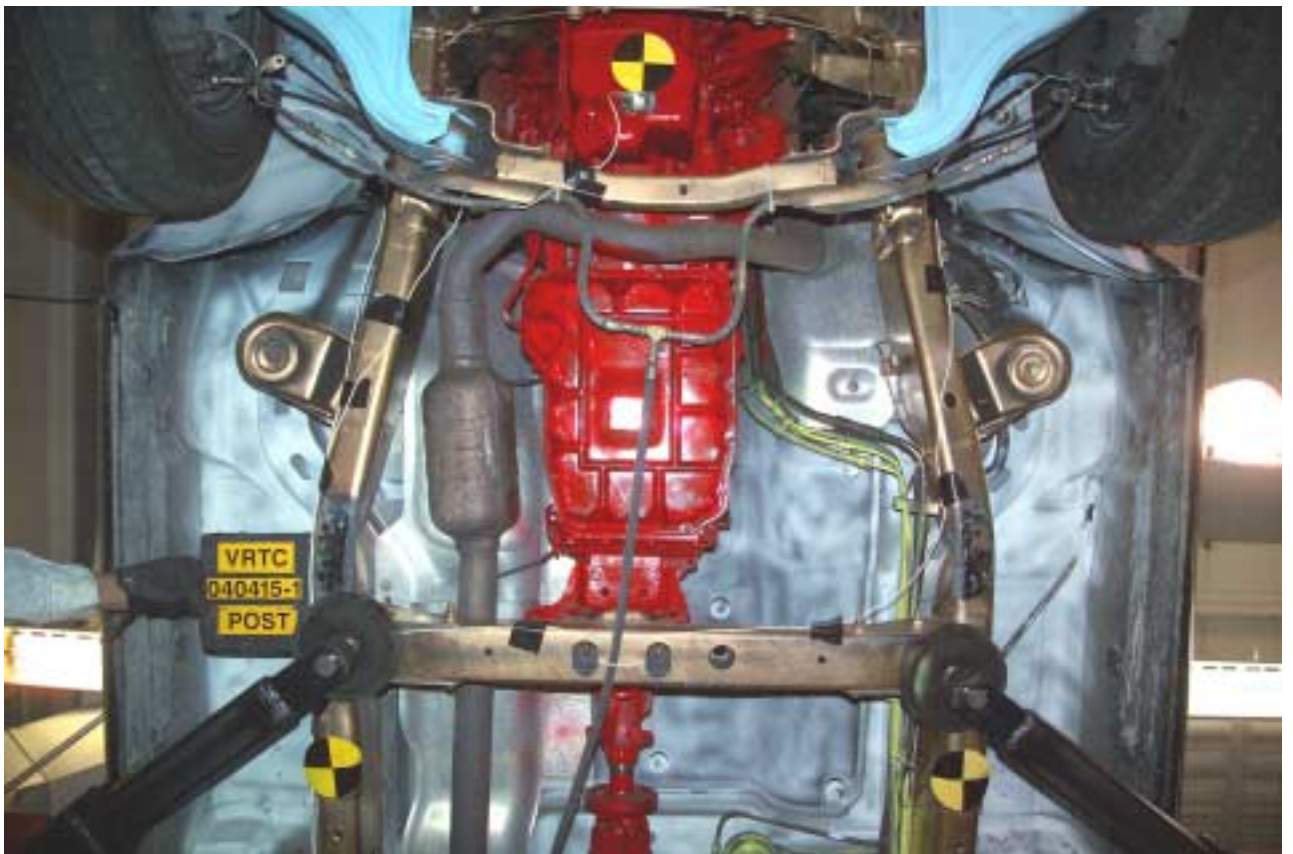


Figure A-15 Post-Test Mid Front Underbody View

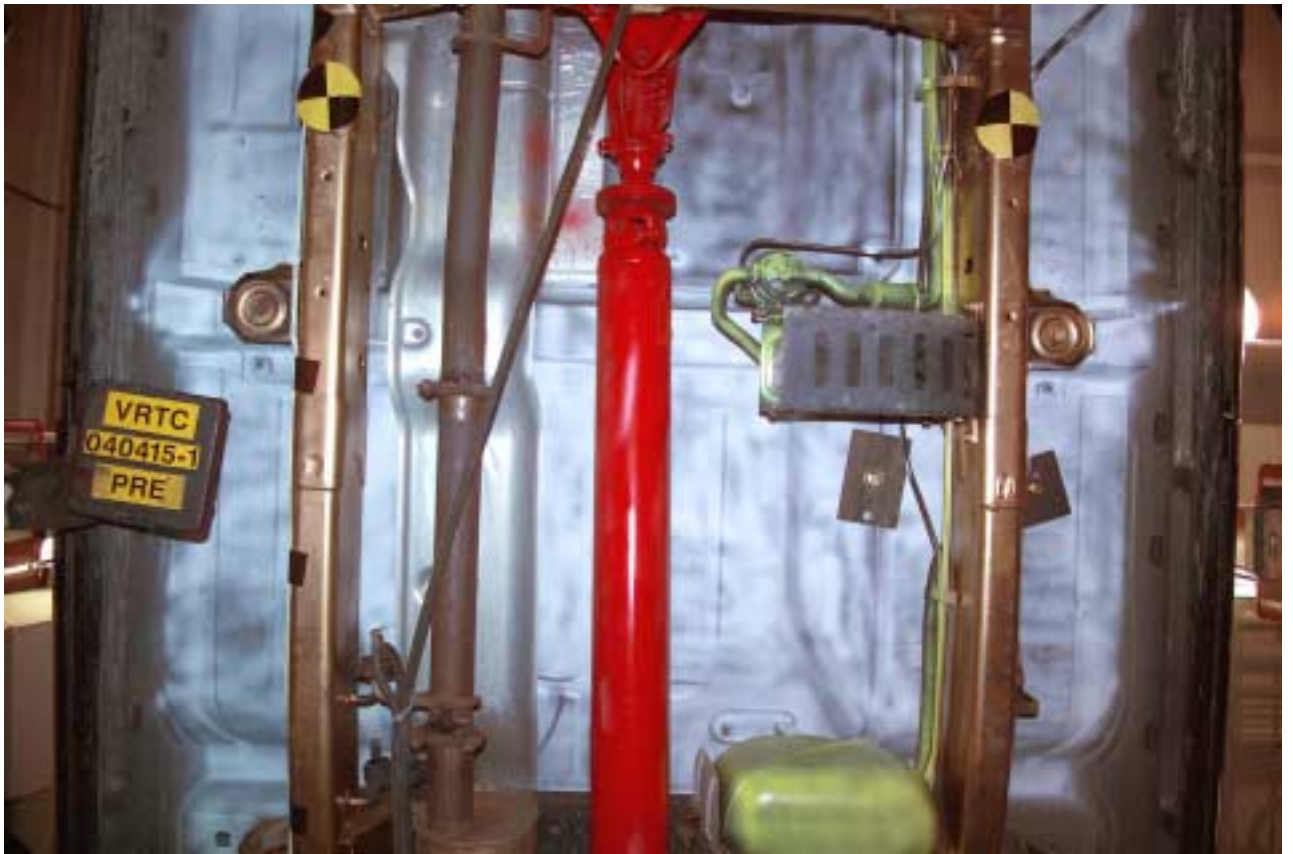


Figure A-16 Pre-Test Mid Underbody View



Figure A-17 Post-Test Mid Underbody View



Figure A-18 Pre-Test Mid Rear Underbody View



Figure A-19 Post-Test Mid Rear Underbody View



Figure A-20 Pre-Test Rear Underbody View

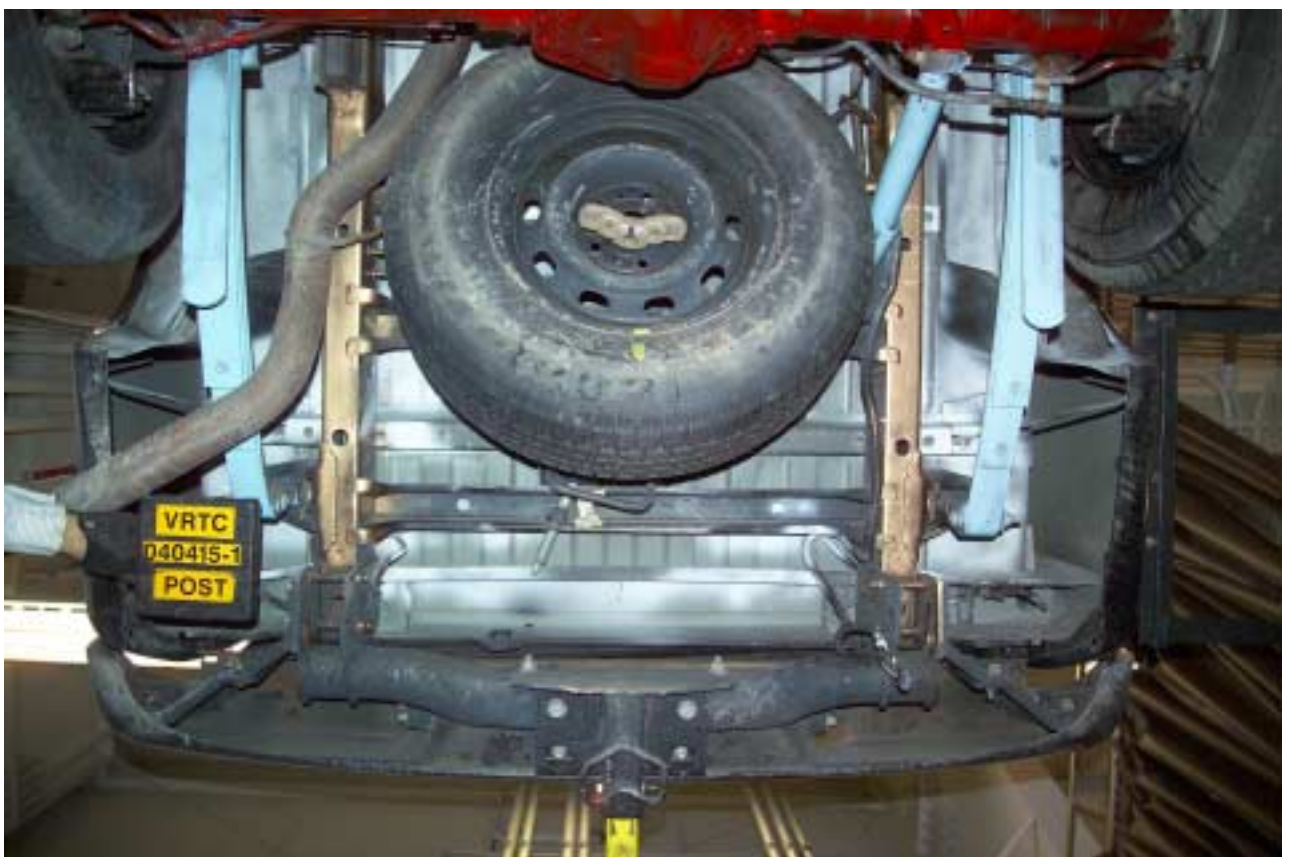


Figure A-21 Post-Test Rear Underbody View



Figure A-22 Pre-Test Fuel Tank View



Figure A-23 Post-Test Fuel Tank View



Figure A-24 Pre-Test Fuel Filler Neck View



Figure A-25 Post-Test Fuel Filler Neck View



Figure A-26 Pre-Test Fuel Filler Cap View



Figure A-27 Post-Test Fuel Filler Cap View



Figure A-28 Pre-Test Engine Compartment View

Intentionally Left Blank



Figure A-29 Pre-Test Windshield View



Figure A-30 Post-Test Windshield View



Figure A-31 Pre-Test Windshield View - Driver and Passenger Dummies



Figure A-32 Post-Test Windshield View - Driver and Passenger Dummies



Figure A-33 Pre-Test Driver Dummy - View 1



Figure A-34 Post-Test Driver Dummy - View 1



Figure A-35 Pre-Test Driver Dummy - View 2



Figure A-36 Post-Test Driver Dummy - View 2



Figure A-37 Pre-Test Driver Dummy - View 3



Figure A-38 Post-Test Driver Dummy - View 3



Figure A-39 Pre-Test Driver Dummy - View 4



Figure A-40 Post-Test Driver Dummy - View 4



Figure A-41 Post-Test Driver Dummy Overall View



Figure A-42 Post-Test Driver Dummy Head Contact - View 1



Figure A-43 Post-Test Driver Dummy Head Contact - View 2



Figure A-44 Post-Test Driver Dummy Head Contact - View 3



Figure A-45 Post-Test Driver Dummy Head Contact - View 4



Figure A-46 Post-Test Driver Dummy Knee Contact - View 1



Figure A-47 Post-Test Driver Dummy Knee Contact - View 2

Intentionally Left Blank



Figure A-48 Pre-Test Passenger Dummy - View 1



Figure A-49 Post-Test Passenger Dummy - View 1



Figure A-50 Pre-Test Passenger Dummy - View 2



Figure A-51 Post-Test Passenger Dummy - View 2



Figure A-52 Pre-Test Passenger Dummy - View 3



Figure A-53 Post-Test Passenger Dummy - View 3



Figure A-54 Pre-Test Passenger Dummy - View 4



Figure A-55 Post-Test Passenger Dummy - View 4



Figure A-56 Post-Test Passenger Overall Dummy View



Figure A-57 Post-Test Passenger Dummy Head Contact - View 1



Figure A-58 Post-Test Passenger Dummy Head Contact - View 2



Figure A-59 Post-Test Passenger Dummy Head Contact - View 3



Figure A-60 Post-Test Passenger Dummy Knee Contact - View 1



Figure A-61 Post-Test Passenger Dummy Knee Contact - View 2



Figure A-62 Vehicle Certification Label View



Figure A-63 Pre-Test Ballast View

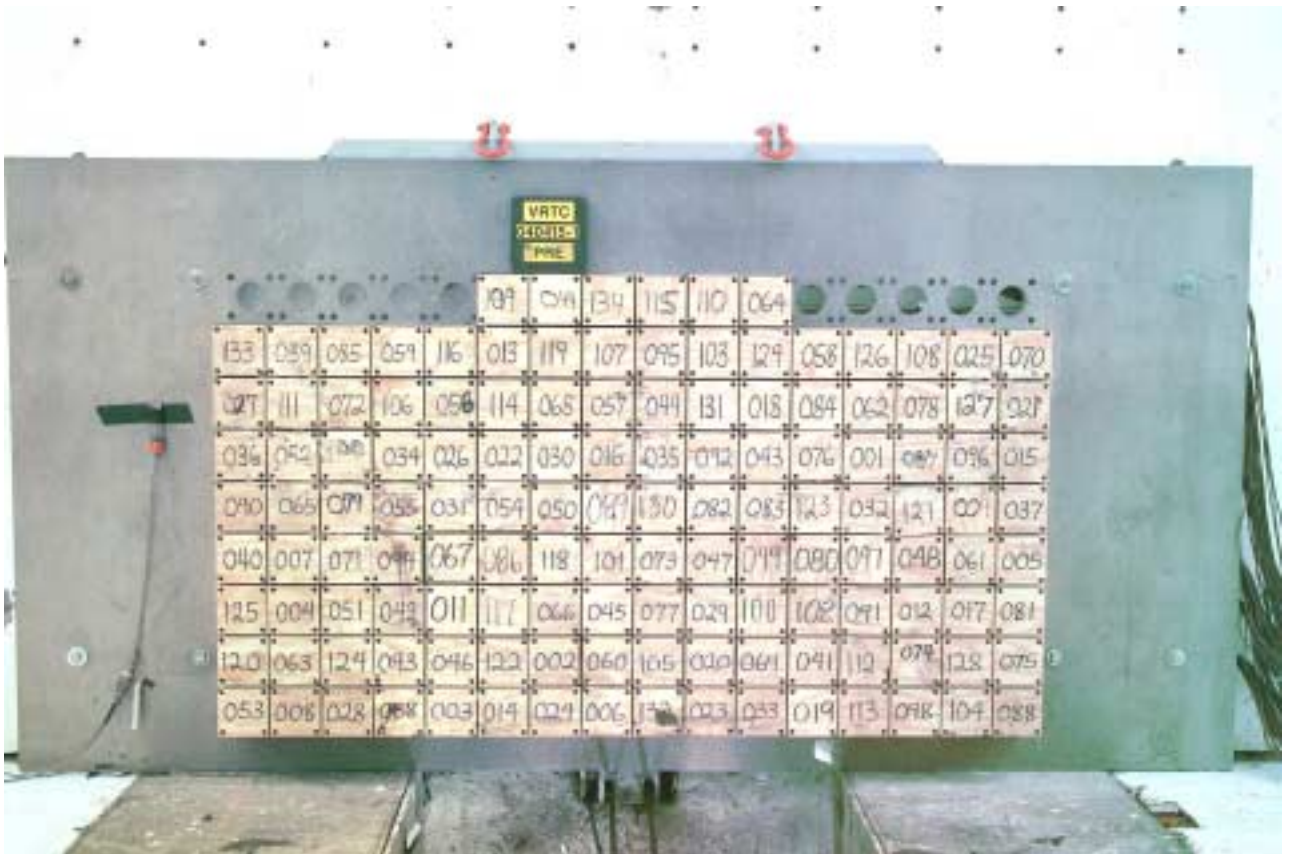


Figure A-64 Pre-Test Barrier View



Figure A-65 Post-Test Barrier View

Appendix B

Data Plots



Transportation Research Center, Inc.

Head Accel X

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

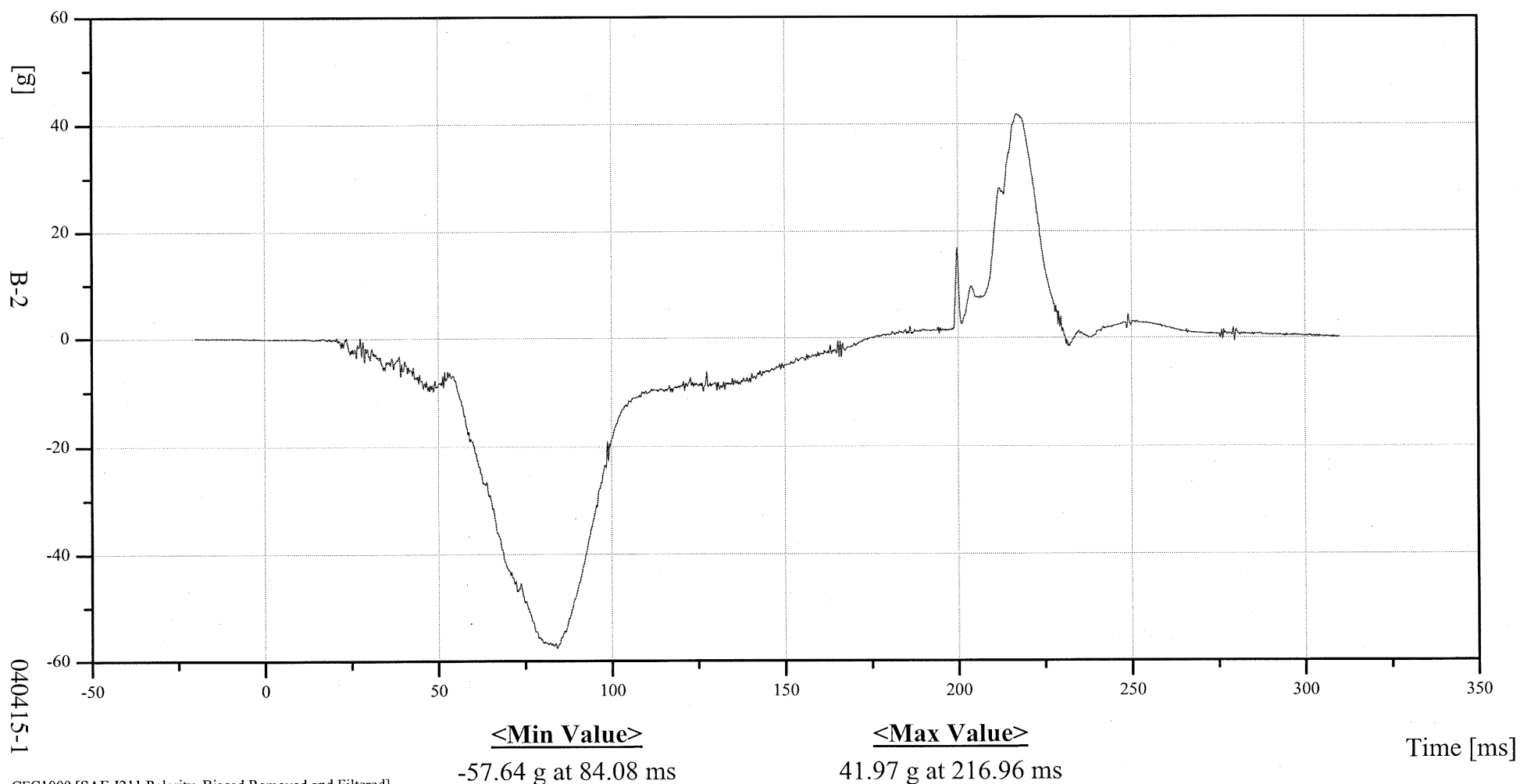
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

HEDXG1





Transportation Research Center, Inc.

Head Accel Y

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

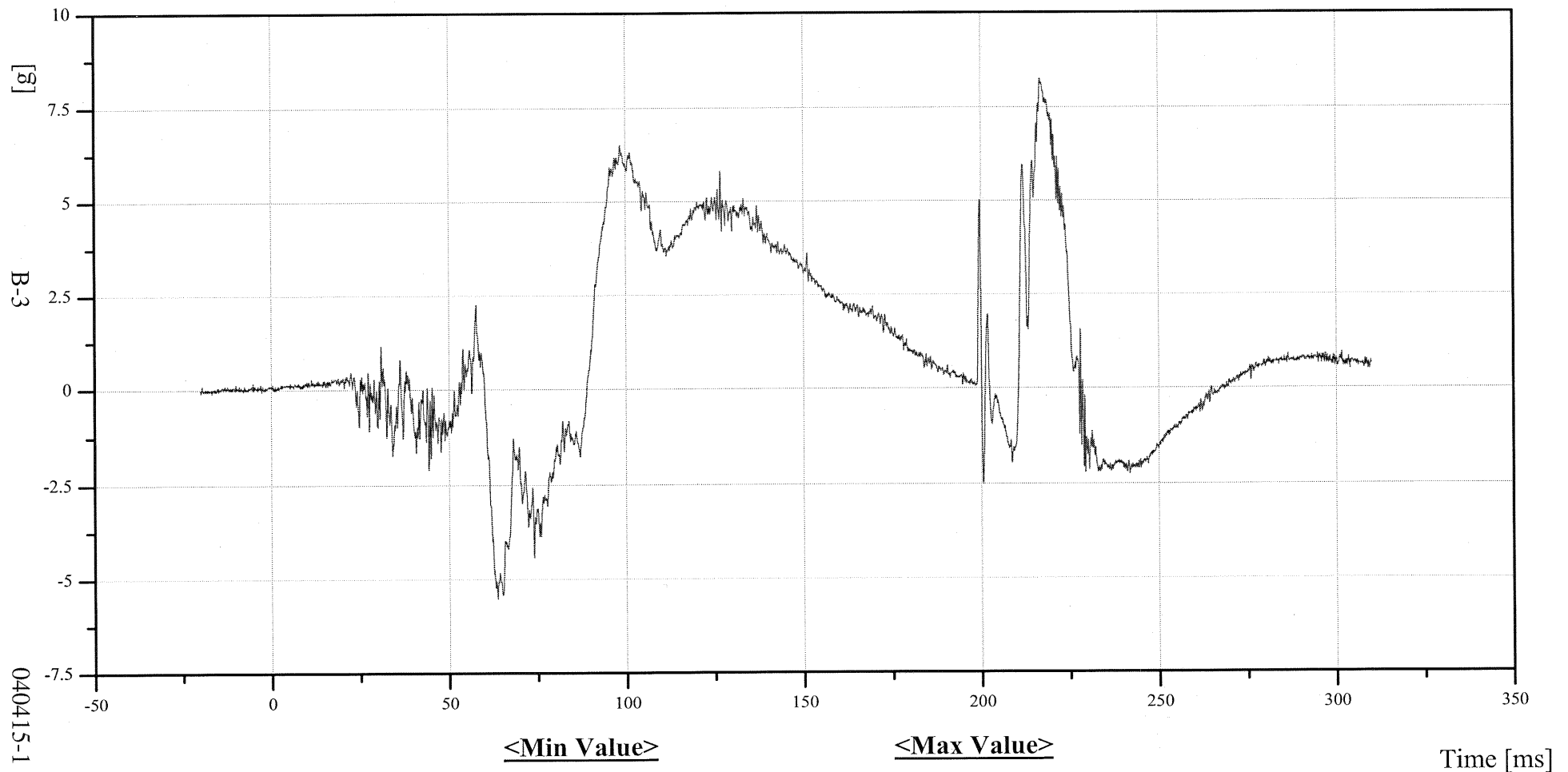
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

HEDYG1



<Min Value>
-5.52 g at 63.60 ms

<Max Value>
8.24 g at 216.72 ms

Time [ms]

CFC1000 [SAE J211 Polarity, Biased Removed and Filtered]



Transportation Research Center, Inc.

Head Accel Z

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

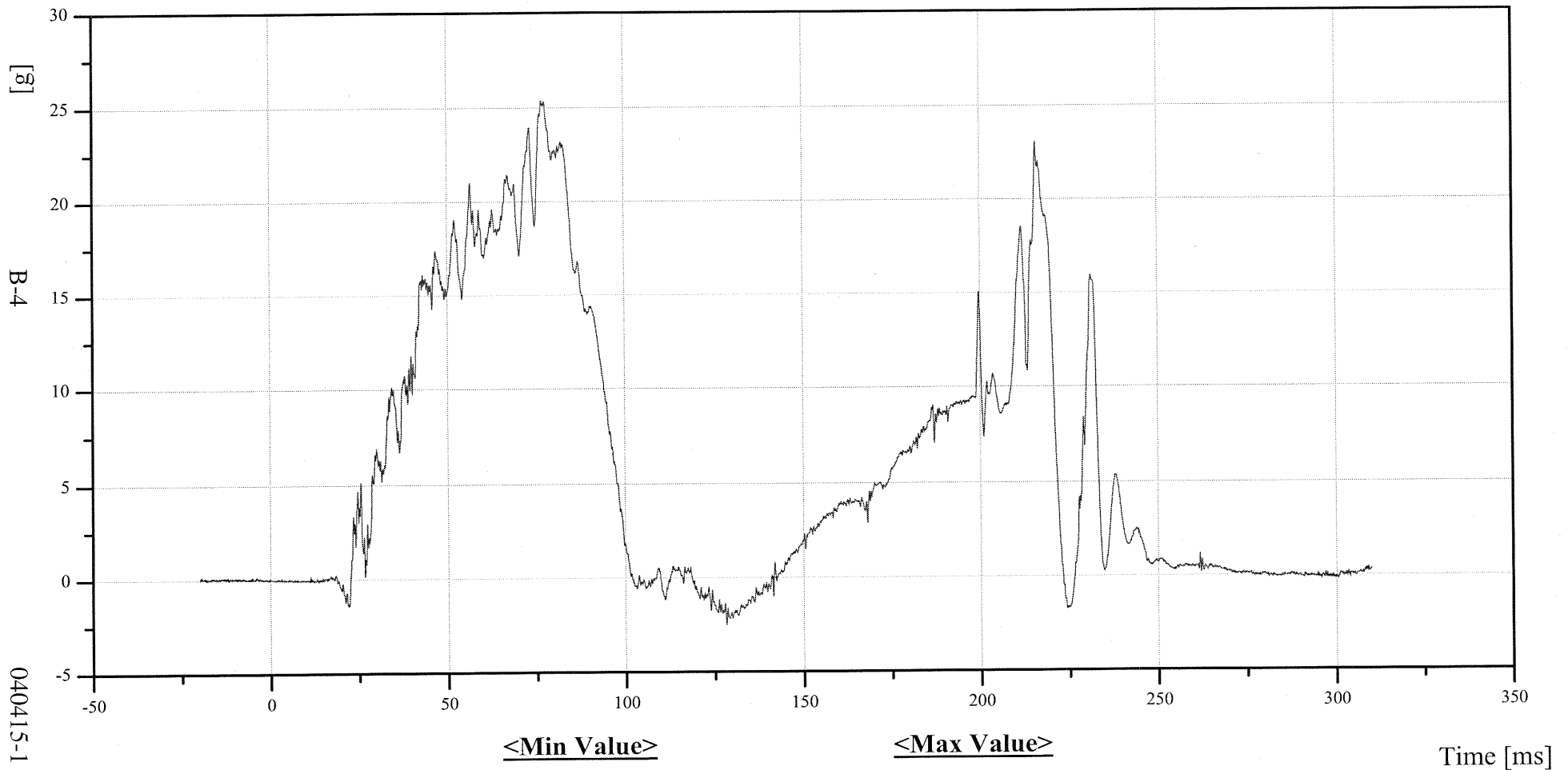
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

HEDZG1



CFC1000 [SAE J211 Polarity, Biased Removed and Filtered]



Transportation Research Center, Inc.

Head Resultant Acceleration

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

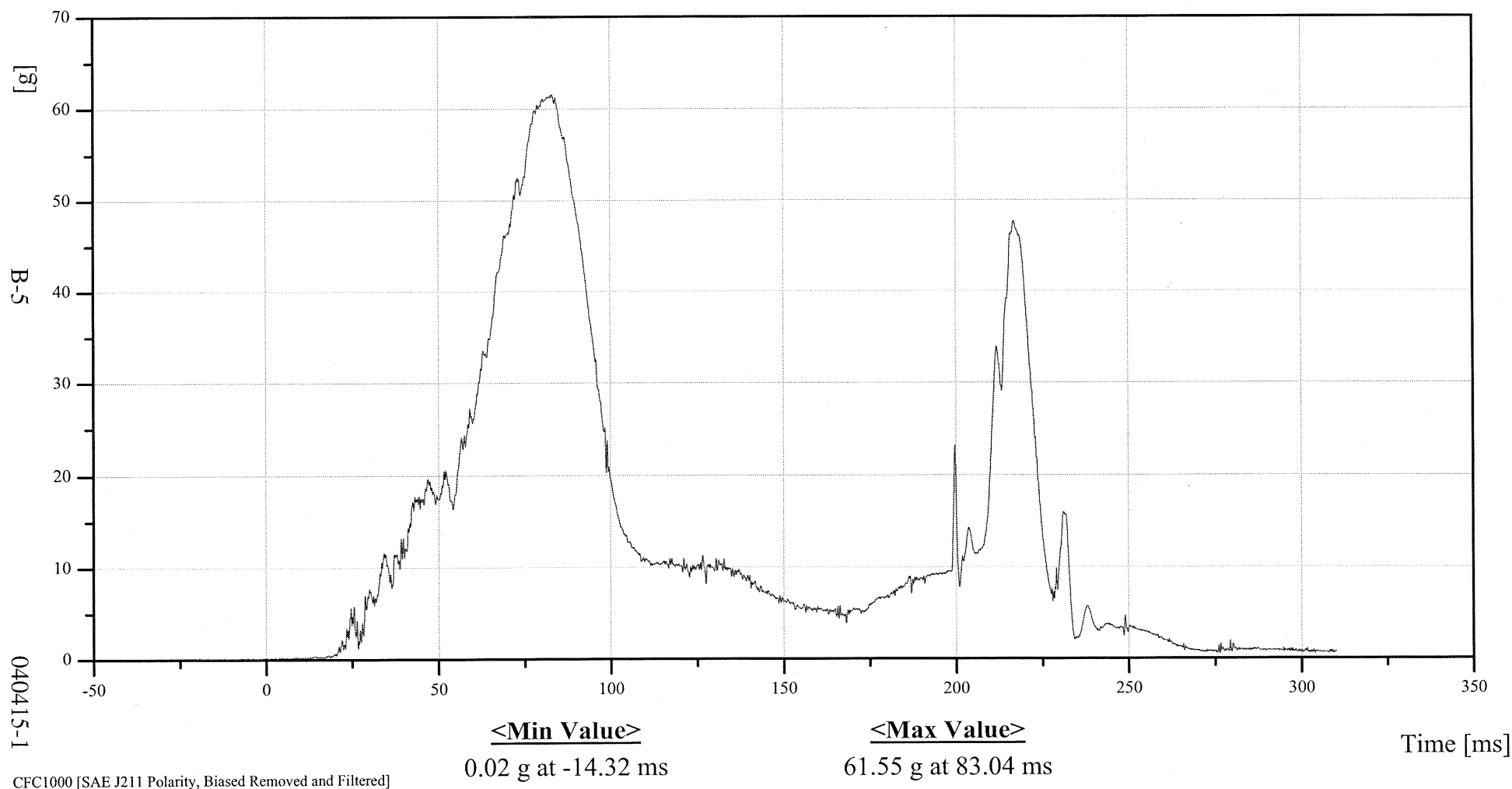
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

HEDRG1





Transportation Research Center, Inc.

Head Accel Red X

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

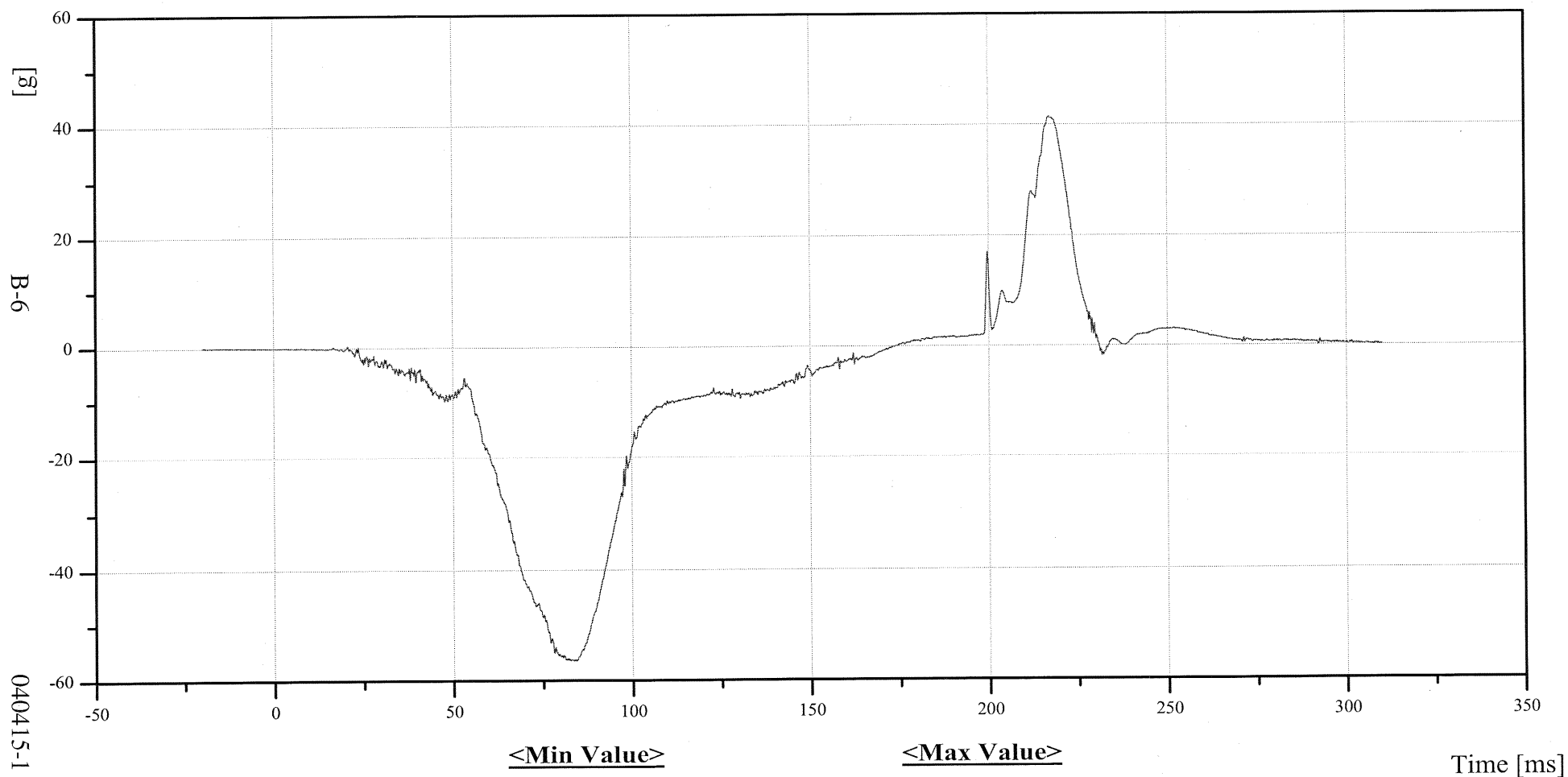
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

HEDXR1



040415-1

CFC1000 [SAE J211 Polarity, Biased Removed and Filtered]



Transportation Research Center, Inc.

Head Accel Red Y

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

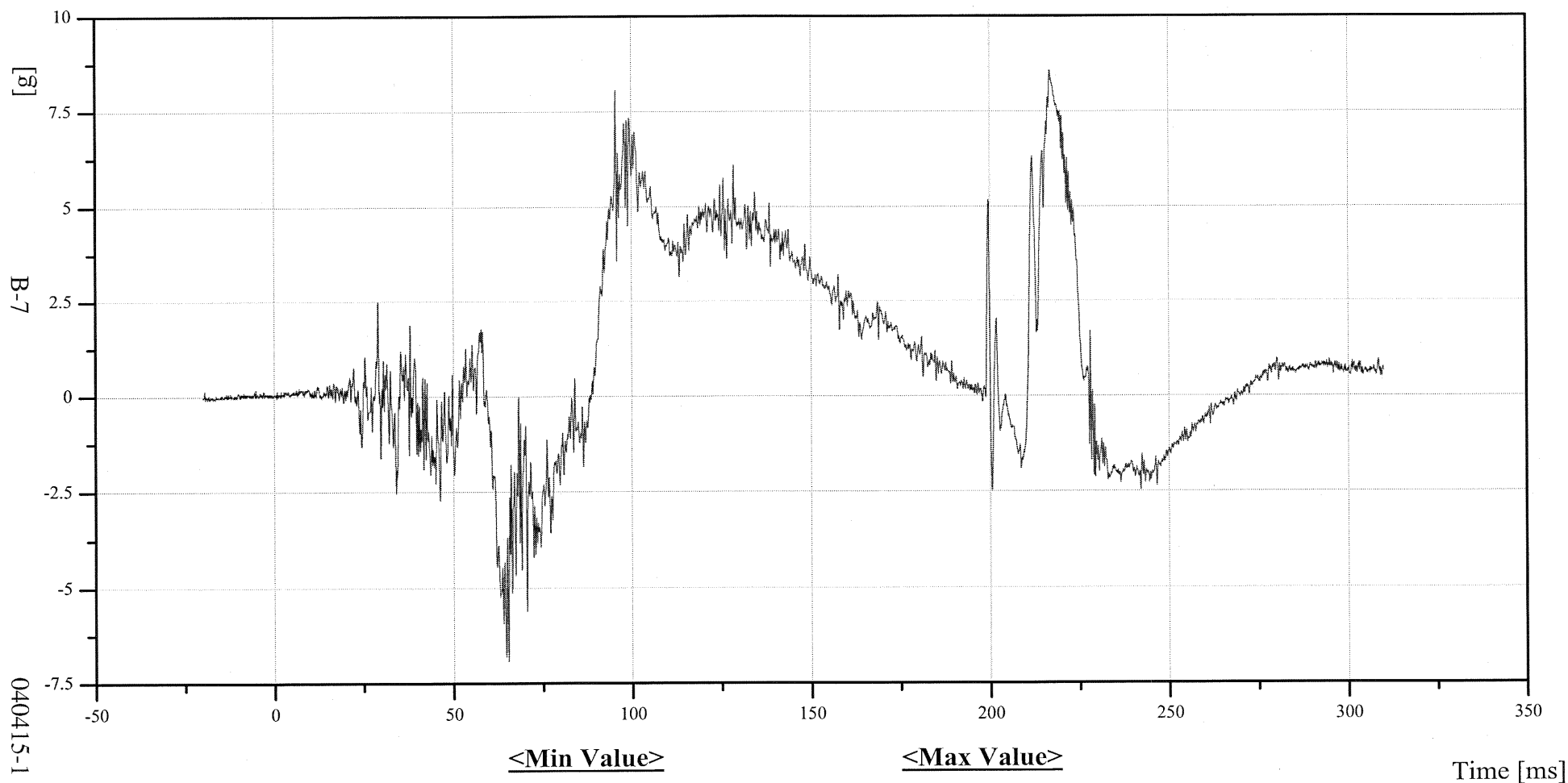
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

HEDYR1



CFC1000 [SAE J211 Polarity, Biased Removed and Filtered]



Transportation Research Center, Inc.

Head Accel Red Z

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

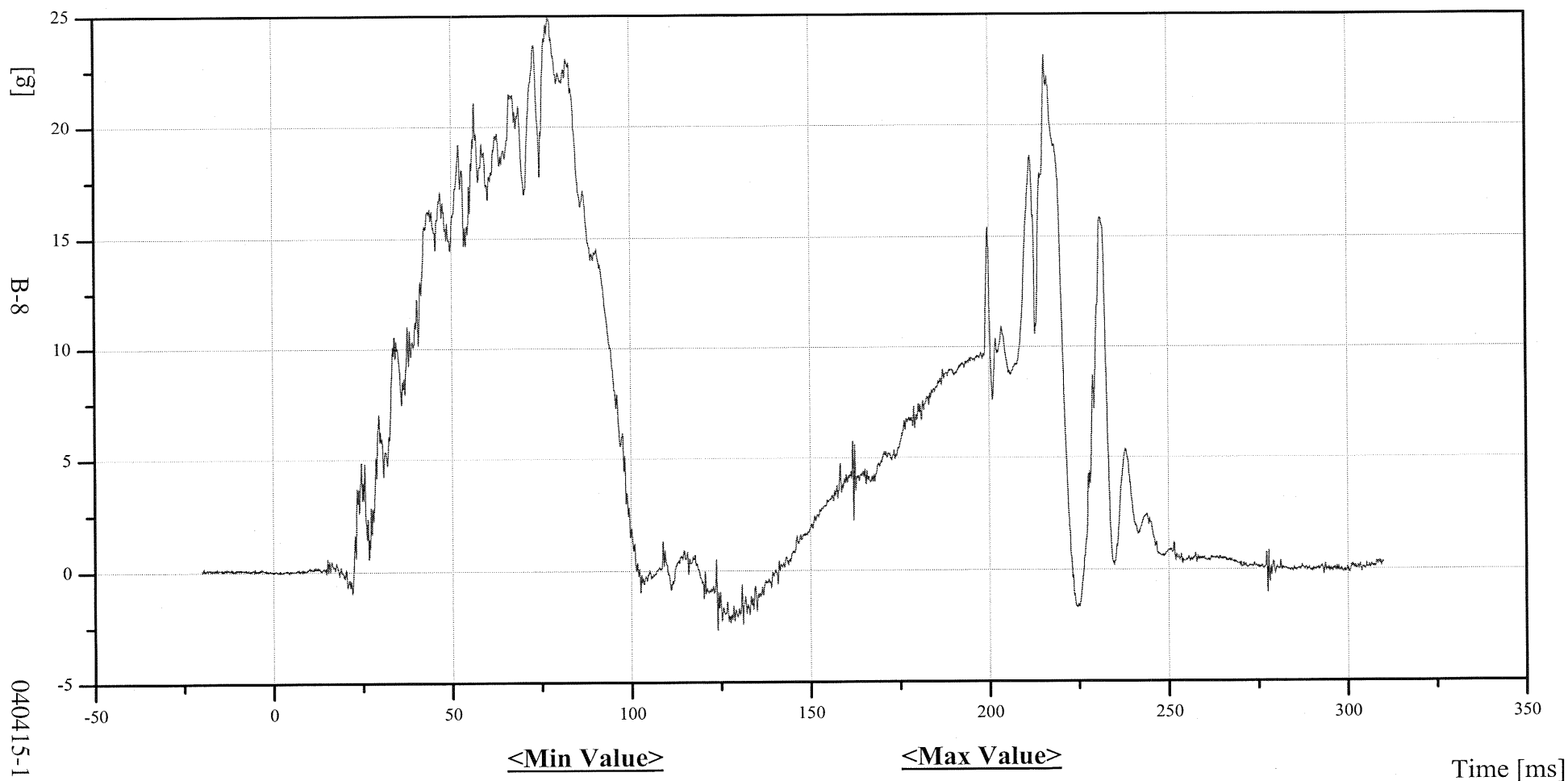
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

HEDZR1



CFC1000 [SAE J211 Polarity, Biased Removed and Filtered]



Transportation Research Center, Inc.

Neck Force X

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

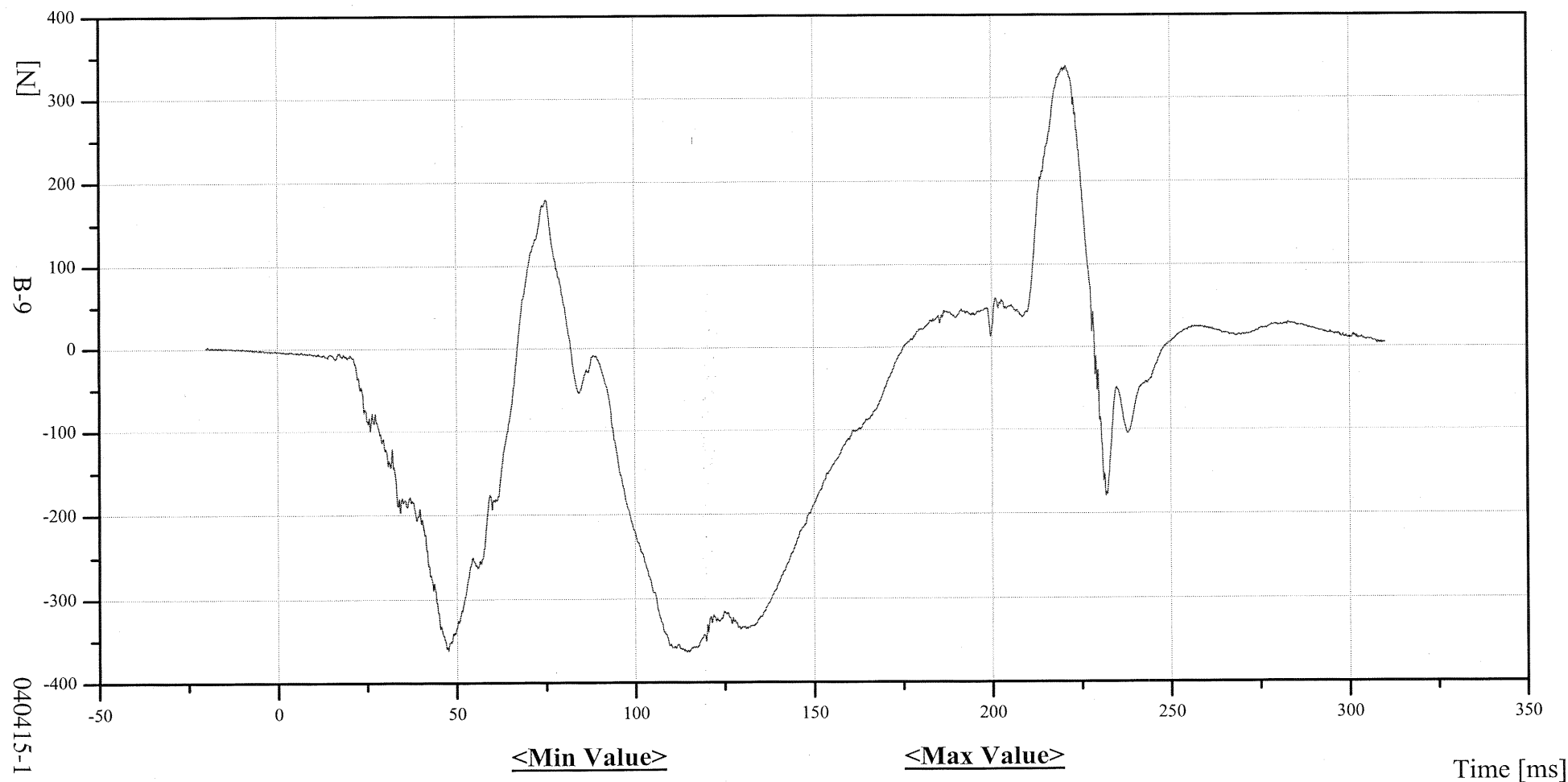
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

NEKXF1



CFC1000 [SAE J211 Polarity, Biased Removed and Filtered]



Transportation Research Center, Inc.

Neck Force Y

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

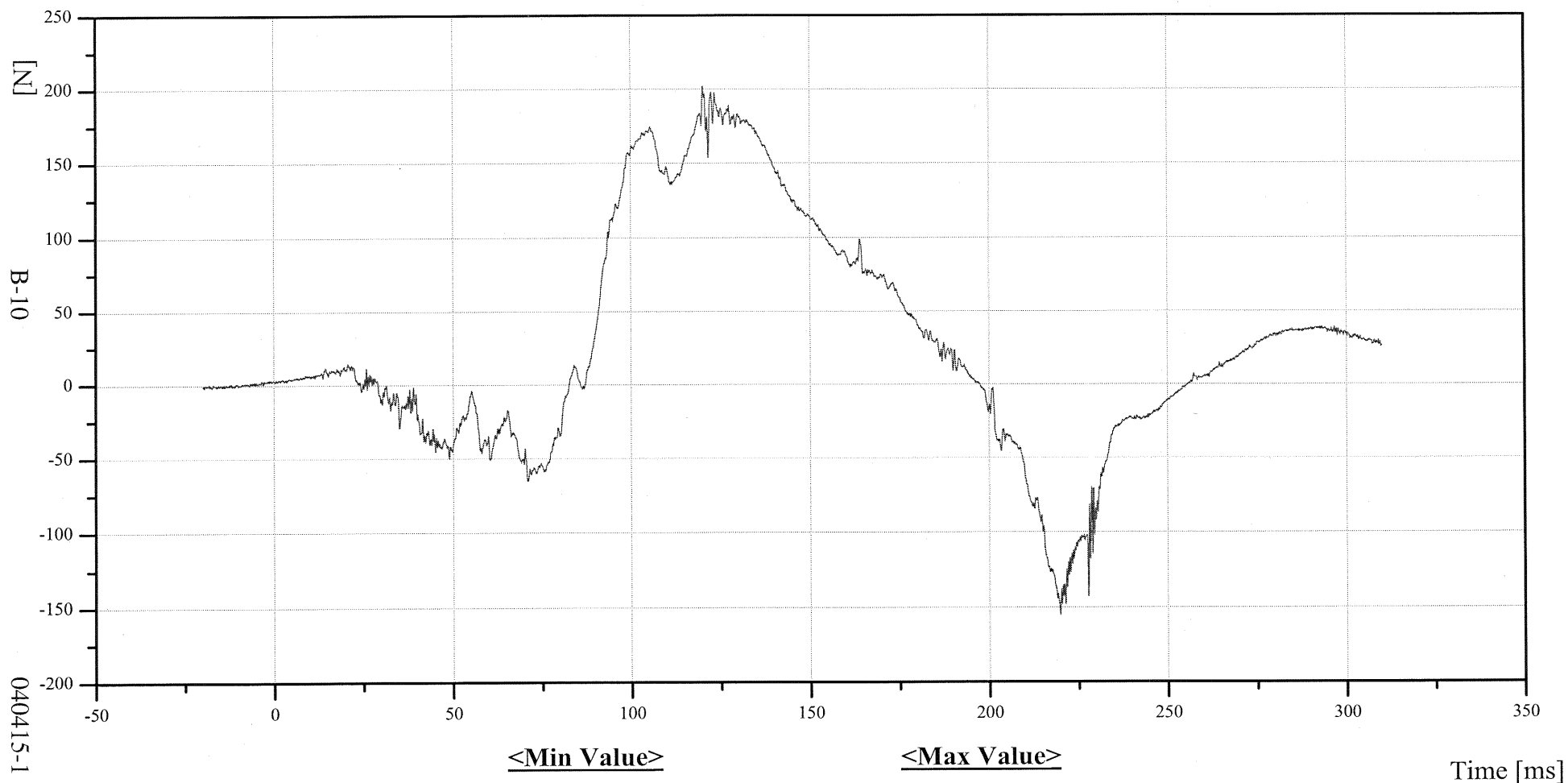
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

NEKYF1



CFC1000 [SAE J211 Polarity, Biased Removed and Filtered]



Transportation Research Center, Inc.

Neck Force Z

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

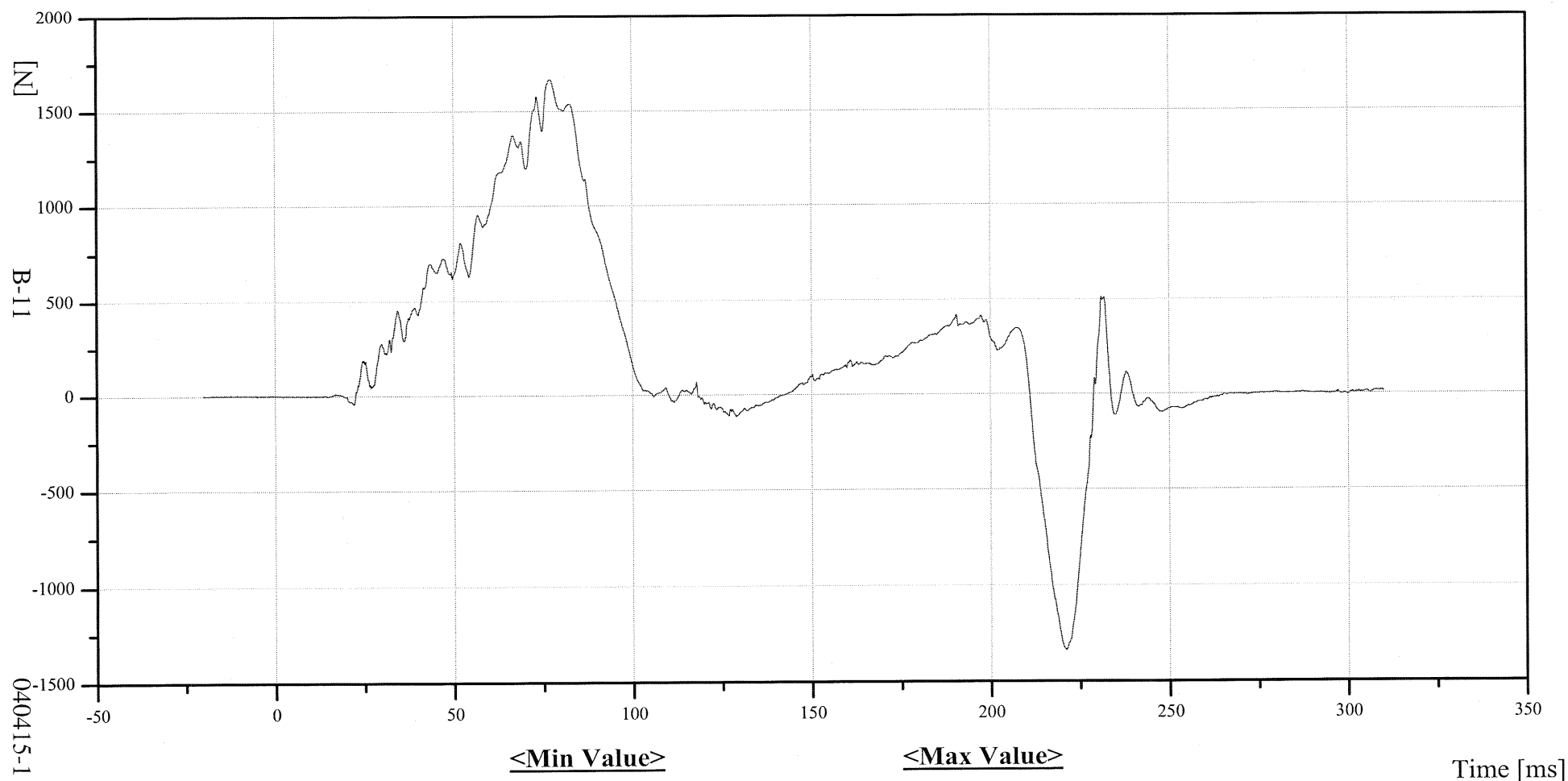
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

NEKZF1



CFC1000 [SAE J211 Polarity, Biased Removed and Filtered]



Transportation Research Center, Inc.

Neck Moment X

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

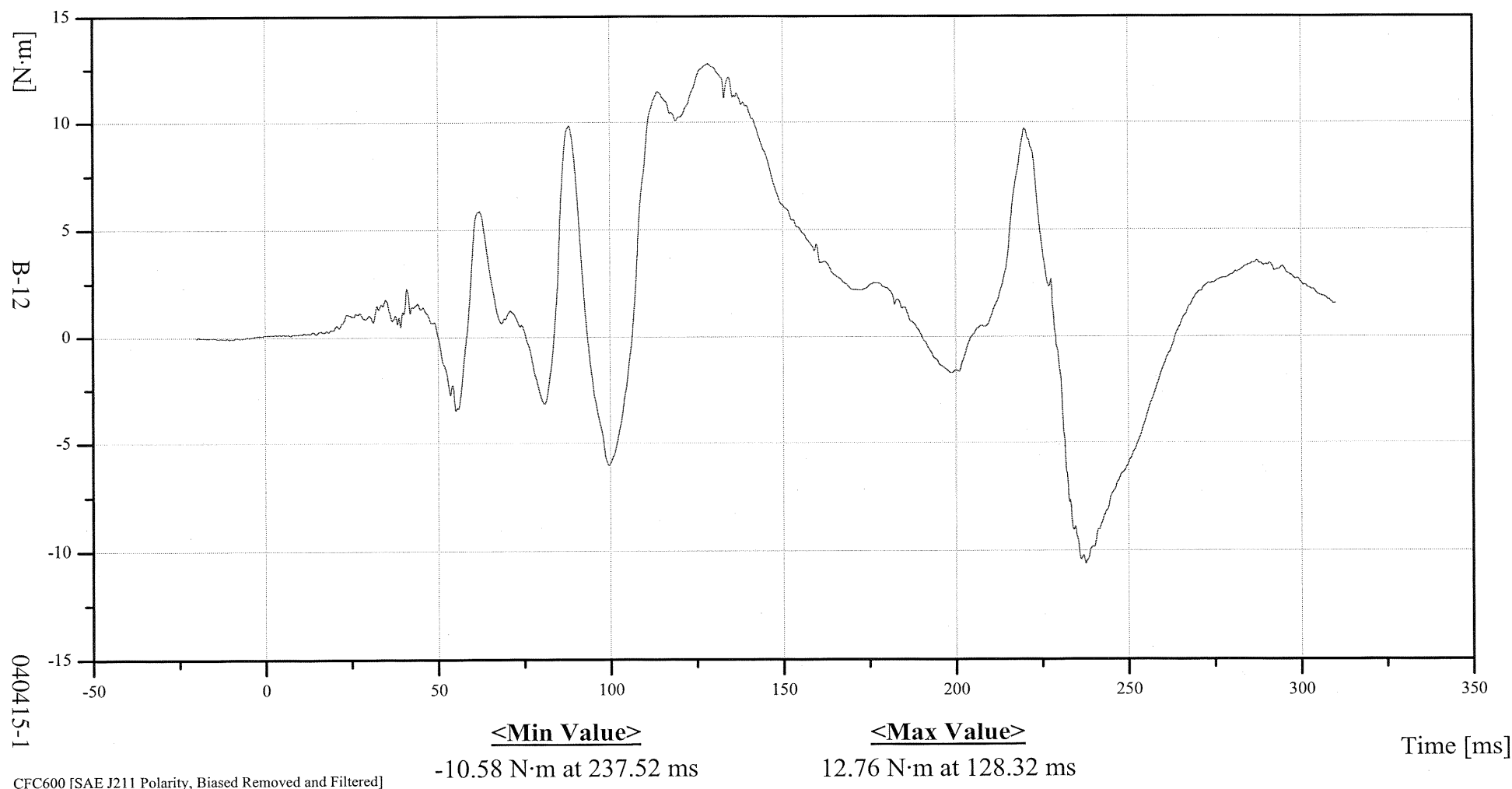
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

NEKXM1





Transportation Research Center, Inc.

Neck Moment Y

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

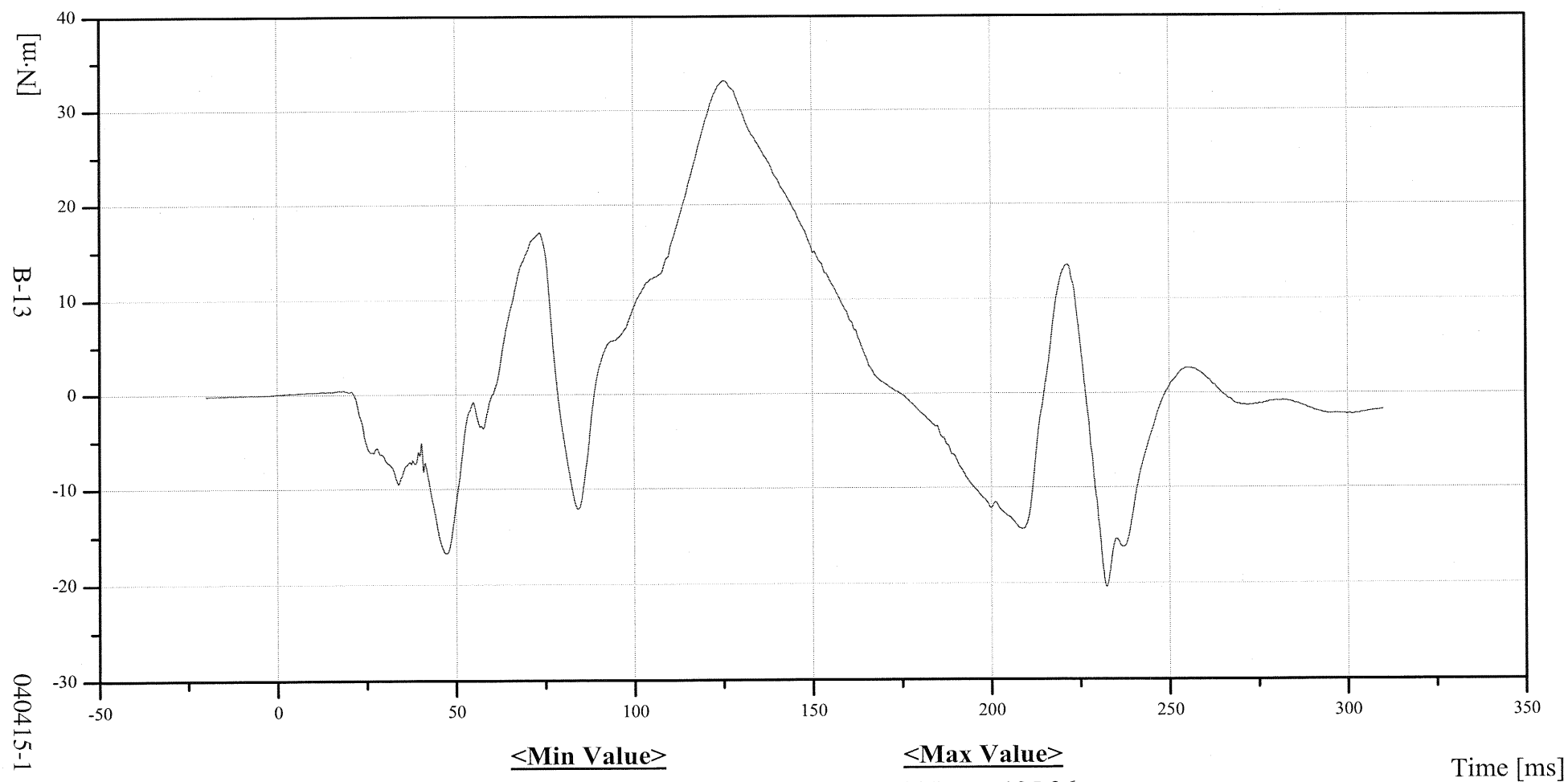
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

NEKYM1



CFC600 [SAE J211 Polarity, Biased Removed and Filtered]



Transportation Research Center, Inc.

Neck Moment Z

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

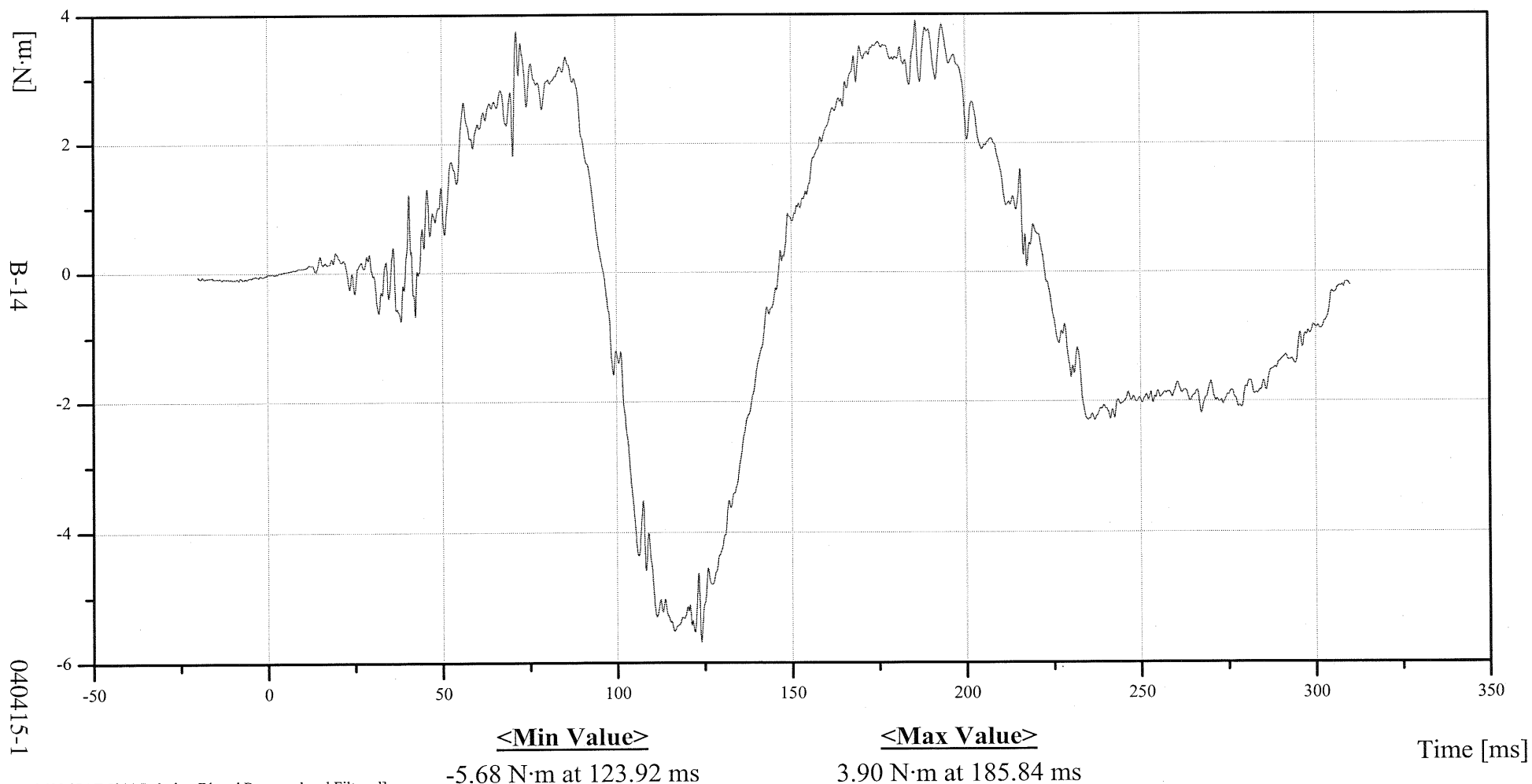
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

NEKZM1



CFC600 [SAE J211 Polarity, Biased Removed and Filtered]



Transportation Research Center, Inc.

Chest Accel X

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

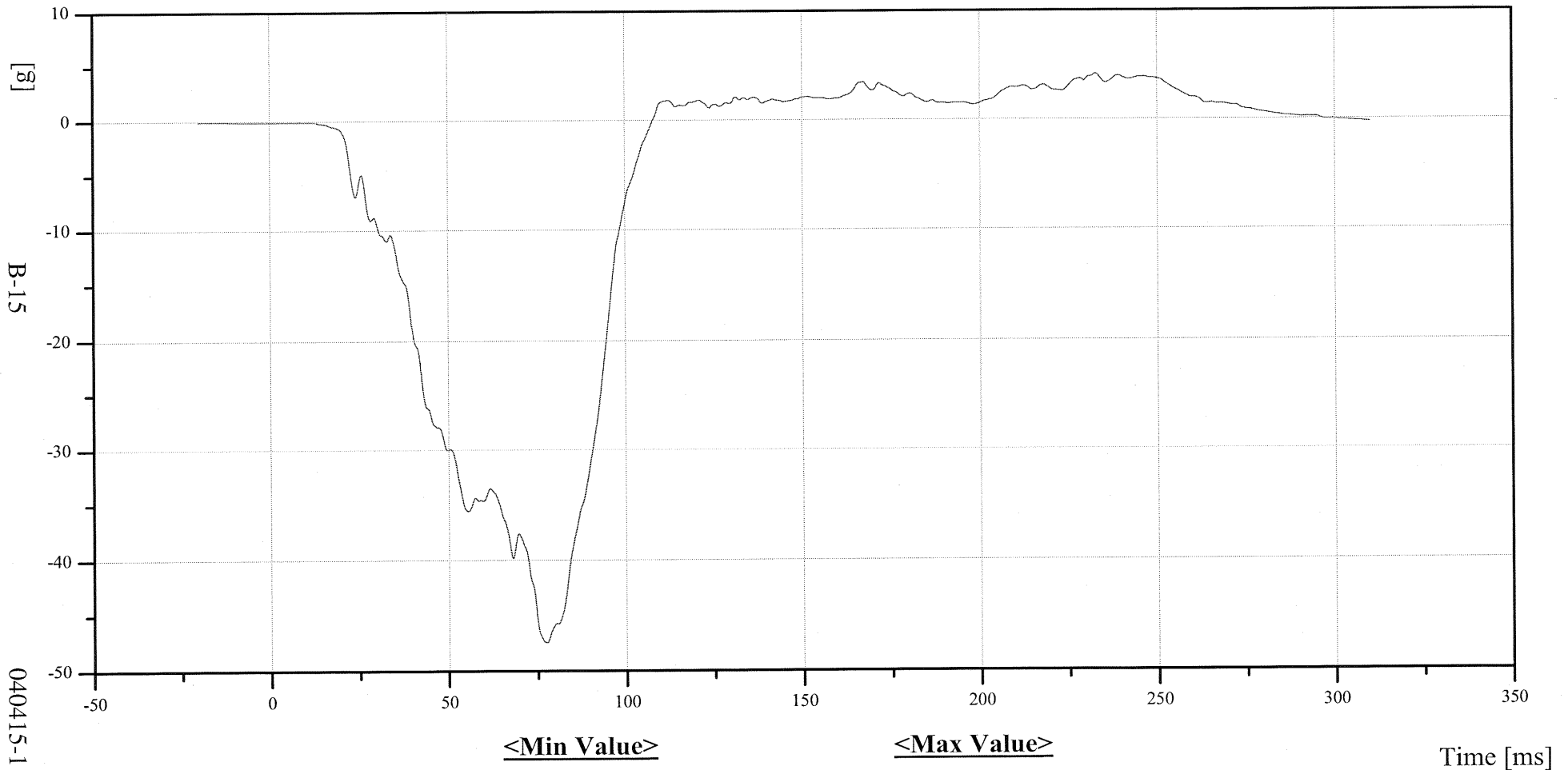
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

CSTXG1



CFC180 [SAE J211 Polarity, Biased Removed and Filtered]



Transportation Research Center, Inc.

Chest Accel Y

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

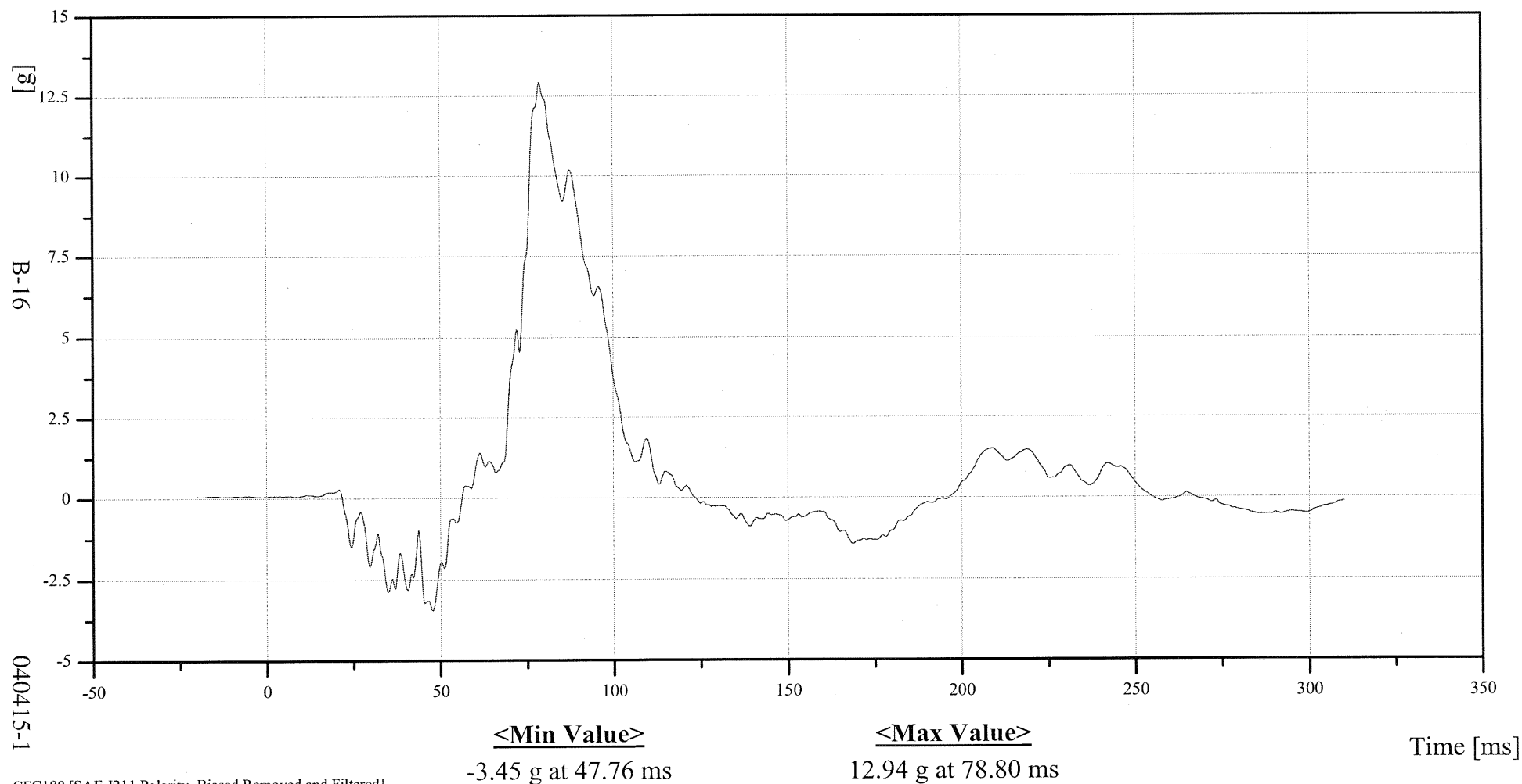
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

CSTYG1



CFC180 [SAE J211 Polarity, Biased Removed and Filtered]



Transportation Research Center, Inc.

Chest Accel Z

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

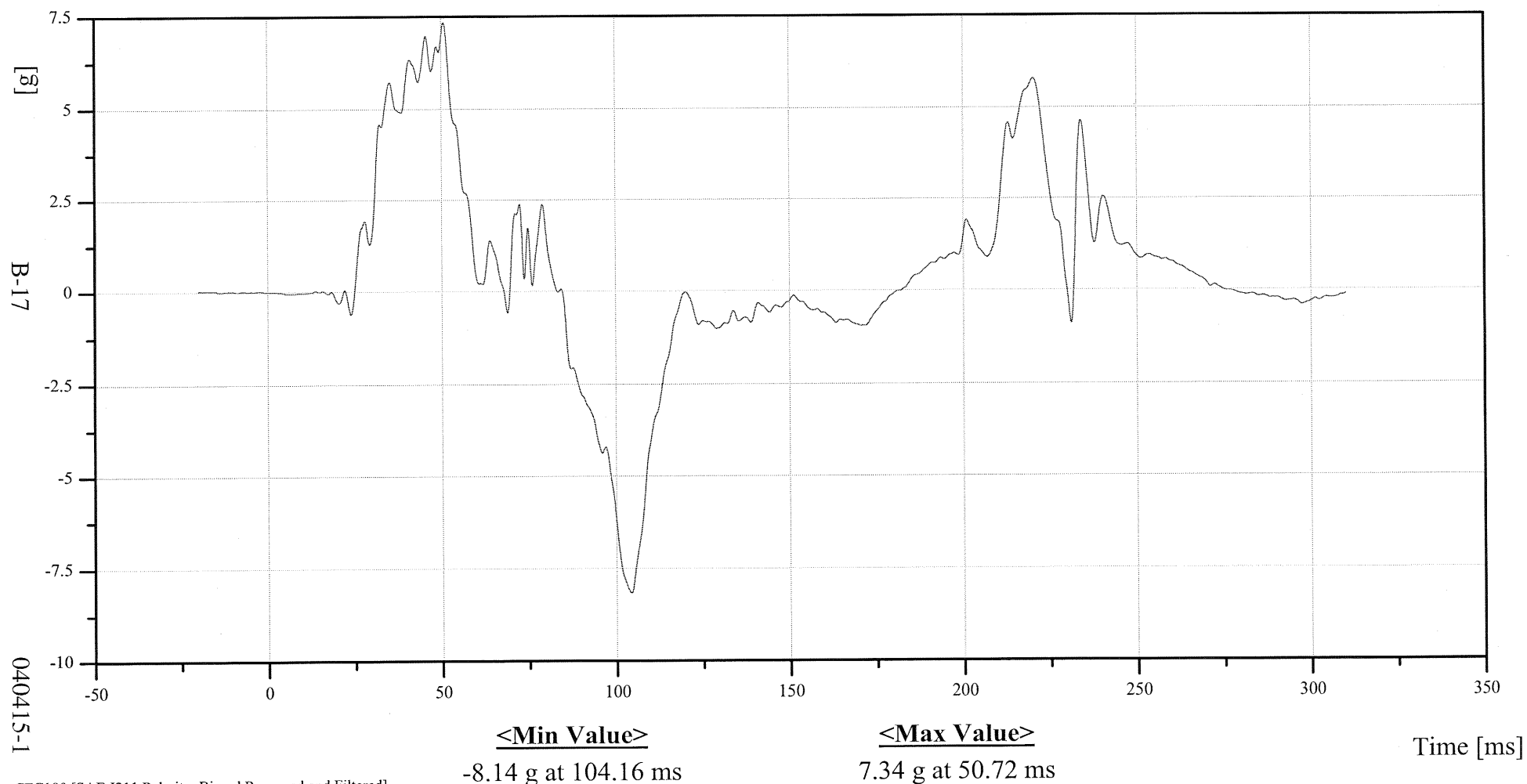
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

CSTZG1



CFC180 [SAE J211 Polarity, Biased Removed and Filtered]



Transportation Research Center, Inc.

Chest Resultant Acceleration

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

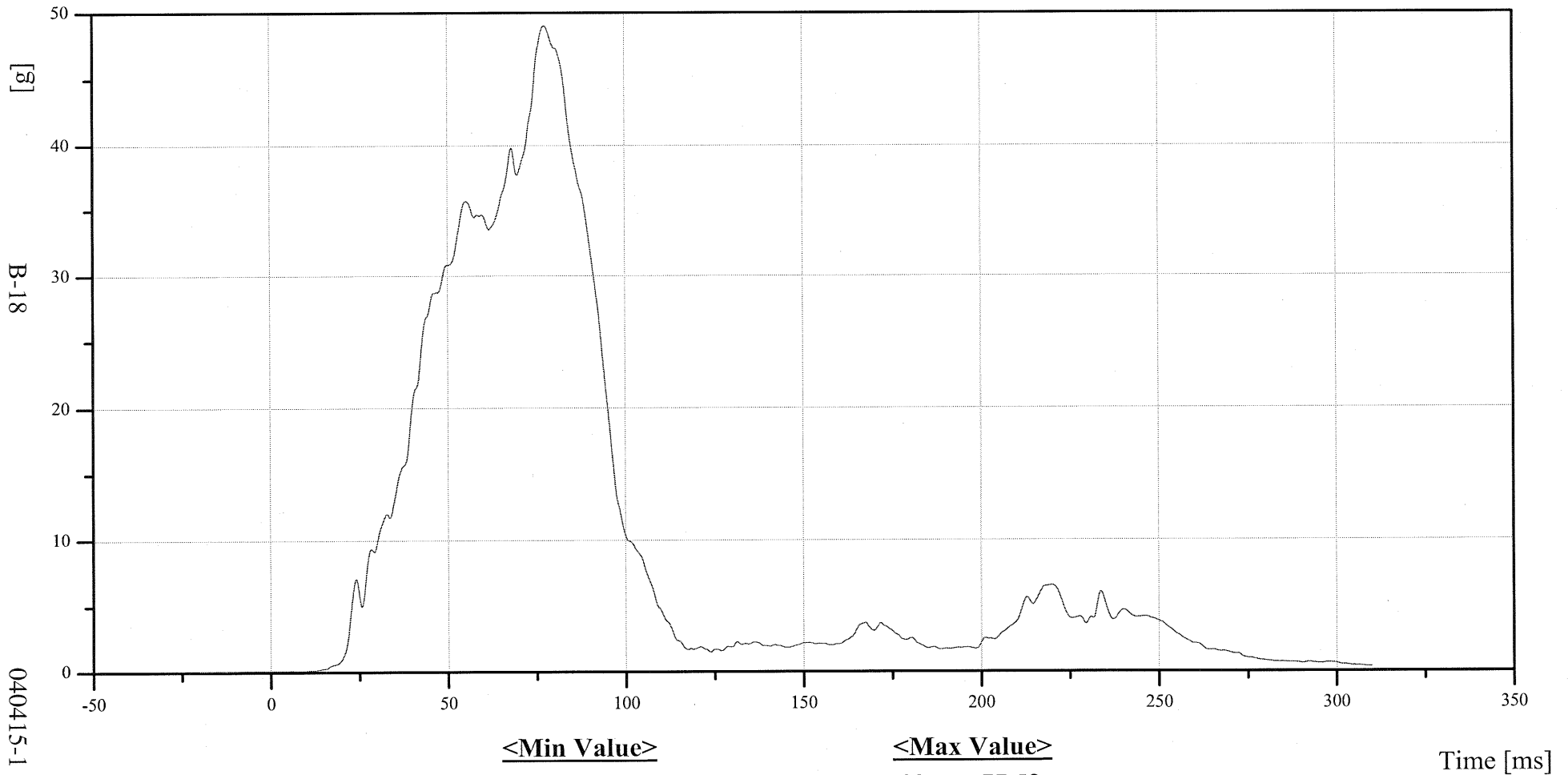
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

CSTRG1



CFC180 [SAE J211 Polarity, Biased Removed and Filtered]



Transportation Research Center, Inc.

Chest Accel Red X

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

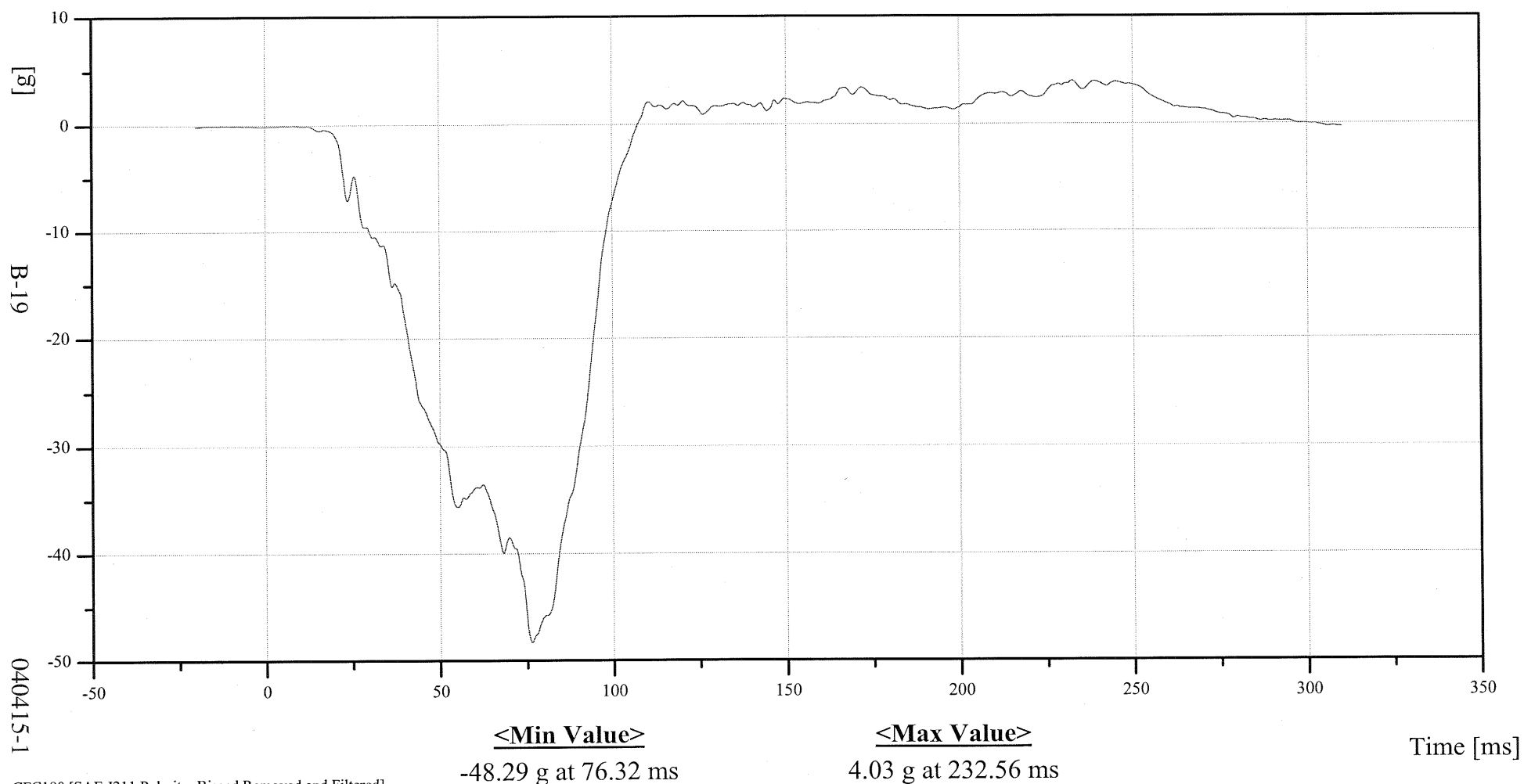
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

CSTXR1





Transportation Research Center, Inc.

Chest Accel Red Y

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

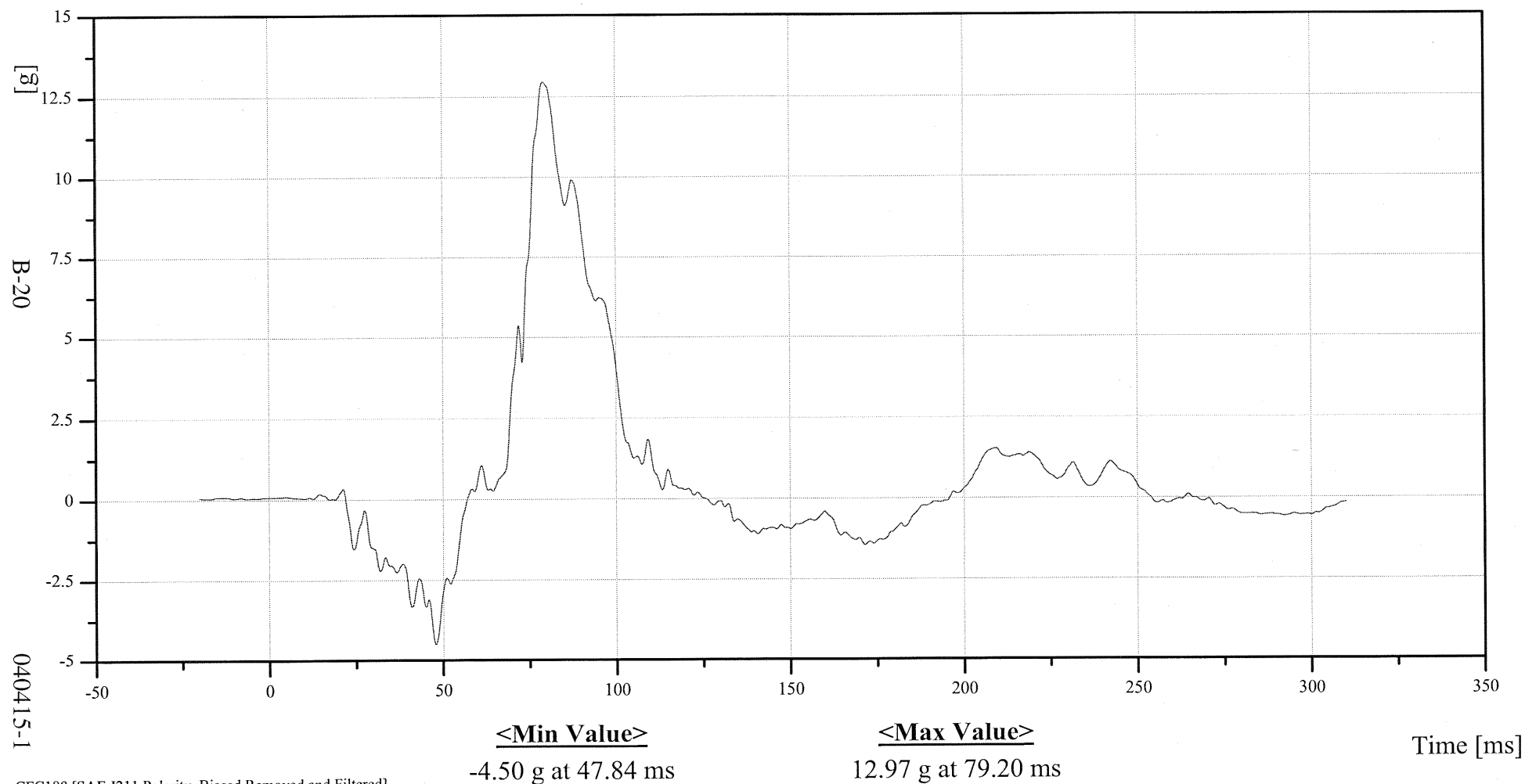
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

CSTYR1



CFC180 [SAE J211 Polarity, Biased Removed and Filtered]



Transportation Research Center, Inc.

Chest Accel Red Z

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

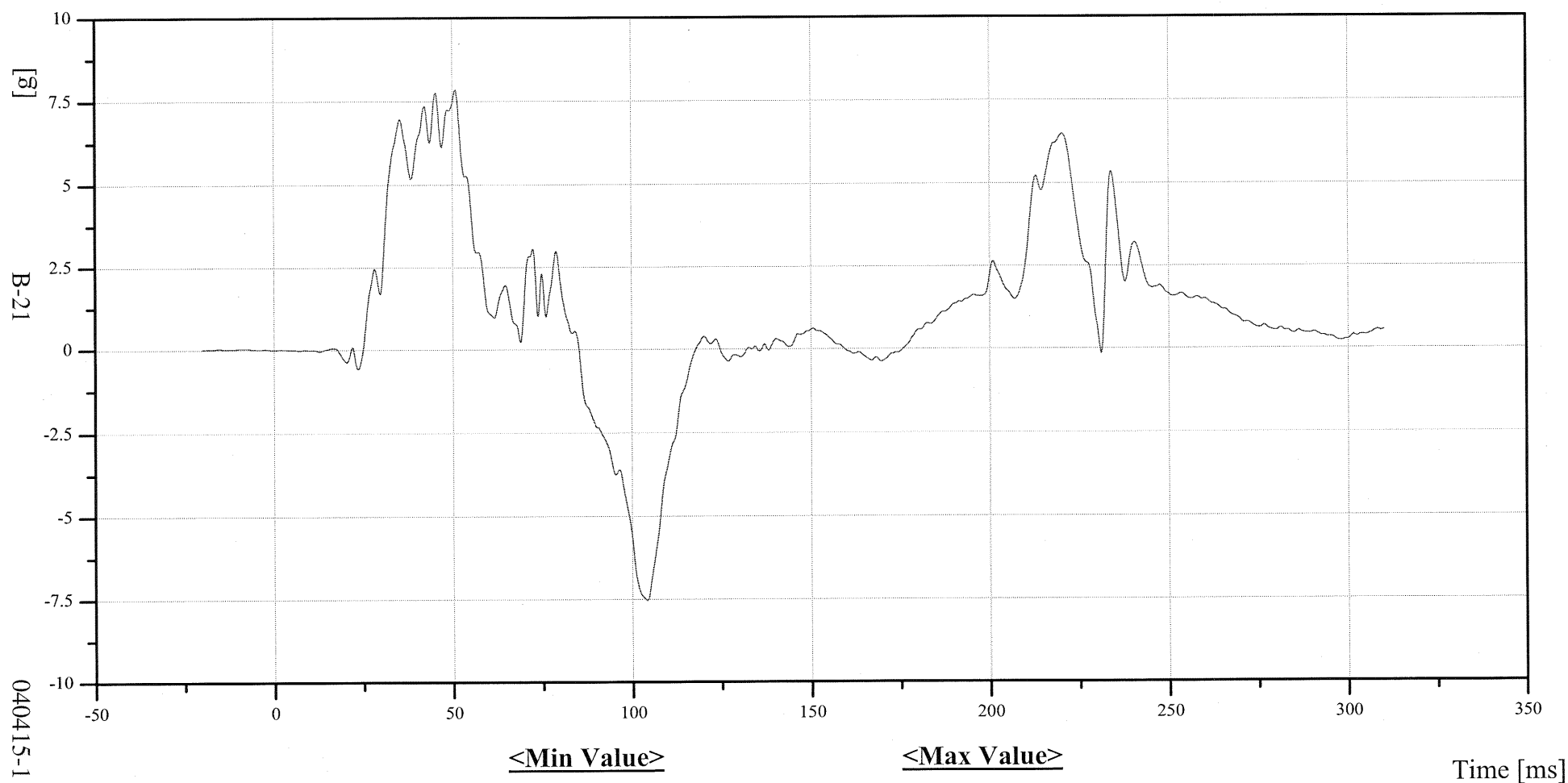
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

CSTZR1



CFC180 [SAE J211 Polarity, Biased Removed and Filtered]



Transportation Research Center, Inc.

Chest Deflection X

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

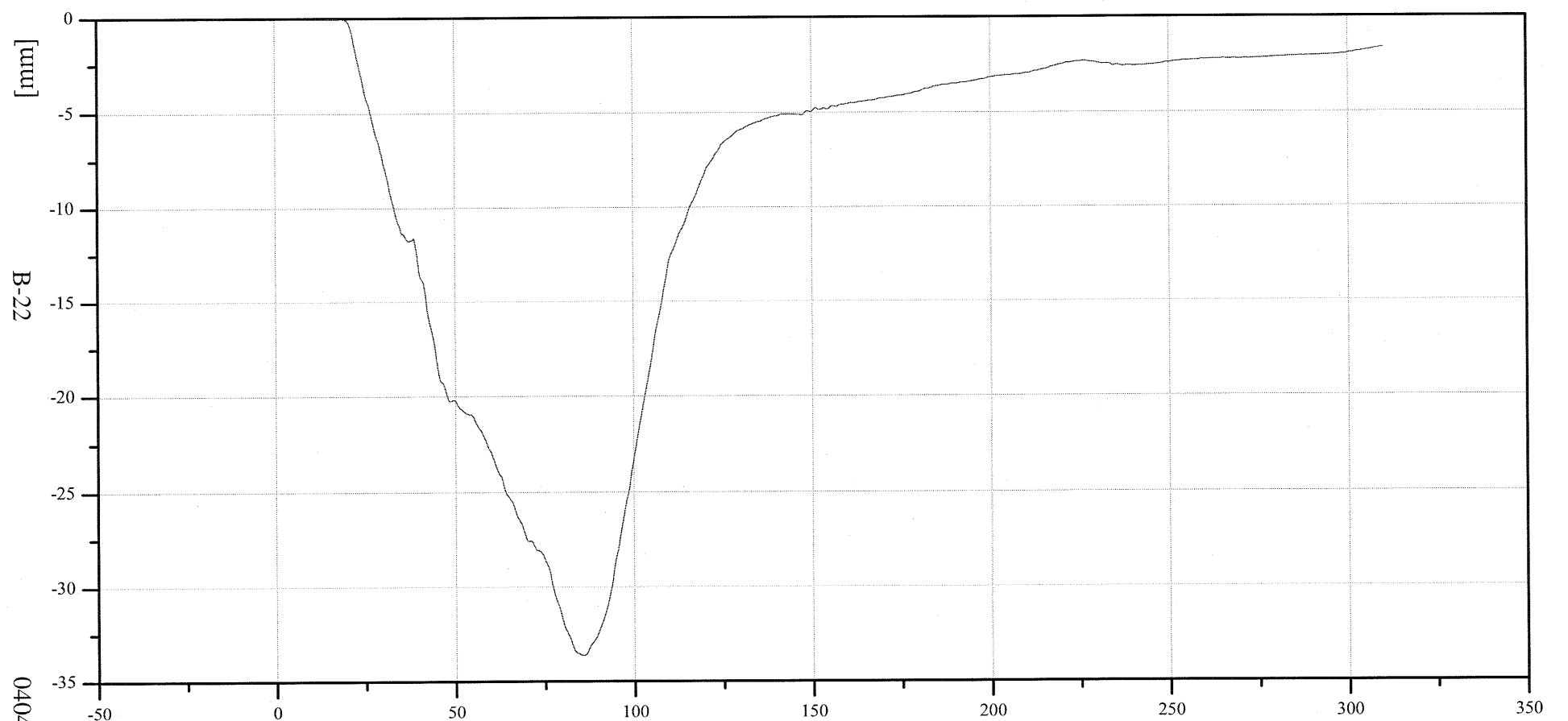
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

CSTXD1



<Min Value>

-33.61 mm at 85.76 ms

<Max Value>

0.00 mm at -16.56 ms

Time [ms]

CFC600 [SAE J211 Polarity, Biased Removed and Filtered]



Transportation Research Center, Inc.

Pelvis Accel X

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

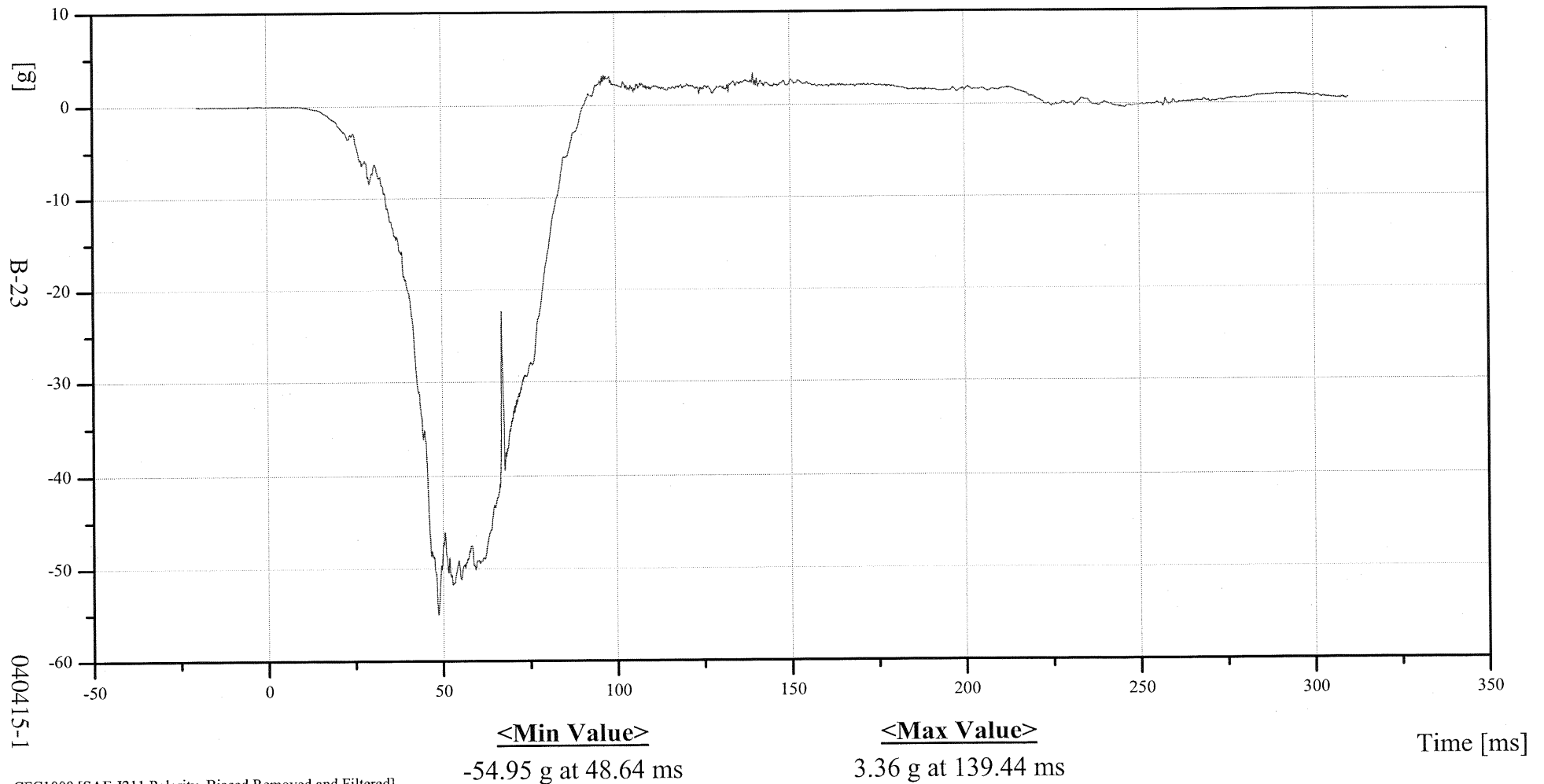
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

PEVXG1





Transportation Research Center, Inc.

Pelvis Accel Y

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

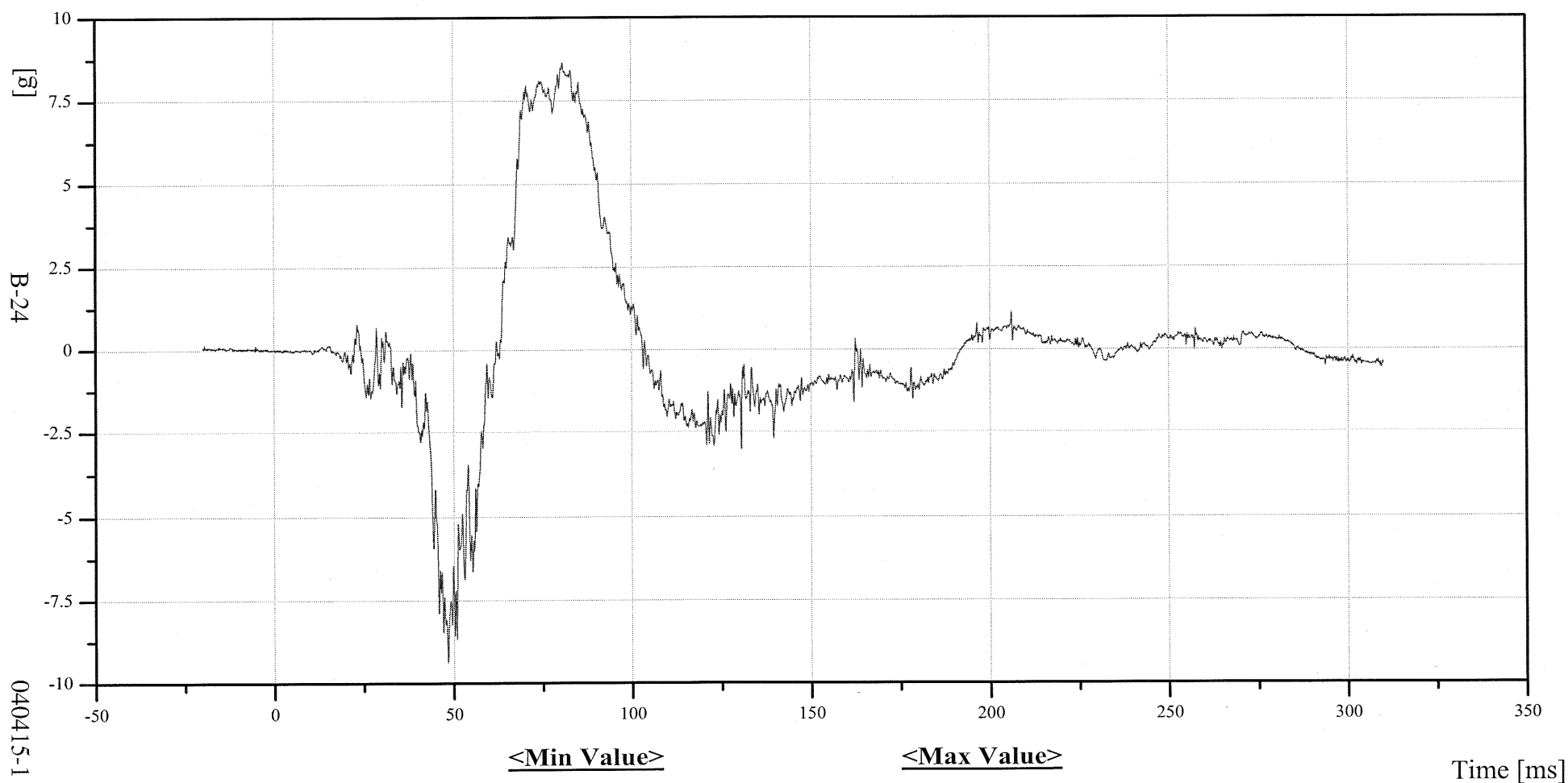
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

PEVYG1



CFC1000 [SAE J211 Polarity, Biased Removed and Filtered]



Transportation Research Center, Inc.

Pelvis Accel Z

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

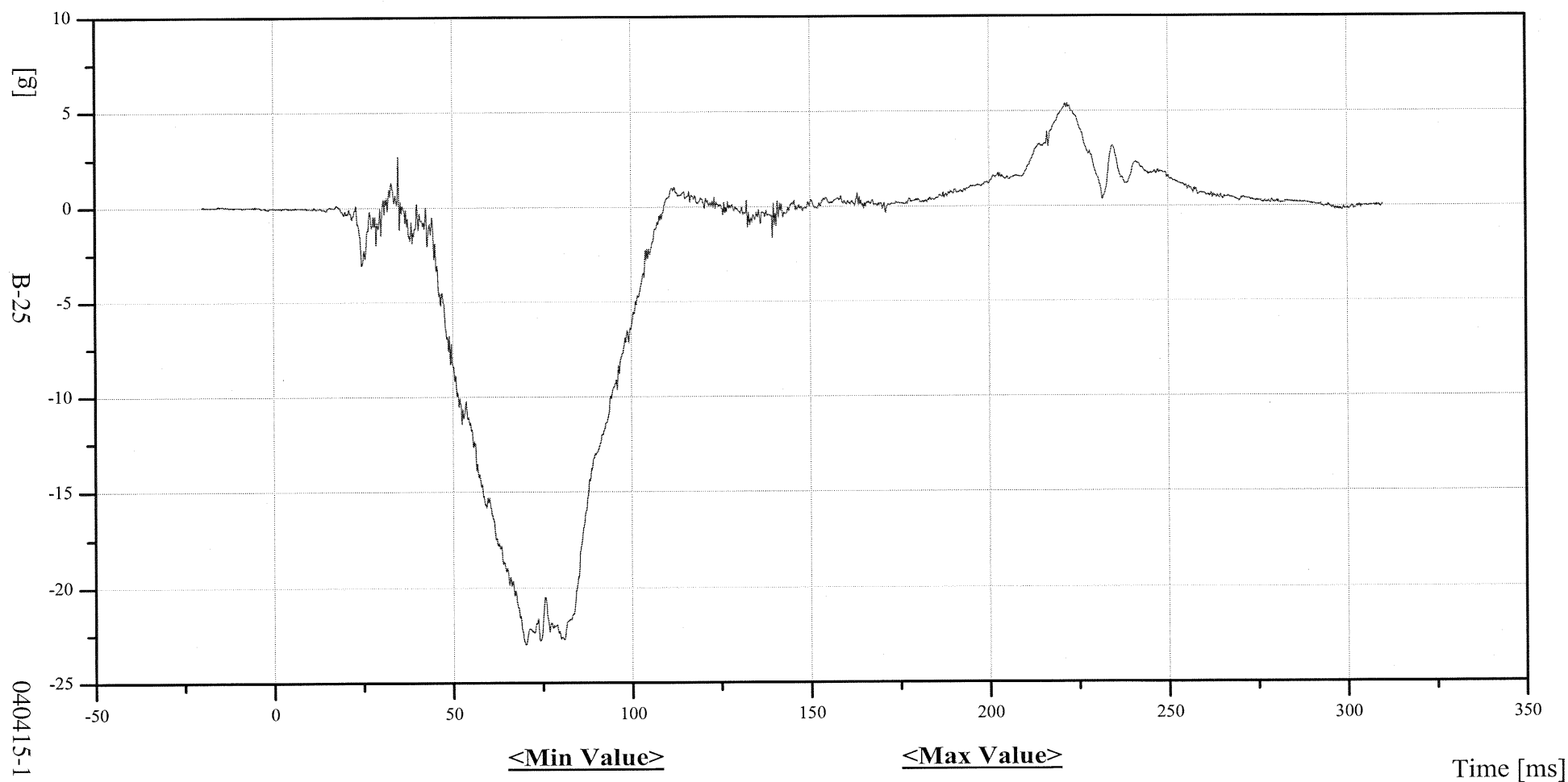
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

PEVZG1



CFC1000 [SAE J211 Polarity, Biased Removed and Filtered]



Transportation Research Center, Inc.

Pelvis Resultant Acceleration

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

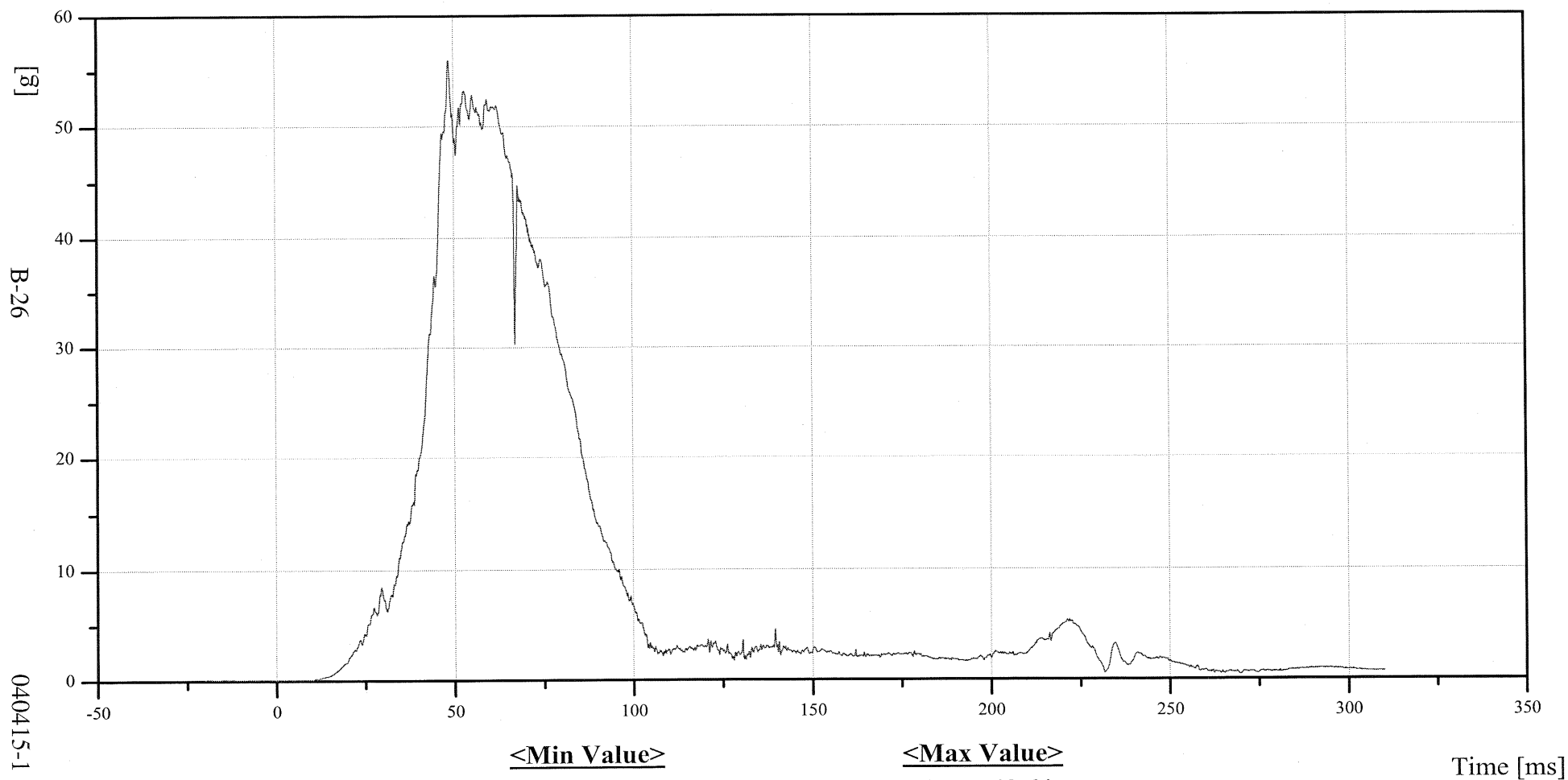
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

PEVRG1



CFC1000 [SAE J211 Polarity, Biased Removed and Filtered]



Transportation Research Center, Inc.

Left Femur Force X

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

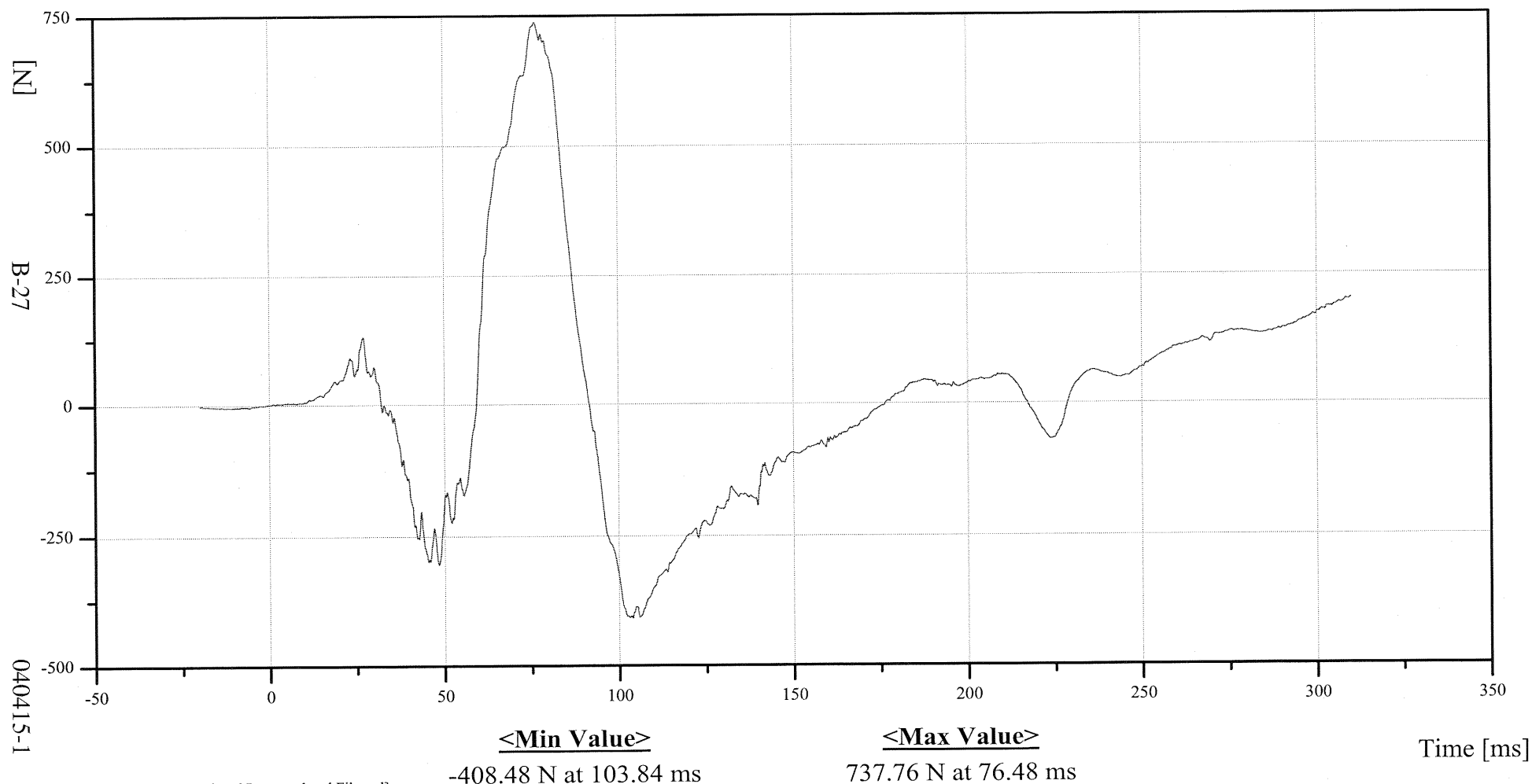
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

LFMXF1



CFC600 [SAE J211 Polarity, Biased Removed and Filtered]



Transportation Research Center, Inc.

Left Femur Force Y

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

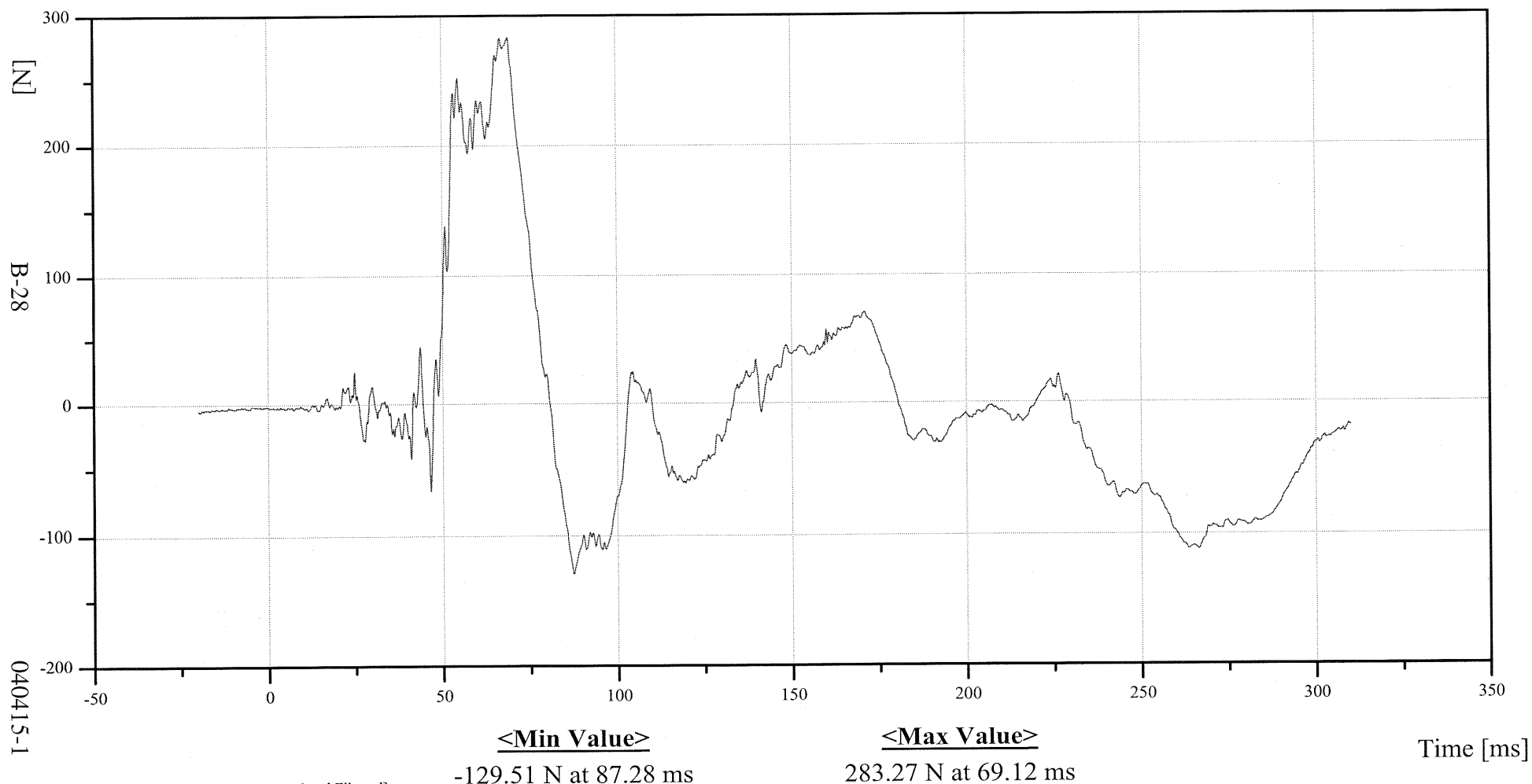
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

LFMYF1



CFC600 [SAE J211 Polarity, Biased Removed and Filtered]



Transportation Research Center, Inc.

Left Femur Force Z

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

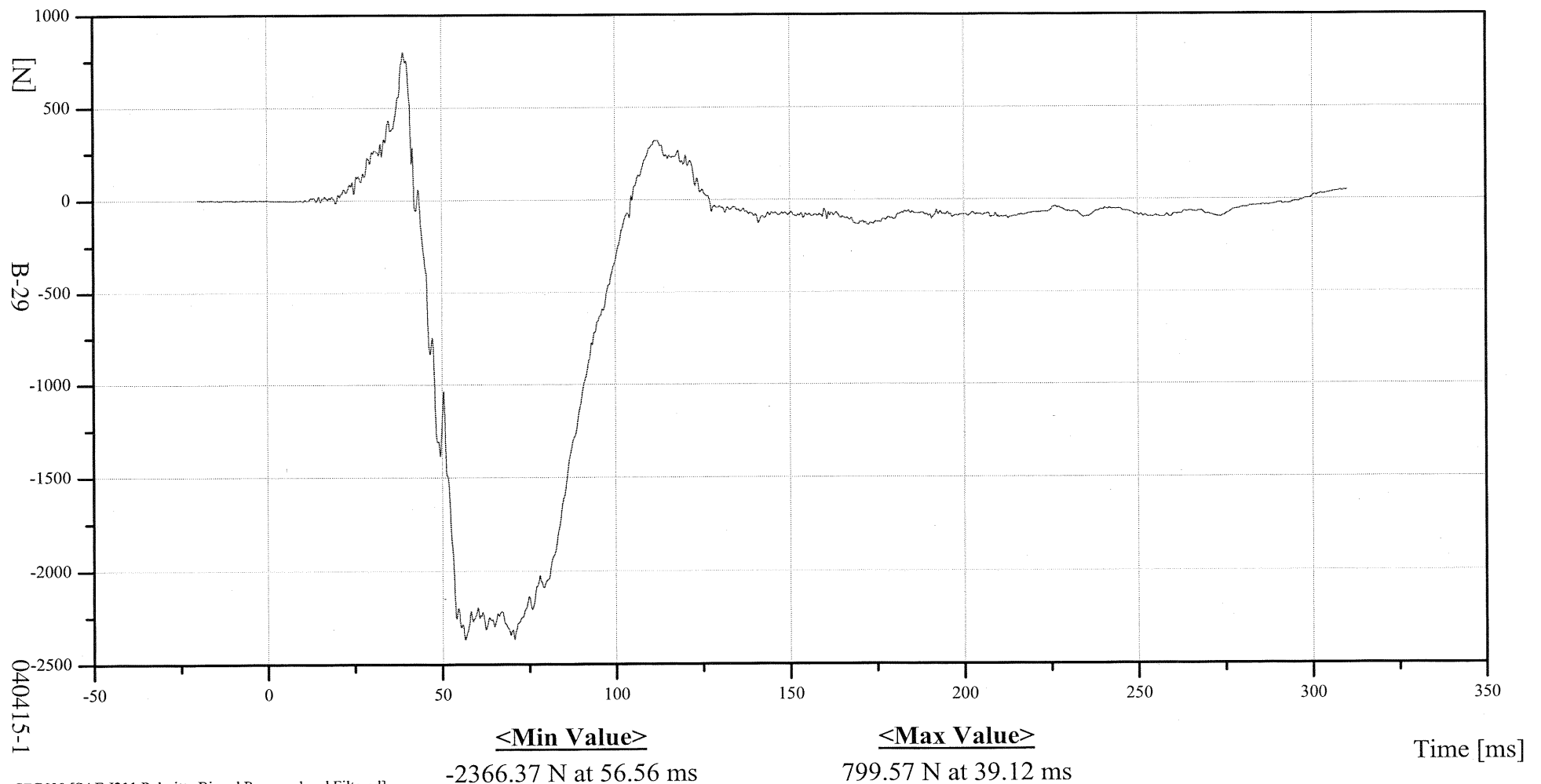
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

LFMZ1



CFC600 [SAE J211 Polarity, Biased Removed and Filtered]



Transportation Research Center, Inc.

Left Femur Moment X

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

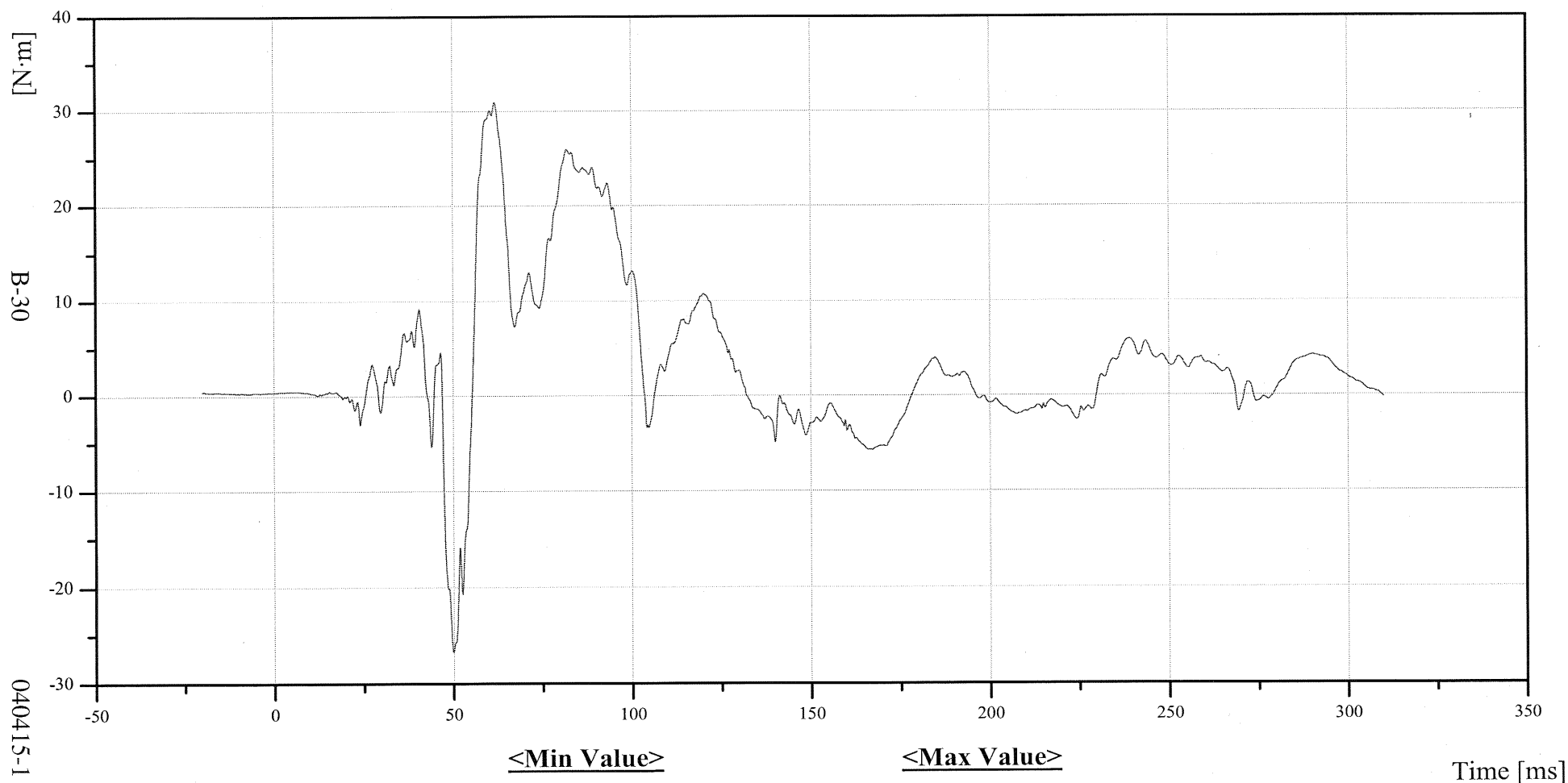
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

LFMXM1



CFC600 [SAE J211 Polarity, Biased Removed and Filtered]



Transportation Research Center, Inc.

Left Femur Moment Y

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

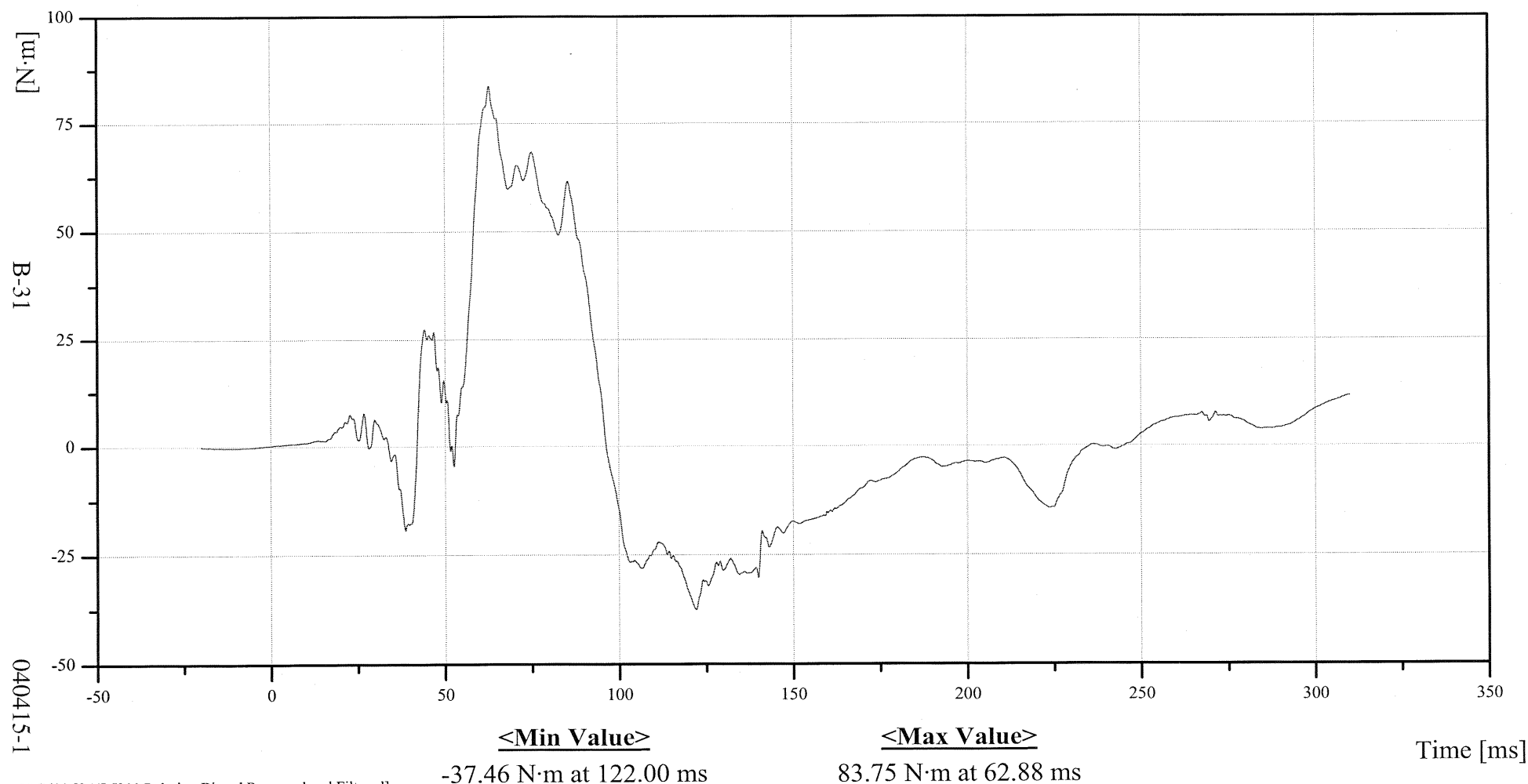
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

LFMYM1



CFC600 [SAE J211 Polarity, Biased Removed and Filtered]



Transportation Research Center, Inc.

Left Femur Moment Z

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

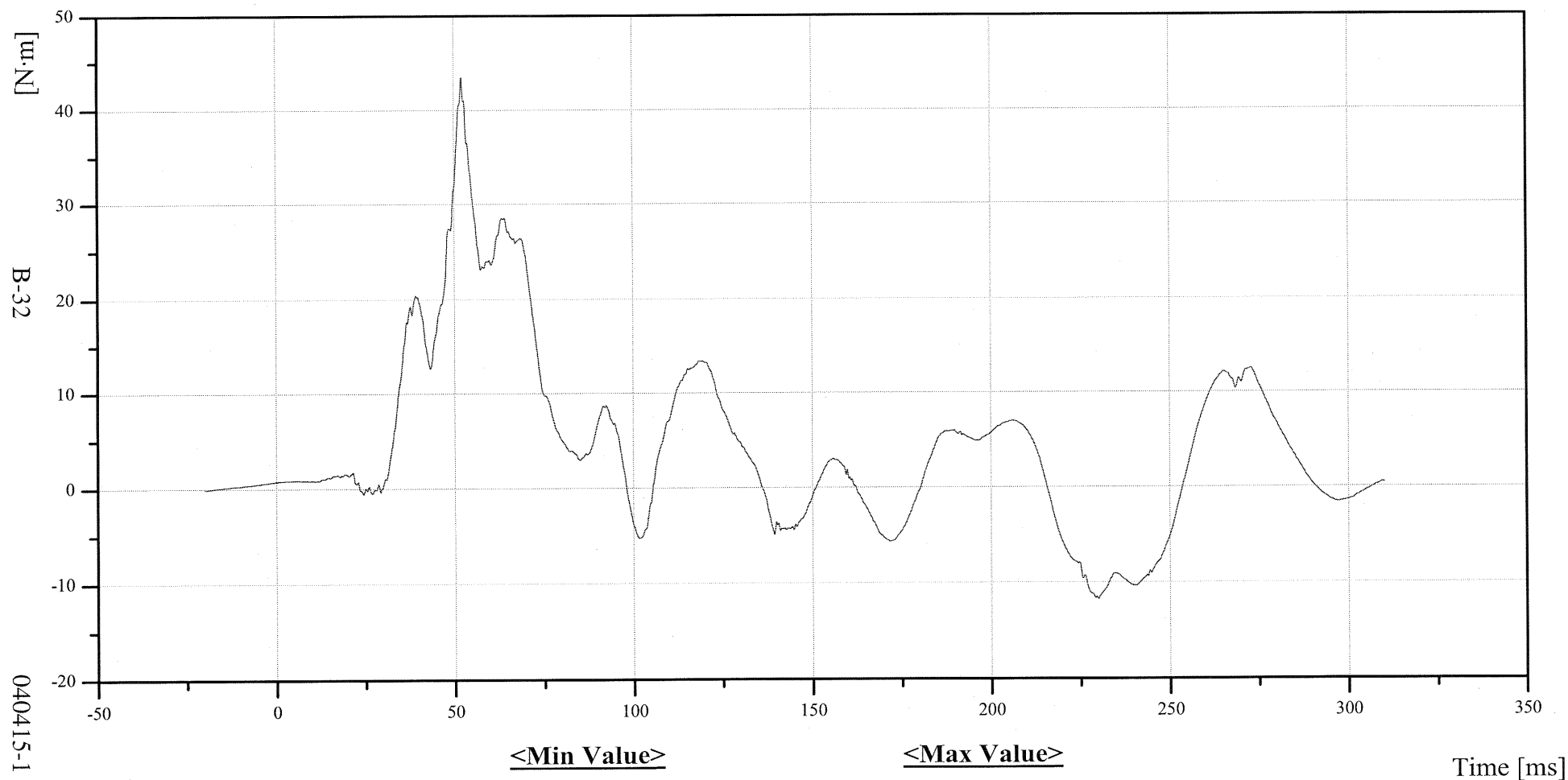
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

LFMZM1



CFC600 [SAE J211 Polarity, Biased Removed and Filtered]



Transportation Research Center, Inc.

Right Femur Force X

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

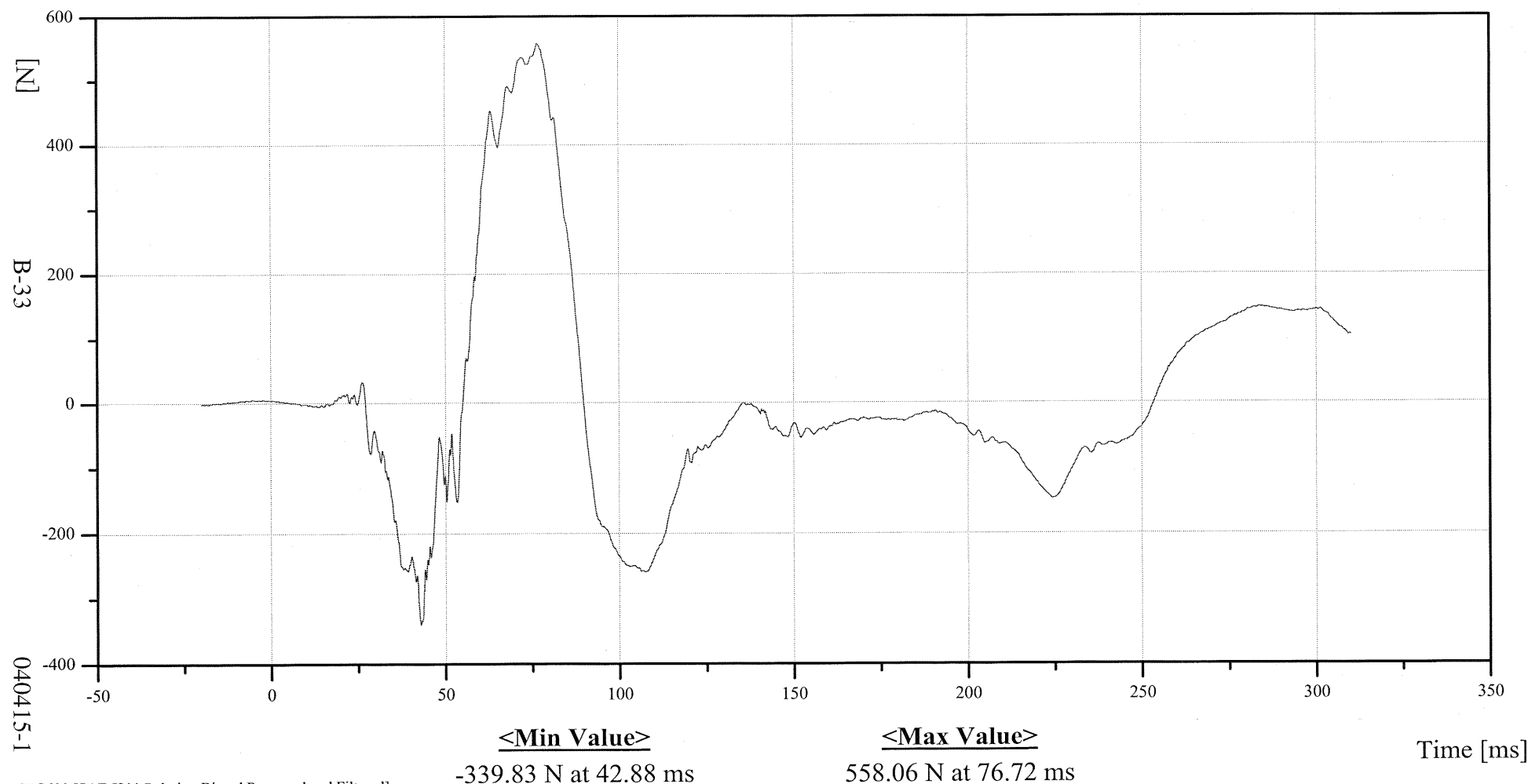
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

RFMXF1



CFC600 [SAE J211 Polarity, Biased Removed and Filtered]



Transportation Research Center, Inc.

Right Femur Force Y

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

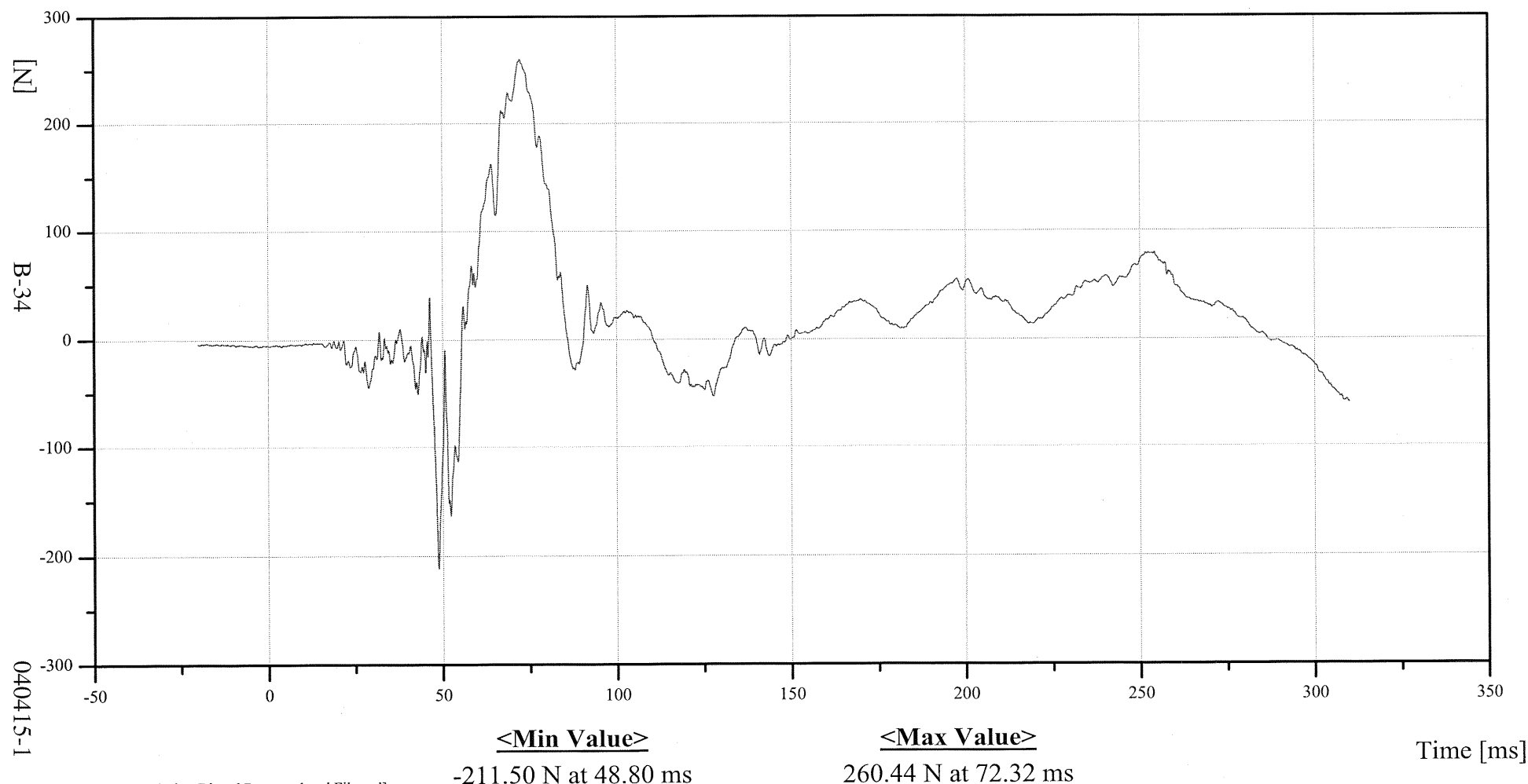
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

RFMYF1



CFC600 [SAE J211 Polarity, Biased Removed and Filtered]



Transportation Research Center, Inc.

Right Femur Force Z

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

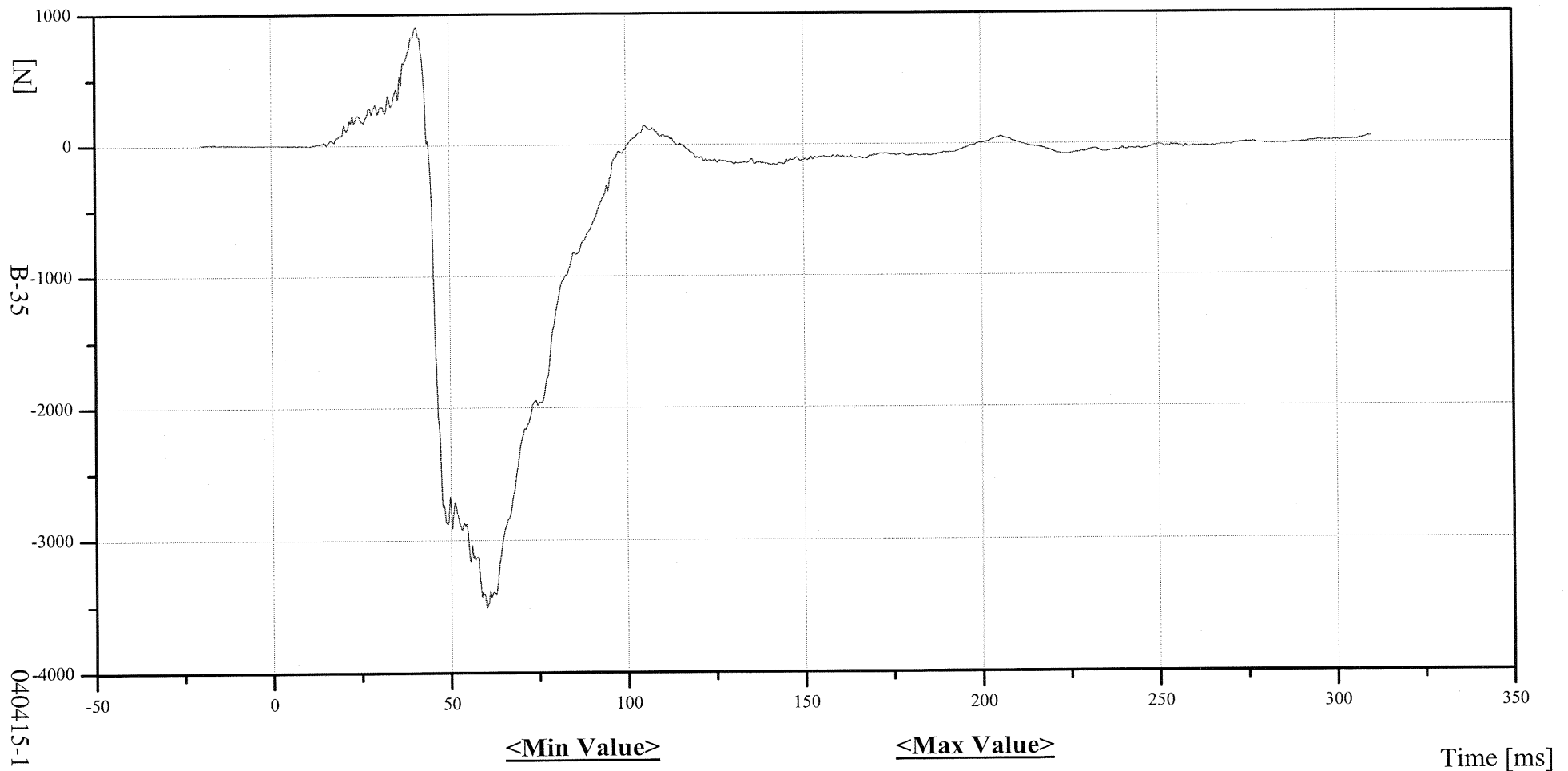
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

RFMZ1



CFC600 [SAE J211 Polarity, Biased Removed and Filtered]



Transportation Research Center, Inc.

Right Femur Moment X

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

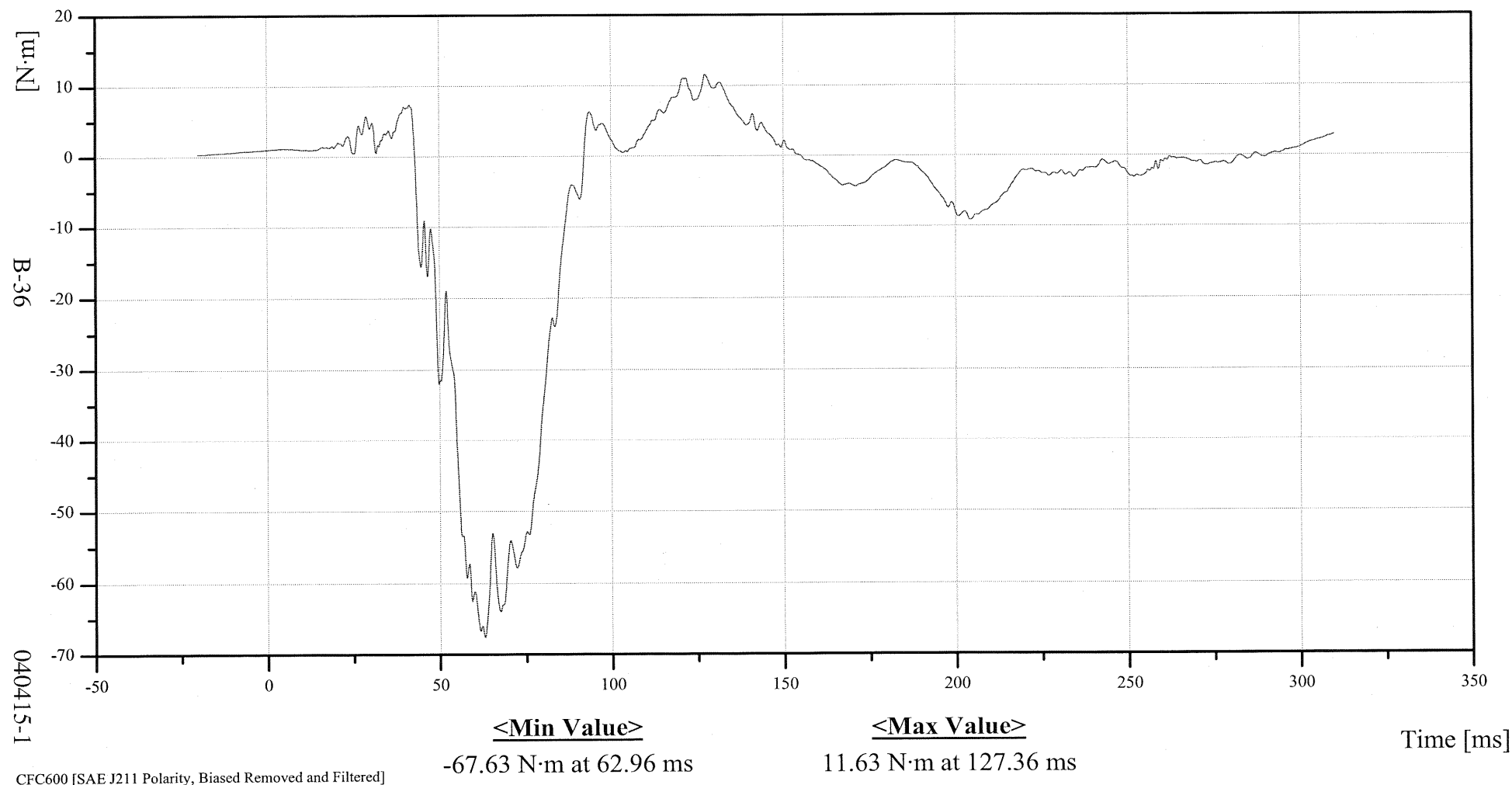
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

RFMXM1





Transportation Research Center, Inc.

Right Femur Moment Y

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

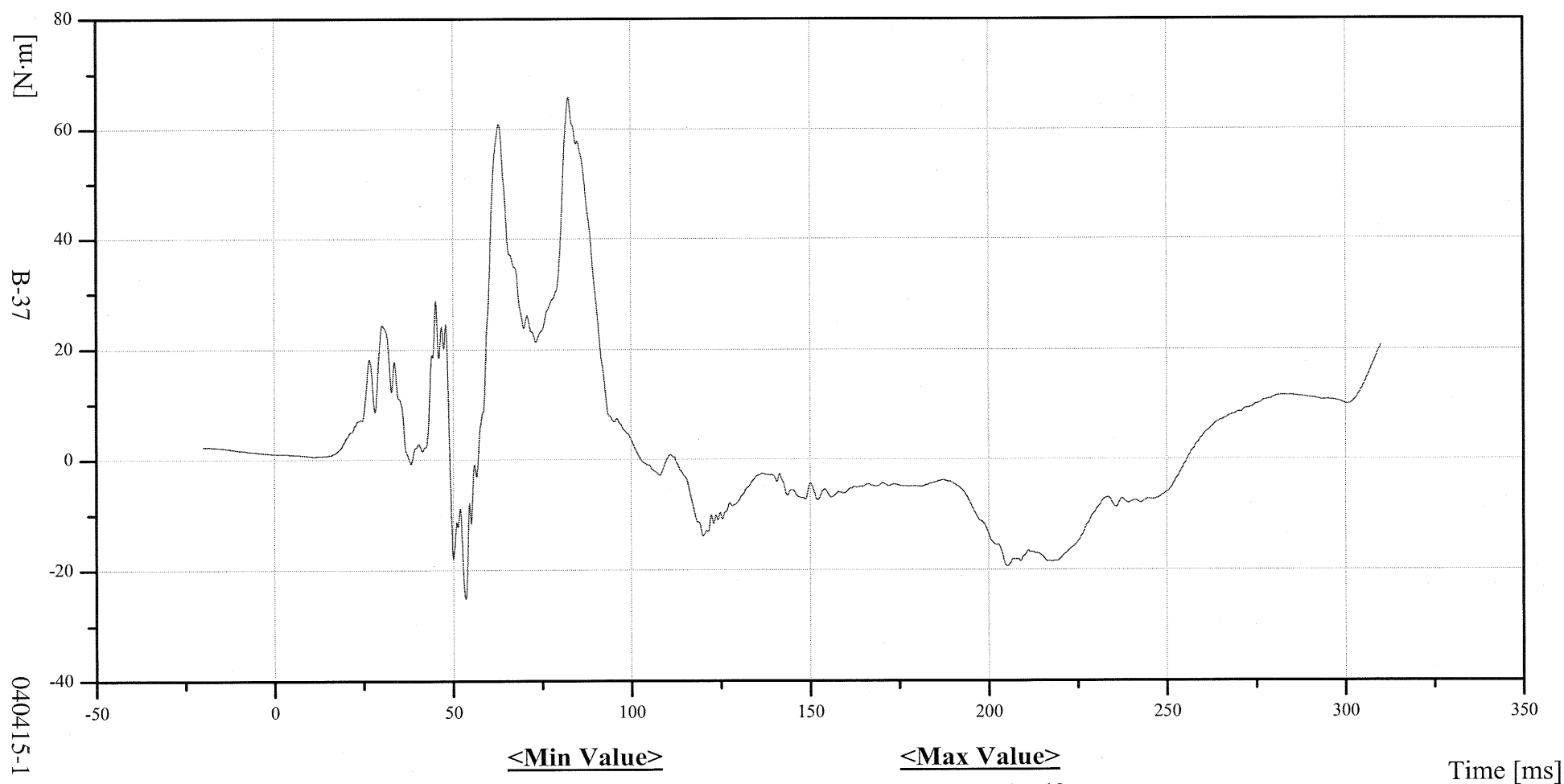
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

RFMYM1



CFC600 [SAE J211 Polarity, Biased Removed and Filtered]



Transportation Research Center, Inc.

Right Femur Moment Z

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

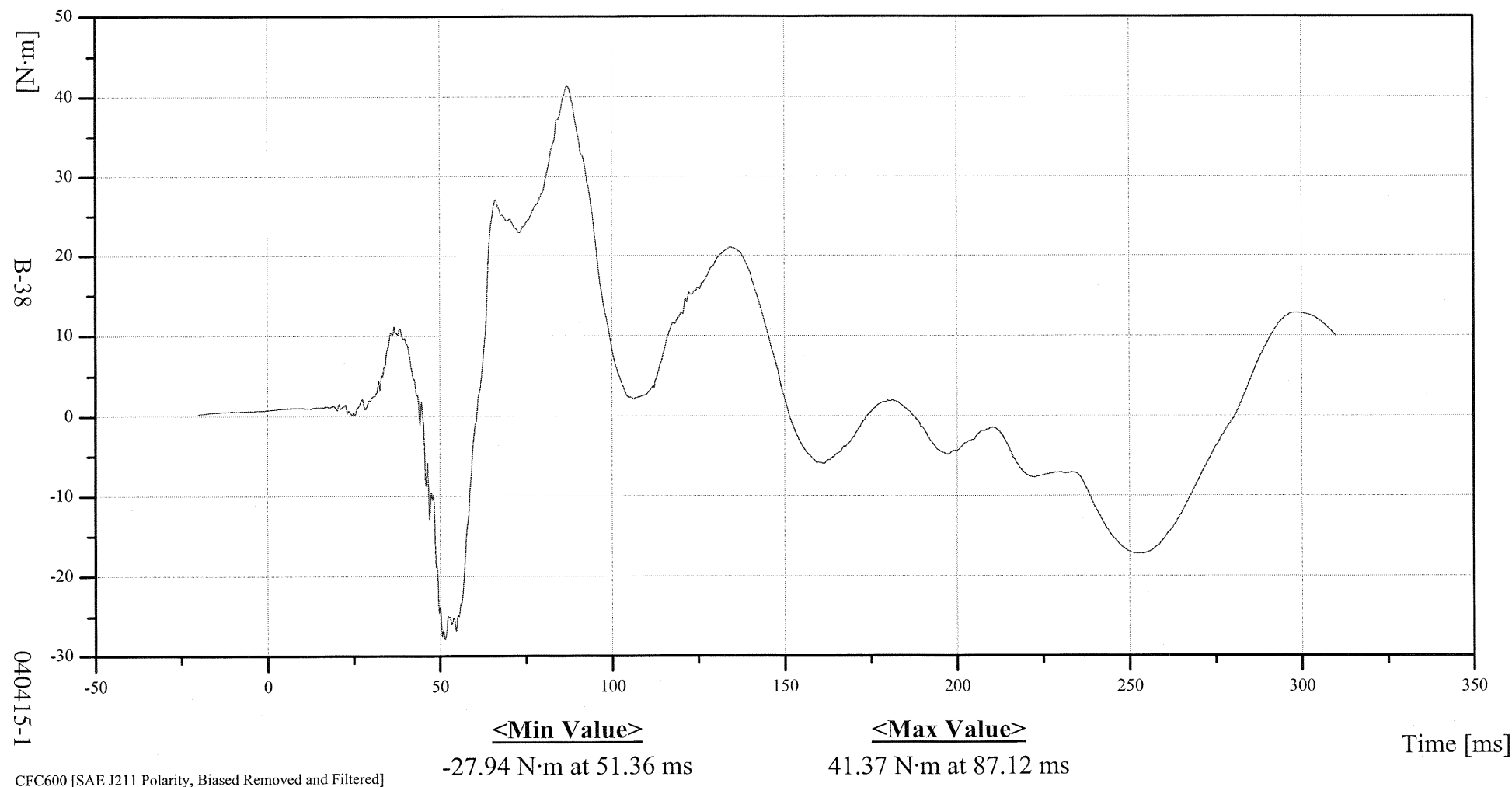
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

RFMZM1





Transportation Research Center, Inc.

Head Accel X

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

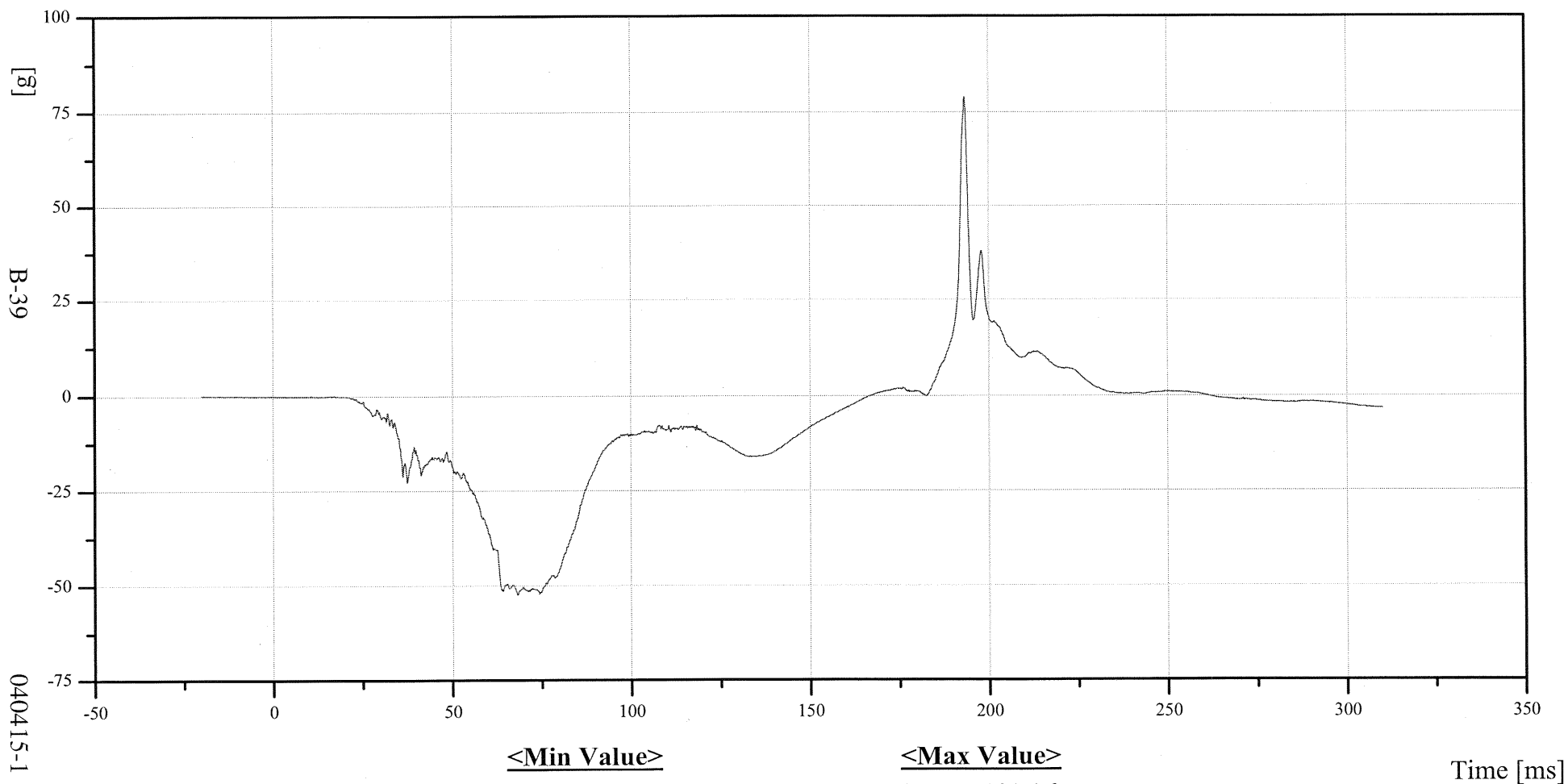
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

HEDXG2



CFC1000 [SAE J211 Polarity, Biased Removed and Filtered]



Transportation Research Center, Inc.

Head Accel Y

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

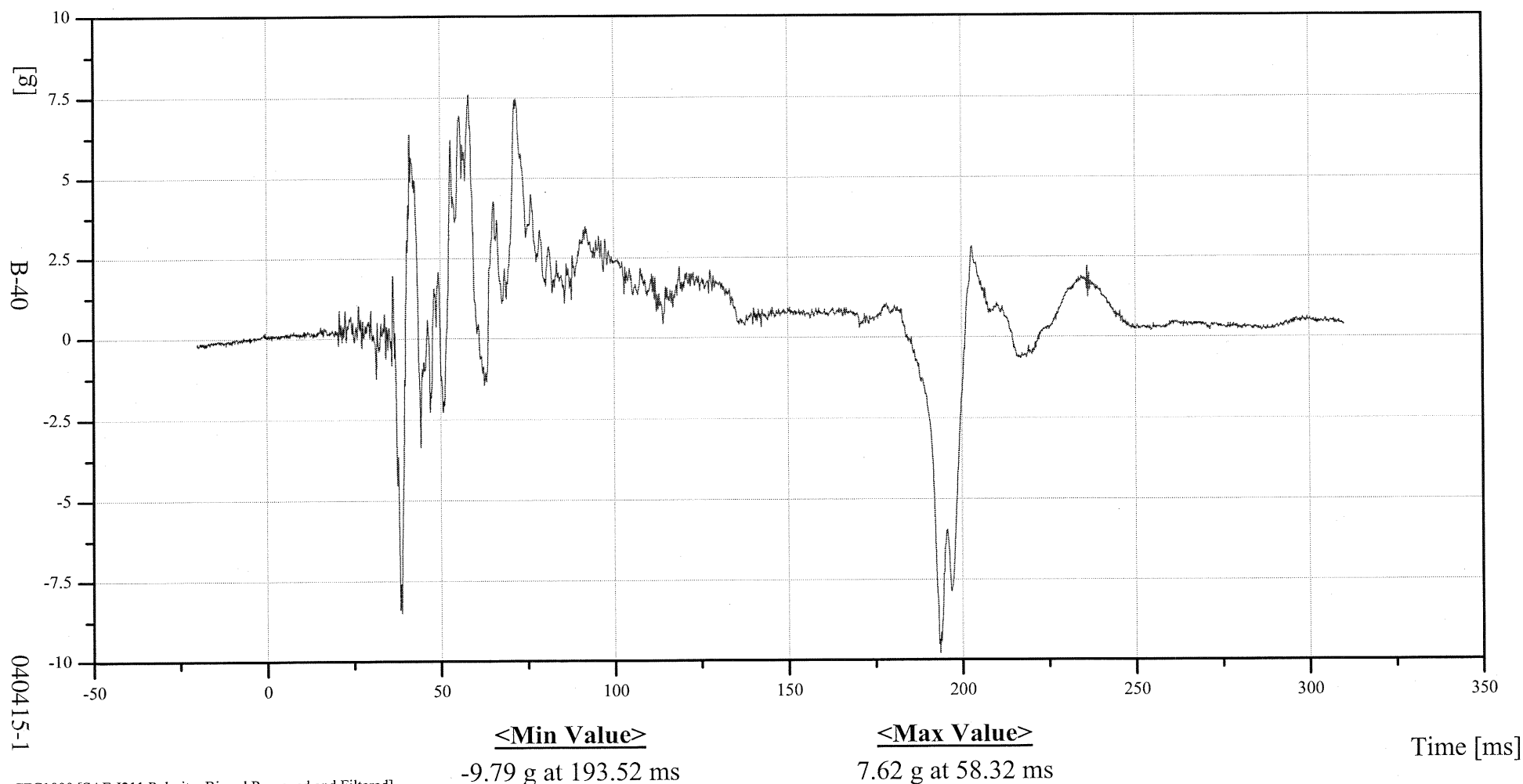
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

HEDYG2



CFC1000 [SAE J211 Polarity, Biased Removed and Filtered]



Transportation Research Center, Inc.

Head Accel Z

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

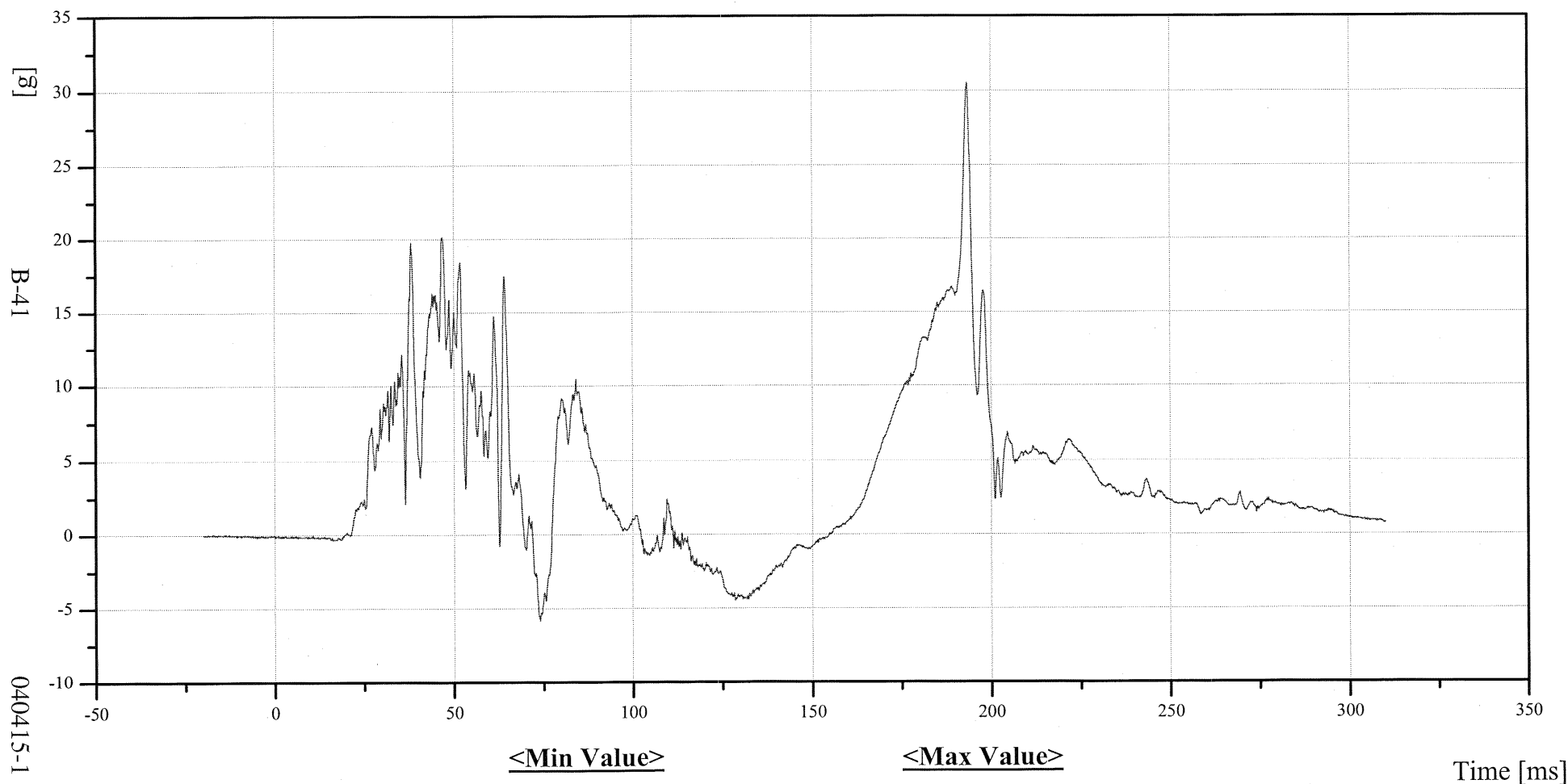
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

HEDZG2



CFC1000 [SAE J211 Polarity, Biased Removed and Filtered]



Transportation Research Center, Inc.

Head Resultant Acceleration

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

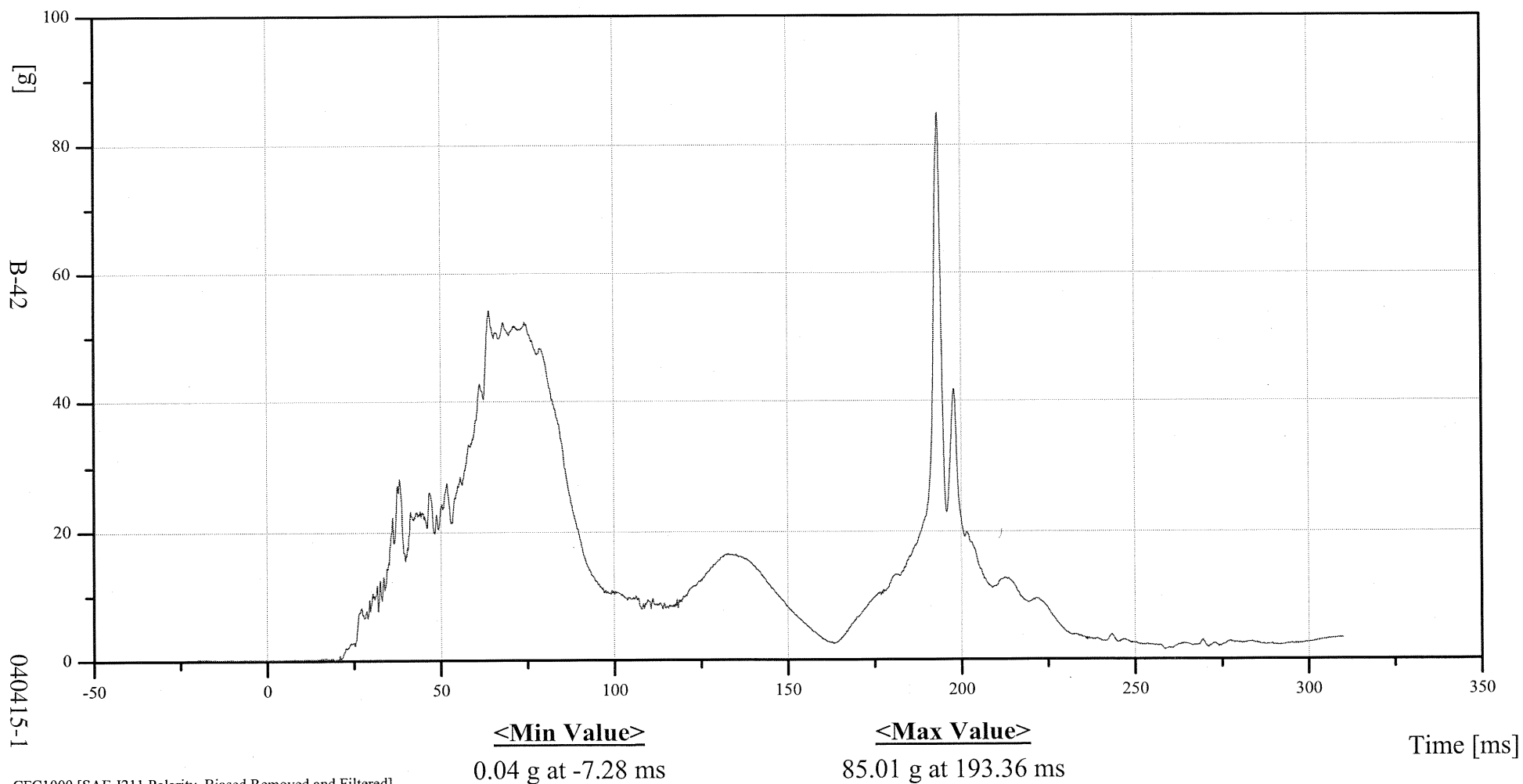
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

HEDRG2



CFC1000 [SAE J211 Polarity, Biased Removed and Filtered]



Transportation Research Center, Inc.

Head Accel Red X

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

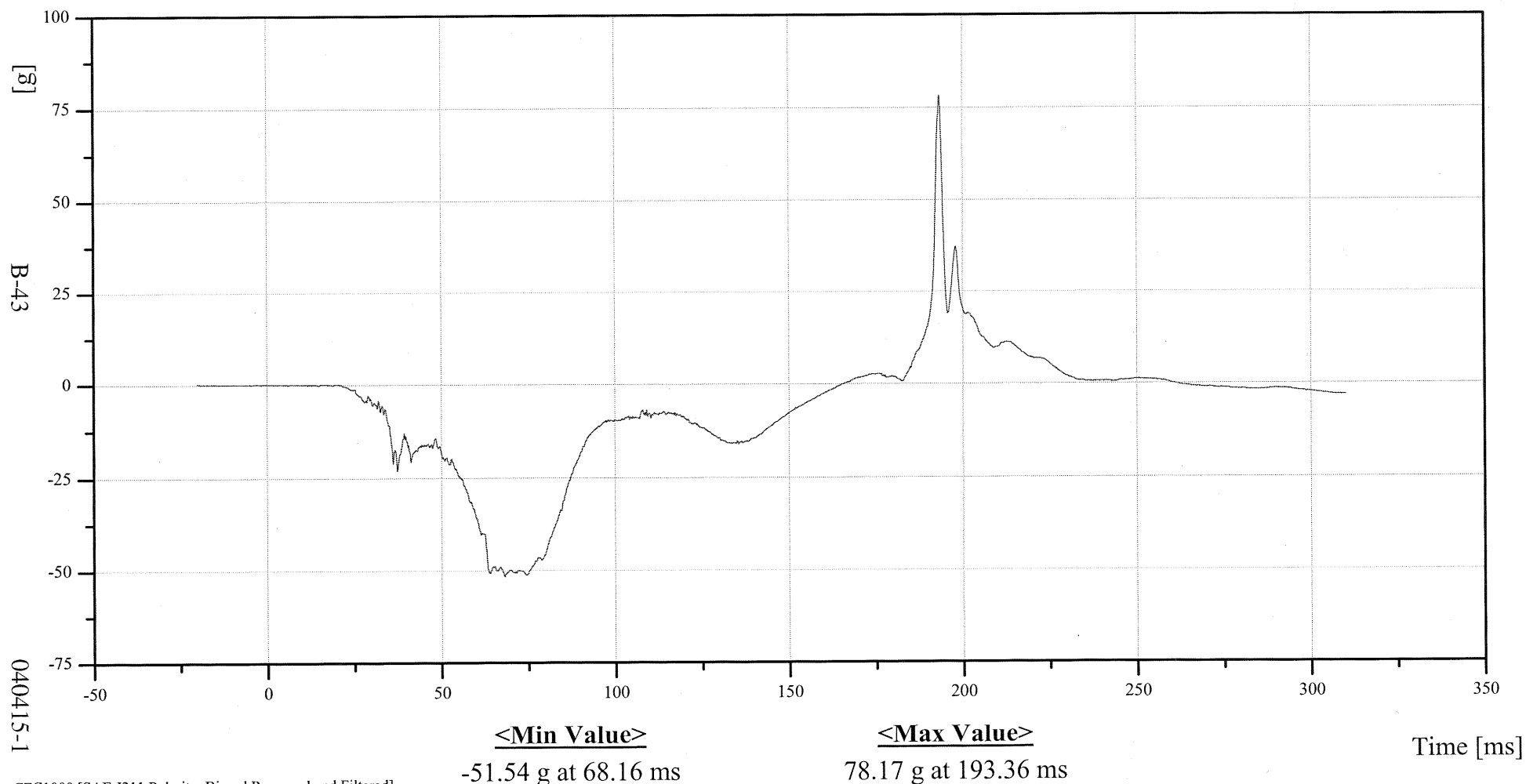
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

HEDXR2



CFC1000 [SAE J211 Polarity, Biased Removed and Filtered]



Transportation Research Center, Inc.

Head Accel Red Y

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

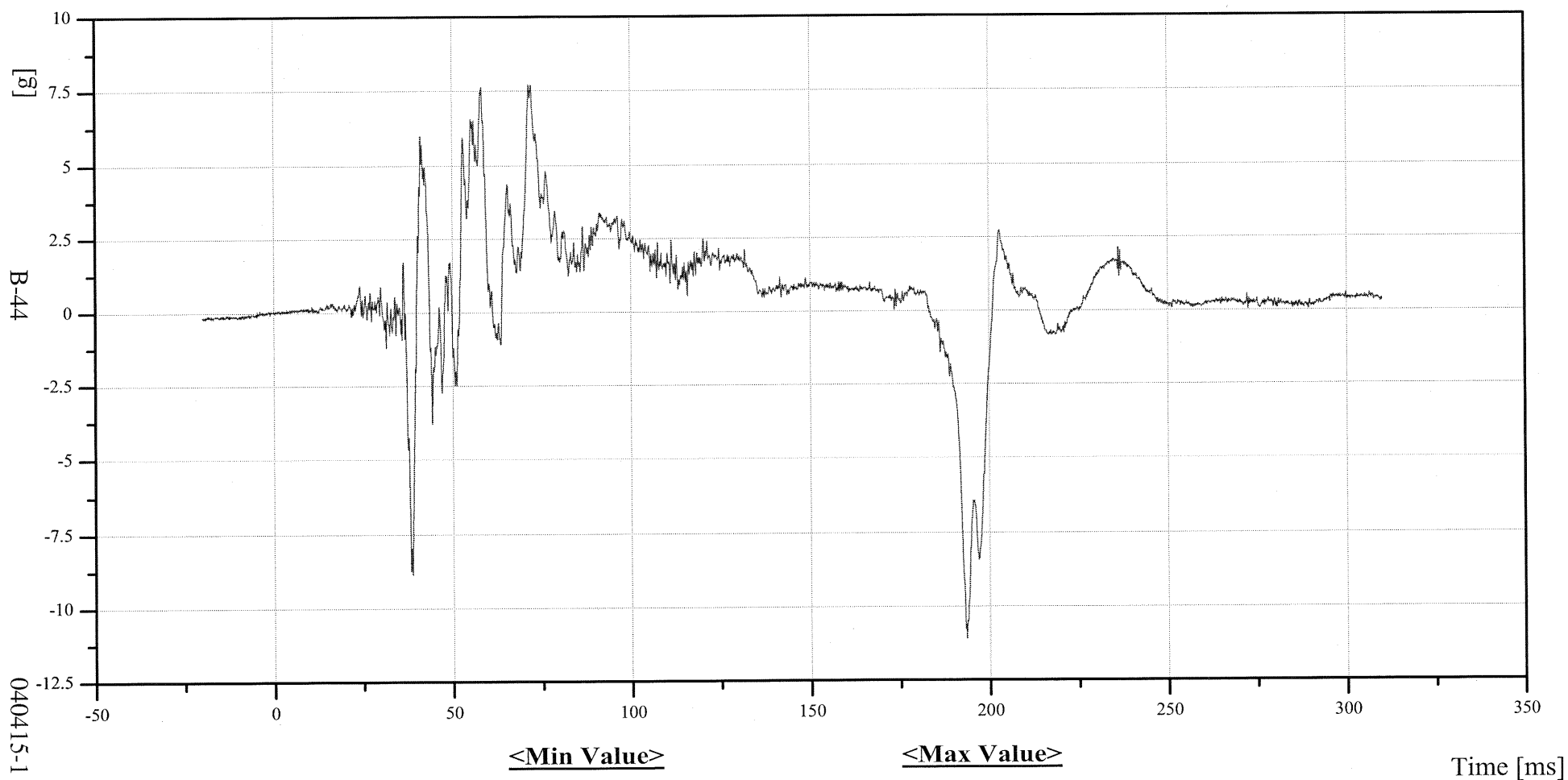
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

HEDYR2



CFC1000 [SAE J211 Polarity, Biased Removed and Filtered]



Transportation Research Center, Inc.

Head Accel Red Z

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

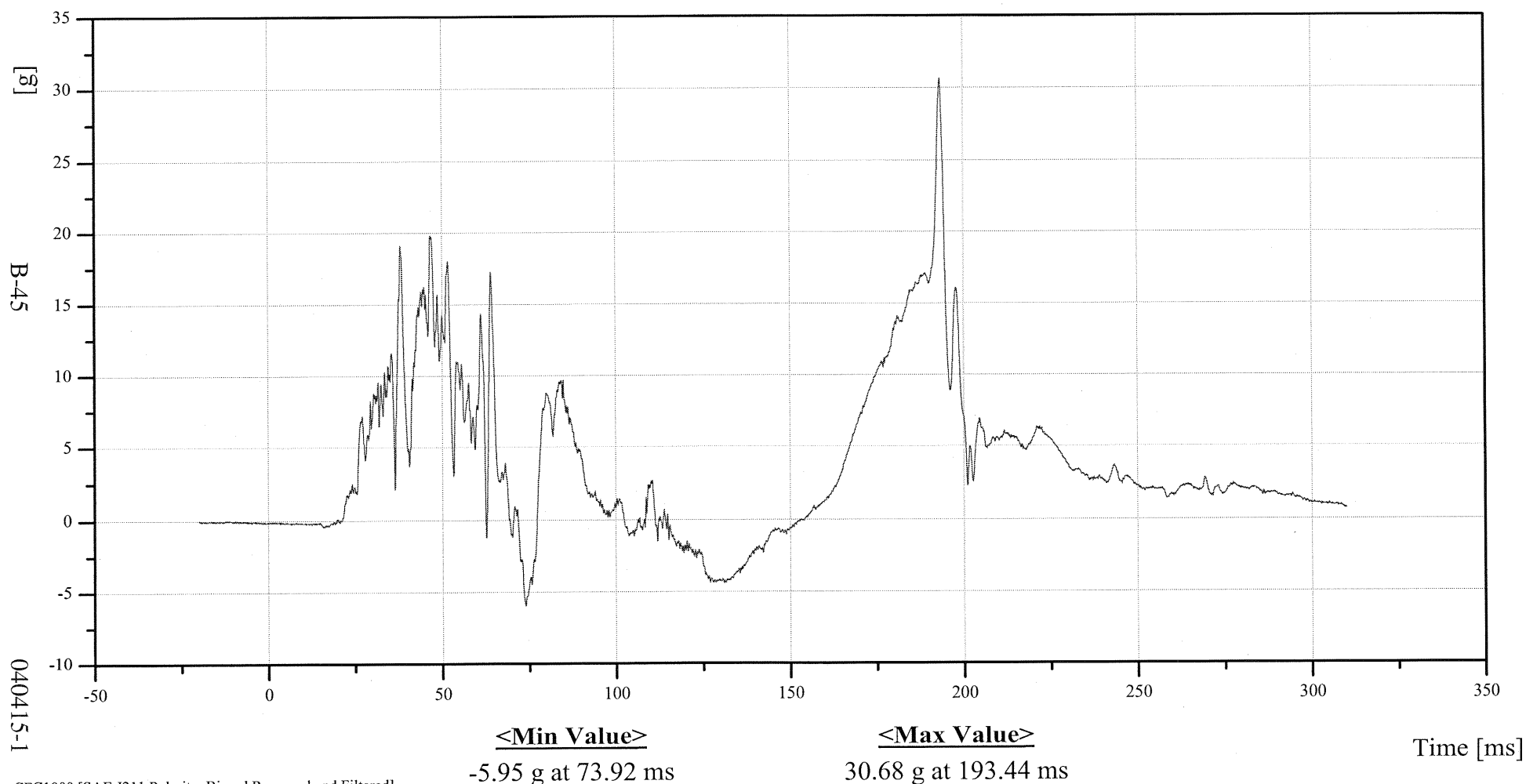
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

HEDZR2



CFC1000 [SAE J211 Polarity, Biased Removed and Filtered]



Transportation Research Center, Inc.

Neck Force X

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

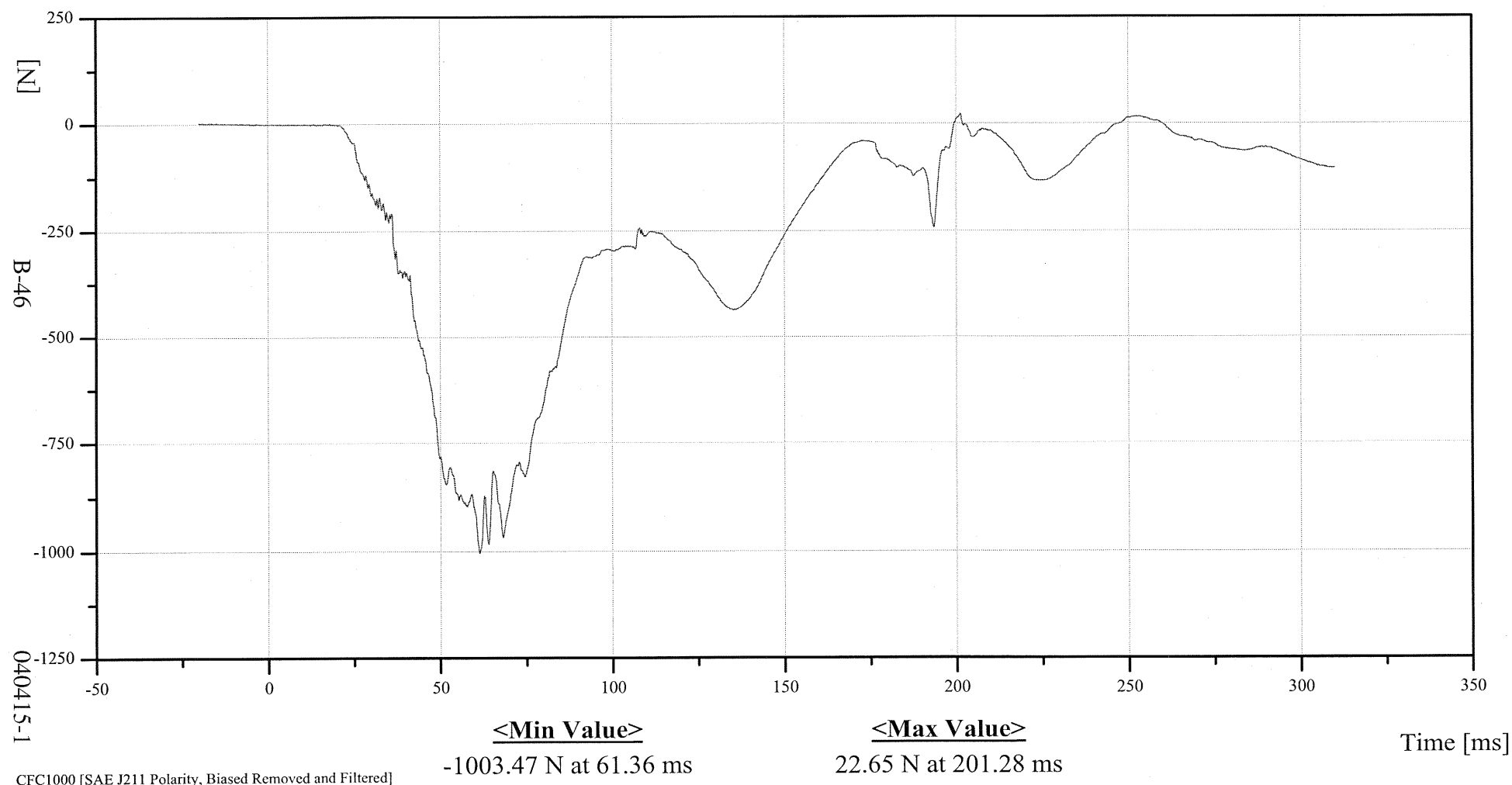
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

NEKXF2





Transportation Research Center, Inc.

Neck Force Y

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

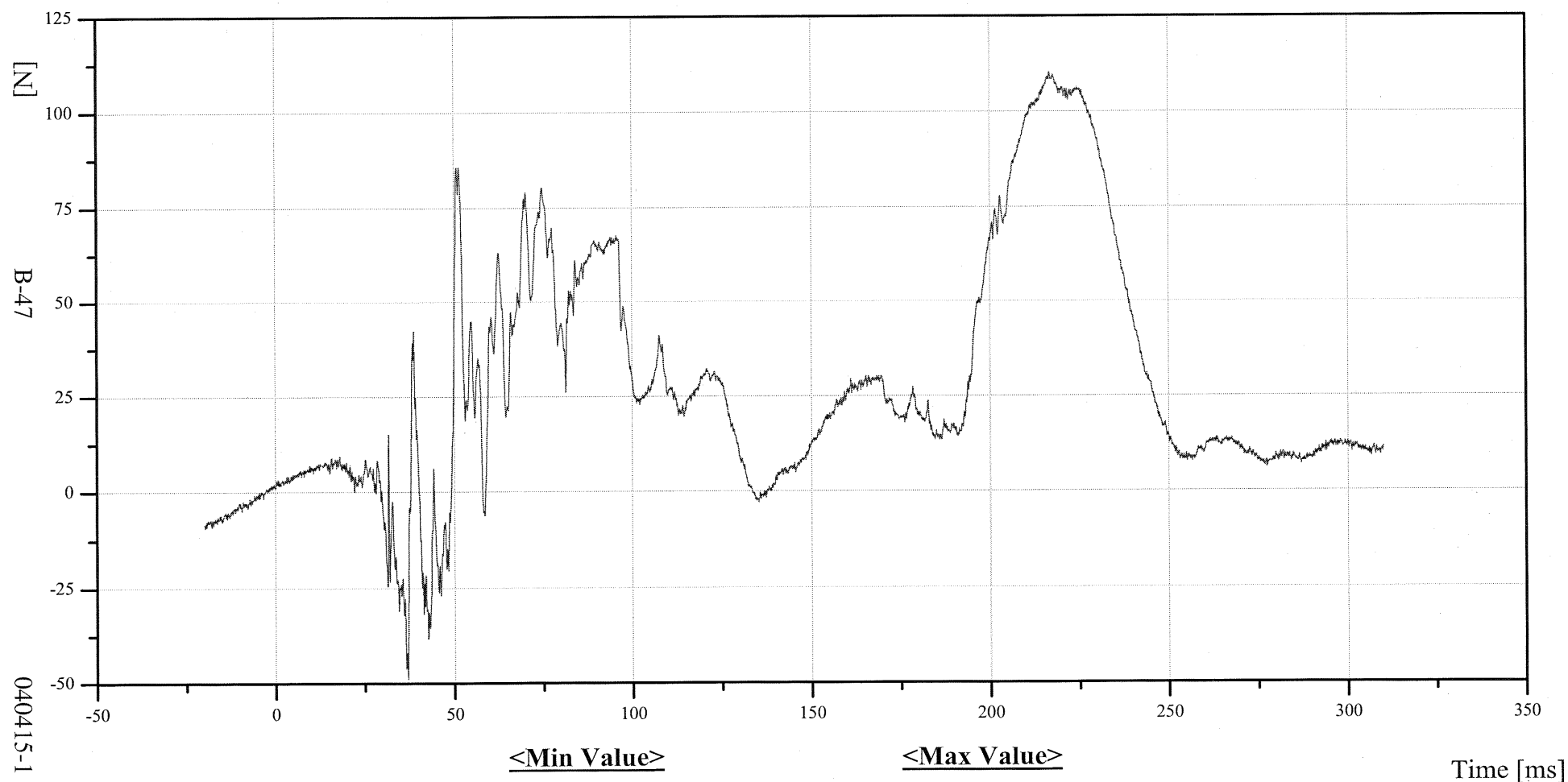
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

NEKYF2



CFC1000 [SAE J211 Polarity, Biased Removed and Filtered]

<Min Value>
-48.80 N at 36.96 ms

<Max Value>
110.35 N at 216.72 ms

Time [ms]



Transportation Research Center, Inc.

Neck Force Z

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

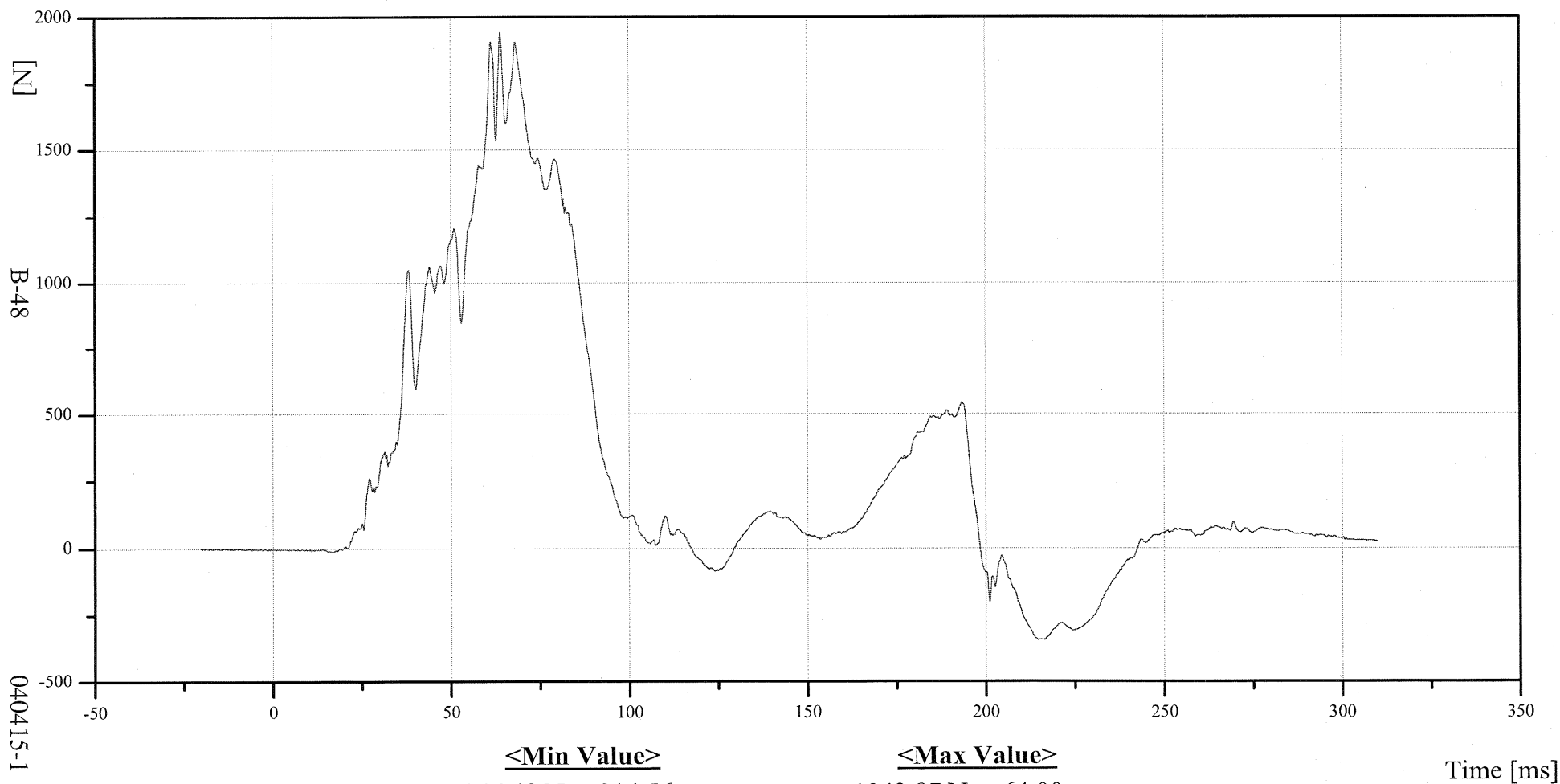
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

NEKZF2



CFC1000 [SAE J211 Polarity, Biased Removed and Filtered]



Transportation Research Center, Inc.

Neck Moment X

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

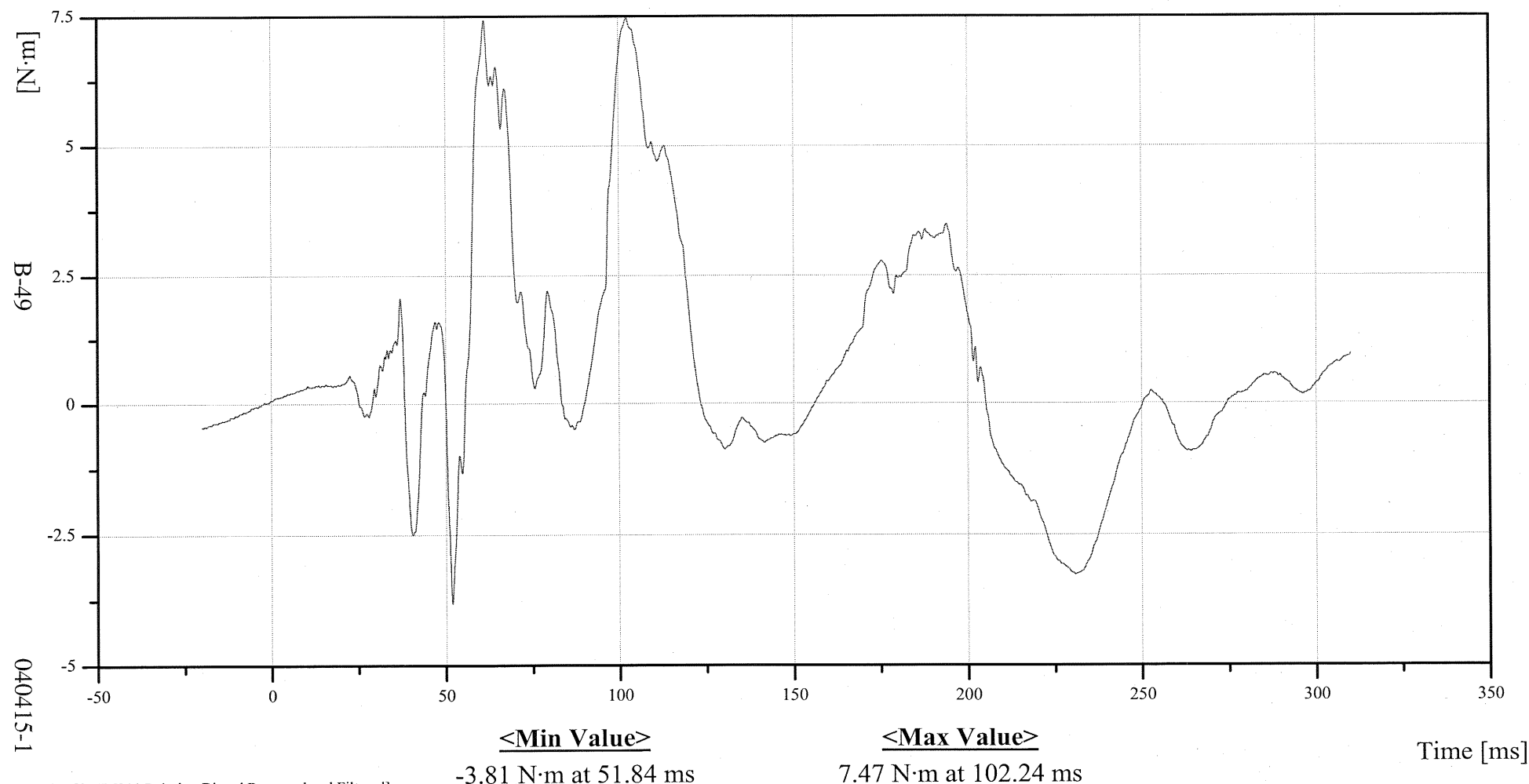
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

NEKXM2



CFC600 [SAE J211 Polarity, Biased Removed and Filtered]



Transportation Research Center, Inc.

Neck Moment Y

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

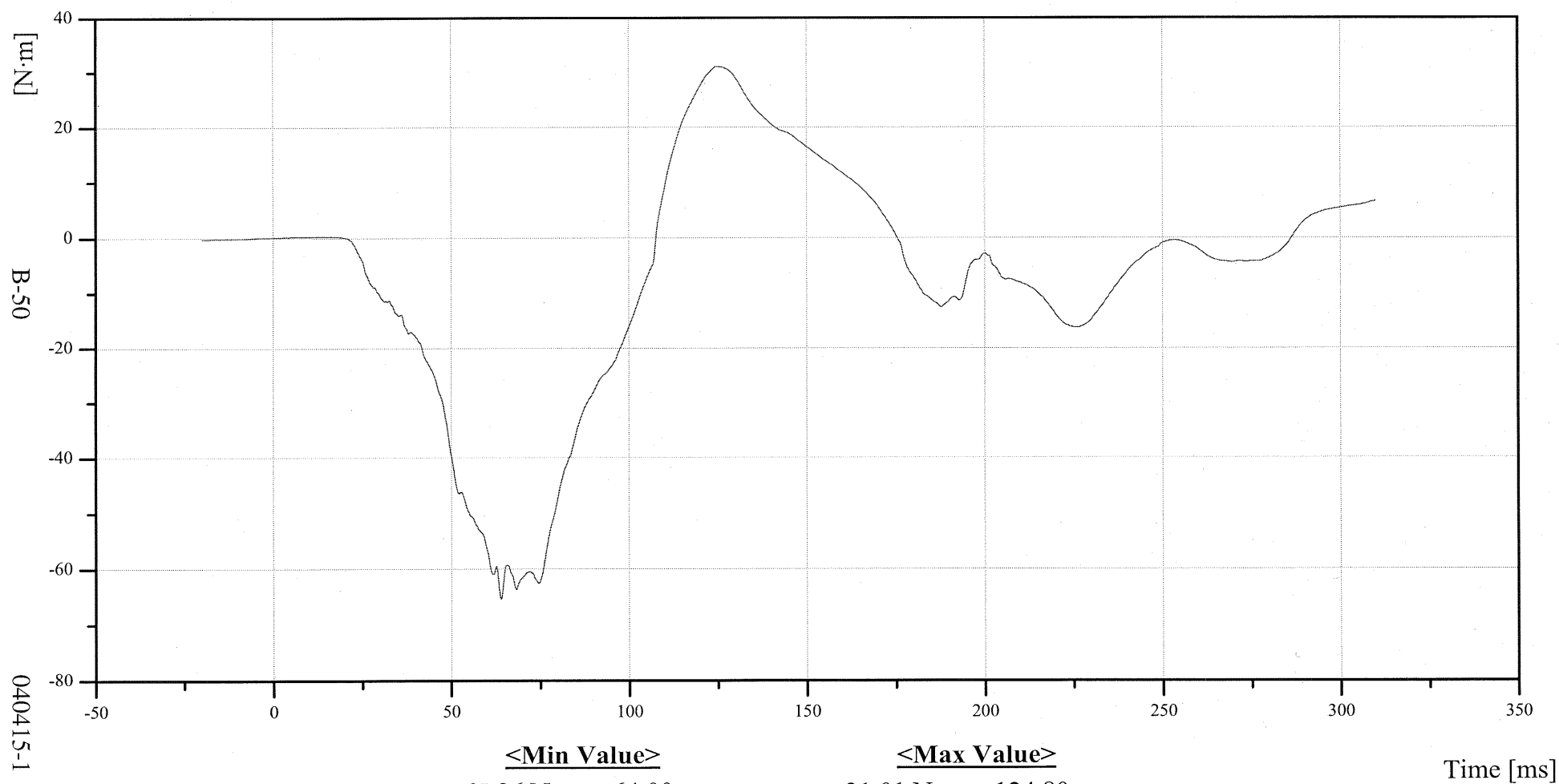
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

NEKYM2



CFC600 [SAE J211 Polarity, Biased Removed and Filtered]



Transportation Research Center, Inc.

Neck Moment Z

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

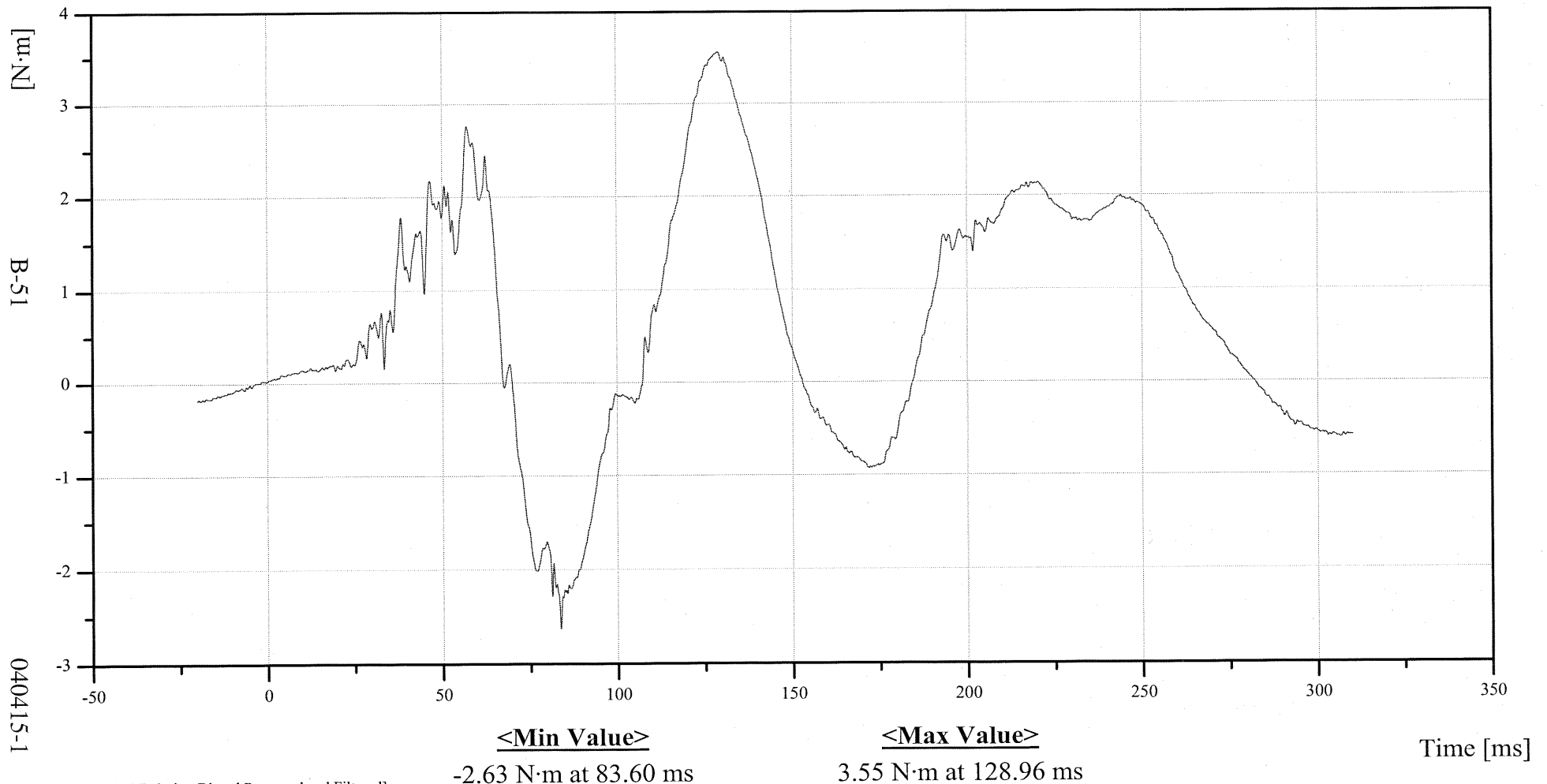
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

NEKZM2



CFC600 [SAE J211 Polarity, Biased Removed and Filtered]



Transportation Research Center, Inc.

Chest Accel X

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

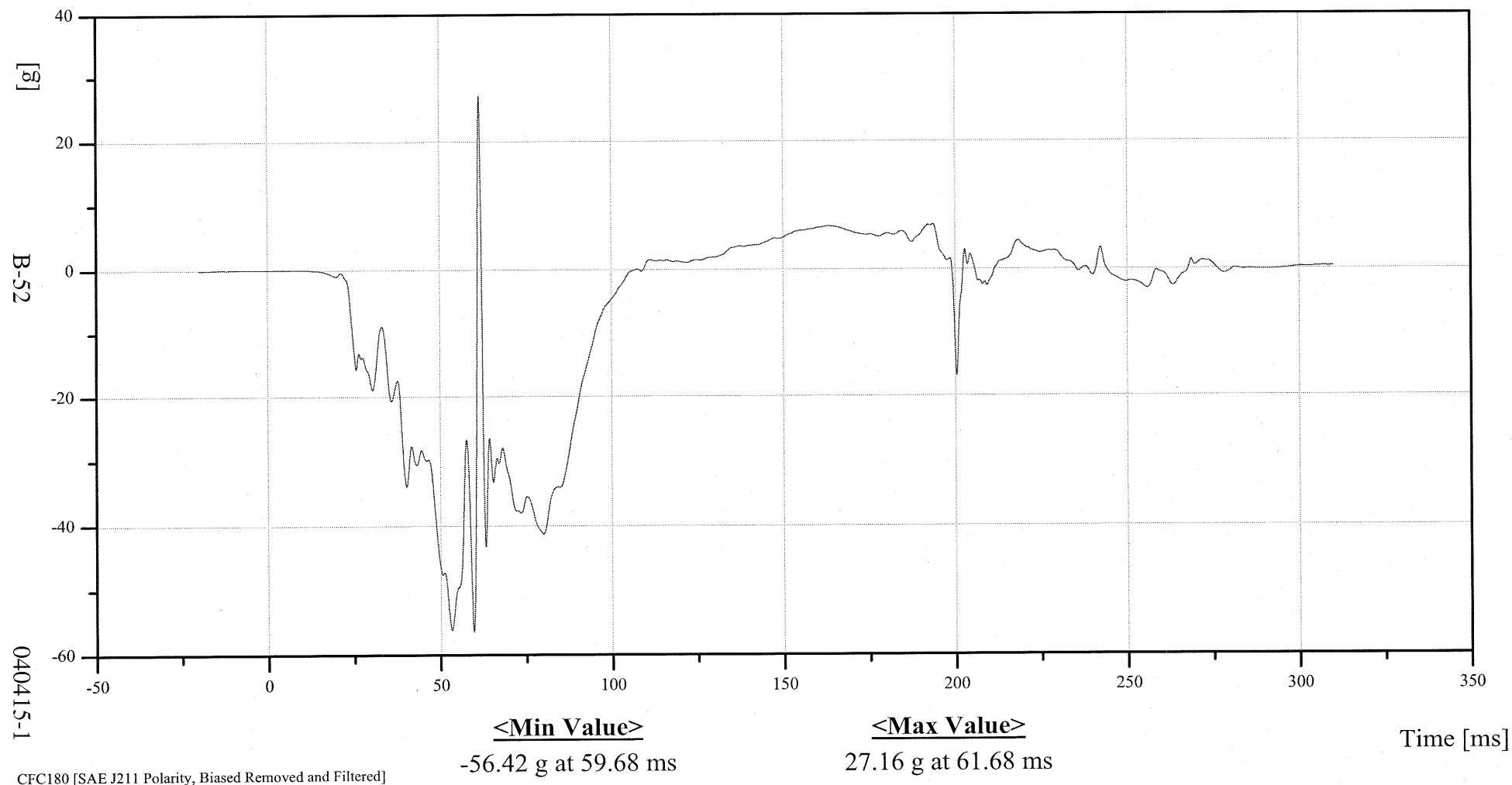
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

CSTXG2





Transportation Research Center, Inc.

Chest Accel Y

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

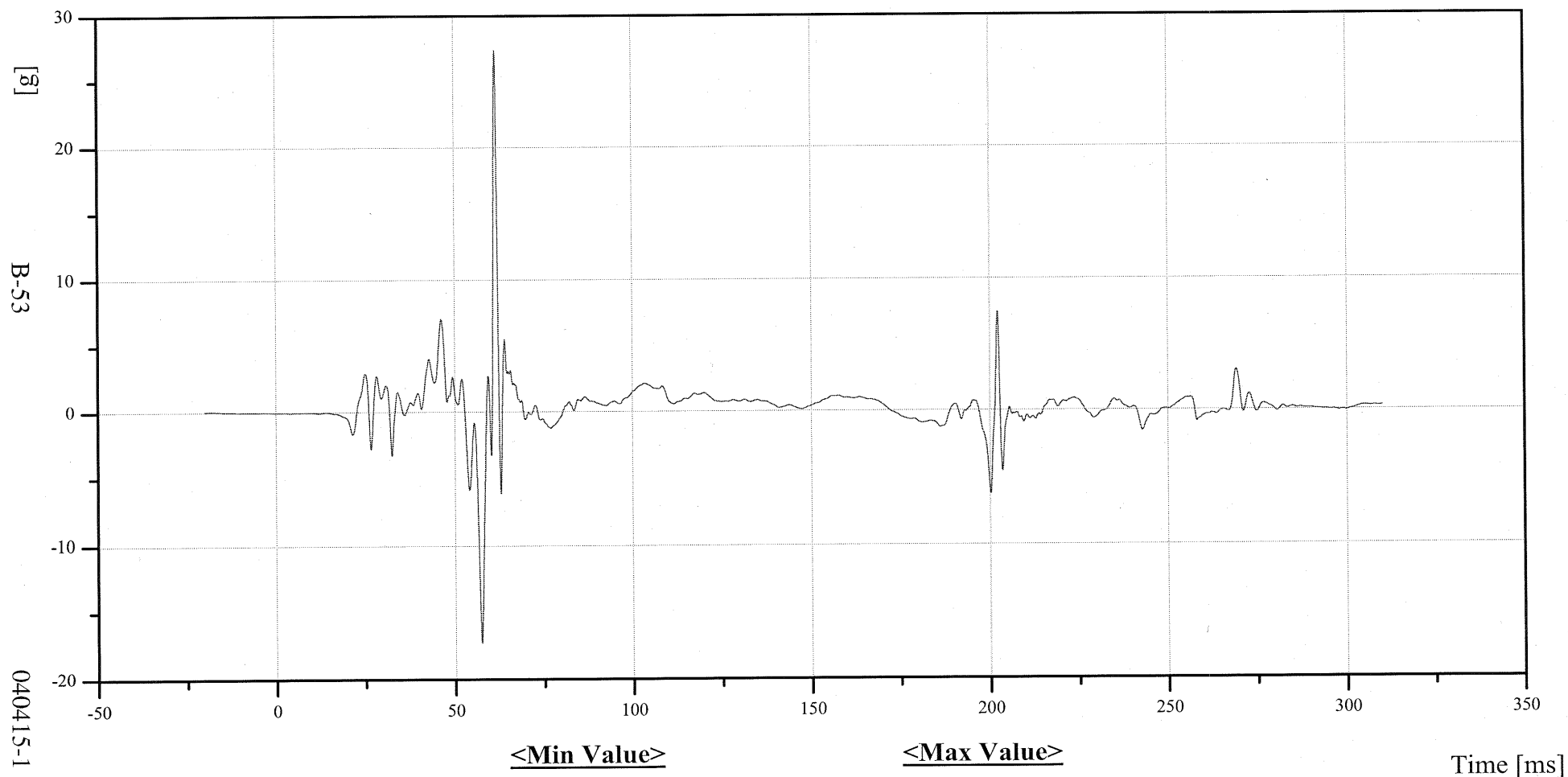
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

CSTYG2



CFC180 [SAE J211 Polarity, Biased Removed and Filtered]



Transportation Research Center, Inc.

Chest Accel Z

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

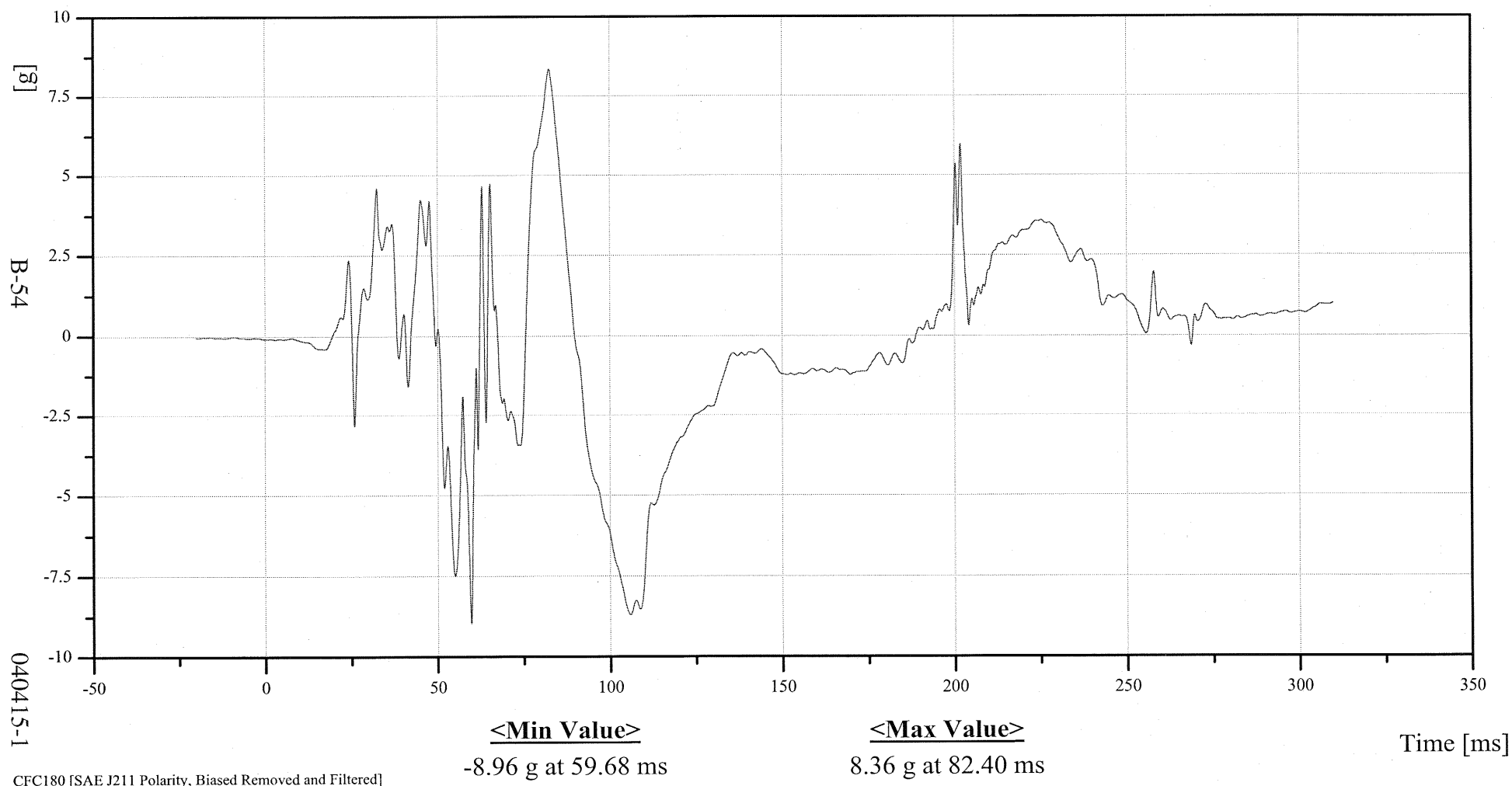
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

CSTZG2





Transportation Research Center, Inc.

Chest Resultant Acceleration

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

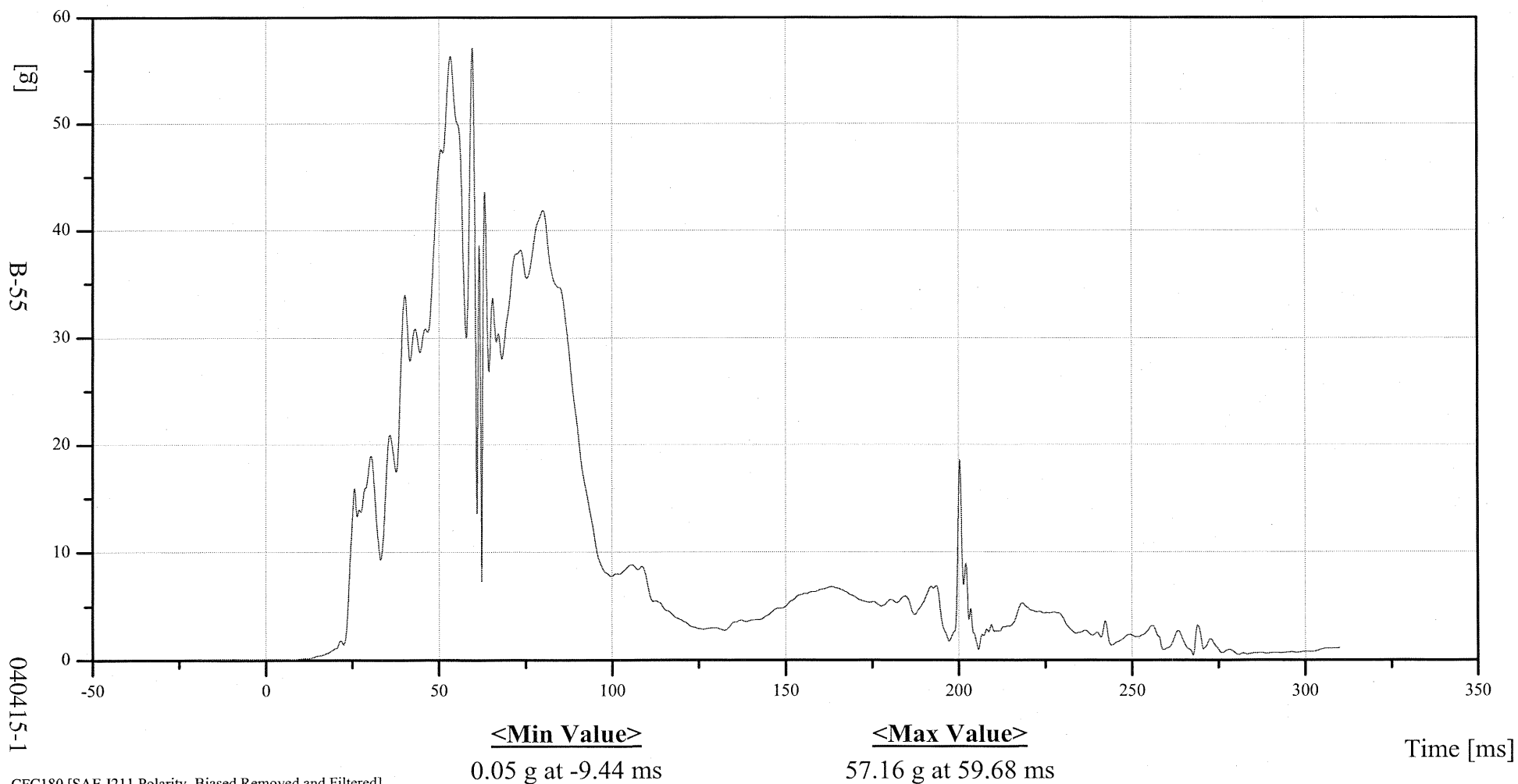
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

CSTRG2



CFC180 [SAE J211 Polarity, Biased Removed and Filtered]



Transportation Research Center, Inc.

Chest Accel Red X

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

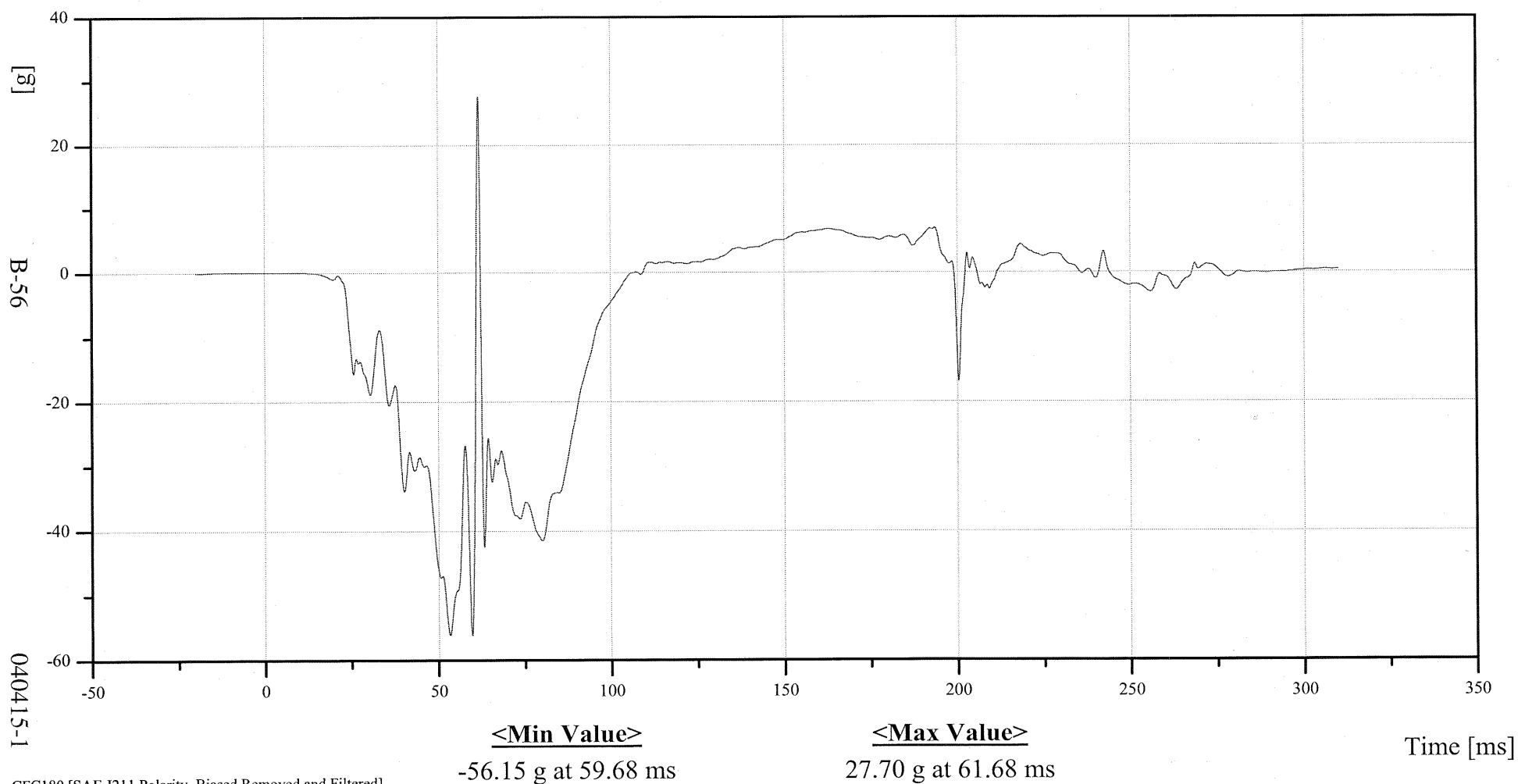
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

CSTXR2



CFC180 [SAE J211 Polarity, Biased Removed and Filtered]



Transportation Research Center, Inc.

Chest Accel Red Y

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

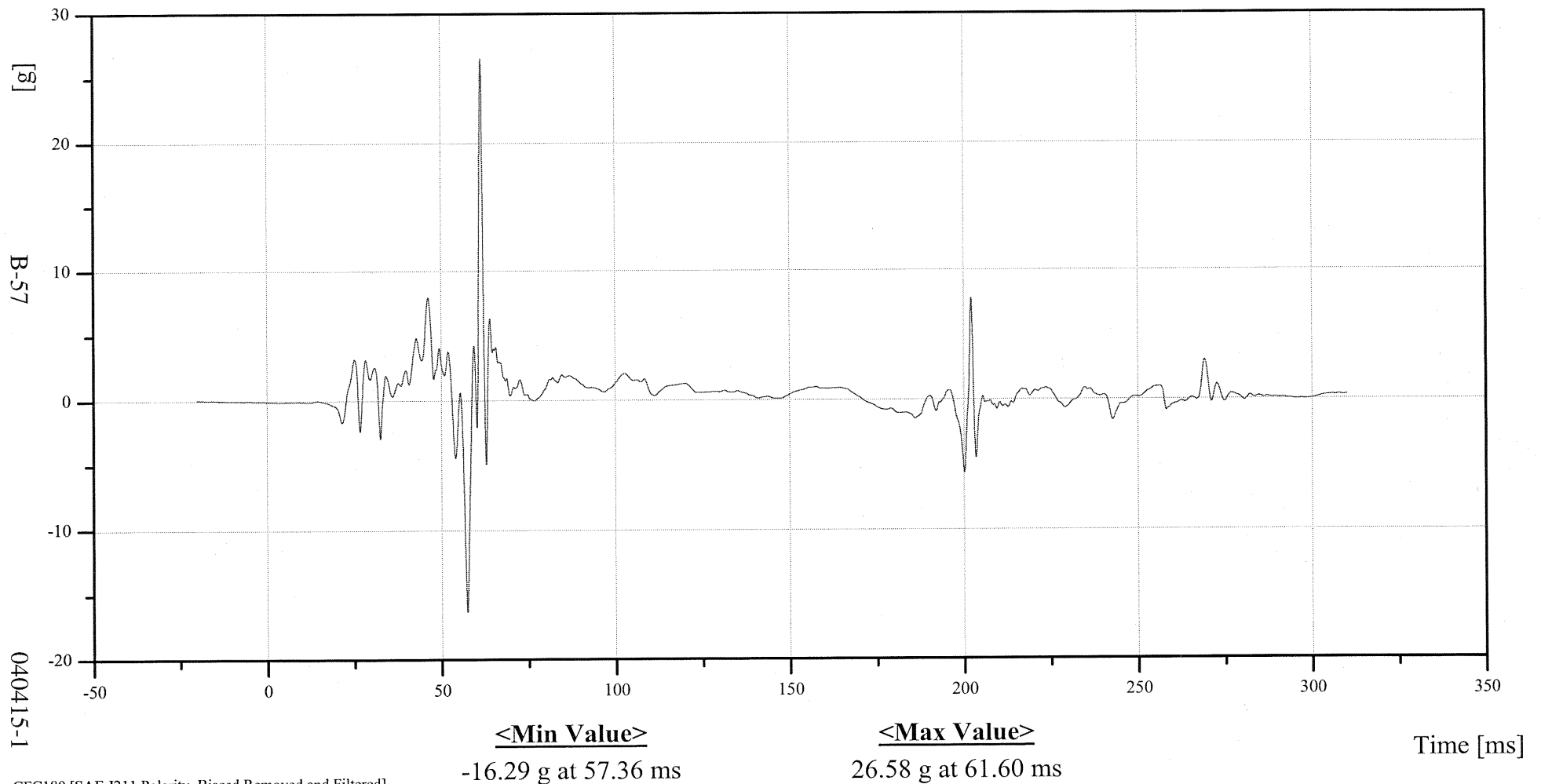
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

CSTYR2



CFC180 [SAE J211 Polarity, Biased Removed and Filtered]



Transportation Research Center, Inc.

Chest Accel Red Z

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

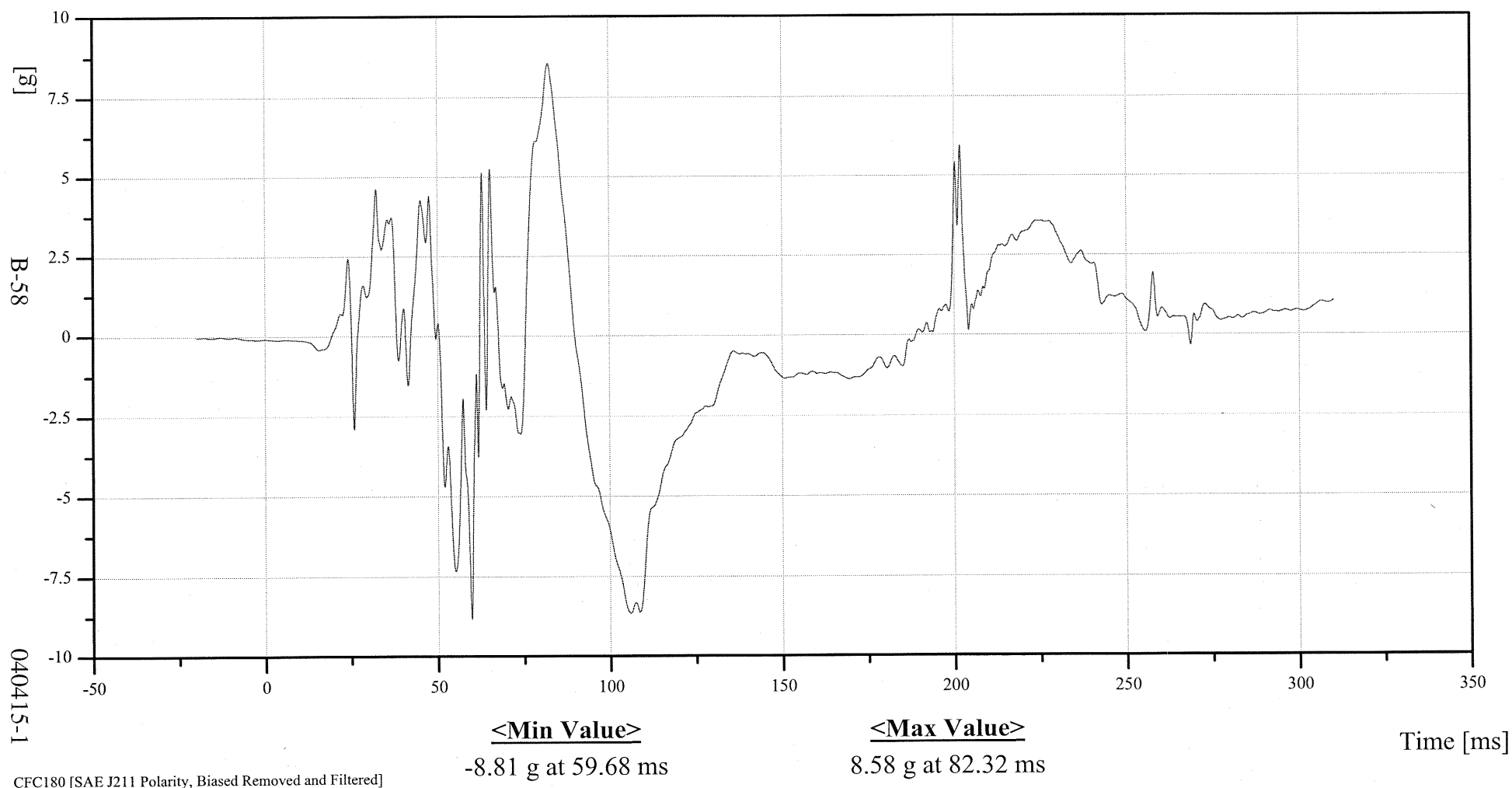
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

CSTZR2





Transportation Research Center, Inc.

Chest Deflection X

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

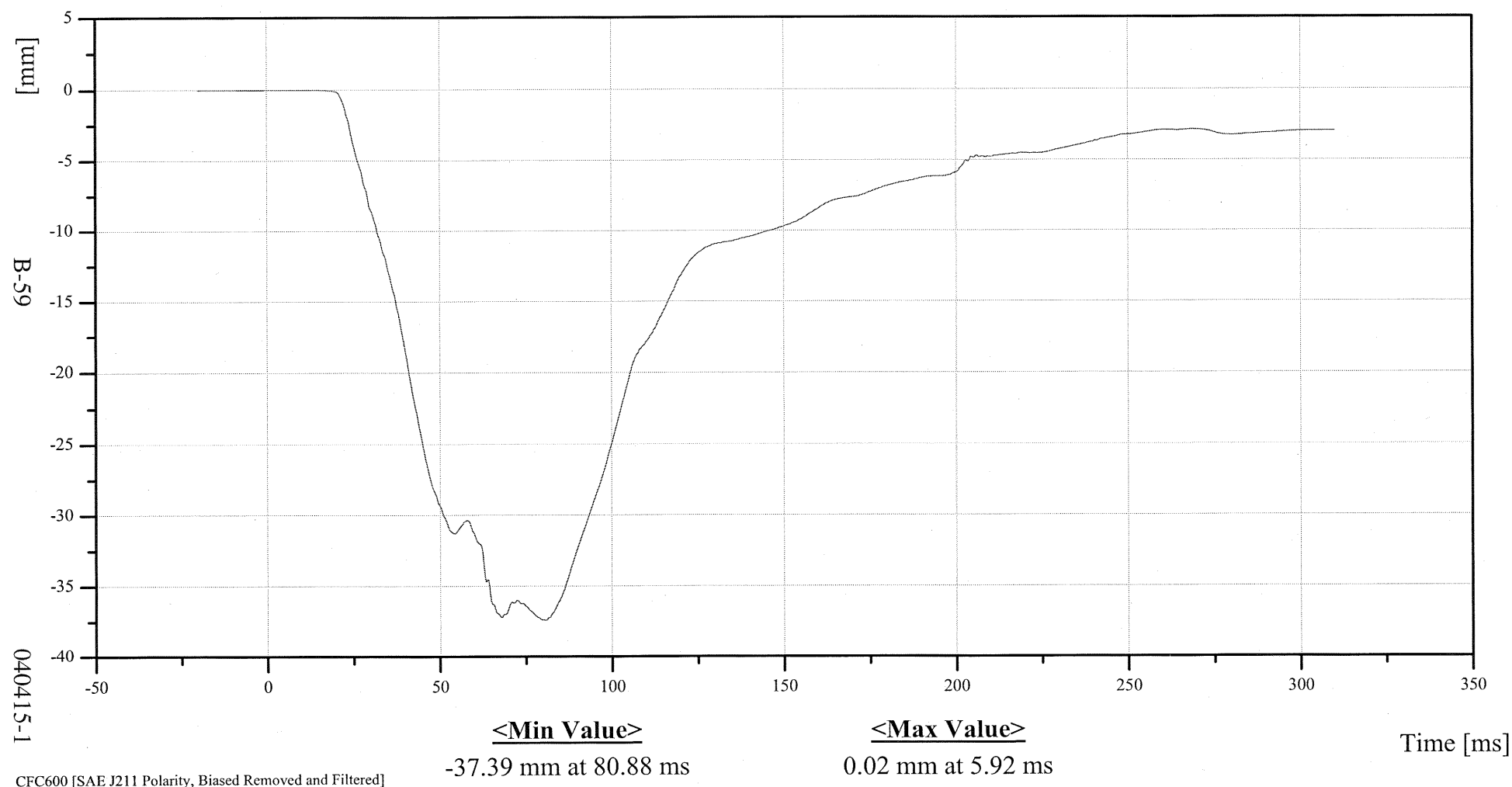
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

CSTXD2





Transportation Research Center, Inc.

Pelvis Accel X

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

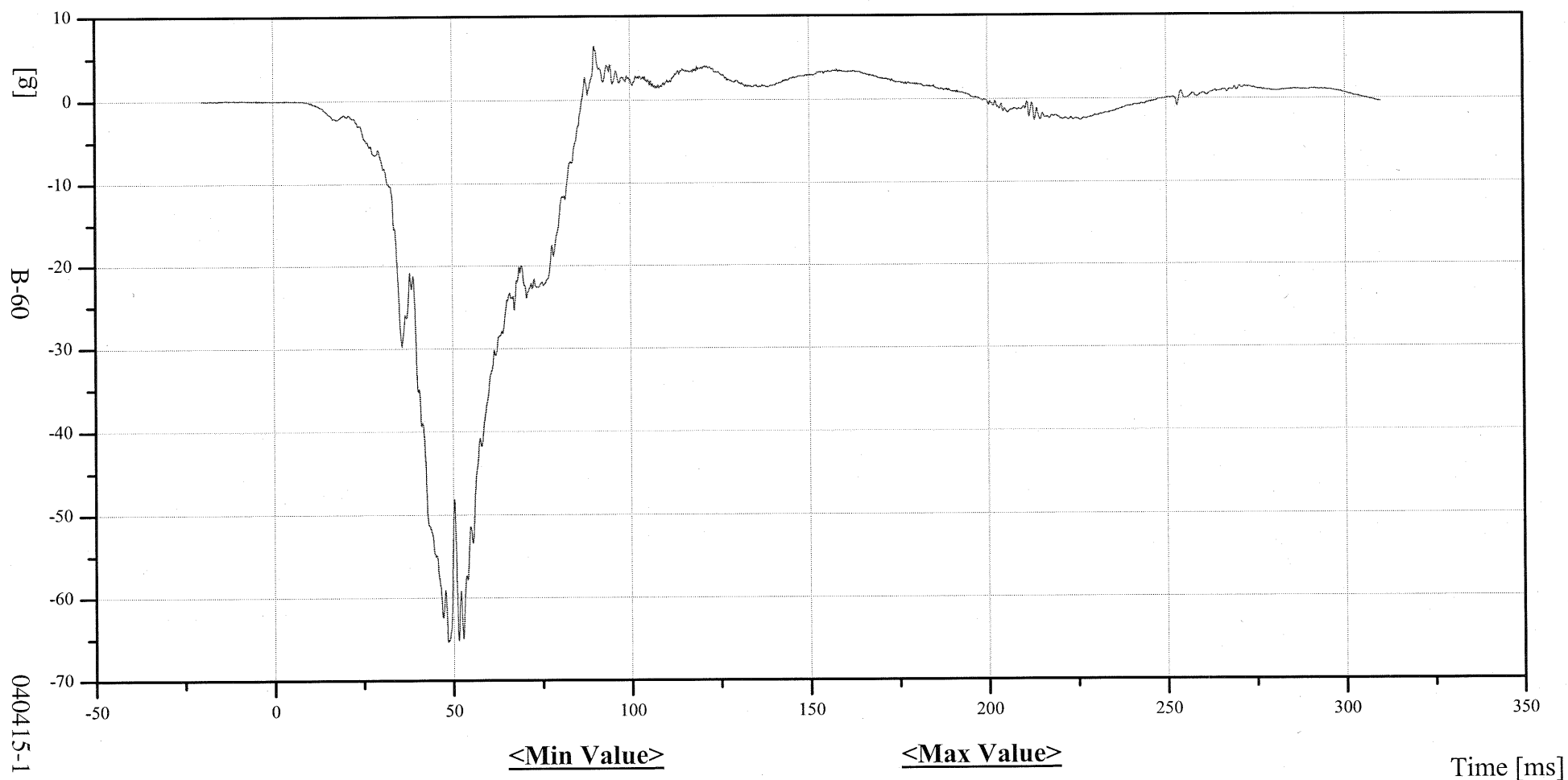
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

PEVXG2



040415-1

CFC1000 [SAE J211 Polarity, Biased Removed and Filtered]



Transportation Research Center, Inc.

Pelvis Accel Y

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

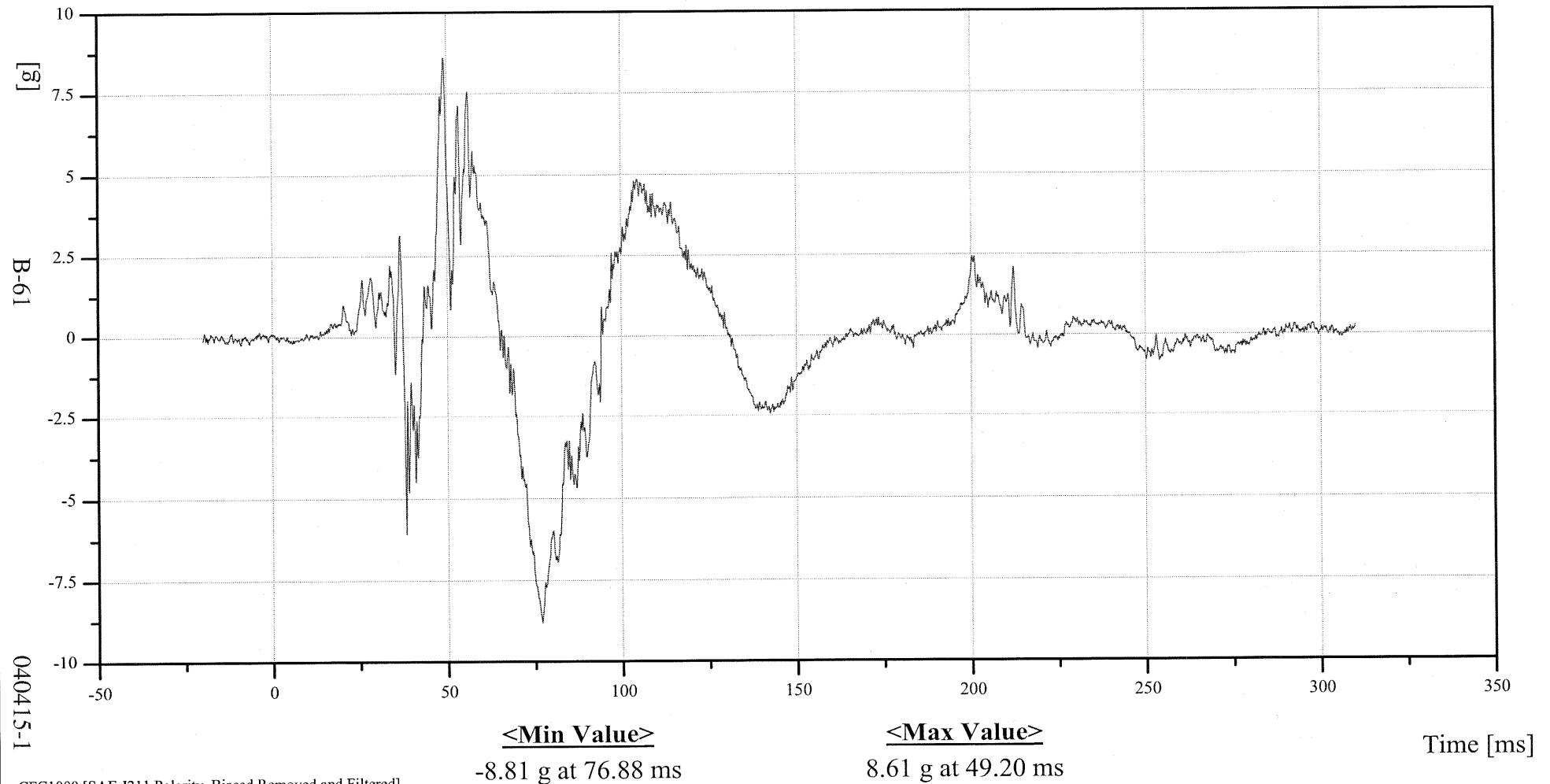
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

PEVYG2





Transportation Research Center, Inc.

Pelvis Accel Z

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

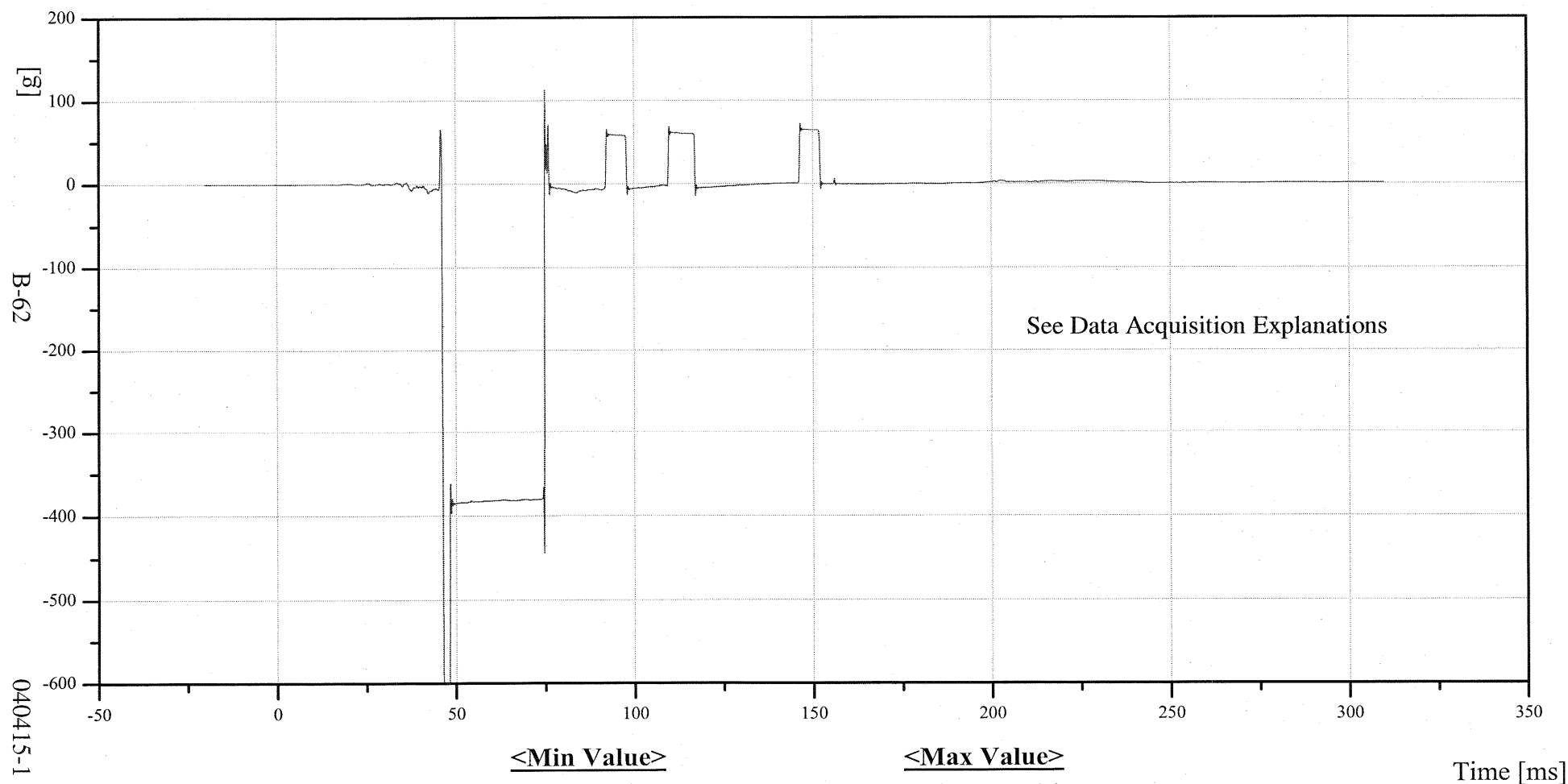
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

PEVZG2



040415-1
CFC1000 [SAE J211 Polarity, Biased Removed and Filtered]



Transportation Research Center, Inc.

Pelvis Resultant Acceleration

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

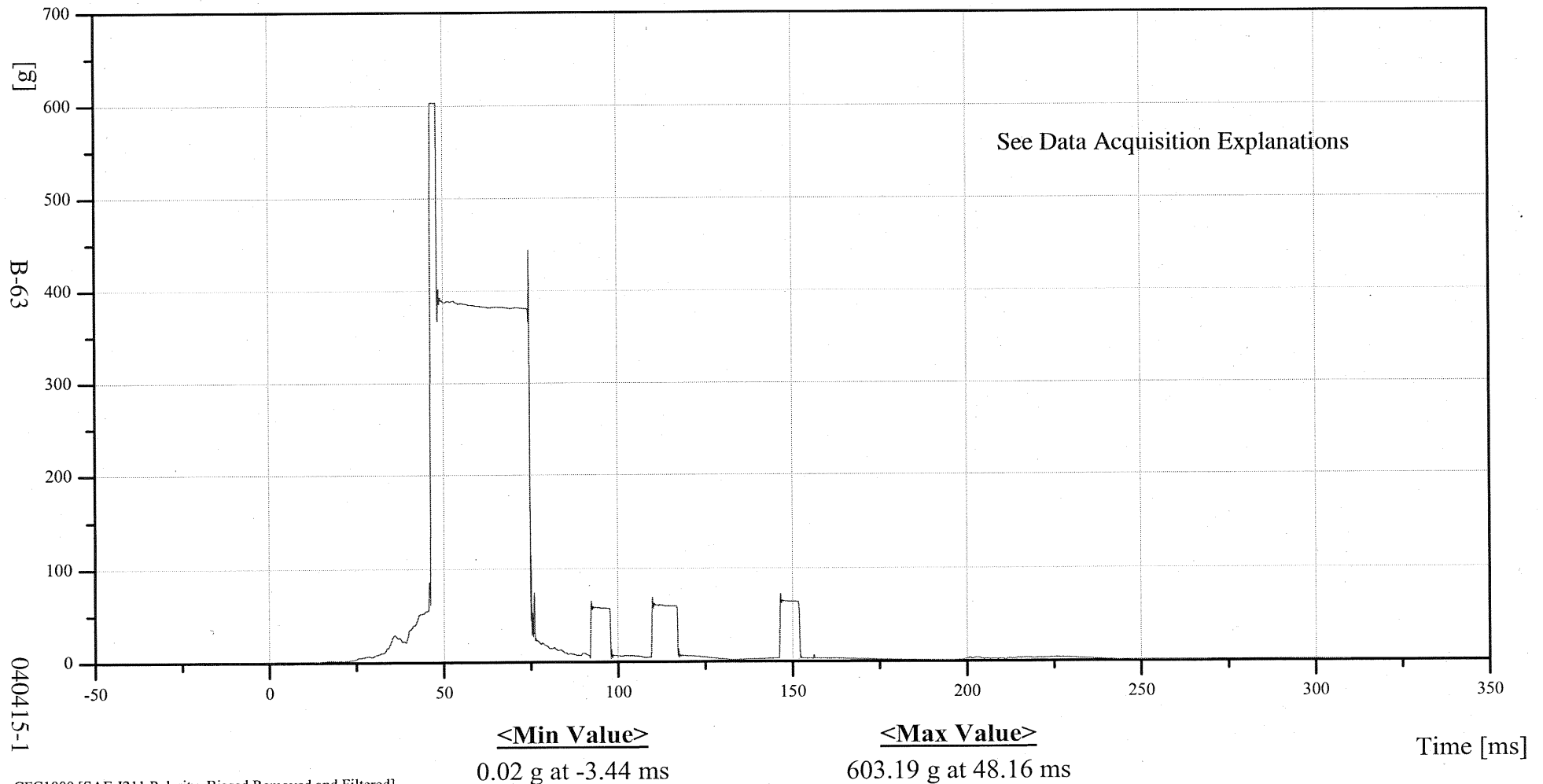
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

PEVRG2



CFC1000 [SAE J211 Polarity, Biased Removed and Filtered]



Transportation Research Center, Inc.

Left Femur Force Z

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

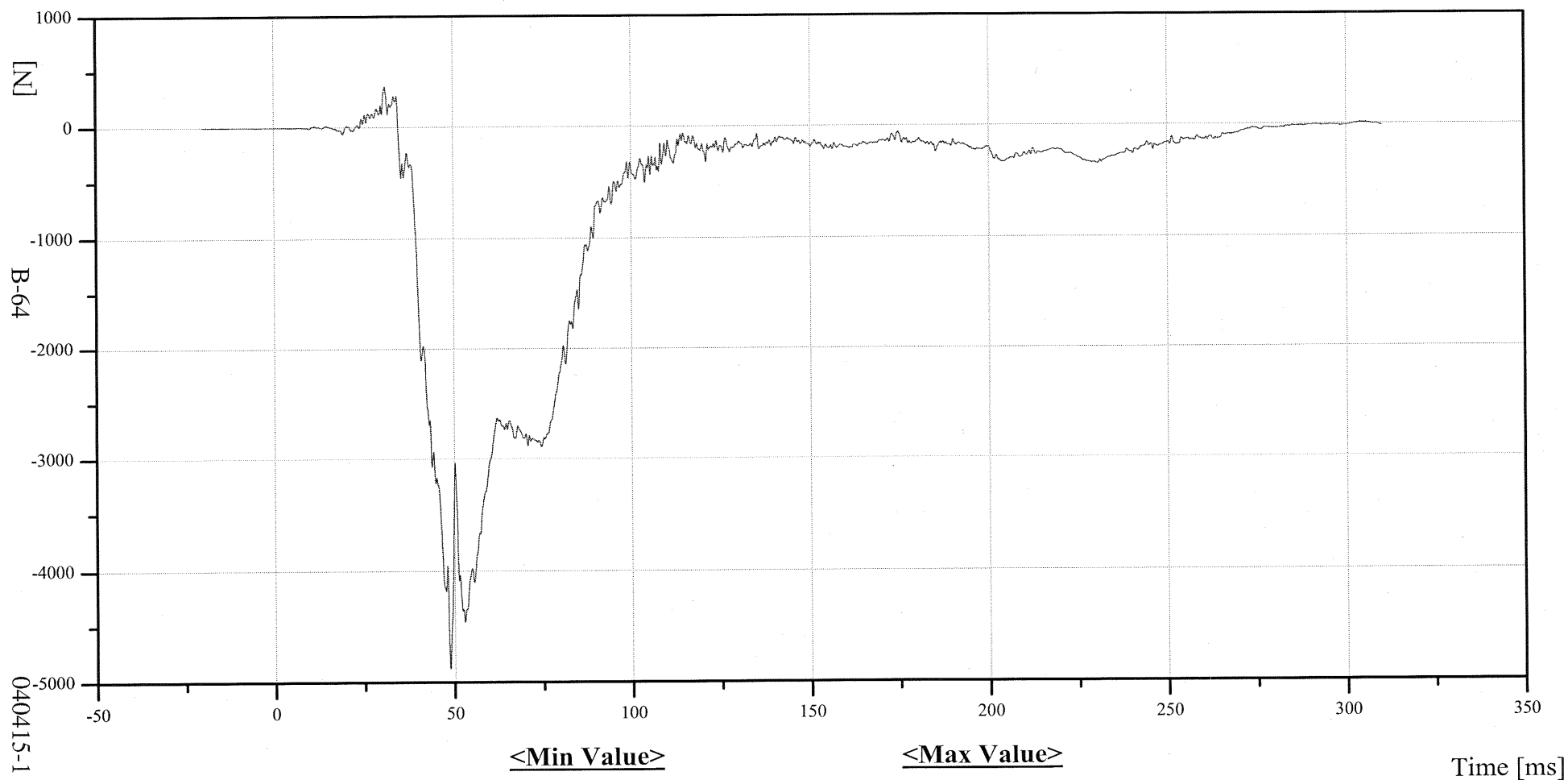
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

LFMZ2



CFC600 [SAE J211 Polarity, Biased Removed and Filtered]



Transportation Research Center, Inc.

Right Femur Force Z

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

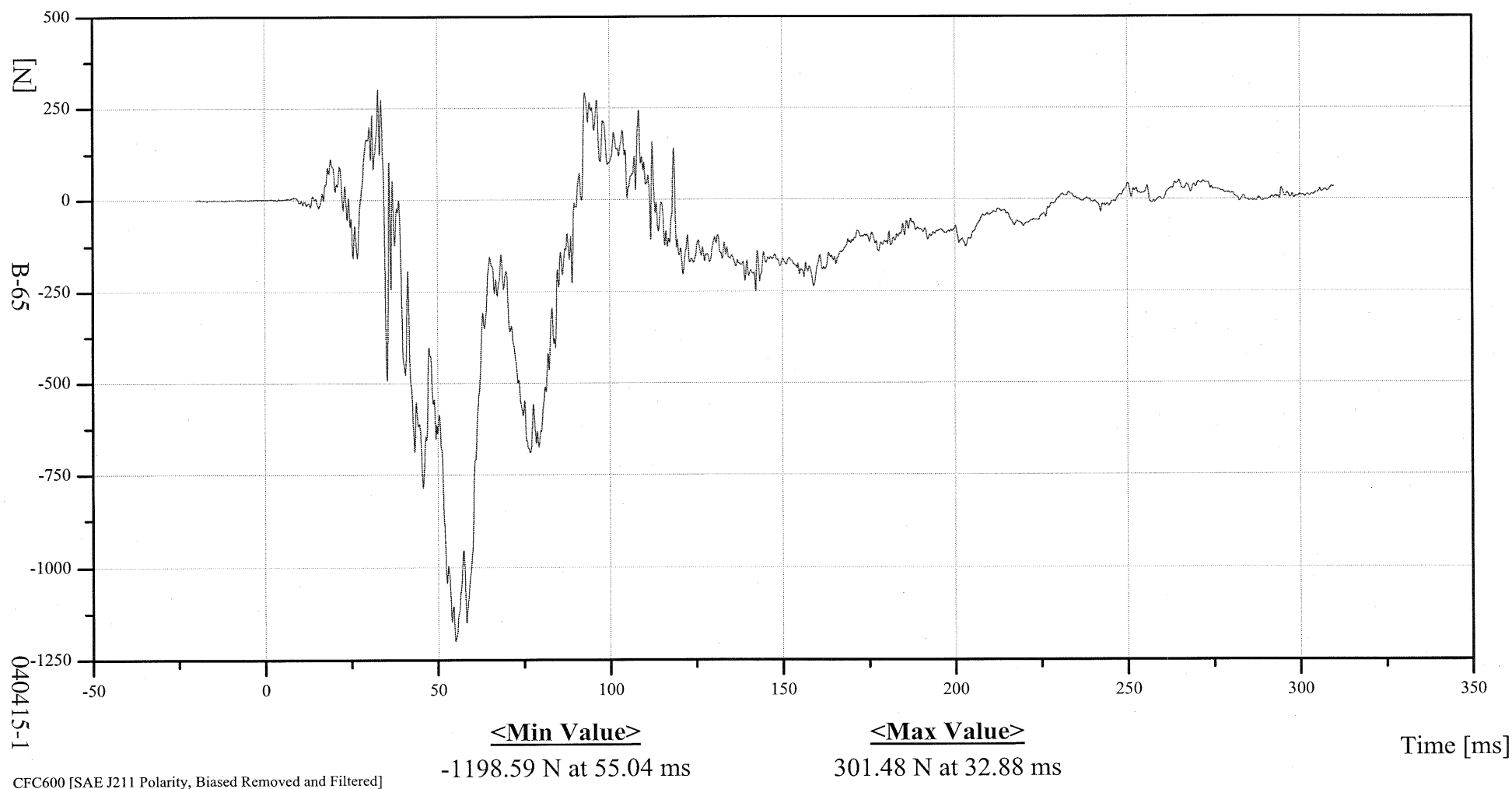
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

RFMZF2





Transportation Research Center, Inc.

LEFT REAR SEAT CROSS-MEMBER X-AXIS

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

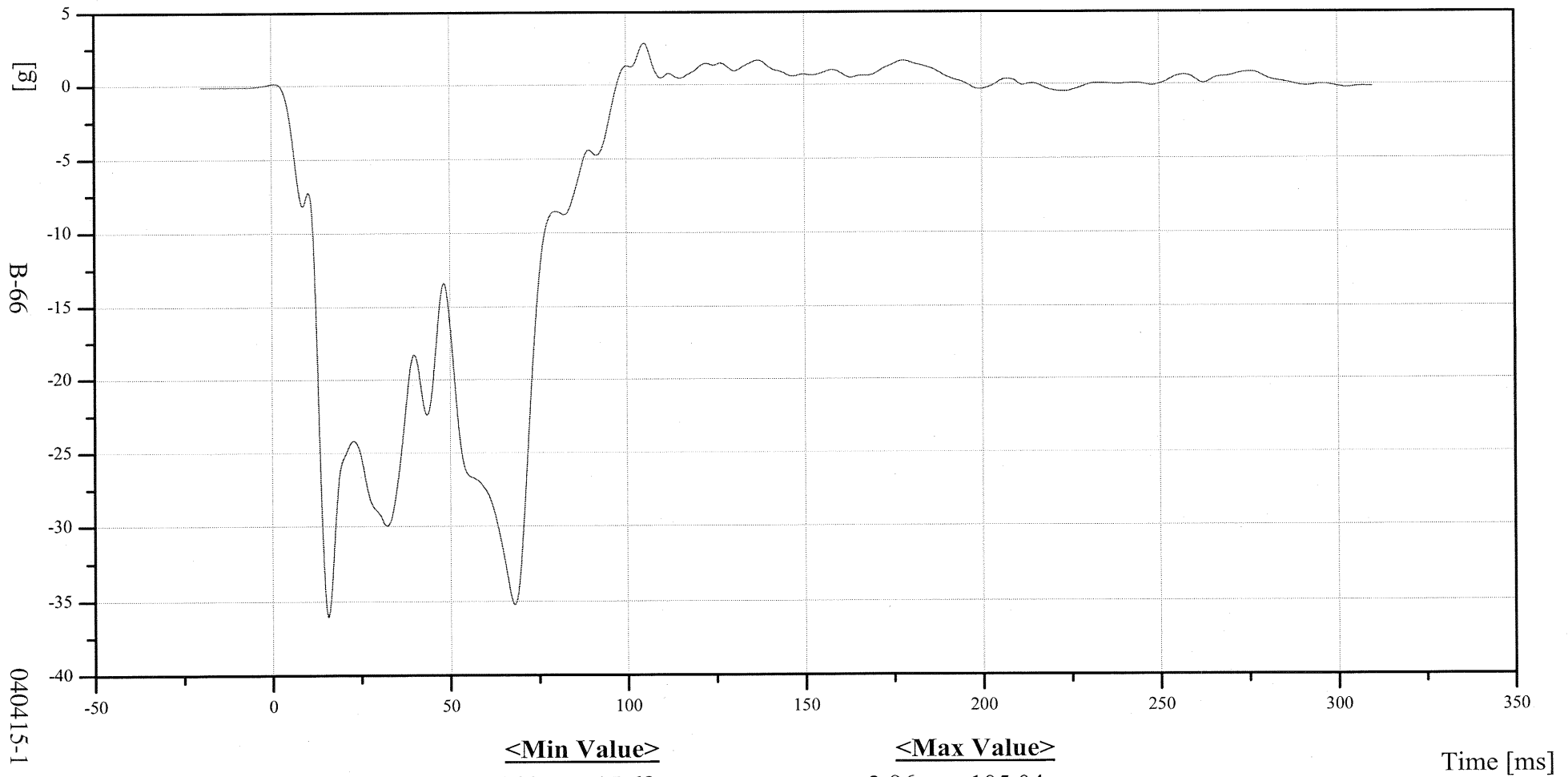
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

LSXXG



CFC60 [SAE J211 Polarity, Biased Removed and Filtered]



Transportation Research Center, Inc.

RIGHT REAR SEAT CROSS-MEMBER X-AXIS

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

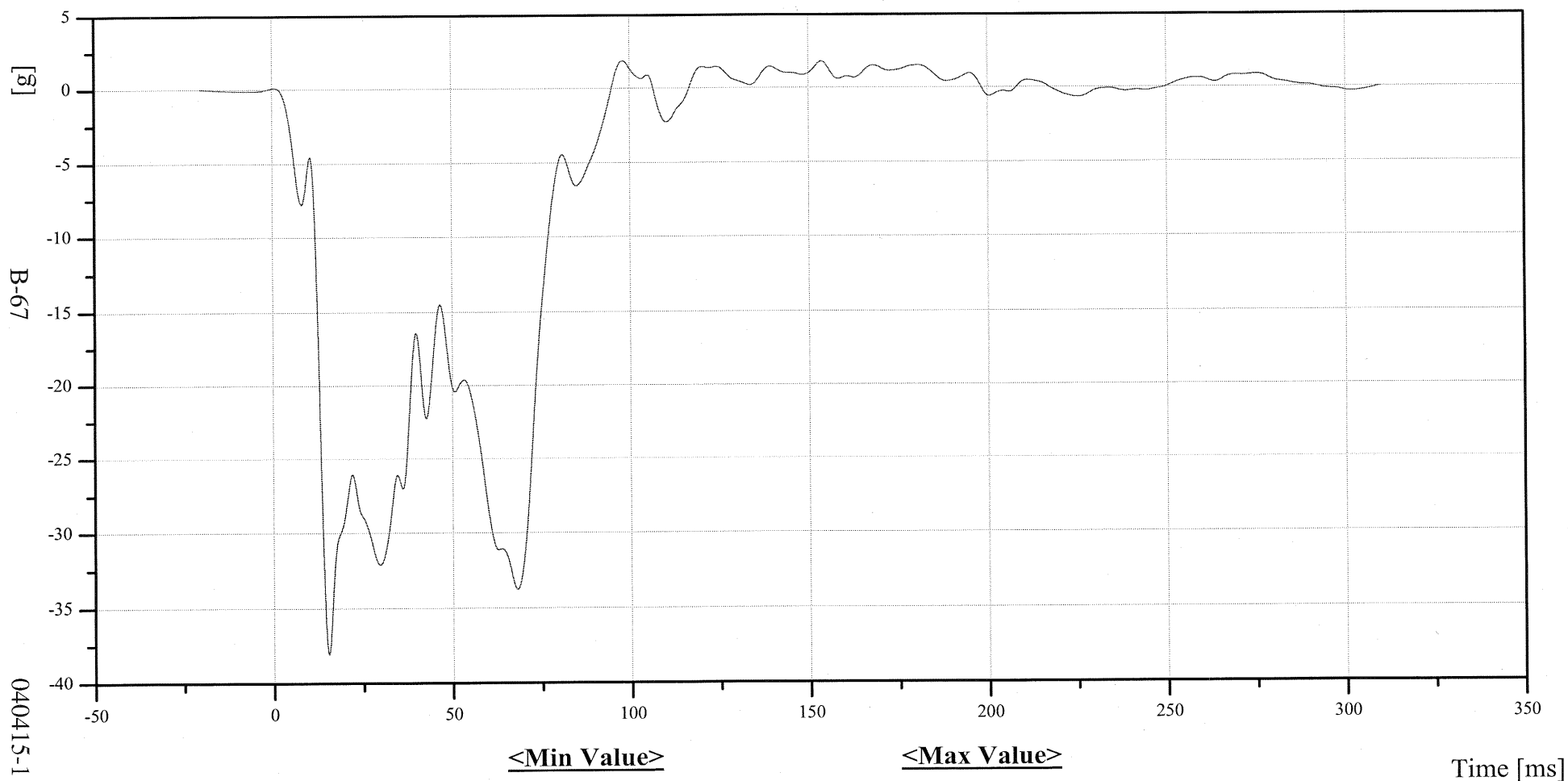
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

RSXXG



CFC60 [SAE J211 Polarity, Biased Removed and Filtered]



Transportation Research Center, Inc.

TOP OF ENGINE X-AXIS

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

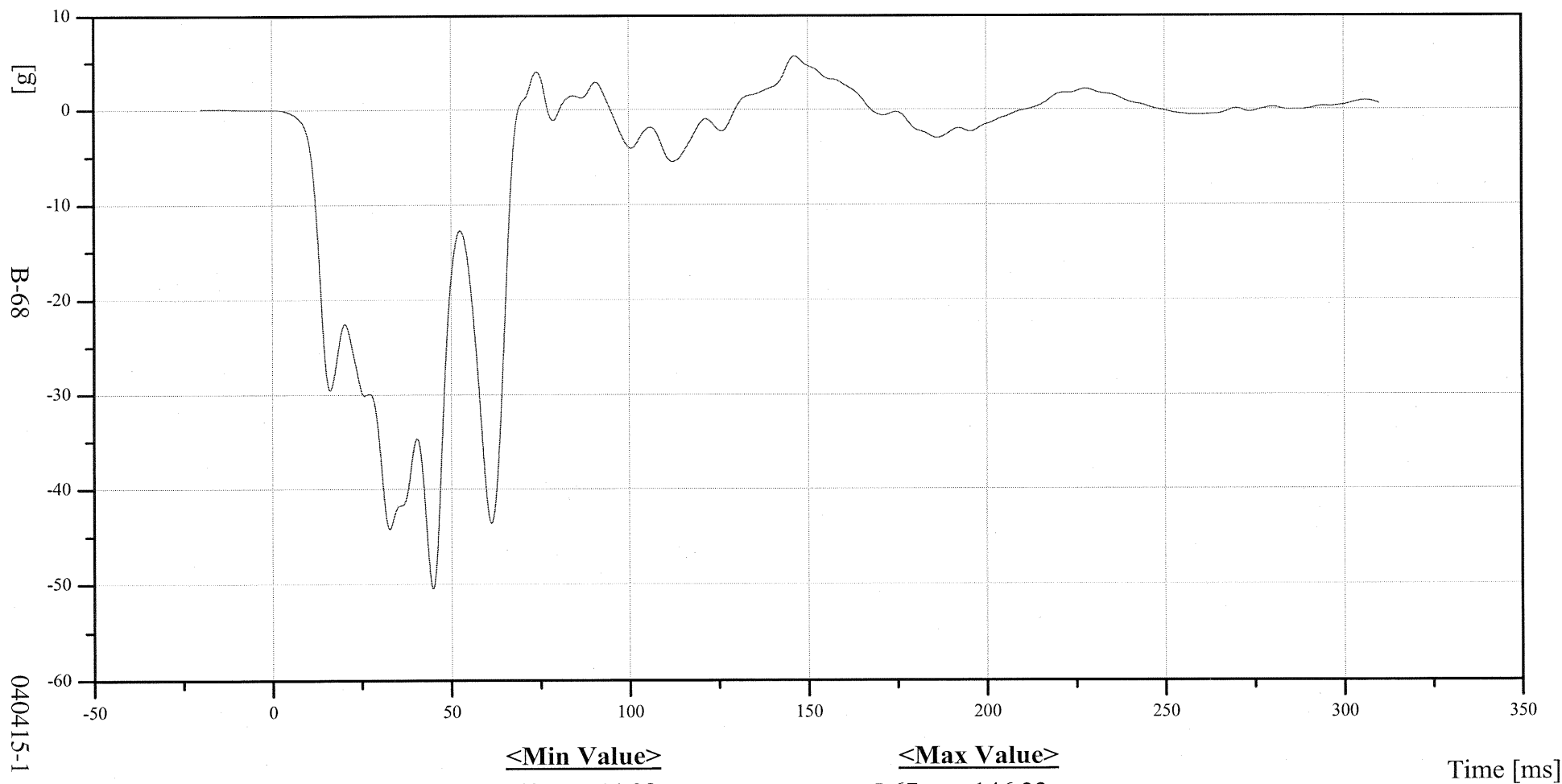
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

TENXG



CFC60 [SAE J211 Polarity, Biased Removed and Filtered]



Transportation Research Center, Inc.

BOTTOM OF ENGINE X-AXIS

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

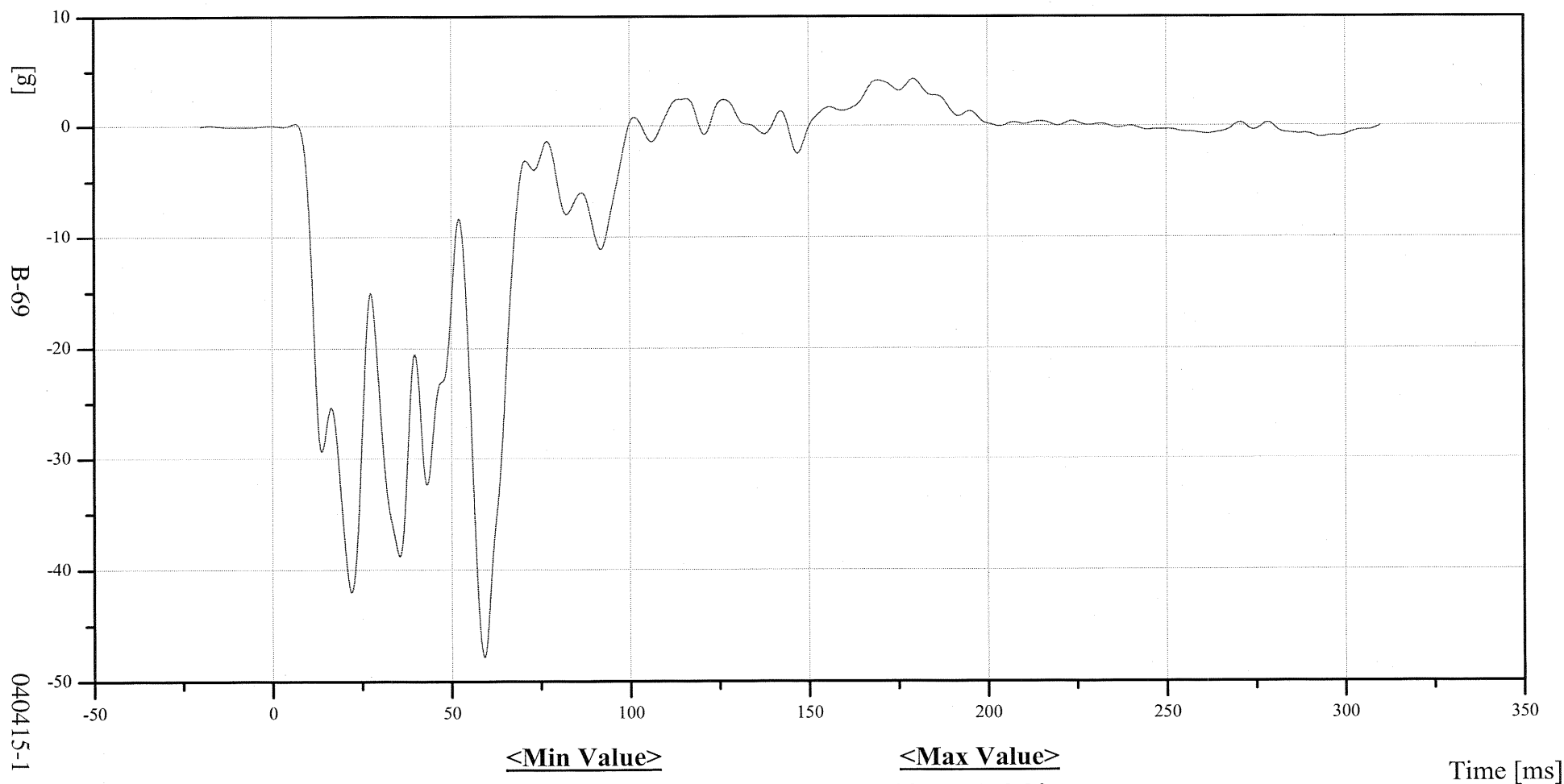
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

BENXG



CFC60 [SAE J211 Polarity, Biased Removed and Filtered]



Transportation Research Center, Inc.

RIGHT FRONT BRAKE CALIPER X-AXIS

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

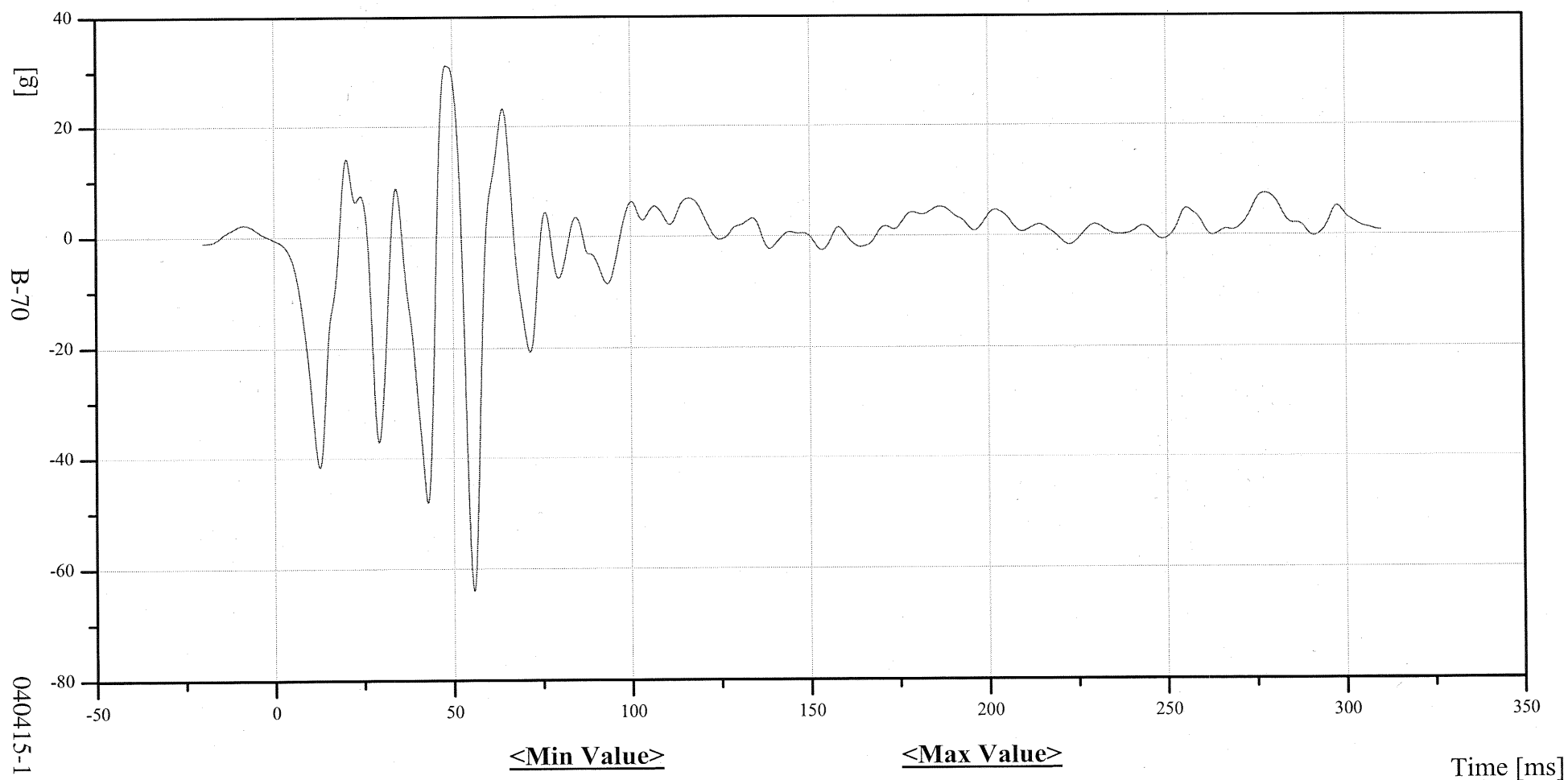
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

RFCXG



CFC60 [SAE J211 Polarity, Biased Removed and Filtered]



Transportation Research Center, Inc.

LEFT FRONT BRAKE CALIPER X-AXIS

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

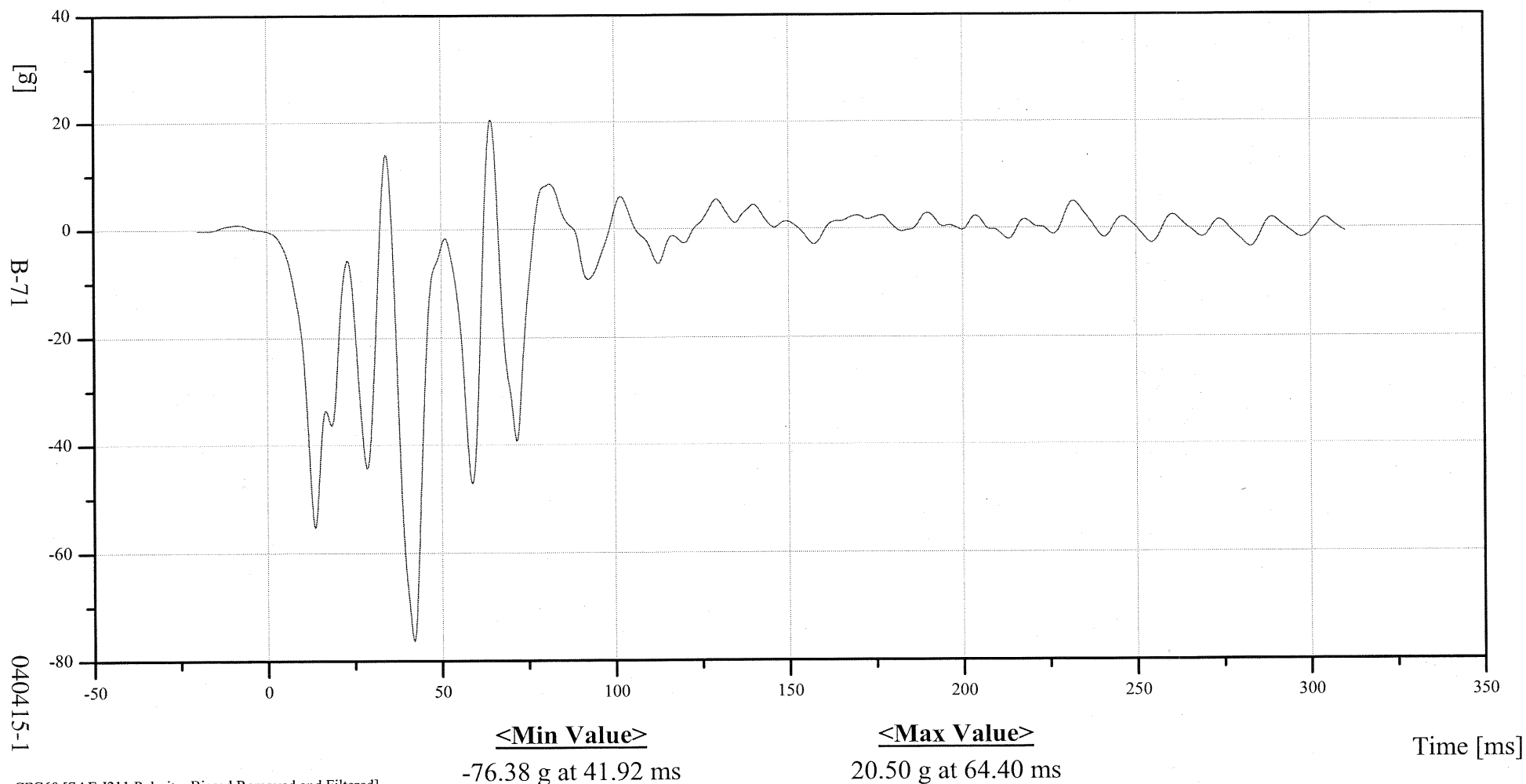
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

LFCXG



CFC60 [SAE J211 Polarity, Biased Removed and Filtered]



Transportation Research Center, Inc.

INSTRUMENT PANEL TOP CENTER X-AXIS

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

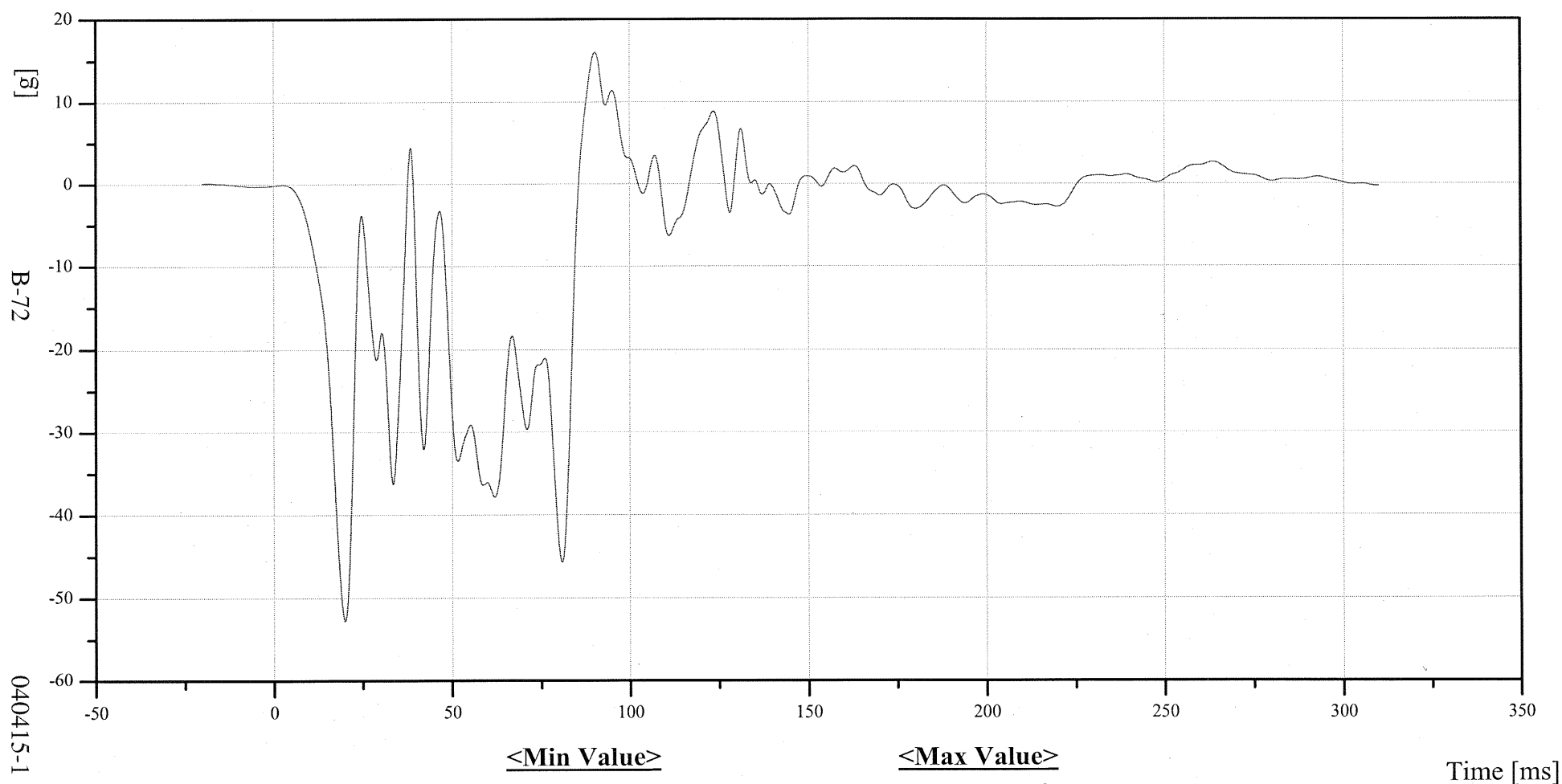
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

DPCXG



040415-1

CFC60 [SAE J211 Polarity, Biased Removed and Filtered]

<Min Value>
-52.72 g at 19.92 ms

<Max Value>
16.06 g at 90.16 ms

Time [ms]



Transportation Research Center, Inc.

VEHICLE CG X-AXIS

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

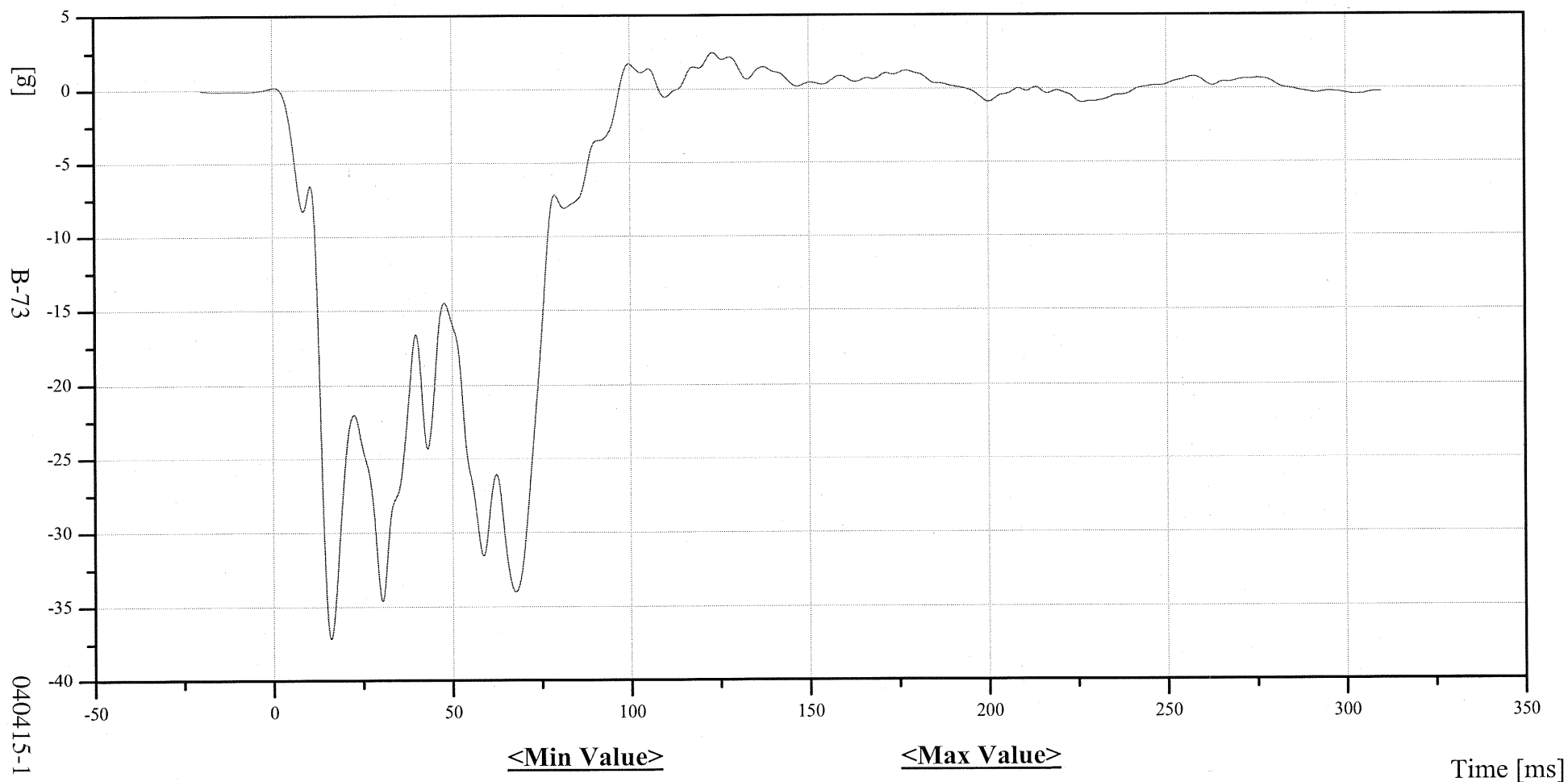
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

VCGXG1



CFC60 [SAE J211 Polarity, Biased Removed and Filtered]



Transportation Research Center, Inc.

VEHICLE CG Y-AXIS

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

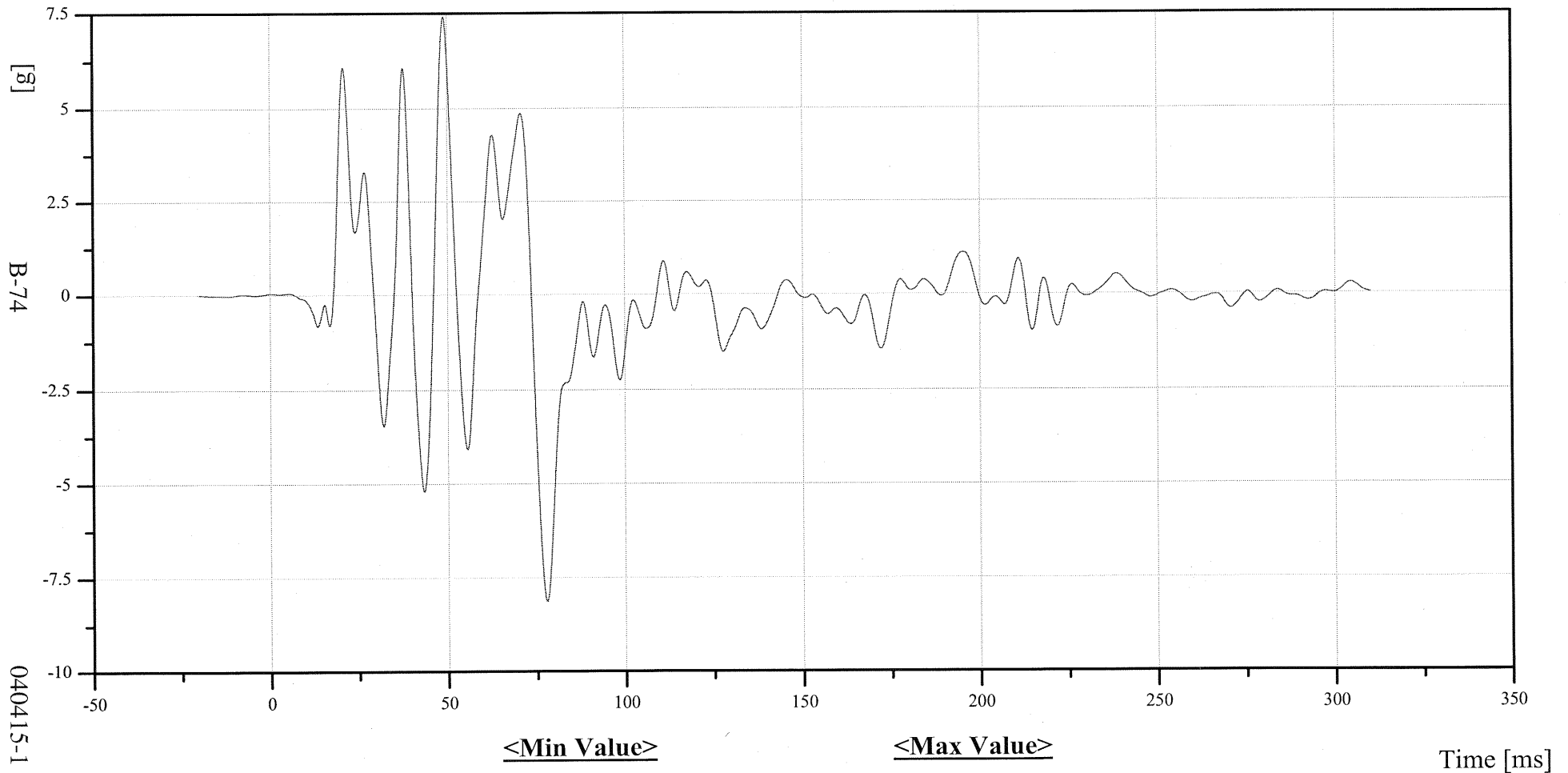
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

VCGYG1



CFC60 [SAE J211 Polarity, Biased Removed and Filtered]



Transportation Research Center, Inc.

VEHICLE CG Z-AXIS

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

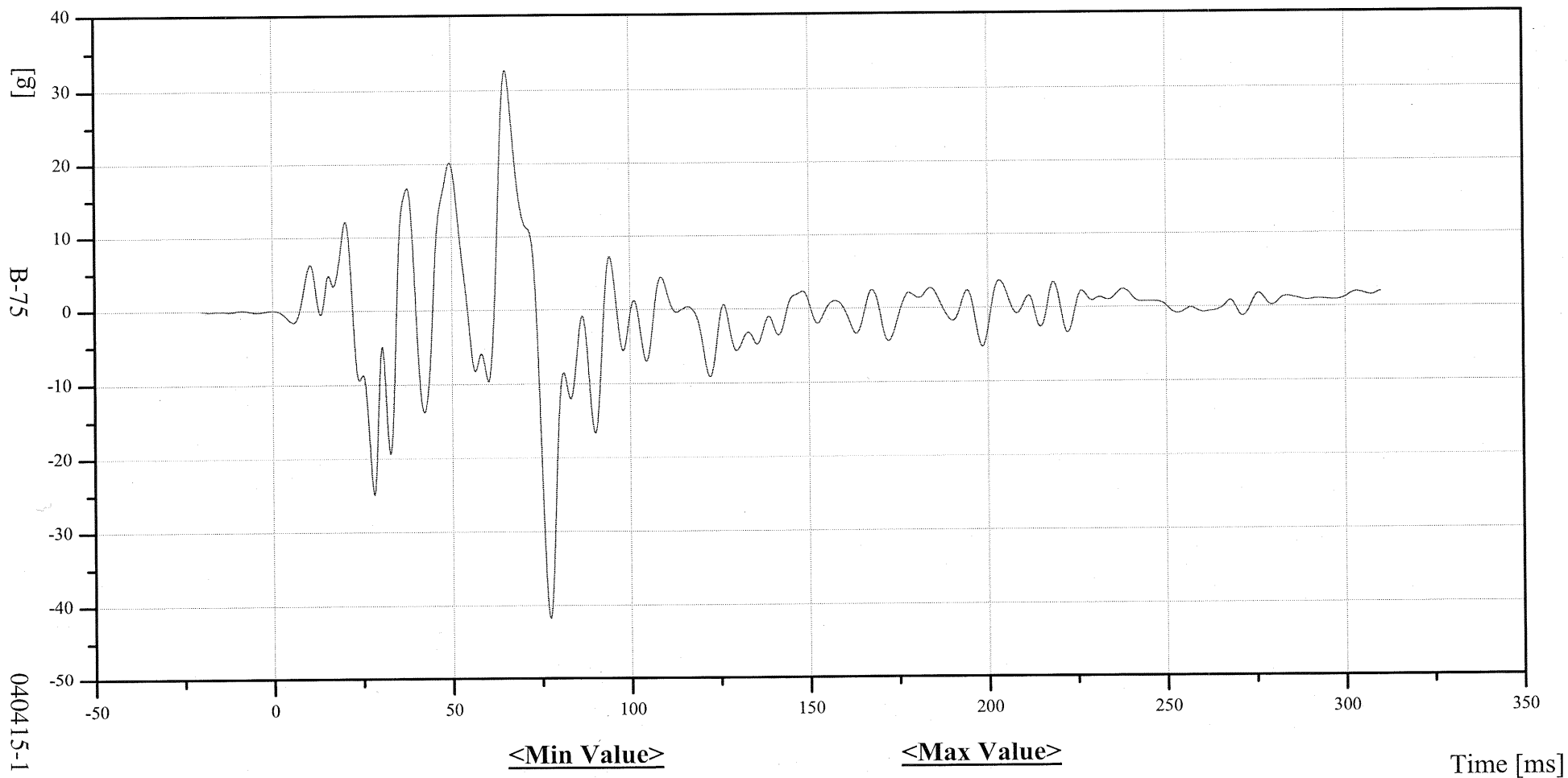
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

VCGZG1



CFC60 [SAE J211 Polarity, Biased Removed and Filtered]



Transportation Research Center, Inc.

VEHICLE CG RESULTANT ACCELERATION

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

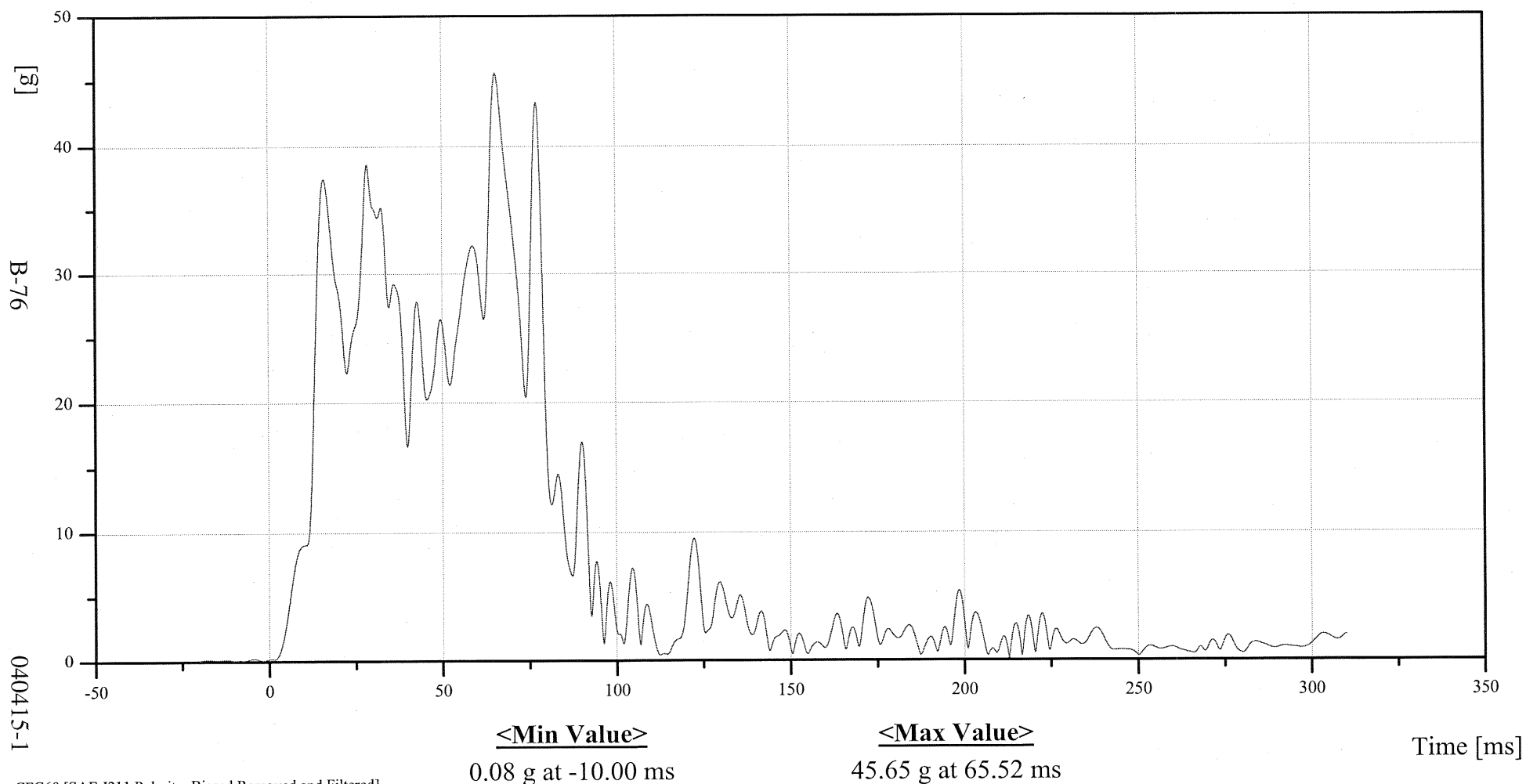
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

VCGRG1



CFC60 [SAE J211 Polarity, Biased Removed and Filtered]



Transportation Research Center, Inc.

REAR DECK X-AXIS

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

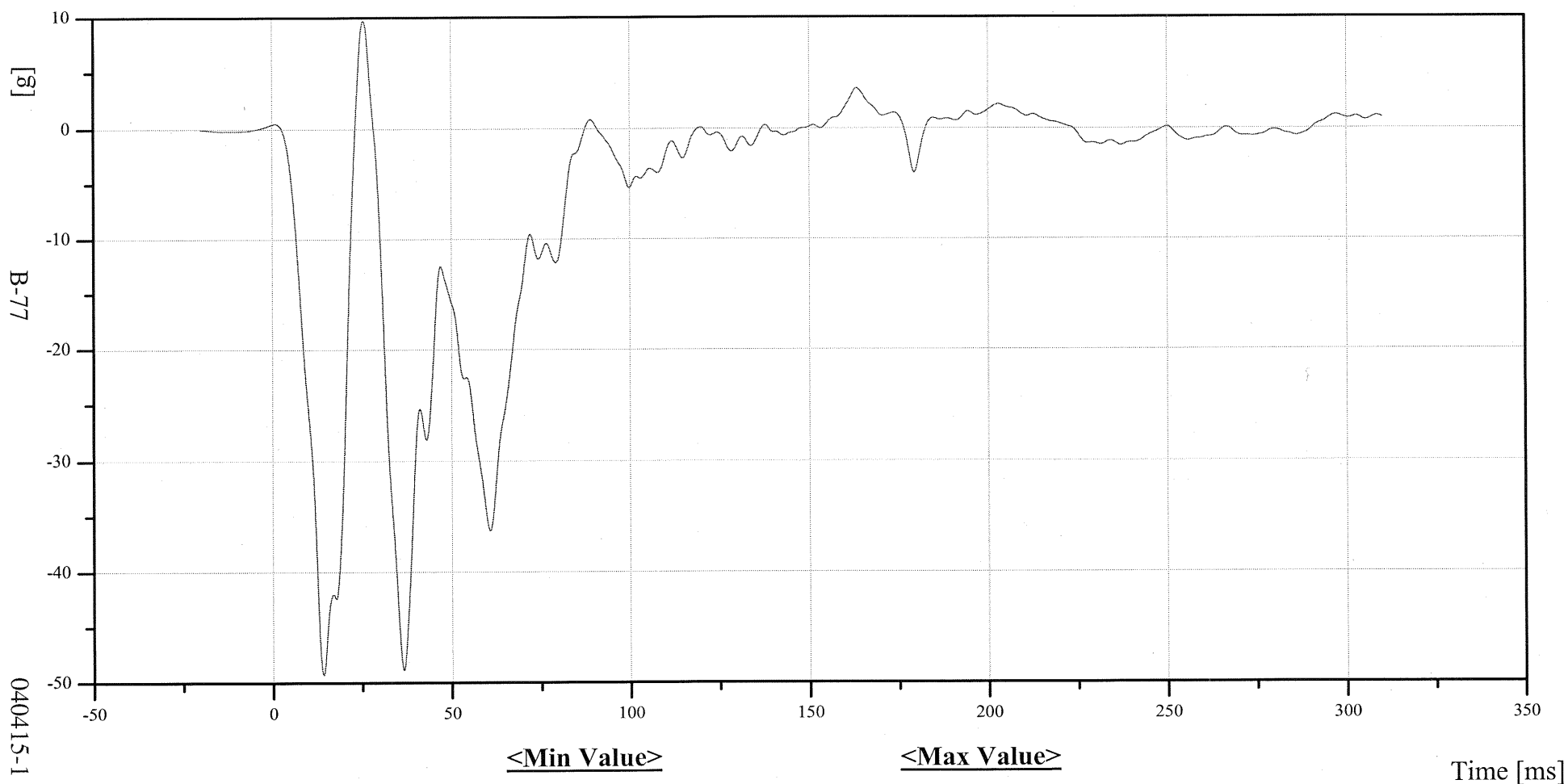
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

RDKXG1



CFC60 [SAE J211 Polarity, Biased Removed and Filtered]



Transportation Research Center, Inc.

REAR DECK Y-AXIS

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

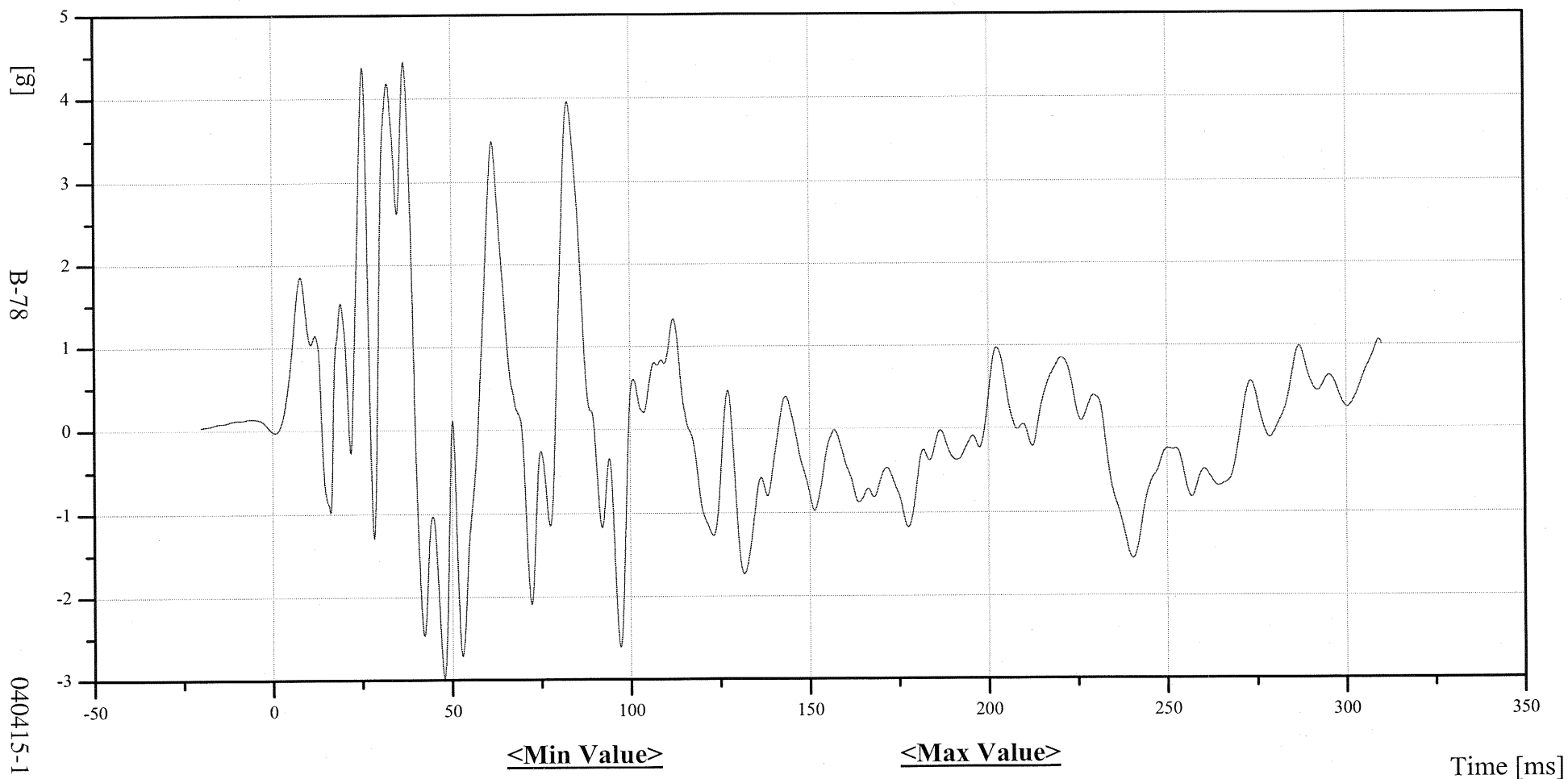
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

RDKEYG1



CFC60 [SAE J211 Polarity, Biased Removed and Filtered]



Transportation Research Center, Inc.

REAR DECK Z-AXIS

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

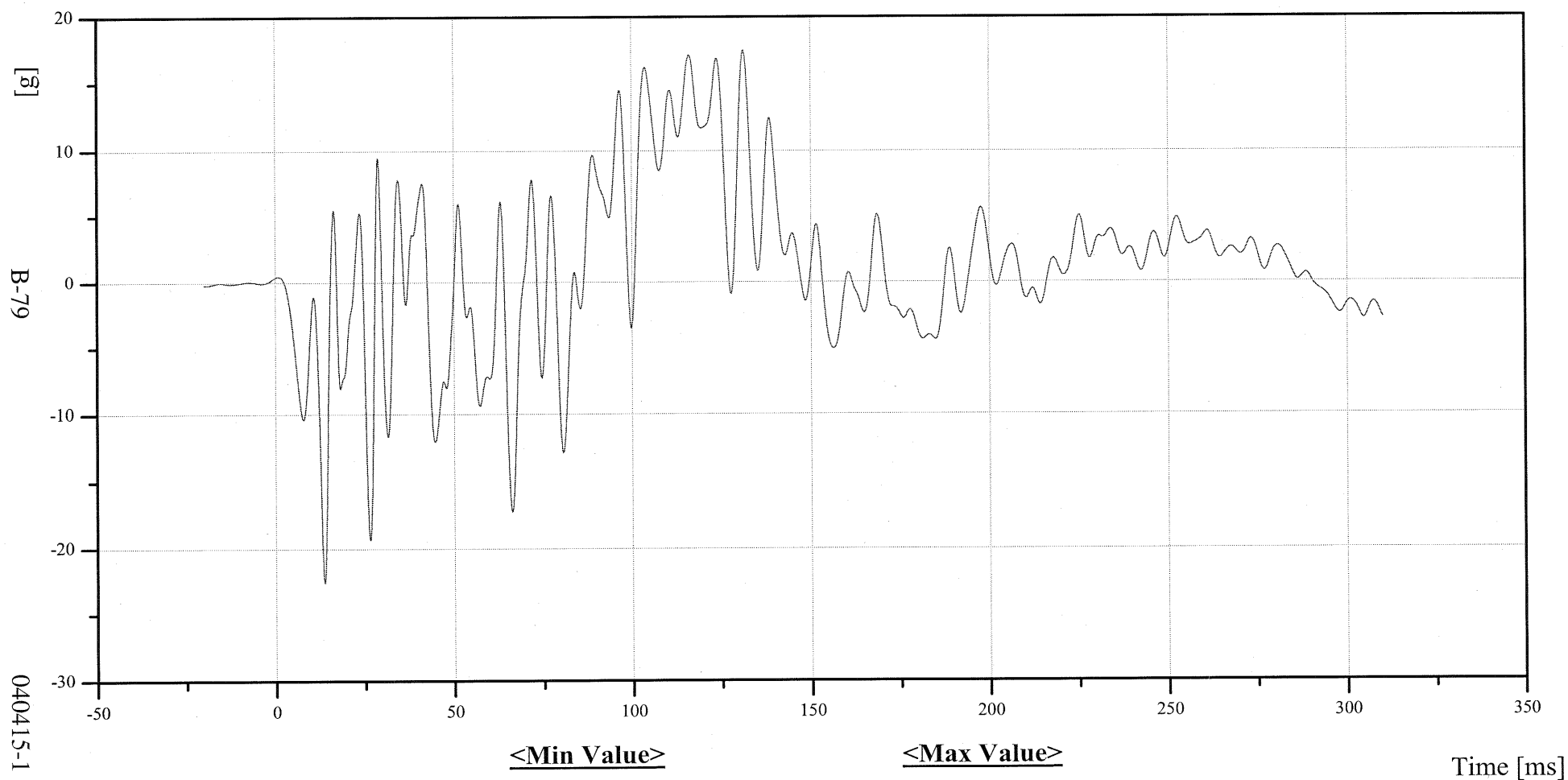
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

RDKZG1



CFC60 [SAE J211 Polarity, Biased Removed and Filtered]



Transportation Research Center, Inc.

REAR DECK RESULTANT ACCELERATION

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

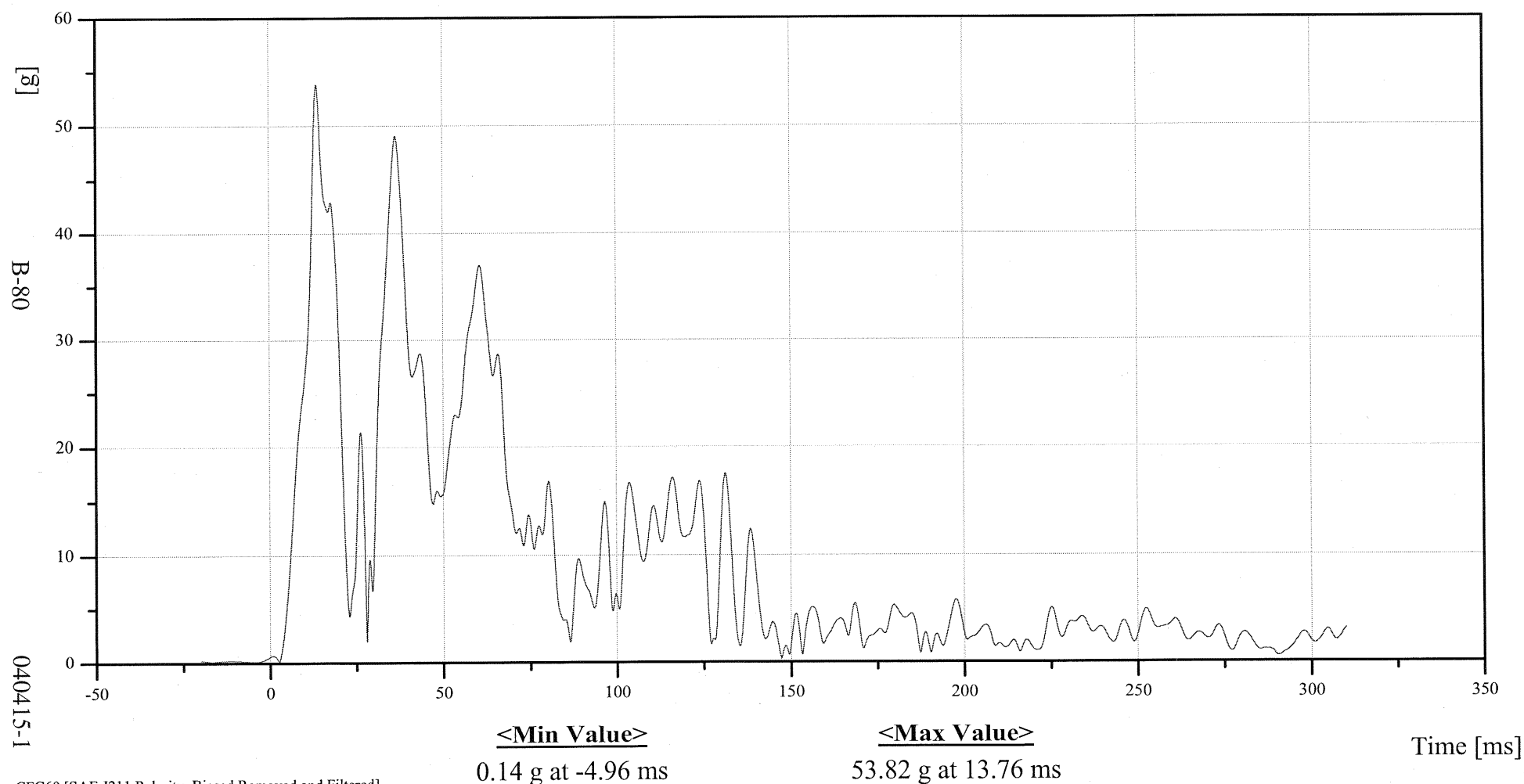
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

RDKRG1





Transportation Research Center, Inc.

DRIV. AB EVENT

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

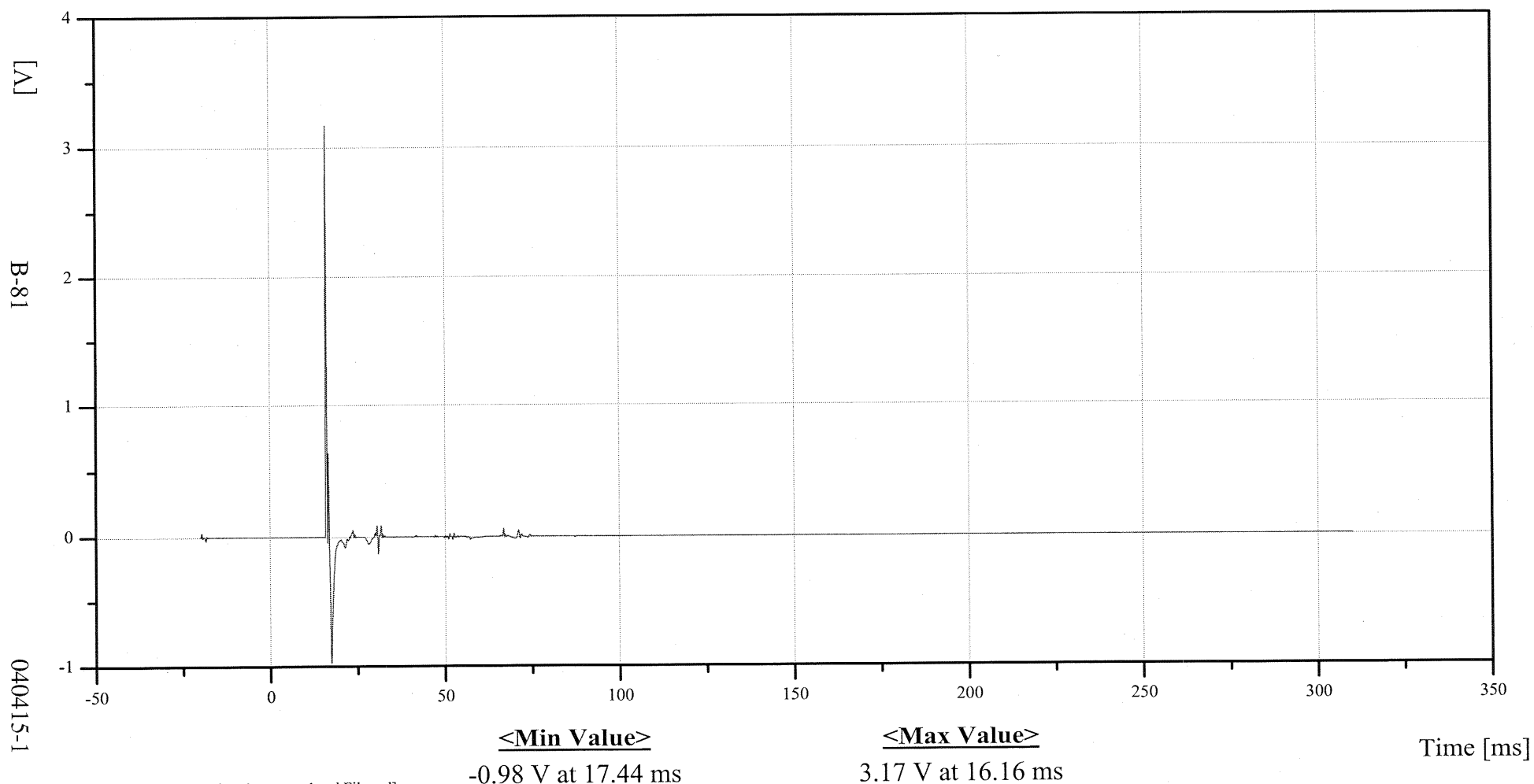
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

DABETA



CFC1000 [SAE J211 Polarity, Biased Removed and Filtered]



Transportation Research Center, Inc.

PASS. AB EVENT

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

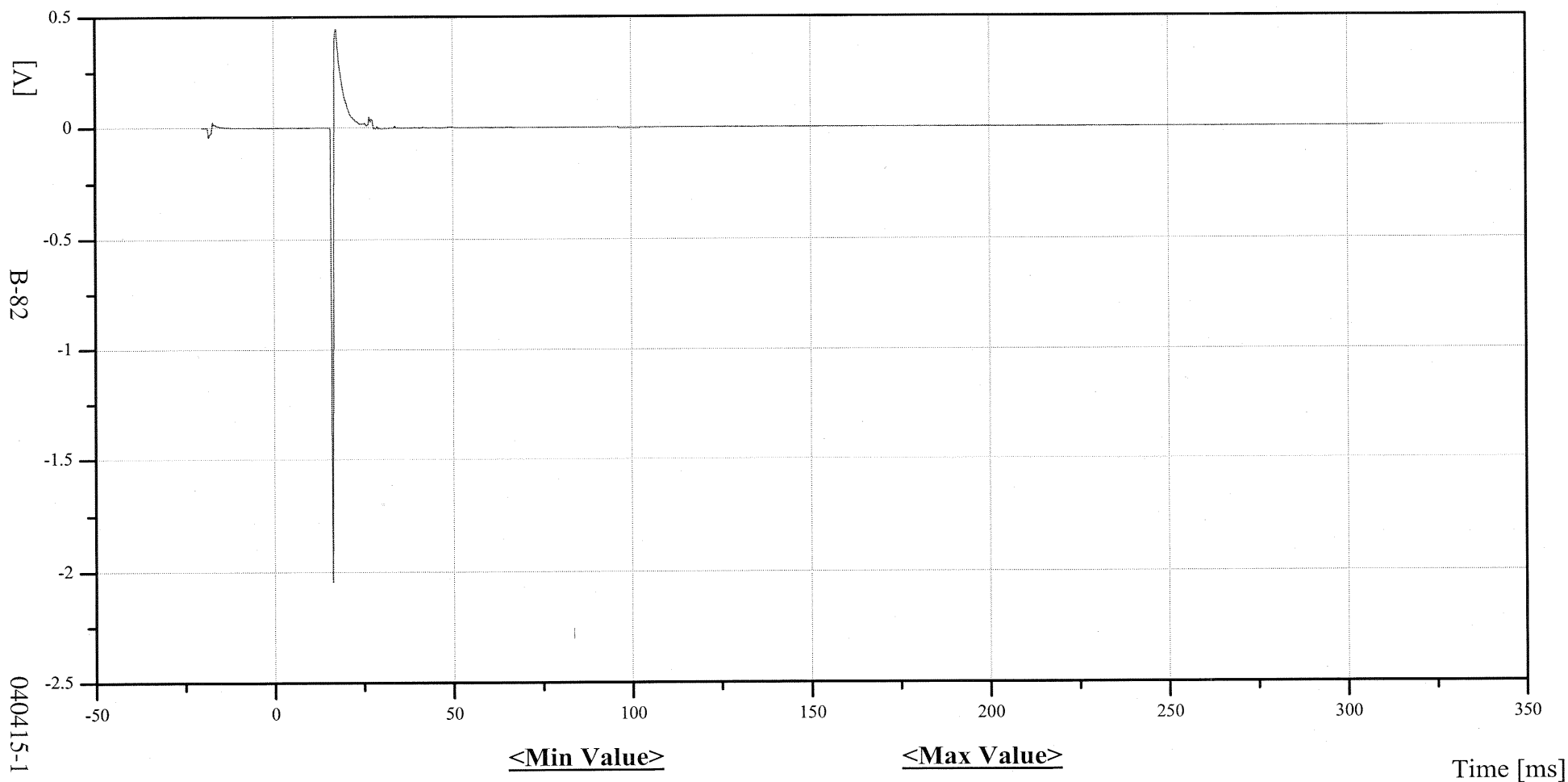
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

PABETA



CFC1000 [SAE J211 Polarity, Biased Removed and Filtered]

-2.04 V at 16.24 ms

0.45 V at 17.44 ms



Transportation Research Center, Inc.

ROW 1 COLUMN 1

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

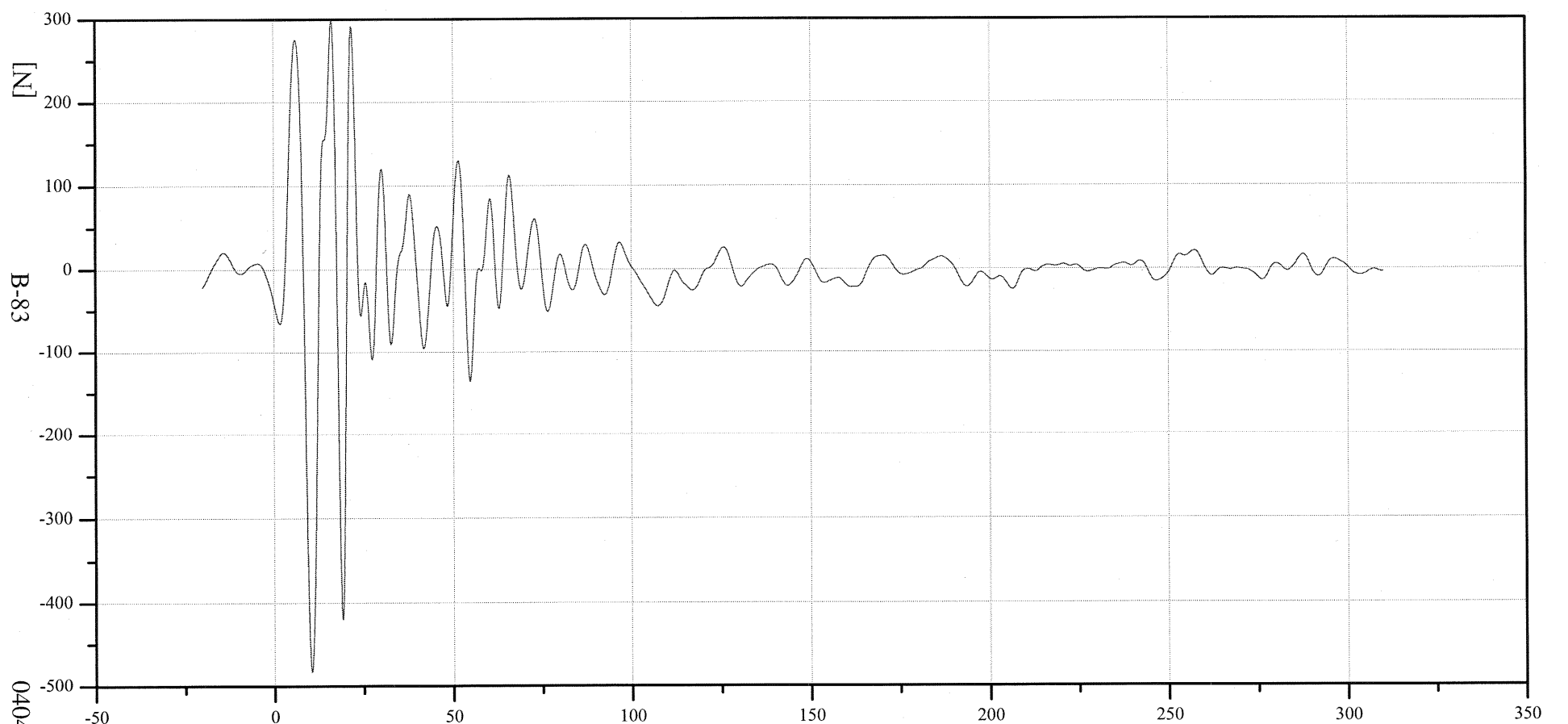
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

LC0101



<Min Value>

-482.62 N at 10.40 ms

<Max Value>

299.25 N at 16.16 ms

Time [ms]

CFC60 [SAE J211 Polarity, Biased Removed and Filtered]



Transportation Research Center, Inc.

ROW 1 COLUMN 2

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

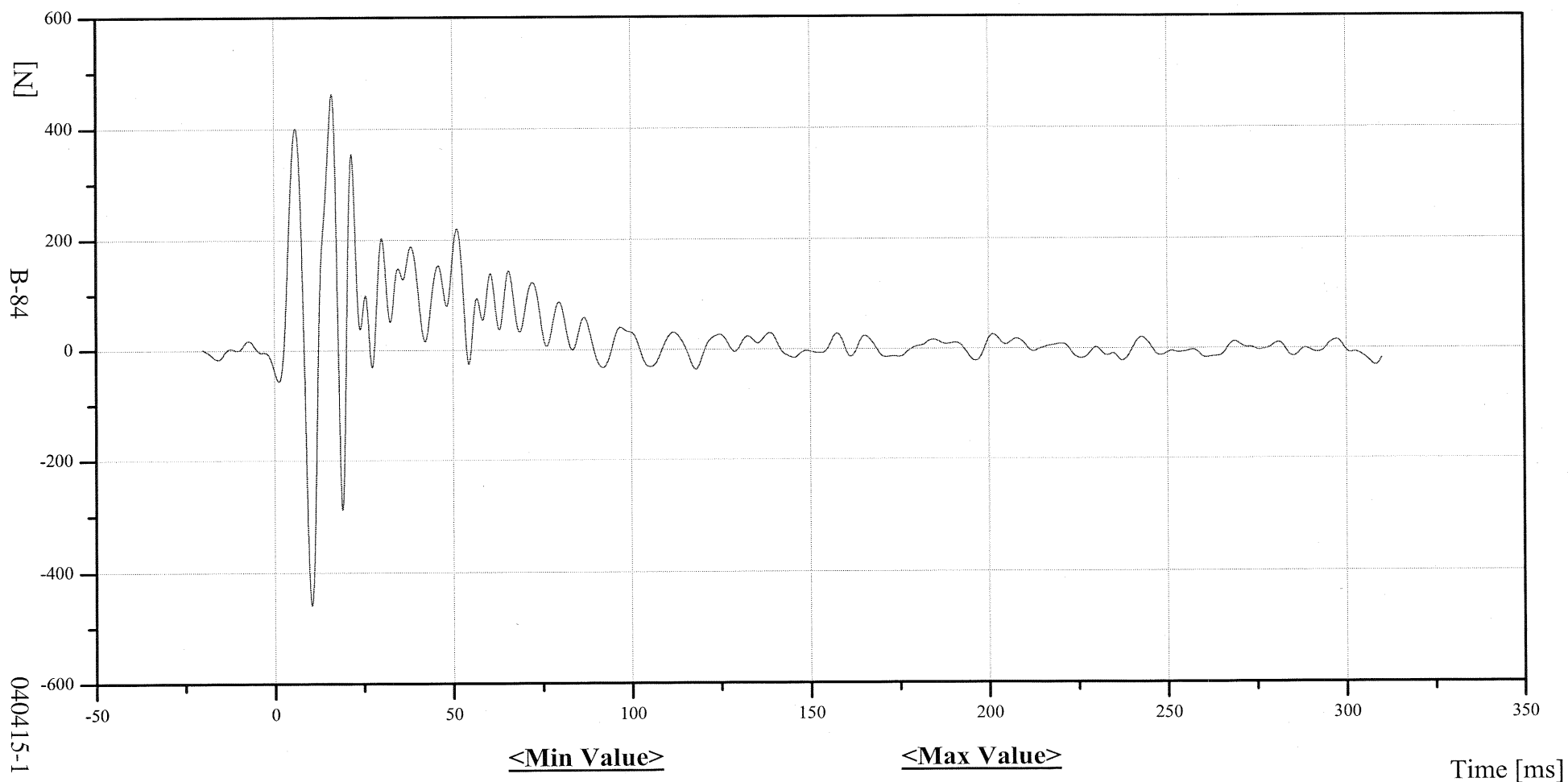
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

LC0102



<Min Value>
-459.09 N at 10.32 ms

<Max Value>
462.64 N at 16.24 ms

CFC60 [SAE J211 Polarity, Biased Removed and Filtered]



Transportation Research Center, Inc.

ROW 1 COLUMN 3

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

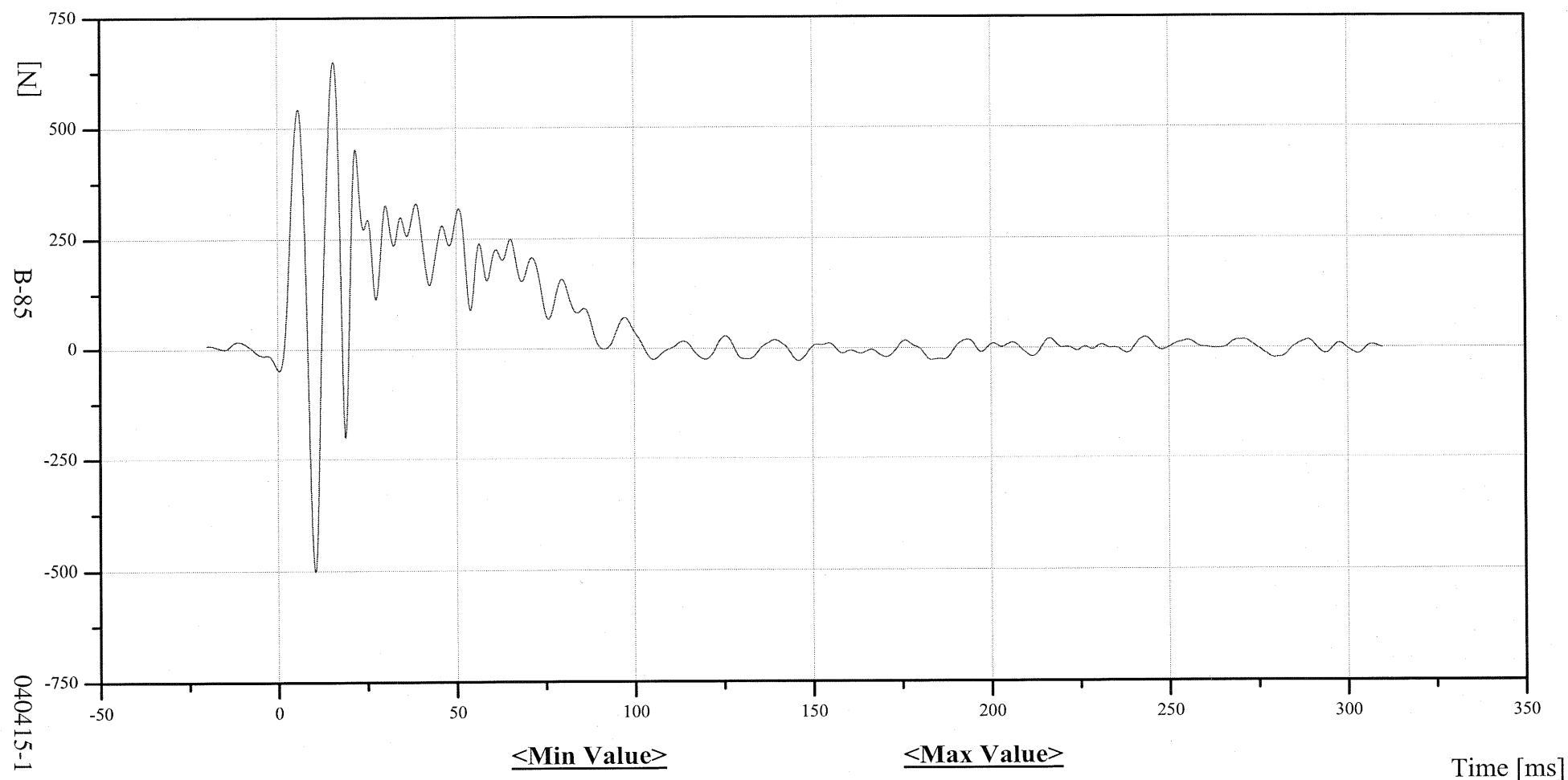
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

LC0103



CFC60 [SAE J211 Polarity, Biased Removed and Filtered]



Transportation Research Center, Inc.

ROW 1 COLUMN 4

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

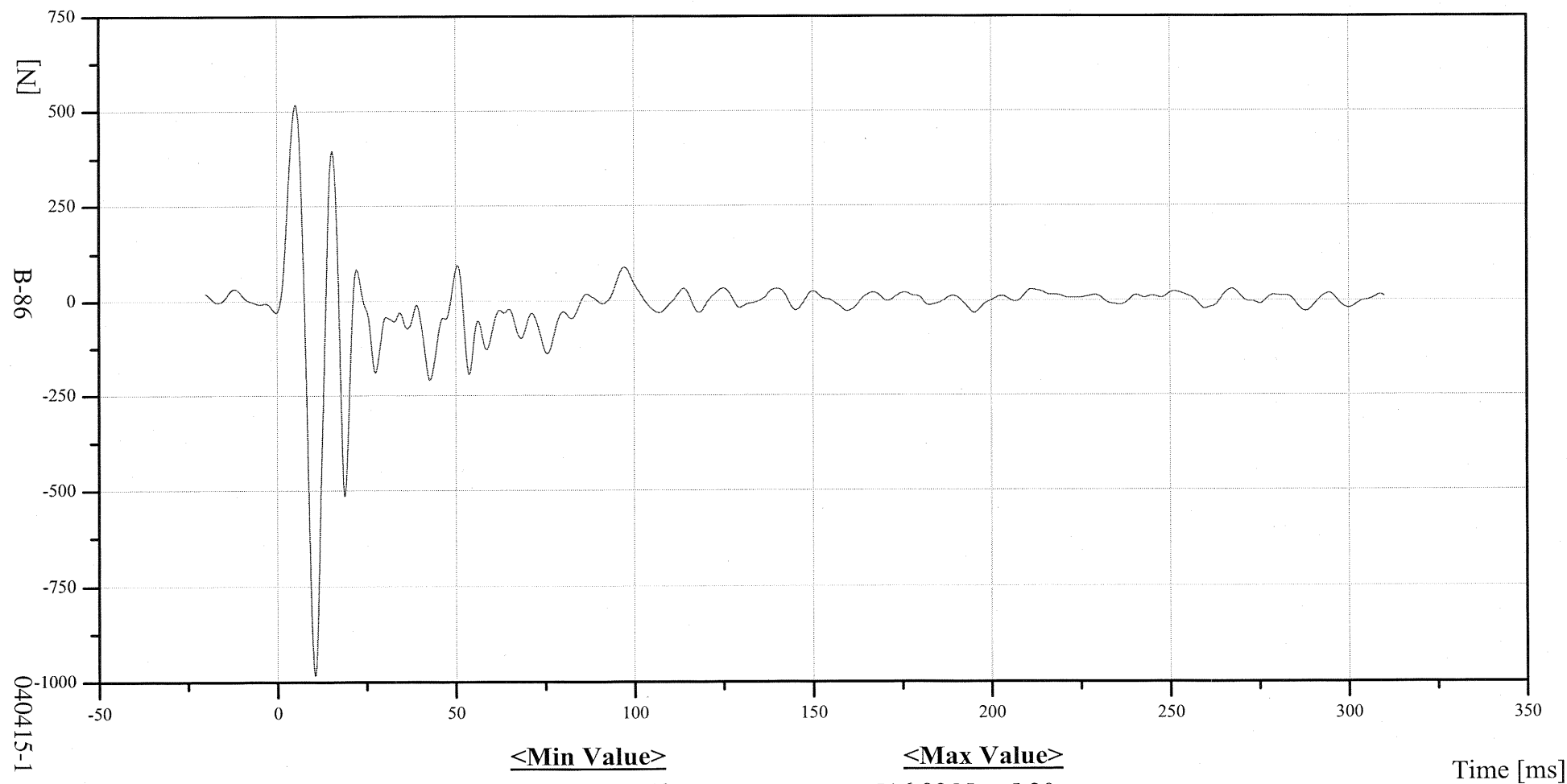
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

LC0104



CFC60 [SAE J211 Polarity, Biased Removed and Filtered]



Transportation Research Center, Inc.

ROW 1 COLUMN 5

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

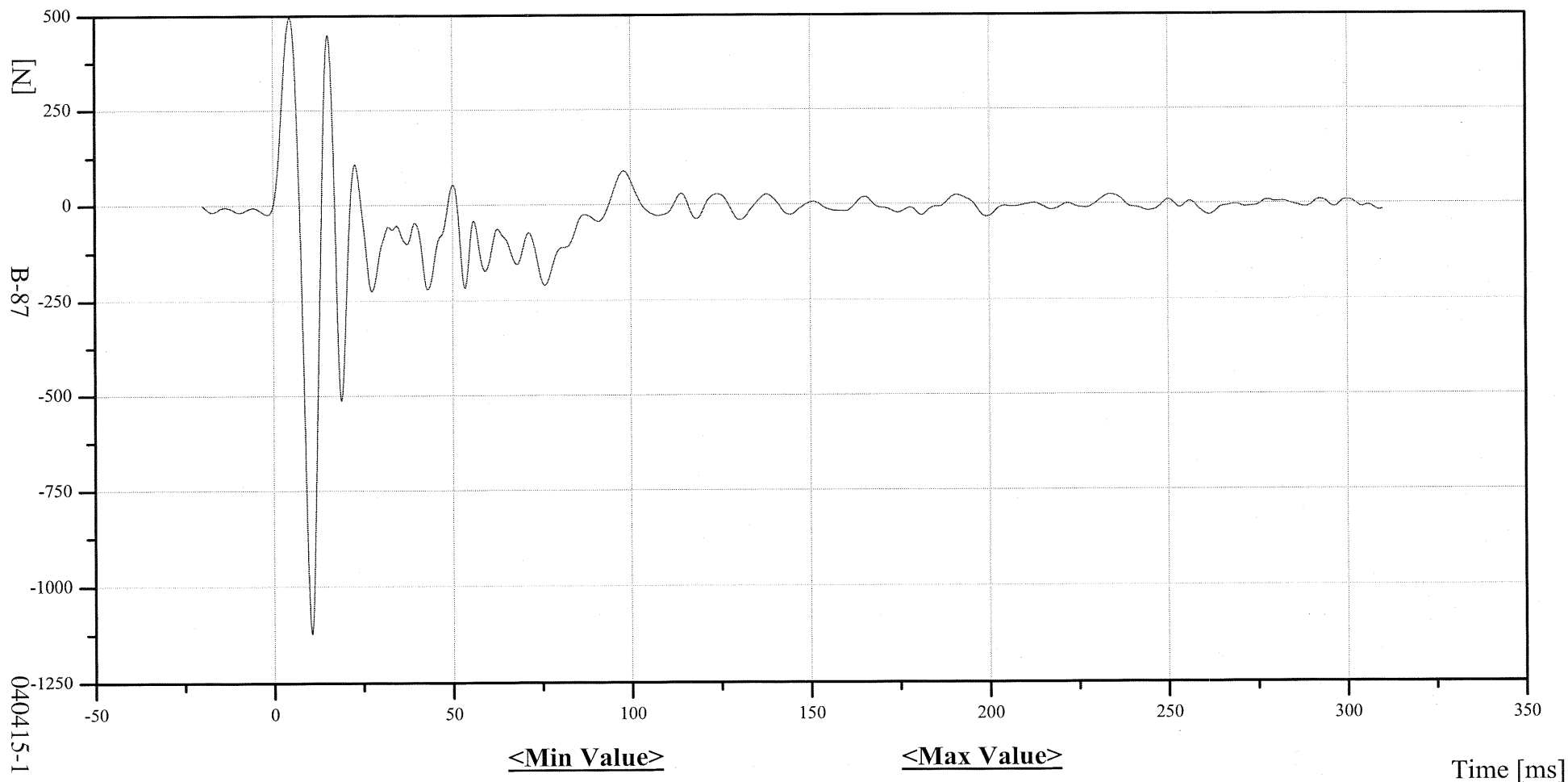
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

LC0105



CFC60 [SAE J211 Polarity, Biased Removed and Filtered]



Transportation Research Center, Inc.

ROW 1 COLUMN 6

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

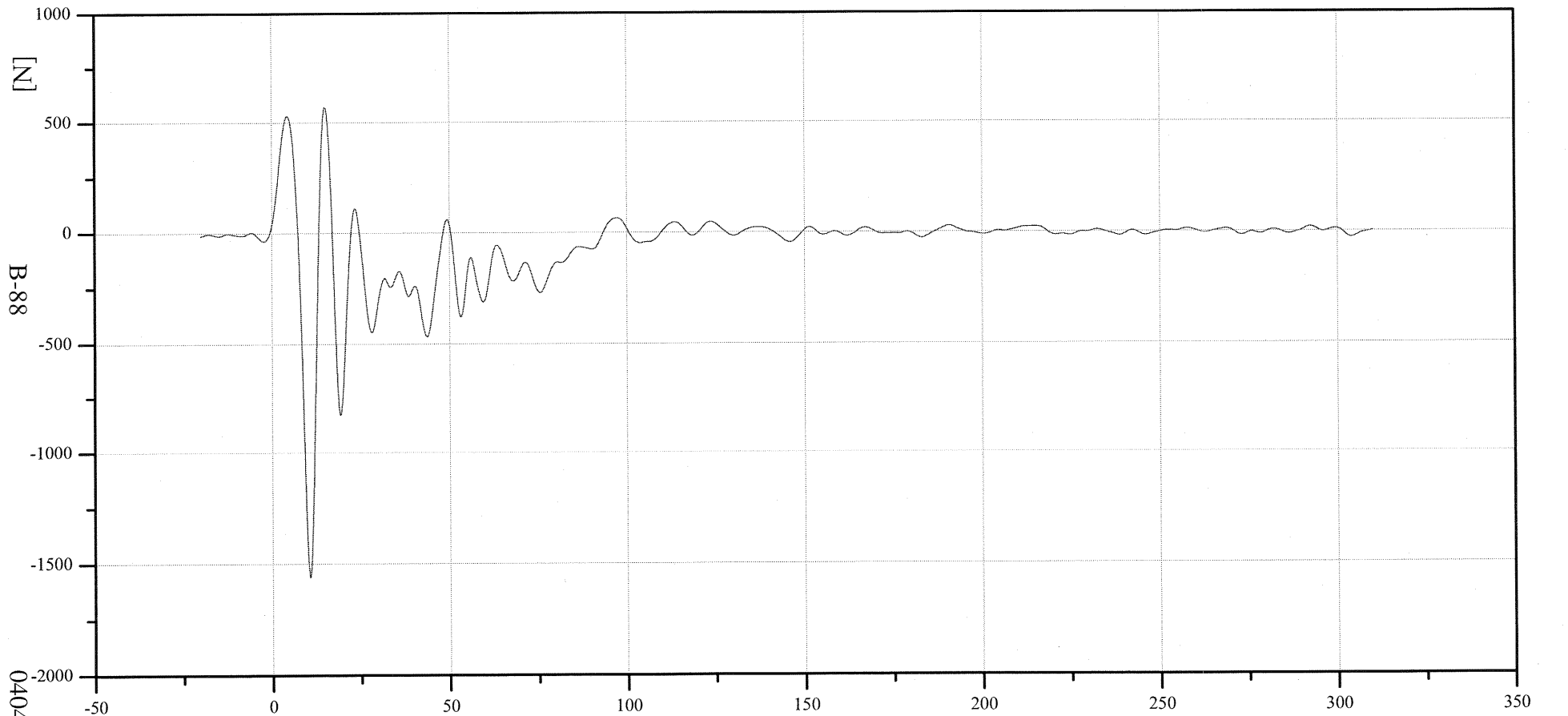
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

LC0106



<Min Value>

-1559.45 N at 10.56 ms

<Max Value>

571.40 N at 15.04 ms

Time [ms]

CFC60 [SAE J211 Polarity, Biased Removed and Filtered]



Transportation Research Center, Inc.

ROW 1 COLUMN 7

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

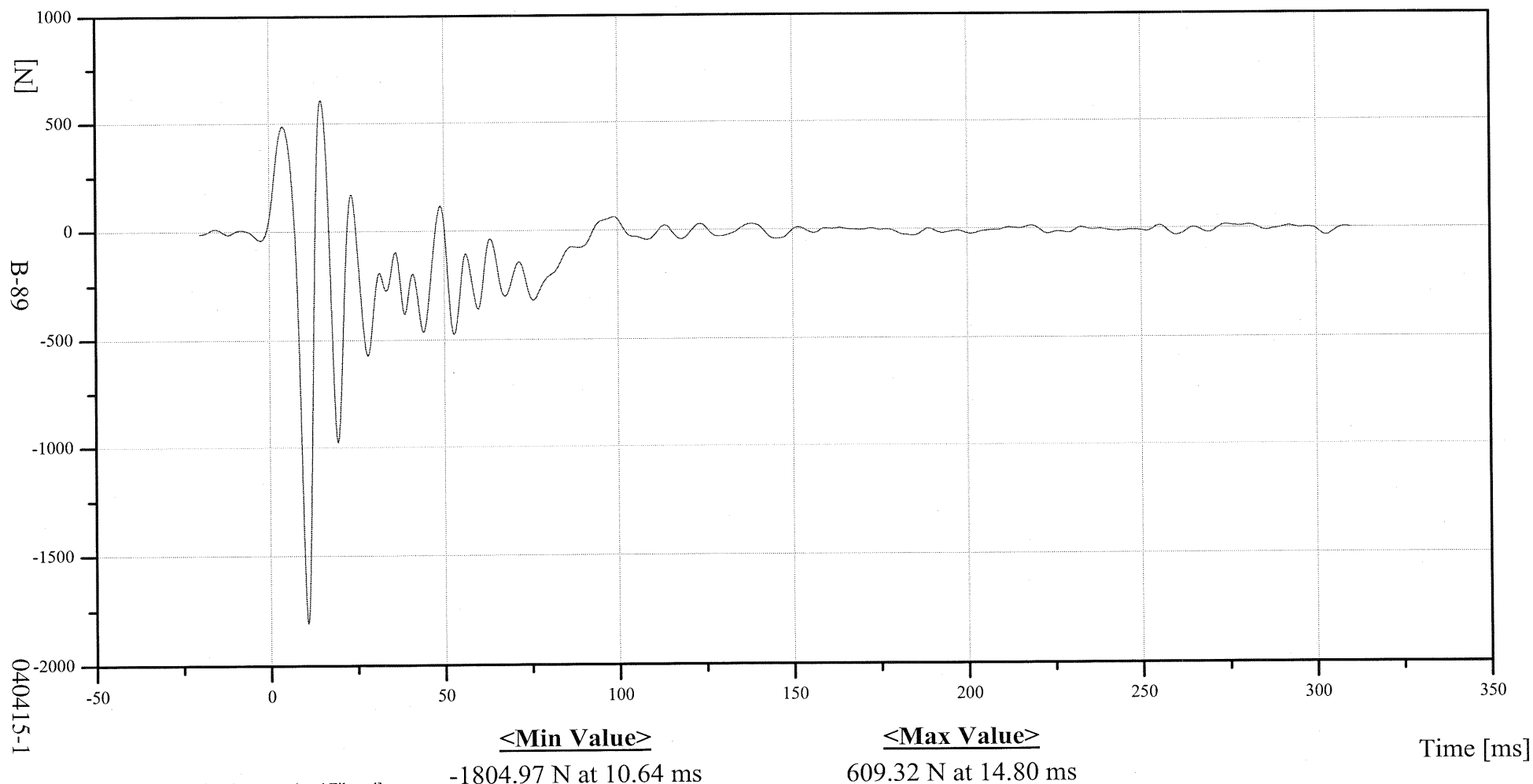
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

LC0107



CFC60 [SAE J211 Polarity, Biased Removed and Filtered]



Transportation Research Center, Inc.

ROW 1 COLUMN 8

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

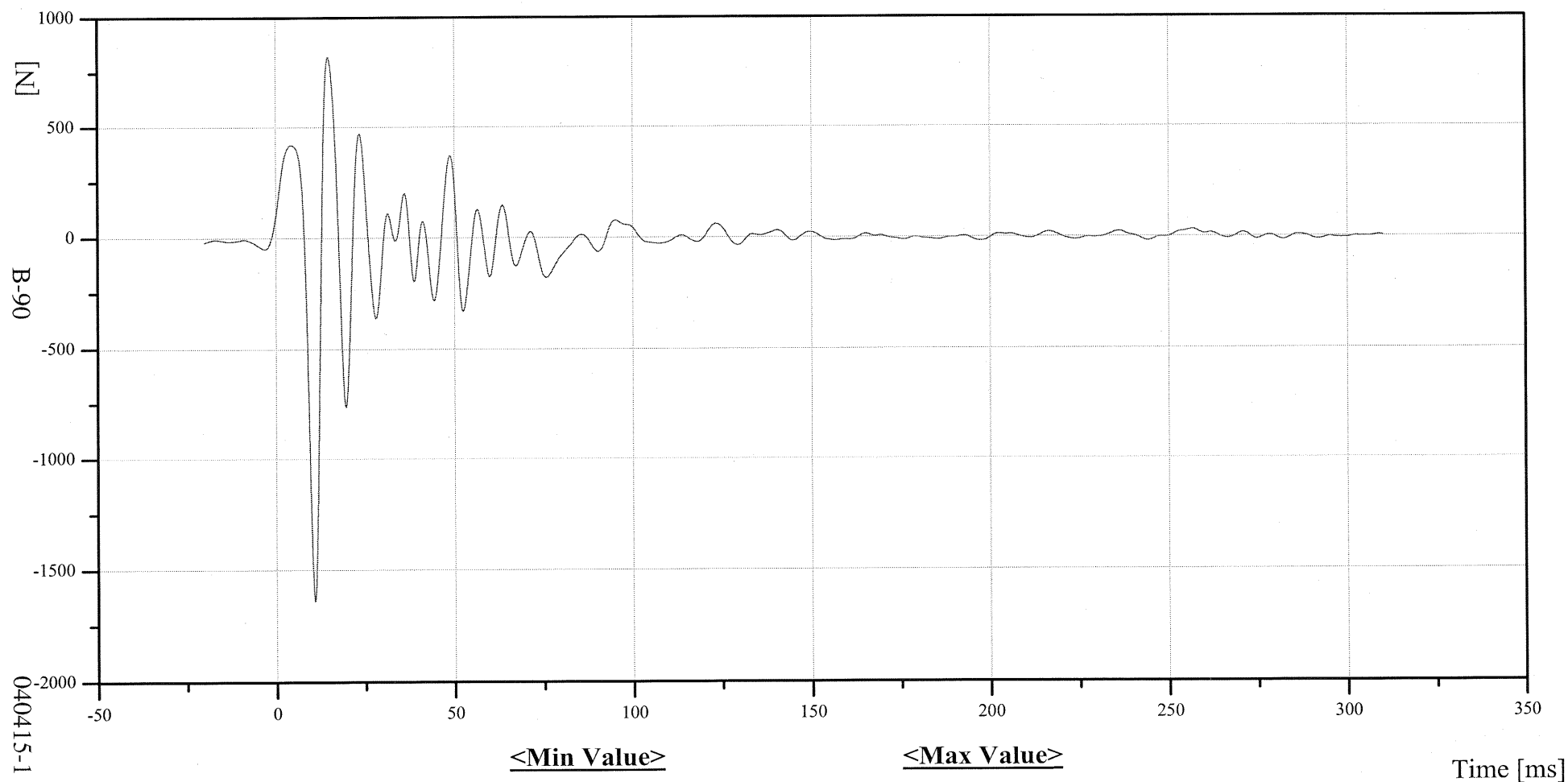
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

LC0108



CFC60 [SAE J211 Polarity, Biased Removed and Filtered]



Transportation Research Center, Inc.

ROW 1 COLUMN 9

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

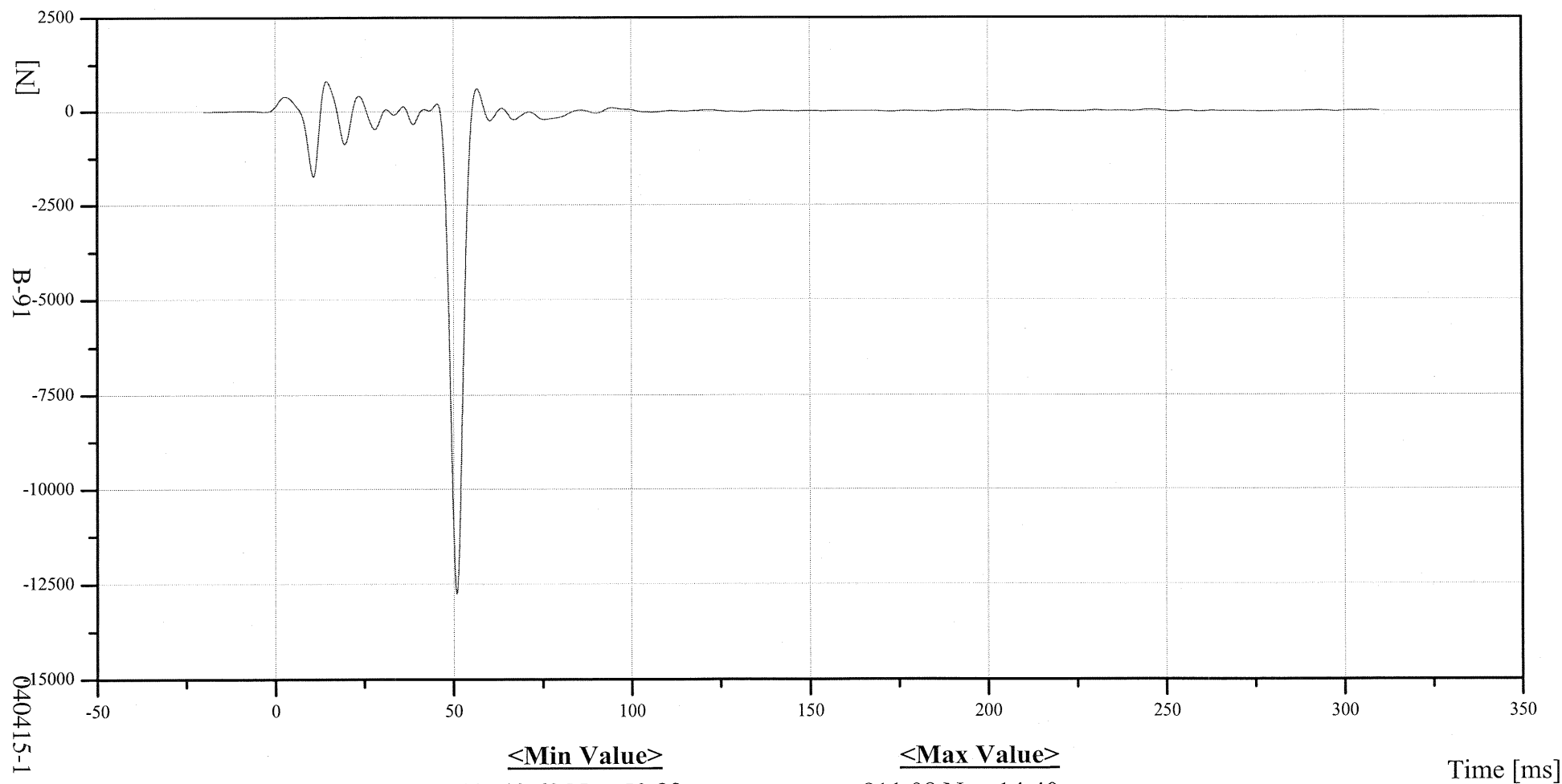
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

LC0109



CFC60 [SAE J211 Polarity, Biased Removed and Filtered]



Transportation Research Center, Inc.

ROW 1 COLUMN 10

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

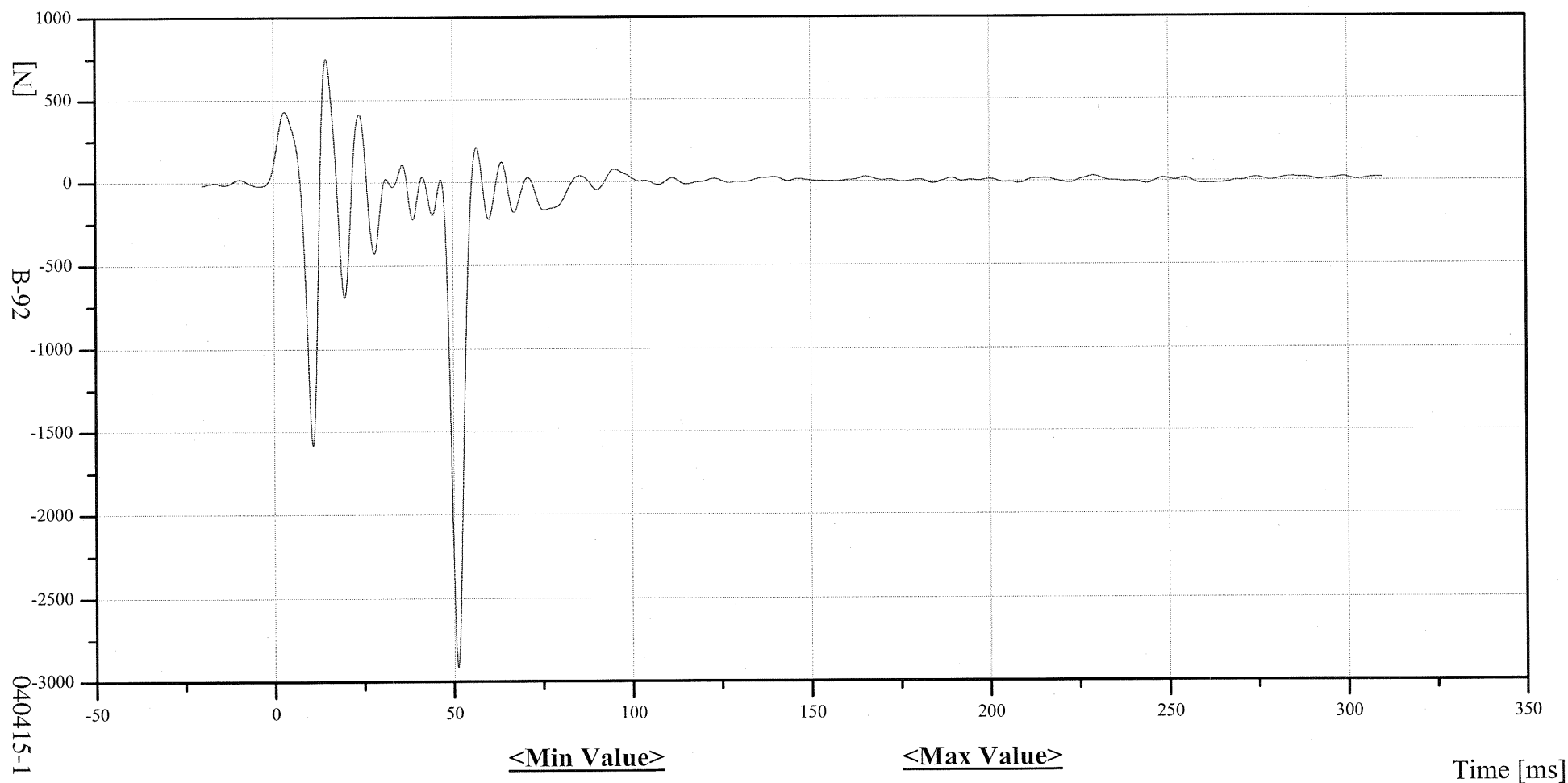
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

LC0110



<Min Value>

-2918.26 N at 51.12 ms

<Max Value>

752.72 N at 14.64 ms

Time [ms]

CFC60 [SAE J211 Polarity, Biased Removed and Filtered]



Transportation Research Center, Inc.

ROW 1 COLUMN 11

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

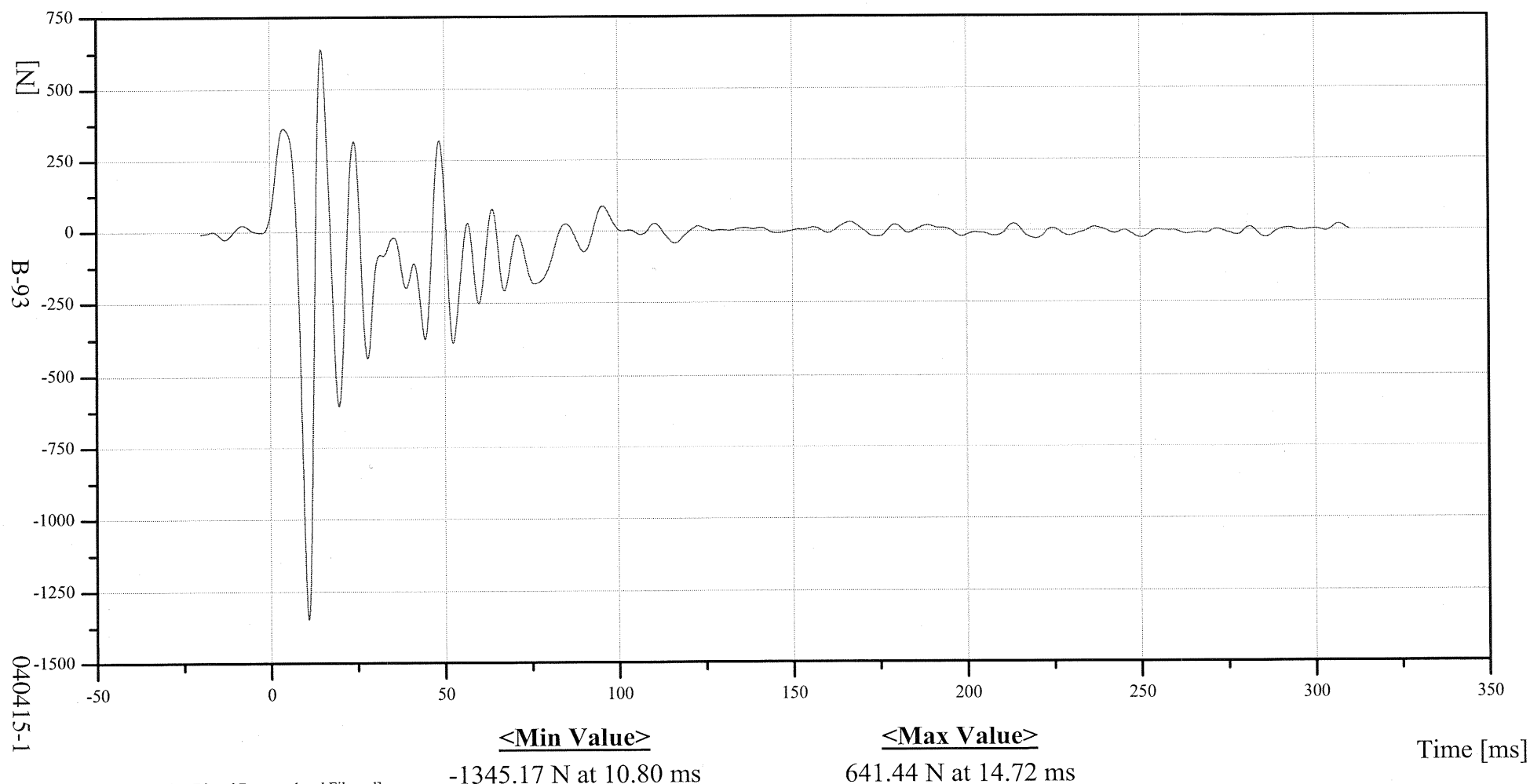
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

LC0111



CFC60 [SAE J211 Polarity, Biased Removed and Filtered]



Transportation Research Center, Inc.

ROW 1 COLUMN 12

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

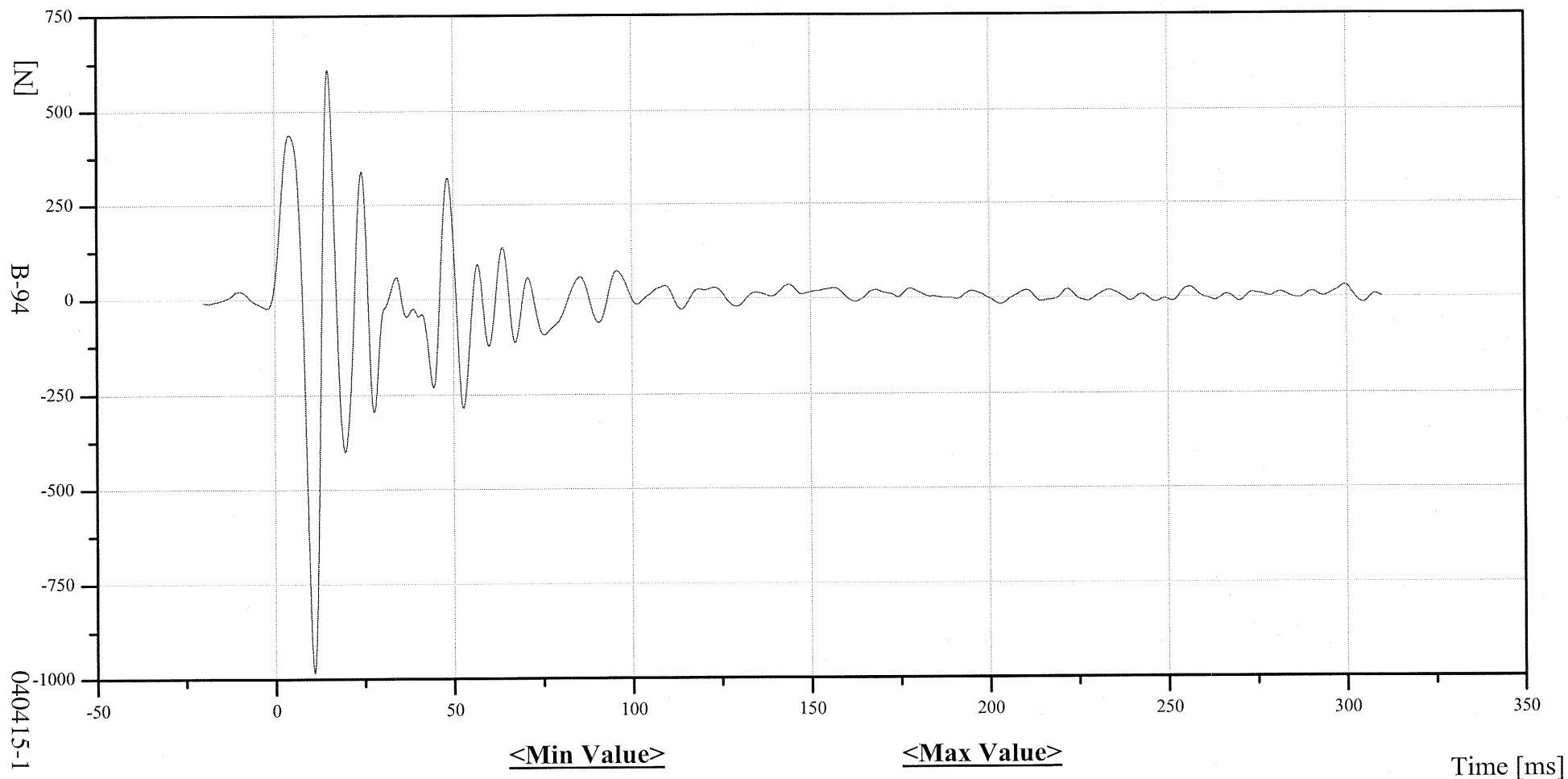
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

LC0112



-983.93 N at 10.72 ms

610.71 N at 14.88 ms

CFC60 [SAE J211 Polarity, Biased Removed and Filtered]



Transportation Research Center, Inc.

ROW 1 COLUMN 13

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

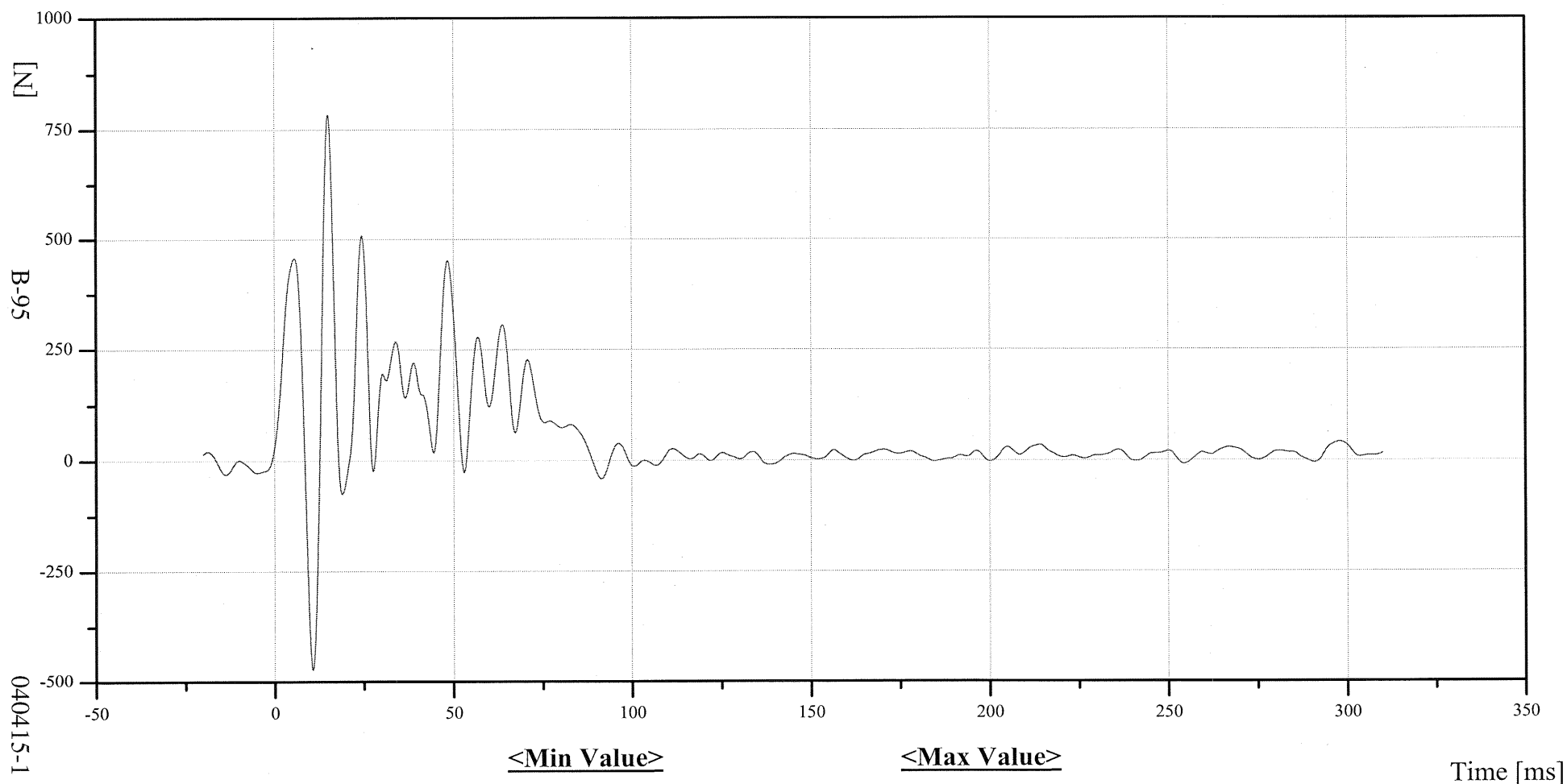
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

LC0113



CFC60 [SAE J211 Polarity, Biased Removed and Filtered]

-472.28 N at 10.64 ms

784.79 N at 15.04 ms



Transportation Research Center, Inc.

ROW 1 COLUMN 14

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

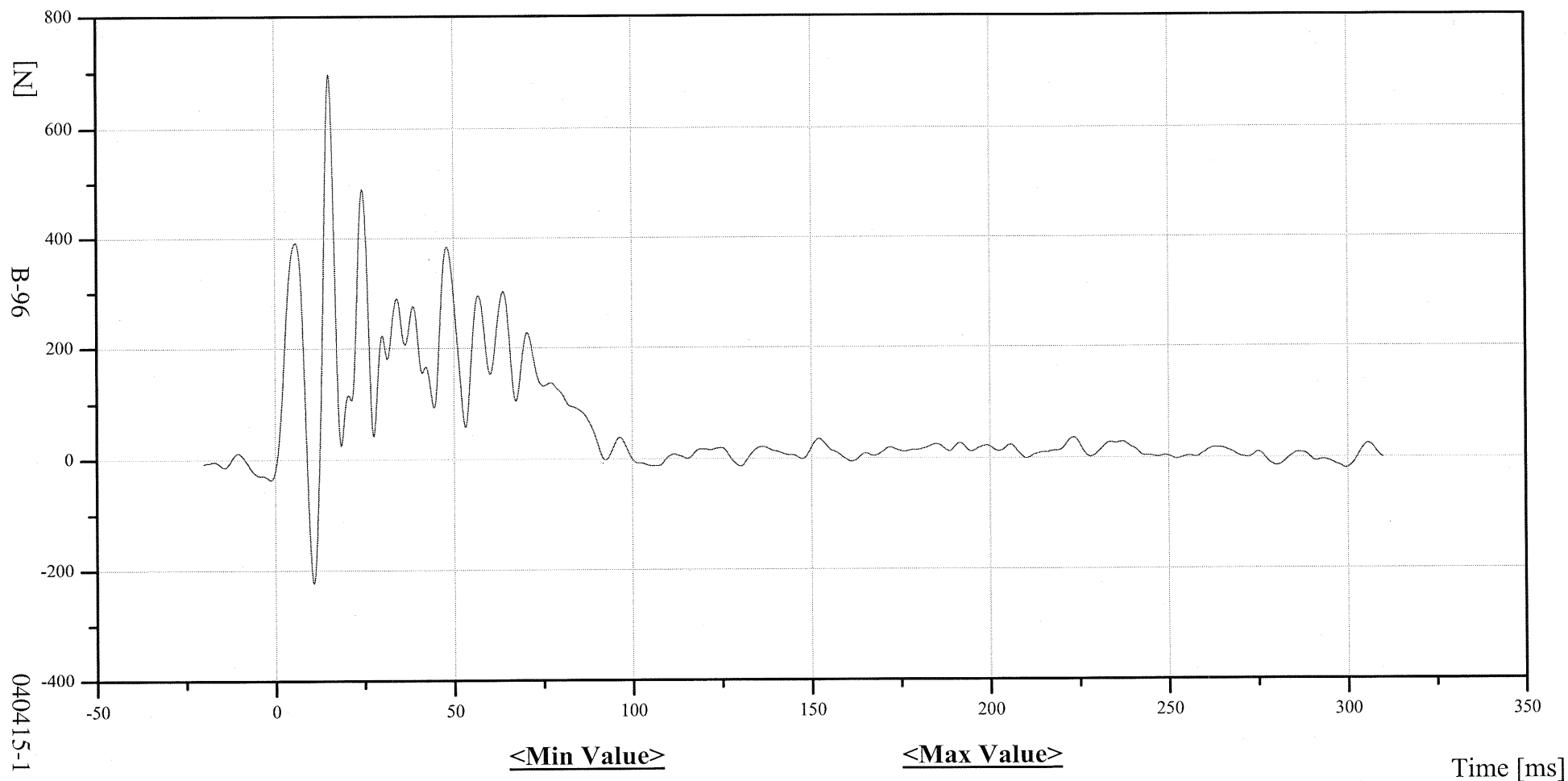
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

LC0114



CFC60 [SAE J211 Polarity, Biased Removed and Filtered]



Transportation Research Center, Inc.

ROW 1 COLUMN 15

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

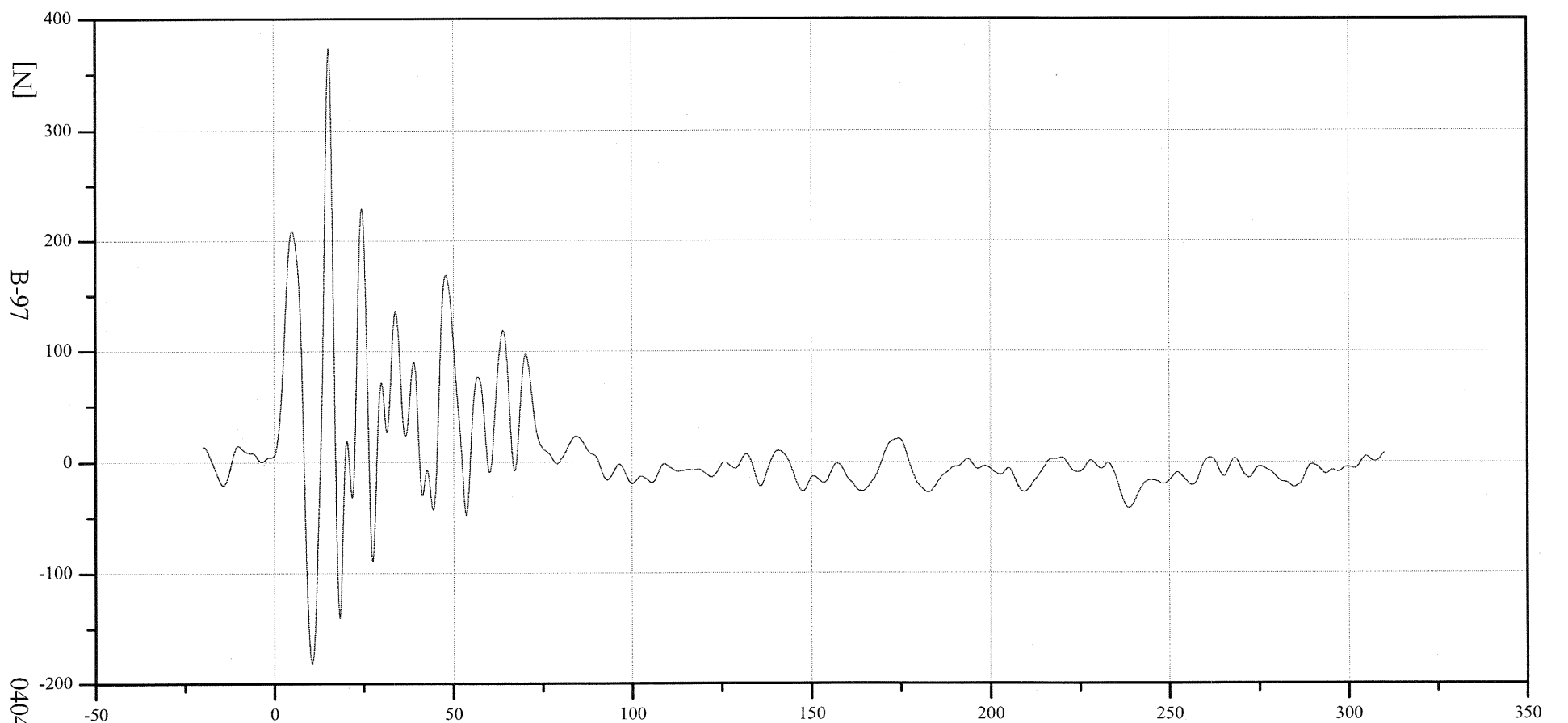
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

LC0115



<Min Value>

-181.60 N at 10.48 ms

<Max Value>

372.76 N at 15.28 ms

CFC60 [SAE J211 Polarity, Biased Removed and Filtered]



Transportation Research Center, Inc.

ROW 1 COLUMN 16

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

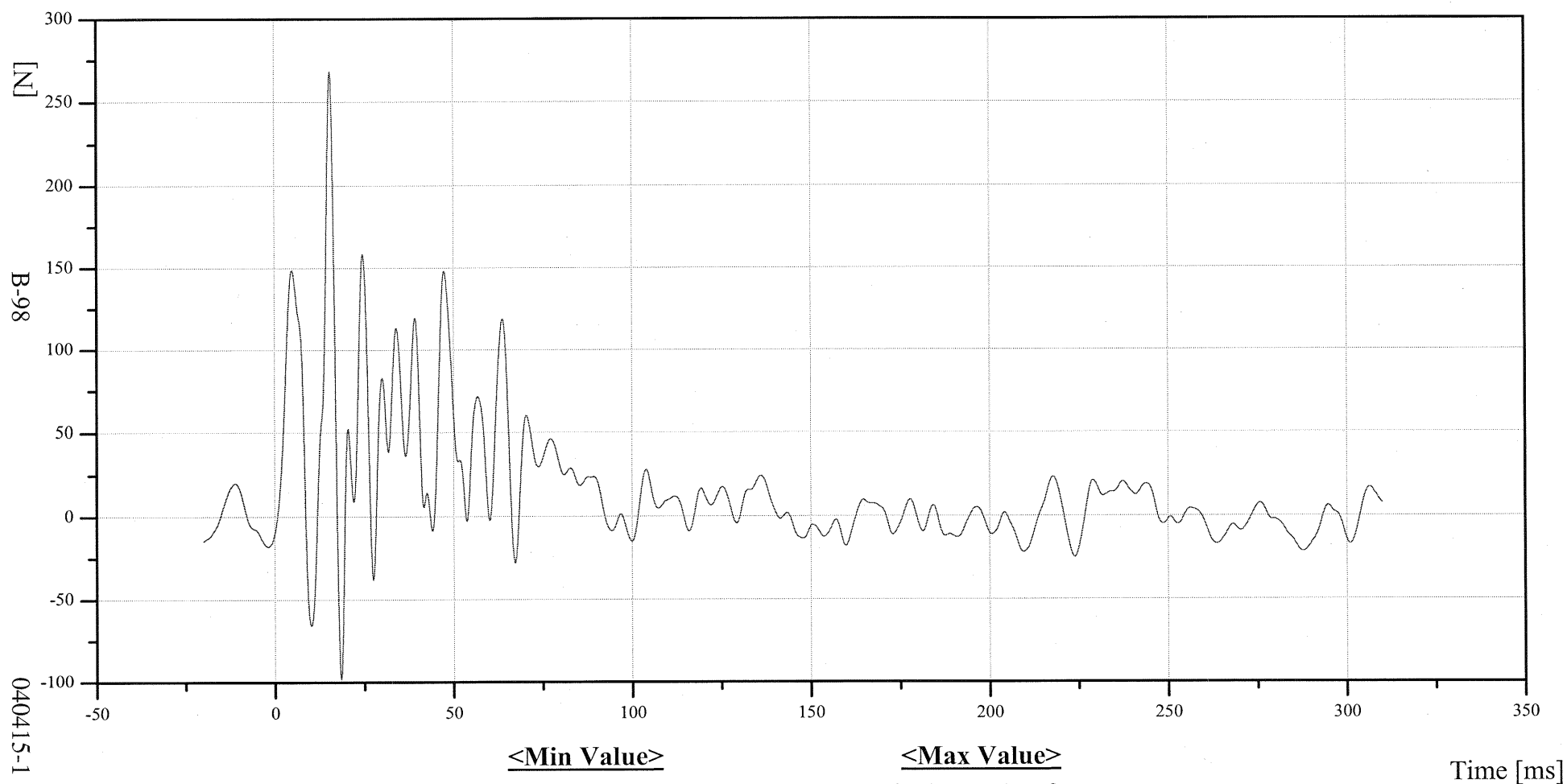
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

LC0116



CFC60 [SAE J211 Polarity, Biased Removed and Filtered]



Transportation Research Center, Inc.

ROW 2 COLUMN 1

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

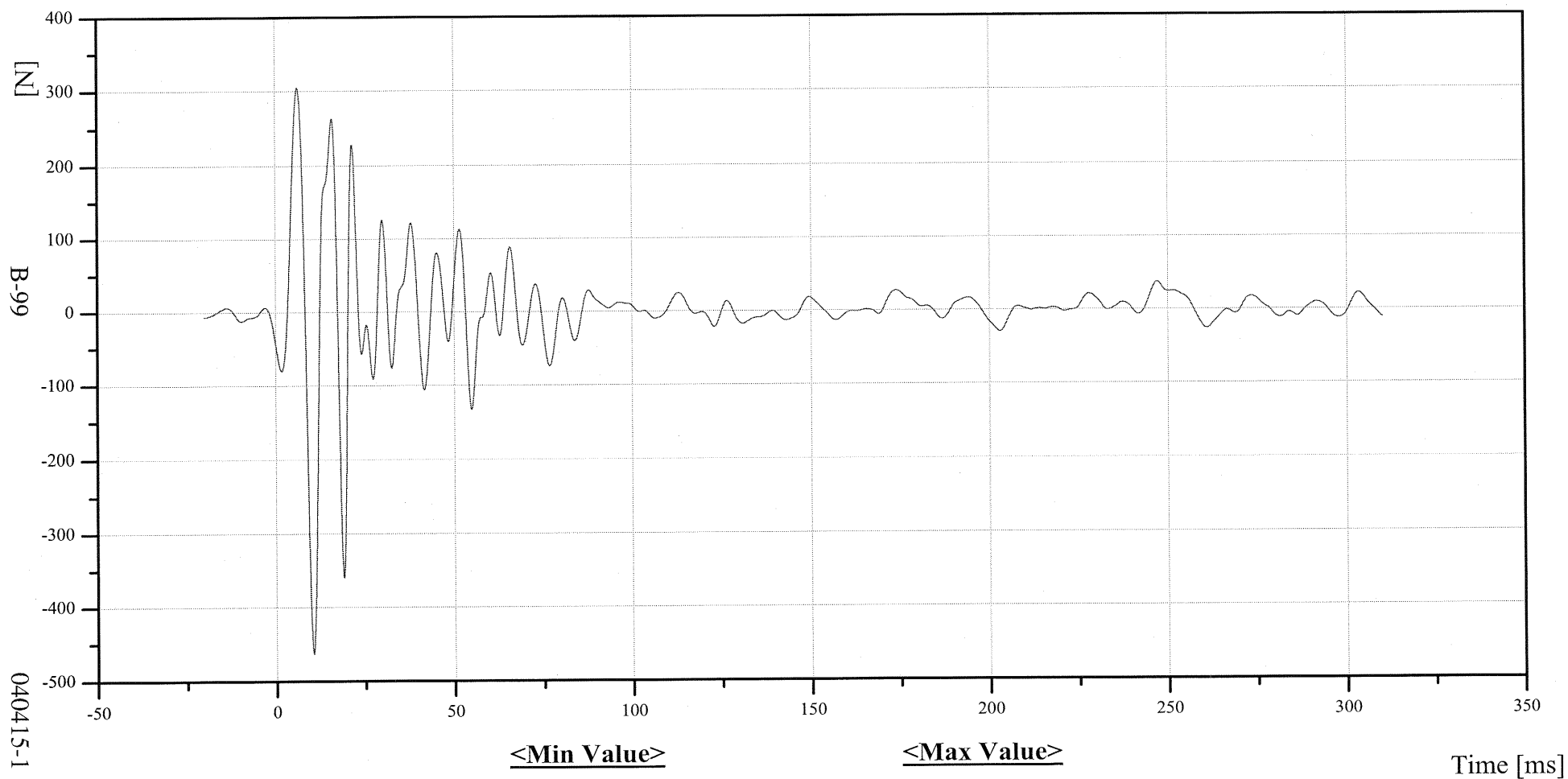
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

LC0201



CFC60 [SAE J211 Polarity, Biased Removed and Filtered]



Transportation Research Center, Inc.

ROW 2 COLUMN 2

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

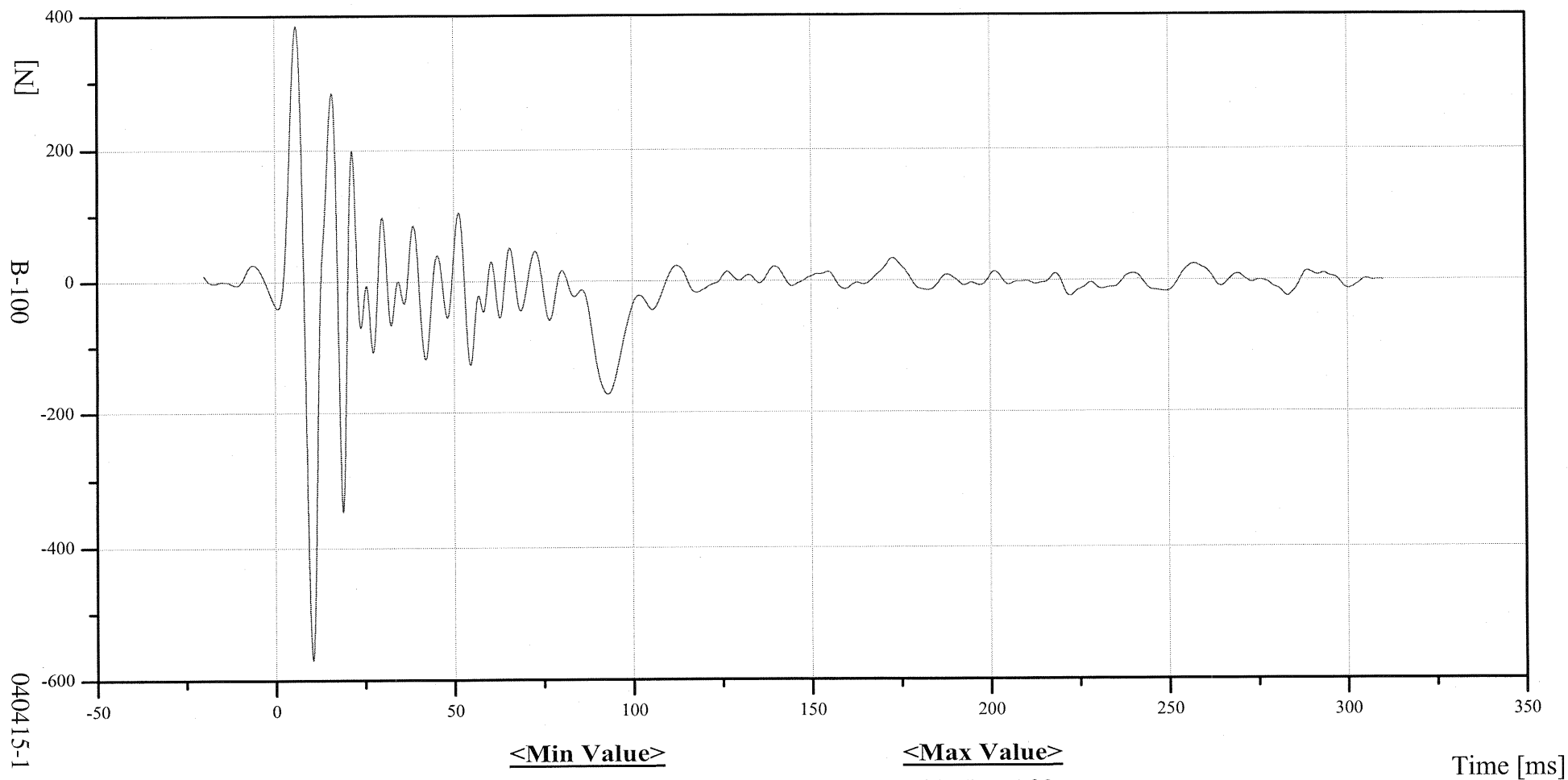
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

LC0202



CFC60 [SAE J211 Polarity, Biased Removed and Filtered]

-568.89 N at 10.32 ms

385.02 N at 5.92 ms



Transportation Research Center, Inc.

ROW 2 COLUMN 3

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

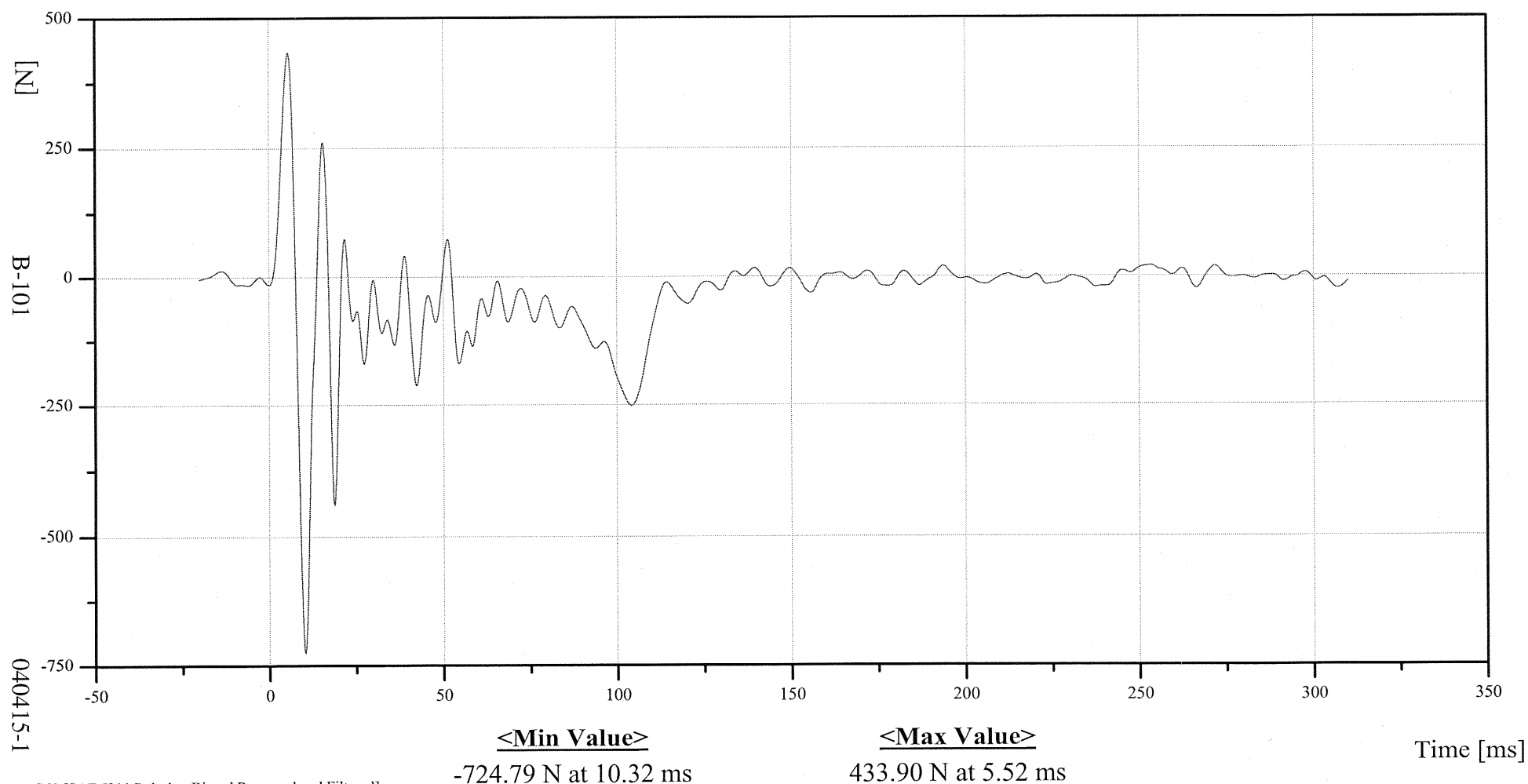
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

LC0203



CFC60 [SAE J211 Polarity, Biased Removed and Filtered]



Transportation Research Center, Inc.

ROW 2 COLUMN 4

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

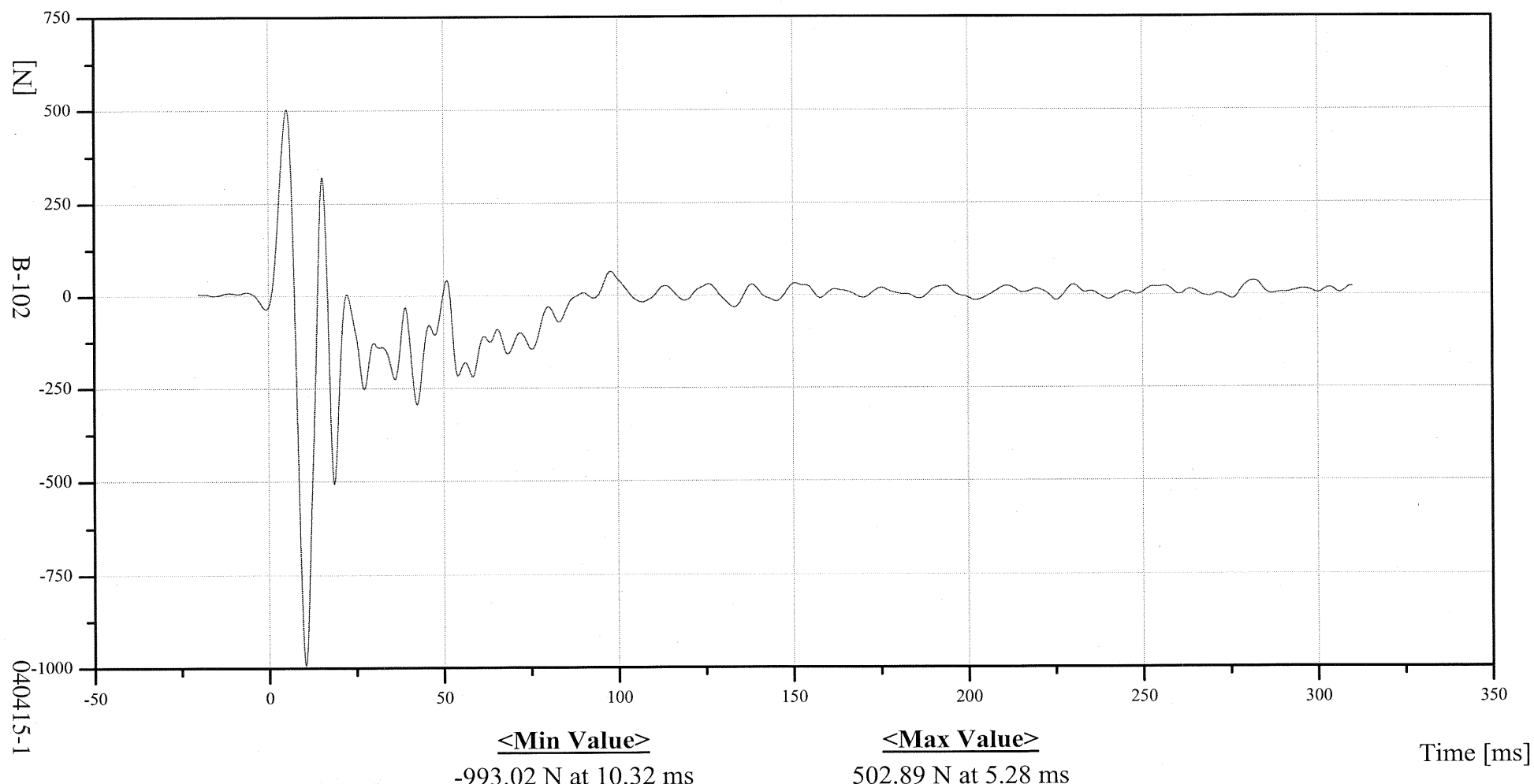
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

LC0204



CFC60 [SAE J211 Polarity, Biased Removed and Filtered]



Transportation Research Center, Inc.

ROW 2 COLUMN 5

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

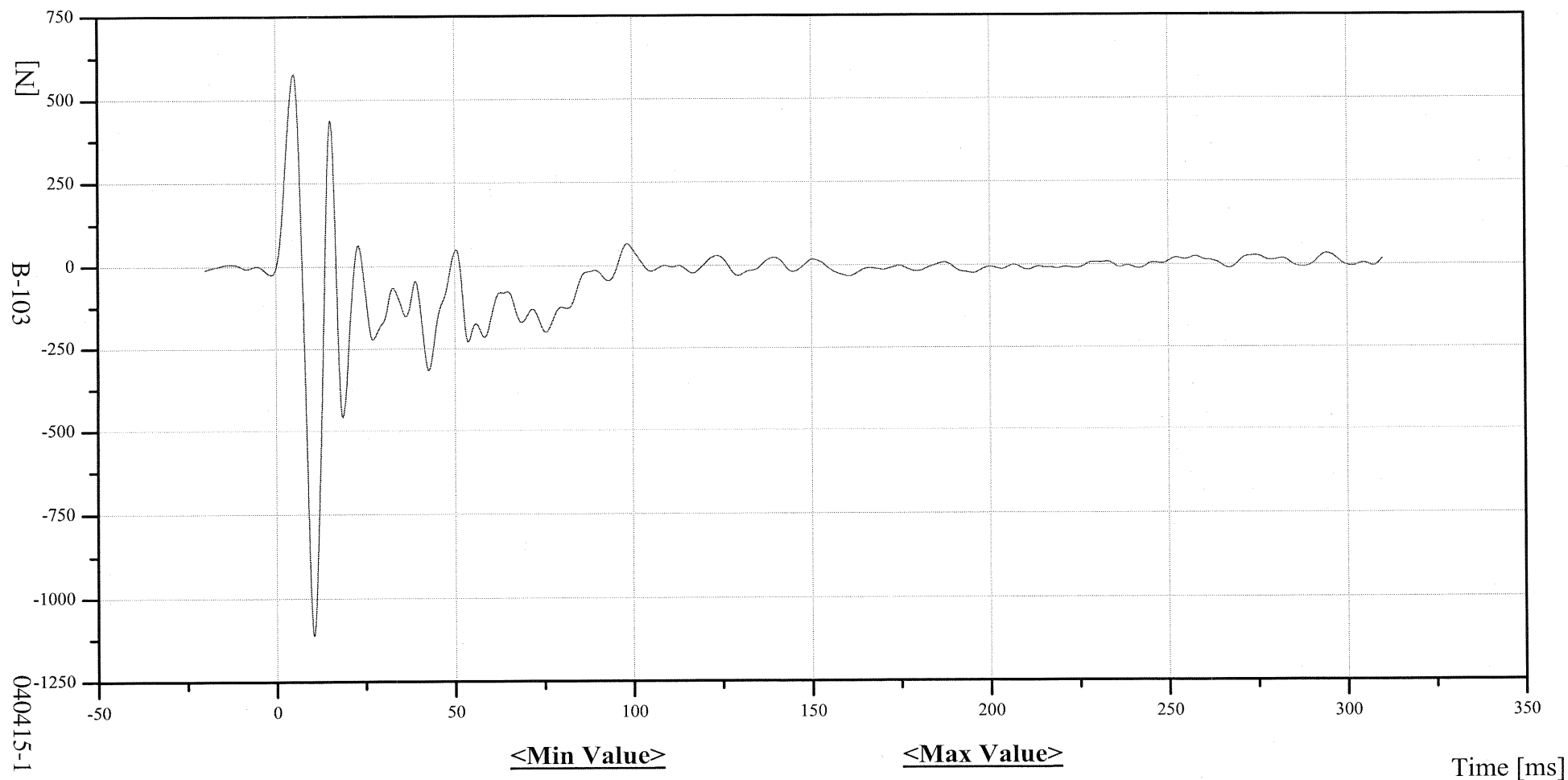
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

LC0205



CFC60 [SAE J211 Polarity, Biased Removed and Filtered]

-1113.55 N at 10.40 ms

578.61 N at 5.04 ms



Transportation Research Center, Inc.

ROW 2 COLUMN 6

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

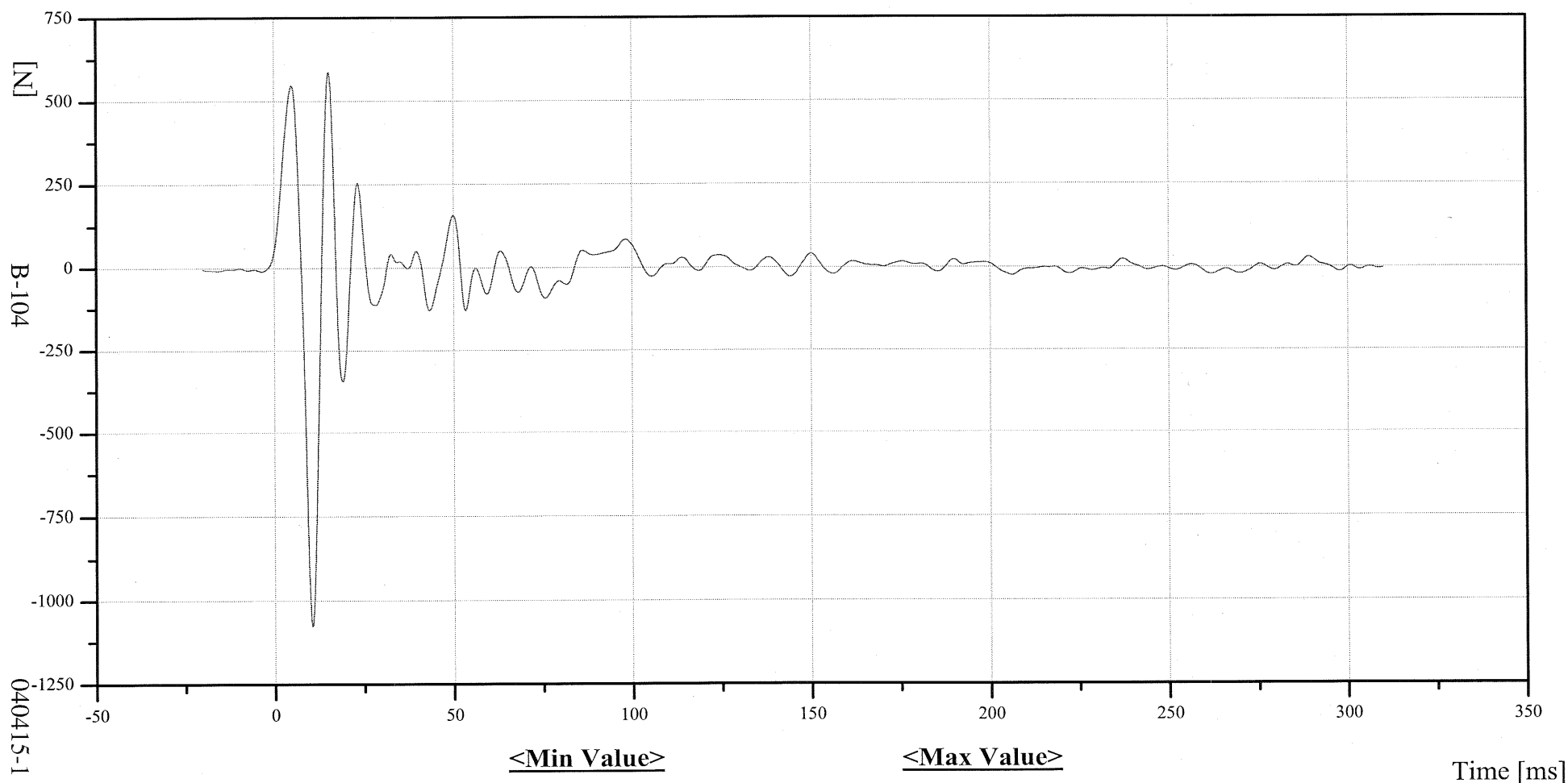
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

LC0206



CFC60 [SAE J211 Polarity, Biased Removed and Filtered]



Transportation Research Center, Inc.

ROW 2 COLUMN 7

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

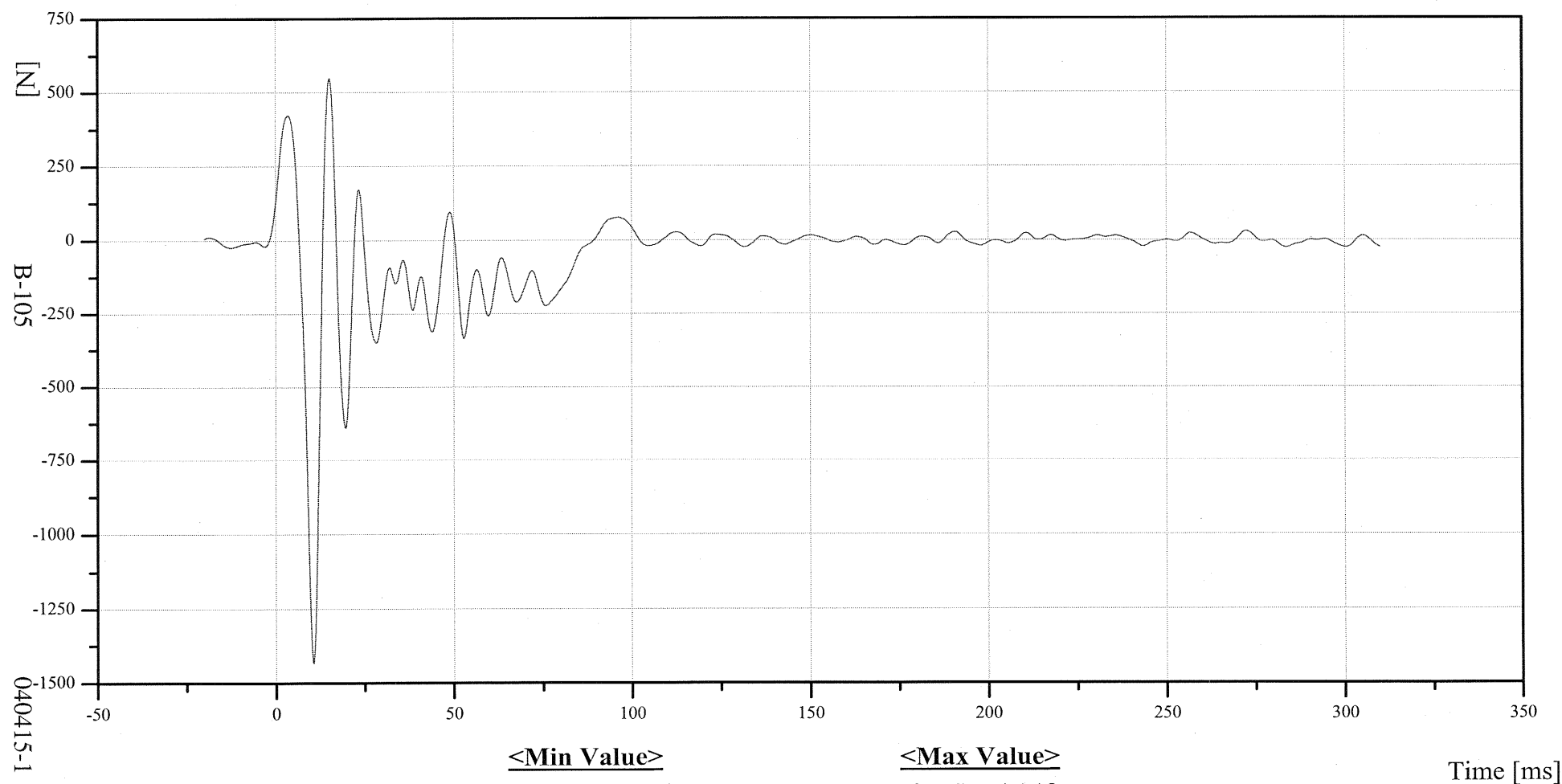
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

LC0207



CFC60 [SAE J211 Polarity, Biased Removed and Filtered]



Transportation Research Center, Inc.

ROW 2 COLUMN 8

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

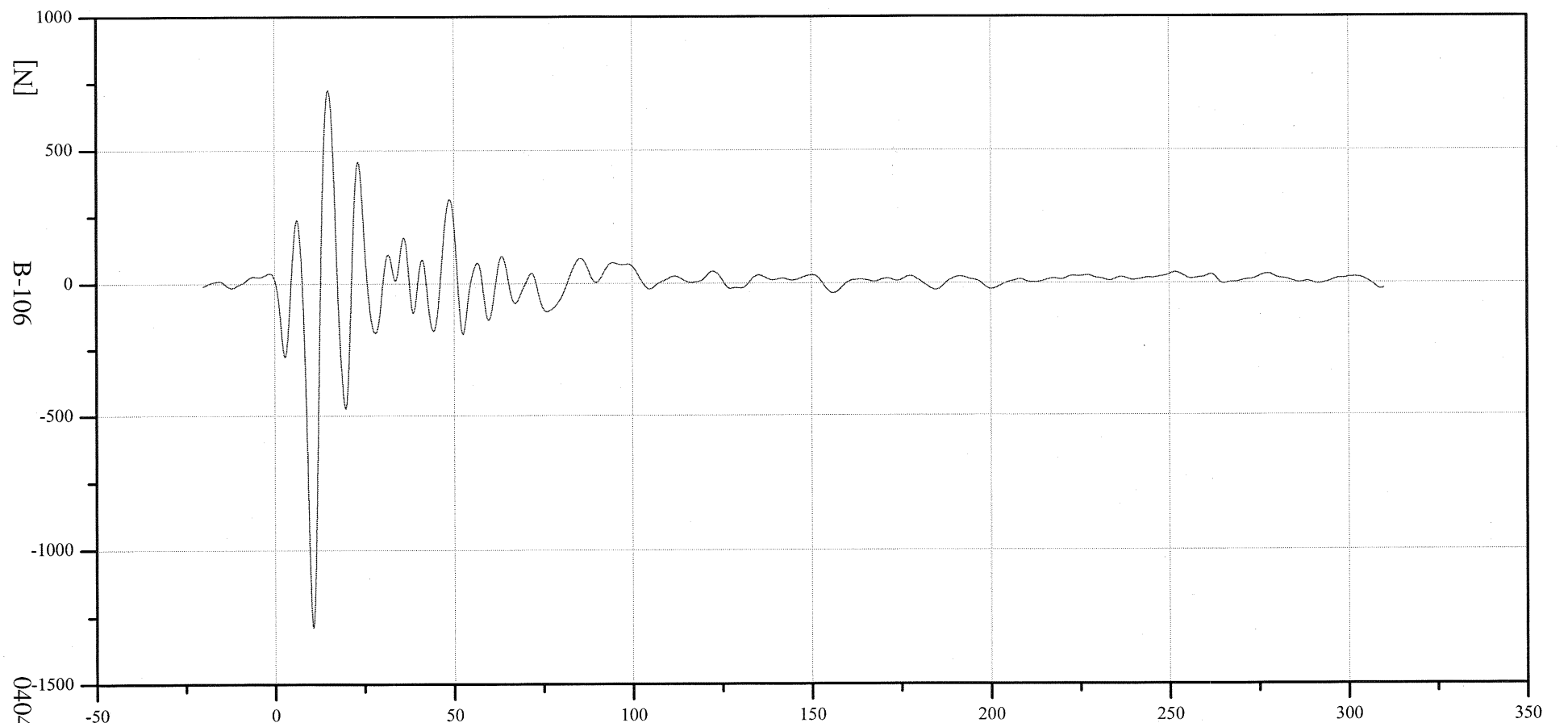
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

LC0208



<Min Value>

-1287.98 N at 10.56 ms

<Max Value>

723.91 N at 14.96 ms

Time [ms]

CFC60 [SAE J211 Polarity, Biased Removed and Filtered]



Transportation Research Center, Inc.

ROW 2 COLUMN 9

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

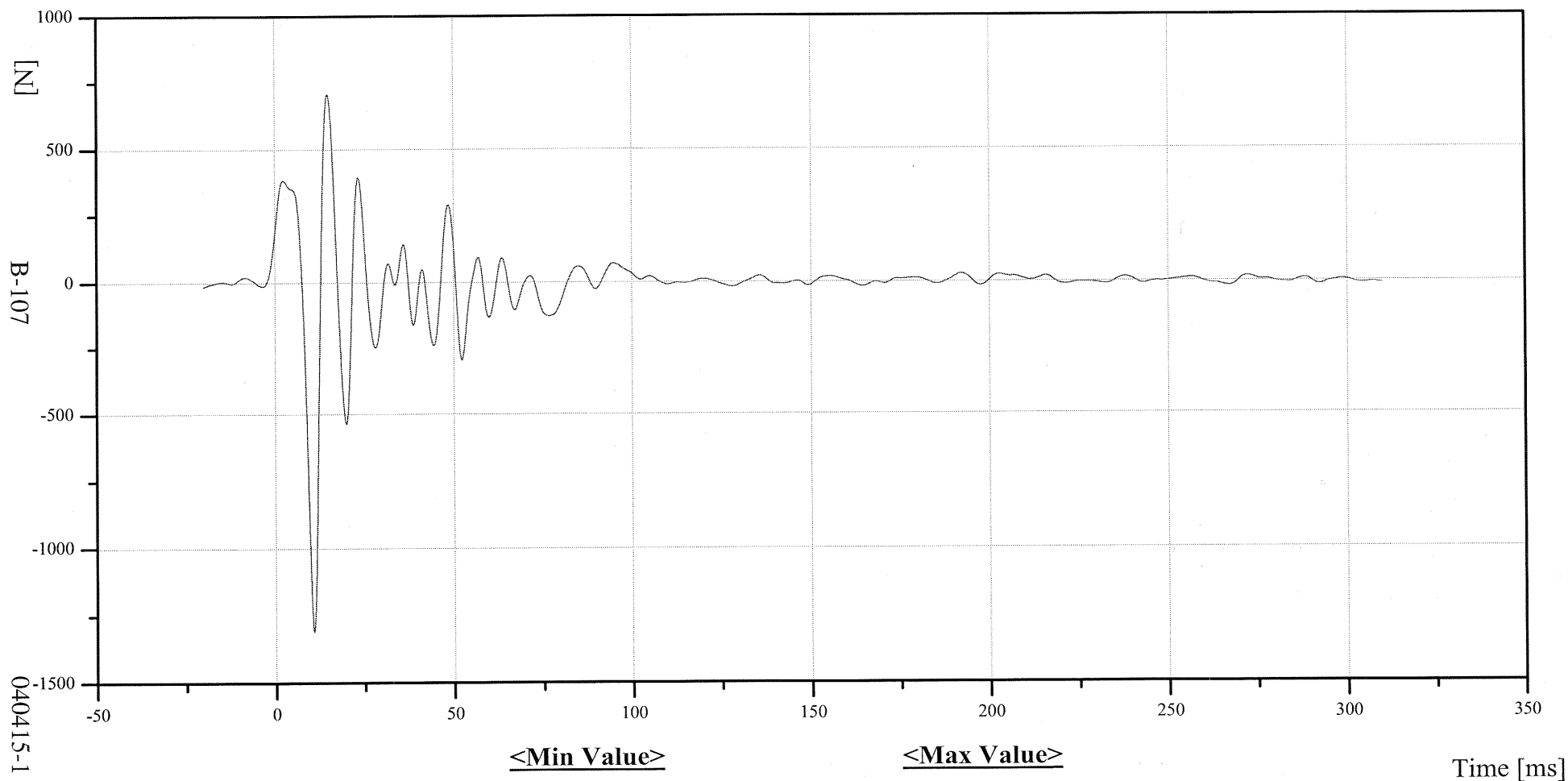
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

LC0209



CFC60 [SAE J211 Polarity, Biased Removed and Filtered]



Transportation Research Center, Inc.

ROW 2 COLUMN 10

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

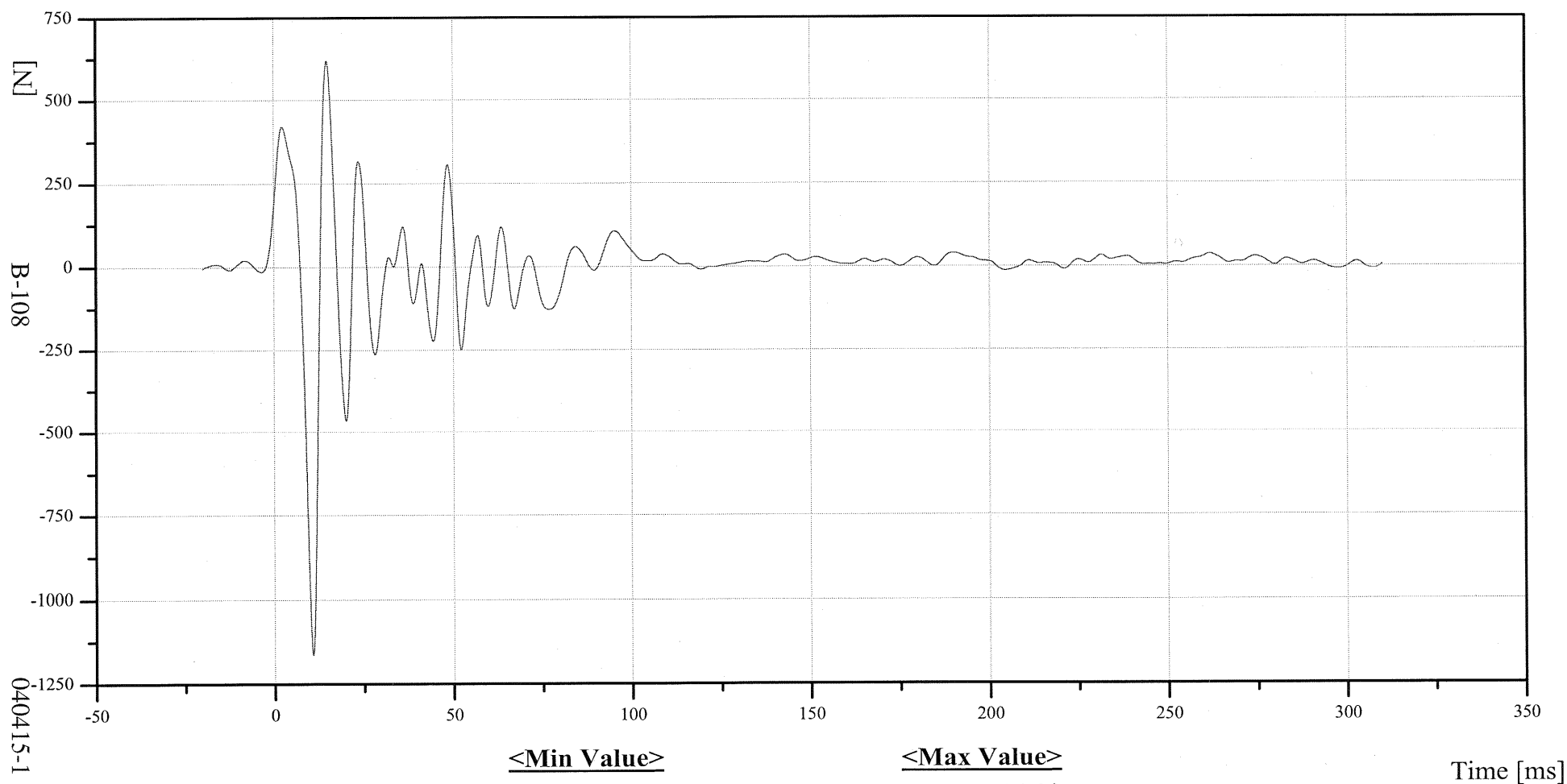
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

LC0210



<Min Value>

-1163.36 N at 10.64 ms

<Max Value>

618.24 N at 14.88 ms

Time [ms]

CFC60 [SAE J211 Polarity, Biased Removed and Filtered]



Transportation Research Center, Inc.

ROW 2 COLUMN 11

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

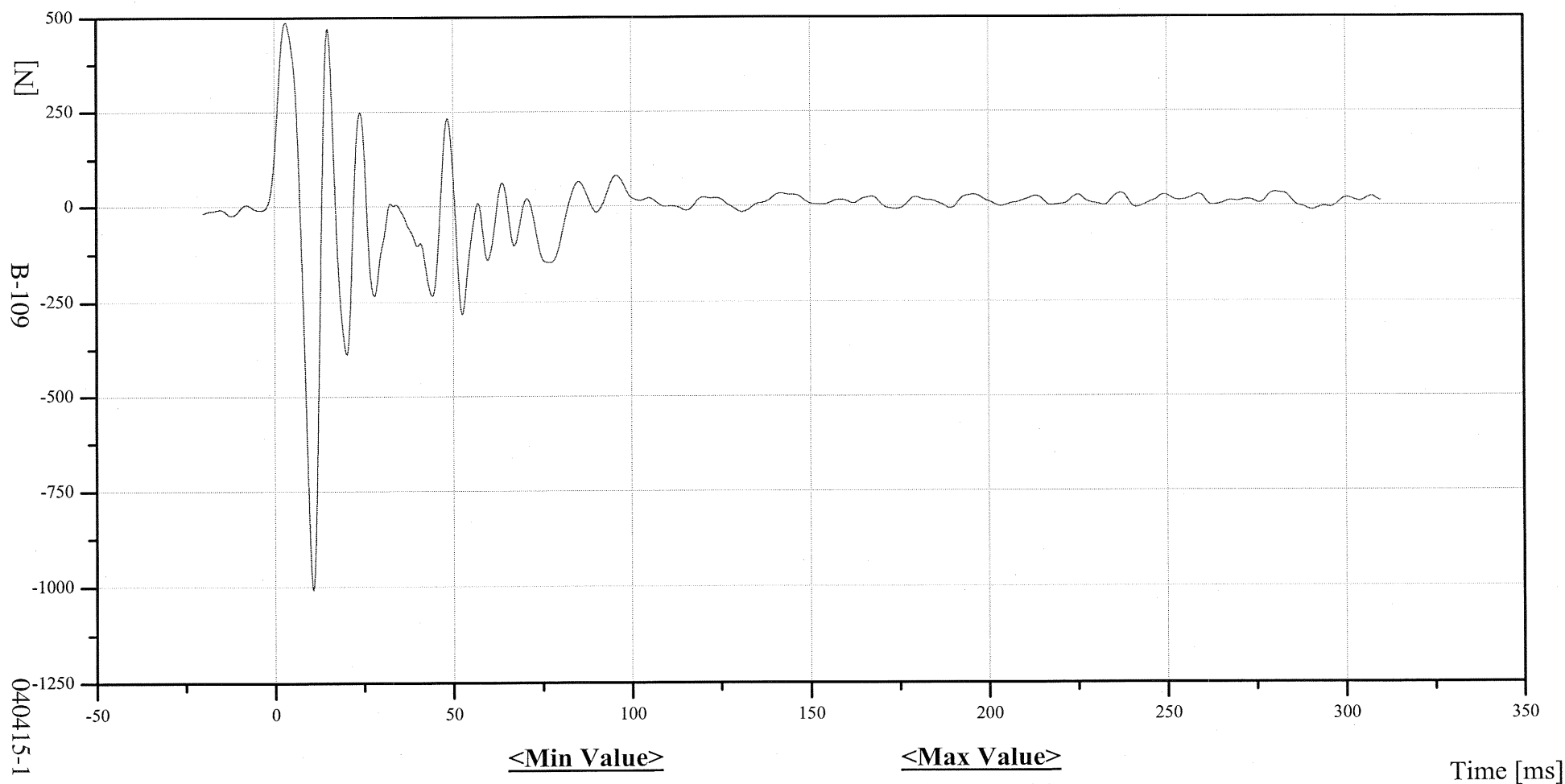
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

LC0211



CFC60 [SAE J211 Polarity, Biased Removed and Filtered]



Transportation Research Center, Inc.

ROW 2 COLUMN 12

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

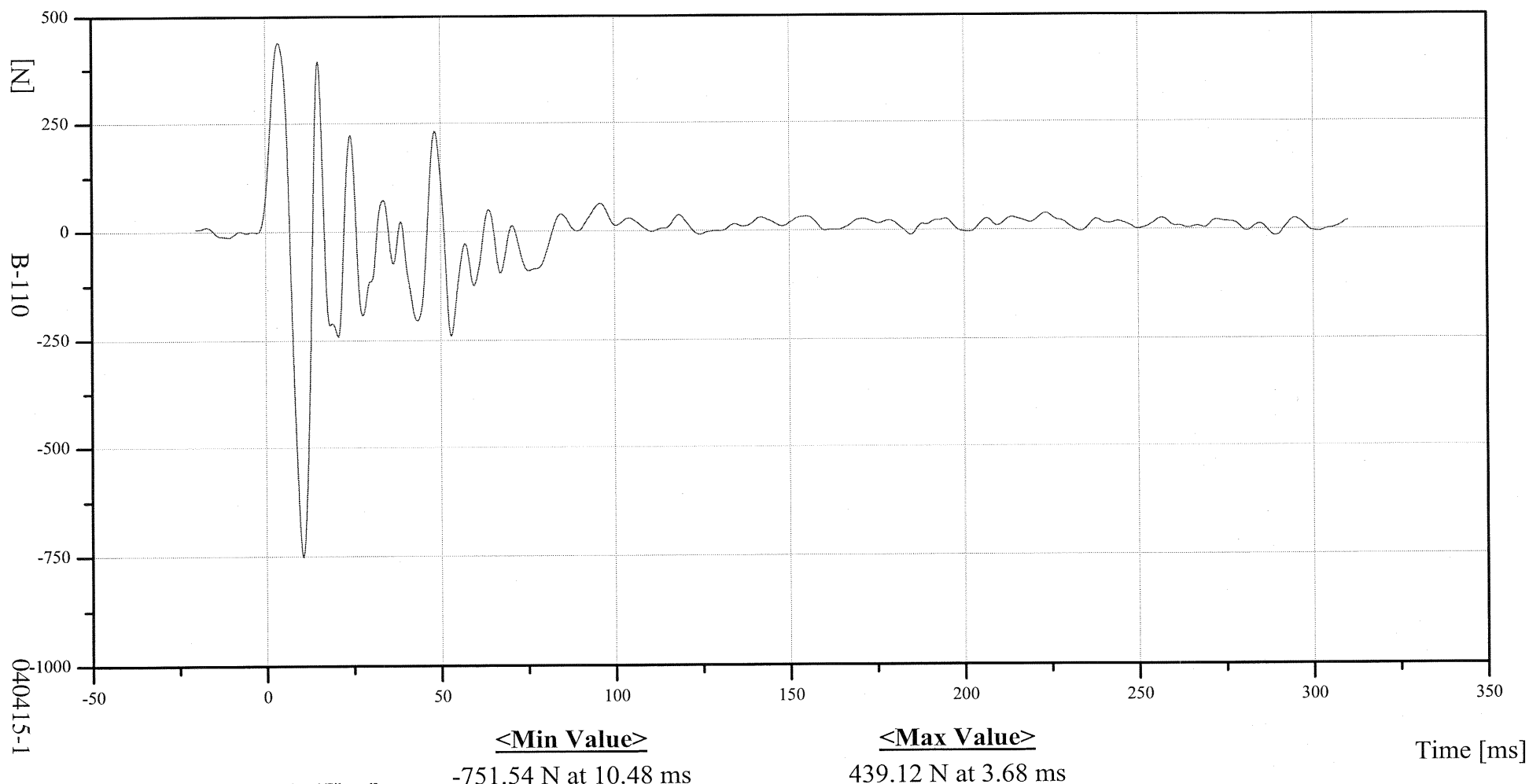
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

LC0212



CFC60 [SAE J211 Polarity, Biased Removed and Filtered]



Transportation Research Center, Inc.

ROW 2 COLUMN 13

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

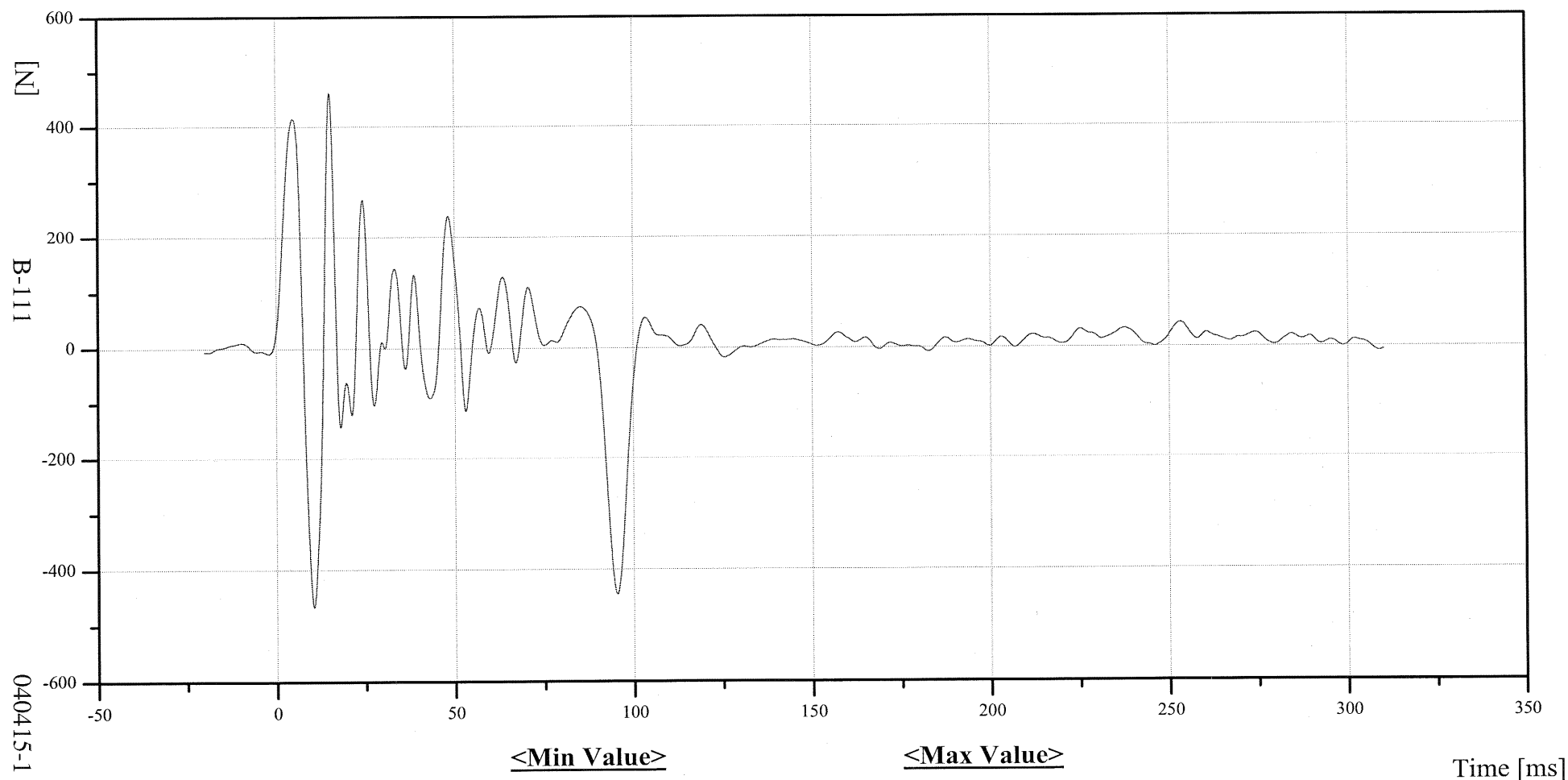
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

LC0213



CFC60 [SAE J211 Polarity, Biased Removed and Filtered]



Transportation Research Center, Inc.

ROW 2 COLUMN 14

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

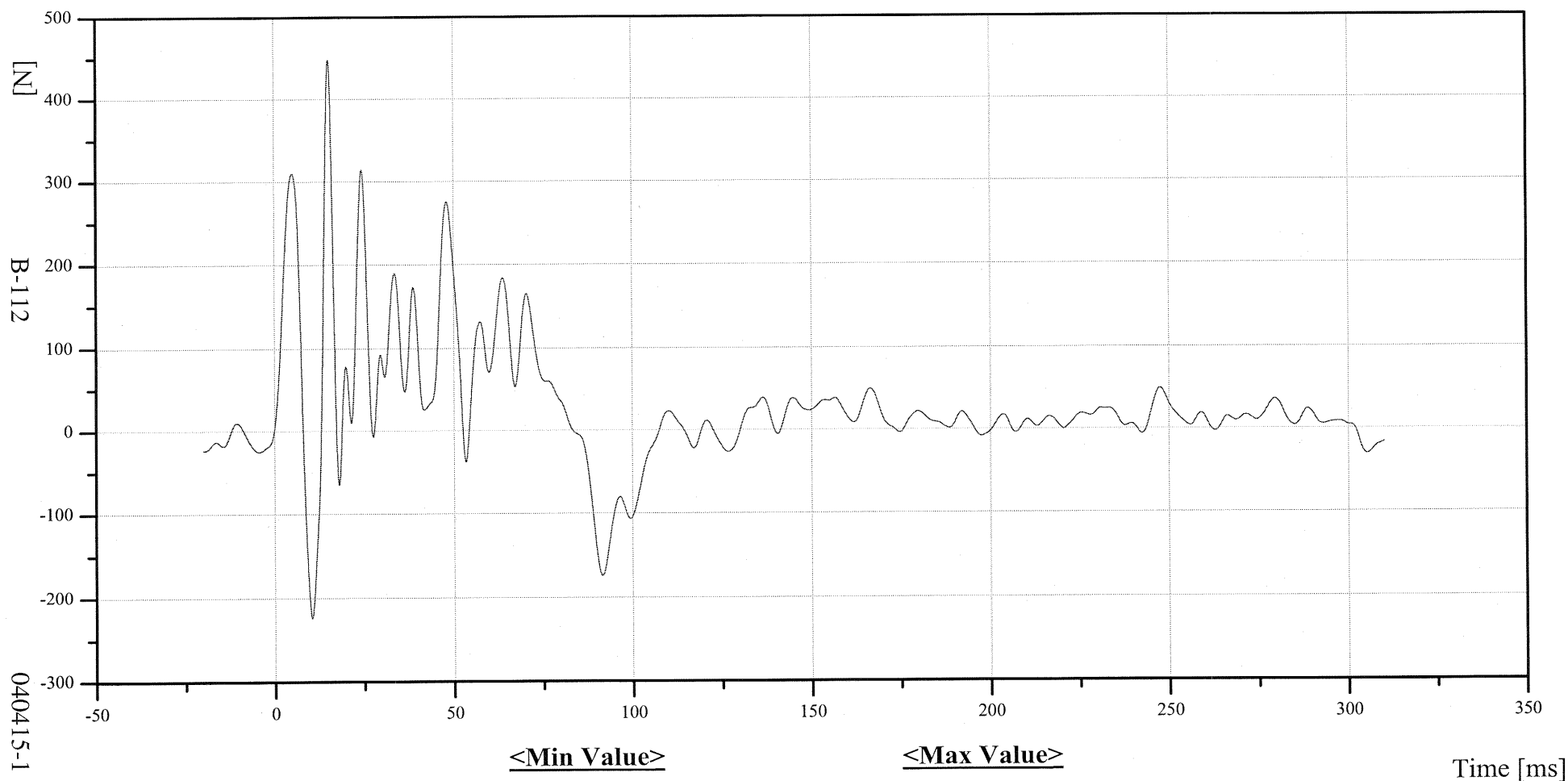
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

LC0214



CFC60 [SAE J211 Polarity, Biased Removed and Filtered]



Transportation Research Center, Inc.

ROW 2 COLUMN 15

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

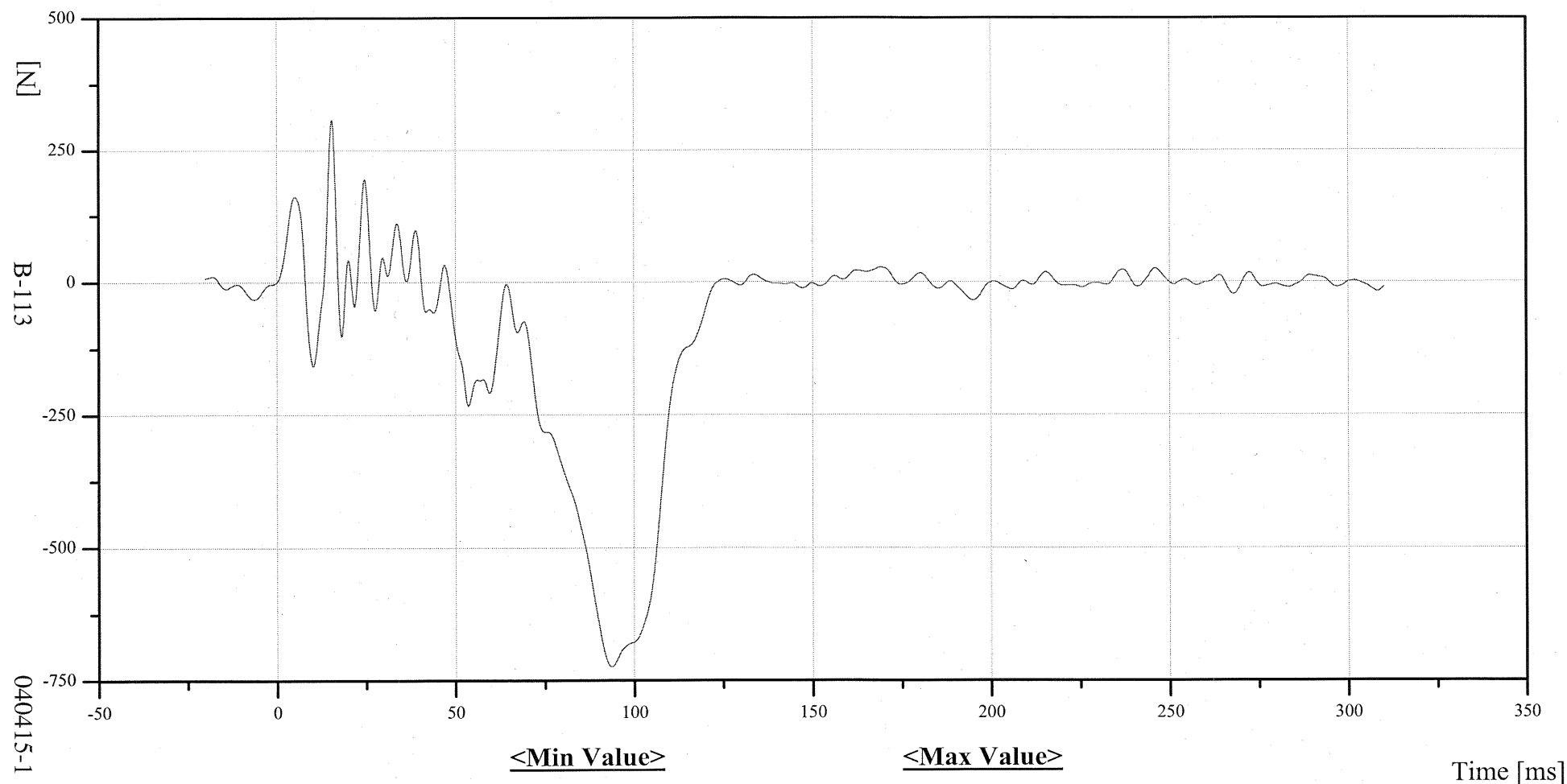
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

LC0215



CFC60 [SAE J211 Polarity, Biased Removed and Filtered]



Transportation Research Center, Inc.

ROW 2 COLUMN 16

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

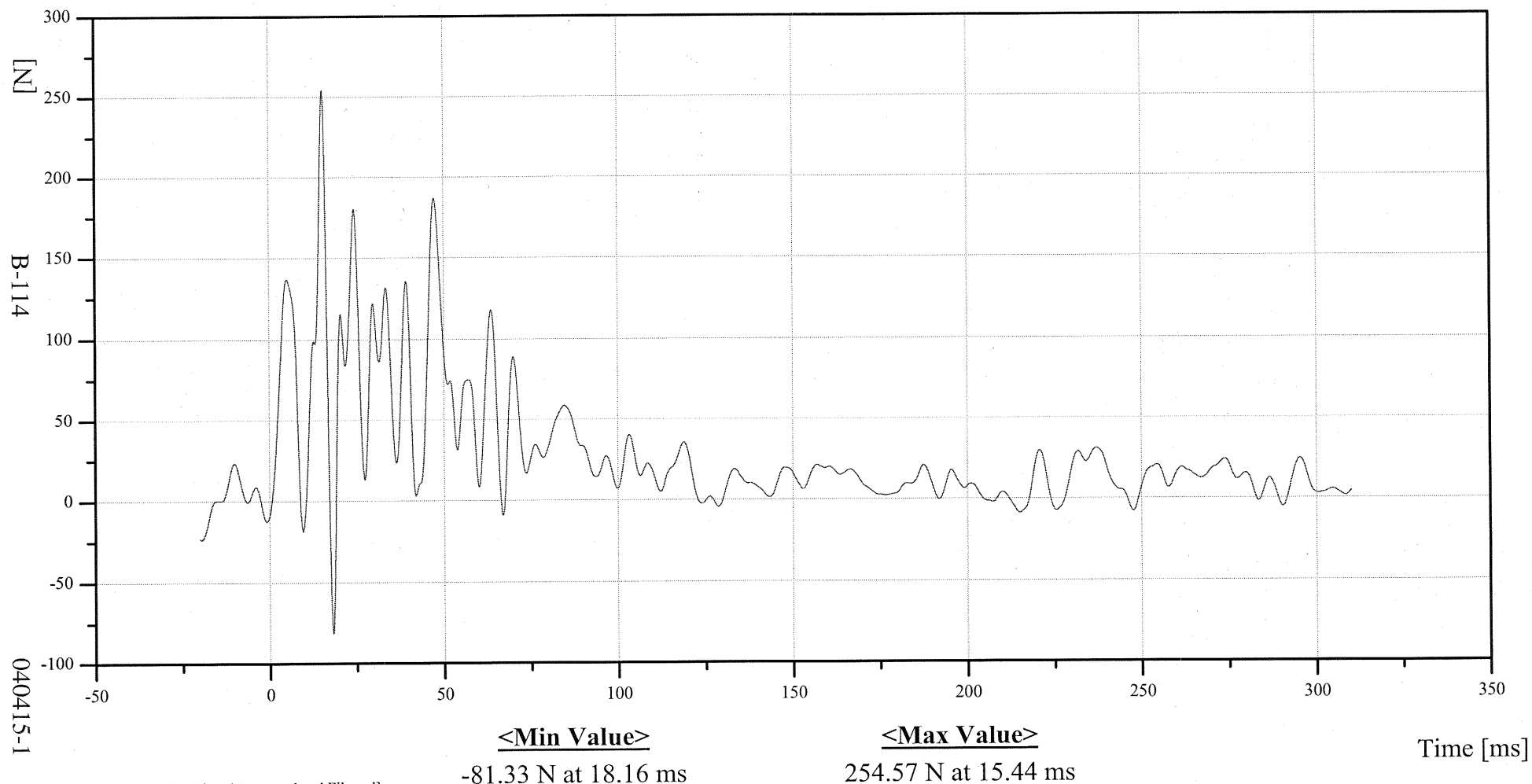
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

LC0216



CFC60 [SAE J211 Polarity, Biased Removed and Filtered]



Transportation Research Center, Inc.

ROW 3 COLUMN 1

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

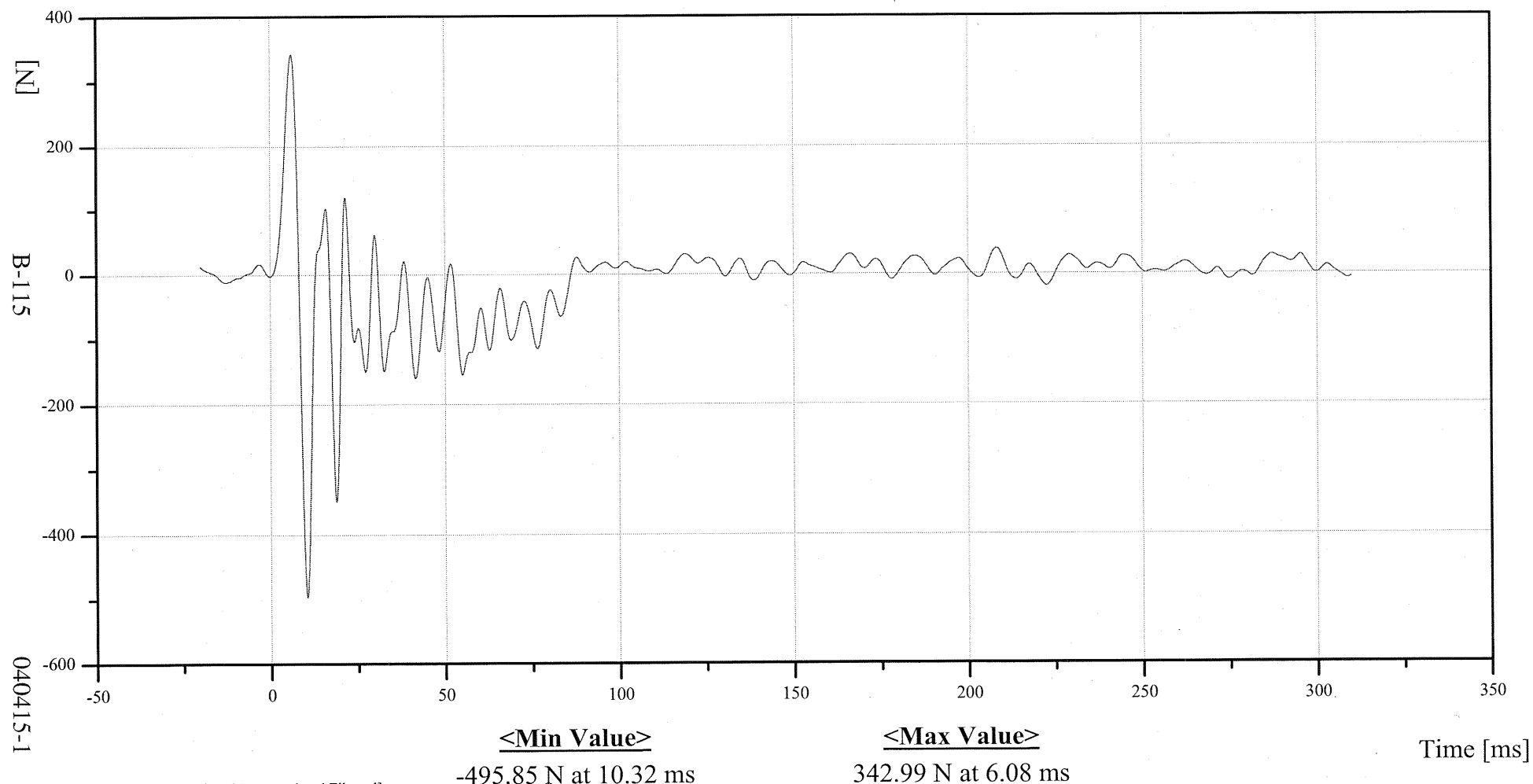
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

LC0301



CFC60 [SAE J211 Polarity, Biased Removed and Filtered]



Transportation Research Center, Inc.

ROW 3 COLUMN 2

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

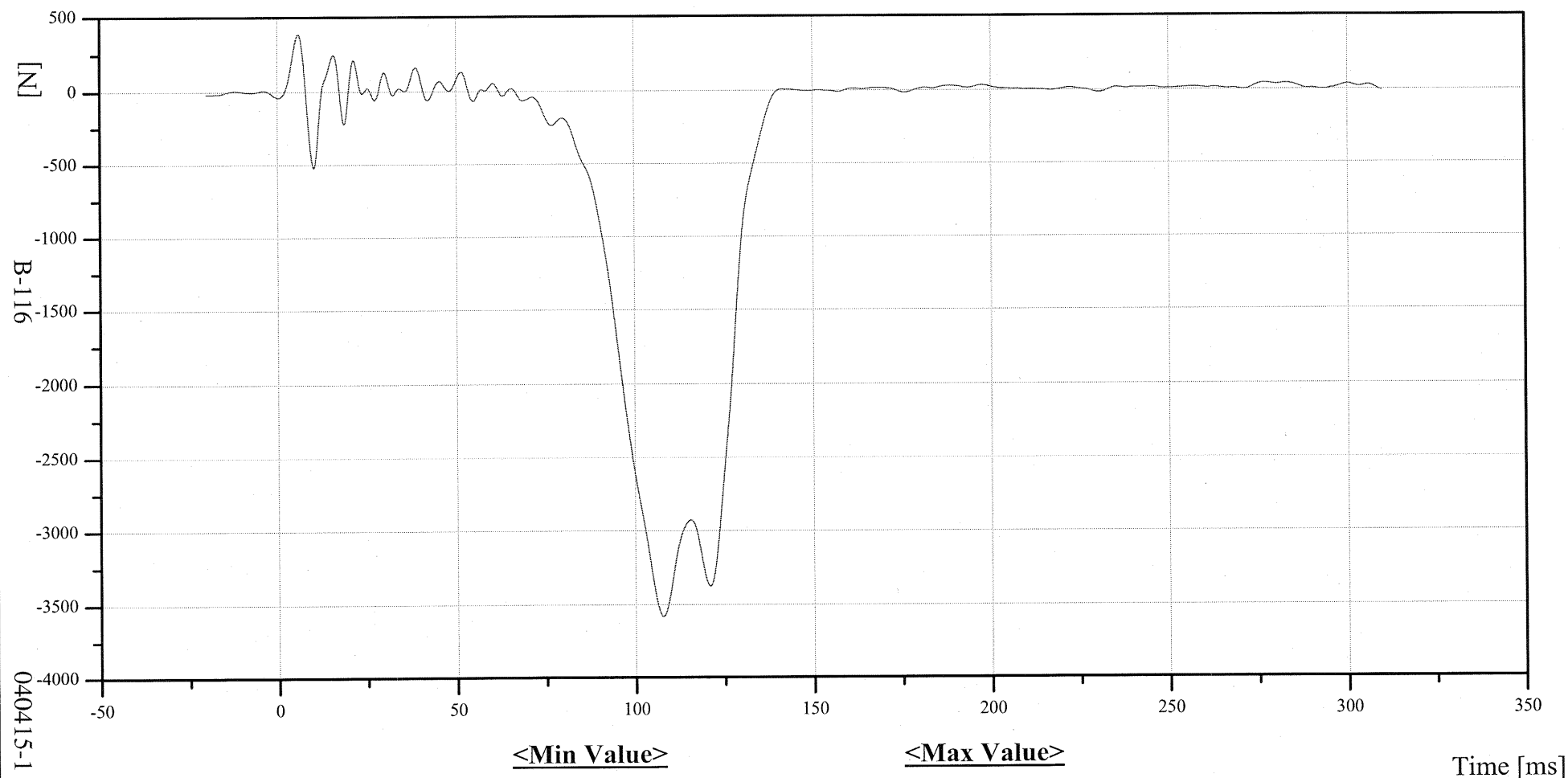
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

LC0302



CFC60 [SAE J211 Polarity, Biased Removed and Filtered]



Transportation Research Center, Inc.

ROW 3 COLUMN 3

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

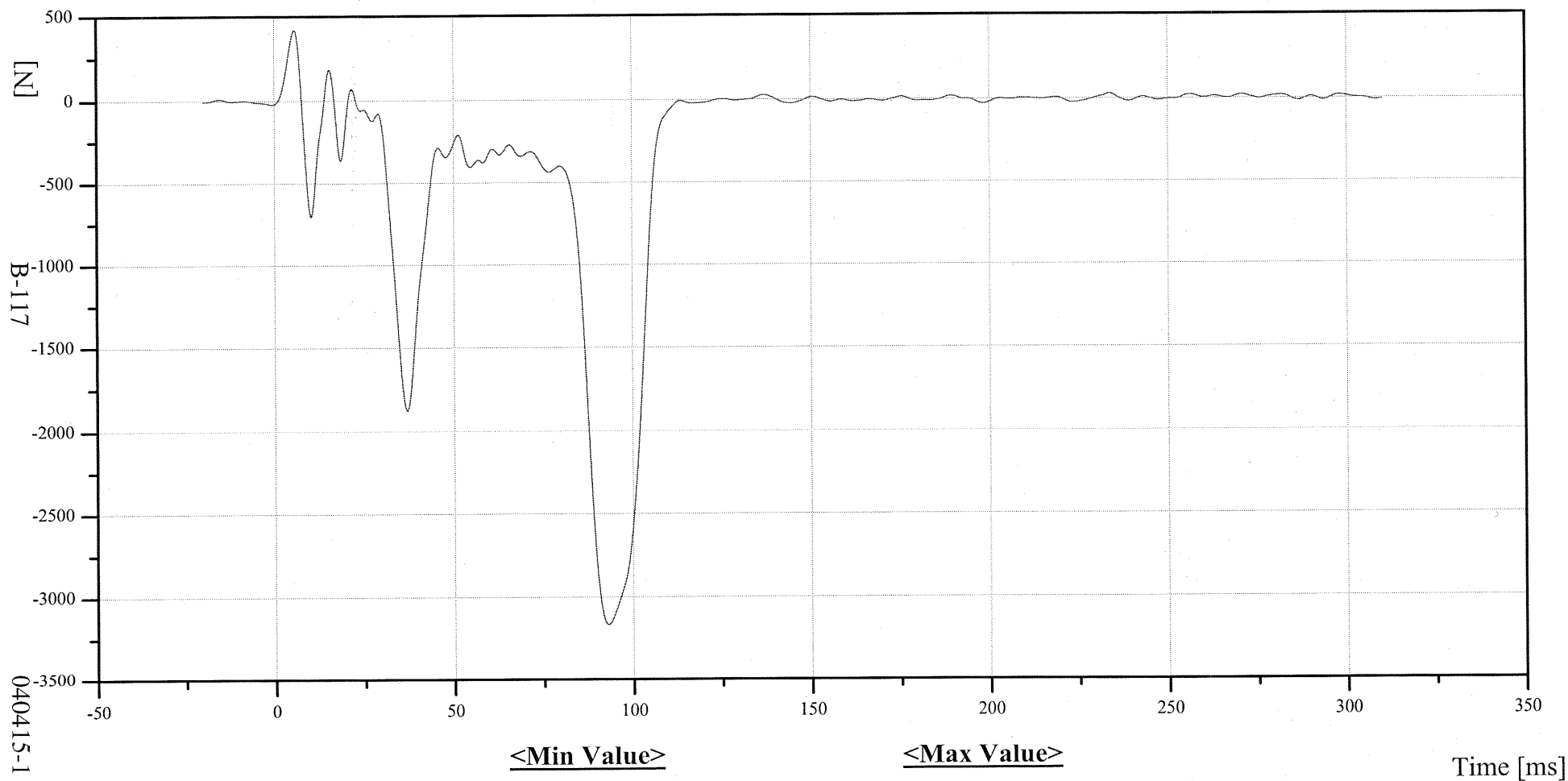
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

LC0303



040415-1
CFC60 [SAE J211 Polarity, Biased Removed and Filtered]



Transportation Research Center, Inc.

ROW 3 COLUMN 4

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

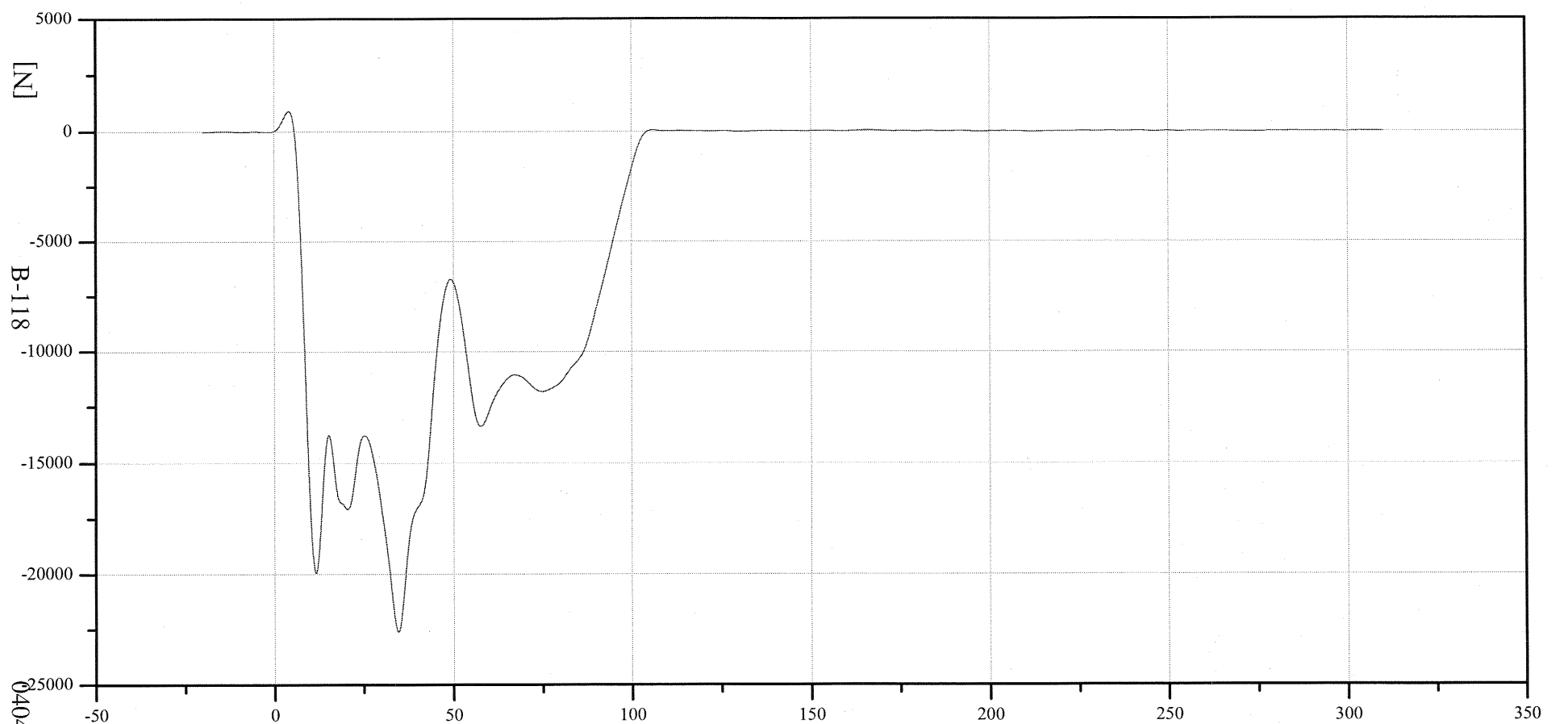
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

LC0304



<Min Value>

<Max Value>

-22604.30 N at 34.56 ms

919.90 N at 4.08 ms

Time [ms]

CFC60 [SAE J211 Polarity, Biased Removed and Filtered]



Transportation Research Center, Inc.

ROW 3 COLUMN 5

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

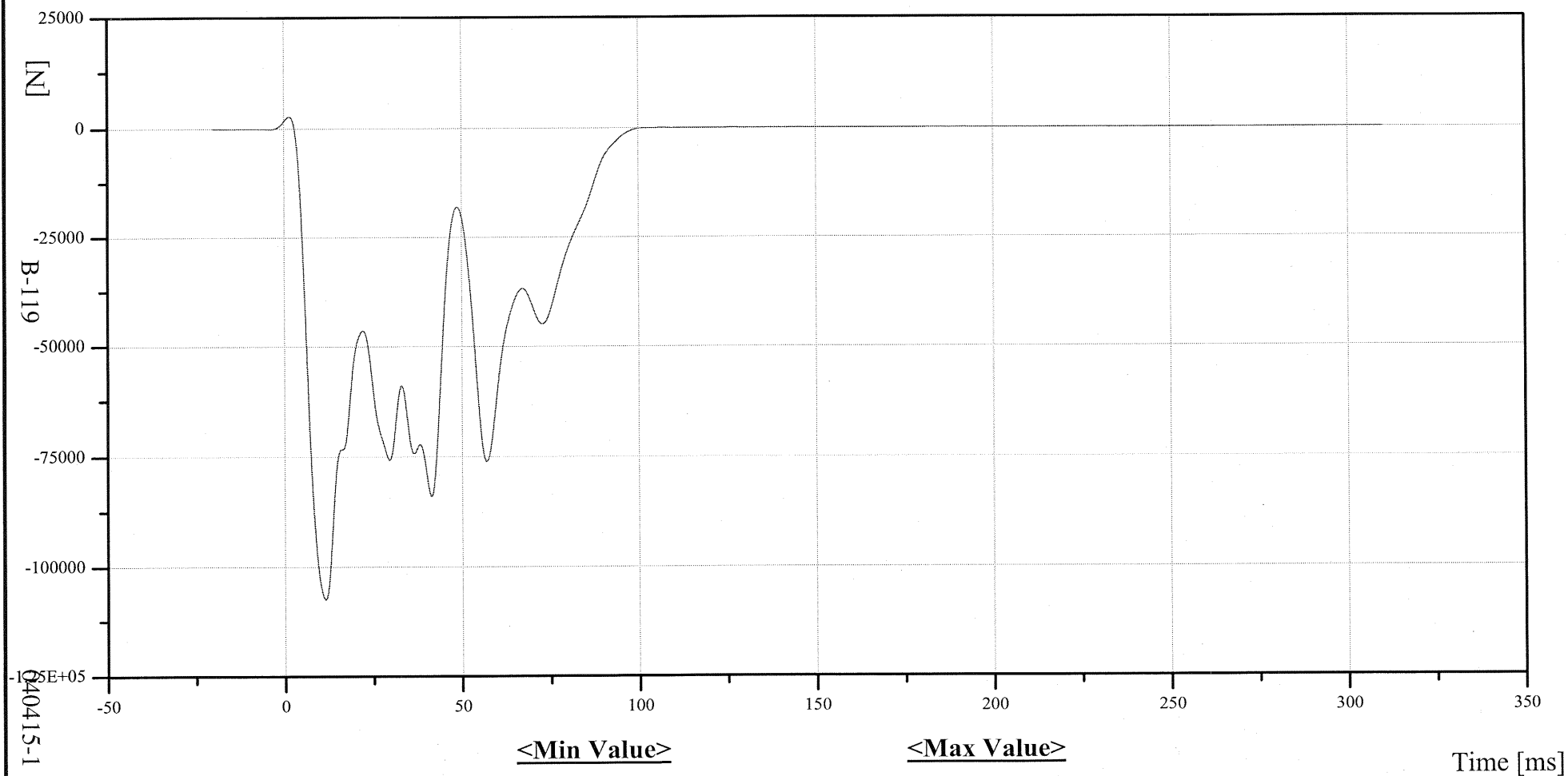
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

LC0305



<Min Value>

-107491.87 N at 11.36 ms

<Max Value>

2817.68 N at 1.52 ms

Time [ms]

CFC60 [SAE J211 Polarity, Biased Removed and Filtered]



Transportation Research Center, Inc.

ROW 3 COLUMN 6

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

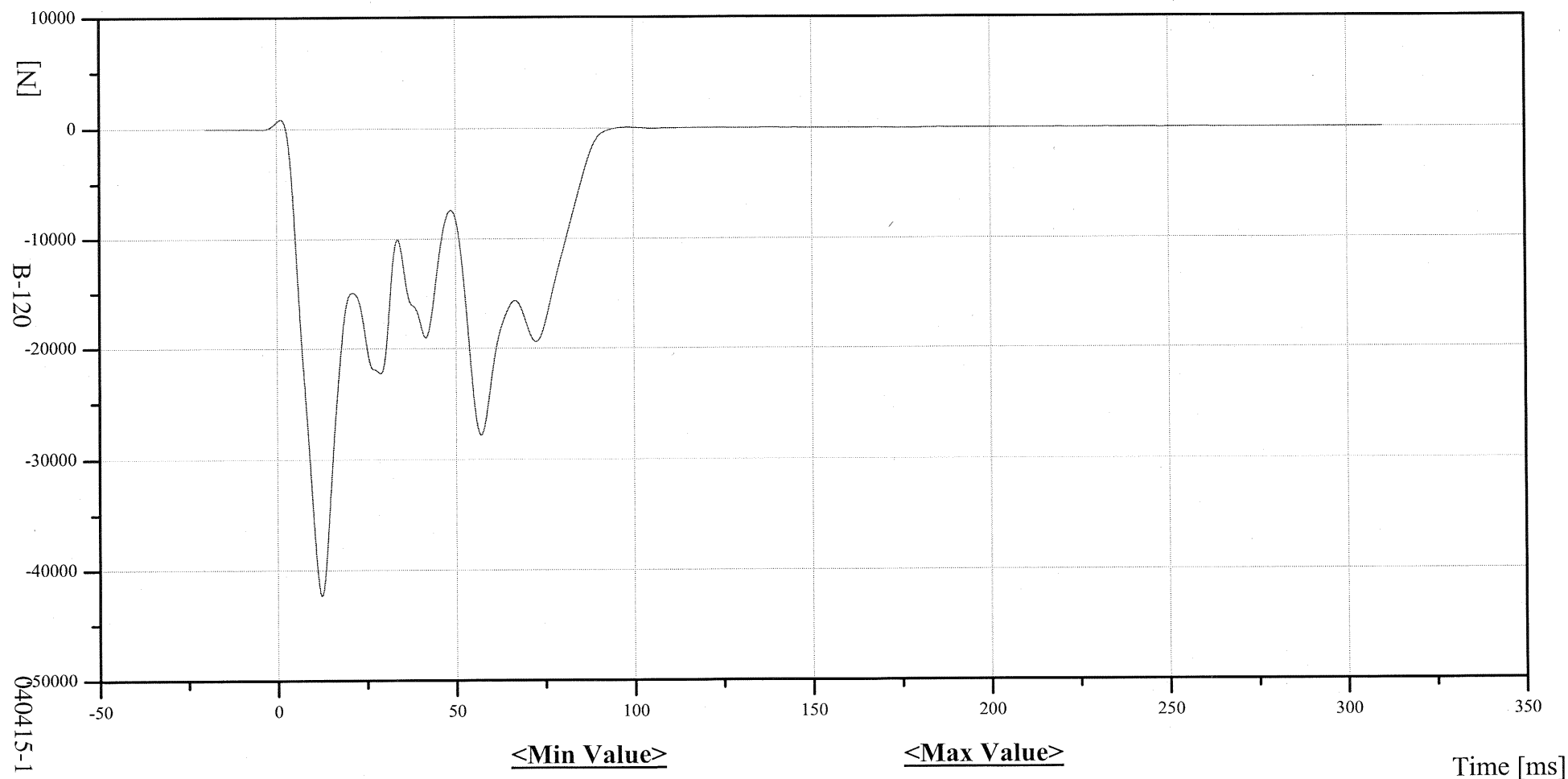
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

LC0306



CFC60 [SAE J211 Polarity, Biased Removed and Filtered]



Transportation Research Center, Inc.

ROW 3 COLUMN 7

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

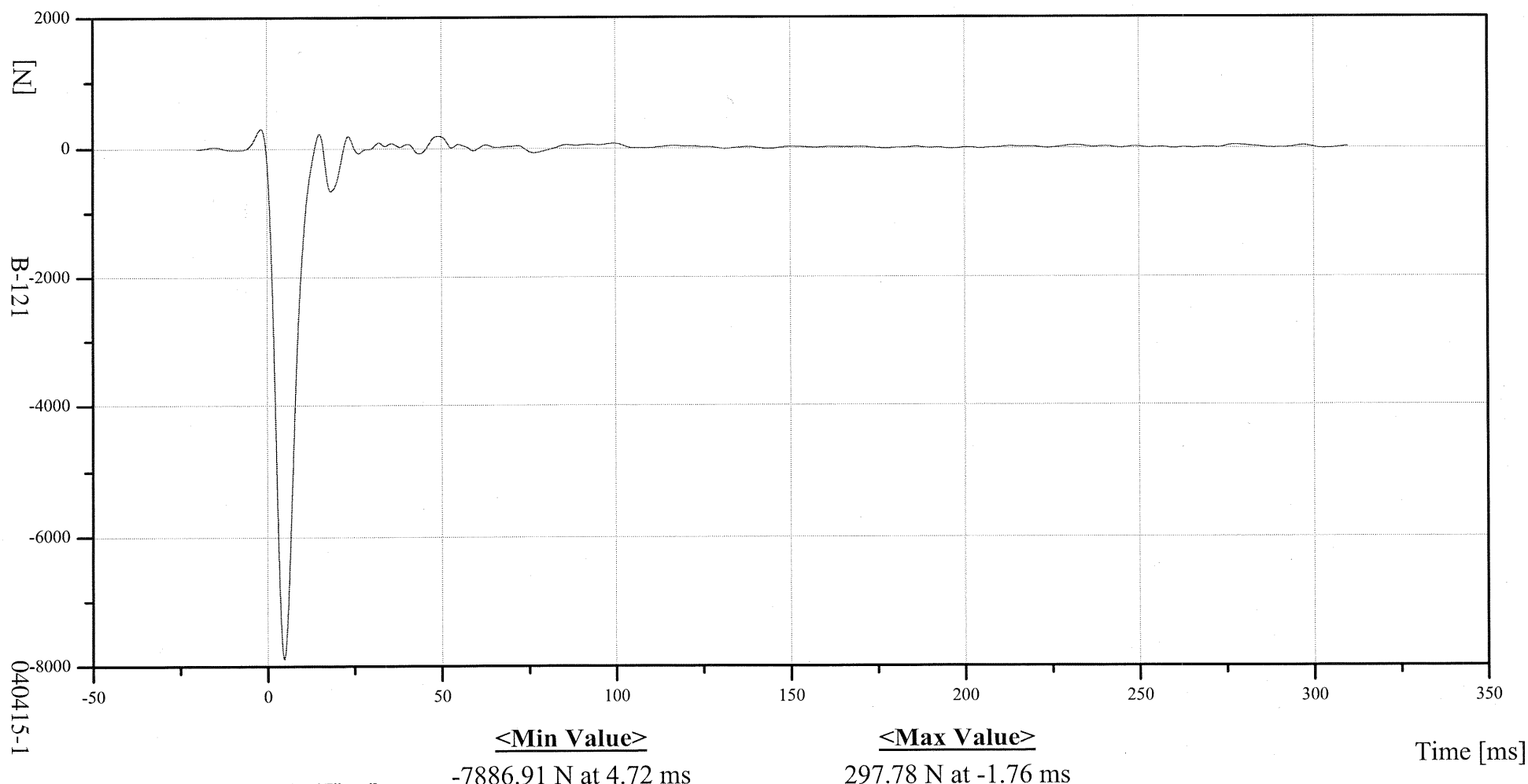
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

LC0307



CFC60 [SAE J211 Polarity, Biased Removed and Filtered]



Transportation Research Center, Inc.

ROW 3 COLUMN 8

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

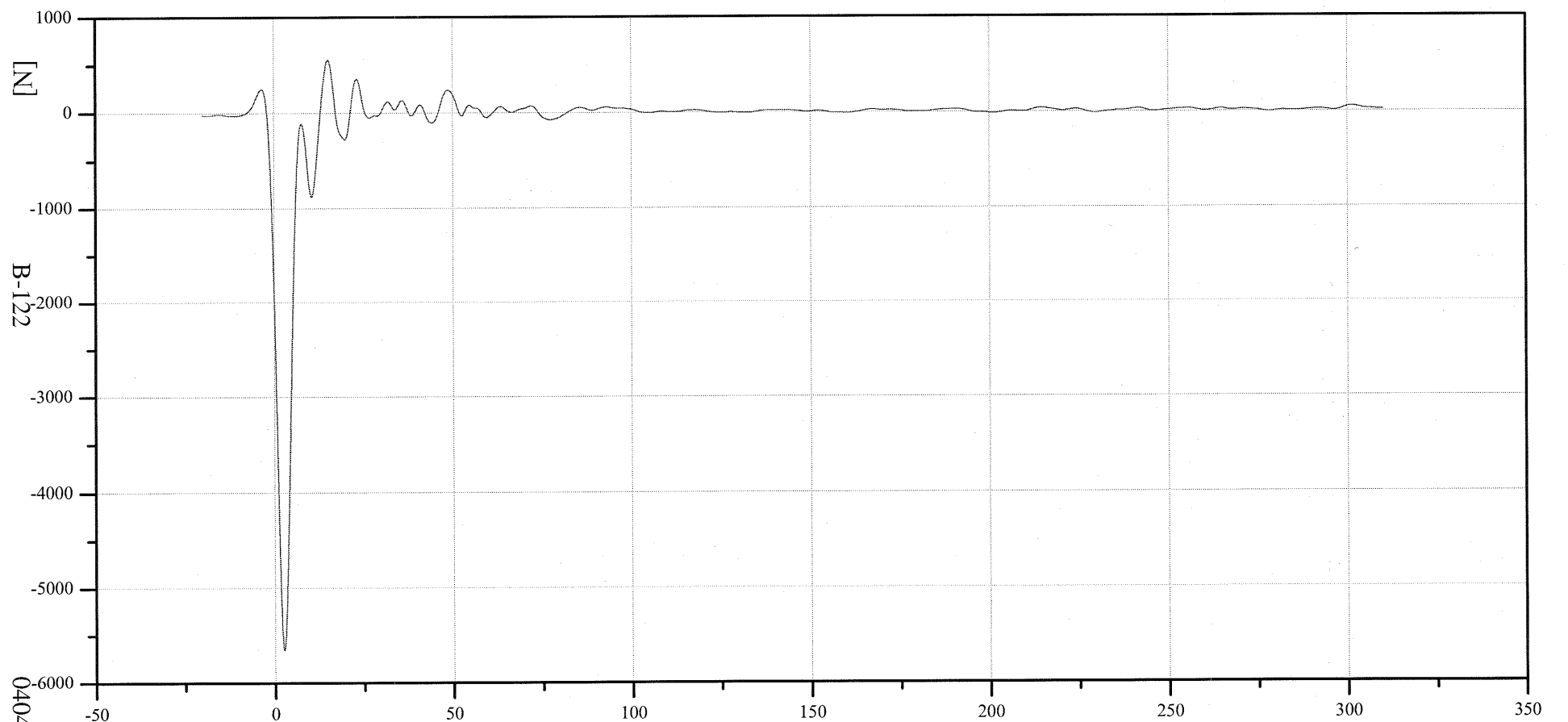
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

LC0308



<Min Value>

-5654.47 N at 2.56 ms

<Max Value>

554.51 N at 15.12 ms

Time [ms]

CFC60 [SAE J211 Polarity, Biased Removed and Filtered]



Transportation Research Center, Inc.

ROW 3 COLUMN 9

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

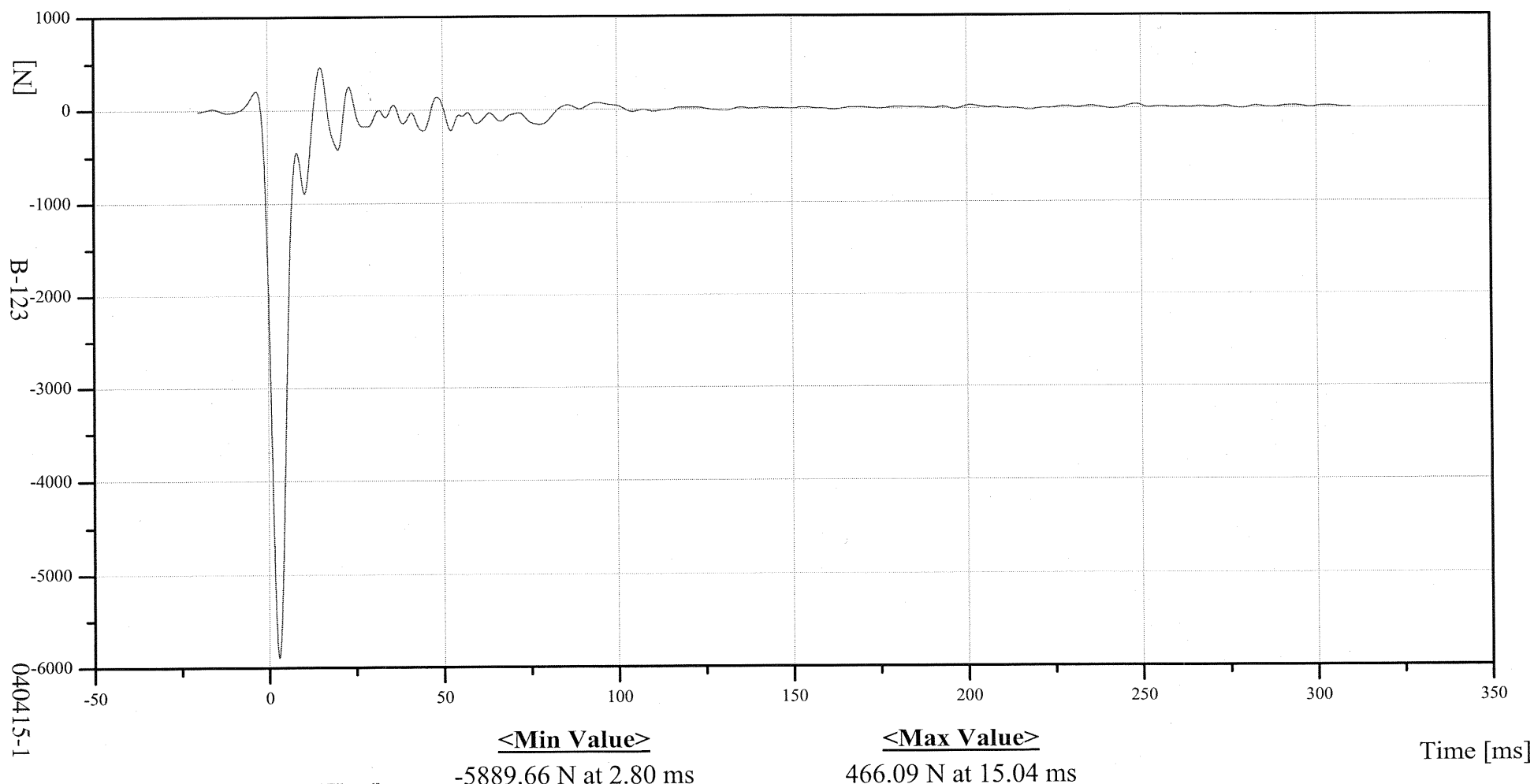
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

LC0309



<Min Value>

-5889.66 N at 2.80 ms

<Max Value>

466.09 N at 15.04 ms

Time [ms]

CFC60 [SAE J211 Polarity, Biased Removed and Filtered]



Transportation Research Center, Inc.

ROW 3 COLUMN 10

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

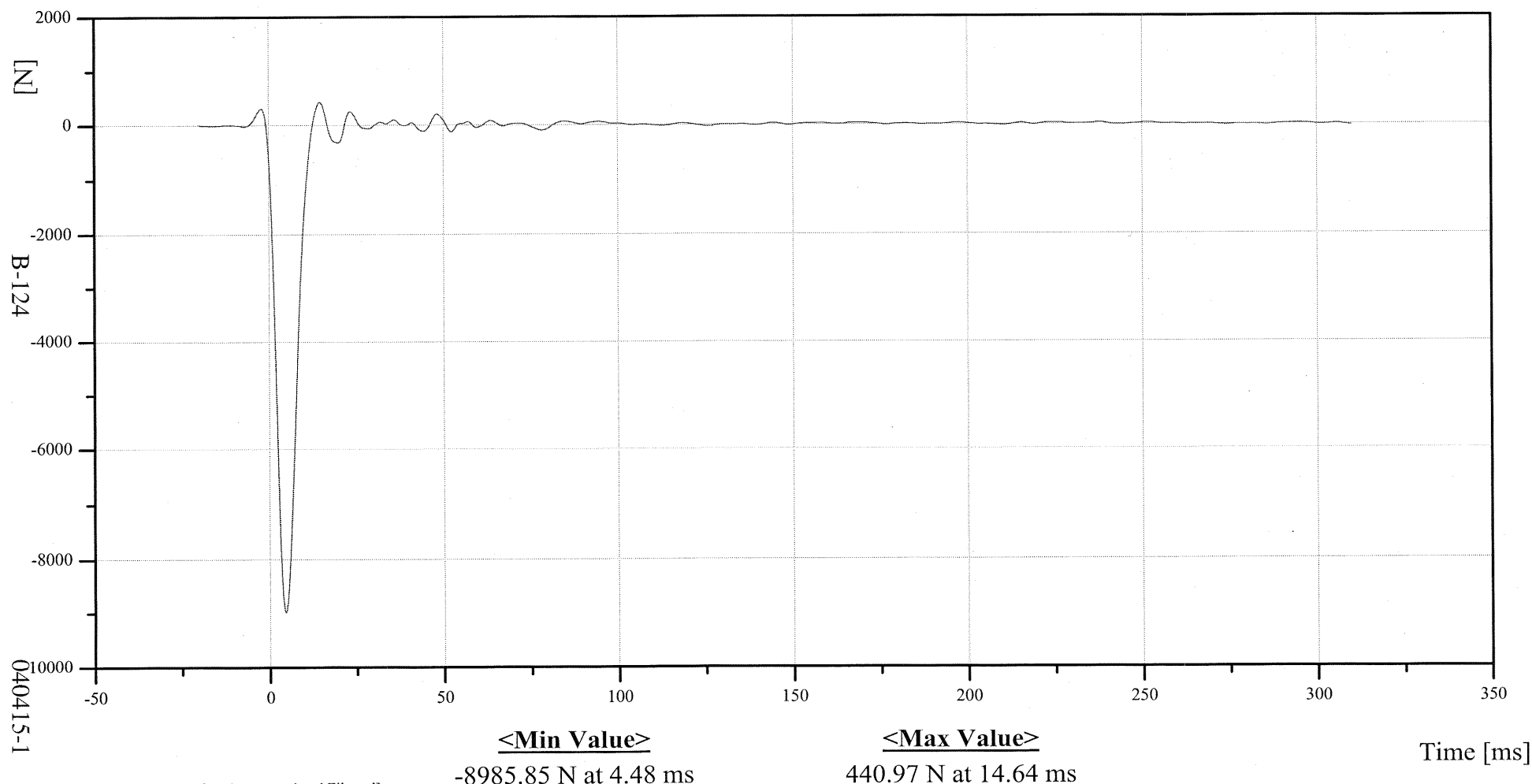
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

LC0310



CFC60 [SAE J211 Polarity, Biased Removed and Filtered]



Transportation Research Center, Inc.

ROW 3 COLUMN 11

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

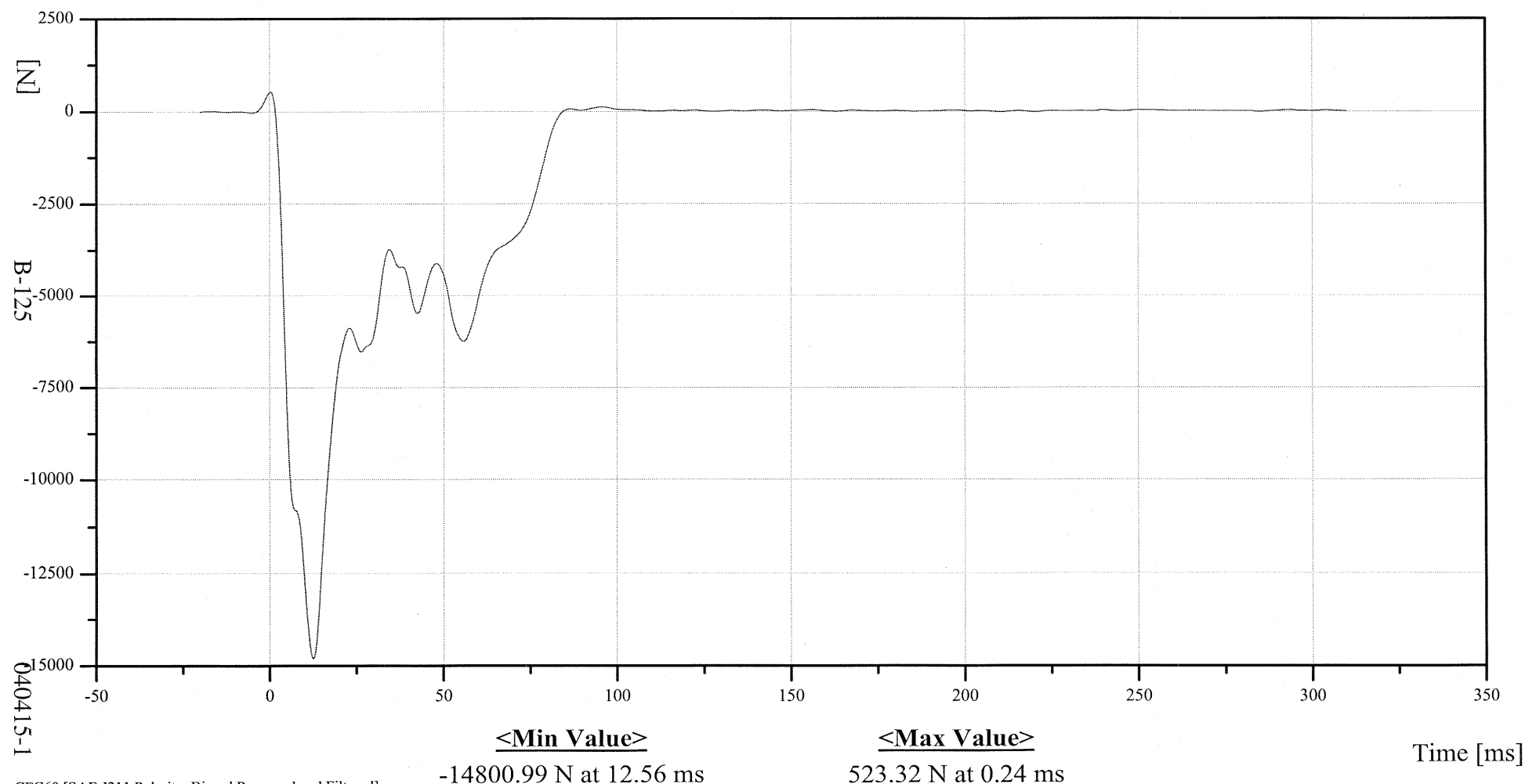
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

LC0311



CFC60 [SAE J211 Polarity, Biased Removed and Filtered]



Transportation Research Center, Inc.

ROW 3 COLUMN 12

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

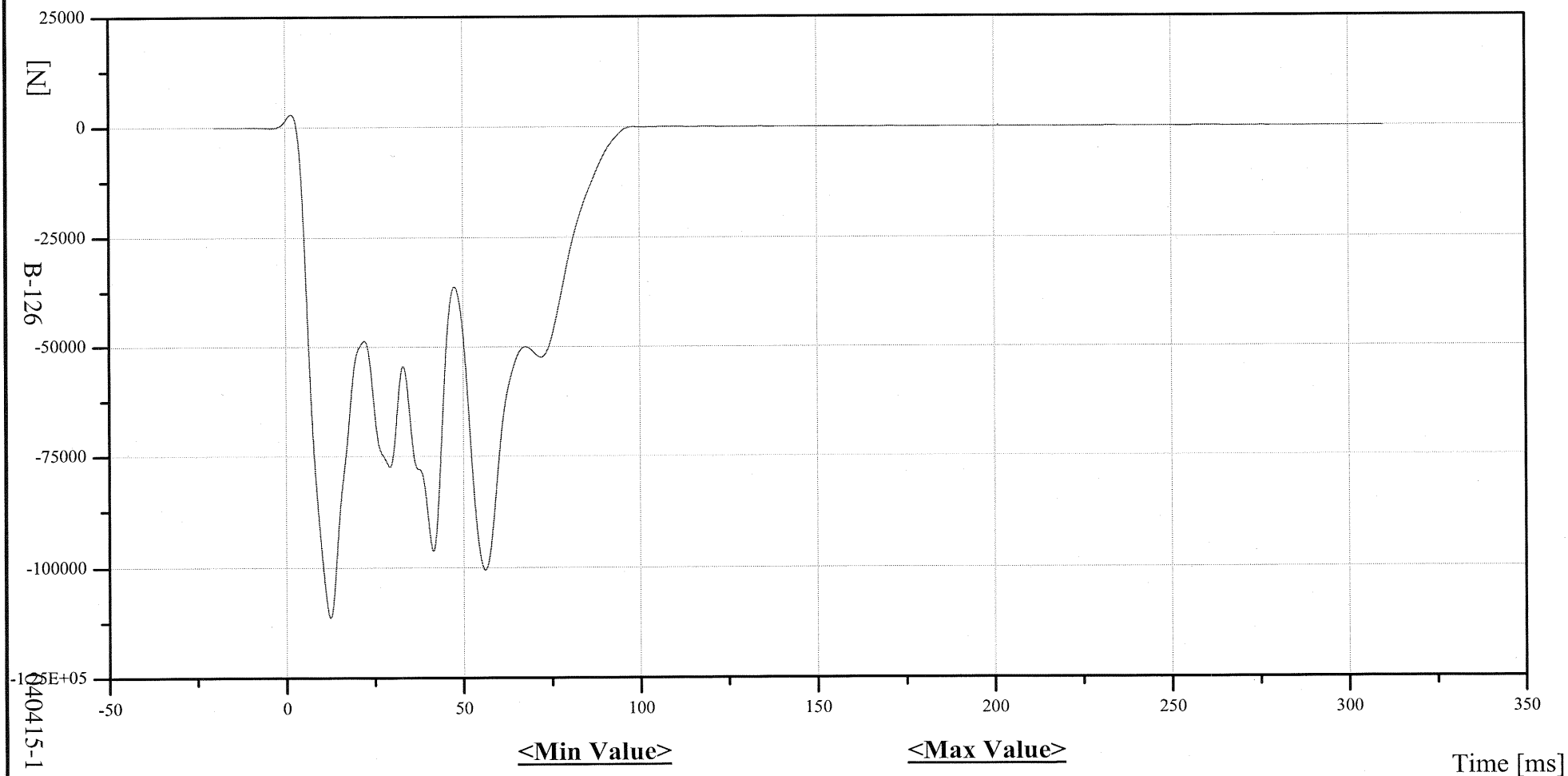
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

LC0312



<Min Value>

-111350.25 N at 12.40 ms

<Max Value>

2867.11 N at 1.68 ms

Time [ms]

CFC60 [SAE J211 Polarity, Biased Removed and Filtered]



Transportation Research Center, Inc.

ROW 3 COLUMN 13

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

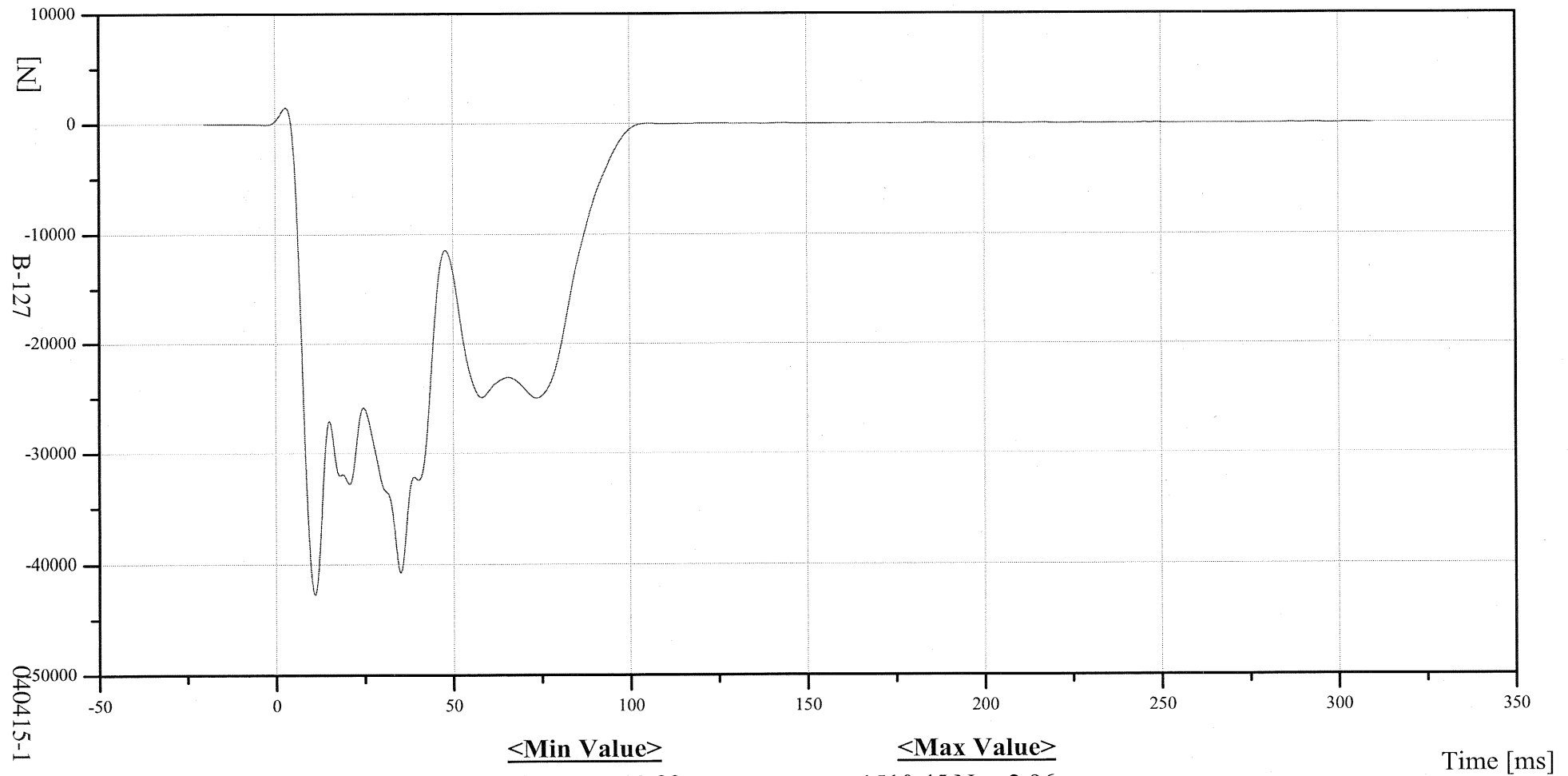
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

LC0313



<Min Value>

-42686.07 N at 10.88 ms

<Max Value>

1510.45 N at 2.96 ms

Time [ms]

CFC60 [SAE J211 Polarity, Biased Removed and Filtered]



Transportation Research Center, Inc.

ROW 3 COLUMN 14

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

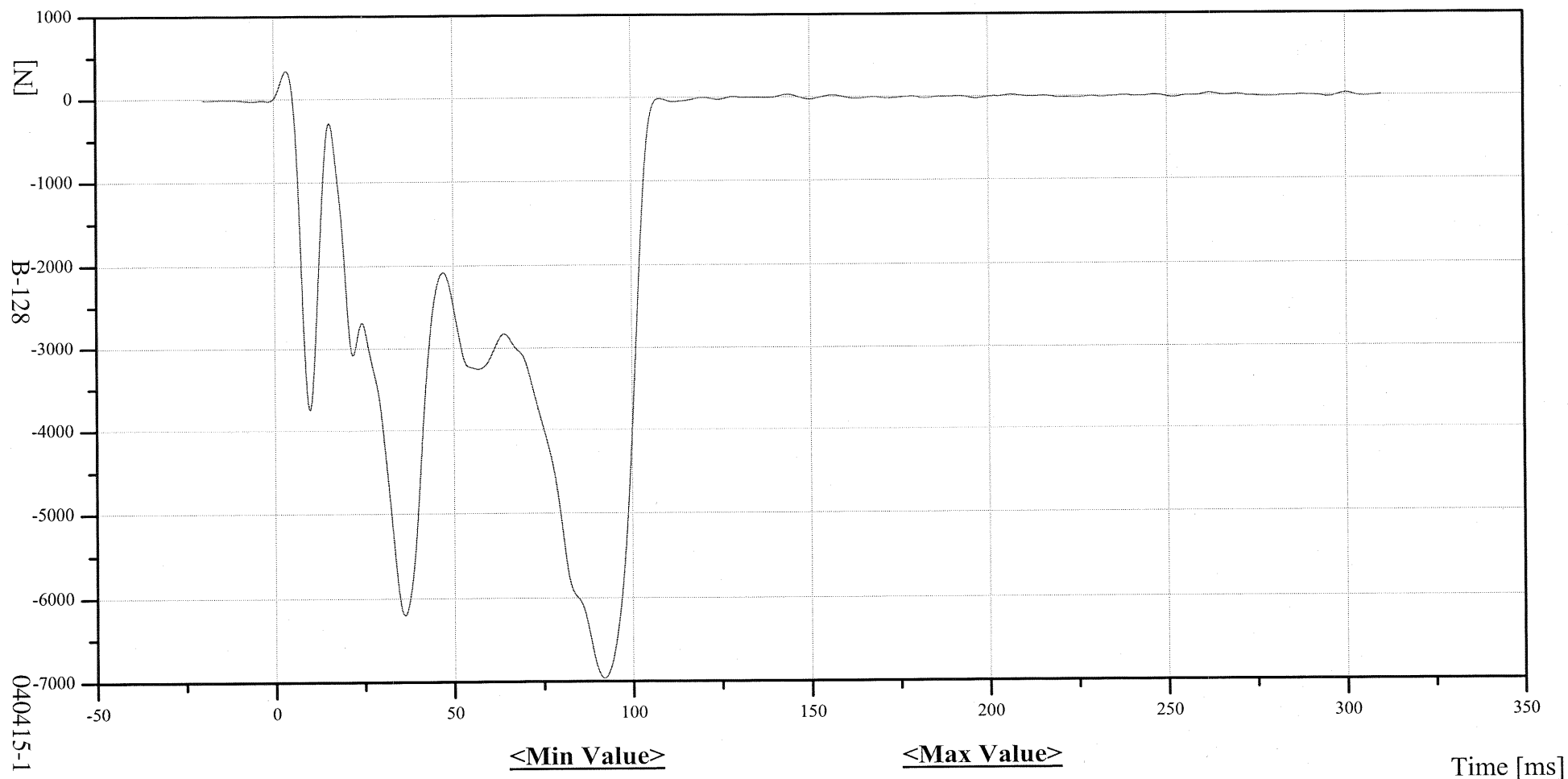
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

LC0314



CFC60 [SAE J211 Polarity, Biased Removed and Filtered]



Transportation Research Center, Inc.

ROW 3 COLUMN 15

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

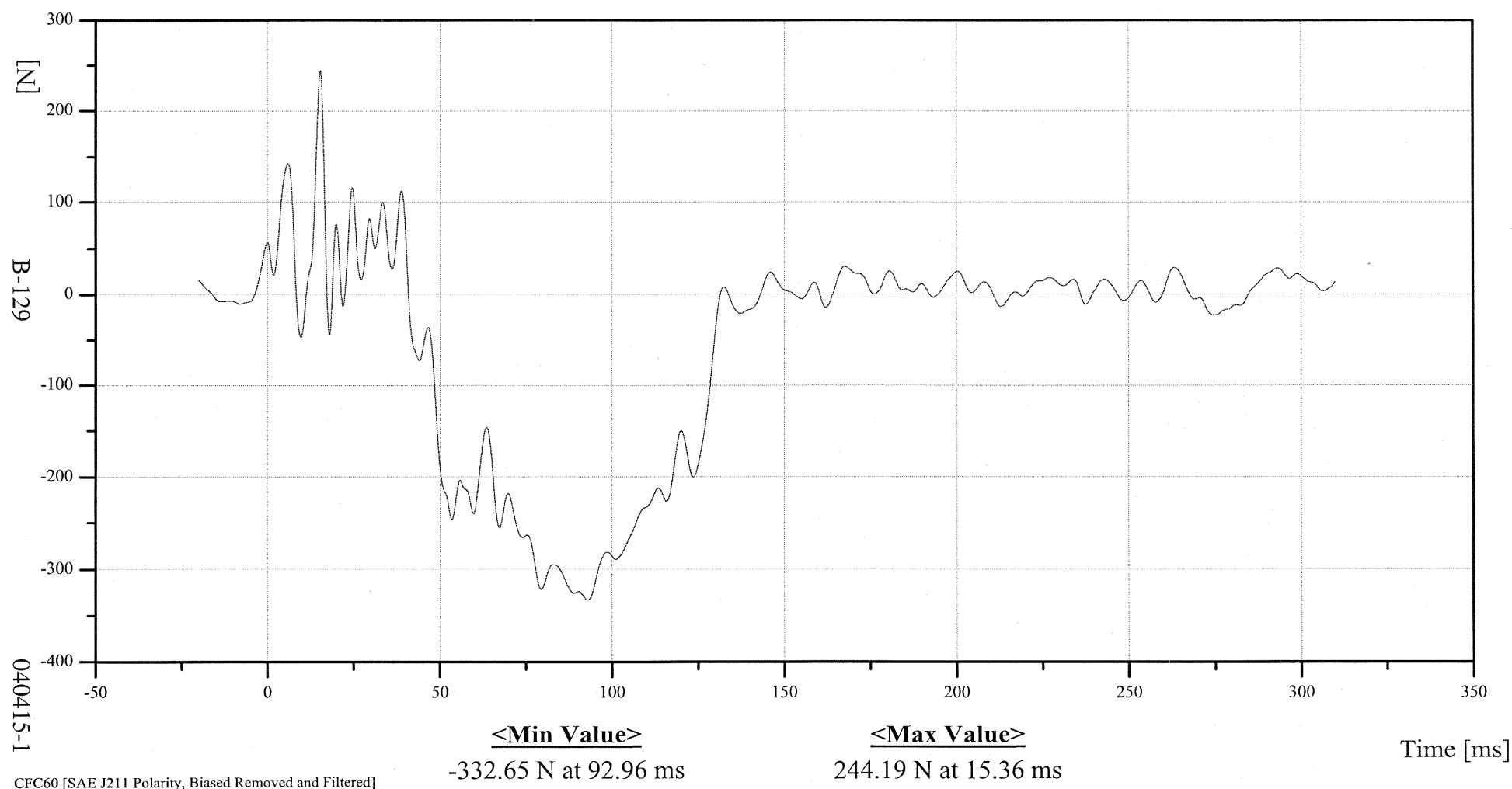
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

LC0315





Transportation Research Center, Inc.

ROW 3 COLUMN 16

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

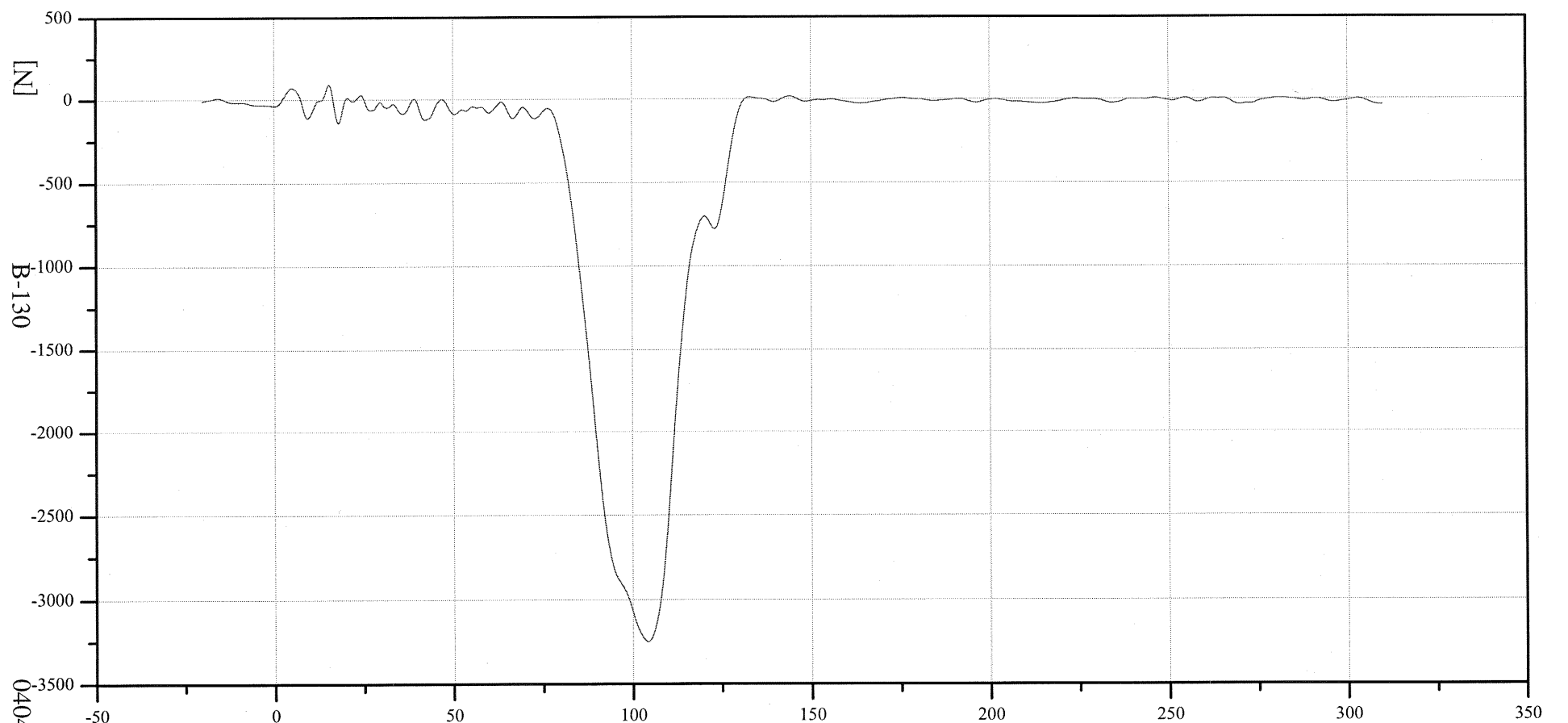
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

LC0316



<Min Value>

-3250.55 N at 104.16 ms

<Max Value>

93.34 N at 15.36 ms

CFC60 [SAE J211 Polarity, Biased Removed and Filtered]



Transportation Research Center, Inc.

ROW 4 COLUMN 1

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

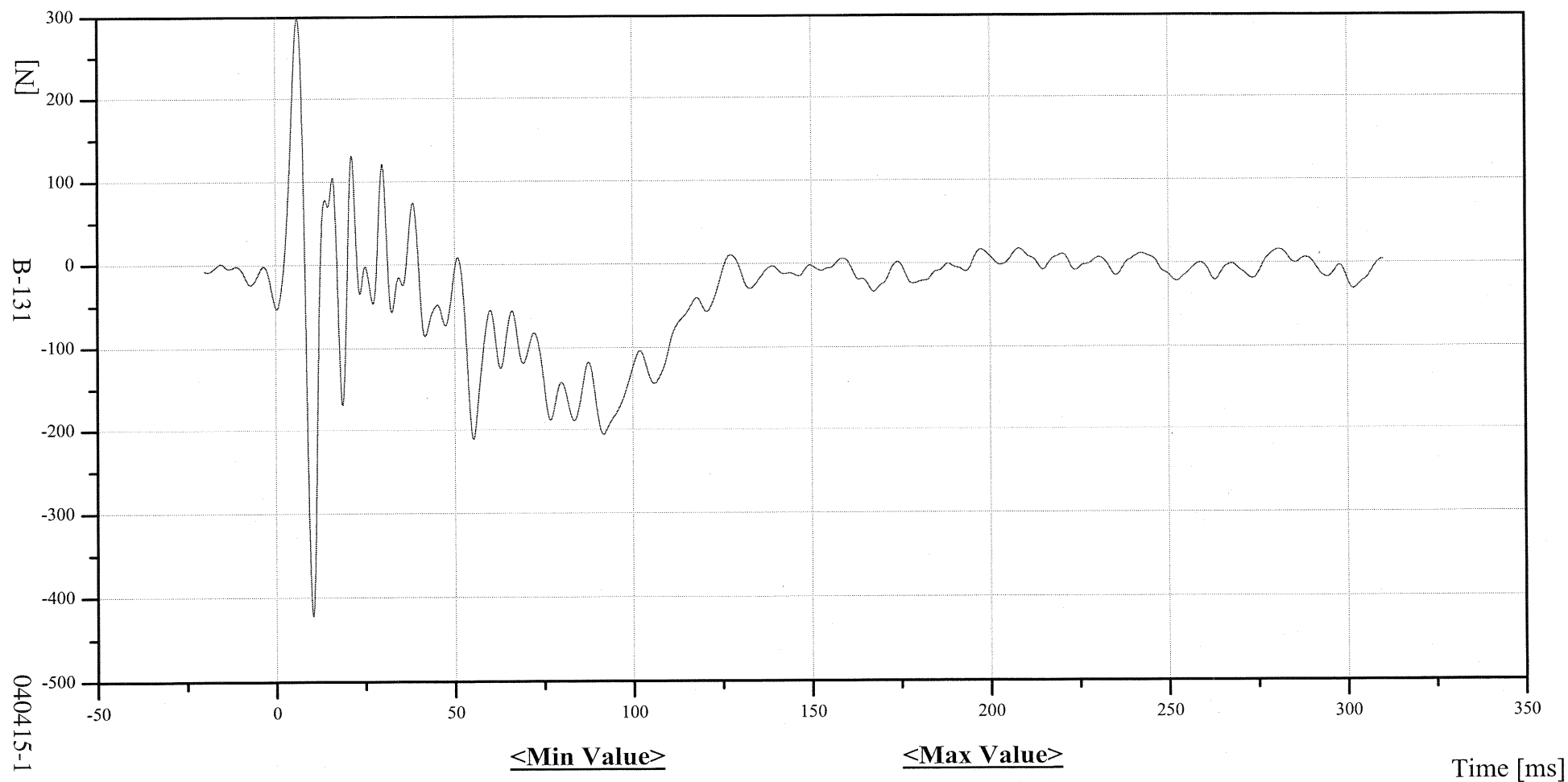
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

LC0401



CFC60 [SAE J211 Polarity, Biased Removed and Filtered]



Transportation Research Center, Inc.

ROW 4 COLUMN 2

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

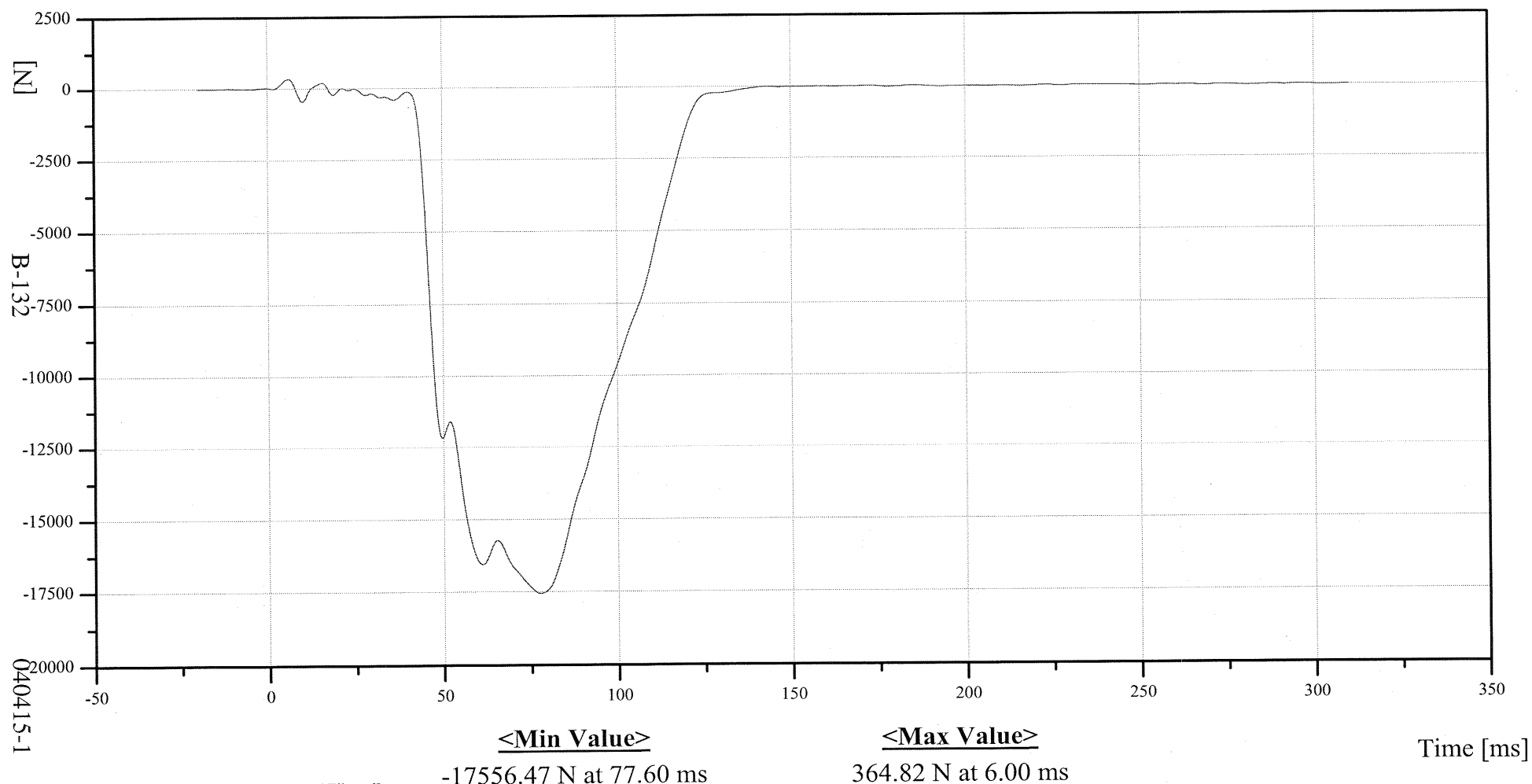
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

LC0402



CFC60 [SAE J211 Polarity, Biased Removed and Filtered]



Transportation Research Center, Inc.

ROW 4 COLUMN 3

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

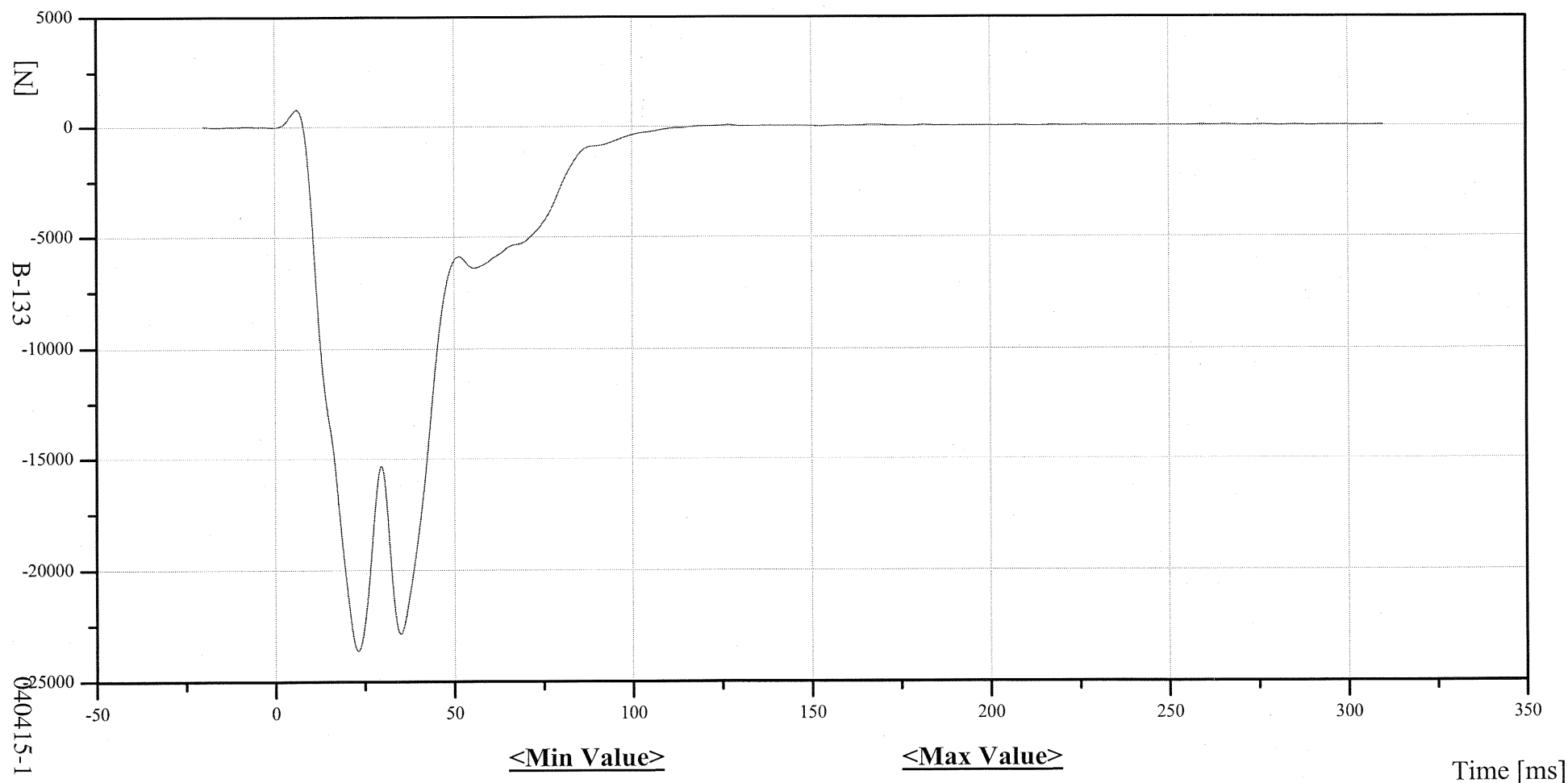
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

LC0403



CFC60 [SAE J211 Polarity, Biased Removed and Filtered]



Transportation Research Center, Inc.

ROW 4 COLUMN 4

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

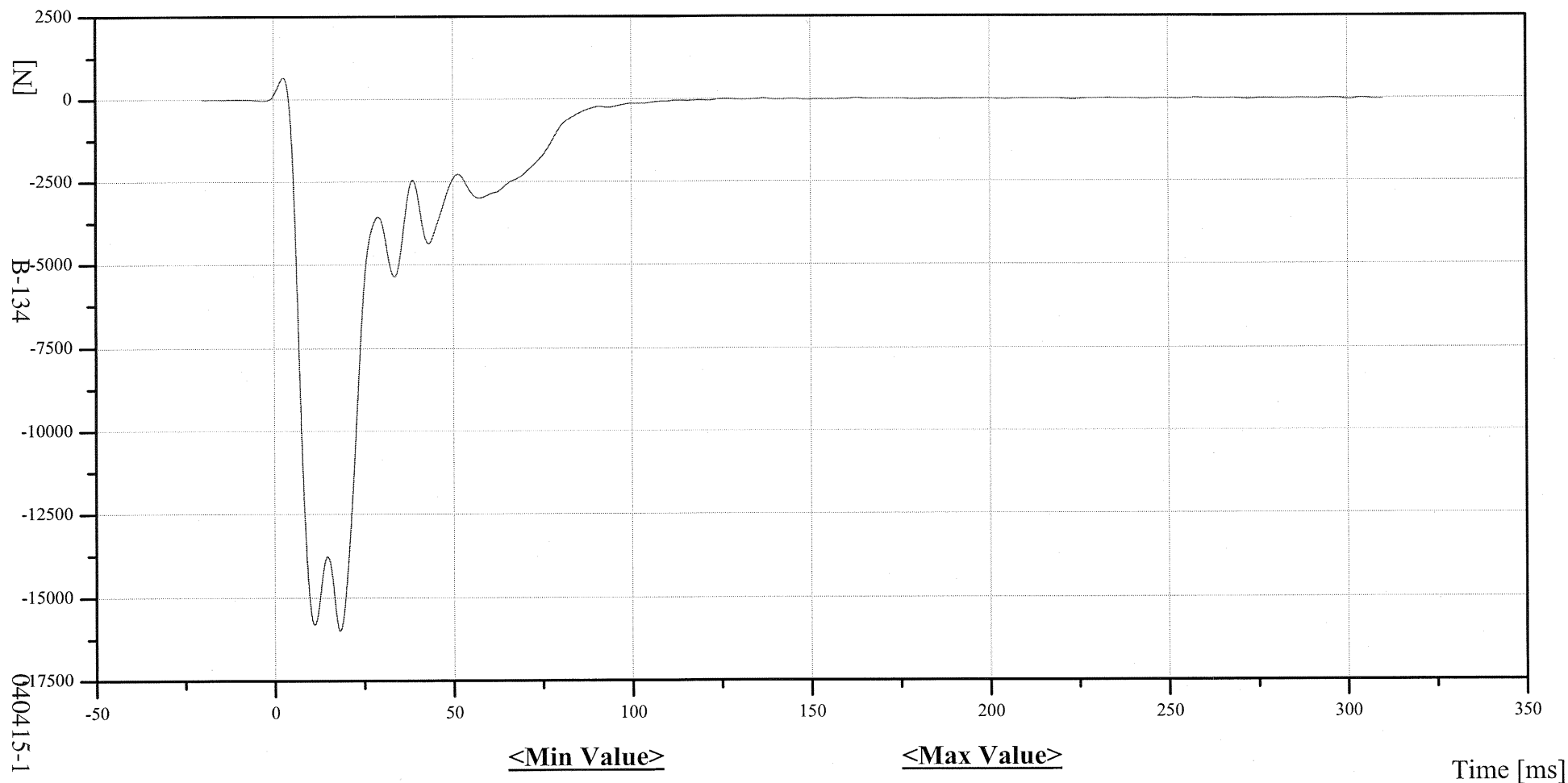
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

LC0404



CFC60 [SAE J211 Polarity, Biased Removed and Filtered]



Transportation Research Center, Inc.

ROW 4 COLUMN 5

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

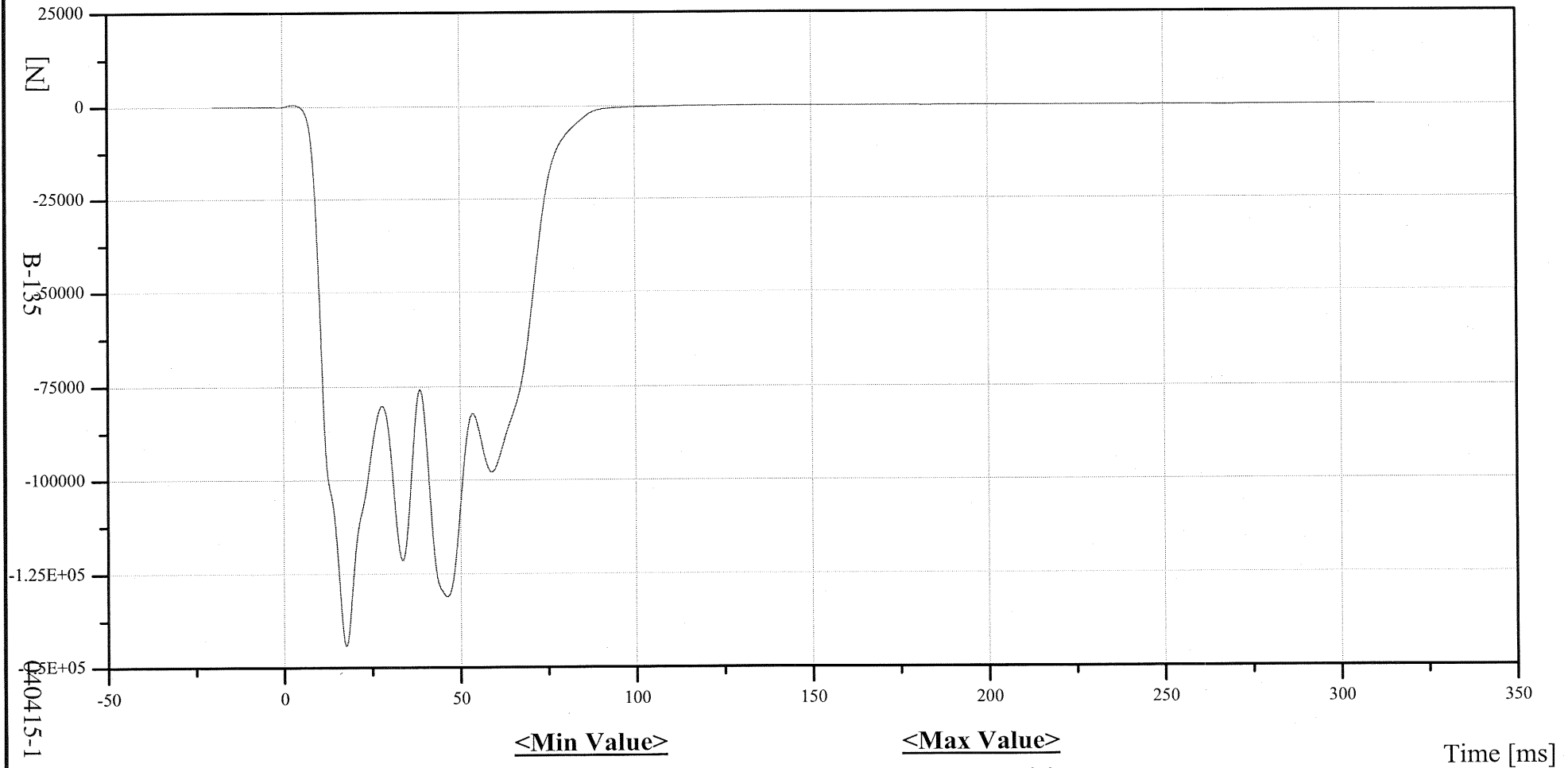
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

LC0405



<Min Value>

-144288.21 N at 17.52 ms

<Max Value>

523.61 N at 2.96 ms

Time [ms]

CFC60 [SAE J211 Polarity, Biased Removed and Filtered]



Transportation Research Center, Inc.

ROW 4 COLUMN 6

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

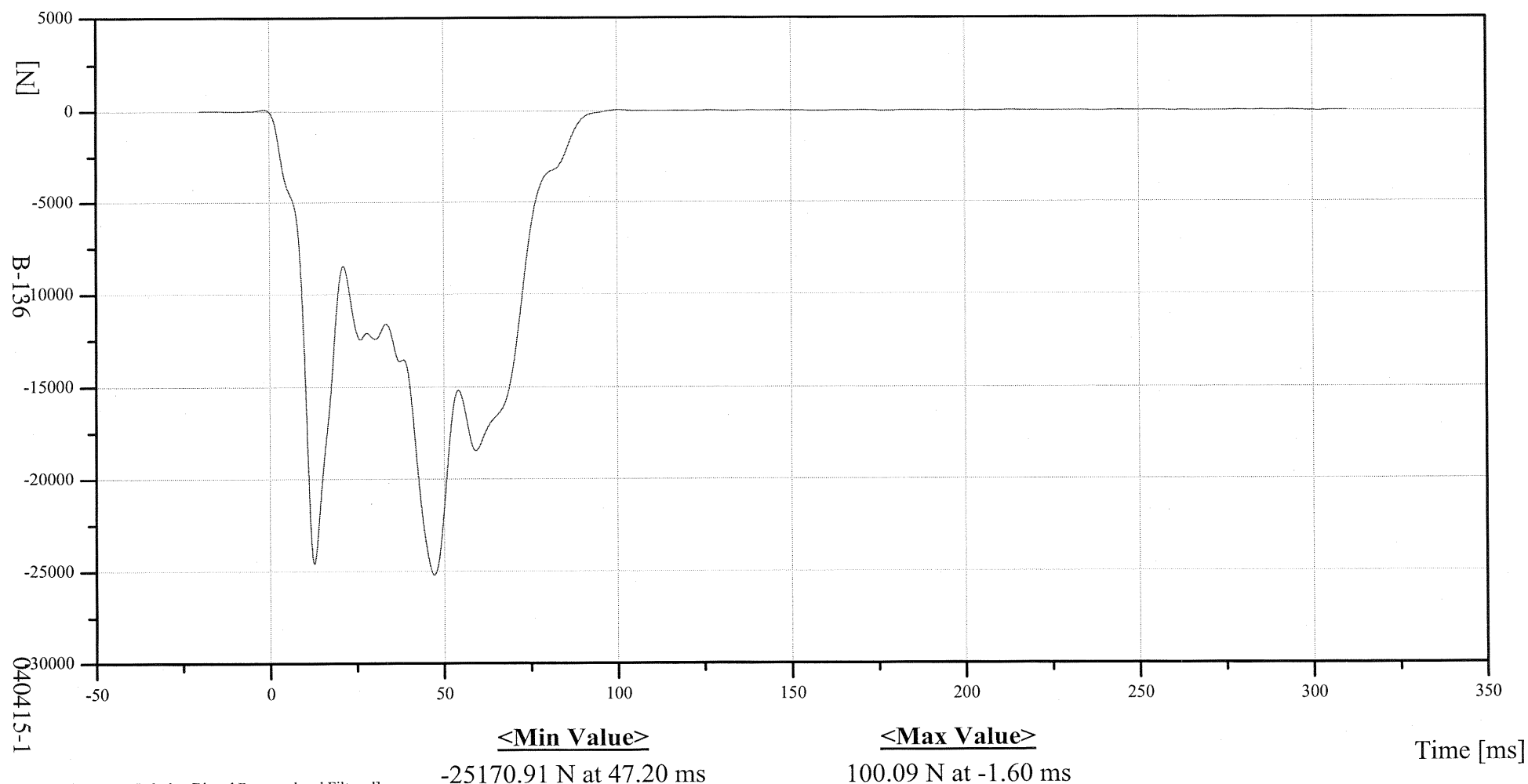
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

LC0406



CFC60 [SAE J211 Polarity, Biased Removed and Filtered]



Transportation Research Center, Inc.

ROW 4 COLUMN 7

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

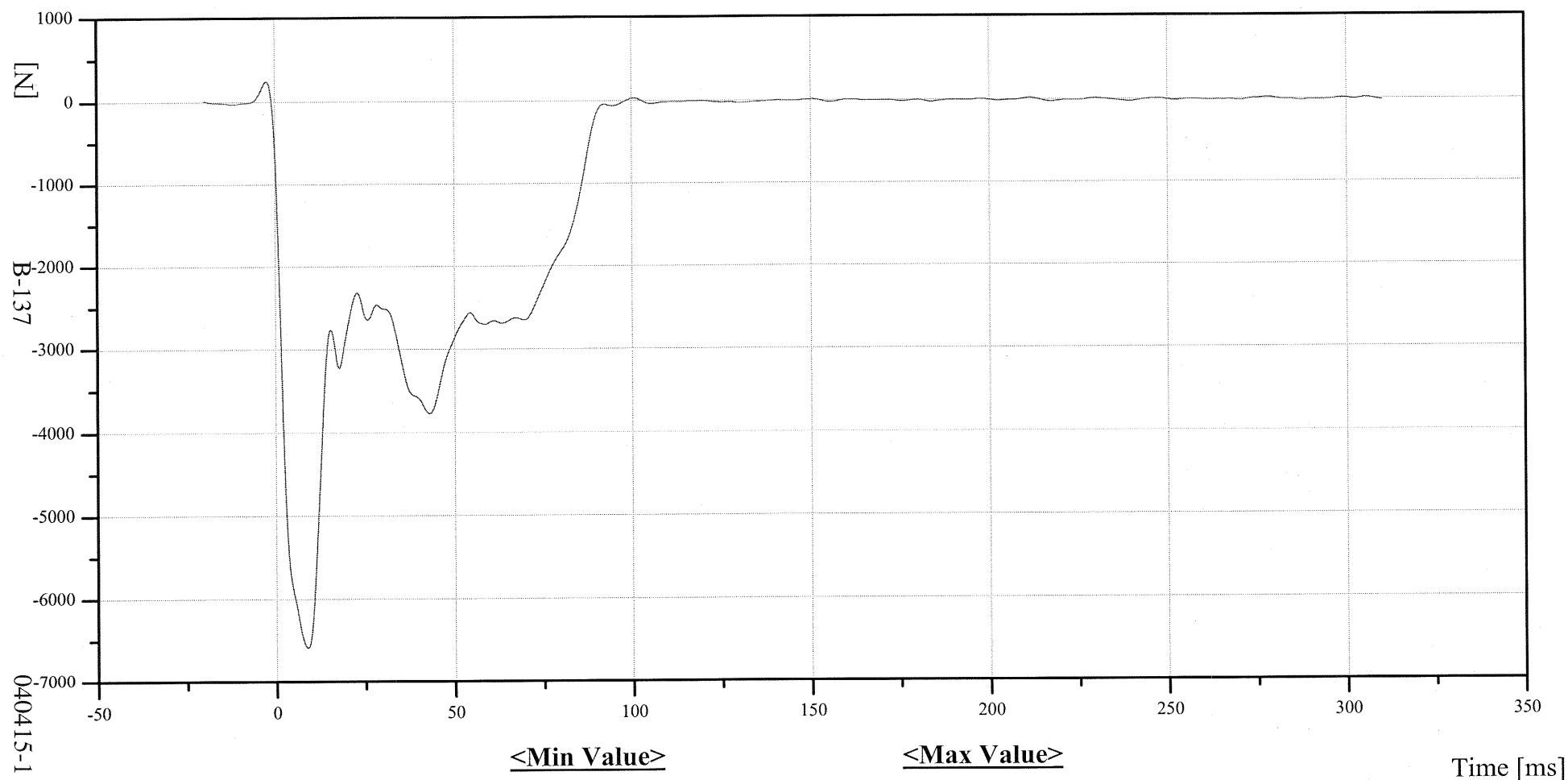
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

LC0407



CFC60 [SAE J211 Polarity, Biased Removed and Filtered]



Transportation Research Center, Inc.

ROW 4 COLUMN 8

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

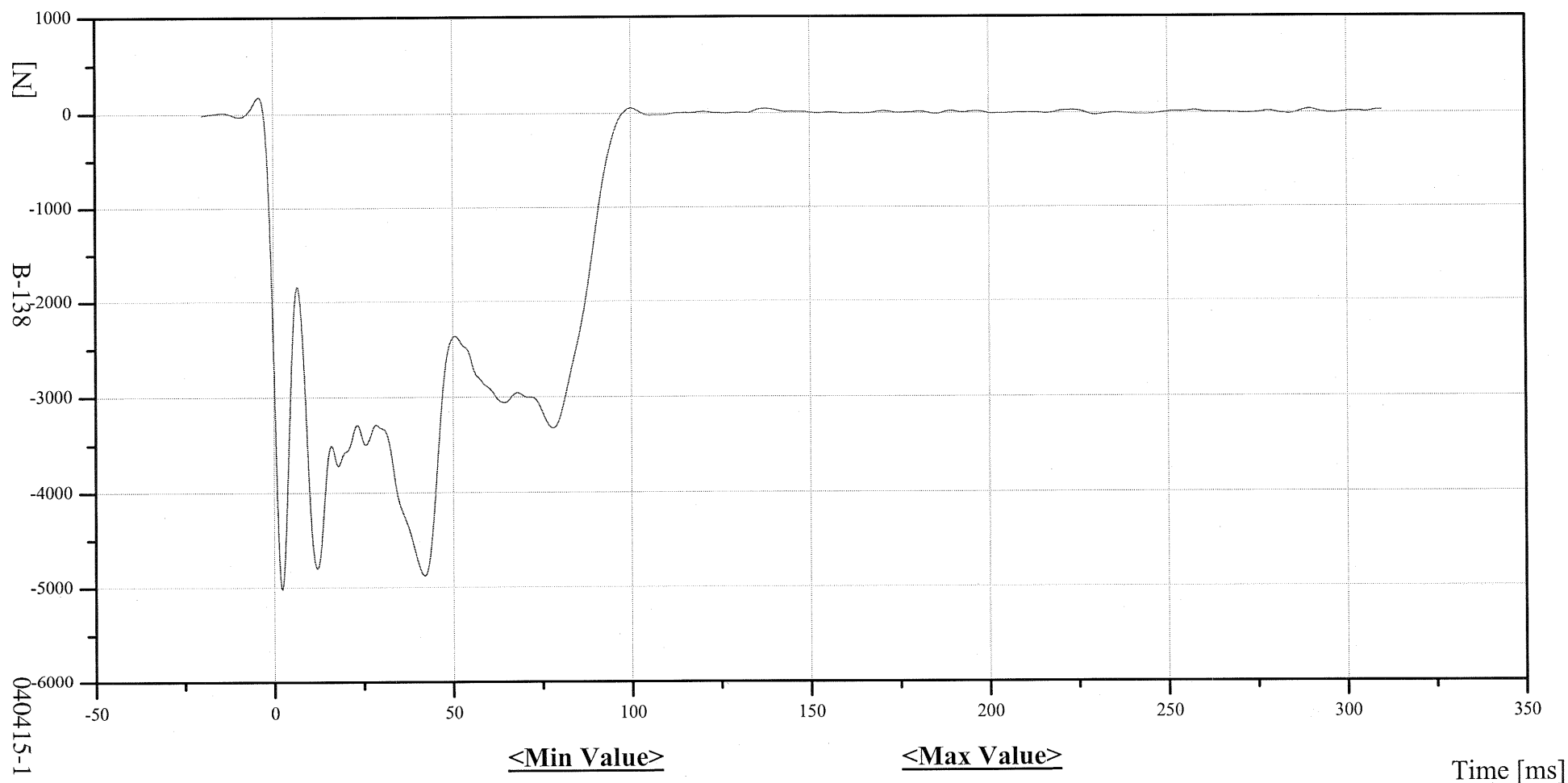
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

LC0408



040415-1

CFC60 [SAE J211 Polarity, Biased Removed and Filtered]



Transportation Research Center, Inc.

ROW 4 COLUMN 9

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

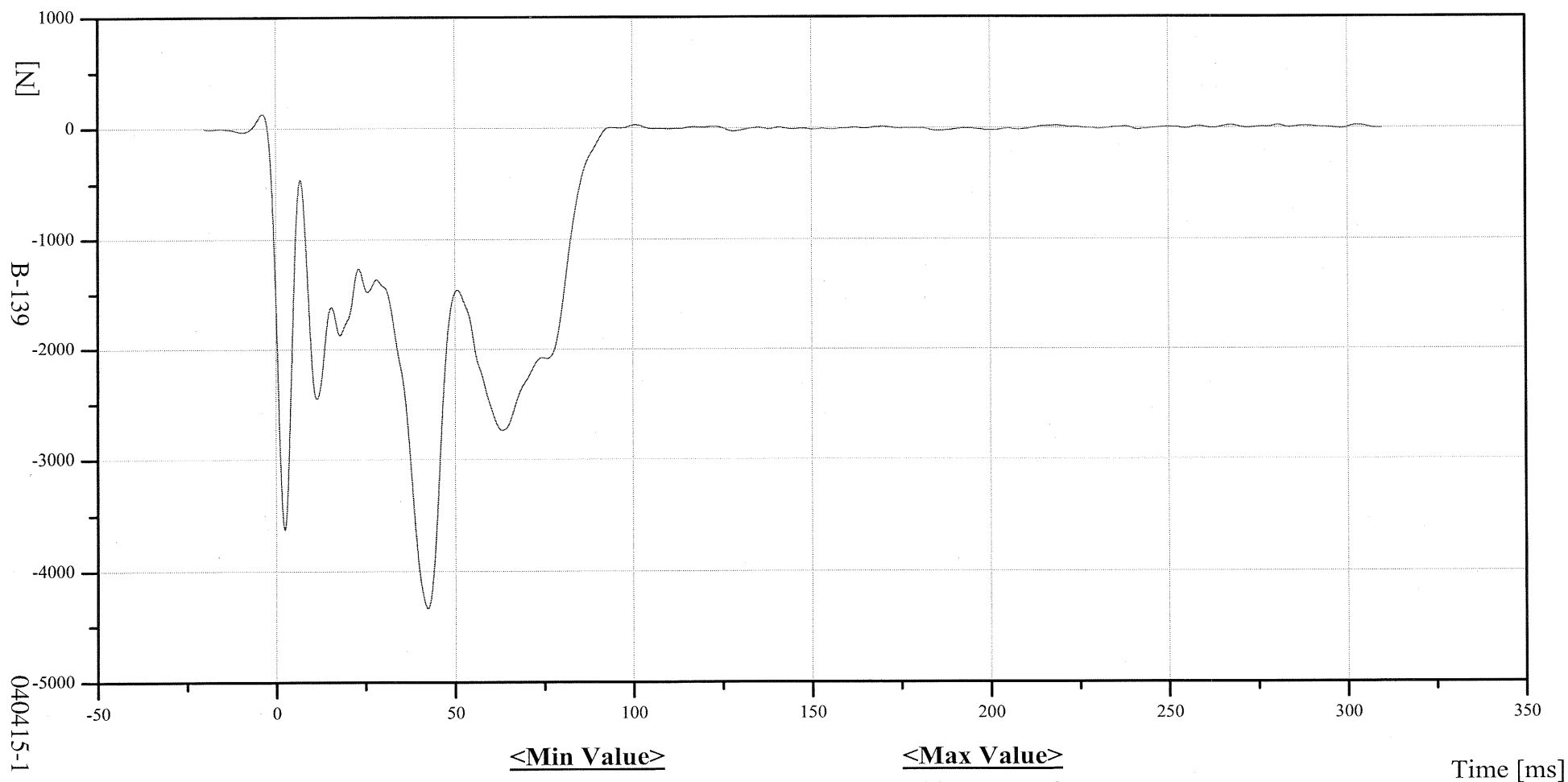
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

LC0409



CFC60 [SAE J211 Polarity, Biased Removed and Filtered]



Transportation Research Center, Inc.

ROW 4 COLUMN 10

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

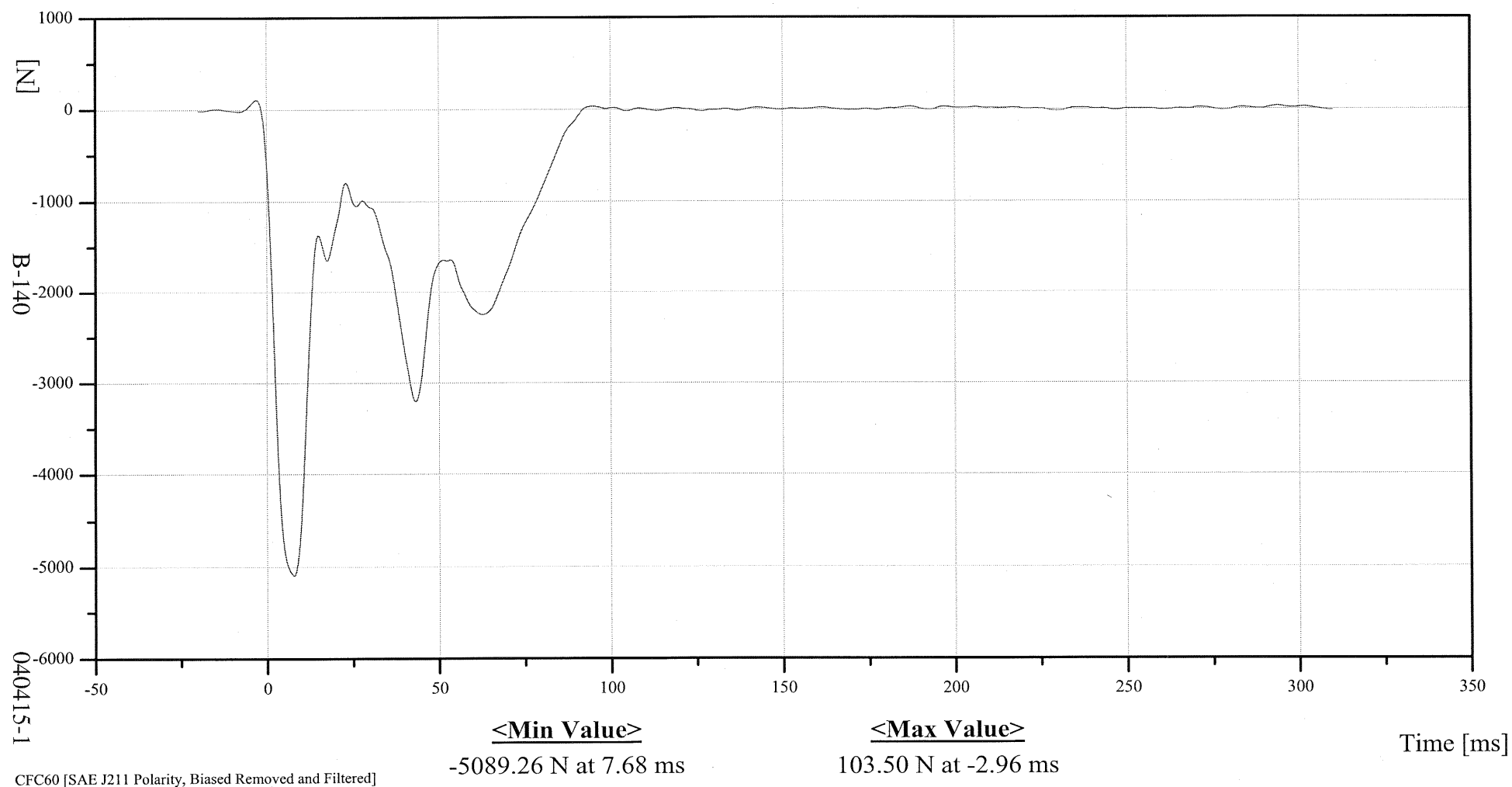
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

LC0410





Transportation Research Center, Inc.

ROW 4 COLUMN 11

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

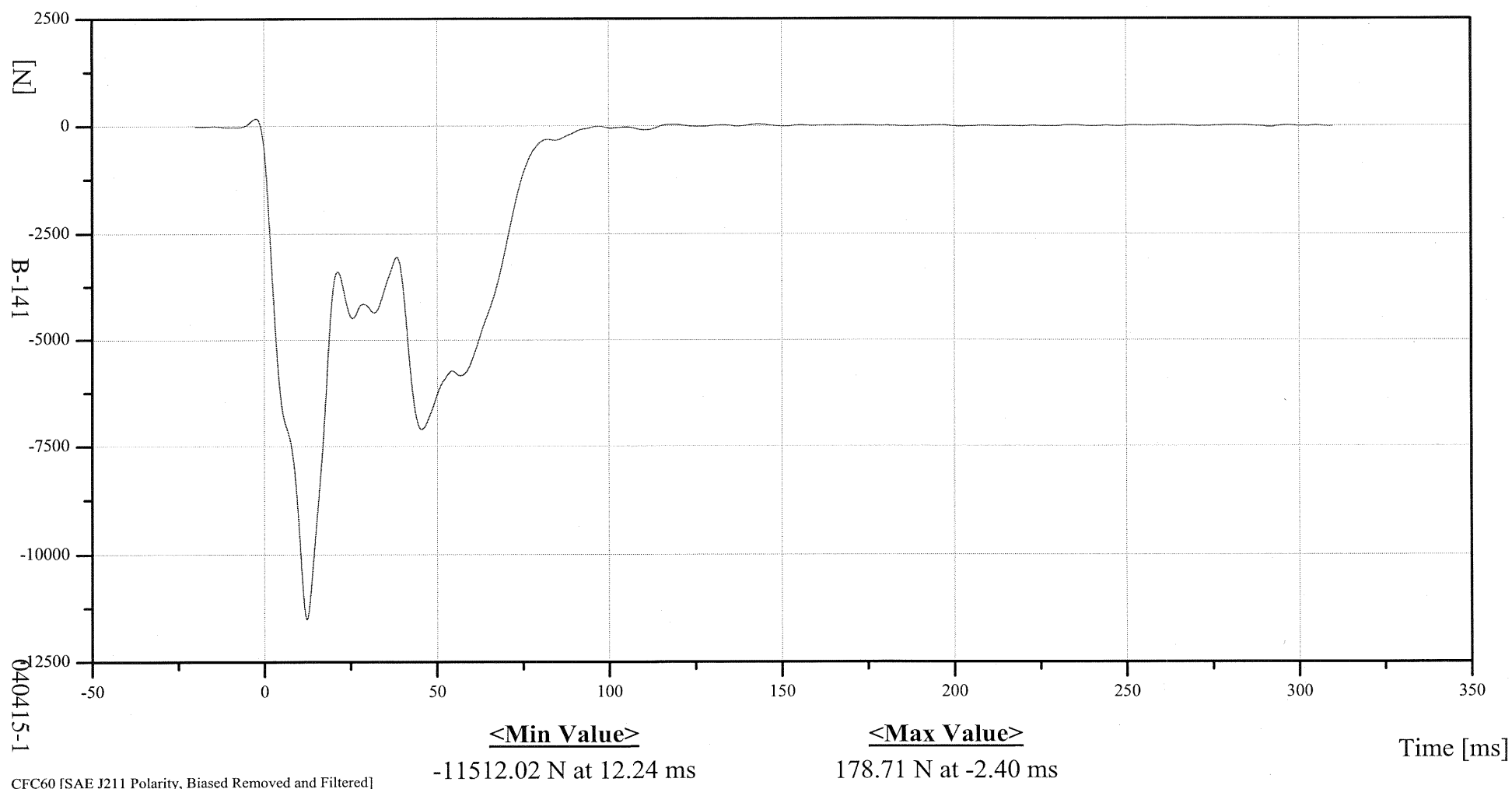
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

LC0411





Transportation Research Center, Inc.

ROW 4 COLUMN 12

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

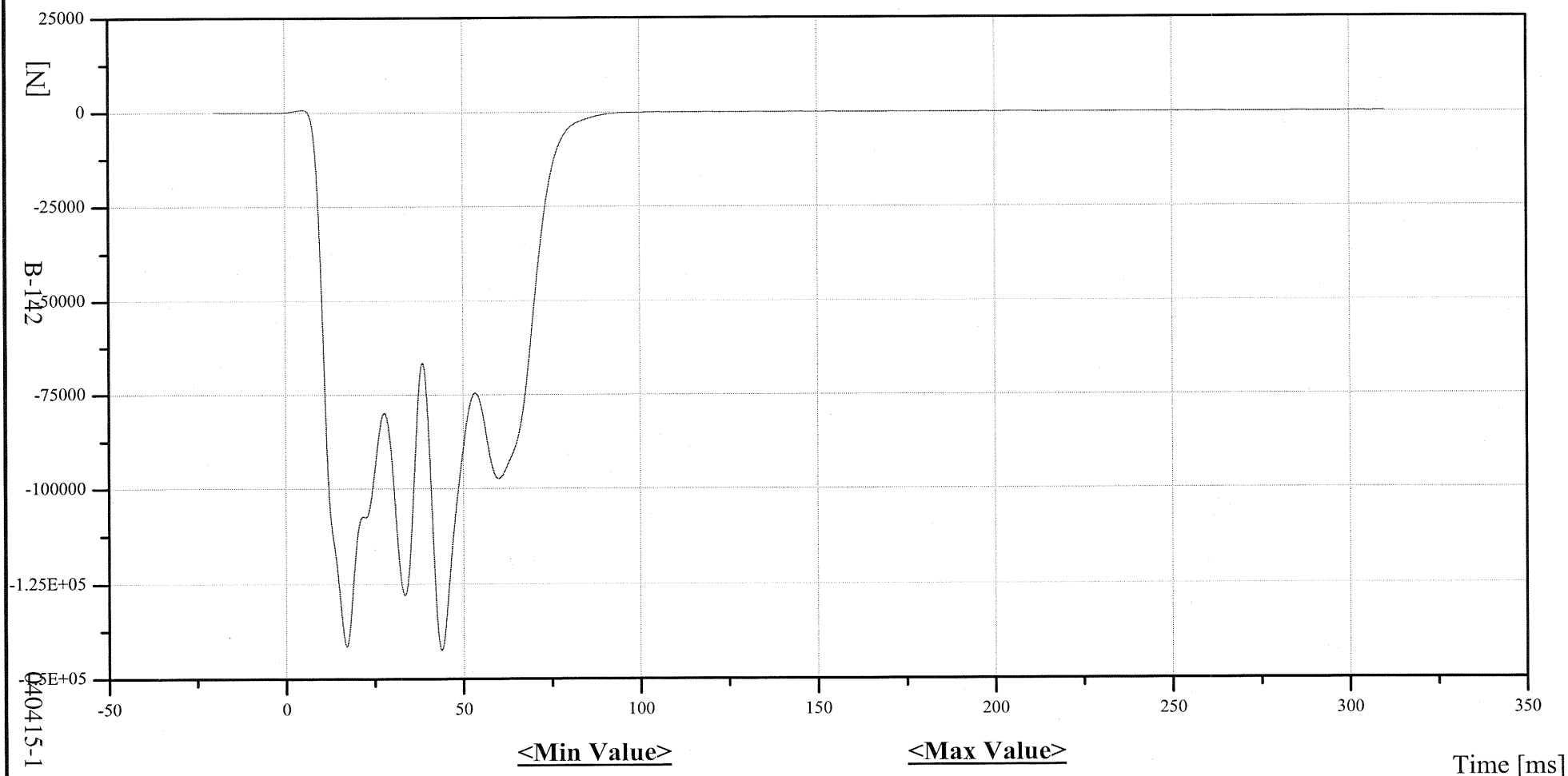
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

LC0412



<Min Value>

<Max Value>

-142601.56 N at 43.84 ms

701.80 N at 4.96 ms

CFC60 [SAE J211 Polarity, Biased Removed and Filtered]



Transportation Research Center, Inc.

ROW 4 COLUMN 13

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

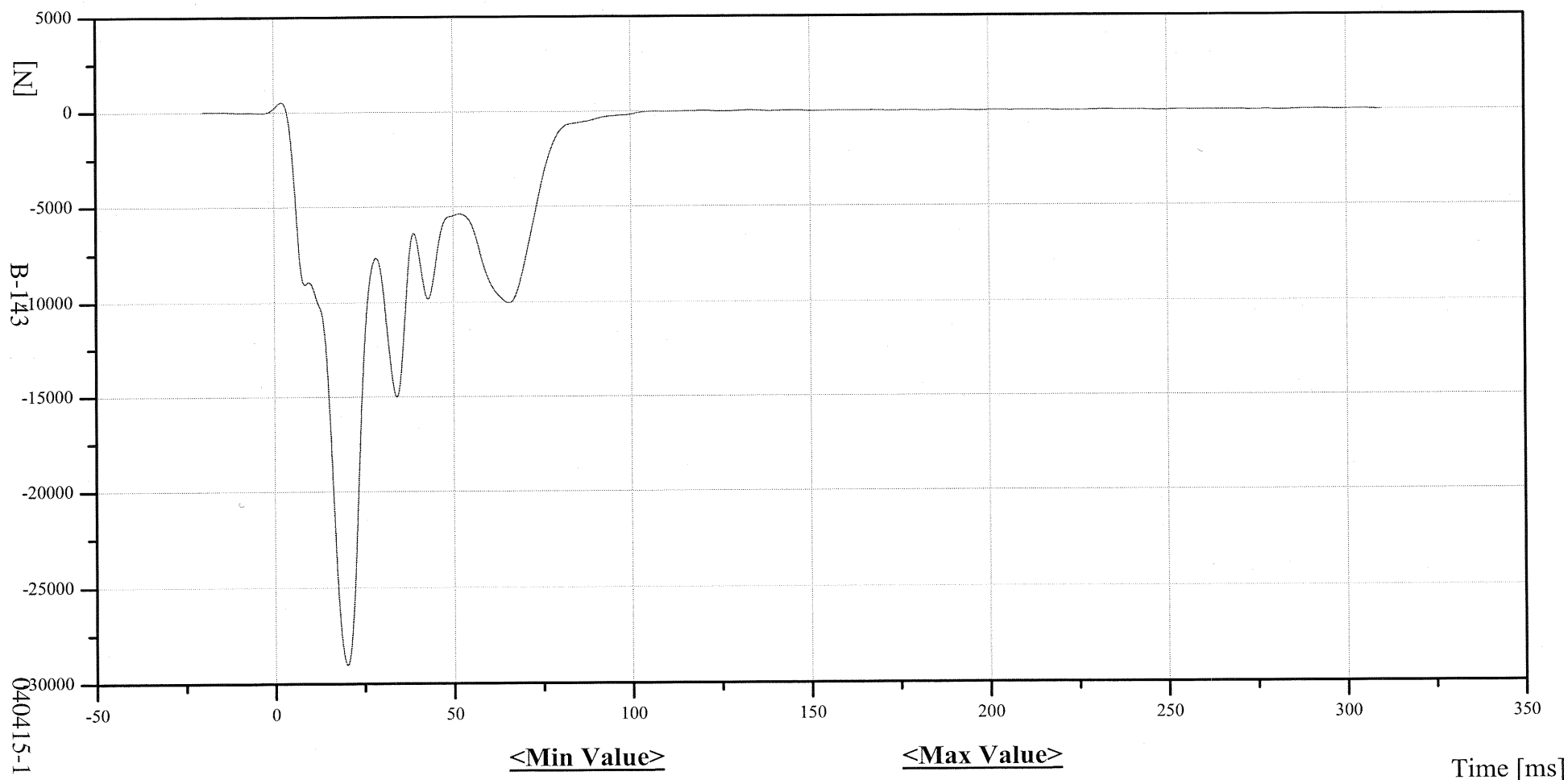
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

LC0413



CFC60 [SAE J211 Polarity, Biased Removed and Filtered]



Transportation Research Center, Inc.

ROW 4 COLUMN 14

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

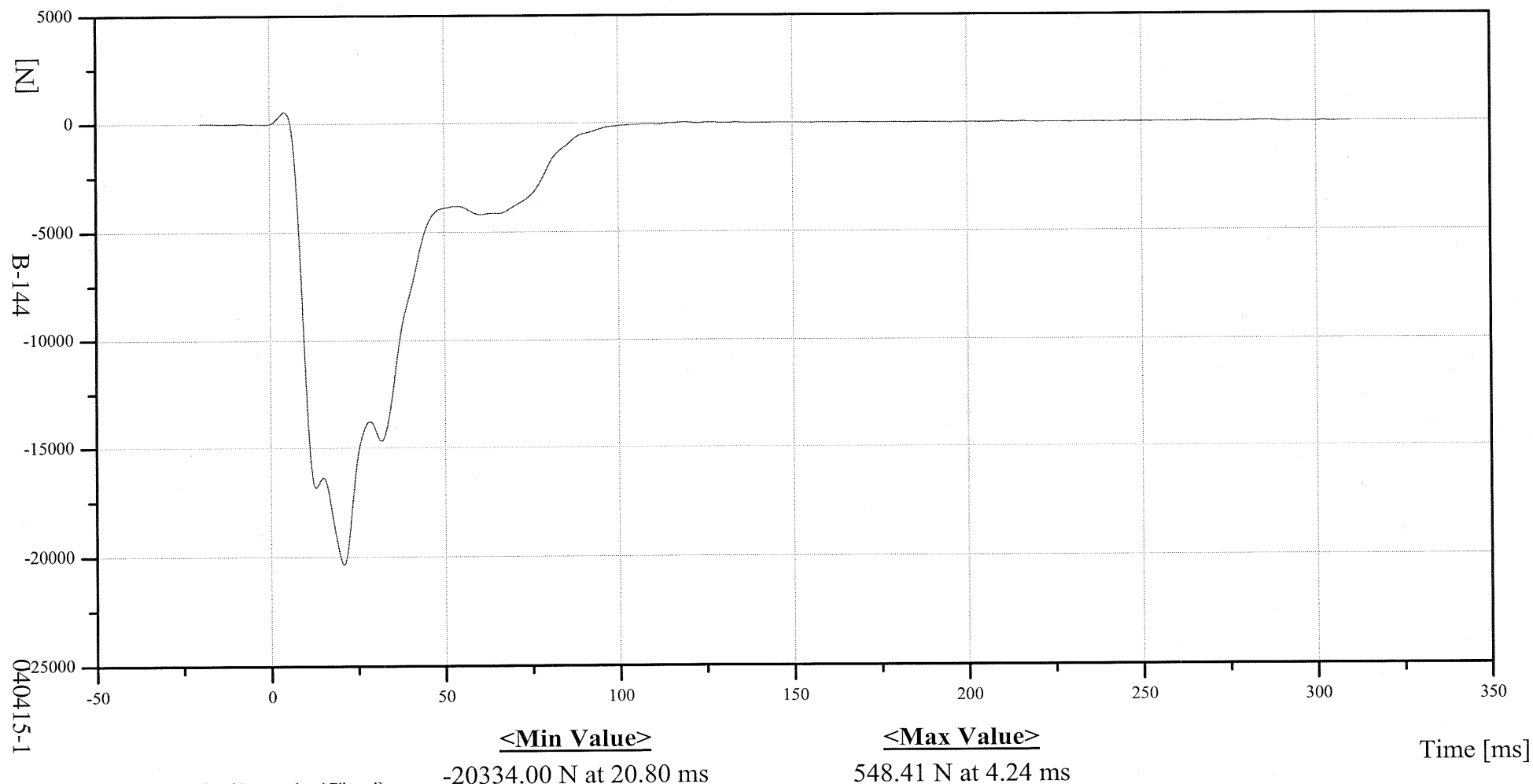
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

LC0414



CFC60 [SAE J211 Polarity, Biased Removed and Filtered]



Transportation Research Center, Inc.

ROW 4 COLUMN 15

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

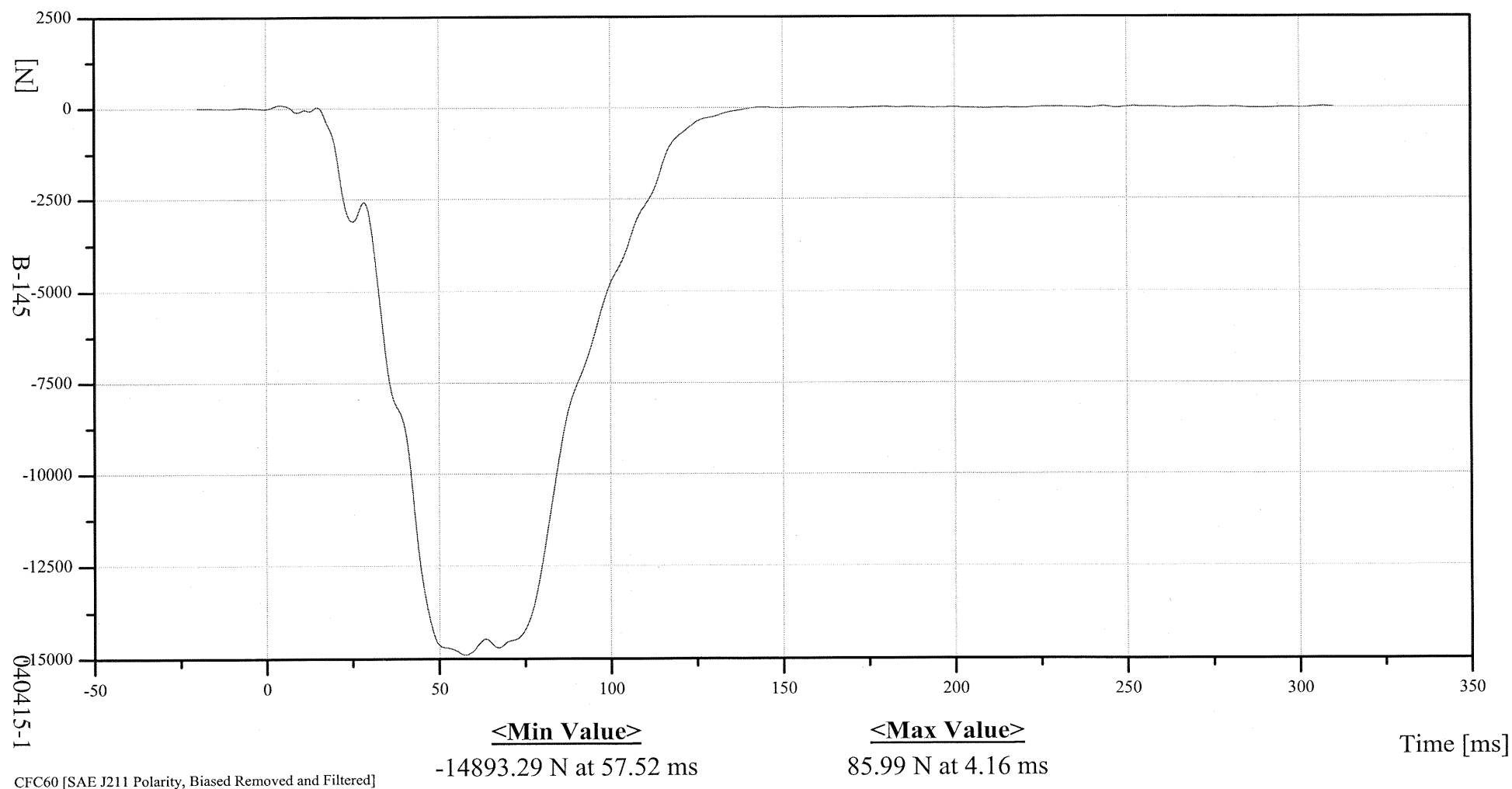
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

LC0415





Transportation Research Center, Inc.

ROW 4 COLUMN 16

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

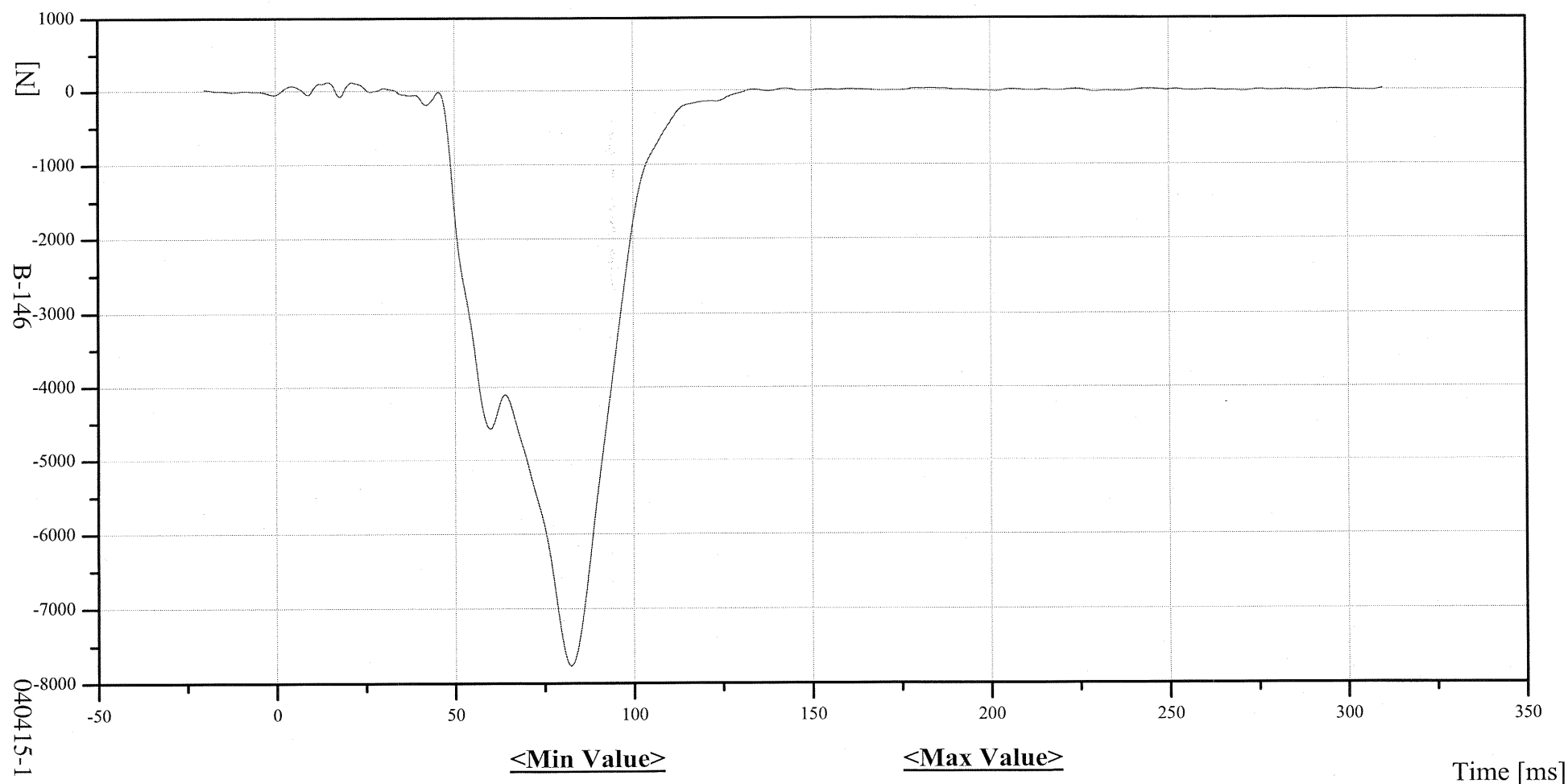
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

LC0416



CFC60 [SAE J211 Polarity, Biased Removed and Filtered]



Transportation Research Center, Inc.

ROW 5 COLUMN 1

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

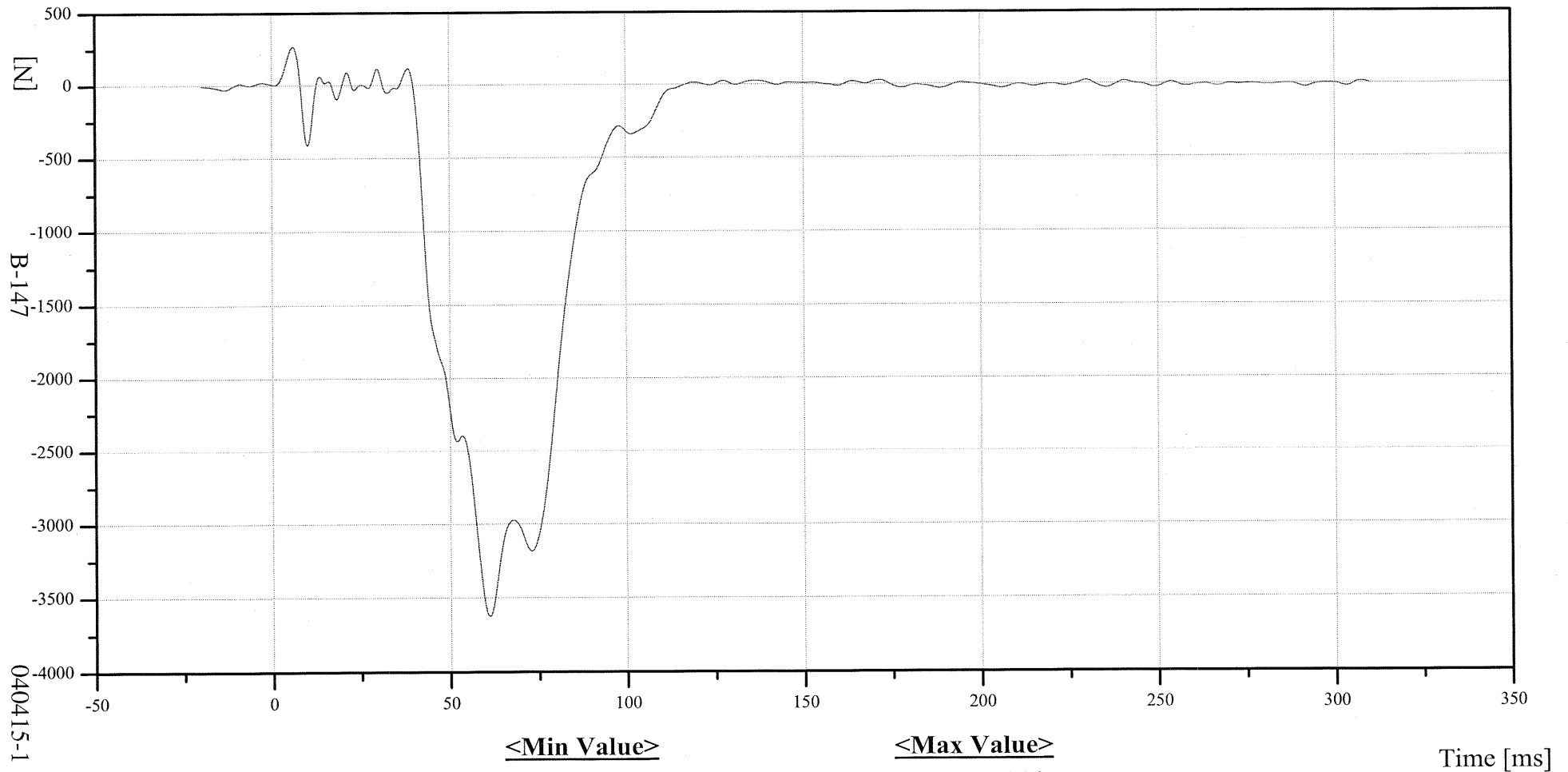
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

LC0501



CFC60 [SAE J211 Polarity, Biased Removed and Filtered]



Transportation Research Center, Inc.

ROW 5 COLUMN 2

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

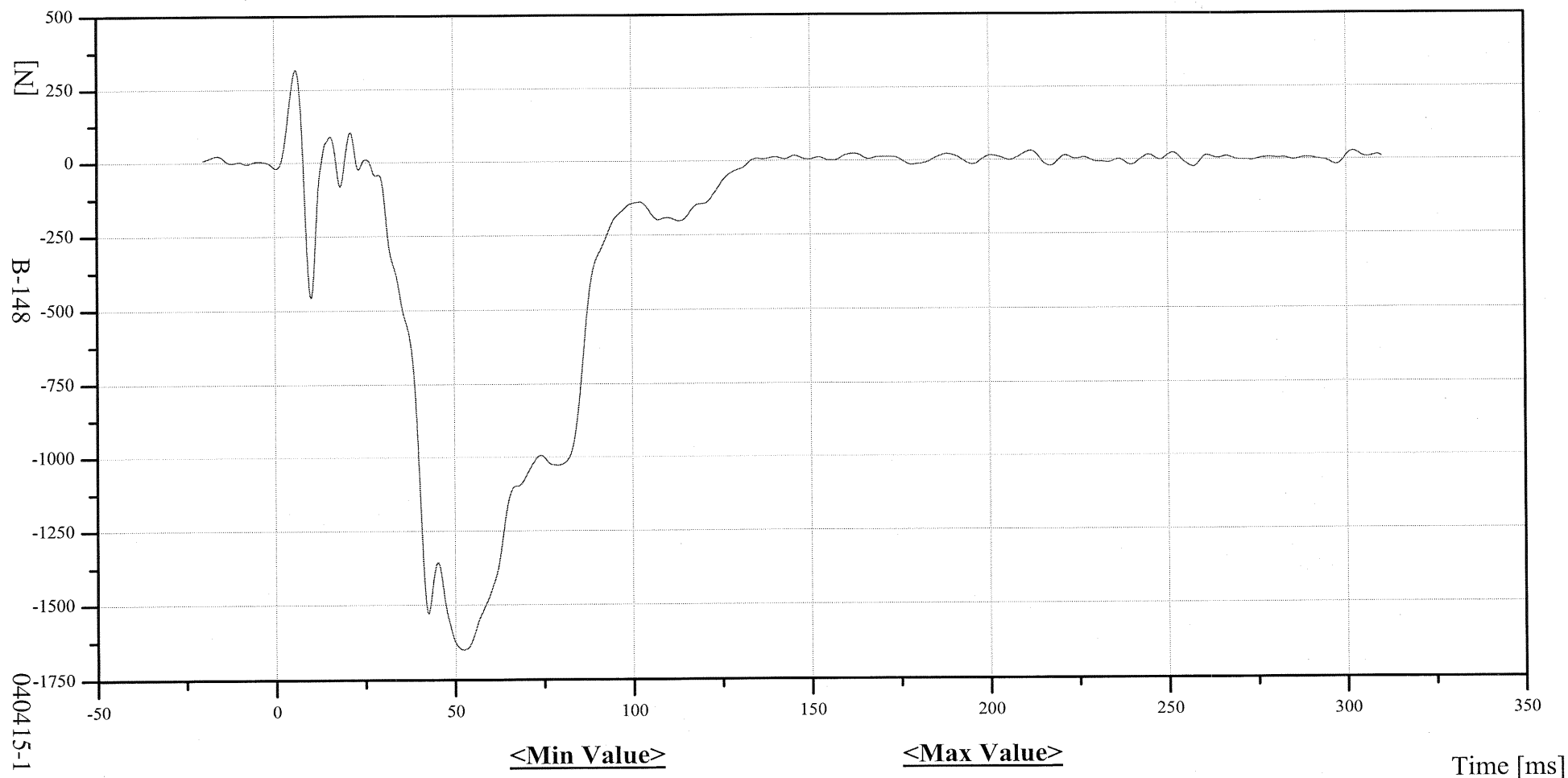
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

LC0502



CFC60 [SAE J211 Polarity, Biased Removed and Filtered]



Transportation Research Center, Inc.

ROW 5 COLUMN 3

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

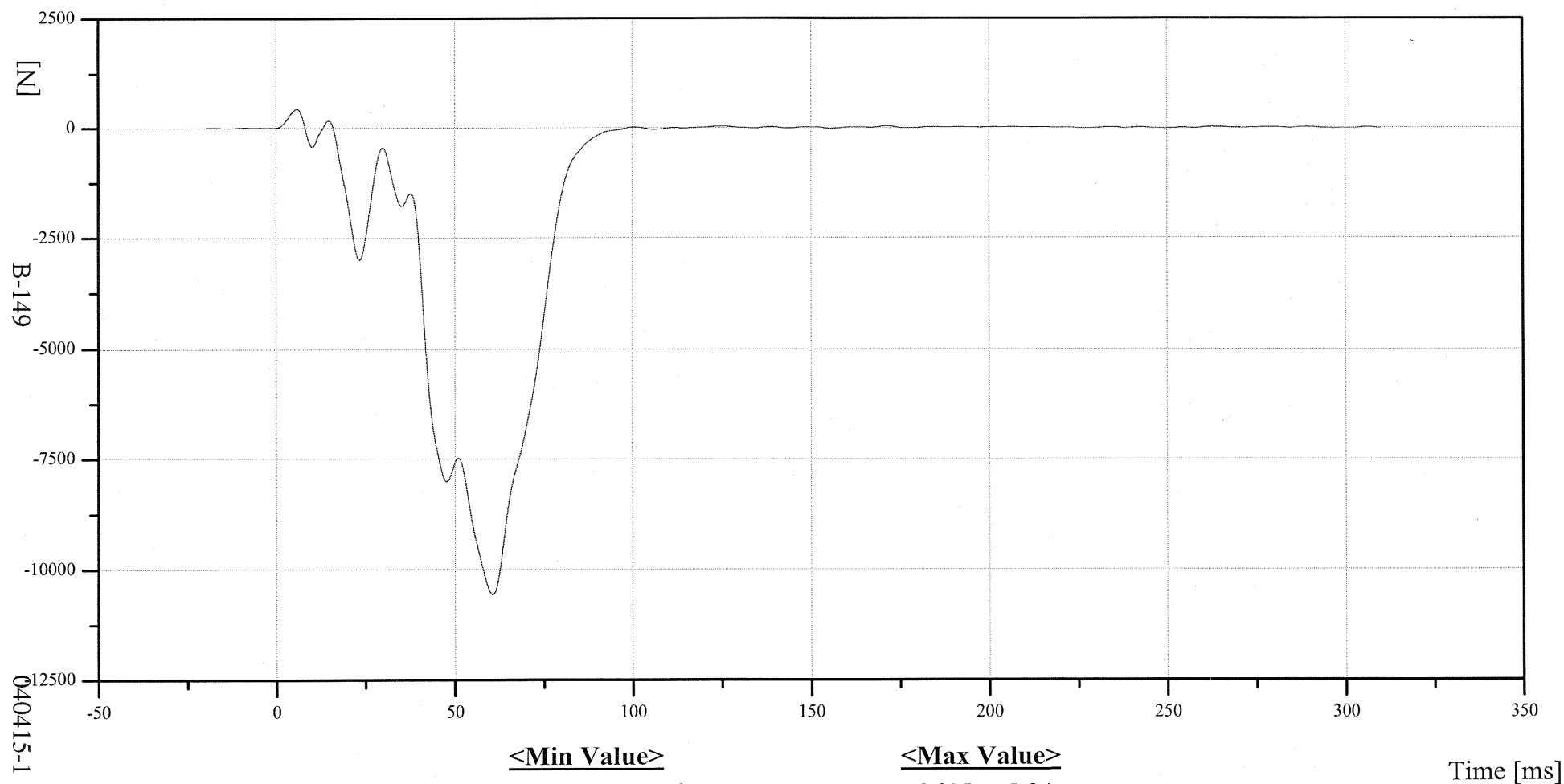
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

LC0503



CFC60 [SAE J211 Polarity, Biased Removed and Filtered]



Transportation Research Center, Inc.

ROW 5 COLUMN 4

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

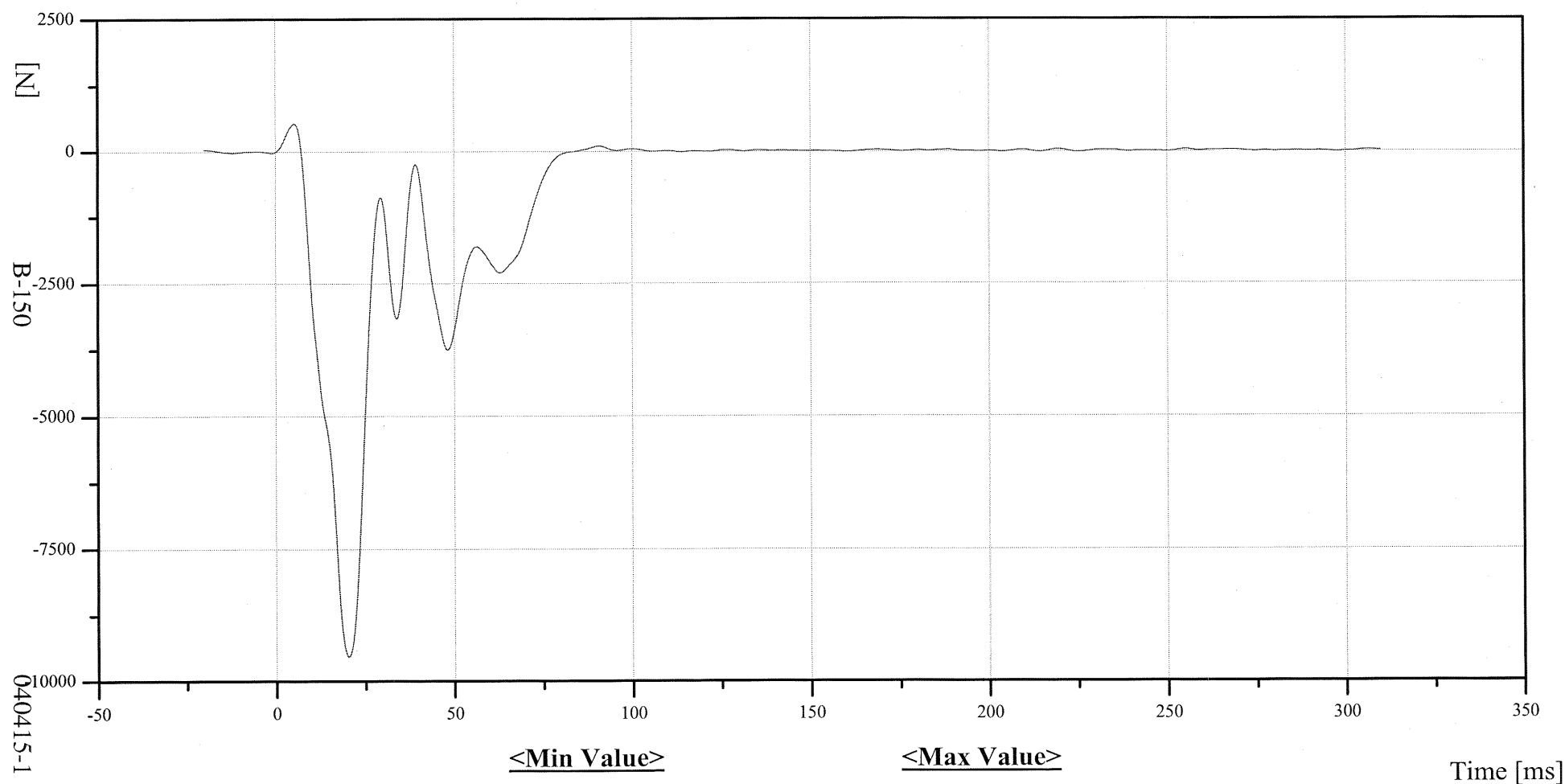
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

LC0504



CFC60 [SAE J211 Polarity, Biased Removed and Filtered]



Transportation Research Center, Inc.

ROW 5 COLUMN 5

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

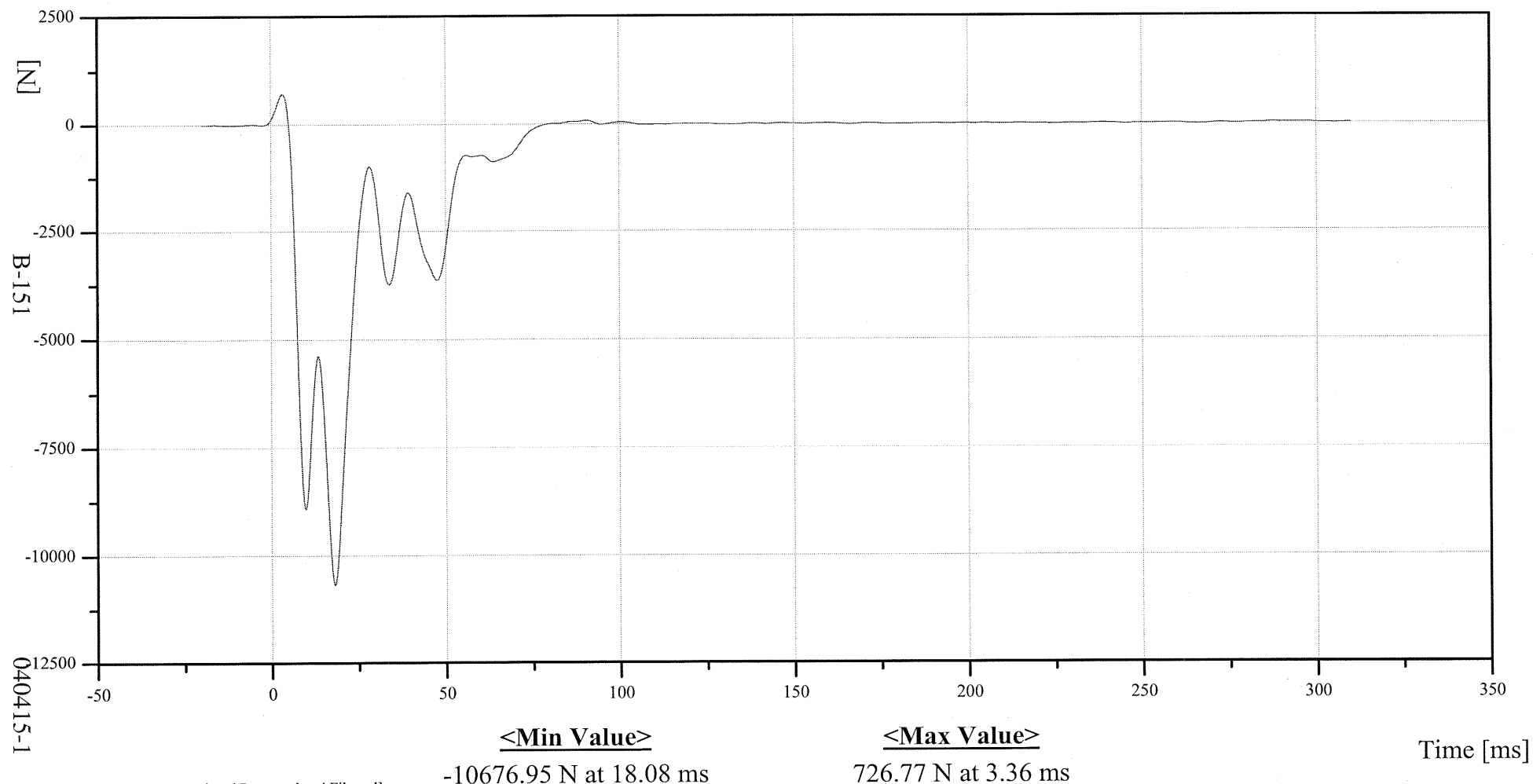
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

LC0505



CFC60 [SAE J211 Polarity, Biased Removed and Filtered]



Transportation Research Center, Inc.

ROW 5 COLUMN 6

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

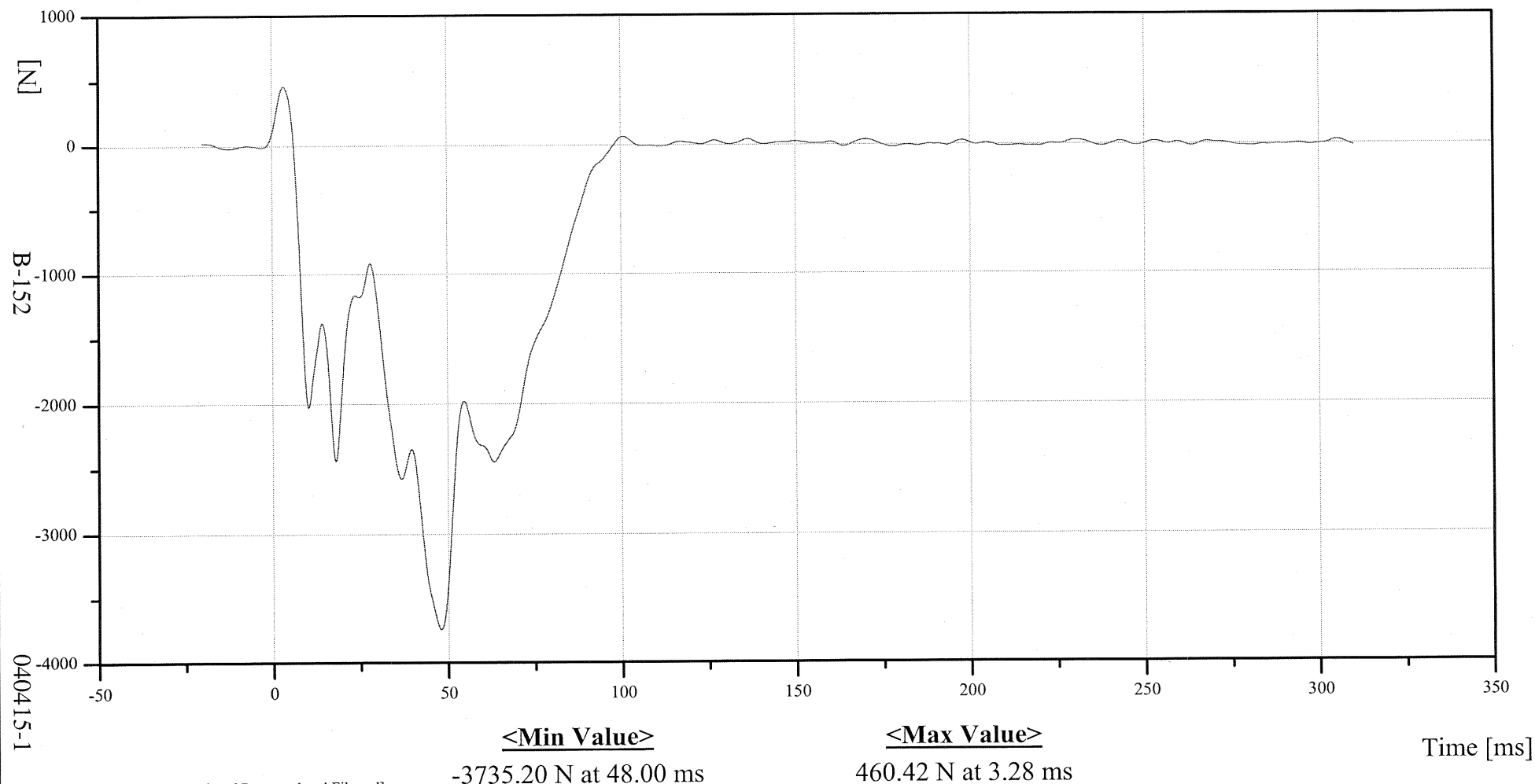
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

LC0506



CFC60 [SAE J211 Polarity, Biased Removed and Filtered]



Transportation Research Center, Inc.

ROW 5 COLUMN 7

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

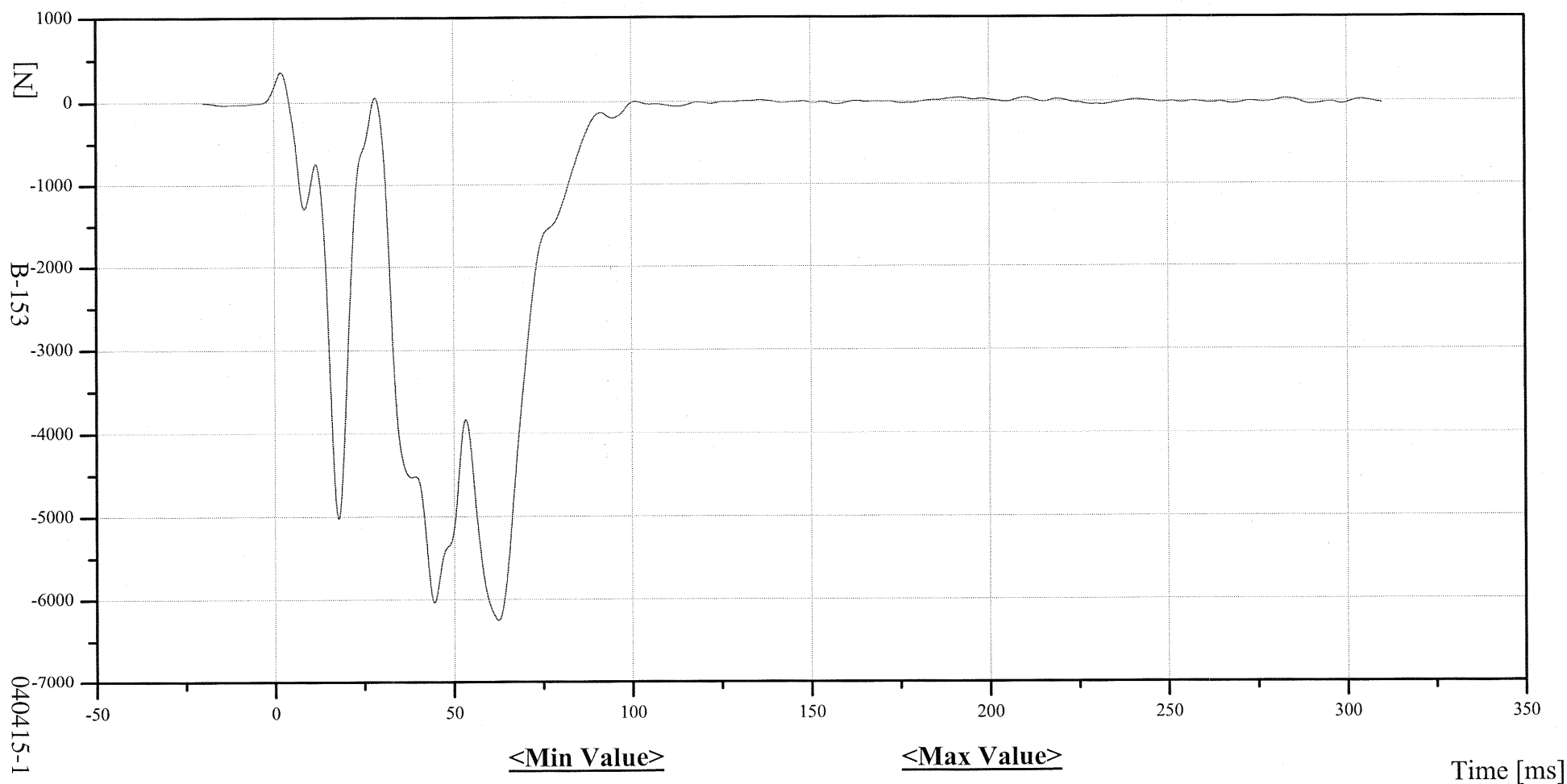
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

LC0507



CFC60 [SAE J211 Polarity, Biased Removed and Filtered]



Transportation Research Center, Inc.

ROW 5 COLUMN 8

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

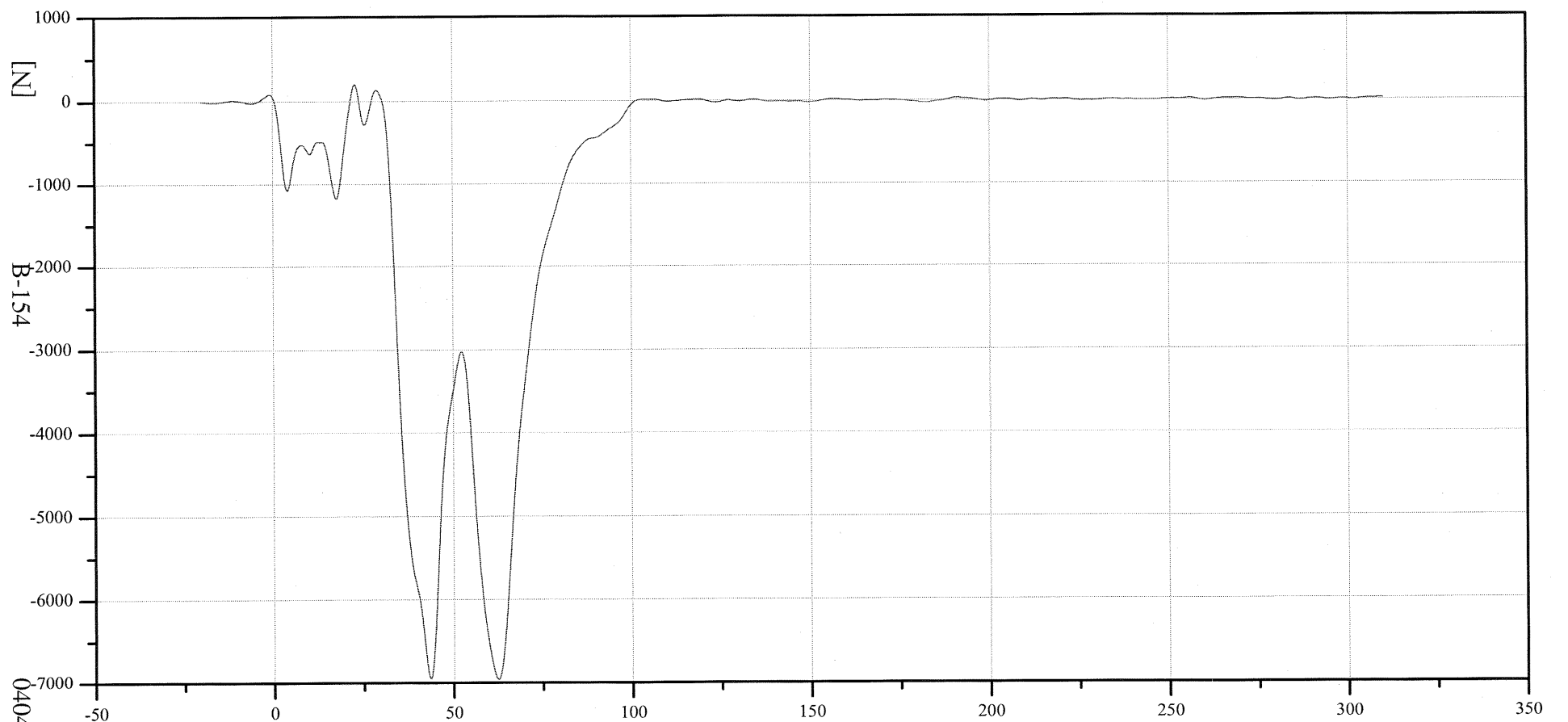
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

LC0508



<Min Value>

-6958.93 N at 62.48 ms

<Max Value>

201.16 N at 22.88 ms

CFC60 [SAE J211 Polarity, Biased Removed and Filtered]



Transportation Research Center, Inc.

ROW 5 COLUMN 9

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

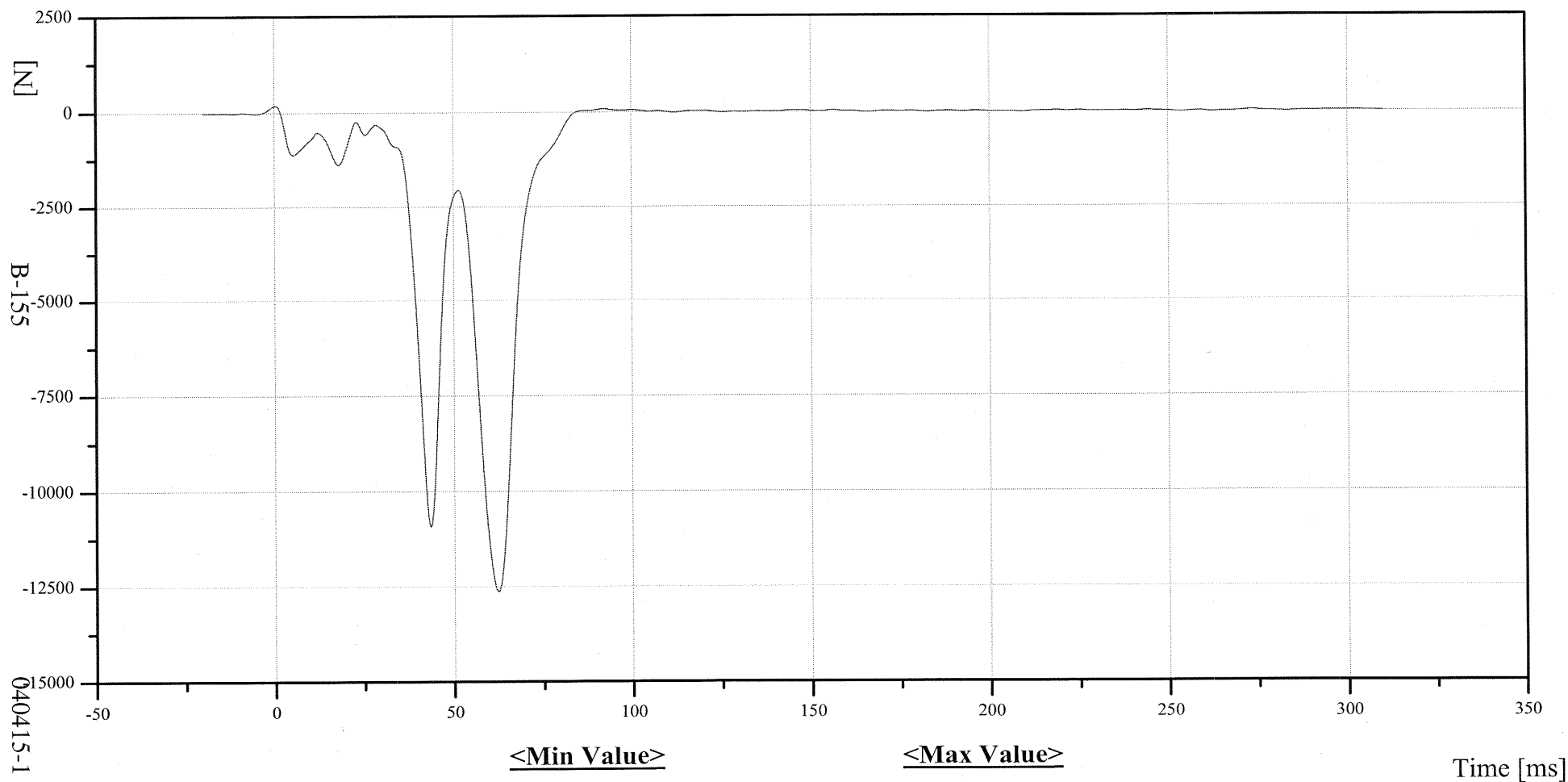
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

LC0509



CFC60 [SAE J211 Polarity, Biased Removed and Filtered]



Transportation Research Center, Inc.

ROW 5 COLUMN 10

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

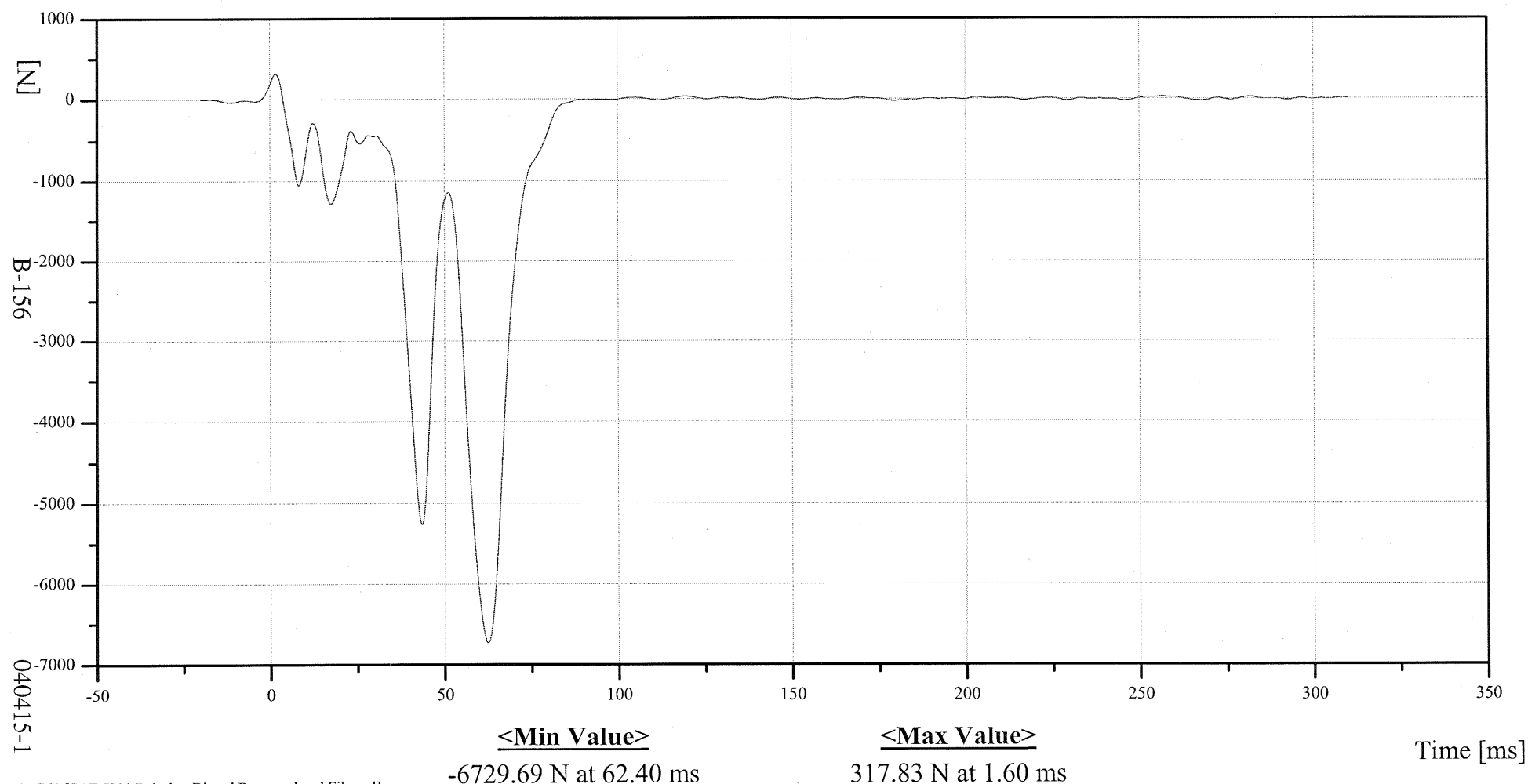
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

LC0510



CFC60 [SAE J211 Polarity, Biased Removed and Filtered]



Transportation Research Center, Inc.

ROW 5 COLUMN 11

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

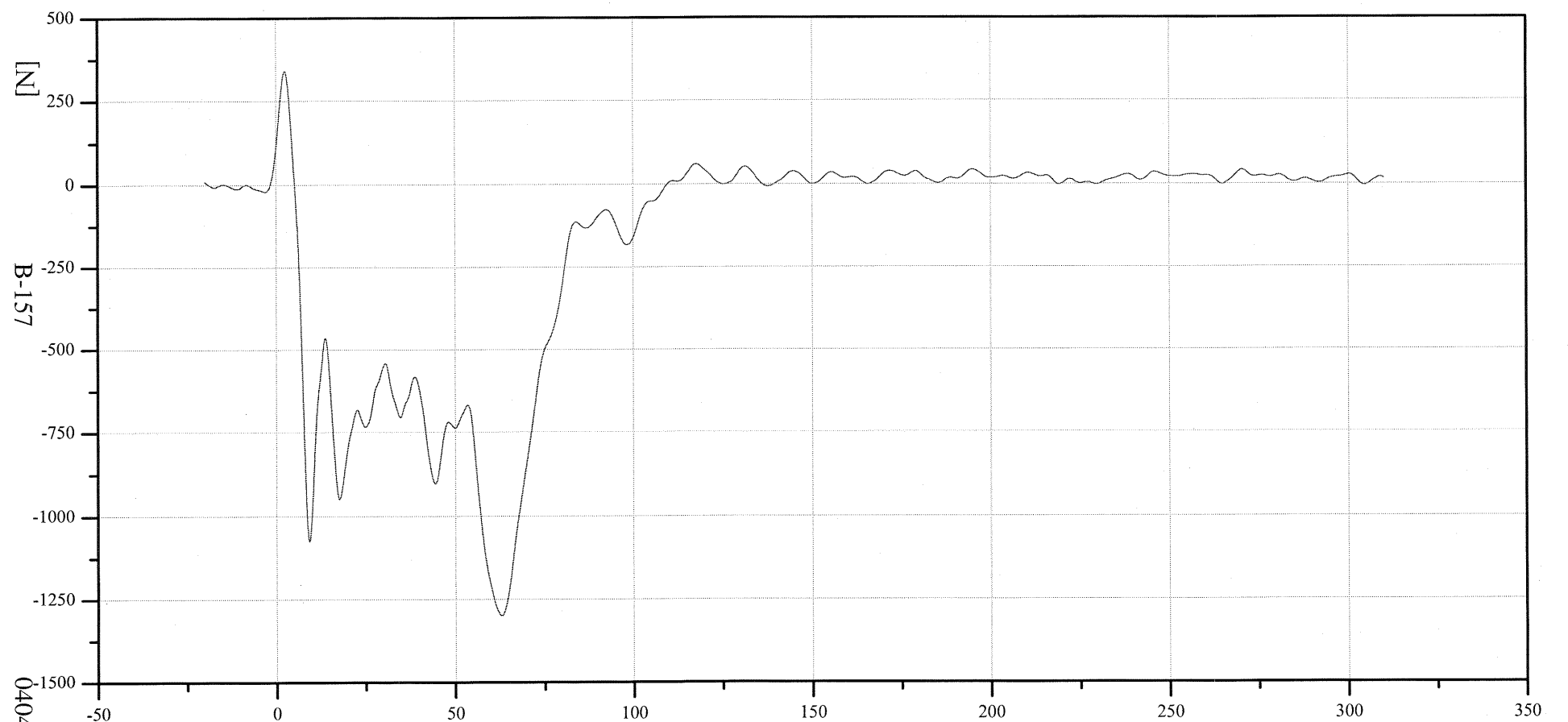
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

LC0511



<Min Value>

-1298.98 N at 62.88 ms

<Max Value>

339.33 N at 2.40 ms

CFC60 [SAE J211 Polarity, Biased Removed and Filtered]



Transportation Research Center, Inc.

ROW 5 COLUMN 12

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

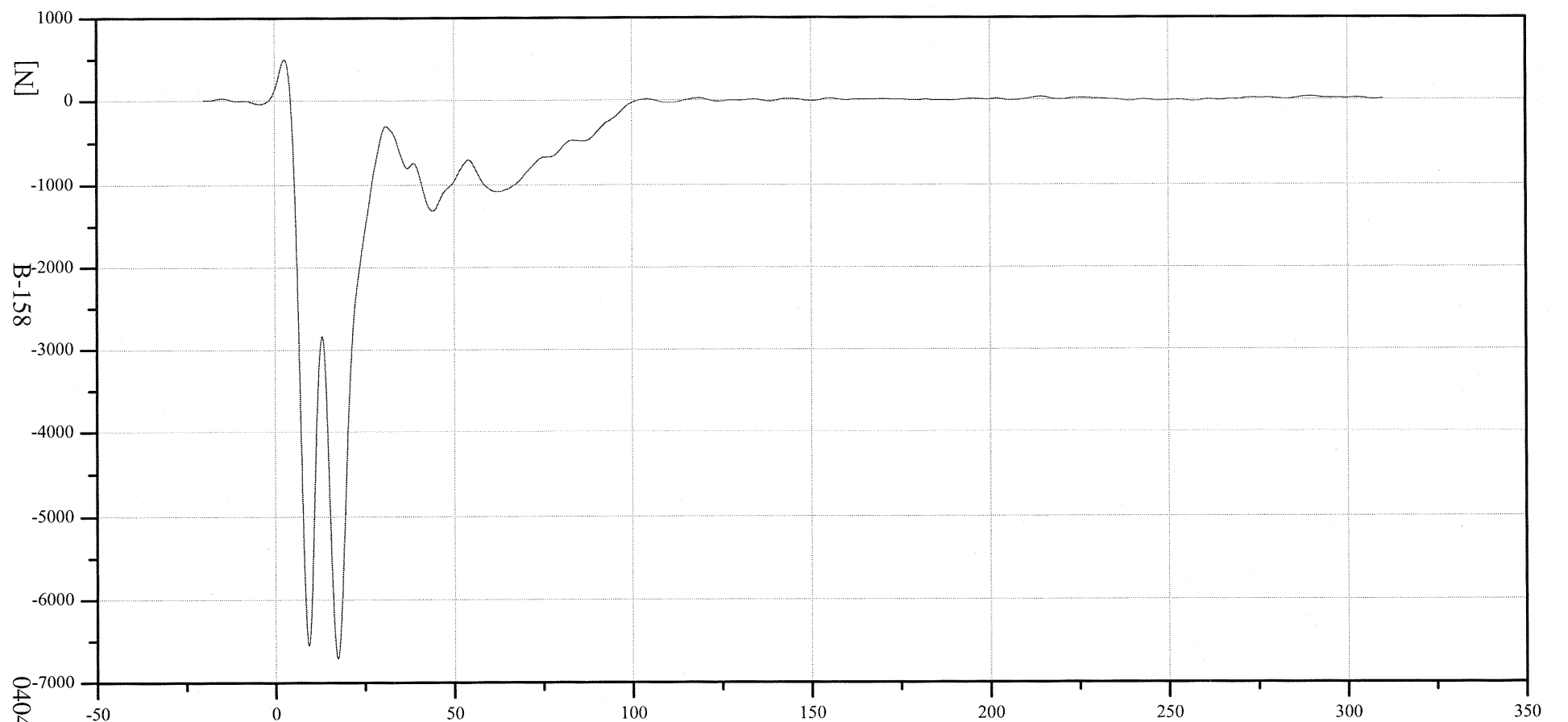
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

LC0512



<Min Value>

-6706.32 N at 17.36 ms

<Max Value>

505.43 N at 2.72 ms

Time [ms]

CFC60 [SAE J211 Polarity, Biased Removed and Filtered]



Transportation Research Center, Inc.

ROW 5 COLUMN 13

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

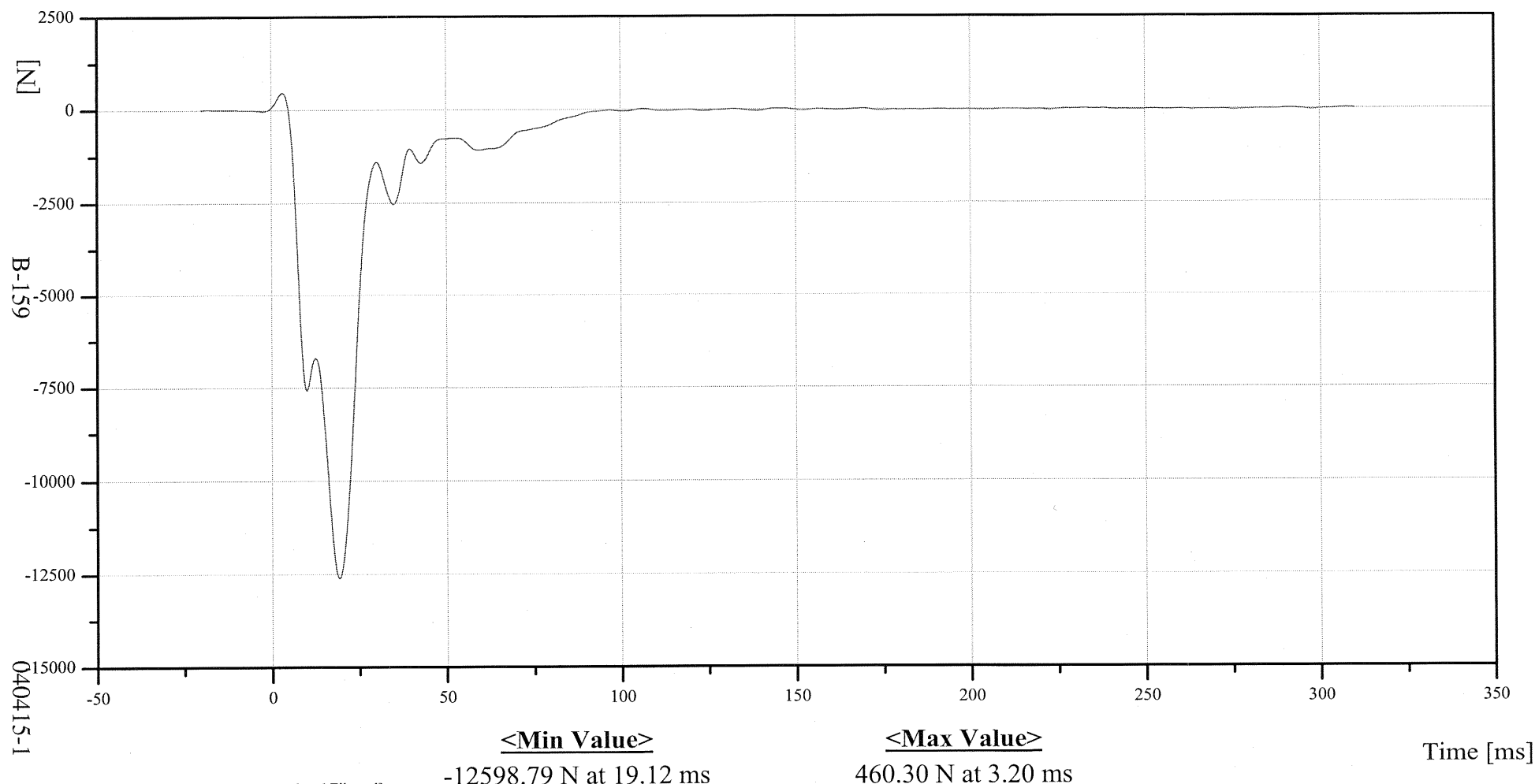
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

LC0513



CFC60 [SAE J211 Polarity, Biased Removed and Filtered]



Transportation Research Center, Inc.

ROW 5 COLUMN 14

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

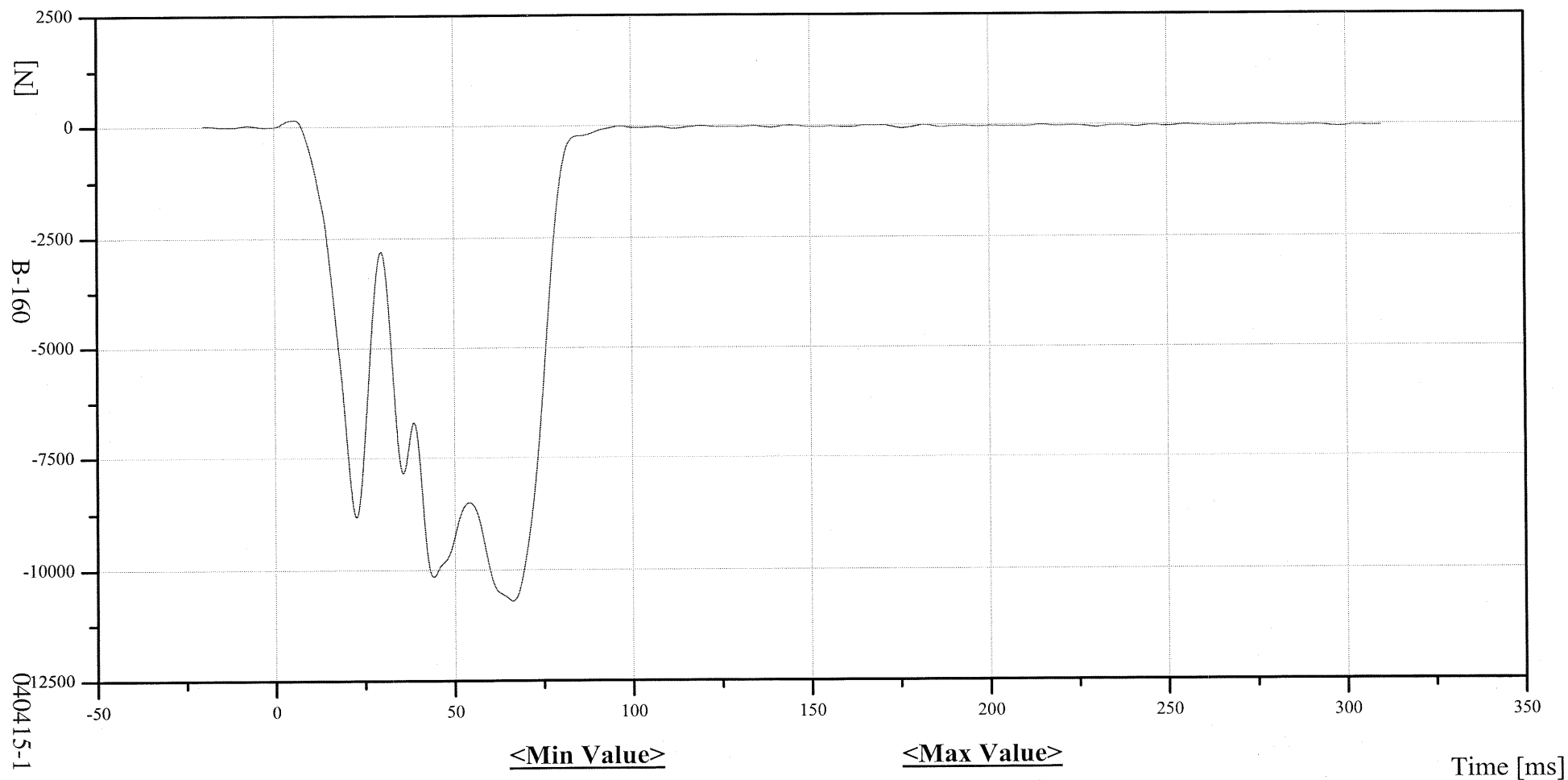
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

LC0514



CFC60 [SAE J211 Polarity, Biased Removed and Filtered]



Transportation Research Center, Inc.

ROW 5 COLUMN 15

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

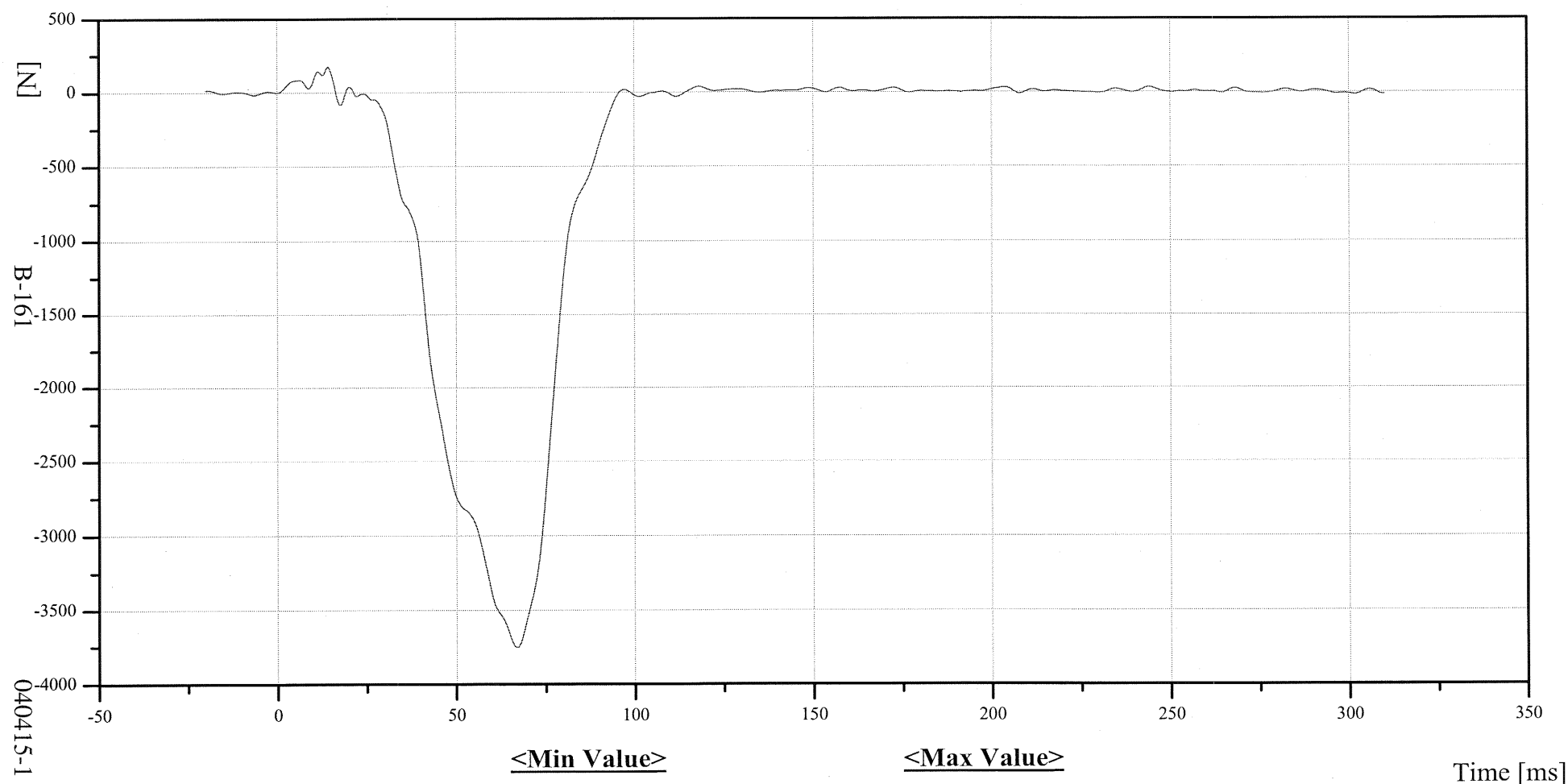
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

LC0515



CFC60 [SAE J211 Polarity, Biased Removed and Filtered]



Transportation Research Center, Inc.

ROW 5 COLUMN 16

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

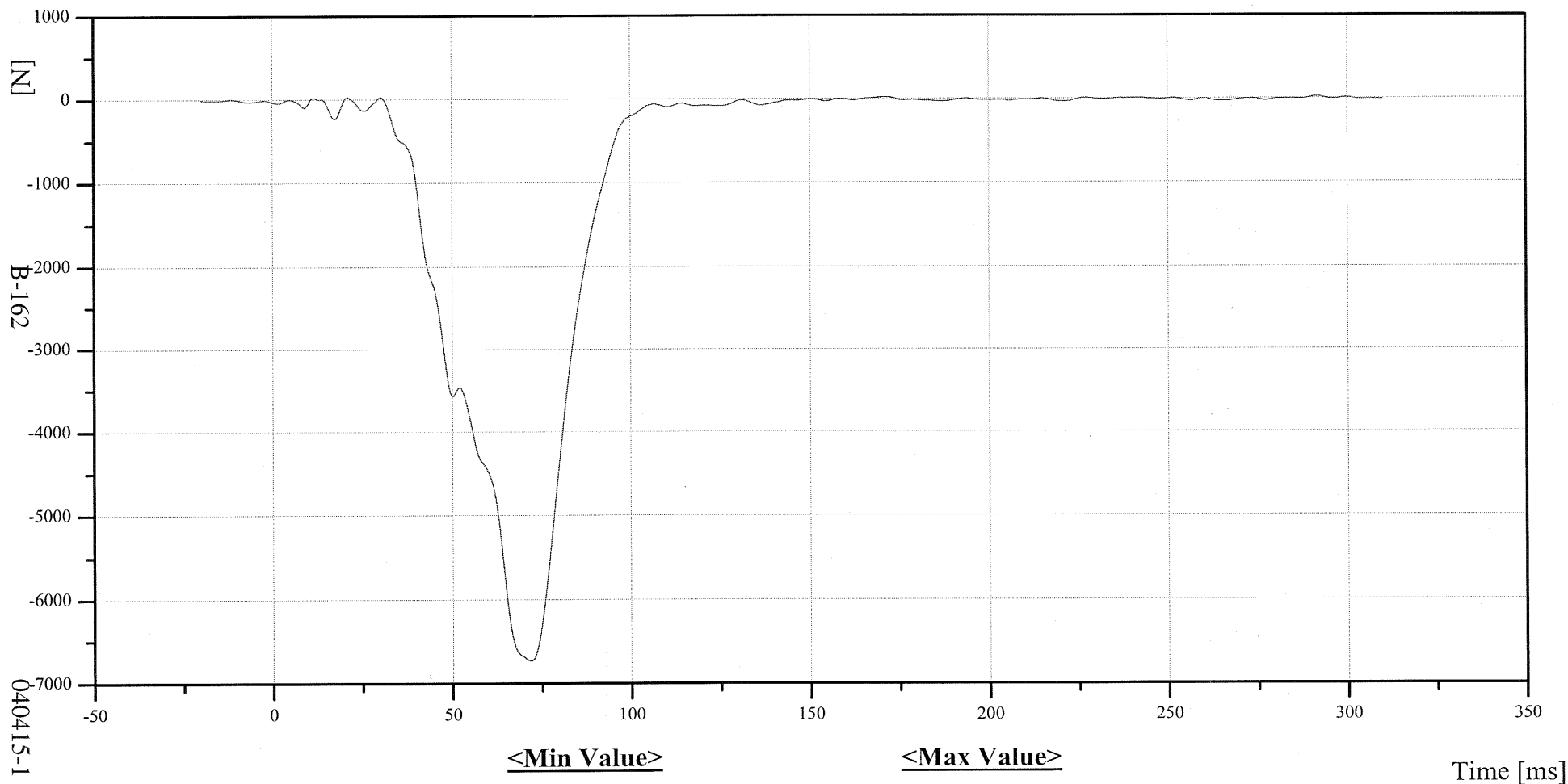
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

LC0516



CFC60 [SAE J211 Polarity, Biased Removed and Filtered]



Transportation Research Center, Inc.

ROW 6 COLUMN 1

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

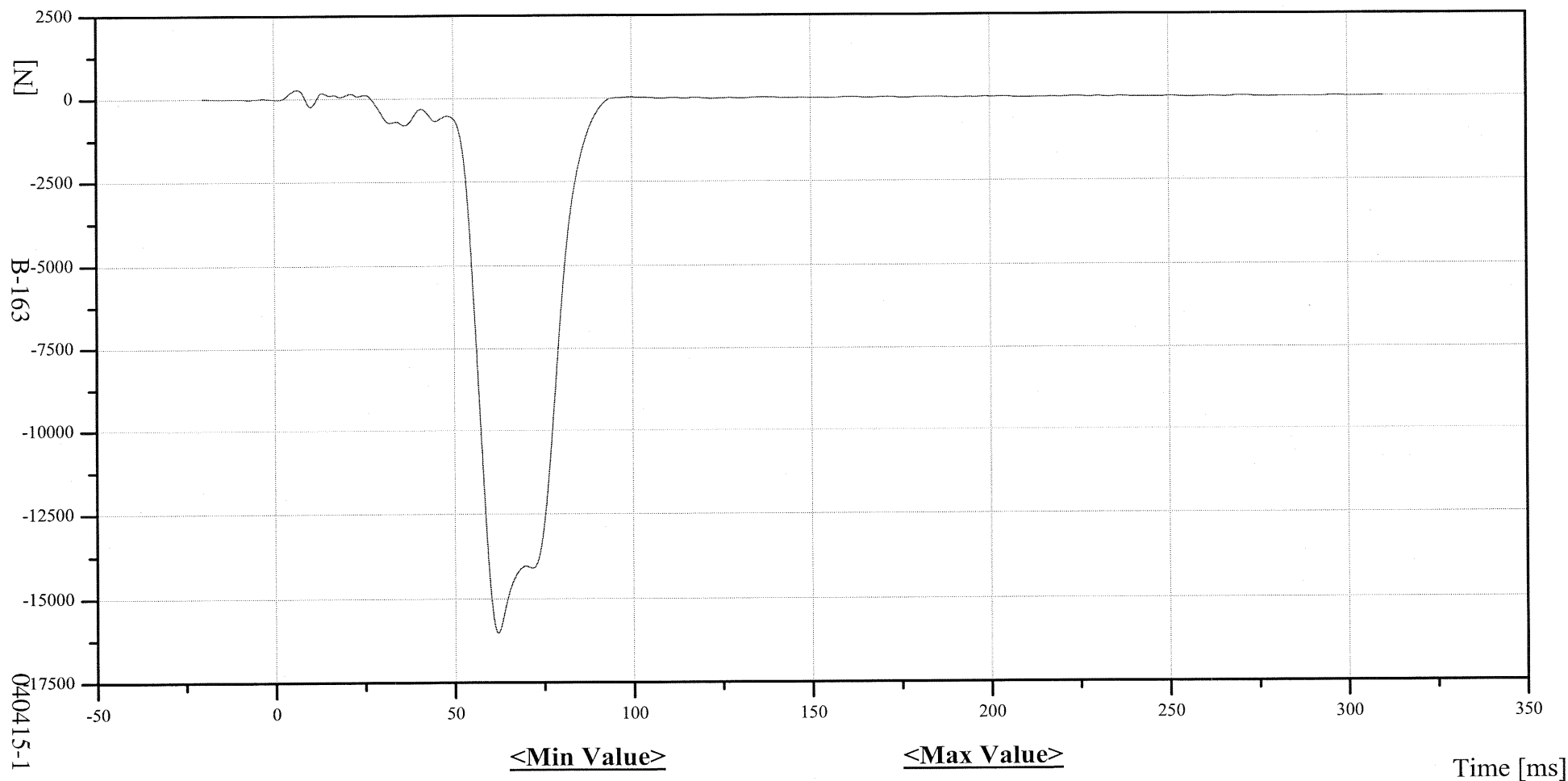
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

LC0601



CFC60 [SAE J211 Polarity, Biased Removed and Filtered]

-16020.41 N at 62.00 ms

277.08 N at 6.40 ms



Transportation Research Center, Inc.

ROW 6 COLUMN 2

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

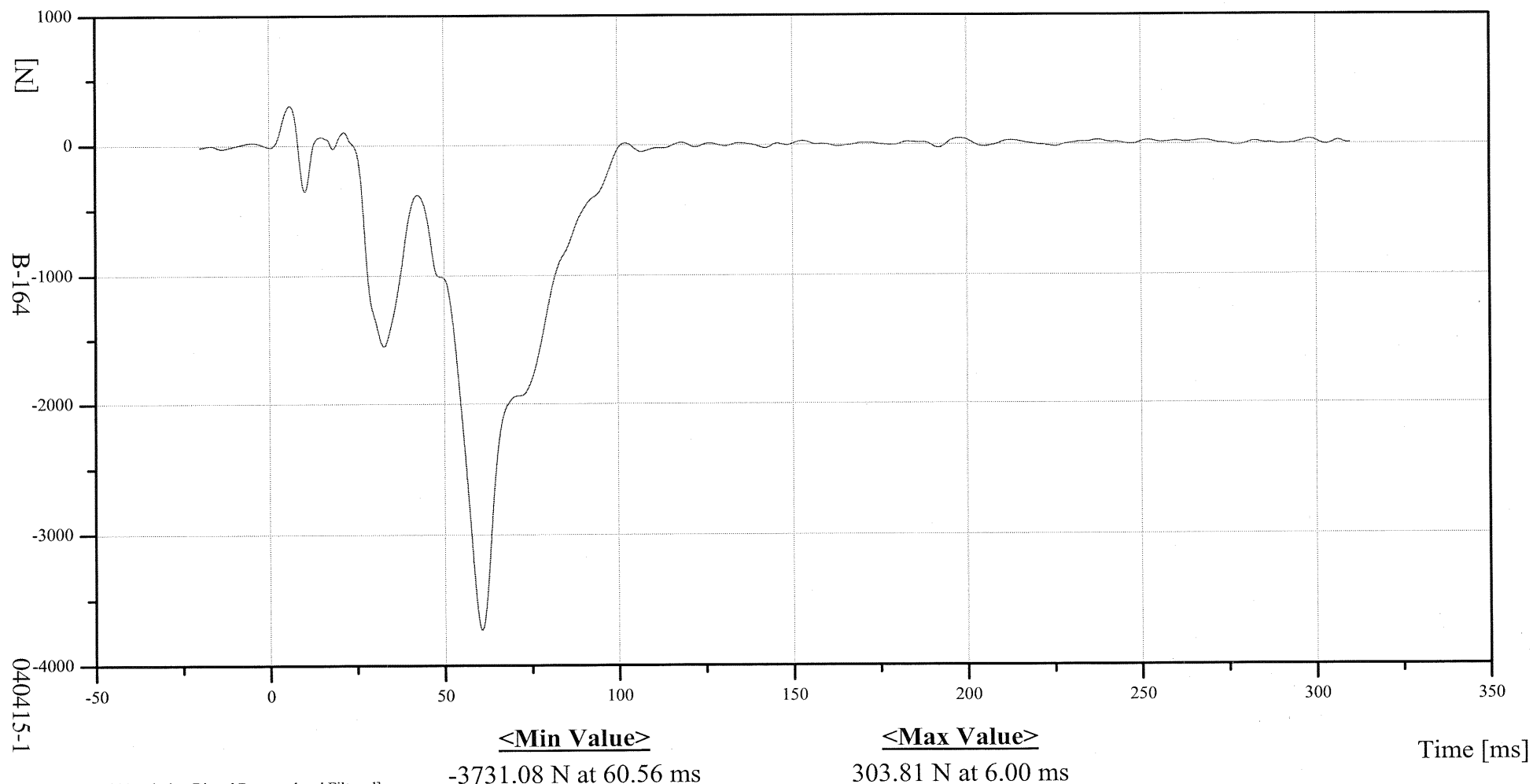
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

LC0602



CFC60 [SAE J211 Polarity, Biased Removed and Filtered]



Transportation Research Center, Inc.

ROW 6 COLUMN 3

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

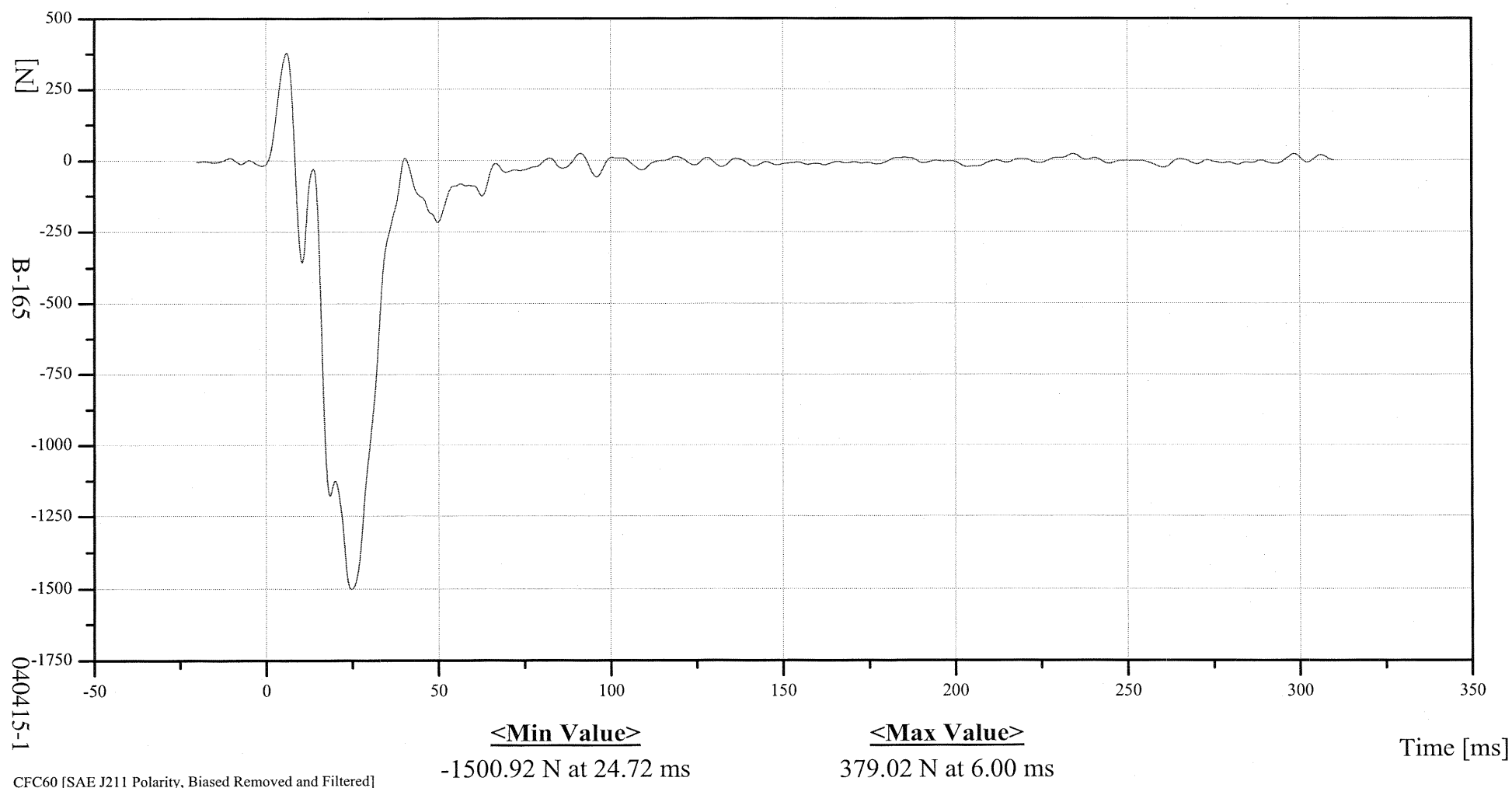
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

LC0603





Transportation Research Center, Inc.

ROW 6 COLUMN 4

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

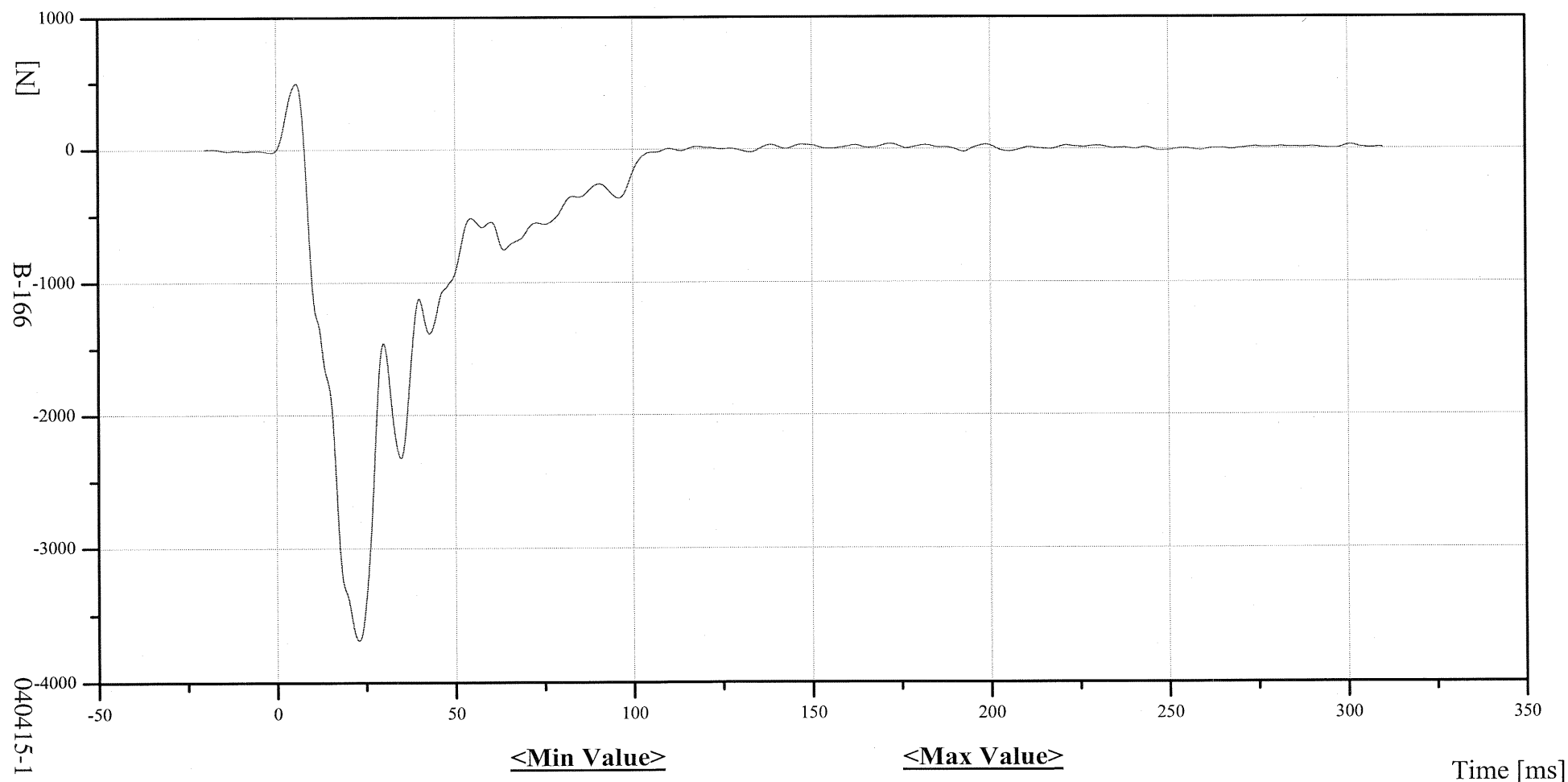
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

LC0604



CFC60 [SAE J211 Polarity, Biased Removed and Filtered]



Transportation Research Center, Inc.

ROW 6 COLUMN 5

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

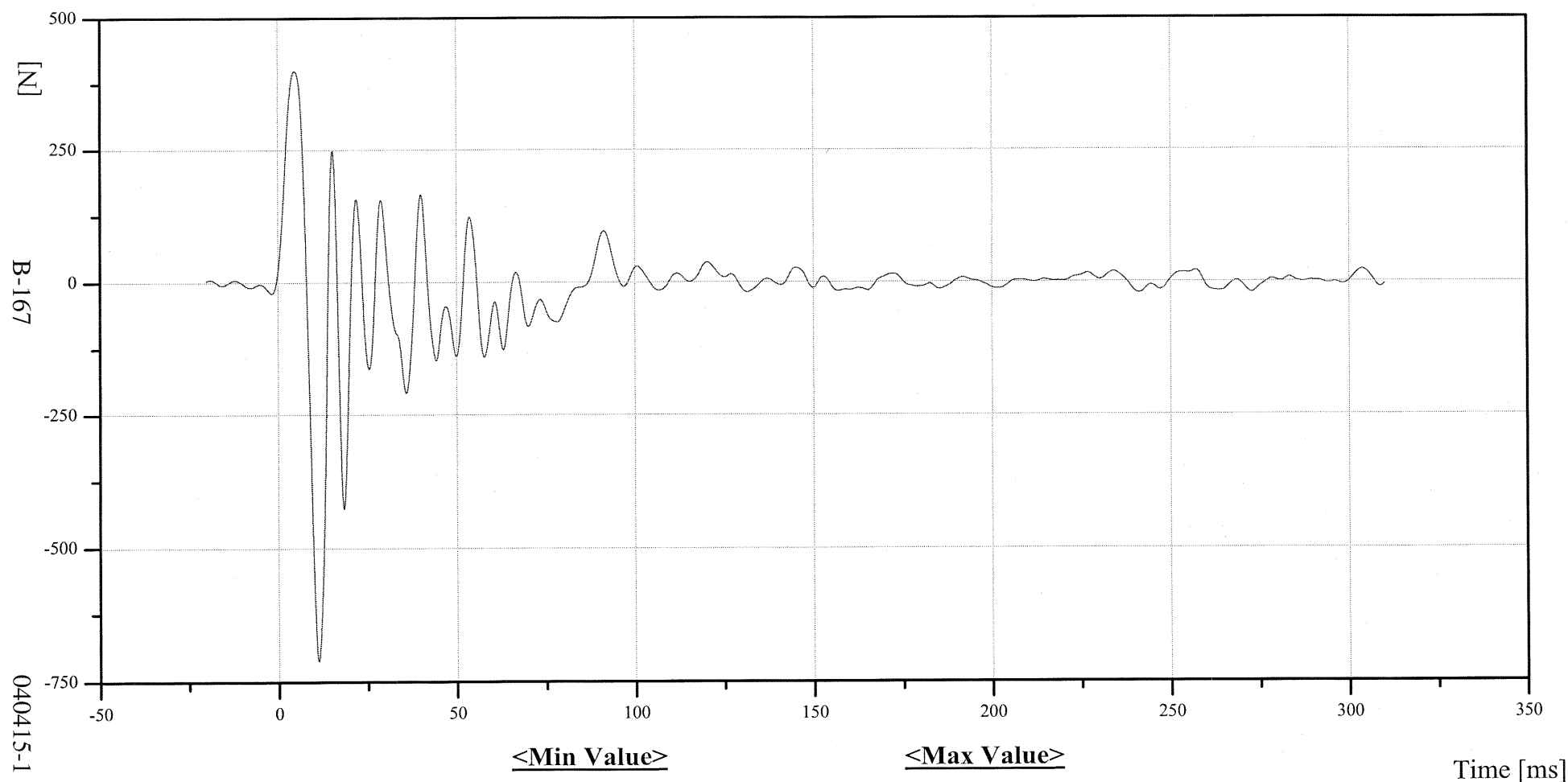
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

LC0605



CFC60 [SAE J211 Polarity, Biased Removed and Filtered]

-711.58 N at 11.12 ms

399.91 N at 4.72 ms



Transportation Research Center, Inc.

ROW 6 COLUMN 6

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

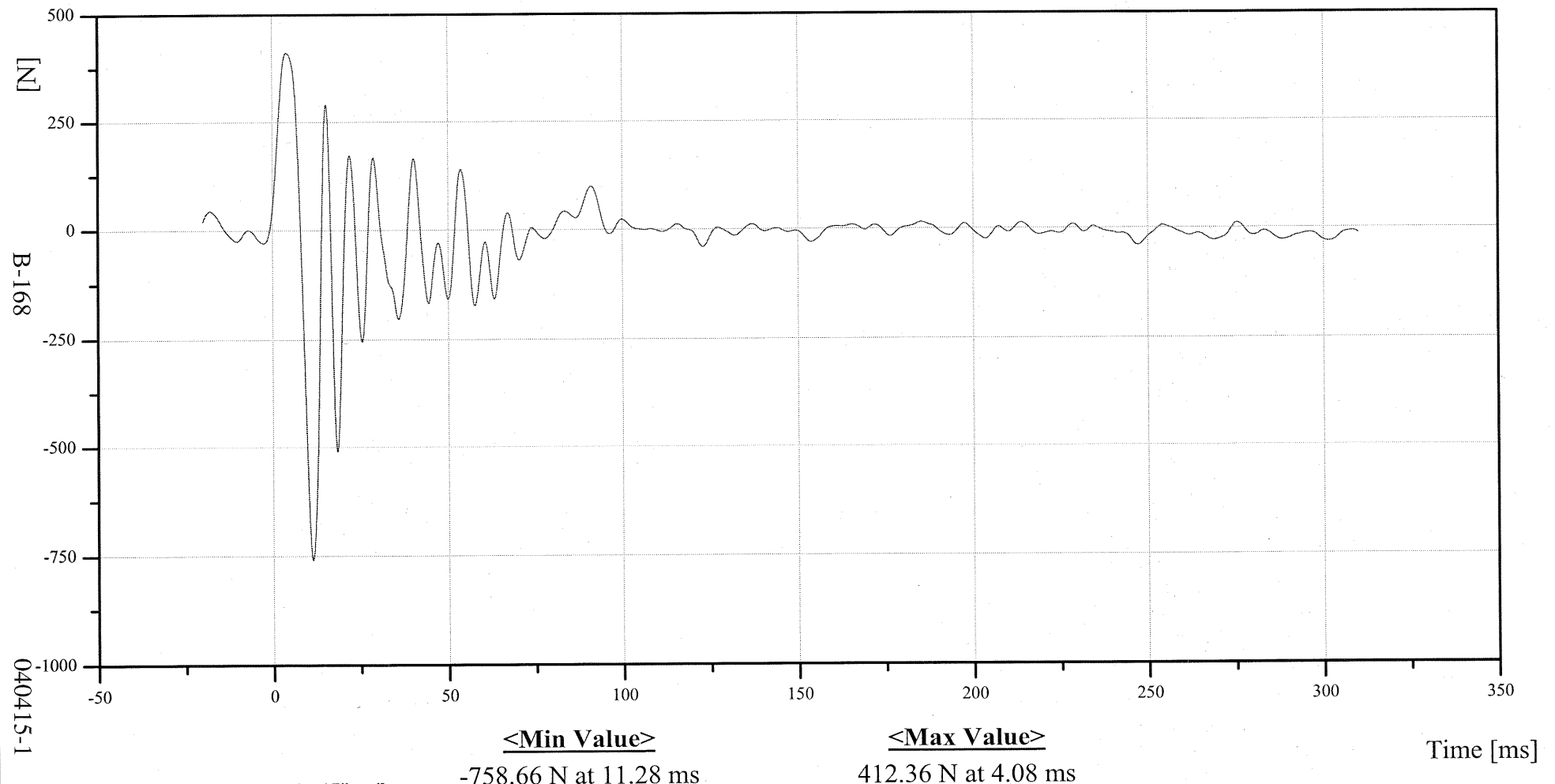
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

LC0606



CFC60 [SAE J211 Polarity, Biased Removed and Filtered]



Transportation Research Center, Inc.

ROW 6 COLUMN 7

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

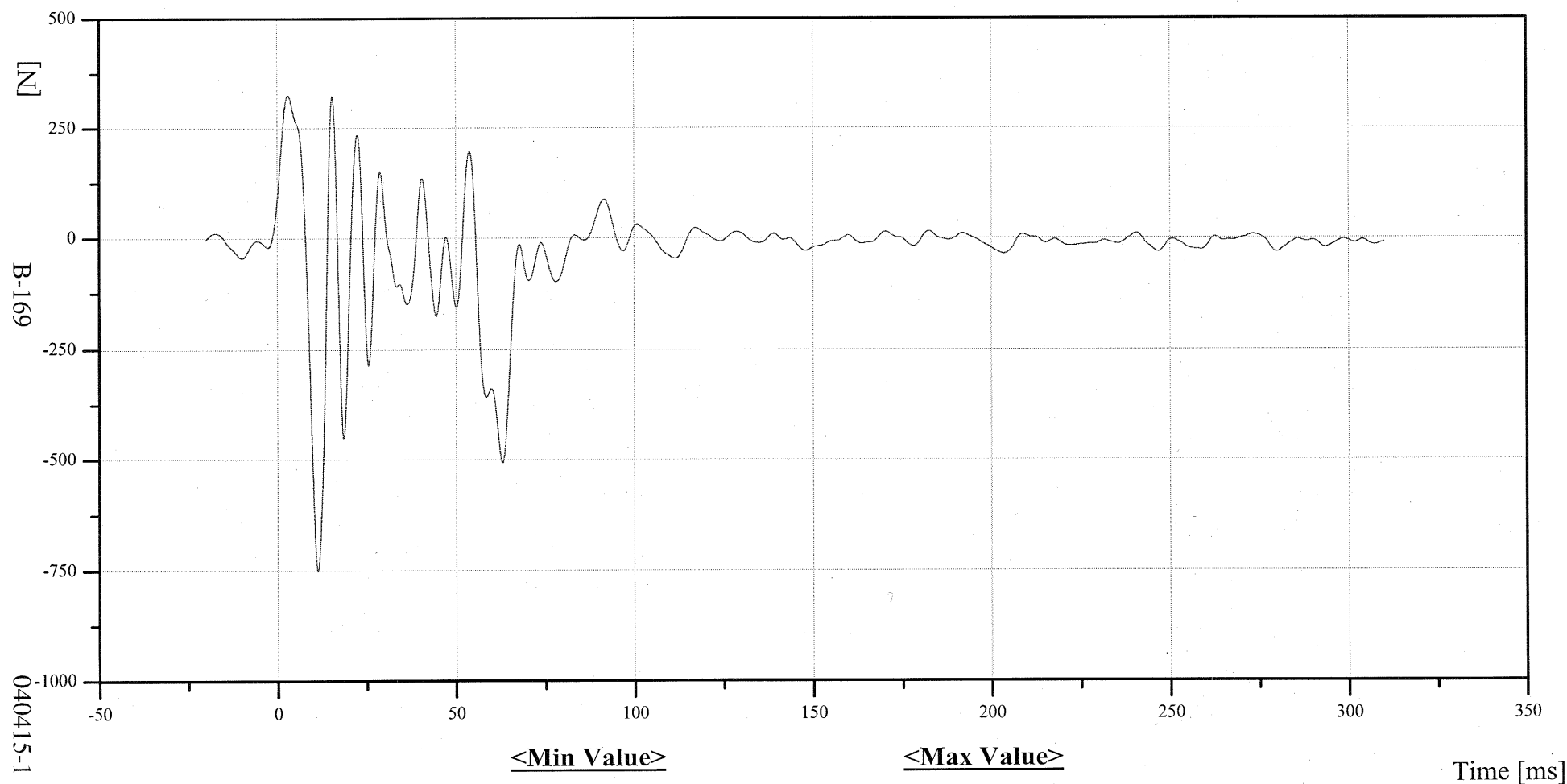
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

LC0607



CFC60 [SAE J211 Polarity, Biased Removed and Filtered]

-751.37 N at 11.20 ms

326.86 N at 2.96 ms



Transportation Research Center, Inc.

ROW 6 COLUMN 8

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

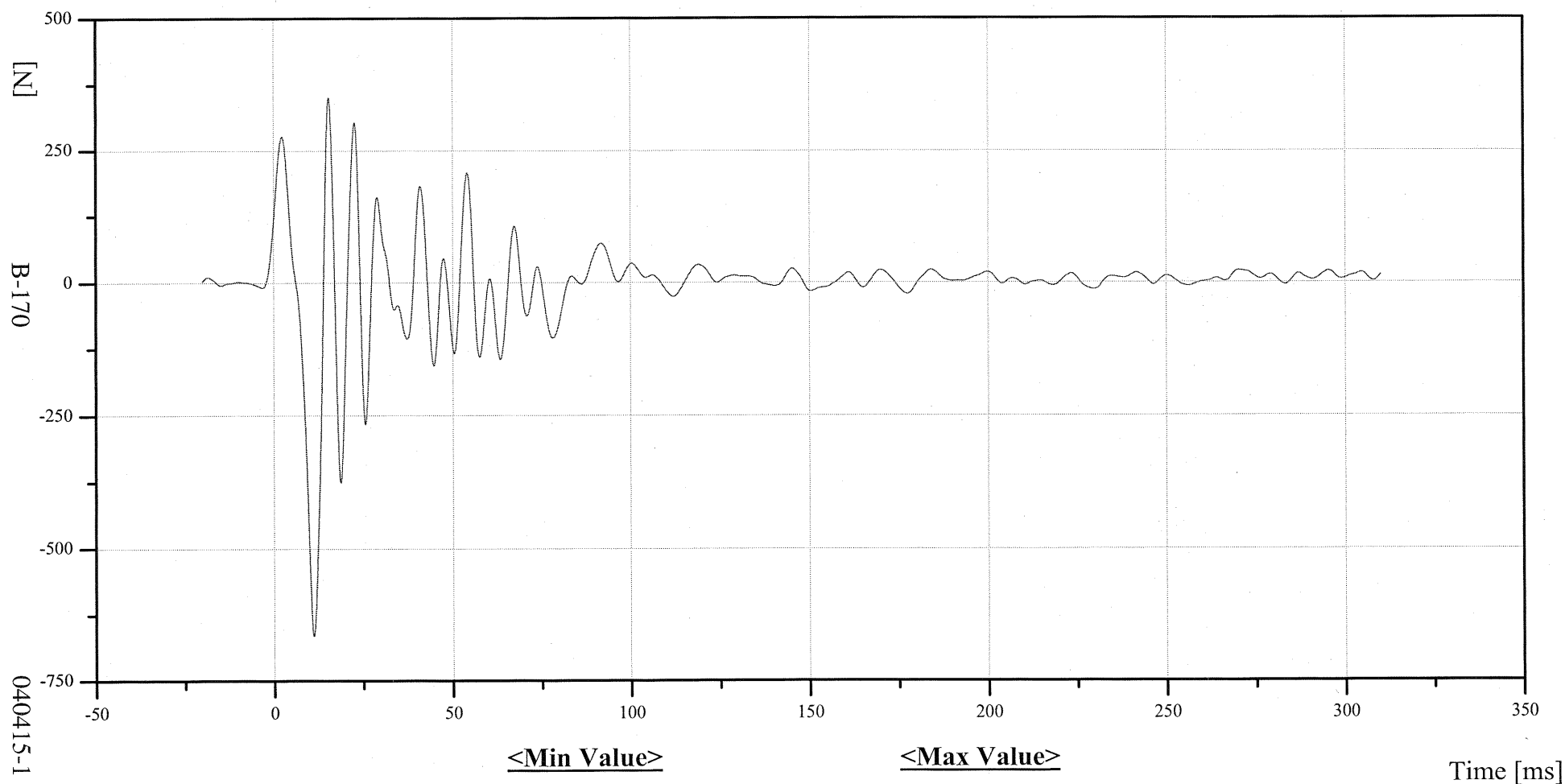
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

LC0608



CFC60 [SAE J211 Polarity, Biased Removed and Filtered]



Transportation Research Center, Inc.

ROW 6 COLUMN 9

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

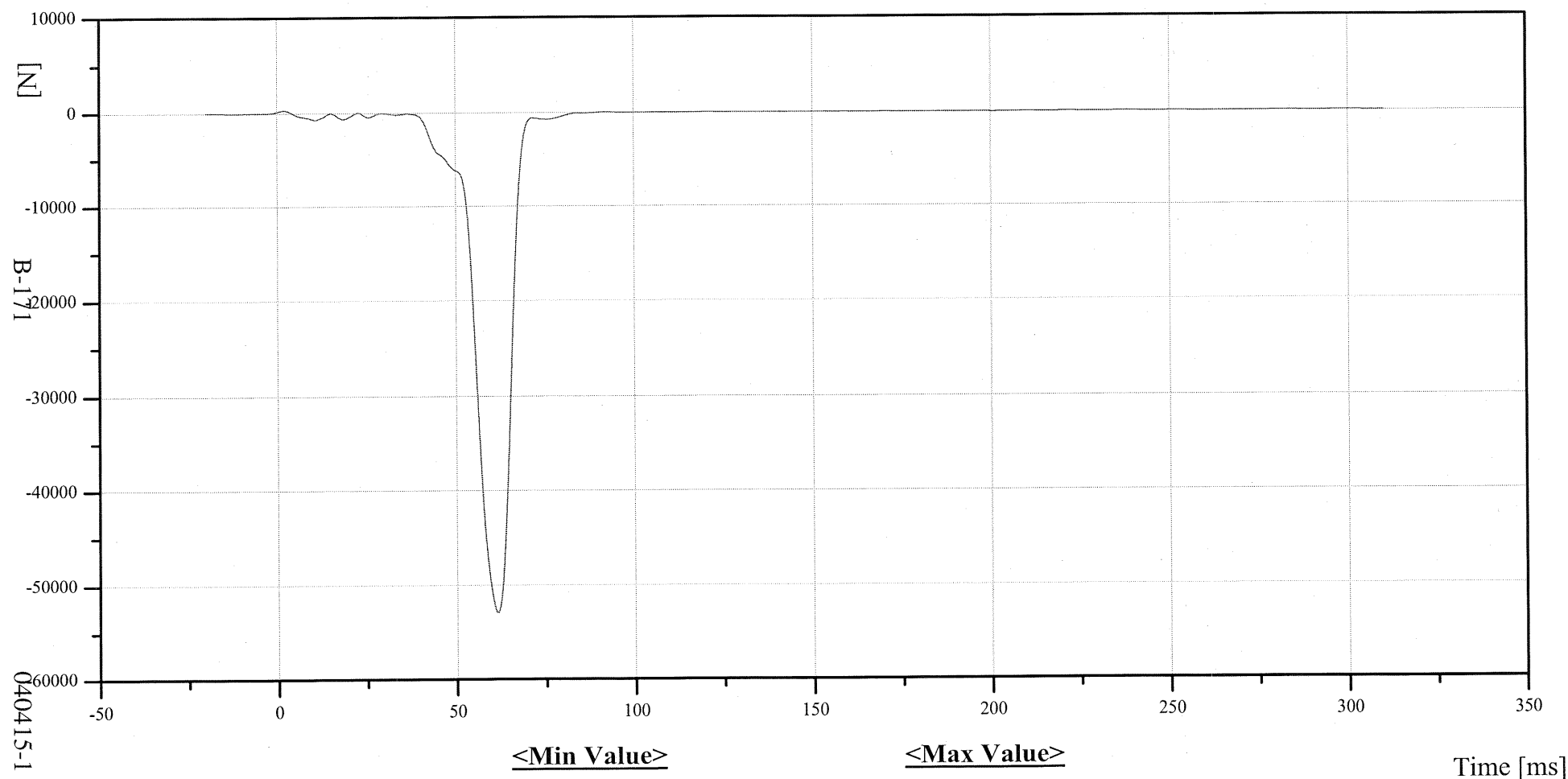
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

LC0609



<Min Value>

-52869.85 N at 61.44 ms

<Max Value>

296.69 N at 2.00 ms

Time [ms]

CFC60 [SAE J211 Polarity, Biased Removed and Filtered]



Transportation Research Center, Inc.

ROW 6 COLUMN 10

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

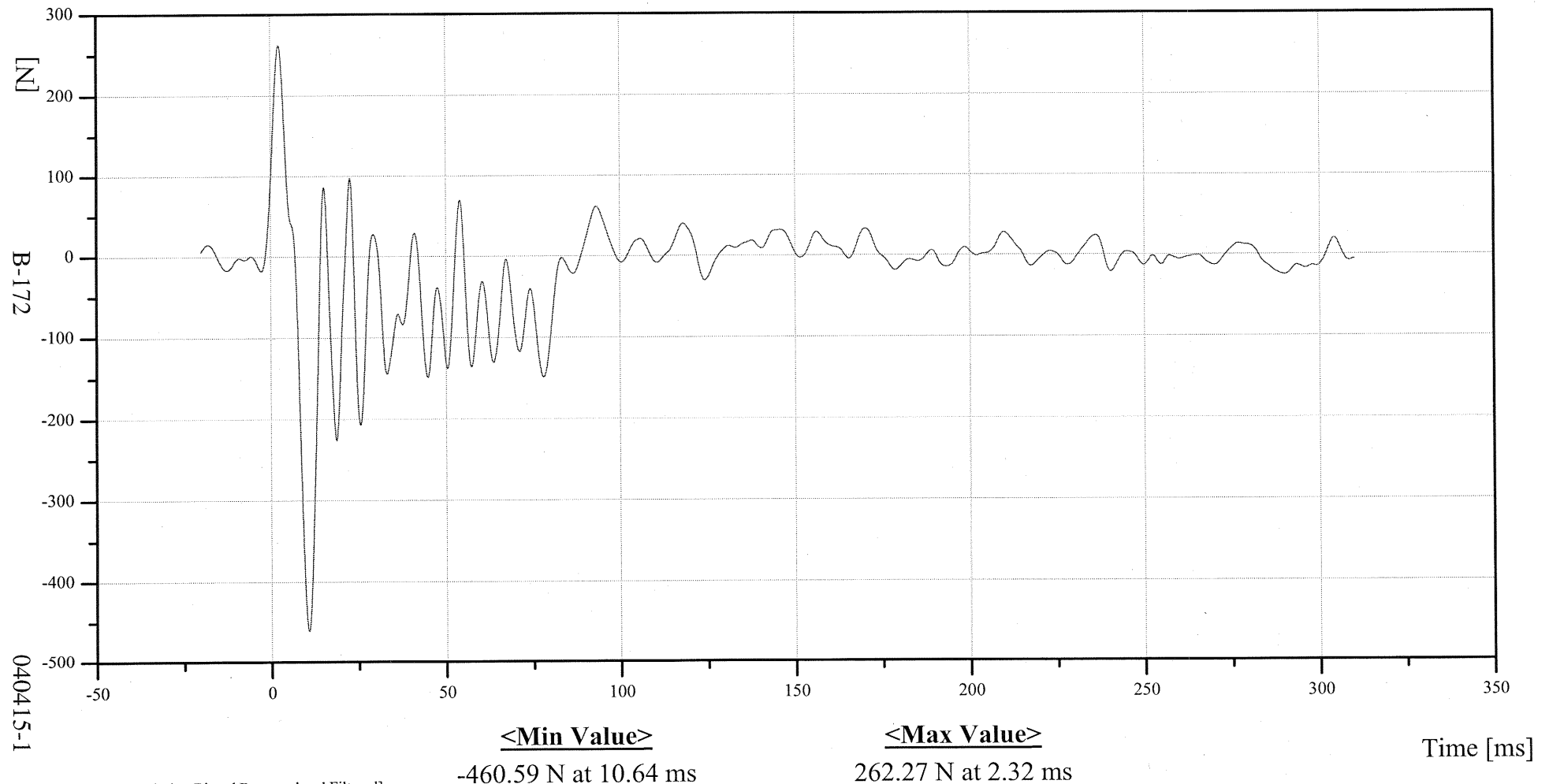
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

LC0610





Transportation Research Center, Inc.

ROW 6 COLUMN 11

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

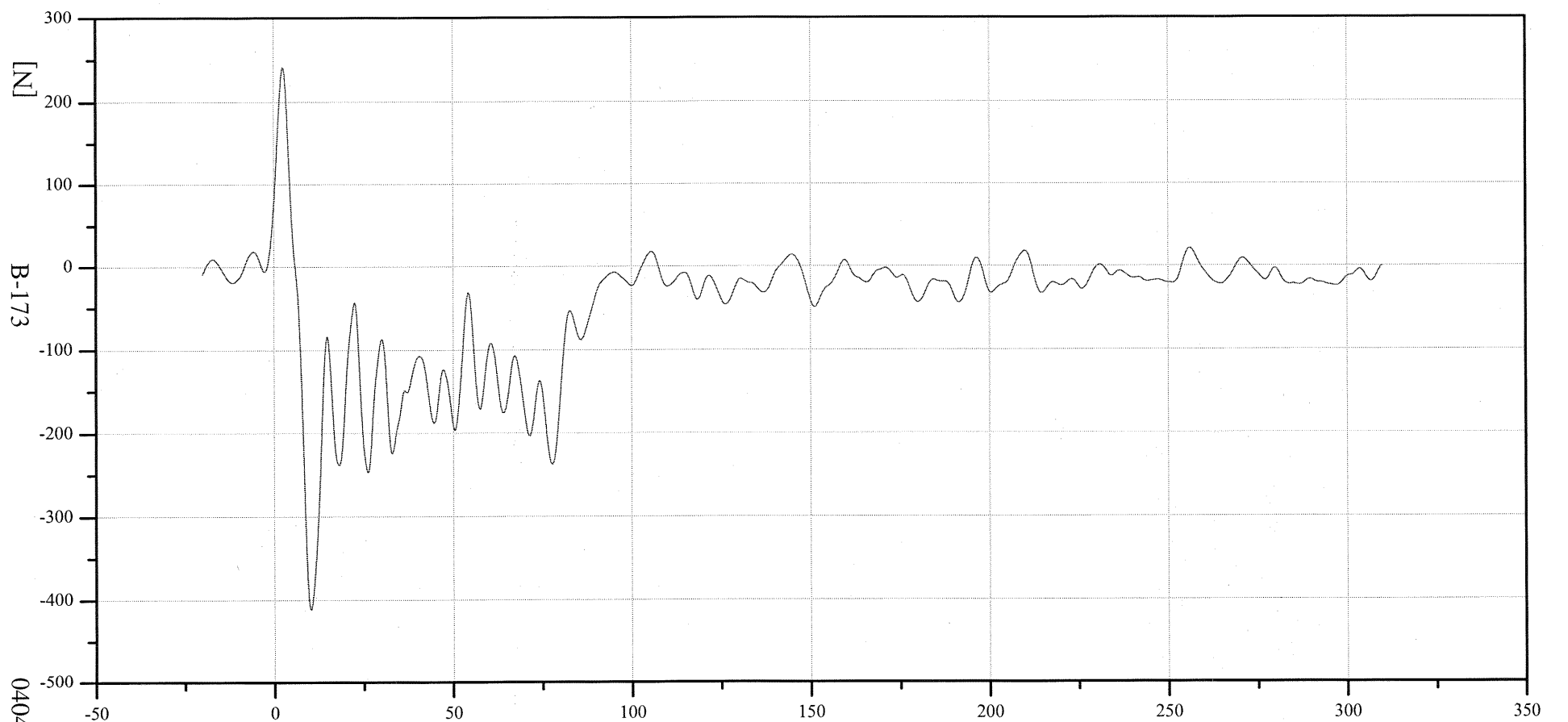
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

LC0611



<Min Value>

-411.25 N at 10.08 ms

<Max Value>

241.35 N at 2.56 ms

CFC60 [SAE J211 Polarity, Biased Removed and Filtered]



Transportation Research Center, Inc.

ROW 6 COLUMN 12

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

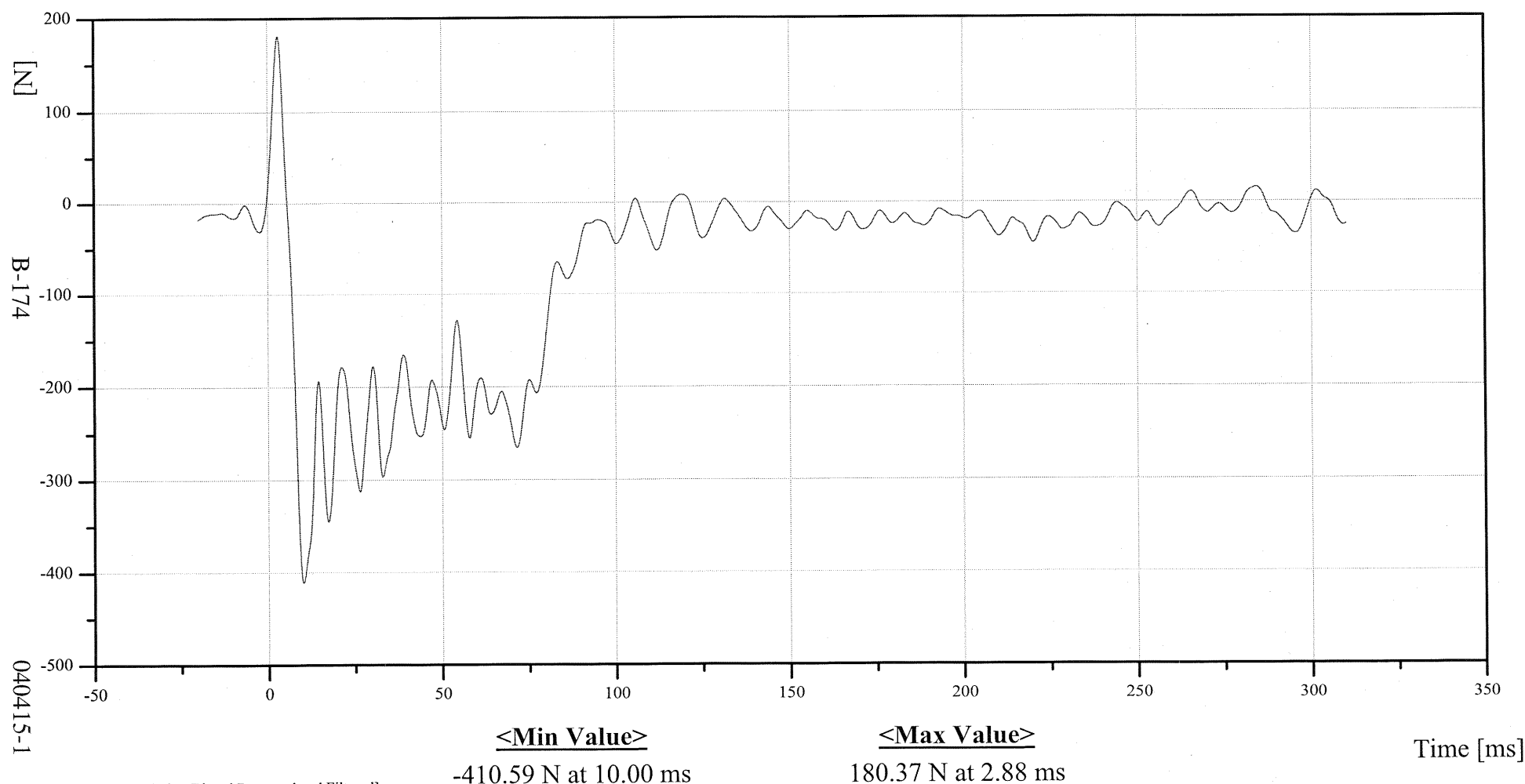
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

LC0612



CFC60 [SAE J211 Polarity, Biased Removed and Filtered]



Transportation Research Center, Inc.

ROW 6 COLUMN 13

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

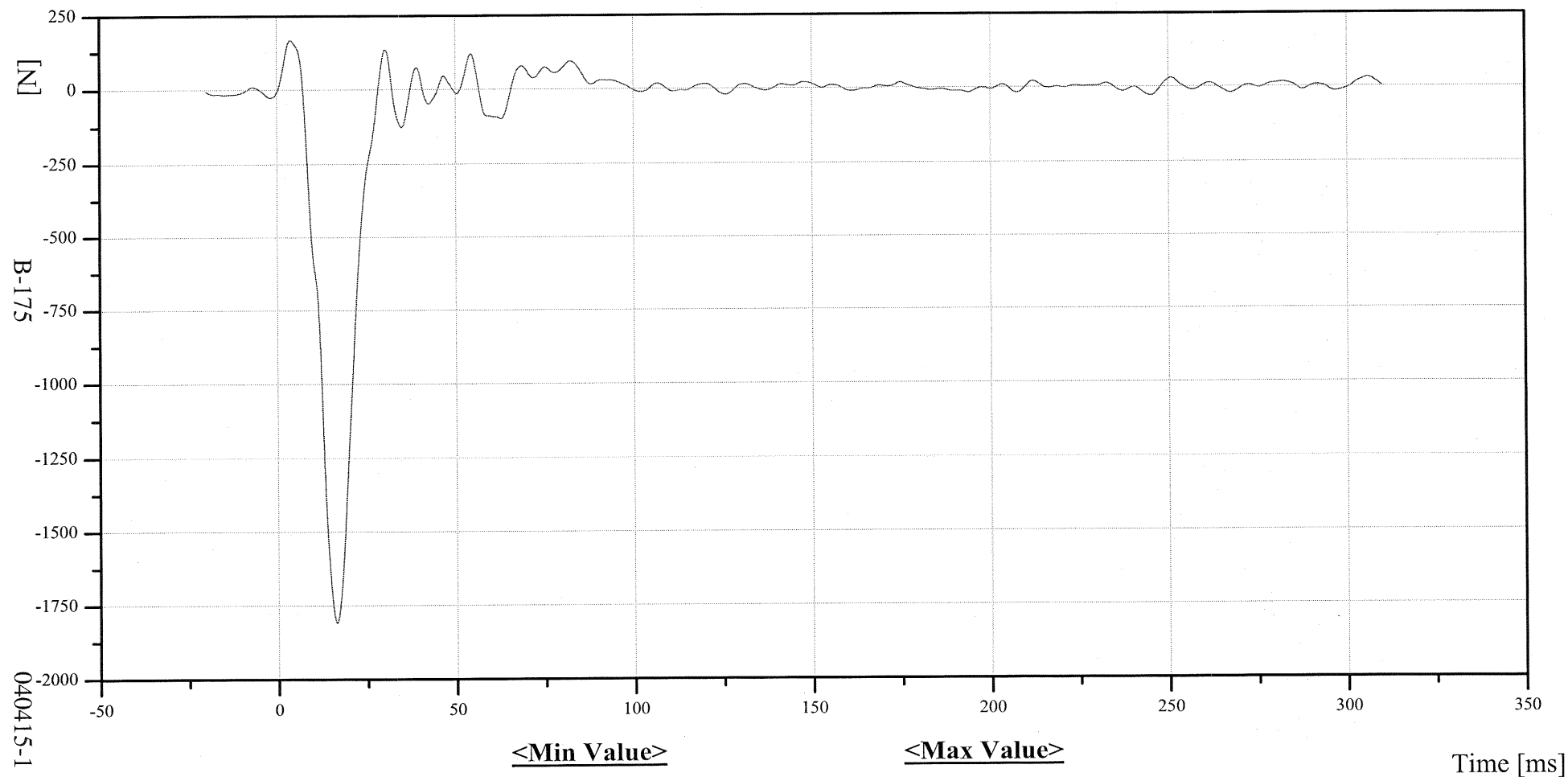
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

LC0613



-1808.21 N at 16.24 ms

166.58 N at 3.84 ms

CFC60 [SAE J211 Polarity, Biased Removed and Filtered]



Transportation Research Center, Inc.

ROW 6 COLUMN 14

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

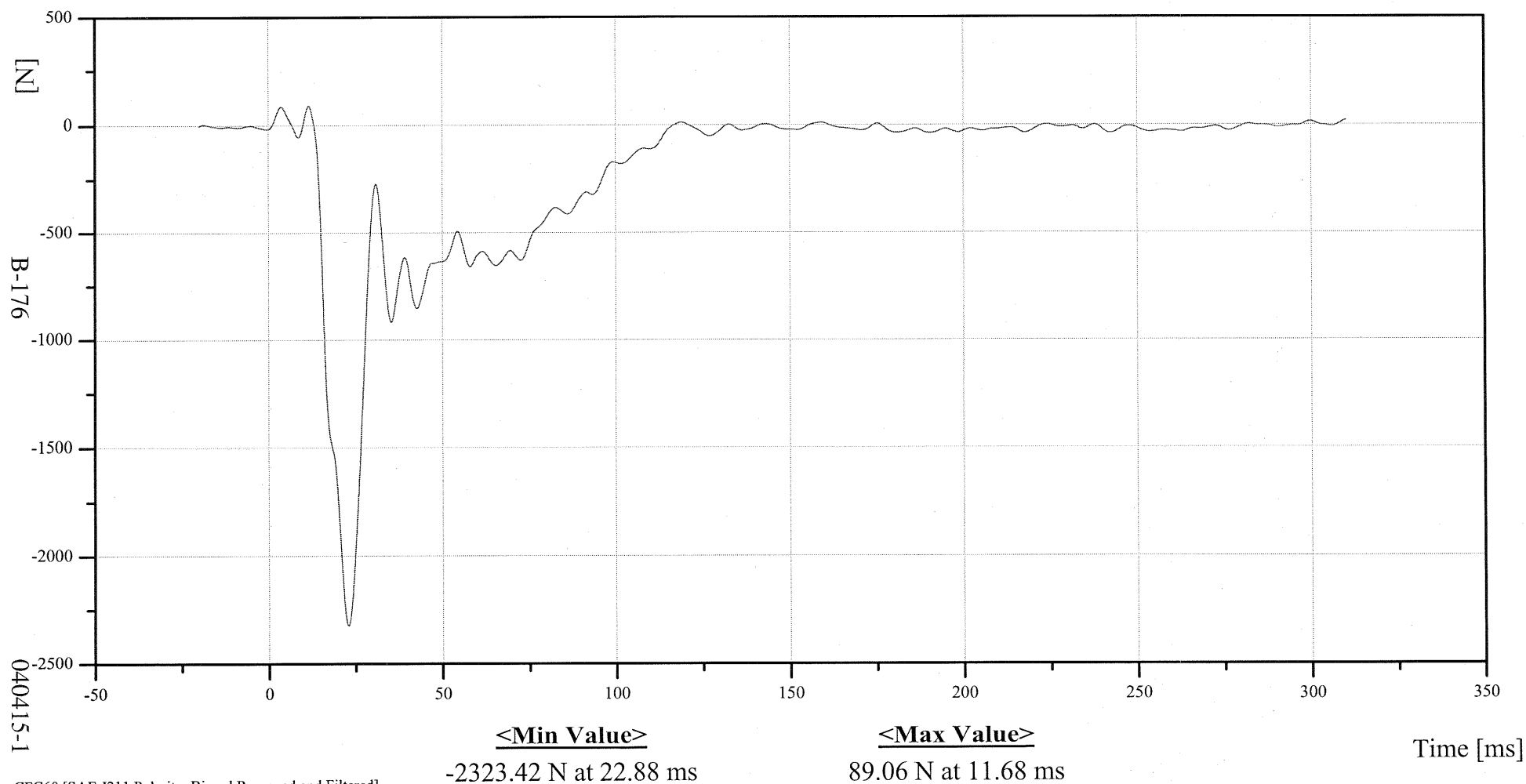
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

LC0614





Transportation Research Center, Inc.

ROW 6 COLUMN 15

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

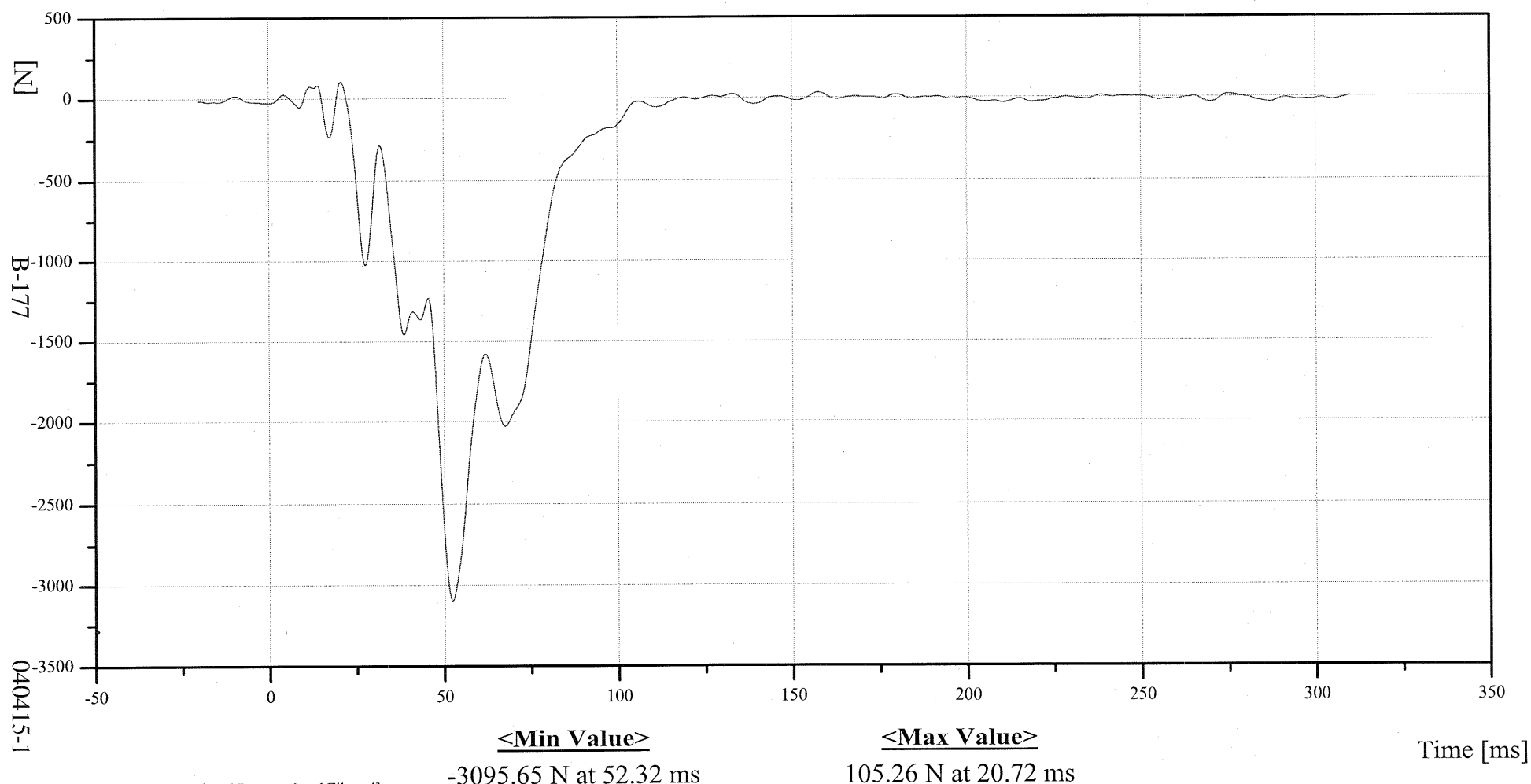
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

LC0615



CFC60 [SAE J211 Polarity, Biased Removed and Filtered]



Transportation Research Center, Inc.

ROW 6 COLUMN 16

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

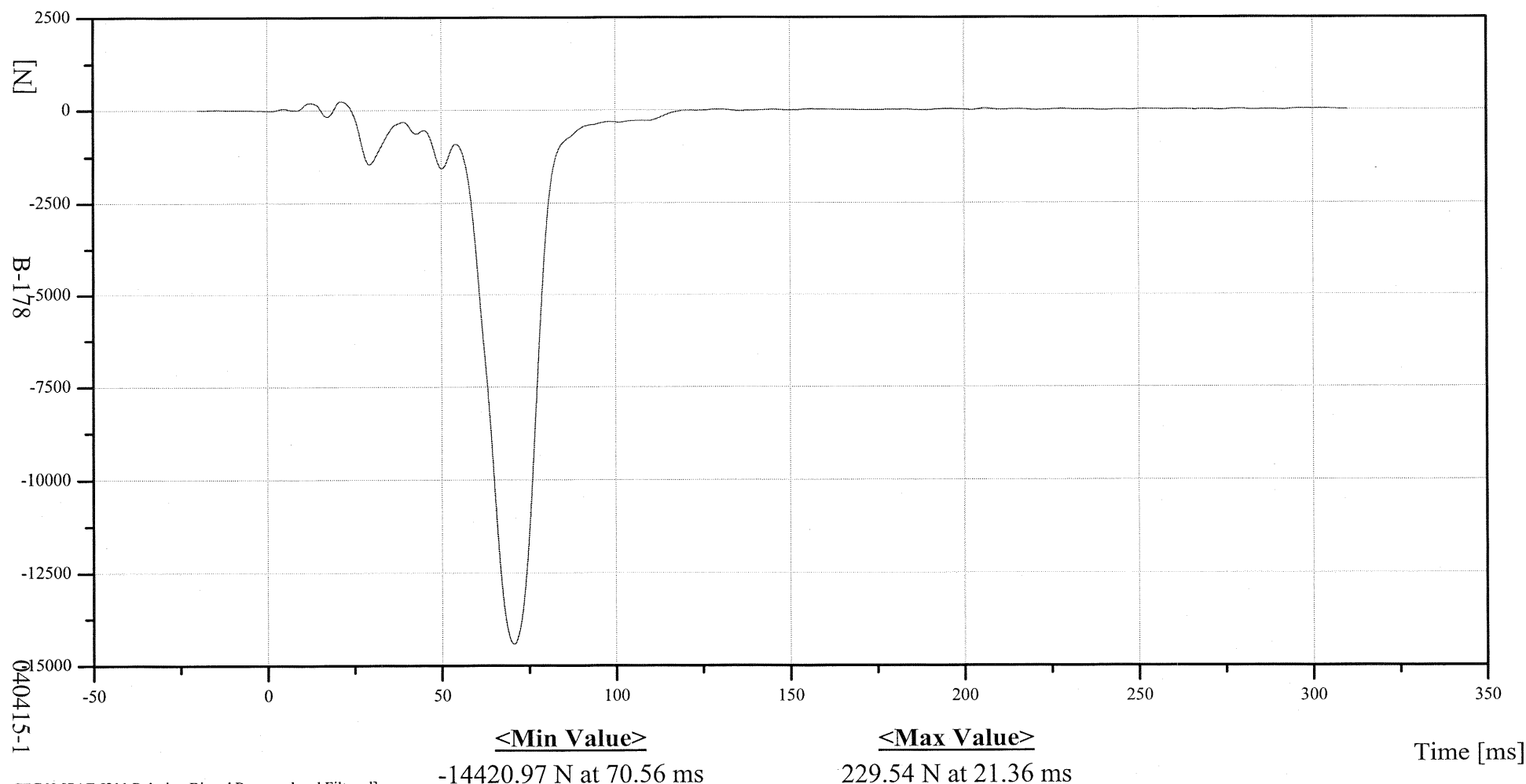
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

LC0616



CFC60 [SAE J211 Polarity, Biased Removed and Filtered]



Transportation Research Center, Inc.

ROW 7 COLUMN 1

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

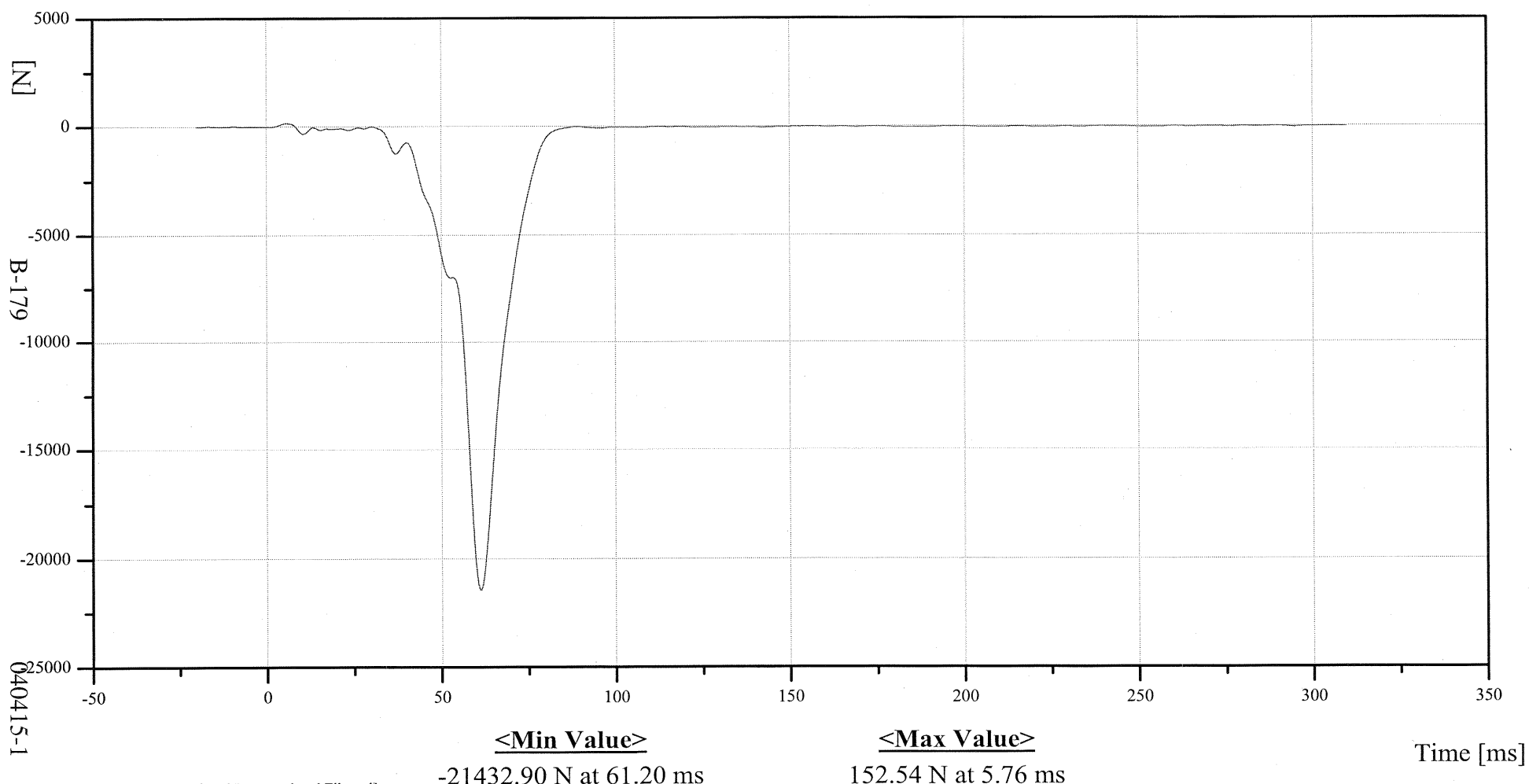
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

LC0701



CFC60 [SAE J211 Polarity, Biased Removed and Filtered]



Transportation Research Center, Inc.

ROW 7 COLUMN 2

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

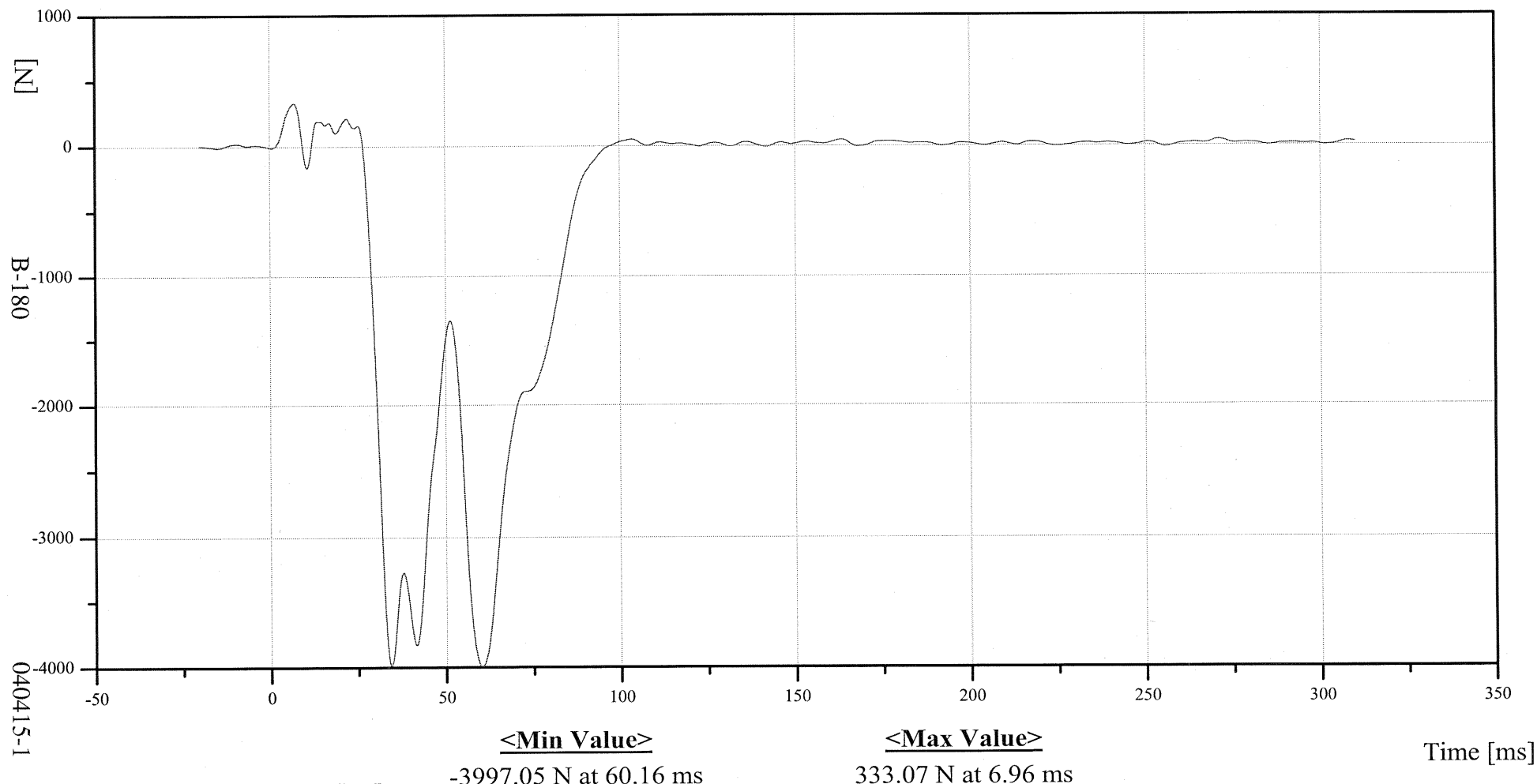
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

LC0702



CFC60 [SAE J211 Polarity, Biased Removed and Filtered]



Transportation Research Center, Inc.

ROW 7 COLUMN 3

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

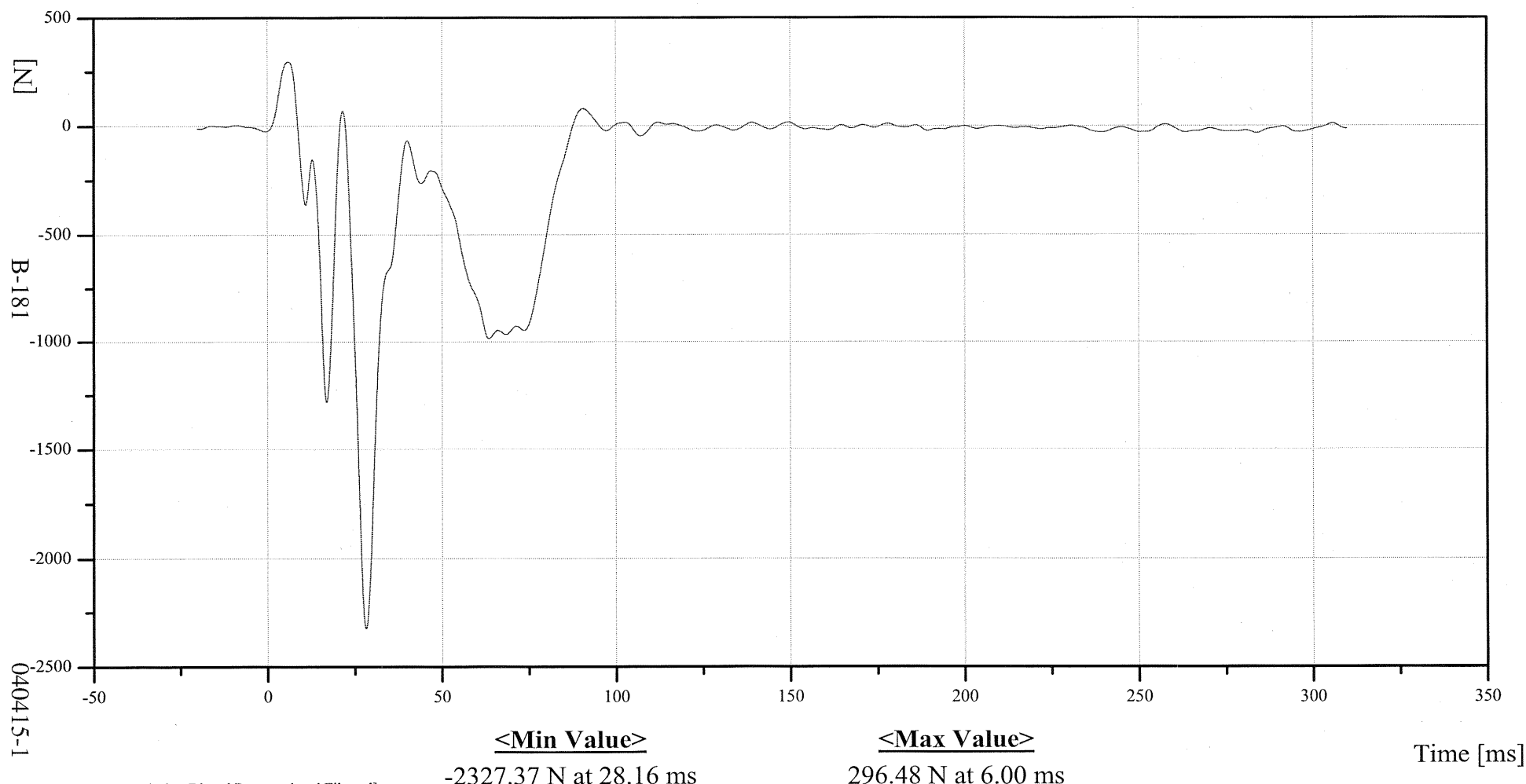
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

LC0703



CFC60 [SAE J211 Polarity, Biased Removed and Filtered]



Transportation Research Center, Inc.

ROW 7 COLUMN 4

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

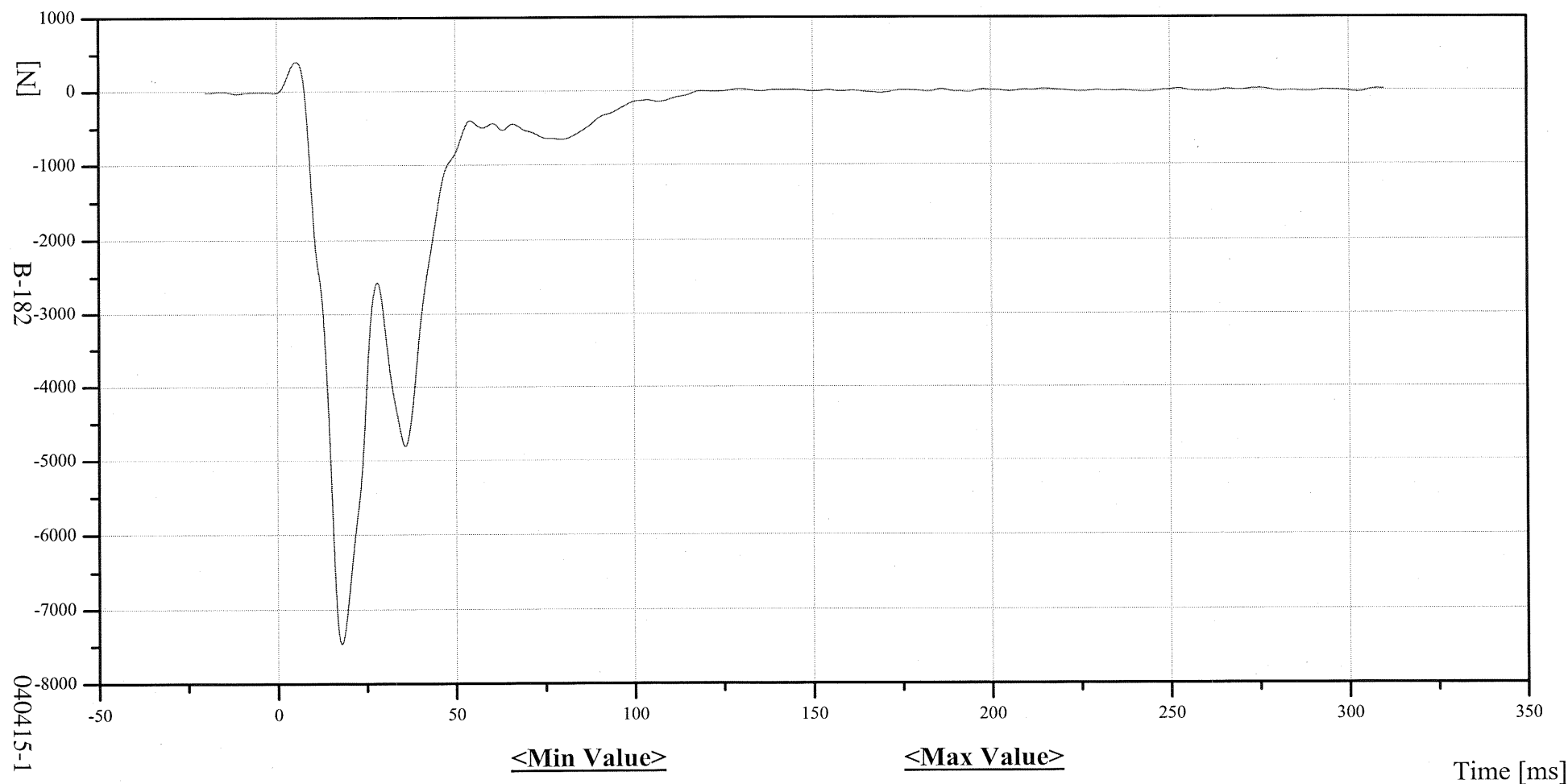
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

LC0704



CFC60 [SAE J211 Polarity, Biased Removed and Filtered]



Transportation Research Center, Inc.

ROW 7 COLUMN 5

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

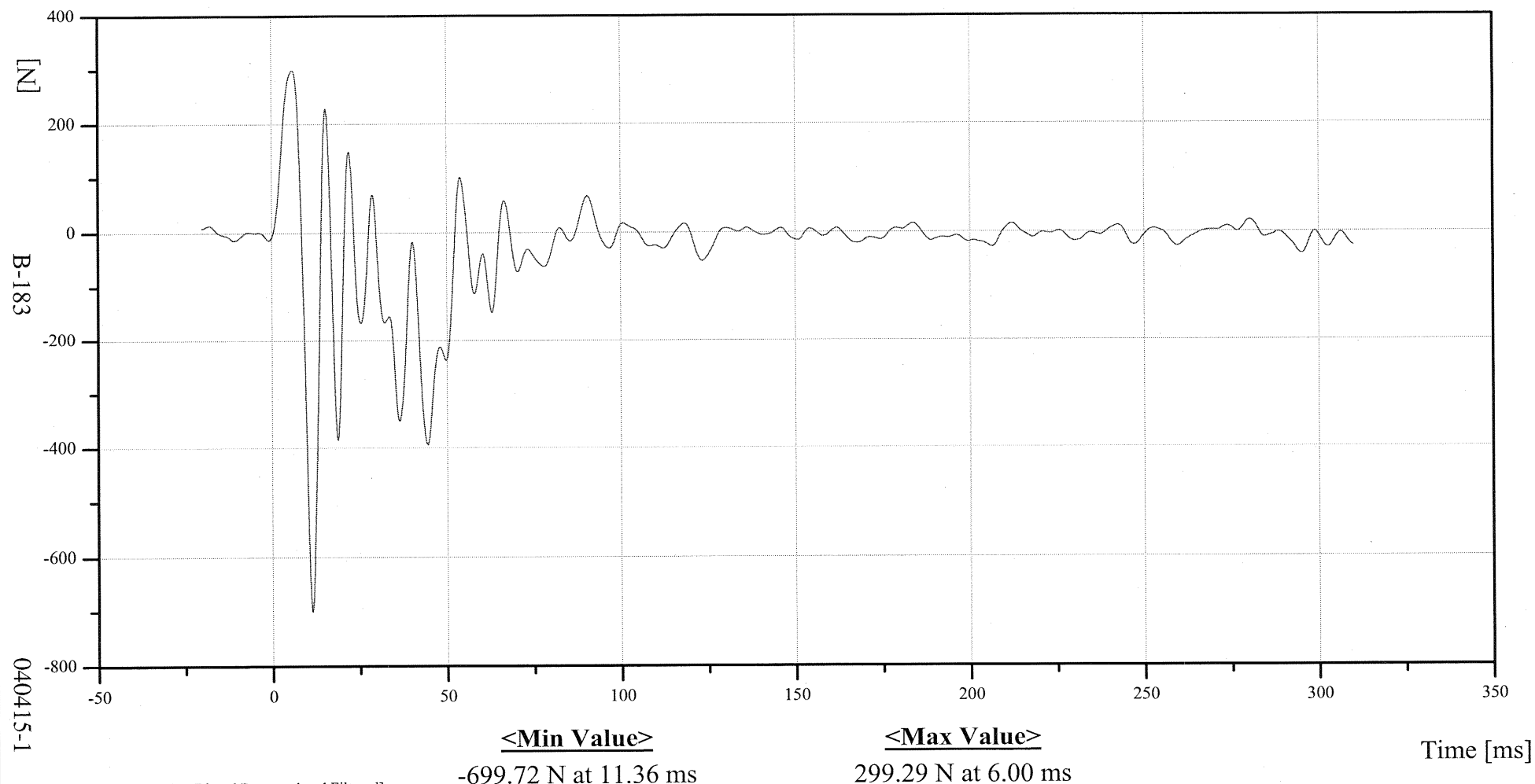
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

LC0705



CFC60 [SAE J211 Polarity, Biased Removed and Filtered]



Transportation Research Center, Inc.

ROW 7 COLUMN 6

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

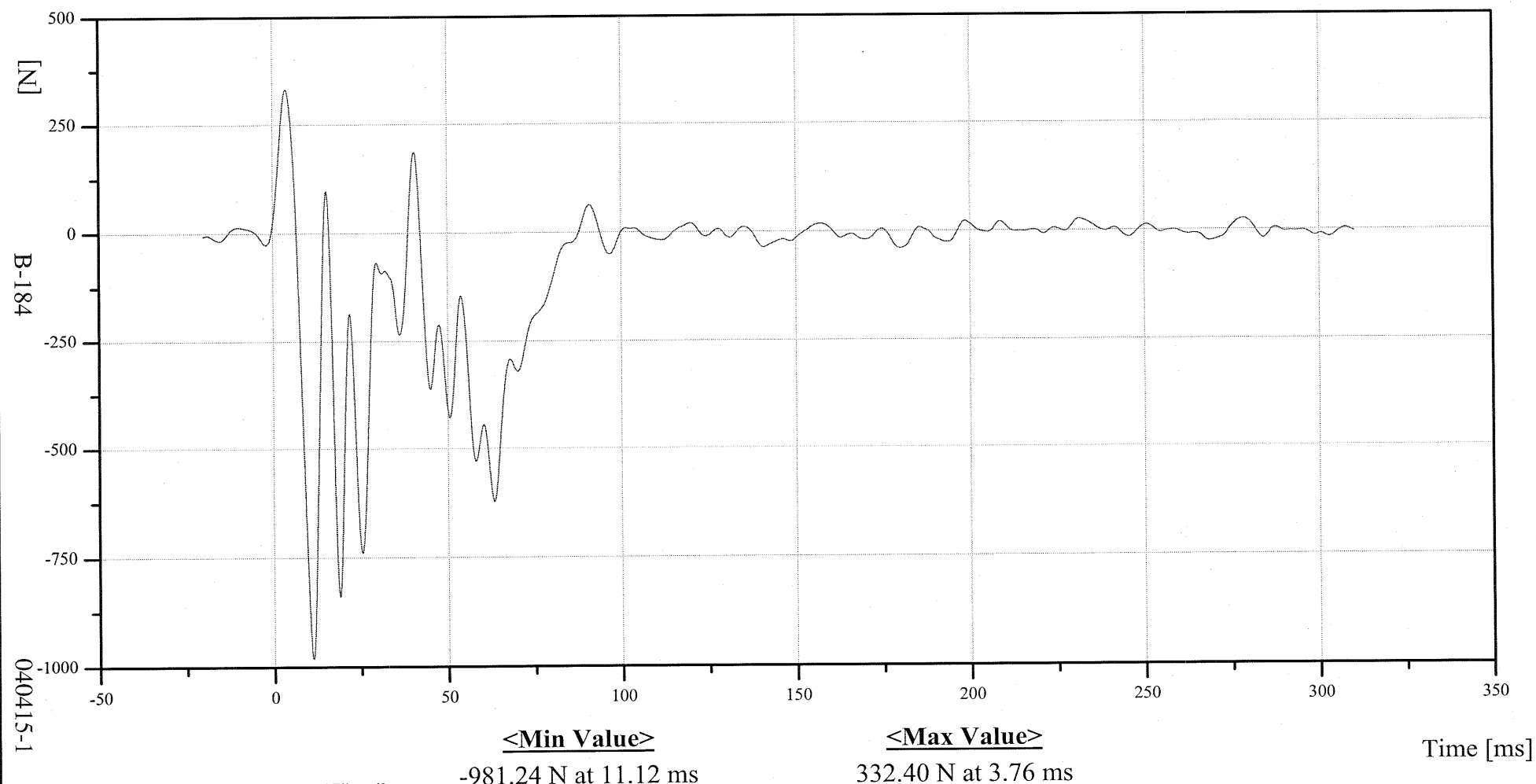
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

LC0706



CFC60 [SAE J211 Polarity, Biased Removed and Filtered]



Transportation Research Center, Inc.

ROW 7 COLUMN 7

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

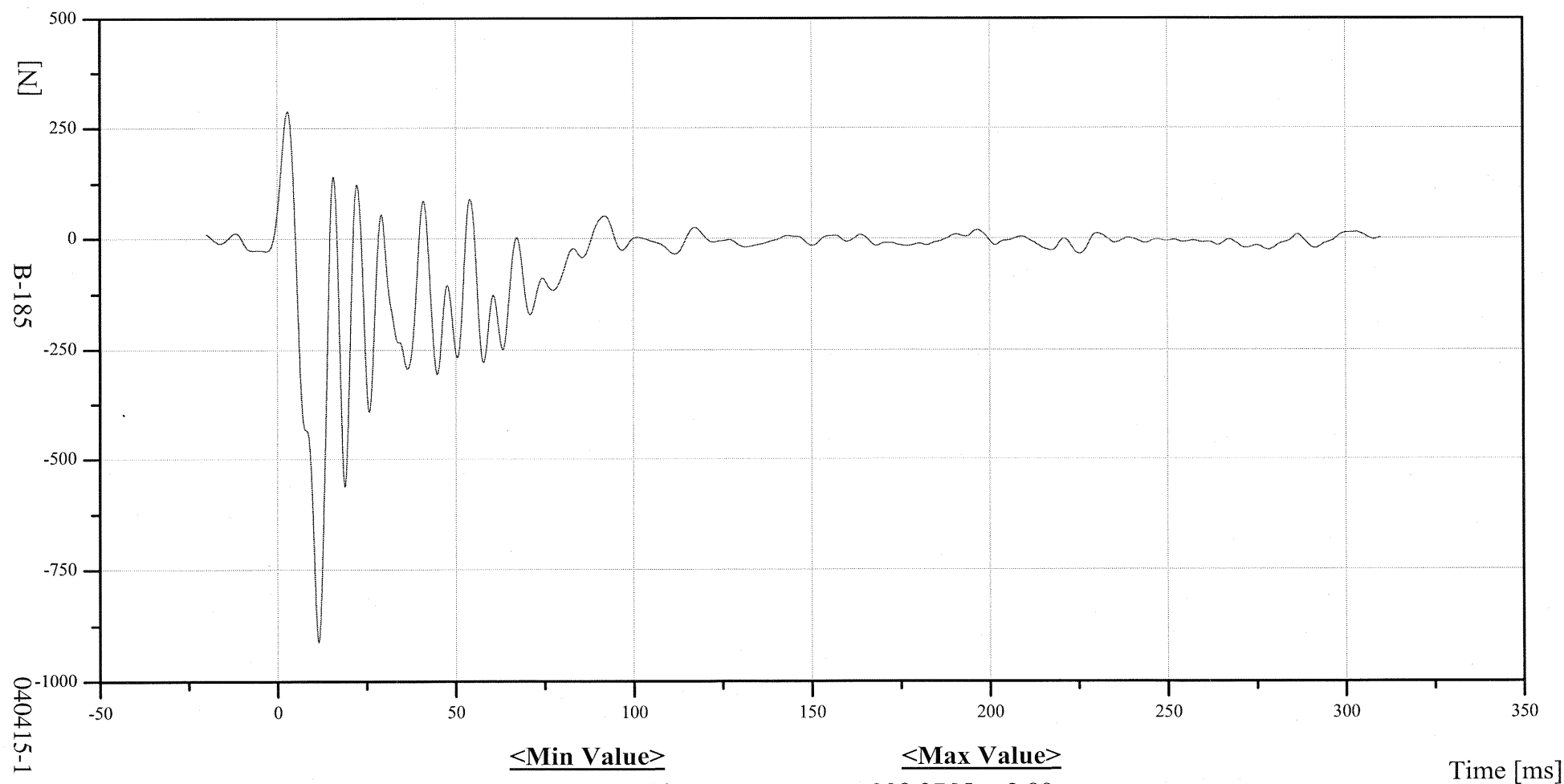
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

LC0707



CFC60 [SAE J211 Polarity, Biased Removed and Filtered]



Transportation Research Center, Inc.

ROW 7 COLUMN 8

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

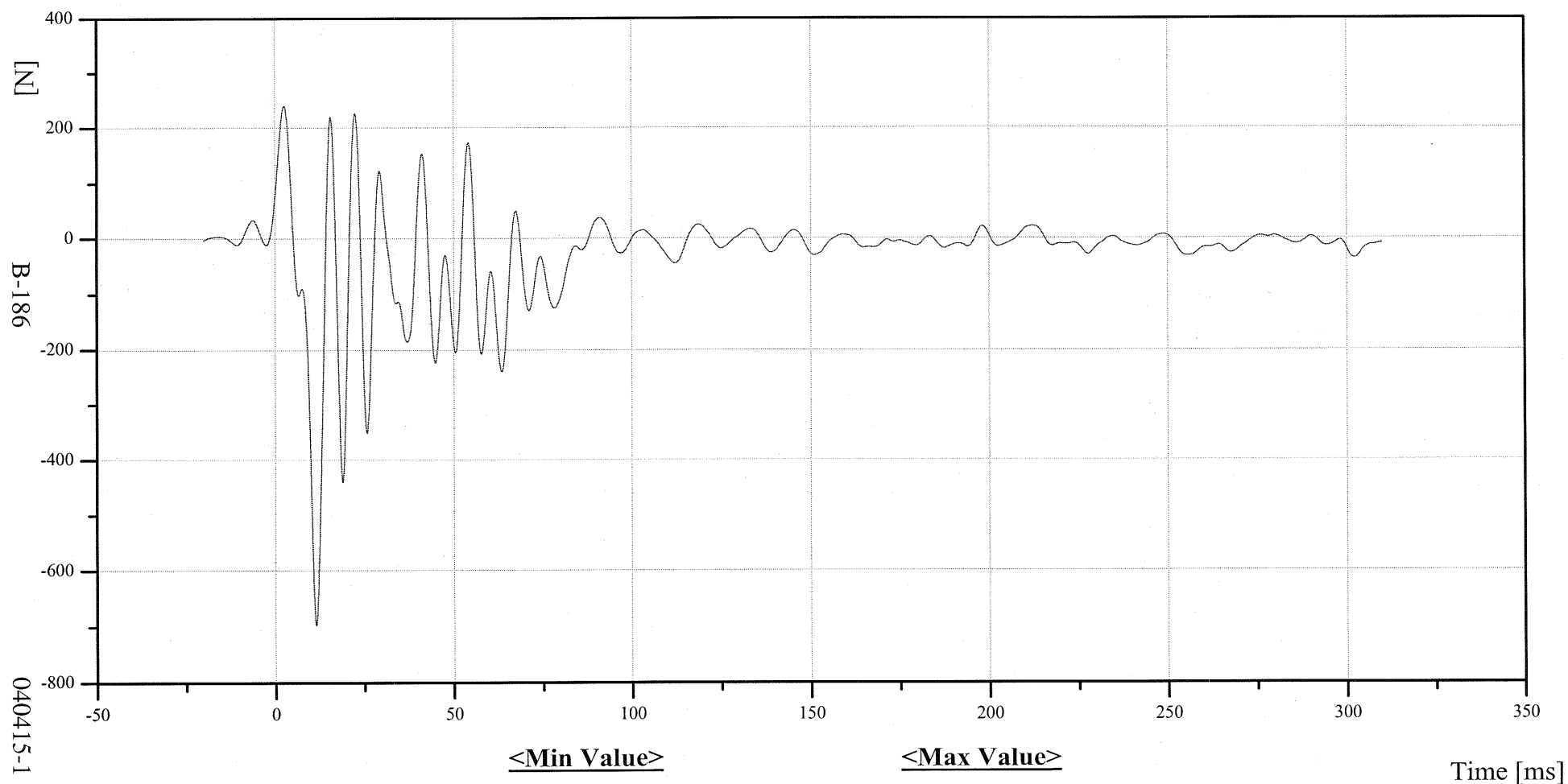
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

LC0708



CFC60 [SAE J211 Polarity, Biased Removed and Filtered]



Transportation Research Center, Inc.

ROW 7 COLUMN 9

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

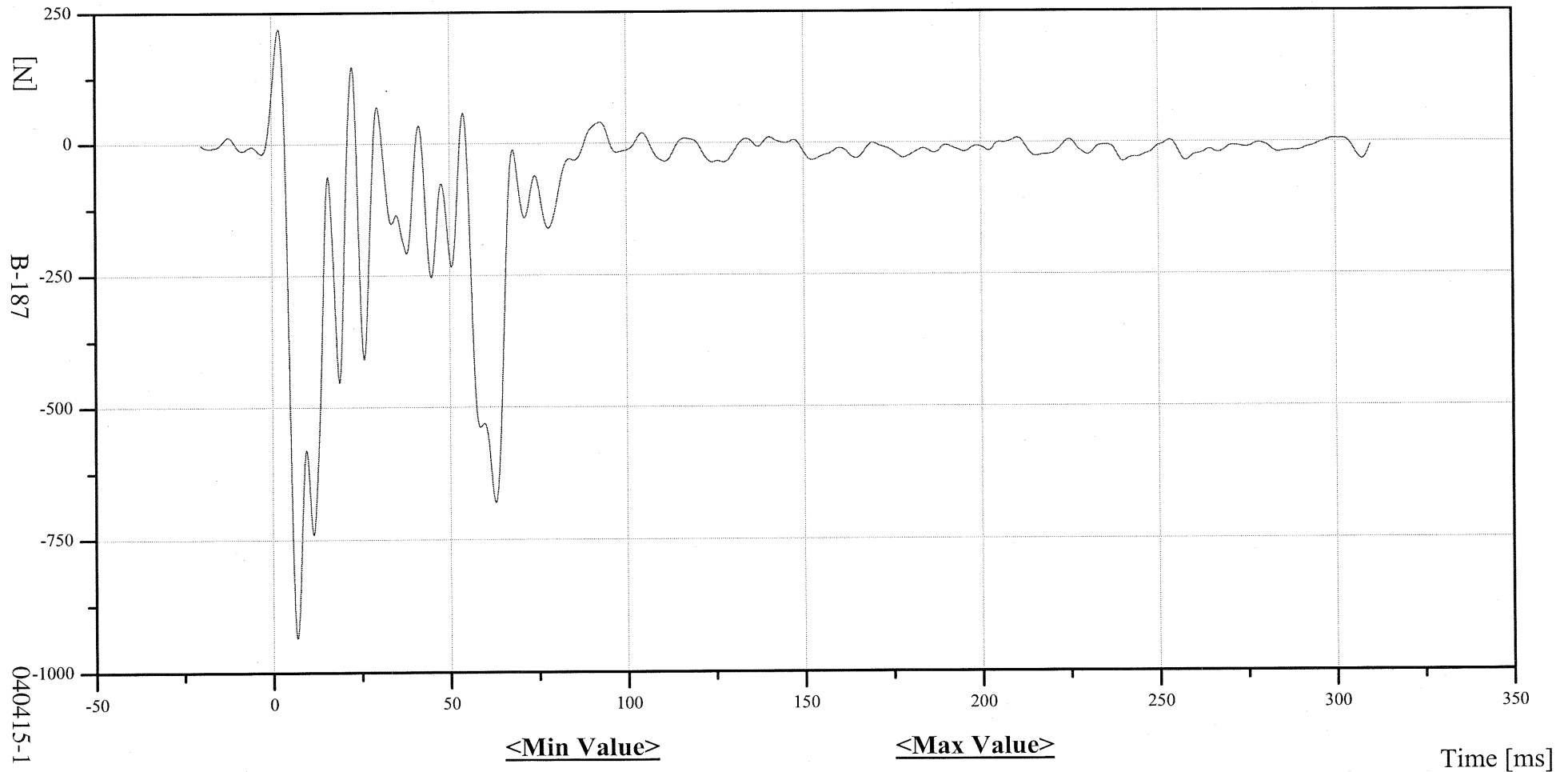
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

LC0709



CFC60 [SAE J211 Polarity, Biased Removed and Filtered]



Transportation Research Center, Inc.

ROW 7 COLUMN 10

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

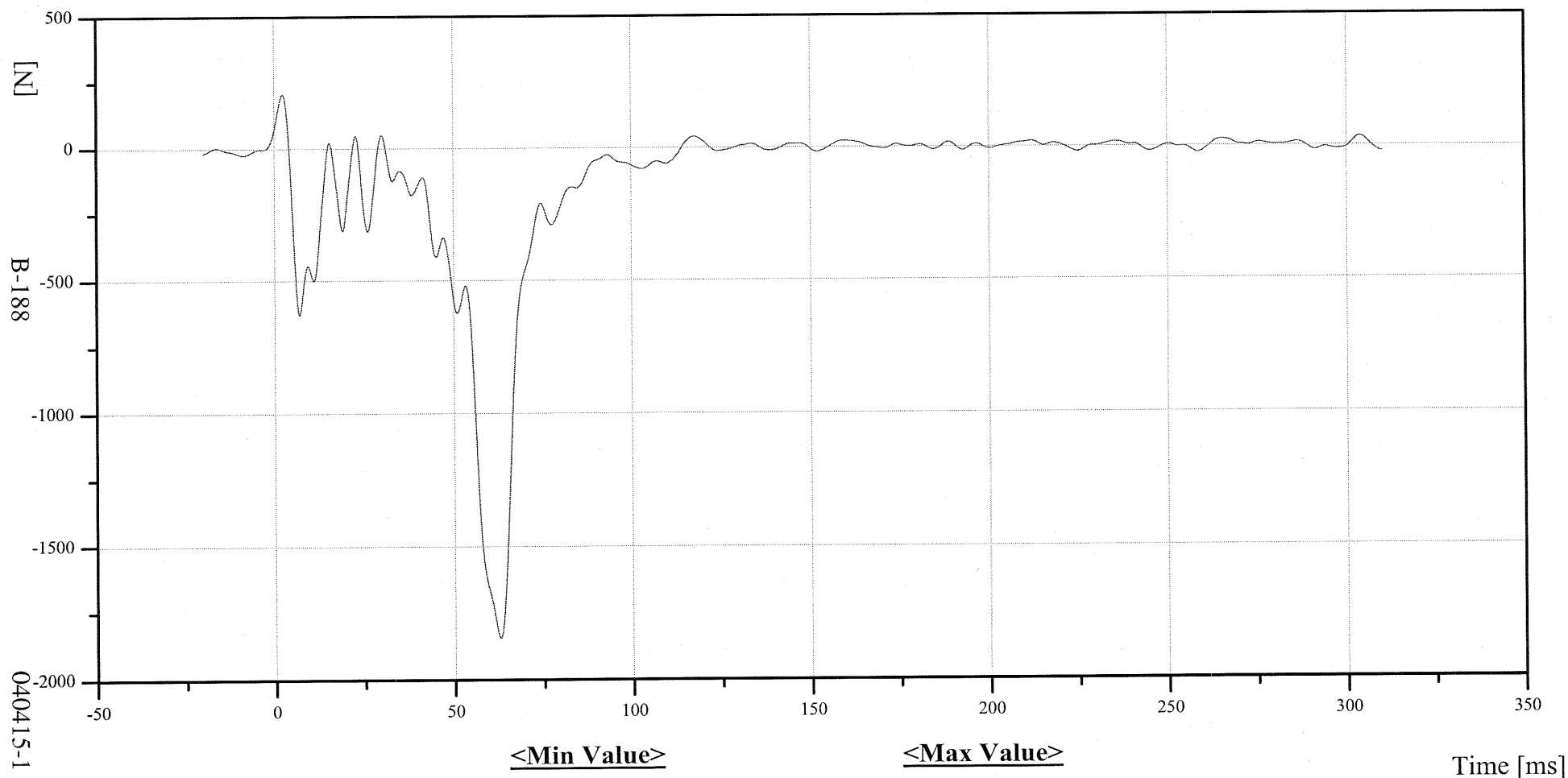
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

LC0710



CFC60 [SAE J211 Polarity, Biased Removed and Filtered]



Transportation Research Center, Inc.

ROW 7 COLUMN 11

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

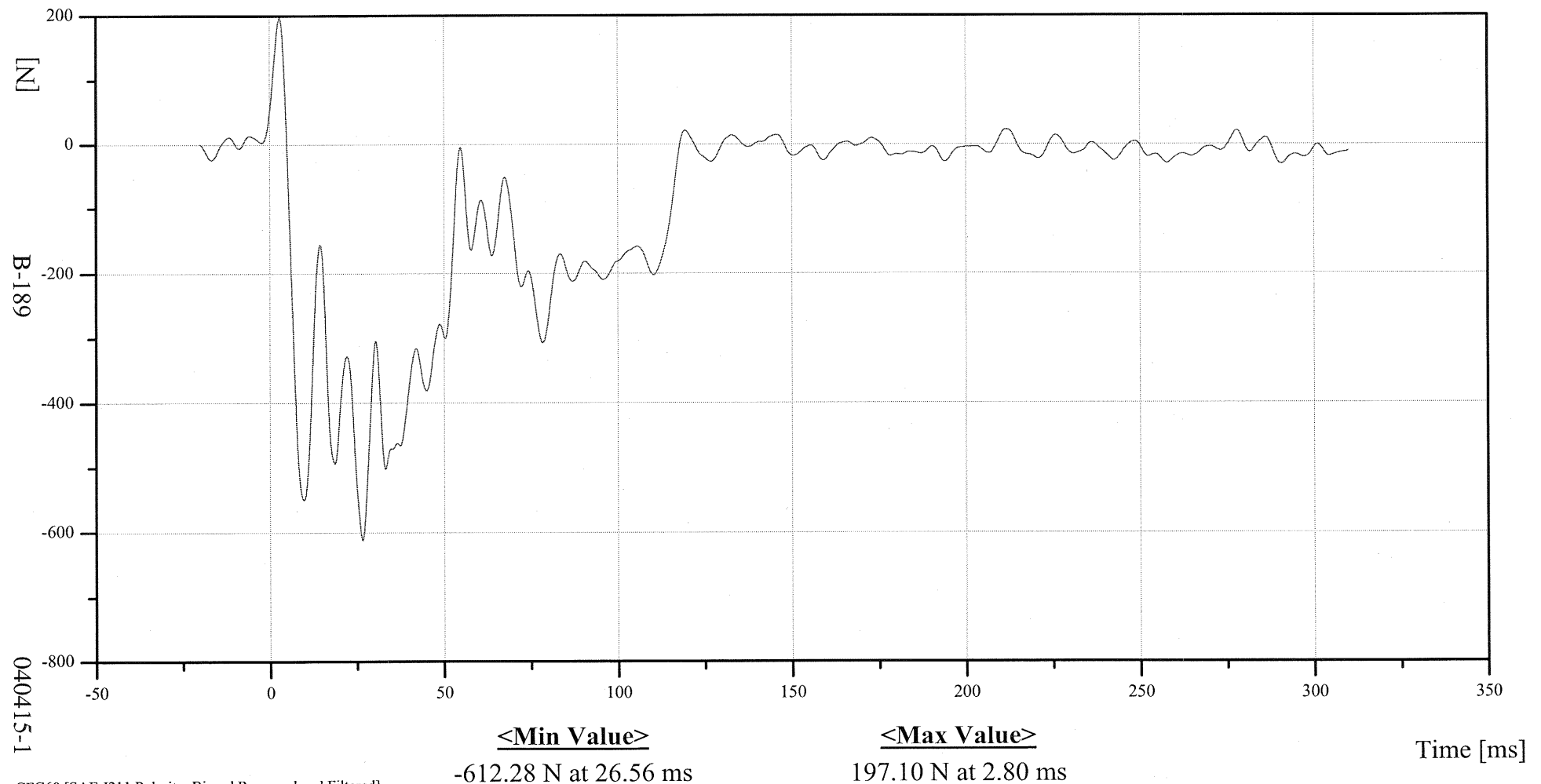
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

LC0711



CFC60 [SAE J211 Polarity, Biased Removed and Filtered]



Transportation Research Center, Inc.

ROW 7 COLUMN 12

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

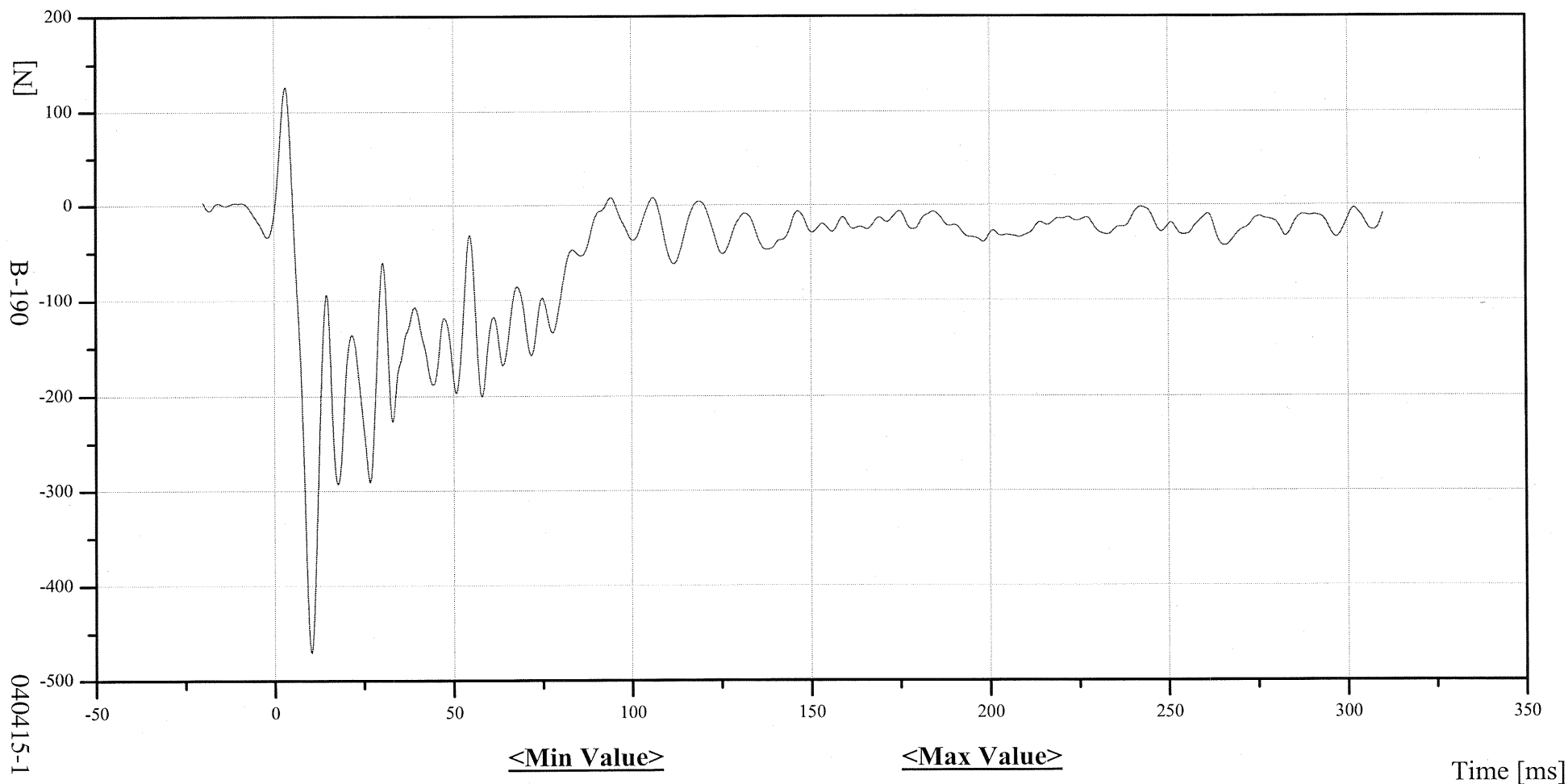
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

LC0712



CFC60 [SAE J211 Polarity, Biased Removed and Filtered]



Transportation Research Center, Inc.

ROW 7 COLUMN 13

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

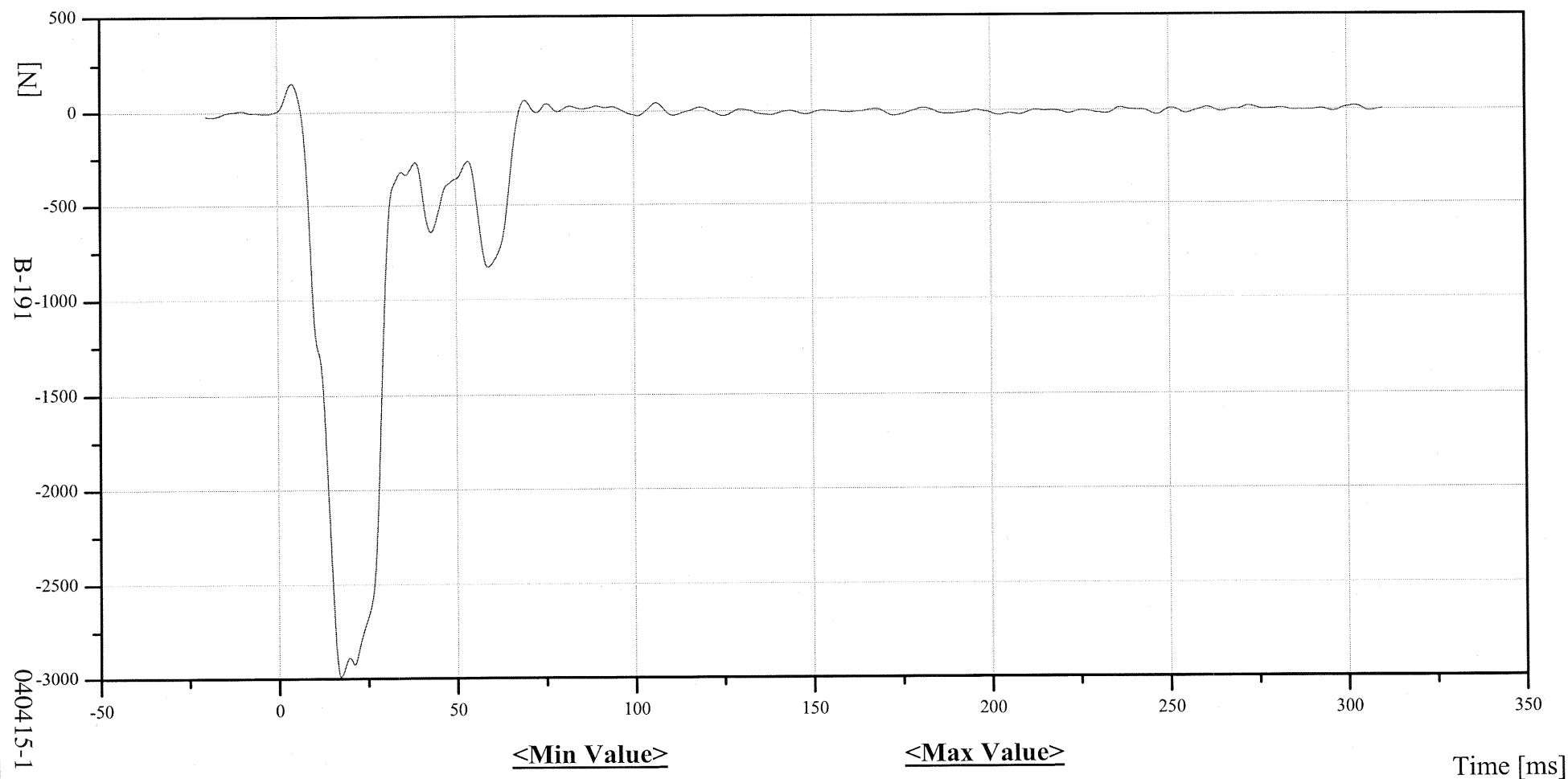
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

LC0713



CFC60 [SAE J211 Polarity, Biased Removed and Filtered]



Transportation Research Center, Inc.

ROW 7 COLUMN 14

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

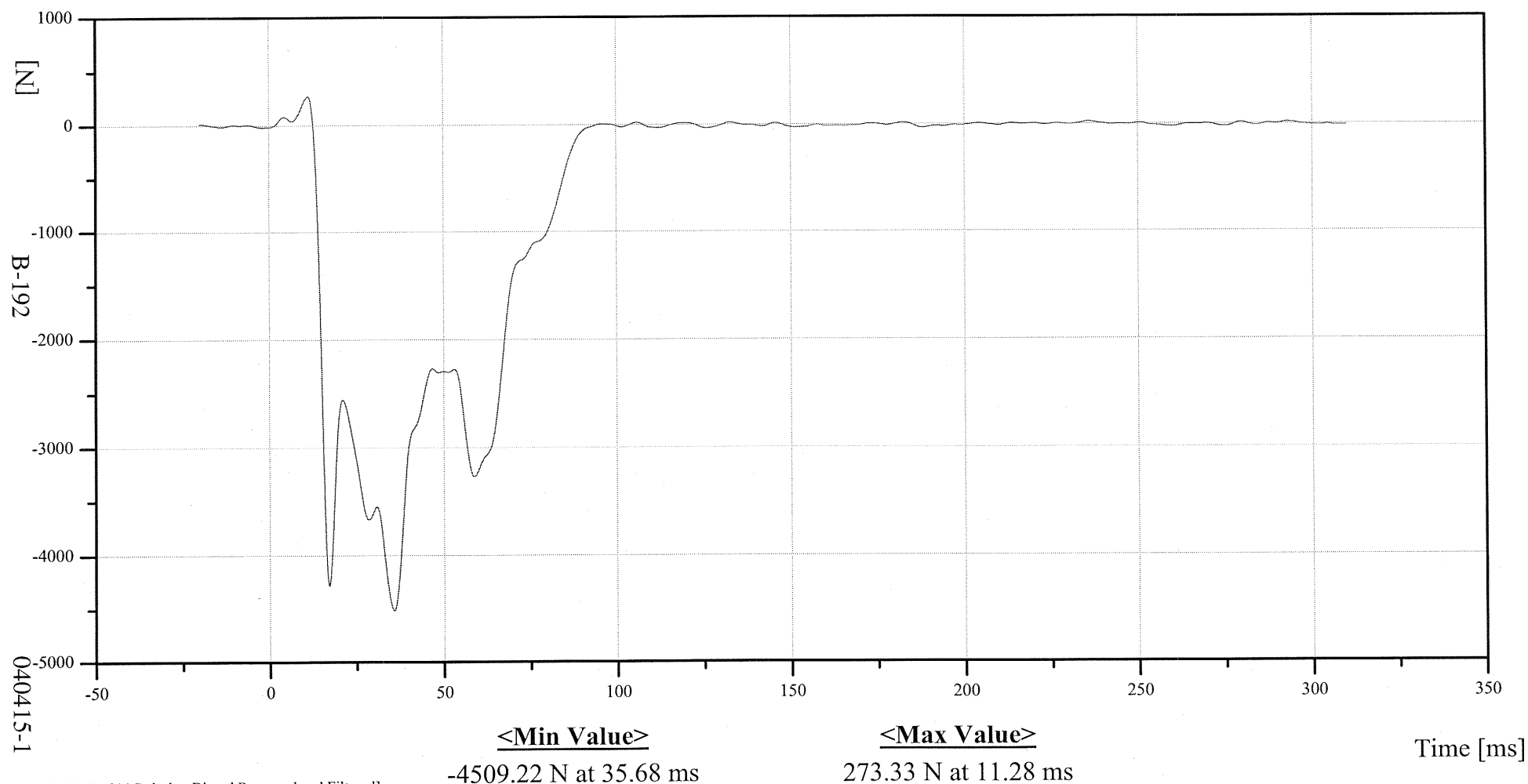
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

LC0714



CFC60 [SAE J211 Polarity, Biased Removed and Filtered]



Transportation Research Center, Inc.

ROW 7 COLUMN 15

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

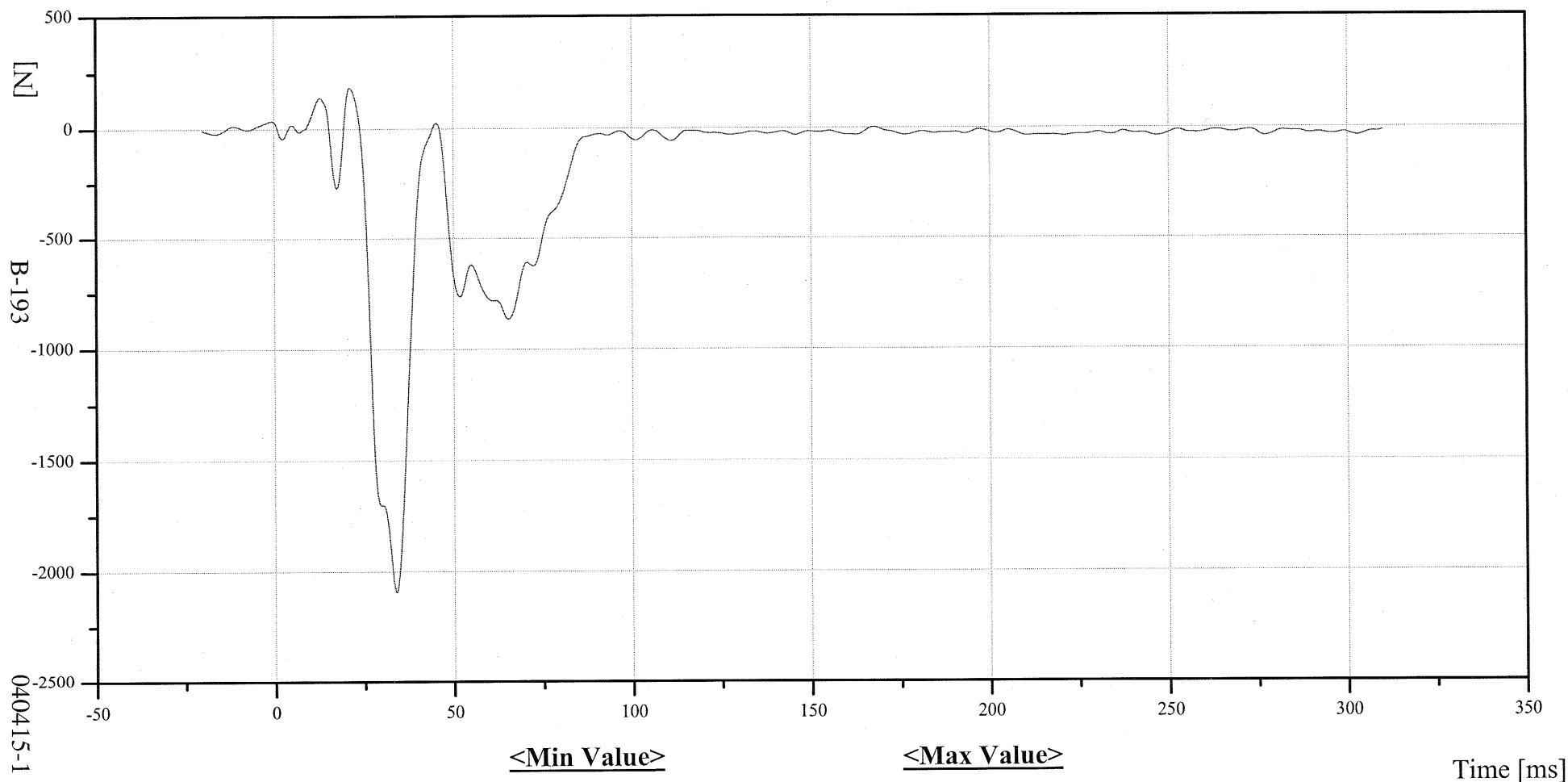
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

LC0715



<Min Value>

-2092.24 N at 33.76 ms

<Max Value>

186.31 N at 21.12 ms

Time [ms]

CFC60 [SAE J211 Polarity, Biased Removed and Filtered]



Transportation Research Center, Inc.

ROW 7 COLUMN 16

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

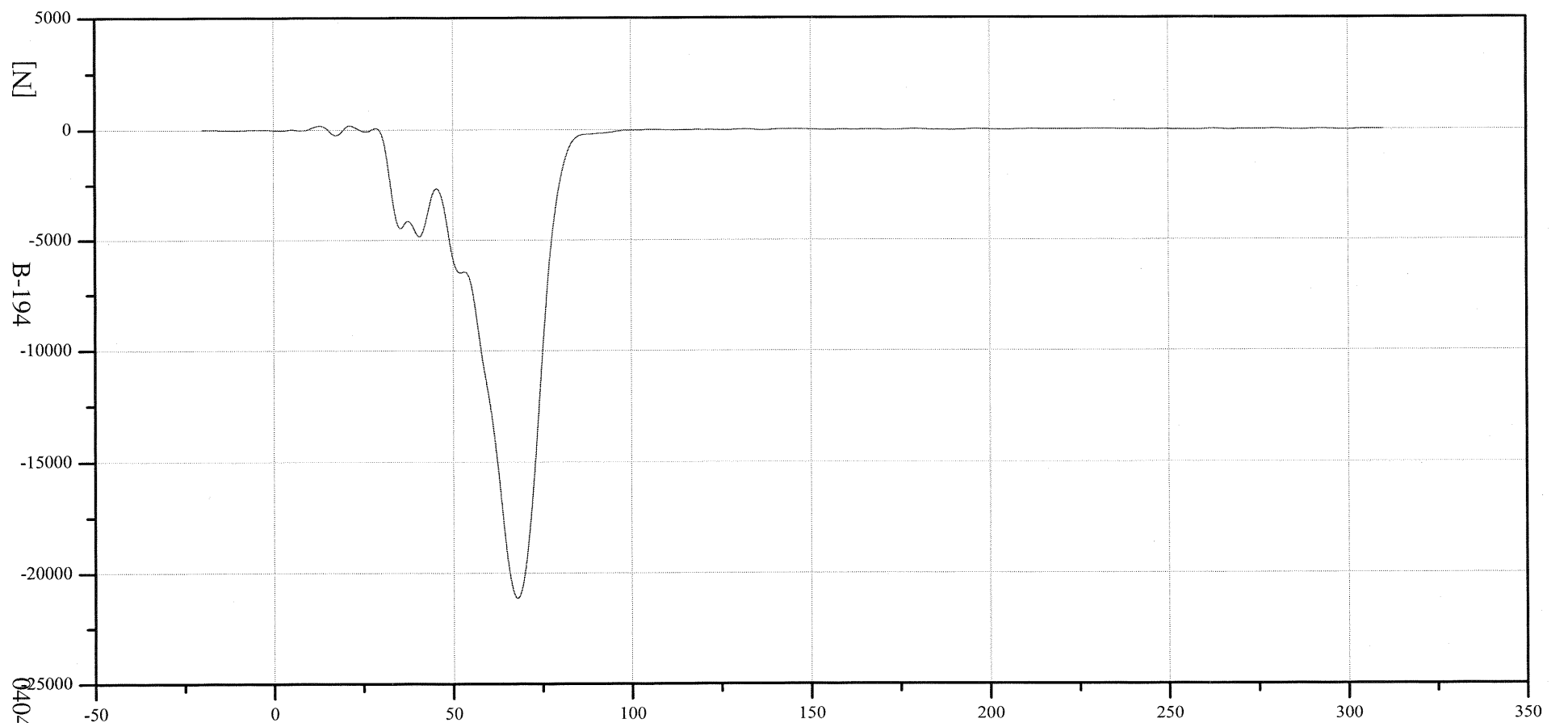
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

LC0716



<Min Value>

-21126.32 N at 67.92 ms

<Max Value>

201.51 N at 21.28 ms

Time [ms]

CFC60 [SAE J211 Polarity, Biased Removed and Filtered]



Transportation Research Center, Inc.

ROW 8 COLUMN 1

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

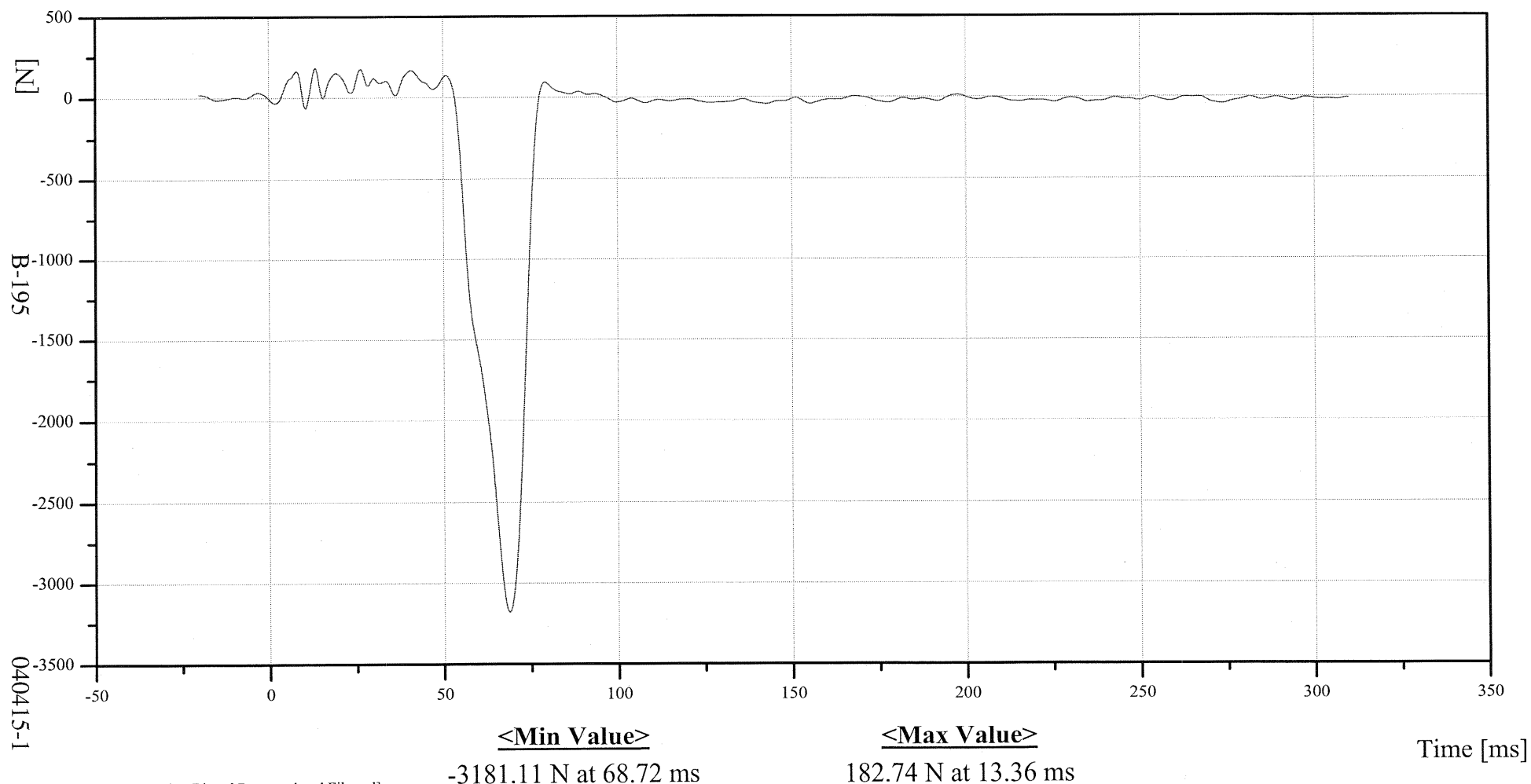
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

LC0801





Transportation Research Center, Inc.

ROW 8 COLUMN 2

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

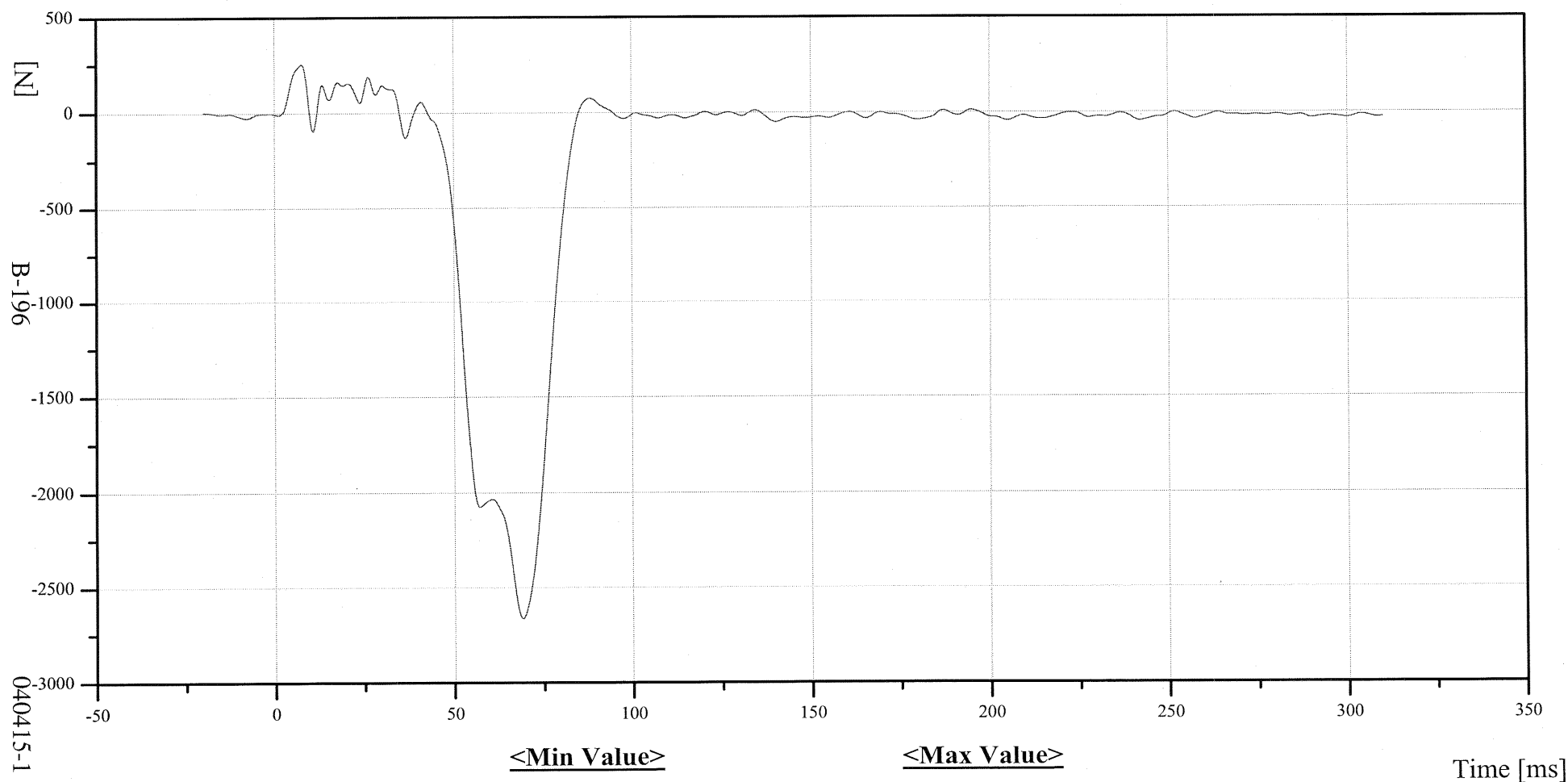
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

LC0802



CFC60 [SAE J211 Polarity, Biased Removed and Filtered]



Transportation Research Center, Inc.

ROW 8 COLUMN 3

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

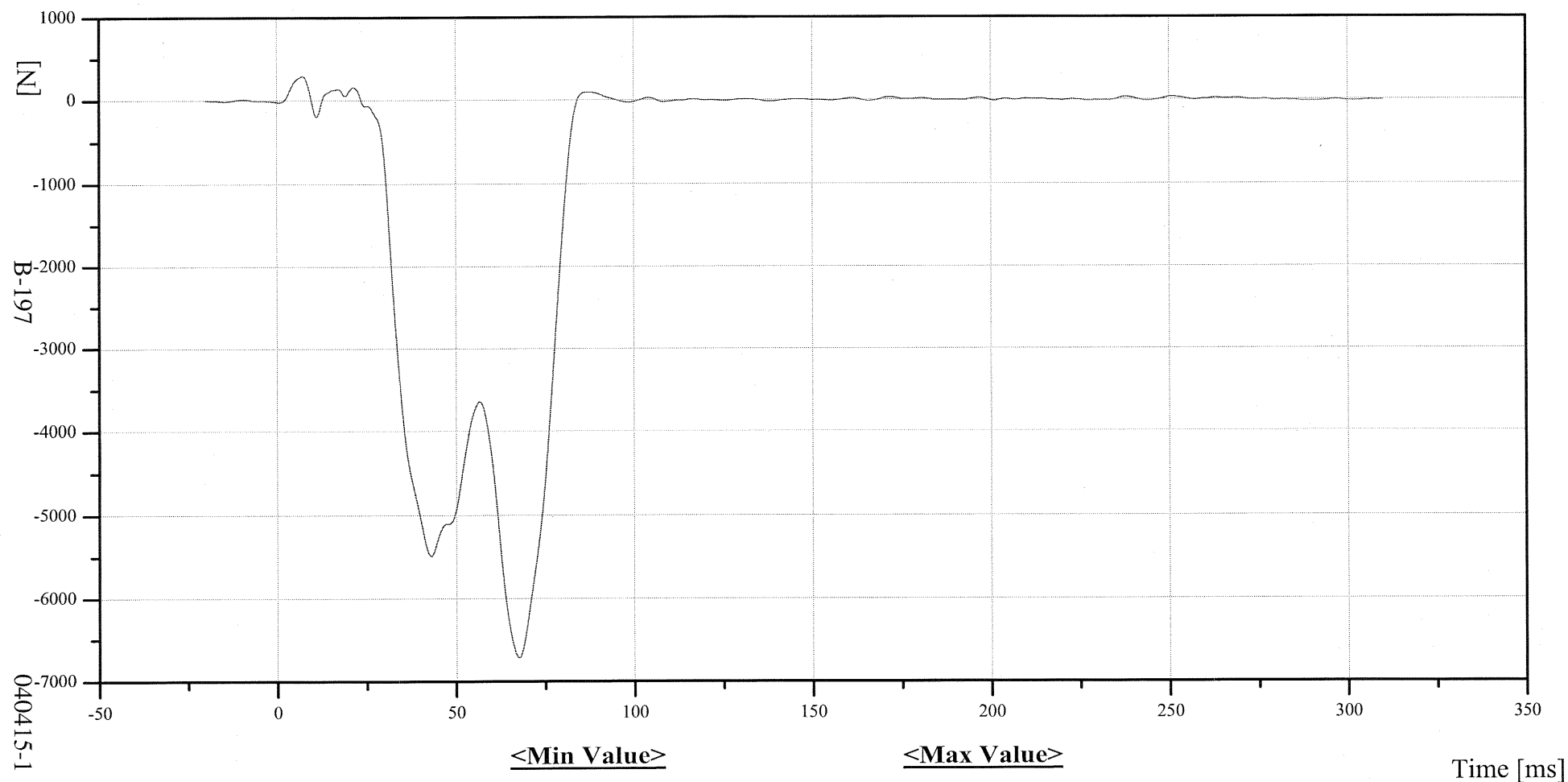
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

LC0803



CFC60 [SAE J211 Polarity, Biased Removed and Filtered]



Transportation Research Center, Inc.

ROW 8 COLUMN 4

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

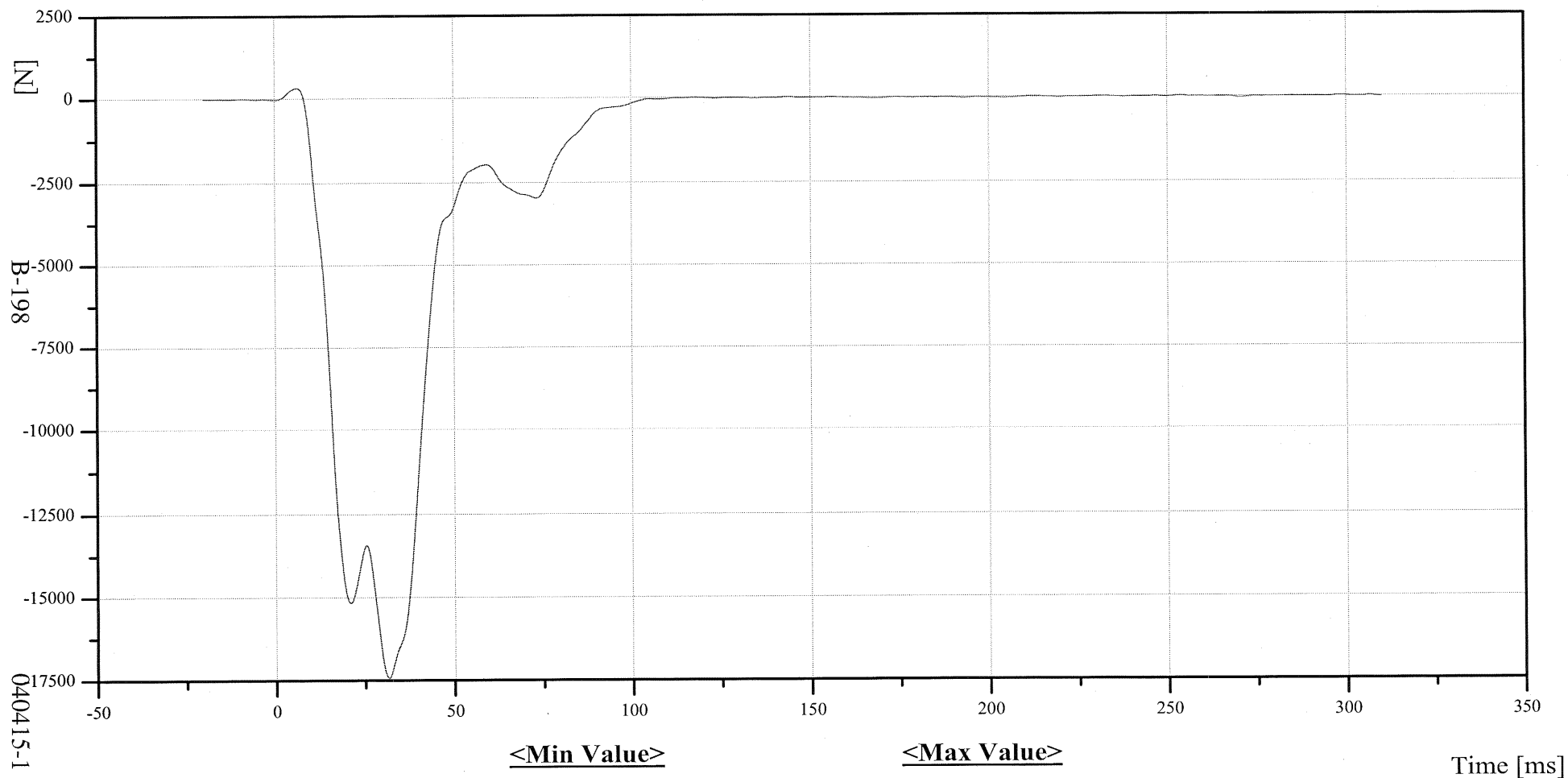
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

LC0804



CFC60 [SAE J211 Polarity, Biased Removed and Filtered]



Transportation Research Center, Inc.

ROW 8 COLUMN 5

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

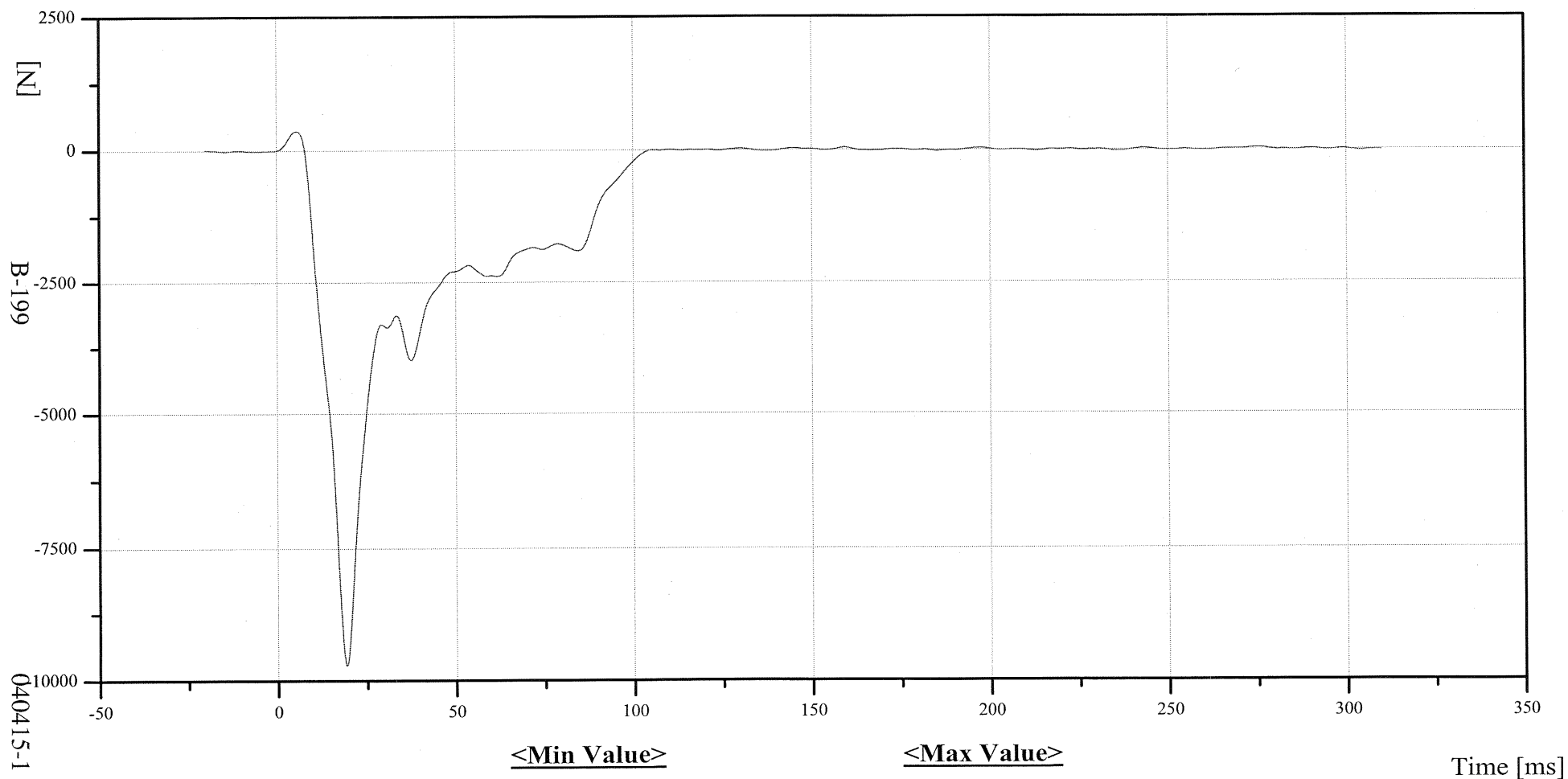
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

LC0805



CFC60 [SAE J211 Polarity, Biased Removed and Filtered]



Transportation Research Center, Inc.

ROW 8 COLUMN 6

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

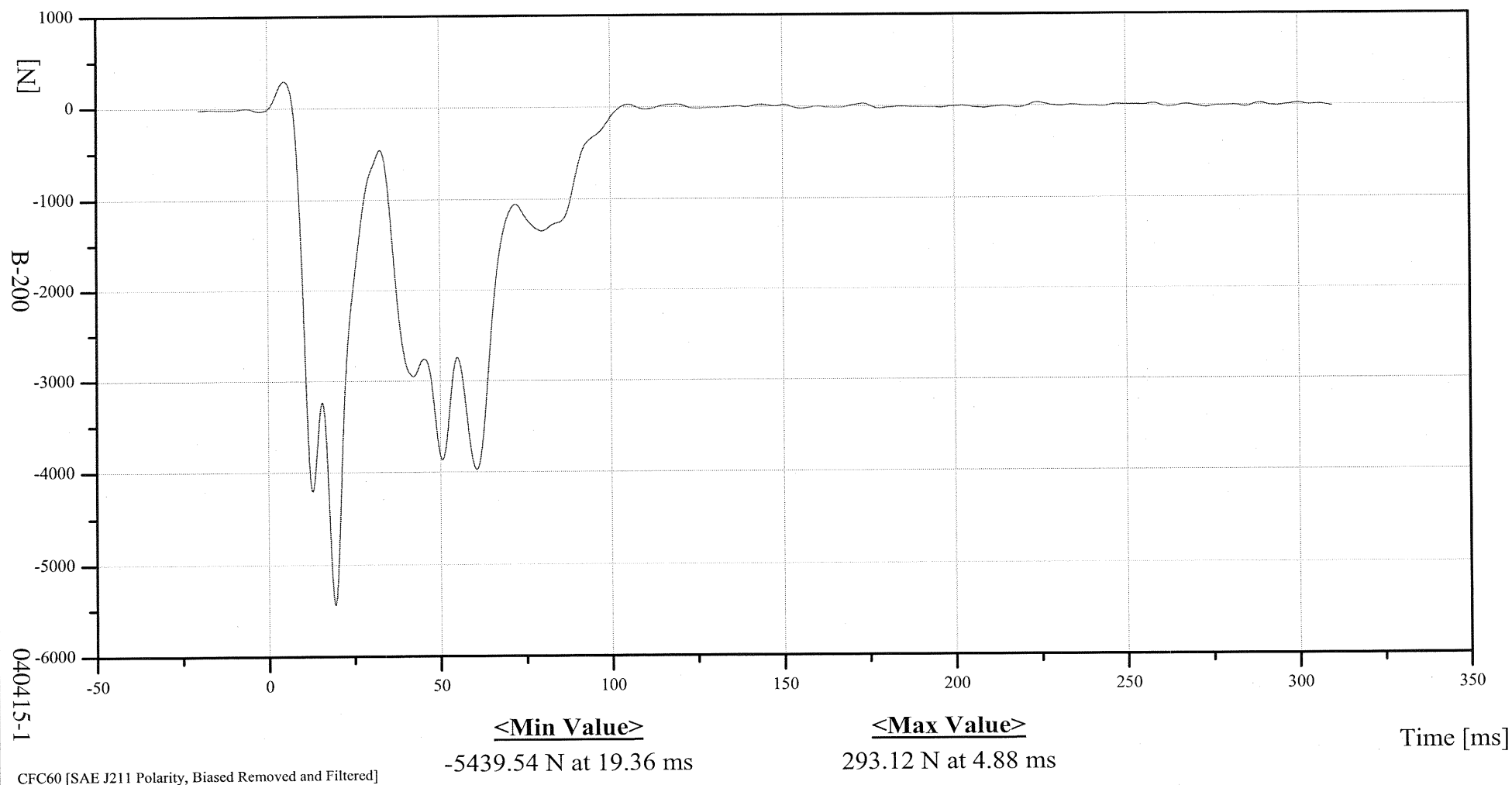
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

LC0806





Transportation Research Center, Inc.

ROW 8 COLUMN 7

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

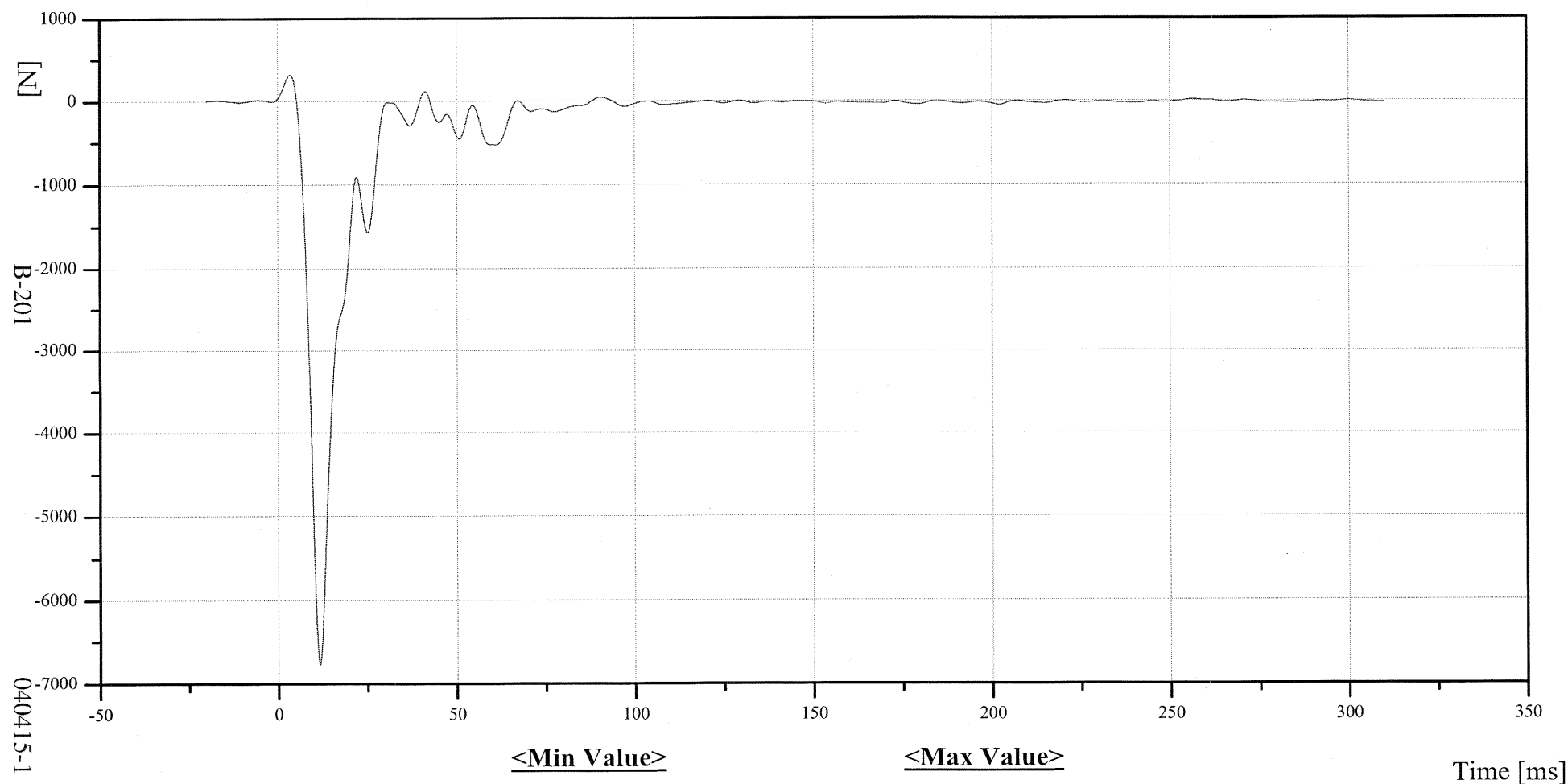
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

LC0807



CFC60 [SAE J211 Polarity, Biased Removed and Filtered]



Transportation Research Center, Inc.

ROW 8 COLUMN 8

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

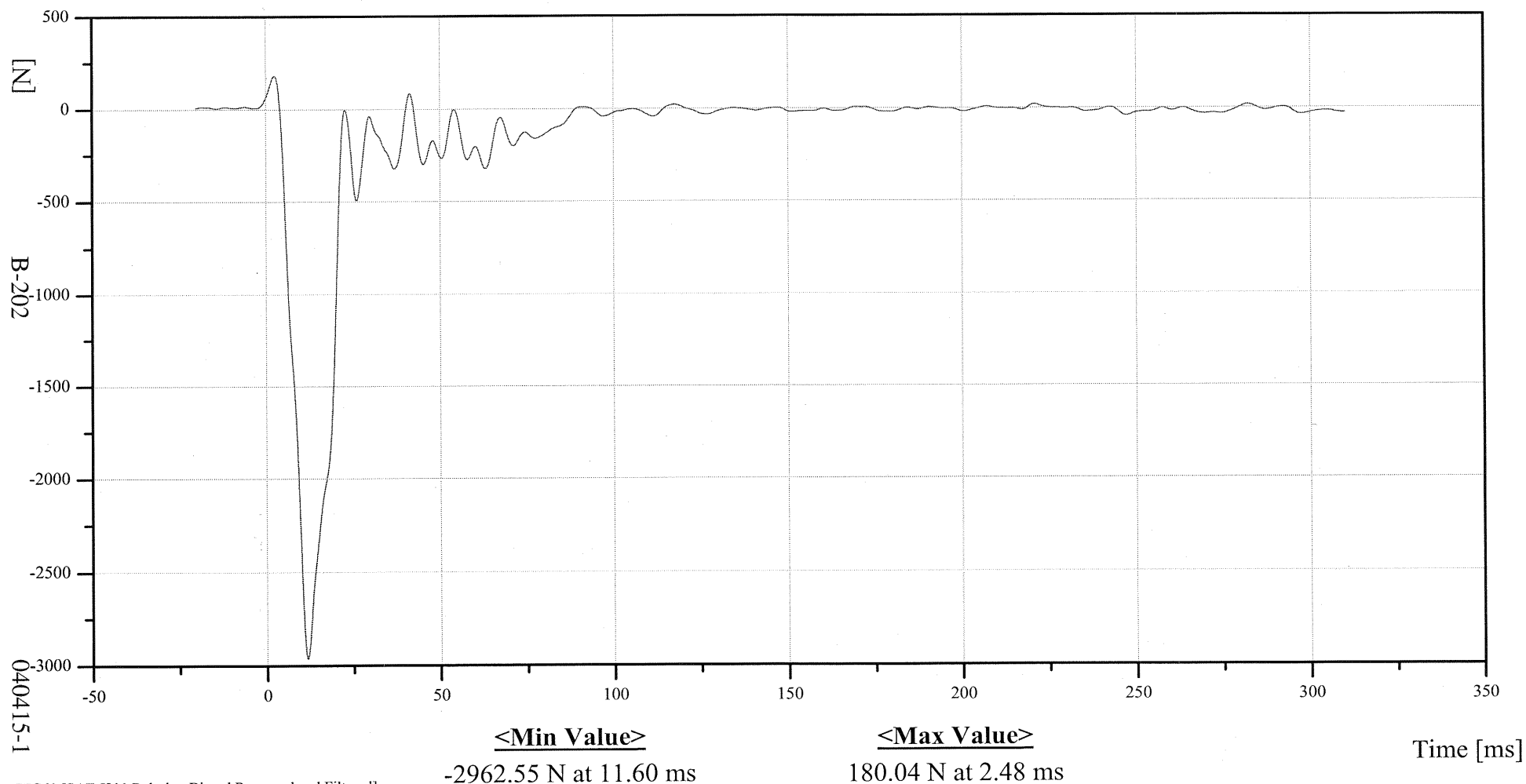
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

LC0808



CFC60 [SAE J211 Polarity, Biased Removed and Filtered]



Transportation Research Center, Inc.

ROW 8 COLUMN 9

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

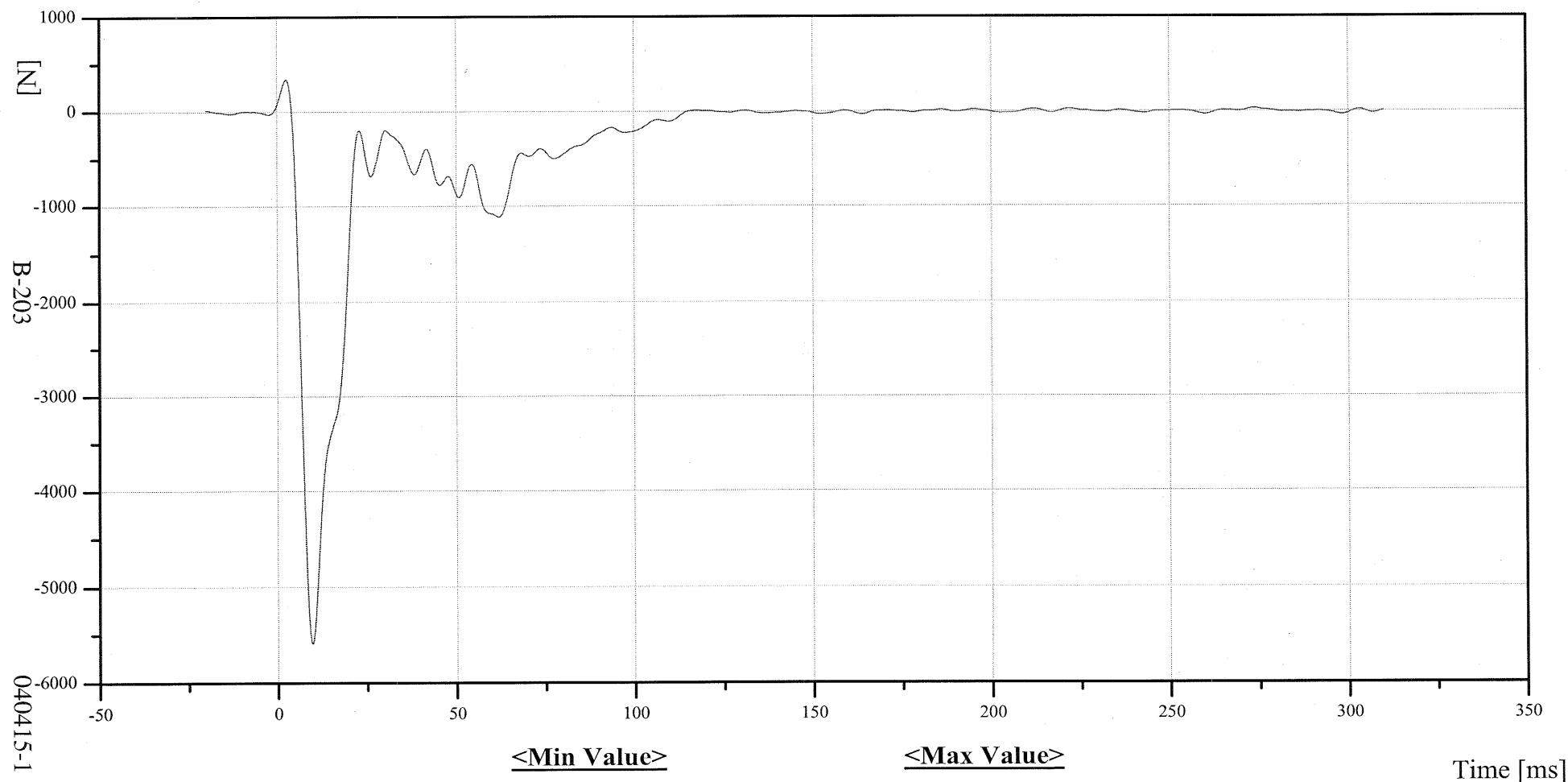
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

LC0809



CFC60 [SAE J211 Polarity, Biased Removed and Filtered]



Transportation Research Center, Inc.

ROW 8 COLUMN 10

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

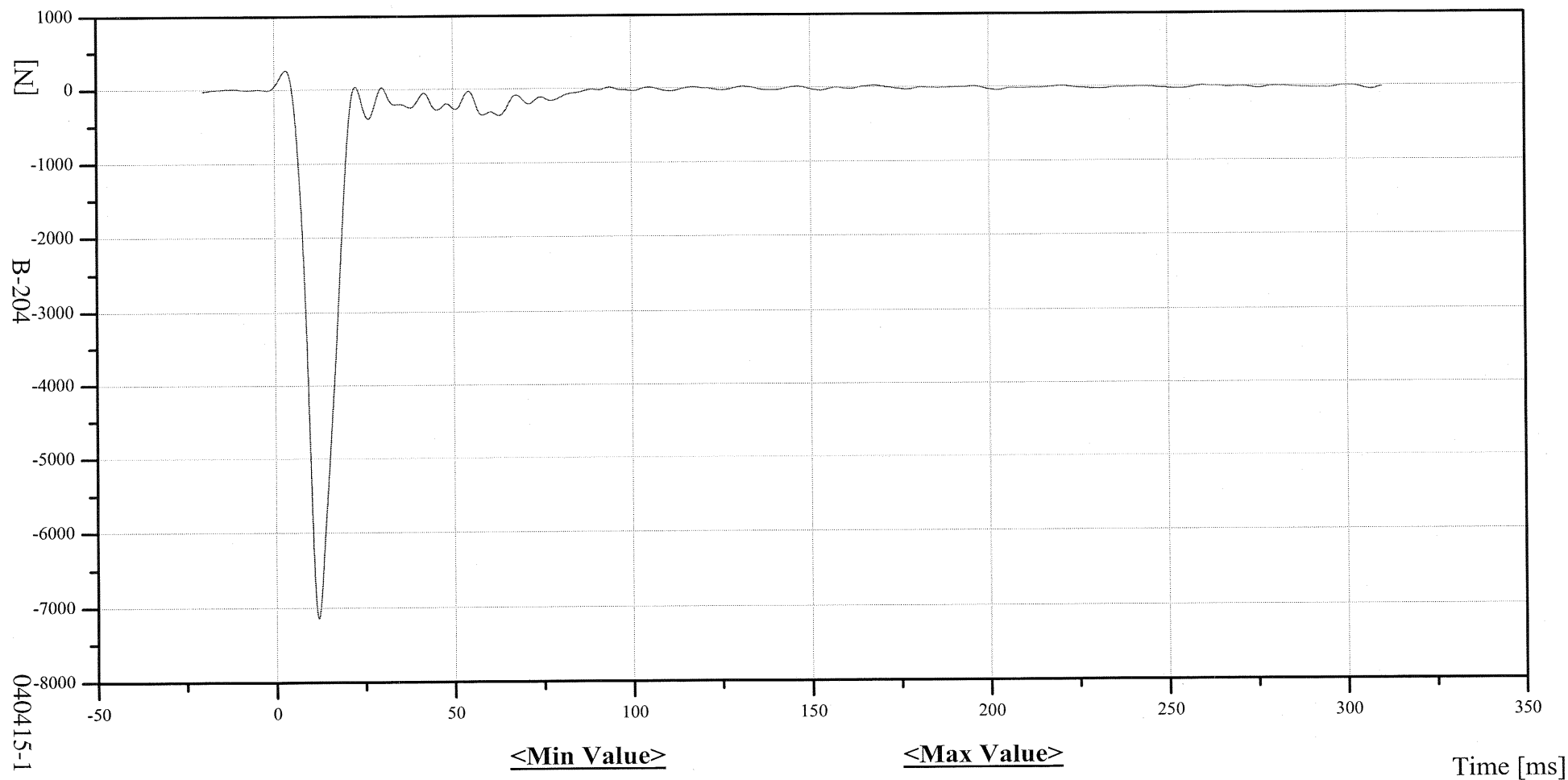
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

LC0810



CFC60 [SAE J211 Polarity, Biased Removed and Filtered]



Transportation Research Center, Inc.

ROW 8 COLUMN 11

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

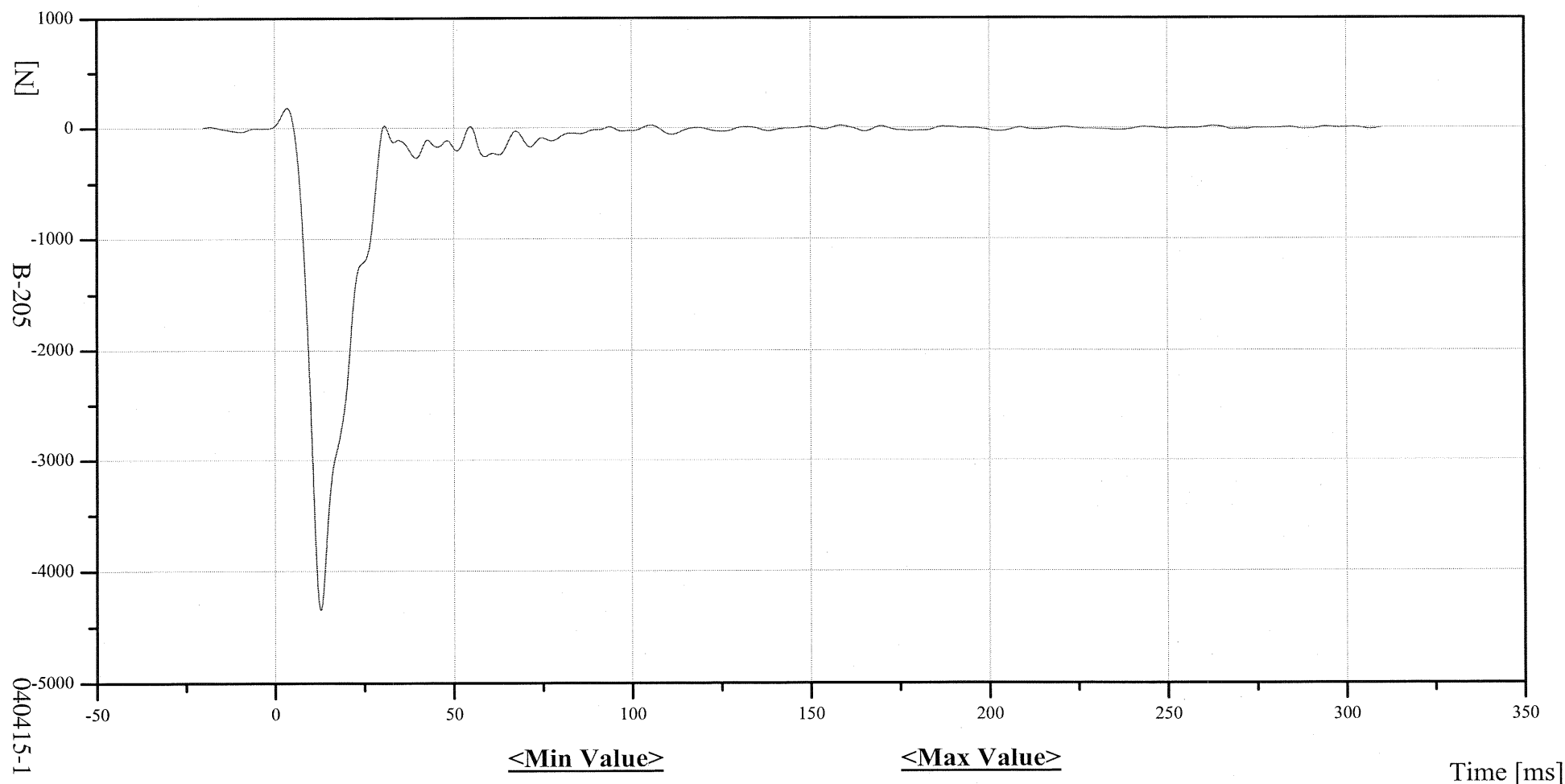
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

LC0811



CFC60 [SAE J211 Polarity, Biased Removed and Filtered]



Transportation Research Center, Inc.

ROW 8 COLUMN 12

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

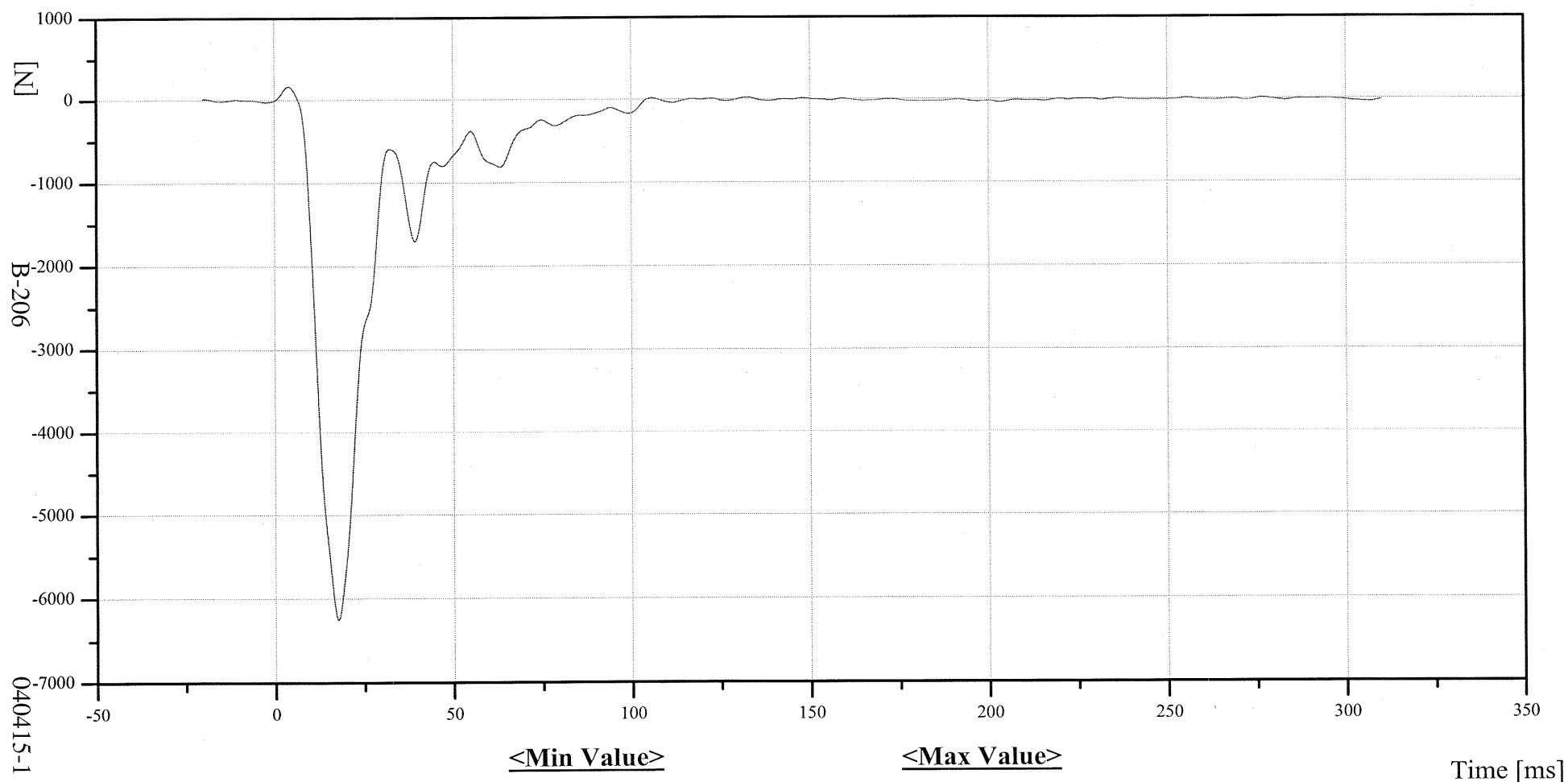
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

LC0812



CFC60 [SAE J211 Polarity, Biased Removed and Filtered]



Transportation Research Center, Inc.

ROW 8 COLUMN 13

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

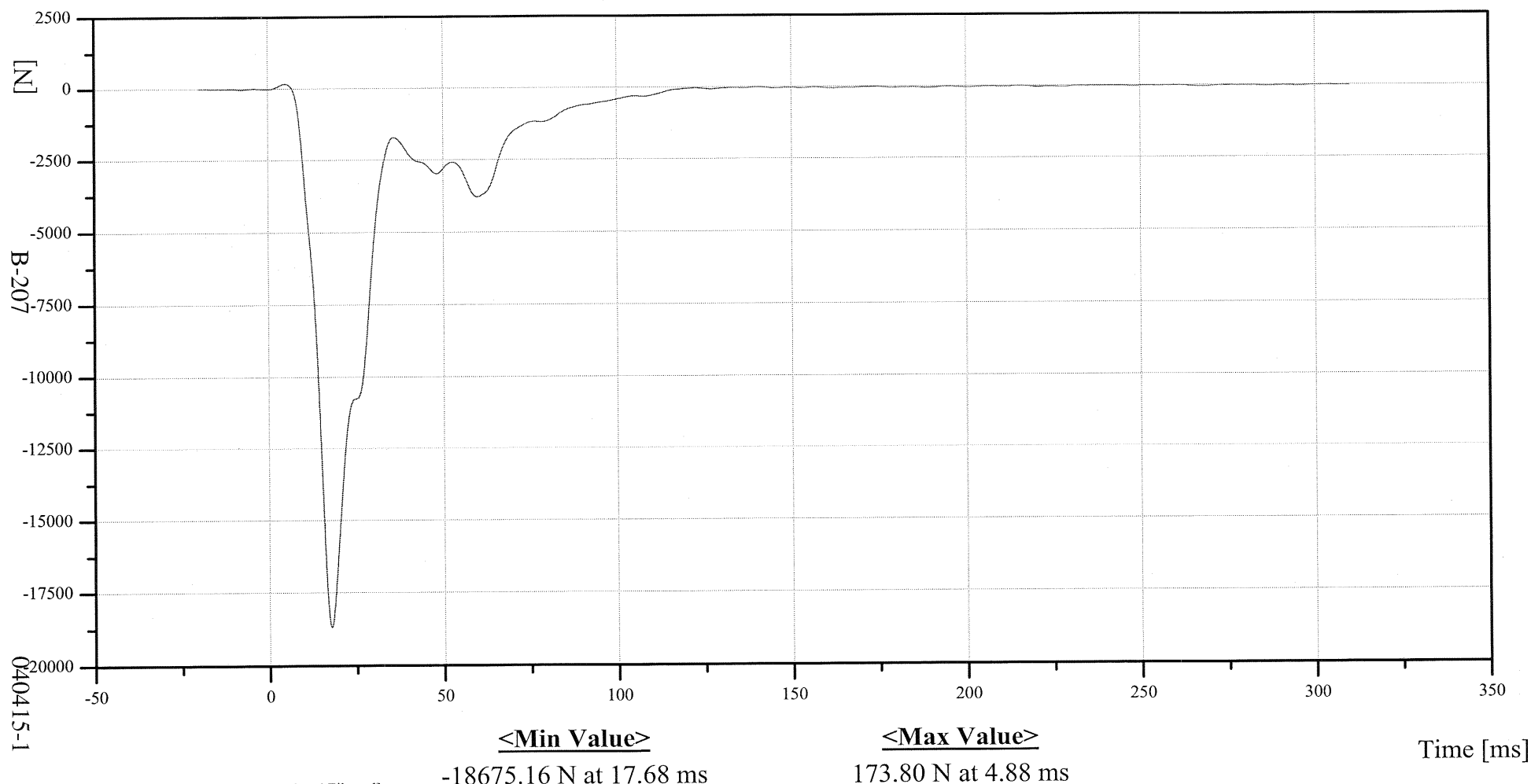
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

LC0813



CFC60 [SAE J211 Polarity, Biased Removed and Filtered]



Transportation Research Center, Inc.

ROW 8 COLUMN 14

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

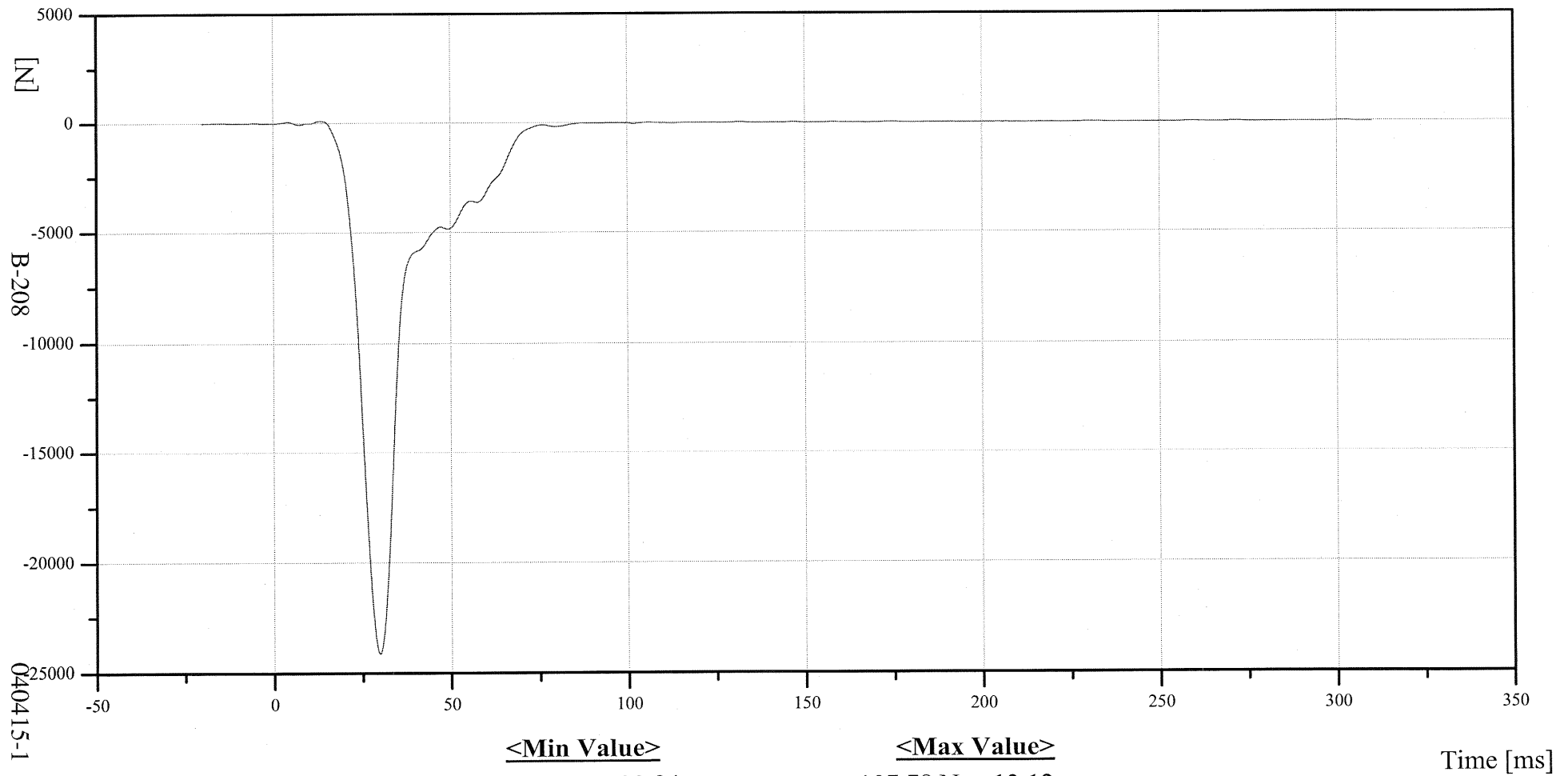
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

LC0814



<Min Value>

-24168.07 N at 29.84 ms

<Max Value>

107.78 N at 13.12 ms

Time [ms]

CFC60 [SAE J211 Polarity, Biased Removed and Filtered]



Transportation Research Center, Inc.

ROW 8 COLUMN 15

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

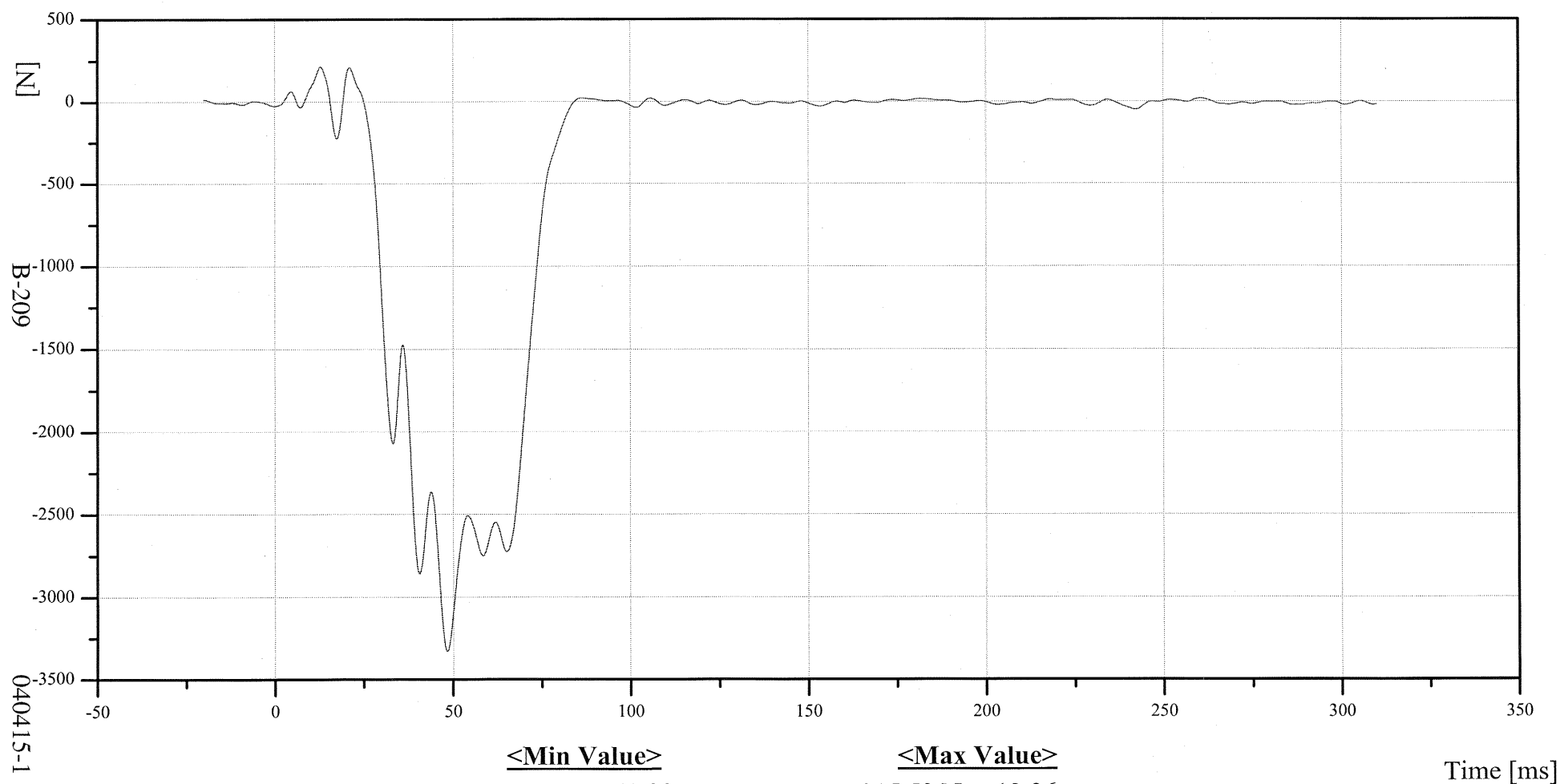
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

LC0815



CFC60 [SAE J211 Polarity, Biased Removed and Filtered]



Transportation Research Center, Inc.

ROW 8 COLUMN 16

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

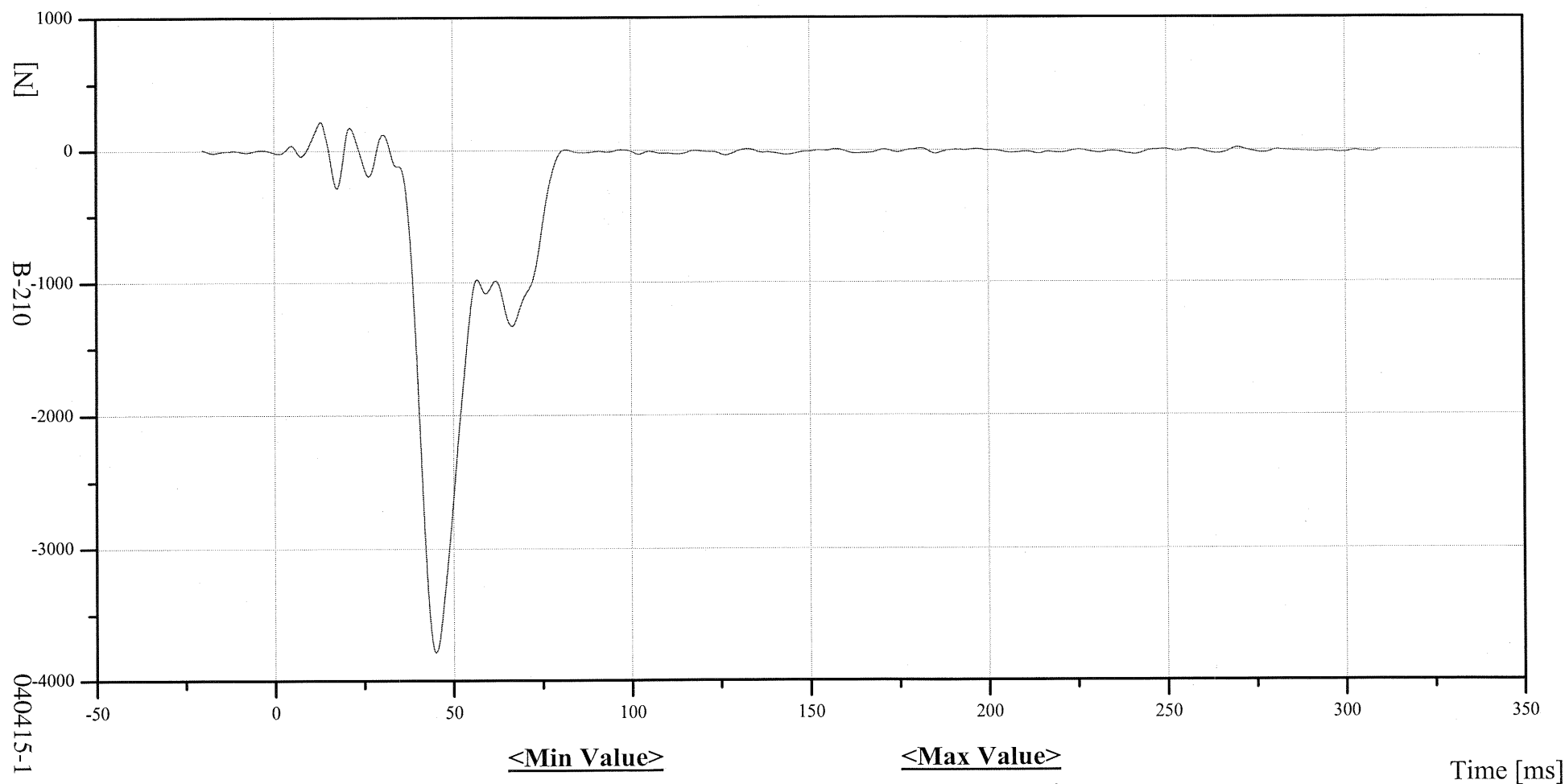
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

LC0816



<Min Value>

-3787.50 N at 44.96 ms

<Max Value>

217.54 N at 13.04 ms

Time [ms]

CFC60 [SAE J211 Polarity, Biased Removed and Filtered]



Transportation Research Center, Inc.

ROW 9 COLUMN 6

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

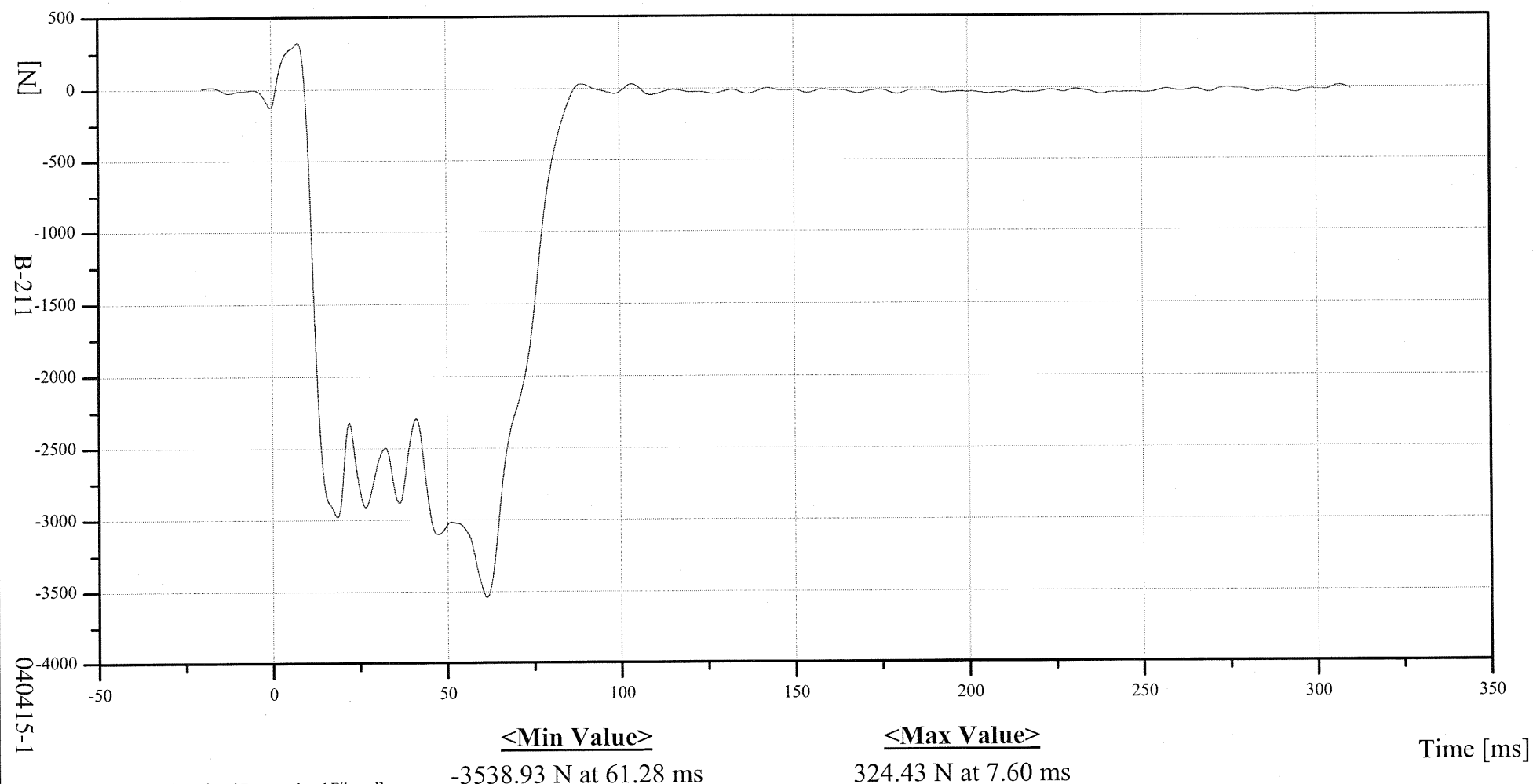
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

LC0906



CFC60 [SAE J211 Polarity, Biased Removed and Filtered]



Transportation Research Center, Inc.

ROW 9 COLUMN 7

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

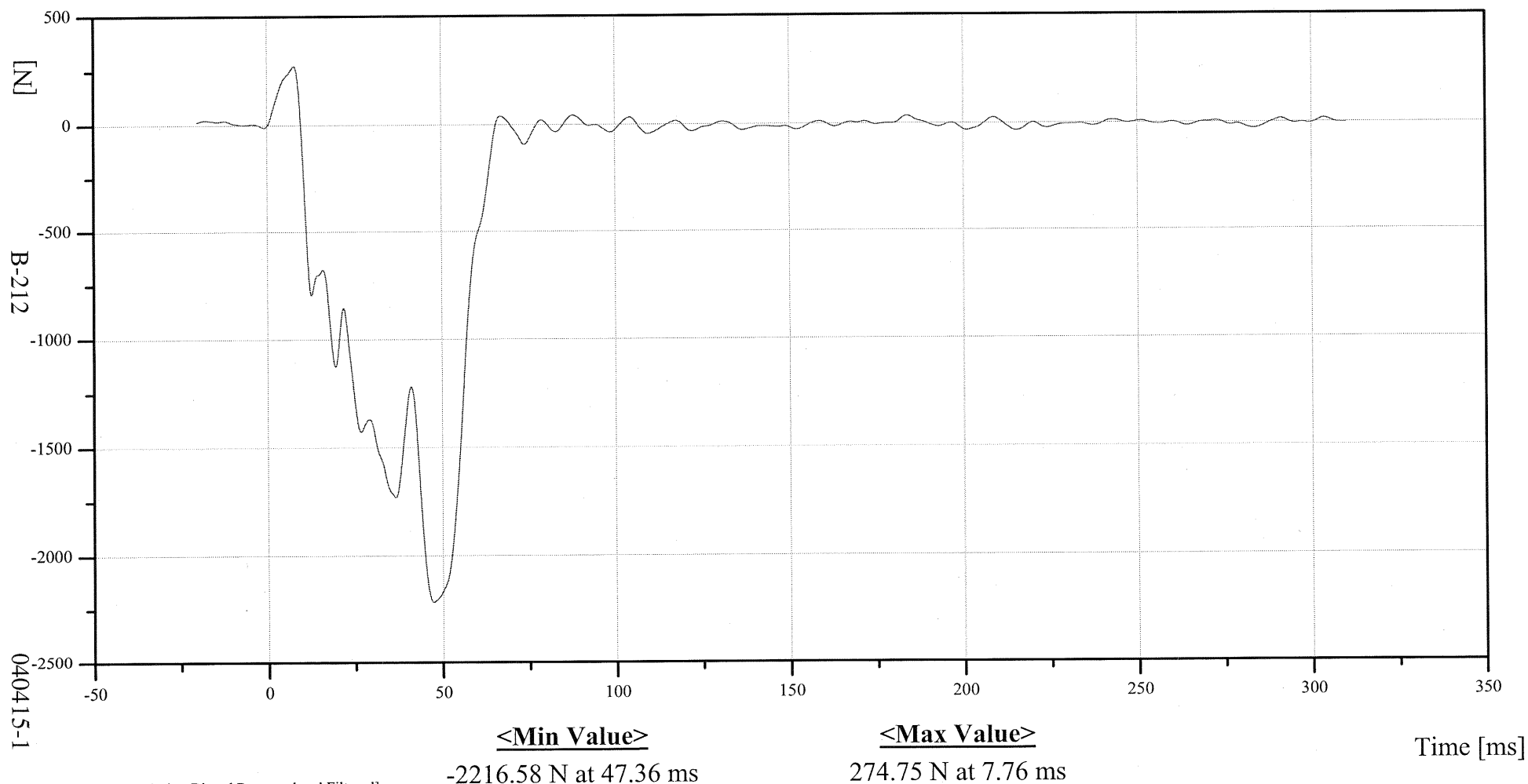
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

LC0907



CFC60 [SAE J211 Polarity, Biased Removed and Filtered]



Transportation Research Center, Inc.

ROW 9 COLUMN 8

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

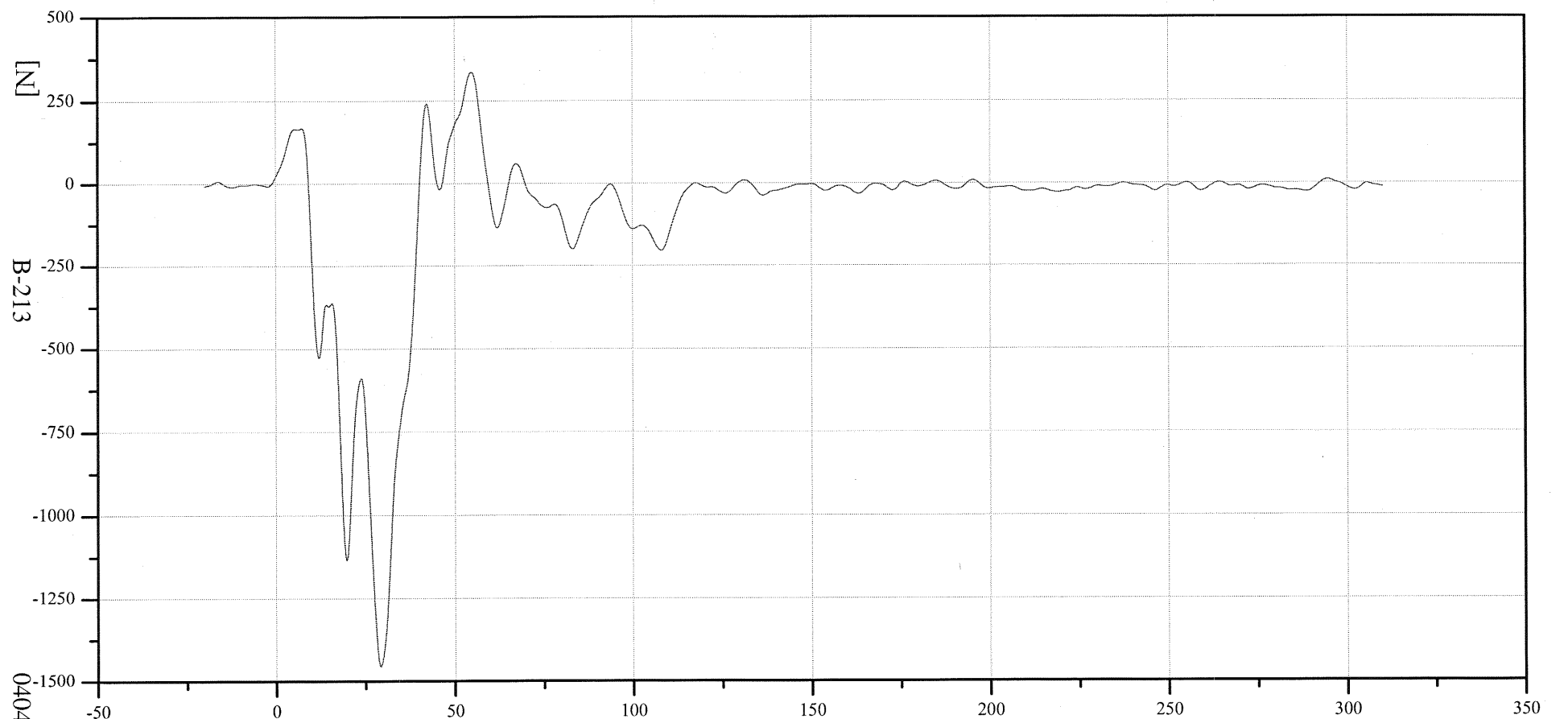
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

LC0908



040415-1

<Min Value>

-1455.29 N at 29.20 ms

<Max Value>

335.27 N at 54.80 ms

Time [ms]

CFC60 [SAE J211 Polarity, Biased Removed and Filtered]



Transportation Research Center, Inc.

ROW 9 COLUMN 9

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

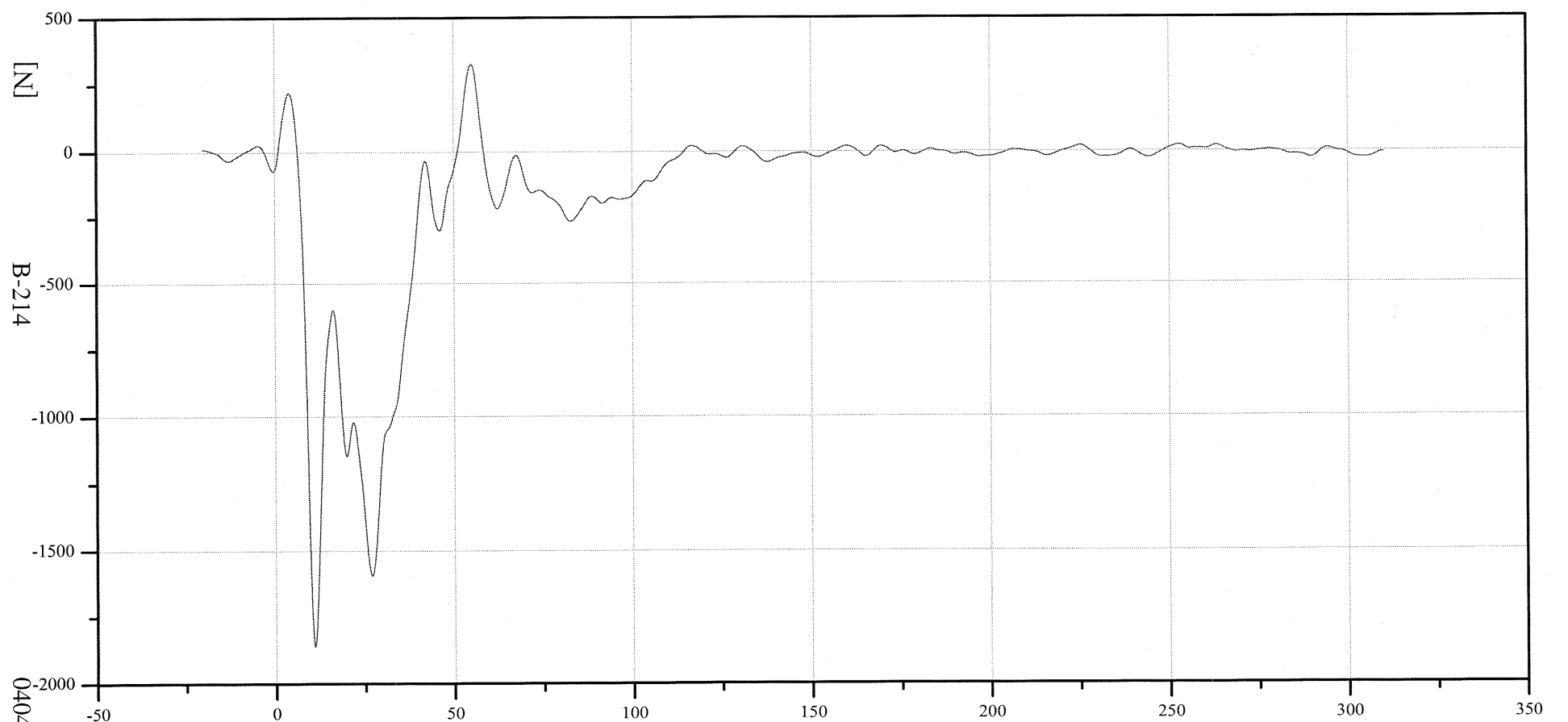
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

LC0909



040415-1

<Min Value>

-1860.50 N at 10.80 ms

<Max Value>

326.04 N at 55.04 ms

Time [ms]

CFC60 [SAE J211 Polarity, Biased Removed and Filtered]



Transportation Research Center, Inc.

ROW 9 COLUMN 10

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

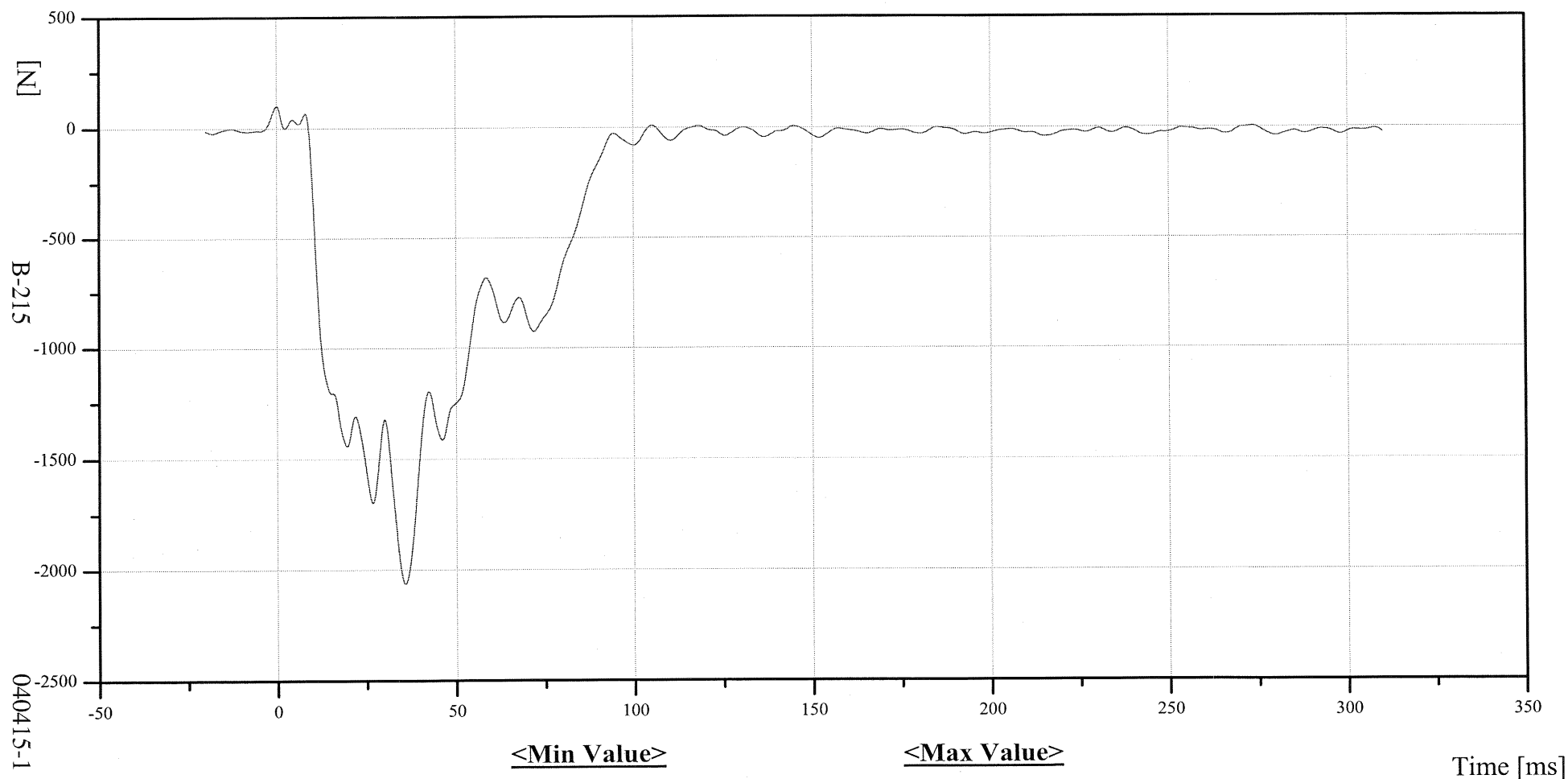
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

LC0910



<Min Value>

-2060.75 N at 35.68 ms

<Max Value>

101.72 N at -0.00 ms

Time [ms]

CFC60 [SAE J211 Polarity, Biased Removed and Filtered]



Transportation Research Center, Inc.

ROW 9 COLUMN 11

Date: 04/15/2004

Time: 10:05:44

Test Lab: CTF

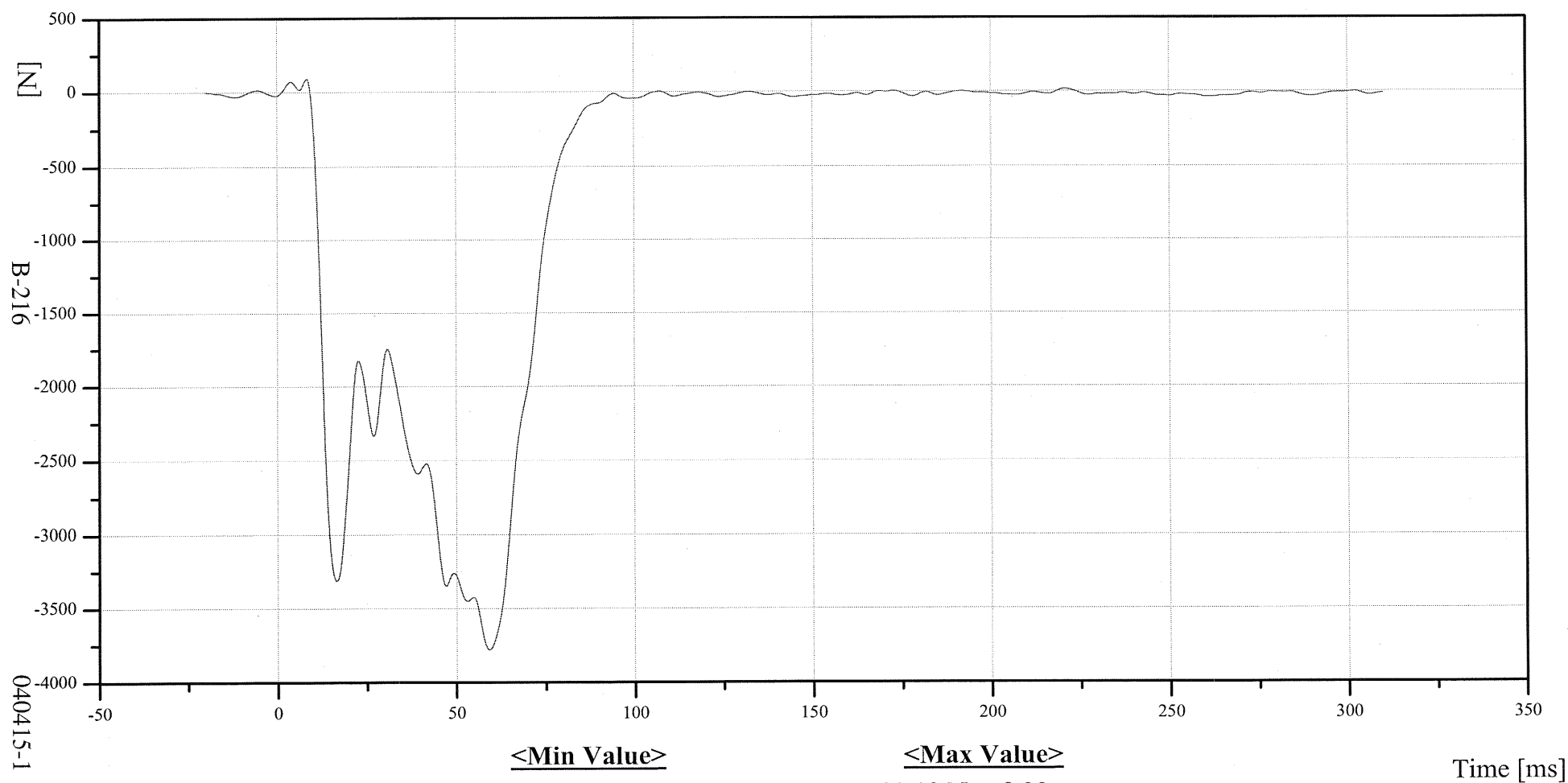
Customer: VRTC

Test Number: 040415-1

Position #1 - HIII 50th Male (169)

Position #2 - HIII 5th Female (416)

LC0911



CFC60 [SAE J211 Polarity, Biased Removed and Filtered]

Appendix C

Dummy Certification Data

Pre-Test Calibration

Driver Dummy S/N 169

Transportation Research Center Inc.
572E HIII 50th Male Dummy
External Dimensions
Serial No. 169 Calibration No. 21

Symbol	Description	Specification	Results	Pass
		mm	mm	
A	Total Sitting Height	878.8 - 889.0	885	Yes
B	Shoulder Pivot Height	505.5 - 520.7	514	Yes
C	H-Point Height	83.8 - 88.9	88	Yes
D	H-Point From Seatback	134.6 - 139.7	139	Yes
E	Shoulder Pivot From Backline	83.8 - 94.0	92	Yes
F	Thigh Clearance	139.7 - 154.9	154	Yes
G	Back Of Elbow To Wrist Pivot	289.6 - 304.8	293	Yes
H	Skull Cap To Backline	40.6 - 45.7	44	Yes
I	Shoulder-Elbow Length	330.2 - 345.4	342	Yes
J	Elbow Rest Height	190.5 - 210.8	208	Yes
K	Buttock Knee Length	579.1 - 604.5	601	Yes
L	Popliteal Height	429.3 - 454.7	435	Yes
M	Knee Pivot Height	485.1 - 500.4	496	Yes
N	Buttock Popliteal Length	452.1 - 477.5	475	Yes
O	Chest Depth	213.4 - 228.6	216	Yes
P	Foot Length	251.5 - 266.7	262	Yes
V	Shoulder Breadth	421.6 - 436.9	426	Yes
W	Foot Breadth	91.4 - 106.7	98	Yes
Y	Chest Circumference	970.3 - 1000.8	1000	Yes
Z	Waist Circumference	835.7 - 866.1	857	Yes
AA	Location For Chest Circumference	429.3 - 434.3	432	Yes
BB	Location For Waist Circumference	226.1 - 231.1	228	Yes

Technician

Vincent Oliver

Approved

K.J. Walke

Transportation Research Center Inc.

572E Head Drop Test

HIII 50th Male Serial No. 169 Calibration No. 21 - 1

Test Date 04/06/2004

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.6 °C	21.8 °C	Yes
Relative Humidity	10 - 70 %	28 %	Yes
Peak Resultant Acceleration	225 - 275 g	261.0 g	Yes
Peak Lateral Acceleration	15 g Max	-3.5 g	Yes
Oscillations After Main Pulse	Less Than 10% of Peak Resultant Acceleration?	Yes	Yes

Comments:

Technician

Vincent Oliver

Approved

V. Z. Walter

04.21.2004 18:50:29 616

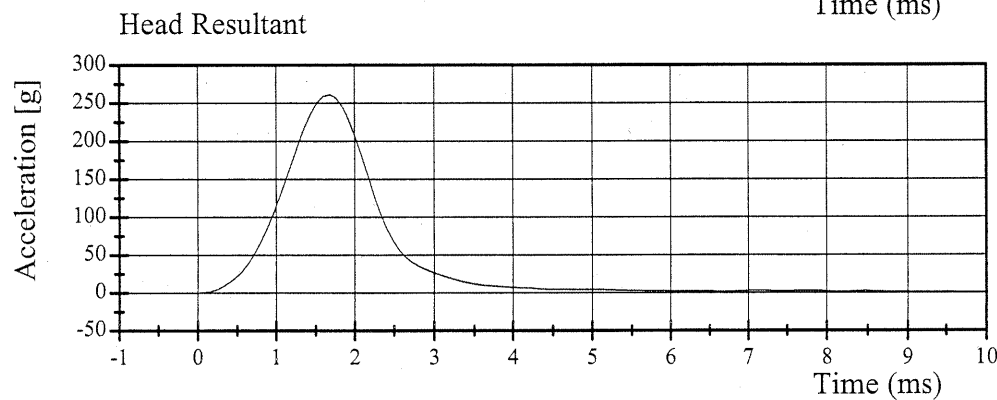
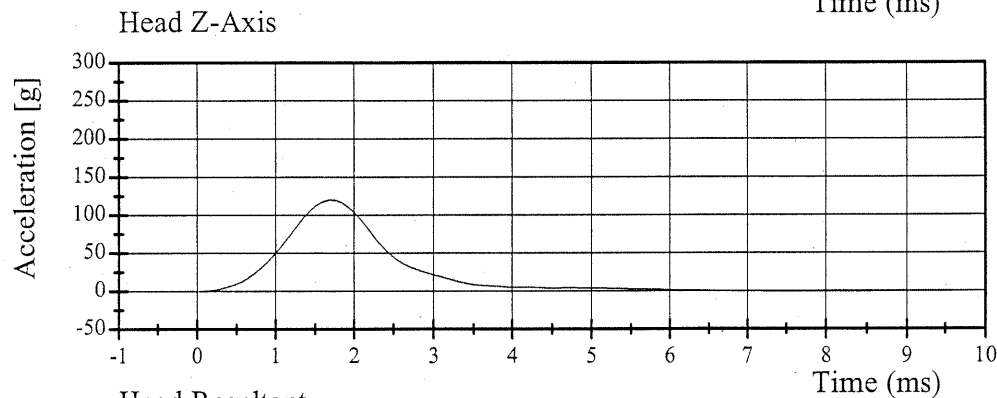
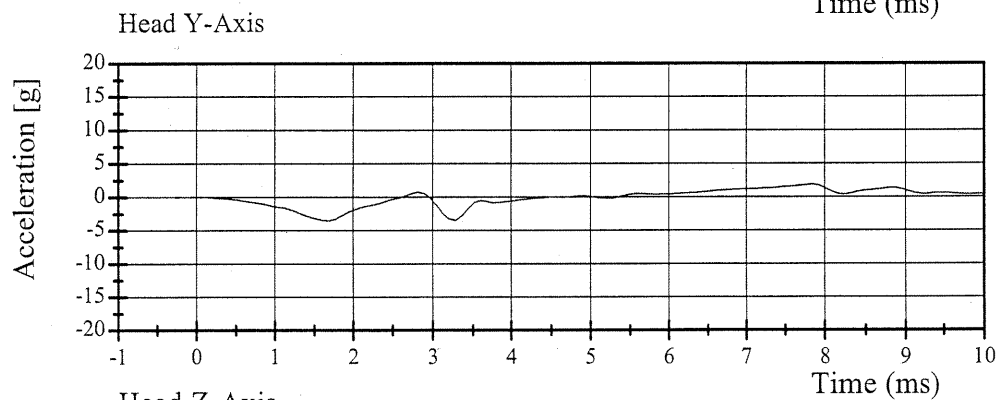
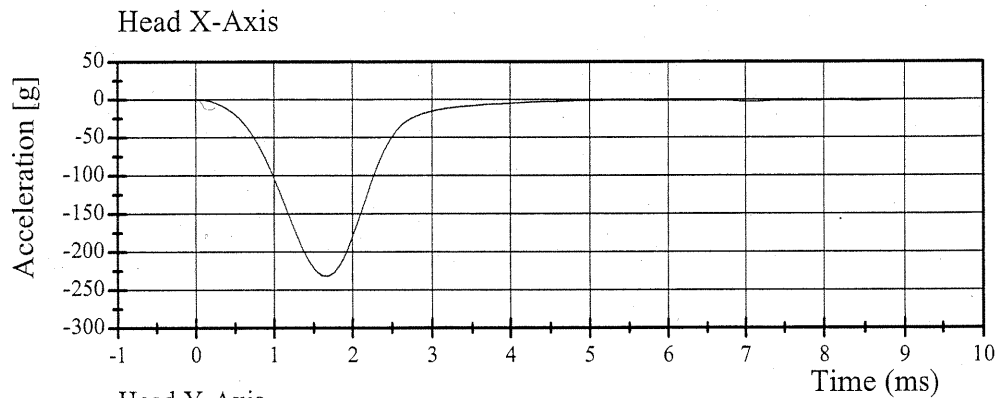


Transportation Research Center Inc.

572E Head Drop Test

HIII 50th Male Serial No. 169 Calibration No. 21 - 1

Test Date 04/06/2004



04.21.2004 18:50:33 616



Transportation Research Center Inc.

572E Neck Flexion Test - 6 Channel Transducer

HIH 50th Male Serial No. 169 Calibration No. 21 - 1

Test Date 04/06/2004

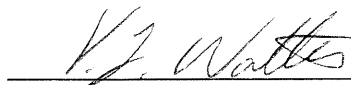
Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.6 °C	Yes
Relative Humidity	10 - 70 %	31 %	Yes
Impact Velocity	6.89 - 7.13 m/s	7.01 m/s	Yes
Pendulum Deceleration			
10 ms	22.50 - 27.50 g	22.89 g	Yes
20 ms	17.60 - 22.60 g	21.21 g	Yes
30 ms	12.50 - 18.50 g	16.69 g	Yes
Max Pendulum Deceleration	29.00 g	23.52 g	Yes
Max Pendulum Deceleration After 30 ms	29.00 g	16.63 g	Yes
Deceleration-Time Curve			
Decay Time To 5g	34 - 42 ms	38.96 ms	Yes
D Plane Rotation			
Max	64 - 78 °	72.64 °	Yes
Time	57 - 64 ms	60.16 ms	Yes
Moment About Occipital Condyle			
Max	88.1 - 108.5 N·m	98.92 N·m	Yes
Time	47 - 58 ms	52.56 ms	Yes
Rotation Angle-Time Curve			
Decay Time To Zero	113 - 128 ms	117.76 ms	Yes
Positive Moment-Time Curve			
Decay Time To Zero	97 - 107 ms	100.00 ms	Yes

Comments:

Technician



Approved



04.21.2004 18:51:59 522

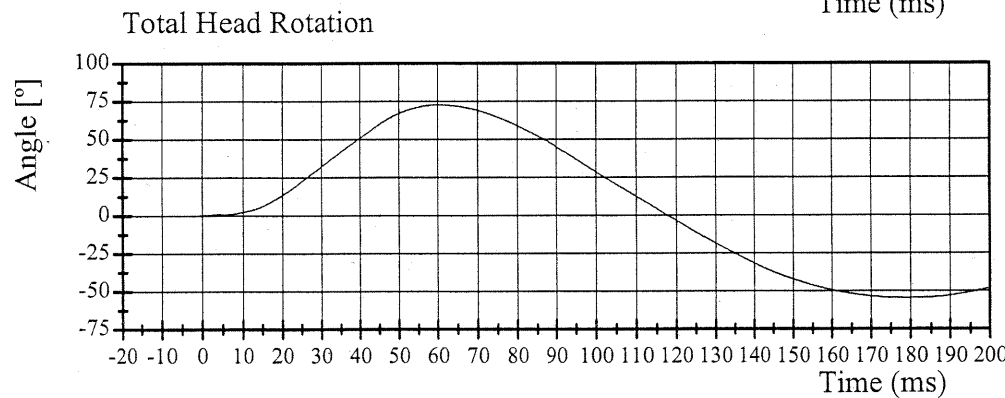
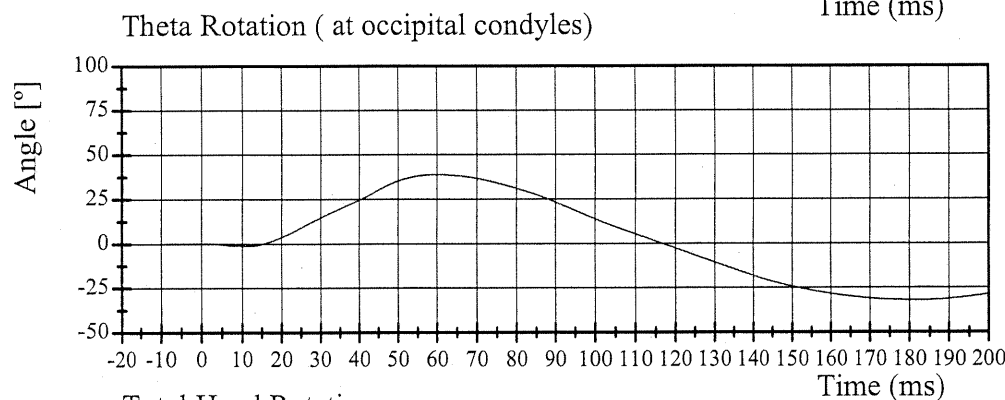
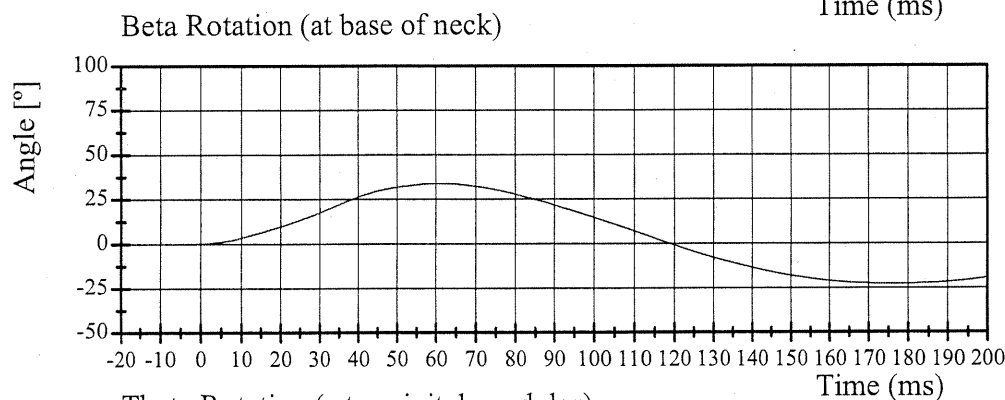
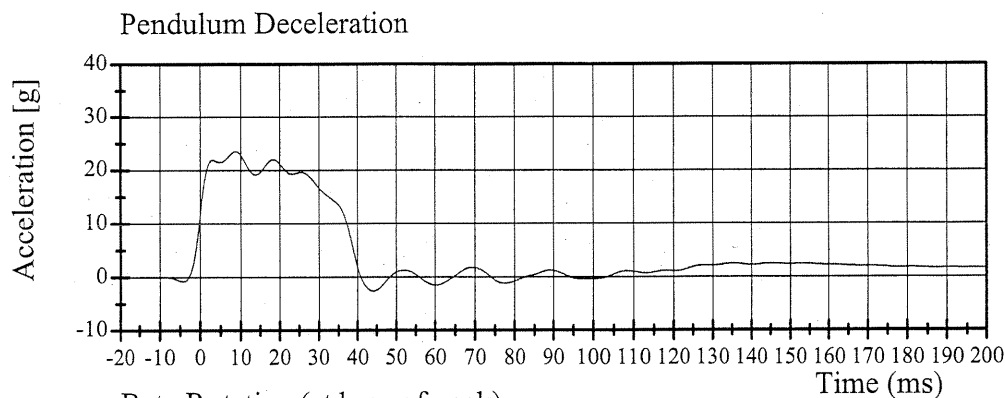


Transportation Research Center Inc.

572E Neck Flexion Test

HIII 50th Male Serial No. 169 Calibration No. 21 - 1

Test Date 04/06/2004



04.21.2004 18:52:03 522



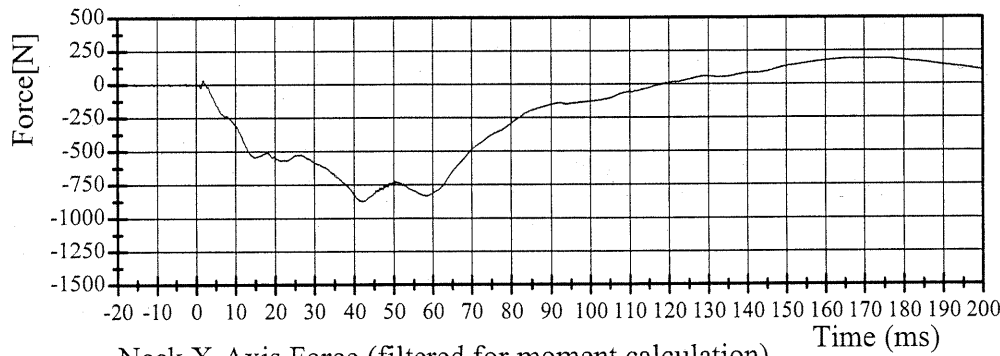
Transportation Research Center Inc.

572E Neck Flexion Test

HIII 50th Male Serial No. 169 Calibration No. 21 - 1

Test Date 04/06/2004

Neck X-Axis Force

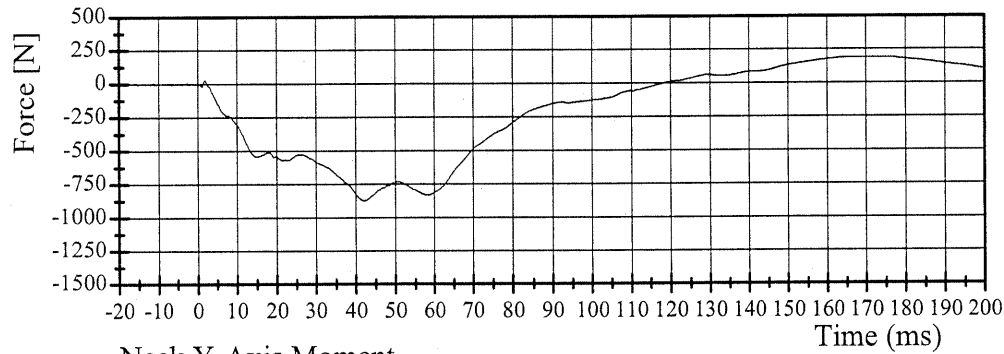


Filter Class: 1000

Max: 189.8 N at 174.5 ms

Min: -872.2 N at 42.0 ms

Neck X-Axis Force (filtered for moment calculation)

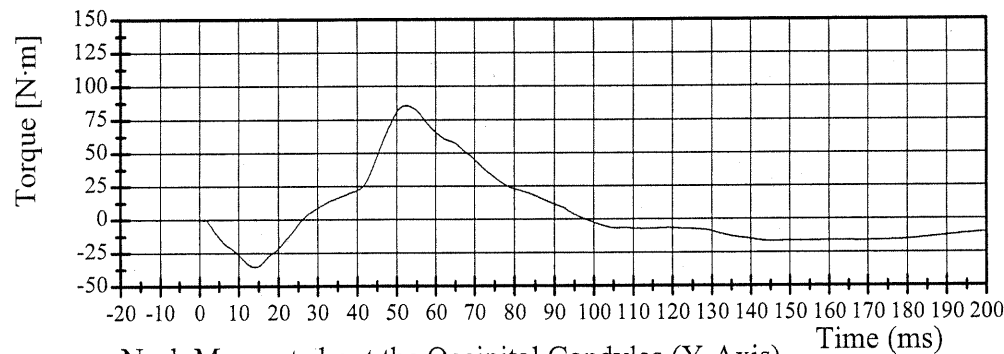


Filter Class: 600

Max: 189.8 N at 175.2 ms

Min: -872.1 N at 42.0 ms

Neck Y-Axis Moment

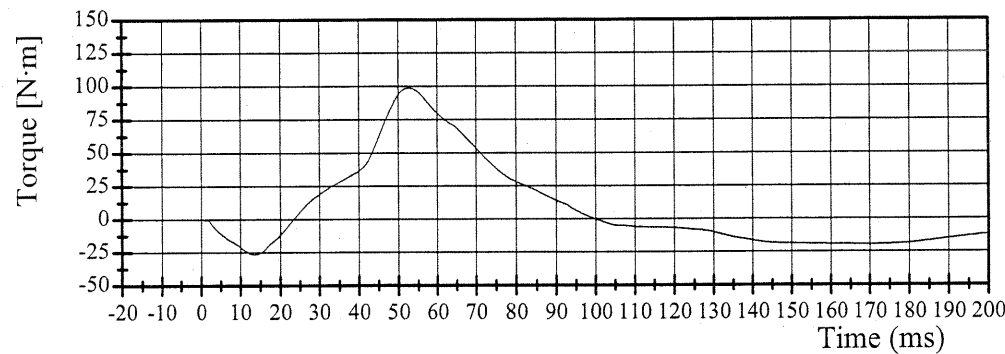


Filter Class: 600

Max: 85.7 N·m at 52.5 ms

Min: -35.5 N·m at 14.0 ms

Neck Moment about the Occipital Condyles (Y-Axis)



Filter Class: 600

Max: 98.9 N·m at 52.6 ms

Min: -26.3 N·m at 13.5 ms

Transportation Research Center Inc.

572E Neck Extension Test - 6 Channel Transducer

HIII 50th Male Serial No. 169 Calibration No. 21 - 1

Test Date 04/06/2004

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.8 °C	Yes
Relative Humidity	10 - 70 %	30 %	Yes
Impact Velocity	5.95 - 6.19 m/s	6.05 m/s	Yes
Pendulum Deceleration			
10 ms	17.20 - 21.20 g	19.43 g	Yes
20 ms	14.00 - 19.00 g	16.96 g	Yes
30 ms	11.00 - 16.00 g	14.35 g	Yes
Max Pendulum Deceleration	22.00 g	19.92 g	Yes
Max Pendulum Deceleration After 30 ms	22.00 g	14.31 g	Yes
Deceleration-Time Curve			
Decay Time To 5g	38 - 46 ms	40.00 ms	Yes
D Plane Rotation			
Max	81 - 106 °	97.09 °	Yes
Time	72 - 82 ms	72.72 ms	Yes
Moment About Occipital Condyle			
Min	-80.0 - (-52.9) N·m	-71.82 N·m	Yes
Time	65 - 79 ms	68.80 ms	Yes
Rotation Angle-Time Curve			
Decay Time To Zero	147 - 174 ms	155.12 ms	Yes
Negative Moment-Time Curve			
Decay Time To Zero	120 - 148 ms	142.96 ms	Yes

Comments:

Technician

Vince Oliver

Approved

V. H. Watts

04.21.2004 18:53:22 602



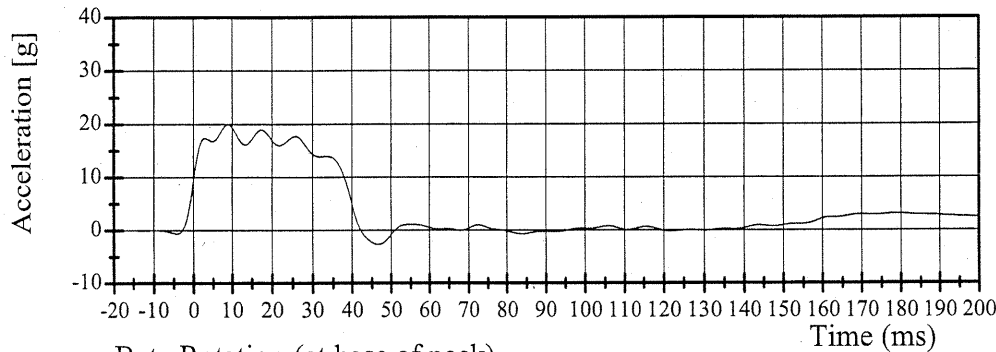
Transportation Research Center Inc.

572E Neck Extension Test

HIII 50th Male Serial No. 169 Calibration No. 21 - 1

Test Date 04/06/2004

Pendulum Deceleration

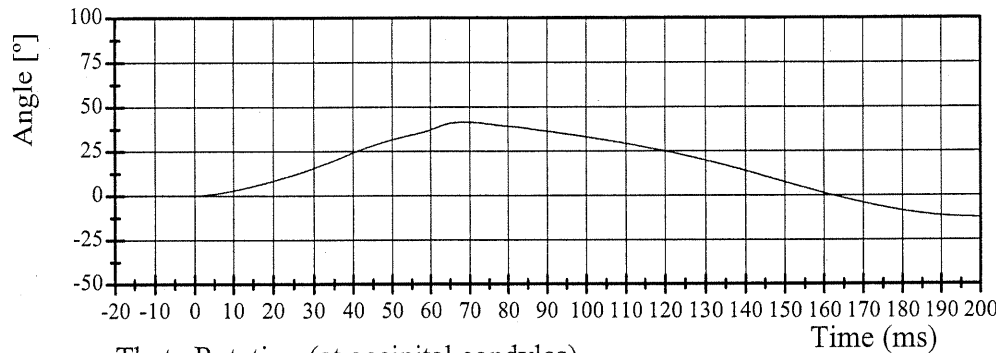


Filter Class: 60

Max: 19.9 g at 9.0 ms

Min: -2.7 g at 46.6 ms

Beta Rotation (at base of neck)

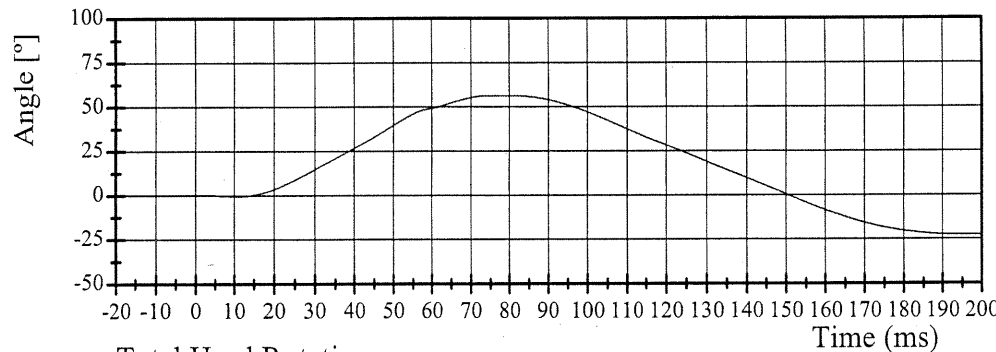


Filter Class: 60

Max: 41.4 ° at 68.7 ms

Min: -12.3 ° at 200.0 ms

Theta Rotation (at occipital condyles)

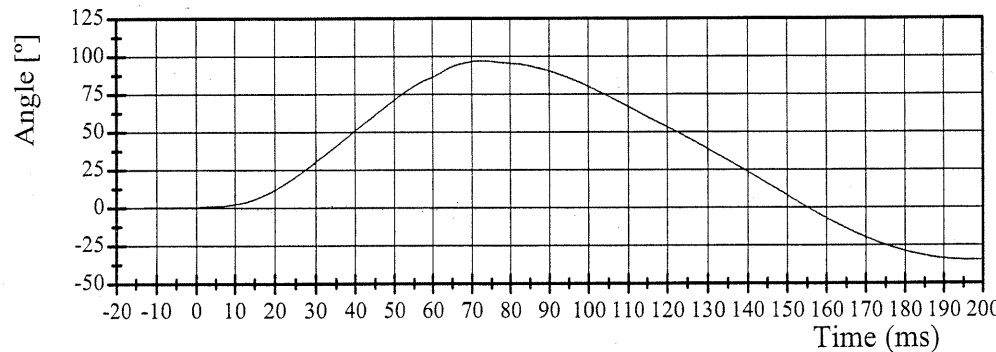


Filter Class: 60

Max: 56.4 ° at 75.9 ms

Min: -22.6 ° at 195.4 ms

Total Head Rotation



Filter Class: 60

Max: 97.1 ° at 72.7 ms

Min: -34.8 ° at 198.7 ms

04.21.2004 18:53:26 602



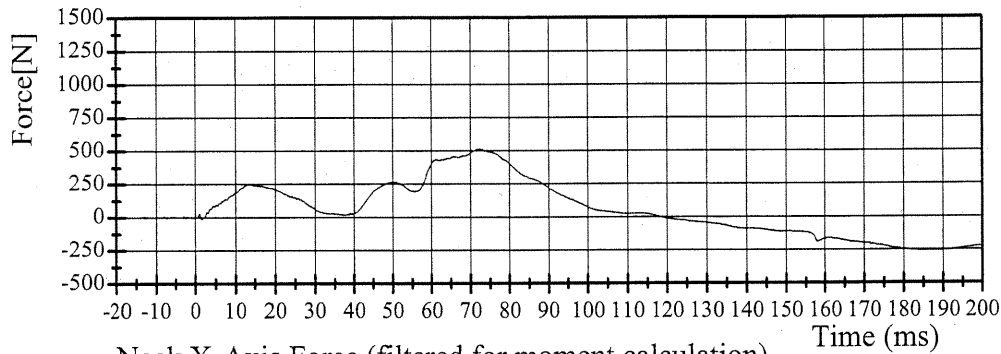
Transportation Research Center Inc.

572E Neck Extension Test

HIII 50th Male Serial No. 169 Calibration No. 21 - 1

Test Date 04/06/2004

Neck X-Axis Force

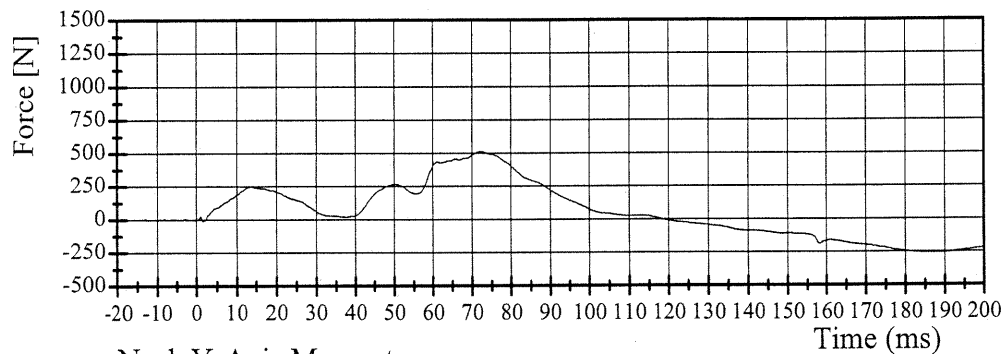


Filter Class: 1000

Max: 513.5 N at 72.2 ms

Min: -257.7 N at 185.8 ms

Neck X-Axis Force (filtered for moment calculation)

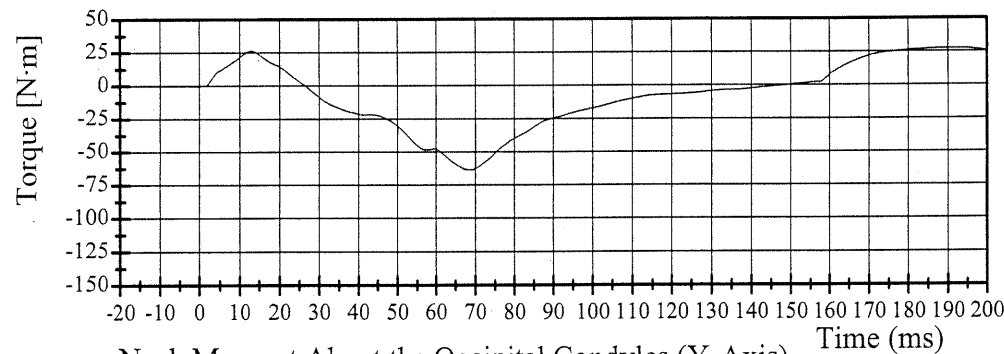


Filter Class: 600

Max: 513.3 N at 72.2 ms

Min: -257.4 N at 187.0 ms

Neck Y-Axis Moment

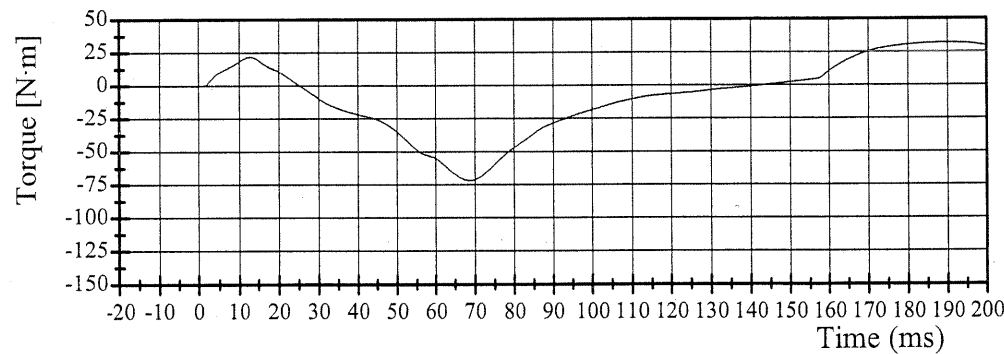


Filter Class: 600

Max: 27.3 N·m at 192.8 ms

Min: -63.6 N·m at 68.6 ms

Neck Moment About the Occipital Condyles (Y-Axis)



Filter Class: 600

Max: 31.8 N·m at 190.1 ms

Min: -71.8 N·m at 68.8 ms

Transportation Research Center Inc.

572E Thorax Test

HIII 50th Male Serial No. 169 Calibration No. 21 - 1

Test Date 04/06/2004

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.9 °C	Yes
Relative Humidity	10 - 70 %	34 %	Yes
Pendulum Velocity	6.59 - 6.83 m/s	6.65 m/s	Yes
Maximum Chest Deflection	-72.6 - (-63.5) mm	-68.2 mm	Yes
Maximum Resistive Force	5160 - 5894 N	5663 N	Yes
Internal Hysteresis	69 - 85 %	71 %	Yes

Comments:

Technician

Vince Glina

Approved

V.J. Walter

04.21.2004 18:54:29 961



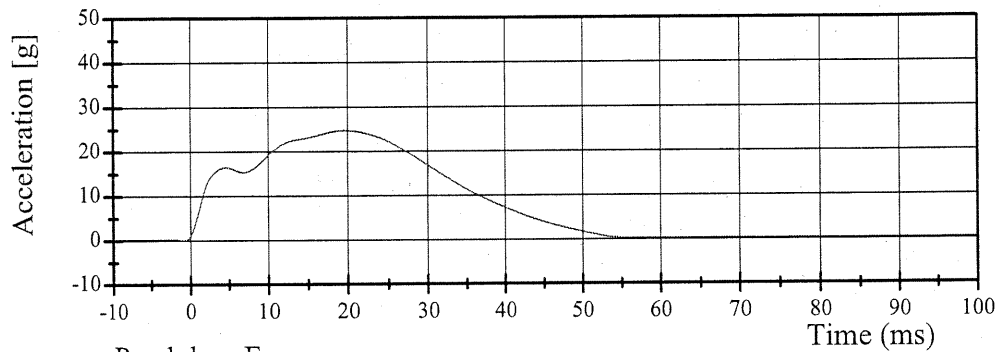
Transportation Research Center Inc.

572E Thorax Test

HIII 50th Male Serial No. 169 Calibration No. 21 - 1

Test Date 04/06/2004

Pendulum Deceleration

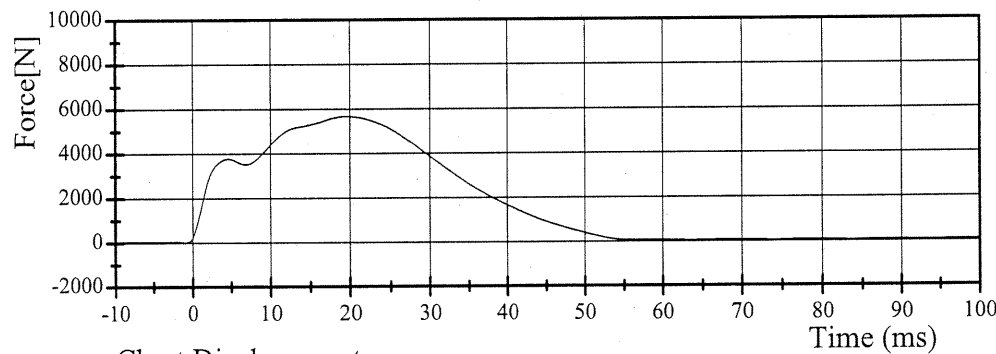


Filter Class: 180

Max: 24.7 g at 19.5 ms

Min: -0.0 g at -74.8 ms

Pendulum Force

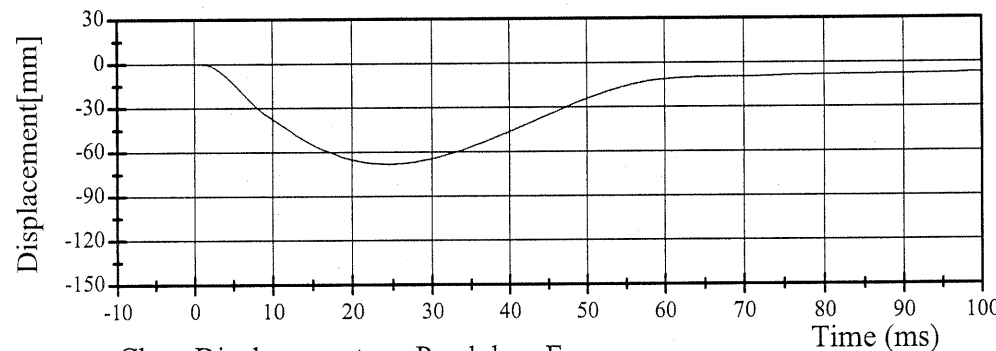


Filter Class: 180

Max: 5663.0 N at 19.5 ms

Min: -10.5 N at -74.8 ms

Chest Displacement

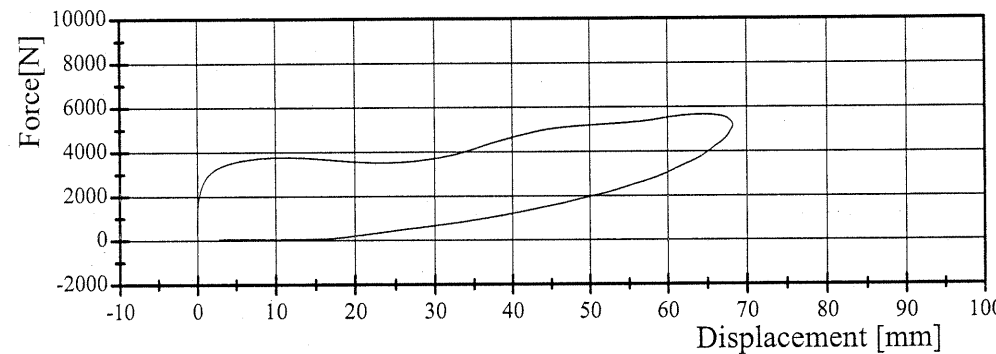


Filter Class: 180

Max: 0.0 mm at 0.5 ms

Min: -68.2 mm at 24.6 ms

Chest Displacement vs. Pendulum Force



04.21.2004 18:54:34 961



Transportation Research Center Inc

Hybrid III Hip Range of Motion

Serial Number: 169R

Date: 04/06/2004

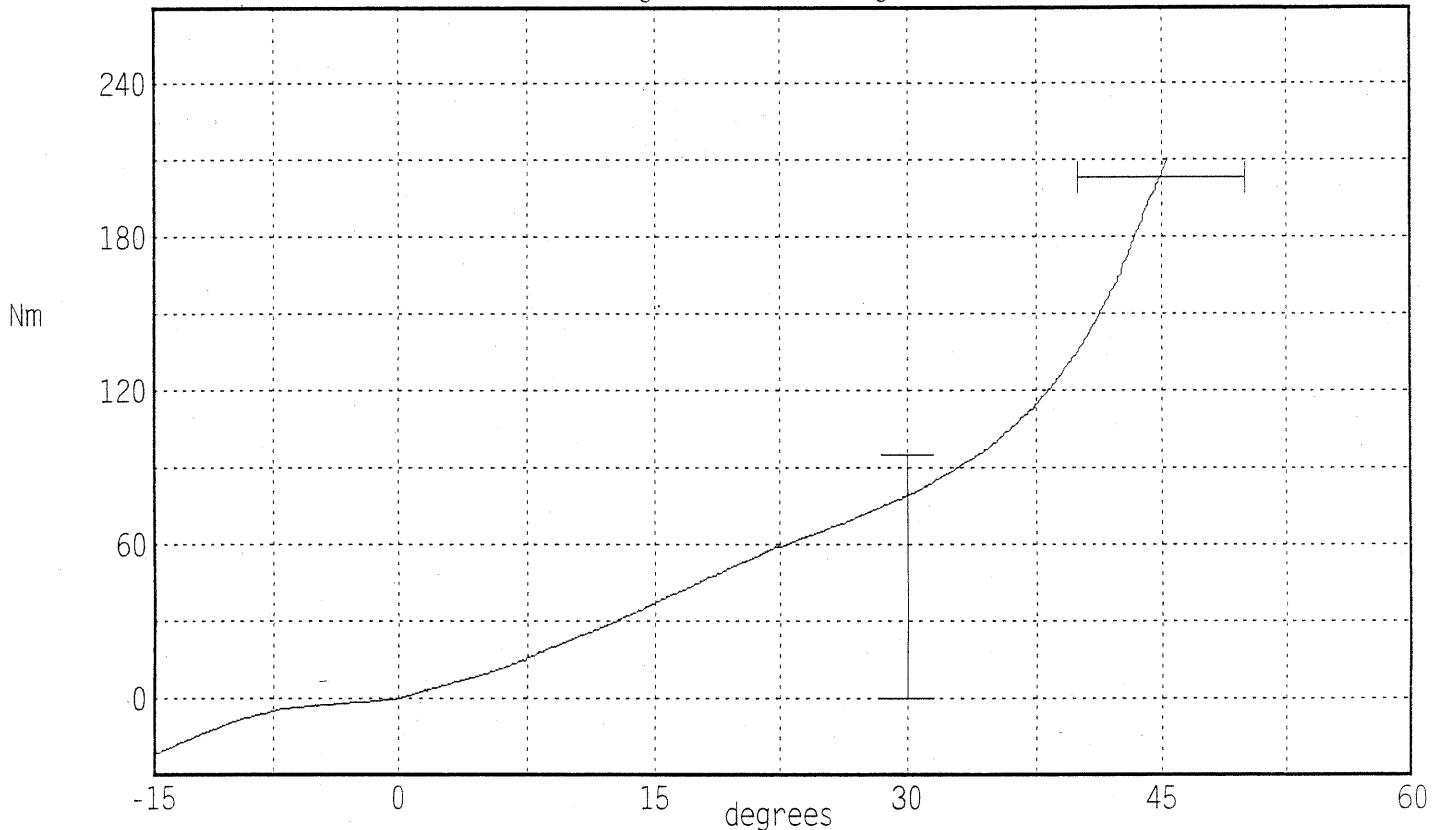
Test Number: 169C21

Time: 09:28

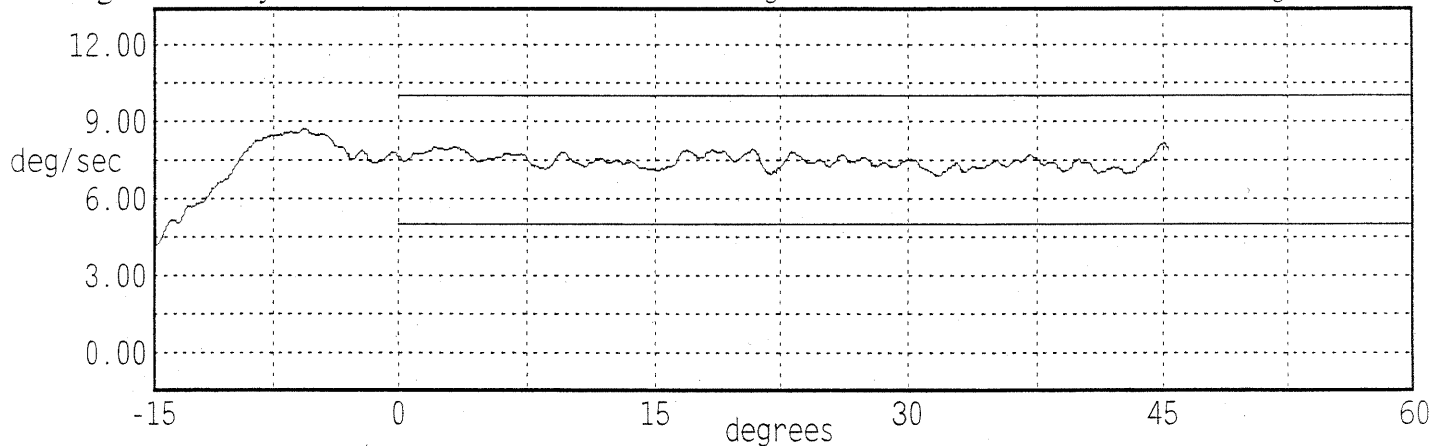
Comments:

TEST PARAMETER	SPECIFICATION	TEST RESULTS	
Temperature	18.9 - 25.6	21.1 °C	Pass
Humidity	10 - 70	37 %	Pass
Moment at 30 deg	<= 94.9	79.0 Nm	Pass
Angle at 203 Nm	40.0 - 50.0	45.0 deg	Pass
Average Velocity	5.0 - 10.0	7.5 deg/sec	Pass

Moment About H-Point
Peak Moment: 210.7 Nm at 45.3 deg
Peak Angle: 45.3 deg at 210.7 Nm



Angular Velocity Max: 8.2 deg/sec Min: 6.9 deg/sec



Transportation Research Center Inc

Hybrid III Hip Range of Motion

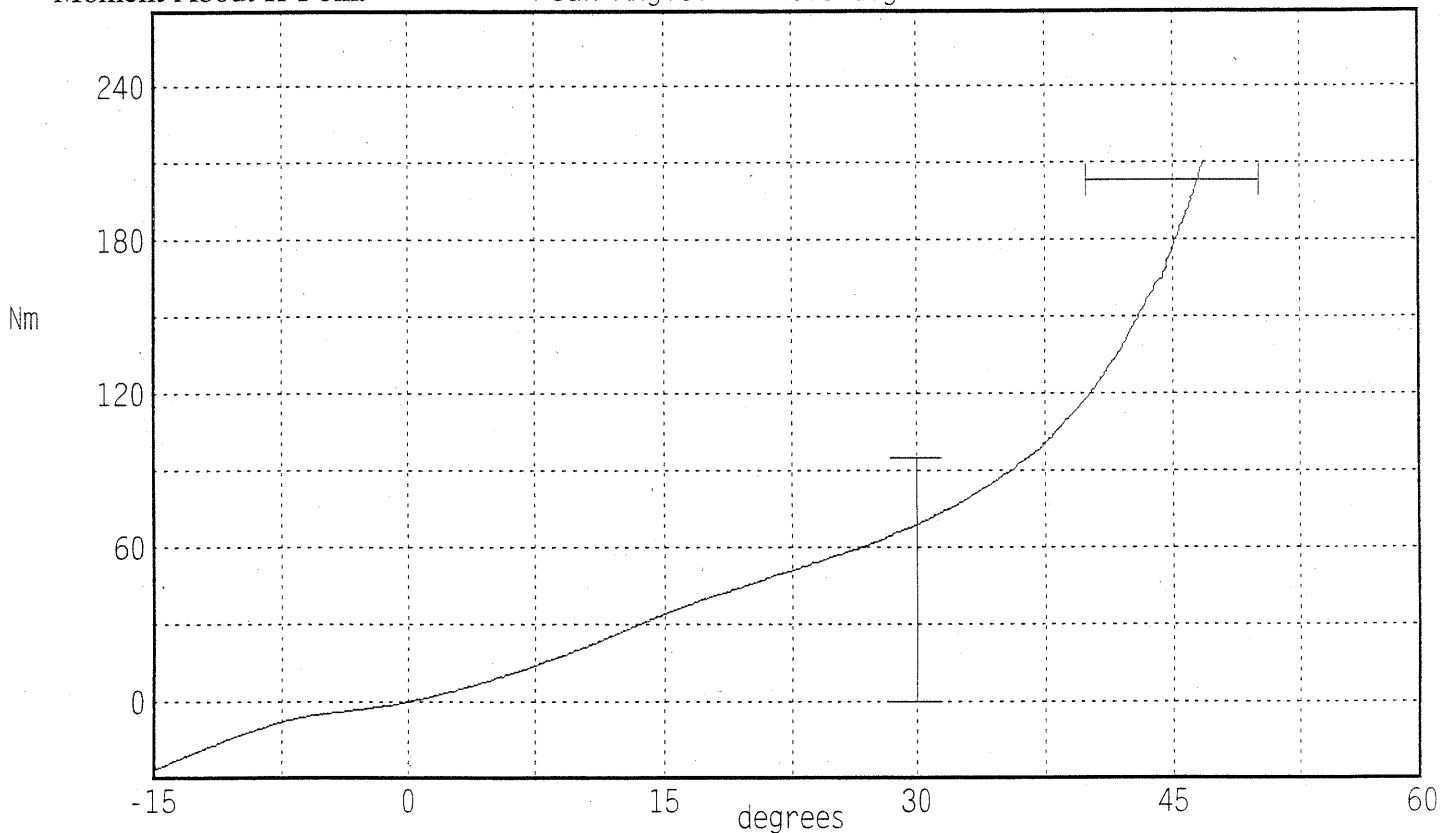
Serial Number: 169R
Test Number: 169C21
Comments:

Date: 04/06/2004
Time: 09:21

TEST PARAMETER	SPECIFICATION	TEST RESULTS	
Temperature	18.9 - 25.6	21.1 °C	Pass
Humidity	10 - 70	37 %	Pass
Moment at 30 deg	<= 94.9	68.9 Nm	Pass
Angle at 203 Nm	40.0 - 50.0	46.6 deg	Pass
Average Velocity	5.0 - 10.0	7.4 deg/sec	Pass

Peak Moment: 210.4 Nm at 46.8 deg
Peak Angle: 46.8 deg at 210.4 Nm

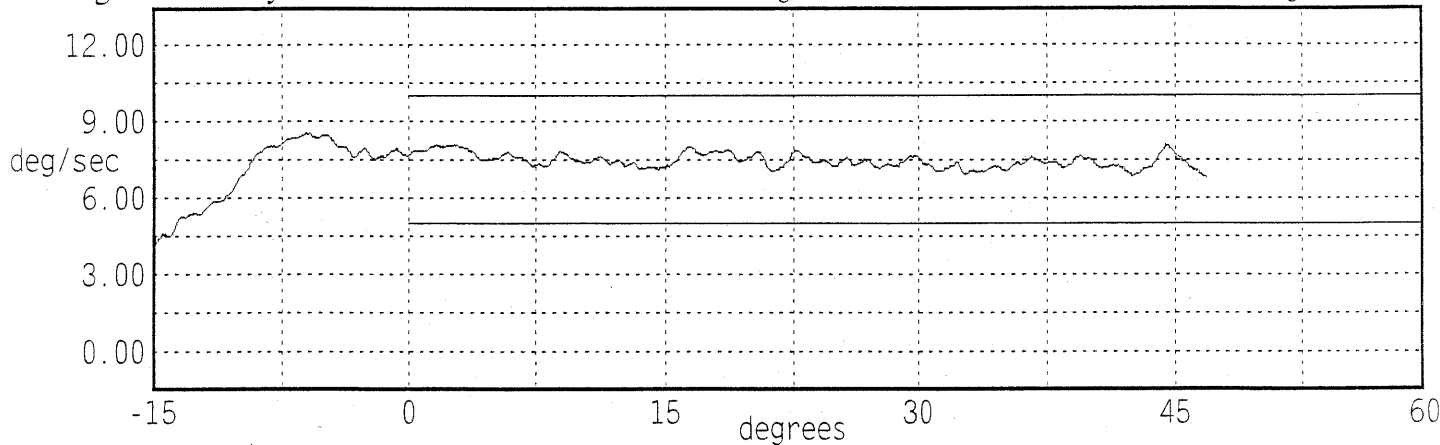
Moment About H-Point



Angular Velocity

Max: 8.1 deg/sec

Min: 6.8 deg/sec



Transportation Research Center Inc.

572E Left Knee Test

HIII 50th Male Serial No. 169 Calibration No. 21 - 1

Test Date 04/06/2004

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.6 °C	22.1 °C	Yes
Relative Humidity	10 - 70 %	33 %	Yes
Pendulum Velocity	2.07 - 2.13 m/s	2.08 m/s	Yes
Maximum Pendulum Force	4715 - 5783 N	5369 N	Yes

Comments:

Technician

Vincent Oliver

Approved

H. K. Natta

04.21.2004 18:58:20 2152

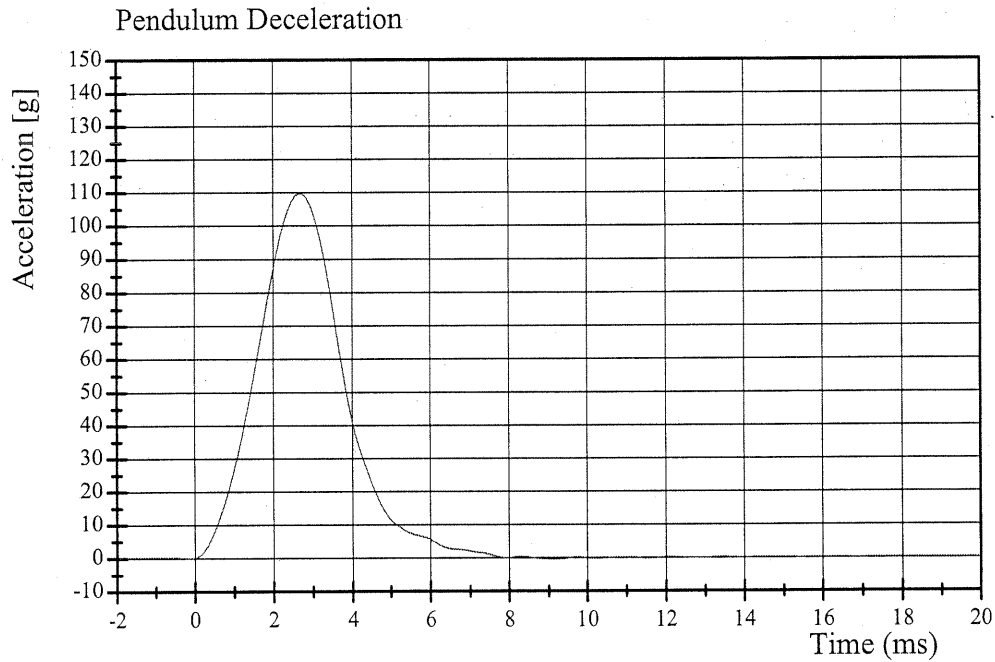


Transportation Research Center Inc.

572E Left Knee Test

HIII 50th Male Serial No. 169 Calibration No. 21 - 1

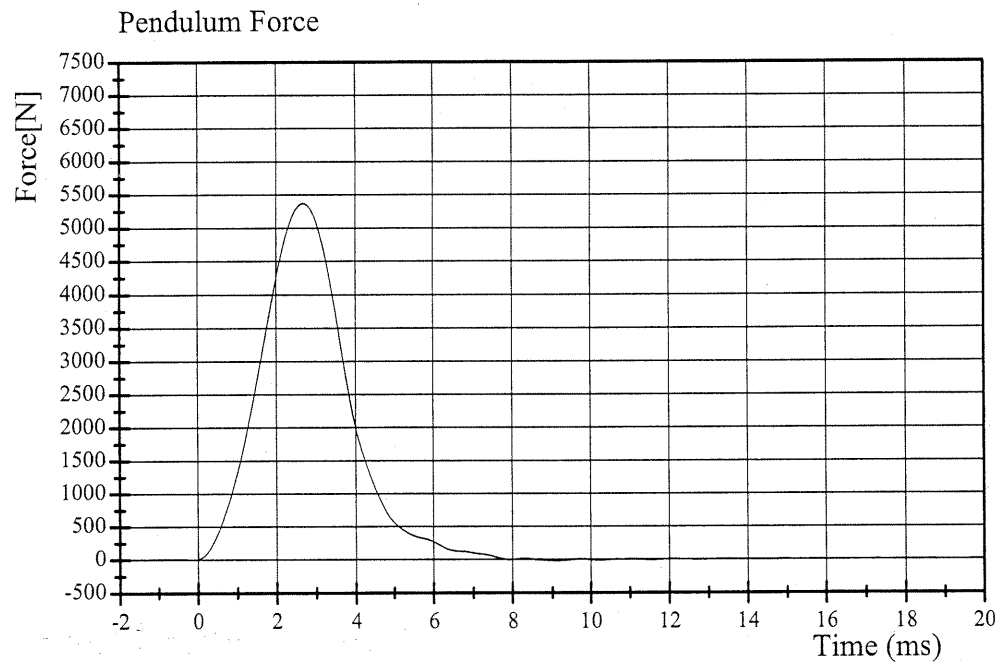
Test Date 04/06/2004



Filter Class: 600

Max: 109.7 g at 2.7 ms

Min: -0.4 g at 9.1 ms



Filter Class: 600

Max: 5368.7 N at 2.7 ms

Min: -18.3 N at 9.1 ms

04.21.2004 18:58:24 2152



Transportation Research Center Inc.

572E Right Knee Test

HIII 50th Male Serial No. 169 Calibration No. 21 - 2

Test Date 04/06/2004

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.6 °C	22.0 °C	Yes
Relative Humidity	10 - 70 %	34 %	Yes
Pendulum Velocity	2.07 - 2.13 m/s	2.08 m/s	Yes
Maximum Pendulum Force	4715 - 5783 N	4823 N	Yes

Comments:

Pre-test calibration. Knee response adjusted with application of silicone lubricant to knee casting.

Technician

Vincent Oliver

Approved

V. J. Walter

04.21.2004 18:57:24 2168

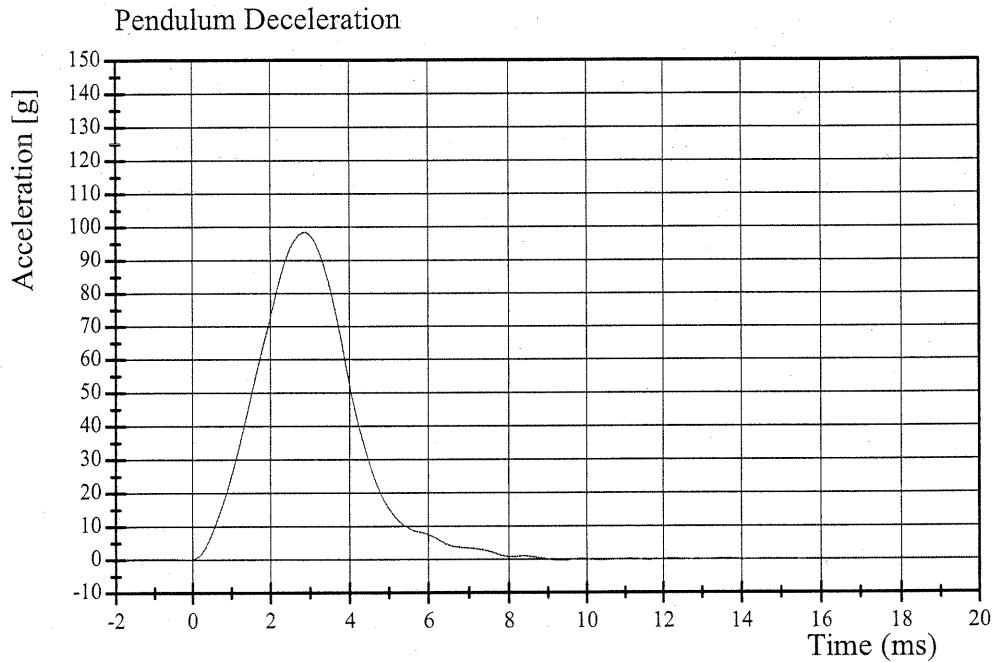


Transportation Research Center Inc.

572E Right Knee Test

HIII 50th Male Serial No. 169 Calibration No. 21 - 2

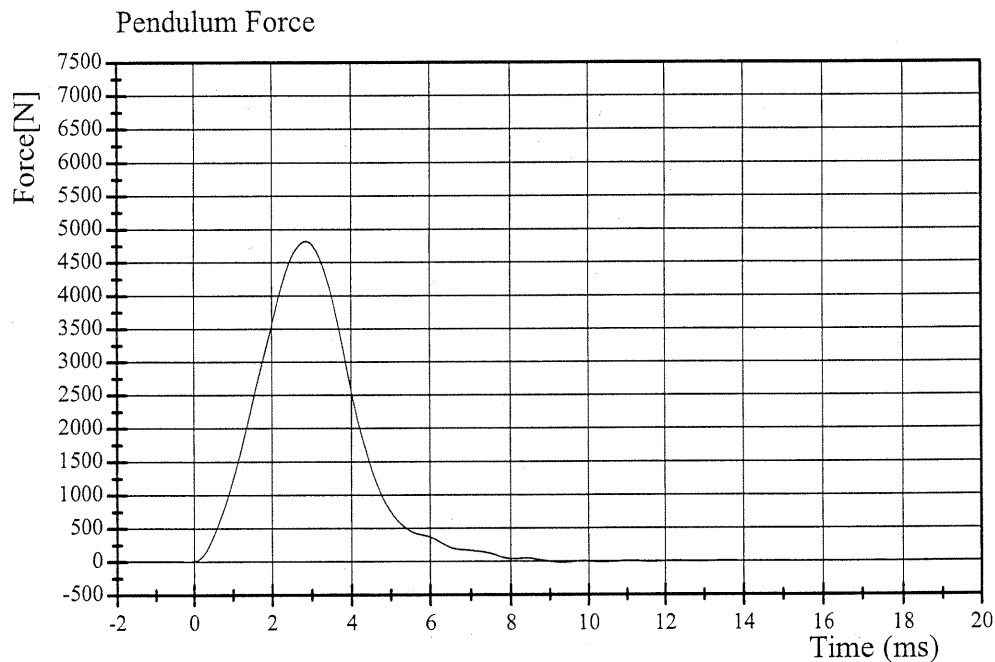
Test Date 04/06/2004



Filter Class: 600

Max: 98.6 g at 2.9 ms

Min: -0.3 g at 9.4 ms



Filter Class: 600

Max: 4822.6 N at 2.9 ms

Min: -16.4 N at 9.4 ms

04.21.2004 18:57:27 2168



Pre-Test Calibration

Passenger Dummy S/N 416

Transportation Research Center Inc.
5720 HIII 5th Female Dummy
External Dimensions
Serial No. 416 Calibration No. 23

Symbol	Description	Specification	Results	Pass
		mm	mm	
A	Total Sitting Height	774.7 - 800.1	780	Yes
B	Shoulder Pivot Height	431.8 - 457.2	446	Yes
C	Hip Pivot Height	81.3 - 86.3	82	Yes
D	Hip Pivot from Backline	144.8 - 149.8	146	Yes
E	Shoulder Pivot from Backline	68.6 - 83.8	82	Yes
F	Thigh Clearance	119.4 - 134.6	129	Yes
G	Back of Elbow to Wrist Pivot	243.9 - 259.1	249	Yes
H	Head Back to Backline	43.2 - 48.2	48	Yes
I	Shoulder to Elbow Length	276.8 - 297.2	281	Yes
J	Elbow Rest Height	182.8 - 203.2	195	Yes
K	Buttock Knee Length	520.7 - 546.1	540	Yes
L	Popliteal Height	355.6 - 376.0	356	Yes
M	Knee Pivot Height	393.7 - 419.1	407	Yes
N	Buttock Popliteal Height	414.0 - 439.4	429	Yes
O	Chest Depth without Jacket	175.3 - 190.5	181	Yes
P	Foot Length	218.5 - 233.7	222	Yes
R	Buttock to Knee Pivot Length	457.2 - 482.6	476	Yes
S	Head Breadth	137.1 - 147.3	144	Yes
T	Head Depth	177.8 - 188.0	182	Yes
U	Hip Breadth	299.7 - 314.9	300	Yes
V	Shoulder Breadth	350.5 - 365.7	360	Yes
W	Foot Breadth	78.8 - 94.0	85	Yes
X	Head Circumference	528.3 - 548.7	543	Yes
Y	Chest Circumference with Jacket	850.9 - 881.3	870	Yes
Z	Waist Circumference	759.5 - 789.9	771	Yes
AA	Reference Location for Chest Circumference	332.7 - 358.1	340	Yes
BB	Reference Location for Waist Circumference	160.0 - 170.2	165	Yes

Technician

Vincent Oliver

Approved

V. J. Walter



Transportation Research Center Inc.

5720 Head Drop Test

HIII 5th Female Serial No. 416 Calibration No. 23 - 1

Test Date 03/31/2004

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.5 °C	21.3 °C	Yes
Relative Humidity	10 - 70 %	42 %	Yes
Peak Resultant Acceleration	250 - 300 g	282.7 g	Yes
Peak Lateral Acceleration	15 g Max	-2.3 g	Yes
Oscillations After Main Pulse	Less Than 10% of Peak Resultant Acceleration?	Yes	Yes

Comments:

Technician

Vincent Dimieri

Approved

V. J. Walke

04.14.2004 09:57:33 611

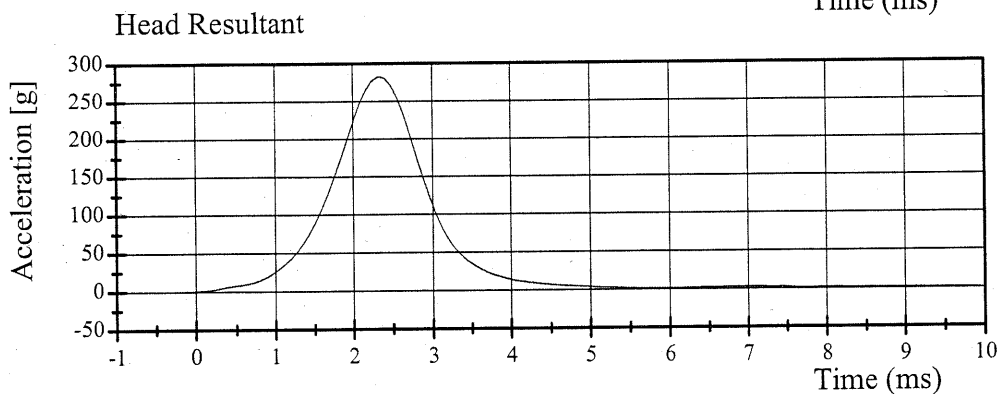
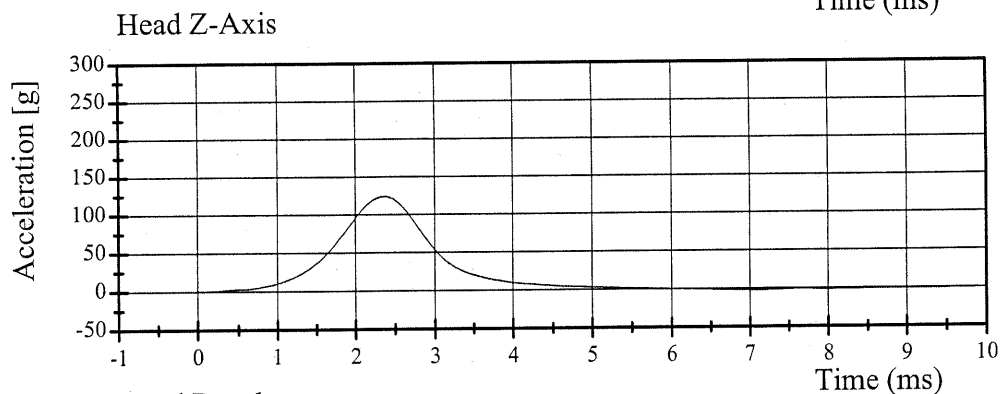
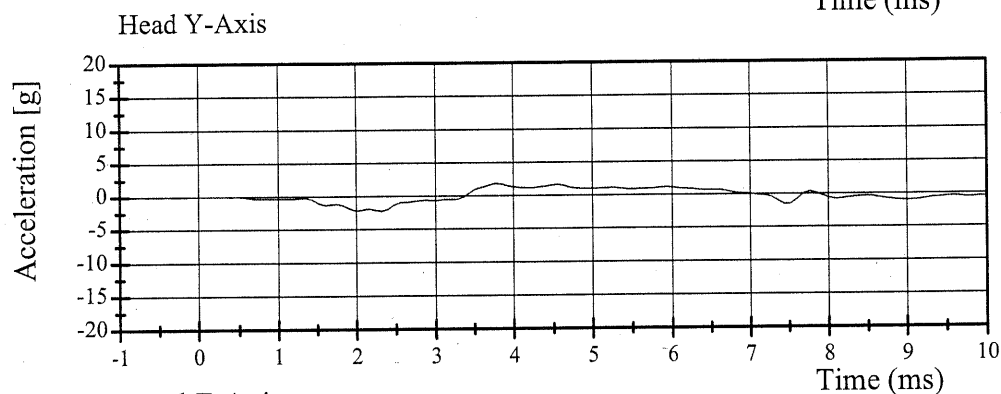
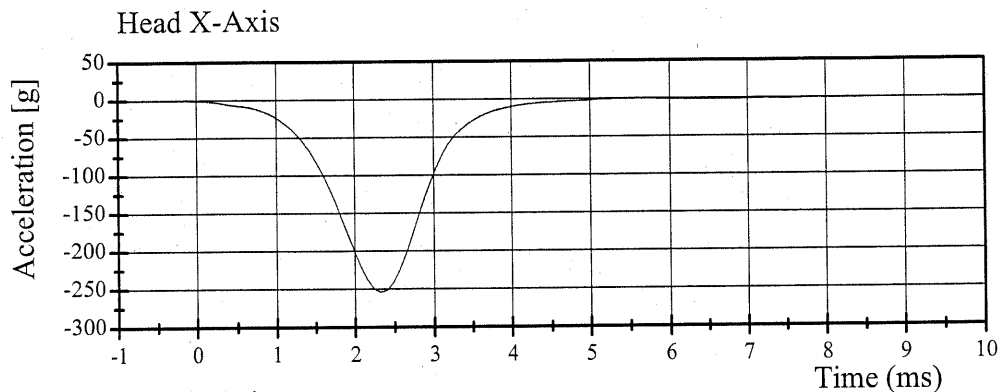


Transportation Research Center Inc.

5720 Head Drop Test

HIH 5th Female Serial No. 416 Calibration No. 23 - 1

Test Date 03/31/2004



04.14.2004 09:57:39 611



Transportation Research Center Inc.

5720 Neck Flexion Test - 6 Channel Transducer

HIII 5th Female Serial No. 416 Calibration No. 23 - 2

Test Date 03/31/2004

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	22.1 °C	Yes
Relative Humidity	10 - 70 %	39 %	Yes
Impact Velocity	6.89 - 7.13 m/s	7.10 m/s	Yes
Integrated Pendulum Velocity			
10 ms	2.10 - 2.50 m/s	2.35 m/s	Yes
20 ms	4.00 - 5.00 m/s	4.53 m/s	Yes
30 ms	5.80 - 7.00 m/s	6.52 m/s	Yes
Peak D Plane Rotation	77 - 91 °	80.2 °	Yes
Peak Moment About Occipital Condyles (During time interval rotation is within specified corridors)	69.0 - 83.0 N·m	76.59 N·m	Yes
Positive Moment Decay Time To 10 N·m	80 - 100 ms	87.12 ms	Yes

Comments:

Technician

Vincent Oliver

Approved

V. J. Walter

04.14.2004 10:07:30 510



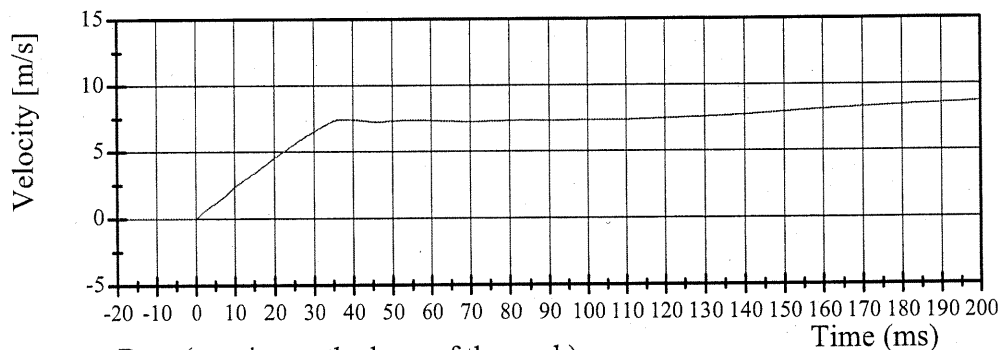
Transportation Research Center Inc.

5720 Neck Flexion Test

HIII 5th Female Serial No. 416 Calibration No. 23 - 2

Test Date 03/31/2004

Integrated Pendulum Velocity

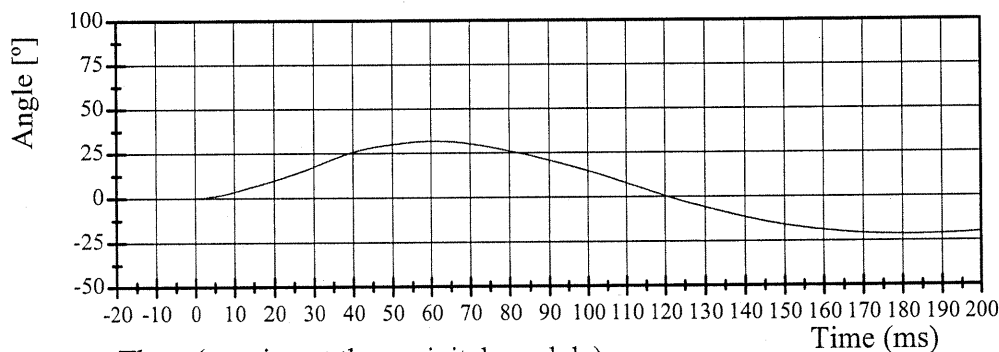


Filter Class: 180

Max: 9.3 m/s at 959.2 ms

Min: -0.0 m/s at -0.8 ms

Beta (rotation at the base of the neck)

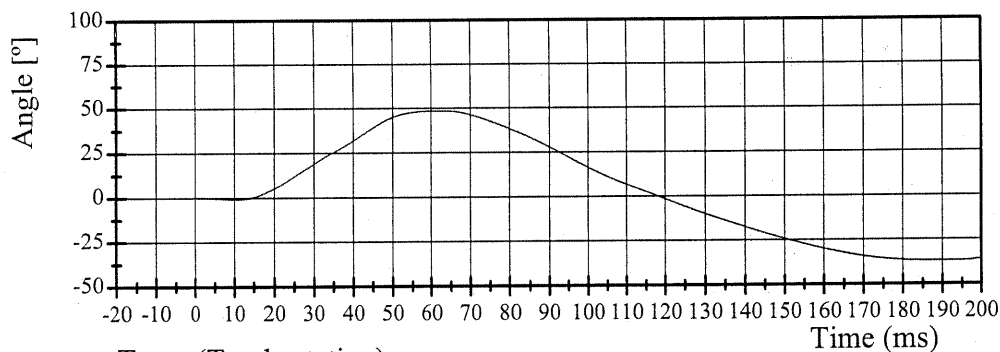


Filter Class: 60

Max: 31.7° at 60.0 ms

Min: -21.5° at 182.3 ms

Theta (rotation at the occipital condyle)

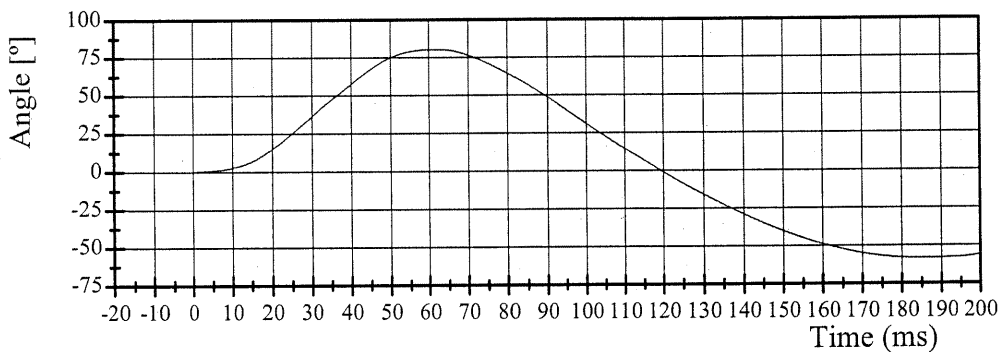


Filter Class: 60

Max: 48.5° at 61.9 ms

Min: -36.9° at 189.1 ms

Totan (Total rotation)



Filter Class: 60

Max: 80.2° at 61.3 ms

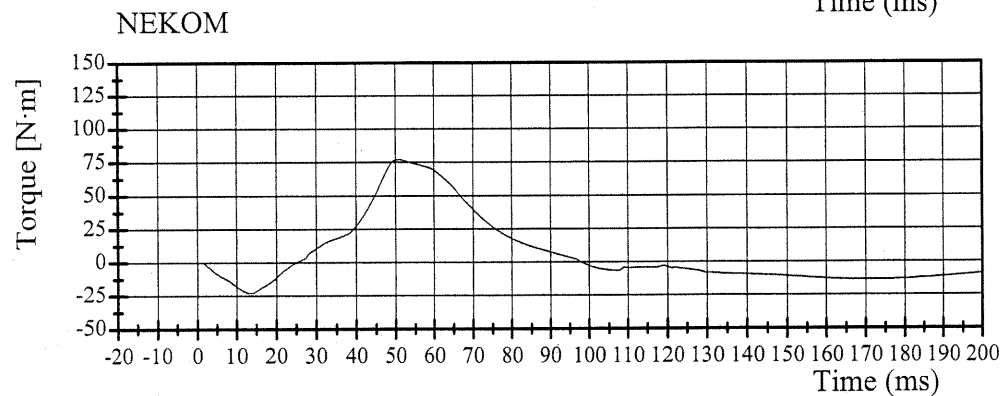
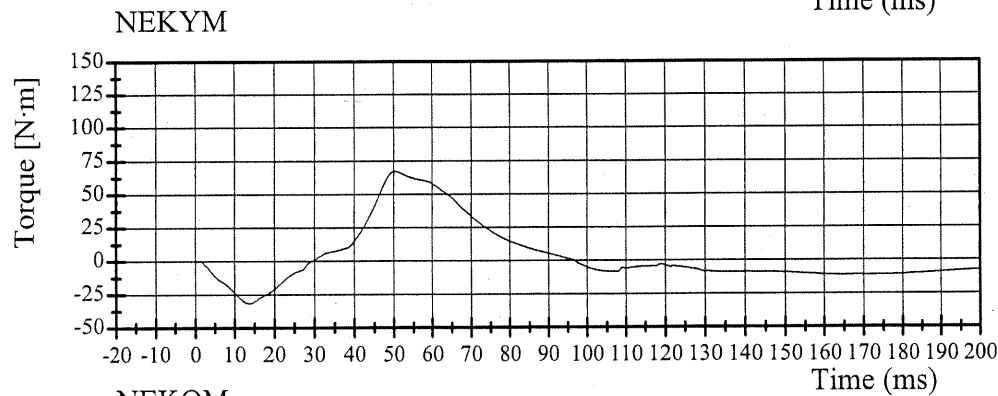
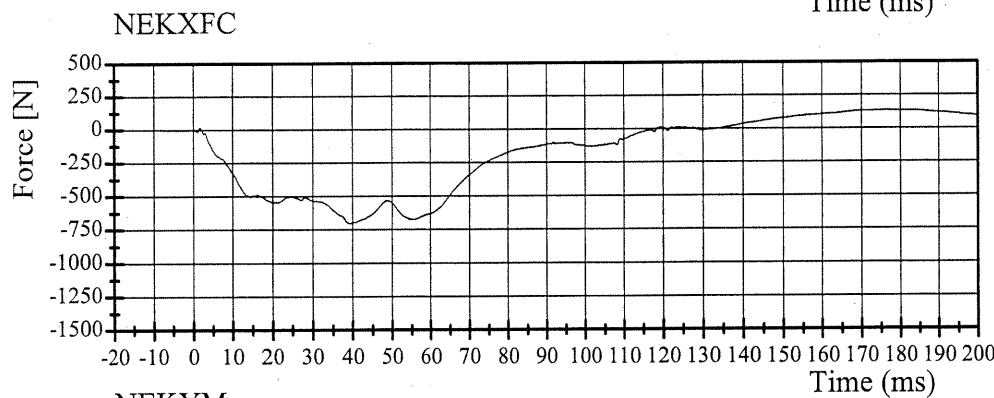
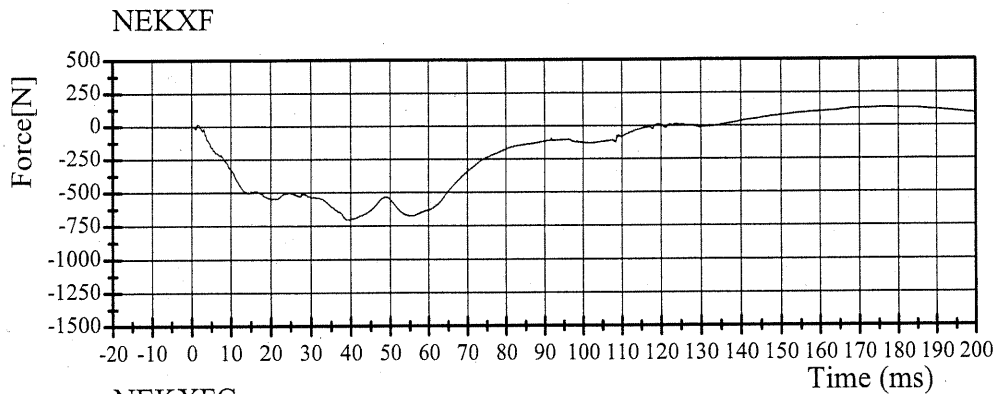
Min: -58.4° at 186.0 ms

Transportation Research Center Inc.

5720 Neck Flexion Test

HIII 5th Female Serial No. 416 Calibration No. 23 - 2

Test Date 03/31/2004



04.14.2004 10:07:39 510



Transportation Research Center Inc.

5720 Neck Extension Test - 6 Channel Transducer

HHH 5th Female Serial No. 416 Calibration No. 23 - 1

Test Date 03/31/2004

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.9 °C	Yes
Relative Humidity	10 - 70 %	30 %	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	1.70 m/s	Yes
20 ms	3.10 - 3.90 m/s	3.38 m/s	Yes
30 ms	4.60 - 5.60 m/s	5.06 m/s	Yes
Peak D Plane Rotation	99 - 114 °	104.2 °	Yes
Peak Moment About Occipital Condyles (During time interval rotation is within specified corridors)	-65.0 - (-53.0) N·m	-58.48 N·m	Yes
Negative Moment Decay Time To -10 N·m	94 - 114 ms	104.24 ms	Yes

Comments:

Technician

Vincent D'Amico

Approved

V. J. Walter

04.14.2004 10:01:07 595

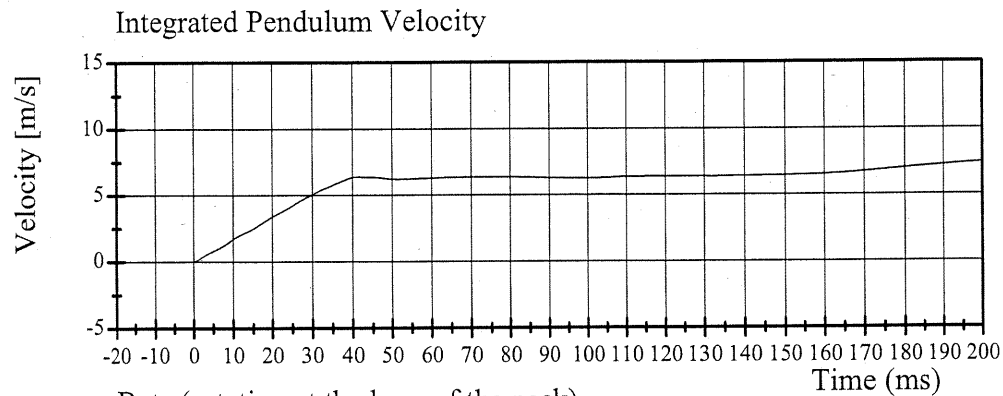


Transportation Research Center Inc.

5720 Neck Extension Test

HIII 5th Female Serial No. 416 Calibration No. 23 - 1

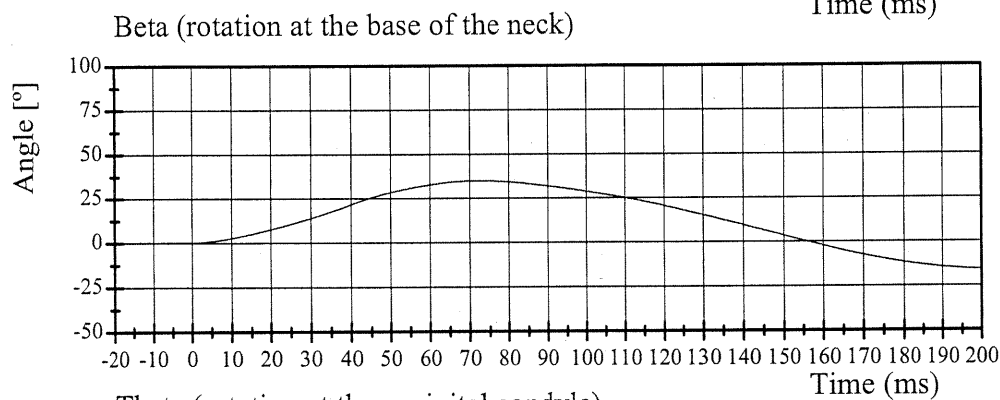
Test Date 03/31/2004



Filter Class: 180

Max: 8.3 m/s at 952.4 ms

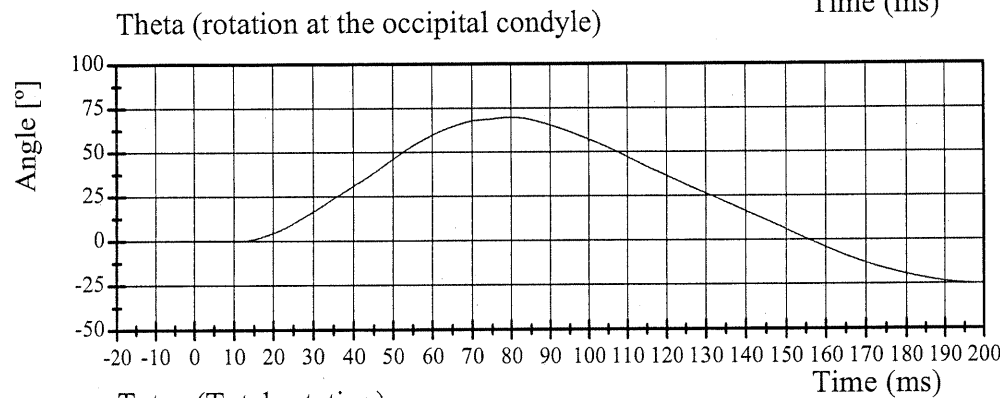
Min: -0.0 m/s at -0.6 ms



Filter Class: 60

Max: 34.9 ° at 71.5 ms

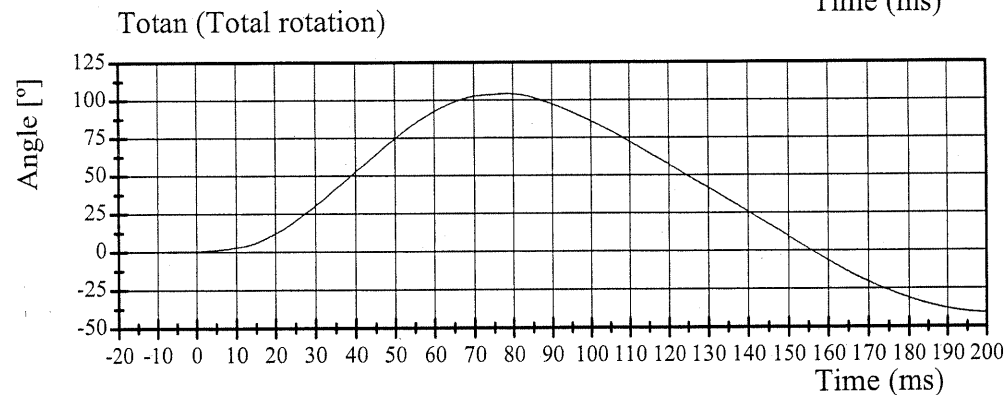
Min: -15.9 ° at 203.8 ms



Filter Class: 60

Max: 69.8 ° at 79.8 ms

Min: -25.1 ° at 201.3 ms



Filter Class: 60

Max: 104.2 ° at 78.6 ms

Min: -41.0 ° at 202.5 ms

04.14.2004 10:01:10 595

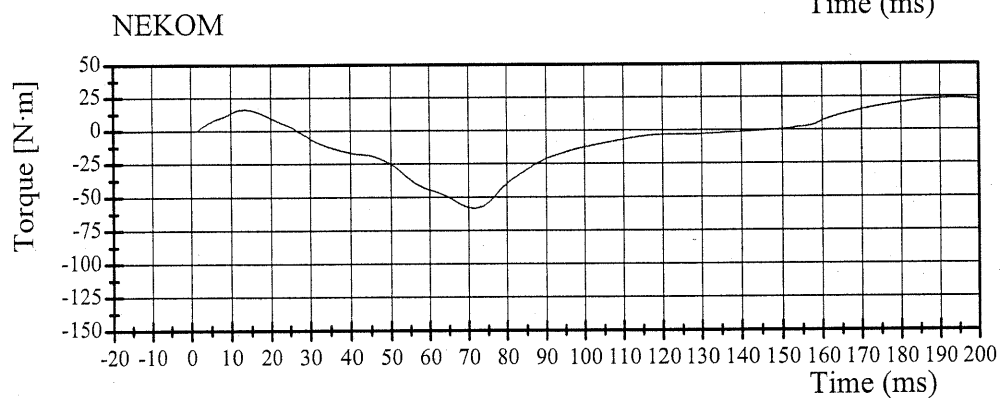
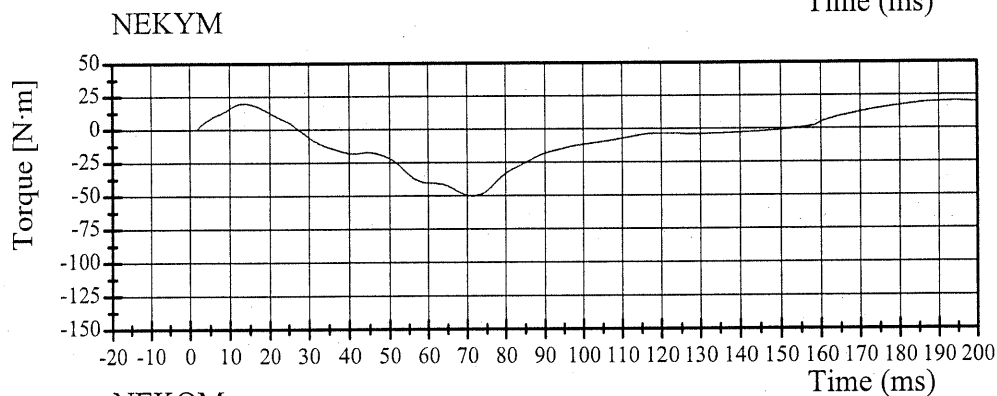
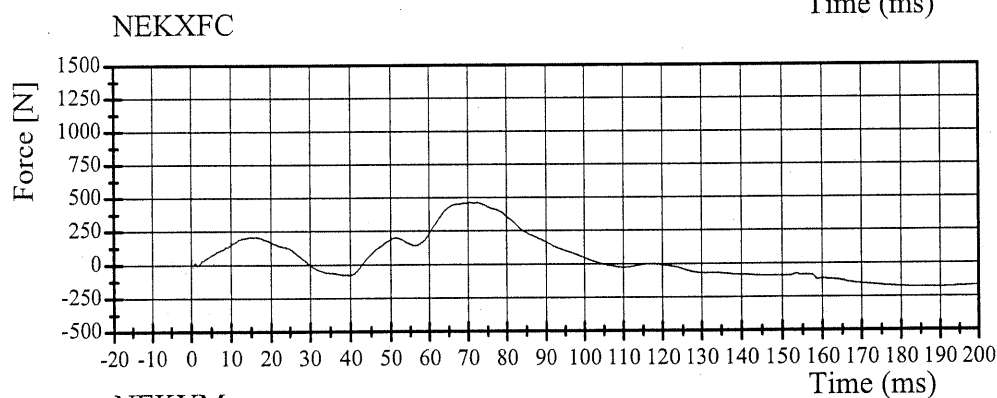
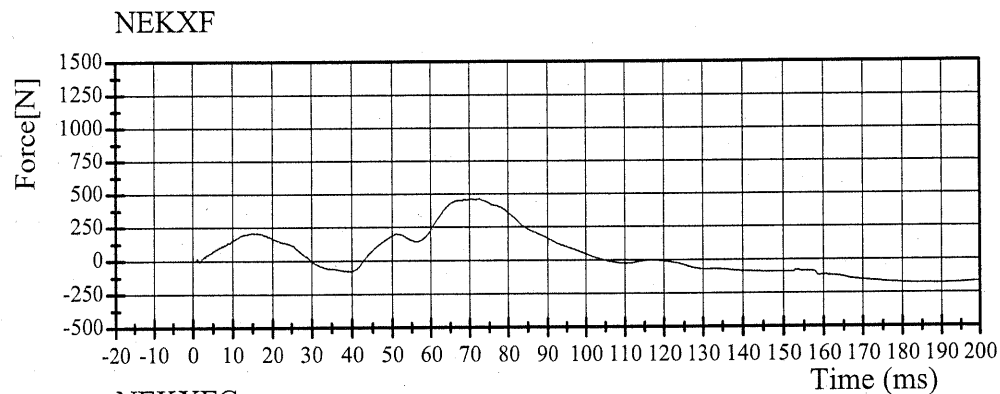


Transportation Research Center Inc.

5720 Neck Extension Test

HIII 5th Female Serial No. 416 Calibration No. 23 - 1

Test Date 03/31/2004



04.14.2004 10:01:13 595



TRANSPORTATION RESEARCH CENTER INC.

TORSO FLEXION TEST

HYBRID III SMALL FEMALE

CAL DATE: 31-Mar-04

TRC, INC.

TEST NO: 416C23TF2

572 O SN416 TORSO FLEX CAL 23

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	20.6 – 22.2° C	22.1 ° C
RELATIVE HUMIDITY	10 – 70 %	40 %
INITIAL ANGLE OF UNSUPPORTED DUMMY	$\leq 20^\circ$ REFERENCED TO VERTICAL	19.5 °
MAXIMUM FORCE AT 45 DEG. DURING 10 SECOND PERIOD	320 – 390 N	383.7 N
RETURN ANGLE		22.6 °
DIFFERENCE BETWEEN RETURN ANGLE & INITIAL ANGLE	$\pm 8^\circ$ OF INITIAL ANGLE	3.1 °
RATE	0.5° - 1.5°/sec	1.0 °/sec

TEST MEETS SPECIFICATIONS

Comments:

Pre-Test Calibration; powdered dummy abdomen.

TECHNICIAN



Transportation Research Center Inc.

5720 Thorax Test

HHH 5th Female Serial No. 416 Calibration No. 23 - 1

Test Date 03/31/2004

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.9 °C	Yes
Relative Humidity	10 - 70 %	29 %	Yes
Pendulum Velocity	6.59 - 6.83 m/s	6.60 m/s	Yes
Maximum Chest Deflection	-58.0 - (-50.0) mm	-54.6 mm	Yes
Peak Impact Probe Force Within Compression Corridor	3900 - 4400 N	4236 N	Yes
Peak Force Between 18 mm and 50 mm	4600 N	4057 N	Yes
Internal Hysteresis	69 - 85 %	71 %	Yes

Comments:

Technician

Vincent Sturges

Approved

V.L. Watter

04.14.2004 10:09:29 967



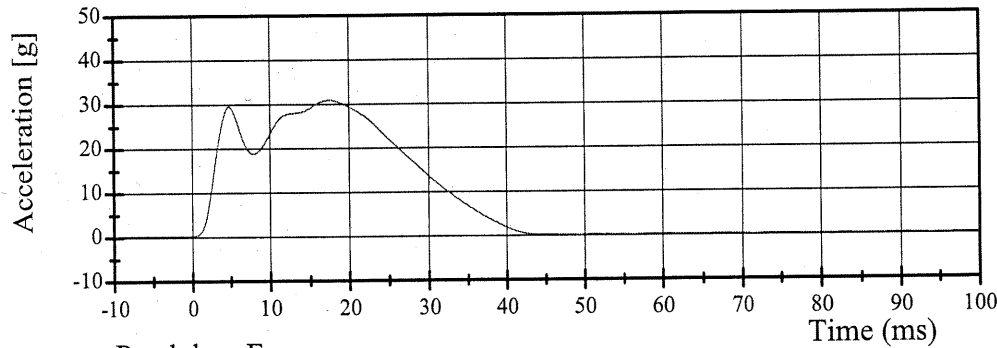
Transportation Research Center Inc.

5720 Thorax Test

HHH 5th Female Serial No. 416 Calibration No. 23 - 1

Test Date 03/31/2004

Pendulum Deceleration

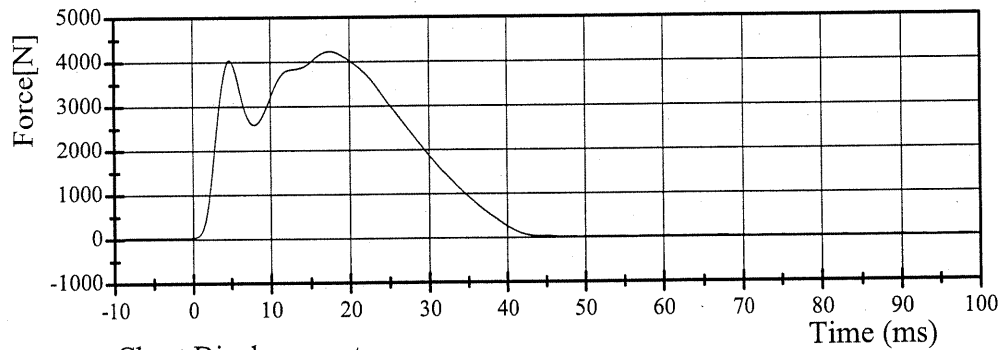


Filter Class: 180

Max: 30.9 g at 17.4 ms

Min: -0.5 g at 256.9 ms

Pendulum Force

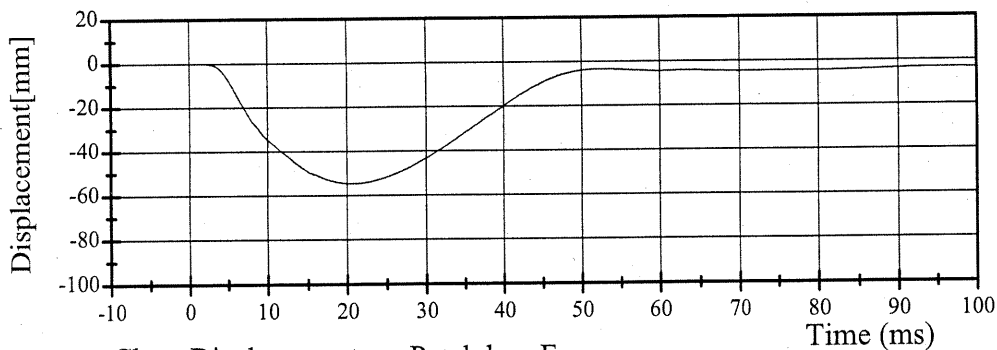


Filter Class: 180

Max: 4236.4 N at 17.4 ms

Min: -68.3 N at 256.9 ms

Chest Displacement

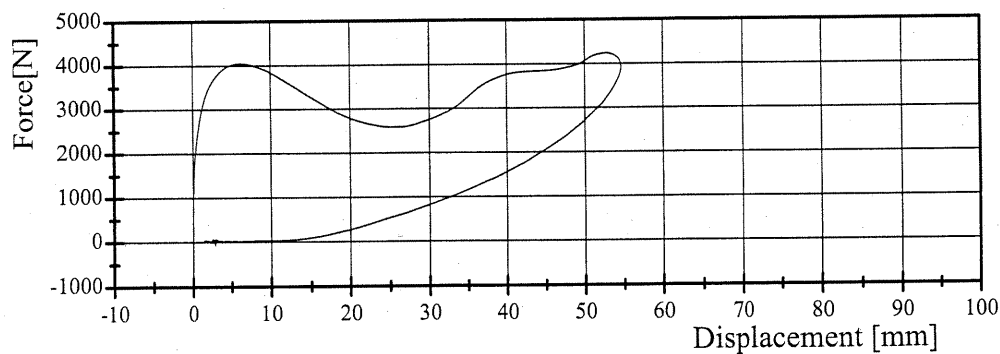


Filter Class: 600

Max: 0.0 mm at -62.7 ms

Min: -54.6 mm at 20.8 ms

Chest Displacement vs. Pendulum Force



04.14.2004 10:09:32 967



Transportation Research Center Inc.

5720 Left Knee Test

HIII 5th Female Serial No. 416 Calibration No. 23 - 1

Test Date 03/31/2004

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.6 °C	22.1 °C	Yes
Relative Humidity	10 - 70 %	40 %	Yes
Pendulum Velocity	2.07 - 2.13 m/s	2.10 m/s	Yes
Maximum Pendulum Force	3450 - 4060 N	3762 N	Yes

Comments:

Technician

Vincent D'Amico

Approved

V. L. Watts

04.14.2004 09:59:32 1801

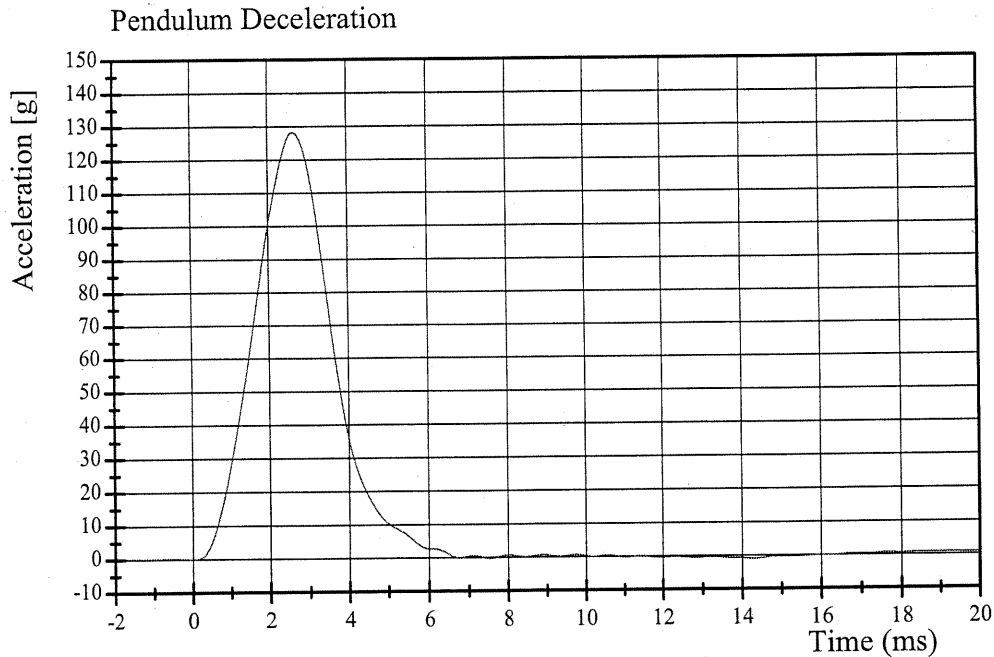


Transportation Research Center Inc.

5720 Left Knee Test

HIII 5th Female Serial No. 416 Calibration No. 23 - 1

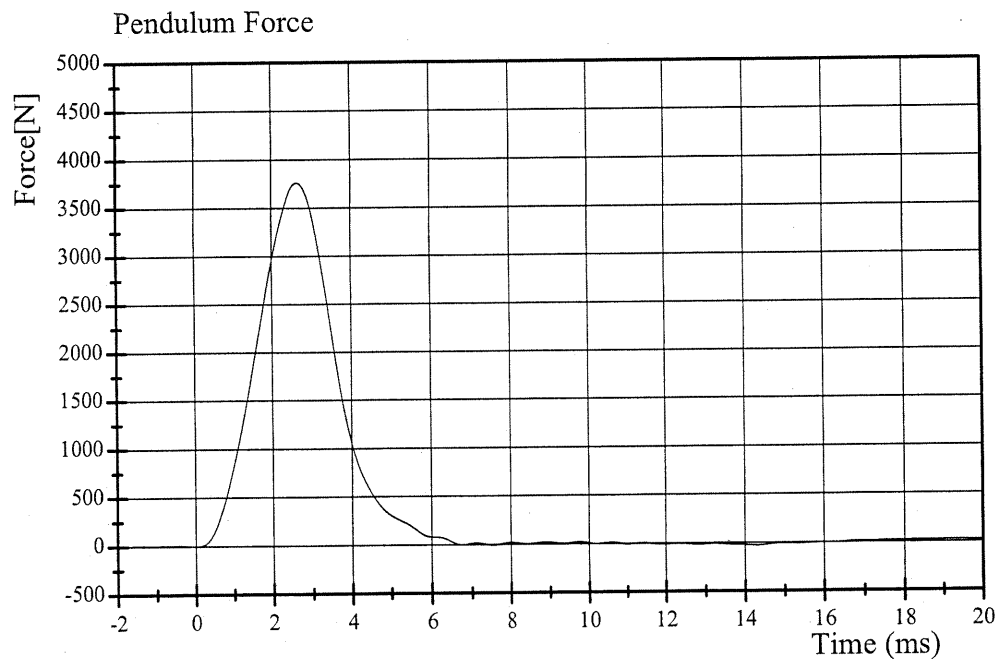
Test Date 03/31/2004



Filter Class: 600

Max: 128.3 g at 2.6 ms

Min: -1.0 g at 14.3 ms



Filter Class: 600

Max: 3762.5 N at 2.6 ms

Min: -28.8 N at 14.3 ms

04.14.2004 09:59:38 1801



Transportation Research Center Inc.

5720 Right Knee Test

HIII 5th Female Serial No. 416 Calibration No. 23 - 1

Test Date 03/31/2004

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.6 °C	22.0 °C	Yes
Relative Humidity	10 - 70 %	40 %	Yes
Pendulum Velocity	2.07 - 2.13 m/s	2.10 m/s	Yes
Maximum Pendulum Force	3450 - 4060 N	3677 N	Yes

Comments:

Technician

Vincent Olmire

Approved

V. J. Walter

04.14.2004 10:08:26 1816



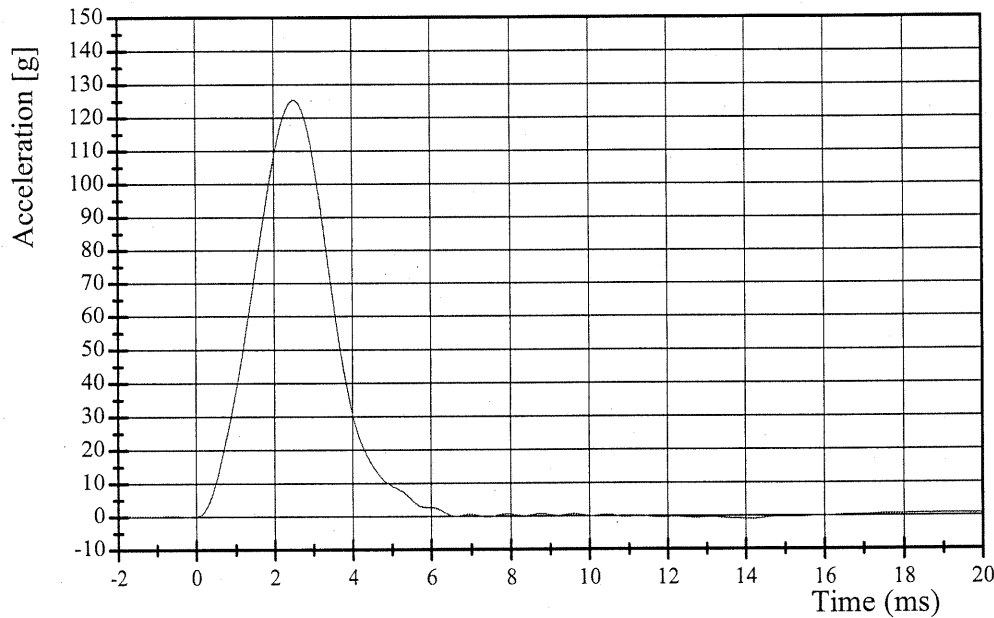
Transportation Research Center Inc.

5720 Right Knee Test

HIII 5th Female Serial No. 416 Calibration No. 23 - 1

Test Date 03/31/2004

Pendulum Deceleration

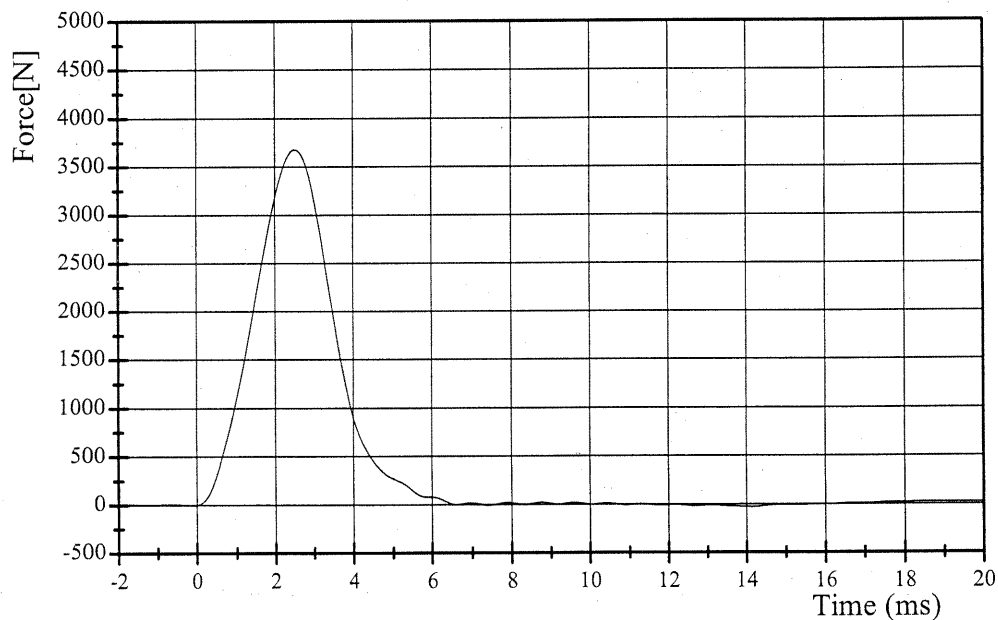


Filter Class: 600

Max: 125.4 g at 2.5 ms

Min: -1.0 g at 14.1 ms

Pendulum Force



Filter Class: 600

Max: 3677.2 N at 2.5 ms

Min: -29.3 N at 14.1 ms

Appendix D

Miscellaneous Test Information

Channel Report

4/15/2004 7:18:17 AM

Name of Test 040415-1

System MINIDAU

Name of DAU DAU.6

Chan.#	Sensor #	Mnemonic	Description	Dir.	Range	Pol.	Cal.	Group	Mfg.	Model
6001	J20083	HEDXG1	Head Accel X	Rwd	1179.1801 g	-	10/10/2003	---	169v-	Endevco 7264-2000T
6002	J19843	HEDYG1	Head Accel Y	Lft	1208.9442 g	-	10/10/2003	---	169v-	Endevco 7264-2000T
6003	J20027	HEDZG1	Head Accel Z	Up	1168.7096 g	-	10/10/2003	---	169v-	Endevco 7264-2KM5T
6004	AAK48	HEDXR1	Head Accel Red X S39	Rwd	1226.4941 g	-	3/25/2004	OK	169v-	Endevco 7264-2000LC
6005	ACCD0	HEDYR1	Head Accel Red Y	Lft	1195.6470 g	-	3/25/2004	OK	169v-	Endevco 7264-2000T
6006	AAKD0	HEDZR1	Head Accel Red Z	Up	1206.6365 g	-	3/25/2004	OK	169v-	Endevco 7264-2000LC
6007	1716A-782-FX	NEKXF1	Neck Force X	Hd	13333.334 N	-	10/10/2003	OK	169v-	Denton 1716A
6008	1716A-782-FY	NEKYF1	Neck Force Y	Hd	13322.897 N	+	10/10/2003	OK	169v-	Denton 1716A
6009	1716A-782-FZ	NEKZF1	Neck Force Z	Hd	19987.982 N	+	10/10/2003	OK	169v-	Denton 1716A
6010	1716A-782-MX	NEKXM1	Neck Moment X	Rt Ear	424.51877 N-m	-	10/10/2003	OK	169v-	Denton 1716A
6011	1716A-782-MY	NEKYM1	Neck Moment Y	Chn	424.83571 N-m	+	10/10/2003	OK	169v-	Denton 1716A
6012	1716A-782-MZ	NEKZM1	Neck Moment Z	Chn	424.68193 N-m	+	10/10/2003	OK	169v-	Denton 1716A
6013	J23757	CSTXG1	Chest Accel X	Fwd	592.82588 g	+	10/10/2003	---	169v-	Endevco 7264-2000T
6014	J21989	CSTYG1	Chest Accel Y	Lft	596.20154 g	-	10/10/2003	---	169v-	Endevco 7264-2KM5T
6015	J35747	CSTZG1	Chest Accel Z	Up	604.55779 g	-	10/10/2003	OK	169v-	Endevco 7264-2000TZ
6016	AFYW5	CSTXR1	Chest Accel Red X	Fwd	594.65737 g	+	3/25/2004	OK	169v-	Endevco 7264-2000T
6017	J23759	CSTYR1	Chest Accel Red Y	Lft	607.21062 g	-	3/25/2004	OK	169v-	Endevco 7264-2KM5T
6018	J14667	CSTZR1	Chest Accel Red Z	Up	609.21919 g	-	3/25/2004	OK	169v-	Endevco 7264-2KM5T
6019	14CB1-2847-169	CSTXD1	Chest Deflection X	Strnm	99.901464 mm	+	10/14/2003	---	169v-	Servo 14CB1-2847
6020	J36741	PEVXG1	Pelvis Accel X	Rwd	600.34003 g	-	10/10/2003	---	169v-	Endevco 7264-2000TZ
6021	J36605	PEVYG1	Pelvis Accel Y	Lft	599.70014 g	-	10/10/2003	OK	169v-	Endevco 7264-2000TZ
6022	AAMD7	PEVZG1	Pelvis Accel Z	Up	600.37523 g	-	10/10/2003	OK	169v-	Endevco 7264-2000LC
6024	1914A-0261-FX	LFMXF1	Left Femur Force X	Knee	19982.663 N	-	10/10/2003	---	169v-	Denton 1914A
6025	1914A-0261-FY	LFMYF1	Left Femur Force Y	Knee	19985.320 N	+	10/10/2003	---	169v-	Denton 1914A
6026	1914A-0261-FZ	LFMZF1	Left Femur Force Z	Knee	33365.447 N	+	10/10/2003	---	169v-	Denton 1914A
6027	1914A-0261-MX	LFMXM1	Left Femur Moment X	Knee	508.82043 N-m	-	10/10/2003	---	169v-	Denton 1914A
6028	1914A-0261-MY	LFMYM1	Left Femur Moment Y	Knee	508.07092 N-m	+	10/10/2003	---	169v-	Denton 1914A
6029	1914A-0261-MZ	LFMZM1	Left Femur Moment Z	Tib	510.40871 N-m	+	10/10/2003	---	169v-	Denton 1914A
6030	1914A-383-FX	RFMXF1	Right Femur Force X	Knee	20023.059 N	-	10/10/2003	---	169v-	Denton 1914A
6031	1914A-383-FY	RFMYF1	Right Femur Force Y	Knee	19999.515 N	+	10/10/2003	---	169v-	Denton 1914A
6032	1914A-383-FZ	RFMZF1	Right Femur Force Z	Knee	33381.710 N	+	10/10/2003	---	169v-	Denton 1914A

D-2

040415-1

Channel Report

4/15/2004 7:18:17 AM

Name of Test 040415-1

System MINIDAU

Name of DAU DAU.G

Chan.#	Sensor #	Mnemonic	Description	Dir.	Range	Pol.	Cal.	Group	Mfg.	Model
0001	1914A-383-MX	RFMXM1	Right Femur Moment X	Knee	509.50624	N-m	- 10/10/2003	---	169v-	Denton 1914A
0002	1914A-383-MY	RFMYM1	Right Femur Moment Y	Knee	508.23636	N-m	+ 10/10/2003	---	169v-	Denton 1914A
0003	1914A-383-MZ	RFMZM1	Right Femur Moment Z	Tib	510.04285	N-m	+ 10/10/2003	---	169v-	Denton 1914A
0004	03E03E20-N20	HEDXG2	Head Accel X	Rwd	1226.6411	g	- 9/25/2003	---	416v-	Entran EGE-73B6Q-200
0005	02A18-N10	HEDYG2	Head Accel Y	Lft	1187.9901	g	- 9/25/2003	---	416v-	Entran EGE-73B6Q-200
0006	02A09-F15	HEDZG2	Head Accel Z	Up	1206.9778	g	- 9/25/2003	---	416v-	Entran EGE-73B6Q-200
0007	01L26-F02	HEDXR2	Head Accel Red X	Rwd	1210.5736	g	- 9/25/2003	---	416v-	Entran EGE-73B6Q-200
0008	02A09-F13	HEDYR2	Head Accel Red Y	Lft	1193.4731	g	- 9/25/2003	---	416v-	Entran EGE-73B6Q-200
0009	02A16-A06	HEDZR2	Head Accel Red Z	Up	1201.4830	g	- 9/25/2003	---	416v-	Entran EGE-73B6Q-200
0010	IF-205-161-FX	NEKXF2	Neck Force X	Hd	13342.836	N	- 3/18/2003	---	416v-	FTSS IF-205
0011	IF-205-161-FY	NEKYF2	Neck Force Y	Hd	13337.257	N	+ 3/18/2003	---	416v-	FTSS IF-205
0012	IF-205-161-FZ	NEKZF2	Neck Force Z	Hd	19992.065	N	+ 3/18/2003	---	416v-	FTSS IF-205
0013	IF-205-161-MX	NEKXM2	Neck Moment X	Rt Ear	423.09963	N-m	- 3/18/2003	---	416v-	FTSS IF-205
0014	IF-205-161-MY	NEKYM2	Neck Moment Y	Chin	424.72122	N-m	+ 3/18/2003	---	416v-	FTSS IF-205
0015	IF-205-161-MZ	NEKZM2	Neck Moment Z	Chn	425.40576	N-m	+ 3/18/2003	---	416v-	FTSS IF-205
0016	02A16-A04	CSTXG2	Chest Accel X	Fwd	598.64836	g	+ 9/25/2003	---	416v-	Entran EGE-73B6Q-200
0017	C02B19-F02	CSTYG2	Chest Accel Y	Lft	606.16823	g	- 9/25/2003	---	416v-	Entran EGE-73B6Q-200
0018	C02B19-F06	CSTZG2	Chest Accel Z	Up	600.41043	g	- 9/25/2003	---	416v-	Entran EGE-73B6Q-200
0019	B02A25-N08	CSTXR2	Chest Accel Red X	Rwd	594.29844	g	- 9/25/2003	---	416v-	Entran EGE-73B6Q-200
0020	03E03E19-N02	CSTYR2	Chest Accel Red Y	Lft	596.70877	g	- 9/25/2003	OK	416v-	Entran EGE-73B6Q-200
0021	C02B19-F04	CSTZR2	Chest Accel Red Z	Up	602.97719	g	- 9/25/2003	---	416v-	Entran EGE-73B6Q-200
0022	14CB1-2897-416	CSTXD2	Chest Deflection X 516	Strnm	100.40396	mm	+ 9/26/2003	OK	416v-	Servo 14CB1-2897
0023	C02B19-F03	PEVXG2	Pelvis Accel X	Rwd	598.10987	g	- 9/25/2003	---	416v-	Entran EGE-73B6Q-200
0024	02A16-A27	PEVYG2	Pelvis Accel Y	Lft	600.37523	g	- 9/25/2003	---	416v-	Entran EGE-73B6Q-200
0025	C02B19-F01	PEVZG2	Pelvis Accel Z	Up	599.81255	g	- 9/25/2003	---	416v-	Entran EGE-73B6Q-200
0026	2430-736	LFMZ2	Left Femur Force Z #8	Knee	19990.763	N	+ 3/19/2003	---	416v-	GSE 2430
0027	2430-742	RFMZ2	Right Femur Force Z 507	Knee	20013.575	N	+ 3/19/2003	---	416v-	GSE 2430
0028	P30401	LSXXG	Left Rear Seat Cross-member	FWD	987.57811	g	+ 1/14/2004	OK	VRTC	Endevco 7264C-2K-2-180
0029	P23483	RSXXG	Right Rear Seat Cross-member	RR	992.90229	g	- 4/8/2004	OK	VRTC	Endevco 7264C-2K-2-180
0030	P33550	TENXG	Top of Engine X-axis	FWD	1493.9309	g	+ 3/17/2004	OK	VRTC	Endevco 7264C-2K-2-180
0031	P33759	BENXG	Bottom of Engine X-axis	FWD	1509.6564	g	+ 3/31/2004	OK	VRTC	Endevco 7264C-2K-2-180
0032	P19414	RFCXG	Right Front Brake Caliper	FWD	984.27467	g	+ 4/8/2004	OK	VRTC	Endevco 7264C-2K-2-180

Channel Report

4/15/2004 7:18:18 AM

Name of Test 040415-1

System MINIDAU

Name of DAU DAU.H

Chan.#	Sensor #	Mnemonic	Description	Dir.	Range		Pol.	Cal.	Group	Mfg.	Model
0001	P33708	LFCXG	Left Front Brake Caliper X-axis	FWD	1014.3635	g	+	3/16/2004	OK	VRTC	Endevco 7264C-2K-2-180
0002	P28926	DPCXG	Instrument Panel Top Center	FWD	1020.9779	g	+	1/6/2004	OK	VRTC	Endevco 7264C-2K-2-180
0003	P28598	VCGXG1	VEHICLE CG X-AXIS	FWD	995.95393	g	+	1/12/2004	OK	VRTC	Endevco 7264C-2K-2-180
0004	P28084	VCGYG1	VEHICLE CG Y-AXIS	LT	983.10291	g	-	12/26/2003	OK	-1	Endevco 7264C-2K-2-180
0005	P28886	VCGZG1	VEHICLE CG Z-AXIS	UP	1008.8868	g	-	8/13/2003	---	VRTC	Endevco 7264C-2K-2-180
0006	P27518	RDKXG1	RR DECK X-AXIS	FWD	1012.2978	g	+	1/23/2004	OK	VRTC	Endevco 7264C-2K-2-180
0007	P28083	RDKYG1	RR DECK Y-AXIS	LT	1002.1334	g	-	1/23/2004	OK	VRTC	Endevco 7264C-2K-2-180
0008	P27919	RDKZG1	RR DECK Z-AXIS	UP	1012.6582	g	-	1/8/2004	OK	VRTC	Endevco 7264C-2K-2-180
0009	ABFire1	DABETA	DRIVER AIRBAG EVENT -	J	5.12	V	+	8/20/2002	---	VRTC	FLUKE Y8101A
0011	ABFire3	PABETA	PASSENGER AIRBAG EVENT	IP1	5.12	V	+	8/20/2002	---	VRTC	FLUKE Y8101A

D-4

040415-1

Channel Report

4/15/2004 7:18:18 AM

Name of Test 040415-1

System MINIDAU

Name of DAU DAUA

Chan.#	Sensor #	Mnemonic	Description	Dir.	Range	Pol.	Cal.	Group	Mfg.	Model
0001	398390053	LC0101	ROW 1 COLUMN 1		500056.15	N	- 12/10/2003	OK VRTC	KYOWA	F99-1875
0002	398390008	LC0102	ROW 1 COLUMN 2		500176.82	N	- 12/10/2003	OK VRTC	KYOWA	F99-1875
0003	398390028	LC0103	ROW 1 COLUMN 3		499943.36	N	- 12/10/2003	OK VRTC	KYOWA	F99-1875
0004	398390038	LC0104	ROW 1 COLUMN 4		500056.15	N	- 12/10/2003	OK VRTC	KYOWA	F99-1875
0005	398390003	LC0105	ROW 1 COLUMN 5		500005.61	N	- 12/10/2003	OK VRTC	KYOWA	F99-1875
0006	398390014	LC0106	ROW 1 COLUMN 6		499994.14	N	- 12/10/2003	OK VRTC	KYOWA	F99-1875
0007	398390024	LC0107	ROW 1 COLUMN 7		499692.08	N	- 12/10/2003	OK VRTC	KYOWA	F99-1875
0008	398390006	LC0108	ROW 1 COLUMN 8		499822.32	N	- 12/10/2003	OK VRTC	KYOWA	F99-1875
0009	398390132	LC0109	ROW 1 COLUMN 9		499750.85	N	- 12/10/2003	OK VRTC	KYOWA	F99-1875
0010	398390023	LC0110	ROW 1 COLUMN 10		499692.08	N	- 12/10/2003	OK VRTC	KYOWA	F99-1875
0011	398390033	LC0111	ROW 1 COLUMN 11		499933.11	N	- 12/10/2003	OK VRTC	KYOWA	F99-1875
0012	398390019	LC0112	ROW 1 COLUMN 12		500122.10	N	- 12/10/2003	OK VRTC	KYOWA	F99-1875
0013	398390113	LC0113	ROW 1 COLUMN 13		500176.82	N	- 12/10/2003	OK VRTC	KYOWA	F99-1875
0014	398390098	LC0114	ROW 1 COLUMN 14		500125.03	N	- 12/10/2003	OK VRTC	KYOWA	F99-1875
0015	398390104	LC0115	ROW 1 COLUMN 15		499816.96	N	- 12/10/2003	OK VRTC	KYOWA	F99-1875
0016	398390088	LC0116	ROW 1 COLUMN 16		499750.85	N	- 12/10/2003	OK VRTC	KYOWA	F99-1875
0017	398390120	LC0201	ROW 2 COLUMN 1		499822.32	N	- 12/10/2003	OK VRTC	KYOWA	F99-1875
0018	398390063	LC0202	ROW 2 COLUMN 2		500252.81	N	- 12/10/2003	OK VRTC	KYOWA	F99-1875
0019	398390124	LC0203	ROW 2 COLUMN 3		500176.82	N	- 12/10/2003	OK VRTC	KYOWA	F99-1875
0020	398390093	LC0204	ROW 2 COLUMN 4		499822.32	N	- 12/10/2003	OK VRTC	KYOWA	F99-1875
0021	398390046	LC0205	ROW 2 COLUMN 5		500125.03	N	- 12/10/2003	OK VRTC	KYOWA	F99-1875
0022	398390122	LC0206	ROW 2 COLUMN 6		500176.82	N	- 12/10/2003	OK VRTC	KYOWA	F99-1875
0023	398390002	LC0207	ROW 2 COLUMN 7		500176.82	N	- 12/10/2003	OK VRTC	KYOWA	F99-1875
0024	398390060	LC0208	ROW 2 COLUMN 8		500298.02	N	- 12/10/2003	OK VRTC	KYOWA	F99-1875
0025	398390105	LC0209	ROW 2 COLUMN 9		499933.11	N	- 12/10/2003	OK VRTC	KYOWA	F99-1875
0026	398390020	LC0210	ROW 2 COLUMN 10		499692.08	N	- 12/10/2003	OK VRTC	KYOWA	F99-1875
0027	398390069	LC0211	ROW 2 COLUMN 11		500240.10	N	- 12/10/2003	OK VRTC	KYOWA	F99-1875
0028	398390041	LC0212	ROW 2 COLUMN 12		499816.96	N	- 12/10/2003	OK VRTC	KYOWA	F99-1875
0029	398390112	LC0213	ROW 2 COLUMN 13		499994.14	N	- 12/10/2003	OK VRTC	KYOWA	F99-1875
0030	398390074	LC0214	ROW 2 COLUMN 14		500125.03	N	- 12/10/2003	OK VRTC	KYOWA	F99-1875
0031	398390128	LC0215	ROW 2 COLUMN 15		500176.82	N	- 12/10/2003	OK VRTC	KYOWA	F99-1875
0032	398390075	LC0216	ROW 2 COLUMN 16		500125.03	N	- 12/10/2003	OK VRTC	KYOWA	F99-1875

D-5

040415-1

Channel Report

4/15/2004 7:18:18 AM

Name of Test 040415-1

System MINIDAU

Name of DAU DAUC

Chan.#	Sensor #	Mnemonic	Description	Dir.	Range	Pol.	Cal.	Group	Mfg.	Model
0001	398390125	LC0301	ROW 3 COLUMN 1		500176.82	N	- 12/10/2003	OK VRTC	KYOWA	F99-1875
0002	398390004	LC0302	ROW 3 COLUMN 2		500298.02	N	- 12/10/2003	OK VRTC	KYOWA	F99-1875
0003	398390051	LC0303	ROW 3 COLUMN 3		500298.02	N	- 12/10/2003	OK VRTC	KYOWA	F99-1875
0004	398390042	LC0304	ROW 3 COLUMN 4		499816.96	N	- 12/10/2003	OK VRTC	KYOWA	F99-1875
0005	398390011	LC0305	ROW 3 COLUMN 5		500057.13	N	- 12/10/2003	OK VRTC	KYOWA	F99-1875
0006	398390117	LC0306	ROW 3 COLUMN 6		500298.02	N	- 12/10/2003	OK VRTC	KYOWA	F99-1875
0007	398390066	LC0307	ROW 3 COLUMN 7		499692.08	N	- 12/10/2003	OK VRTC	KYOWA	F99-1875
0008	398390045	LC0308	ROW 3 COLUMN 8		499943.36	N	- 12/10/2003	OK VRTC	KYOWA	F99-1875
0009	398390077	LC0309	ROW 3 COLUMN 9		500056.15	N	- 12/10/2003	OK VRTC	KYOWA	F99-1875
0010	398390029	LC0310	ROW 3 COLUMN 10		499750.85	N	- 12/10/2003	OK VRTC	KYOWA	F99-1875
0011	398390100	LC0311	ROW 3 COLUMN 11		499874.29	N	- 12/10/2003	OK VRTC	KYOWA	F99-1875
0012	398390102	LC0312	ROW 3 COLUMN 12		500056.15	N	- 12/10/2003	OK VRTC	KYOWA	F99-1875
0013	398390091	LC0313	ROW 3 COLUMN 13		500176.82	N	- 12/10/2003	OK VRTC	KYOWA	F99-1875
0014	398390012	LC0314	ROW 3 COLUMN 14		499943.36	N	- 12/10/2003	OK VRTC	KYOWA	F99-1875
0015	398390017	LC0315	ROW 3 COLUMN 15		500252.81	N	- 12/10/2003	OK VRTC	KYOWA	F99-1875
0016	398390081	LC0316	ROW 3 COLUMN 16		500180.72	N	- 12/10/2003	OK VRTC	KYOWA	F99-1875
0017	398390040	LC0401	ROW 4 COLUMN 1		499692.08	N	- 12/10/2003	OK VRTC	KYOWA	F99-1875
0018	398390007	LC0402	ROW 4 COLUMN 2		499933.11	N	- 12/10/2003	OK VRTC	KYOWA	F99-1875
0019	398390071	LC0403	ROW 4 COLUMN 3		500056.15	N	- 12/10/2003	OK VRTC	KYOWA	F99-1875
0020	398390094	LC0404	ROW 4 COLUMN 4		499994.14	N	- 12/10/2003	OK VRTC	KYOWA	F99-1875
0021	398390067	LC0405	ROW 4 COLUMN 5		499943.36	N	- 12/10/2003	OK VRTC	KYOWA	F99-1875
0022	398390086	LC0406	ROW 4 COLUMN 6		500176.82	N	- 12/10/2003	OK VRTC	KYOWA	F99-1875
0023	398390118	LC0407	ROW 4 COLUMN 7		500056.15	N	- 12/10/2003	OK VRTC	KYOWA	F99-1875
0024	398390101	LC0408	ROW 4 COLUMN 8		500056.15	N	- 12/10/2003	OK VRTC	KYOWA	F99-1875
0025	398390073	LC0409	ROW 4 COLUMN 9		500056.15	N	- 12/10/2003	OK VRTC	KYOWA	F99-1875
0026	398390047	LC0410	ROW 4 COLUMN 10		500298.02	N	- 12/10/2003	OK VRTC	KYOWA	F99-1875
0027	398390099	LC0411	ROW 4 COLUMN 11		499692.08	N	- 12/10/2003	OK VRTC	KYOWA	F99-1875
0028	398390080	LC0412	ROW 4 COLUMN 12		499708.66	N	- 12/10/2003	OK VRTC	KYOWA	F99-1875
0029	398390097	LC0413	ROW 4 COLUMN 13		500180.72	N	- 12/10/2003	OK VRTC	KYOWA	F99-1875
0030	398390048	LC0414	ROW 4 COLUMN 14		500056.15	N	- 12/10/2003	OK VRTC	KYOWA	F99-1875
0031	398390061	LC0415	ROW 4 COLUMN 15		499933.11	N	- 12/10/2003	OK VRTC	KYOWA	F99-1875
0032	398390005	LC0416	ROW 4 COLUMN 16		500240.10	N	- 12/10/2003	OK VRTC	KYOWA	F99-1875

D-6

040415-1

Channel Report

4/15/2004 7:18:19 AM

Name of Test 040415-1

System MINIDAU

Name of DAU DAUD

Chan.#	Sensor #	Mnemonic	Description	Dir.	Range	Pol.	Cal.	Group	Mfg.	Model
0001	398390090	LC0501	ROW 5 COLUMN 1		500240.10	N	- 12/10/2003	OK VRTC	KYOWA	F99-1875
0002	398390065	LC0502	ROW 5 COLUMN 2		499692.08	N	- 12/10/2003	OK VRTC	KYOWA	F99-1875
0003	398390079	LC0503	ROW 5 COLUMN 3		499816.96	N	- 12/10/2003	OK VRTC	KYOWA	F99-1875
0004	398390055	LC0504	ROW 5 COLUMN 4		500180.72	N	- 12/10/2003	OK VRTC	KYOWA	F99-1875
0005	398390031	LC0505	ROW 5 COLUMN 5		499750.85	N	- 12/10/2003	OK VRTC	KYOWA	F99-1875
0006	398390054	LC0506	ROW 5 COLUMN 6		499692.08	N	- 12/10/2003	OK VRTC	KYOWA	F99-1875
0007	398390050	LC0507	ROW 5 COLUMN 7		500056.15	N	- 12/10/2003	OK VRTC	KYOWA	F99-1875
0008	398390089	LC0508	ROW 5 COLUMN 8		499750.85	N	- 12/10/2003	OK VRTC	KYOWA	F99-1875
0009	398390130	LC0509	ROW 5 COLUMN 9		499692.08	N	- 12/10/2003	OK VRTC	KYOWA	F99-1875
0010	398390082	LC0510	ROW 5 COLUMN 10		500005.61	N	- 12/10/2003	OK VRTC	KYOWA	F99-1875
0011	398390083	LC0511	ROW 5 COLUMN 11		499994.14	N	- 12/10/2003	OK VRTC	KYOWA	F99-1875
0012	398390123	LC0512	ROW 5 COLUMN 12		499750.85	N	- 12/10/2003	OK VRTC	KYOWA	F99-1875
0013	398390032	LC0513	ROW 5 COLUMN 13		499874.29	N	- 12/10/2003	OK VRTC	KYOWA	F99-1875
0014	398390121	LC0514	ROW 5 COLUMN 14		500180.72	N	- 12/10/2003	OK VRTC	KYOWA	F99-1875
0015	398390009	LC0515	ROW 5 COLUMN 15		499933.11	N	- 12/10/2003	OK VRTC	KYOWA	F99-1875
0016	398390037	LC0516	ROW 5 COLUMN 16		499933.11	N	- 12/10/2003	OK VRTC	KYOWA	F99-1875
0017	398390036	LC0601	ROW 6 COLUMN 1		499994.14	N	- 12/10/2003	OK VRTC	KYOWA	F99-1875
0018	398390052	LC0602	ROW 6 COLUMN 2		499692.08	N	- 12/10/2003	OK VRTC	KYOWA	F99-1875
0019	398390010	LC0603	ROW 6 COLUMN 3		500056.15	N	- 12/10/2003	OK VRTC	KYOWA	F99-1875
0020	398390034	LC0604	ROW 6 COLUMN 4		499874.29	N	- 12/10/2003	OK VRTC	KYOWA	F99-1875
0021	398390026	LC0605	ROW 6 COLUMN 5		500019.53	N	- 12/10/2003	OK VRTC	KYOWA	F99-1875
0022	398390022	LC0606	ROW 6 COLUMN 6		499994.14	N	- 12/10/2003	OK VRTC	KYOWA	F99-1875
0023	398390030	LC0607	ROW 6 COLUMN 7		499994.14	N	- 12/10/2003	OK VRTC	KYOWA	F99-1875
0024	398390016	LC0608	ROW 6 COLUMN 8		500056.15	N	- 12/10/2003	OK VRTC	KYOWA	F99-1875
0025	398390035	LC0609	ROW 6 COLUMN 9		499692.08	N	- 12/10/2003	OK VRTC	KYOWA	F99-1875
0026	398390092	LC0610	ROW 6 COLUMN 10		500298.02	N	- 12/10/2003	OK VRTC	KYOWA	F99-1875
0027	398390043	LC0611	ROW 6 COLUMN 11		500176.82	N	- 12/10/2003	OK VRTC	KYOWA	F99-1875
0028	398390076	LC0612	ROW 6 COLUMN 12		499692.08	N	- 12/10/2003	OK VRTC	KYOWA	F99-1875
0029	398390001	LC0613	ROW 6 COLUMN 13		499933.11	N	- 12/10/2003	OK VRTC	KYOWA	F99-1875
0030	398390087	LC0614	ROW 6 COLUMN 14		500176.82	N	- 12/10/2003	OK VRTC	KYOWA	F99-1875
0031	398390096	LC0615	ROW 6 COLUMN 15		499943.36	N	- 12/10/2003	OK VRTC	KYOWA	F99-1875
0032	398390015	LC0616	ROW 6 COLUMN 16		499692.08	N	- 12/10/2003	OK VRTC	KYOWA	F99-1875

D-7

040415-1

Channel Report

4/15/2004 7:18:19 AM

Name of Test 040415-1

System MINIDAU

Name of DAU DAUE

Chan.#	Sensor #	Mnemonic	Description	Dir.	Range	Pol.	Cal.	Group	Mfg.	Model
0001	398390027	LC0701	ROW 7 COLUMN 1		500180.72	N	- 12/10/2003	OK VRTC	KYOWA	F99-1875
0002	398390111	LC0702	ROW 7 COLUMN 2		499994.14	N	- 12/10/2003	OK VRTC	KYOWA	F99-1875
0003	398390072	LC0703	ROW 7 COLUMN 3		500125.03	N	- 12/10/2003	OK VRTC	KYOWA	F99-1875
0004	398390106	LC0704	ROW 7 COLUMN 4		499933.11	N	- 12/10/2003	OK VRTC	KYOWA	F99-1875
0005	398390056	LC0705	ROW 7 COLUMN 5		500180.72	N	- 12/10/2003	OK VRTC	KYOWA	F99-1875
0006	398390114	LC0706	ROW 7 COLUMN 6		499755.97	N	- 12/10/2003	OK VRTC	KYOWA	F99-1875
0007	398390068	LC0707	ROW 7 COLUMN 7		500331.76	N	- 12/10/2003	OK VRTC	KYOWA	F99-1875
0008	398390057	LC0708	ROW 7 COLUMN 8		500180.72	N	- 12/10/2003	OK VRTC	KYOWA	F99-1875
0009	398390049	LC0709	ROW 7 COLUMN 9		499692.08	N	- 12/10/2003	OK VRTC	KYOWA	F99-1875
0010	398390131	LC0710	ROW 7 COLUMN 10		500125.03	N	- 12/10/2003	OK VRTC	KYOWA	F99-1875
0011	398390018	LC0711	ROW 7 COLUMN 11		499750.85	N	- 12/10/2003	OK VRTC	KYOWA	F99-1875
0012	398390084	LC0712	ROW 7 COLUMN 12		500122.10	N	- 12/10/2003	OK VRTC	KYOWA	F99-1875
0013	398390062	LC0713	ROW 7 COLUMN 13		499874.29	N	- 12/10/2003	OK VRTC	KYOWA	F99-1875
0014	398390078	LC0714	ROW 7 COLUMN 14		499933.11	N	- 12/10/2003	OK VRTC	KYOWA	F99-1875
0015	398390127	LC0715	ROW 7 COLUMN 15		499692.08	N	- 12/10/2003	OK VRTC	KYOWA	F99-1875
0016	398390021	LC0716	ROW 7 COLUMN 16		499874.29	N	- 12/10/2003	OK VRTC	KYOWA	F99-1875
0017	398390133	LC0801	ROW 8 COLUMN 1		499874.29	N	- 12/10/2003	OK VRTC	KYOWA	F99-1875
0018	398390039	LC0802	ROW 8 COLUMN 2		499750.85	N	- 12/10/2003	OK VRTC	KYOWA	F99-1875
0019	398390085	LC0803	ROW 8 COLUMN 3		500298.02	N	- 12/10/2003	OK VRTC	KYOWA	F99-1875
0020	398390059	LC0804	ROW 8 COLUMN 4		500125.03	N	- 12/10/2003	OK VRTC	KYOWA	F99-1875
0021	398390116	LC0805	ROW 8 COLUMN 5		500176.82	N	- 12/10/2003	OK VRTC	KYOWA	F99-1875
0022	398390013	LC0806	ROW 8 COLUMN 6		499933.11	N	- 12/10/2003	OK VRTC	KYOWA	F99-1875
0023	398390119	LC0807	ROW 8 COLUMN 7		500122.10	N	- 12/10/2003	OK VRTC	KYOWA	F99-1875
0024	398390107	LC0808	ROW 8 COLUMN 8		500122.10	N	- 12/10/2003	OK VRTC	KYOWA	F99-1875
0025	398390095	LC0809	ROW 8 COLUMN 9		499755.97	N	- 12/10/2003	OK VRTC	KYOWA	F99-1875
0026	398390103	LC0810	ROW 8 COLUMN 10		499750.85	N	- 12/10/2003	OK VRTC	KYOWA	F99-1875
0027	398390129	LC0811	ROW 8 COLUMN 11		499692.08	N	- 12/10/2003	OK VRTC	KYOWA	F99-1875
0028	398390058	LC0812	ROW 8 COLUMN 12		499874.29	N	- 12/10/2003	OK VRTC	KYOWA	F99-1875
0029	398390126	LC0813	ROW 8 COLUMN 13		499692.08	N	- 12/10/2003	OK VRTC	KYOWA	F99-1875
0030	398390108	LC0814	ROW 8 COLUMN 14		499755.97	N	- 12/10/2003	OK VRTC	KYOWA	F99-1875
0031	398390025	LC0815	ROW 8 COLUMN 15		500176.82	N	- 12/10/2003	OK VRTC	KYOWA	F99-1875
0032	398390070	LC0816	ROW 8 COLUMN 16		500252.81	N	- 12/10/2003	OK VRTC	KYOWA	F99-1875

D-8

040415-1

Channel Report

4/15/2004 7:18:19 AM

0033	398390109	LC0906	ROW 9 COLUMN 6	500122.10	N	-	12/10/2003	OK	VRTC	KYOWA	F99-1875
0034	398390044	LC0907	ROW 9 COLUMN 7	500122.10	N	-	12/10/2003	OK	VRTC	KYOWA	F99-1875
0035	398390134	LC0908	ROW 9 COLUMN 8	499960.94	N	-	12/10/2003	OK	VRTC	KYOWA	F99-1875
0036	398390115	LC0909	ROW 9 COLUMN 9	499755.97	N	-	12/10/2003	OK	VRTC	KYOWA	F99-1875
0037	398390110	LC0910	ROW 9 COLUMN 10	499692.08	N	-	12/10/2003	OK	VRTC	KYOWA	F99-1875
0038	398390064	LC0911	ROW 9 COLUMN 11	499943.36	N	-	12/10/2003	OK	VRTC	KYOWA	F99-1875
0039	EVENT	EVENT	EVENT	5.12	V	+	11/8/2003	OK	-1	TRC	Event

Dummy 169v- Type HIII 50TH Descriptio VRTC - 169v HIII 50TH w/RED.'s,w/o INSTR. LEGS. ICAL'd 10-10-03(DKS 3-31-04)J211

Chsnam	Location	Model	Name	Manufacturer	Sens./mV/V/	Fullscal	Caldat	Pos Output	Flip
HEDXG	Head Accel X	7264-2000T	J20083	Endevco	0.02171 g	2000	10/10/2003	Rwd	1
HEDYG	Head Accel Y	7264-2000T	J19843	Endevco	0.02229 g	2000	10/10/2003	Lft	1
HEDZG	Head Accel Z	7264-2KM5T	J20027	Endevco	0.02577 g	2000	10/10/2003	Up	1
HEDXR	Head Accel Red X S39	7264-2000LC	AAK48	Endevco	0.02783 g	2000	3/25/2004	Rwd	1
HEDYR	Head Accel Red Y	7264-2000T	ACCD0	Endevco	0.02379 g	2000	3/25/2004	Lft	1
HEDZR	Head Accel Red Z	7264-2000LC	AAKD0	Endevco	0.02496 g	2000	3/25/2004	Up	1
NEKXF	Neck Force X	1716A	1716A-782-FX	Denton	0.000190099 N	8896	10/10/2003	Hd Fd,Cst Rr	1
NEKYF	Neck Force Y	1716A	1716A-782-FY	Denton	0.00018476 N	8896	10/10/2003	Hd Lt,Cst Rt	0
NEKZF	Neck Force Z	1716A	1716A-782-FZ	Denton	0.000097028 N	13344	10/10/2003	Hd Up,Cst Dn	0
NEKXM	Neck Moment X	1716A	1716A-782-MX	Denton	0.005941239 N	282.5	10/10/2003	Rt Ear to Rt Shld	1
NEKYM	Neck Moment Y	1716A	1716A-782-MY	Denton	0.005766372 N	282.5	10/10/2003	Chn to Strnm	0
NEKZM	Neck Moment Z	1716A	1716A-782-MZ	Denton	0.008201416 N	282.5	10/10/2003	Chn to Lt Shld	0
CSTXG	Chest Accel X	7264-2000T	J23757	Endevco	0.02786 g	2000	10/10/2003	Fwd	0
CSTYG	Chest Accel Y	7264-2KM5T	J21989	Endevco	0.02321 g	2000	10/10/2003	Lft	1
CSTZG	Chest Accel Z	7264-2000TZ	J35747	Endevco	0.02823 g	2000	10/10/2003	Up	1
CSTXR	Chest Accel Red X	7264-2000T	AFYW5	Endevco	0.0246 g	2000	3/25/2004	Fwd	0
CSTYR	Chest Accel Red Y	7264-2KM5T	J23759	Endevco	0.0272 g	2000	3/25/2004	Lft	1
CSTZR	Chest Accel Red Z	7264-2KM5T	J14667	Endevco	0.03654 g	2000	3/25/2004	Up	1
CSTXD	Chest Deflection X	14CB1-2847	14CB1-2847-169	Servo	1.1389 m	100	10/14/2003	Strnm Away Frm Spn	0
PEVXG	Pelvis Accel X	7264-2000TZ	J36741	Endevco	0.02305 g	2000	10/10/2003	Rwd	1
PEVYG	Pelvis Accel Y	7264-2000TZ	J36605	Endevco	0.02668 g	2000	10/10/2003	Lft	1
PEVZG	Pelvis Accel Z	7264-2000LC	AAMD7	Endevco	0.02665 g	2000	10/10/2003	Up	1
LFMXF	Left Femur Force X	1914A	1914A-0261-FX	Denton	0.000143945 N	13344	10/10/2003	Knee Dn,Fem Up	1
LFMYF	Left Femur Force Y	1914A	1914A-0261-FY	Denton	0.000144739 N	13344	10/10/2003	Knee Rt,Fem Lt	0
LFMZF	Left Femur Force Z	1914A	1914A-0261-FZ	Denton	0.000053282 N	22240	10/10/2003	Knee Fd,Pel Rr	0
LFMXM	Left Femur Moment X	1914A	1914A-0261-MX	Denton	0.0043941 N	339	10/10/2003	Knee Rt,Hld Fem	1

Thursday, April 15, 2004 169v-

Page 1 of 2

D-10

040415-1

Chsnam	Location	Model	Name	Manufacturer	Sens./mV/V/	Fullscal	Caldat	Pos Output	Flip
LFMYM	Left Femur Moment Y	1914A	1914A-0261-MY	Denton	0.004458997 N	339	10/10/2003	Knee Up,Hld Fem	0
LFMZM	Left Femur Moment Z	1914A	1914A-0261-MZ	Denton	0.007776106 N	339	10/10/2003	Tib Lt,Hld Pel	0
RFMXF	Right Femur Force X	1914A	1914A-383-FX	Denton	0.000146957 N	13344	10/10/2003	Knee Dn,Fem Up	1
RFMYF	Right Femur Force Y	1914A	1914A-383-FY	Denton	0.00014713 N	13344	10/10/2003	Knee Rt,Fem Lt	0
RFMZF	Right Femur Force Z	1914A	1914A-383-FZ	Denton	0.000060148 N	22240	10/10/2003	Knee Fd,Pel Rr	0
RFMXM	Right Femur Moment X	1914A	1914A-383-MX	Denton	0.004486136 N	339	10/10/2003	Knee Rt,Hld Fem	1
RFMYM	Right Femur Moment Y	1914A	1914A-383-MY	Denton	0.004497345 N	339	10/10/2003	Knee Up,Hld Fem	0
RFMZM	Right Femur Moment Z	1914A	1914A-383-MZ	Denton	0.007966962 N	339	10/10/2003	Tib Lt,Hld Pel	0
KNLXD	Left Knee Displacement	150-0121VR	150-121VR-17169	Space Age	23.403 m	40	10/14/2003	Tib Rr,Hld Fem	1
KNRXD	Right Knee Displacement	150-0121VL	150-121VL-21033	Space Age	23.862 m	40	10/14/2003	Tib Rr,Hld Fem	1

Dummy 416v- Type HYBRID III 5th Descriptio VRTC - 416v HYBRID III RED. w/o THOR LEGS ICAL'd 3-18-03(DKS 9-26-03)J211

Chsnam	Location	Model	Name	Manufacturer	Sens./mV/V/	Fullscal	Caldat	Pos Output	Flip
HEDXG	Head Accel X	EGE-73B6Q-20	03E03E20-N20	Entran	0.02087 g	2000	9/25/2003	Rwd	1
HEDYG	Head Accel Y	EGE-73B6Q-20	02A18-N10	Entran	0.01959 g	2000	9/25/2003	Lft	1
HEDZG	Head Accel Z	EGE-73B6Q-20	02A09-F15	Entran	0.02121 g	2000	9/25/2003	Up	1
HEDXR	Head Accel Red X	EGE-73B6Q-20	01L26-F02	Entran	0.02014 g	2000	9/25/2003	Rwd	1
HEDYR	Head Accel Red Y	EGE-73B6Q-20	02A09-F13	Entran	0.0195 g	2000	9/25/2003	Lft	1
HEDZR	Head Accel Red Z	EGE-73B6Q-20	02A16-A06	Entran	0.01937 g	2000	9/25/2003	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	0.02086 g	2000	9/25/2003	Fwd	0
CSTYG	Chest Accel Y	EGE-73B6Q-20	C02B19-F02	Entran	0.01877 g	2000	9/25/2003	Lft	1
CSTZG	Chest Accel Z	EGE-73B6Q-20	C02B19-F06	Entran	0.01895 g	2000	9/25/2003	Up	1
CSTXR	Chest Accel Red X	EGE-73B6Q-20	B02A25-N08	Entran	0.01958 g	2000	9/25/2003	Rwd	1
CSTYR	Chest Accel Red Y	EGE-73B6Q-20	03E03E19-N02	Entran	0.02258 g	2000	9/25/2003	Lft	1
CSTZR	Chest Accel Red Z	EGE-73B6Q-20	C02B19-F04	Entran	0.01769 g	2000	9/25/2003	Up	1
CSTXD	Chest Deflection X 516	14CB1-2897	14CB1-2897-416	Servo	1.6998 m	100	9/26/2003	Strnm Away Frm Spn	0
PEVXG	Pelvis Accel X	EGE-73B6Q-20	C02B19-F03	Entran	0.01747 g	2000	9/25/2003	Rwd	1
PEVYG	Pelvis Accel Y	EGE-73B6Q-20	02A16-A27	Entran	0.02132 g	2000	9/25/2003	Lft	1
PEVZG	Pelvis Accel Z	EGE-73B6Q-20	C02B19-F01	Entran	0.0194 g	2000	9/25/2003	Up	1
LFMZP	Left Femur Force Z #8	2430	2430-736	GSE	0.000070556 N	13344	3/19/2003	Knee Fd,Pel Rr	0
RFMZP	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	150-121VR-5556	Space Age	22.963 m	40	9/26/2003	Tib Rr,Hld Fem	1
KNRXD	Right Knee Displacement	150-0121VL	150-121VL-5482	Space Age	23.494 m	40	9/26/2003	Tib Rr,Hld Fem	1

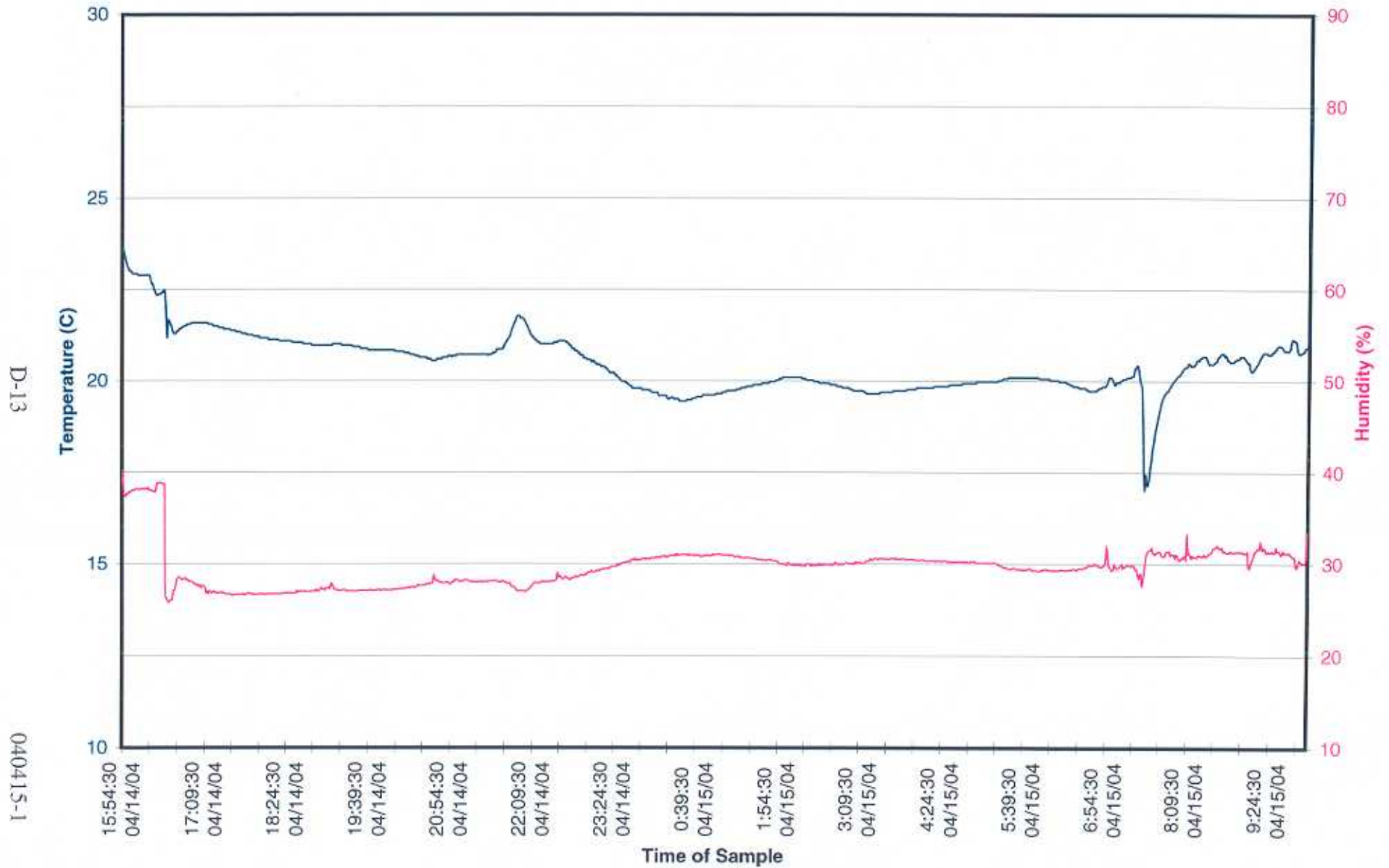
Thursday, April 15, 2004 416v-

Page 1 of 1

D-12

040415-1

2002 Dodge Ram into Load Cell Barrier / 040415-1



Appendix E

INSIA Report on Structural Measurements

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

APARICIO IZQUIERDO, FRANCISCO
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28031 – MADRID – (SPAIN)

March, 1999

Structural Survey - 1

REPORT DOCUMENTATION PAGE**Title:**

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

Author(s):

Aparicio Izquierdo, Francisco
Páez Ayuso, Francisco Javier

Performing Organisation name and address:

INSIA – University Institute for Automobile Research
Carretera de Valencia, Km. 7 – Campus Sur de la Universidad Politécnica de Madrid
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.

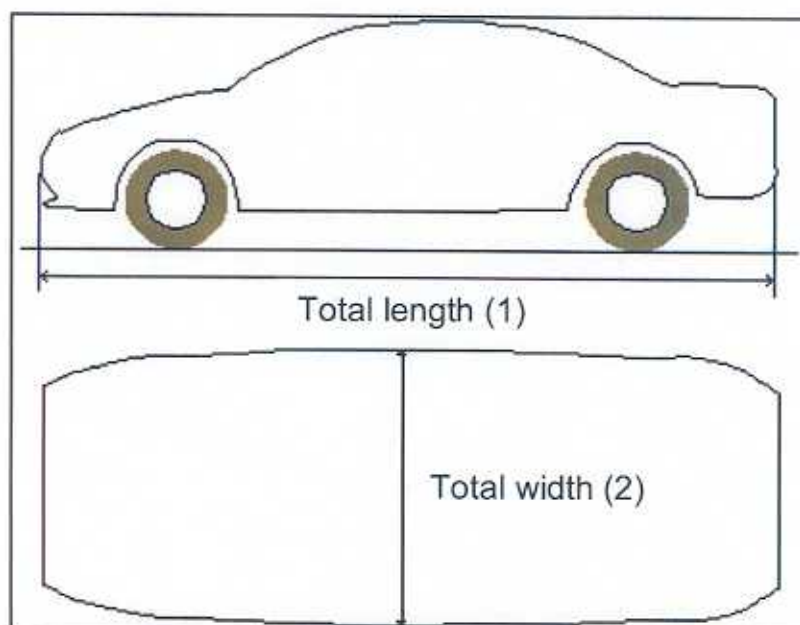


Figure 1.- Definition of the main resistant elements. General dimensions.

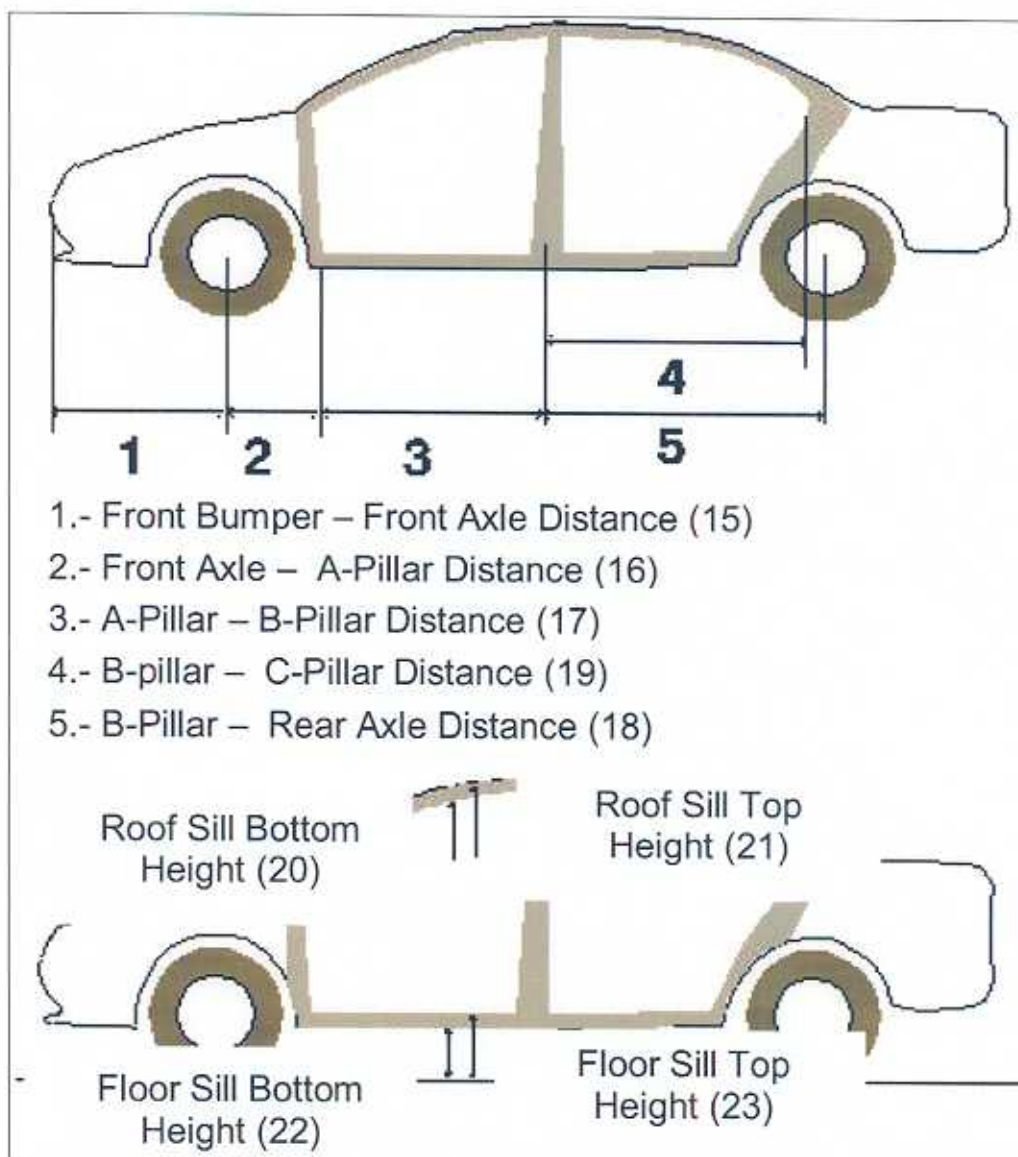


Figure 2.- Definition of the main resistant elements. Side elements.

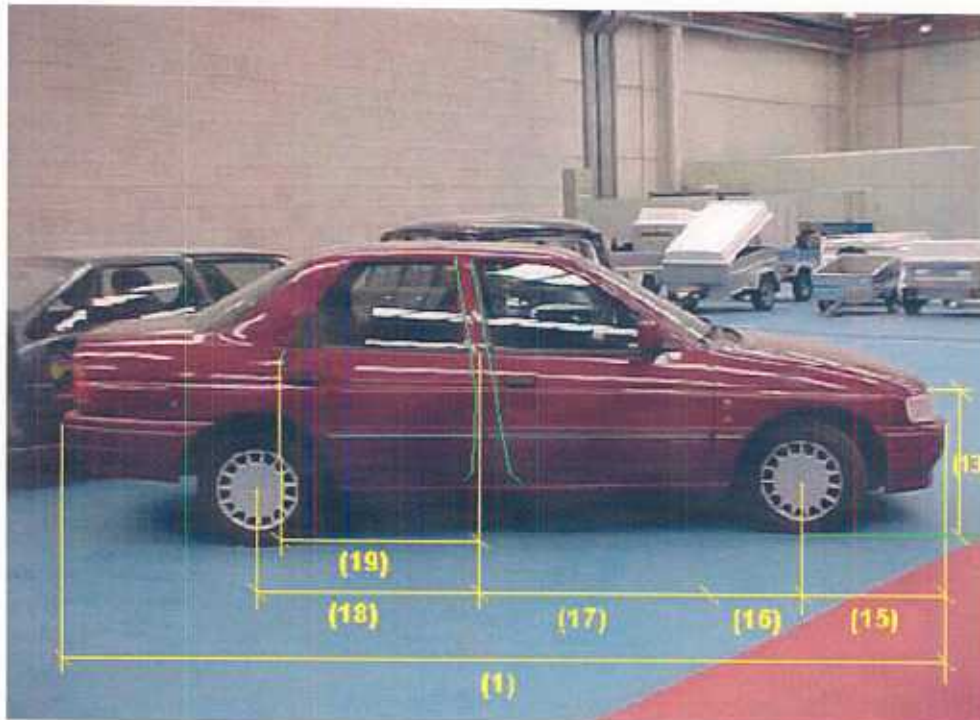
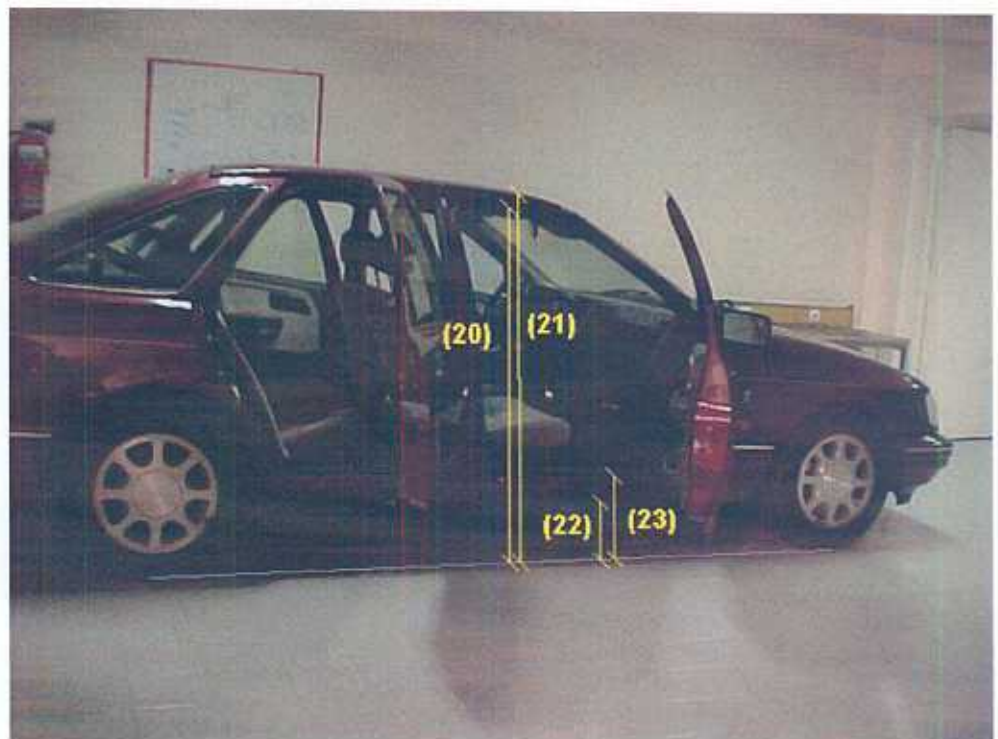


Figure 3.-
Measurements of
the side resistant
elements (outer).

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



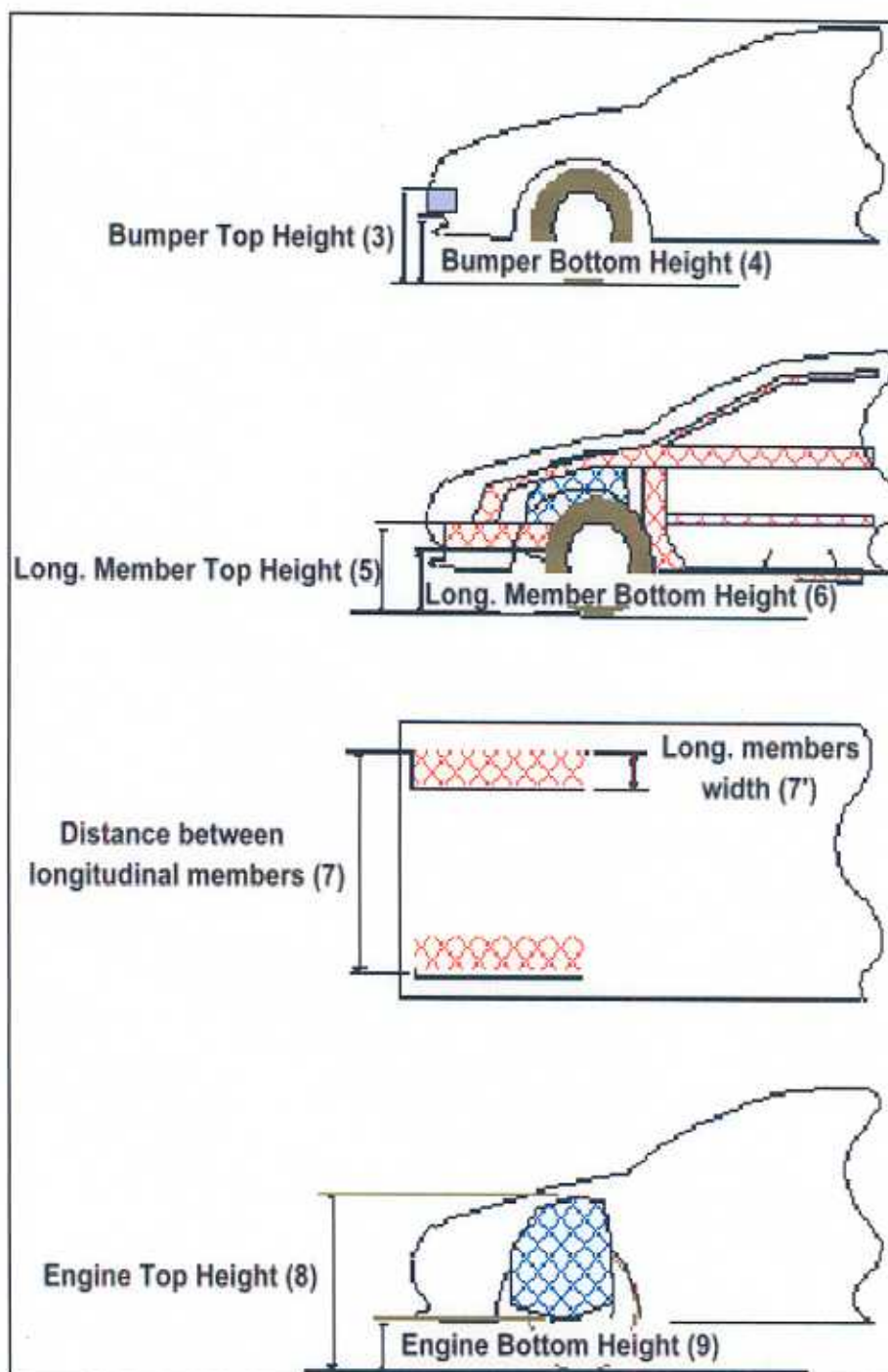


Figure 5.- Definition of the main resistant elements. Front elements.

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

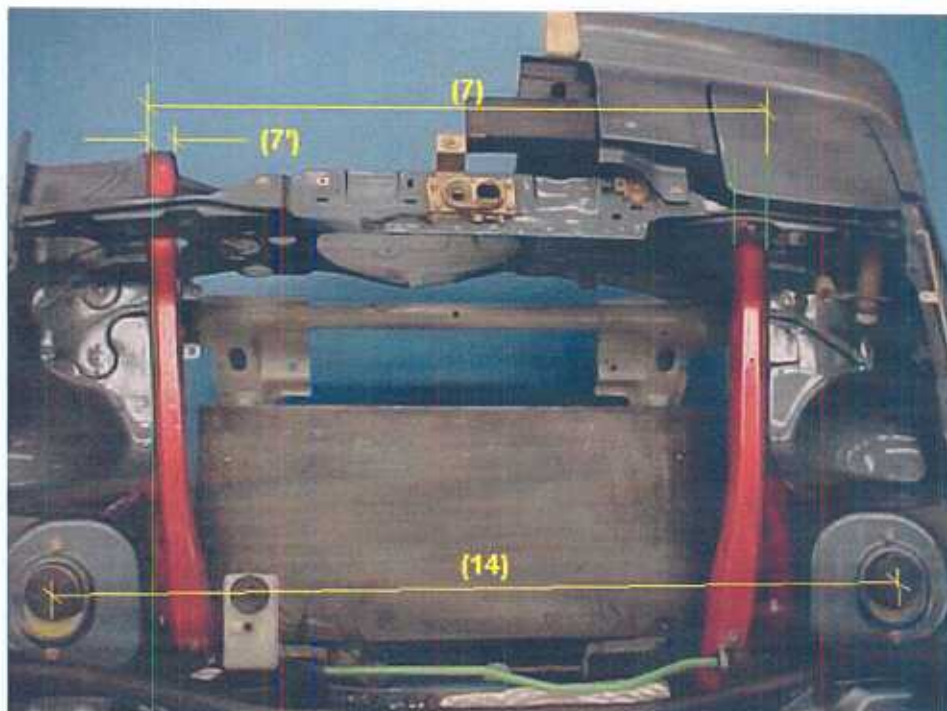
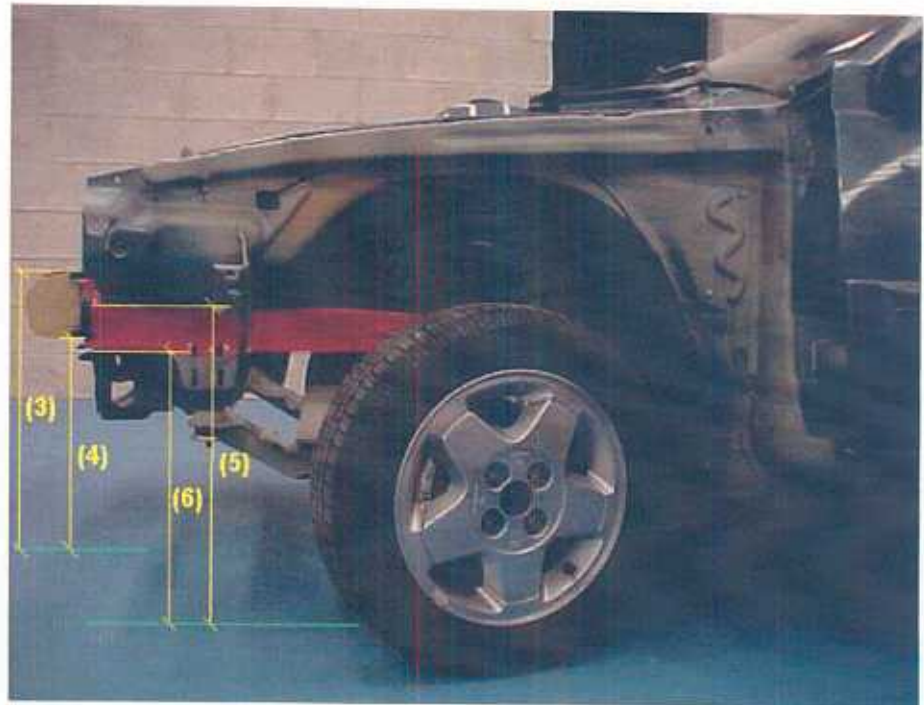


Figure 7.-
Measurements
of the main
resistant
elements. Front
elements 2.

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

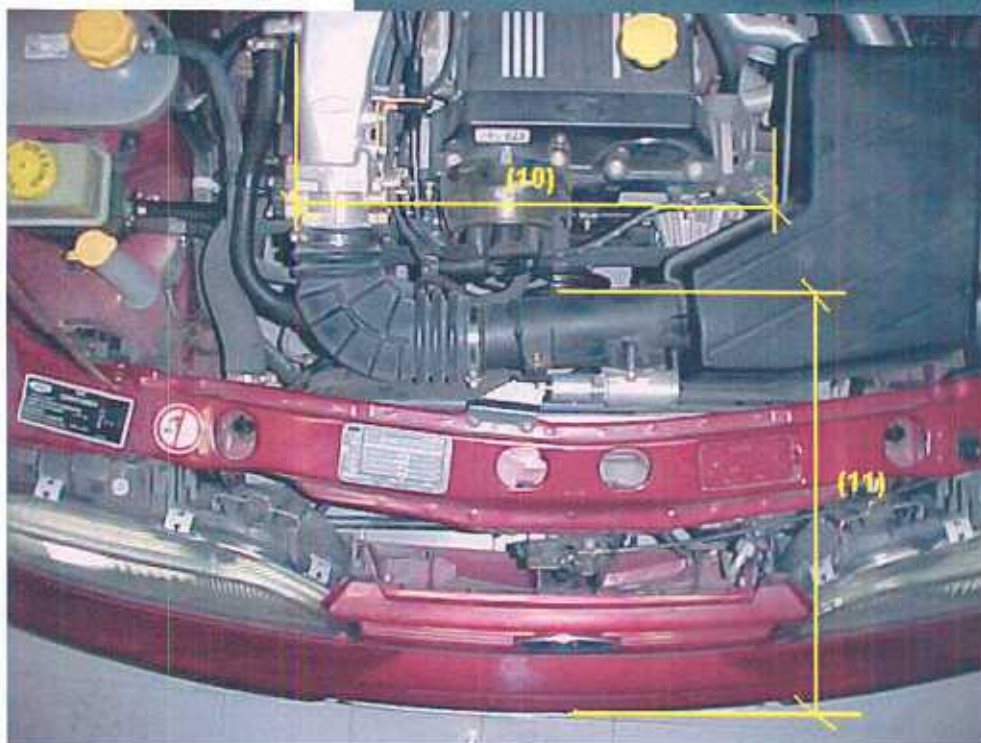
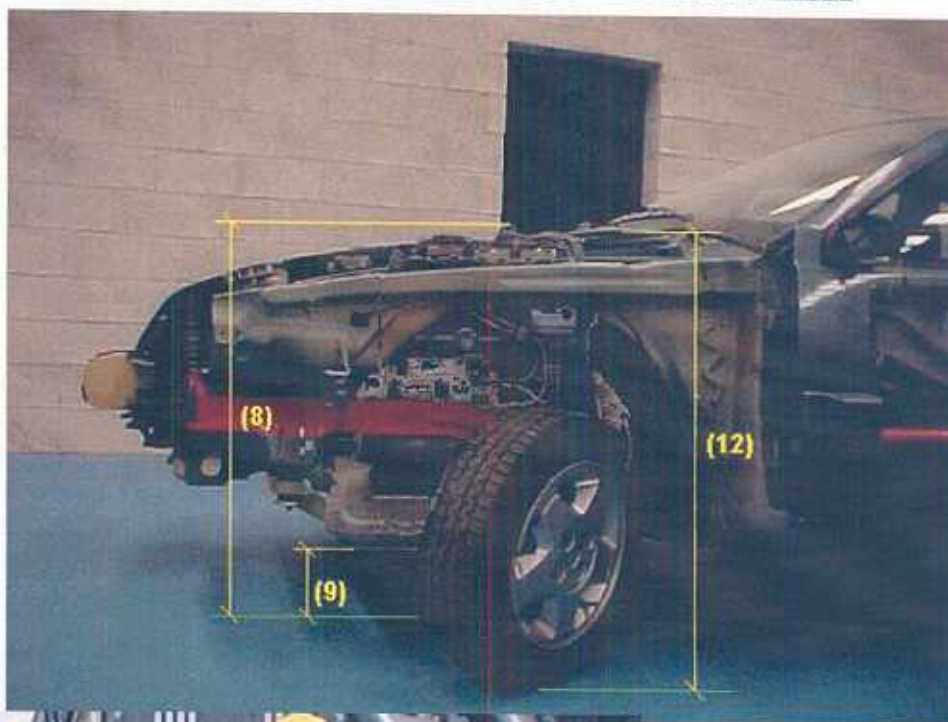


Figure 9.-
Definition of
the main
resistant
elements. Front
elements
(Longitudinal
engine).

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.