**Vehicle Research and Test Center**

**2003 Honda Odyssey 4-door MPV**

**into Front of 2002 Ford Focus 4-door**

**TRC Inc. Test Number: 060310**

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**Final Report**

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**Prepared For:**

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# Section 1.0

## Purpose and Test Procedure

## Purpose

This full frontal collinear vehicle-to-vehicle impact test was conducted for the National Highway Traffic Safety Administration (NHTSA) and Vehicle Research and Test Center (VRTC) by Transportation Research Center Inc. (TRC Inc.).

The test mode was defined as the bullet vehicle moving at 48.8 km/h to impact the target vehicle moving at 71.8 km/h at an impact angle of 0 degrees. The purpose of this test was to evaluate the aggressiveness of the bullet vehicle, a 2003 Honda Odyssey 4-door MPV, and the vehicle and occupant response of the target vehicle, a 2002 Ford Focus 4-door, in this vehicle-to-vehicle impact mode.

## Test Procedure

This test was conducted in accordance with VRTC instructions for a full frontal collinear vehicle-to-vehicle test. Data was obtained relative to FMVSS 208, "Occupant Crash Protection" (December 18, 2001), FMVSS 212, “Windshield Mounting, and FMVSS 219 (partial), Windshield Zone Intrusion.

The target vehicle, a 2002 Ford Focus, was instrumented with eighteen (18) accelerometers to measure longitudinal, lateral and vertical axis accelerations. The driver’s and passenger’s airbag signals were monitored with inductive pickups, and the lap and shoulder belts were monitored for pay-in and pay-out. The vehicle’s specified impact velocity range was 70.7 to 72.9 km/h.

The bullet vehicle, a 2003 Honda Odyssey, was instrumented with eighteen (18) accelerometers to measure longitudinal, lateral and vertical axis accelerations. The driver’s and passenger’s airbag signals were monitored with inductive pickups, and the lap and shoulder belts were monitored for pay-in and pay-out. The vehicle’s specified impact velocity range was 47.6 to 49.9 km/h.

The bullet vehicle impacted the front of the target, at an impact angle of 0 degrees. The bullet vehicle’s centerline was aligned with the target vehicle’s centerline.

One (1) $50^{th}$ percentile adult male Hybrid III dummy and one (1) $5^{th}$ percentile adult female dummy were placed in the target vehicle’s left front and right front designated seating positions, respectively. The Hybrid III $50^{th}$ dummy was positioned according to the draft mid track based seating procedure while the Hybrid III $5^{th}$ dummy was positioned according to NHTSA Laboratory Test Procedure TP-208-12. The driver dummy and passenger dummy were both belted and were restrained with front dual stage airbags.

The target vehicle’s driver dummy was instrumented with nine (9) accelerometers in the head, plus six (6) chest and three (3) pelvis accelerometers to measure longitudinal, lateral and vertical accelerations (primary and redundant in the chest). The target vehicle’s driver dummy

was also instrumented with upper and lower neck moment and force load cells, a chest deflection potentiometer, left and right femur load cells to measure moments and forces, and tibia to femur displacement potentiometers at each knee. The target vehicle's driver dummy was also equipped with THOR-LX lower legs and with upper and lower tibia load cells to measure forces and moments.

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

One (1) $50^{th}$ percentile adult male Hybrid III dummy and one (1) $5^{th}$ percentile adult female dummy were placed in the bullet vehicle's left front and right front designated seating positions, respectively. The Hybrid III $50^{th}$ dummy was positioned according to the draft mid track based seating procedure while the Hybrid III $5^{th}$ dummy was positioned according to NHTSA Laboratory Test Procedure TP-208-12. The driver dummy and passenger dummy were both belted and were restrained with front dual stage airbags.

The bullet vehicle driver dummy was instrumented with nine (9) accelerometers in the head, plus six (6) chest and three (3) pelvis accelerometers to measure longitudinal, lateral and vertical accelerations (primary and redundant in the chest). The bullet vehicle's driver dummy was also instrumented with upper and lower neck moment and force load cells, a chest deflection potentiometer, left and right femur load cells to measure moments and forces, and tibia to femur displacement potentiometers at each knee. The bullet vehicle's driver dummy was also equipped with THOR-LX lower legs and with upper and lower tibia load cells to measure forces and moments.

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

The 288 data channels were digitally sampled and recorded at 12,500 samples per second and processed per SAE J211 March 1995.

The crash event was recorded by one (1) real-time panning motion picture camera and nineteen (19) high-speed motion picture cameras. The pre-test and post-test conditions were recorded by one (1) real-time motion picture camera.

The test summary is presented in Section 2.0. The summary of data is presented in Section 3.0. The occupant, camera, and vehicle measurements are presented in Section 4.0. Appendix A contains the still photographic prints. Appendix B contains the dummy and vehicle data plots. Appendix C contains the dummy verification data. Appendix D contains miscellaneous test information. Appendix E contains an INSIA report that was the basis for the Structural Measurements presented in Tables 14 and 19 of this report.

Section 2.0

# Full Frontal Collinear Test Summary

## Test Results Summary

This 120.8 km/h 0° full frontal collinear vehicle-to-vehicle impact test was conducted by TRC Inc. on March 10, 2006.

The target test vehicle, a 2002 Ford Focus 4-door, was equipped with a 4-cylinder transverse engine, automatic transmission, power steering, and power brakes. The vehicle's test weight was 1552.8 kg. The vehicle's impact speed was 71.8 km/h. The target vehicle sustained 796 mm of static crush during the impact (measured without bumper fascia).

The bullet test vehicle, a 2003 Honda Odyssey 4-door MPV, was equipped with a 6-cylinder transverse engine, automatic transmission, power steering, and power brakes. The bullet vehicle's test weight was 2273.0 kg. The bullet vehicle's impact speed was 49.0 km/h. The bullet vehicle sustained 594 mm of static crush during the impact (measured without bumper fascia).

| Injury Criteria Data Summary | | | | | | |
|---|---|---|---|---|---|---|
| | Limits | | Target Vehicle | | Bullet Vehicle | |
| | Driver | Passenger | Driver | Passenger | Driver | Passenger |
| HIC (15 ms) | 700 | 700 | 1689 | 1723 | 155 | 165 |
| HIC (36 ms) | 1000 | --- | 1791 | 2153 | 236 | 281 |
| Chest 3 ms (g) | 60 | 60 | 90.1 | 63.2 | 32.9 | 30.0 |
| Chest Deflection (mm) | 63 | 52 | 39 | 30 | 28 | 15 |
| Upper Neck | | | | | | |
| NTF | 1.0 | 1.0 | 0.33 | 0.07 | 0.17 | 0.14 |
| NTE | 1.0 | 1.0 | 0.63 | 0.58 | 0.19 | 0.41 |
| NCF | 1.0 | 1.0 | 0.13 | 0.02 | 0.17 | 0.14 |
| NCE | 1.0 | 1.0 | 0.16 | 0.68 | 0.00 | 0.20 |
| Neck Tension (N) | 4170 | 2620 | 3126 | 723 | 842 | 940 |
| Neck Compression (N) | 4000 | 2520 | 348 | 1527 | 73 | 118 |

Test Results Summary, Continued

| Injury Criteria Data Summary, Continued | | | | | | |
|---|---|---|---|---|---|---|
| | Limits | | Target Vehicle | | Bullet Vehicle | |
| | Driver | Passenger | Driver | Passenger | Driver | Passenger |
| Left Femur (N) | 10000 | 6805 | 5441 | 3201 | 2566 | 2938 |
| Right Femur (N) | 10000 | 6805 | 4220 | 2932 | 2359 | 2628 |
| Maximum Upper TI (SAE) | 0.91 | 0.91 | 1.14 | 1.53 | 0.71 | N/A |
| Maximum Lower TI (SAE) | 0.91 | 0.91 | 1.55 | 1.52 | 0.83 | N/A |

Data Acquisition Explanations

The target vehicle's top of engine X-axis acceleration data channel, 22ENGNTP0000ACXA, exceeded full scale at approximately 29 milliseconds and recorded no useful data after that.

The target vehicle's bottom of engine X-axis acceleration data channel, 22ENGNBO0000ACXA, exceeded full scale after approximately 36 milliseconds and recorded not useful data after that.

The target vehicle's left front brake caliper X-axis acceleration data channel, 21VEHCLE0000ACXA, recorded no useful data during the event.

The target vehicle's rear tunnel center X-axis acceleration data channel, 25TUNNCY0000AXA, recorded questionable data throughout the test. The accelerometer was permanently removed from service post-test.

The target vehicle's driver front airbag primary inductive pickup data channel, 21AIRBFR0100EV0A, failed to record a fire event.

The target vehicle's driver front airbag secondary inductive pickup data channel, 21AIRBFR0200EV0A, failed to record a fire event.

The target vehicle's passenger front airbag primary inductive pickup data channel, 23AIRBFR0100EV0A, failed to record a fire event.

The target vehicle's passenger front airbag secondary inductive pickup data channel, 23AIRBFR0200EV0A, failed to record a fire event.

The bullet vehicle passenger's left foot Y-axis angular displacement data channel, 11FOOTLELXH3ANYA, was identified as no good prior to the test and recorded no useful data during the event.

The bullet vehicle's right rear seat cross-member X-axis acceleration data channel, 16CRME000000ACXA, recorded no useful data after approximately 19 milliseconds.

The bullet vehicle's top of engine X-axis acceleration data channel, 12ENGNTP0000ACXA, failed to return to zero post-test.

Table 1 Crash Test Summary

| | | |
|---|---|---|
| Test mode: | Full frontal collinear | |
| Test date: | 03/10/06 | |
| Test time: | 14:38 | |
| Ambient temperature: | 8° C | |
| Target vehicle year/make/ model/body style: | 2002/Ford/Focus/4-door | |
| Target vehicle test weight: | 1552.8 kg | |
| Bullet vehicle year/make/ model/body style: | 2003/Honda/Odyssey/4-door MPV | |
| Bullet vehicle test weight: | 2273.0 kg | |
| Impact angle[1]: | 0° | |
| Impact velocity[2]: | Target vehicle = 71.8 km/h<br>Bullet vehicle = 49.0 km/h | |
| Target vehicle maximum static crush: | 796 mm | |
| Bullet vehicle maximum static crush: | 594 mm | |
| Total number of data channels: | 288 | |
| Number of cameras: | High-speed 19 | Real-time 1 |
| Target vehicle dummies: | Driver #110 | Passenger #416 |
| Type: | Hybrid III 50th | Hybrid III 5th |
| Location: | Left front | Right front |
| Restraint: | 3 pt. seat belt, dual stage airbag | 3 pt. seat belt, dual stage airbag |
| Bullet vehicle dummies: | Driver #090 | Passenger #070 |
| Type: | Hybrid III 50th | Hybrid III 5th |
| Location: | Left front | Right front |
| Restraint: | 3 pt. seat belt, dual stage airbag | 3 pt. seat belt, dual stage airbag |

[1] With respect to tow track centerline.
[2] Speed trap measurement (± .08 km/h accuracy)

Table 1 Crash Test Summary, Continued

| | |
|---|---|
| Target vehicle seat track position for test: | |
| Driver: | Middle; detent #9 of 17 |
| Passenger: | Full forward |
| Target vehicle seat back position for test: | |
| Driver: | 16.1°; measured at head restraint support post |
| Passenger: | 10.5°; measured at head restraint support post |
| Target vehicle head restraint position for test: | |
| Driver: | Full up |
| Passenger: | Full down |
| Target vehicle steering column position for test: | 23.5°; middle of geometric range of travel |
| Target vehicle D-ring position for test: | |
| Driver: | Full up |
| Passenger: | Full down |
| Bullet vehicle seat track position for test: | |
| Driver: | Middle; detent #12 of 23 |
| Passenger: | 1 notch rearward of full forward; detent #1 of 22 |
| Bullet vehicle seat back position for test: | |
| Driver: | 16.4°; measured at head restraint support post |
| Passenger: | 9.8°; measured at head restraint support post |
| Bullet vehicle head restraint position for test: | |
| Driver: | Full up |
| Passenger: | Full down |
| Bullet vehicle steering column position for test: | 28.5°; middle of geometric range of travel |
| Bullet vehicle D-ring position for test: | |
| Driver: | Full up |
| Passenger: | Full down |

Table 2 Target General Test and Vehicle Parameter Data

| | |
|---|---|
| Vehicle year/make/ model/body style: | 2002/Ford/Focus/4-door |
| VIN: | 1FAFP34P32W280999 |
| Model year: | 2002 |
| Body style: | 4-door |
| Color: | Red |
| Engine data: | |
| Cylinders: | 4 |
| Displacement | 2.0 liters |
| Cylinder placement: | Straight |
| Engine placement: | Transverse |
| Transmission data: | _3_ speed, ___ manual, _X_ automatic, _X_ overdrive |
| Final drive: | _X_ FWD, __ RWD, ___ 4WD |
| Date vehicle received: | 3/07/2006 |
| Odometer reading: | 26,346 miles |
| Dealer's name and address: | Vehicle provided by VRTC |

Accessories:

| | | | |
|---|---|---|---|
| Power steering | Yes | Automatic transmission | Yes |
| Power brakes | Yes | Automatic speed control | Yes |
| Power seats | No | Tilting steering wheel | Yes |
| Power windows | Yes | Telescoping steering wheel | Yes |
| Tinted glass | Yes | Air conditioning | Yes |
| Radio | Yes | Anti-skid brake | Yes |
| Clock | Yes | Rear window defroster | Yes |
| Other | None | Power door locks | Yes |

Certification data from vehicle's label:

| | | | |
|---|---|---|---|
| Vehicle manufactured by: | | Ford Motor Co. | |
| Date of manufacture: | | 4/02 | |
| VIN: | | 1FAFP34P32W280999 | |
| GVWR: | | 1641 kg | (3620 lbs.) |
| GAWR: | Front: | 891 kg | (1965 lbs.) |
| | Rear: | 791 kg | (1745 lbs.) |

Table 2 Target General Test and Vehicle Parameter Data, Continued

Tires on vehicle (mfr., line, size): Goodyear, Eagle RS-A, P195/60R15

Tire pressure with maximum capacity vehicle load:

| | | |
|---|---|---|
| Front: | 32 psi | (221 kPa) |
| Rear: | 32 psi | (221 kPa) |

Spare tire (mfr., line, size): Hankook, Temp, T125/80R15

Type of seats:

| | |
|---|---|
| Front | Bucket |
| Rear | Bench |

Maximum width: 1698 mm

Wheelbase: 2620 mm

Location of "Recommended Tire Pressure" label:

The label was located on left front door.

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

Recommended tire size: P195/60R15

Recommended cold tire pressure:

| | | |
|---|---|---|
| Front: | 32 psi | (221 kPa) |
| Rear: | 32 psi | (221 kPa) |

Vehicle Capacity Data:

Number of Occupants (Designated seating capacity):

| | |
|---|---|
| Front | 2 |
| Rear | 3 |
| Total | 5 |

Vehicle capacity weight: 375 kg (827 lbs.)

Rated cargo/luggage weight 35 kg (77 lbs.)

Test vehicle attitude:

| | | | | |
|---|---|---|---|---|
| Pre-test attitude: | LF 627 mm; | RF 633 mm; | LR 613 mm; | RR 613 mm |
| Post-test attitude: | LF 680 mm; | RF 740 mm; | LR 627 mm; | RR 620 mm |

Table 2 Target General Test and Vehicle Parameter Data, Continued

Weight of test vehicle with required dummies and cargo weight:

| | | | |
|---|---|---|---|
| Right front | 406.0 kg | Right rear | 369.0 kg |
| Left front | 415.6 kg | Left rear | 362.2 kg |
| Total front weight | 821.6 kg | (52.9% of total vehicle weight) | |
| Total rear weight | 731.2 kg | (47.1% of total vehicle weight) | |
| Total test weight | 1552.8 kg | | |

Weight of ballast secured in vehicle: 22.2 kg of plate in cargo area

Components removed to meet target test weight: None

Location of Vehicle's CG: 1234 mm rearward of front wheel centerline

Fuel System Data:

Usable fuel system capacity 50.0 liters (from owner's manual)

Actual test volume: 46.6 liters (93% of usable)

Table 3 Bullet General Test and Vehicle Parameter Data

| | |
|---|---|
| Vehicle year/make/ model/body style: | 2003/Honda/Odyssey/4-door MPV |
| VIN: | 5FNRL18563B116359 |
| Model year: | 2003 |
| Body style: | 4-door MPV |
| Color: | White |
| Engine data: | |
| Cylinders: | 6 |
| Displacement | 3.5 liters |
| Cylinder placement: | V |
| Engine placement: | Transverse |
| Transmission data: | _4_ speed, ___ manual, _X_ automatic, _X_ overdrive |
| Final drive: | _X_ FWD, __ RWD, ___ 4WD |
| Date vehicle received: | 3/07/2006 |
| Odometer reading: | 32,219 miles |
| Dealer's name and address: | Vehicle provided by VRTC |

Accessories:

| | | | |
|---|---|---|---|
| Power steering | Yes | Automatic transmission | Yes |
| Power brakes | Yes | Automatic speed control | Yes |
| Power seats | No | Tilting steering wheel | Yes |
| Power windows | Yes | Telescoping steering wheel | No |
| Tinted glass | Yes | Air conditioning | Yes |
| Radio | Yes | Anti-skid brake | Yes |
| Clock | Yes | Rear window defroster | Yes |
| Other | None | Power door locks | Yes |

Certification data from vehicle's label:

| | | | |
|---|---|---|---|
| Vehicle manufactured by: | | Honda Mfg. of Alabama, LLC | |
| Date of manufacture: | | 5/03 | |
| VIN: | | 5FNRL18563B116359 | |
| GVWR: | | 2570 kg | (5665 lbs.) |
| GAWR: | Front: | 1285 kg | (2833 lbs.) |
| | Rear: | 1290 kg | (2845 lbs.) |

Table 3 Bullet General Test and Vehicle Parameter Data, Continued

Tires on vehicle (mfr., line, size): Mastercraft, Sensys 10, P225/60R16

Tire pressure with maximum capacity vehicle load:

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

Spare tire (mfr., line, size): N/A, Temp, 135/80D16?

Type of seats:

| | |
|---|---|
| Front | Bucket |
| Rear | Bucket |

Maximum width: 1940 mm

Wheelbase: 3000 mm

Location of "Recommended Tire Pressure" label:

The label was located on Driver B-pillar.

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

Recommended tire size: 225/60R16

Recommended cold tire pressure:

| | | |
|---|---|---|
| Front: | 36 psi | (250 kPa) |
| Rear: | 36 psi | (250 kPa) |

Vehicle Capacity Data:

Number of Occupants (Designated seating capacity):

| | |
|---|---|
| Front | 2 |
| Mid | 2 |
| Rear | 3 |
| Total | 7 |

Vehicle capacity weight: 537 kg (1185 lbs.)

Rated cargo/luggage weight 61 kg (134 lbs.)

Test vehicle attitude:

| | | | | |
|---|---|---|---|---|
| Delivered attitude: | LF 763 mm; | RF 764 mm; | LR 755 mm; | RR 755 mm |
| Fully loaded attitude: | LF 735 mm; | RF 743 mm; | LR 735 mm; | RR 738 mm |
| Pre-test attitude: | LF 735 mm; | RF 731 mm; | LR 705 mm; | RR 710 mm |
| Post-test attitude: | LF 725 mm; | RF 720 mm; | LR 695 mm; | RR 759 mm |

Table 3 Bullet General Test and Vehicle Parameter Data, Continued

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

| | | | |
|---|---|---|---|
| Right front | 550.0 kg | Right rear | 412.5 kg |
| Left front | 563.5 kg | Left rear | 426.0 kg |
| Total front weight | 1113.5 kg | (57.0 % of total vehicle weight) | |
| Total rear weight | 838.5 kg | (43.0 % of total vehicle weight) | |
| Total delivered weight | 1952.0 kg | | |

Calculation of test vehicle's target test weight:

| | |
|---|---|
| Total Delivered Weight (UDW) = | 1952.0 kg |
| Rated Cargo/Luggage Weight (RCLW)[1] = | 61.0 kg |
| Weight of 1 Part 572O Dummy @ 49 kg and 1 Part 572E Dummy @ 76 kg = | 125.0 kg |
| Target test weight = | 2138.0 kg |

Weight of test vehicle with required dummies and cargo weight:[2]

| | | | |
|---|---|---|---|
| Right front | 590.4 kg | Right rear | 552.0 kg |
| Left front | 588.6 kg | Left rear | 542.0 kg |
| Total front weight | 1179.0 kg | (51.9% of total vehicle weight) | |
| Total rear weight | 1094.0 kg | (48.1% of total vehicle weight) | |
| Total test weight | 2273.0 kg | | |

Weight of ballast secured in vehicle: 7.3 kg of shot in engine, 102.0 kg of plate in rear cargo area, 68.9 kg of plate on 2nd row passenger floorboard

Components removed to meet target test weight: None

Location of Vehicle's CG: 1444 mm rearward of front wheel centerline

Fuel System Data:

| | |
|---|---|
| Usable fuel system capacity | 75.7 liters (from owner's manual) |
| Actual test volume: | 70.4 liters (93% of usable) |

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

[2] Customer requested test weight 2273.0 kg used for previous testing.

Table 4 Post-Impact Data

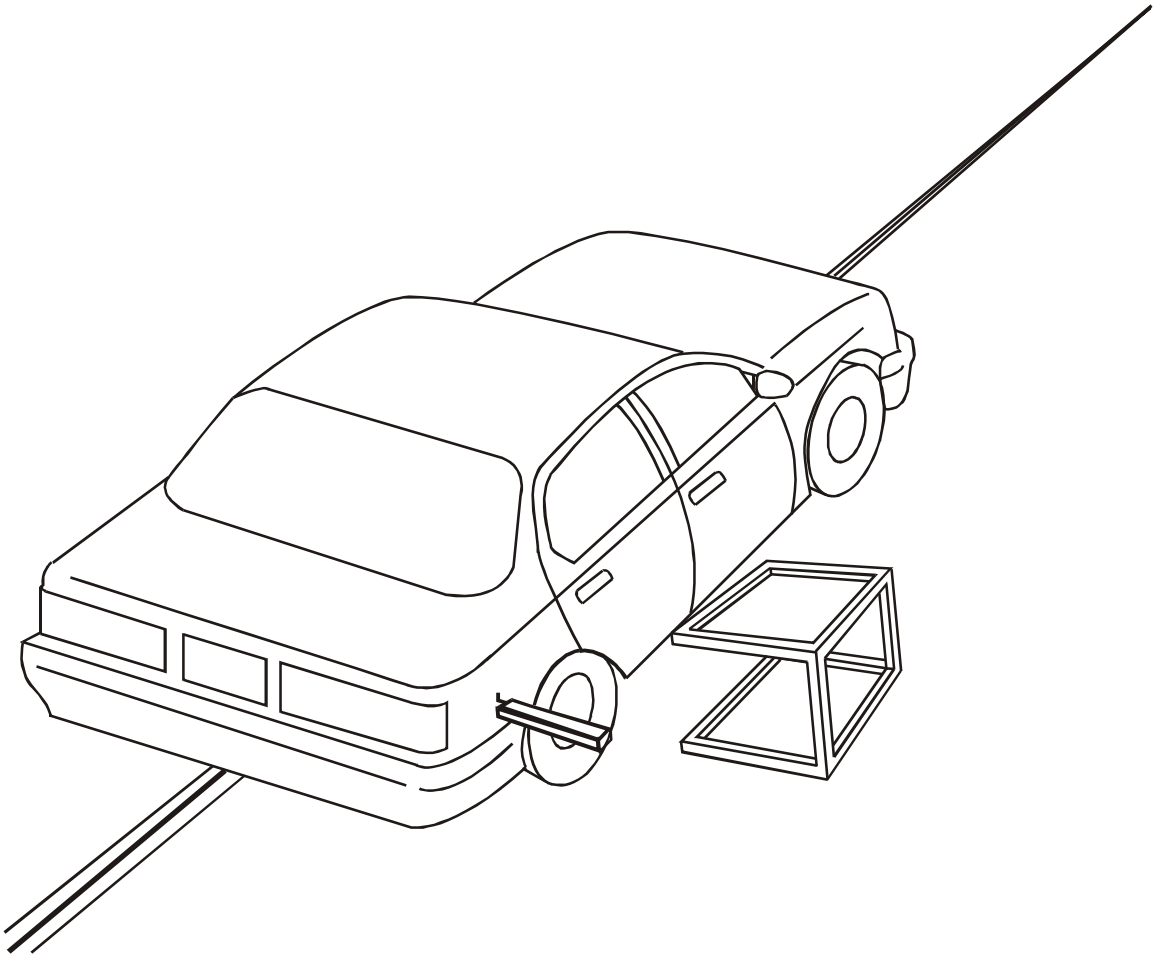
| | |
|---|---|
| Test number: | 060310 |
| Test date: | 03/10/06 |
| Test time: | 14:38 |
| Test type: | Full frontal collinear |
| Impact angle: | 0° |
| Ambient temperature at impact area: | 8° C |
| Impact velocity: | |
| Target vehicle: | 71.8 km/h |
| Bullet vehicle: | 49.0 km/h |
| Required impact velocity range: | |
| Target vehicle: | 70.7 to 72.9 km/h |
| Bullet vehicle: | 47.6 to 49.9 km/h |

Distance from each vehicle to intended impact point:

| | |
|---|---|
| Entering velocity trap: | 661 mm |
| Exiting velocity trap: | 51 mm, approximately |

Impact point: 0 mm offset from intended impact point (referenced to target vehicle coordinate system

Figure 1  Impact Velocity Measurement System



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

The emitter/receiver pairs have a spacing of 610 millimeters.

Table 5 Target Vehicle Accelerometer Data Summary

| Accel. No. | Location | | Positive Direction Max. (g) | Positive Direction Time (ms) | Negative Direction Max. (g) | Negative Direction Time (ms) |
|---|---|---|---|---|---|---|
| 1 | Left Rear Seat Cross-member | X | 4.2 | 153.2 | 49.9 | 63.4 |
| 2 | Right Rear Seat Cross-member | X | 2.9 | 154.9 | 40.9 | 71.7 |
| 3 | Top of Engine[1] | X | --- | --- | --- | --- |
| 4 | Bottom of Engine[1] | X | --- | --- | --- | --- |
| 5 | Right Front Brake Caliper | X | 29.7 | 64.2 | 89.5 | 39.4 |
| 6 | Left Front Brake Caliper[1] | X | --- | --- | --- | --- |
| 7 | Dash Center | X | 14.7 | 61.1 | 94.5 | 52.7 |
| 8 | Toe Pan Accelerator | X | 10.2 | 107.8 | 109.4 | 45.4 |
| | | Z | 23.8 | 30.6 | 34.6 | 49.5 |
| 9 | Toe Pan Footrest | X | 53.8 | 66.4 | 128.5 | 45.7 |
| | | Z | 98.3 | 59.5 | 74.7 | 68.2 |
| 10 | Rear Tunnel Center[1] | X | --- | --- | --- | --- |
| 11 | Vehicle Center of Gravity | X | 12.7 | 70.1 | 86.8 | 51.2 |
| | | Y | 29.3 | 73.9 | 33.4 | 53.1 |
| | | Z | 54.5 | 33.8 | 93.5 | 55.0 |
| | Resultant | | 108.2 | 52.3 | | |
| 12 | Vehicle Rear Deck | X | 8.1 | 160.4 | 45.9 | 73.8 |
| | | Y | 3.6 | 113.8 | 5.2 | 62.3 |
| | | Z | 14.7 | 106.8 | 20.1 | 66.3 |
| | Resultant | | 47.7 | 77.0 | | |

Reference: X: + Forward From Rear Bumper
Y: + Rightward From Vehicle Centerline
Z: + Downward From Ground Level

For acceleration data sign convention see Report Sign Convention in Appendix D.

[1] See Data Acquisition Explanations.

Table 6 Bullet Vehicle Accelerometer Data Summary

| Accel. No. | Location | | Positive Direction Max. (g) | Positive Direction Time (ms) | Negative Direction Max. (g) | Negative Direction Time (ms) |
|---|---|---|---|---|---|---|
| 1 | Left Rear Seat Cross-member | X | 2.2 | 142.1 | 26.8 | 76.6 |
| 2 | Right Rear Seat Cross-member[1] | X | 86.7 | 31.9 | 26.0 | 82.4 |
| 3 | Top of Engine[1] | X | 37.7 | 61.8 | 143.6 | 31.0 |
| 4 | Bottom of Engine | X | 51.1 | 40.2 | 140.1 | 33.0 |
| 5 | Right Front Brake Caliper | X | 32.3 | 76.3 | 50.8 | 49.7 |
| 6 | Left Front Brake Caliper | X | 108.8 | 92.8 | 97.0 | 57.2 |
| 7 | Dash Center | X | 11.8 | 90.5 | 38.6 | 49.4 |
| 8 | Toe Pan Accelerator | X | 2.2 | 142.3 | 45.0 | 47.9 |
| | | Z | 33.0 | 37.1 | 19.2 | 51.7 |
| 9 | Toe Pan Footrest | X | 1.5 | 127.8 | 25.7 | 68.6 |
| | | Z | 20.8 | 37.4 | 16.7 | 45.9 |
| 10 | Rear Tunnel Center | X | 3.5 | 108.6 | 24.8 | 77.3 |
| 11 | Vehicle Center of Gravity | X | 2.7 | 144.6 | 26.1 | 60.8 |
| | | Y | 6.3 | 64.0 | 12.2 | 50.2 |
| | | Z | 17.9 | 61.2 | 26.5 | 26.9 |
| | Resultant | | 32.1 | 61.0 | | |
| 12 | Vehicle Rear Deck | X | 5.5 | 109.6 | 29.9 | 77.4 |
| | | Y | 8.2 | 52.2 | 7.4 | 68.1 |
| | | Z | 9.0 | 97.6 | 8.7 | 25.6 |
| | Resultant | | 30.4 | 77.5 | | |

Reference: X: + Forward From Rear Bumper
Y: + Rightward From Vehicle Centerline
Z: + Downward From Ground Level

For acceleration data sign convention see Report Sign Convention in Appendix D.

[1] See Data Acquisition Explanations.

# Section 3.0

# Summary of Data

Table 7 Dummy Injury Criteria Data

| | Limits | | Target Vehicle | | Bullet Vehicle | |
|---|---|---|---|---|---|---|
| | Driver | Passenger | Driver | Passenger | Driver | Passenger |
| HIC (15 ms) [1] | 700 | 700 | 1689 | 1723 | 155 | 165 |
| Start time (ms) | | | 66.72 | 69.36 | 82.56 | 70.72 |
| End time (ms) | | | 81.76 | 84.40 | 97.60 | 85.76 |
| HIC (36 ms) [1] | 1000 | --- | 1791 | 2153 | 236 | 281 |
| Start time (ms) | | | 63.92 | 62.64 | 71.68 | 57.84 |
| End time (ms) | | | 83.36 | 88.64 | 107.68 | 93.84 |
| Chest 3 ms (g) [2] | 60 | 60 | 90.1 | 63.2 | 32.9 | 30.0 |
| Start time (ms) | | | 71.46 | 73.07 | 89.42 | 76.86 |
| End time (ms) | | | 74.46 | 76.07 | 92.42 | 79.86 |
| Chest Deflection (mm) | 63 | 52 | 39 | 30 | 28 | 15 |
| Upper Neck | | | | | | |
| NTF | 1.0 | 1.0 | 0.33 | 0.07 | 0.17 | 0.14 |
| NTE | 1.0 | 1.0 | 0.63 | 0.58 | 0.19 | 0.41 |
| NCF | 1.0 | 1.0 | 0.13 | 0.02 | 0.17 | 0.14 |
| NCE | 1.0 | 1.0 | 0.16 | 0.68 | 0.00 | 0.20 |
| Neck Tension (N) | 4170 | 2620 | 3126 | 723 | 842 | 940 |
| Neck Compression (N) | 4000 | 2520 | 348 | 1527 | 73 | 118 |
| Left Femur (N) | 10000 | 6805 | 5441 | 3201 | 2566 | 2938 |
| Right Femur (N) | 10000 | 6805 | 4220 | 2932 | 2359 | 2628 |
| Maximum Upper TI (SAE) | 0.91 | 0.91 | 1.14 | 1.53 | 0.71 | N/A |
| Maximum Lower TI (SAE) | 0.91 | 0.91 | 1.55 | 1.52 | 0.83 | N/A |

[1] As defined in FMVSS No. 208.
[2] Defined as equal to or exceeding 0.003 sec. duration.

Table 8 Target Vehicle Post-Impact Dummy/Vehicle Data

Visible Dummy Contact Points:

| | Driver | Passenger |
|---|---|---|
| Head | Airbag, head restraint | Airbag, seat back |
| Chest | Airbag | Airbag |
| Abdomen | None | None |
| Left knee | Knee bolster | Glove box |
| Right knee | Knee bolster | Glove box |

Door opening:

| | Left | Right |
|---|---|---|
| Front | Tools required | Easy |
| Rear | Tools required | Easy |

Seat movement:

| | Seat back failure | Seat shift |
|---|---|---|
| Left Front | None | None |
| Right Front | None | None |
| Left Rear | None | None |
| Right Rear | None | None |

Glazing damage: Windshield broken

Other notable impact effects: None

Table 9 Bullet Vehicle Post-Impact Dummy/Vehicle Data

Visible Dummy Contact Points:

| | Driver | Passenger |
|---|---|---|
| Head | Airbag, head restraint | Airbag, head restraint |
| Chest | Airbag | Airbag |
| Abdomen | None | None |
| Left knee | Knee bolster | Glove box |
| Right knee | Knee bolster | Glove box |

Door opening:

| | Left | Right |
|---|---|---|
| Front | Easy | Easy |
| Rear | Easy | Easy |

Seat movement:

| | Seat back failure | Seat shift |
|---|---|---|
| Left Front | None | None |
| Right Front | None | None |
| Left Rear | None | None |
| Right Rear | None | None |

Glazing damage: Windshield broken

Other notable impact effects: None

# Section 4.0

## Occupant, Camera, and Vehicle Information

Figure 2 Vehicle Dummy Measurement Locations for Front Seat Occupants

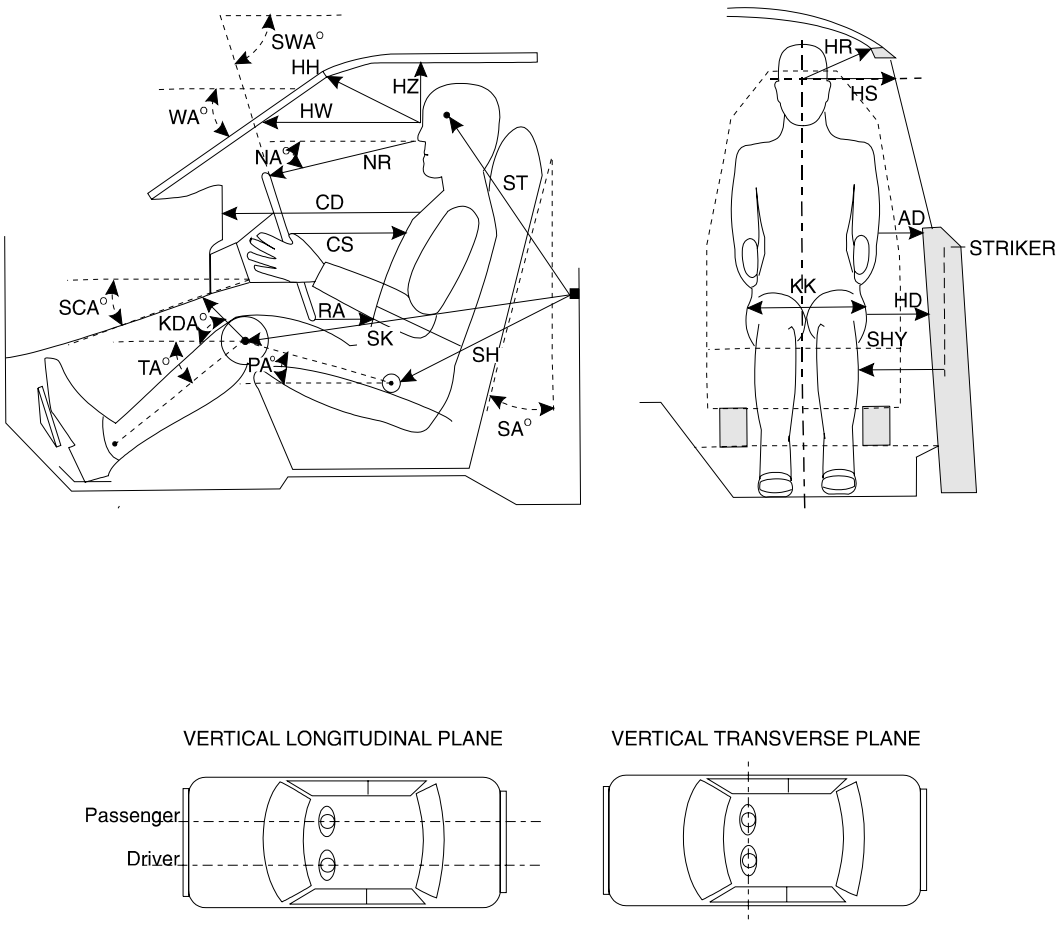


Table 10 Target Vehicle Dummy Measurement Data For Front Seat Occupants

| Designation | Type of Measurement | Driver (Serial #110) | Passenger (Serial #416) |
|---|---|---|---|
| WA | Windshield angle | 25.0° | 25.0° |
| SWA | Steering wheel angle | 65.9° | N/A |
| SCA | Steering column angle | 24.1° | N/A |
| SA | Seat back angle | 12.6° | 9.2° |
| HZ | Head to roof | 218 mm | 209 mm |
| HH | Head to header | 339 mm | 271 mm |
| HW | Head to windshield | 656 mm | 615 mm |
| HR | Head to side header | 219 mm | 231 mm |
| NR | Nose to rim | 410 mm | N/A |
| NA | Nose to rim angle | 6.5° | N/A |
| CD | Chest to dash | 559 mm | 395 mm |
| CS | Steering wheel to chest | 339 mm | N/A |
| RA | Rim to abdomen | 221 mm | N/A |
| KDL | Left knee to dash | 175 mm | 59 mm |
| KDR | Right knee to dash | 159 mm | 58 mm |
| KDA | Outboard knee to dash angle | 16.5° | 2.9° |
| PA | Pelvic angle | N/A[2] | N/A[2] |
| TA | Tibia angle | 40.5° | 58.1° |
| KK | Knee to knee | 350 mm | 178 mm |
| ST[1] | Striker to head | 514 mm | 502 mm |
| | Striker to head angle | -83.5° | -70.0° |
| SK[1] | Striker to knee | 551 mm | 702 mm |
| | Striker to knee angle | -0.4° | 0.7° |
| SH[1] | Striker to H-point | 232 mm | 338 mm |
| | Striker to H-point angle | 39.6° | 15.1° |
| SHY | Striker to H-point (Y dir.) | 130 mm | 130 mm |
| HS | Head to side window | 314 mm | 326 mm |
| HD | H-point to door | 21 mm | 65 mm |
| AD | Arm to door | 102 mm | 143 mm |

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

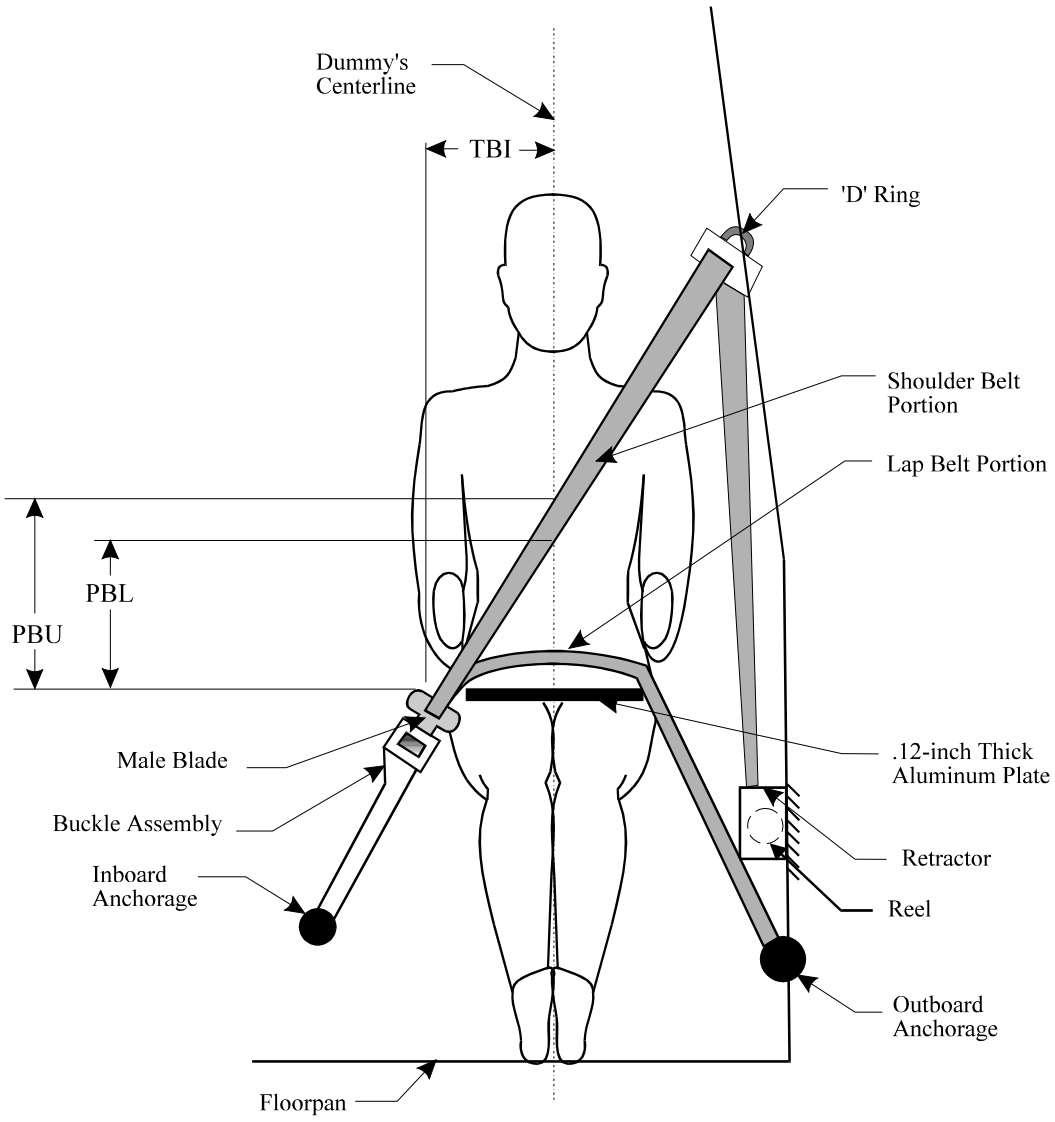
[1] A negative angle indicates the measurement point was above the striker.

[2] Measurement was not recorded.

Table 11 Target Vehicle Driver Dummy THOR LX Ankle Position Angles

| Dummy #110 | After Positioning | Pre-Launch |
|---|---|---|
| Right Leg | | |
| X | 0.13º | -0.20º |
| Y | -1.40º | -0.90º |
| Z | -41.20º | 41.00º |
| Left Leg | | |
| X | 4.62º | 3.10º |
| Y | -5.62º | -5.70º |
| Z | -47.41º | -47.0º |

Figure 3 Target Vehicle Seat Belt Positioning Data




| | Driver Dummy | Passenger Dummy |
|---|---|---|
| PBU - Top surface of aluminum plate to belt upper edge | 330 mm | 280 mm |
| PBL - Top surface of aluminum plate to belt lower edge | 250 mm | 200 mm |
| TBI - Dummy centerline to intersection of upper torso belt and lap belt | 205 mm | 200 mm |

Table 12 Bullet Vehicle Dummy Measurement Data For Front Seat Occupants

| Designation | Type of Measurement | Driver (Serial #090) | Passenger (Serial #070) |
|---|---|---|---|
| WA | Windshield angle | 27.4° | 27.4° |
| SWA | Steering wheel angle | 61.4° | N/A |
| SCA | Steering column angle | 28.6° | N/A |
| SA | Seat back angle | 13.5° | 7.1° |
| HZ | Head to roof | 257 mm | 309 mm |
| HH | Head to header | 432 mm | 364 mm |
| HW | Head to windshield | 739 mm | 736 mm |
| HR | Head to side header | 244 mm | 281 mm |
| NR | Nose to rim | 449 mm | N/A |
| NA | Nose to rim angle | 10.2° | N/A |
| CD | Chest to dash | 612 mm | 438 mm |
| CS | Steering wheel to chest | 318 mm | N/A |
| RA | Rim to abdomen | 193 mm | N/A |
| KDL | Left knee to dash | 136 mm | 29 mm |
| KDR | Right knee to dash | 124 mm | 30 mm |
| KDA | Outboard knee to dash angle | 16.2° | 0.7° |
| PA | Pelvic angle | N/A[2] | N/A[2] |
| TA | Tibia angle | 45.9° | 66.7° |
| KK | Knee to knee | 346 mm | 166 mm |
| ST[1] | Striker to head | 580 mm | 550 mm |
| | Striker to head angle | -77.9° | -62.6° |
| SK[1] | Striker to knee | 655 mm | 770 mm |
| | Striker to knee angle | -2.9° | -1.7° |
| SH[1] | Striker to H-point | 289 mm | 397 mm |
| | Striker to H-point angle | 19.1° | 10.0° |
| SHY | Striker to H-point (Y dir.) | 161 mm | 178 mm |
| HS | Head to side window | 318 mm | 334 mm |
| HD | H-point to door | 54 mm | 110 mm |
| AD | Arm to door | 143 mm | 189 mm |

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

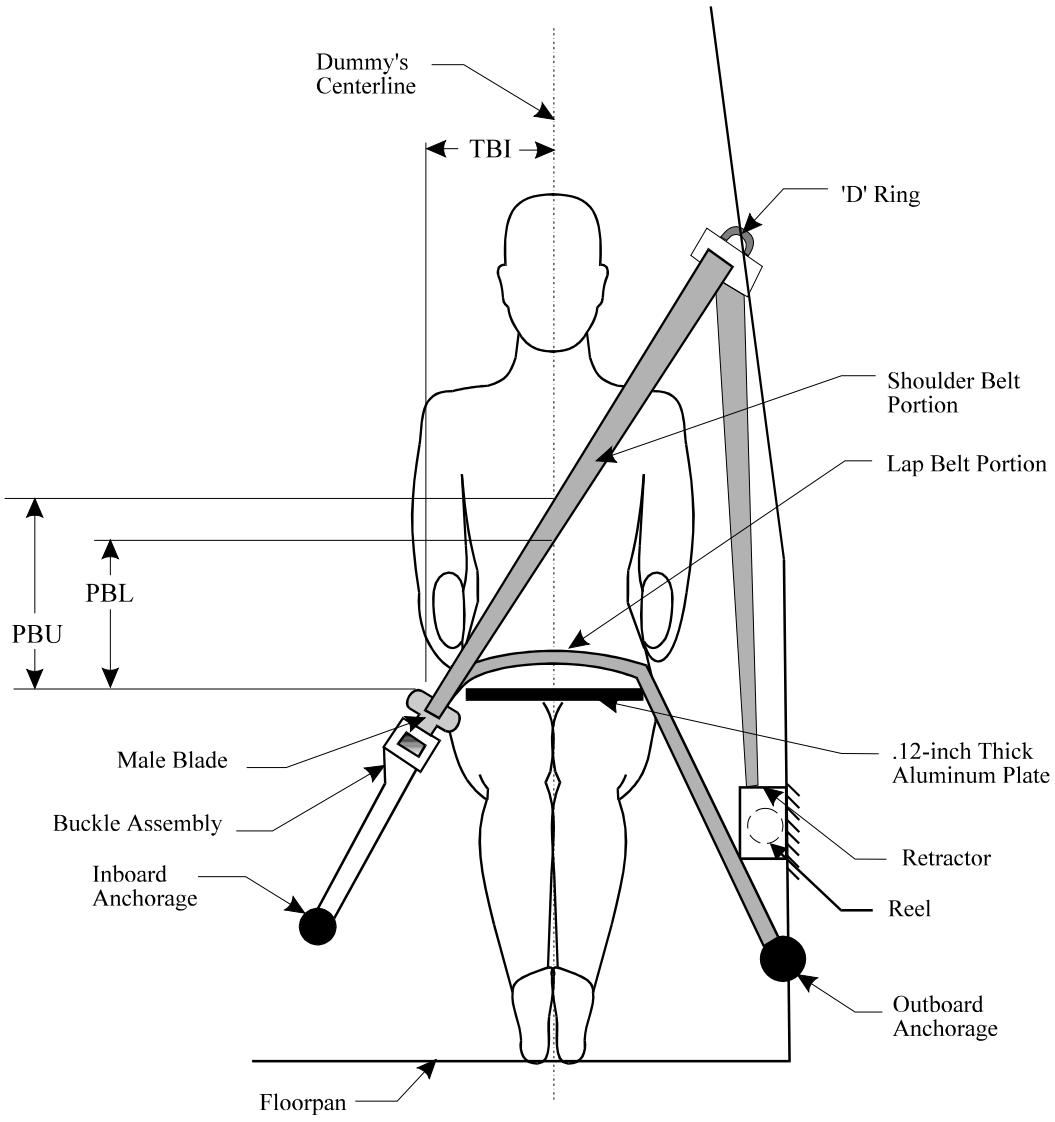
[1] A negative angle indicates the measurement point was above the striker.

[2] Measurement was not recorded.

Table 13 Bullet Vehicle Driver Dummy THOR LX Ankle Position Angles

| Dummy #090 | After Positioning | Pre-Launch |
|---|---|---|
| Right Leg | | |
| X | 3.51º | 3.42º |
| Y | -1.17º | -0.45º |
| Z | 41.25º | 41.95º |
| Left Leg | | |
| X | -9.45º | -8.55º |
| Y | -4.74º | -3.18º |
| Z | 54.56º | 51.99º |

Figure 4 Bullet Vehicle Seat Belt Positioning Data




| | Driver Dummy | Passenger Dummy |
|---|---|---|
| PBU - Top surface of aluminum plate to belt upper edge | 380 mm | 285 mm |
| PBL - Top surface of aluminum plate to belt lower edge | 300 mm | 200 mm |
| TBI - Dummy centerline to intersection of upper torso belt and lap belt | 240 mm | 200 mm |

Figure 5 Target Vehicle FMVSS 212 Test Data

Details of windshield mounting such as retention method, trim type, etc.:

Adhesive, plastic trim

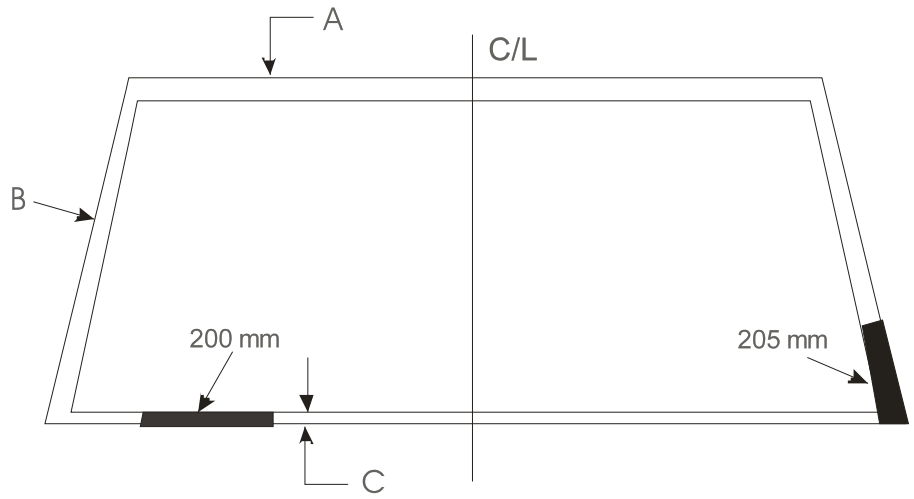
FMVSS 212 requirements: The post-test periphery retention amount must be at least 75% of the pre-test periphery measurement for vehicles NOT equipped with automatic restraints, and 50% for each side of windshield for vehicles equipped with automatic restraint systems for front occupants.

Windshield periphery measurements:

| | Pre-test | Post-test | Percent retention |
|---|---|---|---|
| Right side | 2125 mm | 1925 mm | 90.6 % |
| Left side | 2125 mm | 1920 mm | 90.4 % |
| Total | 4250 mm | 3845 mm | 90.5 % |

Pre-test windshield mounting material temperature: 23° C

A = 12 mm
B = 12 mm
C = 12 mm




Front view of windshield

Loss of windshield retention lengths: 200 millimeters along the bottom right, 205 mm along the lower left side.

Figure 6 Target Vehicle FMVSS 219 Test Data

Protected zone lower edge requirement:

The lower edge of the protected zone is determined by placing a 165-millimeter diameter rigid sphere weighing 6.8 kg in a position such that it simultaneously contacts the inner surface of the windshield and the top surface of the instrument panel including padding. Draw the locus of points on the inner surface of the windshield contactable by the sphere across the width of the instrument panel. From the outermost contactable points, extend the locus line horizontally to the edges of the windshield, and then draw a line on the inner surface of the windshield below and 13 millimeters from the locus line. The **lower edge of the protected zone** is the longitudinal projection onto the outer surface of the windshield of this line.

Windshield measurements:

A = 1085 mm

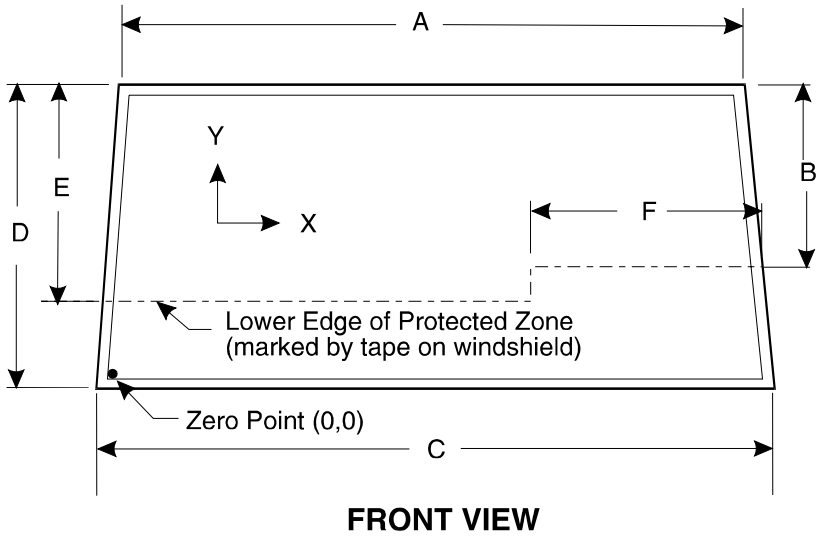
B = 450 mm

C = 1485 mm

D = 795 mm

E = 520 mm

F = 691 mm




**FRONT VIEW**

Method of adhering protected zone template to windshield: N/A

Areas of windshield template penetration greater than 6 mm: N/A

| | Coordinates, mm | |
|---|---|---|
| | X | Y |
| 1. | | |
| 2. | | |
| 3. | | |

Areas of windshield penetration, below the protected zone, through the inner surface of the windshield: None

| | | |
|---|---|---|
| 1. | | |
| 2. | | |
| 3. | | |

Figure 7 Bullet Vehicle FMVSS 212 Test Data

Details of windshield mounting such as retention method, trim type, etc.:

Adhesive, plastic trim

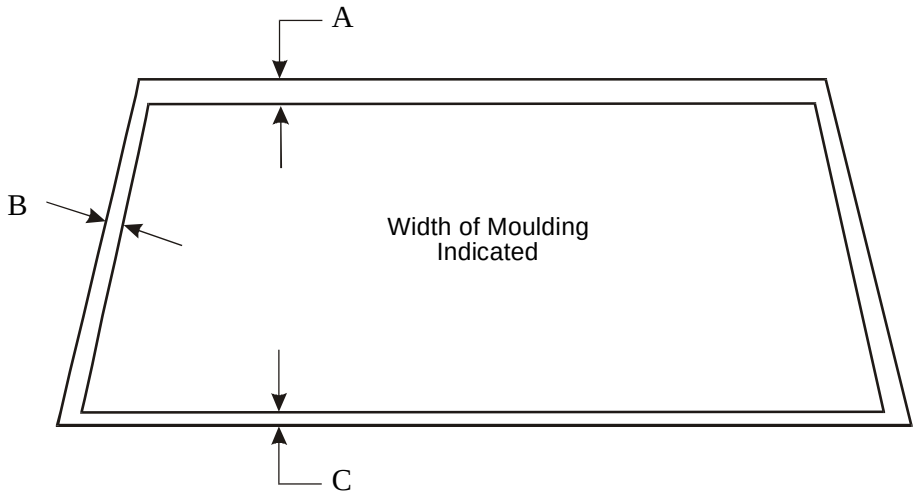
FMVSS 212 requirements: The post-test periphery retention amount must be at least 75% of the pre-test periphery measurement for vehicles NOT equipped with automatic restraints, and 50% for each side of windshield for vehicles equipped with automatic restraint systems for front occupants.

Windshield periphery measurements:

| | Pre-test | Post-test | Percent retention |
|---|---|---|---|
| Right side | 2375 mm | 2375 mm | 100 % |
| Left side | 2375 mm | 2375 mm | 100 % |
| Total | 4750 mm | 4750 mm | 100 % |

Pre-test windshield mounting material temperature: 22° C

A = 25 mm
B = 30 mm
C = 15 mm




Front view of windshield

Loss of windshield retention lengths: None

Figure 8 Bullet Vehicle FMVSS 219 Test Data

Protected zone lower edge requirement:

The lower edge of the protected zone is determined by placing a 165-millimeter diameter rigid sphere weighing 6.8 kg in a position such that it simultaneously contacts the inner surface of the windshield and the top surface of the instrument panel including padding. Draw the locus of points on the inner surface of the windshield contactable by the sphere across the width of the instrument panel. From the outermost contactable points, extend the locus line horizontally to the edges of the windshield, and then draw a line on the inner surface of the windshield below and 13 millimeters from the locus line. The **lower edge of the protected zone** is the longitudinal projection onto the outer surface of the windshield of this line.

Windshield measurements:

A = 1270 mm

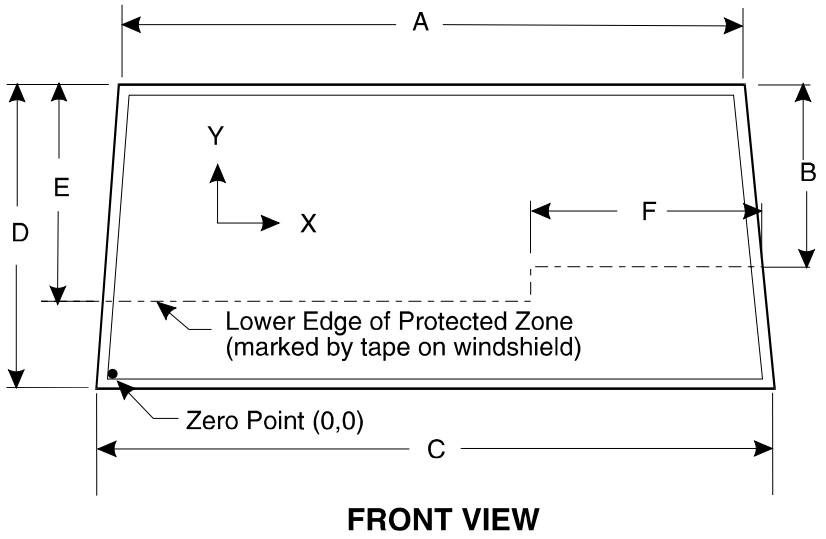
B = 510 mm

C = 1670 mm

D = 905 mm

E = 565 mm

F = 520 mm




**FRONT VIEW**

Method of adhering protected zone template to windshield: N/A

Areas of windshield template penetration greater than 6 mm: N/A

| | Coordinates, mm | |
|---|---|---|
| | X | Y |
| 1. | | |
| 2. | | |
| 3. | | |

Areas of windshield penetration, below the protected zone, through the inner surface of the windshield: None

| | | |
|---|---|---|
| 1. | | |
| 2. | | |
| 3. | | |

Table 14 Target Vehicle Structural Measurements[1]

| | Elements | Pre-Test |
|---|---|---|
| 1 | Total Length | 4317 |
| 2 | Total Width | 1698 |
| 3 | Bumper Top Height | 521 |
| 4 | Bumper Bottom Height | 370 |
| 5 | Longitudinal Member Top Height | 513 |
| 6 | Longitudinal Member Bottom Height | 395 |
| 7 | Distance Between Longitudinal Members | 1085 |
| 7´ | Longitudinal Member Width | 85 |
| 8 | Engine Top Height | 775 |
| 9 | Engine Bottom Height | 185 |
| 10 | Engine and Gearbox Width | 856 |
| 11 | Front Bumper - Engine Distance | 474 |
| 12 | Front Shock Absorber Fixing Height | 808 |
| 13 | Bonnet Leading Edge Height | 645 |
| 14 | Front Shock Absorber Fixing Width | 1105 |
| 15 | Front Bumper - Front Axle Distance | 766 |
| 16 | Front Axle - A Pillar Distance | 516 |
| 17 | A Pillar - B Pillar Distance | 980 |
| 18 | B Pillar - Rear Axle Distance | 1095 |
| 19 | B Pillar - C Pillar Distance | 872 |
| 20 | Roof Sill Bottom Height | 1372 |
| 21 | Roof Sill Top Height | 1348 |
| 22 | Floor Sill Bottom Height | 290 |
| 23 | Floor Sill Top Height | 300 |

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 9 Target Vehicle Pre-Test And Post-Test Measurement Points

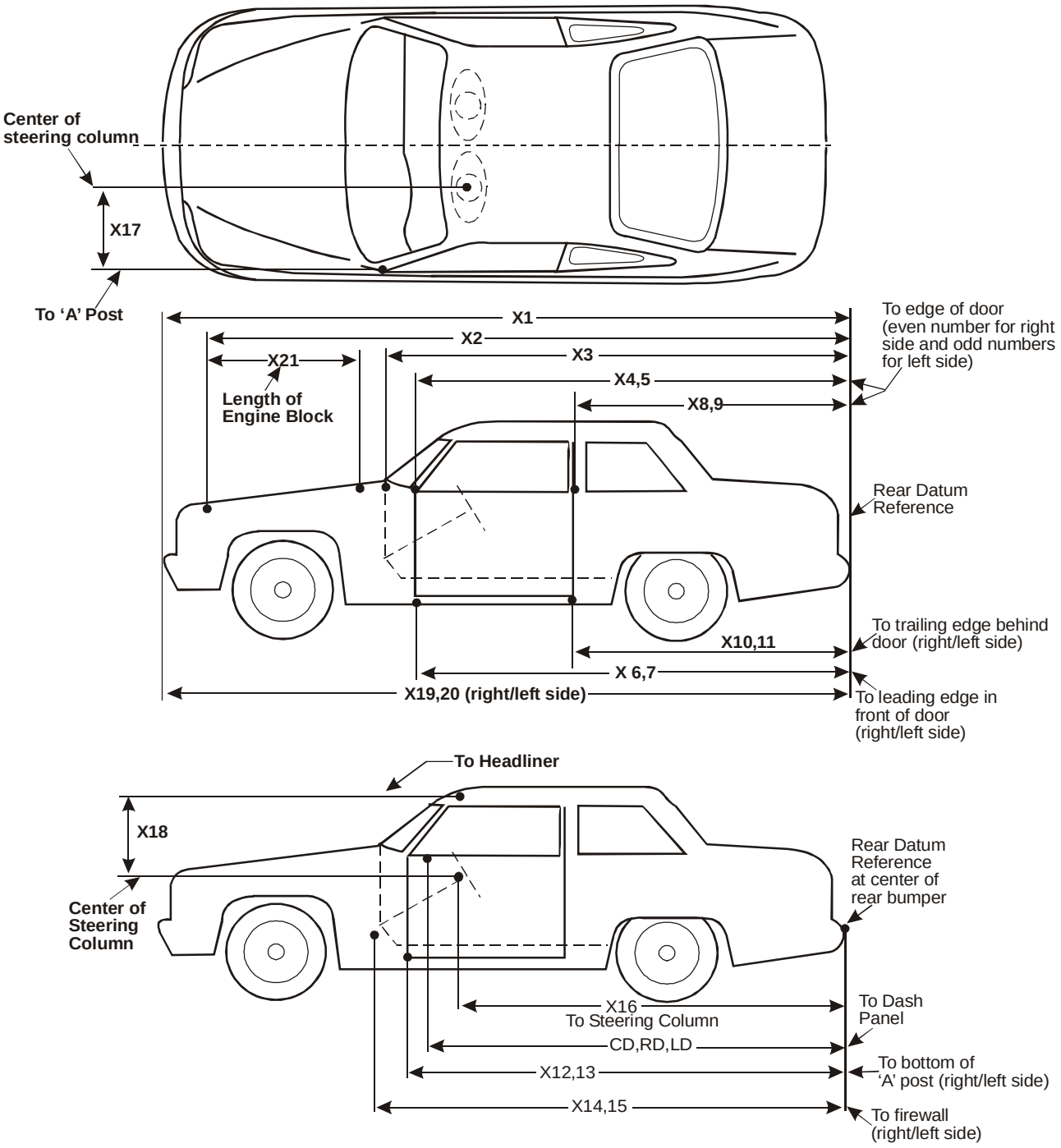


Table 15 Target Vehicle Impacted Measurements

Test number: 060310

Vehicle year/make/model/body style: 2002/Ford/Focus/4-door

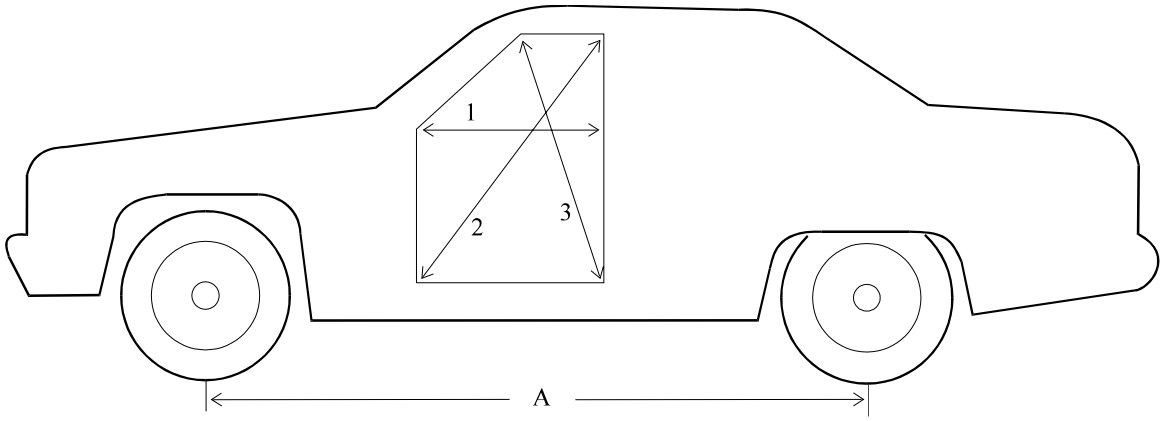
| No. | Type of measurement | Pre-Test | Post-Test | Difference |
|---|---|---|---|---|
| X1 | Total Length of Vehicle at Centerline | 4317 | 3717 | 600 |
| X2 | Rear Surface of Vehicle to Front of Engine Block | 3844 | 3464 | 380 |
| X3 | Rear Surface of Vehicle to Firewall | 3456 | 3251 | 205 |
| X4 | Rear Surface of Veh. to Upper Leading Edge of Right Door | 3067 | 3042 | 25 |
| X5 | Rear Surface of Veh. to Upper Leading Edge of Left Door | 3062 | 3001 | 61 |
| X6 | Rear Surface of Veh. to Lower Leading Edge of Right Door | 3027 | 3001 | 26 |
| X7 | Rear Surface of Veh. to Lower Leading Edge of Left Door | 3027 | 2977 | 50 |
| X8 | Rear Surface of Veh. to Upper Trailing Edge of Right Door | 2047 | 2023 | 24 |
| X9 | Rear Surface of Veh. to Upper Trailing Edge of Left Door | 1772 | 1962 | -190 |
| X10 | Rear Surface of Veh. to Lower Trailing Edge of Right Door | 2052 | 2017 | 35 |
| X11 | Rear Surface of Veh. to Lower Trailing Edge of Left Door | 2052 | 2001 | 51 |
| X12 | Rear Surface of Veh. to Bottom of " A " Post on Right Side | 3012 | 2977 | 35 |
| X13 | Rear Surface of Veh. to Bottom of " A " Post on Left Side | 3012 | 2930 | 82 |
| X14 | Rear Surface of Vehicle to Firewall - Right Side | 3454 | 3211 | 243 |
| X15 | Rear Surface of Vehicle to Firewall - Left Side | 3460 | 3259 | 201 |
| X16 | Rear Surface of Vehicle to Steering Wheel Center | 2617 | 2550 | 67 |
| X17 | Center of Steering Column to " A " Post | 282 | 229 | 53 |
| X18 | Center of Steering Column to Headliner | 420 | 481 | -61 |
| X19 | Rear Surface of Vehicle to Right Side of Front Bumper | 4293 | 3898 | 395 |
| X20 | Rear Surface of Vehicle to Left Side of Front Bumper | 4293 | 3497 | 796 |
| X21 | Length of Engine Block | 480 | 480 | 0 |
| RD | Rear Surface of Vehicle to Right Side of Dash Panel | 2862 | 2757 | 105 |
| CD | Rear Surface of Vehicle to Center of Dash Panel | 2942 | 2785 | 157 |
| LD | Rear Surface of Vehicle to Left Side of Dash Panel | 2857 | N/A[1] | N/A[1] |

All distance measurements are in millimeters.

[1] Measurement point could not be located post-test.

Figure 10 Target Vehicle Intrusion Measurements

Door Opening Width

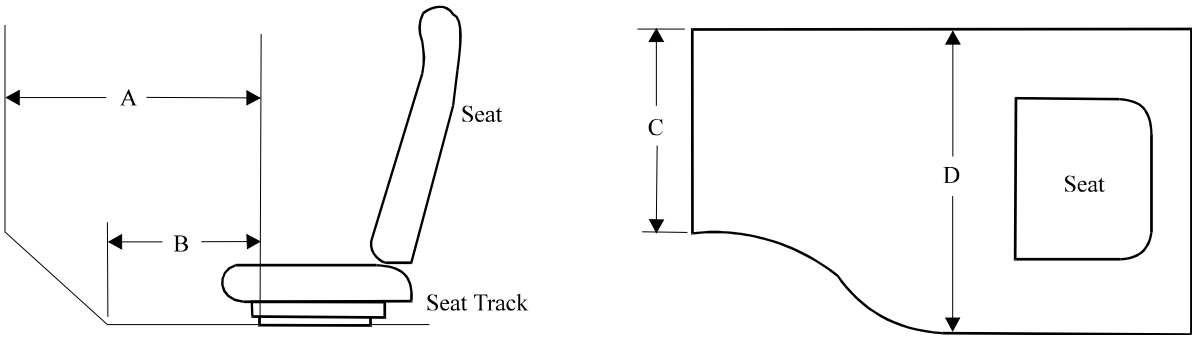



| Units (mm) | Left | | | Right | | |
|---|---|---|---|---|---|---|
| Measurement | 1 | 2 | 3 | 1 | 2 | 3 |
| Pre-Test | 895 mm | 1395 mm | 982 mm | 900 mm | 1402 mm | 995 mm |
| Post-Test | 830 mm | 1358 mm | 1088 mm | 865mm | 1389 mm | 1071 mm |
| Difference | 65 mm | 37 mm | -106 mm | 35 mm | 13 mm | -76 mm |

| Units (mm) | A = Wheelbase Left | A = Wheelbase Right |
|---|---|---|
| Pre-Test | 2620 mm | 2620 mm |
| Post-Test | 2495 mm | 2430 mm |
| Difference | 125 mm | 190 mm |

Figure 11 Target Vehicle Intrusion Measurements

Static Footwell Deformation




**Driver's Side**

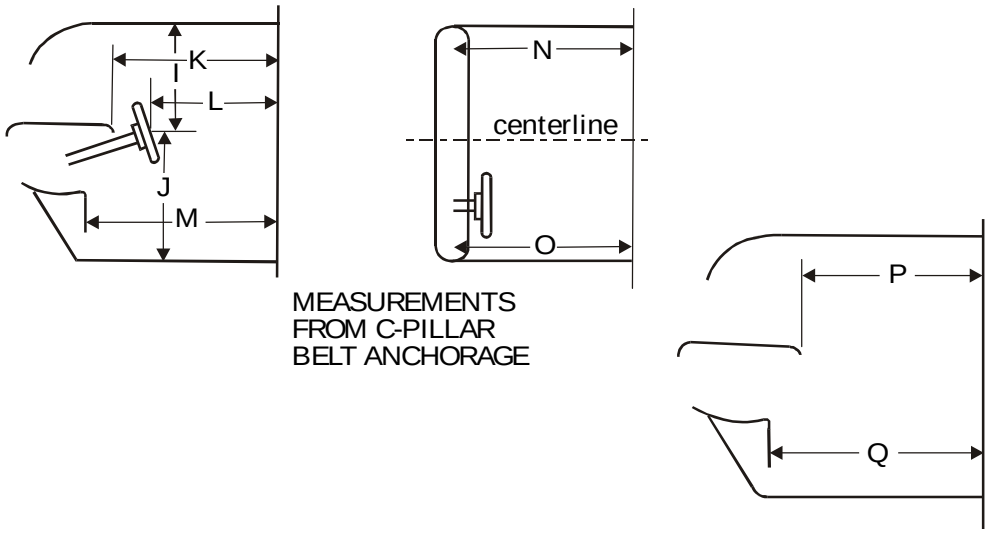
| Measurement | Pre-Test | Post-Test | Difference |
|---|---|---|---|
| A | 610 mm | 550 mm | 60 mm |
| B | 475 mm | 441 mm | 34 mm |
| C | 480 mm | 463 mm | 17 mm |
| D | 469 mm | 453 mm | 16 mm |

**Passenger's Side**

| Measurement | Pre-Test | Post-Test | Difference |
|---|---|---|---|
| A | 610 mm | 526 mm | 84 mm |
| B | 465 mm | 413 mm | 52 mm |
| C | 460 mm | 450 mm | 10 mm |
| D | 460 mm | 455 mm | 5 mm |

Figure 12 Target Vehicle Intrusion Measurements

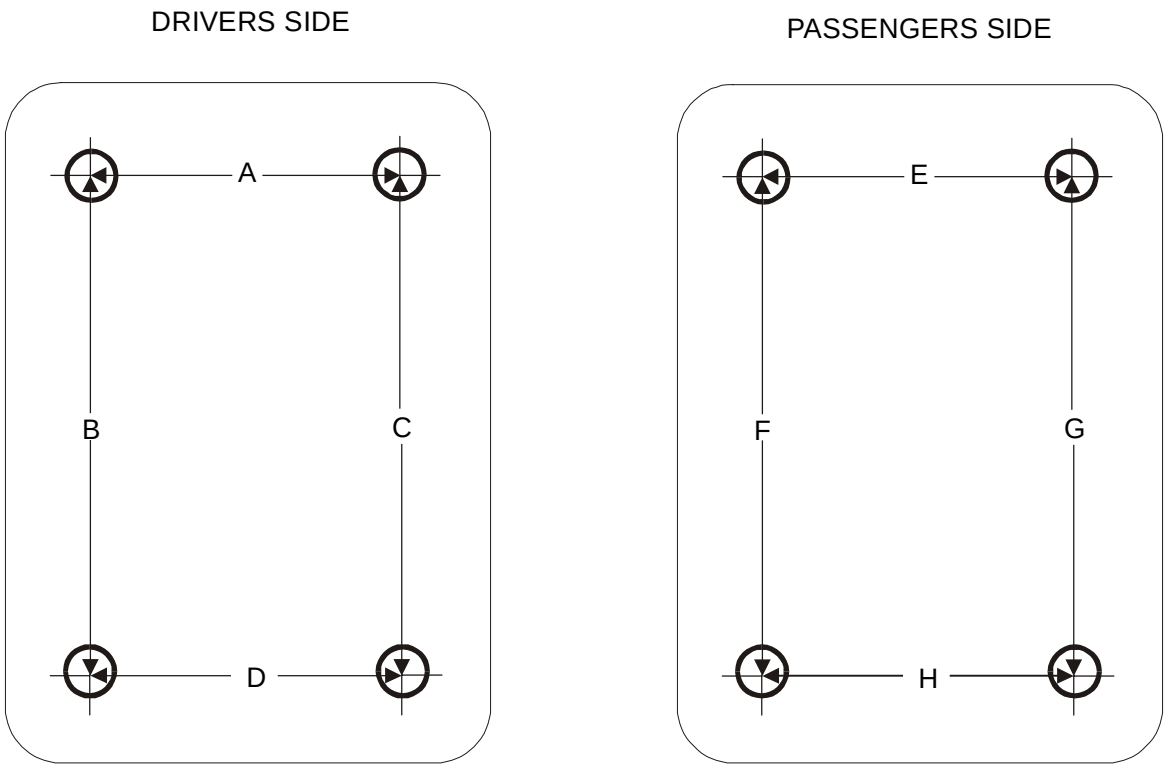
Static Passenger Compartment Intrusion




| Measurement | Pre-Test | Post-Test | Difference |
|---|---|---|---|
| I | 420 mm | 481 mm | -61 mm |
| J | 730 mm | 804 mm | -74 mm |
| K (driver's side) | 1890 mm | N/A[1] | N/A[1] |
| L | 1670 mm | 1570 mm | 100 mm |
| M (driver's side) | 1985 mm | 1920 mm | 65 mm |
| N (passenger's side) | 1934 mm | 1809 mm | 125 mm |
| O (driver's side) | 1875 mm | 1740 mm | 135 mm |
| P (passenger's side) | 1890 mm | 1789 mm | 101 mm |
| Q (passenger's side) | 1985 mm | 1890 mm | 95 mm |

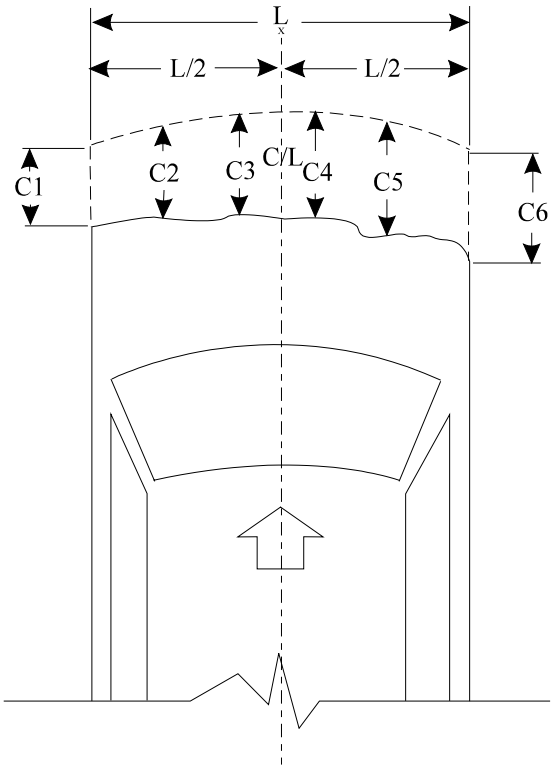
[1] Measurement point could not be located post-test.

Figure 13 Target Vehicle Floorboard Deformation




| Measurement | Pre-Test | Post-Test | Difference |
|---|---|---|---|
| A | 480 mm | 463 mm | 17 mm |
| B | 401 mm | 458 mm | -57 mm |
| C | 395 mm | 389 mm | 6 mm |
| D | 469 mm | 463 mm | 6 mm |
| E | 460 mm | 450 mm | 10 mm |
| F | 383 mm | 379 mm | 4 mm |
| G | 390 mm | 413 mm | -23 mm |
| H | 460 mm | 455 mm | 5 mm |

Figure 14 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 Ford Focus 4-door

| | Pre-test | Post-test | Crush |
|---|---|---|---|
| L | 1233 mm | | |
| C1 | 4293 mm | 3497 mm | 796 mm |
| C2 | 4307 mm | 3623 mm | 684 mm |
| C3 | 4307 mm | 3697 mm | 610 mm |
| C4 | 4307 mm | 3782 mm | 525 mm |
| C5 | 4307 mm | 3862 mm | 465 mm |
| C6 | 4292 mm | 3898 mm | 394 mm |
| CL | 4317 mm | 3717 mm | 600 mm |

Table 16 Target Vehicle Frontal Profile Measurements

**Bottom of Front Bumper**

| Pre-Test | | | | Post-Test | | | Difference[1] | | |
|---|---|---|---|---|---|---|---|---|---|
| Index | Xmm | Ymm | Zmm | Xmm | Ymm | Zmm | Xmm | Ymm | Zmm |
| 1 | 4293 | -620 | -380 | 3505 | -560 | -382 | -788 | 60 | -2 |
| 2 | 4307 | -363 | -385 | 3663 | -351 | -429 | -644 | 12 | -44 |
| 3 | 4307 | -120 | -385 | 3732 | -111 | -415 | -575 | 9 | -30 |
| 4 | 4307 | 119 | -385 | 3797 | 106 | -395 | -510 | -13 | -10 |
| 5 | 4307 | 365 | -390 | 3867 | 354 | -381 | -460 | -11 | 9 |
| 6 | 4292 | 605 | -388 | 3807 | 571 | -329 | -485 | -34 | 59 |

**Top of Front Bumper**

| Pre-Test | | | | Post-Test | | | Difference[2] | | |
|---|---|---|---|---|---|---|---|---|---|
| Index | Xmm | Ymm | Zmm | Xmm | Ymm | Zmm | Xmm | Ymm | Zmm |
| 1 | 4293 | -622 | -530 | 3497 | -599 | -563 | -796 | 23 | -33 |
| 2 | 4307 | -365 | -535 | 3623 | -353 | -557 | -684 | 12 | -22 |
| 3 | 4307 | -125 | -535 | 3697 | -110 | -545 | -610 | 15 | -10 |
| 4 | 4307 | 115 | -535 | 3782 | 110 | -538 | -525 | -5 | -3 |
| 5 | 4307 | 360 | -540 | 3862 | 357 | -519 | -465 | -3 | 21 |
| 6 | 4292 | 600 | -540 | 3898 | 578 | -474 | -394 | -22 | 66 |

**Center of Grill**

| Pre-Test | | | | Post-Test | | | Difference | | |
|---|---|---|---|---|---|---|---|---|---|
| Index | Xmm | Ymm | Zmm | Xmm | Ymm | Zmm | Xmm | Ymm | Zmm |
| 1 | 4237 | -631 | -610 | N/A[3] | N/A[3] | N/A[3] | N/A[3] | N/A[3] | N/A[3] |
| 2 | 4310 | -365 | -600 | N/A[3] | N/A[3] | N/A[3] | N/A[3] | N/A[3] | N/A[3] |
| 3 | 4327 | -122 | -601 | N/A[3] | N/A[3] | N/A[3] | N/A[3] | N/A[3] | N/A[3] |
| 4 | 4327 | 115 | -600 | N/A[3] | N/A[3] | N/A[3] | N/A[3] | N/A[3] | N/A[3] |
| 5 | 4312 | 365 | -602 | N/A[3] | N/A[3] | N/A[3] | N/A[3] | N/A[3] | N/A[3] |
| 6 | 4247 | 615 | -635 | N/A[3] | N/A[3] | N/A[3] | N/A[3] | N/A[3] | N/A[3] |

**Front of Hood**

| Pre-Test | | | | Post-Test | | | Difference[4] | | |
|---|---|---|---|---|---|---|---|---|---|
| Index | Xmm | Ymm | Zmm | Xmm | Ymm | Zmm | Xmm | Ymm | Zmm |
| 1 | 4012 | -620 | -765 | 3667 | -623 | -988 | -345 | -3 | -223 |
| 2 | 4277 | -365 | -645 | 3637 | -365 | -700 | -640 | 0 | -55 |
| 3 | 4297 | -125 | -662 | 3667 | -126 | -672 | -630 | -1 | -10 |
| 4 | 4297 | 115 | -660 | 3712 | 107 | -672 | -585 | -8 | -12 |
| 5 | 4285 | 365 | -650 | 3741 | 357 | -669 | -544 | -8 | -19 |
| 6 | 4027 | 615 | -770 | 3652 | 602 | -918 | -375 | -13 | -148 |

Pre- and post-test measurement reference: +X forward; +Y right; +Z down.
0,0,0 origin is center of rear bumper.

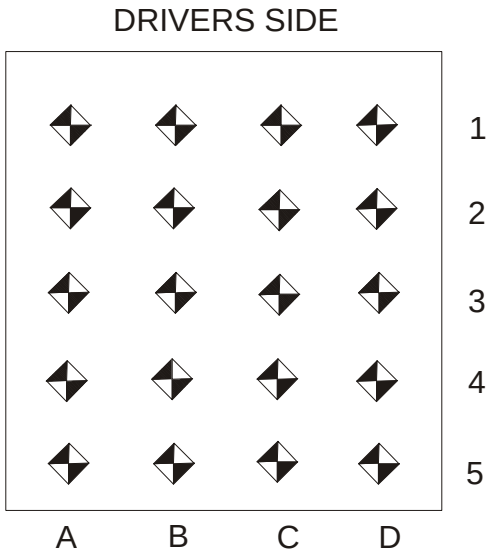
[1] Measurement 6, Bottom of Front Bumper, is included in the NHTSA Entrée database submission as Damage Profile Distance 6.

[2] Measurements 1, 2, Top of Front Bumper are included in the NHTSA Entrée database submission as Damage Profile Distance 1, 2.

[3] Measurement point could not be located post-test.

[4] Measurements 3-5, Front of Hood are included in the NHTSA Entrée database submission as Damage Profile Distance 3-5.

Figure 15 Target Vehicle Toeboard Measurements




**TARGET DRIVER TOEPAN X-AXIS**

| | Pre-Test | | | | Post-Test | | | | Difference | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | A | B | C | D | A | B | C | D | A | B | C | D |
| 1 | 3028 | 3020 | 3024 | 3025 | 2839 | 2823 | 2822 | 2855 | -189 | -197 | -202 | -170 |
| 2 | 2950 | 2946 | 2948 | 2950 | 2800 | 2792 | 2802 | 2794 | -150 | -154 | -146 | -156 |
| 3 | 2861 | 2842 | 2841 | 2850 | 2807 | 2733 | 2727 | 2727 | -54 | -109 | -114 | -123 |
| 4 | 2641 | 2641 | 2638 | 2645 | 2545 | 2537 | 2531 | 2528 | -96 | -104 | -107 | -117 |
| 5 | 2458 | 2458 | 2458 | 2453 | 2375 | 2357 | 2355 | 2346 | -83 | -101 | -103 | -107 |

**TARGET DRIVER TOEPAN Y-AXIS**

| | Pre-Test | | | | Post-Test | | | | Difference | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | A | B | C | D | A | B | C | D | A | B | C | D |
| 1 | -461 | -386 | -292 | -129 | -449 | -380 | -292 | -138 | 12 | 6 | 0 | -9 |
| 2 | -554 | -419 | -292 | -133 | -546 | -411 | -295 | -140 | 8 | 8 | -3 | -7 |
| 3 | -626 | -443 | -302 | -148 | -616 | -445 | -302 | -153 | 10 | -2 | 0 | -5 |
| 4 | -617 | -450 | -292 | -138 | -613 | -456 | -300 | -149 | 4 | -6 | -8 | -11 |
| 5 | -612 | -448 | -292 | -141 | -620 | -460 | -304 | -157 | -8 | -12 | -12 | -16 |

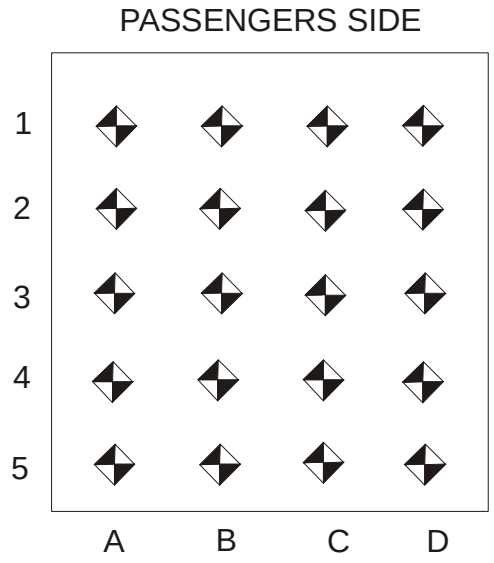
**TARGET DRIVER TOEPAN Z-AXIS**

| | Pre-Test | | | | Post-Test | | | | Difference | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | A | B | C | D | A | B | C | D | A | B | C | D |
| 1 | 356 | 359 | 361 | 364 | 271 | 275 | 276 | 282 | -85 | -84 | -85 | -82 |
| 2 | 409 | 414 | 418 | 412 | 342 | 360 | 367 | 343 | -67 | -54 | -51 | -69 |
| 3 | 464 | 468 | 468 | 468 | 431 | 457 | 461 | 434 | -33 | -11 | -7 | -34 |
| 4 | 466 | 472 | 472 | 463 | 480 | 491 | 505 | 479 | 14 | 19 | 33 | 16 |
| 5 | 486 | 487 | 487 | 467 | 545 | 532 | 546 | 531 | 59 | 45 | 59 | 64 |

Pre- and post-test measurement reference: +X forward; +Y right; +Z down.

0,0,0 origin is center of rear bumper.

Figure 15 Target Vehicle Toeboard Measurements, Continued




**TARGET PASSENGER TOEPAN X-AXIS**

| | Pre-Test | | | | Post-Test | | | | Difference | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | A | B | C | D | A | B | C | D | A | B | C | D |
| 1 | 3063 | 3081 | 3078 | 2998 | 2850 | 2863 | 2878 | 2828 | -213 | -218 | -200 | -170 |
| 2 | 2971 | 2973 | 2963 | 2956 | 2812 | 2817 | 2802 | 2812 | -159 | -156 | -161 | -144 |
| 3 | 2833 | 2836 | 2839 | 2845 | 2698 | 2702 | 2701 | 2773 | -135 | -134 | -138 | -72 |
| 4 | 2654 | 2648 | 2642 | 2631 | 2528 | 2524 | 2514 | 2511 | -126 | -124 | -128 | -120 |
| 5 | 2451 | 2453 | 2452 | 2453 | 2335 | 2335 | 2334 | 2365 | -116 | -118 | -118 | -88 |

**TARGET PASSENGER TOEPAN Y-AXIS**

| | Pre-Test | | | | Post-Test | | | | Difference | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | A | B | C | D | A | B | C | D | A | B | C | D |
| 1 | 230 | 305 | 476 | 589 | 222 | 294 | 463 | 598 | -8 | -11 | -13 | 9 |
| 2 | 157 | 311 | 478 | 608 | 160 | 307 | 473 | 609 | 3 | -4 | -5 | 1 |
| 3 | 160 | 315 | 483 | 625 | 163 | 318 | 484 | 612 | 3 | 3 | 1 | -13 |
| 4 | 155 | 310 | 467 | 632 | 155 | 309 | 467 | 609 | 0 | -1 | 0 | -23 |
| 5 | 166 | 315 | 472 | 628 | 159 | 311 | 469 | 617 | -7 | -4 | -3 | -11 |

**TARGET PASSENGER TOEPAN Z-AXIS**

| | Pre-Test | | | | Post-Test | | | | Difference | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | A | B | C | D | A | B | C | D | A | B | C | D |
| 1 | 313 | 314 | 319 | 269 | 254 | 245 | 243 | 218 | -59 | -69 | -76 | -51 |
| 2 | 398 | 400 | 397 | 366 | 351 | 370 | 357 | 317 | -47 | -30 | -40 | -49 |
| 3 | 463 | 468 | 466 | 467 | 452 | 466 | 459 | 443 | -11 | -2 | -7 | -24 |
| 4 | 467 | 472 | 472 | 469 | 500 | 520 | 516 | 512 | 33 | 48 | 44 | 43 |
| 5 | 467 | 487 | 487 | 486 | 554 | 571 | 580 | 593 | 87 | 84 | 93 | 107 |

Pre- and post-test measurement reference: +X forward; +Y right; +Z down.

0,0,0 origin is center of rear bumper.

## Table 17 Target Vehicle IIHS Measurements

**TARGET IIHS MEASUREMENTS**

| Index | Description | Pre-Test | | | Post-Test | | | Difference | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Xmm | Ymm | Zmm | Xmm | Ymm | Zmm | Xmm | Ymm | Zmm |
| 1 | Center of Steering Wheel on the Airbag Door | 2430 | -339 | -244 | 2360 | -376 | -268 | -70 | -37 | -24 |
| 2 | Driver's Lower Left Instrument Panel | 2674 | -488 | 10 | 2594 | -509 | -51 | -80 | -21 | -61 |
| 3 | Driver's Lower Right Instrument Panel | 2662 | -186 | 10 | 2555 | -211 | -38 | -107 | -25 | -48 |
| 4 | Brake Pedal Center | 2897 | -317 | 268 | 2714 | -352 | 137 | -183 | -35 | -131 |
| 5 | Center Left Toeboard 150 mm Left of the Brake Pedal Center at Height of Brake Pedal Center | 3106 | -465 | 267 | 2864 | -443 | 155 | -242 | 22 | -112 |
| 6 | Toeboard Behind the Center of the Brake Pedal at Height of Brake Pedal | 3109 | -317 | 268 | 2839 | -308 | 156 | -270 | 9 | -112 |
| 7 | Center Right Toeboard 150 mm Right of the Brake Pedal Center at Height of Brake Pedal Center | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 8 | Foot Rest 250 mm Left of the Brake Pedal Center at Height of Brake Pedal Center | 2998 | -570 | 266 | 2837 | -583 | 195 | -161 | -13 | -71 |
| 9 | Left Front Driver's Seat Mounting Bolt | 2391 | -586 | 395 | 2369 | -579 | 454 | -22 | 7 | 59 |
| 10 | Right Front Driver's Seat Mounting Bolt | 2382 | -133 | 375 | 2313 | -136 | 447 | -69 | -3 | 72 |
| 11 | Left Rear Driver's Seat Mounting Bolt | 2004 | -621 | 413 | N/A[1] | N/A[1] | N/A[1] | N/A[1] | N/A[1] | N/A[1] |
| 12 | Right Rear Driver's Seat Mounting Bolt | 1952 | -101 | 411 | 1882 | -124 | 421 | -70 | -23 | 10 |
| 17 | Exterior A-Pillar at Height of Bottom of Front Window | 2832 | -694 | -252 | 2761 | -718 | -294 | -71 | -24 | -42 |
| 18 | Exterior B-pillar at Height of A-Pillar Measurement Location | 1851 | -730 | -251 | 1849 | -727 | -244 | -2 | 3 | 7 |

[1] Measurement point could not be located post-test.

Table 18 Target Vehicle Bumper Measurements

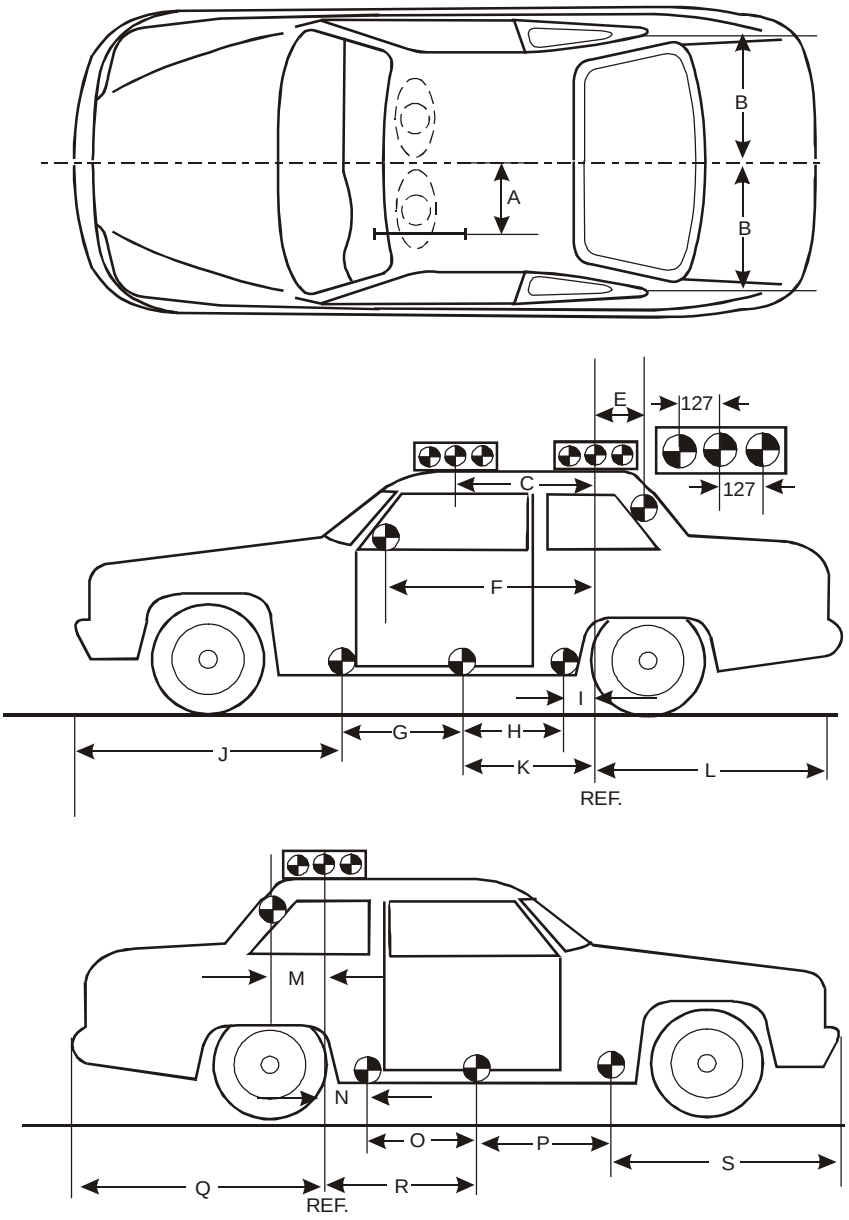
**TARGET BUMPER PROFILE**

| | Pre-Test | | | Post-Test | | | Difference | | |
|---|---|---|---|---|---|---|---|---|---|
| Index | Xmm | Ymm | Zmm | Xmm | Ymm | Zmm | Xmm | Ymm | Zmm |
| 1 | 4125 | -611 | 218 | 3346 | -561 | 131 | -779 | 50 | -87 |
| 2 | 4145 | -479 | 217 | 3428 | -471 | 97 | -717 | 8 | -120 |
| 3 | 4145 | -355 | 217 | 3469 | -356 | 83 | -676 | -1 | -134 |
| 4 | 4144 | -235 | 216 | 3494 | -238 | 87 | -650 | -3 | -129 |
| 5 | 4144 | -115 | 216 | 3521 | -120 | 91 | -623 | -5 | -125 |
| 6 | 4143 | 6 | 216 | 3537 | -12 | 99 | -606 | -18 | -117 |
| 7 | 4142 | 124 | 215 | 3595 | 87 | 95 | -547 | -37 | -120 |
| 8 | 4142 | 251 | 216 | 3628 | 210 | 101 | -514 | -41 | -115 |
| 9 | 4142 | 371 | 216 | 3642 | 326 | 110 | -500 | -45 | -106 |
| 10 | 4140 | 491 | 216 | 3613 | 441 | 132 | -527 | -50 | -84 |
| 11 | 4117 | 610 | 216 | 3617 | 555 | 151 | -500 | -55 | -65 |

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

0,0,0 origin is center of rear bumper.

Figure 16 Target Vehicle Reference Photo Target Locations




| Measurement | Pre-Test |
|---|---|
| A | Left 360 mm |
| | Right 360 mm |
| B | Left 593 mm |
| | Right 592 mm |
| C | Left 610 mm |
| | Right 610 mm |
| E[1] | 394 mm |

| Measurement | Pre-Test |
|---|---|
| F | 1241 mm |
| G | 885 mm |
| H | 897 mm |
| I | -189 mm |
| J | 1157 mm |
| K | 705 mm |
| L | 1546 mm |

| Measurement | Pre-Test |
|---|---|
| M | 401 mm |
| N | -199 mm |
| O | 895 mm |
| P | 880 mm |
| Q | 1558 mm |
| R | 701 mm |
| S | 1153 mm |

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

Table 19 Bullet Vehicle Structural Measurements[1]

| | Elements | Pre-Test |
|---|---|---|
| 1 | Total Length | 4440 |
| 2 | Total Width | 1940 |
| 3 | Bumper Top Height | 503 |
| 4 | Bumper Bottom Height | 411 |
| 5 | Longitudinal Member Top Height | 503 |
| 6 | Longitudinal Member Bottom Height | 415 |
| 7 | Distance Between Longitudinal Members | 1105 |
| 7´ | Longitudinal Member Width | 70 |
| 8 | Engine Top Height | 890 |
| 9 | Engine Bottom Height | 183 |
| 10 | Engine and Gearbox Width | 820 |
| 11 | Front Bumper - Engine Distance | 410 |
| 12 | Front Shock Absorber Fixing Height | 930 |
| 13 | Bonnet Leading Edge Height | 763 |
| 14 | Front Shock Absorber Fixing Width | 1265 |
| 15 | Front Bumper - Front Axle Distance | 905 |
| 16 | Front Axle - A Pillar Distance | 490 |
| 17 | A Pillar - B Pillar Distance | 1050 |
| 18 | B Pillar - Rear Axle Distance | 1455 |
| 19 | B Pillar - C Pillar Distance | 1070 |
| 20 | Roof Sill Bottom Height | 1559 |
| 21 | Roof Sill Top Height | 1589 |
| 22 | Floor Sill Bottom Height | 244 |
| 23 | Floor Sill Top Height | 309 |

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 17 Bullet Pre-Test And Post-Test Measurement Points

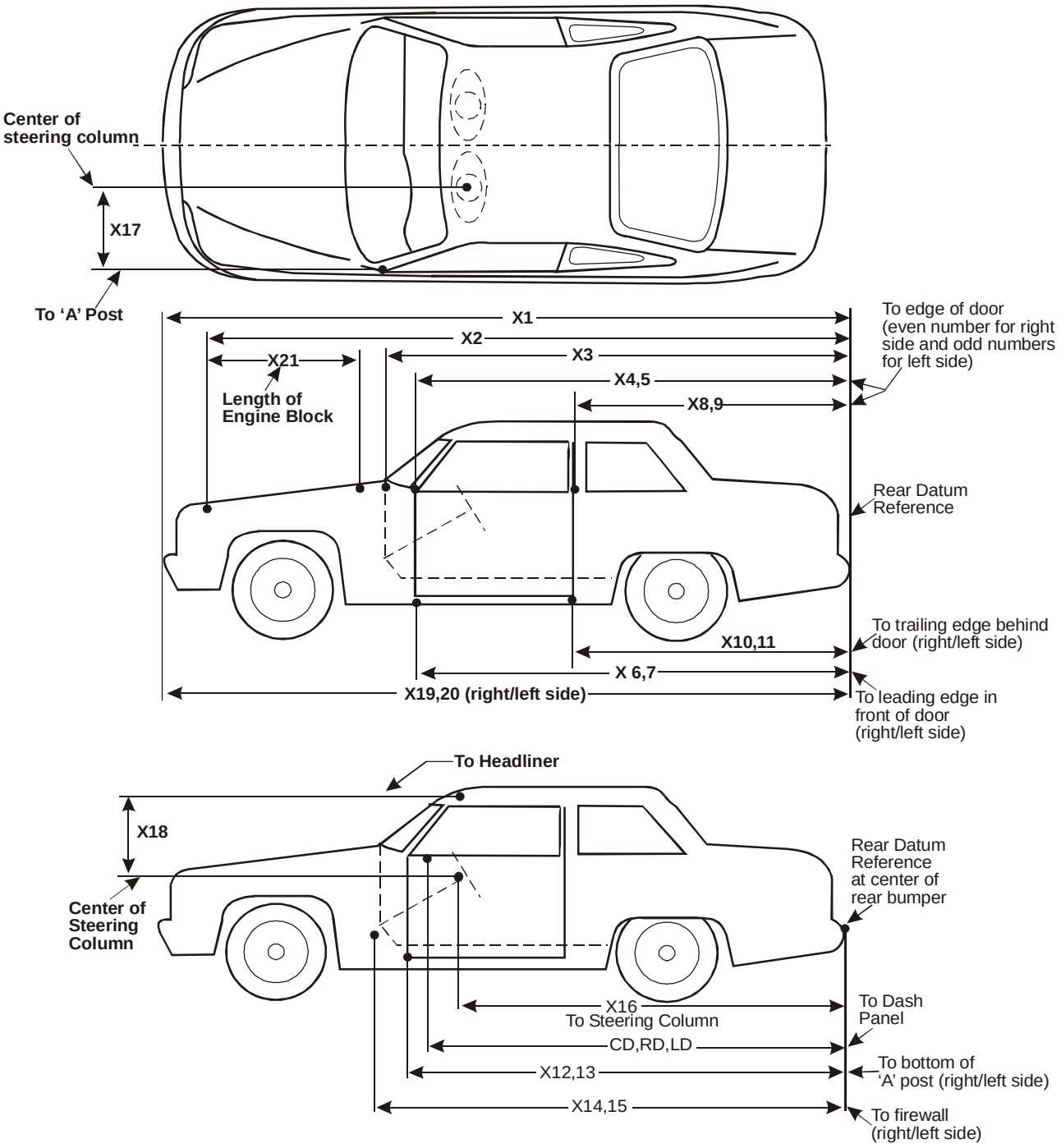


Table 20 Bullet Vehicle Impacted Measurements

Test number: 060310

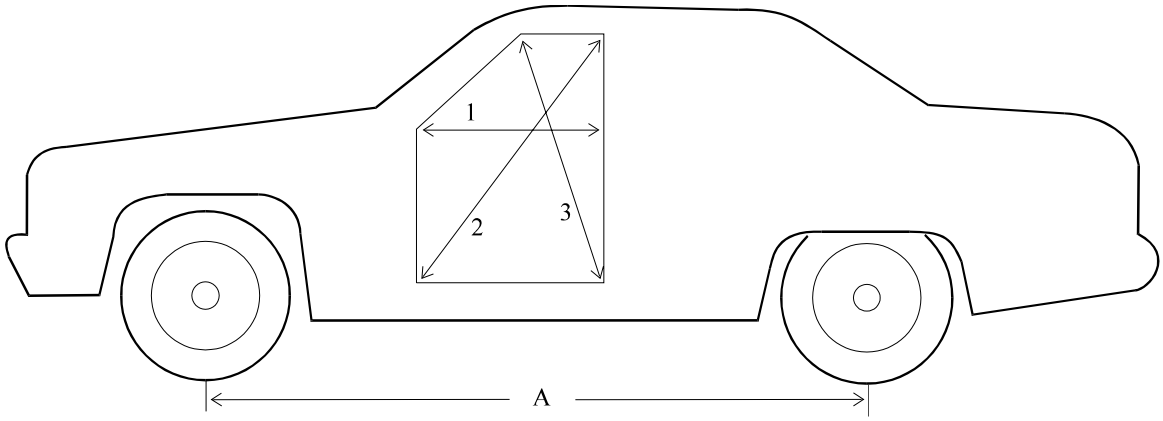
Vehicle year/make/model/body style: 2003/Honda/Odyssey/4-door MPV

| No. | Type of measurement | Pre-Test | Post-Test | Difference |
|---|---|---|---|---|
| X1 | Total Length of Vehicle at Centerline | 4440 | 3870 | 570 |
| X2 | Rear Surface of Vehicle to Front of Engine Block | 3940 | 3644 | 296 |
| X3 | Rear Surface of Vehicle to Firewall | 3560 | 3561 | -1 |
| X4 | Rear Surface of Veh. to Upper Leading Edge of Right Door | 3034 | 3033 | 1 |
| X5 | Rear Surface of Veh. to Upper Leading Edge of Left Door | 3033 | 3036 | -3 |
| X6 | Rear Surface of Veh. to Lower Leading Edge of Right Door | 3003 | 3025 | -22 |
| X7 | Rear Surface of Veh. to Lower Leading Edge of Left Door | 3006 | 3030 | -24 |
| X8 | Rear Surface of Veh. to Upper Trailing Edge of Right Door | 1992 | 1991 | 1 |
| X9 | Rear Surface of Veh. to Upper Trailing Edge of Left Door | 1993 | 1994 | -1 |
| X10 | Rear Surface of Veh. to Lower Trailing Edge of Right Door | 2005 | 2030 | -25 |
| X11 | Rear Surface of Veh. to Lower Trailing Edge of Left Door | 2008 | 2031 | -23 |
| X12 | Rear Surface of Veh. to Bottom of " A " Post on Right Side | 3015 | 3020 | -5 |
| X13 | Rear Surface of Veh. to Bottom of " A " Post on Left Side | 3014 | 3019 | -5 |
| X14 | Rear Surface of Vehicle to Firewall - Right Side | 3595 | 3591 | 4 |
| X15 | Rear Surface of Vehicle to Firewall - Left Side | 3590 | 3599 | -9 |
| X16 | Rear Surface of Vehicle to Steering Wheel Center | 2628 | 2616 | 12 |
| X17 | Center of Steering Column to " A " Post | 325 | 303 | 22 |
| X18 | Center of Steering Column to Headliner | 475 | 432 | 43 |
| X19 | Rear Surface of Vehicle to Right Side of Front Bumper | 4350 | 4038 | 312 |
| X20 | Rear Surface of Vehicle to Left Side of Front Bumper | 4350 | 3956 | 394 |
| X21 | Length of Engine Block | 500 | 500 | 0 |
| RD | Rear Surface of Vehicle to Right Side of Dash Panel | 2915 | 2916 | -1 |
| CD | Rear Surface of Vehicle to Center of Dash Panel | 2930 | 2922 | 8 |
| LD | Rear Surface of Vehicle to Left Side of Dash Panel | 2895 | 2904 | -9 |

All distance measurements are in millimeters.

Figure 18 Bullet Vehicle Intrusion Measurements

Door Opening Width

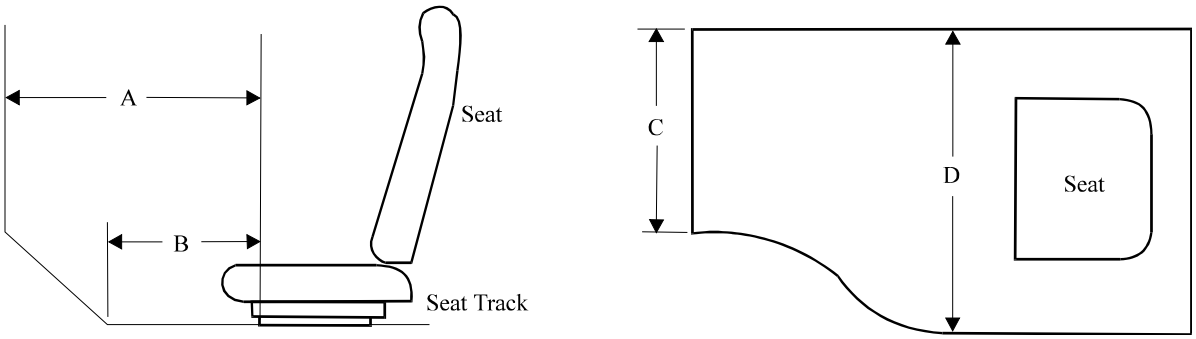



| Units (mm) | Left | | | Right | | |
|---|---|---|---|---|---|---|
| Measurement | 1 | 2 | 3 | 1 | 2 | 3 |
| Pre-Test | 1010 mm | 1595 mm | 1260 mm | 1010 mm | 1570 mm | 1255 mm |
| Post-Test | 1009 mm | 1603 mm | 1270 mm | 1010 mm | 1576 mm | 1256 mm |
| Difference | 1 mm | -8 mm | -10 mm | 0 mm | -6 mm | -1 mm |

| Units (mm) | A = Wheelbase Left | A = Wheelbase Right |
|---|---|---|
| Pre-Test | 3000 mm | 3000 mm |
| Post-Test | 2904 mm | 2886 mm |
| Difference | 96mm | 114 mm |

Figure 19 Bullet Vehicle Intrusion Measurements

Static Footwell Deformation




**Driver's Side**

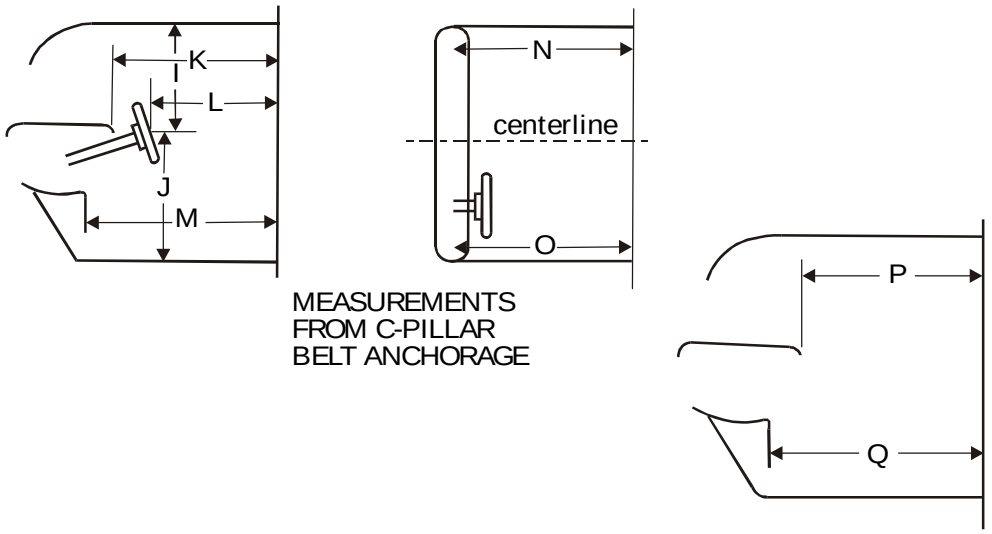
| Measurement | Pre-Test | Post-Test | Difference |
|---|---|---|---|
| A | 660 mm | 642 mm | 18 mm |
| B | 560 mm | 575 mm | -15 mm |
| C | 445 mm | 447 mm | -2 mm |
| D | 440 mm | 450 mm | -10 mm |

**Passenger's Side**

| Measurement | Pre-Test | Post-Test | Difference |
|---|---|---|---|
| A | 610 mm | 593 mm | 17 mm |
| B | 510 mm | 510 mm | 0 mm |
| C | 225 mm | 259 mm | -34 mm |
| D | 420 mm | 410 mm | 10 mm |

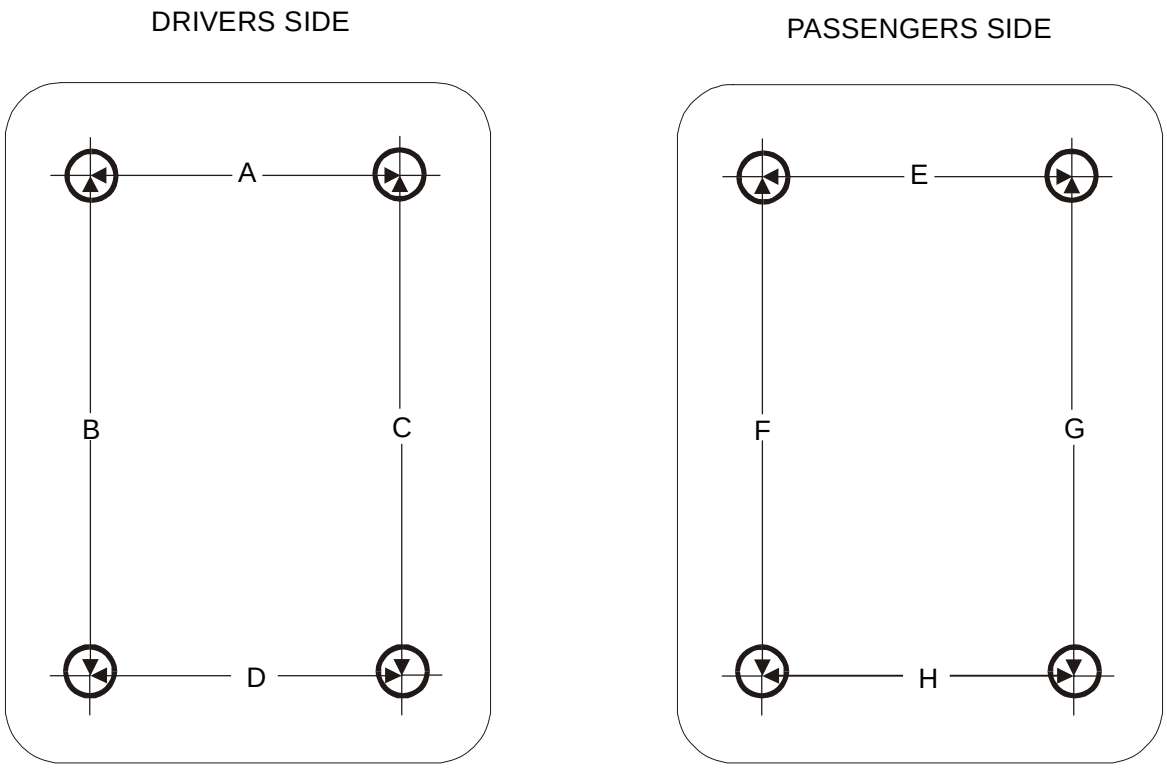
Figure 20 Bullet Vehicle Intrusion Measurements

Static Passenger Compartment Intrusion



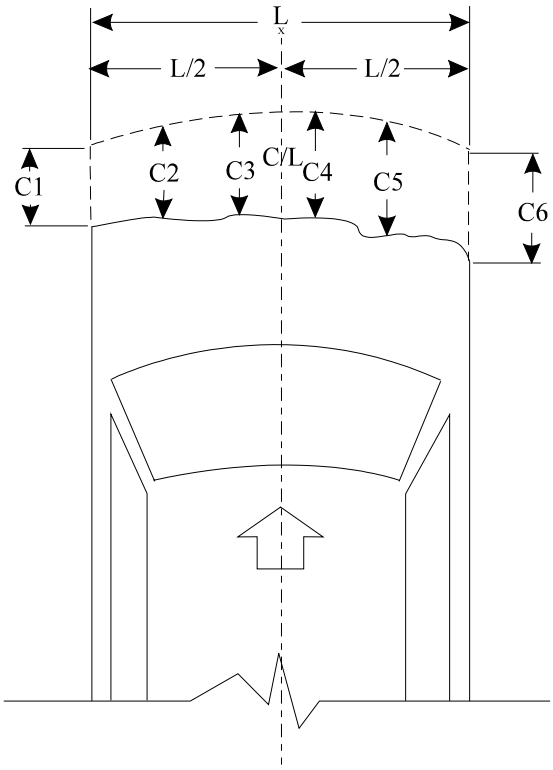

| Measurement | Pre-Test | Post-Test | Difference |
|---|---|---|---|
| I | 470 mm | 419 mm | 51 mm |
| J | 730 mm | 793 mm | -63 mm |
| K (driver's side) | 1990 mm | 1980 mm | 10 mm |
| L | 1760 mm | 1758 mm | 2 mm |
| M (driver's side) | 2065 mm | 2055 mm | 10 mm |
| N (passenger's side) | 2035 mm | 2030 mm | 5 mm |
| O (driver's side) | 1995 mm | 1990 mm | 5 mm |
| P (passenger's side) | 1995 mm | 1990 mm | 5 mm |
| Q (passenger's side) | 2065 mm | 2075 mm | -10 mm |

Figure 21 Bullet Vehicle Floorboard Deformation




| Measurement | Pre-Test | Post-Test | Difference |
|---|---|---|---|
| A | 445 mm | 447 mm | -2 mm |
| B | 500 mm | 500 mm | 0 mm |
| C | 450 mm | 405 mm | 45 mm |
| D | 440 mm | 450 mm | -10 mm |
| E | 255 mm | 259 mm | -4 mm |
| F | 500 mm | 490 mm | 10 mm |
| G | 480 mm | 481 mm | -1 mm |
| H | 420 mm | 410 mm | 10 mm |

Figure 22 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: 2003 Honda Odyssey 4-door MPV

| | Pre-test | Post-test | Crush |
|---|---|---|---|
| L | 1260 mm | | |
| C1 | 4345 mm | 3956 mm | 389 mm |
| C2 | 4400 mm | 3819 mm | 581 mm |
| C3 | 4430 mm | 3836 mm | 594 mm |
| C4 | 4430 mm | 3888 mm | 542 mm |
| C5 | 4400 mm | 3910 mm | 490 mm |
| C6 | 4350 mm | 4038 mm | 312 mm |
| CL | 4440 mm | 3870 mm | 570 mm |

Table 21 Bullet Vehicle Frontal Profile Measurements

**Bottom of Front Bumper**

| Pre-Test | | | | Post-Test | | | Difference[1] | | |
|---|---|---|---|---|---|---|---|---|---|
| Index | Xmm | Ymm | Zmm | Xmm | Ymm | Zmm | Xmm | Ymm | Zmm |
| 1 | 4345 | -630 | -410 | 3968 | -465 | -410 | -377 | 165 | 0 |
| 2 | 4400 | -377 | -415 | 3814 | -291 | -365 | -586 | 86 | 50 |
| 3 | 4430 | -125 | -425 | 3845 | -85 | -390 | -585 | 40 | 35 |
| 4 | 4430 | 122 | -410 | 3876 | 112 | -430 | -554 | -10 | -20 |
| 5 | 4400 | 375 | -415 | 3902 | 343 | -455 | -498 | -32 | -40 |
| 6 | 4350 | 630 | -410 | 4040 | 612 | -455 | -310 | -18 | -45 |

**Top of Front Bumper**

| Pre-Test | | | | Post-Test | | | Difference[2] | | |
|---|---|---|---|---|---|---|---|---|---|
| Index | Xmm | Ymm | Zmm | Xmm | Ymm | Zmm | Xmm | Ymm | Zmm |
| 1 | 4345 | -630 | -495 | 3956 | -480 | -495 | -389 | 150 | 0 |
| 2 | 4400 | -376 | -500 | 3819 | -287 | -440 | -581 | 89 | 60 |
| 3 | 4430 | -123 | -506 | 3836 | -90 | -470 | -594 | 33 | 36 |
| 4 | 4430 | 124 | -495 | 3888 | 158 | -503 | -542 | 34 | -8 |
| 5 | 4400 | 376 | -492 | 3910 | 399 | -512 | -490 | 23 | -20 |
| 6 | 4350 | 630 | -493 | 4038 | 610 | -540 | -312 | -20 | -47 |

**Center of Grill**

| Pre-Test | | | | Post-Test | | | Difference | | |
|---|---|---|---|---|---|---|---|---|---|
| Index | Xmm | Ymm | Zmm | Xmm | Ymm | Zmm | Xmm | Ymm | Zmm |
| 1 | 4255 | -625 | -682 | N/A[3] | N/A[3] | N/A[3] | N/A[3] | N/A[3] | N/A[3] |
| 2 | 4330 | -365 | -654 | 3855 | -372 | -690 | -475 | -7 | -36 |
| 3 | 4370 | -125 | -648 | 3899 | -127 | -680 | -471 | -2 | -32 |
| 4 | 4365 | 125 | -638 | 3921 | 121 | -700 | -444 | -4 | -62 |
| 5 | 4325 | 373 | -655 | 3914 | 362 | -740 | -411 | -11 | -85 |
| 6 | 4260 | 625 | -675 | N/A[3] | N/A[3] | N/A[3] | N/A[3] | N/A[3] | N/A[3] |

**Front of Hood**

| Pre-Test | | | | Post-Test | | | Difference[4] | | |
|---|---|---|---|---|---|---|---|---|---|
| Index | Xmm | Ymm | Zmm | Xmm | Ymm | Zmm | Xmm | Ymm | Zmm |
| 1 | 4220 | -620 | -762 | 3773 | -595 | -889 | -447 | 25 | -127 |
| 2 | 4290 | -365 | -759 | 3806 | -347 | -863 | -484 | 18 | -104 |
| 3 | 4325 | -120 | -770 | 3868 | -111 | -850 | -457 | 9 | -80 |
| 4 | 4331 | 120 | -760 | 3850 | 123 | -864 | -481 | 3 | -104 |
| 5 | 4290 | 365 | -760 | 3793 | 349 | -907 | -497 | -16 | -147 |
| 6 | 4210 | 618 | -758 | 3740 | 576 | -962 | -470 | -42 | -204 |

Pre- and post-test measurement reference: +X forward; +Y right; +Z down.
0,0,0 origin is center of rear bumper.

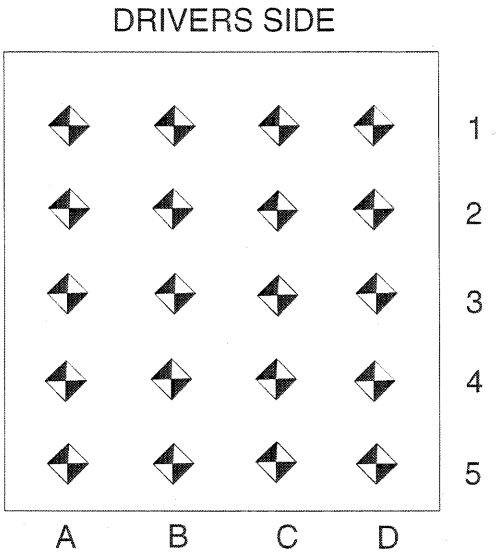
[1] Measurements 2, 4, 5, Bottom of Front Bumper, are included in the NHTSA Entrée database submission as Damage Profile Distance 2, 4, 5.

[2] Measurements 1, 3, Top of Front Bumper, are included in the NHTSA Entrée database submission as Damage Profile Distance 1, 3.

[3] Measurement point could not be located post-test.

[4] Measurement 6, Front of Hood, is included in the NHTSA Entrée database submission as Damage Profile Distance 6.

Figure 23 Bullet Vehicle Toeboard Measurements




**BULLET DRIVER TOEPAN X-AXIS**

| | Pre-Test | | | | Post-Test | | | | Difference | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | A | B | C | D | A | B | C | D | A | B | C | D |
| 1 | 3611 | 3713 | 3707 | N/A | 3597 | 3592 | 3581 | N/A | -14 | -121 | -126 | N/A |
| 2 | 3569 | 3623 | 3619 | N/A | 3556 | 3549 | 3536 | N/A | -13 | -74 | -83 | N/A |
| 3 | 3520 | 3507 | 3496 | 3483 | 3518 | 3484 | 3483 | 3439 | -2 | -23 | -13 | -44 |
| 4 | 3231 | 3229 | 3234 | 3279 | 3231 | 3228 | 3232 | 3277 | 0 | -1 | -2 | -2 |
| 5 | 3017 | 2998 | 3019 | 3033 | 3017 | 2997 | 2992 | 3031 | 0 | -1 | -27 | -2 |

**BULLET DRIVER TOEPAN Y-AXIS**

| | Pre-Test | | | | Post-Test | | | | Difference | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | A | B | C | D | A | B | C | D | A | B | C | D |
| 1 | -646 | -486 | -365 | N/A | -654 | -467 | -352 | N/A | -8 | 19 | 13 | N/A |
| 2 | -655 | -497 | -361 | N/A | -664 | -487 | -353 | N/A | -9 | 10 | 8 | N/A |
| 3 | -659 | -504 | -364 | -214 | -660 | -506 | -354 | -219 | -1 | -2 | 10 | -5 |
| 4 | -660 | -507 | -366 | -234 | -661 | -508 | -367 | -234 | -1 | -1 | -1 | 0 |
| 5 | -651 | -507 | -354 | -203 | -652 | -508 | -363 | -203 | -1 | -1 | -9 | 0 |

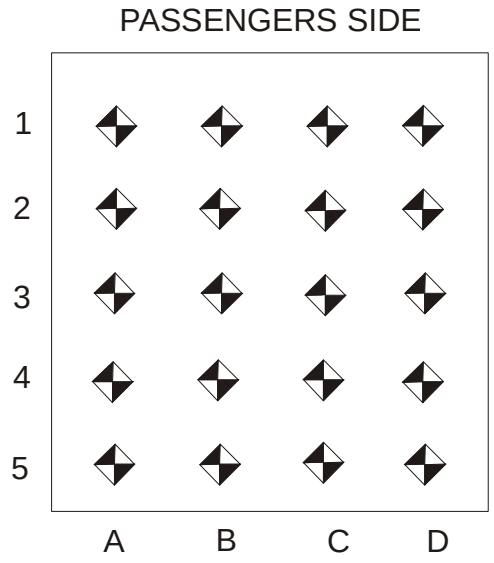
**BULLET DRIVER TOEPAN Z-AXIS**

| | Pre-Test | | | | Post-Test | | | | Difference | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | A | B | C | D | A | B | C | D | A | B | C | D |
| 1 | 28 | 91 | 99 | N/A | 28 | 33 | 46 | N/A | 0 | -58 | -53 | N/A |
| 2 | 113 | 163 | 164 | N/A | 115 | 134 | 143 | N/A | 2 | -29 | -21 | N/A |
| 3 | 222 | 227 | 225 | 230 | 226 | 215 | 245 | 233 | 4 | -12 | 20 | 3 |
| 4 | 226 | 224 | 224 | 228 | 232 | 234 | 241 | 253 | 6 | 10 | 17 | 25 |
| 5 | 232 | 218 | 192 | 224 | 239 | 228 | 203 | 241 | 7 | 10 | 11 | 17 |

Pre- and post-test measurement reference: +X forward; +Y right; +Z down.

0,0,0 origin is center of rear bumper.

Figure 23 Bullet Vehicle Toeboard Measurements, Continued




**BULLET PASSENGER TOEPAN X-AXIS**

| | Pre-Test | | | | Post-Test | | | | Difference | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | A | B | C | D | A | B | C | D | A | B | C | D |
| 1 | 3704 | 3712 | 3630 | 3567 | 3620 | 3622 | 3579 | 3534 | -84 | -90 | -51 | -33 |
| 2 | 3600 | 3605 | 3591 | 3546 | 3544 | 3552 | 3542 | 3519 | -56 | -53 | -49 | -27 |
| 3 | 3469 | 3472 | 3479 | 3474 | 3464 | 3468 | 3475 | 3472 | -5 | -4 | -4 | -2 |
| 4 | 3232 | 3233 | 3233 | 3221 | 3228 | 3230 | 3231 | 3219 | -4 | -3 | -2 | -2 |
| 5 | 2995 | 2998 | 2995 | 2993 | 2994 | 2996 | 2993 | 2991 | -1 | -2 | -2 | -2 |

**BULLET PASSENGER TOEPAN Y-AXIS**

| | Pre-Test | | | | Post-Test | | | | Difference | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | A | B | C | D | A | B | C | D | A | B | C | D |
| 1 | 369 | 494 | 565 | 646 | 353 | 474 | 557 | 647 | -16 | -20 | -8 | 1 |
| 2 | 379 | 493 | 577 | 653 | 372 | 484 | 568 | 654 | -7 | -9 | -9 | 1 |
| 3 | 389 | 501 | 578 | 648 | 390 | 499 | 579 | 647 | 1 | -2 | 1 | -1 |
| 4 | 365 | 482 | 558 | 649 | 367 | 481 | 558 | 650 | 2 | -1 | 0 | 1 |
| 5 | 226 | 459 | 546 | 635 | 230 | 461 | 548 | 637 | 4 | 2 | 2 | 2 |

**BULLET PASSENGER TOEPAN Z-AXIS**

| | Pre-Test | | | | Post-Test | | | | Difference | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | A | B | C | D | A | B | C | D | A | B | C | D |
| 1 | 103 | 96 | 83 | 81 | 66 | 52 | 63 | 70 | -37 | -44 | -20 | -11 |
| 2 | 176 | 176 | 153 | 142 | 173 | 160 | 135 | 132 | -3 | -16 | -18 | -10 |
| 3 | 228 | 228 | 228 | 228 | 225 | 221 | 220 | 235 | -3 | -7 | -8 | 7 |
| 4 | 225 | 219 | 226 | 227 | 244 | 233 | 238 | 236 | 19 | 14 | 12 | 9 |
| 5 | 226 | 222 | 223 | 234 | 243 | 231 | 234 | 243 | 17 | 9 | 11 | 9 |

Pre- and post-test measurement reference: +X forward; +Y right; +Z down.

0,0,0 origin is center of rear bumper.

## Table 22 Bullet Vehicle IIHS Measurements

**BULLET IIHS MEASUREMENTS**

| Index | Description | Pre-Test | | | Post-Test | | | Difference | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Xmm | Ymm | Zmm | Xmm | Ymm | Zmm | Xmm | Ymm | Zmm |
| 1 | Center of Steering Wheel on the Airbag Door | 3045 | -420 | -505 | 3041 | -435 | -521 | -4 | -15 | -16 |
| 2 | Driver's Lower Left Instrument Panel | 3256 | -570 | -265 | 3252 | -574 | -270 | -4 | -4 | -5 |
| 3 | Driver's Lower Right Instrument Panel | 3272 | -279 | -266 | 3264 | -284 | -278 | -8 | -5 | -12 |
| 4 | Brake Pedal Center | 3512 | -416 | 35 | 3400 | -425 | -42 | -112 | -9 | -77 |
| 5 | Center Left Toeboard 150 mm Left of the Brake Pedal Center at Height of Brake Pedal Center | 3679 | -566 | 40 | 3599 | -550 | 6 | -80 | 16 | -34 |
| 6 | Toeboard Behind the Center of the Brake Pedal at Height of Brake Pedal | 3730 | -416 | 34 | 3585 | -400 | -28 | -145 | 16 | -62 |
| 7 | Center Right Toeboard 150 mm Right of the Brake Pedal Center at Height of Brake Pedal Center | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 8 | Foot Rest 250 mm Left of the Brake Pedal Center at Height of Brake Pedal Center | 3604 | -664 | 37 | 3589 | -671 | 35 | -15 | -7 | -2 |
| 9 | Left Front Driver's Seat Mounting Bolt | 2959 | -651 | 209 | 2958 | -652 | 216 | -1 | -1 | 7 |
| 10 | Right Front Driver's Seat Mounting Bolt | 2957 | -223 | 207 | 2959 | -226 | 225 | 2 | -3 | 18 |
| 11 | Left Rear Driver's Seat Mounting Bolt | 2621 | -648 | 179 | 2620 | -650 | 184 | -1 | -2 | 5 |
| 12 | Right Rear Driver's Seat Mounting Bolt | 2618 | -223 | 178 | 2618 | -225 | 186 | 0 | -2 | 8 |
| 17 | Exterior A-Pillar at Height of Bottom of Front Window | 3414 | -814 | -524 | 3412 | -819 | -522 | -2 | -5 | 2 |
| 18 | Exterior B-pillar at Height of A-Pillar Measurement Location | 2449 | -816 | -523 | 2449 | -816 | -521 | 0 | 0 | 2 |

Table 23 Bullet Vehicle Bumper Measurements

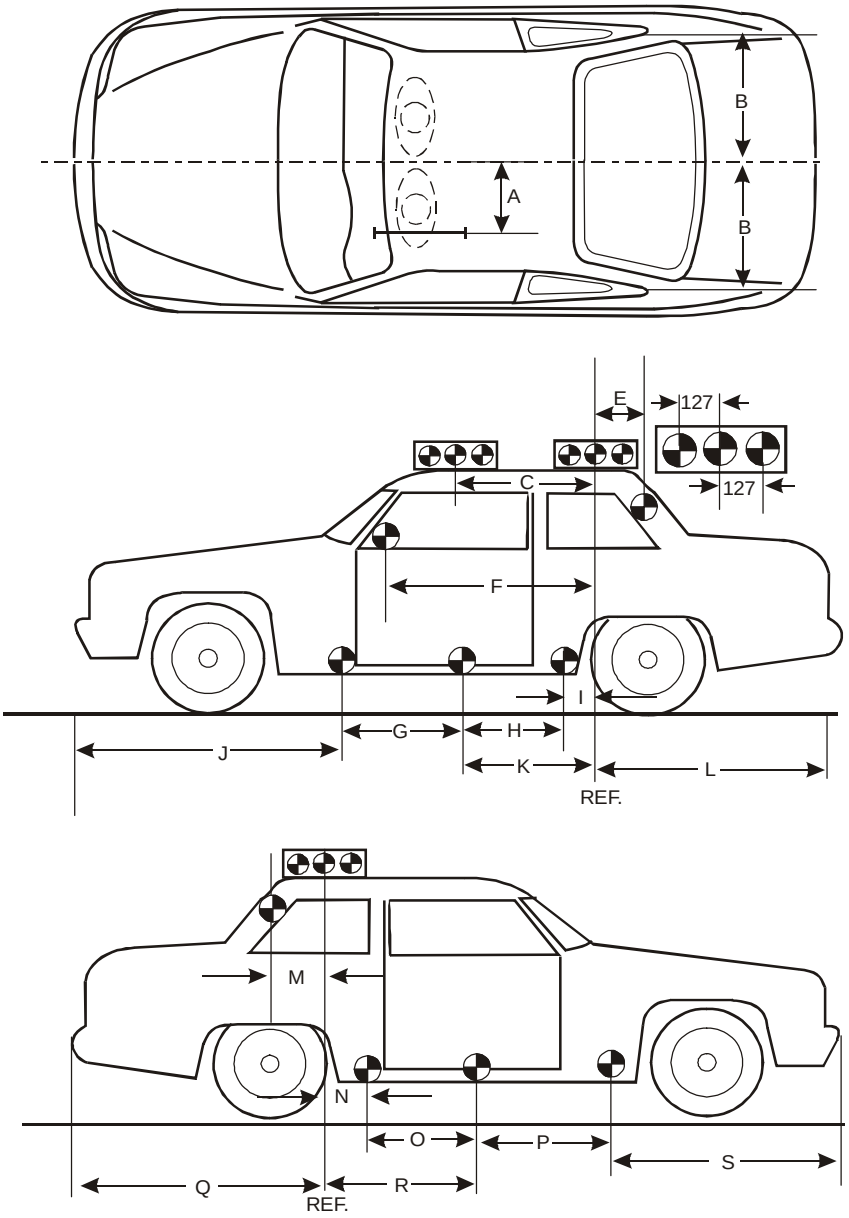
**BULLET BUMPER PROFILE**

| | Pre-Test | | | Post-Test | | | Difference | | |
|---|---|---|---|---|---|---|---|---|---|
| Index | Xmm | Ymm | Zmm | Xmm | Ymm | Zmm | Xmm | Ymm | Zmm |
| 1 | 4753 | -618 | 116 | 4350 | -496 | 159 | -403 | 122 | 43 |
| 2 | 4790 | -499 | 115 | 4260 | -410 | 165 | -530 | 89 | 50 |
| 3 | 4819 | -376 | 114 | 4187 | -310 | 165 | -632 | 66 | 51 |
| 4 | 4838 | -256 | 114 | 4172 | -220 | 156 | -666 | 36 | 42 |
| 5 | 4851 | -129 | 114 | 4213 | -102 | 145 | -638 | 27 | 31 |
| 6 | 4854 | -4 | 114 | 4244 | 16 | 132 | -610 | 20 | 18 |
| 7 | 4850 | 121 | 114 | 4248 | 139 | 120 | -602 | 18 | 6 |
| 8 | 4838 | 246 | 114 | 4251 | 263 | 106 | -587 | 17 | -8 |
| 9 | 4817 | 370 | 115 | 4271 | 384 | 105 | -546 | 14 | -10 |
| 10 | 4789 | 492 | 115 | 4343 | 483 | 107 | -446 | -9 | -8 |
| 11 | 4752 | 610 | 116 | 4422 | 577 | 106 | -330 | -33 | -10 |

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

0,0,0 origin is center of rear bumper.

Figure 24 Bullet Vehicle Reference Photo Target Locations




| Measurement | Pre-Test |
|---|---|
| A | Left 415 mm |
| | Right 415 mm |
| B | Left 635 mm |
| | Right 635 mm |
| C | Left 610 mm |
| | Right 610 mm |
| E[1] | 718 mm |

| Measurement | Pre-Test |
|---|---|
| F | 1250 mm |
| G | 1015 mm |
| H | 1022 mm |
| I | -582 mm |
| J | 1325 mm |
| K | 410 mm |
| L | 2182 mm |

| Measurement | Pre-Test |
|---|---|
| M | 708 mm |
| N | -570 mm |
| O | 1021 mm |
| P | 1015 mm |
| Q | 2177 mm |
| R | 442 mm |
| S | 1303 mm |

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

Figure 25 Camera Positions

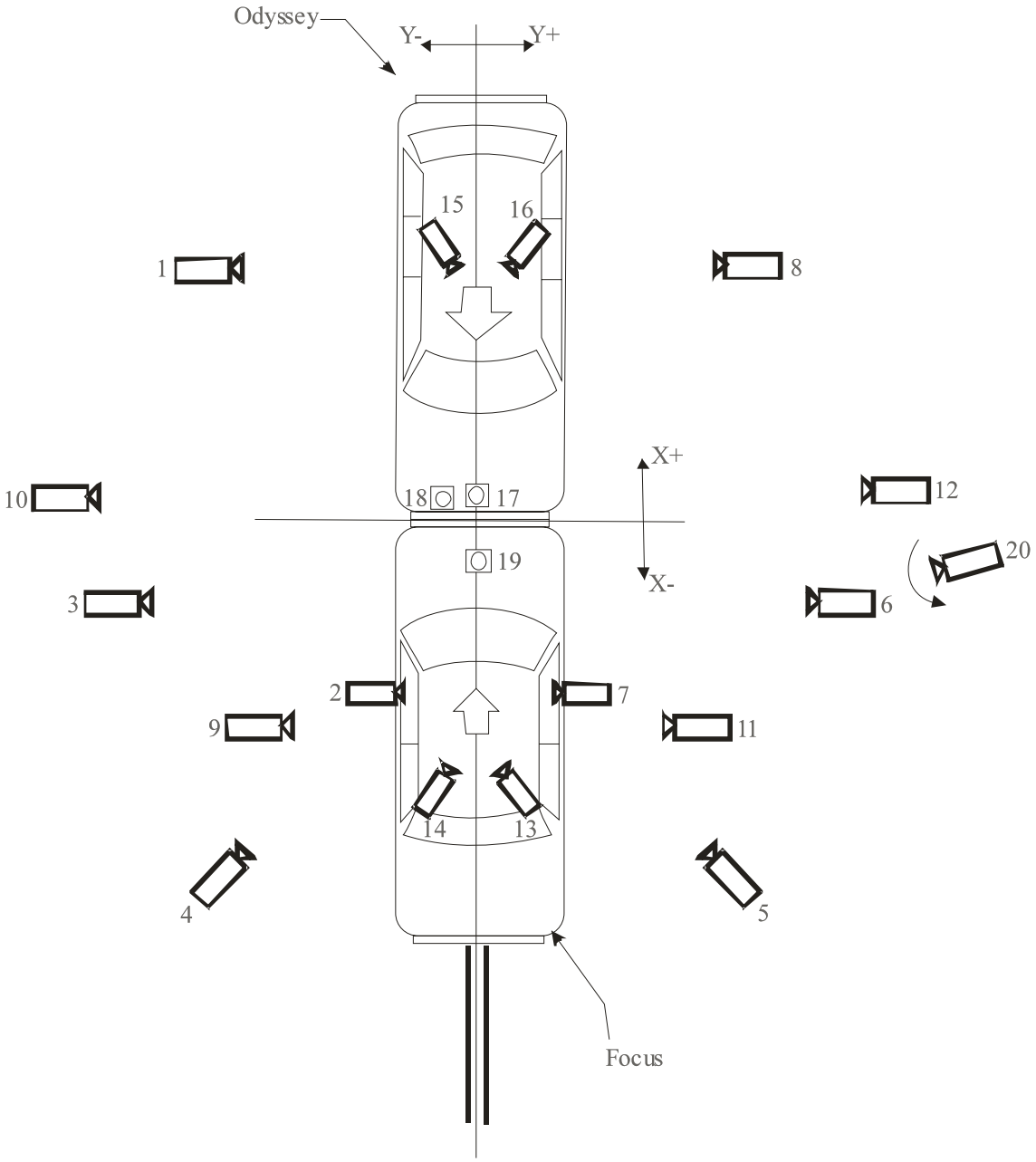


Table 24 Camera Information

| Camera Number | Location | Location, mm X | Y | Z | Angle (deg.) | Lens (mm) | Speed (fps) |
|---|---|---|---|---|---|---|---|
| 1 | Bullet vehicle passenger side | 760 | -1890 | -1040 | 0.5 | 25 | 1000 |
| 2 | Onboard target vehicle - driver | N/A[1] | N/A[1] | N/A[1] | N/A[1] | 6.5 | 1000 |
| 3 | Target vehicle left tight | N/A[1] | N/A[1] | N/A[1] | N/A[1] | 50 | 1000 |
| 4 | Target vehicle driver angled | N/A[1] | N/A[1] | N/A[1] | N/A[1] | 50 | 1000 |
| 5 | Target vehicle passenger angled | N/A[1] | N/A[1] | N/A[1] | N/A[1] | 50 | 1000 |
| 6 | Target vehicle right tight | N/A[1] | N/A[1] | N/A[1] | N/A[1] | 50 | 1000 |
| 7 | Onboard target vehicle - passenger | -730 | 1860 | -1030 | -9.8 | 6.5 | 1000 |
| 8 | Bullet vehicle driver side | N/A[1] | N/A[1] | N/A[1] | N/A[1] | 25 | 1000 |
| 9 | Target vehicle driver side wide | N/A[1] | N/A[1] | N/A[1] | N/A[1] | 25 | 1000 |
| 10 | Left overall wide (reference to target vehicle) | N/A[1] | N/A[1] | N/A[1] | N/A[1] | 12.5 | 1000 |
| 11 | Target vehicle passenger side wide | N/A[1] | N/A[1] | N/A[1] | N/A[1] | 25 | 1000 |
| 12 | Right overall wide (reference to target vehicle) | N/A[1] | N/A[1] | N/A[1] | N/A[1] | 12.5 | 1000 |
| 13 | Onboard target vehicle - driver overshoulder | -2960 | 220 | -1090 | -7.2º | 12.5 | 1000 |
| 14 | Onboard target vehicle - passenger overshoulder | -2960 | -230 | -1090 | -8.0º | 12.5 | 1000 |
| 15 | Onboard bullet vehicle - driver overshoulder | 2520 | -170 | -680 | -3.6º | 705 | 1000 |
| 16 | Onboard bullet vehicle - passenger overshoulder | 2520 | 210 | -1310 | -5.4º | 13 | 1000 |
| 17 | Overhead wide | 0 | 0 | N/A | -90.0º | 12.5 | 1000 |
| 18 | Overhead tight | 0 | 0 | N/A | -90.0º | 50 | 1000 |
| 19 | Underbody crush area of target vehicle | 0 | 0 | N/A | -90.0º | 25 | 1000 |
| 20 | Panning/documentary | N/A | N/A | N/A | N/A | | 30 |

+X: Forward (referenced to Target) from impact point
+Y: Rightward (referenced to Target) from impact point
+Z: Downward from ground level

[1] Measurement was not recorded.

# Appendix A

Photographs



**Figure A-1 Pre-Test Overall - View 1**




**Figure A-2 Post-Test Overall - View 2**



**Figure A-3 Pre-Test Overall - View 2**



**Figure A-4 Post-Test Overall - View 2**

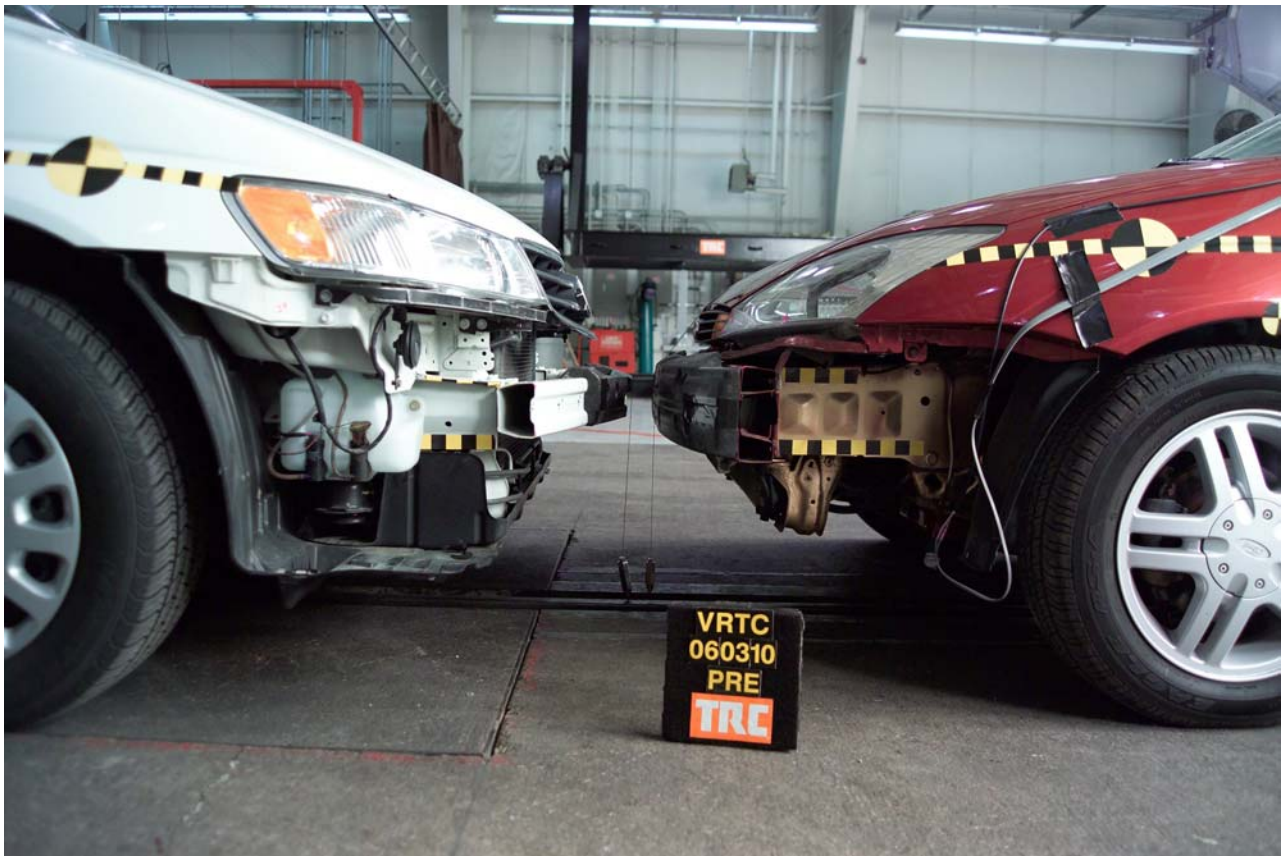



**Figure A-5 Pre-Test Impact Alignment - View 1**




**Figure A-6 Pre-Test Impact Alignment - View 2**

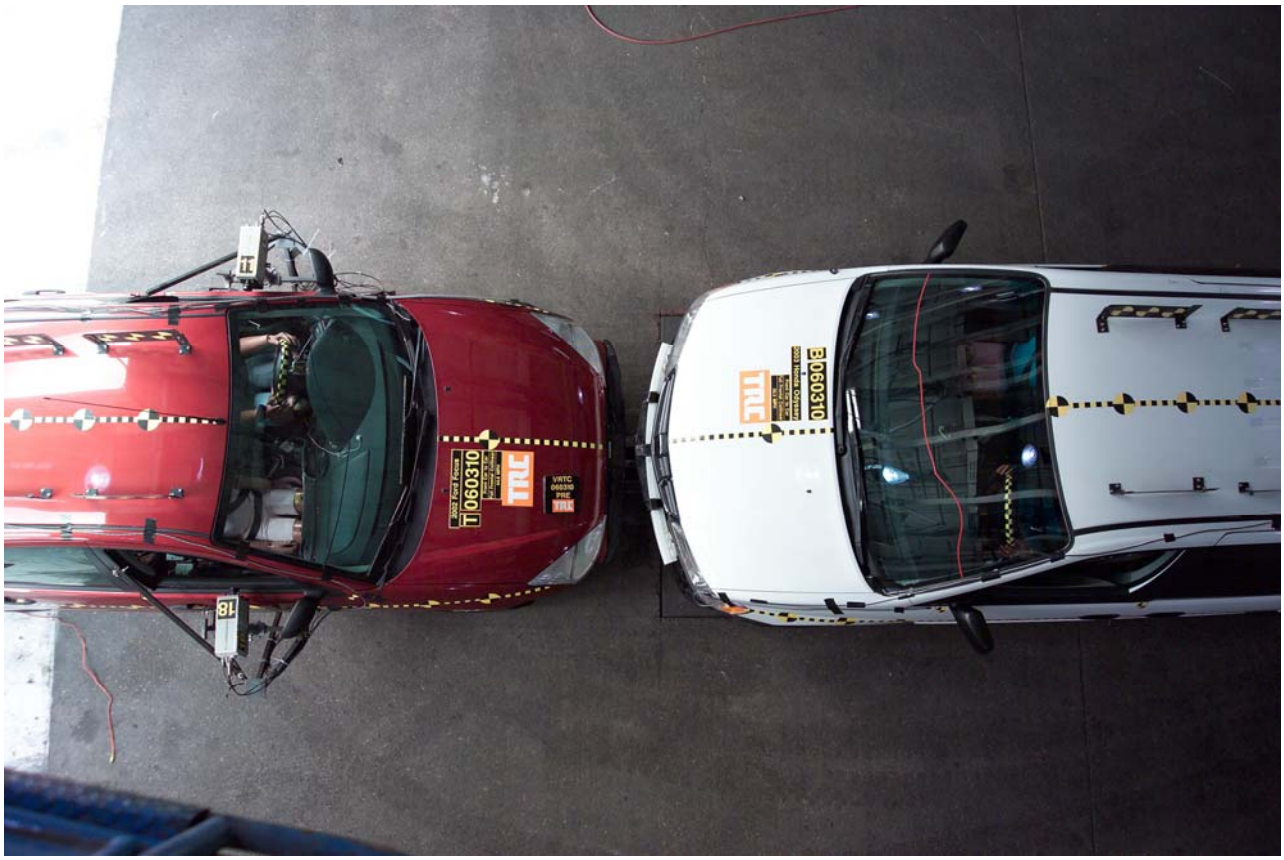


**Figure A-7 Pre-Test Overhead Wide View**

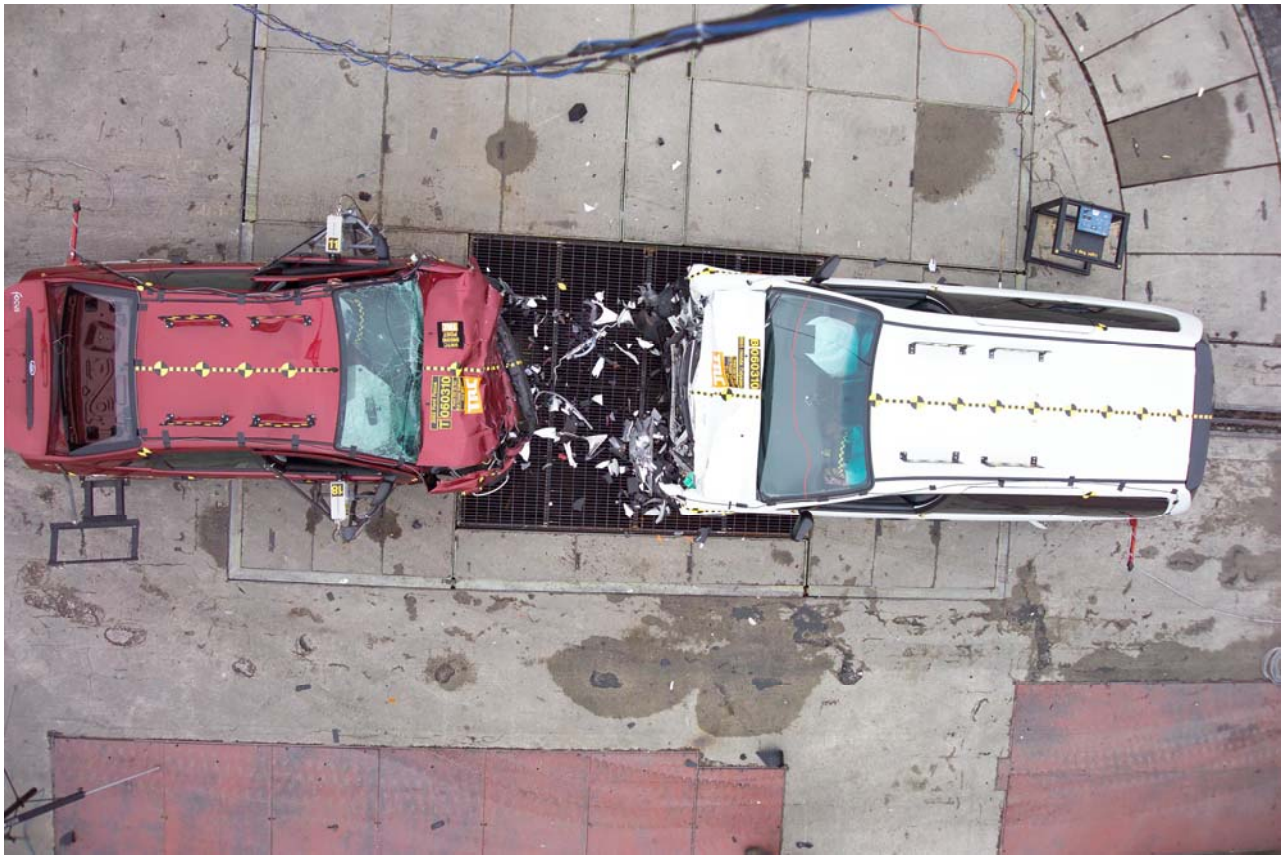


**Figure A-8 Post-Test Overhead Wide View**




**Figure A-9 Pre-Test Overhead Close-up View**

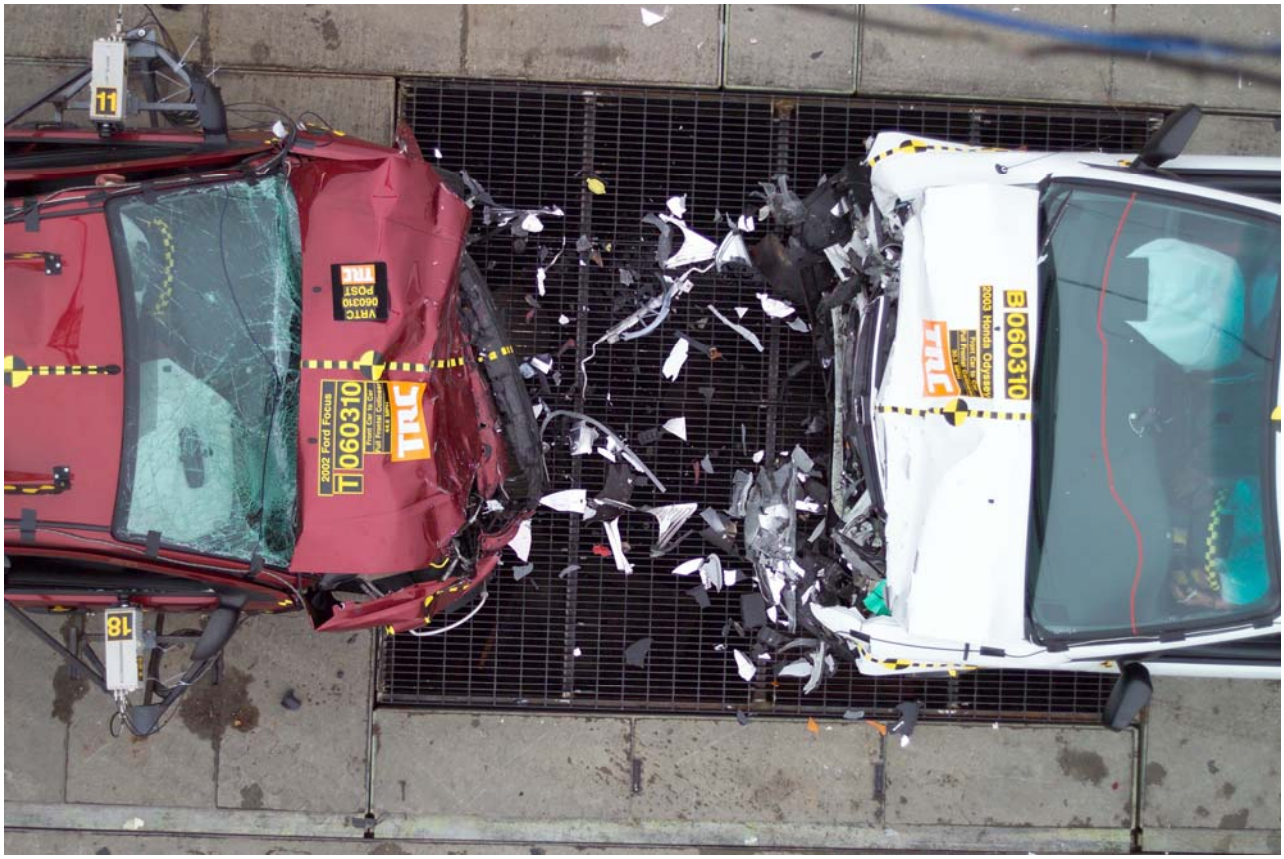



**Figure A-10 Post-Test Overhead Close-up View**




**Figure A-11 Pre-Test Overhead Target Vehicle View**




**Figure A-12 Post-Test Overhead Target Vehicle View**

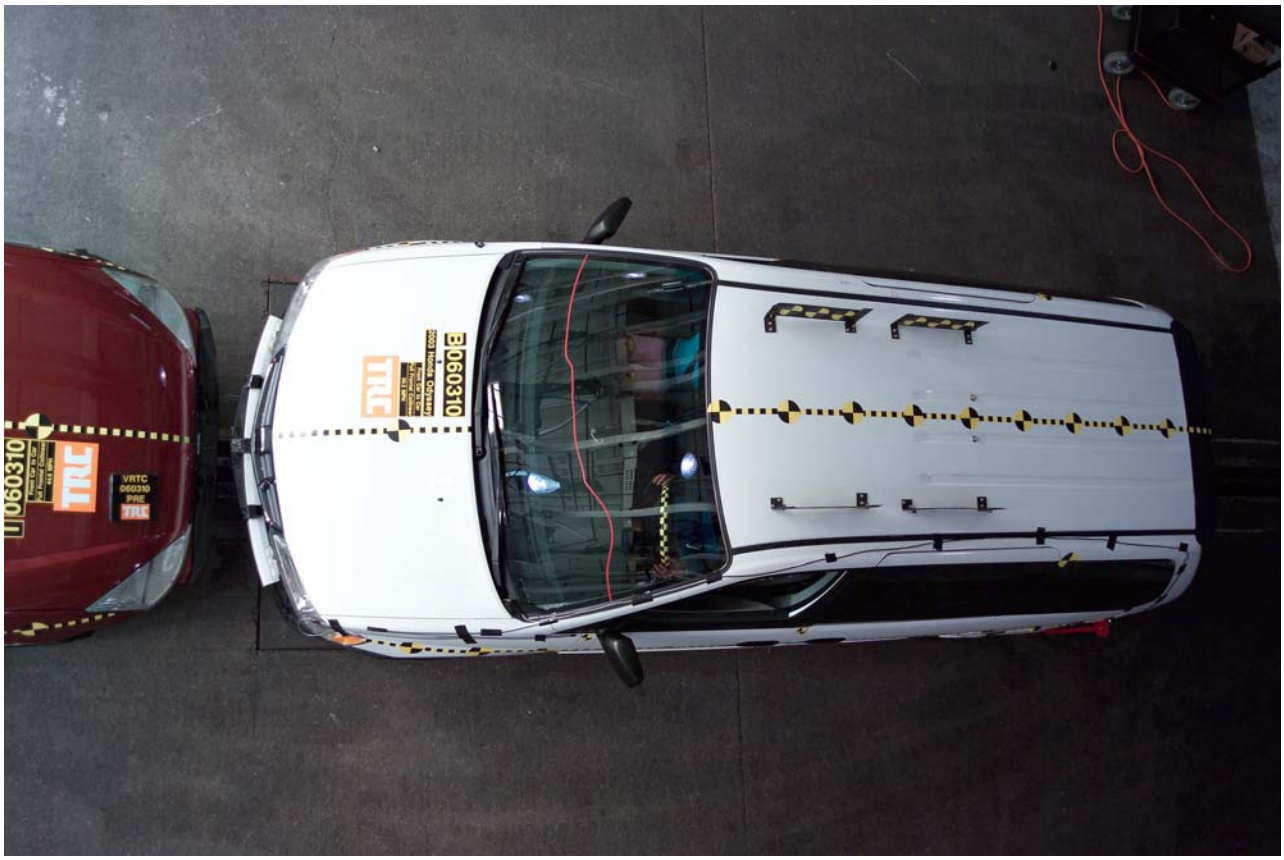



**Figure A-13 Pre-Test Overhead Bullet Vehicle View**




**Figure A-14 Post-Test Overhead Bullet Vehicle View**




**Figure A-15 Pre-Test Target Vehicle Front View**




**Figure A-16 Post-Test Target Vehicle Front View**



**Figure A-17 Pre-Test Target Vehicle Left Front View**




**Figure A-18 Post-Test Target Vehicle Left Front View**




**Figure A-19 Pre-Test Target Vehicle Left Side View**




**Figure A-20 Post-Test Target Vehicle Left Side View**




**Figure A-21 Pre-Test Target Vehicle Left Rear View**




**Figure A-22 Post-Test Target Vehicle Left Rear View**

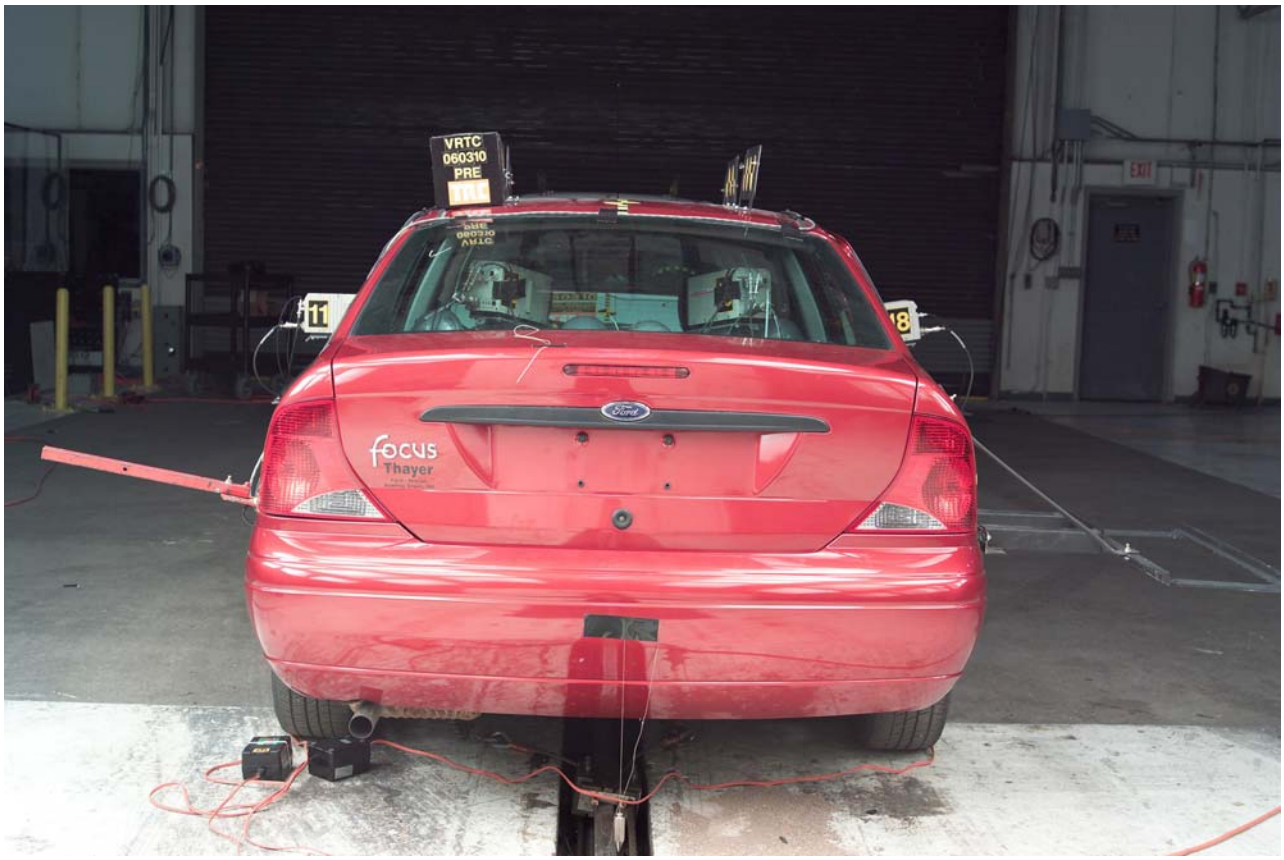



**Figure A-23 Pre-Test Target Vehicle Rear View**




**Figure A-24 Post-Test Target Vehicle Rear View**




**Figure A-25 Pre-Test Target Vehicle Right Rear View**




**Figure A-26 Post-Test Target Vehicle Right Rear View**




**Figure A-27 Pre-Test Target Vehicle Right Side View**




**Figure A-28 Post-Test Target Vehicle Right Side View**




**Figure A-29 Pre-Test Target Vehicle Right Front View**




**Figure A-30 Post-Test Target Vehicle Right Front View**




**Figure A-31 Pre-Test Target Vehicle Engine Compartment View**




**Figure A-32 Post-Test Target Vehicle Engine Compartment View**

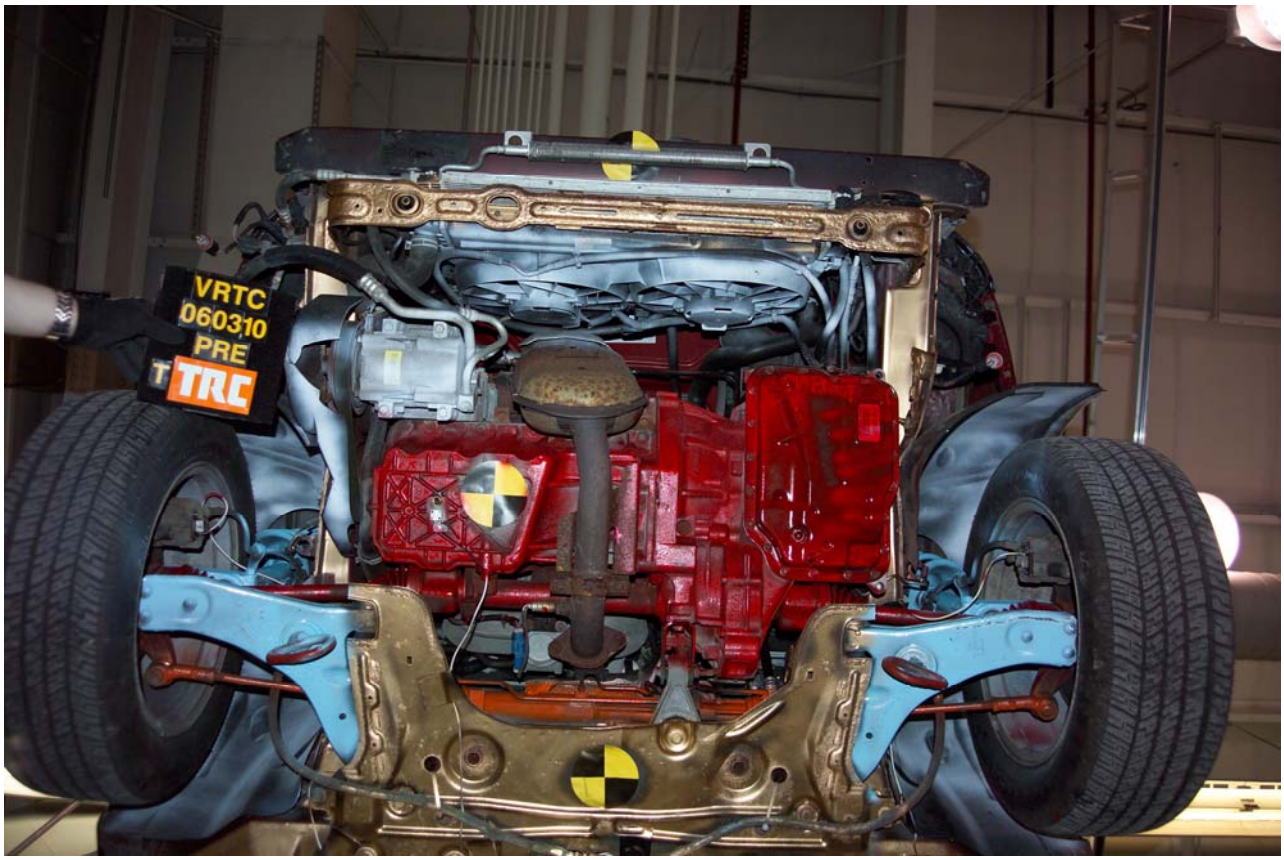



**Figure A-33 Pre-Test Target Vehicle Front Underbody View**

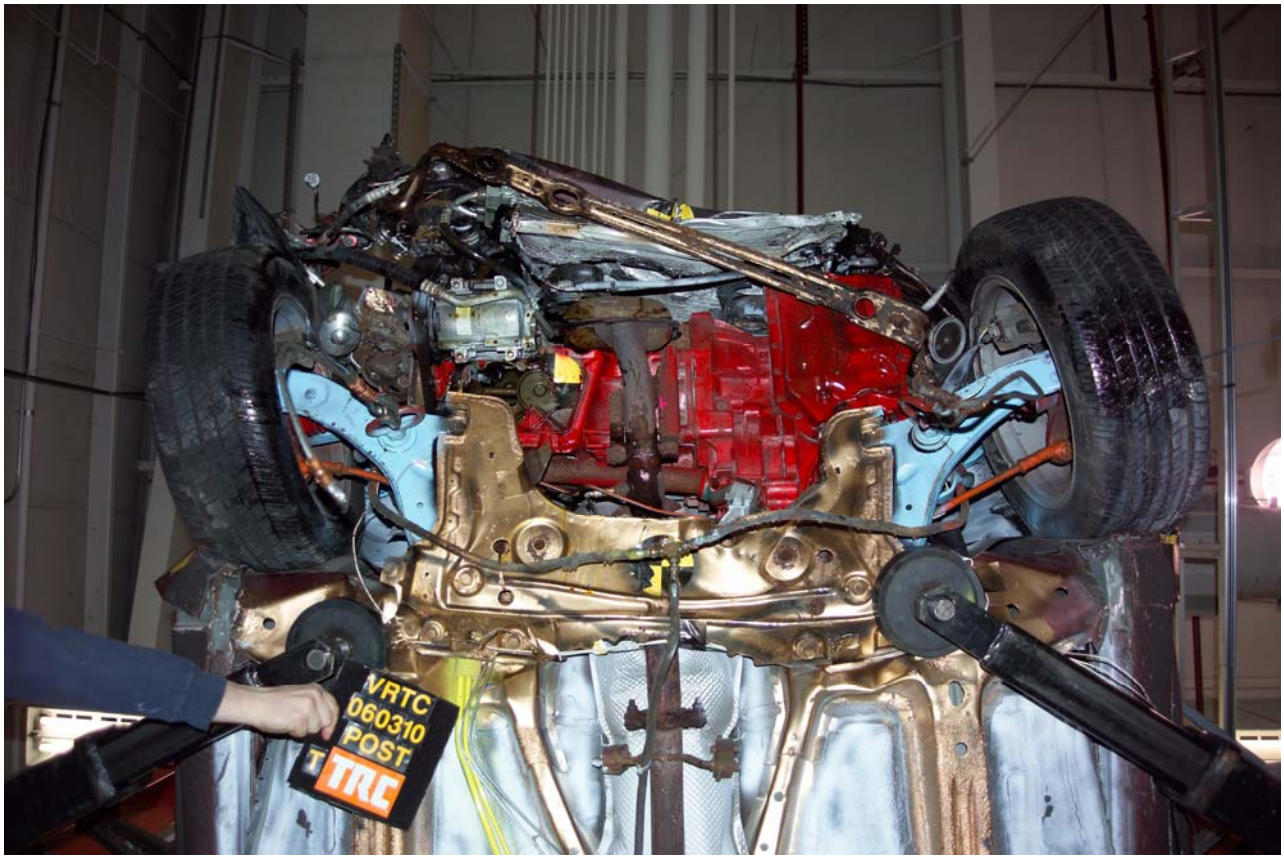



**Figure A-34 Post-Test Target Vehicle Front Underbody View**

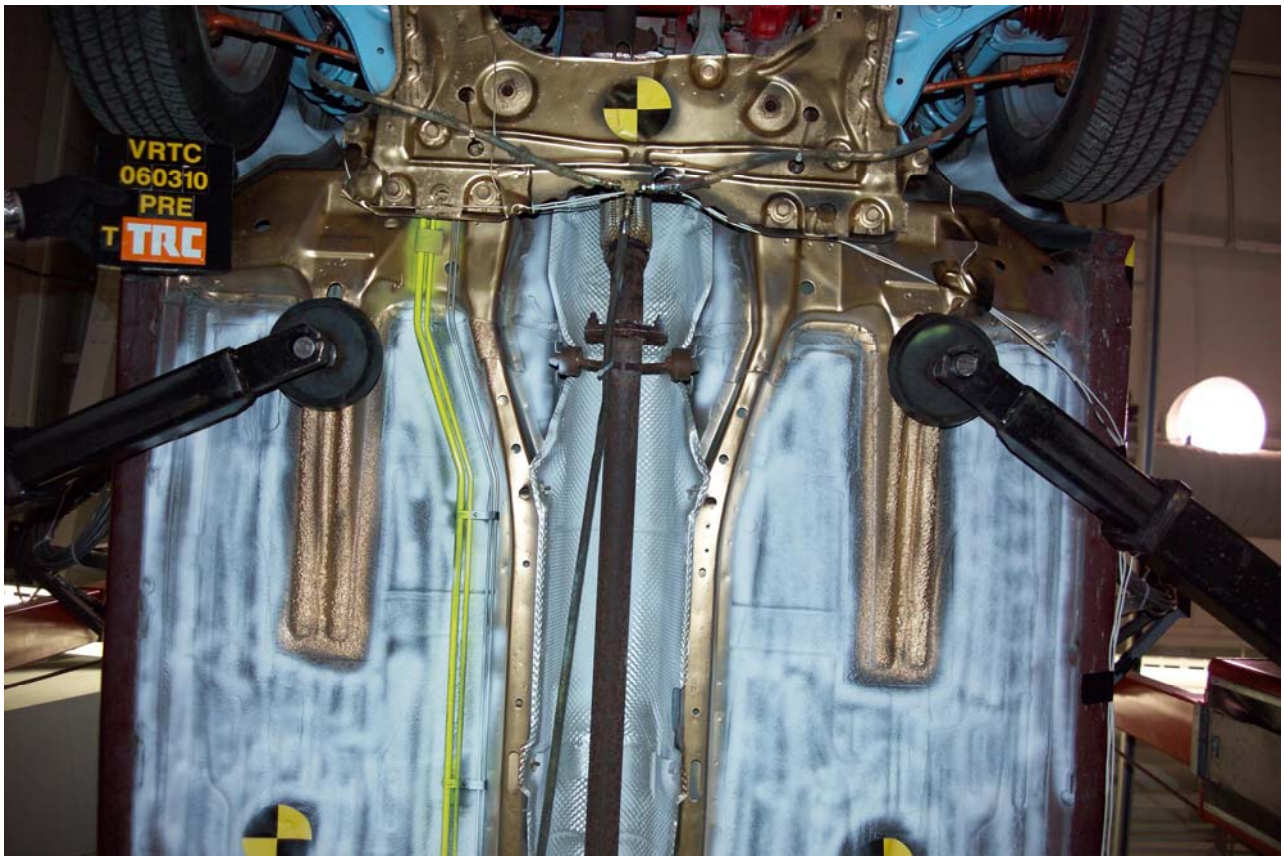



**Figure A-35 Pre-Test Target Vehicle Front Mid Underbody View**

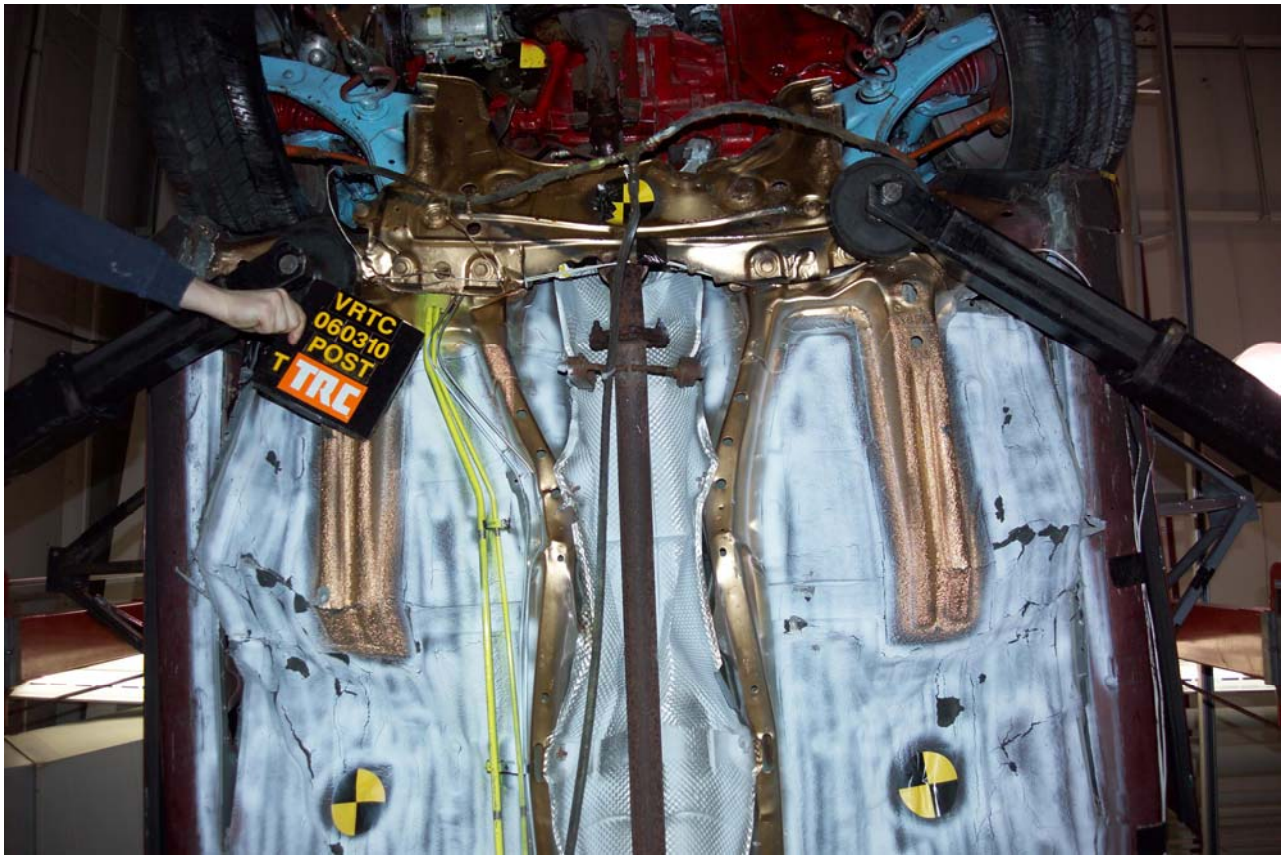



**Figure A-36 Post-Test Target Vehicle Front Mid Underbody View**

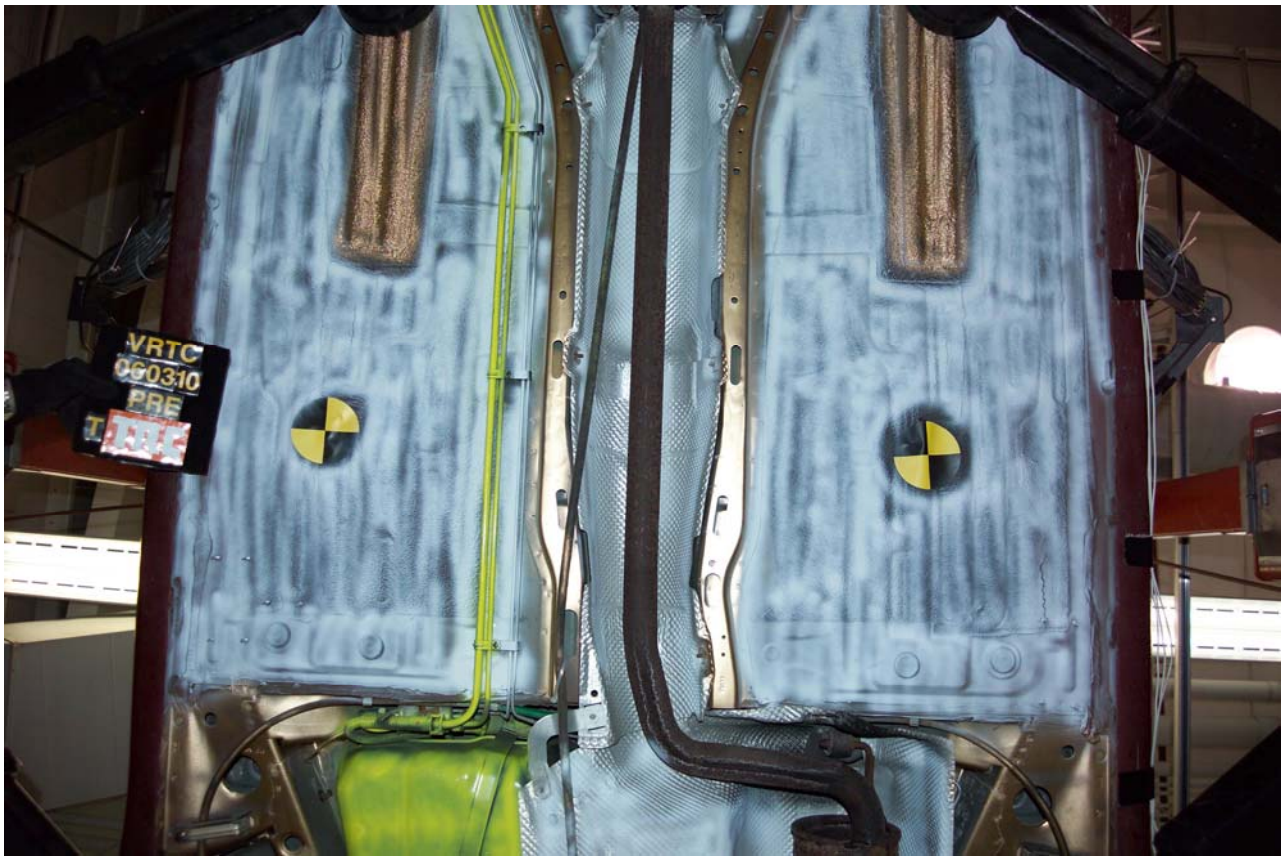



**Figure A-37 Pre-Test Target Vehicle Mid Underbody View**




**Figure A-38 Post-Test Target Vehicle Mid Underbody View**

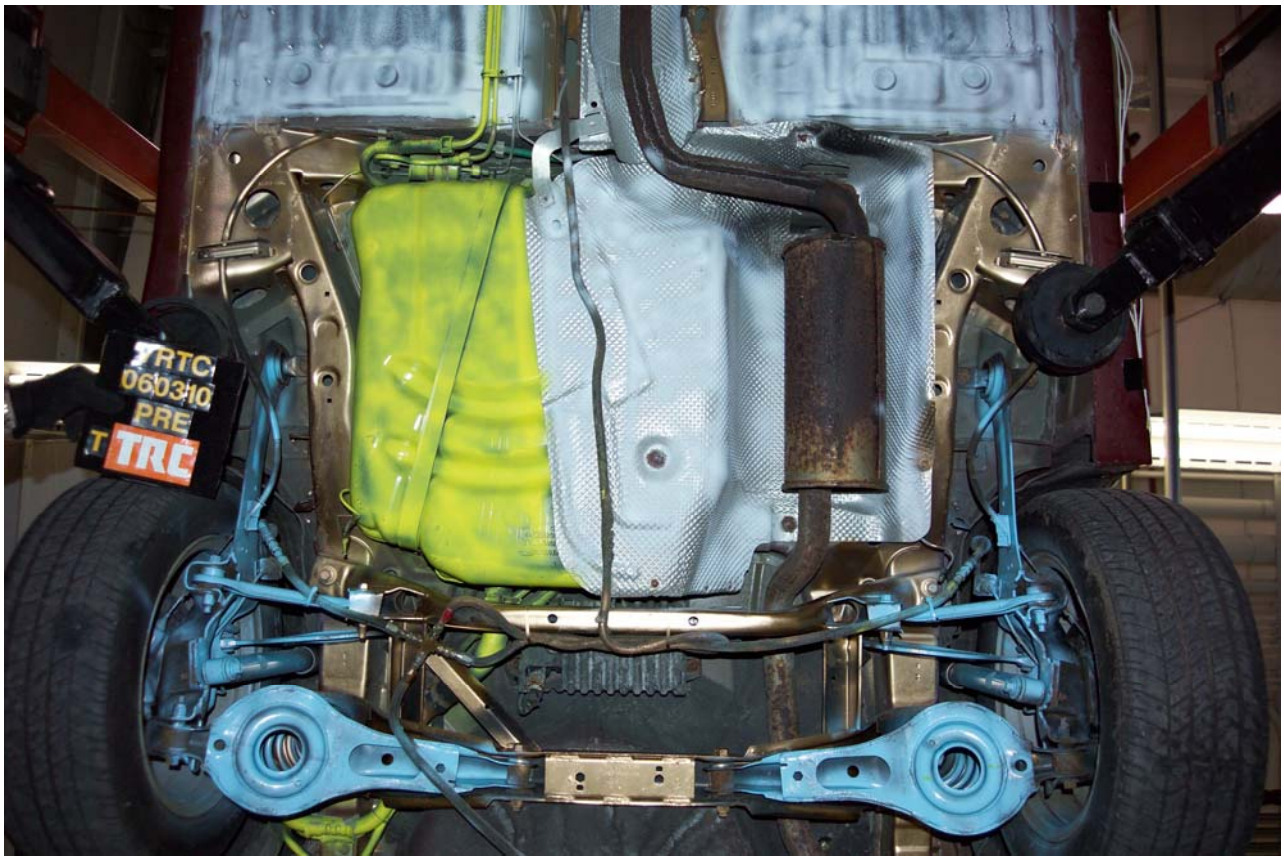



**Figure A-39 Pre-Test Target Vehicle Rear Mid Underbody View**




**Figure A-40 Post-Test Target Vehicle Rear Mid Underbody View**

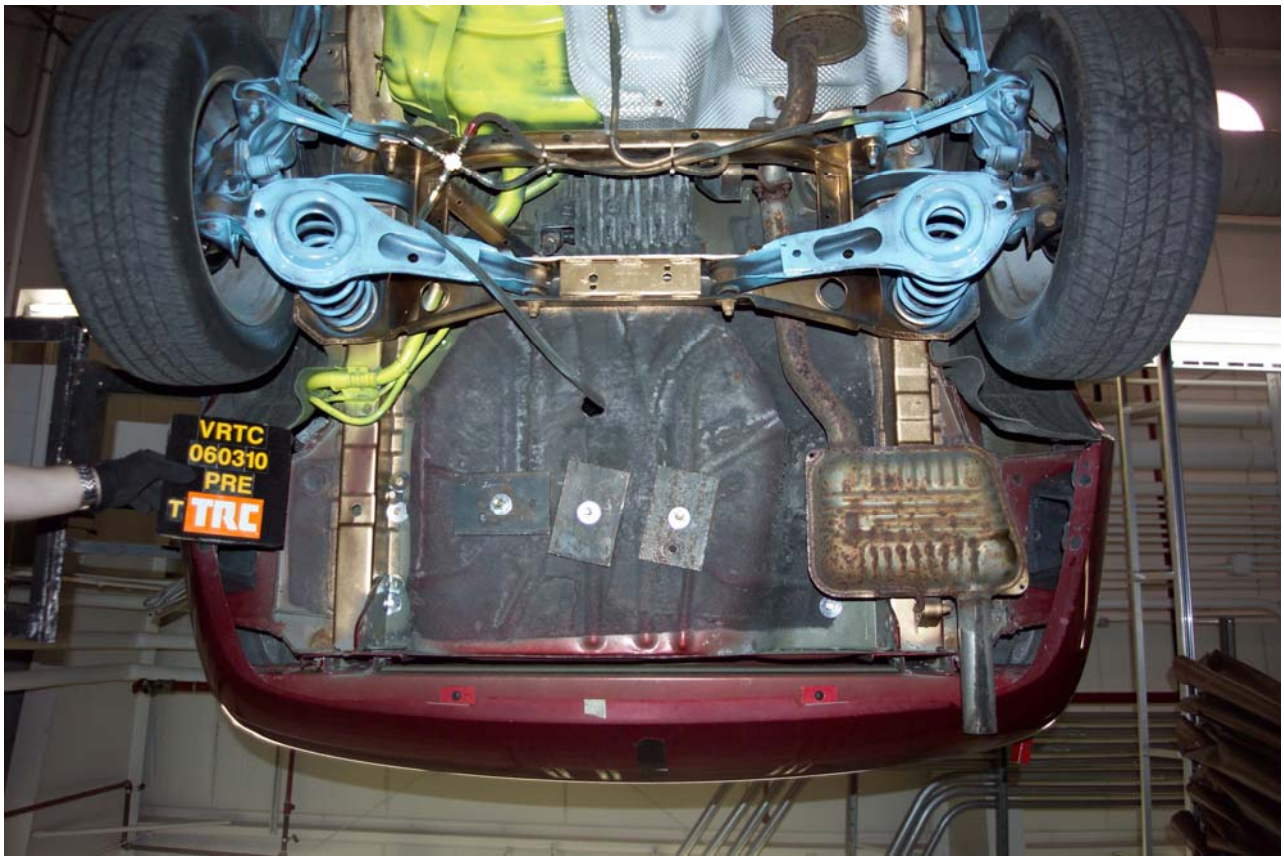



**Figure A-41 Pre-Test Target Vehicle Rear Underbody View**

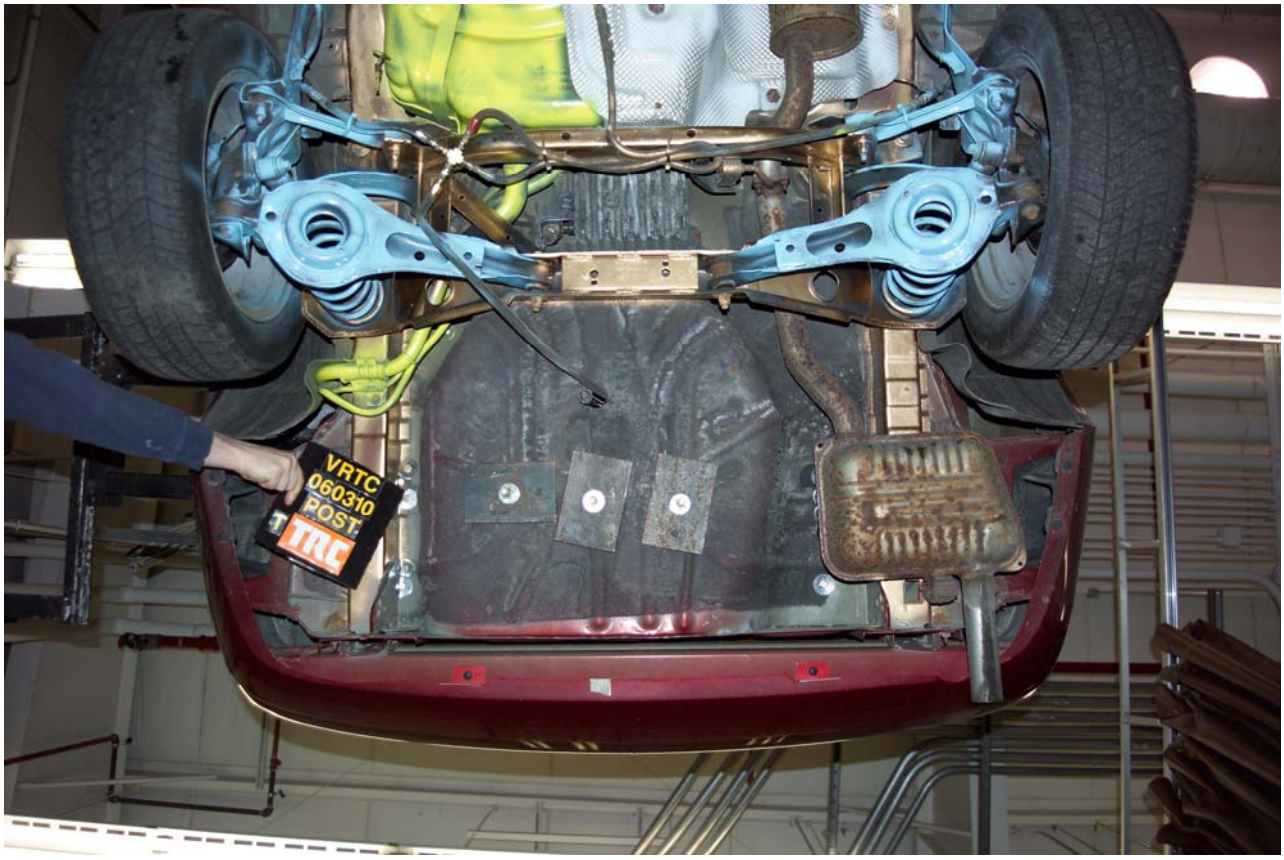



**Figure A-42 Post-Test Target Vehicle Rear Underbody View**




**Figure A-43 Pre-Test Bullet Vehicle Front View**

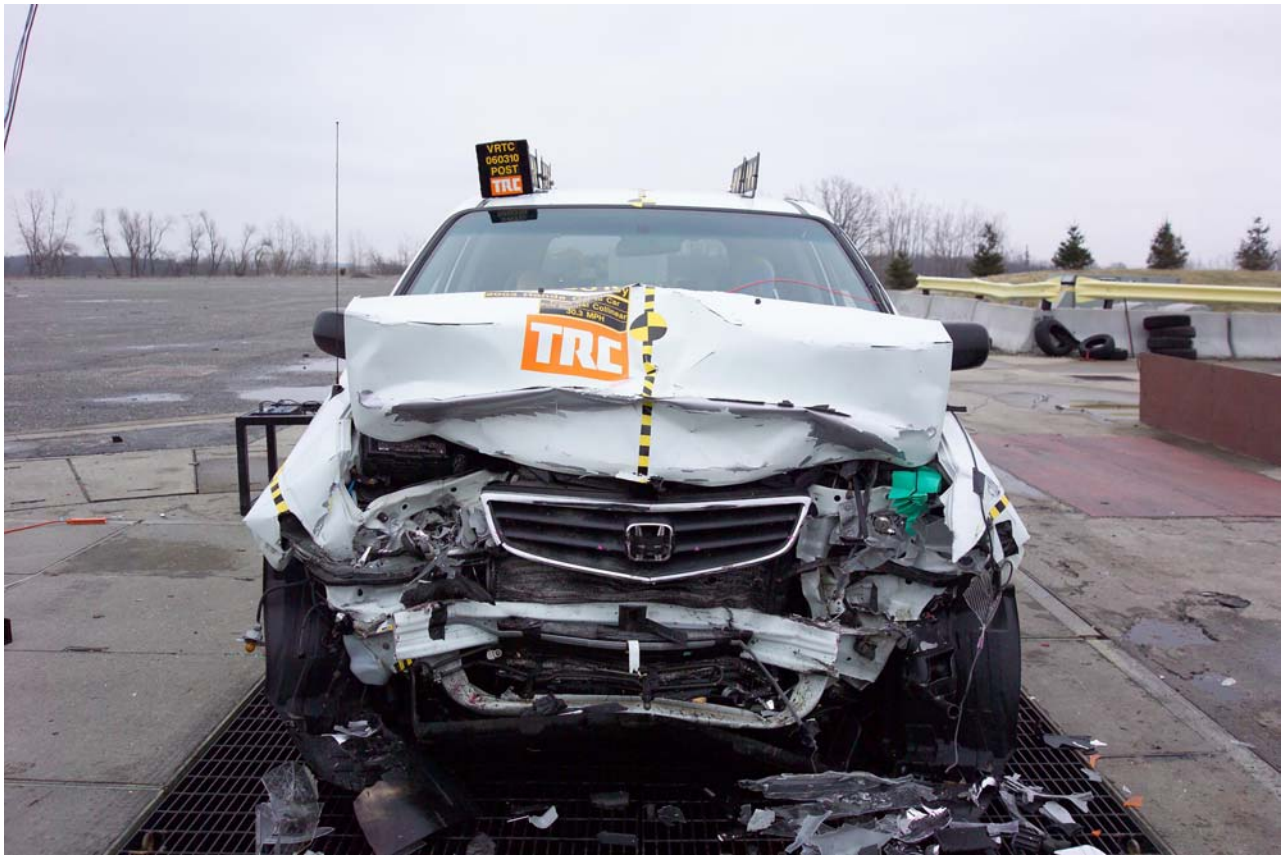



**Figure A-44 Post-Test Bullet Vehicle Front View**



**Figure A-45 Pre-Test Bullet Vehicle Left Front View**

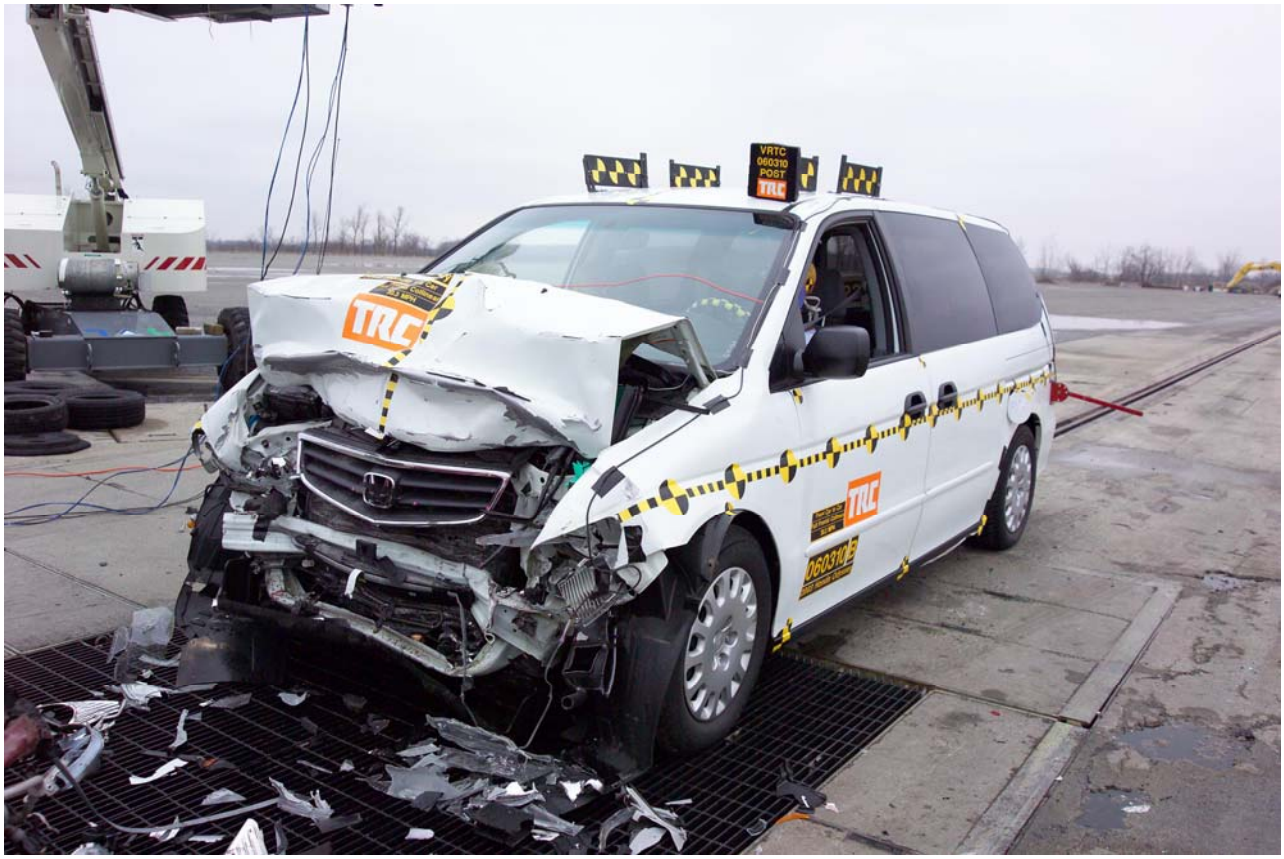



**Figure A-46 Post-Test Bullet Vehicle Left Front View**




**Figure A-47 Pre-Test Bullet Vehicle Left Side View**




**Figure A-48 Post-Test Bullet Vehicle Left Side View**




**Figure A-49 Pre-Test Bullet Vehicle Left Rear View**




**Figure A-50 Post-Test Bullet Vehicle Left Rear View**

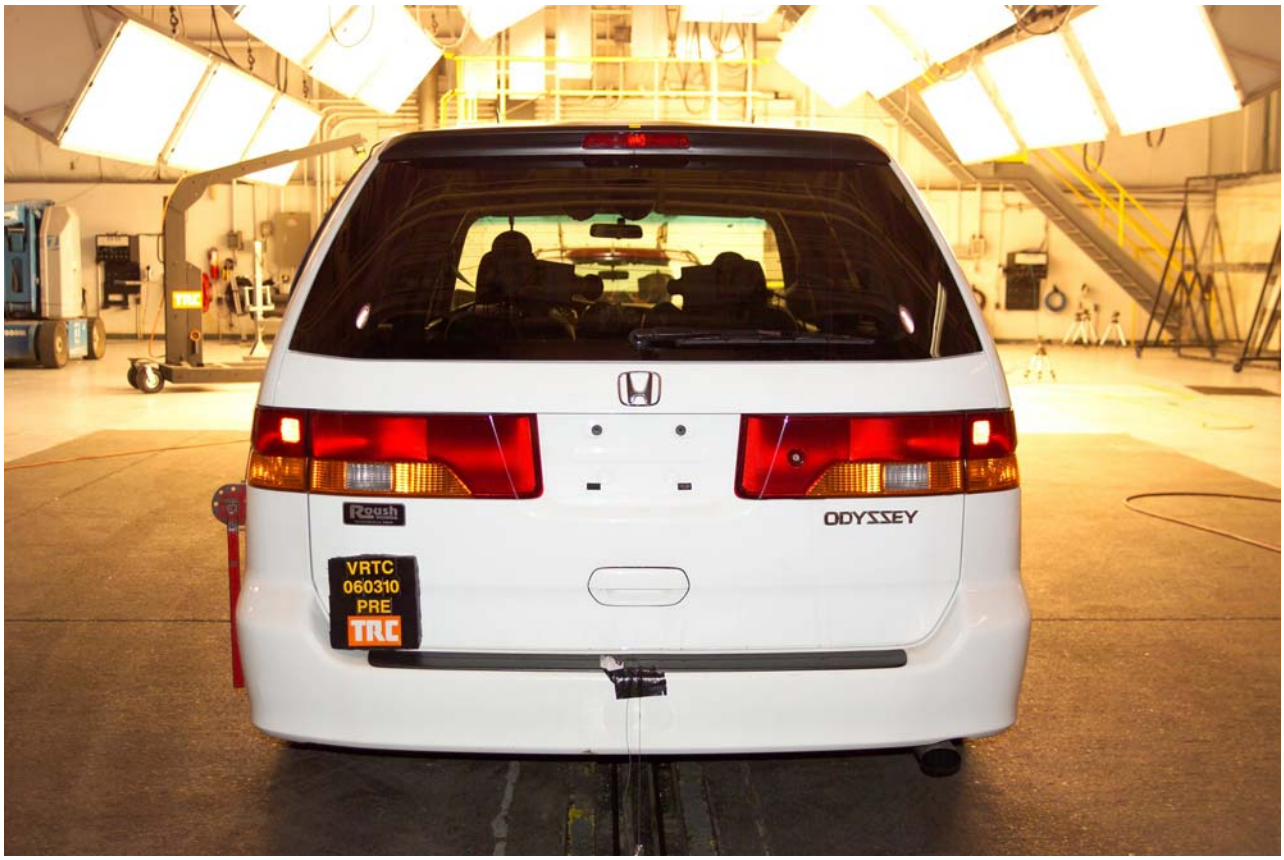



**Figure A-51 Pre-Test Bullet Vehicle Rear View**

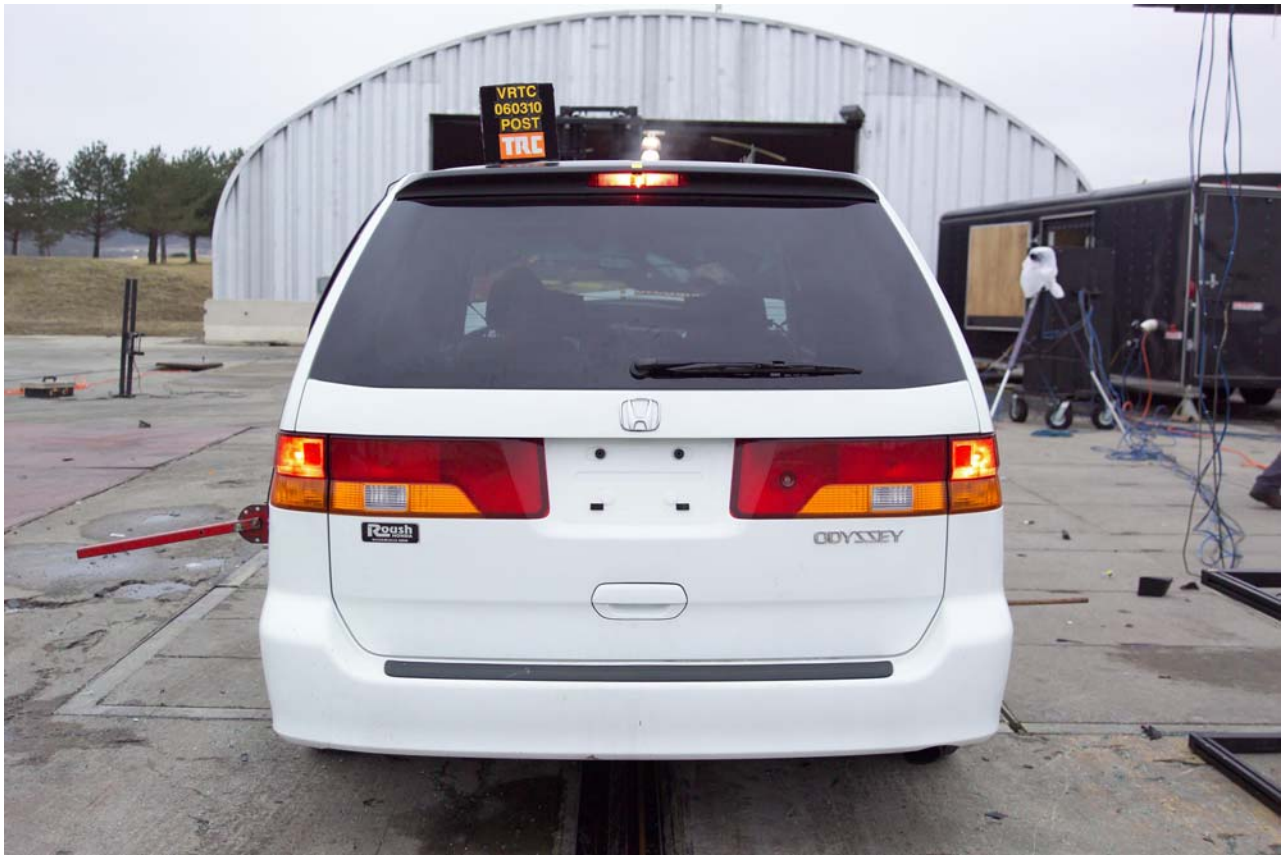



**Figure A-52 Post-Test Bullet Vehicle Rear View**



**Figure A-53 Pre-Test Bullet Vehicle Right Rear View**




**Figure A-54 Post-Test Bullet Vehicle Right Rear View**




**Figure A-55 Pre-Test Bullet Vehicle Right Side View**




**Figure A-56 Post-Test Bullet Vehicle Right Side View**




**Figure A-57 Pre-Test Bullet Vehicle Right Front View**




**Figure A-58 Post-Test Bullet Vehicle Right Front View**




**Figure A-59 Pre-Test Bullet Vehicle Engine Compartment View**




**Figure A-60 Post-Test Bullet Vehicle Engine Compartment View**

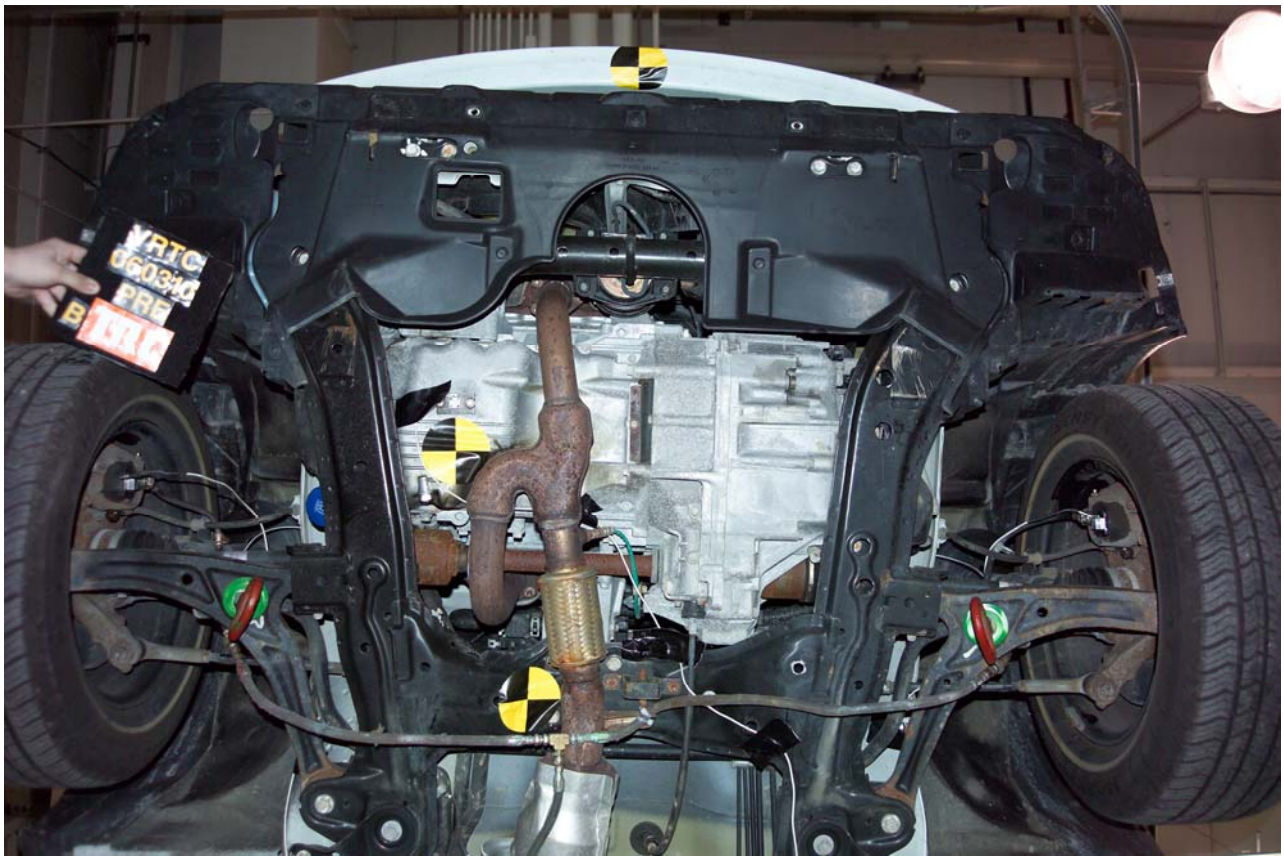



**Figure A-61 Pre-Test Bullet Vehicle Front Underbody View**

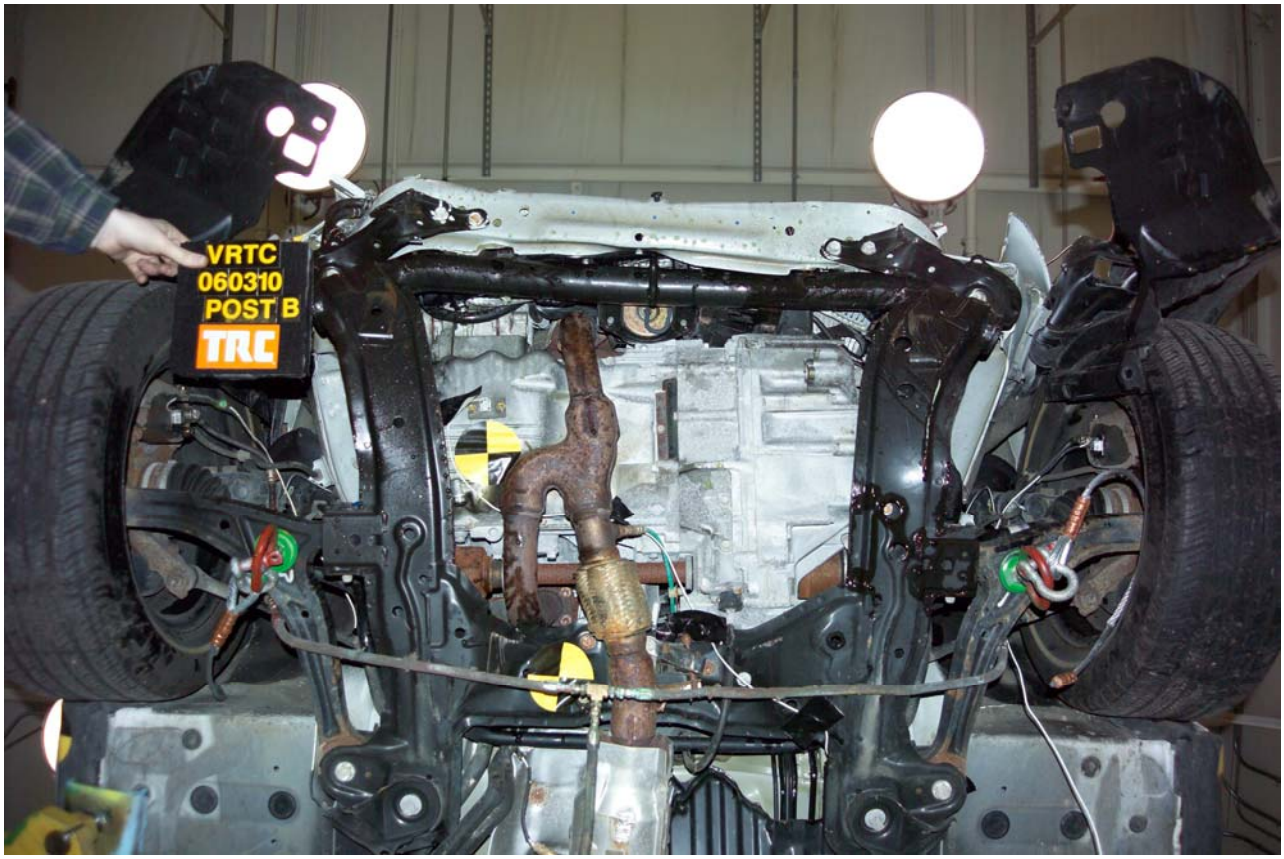



**Figure A-62 Post-Test Bullet Vehicle Front Underbody View**

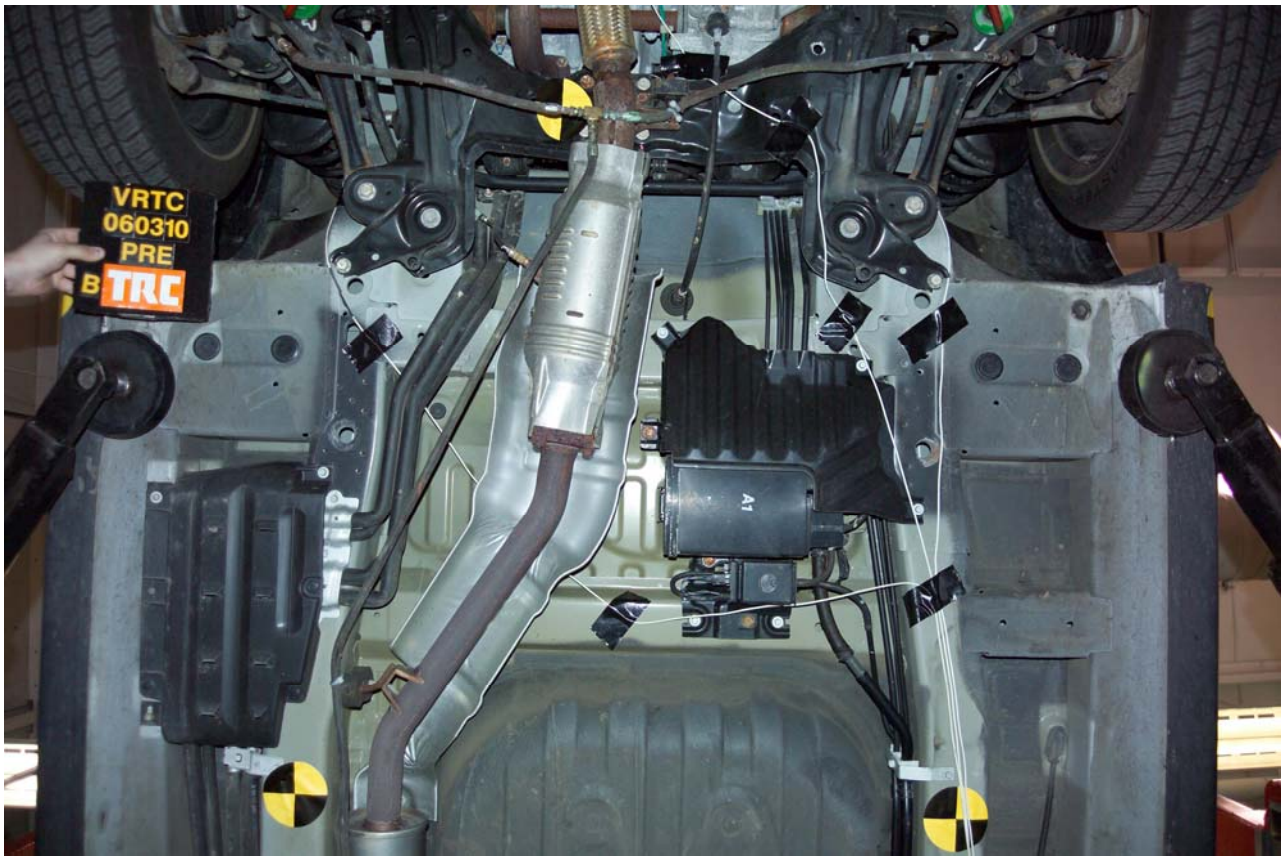



**Figure A-63 Pre-Test Bullet Vehicle Front Mid Underbody View**

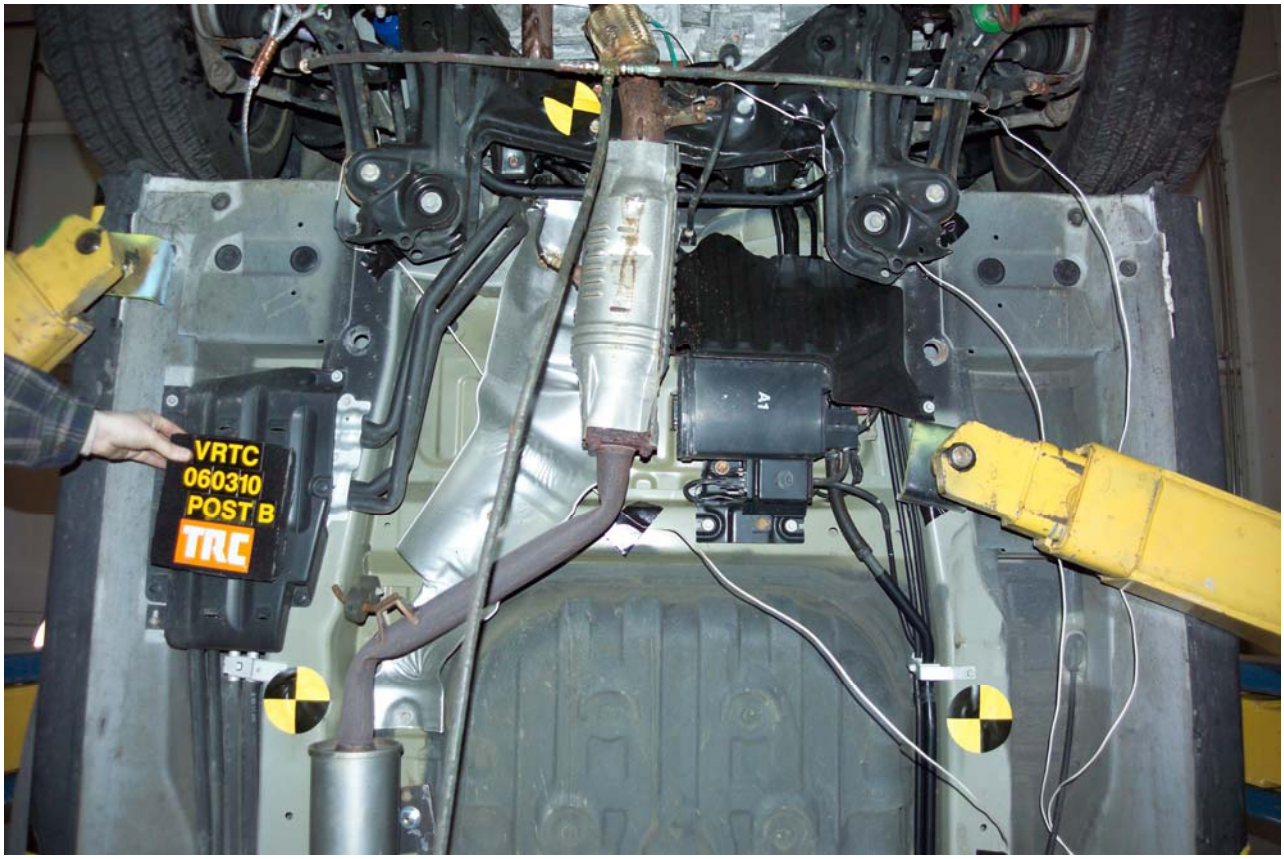



**Figure A-64 Post-Test Bullet Vehicle Front Mid Underbody View**

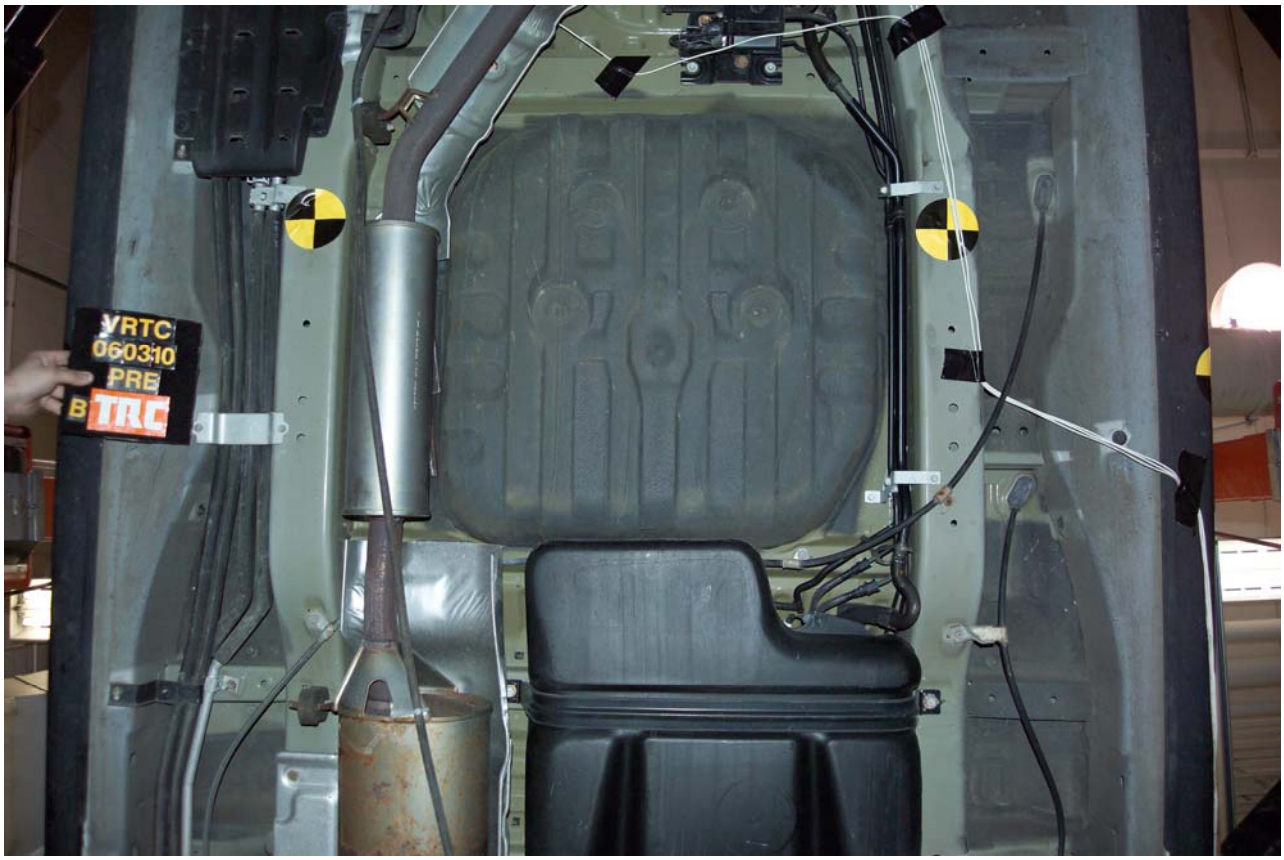



**Figure A-65 Pre-Test Bullet Vehicle Mid Underbody View**




**Figure A-66 Post-Test Bullet Vehicle Mid Underbody View**

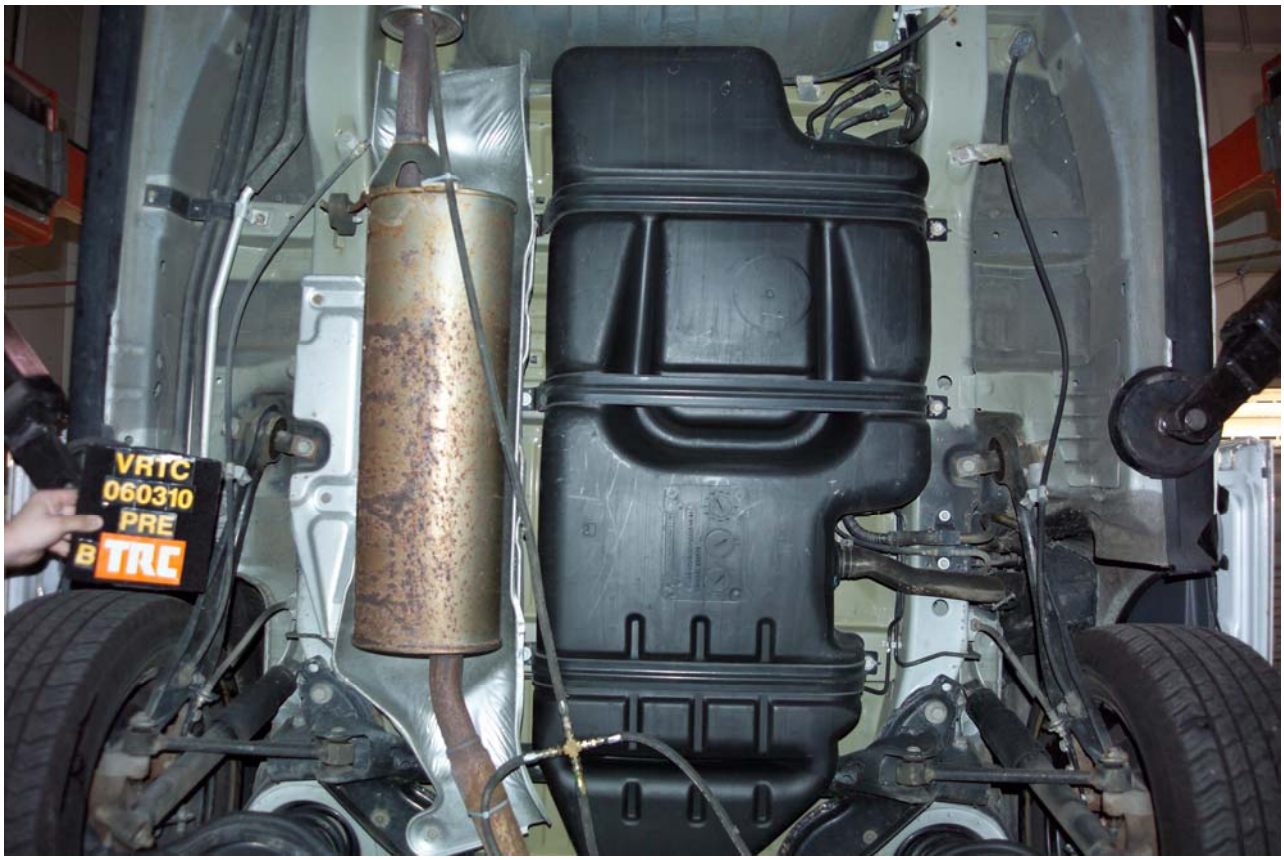



**Figure A-67  Pre-Test Bullet Vehicle Rear Mid Underbody View**




**Figure A-68  Post-Test Bullet Vehicle Rear Mid Underbody View**

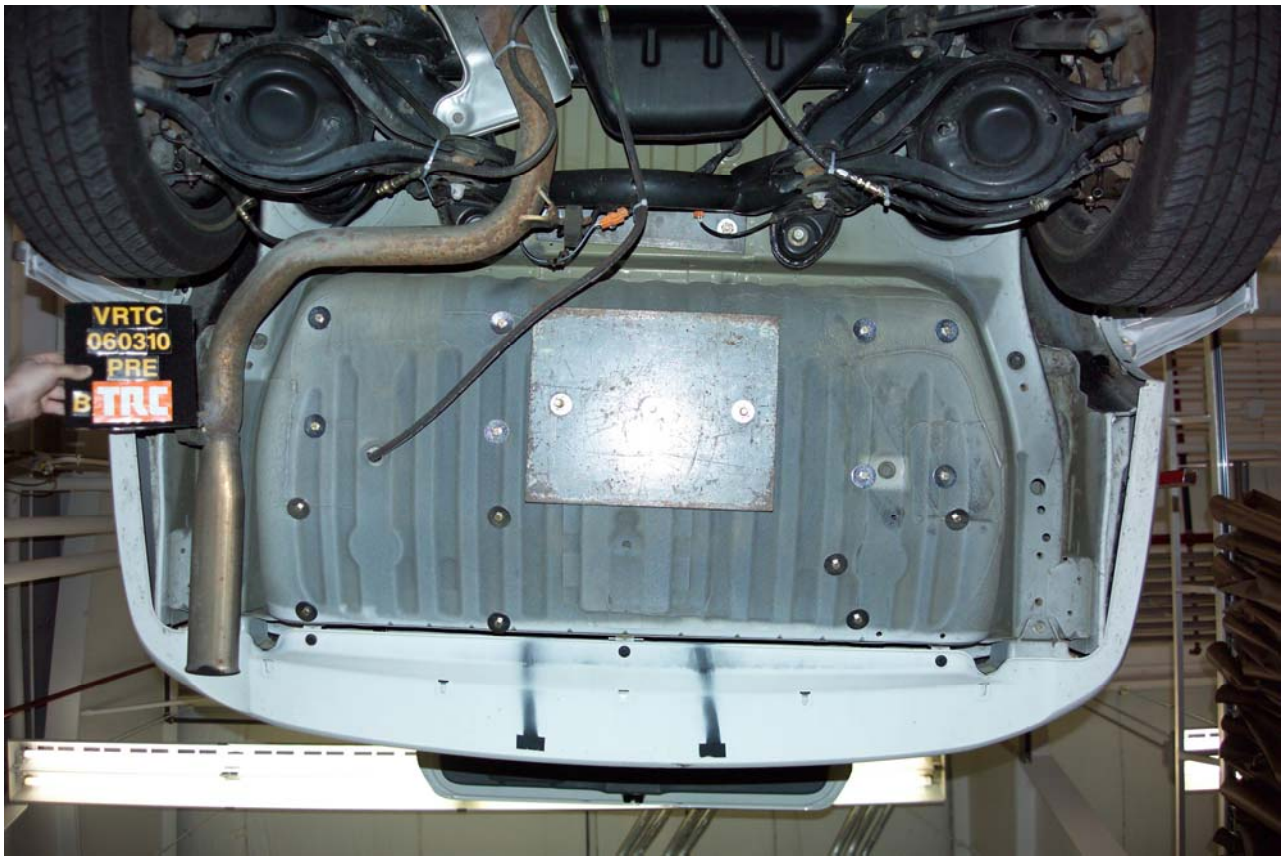



**Figure A-69 Pre-Test Bullet Vehicle Rear Underbody View**

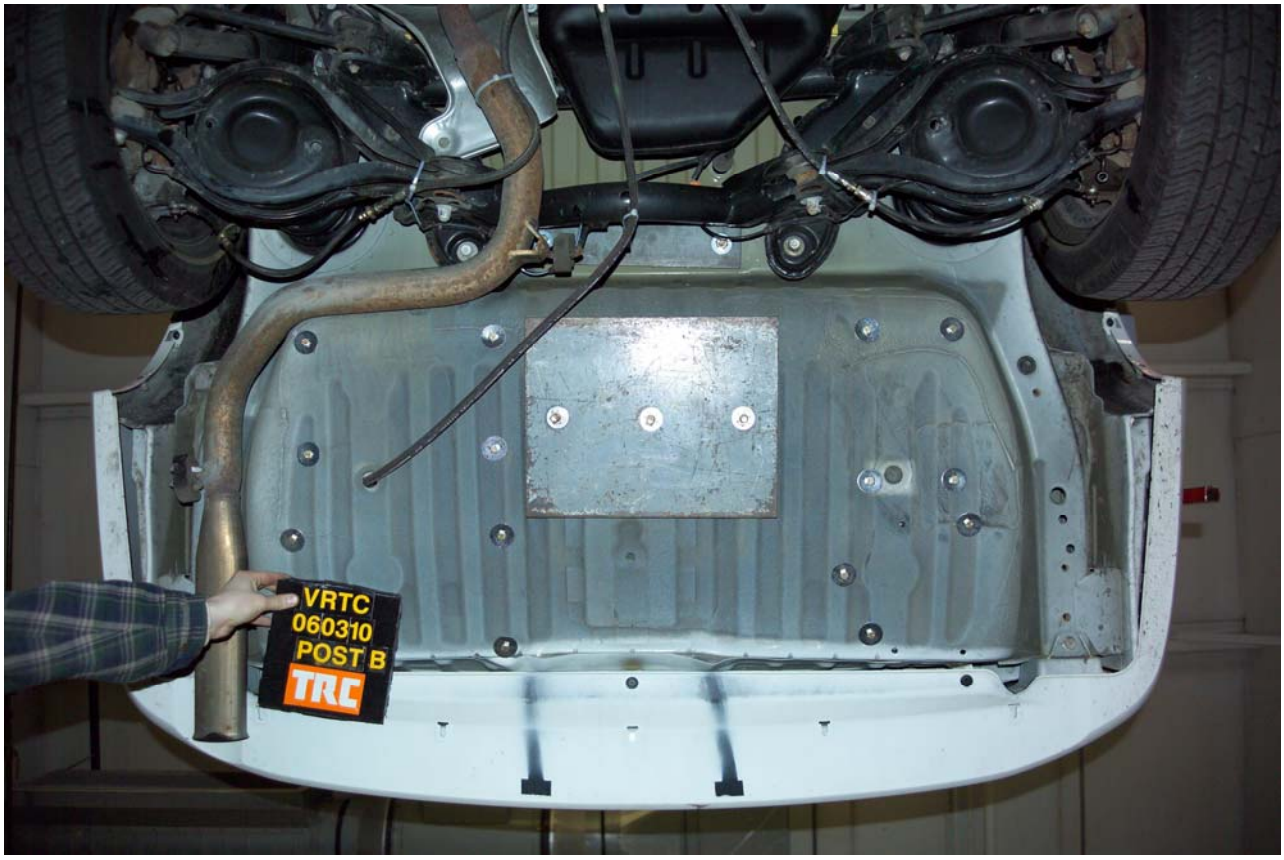



**Figure A-70 Post-Test Bullet Vehicle Rear Underbody View**




**Figure A-71 Pre-Test Target Vehicle Windshield View**




**Figure A-72 Post-Test Target Vehicle Windshield View**




**Figure A-73 Pre-Test Target Vehicle Driver and Passenger Dummies through Windshield View**




**Figure A-74 Post-Test Target Vehicle Driver and Passenger Dummies through Windshield View**

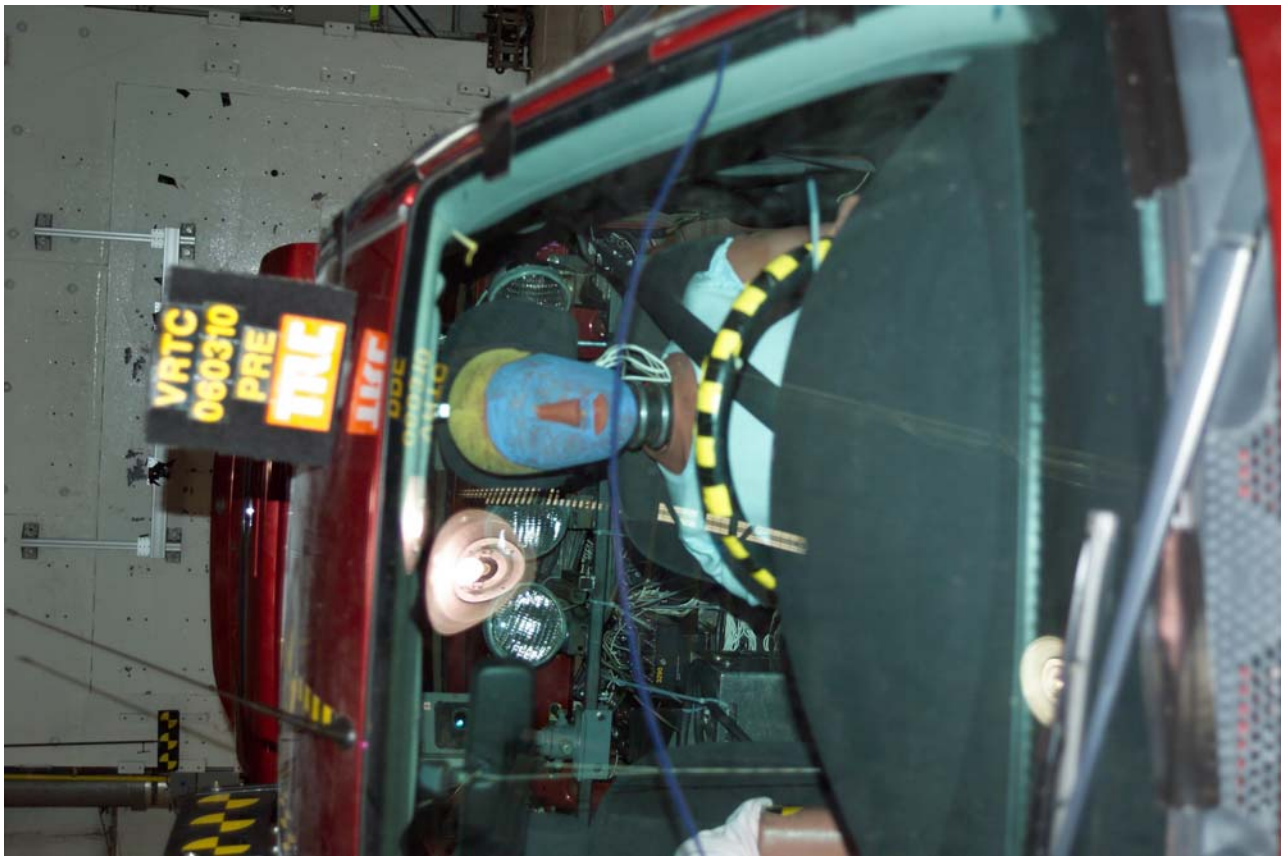



**Figure A-75 Pre-Test Target Vehicle Driver Dummy - View 1**




**Figure A-76 Post-Test Target Vehicle Driver Dummy - View 1**

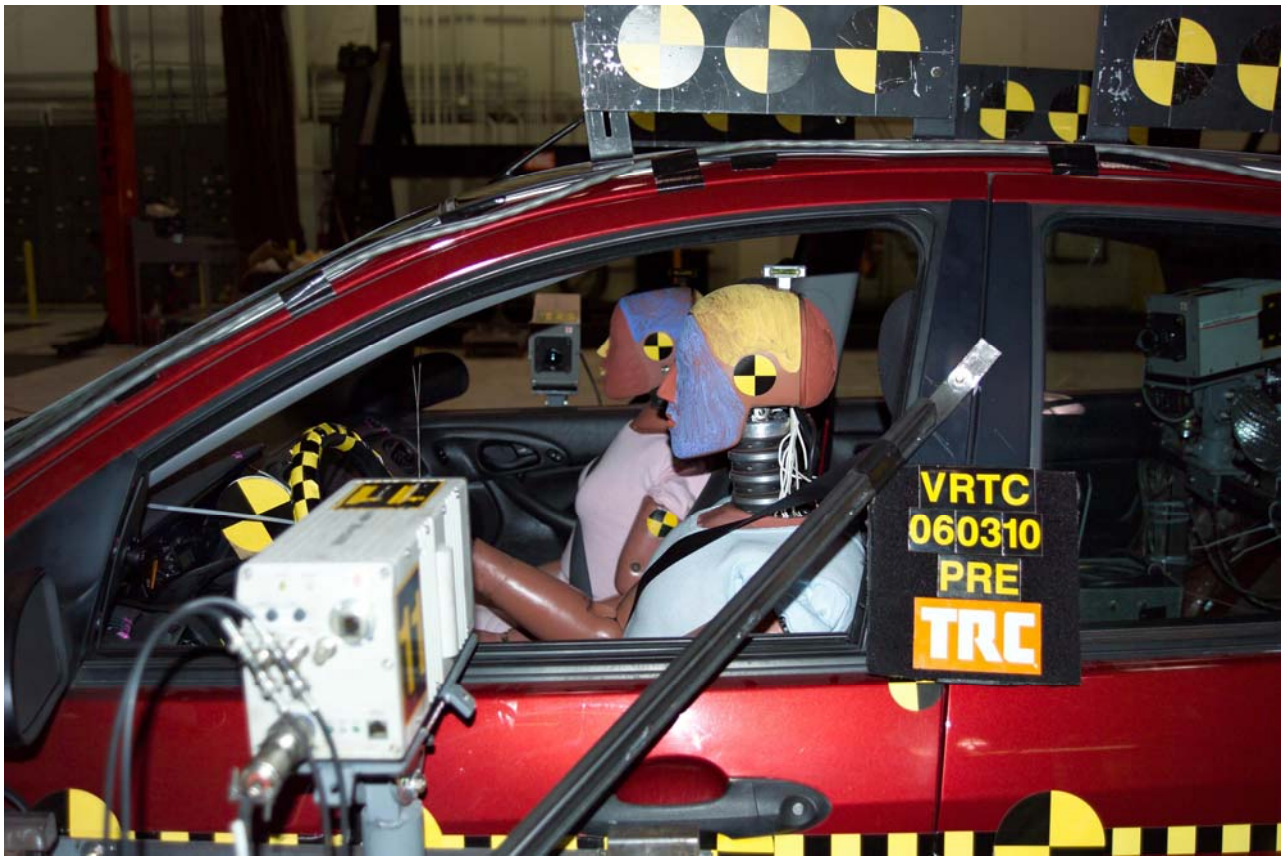



**Figure A-77 Pre-Test Target Vehicle Driver Dummy - View 2**




**Figure A-78 Post-Test Target Vehicle Driver Dummy - View 2**




**Figure A-79 Pre-Test Target Vehicle Driver Dummy - View 3**




**Figure A-80 Post-Test Target Vehicle Driver Dummy - View 3**




**Figure A-81 Pre-Test Target Vehicle Driver Dummy - View 4**




**Figure A-82 Post-Test Target Vehicle Driver Dummy - View 4**




**Figure A-83 Pre-Test Target Vehicle Driver Dummy Foot Position View**

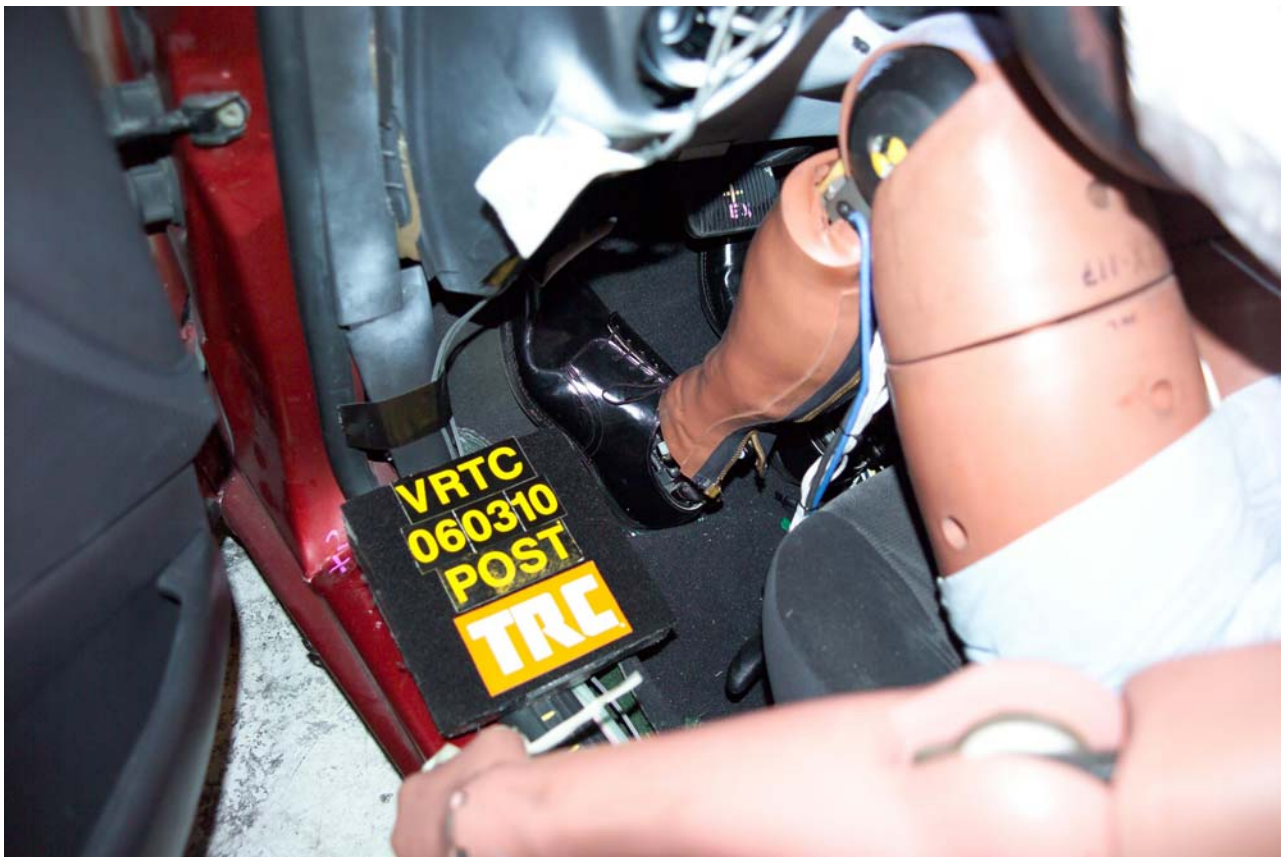



**Figure A-84 Post-Test Target Vehicle Driver Dummy Foot Position View**

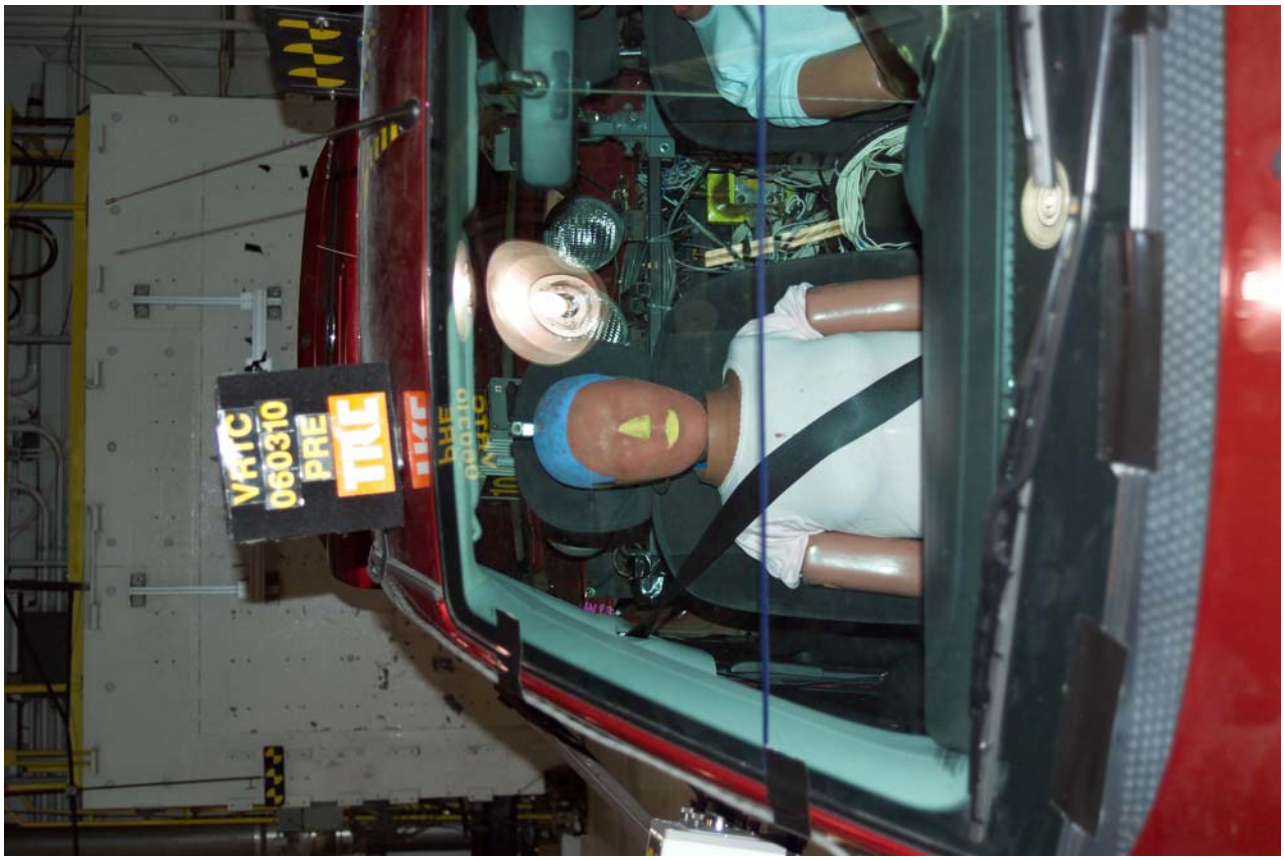



**Figure A-85 Pre-Test Target Vehicle Passenger Dummy - View 1**

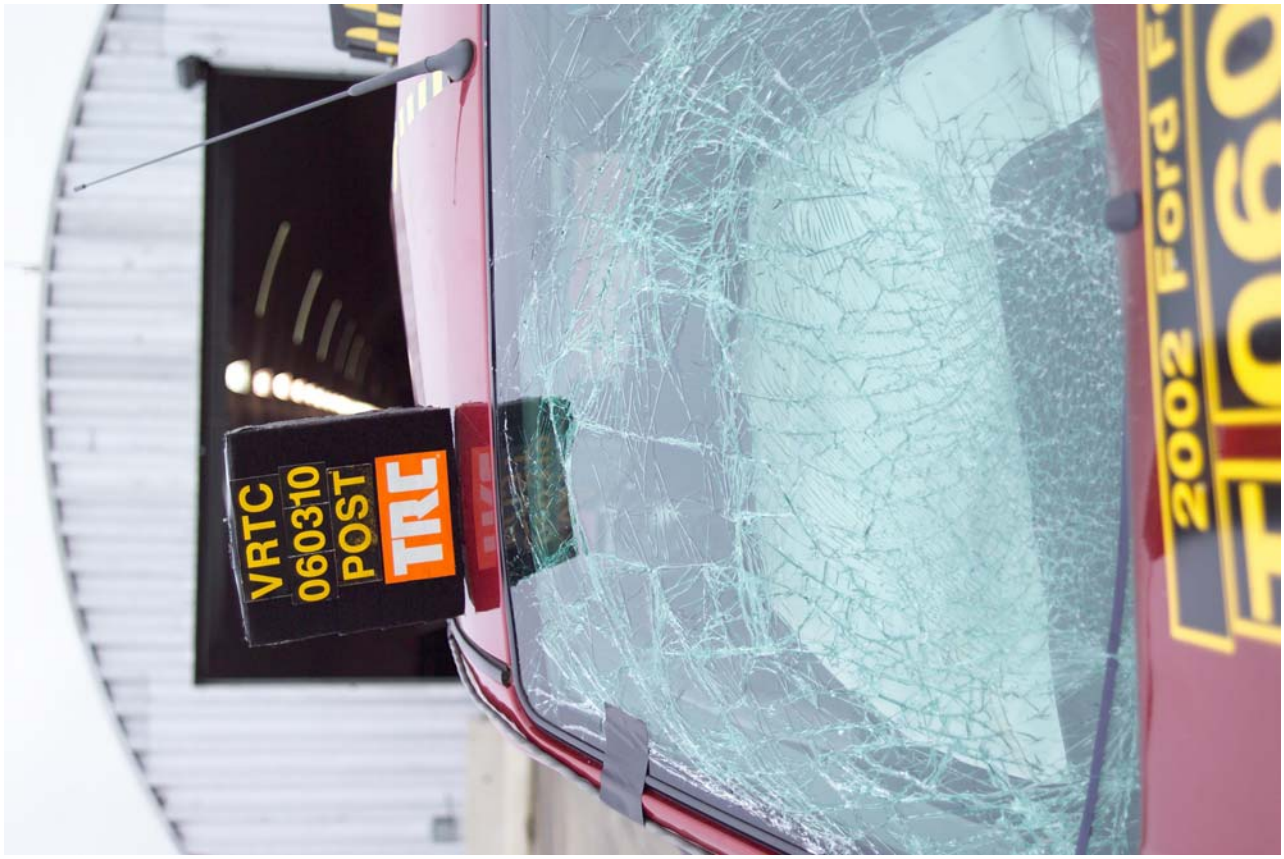



**Figure A-86 Post-Test Target Vehicle Passenger Dummy - View 1**




**Figure A-87 Pre-Test Target Vehicle Passenger Dummy - View 2**




**Figure A-88 Post-Test Target Vehicle Passenger Dummy - View 2**




**Figure A-89 Pre-Test Target Vehicle Passenger Dummy - View 3**



**Figure A-90 Post-Test Target Vehicle Passenger Dummy - View 3**




**Figure A-91 Pre-Test Target Vehicle Passenger Dummy - View 4**




**Figure A-92 Post-Test Target Vehicle Passenger Dummy - View 4**




**Figure A-93 Pre-Test Bullet Vehicle Windshield View**




**Figure A-94 Post-Test Bullet Vehicle Windshield View**




**Figure A-95 Pre-Test Bullet Vehicle Driver and Passenger Dummies through Windshield View**




**Figure A-96 Post-Test Bullet Vehicle Driver and Passenger Dummies through Windshield View**

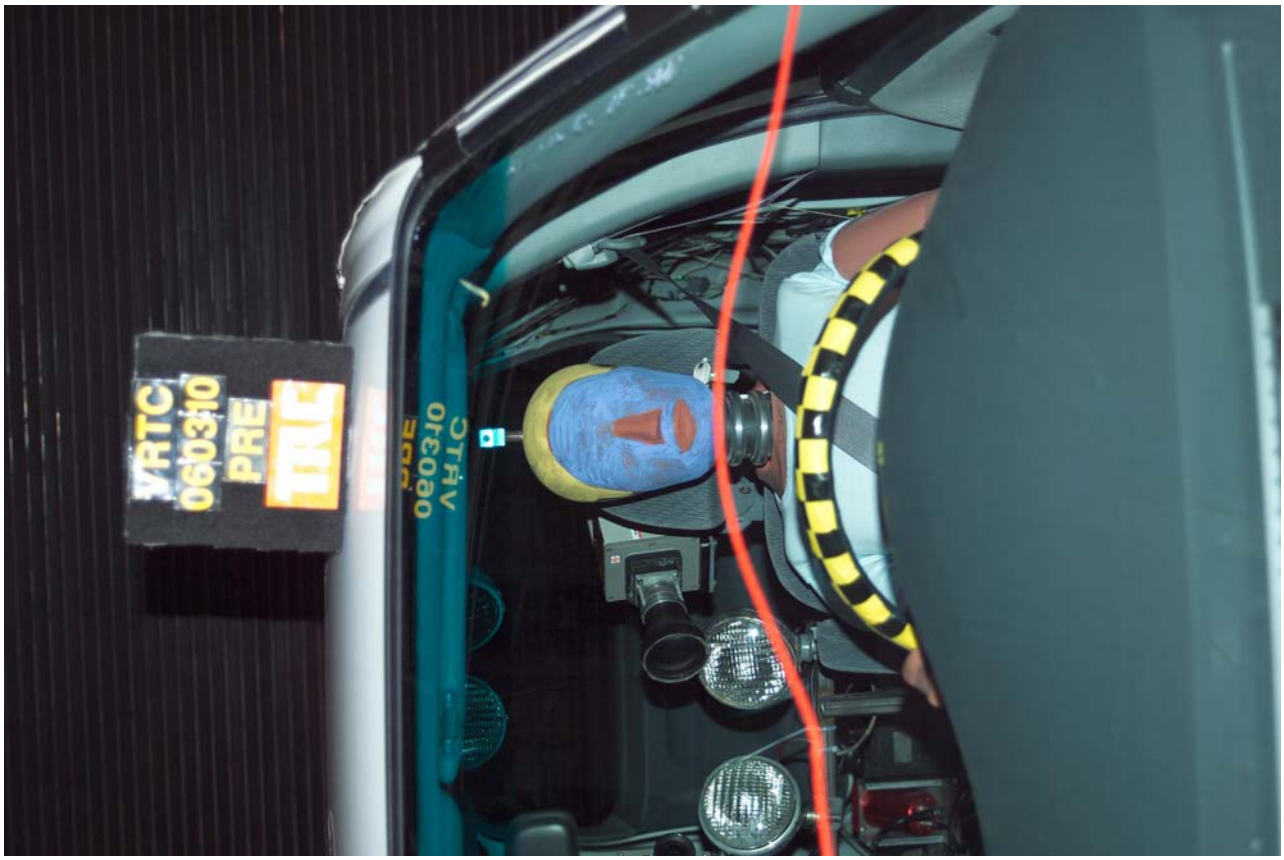



**Figure A-97 Pre-Test Bullet Vehicle Driver Dummy - View 1**




**Figure A-98 Post-Test Bullet Vehicle Driver Dummy - View 1**




**Figure A-99 Pre-Test Bullet Vehicle Driver Dummy - View 2**




**Figure A-100 Post-Test Bullet Vehicle Driver Dummy - View 2**




**Figure A-101 Pre-Test Bullet Vehicle Driver Dummy - View 3**




**Figure A-102 Post-Test Bullet Vehicle Driver Dummy - View 3**




**Figure A-103 Pre-Test Bullet Vehicle Driver Dummy - View 4**




**Figure A-104 Post-Test Bullet Vehicle Driver Dummy - View 4**




**Figure A-105 Pre-Test Bullet Vehicle Driver Dummy Foot Position View**




**Figure A-106 Post-Test Bullet Vehicle Driver Dummy Foot Position View**

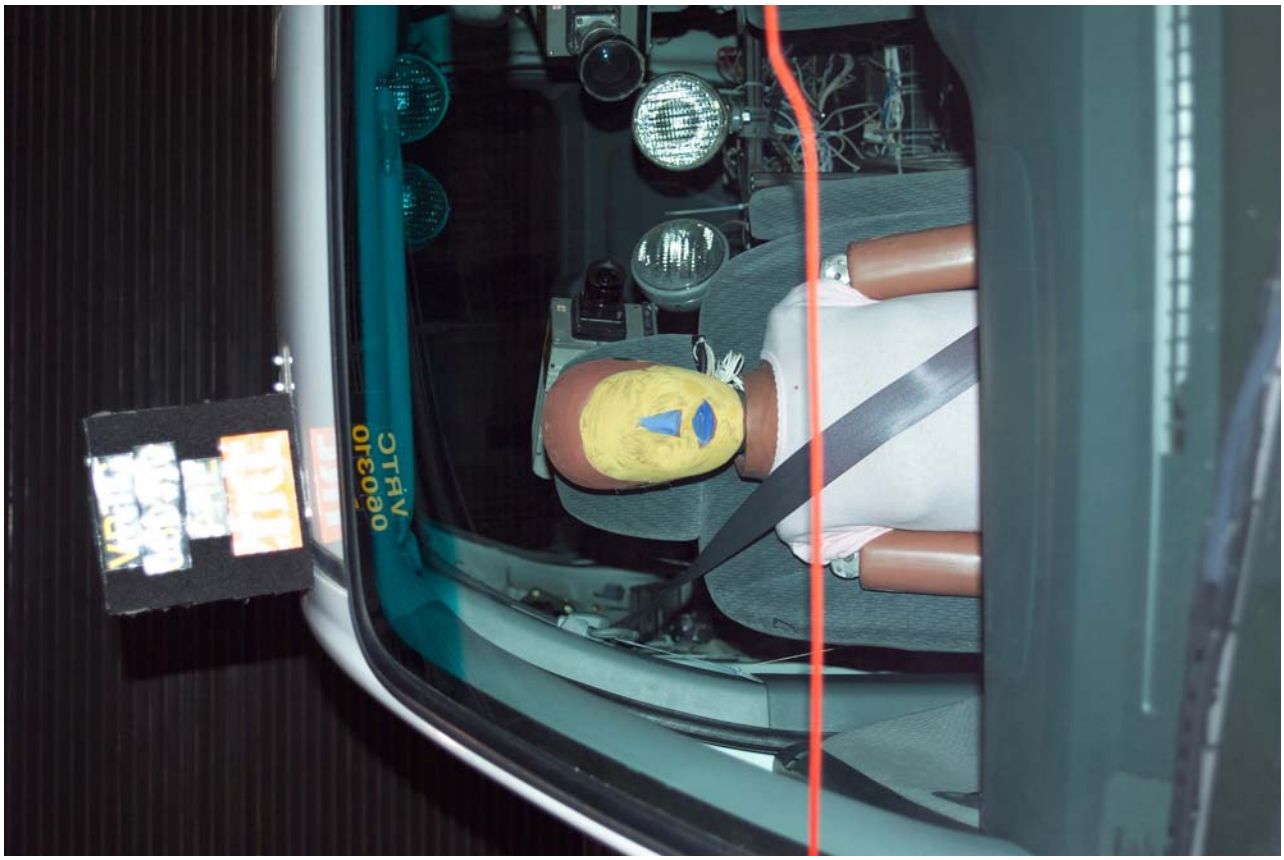


**Figure A-107 Pre-Test Bullet Vehicle Passenger Dummy - View 1**




**Figure A-108 Post-Test Bullet Vehicle Passenger Dummy - View 1**




**Figure A-109 Pre-Test Bullet Vehicle Passenger Dummy - View 2**




**Figure A-110 Post-Test Bullet Vehicle Passenger Dummy - View 2**




**Figure A-111 Pre-Test Bullet Vehicle Passenger Dummy - View 3**




**Figure A-112 Post-Test Bullet Vehicle Passenger Dummy - View 3**




**Figure A-113 Pre-Test Bullet Vehicle Passenger Dummy - View 4**




**Figure A-114 Post-Test Bullet Vehicle Passenger Dummy - View 4**

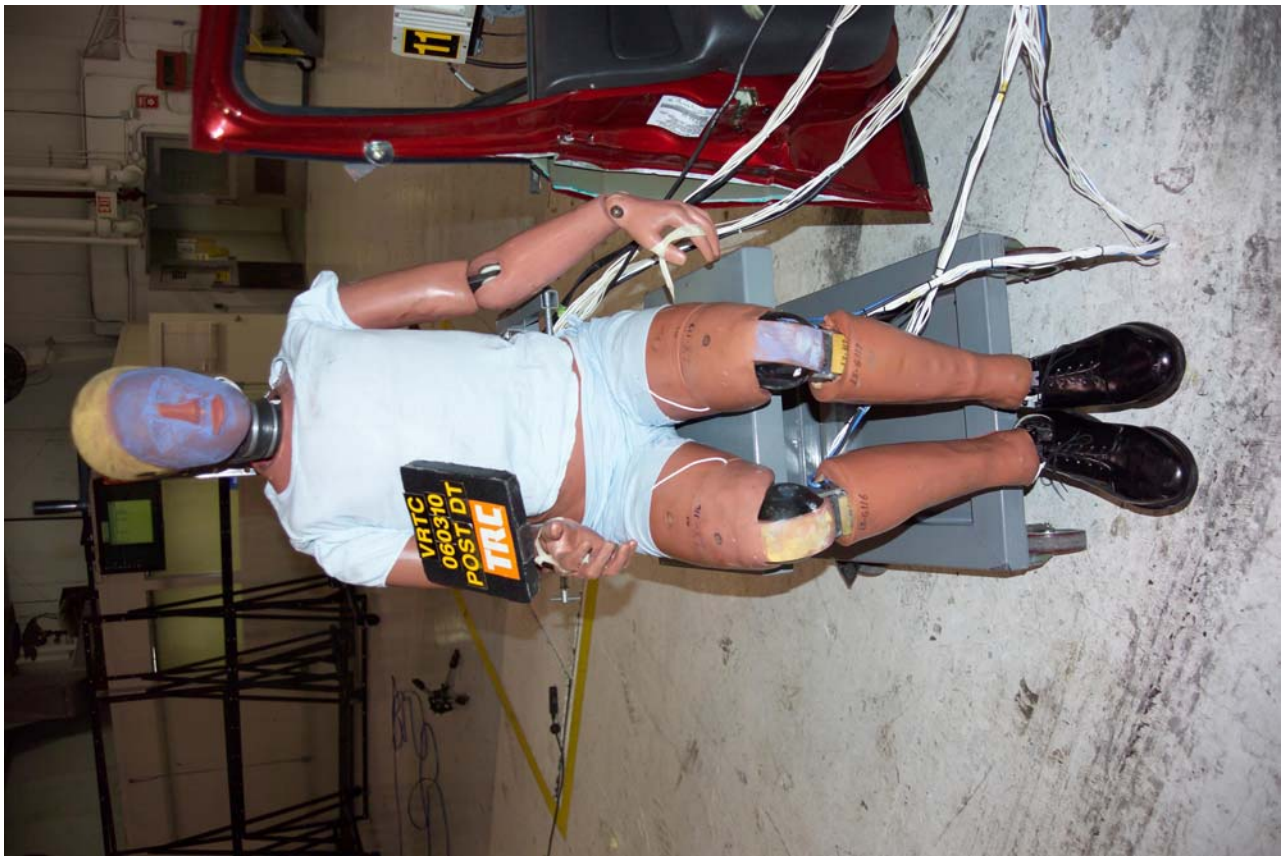



**Figure A-115 Post-Test Target Vehicle Driver Dummy Overall Contact View**




**Figure A-116 Post-Test Target Vehicle Driver Dummy Head Contact - View 1**




**Figure A-117 Post-Test Target Vehicle Driver Dummy Head Contact - View 2**




**Figure A-118 Post-Test Target Vehicle Driver Dummy Knee Contact View**




**Figure A-119 Post-Test Target Vehicle Driver Dash Panel Deformation View**

**Intentionally Left Blank**




**Figure A-120 Post-Test Target Vehicle Driver Floorboard Deformation View**




**Figure A-121 Post-Test Target Vehicle Driver Toeboard Deformation View**




**Figure A-122 Post-Test Target Vehicle Passenger Dummy Overall Contact View**




**Figure A-123 Post-Test Target Vehicle Passenger Dummy Head Contact - View 1**

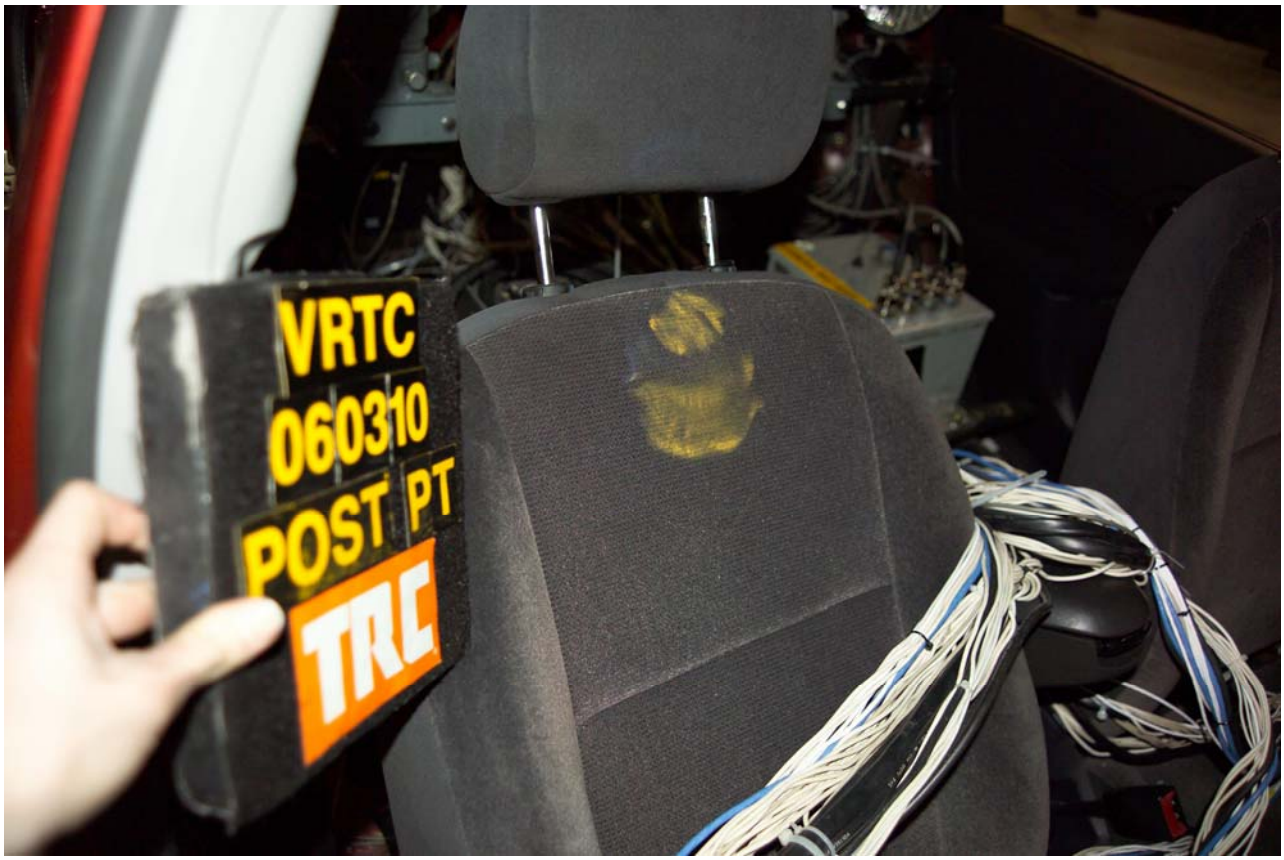



**Figure A-124 Post-Test Target Vehicle Passenger Dummy Head Contact - View 2**




**Figure A-125 Post-Test Target Vehicle Passenger Dummy Knee Contact View**




**Figure A-126 Post-Test Target Vehicle Passenger Dash Panel Deformation View**

**Intentionally Left Blank**




**Figure A-127 Post-Test Target Vehicle Passenger Floorboard Deformation View**




**Figure A-128 Post-Test Target Vehicle Passenger Toeboard Deformation View**

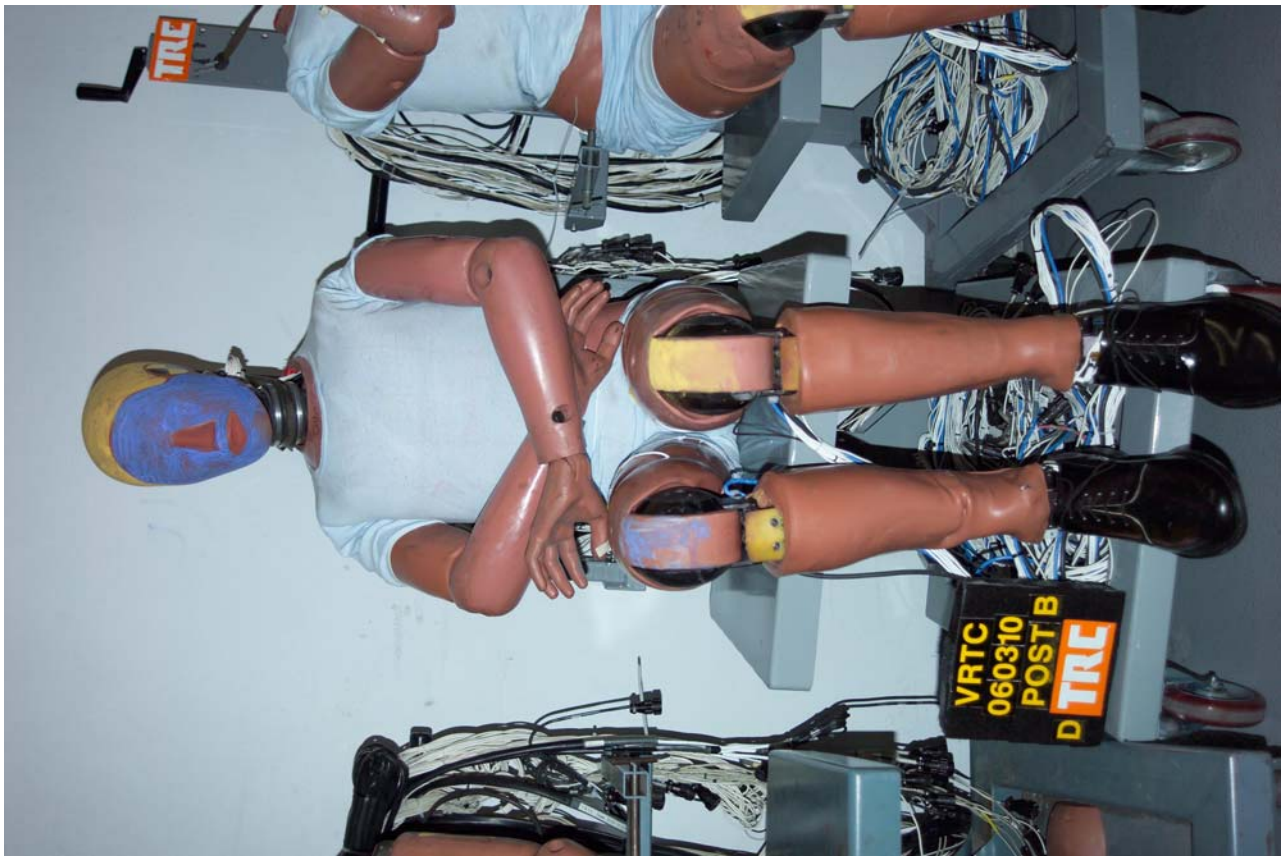



**Figure A-129 Post-Test Bullet Vehicle Driver Dummy Overall Contact View**




**Figure A-130 Post-Test Bullet Vehicle Driver Dummy Head Contact - View 1**




**Figure A-131 Post-Test Bullet Vehicle Driver Dummy Head Contact - View 2**




**Figure A-132 Post-Test Bullet Vehicle Driver Dummy Knee Contact View**




**Figure A-133 Post-Test Bullet Vehicle Driver Dash Panel Deformation View**

**Intentionally Left Blank**




**Figure A-134 Post-Test Bullet Vehicle Driver Floorboard Deformation View**




**Figure A-135 Post-Test Bullet Vehicle Driver Toeboard Deformation View**




**Figure A-136 Post-Test Bullet Vehicle Passenger Dummy Overall Contact View**




**Figure A-137 Post-Test Bullet Vehicle Passenger Dummy Head Contact - View 1**




**Figure A-138 Post-Test Bullet Vehicle Passenger Dummy Head Contact - View 2**




**Figure A-139 Post-Test Bullet Vehicle Passenger Dummy Knee Contact View**




**Figure A-140 Post-Test Bullet Vehicle Passenger Dash Panel Deformation View**

**Intentionally Left Blank**




**Figure A-141 Post-Test Bullet Vehicle Passenger Floorboard Deformation View**




**Figure A-142 Post-Test Bullet Vehicle Passenger Toeboard Deformation View**




**Figure A-143 Target Vehicle Certification and Tire Information Label View**

**Intentionally Left Blank**




**Figure A-144 Bullet Vehicle Certification Label View**




**Figure A-145 Bullet Vehicle Tire Information Label View**




**Figure A-146  Target Vehicle Ballast View**




**Figure A-147  Bullet Vehicle Ballast View**

# Appendix B

Data Plots

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

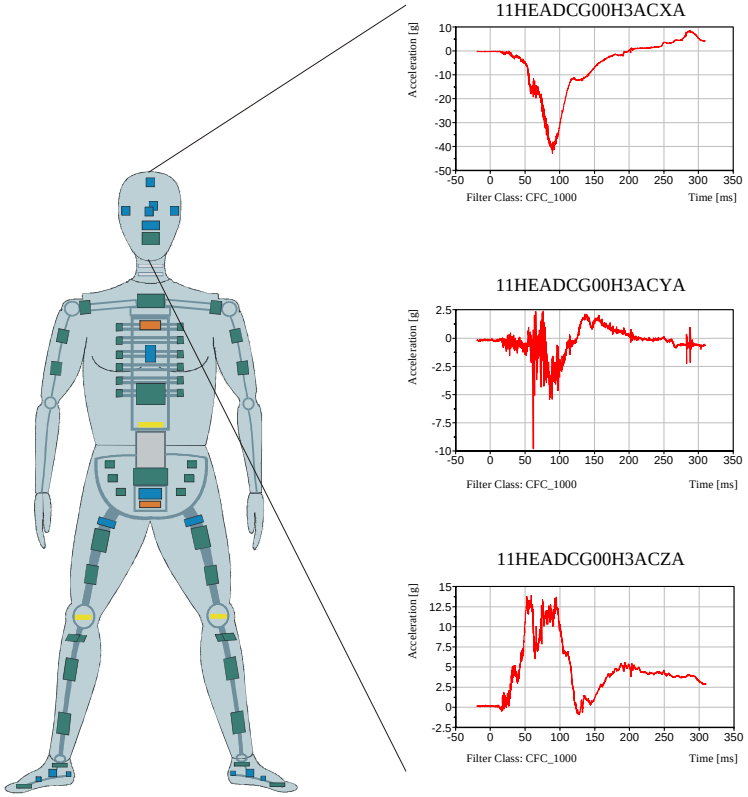
## Head Injury Criterion (HIC)

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

**TRC Inc. Test Lab: CTF**

**Test Number: 060310**

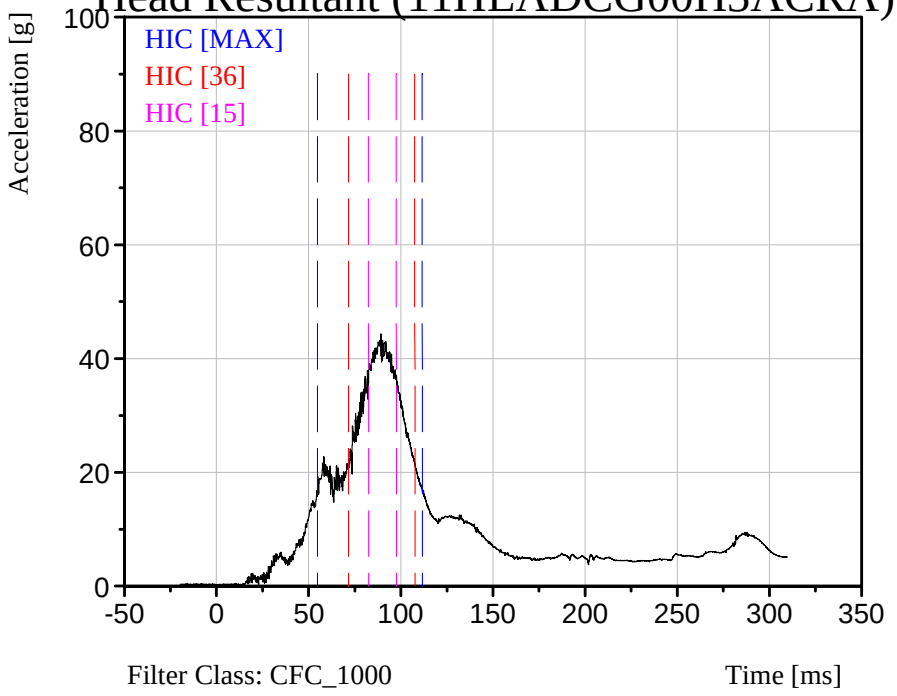











| | T1 (Begin) | T2 (End) | Avg. g T1 to T2 |
|---|---|---|---|
| HIC [Max.] = 241.73 | 54.80 ms | 111.68 ms | 28.26 g |
| HIC [36] = 235.81 | 71.68 ms | 107.68 ms | 33.59 g |
| HIC [15] = 154.87 | 82.56 ms | 97.60 ms | 40.26 g |

Dummy:HIII 50th Male
Seating Position:
Driver

HIC Source Code: SAE J2052 ISO/TC22/SC12/WG3 N 282 (Issued 1990-03-16)

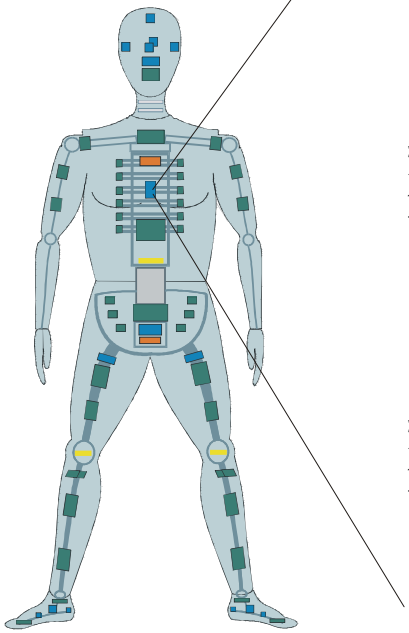
# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

## 3 ms Duration Acceleration (Chest)

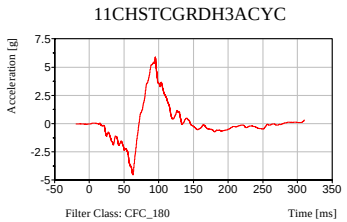
Date: 03/12/2006
Time: 07:48

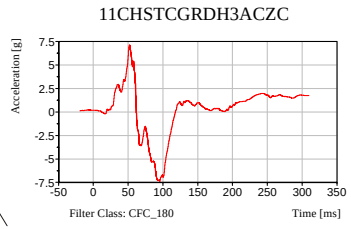
**Customer: VRTC**

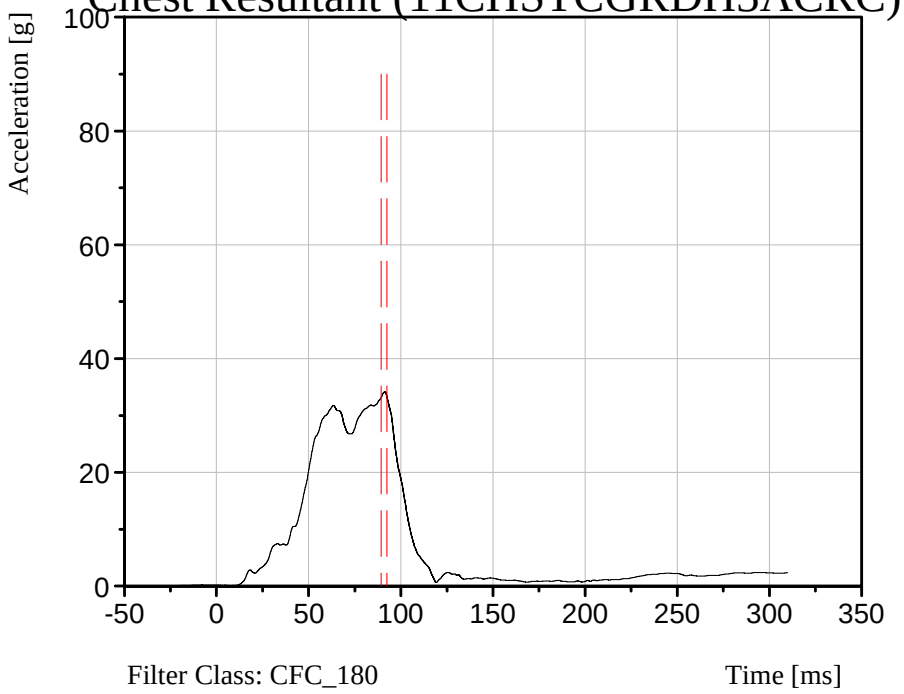
**TRC Inc. Test Lab: CTF**
**Test Number: 060310**






| | T1 (Begin) | T2 (End) |
|---|---|---|
| 3 ms Duration Acceleration = 33.26 g | 89.47 ms | 92.47 ms |
| Chest Severity Index = 250.44 | | |

Dummy:HIII 50th Male
Seating Position:

Driver

3 ms Duration Acceleration Source Code : vbScript w/DIAdem 9.0

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

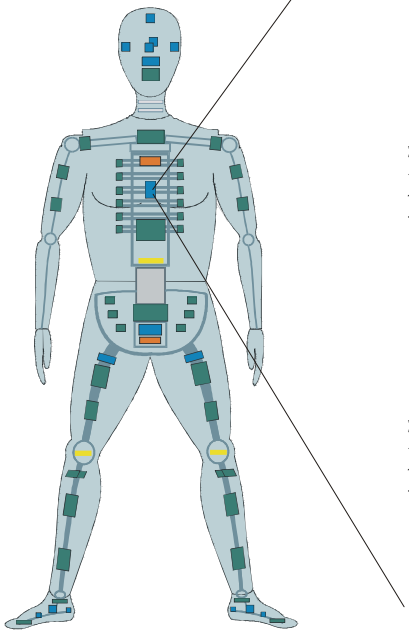
## 3 ms Duration Acceleration (Chest)

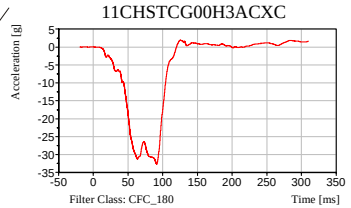
Date: 03/12/2006
Time: 07:48

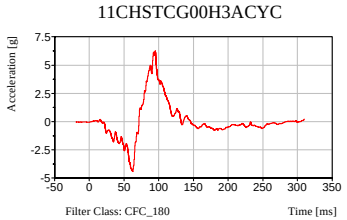
**Customer: VRTC**

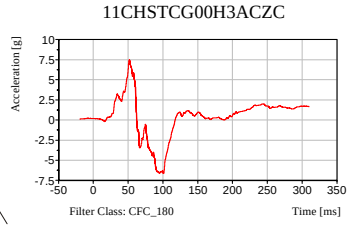
**TRC Inc. Test Lab: CTF**

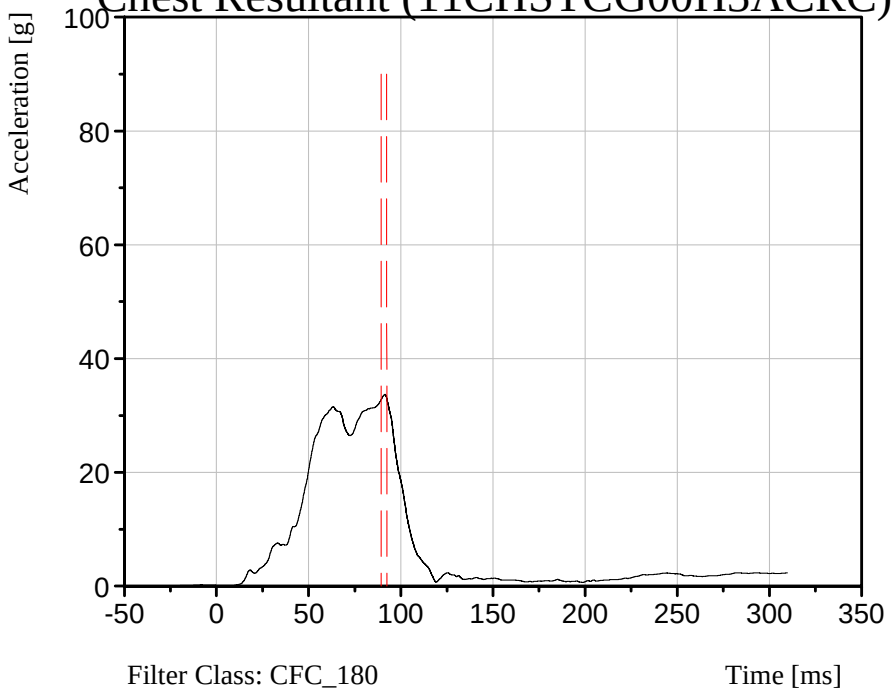
**Test Number: 060310**






| | T1 (Begin) | T2 (End) |
|---|---|---|
| 3 ms Duration Acceleration = 32.88 g | 89.42 ms | 92.42 ms |
| Chest Severity Index = 245.46 | | |

Dummy:HIII 50th Male
Seating Position:
Driver

3 ms Duration Acceleration Source Code : vbScript w/DIAdem 9.0

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

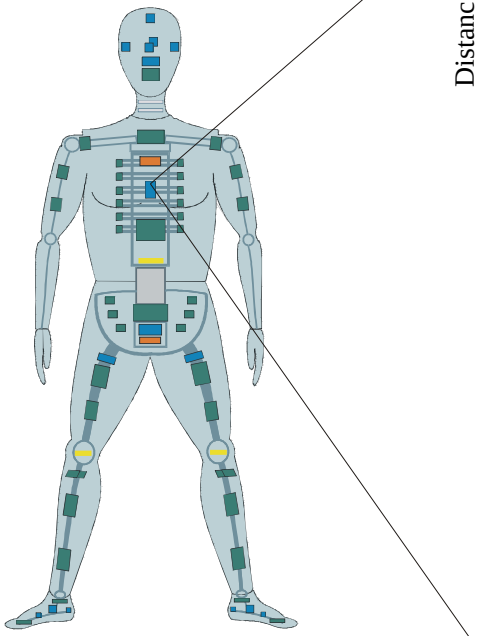
## Chest Deflection

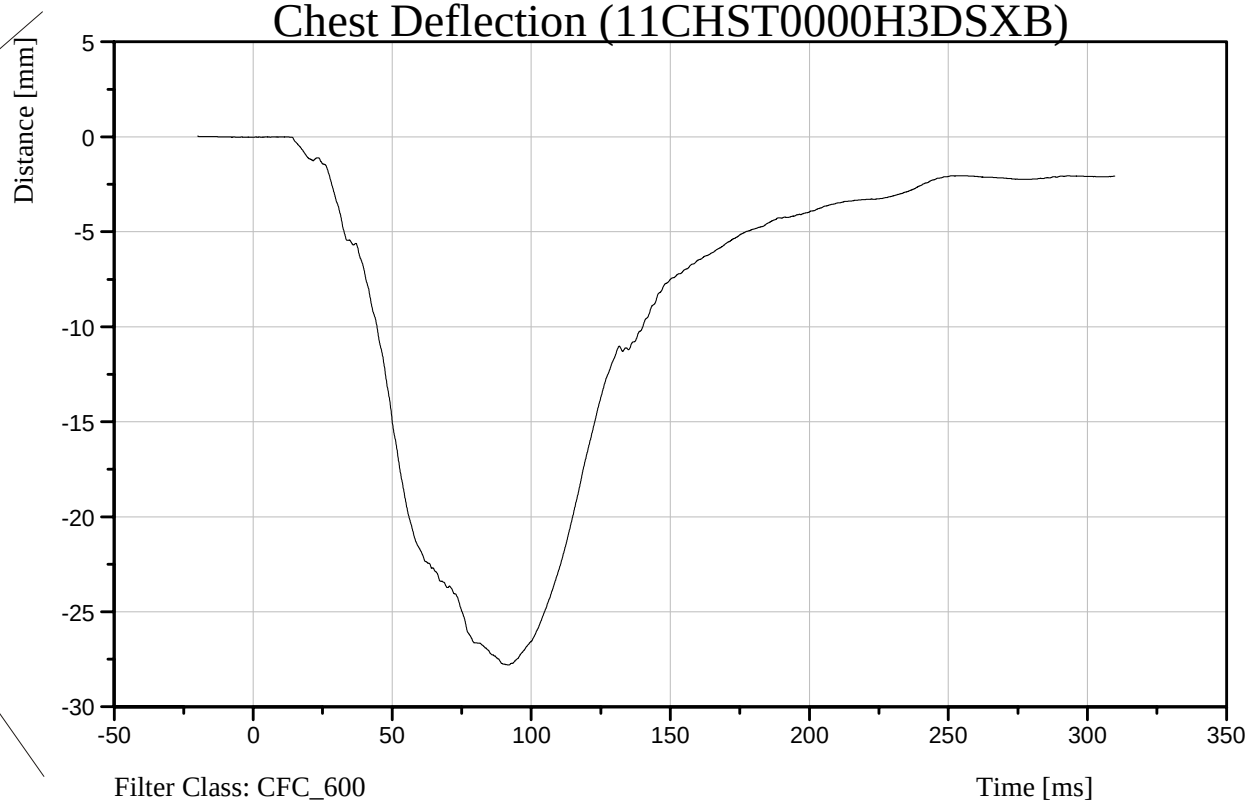
Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**

Test Orientation = Frontal






Dummy:HIII 50th Male
Seating Position:
Driver

[Max.] 0.03 mm at -20.00 ms
[Min.] -27.80 mm at 91.92 ms

ChestDeflection Source Code : Min/Max of 11CHST0000H3DSXB (CFC_600)

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear
## Neck Moment about the Occipital Condyle (NECK OM)

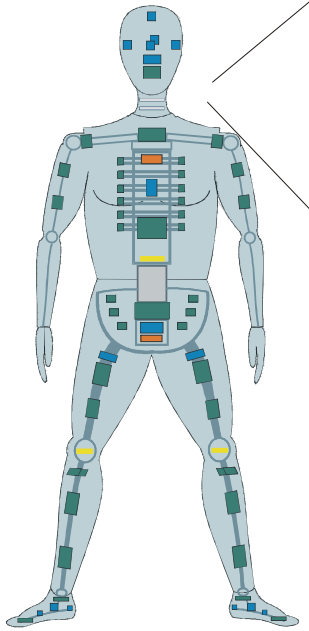
Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

**TRC Inc. Test Lab: CTF**

**Test Number: 060310**

Test Orientation = Frontal



11NECKUP00H3FOXB



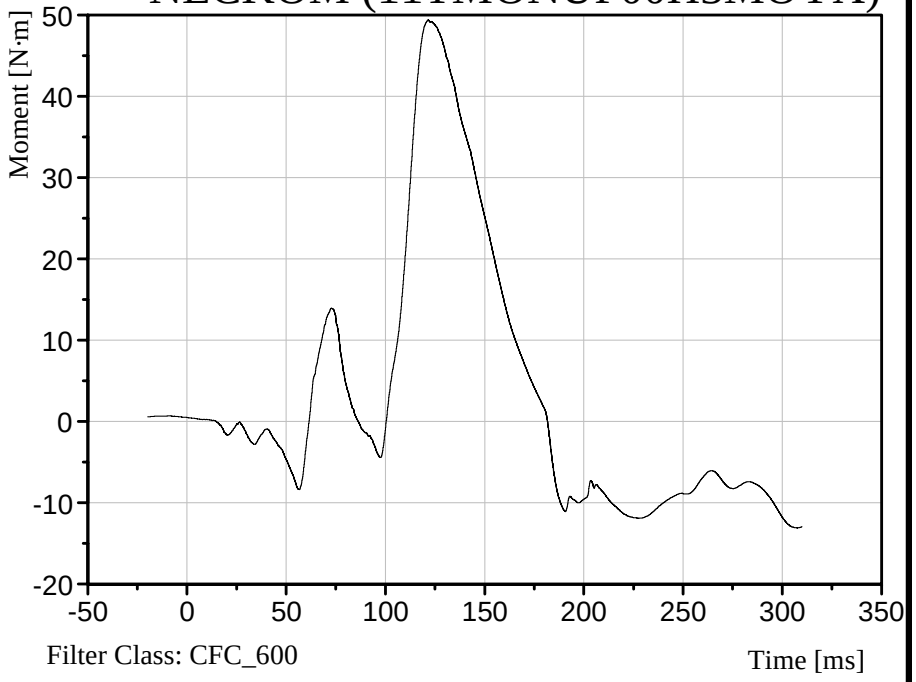

Filter Class: CFC_600

11NECKUP00H3MOYB




Filter Class: CFC_600

NECKOM (11TMONUP00H3MOYX)




Filter Class: CFC_600

Dummy:HIII 50th Male
Seating Position:
Driver

[Max.] 49.45 N·m at 121.52 ms

[Min.] -13.07 N·m at 307.36 ms

Neck OM Source Code: My - (D*Fx)

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

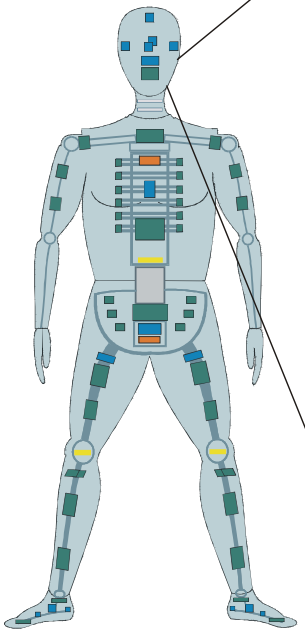
## Neck Injury Predictor (NIJ)

Date: 03/12/2006
Time: 07:48

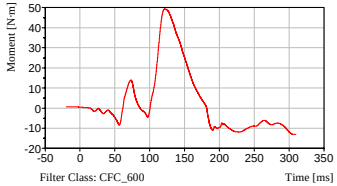
**Customer: VRTC**

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**

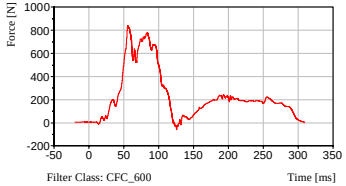
Test Orientation = Frontal
Fzc(Tension) = 6806
Fzc(Compression) = 6160
Myc(Extension) = 135
Myc(Flexion) = 310



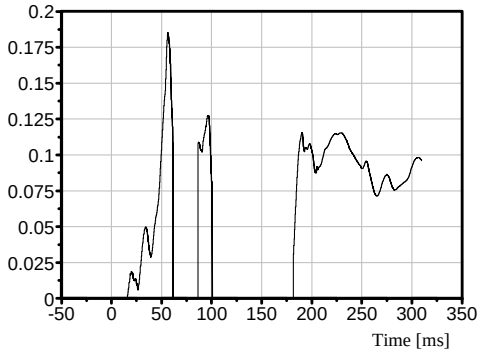
11TMONUP00H3MOYX




11NECKUP00H3FOZB

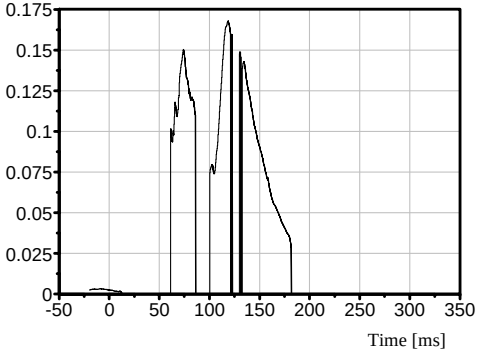



11NIJCUPTEH300YX



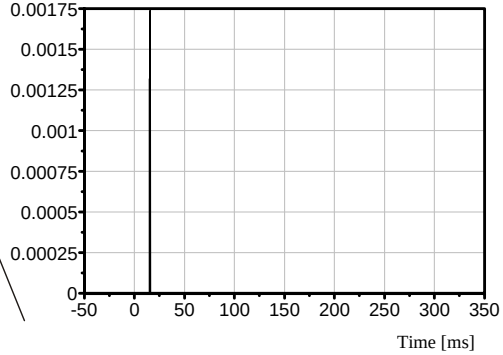

**Max [NTE] 0.1852 at 56.16 ms**

11NIJCUPTFH300YX



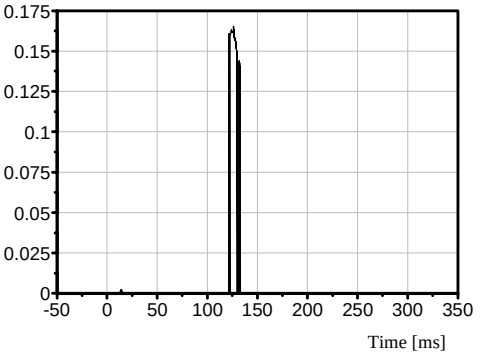

**Max [NTF] 0.1678 at 118.64 ms**

11NIJCUPCEH300YX




**Max [NCE] 0.0017 at 15.68 ms**

11NIJCUPCFH300YX




**Max [NCF] 0.1653 at 126.24 ms**

Dummy:HIII 50th Male
Seating Position:
Driver

NIJ Source Code: (Fz/Fzc)+(My/Myc)

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

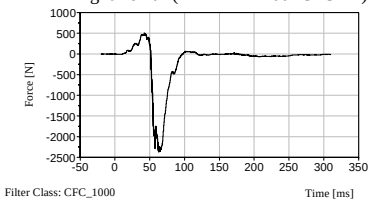
## Femur Load

Date: 03/12/2006
Time: 07:48

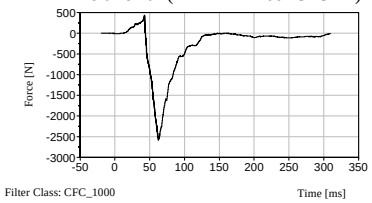
**Customer: VRTC**

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**

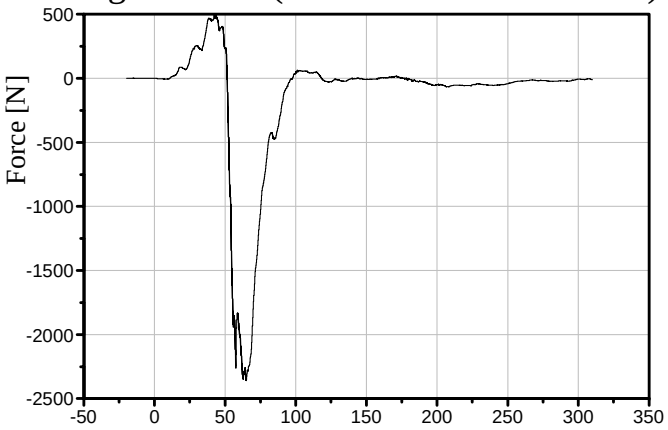
Right Femur (11FEMRRL00H3FOZA)

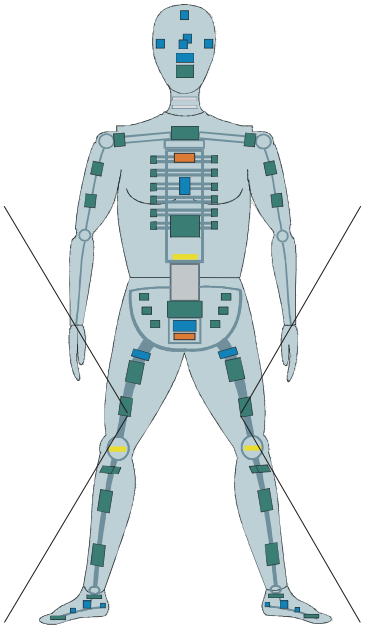



Left Femur (11FEMRLL00H3FOZA)

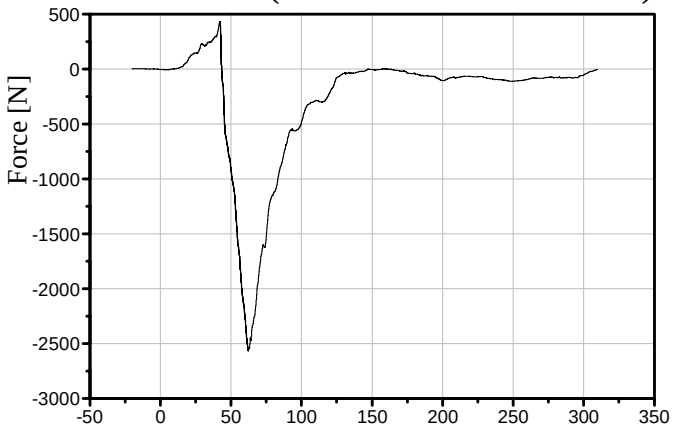



Right Femur (11FEMRRL00H3FOZB)



Left Femur (11FEMRLL00H3FOZB)




Max [Tension] 497.15 N at 42.24 ms
Min [Compression] -2,359.18 N at 64.80 ms

Dummy:HIII 50th Male
Seating Position:
Driver

Max [Tension] 435.72 N at 42.24 ms
Min [Compression] -2,565.80 N at 62.32 ms

Femur Load Source Code : Min/Max of 11FEMRRL00H3FOZB and 11FEMRLL00H3FOZB (CFC 600)

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

## Tibia Index (TI)

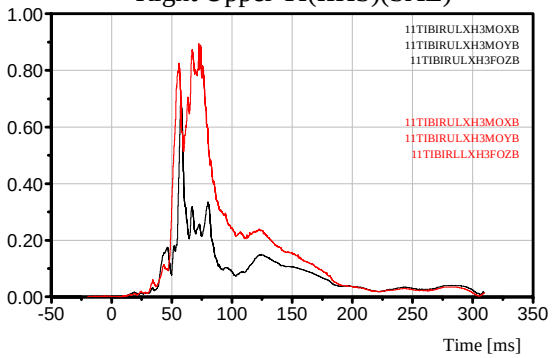
Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**

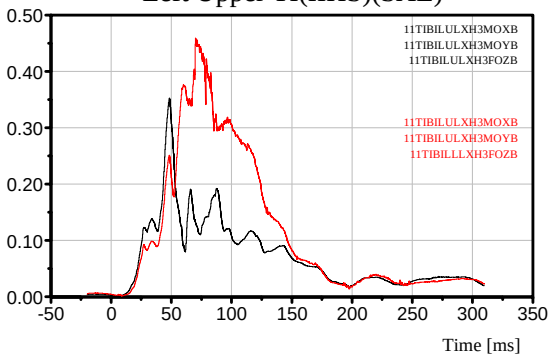
Critical Bending Moment = 240 N·m
Critical Compression Force = 12000 N

### Right Upper TI(IIHS)(SAE)



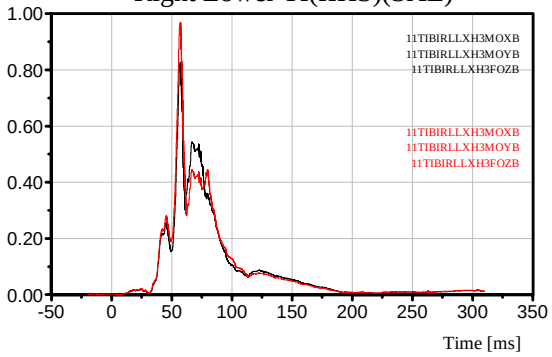

Max = 0.71 at 57.68 ms (SAE)
Max = 0.89 at 72.40 ms (IIHS)

### Left Upper TI(IIHS)(SAE)

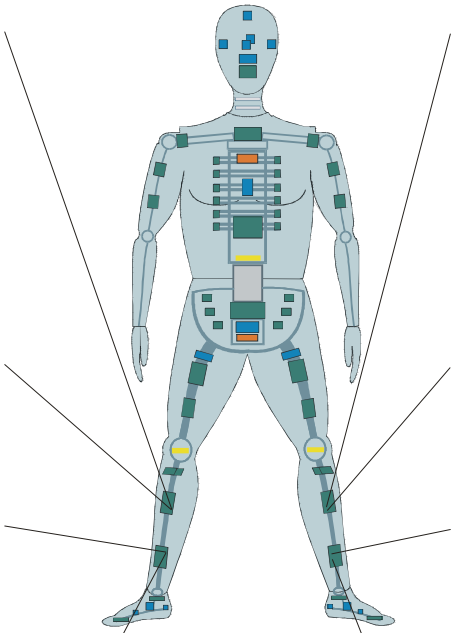



Max = 0.35 at 48.40 ms (SAE)
Max = 0.46 at 70.08 ms (IIHS)

### Right Lower TI(IIHS)(SAE)

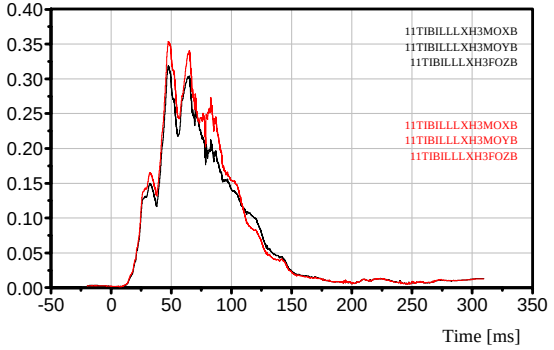



Max = 0.83 at 57.20 ms (SAE)
Max = 0.97 at 57.20 ms (IIHS)



Dummy:HIII 50th Male
Seating Position:
Driver

### Left Lower TI(IIHS)(SAE)




Max = 0.32 at 47.60 ms (SAE)
Max = 0.35 at 47.60 ms (IIHS)

Tibia Index Source Code : Guideline 96/79/EC; SAE J1727 AUG96; and IIHS Crashworthiness Evaluation Offset Barrier Crash Test Protocol (Version X)

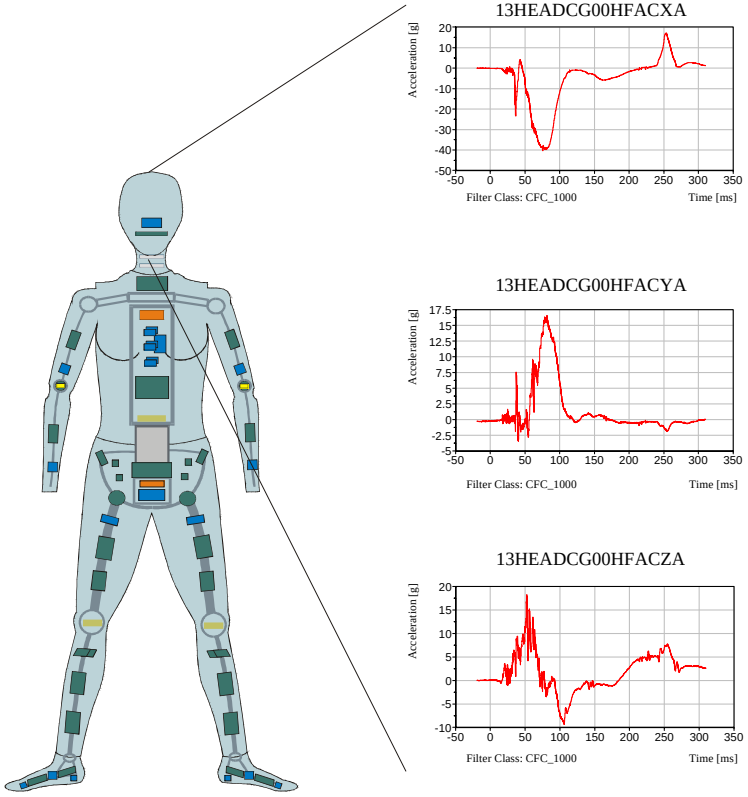
# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

## Head Injury Criterion (HIC)

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**

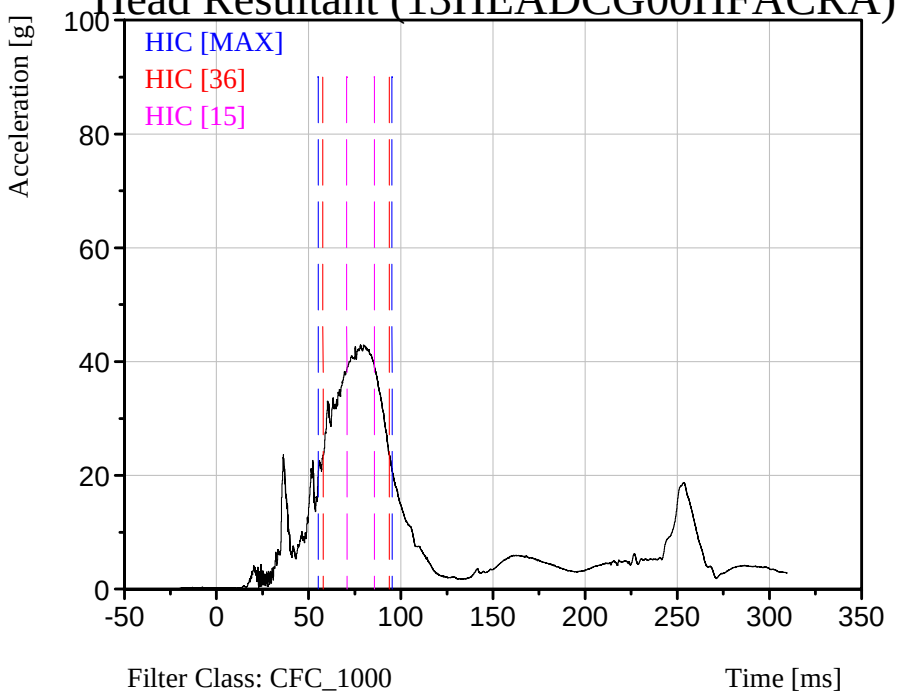











| | T1 (Begin) | T2 (End) | Avg. g T1 to T2 |
|---|---|---|---|
| HIC [Max.] = 283.28 | 55.20 ms | 95.28 ms | 34.62 g |
| HIC [36] = 281.33 | 57.84 ms | 93.84 ms | 36.04 g |
| HIC [15] = 164.78 | 70.72 ms | 85.76 ms | 41.28 g |

Dummy:HIII 5th Female
Seating Position:
Right Front Passenger

HIC Source Code: SAE J2052 ISO/TC22/SC12/WG3 N 282 (Issued 1990-03-16)

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

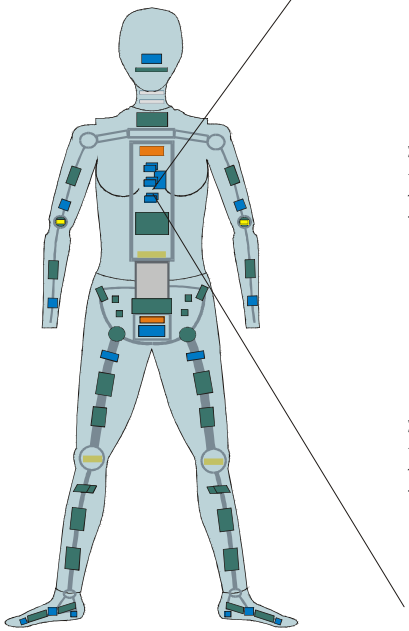
## 3 ms Duration Acceleration (Chest)

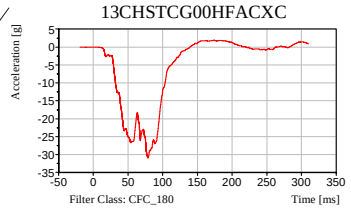
Date: 03/12/2006
Time: 07:48

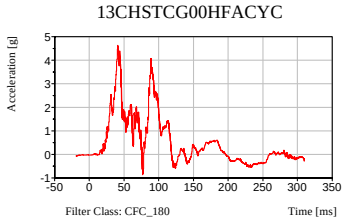
**Customer: VRTC**

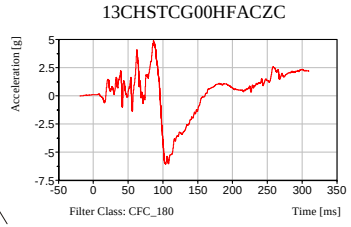
**TRC Inc. Test Lab: CTF**

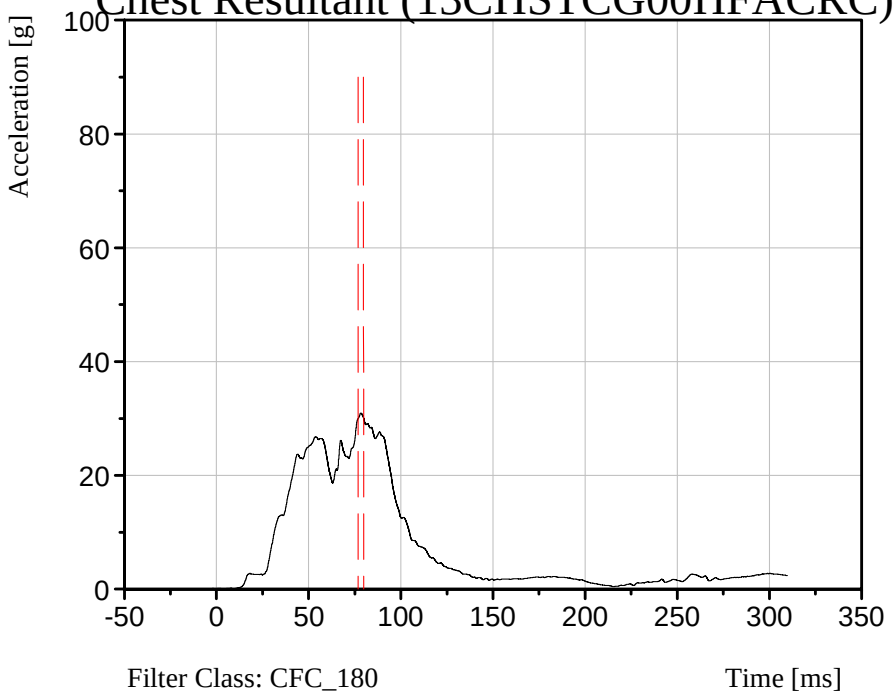
**Test Number: 060310**






| | T1 (Begin) | T2 (End) |
|---|---|---|
| 3 ms Duration Acceleration = 29.98 g | 76.86 ms | 79.86 ms |
| Chest Severity Index = 193.60 | | |

Dummy:HIII 5th Female
Seating Position:
Right Front Passenger

3 ms Duration Acceleration Source Code : vbScript w/DIAdem 9.0

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

## Chest Deflection

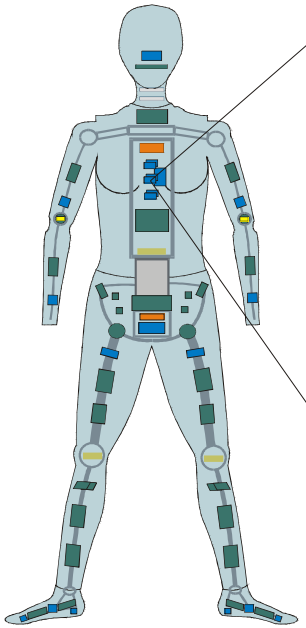
Date: 03/12/2006
Time: 07:48

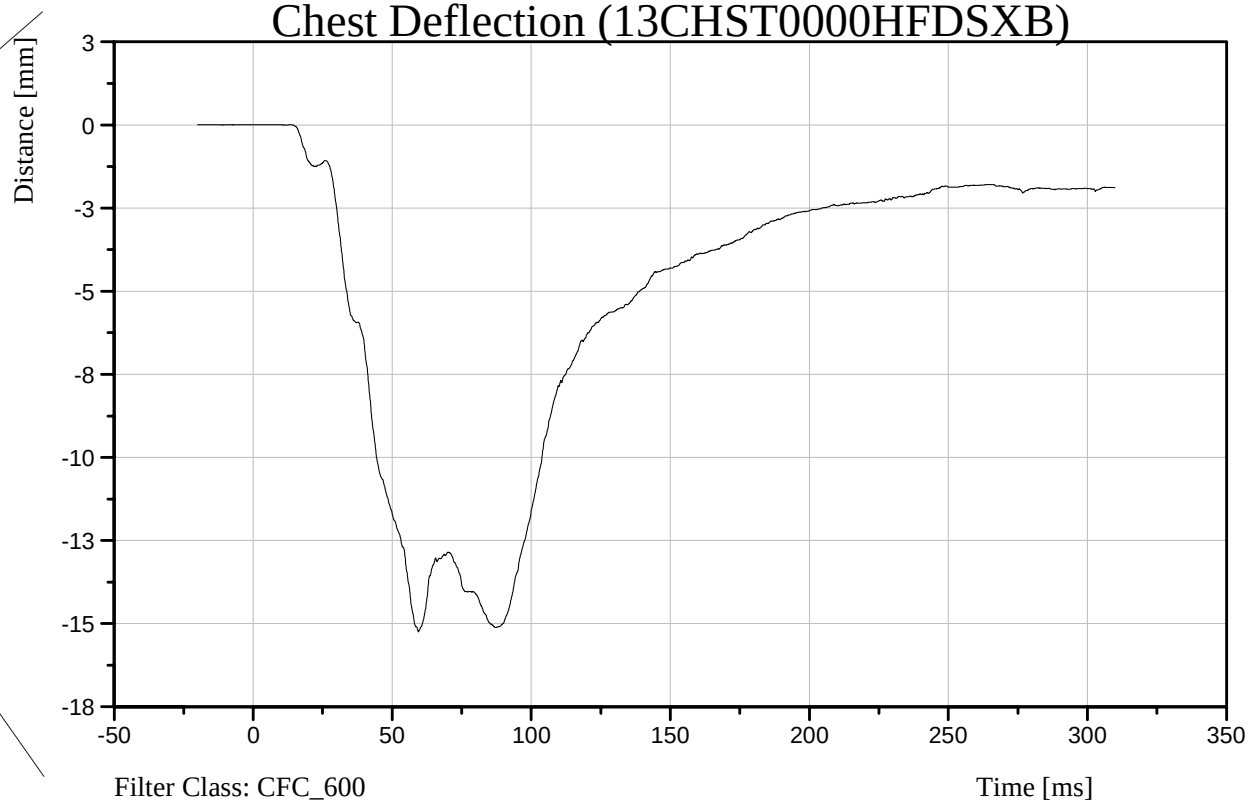
**Customer: VRTC**

**TRC Inc. Test Lab: CTF**

**Test Number: 060310**

Test Orientation = Frontal






Dummy:HIII 5th Female
Seating Position:
Right Front Passenger

[Max.] 0.01 mm at 8.80 ms
[Min.] -15.24 mm at 59.44 ms

ChestDeflection Source Code : Min/Max of 13CHST0000HFDSXB (CFC_600)

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear
## Neck Moment about the Occipital Condyle (NECK OM)

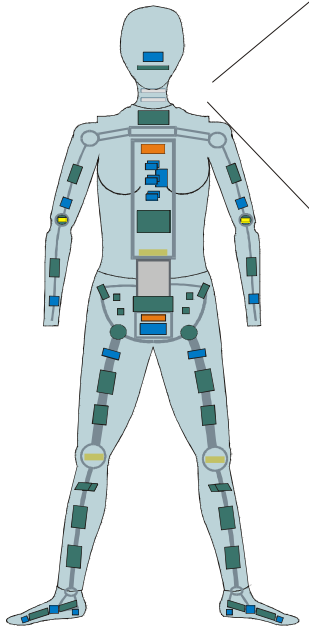
Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

**TRC Inc. Test Lab: CTF**

**Test Number: 060310**

Test Orientation = Frontal

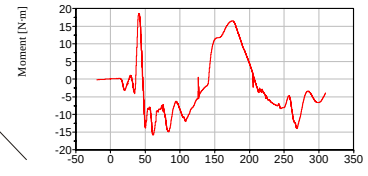


13NECKUP00HFFOXB



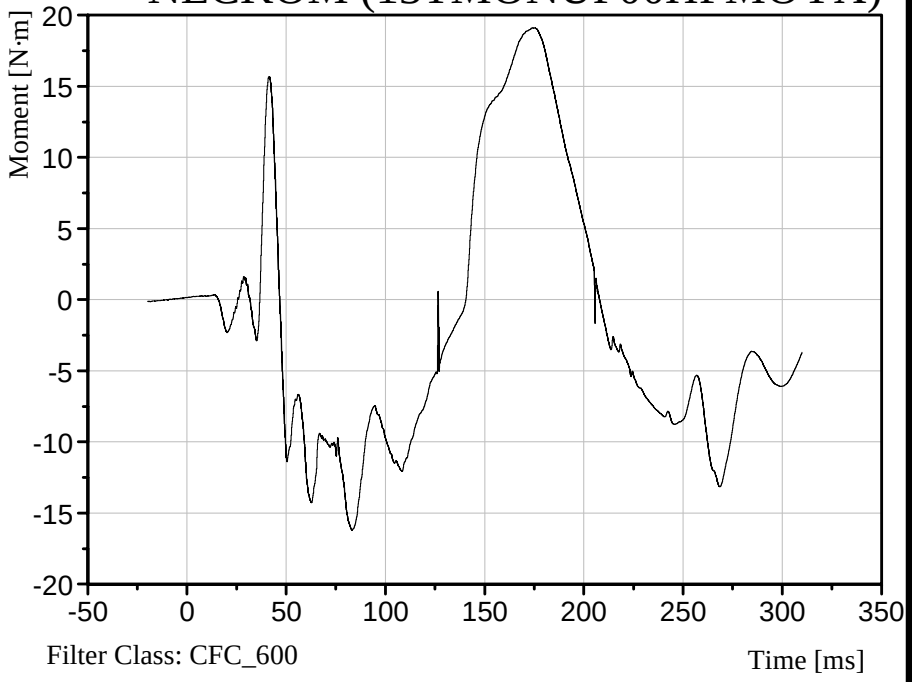

Filter Class: CFC_600

13NECKUP00HFMOYB




Filter Class: CFC_600

NECKOM (13TMONUP00HFMOYX)




Filter Class: CFC_600

Dummy:HIII 5th Female
Seating Position:
Right Front Passenger

[Max.] 19.12 N·m at 174.16 ms

[Min.] -16.23 N·m at 83.12 ms

Neck OM Source Code: My - (D*Fx)

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

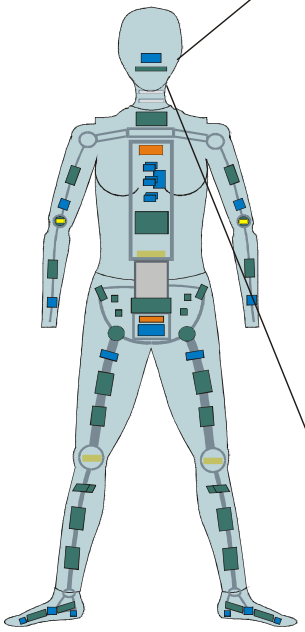
## Neck Injury Predictor (NIJ)

Date: 03/12/2006
Time: 07:48

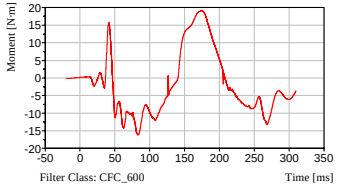
**Customer: VRTC**

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**

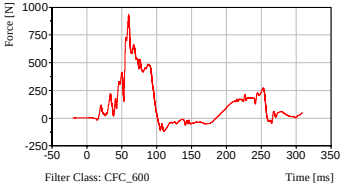
Test Orientation = Frontal
Fzc(Tension) = 4287
Fzc(Compression) = 3880
Myc(Extension) = 67
Myc(Flexion) = 155



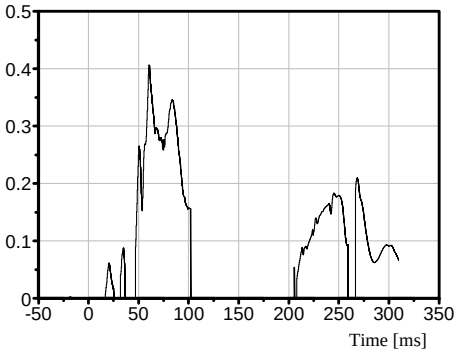
13TMONUP00HFMOYX




13NECKUP00HFFOZB

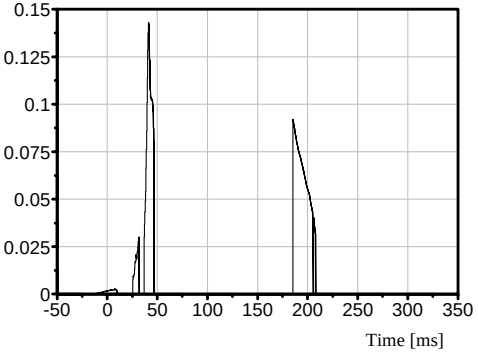



13NIJCUPTEHF00YX



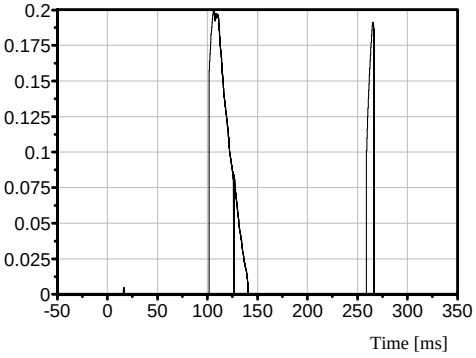

**Max [NTE] 0.4068 at 60.64 ms**

13NIJCUPTFHF00YX



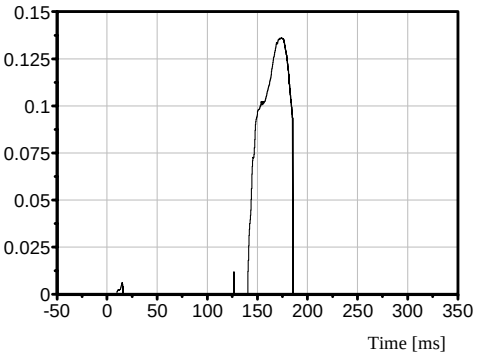

**Max [NTF] 0.1429 at 41.28 ms**

13NIJCUPCEHF00YX




**Max [NCE] 0.1994 at 106.00 ms**

13NIJCUPCFHF00YX




**Max [NCF] 0.1361 at 173.68 ms**

Dummy:HIII 5th Female
Seating Position:
Right Front Passenger

NIJ Source Code: (Fz/Fzc)+(My/Myc)

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

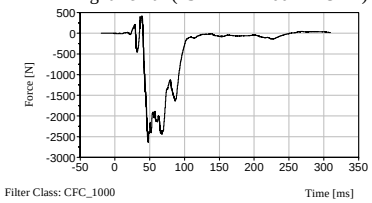
## Femur Load

Date: 03/12/2006
Time: 07:48

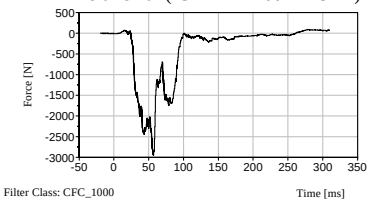
**Customer: VRTC**

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**

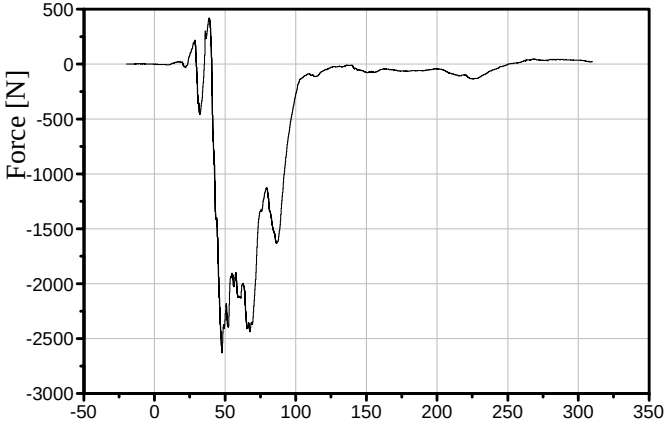
Right Femur (13FEMRRL00HFFOZA)

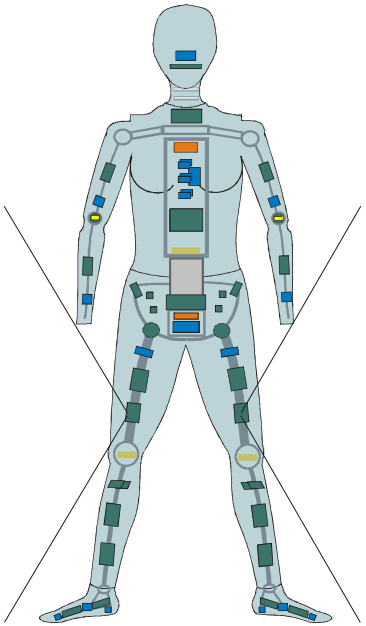



Left Femur (13FEMRLL00HFFOZA)

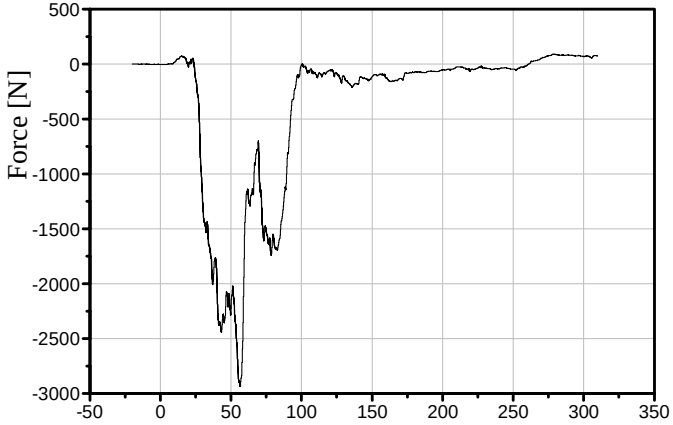



## Right Femur (13FEMRRL00HFFOZB)



## Left Femur (13FEMRLL00HFFOZB)




Max [Tension] 419.69 N at 38.56 ms
Min [Compression] -2,627.71 N at 47.68 ms

Dummy:HIII 5th Female
Seating Position:
Right Front Passenger

Max [Tension] 92.52 N at 279.36 ms
Min [Compression] -2,938.05 N at 56.56 ms

Femur Load Source Code : Min/Max of 13FEMRRL00HFFOZB and 13FEMRLL00HFFOZB (CFC 600)

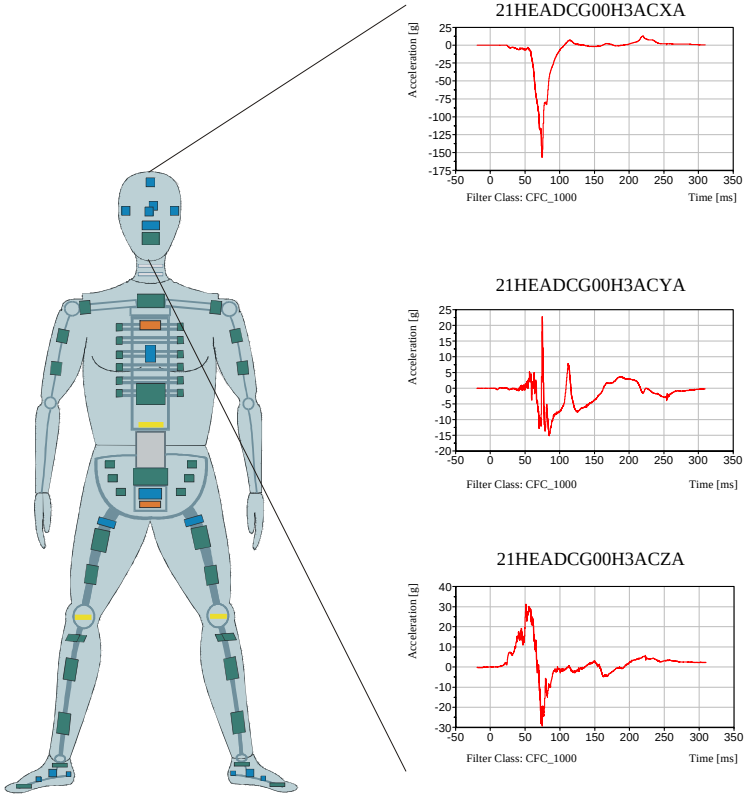
# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

## Head Injury Criterion (HIC)

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**



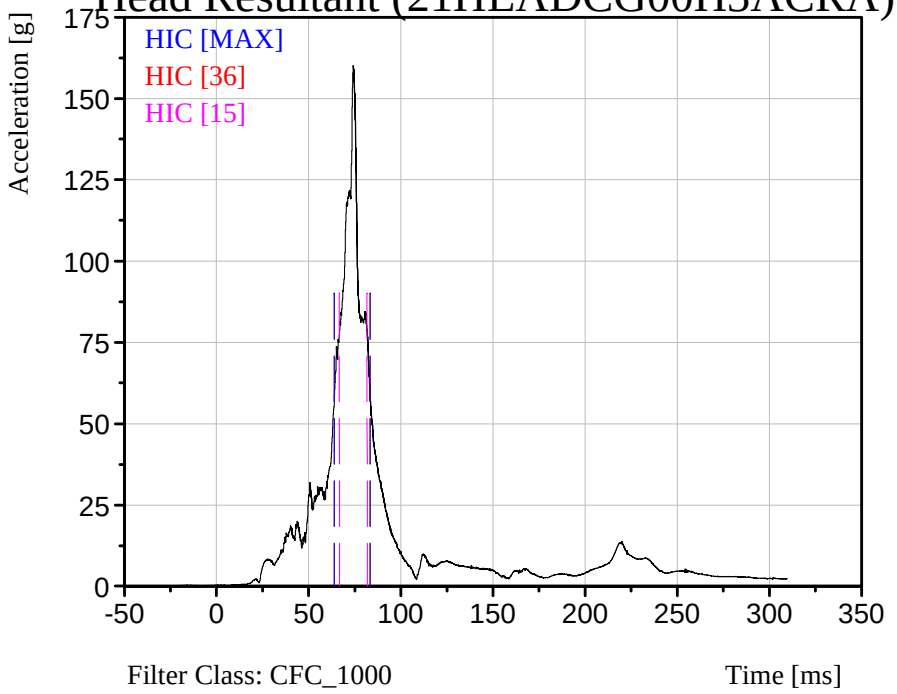









### Head Resultant (21HEADCG00H3ACRA)




| | T1 (Begin) | T2 (End) | Avg. g T1 to T2 |
|---|---|---|---|
| HIC [Max.] = 1,790.53 | 63.92 ms | 83.36 ms | 96.61 g |
| HIC [36] = 1,790.53 | 63.92 ms | 83.36 ms | 96.61 g |
| HIC [15] = 1,689.33 | 66.72 ms | 81.76 ms | 104.61 g |

Dummy:HIII 50th Male
Seating Position:
Driver

HIC Source Code: SAE J2052 ISO/TC22/SC12/WG3 N 282 (Issued 1990-03-16)

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

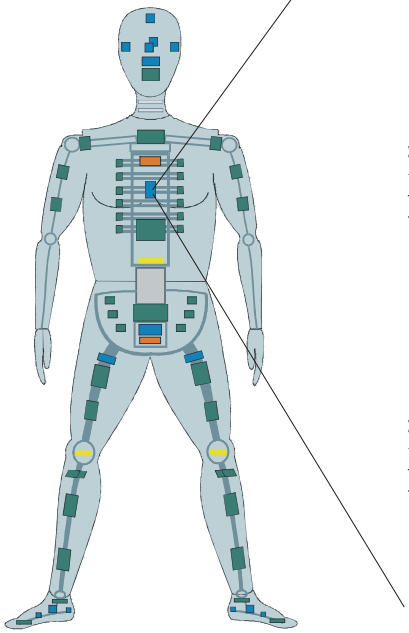
## 3 ms Duration Acceleration (Chest)

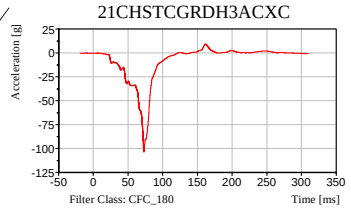
Date: 03/12/2006
Time: 07:48

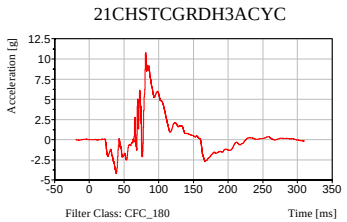
**Customer: VRTC**

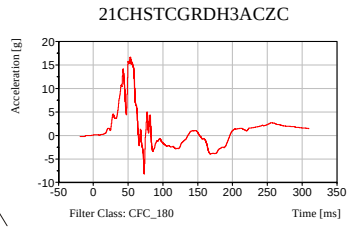
**TRC Inc. Test Lab: CTF**

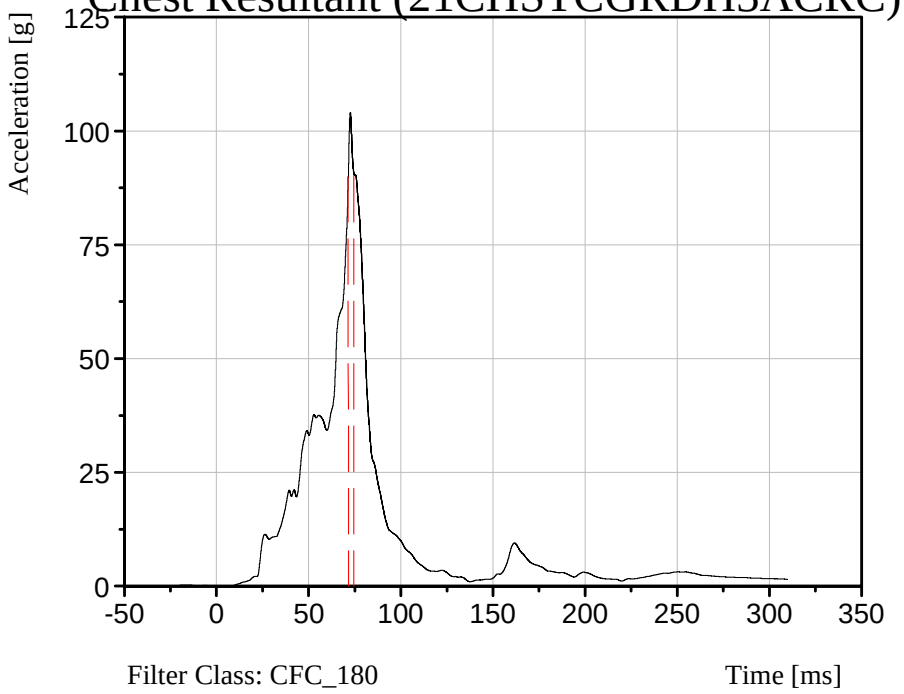
**Test Number: 060310**






| | T1 (Begin) | T2 (End) |
|---|---|---|
| 3 ms Duration Acceleration = 90.58 g | 71.48 ms | 74.48 ms |
| Chest Severity Index = 1,101.79 | | |

Dummy:HIII 50th Male
Seating Position:
Driver

3 ms Duration Acceleration Source Code : vbScript w/DIAdem 9.0

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

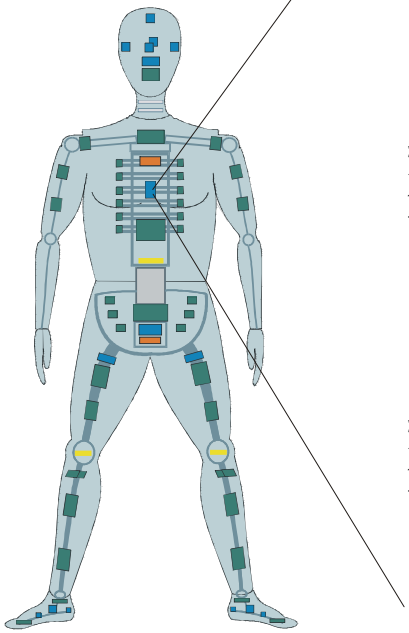
## 3 ms Duration Acceleration (Chest)

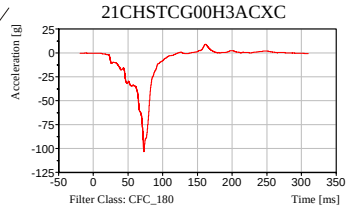
Date: 03/12/2006
Time: 07:48

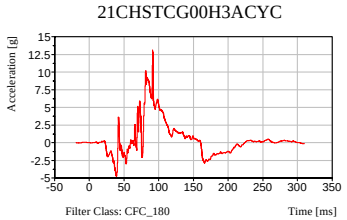
**Customer: VRTC**

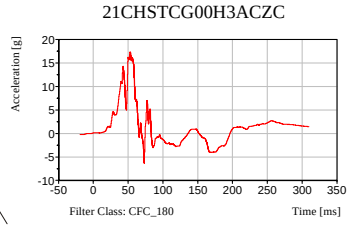
**TRC Inc. Test Lab: CTF**

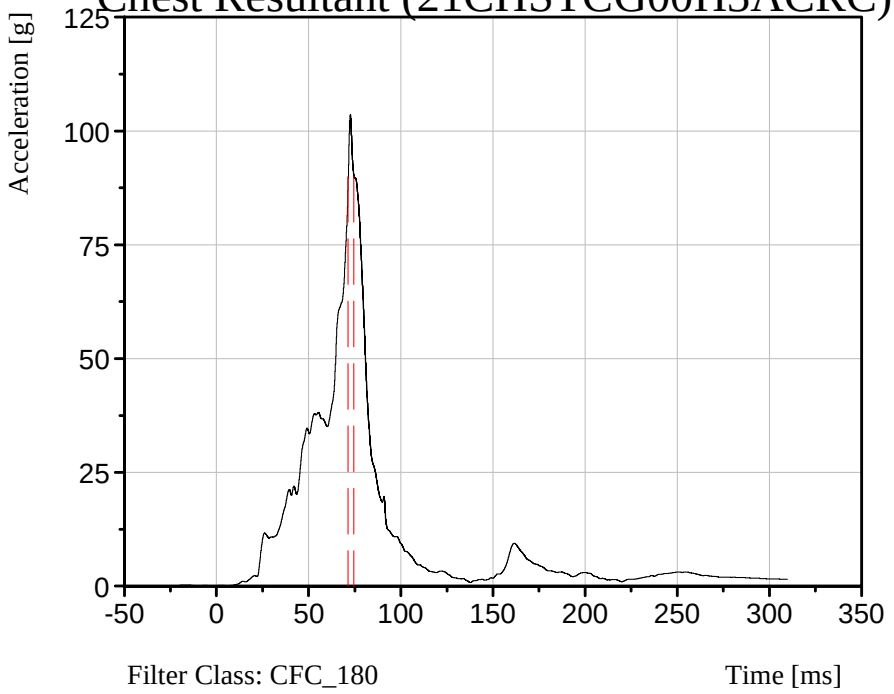
**Test Number: 060310**






| | T1 (Begin) | T2 (End) |
|---|---|---|
| 3 ms Duration Acceleration = 90.11 g | 71.46 ms | 74.46 ms |
| Chest Severity Index = 1,105.13 | | |

Dummy:HIII 50th Male
Seating Position:
Driver

3 ms Duration Acceleration Source Code : vbScript w/DIAdem 9.0

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

## Chest Deflection

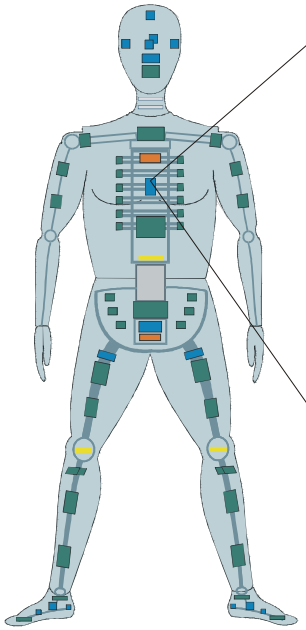
Date: 03/12/2006
Time: 07:48

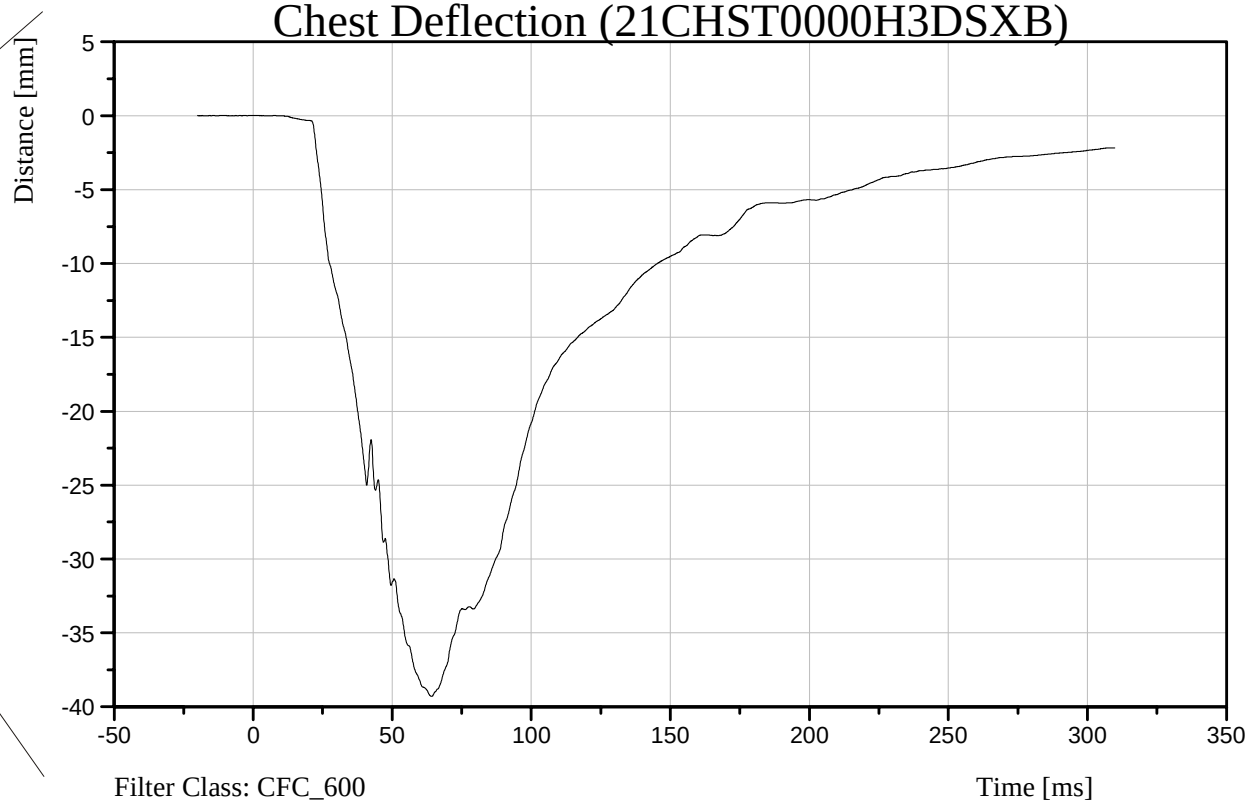
**Customer: VRTC**

**TRC Inc. Test Lab: CTF**

**Test Number: 060310**

Test Orientation = Frontal






Dummy:HIII 50th Male
Seating Position:
Driver

[Max.] 0.01 mm at -3.04 ms

[Min.] -39.29 mm at 64.08 ms

ChestDeflection Source Code : Min/Max of 21CHST0000H3DSXB (CFC_600)

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear
## Neck Moment about the Occipital Condyle (NECK OM)

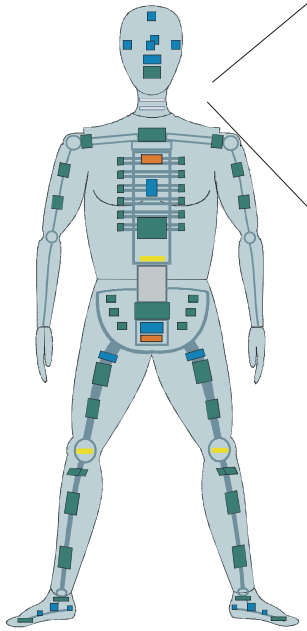
Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

**TRC Inc. Test Lab: CTF**

**Test Number: 060310**

Test Orientation = Frontal

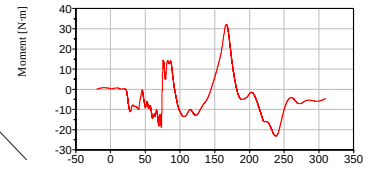


21NECKUP00H3FOXB



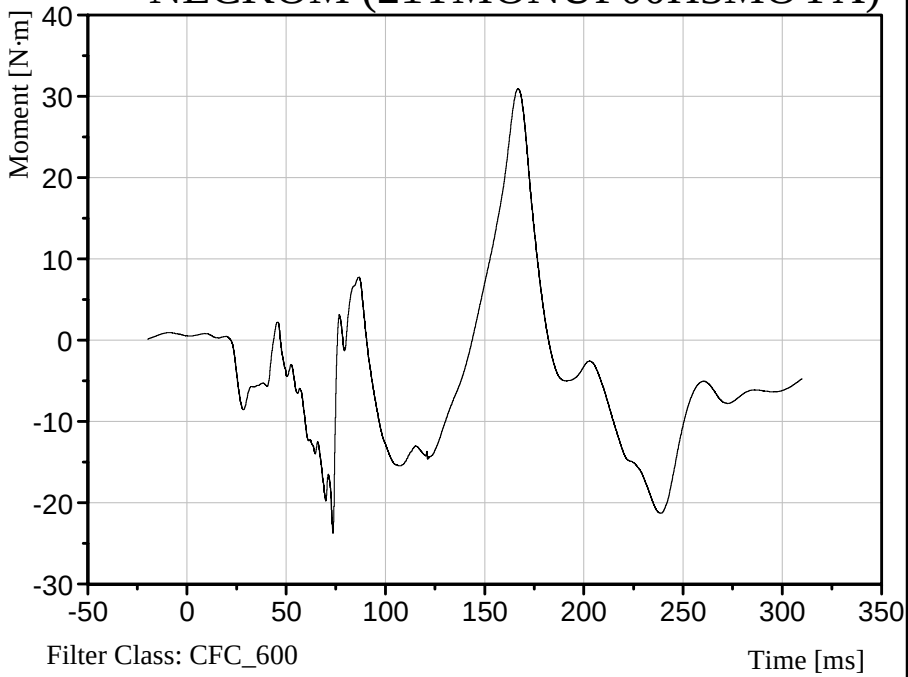

Filter Class: CFC_600

21NECKUP00H3MOYB




Filter Class: CFC_600

NECKOM (21TMONUP00H3MOYX)




Dummy:HIII 50th Male
Seating Position:
Driver

Neck OM Source Code: My - (D*Fx)

[Max.] 30.97 N·m at 166.72 ms

[Min.] -23.73 N·m at 73.52 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

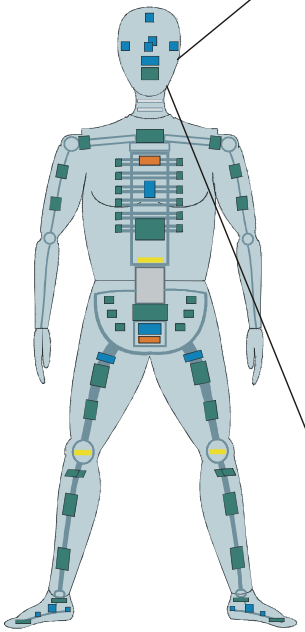
## Neck Injury Predictor (NIJ)

Date: 03/12/2006
Time: 07:48

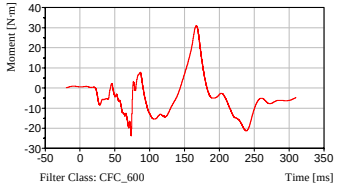
**Customer: VRTC**

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**

Test Orientation = Frontal
Fzc(Tension) = 6806
Fzc(Compression) = 6160
Myc(Extension) = 135
Myc(Flexion) = 310



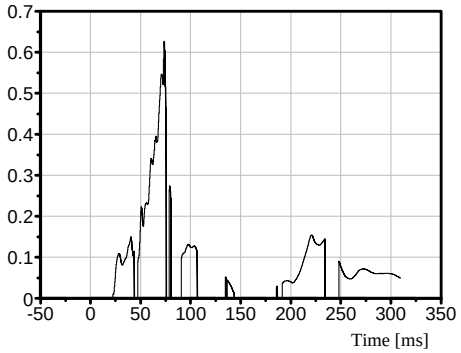
21TMONUP00H3MOYX




21NECKUP00H3FOZB

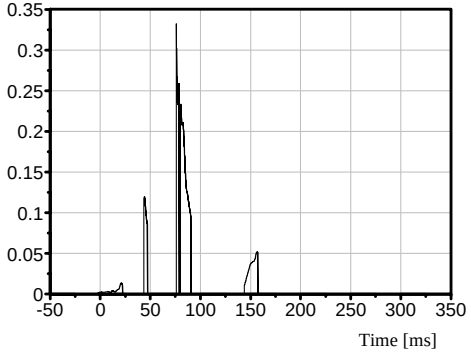



21NIJCUPTEH300YX



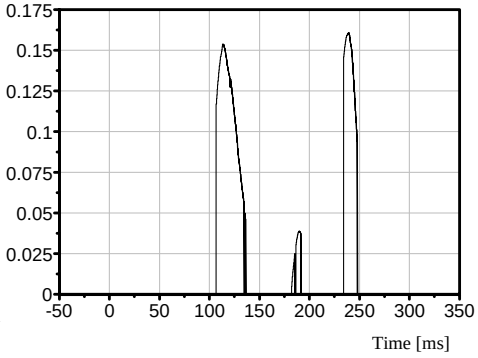

**Max [NTE] 0.6273 at 73.52 ms**

21NIJCUPTFH300YX



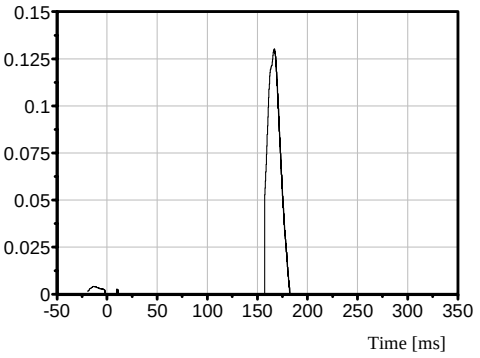

**Max [NTF] 0.3321 at 75.76 ms**

21NIJCUPCEH300YX




**Max [NCE] 0.1611 at 239.20 ms**

21NIJCUPCFH300YX




**Max [NCF] 0.1303 at 166.80 ms**

Dummy:HIII 50th Male
Seating Position:
Driver

NIJ Source Code: (Fz/Fzc)+(My/Myc)

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

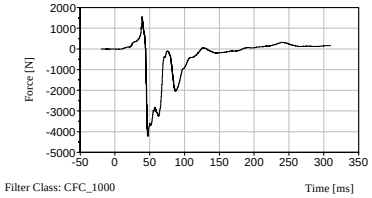
## Femur Load

Date: 03/12/2006
Time: 07:48

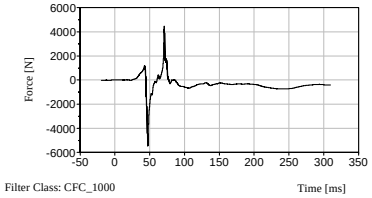
**Customer: VRTC**

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**

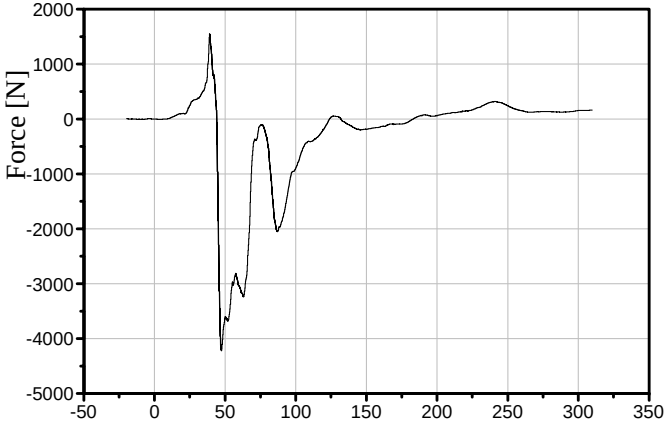
Right Femur (21FEMRRL00H3FOZA)

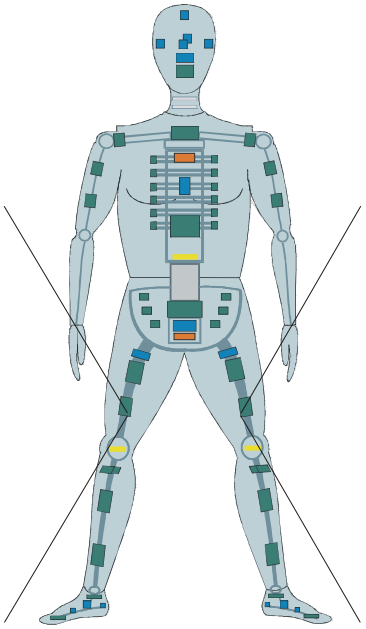



Left Femur (21FEMRLL00H3FOZA)

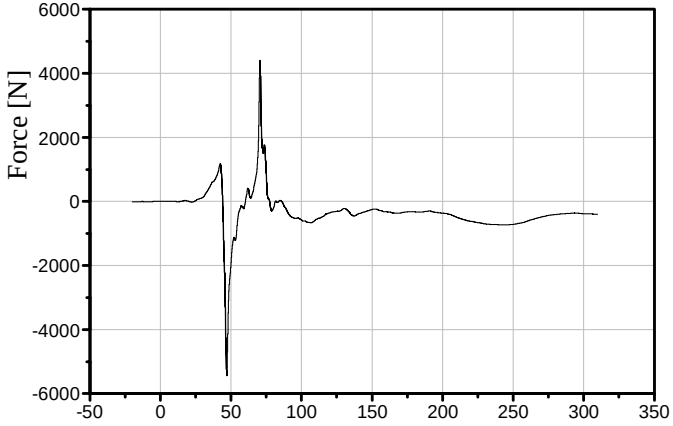



### Right Femur (21FEMRRL00H3FOZB)



### Left Femur (21FEMRLL00H3FOZB)




Max [Tension] 1,554.34 N at 38.96 ms
Min [Compression] -4,219.78 N at 47.28 ms

Dummy:HIII 50th Male
Seating Position:
Driver

Max [Tension] 4,415.30 N at 70.72 ms
Min [Compression] -5,440.98 N at 47.12 ms

Femur Load Source Code : Min/Max of 21FEMRRL00H3FOZB and 21FEMRLL00H3FOZB (CFC 600)

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

## Tibia Index (TI)

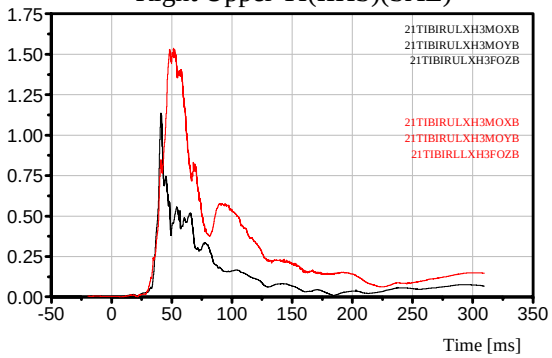
Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**

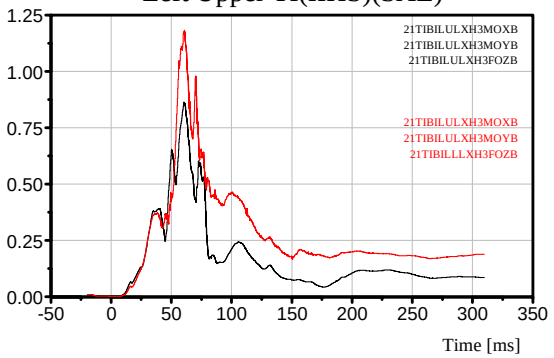
Critical Bending Moment = 240 N·m
Critical Compression Force = 12000 N

### Right Upper TI(IIHS)(SAE)



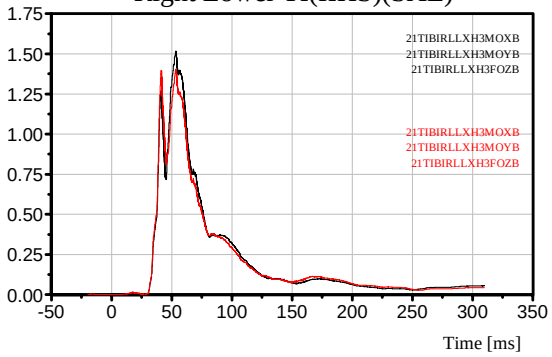

Max = 1.14 at 40.96 ms (SAE)
Max = 1.54 at 51.44 ms (IIHS)

### Left Upper TI(IIHS)(SAE)

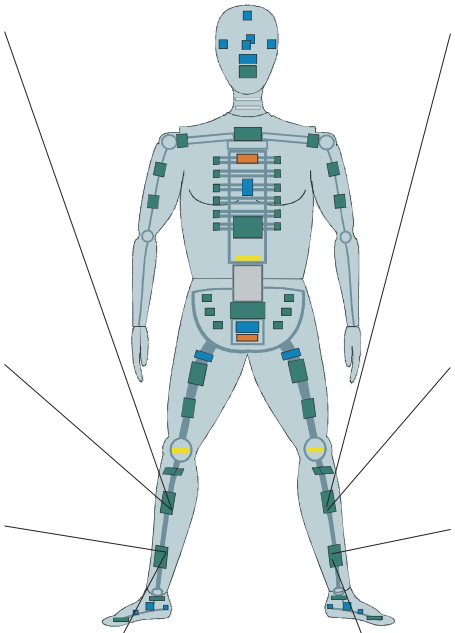



Max = 0.86 at 60.48 ms (SAE)
Max = 1.18 at 60.88 ms (IIHS)

### Right Lower TI(IIHS)(SAE)

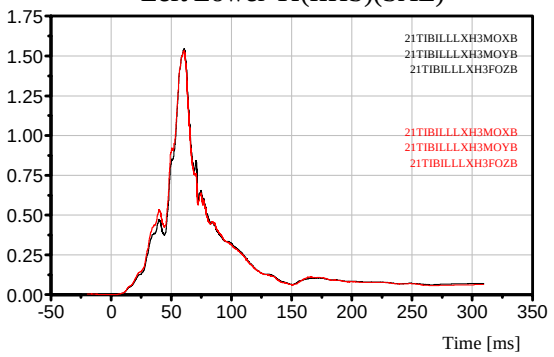



Max = 1.52 at 53.36 ms (SAE)
Max = 1.40 at 53.36 ms (IIHS)



Dummy:HIII 50th Male
Seating Position:
Driver

### Left Lower TI(IIHS)(SAE)




Max = 1.55 at 60.88 ms (SAE)
Max = 1.54 at 60.88 ms (IIHS)

Tibia Index Source Code : Guideline 96/79/EC; SAE J1727 AUG96; and IIHS Crashworthiness Evaluation Offset Barrier Crash Test Protocol (Version X)

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

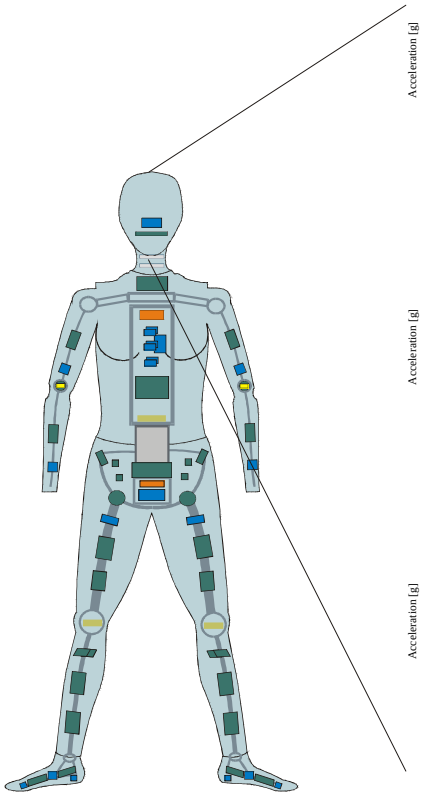
## Head Injury Criterion (HIC)

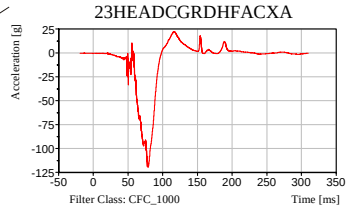
Date: 03/12/2006
Time: 07:48

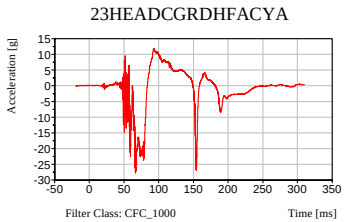
**Customer: VRTC**

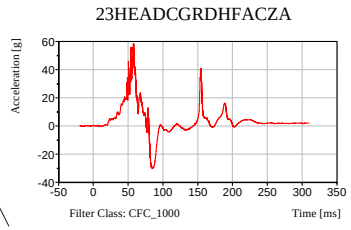
**TRC Inc. Test Lab: CTF**

**Test Number: 060310**

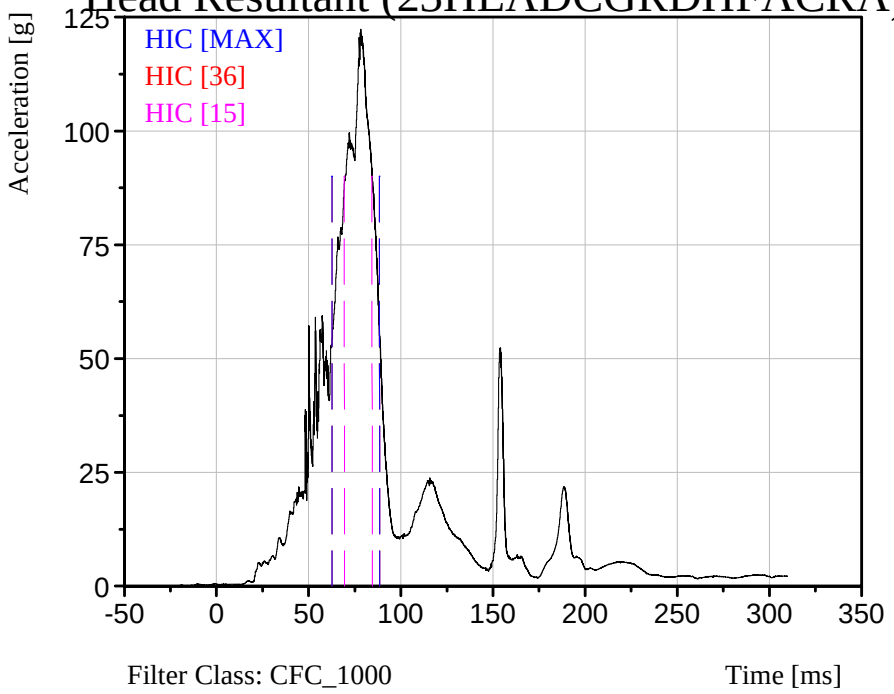





### Head Resultant (23HEADCGRDHFACRA)




| | T1 (Begin) | T2 (End) | Avg. g T1 to T2 |
|---|---|---|---|
| HIC [Max.] = 2,005.22 | 62.72 ms | 88.56 ms | 90.24 g |
| HIC [36] = 2,005.22 | 62.72 ms | 88.56 ms | 90.24 g |
| HIC [15] = 1,613.67 | 69.44 ms | 84.48 ms | 102.78 g |

Dummy:HIII 5th Female
Seating Position:
Right Front Passenger

HIC Source Code: SAE J2052 ISO/TC22/SC12/WG3 N 282 (Issued 1990-03-16)

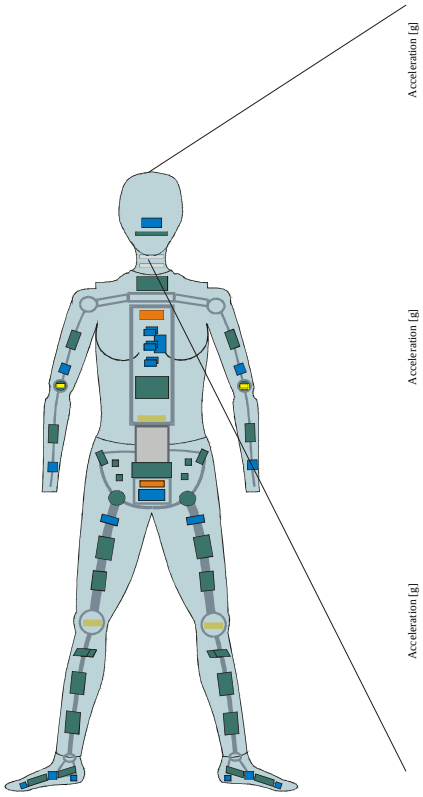
# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

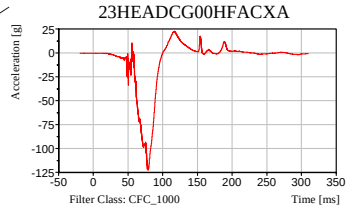
## Head Injury Criterion (HIC)

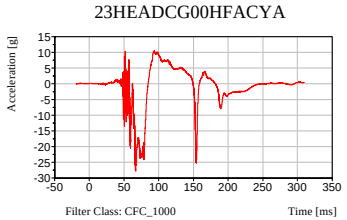
Date: 03/12/2006
Time: 07:48

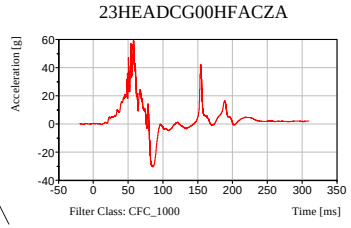
**Customer: VRTC**

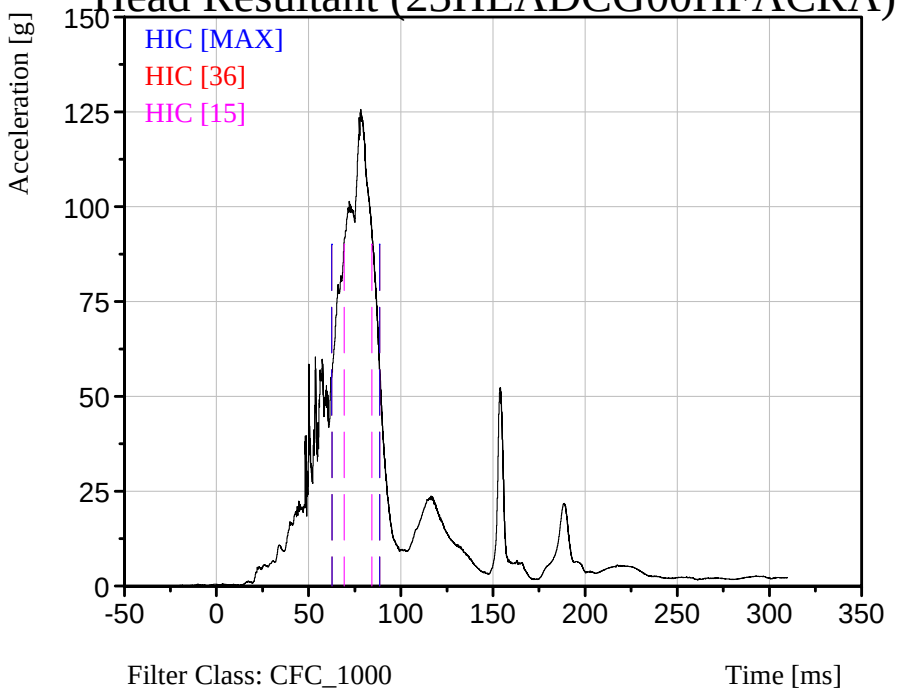
**TRC Inc. Test Lab: CTF**
**Test Number: 060310**






| | T1 (Begin) | T2 (End) | Avg. g T1 to T2 |
|---|---|---|---|
| HIC [Max.] = 2,153.27 | 62.64 ms | 88.64 ms | 92.62 g |
| HIC [36] = 2,153.27 | 62.64 ms | 88.64 ms | 92.62 g |
| HIC [15] = 1,722.97 | 69.36 ms | 84.40 ms | 105.51 g |

Dummy:HIII 5th Female
Seating Position:
Right Front Passenger

HIC Source Code: SAE J2052 ISO/TC22/SC12/WG3 N 282 (Issued 1990-03-16)

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

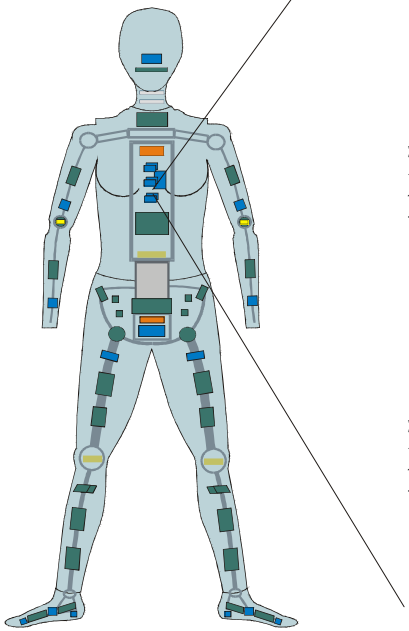
## 3 ms Duration Acceleration (Chest)

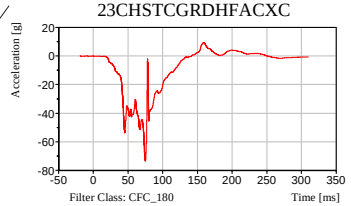
Date: 03/12/2006
Time: 07:48

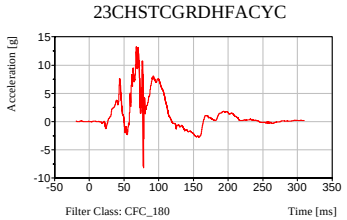
**Customer: VRTC**

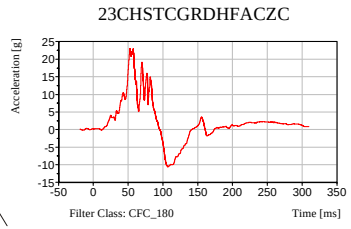
**TRC Inc. Test Lab: CTF**

**Test Number: 060310**

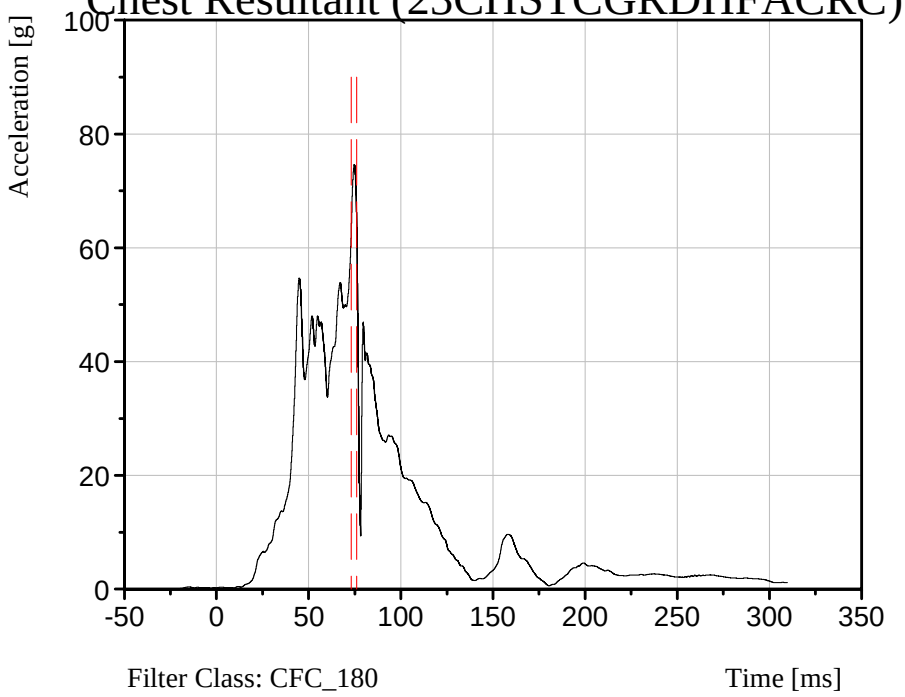





### Chest Resultant (23CHSTCGRDHFACRC)




| | T1 (Begin) | T2 (End) |
|---|---|---|
| 3 ms Duration Acceleration = 63.17 g | 73.10 ms | 76.10 ms |
| Chest Severity Index = 765.95 | | |

Dummy:HIII 5th Female
Seating Position:
Right Front Passenger

3 ms Duration Acceleration Source Code : vbScript w/DIAdem 9.0

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

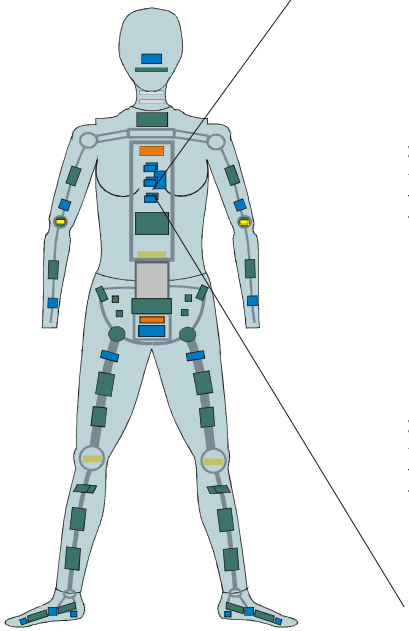
## 3 ms Duration Acceleration (Chest)

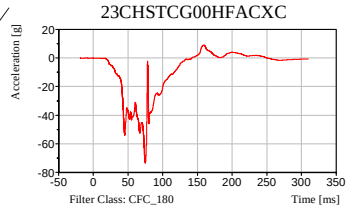
Date: 03/12/2006
Time: 07:48

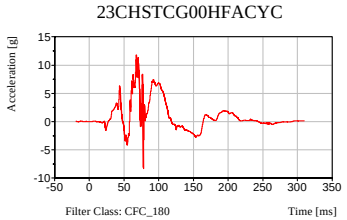
**Customer: VRTC**

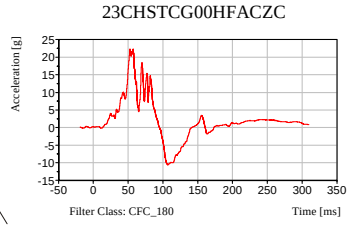
**TRC Inc. Test Lab: CTF**

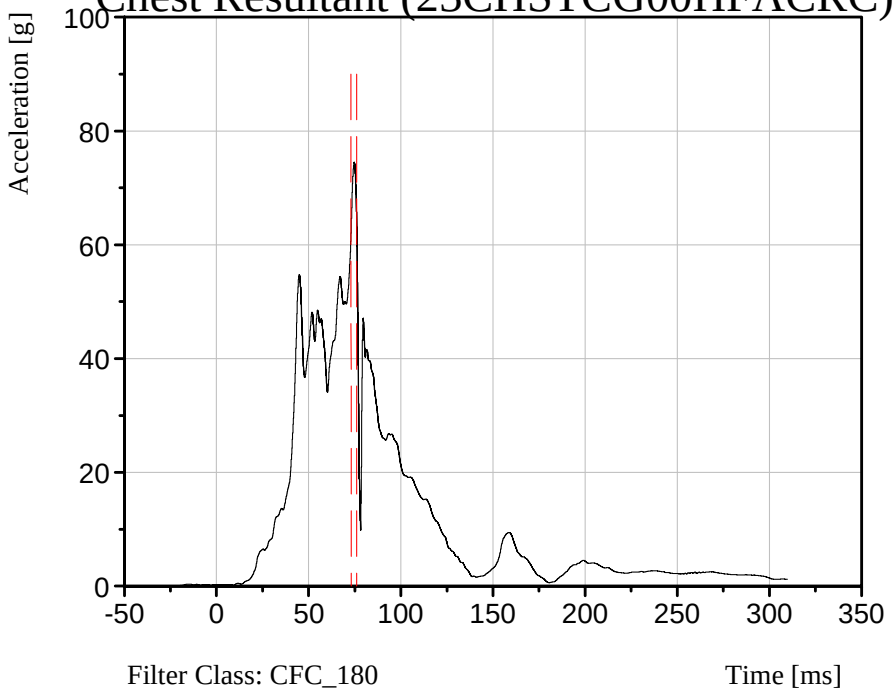
**Test Number: 060310**






| | T1 (Begin) | T2 (End) |
|---|---|---|
| 3 ms Duration Acceleration = 63.24 g | 73.07 ms | 76.07 ms |
| Chest Severity Index = 769.94 | | |

Dummy:HIII 5th Female
Seating Position:

Right Front Passenger

3 ms Duration Acceleration Source Code : vbScript w/DIAdem 9.0

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

## Chest Deflection

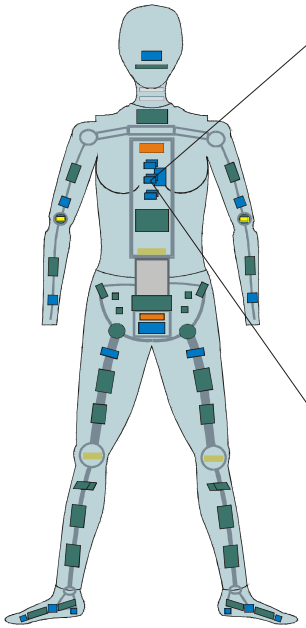
Date: 03/12/2006
Time: 07:48

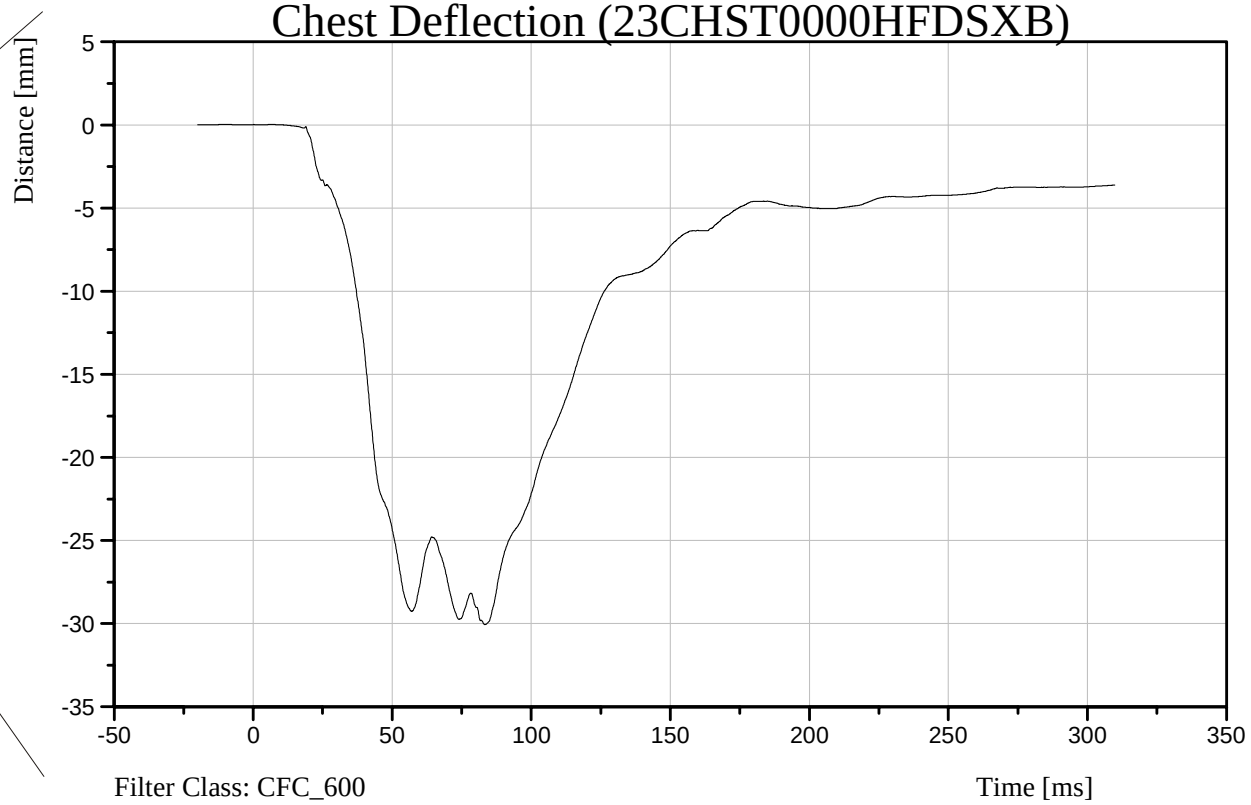
**Customer: VRTC**

**TRC Inc. Test Lab: CTF**

**Test Number: 060310**

Test Orientation = Frontal






Dummy:HIII 5th Female
Seating Position:
Right Front Passenger

[Max.] 0.03 mm at -11.44 ms

[Min.] -30.06 mm at 83.28 ms

ChestDeflection Source Code : Min/Max of 23CHST0000HFDSXB (CFC_600)

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear
## Neck Moment about the Occipital Condyle (NECK OM)

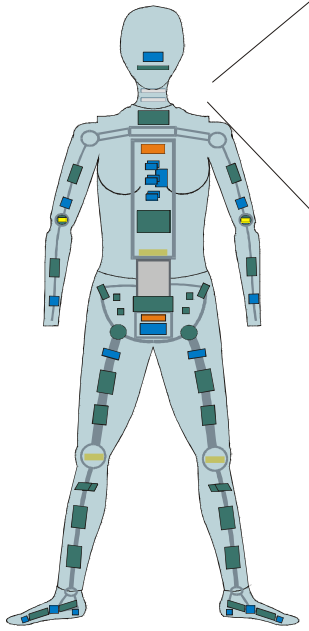
Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

**TRC Inc. Test Lab: CTF**

**Test Number: 060310**

Test Orientation = Frontal

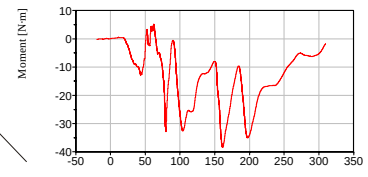


23NECKUP00HFFOXB



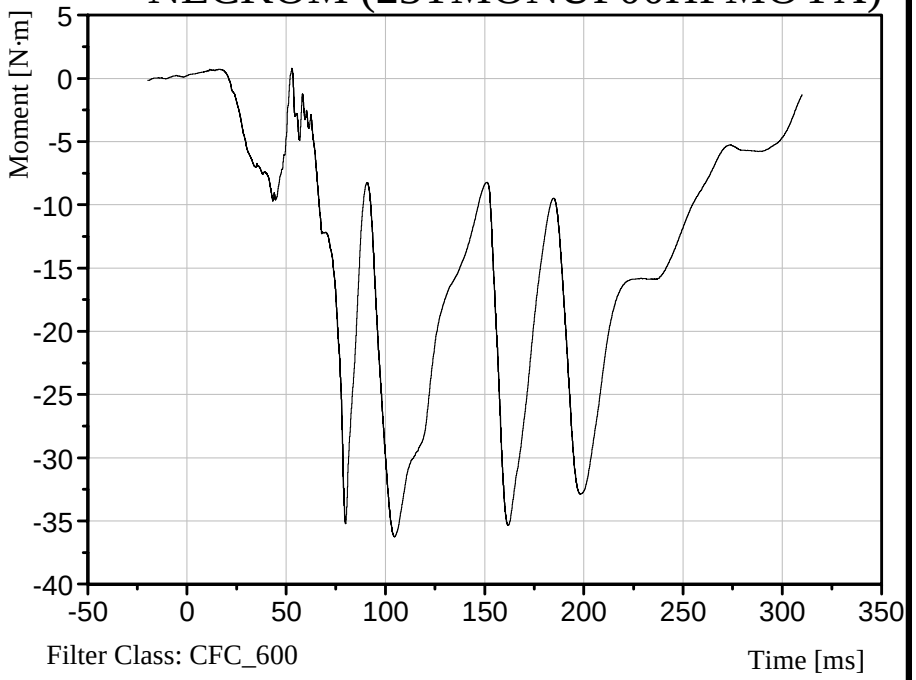

Filter Class: CFC_600

23NECKUP00HFMOYB




Filter Class: CFC_600

NECKOM (23TMONUP00HFMOYX)




Filter Class: CFC_600

Dummy:HIII 5th Female
Seating Position:
Right Front Passenger

[Max.] 0.80 N·m at 52.80 ms

[Min.] -36.26 N·m at 104.48 ms

Neck OM Source Code: My - (D*Fx)

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

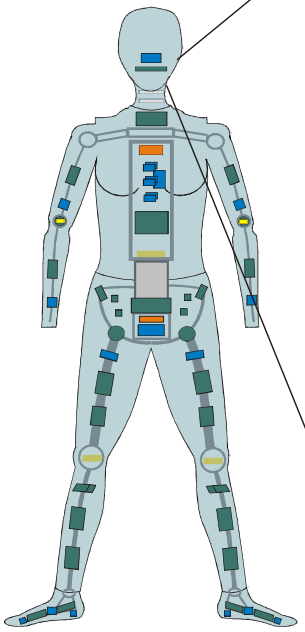
## Neck Injury Predictor (NIJ)

Date: 03/12/2006
Time: 07:48

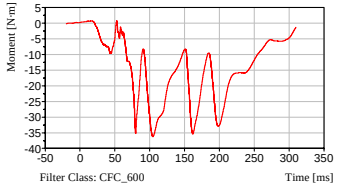
**Customer: VRTC**

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**

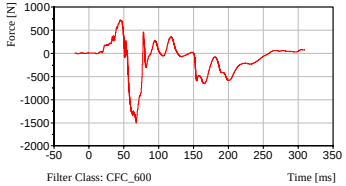
Test Orientation = Frontal
Fzc(Tension) = 4287
Fzc(Compression) = 3880
Myc(Extension) = 67
Myc(Flexion) = 155



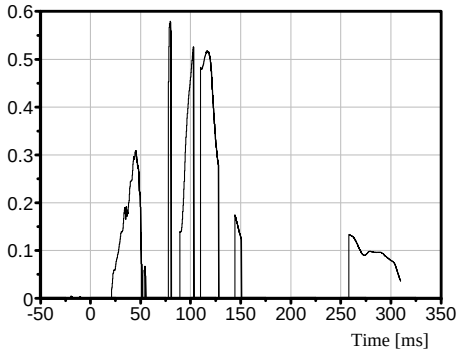
23TMONUP00HFMOYX




23NECKUP00HFFOZB

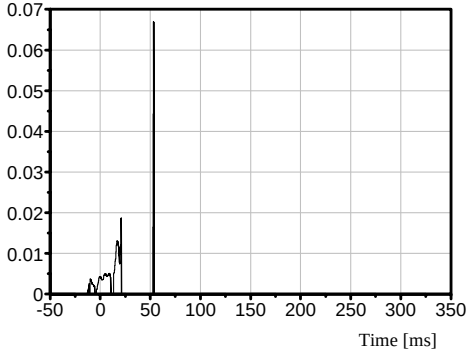



23NIJCUPTEHF00YX



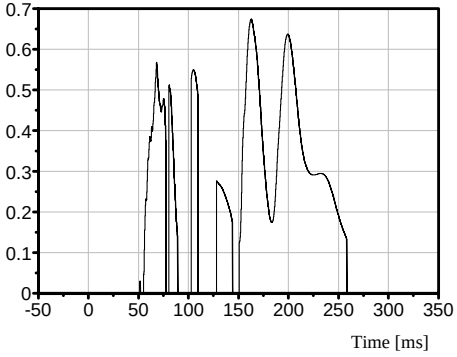

**Max [NTE] 0.5792 at 79.60 ms**

23NIJCUPTFHF00YX



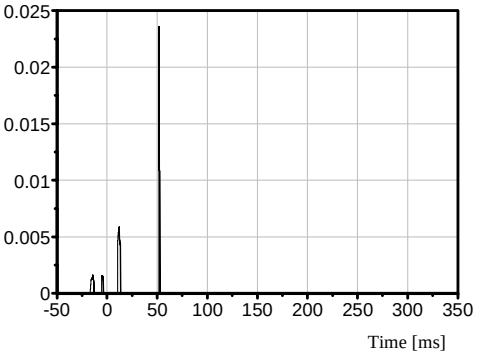

**Max [NTF] 0.0670 at 53.20 ms**

23NIJCUPCEHF00YX




**Max [NCE] 0.6754 at 162.96 ms**

23NIJCUPCFHF00YX




**Max [NCF] 0.0236 at 51.84 ms**

Dummy:HIII 5th Female
Seating Position:
Right Front Passenger

NIJ Source Code: (Fz/Fzc)+(My/Myc)

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

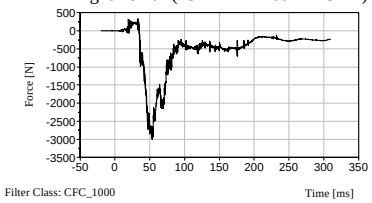
## Femur Load

Date: 03/12/2006
Time: 07:48

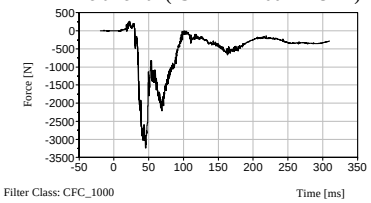
**Customer: VRTC**

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**

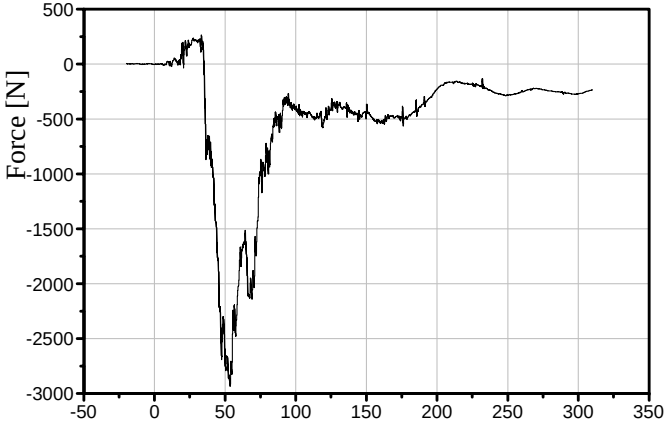
Right Femur (23FEMRRL00HFFOZA)

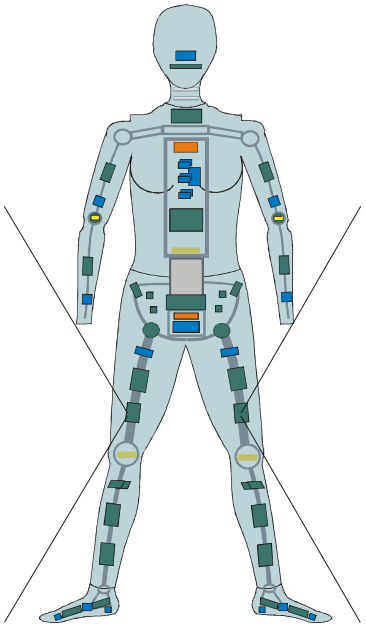



Left Femur (23FEMRLL00HFFOZA)

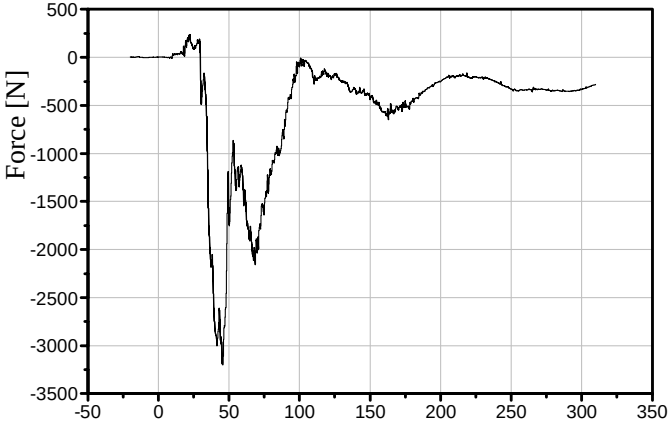



## Right Femur (23FEMRRL00HFFOZB)



## Left Femur (23FEMRLL00HFFOZB)




Max [Tension] 267.82 N at 33.12 ms
Min [Compression] -2,932.24 N at 53.52 ms

Dummy:HIII 5th Female
Seating Position:
Right Front Passenger

Max [Tension] 237.96 N at 22.40 ms
Min [Compression] -3,200.92 N at 45.68 ms

Femur Load Source Code : Min/Max of 23FEMRRL00HFFOZB and 23FEMRLL00HFFOZB (CFC 600)

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

## Tibia Index (TI)

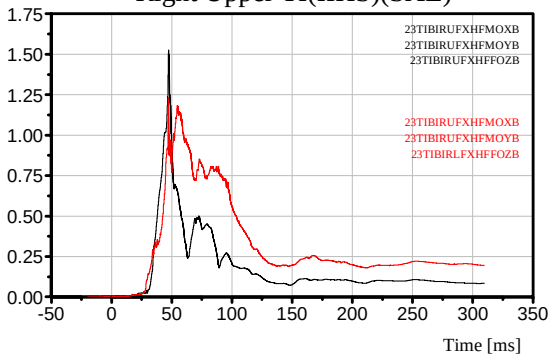
Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**

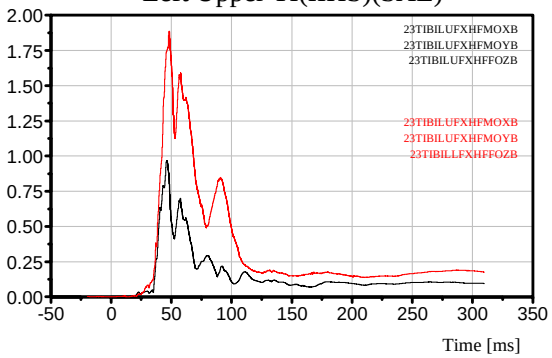
Critical Bending Moment = 146 N·m
Critical Compression Force = 8600 N

### Right Upper TI(IIHS)(SAE)



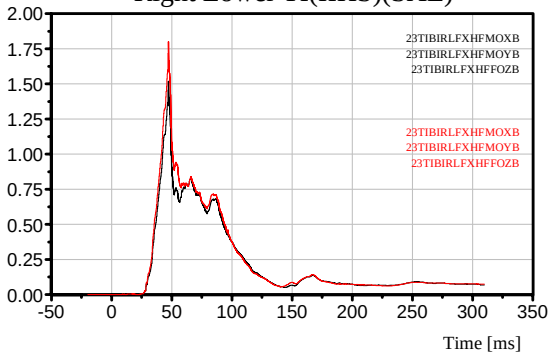

Max = 1.53 at 47.36 ms (SAE)
Max = 1.23 at 47.20 ms (IIHS)

### Left Upper TI(IIHS)(SAE)

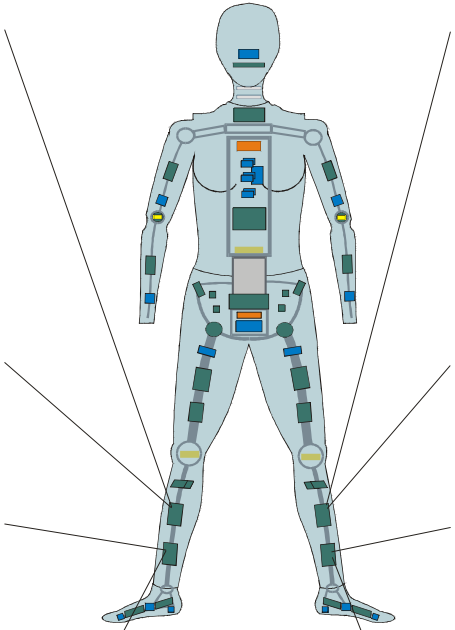



Max = 0.97 at 46.32 ms (SAE)
Max = 1.89 at 48.24 ms (IIHS)

### Right Lower TI(IIHS)(SAE)

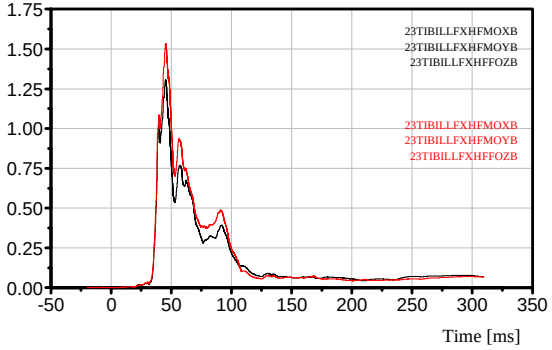



Max = 1.52 at 47.20 ms (SAE)
Max = 1.80 at 47.20 ms (IIHS)



Dummy:HIII 5th Female
Seating Position:
Right Front Passenger

### Left Lower TI(IIHS)(SAE)




Max = 1.31 at 45.36 ms (SAE)
Max = 1.53 at 45.36 ms (IIHS)

Tibia Index Source Code : Guideline 96/79/EC; SAE J1727 AUG96; and IIHS Crashworthiness Evaluation Offset Barrier Crash Test Protocol (Version X)

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

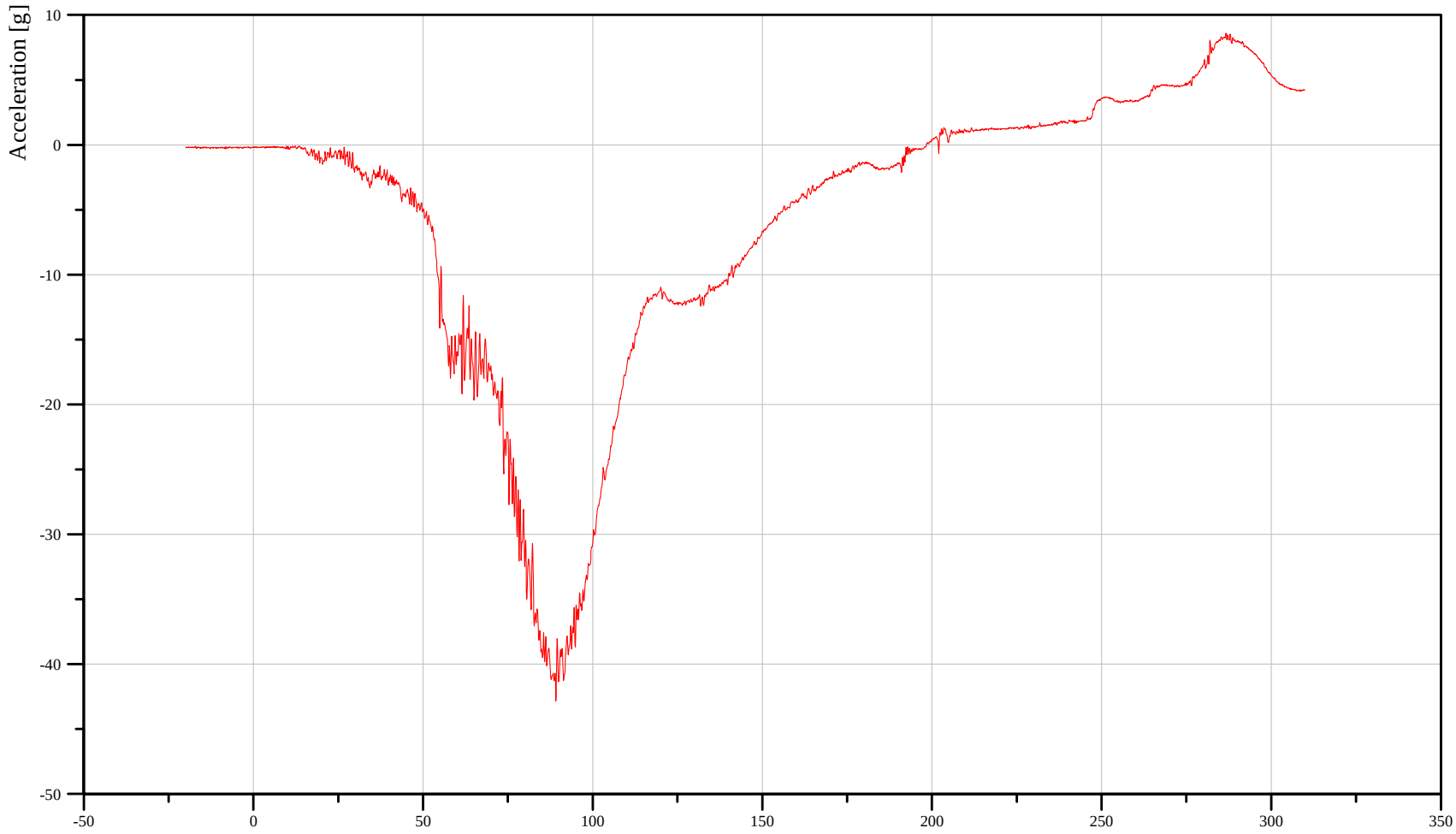
## Bullet Driver Head X-Axis Acceleration

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 11HEADCG00H3ACXA

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_1000

**Min. Value**
-42.84 g at 89.20 ms

**Max. Value**
8.61 g at 286.64 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

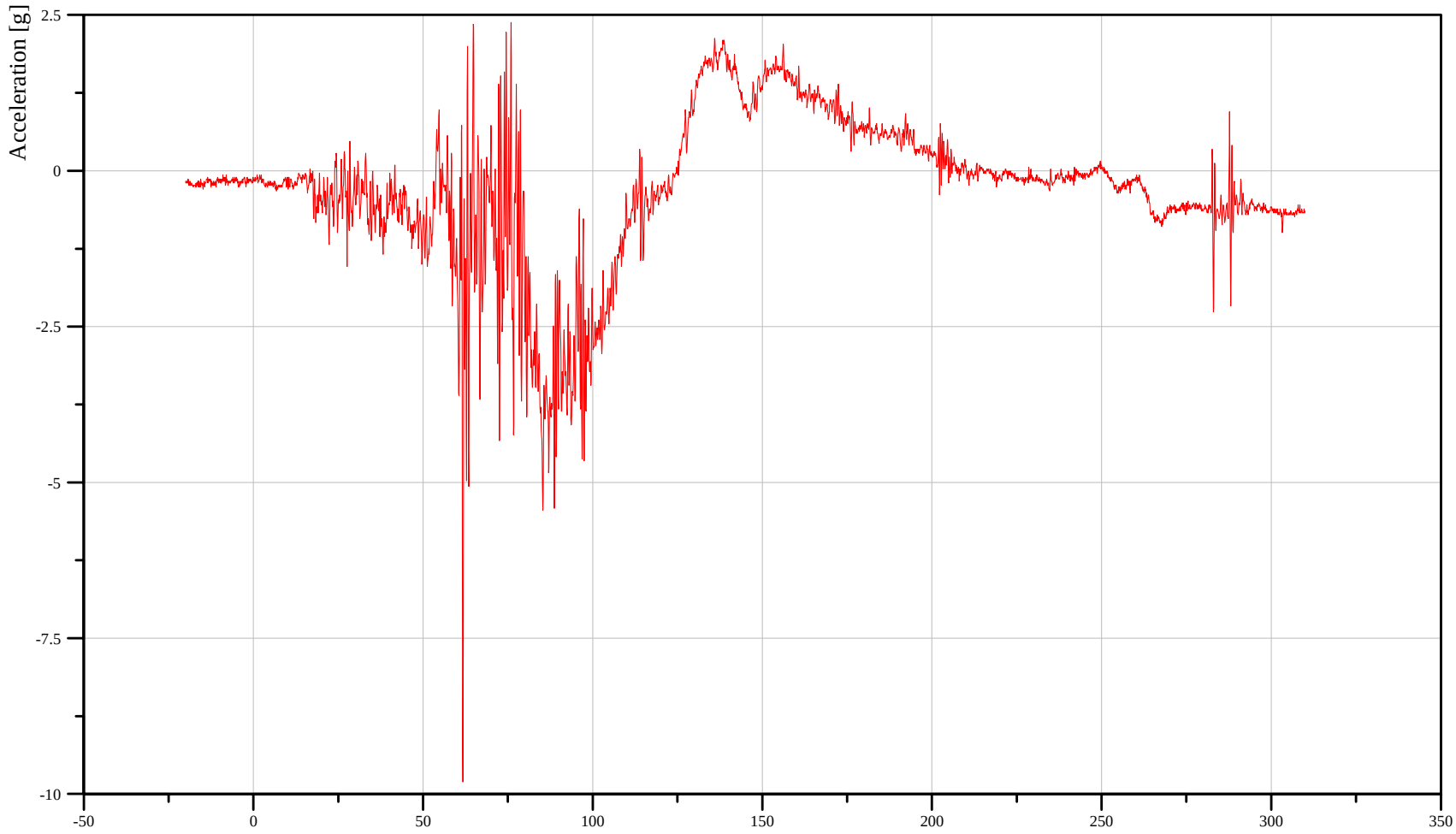
## Bullet Driver Head Y-Axis Acceleration

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 11HEADCG00H3ACYA

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_1000

**Min. Value**
-9.81 g at 61.76 ms

**Max. Value**
2.38 g at 75.92 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

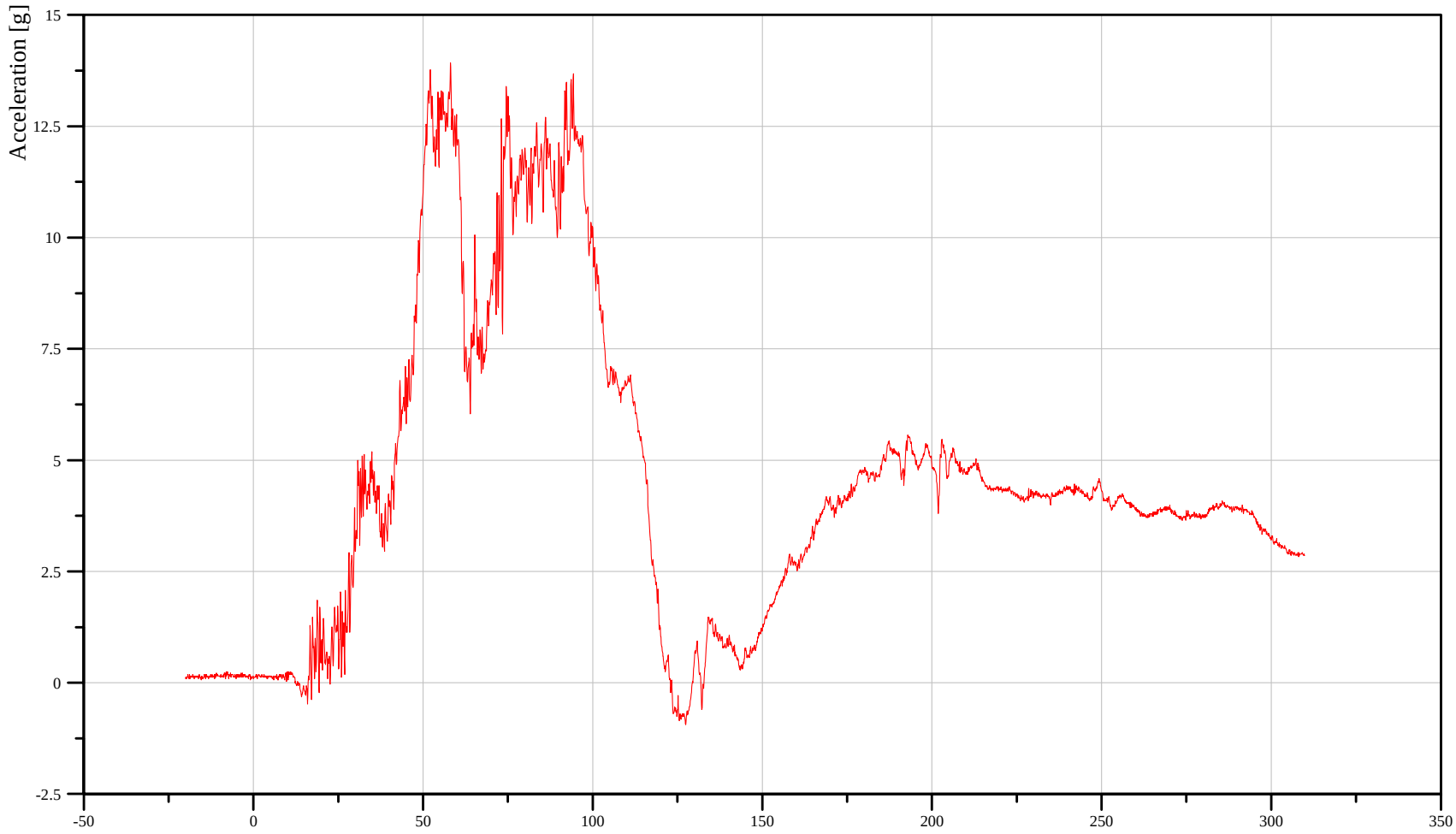
## Bullet Driver Head Z-Axis Acceleration

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 11HEADCG00H3ACZA

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_1000

**Min. Value**
-0.95 g at 127.44 ms

**Max. Value**
13.93 g at 58.08 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

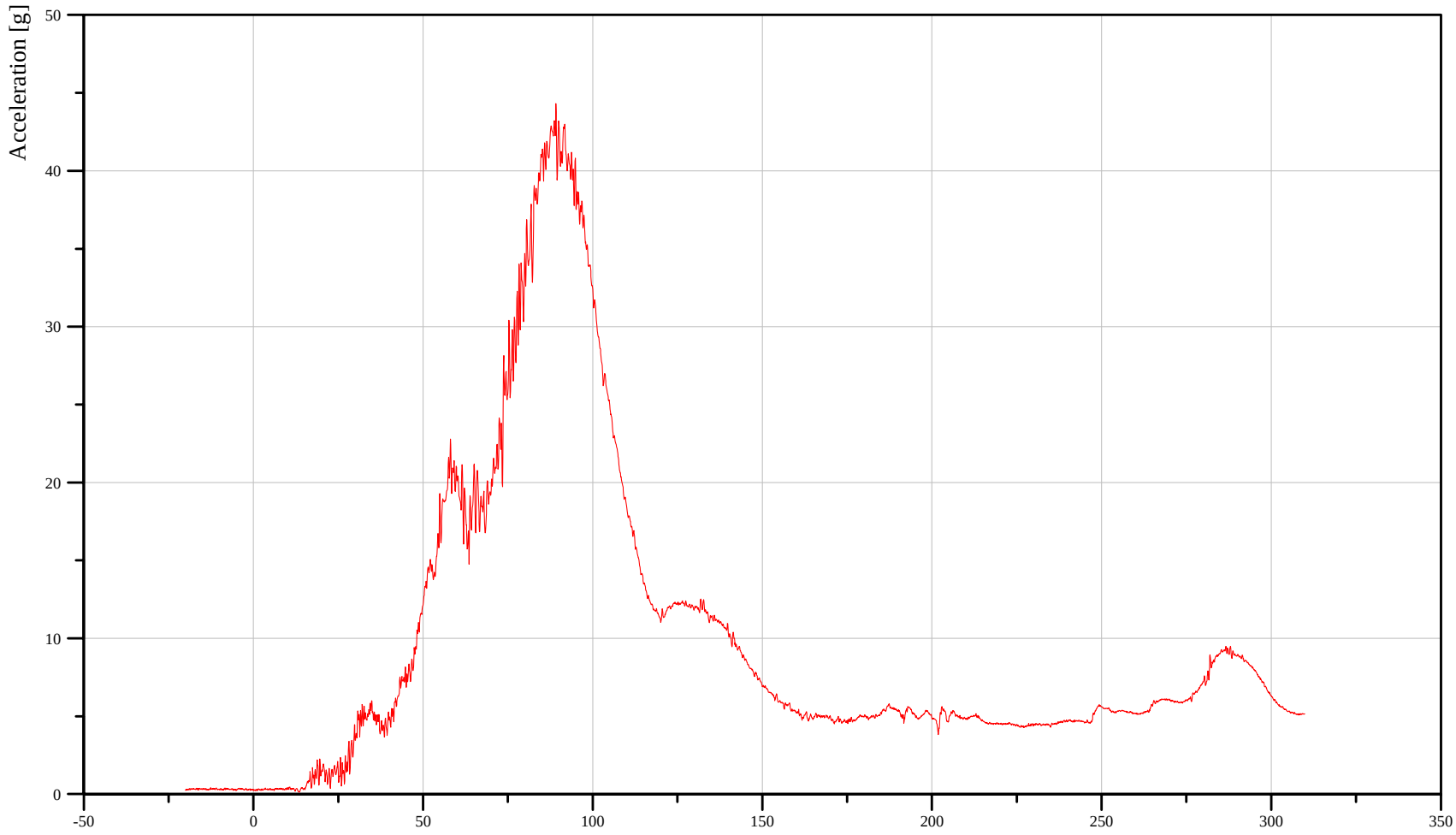
## Bullet Driver Head Resultant Acceleration

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 11HEADCG00H3ACRA

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_1000

**Min. Value**
0.13 g at 13.52 ms

**Max. Value**
44.32 g at 89.20 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

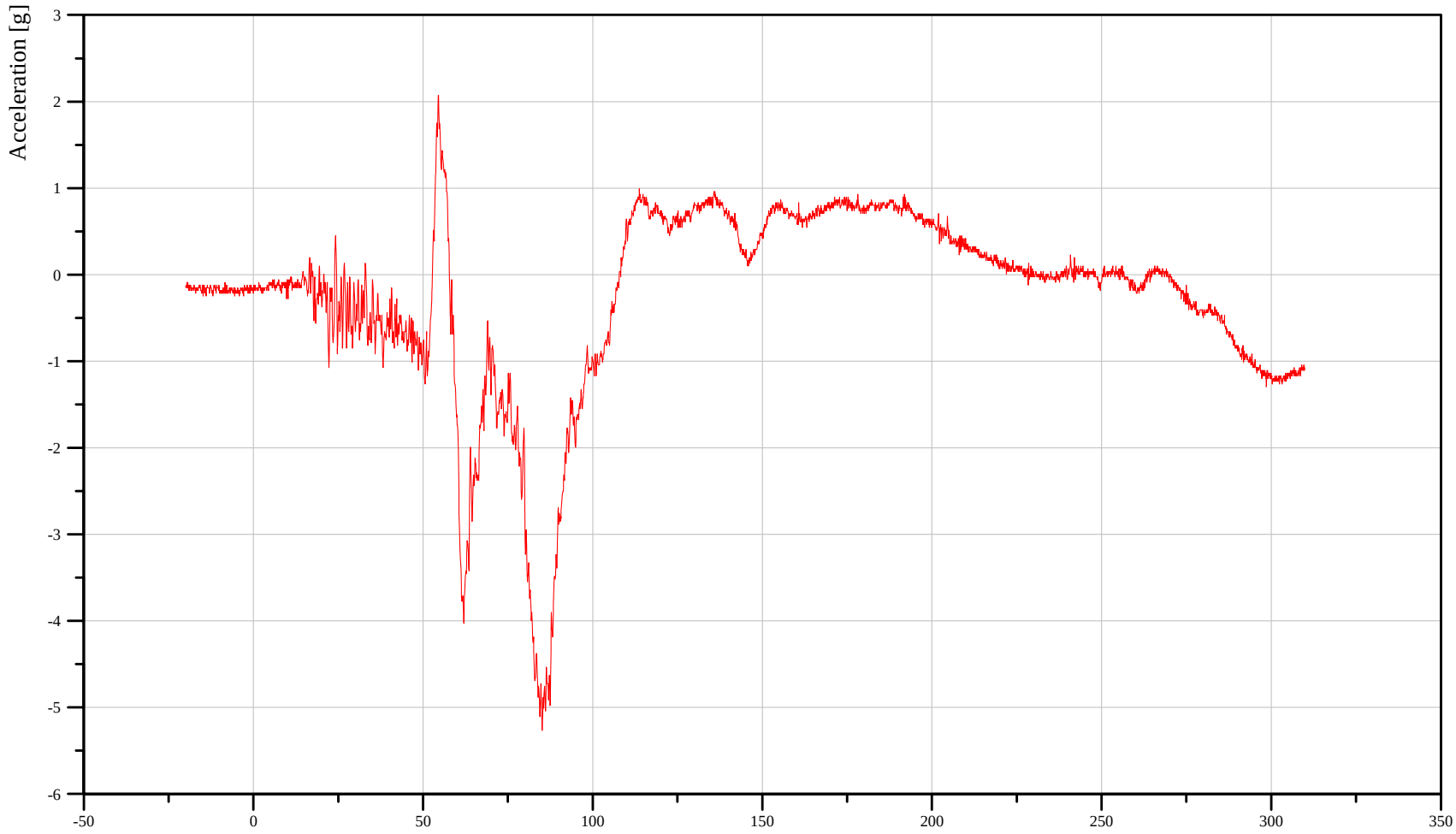
## Bullet Driver Head Front Y-Axis Acceleration

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 11HEADFR00H3ACYA

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_1000

**Min. Value**
-5.26 g at 85.12 ms

**Max. Value**
2.07 g at 54.48 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

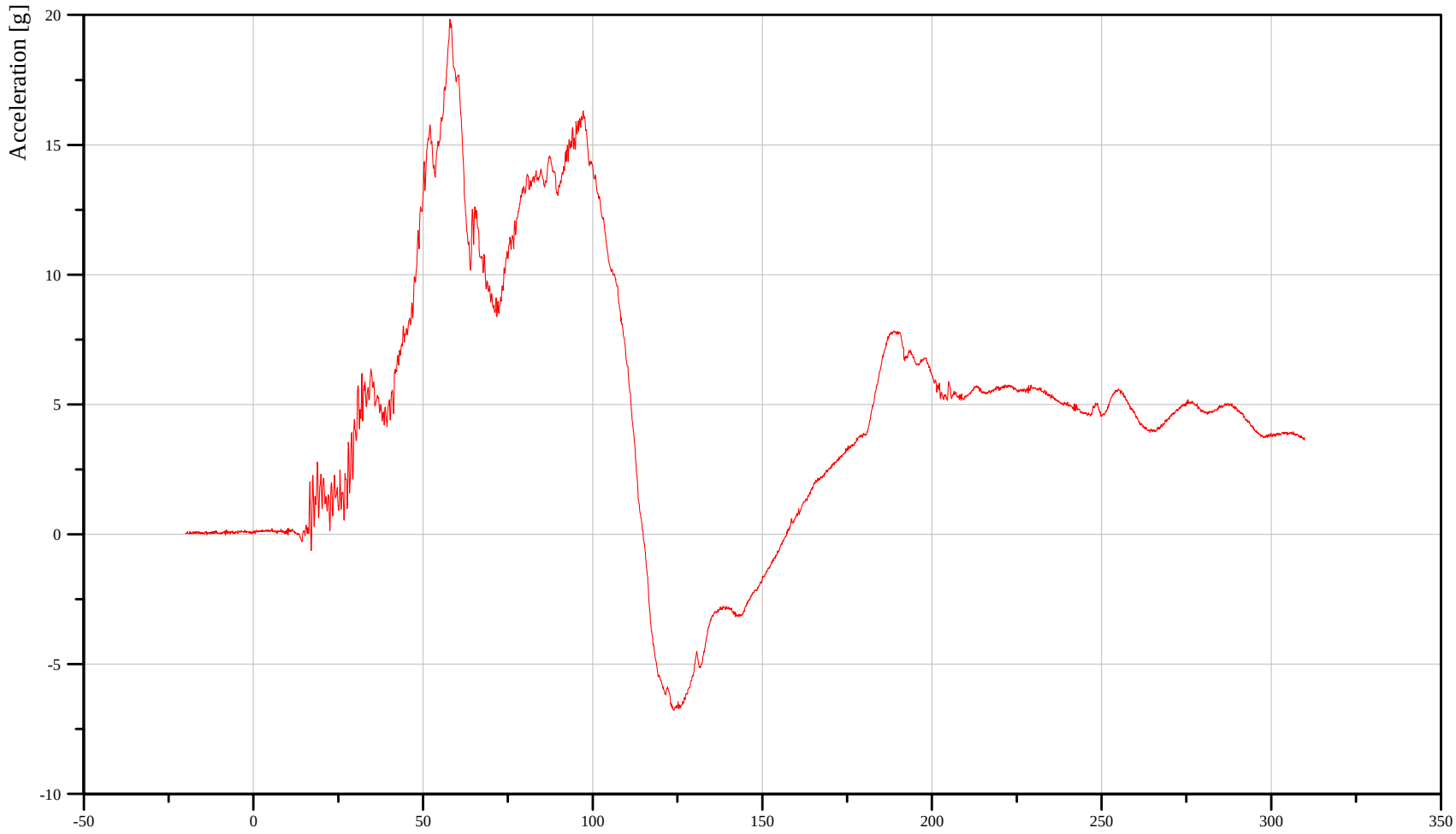
## Bullet Driver Head Front Z-Axis Acceleration

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 11HEADFR00H3ACZA

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_1000

**Min. Value**
-6.78 g at 123.92 ms

**Max. Value**
19.84 g at 57.92 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

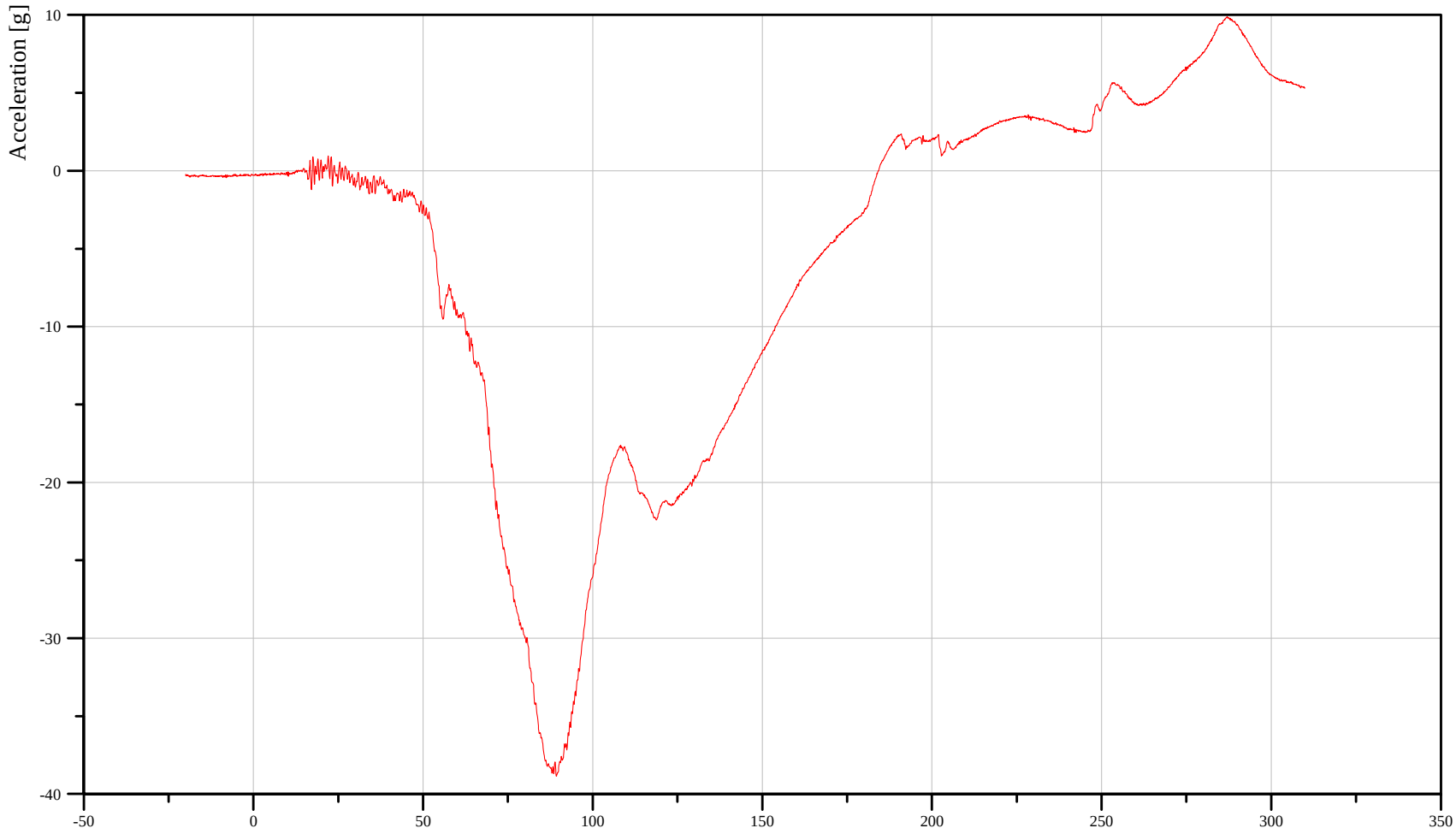
## Bullet Driver Head Top X-Axis Acceleration

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 11HEADUP00H3ACXA

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_1000

**Min. Value**
-38.86 g at 89.36 ms

**Max. Value**
9.88 g at 287.04 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

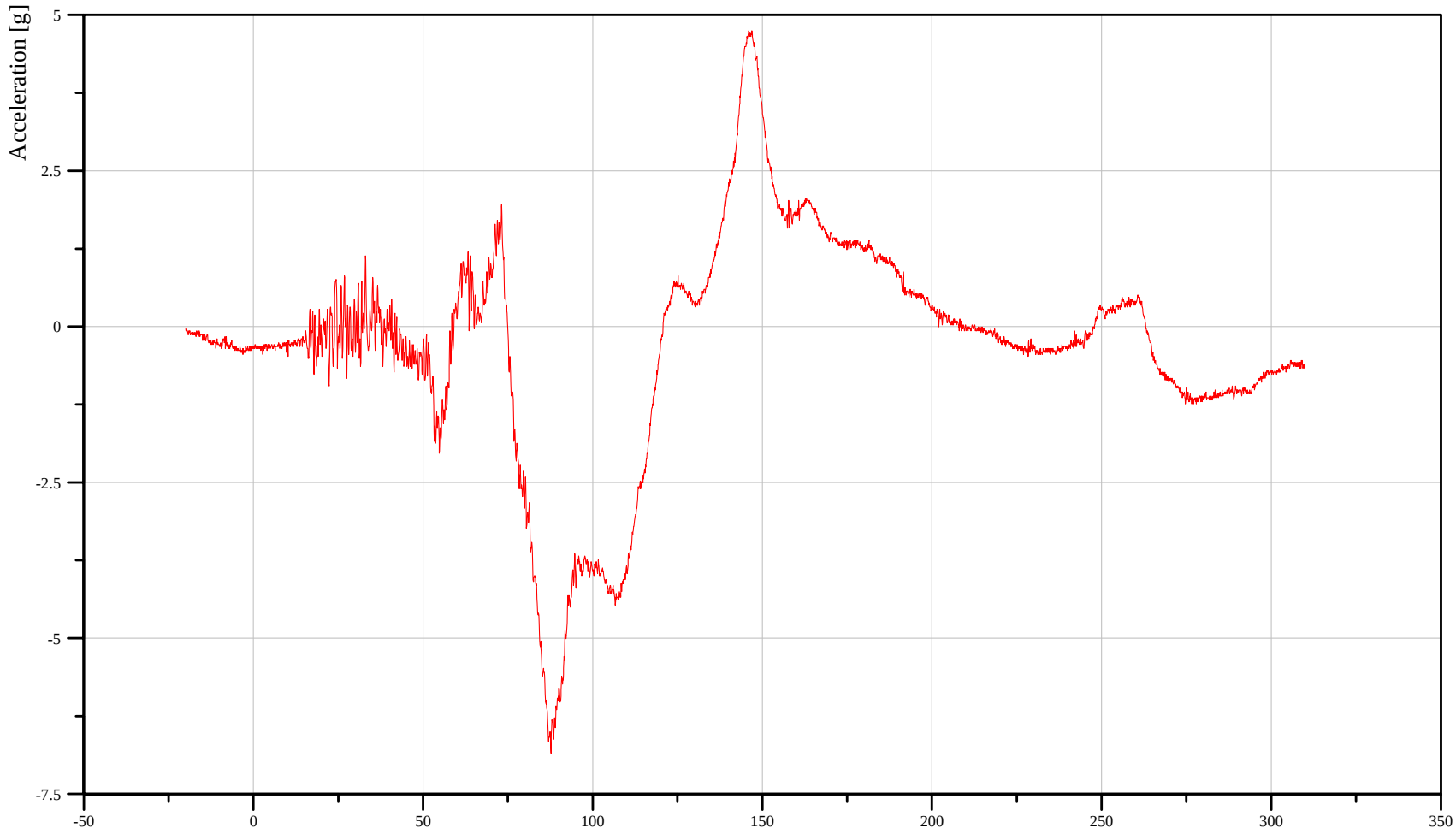
## Bullet Driver Head Top Y-Axis Acceleration

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 11HEADUP00H3ACYA

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_1000

**Min. Value**
-6.85 g at 87.68 ms

**Max. Value**
4.75 g at 146.00 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

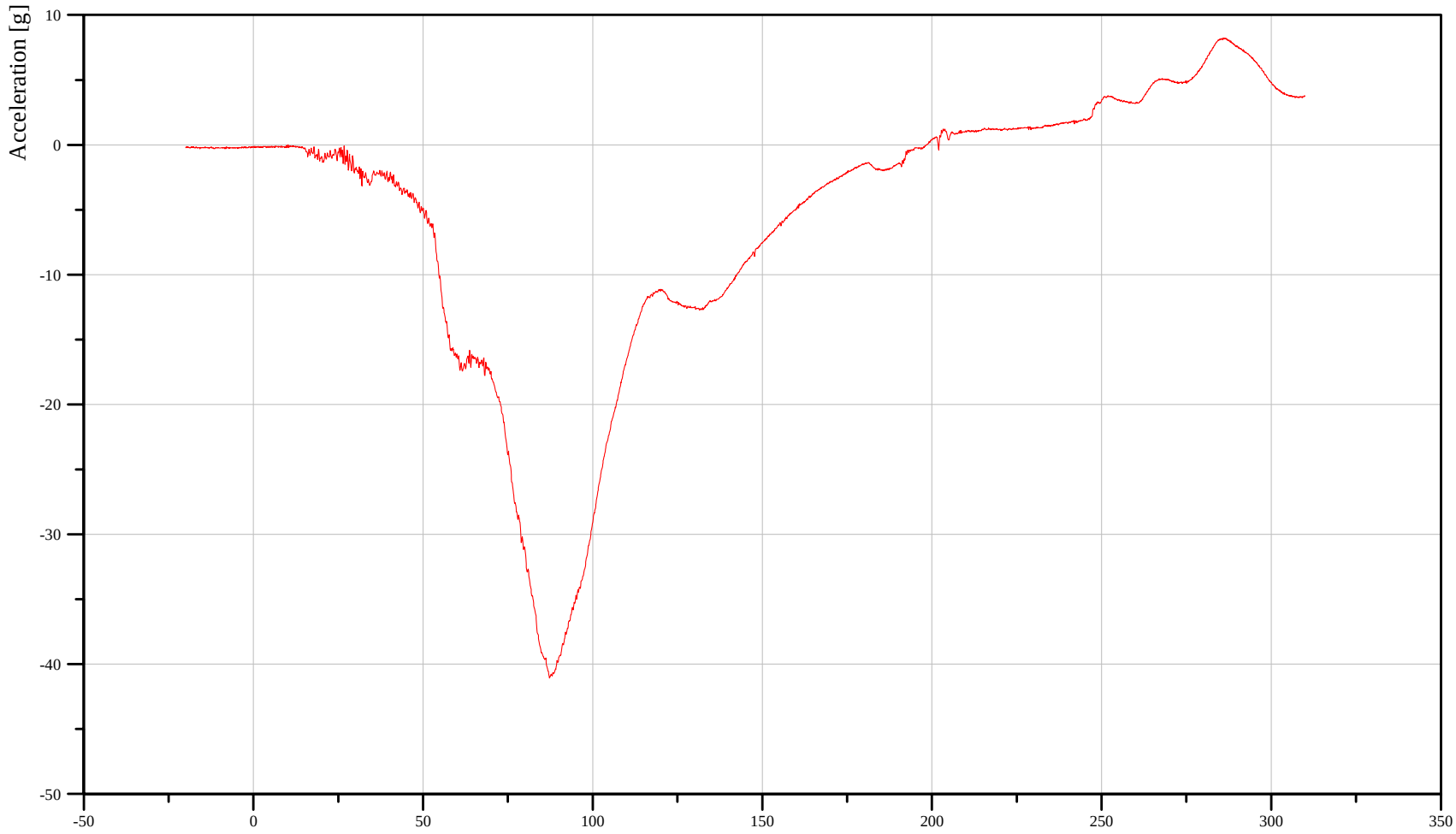
## Bullet Driver Head Side X-Axis Acceleration

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 11HEADLE00H3ACXA

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_1000

**Min. Value**
-41.08 g at 87.28 ms

**Max. Value**
8.22 g at 285.84 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

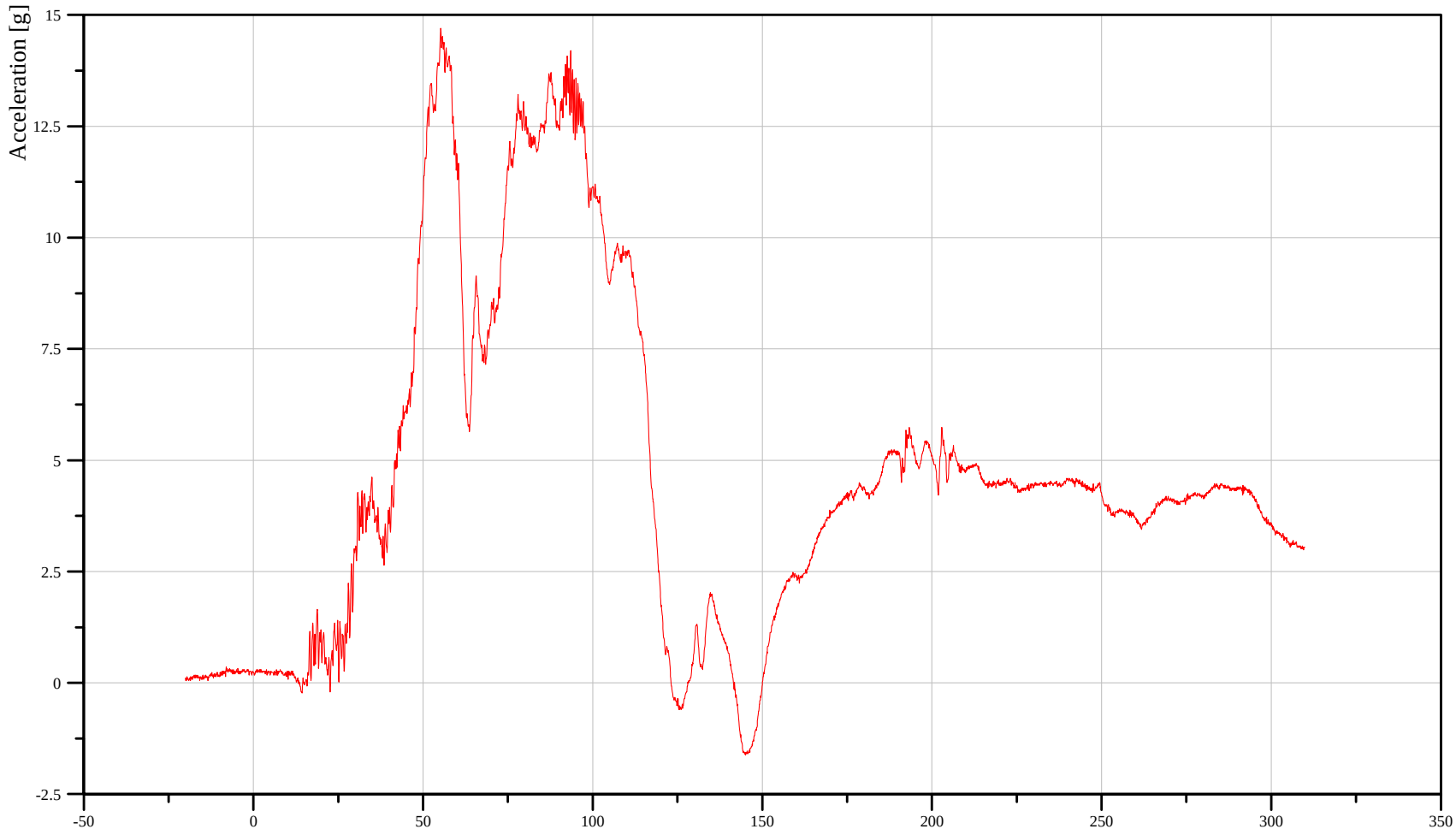
## Bullet Driver Head Side Z-Axis Acceleration

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 11HEADLE00H3ACZA

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_1000

**Min. Value**
-1.62 g at 145.04 ms

**Max. Value**
14.70 g at 55.20 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

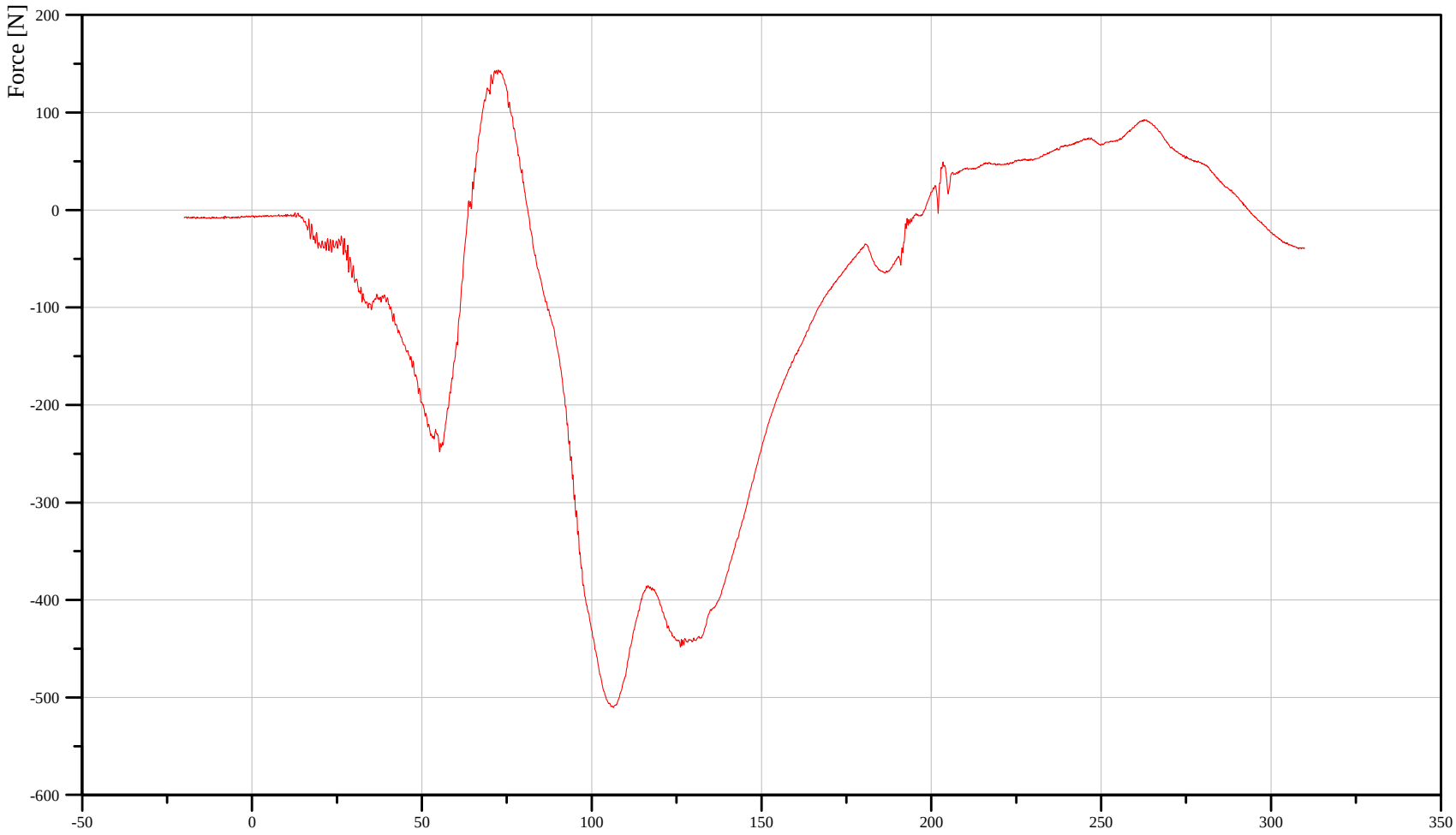
## Bullet Driver Upper Neck X-Axis Force

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 11NECKUP00H3FOXA

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_1000

**Min. Value**
-510.24 N at 106.40 ms

**Max. Value**
143.63 N at 72.48 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

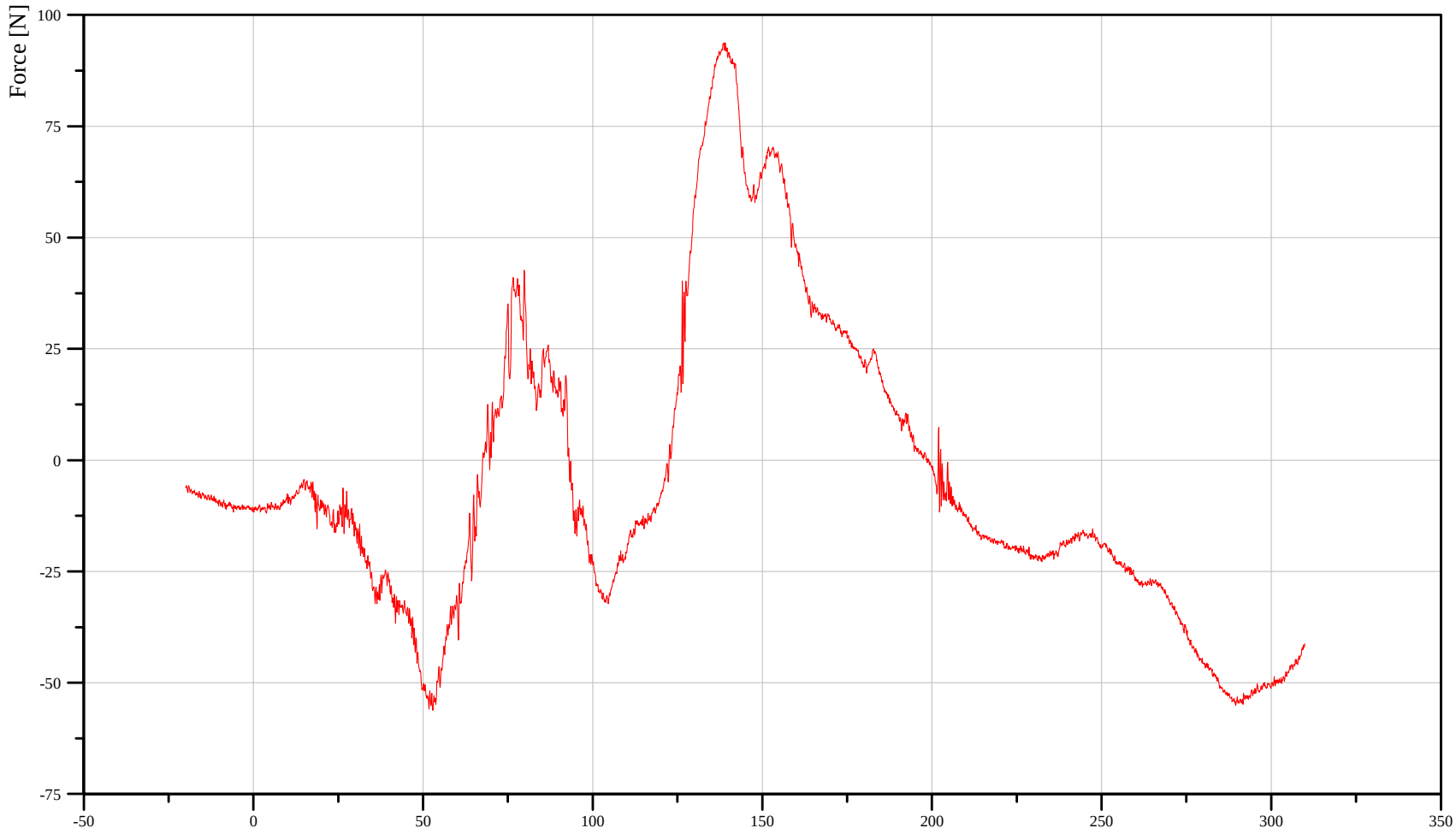
## Bullet Driver Upper Neck Y-Axis Force

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 11NECKUP00H3FOYA

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_1000

**Min. Value**
-56.19 N at 52.88 ms

**Max. Value**
93.71 N at 138.64 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

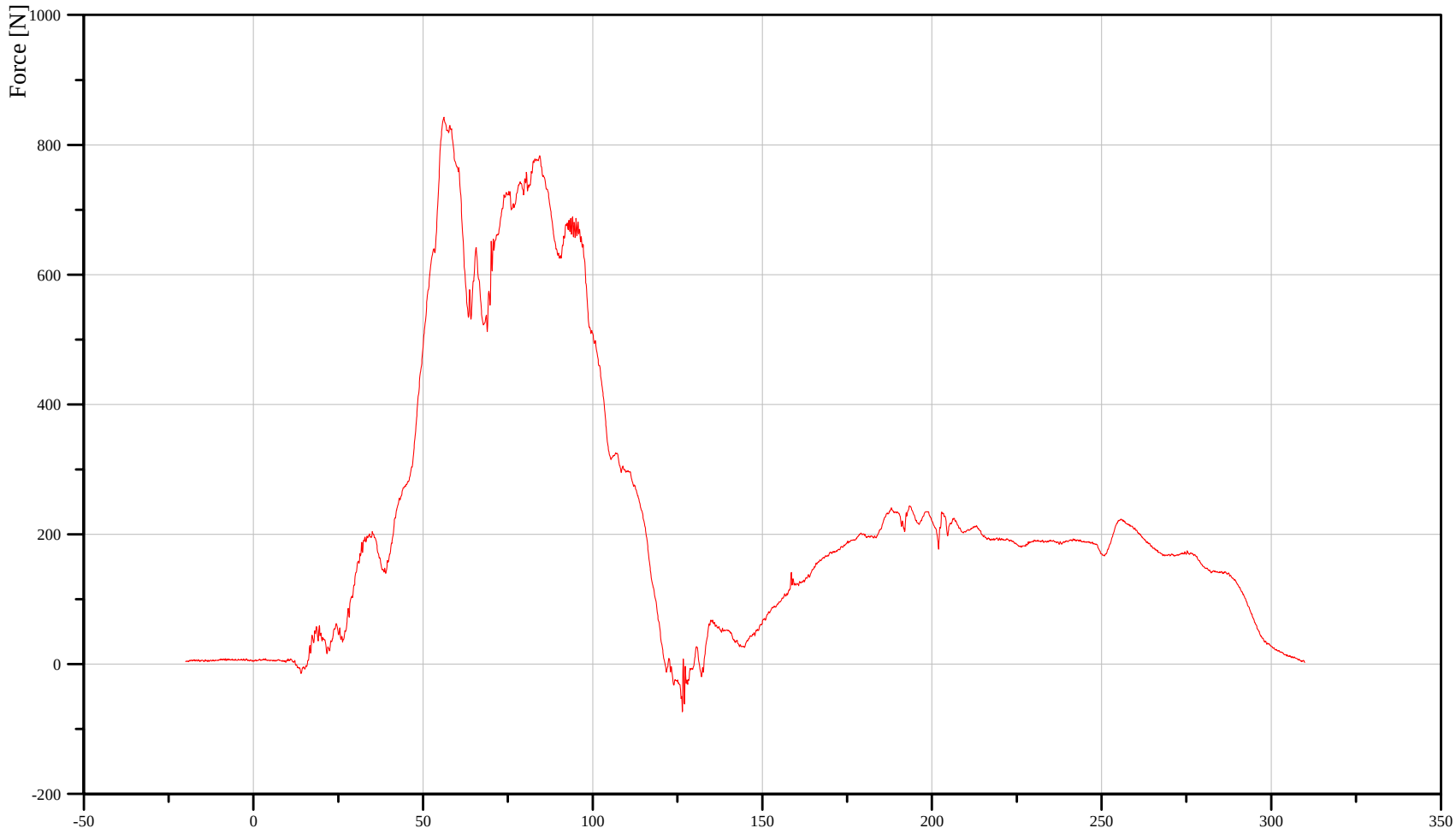
## Bullet Driver Upper Neck Z-Axis Force

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 11NECKUP00H3FOZA

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_1000

**Min. Value**
-73.44 N at 126.40 ms

**Max. Value**
842.45 N at 56.16 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

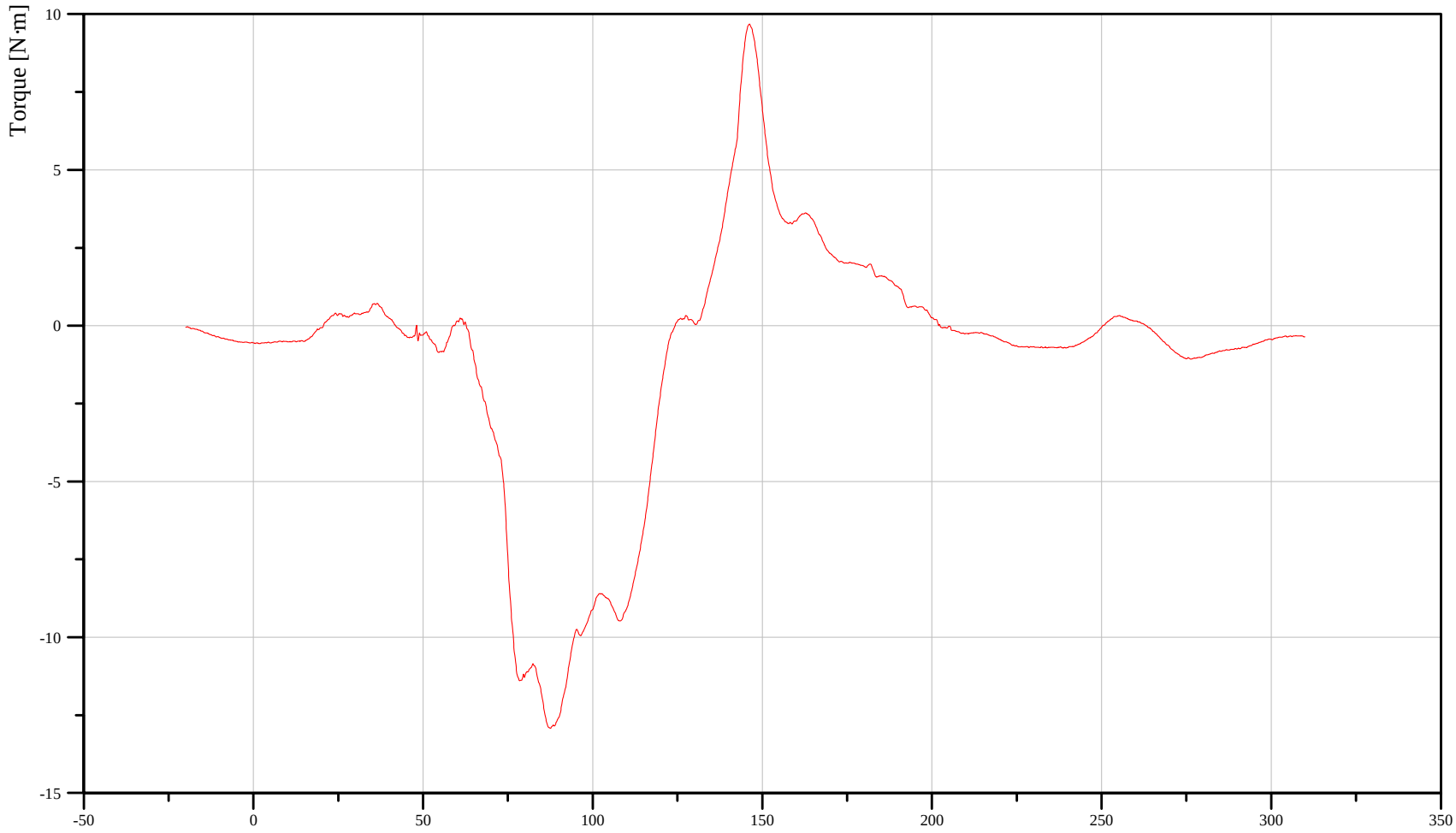
## Bullet Driver Upper Neck Moment About X Axis

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 11NECKUP00H3MOXB

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_600

**Min. Value**
-12.92 N·m at 87.52 ms

**Max. Value**
9.68 N·m at 146.24 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

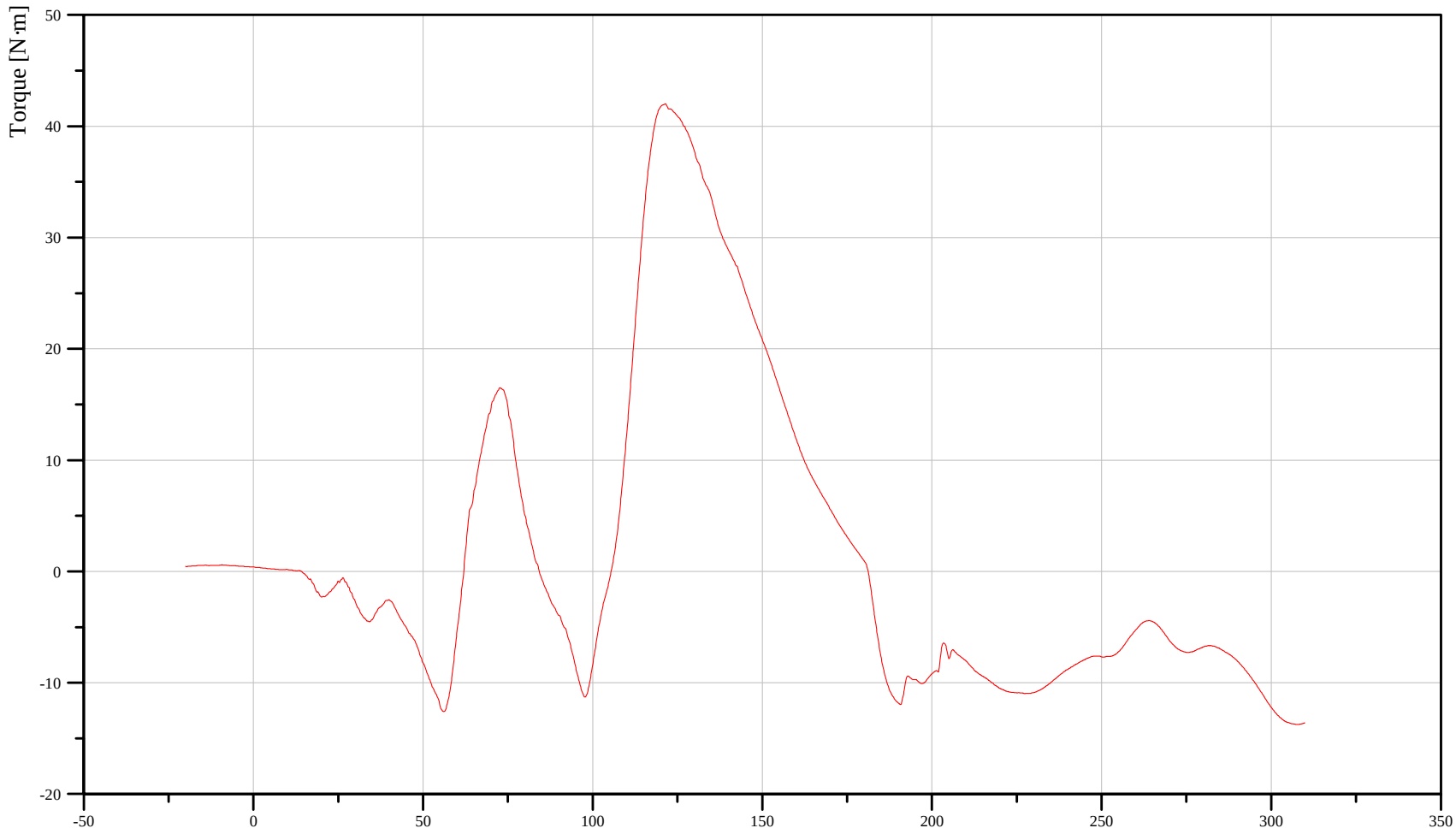
## Bullet Driver Upper Neck Moment About Y Axis

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 11NECKUP00H3MOYB

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_600

**Min. Value**
-13.76 N·m at 307.52 ms

**Max. Value**
42.02 N·m at 121.44 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

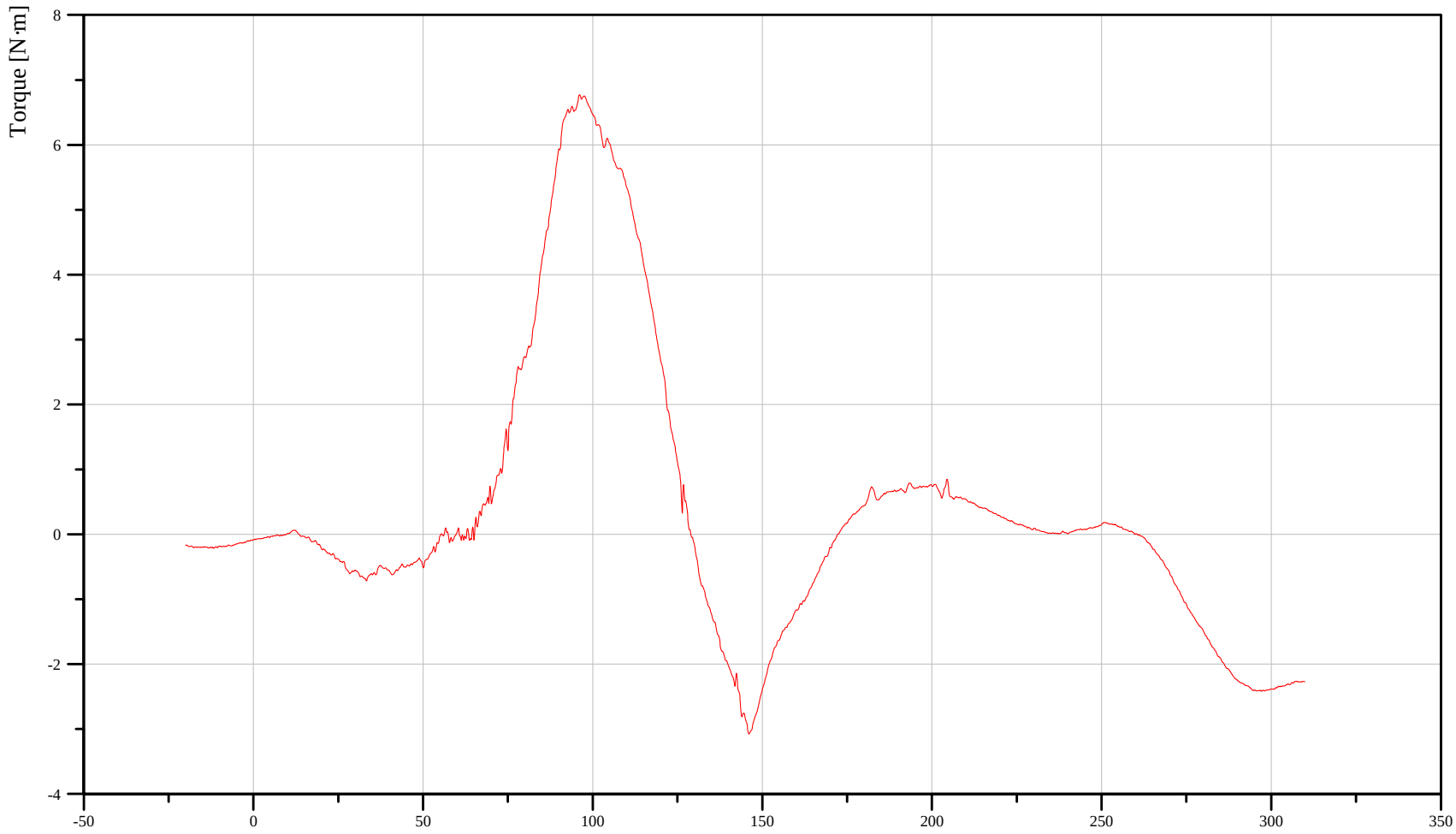
## Bullet Driver Upper Neck Moment About Z Axis

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 11NECKUP00H3MOZB

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_600

**Min. Value**
-3.07 N·m at 146.08 ms

**Max. Value**
6.77 N·m at 96.16 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

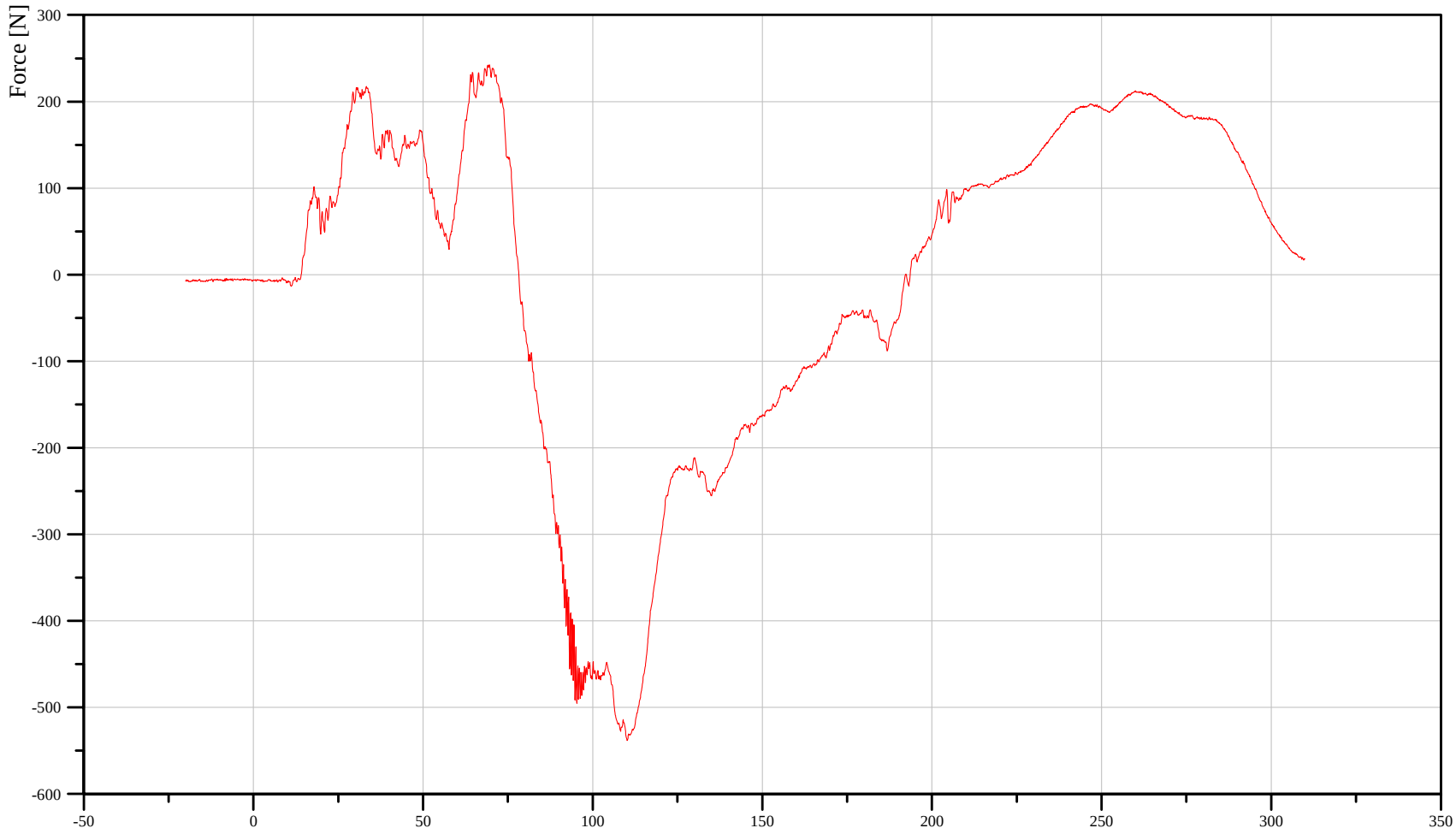
## Bullet Driver Lower Neck X-Axis Force

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 11NECKLO00H3FOXA

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_1000

**Min. Value**
-538.35 N at 110.16 ms

**Max. Value**
242.62 N at 69.60 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

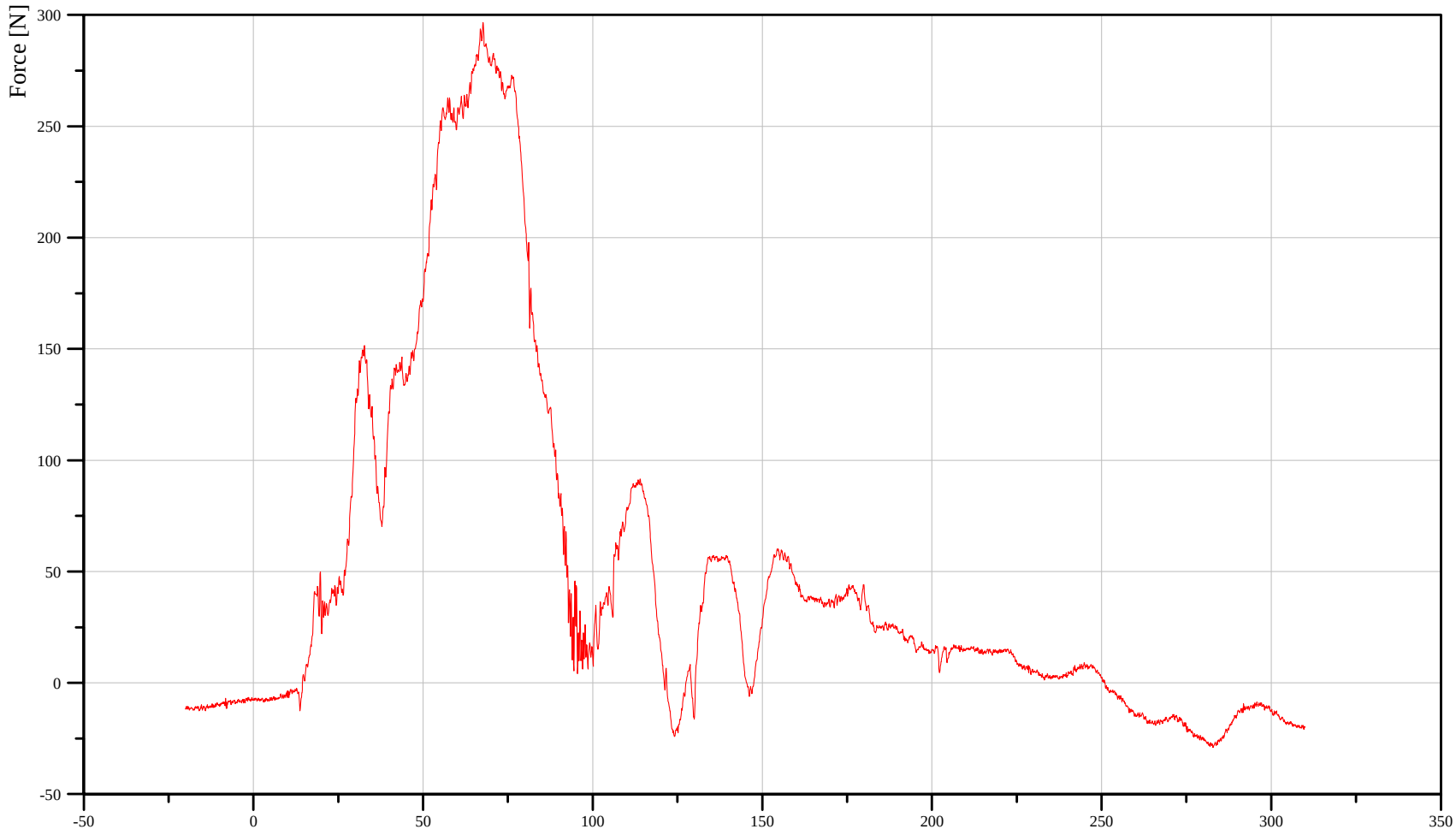
## Bullet Driver Lower Neck Y-Axis Force

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 11NECKLO00H3FOYA

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_1000

**Min. Value**
-28.97 N at 282.80 ms

**Max. Value**
296.66 N at 67.68 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

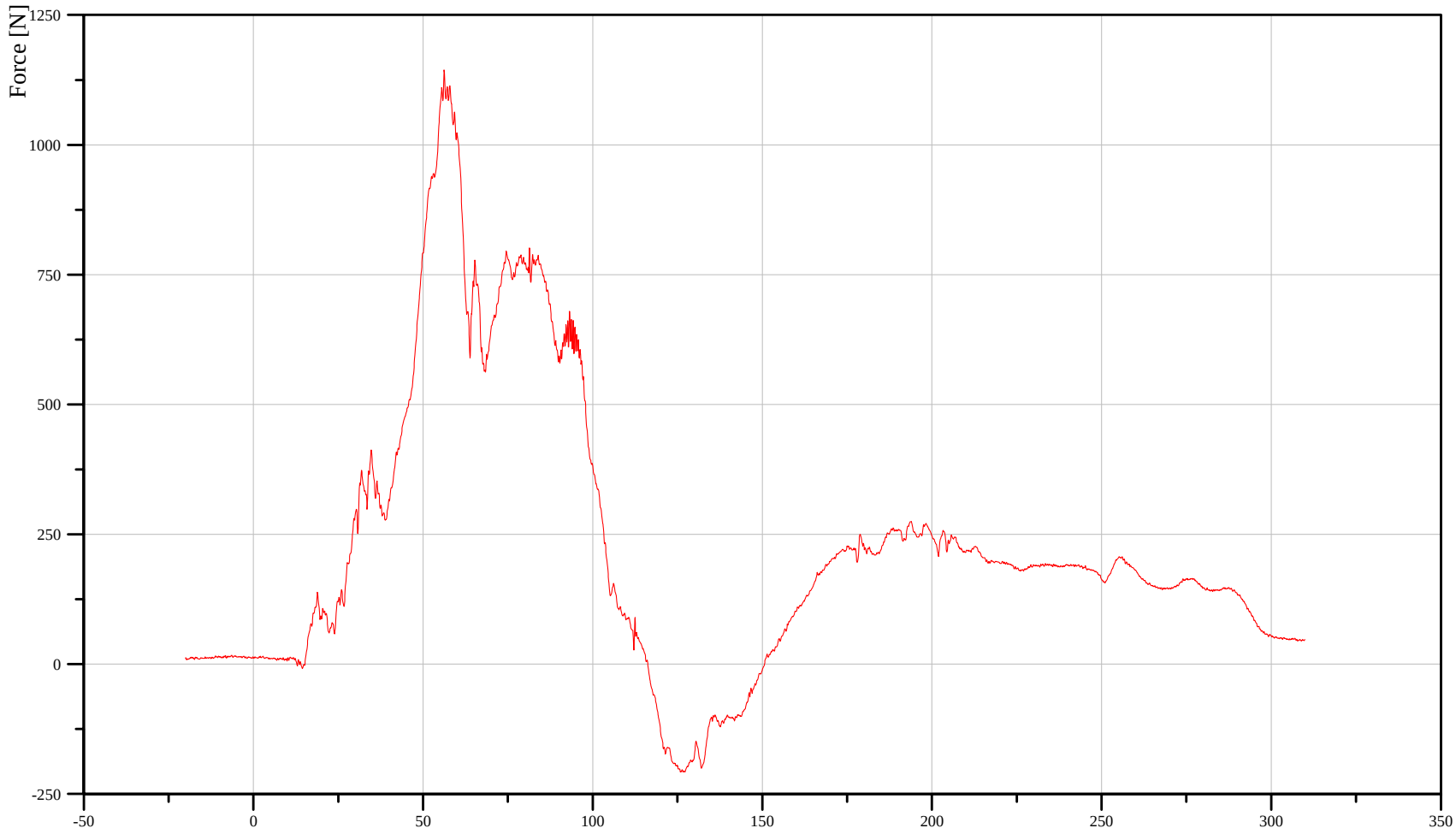
## Bullet Driver Lower Neck Z-Axis Force

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 11NECKLO00H3FOZA

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_1000

**Min. Value**
-207.57 N at 125.92 ms

**Max. Value**
1,144.41 N at 56.24 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

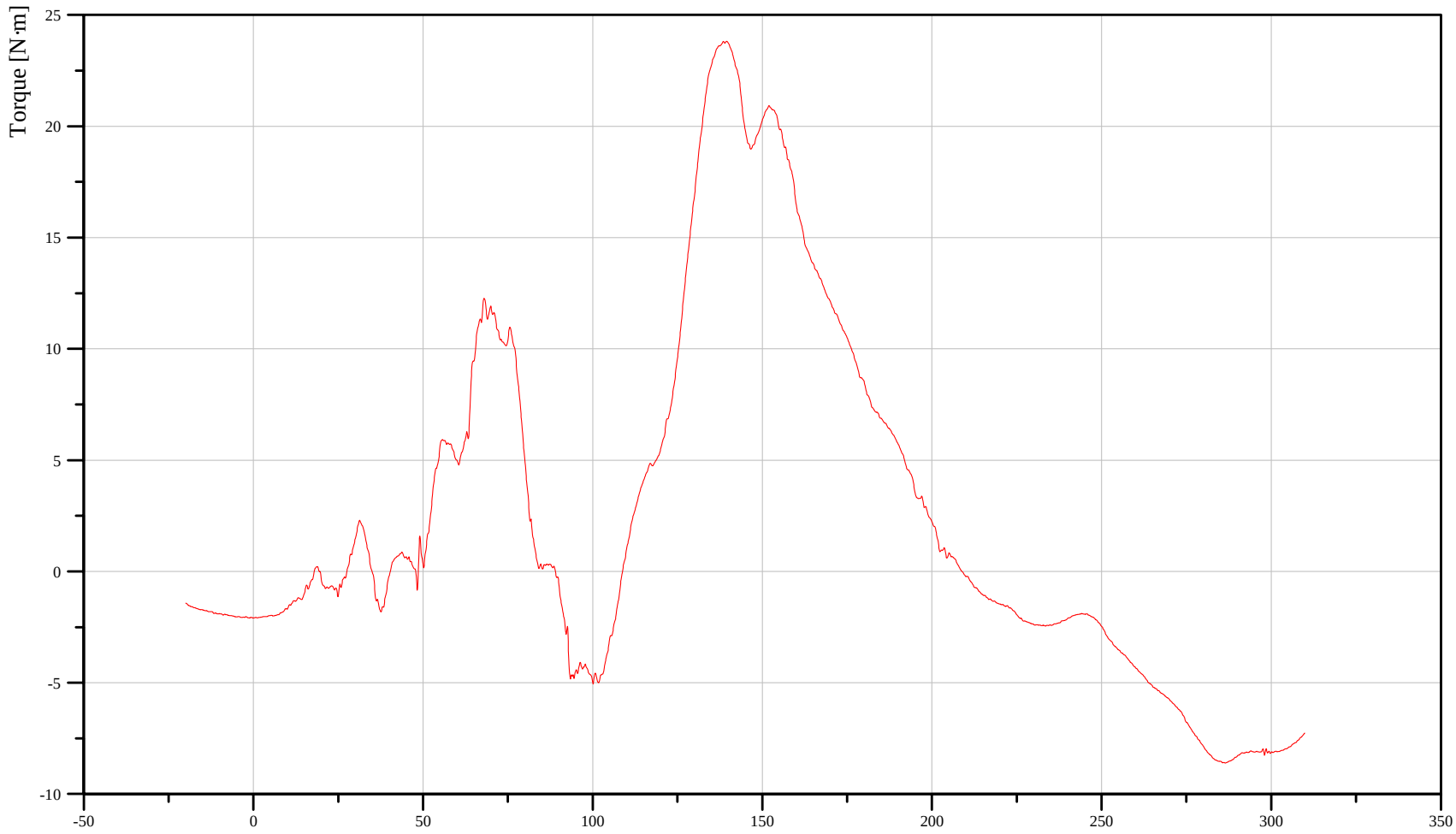
## Bullet Driver Lower Neck Moment About X Axis

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 11NECKLO00H3MOXB

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_600

**Min. Value**
-8.61 N·m at 286.48 ms

**Max. Value**
23.82 N·m at 139.44 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

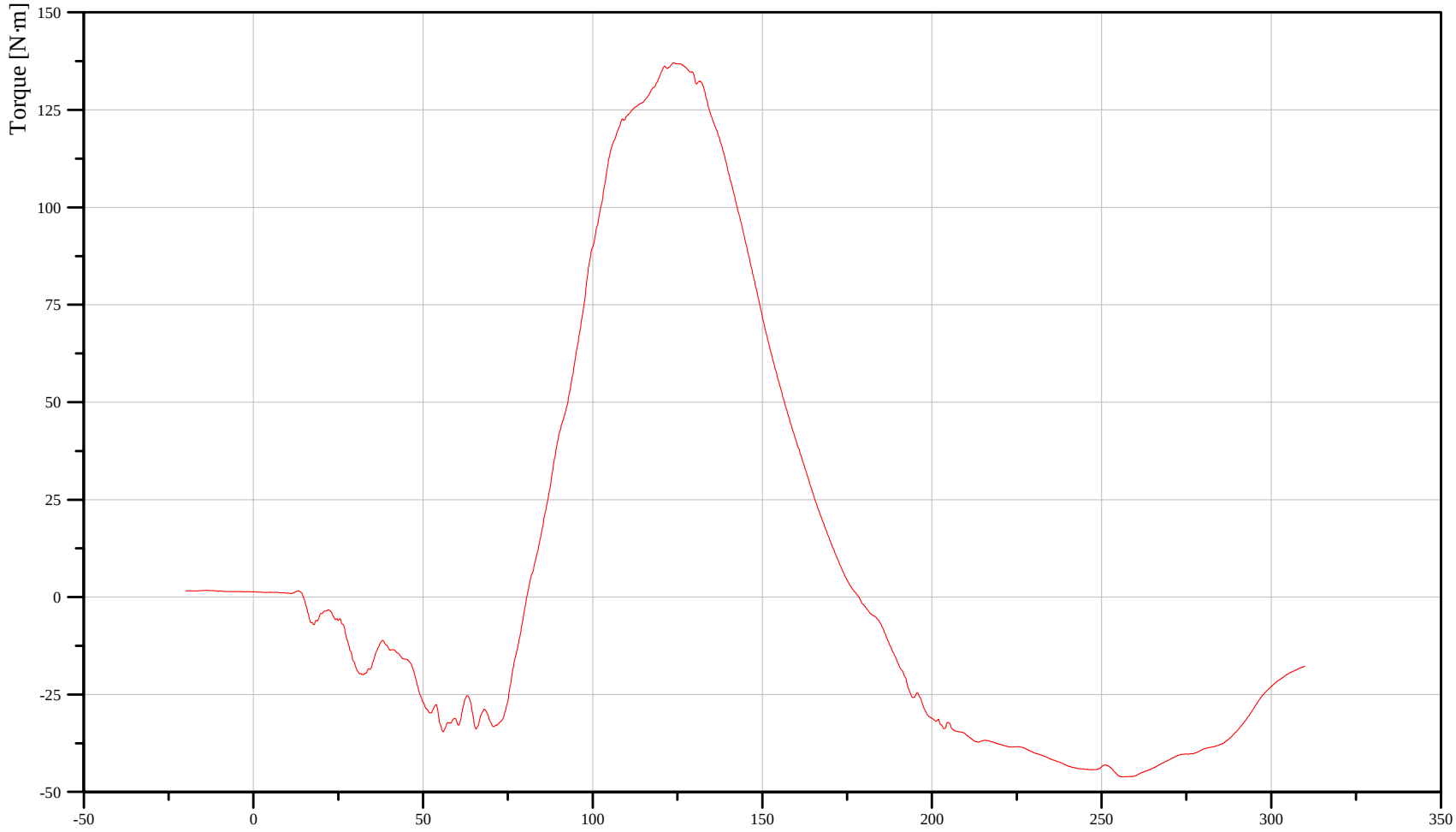
## Bullet Driver Lower Neck Moment About Y Axis

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 11NECKLO00H3MOYB

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_600

**Min. Value**
-46.15 N·m at 256.32 ms

**Max. Value**
137.07 N·m at 124.00 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

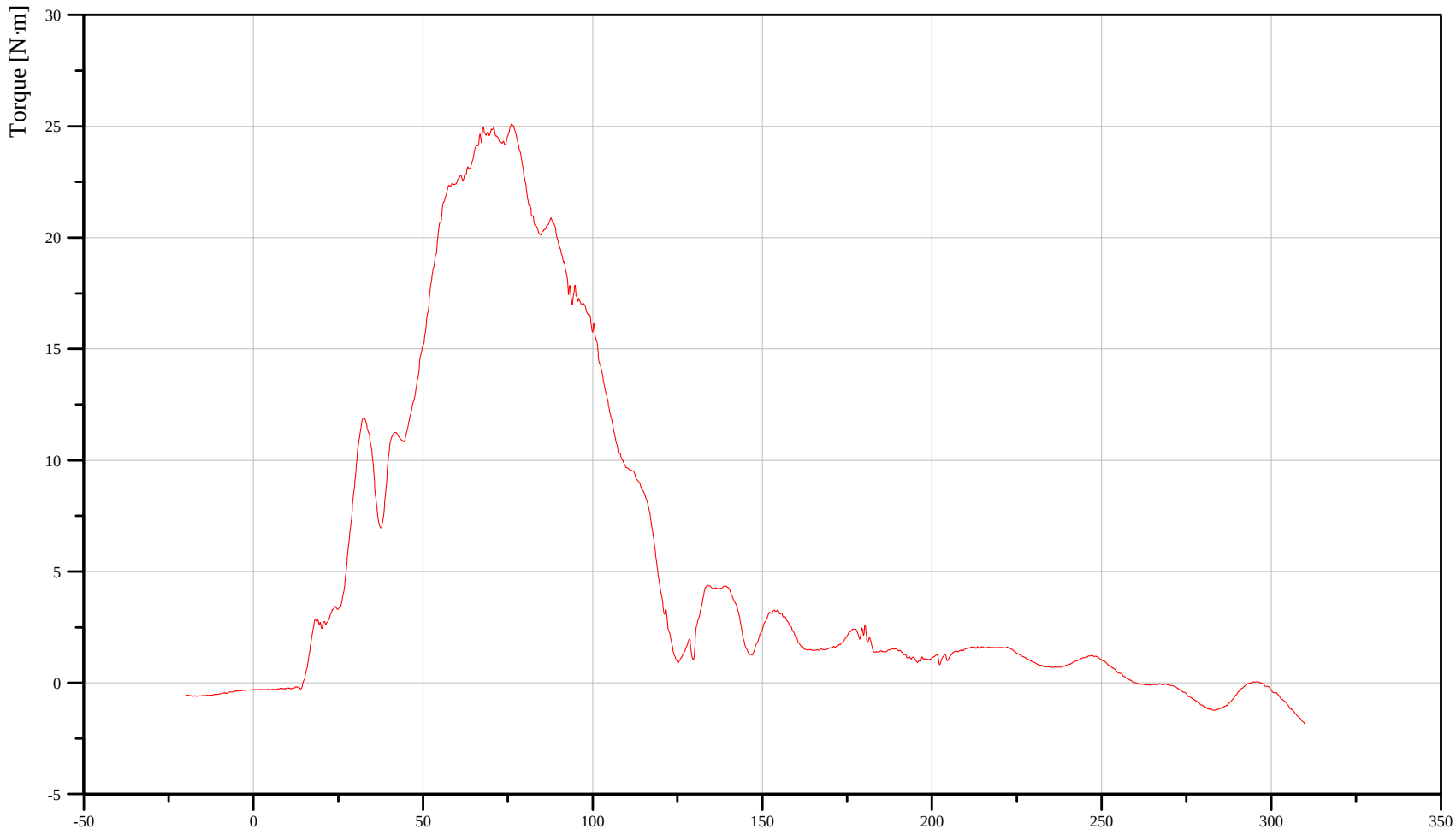
## Bullet Driver Lower Neck Moment About Z Axis

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 11NECKLO00H3MOZB

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_600

**Min. Value**
-1.84 N·m at 309.92 ms

**Max. Value**
25.09 N·m at 76.00 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

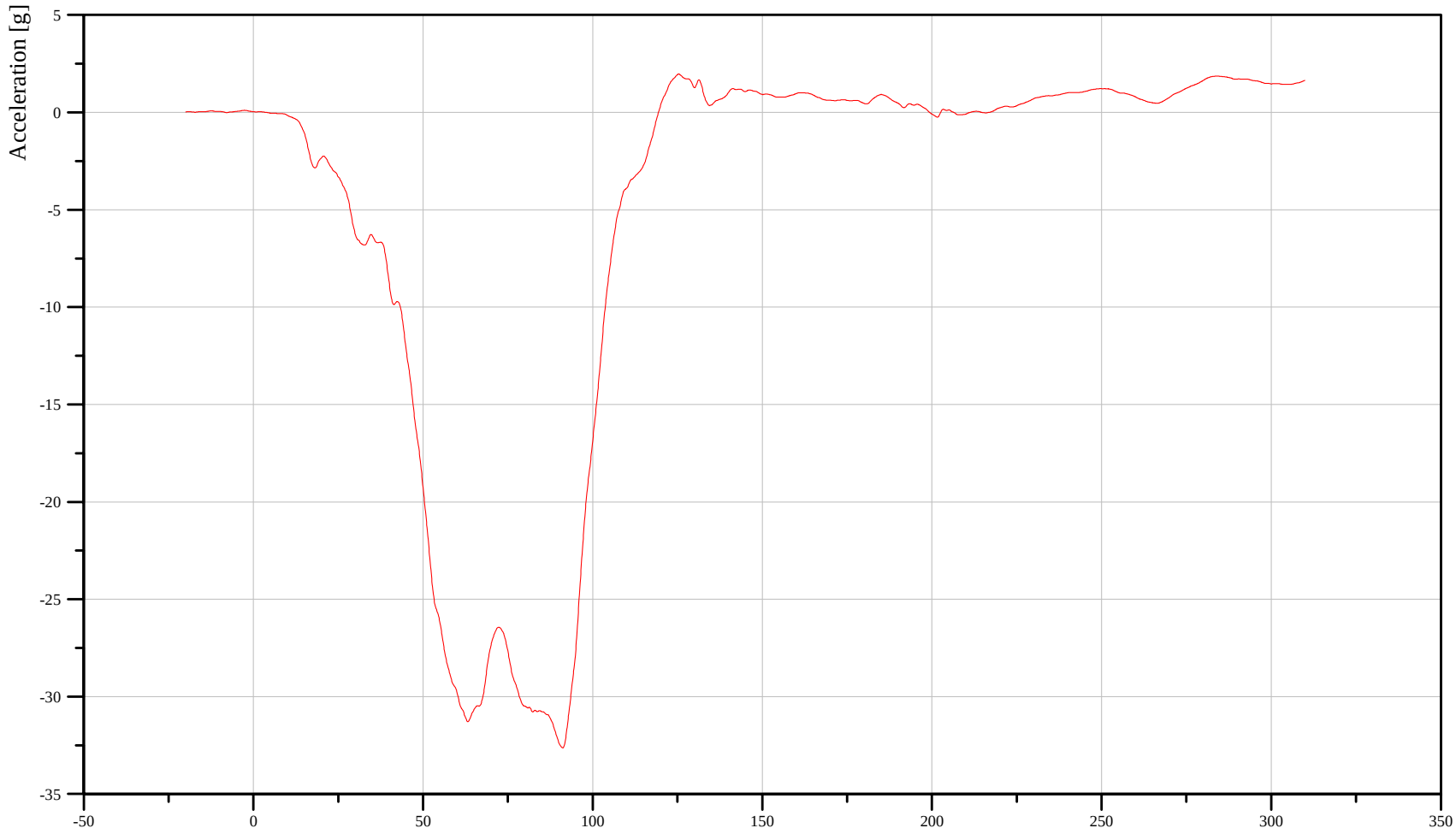
## Bullet Driver Chest CG X-Axis Acceleration

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 11CHSTCG00H3ACXC

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_180

**Min. Value**
-32.63 g at 91.20 ms

**Max. Value**
1.97 g at 125.36 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

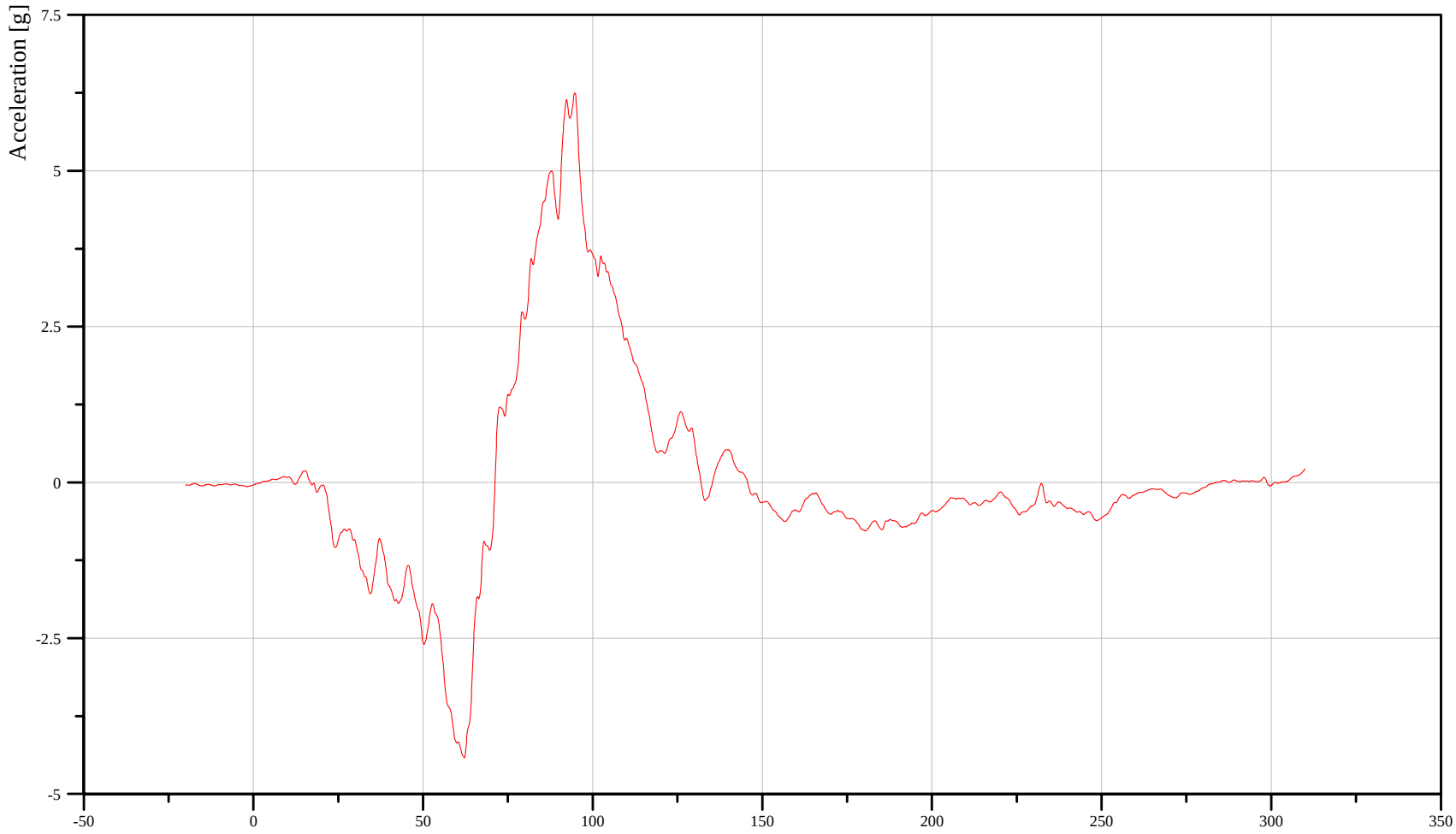
## Bullet Driver Chest CG Y-Axis Acceleration

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 11CHSTCG00H3ACYC

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_180

**Min. Value**
-4.42 g at 62.16 ms

**Max. Value**
6.25 g at 94.72 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

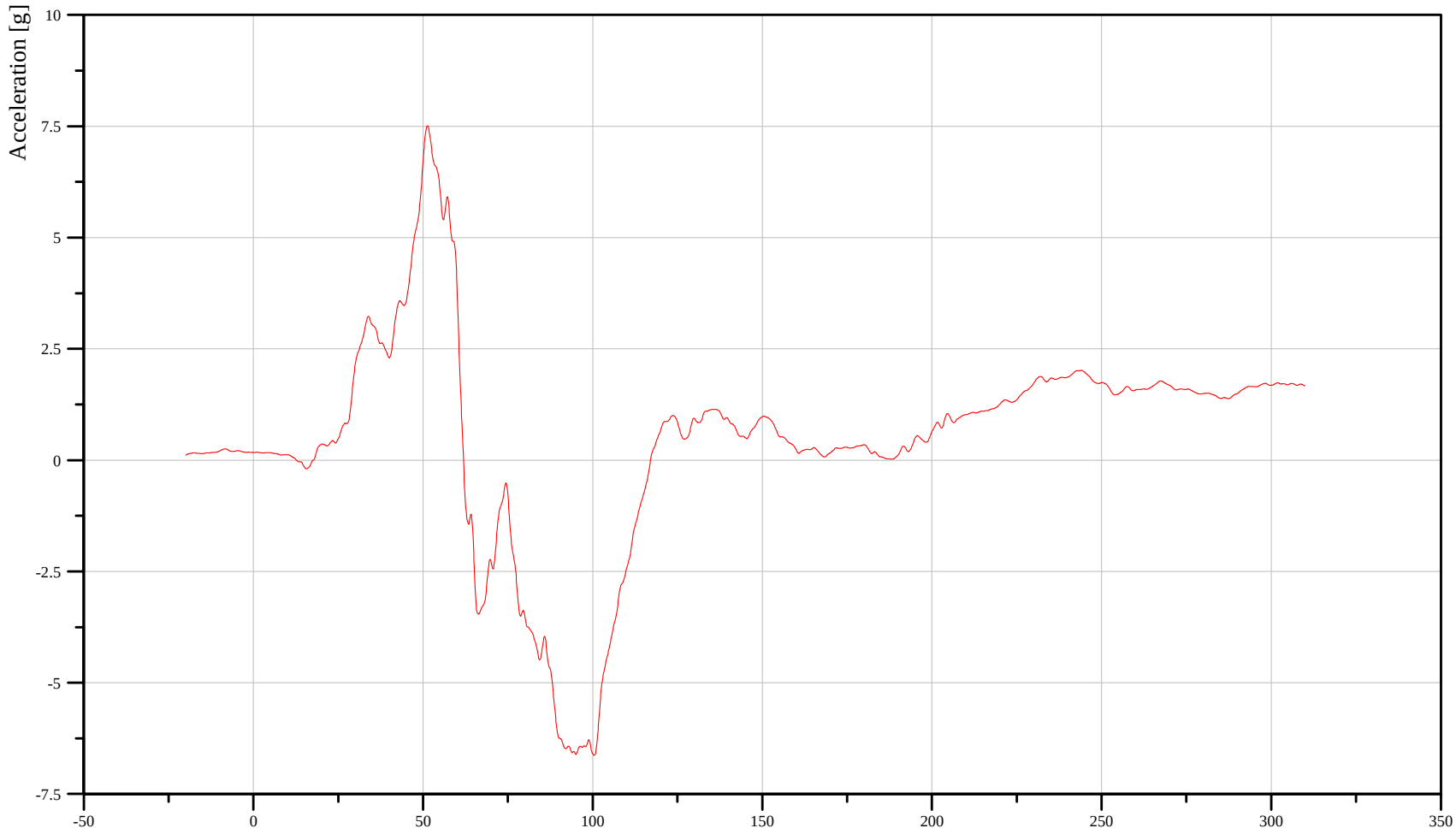
## Bullet Driver Chest CG Z-Axis Acceleration

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 11CHSTCG00H3ACZC

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_180

**Min. Value**
-6.63 g at 100.48 ms

**Max. Value**
7.51 g at 51.28 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

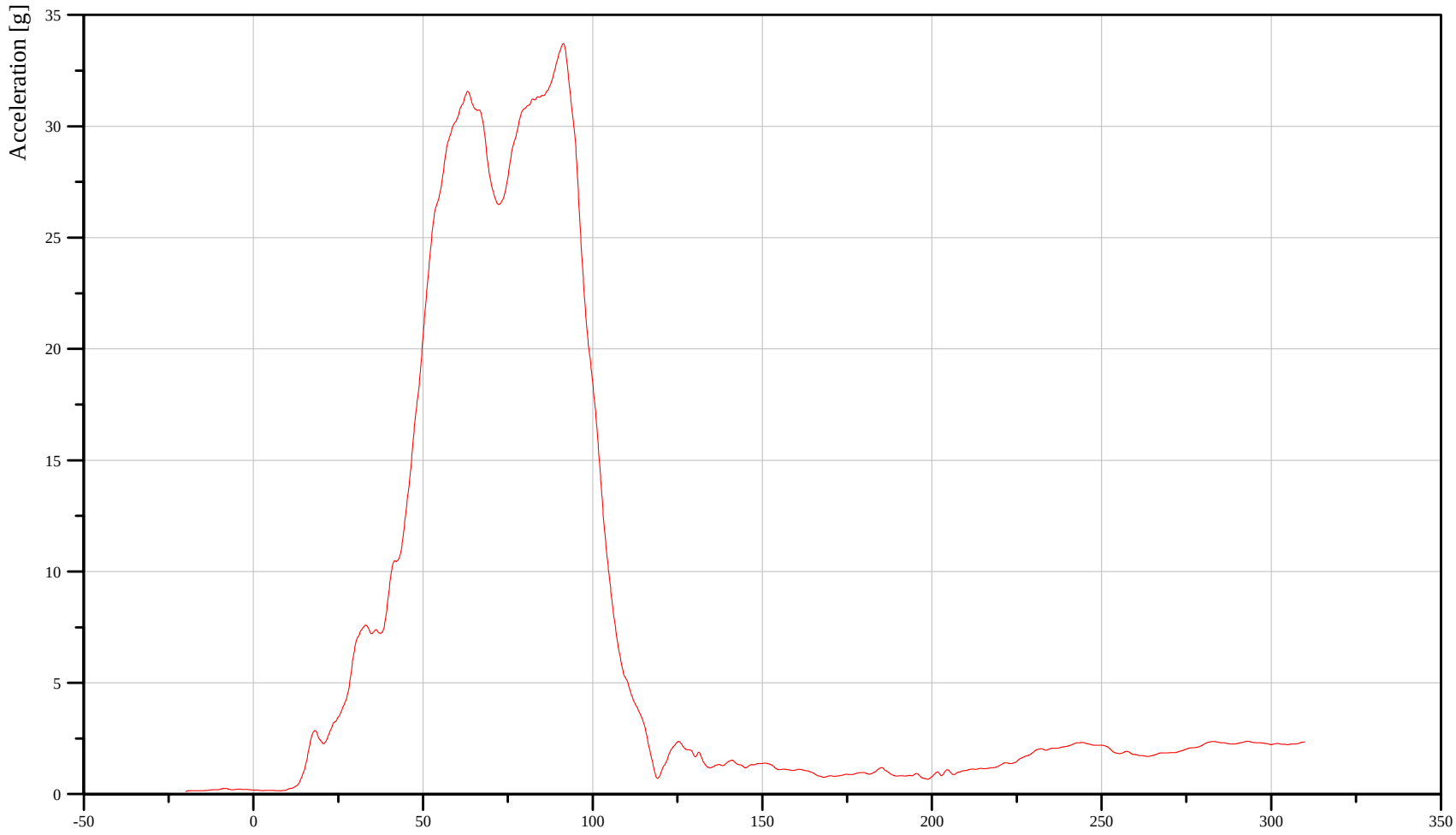
## Bullet Driver Chest CG Resultant Acceleration

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 11CHSTCG00H3ACRC

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_180

**Min. Value**
0.12 g at -20.00 ms

**Max. Value**
33.73 g at 91.36 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

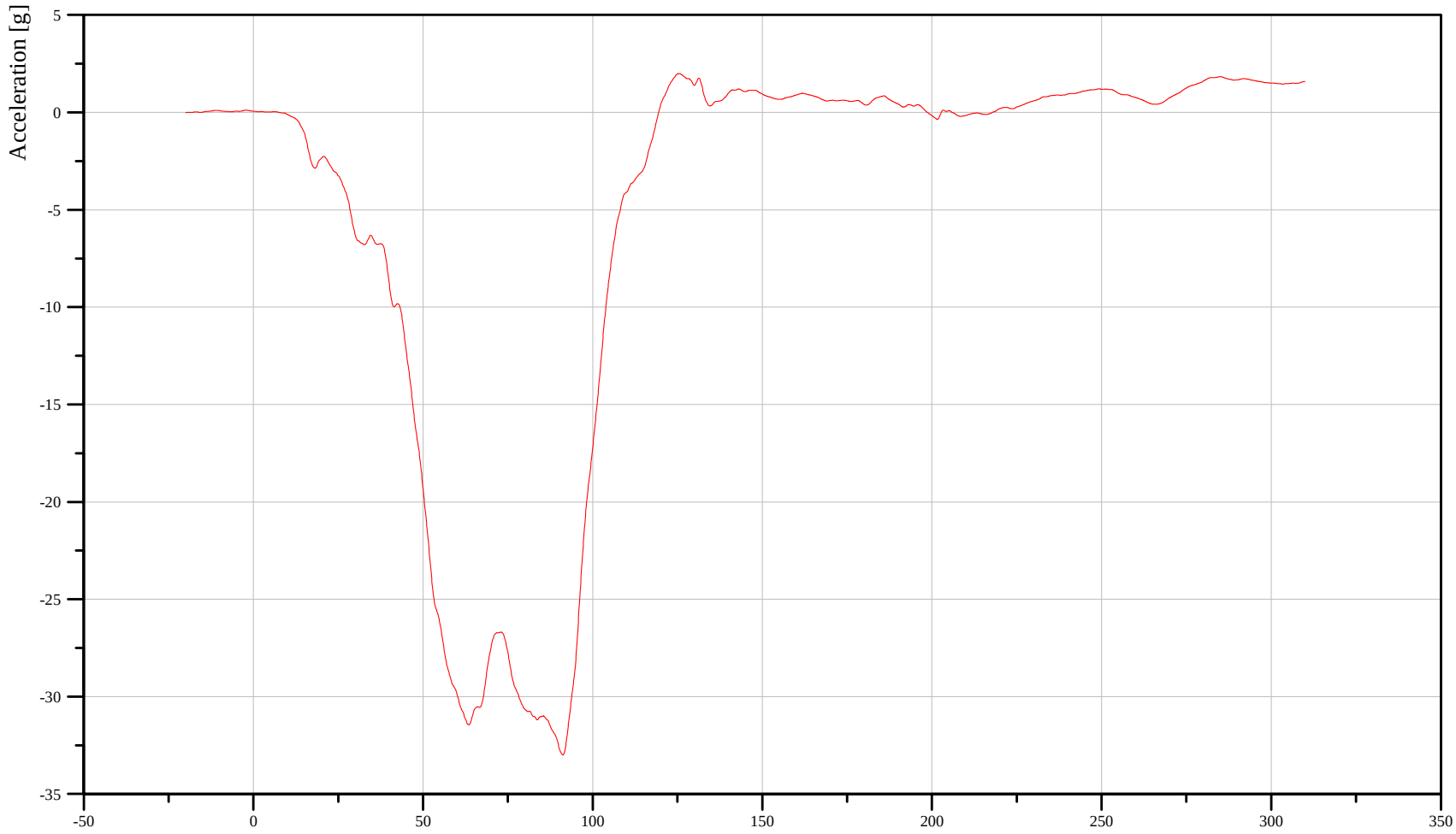
## Bullet Driver Redundant Chest CG X-Axis Acceleration

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 11CHSTCGRDH3ACXC

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_180

**Min. Value**
-32.99 g at 91.28 ms

**Max. Value**
1.99 g at 125.44 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

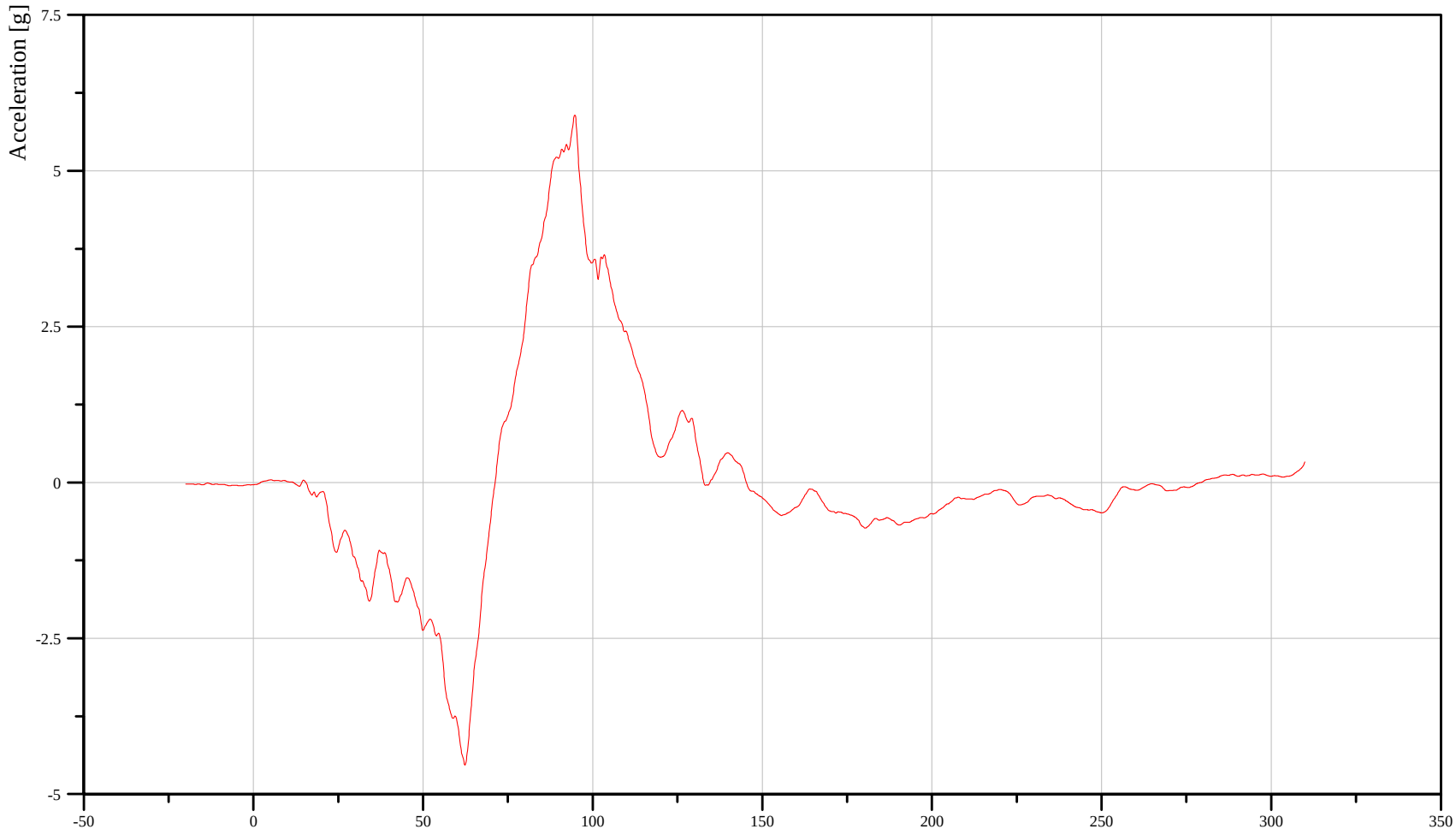
## Bullet Driver Redundant Chest CG Y-Axis Acceleration

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 11CHSTCGRDH3ACYC

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_180

**Min. Value**
-4.53 g at 62.40 ms

**Max. Value**
5.89 g at 94.72 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

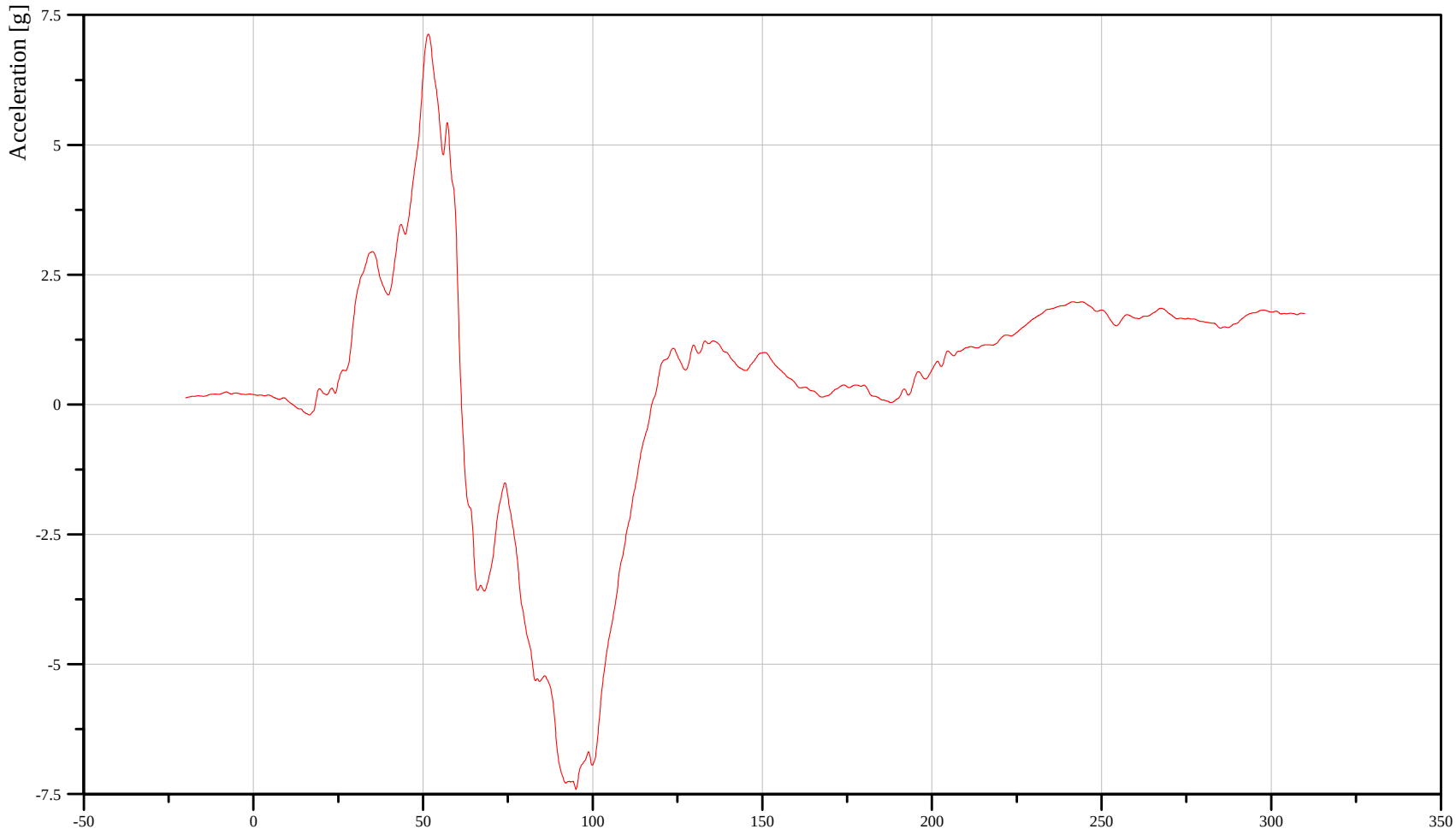
## Bullet Driver Redundant Chest CG Z-Axis Acceleration

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 11CHSTCGRDH3ACZC

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_180

**Min. Value**
-7.41 g at 95.04 ms

**Max. Value**
7.13 g at 51.60 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

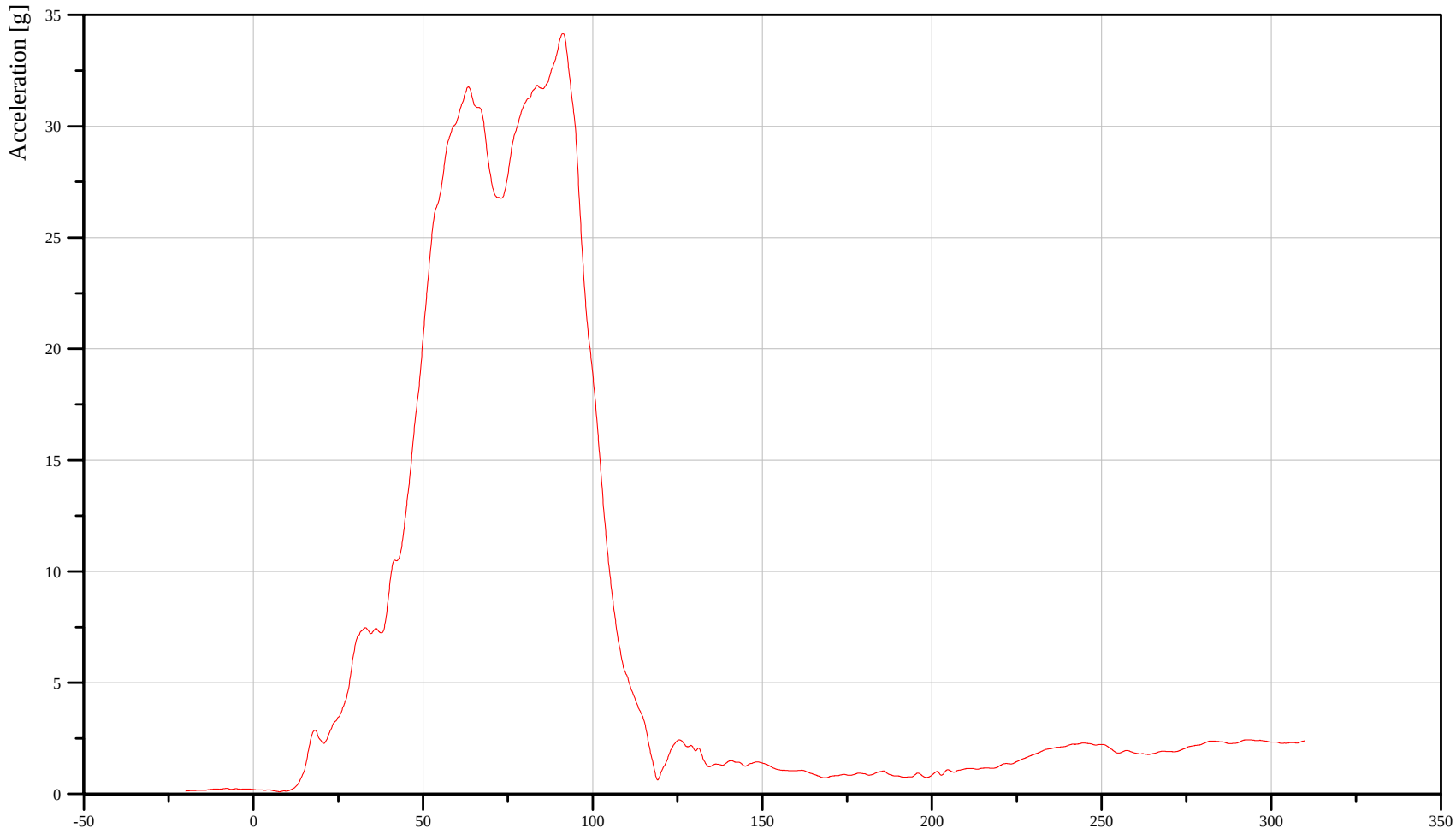
## Bullet Driver Redundant Chest CG Resultant Acceleration

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 11CHSTCGRDH3ACRC

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_180

**Min. Value**
0.11 g at 7.68 ms

**Max. Value**
34.18 g at 91.28 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

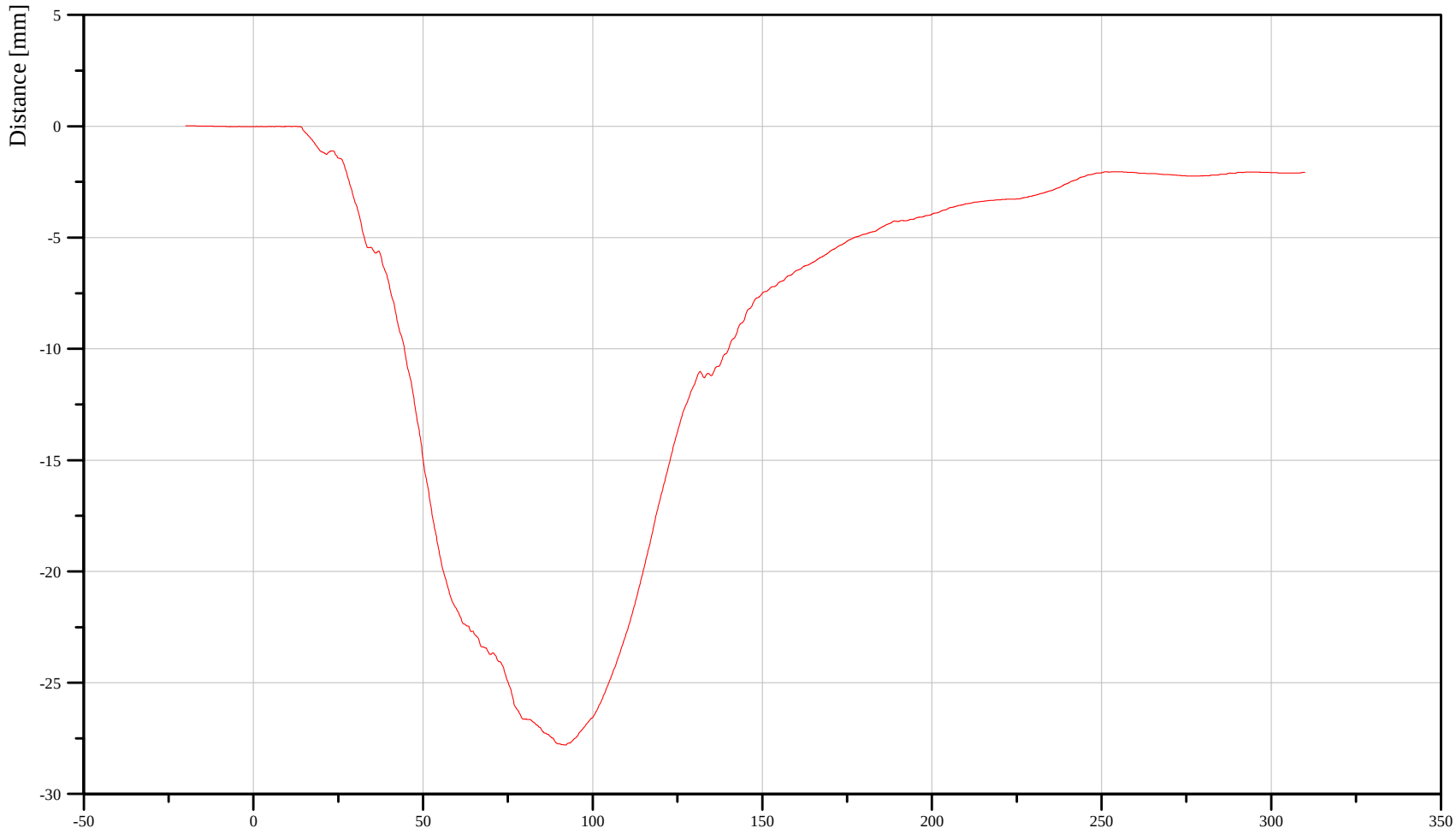
## Bullet Driver Chest Displacement

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 11CHST0000H3DSXB

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_600

**Min. Value**
-27.80 mm at 91.92 ms

**Max. Value**
0.03 mm at -20.00 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

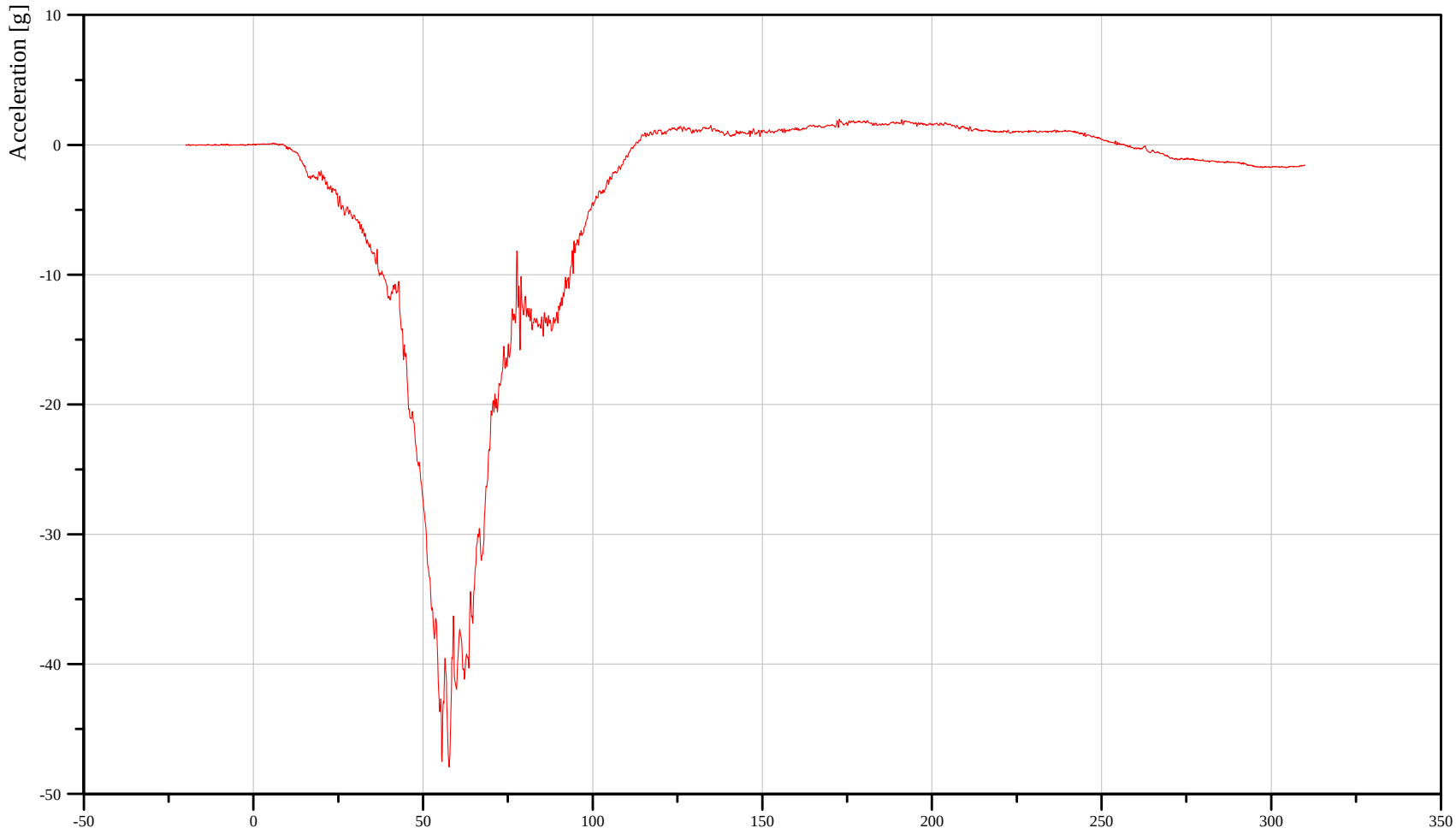
## Bullet Driver Pelvis CG X-Axis Acceleration

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 11PELVCG00H3ACXA

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_1000

**Min. Value**
-47.92 g at 57.68 ms

**Max. Value**
1.99 g at 172.72 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

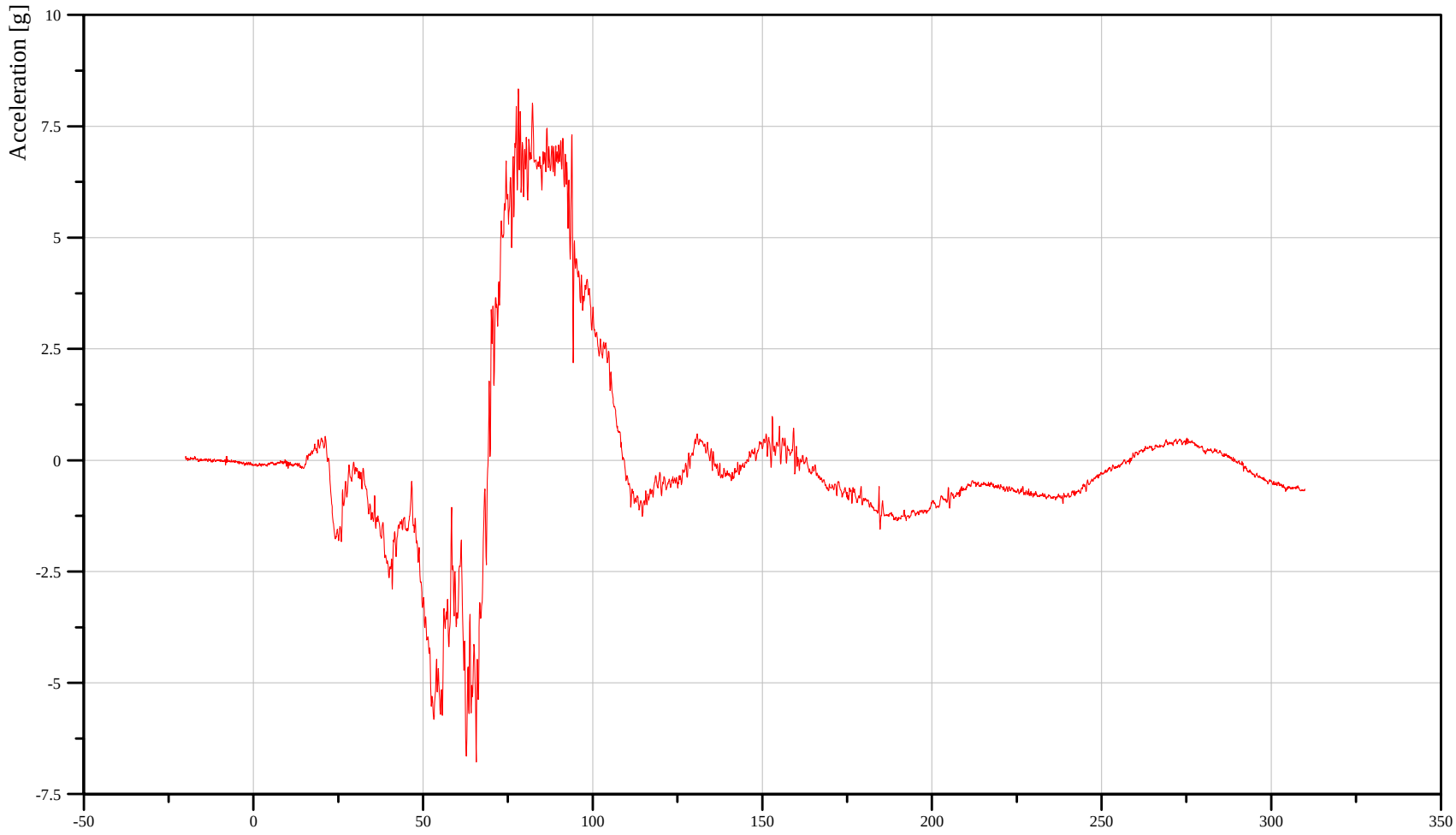
## Bullet Driver Pelvis CG Y-Axis Acceleration

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 11PELVCG00H3ACYA

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_1000

**Min. Value**
-6.78 g at 65.68 ms

**Max. Value**
8.34 g at 78.08 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

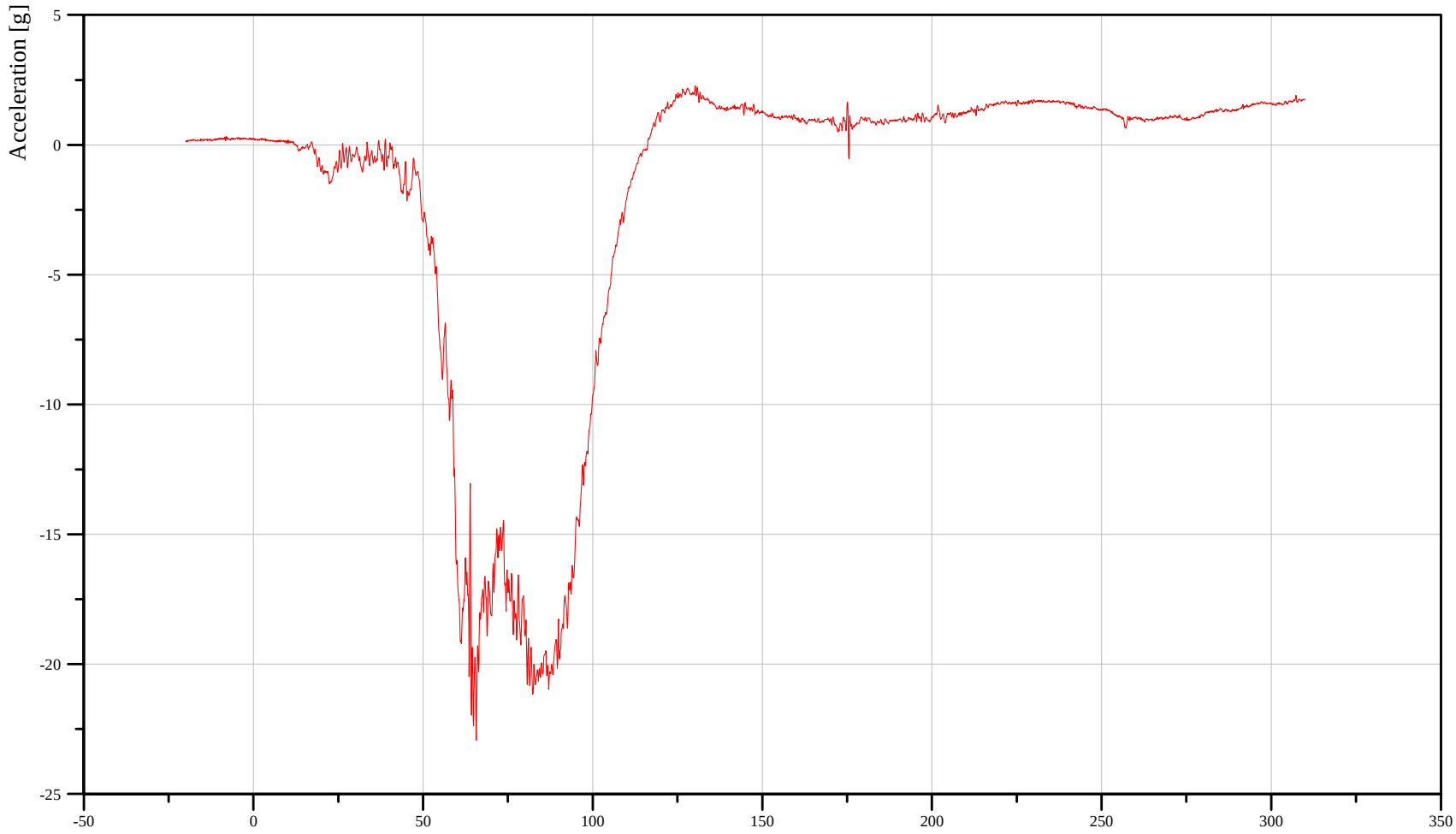
## Bullet Driver Pelvis CG Z-Axis Acceleration

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 11PELVCG00H3ACZA

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_1000

**Min. Value**
-22.93 g at 65.68 ms

**Max. Value**
2.27 g at 130.24 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

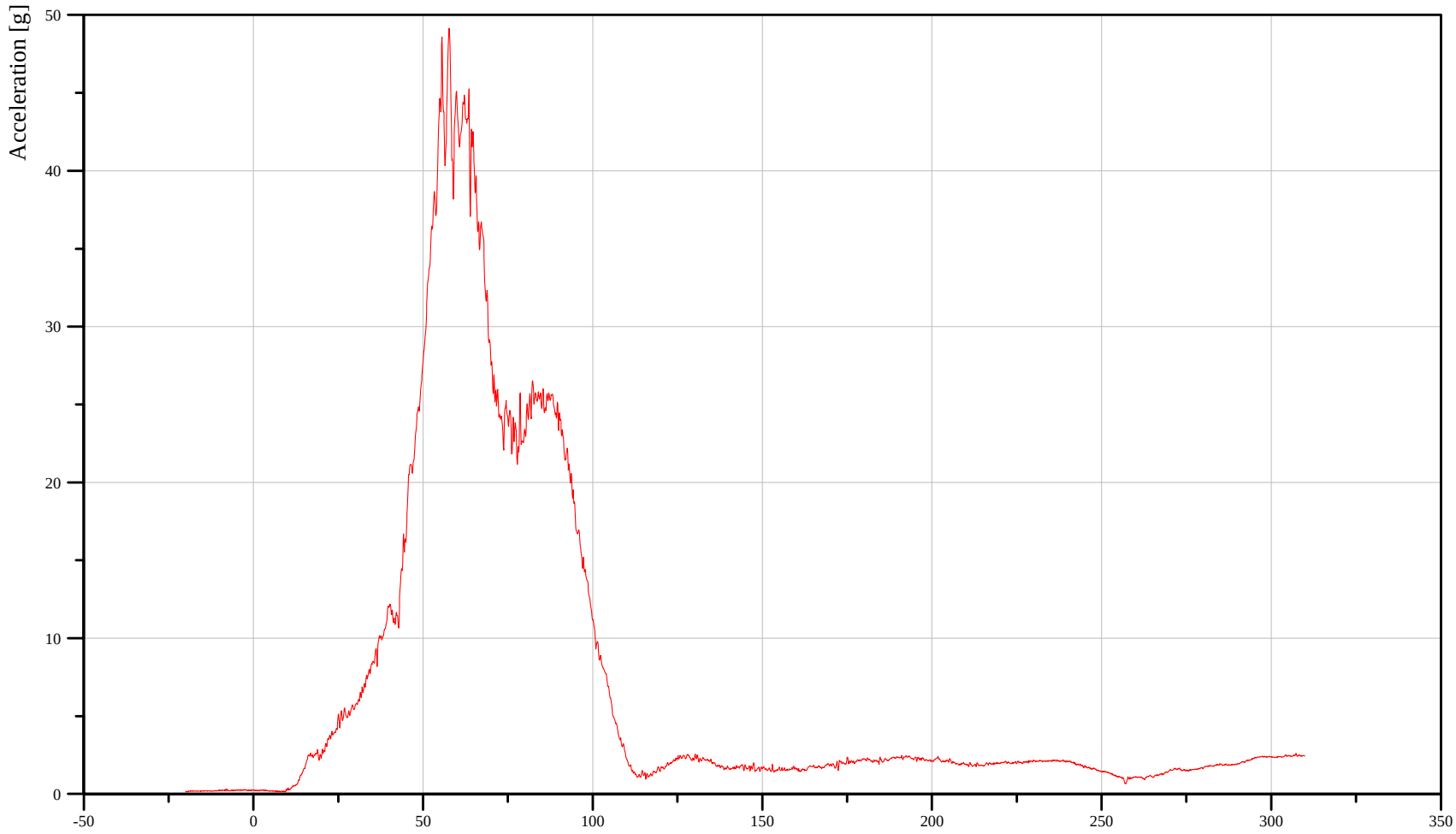
## Bullet Driver Pelvis CG Resultant Acceleration

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 11PELVCG00H3ACRA

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_1000

**Min. Value**
0.12 g at 8.00 ms

**Max. Value**
49.15 g at 57.68 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

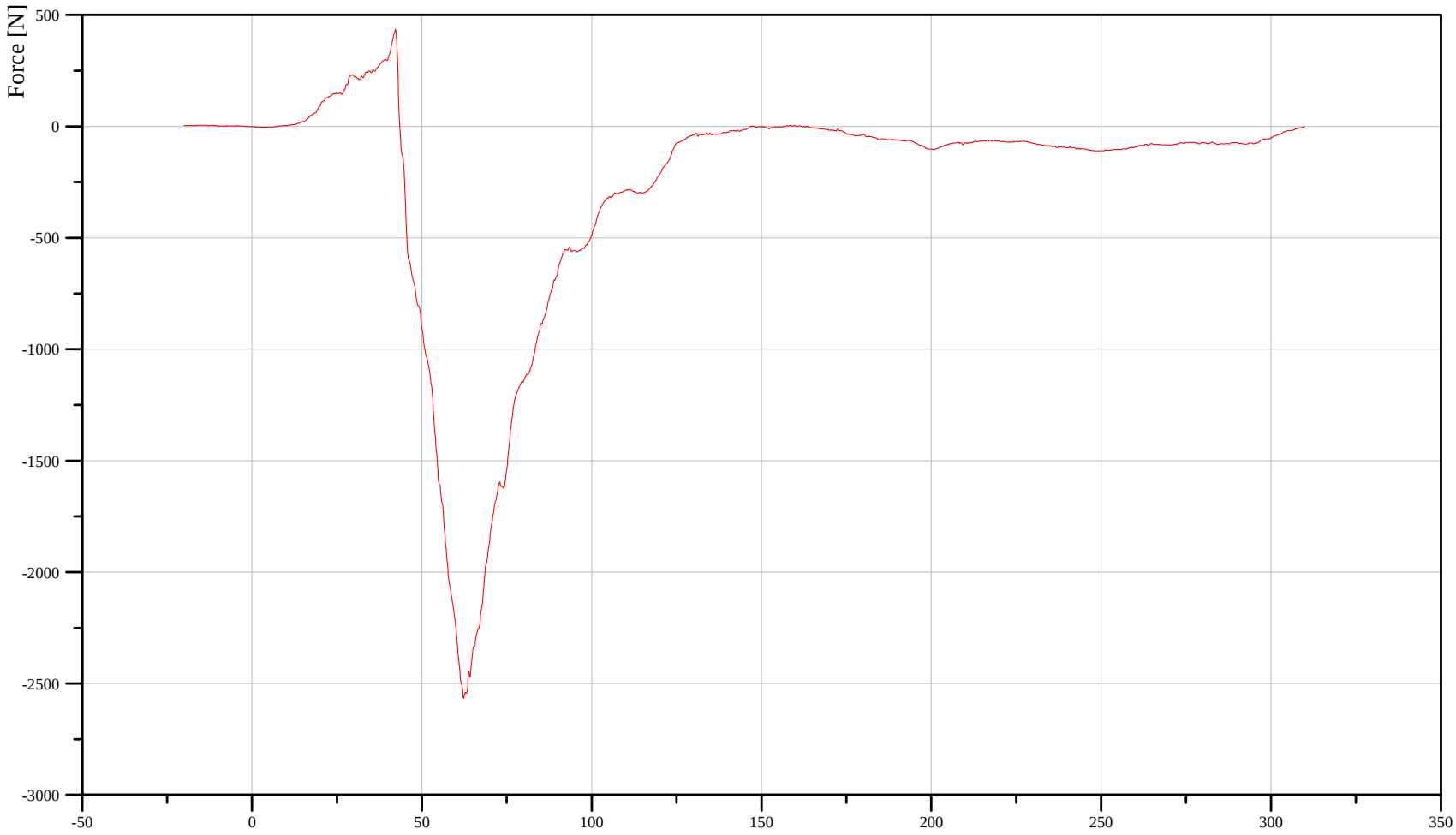
Bullet Driver Left Femur Z-Axis Force

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

## 11FEMRLL00H3FOZB

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_600

**Min. Value**
-2,565.80 N at 62.32 ms

**Max. Value**
435.72 N at 42.24 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

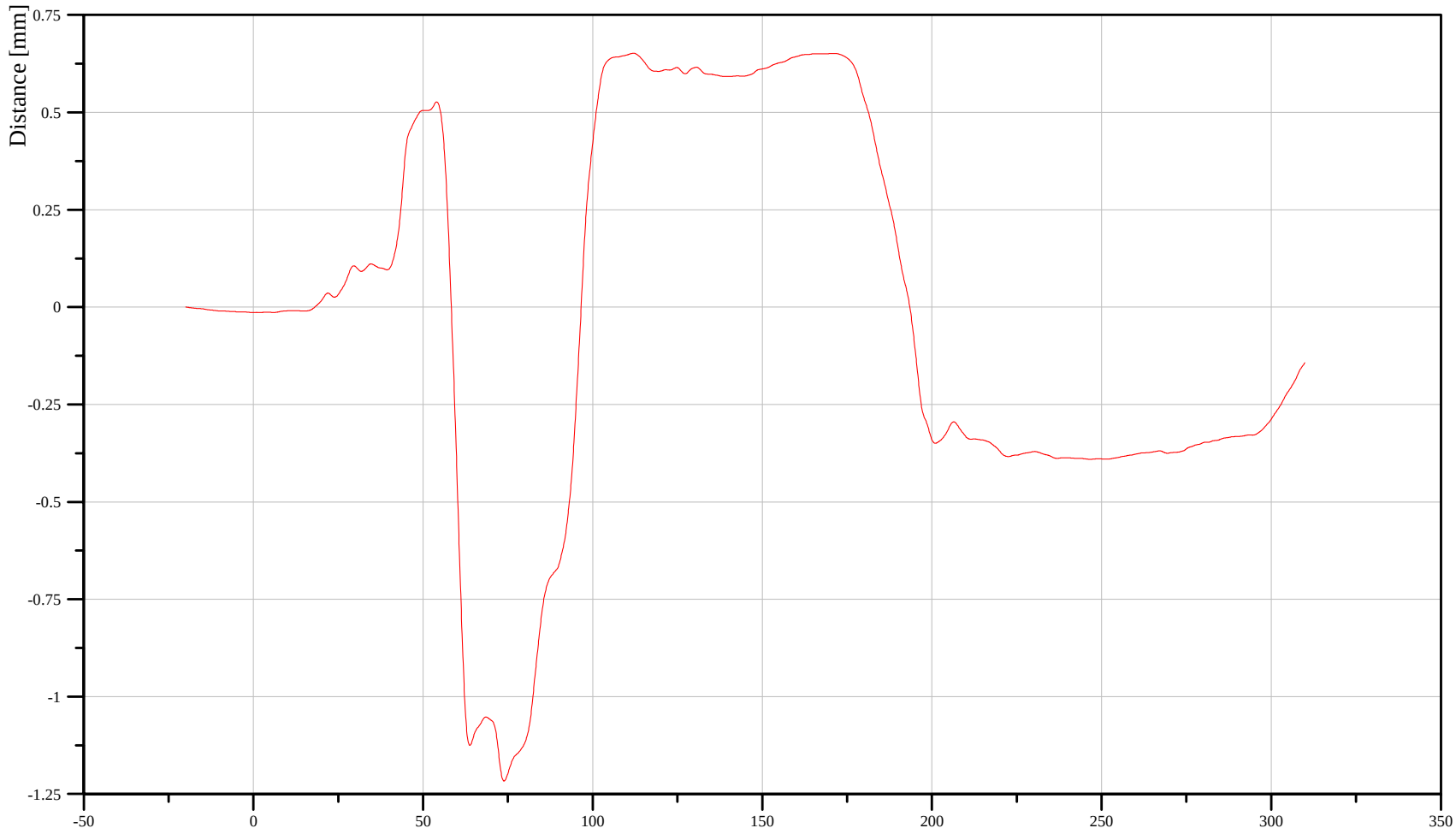
## Bullet Driver Left Knee Displacement

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

11KNSLLE00H3DSXC

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_180

**Min. Value**
-1.22 mm at 73.92 ms

**Max. Value**
0.65 mm at 112.08 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

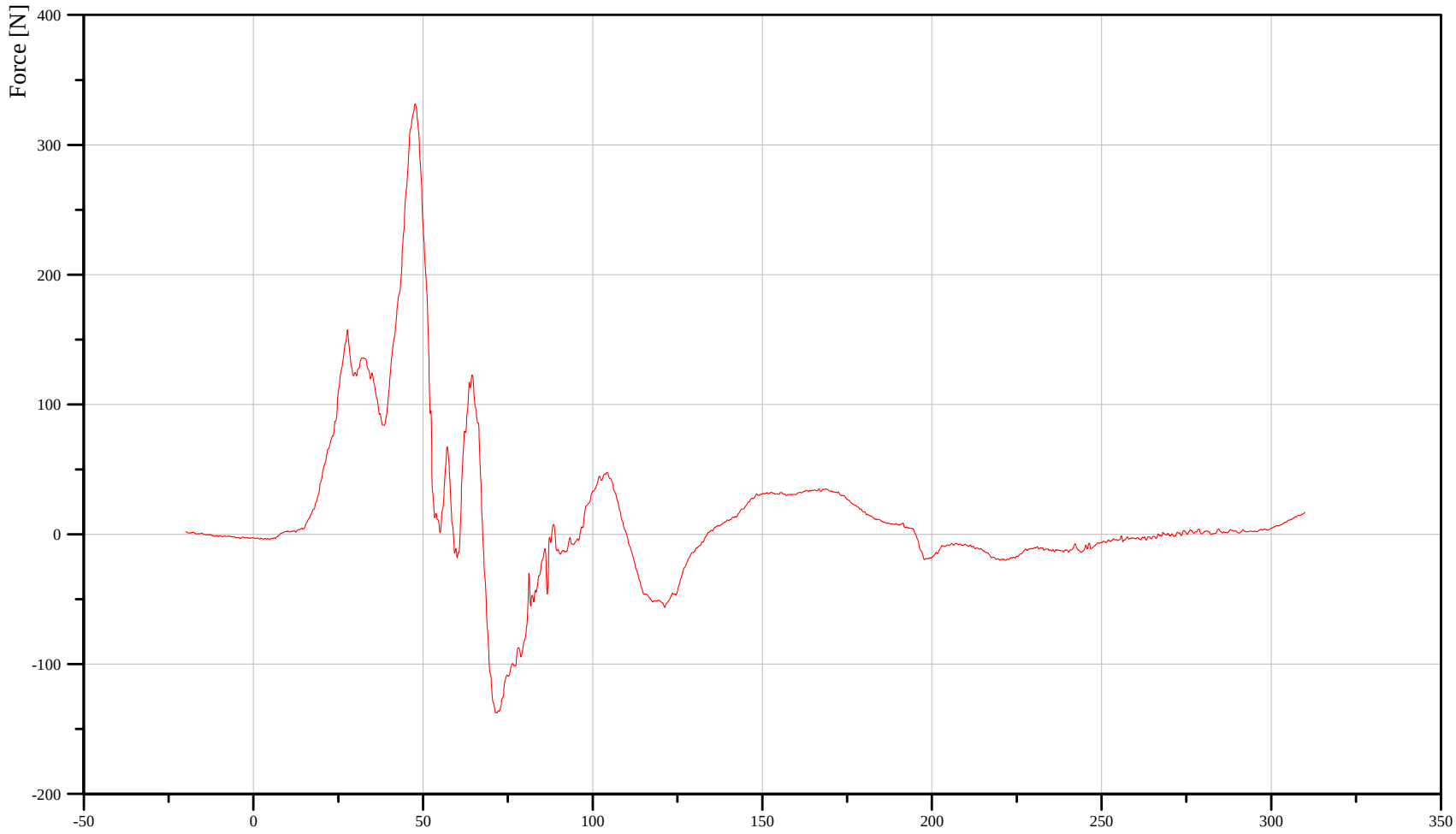
## Bullet Driver Left Upper Tibia X-Axis Force

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 11TIBILULXH3FOXB

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_600

**Min. Value**
-137.57 N at 71.76 ms

**Max. Value**
331.58 N at 47.68 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

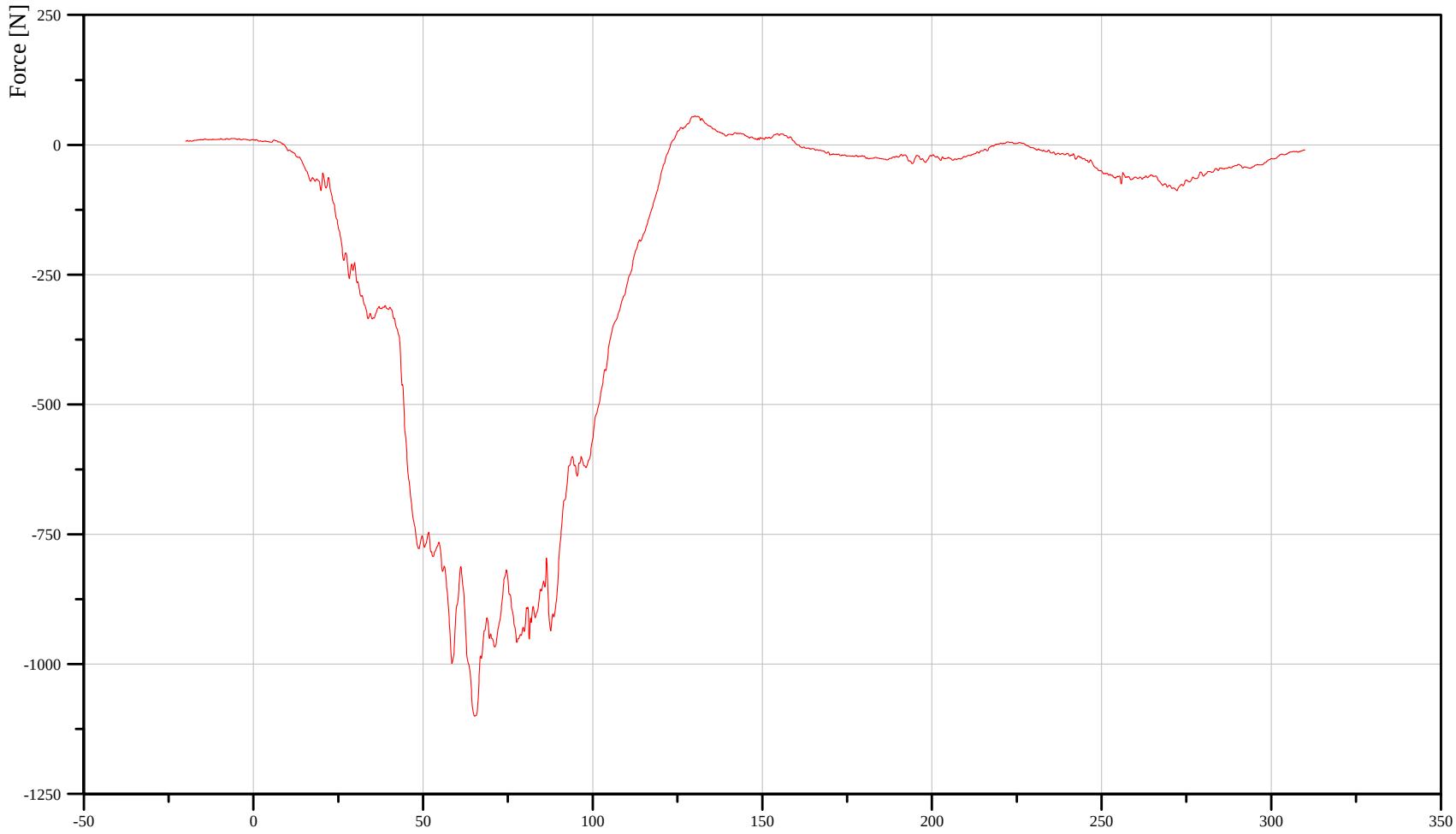
## Bullet Driver Left Upper Tibia Z-Axis Force

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 11TIBILULXH3FOZB

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_600

**Min. Value**
-1,100.27 N at 65.20 ms

**Max. Value**
55.64 N at 130.16 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

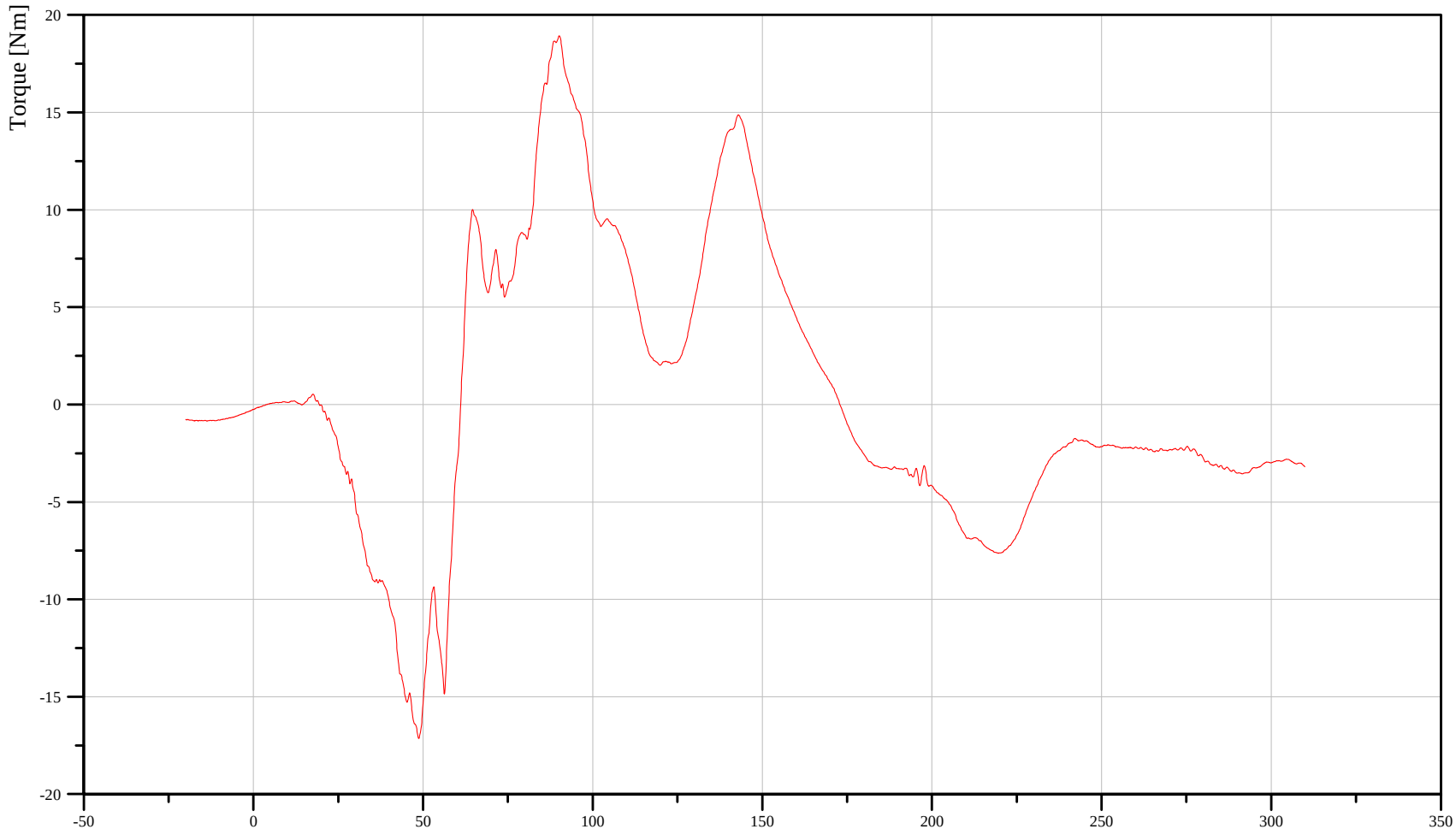
## Bullet Driver Left Upper Tibia Moment About X Axis

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 11TIBILULXH3MOXB

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_600

**Min. Value**
-17.14 Nm at 48.72 ms

**Max. Value**
18.94 Nm at 90.16 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

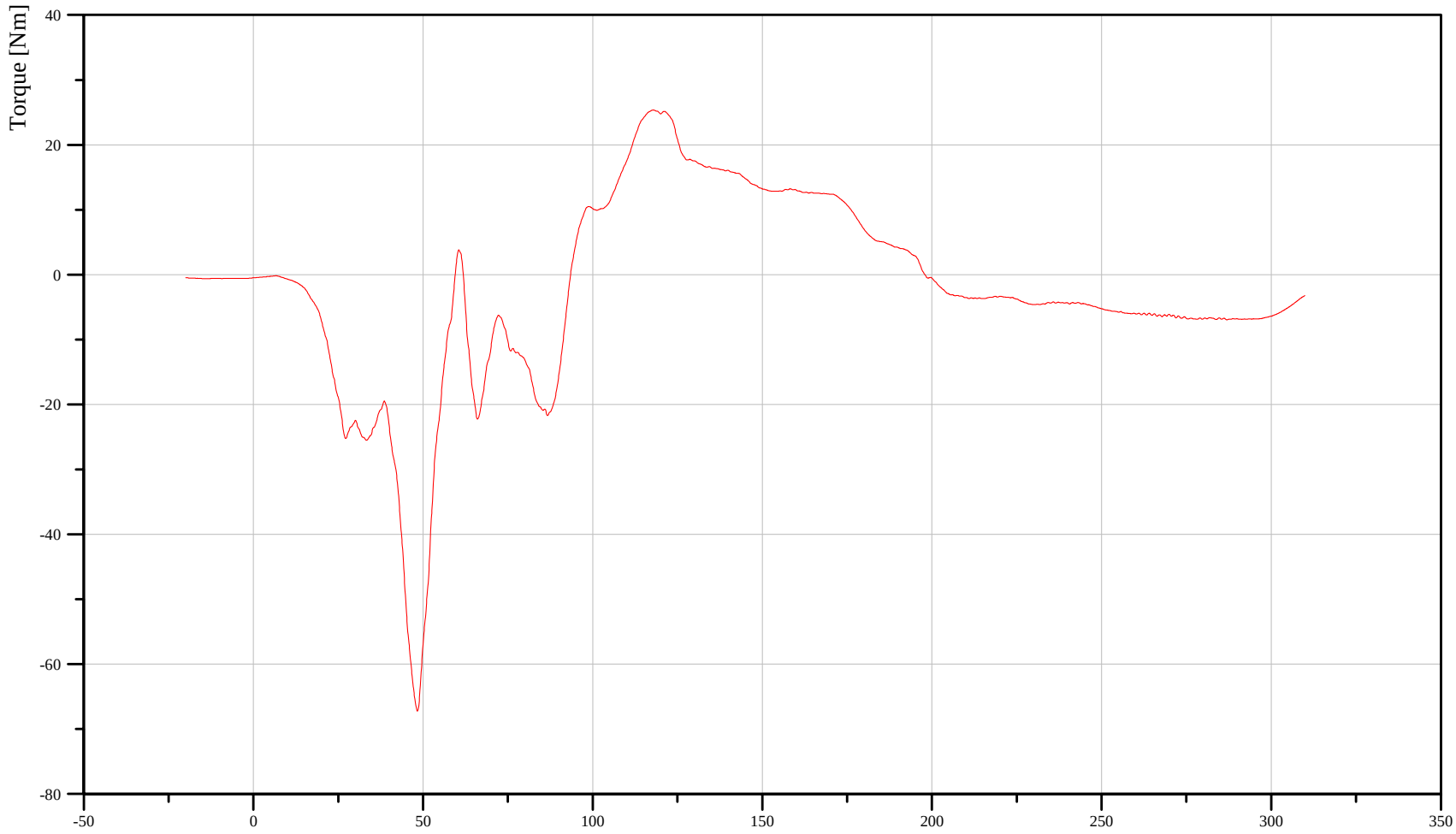
## Bullet Driver Left Upper Tibia Moment About Y Axis

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 11TIBILULXH3MOYB

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_600

**Min. Value**
-67.22 Nm at 48.32 ms

**Max. Value**
25.37 Nm at 117.84 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

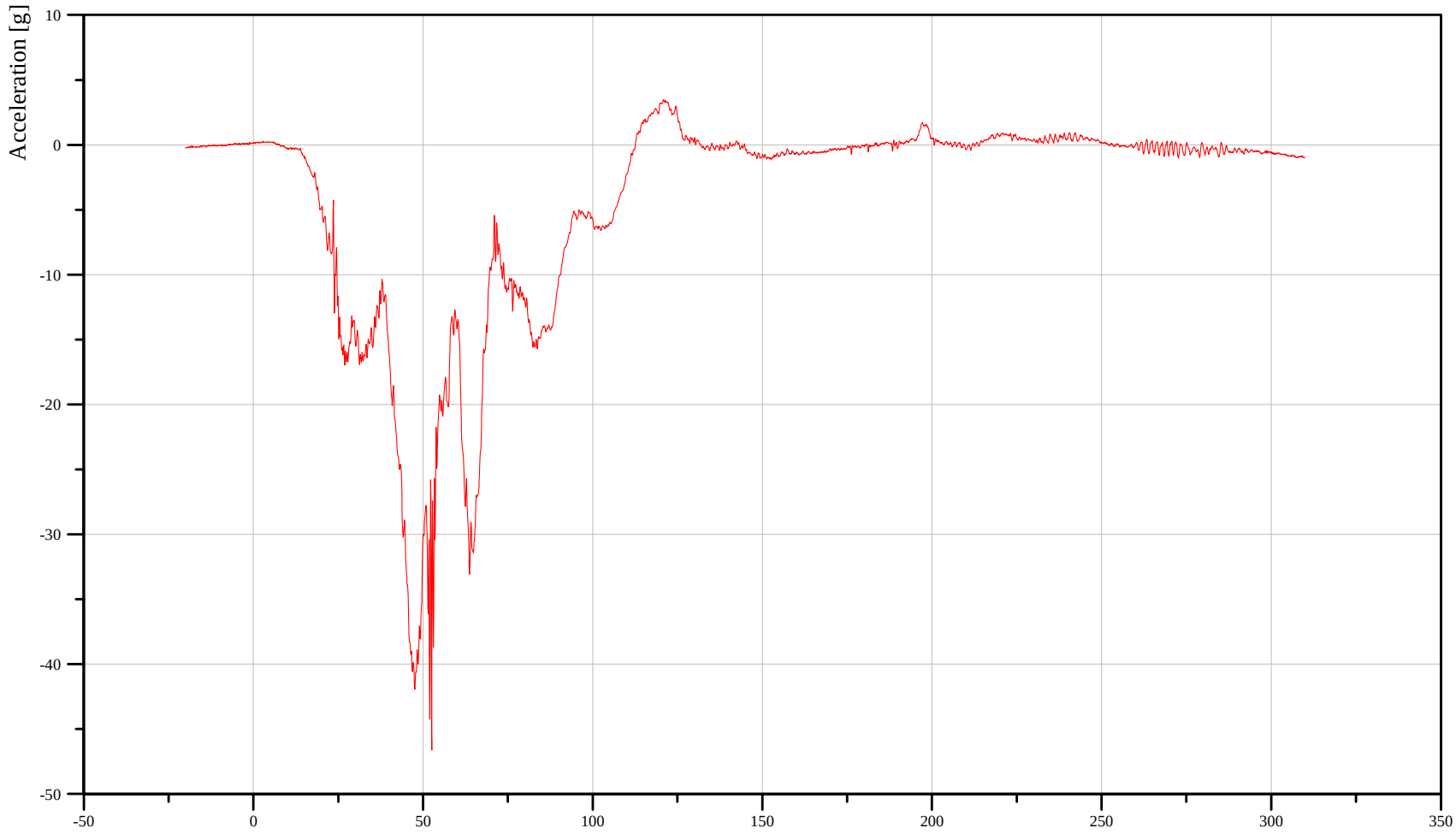
## Bullet Driver Left Tibia X-Axis Acceleration

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 11TIBILELXH3ACXA

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_1000

**Min. Value**
-46.61 g at 52.56 ms

**Max. Value**
3.50 g at 120.88 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

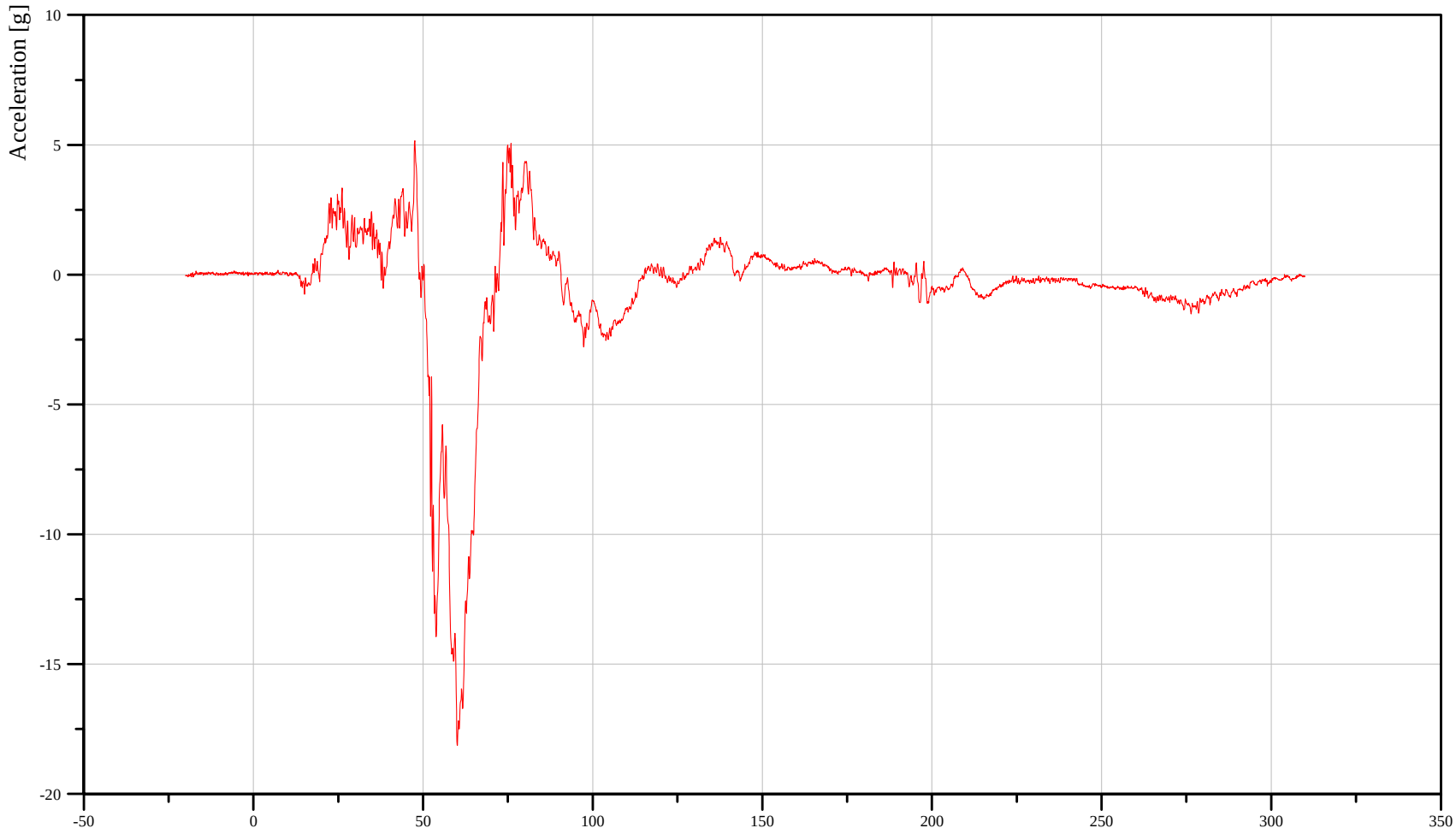
## Bullet Driver Left Tibia Y-Axis Acceleration

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 11TIBILELXH3ACYA

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_1000

**Min. Value**
-18.13 g at 60.16 ms

**Max. Value**
5.16 g at 47.60 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

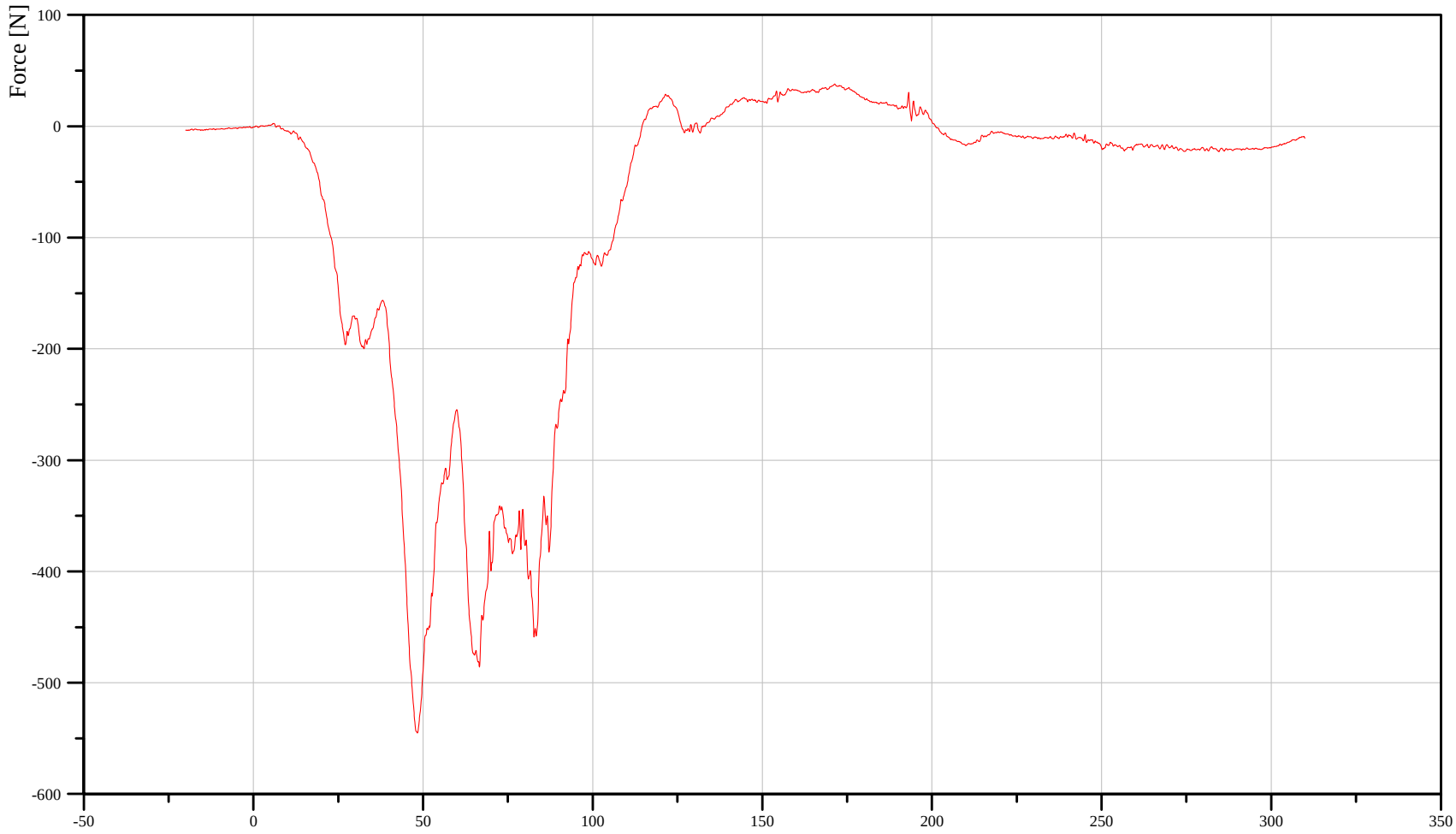
## Bullet Driver Left Lower Tibia X-Axis Force

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 11TIBILLLXH3FOXB

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_600

**Min. Value**
-545.12 N at 48.40 ms

**Max. Value**
38.04 N at 171.36 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

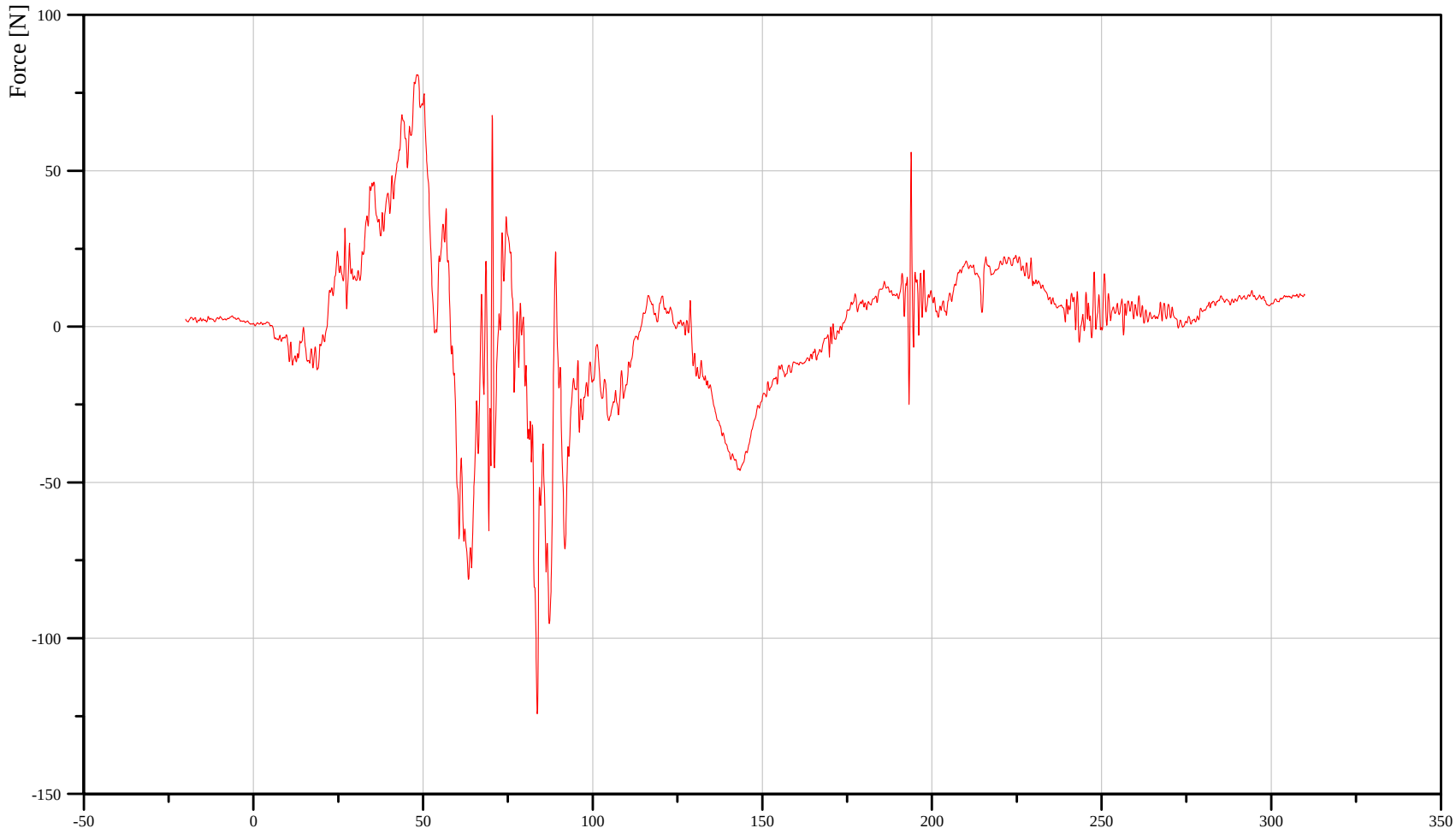
## Bullet Driver Left Lower Tibia Y-Axis Force

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 11TIBILLLXH3FOYB

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_600

**Min. Value**
-124.23 N at 83.68 ms

**Max. Value**
80.89 N at 48.16 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

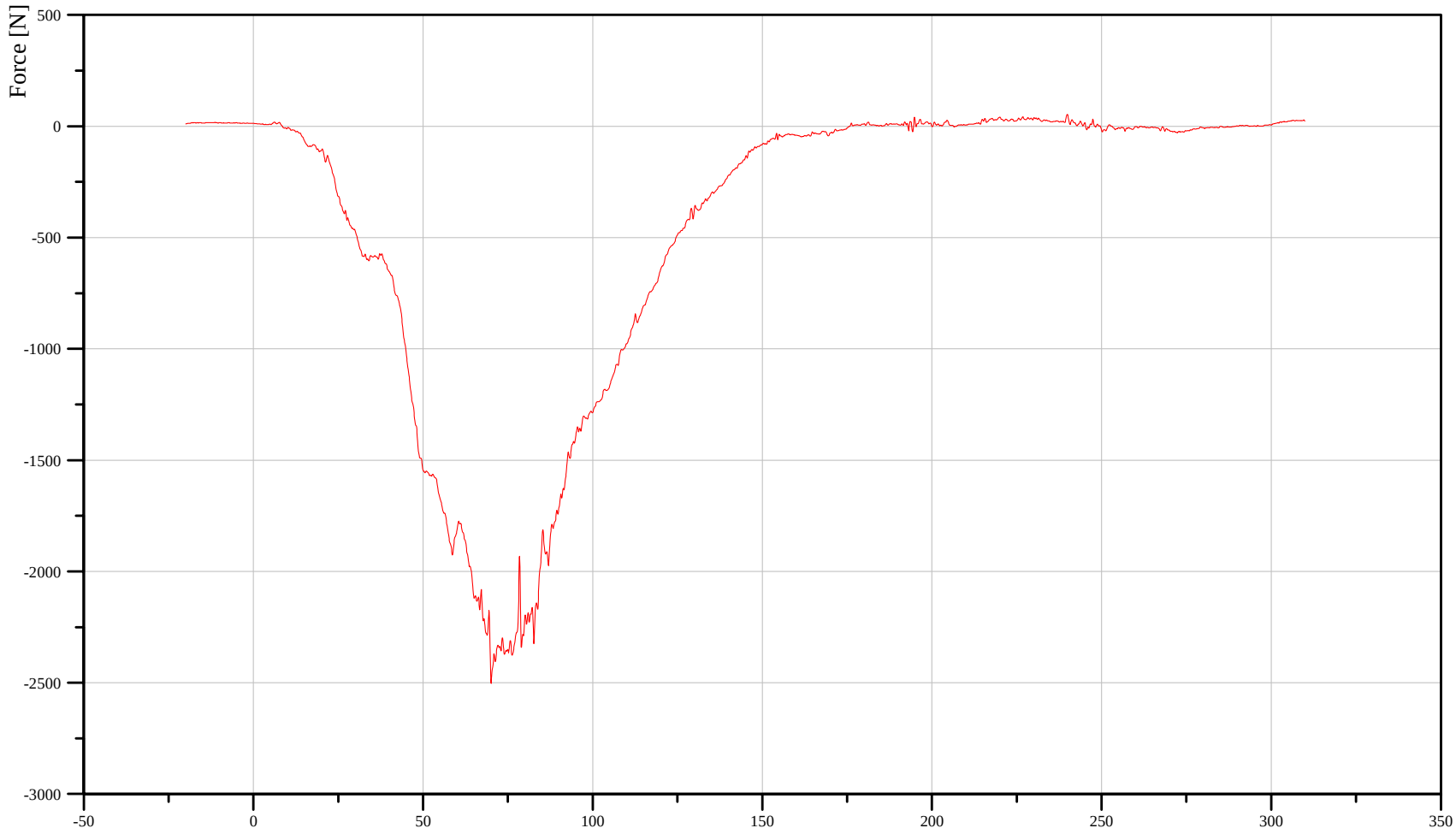
## Bullet Driver Left Lower Tibia Z-Axis Force

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 11TIBILLLXH3FOZB

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_600

**Min. Value**
-2,503.96 N at 70.08 ms

**Max. Value**
52.77 N at 239.92 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

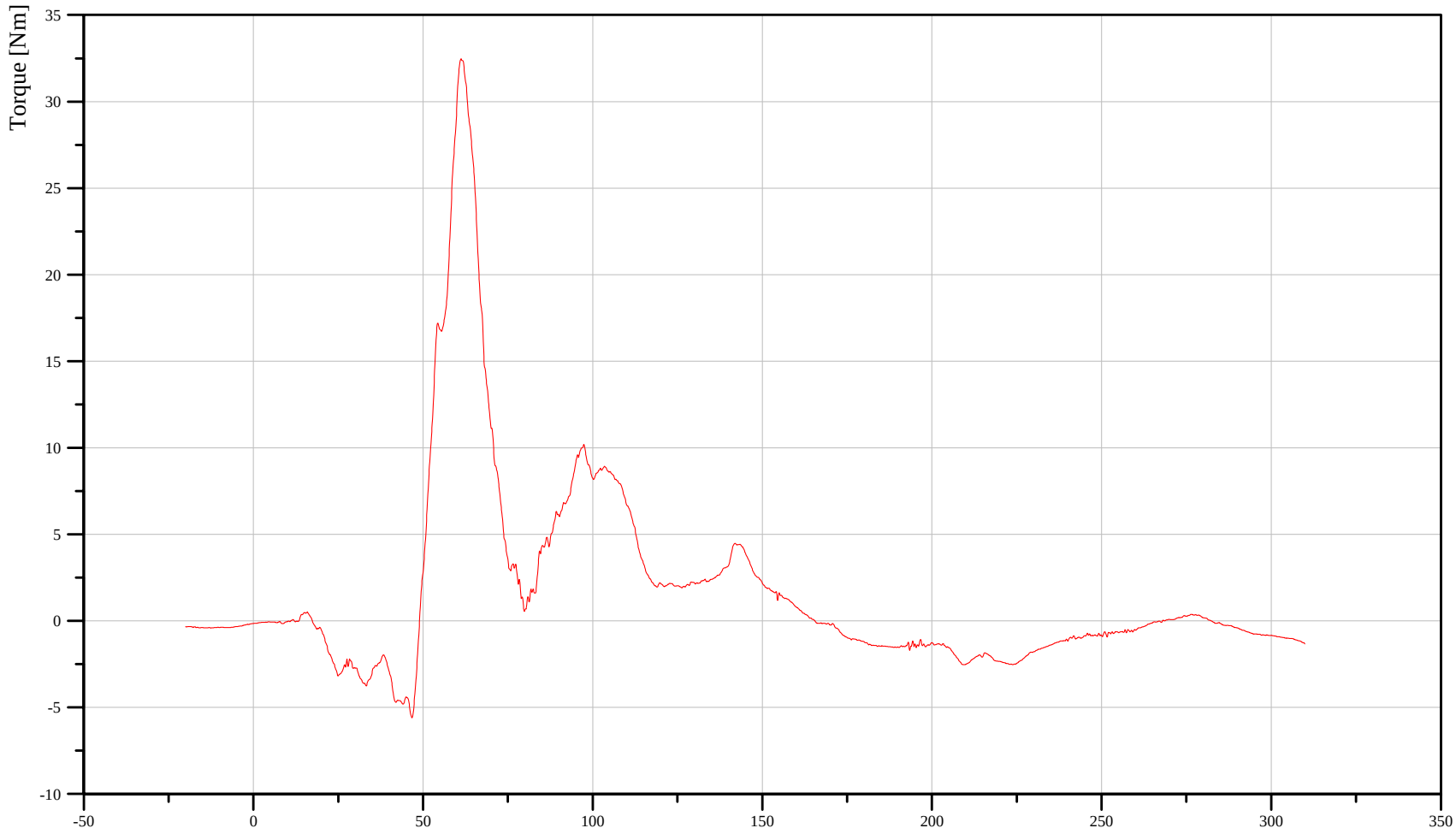
## Bullet Driver Left Lower Tibia Moment About X Axis

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 11TIBILLLXH3MOXB

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_600

**Min. Value**
-5.59 Nm at 46.72 ms

**Max. Value**
32.47 Nm at 61.20 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

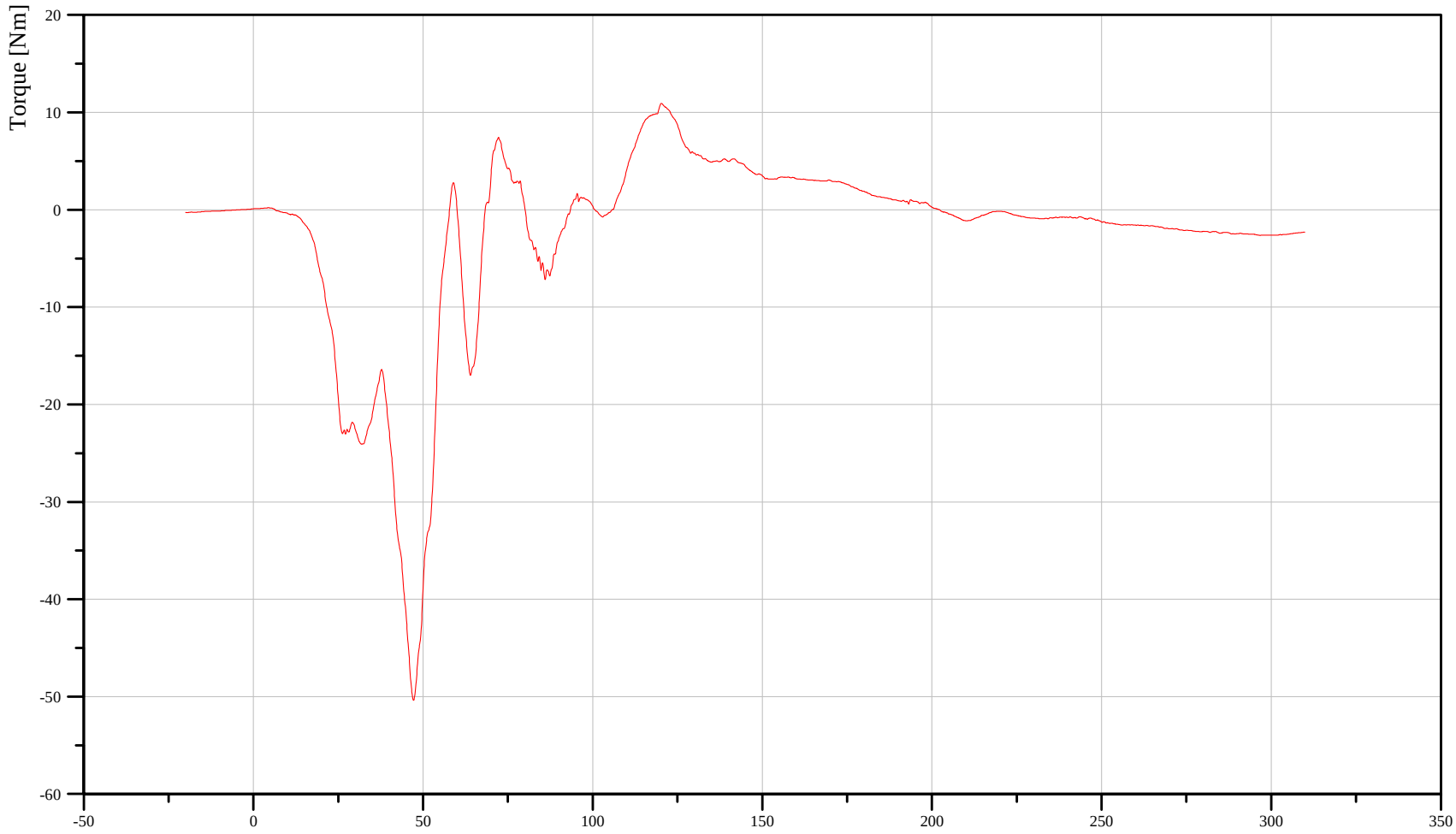
## Bullet Driver Left Lower Tibia Moment About Y Axis

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 11TIBILLLXH3MOYB

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_600

**Min. Value**
-50.37 Nm at 47.20 ms

**Max. Value**
10.91 Nm at 120.24 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

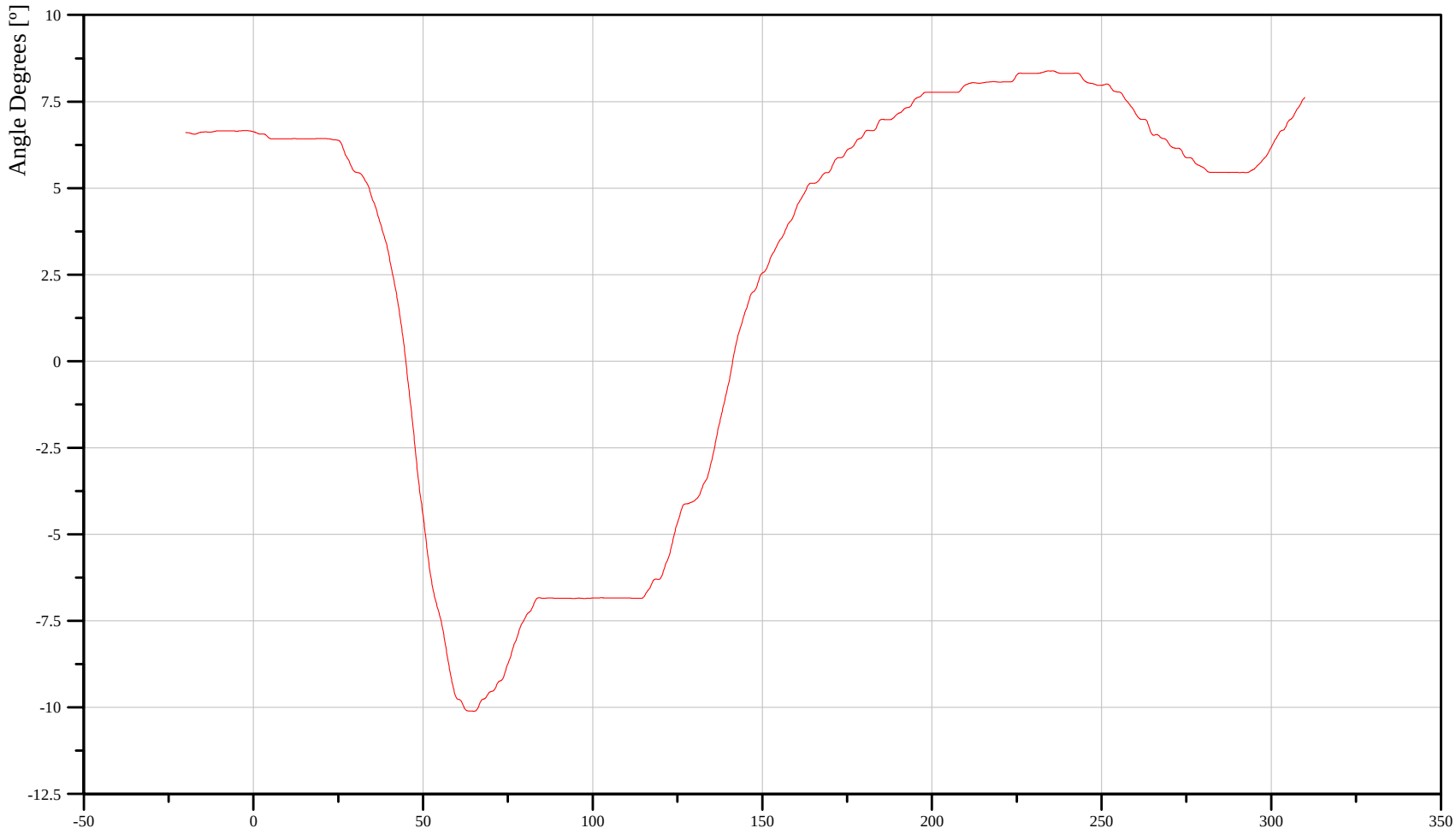
## Bullet Driver Left Foot X-Axis Rotation

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 11FOOTLELXH3ANXC

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_180

**Min. Value**
-10.11 ° at 64.96 ms

**Max. Value**
8.38 ° at 234.24 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

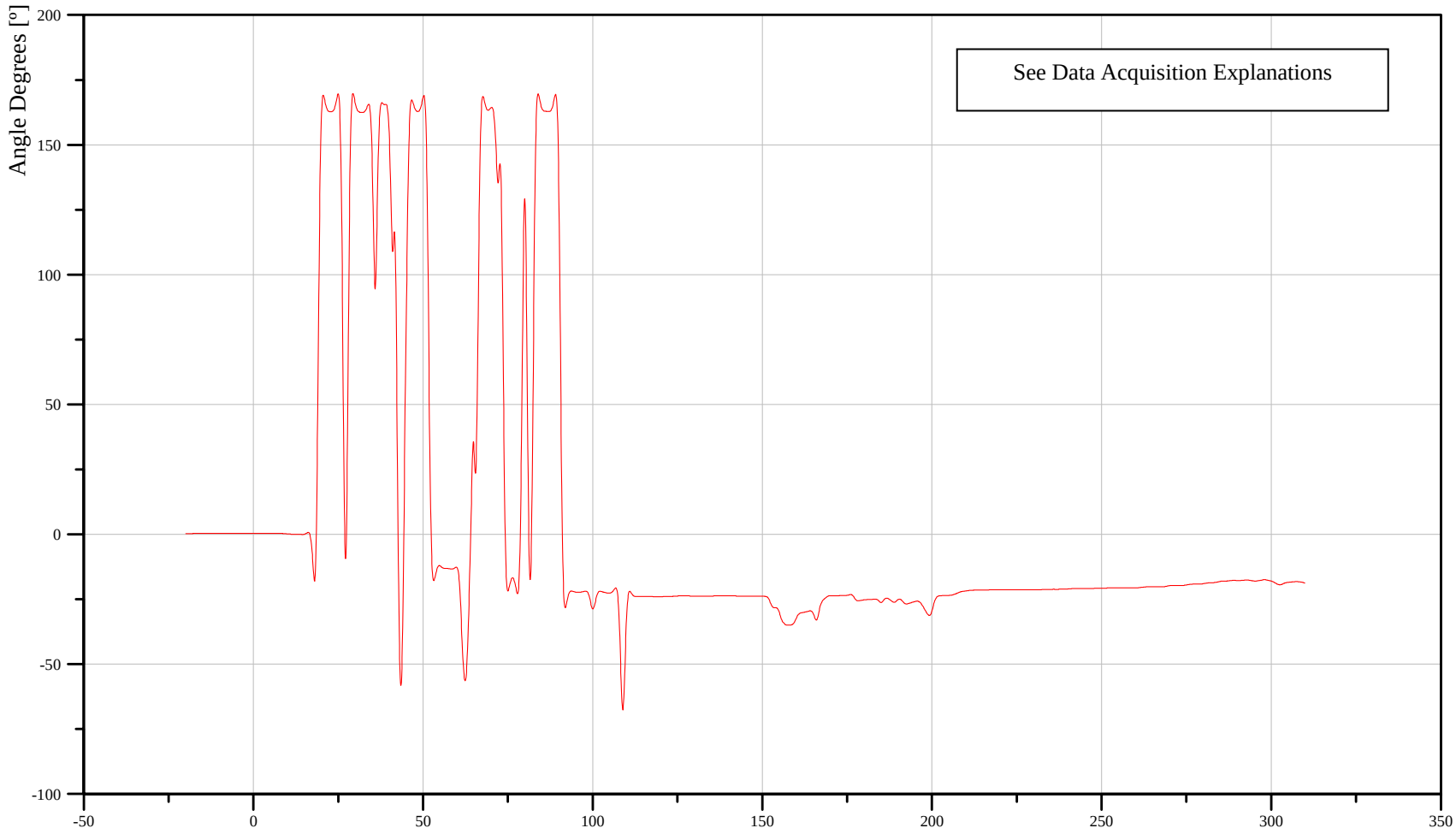
## Bullet Driver Left Foot Y-Axis Rotation

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 11FOOTLELXH3ANYC

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_180

**Min. Value**
-67.68 ° at 108.88 ms

**Max. Value**
169.78 ° at 29.36 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

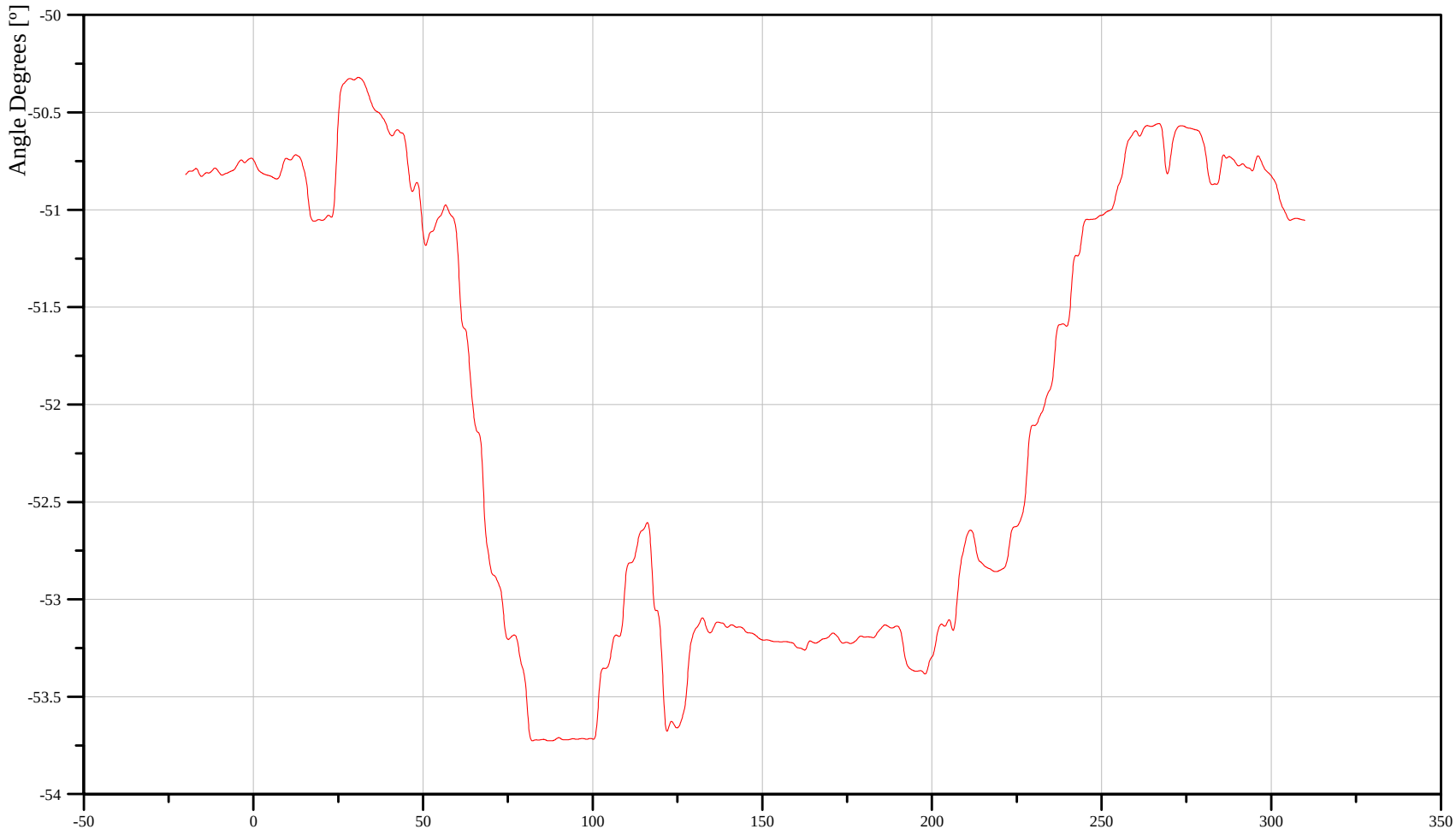
## Bullet Driver Left Foot Z-Axis Rotation

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 11FOOTLELXH3ANZC

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_180

**Min. Value**
-53.73 ° at 88.00 ms

**Max. Value**
-50.32 ° at 30.96 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

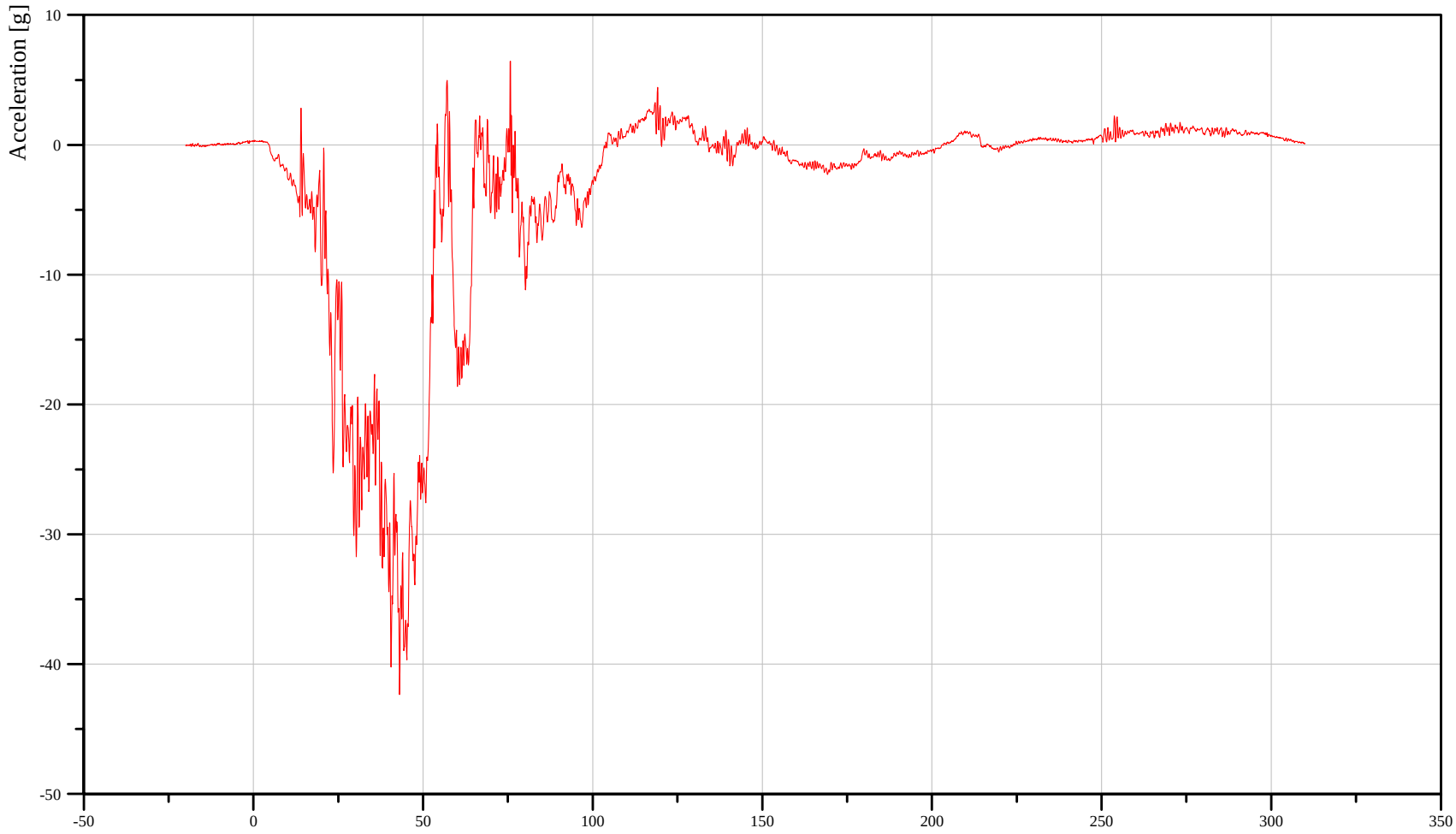
## Bullet Driver Left Foot X-Axis Acceleration

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 11FOOTLELXH3ACXA

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_1000

**Min. Value**
-42.34 g at 43.12 ms

**Max. Value**
6.44 g at 75.76 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

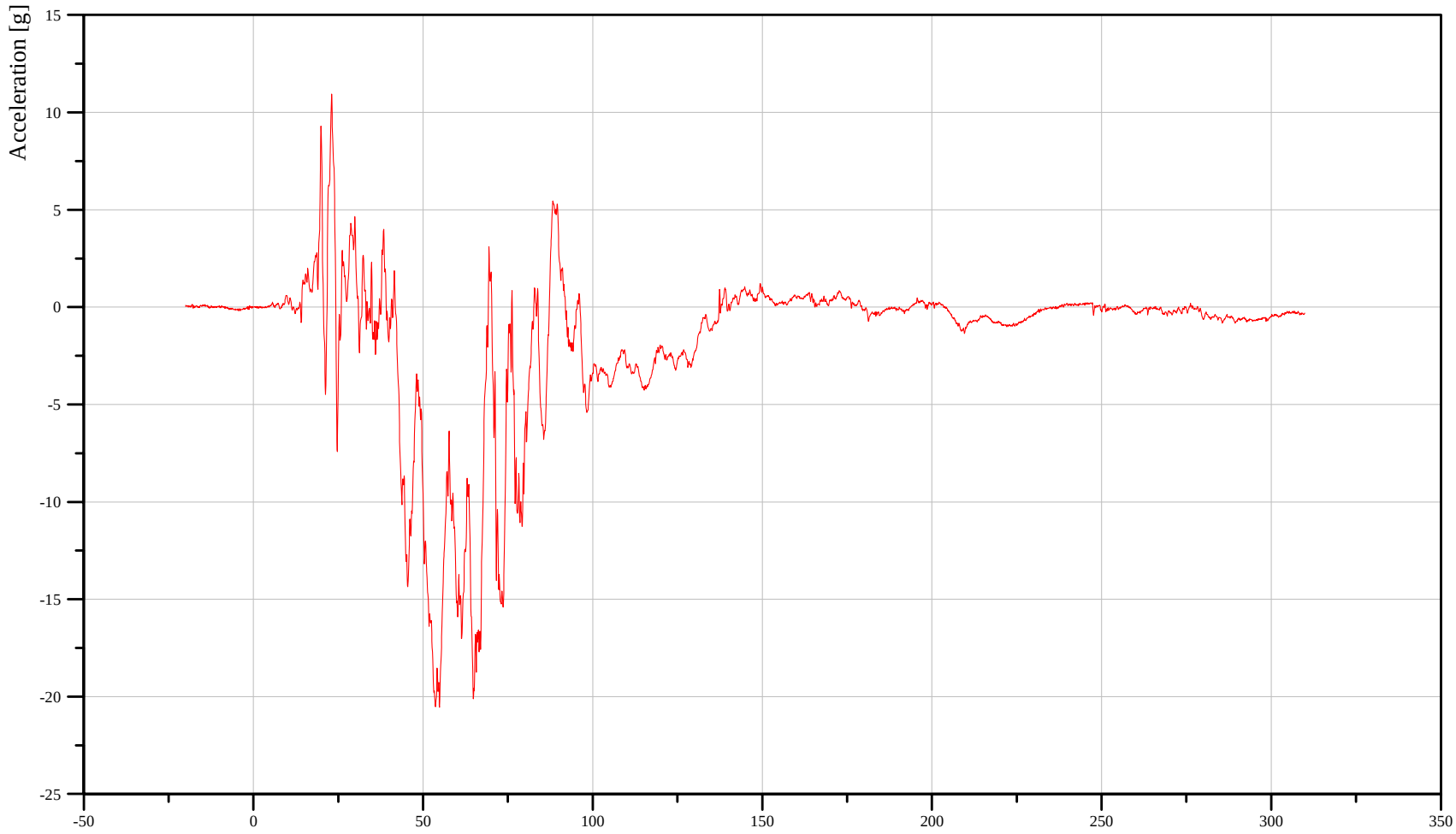
## Bullet Driver Left Foot Y-Axis Acceleration

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 11FOOTLELXH3ACYA

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_1000

**Min. Value**
-20.54 g at 54.88 ms

**Max. Value**
10.93 g at 23.04 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

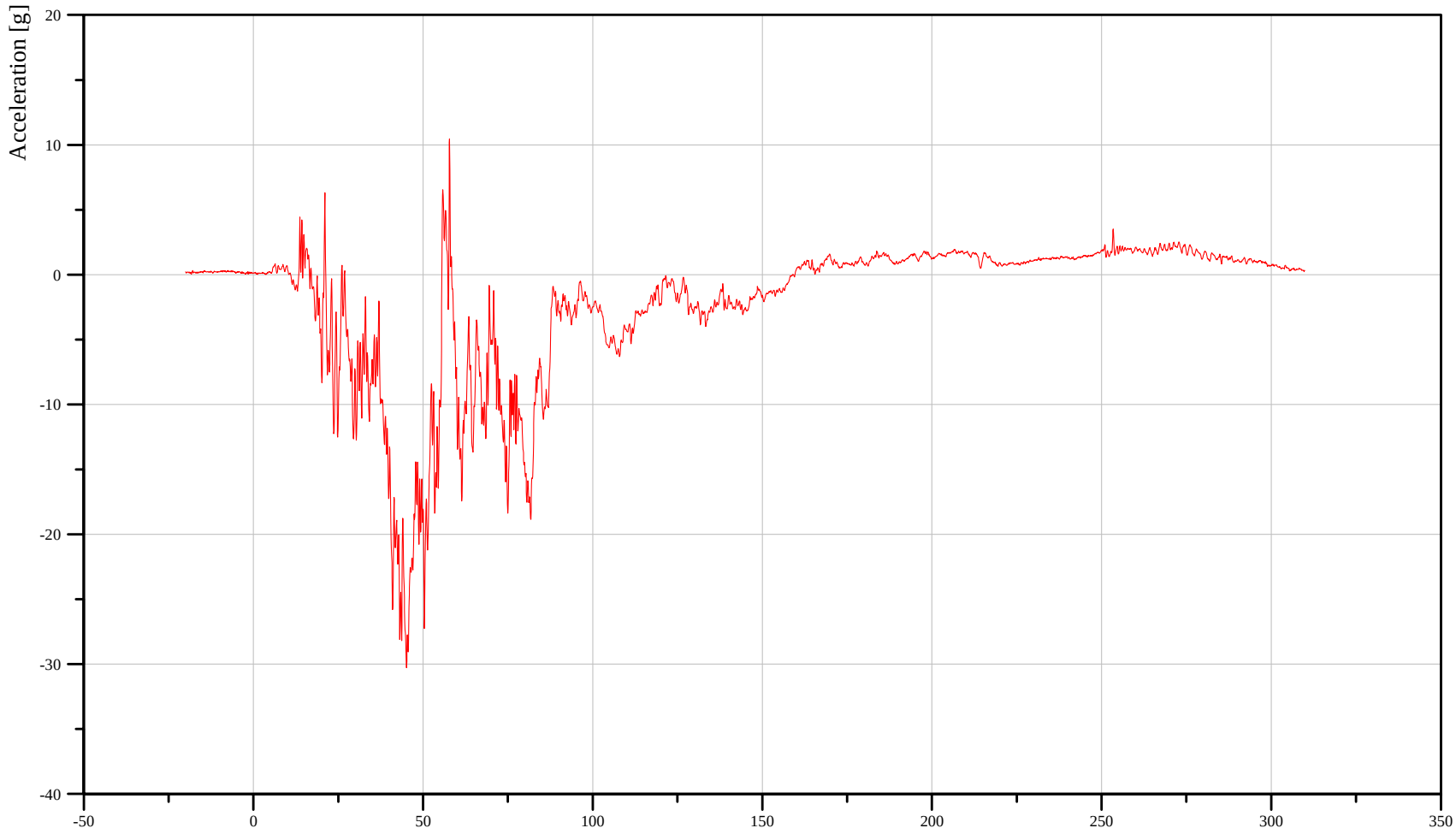
## Bullet Driver Left Foot Z-Axis Acceleration

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 11FOOTLELXH3ACZA

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_1000

**Min. Value**
-30.27 g at 45.12 ms

**Max. Value**
10.47 g at 57.84 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

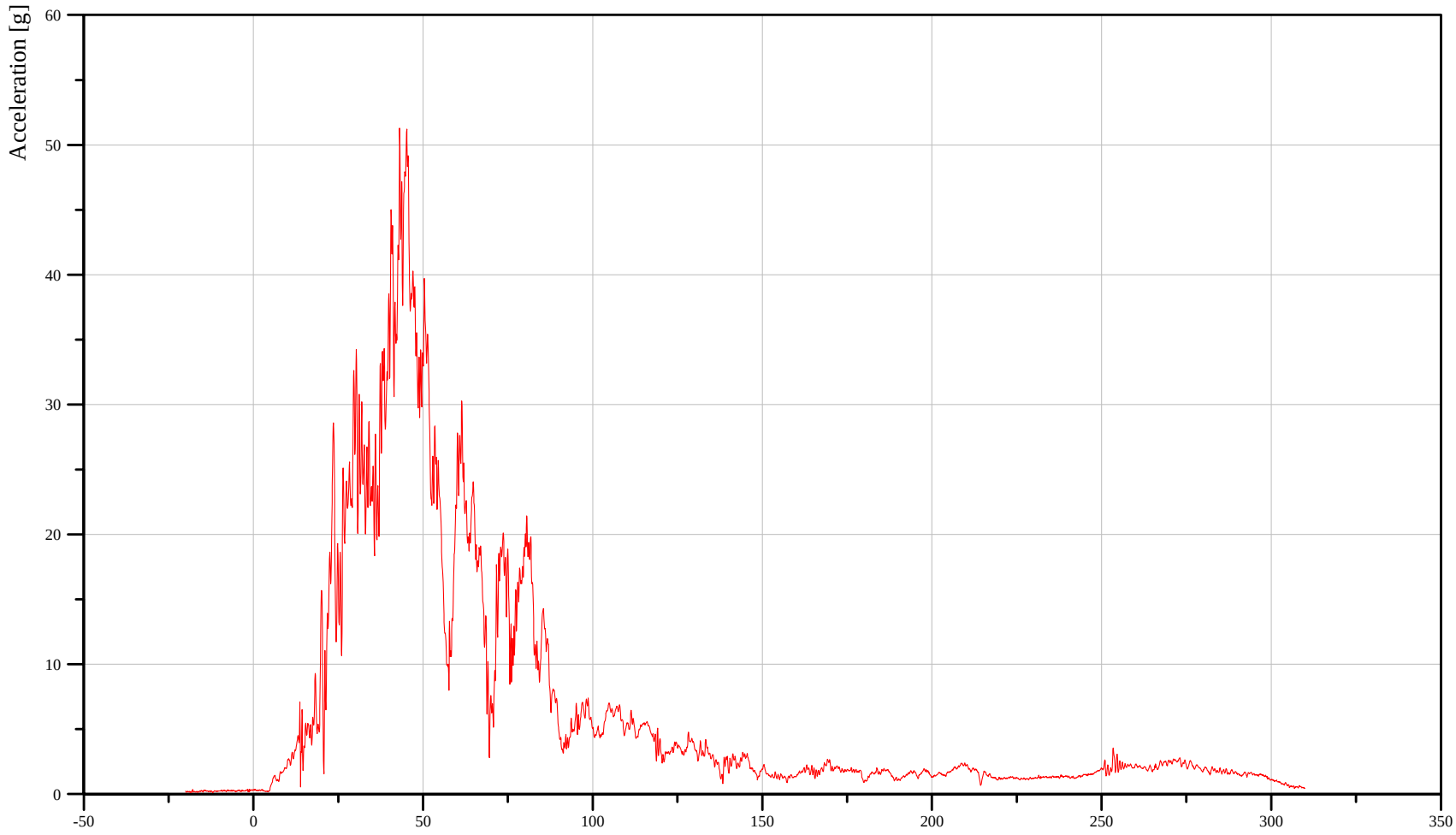
## Bullet Driver Left Foot Resultant Acceleration

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 11FOOTLELXH3ACRA

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_1000

**Min. Value**
0.12 g at -12.00 ms

**Max. Value**
51.28 g at 43.12 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

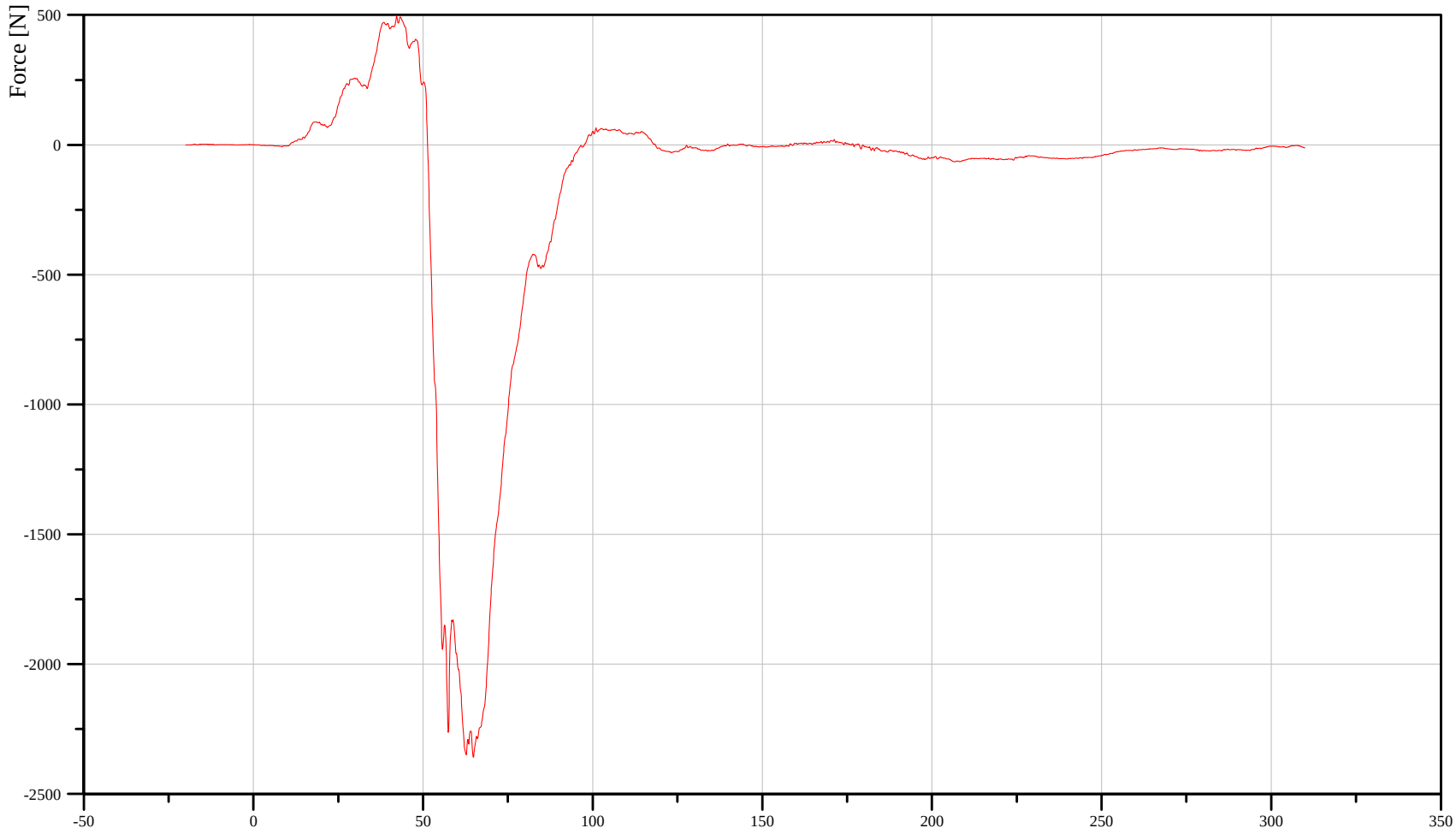
Bullet Driver Right Femur Z-Axis Force

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

## 11FEMRRL00H3FOZB

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_600

**Min. Value**
-2,359.18 N at 64.80 ms

**Max. Value**
497.15 N at 42.24 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

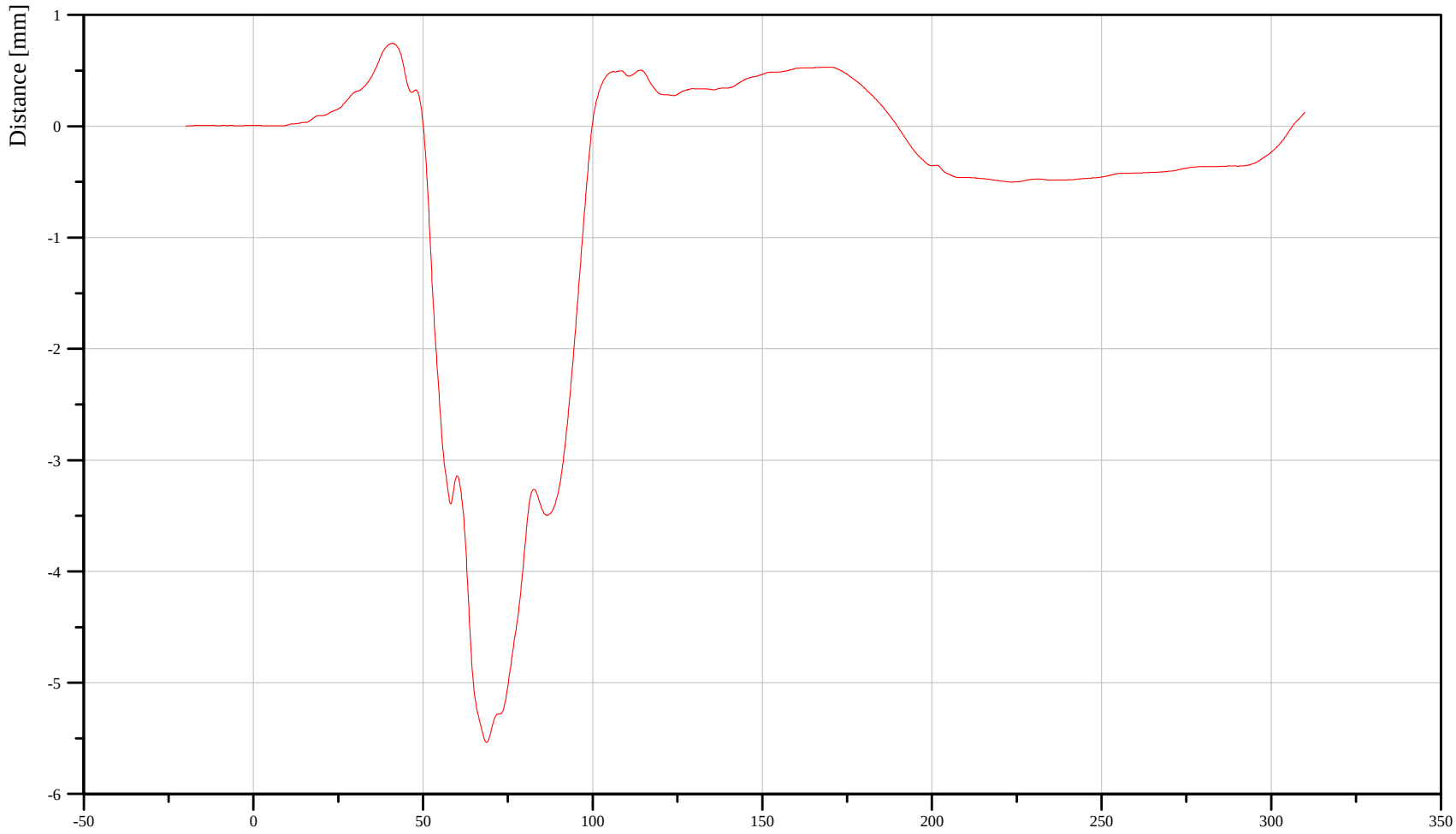
## Bullet Driver Right Knee Displacement

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 11KNSLRI00H3DSXC

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_180

**Min. Value**
-5.54 mm at 68.72 ms

**Max. Value**
0.75 mm at 40.96 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

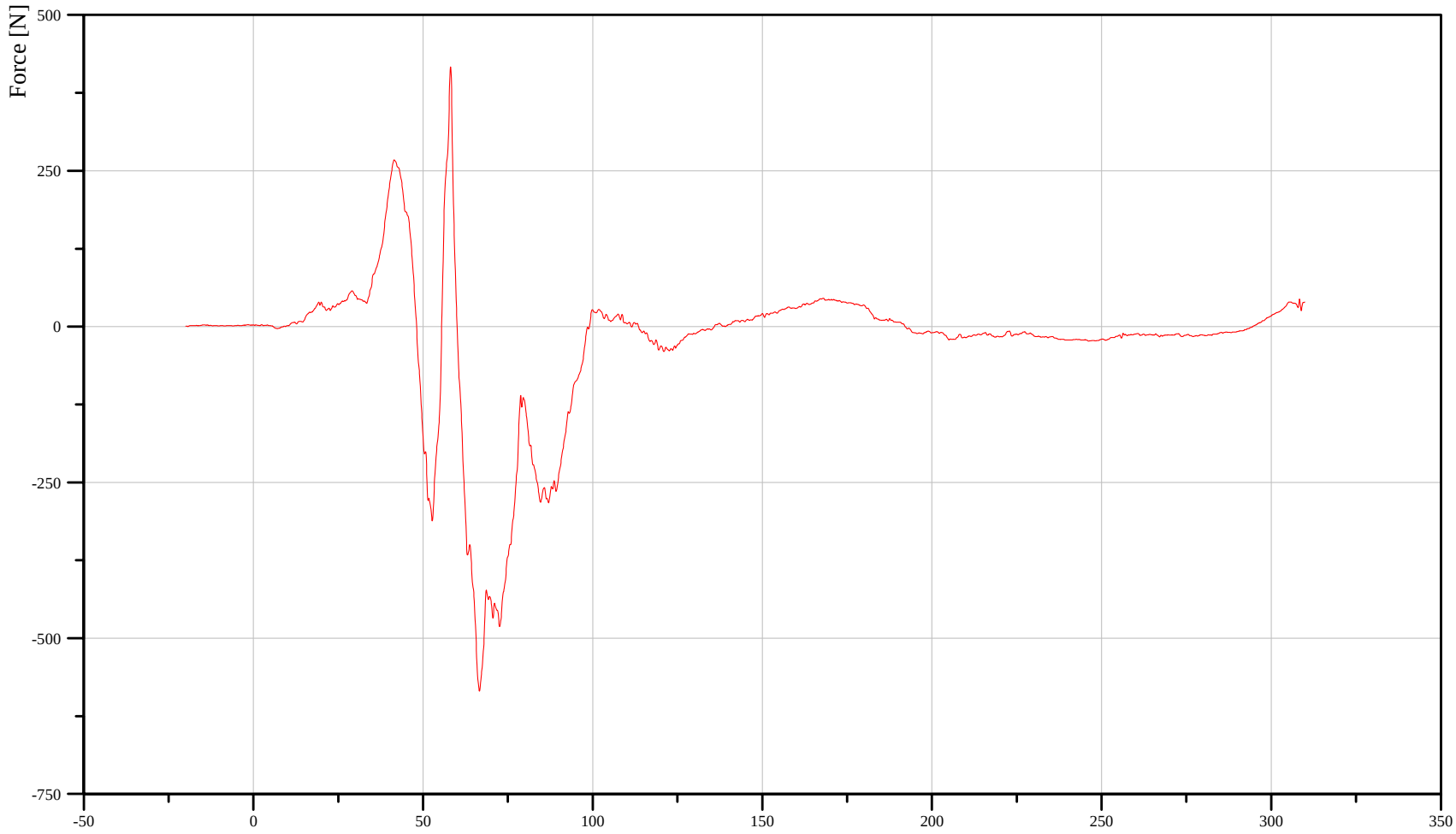
Bullet Driver Right Upper Tibia X-Axis Force

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 11TIBIRULXH3FOXB

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_600

**Min. Value**
-584.93 N at 66.64 ms

**Max. Value**
416.69 N at 58.08 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

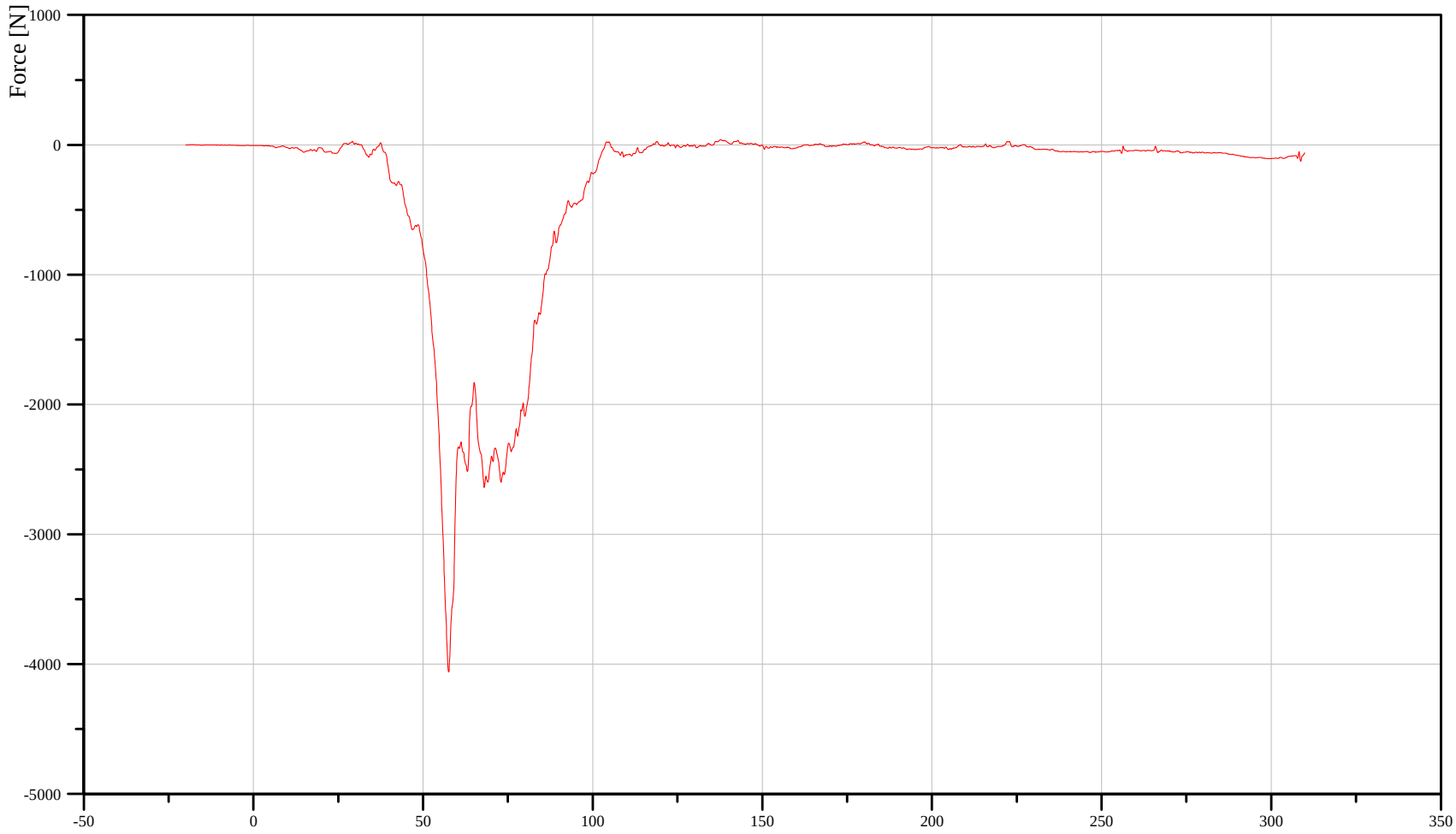
## Bullet Driver Right Upper Tibia Z-Axis Force

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 11TIBIRULXH3FOZB

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_600

**Min. Value**
-4,060.78 N at 57.52 ms

**Max. Value**
40.04 N at 137.68 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

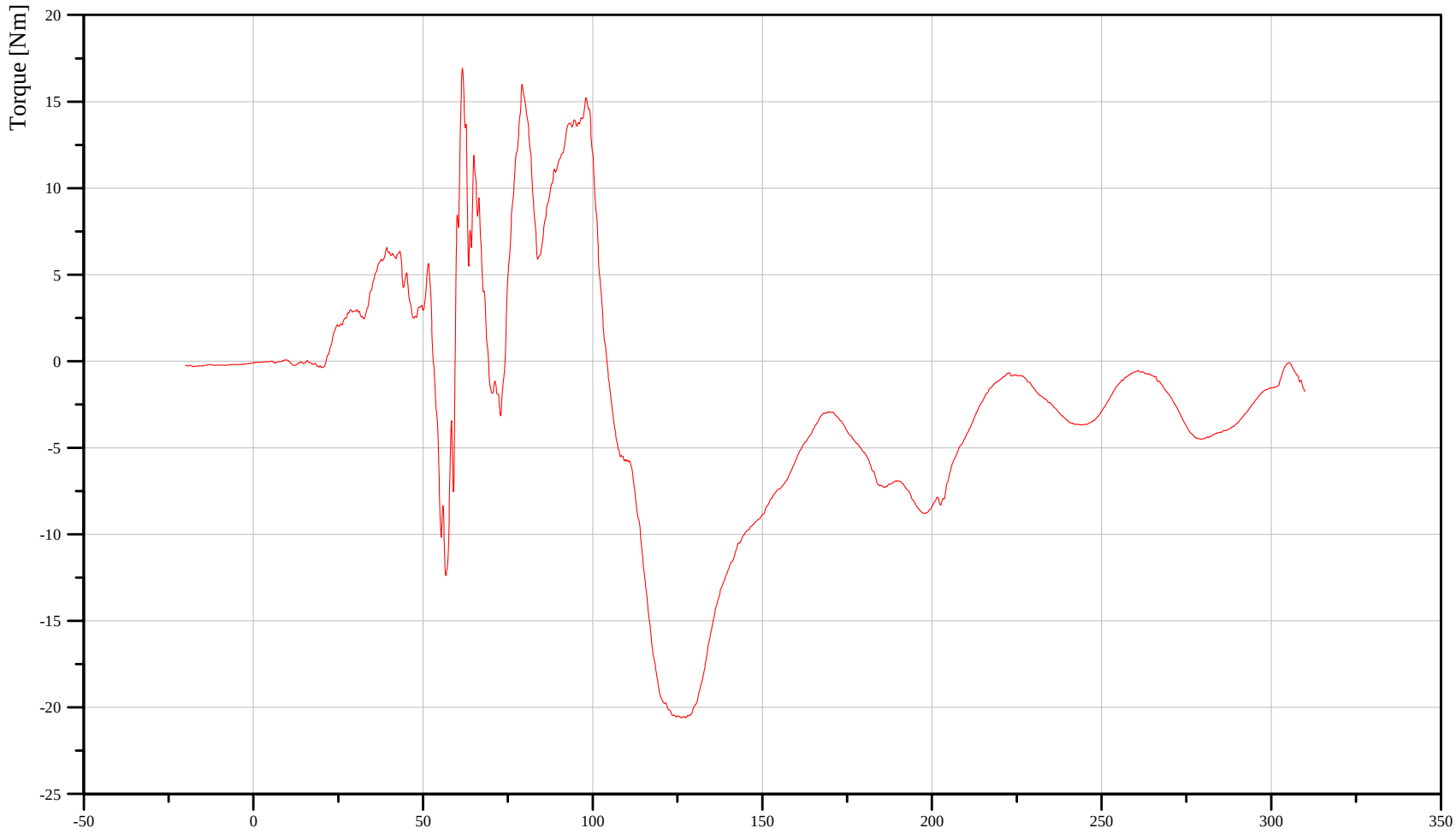
## Bullet Driver Right Upper Tibia Moment About X Axis

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 11TIBIRULXH3MOXB

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_600

**Min. Value**
-20.60 Nm at 126.24 ms

**Max. Value**
16.93 Nm at 61.60 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

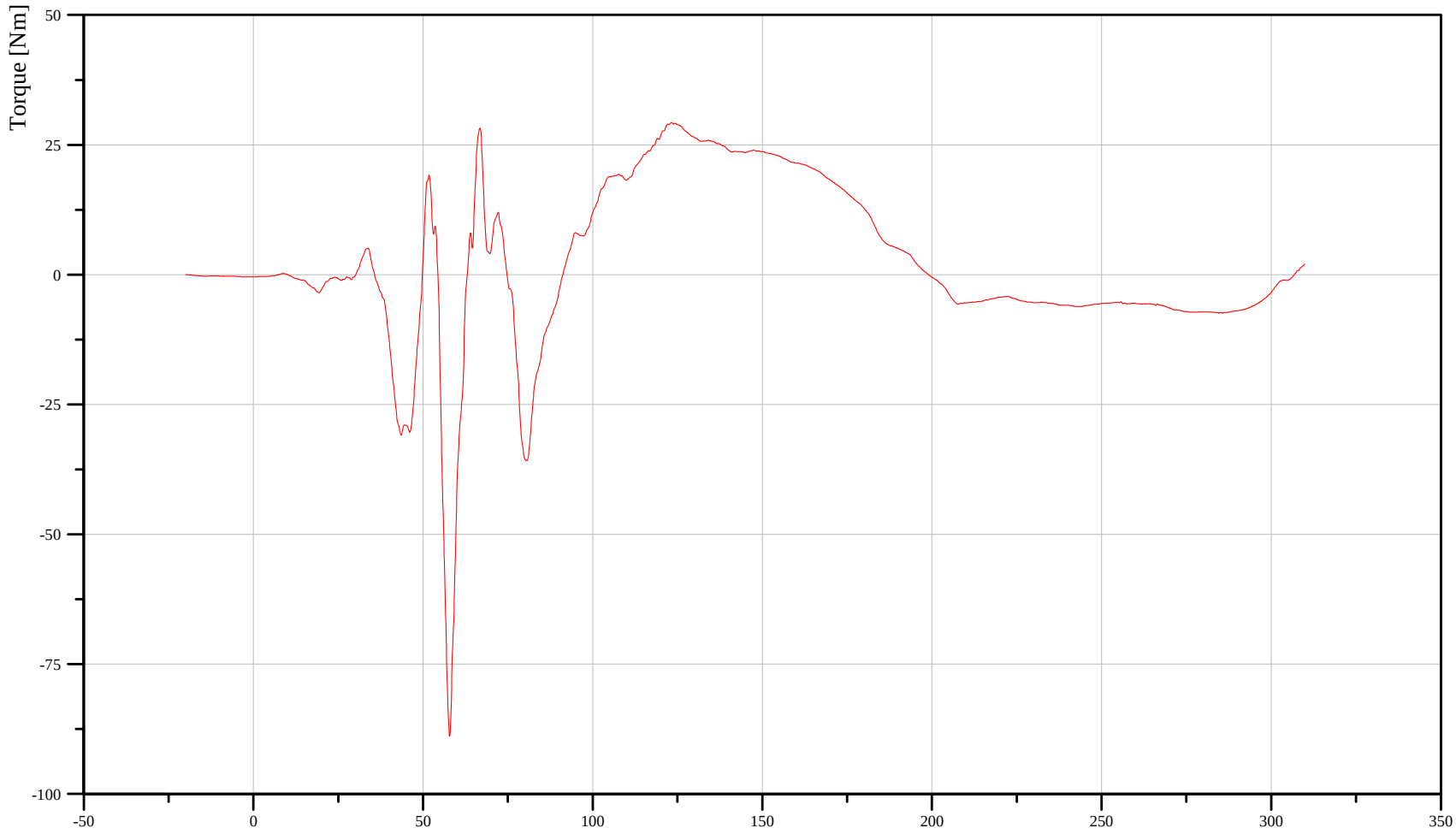
## Bullet Driver Right Upper Tibia Moment About Y Axis

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 11TIBIRULXH3MOYB

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_600

**Min. Value**
-88.86 Nm at 57.84 ms

**Max. Value**
29.25 Nm at 123.28 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

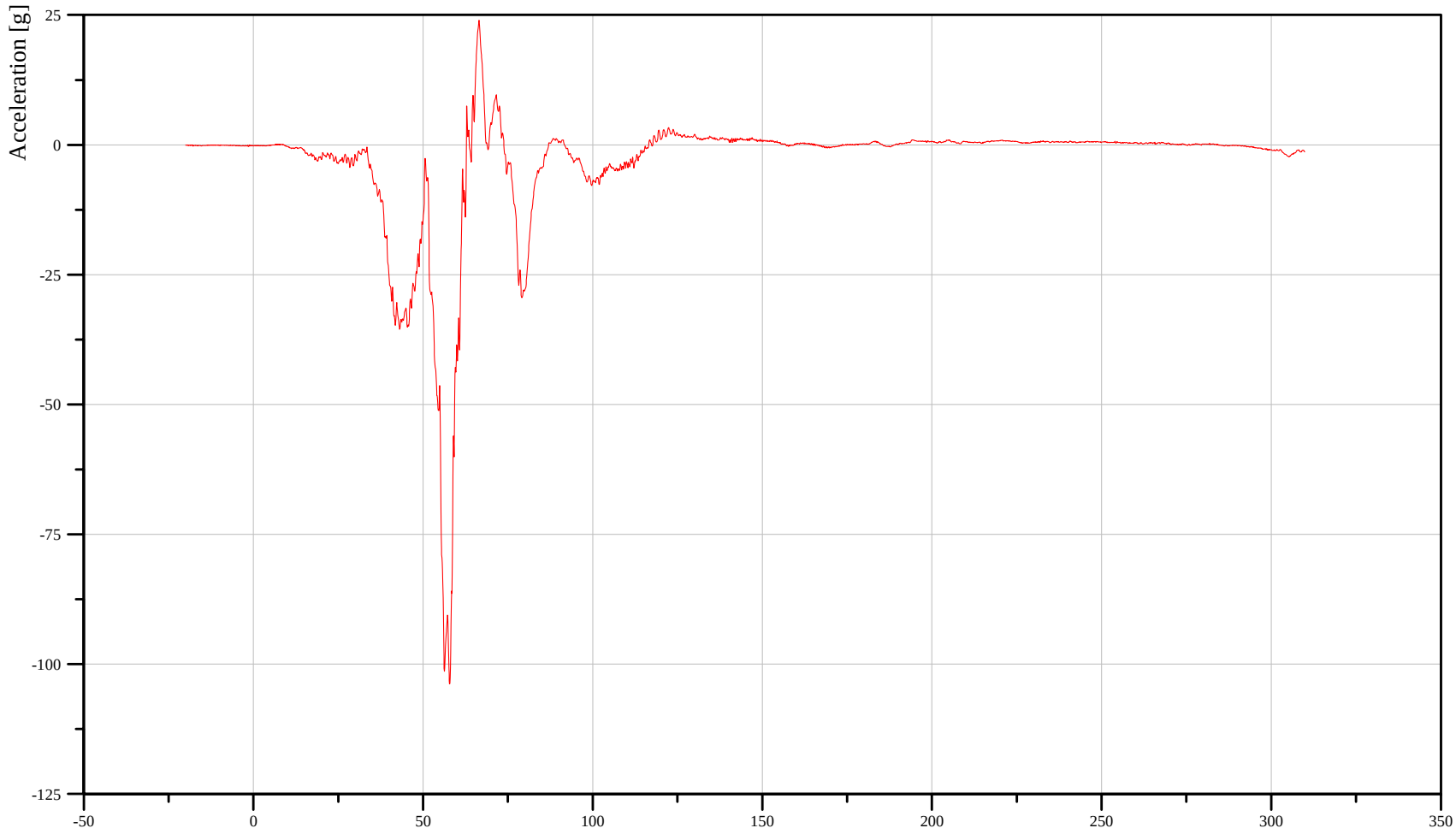
## Bullet Driver Right Tibia X-Axis Acceleration

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 11TIBIRILXH3ACXA

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_1000

**Min. Value**
-103.82 g at 57.84 ms

**Max. Value**
23.95 g at 66.48 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

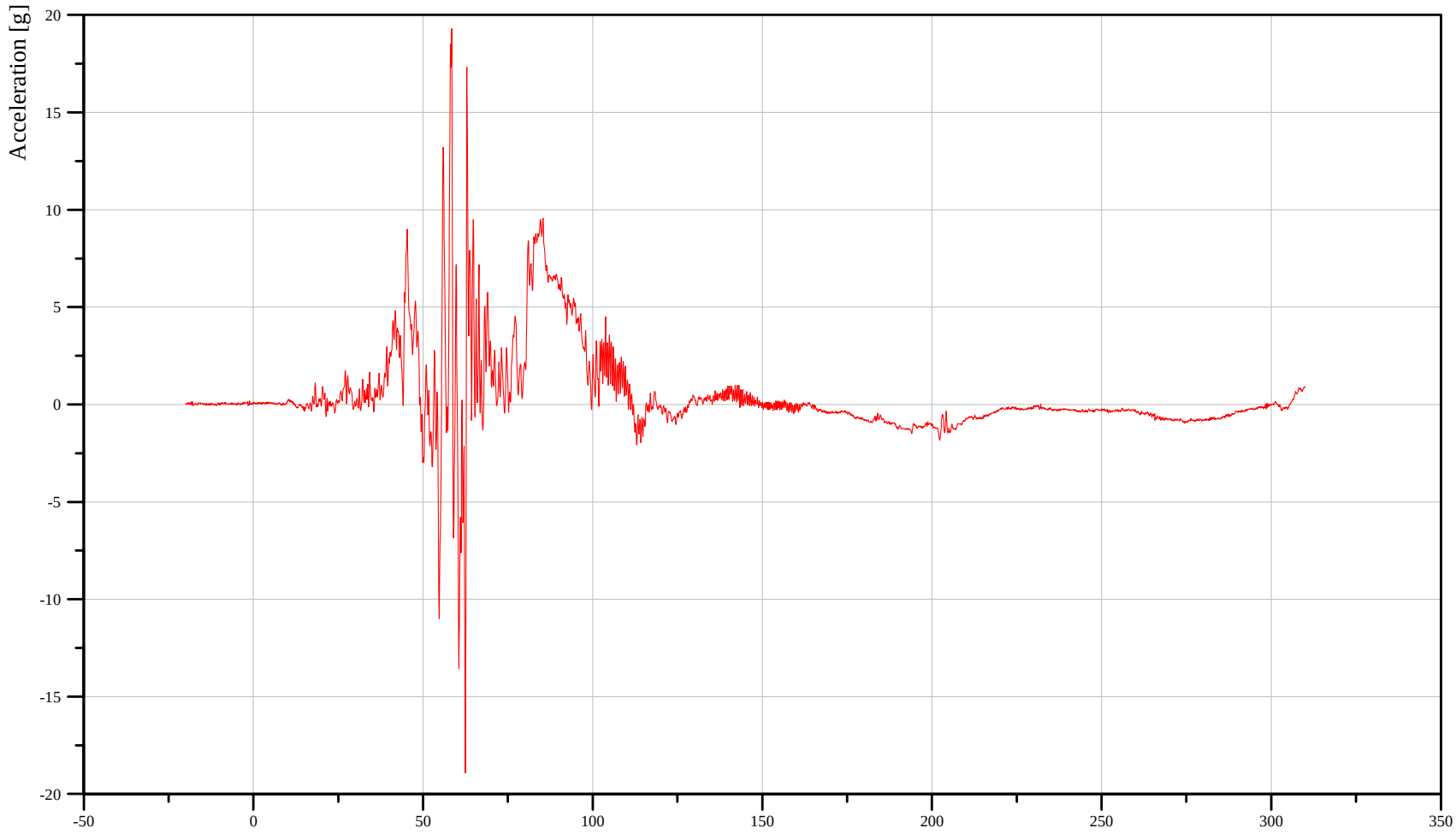
## Bullet Driver Right Tibia Y-Axis Acceleration

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 11TIBIRILXH3ACYA

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_1000

**Min. Value**
-18.91 g at 62.48 ms

**Max. Value**
19.31 g at 58.48 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

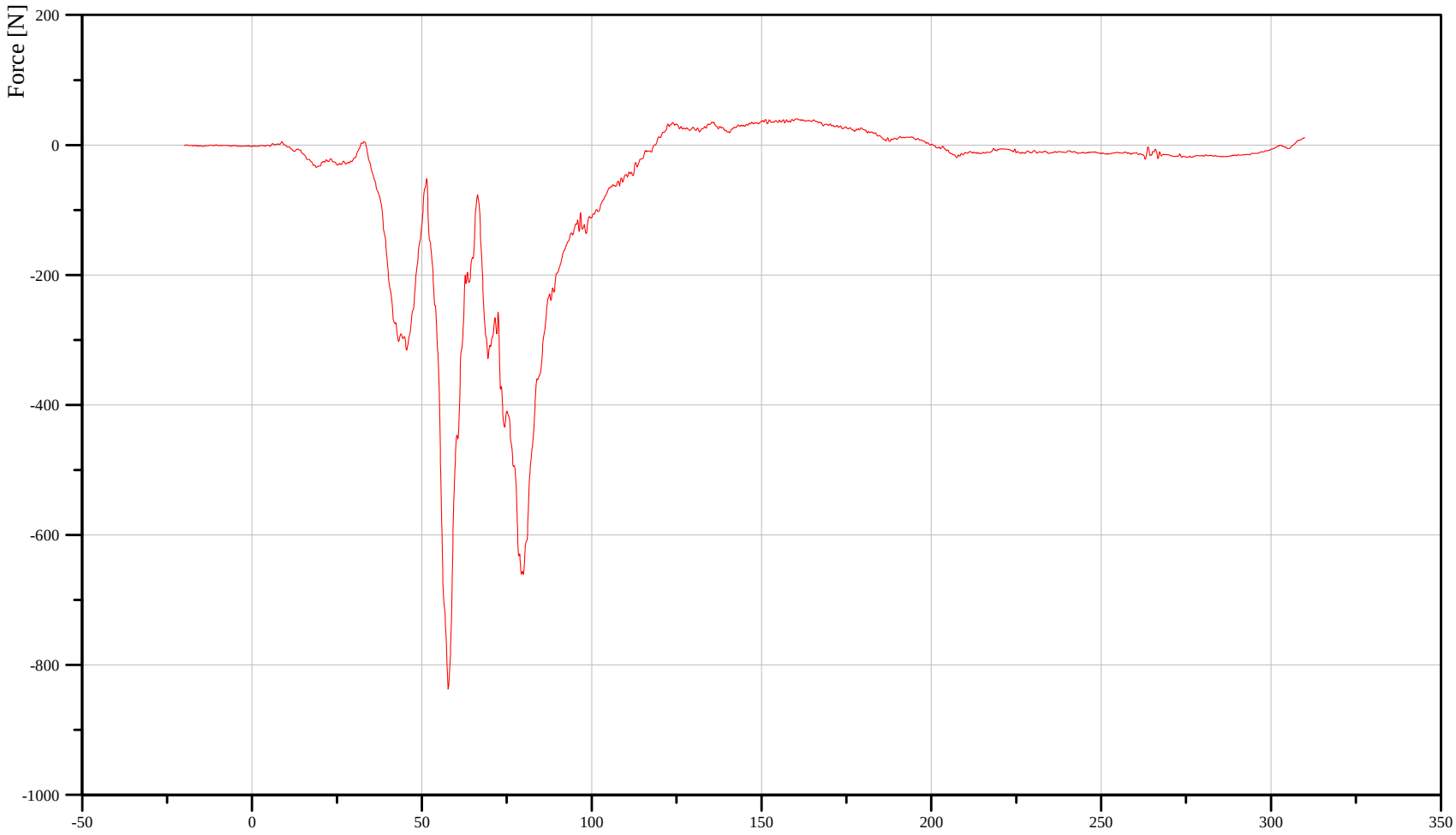
## Bullet Driver Right Lower Tibia X-Axis Force

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 11TIBIRLLXH3FOXB

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_600

**Min. Value**
-836.97 N at 57.76 ms

**Max. Value**
40.38 N at 160.40 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

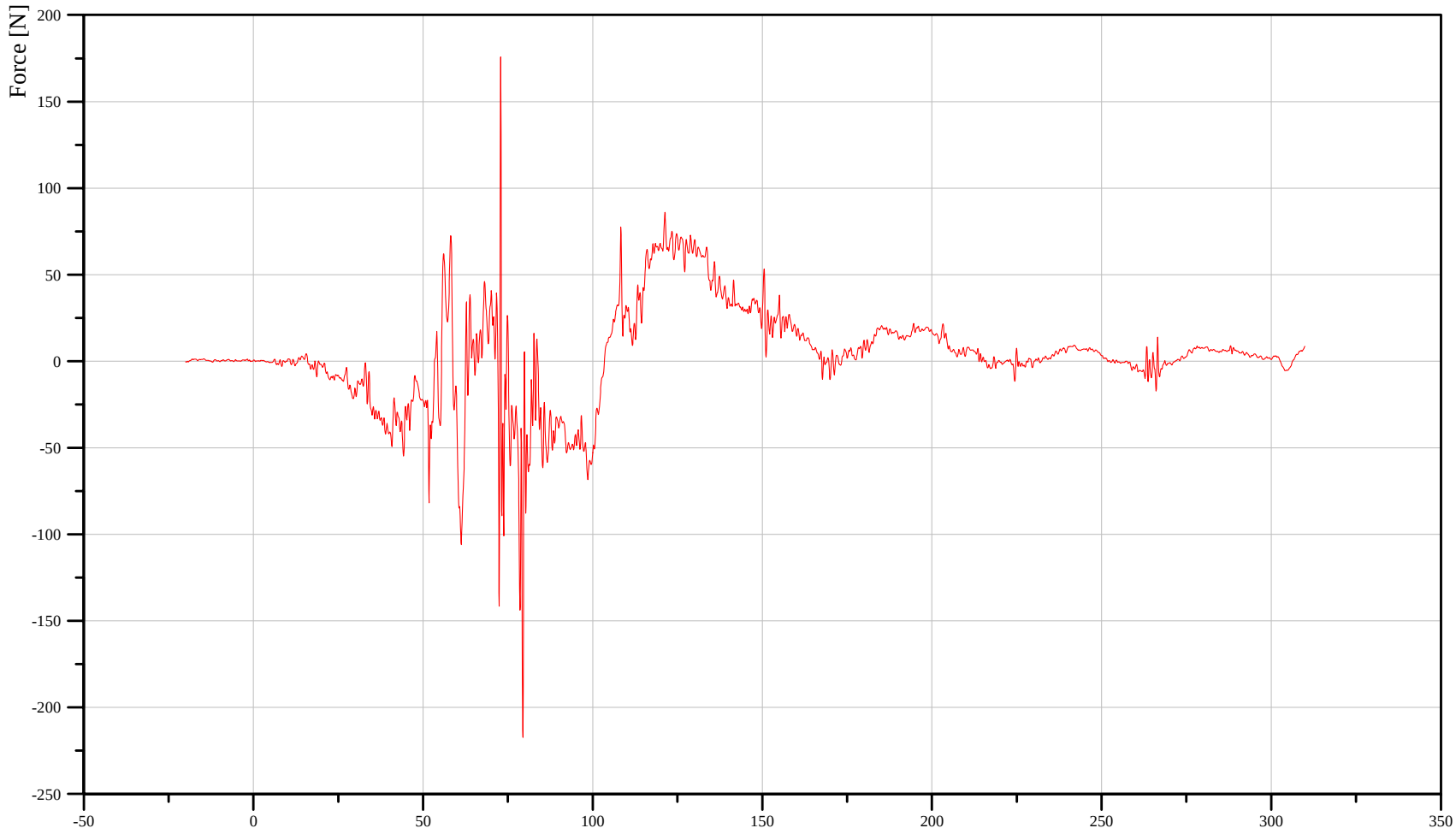
## Bullet Driver Right Lower Tibia Y-Axis Force

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 11TIBIRLLXH3FOYB

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_600

**Min. Value**
-217.38 N at 79.44 ms

**Max. Value**
175.85 N at 72.88 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

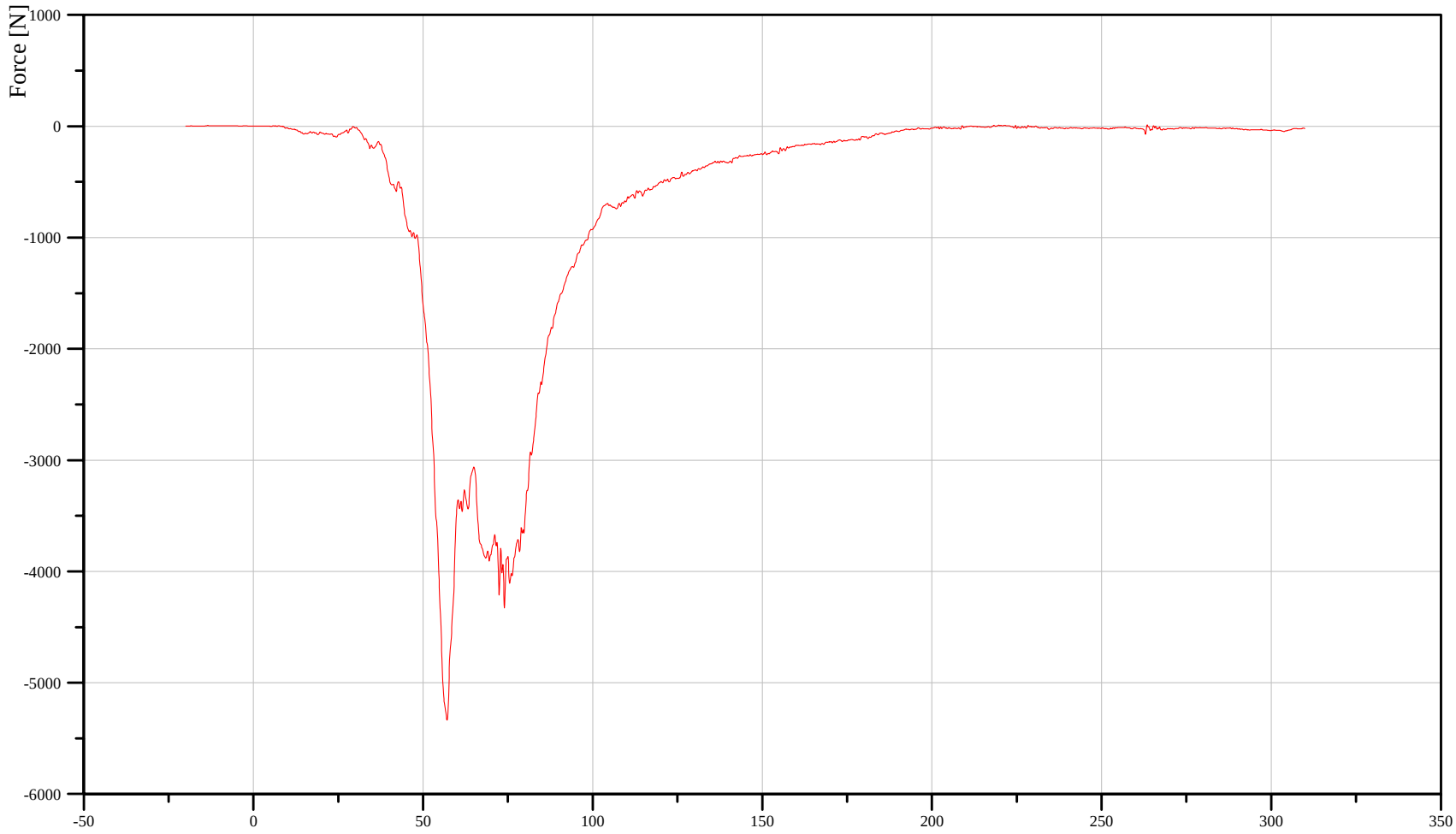
Bullet Driver Right Lower Tibia Z-Axis Force

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

## 11TIBIRLLXH3FOZB

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_600

**Min. Value**
-5,334.97 N at 57.12 ms

**Max. Value**
14.41 N at 263.44 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

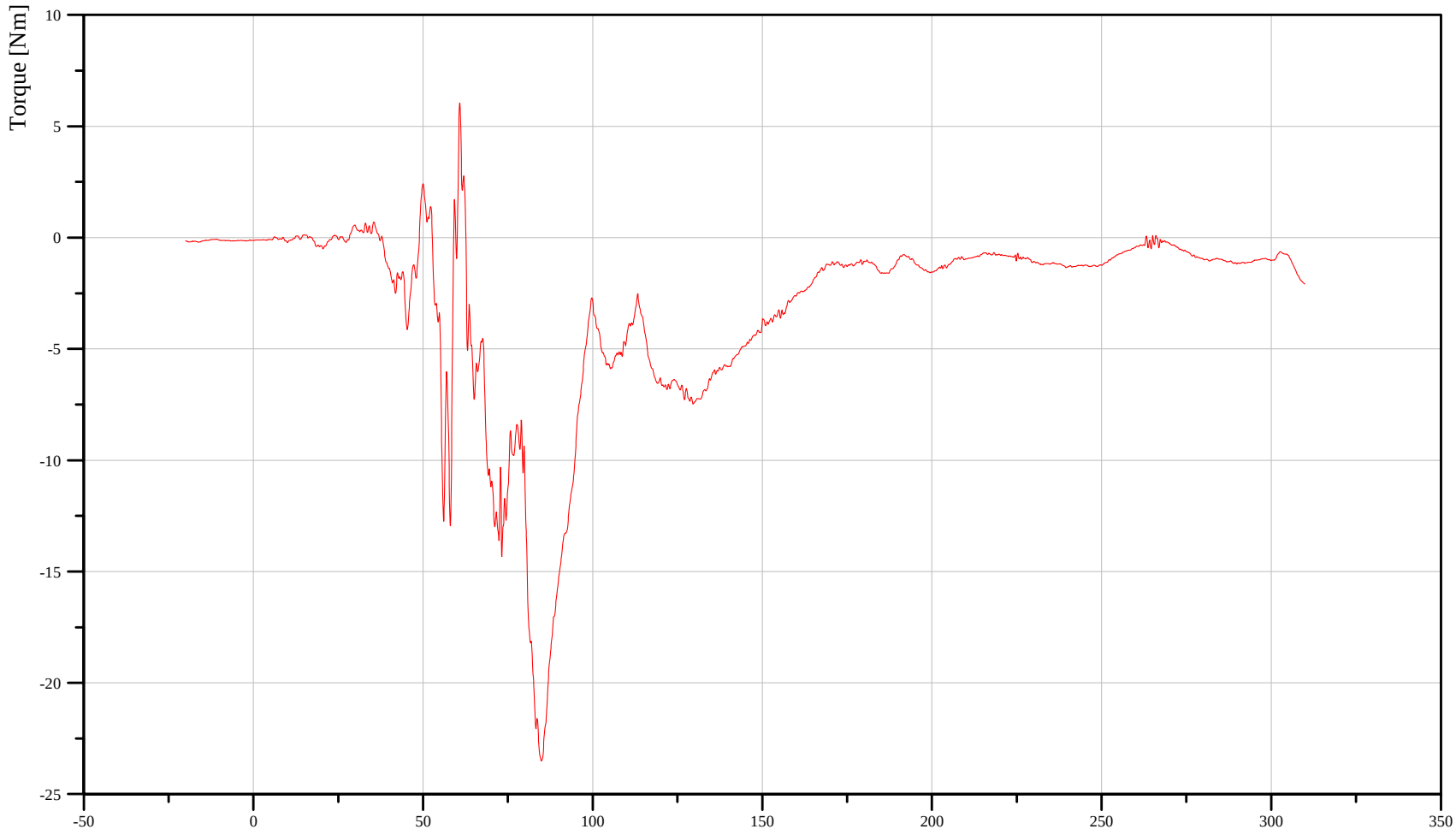
## Bullet Driver Right Lower Tibia Moment About X Axis

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 11TIBIRLLXH3MOXB

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_600

**Min. Value**
-23.50 Nm at 84.88 ms

**Max. Value**
6.05 Nm at 60.80 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

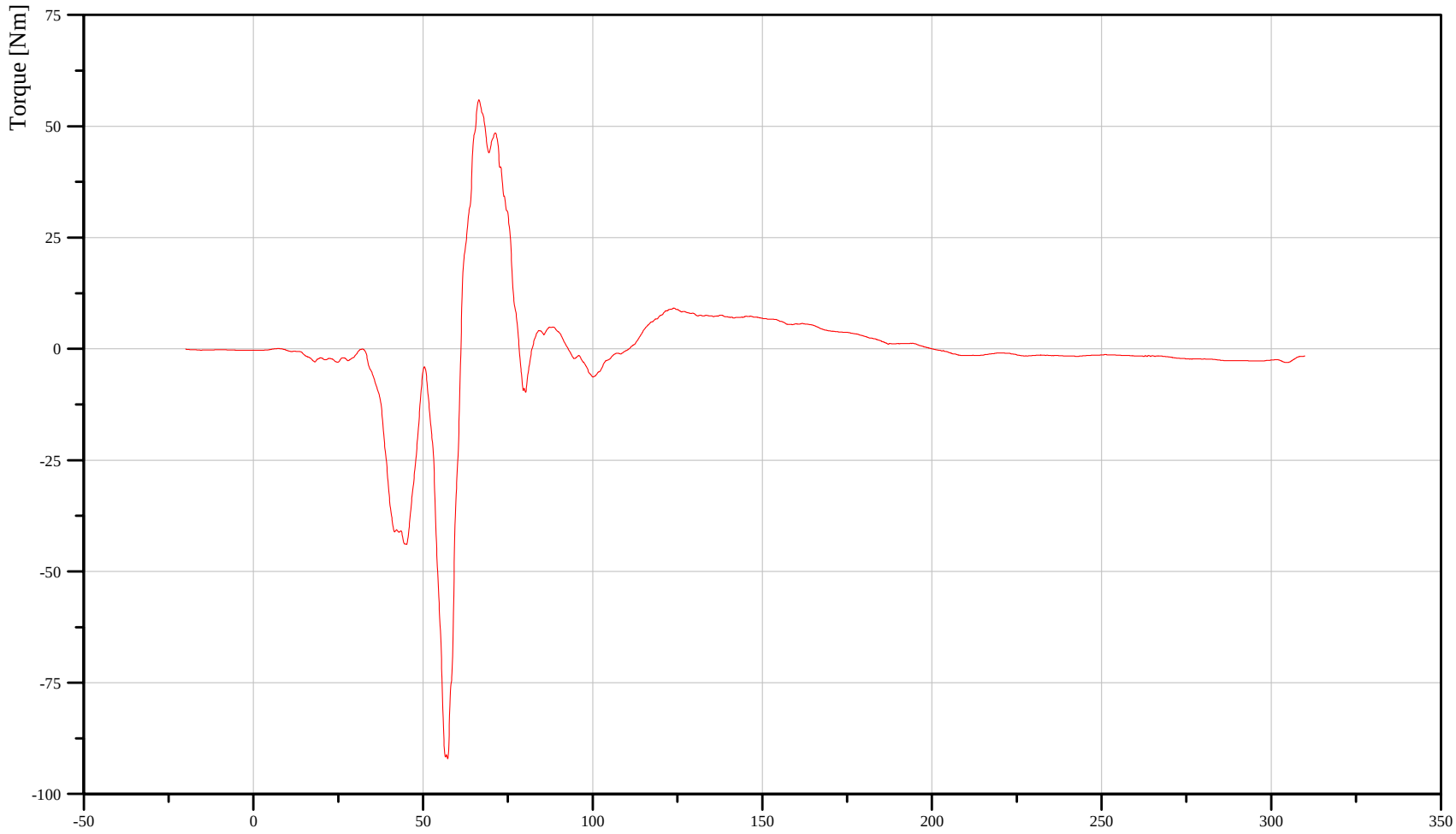
## Bullet Driver Right Lower Tibia Moment About Y Axis

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 11TIBIRLLXH3MOYB

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_600

**Min. Value**
-92.10 Nm at 57.28 ms

**Max. Value**
55.94 Nm at 66.48 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

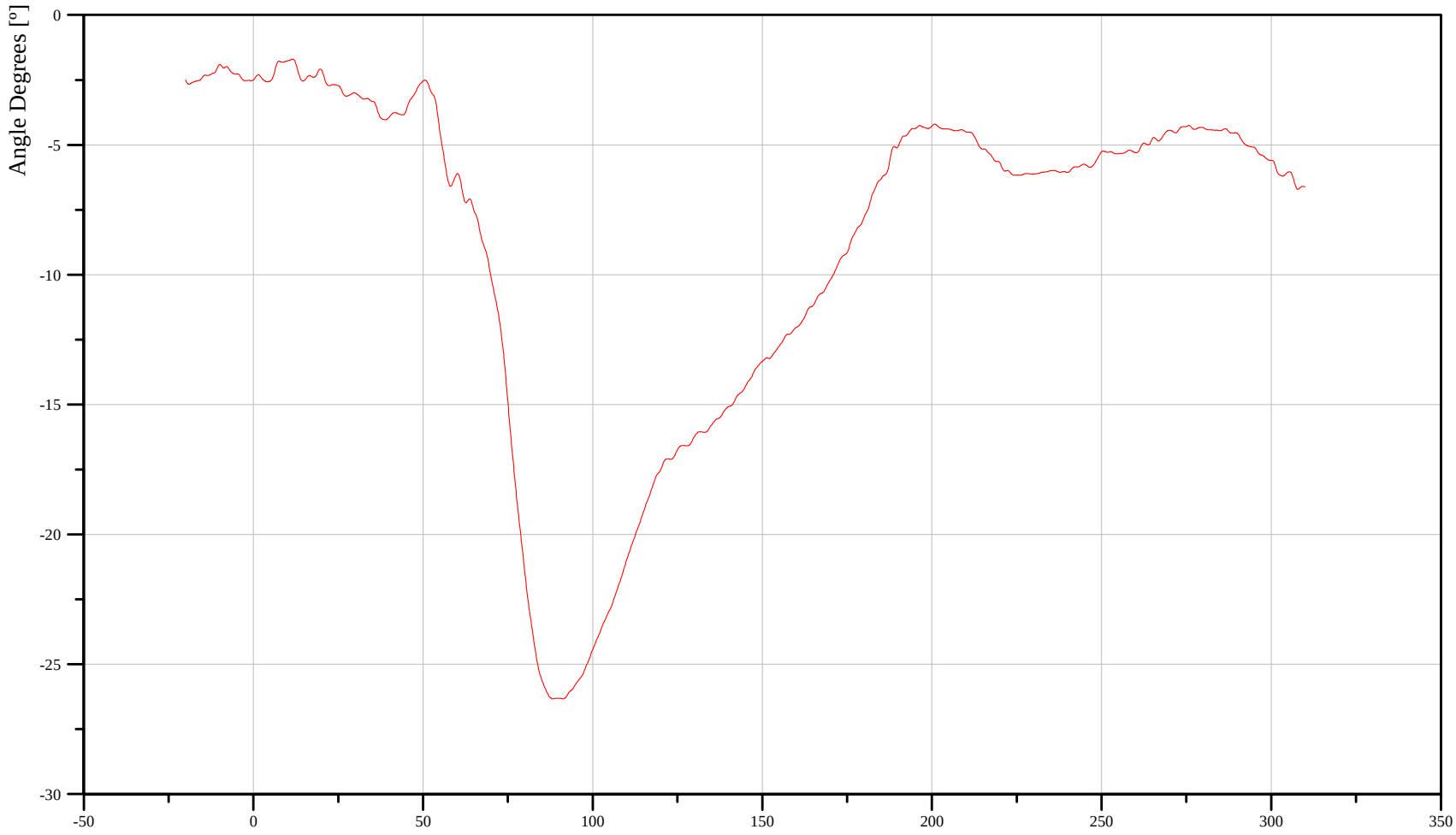
## Bullet Driver Right Foot X-Axis Rotation

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 11FOOTRILXH3ANXC

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_180

**Min. Value**
-26.32 ° at 91.28 ms

**Max. Value**
-1.70 ° at 11.60 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

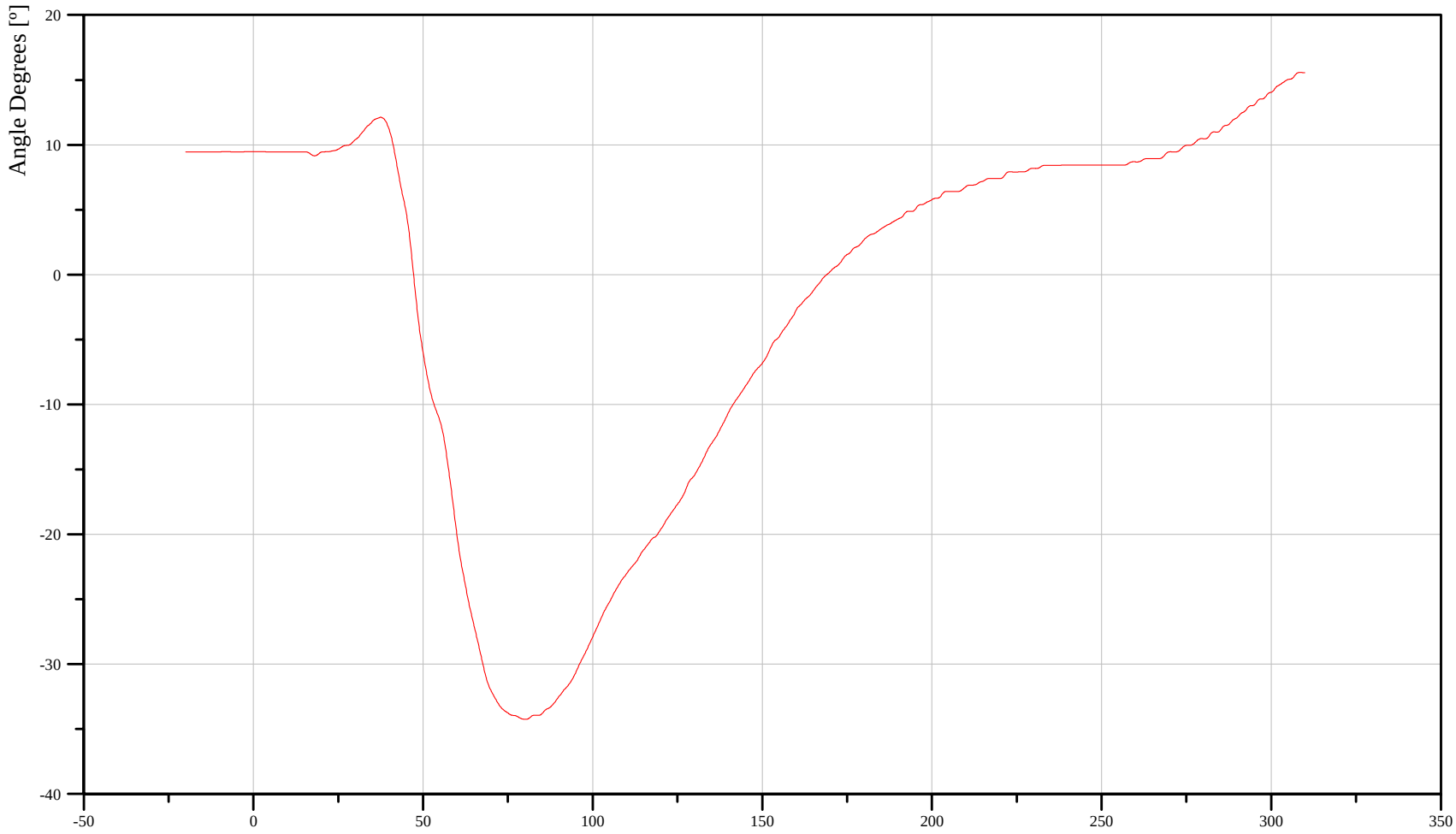
## Bullet Driver Right Foot Y-Axis Rotation

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 11FOOTRILXH3ANYC

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_180

**Min. Value**
-34.24 ° at 80.16 ms

**Max. Value**
15.57 ° at 308.40 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

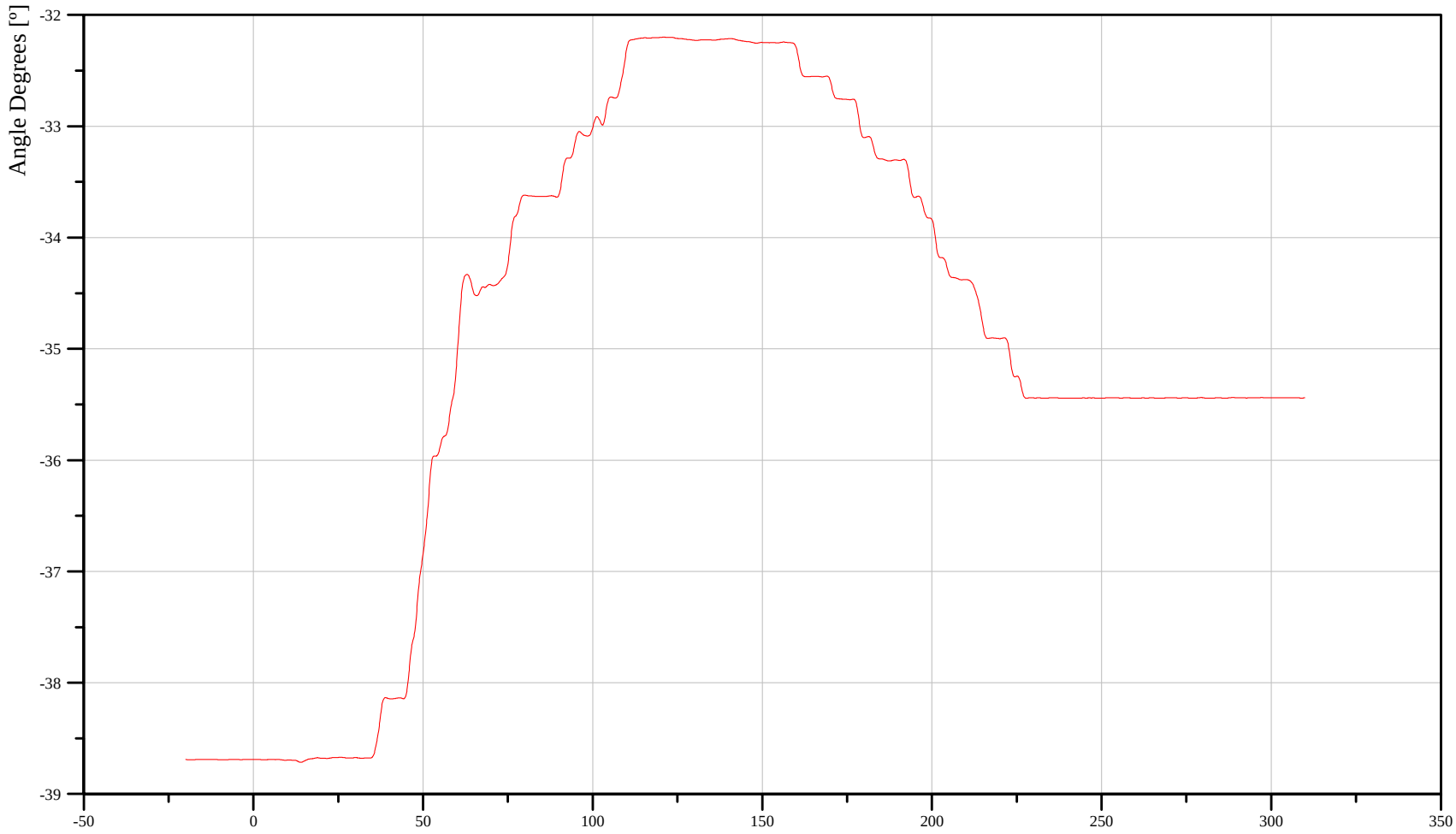
## Bullet Driver Right Foot Z-Axis Rotation

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 11FOOTRILXH3ANZC

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_180

**Min. Value**
-38.72 ° at 13.92 ms

**Max. Value**
-32.20 ° at 120.96 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

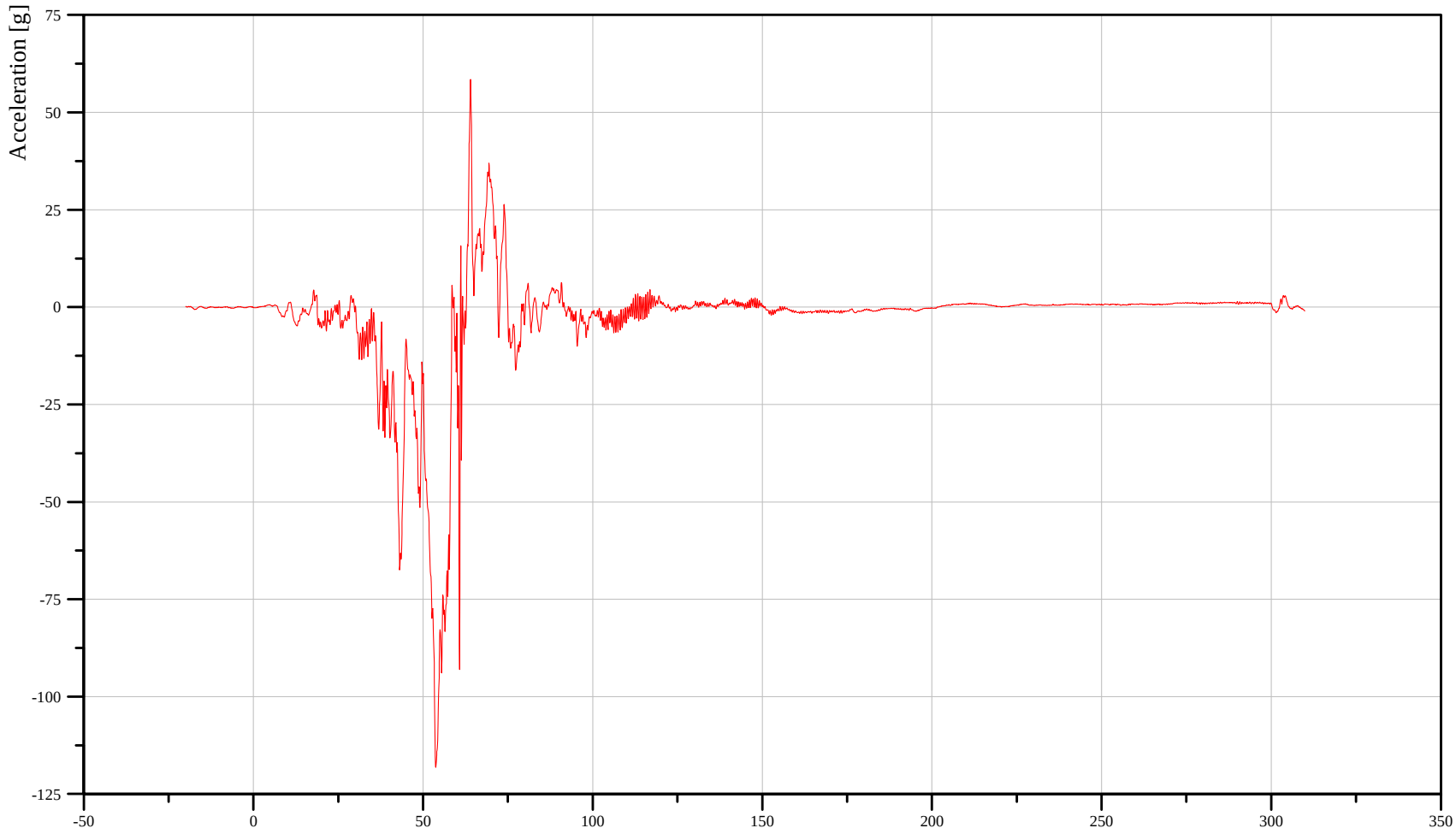
Bullet Driver Right Foot X-Axis Acceleration

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

11FOOTRILXH3ACXA

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_1000

**Min. Value**
-118.19 g at 53.76 ms

**Max. Value**
58.45 g at 64.00 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

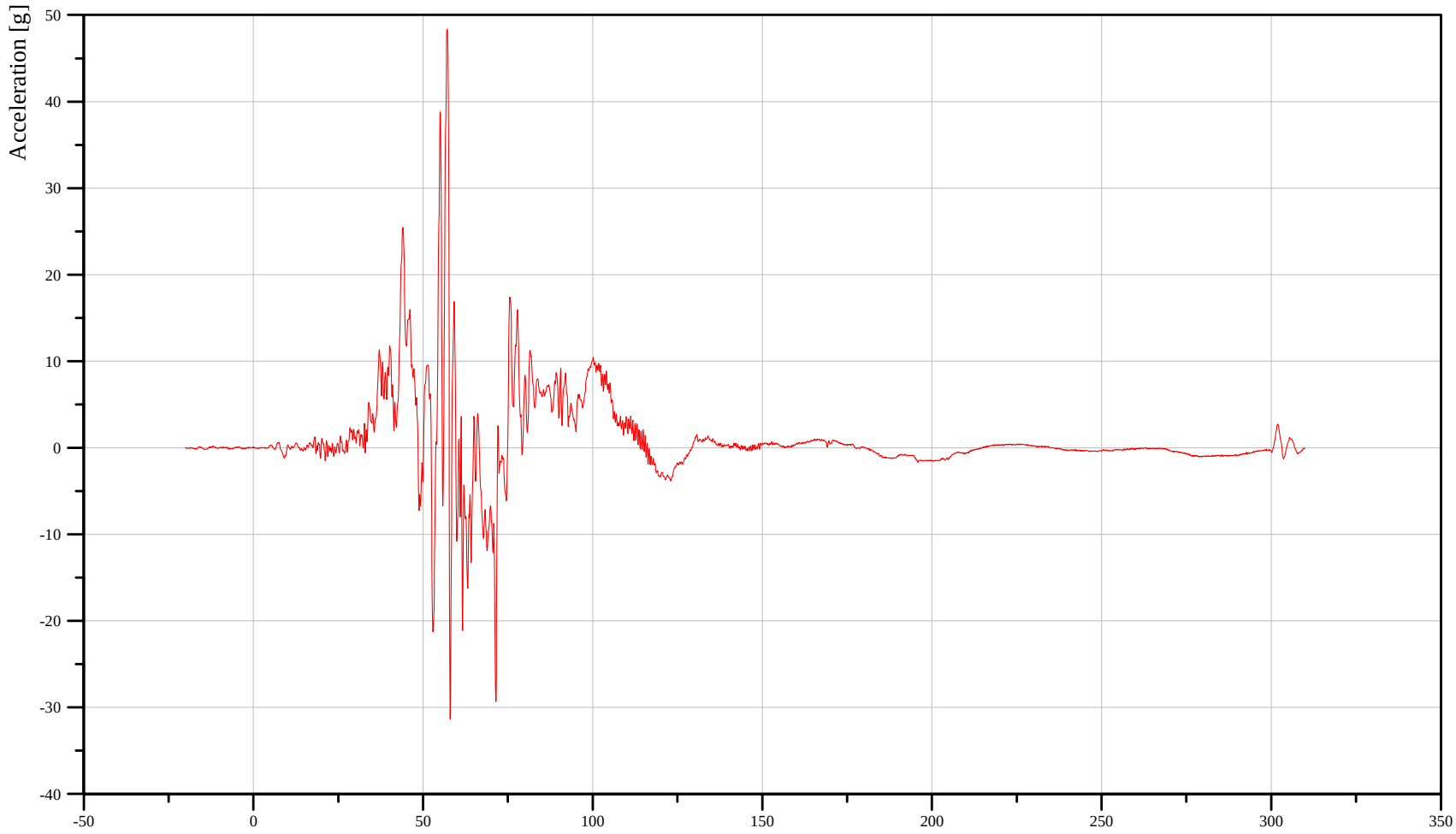
## Bullet Driver Right Foot Y-Axis Acceleration

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 11FOOTRILXH3ACYA

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_1000

**Min. Value**
-31.34 g at 58.00 ms

**Max. Value**
48.36 g at 57.12 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

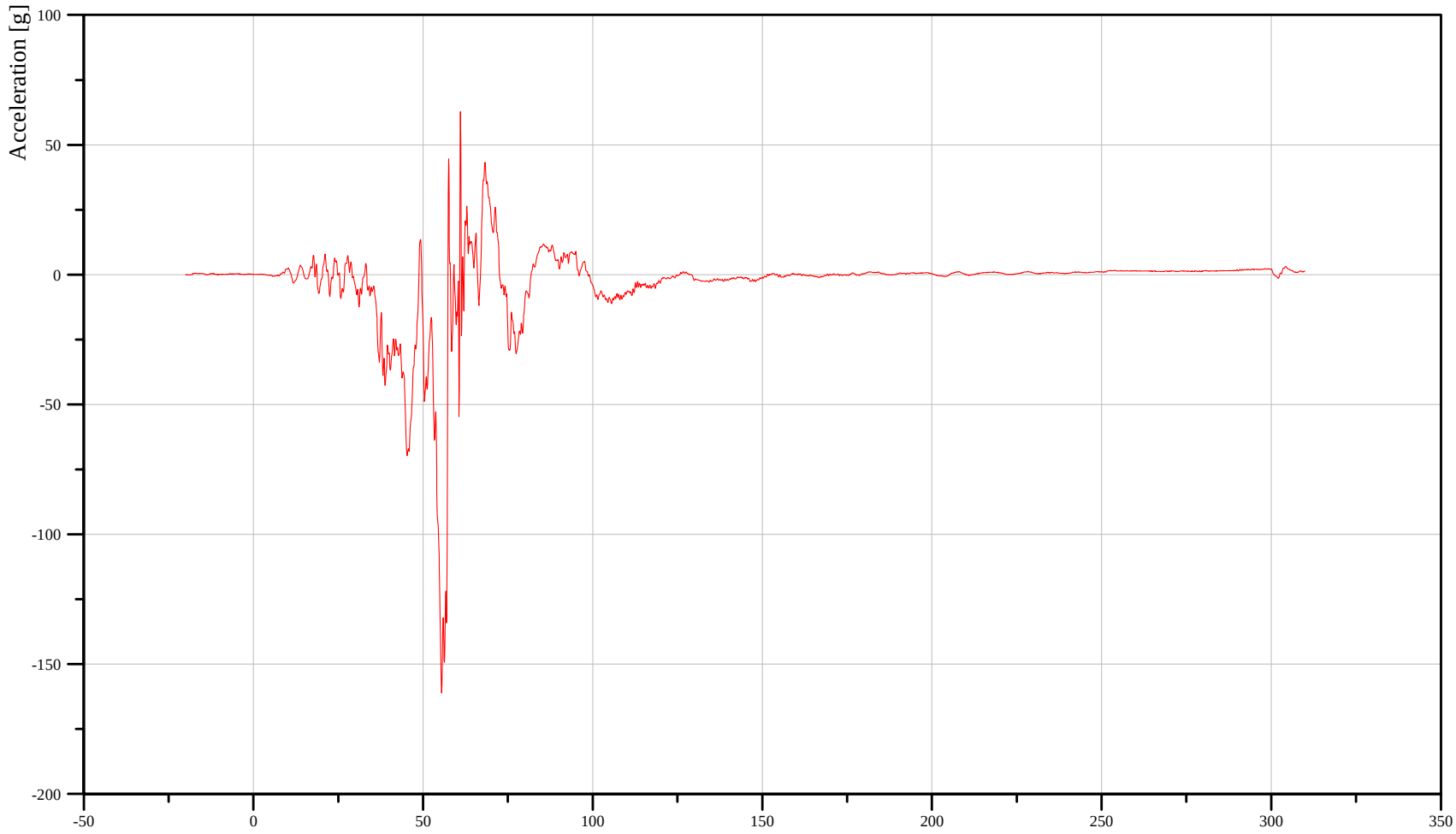
## Bullet Driver Right Foot Z-Axis Acceleration

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 11FOOTRILXH3ACZA

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_1000

**Min. Value**
-161.06 g at 55.52 ms

**Max. Value**
62.70 g at 61.04 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

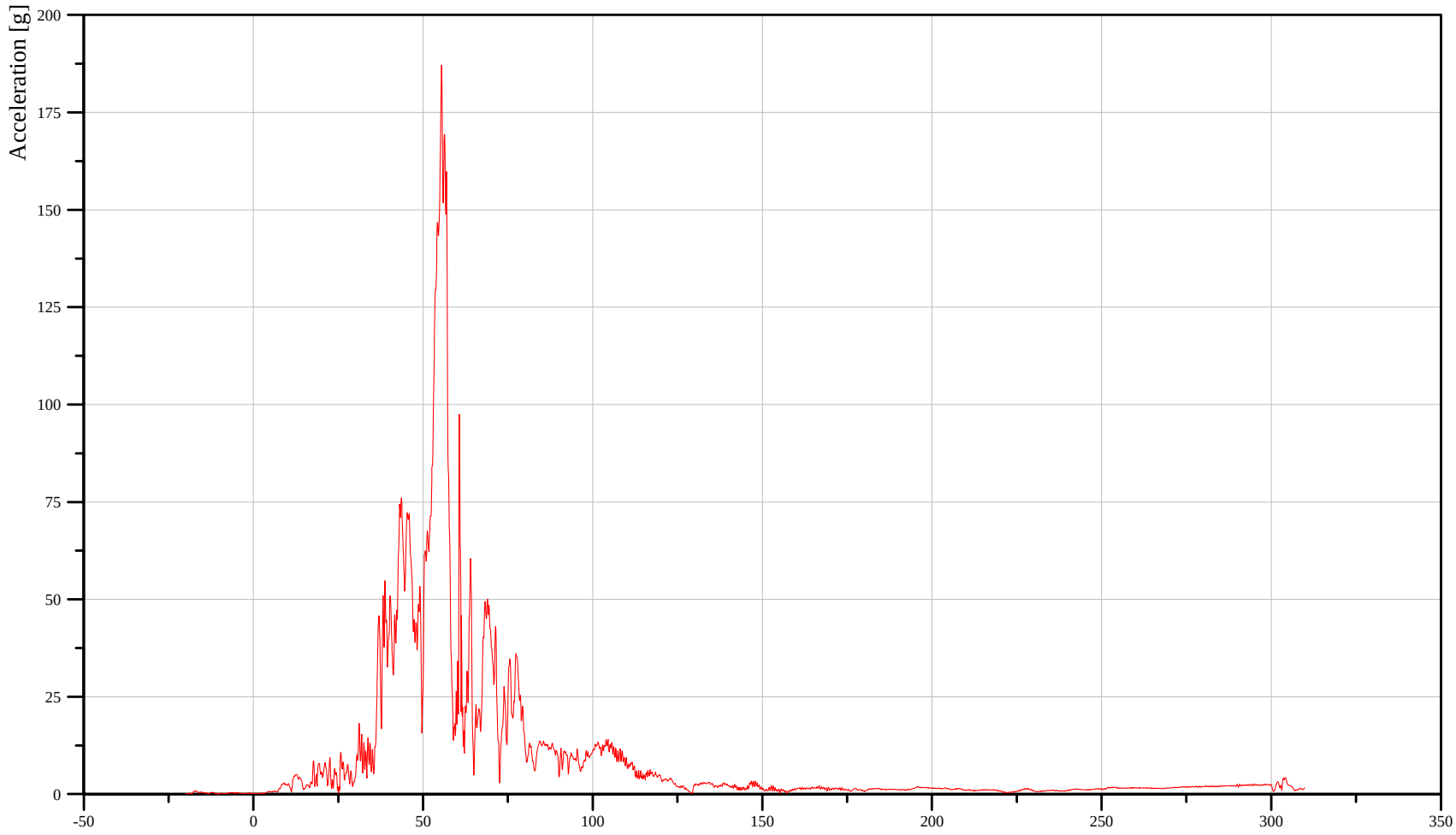
## Bullet Driver Right Foot Resultant Acceleration

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 11FOOTRILXH3ACRA

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_1000

**Min. Value**
0.03 g at -10.16 ms

**Max. Value**
187.16 g at 55.52 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

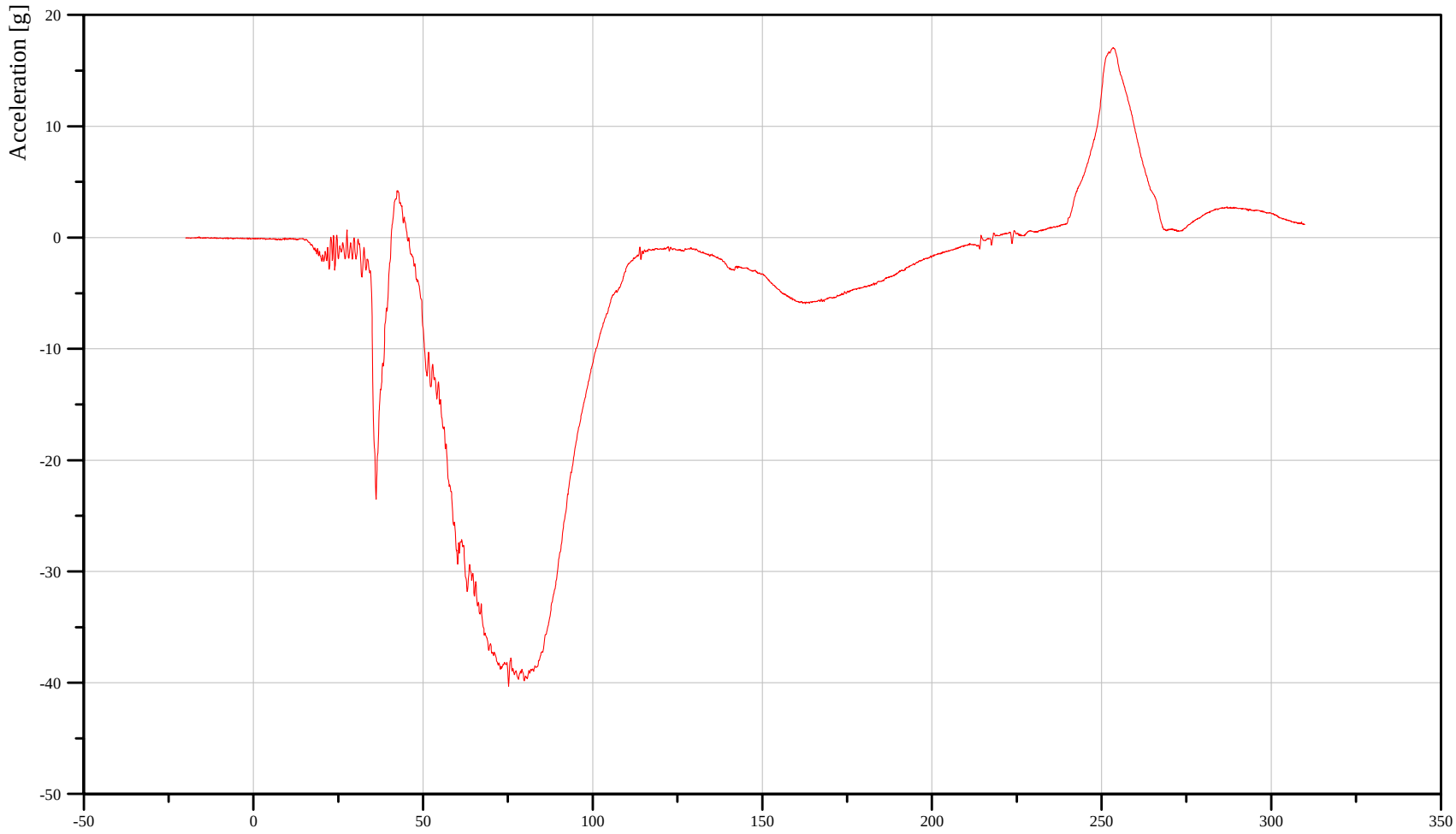
## Bullet Passenger Head CG X-Axis Acceleration

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 13HEADCG00HFACXA

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_1000

**Min. Value**
-40.31 g at 75.20 ms

**Max. Value**
17.07 g at 253.44 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

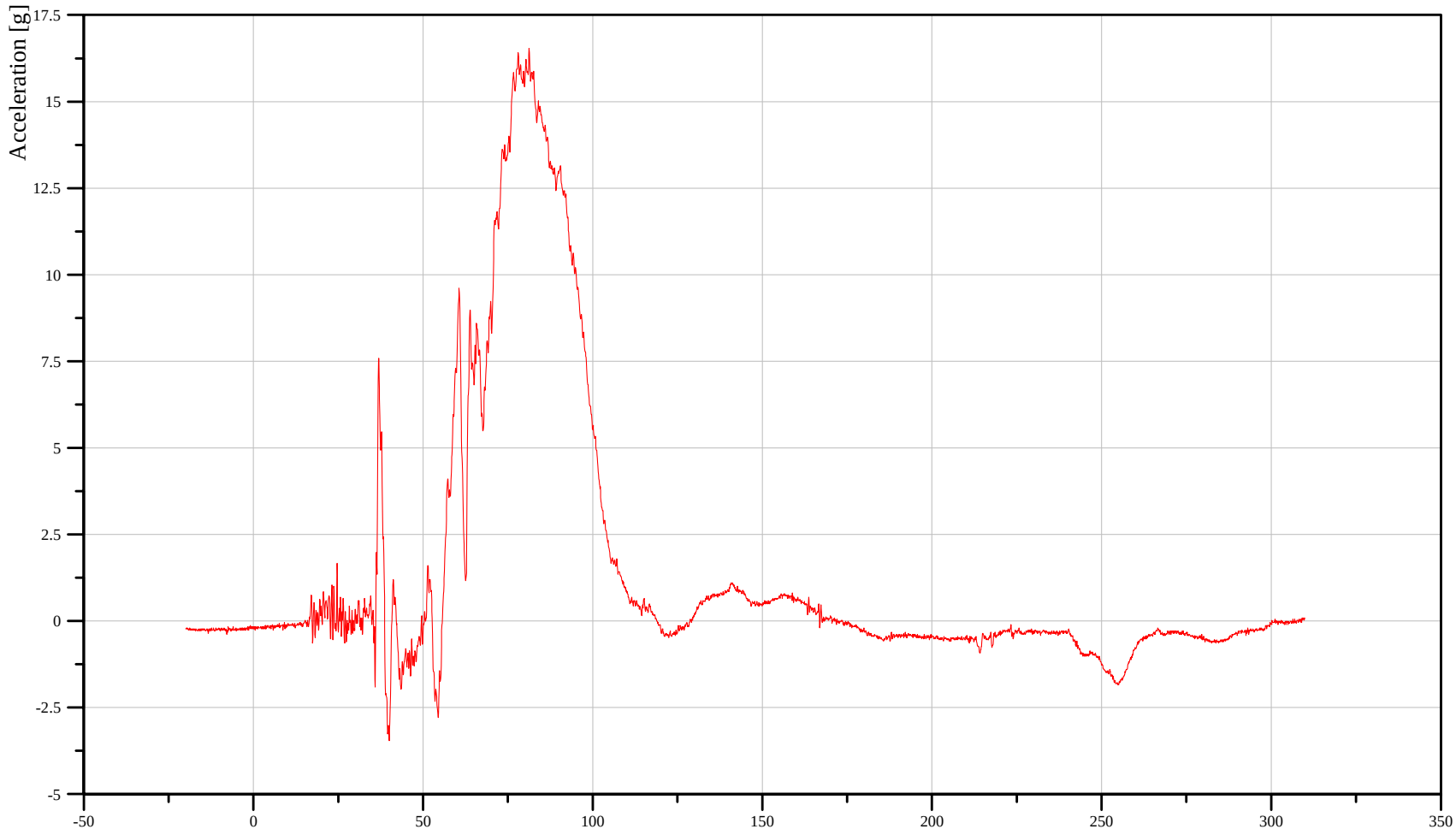
## Bullet Passenger Head CG Y-Axis Acceleration

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 13HEADCG00HFACYA

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_1000

**Min. Value**
-3.46 g at 40.00 ms

**Max. Value**
16.54 g at 81.28 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

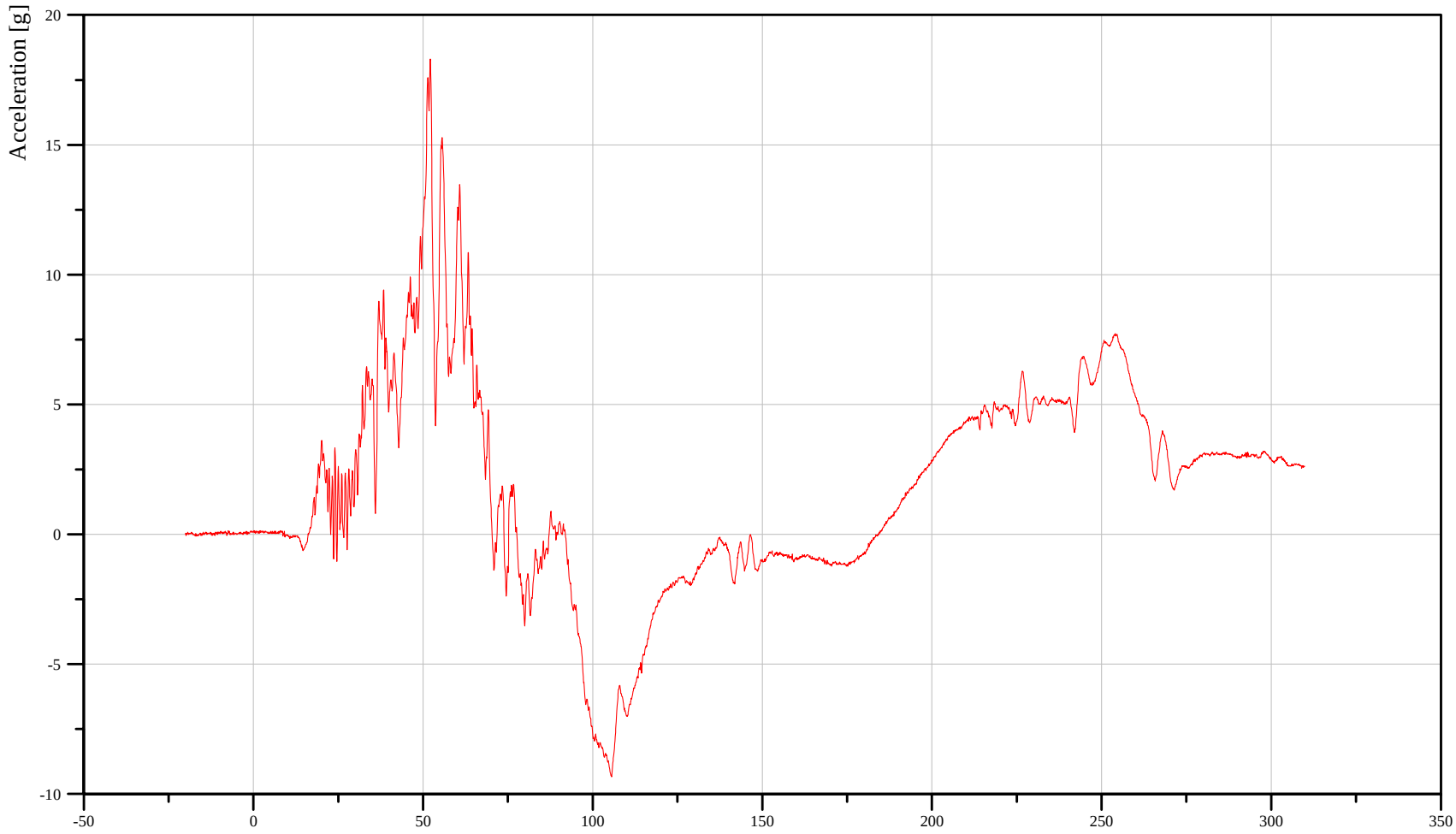
## Bullet Passenger Head CG Z-Axis Acceleration

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 13HEADCG00HFACZA

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_1000

**Min. Value**
-9.34 g at 105.60 ms

**Max. Value**
18.31 g at 52.16 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

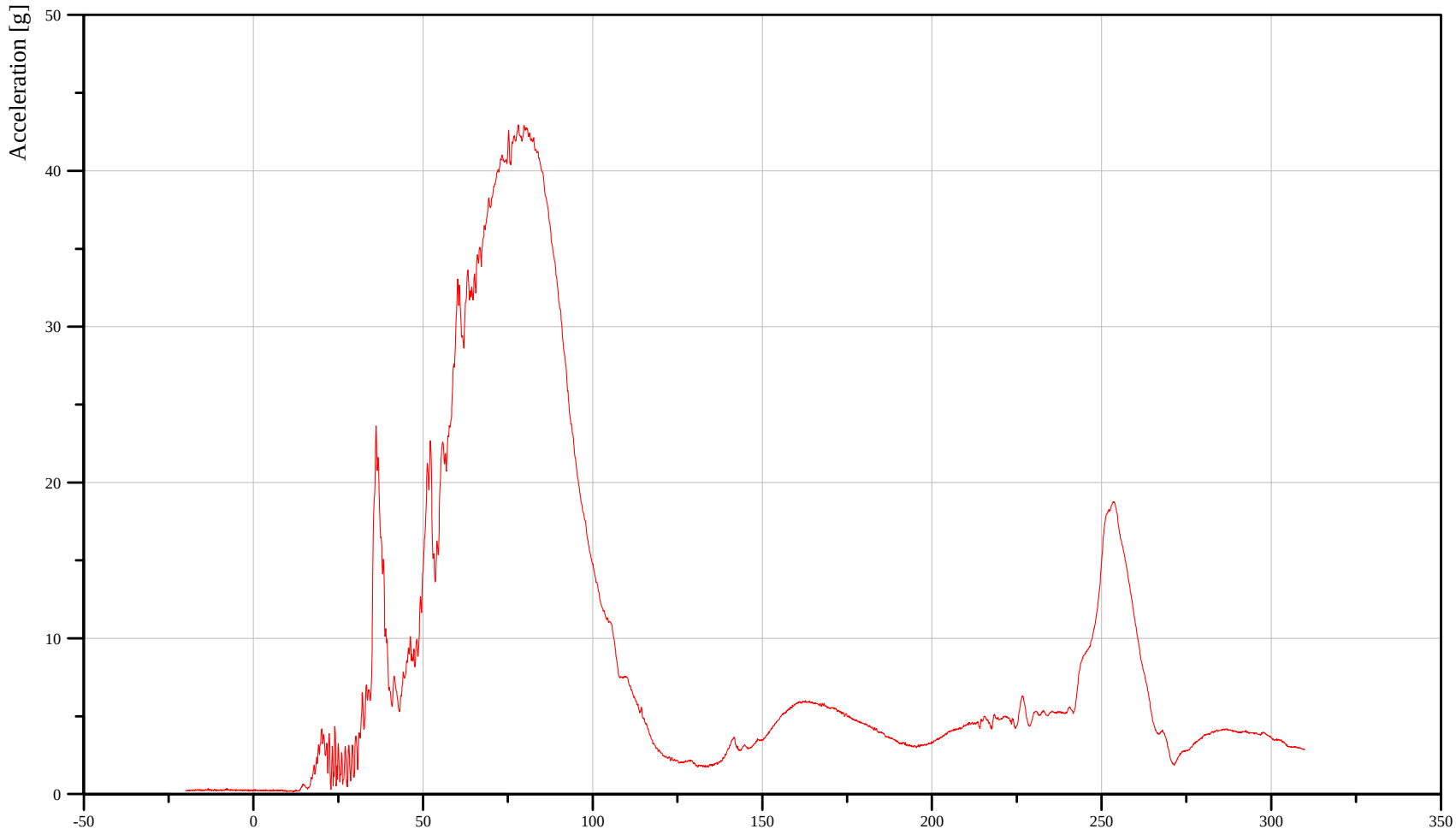
## Bullet Passenger Head CG Resultant Acceleration

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 13HEADCG00HFACRA

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_1000

**Min. Value**
0.14 g at 9.84 ms

**Max. Value**
42.95 g at 78.08 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

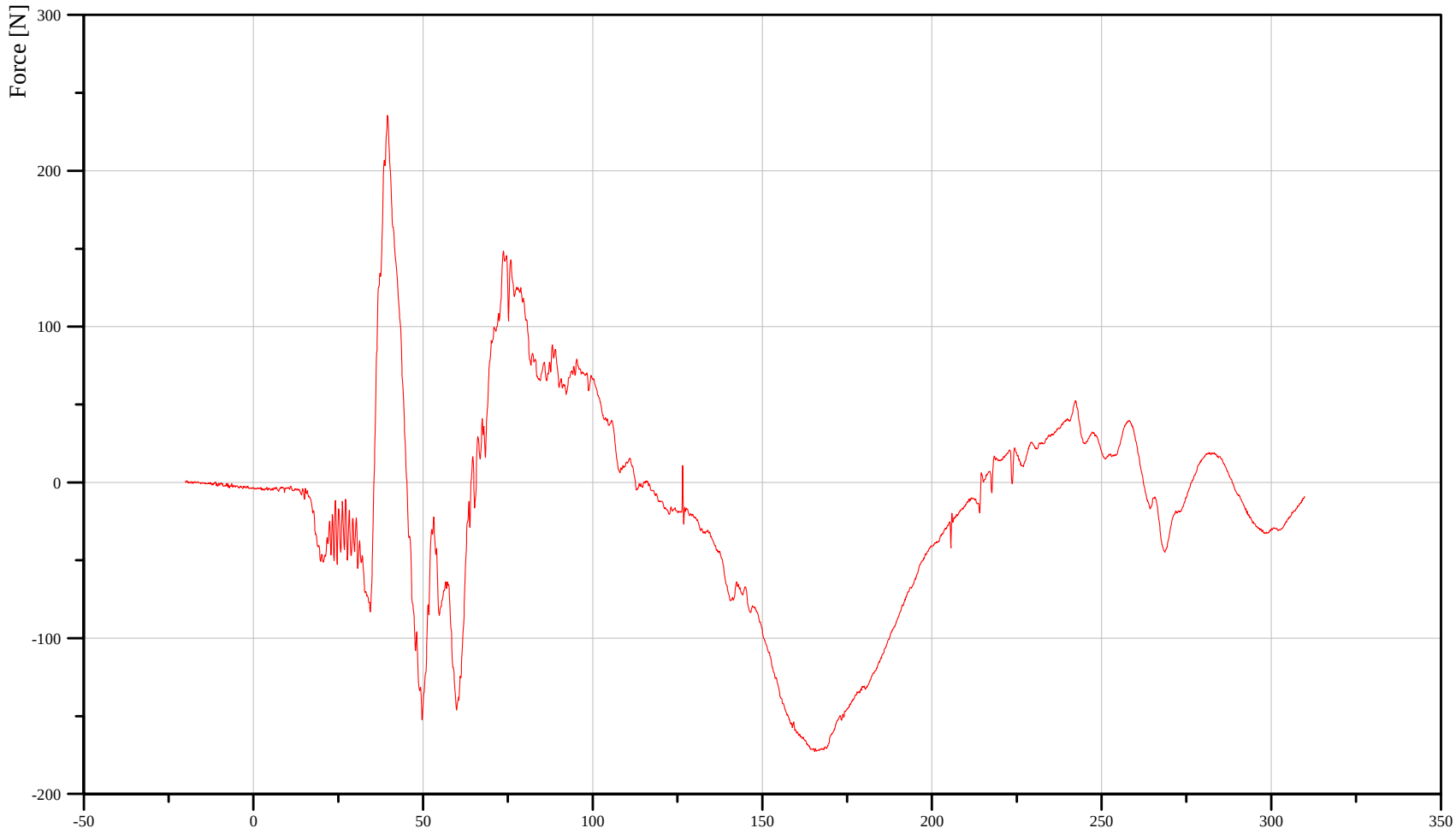
## Bullet Passenger Upper Neck X-Axis Force

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 13NECKUP00HFFOXA

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_1000

**Min. Value**
-172.73 N at 165.44 ms

**Max. Value**
235.56 N at 39.60 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

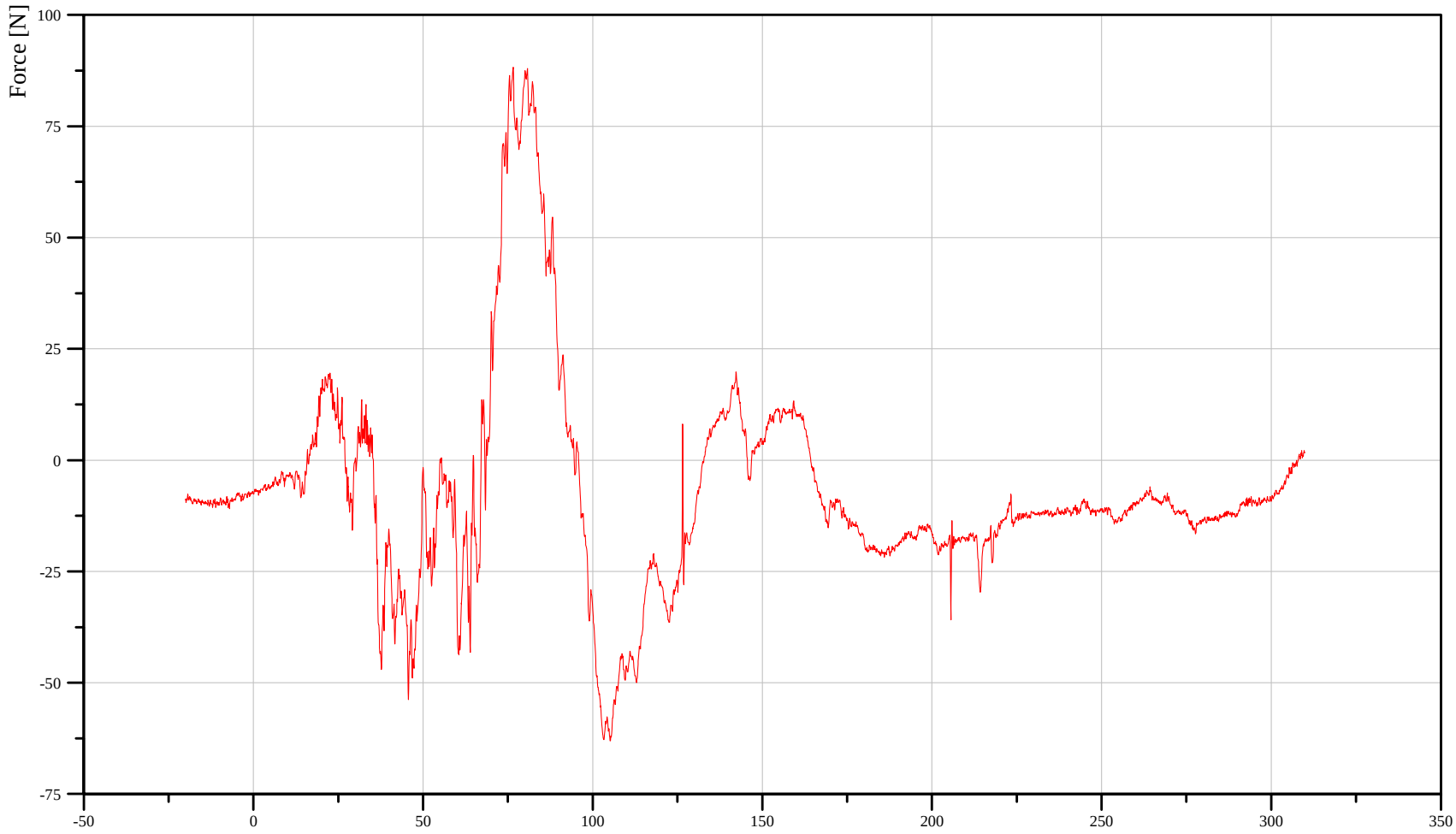
## Bullet Passenger Upper Neck Y-Axis Force

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 13NECKUP00HFFOYA

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_1000

**Min. Value**
-63.06 N at 105.12 ms

**Max. Value**
88.29 N at 76.56 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

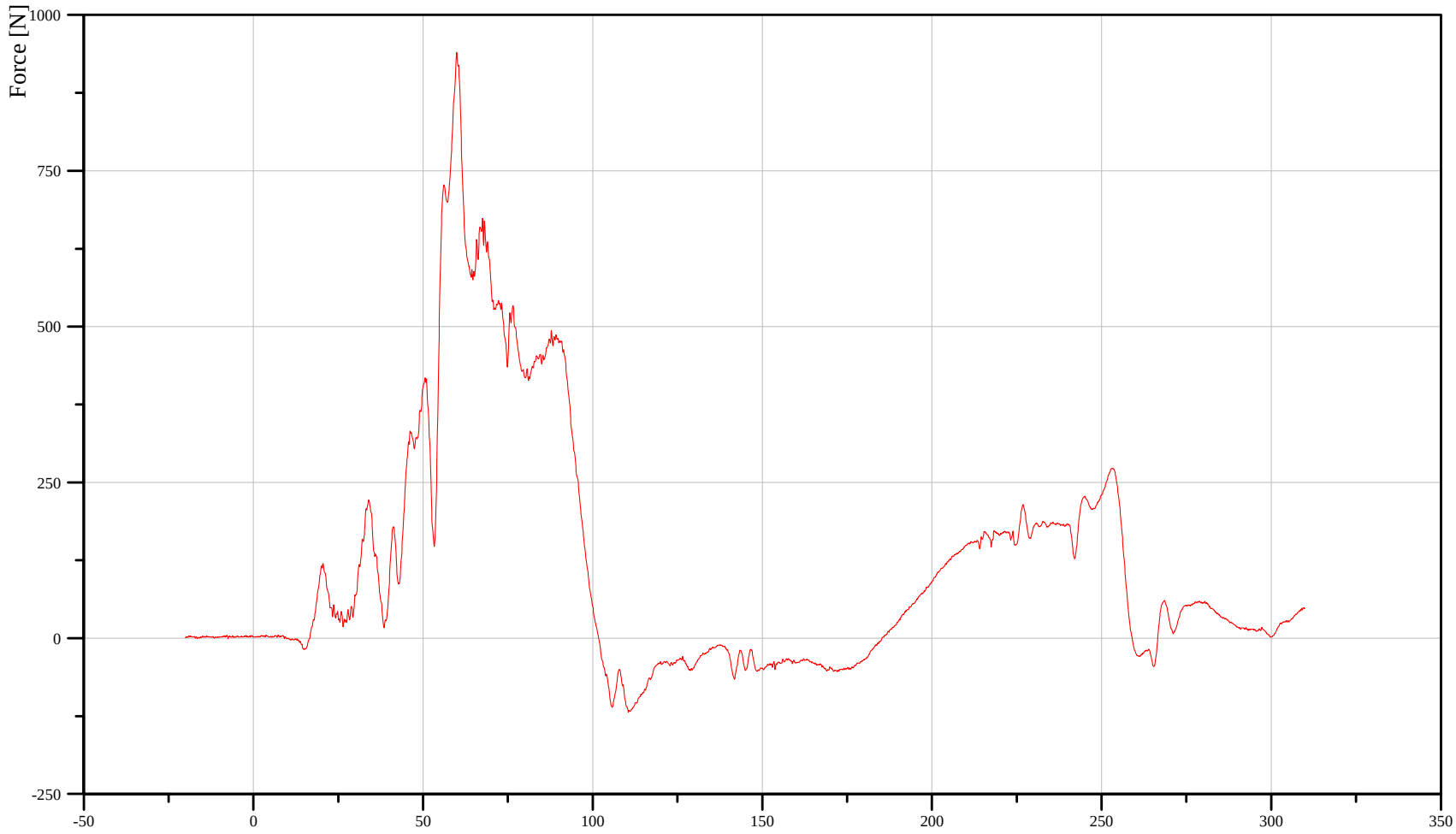
## Bullet Passenger Upper Neck Z-Axis Force

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 13NECKUP00HFFOZA

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_1000

**Min. Value**
-118.51 N at 110.48 ms

**Max. Value**
939.94 N at 59.92 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

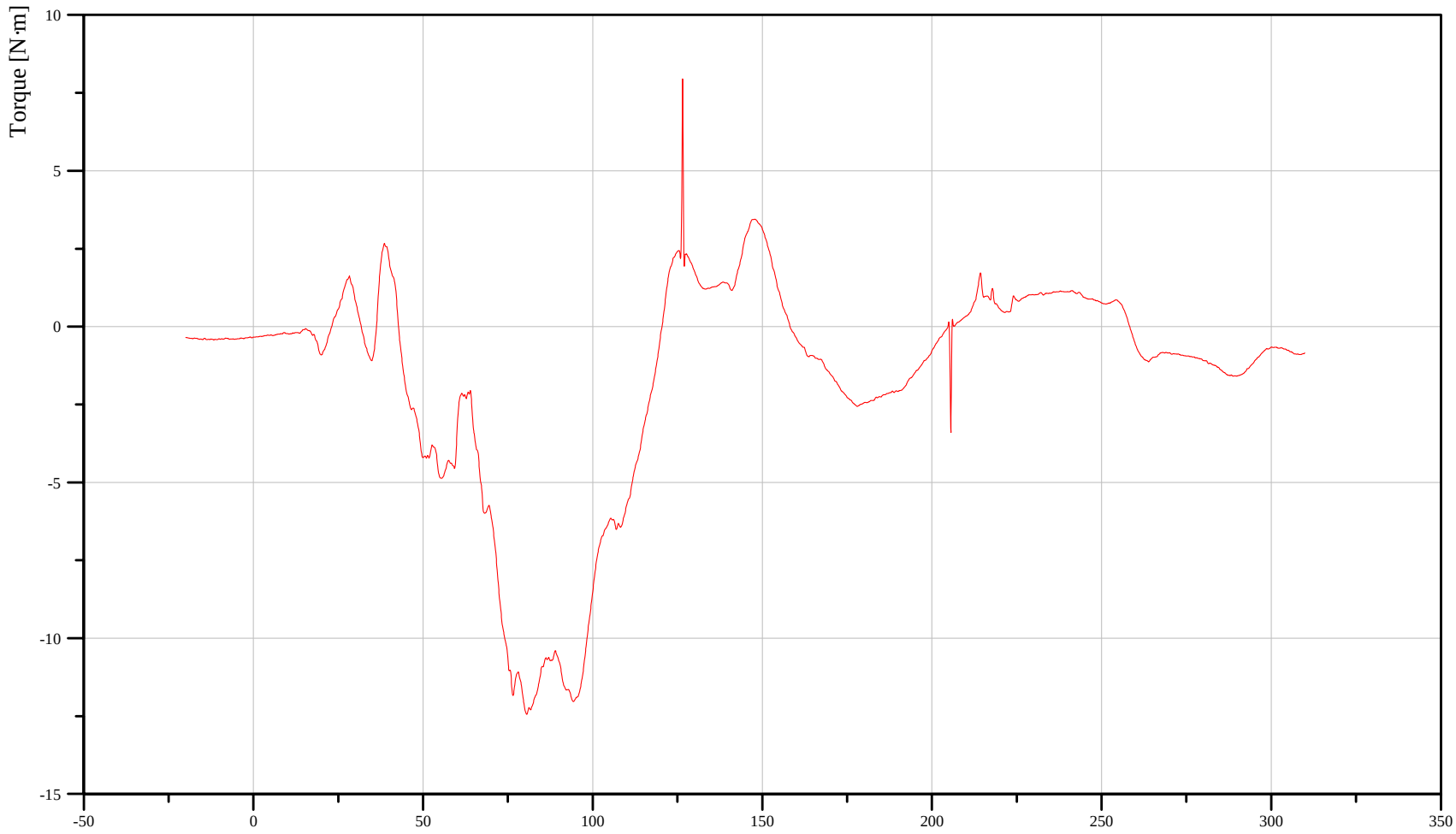
## Bullet Passenger Upper Neck Moment About X Axis

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 13NECKUP00HFMOXB

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_600

**Min. Value**
-12.44 N·m at 80.56 ms

**Max. Value**
7.95 N·m at 126.56 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

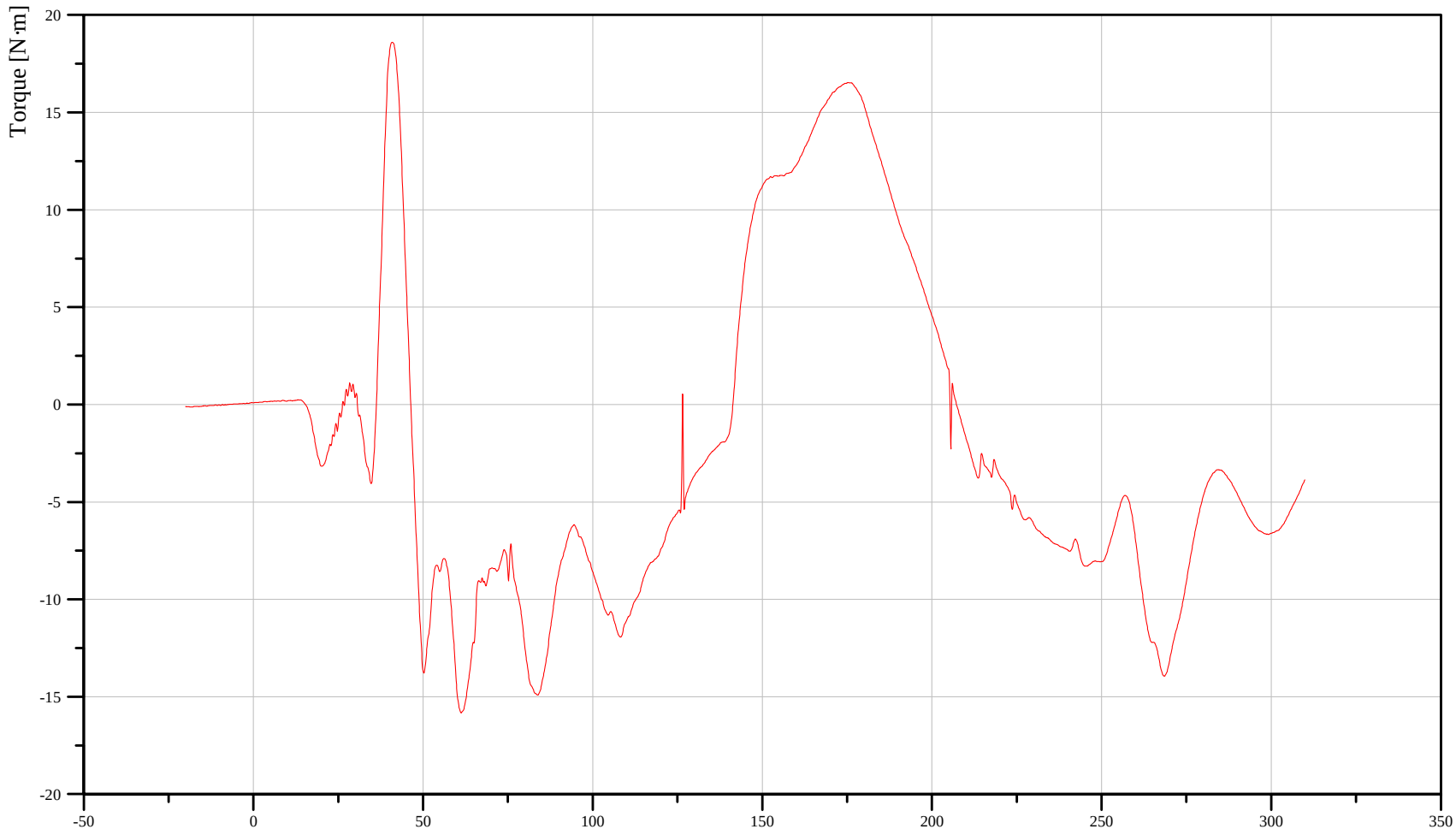
## Bullet Passenger Upper Neck Moment About Y Axis

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 13NECKUP00HFMOYB

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_600

**Min. Value**
-15.83 N·m at 61.20 ms

**Max. Value**
18.61 N·m at 40.88 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

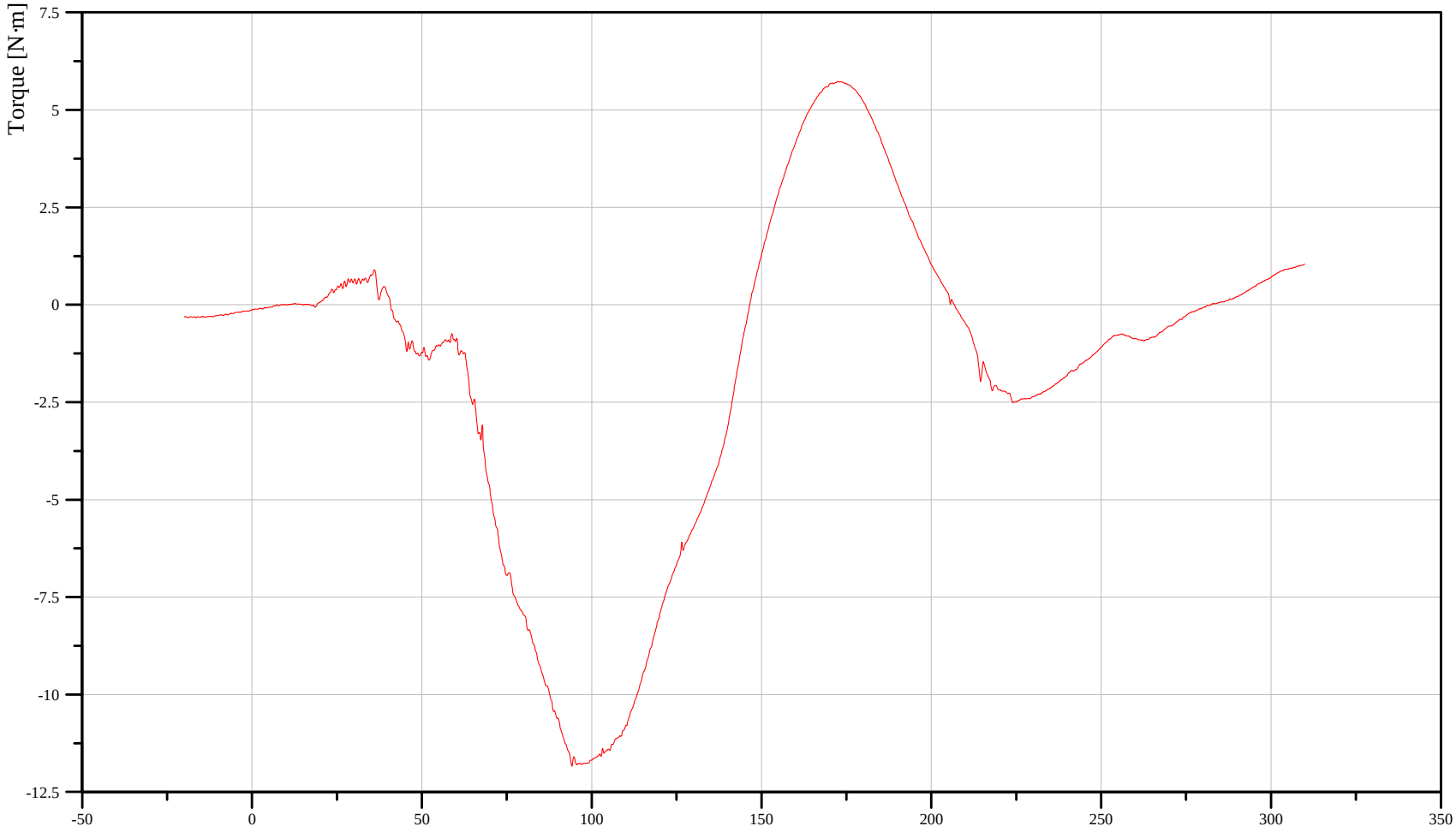
## Bullet Passenger Upper Neck Moment About Z Axis

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 13NECKUP00HFMOZB

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_600

**Min. Value**
-11.84 N·m at 94.16 ms

**Max. Value**
5.73 N·m at 172.56 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

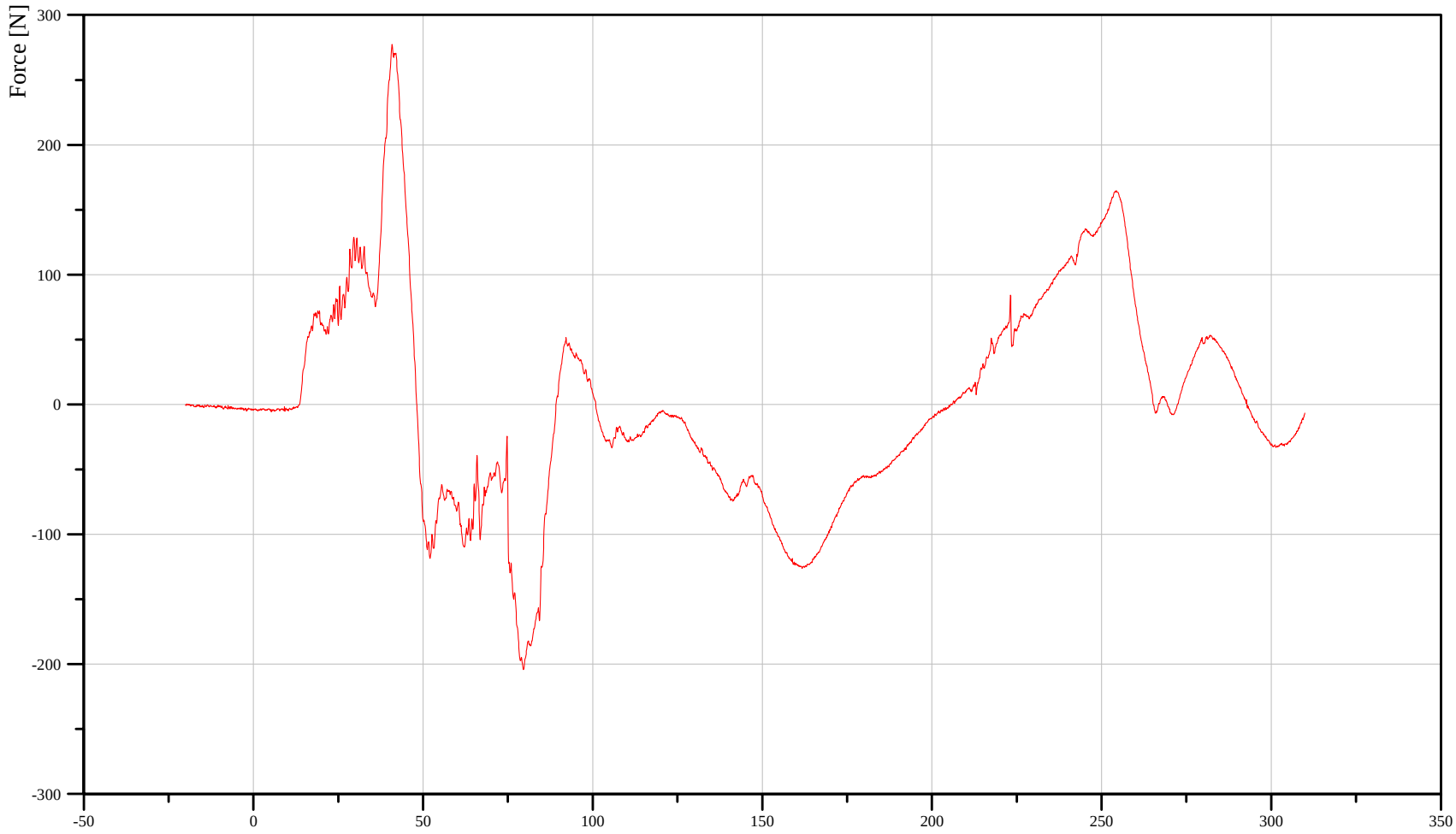
## Bullet Passenger Lower Neck X-Axis Force

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 13NECKLO00HFFOXA

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_1000

**Min. Value**
-204.19 N at 79.52 ms

**Max. Value**
277.44 N at 40.88 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

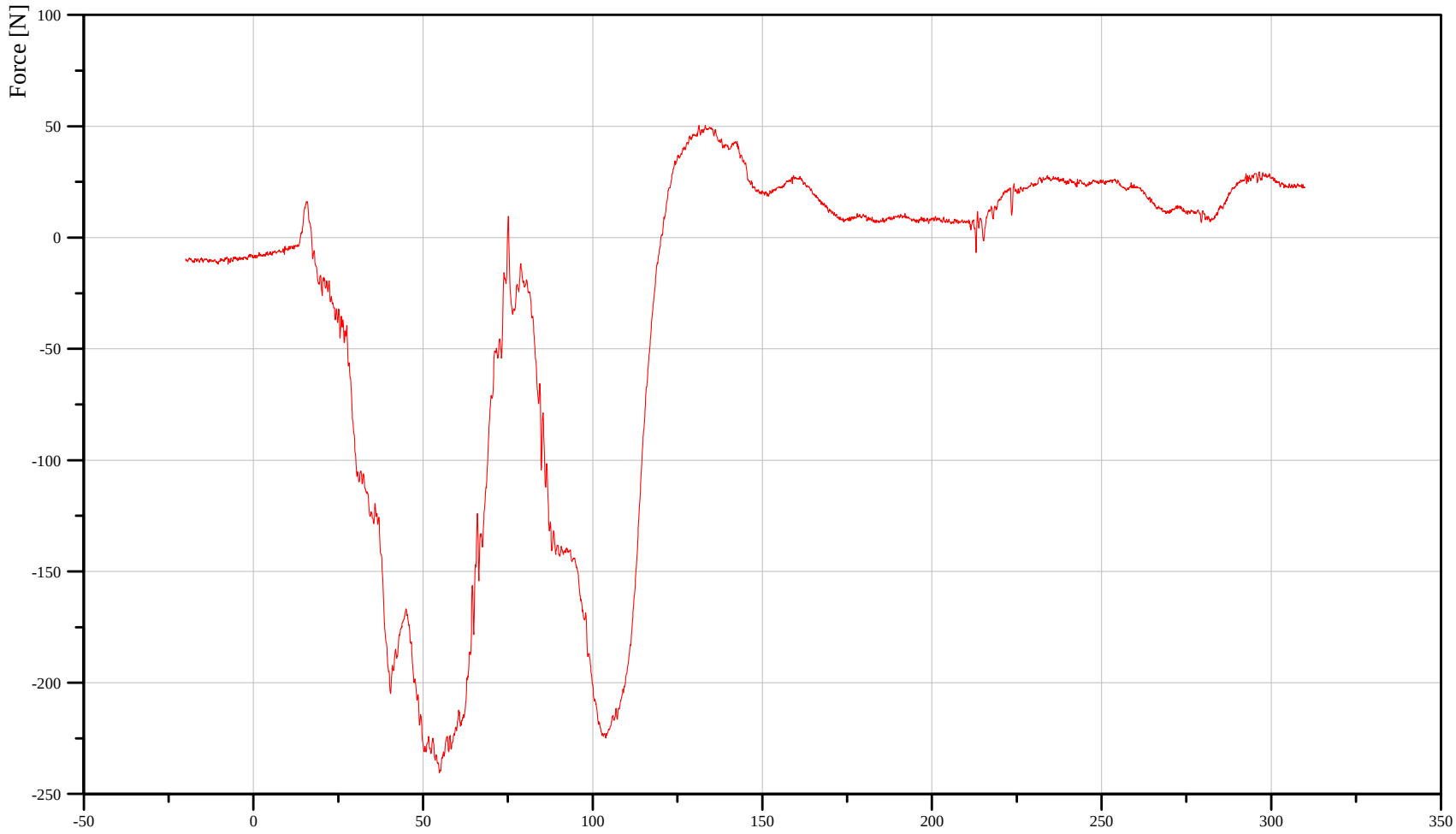
## Bullet Passenger Lower Neck Y-Axis Force

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 13NECKLO00HFFOYA

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_1000

**Min. Value**
-240.44 N at 54.88 ms

**Max. Value**
50.44 N at 131.36 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

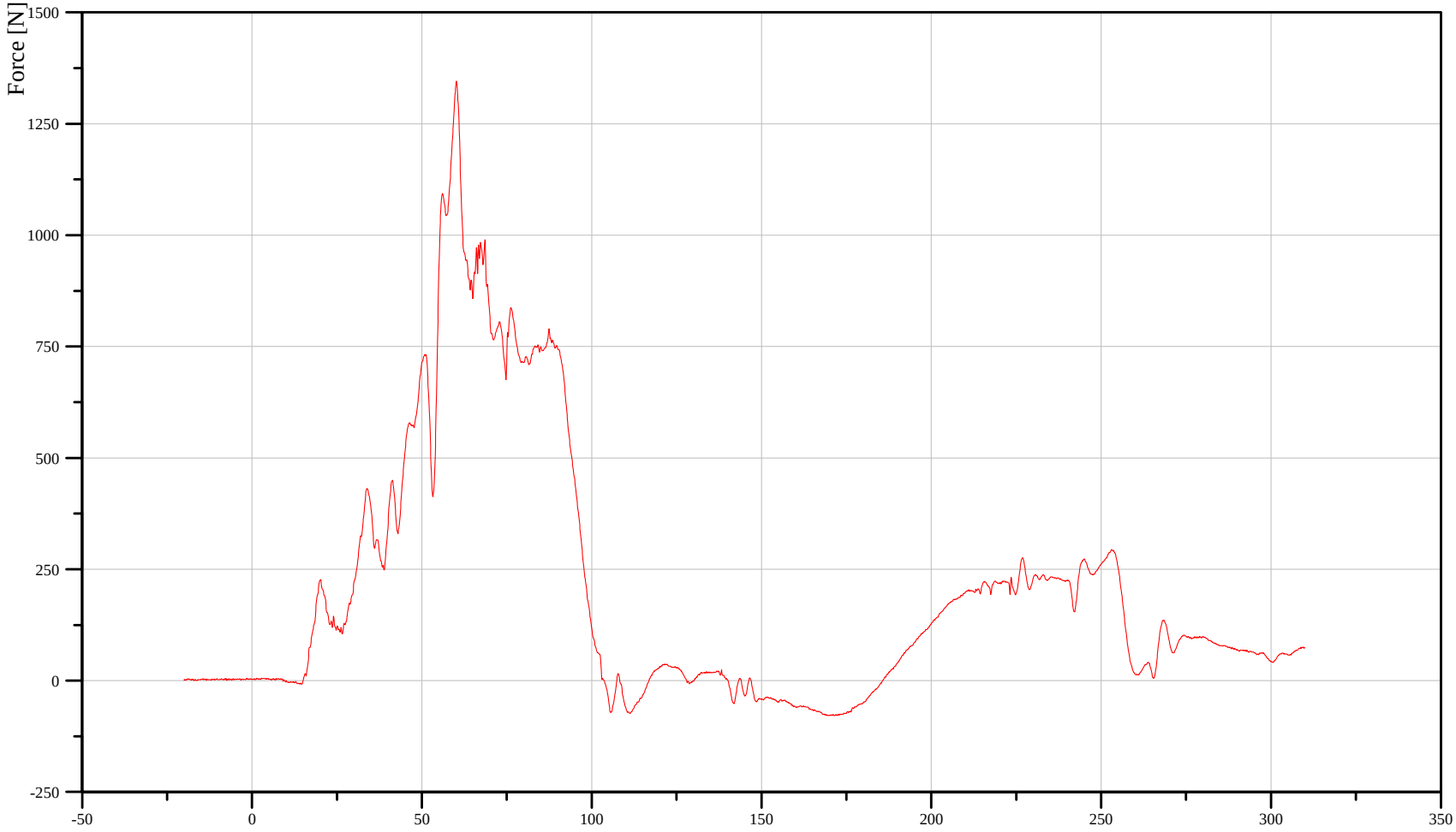
## Bullet Passenger Lower Neck Z-Axis Force

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 13NECKLO00HFFOZA

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_1000

**Min. Value**
-78.88 N at 171.44 ms

**Max. Value**
1,345.99 N at 60.16 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

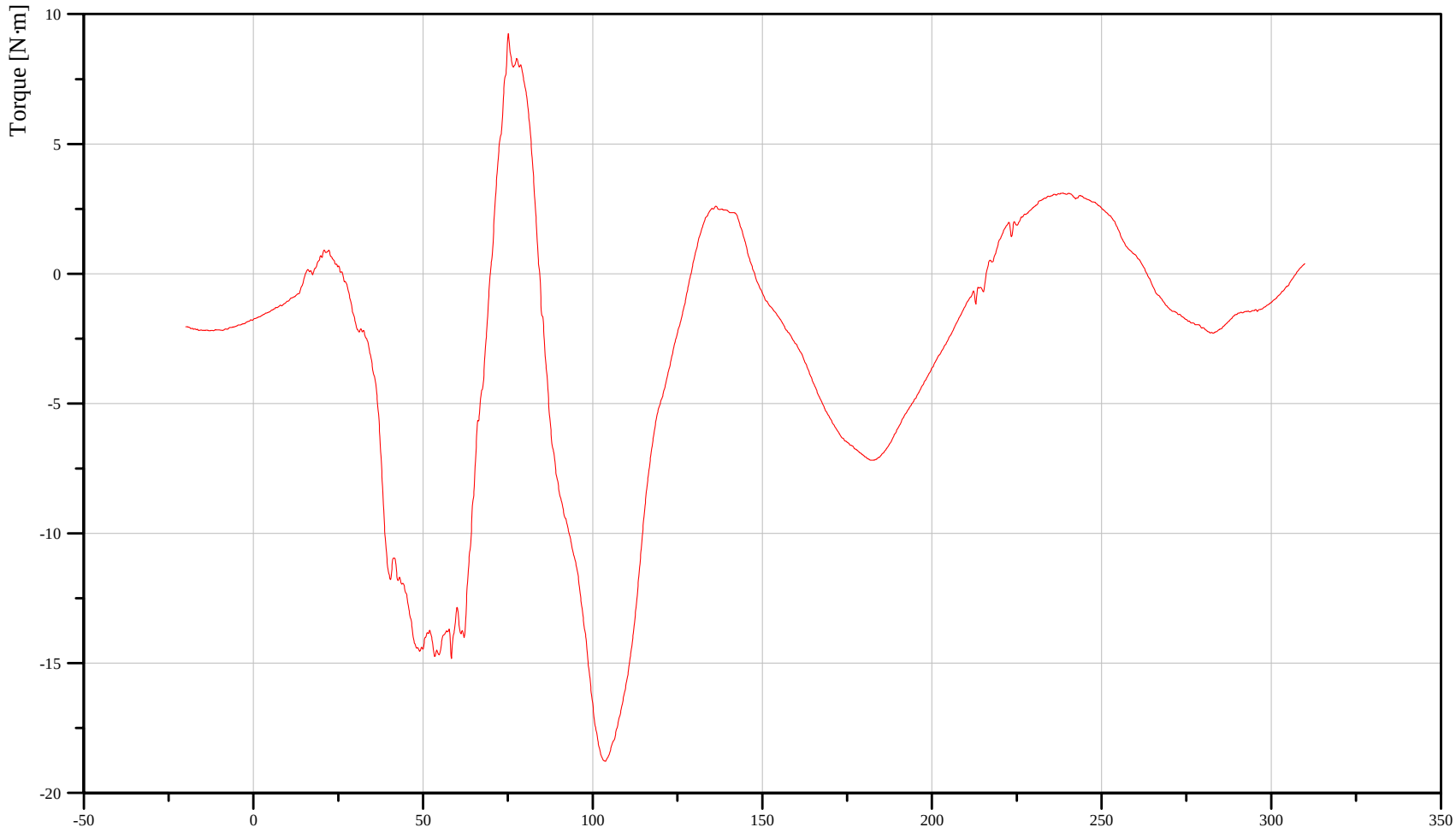
## Bullet Passenger Lower Neck Moment About X Axis

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 13NECKLO00HFMOXB

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_600

**Min. Value**
-18.78 N·m at 103.76 ms

**Max. Value**
9.25 N·m at 75.12 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

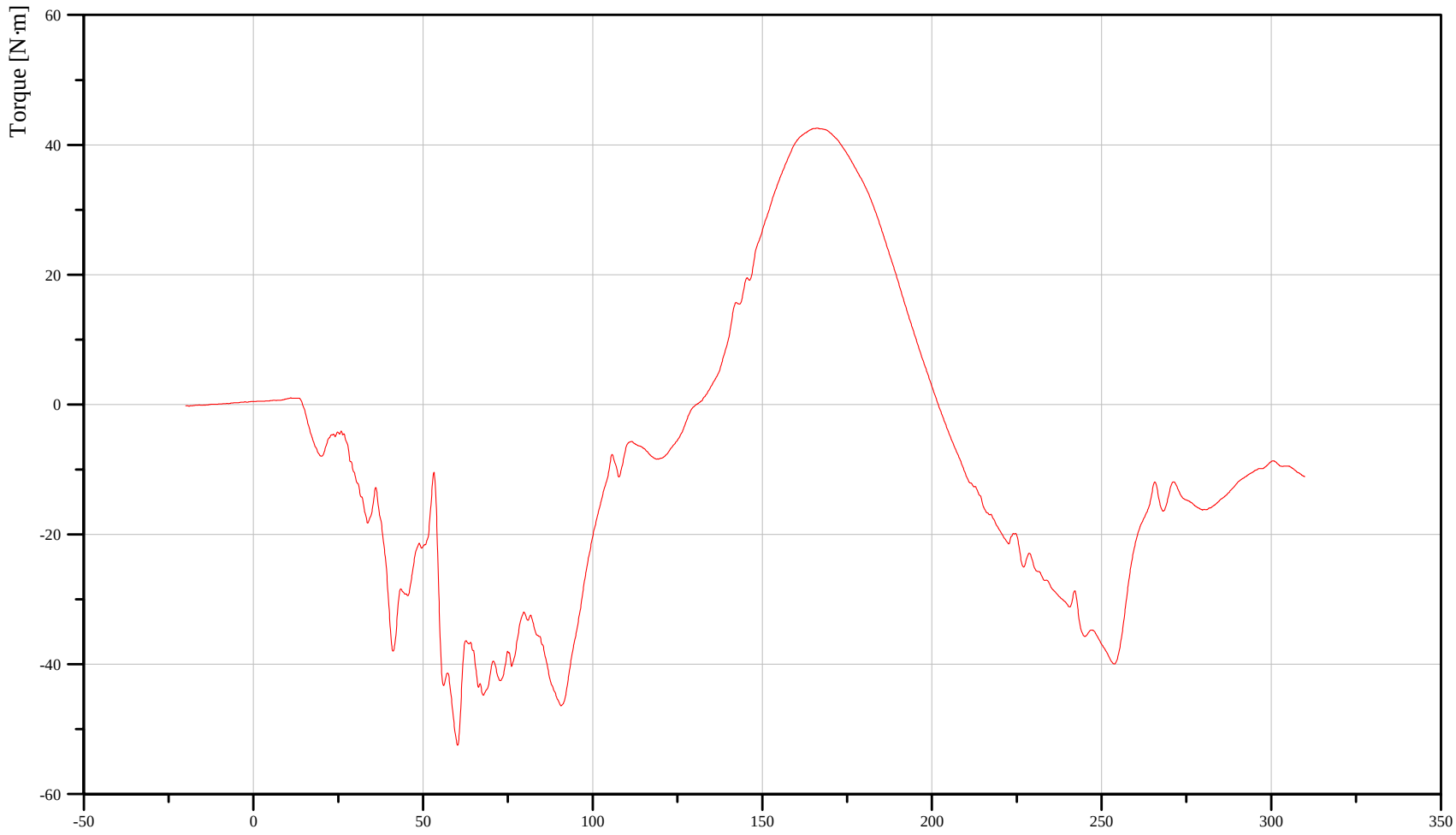
## Bullet Passenger Lower Neck Moment About Y Axis

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 13NECKLO00HFMOYB

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_600

**Min. Value**
-52.47 N·m at 60.24 ms

**Max. Value**
42.55 N·m at 165.92 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

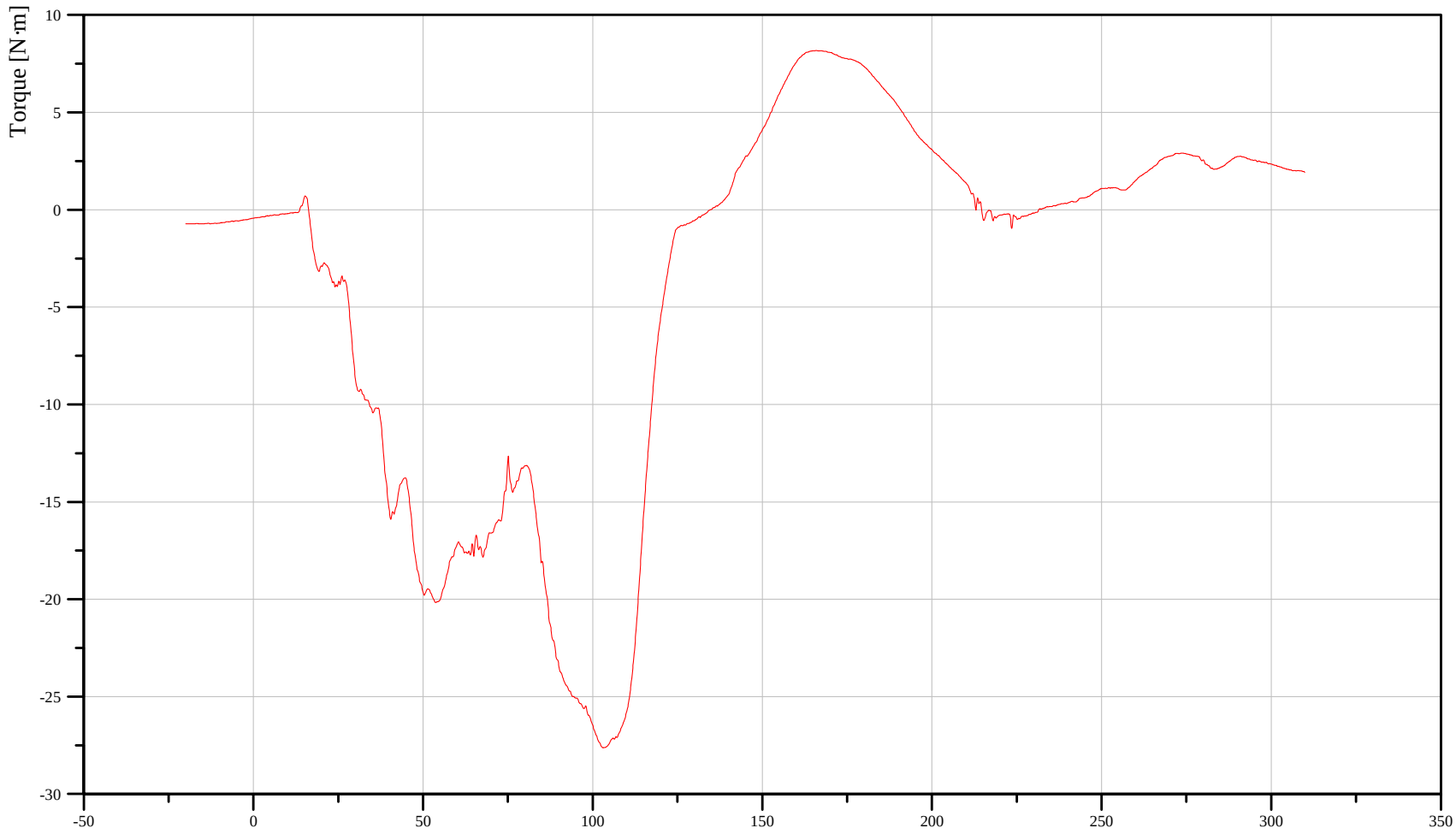
## Bullet Passenger Lower Neck Moment About Z Axis

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 13NECKLO00HFMOZB

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_600

**Min. Value**
-27.62 N·m at 103.20 ms

**Max. Value**
8.18 N·m at 165.92 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

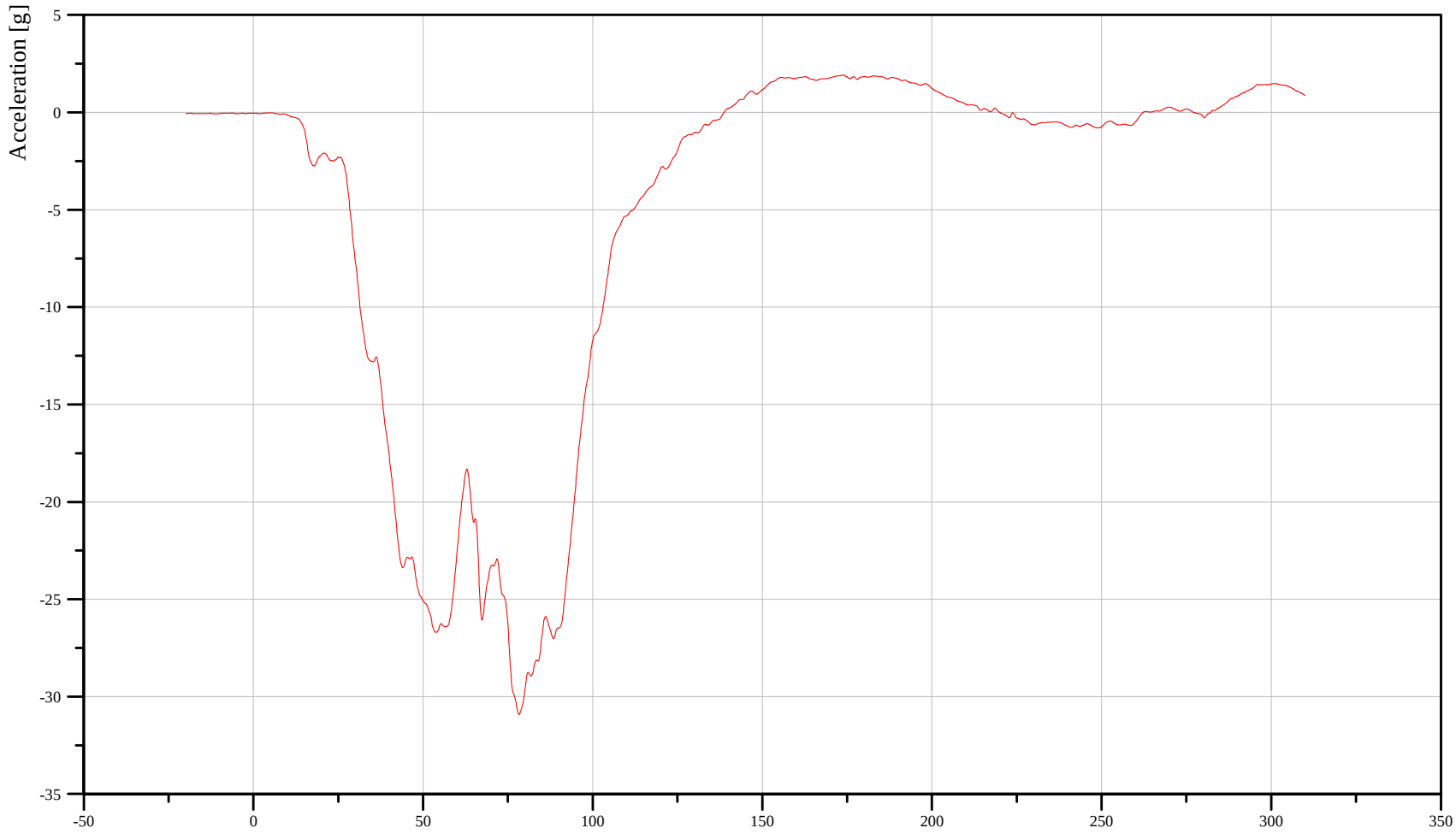
## Bullet Passenger Chest CG X-Axis Acceleration

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 13CHSTCG00HFACXC

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_180

**Min. Value**
-30.92 g at 78.32 ms

**Max. Value**
1.92 g at 173.84 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

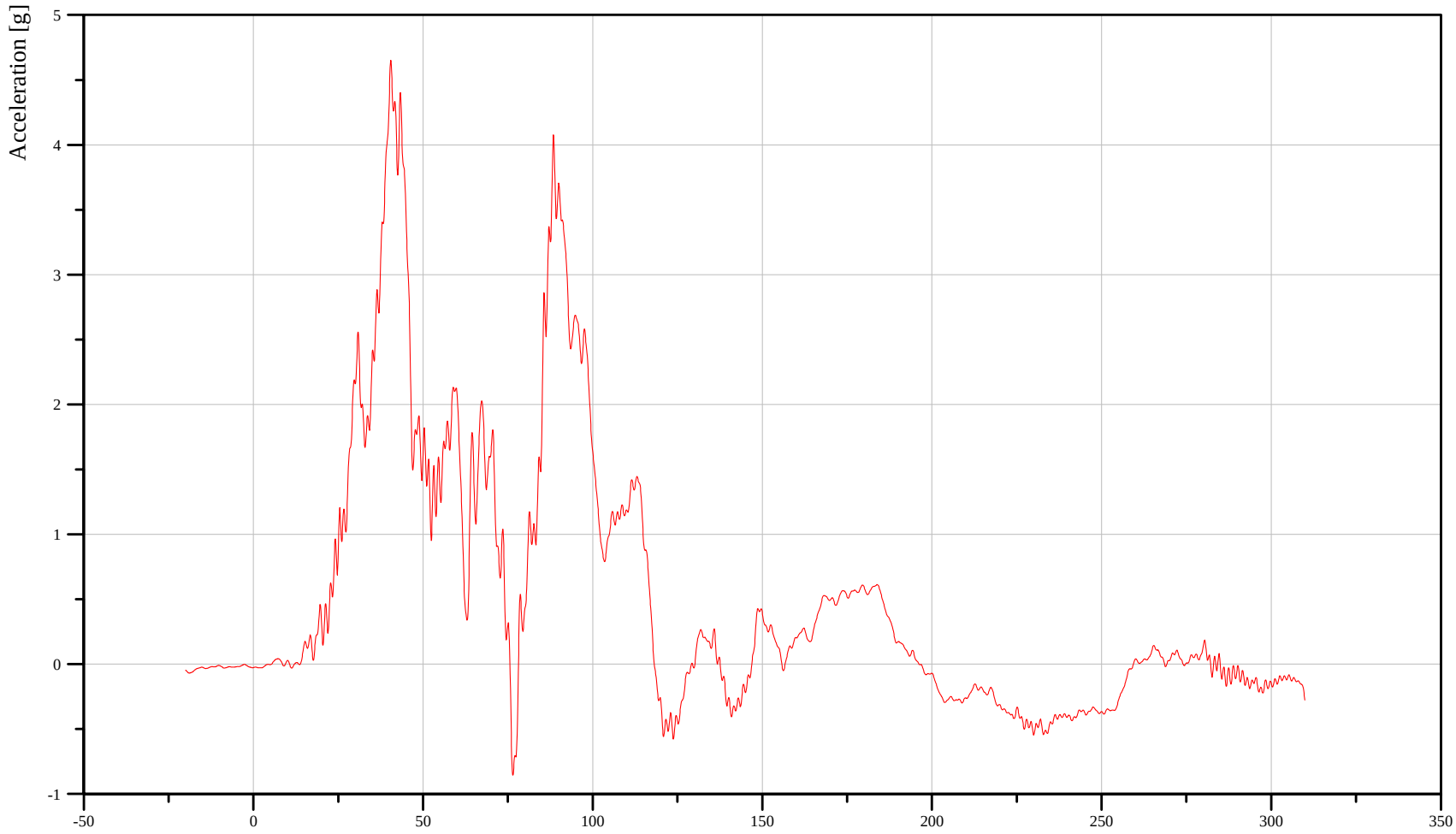
## Bullet Passenger Chest CG Y-Axis Acceleration

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 13CHSTCG00HFACYC

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_180

**Min. Value**
-0.86 g at 76.48 ms

**Max. Value**
4.65 g at 40.48 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

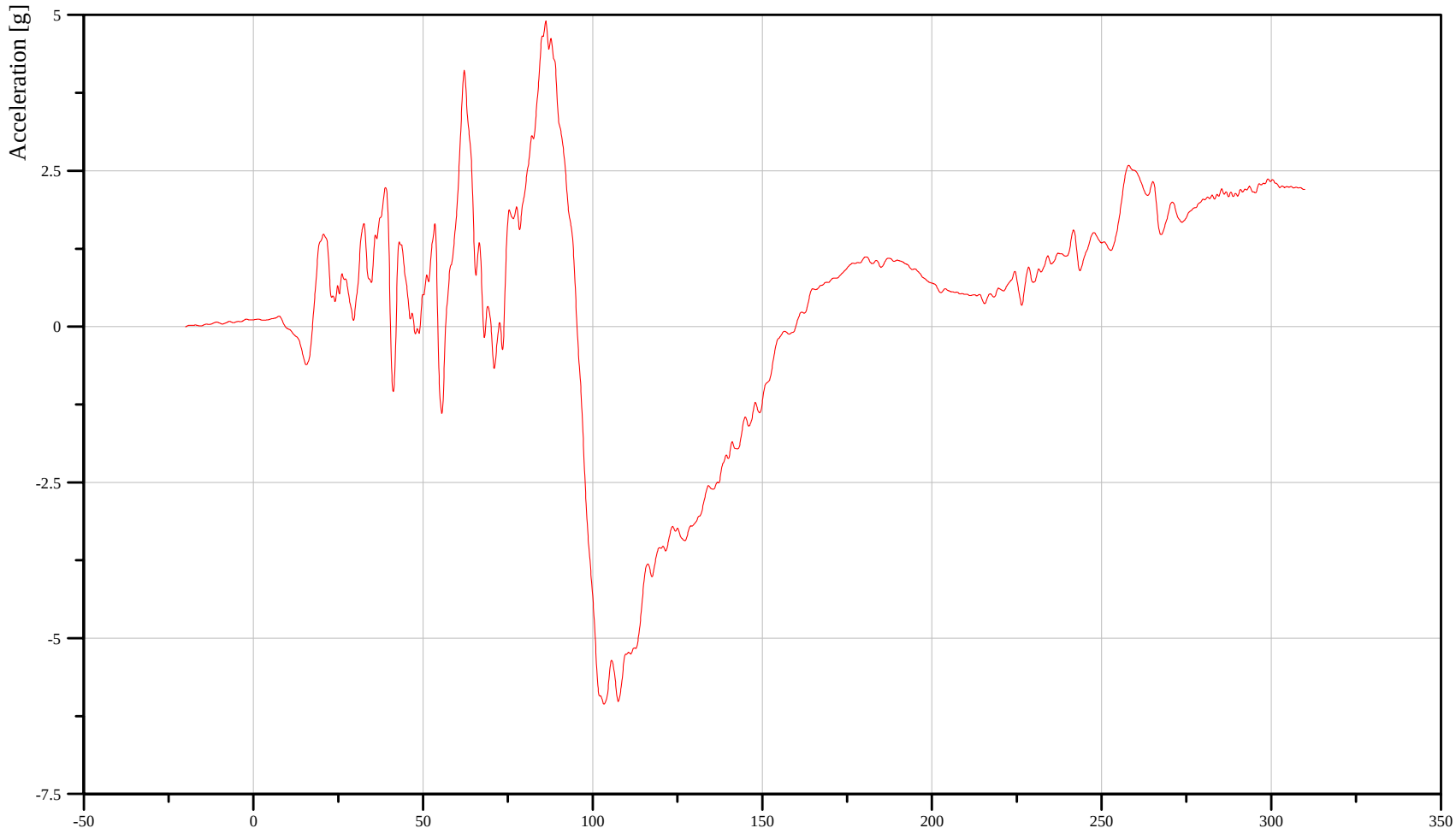
## Bullet Passenger Chest CG Z-Axis Acceleration

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 13CHSTCG00HFACZC

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_180

**Min. Value**
-6.06 g at 103.36 ms

**Max. Value**
4.90 g at 86.16 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

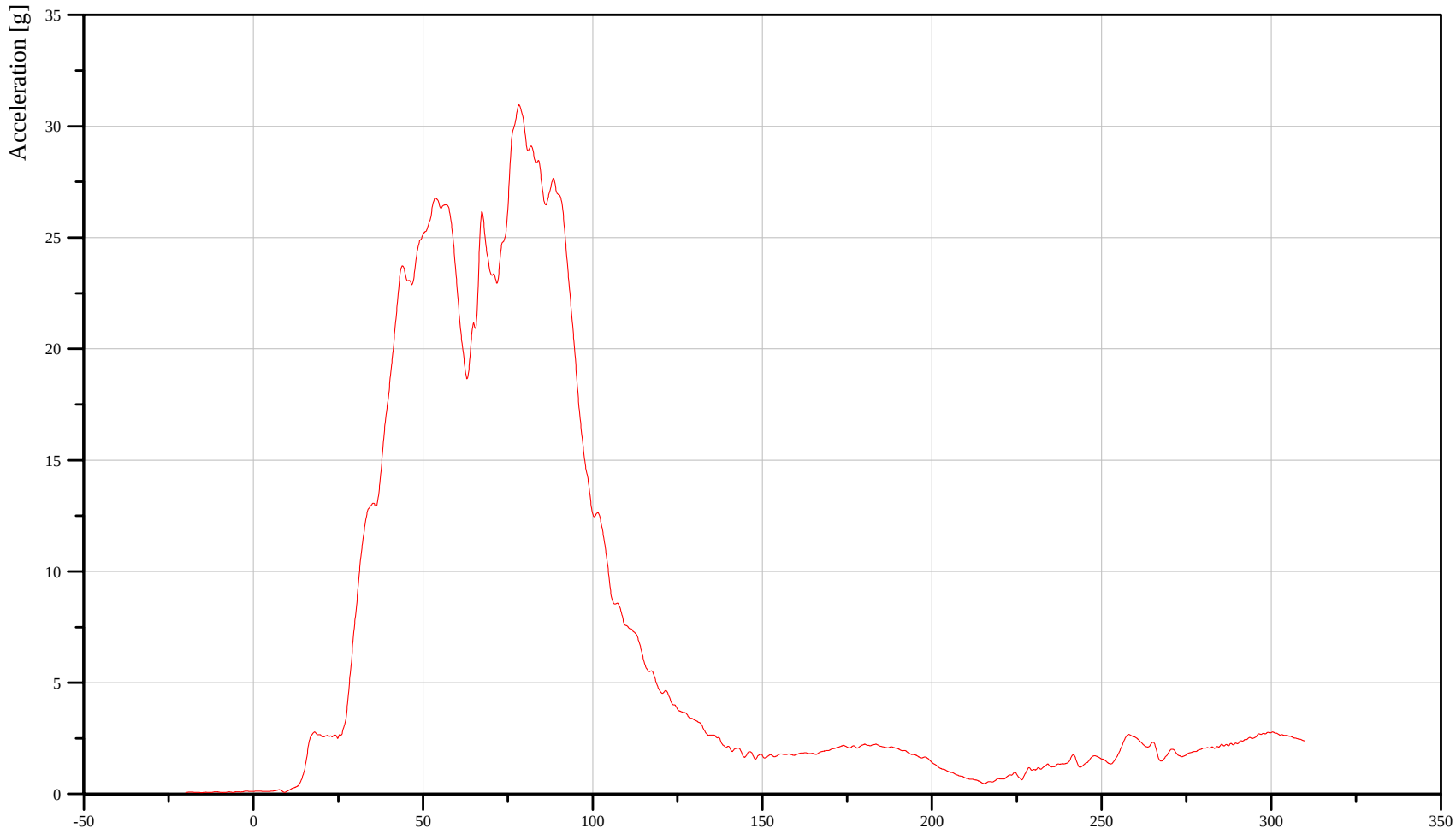
## Bullet Passenger Chest CG Resultant Acceleration

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 13CHSTCG00HFACRC

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_180

**Min. Value**
0.06 g at -15.20 ms

**Max. Value**
30.96 g at 78.32 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

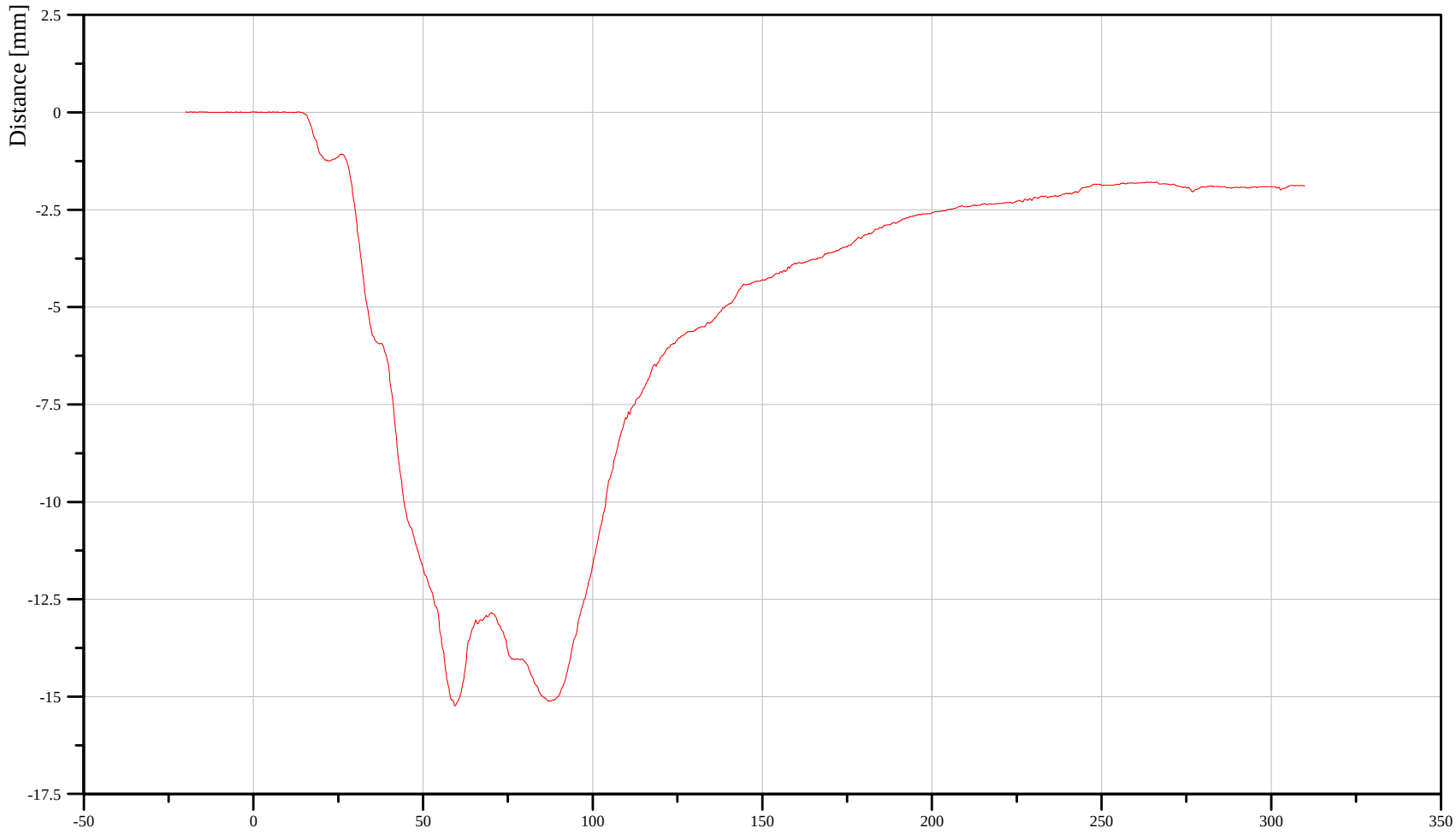
## Bullet Passenger Chest Displacement

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 13CHST0000HFDSXB

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_600

**Min. Value**
-15.24 mm at 59.44 ms

**Max. Value**
0.01 mm at 8.80 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

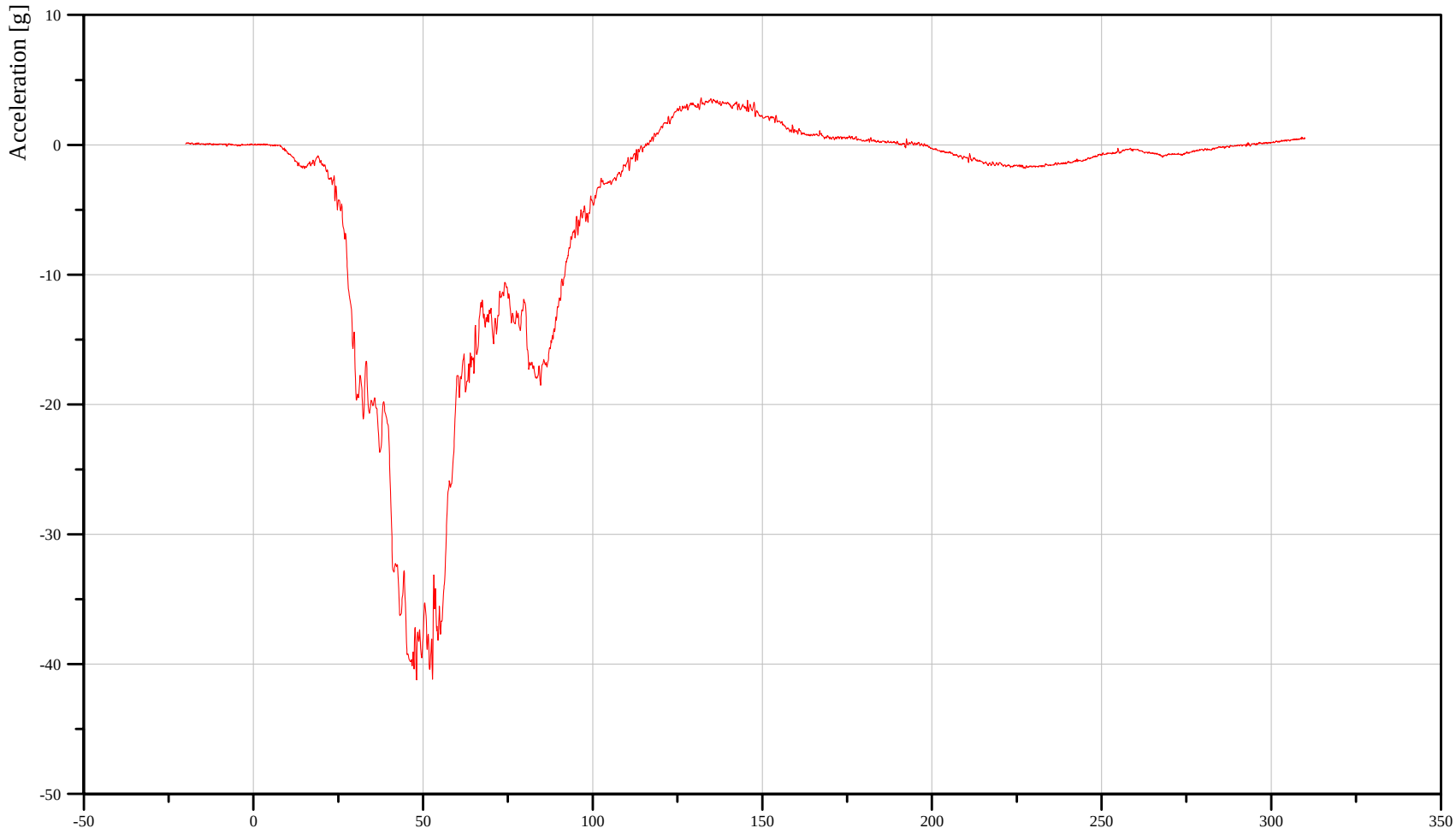
## Bullet Passenger Pelvis CG X-Axis Acceleration

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 13PELVCG00HFACXA

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_1000

**Min. Value**
-41.20 g at 48.08 ms

**Max. Value**
3.63 g at 132.00 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

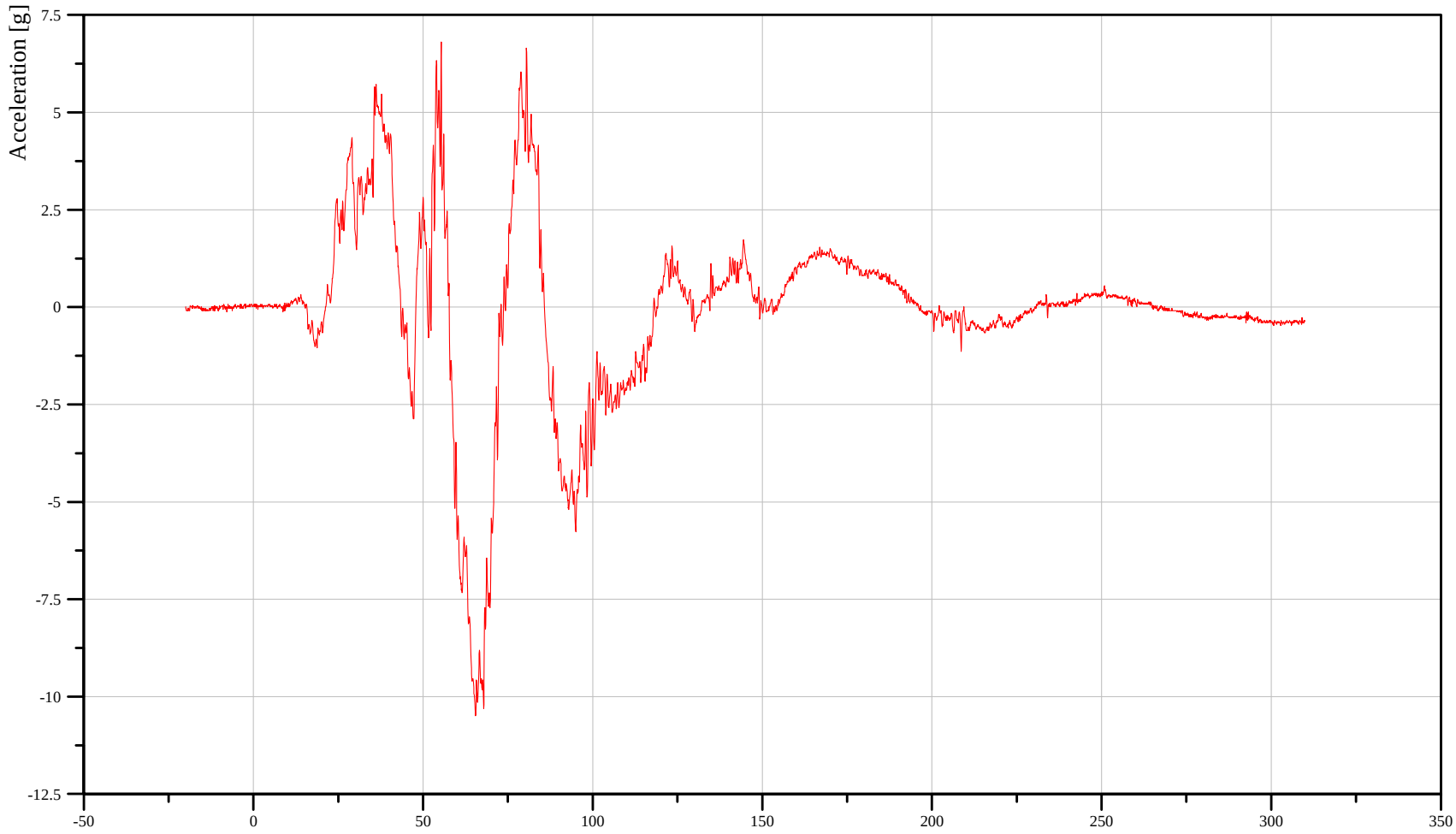
## Bullet Passenger Pelvis CG Y-Axis Acceleration

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 13PELVCG00HFACYA

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_1000

**Min. Value**
-10.50 g at 65.44 ms

**Max. Value**
6.81 g at 55.36 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

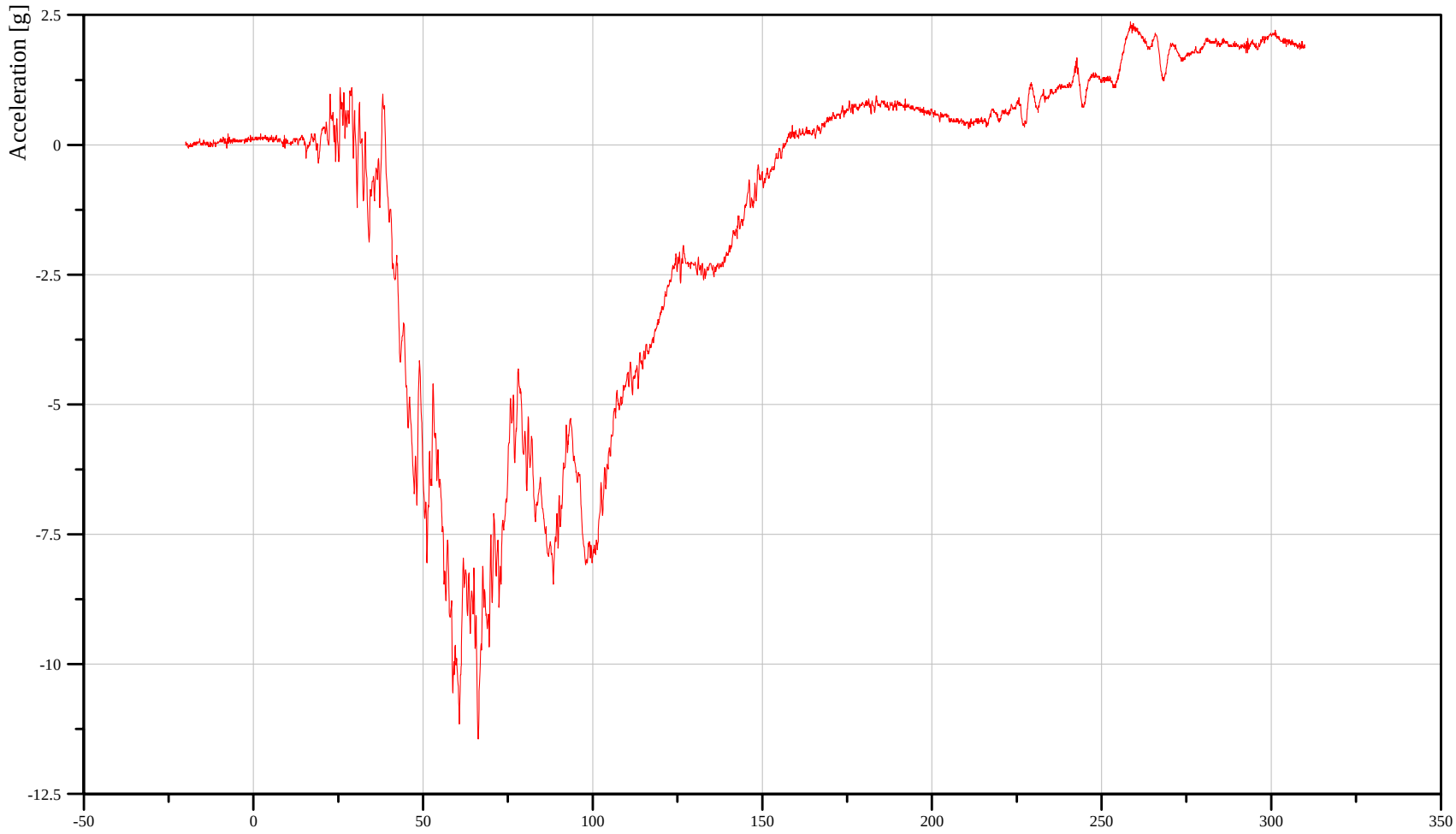
## Bullet Passenger Pelvis CG Z-Axis Acceleration

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 13PELVCG00HFACZA

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_1000

**Min. Value**
-11.44 g at 66.24 ms

**Max. Value**
2.37 g at 258.56 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

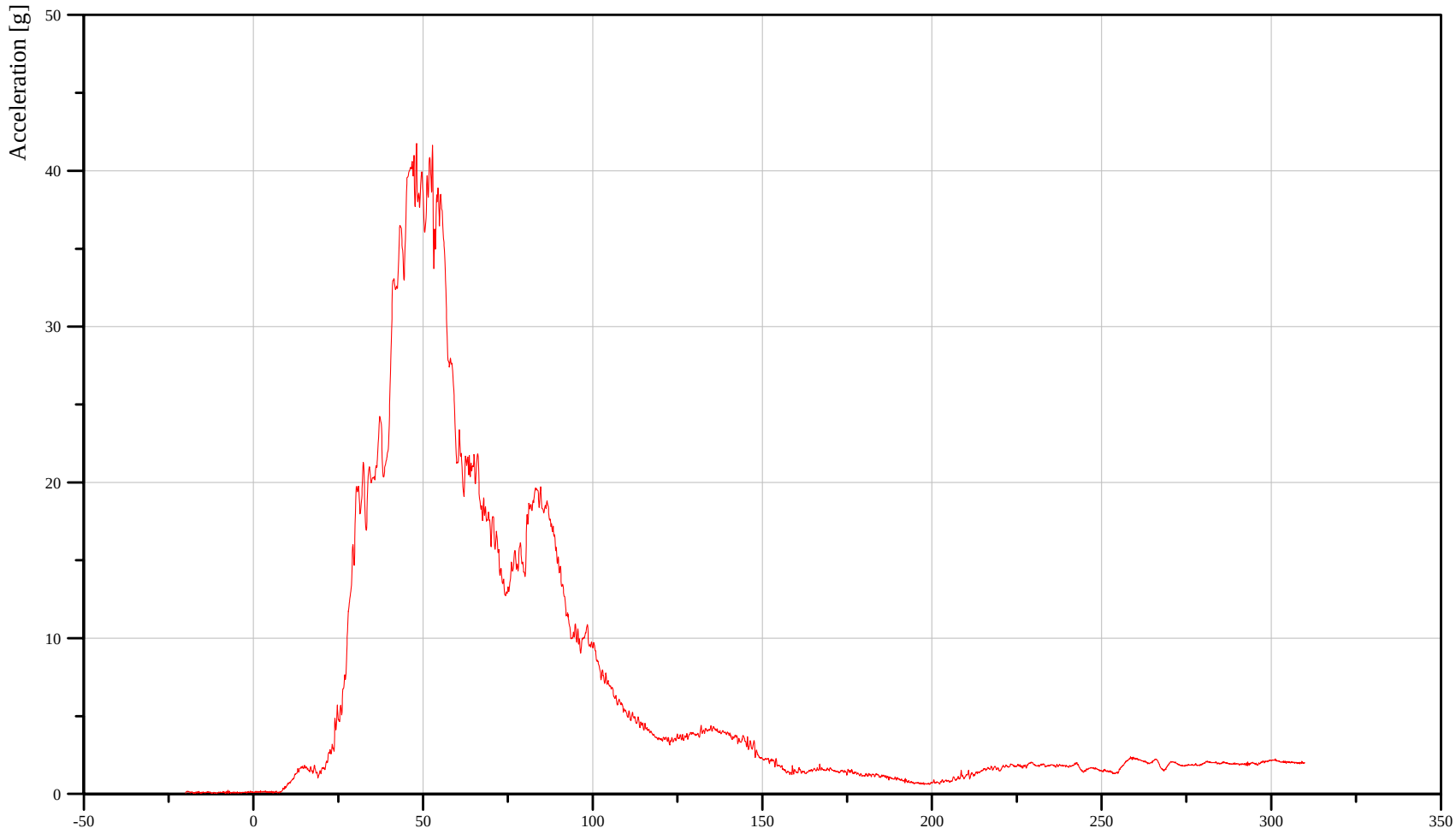
## Bullet Passenger Pelvis CG Resultant Acceleration

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 13PELVCG00HFACRA

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_1000

**Min. Value**
0.03 g at -12.24 ms

**Max. Value**
41.76 g at 48.08 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

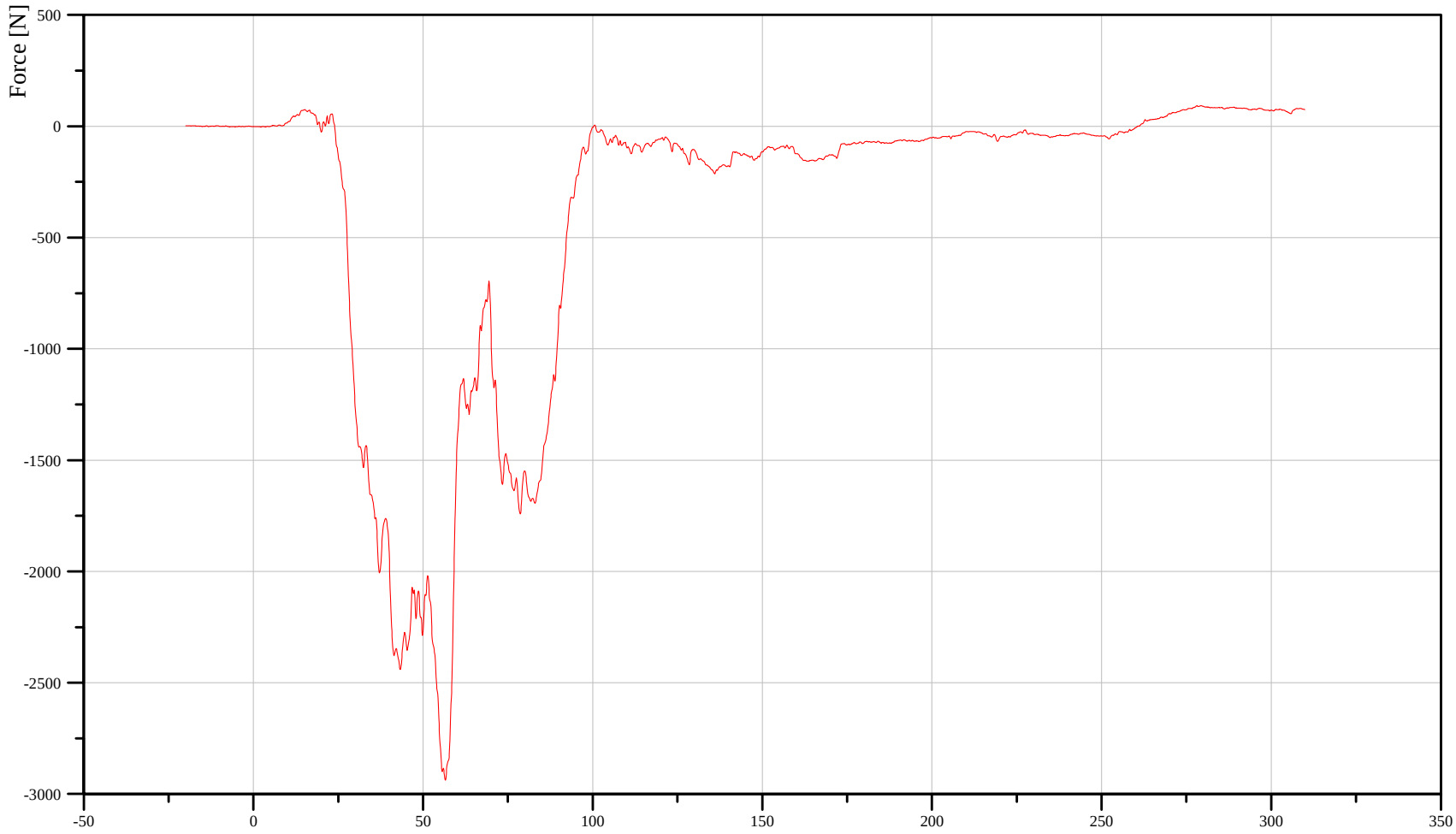
## Bullet Passenger Left Femur Z-Axis Force

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 13FEMRLL00HFFOZB

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_600

**Min. Value**
-2,938.05 N at 56.56 ms

**Max. Value**
92.52 N at 279.36 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

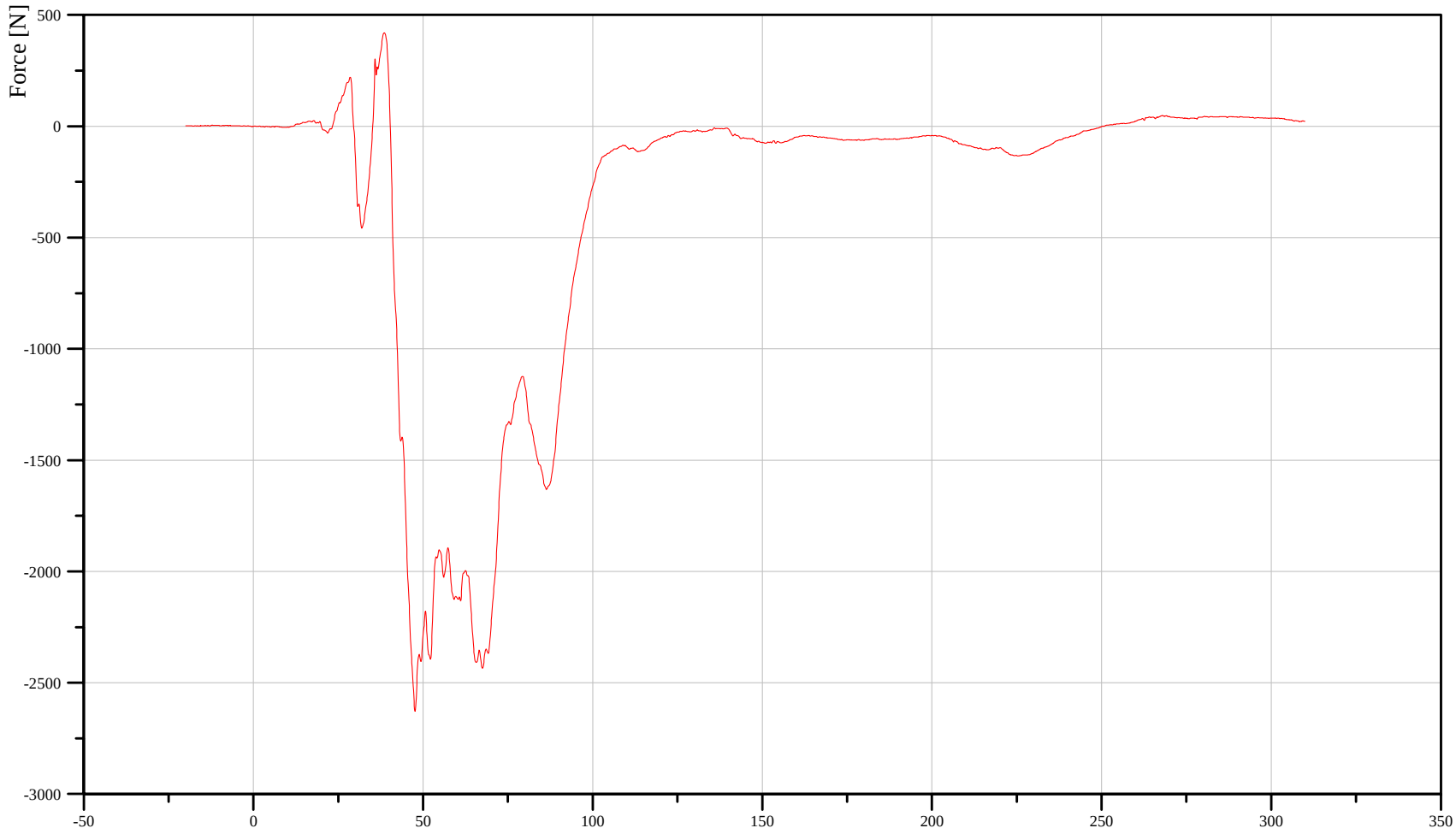
Bullet Passenger Right Femur Z-Axis Force

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

## 13FEMRRL00HFFOZB

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_600

**Min. Value**
-2,627.71 N at 47.68 ms

**Max. Value**
419.69 N at 38.56 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

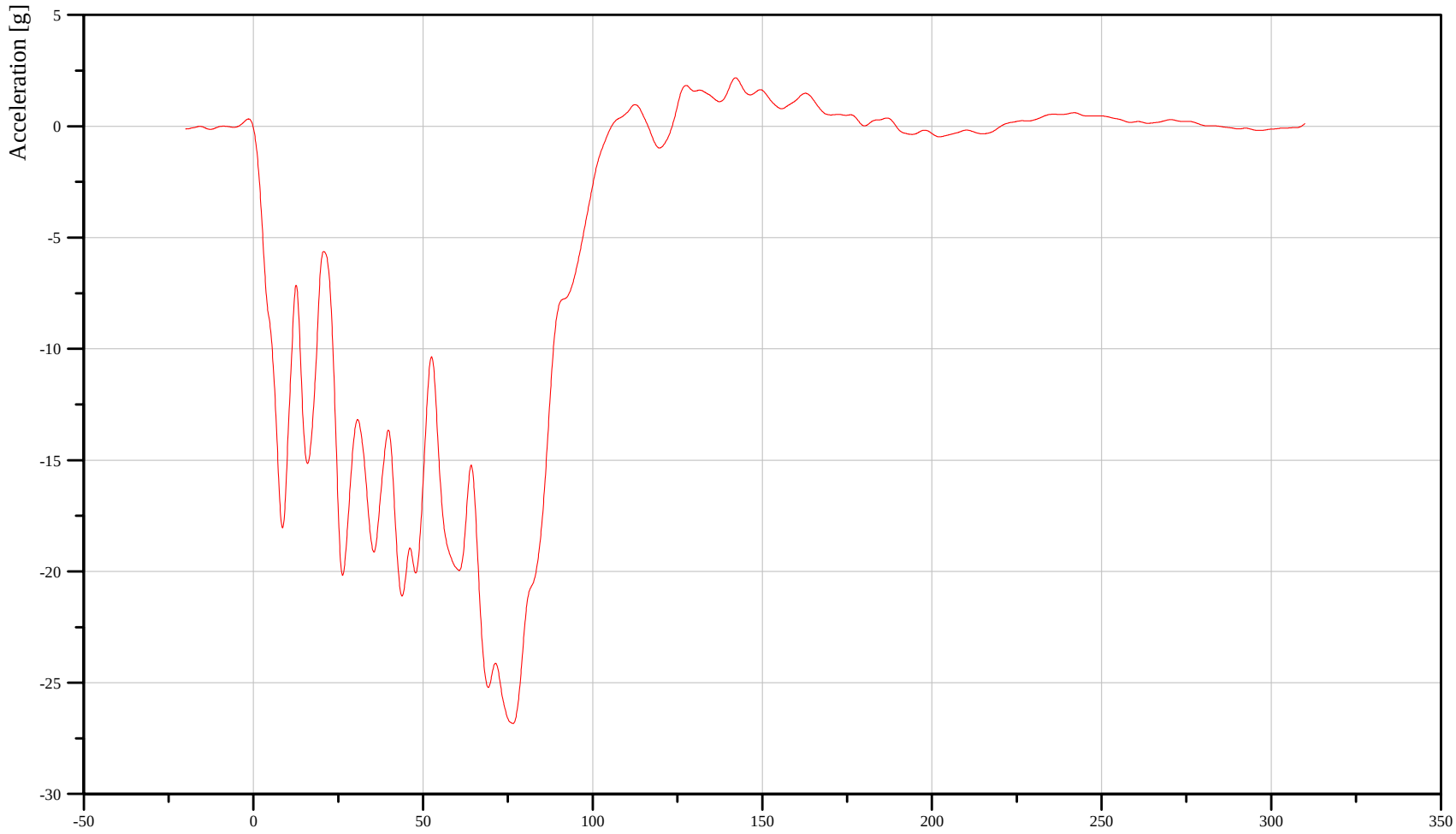
## Bullet Vehicle Left Rear Seat Crossmember X-Axis Acceleration

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 14CRME000000ACXD

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_60

**Min. Value**
-26.83 g at 76.56 ms

**Max. Value**
2.18 g at 142.08 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

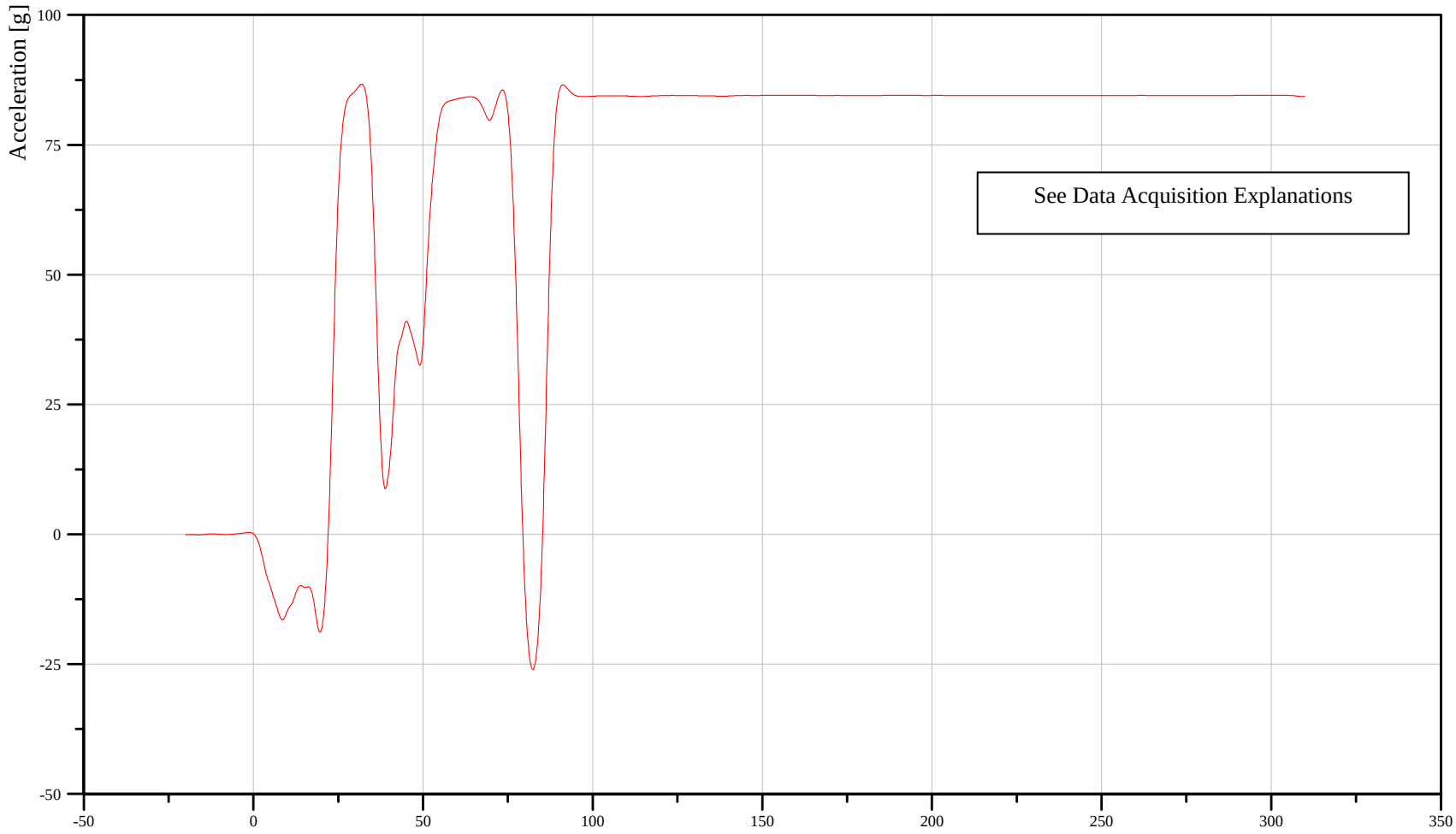
## Bullet Vehicle Right Rear Seat Crossmember X-Axis Acceleration

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 16CRME000000ACXD

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_60

**Min. Value**
-26.01 g at 82.40 ms

**Max. Value**
86.69 g at 31.92 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

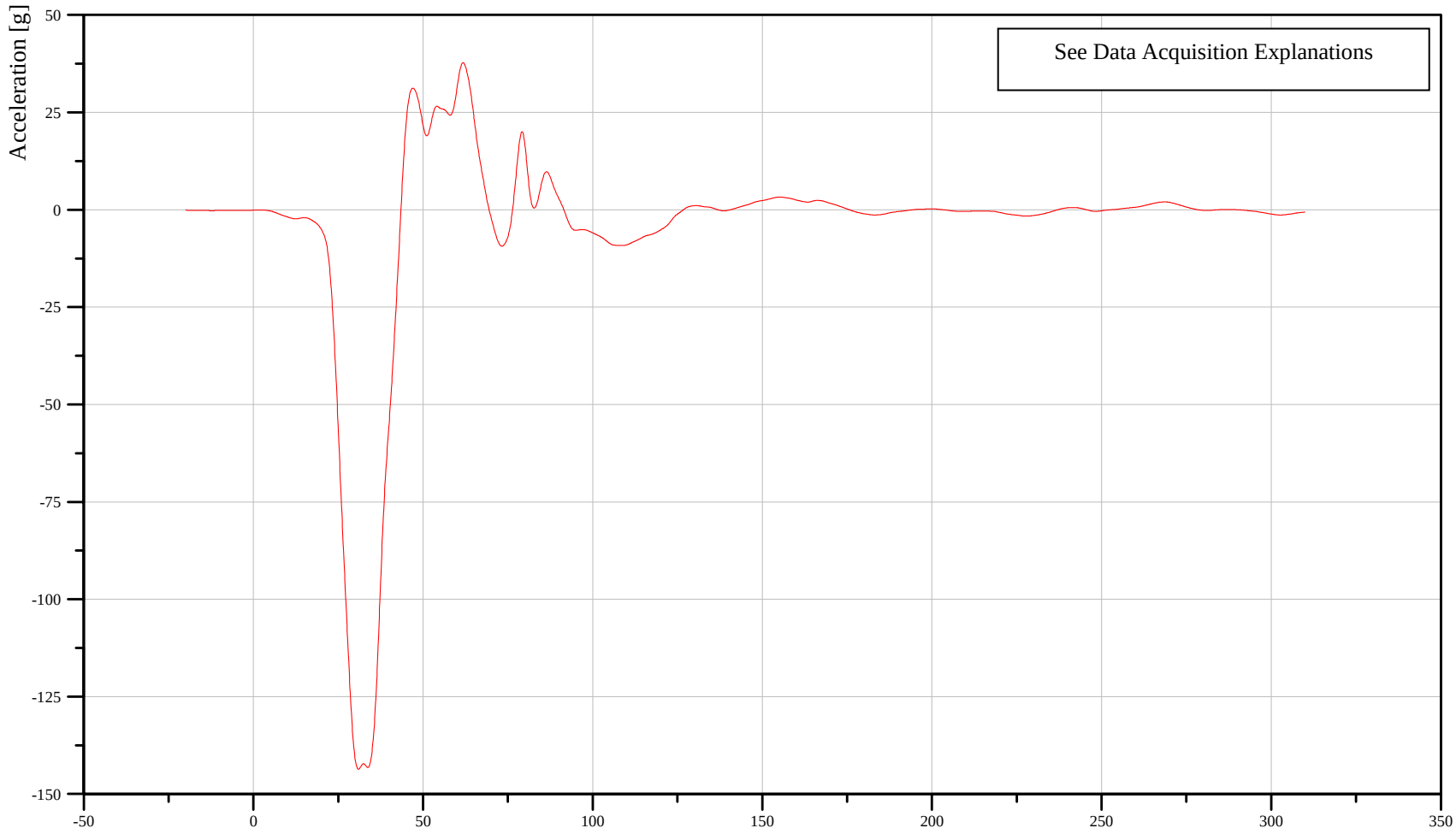
## Bullet Vehicle Top of Engine X-Axis Acceleration

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 12ENGNTP0000ACXD

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_60

**Min. Value**
-143.61 g at 30.96 ms

**Max. Value**
37.74 g at 61.76 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

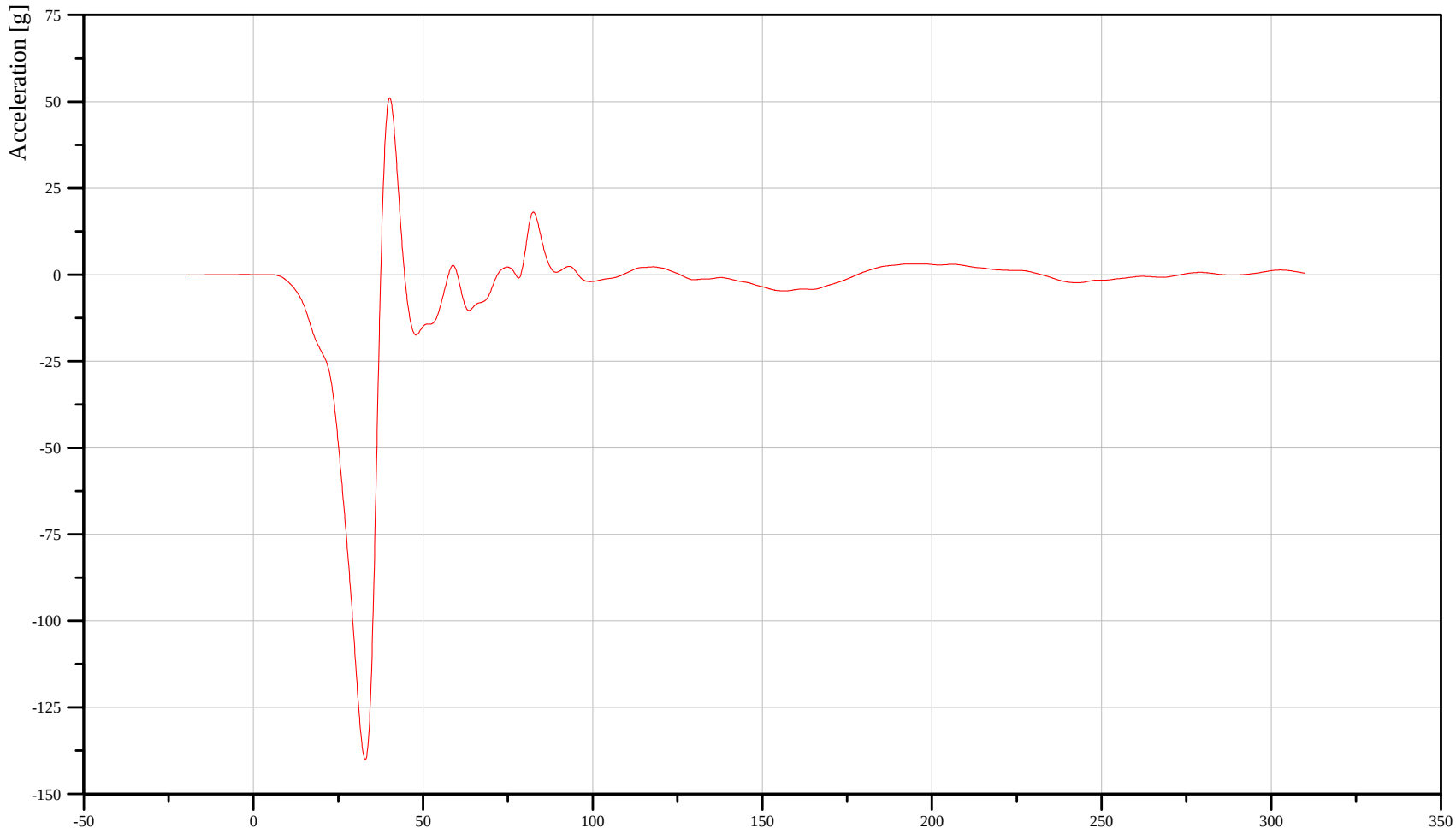
## Bullet Vehicle Bottom of Engine X-Axis Acceleration

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 12ENGNBO0000ACXD

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_60

**Min. Value**
-140.08 g at 32.96 ms

**Max. Value**
51.09 g at 40.16 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

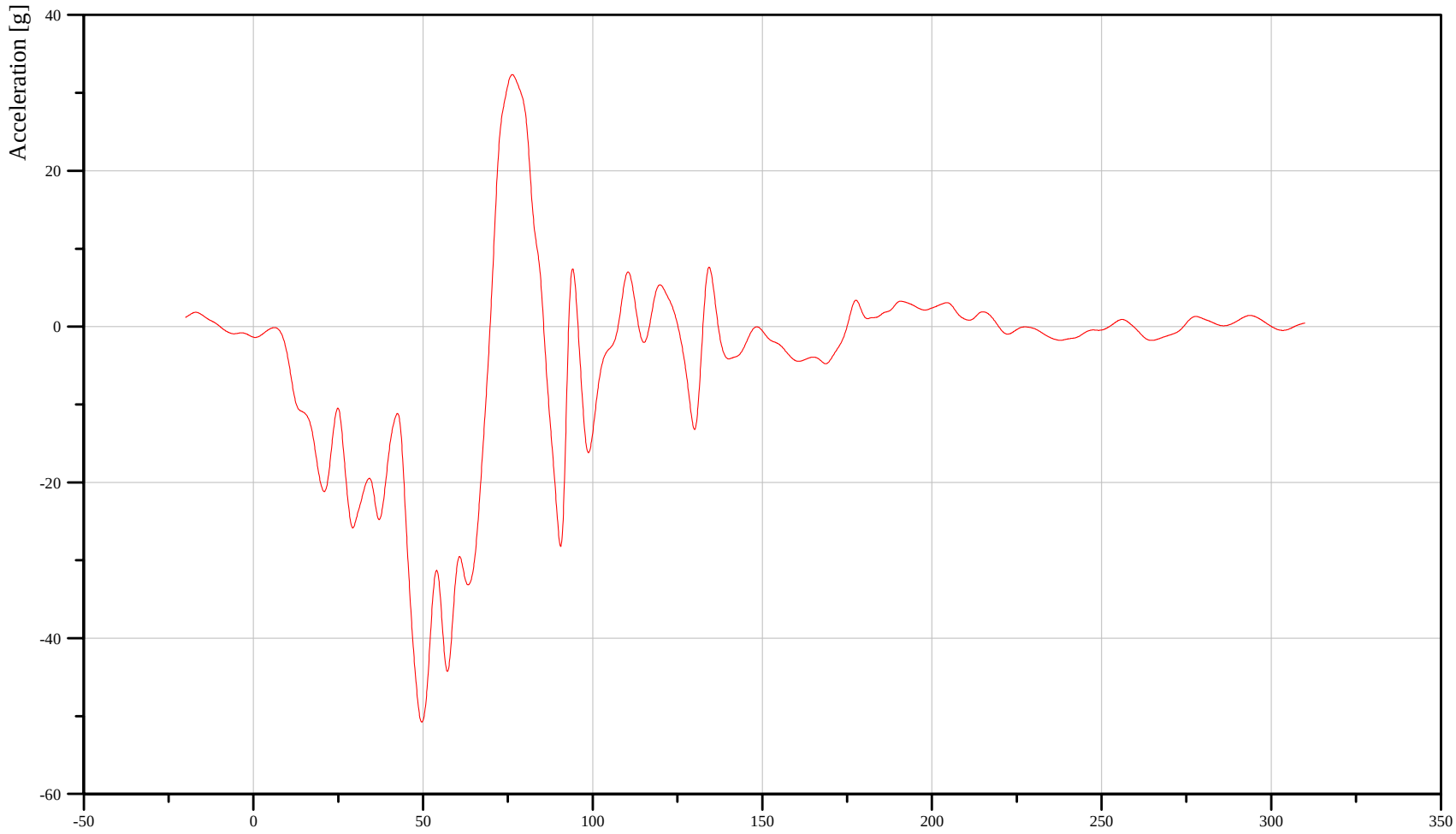
## Bullet Vehicle Right Front Brake Caliper X-Axis Acceleration

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 13VEHCRI0000ACXD

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_60

**Min. Value**
-50.79 g at 49.68 ms

**Max. Value**
32.35 g at 76.32 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

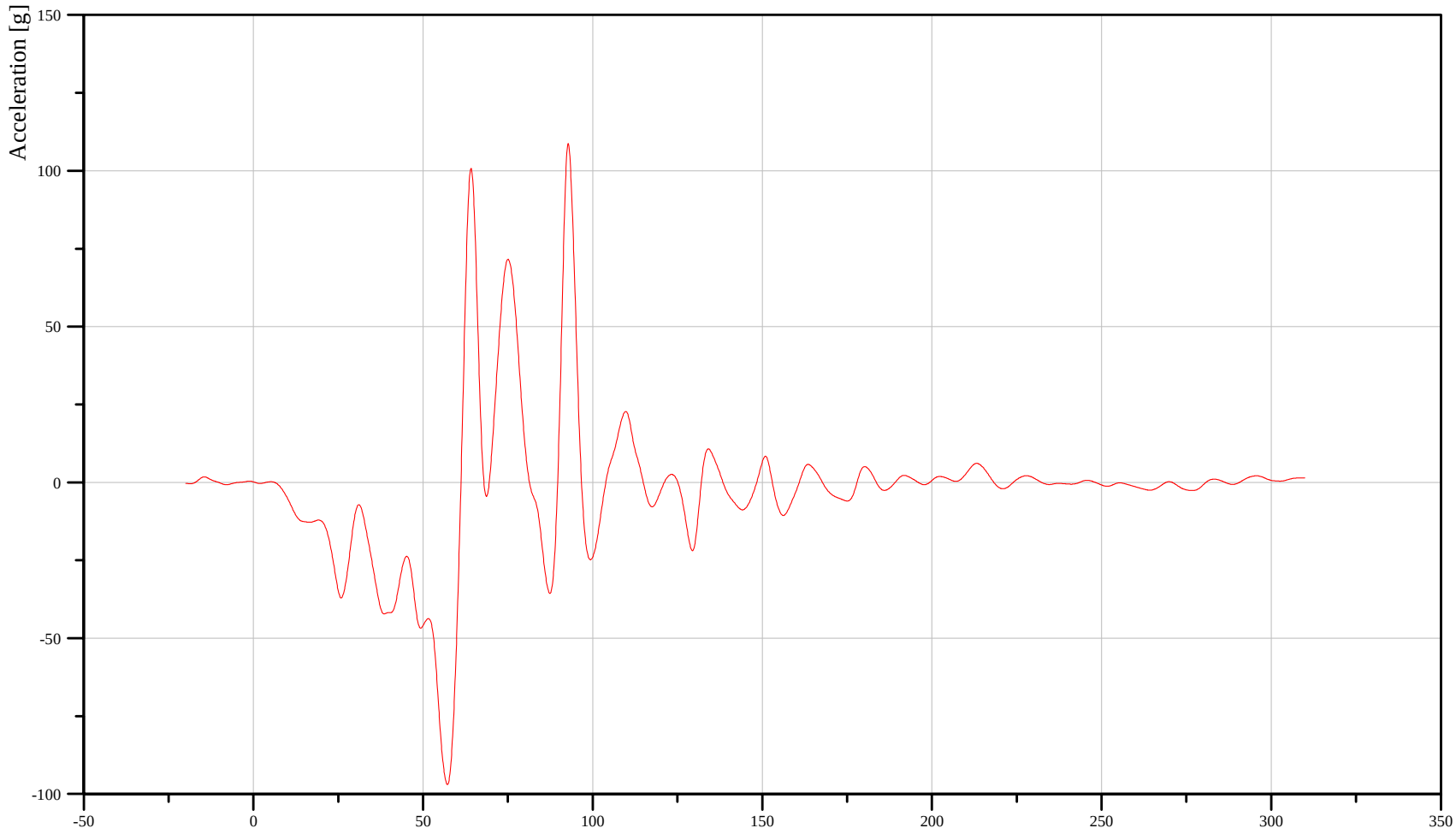
## Bullet Vehicle Left Front Brake Caliper X-Axis Acceleration

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 11VEHCLE0000ACXD

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_60

**Min. Value**
-96.99 g at 57.20 ms

**Max. Value**
108.82 g at 92.80 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

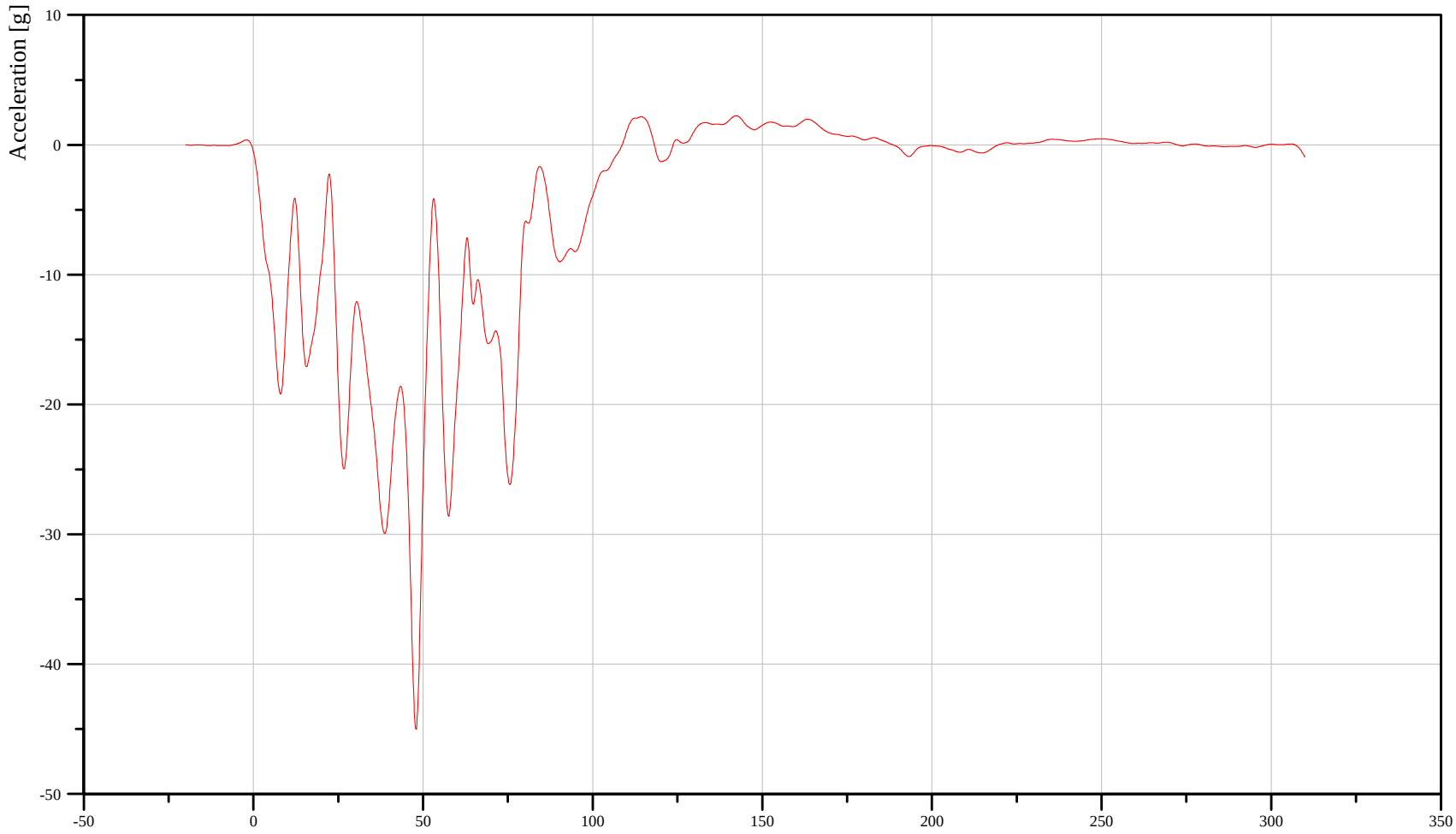
## Bullet Vehicle Toe Pan Accelerator X-Axis Acceleration

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 11PEAC000000ACXD

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_60

**Min. Value**
-45.02 g at 47.92 ms

**Max. Value**
2.23 g at 142.32 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

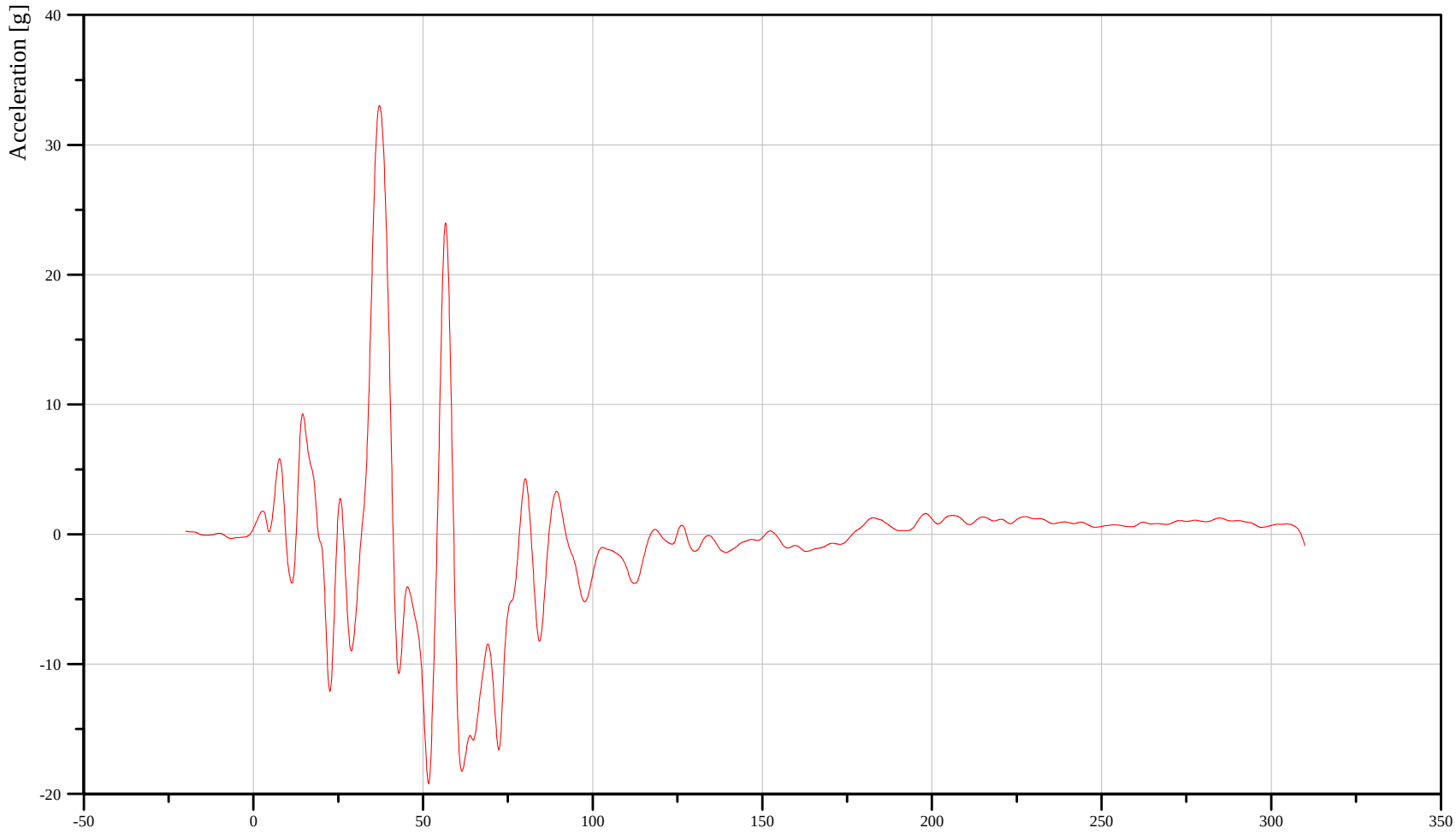
## Bullet Vehicle Toe Pan Accelerator Z-Axis Acceleration

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 11PEAC000000ACZD

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_60

**Min. Value**
-19.22 g at 51.68 ms

**Max. Value**
33.04 g at 37.12 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

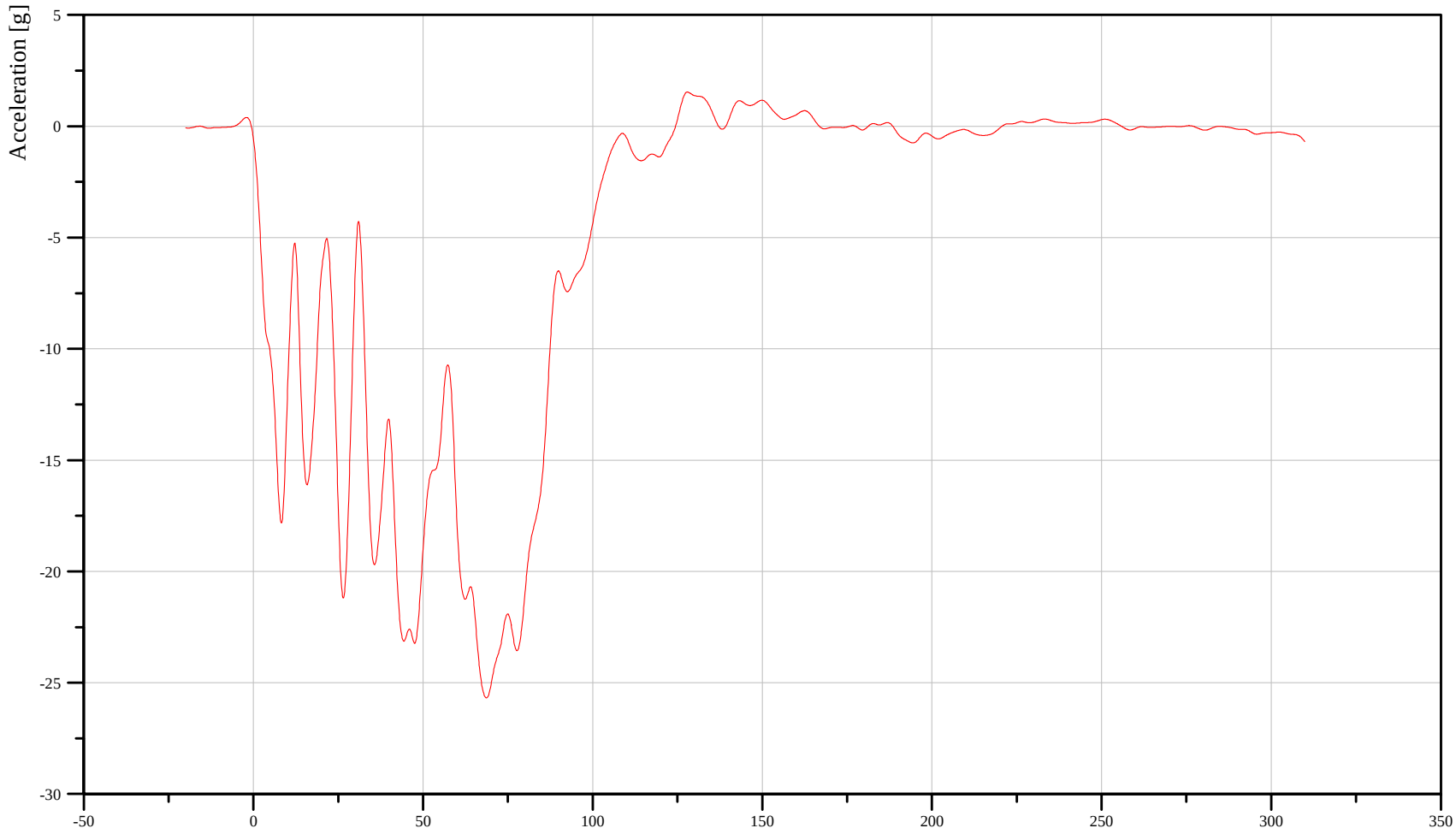
## Bullet Vehicle Toe Pan Footrest X-Axis Acceleration

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 11VEHC000001ACXD

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_60

**Min. Value**
-25.68 g at 68.64 ms

**Max. Value**
1.54 g at 127.84 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

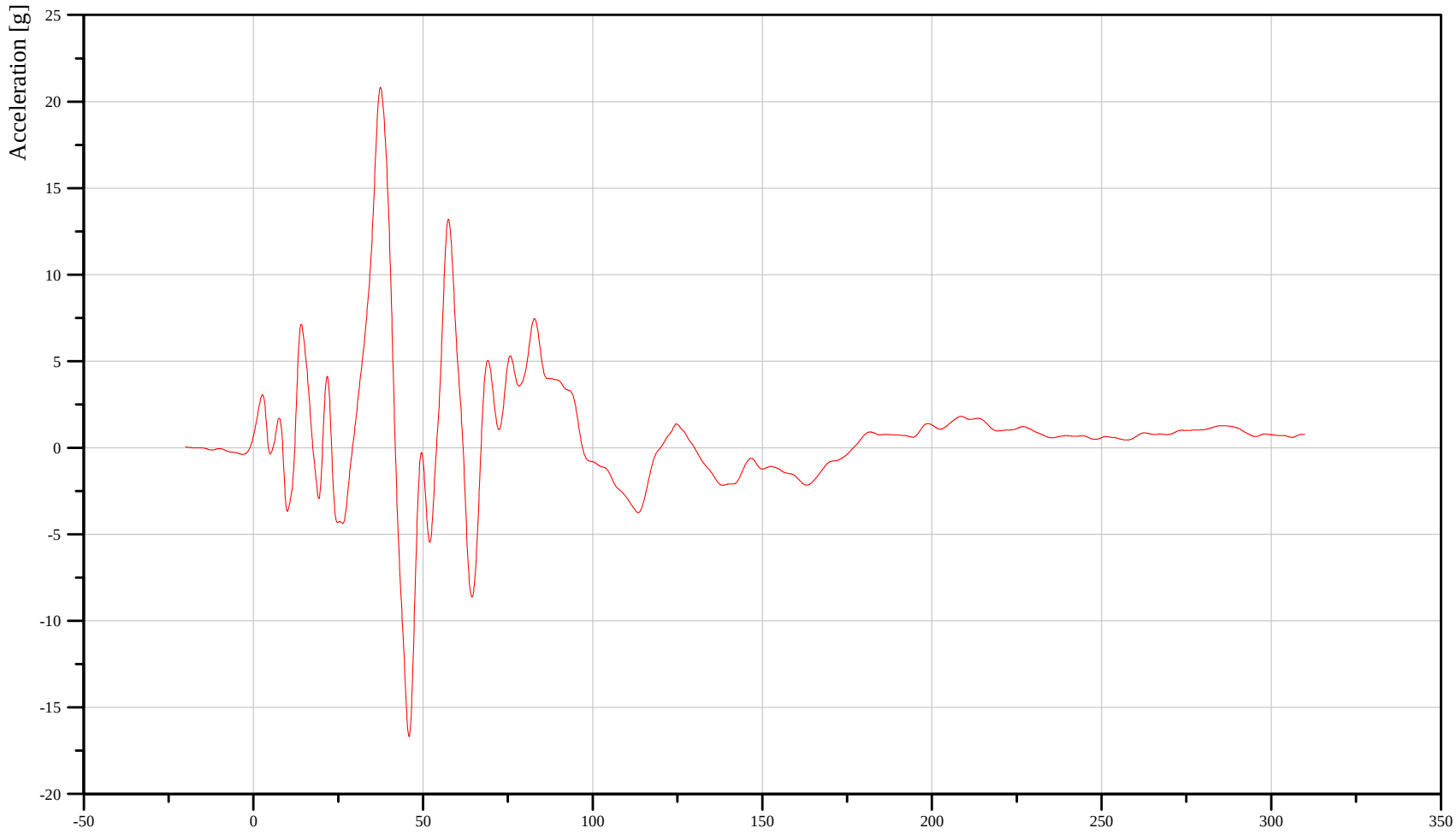
## Bullet Vehicle Toe Pan Footrest Z-Axis Acceleration

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 11VEHC000001ACZD

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_60

**Min. Value**
-16.68 g at 45.92 ms

**Max. Value**
20.82 g at 37.44 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

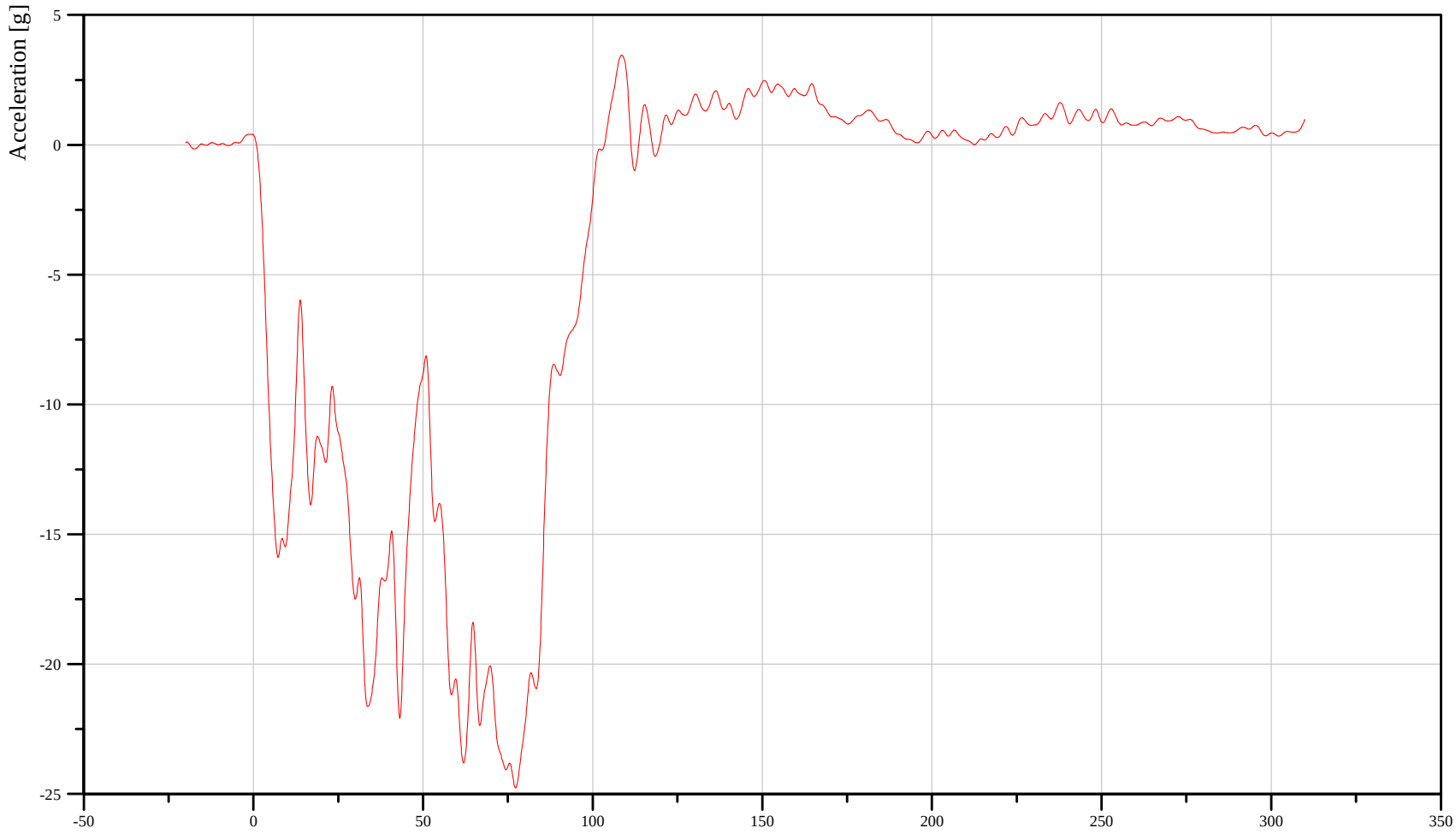
## Bullet Vehicle Rear Tunnel Center X-Axis Acceleration

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 15TUNNCY0000ACXD

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_60

**Min. Value**
-24.76 g at 77.28 ms

**Max. Value**
3.45 g at 108.56 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

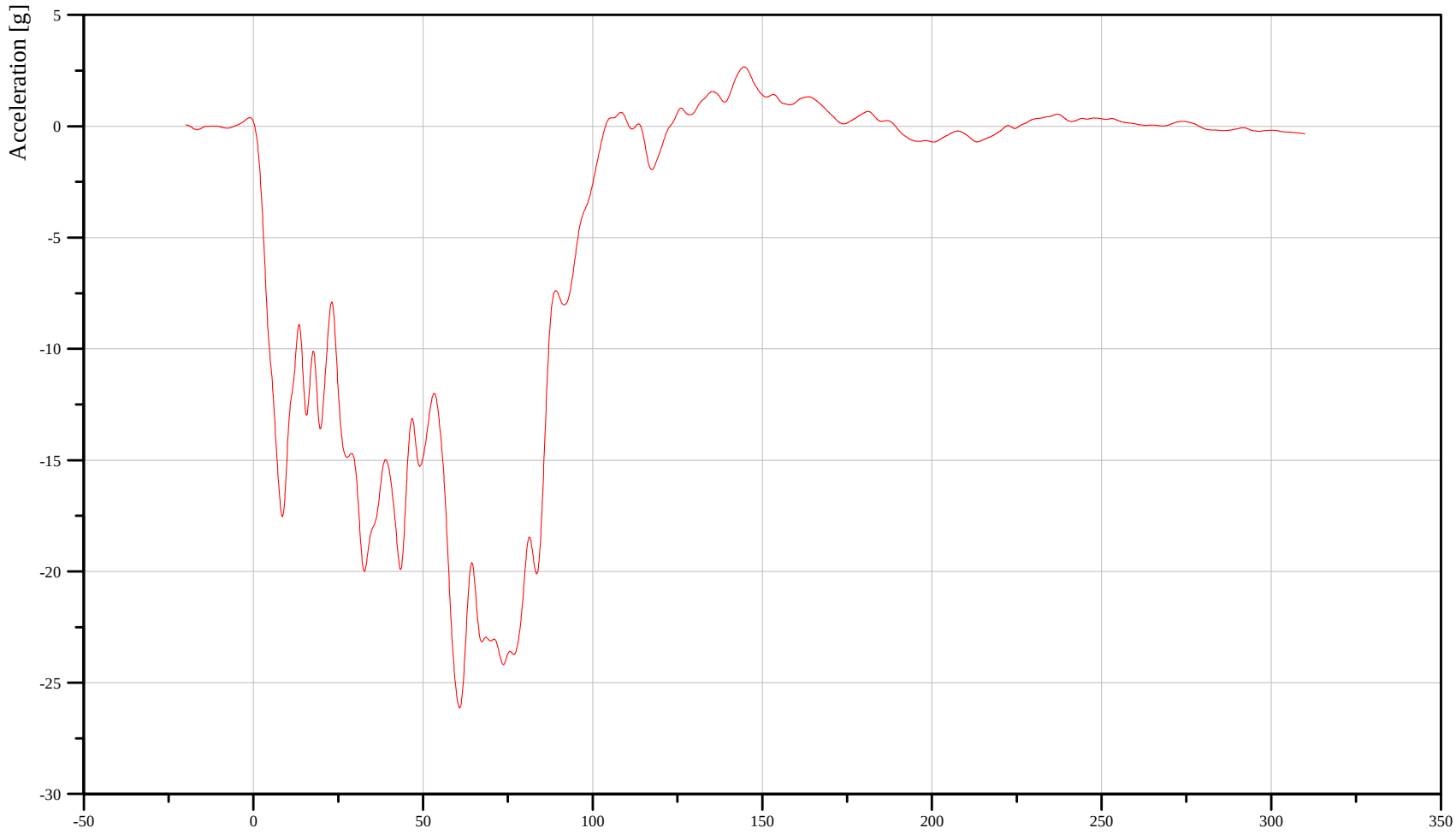
## Bullet Vehicle CG X-Axis Acceleration

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 10VEHCCG0000ACXD

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_60

**Min. Value**
-26.13 g at 60.80 ms

**Max. Value**
2.66 g at 144.64 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

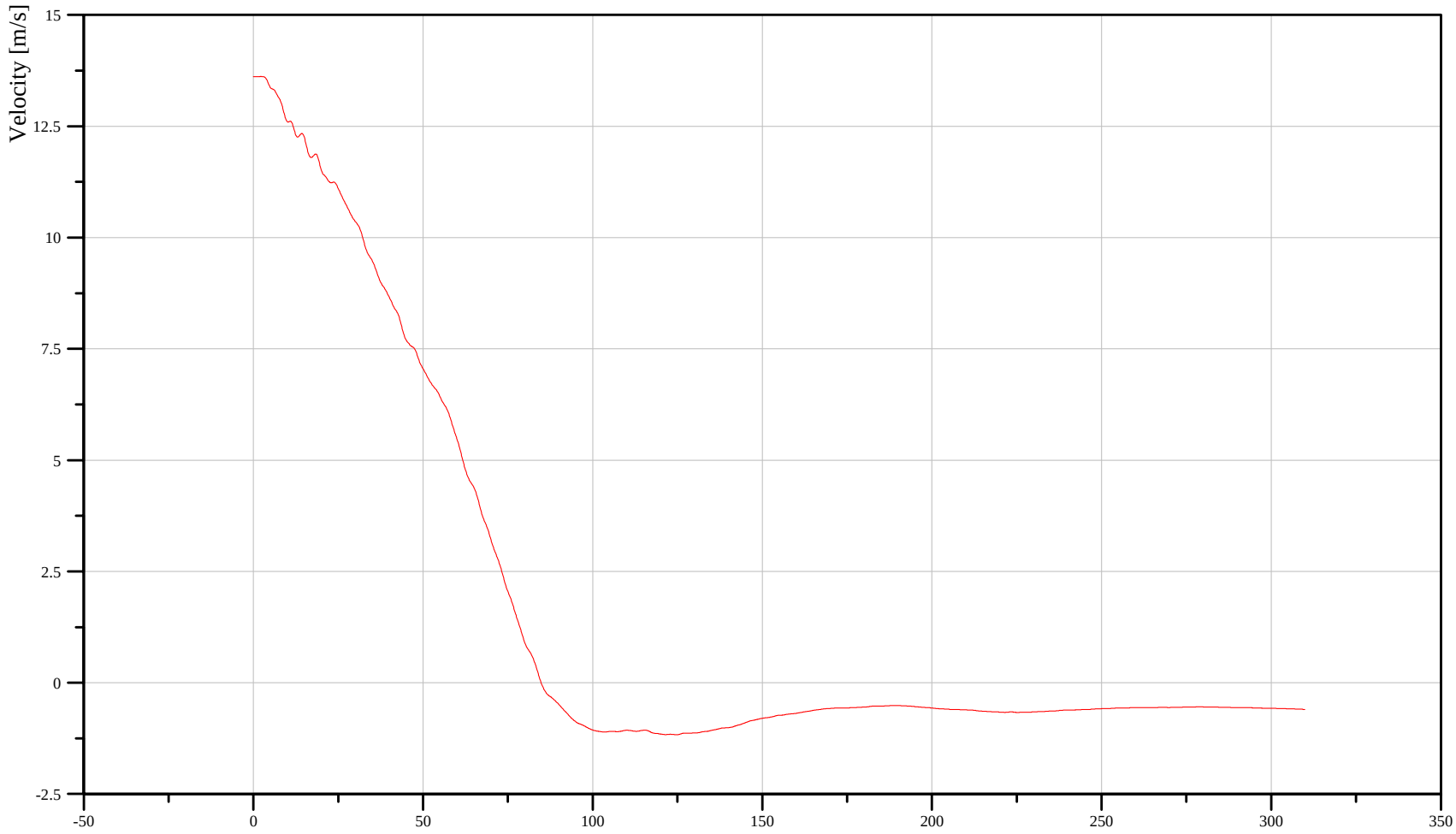
Bullet Vehicle CG X-Axis Velocity

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

## 10VEHCCG0000VEXC

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_180

**Min. Value**
-1.17 m/s at 124.80 ms

**Max. Value**
13.62 m/s at 2.24 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

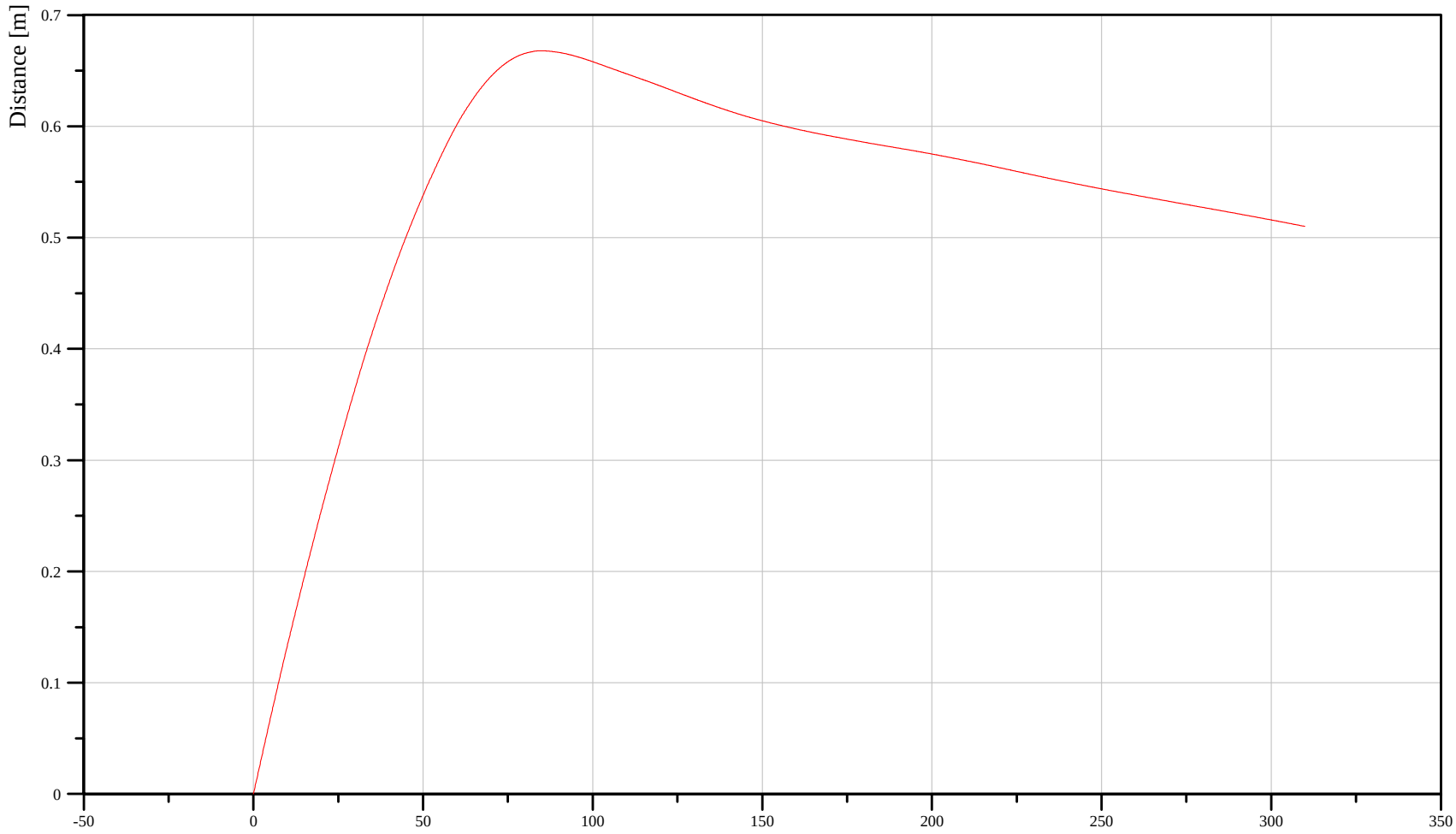
Bullet Vehicle CG X-Axis Displacement

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

## 10VEHCCG0000DCXC

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_180

**Min. Value**
0.00 m at 0.00 ms

**Max. Value**
0.67 m at 84.80 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

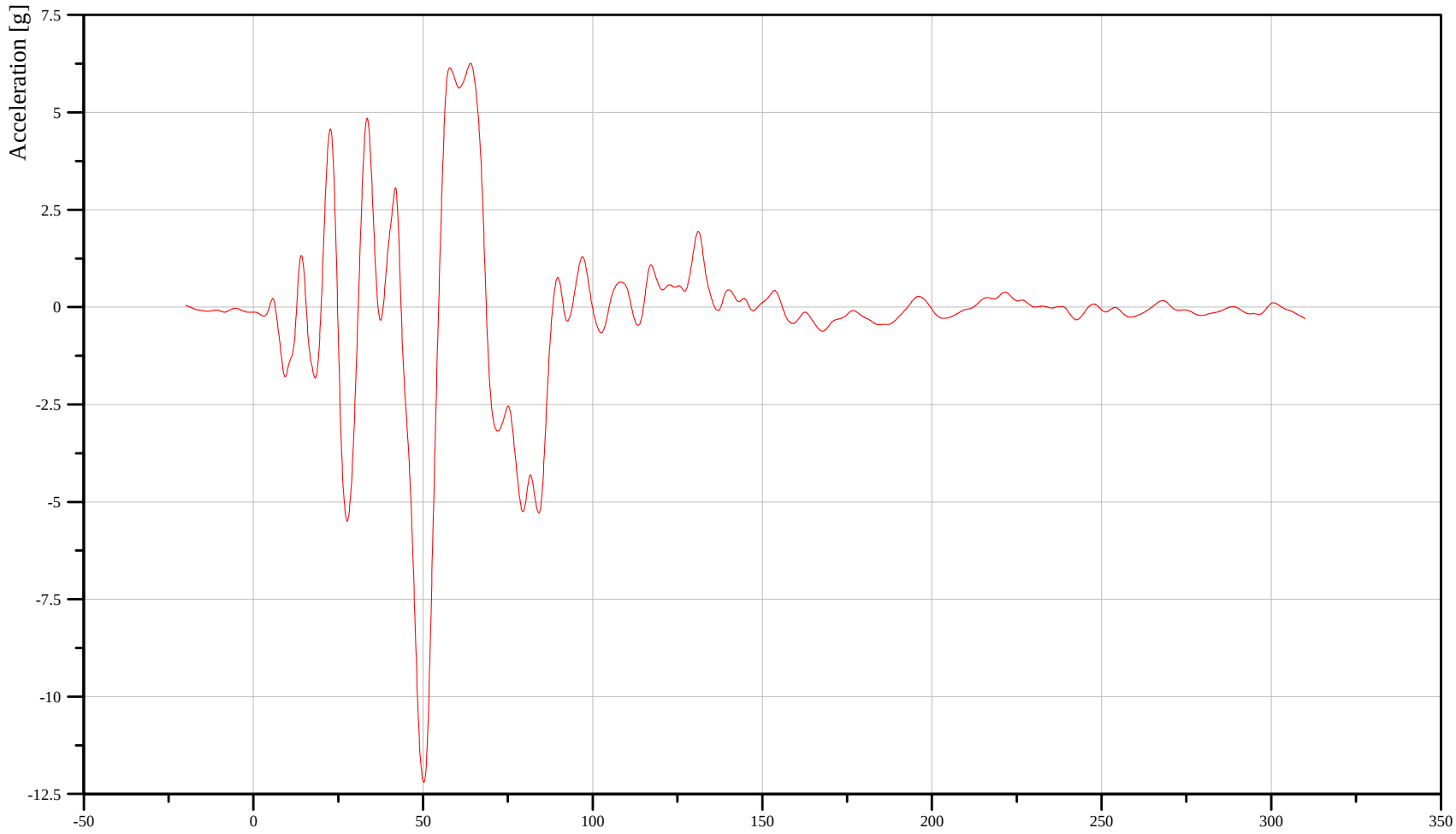
## Bullet Vehicle CG Y-Axis Acceleration

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 10VEHCCG0000ACYD

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_60

**Min. Value**
-12.20 g at 50.24 ms

**Max. Value**
6.26 g at 64.00 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

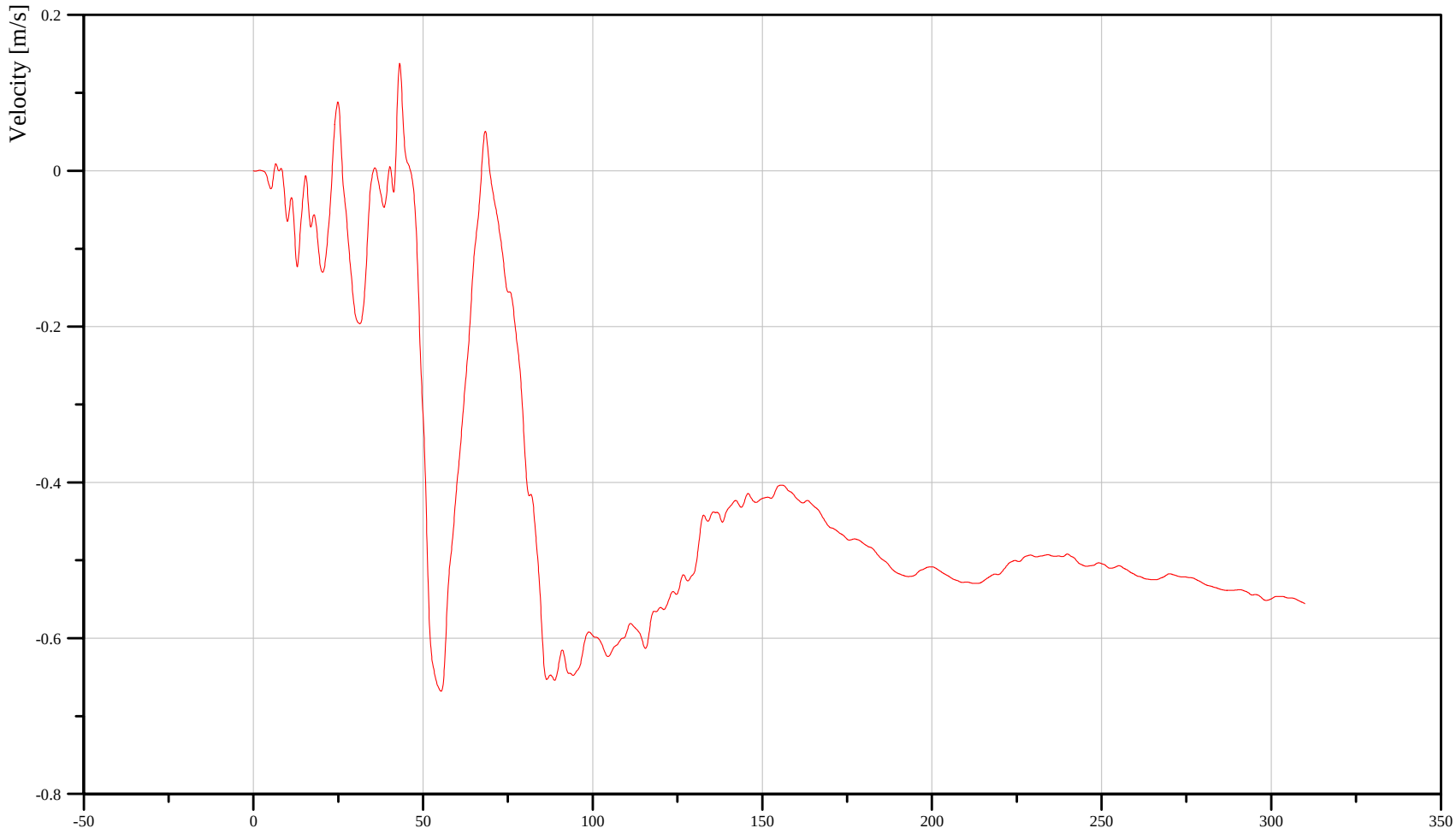
## Bullet Vehicle CG Y-Axis Velocity

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 10VEHCCG0000VEYC

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_180

**Min. Value**
-0.67 m/s at 55.36 ms

**Max. Value**
0.14 m/s at 43.12 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

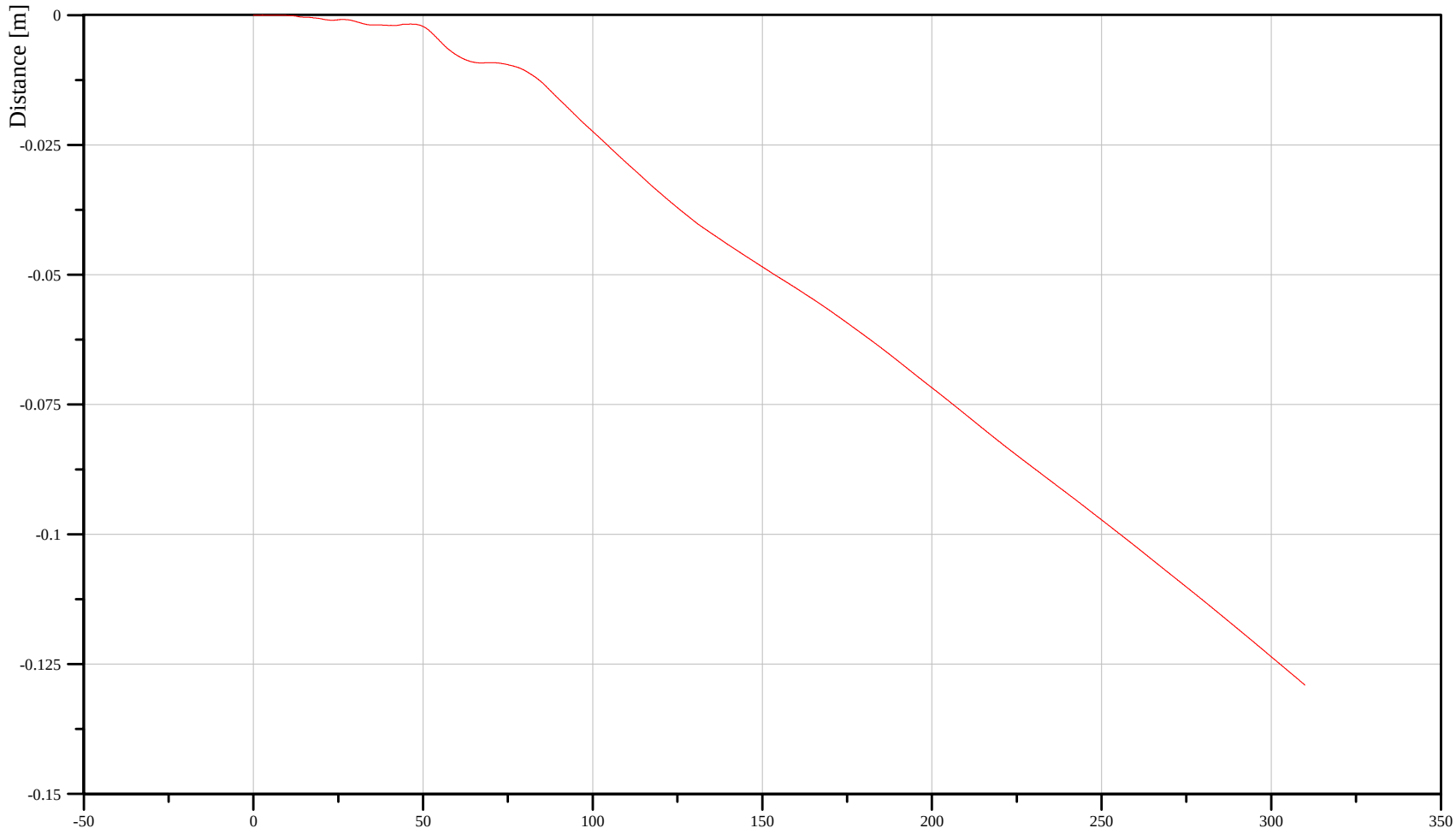
Bullet Vehicle CG Y-Axis Displacement

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

## 10VEHCCG0000DCYC

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_180

**Min. Value**
-0.13 m at 309.92 ms

**Max. Value**
0.00 m at 2.64 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

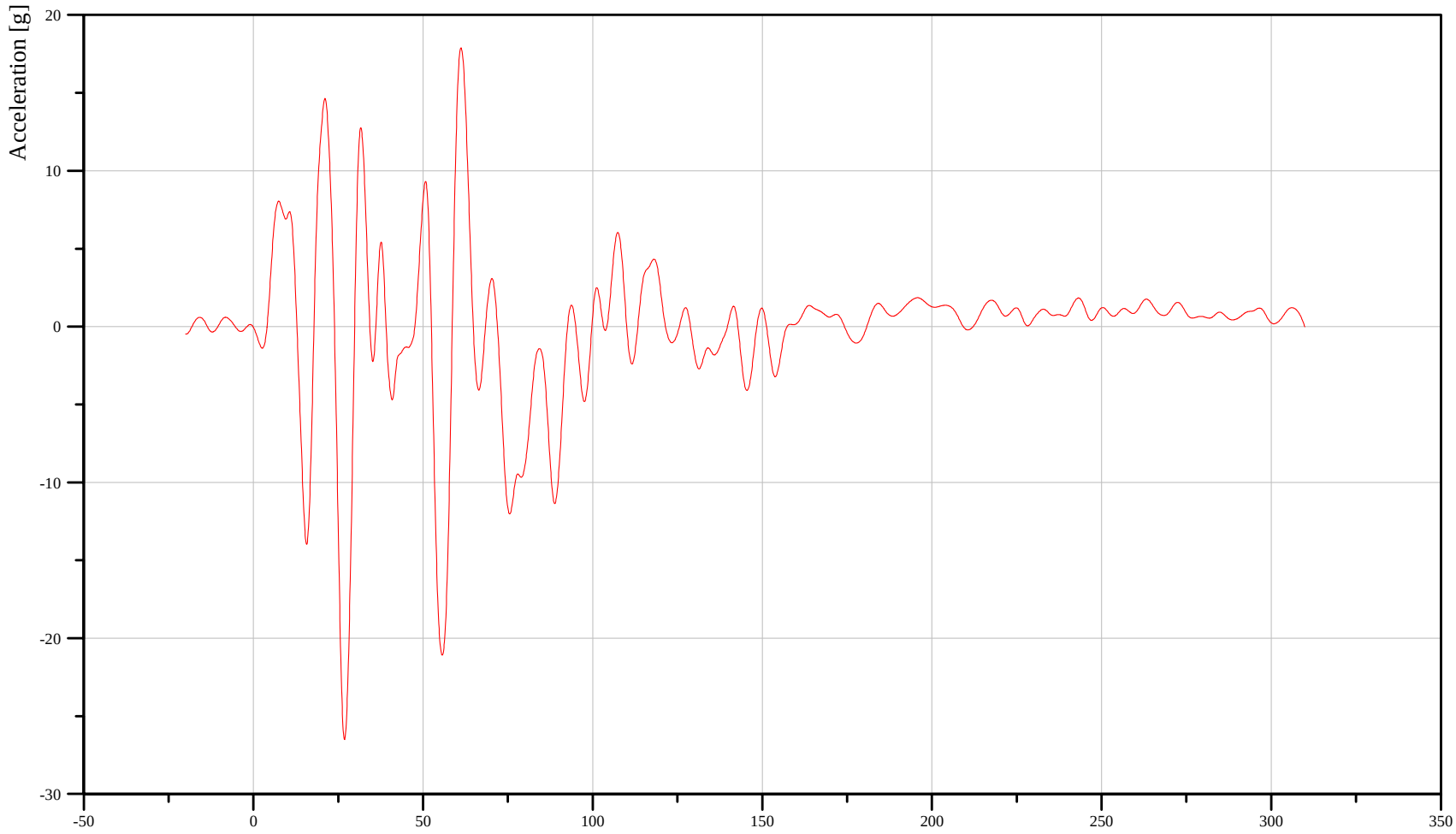
## Bullet Vehicle CG Z-Axis Acceleration

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 10VEHCCG0000ACZD

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_60

**Min. Value**
-26.51 g at 26.88 ms

**Max. Value**
17.90 g at 61.20 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

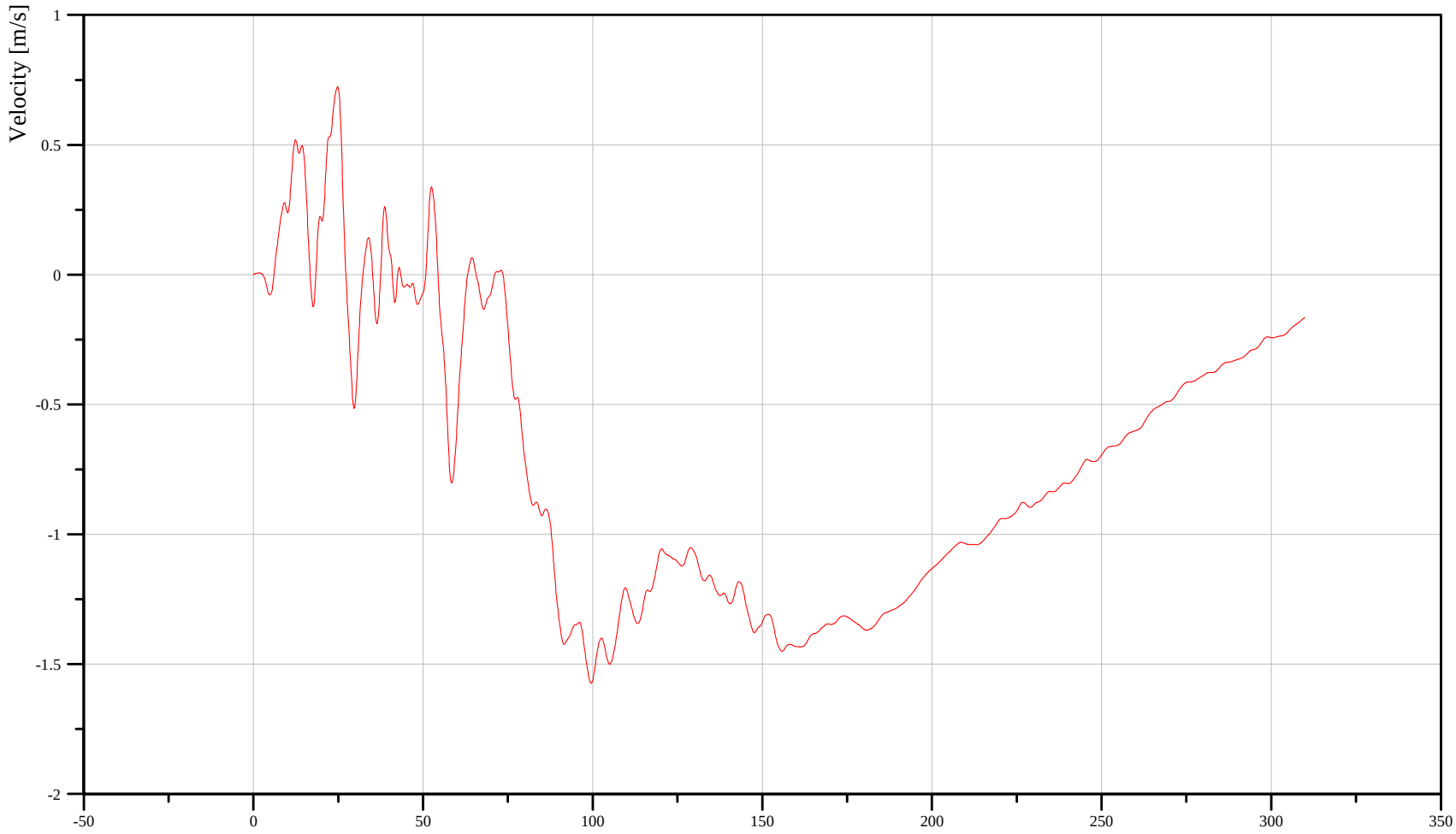
Bullet Vehicle CG Z-Axis Velocity

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

## 10VEHCCG0000VEZC

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_180

**Min. Value**
-1.57 m/s at 99.60 ms

**Max. Value**
0.72 m/s at 24.80 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

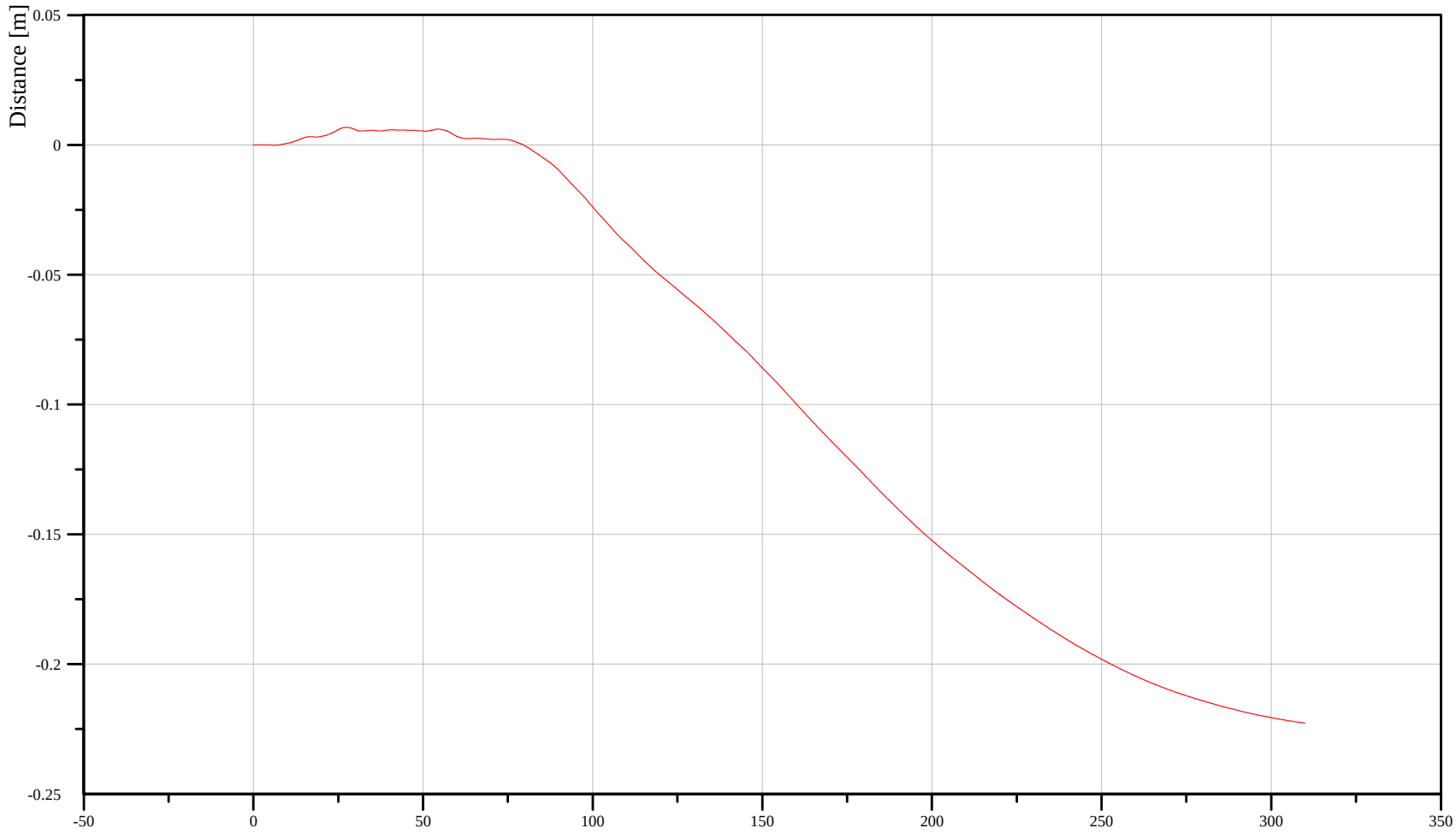
Bullet Vehicle CG Z-Axis Displacement

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

## 10VEHCCG0000DCZC

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_180

**Min. Value**
-0.22 m at 309.92 ms

**Max. Value**
0.01 m at 27.28 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

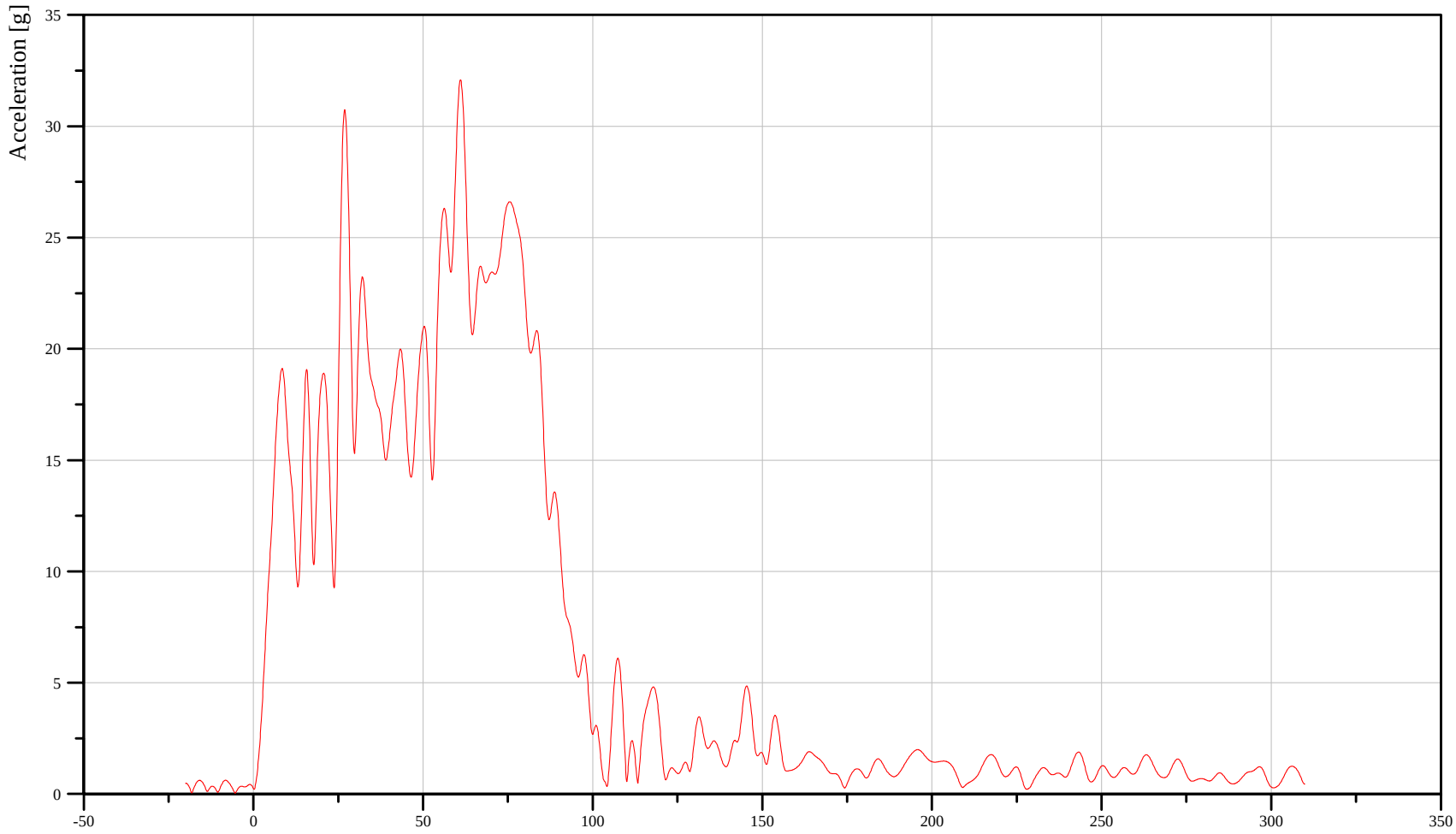
## Bullet Vehicle CG Resultant Acceleration

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 10VEHCCG0000ACRD

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_60

**Min. Value**
0.04 g at -5.36 ms

**Max. Value**
32.09 g at 61.04 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

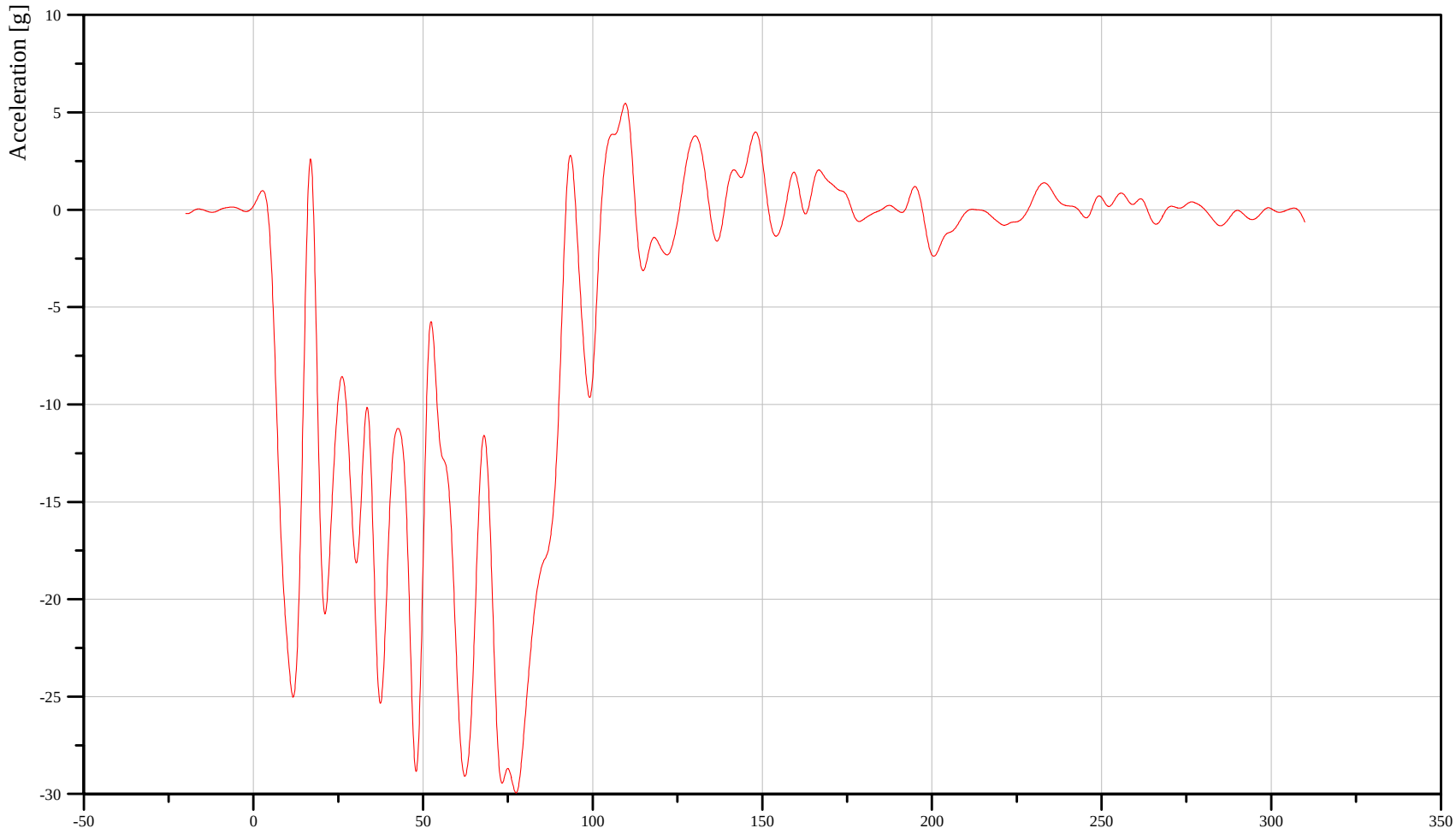
## Bullet Vehicle Rear Deck X-Axis Acceleration

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 18VEHC000000ACXD

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_60

**Min. Value**
-29.94 g at 77.44 ms

**Max. Value**
5.47 g at 109.60 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

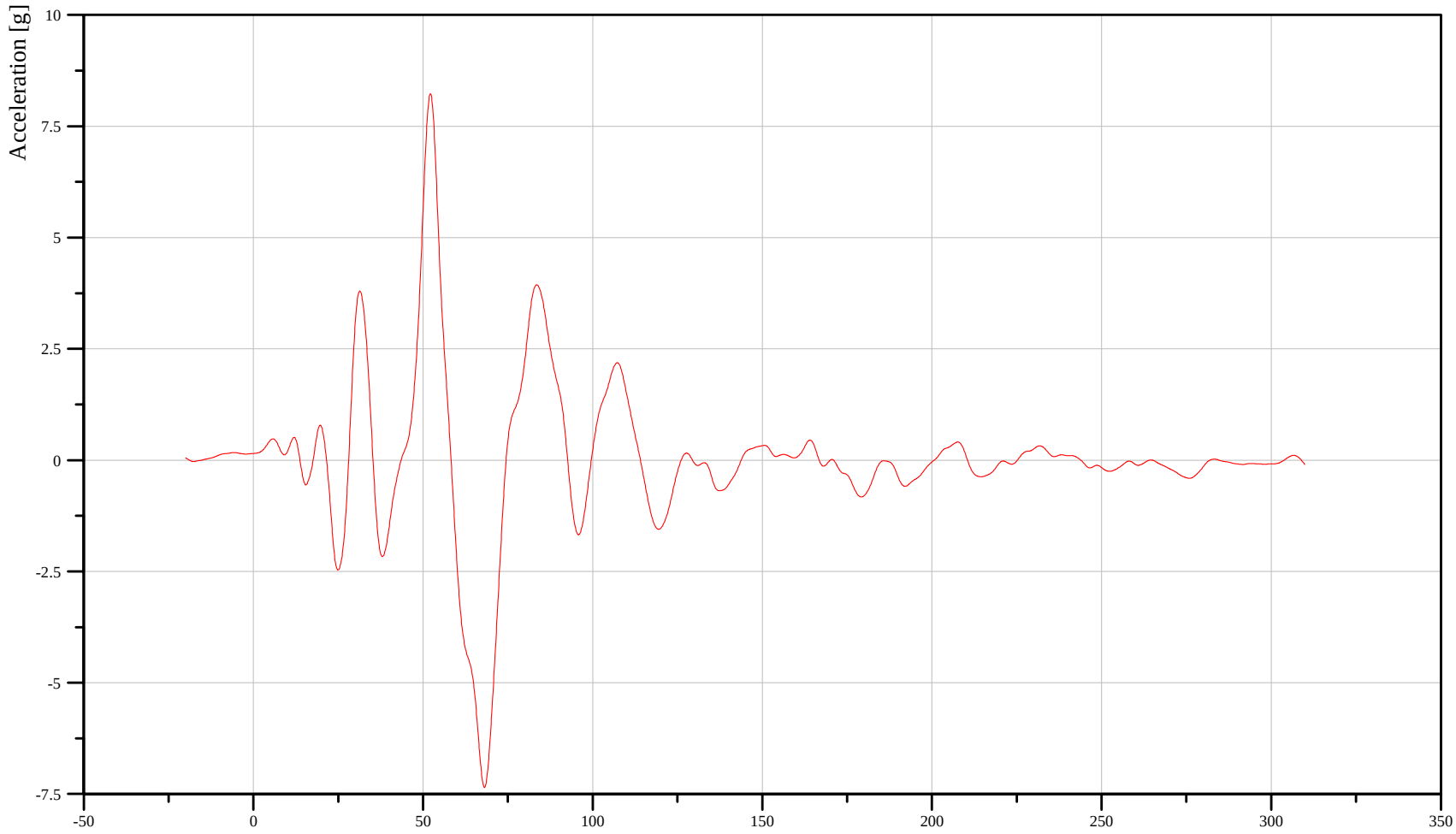
## Bullet Vehicle Rear Deck Y-Axis Acceleration

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 18VEHC000000ACYD

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_60

**Min. Value**
-7.35 g at 68.08 ms

**Max. Value**
8.23 g at 52.16 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

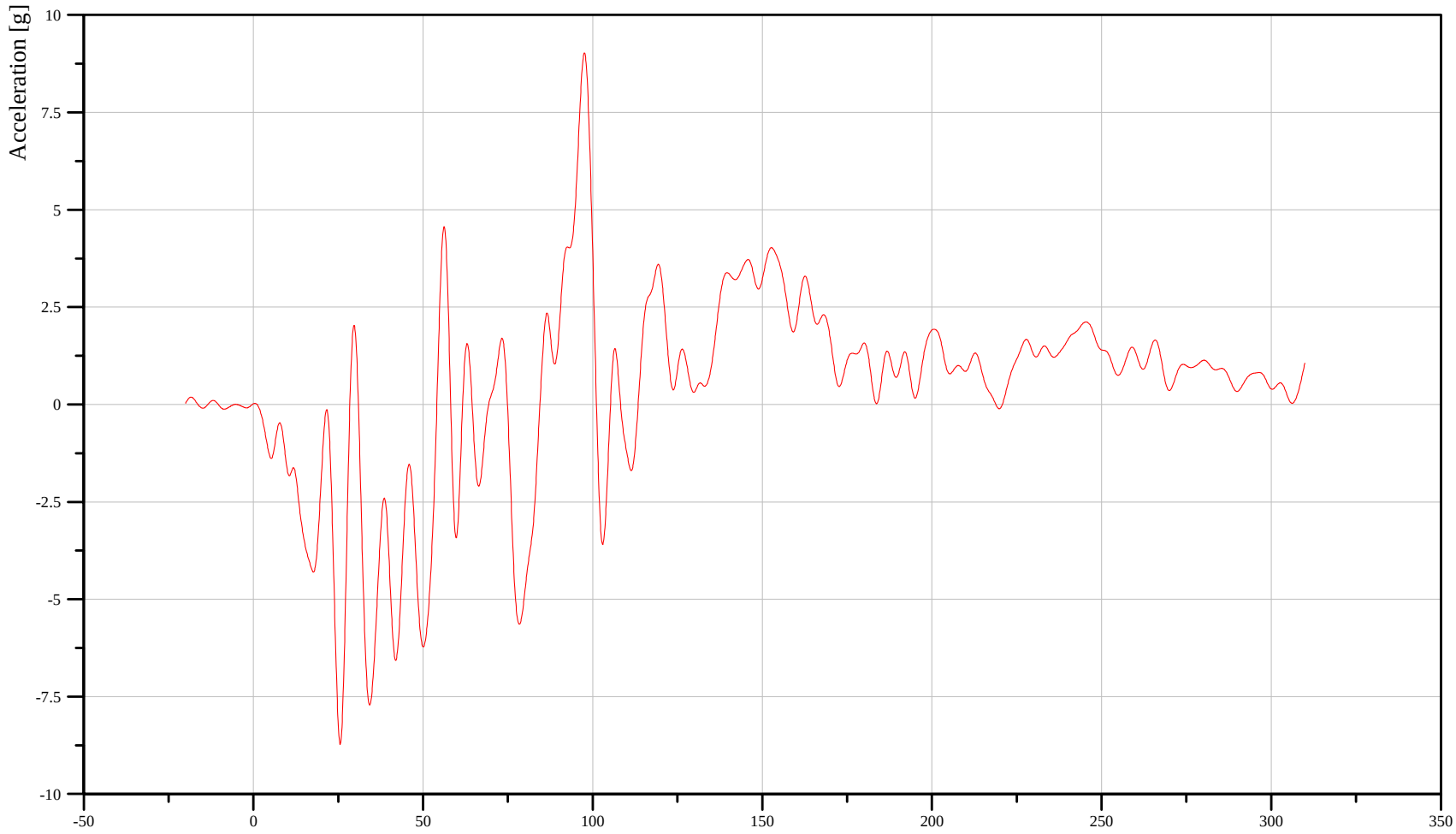
## Bullet Vehicle Rear Deck Z-Axis Acceleration

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 18VEHC000000ACZD

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_60

**Min. Value**
-8.73 g at 25.60 ms

**Max. Value**
9.03 g at 97.60 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

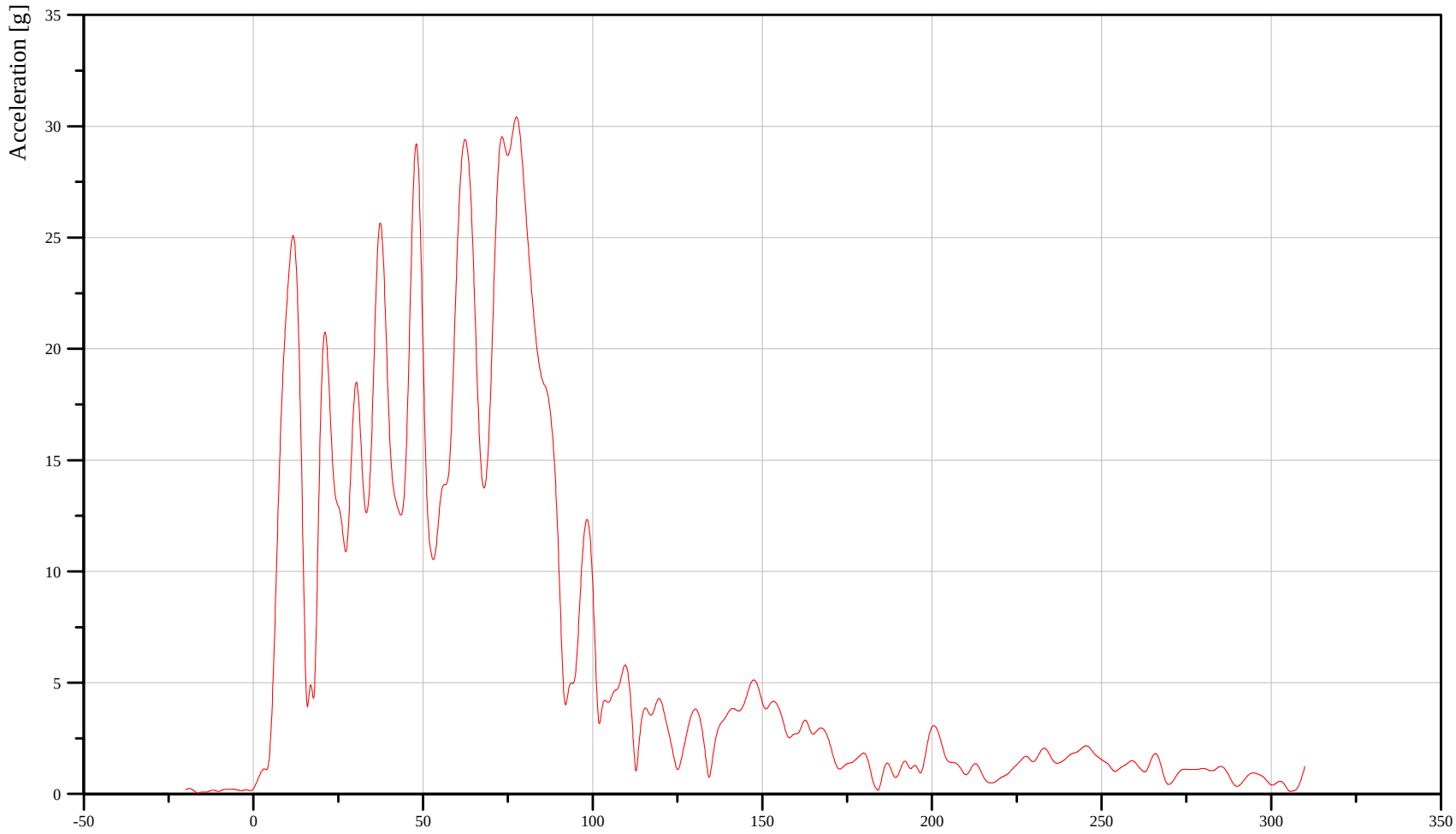
## Bullet Vehicle Rear Deck Resultant Acceleration

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 18VEHC000000ACRD

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_60

**Min. Value**
0.04 g at -16.40 ms

**Max. Value**
30.42 g at 77.52 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

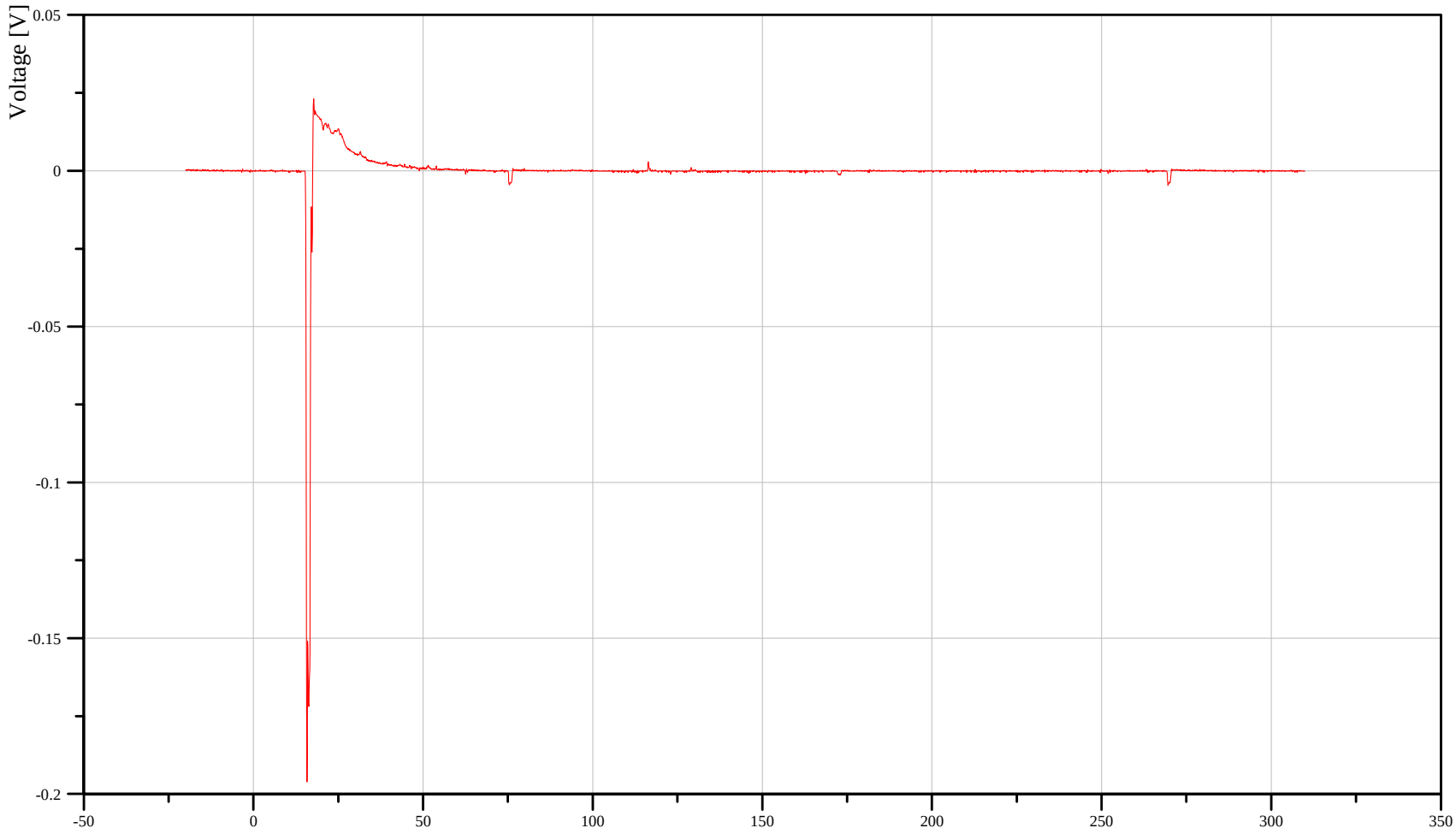
Bullet Vehicle Driver Airbag - Primary

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 11AIRBFR0100EV0A

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_1000

**Min. Value**
-0.20 V at 15.76 ms

**Max. Value**
0.02 V at 17.76 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

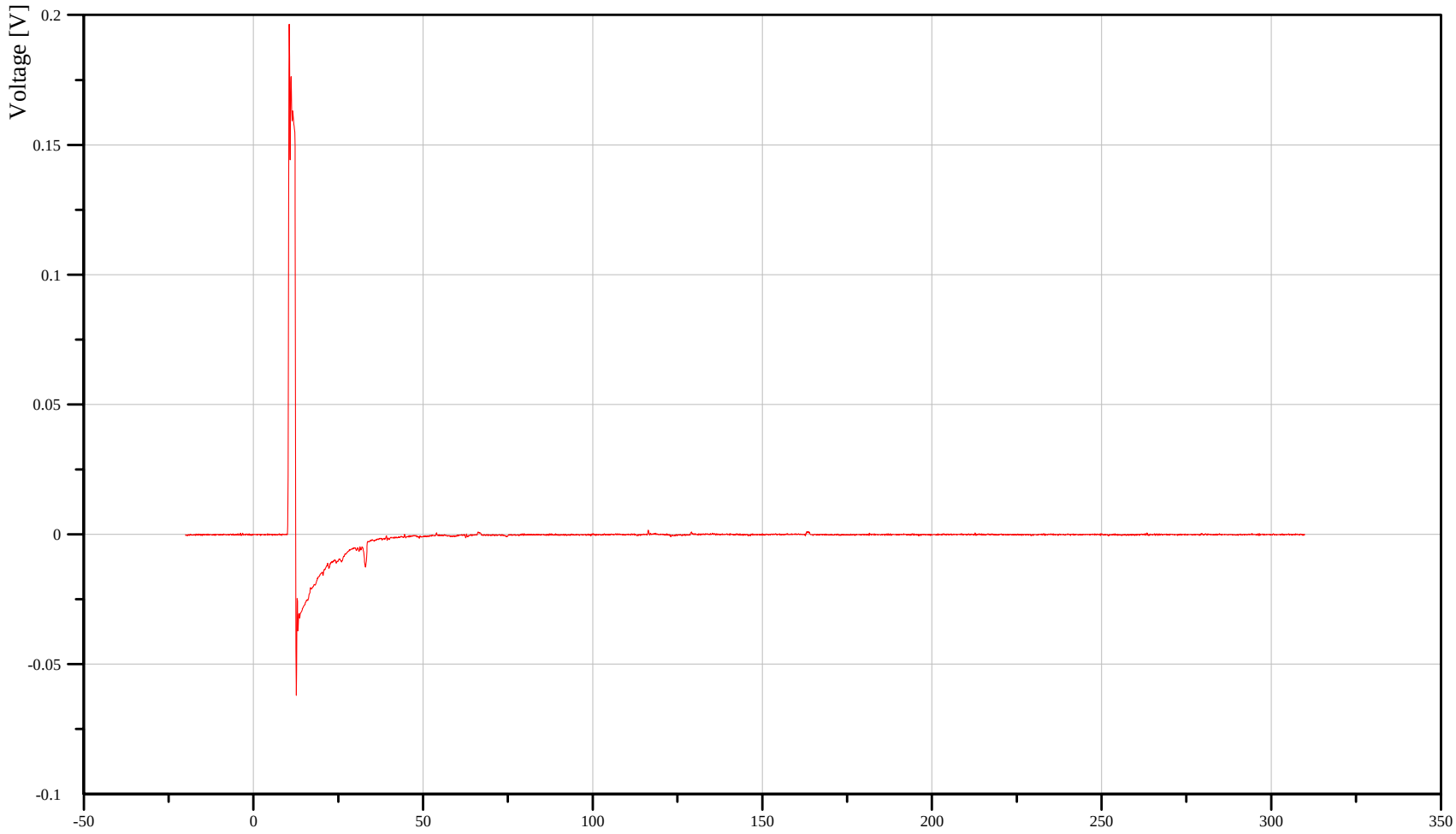
Bullet Vehicle Driver Airbag - Secondary

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

## 11AIRBFR0200EV0A

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_1000

**Min. Value**
-0.06 V at 12.64 ms

**Max. Value**
0.20 V at 10.56 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

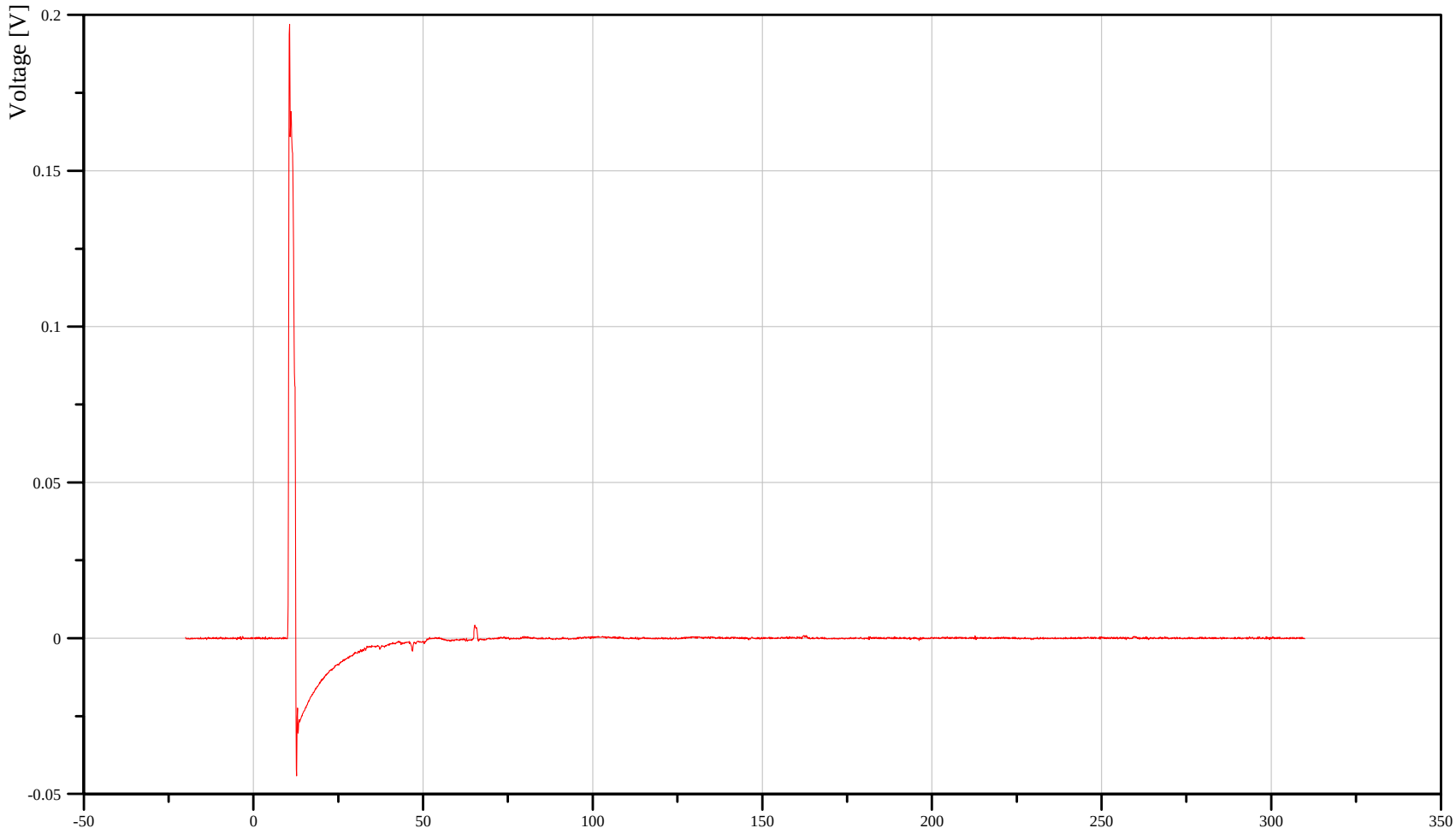
Bullet Vehicle Passenger Airbag - Primary

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

## 13AIRBFR0100EV0A

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_1000

**Min. Value**
-0.04 V at 12.72 ms

**Max. Value**
0.20 V at 10.64 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

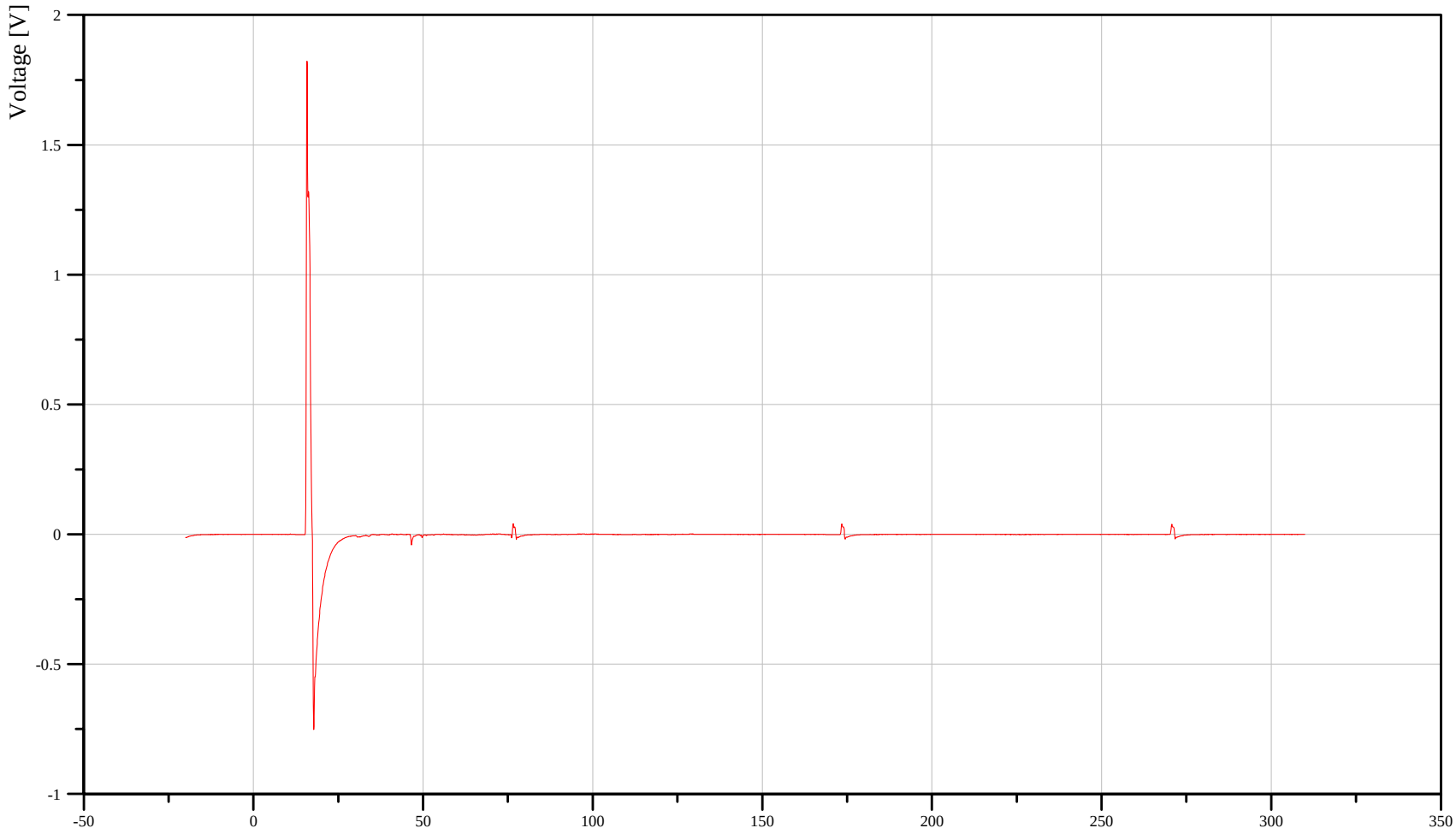
## Bullet Vehicle Passenger Airbag - Secondary

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 13AIRBFR0200EV0A

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_1000

**Min. Value**
-0.75 V at 17.76 ms

**Max. Value**
1.82 V at 15.76 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

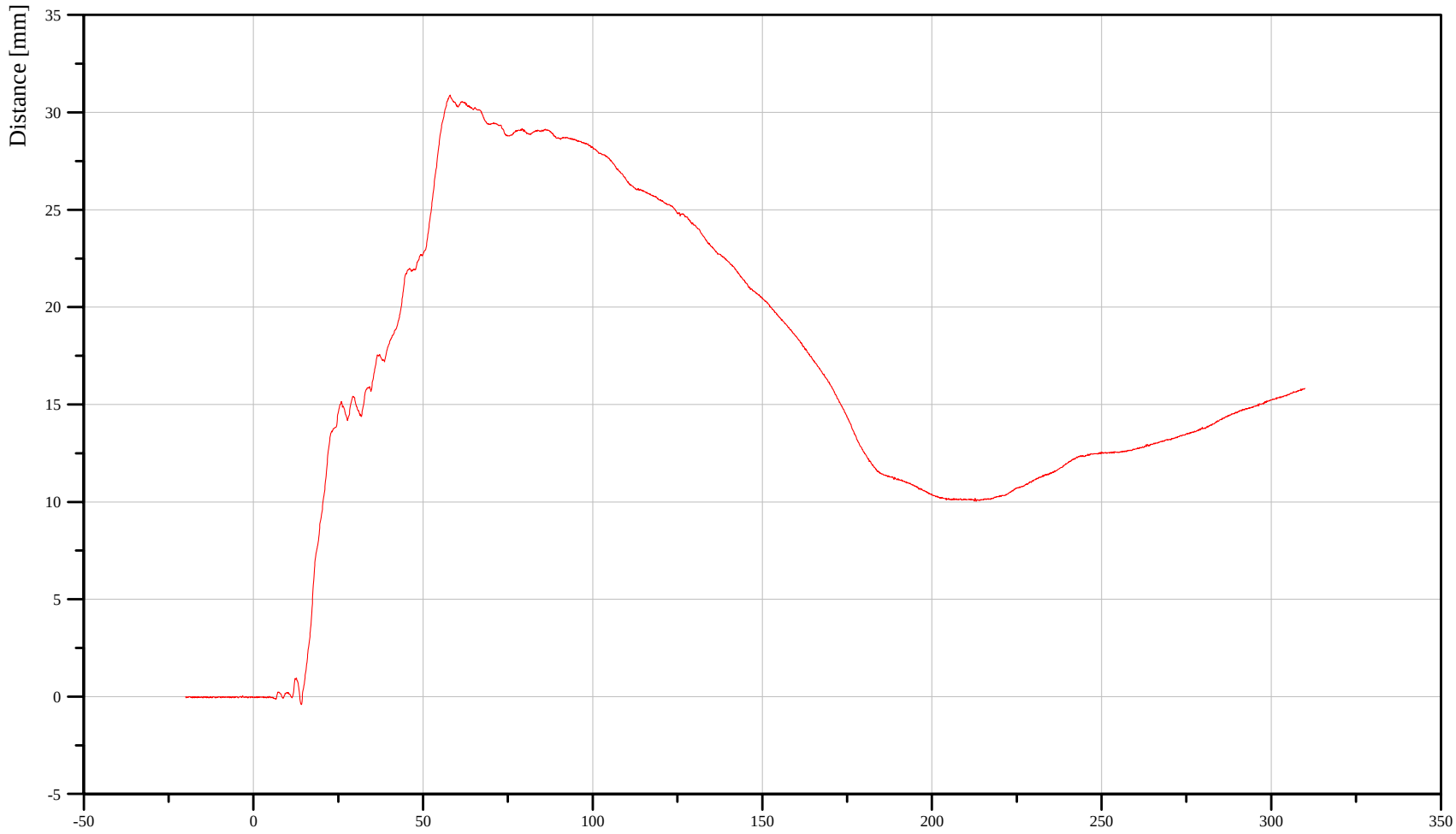
Bullet Vehicle Driver lap belt spool

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

## 11SEBA0000B5DS0A

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_1000

**Min. Value**
-0.41 mm at 14.16 ms

**Max. Value**
30.89 mm at 58.00 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

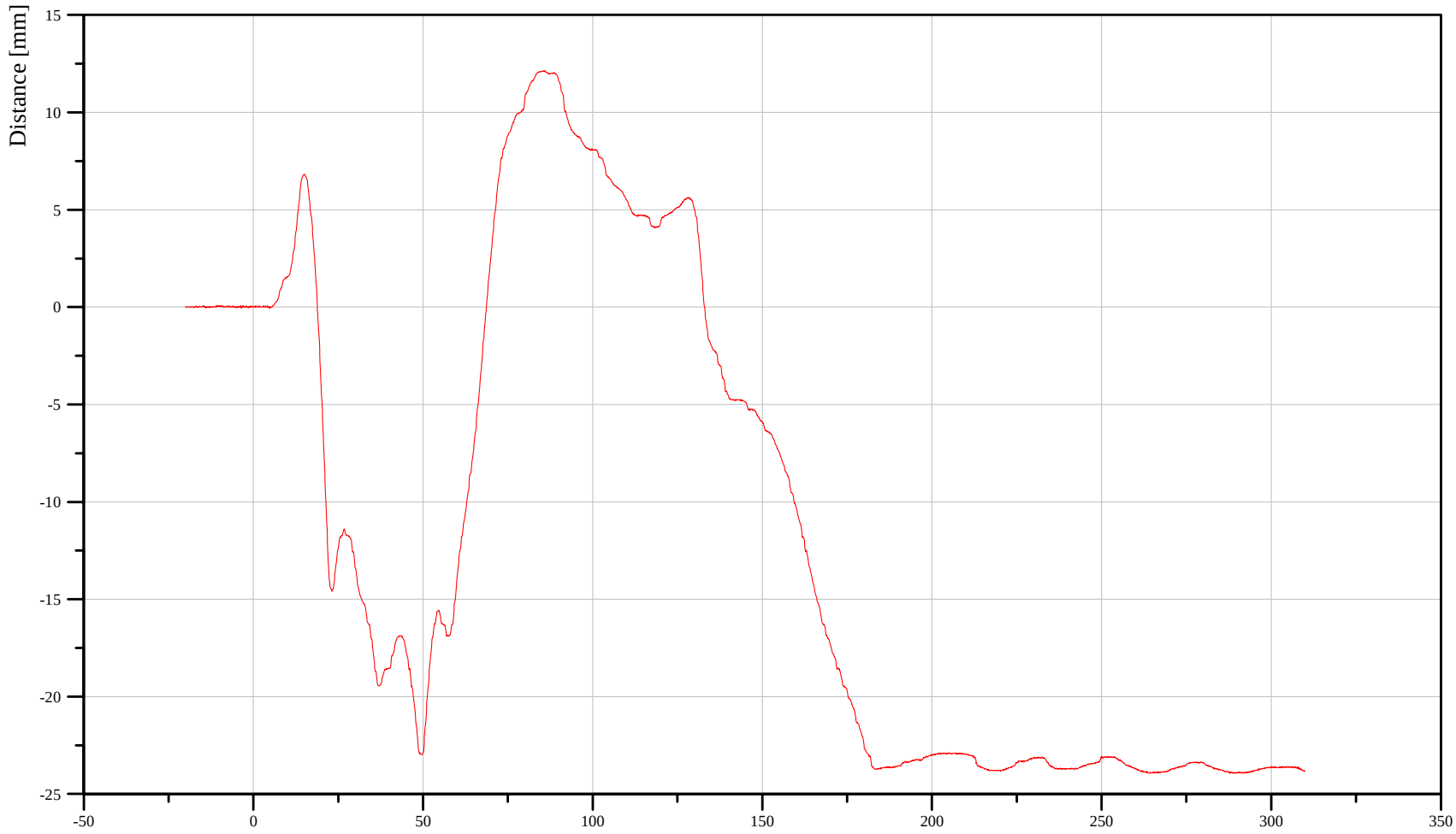
Bullet Vehicle Driver shoulder belt spool and retraction

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

## 11SEBA0000B3DS0A

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_1000

**Min. Value**
-23.95 mm at 287.68 ms

**Max. Value**
12.15 mm at 85.52 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

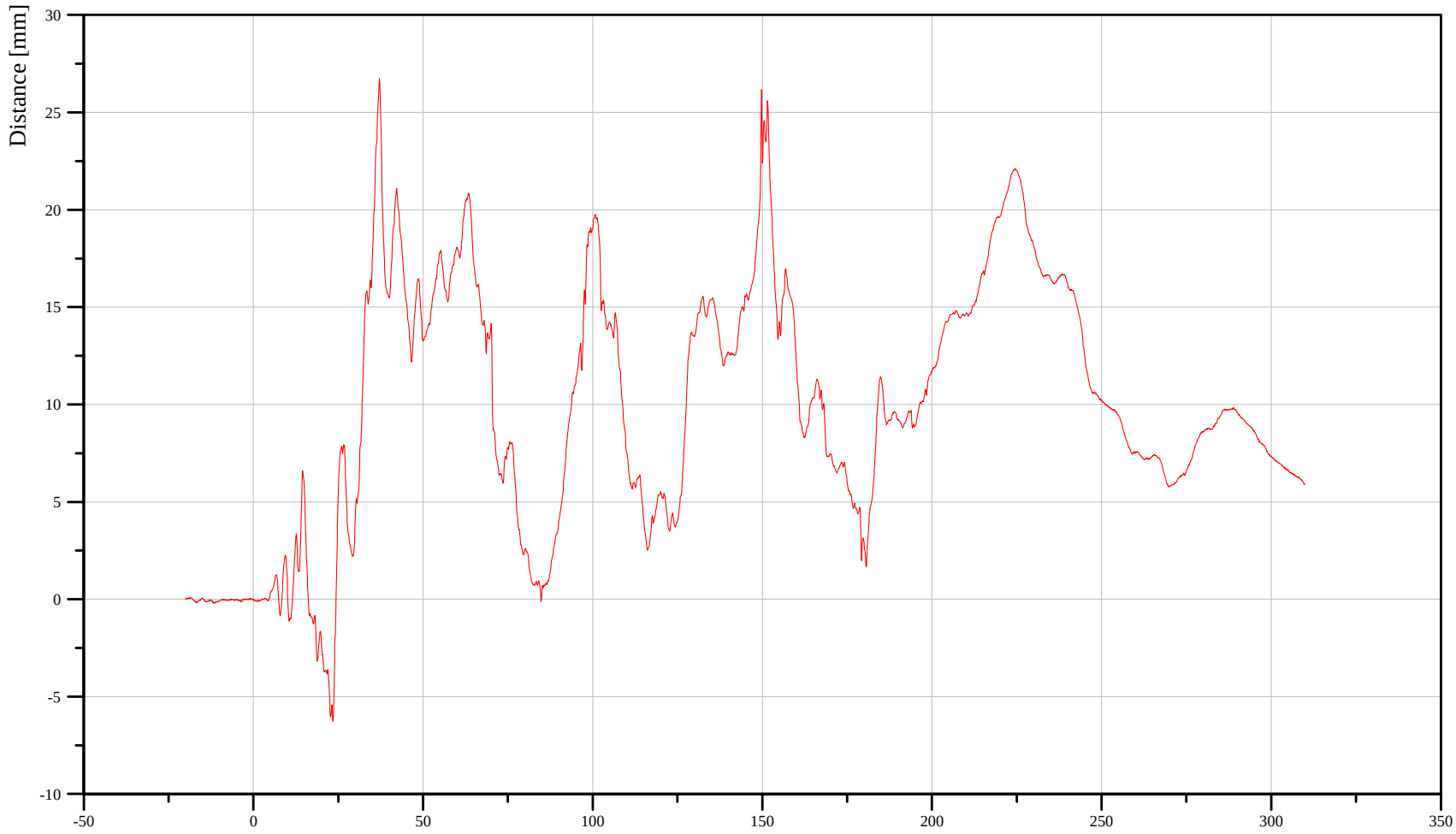
Bullet Vehicle RF Pass shoulder belt spool and retraction

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

## 13SEBA0000B3DS0A

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_1000

**Min. Value**
-6.27 mm at 23.44 ms

**Max. Value**
26.74 mm at 37.12 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

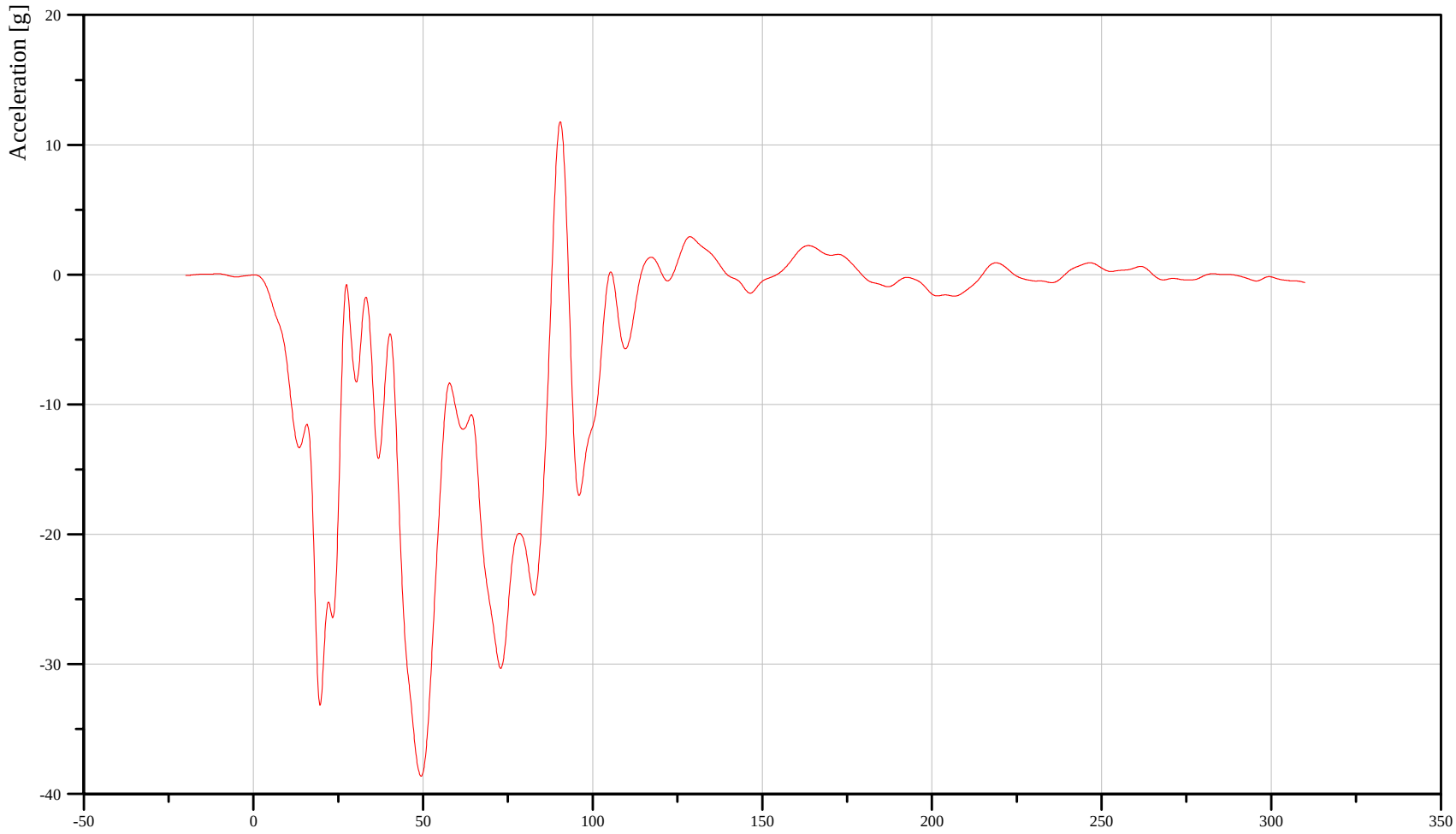
Bullet Vehicle IP Center

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

## 12DASH000000ACXD

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_60

**Min. Value**
-38.63 g at 49.44 ms

**Max. Value**
11.78 g at 90.48 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

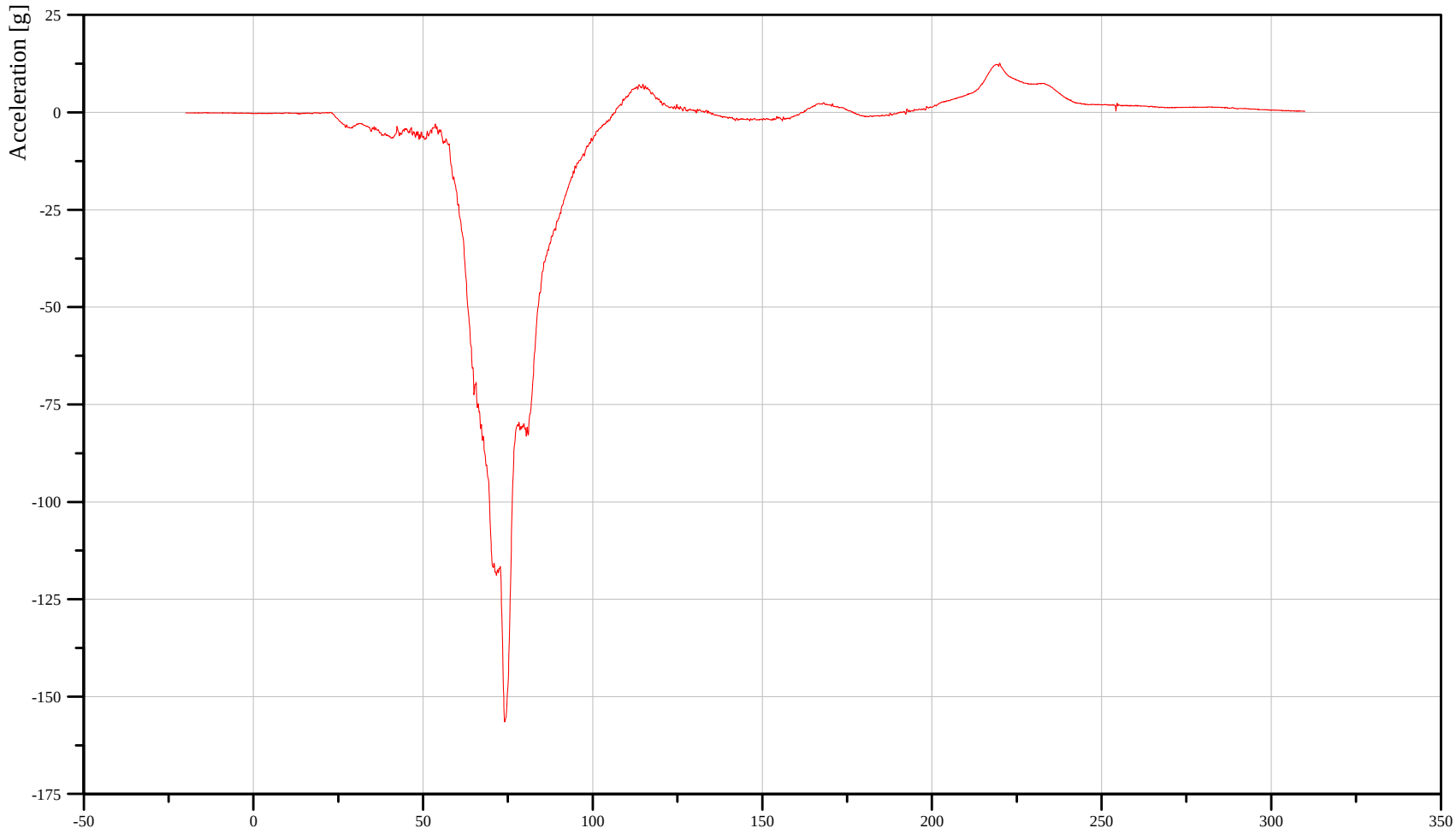
Target Driver Head X-Axis Acceleration

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

## 21HEADCG00H3ACXA

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_1000

**Min. Value**
-156.53 g at 74.08 ms

**Max. Value**
12.63 g at 220.00 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

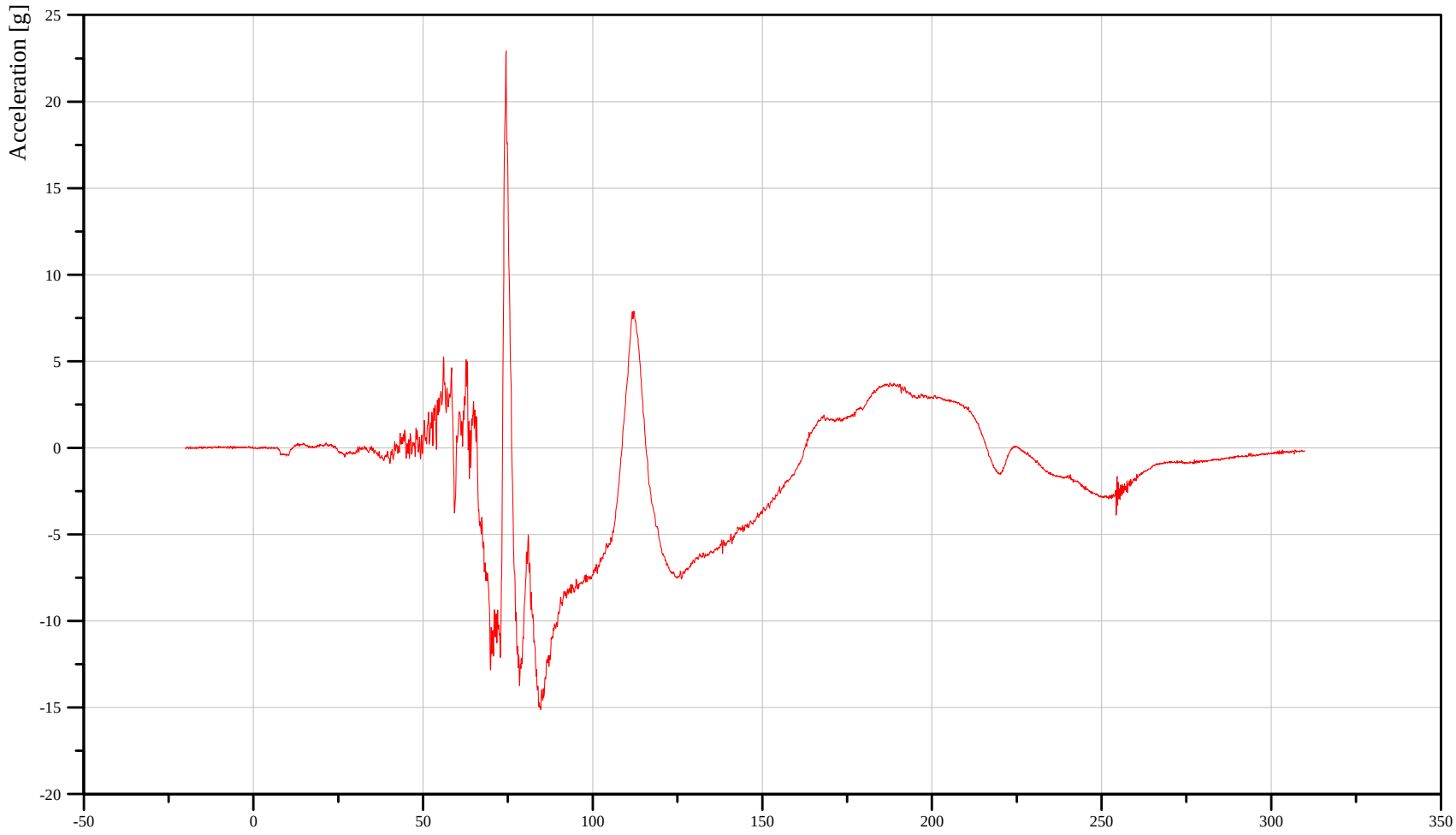
## Target Driver Head Y-Axis Acceleration

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 21HEADCG00H3ACYA

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_1000

**Min. Value**
-15.12 g at 84.64 ms

**Max. Value**
22.91 g at 74.48 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

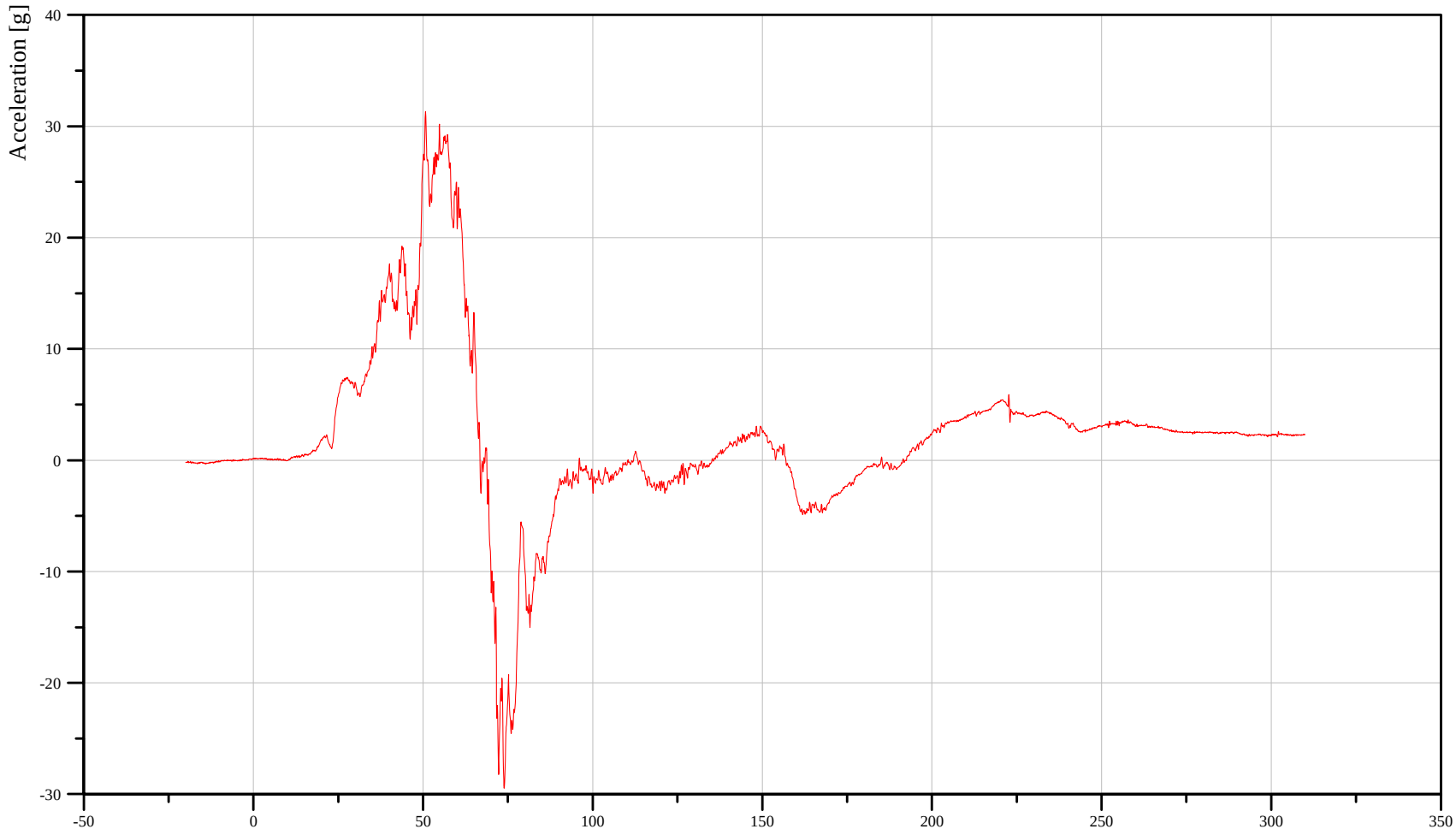
## Target Driver Head Z-Axis Acceleration

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 21HEADCG00H3ACZA

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_1000

**Min. Value**
-29.47 g at 73.92 ms

**Max. Value**
31.30 g at 50.72 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

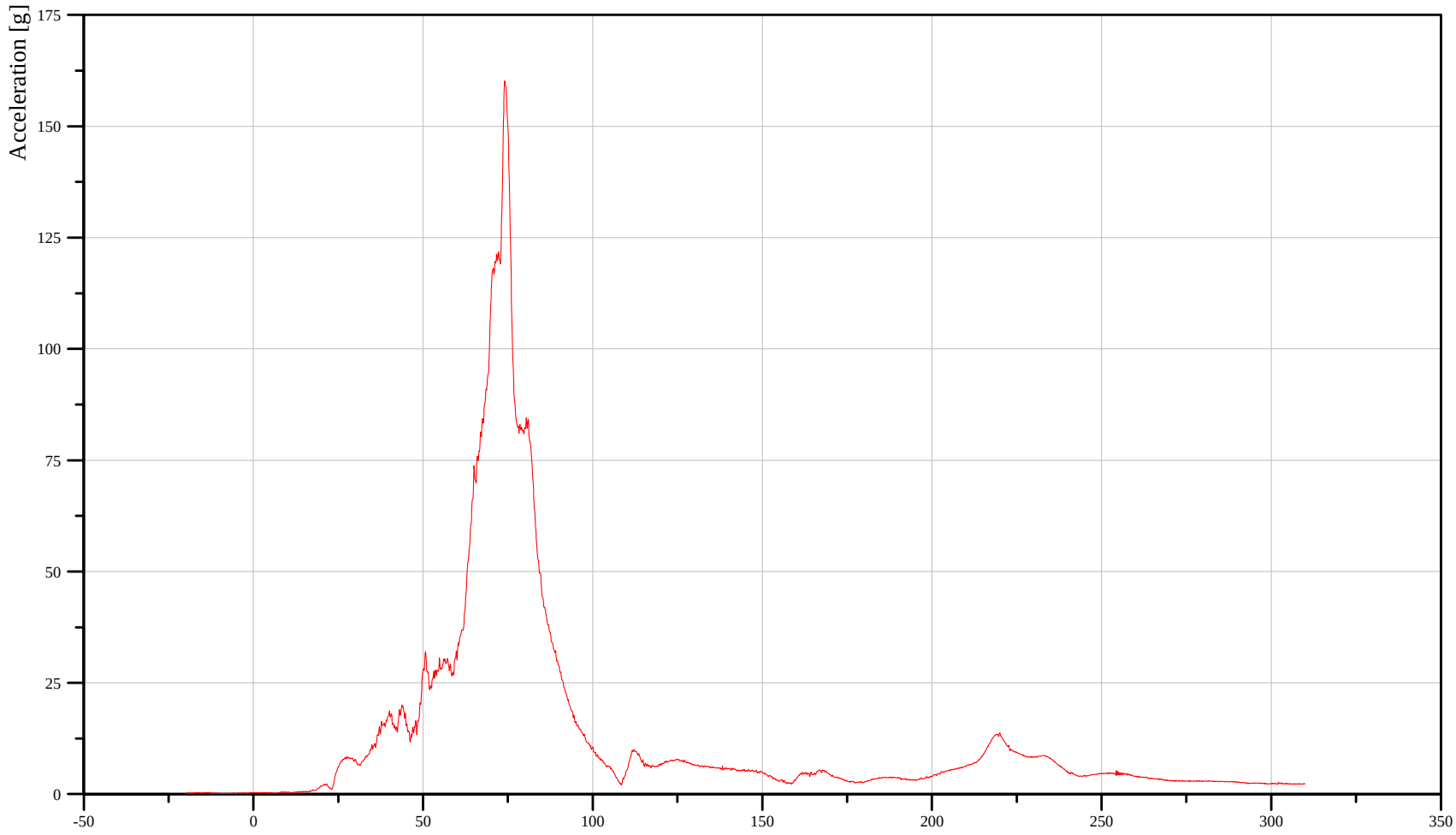
Target Driver Head Resultant Acceleration

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

## 21HEADCG00H3ACRA

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_1000

**Min. Value**
0.09 g at -8.96 ms

**Max. Value**
160.20 g at 74.08 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

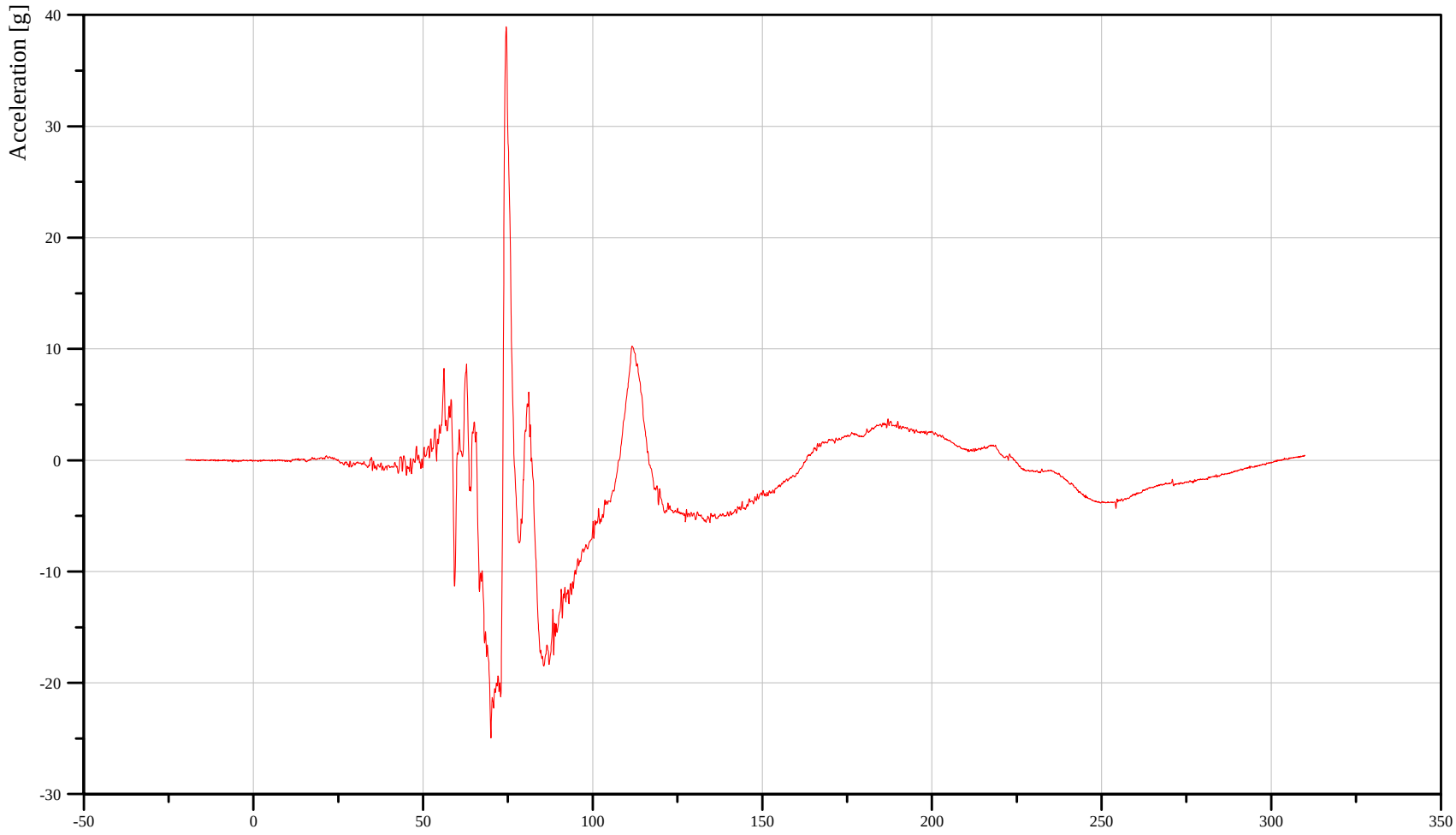
Target Driver Head Front Y-Axis Acceleration

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

## 21HEADFR00H3ACYA

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_1000

**Min. Value**
-24.94 g at 70.00 ms

**Max. Value**
38.93 g at 74.56 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

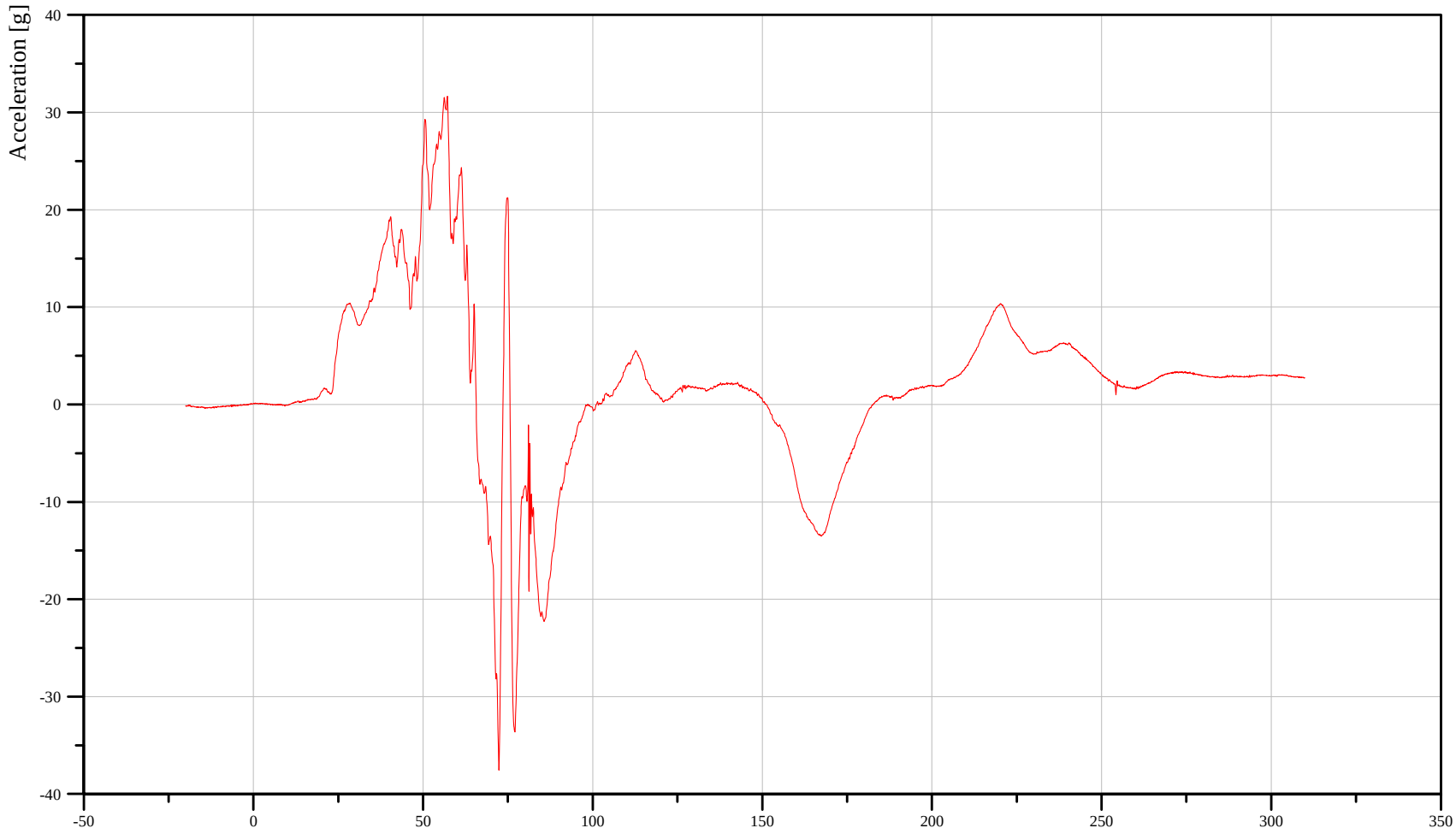
## Target Driver Head Front Z-Axis Acceleration

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 21HEADFR00H3ACZA

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_1000

**Min. Value**
-37.54 g at 72.40 ms

**Max. Value**
31.68 g at 57.20 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

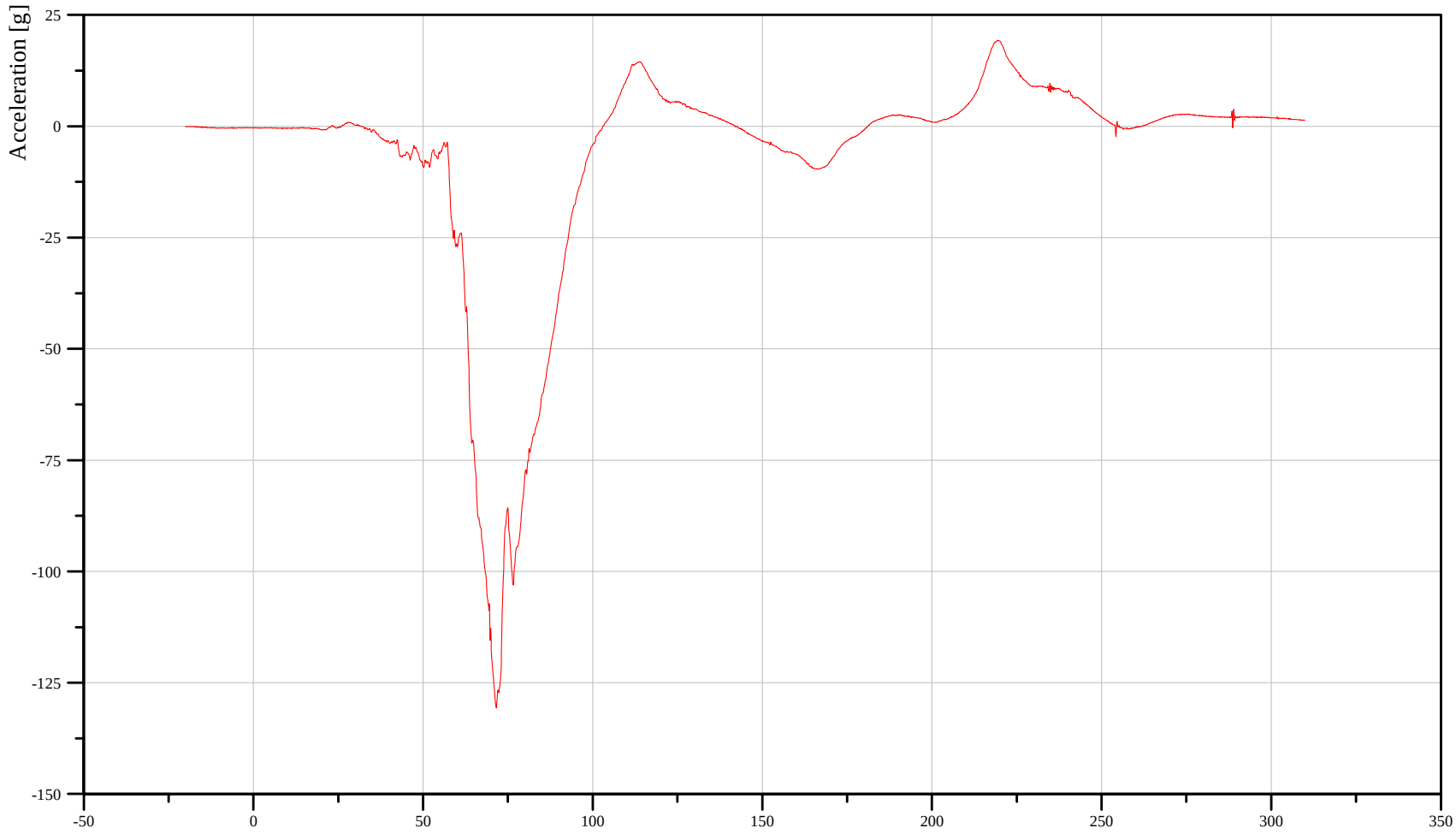
## Target Driver Head Top X-Axis Acceleration

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 21HEADUP00H3ACXA

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_1000

**Min. Value**
-130.70 g at 71.60 ms

**Max. Value**
19.27 g at 219.28 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

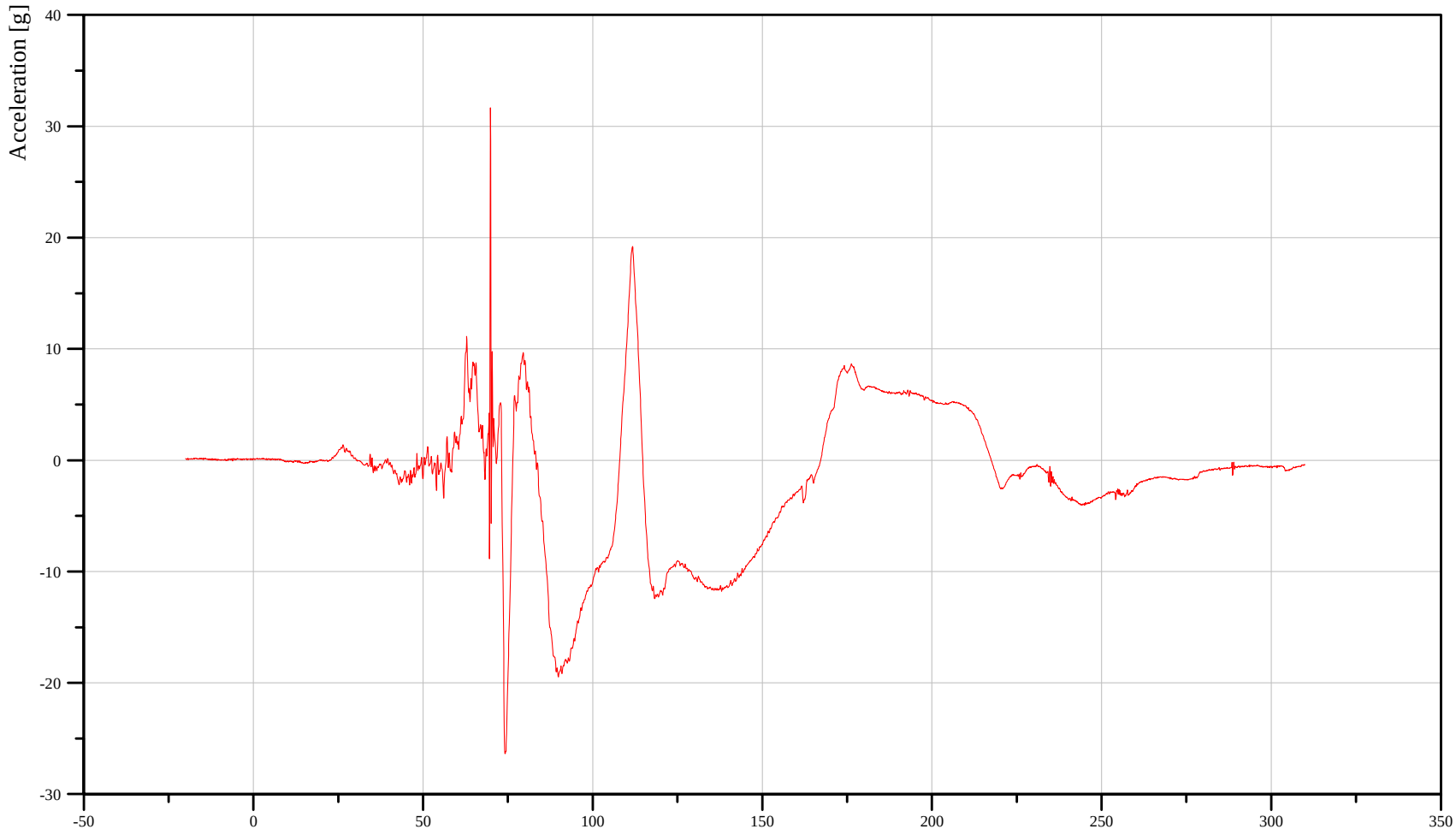
Target Driver Head Top Y-Axis Acceleration

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

## 21HEADUP00H3ACYA

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_1000

**Min. Value**
-26.38 g at 74.16 ms

**Max. Value**
31.66 g at 69.84 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

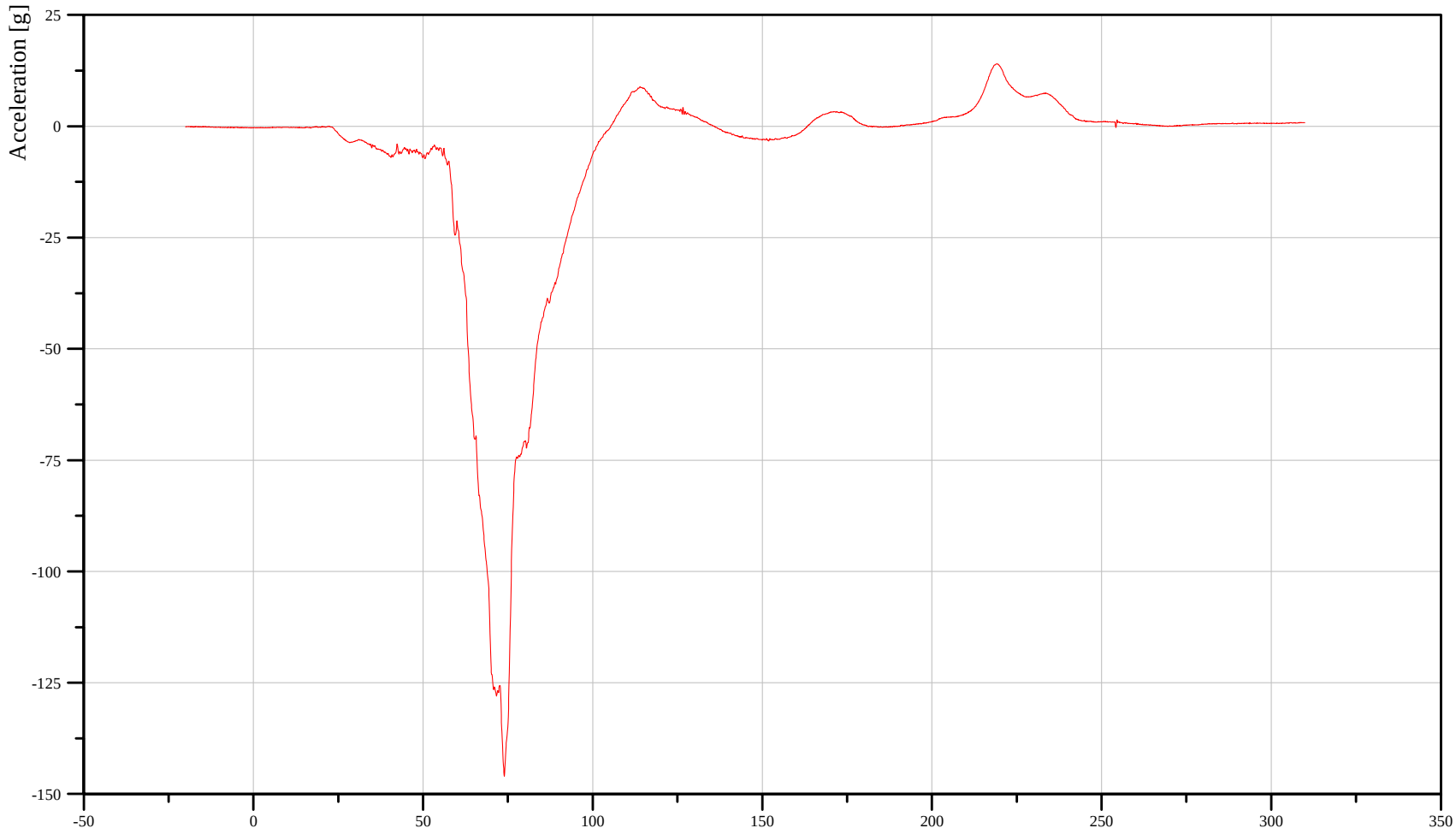
## Target Driver Head Side X-Axis Acceleration

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 21HEADLE00H3ACXA

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_1000

**Min. Value**
-145.97 g at 74.00 ms

**Max. Value**
14.02 g at 218.96 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

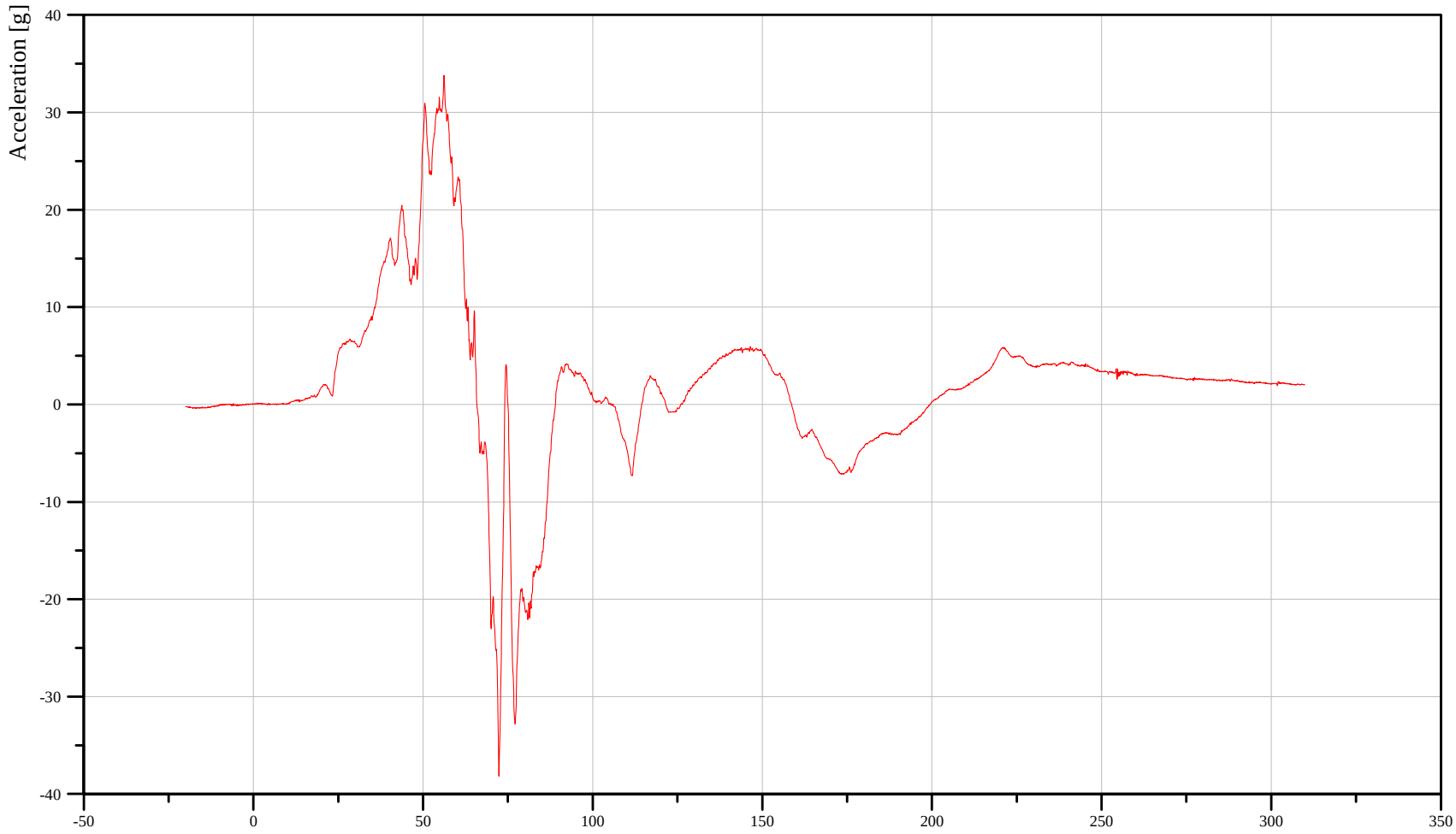
## Target Driver Head Side Z-Axis Acceleration

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 21HEADLE00H3ACZA

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_1000

**Min. Value**
-38.17 g at 72.32 ms

**Max. Value**
33.78 g at 56.16 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

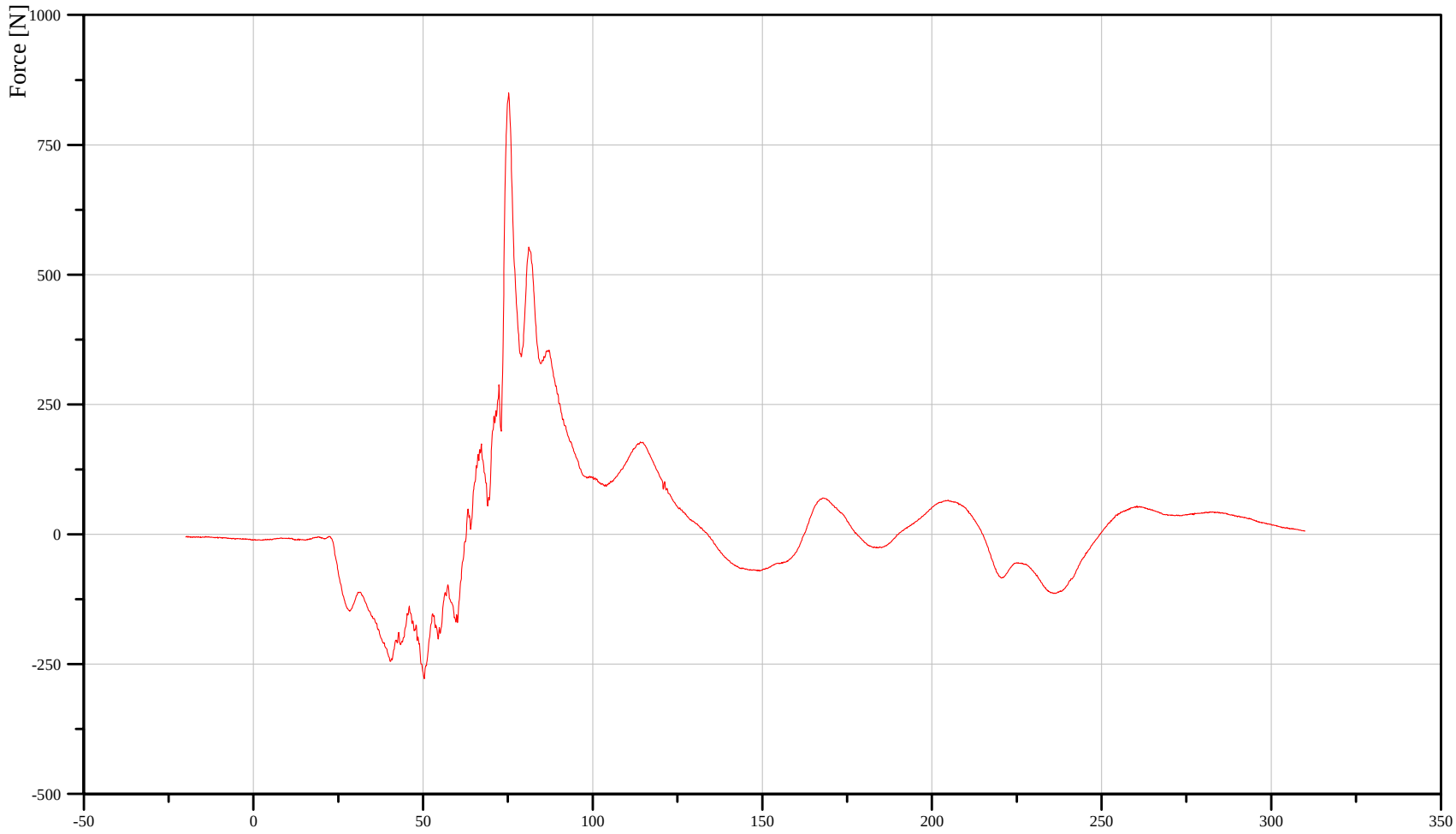
Target Driver Upper Neck X-Axis Force

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

## 21NECKUP00H3FOXA

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_1000

**Min. Value**
-277.93 N at 50.40 ms

**Max. Value**
850.15 N at 75.28 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

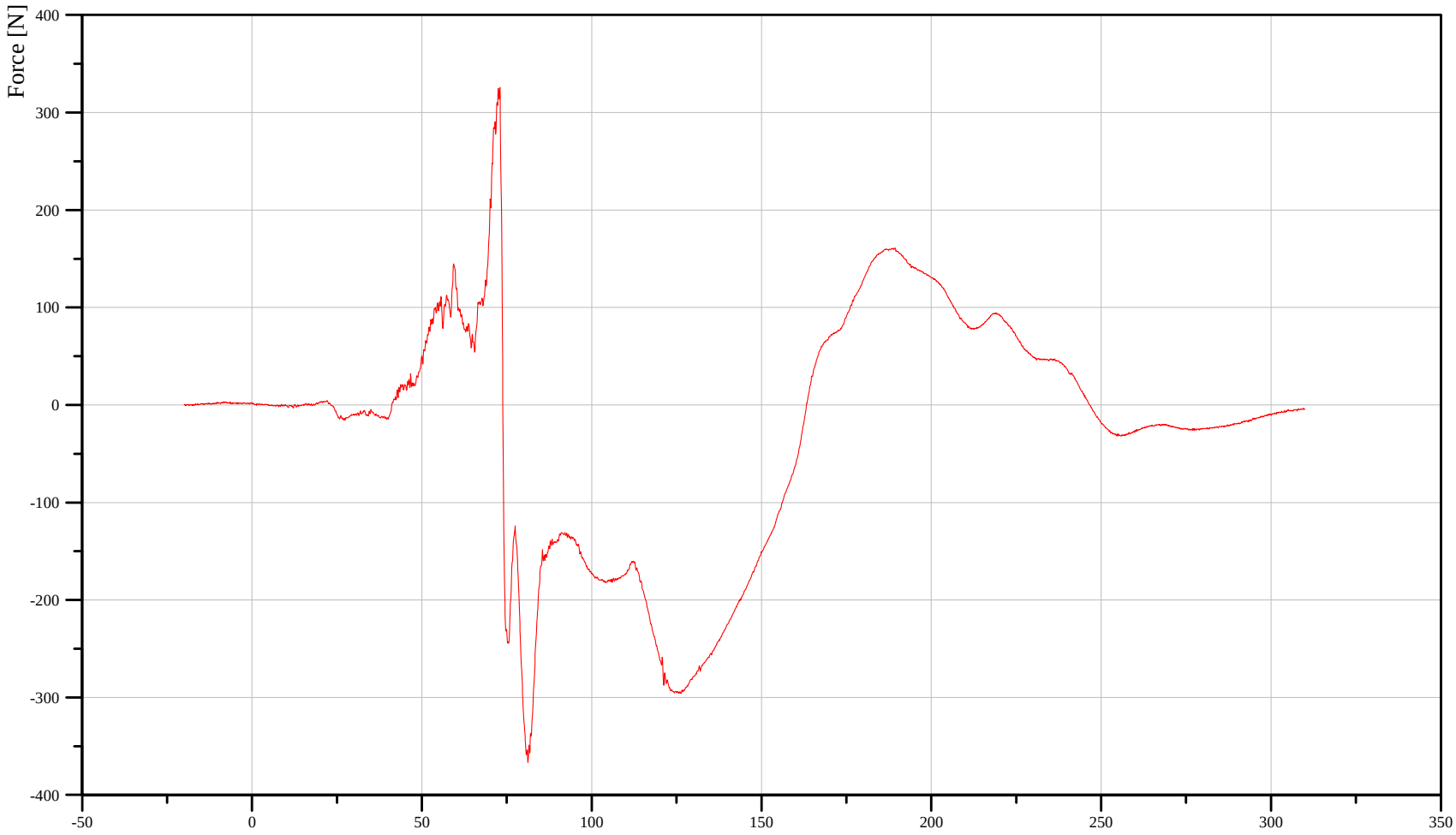
## Target Driver Upper Neck Y-Axis Force

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 21NECKUP00H3FOYA

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_1000

**Min. Value**
-366.58 N at 81.28 ms

**Max. Value**
325.60 N at 72.96 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

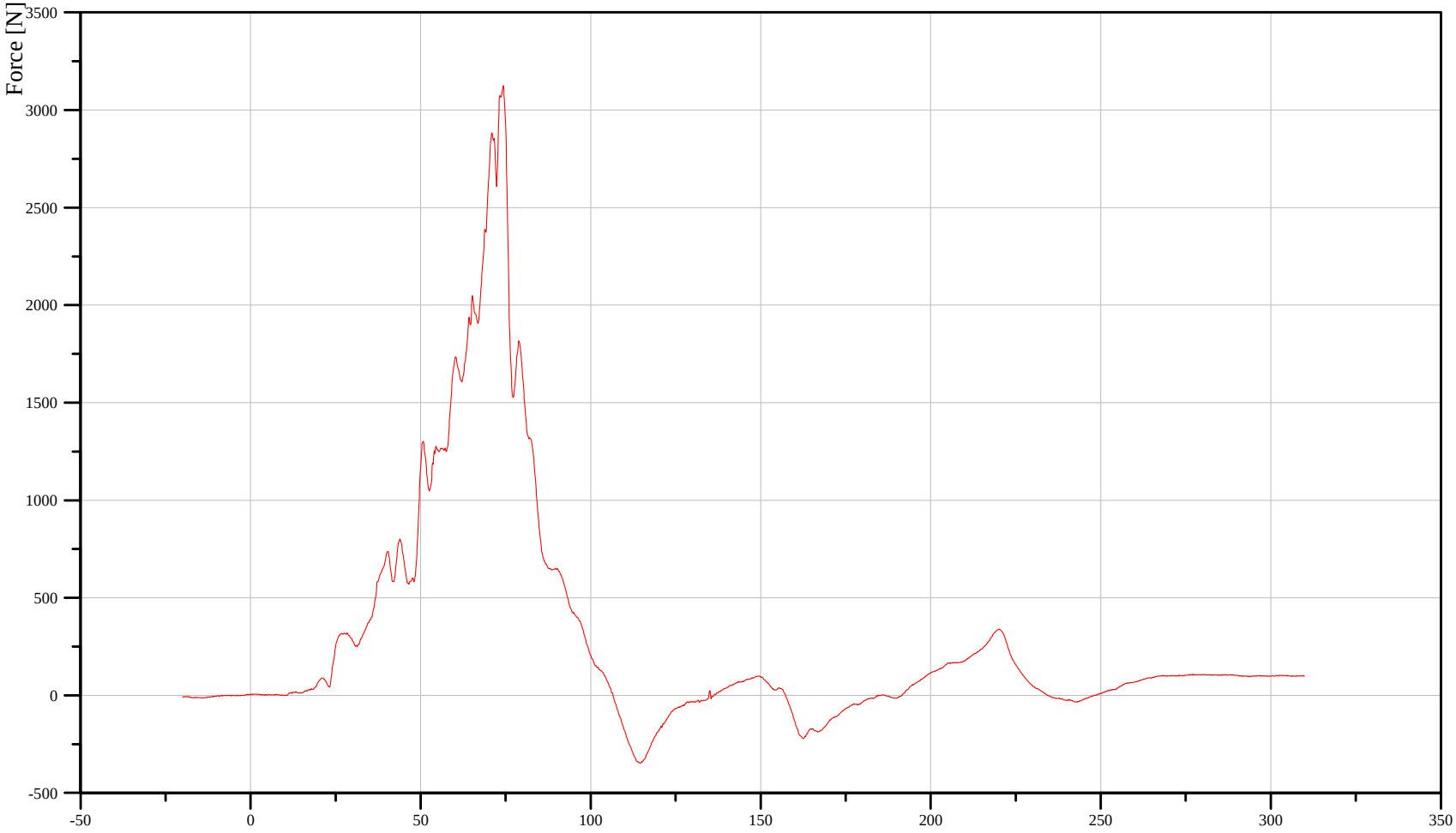
Target Driver Upper Neck Z-Axis Force

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

## 21NECKUP00H3FOZA

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_1000

**Min. Value**
-347.65 N at 114.56 ms

**Max. Value**
3,125.85 N at 74.32 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

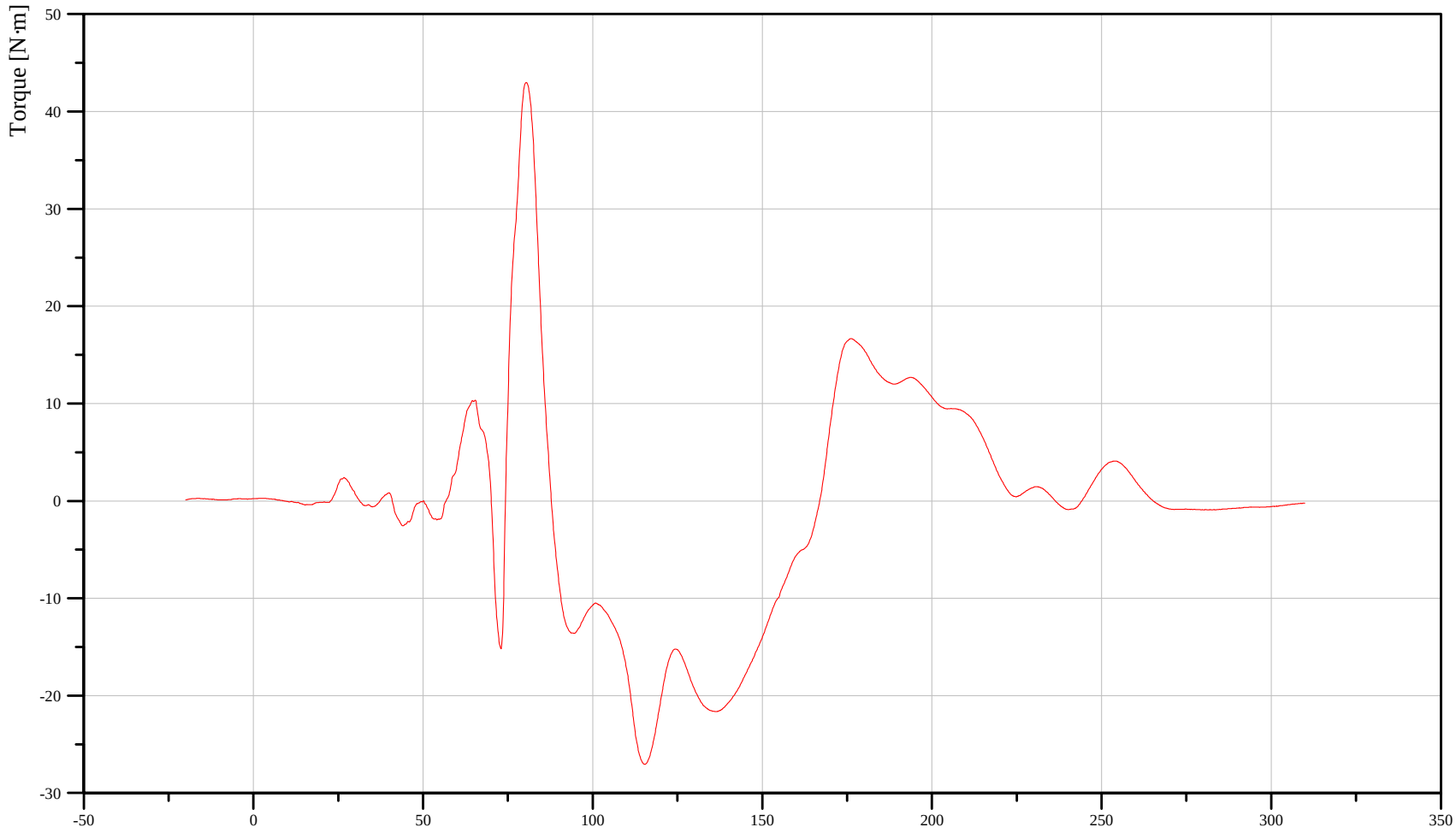
## Target Driver Upper Neck Moment About X Axis

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 21NECKUP00H3MOXB

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_600

**Min. Value**
-27.05 N·m at 115.36 ms

**Max. Value**
42.97 N·m at 80.40 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

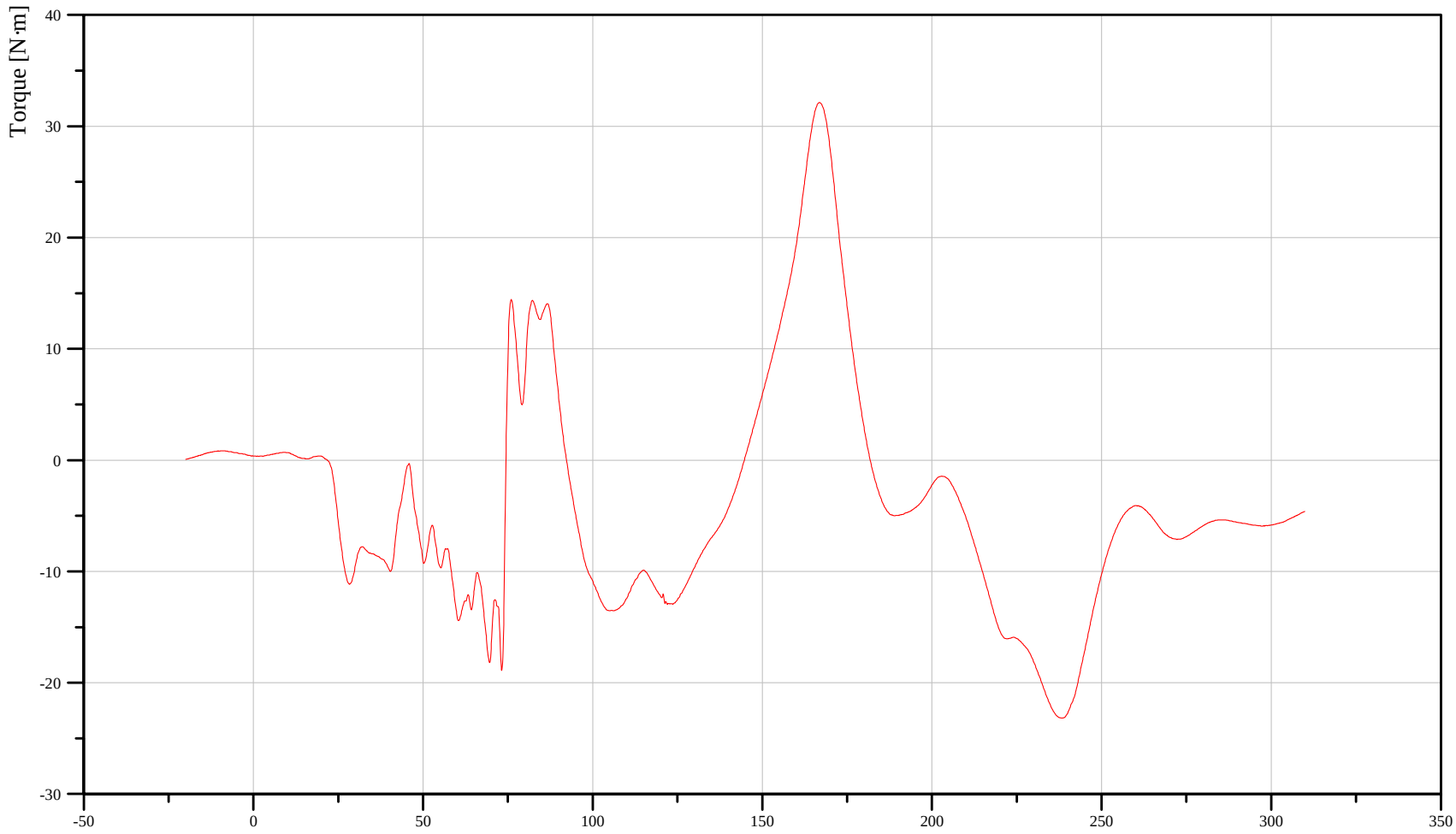
## Target Driver Upper Neck Moment About Y Axis

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 21NECKUP00H3MOYB

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_600

**Min. Value**
-23.18 N·m at 238.40 ms

**Max. Value**
32.13 N·m at 166.88 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

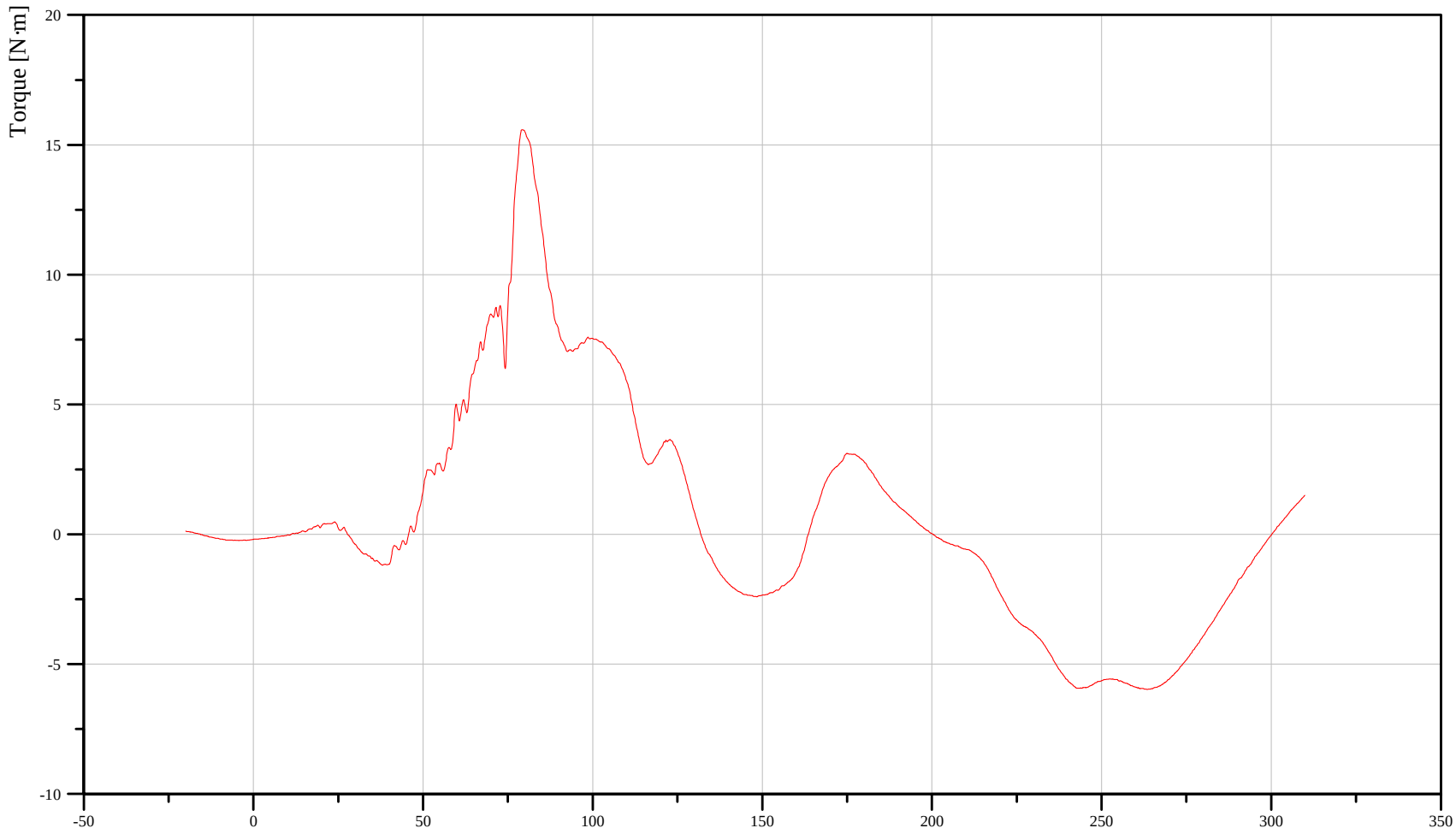
## Target Driver Upper Neck Moment About Z Axis

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 21NECKUP00H3MOZB

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_600

**Min. Value**
-5.97 N·m at 263.52 ms

**Max. Value**
15.59 N·m at 79.20 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

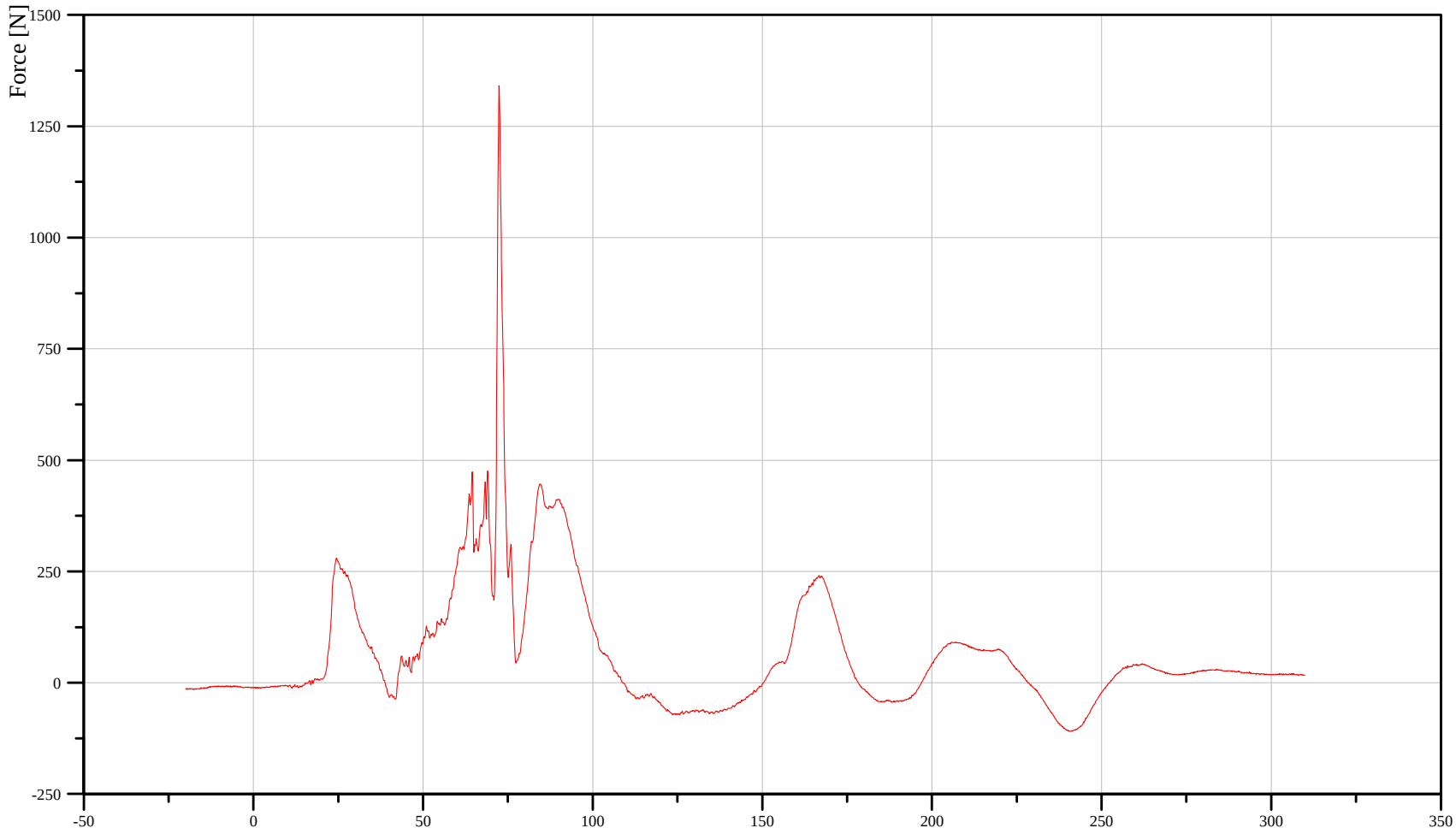
## Target Driver Lower Neck X-Axis Force

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 21NECKLO00H3FOXA

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_1000

**Min. Value**
-109.01 N at 240.64 ms

**Max. Value**
1,341.34 N at 72.40 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

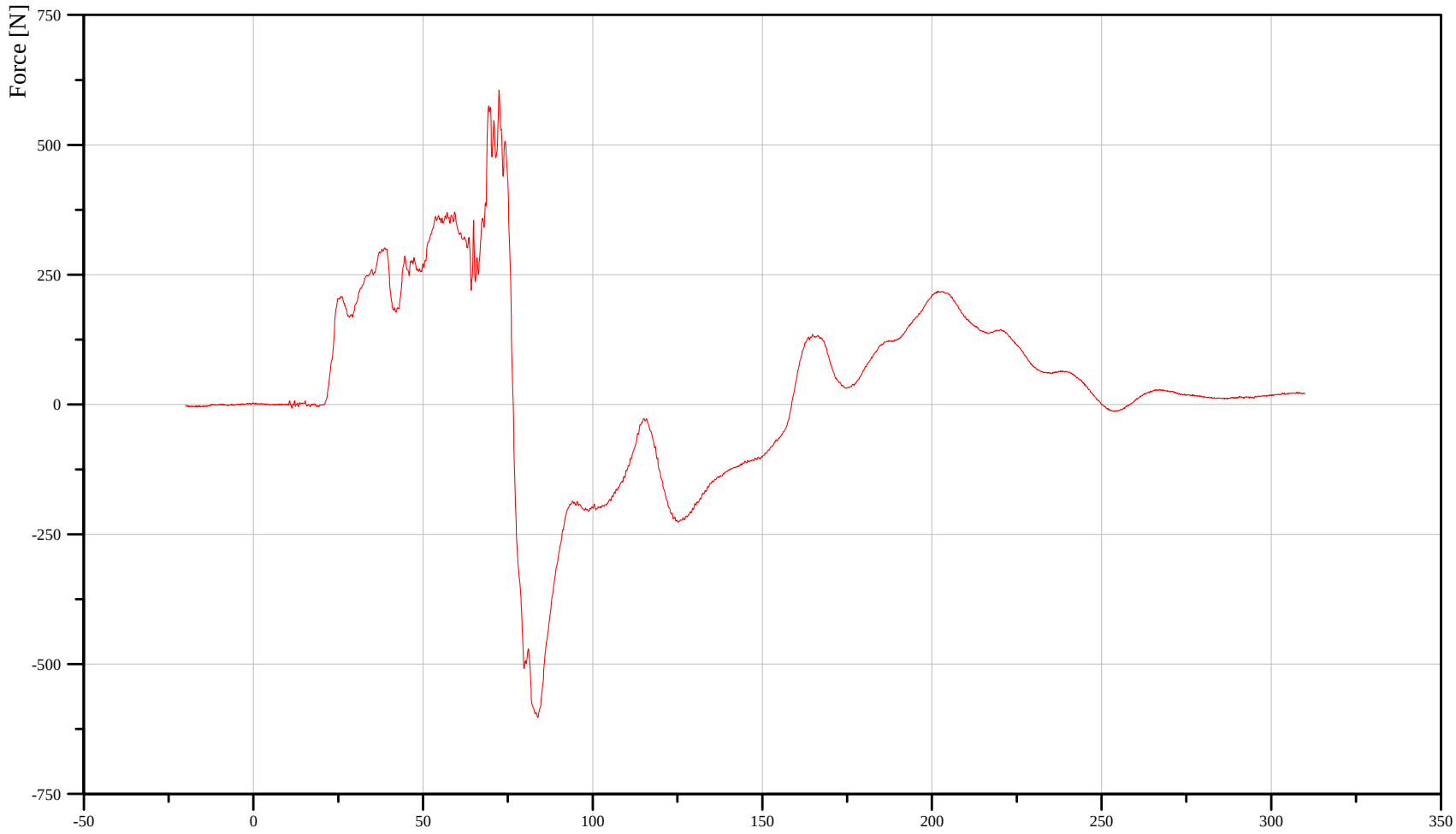
## Target Driver Lower Neck Y-Axis Force

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 21NECKLO00H3FOYA

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_1000

**Min. Value**
-602.21 N at 83.84 ms

**Max. Value**
605.58 N at 72.40 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

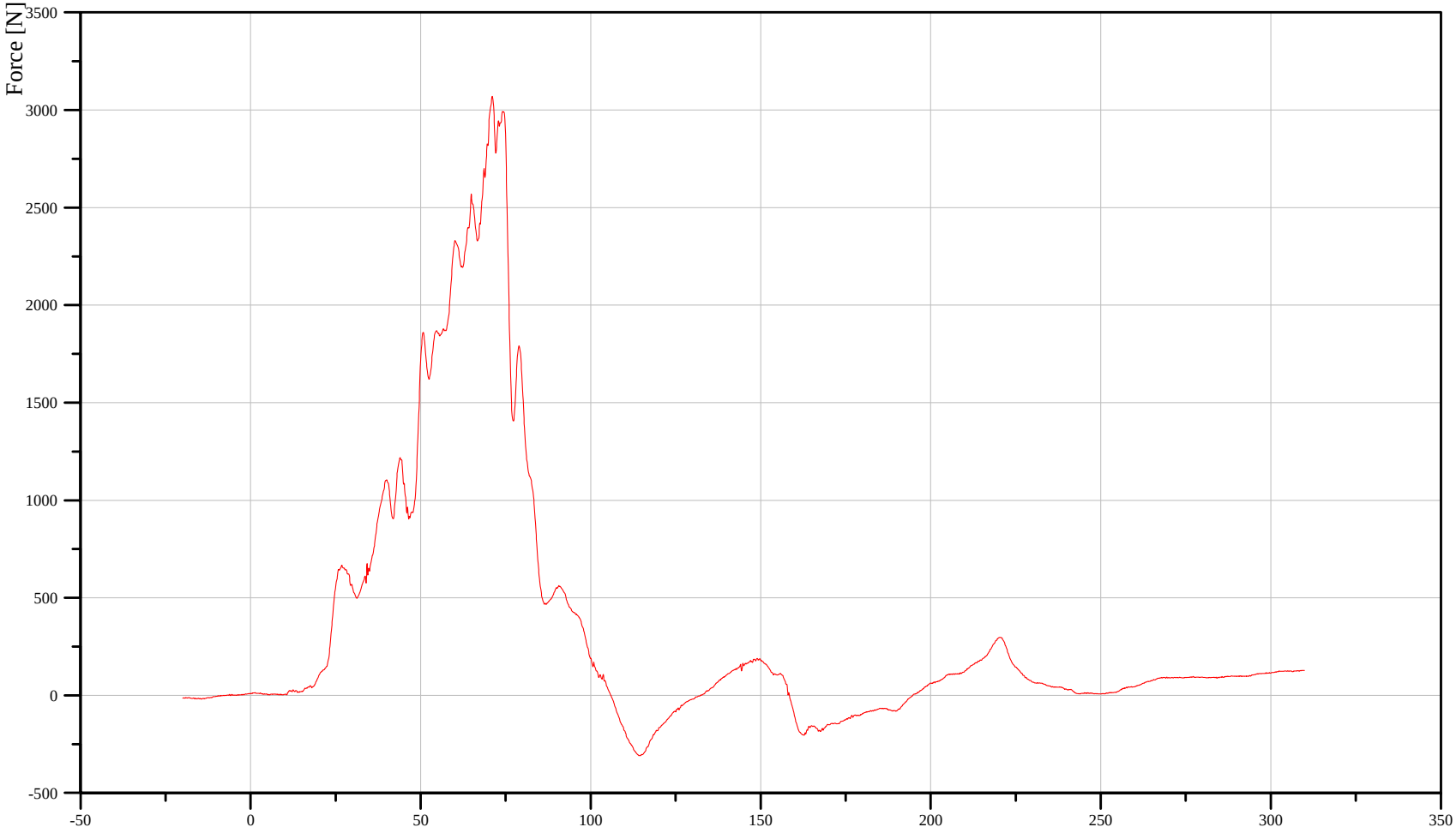
## Target Driver Lower Neck Z-Axis Force

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 21NECKLO00H3FOZA

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_1000

**Min. Value**
-308.88 N at 114.56 ms

**Max. Value**
3,069.84 N at 71.04 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

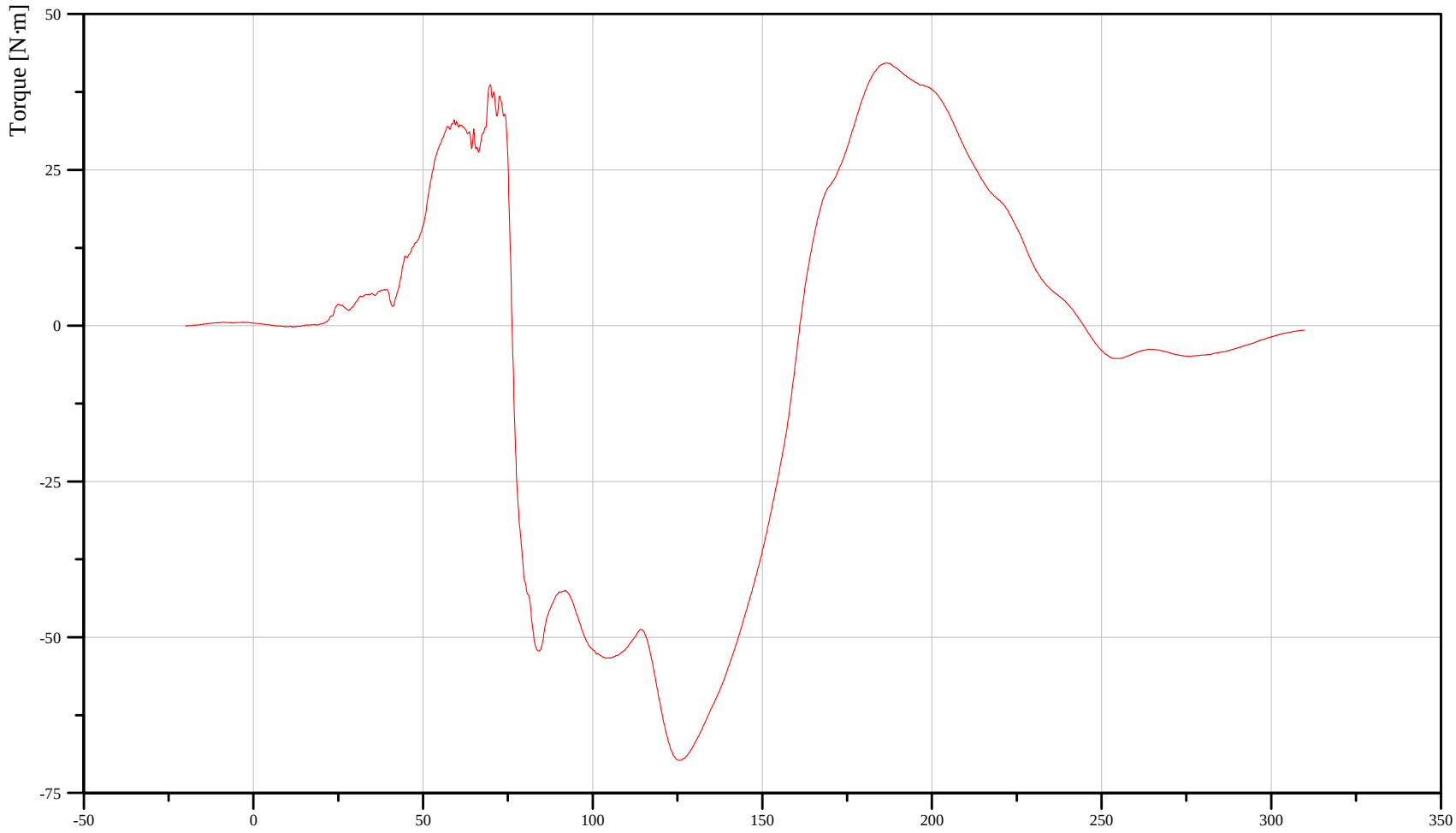
## Target Driver Lower Neck Moment About X Axis

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 21NECKLO00H3MOXB

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_600

**Min. Value**
-69.76 N·m at 125.28 ms

**Max. Value**
42.17 N·m at 186.48 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

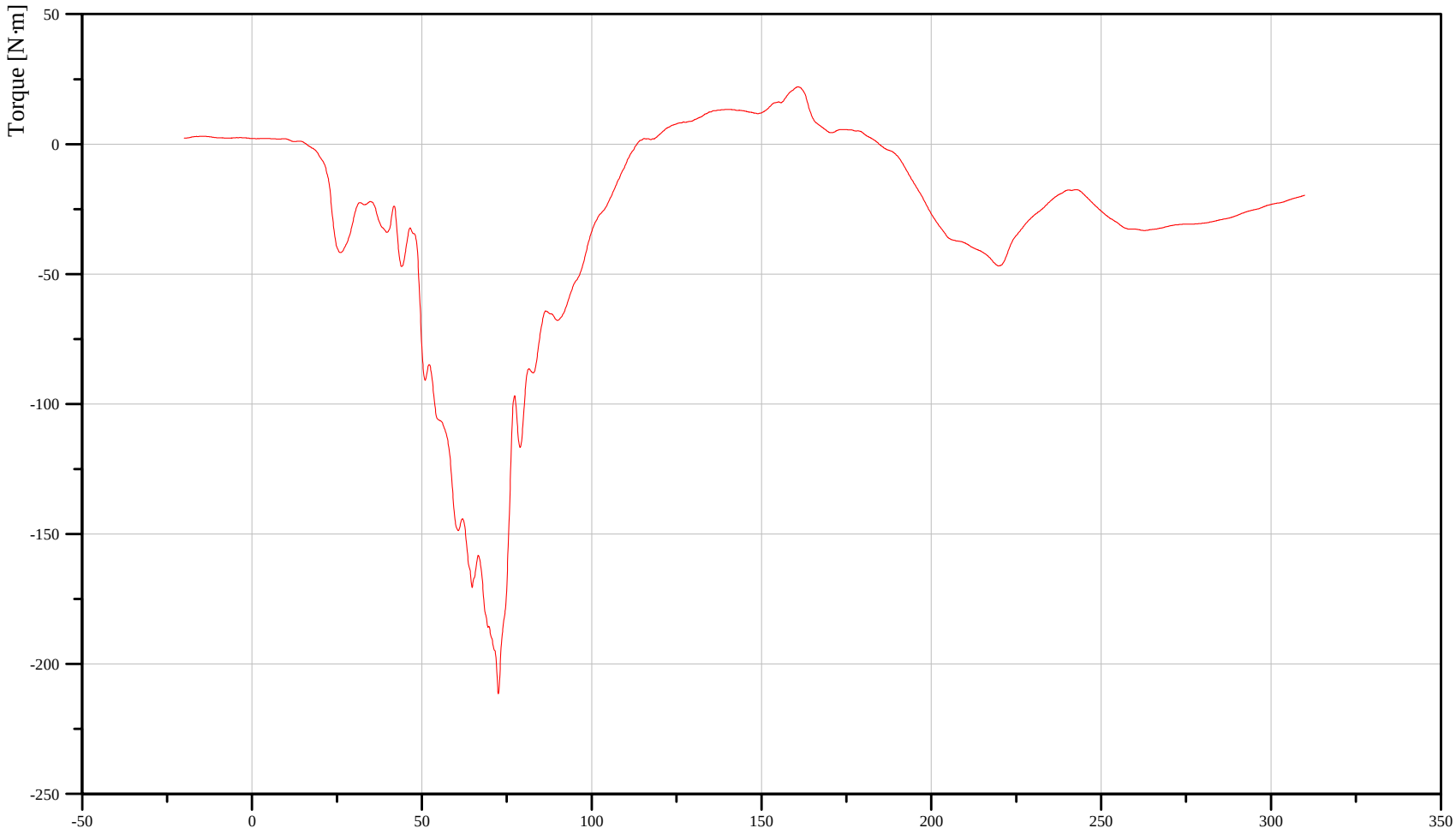
## Target Driver Lower Neck Moment About Y Axis

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 21NECKLO00H3MOYB

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_600

**Min. Value**
-211.49 N·m at 72.56 ms

**Max. Value**
22.07 N·m at 160.72 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

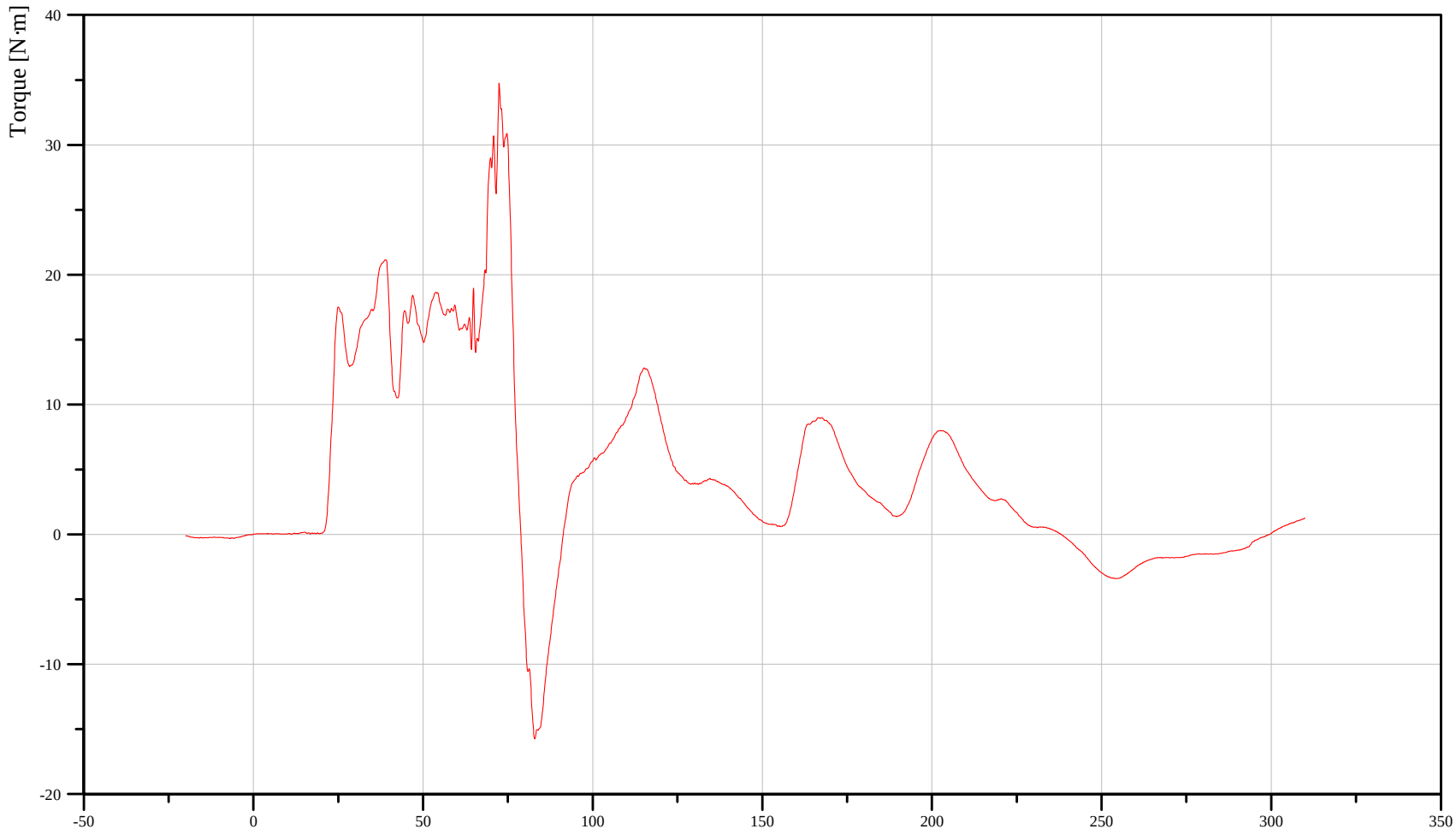
## Target Driver Lower Neck Moment About Z Axis

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 21NECKLO00H3MOZB

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_600

**Min. Value**
-15.74 N·m at 82.96 ms

**Max. Value**
34.75 N·m at 72.40 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

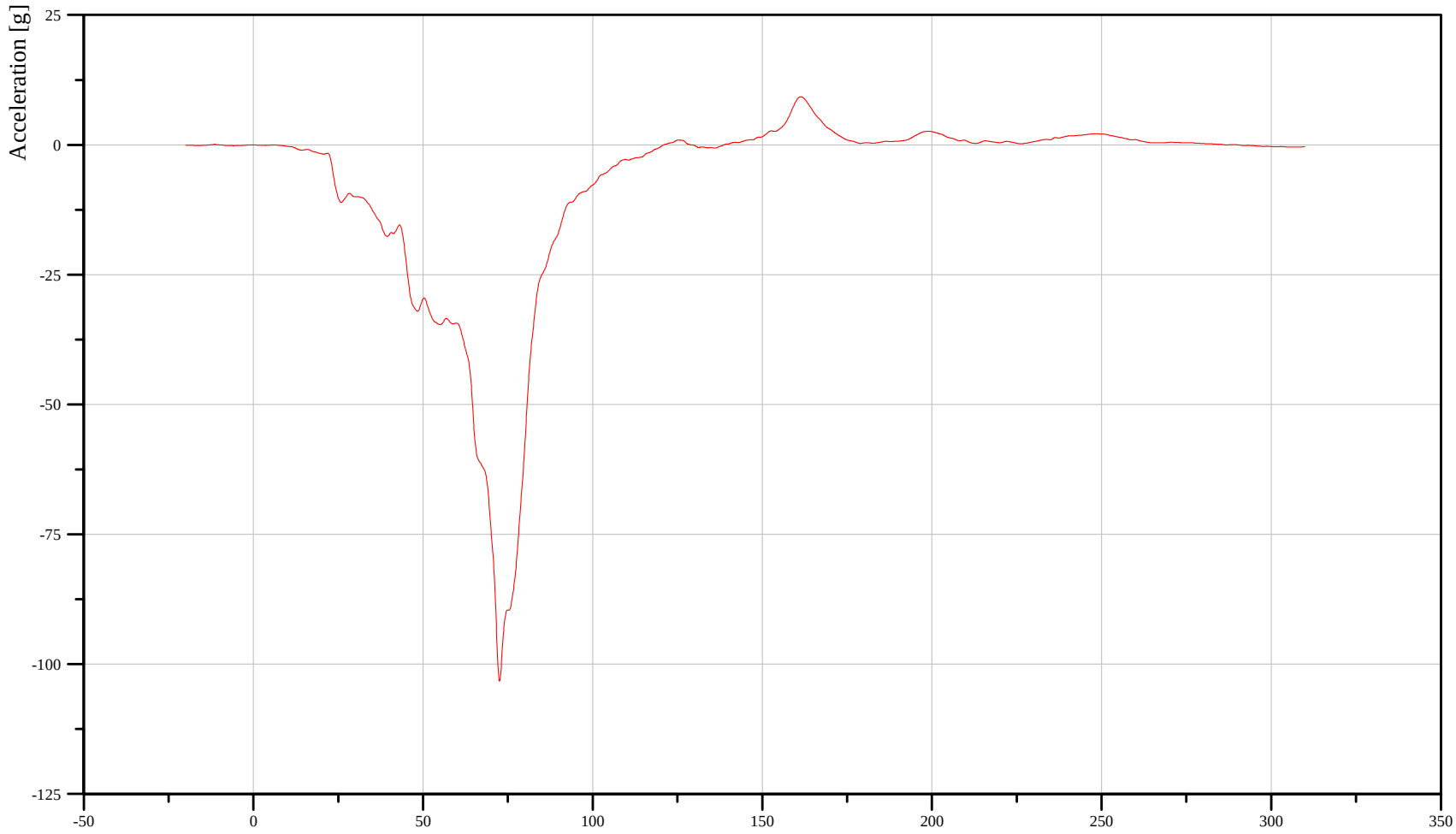
## Target Driver Chest CG X-Axis Acceleration

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 21CHSTCG00H3ACXC

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_180

**Min. Value**
-103.25 g at 72.56 ms

**Max. Value**
9.27 g at 161.36 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

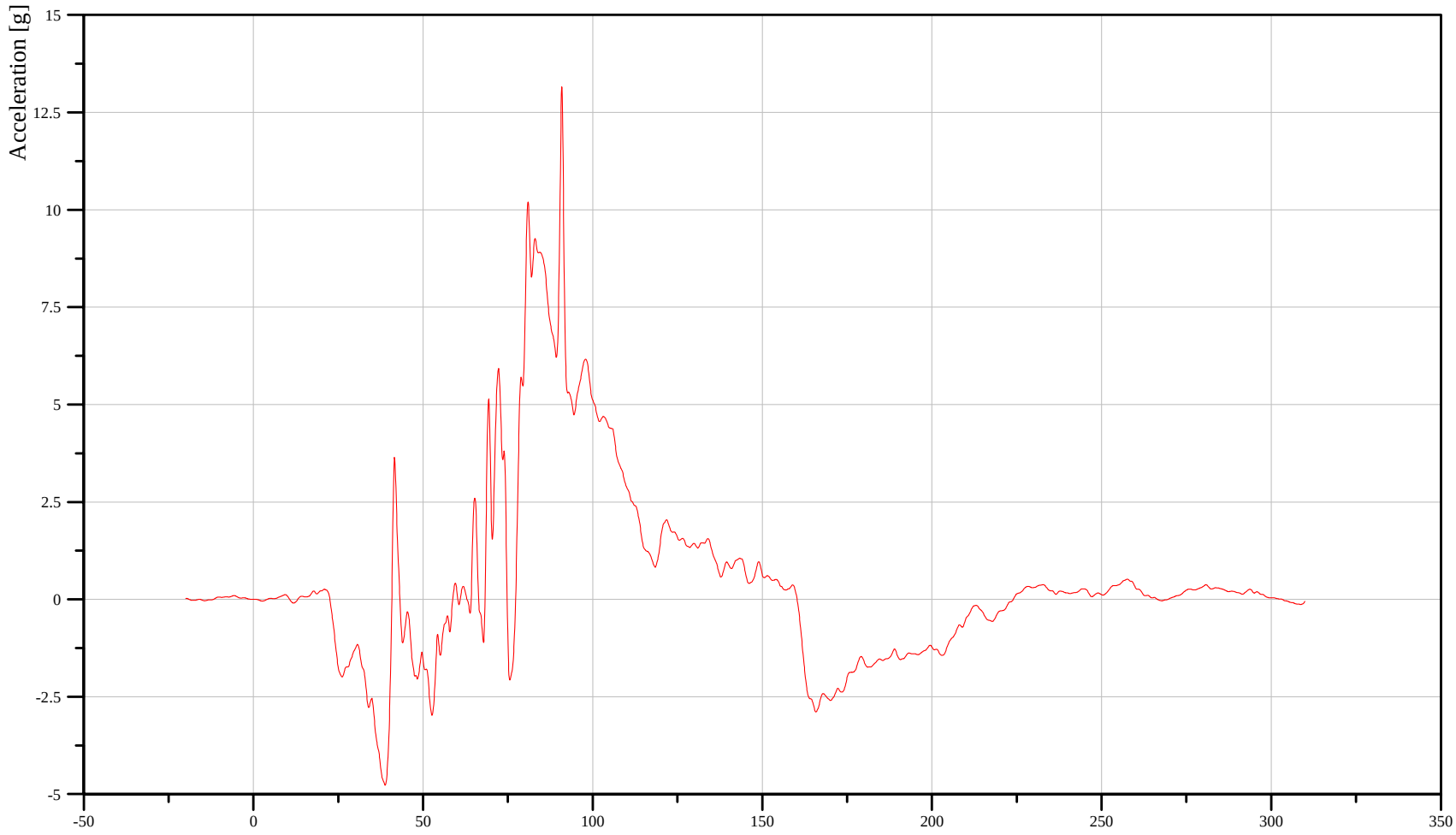
## Target Driver Chest CG Y-Axis Acceleration

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 21CHSTCG00H3ACYC

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_180

**Min. Value**
-4.77 g at 38.88 ms

**Max. Value**
13.16 g at 90.88 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

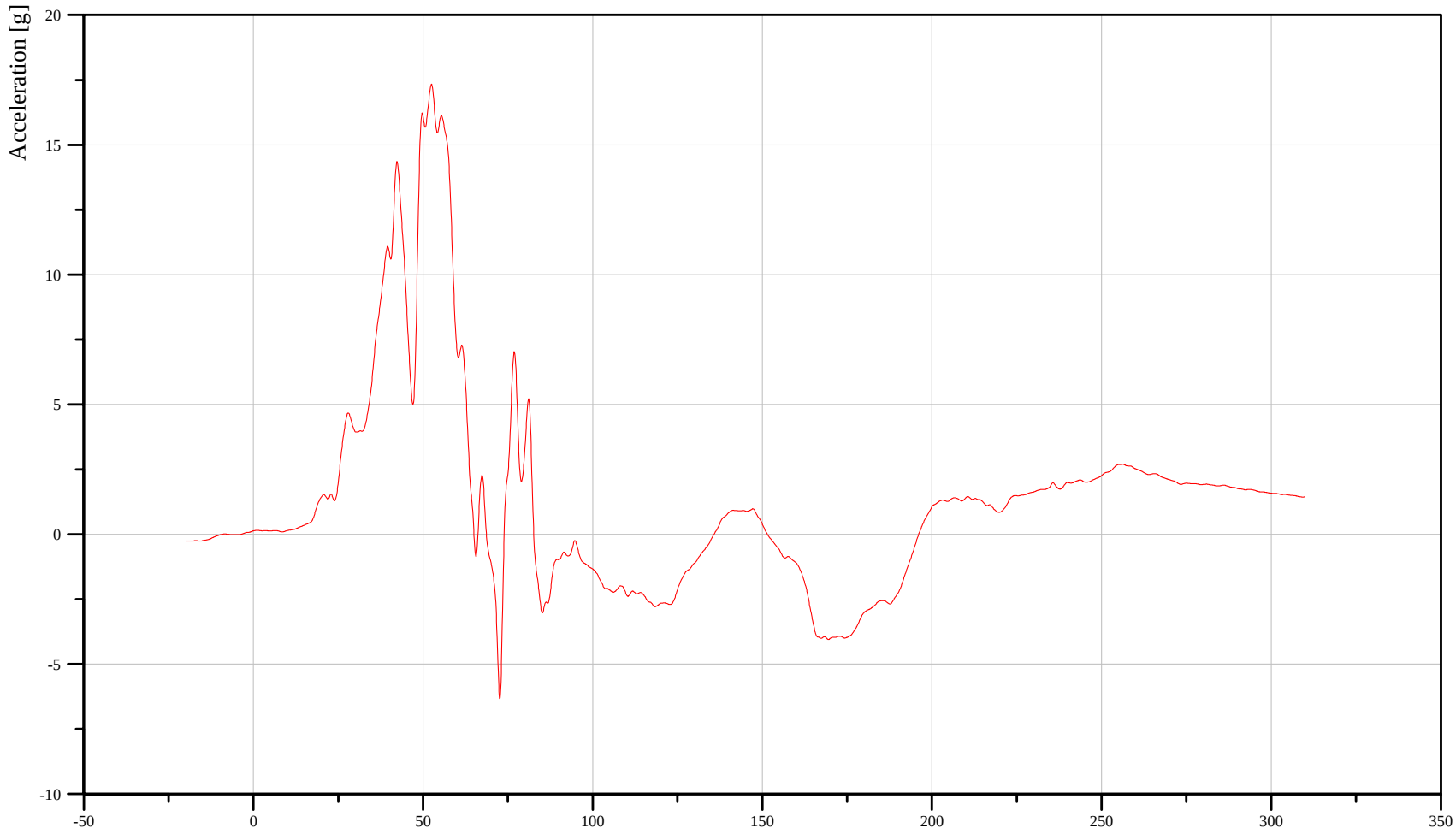
## Target Driver Chest CG Z-Axis Acceleration

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 21CHSTCG00H3ACZC

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_180

**Min. Value**
-6.33 g at 72.64 ms

**Max. Value**
17.34 g at 52.48 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

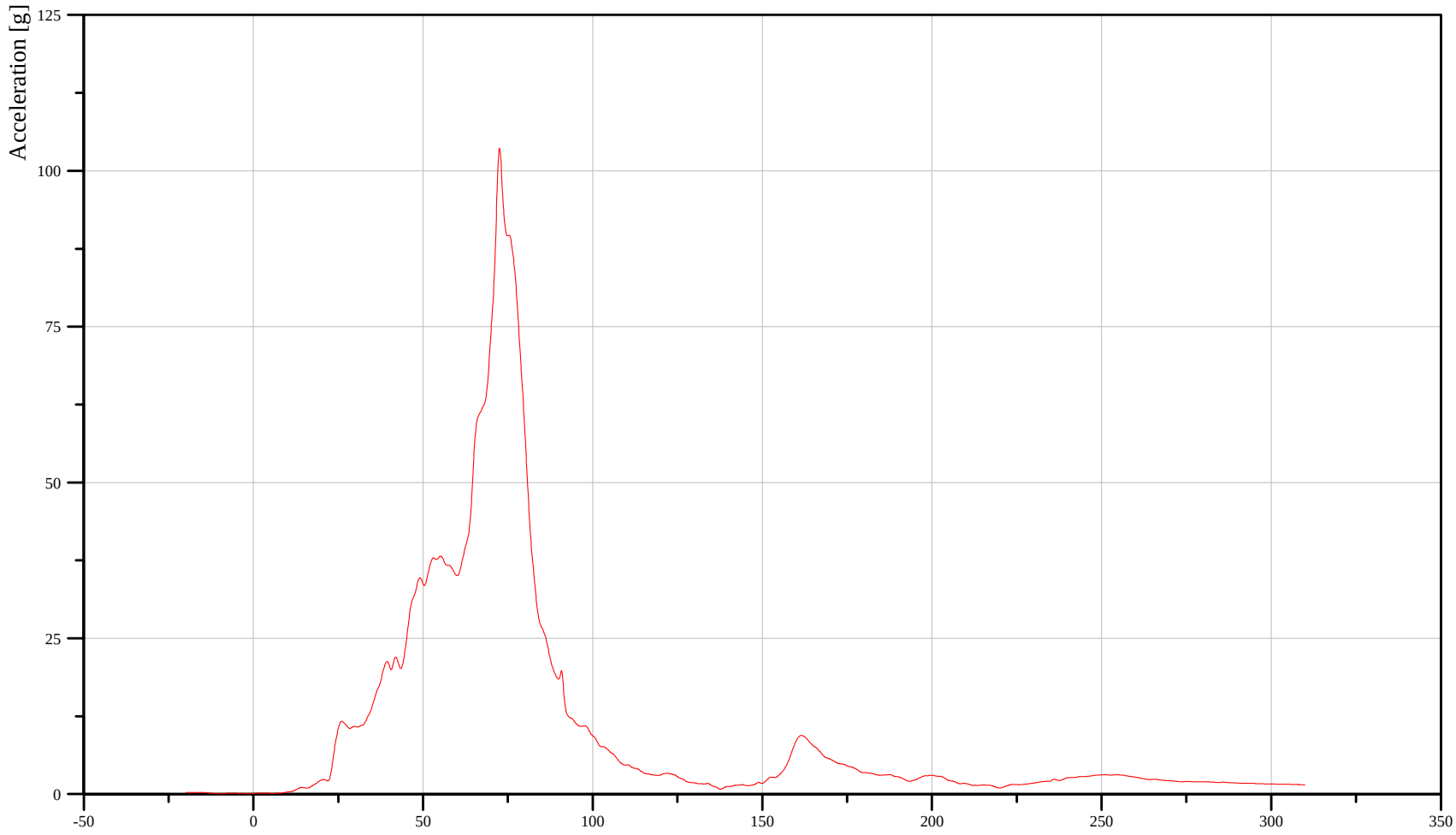
## Target Driver Chest CG Resultant Acceleration

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 21CHSTCG00H3ACRC

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_180

**Min. Value**
0.06 g at -9.60 ms

**Max. Value**
103.60 g at 72.56 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

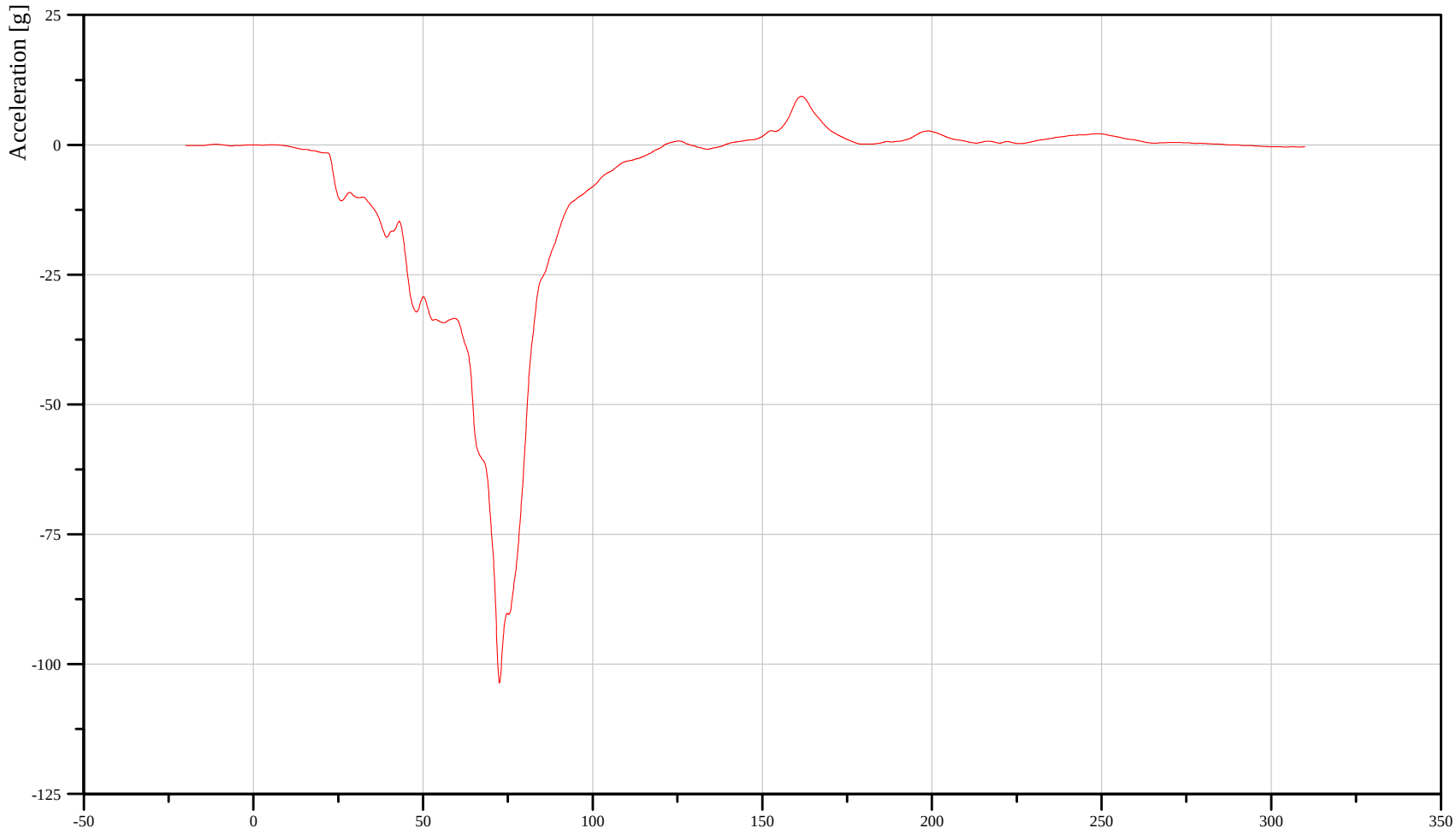
## Target Driver Redundant Chest CG X-Axis Acceleration

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 21CHSTCGRDH3ACXC

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_180

**Min. Value**
-103.60 g at 72.56 ms

**Max. Value**
9.35 g at 161.52 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

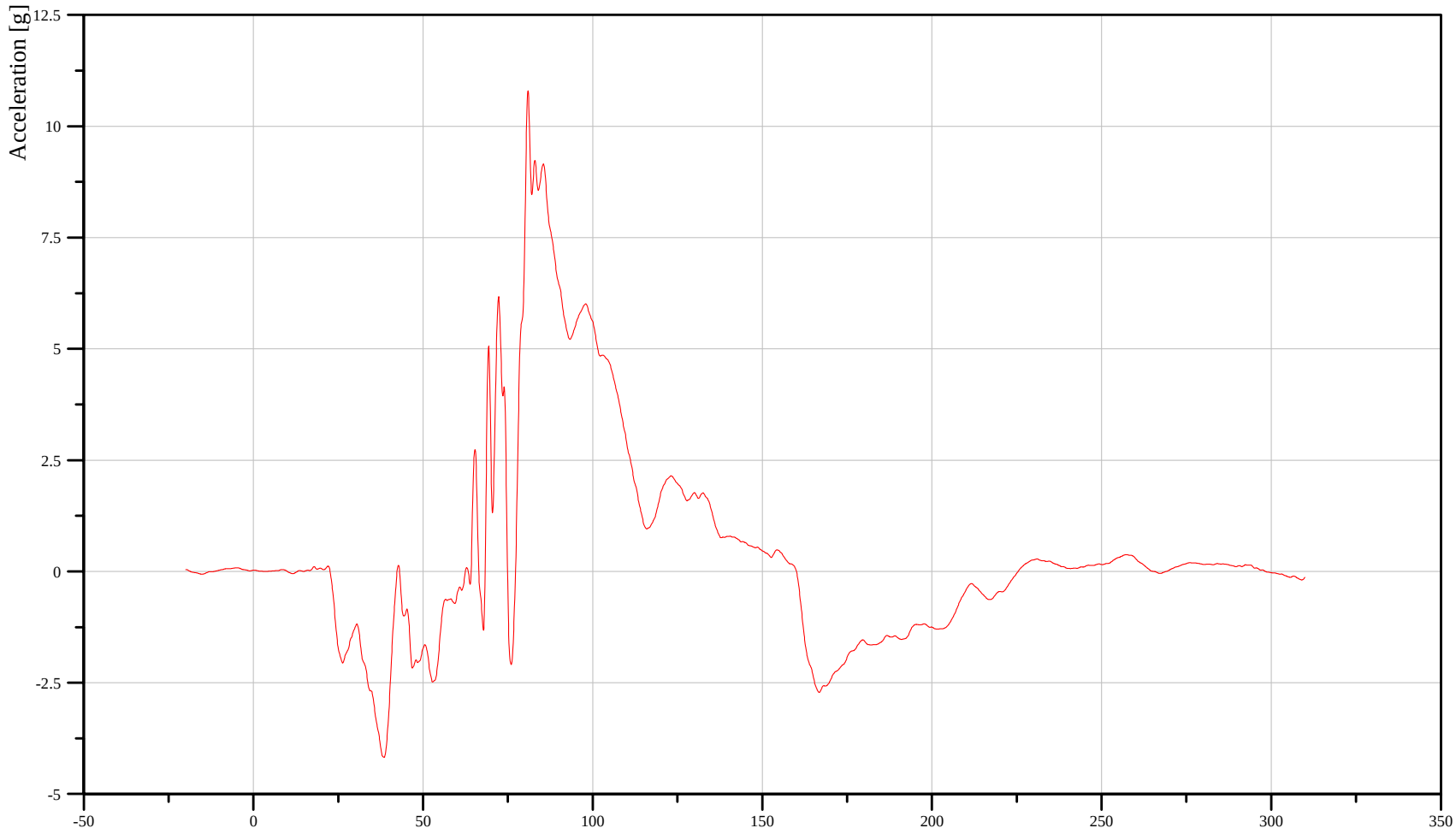
## Target Driver Redundant Chest CG Y-Axis Acceleration

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 21CHSTCGRDH3ACYC

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_180

**Min. Value**
-4.18 g at 38.48 ms

**Max. Value**
10.80 g at 80.96 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

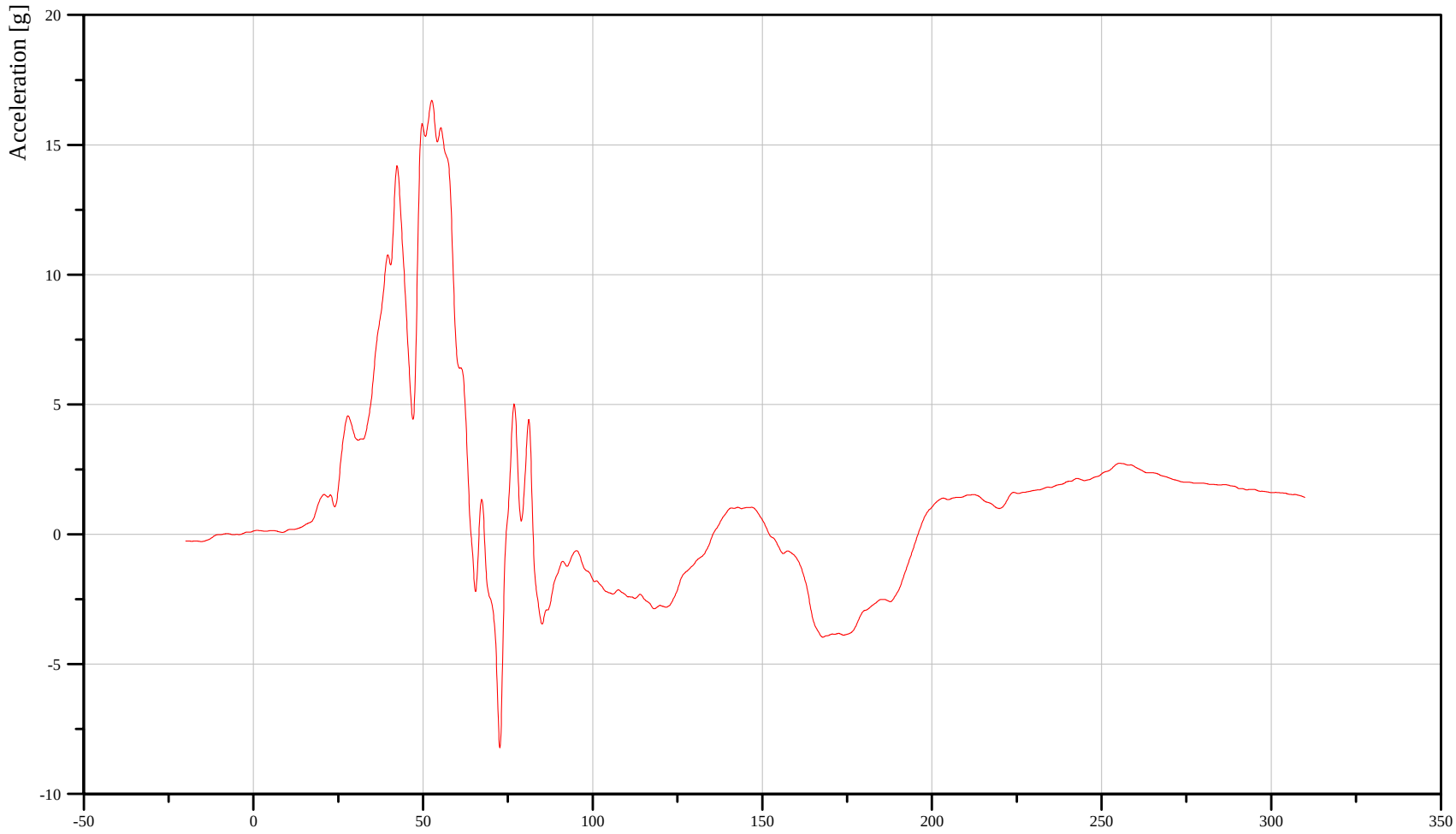
## Target Driver Redundant Chest CG Z-Axis Acceleration

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 21CHSTCGRDH3ACZC

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_180

**Min. Value**
-8.22 g at 72.64 ms

**Max. Value**
16.72 g at 52.56 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

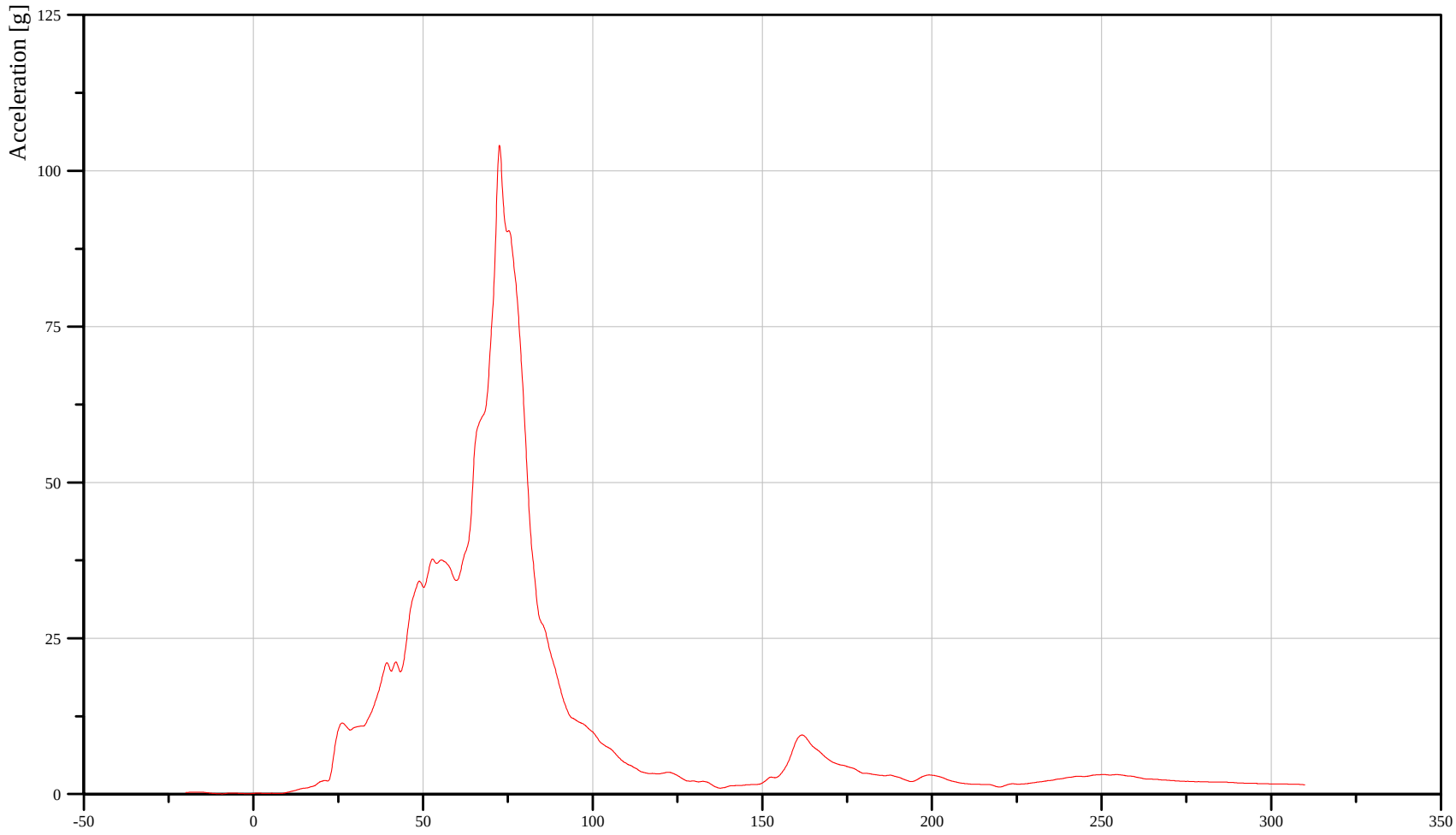
## Target Driver Redundant Chest CG Resultant Acceleration

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 21CHSTCGRDH3ACRC

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_180

**Min. Value**
0.04 g at -9.20 ms

**Max. Value**
104.09 g at 72.56 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

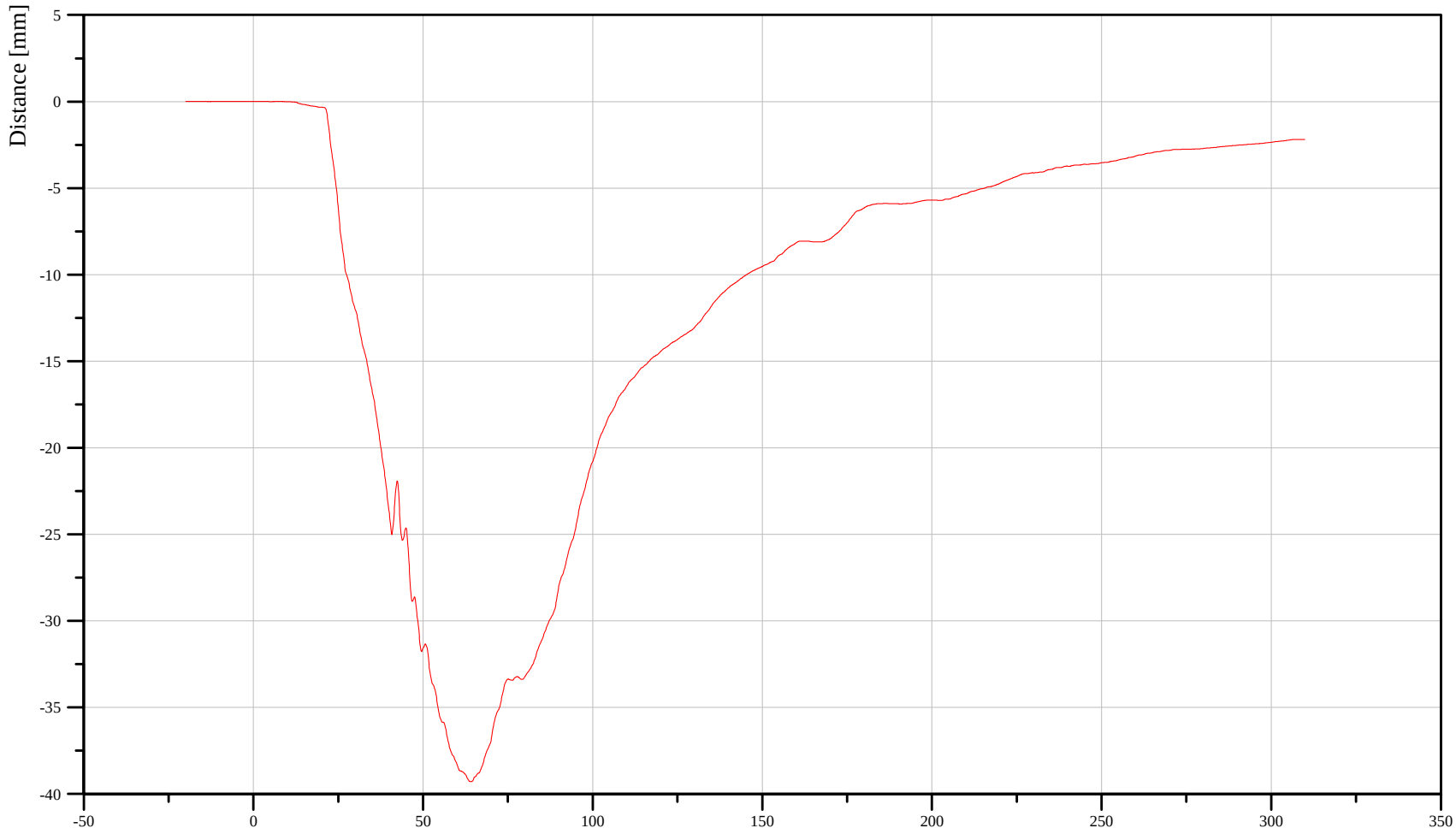
## Target Driver Chest Displacement

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 21CHST0000H3DSXB

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_600

**Min. Value**
-39.29 mm at 64.08 ms

**Max. Value**
0.01 mm at -3.04 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

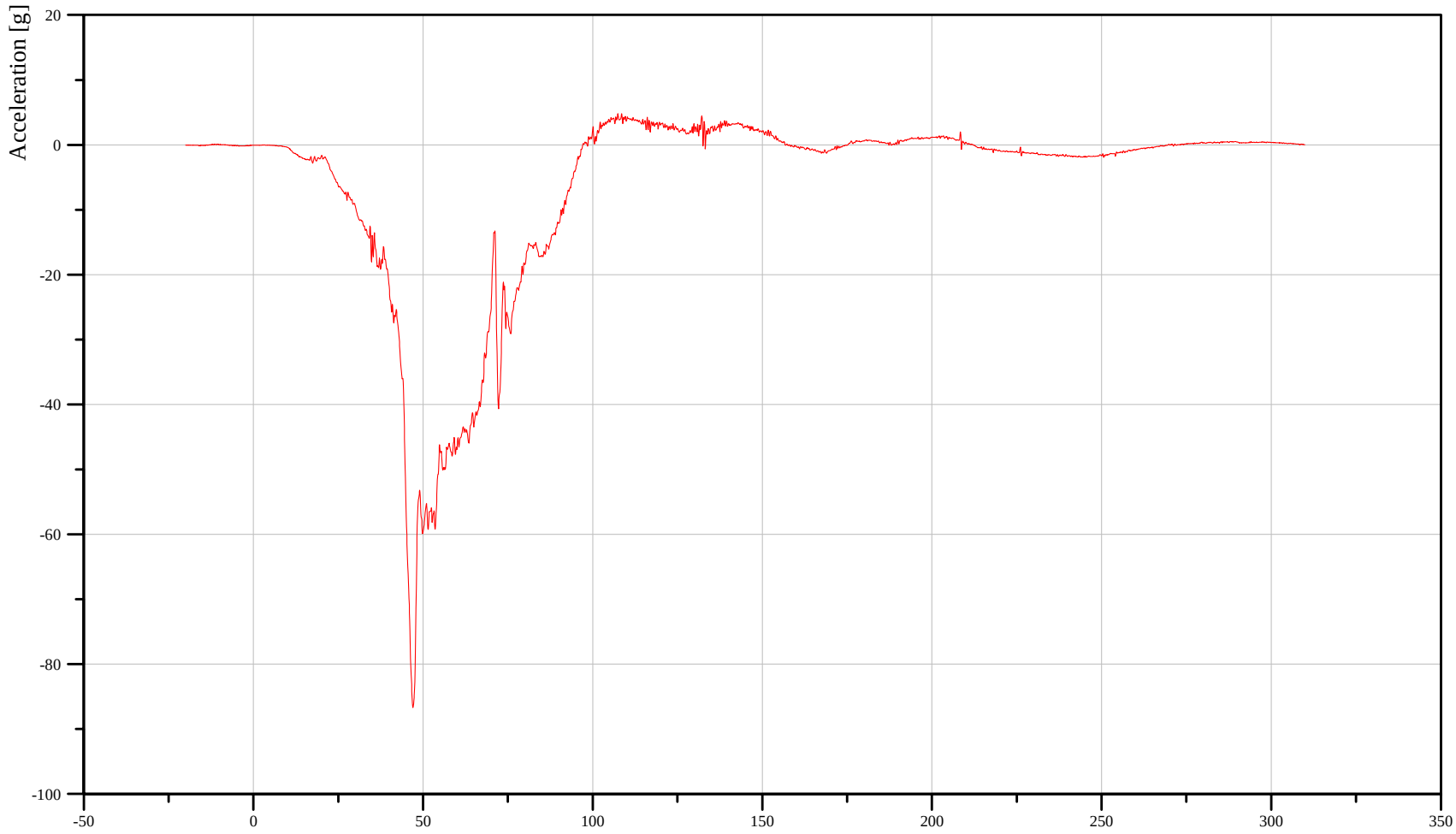
## Target Driver Pelvis CG X-Axis Acceleration

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 21PELVCG00H3ACXA

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_1000

**Min. Value**
-86.69 g at 47.04 ms

**Max. Value**
4.81 g at 107.44 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

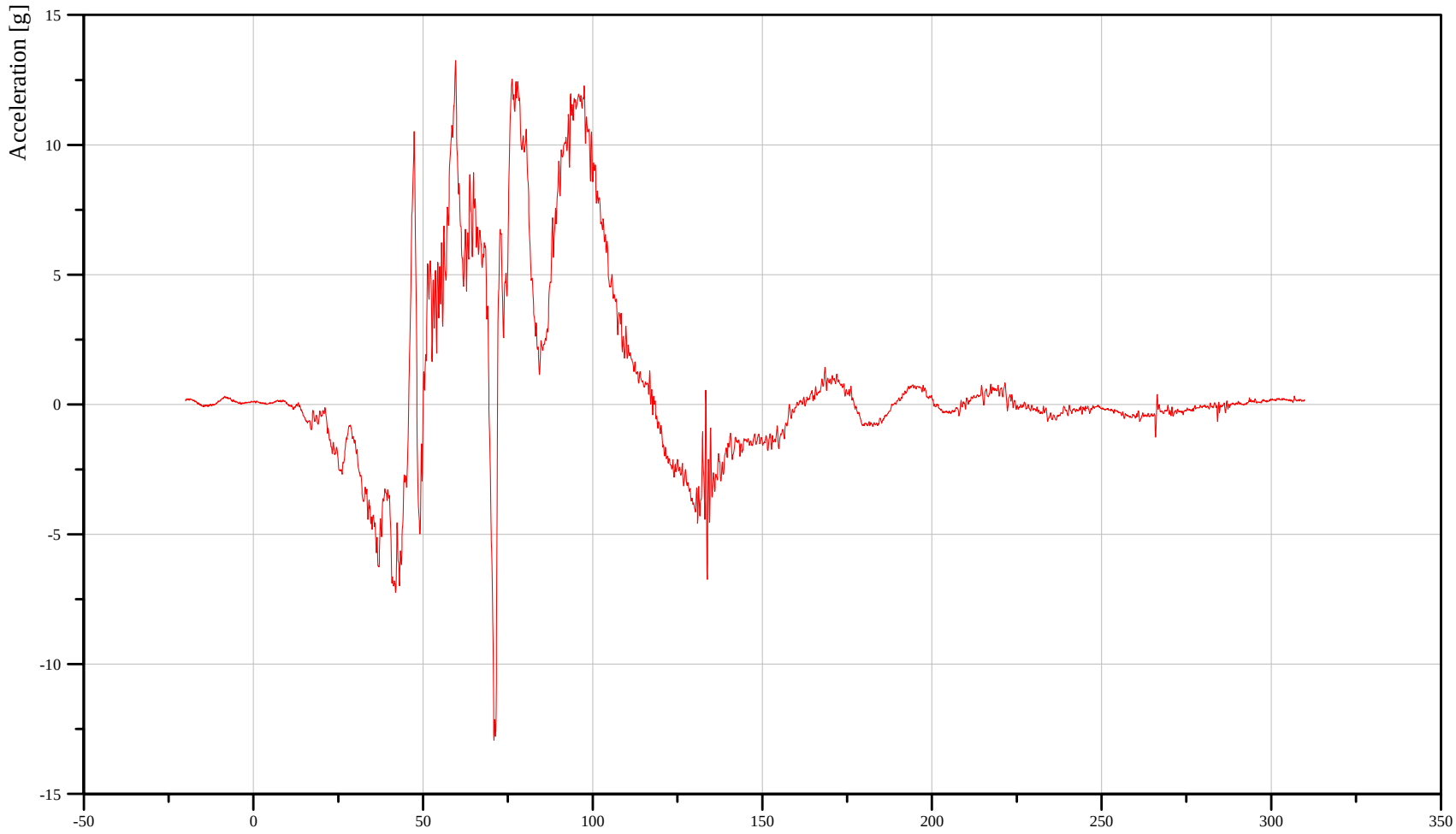
## Target Driver Pelvis CG Y-Axis Acceleration

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 21PELVCG00H3ACYA

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_1000

**Min. Value**
-12.93 g at 70.96 ms

**Max. Value**
13.24 g at 59.60 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

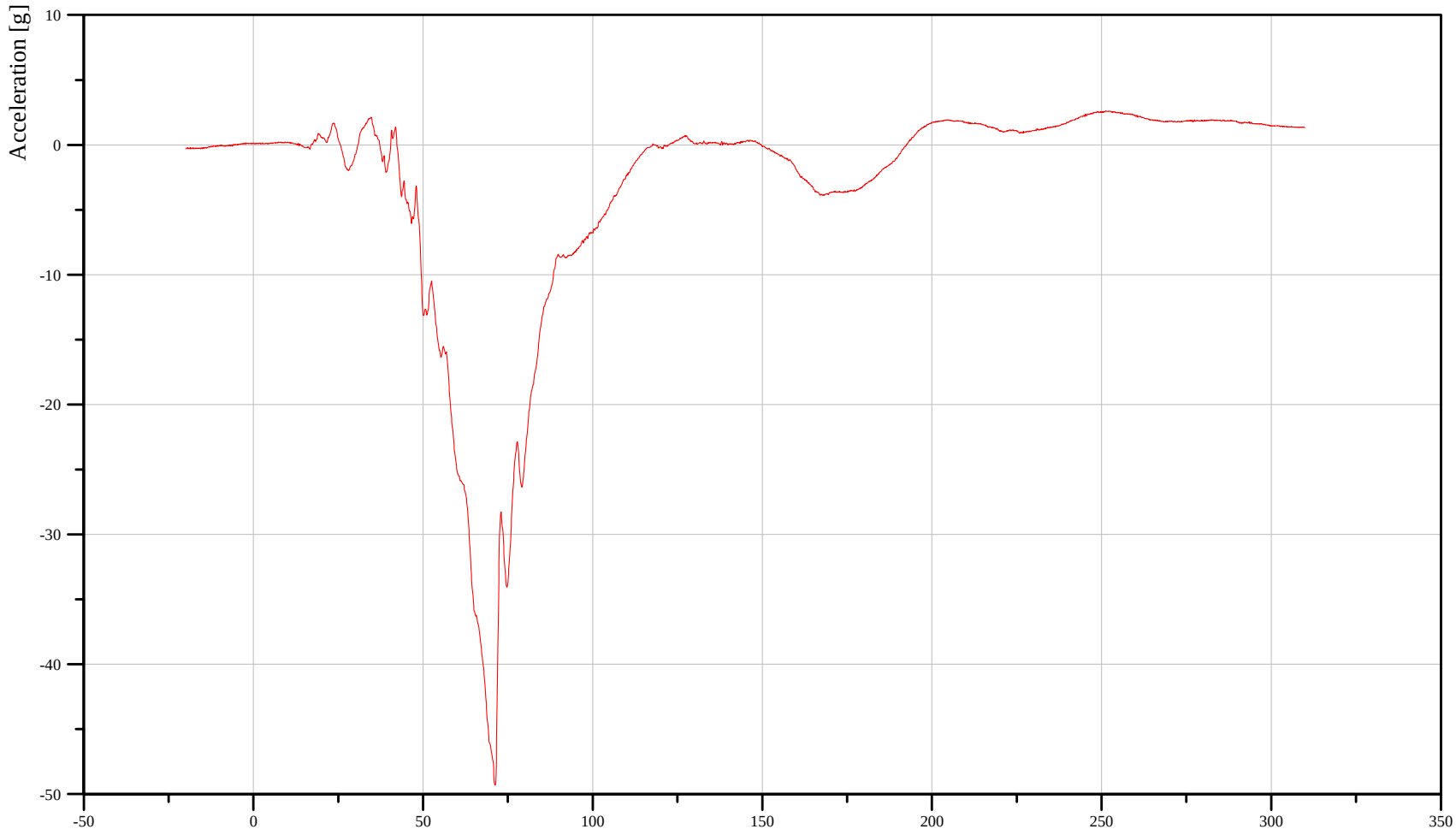
## Target Driver Pelvis CG Z-Axis Acceleration

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 21PELVCG00H3ACZA

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_1000

**Min. Value**
-49.30 g at 71.28 ms

**Max. Value**
2.62 g at 251.20 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

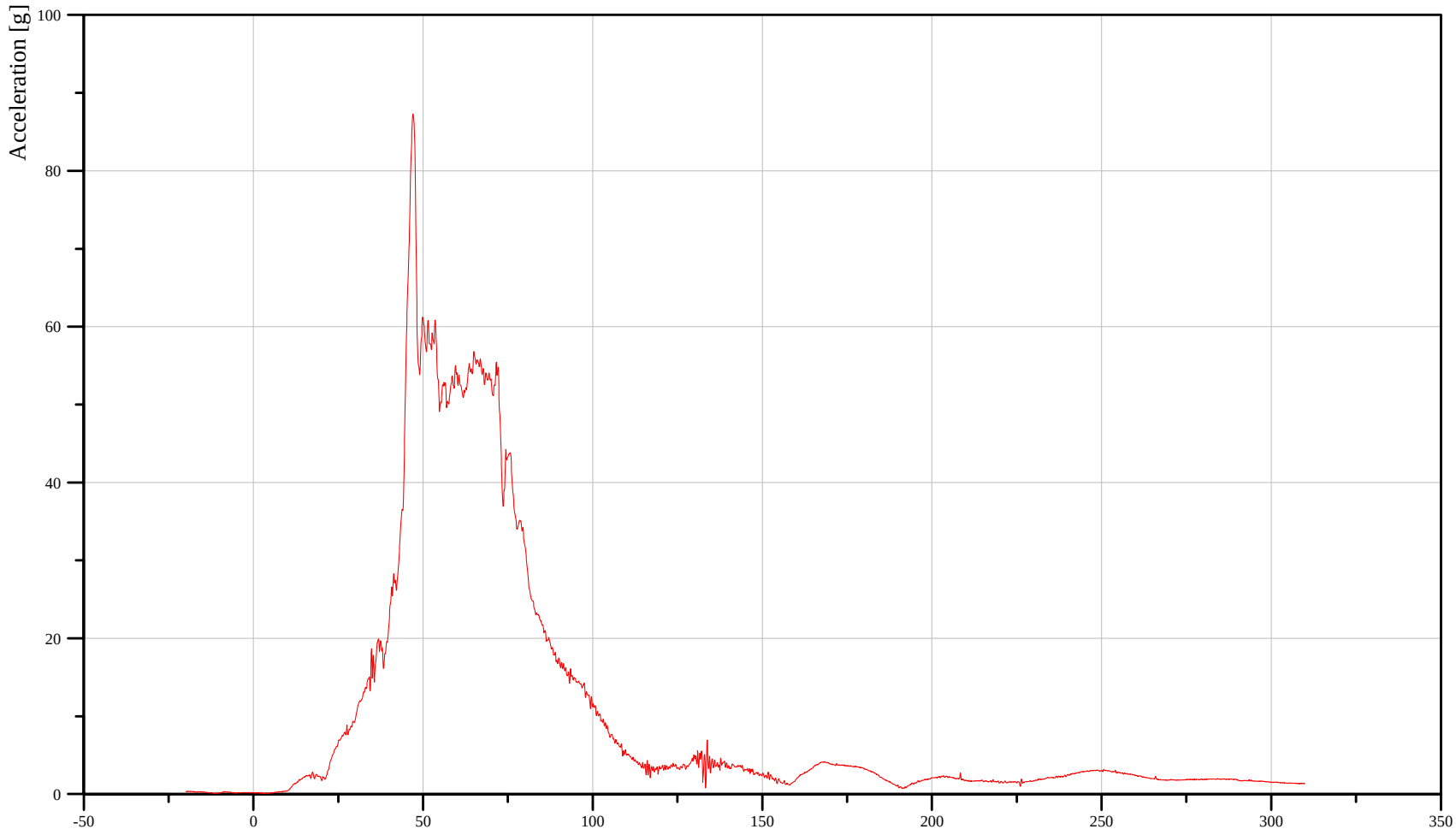
## Target Driver Pelvis CG Resultant Acceleration

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 21PELVCG00H3ACRA

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_1000

**Min. Value**
0.09 g at 3.44 ms

**Max. Value**
87.29 g at 47.04 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

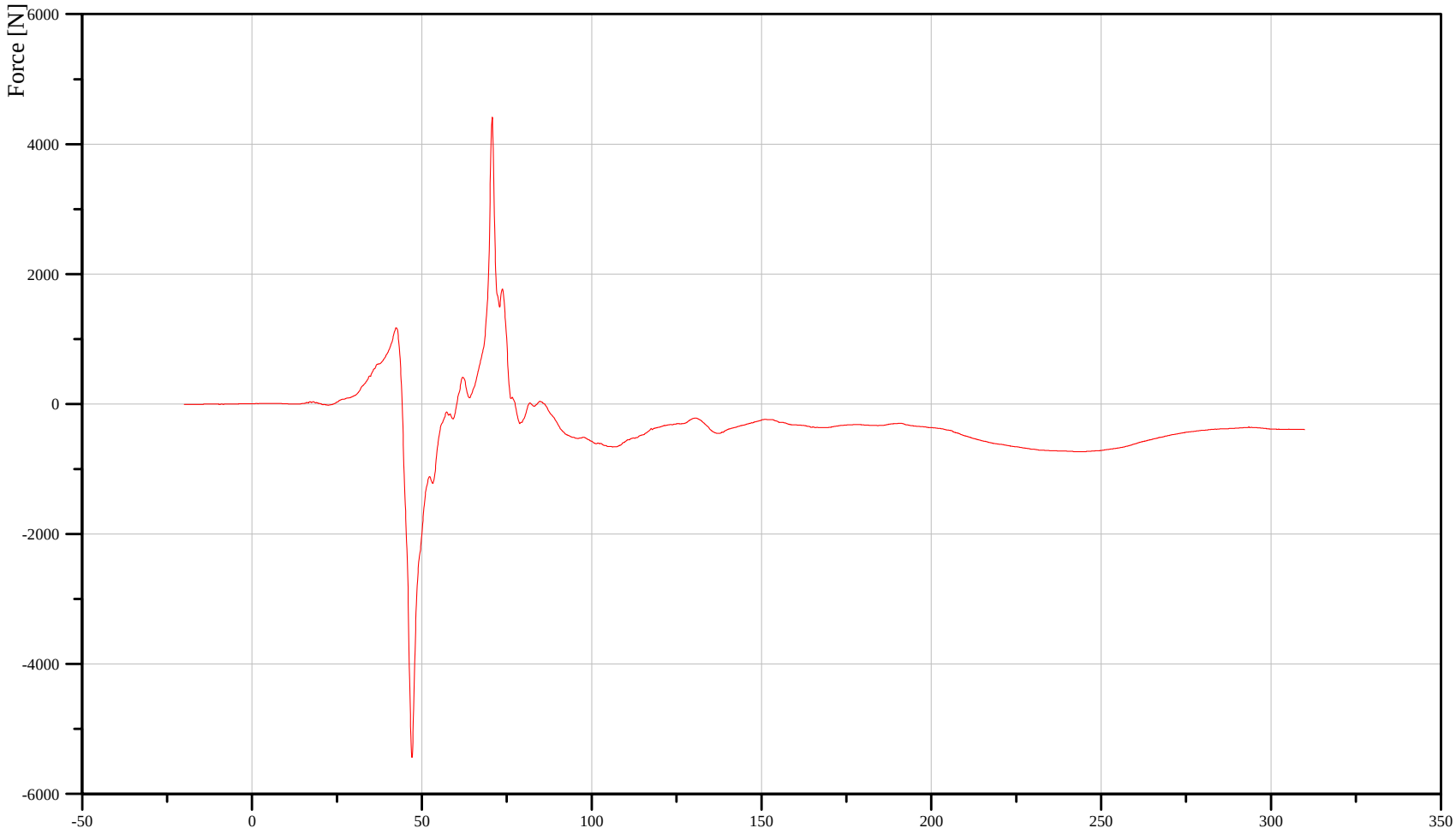
Target Driver Left Femur Z-Axis Force

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

## 21FEMRLL00H3FOZB

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_600

**Min. Value**
-5,440.98 N at 47.12 ms

**Max. Value**
4,415.30 N at 70.72 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

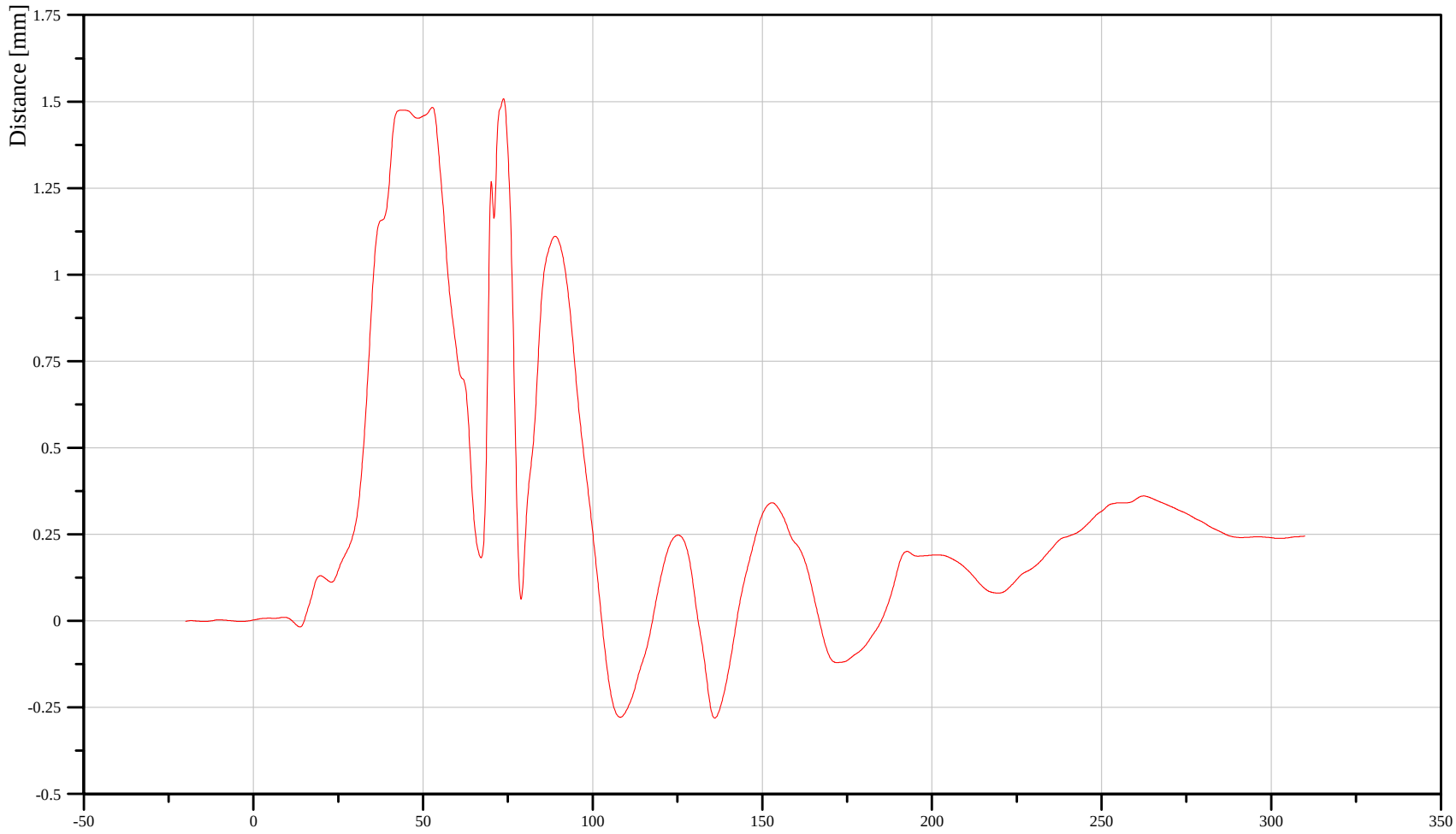
## Target Driver Left Knee Displacement

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

21KNSLLE00H3DSXC

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_180

**Min. Value**
-0.28 mm at 136.00 ms

**Max. Value**
1.51 mm at 73.76 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

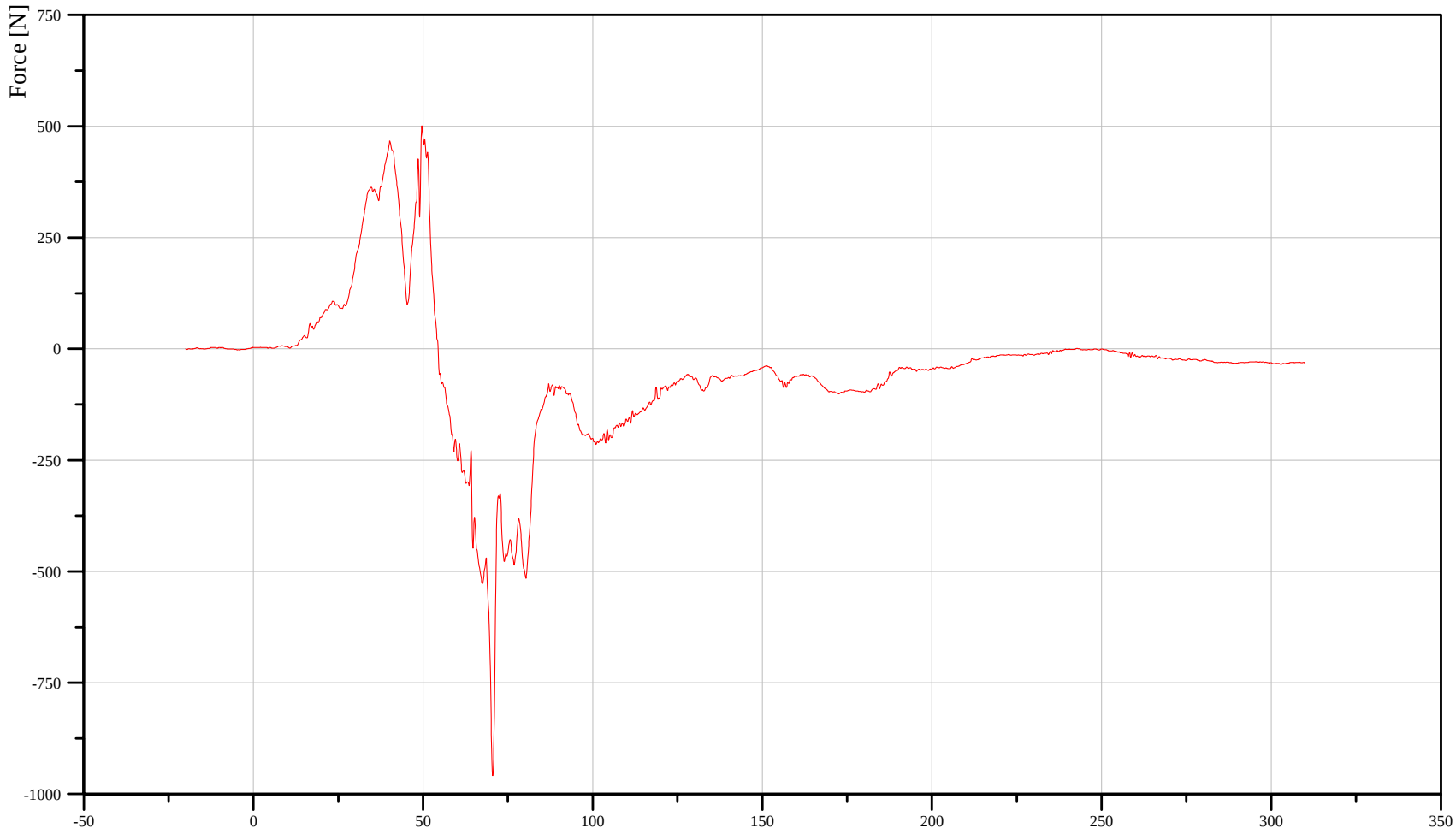
## Target Driver Left Upper Tibia X-Axis Force

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 21TIBILULXH3FOXB

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_600

**Min. Value**
-958.60 N at 70.56 ms

**Max. Value**
501.06 N at 49.60 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

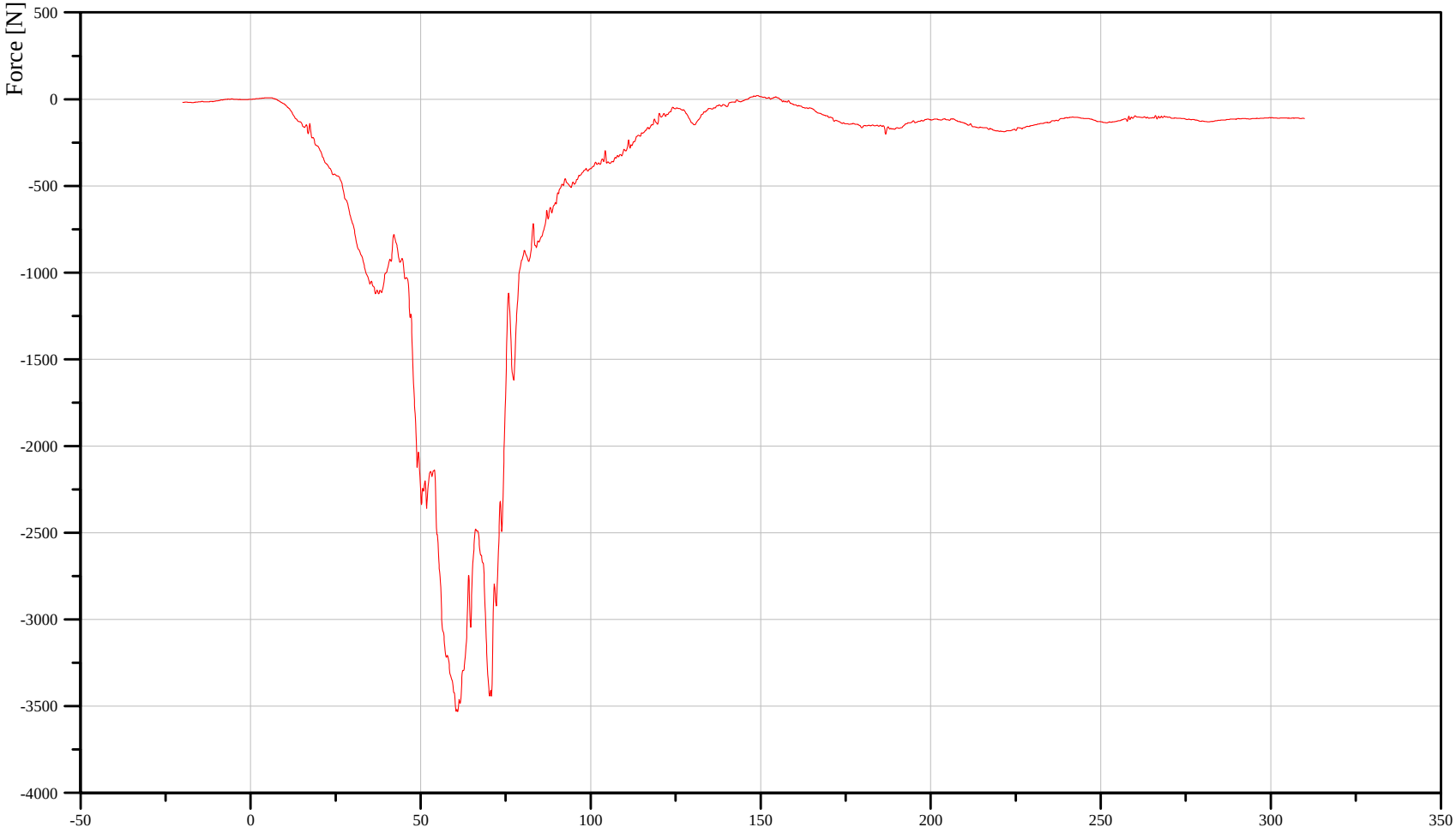
## Target Driver Left Upper Tibia Z-Axis Force

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 21TIBILULXH3FOZB

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_600

**Min. Value**
-3,530.41 N at 60.88 ms

**Max. Value**
20.79 N at 149.12 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

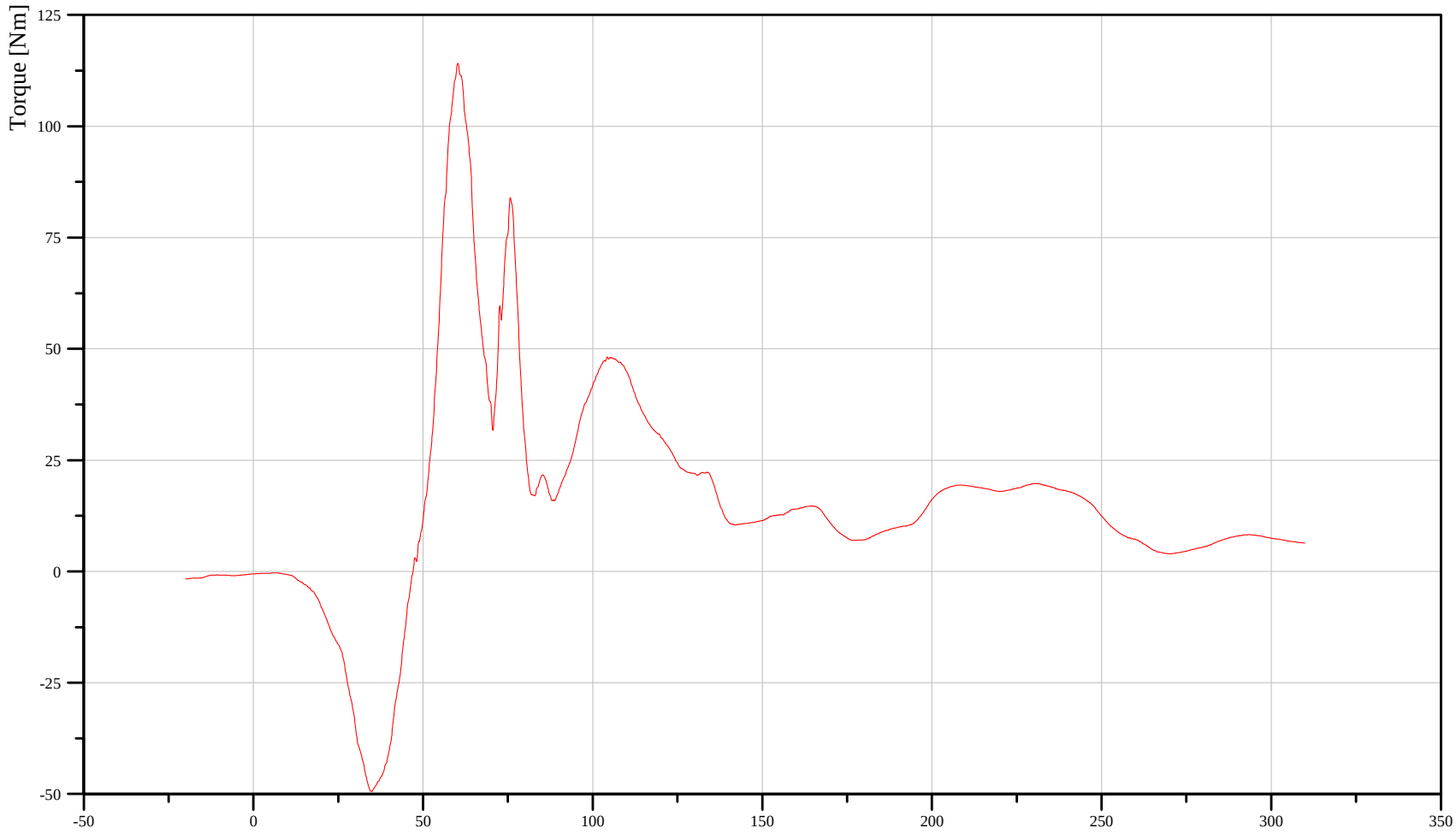
## Target Driver Left Upper Tibia Moment About X Axis

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

21TIBILULXH3MOXB

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_600

**Min. Value**
-49.45 Nm at 34.80 ms

**Max. Value**
114.13 Nm at 60.24 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

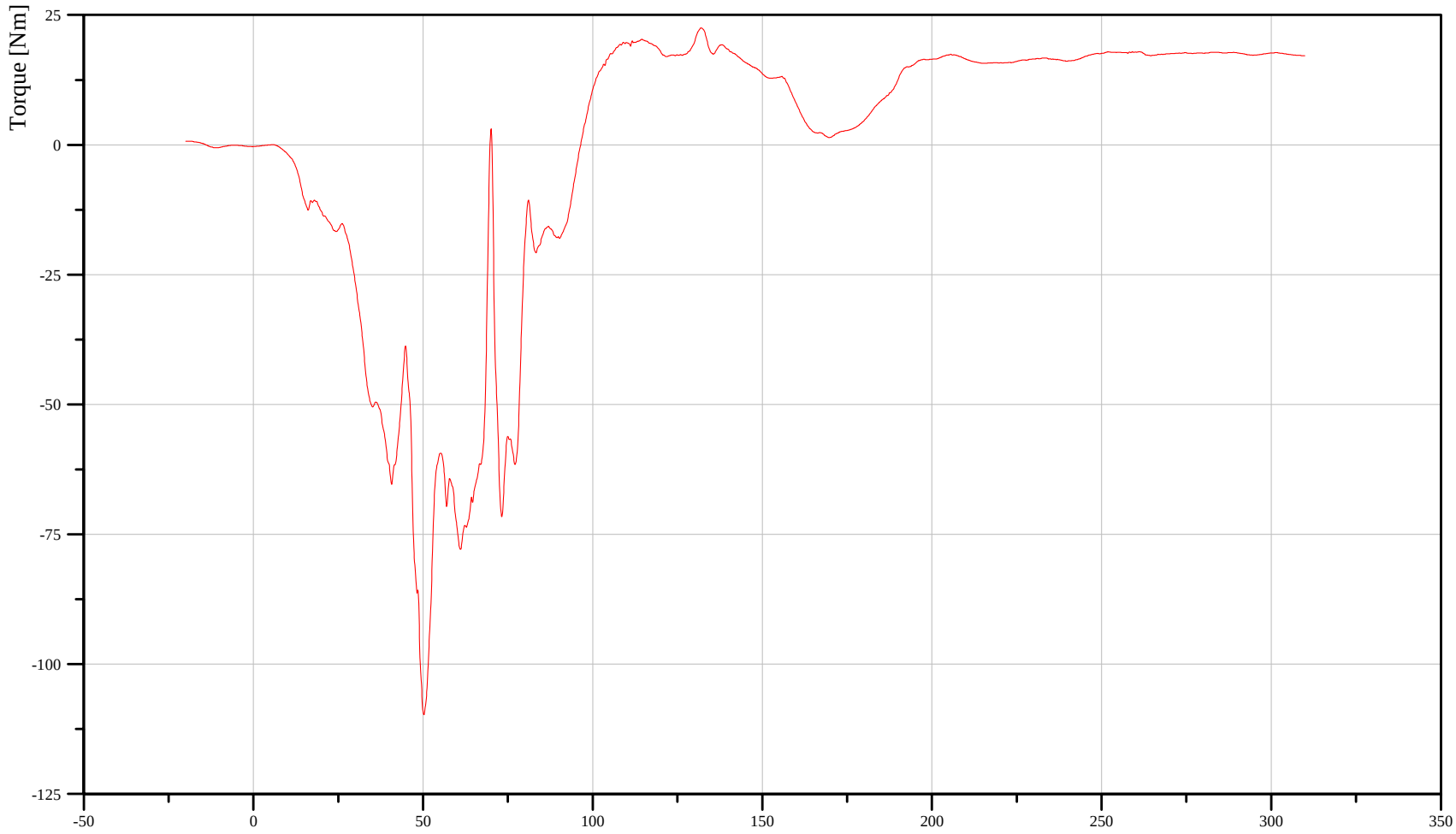
## Target Driver Left Upper Tibia Moment About Y Axis

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

21TIBILULXH3MOYB

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_600

**Min. Value**
-109.74 Nm at 50.24 ms

**Max. Value**
22.52 Nm at 131.92 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

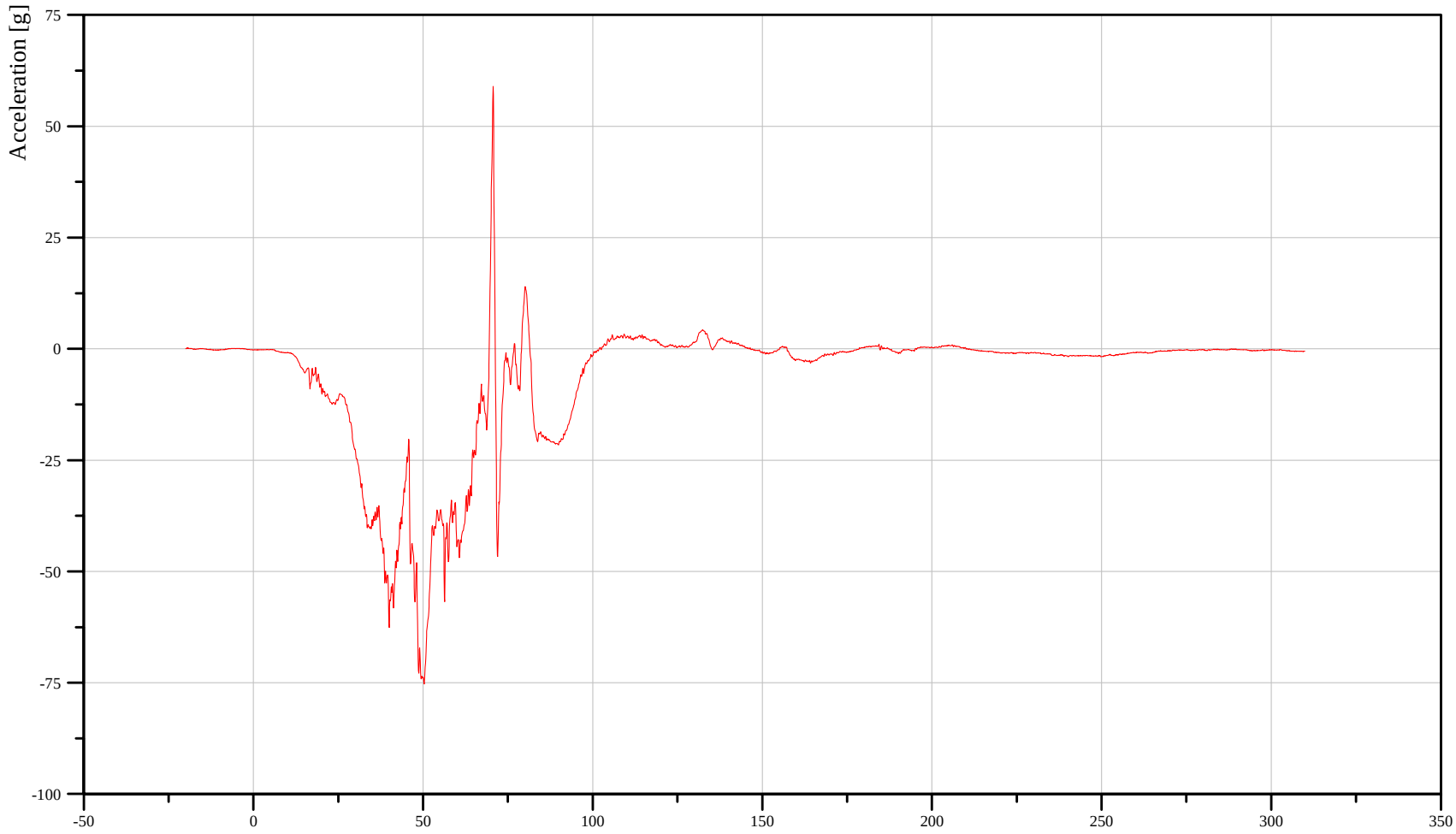
## Target Driver Left Tibia X-Axis Acceleration

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 21TIBILELXH3ACXA

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_1000

**Min. Value**
-75.27 g at 50.32 ms

**Max. Value**
58.93 g at 70.64 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

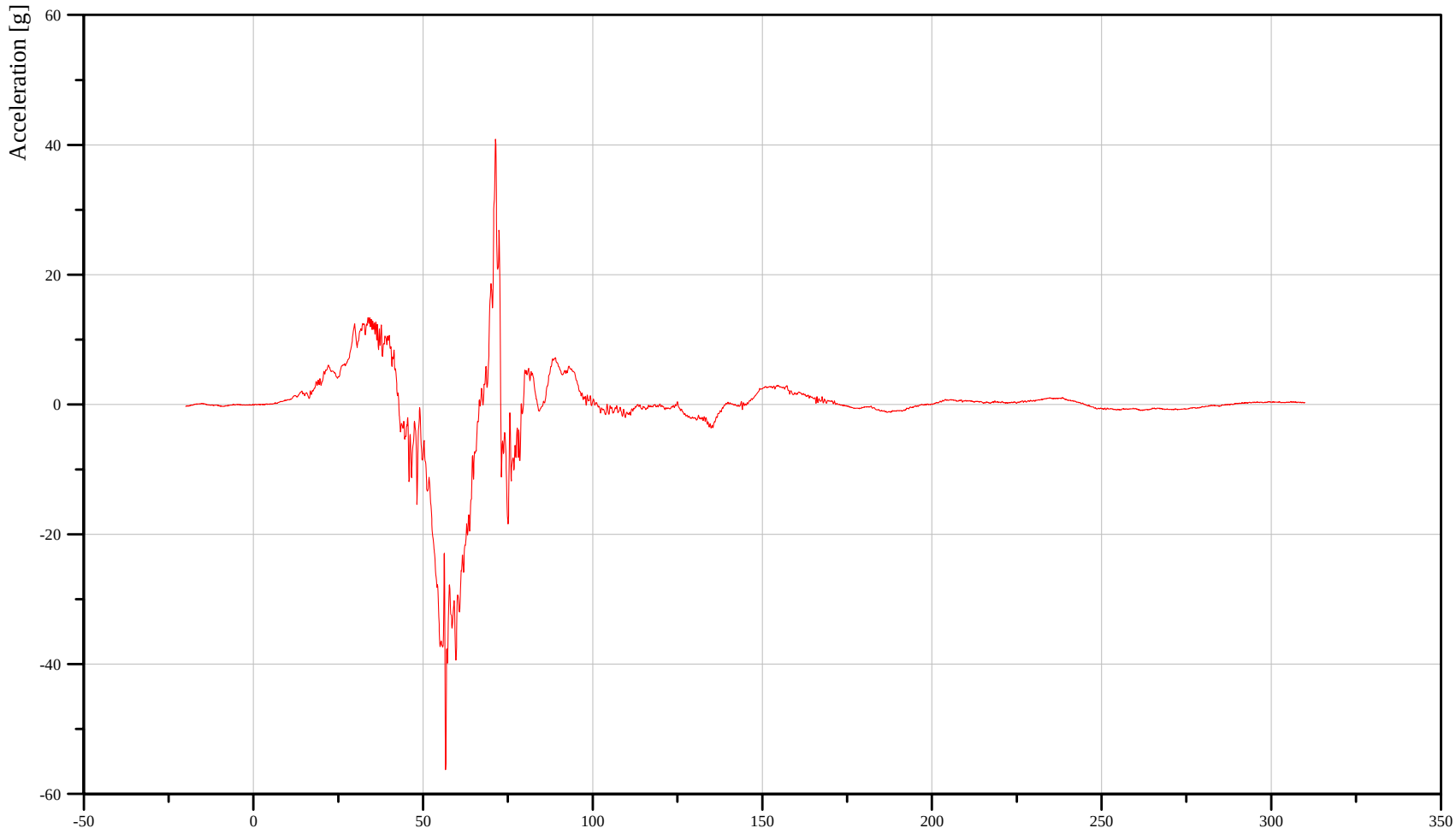
## Target Driver Left Tibia Y-Axis Acceleration

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

21TIBILELXH3ACYA

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_1000

**Min. Value**
-56.27 g at 56.64 ms

**Max. Value**
40.88 g at 71.36 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

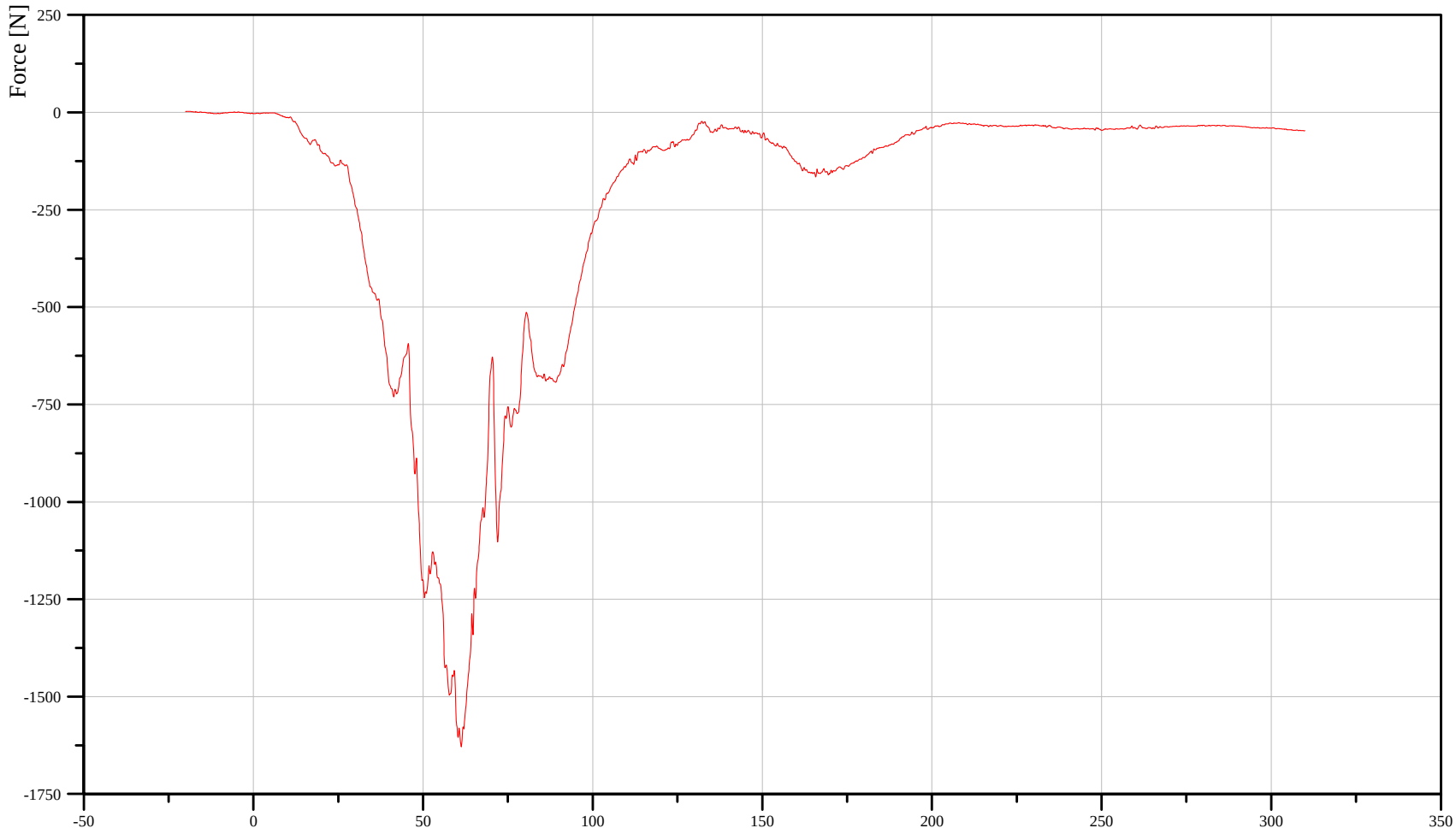
Target Driver Left Lower Tibia X-Axis Force

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

## 21TIBILLLXH3FOXB

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_600

**Min. Value**
-1,629.35 N at 61.28 ms

**Max. Value**
2.75 N at -18.72 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

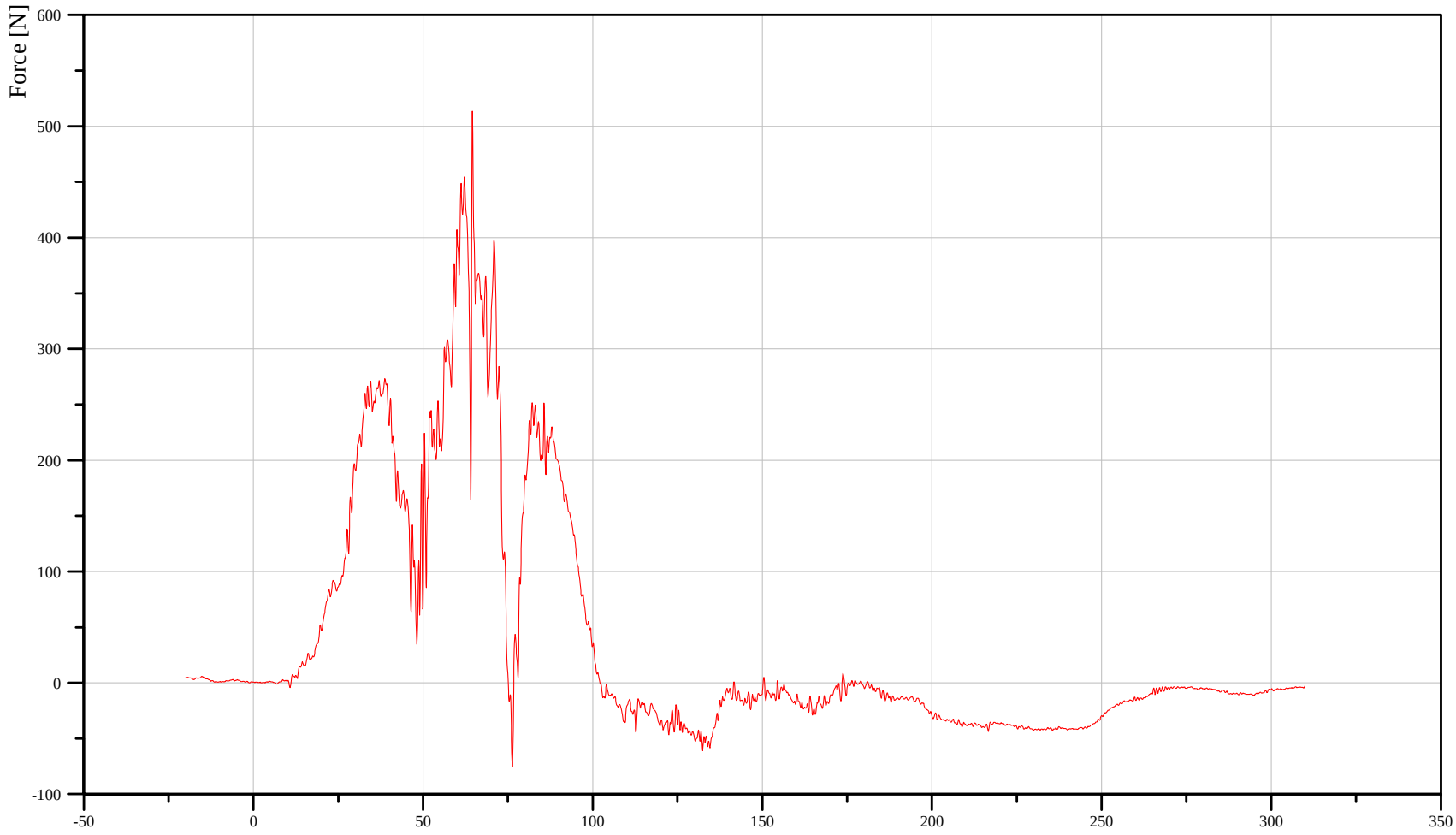
## Target Driver Left Lower Tibia Y-Axis Force

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 21TIBILLLXH3FOYB

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_600

**Min. Value**
-75.12 N at 76.32 ms

**Max. Value**
513.65 N at 64.56 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

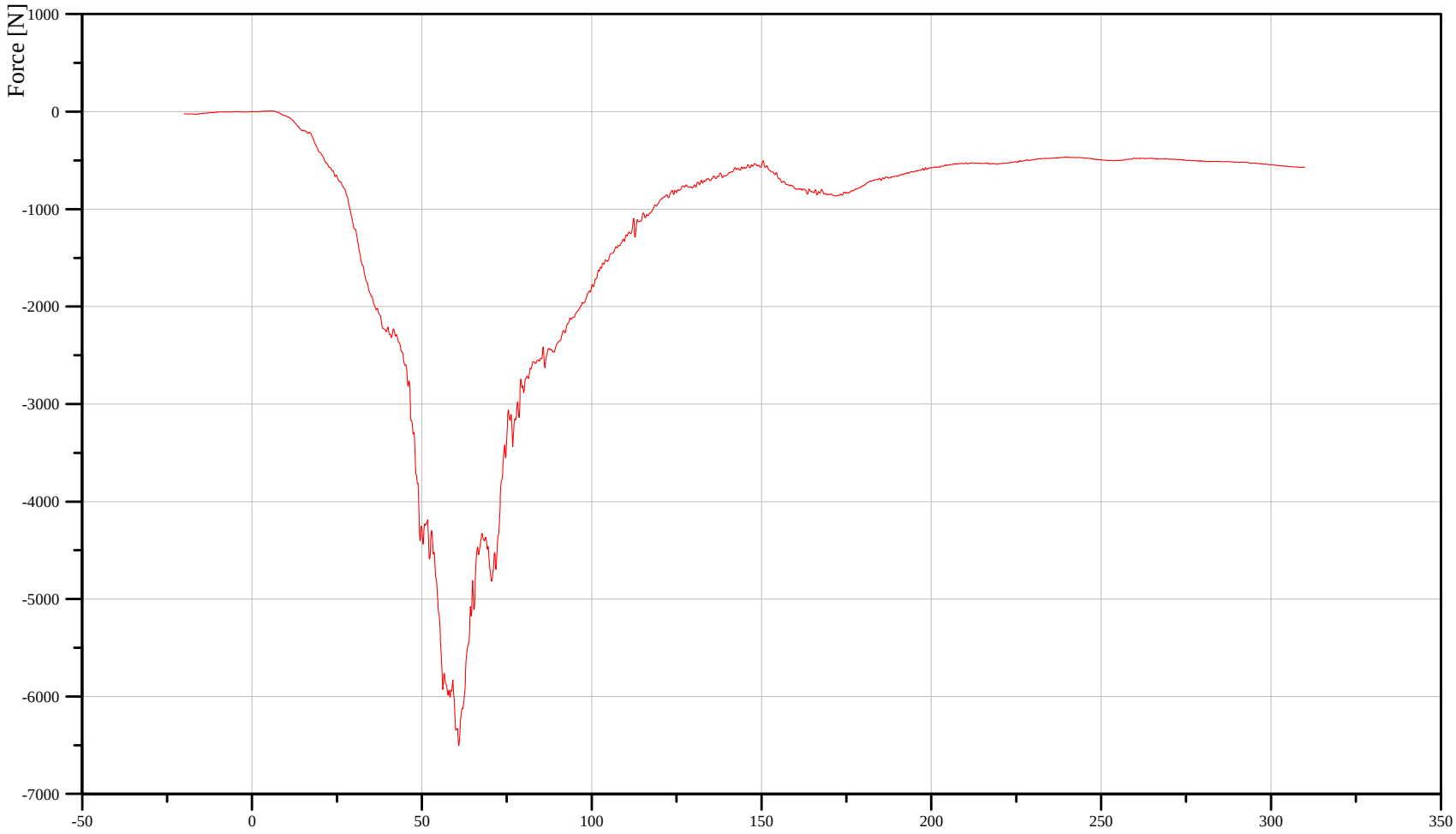
## Target Driver Left Lower Tibia Z-Axis Force

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 21TIBILLLXH3FOZB

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_600

**Min. Value**
-6,504.56 N at 60.88 ms

**Max. Value**
7.78 N at 5.12 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

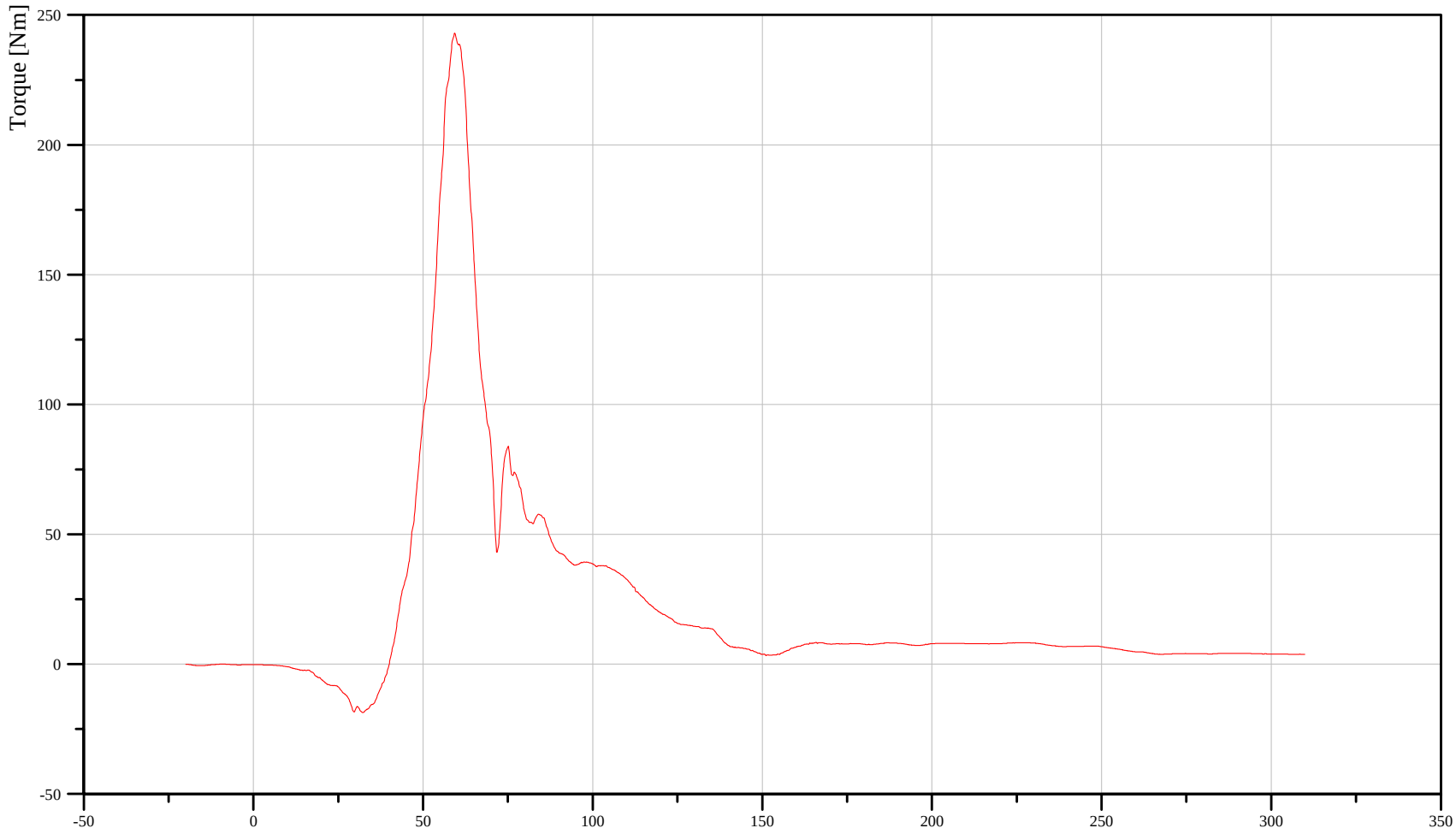
## Target Driver Left Lower Tibia Moment About X Axis

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

21TIBILLLXH3MOXB

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_600

**Min. Value**
-18.61 Nm at 32.24 ms

**Max. Value**
243.07 Nm at 59.36 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

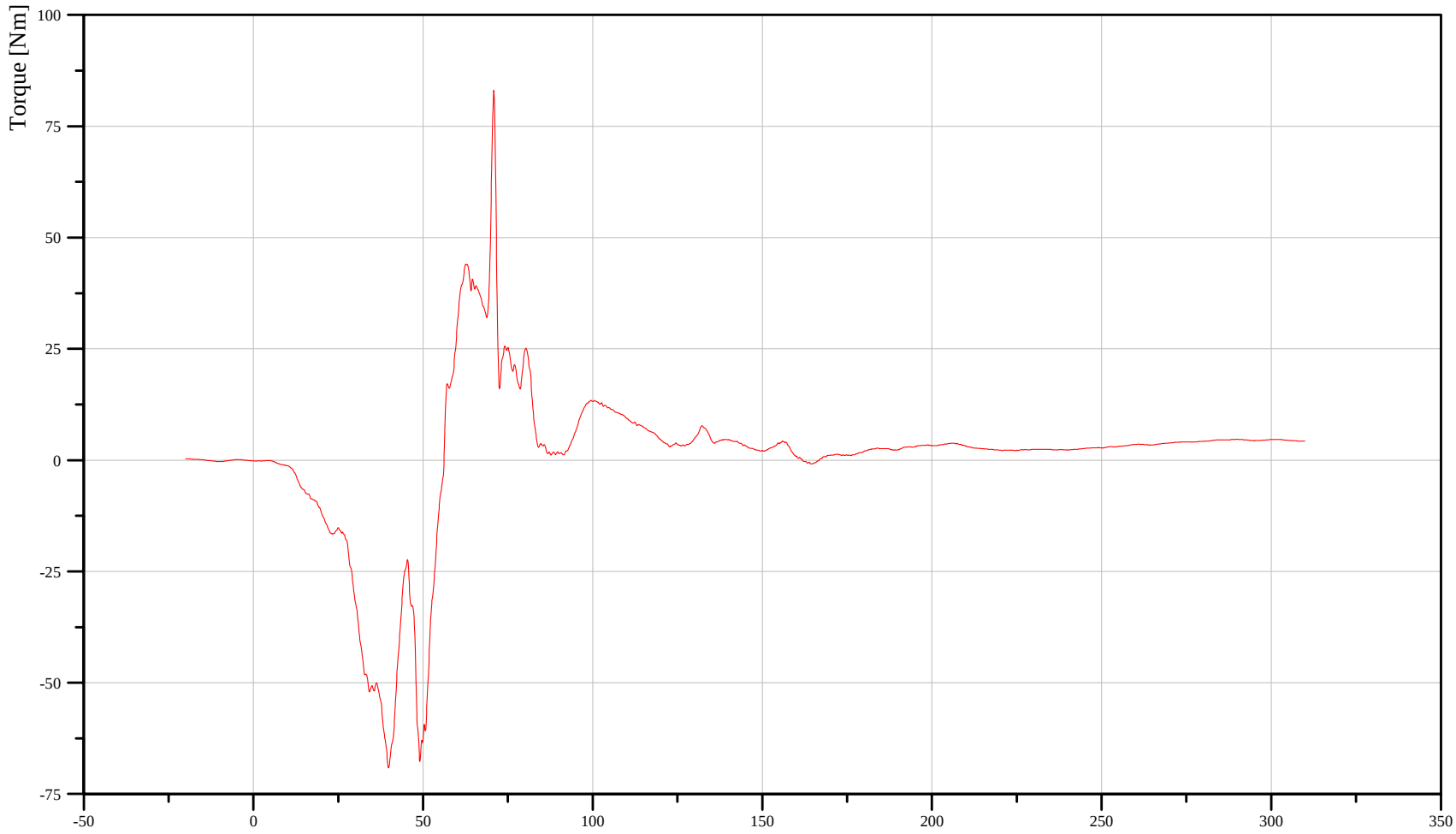
## Target Driver Left Lower Tibia Moment About Y Axis

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 21TIBILLLXH3MOYB

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_600

**Min. Value**
-69.15 Nm at 39.84 ms

**Max. Value**
83.09 Nm at 70.88 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

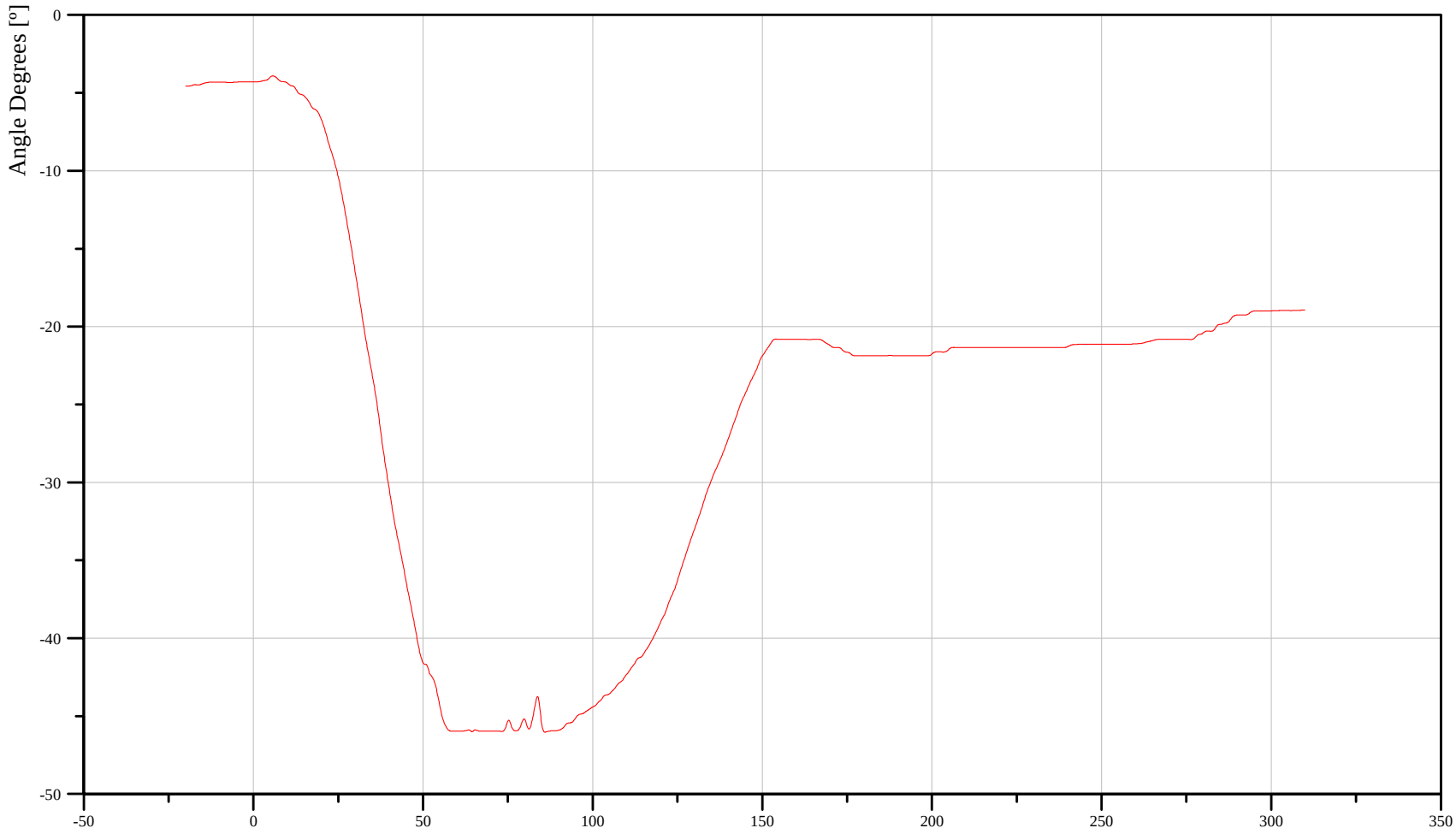
Target Driver Left Foot X-Axis Rotation

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

21FOOTLELXH3ANXC

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_180

**Min. Value**
-46.03 ° at 86.00 ms

**Max. Value**
-3.91 ° at 5.68 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

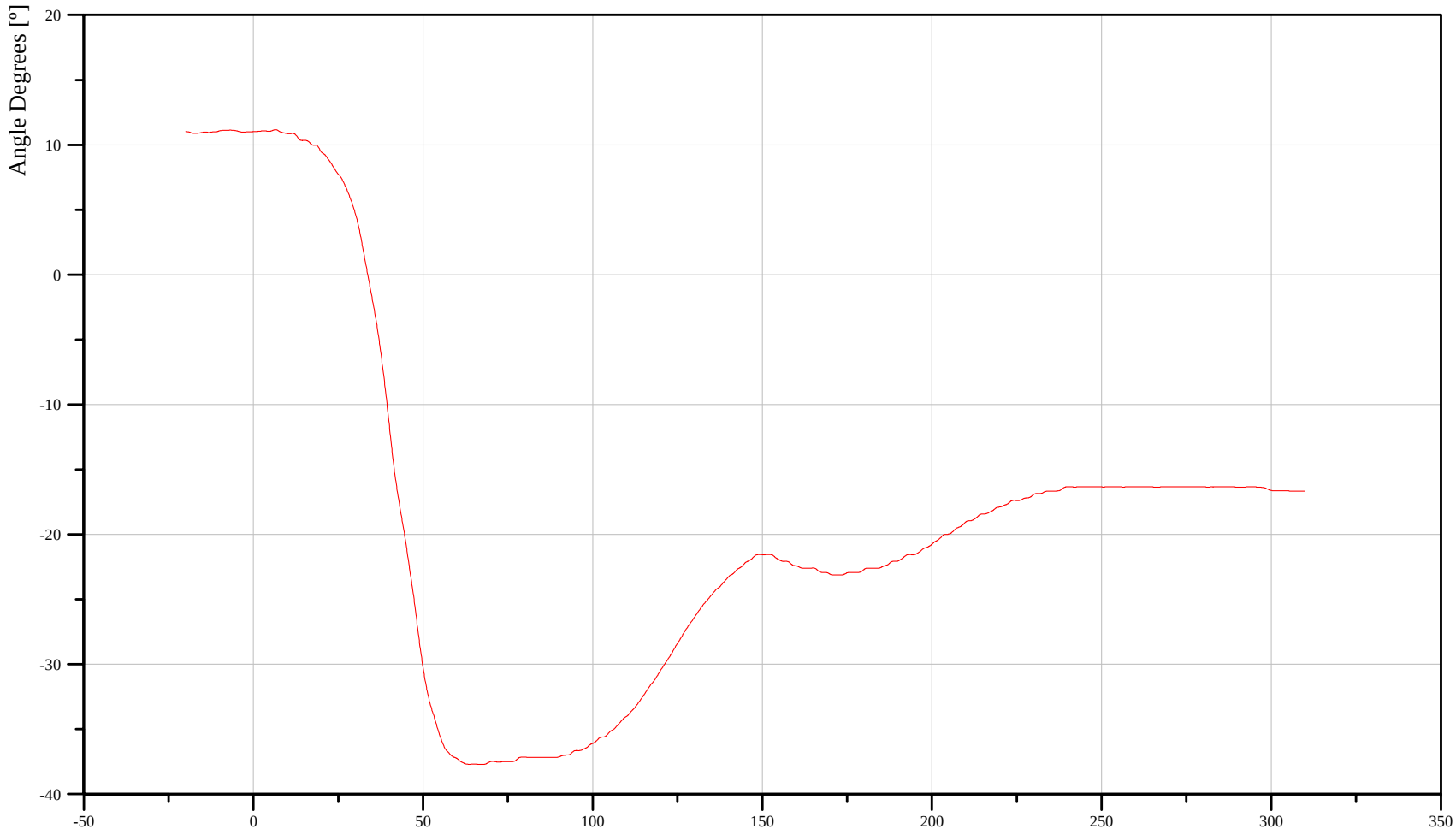
## Target Driver Left Foot Y-Axis Rotation

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

21FOOTLELXH3ANYC

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_180

**Min. Value**
-37.71 ° at 67.68 ms

**Max. Value**
11.17 ° at 6.48 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

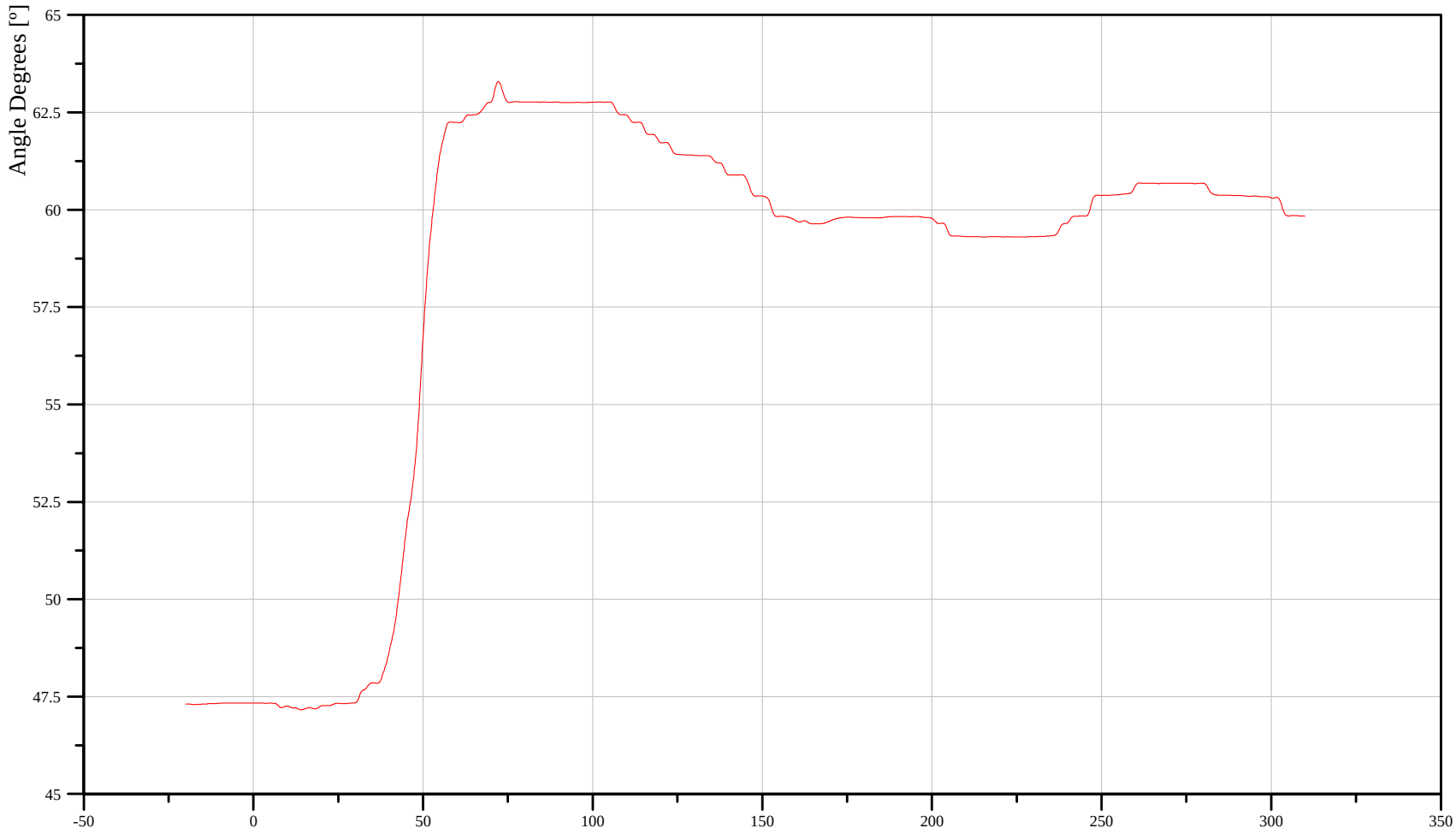
## Target Driver Left Foot Z-Axis Rotation

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

21FOOTLELXH3ANZC

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_180

**Min. Value**
47.16 ° at 14.00 ms

**Max. Value**
63.29 ° at 72.16 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

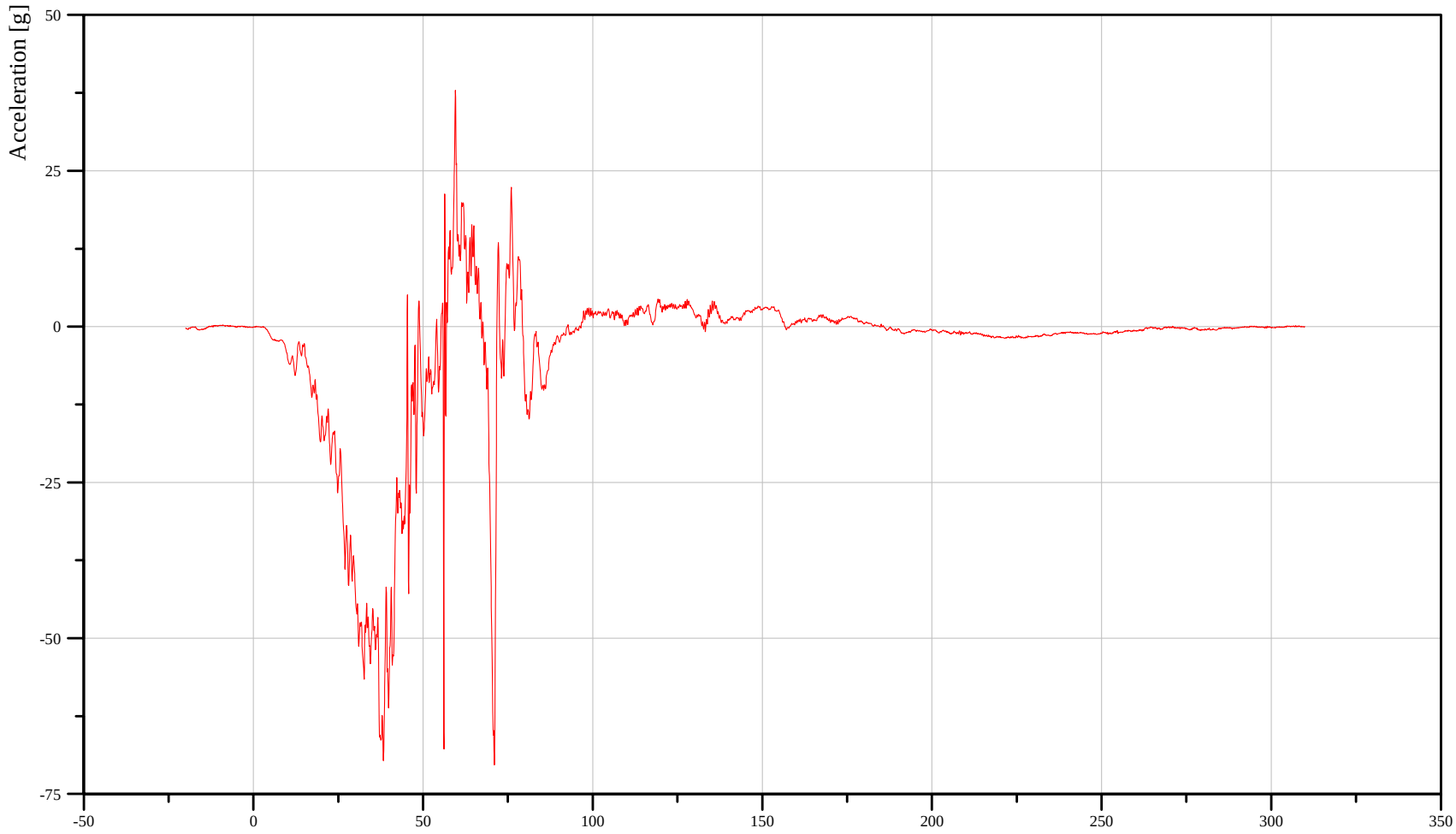
Target Driver Left Foot X-Axis Acceleration

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

21FOOTLELXH3ACXA

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_1000

**Min. Value**
-70.35 g at 71.04 ms

**Max. Value**
37.89 g at 59.52 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

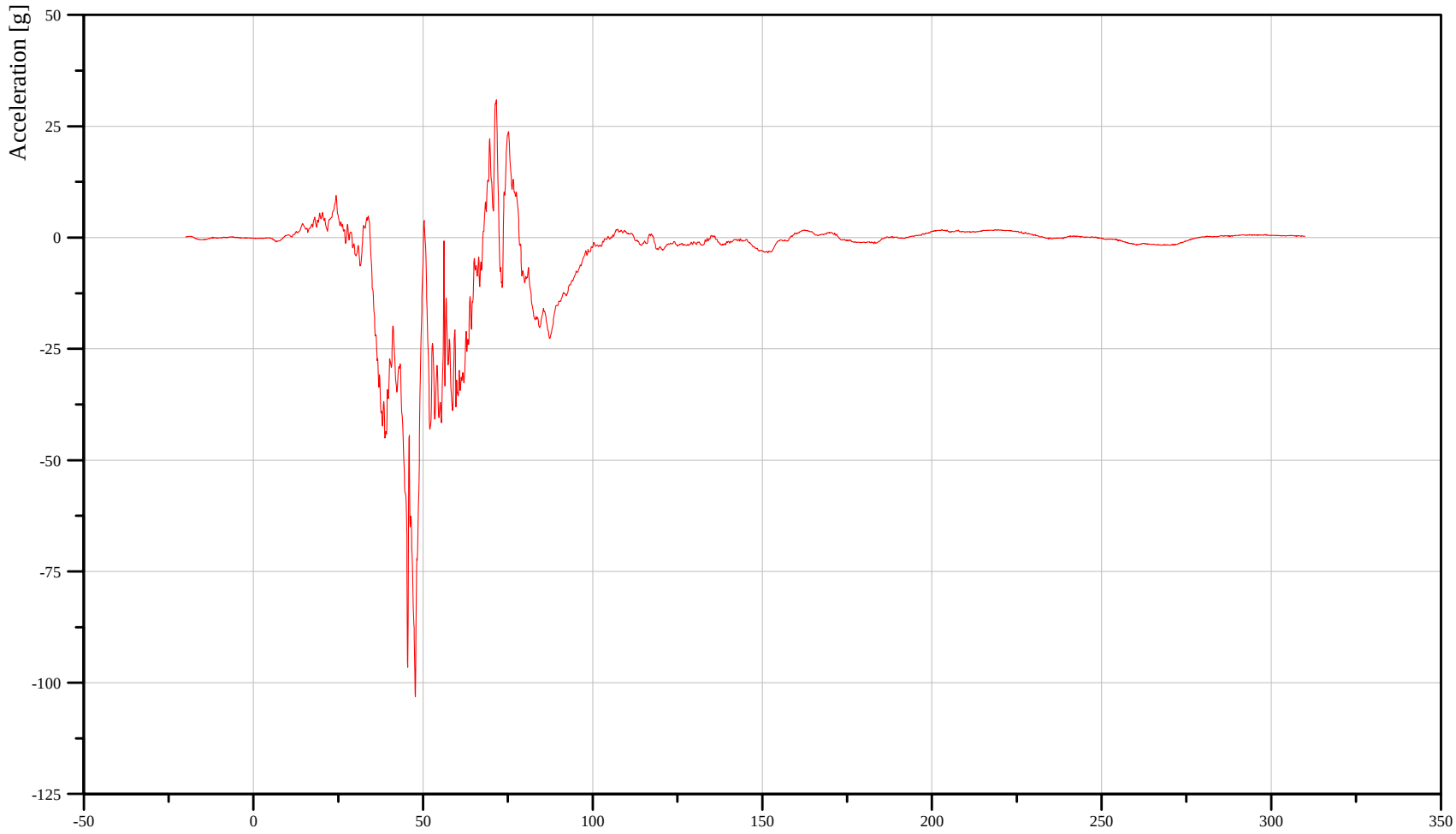
Target Driver Left Foot Y-Axis Acceleration

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

21FOOTLELXH3ACYA

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_1000

**Min. Value**
-103.16 g at 47.76 ms

**Max. Value**
30.96 g at 71.60 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

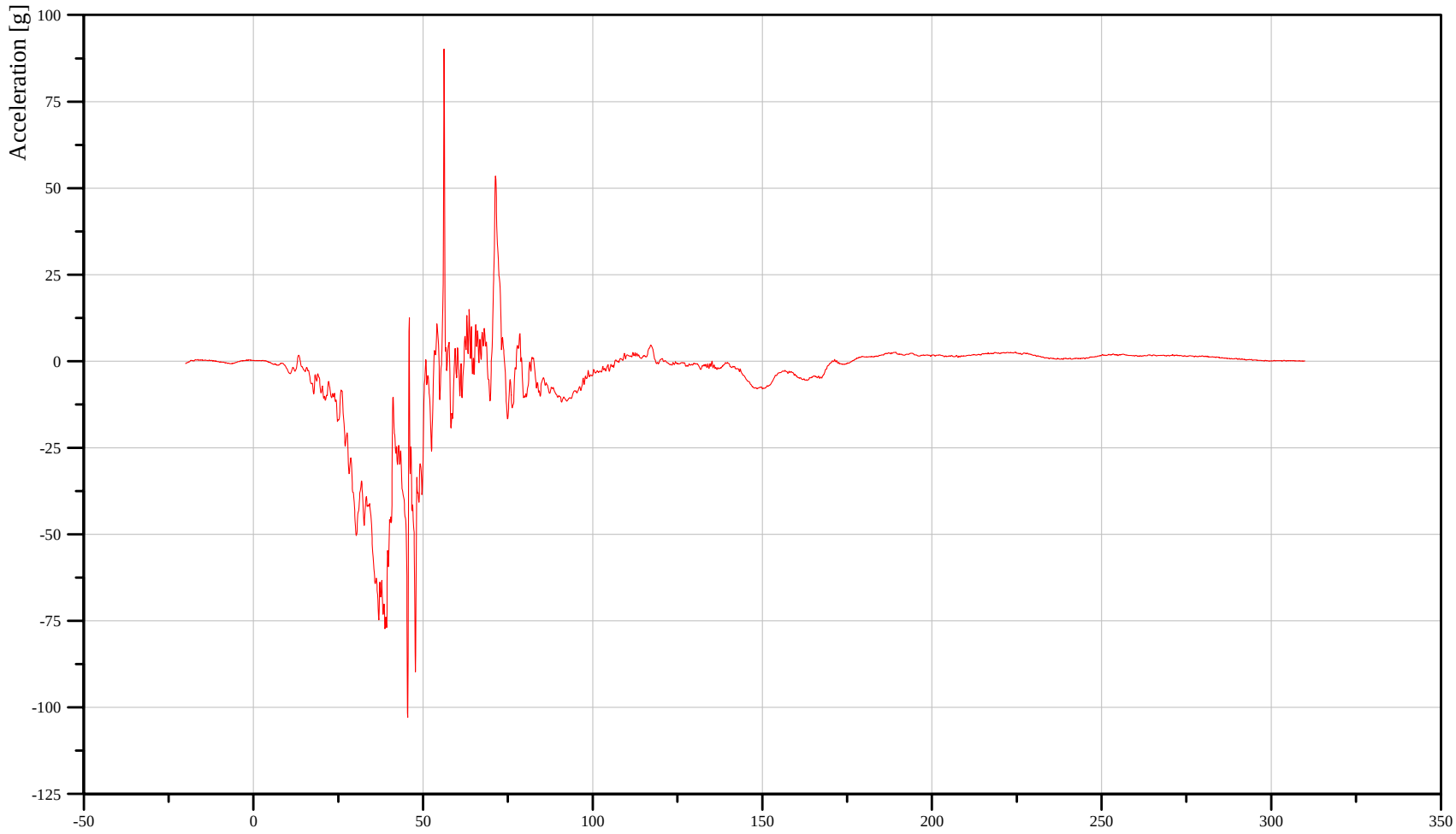
## Target Driver Left Foot Z-Axis Acceleration

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

21FOOTLELXH3ACZA

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_1000

**Min. Value**
-102.83 g at 45.52 ms

**Max. Value**
90.15 g at 56.24 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

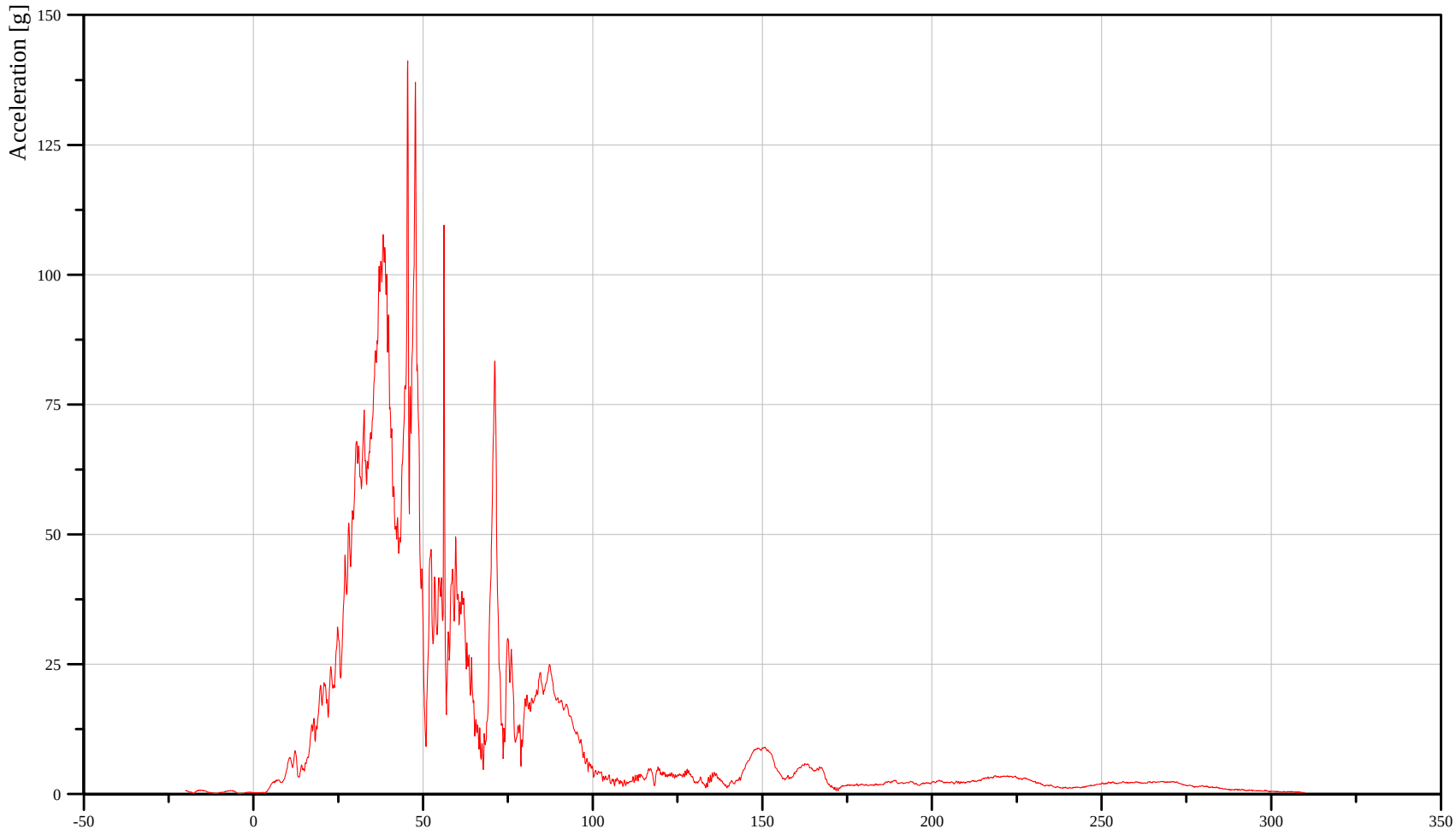
## Target Driver Left Foot Resultant Acceleration

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 21FOOTLELXH3ACRA

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_1000

**Min. Value**
0.02 g at -3.92 ms

**Max. Value**
141.16 g at 45.52 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

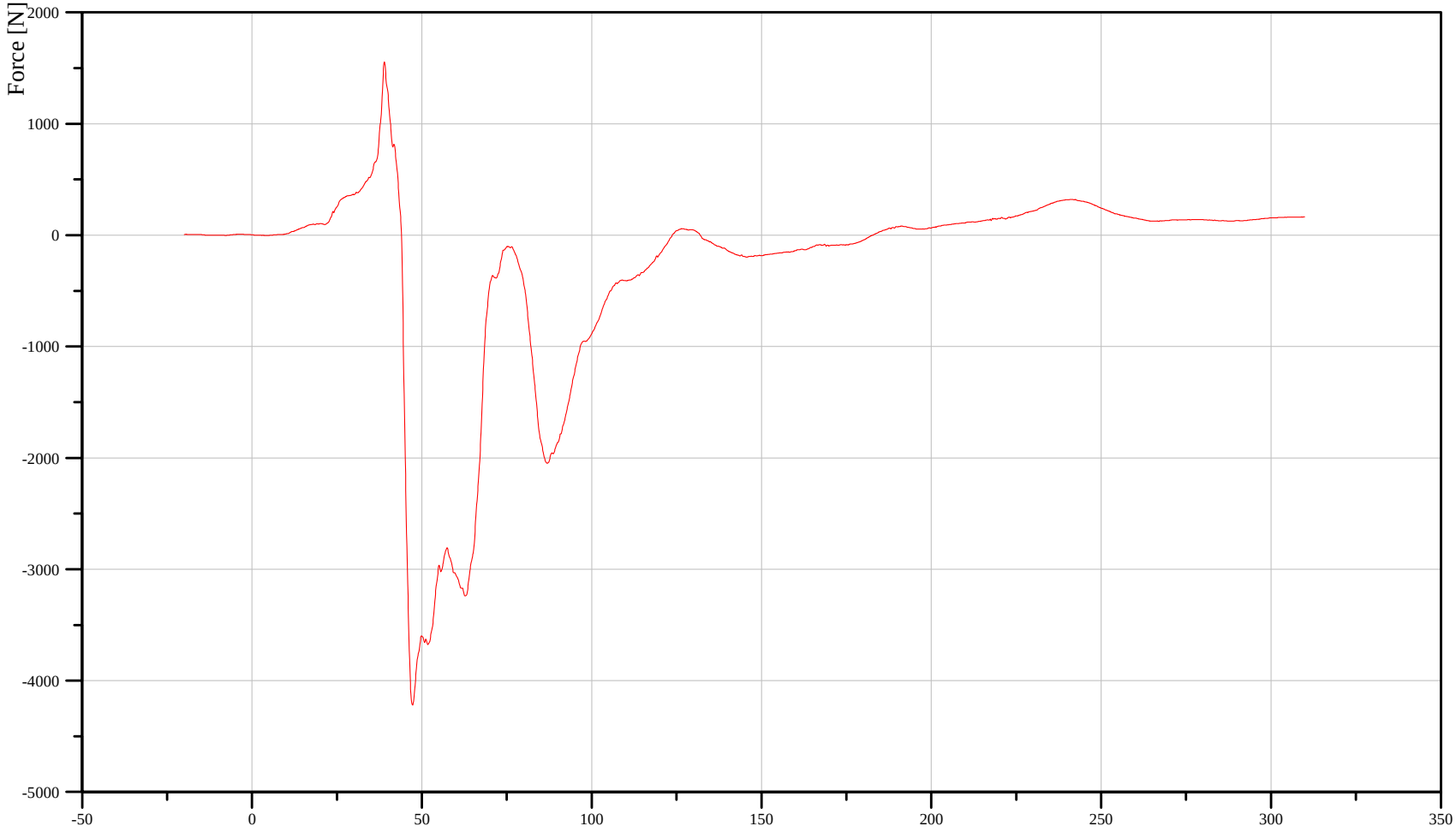
Target Driver Right Femur Z-Axis Force

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

## 21FEMRRL00H3FOZB

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_600

**Min. Value**
-4,219.78 N at 47.28 ms

**Max. Value**
1,554.34 N at 38.96 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

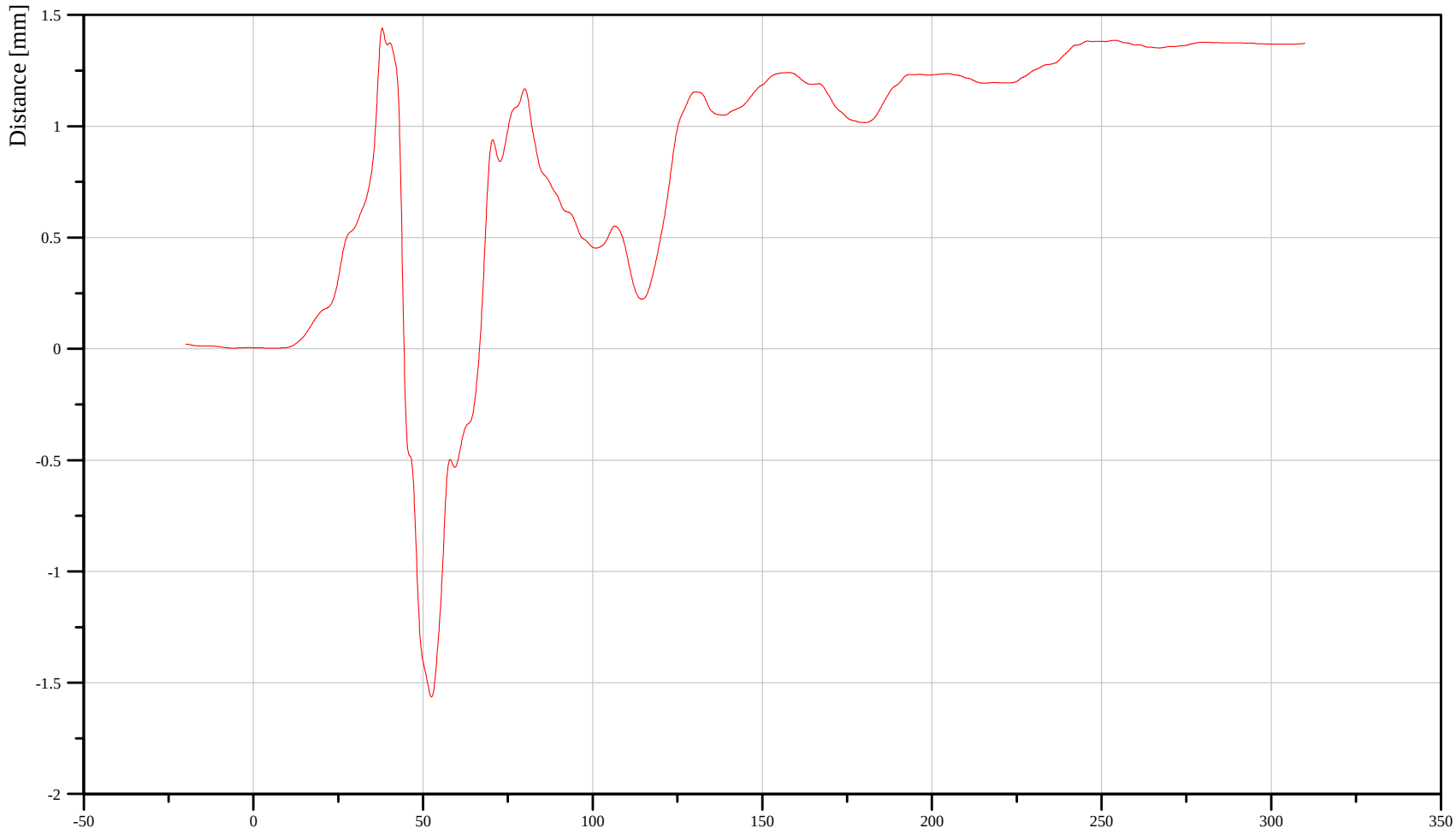
## Target Driver Right Knee Displacement

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

21KNSLRI00H3DSXC

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_180

**Min. Value**
-1.56 mm at 52.48 ms

**Max. Value**
1.44 mm at 37.92 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

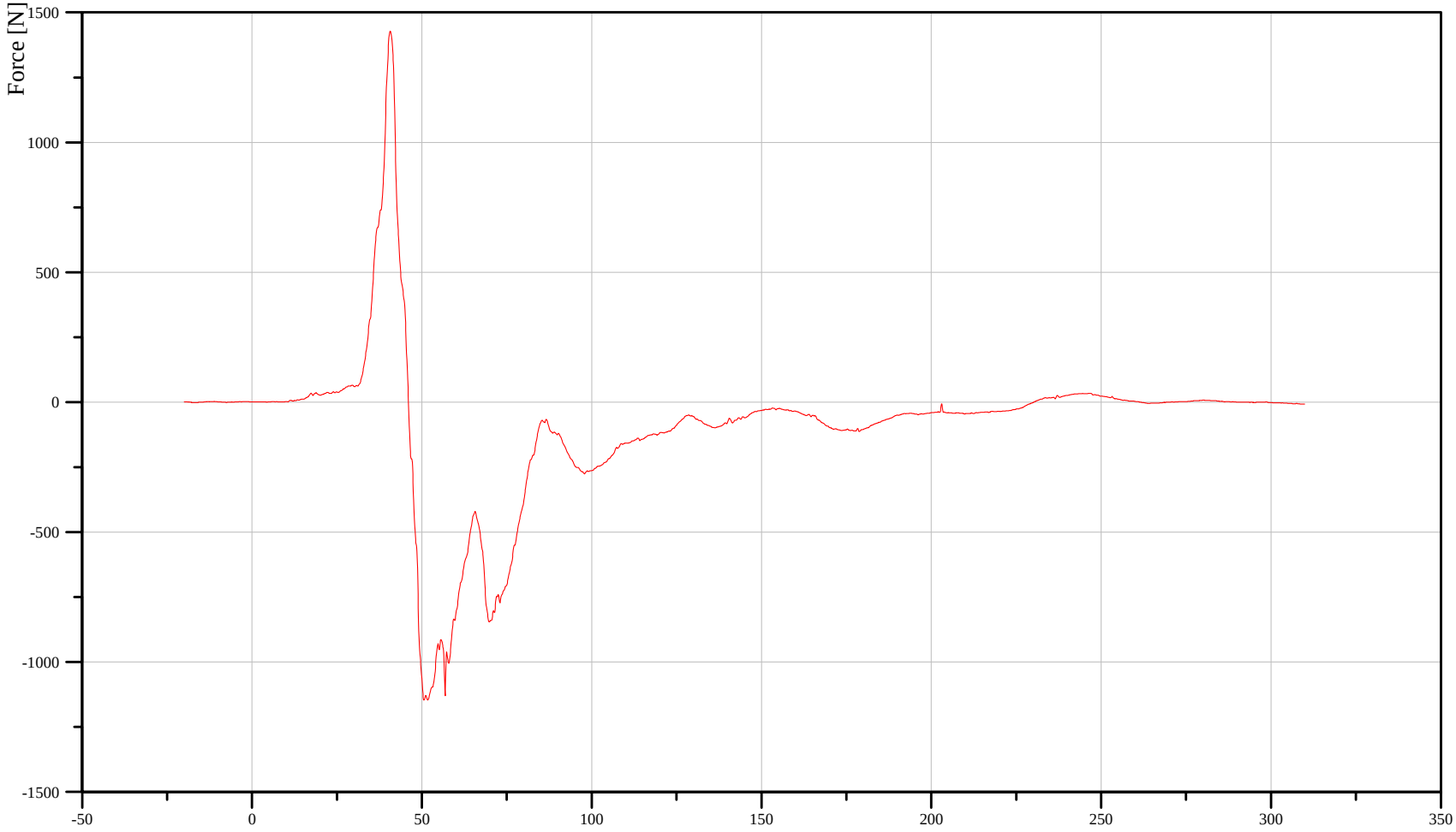
Target Driver Right Upper Tibia X-Axis Force

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

## 21TIBIRULXH3FOXB

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_600

**Min. Value**
-1,146.83 N at 50.64 ms

**Max. Value**
1,427.70 N at 40.72 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

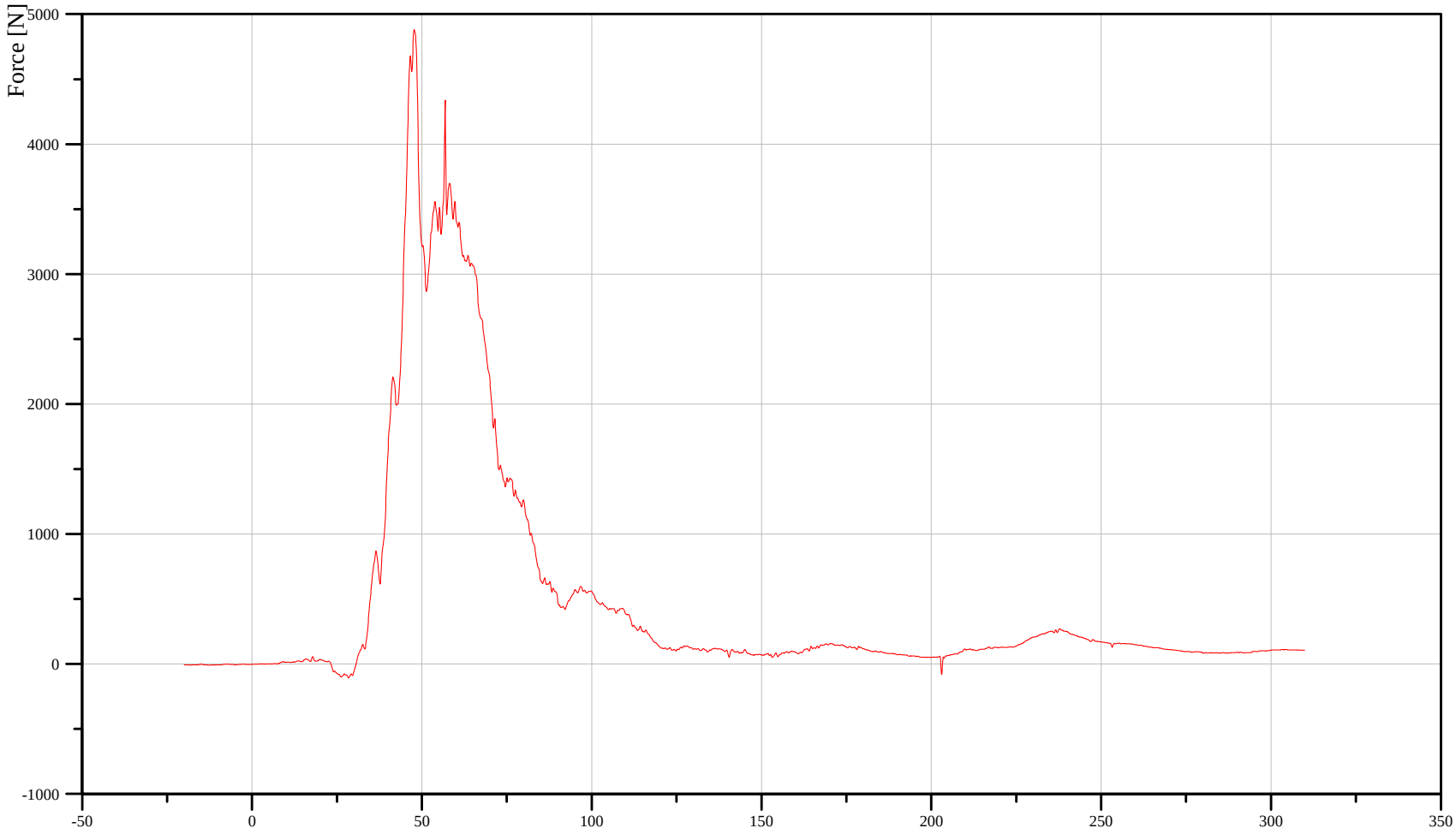
## Target Driver Right Upper Tibia Z-Axis Force

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 21TIBIRULXH3FOZB

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_600

**Min. Value**
-107.81 N at 28.40 ms

**Max. Value**
4,881.35 N at 47.76 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

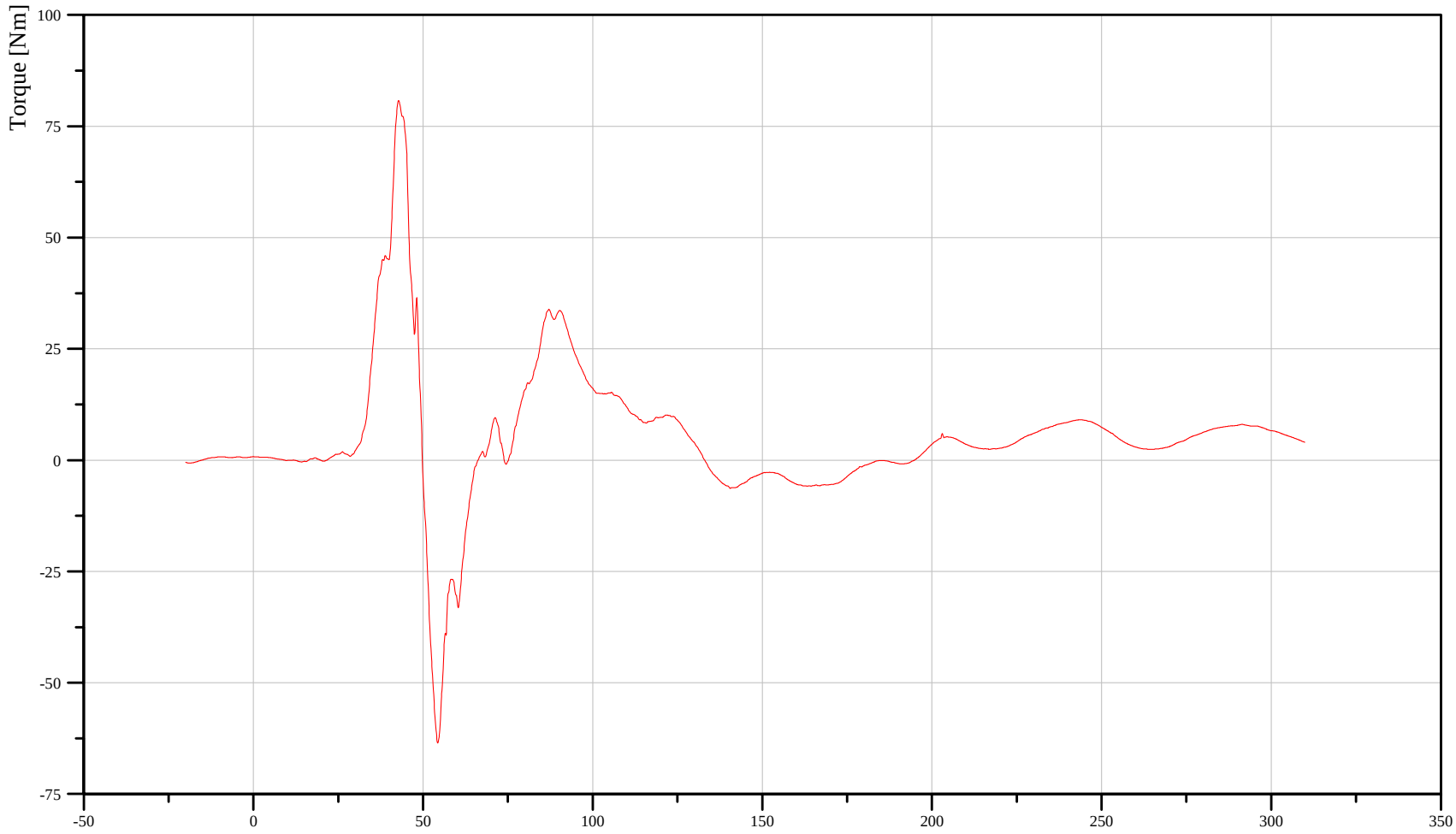
## Target Driver Right Upper Tibia Moment About X Axis

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

21TIBIRULXH3MOXB

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_600

**Min. Value**
-63.53 Nm at 54.32 ms

**Max. Value**
80.79 Nm at 42.80 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

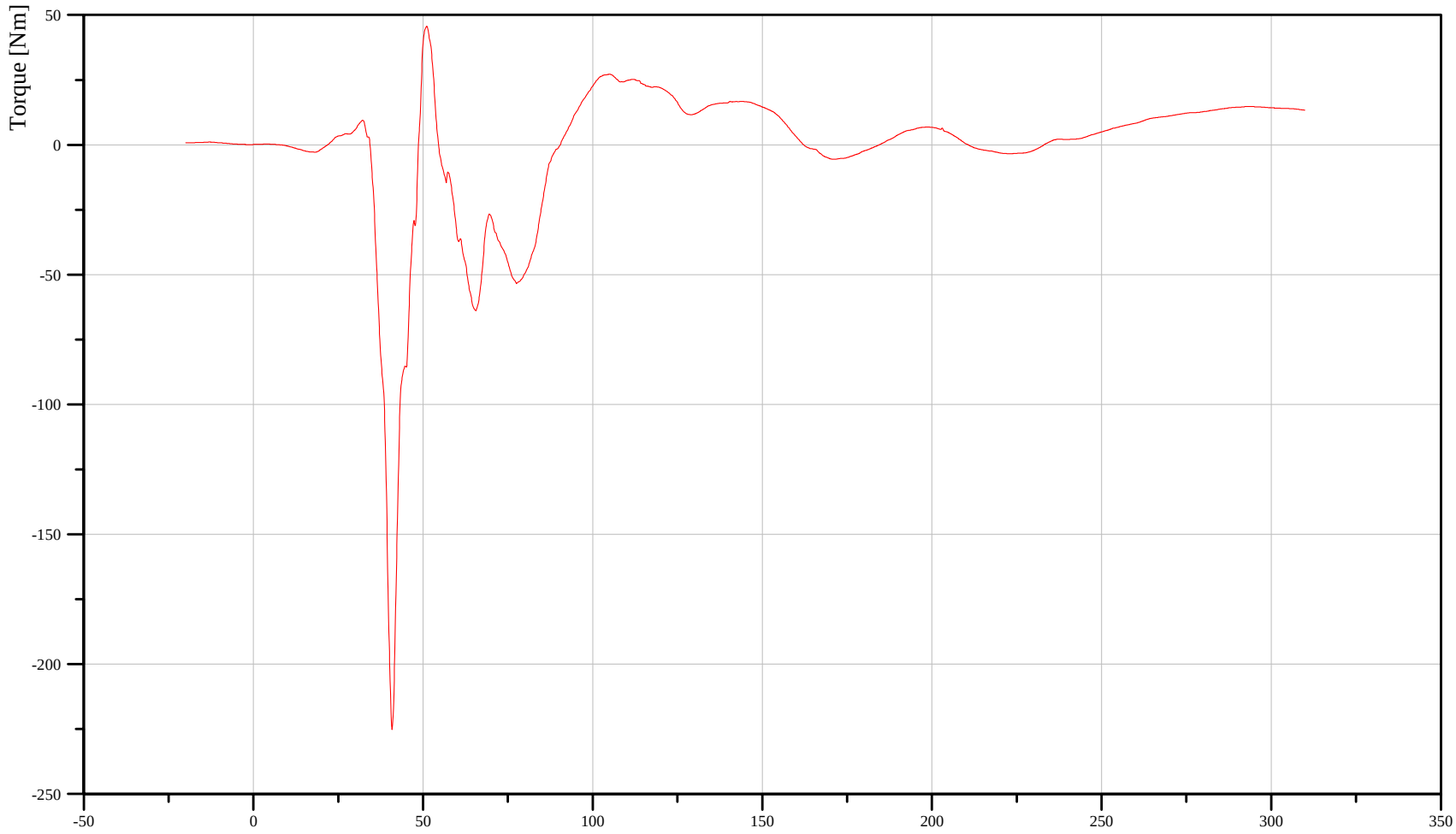
## Target Driver Right Upper Tibia Moment About Y Axis

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 21TIBIRULXH3MOYB

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_600

**Min. Value**
-225.15 Nm at 40.88 ms

**Max. Value**
45.68 Nm at 51.12 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

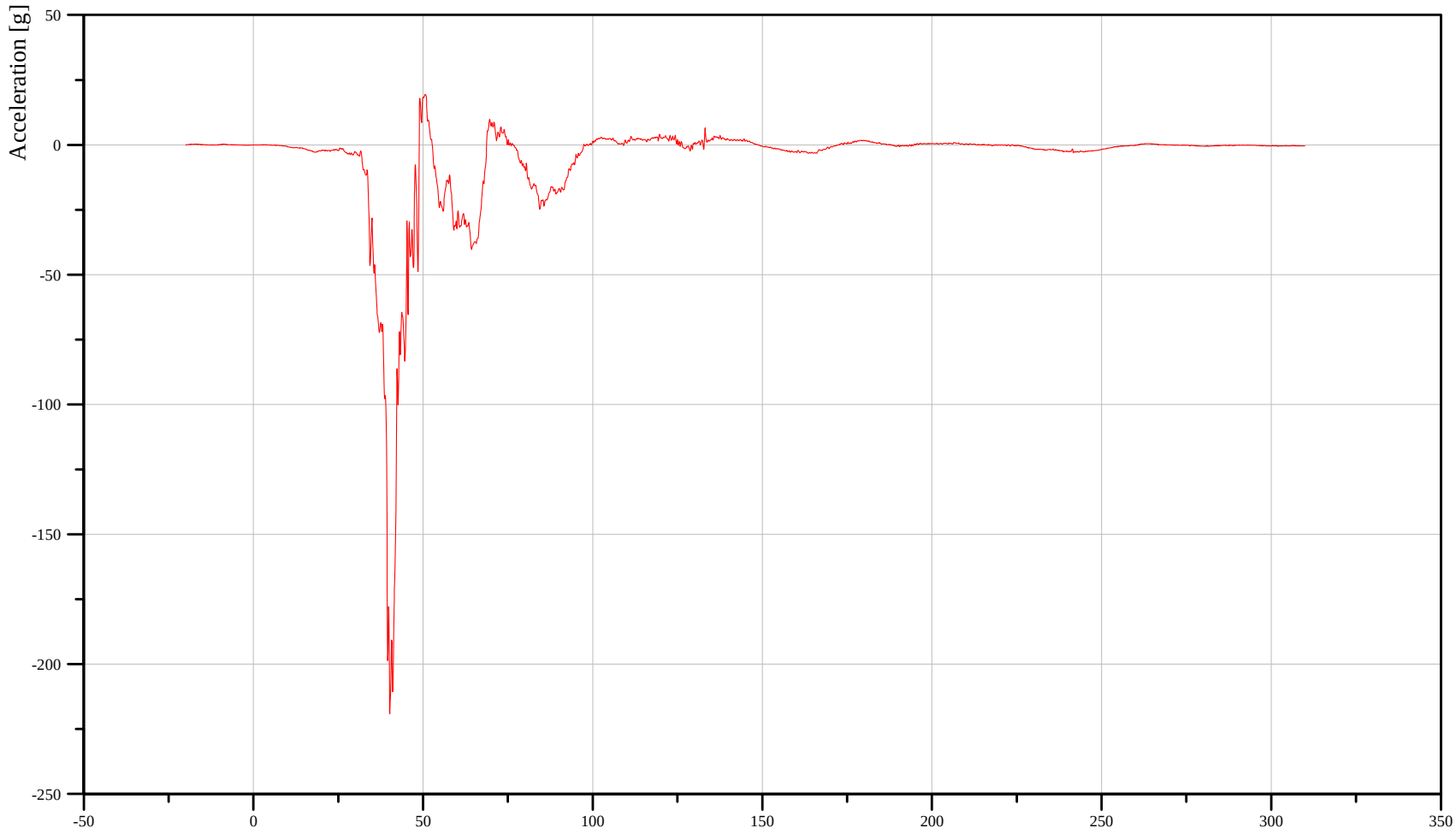
## Target Driver Right Tibia X-Axis Acceleration

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 21TIBIRILXH3ACXA

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_1000

**Min. Value**
-219.06 g at 40.24 ms

**Max. Value**
19.41 g at 50.64 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

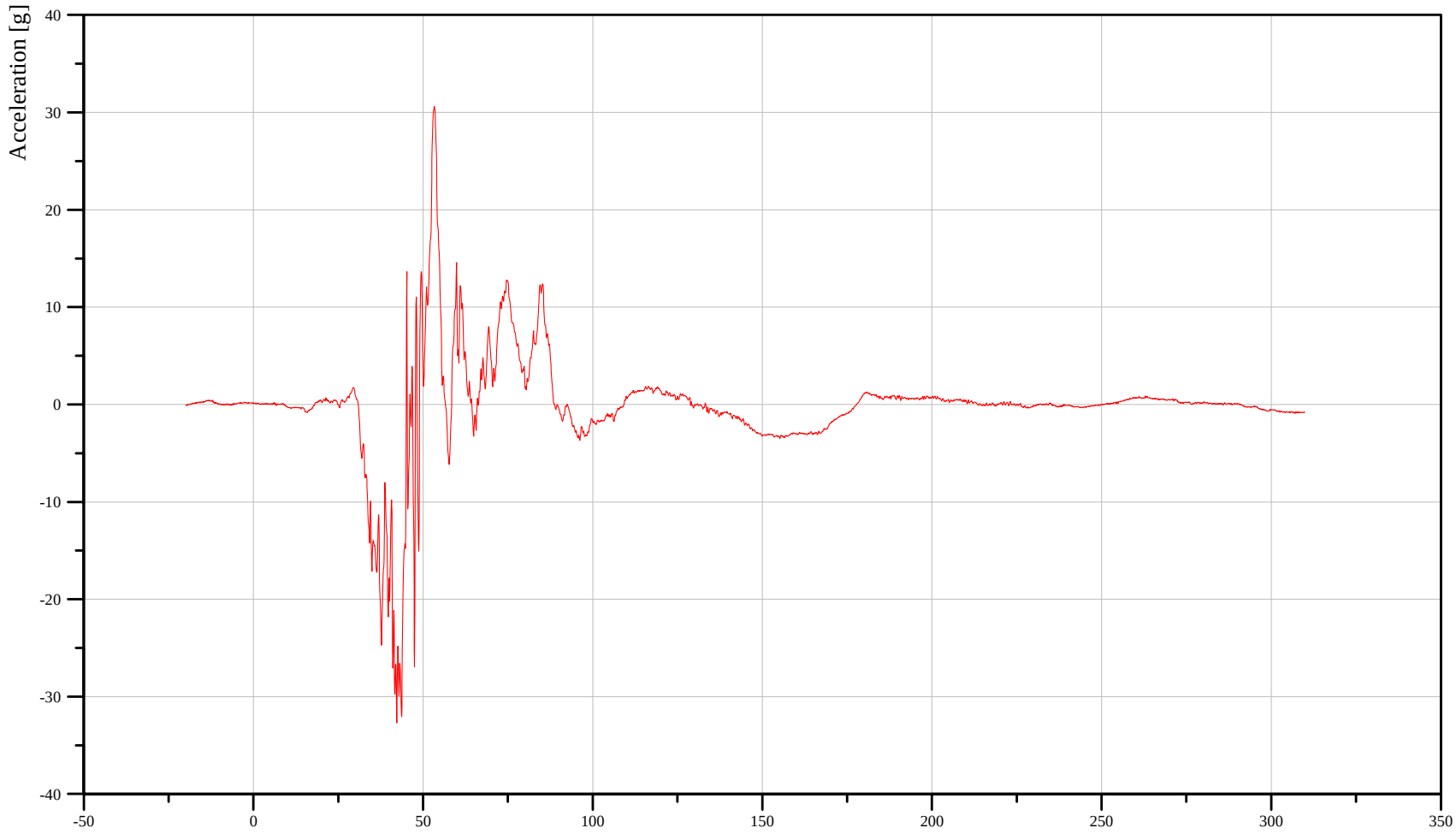
## Target Driver Right Tibia Y-Axis Acceleration

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 21TIBIRILXH3ACYA

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_1000

**Min. Value**
-32.70 g at 42.24 ms

**Max. Value**
30.61 g at 53.36 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

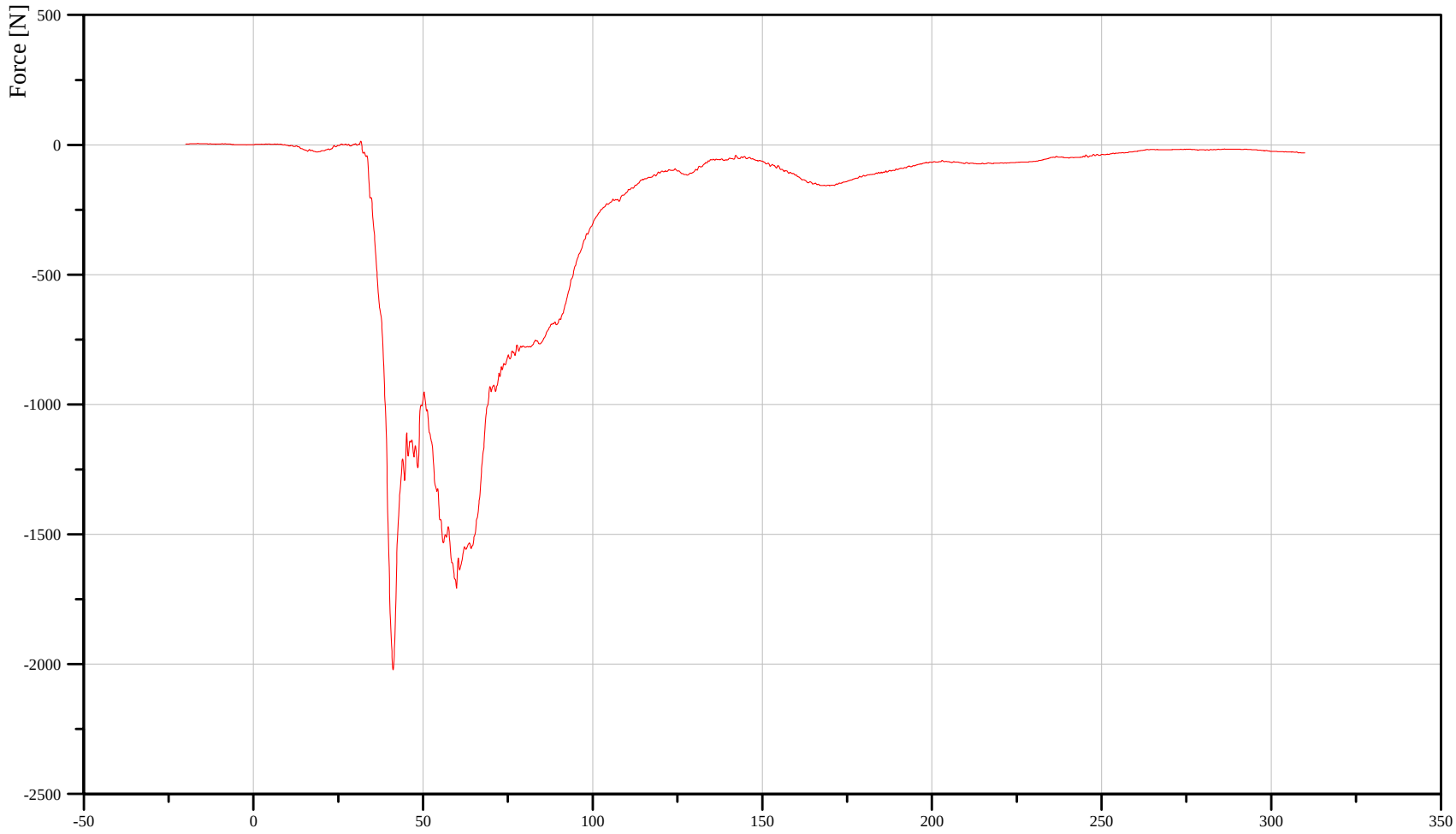
## Target Driver Right Lower Tibia X-Axis Force

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

21TIBIRLLXH3FOXB

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_600

**Min. Value**
-2,021.38 N at 41.20 ms

**Max. Value**
14.25 N at 31.68 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

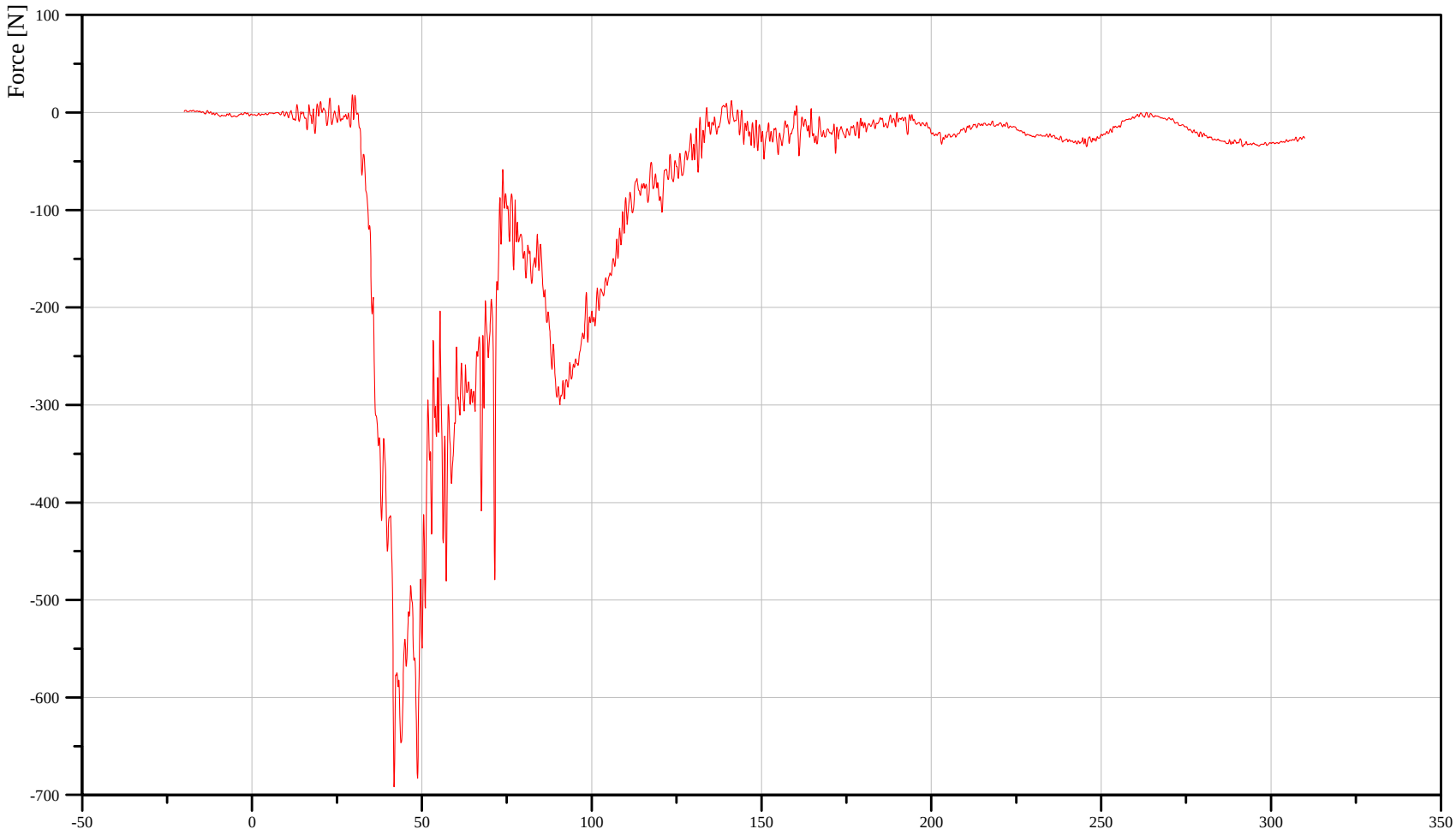
## Target Driver Right Lower Tibia Y-Axis Force

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

21TIBIRLLXH3FOYB

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_600

**Min. Value**
-691.69 N at 41.84 ms

**Max. Value**
18.33 N at 29.52 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

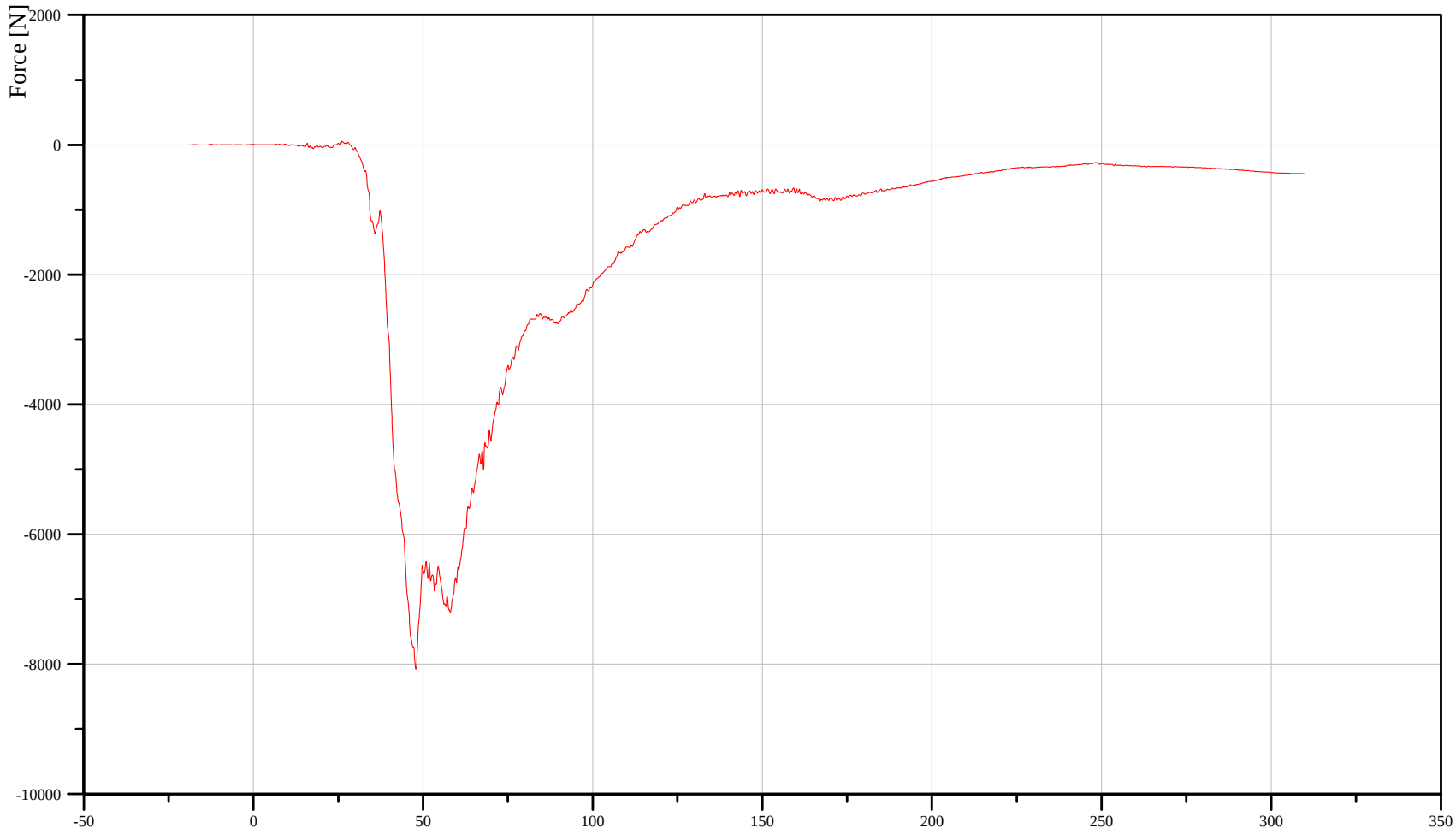
Target Driver Right Lower Tibia Z-Axis Force

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

21TIBIRLLXH3FOZB

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_600

**Min. Value**
-8,073.90 N at 47.92 ms

**Max. Value**
55.48 N at 26.16 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

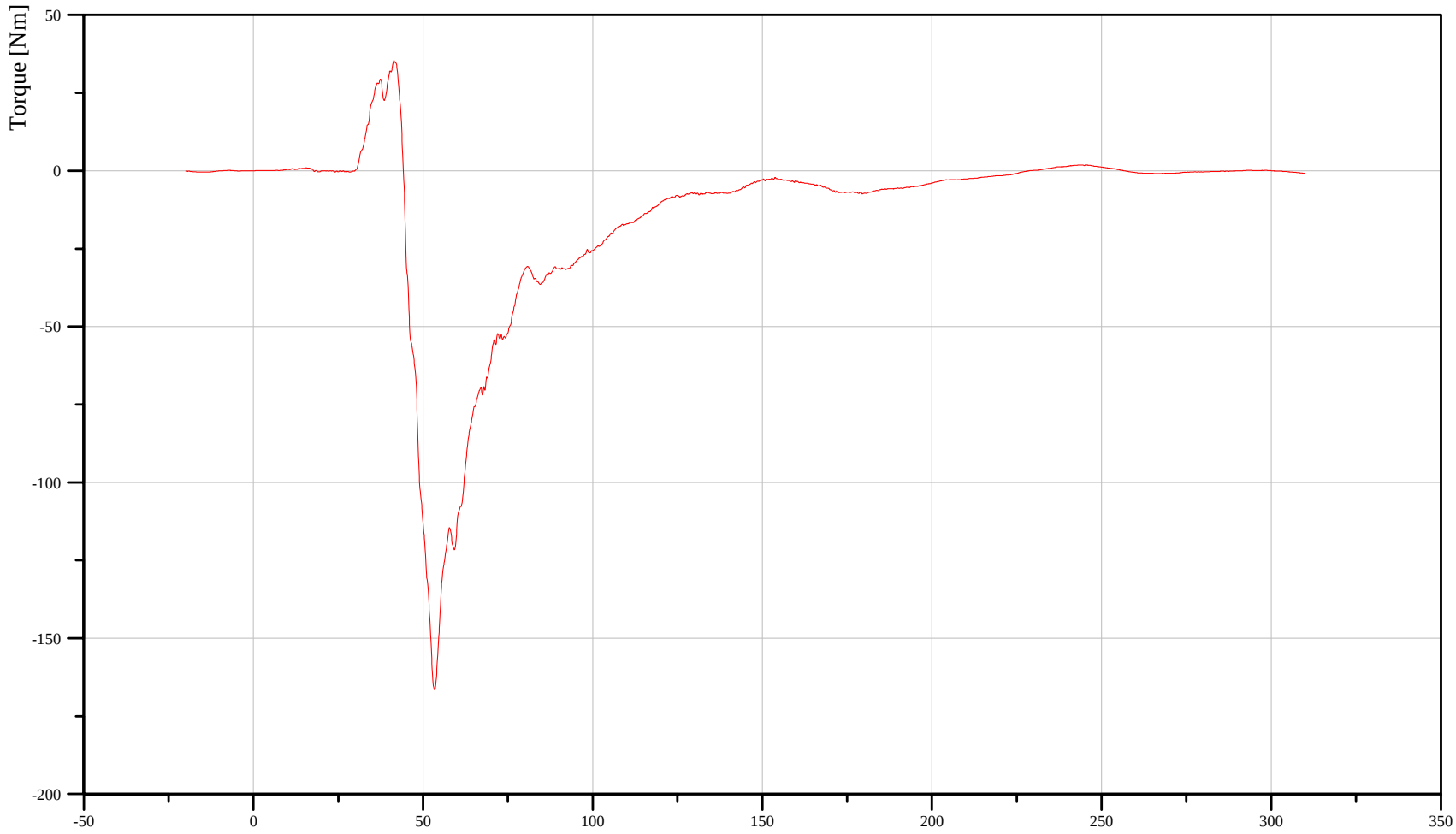
## Target Driver Right Lower Tibia Moment About X Axis

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

21TIBIRLLXH3MOXB

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_600

**Min. Value**
-166.55 Nm at 53.44 ms

**Max. Value**
35.35 Nm at 41.44 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

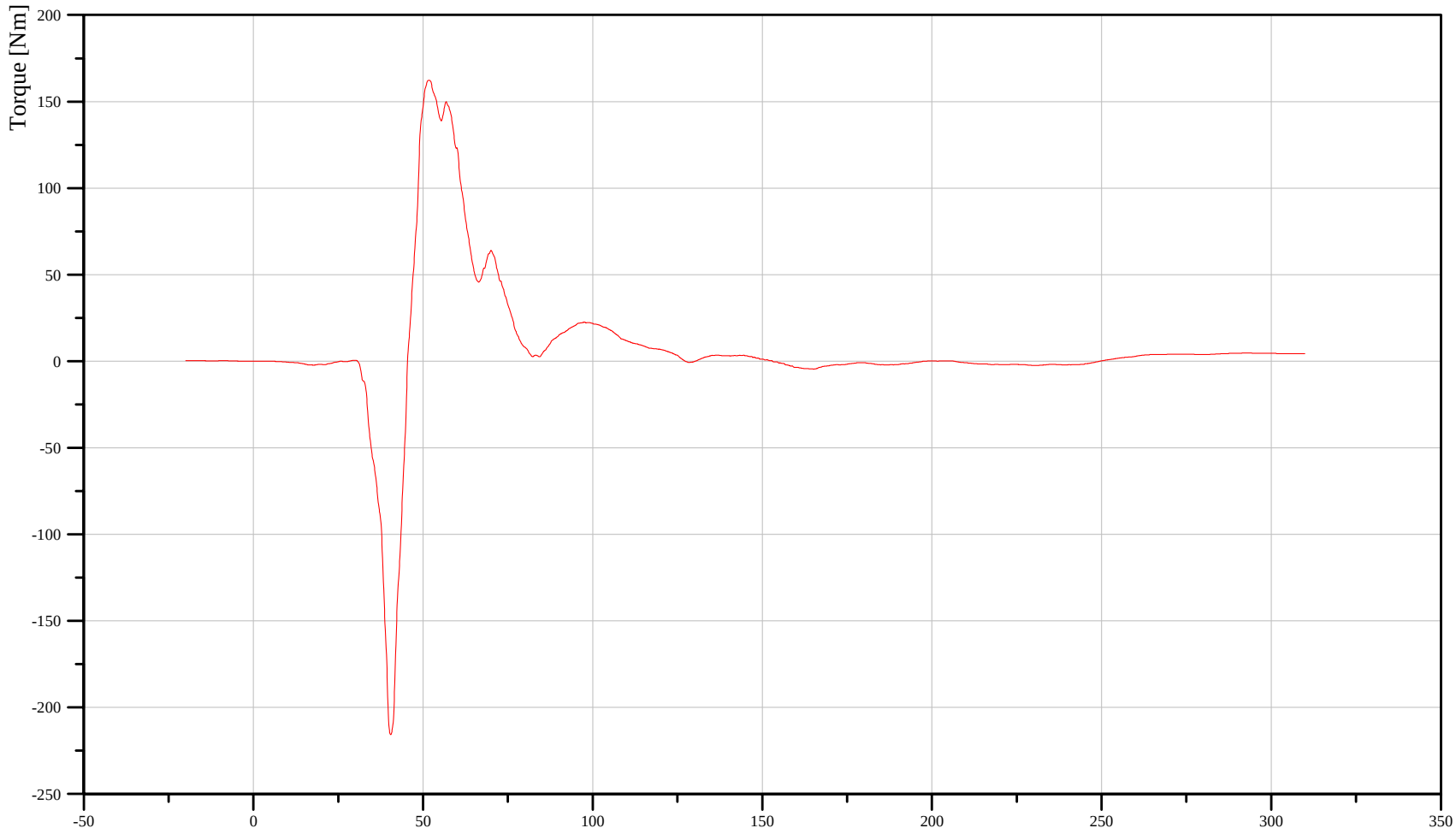
## Target Driver Right Lower Tibia Moment About Y Axis

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

21TIBIRLLXH3MOYB

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_600

**Min. Value**
-215.72 Nm at 40.48 ms

**Max. Value**
162.31 Nm at 51.84 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

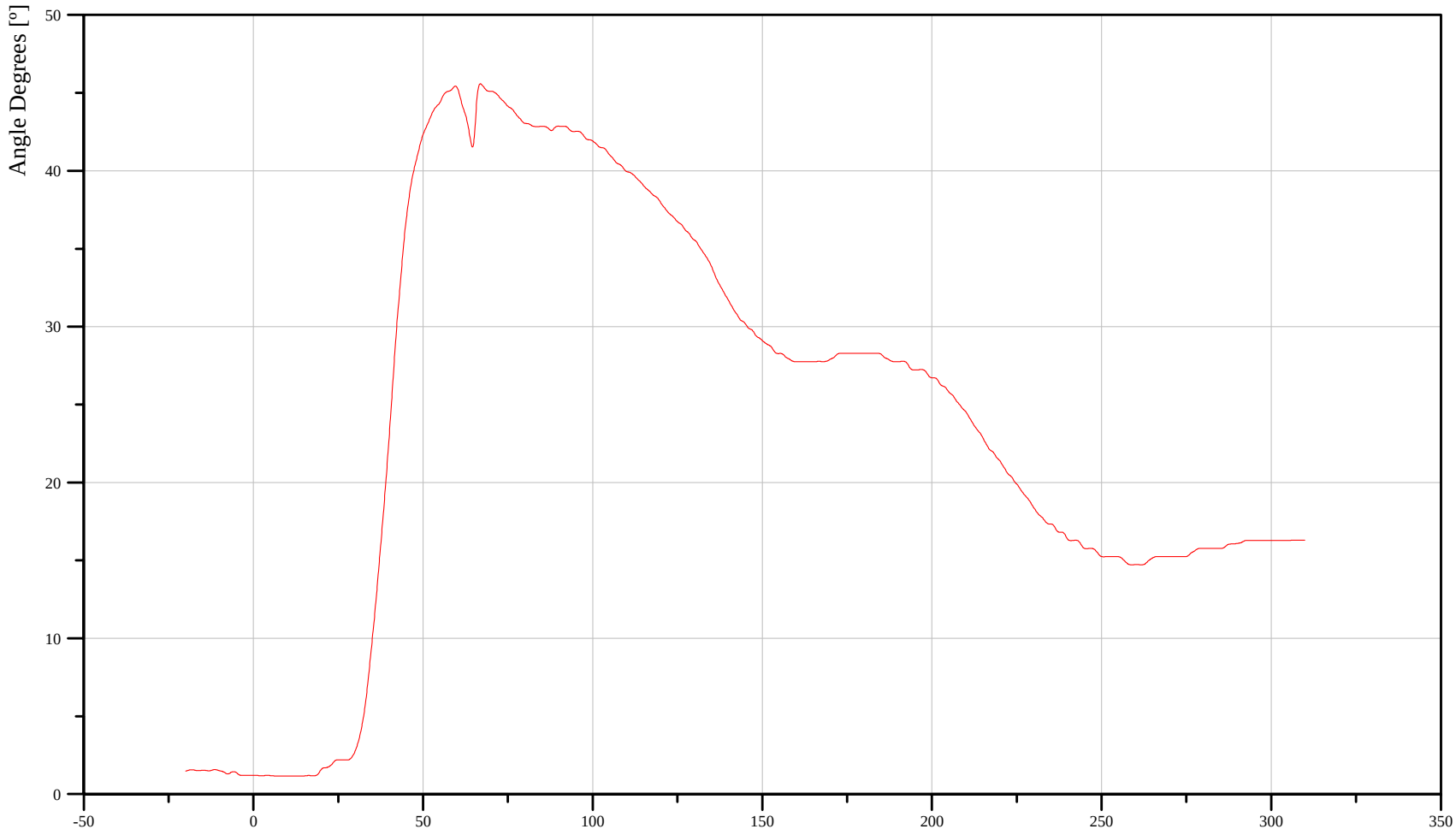
Target Driver Right Foot X-Axis Rotation

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

21FOOTRILXH3ANXC

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_180

**Min. Value**
1.16 ° at 13.60 ms

**Max. Value**
45.58 ° at 66.88 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

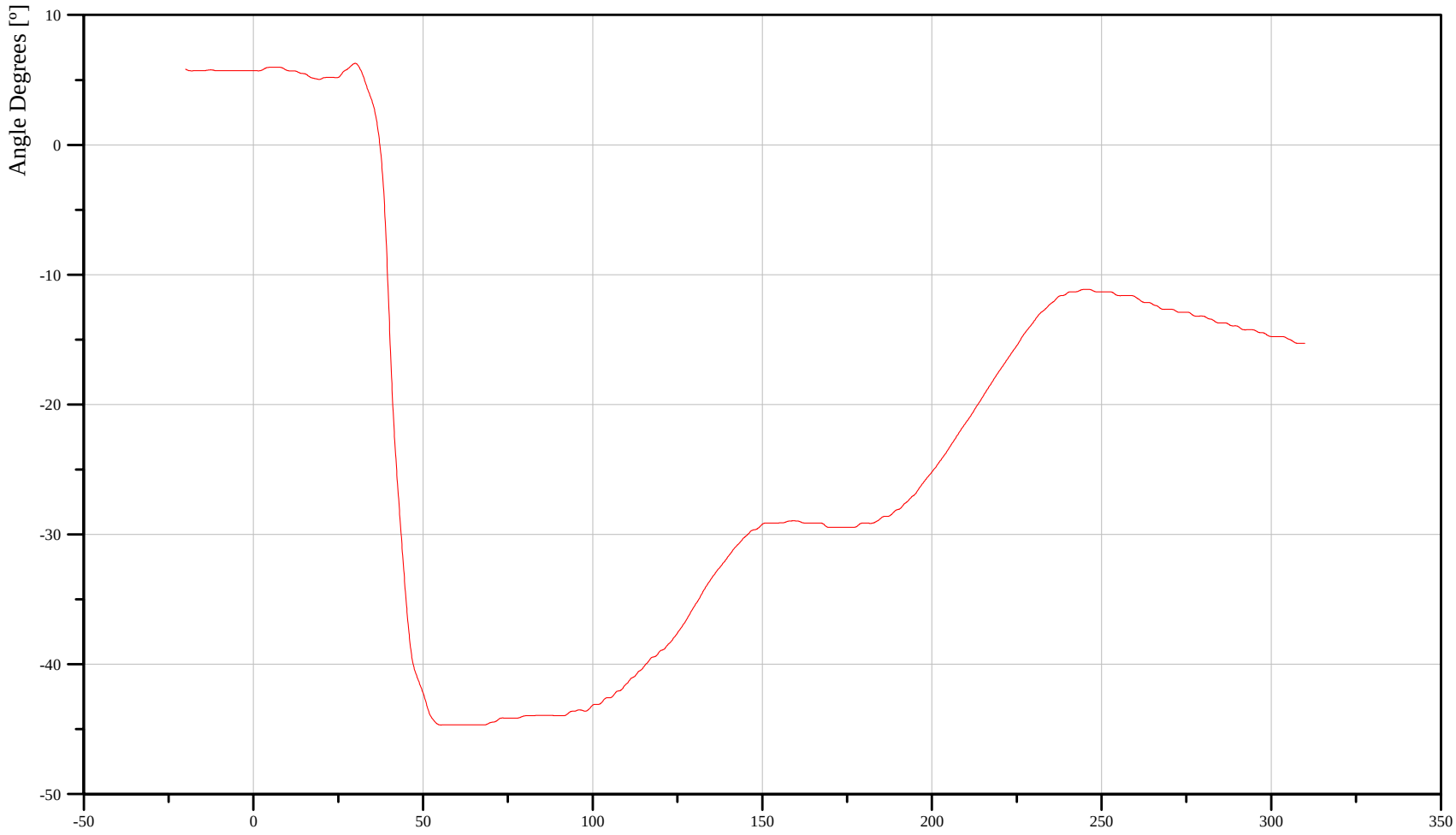
Target Driver Right Foot Y-Axis Rotation

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

21FOOTRILXH3ANYC

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_180

**Min. Value**
-44.67 ° at 55.28 ms

**Max. Value**
6.27 ° at 30.00 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

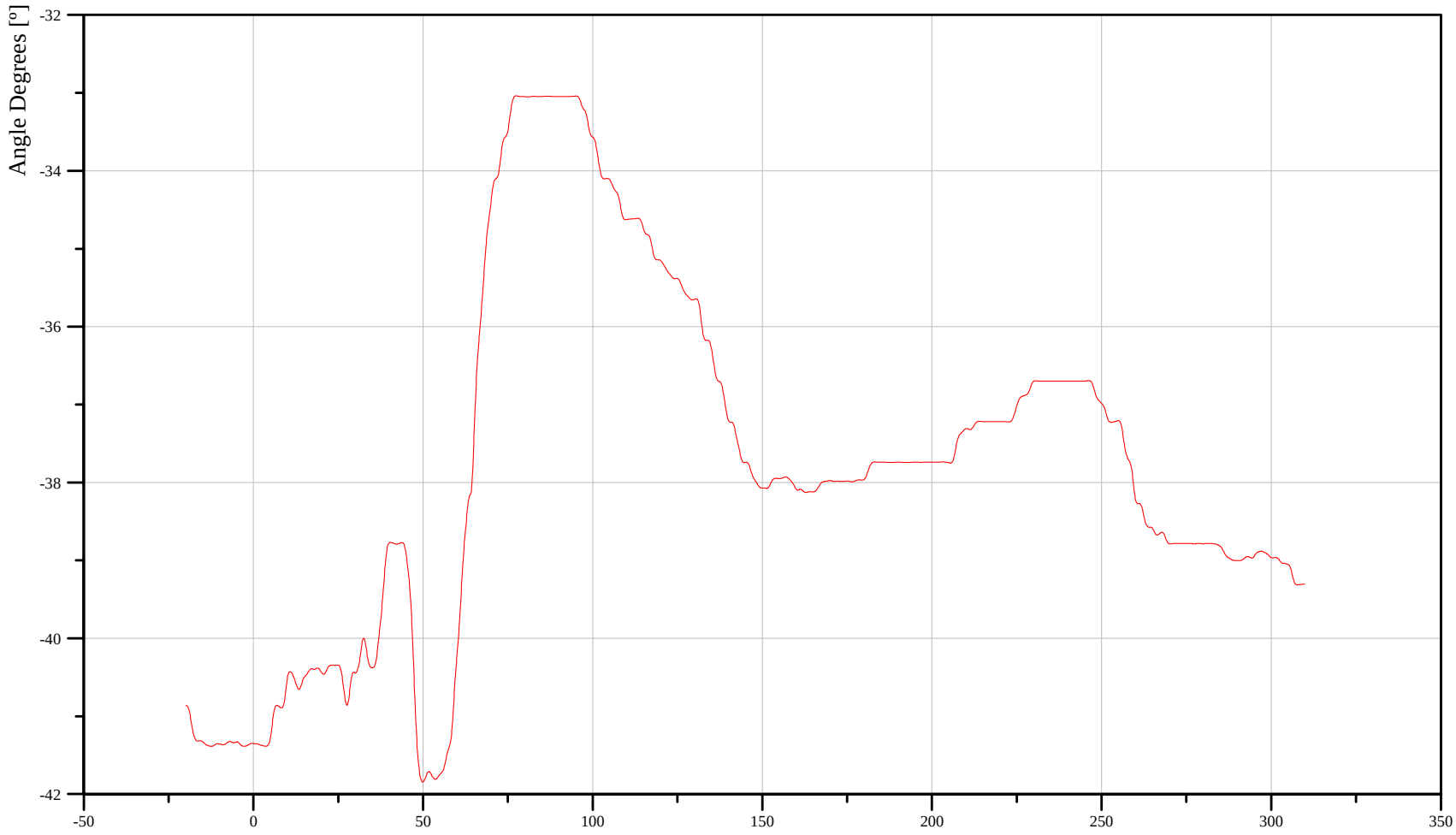
Target Driver Right Foot Z-Axis Rotation

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

21FOOTRILXH3ANZC

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_180

**Min. Value**
-41.84 ° at 49.92 ms

**Max. Value**
-33.04 ° at 77.44 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

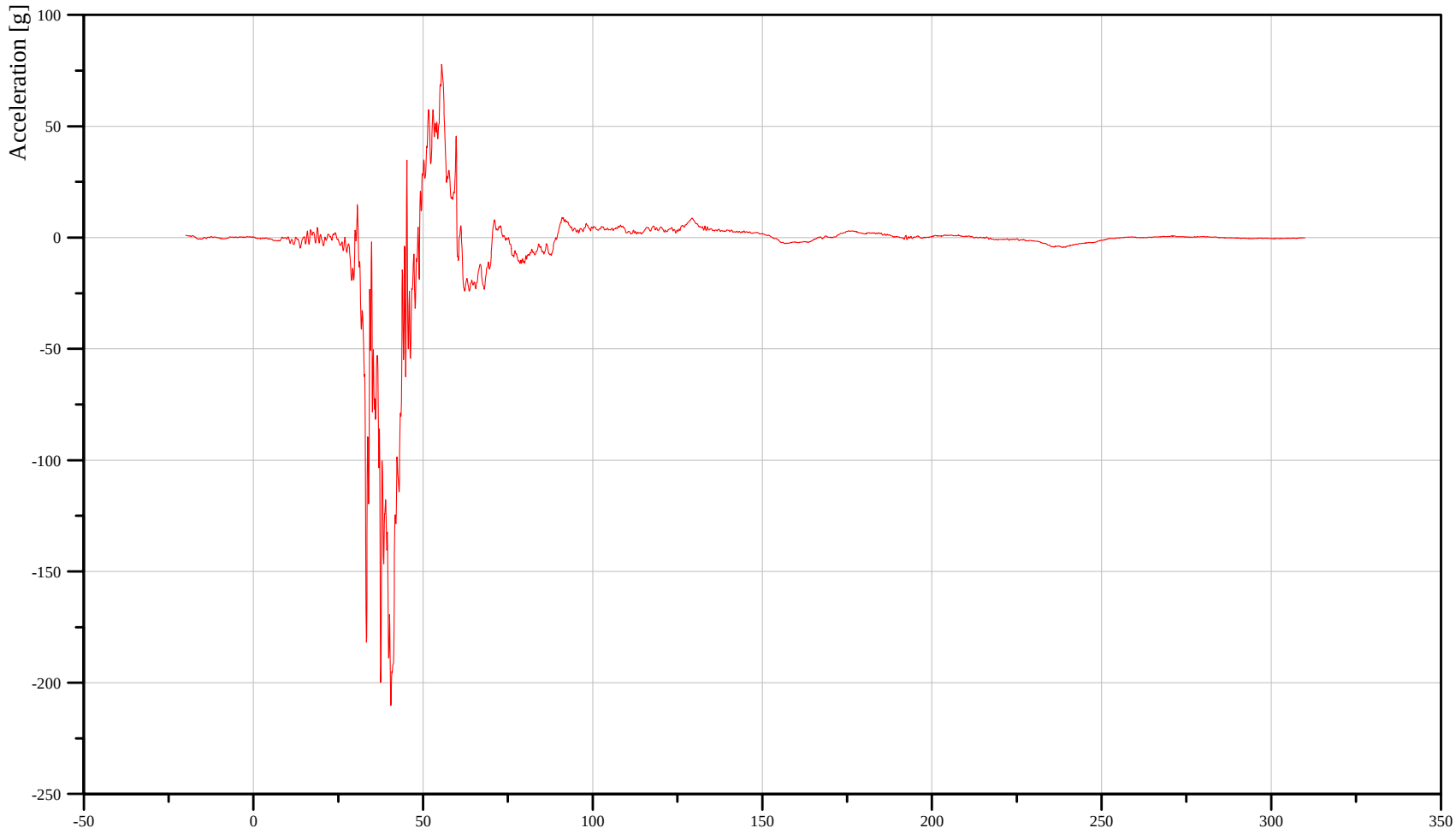
Target Driver Right Foot X-Axis Acceleration

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

21FOOTRILXH3ACXA

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_1000

**Min. Value**
-210.20 g at 40.48 ms

**Max. Value**
77.82 g at 55.52 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

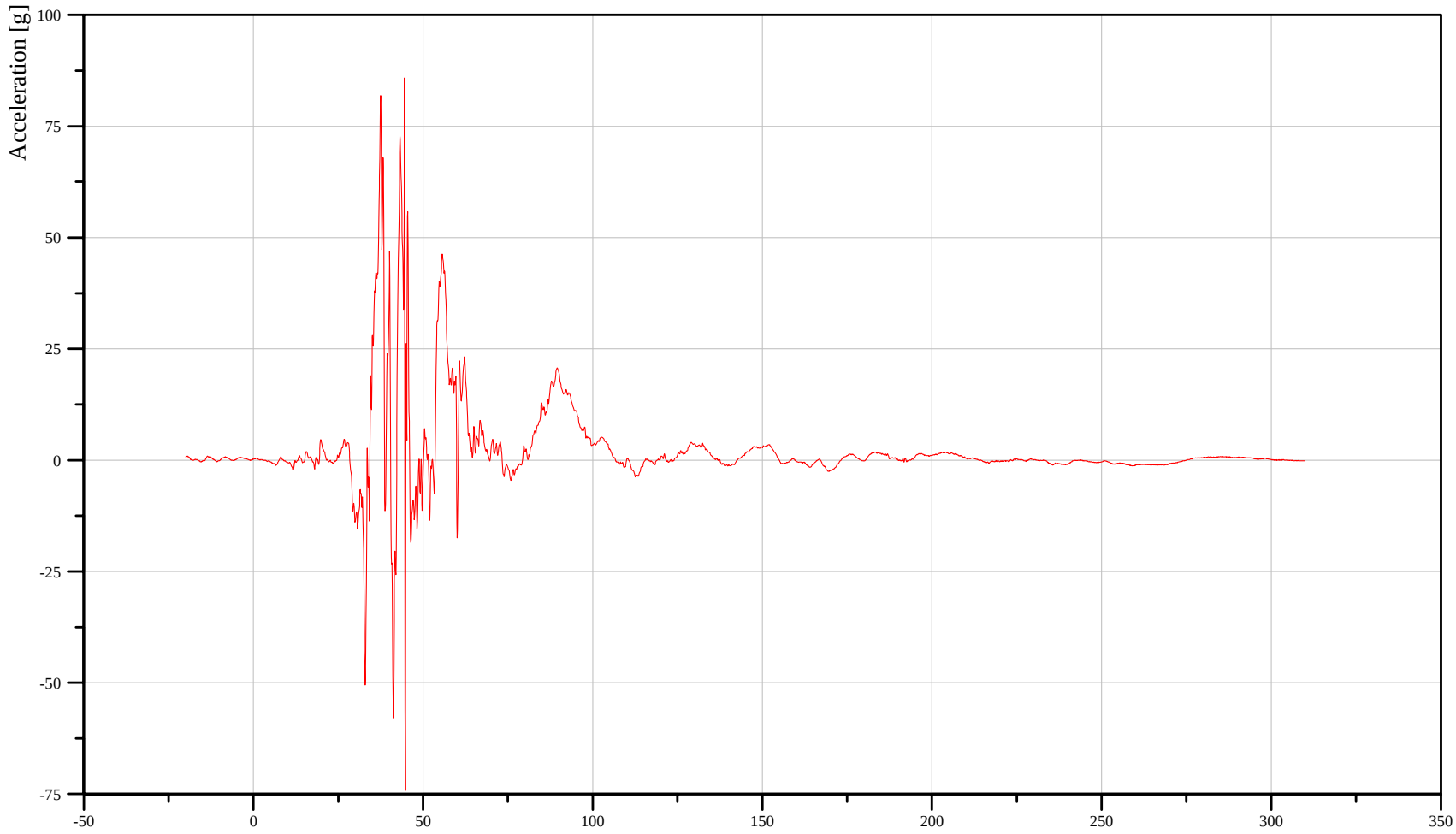
Target Driver Right Foot Y-Axis Acceleration

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

21FOOTRILXH3ACYA

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_1000

**Min. Value**
-74.18 g at 44.80 ms

**Max. Value**
85.88 g at 44.48 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

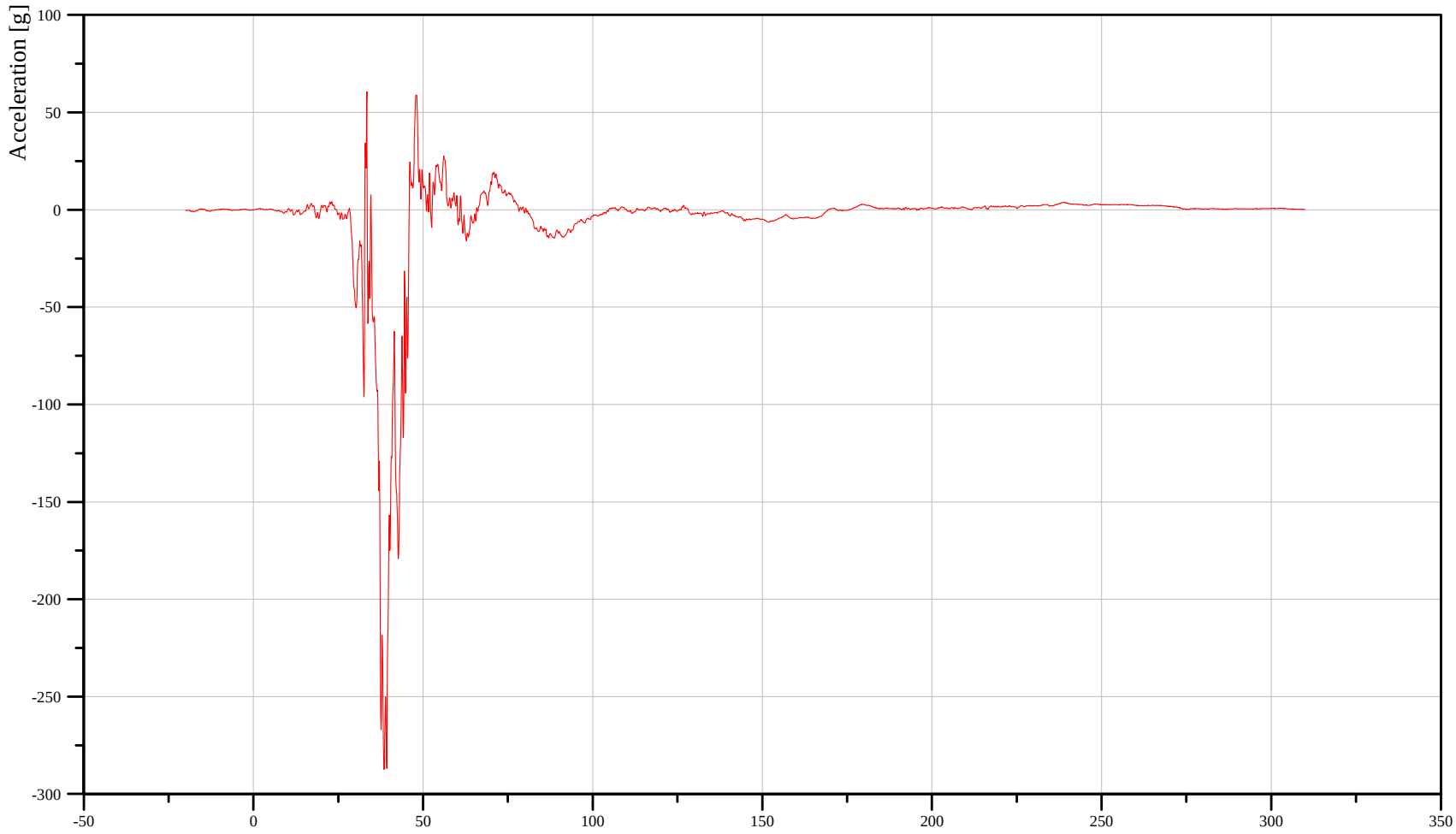
## Target Driver Right Foot Z-Axis Acceleration

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

21FOOTRILXH3ACZA

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_1000

**Min. Value**
-287.42 g at 38.48 ms

**Max. Value**
60.61 g at 33.44 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

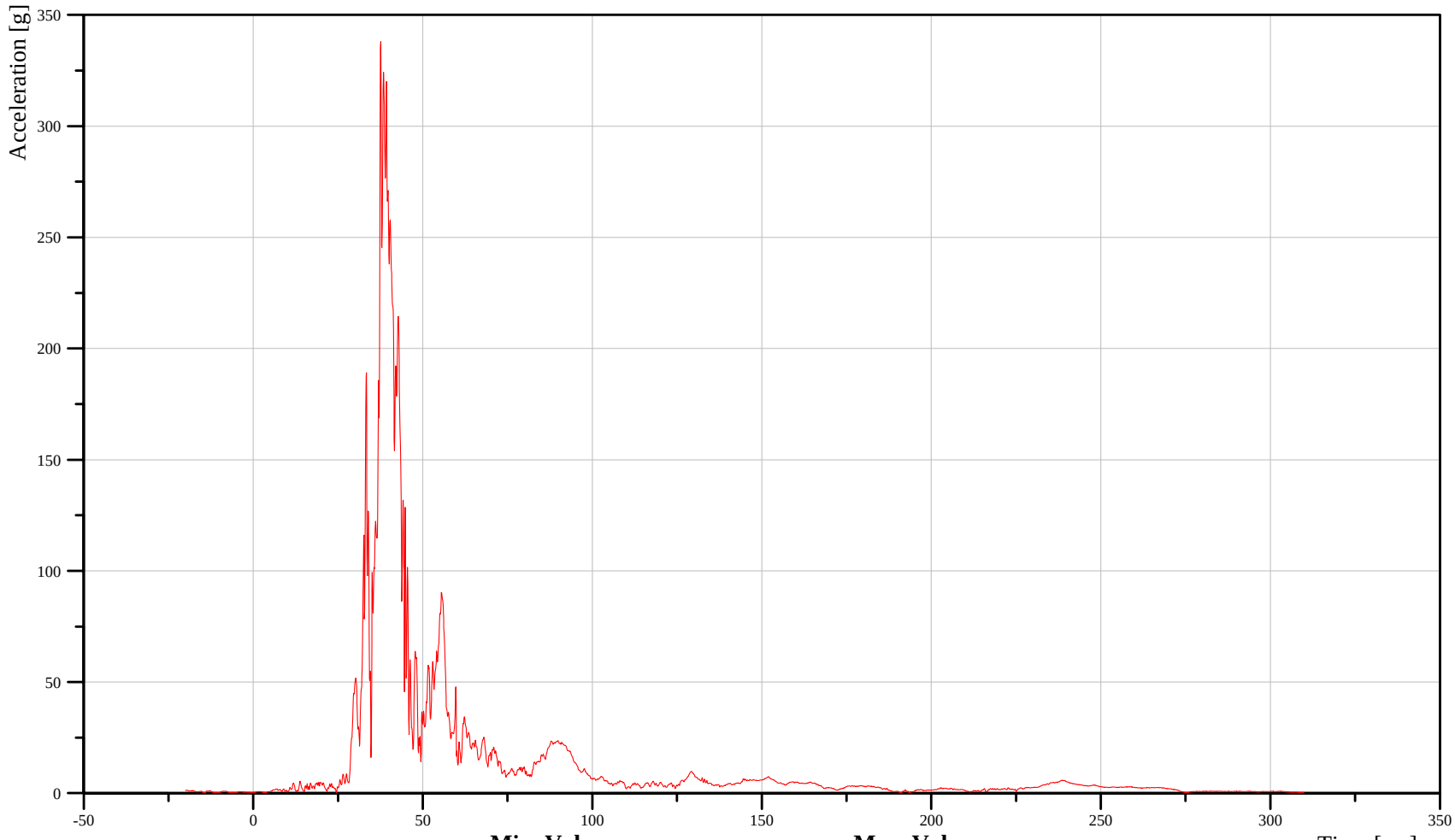
Target Driver Right Foot Resultant Acceleration

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

21FOOTRILXH3ACRA

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_1000

**Min. Value**
0.07 g at -14.24 ms

**Max. Value**
338.07 g at 37.60 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

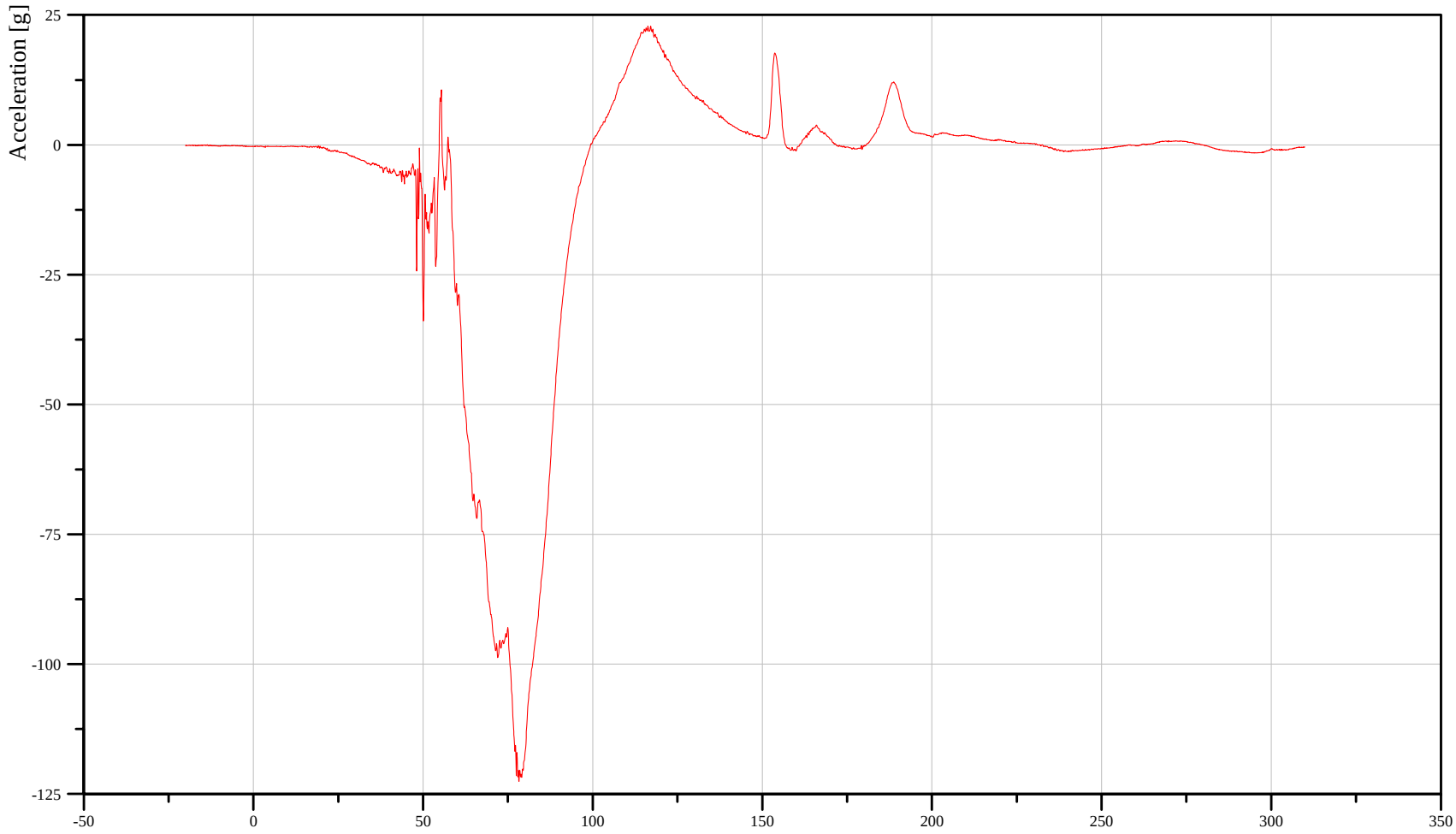
## Target Passenger Head CG X-Axis Acceleration

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 23HEADCG00HFACXA

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_1000

**Min. Value**
-122.57 g at 78.32 ms

**Max. Value**
22.83 g at 116.32 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

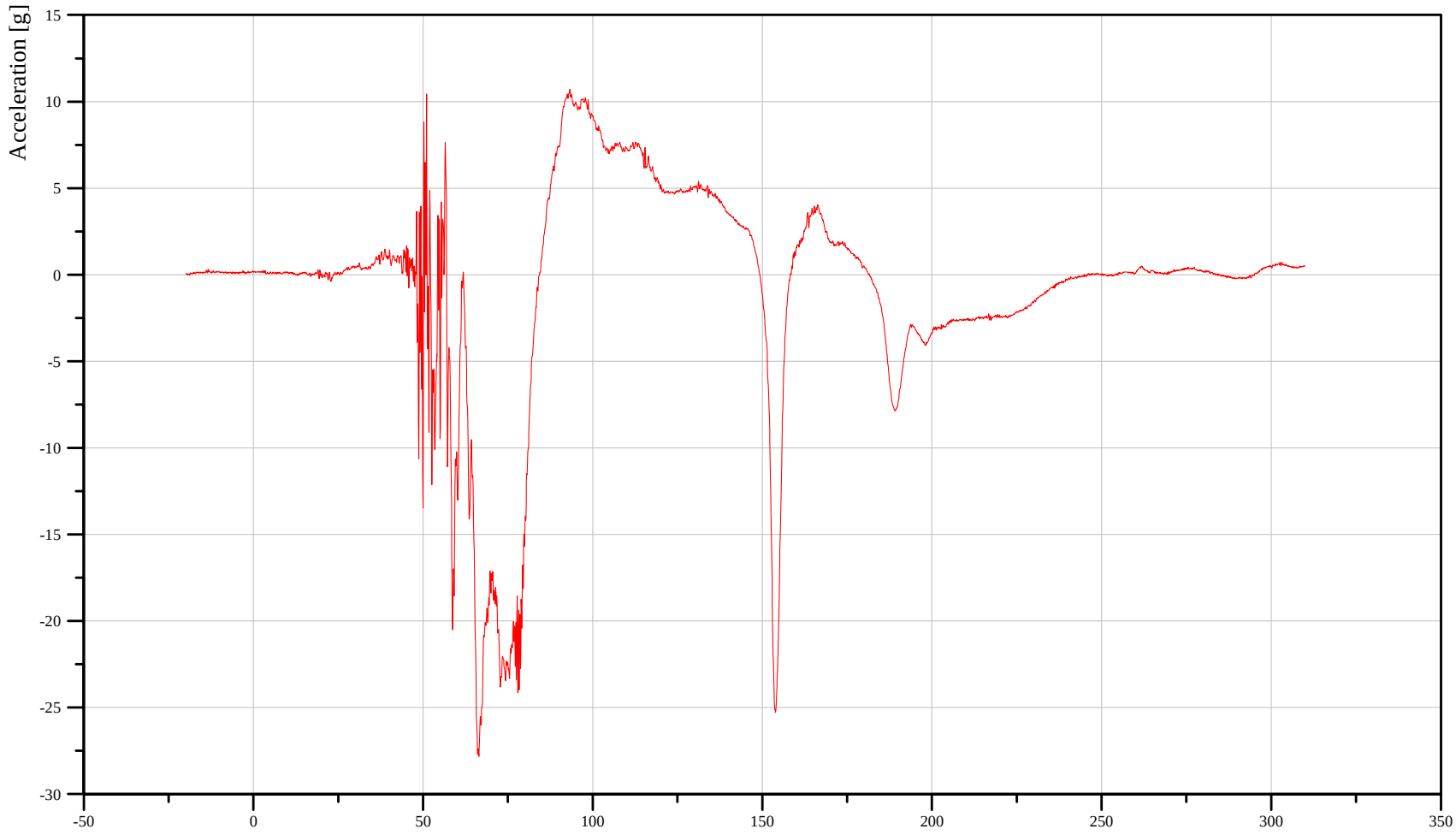
## Target Passenger Head CG Y-Axis Acceleration

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 23HEADCG00HFACYA

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_1000

**Min. Value**
-27.82 g at 66.40 ms

**Max. Value**
10.72 g at 93.28 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

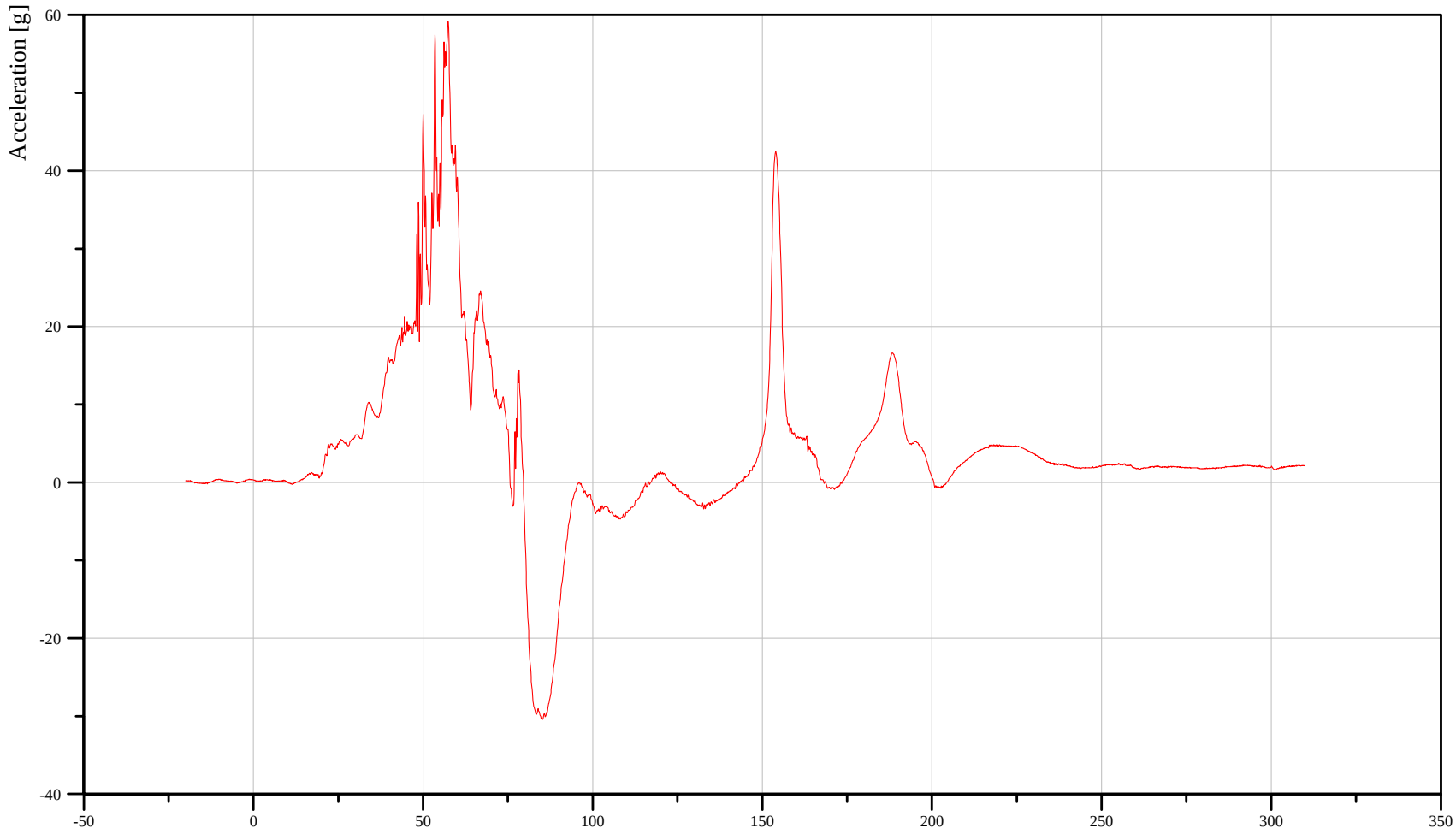
## Target Passenger Head CG Z-Axis Acceleration

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 23HEADCG00HFACZA

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_1000

**Min. Value**
-30.43 g at 85.20 ms

**Max. Value**
59.21 g at 57.36 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

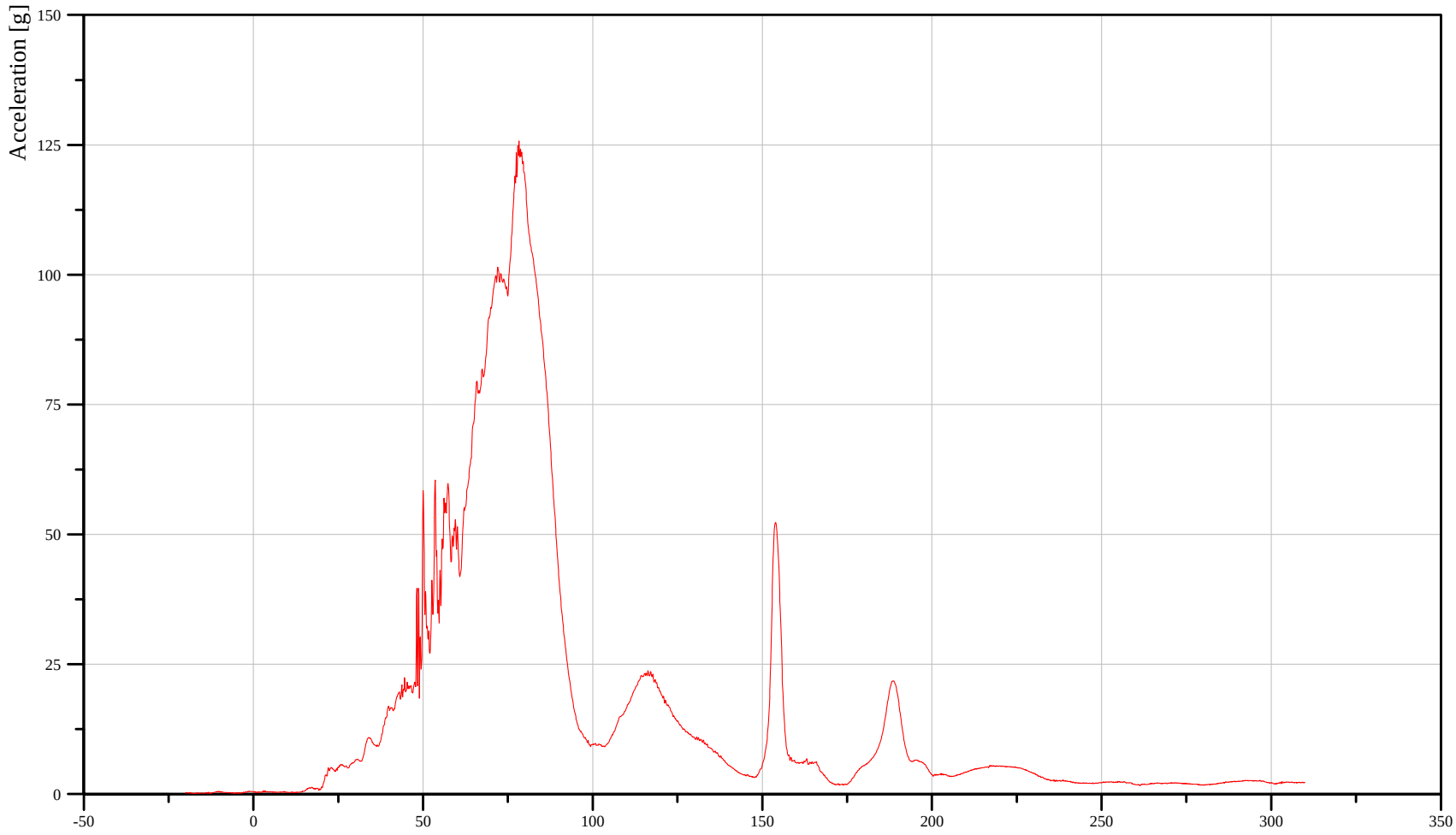
## Target Passenger Head CG Resultant Acceleration

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 23HEADCG00HFACRA

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_1000

**Min. Value**
0.09 g at -17.20 ms

**Max. Value**
125.73 g at 78.32 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

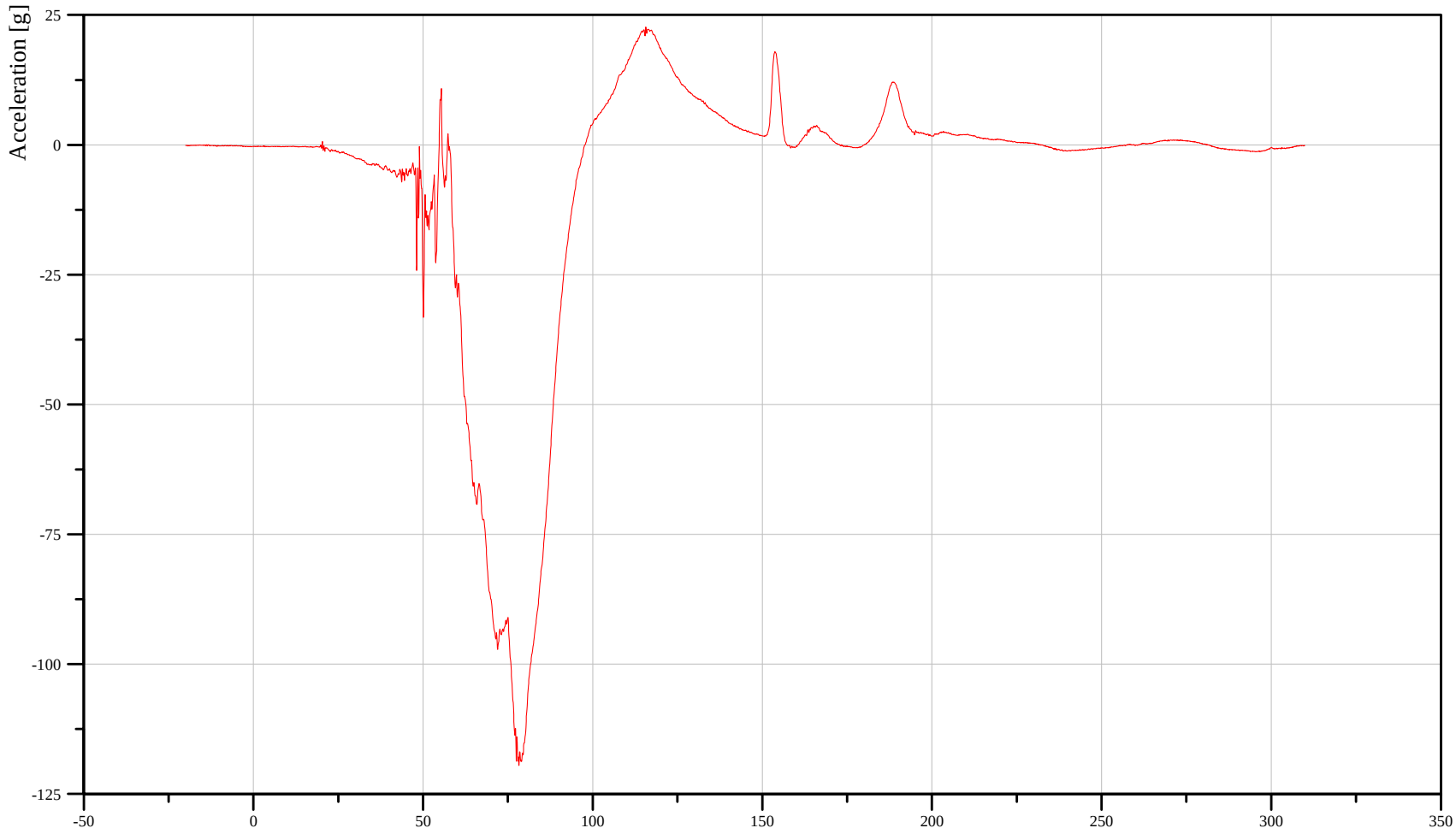
## Target Passenger Redundant Head CG X-Axis Acceleration

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 23HEADCGRDHFACXA

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_1000

**Min. Value**
-119.51 g at 78.32 ms

**Max. Value**
22.69 g at 115.68 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

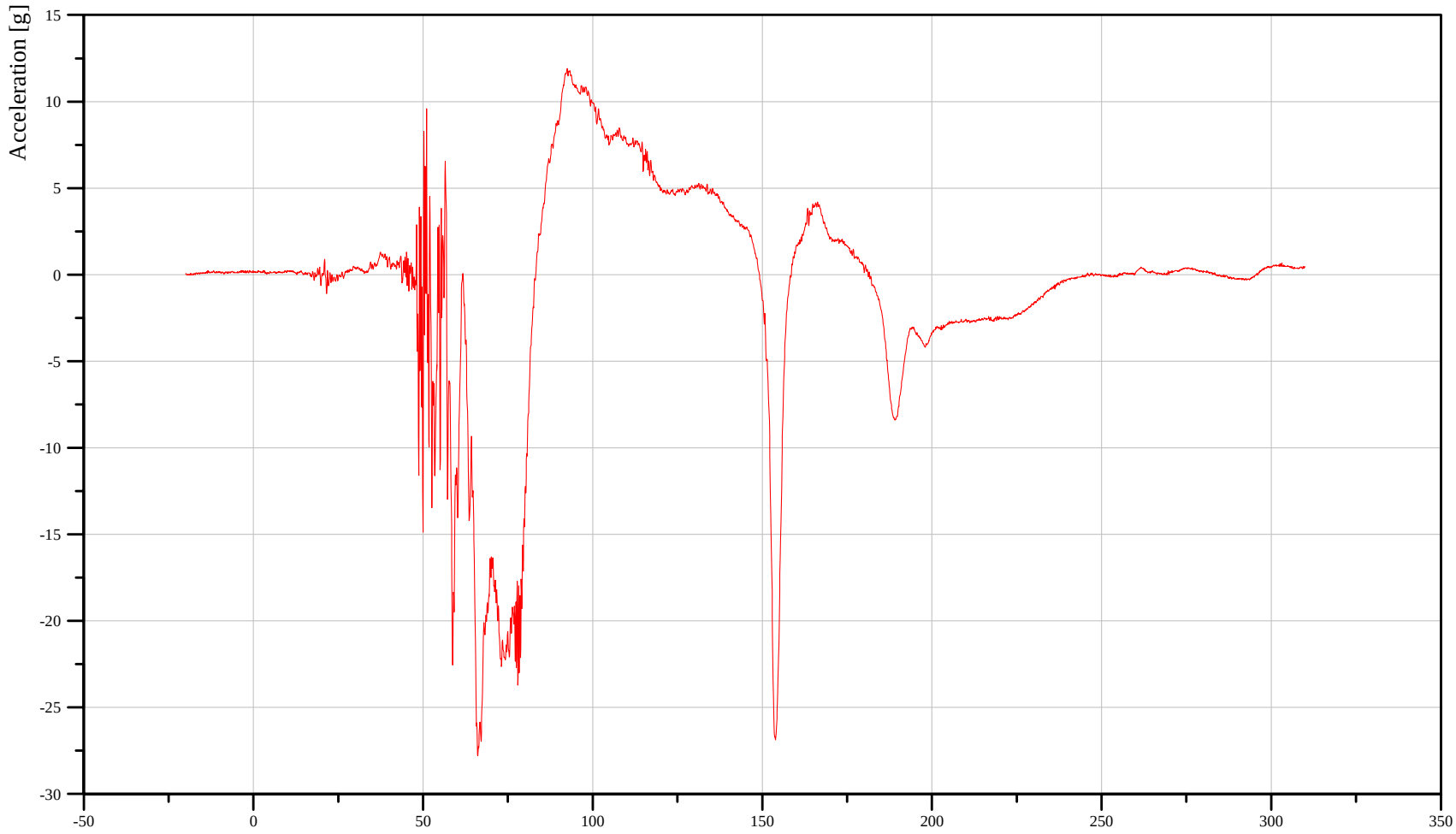
## Target Passenger Redundant Head CG Y-Axis Acceleration

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 23HEADCGRDHFACYA

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_1000

**Min. Value**
-27.80 g at 66.16 ms

**Max. Value**
11.91 g at 92.48 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

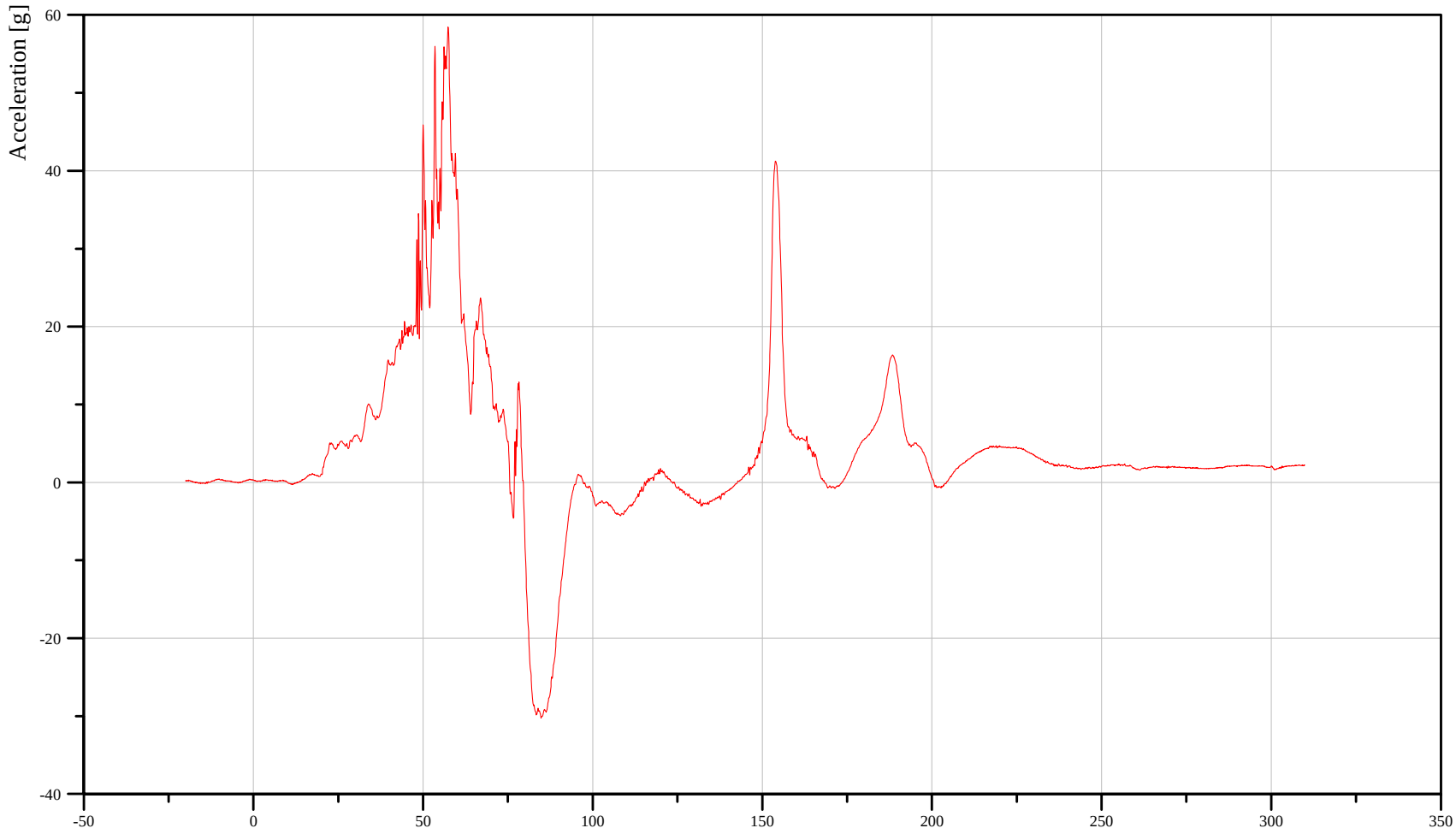
## Target Passenger Redundant Head CG Z-Axis Acceleration

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 23HEADCGRDHFACZA

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_1000

**Min. Value**
-30.25 g at 84.80 ms

**Max. Value**
58.45 g at 57.36 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

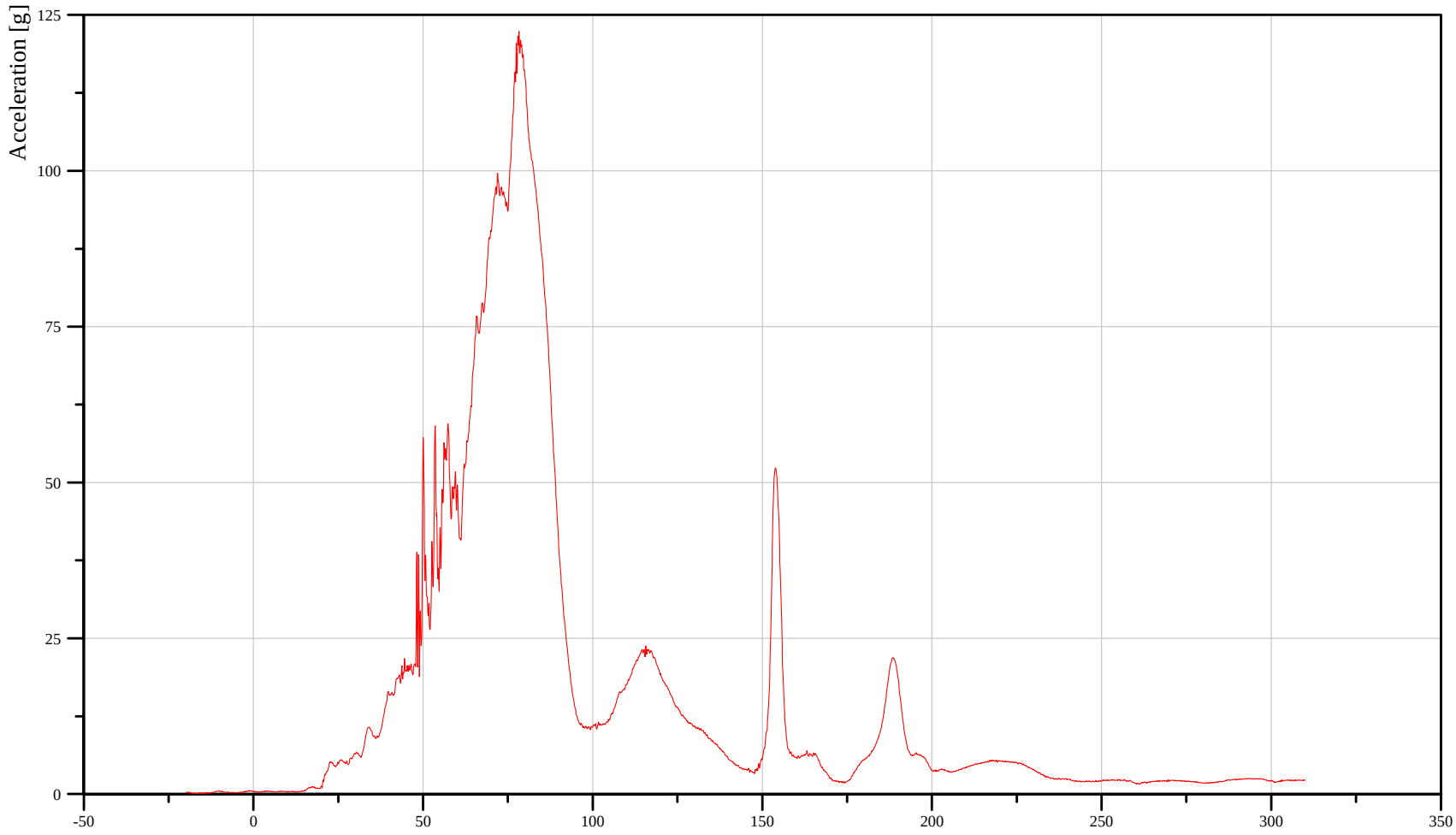
## Target Passenger Redundant Head CG Resultant Acceleration

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 23HEADCGRDHFACRA

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_1000

**Min. Value**
0.07 g at -15.84 ms

**Max. Value**
122.39 g at 78.32 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

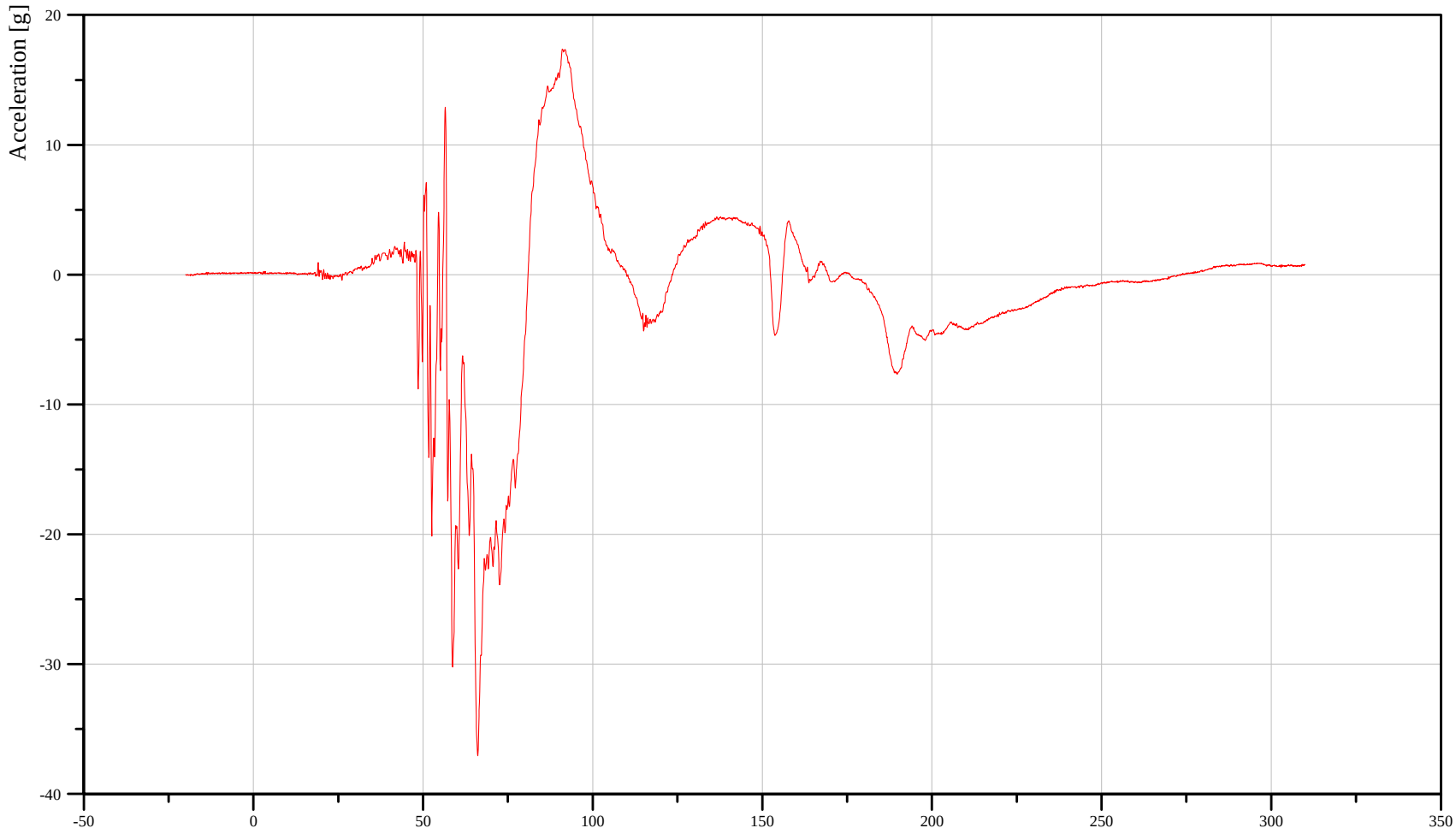
## Target Passenger Head Front Y-Axis Acceleration

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 23HEADFR00HFACYA

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_1000

**Min. Value**
-37.06 g at 66.16 ms

**Max. Value**
17.39 g at 91.04 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

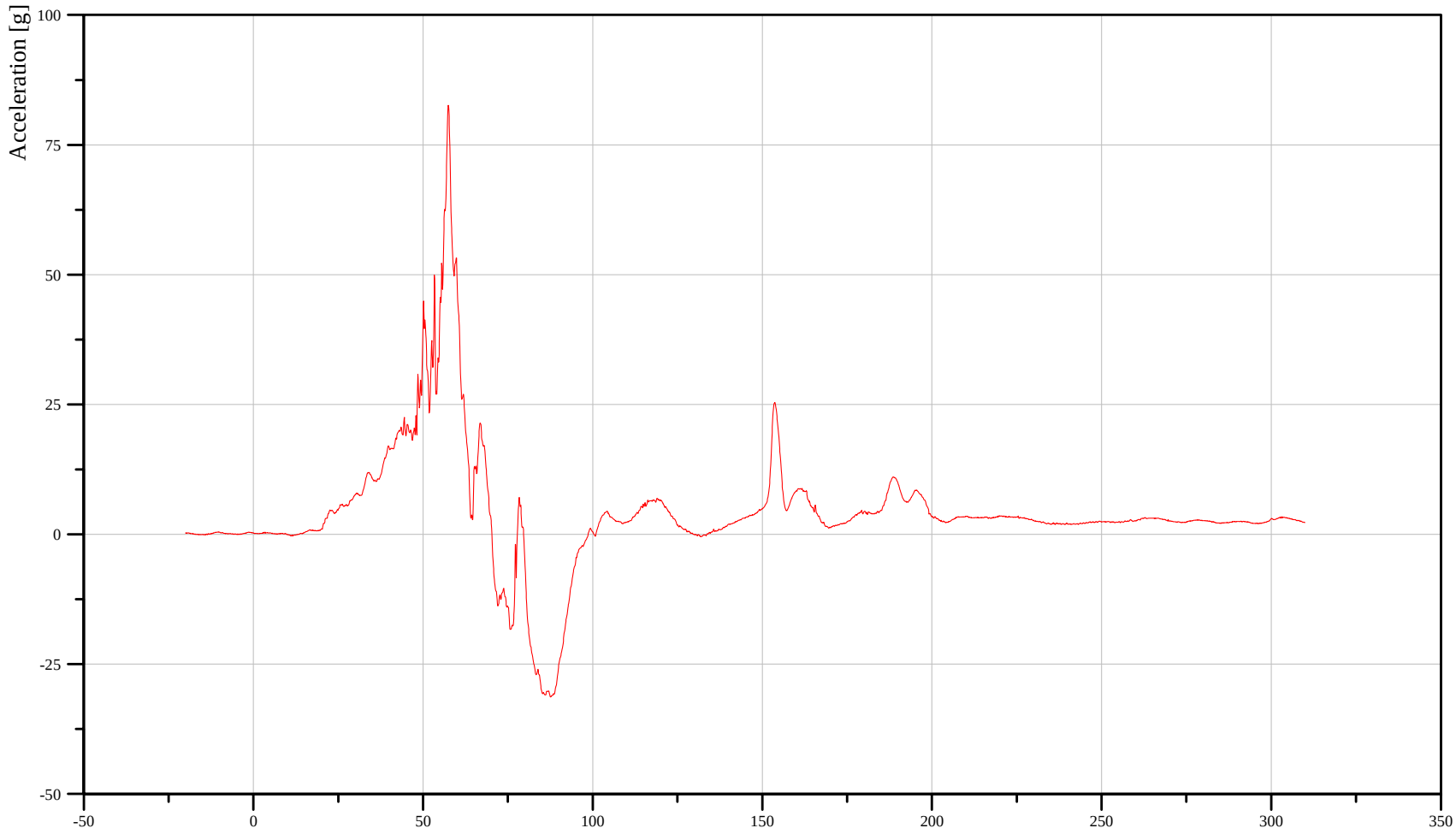
## Target Passenger Head Front Z-Axis Acceleration

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 23HEADFR00HFACZA

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_1000

**Min. Value**
-31.34 g at 87.52 ms

**Max. Value**
82.59 g at 57.44 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

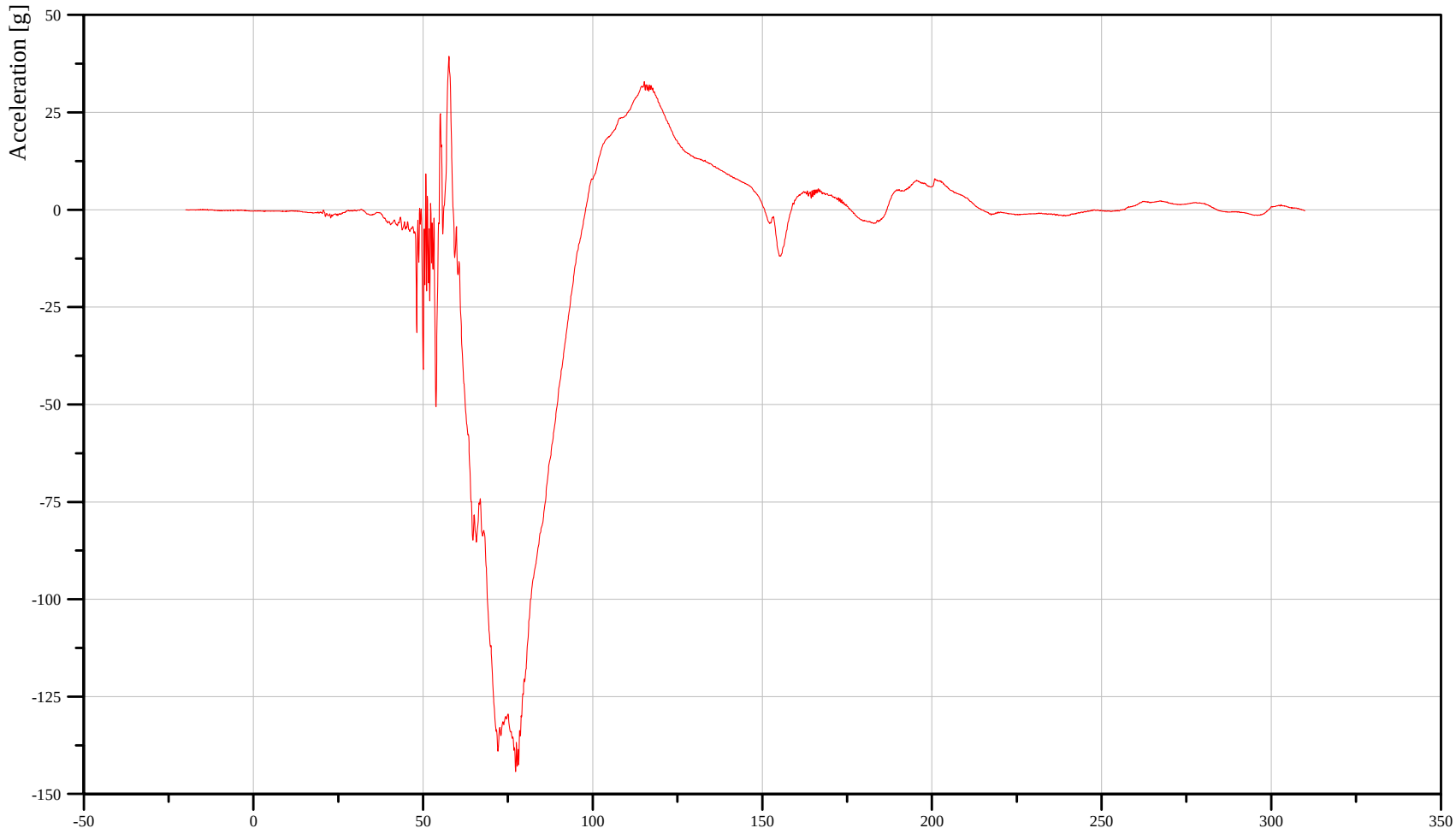
## Target Passenger Head Top X-Axis Acceleration

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 23HEADUP00HFACXA

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_1000

**Min. Value**
-144.28 g at 77.28 ms

**Max. Value**
39.42 g at 57.60 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

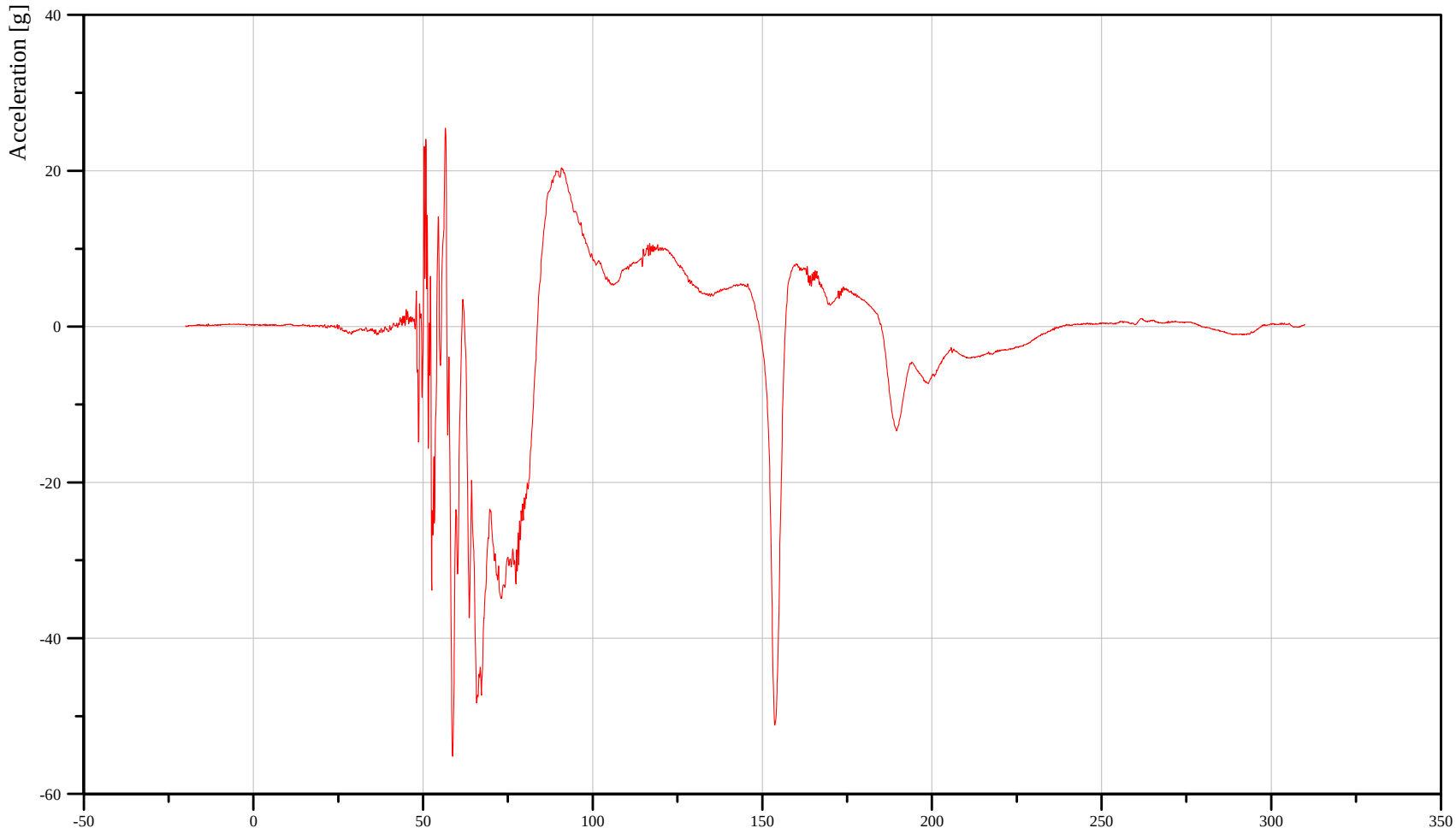
## Target Passenger Head Top Y-Axis Acceleration

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 23HEADUP00HFACYA

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_1000

**Min. Value**
-55.19 g at 58.72 ms

**Max. Value**
25.47 g at 56.56 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

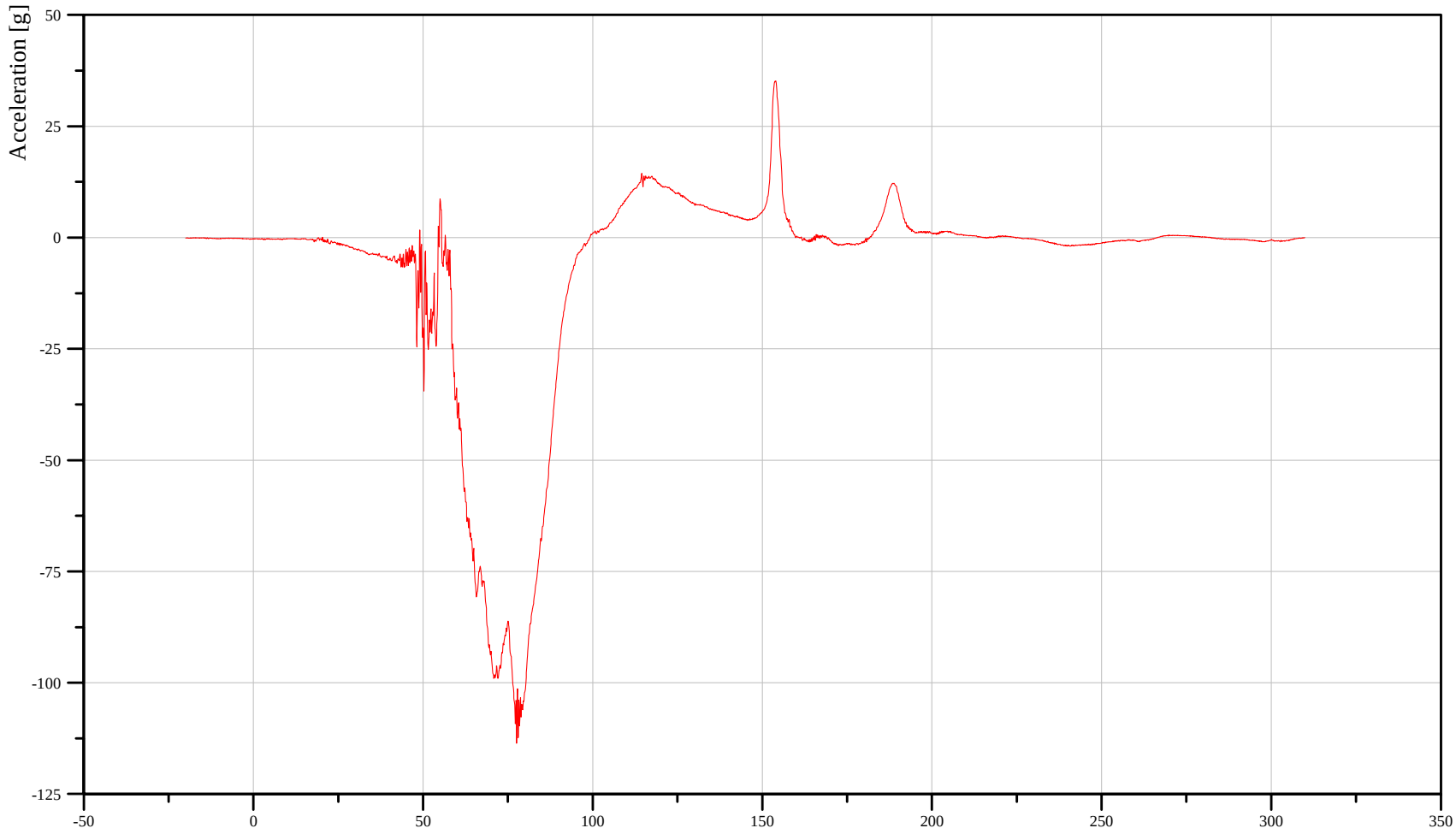
## Target Passenger Head Side X-Axis Acceleration

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 23HEADLE00HFACXA

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_1000

**Min. Value**
-113.59 g at 77.60 ms

**Max. Value**
35.20 g at 154.00 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

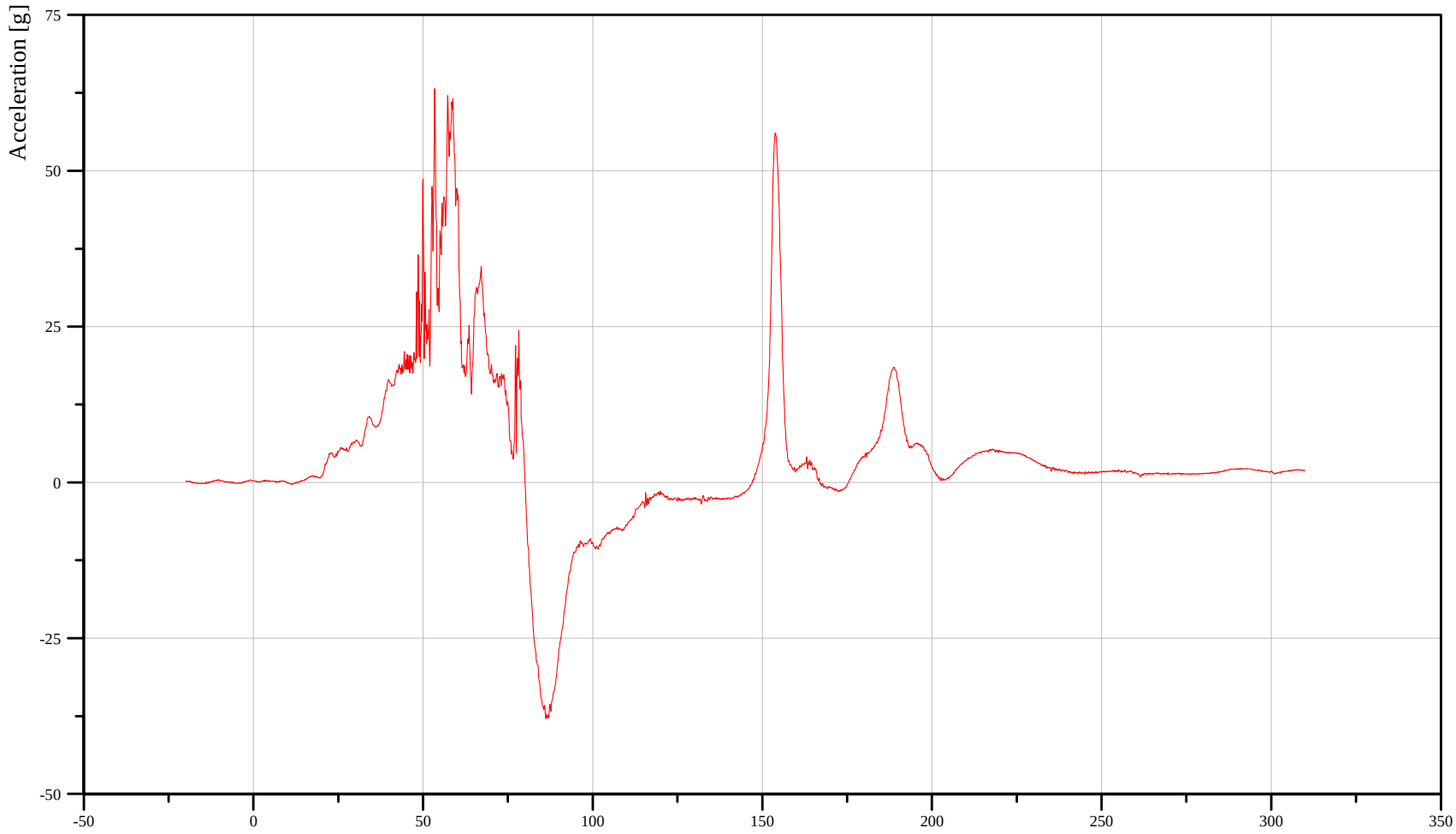
## Target Passenger Head Side Z-Axis Acceleration

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 23HEADLE00HFACZA

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_1000

**Min. Value**
-37.85 g at 86.16 ms

**Max. Value**
63.19 g at 53.44 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

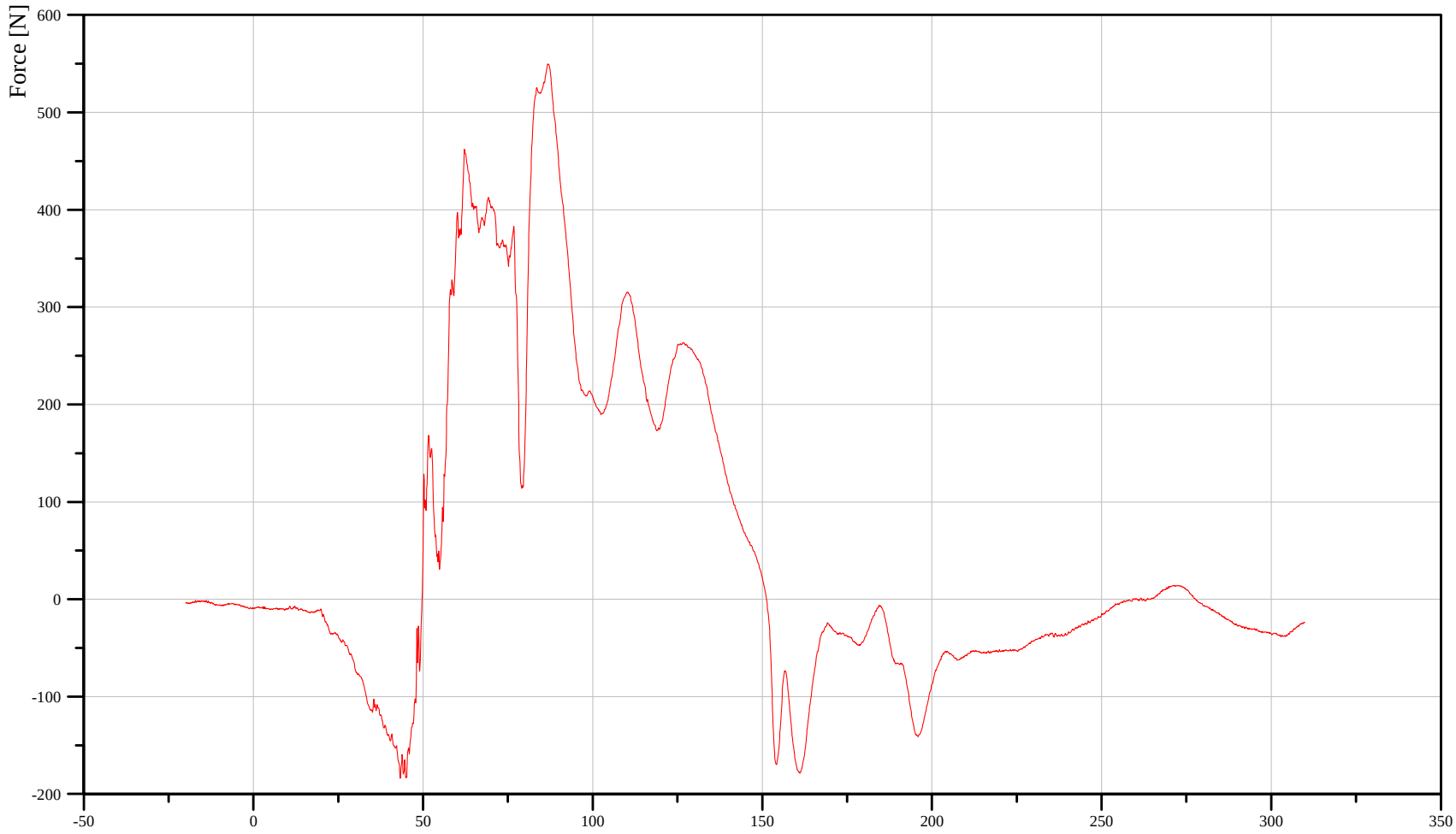
## Target Passenger Upper Neck X-Axis Force

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 23NECKUP00HFFOXA

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_1000

**Min. Value**
-184.03 N at 43.28 ms

**Max. Value**
549.80 N at 86.72 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

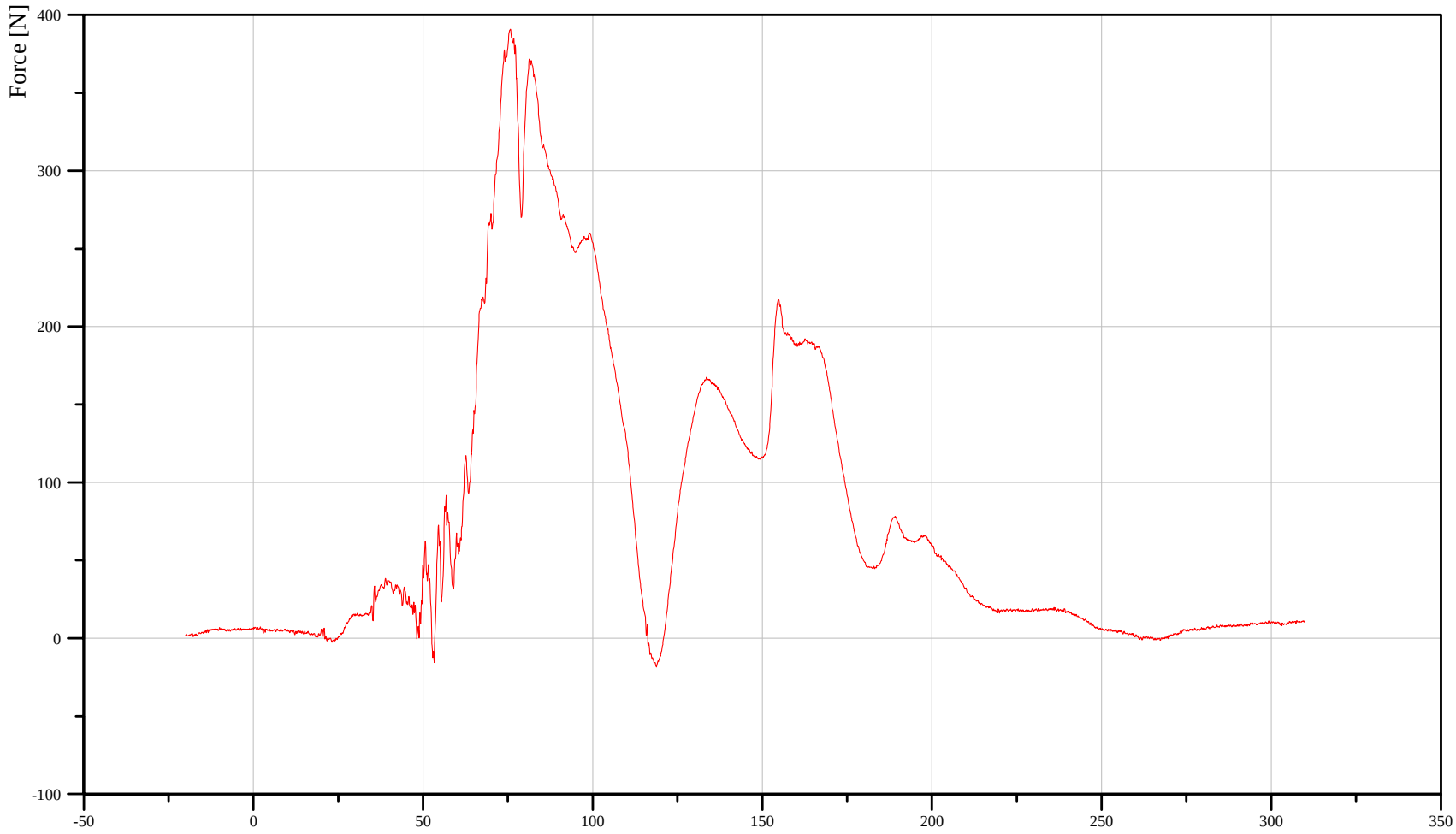
## Target Passenger Upper Neck Y-Axis Force

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 23NECKUP00HFFOYA

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_1000

**Min. Value**
-18.52 N at 118.80 ms

**Max. Value**
390.86 N at 75.76 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

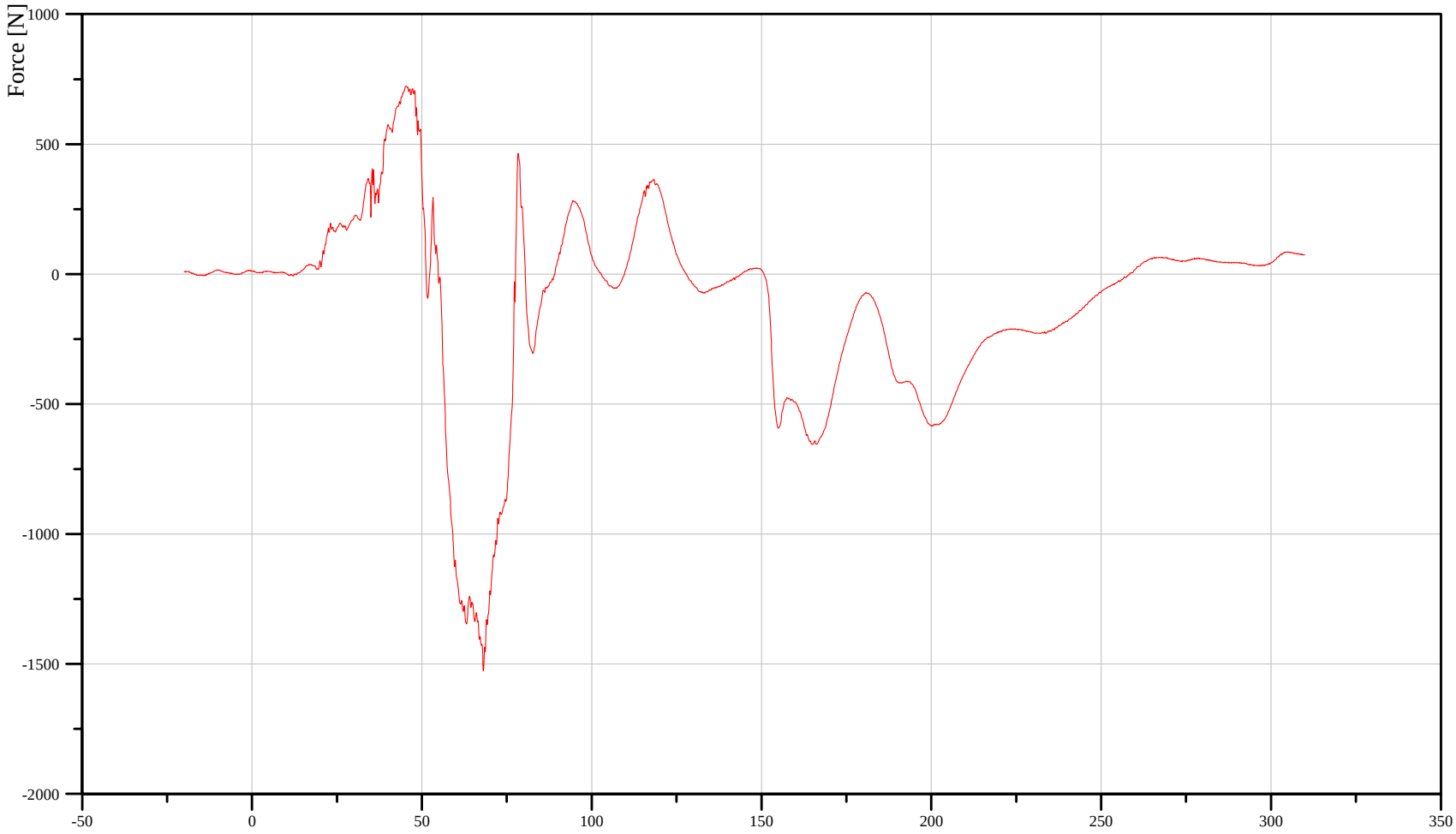
## Target Passenger Upper Neck Z-Axis Force

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 23NECKUP00HFFOZA

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_1000

**Min. Value**
-1,526.71 N at 68.16 ms

**Max. Value**
722.89 N at 45.20 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

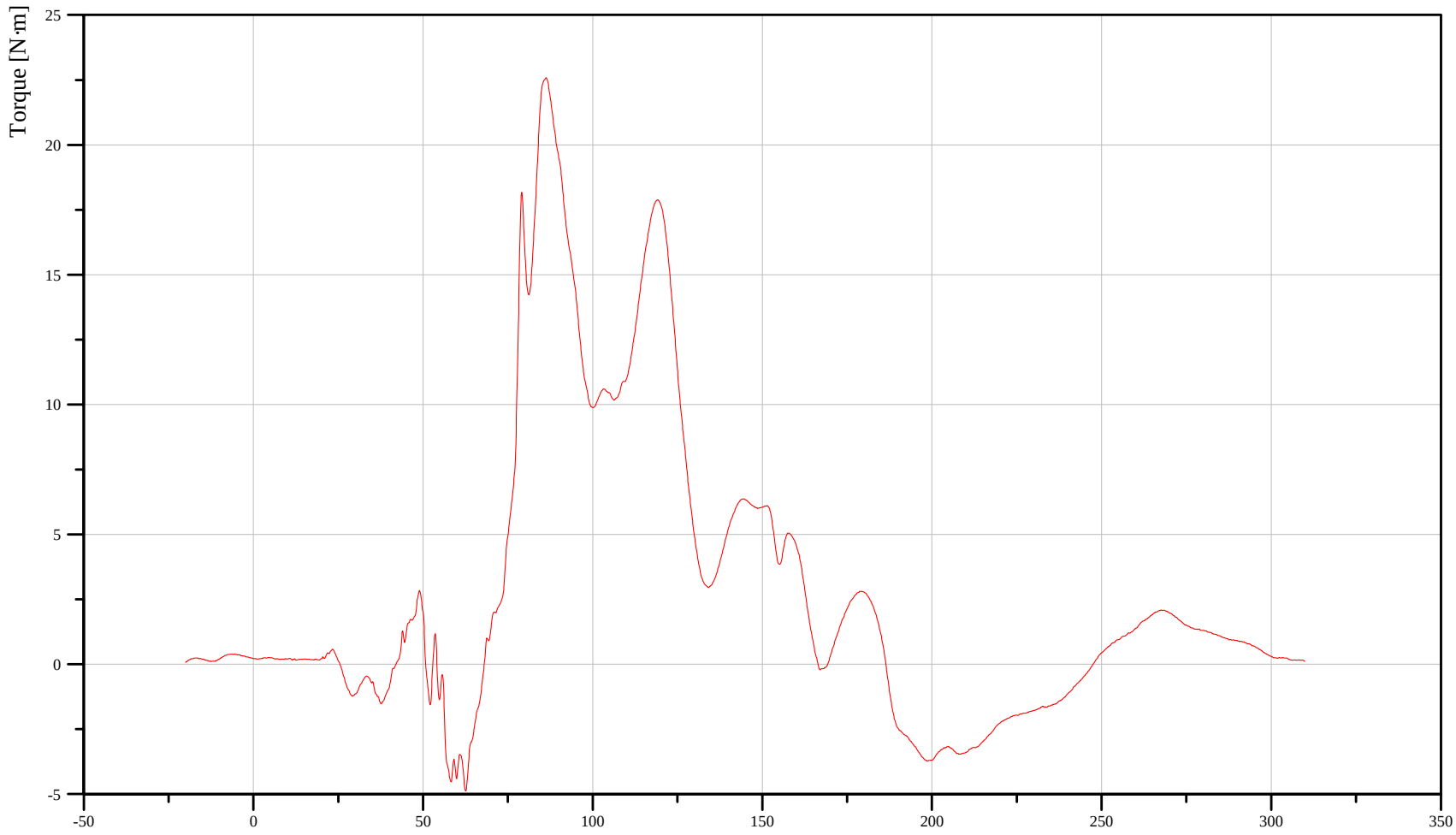
## Target Passenger Upper Neck Moment About X Axis

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 23NECKUP00HFMOXB

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_600

**Min. Value**
-4.88 N·m at 62.56 ms

**Max. Value**
22.59 N·m at 86.32 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

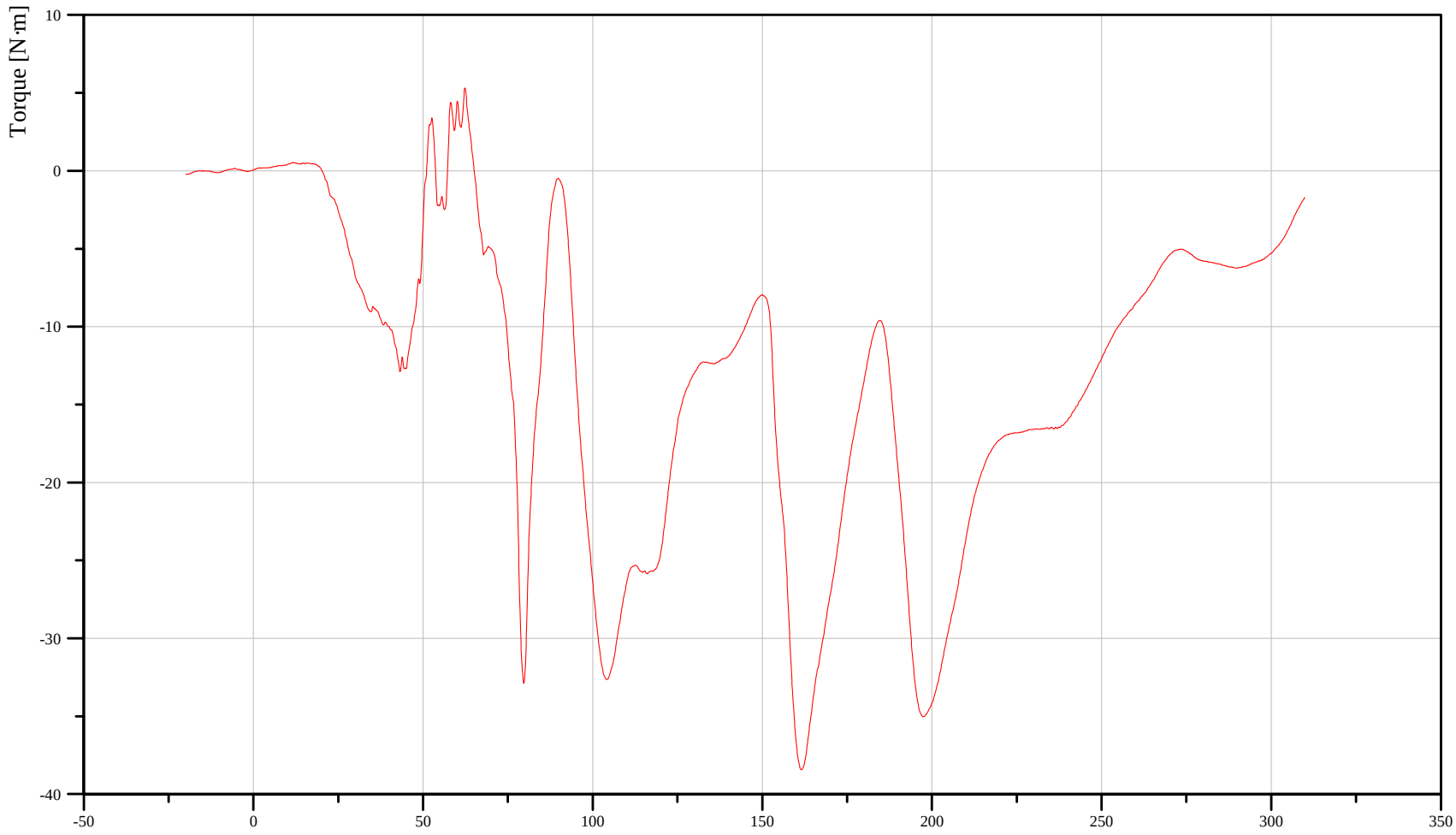
## Target Passenger Upper Neck Moment About Y Axis

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 23NECKUP00HFMOYB

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_600

**Min. Value**
-38.44 N·m at 161.52 ms

**Max. Value**
5.32 N·m at 62.32 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

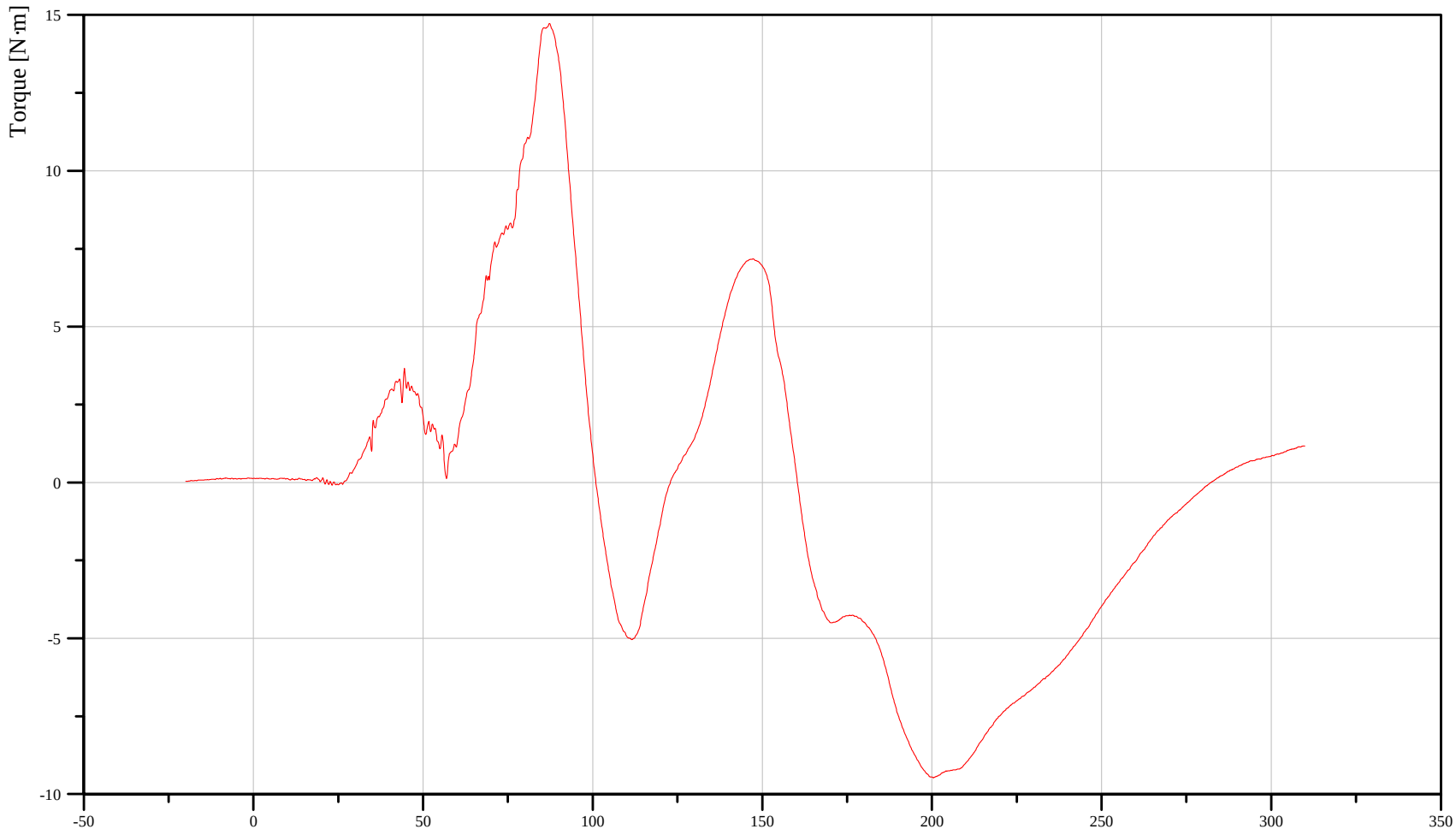
## Target Passenger Upper Neck Moment About Z Axis

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 23NECKUP00HFMOZB

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_600

**Min. Value**
-9.47 N·m at 200.48 ms

**Max. Value**
14.73 N·m at 87.28 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

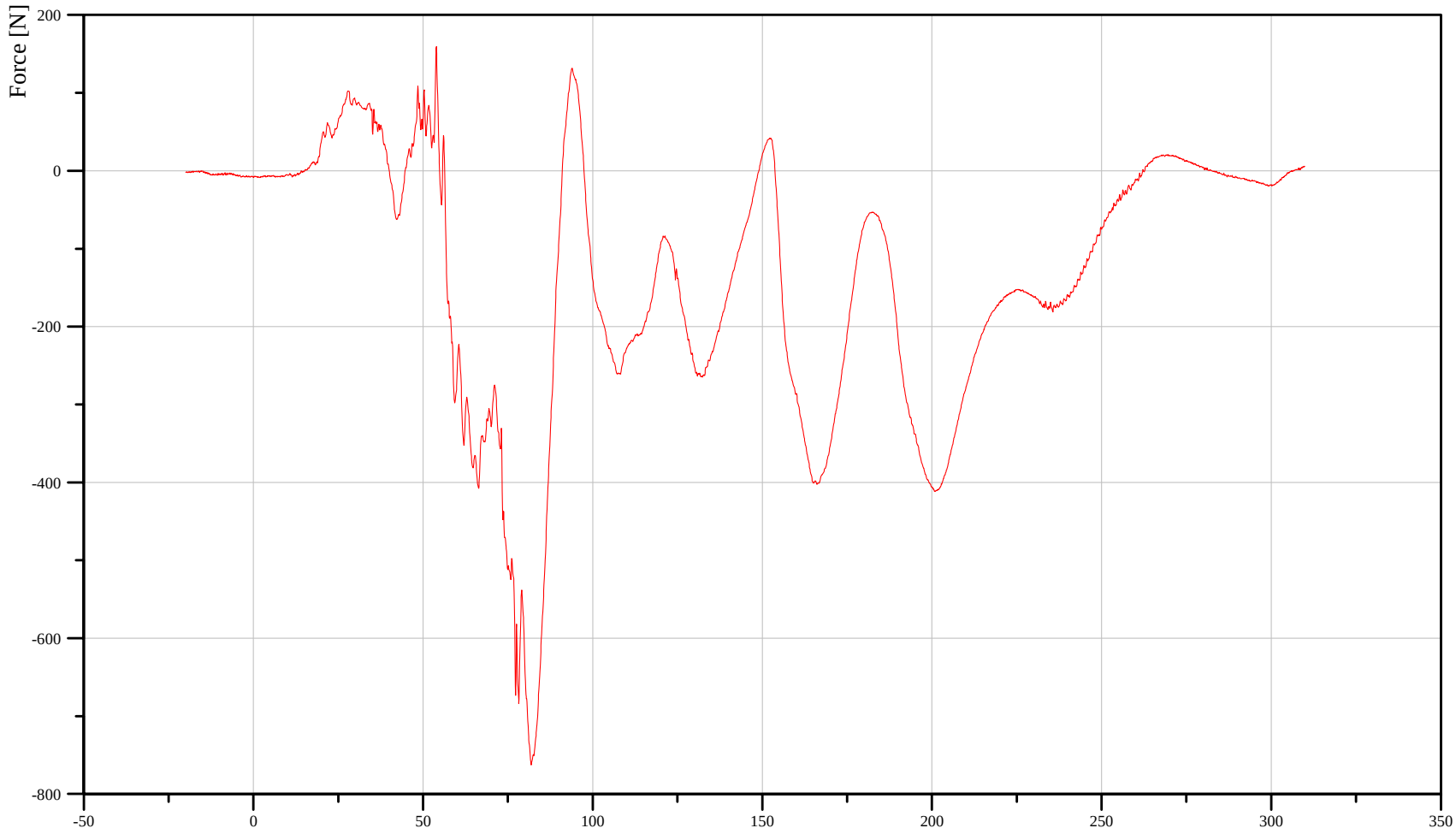
## Target Passenger Lower Neck X-Axis Force

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 23NECKLO00HFFOXA

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_1000

**Min. Value**
-762.47 N at 81.92 ms

**Max. Value**
159.53 N at 53.92 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

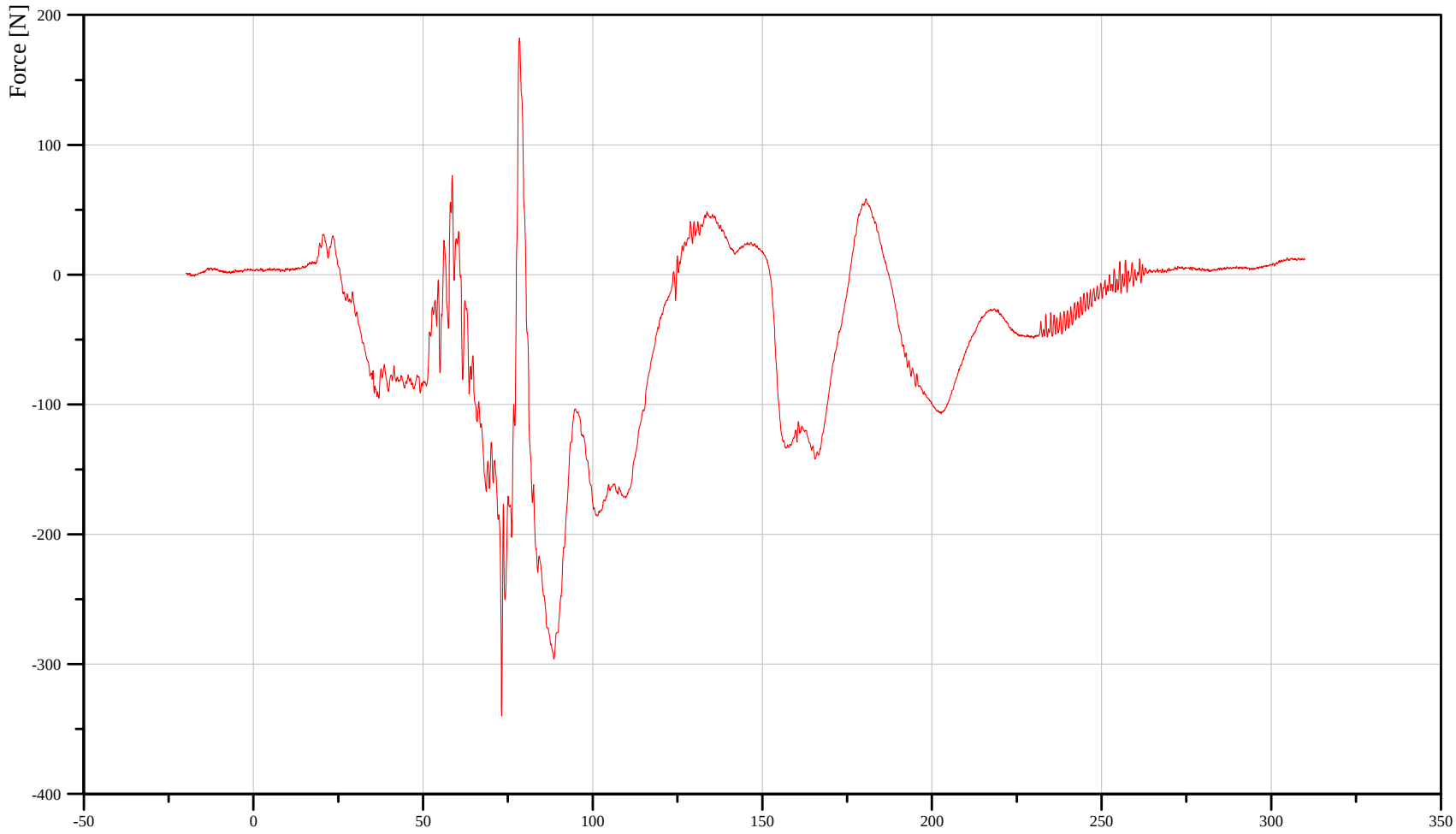
## Target Passenger Lower Neck Y-Axis Force

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 23NECKLO00HFFOYA

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_1000

**Min. Value**
-339.85 N at 73.20 ms

**Max. Value**
182.20 N at 78.48 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

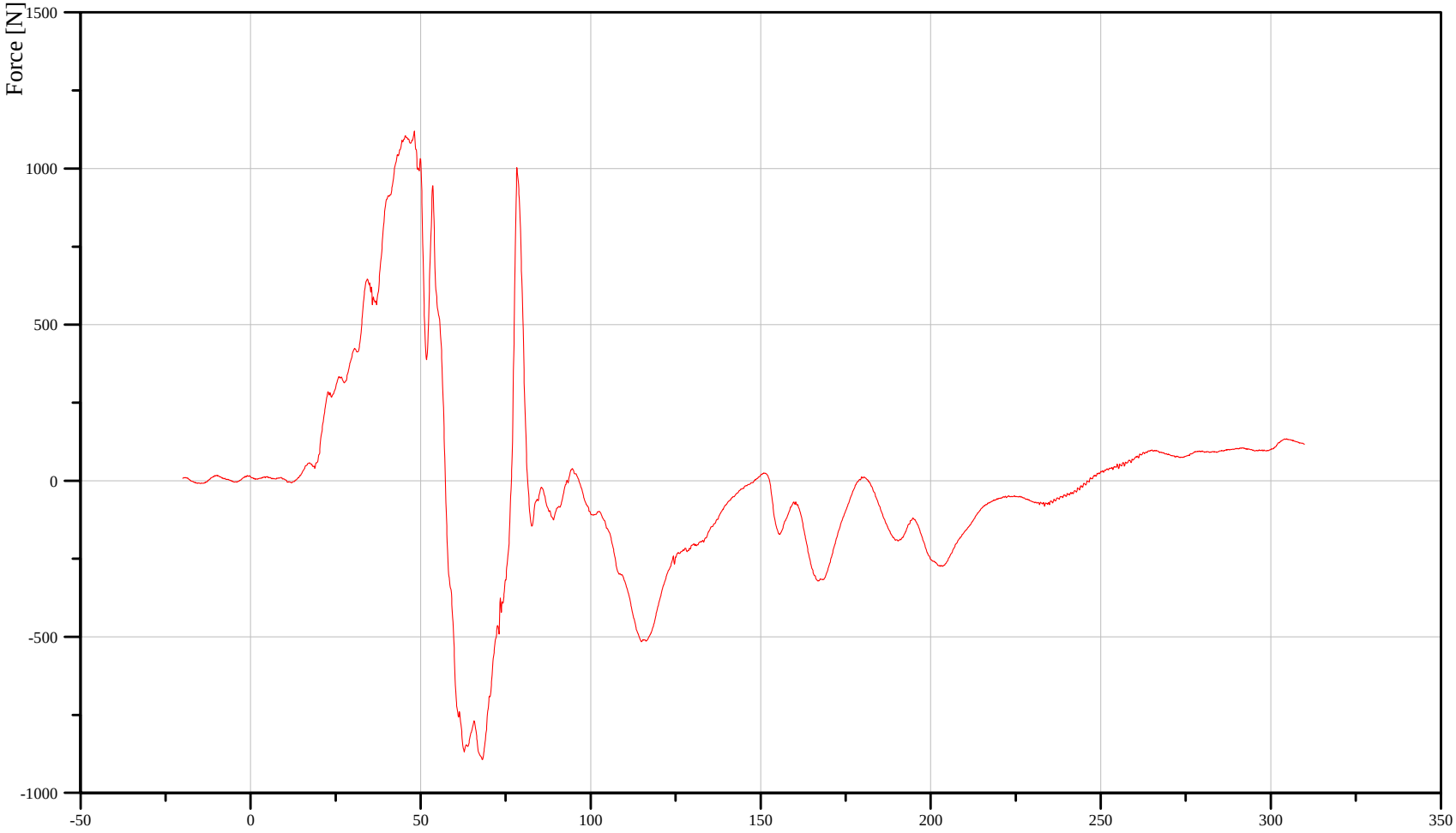
## Target Passenger Lower Neck Z-Axis Force

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 23NECKLO00HFFOZA

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_1000

**Min. Value**
-893.34 N at 68.16 ms

**Max. Value**
1,120.29 N at 48.16 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

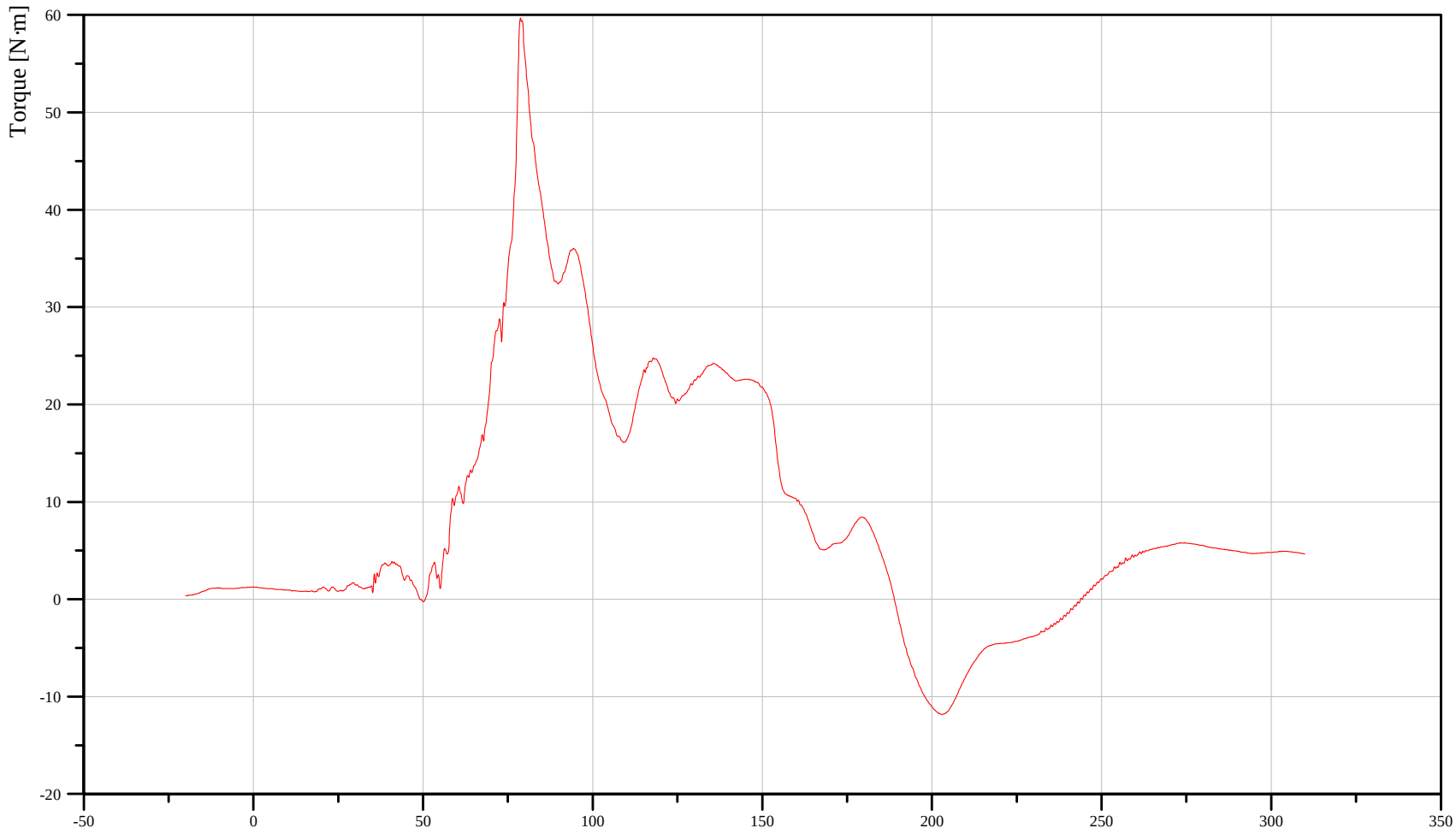
## Target Passenger Lower Neck Moment About X Axis

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 23NECKLO00HFMOXB

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_600

**Min. Value**
-11.84 N·m at 202.96 ms

**Max. Value**
59.69 N·m at 78.72 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

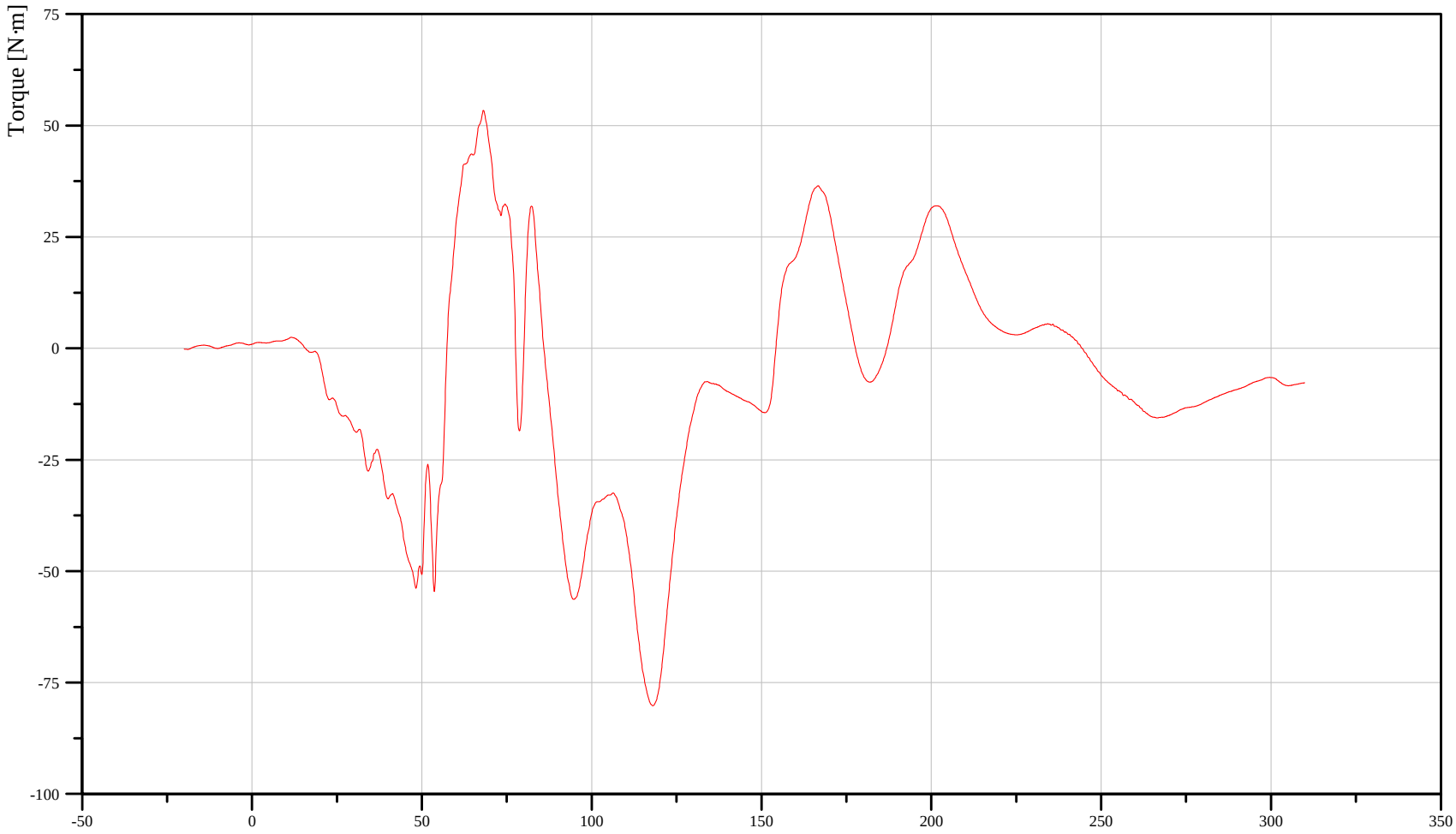
## Target Passenger Lower Neck Moment About Y Axis

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 23NECKLO00HFMOYB

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_600

**Min. Value**
-80.20 N·m at 118.08 ms

**Max. Value**
53.43 N·m at 68.16 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

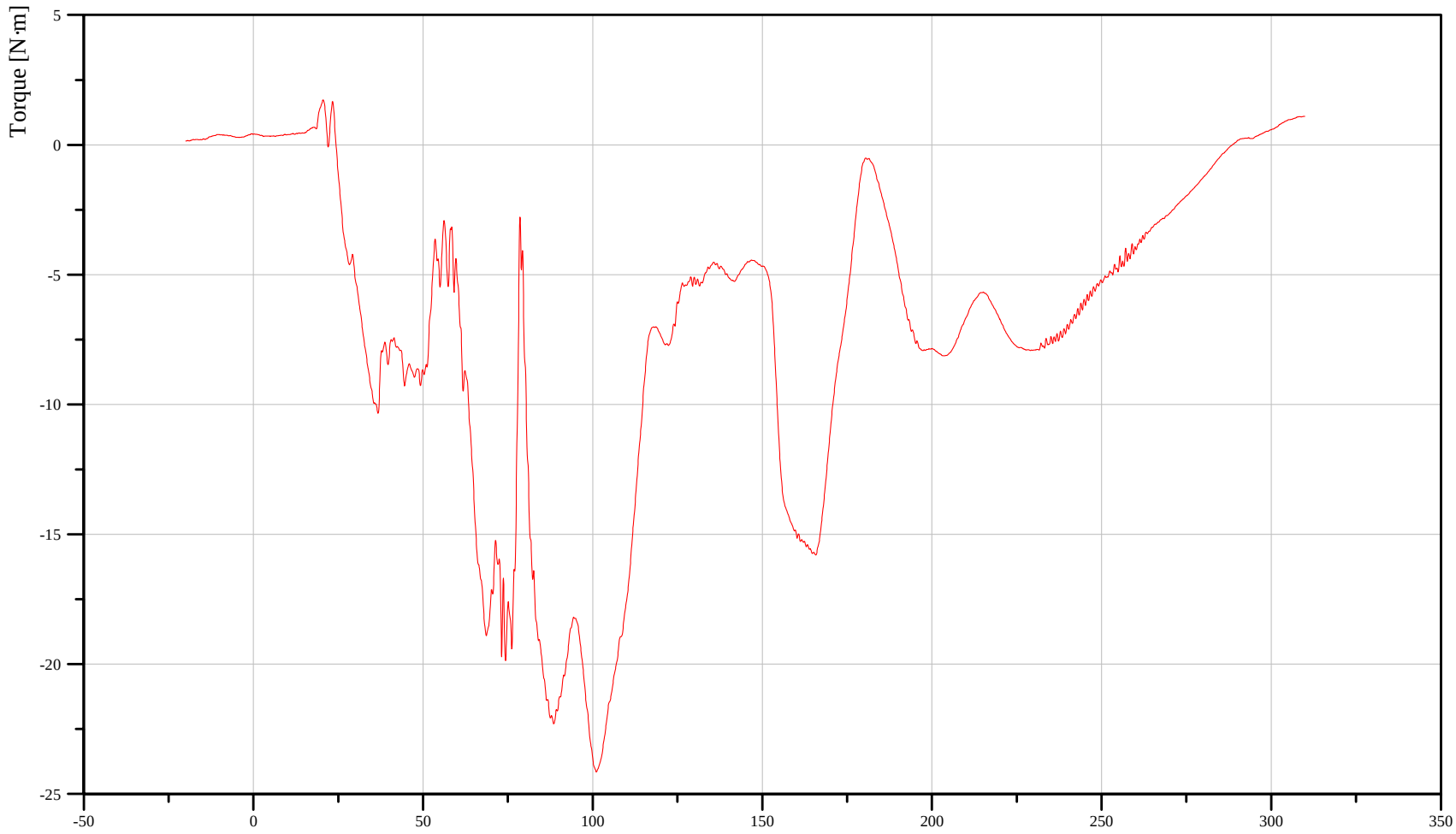
## Target Passenger Lower Neck Moment About Z Axis

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 23NECKLO00HFMOZB

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_600

**Min. Value**
-24.15 N·m at 101.12 ms

**Max. Value**
1.73 N·m at 20.56 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

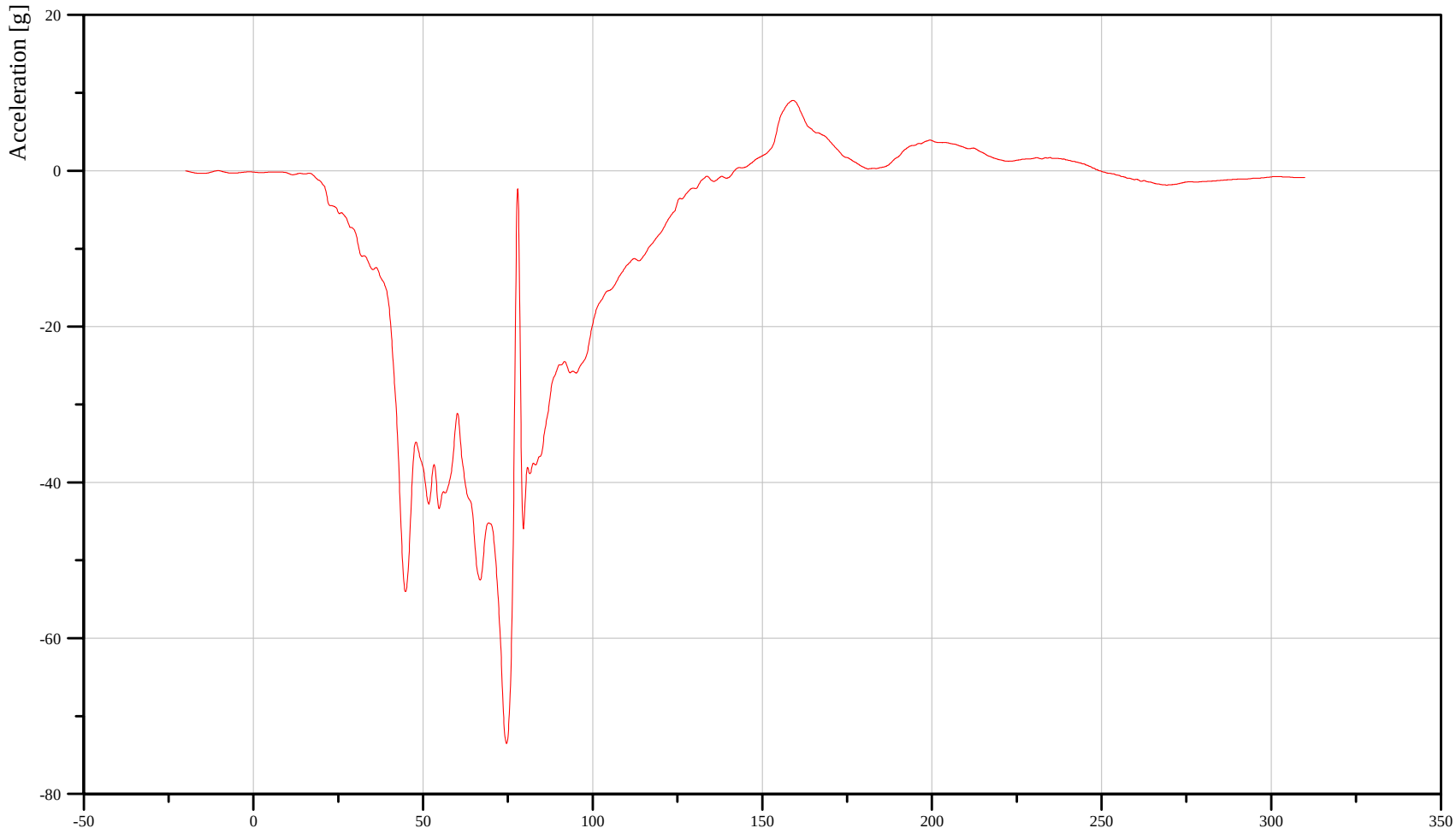
## Target Passenger Chest CG X-Axis Acceleration

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 23CHSTCG00HFACXC

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_180

**Min. Value**
-73.53 g at 74.64 ms

**Max. Value**
9.04 g at 159.04 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

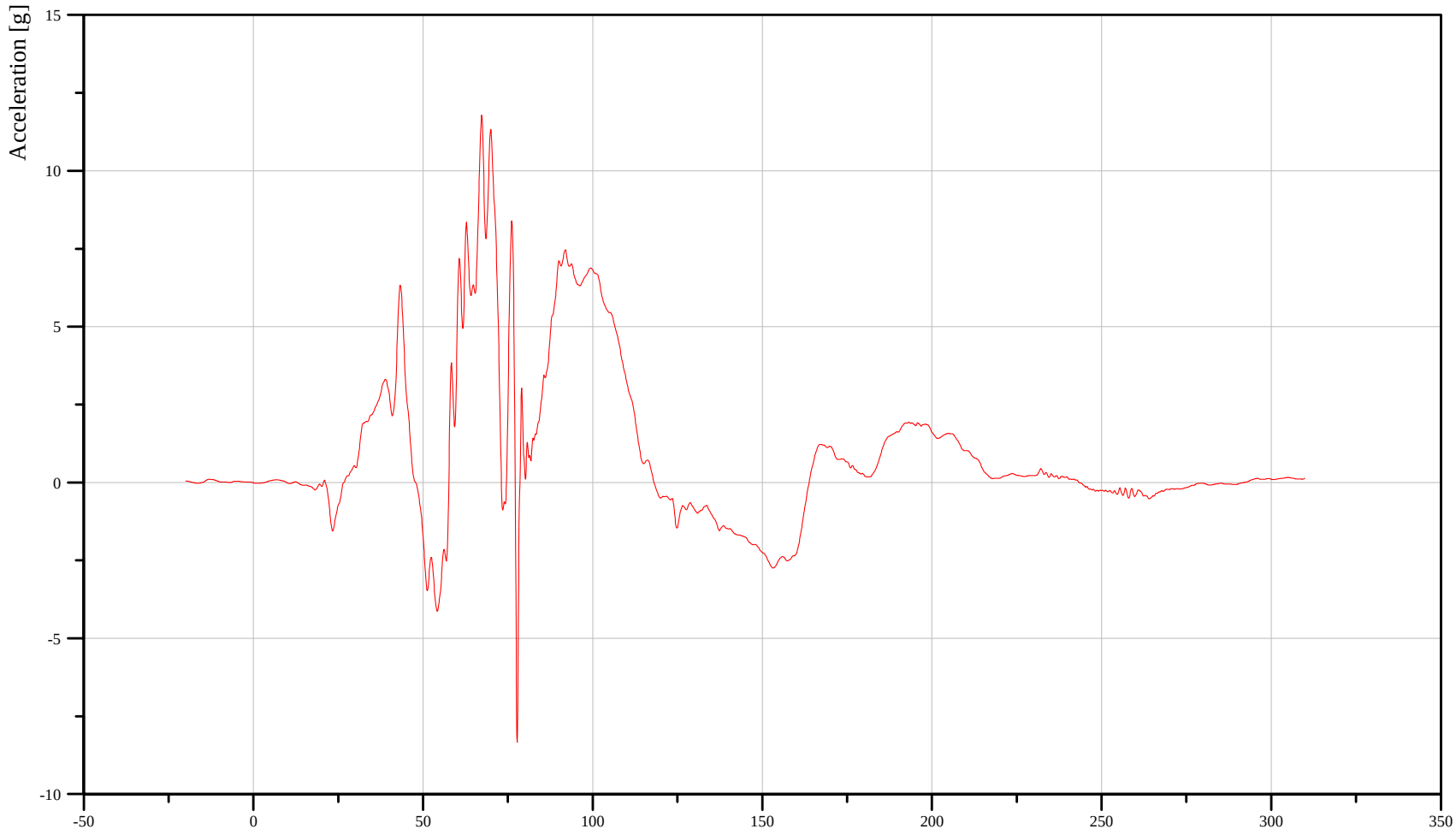
## Target Passenger Chest CG Y-Axis Acceleration

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 23CHSTCG00HFACYC

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_180

**Min. Value**
-8.34 g at 77.76 ms

**Max. Value**
11.79 g at 67.28 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

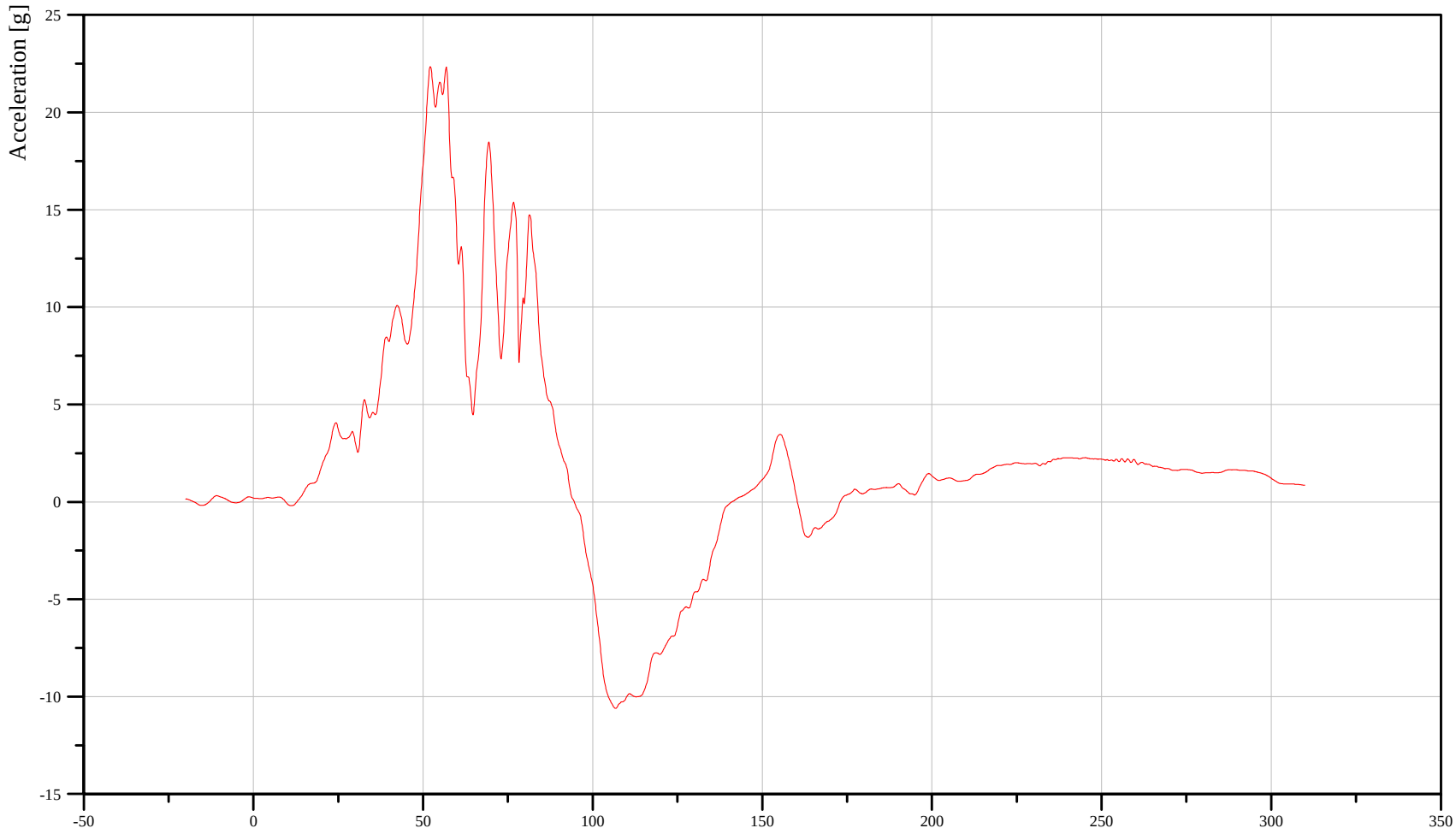
## Target Passenger Chest CG Z-Axis Acceleration

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 23CHSTCG00HFACZC

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_180

**Min. Value**
-10.60 g at 106.80 ms

**Max. Value**
22.35 g at 52.16 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

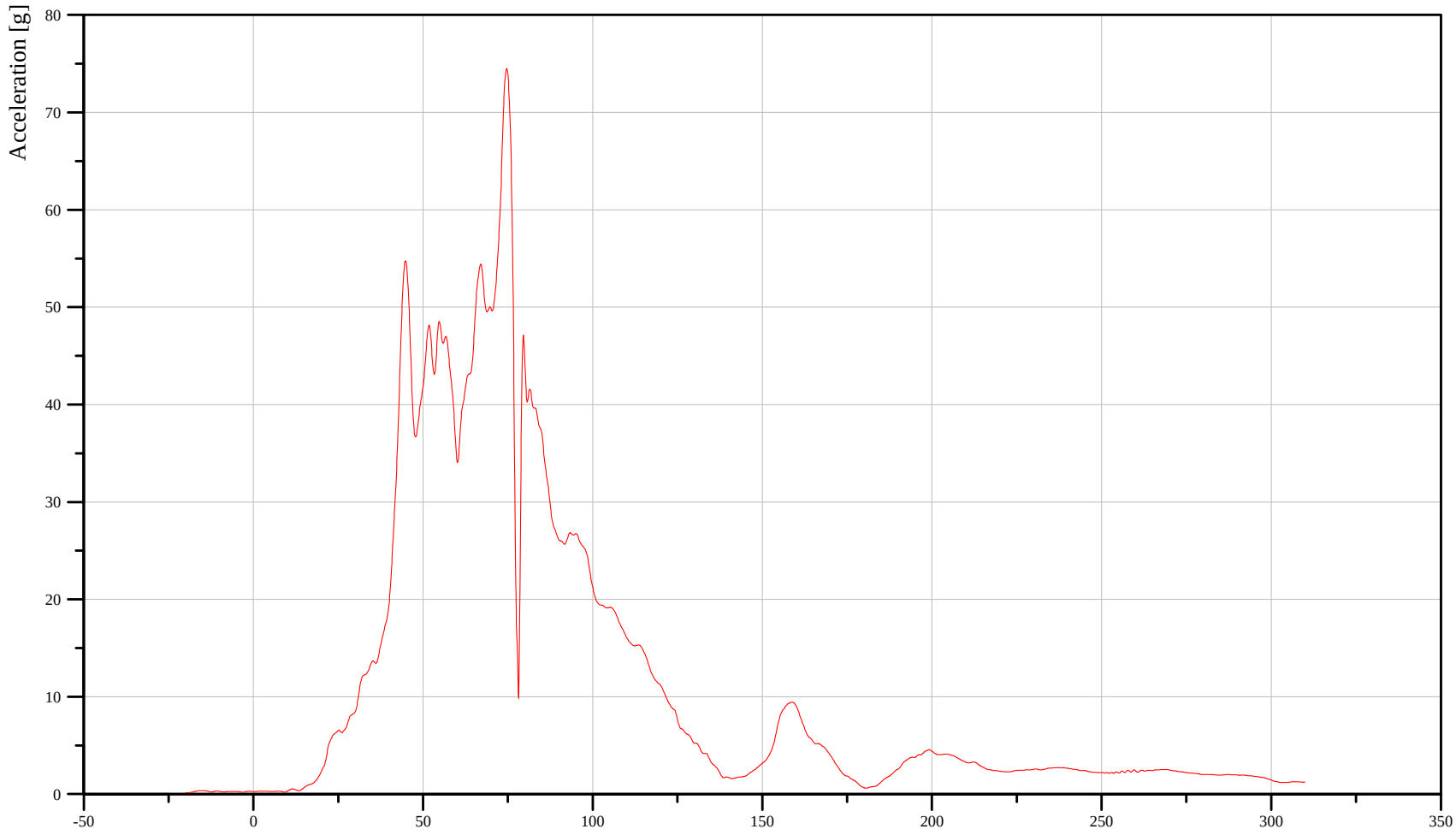
## Target Passenger Chest CG Resultant Acceleration

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 23CHSTCG00HFACRC

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_180

**Min. Value**
0.15 g at -20.00 ms

**Max. Value**
74.51 g at 74.64 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

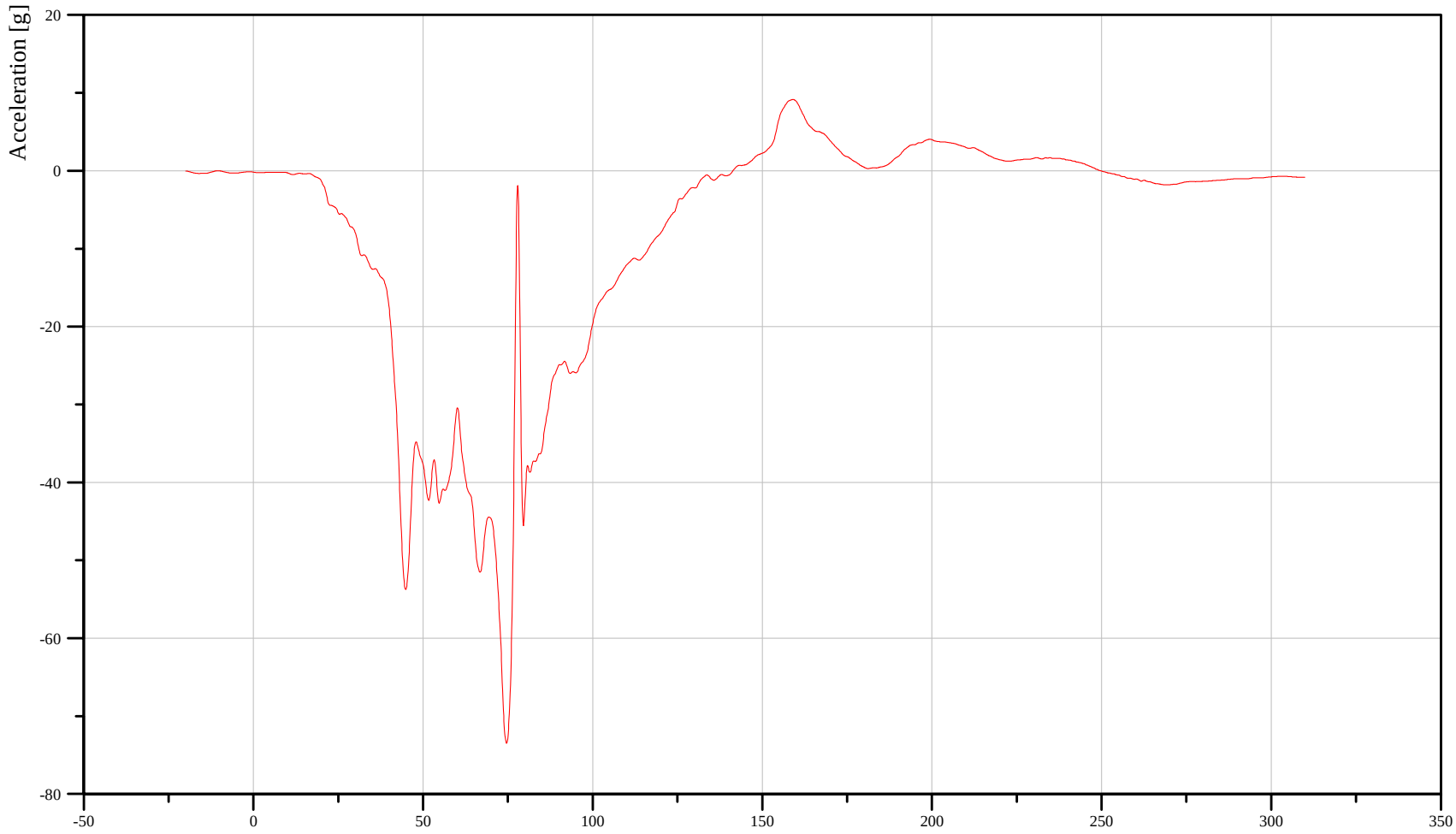
## Target Passenger Redundant Chest CG X-Axis Acceleration

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 23CHSTCGRDHFACXC

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_180

**Min. Value**
-73.47 g at 74.64 ms

**Max. Value**
9.15 g at 159.04 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

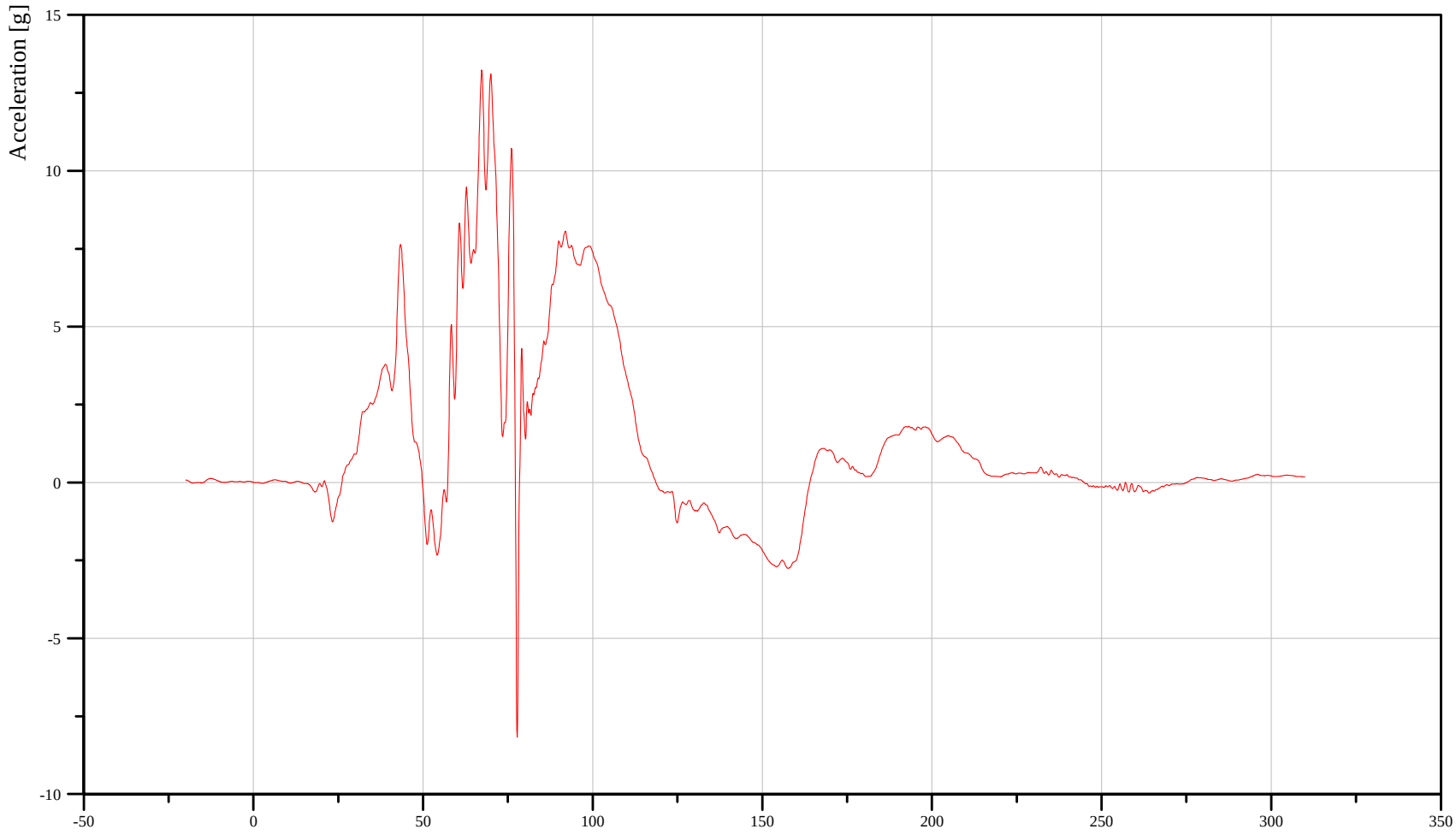
## Target Passenger Redundant Chest CG Y-Axis Acceleration

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 23CHSTCGRDHFACYC

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_180

**Min. Value**
-8.18 g at 77.76 ms

**Max. Value**
13.24 g at 67.28 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

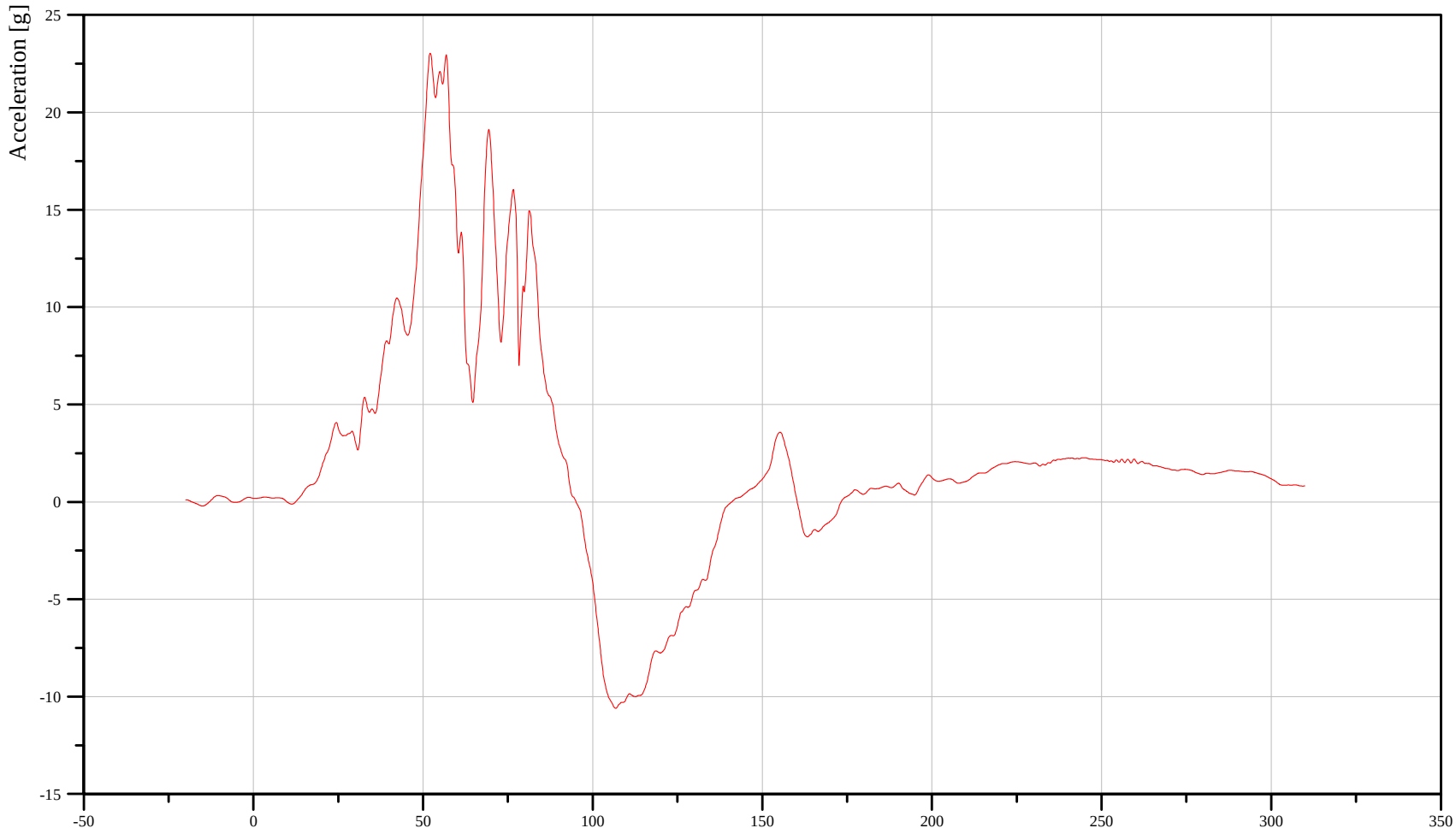
## Target Passenger Redundant Chest CG Z-Axis Acceleration

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 23CHSTCGRDHFACZC

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_180

**Min. Value**
-10.60 g at 106.80 ms

**Max. Value**
23.04 g at 52.08 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

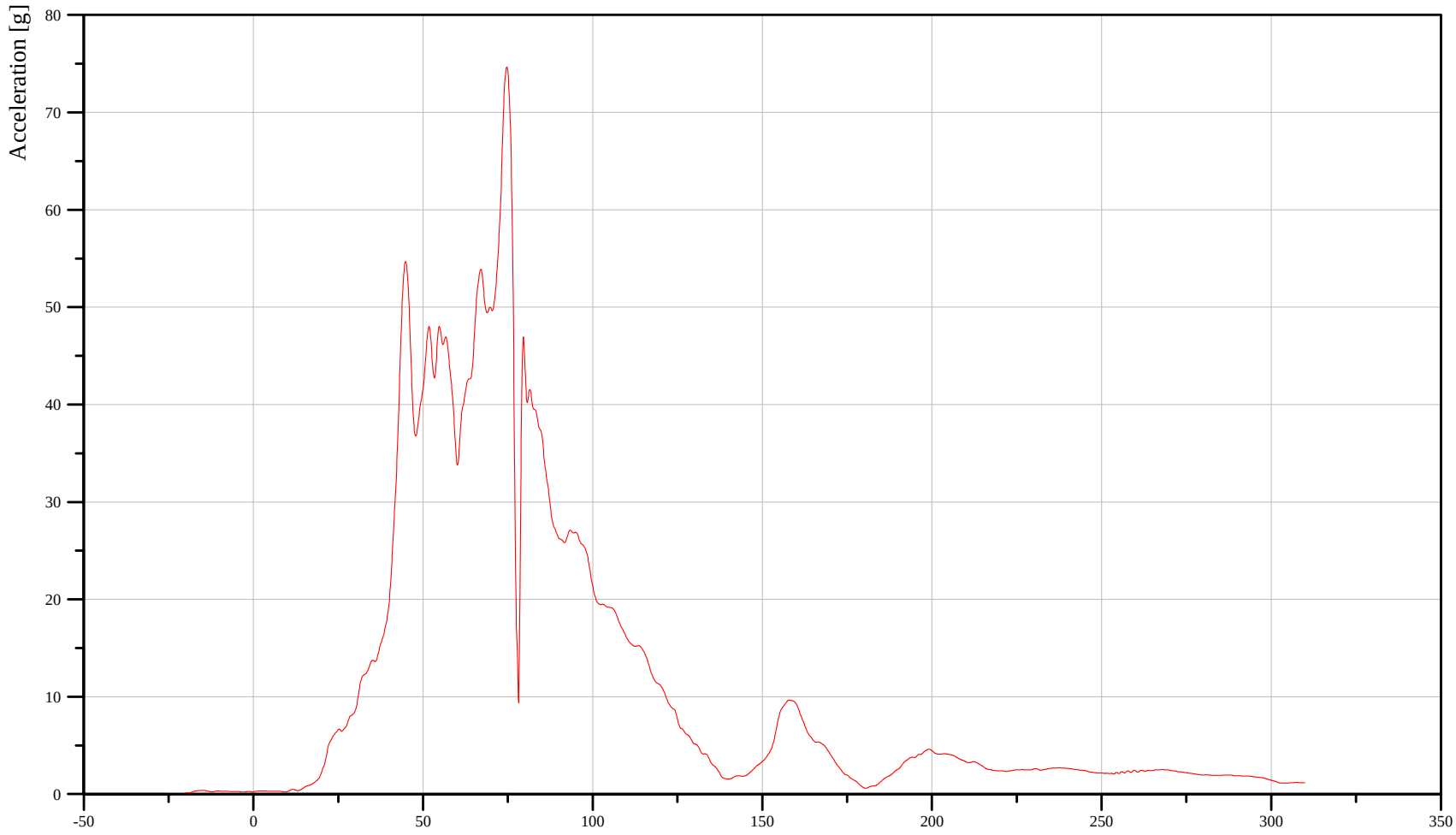
## Target Passenger Redundant Chest CG Resultant Acceleration

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 23CHSTCGRDHFACRC

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_180

**Min. Value**
0.13 g at -19.12 ms

**Max. Value**
74.67 g at 74.72 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

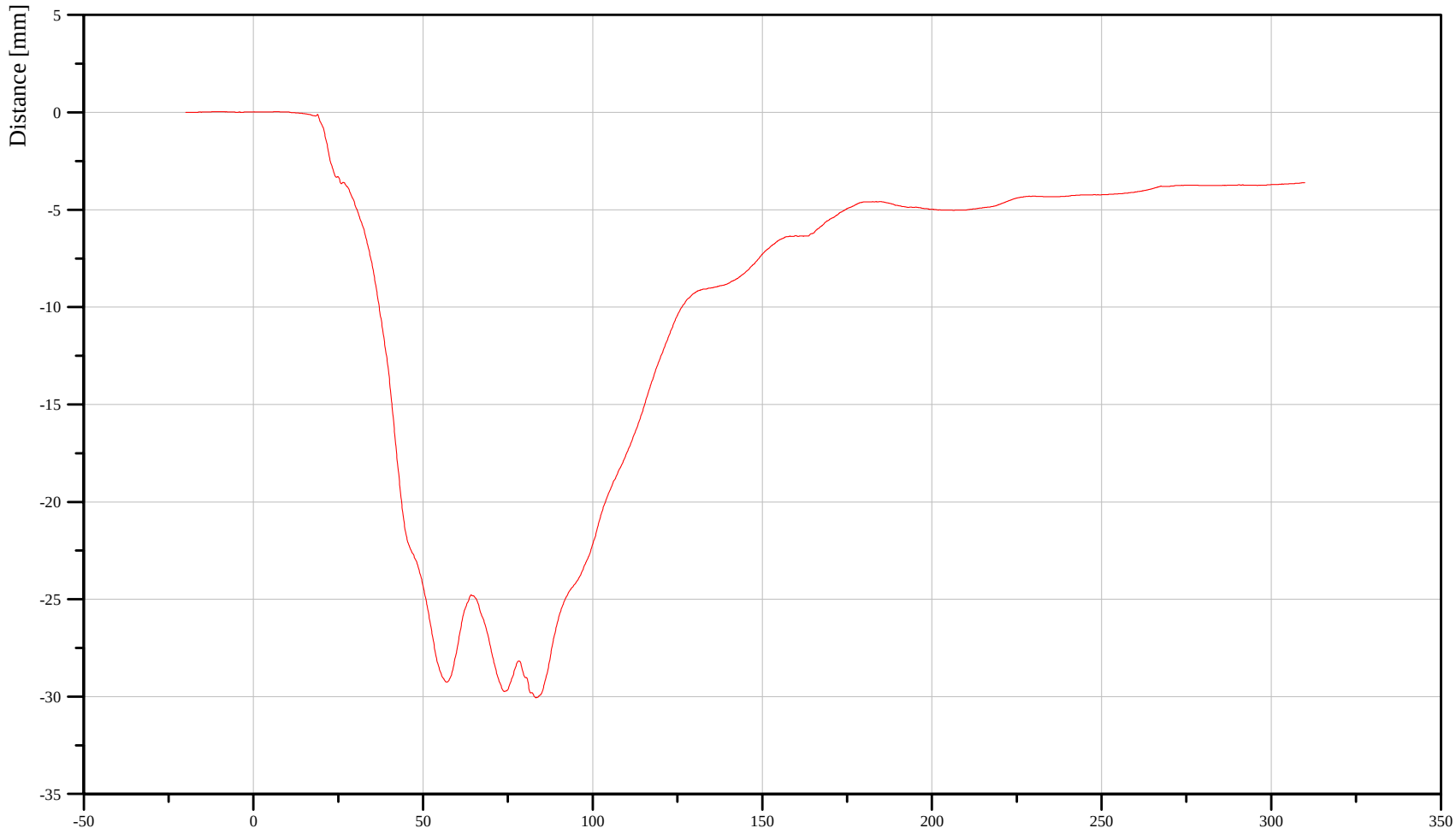
## Target Passenger Chest Displacement

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 23CHST0000HFDSXB

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_600

**Min. Value**
-30.06 mm at 83.28 ms

**Max. Value**
0.03 mm at -11.44 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

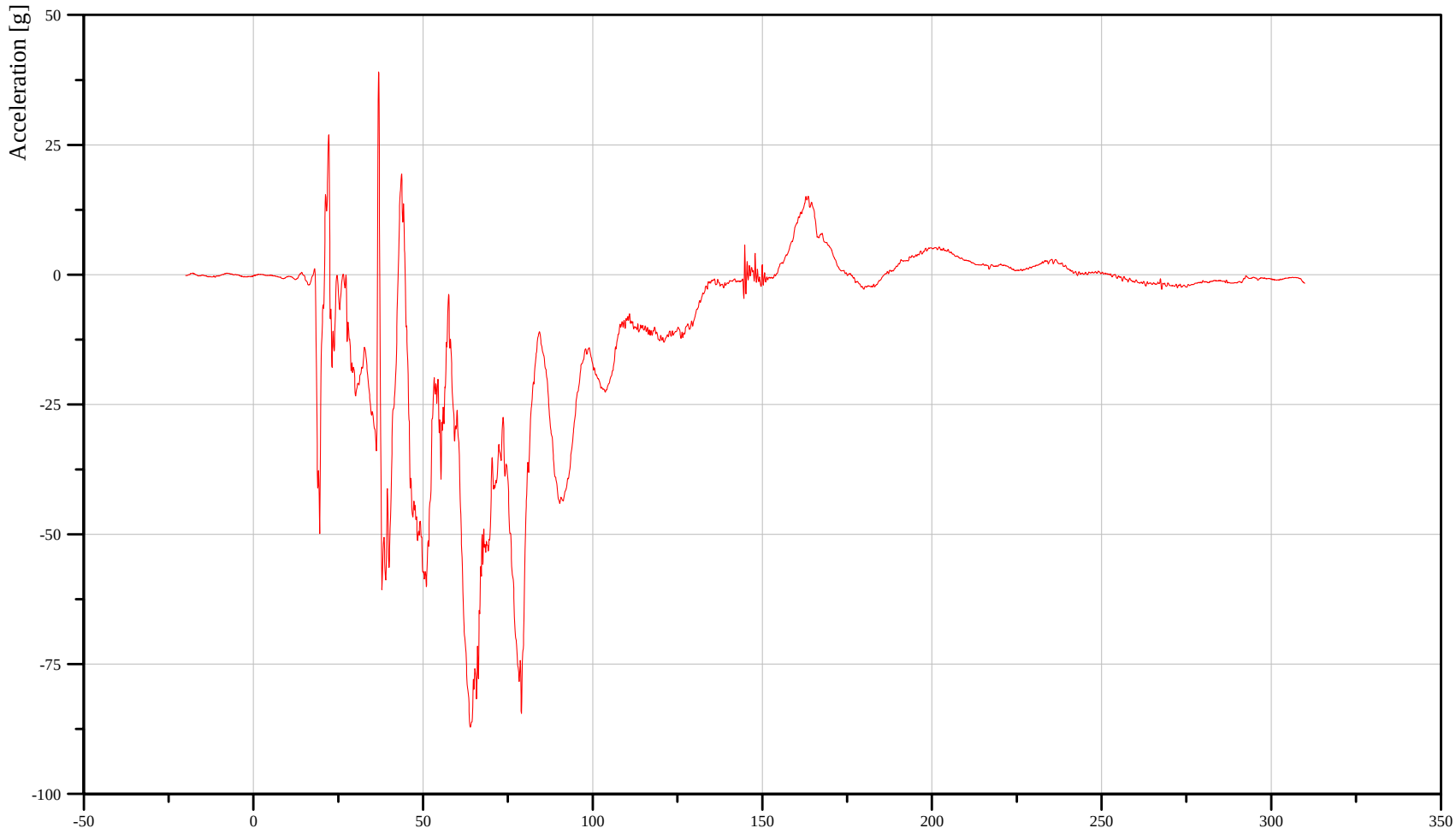
## Target Passenger Sternum Upper X-Axis Acceleration

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 23STRNUP00HFACXA

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_1000

**Min. Value**
-87.11 g at 63.92 ms

**Max. Value**
39.08 g at 36.88 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

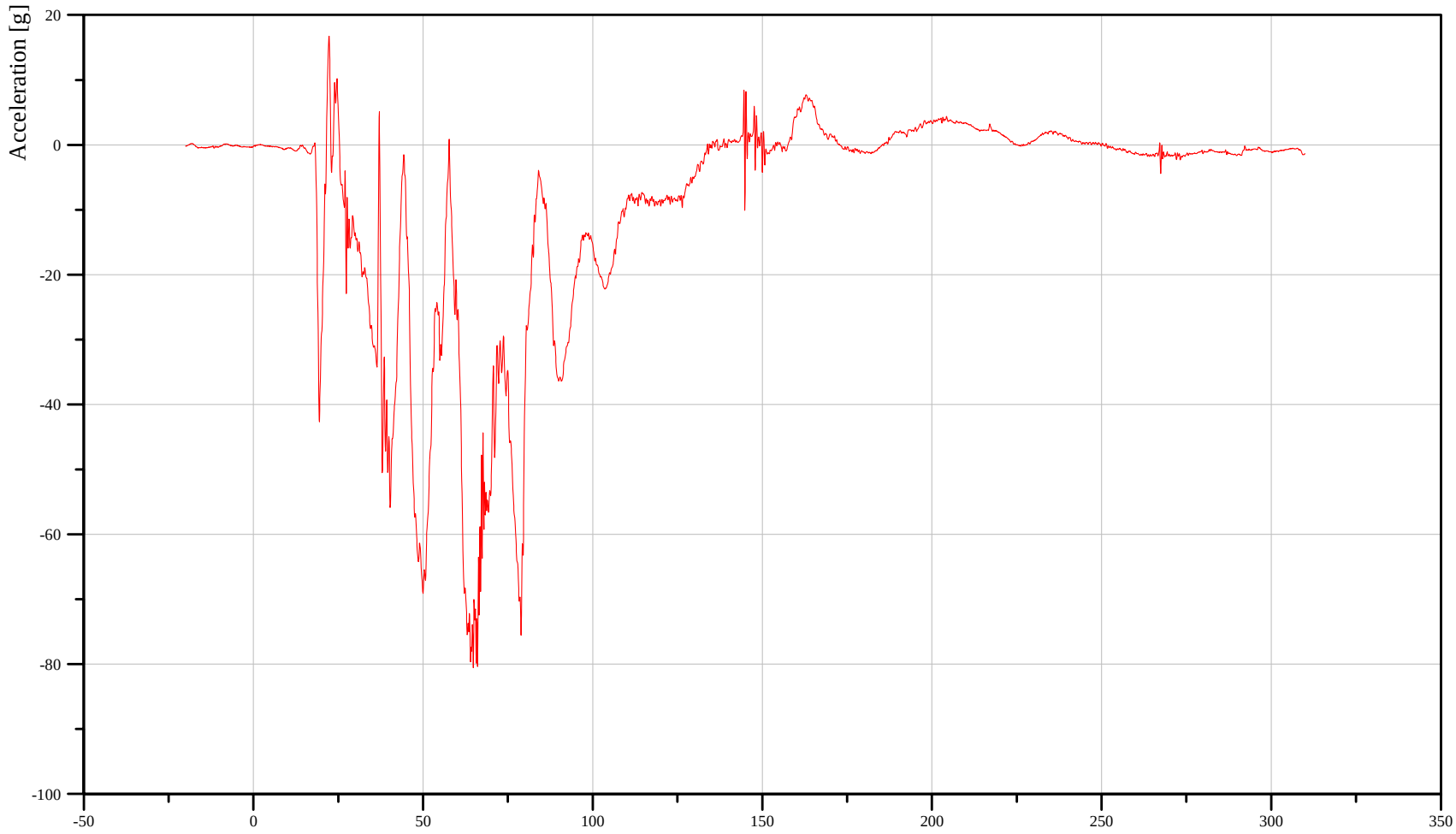
## Target Passenger Sternum Mid X-Axis Acceleration

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 23STRNMI00HFACXA

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_1000

**Min. Value**
-80.56 g at 64.80 ms

**Max. Value**
16.74 g at 22.32 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

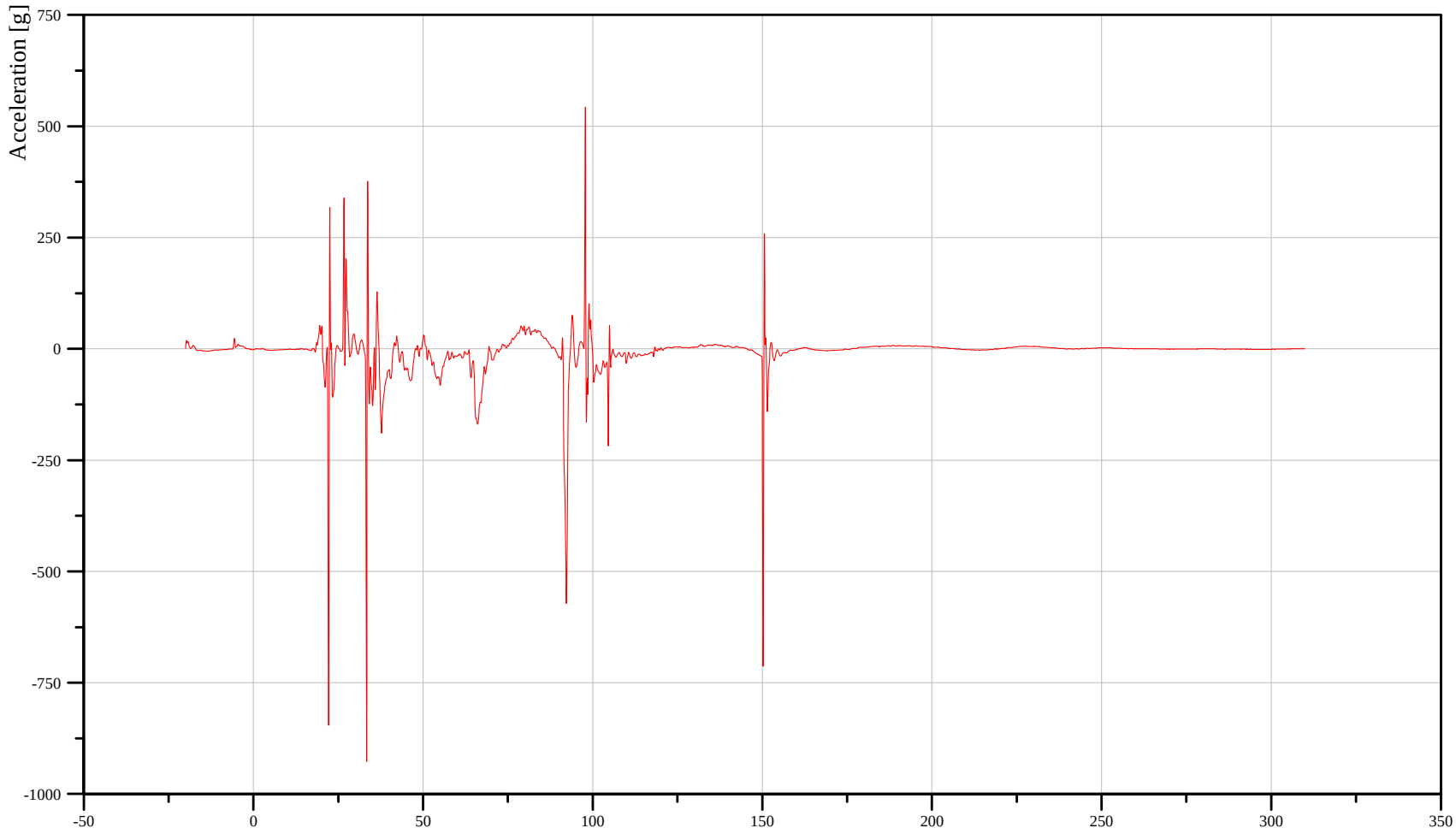
## Target Passenger Sternum Lower X-Axis Acceleration

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 23STRNLO00HFACXA

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_1000

**Min. Value**
-927.12 g at 33.36 ms

**Max. Value**
543.15 g at 97.84 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

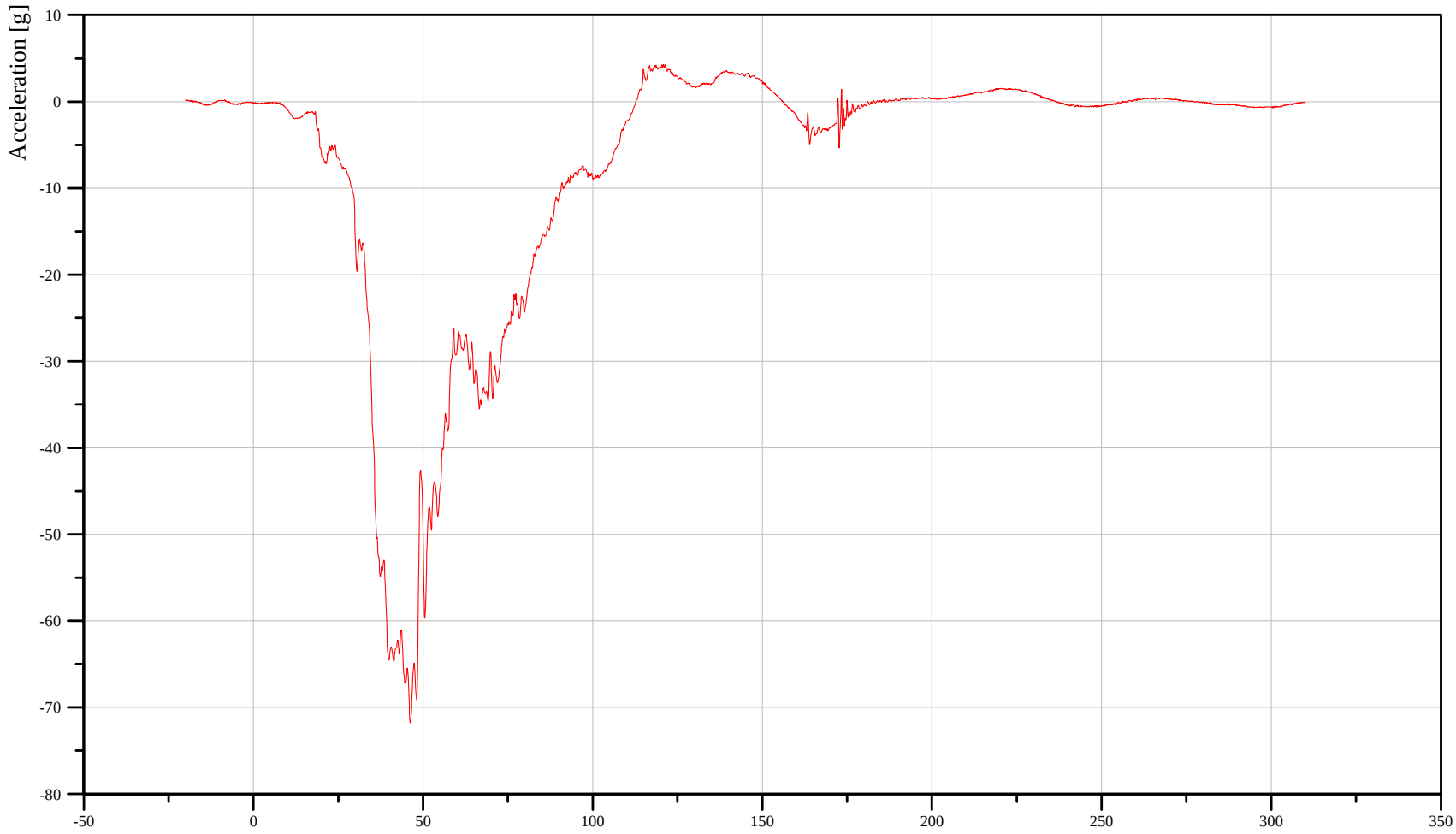
## Target Passenger Pelvis CG X-Axis Acceleration

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 23PELVCG00HFACXA

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_1000

**Min. Value**
-71.78 g at 46.24 ms

**Max. Value**
4.29 g at 120.88 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

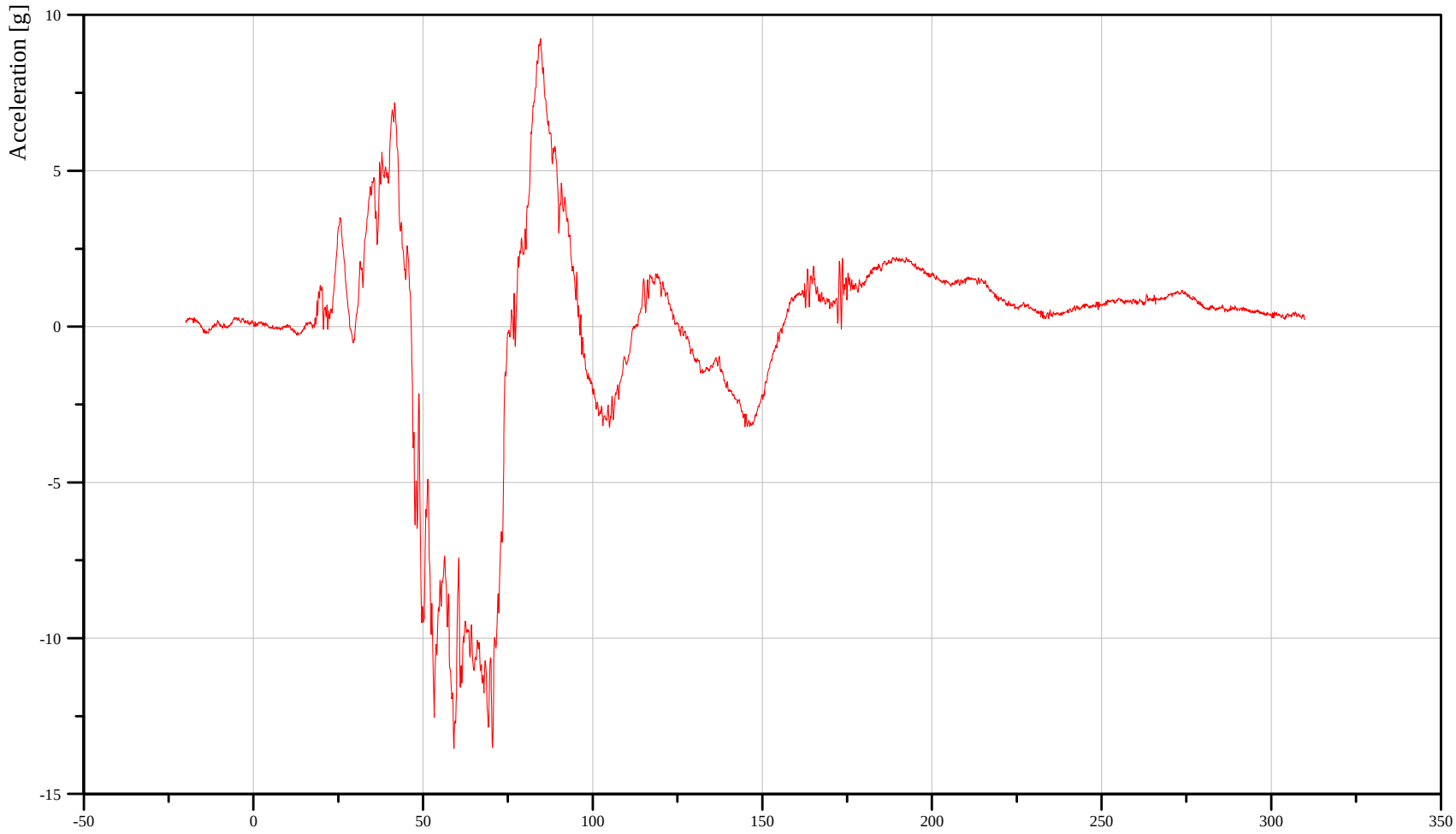
## Target Passenger Pelvis CG Y-Axis Acceleration

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 23PELVCG00HFACYA

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_1000

**Min. Value**
-13.54 g at 59.04 ms

**Max. Value**
9.25 g at 84.64 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

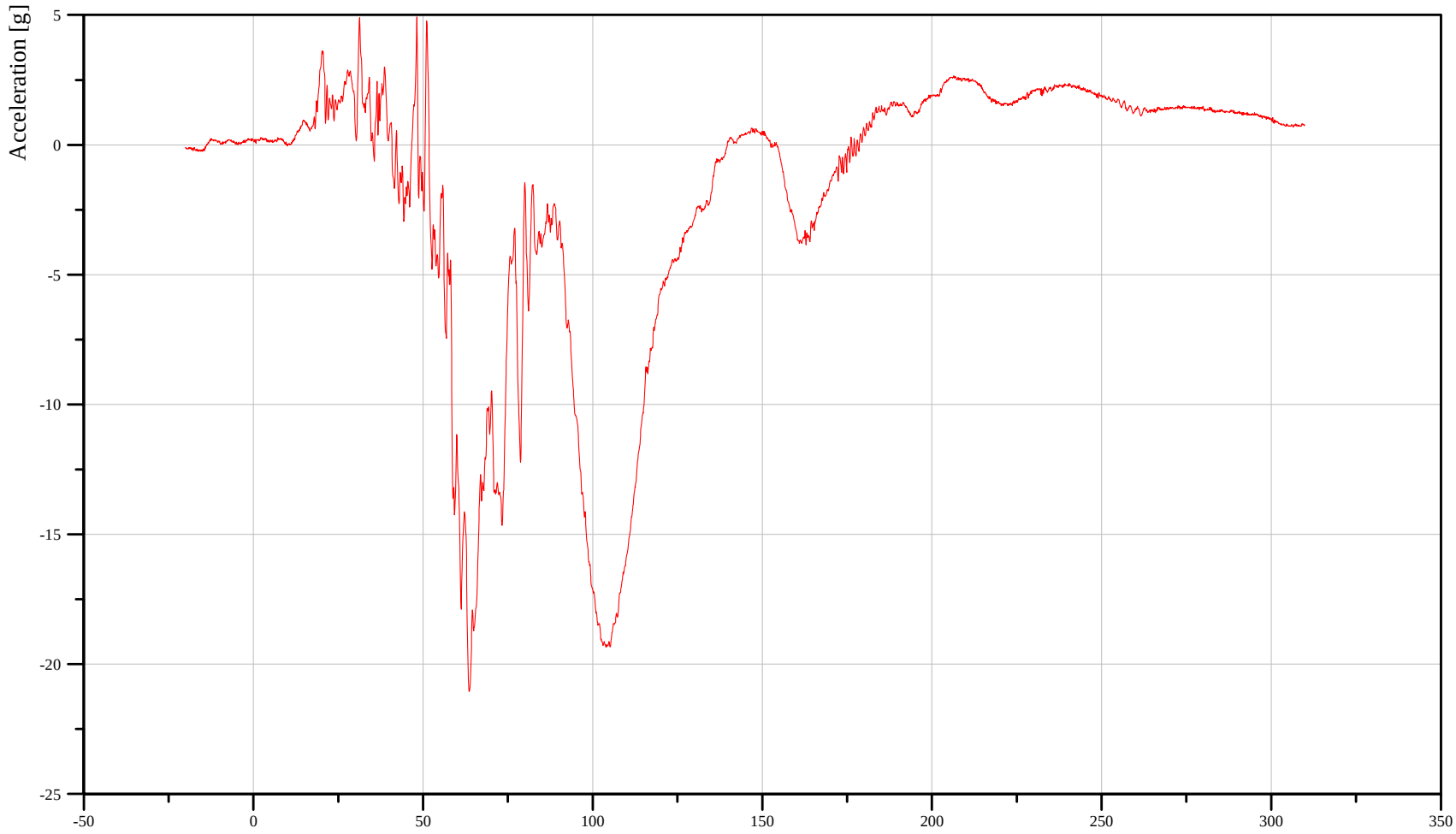
## Target Passenger Pelvis CG Z-Axis Acceleration

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 23PELVCG00HFACZA

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_1000

**Min. Value**
-21.05 g at 63.52 ms

**Max. Value**
4.93 g at 48.16 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

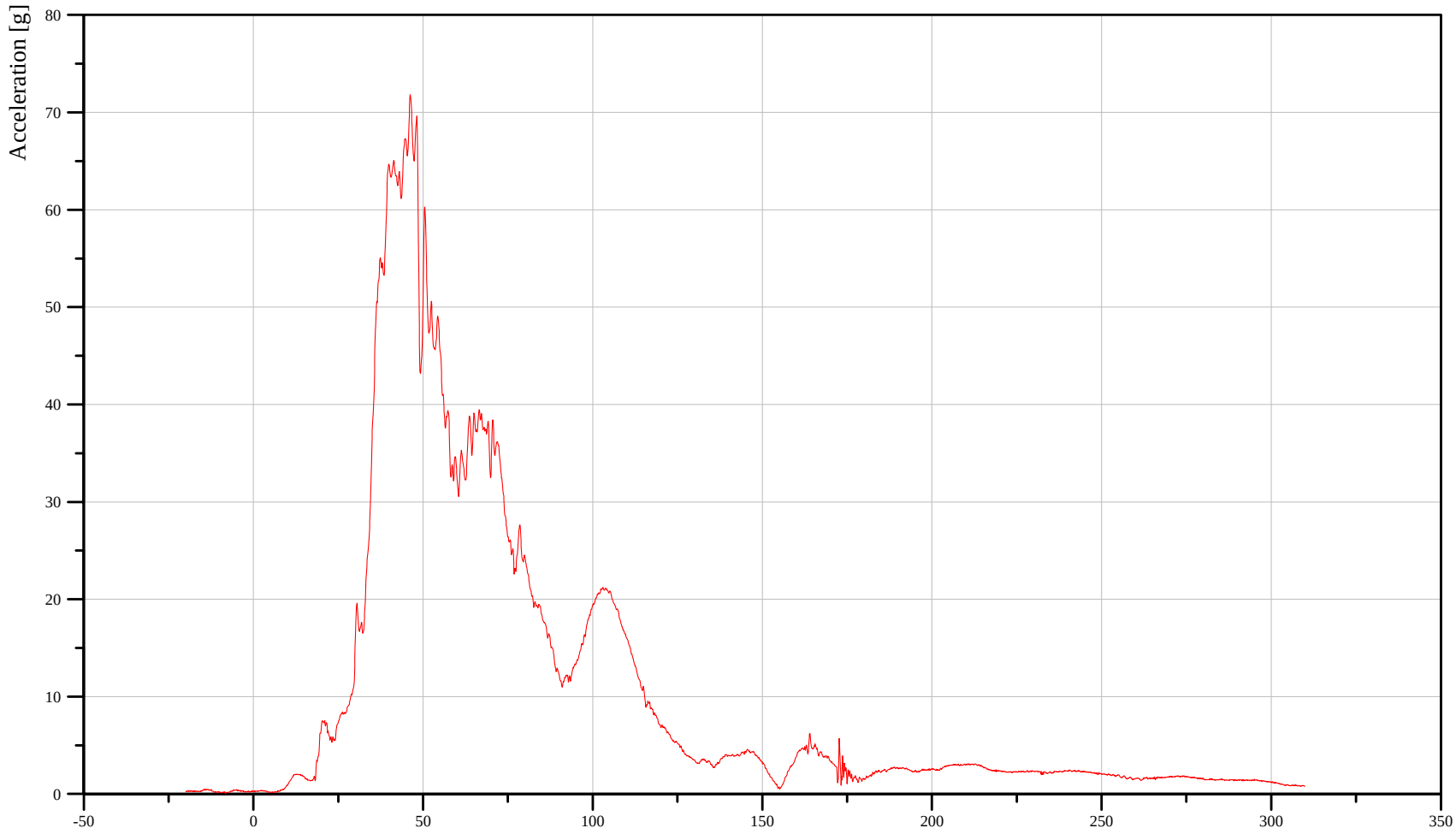
## Target Passenger Pelvis CG Resultant Acceleration

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 23PELVCG00HFACRA

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_1000

**Min. Value**
0.08 g at -8.16 ms

**Max. Value**
71.81 g at 46.24 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

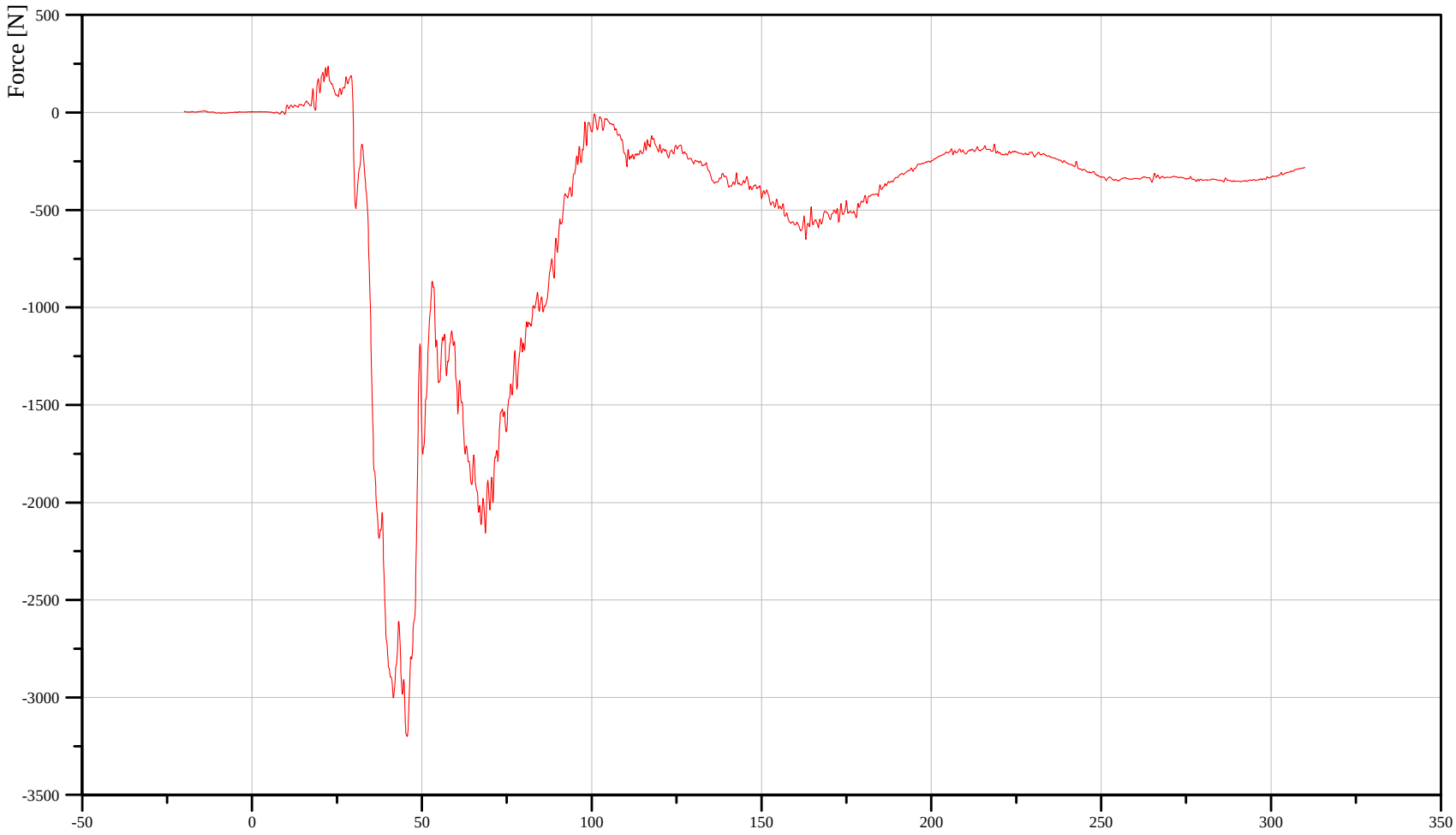
## Target Passenger Left Femur Z-Axis Force

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 23FEMRLL00HFFOZB

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_600

**Min. Value**
-3,200.92 N at 45.68 ms

**Max. Value**
237.96 N at 22.40 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

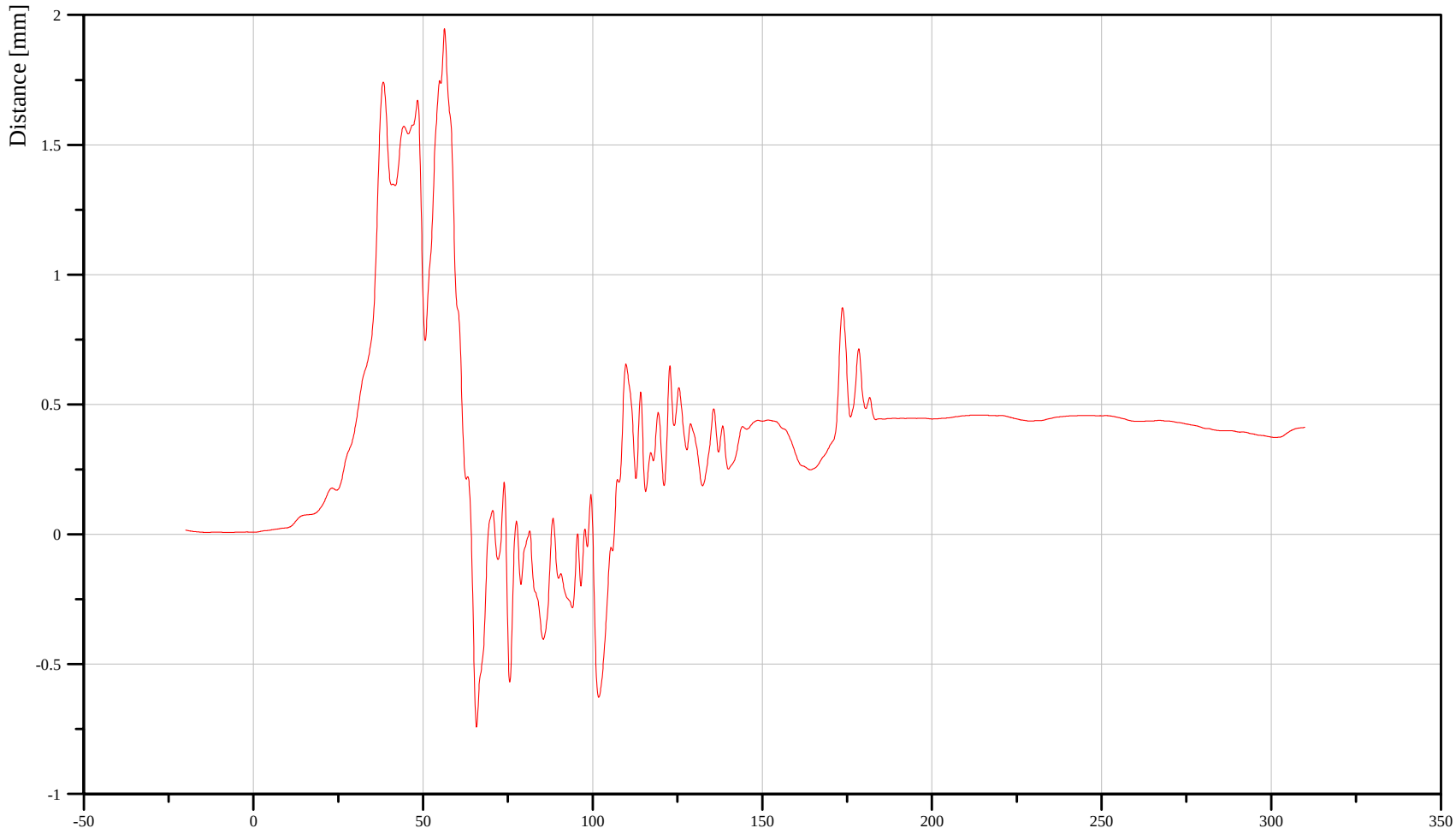
## Target Passenger Left Knee Displacement

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 23KNSLLE00HFDSXC

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_180

**Min. Value**
-0.74 mm at 65.76 ms

**Max. Value**
1.95 mm at 56.32 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

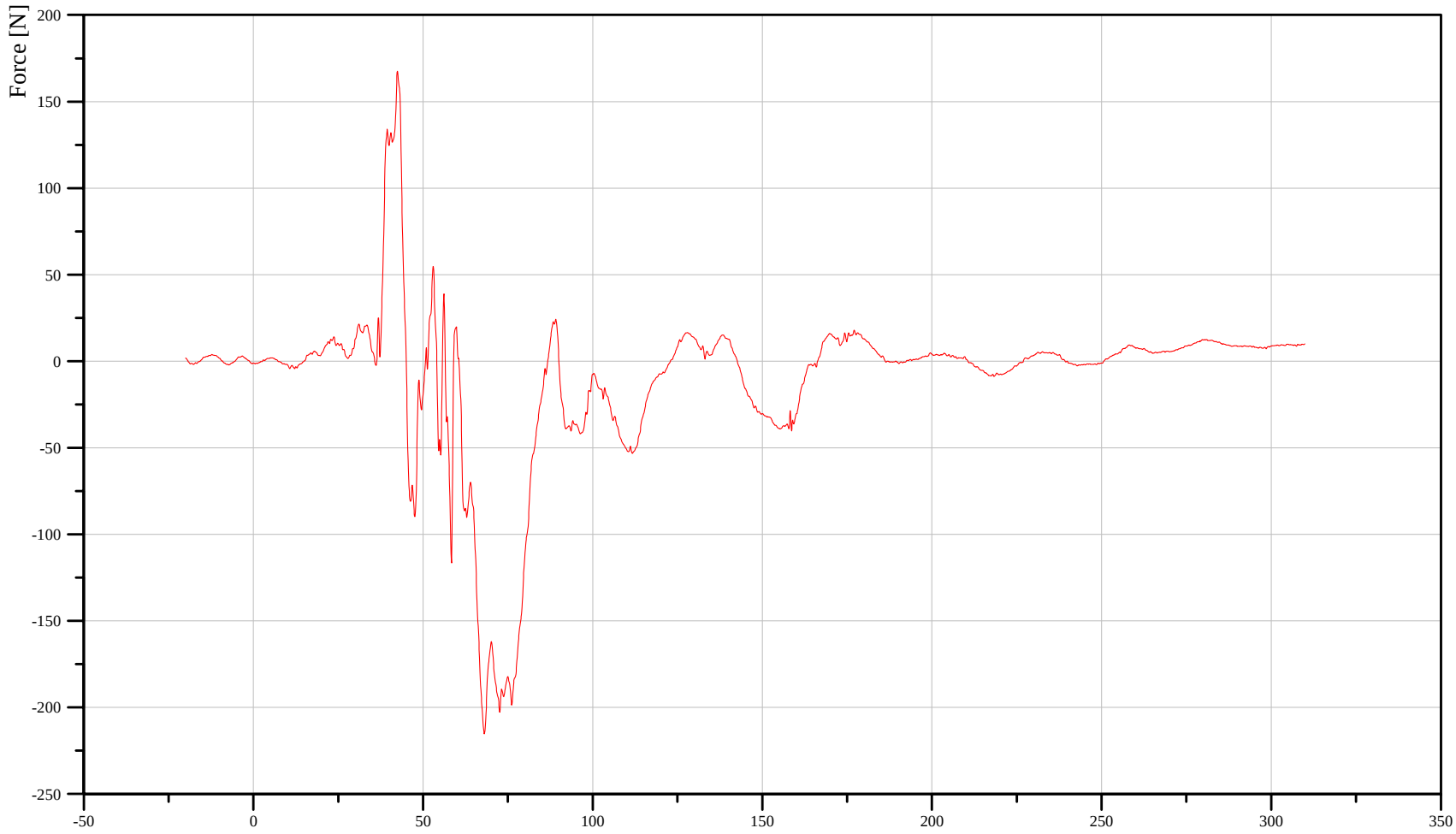
Target Passenger Left Upper Tibia X-Axis Force

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 23TIBILUFXHFFOXB

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_600

**Min. Value**
-215.23 N at 68.08 ms

**Max. Value**
167.61 N at 42.48 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

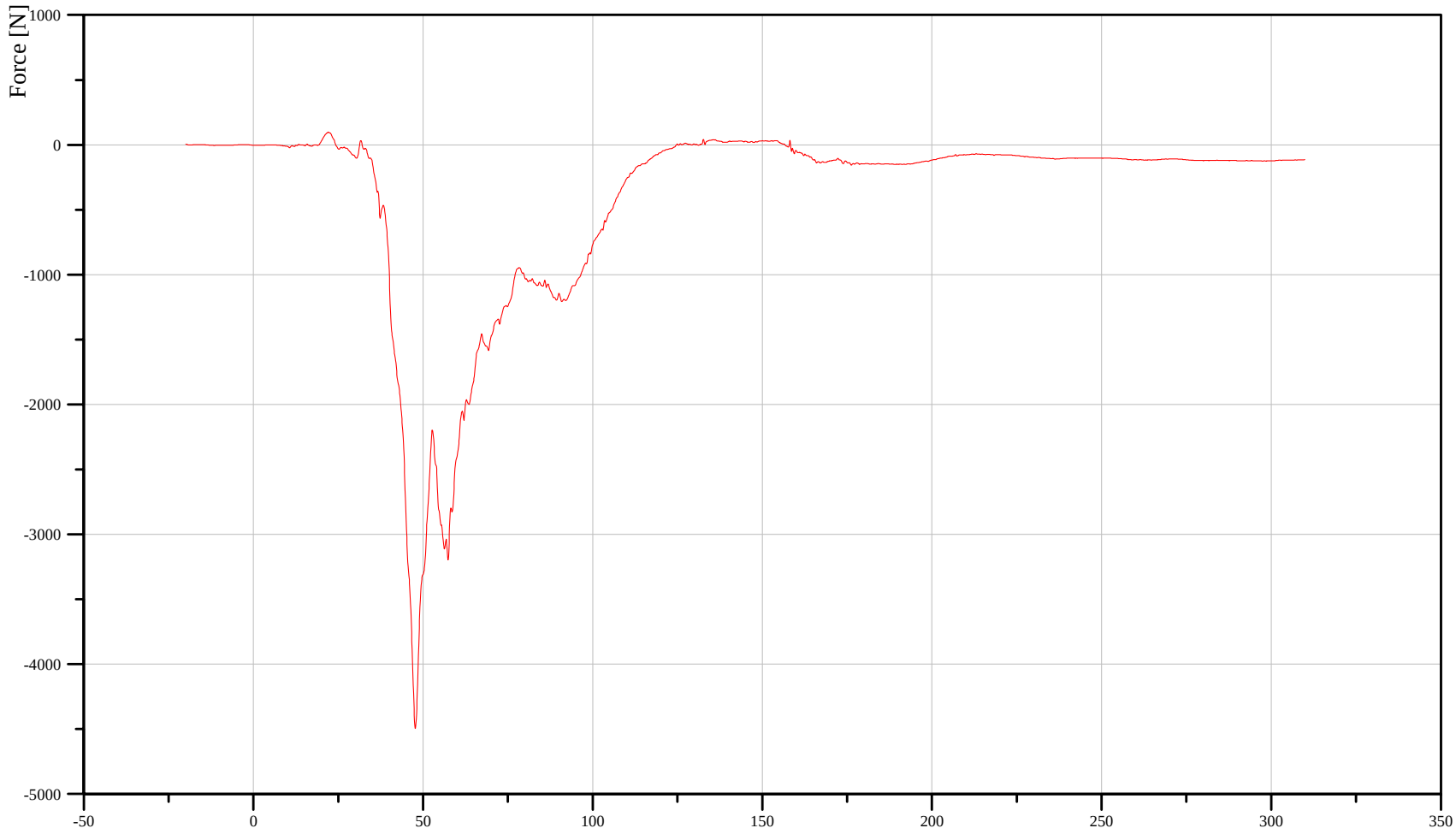
Target Passenger Left Upper Tibia Z-Axis Force

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

## 23TIBILUFXHFFOZB

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_600

**Min. Value**
-4,493.45 N at 47.76 ms

**Max. Value**
96.84 N at 22.08 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

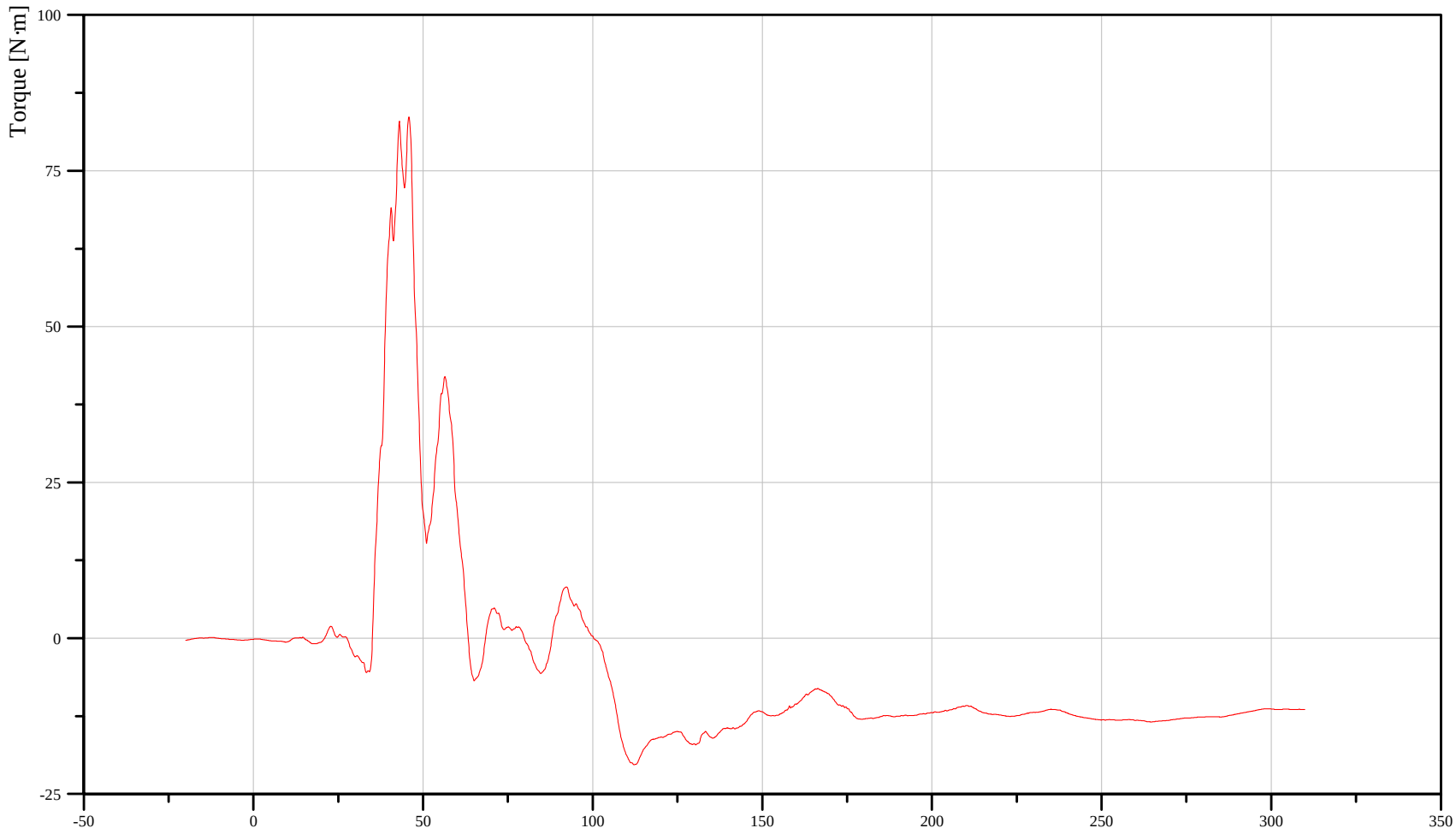
## Target Passenger Left Upper Tibia Moment About X Axis

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 23TIBILUFXHFMOXB

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_600

**Min. Value**
-20.29 N·m at 112.16 ms

**Max. Value**
83.66 N·m at 45.84 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

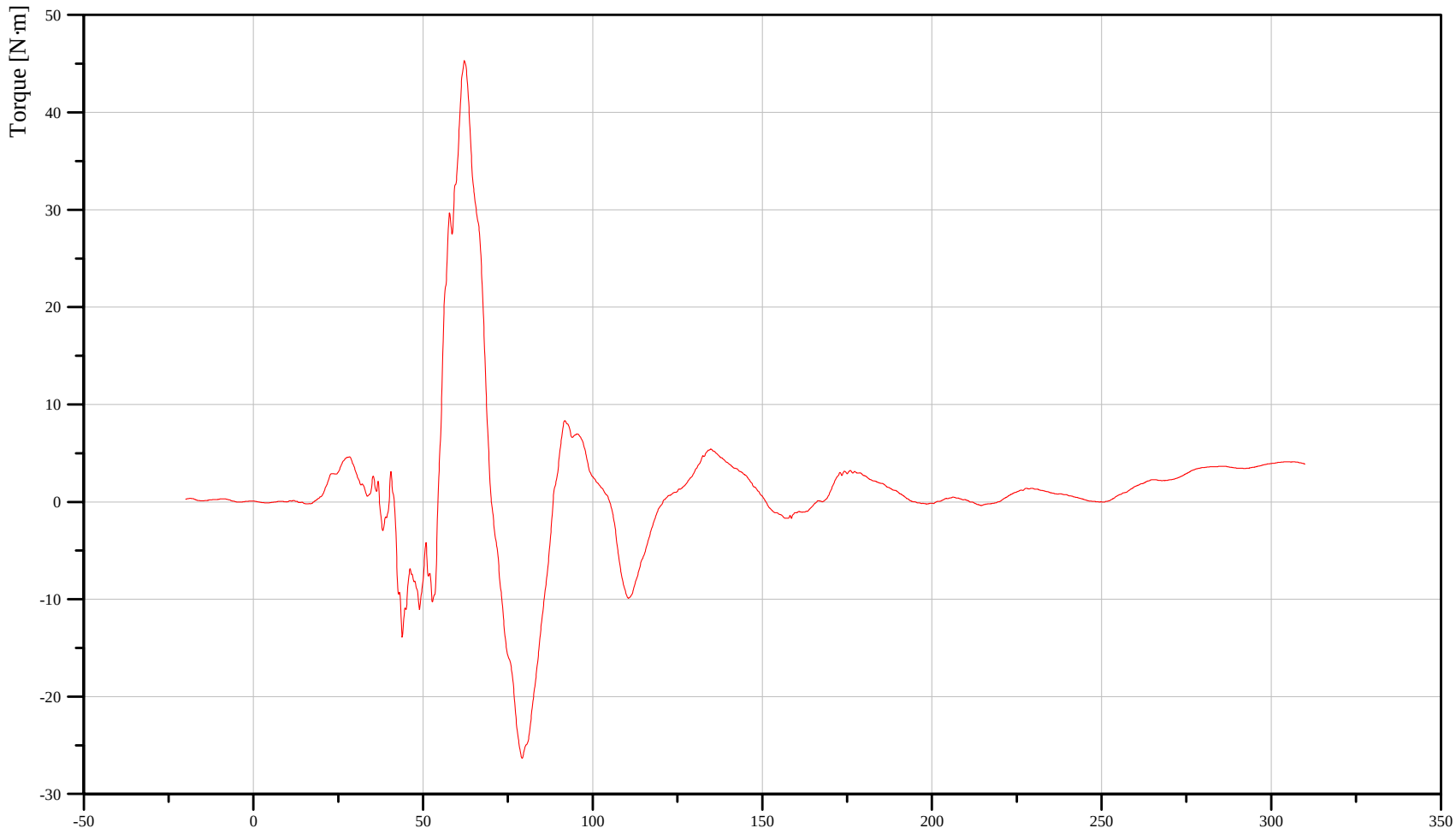
## Target Passenger Left Upper Tibia Moment About Y Axis

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 23TIBILUFXHFMOYB

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_600

**Min. Value**
-26.33 N·m at 79.20 ms

**Max. Value**
45.32 N·m at 62.16 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

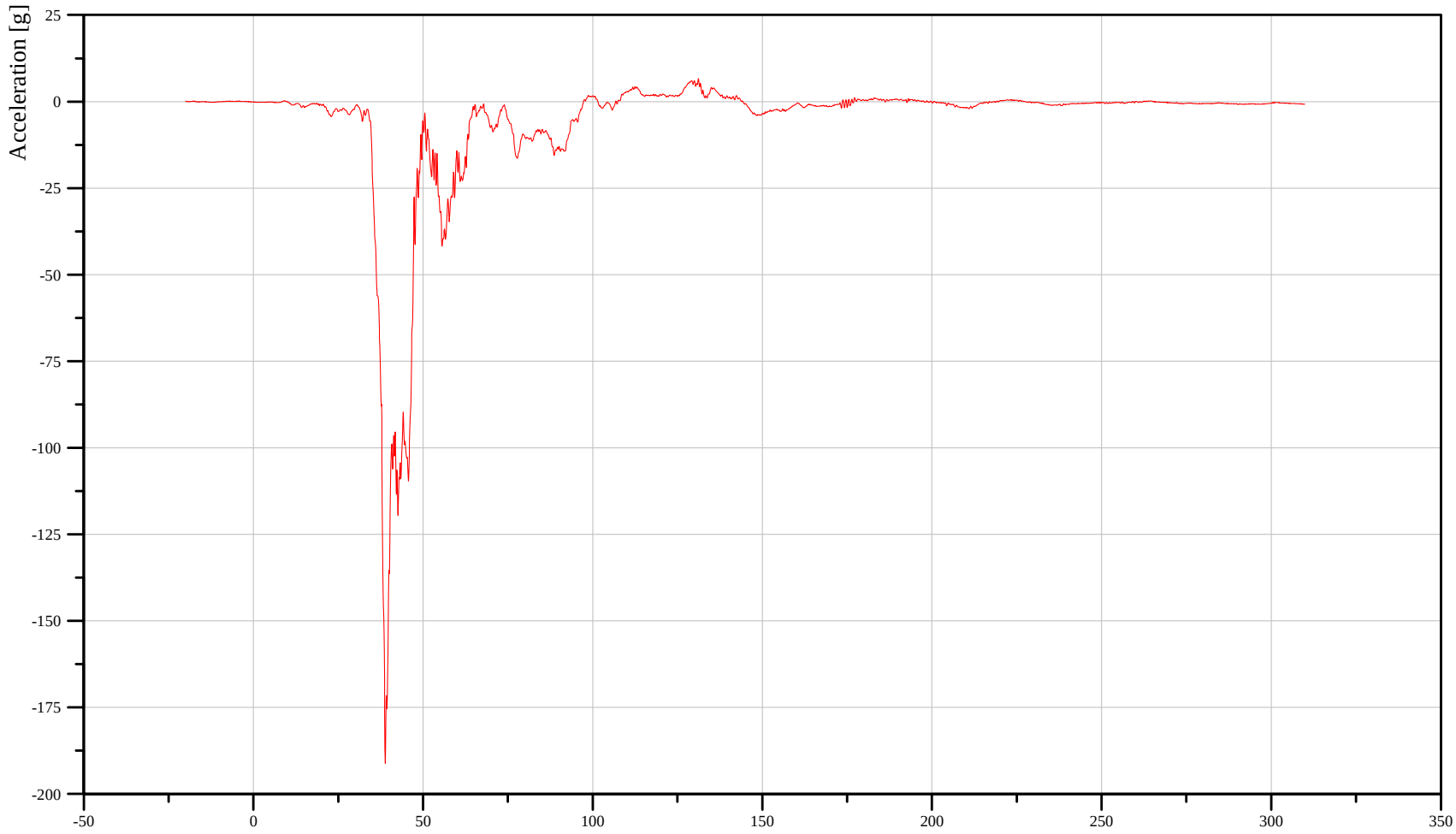
## Target Passenger Left Tibia X-Axis Acceleration

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 23TIBILEFXHFACXA

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_1000

**Min. Value**
-191.18 g at 38.88 ms

**Max. Value**
6.68 g at 131.20 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

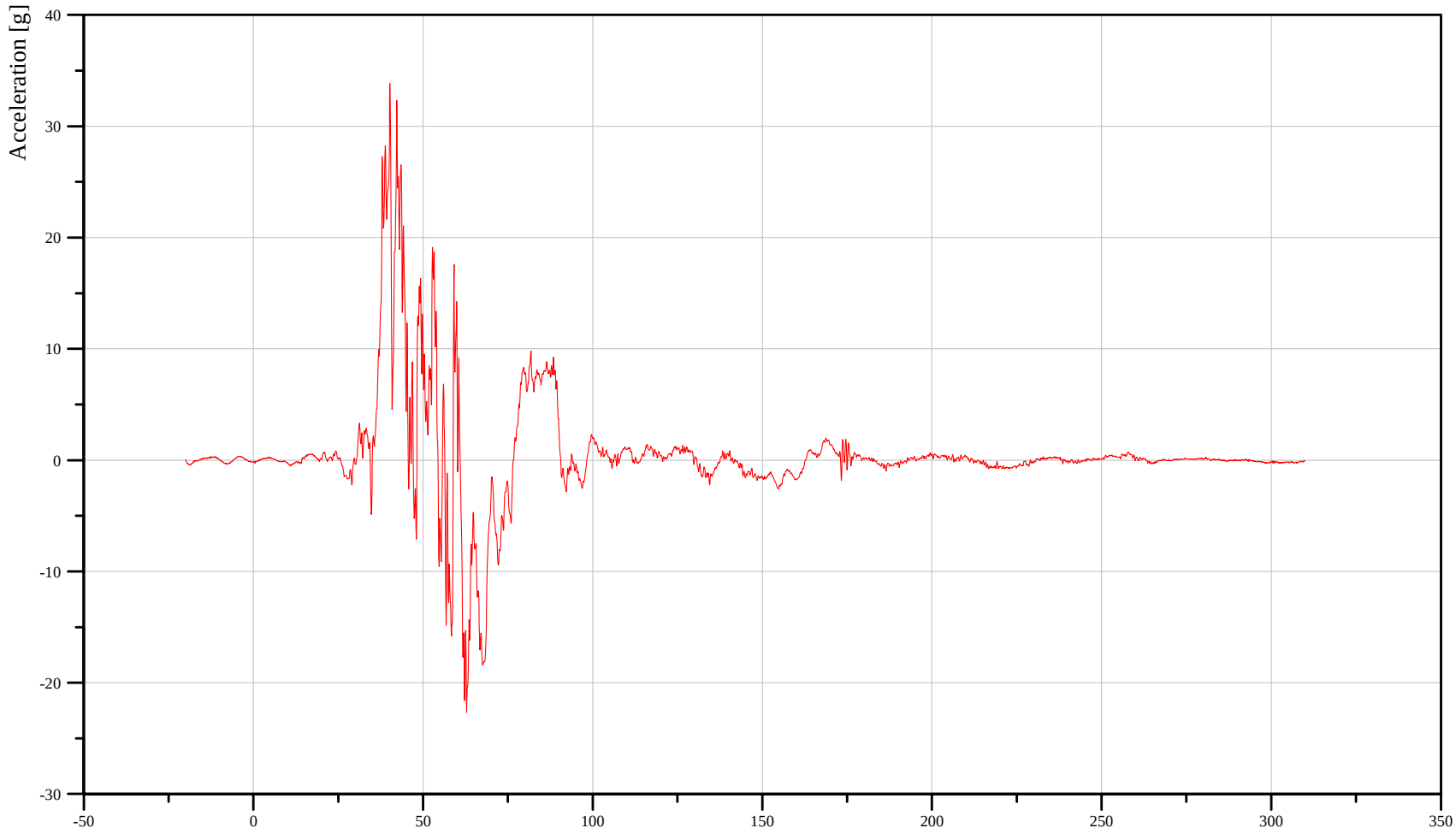
## Target Passenger Left Tibia Y-Axis Acceleration

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 23TIBILEFXHFACYA

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_1000

**Min. Value**
-22.68 g at 62.88 ms

**Max. Value**
33.86 g at 40.24 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

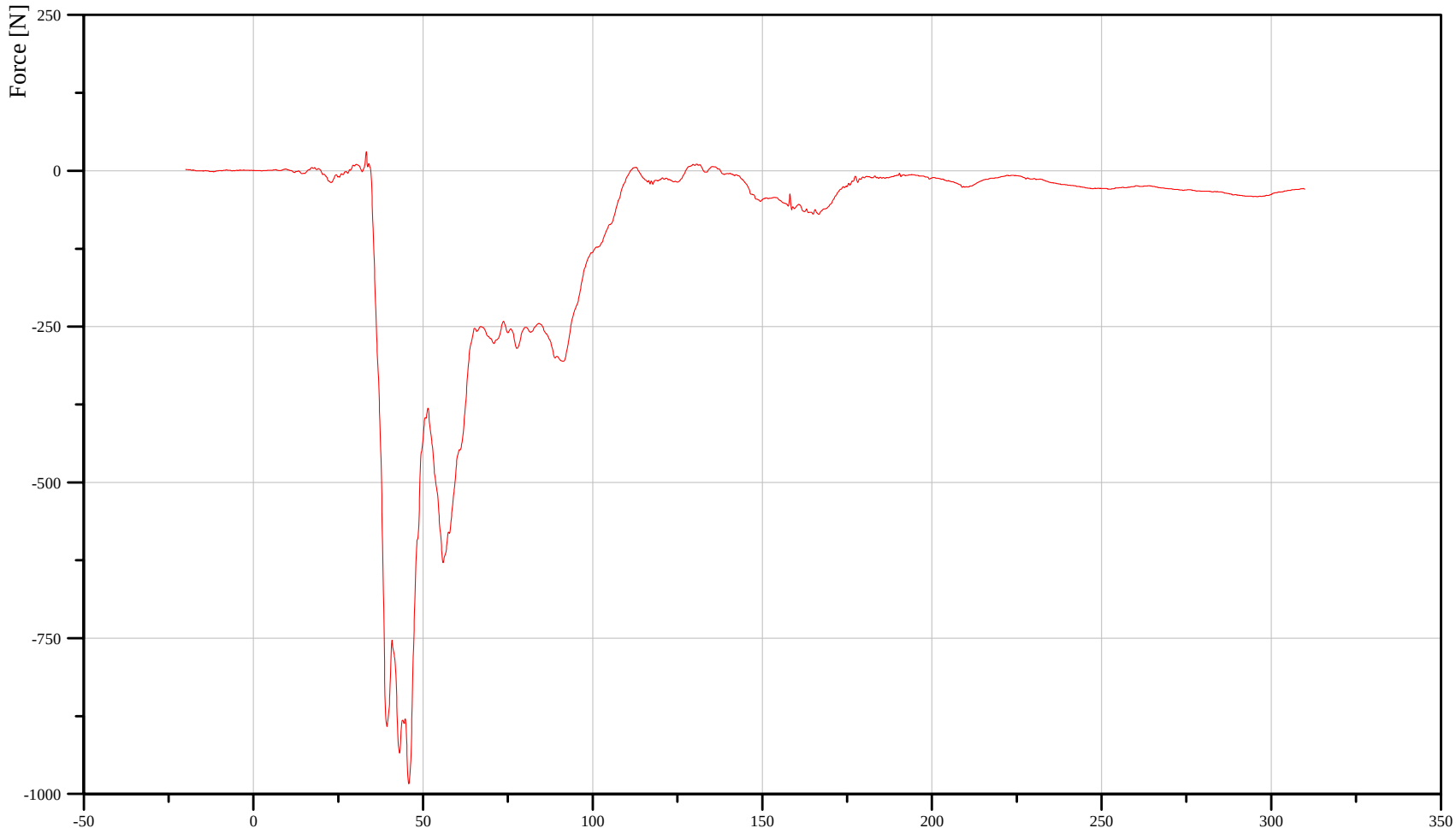
## Target Passenger Left Lower Tibia X-Axis Force

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 23TIBILLFXHFFOXB

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_600

**Min. Value**
-983.54 N at 45.76 ms

**Max. Value**
30.55 N at 33.28 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

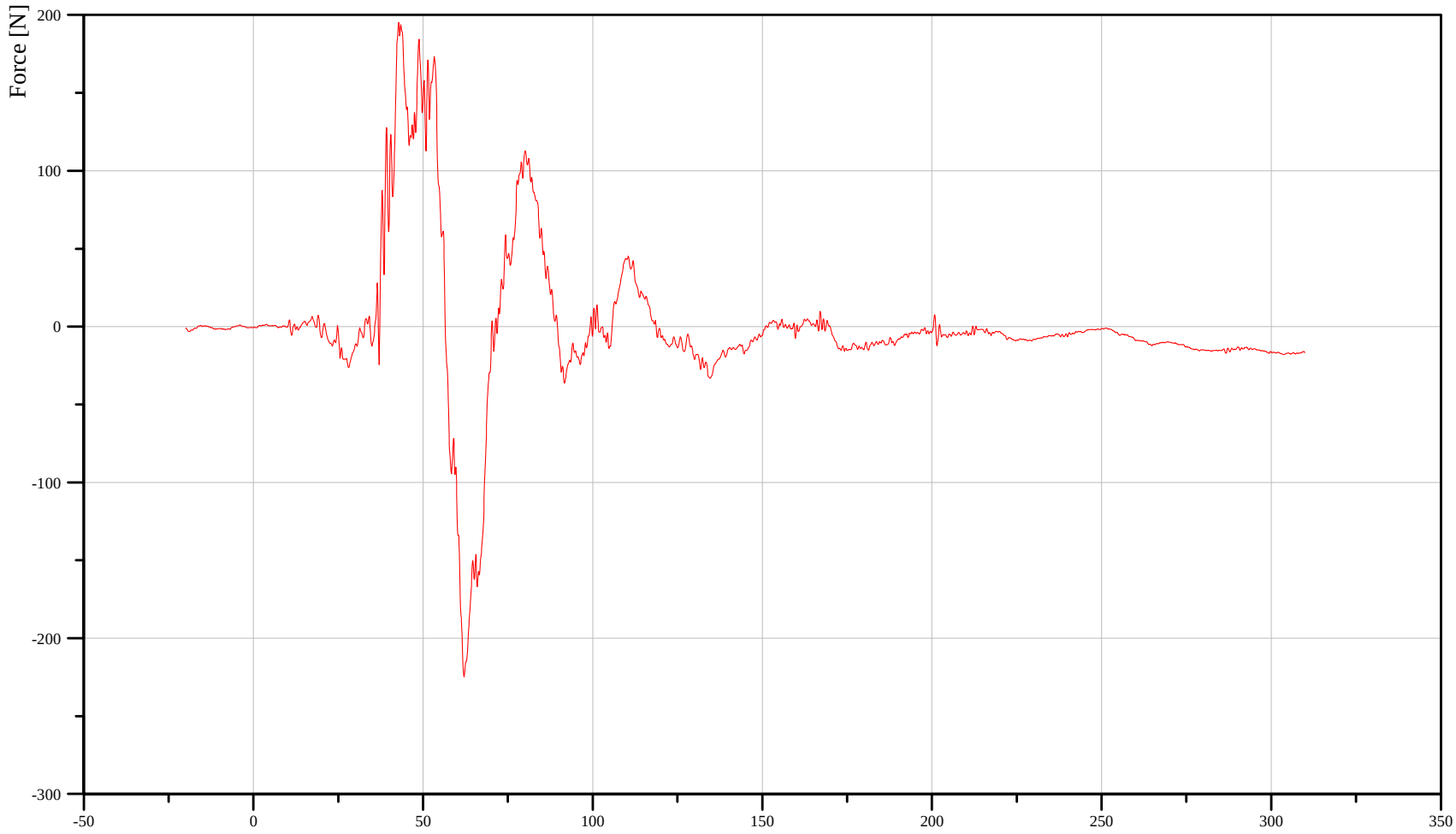
## Target Passenger Left Lower Tibia Y-Axis Force

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 23TIBILLFXHFFOYB

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_600

**Min. Value**
-224.78 N at 62.08 ms

**Max. Value**
195.24 N at 42.80 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

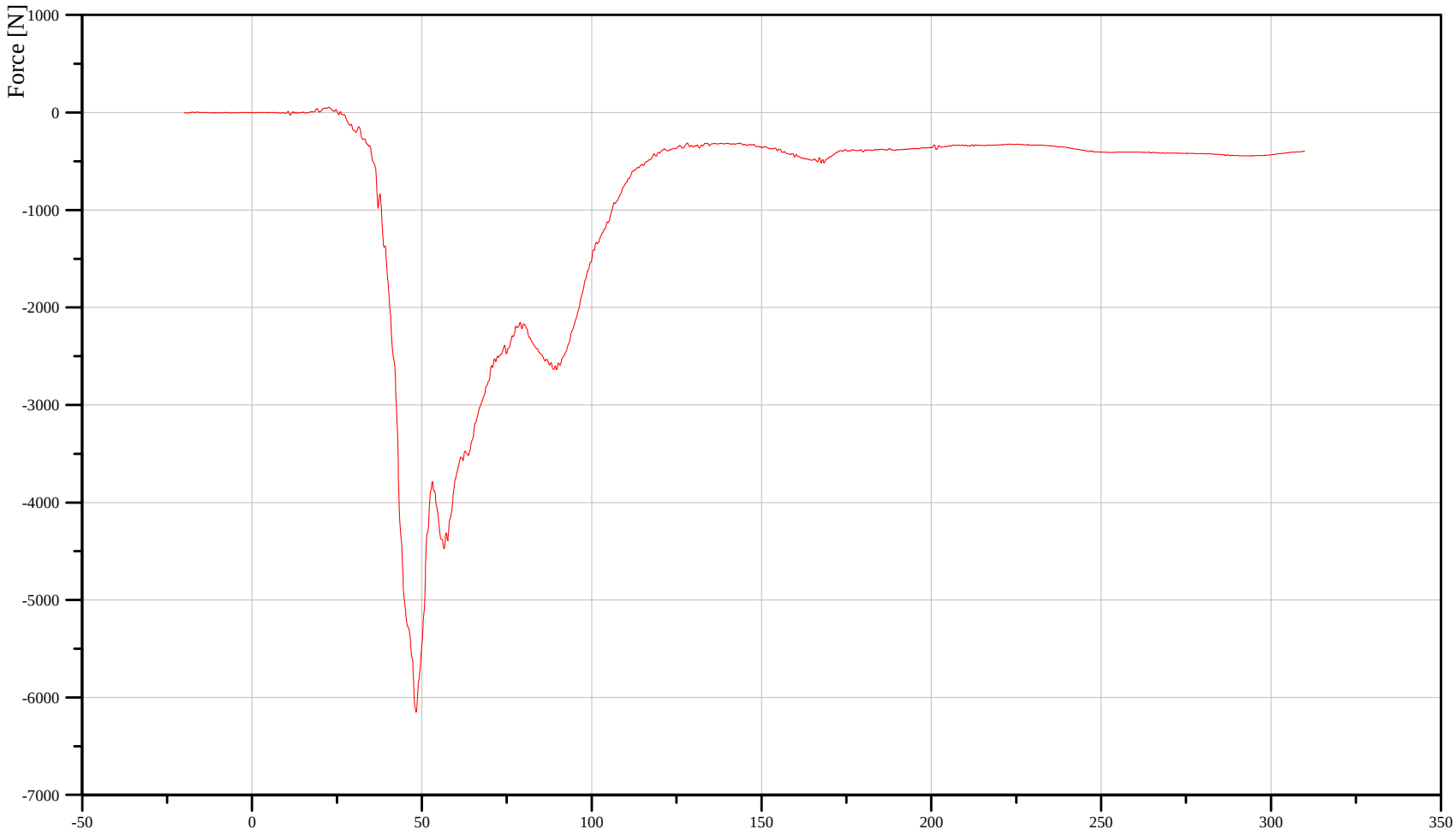
## Target Passenger Left Lower Tibia Z-Axis Force

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 23TIBILLFXHFFOZB

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_600

**Min. Value**
-6,150.46 N at 48.32 ms

**Max. Value**
52.84 N at 22.64 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

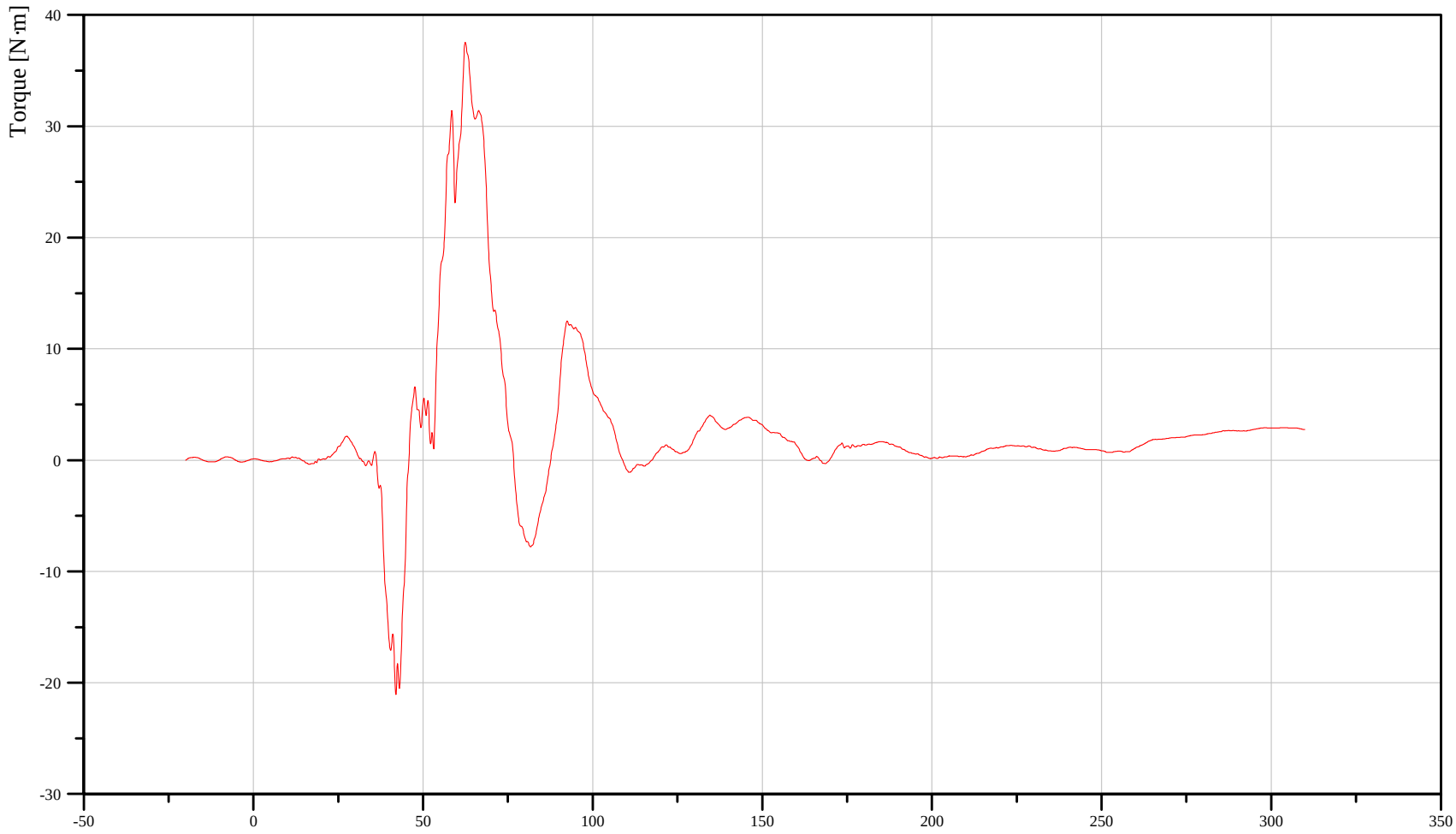
## Target Passenger Left Lower Tibia Moment About X Axis

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 23TIBILLFXHFMOXB

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_600

**Min. Value**
-21.07 N·m at 42.00 ms

**Max. Value**
37.56 N·m at 62.48 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

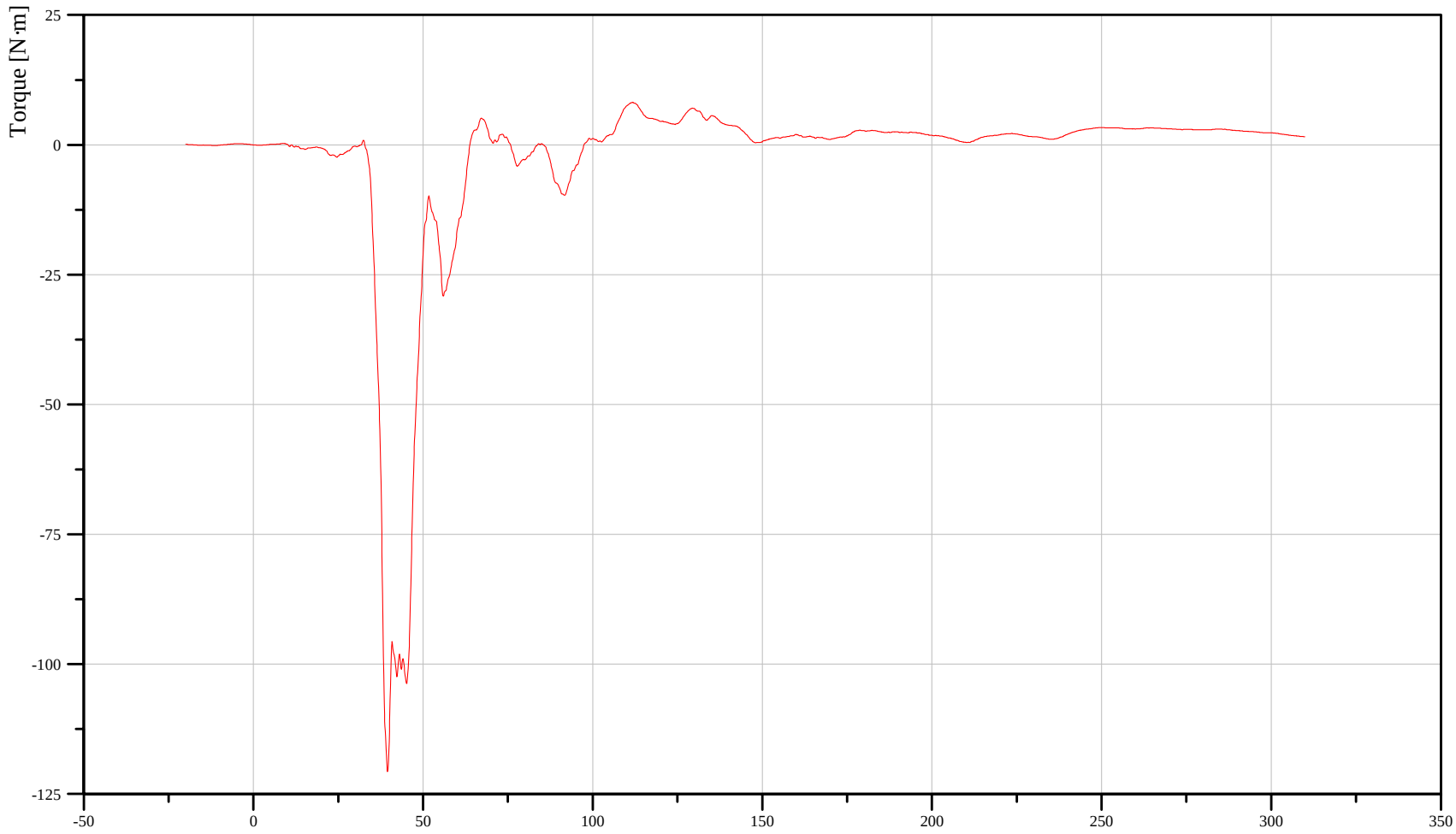
## Target Passenger Left Lower Tibia Moment About Y Axis

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 23TIBILLFXHFMOYB

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_600

**Min. Value**
-120.71 N·m at 39.52 ms

**Max. Value**
8.17 N·m at 111.84 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

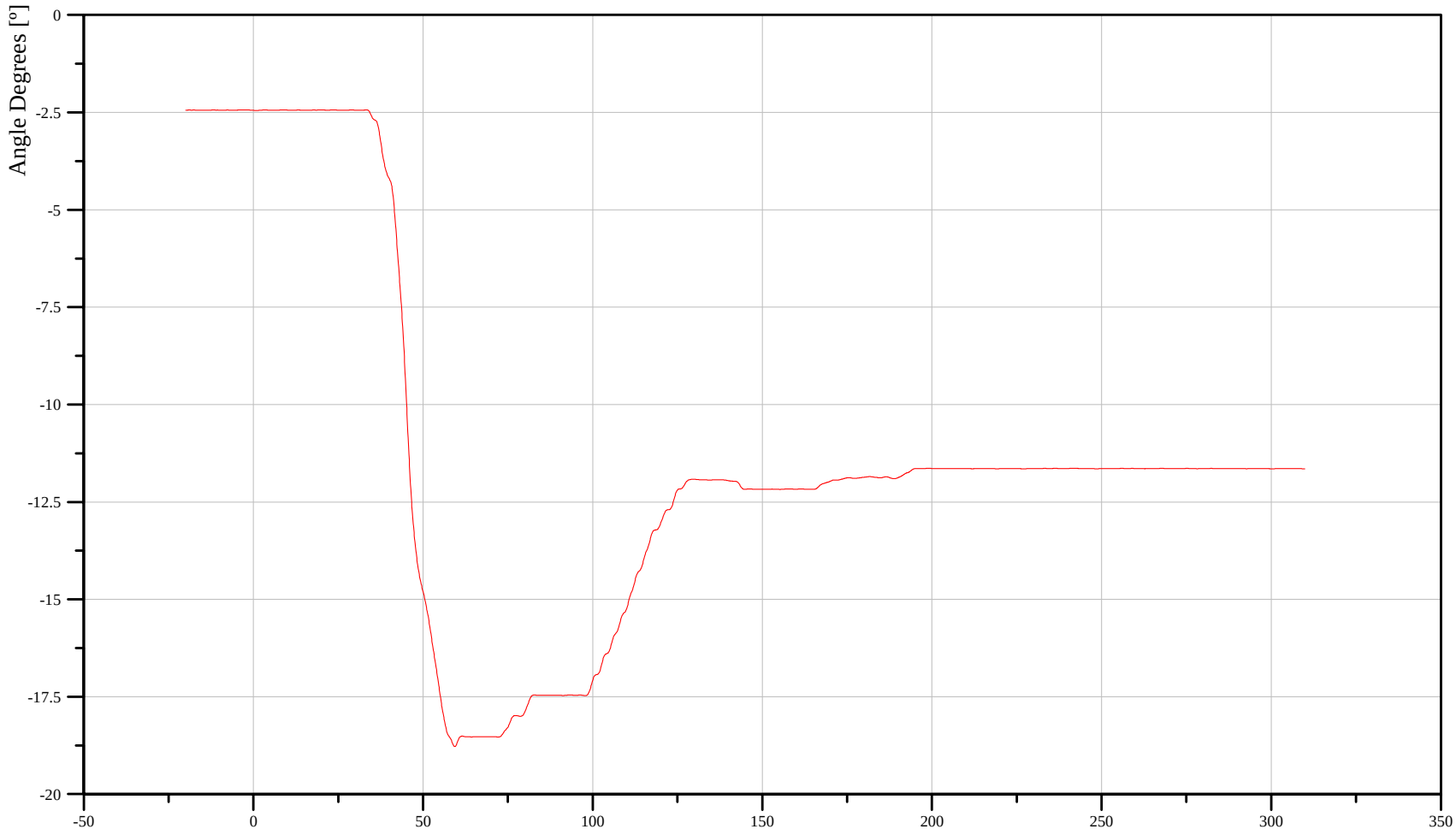
Target Passenger Left Foot X-Axis Rotation

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

## 23FOOTLEFXHFANXC

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_180

**Min. Value**
-18.78 ° at 59.36 ms

**Max. Value**
-2.43 ° at 33.36 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

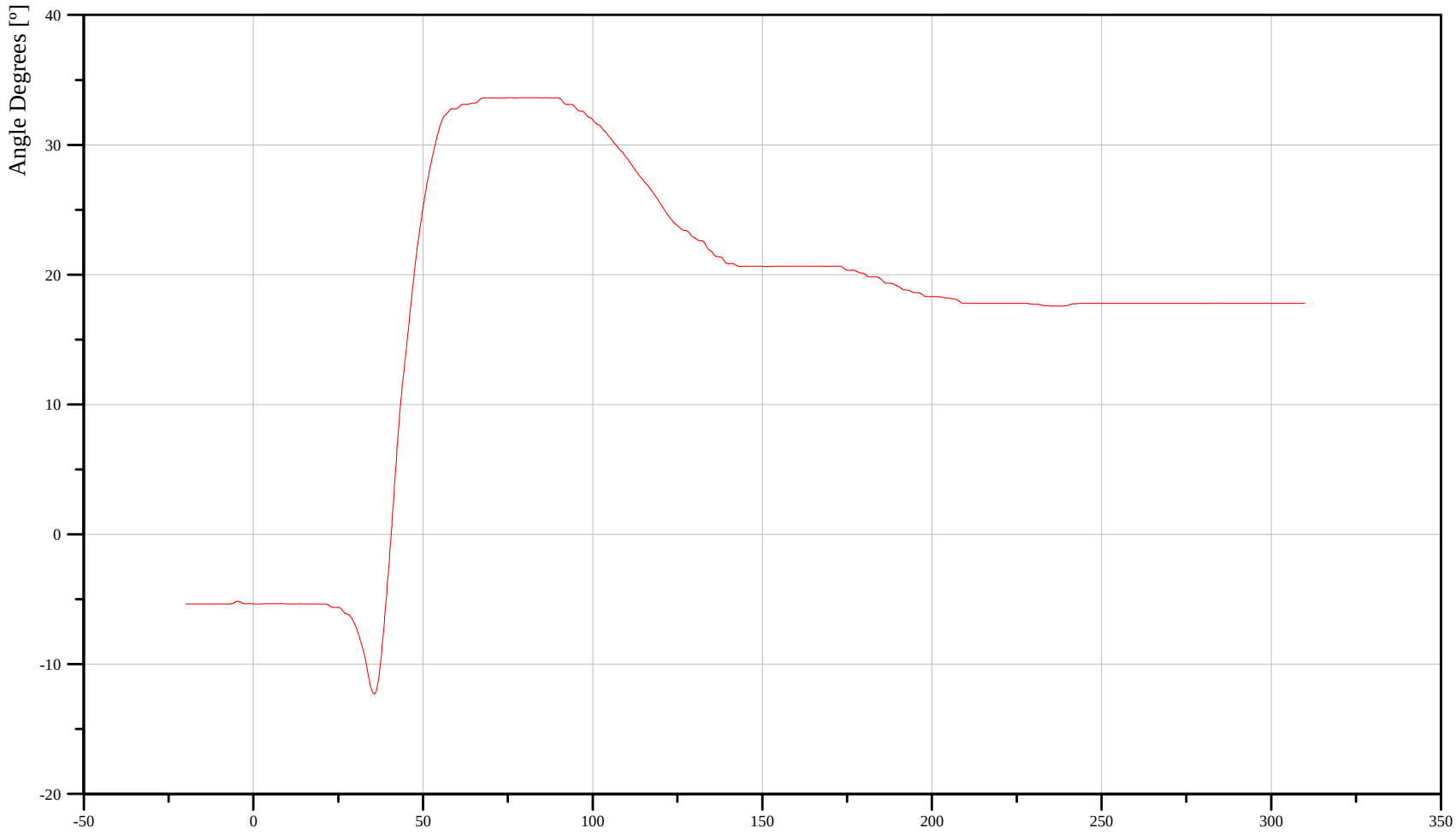
Target Passenger Left Foot Y-Axis Rotation

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

## 23FOOTLEFXHFANYC

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_180

**Min. Value**
-12.29 ° at 35.60 ms

**Max. Value**
33.62 ° at 78.88 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

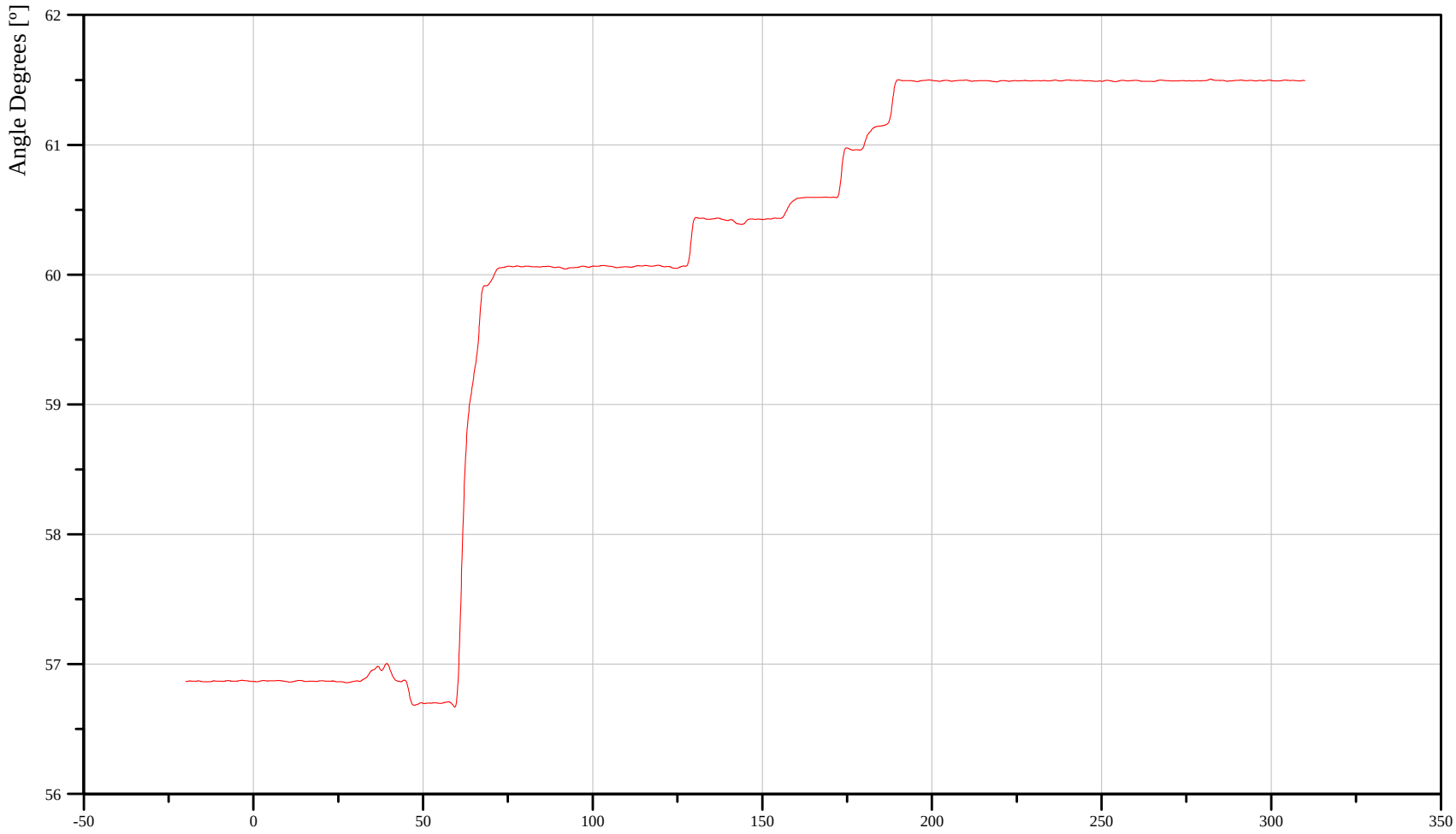
## Target Passenger Left Foot Z-Axis Rotation

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 23FOOTLEFXHFANZC

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_180

**Min. Value**
56.67 ° at 59.36 ms

**Max. Value**
61.51 ° at 282.16 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

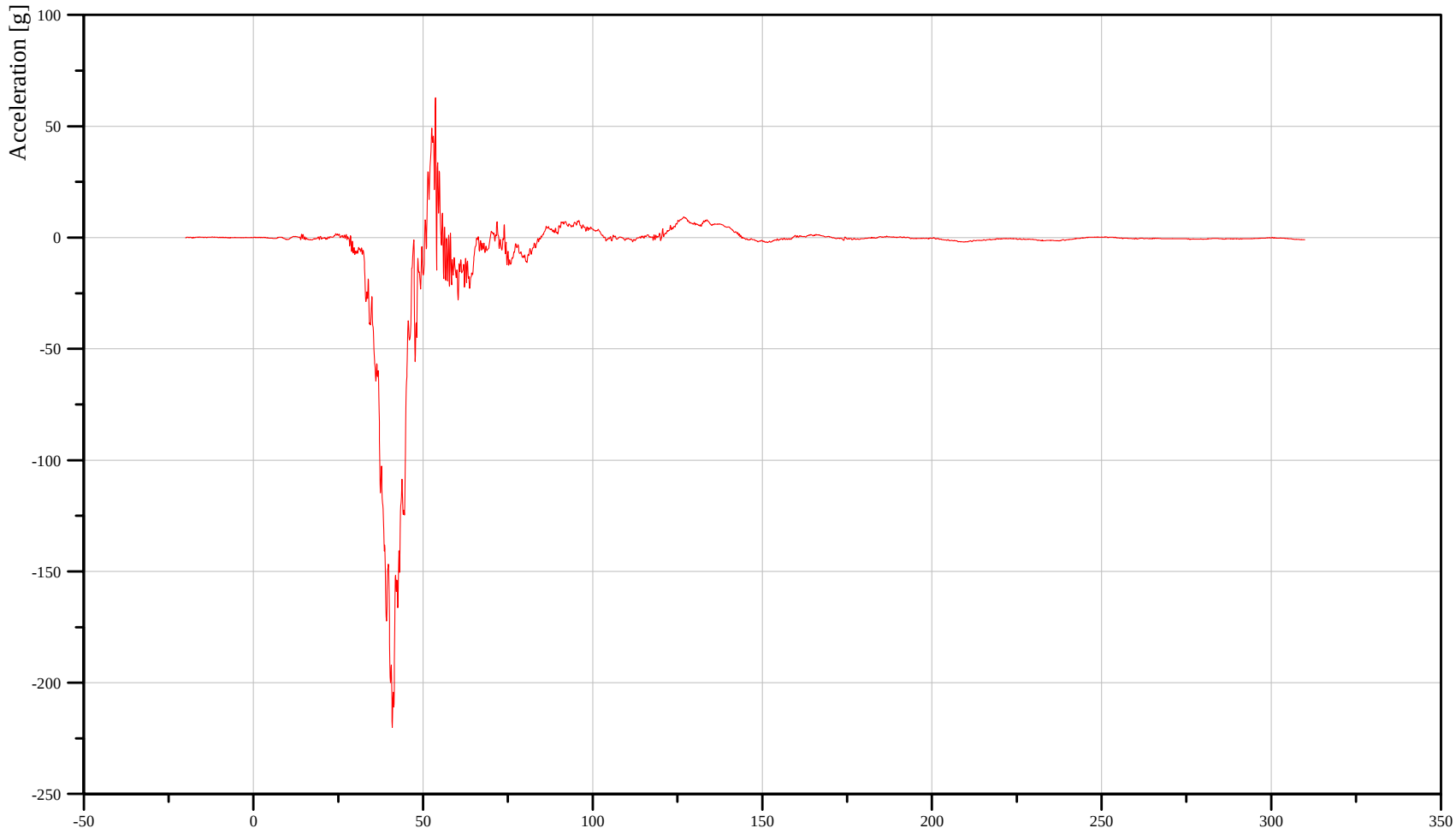
Target Passenger Left Foot X-Axis Acceleration

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

## 23FOOTLEFXHFACXA

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_1000

**Min. Value**
-220.11 g at 40.96 ms

**Max. Value**
62.78 g at 53.68 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

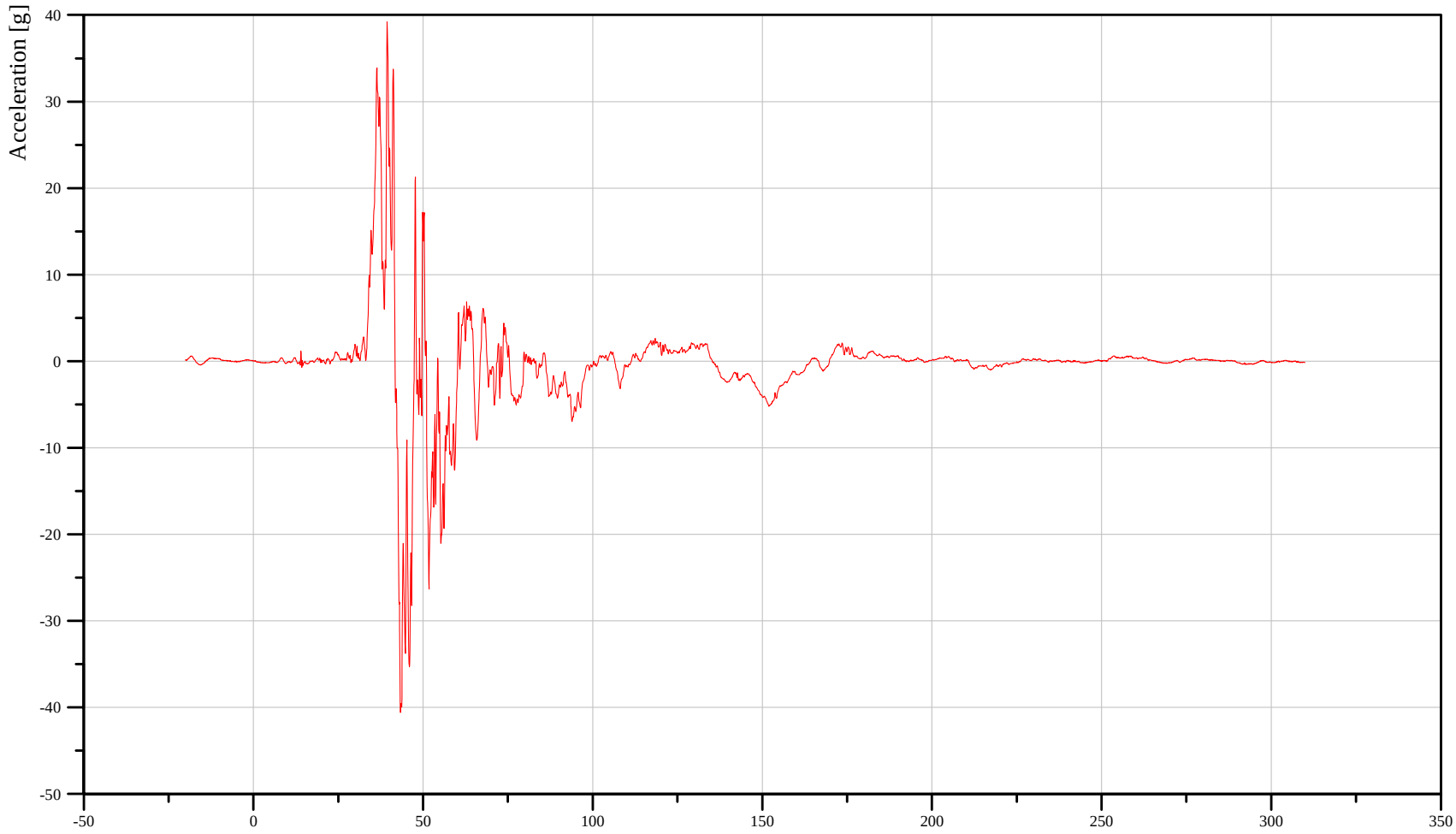
Target Passenger Left Foot Y-Axis Acceleration

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

## 23FOOTLEFXHFACYA

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_1000

**Min. Value**
-40.60 g at 43.36 ms

**Max. Value**
39.22 g at 39.44 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

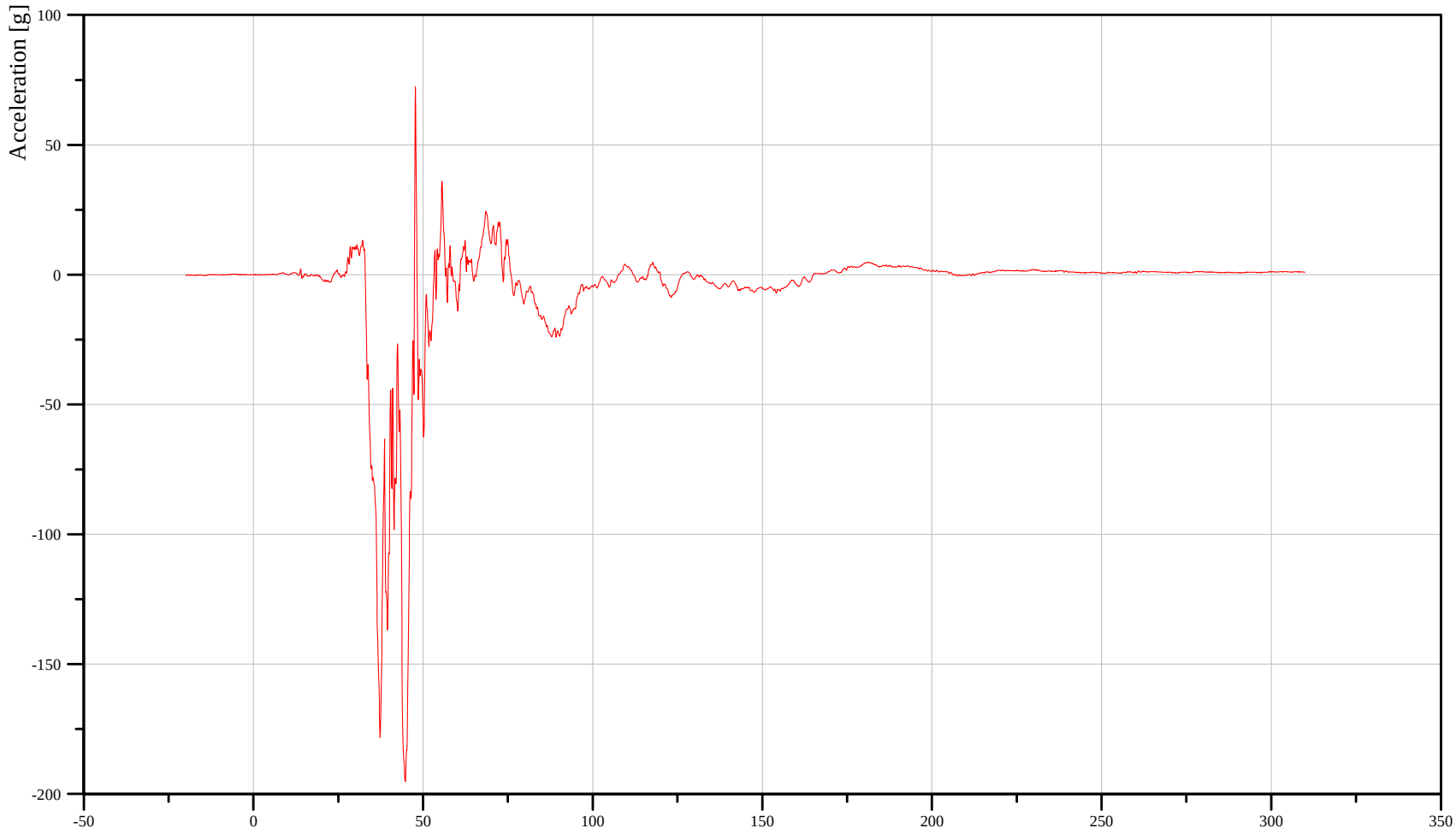
## Target Passenger Left Foot Z-Axis Acceleration

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 23FOOTLEFXHFACZA

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_1000

**Min. Value**
-195.21 g at 44.80 ms

**Max. Value**
72.39 g at 47.76 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

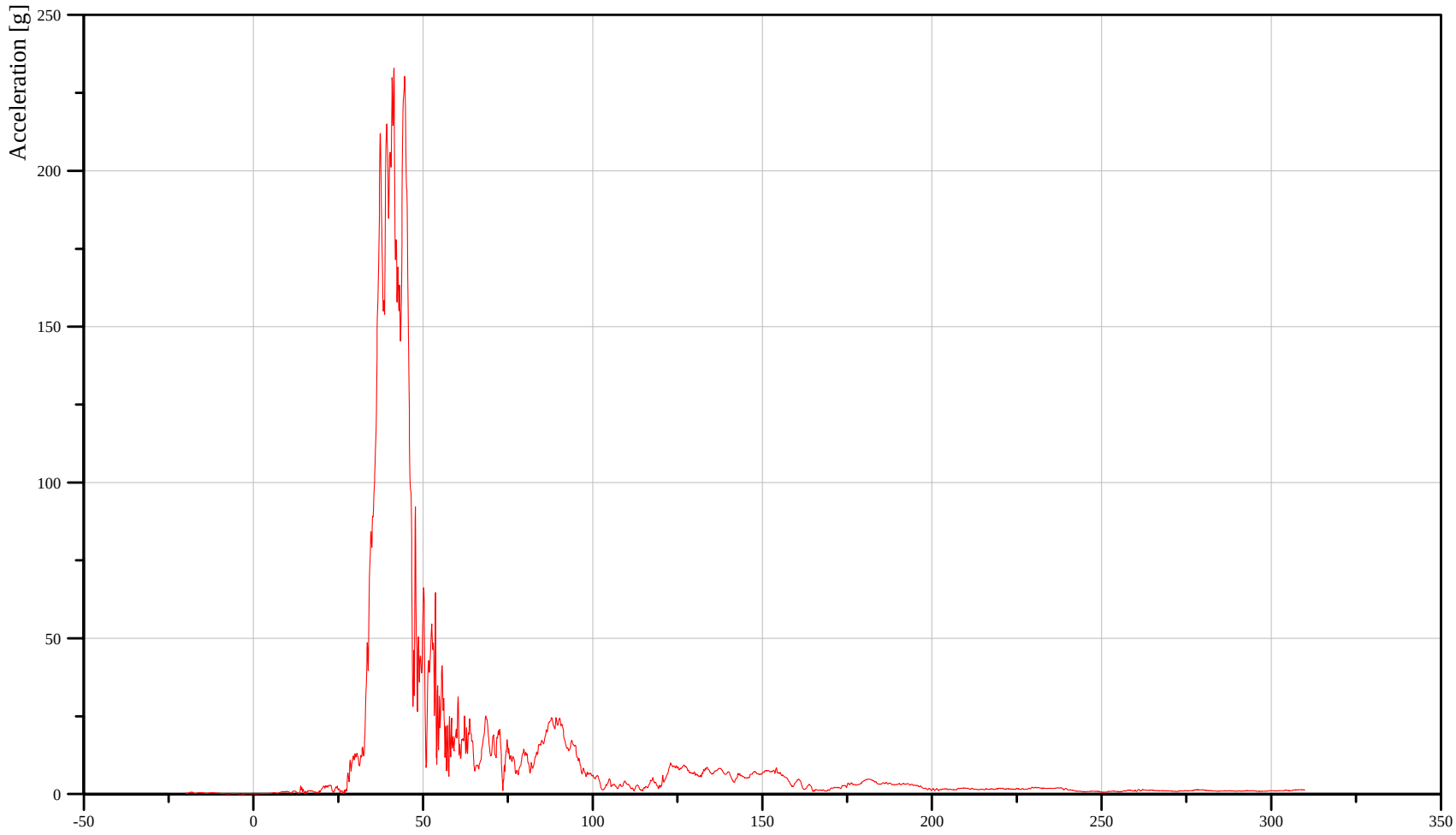
## Target Passenger Left Foot Resultant Acceleration

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 23FOOTLEFXHFACRA

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_1000

**Min. Value**
0.03 g at -3.84 ms

**Max. Value**
232.97 g at 41.44 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

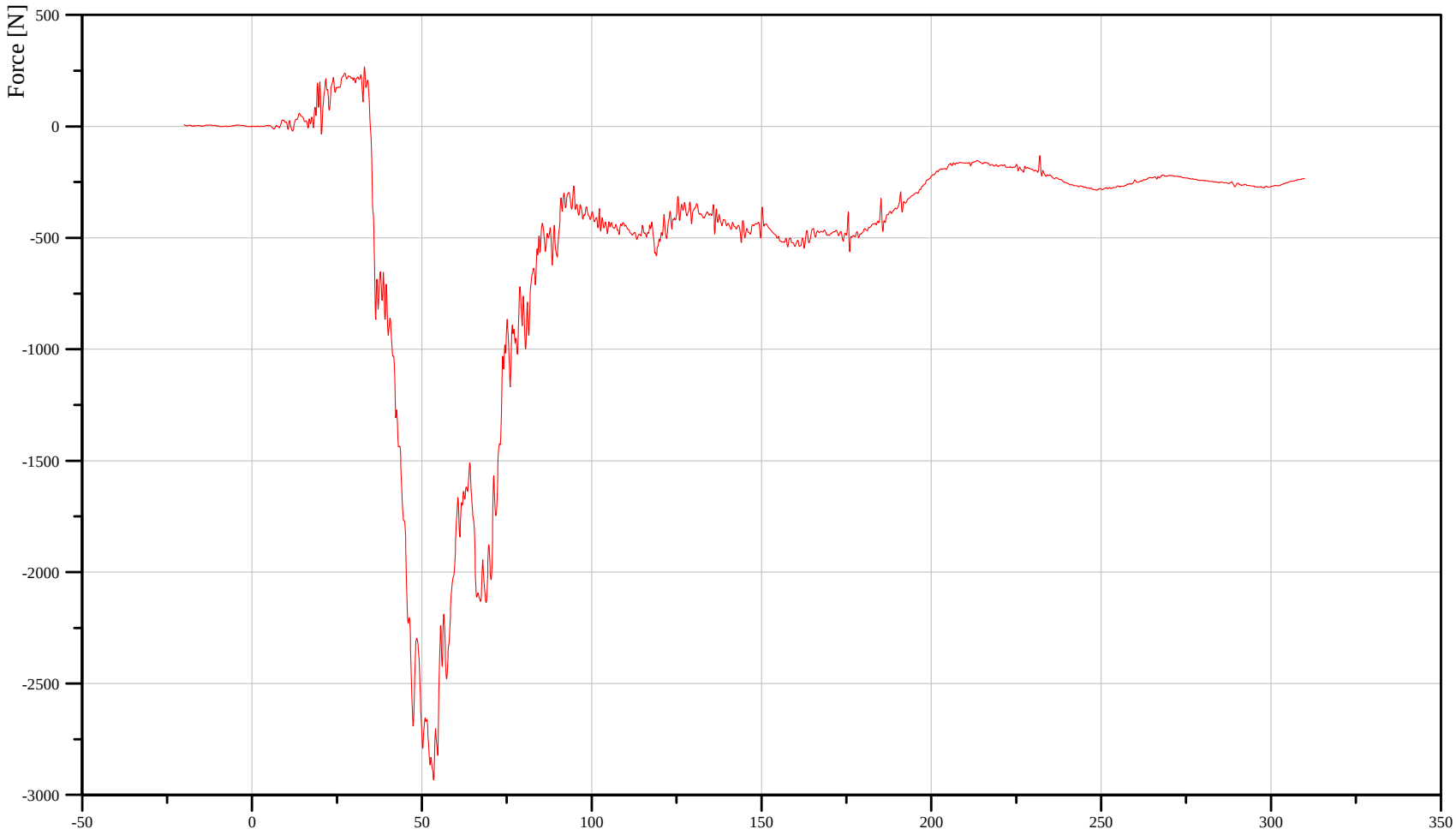
Target Passenger Right Femur Z-Axis Force

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

## 23FEMRRL00HFFOZB

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_600

**Min. Value**
-2,932.24 N at 53.52 ms

**Max. Value**
267.82 N at 33.12 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

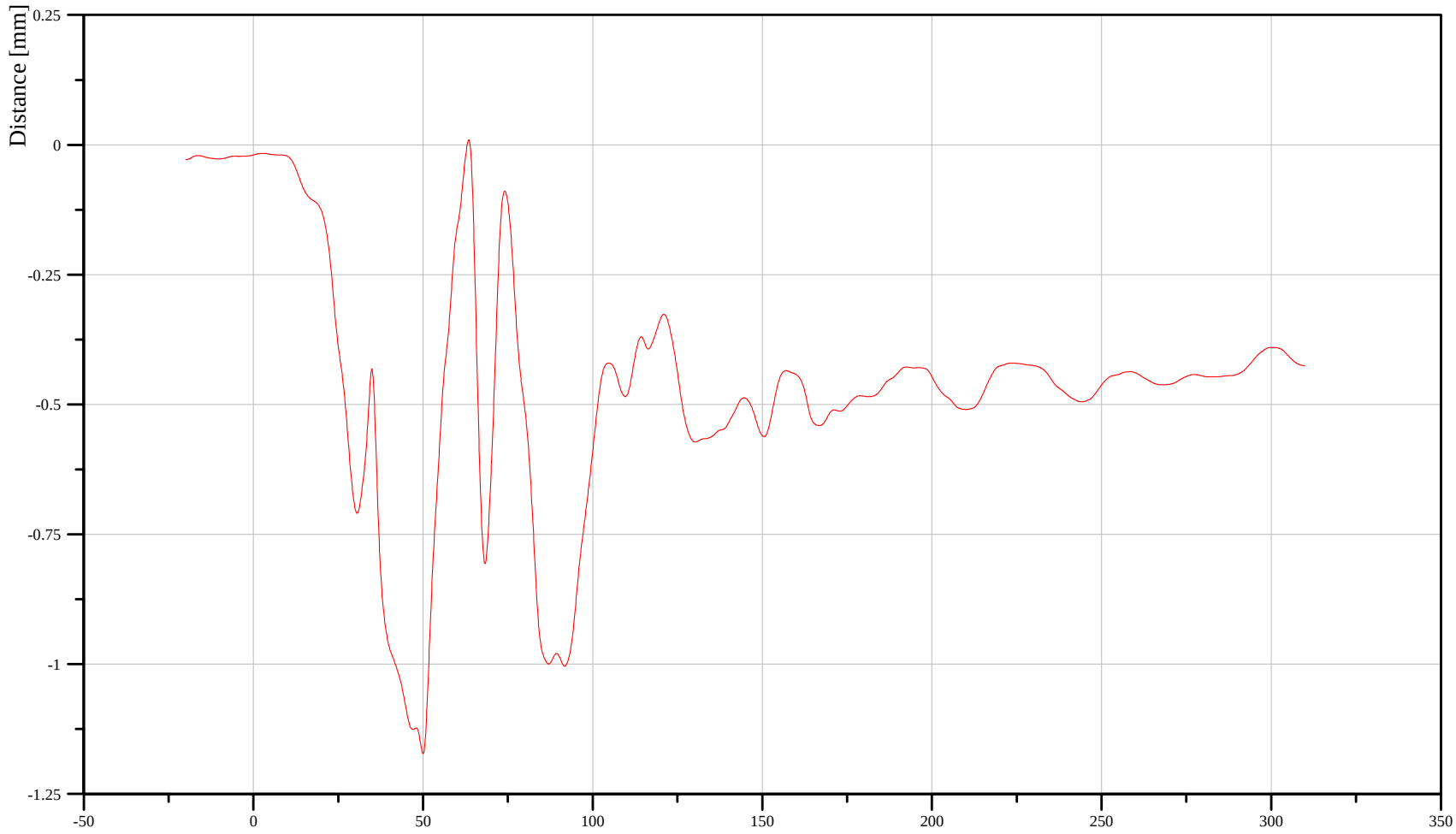
## Target Passenger Right Knee Displacement

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 23KNSLRI00HFDSXC

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_180

**Min. Value**
-1.17 mm at 50.00 ms

**Max. Value**
0.01 mm at 63.52 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

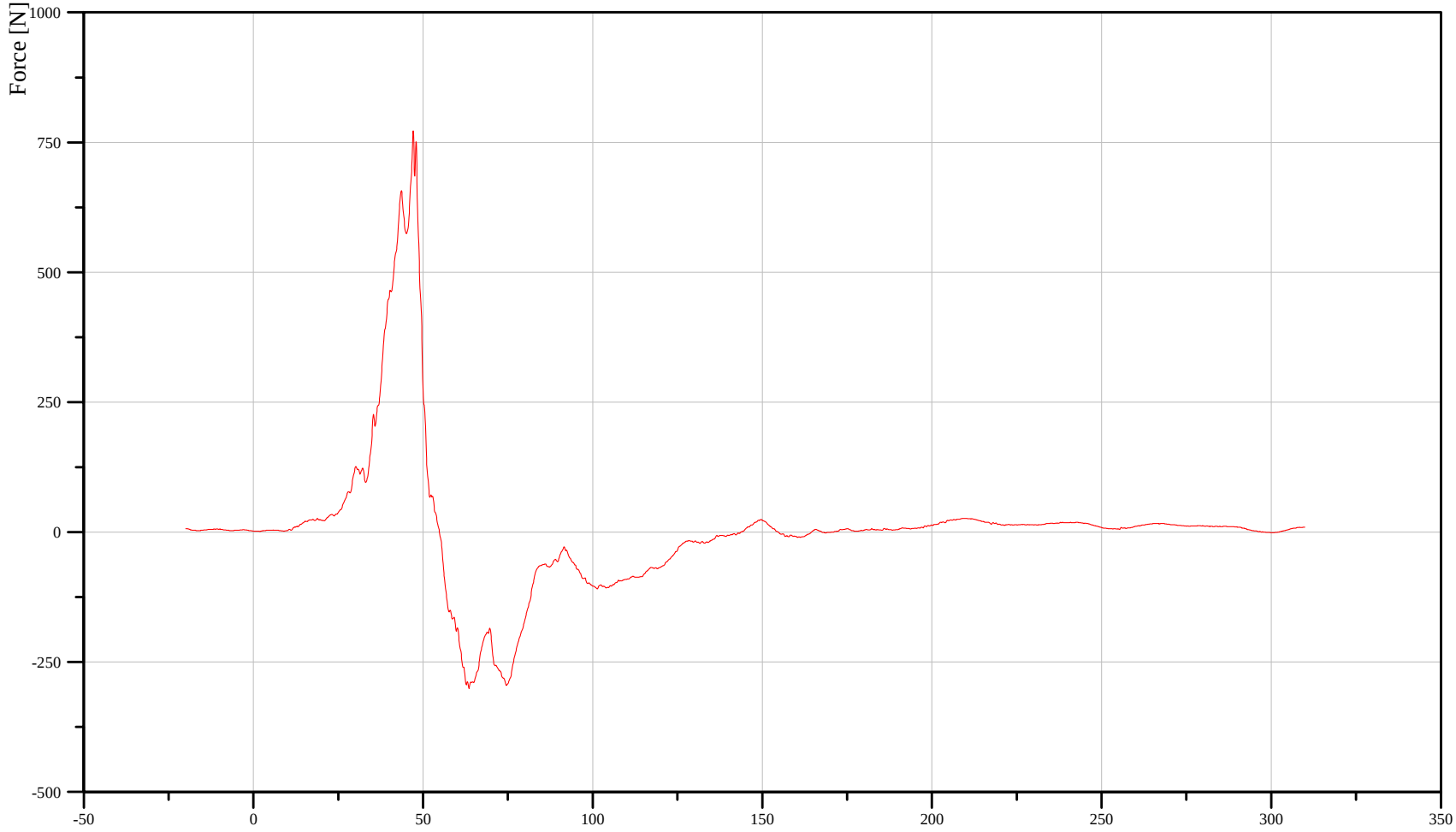
## Target Passenger Right Upper Tibia X-Axis Force

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 23TIBIRUFXHFFOXB

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_600

**Min. Value**
-300.56 N at 63.52 ms

**Max. Value**
772.24 N at 47.12 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

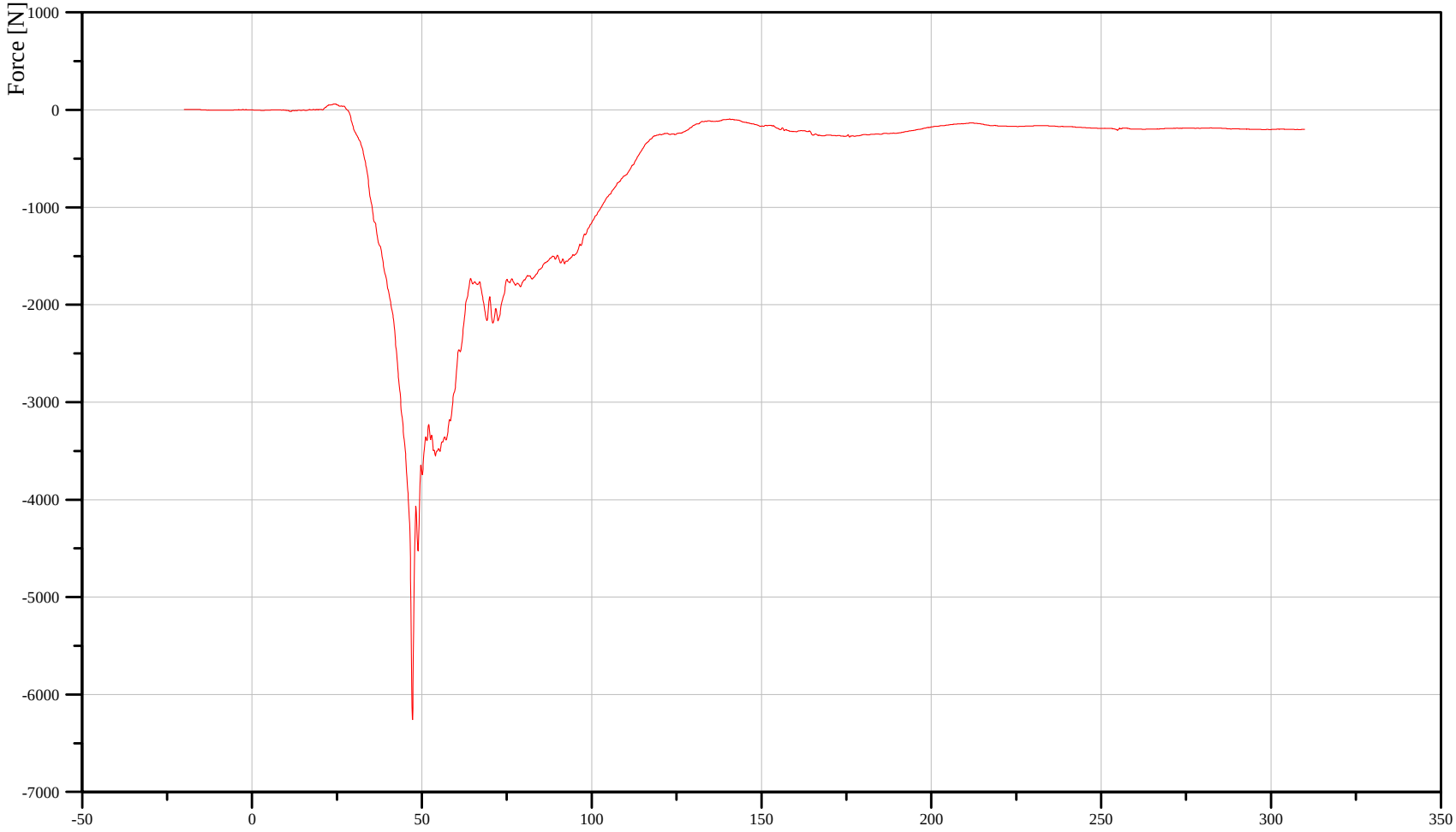
## Target Passenger Right Upper Tibia Z-Axis Force

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 23TIBIRUFXHFFOZB

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_600

**Min. Value**
-6,257.40 N at 47.28 ms

**Max. Value**
60.28 N at 24.16 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

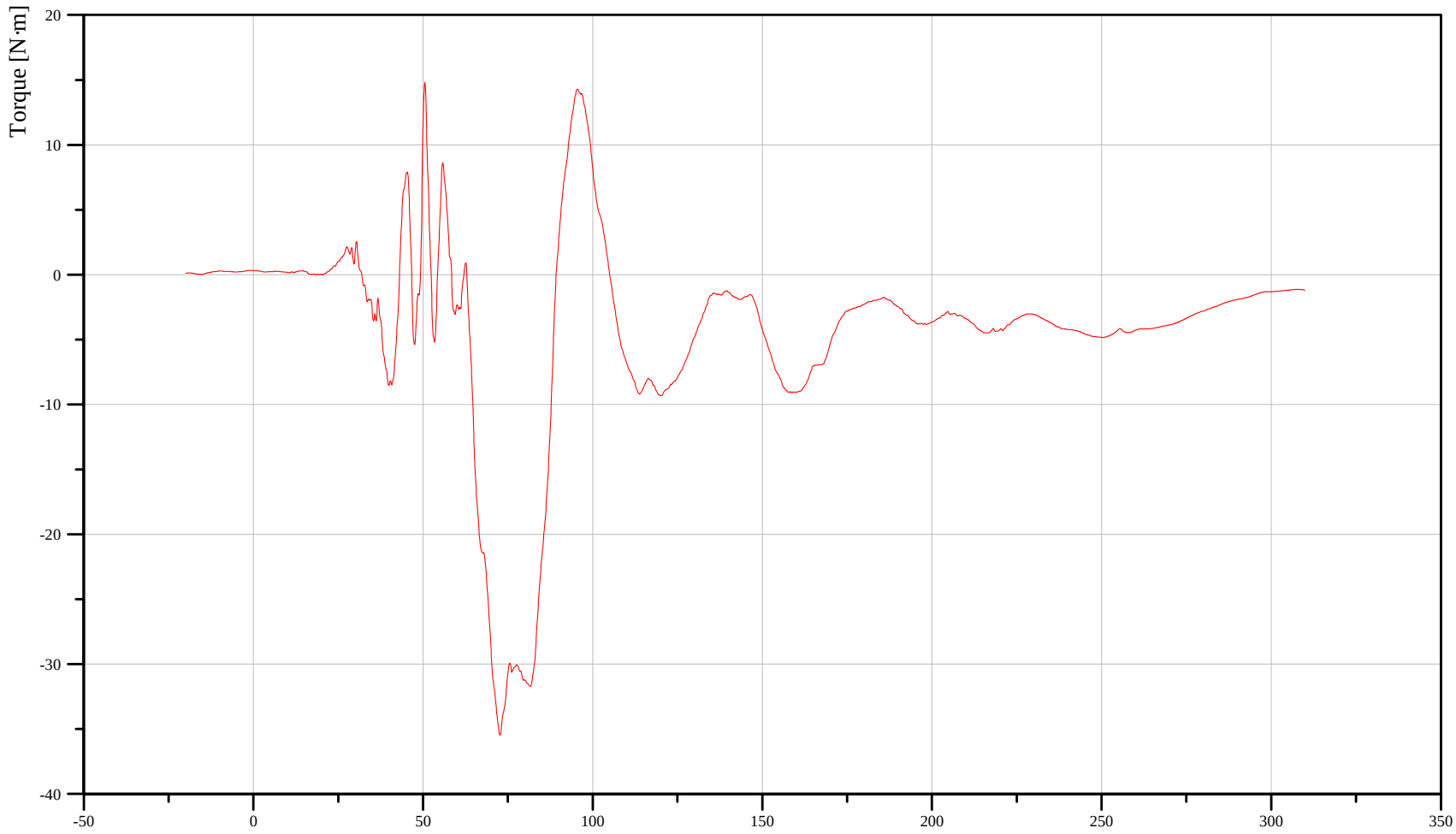
## Target Passenger Right Upper Tibia Moment About X Axis

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 23TIBIRUFXHFMOXB

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_600

**Min. Value**
-35.45 N·m at 72.64 ms

**Max. Value**
14.79 N·m at 50.56 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

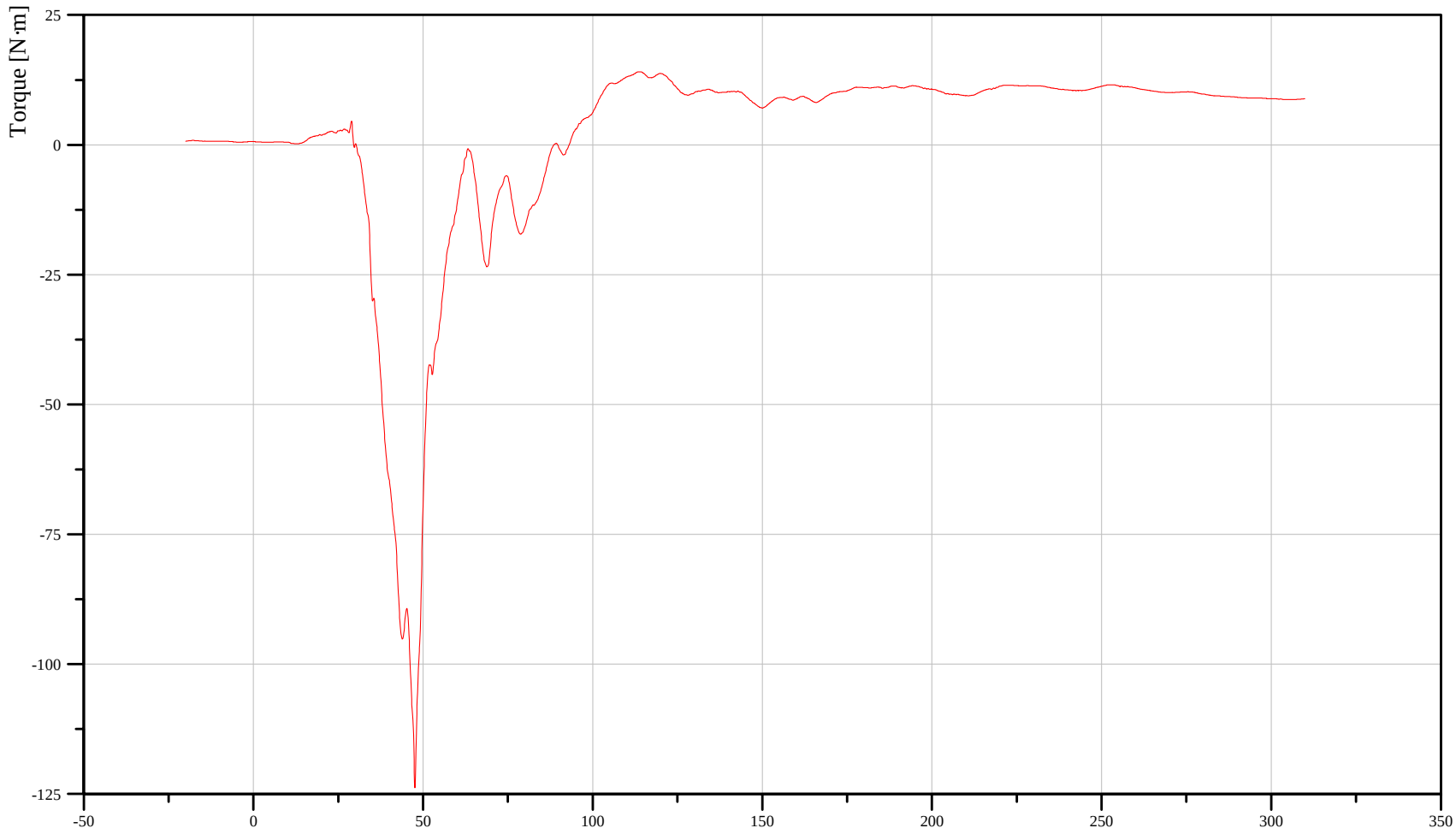
## Target Passenger Right Upper Tibia Moment About Y Axis

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

23TIBIRUFXHFMOYB

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_600

**Min. Value**
-123.79 N·m at 47.60 ms

**Max. Value**
14.06 N·m at 114.32 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

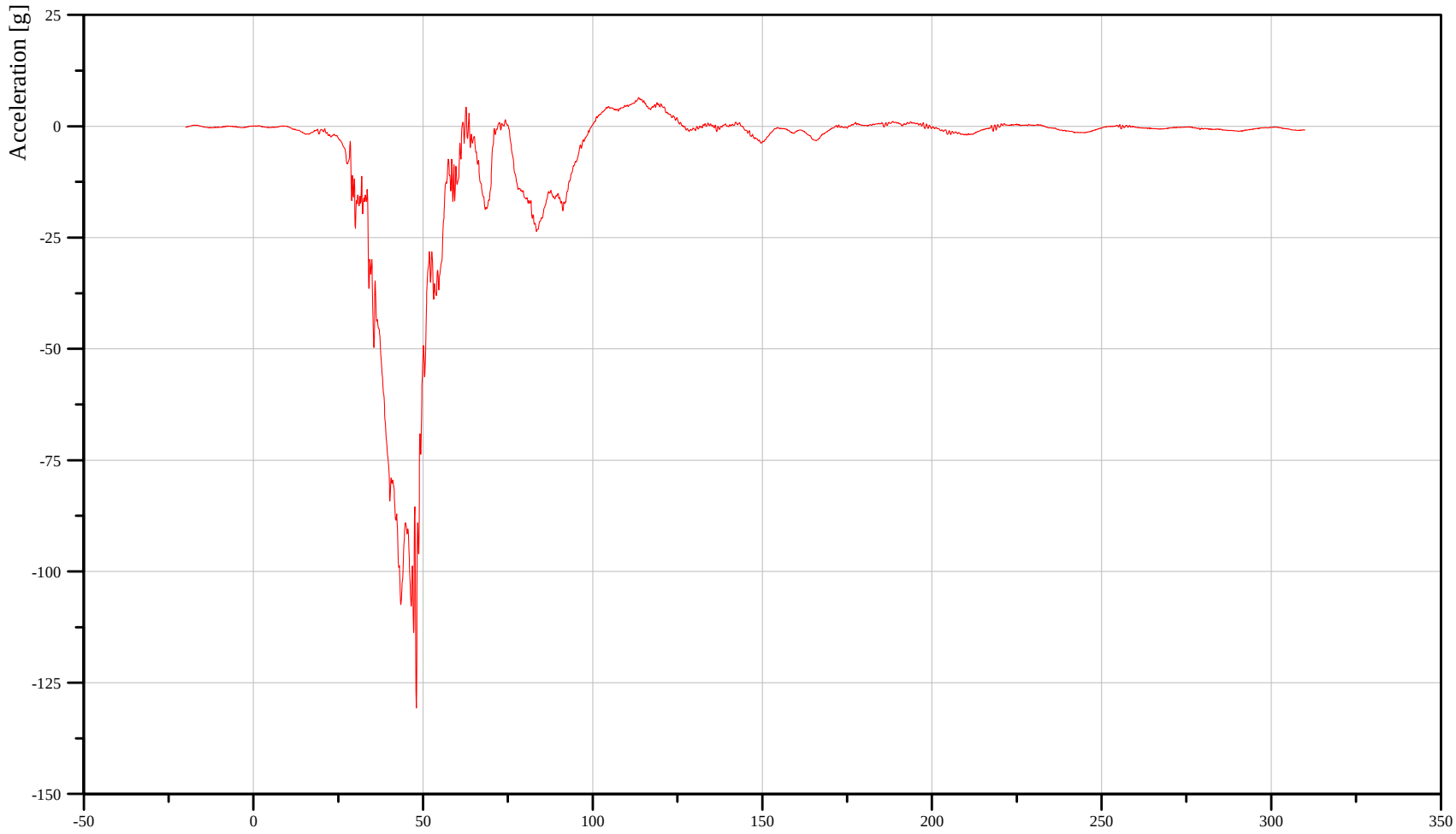
## Target Passenger Right Tibia X-Axis Acceleration

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 23TIBIRIFXHFACXA

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_1000

**Min. Value**
-130.67 g at 48.00 ms

**Max. Value**
6.45 g at 113.60 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

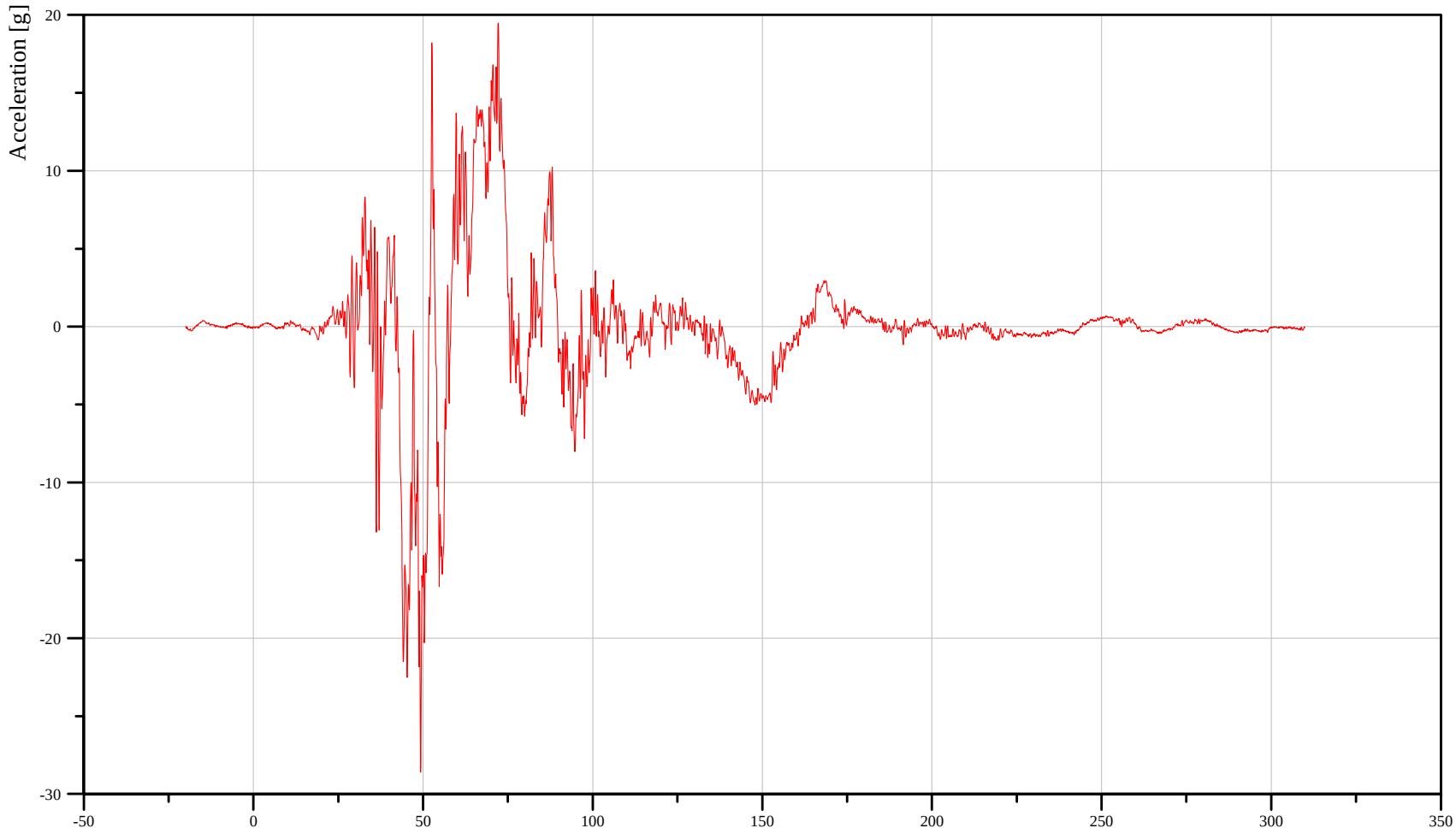
## Target Passenger Right Tibia Y-Axis Acceleration

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 23TIBIRIFXHFACYA

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_1000

**Min. Value**
-28.60 g at 49.28 ms

**Max. Value**
19.49 g at 72.16 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

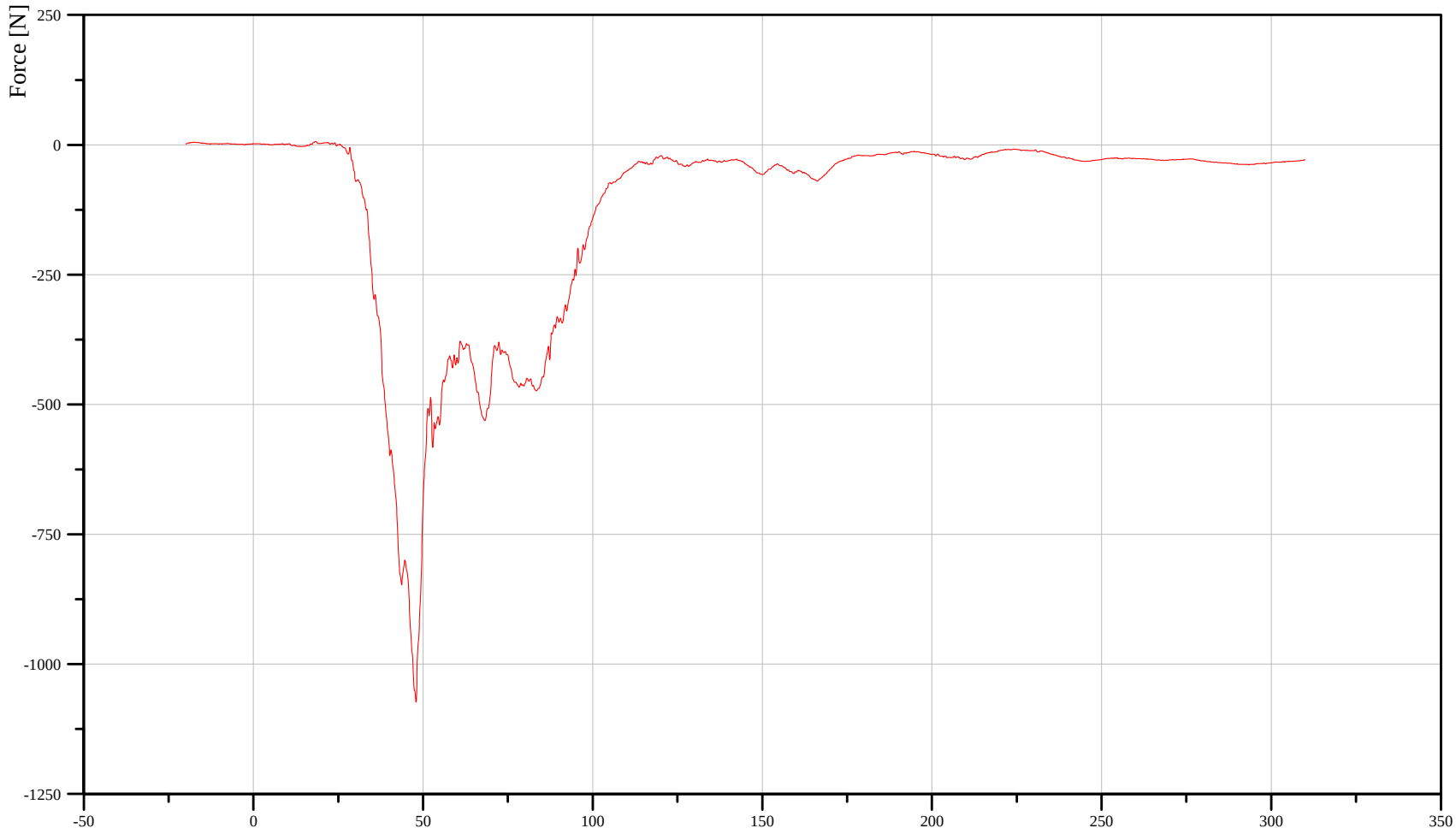
## Target Passenger Right Lower Tibia X-Axis Force

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 23TIBIRLFXHFFOXB

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_600

**Min. Value**
-1,072.98 N at 47.92 ms

**Max. Value**
6.40 N at 18.32 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

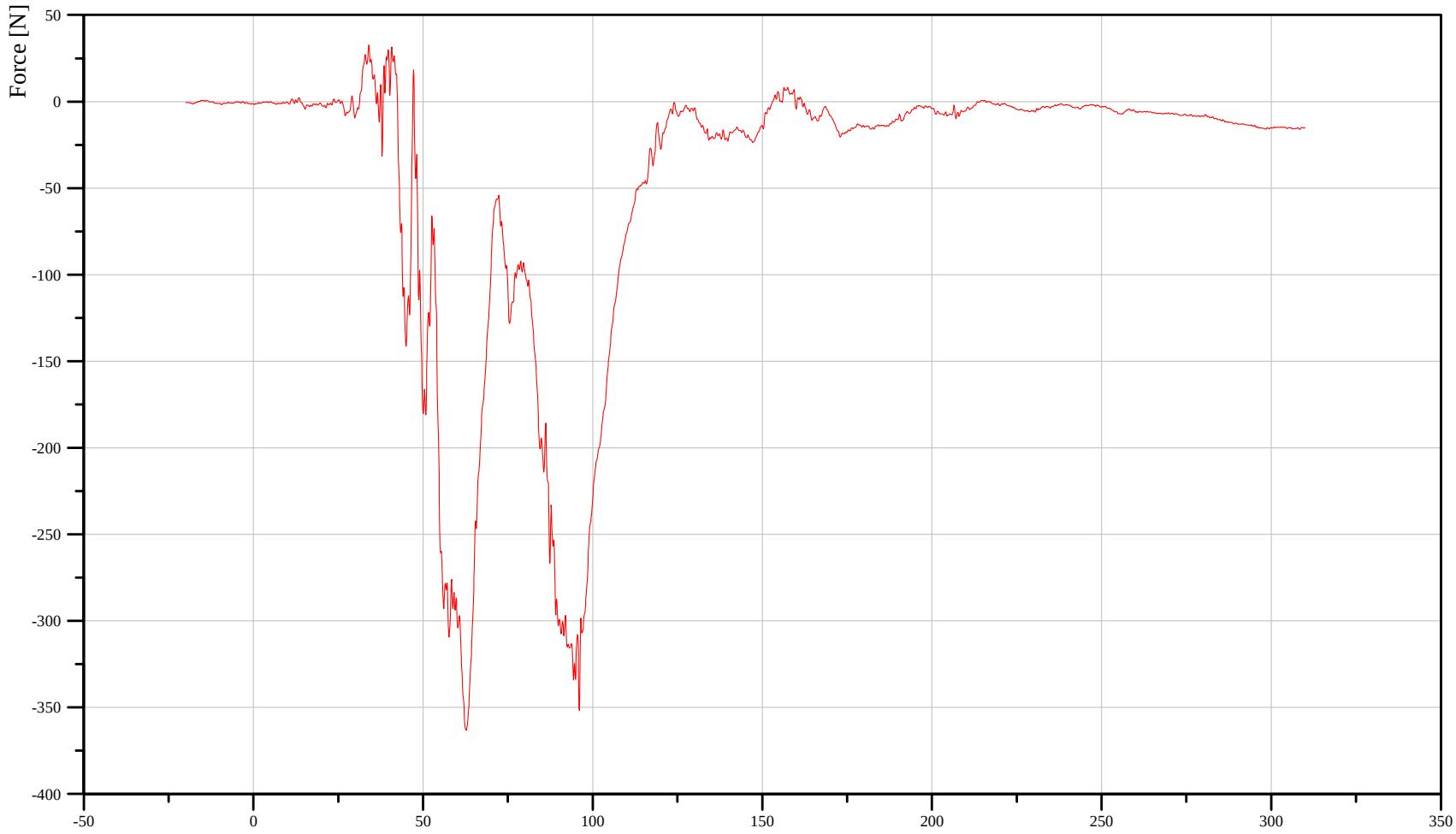
## Target Passenger Right Lower Tibia Y-Axis Force

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 23TIBIRLFXHFFOYB

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_600

**Min. Value**
-363.17 N at 62.72 ms

**Max. Value**
32.60 N at 34.00 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

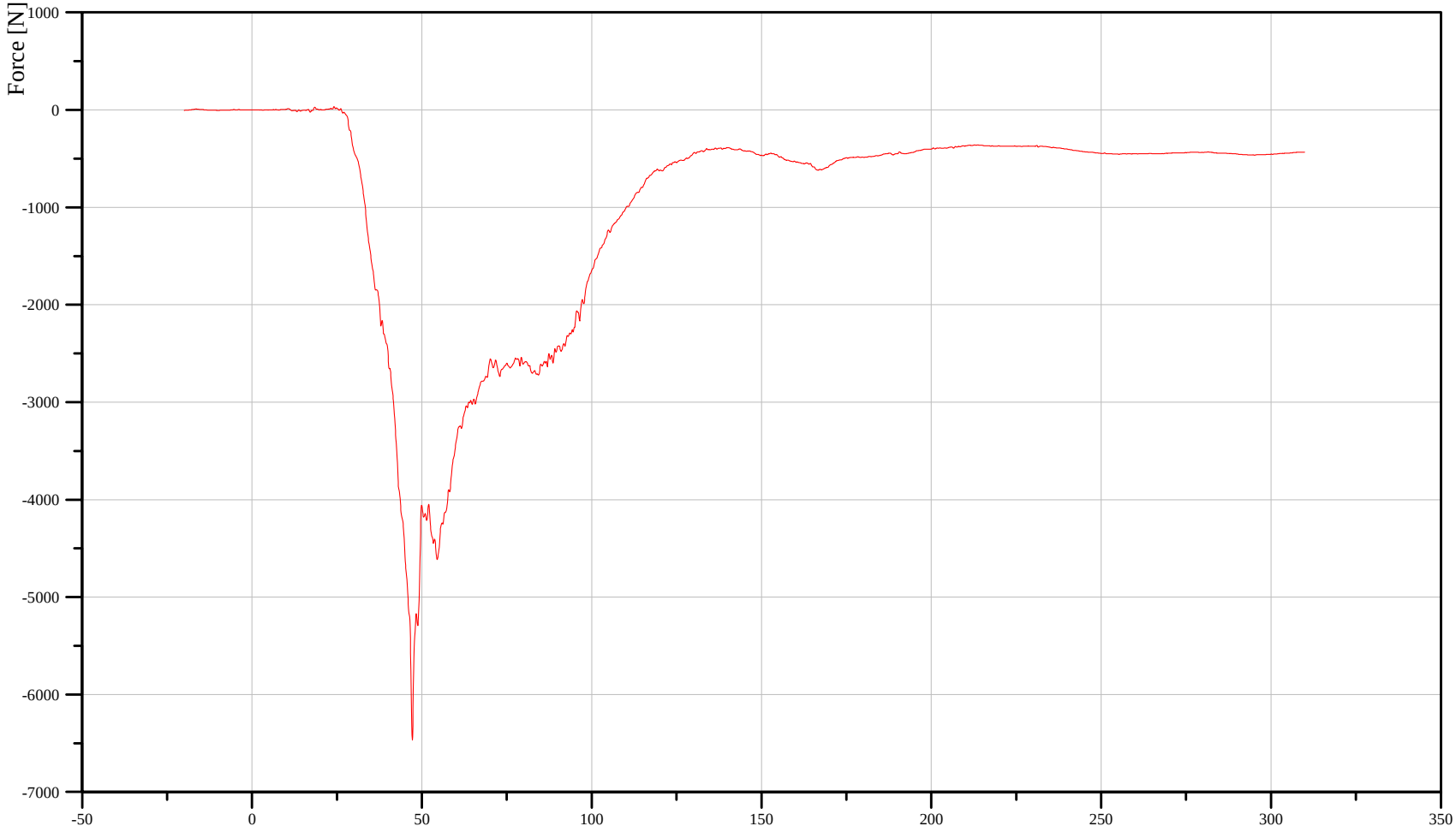
## Target Passenger Right Lower Tibia Z-Axis Force

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 23TIBIRLFXHFFOZB

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_600

**Min. Value**
-6,467.59 N at 47.20 ms

**Max. Value**
32.94 N at 24.16 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

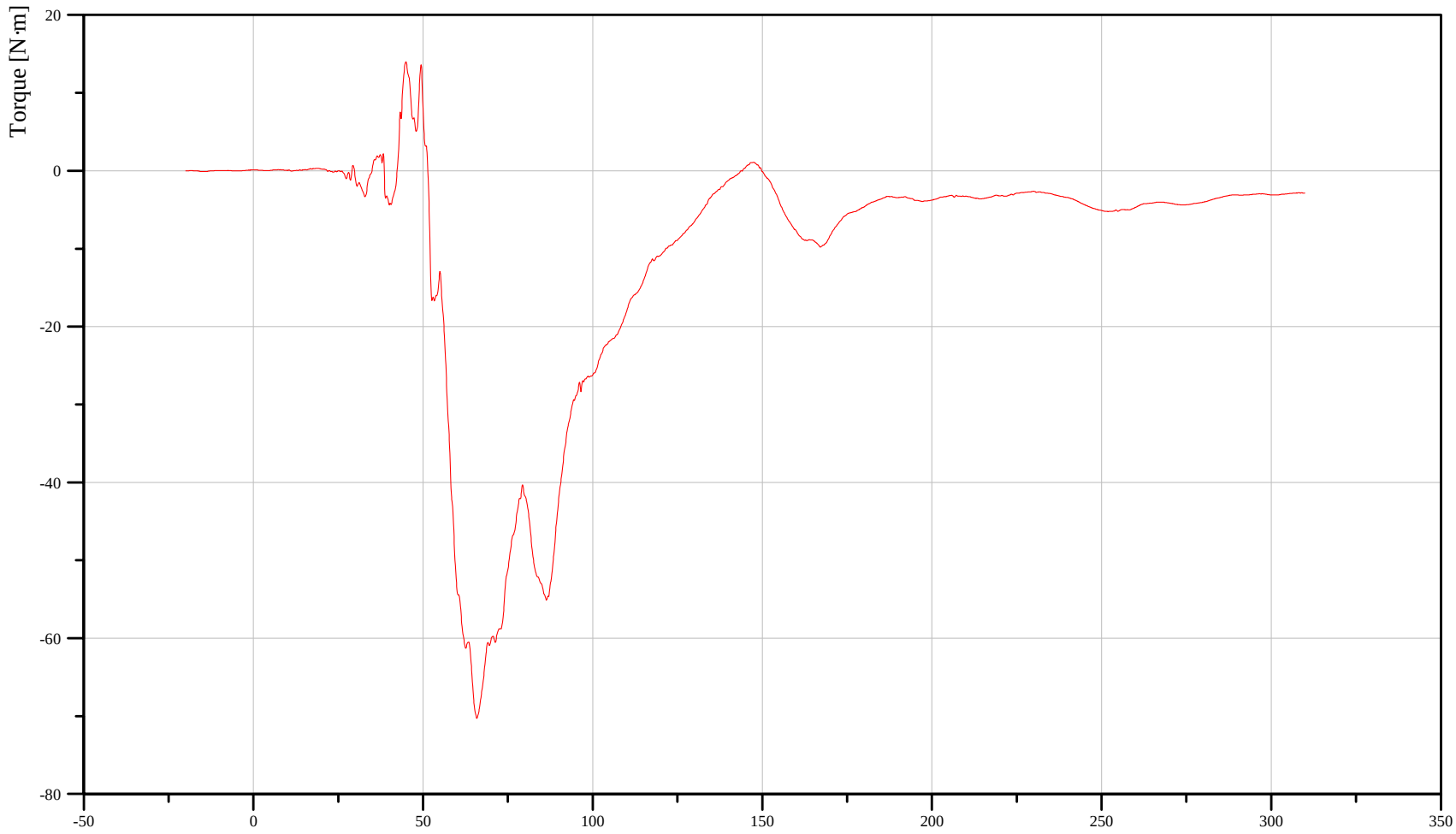
## Target Passenger Right Lower Tibia Moment About X Axis

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 23TIBIRLFXHFMOXB

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_600

**Min. Value**
-70.28 N·m at 65.84 ms

**Max. Value**
14.00 N·m at 44.96 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

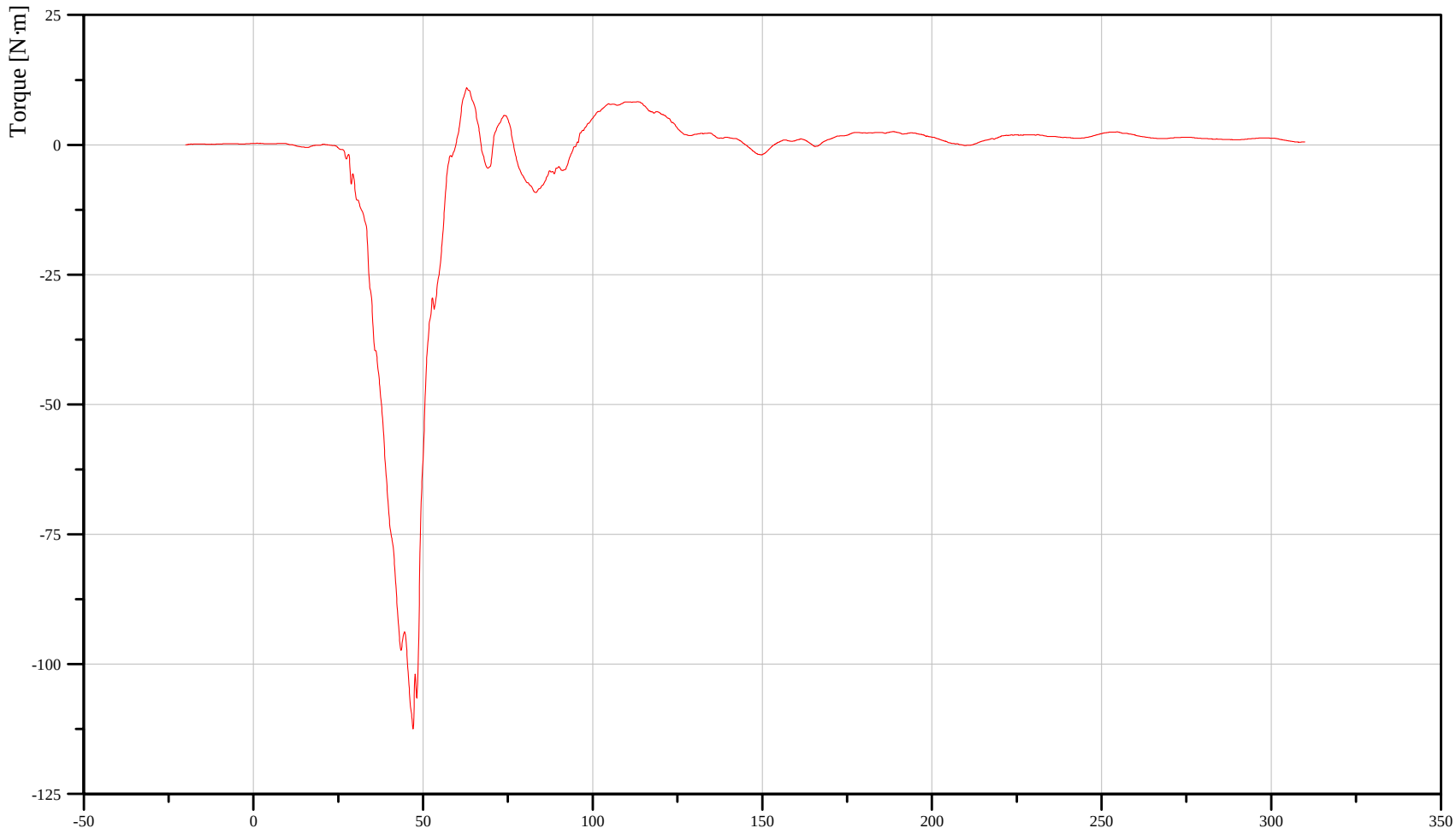
## Target Passenger Right Lower Tibia Moment About Y Axis

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 23TIBIRLFXHFMOYB

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_600

**Min. Value**
-112.48 N·m at 47.04 ms

**Max. Value**
11.01 N·m at 62.88 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

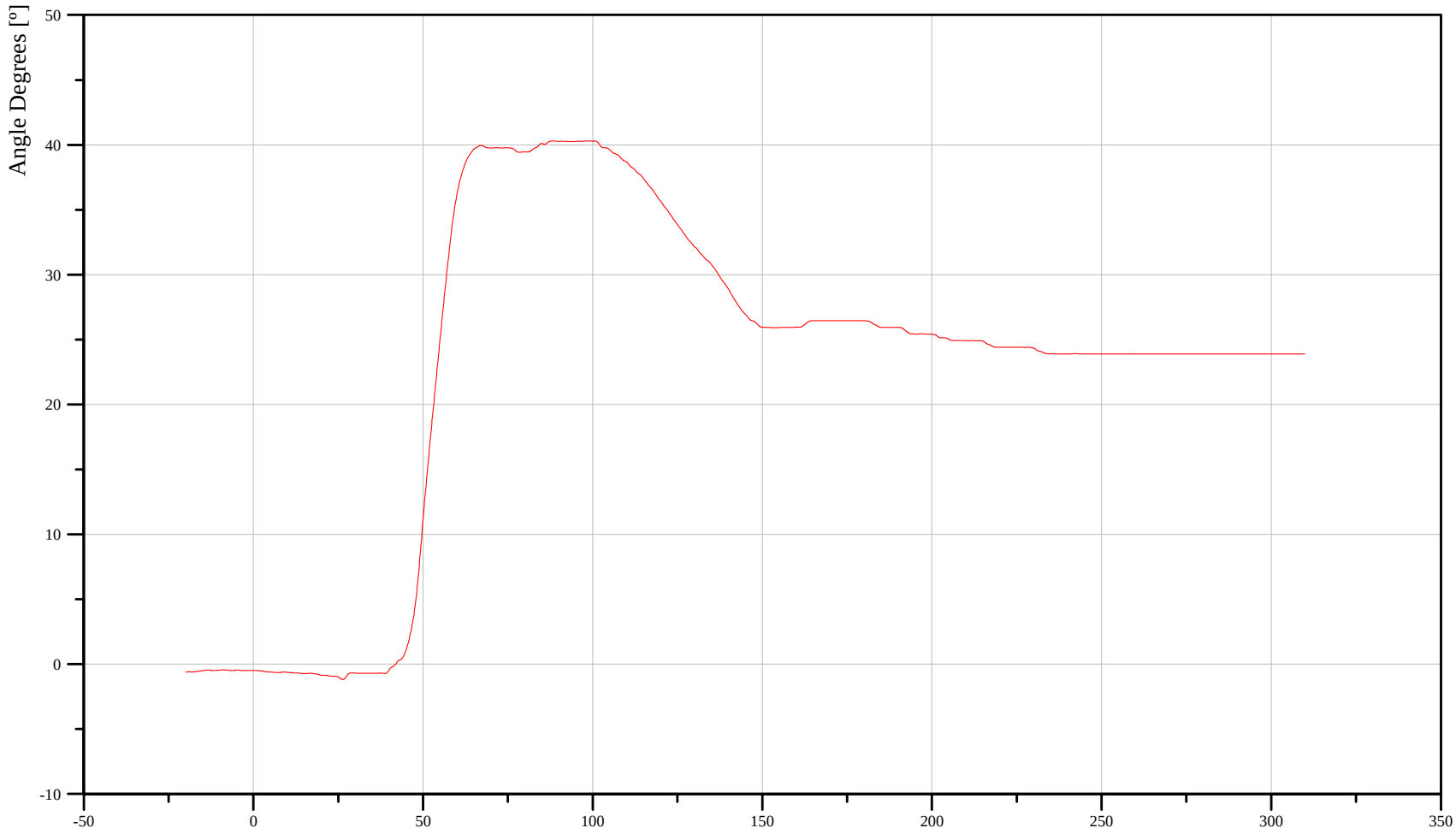
## Target Passenger Right Foot X-Axis Rotation

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 23FOOTRIFXHFANXC

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_180

**Min. Value**
-1.18 ° at 26.32 ms

**Max. Value**
40.31 ° at 98.72 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

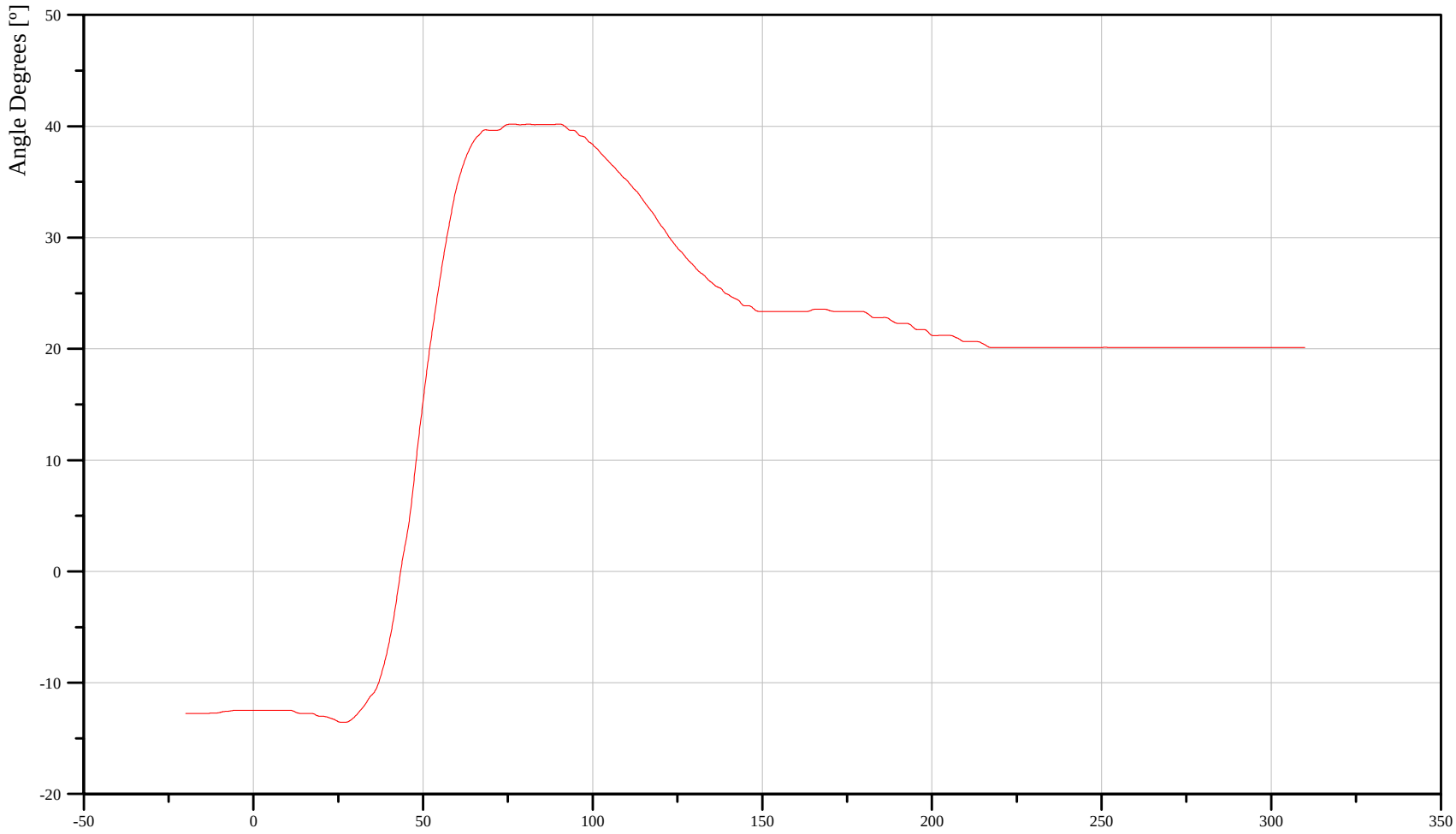
Target Passenger Right Foot Y-Axis Rotation

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

23FOOTRIFXHFANYC

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_180

**Min. Value**
-13.55 ° at 25.92 ms

**Max. Value**
40.20 ° at 90.40 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

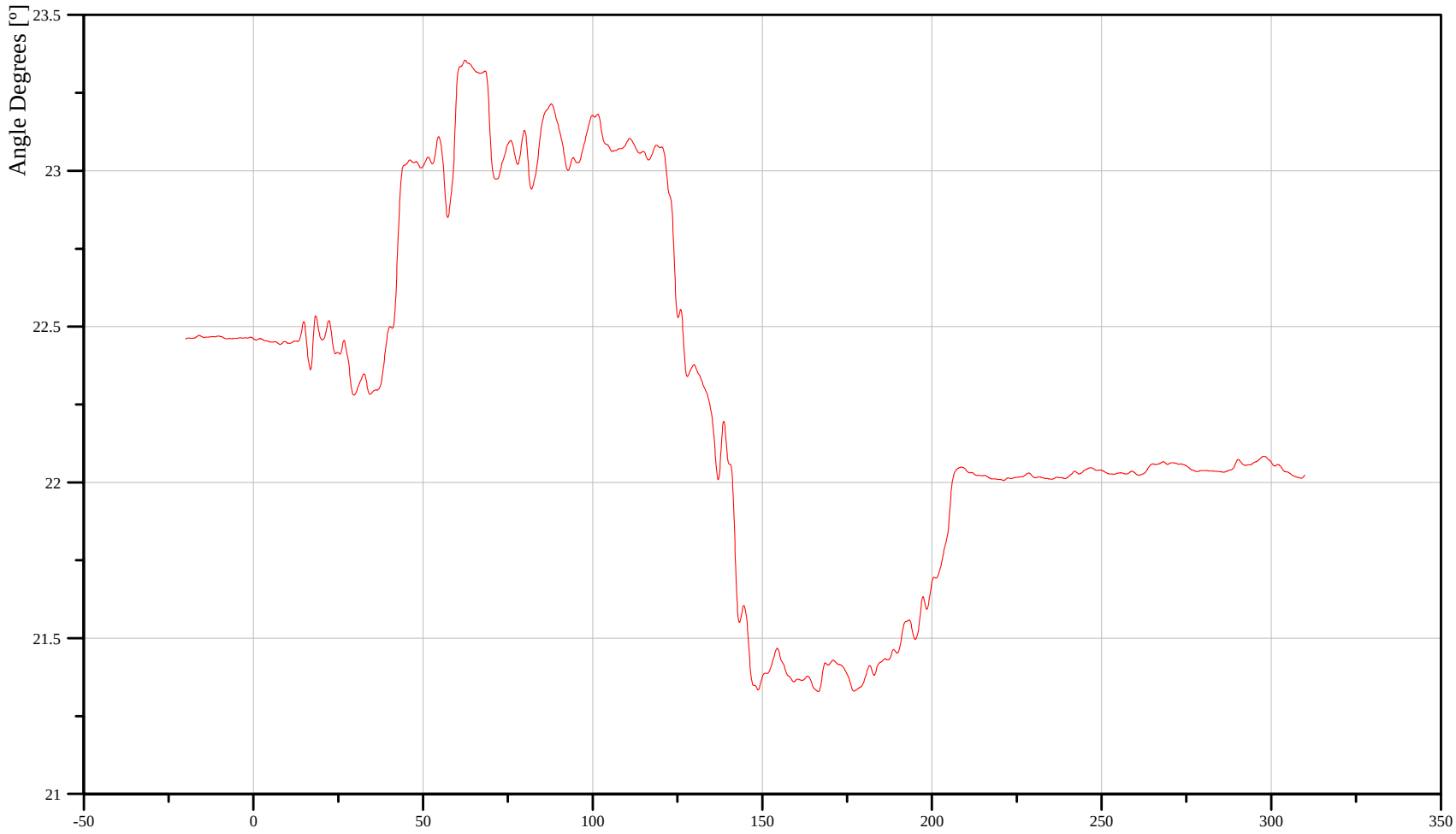
## Target Passenger Right Foot Z-Axis Rotation

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 23FOOTRIFXHFANZC

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_180

**Min. Value**
21.33 ° at 166.48 ms

**Max. Value**
23.35 ° at 62.32 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

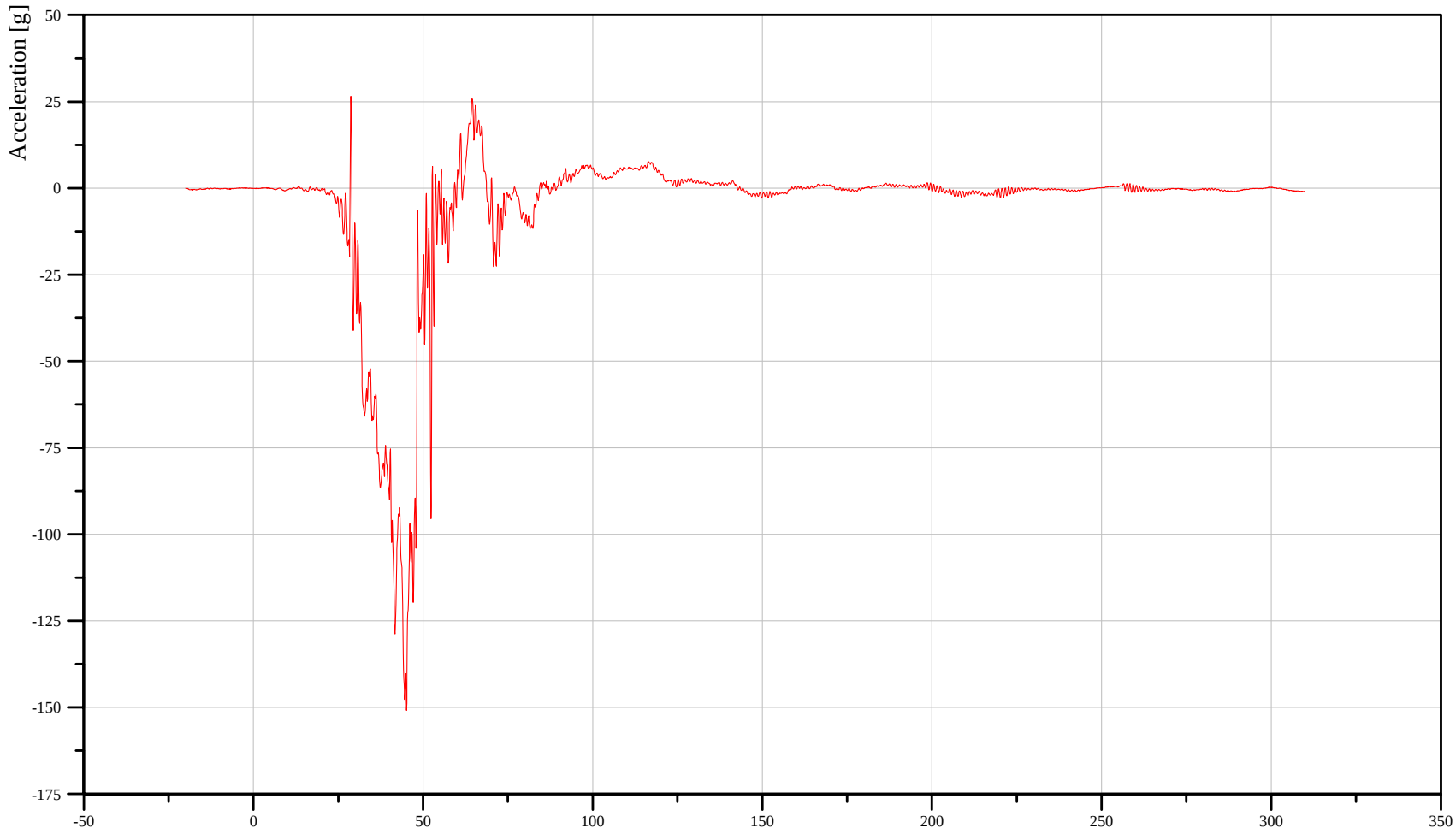
## Target Passenger Right Foot X-Axis Acceleration

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 23FOOTRIFXHFACXA

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_1000

**Min. Value**
-150.82 g at 45.12 ms

**Max. Value**
26.53 g at 28.72 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

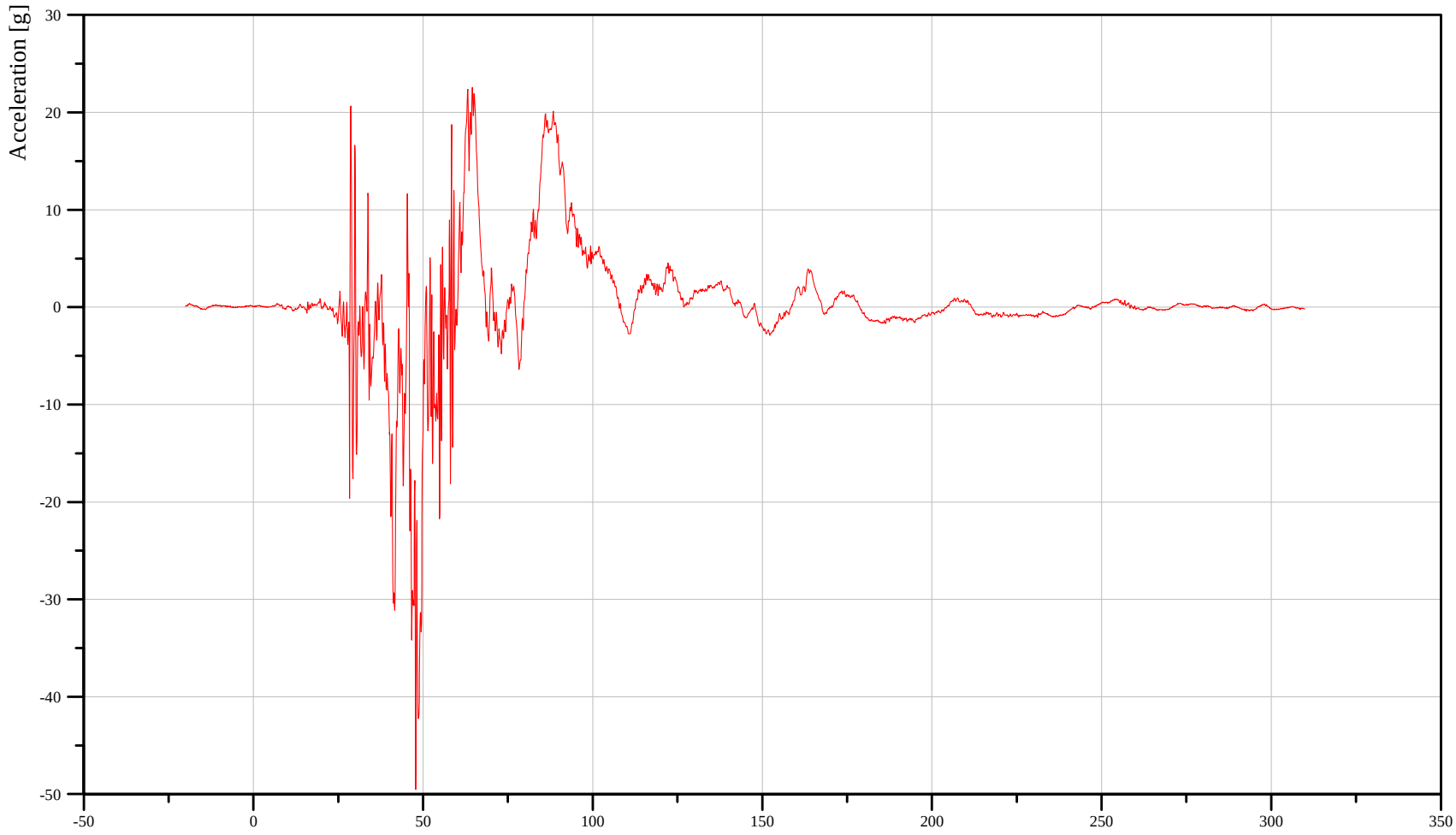
Target Passenger Right Foot Y-Axis Acceleration

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

23FOOTRIFXHFACYA

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_1000

**Min. Value**
-49.50 g at 47.84 ms

**Max. Value**
22.58 g at 64.56 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

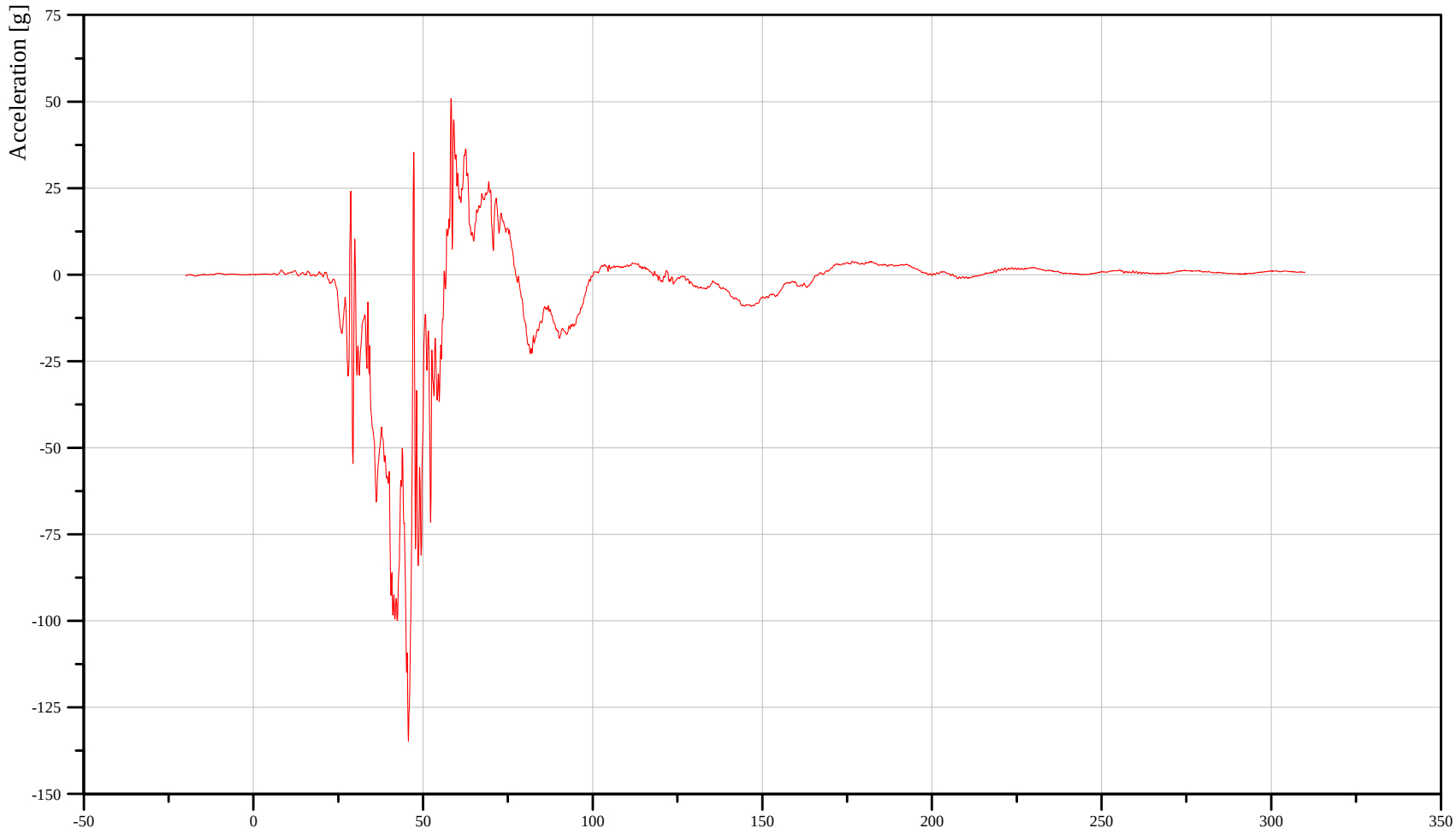
## Target Passenger Right Foot Z-Axis Acceleration

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 23FOOTRIFXHFACZA

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_1000

**Min. Value**
-134.71 g at 45.68 ms

**Max. Value**
50.86 g at 58.24 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

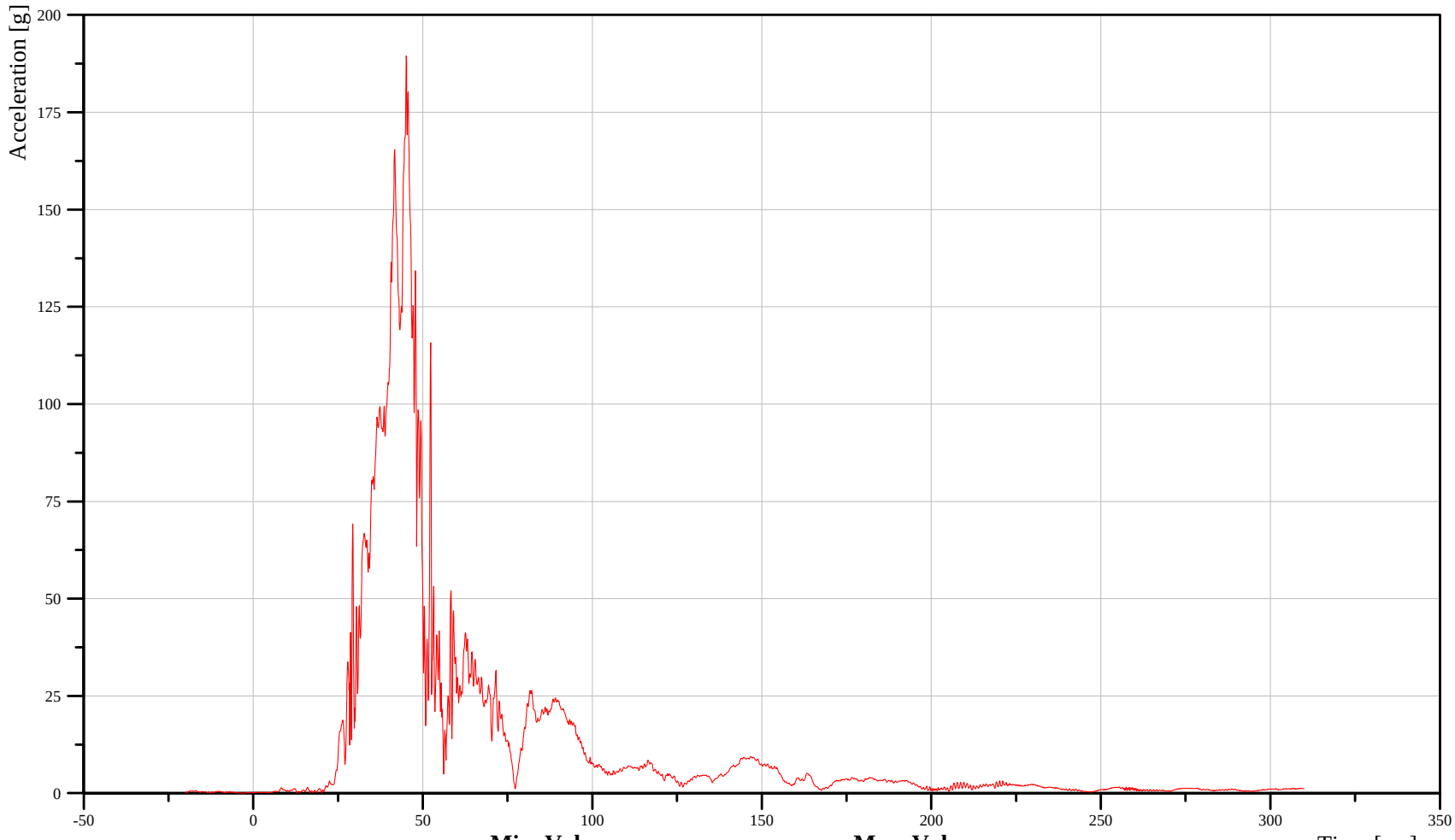
## Target Passenger Right Foot Resultant Acceleration

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 23FOOTRIFXHFACRA

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_1000

**Min. Value**
0.03 g at -3.84 ms

**Max. Value**
189.52 g at 45.12 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

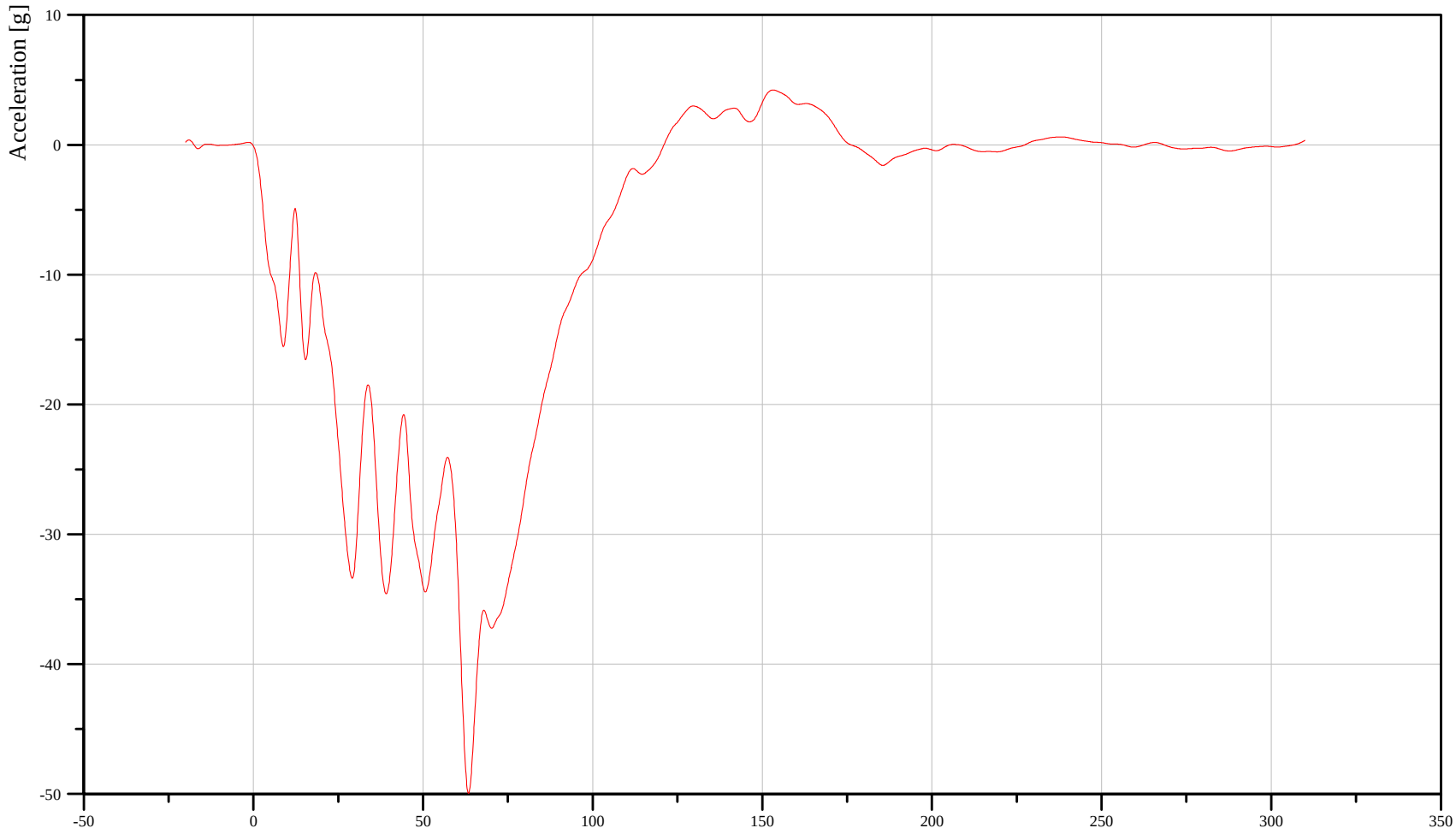
## Target Vehicle Left Rear Seat Crossmember X-Axis Acceleration

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 24CRME000000ACXD

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_60

**Min. Value**
-49.95 g at 63.44 ms

**Max. Value**
4.22 g at 153.20 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

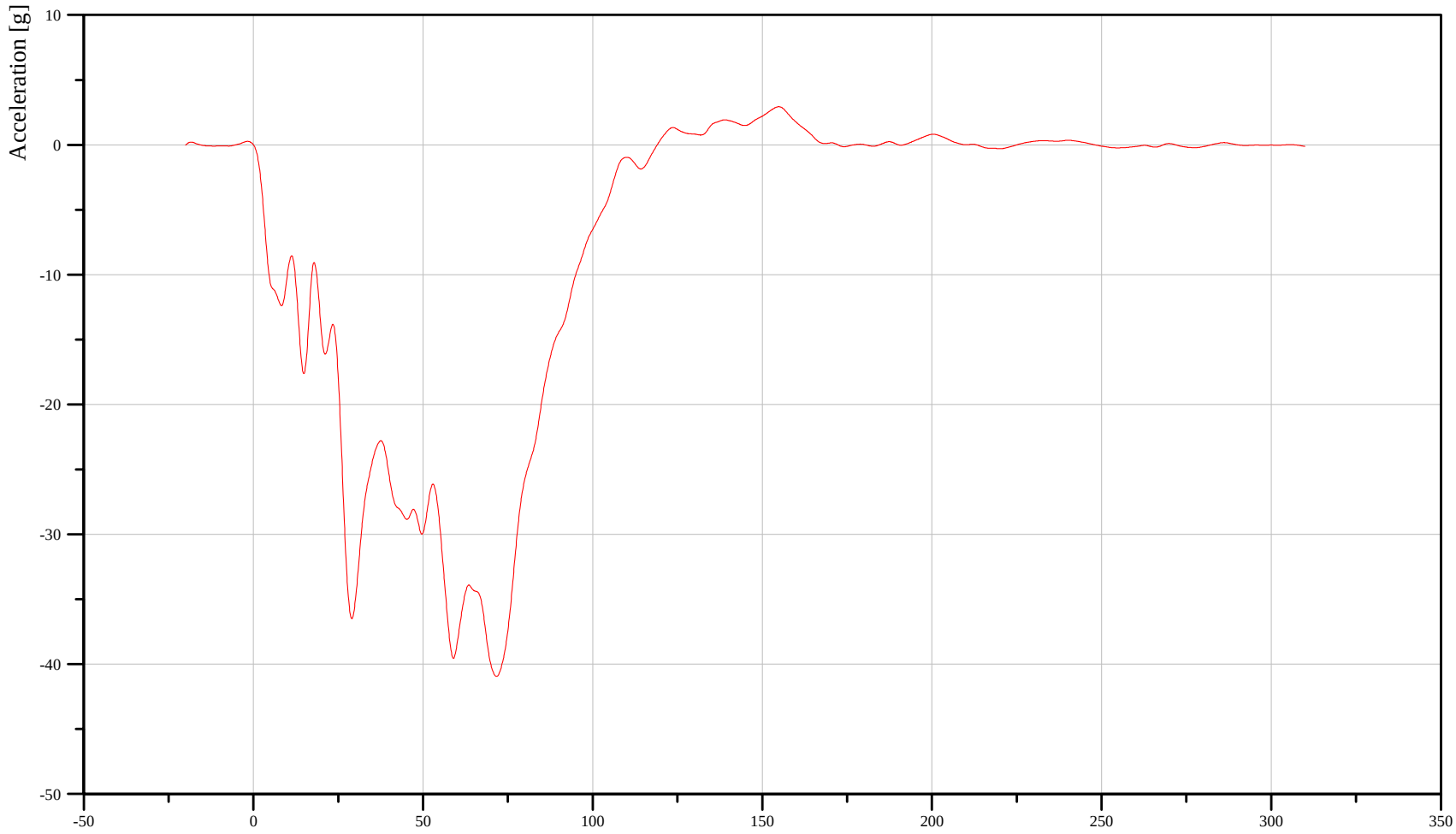
## Target Vehicle Right Rear Seat Crossmember X-Axis Acceleration

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 26CRME000000ACXD

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_60

**Min. Value**
-40.94 g at 71.68 ms

**Max. Value**
2.94 g at 154.88 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

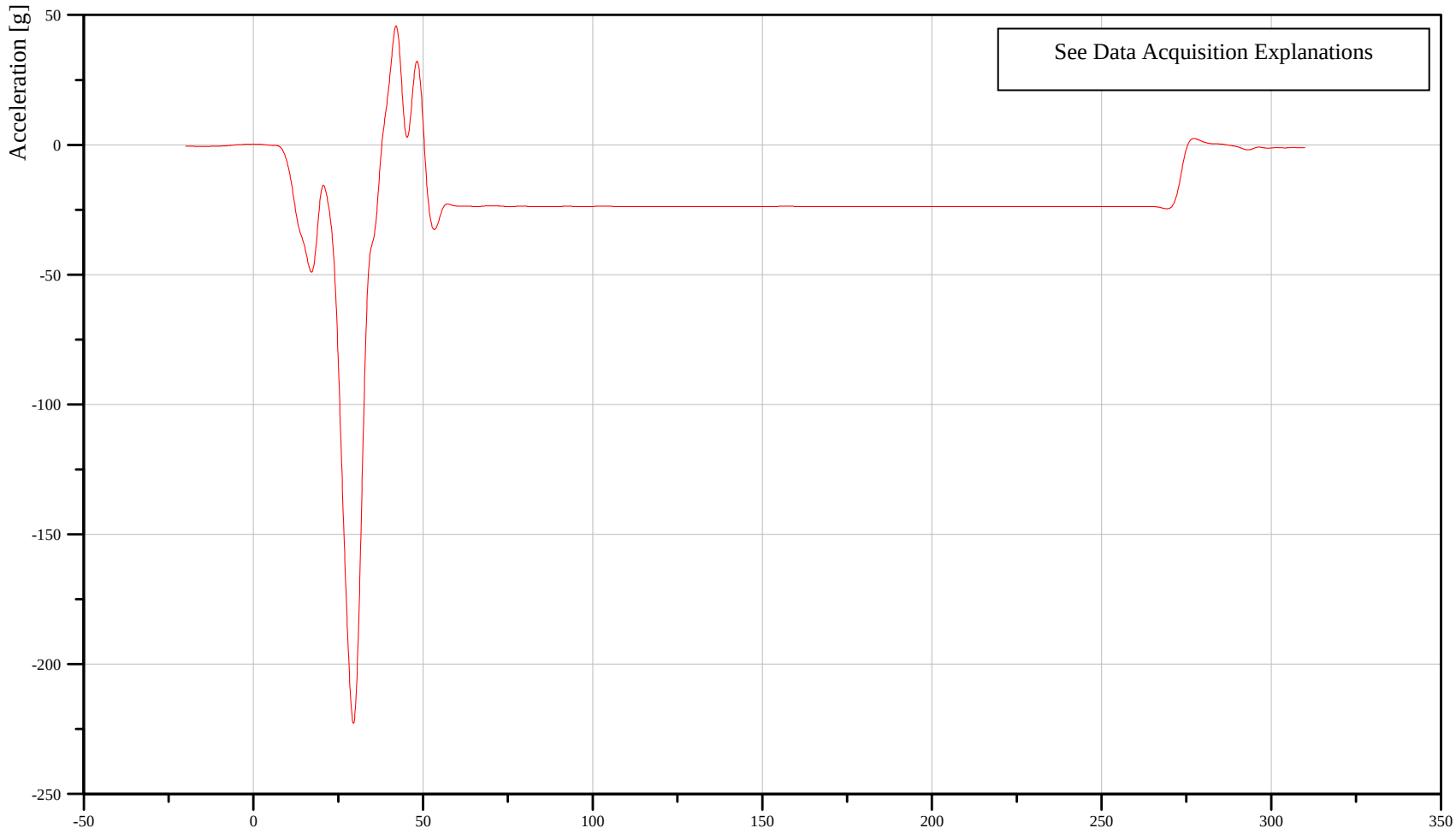
## Target Vehicle Top of Engine X-Axis Acceleration

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 22ENGNTP0000ACXD

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_60

**Min. Value**
-222.77 g at 29.52 ms

**Max. Value**
45.86 g at 42.08 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

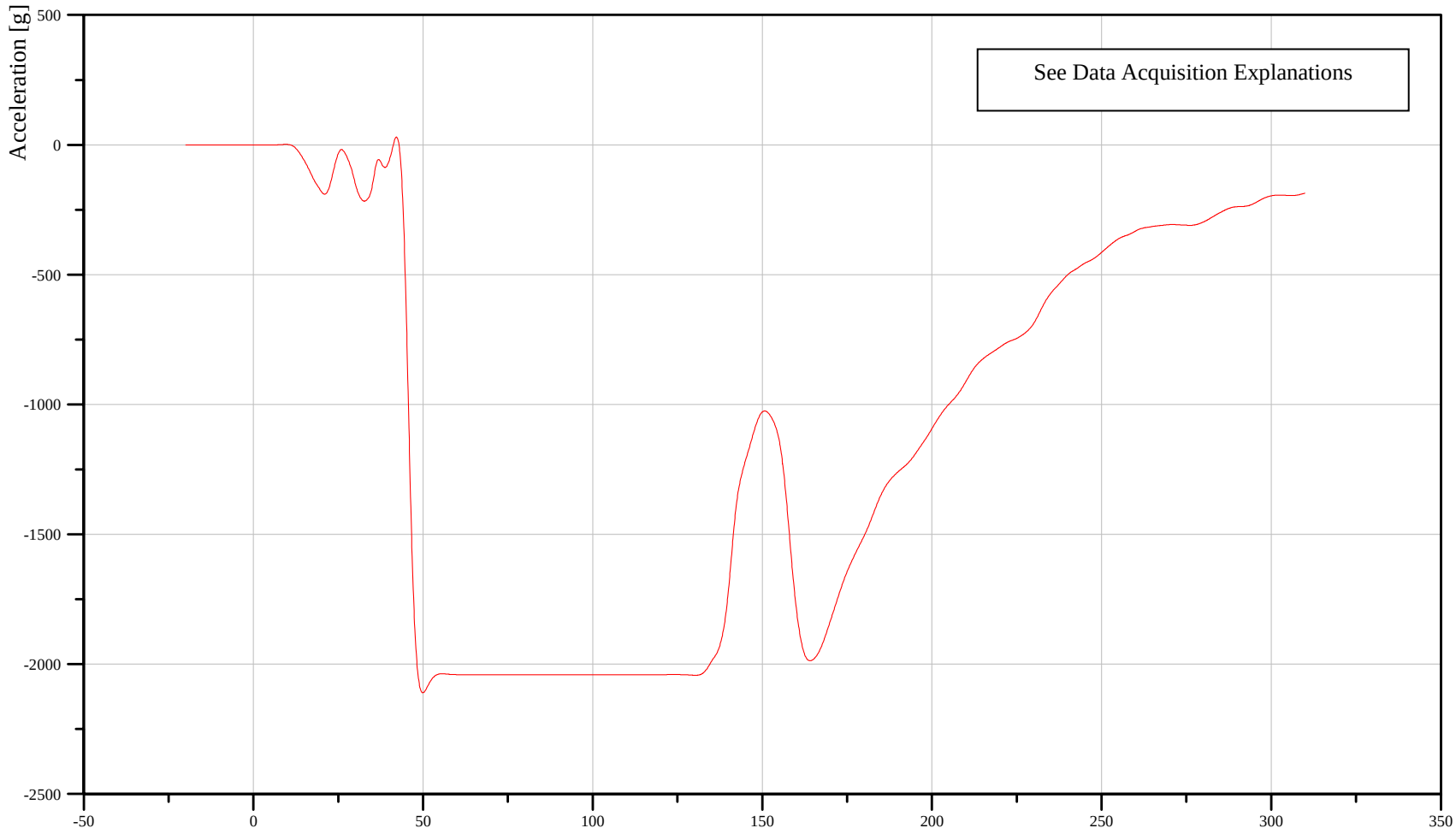
## Target Vehicle Bottom of Engine X-Axis Acceleration

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 22ENGNBO0000ACXD

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_60

**Min. Value**
-2,110.13 g at 49.92 ms

**Max. Value**
29.92 g at 42.16 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

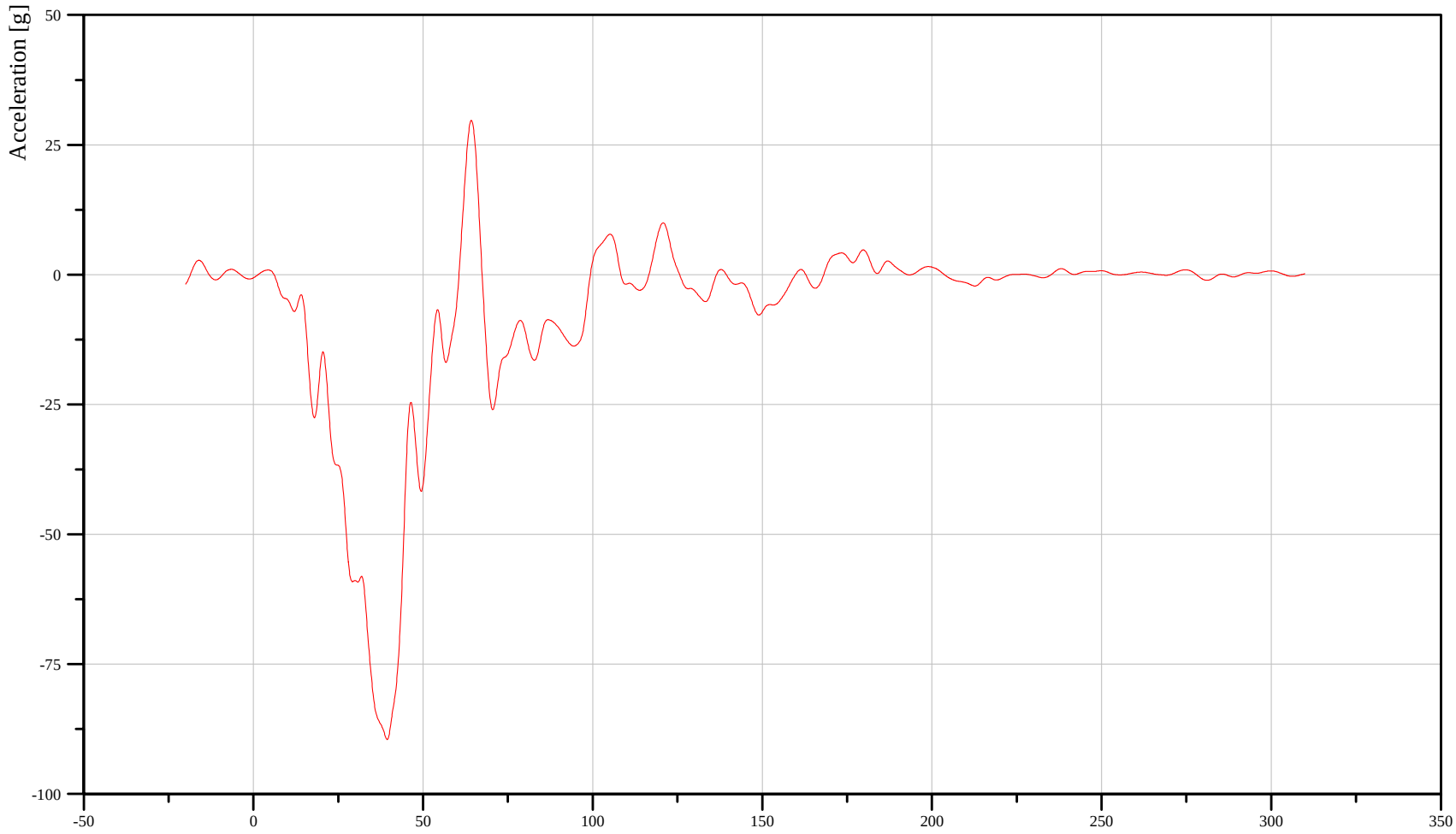
## Target Vehicle Right Front Brake Caliper X-Axis Acceleration

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 23VEHCRI0000ACXD

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_60

**Min. Value**
-89.52 g at 39.44 ms

**Max. Value**
29.73 g at 64.24 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

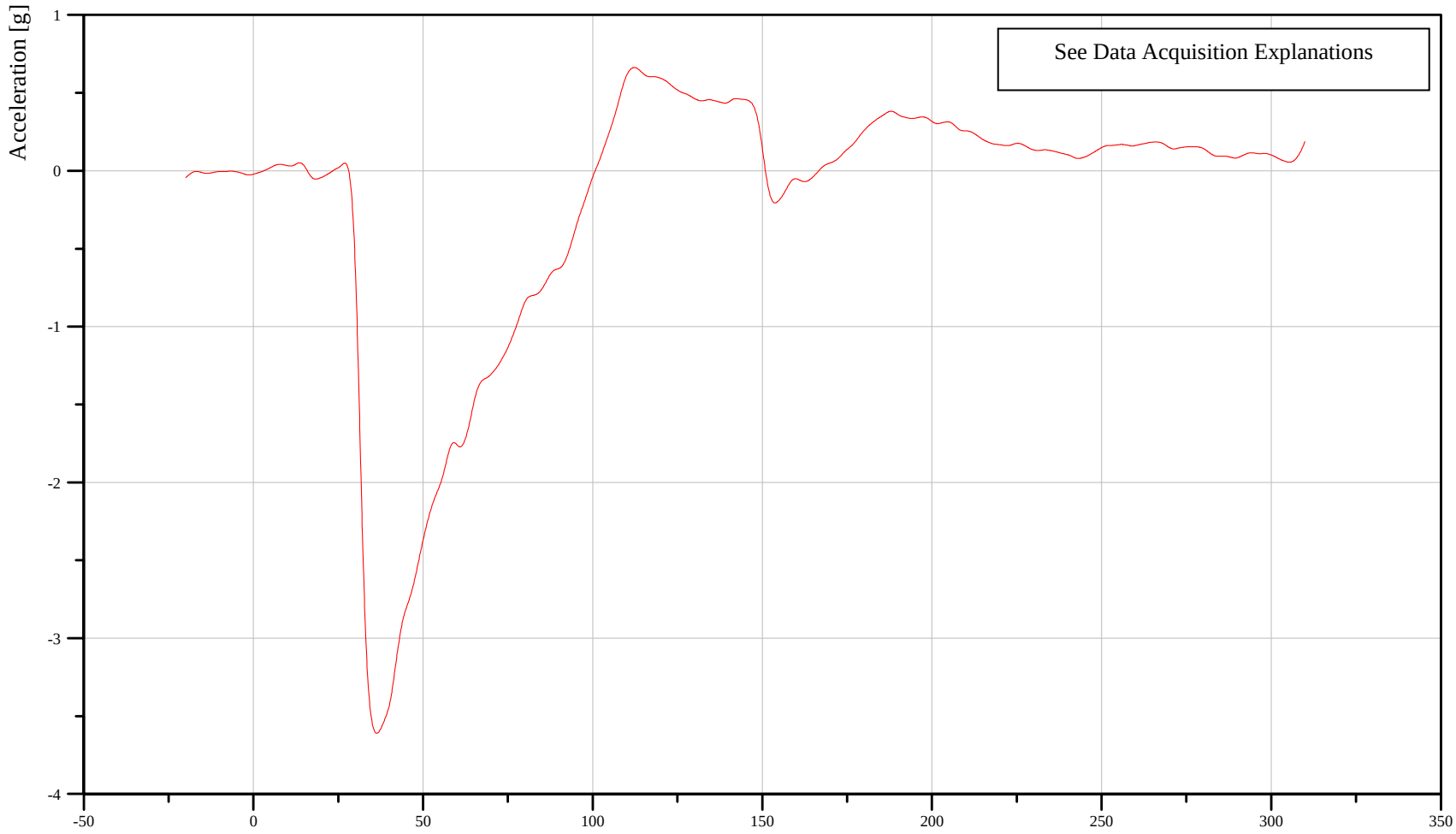
## Target Vehicle Left Front Brake Caliper X-Axis Acceleration

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 21VEHCLE0000ACXD

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_60

**Min. Value**
-3.61 g at 36.32 ms

**Max. Value**
0.66 g at 112.24 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

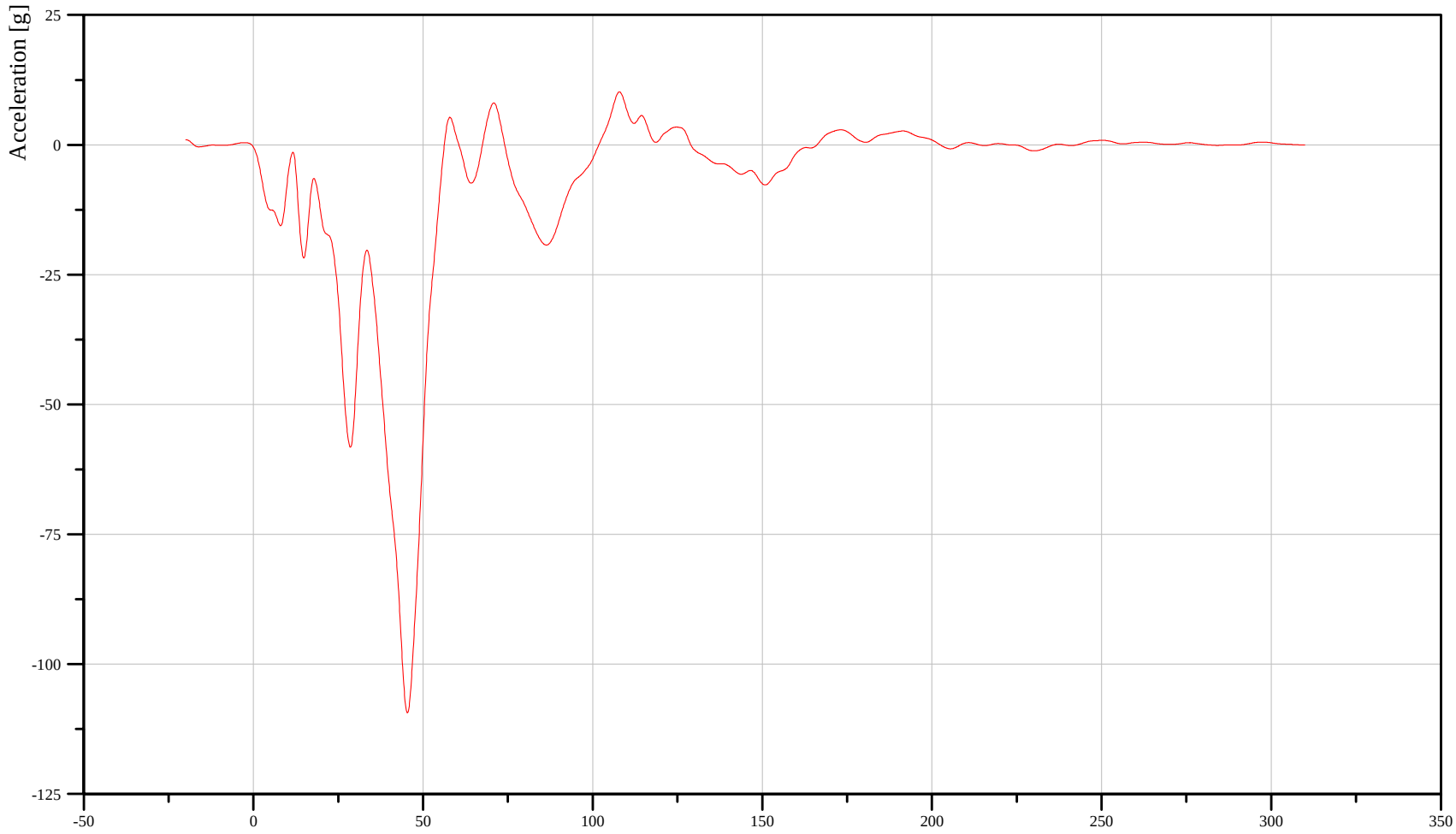
## Target Vehicle Toe Pan Accelerator X-Axis Acceleration

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 21PEAC000000ACXD

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_60

**Min. Value**
-109.39 g at 45.36 ms

**Max. Value**
10.21 g at 107.84 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

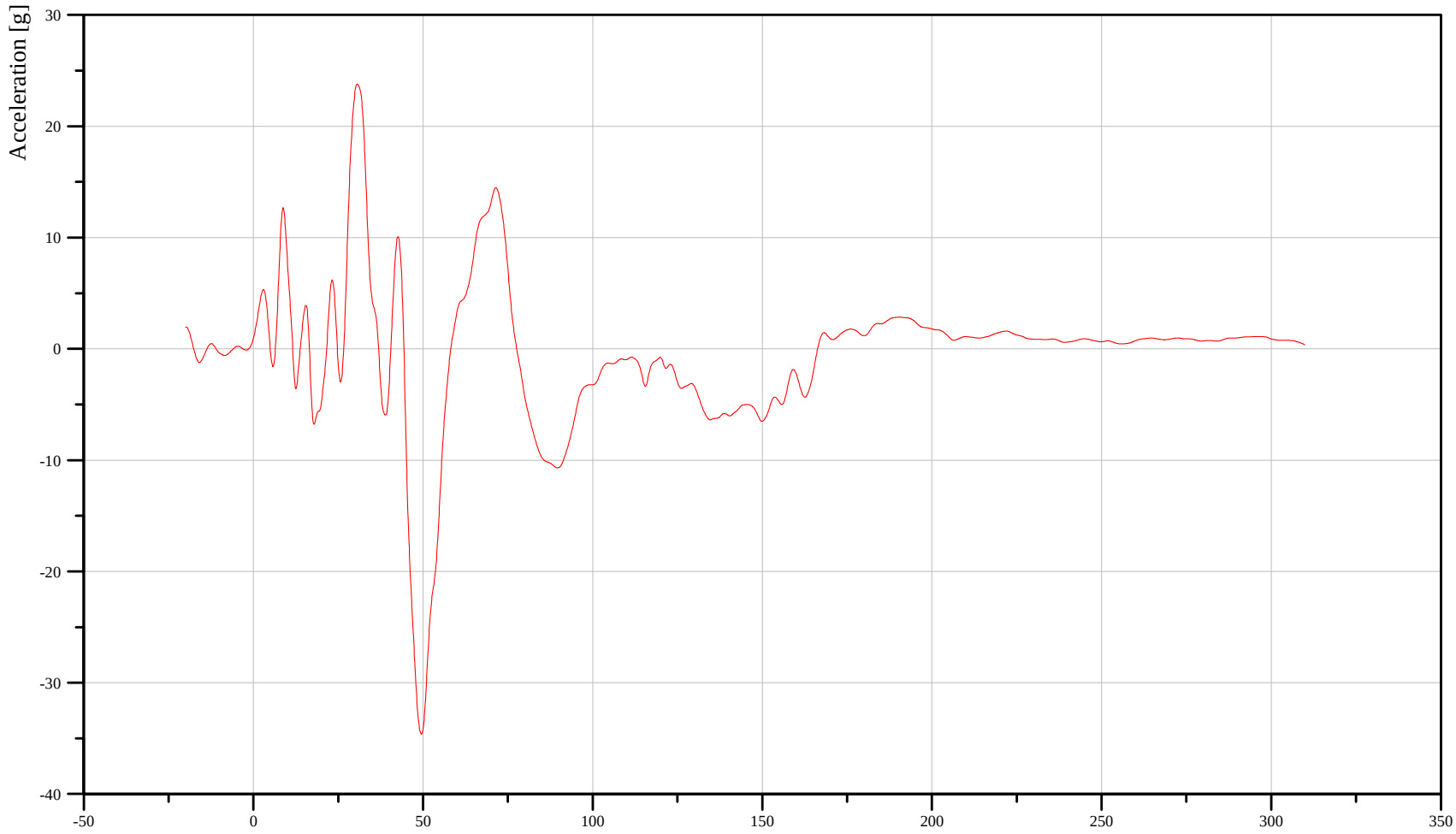
## Target Vehicle Toe Pan Accelerator Z-Axis Acceleration

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 21PEAC000000ACZD

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_60

**Min. Value**
-34.62 g at 49.52 ms

**Max. Value**
23.79 g at 30.56 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

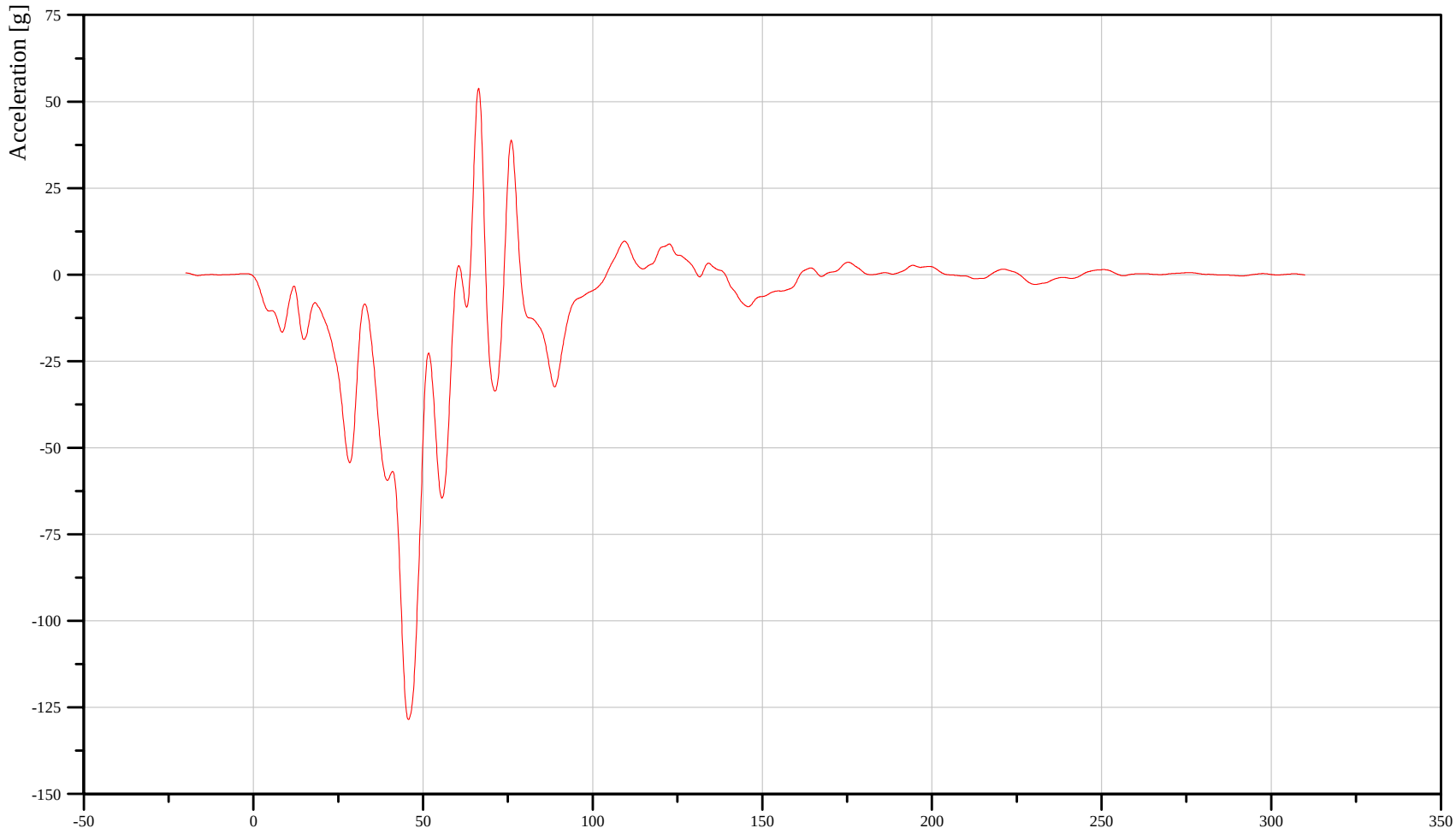
## Target Vehicle Toe Pan Footrest X-Axis Acceleration

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 21VEHC000001ACXD

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_60

**Min. Value**
-128.46 g at 45.68 ms

**Max. Value**
53.85 g at 66.40 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

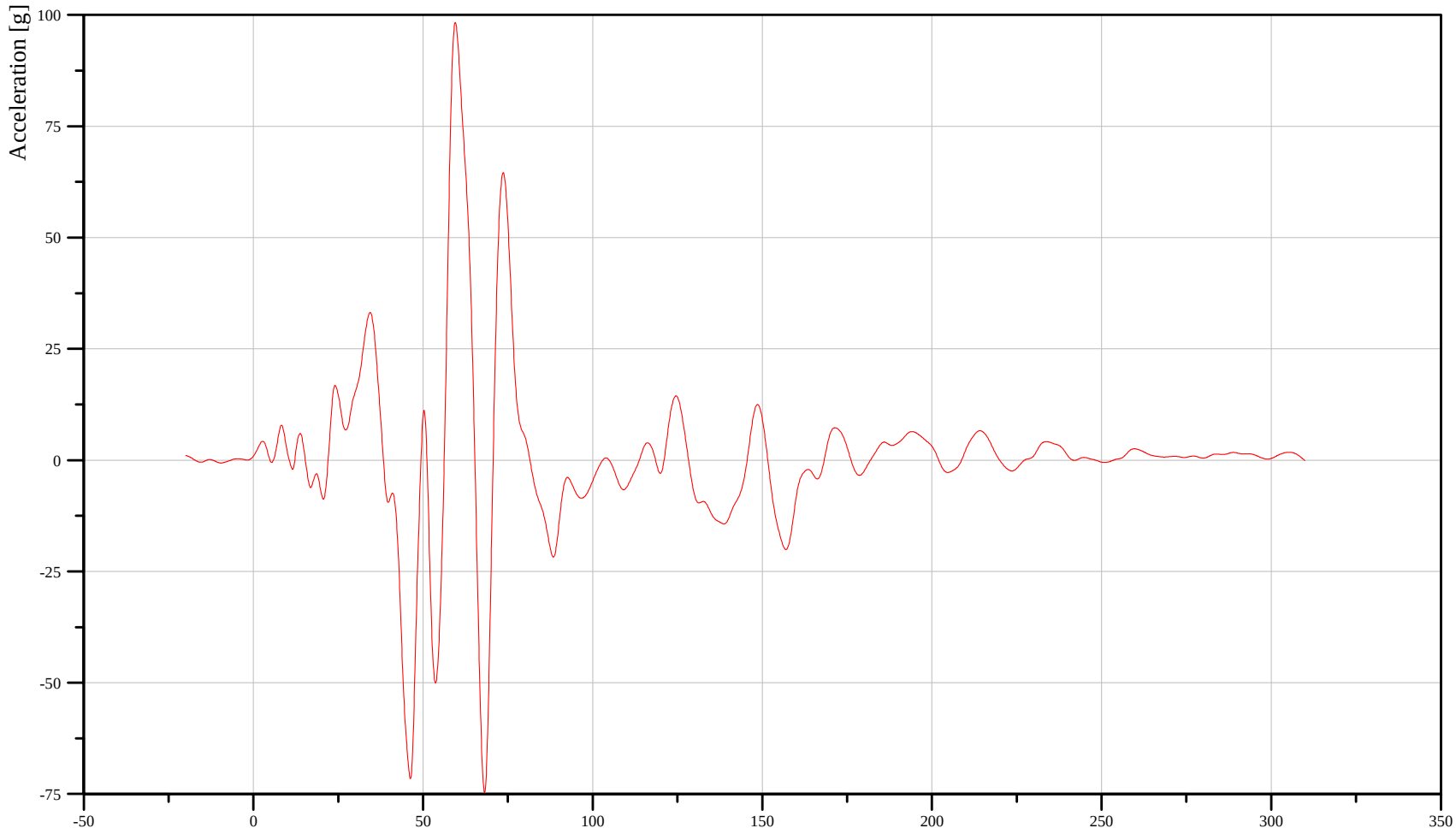
## Target Vehicle Toe Pan Footrest Z-Axis Acceleration

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 21VEHC000001ACZD

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_60

**Min. Value**
-74.65 g at 68.16 ms

**Max. Value**
98.30 g at 59.52 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

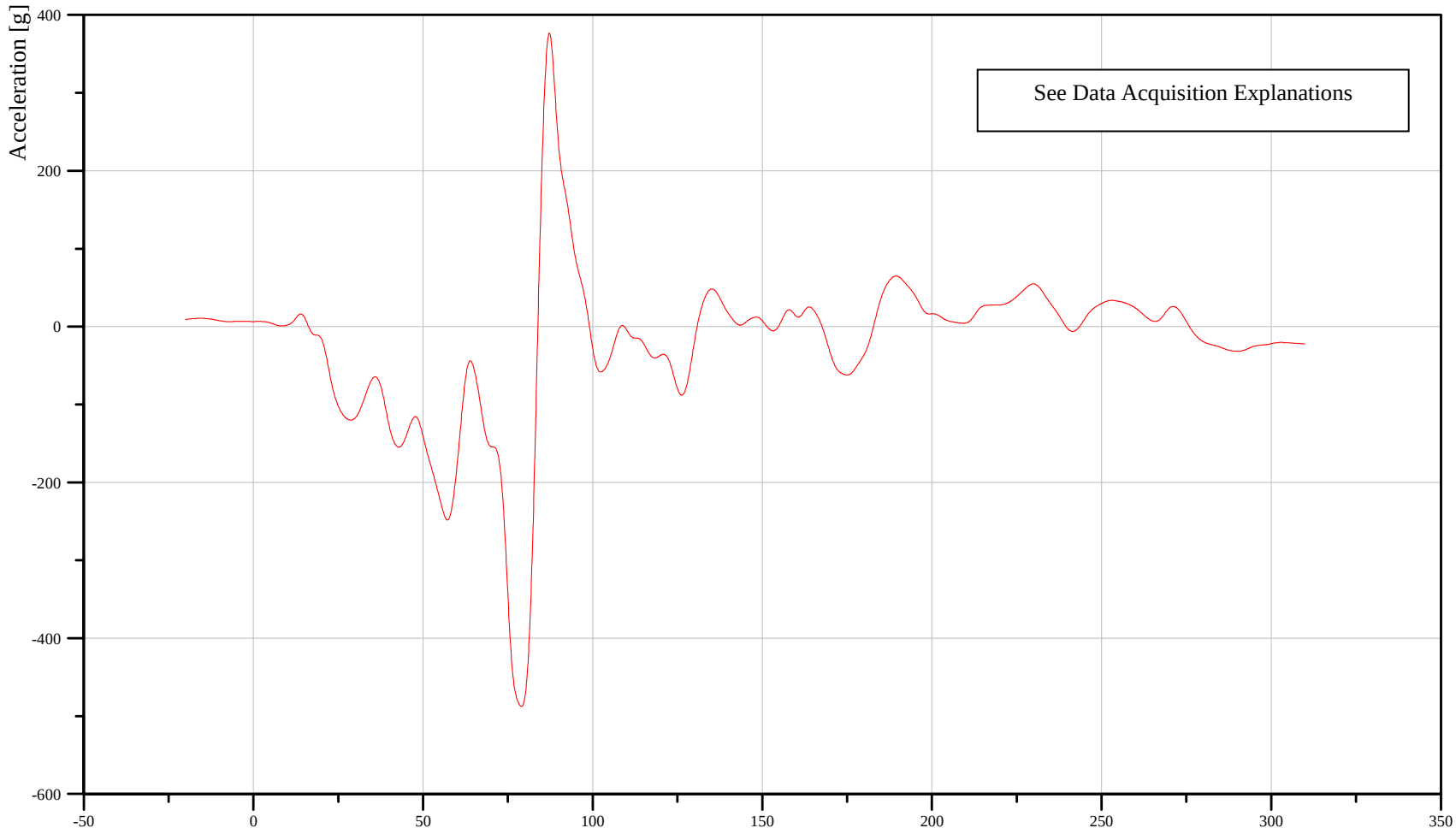
## Target Vehicle Rear Tunnel Center X-Axis Acceleration

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 25TUNNCY0000ACXD

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_60

**Min. Value**
-487.65 g at 79.04 ms

**Max. Value**
376.82 g at 87.20 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

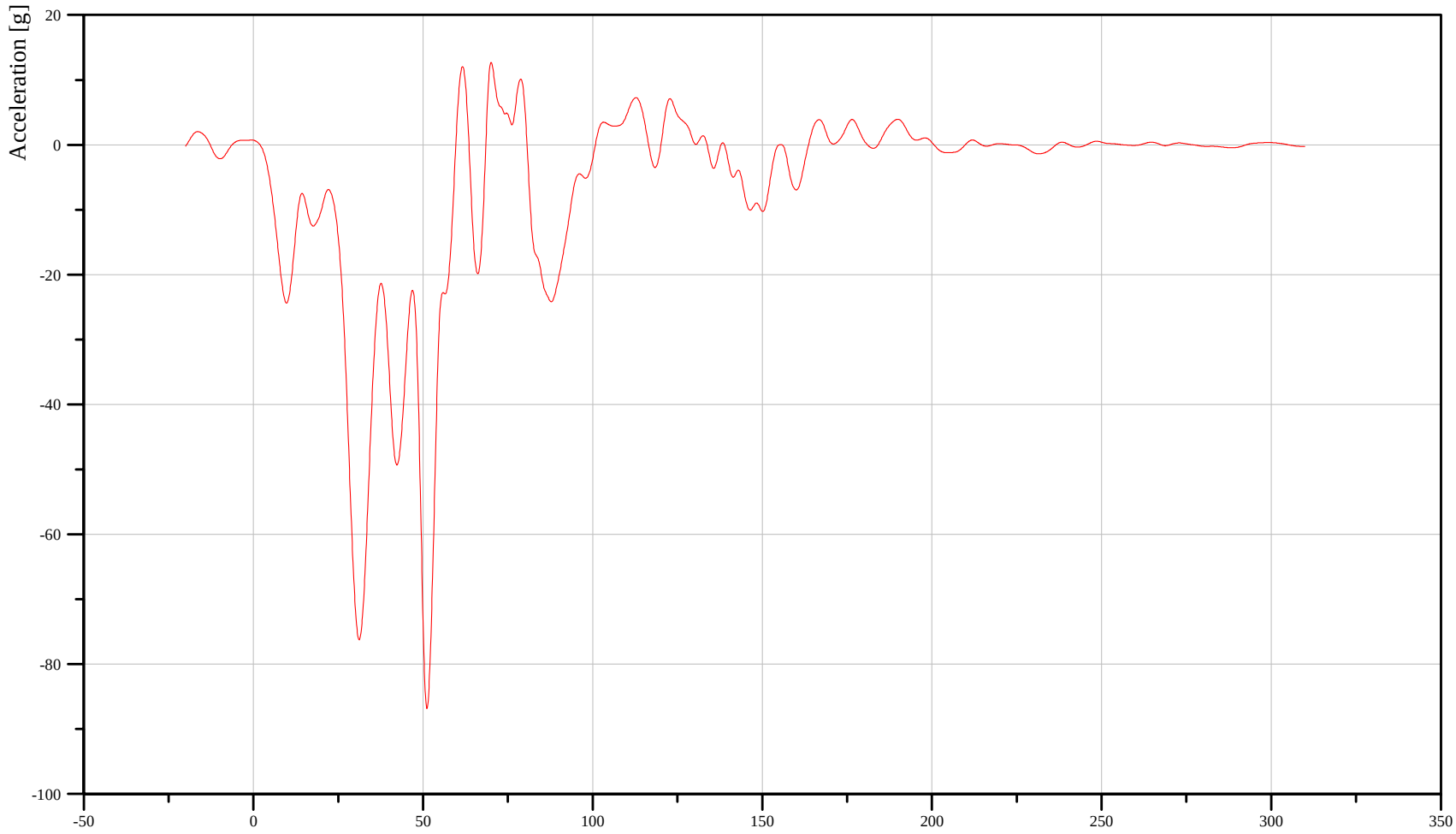
## Target Vehicle CG X-Axis Acceleration

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 20VEHCCG0000ACXD

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_60

**Min. Value**
-86.83 g at 51.20 ms

**Max. Value**
12.71 g at 70.08 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

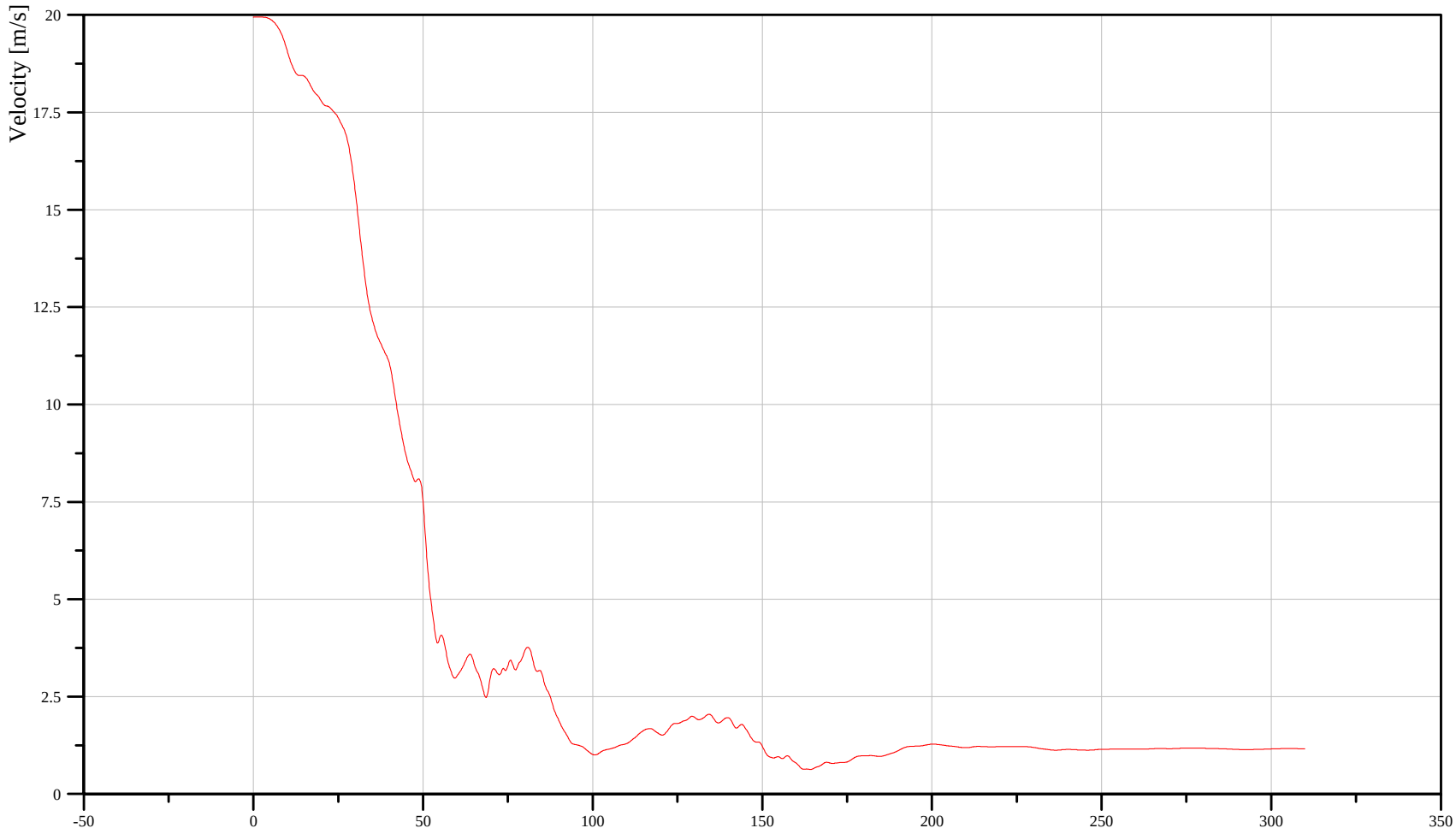
Target Vehicle CG X-Axis Velocity

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

## 20VEHCCG0000VEXC

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_180

**Min. Value**
0.63 m/s at 164.16 ms

**Max. Value**
19.95 m/s at 1.04 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

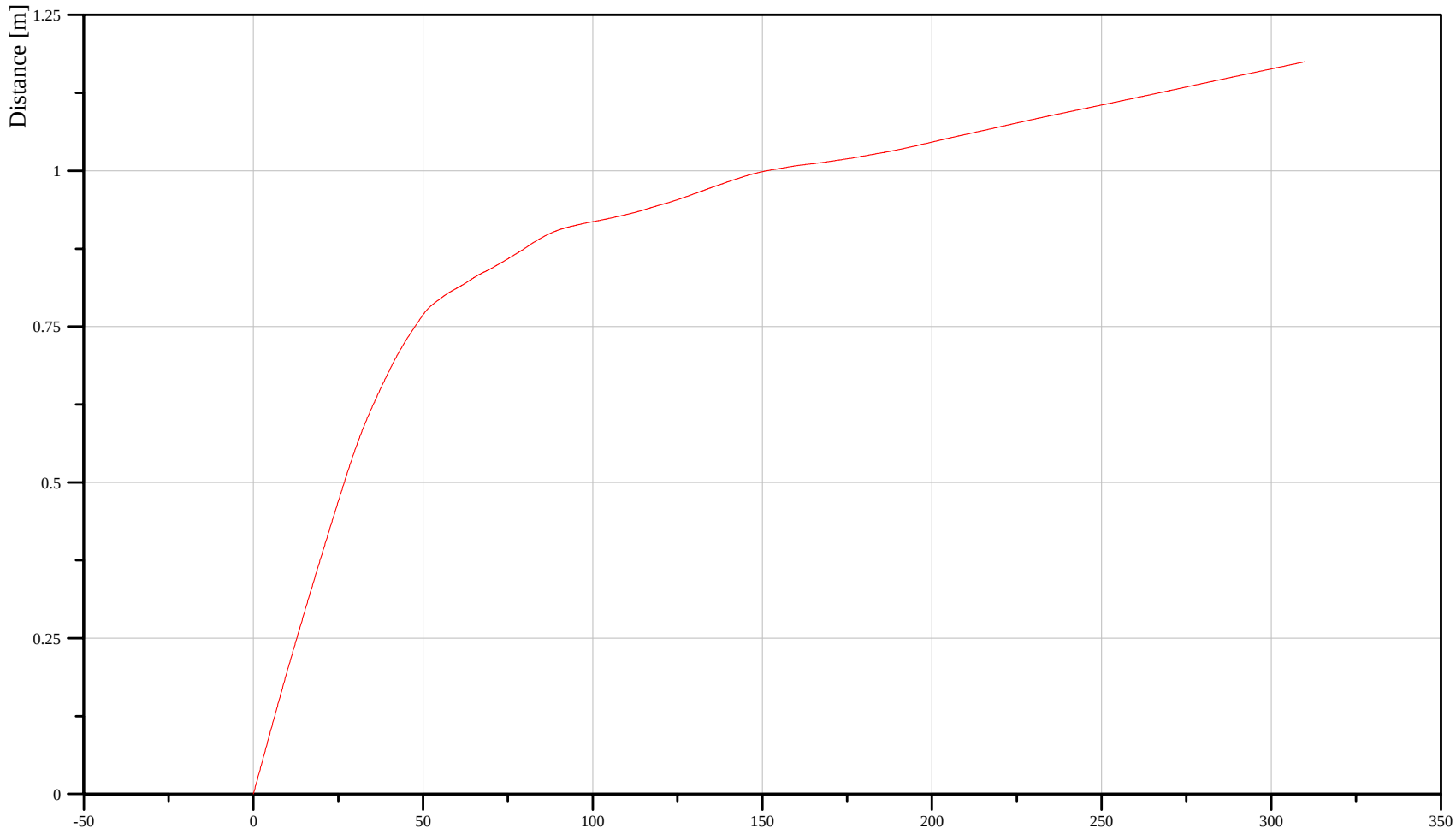
## Target Vehicle CG X-Axis Displacement

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 20VEHCCG0000DCXC

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_180

**Min. Value**
0.00 m at 0.00 ms

**Max. Value**
1.18 m at 309.92 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

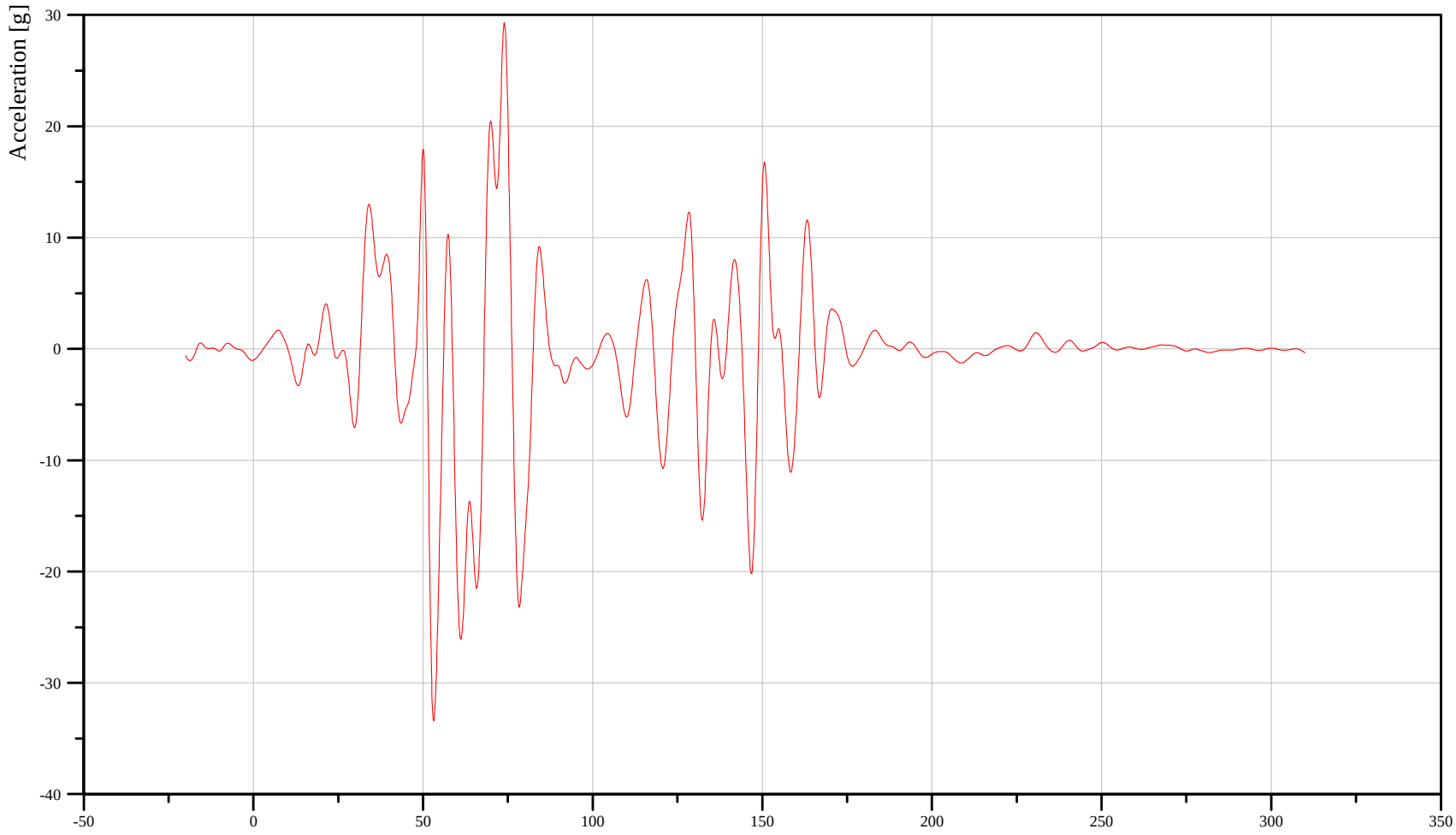
## Target Vehicle CG Y-Axis Acceleration

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 20VEHCCG0000ACYD

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_60

**Min. Value**
-33.41 g at 53.12 ms

**Max. Value**
29.30 g at 73.92 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

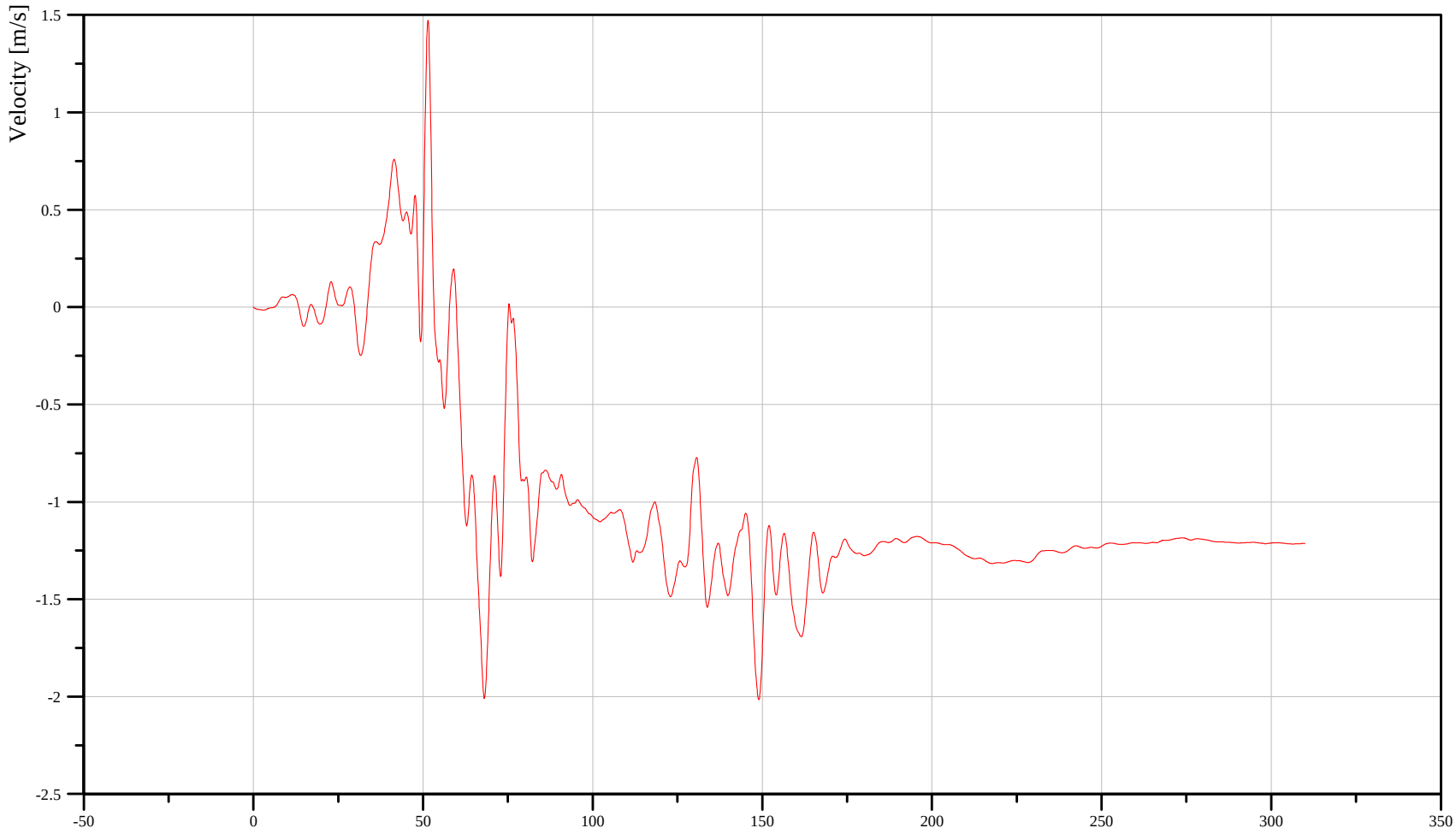
Target Vehicle CG Y-Axis Velocity

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

## 20VEHCCG0000VEYC

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_180

**Min. Value**
-2.02 m/s at 148.96 ms

**Max. Value**
1.47 m/s at 51.44 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

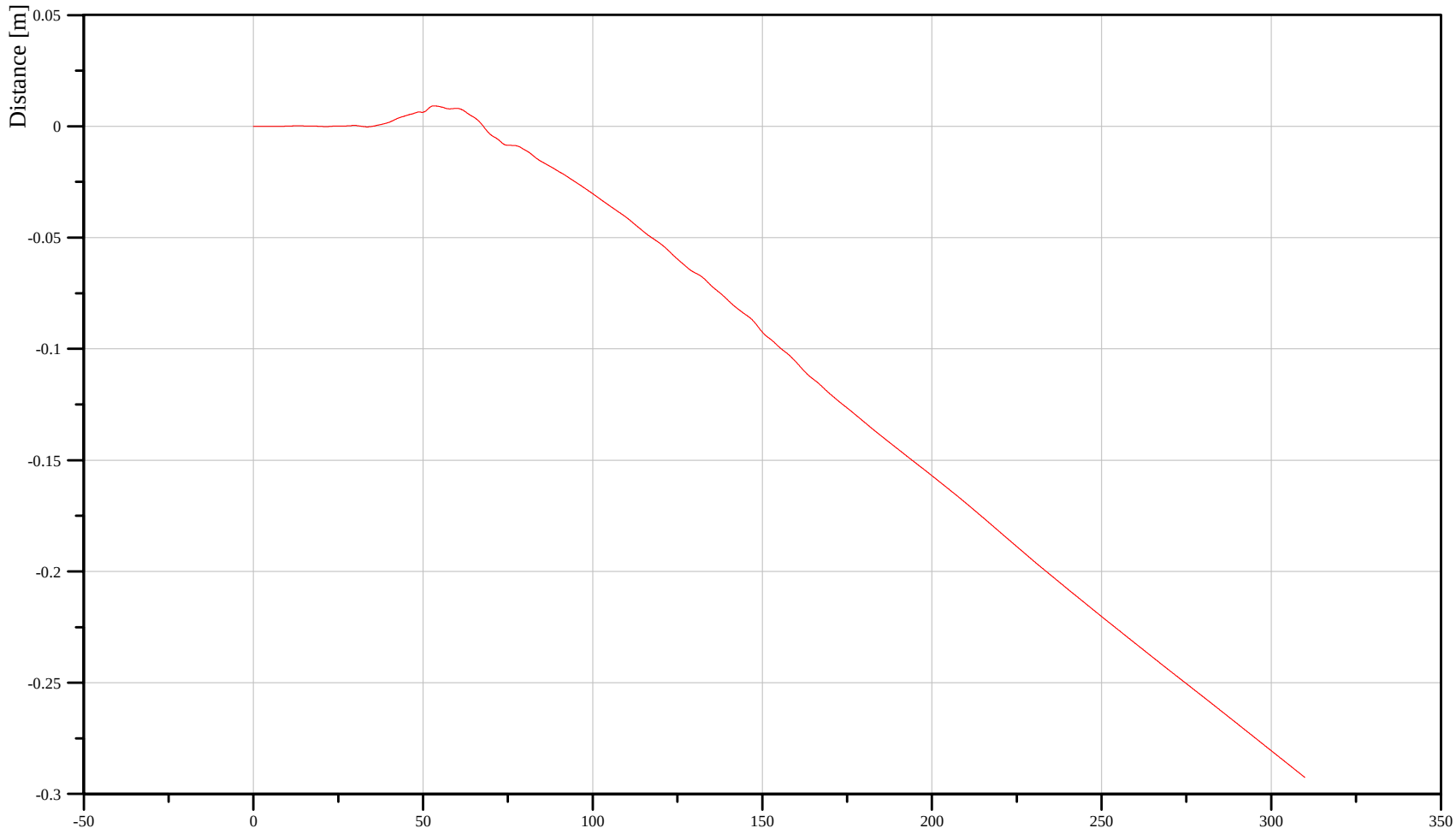
## Target Vehicle CG Y-Axis Displacement

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 20VEHCCG0000DCYC

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_180

**Min. Value**
-0.29 m at 309.92 ms

**Max. Value**
0.01 m at 53.20 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

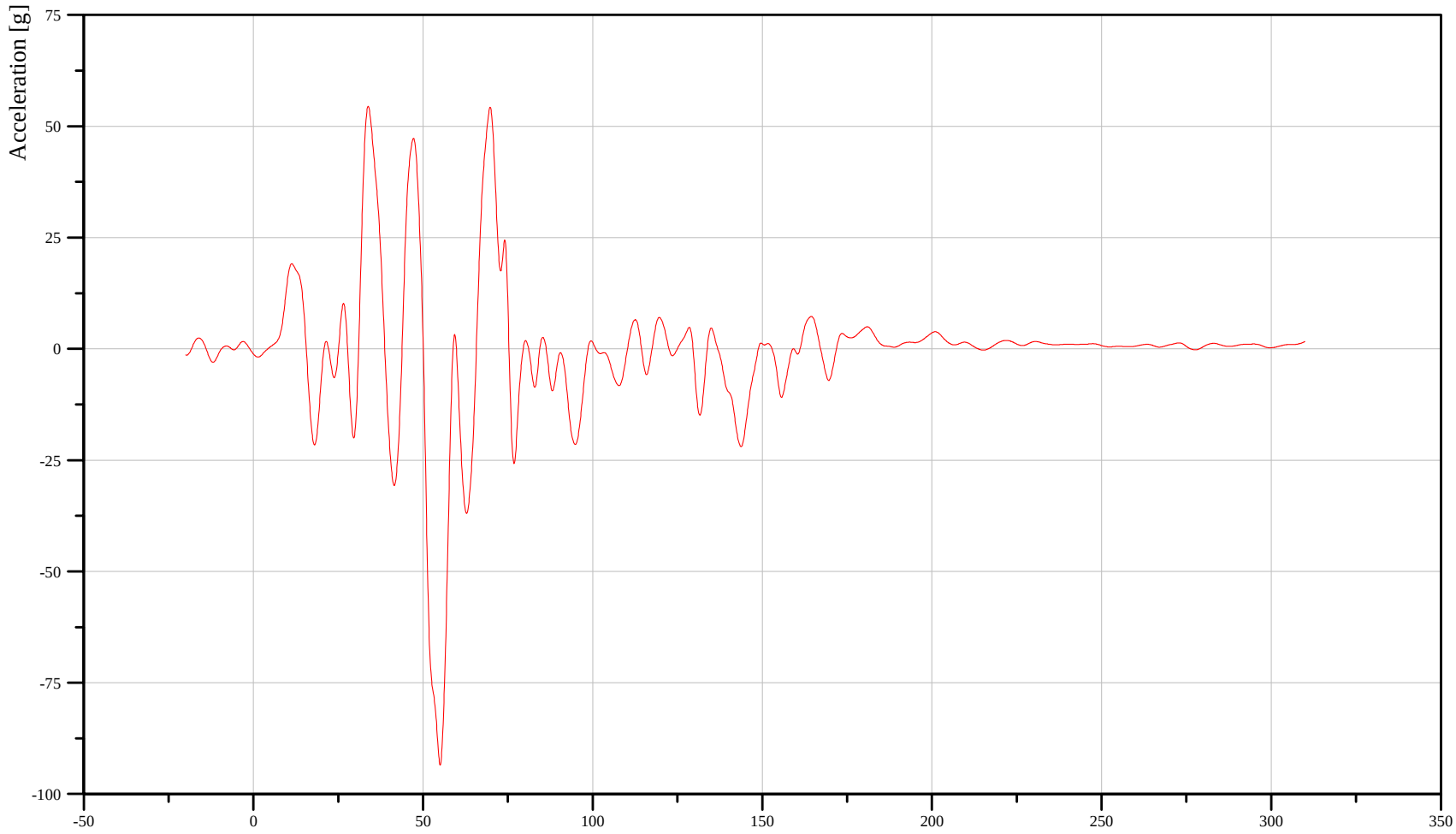
## Target Vehicle CG Z-Axis Acceleration

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 20VEHCCG0000ACZD

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_60

**Min. Value**
-93.49 g at 55.04 ms

**Max. Value**
54.50 g at 33.84 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

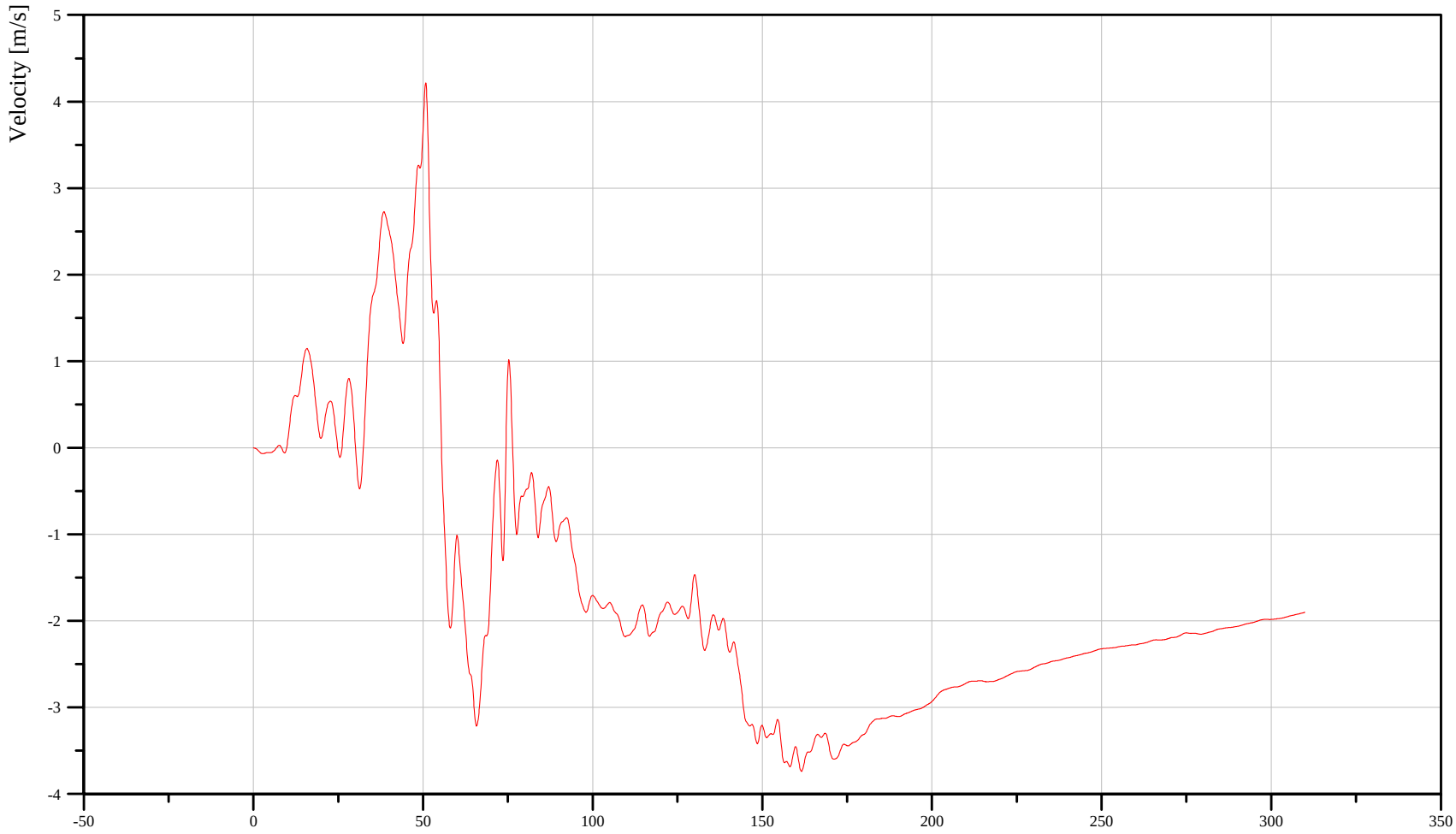
## Target Vehicle CG Z-Axis Velocity

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 20VEHCCG0000VEZC

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_180

**Min. Value**
-3.74 m/s at 161.52 ms

**Max. Value**
4.22 m/s at 50.80 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

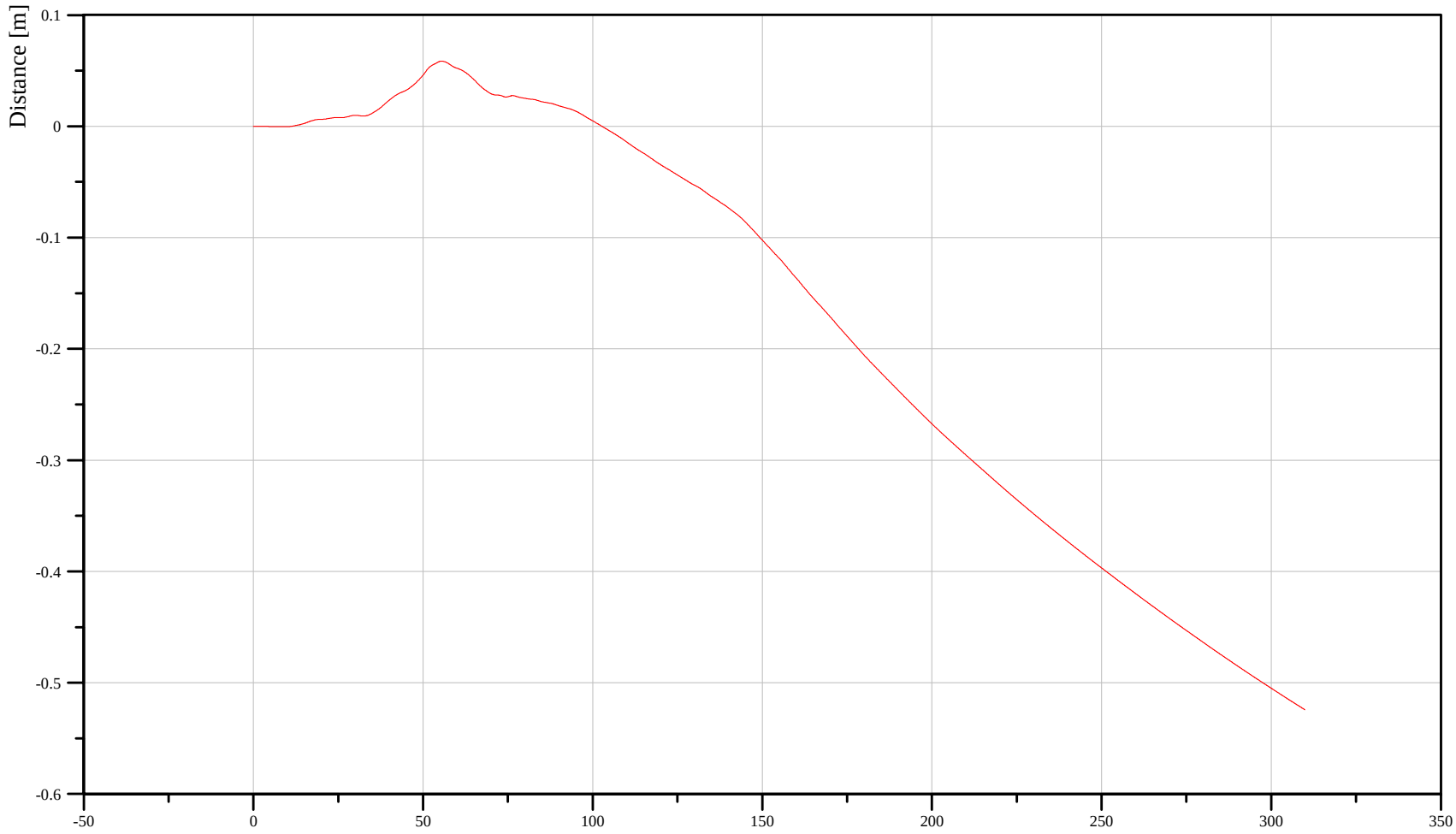
Target Vehicle CG Z-Axis Displacement

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

## 20VEHCCG0000DCZC

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_180

**Min. Value**
-0.52 m at 309.92 ms

**Max. Value**
0.06 m at 55.44 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

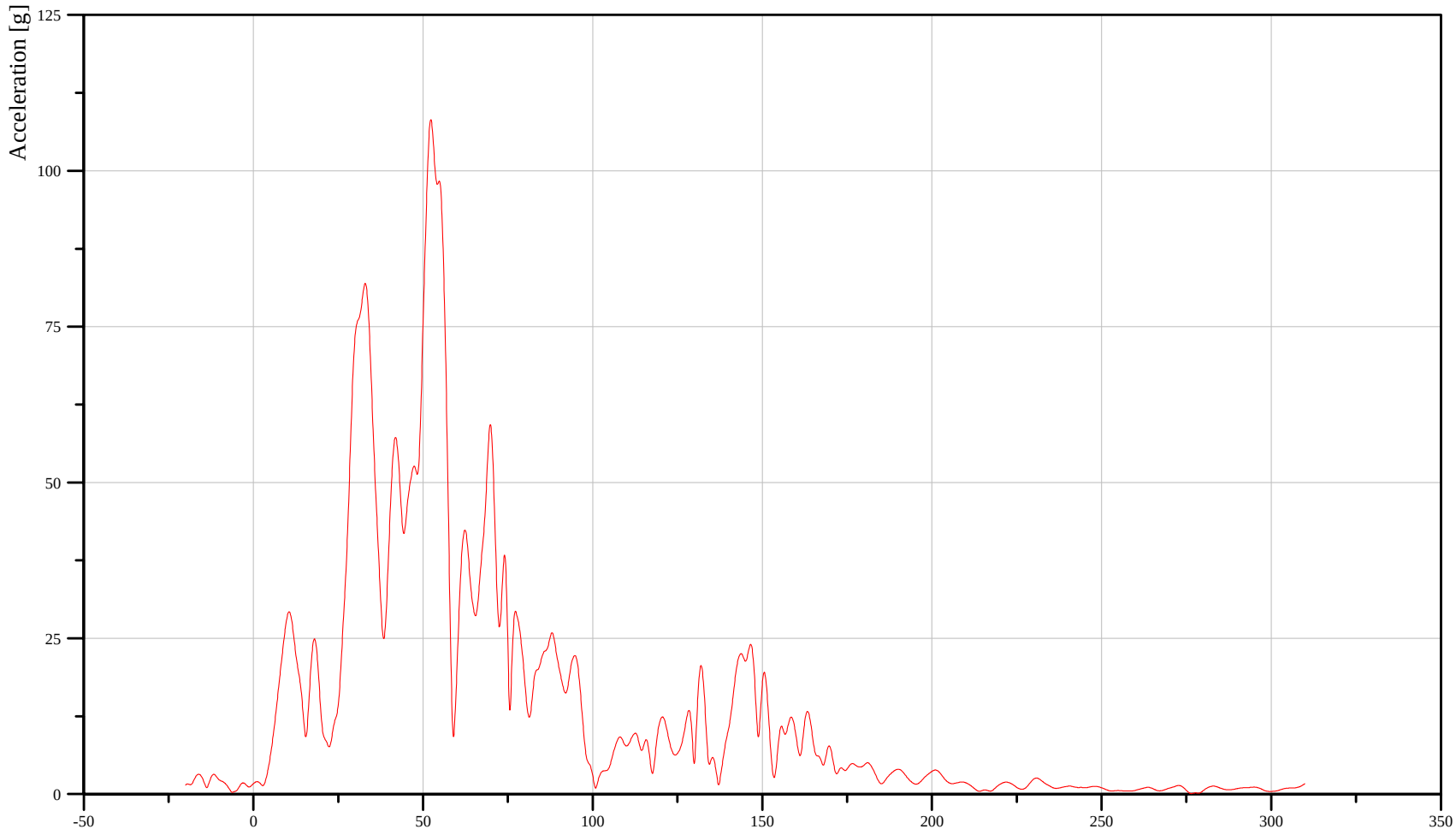
## Target Vehicle CG Resultant Acceleration

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 20VEHCCG0000ACRD

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_60

**Min. Value**
0.09 g at 276.48 ms

**Max. Value**
108.21 g at 52.32 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

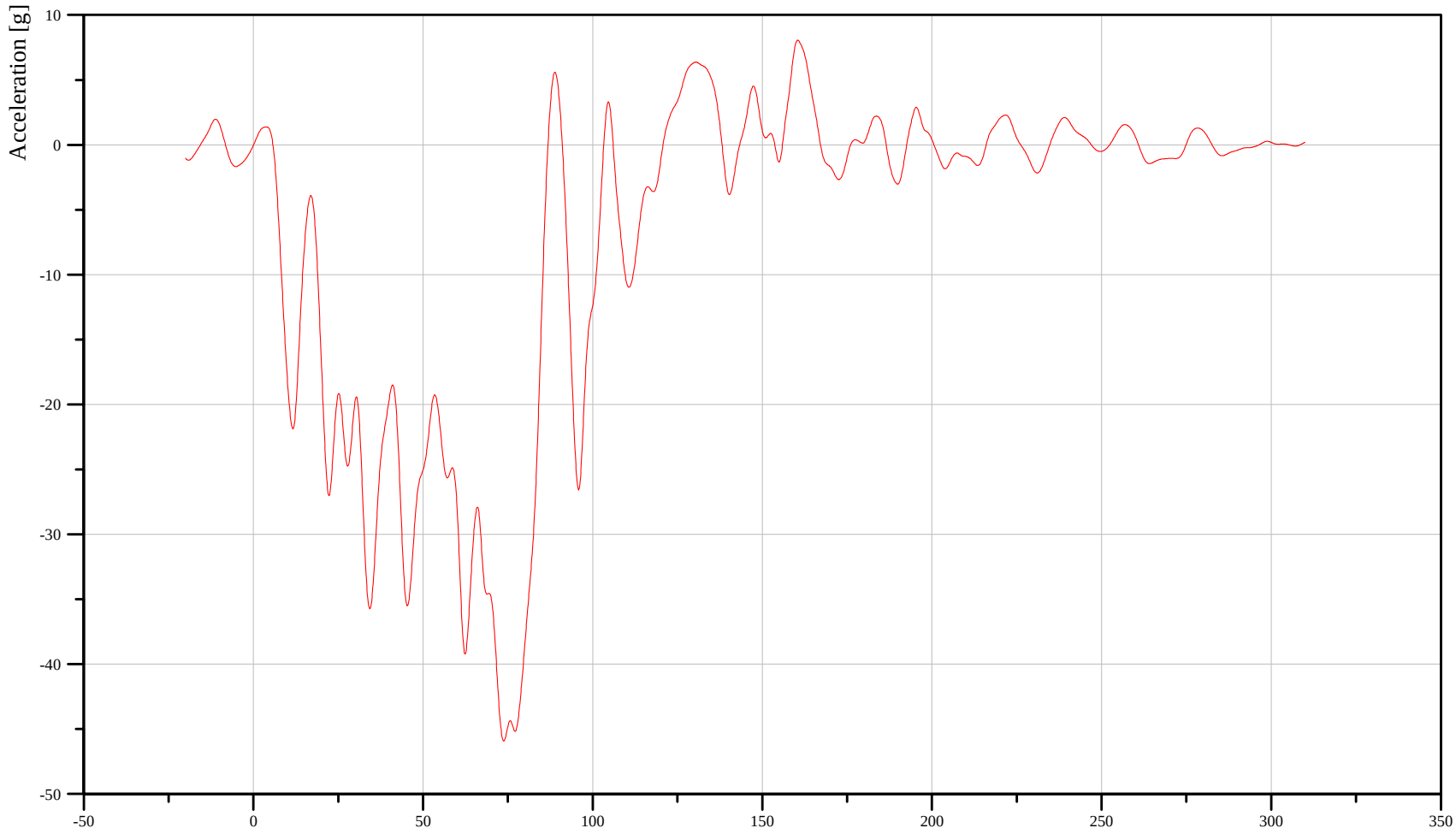
## Target Vehicle Rear Deck X-Axis Acceleration

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 28VEHC000000ACXD

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_60

**Min. Value**
-45.92 g at 73.76 ms

**Max. Value**
8.06 g at 160.40 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

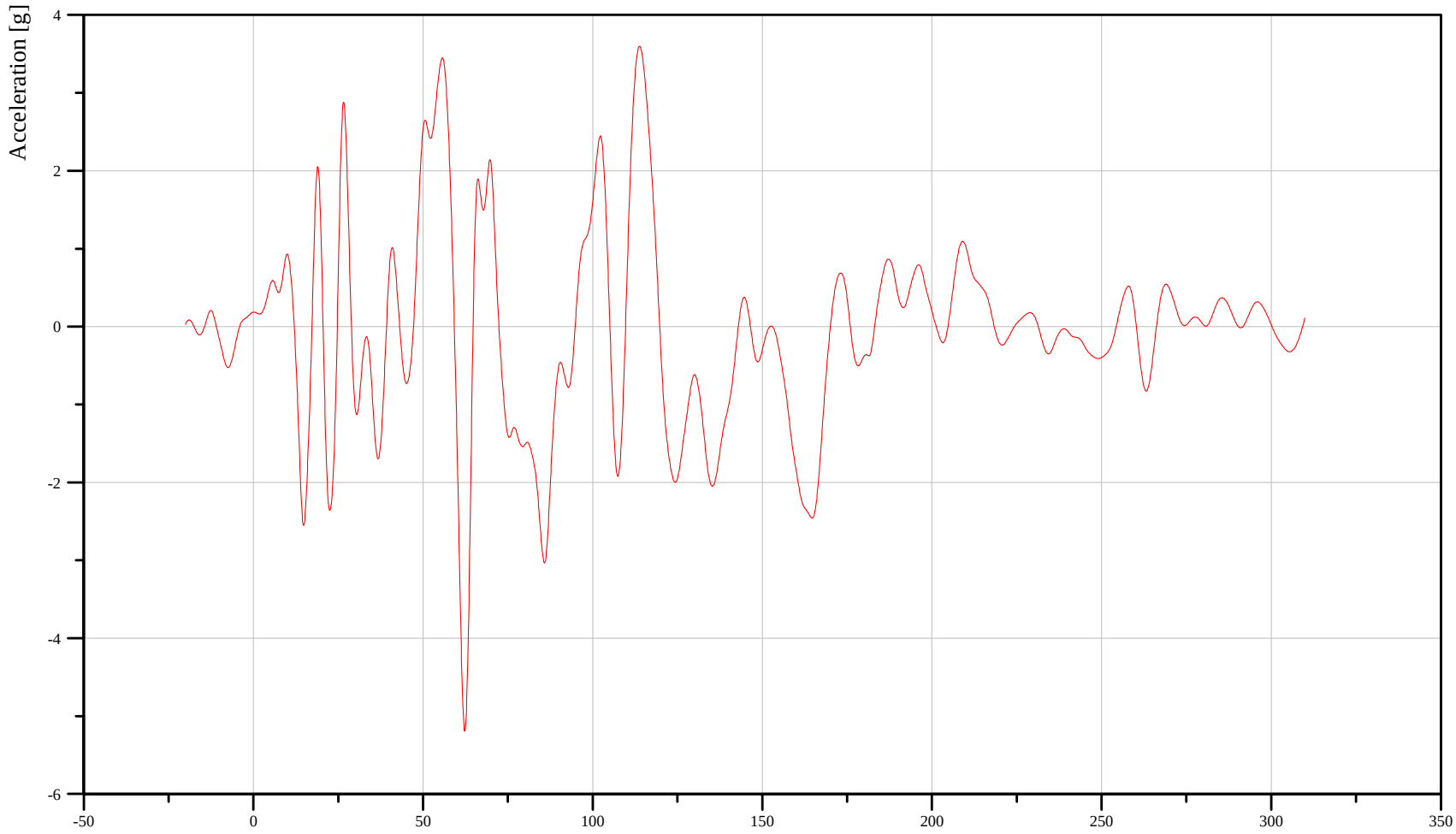
## Target Vehicle Rear Deck Y-Axis Acceleration

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 28VEHC000000ACYD

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_60

**Min. Value**
-5.19 g at 62.32 ms

**Max. Value**
3.60 g at 113.84 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

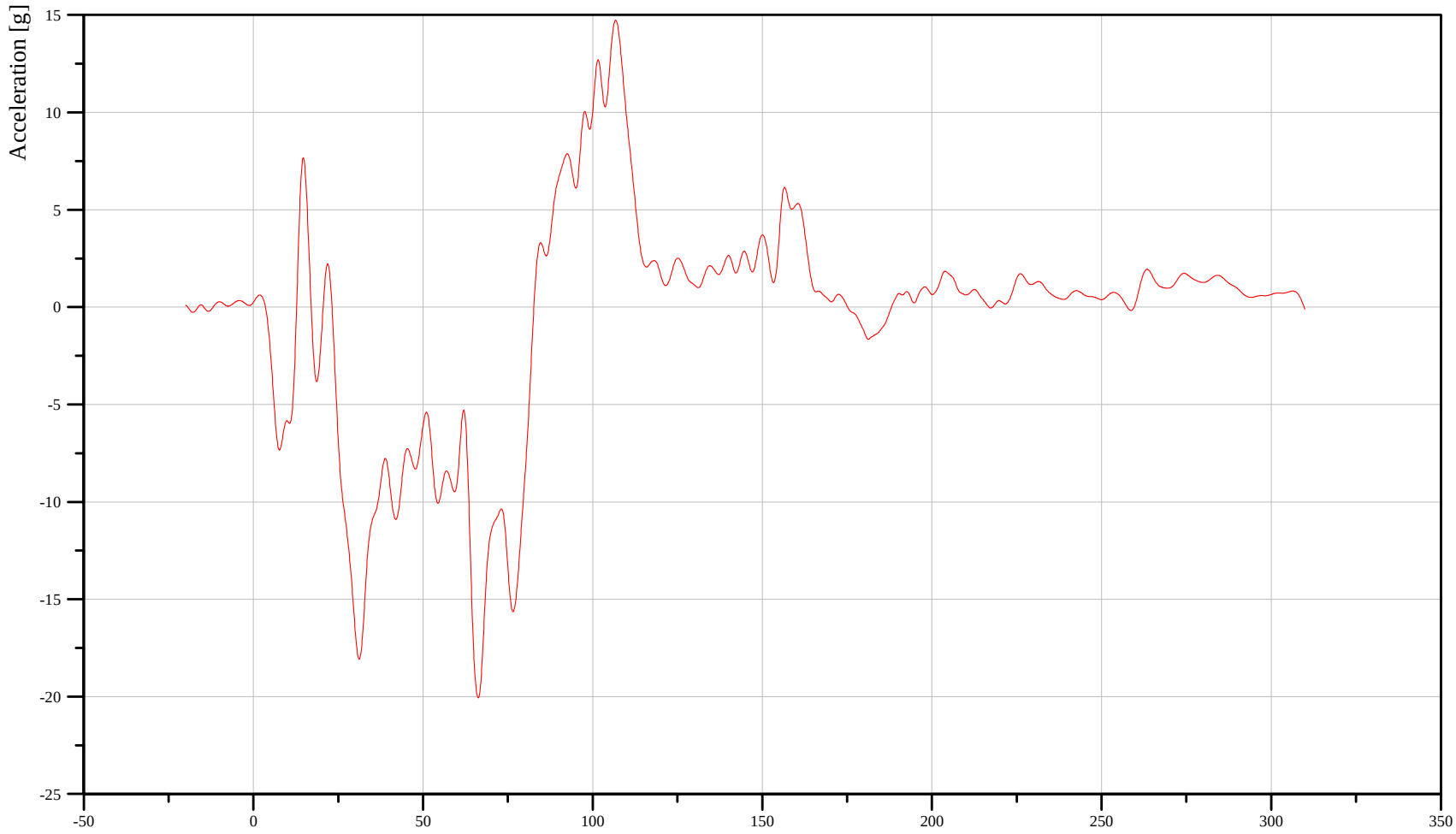
## Target Vehicle Rear Deck Z-Axis Acceleration

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 28VEHC000000ACZD

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_60

**Min. Value**
-20.06 g at 66.32 ms

**Max. Value**
14.74 g at 106.80 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

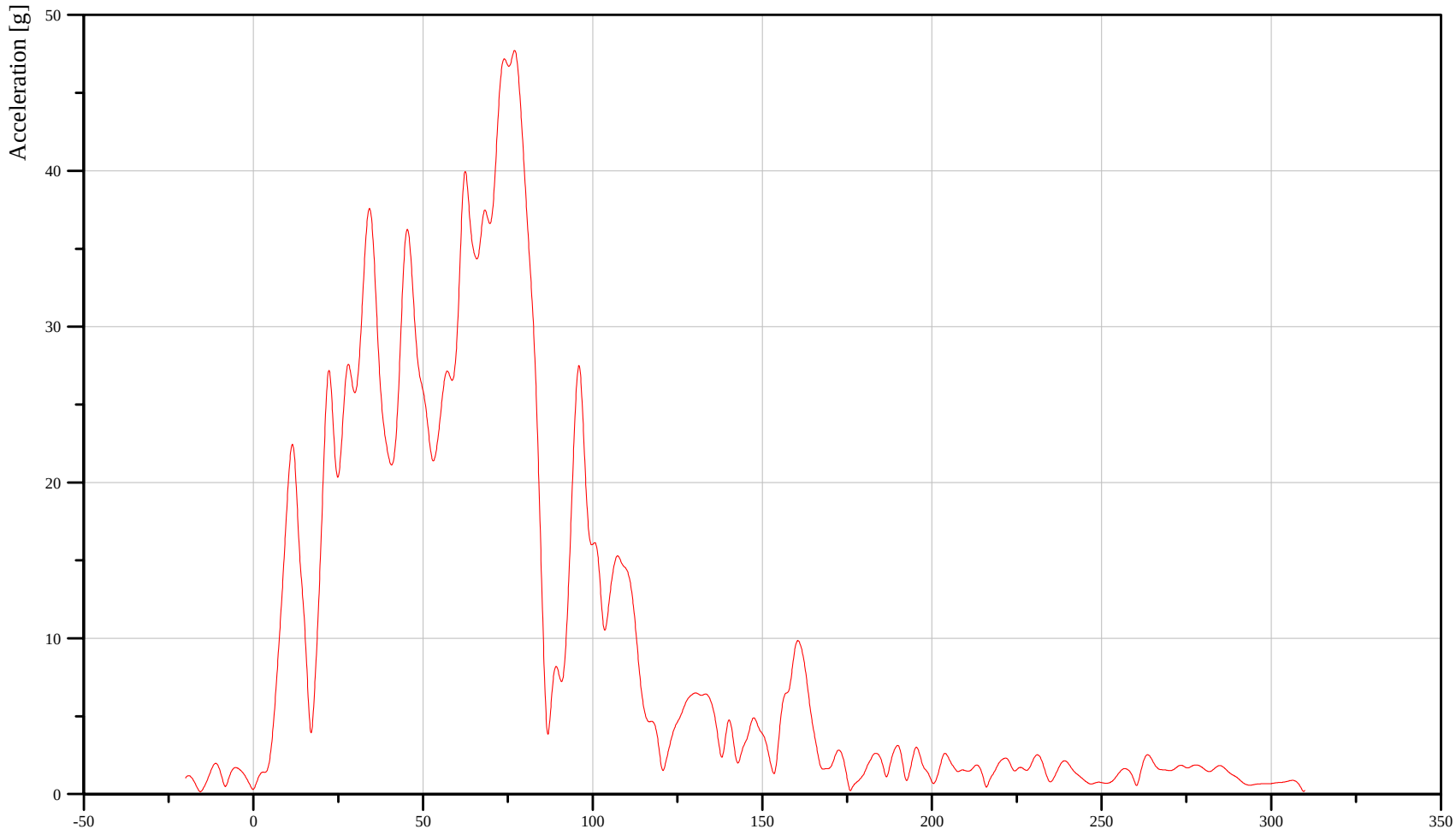
## Target Vehicle Rear Deck Resultant Acceleration

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 28VEHC000000ACRD

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_60

**Min. Value**
0.15 g at -15.68 ms

**Max. Value**
47.73 g at 76.96 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

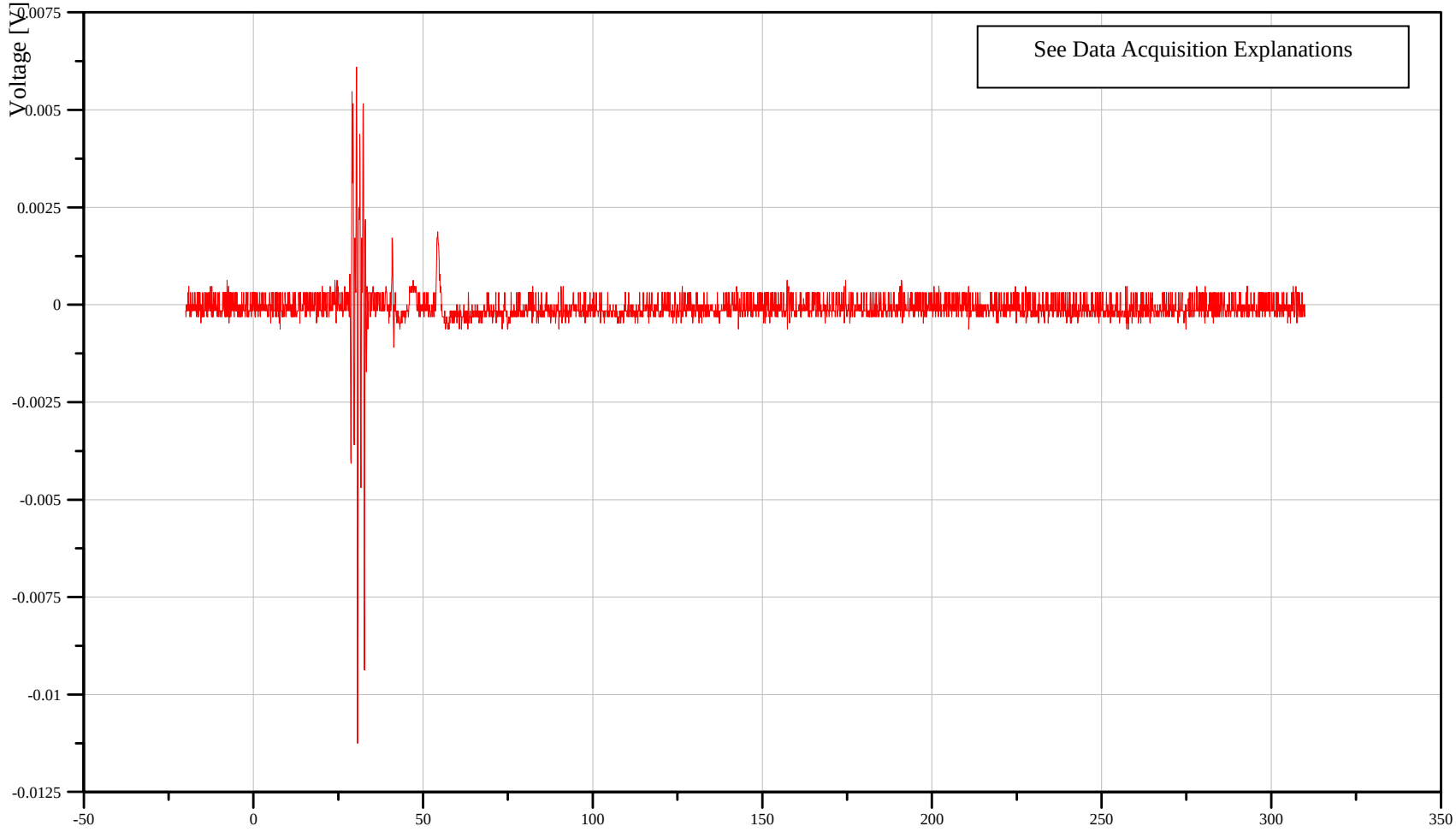
Target Vehicle Driver Airbag - Primary

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

## 21AIRBFR0100EV0A

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_1000

**Min. Value**
-0.01 V at 30.72 ms

**Max. Value**
0.01 V at 30.40 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

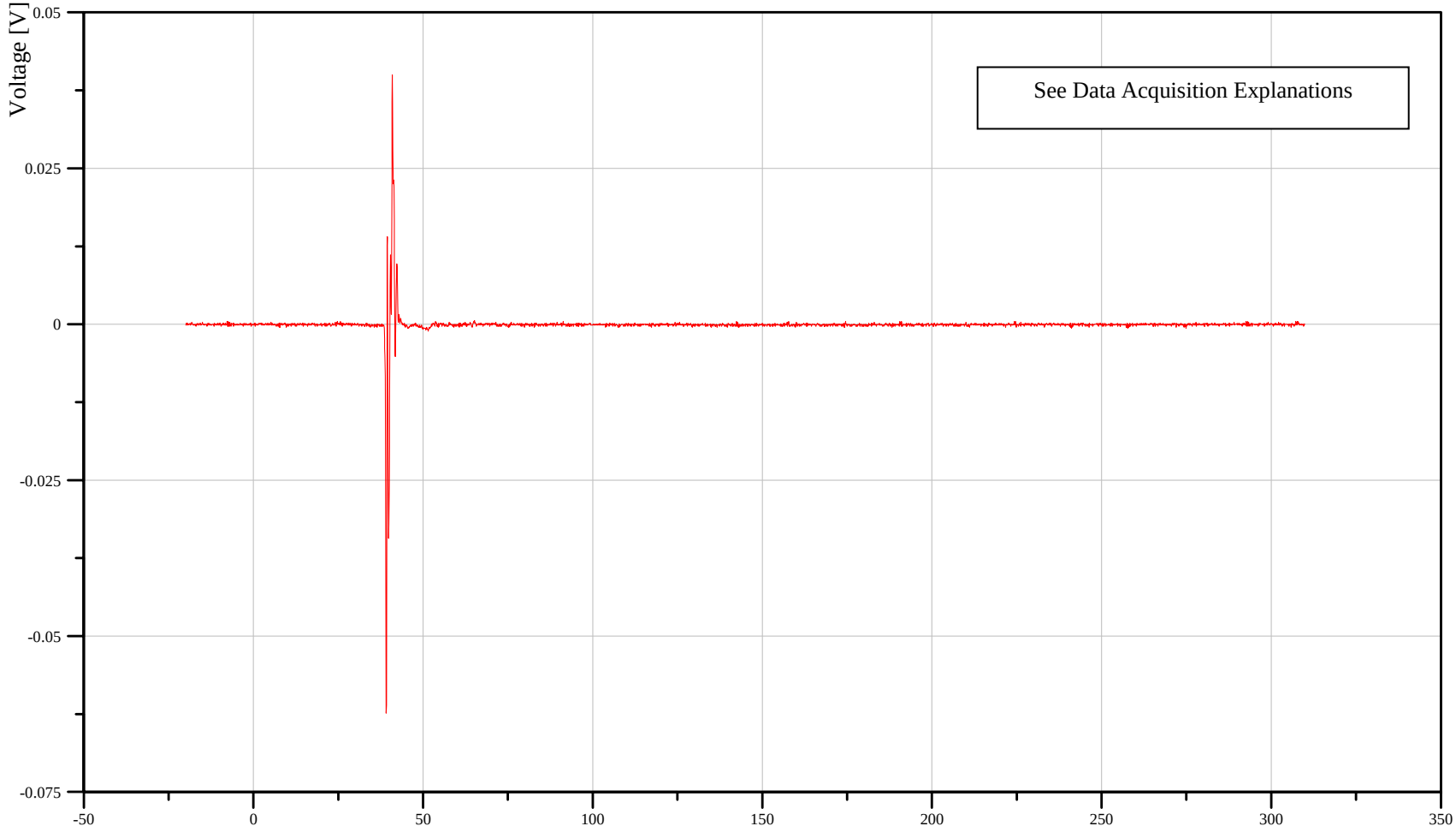
## Target Vehicle Driver Airbag - Secondary

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 21AIRBFR0200EV0A

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_1000

**Min. Value**
-0.06 V at 39.12 ms

**Max. Value**
0.04 V at 40.96 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

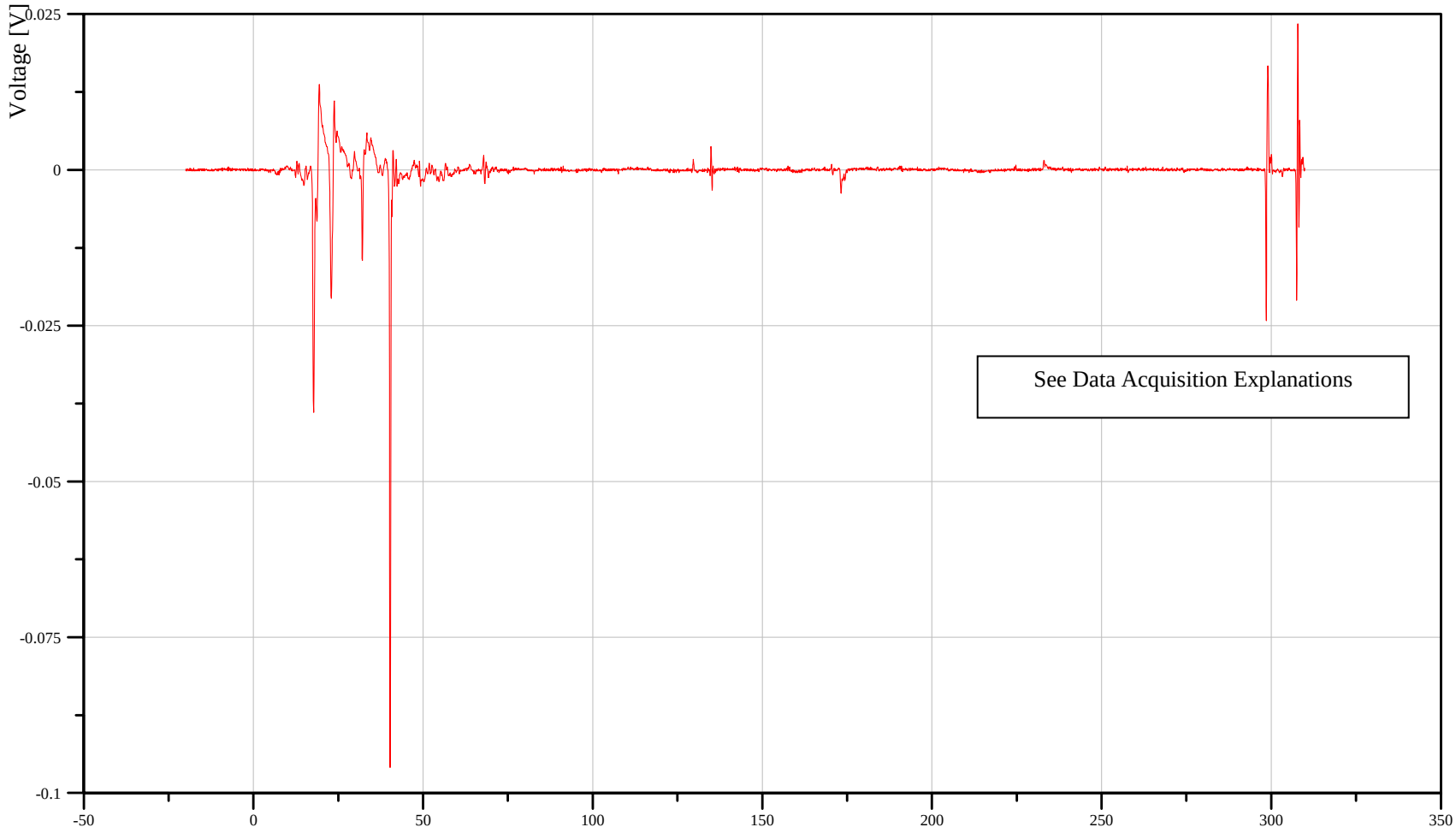
## Target Vehicle Passenger Airbag - Primary

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 23AIRBFR0100EV0A

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_1000

**Min. Value**
-0.10 V at 40.32 ms

**Max. Value**
0.02 V at 307.84 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

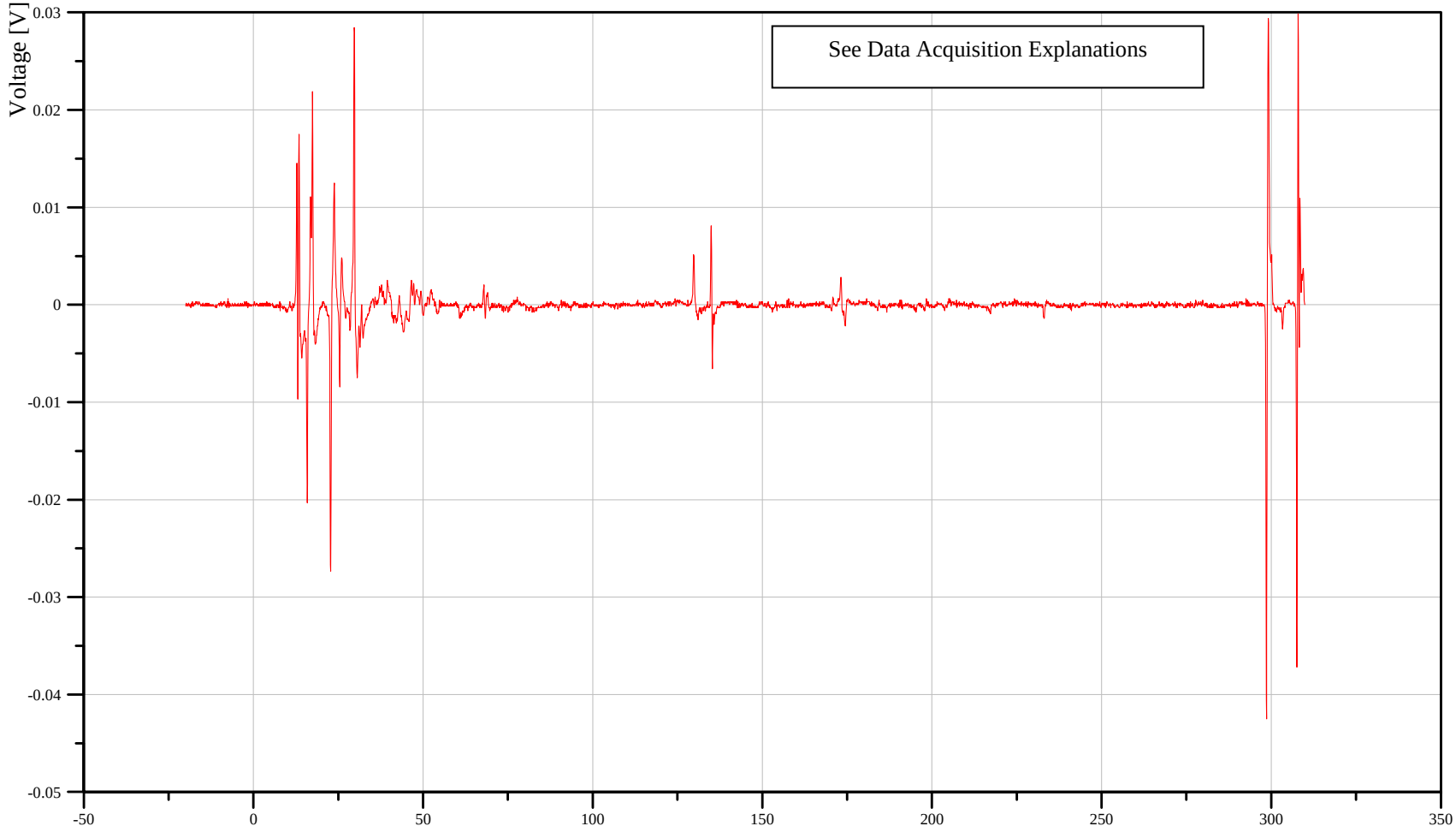
## Target Vehicle Passenger Airbag - Secondary

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 23AIRBFR0200EV0A

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_1000

**Min. Value**
-0.04 V at 298.64 ms

**Max. Value**
0.03 V at 307.92 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

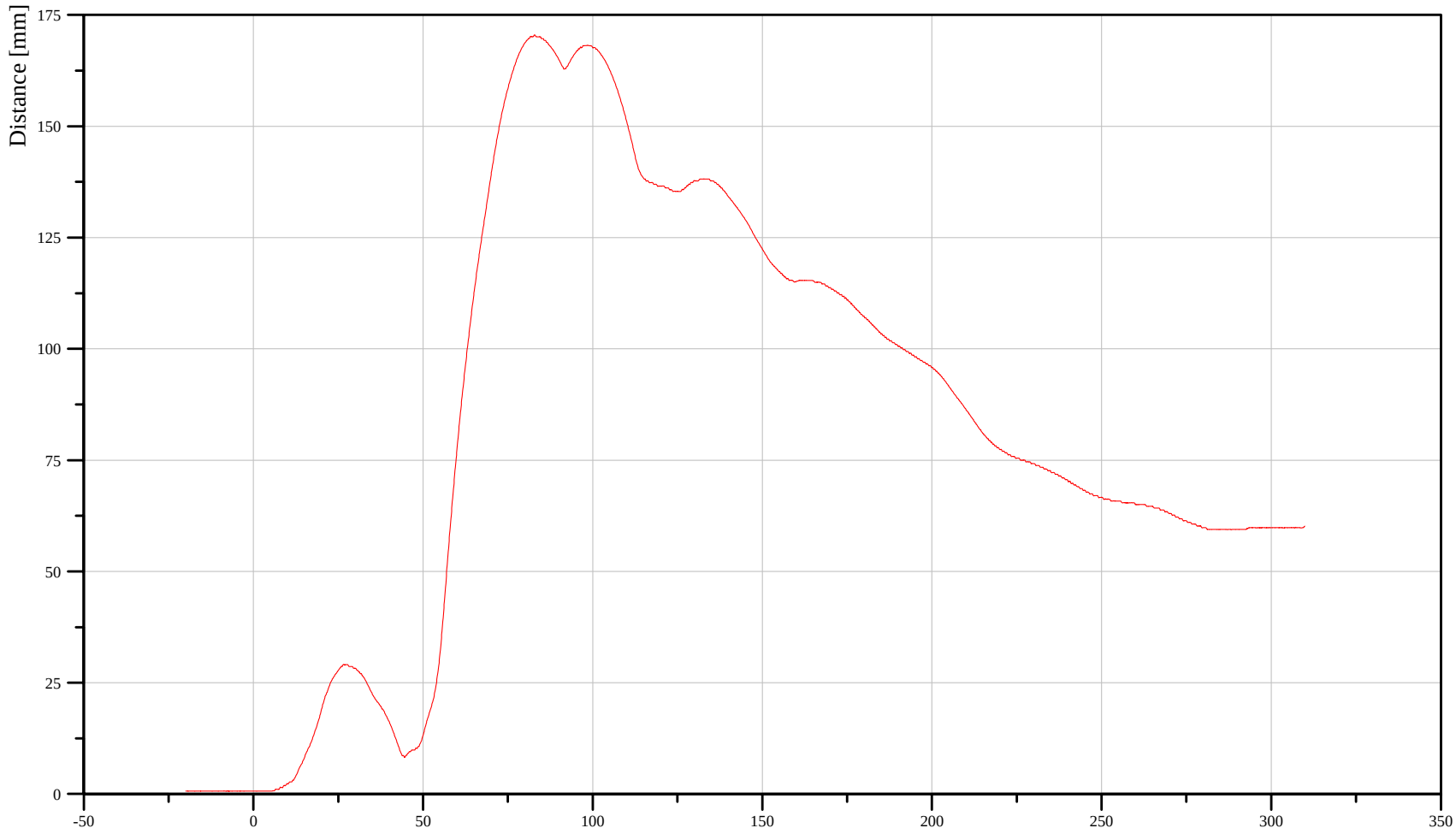
Target Vehicle Driver Lap Belt Spool

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

## 21SEBA0000B5DS0A

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_1000

**Min. Value**
0.61 mm at -19.28 ms

**Max. Value**
170.51 mm at 82.88 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

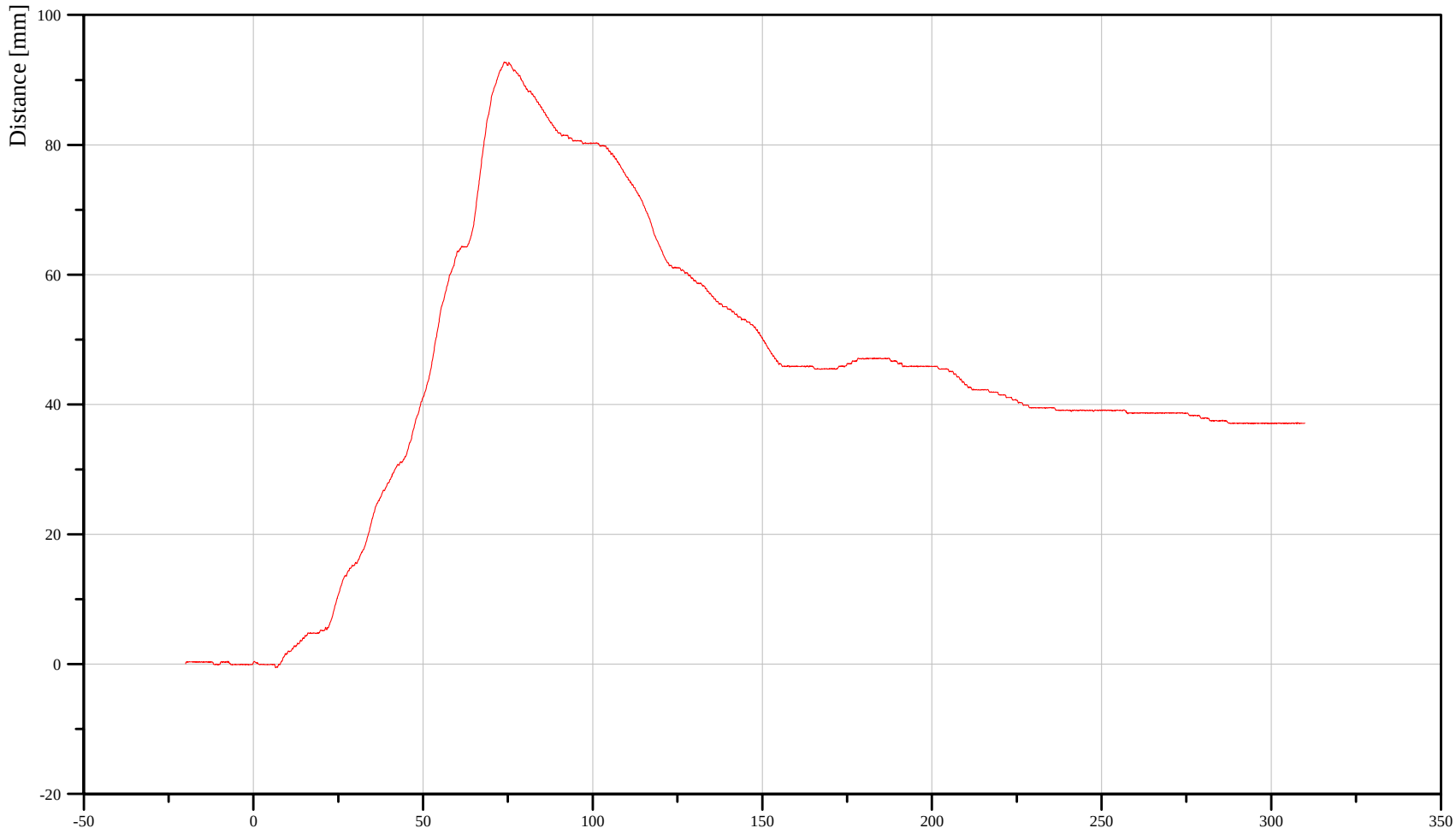
## Target Vehicle Driver Shoulder Belt Spool and Retraction

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 21SEBA0000B3DS0A

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_1000

**Min. Value**
-0.56 mm at 6.56 ms

**Max. Value**
92.73 mm at 73.92 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

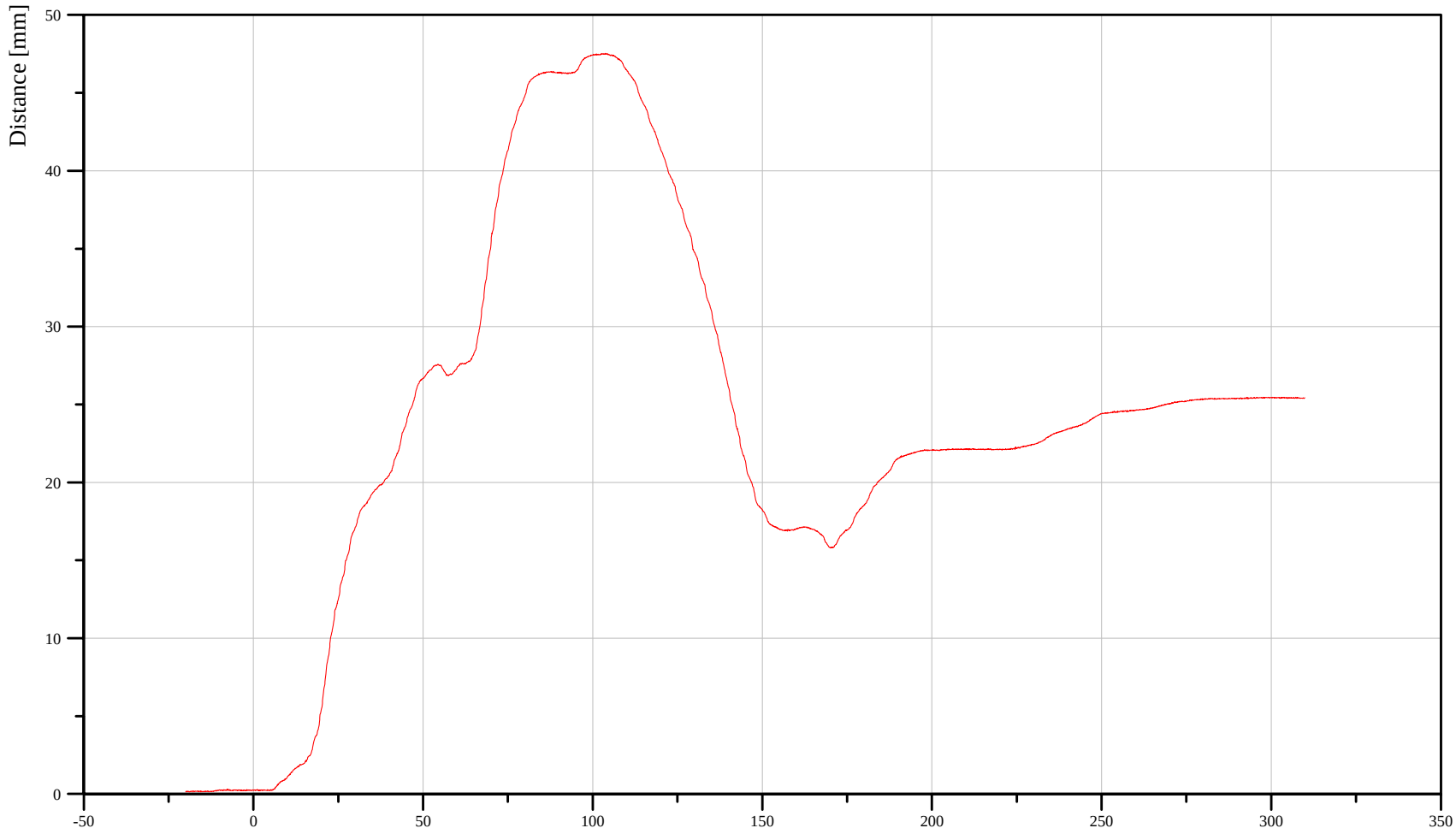
Target Vehicle RF Pass Lap Belt Spool

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

## 23SEBA0000B5DS0A

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_1000

**Min. Value**
0.13 mm at -19.84 ms

**Max. Value**
47.54 mm at 103.68 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

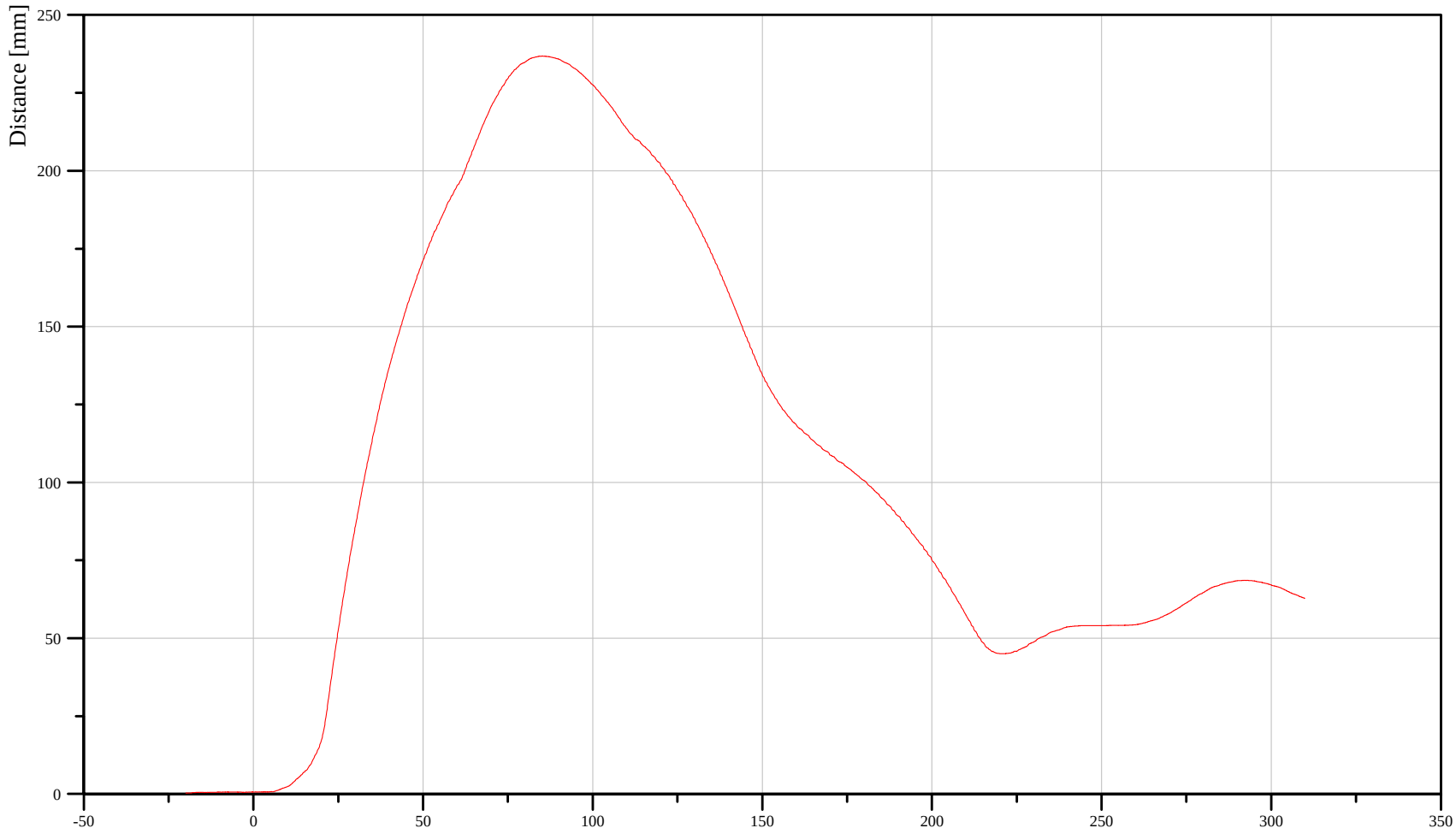
## Target Vehicle RF Pass Shoulder Belt Spool and Retraction

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

# 23SEBA0000B3DS0A

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_1000

**Min. Value**
0.26 mm at -19.60 ms

**Max. Value**
236.84 mm at 84.96 ms

# 2003 Honda Odyssey into 2002 Ford Focus Full Frontal Collinear

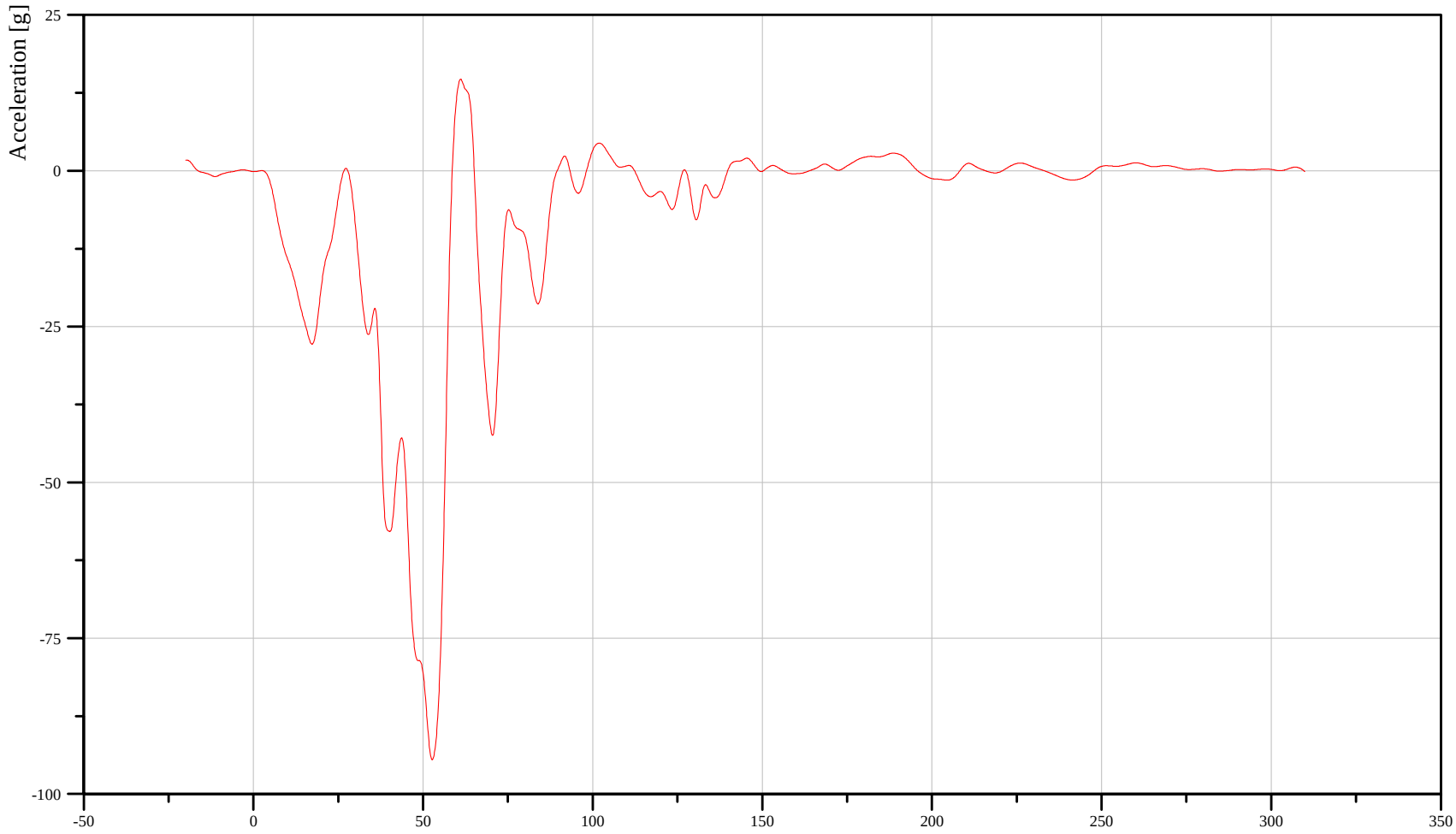
Target Vehicle IP Center

Date: 03/12/2006
Time: 07:48

**Customer: VRTC**

## 22DASH000000ACXD

**TRC Inc. Test Lab: CTF**
**Test Number: 060310**




Filter: CFC_60

**Min. Value**
-94.52 g at 52.72 ms

**Max. Value**
14.72 g at 61.12 ms

# Appendix C

Dummy Configuration and Performance Verification Data

Pre-Test Dummy Configuration and Performance Verification Data

Target Vehicle Driver Dummy S/N: 110

# Transportation Research Center Inc.
## 572E HIII 50th Male Dummy
## External Dimensions
## Serial No. 110 w/ THOR-LX  Calibration No. 22

| Symbol | Description | Specification | Results | Pass |
|---|---|---|---|---|
| | | mm | mm | |
| A | Total Sitting Height | 878.8 - 889.0 | 884 | Yes |
| B | Shoulder Pivot Height | 505.5 - 520.7 | 515 | Yes |
| C | H-Point Height | 83.8 - 88.9 | 88 | Yes |
| D | H-Point From Seatback | 134.6 - 139.7 | 137 | Yes |
| E | Shoulder Pivot From Backline | 83.8 - 94.0 | 92 | Yes |
| F | Thigh Clearance | 139.7 - 154.9 | 151 | Yes |
| G | Back Of Elbow To Wrist Pivot | 289.6 - 304.8 | 291 | Yes |
| H | Skull Cap To Backline | 40.6 - 45.7 | 43 | Yes |
| I | Shoulder-Elbow Length | 330.2 - 345.4 | 340 | 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 | 440 | Yes |
| M | Knee Pivot Height | 485.1 - 500.4 | 498 | Yes |
| N | Buttock Popliteal Length | 452.1 - 477.5 | 471 | Yes |
| O | Chest Depth | 213.4 - 228.6 | 220 | Yes |
| P | Foot Length | 251.5 - 266.7 | 253 | Yes |
| V | Shoulder Breadth | 421.6 - 436.9 | 425 | Yes |
| W | Foot Breadth | 91.4 - 106.7 | 97 | Yes |
| Y | Chest Circumference | 970.3 - 1000.8 | 981 | Yes |
| Z | Waist Circumference | 835.7 - 866.1 | 860 | Yes |
| AA | Location For Chest Circumference | 429.3 - 434.3 | 432 | Yes |
| BB | Location For Waist Circumference | 226.1 - 231.1 | 228 | Yes |

Technician

Approved

# Transportation Research Center Inc.

Front Head Drop
HIII 50th Serial No. 110 Certification No. 22-1
Test Date: 03/08/2006

| Test Parameter | Specification | Test Results | Pass |
|---|---|---|---|
| Temperature | 18.9 - 25.5 °C | 21.4 °C | Yes |
| Relative Humidity | 10 - 70 % | 31 % | Yes |
| Peak Head Resultant Acceleration | 225 - 275 g | 260.7 g | Yes |
| Peak Head Lateral Acceleration | (-15) - 15 g | 2.7 g | Yes |
| Is Acceleration Curve Unimodal within 10% of Peak? | Yes | Yes | Yes |

**Test meets specifications.**

**Comments:**

Technician

Approved

Specification Source: CFR49 Part 572 Subpart E
with Polarity in accordance with J211

03.08.2006 09:18:45 615

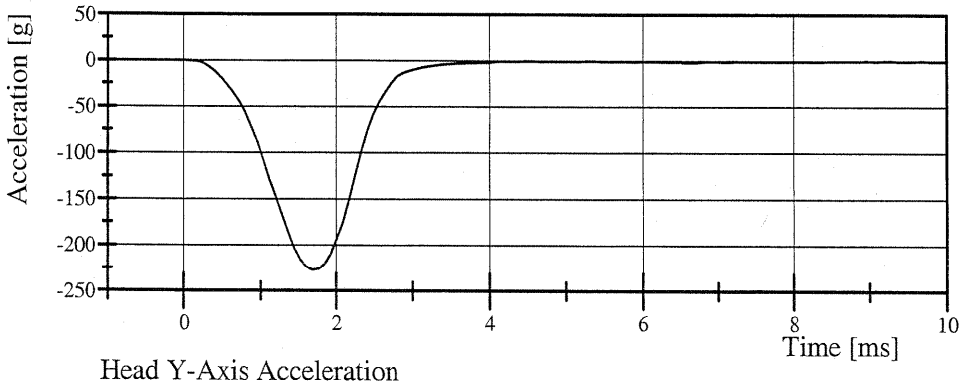


060310

# Transportation Research Center Inc.

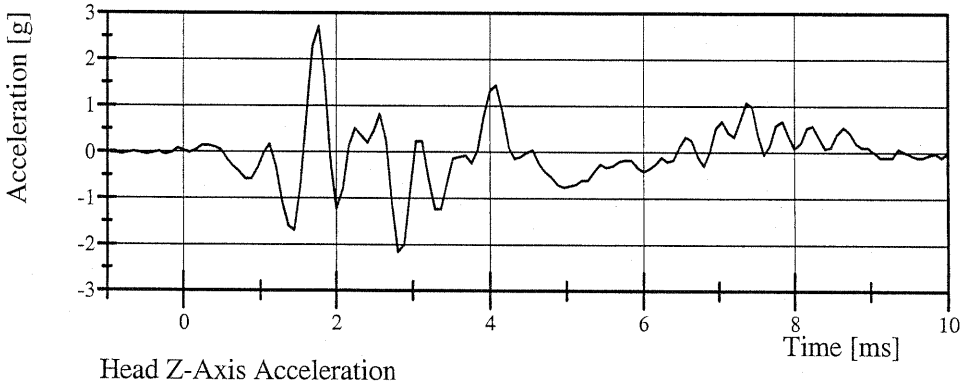
Front Head Drop
HIII 50th Serial No. 110 Certification No. 22-1
Test Date: 03/08/2006

Head X-Axis Acceleration



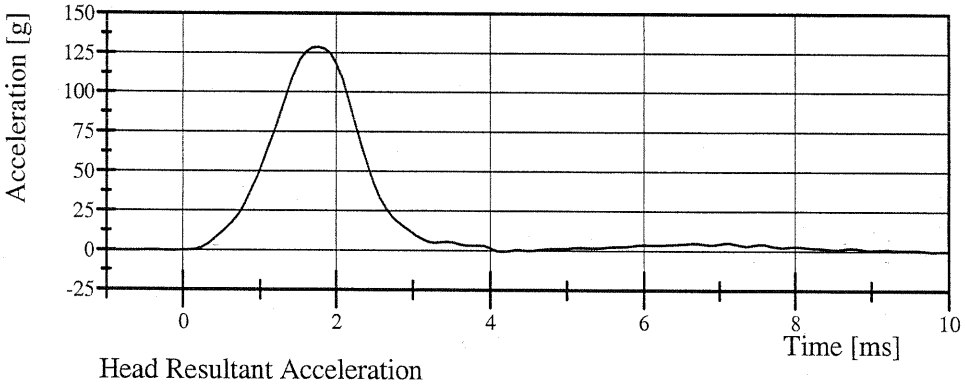

Filter Class: CFC_1000
Max: 0.1 g at -1.0 ms
Min: -227.0 g at 1.7 ms

Head Y-Axis Acceleration



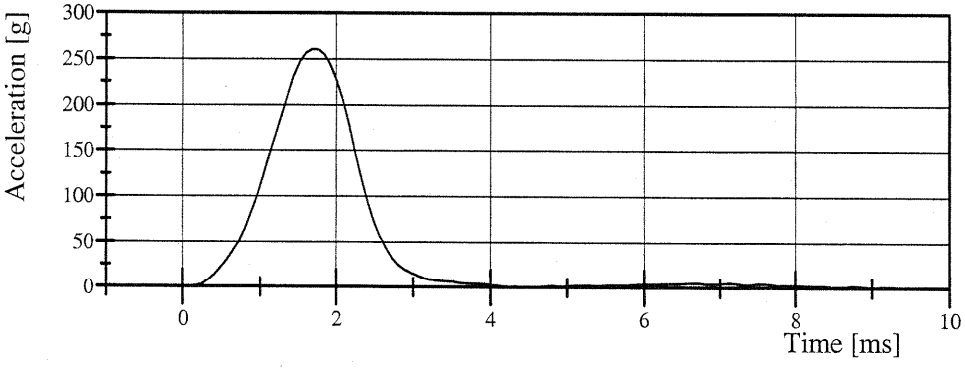

Filter Class: CFC_1000
Max: 2.7 g at 1.8 ms
Min: -2.2 g at 2.8 ms

Head Z-Axis Acceleration




Filter Class: CFC_1000
Max: 128.8 g at 1.8 ms
Min: -0.7 g at 4.2 ms

Head Resultant Acceleration




Filter Class: CFC_1000
Max: 260.7 g at 1.7 ms
Min: 0.0 g at -1.0 ms

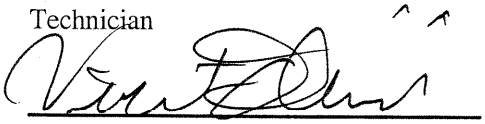
# Transportation Research Center Inc.

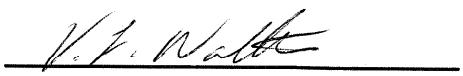
Neck Flexion
HIII 50th Serial No. 110 Certification No. 20-1
Test Date: 02/17/2006

| Test Parameter | Specification | Test Results | Pass |
|---|---|---|---|
| Temperature | 20.6 - 22.2 °C | 20.9 °C | Yes |
| Relative Humidity | 10 - 70 % | 27 % | Yes |
| Pendulum Velocity | 6.89 - 7.13 m/s | 6.913 m/s | Yes |
| Pendulum Acceleration Decay Crossing -5g | 34 - 42 ms | 41.1 ms | Yes |
| Pendulum Acceleration at 10ms | (-22.5) - (-27.5) g | -22.68 g | Yes |
| Pendulum Acceleration at 20ms | (-17.6) - (-22.6) g | -22.16 g | Yes |
| Pendulum Acceleration at 30ms | (-12.5) - (-18.5) g | -14.39 g | Yes |
| Pendulum Acceleration > 30ms | >= (-29.0) g | -14.39 g | Yes |
| Total Head D-Plane Rotation Peak | (-64) - (-78) ° | -65.6 ° | Yes |
| Total Head D-Plane Rotation Time of Peak | 57 - 64 ms | 60.8 ms | Yes |
| Total Head D-Plane Rotation Decay to 0° | 113 - 128 ms | 121.4 ms | Yes |
| Total Neck Occipital Condyles Moment Peak | 88 - 108 N·m | 96.9 N·m | Yes |
| Total Neck Occipital Condyles Moment Time of Peak | 47 - 58 ms | 53.7 ms | Yes |
| Total Neck Occipital Condyles Moment Decay to 0 N·m | 97 - 107 ms | 101.8 ms | Yes |

**Test meets specifications.**

**Comments:**

Technician 

Approved 

Specification Source: CFR49 Part 572 Subpart E
with Polarity in accordance with J211

02.17.2006 10:49:44 555

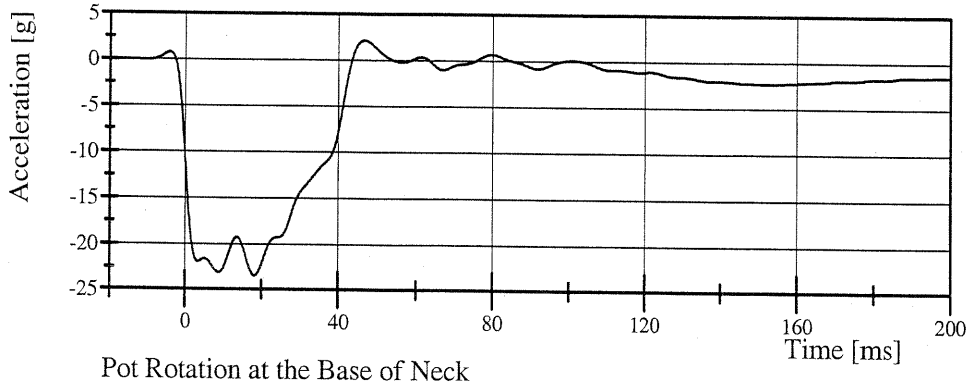
# Transportation Research Center Inc.

Neck Flexion

HIII 50th Serial No. 110 Certification No. 20-1

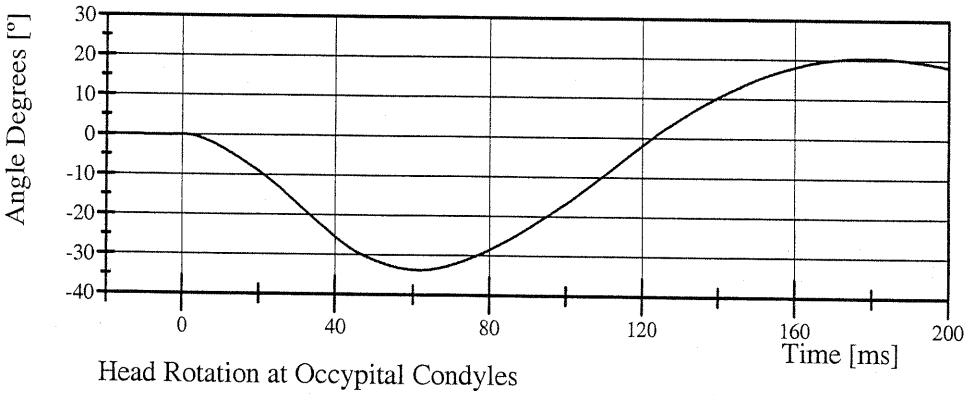
Test Date: 02/17/2006

Pendulum Acceleration



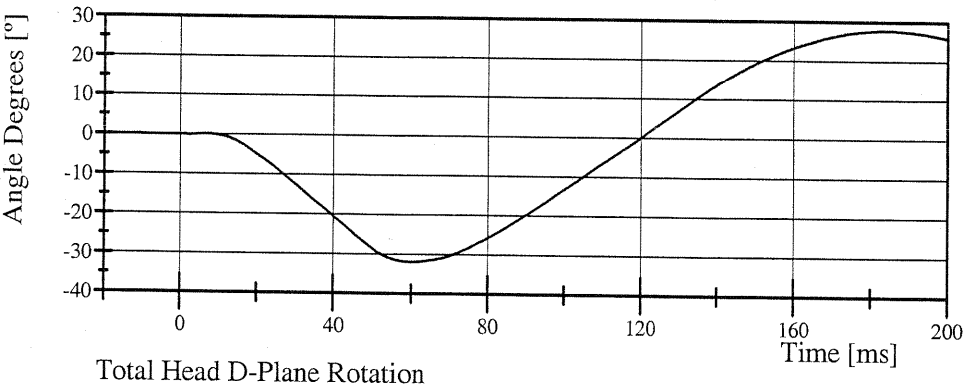

Filter Class: CFC_60
Max: 2.1 g at 46.7 ms
Min: -23.5 g at 18.2 ms

Pot Rotation at the Base of Neck



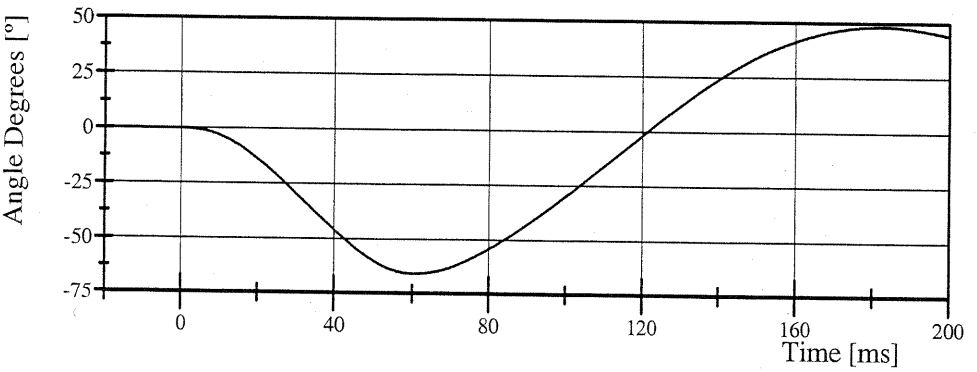

Filter Class: CFC_60
Max: 20.5 ° at 179.2 ms
Min: -33.7 ° at 61.8 ms

Head Rotation at Occypital Condyles




Filter Class: CFC_60
Max: 27.9 ° at 184.2 ms
Min: -31.9 ° at 60.2 ms

Total Head D-Plane Rotation




Filter Class: CFC_60
Max: 48.3 ° at 182.6 ms
Min: -65.6 ° at 60.8 ms

Specification Source: CFR49 Part 572 Subpart E
with Polarity in accordance with J211

02.17.2006 10:50:07 555

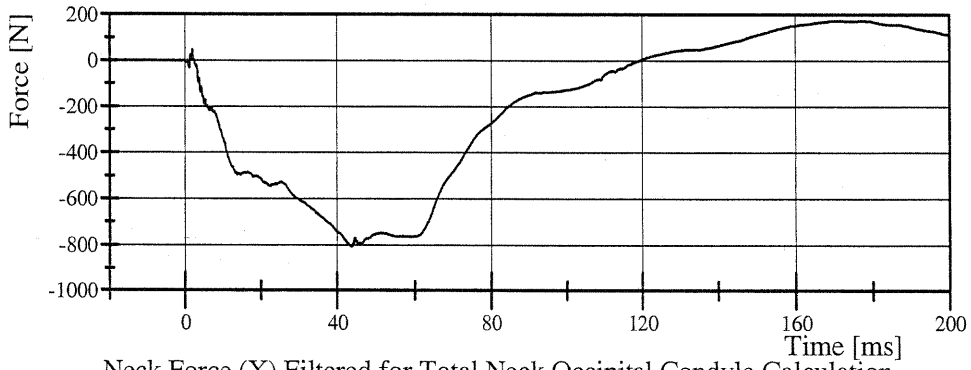
# Transportation Research Center Inc.

Neck Flexion

HIII 50th Serial No. 110 Certification No. 20-1

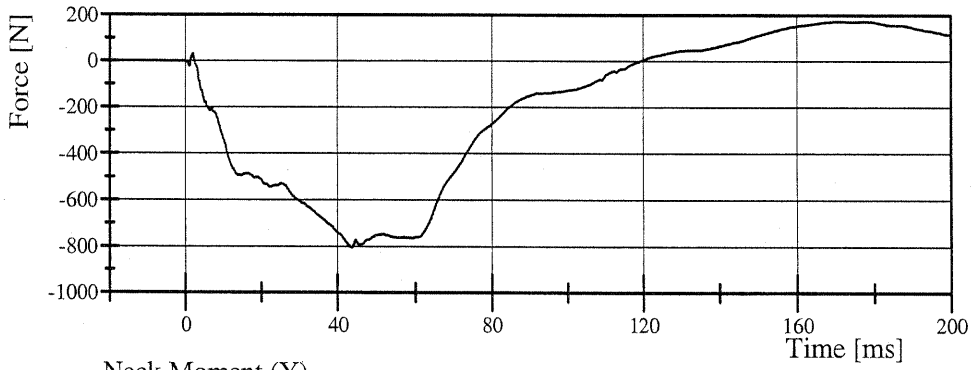
Test Date: 02/17/2006

Neck Force (X)



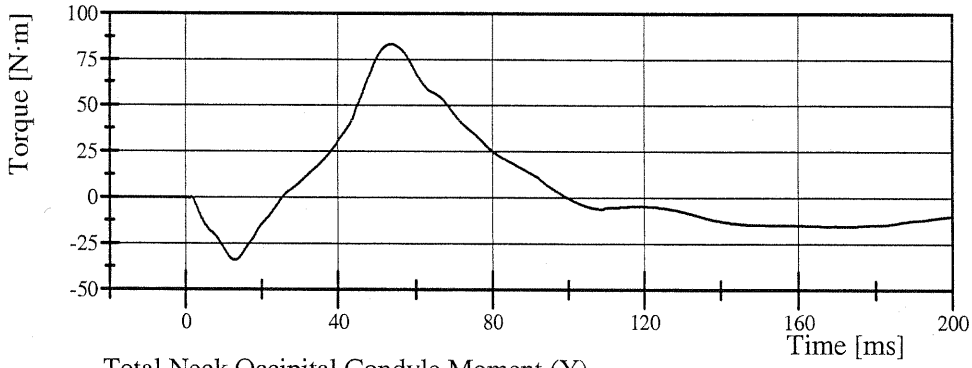

Filter Class: CFC_1000
Max: 174.5 N at 171.4 ms
Min: -805.8 N at 43.7 ms

Neck Force (X) Filtered for Total Neck Occipital Condyle Calculation



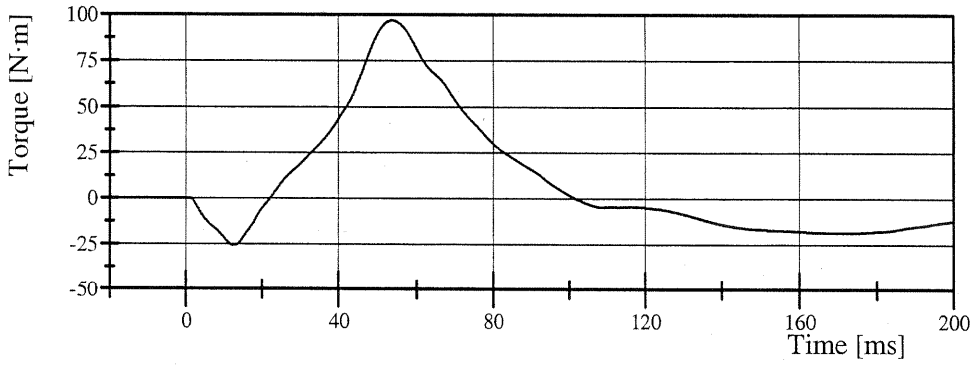

Filter Class: CFC_600
Max: 174.0 N at 171.5 ms
Min: -805.0 N at 43.7 ms

Neck Moment (Y)




Filter Class: CFC_600
Max: 83.5 N·m at 53.6 ms
Min: -33.9 N·m at 13.2 ms

Total Neck Occipital Condyle Moment (Y)




Filter Class: CFC_600
Max: 96.9 N·m at 53.7 ms
Min: -25.6 N·m at 12.4 ms

# Transportation Research Center Inc.

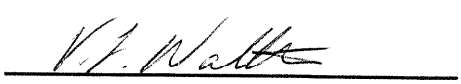
Neck Extension
HIII 50th Serial No. 110 Certification No. 20-1
Test Date: 02/17/2006

| Test Parameter | Specification | Test Results | Pass |
|---|---|---|---|
| Temperature | 20.6 - 22.2 °C | 21.2 °C | Yes |
| Relative Humidity | 10 - 70 % | 28 % | Yes |
| Pendulum Velocity | (-5.95) - (-6.18) m/s | -5.982 m/s | Yes |
| Pendulum Acceleration Decay Crossing 5g | 38 - 46 ms | 43.5 ms | Yes |
| Pendulum Acceleration at 10ms | 17.2 - 21.2 g | 18.14 g | Yes |
| Pendulum Acceleration at 20ms | 14.0 - 19.0 g | 15.81 g | Yes |
| Pendulum Acceleration at 30ms | 11.0 - 16.0 g | 14.12 g | Yes |
| Pendulum Acceleration > 30ms | <= 22.0 g | 14.12 g | Yes |
| Total Head D-Plane Rotation | | | |
| Peak | 81 - 106 ° | 90.5 ° | Yes |
| Time of Peak | 72 - 82 ms | 78.5 ms | Yes |
| Total Head D-Plane Rotation Decay to 0° | 147 - 174 ms | 160.2 ms | Yes |
| Total Neck Occipital Condyles Moment | | | |
| Peak | (-53) - (-80) N·m | -65.0 N·m | Yes |
| Time of Peak | 65 - 79 ms | 73.2 ms | Yes |
| Total Neck Occipital Condyles Moment Decay to 0 N·m | 120 - 148 ms | 144.4 ms | Yes |

**Test meets specifications.**

**Comments:**

Technician 

Approved 

Specification Source: CFR49 Part 572 Subpart E
with Polarity in accordance with J211

02.17.2006 11:21:10 634

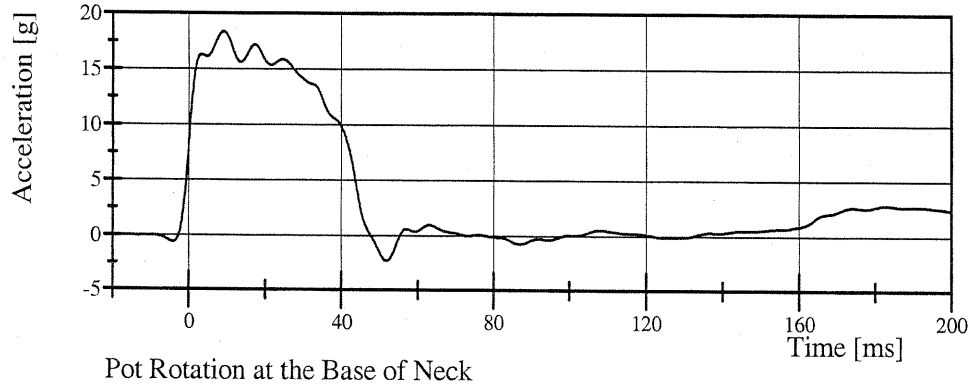
# Transportation Research Center Inc.

Neck Extension

HIII 50th Serial No. 110 Certification No. 20-1

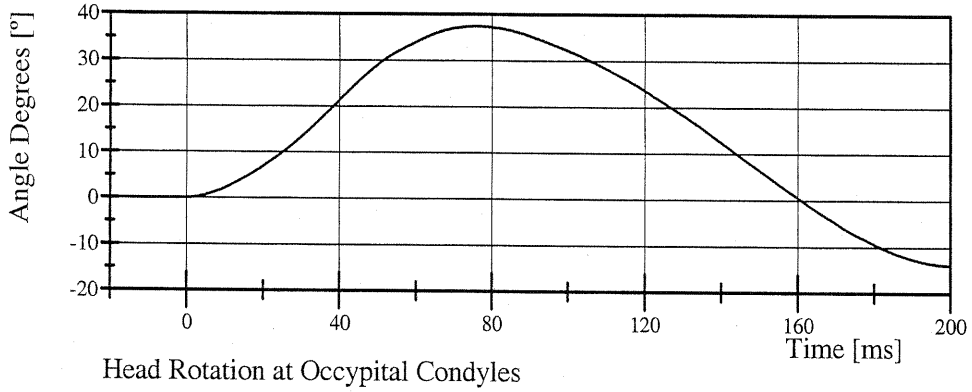
Test Date: 02/17/2006

Pendulum Acceleration



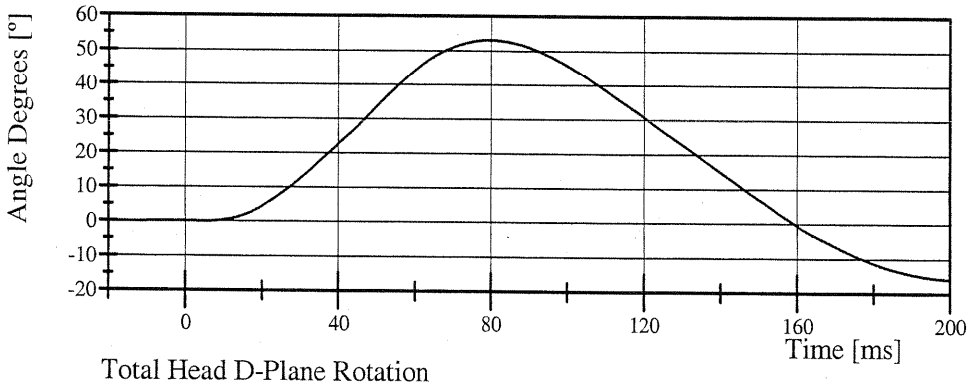

Filter Class: CFC_60
Max: 18.4 g at 9.1 ms
Min: -2.3 g at 51.8 ms

Pot Rotation at the Base of Neck



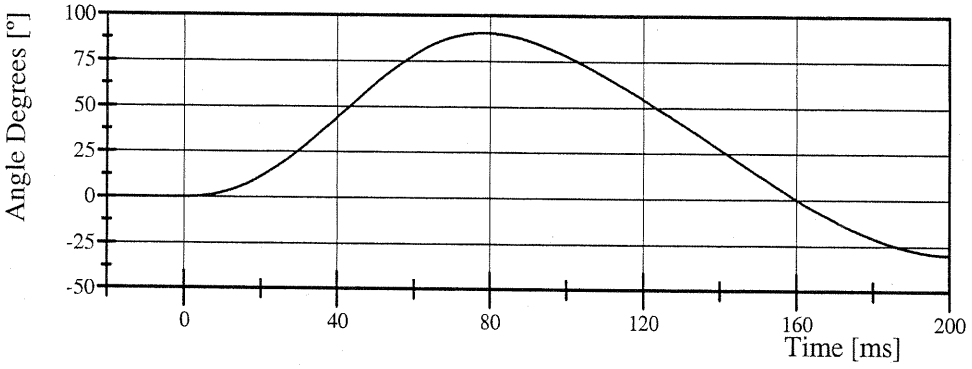

Filter Class: CFC_60
Max: 37.4 ° at 76.0 ms
Min: -14.0 ° at 200.0 ms

Head Rotation at Occypital Condyles




Filter Class: CFC_60
Max: 53.1 ° at 79.6 ms
Min: -15.9 ° at 200.0 ms

Total Head D-Plane Rotation




Filter Class: CFC_60
Max: 90.5 ° at 78.5 ms
Min: -29.8 ° at 200.0 ms

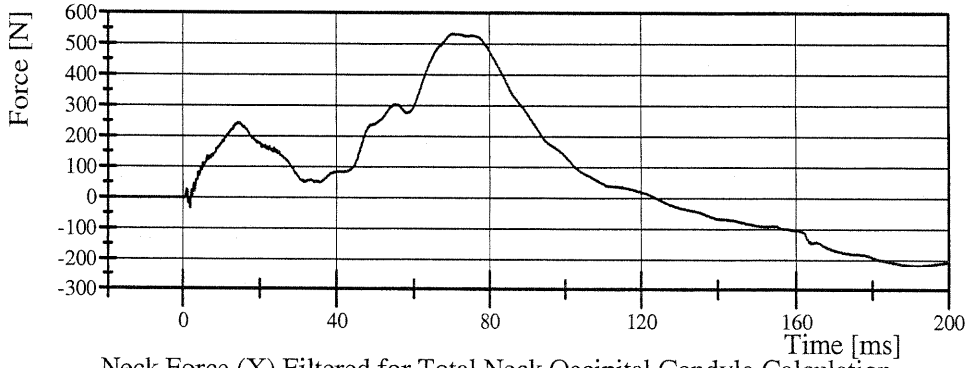
Specification Source: CFR49 Part 572 Subpart E
with Polarity in accordance with J211

02.17.2006 11:21:33 634

# Transportation Research Center Inc.

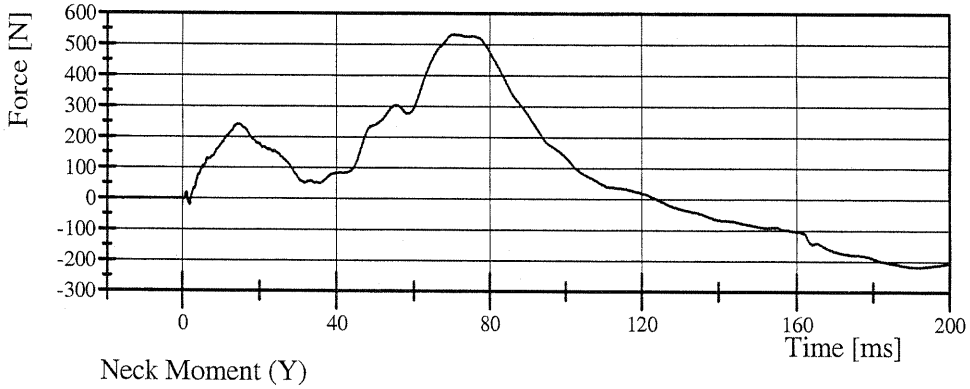
Neck Extension
HIII 50th Serial No. 110 Certification No. 20-1
Test Date: 02/17/2006

Neck Force (X)



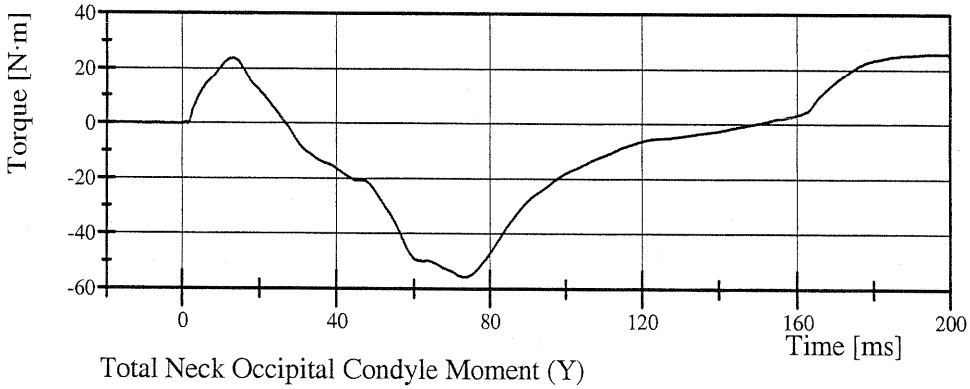

Filter Class: CFC_1000
Max: 533.4 N at 70.2 ms
Min: -219.1 N at 191.8 ms

Neck Force (X) Filtered for Total Neck Occipital Condyle Calculation



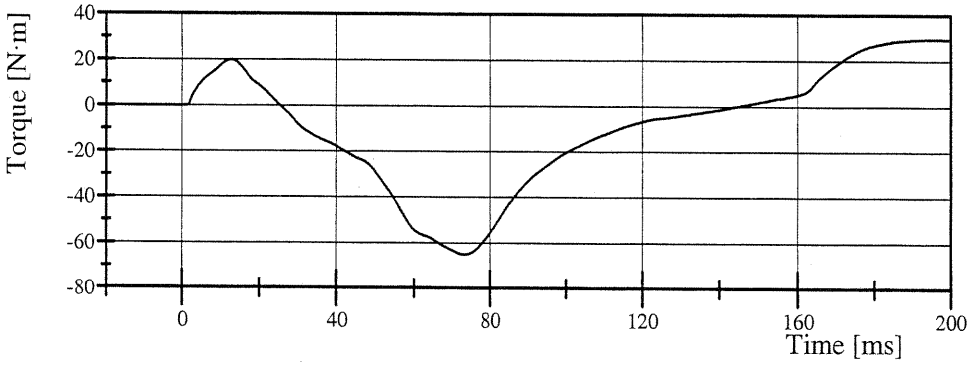

Filter Class: CFC_600
Max: 533.0 N at 70.3 ms
Min: -218.6 N at 191.8 ms

Neck Moment (Y)




Filter Class: CFC_600
Max: 25.9 N·m at 196.3 ms
Min: -55.7 N·m at 73.4 ms

Total Neck Occipital Condyle Moment (Y)




Filter Class: CFC_600
Max: 29.6 N·m at 196.2 ms
Min: -65.0 N·m at 73.2 ms

# Transportation Research Center Inc.

Front Thorax
HIII 50th Serial No. 110 Certification No. 22-1
Test Date: 03/08/2006

| Test Parameter | Specification | Test Results | Pass |
|---|---|---|---|
| Temperature | 20.6 - 22.2 °C | 21.2 °C | Yes |
| Relative Humidity | 10 - 70 % | 31 % | Yes |
| Probe Velocity | 6.59 - 6.83 m/s | 6.644 m/s | Yes |
| Probe Force Peak | (-5,160) - (-5,893) N | -5,797.3 N | Yes |
| Maximum Chest Compression | (-63.5) - (-72.6) mm | -67.05 mm | Yes |
| Internal Hysteresis | 65 - 85 % | 72.9 % | Yes |

**Test meets specifications.**

**Comments:**

Technician

Approved

Specification Source: CFR49 Part 572 Subpart P
with Polarity in accordance with J211

03.08.2006 08:03:05 418

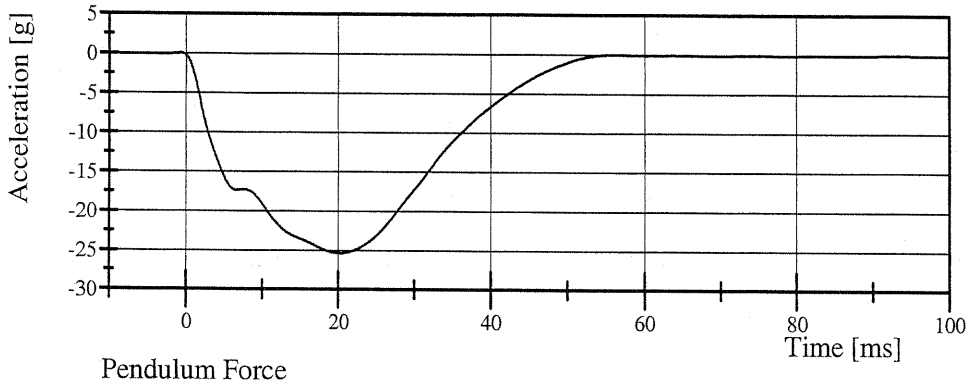


060310

# Transportation Research Center Inc.

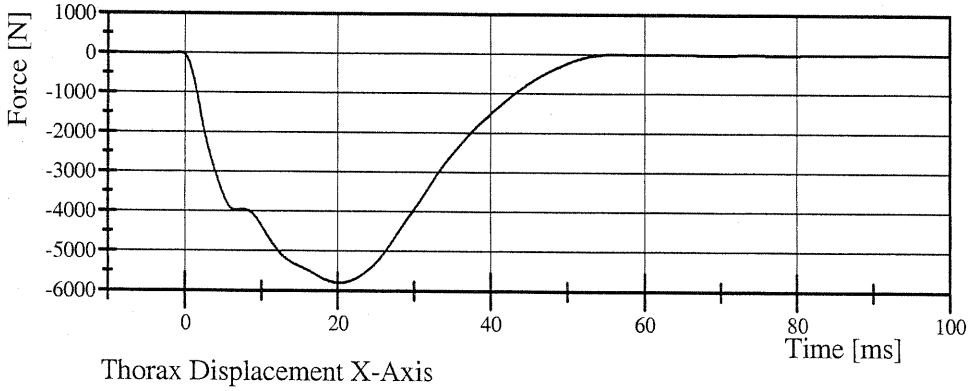
Front Thorax
HIII 50th Serial No. 110 Certification No. 22-1
Test Date: 03/08/2006

Pendulum Acceleration



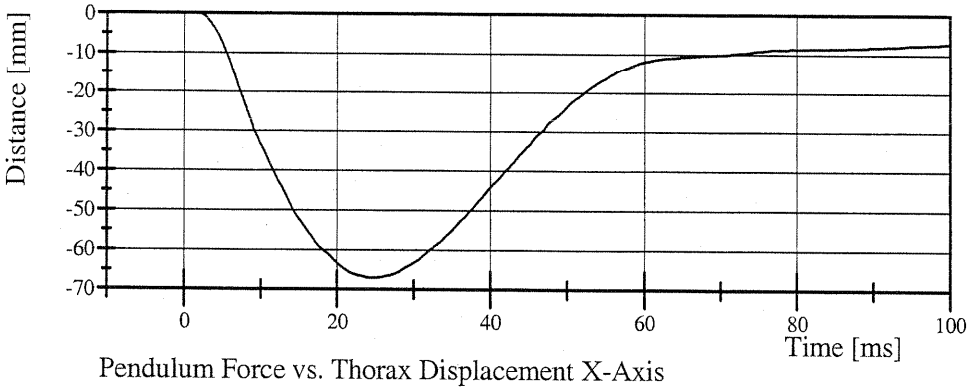

Filter Class: CFC_180
Max: 0.1 g at -0.7 ms
Min: -25.3 g at 20.3 ms

Pendulum Force



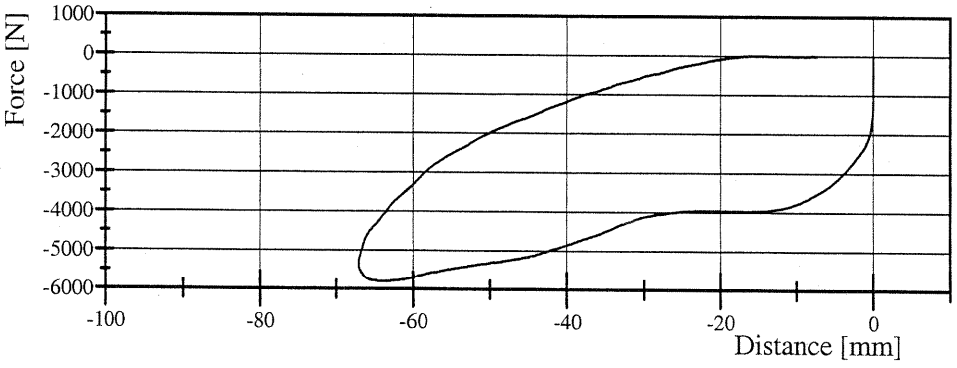

Filter Class: CFC_180
Max: 12.9 N at -0.7 ms
Min: -5,797.3 N at 20.3 ms

Thorax Displacement X-Axis




Filter Class: CFC_600
Max: 0.0 mm at -2.2 ms
Min: -67.0 mm at 24.7 ms

Pendulum Force vs. Thorax Displacement X-Axis




Filter Class: CFC_180
Max: 12.9 N at 0.0 mm
Min: -5,797.3 N at -63.9 mm

# Applied Safety Technologies Corp.

Hybrid III Hip Range of Motion

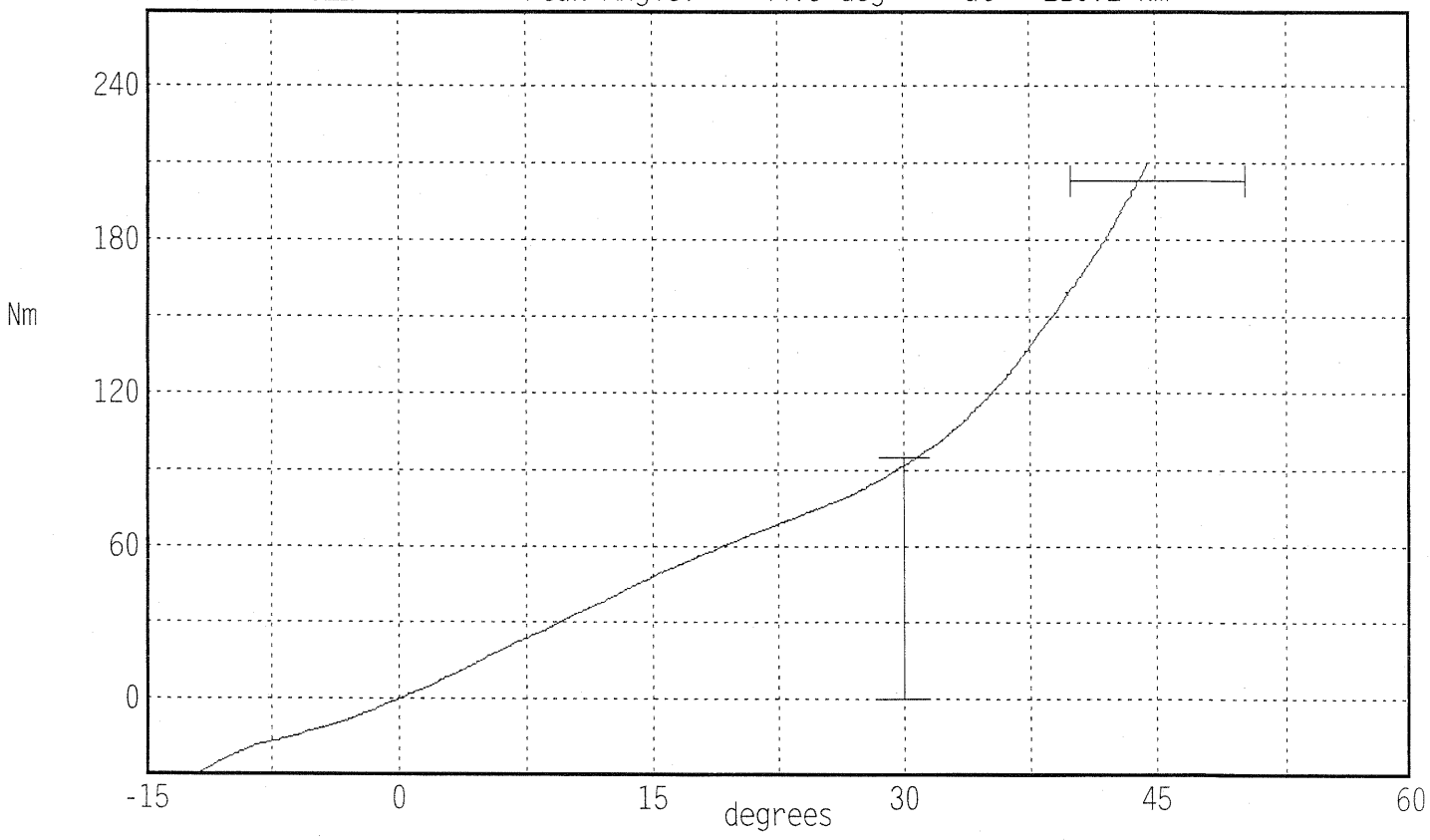
Serial Number: 110L
Test Number: 110C20
Comments:

Date: 02/16/2006
Time: 16:03

| TEST PARAMETER | SPECIFICATION | TEST RESULTS | | |
|---|---|---|---|---|
| Temperature | 18.9 - 25.6 | 21.4 | °C | Pass |
| Humidity | 10 - 70 | 44 | % | Pass |
| Moment at 30 deg | <= 94.9 | 91.7 | Nm | Pass |
| Angle at 203 Nm | 40.0 - 50.0 | 44.0 | deg | Pass |
| Average Velocity | 5.0 - 10.0 | 7.4 | deg/sec | Pass |

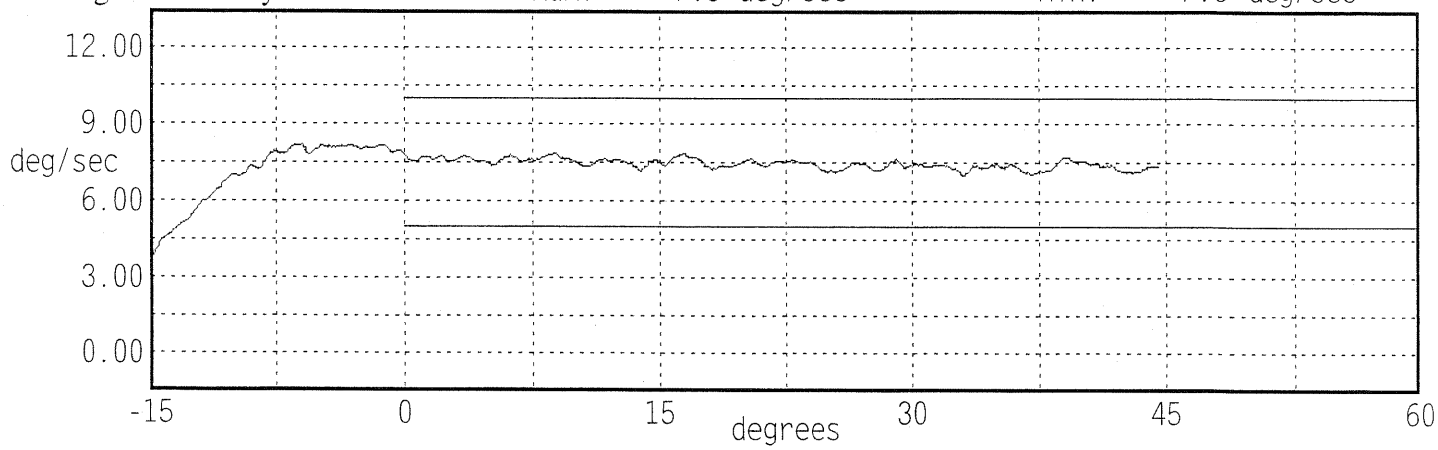
Moment About H-Point

Peak Moment: 210.2 Nm at 44.5 deg
Peak Angle: 44.5 deg at 210.2 Nm




Angular Velocity

Max: 7.8 deg/sec Min: 7.0 deg/sec



# Applied Safety Technologies Corp.

Hybrid III Hip Range of Motion

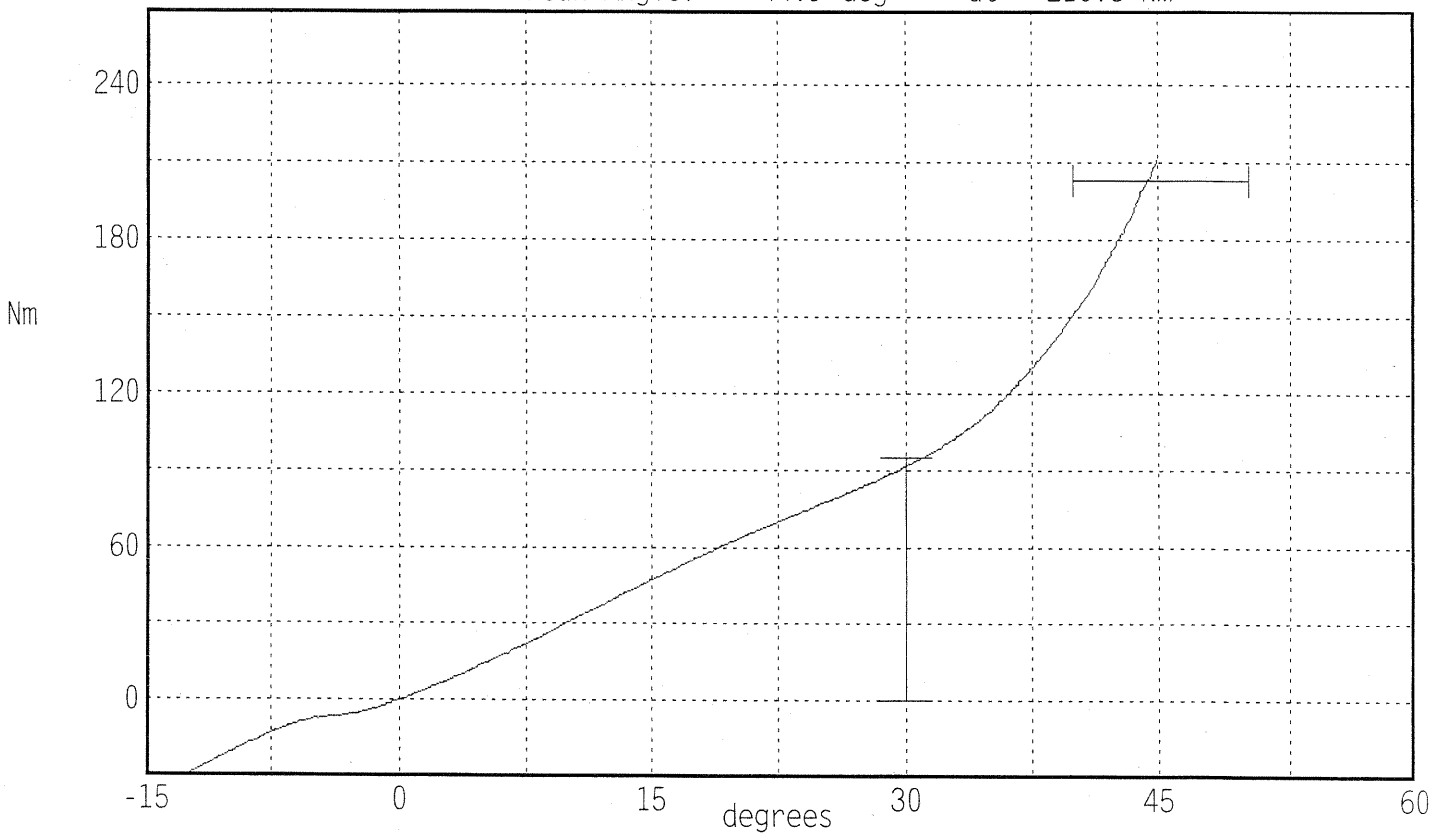
Serial Number: 110R
Test Number: 110C20
Comments:

Date: 02/16/2006
Time: 16:12

| TEST PARAMETER | SPECIFICATION | TEST RESULTS | |
|---|---|---|---|
| Temperature | 18.9 - 25.6 | 21.4 °C | Pass |
| Humidity | 10 - 70 | 44 % | Pass |
| Moment at 30 deg | <= 94.9 | 91.7 Nm | Pass |
| Angle at 203 Nm | 40.0 - 50.0 | 44.5 deg | Pass |
| Average Velocity | 5.0 - 10.0 | 7.5 deg/sec | Pass |

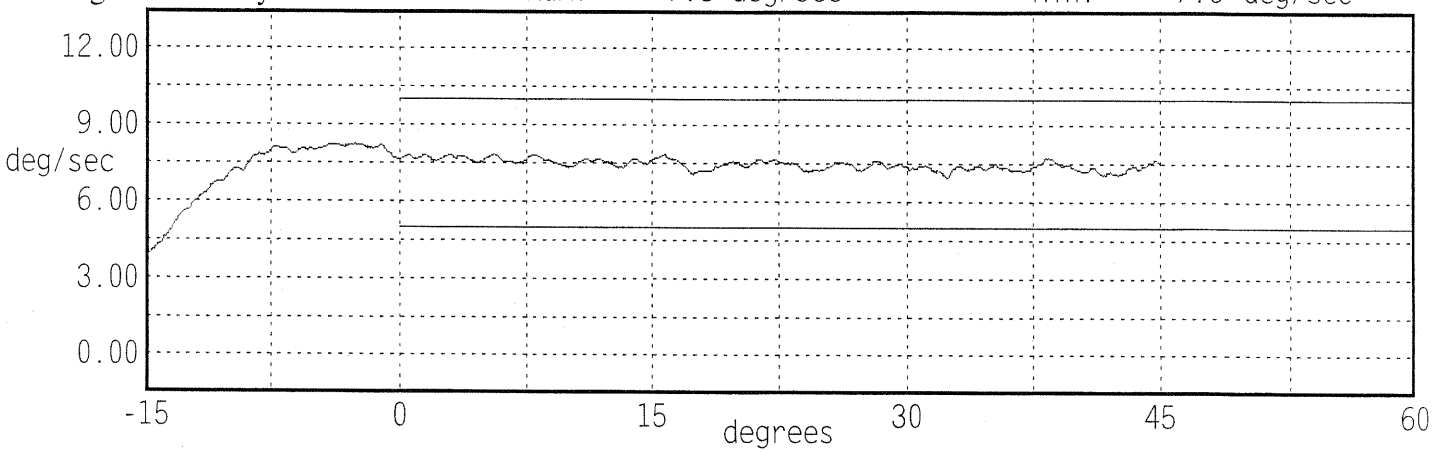
Moment About H-Point

Peak Moment: 210.8 Nm at 44.9 deg
Peak Angle: 44.9 deg at 210.8 Nm




Angular Velocity

Max: 7.8 deg/sec Min: 7.0 deg/sec



# Transportation Research Center Inc.

Left Knee Femur Response Test
HIII 50th Serial No. LX116117 Certification No. 3-1
Test Date: 02/21/2006

| Test Parameter | Specification | Test Results | Pass |
|---|---|---|---|
| Temperature | 18.9 - 25.5 °C | 21.1 °C | Yes |
| Relative Humidity | 10 - 70 % | 28 % | Yes |
| Probe Velocity | 2.08 - 2.13 m/s | 2.110 m/s | Yes |
| Peak Femur Force | (-4,715.2) - (-5,782.6) N | -5,543.32 N | Yes |

**Test meets specifications.**

**Comments:**

Technician

Approved

Specification Source: CFR49 Part 572 Subpart E
with Polarity in accordance with J211

02.21.2006 13:25:46 1703

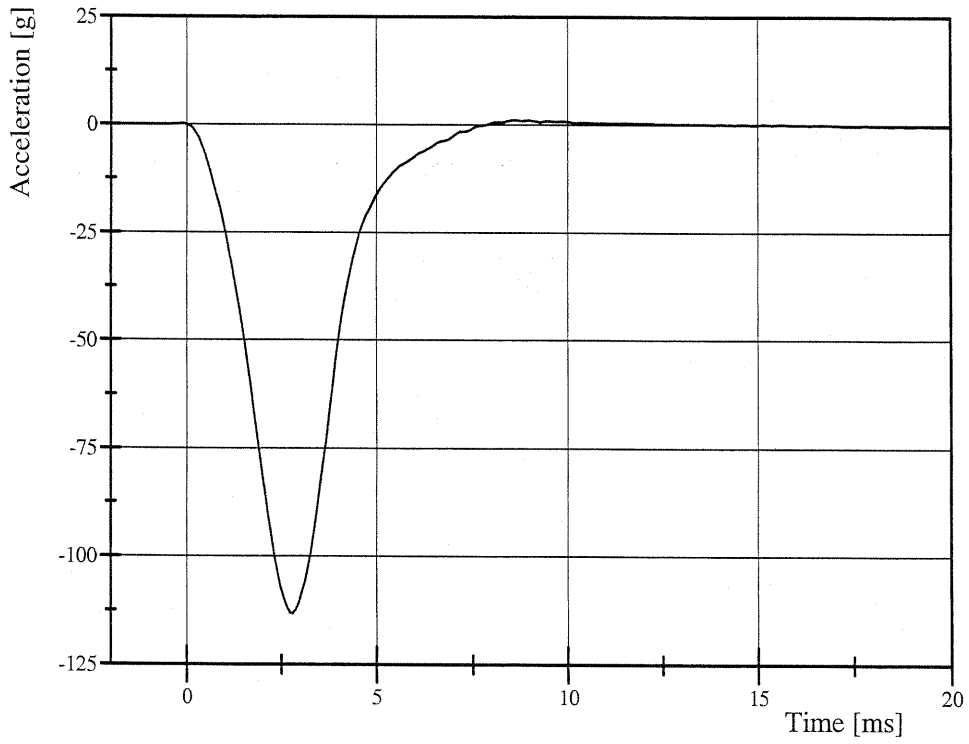


060310

# Transportation Research Center Inc.

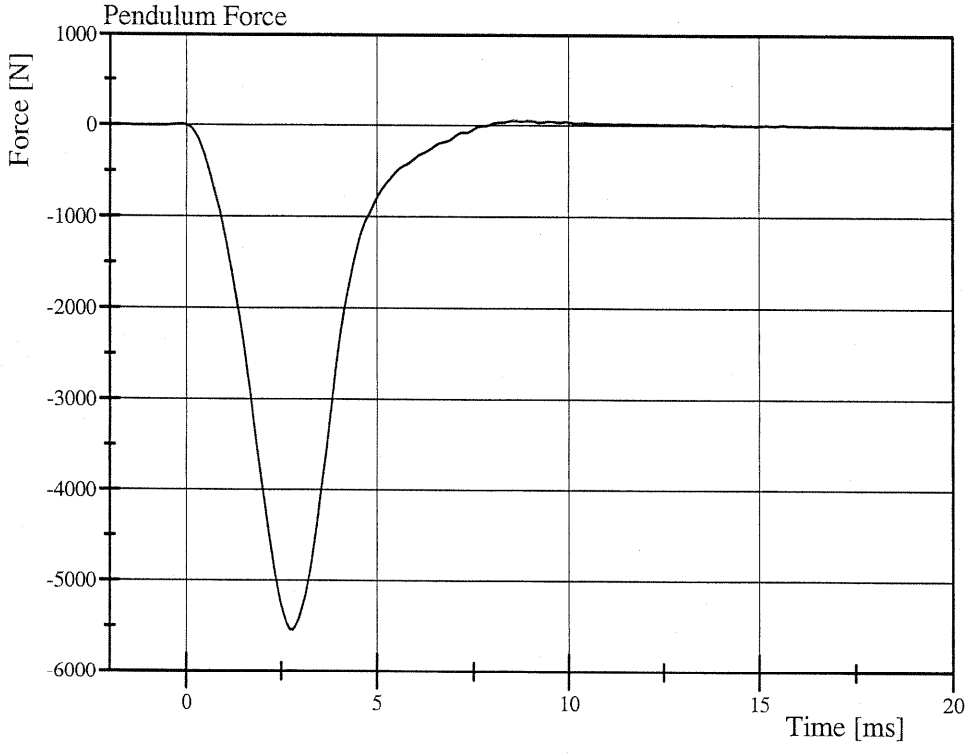
Left Knee Femur Response Test
HIII 50th Serial No. LX116117 Certification No. 3-1
Test Date: 02/21/2006

Pendulum Acceleration




Filter Class: CFC_600
Max: 1.1 g at 8.6 ms
Min: -113.3 g at 2.8 ms

Pendulum Force




Filter Class: CFC_600
Max: 53.3 N at 8.6 ms
Min: -5,543.3 N at 2.8 ms

Specification Source: CFR49 Part 572 Subpart E
with Polarity in accordance with J211

02.21.2006 13:26:02 1703



060310

# Transportation Research Center Inc.

Right Knee Femur Response Test
HIII 50th Serial No. LX116117 Certification No. 4-1
Test Date: 03/08/2006

| Test Parameter | Specification | Test Results | Pass |
|---|---|---|---|
| Temperature | 18.9 - 25.5 °C | 21.0 °C | Yes |
| Relative Humidity | 10 - 70 % | 33 % | Yes |
| Probe Velocity | 2.08 - 2.13 m/s | 2.096 m/s | Yes |
| Peak Femur Force | (-4,715.2) - (-5,782.6) N | -5,288.17 N | Yes |

**Test meets specifications.**

**Comments:**

Technician

Approved

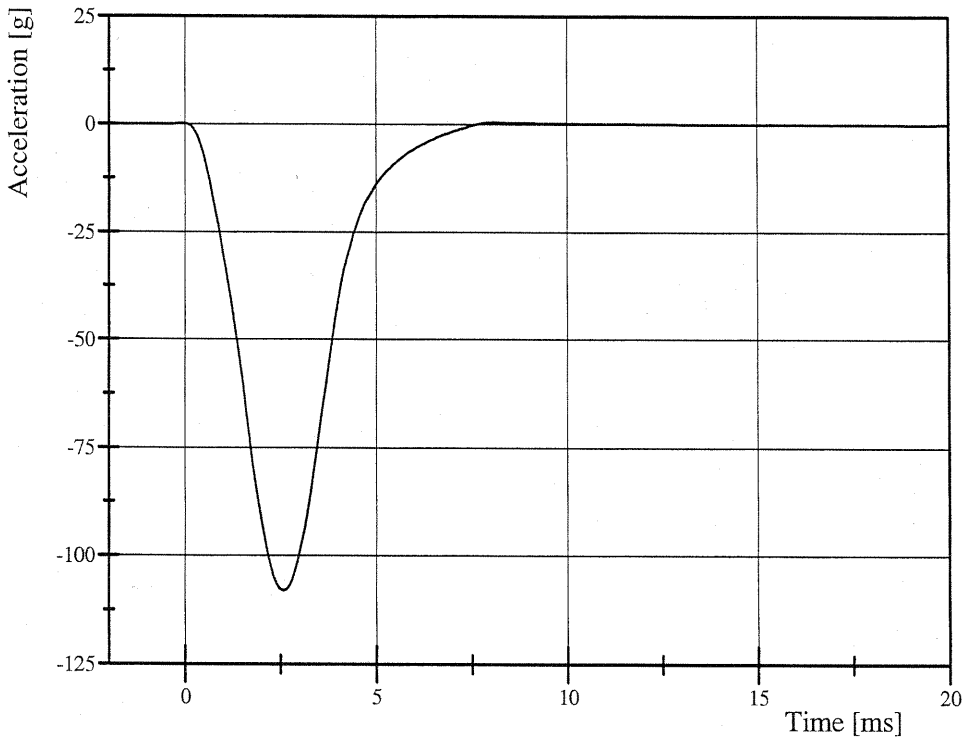
Specification Source: CFR49 Part 572 Subpart E
with Polarity in accordance with J211

03.08.2006 09:57:06 1708

# Transportation Research Center Inc.

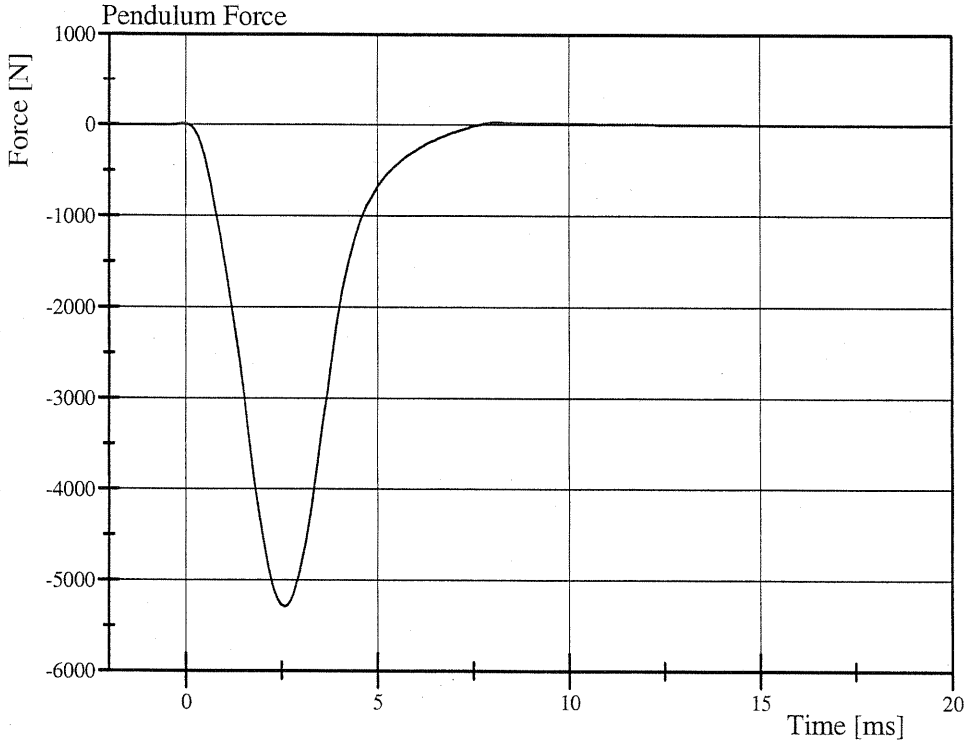
Right Knee Femur Response Test
HIII 50th Serial No. LX116117 Certification No. 4-1
Test Date: 03/08/2006

Pendulum Acceleration




Filter Class: CFC_600
Max: 0.5 g at 8.1 ms
Min: -108.1 g at 2.6 ms

Pendulum Force




Filter Class: CFC_600
Max: 24.0 N at 8.1 ms
Min: -5,288.2 N at 2.6 ms

Specification Source: CFR49 Part 572 Subpart E
with Polarity in accordance with J211

03.08.2006 09:57:25 1708



060310

# Transportation Research Center Inc.

Left Knee Slider
HIII 50th Serial No. LX116117 Certification No. 3-1
Test Date: 02/21/2006

| Test Parameter | Specification | Test Results | Pass |
|---|---|---|---|
| Temperature | 18.9 - 25.5 °C | 21.2 °C | Yes |
| Relative Humidity | 10 - 70 % | 27 % | Yes |
| Probe Velocity | 2.70 - 2.80 m/s | 2.737 m/s | Yes |
| Force Peak at 10.0 mm Deflection | (-1,260) - (-1,720) N | -1,485.8 N | Yes |
| Force Peak at 18.0 mm Deflection | (-2,270) - (-3,100) N | -2,903.1 N | Yes |

**Test meets specifications.**

**Comments:**

Technician

Approved

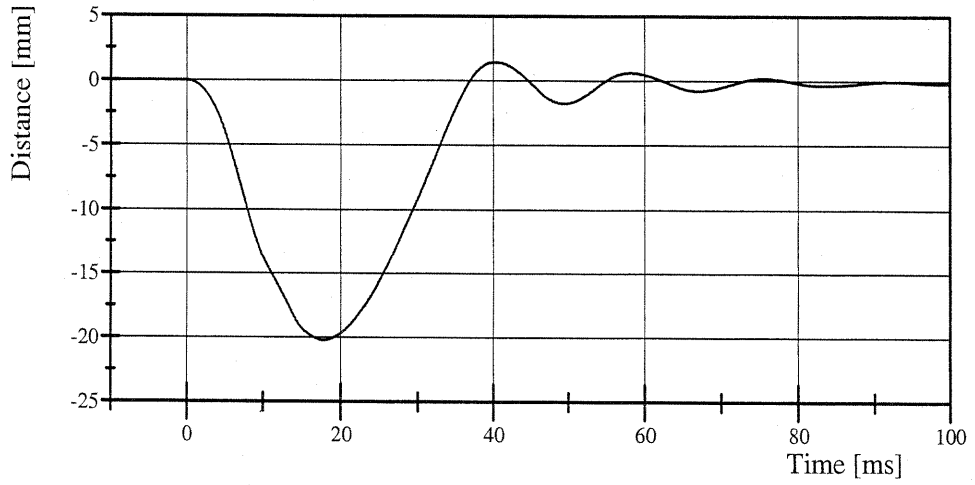
Specification Source: SAE User's Manual with Polarity in Accordance with J211

02.21.2006 13:06:51 1406

# Transportation Research Center Inc.

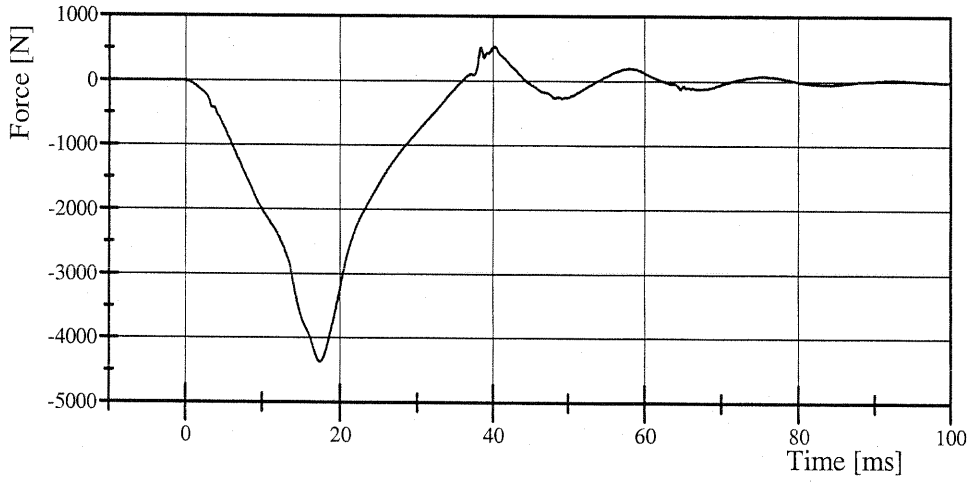
Left Knee Slider
HIII 50th Serial No. LX116117 Certification No. 3-1
Test Date: 02/21/2006

Knee Slider Displacement



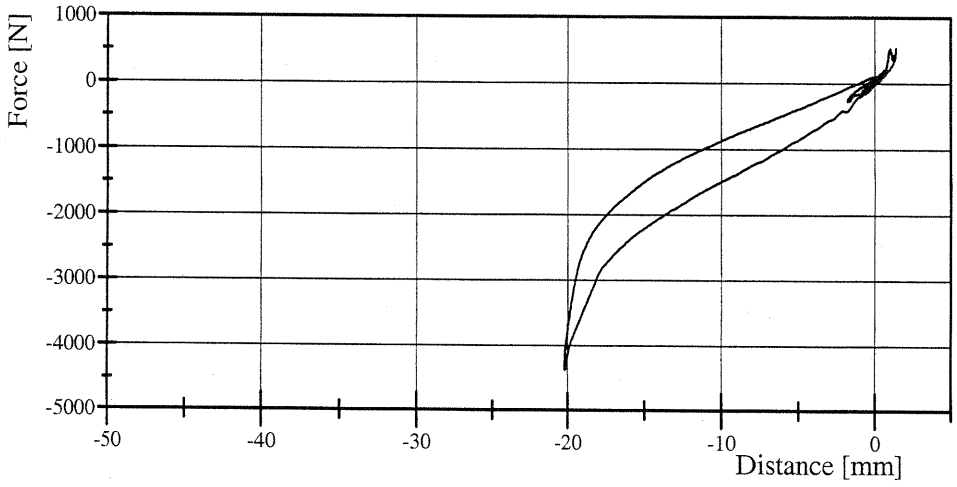

Filter Class: CFC_180
Max: 1.4 mm at 40.2 ms
Min: -20.2 mm at 17.8 ms

Femur Force




Filter Class: CFC_600
Max: 529.0 N at 40.2 ms
Min: -4,369.1 N at 17.4 ms

Femur Force vs. Knee Slider Displacement




Filter Class: CFC_600
Max: 529.0 N at 1.4 mm
Min: -4,369.1 N at -20.2 mm

# Transportation Research Center Inc.

Right Knee Slider
HIII 50th Serial No. LX116117 Certification No. 4-1
Test Date: 03/08/2006

| Test Parameter | Specification | Test Results | Pass |
|---|---|---|---|
| Temperature | 18.9 - 25.5 °C | 21.3 °C | Yes |
| Relative Humidity | 10 - 70 % | 32 % | Yes |
| Probe Velocity | 2.70 - 2.80 m/s | 2.721 m/s | Yes |
| Force Peak at 10.0 mm Deflection | (-1,260) - (-1,720) N | -1,469.8 N | Yes |
| Force Peak at 18.0 mm Deflection | (-2,270) - (-3,100) N | -2,861.2 N | Yes |

**Test meets specifications.**

**Comments:**

Technician

Approved

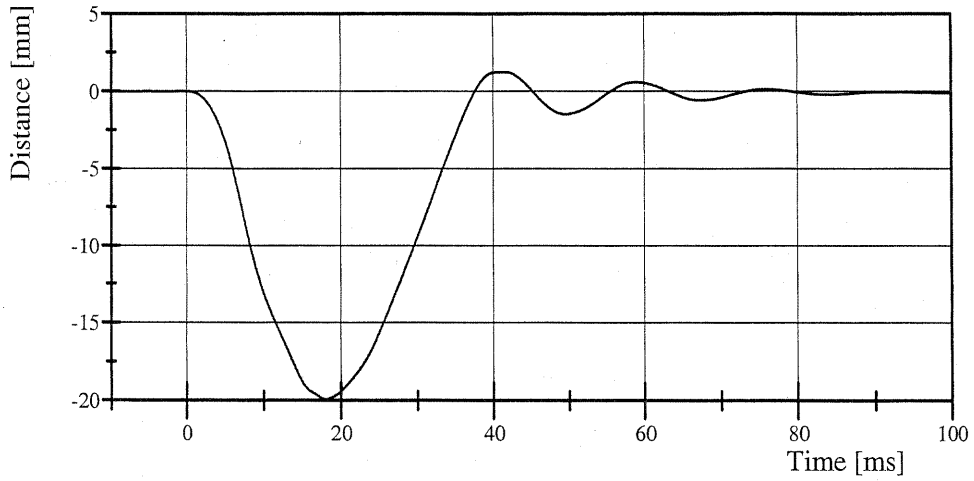
Specification Source: SAE User's Manual with Polarity in Accordance with J211

03.08.2006 10:29:06 1465

# Transportation Research Center Inc.

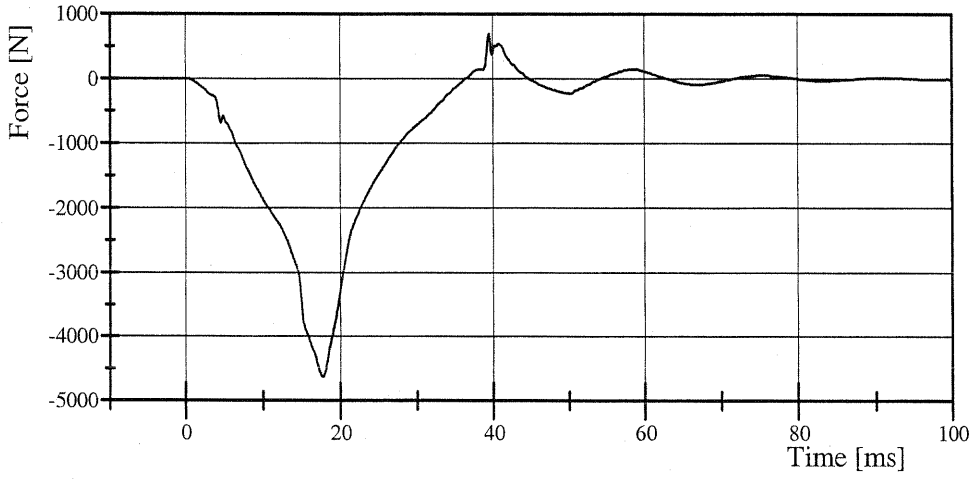
Right Knee Slider
HIII 50th Serial No. LX116117 Certification No. 4-1
Test Date: 03/08/2006

Knee Slider Displacement



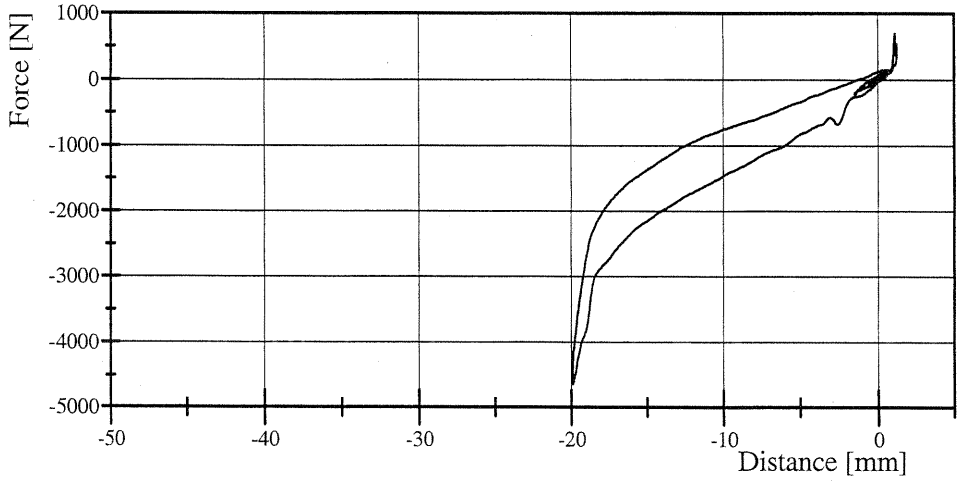

Filter Class: CFC_180
Max: 1.2 mm at 41.4 ms
Min: -19.9 mm at 18.1 ms

Femur Force




Filter Class: CFC_600
Max: 696.4 N at 39.5 ms
Min: -4,631.9 N at 17.8 ms

Femur Force vs. Knee Slider Displacement




Filter Class: CFC_600
Max: 696.4 N at 1.1 mm
Min: -4,631.9 N at -19.9 mm

Post-Test Dummy Configuration and Performance Verification Data

Target Vehicle Driver Dummy S/N: 110

# Transportation Research Center Inc.

Front Head Drop
HIII 50th Serial No. 110 Certification No. 23-1
Test Date: 03/15/2006

| Test Parameter | Specification | Test Results | Pass |
|---|---|---|---|
| Temperature | 18.9 - 25.5 °C | 21.3 °C | Yes |
| Relative Humidity | 10 - 70 % | 31 % | Yes |
| Peak Head Resultant Acceleration | 225 - 275 g | 259.3 g | Yes |
| Peak Head Lateral Acceleration | (-15) - 15 g | 3.1 g | Yes |
| Is Acceleration Curve Unimodal within 10% of Peak? | Yes | Yes | Yes |

**Test meets specifications.**

**Comments:**

Technician

Approved

Specification Source: CFR49 Part 572 Subpart E
with Polarity in accordance with J211

03.15.2006 15:44:54 615

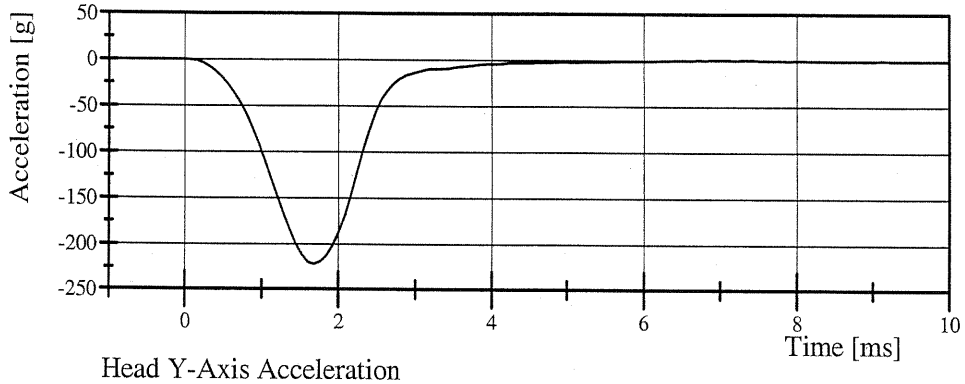


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# Transportation Research Center Inc.

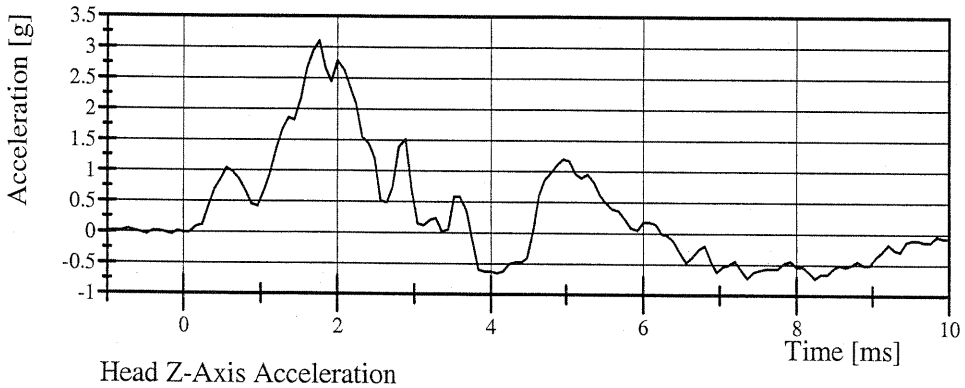
Front Head Drop
HIII 50th Serial No. 110 Certification No. 23-1
Test Date: 03/15/2006

Head X-Axis Acceleration



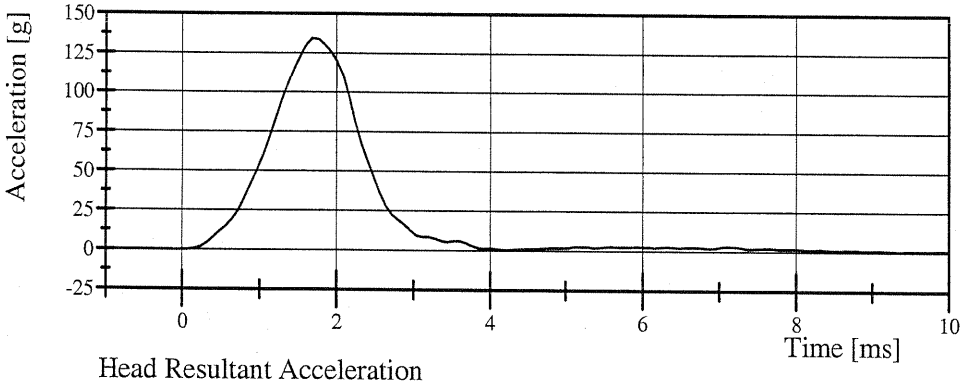

Filter Class: CFC_1000
Max: 0.4 g at 7.4 ms
Min: -221.7 g at 1.7 ms

Head Y-Axis Acceleration



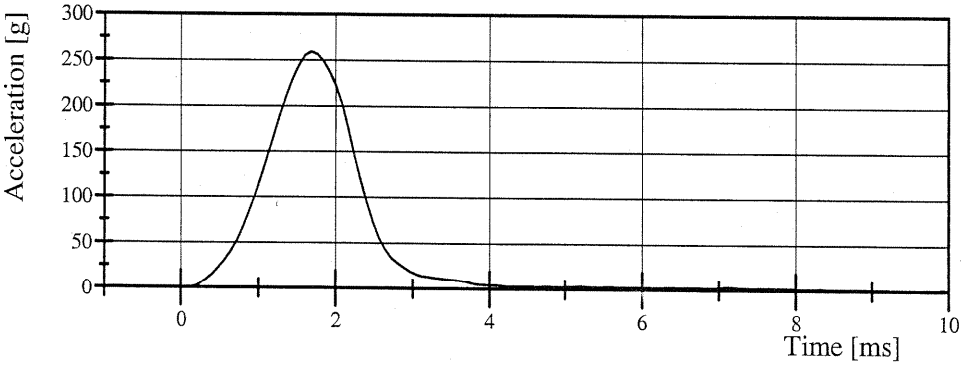

Filter Class: CFC_1000
Max: 3.1 g at 1.8 ms
Min: -0.7 g at 7.4 ms

Head Z-Axis Acceleration




Filter Class: CFC_1000
Max: 134.5 g at 1.7 ms
Min: -0.0 g at -0.1 ms

Head Resultant Acceleration




Filter Class: CFC_1000
Max: 259.3 g at 1.7 ms
Min: 0.0 g at -0.2 ms

Specification Source: CFR49 Part 572 Subpart E
with Polarity in accordance with J211

03.15.2006 15:45:07 615



060310

# Transportation Research Center Inc.

Front Thorax
HIII 50th Serial No. 110 Certification No. 23-1
Test Date: 03/16/2006

| Test Parameter | Specification | Test Results | Pass |
|---|---|---|---|
| Temperature | 20.6 - 22.2 °C | 21.2 °C | Yes |
| Relative Humidity | 10 - 70 % | 29 % | Yes |
| Probe Velocity | 6.59 - 6.83 m/s | 6.638 m/s | Yes |
| Probe Force Peak | (-5,160) - (-5,893) N | -5,727.6 N | Yes |
| Maximum Chest Compression | (-63.5) - (-72.6) mm | -67.77 mm | Yes |
| Internal Hysteresis | 65 - 85 % | 73.0 % | Yes |

**Test meets specifications.**

**Comments:**

Technician

Approved

Specification Source: CFR49 Part 572 Subpart P
with Polarity in accordance with J211



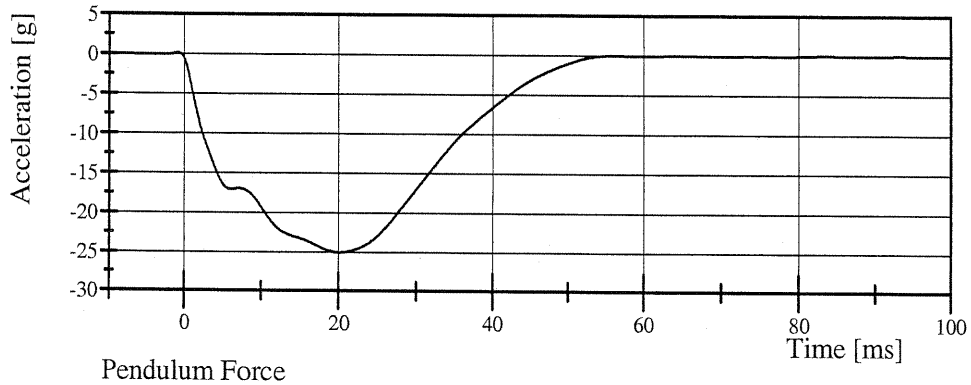
03.16.2006 11:11:46 415

060310

# Transportation Research Center Inc.

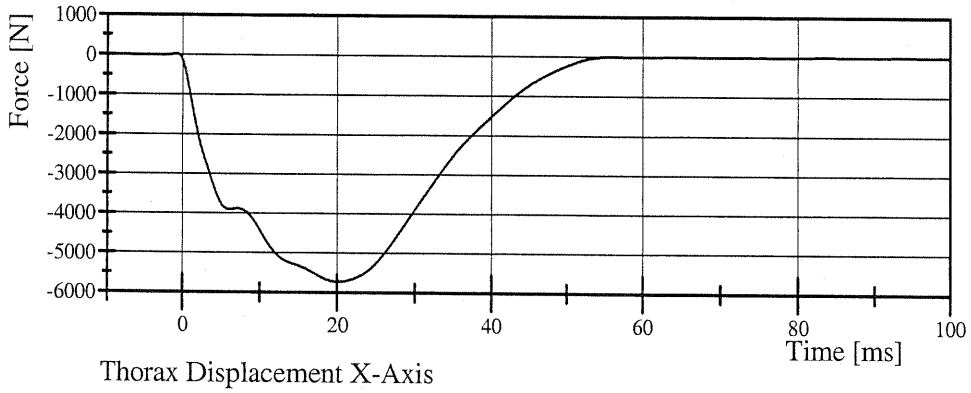
Front Thorax
HIII 50th Serial No. 110 Certification No. 23-1
Test Date: 03/16/2006

Pendulum Acceleration



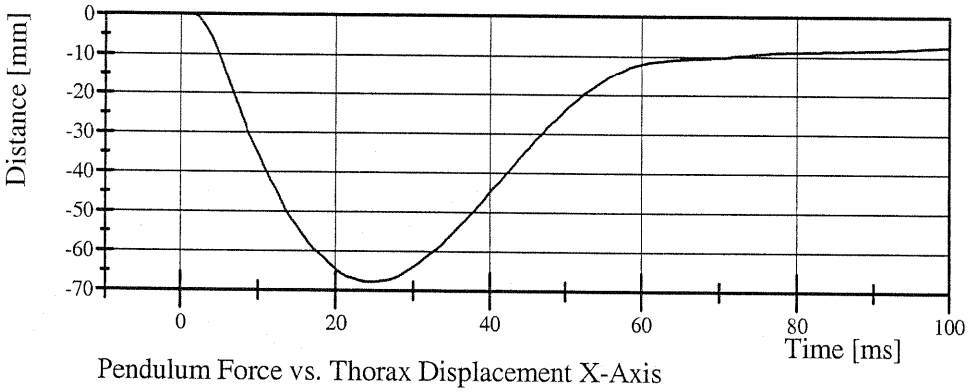

Filter Class: CFC_180
Max: 0.1 g at -0.8 ms
Min: -25.0 g at 20.2 ms

Pendulum Force



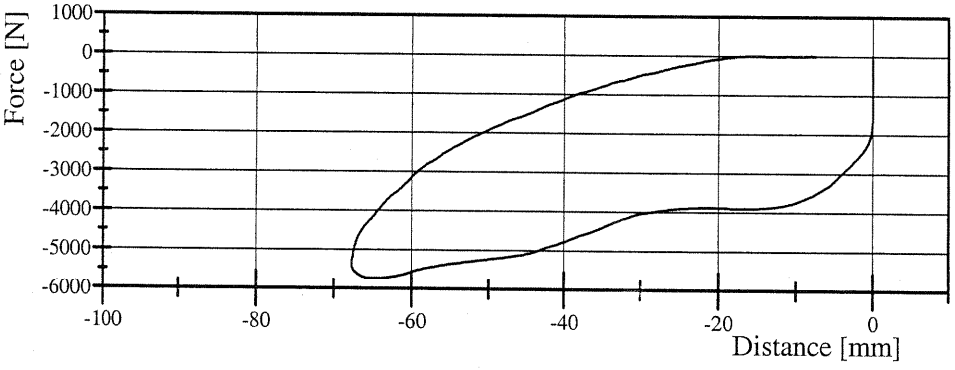

Filter Class: CFC_180
Max: 27.3 N at -0.8 ms
Min: -5,727.6 N at 20.2 ms

Thorax Displacement X-Axis




Filter Class: CFC_600
Max: 0.0 mm at -1.8 ms
Min: -67.8 mm at 24.3 ms

Pendulum Force vs. Thorax Displacement X-Axis




Filter Class: CFC_180
Max: 27.3 N at 0.0 mm
Min: -5,727.6 N at -64.8 mm

Specification Source: CFR49 Part 572 Subpart P
with Polarity in accordance with J211



03.16.2006 11:11:59 415

060310

# Transportation Research Center Inc.

Right Knee Femur Response Test
HIII 50th Serial No. LX116117 Certification No. 5-1
Test Date: 03/16/2006

| Test Parameter | Specification | Test Results | Pass |
|---|---|---|---|
| Temperature | 18.9 - 25.5 °C | 21.5 °C | Yes |
| Relative Humidity | 10 - 70 % | 28 % | Yes |
| Probe Velocity | 2.08 - 2.13 m/s | 2.091 m/s | Yes |
| Peak Femur Force | (-4,715.2) - (-5,782.6) N | -5,508.01 N | Yes |

**Test meets specifications.**

**Comments:**

Technician

Approved

Specification Source: CFR49 Part 572 Subpart E
with Polarity in accordance with J211

03.16.2006 15:04:29 1669

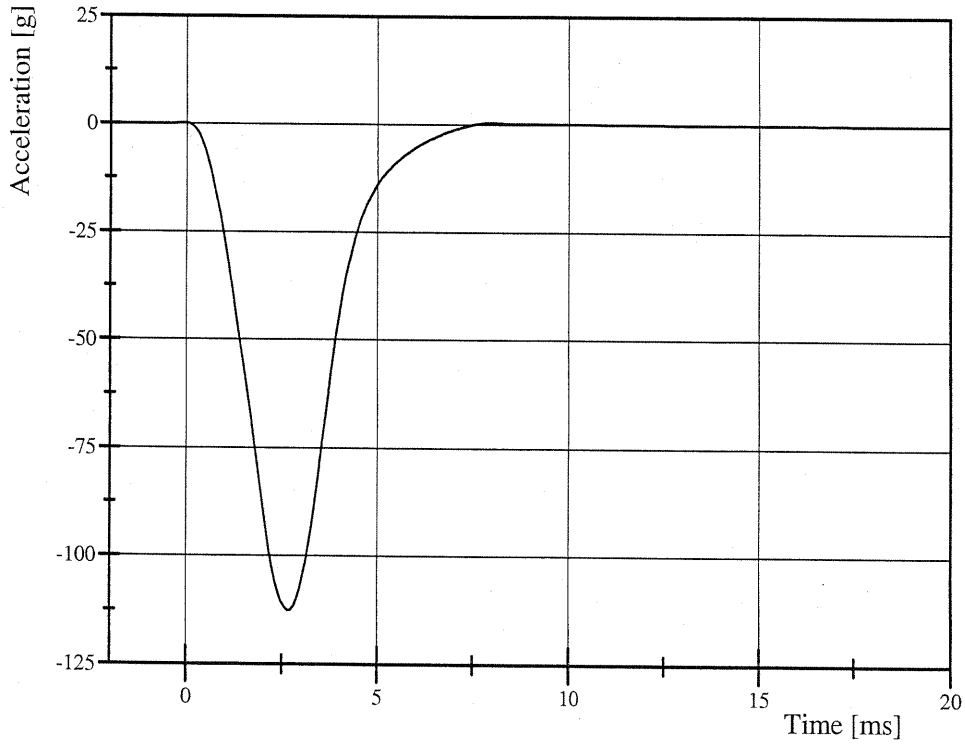


060310

# Transportation Research Center Inc.

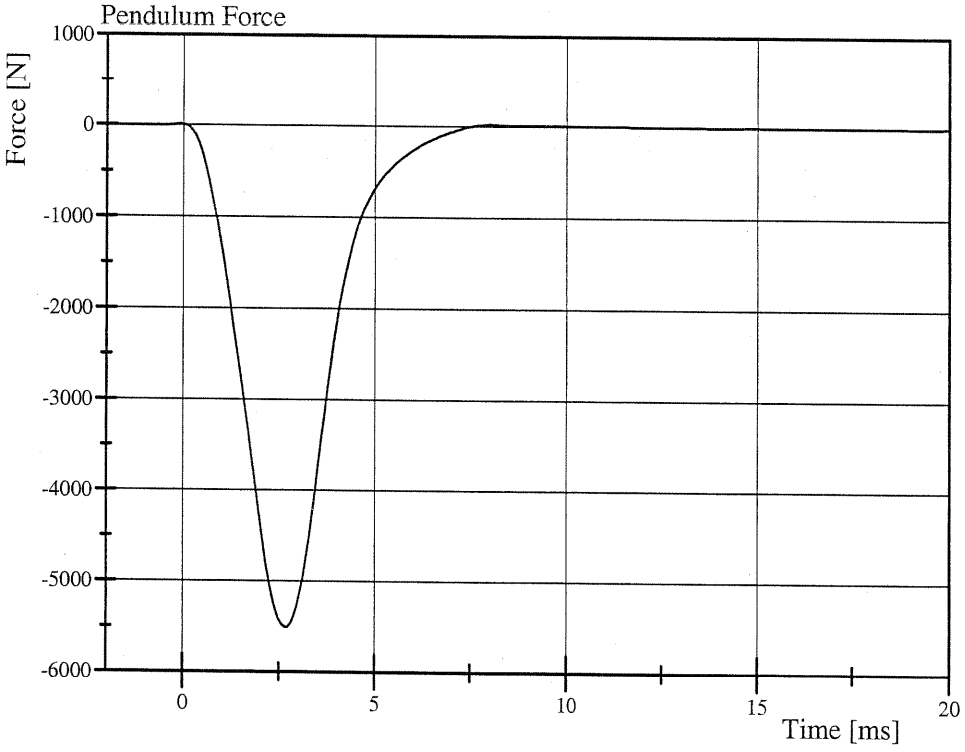
Right Knee Femur Response Test
HIII 50th Serial No. LX116117 Certification No. 5-1
Test Date: 03/16/2006

Pendulum Acceleration




Filter Class: CFC_600
Max: 0.4 g at 8.0 ms
Min: -112.6 g at 2.6 ms

Pendulum Force




Filter Class: CFC_600
Max: 22.0 N at 8.0 ms
Min: -5,508.0 N at 2.6 ms

Specification Source: CFR49 Part 572 Subpart E
with Polarity in accordance with J211

03.16.2006 15:04:47 1669



060310

# Transportation Research Center Inc.

Right Knee Slider
HIII 50th Serial No. LX116117 Certification No. 5-1
Test Date: 03/16/2006

| Test Parameter | Specification | Test Results | Pass |
|---|---|---|---|
| Temperature | 18.9 - 25.5 °C | 21.3 °C | Yes |
| Relative Humidity | 10 - 70 % | 28 % | Yes |
| Probe Velocity | 2.70 - 2.80 m/s | 2.736 m/s | Yes |
| Force Peak at 10.0 mm Deflection | (-1,260) - (-1,720) N | -1,402.3 N | Yes |
| Force Peak at 18.0 mm Deflection | (-2,270) - (-3,100) N | -2,682.7 N | Yes |

**Test meets specifications.**

**Comments:**

Technician

Approved

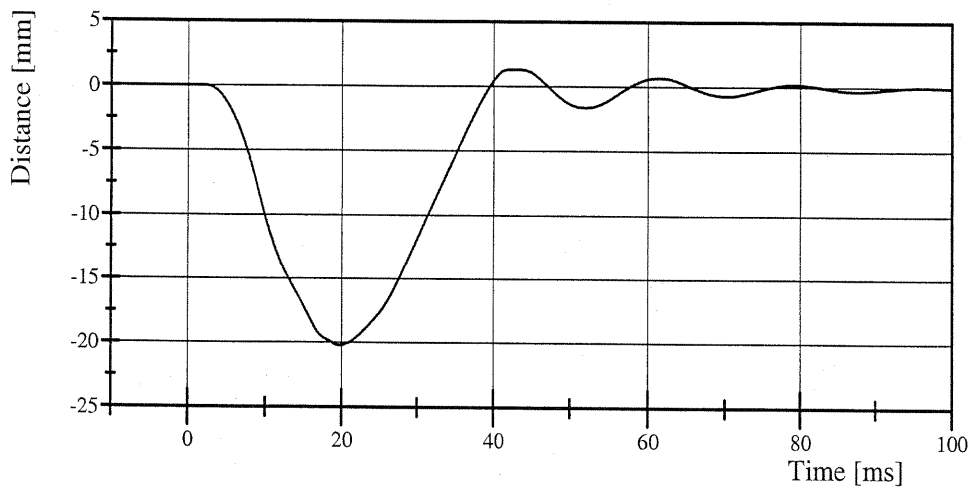
Specification Source: SAE User's Manual with Polarity in Accordance with J211

03.17.2006 07:57:51 1104

# Transportation Research Center Inc.

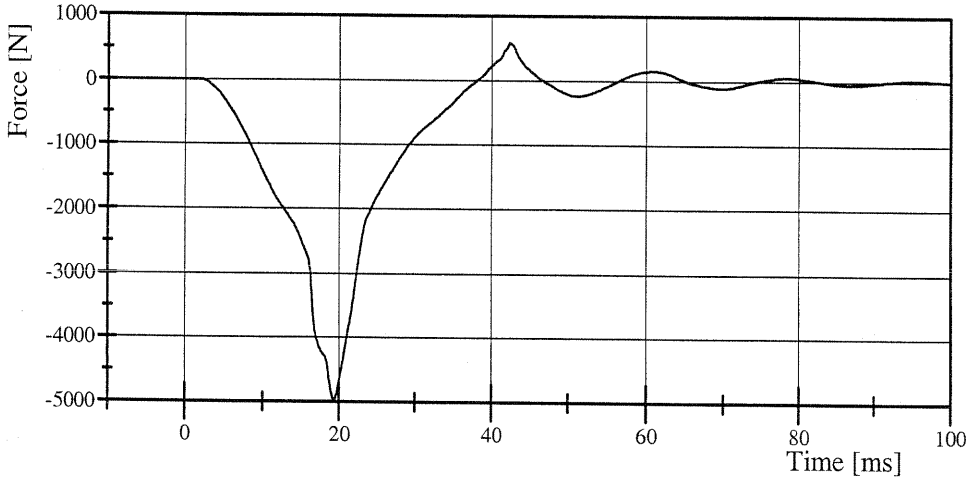
Right Knee Slider
HIII 50th Serial No. LX116117 Certification No. 5-1
Test Date: 03/16/2006

Knee Slider Displacement



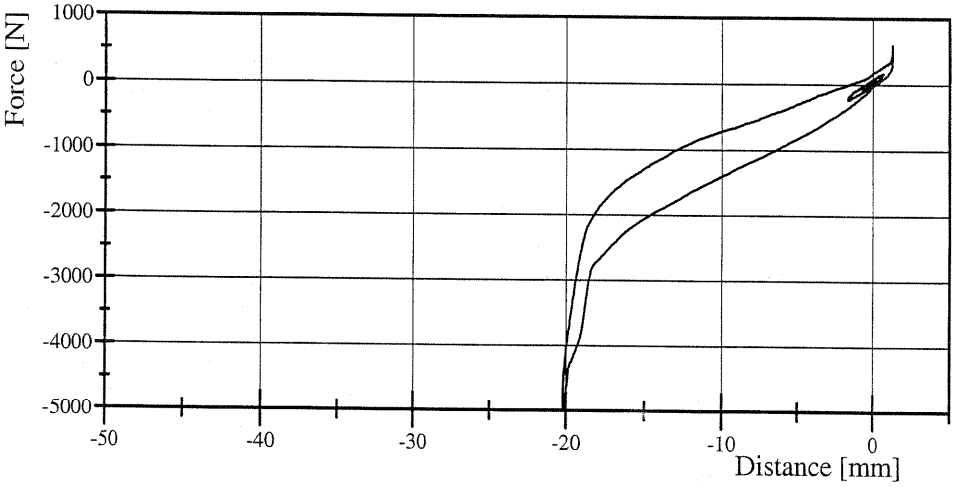

Filter Class: CFC_180
Max: 1.3 mm at 42.4 ms
Min: -20.2 mm at 19.8 ms

Femur Force




Filter Class: CFC_600
Max: 588.2 N at 42.5 ms
Min: -4,966.2 N at 19.3 ms

Femur Force vs. Knee Slider Displacement




Filter Class: CFC_600
Max: 588.2 N at 1.3 mm
Min: -4,966.2 N at -20.2 mm

Pre-Test Dummy Configuration and Performance Verification Data

Target Vehicle Passenger Dummy S/N: 416

# Transportation Research Center Inc.
# 572O HIII 5th Female Dummy
# External Dimensions
# Serial No. 416 Calibration No. 35
# With Thor FLX Legs

| Symbol | Description | Specification | Results | Pass |
|---|---|---|---|---|
| | | mm | mm | |
| A | Total Sitting Height | 774.7 - 800.1 | 779 | Yes |
| B | Shoulder Pivot Height | 431.8 - 457.2 | 451 | Yes |
| C | Hip Pivot Height | 81.3 - 86.3 | 85 | Yes |
| D | Hip Pivot from Backline | 144.8 - 149.8 | 148 | Yes |
| E | Shoulder Pivot from Backline | 68.6 - 83.8 | 78 | Yes |
| F | Thigh Clearance | 119.4 - 134.6 | 126 | Yes |
| G | Back of Elbow to Wrist Pivot | 243.9 - 259.1 | 250 | Yes |
| H | Head Back to Backline | 43.2 - 48.2 | 44 | Yes |
| I | Shoulder to Elbow Length | 276.8 - 297.2 | 285 | Yes |
| J | Elbow Rest Height | 182.8 - 203.2 | 193 | Yes |
| K | Buttock Knee Length | 520.7 - 546.1 | 532 | Yes |
| L | Popliteal Height | 355.6 - 376.0 | 359 | Yes |
| M | Knee Pivot Height | 393.7 - 419.1 | 404 | Yes |
| N | Buttock Popliteal Height | 414.0 - 439.4 | 424 | Yes |
| O | Chest Depth without Jacket | 175.3 - 190.5 | 185 | Yes |
| P | Foot Length | 218.5 - 233.7 | 221 | Yes |
| R | Buttock to Knee Pivot Length | 457.2 - 482.6 | 475 | Yes |
| S | Head Breadth | 137.1 - 147.3 | 143 | Yes |
| T | Head Depth | 177.8 - 188.0 | 182 | Yes |
| U | Hip Breadth | 299.7 - 314.9 | 305 | Yes |
| V | Shoulder Breadth | 350.5 - 365.7 | 362 | Yes |
| W | Foot Breadth | 78.8 - 94.0 | 88 | Yes |
| X | Head Circumference | 528.3 - 548.7 | 535 | 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

Approved

Revised 3/19/3003



060310

# Transportation Research Center Inc.

Front Head Drop
HIII 5th Serial No. 416 Certification No. 35-1
Test Date: 03/08/2006

| Test Parameter | Specification | Test Results | Pass |
|---|---|---|---|
| Temperature | 18.9 - 25.5 °C | 21.4 °C | Yes |
| Relative Humidity | 10 - 70 % | 28 % | Yes |
| Peak Head Resultant Acceleration | 250 - 300 g | 271.2 g | Yes |
| Peak Head Lateral Acceleration | (-15) - 15 g | 4.6 g | Yes |
| Is Acceleration Curve Unimodal within 10% of Peak? | Yes | Yes | Yes |

**Test meets specifications.**

**Comments:**

Technician

Approved

Specification Source: CFR49 Part 572 Subpart O
with Polarity in accordance with J211



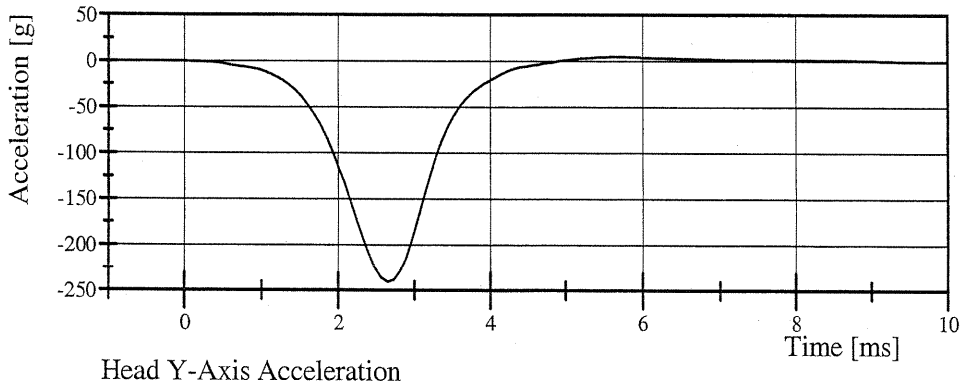
03.08.2006 12:54:21 232

060310

# Transportation Research Center Inc.

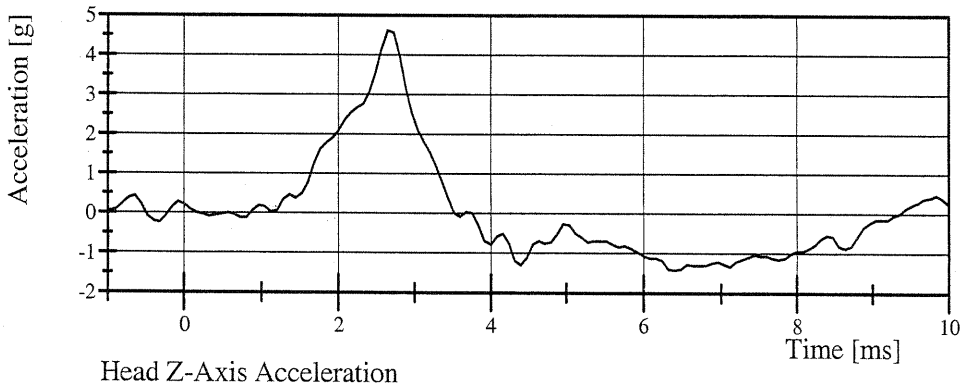
Front Head Drop
HIII 5th Serial No. 416 Certification No. 35-1
Test Date: 03/08/2006

Head X-Axis Acceleration



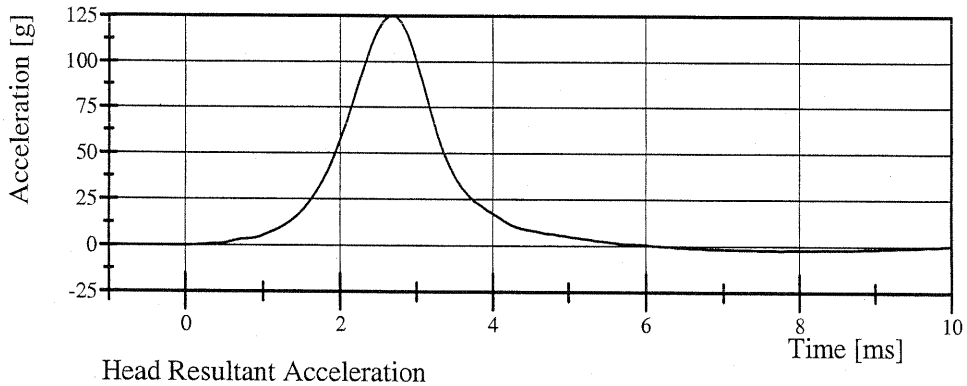

Filter Class: CFC_1000
Max: 4.7 g at 5.7 ms
Min: -240.6 g at 2.6 ms

Head Y-Axis Acceleration



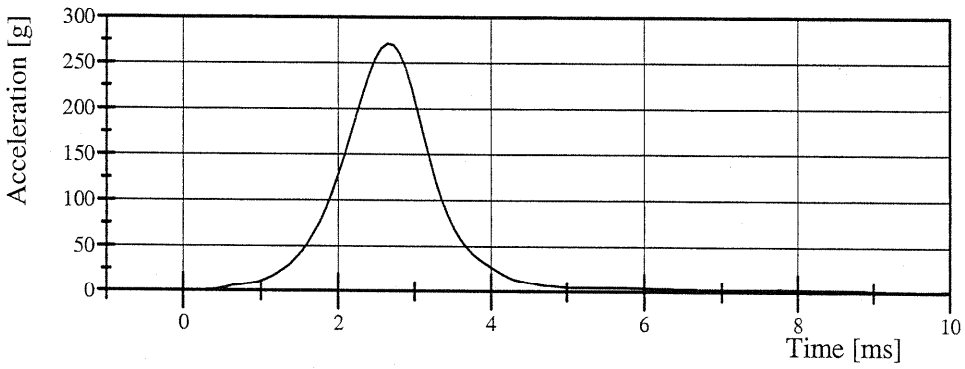

Filter Class: CFC_1000
Max: 4.6 g at 2.6 ms
Min: -1.4 g at 6.4 ms

Head Z-Axis Acceleration




Filter Class: CFC_1000
Max: 125.0 g at 2.6 ms
Min: -2.4 g at 7.8 ms

Head Resultant Acceleration




Filter Class: CFC_1000
Max: 271.2 g at 2.6 ms
Min: 0.0 g at -1.0 ms

Specification Source: CFR49 Part 572 Subpart O
with Polarity in accordance with J211

03.08.2006 12:54:32 232

# Transportation Research Center Inc.

Neck Flexion
HIII 5th Serial No. 416 Certification No. 33-3
Test Date: 2/16/2006

| Test Parameter | Specification | Test Results | Pass |
|---|---|---|---|
| Temperature | 20.6 - 22.2 °C | 21.3 °C | Yes |
| Relative Humidity | 10 - 70 % | 37 % | Yes |
| Pendulum Velocity | 6.89 - 7.13 m/s | 7.038 m/s | Yes |
| Pendulum Integrated Velocity Change at 10ms | (-2.1) - (-2.5) m/s | -2.42 m/s | Yes |
| Pendulum Integrated Velocity Change at 20ms | (-4.0) - (-5.0) m/s | -4.75 m/s | Yes |
| Pendulum Integrated Velocity Change at 30ms | (-5.8) - (-7.0) m/s | -6.83 m/s | Yes |
| Total Head D-Plane Rotation | (-77) - (-91) ° | -78.8 ° | Yes |
| Total Neck Occipital Condyles Moment Between -77° and -91° Rotation | 69 - 83 N·m | 73.3 N·m | Yes |
| Total Neck Occipital Condyles Moment Decay to 10 N·m | 80 - 100 ms | 85.0 ms | Yes |

**Test meets specifications.**

**Comments:**

Pre-test; new nodding blocks and new neck serial #696.

Technician _____

Approved _____

Specification Source: CFR49 Part 572 Subpart O
with Polarity in accordance with J211

02.25.2006 11:08:54 545



060310

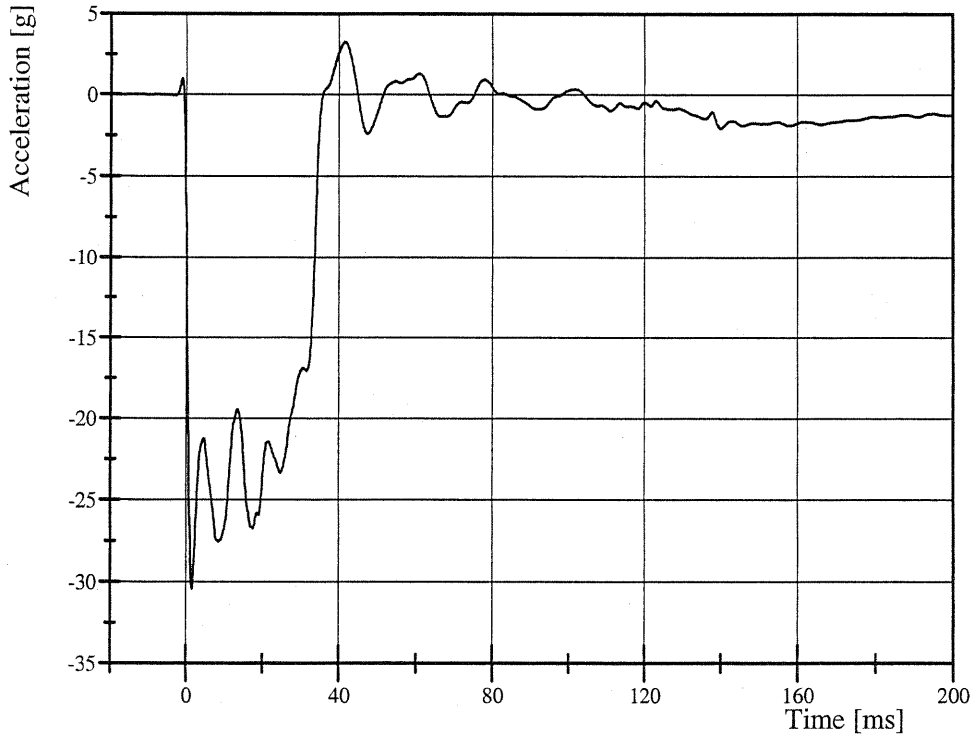
# Transportation Research Center Inc.

Neck Flexion

HIII 5th Serial No. 416 Certification No. 33-3

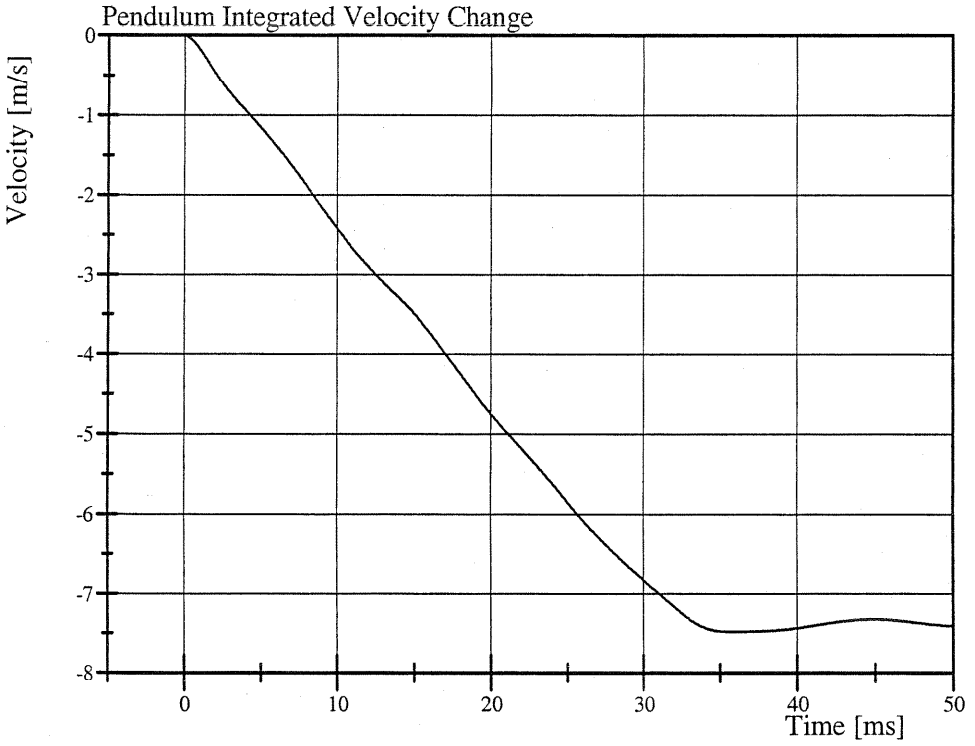
Test Date: 2/16/2006

Pendulum Acceleration




Filter Class: CFC_180
Max: 3.3 g at 41.6 ms
Min: -30.4 g at 1.5 ms

Pendulum Integrated Velocity Change




Filter Class: CFC_180
Max: 0.0 m/s at 0.0 ms
Min: -7.5 m/s at 35.9 ms

Specification Source: CFR49 Part 572 Subpart O
with Polarity in accordance with J211

02.25.2006 11:10:32 545



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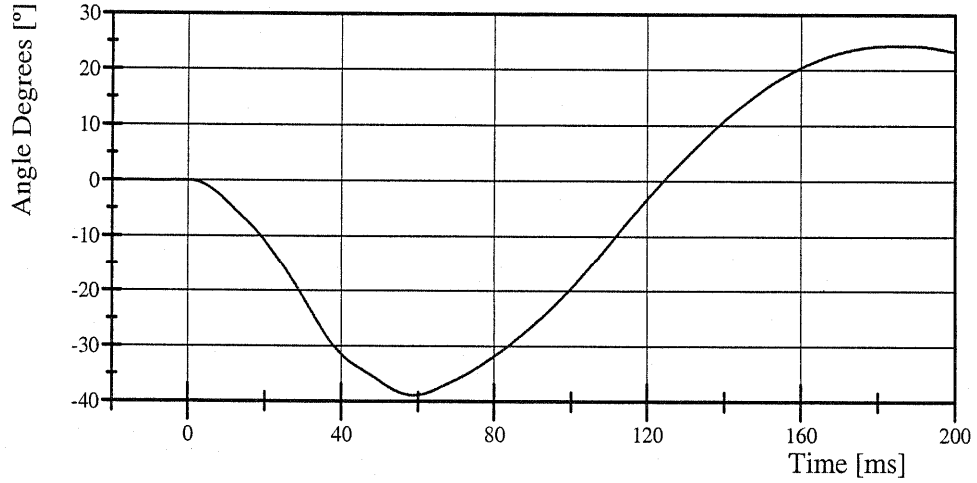
# Transportation Research Center Inc.

Neck Flexion

HIII 5th Serial No. 416 Certification No. 33-3

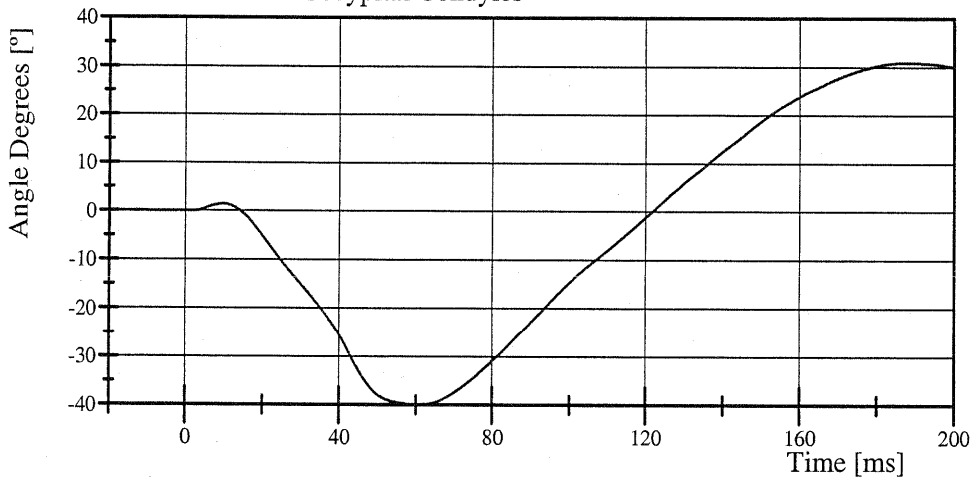
Test Date: 2/16/2006

Pot Rotation at the Base of Neck



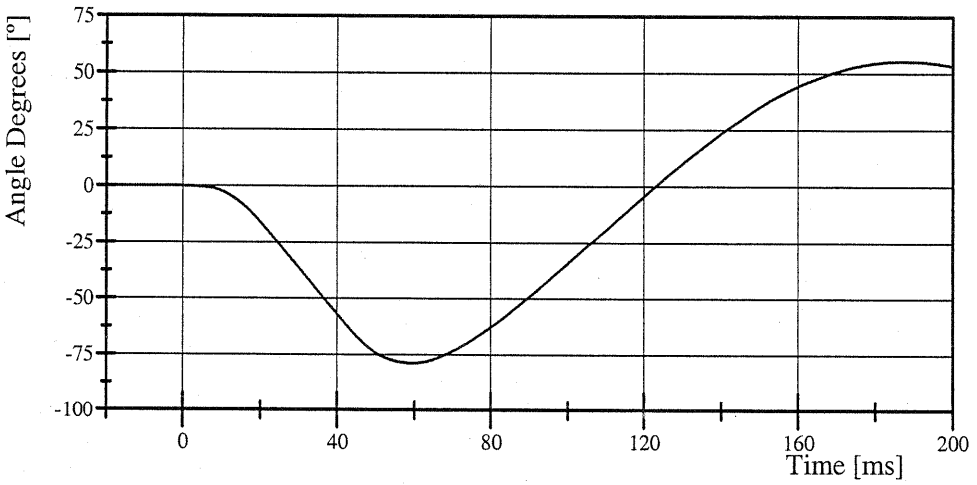

Filter Class: CFC_60
Max: 24.4 ° at 185.8 ms
Min: -38.9 ° at 59.0 ms

Head Rotation at Occypital Condyles




Filter Class: CFC_60
Max: 30.9 ° at 186.7 ms
Min: -40.0 ° at 60.6 ms

Total Head D-Plane Rotation




Filter Class: CFC_60
Max: 55.3 ° at 186.4 ms
Min: -78.8 ° at 59.6 ms

Specification Source: CFR49 Part 572 Subpart O
with Polarity in accordance with J211

02.25.2006 11:10:33 545



060310

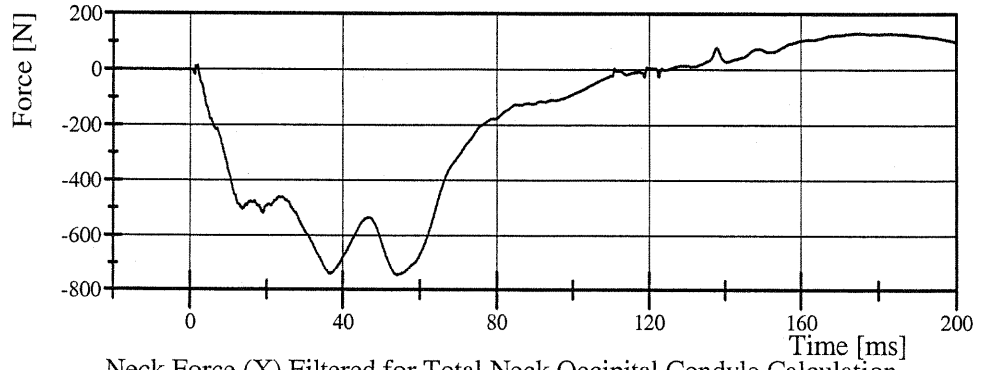
# Transportation Research Center Inc.

Neck Flexion

HIII 5th Serial No. 416 Certification No. 33-3

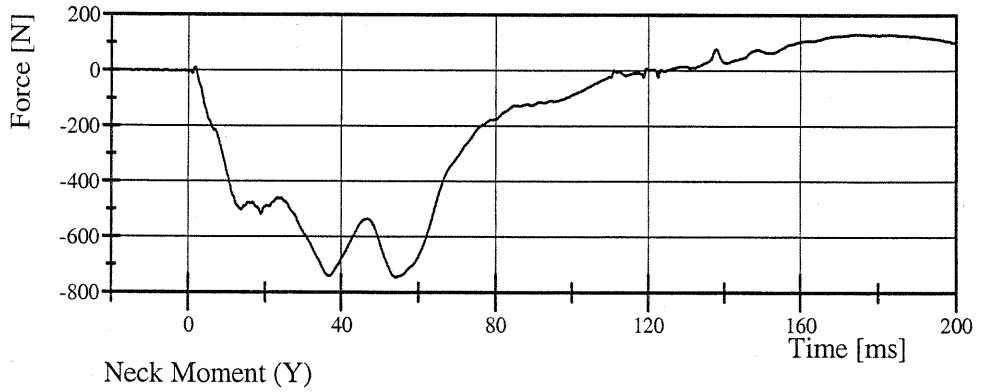
Test Date: 2/16/2006

Neck Force (X)



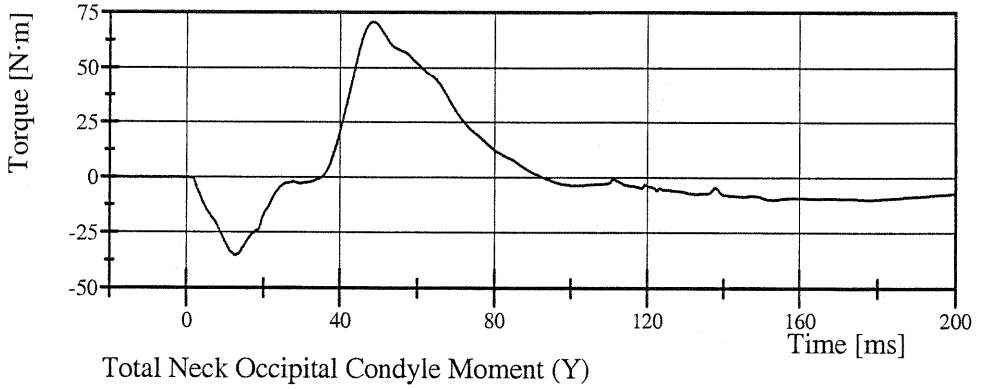

Filter Class: CFC_1000
Max: 131.8 N at 174.3 ms
Min: -745.8 N at 54.2 ms

Neck Force (X) Filtered for Total Neck Occipital Condyle Calculation



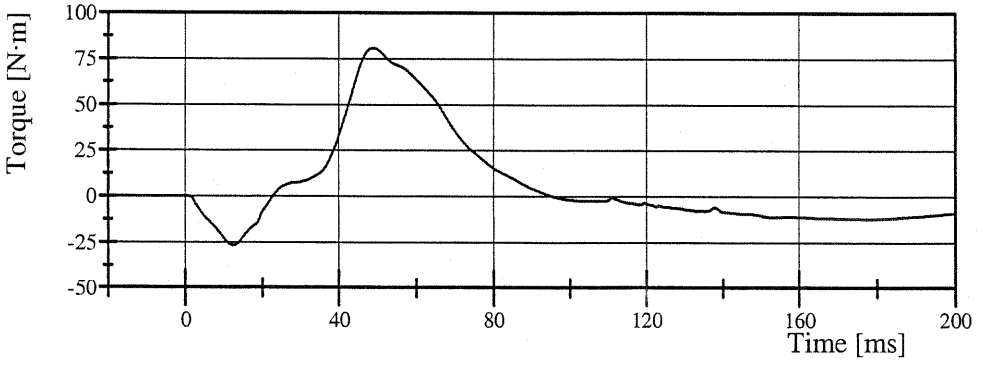

Filter Class: CFC_600
Max: 131.7 N at 174.5 ms
Min: -745.4 N at 54.2 ms

Neck Moment (Y)




Filter Class: CFC_600
Max: 70.8 N·m at 48.5 ms
Min: -35.1 N·m at 12.6 ms

Total Neck Occipital Condyle Moment (Y)




Filter Class: CFC_600
Max: 80.9 N·m at 48.9 ms
Min: -26.5 N·m at 12.6 ms

# Transportation Research Center Inc.

Neck Extension
HIII 5th Serial No. 416 Certification No. 33-4
Test Date: 2/16/2006

| Test Parameter | Specification | Test Results | Pass |
|---|---|---|---|
| Temperature | 20.6 - 22.2 °C | 21.3 °C | Yes |
| Relative Humidity | 10 - 70 % | 39 % | Yes |
| Pendulum Velocity | (-5.95) - (-6.19) m/s | -6.060 m/s | Yes |
| Pendulum Integrated Velocity Change at 10ms | 1.5 - 1.9 m/s | 1.88 m/s | Yes |
| Pendulum Integrated Velocity Change at 20ms | 3.1 - 3.9 m/s | 3.73 m/s | Yes |
| Pendulum Integrated Velocity Change at 30ms | 4.6 - 5.6 m/s | 5.43 m/s | Yes |
| Total Head D-Plane Rotation | 99 - 114 ° | 106.2 ° | Yes |
| Total Neck Occipital Condyles Moment Between 99° and 114° Rotation | (-53) - (-65) N·m | -53.1 N·m | Yes |
| Total Neck Occipital Condyles Moment Decay to -10 N·m | 94 - 114 ms | 101.8 ms | Yes |

**Test meets specifications.**

**Comments:**

Pre-test; new nodding blocks and new neck serial #696.

Technician

Approved

Specification Source: CFR49 Part 572 Subpart O
with Polarity in accordance with J211

02.25.2006 11:12:41 625

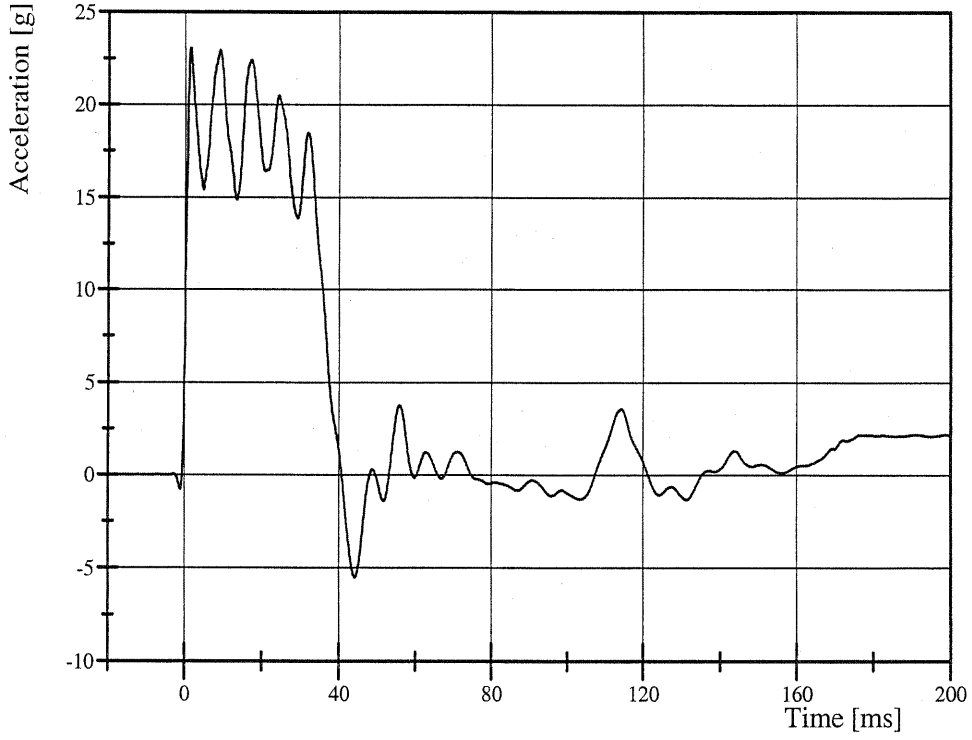


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# Transportation Research Center Inc.

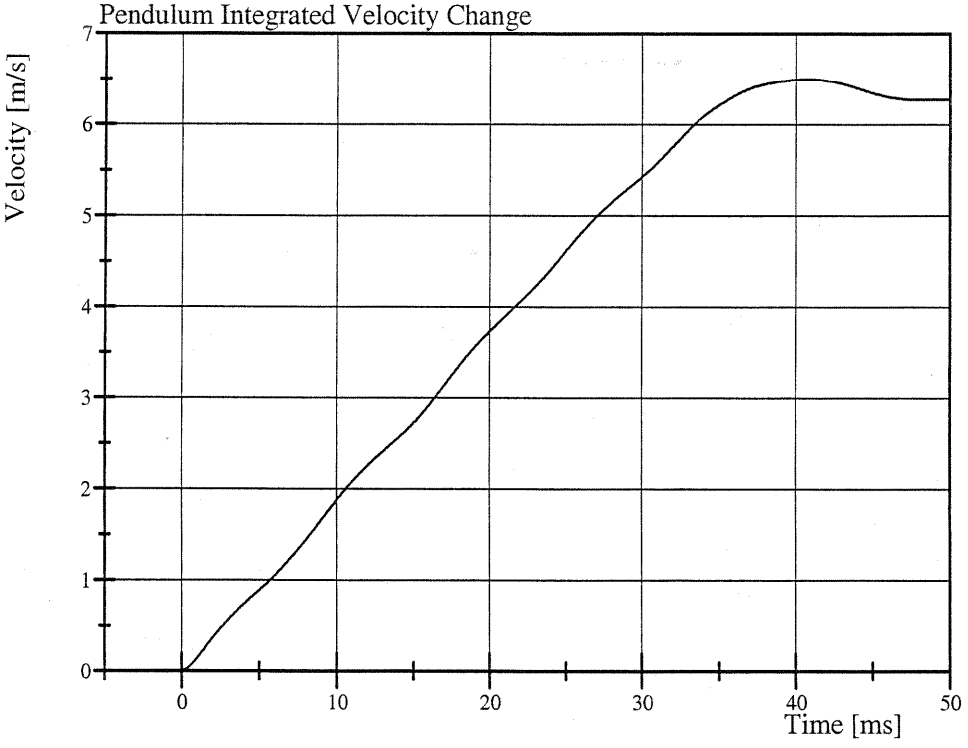
Neck Extension
HIII 5th Serial No. 416 Certification No. 33-4
Test Date: 2/16/2006

Pendulum Acceleration




Filter Class: CFC_180
Max: 23.1 g at 1.4 ms
Min: -5.5 g at 44.3 ms

Pendulum Integrated Velocity Change




Filter Class: CFC_180
Max: 6.5 m/s at 40.8 ms
Min: 0.0 m/s at 0.0 ms

Specification Source: CFR49 Part 572 Subpart O
with Polarity in accordance with J211

02.25.2006 11:13:31 625



060310

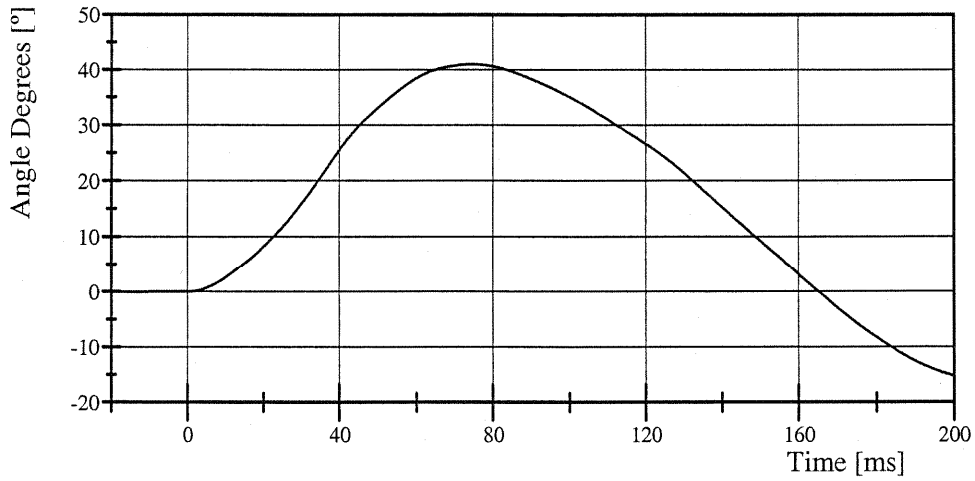
# Transportation Research Center Inc.

Neck Extension

HIII 5th Serial No. 416 Certification No. 33-4

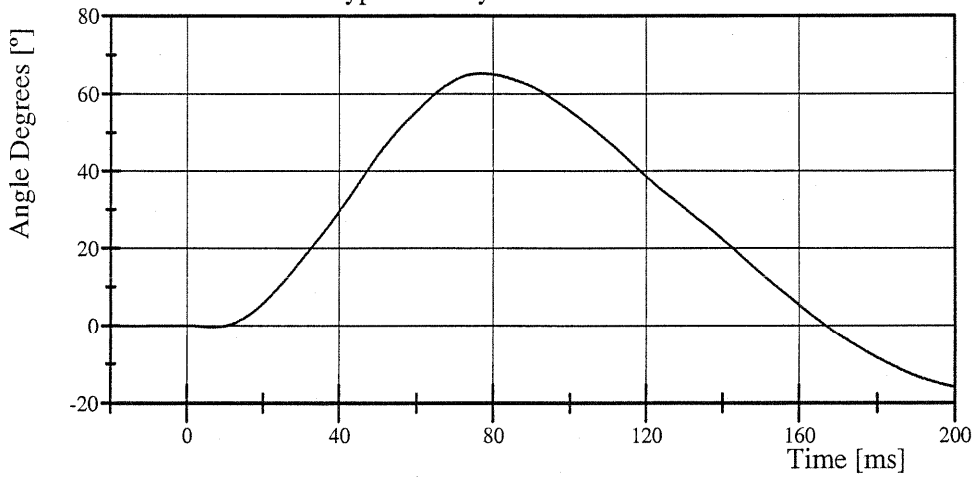
Test Date: 2/16/2006

Pot Rotation at the Base of Neck



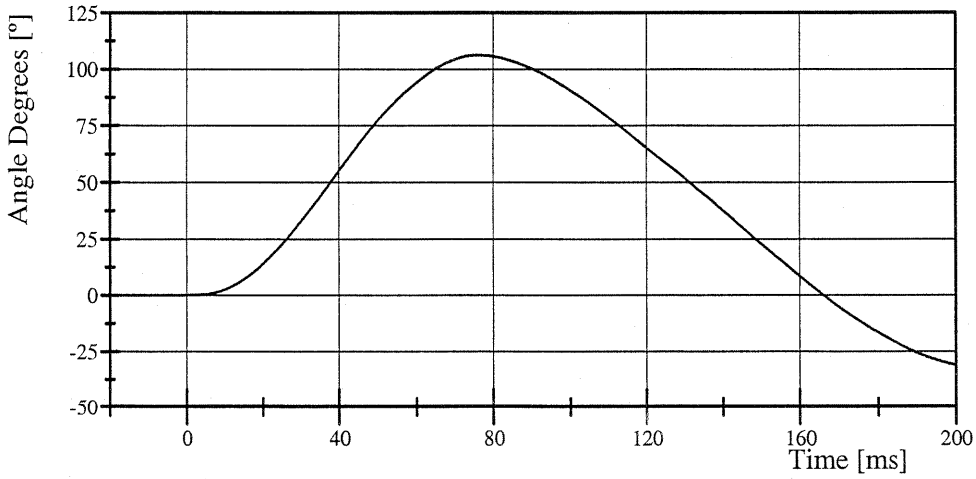

Filter Class: CFC_60
Max: 41.0 ° at 74.3 ms
Min: -15.2 ° at 200.0 ms

Head Rotation at Occypital Condyles




Filter Class: CFC_60
Max: 65.2 ° at 77.0 ms
Min: -15.9 ° at 200.0 ms

Total Head D-Plane Rotation




Filter Class: CFC_60
Max: 106.2 ° at 76.1 ms
Min: -31.1 ° at 200.0 ms

Specification Source: CFR49 Part 572 Subpart O
with Polarity in accordance with J211

02.25.2006 11:13:32 625



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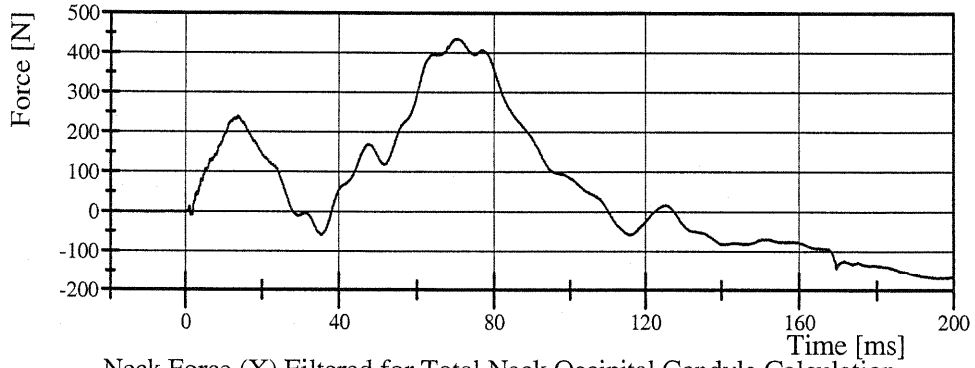
# Transportation Research Center Inc.

Neck Extension

HIII 5th Serial No. 416 Certification No. 33-4

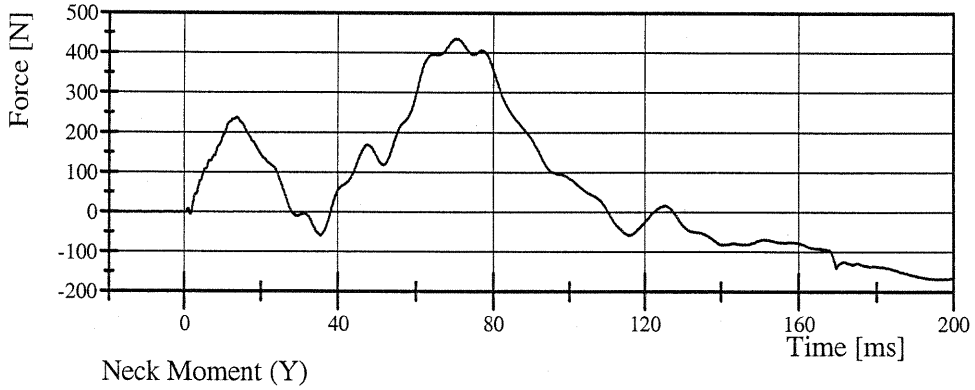
Test Date: 2/16/2006

Neck Force (X)



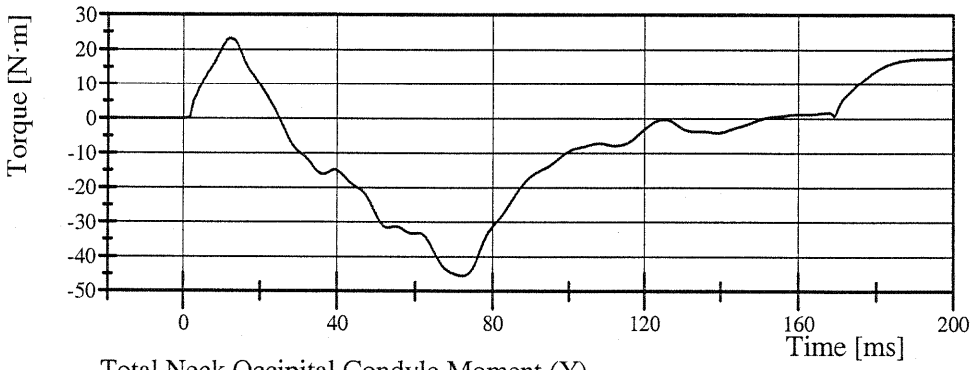

Filter Class: CFC_1000
Max: 435.1 N at 70.1 ms
Min: -169.1 N at 196.2 ms

Neck Force (X) Filtered for Total Neck Occipital Condyle Calculation



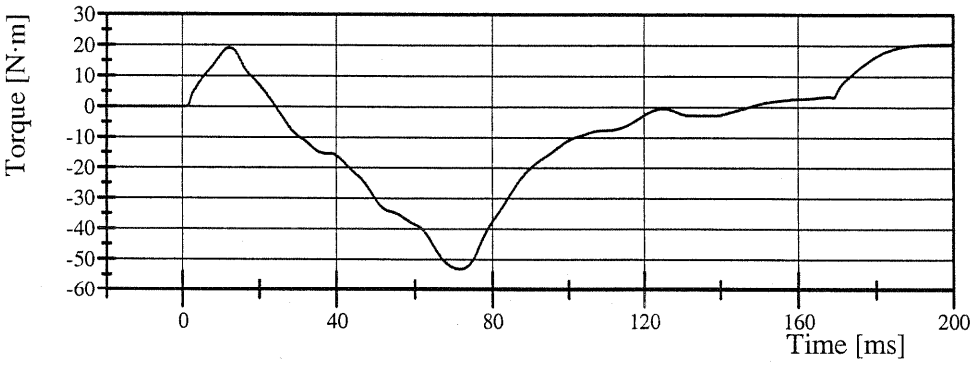

Filter Class: CFC_600
Max: 435.1 N at 70.2 ms
Min: -168.7 N at 196.0 ms

Neck Moment (Y)




Filter Class: CFC_600
Max: 23.2 N·m at 12.2 ms
Min: -45.5 N·m at 72.3 ms

Total Neck Occipital Condyle Moment (Y)




Filter Class: CFC_600
Max: 20.7 N·m at 200.0 ms
Min: -53.1 N·m at 71.6 ms

Specification Source: CFR49 Part 572 Subpart O
with Polarity in accordance with J211

02.25.2006 11:13:34 625



060310

# Transportation Research Center Inc.

Front Thorax
HIII 5th Serial No. 416 Certification No. 35-1
Test Date: 03/08/2006

| Test Parameter | Specification | Test Results | Pass |
|---|---|---|---|
| Temperature | 20.6 - 22.2 °C | 21.0 °C | Yes |
| Relative Humidity | 10 - 70 % | 29 % | Yes |
| Probe Velocity | 6.59 - 6.83 m/s | 6.618 m/s | Yes |
| Probe Force Peak Between 50.0 mm and 58.0 mm Chest Deflection | (-3,900) - (-4,400) N | -4,107.9 N | Yes |
| Probe Force Peak Between 18.0 mm and 50.0 mm Chest Deflection | >= (-4,600) N | -3,861.1 N | Yes |
| Maximum Chest Compression | (-50) - (-58) mm | -57.0 mm | Yes |
| Internal Hysteresis | 69 - 85 % | 71.3 % | Yes |

**Test meets specifications.**

**Comments:**

Technician

Approved

Specification Source: CFR49 Part 572 Subpart O
with Polarity in accordance with J211

03.08.2006 14:18:12 408



060310

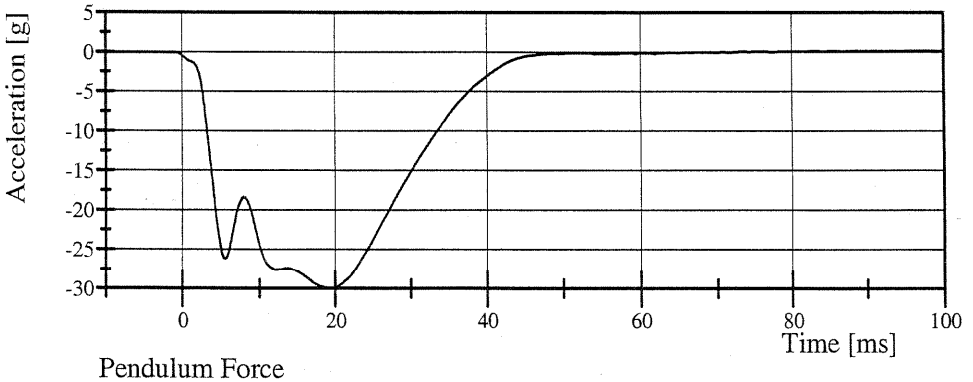
# Transportation Research Center Inc.

Front Thorax

HIII 5th Serial No. 416 Certification No. 35-1

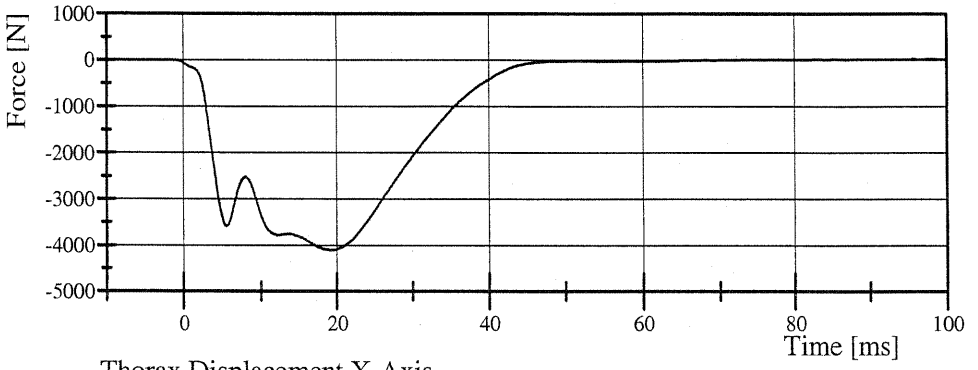
Test Date: 03/08/2006

Pendulum Acceleration



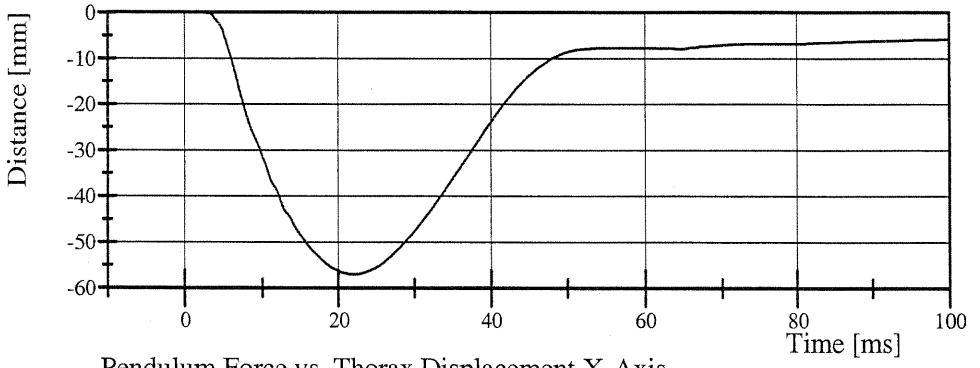

Filter Class: CFC_180
Max: 0.2 g at 98.1 ms
Min: -30.0 g at 19.4 ms

Pendulum Force



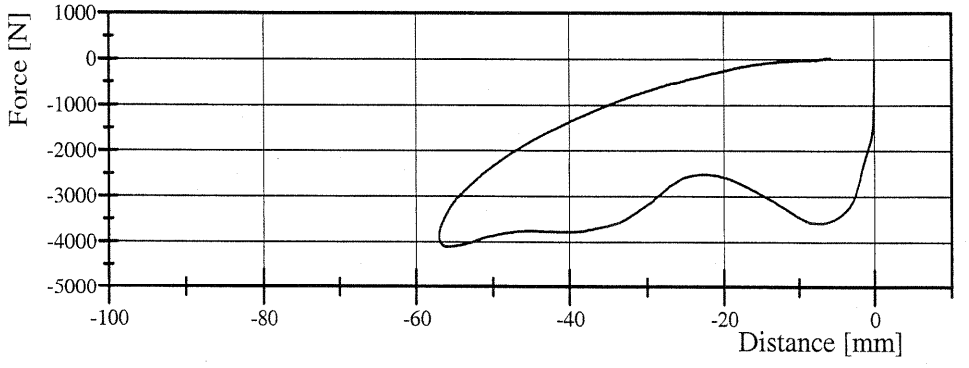

Filter Class: CFC_180
Max: 24.8 N at 98.1 ms
Min: -4,107.9 N at 19.4 ms

Thorax Displacement X-Axis




Filter Class: CFC_600
Max: 0.0 mm at -3.9 ms
Min: -57.0 mm at 22.1 ms

Pendulum Force vs. Thorax Displacement X-Axis




Filter Class: CFC_180
Max: 24.8 N at -5.8 mm
Min: -4,107.9 N at -55.8 mm

Specification Source: CFR49 Part 572 Subpart O
with Polarity in accordance with J211

03.08.2006 14:18:30 408



060310

**TRANSPORTATION RESEARCH CENTER INC.**

**TORSO FLEXION TEST**

**HYBRID III SMALL FEMALE**

**CAL DATE: 09-Feb-06**

**TRC, INC.** **TEST NO: 416C33TF4** **572 O SN416 TORSO FLEX CAL 33**

| TEST PARAMETER | SPECIFICATION | TEST RESULTS |
|---|---|---|
| TEMPERATURE | 20.6 – 22.2° C | 21.5° C |
| RELATIVE HUMIDITY | 10 – 70 % | 25 % |
| INITIAL ANGLE OF UNSUPPORRTED DUMMY | <= 20° REFERENCED TO VERTICAL | 19.6° |
| MAXIMUM FORCE AT 45 DEG. DURING 10 SECOND PERIOD | 320 – 390 N | 363.4 N |
| RETURN ANGLE | | 23.6° |
| DIFFERENCE BETWEEN RETURN ANGLE & INTIAL ANGLE | +/- 8 ° OF INTIAL ANGLE | 4.0 ° |
| RATE | 0.5° - 1.5°/sec | 0.95 °/sec |

TEST MEETS SPECIFICATIONS

**Comments:**

TECHNICIAN 

# Transportation Research Center Inc.

Left Knee Femur Response Test
HIII 5th Serial No. 416 Certification No. 35-7
Test Date: 03/09/2006

| Test Parameter | Specification | Test Results | Pass |
|---|---|---|---|
| Temperature | 18.9 - 25.6 °C | 20.8 °C | Yes |
| Relative Humidity | 10 - 70 % | 39 % | Yes |
| Probe Velocity | 2.08 - 2.13 m/s | 2.090 m/s | Yes |
| Peak Femur Force | (-3,450) - (-4,060) N | -3,810.3 N | Yes |

**Test meets specifications.**

**Comments:**

Technician

Approved

Specification Source: CFR49 Part 572 Subpart O
with Polarity in accordance with J211



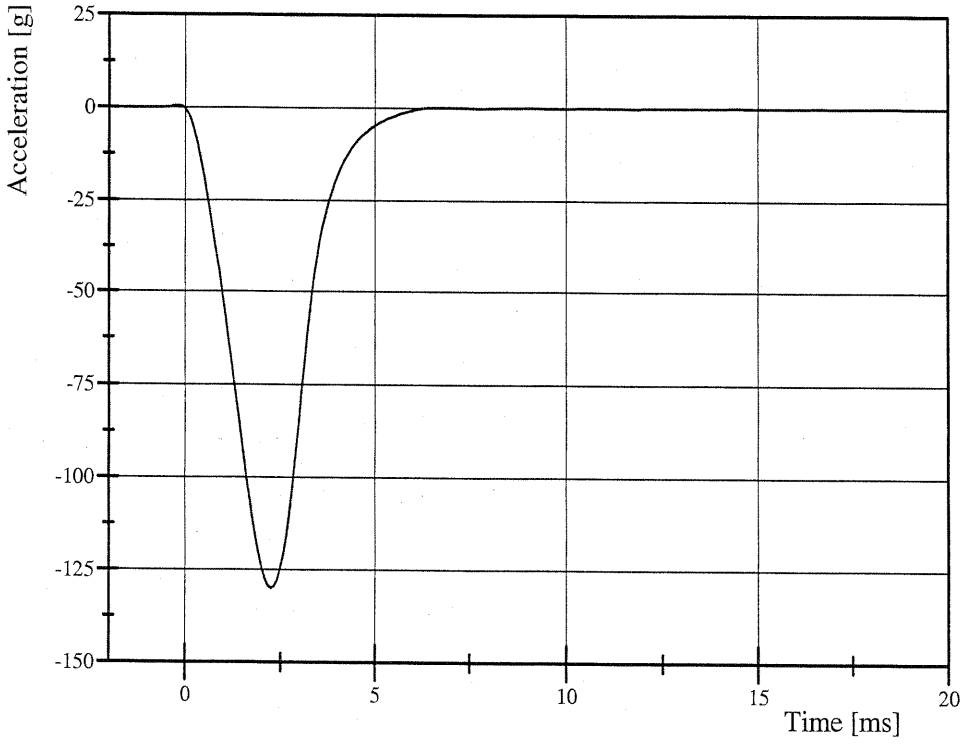
03.09.2006 07:28:38 1719

060310

# Transportation Research Center Inc.

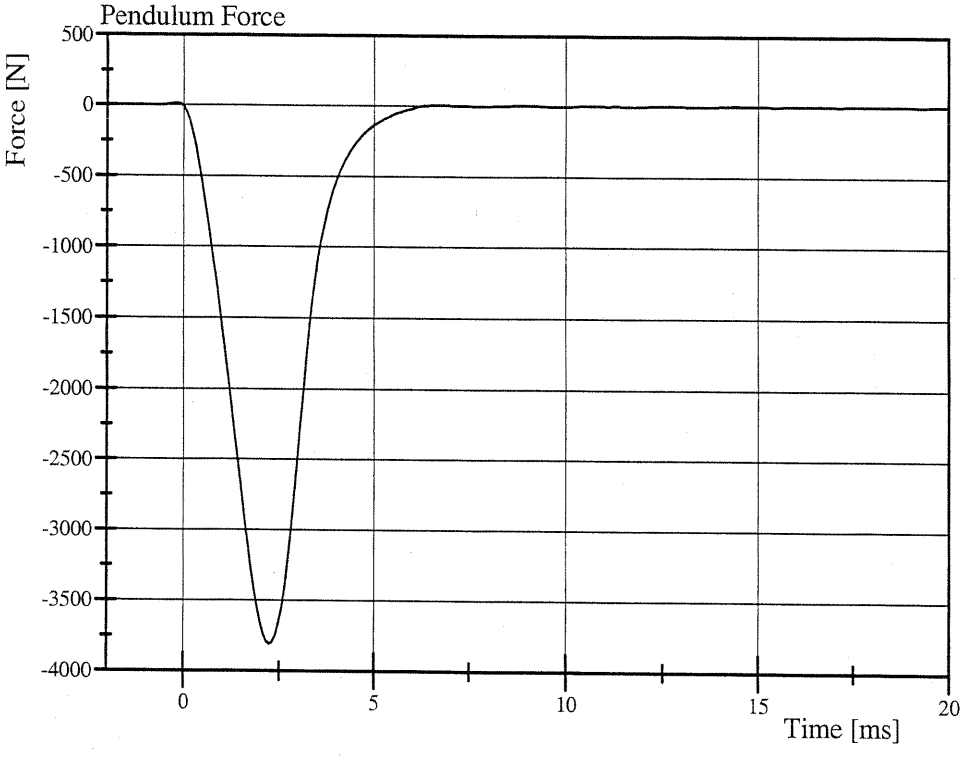
Left Knee Femur Response Test
HIII 5th Serial No. 416 Certification No. 35-7
Test Date: 03/09/2006

Pendulum Acceleration




Filter Class: CFC_600
Max: 0.4 g at -0.2 ms
Min: -129.9 g at 2.2 ms

Pendulum Force




Filter Class: CFC_600
Max: 12.1 N at -0.2 ms
Min: -3,810.3 N at 2.2 ms

Specification Source: CFR49 Part 572 Subpart O
with Polarity in accordance with J211



03.09.2006 07:28:47 1719

060310

# Transportation Research Center Inc.

Right Knee Femur Response Test
HIII 5th Serial No. 416 Certification No. 35-3
Test Date: 03/08/2006

| Test Parameter | Specification | Test Results | Pass |
|---|---|---|---|
| Temperature | 18.9 - 25.6 °C | 20.8 °C | Yes |
| Relative Humidity | 10 - 70 % | 32 % | Yes |
| Probe Velocity | 2.08 - 2.13 m/s | 2.093 m/s | Yes |
| Peak Femur Force | (-3,450) - (-4,060) N | -3,810.9 N | Yes |

**Test meets specifications.**

**Comments:**

Technician

Approved

Specification Source: CFR49 Part 572 Subpart O
with Polarity in accordance with J211

03.08.2006 15:27:06 1652

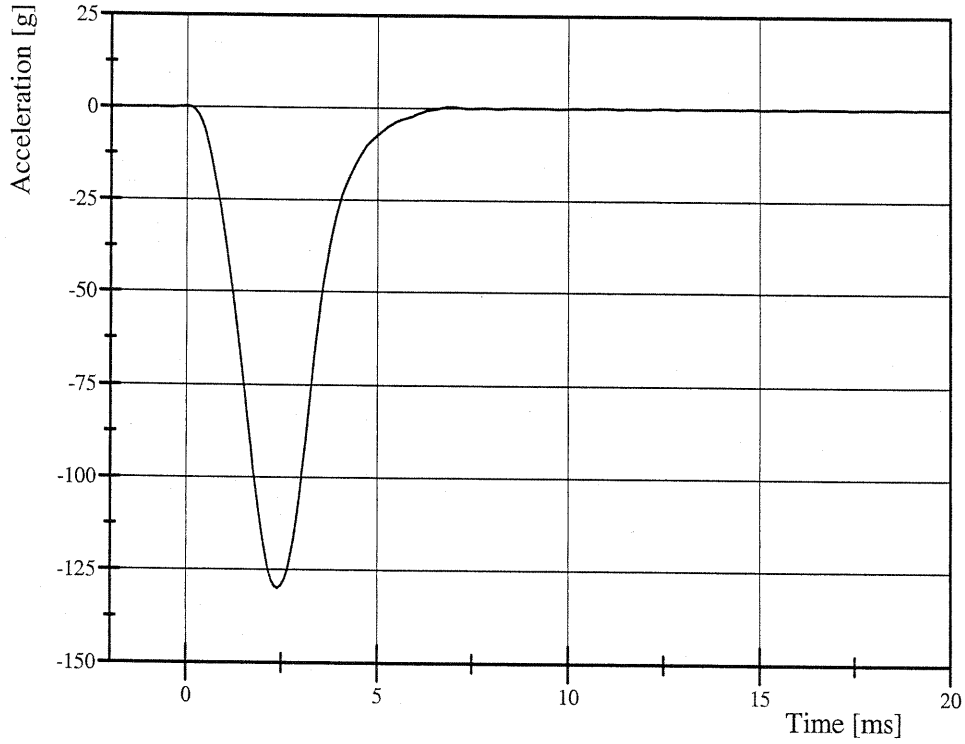


060310

# Transportation Research Center Inc.

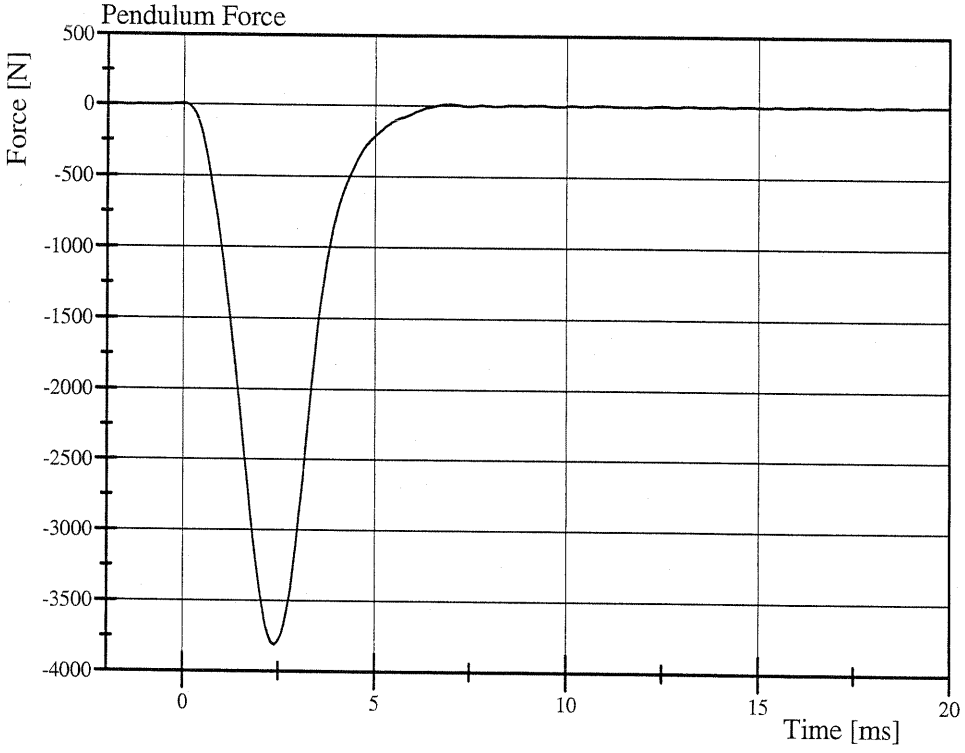
Right Knee Femur Response Test
HIII 5th Serial No. 416 Certification No. 35-3
Test Date: 03/08/2006

Pendulum Acceleration




Filter Class: CFC_600
Max: 0.3 g at 7.0 ms
Min: -130.0 g at 2.4 ms

Pendulum Force




Filter Class: CFC_600
Max: 10.2 N at 7.0 ms
Min: -3,810.9 N at 2.4 ms

Specification Source: CFR49 Part 572 Subpart O
with Polarity in accordance with J211



03.08.2006 15:27:18 1652

060310

# Transportation Research Center Inc.

Left Knee Slider
HIII 5th Serial No. 416 Certification No. 35-1
Test Date: 03/09/2006

| Test Parameter | Specification | Test Results | Pass |
|---|---|---|---|
| Temperature | 18.9 - 25.6 °C | 20.8 °C | Yes |
| Relative Humidity | 10 - 70 % | 39 % | Yes |
| Probe Velocity | 2.70 - 2.80 m/s | 2.761 m/s | Yes |
| Peak Deflection | (-12.7) - (-15.5) mm | -13.48 mm | Yes |

**Test meets specifications.**

**Comments:**

Technician

Approved

Specification Source: SAE Engineering Aide 25 with Polarity in Accordance with J211

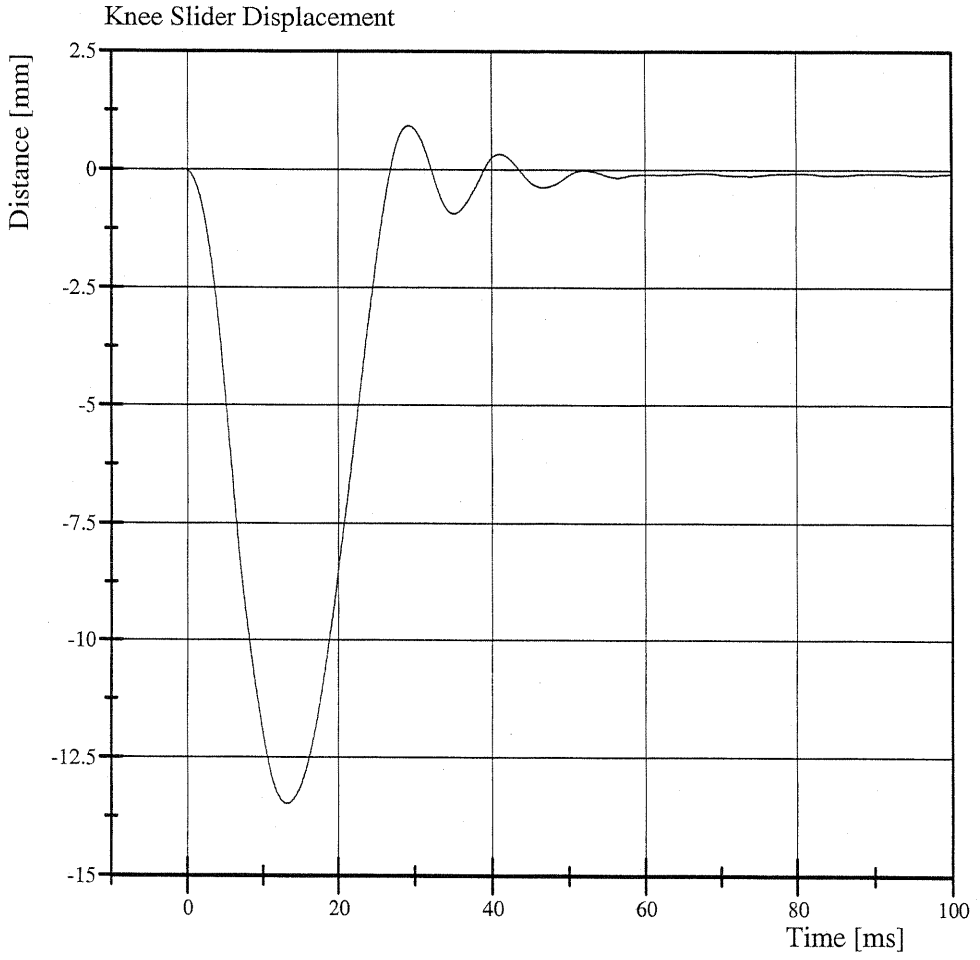
03.09.2006 09:03:42 1439



060310

# Transportation Research Center Inc.

Left Knee Slider
HIII 5th Serial No. 416 Certification No. 35-1
Test Date: 03/09/2006




Filter Class: CFC_180
Max: 0.9 mm at 29.3 ms
Min: -13.5 mm at 13.2 ms

Specification Source: SAE Engineering Aide 25 with Polarity in Accordance with J211 03.09.2006 09:03:52 1439

# Transportation Research Center Inc.

Right Knee Slider
HIII 5th Serial No. 416 Certification No. 35-2
Test Date: 03/09/2006

| Test Parameter | Specification | Test Results | Pass |
|---|---|---|---|
| Temperature | 18.9 - 25.6 °C | 20.9 °C | Yes |
| Relative Humidity | 10 - 70 % | 39 % | Yes |
| Probe Velocity | 2.70 - 2.80 m/s | 2.761 m/s | Yes |
| Peak Deflection | (-12.7) - (-15.5) mm | -12.84 mm | Yes |

**Test meets specifications.**

**Comments:**

Technician

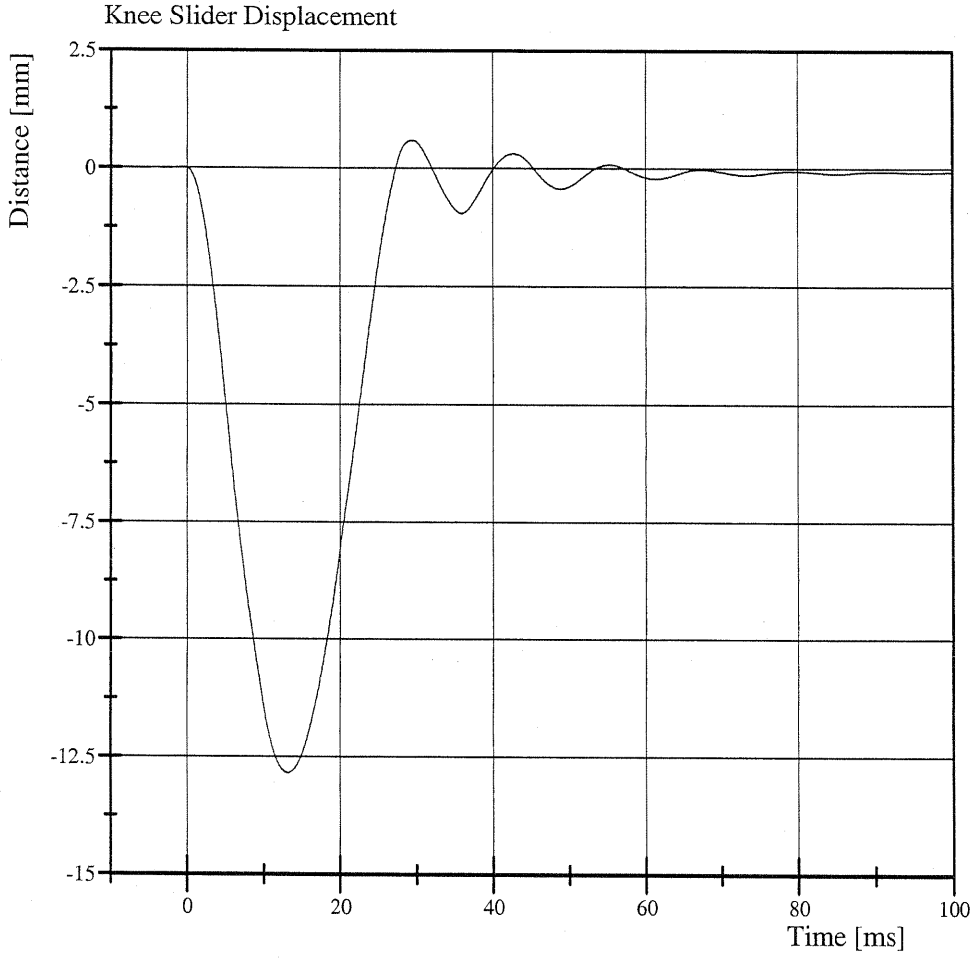
Approved

Specification Source: SAE Engineering Aide 25 with Polarity in Accordance with J211

03.09.2006 08:38:17 1439

# Transportation Research Center Inc.

Right Knee Slider
HIII 5th Serial No. 416 Certification No. 35-2
Test Date: 03/09/2006




Filter Class: CFC_180
Max: 0.6 mm at 29.4 ms
Min: -12.8 mm at 13.2 ms

Specification Source: SAE Engineering Aide 25 with Polarity in Accordance with J211

03.09.2006 08:38:34 1439



060310

Post-Test Dummy Configuration and Performance Verification Data

Target Vehicle Passenger Dummy S/N: 416

# Transportation Research Center Inc.

Front Head Drop
HIII 5th Serial No. 416 Certification No. 36-1
Test Date: 03/16/2006

| Test Parameter | Specification | Test Results | Pass |
|---|---|---|---|
| Temperature | 18.9 - 25.5 °C | 21.2 °C | Yes |
| Relative Humidity | 10 - 70 % | 29 % | Yes |
| Peak Head Resultant Acceleration | 250 - 300 g | 279.4 g | Yes |
| Peak Head Lateral Acceleration | (-15) - 15 g | 8.1 g | Yes |
| Is Acceleration Curve Unimodal within 10% of Peak? | Yes | Yes | Yes |

**Test meets specifications.**

**Comments:**

Technician

Approved

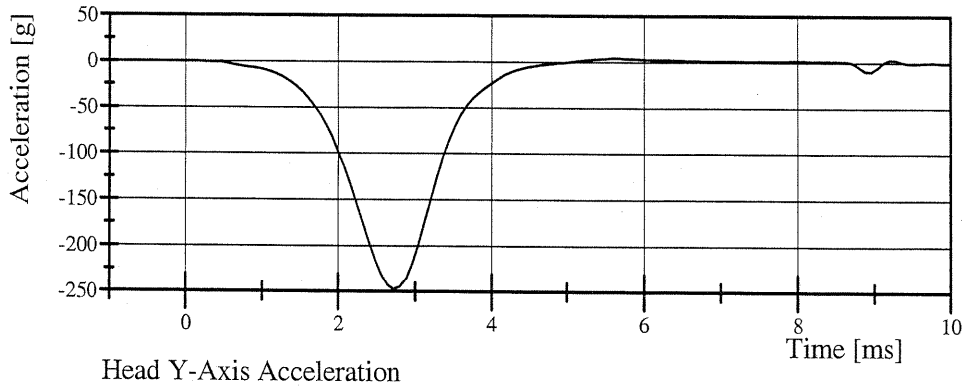
Specification Source: CFR49 Part 572 Subpart O
with Polarity in accordance with J211

03.16.2006 10:21:05 231

# Transportation Research Center Inc.

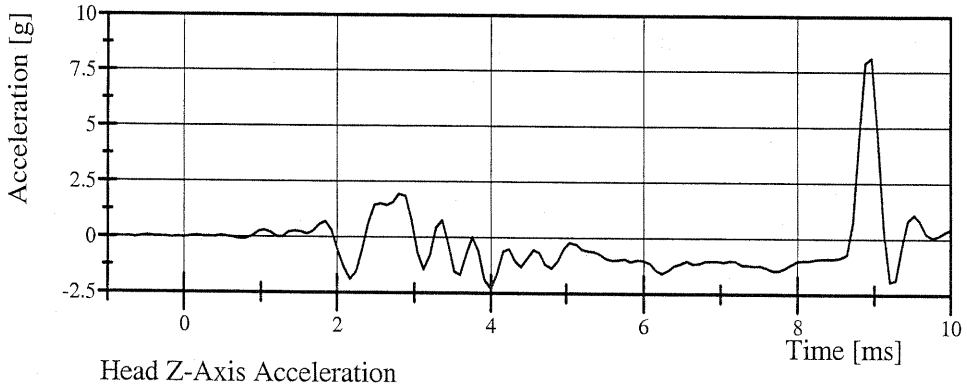
Front Head Drop
HIII 5th Serial No. 416 Certification No. 36-1
Test Date: 03/16/2006

Head X-Axis Acceleration



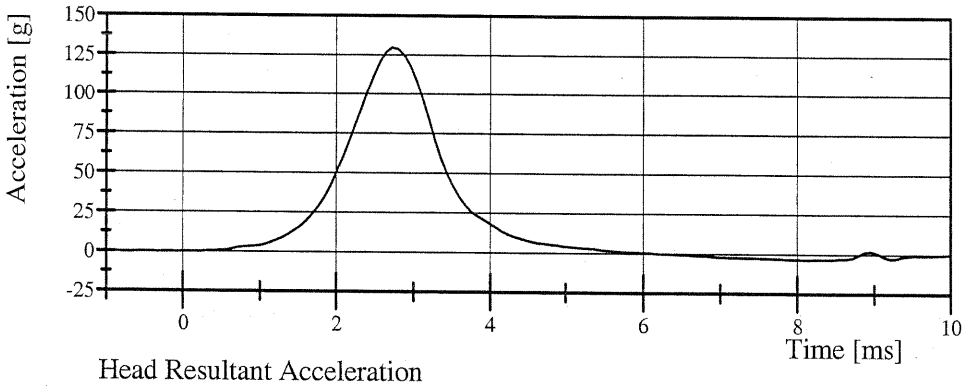

Filter Class: CFC_1000
Max: 4.2 g at 5.6 ms
Min: -247.4 g at 2.7 ms

Head Y-Axis Acceleration



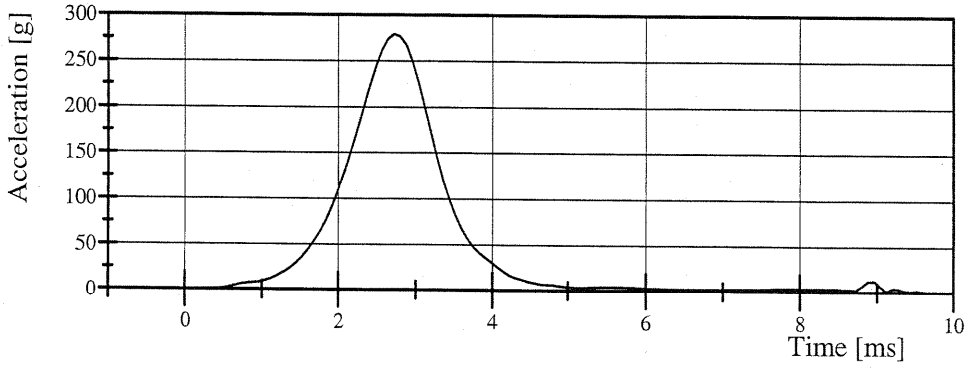

Filter Class: CFC_1000
Max: 8.1 g at 9.0 ms
Min: -2.3 g at 4.0 ms

Head Z-Axis Acceleration




Filter Class: CFC_1000
Max: 129.9 g at 2.7 ms
Min: -3.3 g at 8.2 ms

Head Resultant Acceleration




Filter Class: CFC_1000
Max: 279.4 g at 2.7 ms
Min: 0.0 g at -1.0 ms

Specification Source: CFR49 Part 572 Subpart O
with Polarity in accordance with J211

03.16.2006 10:21:20 231



060310

# Transportation Research Center Inc.

Front Thorax
HIII 5th Serial No. 416 Certification No. 36-1
Test Date: 03/16/2006

| Test Parameter | Specification | Test Results | Pass |
|---|---|---|---|
| Temperature | 20.6 - 22.2 °C | 21.2 °C | Yes |
| Relative Humidity | 10 - 70 % | 28 % | Yes |
| Probe Velocity | 6.59 - 6.83 m/s | 6.616 m/s | Yes |
| Probe Force Peak Between 50.0 mm and 58.0 mm Chest Deflection | (-3,900) - (-4,400) N | -4,157.6 N | Yes |
| Probe Force Peak Between 18.0 mm and 50.0 mm Chest Deflection | >= (-4,600) N | -3,977.6 N | Yes |
| Maximum Chest Compression | (-50) - (-58) mm | -55.9 mm | Yes |
| Internal Hysteresis | 69 - 85 % | 71.1 % | Yes |

**Test meets specifications.**

**Comments:**

Technician

Approved

Specification Source: CFR49 Part 572 Subpart O
with Polarity in accordance with J211

03.16.2006 14:49:31 426

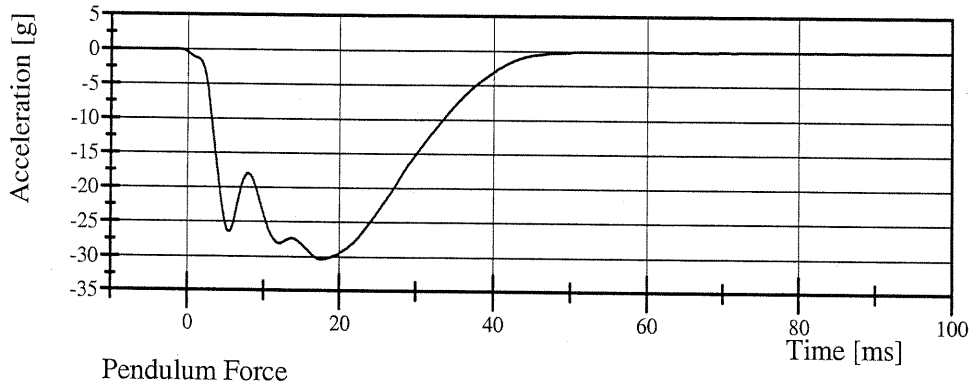


060310

# Transportation Research Center Inc.

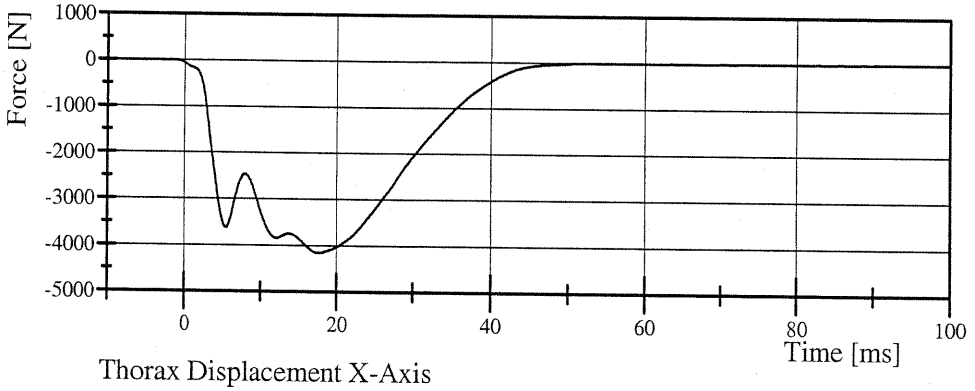
Front Thorax
HIII 5th Serial No. 416 Certification No. 36-1
Test Date: 03/16/2006

Pendulum Acceleration



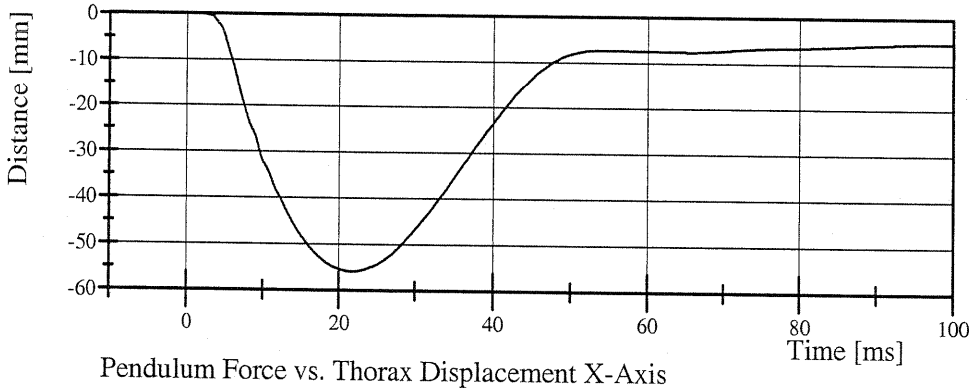

Filter Class: CFC_180
Max: 0.1 g at 95.6 ms
Min: -30.3 g at 17.6 ms

Pendulum Force



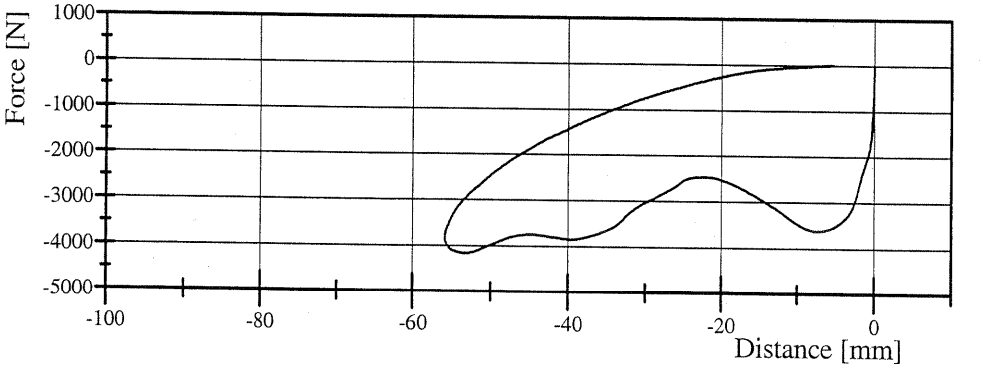

Filter Class: CFC_180
Max: 10.8 N at 95.6 ms
Min: -4,157.6 N at 17.6 ms

Thorax Displacement X-Axis




Filter Class: CFC_600
Max: 0.0 mm at -9.1 ms
Min: -55.9 mm at 21.8 ms

Pendulum Force vs. Thorax Displacement X-Axis




Filter Class: CFC_180
Max: 10.8 N at -5.4 mm
Min: -4,157.6 N at -53.1 mm

Specification Source: CFR49 Part 572 Subpart O
with Polarity in accordance with J211

03.16.2006 14:49:44 426



060310

**TRANSPORTATION RESEARCH CENTER INC.**

**TORSO FLEXION TEST**

**HYBRID III SMALL FEMALE**

**CAL DATE: 16-Mar-06**

**TRC, INC. TEST NO: 416C36TF1 572 O SN416 TORSO FLEX CAL 36**

| TEST PARAMETER | SPECIFICATION | TEST RESULTS |
|---|---|---|
| TEMPERATURE | 20.6 – 22.2° C | 21.6° C |
| RELATIVE HUMIDITY | 10 – 70 % | 28 % |
| INITIAL ANGLE OF UNSUPPORRTED DUMMY | <= 20° REFERENCED TO VERTICAL | 17.6° |
| MAXIMUM FORCE AT 45 DEG. DURING 10 SECOND PERIOD | 320 – 390 N | 325.7 N |
| RETURN ANGLE | | 24.6° |
| DIFFERENCE BETWEEN RETURN ANGLE & INTIAL ANGLE | +/- 8 ° OF INTIAL ANGLE | 7.0 ° |
| RATE | 0.5° - 1.5°/sec | 0.99 °/sec |

TEST MEETS SPECIFICATIONS

**Comments:**

TECHNICIAN

# Transportation Research Center Inc.

Left Knee Femur Response Test
HIII 5th Serial No. 416 Certification No. 36-2
Test Date: 03/16/2006

| Test Parameter | Specification | Test Results | Pass |
|---|---|---|---|
| Temperature | 18.9 - 25.6 °C | 21.4 °C | Yes |
| Relative Humidity | 10 - 70 % | 28 % | Yes |
| Probe Velocity | 2.08 - 2.13 m/s | 2.104 m/s | Yes |
| Peak Femur Force | (-3,450) - (-4,060) N | -3,736.0 N | Yes |

**Test meets specifications.**

**Comments:**

Technician

Approved

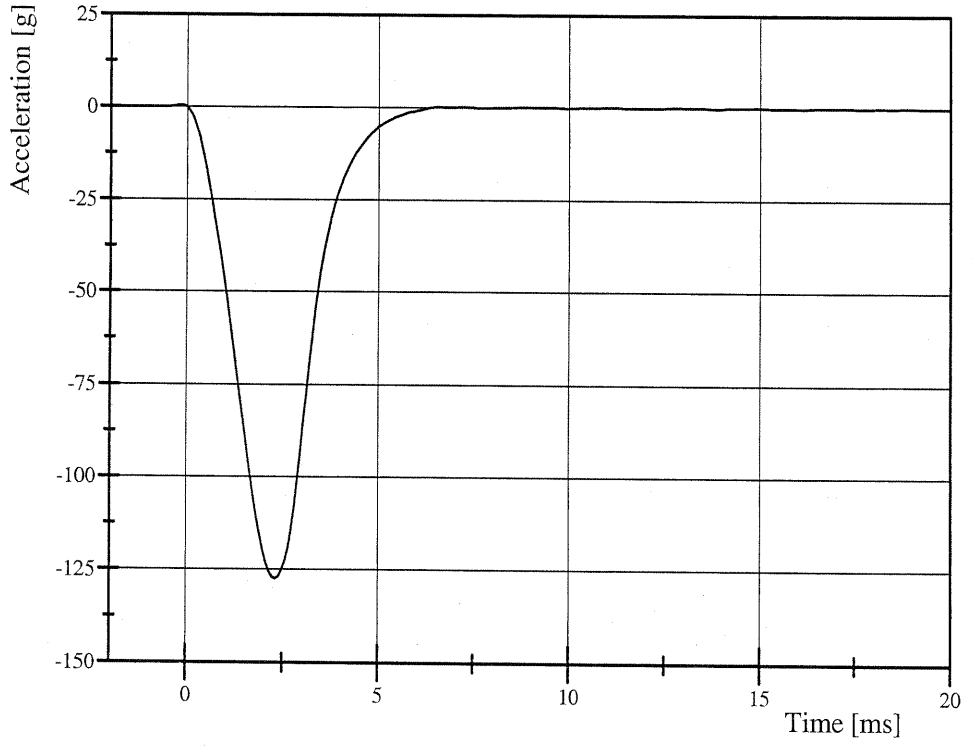
Specification Source: CFR49 Part 572 Subpart O
with Polarity in accordance with J211

03.16.2006 14:36:29 1662

# Transportation Research Center Inc.

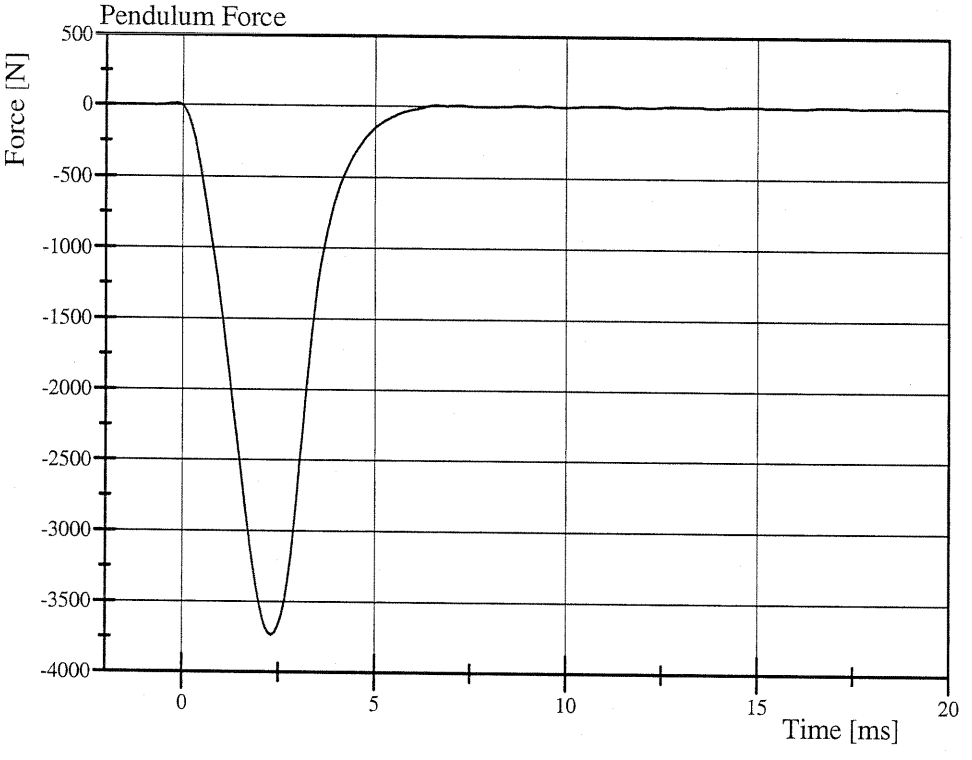
Left Knee Femur Response Test
HIII 5th Serial No. 416 Certification No. 36-2
Test Date: 03/16/2006

Pendulum Acceleration




Filter Class: CFC_600
Max: 0.4 g at -0.2 ms
Min: -127.4 g at 2.3 ms

Pendulum Force




Filter Class: CFC_600
Max: 10.6 N at -0.2 ms
Min: -3,736.0 N at 2.3 ms

Specification Source: CFR49 Part 572 Subpart O
with Polarity in accordance with J211

03.16.2006 14:36:43 1662



060310

# Transportation Research Center Inc.

Right Knee Femur Response Test
HIII 5th Serial No. 416 Certification No. 36-2
Test Date: 03/16/2006

| Test Parameter | Specification | Test Results | Pass |
|---|---|---|---|
| Temperature | 18.9 - 25.6 °C | 21.5 °C | Yes |
| Relative Humidity | 10 - 70 % | 28 % | Yes |
| Probe Velocity | 2.08 - 2.13 m/s | 2.123 m/s | Yes |
| Peak Femur Force | (-3,450) - (-4,060) N | -3,738.5 N | Yes |

**Test meets specifications.**

**Comments:**

Technician

Approved

Specification Source: CFR49 Part 572 Subpart O
with Polarity in accordance with J211

03.16.2006 14:43:15 1653

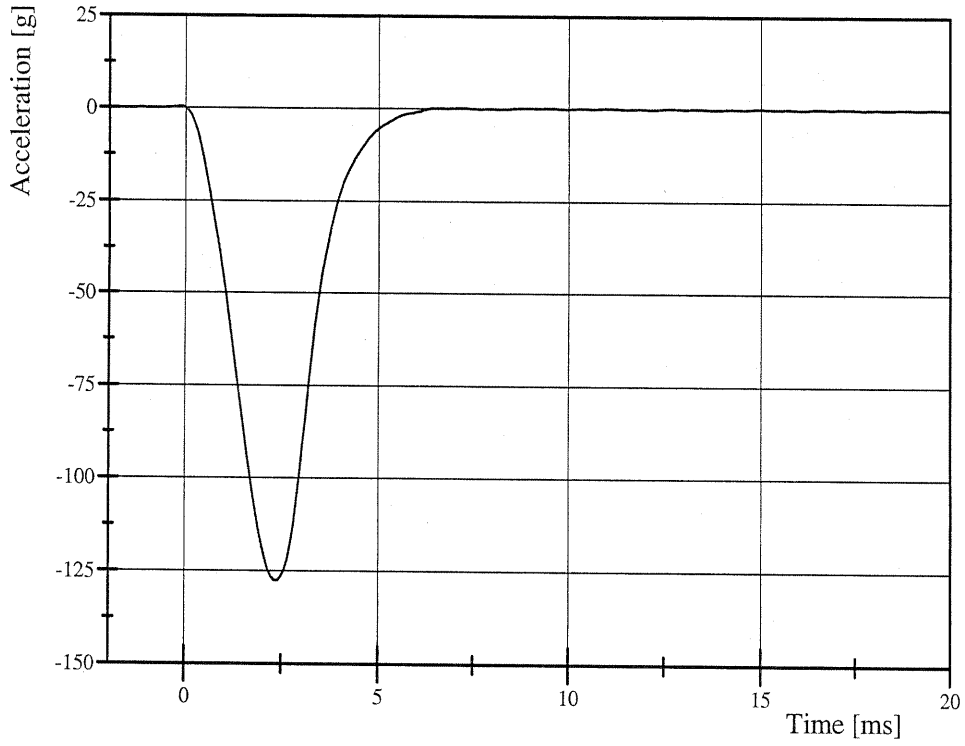


060310

# Transportation Research Center Inc.

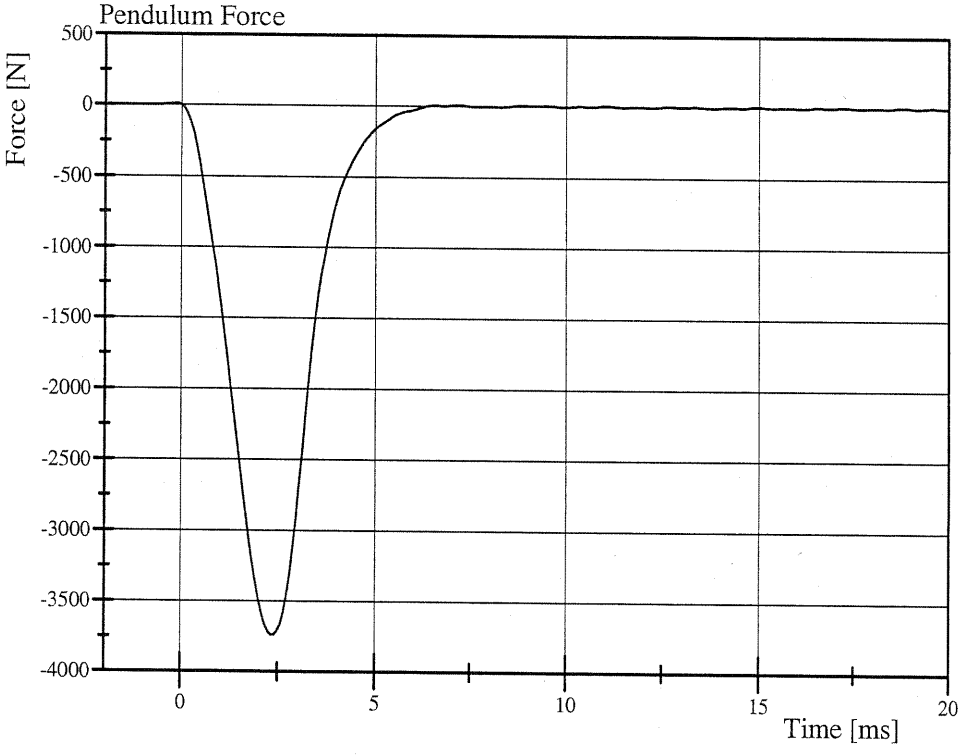
Right Knee Femur Response Test
HIII 5th Serial No. 416 Certification No. 36-2
Test Date: 03/16/2006

Pendulum Acceleration




Filter Class: CFC_600
Max: 0.3 g at -0.2 ms
Min: -127.5 g at 2.4 ms

Pendulum Force




Filter Class: CFC_600
Max: 8.8 N at -0.2 ms
Min: -3,738.5 N at 2.4 ms

Specification Source: CFR49 Part 572 Subpart O
with Polarity in accordance with J211

03.16.2006 14:43:39 1653



060310

# Transportation Research Center Inc.

Left Knee Slider
HIII 5th Serial No. 416 Certification No. 36-1
Test Date: 03/16/2006

| Test Parameter | Specification | Test Results | Pass |
|---|---|---|---|
| Temperature | 18.9 - 25.6 °C | 21.4 °C | Yes |
| Relative Humidity | 10 - 70 % | 28 % | Yes |
| Probe Velocity | 2.70 - 2.80 m/s | 2.748 m/s | Yes |
| Peak Deflection | (-12.7) - (-15.5) mm | -13.19 mm | Yes |

**Test meets specifications.**

**Comments:**

Technician

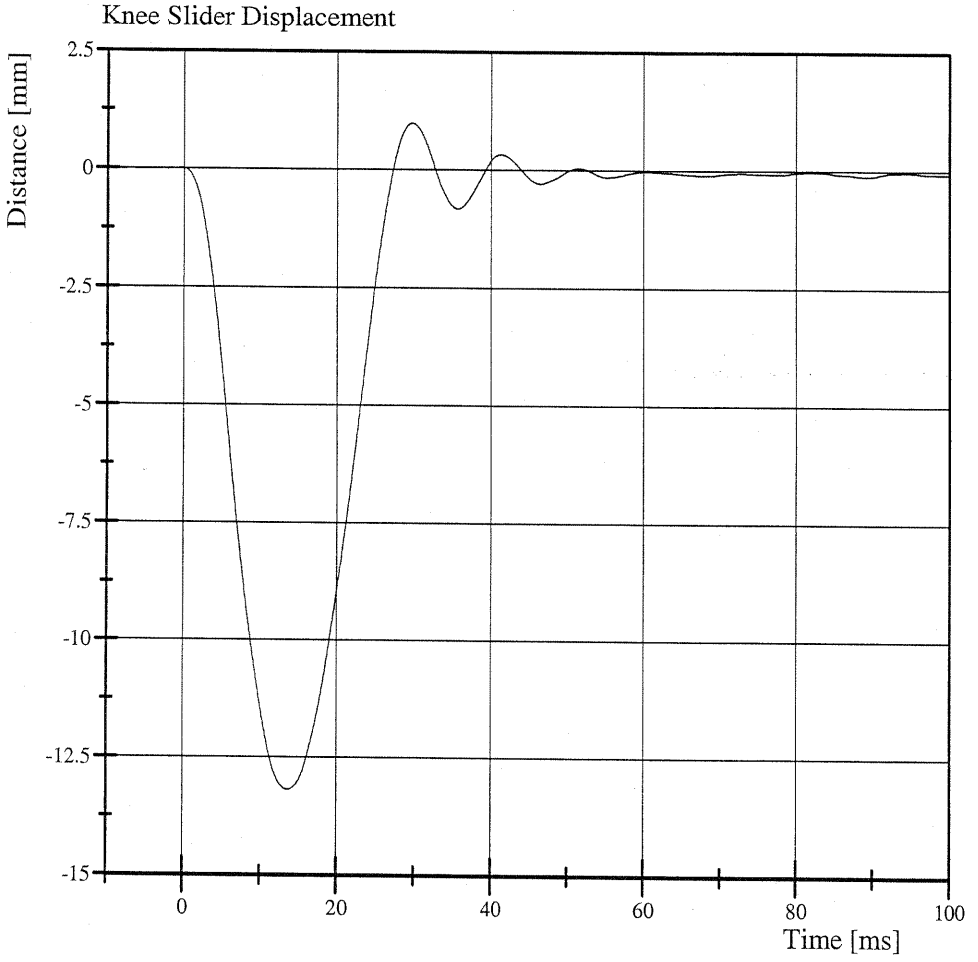
Approved

Specification Source: SAE Engineering Aide 25 with Polarity in Accordance with J211

03.16.2006 13:13:12 1629

# Transportation Research Center Inc.

Left Knee Slider
HIII 5th Serial No. 416 Certification No. 36-1
Test Date: 03/16/2006




Filter Class: CFC_180
Max: 1.0 mm at 29.8 ms
Min: -13.2 mm at 13.7 ms

Specification Source: SAE Engineering Aide 25 with Polarity in Accordance with J211

03.16.2006 13:13:21 1629



060310

# Transportation Research Center Inc.

Right Knee Slider
HIII 5th Serial No. 416 Certification No. 36-1
Test Date: 03/16/2006

| Test Parameter | Specification | Test Results | Pass |
|---|---|---|---|
| Temperature | 18.9 - 25.6 °C | 21.2 °C | Yes |
| Relative Humidity | 10 - 70 % | 28 % | Yes |
| Probe Velocity | 2.70 - 2.80 m/s | 2.748 m/s | Yes |
| Peak Deflection | (-12.7) - (-15.5) mm | -13.05 mm | Yes |

**Test meets specifications.**

**Comments:**

Technician

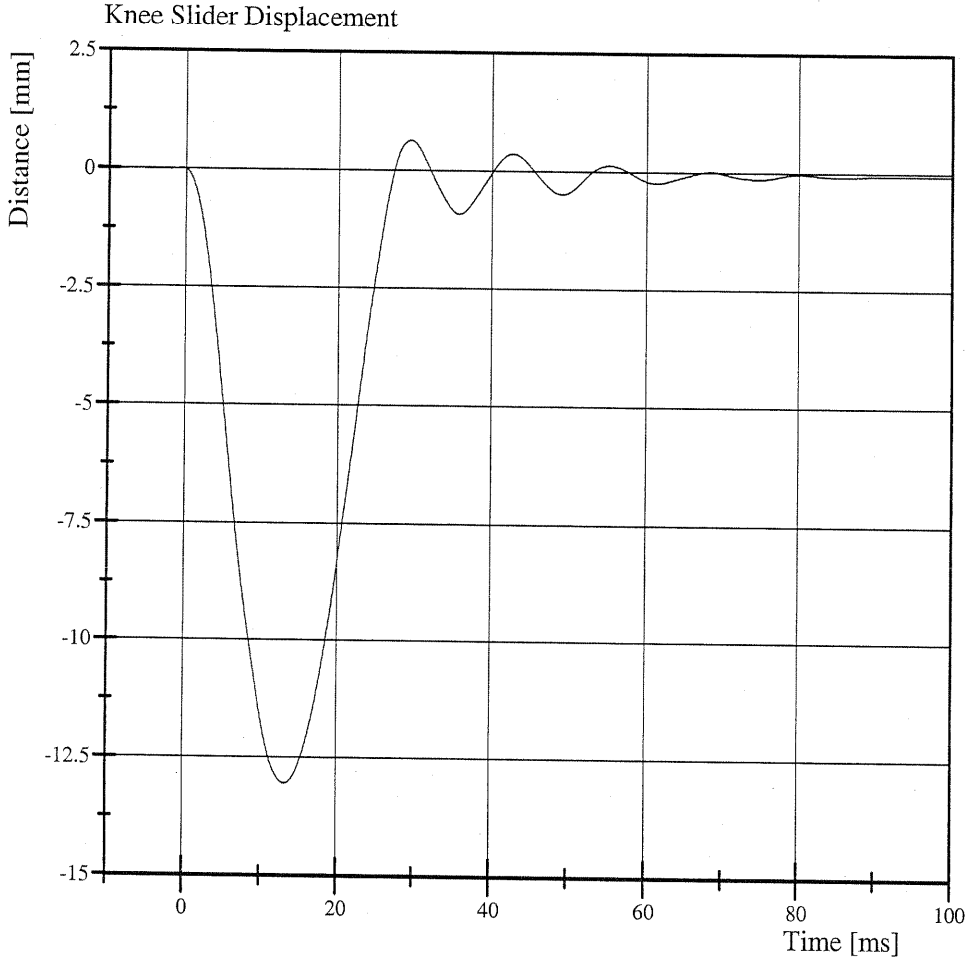
Approved

Specification Source: SAE Engineering Aide 25 with Polarity in Accordance with J211

03.16.2006 13:30:55 1631

# Transportation Research Center Inc.

Right Knee Slider
HIII 5th Serial No. 416 Certification No. 36-1
Test Date: 03/16/2006




Filter Class: CFC_180
Max: 0.6 mm at 29.4 ms
Min: -13.0 mm at 13.3 ms

Specification Source: SAE Engineering Aide 25 with Polarity in Accordance with J211

03.16.2006 13:31:08 1631

Pre-Test Dummy Configuration and Performance Verification Data

Bullet Vehicle Driver Dummy S/N: 090

# NHTSA/VRTC
# 572E HIII 50th Male Dummy
# External Dimensions
# Serial No. 090 w/ THOR-LX legs  Calibration No. 53

| Symbol | Description | Specification | Results | Pass |
|---|---|---|---|---|
| | | mm | mm | |
| A | Total Sitting Height | 878.8 - 889.0 | 882 | Yes |
| B | Shoulder Pivot Height | 505.5 - 520.7 | 508 | Yes |
| C | H-Point Height | 83.8 - 88.9 | 86 | Yes |
| D | H-Point From Seatback | 134.6 - 139.7 | 136 | Yes |
| E | Shoulder Pivot From Backline | 83.8 - 94.0 | 89 | Yes |
| F | Thigh Clearance | 139.7 - 154.9 | 151 | Yes |
| G | Back Of Elbow To Wrist Pivot | 289.6 - 304.8 | 294 | Yes |
| H | Skull Cap To Backline | 40.6 - 45.7 | 43 | Yes |
| I | Shoulder-Elbow Length | 330.2 - 345.4 | 341 | Yes |
| J | Elbow Rest Height | 190.5 - 210.8 | 204 | Yes |
| K | Buttock Knee Length | 579.1 - 604.5 | 600 | Yes |
| L | Popliteal Height | 429.3 - 454.7 | 445 | Yes |
| M | Knee Pivot Height | 485.1 - 500.4 | 495 | Yes |
| N | Buttock Popliteal Length | 452.1 - 477.5 | 467 | Yes |
| O | Chest Depth | 213.4 - 228.6 | 220 | Yes |
| P | Foot Length | 251.5 - 266.7 | 253 | Yes |
| V | Shoulder Breadth | 421.6 - 436.9 | 430 | Yes |
| W | Foot Breadth | 91.4 - 106.7 | 98 | Yes |
| Y | Chest Circumference | 970.3 - 1000.8 | 991 | Yes |
| Z | Waist Circumference | 835.7 - 866.1 | 855 | Yes |
| AA | Location For Chest Circumference | 429.3 - 434.3 | 432 | Yes |
| BB | Location For Waist Circumference | 226.1 - 231.1 | 229 | Yes |

Technician

Approved

# Transportation Research Center Inc.

Front Head Drop
HIII 50th Serial No. 090 Certification No. 53-1
Test Date: 02/23/2006

| Test Parameter | Specification | Test Results | Pass |
|---|---|---|---|
| Temperature | 18.9 - 25.5 °C | 21.2 °C | Yes |
| Relative Humidity | 10 - 70 % | 31 % | Yes |
| Peak Head Resultant Acceleration | 225 - 275 g | 240.3 g | Yes |
| Peak Head Lateral Acceleration | (-15) - 15 g | 2.2 g | Yes |
| Is Acceleration Curve Unimodal within 10% of Peak? | Yes | Yes | Yes |

**Test meets specifications.**

**Comments:**

Technician

Approved

Specification Source: CFR49 Part 572 Subpart E
with Polarity in accordance with J211

02.23.2006 13:18:19 614

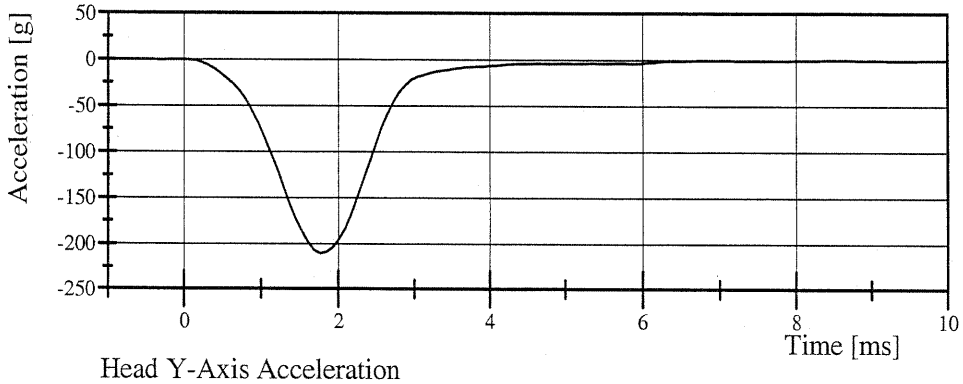
# Transportation Research Center Inc.

Front Head Drop

HIII 50th Serial No. 090 Certification No. 53-1

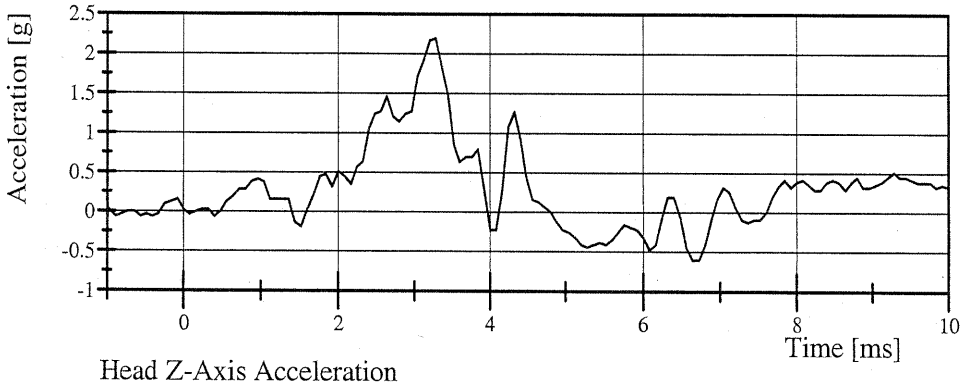
Test Date: 02/23/2006

Head X-Axis Acceleration



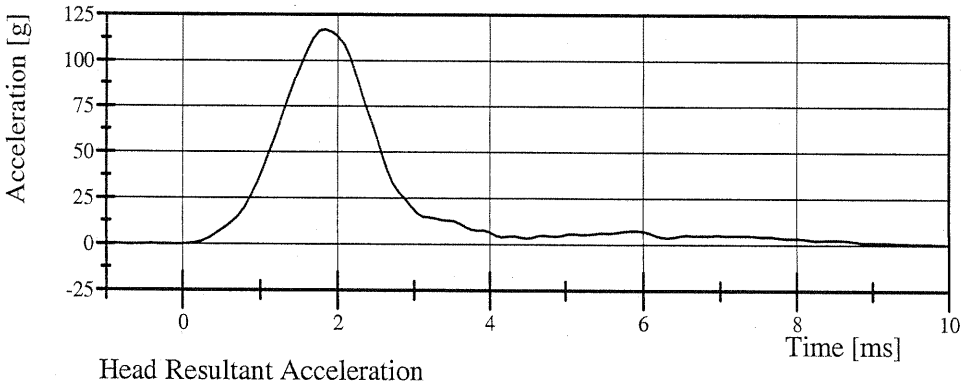

Filter Class: CFC_1000
Max: 0.2 g at -0.6 ms
Min: -210.2 g at 1.8 ms

Head Y-Axis Acceleration



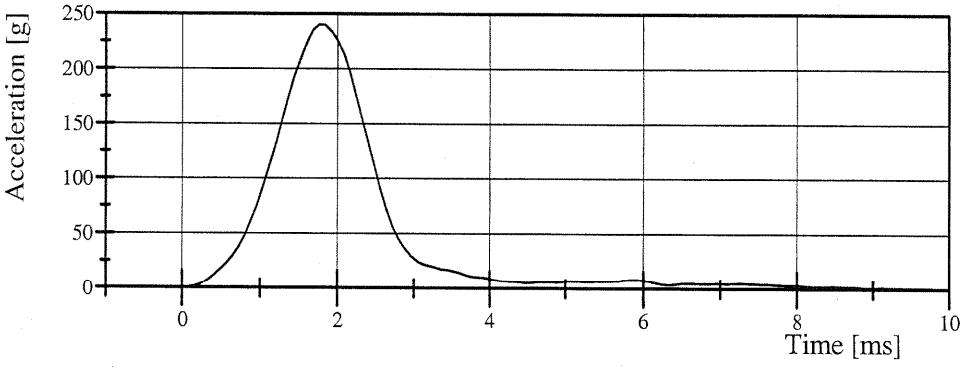

Filter Class: CFC_1000
Max: 2.2 g at 3.3 ms
Min: -0.6 g at 6.6 ms

Head Z-Axis Acceleration




Filter Class: CFC_1000
Max: 117.0 g at 1.8 ms
Min: -0.2 g at -0.7 ms

Head Resultant Acceleration




Filter Class: CFC_1000
Max: 240.3 g at 1.8 ms
Min: 0.1 g at -0.8 ms

Specification Source: CFR49 Part 572 Subpart E
with Polarity in accordance with J211

02.23.2006 13:18:36 614

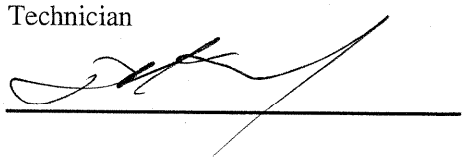
# Transportation Research Center Inc.

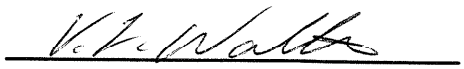
Neck Flexion
HIII 50th Serial No. 090 Certification No. 53-1
Test Date: 02/23/2006

| Test Parameter | Specification | Test Results | Pass |
|---|---|---|---|
| Temperature | 20.6 - 22.2 °C | 21.0 °C | Yes |
| Relative Humidity | 10 - 70 % | 30 % | Yes |
| Pendulum Velocity | 6.89 - 7.13 m/s | 6.927 m/s | Yes |
| Pendulum Acceleration Decay Crossing -5g | 34 - 42 ms | 37.2 ms | Yes |
| Pendulum Acceleration at 10ms | (-22.5) - (-27.5) g | -23.10 g | Yes |
| Pendulum Acceleration at 20ms | (-17.6) - (-22.6) g | -21.88 g | Yes |
| Pendulum Acceleration at 30ms | (-12.5) - (-18.5) g | -17.70 g | Yes |
| Pendulum Acceleration > 30ms | >= (-29.0) g | -17.70 g | Yes |
| Total Head D-Plane Rotation Peak | (-64) - (-78) ° | -71.7 ° | Yes |
| Total Head D-Plane Rotation Time of Peak | 57 - 64 ms | 59.4 ms | Yes |
| Total Head D-Plane Rotation Decay to 0° | 113 - 128 ms | 118.5 ms | Yes |
| Total Neck Occipital Condyles Moment Peak | 88 - 108 N·m | 101.5 N·m | Yes |
| Total Neck Occipital Condyles Moment Time of Peak | 47 - 58 ms | 49.2 ms | Yes |
| Total Neck Occipital Condyles Moment Decay to 0 N·m | 97 - 107 ms | 101.2 ms | Yes |

**Test meets specifications.**

**Comments:**

Technician 

Approved 

Specification Source: CFR49 Part 572 Subpart E with Polarity in accordance with J211

02.23.2006 15:01:52 1104



060310

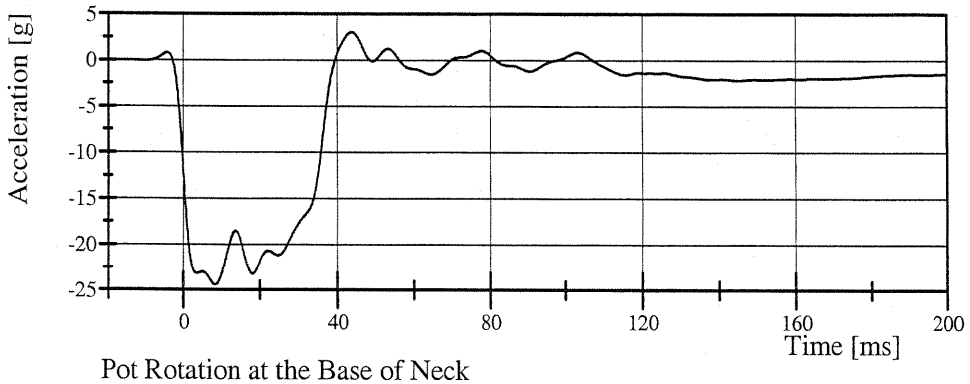
# Transportation Research Center Inc.

Neck Flexion

HIII 50th Serial No. 090 Certification No. 53-1

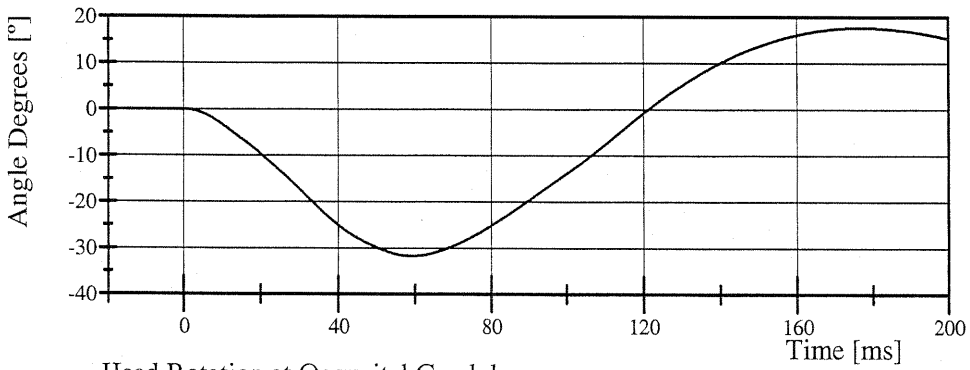
Test Date: 02/23/2006

Pendulum Acceleration



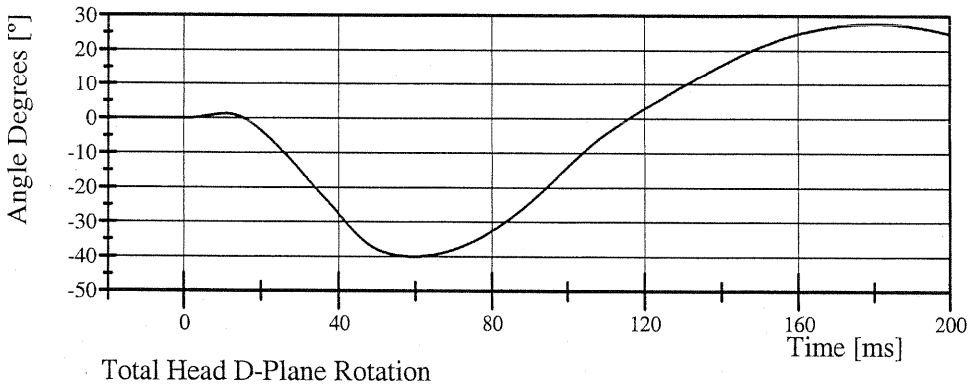

Filter Class: CFC_60
Max: 3.0 g at 43.8 ms
Min: -24.4 g at 8.2 ms

Pot Rotation at the Base of Neck



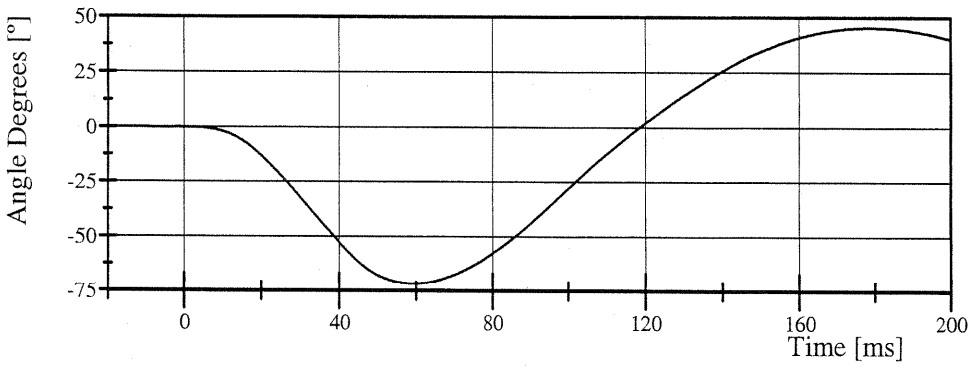

Filter Class: CFC_60
Max: 17.7 ° at 176.9 ms
Min: -31.7 ° at 59.3 ms

Head Rotation at Occypital Condyles




Filter Class: CFC_60
Max: 27.7 ° at 180.4 ms
Min: -40.0 ° at 59.6 ms

Total Head D-Plane Rotation




Filter Class: CFC_60
Max: 45.4 ° at 178.7 ms
Min: -71.7 ° at 59.4 ms

Specification Source: CFR49 Part 572 Subpart E
with Polarity in accordance with J211

02.23.2006 15:02:13 1104

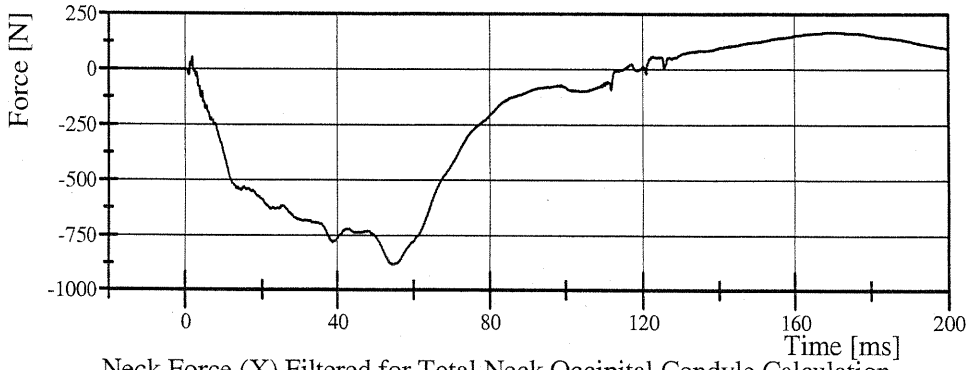
# Transportation Research Center Inc.

Neck Flexion

HIII 50th Serial No. 090 Certification No. 53-1

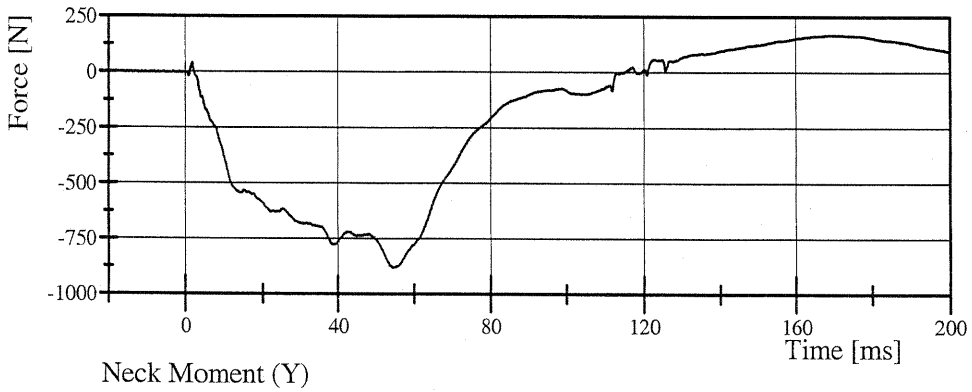
Test Date: 02/23/2006

Neck Force (X)



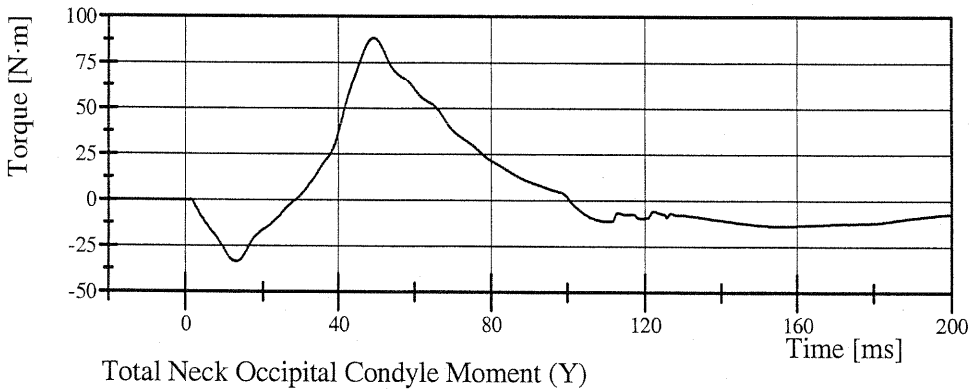

Filter Class: CFC_1000
Max: 169.6 N at 172.2 ms
Min: -879.2 N at 54.4 ms

Neck Force (X) Filtered for Total Neck Occipital Condyle Calculation



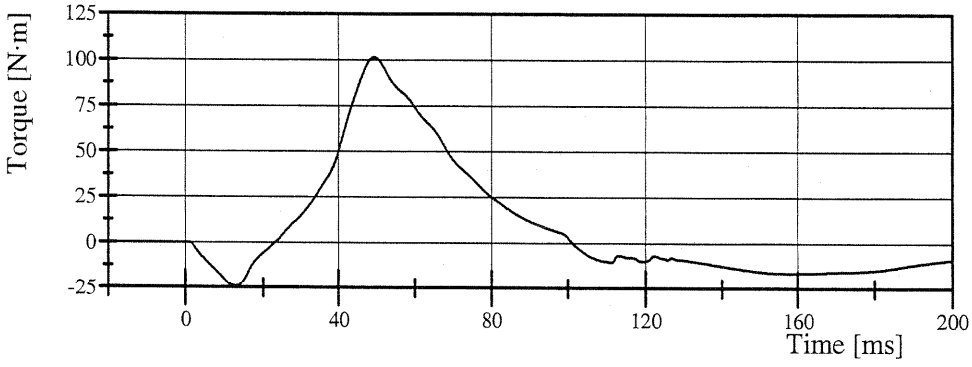

Filter Class: CFC_600
Max: 169.0 N at 170.6 ms
Min: -879.0 N at 54.5 ms

Neck Moment (Y)




Filter Class: CFC_600
Max: 88.4 N·m at 49.1 ms
Min: -33.6 N·m at 13.3 ms

Total Neck Occipital Condyle Moment (Y)




Filter Class: CFC_600
Max: 101.5 N·m at 49.2 ms
Min: -24.2 N·m at 12.9 ms

Specification Source: CFR49 Part 572 Subpart E
with Polarity in accordance with J211

02.23.2006 15:02:15 1104

# Transportation Research Center Inc.

Neck Extension
HIII 50th Serial No. 090 Certification No. 53-1
Test Date: 02/23/2006

| Test Parameter | Specification | Test Results | Pass |
|---|---|---|---|
| Temperature | 20.6 - 22.2 °C | 21.2 °C | Yes |
| Relative Humidity | 10 - 70 % | 30 % | Yes |
| Pendulum Velocity | (-5.95) - (-6.18) m/s | -5.989 m/s | Yes |
| Pendulum Acceleration Decay Crossing 5g | 38 - 46 ms | 45.5 ms | Yes |
| Pendulum Acceleration at 10ms | 17.2 - 21.2 g | 17.96 g | Yes |
| Pendulum Acceleration at 20ms | 14.0 - 19.0 g | 15.71 g | Yes |
| Pendulum Acceleration at 30ms | 11.0 - 16.0 g | 12.94 g | Yes |
| Pendulum Acceleration > 30ms | <= 22.0 g | 12.94 g | Yes |
| Total Head D-Plane Rotation | | | |
| Peak | 81 - 106 ° | 95.0 ° | Yes |
| Time of Peak | 72 - 82 ms | 79.8 ms | Yes |
| Total Head D-Plane Rotation Decay to 0° | 147 - 174 ms | 164.1 ms | Yes |
| Total Neck Occipital Condyles Moment | | | |
| Peak | (-53) - (-80) N·m | -61.0 N·m | Yes |
| Time of Peak | 65 - 79 ms | 74.8 ms | Yes |
| Total Neck Occipital Condyles Moment Decay to 0 N·m | 120 - 148 ms | 146.6 ms | Yes |

**Test meets specifications.**

**Comments:**

Technician

Approved

Specification Source: CFR49 Part 572 Subpart E
with Polarity in accordance with J211

02.23.2006 15:32:33 1184

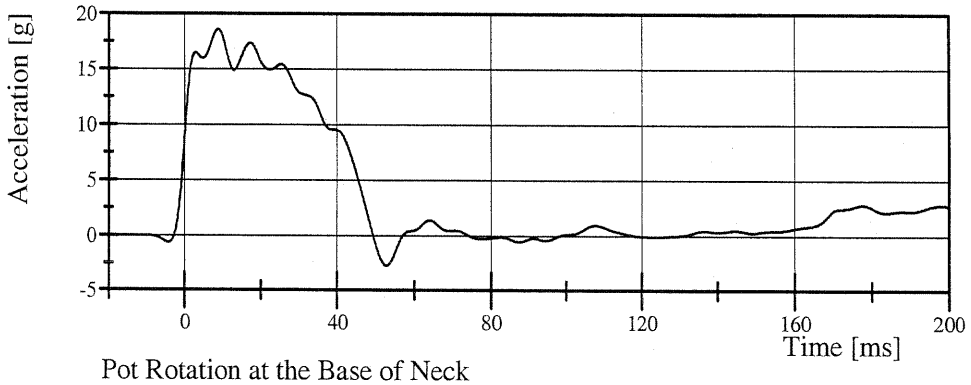
# Transportation Research Center Inc.

Neck Extension

HIII 50th Serial No. 090 Certification No. 53-1

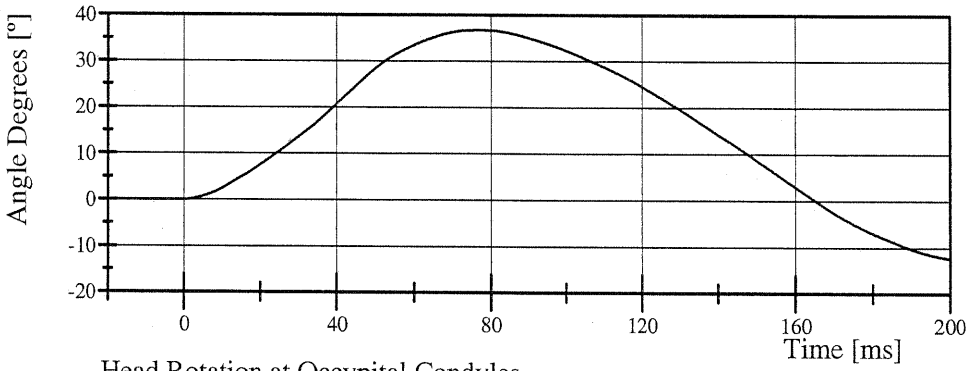
Test Date: 02/23/2006

Pendulum Acceleration



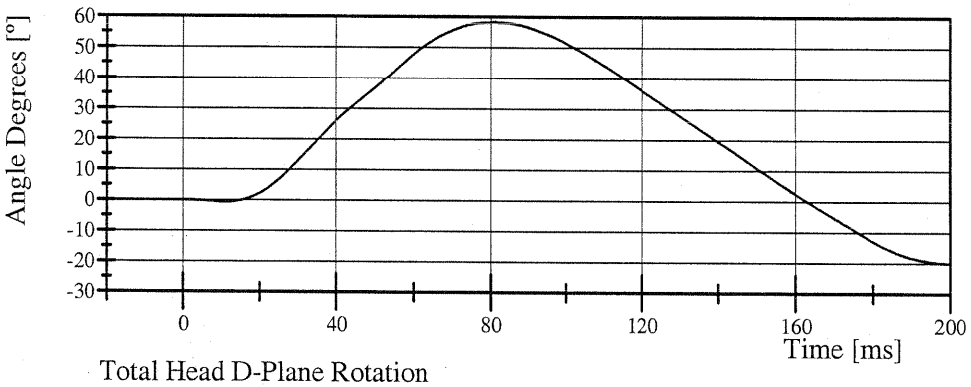

Filter Class: CFC_60
Max: 18.6 g at 8.8 ms
Min: -2.7 g at 52.8 ms

Pot Rotation at the Base of Neck



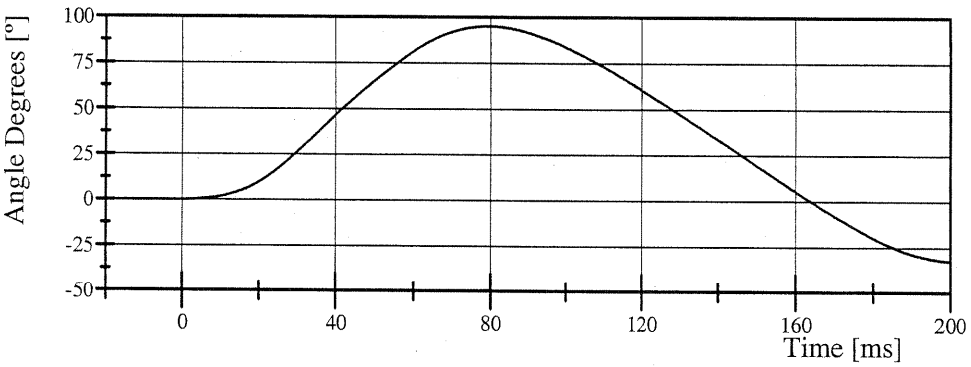

Filter Class: CFC_60
Max: 36.8 ° at 77.1 ms
Min: -12.3 ° at 200.0 ms

Head Rotation at Occypital Condyles




Filter Class: CFC_60
Max: 58.3 ° at 81.0 ms
Min: -20.1 ° at 200.0 ms

Total Head D-Plane Rotation




Filter Class: CFC_60
Max: 95.0 ° at 79.8 ms
Min: -32.4 ° at 200.0 ms

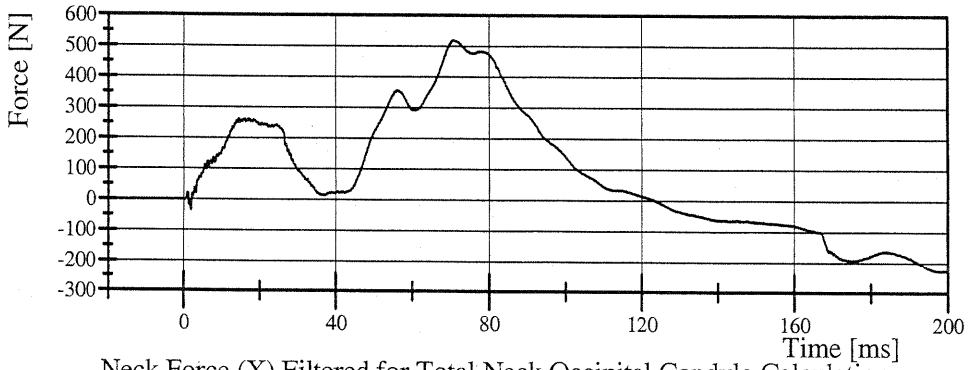
# Transportation Research Center Inc.

Neck Extension

HIII 50th Serial No. 090 Certification No. 53-1

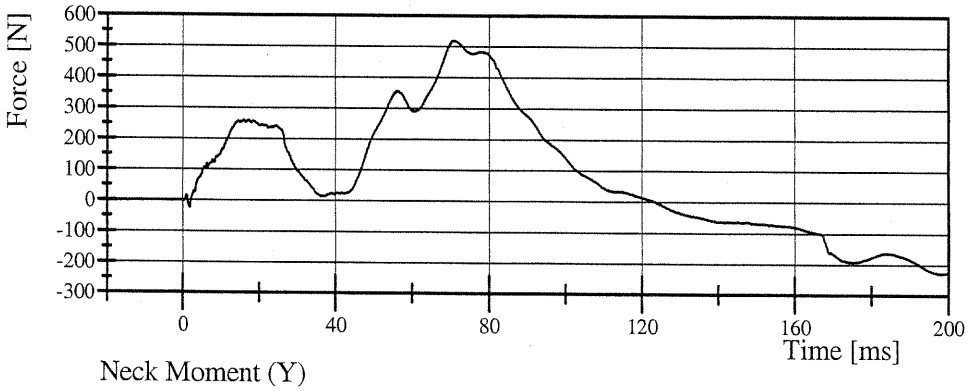
Test Date: 02/23/2006

Neck Force (X)



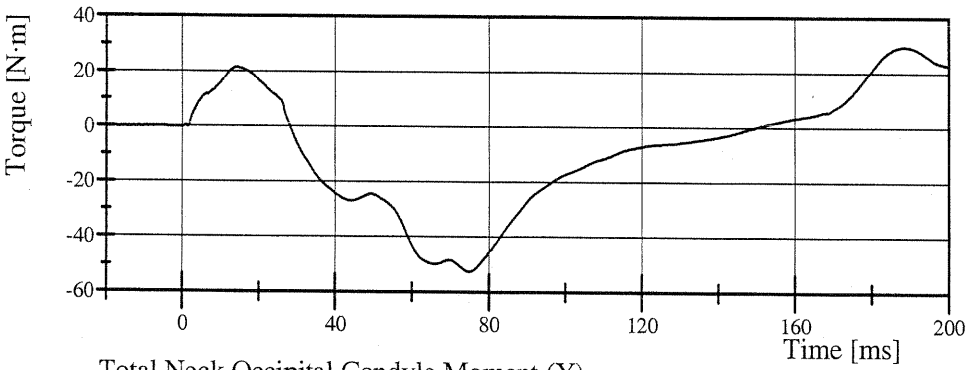

Filter Class: CFC_1000
Max: 519.0 N at 71.1 ms
Min: -228.9 N at 198.2 ms

Neck Force (X) Filtered for Total Neck Occipital Condyle Calculation



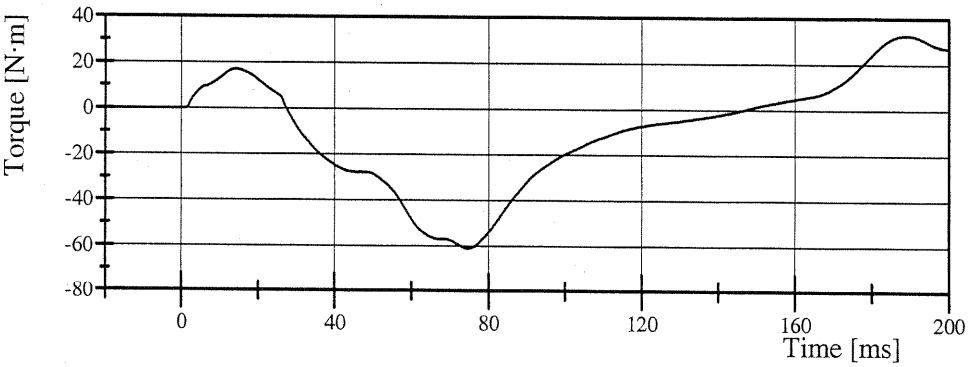

Filter Class: CFC_600
Max: 518.6 N at 71.0 ms
Min: -228.5 N at 198.3 ms

Neck Moment (Y)




Filter Class: CFC_600
Max: 29.6 N·m at 188.2 ms
Min: -52.5 N·m at 75.0 ms

Total Neck Occipital Condyle Moment (Y)




Filter Class: CFC_600
Max: 32.7 N·m at 189.2 ms
Min: -61.0 N·m at 74.8 ms

Specification Source: CFR49 Part 572 Subpart E
with Polarity in accordance with J211

02.23.2006 15:32:55 1184



060310

# Transportation Research Center Inc.

Front Thorax
HIII 50th Serial No. 090 Certification No. 53-1
Test Date: 02/23/2006

| Test Parameter | Specification | Test Results | Pass |
|---|---|---|---|
| Temperature | 20.6 - 22.2 °C | 21.0 °C | Yes |
| Relative Humidity | 10 - 70 % | 32 % | Yes |
| Probe Velocity | 6.59 - 6.83 m/s | 6.622 m/s | Yes |
| Probe Force Peak | (-5,160) - (-5,893) N | -5,850.1 N | Yes |
| Maximum Chest Compression | (-63.5) - (-72.6) mm | -69.35 mm | Yes |
| Internal Hysteresis | 65 - 85 % | 74.2 % | Yes |

**Test meets specifications.**

**Comments:**

Technician

Approved

Specification Source: CFR49 Part 572 Subpart P
with Polarity in accordance with J211

02.23.2006 11:34:16 1558

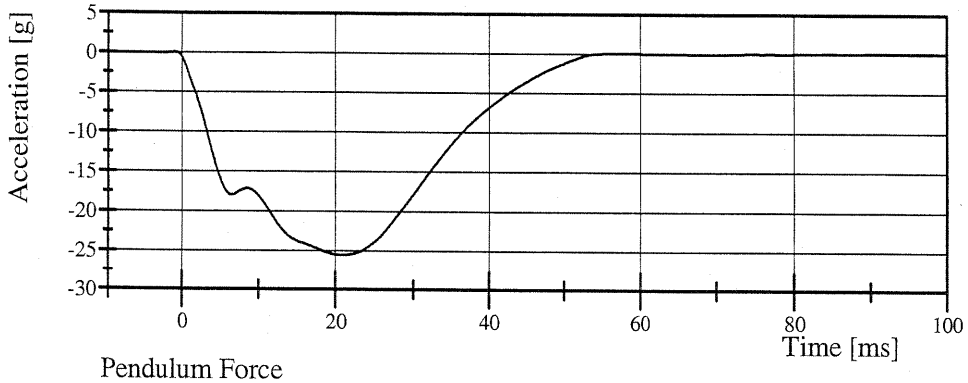


060310

# Transportation Research Center Inc.

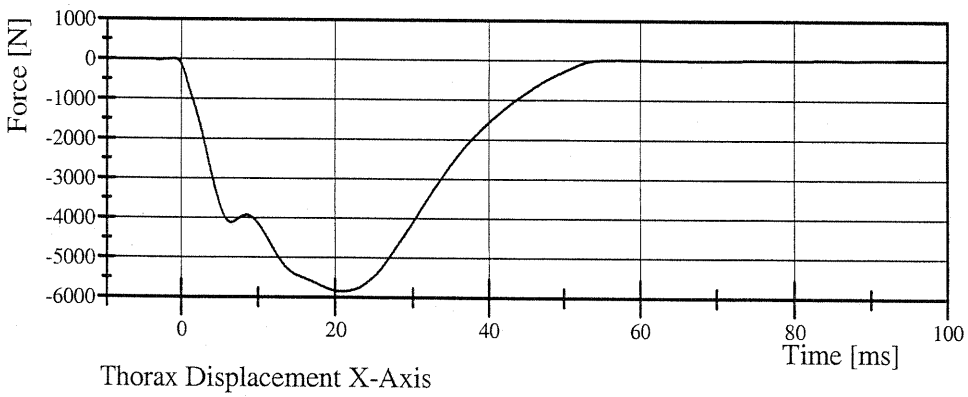
Front Thorax
HIII 50th Serial No. 090 Certification No. 53-1
Test Date: 02/23/2006

Pendulum Acceleration



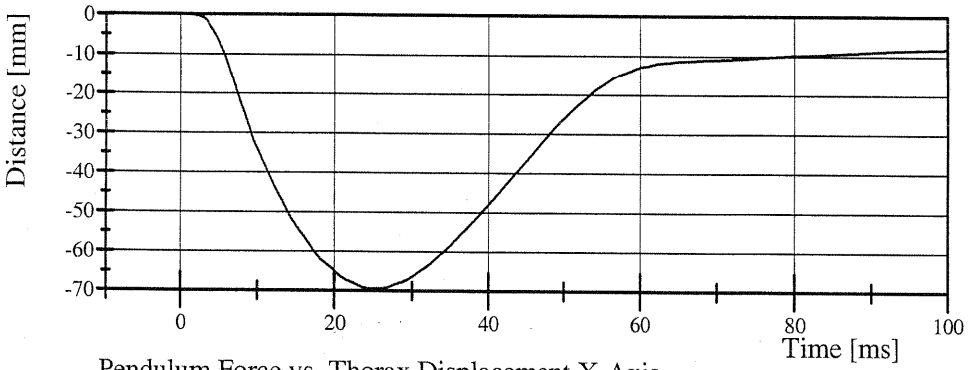

Filter Class: CFC_180
Max: 0.1 g at 94.0 ms
Min: -25.5 g at 20.9 ms

Pendulum Force



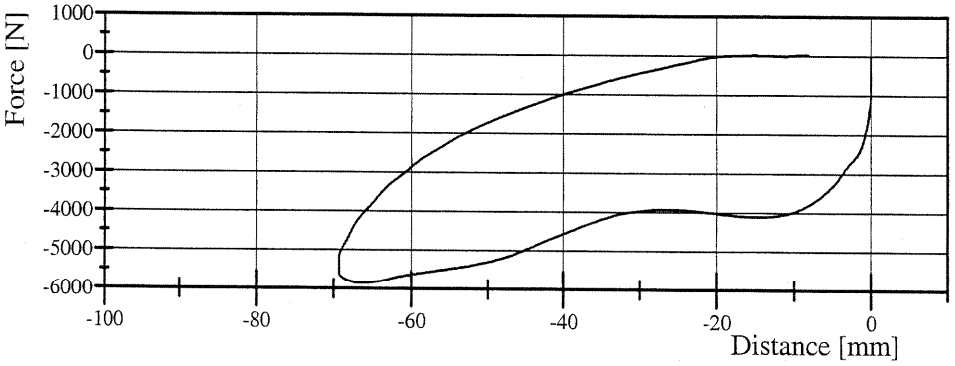

Filter Class: CFC_180
Max: 32.0 N at 94.0 ms
Min: -5,850.1 N at 20.9 ms

Thorax Displacement X-Axis




Filter Class: CFC_600
Max: 0.0 mm at -6.8 ms
Min: -69.3 mm at 24.5 ms

Pendulum Force vs. Thorax Displacement X-Axis




Filter Class: CFC_180
Max: 32.0 N at -8.5 mm
Min: -5,850.1 N at -66.5 mm

Specification Source: CFR49 Part 572 Subpart P
with Polarity in accordance with J211

02.23.2006 11:34:33 1558



060310

# Applied Safety Technologies Corp.

Hybrid III Hip Range of Motion

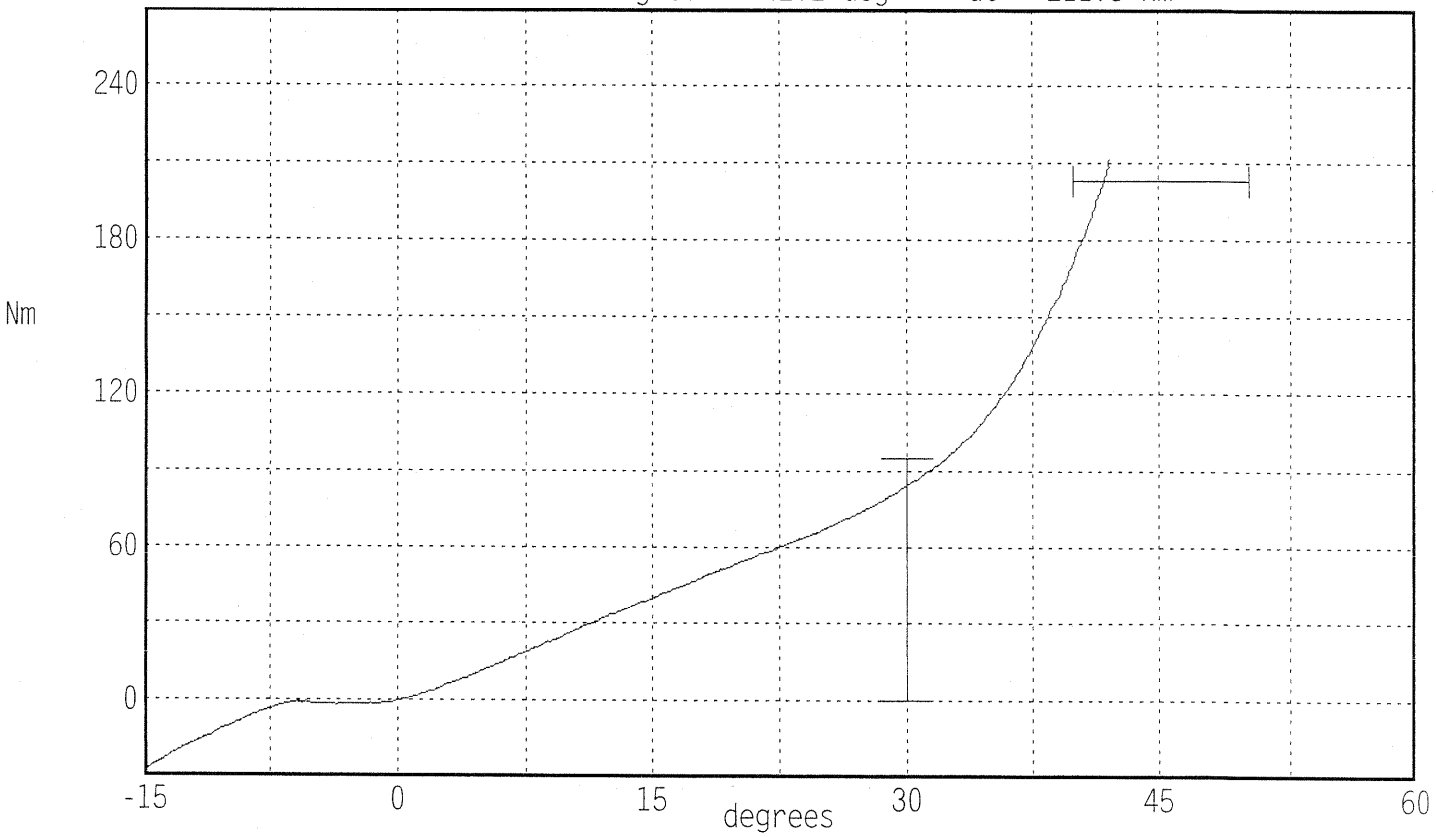
Serial Number: 090L
Test Number: 090C54
Comments:

Date: 02/23/2006
Time: 14:32

| TEST PARAMETER | SPECIFICATION | TEST RESULTS | |
|---|---|---|---|
| Temperature | 18.9 - 25.6 | 21.2 °C | Pass |
| Humidity | 10 - 70 | 31 % | Pass |
| Moment at 30 deg | <= 94.9 | 84.4 Nm | Pass |
| Angle at 203 Nm | 40.0 - 50.0 | 41.8 deg | Pass |
| Average Velocity | 5.0 - 10.0 | 7.5 deg/sec | Pass |

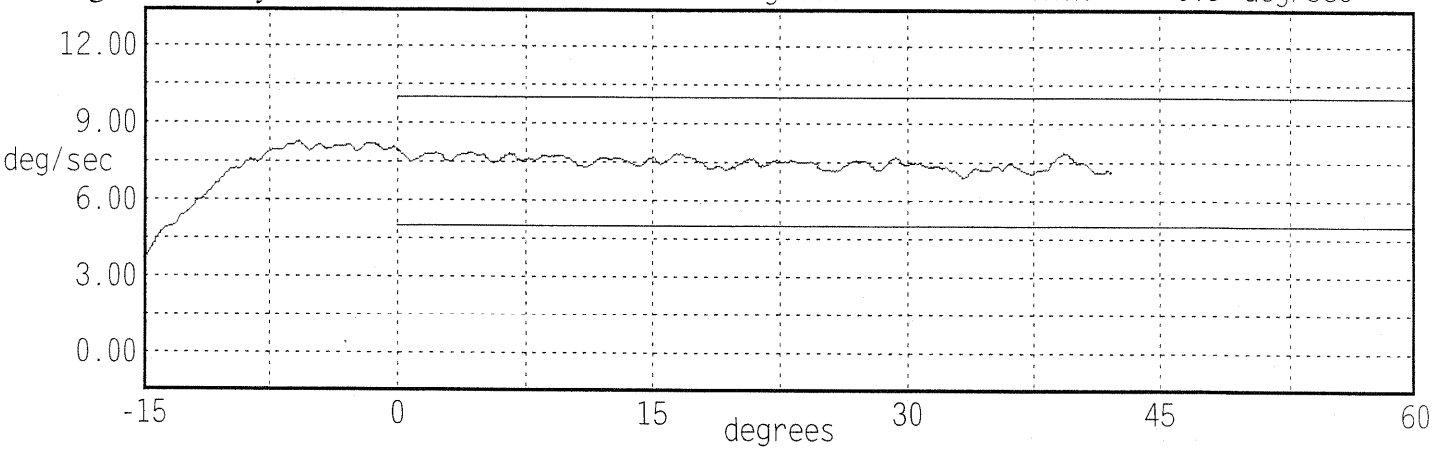
Moment About H-Point

Peak Moment: 211.3 Nm at 42.2 deg
Peak Angle: 42.2 deg at 211.3 Nm




Angular Velocity

Max: 8.0 deg/sec Min: 6.9 deg/sec



# Applied Safety Technologies Corp.

Hybrid III Hip Range of Motion

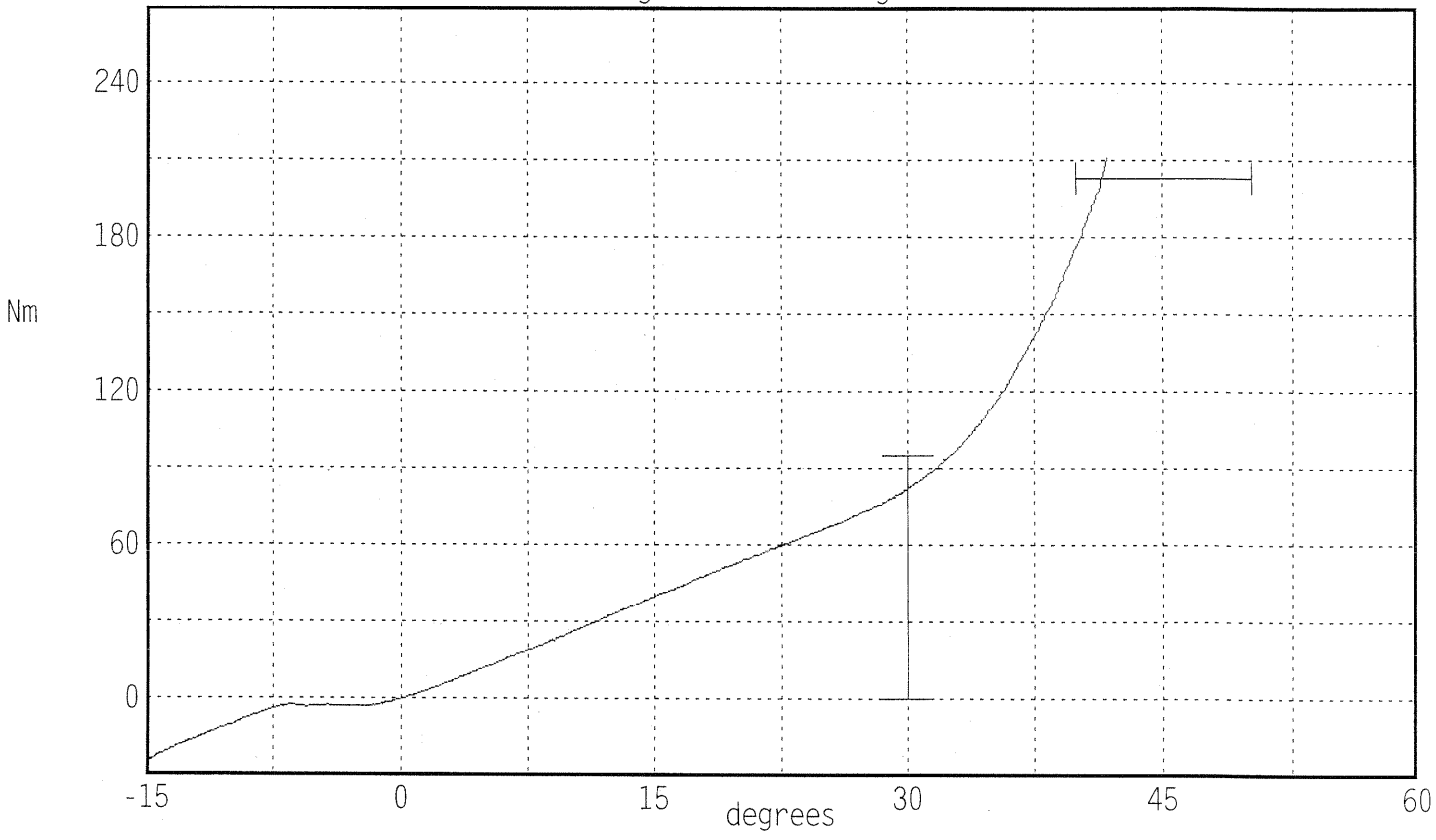
Serial Number: 090R
Test Number: 090C54
Comments:

Date: 02/23/2006
Time: 14:28

| TEST PARAMETER | SPECIFICATION | TEST RESULTS | |
|---|---|---|---|
| Temperature | 18.9 - 25.6 | 21.2 °C | Pass |
| Humidity | 10 - 70 | 31 % | Pass |
| Moment at 30 deg | <= 94.9 | 82.2 Nm | Pass |
| Angle at 203 Nm | 40.0 - 50.0 | 41.5 deg | Pass |
| Average Velocity | 5.0 - 10.0 | 7.4 deg/sec | Pass |

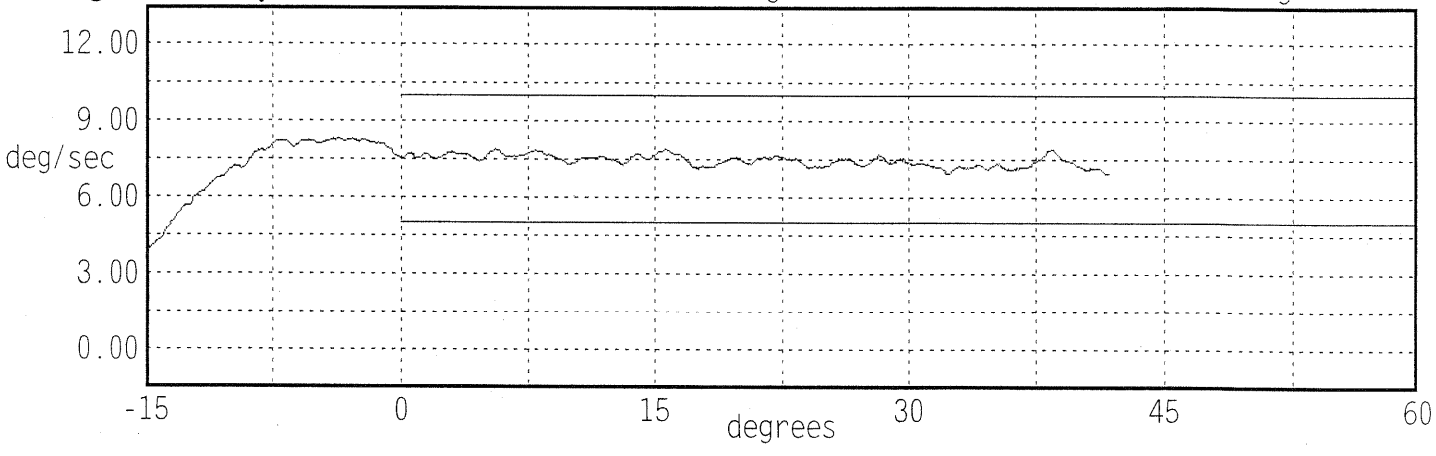
Moment About H-Point

Peak Moment: 210.8 Nm at 41.8 deg
Peak Angle: 41.8 deg at 210.8 Nm




Angular Velocity

Max: 7.9 deg/sec Min: 6.9 deg/sec



# Transportation Research Center Inc.

Left Knee Femur Response Test
HIII 50th Serial No. LX103104 Certification No. 2-1
Test Date: 02/16/2006

| Test Parameter | Specification | Test Results | Pass |
|---|---|---|---|
| Temperature | 18.9 - 25.5 °C | 20.9 °C | Yes |
| Relative Humidity | 10 - 70 % | 45 % | Yes |
| Probe Velocity | 2.08 - 2.13 m/s | 2.100 m/s | Yes |
| Peak Femur Force | (-4,715.2) - (-5,782.6) N | -5,255.08 N | Yes |

**Test meets specifications.**

**Comments:**

Technician

Approved

Specification Source: CFR49 Part 572 Subpart E
with Polarity in accordance with J211

02.16.2006 15:03:48 1587

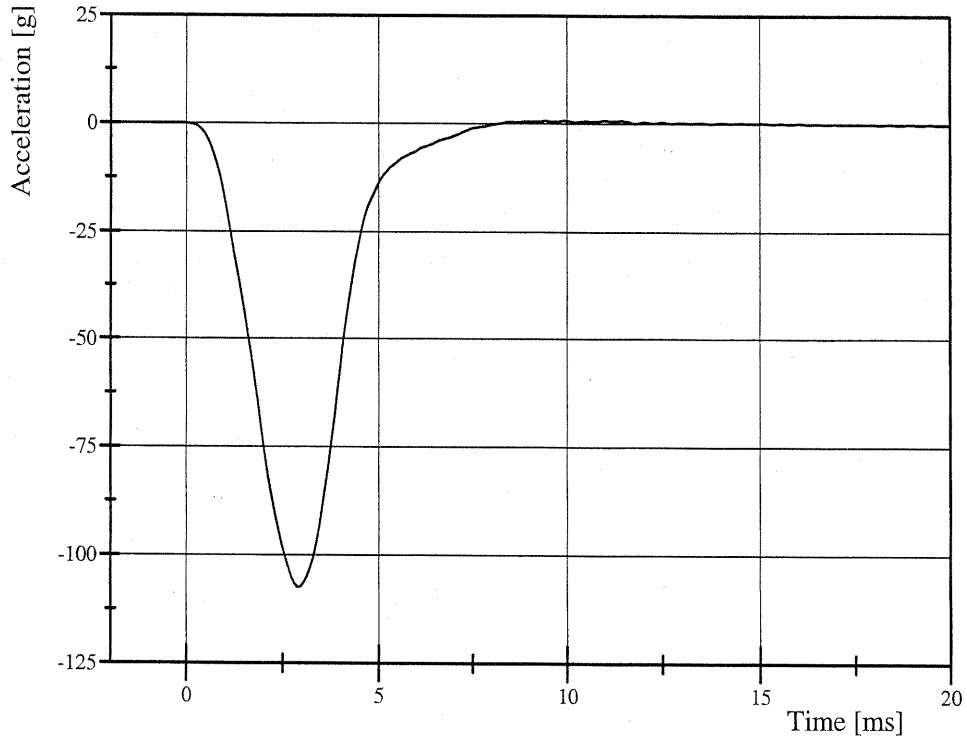


060310

# Transportation Research Center Inc.

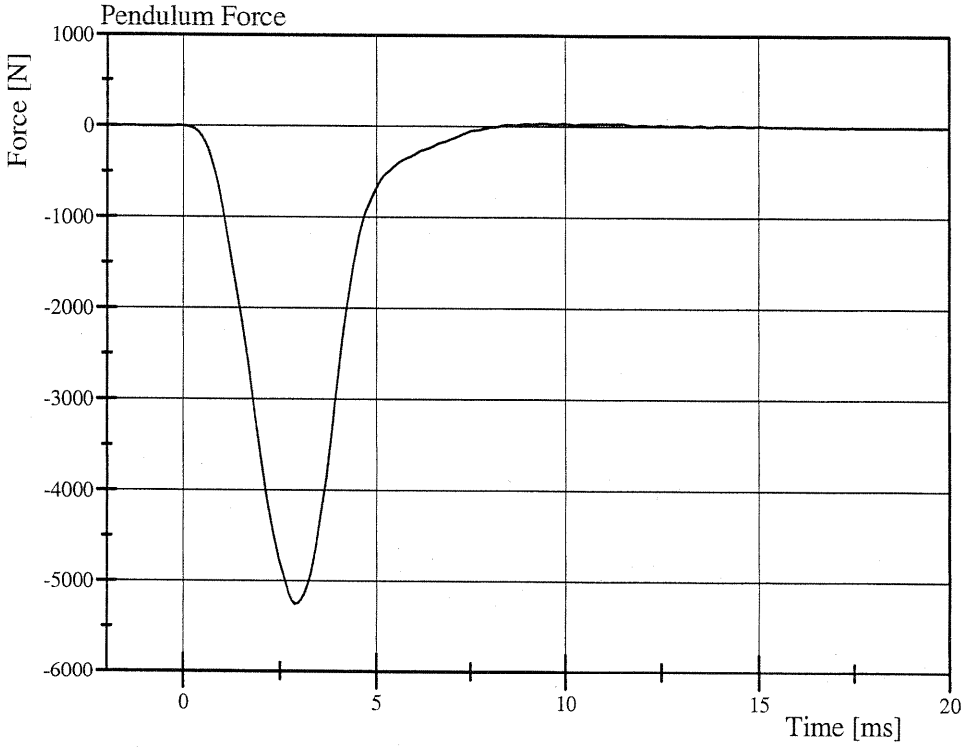
Left Knee Femur Response Test
HIII 50th Serial No. LX103104 Certification No. 2-1
Test Date: 02/16/2006

Pendulum Acceleration




Filter Class: CFC_600
Max: 0.7 g at 10.0 ms
Min: -107.4 g at 2.9 ms

Pendulum Force




Filter Class: CFC_600
Max: 34.1 N at 10.0 ms
Min: -5,255.1 N at 2.9 ms

Specification Source: CFR49 Part 572 Subpart E
with Polarity in accordance with J211

02.16.2006 15:04:01 1587



060310

# Transportation Research Center Inc.

Right Knee Femur Response Test
HIII 50th Serial No. LX103104 Certification No. 2-4
Test Date: 02/17/2006

| Test Parameter | Specification | Test Results | Pass |
|---|---|---|---|
| Temperature | 18.9 - 25.5 °C | 20.9 °C | Yes |
| Relative Humidity | 10 - 70 % | 28 % | Yes |
| Probe Velocity | 2.08 - 2.13 m/s | 2.091 m/s | Yes |
| Peak Femur Force | (-4,715.2) - (-5,782.6) N | -5,736.09 N | Yes |

**Test meets specifications.**

**Comments:**

Technician

Approved

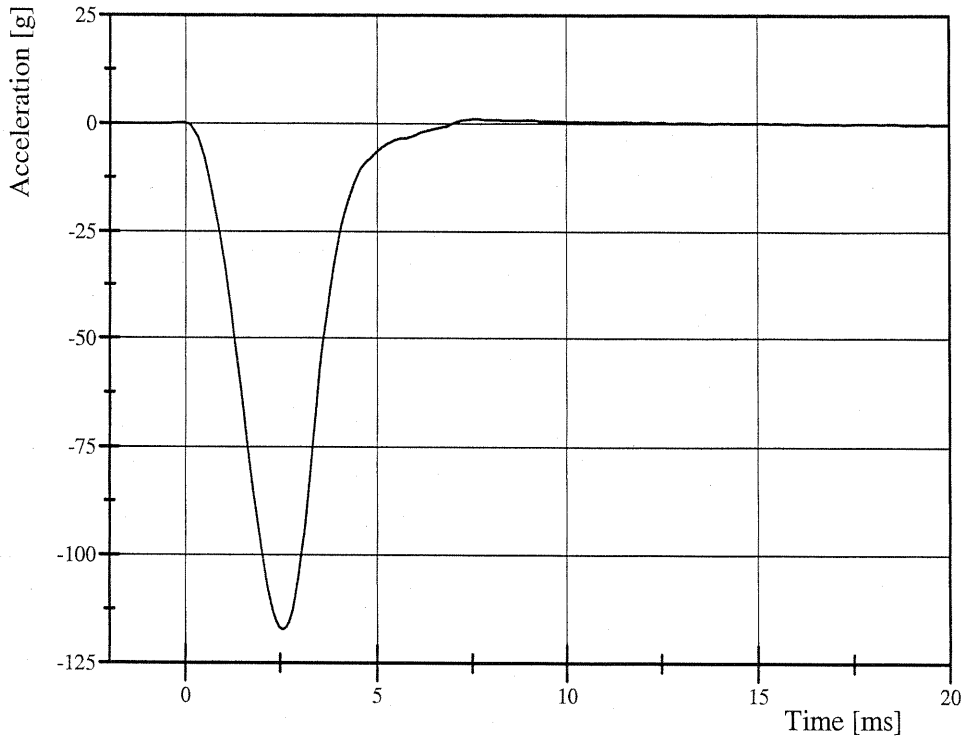
Specification Source: CFR49 Part 572 Subpart E
with Polarity in accordance with J211

02.17.2006 11:16:39 1170

# Transportation Research Center Inc.

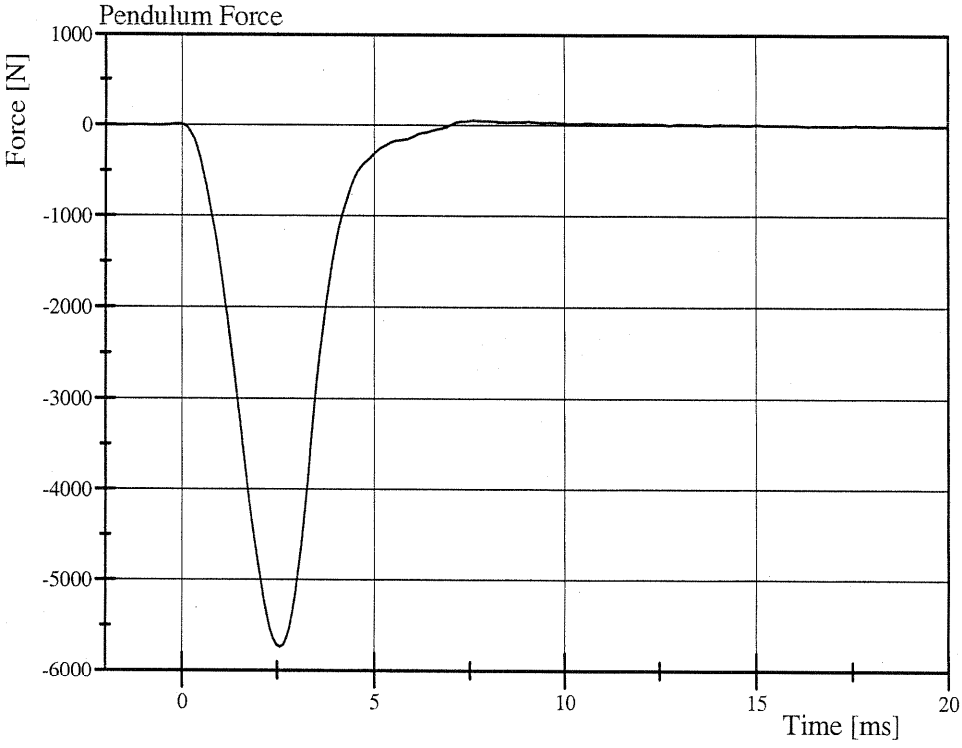
Right Knee Femur Response Test
HIII 50th Serial No. LX103104 Certification No. 2-4
Test Date: 02/17/2006

Pendulum Acceleration




Filter Class: CFC_600
Max: 1.1 g at 7.6 ms
Min: -117.2 g at 2.6 ms

Pendulum Force




Filter Class: CFC_600
Max: 53.4 N at 7.6 ms
Min: -5,736.1 N at 2.6 ms

Specification Source: CFR49 Part 572 Subpart E
with Polarity in accordance with J211

02.17.2006 11:16:52 1170



060310

# Transportation Research Center Inc.

Left Knee Slider
HIII 50th Serial No. LX103104 Certification No. 2-1
Test Date: 02/17/2006

| Test Parameter | Specification | Test Results | Pass |
|---|---|---|---|
| Temperature | 18.9 - 25.5 °C | 21.4 °C | Yes |
| Relative Humidity | 10 - 70 % | 29 % | Yes |
| Probe Velocity | 2.70 - 2.80 m/s | 2.726 m/s | Yes |
| Force Peak at 10.0 mm Deflection | (-1,260) - (-1,720) N | -1,443.1 N | Yes |
| Force Peak at 18.0 mm Deflection | (-2,270) - (-3,100) N | -2,709.6 N | Yes |

**Test meets specifications.**

**Comments:**

Technician

Approved

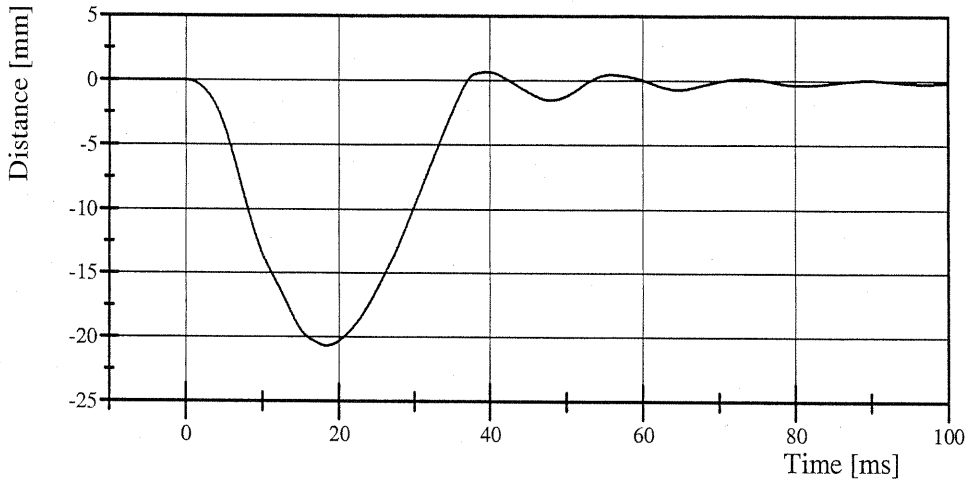
Specification Source: SAE User's Manual with Polarity in Accordance with J211

02.17.2006 13:09:46 1410

# Transportation Research Center Inc.

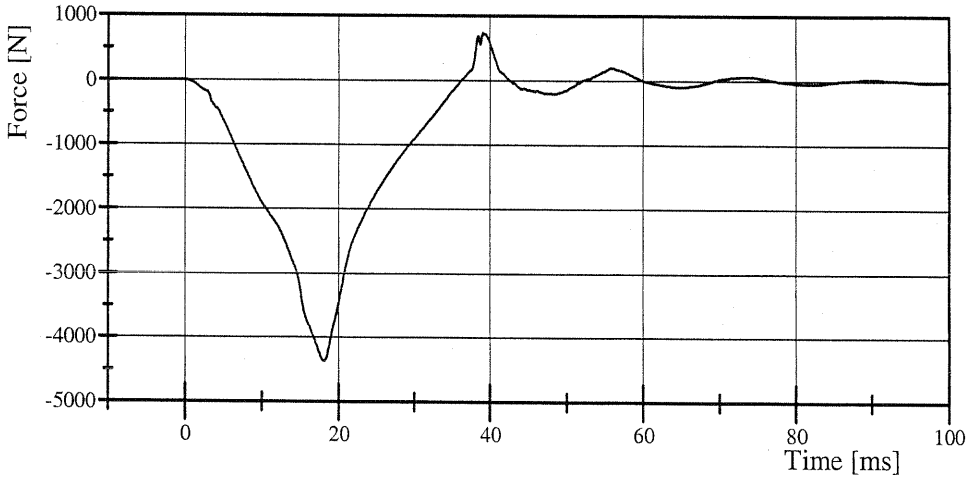
Left Knee Slider
HIII 50th Serial No. LX103104 Certification No. 2-1
Test Date: 02/17/2006

Knee Slider Displacement



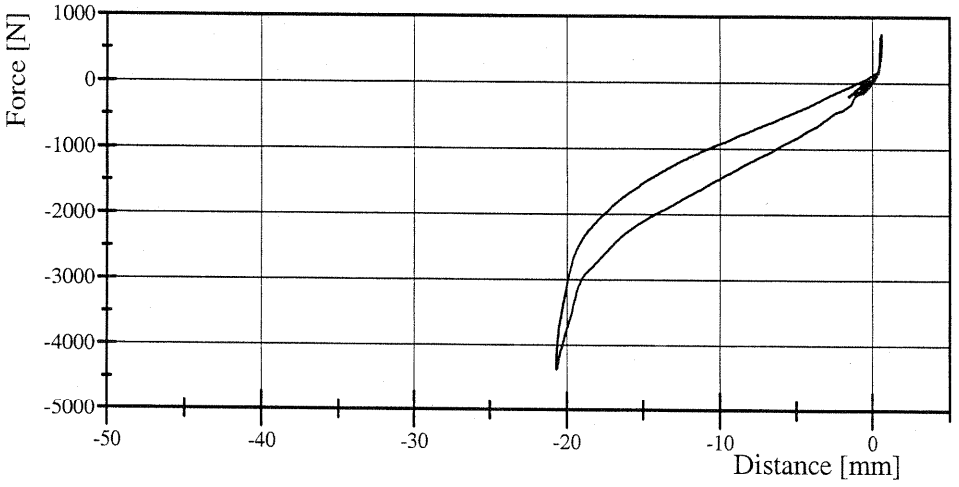

Filter Class: CFC_180
Max: 0.6 mm at 39.8 ms
Min: -20.7 mm at 18.4 ms

Femur Force




Filter Class: CFC_600
Max: 737.0 N at 39.1 ms
Min: -4,366.8 N at 18.1 ms

Femur Force vs. Knee Slider Displacement




Filter Class: CFC_600
Max: 737.0 N at 0.6 mm
Min: -4,366.8 N at -20.7 mm

Specification Source: SAE User's Manual with Polarity in Accordance with J211

02.17.2006 13:09:57 1410



060310

# Transportation Research Center Inc.

Right Knee Slider
HIII 50th Serial No. LX103104 Certification No. 2-1
Test Date: 02/17/2006

| Test Parameter | Specification | Test Results | Pass |
|---|---|---|---|
| Temperature | 18.9 - 25.5 °C | 21.0 °C | Yes |
| Relative Humidity | 10 - 70 % | 29 % | Yes |
| Probe Velocity | 2.70 - 2.80 m/s | 2.728 m/s | Yes |
| Force Peak at 10.0 mm Deflection | (-1,260) - (-1,720) N | -1,465.9 N | Yes |
| Force Peak at 18.0 mm Deflection | (-2,270) - (-3,100) N | -2,708.6 N | Yes |

**Test meets specifications.**

**Comments:**

Technician

Approved

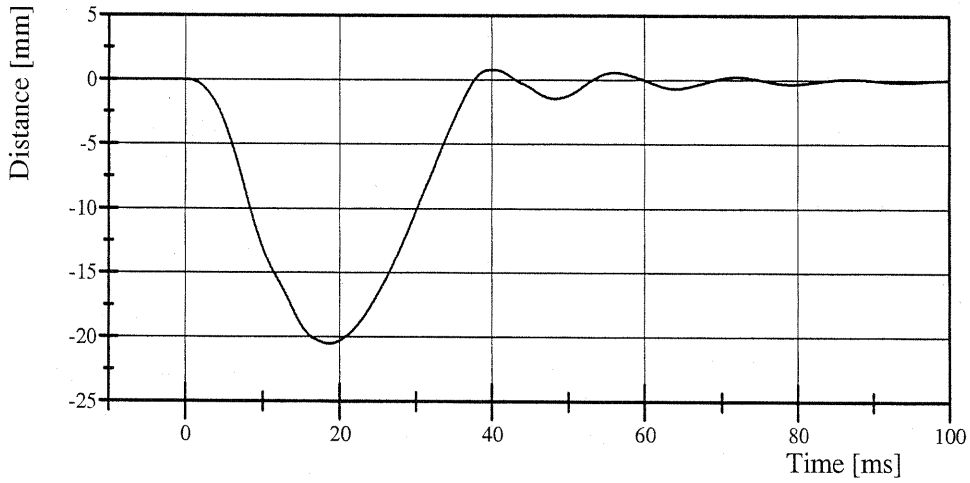
Specification Source: SAE User's Manual with Polarity in Accordance with J211

02.17.2006 12:51:11 1402

# Transportation Research Center Inc.

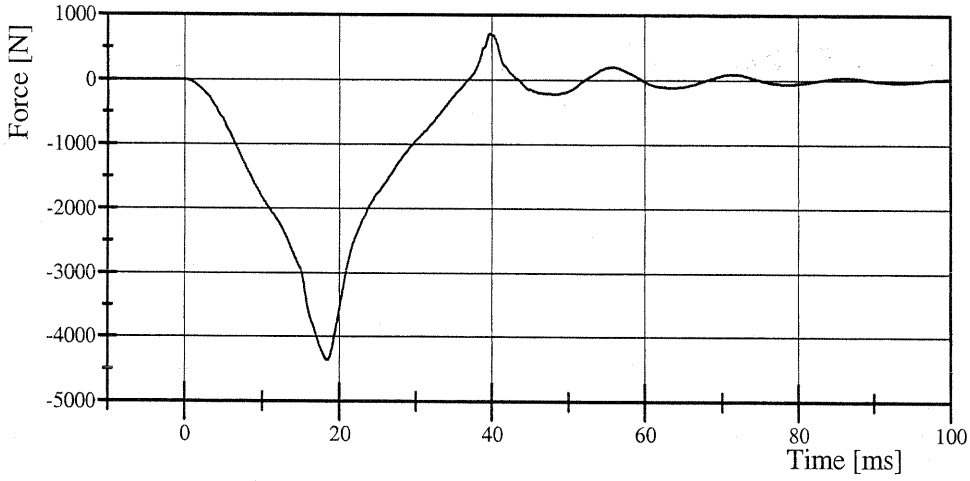
Right Knee Slider
HIII 50th Serial No. LX103104 Certification No. 2-1
Test Date: 02/17/2006

Knee Slider Displacement



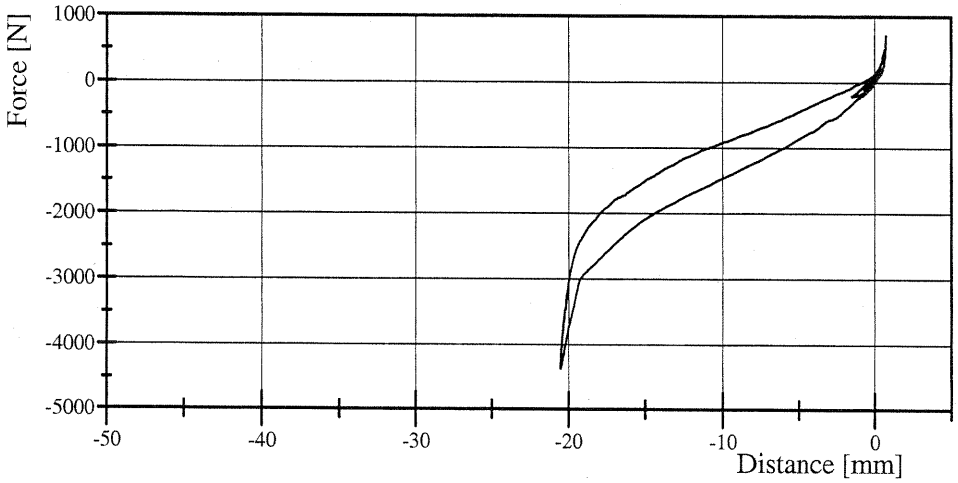

Filter Class: CFC_180
Max: 0.8 mm at 40.2 ms
Min: -20.5 mm at 18.6 ms

Femur Force




Filter Class: CFC_600
Max: 711.8 N at 39.8 ms
Min: -4,361.1 N at 18.4 ms

Femur Force vs. Knee Slider Displacement




Filter Class: CFC_600
Max: 711.8 N at 0.8 mm
Min: -4,361.1 N at -20.5 mm

Specification Source: SAE User's Manual with Polarity in Accordance with J211

02.17.2006 12:51:31 1402

Post-Test Dummy Configuration and Performance Verification Data

Bullet Vehicle Driver Dummy S/N: 090

# Transportation Research Center Inc.

Right Knee Femur Response Test
HIII 50th Serial No. LX103104 Certification No. 3-1
Test Date: 03/15/2006

| Test Parameter | Specification | Test Results | Pass |
|---|---|---|---|
| Temperature | 18.9 - 25.5 °C | 21.1 °C | Yes |
| Relative Humidity | 10 - 70 % | 31 % | Yes |
| Probe Velocity | 2.08 - 2.13 m/s | 2.087 m/s | Yes |
| Peak Femur Force | (-4,715.2) - (-5,782.6) N | -5,998.16 N | No |

**Test does not meet specifications.**

**Comments:**

Technician

Approved

Specification Source: CFR49 Part 572 Subpart E
with Polarity in accordance with J211

03.15.2006 15:56:08 1673

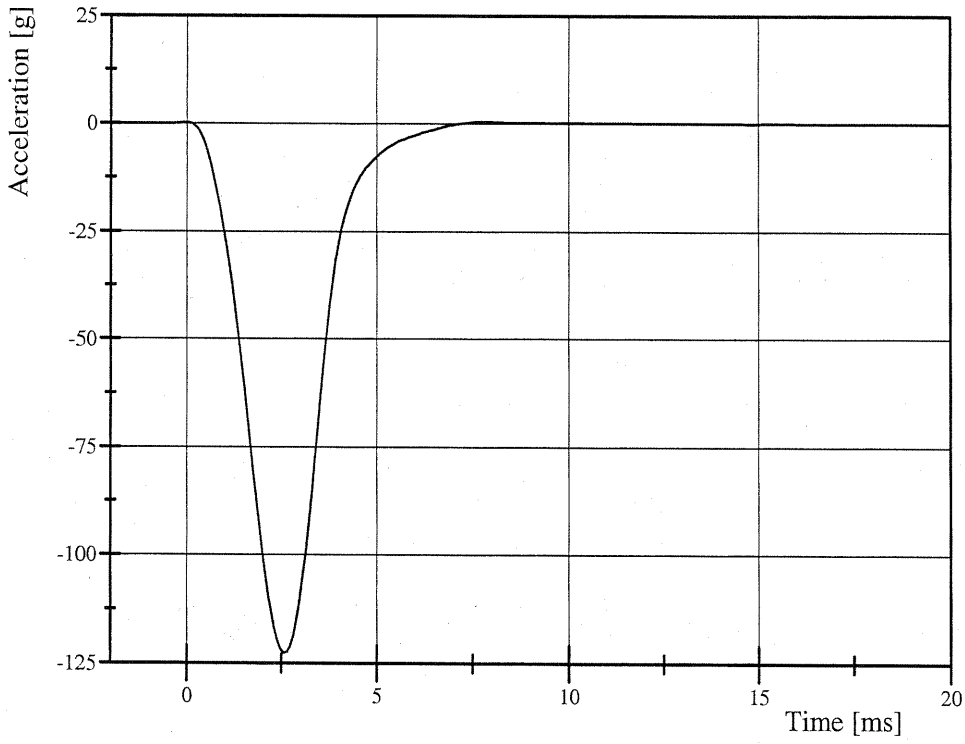


060310

# Transportation Research Center Inc.

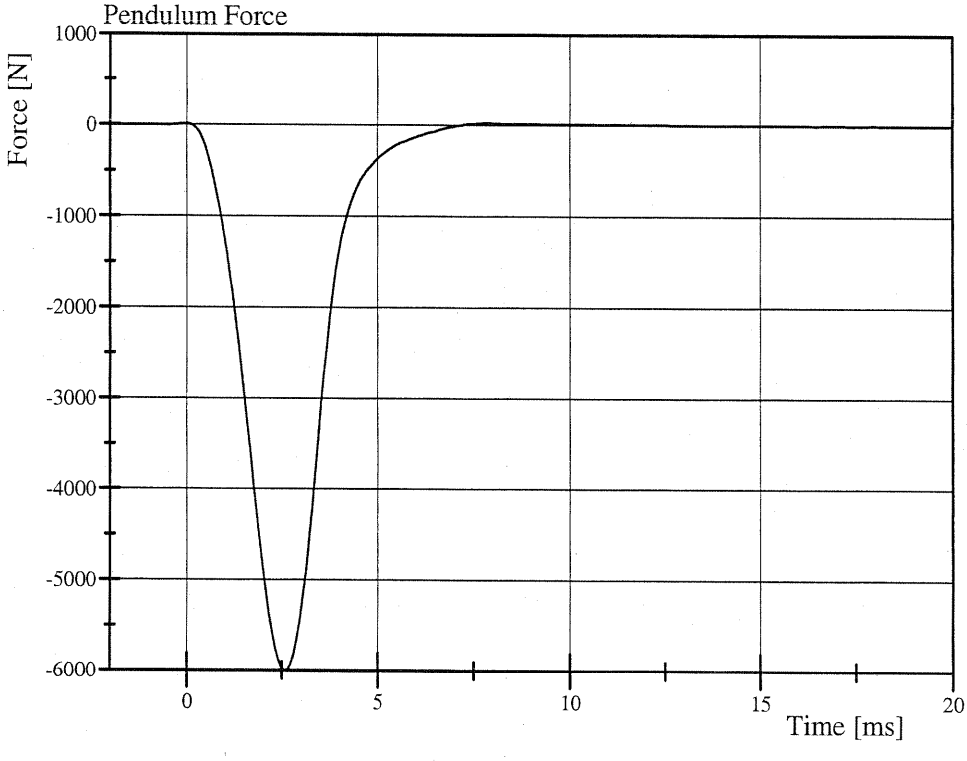
Right Knee Femur Response Test
HIII 50th Serial No. LX103104 Certification No. 3-1
Test Date: 03/15/2006

Pendulum Acceleration




Filter Class: CFC_600
Max: 0.5 g at 7.8 ms
Min: -122.6 g at 2.6 ms

Pendulum Force




Filter Class: CFC_600
Max: 22.5 N at 7.8 ms
Min: -5,998.2 N at 2.6 ms

Specification Source: CFR49 Part 572 Subpart E
with Polarity in accordance with J211

03.15.2006 15:56:32 1673



060310

Pre-Test Dummy Configuration and Performance Verification Data

Bullet Vehicle Passenger Dummy S/N: 070

# Transportation Research Center Inc.
# 572O HIII 5th Female Dummy
# External Dimensions
# Serial No. 070 Calibration No. 13

| Symbol | Description | Specification | Results | Pass |
|---|---|---|---|---|
| | | mm | mm | |
| A | Total Sitting Height | 774.7 - 800.1 | 785 | Yes |
| B | Shoulder Pivot Height | 431.8 - 457.2 | 449 | Yes |
| C | Hip Pivot Height | 81.3 - 86.3 | 86 | Yes |
| D | Hip Pivot from Backline | 144.8 - 149.8 | 147 | Yes |
| E | Shoulder Pivot from Backline | 68.6 - 83.8 | 75 | Yes |
| F | Thigh Clearance | 119.4 - 134.6 | 126 | Yes |
| G | Back of Elbow to Wrist Pivot | 243.9 - 259.1 | 253 | Yes |
| H | Head Back to Backline | 43.2 - 48.2 | 44 | Yes |
| I | Shoulder to Elbow Length | 276.8 - 297.2 | 289 | Yes |
| J | Elbow Rest Height | 182.8 - 203.2 | 191 | Yes |
| K | Buttock Knee Length | 520.7 - 546.1 | 532 | Yes |
| L | Popliteal Height | 355.6 - 376.0 | 360 | Yes |
| M | Knee Pivot Height | 393.7 - 419.1 | 403 | Yes |
| N | Buttock Popliteal Length | 414.0 - 439.4 | 418 | Yes |
| O | Chest Depth without Jacket | 175.3 - 190.5 | 186 | Yes |
| P | Foot Length | 218.5 - 233.7 | 221 | Yes |
| R | Buttock to Knee Pivot Length | 457.2 - 482.6 | 475 | Yes |
| S | Head Breadth | 137.1 - 147.3 | 141 | Yes |
| T | Head Depth | 177.8 - 188.0 | 184 | Yes |
| U | Hip Breadth | 299.7 - 314.9 | 309 | Yes |
| V | Shoulder Breadth | 350.5 - 365.7 | 357 | Yes |
| W | Foot Breadth | 78.8 - 94.0 | 88 | Yes |
| X | Head Circumference | 528.3 - 548.7 | 539 | Yes |
| Y | Chest Circumference with Jacket | 850.9 - 881.3 | 870 | Yes |
| Z | Waist Circumference | 759.5 - 789.9 | 781 | Yes |
| AA | Reference Location for Chest Circumference | 332.7 - 358.1 | 350 | Yes |
| BB | Reference Location for Waist Circumference | 160.0 - 170.2 | 165 | Yes |

Technician

Approved

Revised 3/19/3003

# Transportation Research Center Inc.

Front Head Drop
HIII 5th Serial No. 070 Certification No. 13-1
Test Date: 02/10/2006

| Test Parameter | Specification | Test Results | Pass |
|---|---|---|---|
| Temperature | 18.9 - 25.5 °C | 21.4 °C | Yes |
| Relative Humidity | 10 - 70 % | 27 % | Yes |
| Peak Head Resultant Acceleration | 250 - 300 g | 254.6 g | Yes |
| Peak Head Lateral Acceleration | (-15) - 15 g | -4.3 g | Yes |
| Is Acceleration Curve Unimodal within 10% of Peak? | Yes | Yes | Yes |

**Test meets specifications.**

**Comments:**

Technician

Approved

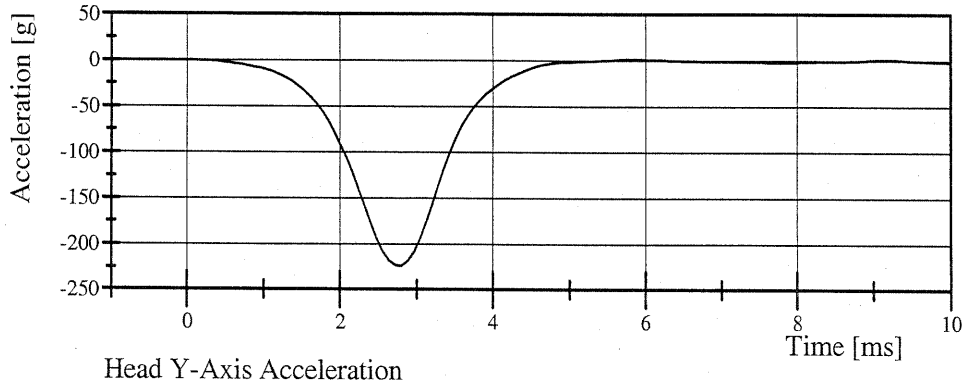
Specification Source: CFR49 Part 572 Subpart O
with Polarity in accordance with J211

02.10.2006 11:35:16 606

# Transportation Research Center Inc.

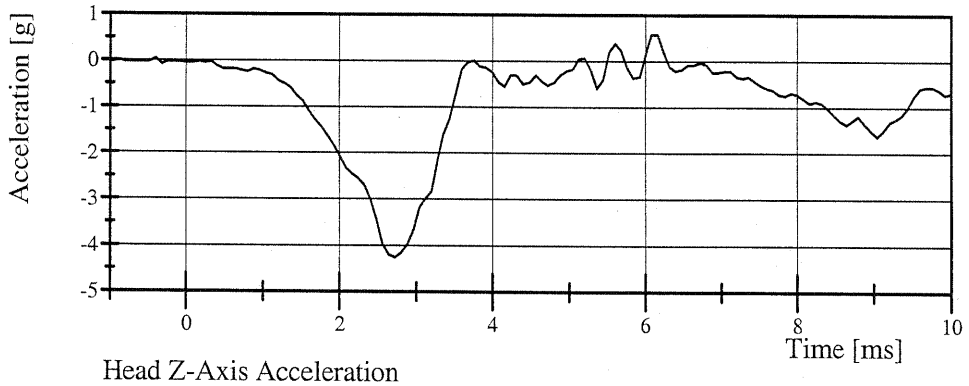
Front Head Drop
HIII 5th Serial No. 070 Certification No. 13-1
Test Date: 02/10/2006

Head X-Axis Acceleration



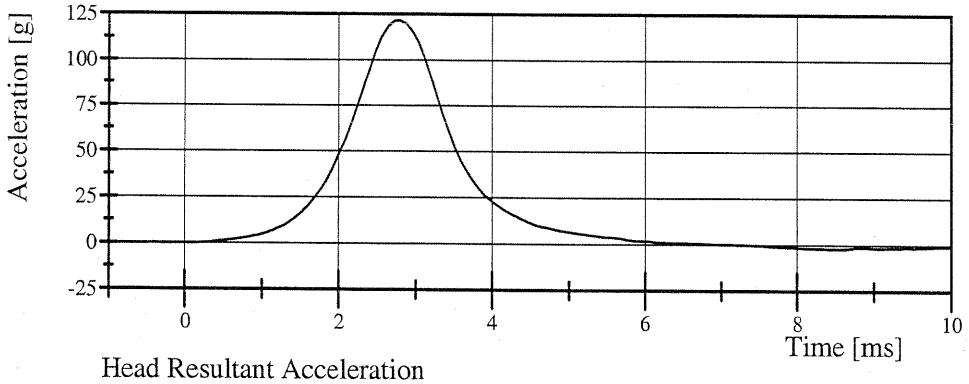

Filter Class: CFC_1000
Max: 1.2 g at 5.8 ms
Min: -223.5 g at 2.8 ms

Head Y-Axis Acceleration



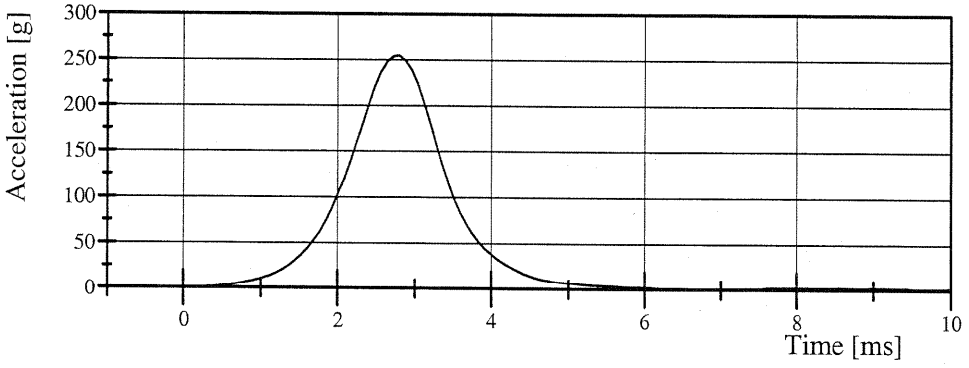

Filter Class: CFC_1000
Max: 0.6 g at 6.1 ms
Min: -4.3 g at 2.7 ms

Head Z-Axis Acceleration




Filter Class: CFC_1000
Max: 121.8 g at 2.8 ms
Min: -2.2 g at 8.6 ms

Head Resultant Acceleration




Filter Class: CFC_1000
Max: 254.6 g at 2.8 ms
Min: 0.0 g at -0.6 ms

Specification Source: CFR49 Part 572 Subpart O
with Polarity in accordance with J211

02.10.2006 11:35:28 606



060310

# Transportation Research Center Inc.

Neck Flexion
HIII 5th Serial No. 070 Certification No. 13-10
Test Date: 2/17/2006

| Test Parameter | Specification | Test Results | Pass |
|---|---|---|---|
| Temperature | 20.6 - 22.2 °C | 21.4 °C | Yes |
| Relative Humidity | 10 - 70 % | 29 % | Yes |
| Pendulum Velocity | 6.89 - 7.13 m/s | 7.034 m/s | Yes |
| Pendulum Integrated Velocity Change at 10ms | (-2.1) - (-2.5) m/s | -2.39 m/s | Yes |
| Pendulum Integrated Velocity Change at 20ms | (-4.0) - (-5.0) m/s | -4.68 m/s | Yes |
| Pendulum Integrated Velocity Change at 30ms | (-5.8) - (-7.0) m/s | -6.72 m/s | Yes |
| Total Head D-Plane Rotation | (-77) - (-91) ° | -78.4 ° | Yes |
| Total Neck Occipital Condyles Moment Between -77° and -91° Rotation | 69 - 83 N·m | 72.4 N·m | Yes |
| Total Neck Occipital Condyles Moment Decay to 10 N·m | 80 - 100 ms | 87.6 ms | Yes |

**Test meets specifications.**

**Comments:**

Pre-test: new neck serial # 1953.

Technician

Approved

Specification Source: CFR49 Part 572 Subpart O with Polarity in accordance with J211

02.25.2006 12:33:01 545

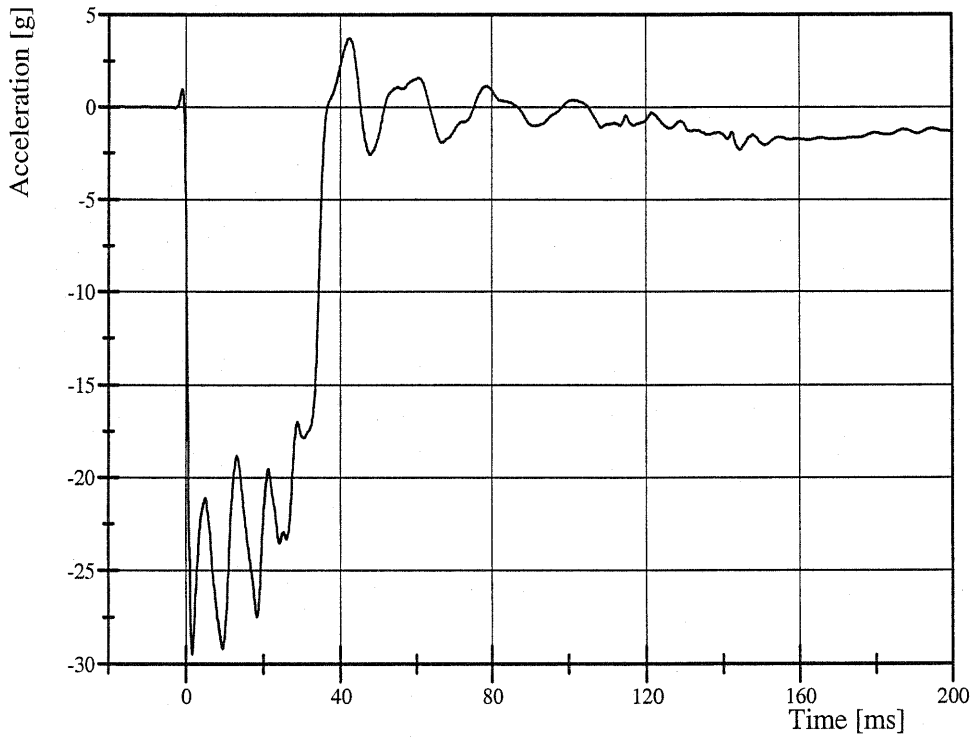
# Transportation Research Center Inc.

Neck Flexion

HIII 5th Serial No. 070 Certification No. 13-10

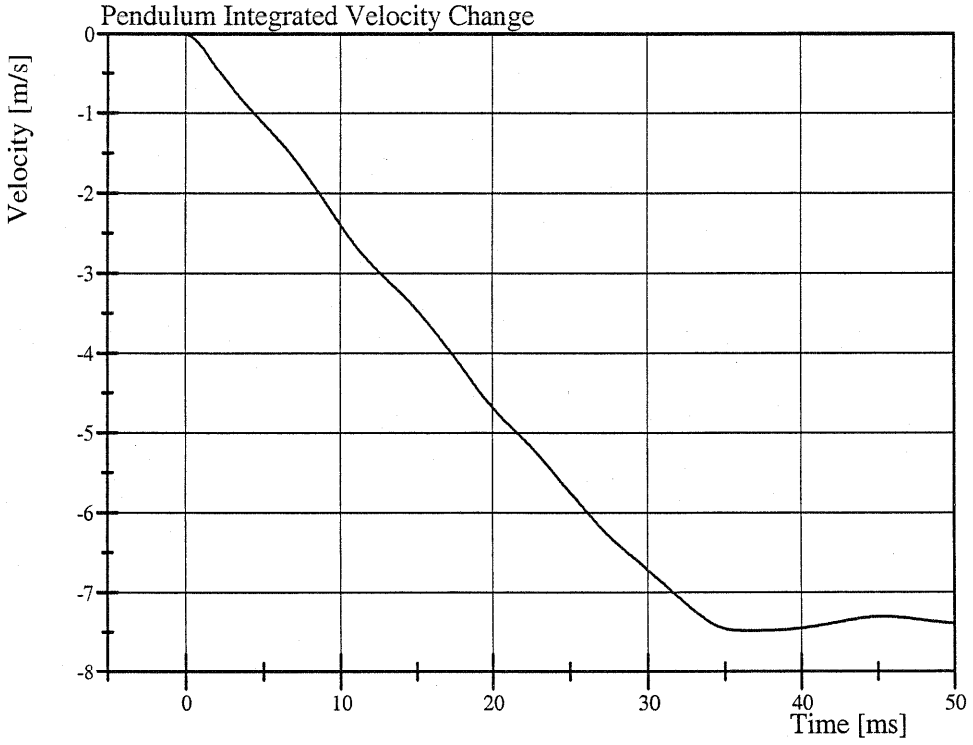
Test Date: 2/17/2006

Pendulum Acceleration




Filter Class: CFC_180
Max: 3.7 g at 42.4 ms
Min: -29.5 g at 1.7 ms

Pendulum Integrated Velocity Change




Filter Class: CFC_180
Max: 0.0 m/s at 0.0 ms
Min: -7.5 m/s at 36.6 ms

Specification Source: CFR49 Part 572 Subpart O
with Polarity in accordance with J211

02.25.2006 12:33:53 545

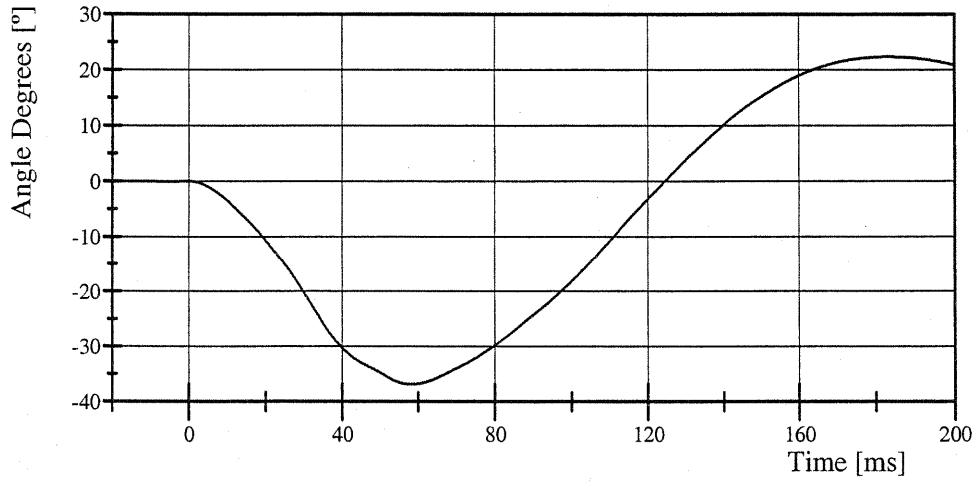
# Transportation Research Center Inc.

Neck Flexion

HIII 5th Serial No. 070 Certification No. 13-10

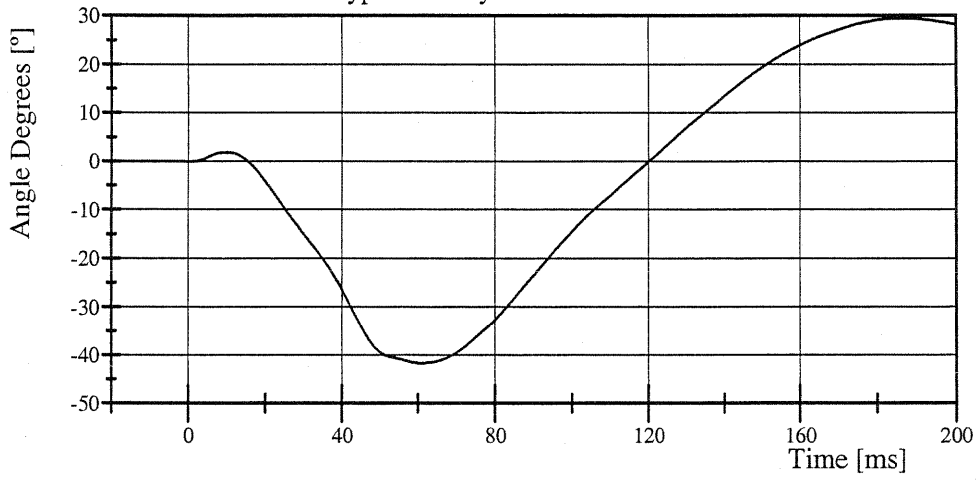
Test Date: 2/17/2006

Pot Rotation at the Base of Neck



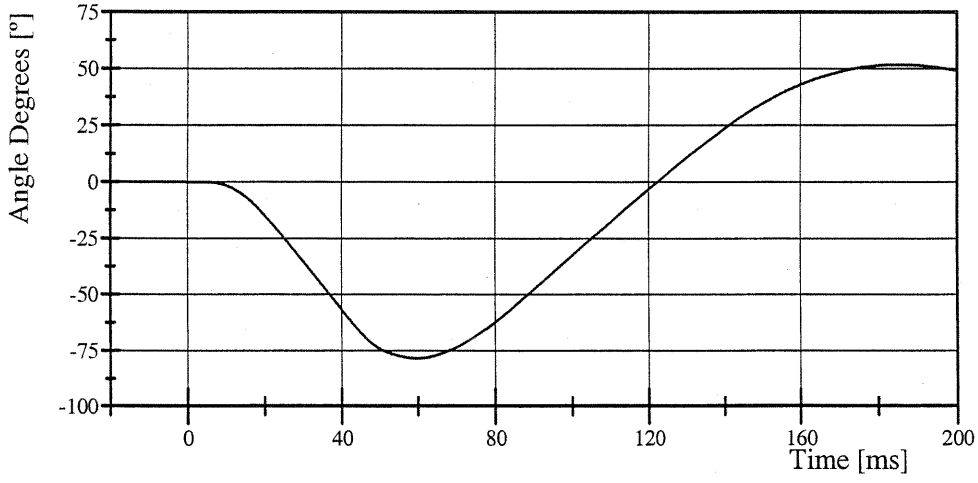

Filter Class: CFC_60
Max: 22.4 ° at 183.1 ms
Min: -36.8 ° at 58.2 ms

Head Rotation at Occypital Condyles




Filter Class: CFC_60
Max: 29.4 ° at 187.0 ms
Min: -41.7 ° at 61.0 ms

Total Head D-Plane Rotation




Filter Class: CFC_60
Max: 51.8 ° at 184.6 ms
Min: -78.4 ° at 59.8 ms

Specification Source: CFR49 Part 572 Subpart O
with Polarity in accordance with J211

02.25.2006 12:33:55 545

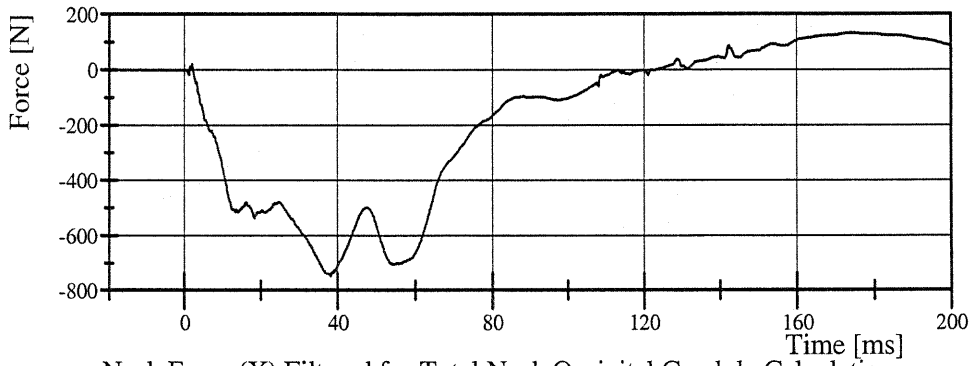
# Transportation Research Center Inc.

Neck Flexion

HIII 5th Serial No. 070 Certification No. 13-10

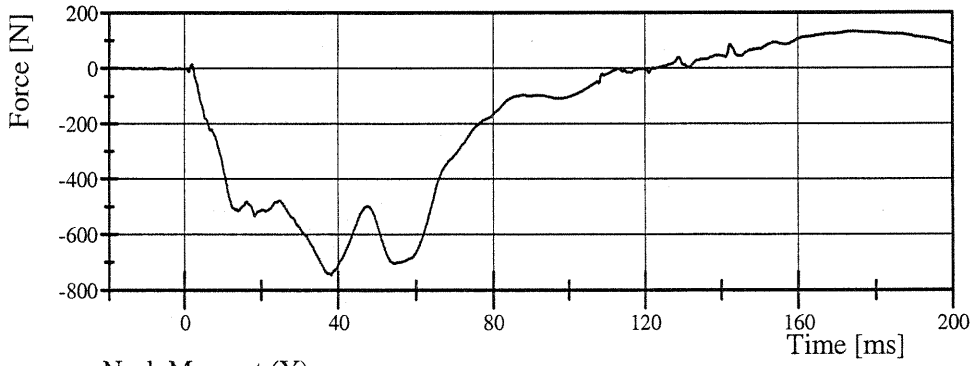
Test Date: 2/17/2006

Neck Force (X)



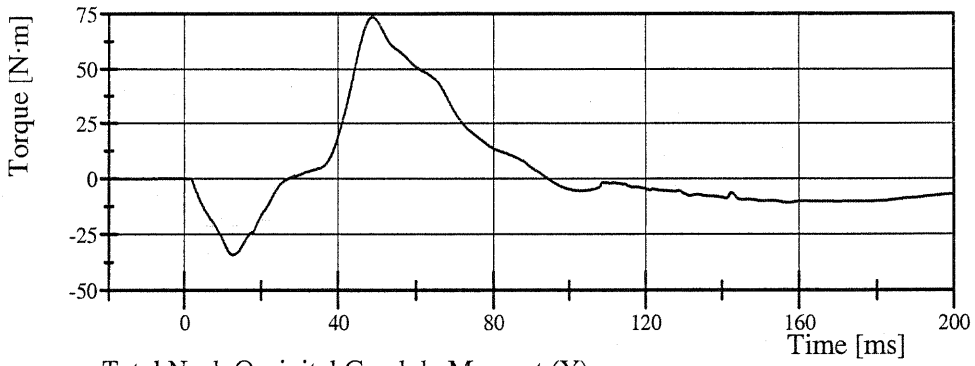

Filter Class: CFC_1000
Max: 133.1 N at 173.8 ms
Min: -749.5 N at 38.1 ms

Neck Force (X) Filtered for Total Neck Occipital Condyle Calculation



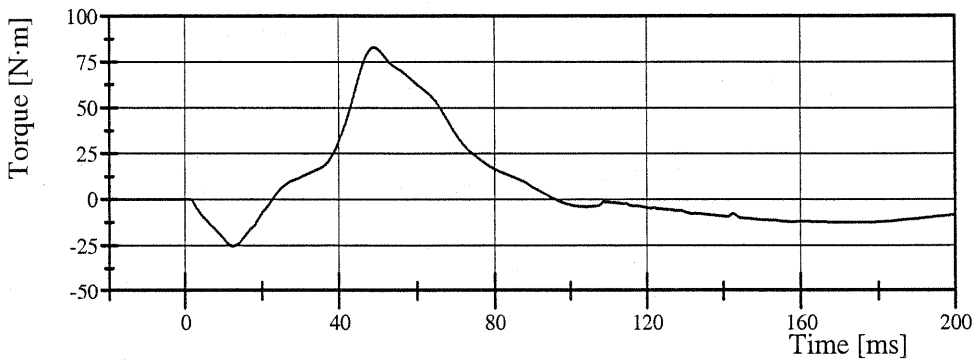

Filter Class: CFC_600
Max: 133.0 N at 175.0 ms
Min: -744.8 N at 38.0 ms

Neck Moment (Y)




Filter Class: CFC_600
Max: 73.6 N·m at 48.9 ms
Min: -34.2 N·m at 12.6 ms

Total Neck Occipital Condyle Moment (Y)




Filter Class: CFC_600
Max: 82.9 N·m at 49.1 ms
Min: -25.2 N·m at 12.5 ms

Specification Source: CFR49 Part 572 Subpart O
with Polarity in accordance with J211

02.25.2006 12:33:56 545

# Transportation Research Center Inc.

Neck Extension
HIII 5th Serial No. 070 Certification No. 13-1
Test Date: 2/17/2006

| Test Parameter | Specification | Test Results | Pass |
|---|---|---|---|
| Temperature | 20.6 - 22.2 °C | 21.2 °C | Yes |
| Relative Humidity | 10 - 70 % | 29 % | Yes |
| Pendulum Velocity | (-5.95) - (-6.19) m/s | -6.042 m/s | Yes |
| Pendulum Integrated Velocity Change at 10ms | 1.5 - 1.9 m/s | 1.82 m/s | Yes |
| Pendulum Integrated Velocity Change at 20ms | 3.1 - 3.9 m/s | 3.55 m/s | Yes |
| Pendulum Integrated Velocity Change at 30ms | 4.6 - 5.6 m/s | 5.18 m/s | Yes |
| Total Head D-Plane Rotation | 99 - 114 ° | 104.8 ° | Yes |
| Total Neck Occipital Condyles Moment Between 99° and 114° Rotation | (-53) - (-65) N·m | -55.9 N·m | Yes |
| Total Neck Occipital Condyles Moment Decay to -10 N·m | 94 - 114 ms | 104.7 ms | Yes |

**Test meets specifications.**

**Comments:**

Pre-test: new neck serial # 1953.

Technician

Approved

Specification Source: CFR49 Part 572 Subpart O
with Polarity in accordance with J211



02.25.2006 12:41:26 626

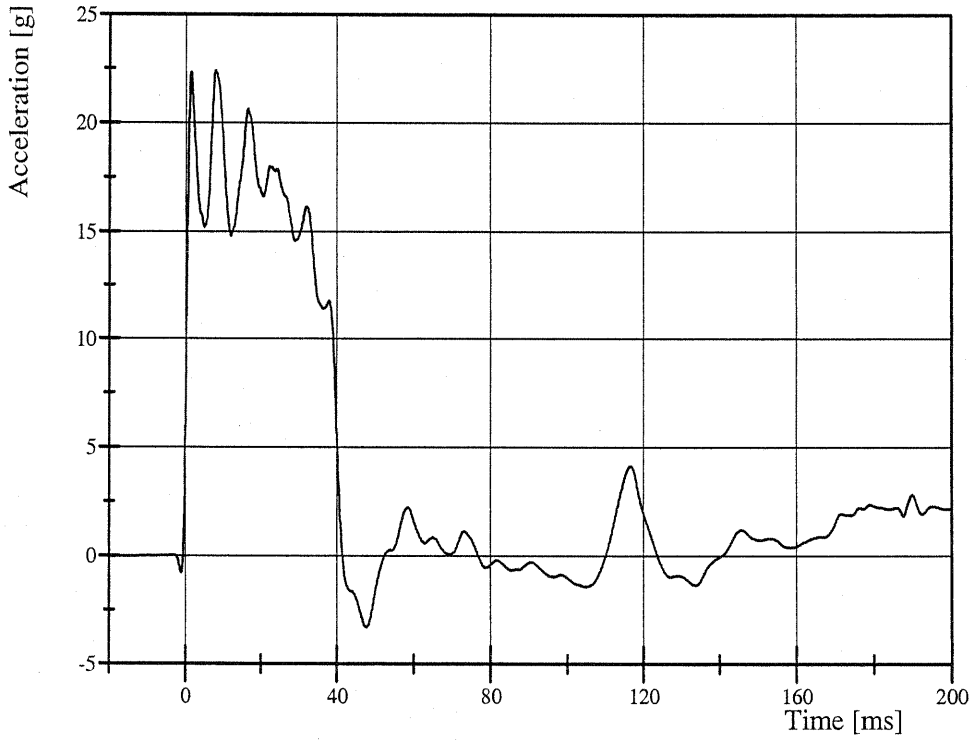
# Transportation Research Center Inc.

Neck Extension

HIII 5th Serial No. 070 Certification No. 13-1

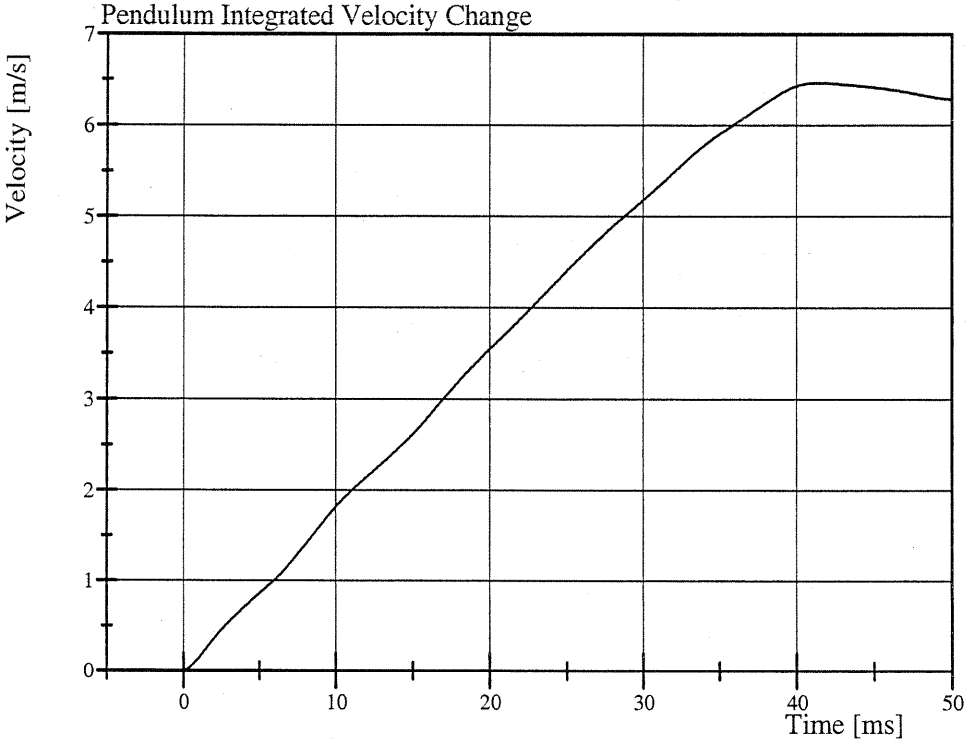
Test Date: 2/17/2006

Pendulum Acceleration




Filter Class: CFC_180
Max: 22.4 g at 7.8 ms
Min: -3.3 g at 47.8 ms

Pendulum Integrated Velocity Change




Filter Class: CFC_180
Max: 6.5 m/s at 41.5 ms
Min: 0.0 m/s at 0.0 ms

Specification Source: CFR49 Part 572 Subpart O
with Polarity in accordance with J211

02.25.2006 12:42:10 626



060310

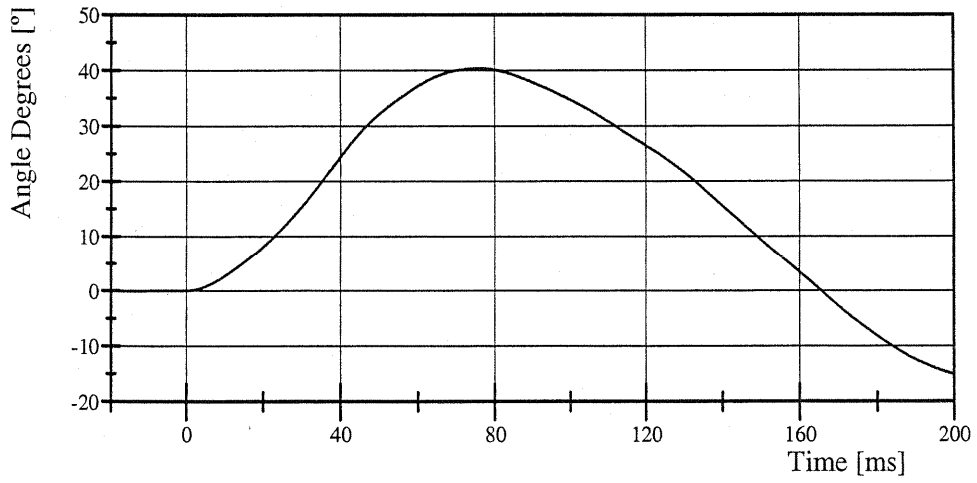
# Transportation Research Center Inc.

Neck Extension

HIII 5th Serial No. 070 Certification No. 13-1

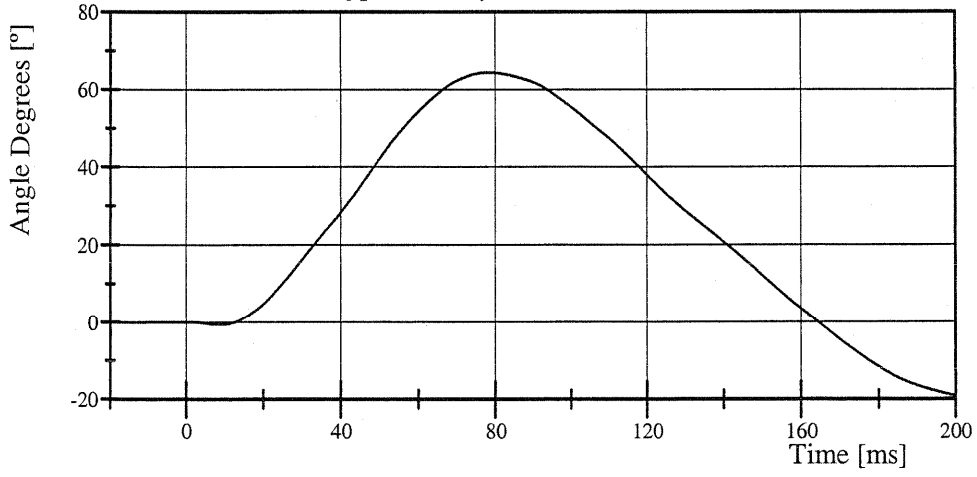
Test Date: 2/17/2006

Pot Rotation at the Base of Neck



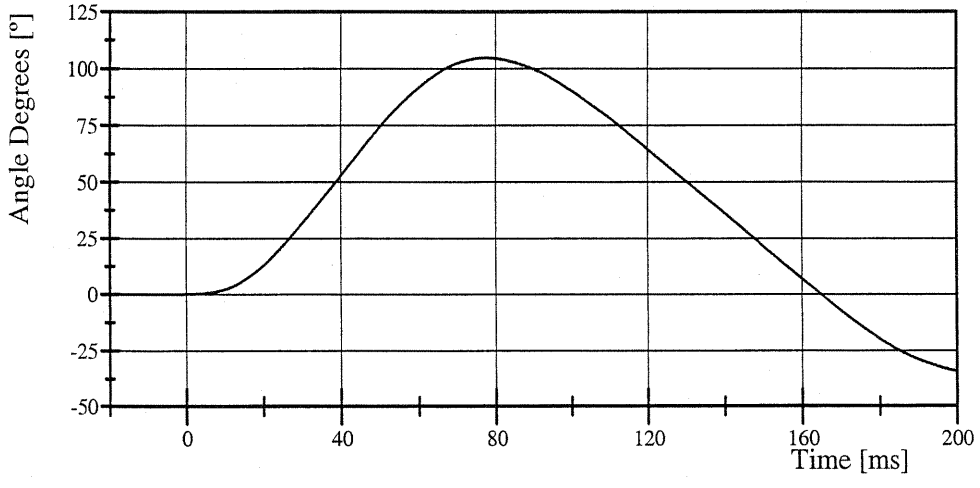

Filter Class: CFC_60
Max: 40.4 ° at 76.0 ms
Min: -15.0 ° at 200.0 ms

Head Rotation at Occypital Condyles




Filter Class: CFC_60
Max: 64.4 ° at 78.4 ms
Min: -19.1 ° at 200.0 ms

Total Head D-Plane Rotation




Filter Class: CFC_60
Max: 104.8 ° at 77.4 ms
Min: -34.1 ° at 200.0 ms

Specification Source: CFR49 Part 572 Subpart O
with Polarity in accordance with J211

02.25.2006 12:42:12 626



060310

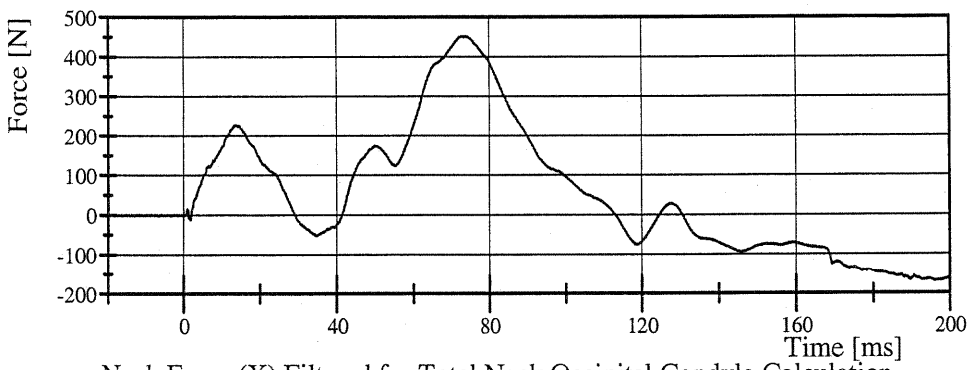
# Transportation Research Center Inc.

Neck Extension

HIII 5th Serial No. 070 Certification No. 13-1

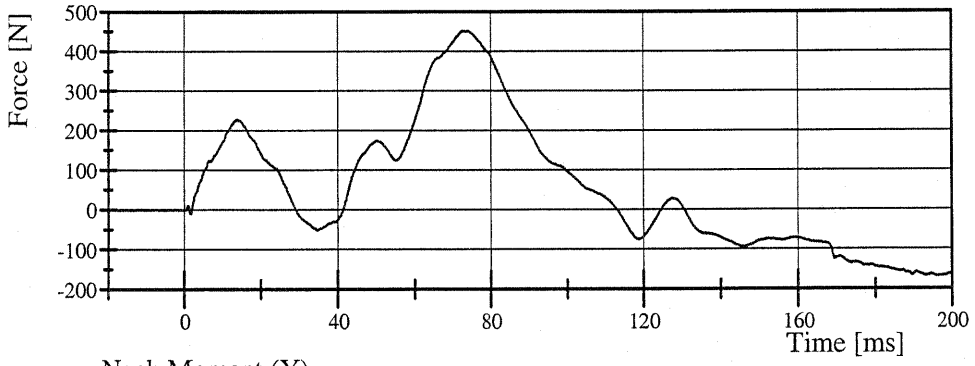
Test Date: 2/17/2006

Neck Force (X)



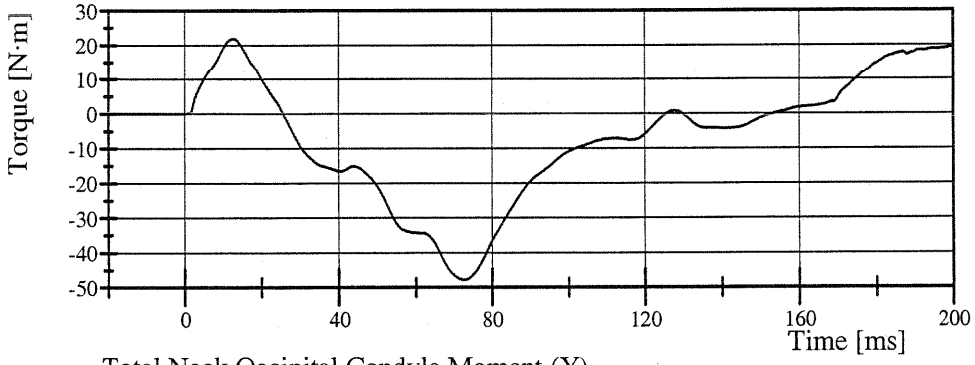

Filter Class: CFC_1000
Max: 452.3 N at 73.8 ms
Min: -169.5 N at 196.2 ms

Neck Force (X) Filtered for Total Neck Occipital Condyle Calculation



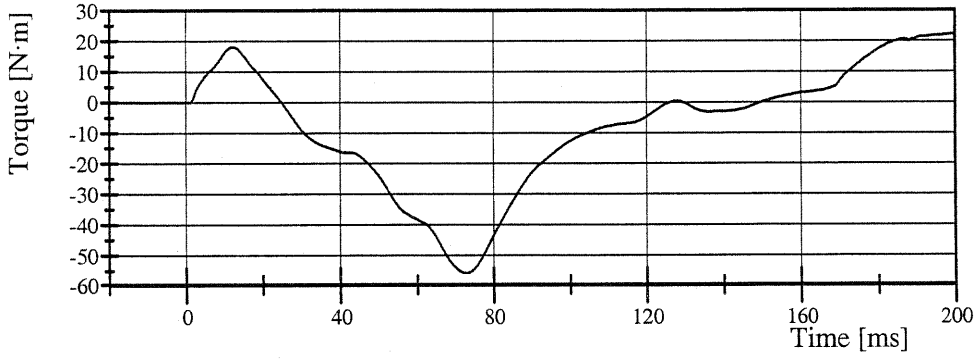

Filter Class: CFC_600
Max: 451.8 N at 73.8 ms
Min: -168.9 N at 196.1 ms

Neck Moment (Y)




Filter Class: CFC_600
Max: 21.8 N·m at 12.5 ms
Min: -47.8 N·m at 72.8 ms

Total Neck Occipital Condyle Moment (Y)




Filter Class: CFC_600
Max: 22.3 N·m at 200.0 ms
Min: -55.9 N·m at 72.8 ms

Specification Source: CFR49 Part 572 Subpart O
with Polarity in accordance with J211

02.25.2006 12:42:13 626

# Transportation Research Center Inc.

Front Thorax
HIII 5th Serial No. 070 Certification No. 13-1
Test Date: 2/14/2006

| Test Parameter | Specification | Test Results | Pass |
|---|---|---|---|
| Temperature | 20.6 - 22.2 °C | 21.2 °C | Yes |
| Relative Humidity | 10 - 70 % | 29 % | Yes |
| Probe Velocity | 6.59 - 6.83 m/s | 6.662 m/s | Yes |
| Probe Force Peak Between 50.0 mm and 58.0 mm Chest Deflection | (-3,900) - (-4,400) N | -4,145.7 N | Yes |
| Probe Force Peak Between 18.0 mm and 50.0 mm Chest Deflection | >= (-4,600) N | -4,148.6 N | Yes |
| Maximum Chest Compression | (-50) - (-58) mm | -52.8 mm | Yes |
| Internal Hysteresis | 69 - 85 % | 74.3 % | Yes |

**Test meets specifications.**

**Comments:**

Technician

Approved

Specification Source: CFR49 Part 572 Subpart O
with Polarity in accordance with J211

02.25.2006 12:44:53 1644

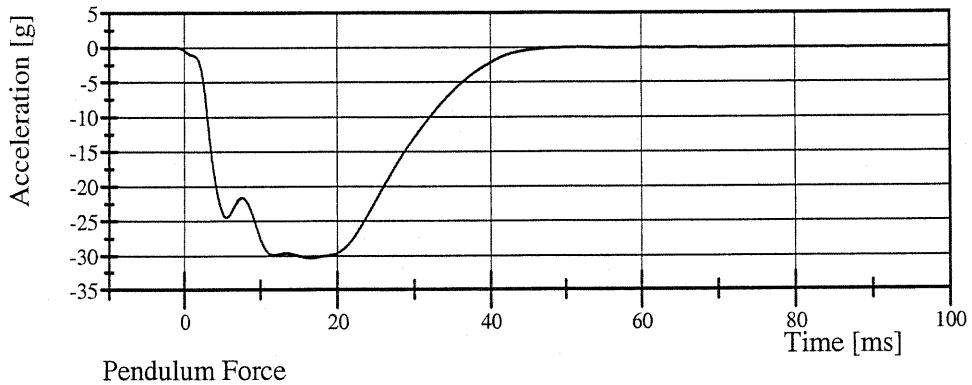
# Transportation Research Center Inc.

Front Thorax

HIII 5th Serial No. 070 Certification No. 13-1

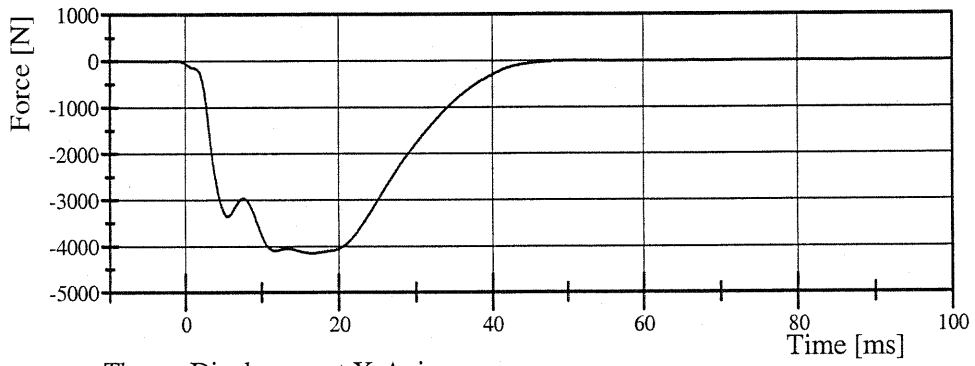
Test Date: 2/14/2006

Pendulum Acceleration



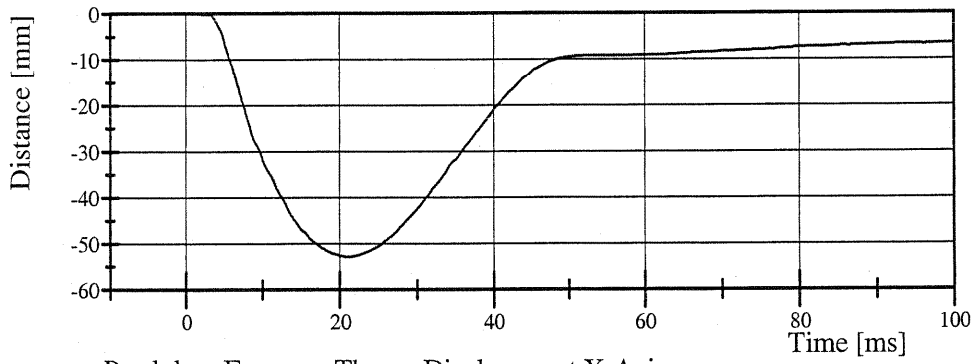

Filter Class: CFC_180
Max: 0.0 g at 52.0 ms
Min: -30.3 g at 16.6 ms

Pendulum Force



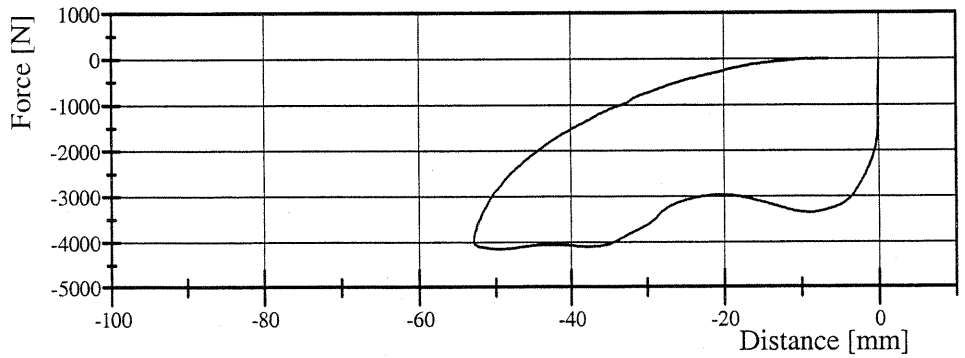

Filter Class: CFC_180
Max: 4.6 N at 52.0 ms
Min: -4,148.6 N at 16.6 ms

Thorax Displacement X-Axis




Filter Class: CFC_600
Max: 0.0 mm at -8.8 ms
Min: -52.8 mm at 21.2 ms

Pendulum Force vs. Thorax Displacement X-Axis




Filter Class: CFC_180
Max: 4.6 N at -9.2 mm
Min: -4,148.6 N at -49.5 mm

Specification Source: CFR49 Part 572 Subpart O
with Polarity in accordance with J211

02.25.2006 12:45:30 1644

**TRANSPORTATION RESEARCH CENTER INC.**

**TORSO FLEXION TEST**

**HYBRID III SMALL FEMALE**

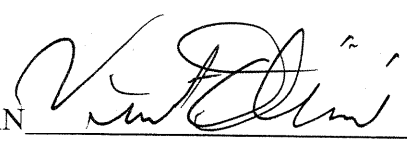
**CAL DATE: 10-Feb-06**

**TRC, INC.** **TEST NO: 070C13TF3** **572 O SN070 TORSO FLEX CAL 13**

| TEST PARAMETER | SPECIFICATION | TEST RESULTS |
|---|---|---|
| TEMPERATURE | 20.6 – 22.2° C | 21.0° C |
| RELATIVE HUMIDITY | 10 – 70 % | 27 % |
| INITIAL ANGLE OF UNSUPPORRTED DUMMY | <= 20° REFERENCED TO VERTICAL | 18.4 ° |
| MAXIMUM FORCE AT 45 DEG. DURING 10 SECOND PERIOD | 320 – 390 N | 368.2 N |
| RETURN ANGLE | | 21.1 ° |
| DIFFERENCE BETWEEN RETURN ANGLE & INTIAL ANGLE | +/- 8 ° OF INTIAL ANGLE | 2.7 ° |
| RATE | 0.5° - 1.5°/sec | 0.99 °/sec |

TEST MEETS SPECIFICATIONS

**Comments: Spine Torque @ 12 in-lbs**

TECHNICIAN 

# Transportation Research Center Inc.

Left Knee Femur Response Test
HIII 5th Serial No. 070 Certification No. 13-2
Test Date: 02/13/2006

| Test Parameter | Specification | Test Results | Pass |
|---|---|---|---|
| Temperature | 18.9 - 25.6 °C | 21.2 °C | Yes |
| Relative Humidity | 10 - 70 % | 27 % | Yes |
| Probe Velocity | 2.08 - 2.13 m/s | 2.109 m/s | Yes |
| Peak Femur Force | (-3,450) - (-4,060) N | -3,655.3 N | Yes |

**Test meets specifications.**

**Comments:**

Technician

Approved

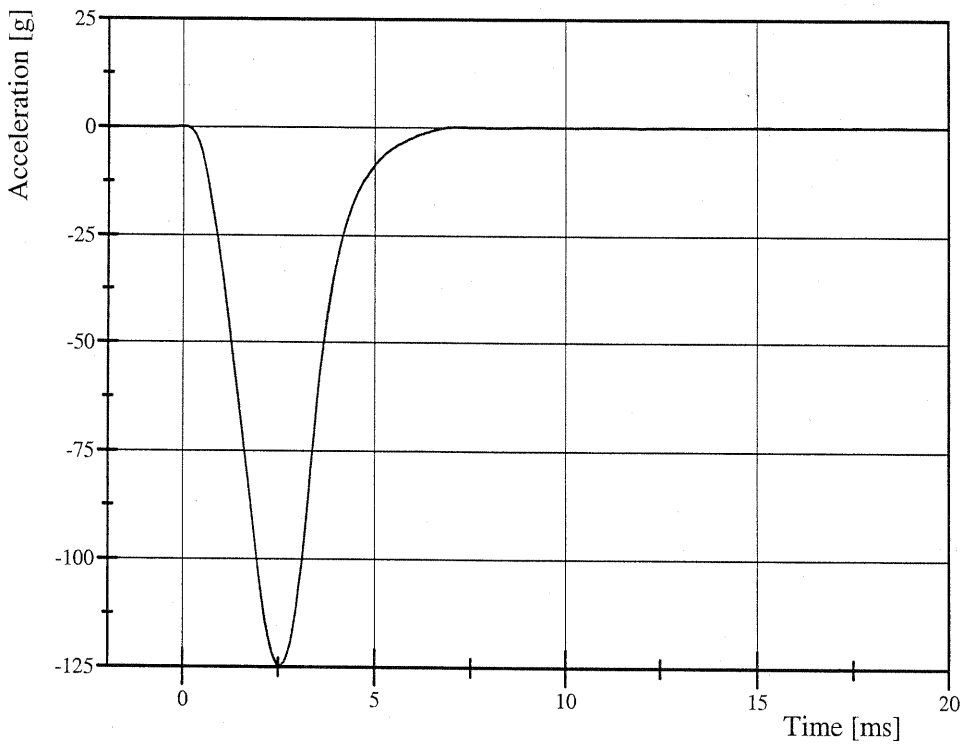
Specification Source: CFR49 Part 572 Subpart O
with Polarity in accordance with J211

02.13.2006 13:11:05 1704

# Transportation Research Center Inc.

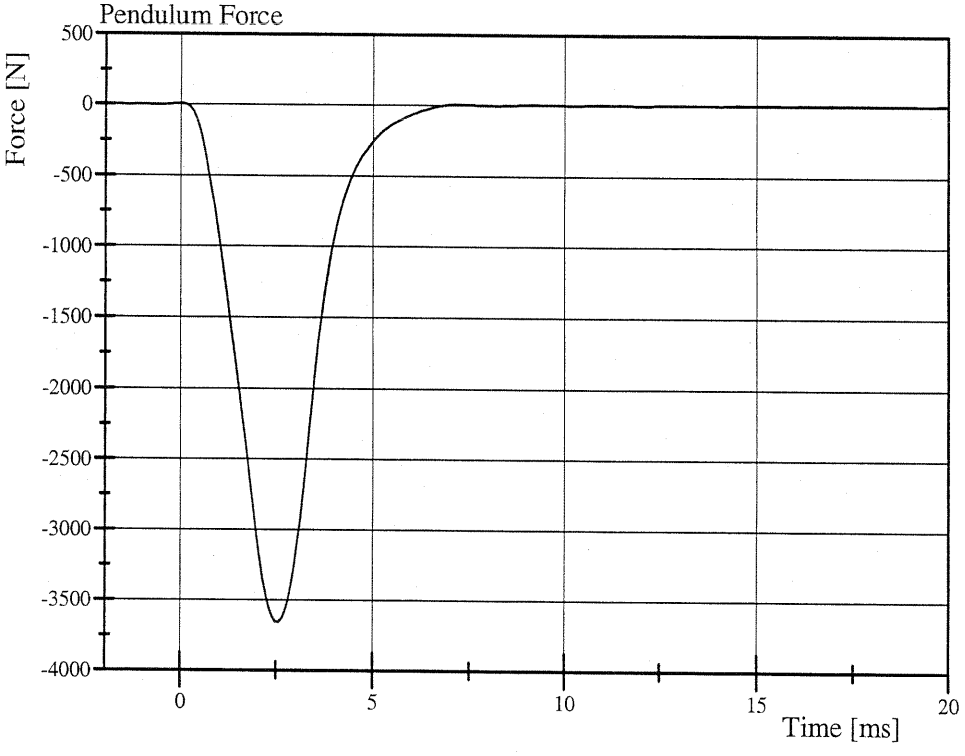
Left Knee Femur Response Test
HIII 5th Serial No. 070 Certification No. 13-2
Test Date: 02/13/2006

Pendulum Acceleration




Filter Class: CFC_600
Max: 0.3 g at 17.0 ms
Min: -124.7 g at 2.6 ms

Pendulum Force




Filter Class: CFC_600
Max: 7.5 N at 17.0 ms
Min: -3,655.3 N at 2.6 ms

Specification Source: CFR49 Part 572 Subpart O
with Polarity in accordance with J211

02.13.2006 13:11:18 1704



060310

# Transportation Research Center Inc.

Right Knee Femur Response Test
HIII 5th Serial No. 070 Certification No. 13-1
Test Date: 02/09/2006

| Test Parameter | Specification | Test Results | Pass |
|---|---|---|---|
| Temperature | 18.9 - 25.6 °C | 21.1 °C | Yes |
| Relative Humidity | 10 - 70 % | 26 % | Yes |
| Probe Velocity | 2.08 - 2.13 m/s | 2.095 m/s | Yes |
| Peak Femur Force | (-3,450) - (-4,060) N | -3,580.5 N | Yes |

**Test meets specifications.**

**Comments:**

Technician

Approved

Specification Source: CFR49 Part 572 Subpart O
with Polarity in accordance with J211

02.09.2006 15:25:21 1724

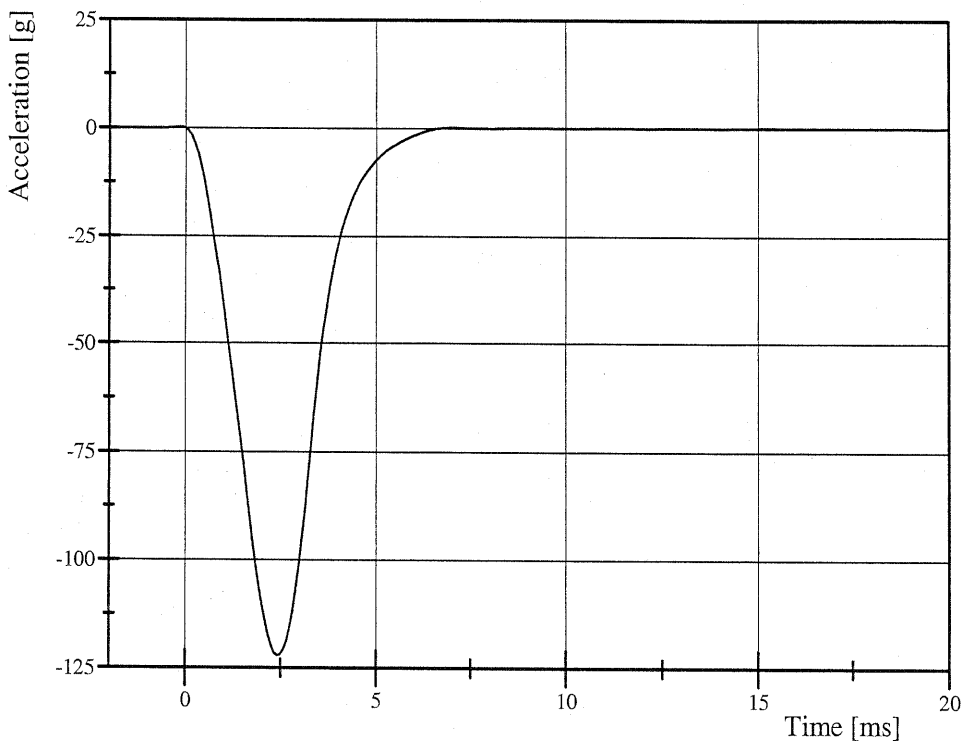


060310

# Transportation Research Center Inc.

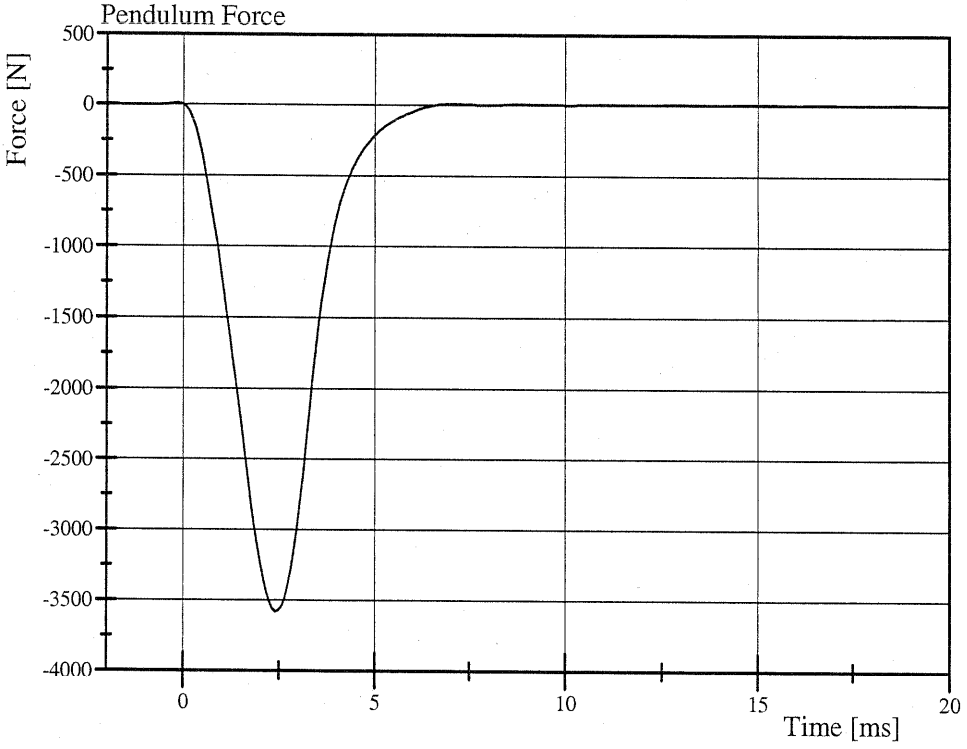
Right Knee Femur Response Test
HIII 5th Serial No. 070 Certification No. 13-1
Test Date: 02/09/2006

Pendulum Acceleration




Filter Class: CFC_600
Max: 0.3 g at -0.2 ms
Min: -122.1 g at 2.4 ms

Pendulum Force




Filter Class: CFC_600
Max: 7.9 N at -0.2 ms
Min: -3,580.5 N at 2.4 ms

Specification Source: CFR49 Part 572 Subpart O
with Polarity in accordance with J211

02.09.2006 15:25:33 1724



060310

# Appendix D

Test Equipment and Instrumentation Calibration Information

## Sign Convention
## SAE J211 MAR95

| | | |
|---|---|---|
| Accelerometers: | +X: Forward | |
| | +Y: Rightward | |
| | +Z: Downward | |
| Potentiometers: | +Chest longitudinal deflection: | Outward |
| | +Chest lateral deflection: | Rightward |
| | +Seat belt displacement: | Outward |
| | +Seat belt extension: | Elongation |
| | +Knee slider displacement: | Distance between femur and tibia increased (in relation to a seated dummy) |

Rotation potentiometers:

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

| | | |
|---|---|---|
| Load cells: | +Femur force: | Tension |
| | +Seat belt force: | Tension |
| | +Barrier force: | Tension |

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

| | | |
|---|---|---|
| Tibia load cells: | +X force: | Ankle forward, knee rearward |
| | +Y force: | Ankle rightward, knee leftward |
| | +Z force: | Tension |
| | +X moment: | Bottom of tibia moving leftward |
| | +Y moment: | Bottom of tibia moving rearward |

Frequency Response Classes
SAE J211 MAR95

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

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

## Channel Report Test Number 060310

| Ref | Transducer ID | ISO Signal Identifier | Description | FScale | Units | DAS Flip | Positive Polarity | Assembly |
|---|---|---|---|---|---|---|---|---|
| 1 | Trig D1 | 20ZERO000000EV00 | EVENT | 1 | Logic | + | Bipolar | |
| 2 | J36743 | 21HEADCG00H3ACXA | Head Accel X | 1000 | g | + | Forward | 1-110 HIII 50th FTSS.001 |
| 3 | 99102-F15 | 21HEADCG00H3ACYA | Head Accel Y | 1000 | g | - | Leftward | 1-110 HIII 50th FTSS.002 |
| 4 | J19227 | 21HEADCG00H3ACZA | Head Accel Z | 1000 | g | - | Upward | 1-110 HIII 50th FTSS.003 |
| 5 | J27490 | 21HEADFR00H3ACYA | Head (FT) Accel Y | 1000 | g | - | Leftward | 1-110 HIII 50th FTSS.004 |
| 6 | 03E03E21-M21 | 21HEADFR00H3ACZA | Head (FT) Accel Z | 1000 | g | - | Upward | 1-110 HIII 50th FTSS.005 |
| 7 | 00L13-F14 | 21HEADUP00H3ACXA | Head (TP) Accel X | 1000 | g | + | Forward | 1-110 HIII 50th FTSS.006 |
| 8 | 99H12-F08 | 21HEADUP00H3ACYA | Head (TP) Accel Y | 1000 | g | - | Leftward | 1-110 HIII 50th FTSS.007 |
| 9 | 03E03E20-N01 | 21HEADLE00H3ACXA | Head (LT) Accel X | 1000 | g | + | Forward | 1-110 HIII 50th FTSS.008 |
| 10 | 03D03D16-F14 | 21HEADLE00H3ACZA | Head (LT) Accel Z | 1000 | g | - | Upward | 1-110 HIII 50th FTSS.009 |
| 11 | 1716A-1039-FX | 21NECKUP00H3FOXA | Neck Force X | 8896.4 | N | - | Head forward, chest rearward | 1-110 HIII 50th FTSS.010 |
| 12 | 1716A-1039-FY | 21NECKUP00H3FOYA | Neck Force Y | 8896.4 | N | + | Head leftward, chest rightward | 1-110 HIII 50th FTSS.011 |
| 13 | 1716A-1039-FZ | 21NECKUP00H3FOZA | Neck Force Z | 13344 | N | + | Head upward, chest downward | 1-110 HIII 50th FTSS.012 |
| 14 | 1716A-1039-MX | 21NECKUP00H3MOXA | Neck Moment X | 282 | N·m | - | Right ear toward right shoulder | 1-110 HIII 50th FTSS.013 |
| 15 | 1716A-1039-MY | 21NECKUP00H3MOYA | Neck Moment Y | 282 | N·m | + | Chin toward sternum | 1-110 HIII 50th FTSS.014 |
| 16 | 1716A-1039-MZ | 21NECKUP00H3MOZA | Neck Moment Z | 282 | N·m | + | Chin toward left shoulder | 1-110 HIII 50th FTSS.015 |
| 17 | 1794A-215-FX | 21NECKLO00H3FOXA | Neck Lower Force X | 13344 | N | - | Head forward, chest rearward | 1-110 HIII 50th FTSS.016 |
| 18 | 1794A-215-FY | 21NECKLO00H3FOYA | Neck Lower Force Y | 13344 | N | + | Head leftward, chest rightward | 1-110 HIII 50th FTSS.017 |
| 19 | 1794A-215-FZ | 21NECKLO00H3FOZA | Neck Lower Force Z | 13344 | N | + | Head upward, chest downward | 1-110 HIII 50th FTSS.018 |
| 20 | 1794A-215-MX | 21NECKLO00H3MOXA | Neck Lower Moment X | 452 | N·m | - | Right ear toward right shoulder | 1-110 HIII 50th FTSS.019 |
| 21 | 1794A-215-MY | 21NECKLO00H3MOYA | Neck Lower Moment Y | 452 | N·m | + | Chin toward sternum | 1-110 HIII 50th FTSS.020 |
| 22 | 1794A-215-MZ | 21NECKLO00H3MOZA | Neck Lower Moment Z | 452 | N·m | + | Chin toward left shoulder | 1-110 HIII 50th FTSS.021 |
| 23 | AJ534 | 21CHSTCG00H3ACXA | Chest Accel X | 1000 | g | + | Forward | 1-110 HIII 50th FTSS.022 |
| 24 | J17976 | 21CHSTCG00H3ACYA | Chest Accel Y | 1000 | g | - | Leftward | 1-110 HIII 50th FTSS.023 |
| 25 | J32884 | 21CHSTCG00H3ACZA | Chest Accel Z | 1000 | g | - | Upward | 1-110 HIII 50th FTSS.024 |
| 26 | 02I02I10-N15 | 21CHSTCGRDH3ACXA | Chest Accel X Red. | 1000 | g | - | Rearward | 1-110 HIII 50th FTSS.025 |

## Channel Report Test Number 060310

| Ref | Transducer ID | ISO Signal Identifier | Description | FScale | Units | DAS Flip | Positive Polarity | Assembly |
|---|---|---|---|---|---|---|---|---|
| 27 | 02D02C21-N02 | 21CHSTCGRDH3ACYA | Chest Accel Y Red. | 1000 | g | - | Leftward | 1-110 HIII 50th FTSS.026 |
| 28 | 98H10-F18 | 21CHSTCGRDH3ACZA | Chest Accel Z Red. | 1000 | g | - | Upward | 1-110 HIII 50th FTSS.027 |
| 29 | CST110 | 21CHST0000H3DSXA | Chest Deflection X | 100 | mm | - | Rearward | 1-110 HIII 50th FTSS.028 |
| 30 | J23803 | 21PELVCG00H3ACXA | Pelvis Accel X | 600 | g | - | Rearward | 1-110 HIII 50th FTSS.029 |
| 31 | J32180 | 21PELVCG00H3ACYA | Pelvis Accel Y | 600 | g | - | Leftward | 1-110 HIII 50th FTSS.030 |
| 32 | J20556 | 21PELVCG00H3ACZA | Pelvis Accel Z | 600 | g | - | Upward | 1-110 HIII 50th FTSS.031 |
| 33 | 2121A-1396 | 21FEMRLL00H3FOZA | Left Femur Force Z | 13344 | N | + | Knee forward, pelvis rearward | 1-110 HIII 50th FTSS.032 |
| 34 | 2121A-1397 | 21FEMRRL00H3FOZA | Right Femur Force Z | 13344 | N | + | Knee forward, pelvis rearward | 1-110 HIII 50th FTSS.033 |
| 35 | 150-0121VL-14696 | 21KNSLLE00H3DSXA | Left Knee Displacement X | 21.1 | mm | - | Hold femur in place, tibia | 1-LX116-117.001 |
| 36 | 4353J-97-FX | 21TIBILULXH3FOXA | Left Upper Tibia Force X | 11120 | N | + | Tibia forward, knee rearward | 1-LX116-117.002 |
| 37 | 4353J-97-FZ | 21TIBILULXH3FOZA | Left Upper Tibia Force Z | 11120 | N | + | Tibia downward, femur upward | 1-LX116-117.003 |
| 38 | 4353J-97-MX | 21TIBILULXH3MOXA | Left Upper Tibia Moment X | 395.4 | Nm | + | Ankle leftward, hold knee in | 1-LX116-117.004 |
| 39 | 4353J-97-MY | 21TIBILULXH3MOYA | Left Upper Tibia Moment Y | 395.4 | Nm | + | Ankle forward, hold knee in | 1-LX116-117.005 |
| 40 | 02I02I10-N28 | 21TIBILELXH3ACXA | Left Tibia Accel X | 1000 | g | + | Tibia forward | 1-LX116-117.006 |
| 41 | 01G25-N01 | 21TIBILELXH3ACYA | Left Tibia Accel Y | 1000 | g | + | Tibia right | 1-LX116-117.007 |
| 42 | 4929J-80-FX | 21TIBILLLXH3FOXA | Left Lower Tibia Force X | 11120 | N | + | Ankle forward, knee rearward | 1-LX116-117.008 |
| 43 | 4929J-80-FY | 21TIBILLLXH3FOYA | Left Lower Tibia Force Y | 11120 | N | + | Ankle rightward, knee leftward | 1-LX116-117.009 |
| 44 | 4929J-80-FZ | 21TIBILLLXH3FOZA | Left Lower Tibia Force Z | 11120 | N | + | Ankle downward, knee upward | 1-LX116-117.010 |
| 45 | 4929J-80-MX | 21TIBILLLXH3MOXA | Left Lower Tibia Moment X | 395.4 | Nm | + | Ankle leftward, hold knee in | 1-LX116-117.011 |
| 46 | 4929J-80-MY | 21TIBILLLXH3MOYA | Left Lower Tibia Moment Y | 395.4 | Nm | + | Ankle forward, hold knee in | 1-LX116-117.012 |
| 47 | PD210-4B-60 | 21FOOTLELXH3ANXA | Left Foot Angular Dis. X LX117X | 165 | ° | + | Eversion | 1-LX116-117.013 |
| 48 | PD210-4B-61 | 21FOOTLELXH3ANYA | Left Foot Angular Dis. Y LX117Y | 165 | ° | + | Dorsiflexion | 1-LX116-117.014 |
| 49 | PD210-4B-62 | 21FOOTLELXH3ANZA | Left Foot Angular Dis. Z LX117Z | 165 | ° | + | Internal rotation | 1-LX116-117.015 |
| 50 | 02A04-A24 | 21FOOTLELXH3ACXA | Left Foot Accel X | 1000 | g | + | Foot forward | 1-LX116-117.016 |
| 51 | 03E03E18-F22 | 21FOOTLELXH3ACYA | Left Foot Accel Y | 1000 | g | + | Foot rightward | 1-LX116-117.017 |
| 52 | 03E03E20-N06 | 21FOOTLELXH3ACZA | Left Foot Accel Z | 1000 | g | + | Foot down | 1-LX116-117.018 |

## Channel Report Test Number 060310

| Ref | Transducer ID | ISO Signal Identifier | Description | FScale | Units | DAS Flip | Positive Polarity | Assembly |
|---|---|---|---|---|---|---|---|---|
| 53 | 150-0121VL-14672 | 21KNSLRI00H3DSXA | Right Knee Displacement X | 21.1 | mm | - | Hold femur in place, tibia | 1-LX116-117.019 |
| 54 | 4353J-79-FX | 21TIBIRULXH3FOXA | Right Upper Tibia Force X | 11120 | N | + | Tibia forward, knee rearward | 1-LX116-117.020 |
| 55 | 4353J-79-FZ | 21TIBIRULXH3FOZA | Right Upper Tibia Force Z | 11120 | N | + | Tibia downward, femur upward | 1-LX116-117.021 |
| 56 | 4353J-79-MX | 21TIBIRULXH3MOXA | Right Upper Tibia Moment X | 395.4 | Nm | + | Ankle leftward, hold knee in | 1-LX116-117.022 |
| 57 | 4353J-79-MY | 21TIBIRULXH3MOYA | Right Upper Tibia Moment Y | 395.4 | Nm | + | Ankle forward, hold knee in | 1-LX116-117.023 |
| 58 | J32157 | 21TIBIRILXH3ACXA | Right Tibia Accel X | 1000 | g | + | Tibia forward | 1-LX116-117.024 |
| 59 | P16171 | 21TIBIRILXH3ACYA | Right Tibia Accel Y | 1000 | g | + | Tibia right | 1-LX116-117.025 |
| 60 | 4929J-79-FX | 21TIBIRLLXH3FOXA | Right Lower Tibia Force X | 11120 | N | + | Ankle forward, knee rearward | 1-LX116-117.026 |
| 61 | 4929J-79-FY | 21TIBIRLLXH3FOYA | Right Lower Tibia Force Y | 11120 | N | + | Ankle rightward, knee leftward | 1-LX116-117.027 |
| 62 | 4929J-79-FZ | 21TIBIRLLXH3FOZA | Right Lower Tibia Force Z | 11120 | N | + | Ankle downward, knee upward | 1-LX116-117.028 |
| 63 | 4929J-79-MX | 21TIBIRLLXH3MOXA | Right Lower Tibia Moment X | 395.4 | Nm | + | Ankle leftward, hold knee in | 1-LX116-117.029 |
| 64 | 4929J-79-MY | 21TIBIRLLXH3MOYA | Right Lower Tibia Moment Y | 395.4 | Nm | + | Ankle forward, hold knee in | 1-LX116-117.030 |
| 65 | PD210-4B-338 | 21FOOTRILXH3ANXA | Right Foot Angular Dis. X LX116X | 164 | ° | + | Inversion | 1-LX116-117.031 |
| 66 | PD210-4B-58 | 21FOOTRILXH3ANYA | Right Foot Angular Dis. Y LX116Y | 165 | ° | + | Dorsiflexion | 1-LX116-117.032 |
| 67 | PD210-4B-339 | 21FOOTRILXH3ANZA | Right Foot Angular Dis. Z LX116Z | 165 | ° | + | External rotation | 1-LX116-117.033 |
| 68 | 04J04J07-M01 | 21FOOTRILXH3ACXA | Right Foot Accel X | 1000 | g | + | Foot forward | 1-LX116-117.034 |
| 69 | 02I02I16-A20 | 21FOOTRILXH3ACYA | Right Foot Accel Y | 1000 | g | + | Foot rightward | 1-LX116-117.035 |
| 70 | P49870 | 21FOOTRILXH3ACZA | Right Foot Accel Z | 1000 | g | + | Foot down | 1-LX116-117.036 |
| 71 | 03E03E20-N20 | 23HEADCG00HFACXA | Head Accel X | 1000 | g | + | Forward | 3-416 HIII 5th FTSS.001 |
| 72 | 02A18-N10 | 23HEADCG00HFACYA | Head Accel Y | 1000 | g | - | Leftward | 3-416 HIII 5th FTSS.002 |
| 73 | 02A09-F15 | 23HEADCG00HFACZA | Head Accel Z | 1000 | g | - | Upward | 3-416 HIII 5th FTSS.003 |
| 74 | 01L26-F02 | 23HEADCGRDHFACXA | Head Accel Red X | 1000 | g | - | Rearward | 3-416 HIII 5th FTSS.004 |
| 75 | 02A09-F13 | 23HEADCGRDHFACYA | Head Accel Red Y | 1000 | g | - | Leftward | 3-416 HIII 5th FTSS.005 |
| 76 | 02A16-A06 | 23HEADCGRDHFACZA | Head Accel Red Z | 1000 | g | - | Upward | 3-416 HIII 5th FTSS.006 |
| 77 | 02A18-N04 | 23HEADFR00HFACYA | Head (FT) Accel Y | 1000 | g | - | Leftward | 3-416 HIII 5th FTSS.007 |
| 78 | 02A18-N20 | 23HEADFR00HFACZA | Head (FT) Accel Z | 1000 | g | - | Upward | 3-416 HIII 5th FTSS.008 |
| 79 | 03F03F09-N05 | 23HEADUP00HFACXA | Head (TP) Accel X | 1000 | g | + | Forward | 3-416 HIII 5th FTSS.009 |
| 80 | 98H14-K10 | 23HEADUP00HFACYA | Head (TP) Accel Y | 1000 | g | - | Leftward | 3-416 HIII 5th FTSS.010 |

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| Ref | Transducer ID | ISO Signal Identifier | Description | FScale | Units | DAS Flip | Positive Polarity | Assembly |
|---|---|---|---|---|---|---|---|---|
| 81 | 02A16-A19 | 23HEADLE00HFACXA | Head (LT) Accel X | 1000 | g | + | Forward | 3-416 HIII 5th FTSS.011 |
| 82 | 02A16-A22 | 23HEADLE00HFACZA | Head (LT) Accel Z | 1000 | g | - | Upward | 3-416 HIII 5th FTSS.012 |
| 83 | IF-205-161-FX | 23NECKUP00HFFOXA | Neck Force X | 8896 | N | - | Head forward, chest rearward | 3-416 HIII 5th FTSS.013 |
| 84 | IF-205-161-FY | 23NECKUP00HFFOYA | Neck Force Y | 8896 | N | + | Head leftward, chest rightward | 3-416 HIII 5th FTSS.014 |
| 85 | IF-205-161-FZ | 23NECKUP00HFFOZA | Neck Force Z | 13344 | N | + | Head upward, chest downward | 3-416 HIII 5th FTSS.015 |
| 86 | IF-205-161-MX | 23NECKUP00HFMOXA | Neck Moment X | 282 | N·m | - | Right ear toward right shoulder | 3-416 HIII 5th FTSS.016 |
| 87 | IF-205-161-MY | 23NECKUP00HFMOYA | Neck Moment Y | 282 | N·m | + | Chin toward sternum | 3-416 HIII 5th FTSS.017 |
| 88 | IF-205-161-MZ | 23NECKUP00HFMOZA | Neck Moment Z | 282 | N·m | + | Chin toward left shoulder | 3-416 HIII 5th FTSS.018 |
| 89 | 3251-108-FX | 23NECKLO00HFFOXA | Neck Lower Force X | 13344 | N | - | Head forward, chest rearward | 3-416 HIII 5th FTSS.019 |
| 90 | 3251-108-FY | 23NECKLO00HFFOYA | Neck Lower Force Y | 13344 | N | + | Head leftward, chest rightward | 3-416 HIII 5th FTSS.020 |
| 91 | 3251-108-FZ | 23NECKLO00HFFOZA | Neck Lower Force Z | 13344 | N | + | Head upward, chest downward | 3-416 HIII 5th FTSS.021 |
| 92 | 3251-108-MX | 23NECKLO00HFMOXA | Neck Lower Moment X | 452 | N·m | - | Right ear toward right shoulder | 3-416 HIII 5th FTSS.022 |
| 93 | 3251-108-MY | 23NECKLO00HFMOYA | Neck Lower Moment Y | 452 | N·m | + | Chin toward sternum | 3-416 HIII 5th FTSS.023 |
| 94 | 3251-108-MZ | 23NECKLO00HFMOZA | Neck Lower Moment Z | 339 | N·m | + | Chin toward left shoulder | 3-416 HIII 5th FTSS.024 |
| 95 | 02A16-A04 | 23CHSTCG00HFACXA | Chest Accel X | 1000 | g | + | Forward | 3-416 HIII 5th FTSS.025 |
| 96 | C02B19-F02 | 23CHSTCG00HFACYA | Chest Accel Y | 1000 | g | - | Leftward | 3-416 HIII 5th FTSS.026 |
| 97 | C02B19-F06 | 23CHSTCG00HFACZA | Chest Accel Z | 1000 | g | - | Upward | 3-416 HIII 5th FTSS.027 |
| 98 | B02A25-N08 | 23CHSTCGRDHFACXA | Chest Accel Red X | 1000 | g | - | Rearward | 3-416 HIII 5th FTSS.028 |
| 99 | 03E03E19-N02 | 23CHSTCGRDHFACYA | Chest Accel Red Y | 1000 | g | - | Leftward | 3-416 HIII 5th FTSS.029 |
| 100 | C02B19-F04 | 23CHSTCGRDHFACZA | Chest Accel Red Z | 1000 | g | - | Upward | 3-416 HIII 5th FTSS.030 |
| 101 | B02A09-F08 | 23STRNUP00HFACXA | Sternum Upper Accel X | 1000 | g | + | Forward | 3-416 HIII 5th FTSS.031 |
| 102 | 02A16-A05 | 23STRNMI00HFACXA | Sternum Mid Accel X | 1000 | g | + | Forward | 3-416 HIII 5th FTSS.032 |
| 103 | 03F03F09-N18 | 23STRNLO00HFACXA | Sternum Lower Accel X | 1000 | g | + | Forward | 3-416 HIII 5th FTSS.033 |
| 104 | 14CB1-2897-416 | 23CHST0000HFDSXA | Chest Deflection X 516 | 100 | mm | + | Forward | 3-416 HIII 5th FTSS.034 |
| 105 | C02B19-F03 | 23PELVCG00HFACXA | Pelvis Accel X | 1000 | g | - | Rearward | 3-416 HIII 5th FTSS.035 |
| 106 | 02A16-A27 | 23PELVCG00HFACYA | Pelvis Accel Y | 1000 | g | - | Leftward | 3-416 HIII 5th FTSS.036 |

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| Ref | Transducer ID | ISO Signal Identifier | Description | FScale | Units | DAS Flip | Positive Polarity | Assembly |
|---|---|---|---|---|---|---|---|---|
| 107 | C02B19-F01 | 23PELVCG00HFACZA | Pelvis Accel Z | 1000 | g | - | Upward | 3-416 HIII 5th FTSS.037 |
| 108 | 2430-736 | 23FEMRLL00HFFOZA | Left Femur Force Z #8 | 13344 | N | + | Knee forward, pelvis rearward | 3-416 HIII 5th FTSS.038 |
| 109 | 2430-742 | 23FEMRRL00HFFOZA | Right Femur Force Z 507 | 13344 | N | + | Knee forward, pelvis rearward | 3-416 HIII 5th FTSS.057 |
| 110 | 150-0121VR-22653 | 23KNSLLE00HFDSXA | Left Knee Displacement | 40 | mm | - | Rearward | 3-416 HIII 5th FTSS.039 |
| 111 | 4825J-91-FX | 23TIBILUFXHFFOXA | Left Upper Tibia Force X | 8896 | N | + | Ankle forward, knee rearward | 3-416 HIII 5th FTSS.040 |
| 112 | 4825J-91-FZ | 23TIBILUFXHFFOZA | Left Upper Tibia Force Z | 8896 | N | + | Tibia downward, femur upward | 3-416 HIII 5th FTSS.041 |
| 113 | 4825J-91-MX | 23TIBILUFXHFMOXA | Left Upper Tibia Moment X | 282.4 | N·m | + | Ankle leftward, hold knee in | 3-416 HIII 5th FTSS.042 |
| 114 | 4825J-91-MY | 23TIBILUFXHFMOYA | Left Upper Tibia Moment Y | 282.4 | N·m | + | Ankle forward, bottom of knee clevis rearward | 3-416 HIII 5th FTSS.043 |
| 115 | 99H30-Z01 | 23TIBILEFXHFACXA | Left Tibia Accel X | 1000 | g | + | Forward | 3-416 HIII 5th FTSS.044 |
| 116 | 99108-F26 | 23TIBILEFXHFACYA | Left Tibia Accel Y | 1000 | g | + | Rightward | 3-416 HIII 5th FTSS.045 |
| 117 | 4826J-92-FX | 23TIBILLFXHFFOXA | Left Lower Tibia Force X | 8896.4 | N | + | Ankle forward, knee rearward | 3-416 HIII 5th FTSS.046 |
| 118 | 4826J-92-FY | 23TIBILLFXHFFOYA | Left Lower Tibia Force Y | 8896.4 | N | + | Ankle rightward, knee leftward | 3-416 HIII 5th FTSS.047 |
| 119 | 4826J-92-FZ | 23TIBILLFXHFFOZA | Left Lower Tibia Force Z | 8896.4 | N | + | Ankle downward, knee upward | 3-416 HIII 5th FTSS.048 |
| 120 | 4826J-92-MX | 23TIBILLFXHFMOXA | Left Lower Tibia Moment X | 282.4 | N·m | + | Ankle leftward, hold knee in | 3-416 HIII 5th FTSS.049 |
| 121 | 4826J-92-MY | 23TIBILLFXHFMOYA | Left Lower Tibia Moment Y | 282.4 | N·m | + | Ankle forward, bottom of knee clevis rearward | 3-416 HIII 5th FTSS.050 |
| 122 | PD210-4B-AK-044 | 23FOOTLEFXHFANXA | Left Foot Disp. X FLX102X | 318 | ° | - | Left side | 3-416 HIII 5th FTSS.051 |
| 123 | PD210-4B-AK-043 | 23FOOTLEFXHFANYA | Left Foot Disp. Y FLX102Y | 318 | ° | - | Nose downward | 3-416 HIII 5th FTSS.052 |
| 124 | PD210-4B-265 | 23FOOTLEFXHFANZA | Left Foot Disp. Z FLX102Z | 318 | ° | - | Front turned leftward | 3-416 HIII 5th FTSS.053 |
| 125 | 02I02I05-F13 | 23FOOTLEFXHFACXA | Left Foot Accel X | 1000 | g | + | Forward | 3-416 HIII 5th FTSS.054 |
| 126 | 03E03E21-M10 | 23FOOTLEFXHFACYA | Left Foot Accel Y | 1000 | g | + | Rightward | 3-416 HIII 5th FTSS.055 |
| 127 | 03F03E29-N16 | 23FOOTLEFXHFACZA | Left Foot Accel Z | 1000 | g | + | Downward | 3-416 HIII 5th FTSS.056 |
| 128 | 150-0121VL-030583 | 23KNSLRI00HFDSXA | Right Knee Displacement | 22.1 | mm | - | Rearward | 3-416 HIII 5th FTSS.058 |
| 129 | 4825J-90-FX | 23TIBIRUFXHFFOXA | Right Upper Tibia Force X | 8896.4 | N | + | Ankle forward, knee rearward | 3-416 HIII 5th FTSS.059 |

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| Ref | Transducer ID | ISO Signal Identifier | Description | FScale | Units | DAS Flip | Positive Polarity | Assembly |
|---|---|---|---|---|---|---|---|---|
| 130 | 4825J-90-FZ | 23TIBIRUFXHFFOZA | Right Upper Tibia Force Z | 8896.4 | N | + | Tibia downward, femur upward | 3-416 HIII 5th FTSS.060 |
| 131 | 4825J-90-MX | 23TIBIRUFXHFMOXA | Right Upper Tibia Moment X | 282.4 | N·m | + | Ankle leftward, hold knee in | 3-416 HIII 5th FTSS.061 |
| 132 | 4825J-90-MY | 23TIBIRUFXHFMOYA | Right Upper Tibia Moment Y | 282.4 | N·m | + | Ankle forward, bottom of knee clevis rearward | 3-416 HIII 5th FTSS.062 |
| 133 | 98H10-F05 | 23TIBIRIFXHFACXA | Right Tibia Accel X | 1000 | g | + | Forward | 3-416 HIII 5th FTSS.063 |
| 134 | J35987 | 23TIBIRIFXHFACYA | Right Tibia Accel Y | 1000 | g | + | Rightward | 3-416 HIII 5th FTSS.064 |
| 135 | 4826J-93-FX | 23TIBIRLFXHFFOXA | Right Lower Tibia Force X | 8896.4 | N | + | Ankle forward, knee rearward | 3-416 HIII 5th FTSS.065 |
| 136 | 4826J-93-FY | 23TIBIRLFXHFFOYA | Right Lower Tibia Force Y | 8896.4 | N | + | Ankle rightward, knee leftward | 3-416 HIII 5th FTSS.066 |
| 137 | 4826J-93-FZ | 23TIBIRLFXHFFOZA | Right Lower Tibia Force Z | 8896.4 | N | + | Ankle downward, knee upward | 3-416 HIII 5th FTSS.067 |
| 138 | 4826J-93-MX | 23TIBIRLFXHFMOXA | Right Lower Tibia Moment X | 282.4 | N·m | + | Ankle leftward, hold knee in | 3-416 HIII 5th FTSS.068 |
| 139 | 4826J-93-MY | 23TIBIRLFXHFMOYA | Right Lower Tibia Moment Y | 282.4 | N·m | + | Ankle forward, bottom of knee clevis rearward | 3-416 HIII 5th FTSS.069 |
| 140 | PD210-4B-AK-029 | 23FOOTRIFXHFANXA | Right Foot Disp. X FLX101X | 318 | ° | - | Left side | 3-416 HIII 5th FTSS.070 |
| 141 | PD210-4B-AK-030 | 23FOOTRIFXHFANYA | Right Foot Disp. Y FLX101Y | 318 | ° | + | Nose upward | 3-416 HIII 5th FTSS.071 |
| 142 | PD210-4B-345 | 23FOOTRIFXHFANZA | Right Foot Disp. Z FLX101Z | 318 | ° | - | Front turned leftward | 3-416 HIII 5th FTSS.072 |
| 143 | 02I02I10-N18 | 23FOOTRIFXHFACXA | Right Foot Accel X | 1000 | g | + | Forward | 3-416 HIII 5th FTSS.073 |
| 144 | 00L13-F29 | 23FOOTRIFXHFACYA | Right Foot Accel Y | 1000 | g | + | Rightward | 3-416 HIII 5th FTSS.074 |
| 145 | 01G25-N08 | 23FOOTRIFXHFACZA | Right Foot Accel Z | 1000 | g | + | Downward | 3-416 HIII 5th FTSS.075 |
| 146 | P49911 | 24CRME000000ACXA | Left Rear Seat Cross-member X-axis Acceleration | 1000 | g | + | Forward | |
| 147 | P49778 | 26CRME000000ACXA | Right Rear Seat Cross-member X-axis Acceleration | 1000 | g | + | Forward | |
| 148 | P49709 | 22ENGNTP0000ACXA | Top of Engine X-axis Acceleration | 2000 | g | + | Forward | |
| 149 | P45767 | 22ENGNBO0000ACXA | Bottom of Engine X-axis Acceleration | 2000 | g | - | Rearward | |
| 150 | P49959 | 23VEHCRI0000ACXA | Right Front Brake Caliper X-axis acceleration | 2000 | g | - | Rearward | |
| 151 | P49912 | 21VEHCLE0000ACXA | Left Front Brake Caliper X-axis acceleration | 2000 | g | + | Forward | |
| 152 | P47526 | 22DASH000000ACXA | Dash Center X-axis acceleration | 1500 | g | + | Forward | |
| 153 | P49635 | 21PEAC000000ACXA | Toe Pan Accelerator x-axis acceleration | 2000 | g | + | Forward | |
| 154 | P49696 | 21PEAC000000ACZA | Toe Pan Accelerator z-axis acceleration | 2000 | g | - | Upward | |
| 155 | P49396 | 21VEHC000001ACXA | Toe Pan footrest x-axis acceleration | 2000 | g | + | Forward | |
| 156 | P49634 | 21VEHC000001ACZA | Toe Pan footrest z-axis acceleration | 2000 | g | - | Upward | |

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| Ref | Transducer ID | ISO Signal Identifier | Description | FScale | Units | DAS Flip | Positive Polarity | Assembly |
|---|---|---|---|---|---|---|---|---|
| 157 | P47495 | 25TUNNCY0000ACXA | Rear Tunnel center x-axis acceleration | 1000 | g | + | Forward | |
| 158 | P47506 | 20VEHCCG0000ACXA | Vehicle CG X-axis acceleration | 1500 | g | + | Forward | |
| 159 | P49400 | 20VEHCCG0000ACYA | Vehicle CG Y-axis acceleration | 1500 | g | - | Leftward | |
| 160 | P46502 | 20VEHCCG0000ACZA | Vehicle CG Z-axis acceleration | 1500 | g | - | Upward | |
| 161 | P46492 | 28VEHC000000ACXA | Vehicle rear deck X-axis acceleration | 1000 | g | + | Forward | |
| 162 | P46065 | 28VEHC000000ACYA | Vehicle rear deck Y-axis acceleration | 1000 | g | - | Leftward | |
| 163 | P44291 | 28VEHC000000ACZA | Vehicle rear deck Z-axis acceleration | 1000 | g | + | Downward | |
| 164 | A60897 | 21SEBA0000B5DS0A | Driver lap belt spool SP04 | 635 | mm | + | Bipolar | |
| 165 | A37490 | 21SEBA0000B3DS0A | Driver shoulder belt spool and retraction SP03 | 1270 | mm | + | Bipolar | |
| 166 | K1506282A | 23SEBA0000B5DS0A | RF Pass lap belt spool SP14 | 635 | mm | + | Bipolar | |
| 167 | K1506281A | 23SEBA0000B3DS0A | RF Pass shoulder belt spool and retraction 5S | 635 | mm | + | Bipolar | |
| 168 | ABFire1 | 21AIRBFR0100EV0A | DRIV. FRONT AIRBAG1 IND IP2 | 5 | V | + | Bipolar | |
| 169 | ABFire2 | 21AIRBFR0200EV0A | DRIV. FRONT AIRBAG2 IND | 5 | V | + | Bipolar | |
| 170 | ABFire3 | 23AIRBFR0100EV0A | PASS. FRONT AIRBAG1 IND IP24 | 5 | V | + | Bipolar | |
| 171 | ABFire4 | 23AIRBFR0200EV0A | PASS. FRONT AIRBAG2 IND IP38 | 5 | V | + | Bipolar | |

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| Ref | Transducer ID | ISO Signal Identifier | Description | FScale | Units | DAS Flip | Positive Polarity | Assembly |
|---|---|---|---|---|---|---|---|---|
| 1 | Trig D1 | 10ZERO000000EV00 | EVENT | 1 | Logic | + | Bipolar | |
| 2 | J32101 | 11HEADCG00H3ACXA | Head Accel X | 1000 | g | + | Forward | 1-090 HIII 50th Alderson.001 |
| 3 | AJ4J6 | 11HEADCG00H3ACYA | Head Accel Y | 1000 | g | - | Leftward | 1-090 HIII 50th Alderson.002 |
| 4 | DW83J | 11HEADCG00H3ACZA | Head Accel Z | 1000 | g | - | Upward | 1-090 HIII 50th Alderson.003 |
| 5 | 98H14-K15 | 11HEADFR00H3ACYA | Head (FT) Accel Y | 1000 | g | - | Leftward | 1-090 HIII 50th Alderson.004 |
| 6 | 03F03E29-N01 | 11HEADFR00H3ACZA | Head (FT) Accel Z | 1000 | g | - | Upward | 1-090 HIII 50th Alderson.005 |
| 7 | 02I02I10-N04 | 11HEADUP00H3ACXA | Head (TP) Accel X | 1000 | g | + | Forward | 1-090 HIII 50th Alderson.006 |
| 8 | 98H10-F02 | 11HEADUP00H3ACYA | Head (TP) Accel Y | 1000 | g | - | Leftward | 1-090 HIII 50th Alderson.007 |
| 9 | 03G03F23-M09 | 11HEADLE00H3ACXA | Head (LT) Accel X | 1000 | g | + | Forward | 1-090 HIII 50th Alderson.008 |
| 10 | 05G20-L24 | 11HEADLE00H3ACZA | Head (LT) Accel Z | 1000 | g | - | Upward | 1-090 HIII 50th Alderson.009 |
| 11 | 1716A-810-FX | 11NECKUP00H3FOXA | Neck Force X | 8896.4 | N | - | Head forward, chest rearward | 1-090 HIII 50th Alderson.010 |
| 12 | 1716A-810-FY | 11NECKUP00H3FOYA | Neck Force Y | 8896.4 | N | + | Head leftward, chest rightward | 1-090 HIII 50th Alderson.011 |
| 13 | 1716A-810-FZ | 11NECKUP00H3FOZA | Neck Force Z | 13344 | N | + | Head upward, chest downward | 1-090 HIII 50th Alderson.012 |
| 14 | 1716A-810-MX | 11NECKUP00H3MOXA | Neck Moment X | 282 | N·m | - | Right ear toward, right shoulder | 1-090 HIII 50th Alderson.013 |
| 15 | 1716A-810-MY | 11NECKUP00H3MOYA | Neck Moment Y | 282 | N·m | + | Chin toward sternum | 1-090 HIII 50th Alderson.014 |
| 16 | 1716A-810-MZ | 11NECKUP00H3MOZA | Neck Moment Z | 282 | N·m | + | Chin toward left shoulder | 1-090 HIII 50th Alderson.015 |
| 17 | 1794A-0121-FX | 11NECKLO00H3FOXA | Neck Lower Force X | 13344 | N | - | Head forward, chest rearward | 1-090 HIII 50th Alderson.016 |
| 18 | 1794A-0121-FY | 11NECKLO00H3FOYA | Neck Lower Force Y | 13344 | N | + | Head leftward, chest rightward | 1-090 HIII 50th Alderson.017 |
| 19 | 1794A-0121-FZ | 11NECKLO00H3FOZA | Neck Lower Force Z | 13344 | N | + | Head upward, chest downward | 1-090 HIII 50th Alderson.018 |
| 20 | 1794A-0121-MX | 11NECKLO00H3MOXA | Neck Lower Moment X | 452 | N·m | - | Right ear toward, right shoulder | 1-090 HIII 50th Alderson.019 |
| 21 | 1794A-0121-MY | 11NECKLO00H3MOYA | Neck Lower Moment Y | 452 | N·m | + | Chin toward sternum | 1-090 HIII 50th Alderson.020 |
| 22 | 1794A-0121-MZ | 11NECKLO00H3MOZA | Neck Lower Moment Z | 452 | N·m | + | Chin toward left shoulder | 1-090 HIII 50th Alderson.021 |
| 23 | P16155 | 11CHSTCG00H3ACXA | Chest Accel X | 1000 | g | + | Forward | 1-090 HIII 50th Alderson.022 |
| 24 | J27430 | 11CHSTCG00H3ACYA | Chest Accel Y | 1000 | g | - | Leftward | 1-090 HIII 50th Alderson.023 |
| 25 | J13739 | 11CHSTCG00H3ACZA | Chest Accel Z | 1000 | g | - | Upward | 1-090 HIII 50th Alderson.024 |
| 26 | B02A25-N09 | 11CHSTCGRDH3ACXA | Chest Accel X Red. | 1000 | g | - | Rearward | 1-090 HIII 50th Alderson.025 |
| 27 | 03E03E20-N17 | 11CHSTCGRDH3ACYA | Chest Accel Y Red. | 1000 | g | - | Leftward | 1-090 HIII 50th Alderson.026 |

## Channel Report Test Number 060310

| Ref | Transducer ID | ISO Signal Identifier | Description | FScale | Units | DAS Flip | Positive Polarity | Assembly |
|---|---|---|---|---|---|---|---|---|
| 28 | 00L13-F05 | 11CHSTCGRDH3ACZA | Chest Accel Z Red. | 1000 | g | - | Upward | 1-090 HIII 50th Alderson.027 |
| 29 | CST090 | 11CHST0000H3DSXA | Chest Deflection X | 100 | mm | + | Forward | 1-090 HIII 50th Alderson.028 |
| 30 | AGR67 | 11PELVCG00H3ACXA | Pelvis Accel X | 600 | g | - | Rearward | 1-090 HIII 50th Alderson.029 |
| 31 | J29023 | 11PELVCG00H3ACYA | Pelvis Accel Y | 600 | g | - | Leftward | 1-090 HIII 50th Alderson.030 |
| 32 | ACCT5 | 11PELVCG00H3ACZA | Pelvis Accel Z | 600 | g | - | Upward | 1-090 HIII 50th Alderson.031 |
| 33 | 2121A-1420 | 11FEMRLL00H3FOZA | Left Femur Force Z | 13344 | N | + | Knee forward, pelvis rearward | 1-090 HIII 50th Alderson.032 |
| 34 | 2121A-1421 | 11FEMRRL00H3FOZA | Right Femur Force Z | 13344 | N | + | Knee forward, pelvis rearward | 1-090 HIII 50th Alderson.033 |
| 35 | 150-0121VR-13739 | 11KNSLLE00H3DSXA | Left Knee Displacement X | 40 | mm | - | Hold femur in place, tibia rearward | 1-LX103-104.001 |
| 36 | 4353J-76-FX | 11TIBILULXH3FOXA | Left Upper Tibia Force X | 11120 | N | + | Tibia forward, knee rearward | 1-LX103-104.002 |
| 37 | 4353J-76-FZ | 11TIBILULXH3FOZA | Left Upper Tibia Force Z | 11120 | N | + | Tibia downward, femur upward | 1-LX103-104.003 |
| 38 | 4353J-76-MX | 11TIBILULXH3MOXA | Left Upper Tibia Moment X | 395.4 | Nm | + | Ankle leftward, hold knee in place | 1-LX103-104.004 |
| 39 | 4353J-76-MY | 11TIBILULXH3MOYA | Left Upper Tibia Moment Y | 395.4 | Nm | + | Ankle forward, hold knee in place | 1-LX103-104.005 |
| 40 | 05G20-L15 | 11TIBILELXH3ACXA | Left Tibia Accel X | 1000 | g | + | Tibia forward | 1-LX103-104.006 |
| 41 | 05H31-Z06 | 11TIBILELXH3ACYA | Left Tibia Accel Y | 1000 | g | + | Tibia right | 1-LX103-104.007 |
| 42 | 4929J-77-FX | 11TIBILLLXH3FOXA | Left Lower Tibia Force X | 11120 | N | + | Ankle forward, knee rearward | 1-LX103-104.008 |
| 43 | 4929J-77-FY | 11TIBILLLXH3FOYA | Left Lower Tibia Force Y | 11120 | N | + | Ankle rightward, knee leftward | 1-LX103-104.009 |
| 44 | 4929J-77-FZ | 11TIBILLLXH3FOZA | Left Lower Tibia Force Z | 11120 | N | + | Ankle downward, knee upward | 1-LX103-104.010 |
| 45 | 4929J-77-MX | 11TIBILLLXH3MOXA | Left Lower Tibia Moment X | 395.4 | Nm | + | Ankle leftward, hold knee in place | 1-LX103-104.011 |
| 46 | 4929J-77-MY | 11TIBILLLXH3MOYA | Left Lower Tibia Moment Y | 395.4 | Nm | + | Ankle forward, hold knee in place | 1-LX103-104.012 |
| 47 | PD210-4B-118 | 11FOOTLELXH3ANXA | Left Foot Angular Dis. X LX104X | 318 | ° | + | Eversion | 1-LX103-104.013 |
| 48 | PD210-4B-229 | 11FOOTLELXH3ANYA | Left Foot Angular Dis. Y LX104Y | 318 | ° | + | Dorsiflexion | 1-LX103-104.014 |
| 49 | PD210-4B-224 | 11FOOTLELXH3ANZA | Left Foot Angular Dis. Z LX104Z | 318 | ° | + | Internal rotation | 1-LX103-104.015 |
| 50 | 05I07-Z32 | 11FOOTLELXH3ACXA | Left Foot Accel X | 1000 | g | + | Foot forward | 1-LX103-104.016 |
| 51 | 05H31-Z09 | 11FOOTLELXH3ACYA | Left Foot Accel Y | 1000 | g | + | Foot rightward | 1-LX103-104.017 |
| 52 | 98H10-F07 | 11FOOTLELXH3ACZA | Left Foot Accel Z | 1000 | g | + | Foot down | 1-LX103-104.018 |

## Channel Report Test Number 060310

| Ref | Transducer ID | ISO Signal Identifier | Description | FScale | Units | DAS Flip | Positive Polarity | Assembly |
|---|---|---|---|---|---|---|---|---|
| 53 | 150-0121VL-13723 | 11KNSLRI00H3DSXA | Right Knee Displacement X | 40 | mm | - | Hold femur in place, tibia rearward | 1-LX103-104.019 |
| 54 | 4353J-75-FX | 11TIBIRULXH3FOXA | Right Upper Tibia Force X | 11120 | N | + | Tibia forward, knee rearward | 1-LX103-104.020 |
| 55 | 4353J-75-FZ | 11TIBIRULXH3FOZA | Right Upper Tibia Force Z | 11120 | N | + | Tibia downward, femur upward | 1-LX103-104.021 |
| 56 | 4353J-75-MX | 11TIBIRULXH3MOXA | Right Upper Tibia Moment X | 395.4 | Nm | + | Ankle leftward, hold knee in place | 1-LX103-104.022 |
| 57 | 4353J-75-MY | 11TIBIRULXH3MOYA | Right Upper Tibia Moment Y | 395.4 | Nm | + | Ankle forward, hold knee in place | 1-LX103-104.023 |
| 58 | 05H10-M16 | 11TIBIRILXH3ACXA | Right Tibia Accel X | 1000 | g | + | Tibia forward | 1-LX103-104.024 |
| 59 | 05H31-Z02 | 11TIBIRILXH3ACYA | Right Tibia Accel Y | 1000 | g | + | Tibia right | 1-LX103-104.025 |
| 60 | 4929J-76-FX | 11TIBIRLLXH3FOXA | Right Lower Tibia Force X | 11120 | N | + | Ankle forward, knee rearward | 1-LX103-104.026 |
| 61 | 4929J-76-FY | 11TIBIRLLXH3FOYA | Right Lower Tibia Force Y | 11120 | N | + | Ankle rightward, knee leftward | 1-LX103-104.027 |
| 62 | 4929J-76-FZ | 11TIBIRLLXH3FOZA | Right Lower Tibia Force Z | 11120 | N | + | Ankle downward, knee upward | 1-LX103-104.028 |
| 63 | 4929J-76-MX | 11TIBIRLLXH3MOXA | Right Lower Tibia Moment X | 395.4 | Nm | + | Ankle leftward, hold knee in place | 1-LX103-104.029 |
| 64 | 4929J-76-MY | 11TIBIRLLXH3MOYA | Right Lower Tibia Moment Y | 395.4 | Nm | + | Ankle forward, hold knee in place | 1-LX103-104.030 |
| 65 | PD210-4B-37 | 11FOOTRILXH3ANXA | Right Foot Angular Dis. X AK037X | 165 | ° | + | Inversion | 1-LX103-104.031 |
| 66 | PD210-4B-225 | 11FOOTRILXH3ANYA | Right Foot Angular Dis. Y AK225Y | 164 | ° | + | Dorsiflexion | 1-LX103-104.032 |
| 67 | PD210-4B-39 | 11FOOTRILXH3ANZA | Right Foot Angular Dis. Z AK039Z | 165 | ° | + | External rotation | 1-LX103-104.033 |
| 68 | 05I07-Z14 | 11FOOTRILXH3ACXA | Right Foot Accel X | 1000 | g | + | Foot forward | 1-LX103-104.034 |
| 69 | 05H25-L18 | 11FOOTRILXH3ACYA | Right Foot Accel Y | 1000 | g | + | Foot rightward | 1-LX103-104.035 |
| 70 | 05I13-X01 | 11FOOTRILXH3ACZA | Right Foot Accel Z | 1000 | g | + | Foot down | 1-LX103-104.036 |
| 71 | 98H13-F03 | 13HEADCG00HFACXA | Head Accel X | 1000 | g | + | Forward | 3-070 HIII 5th Denton.001 |
| 72 | 03E03E21-M01 | 13HEADCG00HFACYA | Head Accel Y | 1000 | g | - | Leftward | 3-070 HIII 5th Denton.002 |
| 73 | 02I02I05-F15 | 13HEADCG00HFACZA | Head Accel Z | 1000 | g | - | Upward | 3-070 HIII 5th Denton.003 |
| 74 | 1716AJ-1563-FX | 13NECKUP00HFFOXA | Neck Force X | 8896.4 | N | + | Head rearward, chest forward | 3-070 HIII 5th Denton.010 |
| 75 | 1716AJ-1563-FY | 13NECKUP00HFFOYA | Neck Force Y | 8896.4 | N | + | Head leftward, chest rightward | 3-070 HIII 5th Denton.011 |
| 76 | 1716AJ-1563-FZ | 13NECKUP00HFFOZA | Neck Force Z | 13344 | N | + | Head upward, chest downward | 3-070 HIII 5th Denton.012 |

## Channel Report Test Number 060310

| Ref | Transducer ID | ISO Signal Identifier | Description | FScale | Units | DAS Flip | Positive Polarity | Assembly |
|---|---|---|---|---|---|---|---|---|
| 77 | 1716AJ-1563-MX | 13NECKUP00HFMOXA | Neck Moment X | 282 | N·m | + | Left ear toward left shoulder | 3-070 HIII 5th Denton.013 |
| 78 | 1716AJ-1563-MY | 13NECKUP00HFMOYA | Neck Moment Y | 282 | N·m | + | Chin toward sternum | 3-070 HIII 5th Denton.014 |
| 79 | 1716AJ-1563-MZ | 13NECKUP00HFMOZA | Neck Moment Z | 282 | N·m | + | Chin towar left shoulder | 3-070 HIII 5th Denton.015 |
| 80 | 3251-107-FX | 13NECKLO00HFFOXA | Neck Lower Force X | 13344 | N | - | Head forward, chest rearward | 3-070 HIII 5th Denton.016 |
| 81 | 3251-107-FY | 13NECKLO00HFFOYA | Neck Lower Force Y | 13344 | N | + | Head leftward, chest rightward | 3-070 HIII 5th Denton.017 |
| 82 | 3251-107-FZ | 13NECKLO00HFFOZA | Neck Lower Force Z | 13344 | N | + | Head upward, chest downward | 3-070 HIII 5th Denton.018 |
| 83 | 3251-107-MX | 13NECKLO00HFMOXA | Neck Lower Moment X | 452 | N·m | - | Right ear toward, right shoulder | 3-070 HIII 5th Denton.019 |
| 84 | 3251-107-MY | 13NECKLO00HFMOYA | Neck Lower Moment Y | 452 | N·m | + | Chin toward sternum | 3-070 HIII 5th Denton.020 |
| 85 | 3251-107-MZ | 13NECKLO00HFMOZA | Neck Lower Moment Z | 339 | N·m | + | Chin toward left shoulder | 3-070 HIII 5th Denton.021 |
| 86 | AAJY4 | 13CHSTCG00HFACXA | Chest Accel X | 1000 | g | + | Forward | 3-070 HIII 5th Denton.022 |
| 87 | AKAA4 | 13CHSTCG00HFACYA | Chest Accel Y | 1000 | g | - | Leftward | 3-070 HIII 5th Denton.023 |
| 88 | ACC63 | 13CHSTCG00HFACZA | Chest Accel Z | 1000 | g | - | Upward | 3-070 HIII 5th Denton.024 |
| 89 | 14CB1-2897-070 | 13CHST0000HFDSXA | Chest Deflection X | 100 | mm | + | Forward | 3-070 HIII 5th Denton.025 |
| 90 | AGN83 | 13PELVCG00HFACXA | Pelvis Accel X | 1000 | g | - | Rearward | 3-070 HIII 5th Denton.026 |
| 91 | J35770 | 13PELVCG00HFACYA | Pelvis Accel Y | 1000 | g | - | Leftward | 3-070 HIII 5th Denton.027 |
| 92 | J20014 | 13PELVCG00HFACZA | Pelvis Accel Z | 1000 | g | - | Upward | 3-070 HIII 5th Denton.028 |
| 93 | IF-625-140-FZ | 13FEMRLL00HFFOZA | Left Femur Force Z | 13344 | N | + | Knee forward, pelvis rearward | 3-070 HIII 5th Denton.029 |
| 94 | IF-625-141-FZ | 13FEMRRL00HFFOZA | Right Femur Force Z | 13344 | N | + | Knee forward, pelvis rearward | 3-070 HIII 5th Denton.030 |
| 95 | P46214 | 14CRME000000ACXA | Left Rear Seat Cross-member X-axis Acceleration | 1000 | g | + | Forward | |
| 96 | P49969 | 16CRME000000ACXA | Right Rear Seat Cross-member X-axis Acceleration | 1000 | g | + | Forward | |
| 97 | P45804 | 12ENGNTP0000ACXA | Top of Engine X-axis Acceleration | 2000 | g | + | Forward | |
| 98 | P49886 | 12ENGNBO0000ACXA | Bottom of Engine X-axis Acceleration | 2000 | g | + | Forward | |
| 99 | P49652 | 13VEHCRI0000ACXA | Right Front Brake Caliper X-axis acceleration | 2000 | g | + | Forward | |
| 100 | P49678 | 11VEHCLE0000ACXA | Left Front Brake Caliper X-axis acceleration | 2000 | g | + | Forward | |
| 101 | p49913 | 12DASH000000ACXA | Dash Center X-axis acceleration | 1500 | g | + | Forward | |
| 102 | P49932 | 11PEAC000000ACXA | Toe Pan Accelerator x-axis acceleration | 2000 | g | + | Forward | |
| 103 | P49747 | 11PEAC000000ACZA | Toe Pan Accelerator z-axis acceleration | 2000 | g | - | Upward | |
| 104 | P41306 | 11VEHC000001ACXA | Toe Pan footrest x-axis acceleration | 2000 | g | + | Forward | |

## Channel Report Test Number 060310

| Ref | Transducer ID | | ISO Signal Identifier | Description | FScale | Units | DAS Flip | Positive Polarity | Assembly |
|---|---|---|---|---|---|---|---|---|---|
| 105 | P45970 | | 11VEHC000001ACZA | Toe Pan footrest z-axis acceleration | 2000 | g | - | Upward | |
| 106 | P49695 | | 15TUNNCY0000ACXA | Rear Tunnel center x-axis acceleration | 1000 | g | + | Forward | |
| 107 | P49698 | | 10VEHCCG0000ACXA | Vehicle CG X-axis acceleration | 1500 | g | + | Forward | |
| 108 | P49692 | | 10VEHCCG0000ACYA | Vehicle CG Y-axis acceleration | 1500 | g | - | Leftward | |
| 109 | P49741 | | 10VEHCCG0000ACZA | Vehicle CG Z-axis acceleration | 1500 | g | - | Upward | |
| 110 | P50422 | | 18VEHC000000ACXA | Vehicle rear deck X-axis acceleration | 1000 | g | + | Forward | |
| 111 | P48685 | | 18VEHC000000ACYA | Vehicle rear deck Y-axis acceleration | 1000 | g | - | Leftward | |
| 112 | P50455 | | 18VEHC000000ACZA | Vehicle rear deck Z-axis acceleration | 1000 | g | + | Downward | |
| 113 | A23306 | | 11SEBA0000B5DS0A | Driver lap belt spool S3 | 635 | mm | + | Bipolar | |
| 114 | | 14672 | 11SEBA0000B3DS0A | Driver shoulder belt spool and retraction D | 635 | mm | + | Bipolar | |
| 115 | A23305 | | 13SEBA0000B3DS0A | RF Pass shoulder belt spool and retraction C | 635 | mm | + | Bipolar | |
| 116 | ABFire1 | | 11AIRBFR0100EV0A | DRIV. FRONT AIRBAG1 IND IP70 | 5 | V | + | Bipolar | |
| 117 | ABFire2 | | 11AIRBFR0200EV0A | DRIV. FRONT AIRBAG2 IND IP99 | 5 | V | + | Bipolar | |
| 118 | ABFire3 | | 13AIRBFR0100EV0A | PASS. FRONT AIRBAG1 IND 1P21 | 5 | V | + | Bipolar | |
| 119 | ABFire4 | | 13AIRBFR0200EV0A | PASS. FRONT AIRBAG2 IND IP12 | 5 | V | + | Bipolar | |

**Command File Test Number 060310**

| Chann | Mnemonic | Channel Title | Filter Class | Flip | Zero | Full Scale |
|---|---|---|---|---|---|---|
| 1 | 11HEADCG00H3ACXA | Bullet Driver Head X-Axis Acceleration | 1000 | + | yes | 1000 |
| 2 | 11HEADCG00H3ACYA | Bullet Driver Head Y-Axis Acceleration | 1000 | + | yes | 1000 |
| 3 | 11HEADCG00H3ACZA | Bullet Driver Head Z-Axis Acceleration | 1000 | + | yes | 1000 |
| 3A | 11HEADCG00H3ACRA | Bullet Driver Head Resultant Acceleration | 1000 | | | |
| 4 | 11HEADFR00H3ACYA | Bullet Driver Head Front Y-Axis Acceleration | 1000 | + | yes | 1000 |
| 5 | 11HEADFR00H3ACZA | Bullet Driver Head Front Z-Axis Acceleration | 1000 | + | yes | 1000 |
| 6 | 11HEADUP00H3ACXA | Bullet Driver Head Top X-Axis Acceleration | 1000 | + | yes | 1000 |
| 7 | 11HEADUP00H3ACYA | Bullet Driver Head Top Y-Axis Acceleration | 1000 | + | yes | 1000 |
| 8 | 11HEADLE00H3ACXA | Bullet Driver Head Side X-Axis Acceleration | 1000 | + | yes | 1000 |
| 9 | 11HEADLE00H3ACZA | Bullet Driver Head Side Z-Axis Acceleration | 1000 | + | yes | 1000 |
| 10 | 11NECKUP00H3FOXA | Bullet Driver Upper Neck X-Axis Force | 1000 | + | yes | 8896.4 |
| 11 | 11NECKUP00H3FOYA | Bullet Driver Upper Neck Y-Axis Force | 1000 | + | yes | 8896.4 |
| 12 | 11NECKUP00H3FOZA | Bullet Driver Upper Neck Z-Axis Force | 1000 | + | yes | 13344 |
| 13 | 11NECKUP00H3MOXA | Bullet Driver Upper Neck Moment About X Axis | 600 | + | yes | 282 |
| 14 | 11NECKUP00H3MOYA | Bullet Driver Upper Neck Moment About Y Axis | 600 | + | yes | 282 |
| 15 | 11NECKUP00H3MOZA | Bullet Driver Upper Neck Moment About Z Axis | 600 | + | yes | 282 |
| 16 | 11NECKLO00H3FOXA | Bullet Driver Lower Neck X-Axis Force | 1000 | + | yes | 13344 |
| 17 | 11NECKLO00H3FOYA | Bullet Driver Lower Neck Y-Axis Force | 1000 | + | yes | 13344 |
| 18 | 11NECKLO00H3FOZA | Bullet Driver Lower Neck Z-Axis Force | 1000 | + | yes | 13344 |
| 19 | 11NECKLO00H3MOXA | Bullet Driver Lower Neck Moment About X Axis | 600 | + | yes | 452 |
| 20 | 11NECKLO00H3MOYA | Bullet Driver Lower Neck Moment About Y Axis | 600 | + | yes | 452 |
| 21 | 11NECKLO00H3MOZA | Bullet Driver Lower Neck Moment About Z Axis | 600 | + | yes | 452 |
| 22 | 11CHSTCG00H3ACXA | Bullet Driver Chest CG X-Axis Acceleration | 180 | + | yes | 1000 |
| 23 | 11CHSTCG00H3ACYA | Bullet Driver Chest CG Y-Axis Acceleration | 180 | + | yes | 1000 |
| 24 | 11CHSTCG00H3ACZA | Bullet Driver Chest CG Z-Axis Acceleration | 180 | + | yes | 1000 |
| 24A | 11CHSTCG00H3ACRA | Bullet Driver Chest CG Resultant Acceleration | 180 | | | |
| 25 | 11CHSTCGRDH3ACXA | Bullet Driver Redundant Chest CG X-Axis Acceleration | 180 | + | yes | 1000 |
| 26 | 11CHSTCGRDH3ACYA | Bullet Driver Redundant Chest CG Y-Axis Acceleration | 180 | + | yes | 1000 |
| 27 | 11CHSTCGRDH3ACZA | Bullet Driver Redundant Chest CG Z-Axis Acceleration | 180 | + | yes | 1000 |
| 27A | 11CHSTCGRDH3ACRA | Bullet Driver Redundant Chest CG Resultant Acceleration | 180 | | | |
| 28 | 11CHST0000H3DSXA | Bullet Driver Chest Displacement | 600 | + | yes | 100 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 29 | 11PELVCG00H3ACXA | Bullet Driver Pelvis CG X-Axis Acceleration | 1000 | + | yes | 600 |
| 30 | 11PELVCG00H3ACYA | Bullet Driver Pelvis CG Y-Axis Acceleration | 1000 | + | yes | 600 |
| 31 | 11PELVCG00H3ACZA | Bullet Driver Pelvis CG Z-Axis Acceleration | 1000 | + | yes | 600 |
| 31A | 11PELVCG00H3ACRA | Bullet Driver Pelvis CG Resultant Acceleration | 1000 | | | |
| 32 | 11FEMRLL00H3FOZA | Bullet Driver Left Femur Z-Axis Force | 600 | + | yes | 13344 |
| 33 | 11KNSLLE00H3DSXA | Bullet Driver Left Knee Displacement | 180 | + | yes | 40 |
| 34 | 11TIBILULXH3FOXA | Bullet Driver Left Upper Tibia X-Axis Force | 600 | + | yes | 11120 |
| 35 | 11TIBILULXH3FOZA | Bullet Driver Left Upper Tibia Z-Axis Force | 600 | + | yes | 11120 |
| 36 | 11TIBILULXH3MOXA | Bullet Driver Left Upper Tibia Moment About X Axis | 600 | + | yes | 395.4 |
| 37 | 11TIBILULXH3MOYA | Bullet Driver Left Upper Tibia Moment About Y Axis | 600 | + | yes | 395.4 |
| 38 | 11TIBILELXH3ACXA | Bullet Driver Left Tibia X-Axis Acceleration | 1000 | + | yes | 1000 |
| 39 | 11TIBILELXH3ACYA | Bullet Driver Left Tibia Y-Axis Acceleration | 1000 | + | yes | 1000 |
| 40 | 11TIBILLLXH3FOXA | Bullet Driver Left Lower Tibia X-Axis Force | 600 | + | yes | 11120 |
| 41 | 11TIBILLLXH3FOYA | Bullet Driver Left Lower Tibia Y-Axis Force | 600 | + | yes | 11120 |
| 42 | 11TIBILLLXH3FOZA | Bullet Driver Left Lower Tibia Z-Axis Force | 600 | + | yes | 11120 |
| 43 | 11TIBILLLXH3MOXA | Bullet Driver Left Lower Tibia Moment About X Axis | 600 | + | yes | 395.4 |
| 44 | 11TIBILLLXH3MOYA | Bullet Driver Left Lower Tibia Moment About Y Axis | 600 | + | yes | 395.4 |
| 45 | 11FOOTLELXH3ANXA | Bullet Driver Left Foot X-Axis Rotation | 180 | + | no | 318 |
| 46 | 11FOOTLELXH3ANYA | Bullet Driver Left Foot Y-Axis Rotation | 180 | + | no | 318 |
| 47 | 11FOOTLELXH3ANZA | Bullet Driver Left Foot Z-Axis Rotation | 180 | + | no | 318 |
| 48 | 11FOOTLELXH3ACXA | Bullet Driver Left Foot X-Axis Acceleration | 1000 | + | yes | 1000 |
| 49 | 11FOOTLELXH3ACYA | Bullet Driver Left Foot Y-Axis Acceleration | 1000 | + | yes | 1000 |
| 50 | 11FOOTLELXH3ACZA | Bullet Driver Left Foot Z-Axis Acceleration | 1000 | + | yes | 1000 |
| 50A | 11FOOTLELXH3ACRA | Bullet Driver Left Foot Resultant Acceleration | 1000 | | | |
| 51 | 11FEMRRL00H3FOZA | Bullet Driver Right Femur Z-Axis Force | 600 | + | yes | 13344 |
| 52 | 11KNSLRI00H3DSXA | Bullet Driver Right Knee Displacement | 180 | + | yes | 40 |
| 53 | 11TIBIRULXH3FOXA | Bullet Driver Right Upper Tibia X-Axis Force | 600 | + | yes | 11120 |
| 54 | 11TIBIRULXH3FOZA | Bullet Driver Right Upper Tibia Z-Axis Force | 600 | + | yes | 11120 |
| 55 | 11TIBIRULXH3MOXA | Bullet Driver Right Upper Tibia Moment About X Axis | 600 | + | yes | 395.4 |
| 56 | 11TIBIRULXH3MOYA | Bullet Driver Right Upper Tibia Moment About Y Axis | 600 | + | yes | 395.4 |
| 57 | 11TIBIRILXH3ACXA | Bullet Driver Right Tibia X-Axis Acceleration | 1000 | + | yes | 1000 |
| 58 | 11TIBIRILXH3ACYA | Bullet Driver Right Tibia Y-Axis Acceleration | 1000 | + | yes | 1000 |
| 59 | 11TIBIRLLXH3FOXA | Bullet Driver Right Lower Tibia X-Axis Force | 600 | + | yes | 11120 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 60 | 11TIBIRLLXH3FOYA | Bullet Driver Right Lower Tibia Y-Axis Force | 600 | + | yes | 11120 |
| 61 | 11TIBIRLLXH3FOZA | Bullet Driver Right Lower Tibia Z-Axis Force | 600 | + | yes | 11120 |
| 62 | 11TIBIRLLXH3MOXA | Bullet Driver Right Lower Tibia Moment About X Axis | 600 | + | yes | 395.4 |
| 63 | 11TIBIRLLXH3MOYA | Bullet Driver Right Lower Tibia Moment About Y Axis | 600 | + | yes | 395.4 |
| 64 | 11FOOTRILXH3ANXA | Bullet Driver Right Foot X-Axis Rotation | 180 | + | no | 165 |
| 65 | 11FOOTRILXH3ANYA | Bullet Driver Right Foot Y-Axis Rotation | 180 | + | no | 164 |
| 66 | 11FOOTRILXH3ANZA | Bullet Driver Right Foot Z-Axis Rotation | 180 | + | no | 165 |
| 67 | 11FOOTRILXH3ACXA | Bullet Driver Right Foot X-Axis Acceleration | 1000 | + | yes | 1000 |
| 68 | 11FOOTRILXH3ACYA | Bullet Driver Right Foot Y-Axis Acceleration | 1000 | + | yes | 1000 |
| 69 | 11FOOTRILXH3ACZA | Bullet Driver Right Foot Z-Axis Acceleration | 1000 | + | yes | 1000 |
| 69A | 11FOOTRILXH3ACRA | Bullet Driver Right Foot Resultant Acceleration | 1000 | | | |
| 70 | 13HEADCG00HFACXA | Bullet Passenger Head CG X-Axis Acceleration | 1000 | + | yes | 1000 |
| 71 | 13HEADCG00HFACYA | Bullet Passenger Head CG Y-Axis Acceleration | 1000 | + | yes | 1000 |
| 72 | 13HEADCG00HFACZA | Bullet Passenger Head CG Z-Axis Acceleration | 1000 | + | yes | 1000 |
| 72A | 13HEADCG00HFACRA | Bullet Passenger Head CG Resultant Acceleration | 1000 | | | |
| 73 | 13NECKUP00HFFOXA | Bullet Passenger Upper Neck X-Axis Force | 1000 | + | yes | 8896.4 |
| 74 | 13NECKUP00HFFOYA | Bullet Passenger Upper Neck Y-Axis Force | 1000 | + | yes | 8896.4 |
| 75 | 13NECKUP00HFFOZA | Bullet Passenger Upper Neck Z-Axis Force | 1000 | + | yes | 13344 |
| 76 | 13NECKUP00HFMOXA | Bullet Passenger Upper Neck Moment About X Axis | 600 | + | yes | 282 |
| 77 | 13NECKUP00HFMOYA | Bullet Passenger Upper Neck Moment About Y Axis | 600 | + | yes | 282 |
| 78 | 13NECKUP00HFMOZA | Bullet Passenger Upper Neck Moment About Z Axis | 600 | + | yes | 282 |
| 79 | 13NECKLO00HFFOXA | Bullet Passenger Lower Neck X-Axis Force | 1000 | + | yes | 13344 |
| 80 | 13NECKLO00HFFOYA | Bullet Passenger Lower Neck Y-Axis Force | 1000 | + | yes | 13344 |
| 81 | 13NECKLO00HFFOZA | Bullet Passenger Lower Neck Z-Axis Force | 1000 | + | yes | 13344 |
| 82 | 13NECKLO00HFMOXA | Bullet Passenger Lower Neck Moment About X Axis | 600 | + | yes | 452 |
| 83 | 13NECKLO00HFMOYA | Bullet Passenger Lower Neck Moment About Y Axis | 600 | + | yes | 452 |
| 84 | 13NECKLO00HFMOZA | Bullet Passenger Lower Neck Moment About Z Axis | 600 | + | yes | 339 |
| 85 | 13CHSTCG00HFACXA | Bullet Passenger Chest CG X-Axis Acceleration | 180 | + | yes | 1000 |
| 86 | 13CHSTCG00HFACYA | Bullet Passenger Chest CG Y-Axis Acceleration | 180 | + | yes | 1000 |
| 87 | 13CHSTCG00HFACZA | Bullet Passenger Chest CG Z-Axis Acceleration | 180 | + | yes | 1000 |
| 87A | 13CHSTCG00HFACRA | Bullet Passenger Chest CG Resultant Acceleration | 180 | | | |
| 88 | 13CHST0000HFDSXA | Bullet Passenger Chest Displacement | 600 | + | yes | 100 |
| 89 | 13PELVCG00HFACXA | Bullet Passenger Pelvis CG X-Axis Acceleration | 1000 | + | yes | 1000 |

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|---|---|---|---|---|---|---|
| 90 | 13PELVCG00HFACYA | Bullet Passenger Pelvis CG Y-Axis Acceleration | 1000 | + | yes | 1000 |
| 91 | 13PELVCG00HFACZA | Bullet Passenger Pelvis CG Z-Axis Acceleration | 1000 | + | yes | 1000 |
| 91A | 13PELVCG00HFACRA | Bullet Passenger Pelvis CG Resultant Acceleration | 1000 | | | |
| 92 | 13FEMRLL00HFFOZA | Bullet Passenger Left Femur Z-Axis Force | 600 | + | yes | 13344 |
| 93 | 13FEMRRL00HFFOZA | Bullet Passenger Right Femur Z-Axis Force | 600 | + | yes | 13344 |
| 94 | 14CRME000000ACXA | Bullet Vehicle Left Rear Seat Crossmember X-Axis Acceleration | 60 | + | yes | 1000 |
| 95 | 16CRME000000ACXA | Bullet Vehicle Right Rear Seat Crossmember X-Axis Acceleration | 60 | + | yes | 1000 |
| 96 | 12ENGNTP0000ACXA | Bullet Vehicle Top of Engine X-Axis Acceleration | 60 | + | yes | 2000 |
| 97 | 12ENGNBO0000ACXA | Bullet Vehicle Bottom of Engine X-Axis Acceleration | 60 | + | yes | 2000 |
| 98 | 13VEHCRI0000ACXA | Bullet Vehicle Right Front Brake Caliper X-Axis Acceleration | 60 | + | yes | 2000 |
| 99 | 11VEHCLE0000ACXA | Bullet Vehicle Left Front Brake Caliper X-Axis Acceleration | 60 | + | yes | 2000 |
| 100 | 11PEAC000000ACXA | Bullet Vehicle Toe Pan Accelerator X-Axis Acceleration | 60 | + | yes | 2000 |
| 101 | 11PEAC000000ACZA | Bullet Vehicle Toe Pan Accelerator Z-Axis Acceleration | 60 | + | yes | 2000 |
| 102 | 11VEHC000001ACXA | Bullet Vehicle Toe Pan Footrest X-Axis Acceleration | 60 | + | yes | 2000 |
| 103 | 11VEHC000001ACZA | Bullet Vehicle Toe Pan Footrest Z-Axis Acceleration | 60 | + | yes | 2000 |
| 104 | 15TUNNCY0000ACXA | Bullet Vehicle Rear Tunnel Center X-Axis Acceleration | 60 | + | yes | 1000 |
| 105 | 10VEHCCG0000ACXA | Bullet Vehicle CG X-Axis Acceleration | 60 | + | yes | 1500 |
| 105A | 10VEHCCG0000VEXA | Bullet Vehicle CG X-Axis Velocity | 180 | | | |
| 105B | 10VEHCCG0000DCXA | Bullet Vehicle CG X-Axis Displacement | 180 | | | |
| 106 | 10VEHCCG0000ACYA | Bullet Vehicle CG Y-Axis Acceleration | 60 | + | yes | 1500 |
| 106A | 10VEHCCG0000VEYA | Bullet Vehicle CG Y-Axis Velocity | 180 | | | |
| 106B | 10VEHCCG0000DCYA | Bullet Vehicle CG Y-Axis Displacement | 180 | | | |
| 107 | 10VEHCCG0000ACZA | Bullet Vehicle CG Z-Axis Acceleration | 60 | + | yes | 1500 |
| 107A | 10VEHCCG0000VEZA | Bullet Vehicle CG Z-Axis Velocity | 180 | | | |
| 107B | 10VEHCCG0000DCZA | Bullet Vehicle CG Z-Axis Displacement | 180 | | | |
| 107C | 10VEHCCG0000ACRA | Bullet Vehicle CG Resultant Acceleration | 60 | | | |
| 108 | 18VEHC000000ACXA | Bullet Vehicle Rear Deck X-Axis Acceleration | 60 | + | yes | 1000 |
| 109 | 18VEHC000000ACYA | Bullet Vehicle Rear Deck Y-Axis Acceleration | 60 | + | yes | 1000 |
| 110 | 18VEHC000000ACZA | Bullet Vehicle Rear Deck Z-Axis Acceleration | 60 | + | yes | 1000 |
| 110A | 18VEHC000000ACRA | Bullet Vehicle Rear Deck Resultant Acceleration | 60 | | | |
| 111 | 11AIRBFR0100EV0A | Bullet Vehicle Driver Airbag - Primary | 1000 | + | no | 5 |
| 112 | 11AIRBFR0200EV0A | Bullet Vehicle Driver Airbag - Secondary | 1000 | + | no | 5 |
| 113 | 13AIRBFR0100EV0A | Bullet Vehicle Passenger Airbag - Primary | 1000 | + | no | 5 |

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|---|---|---|---|---|---|---|
| 114 | 13AIRBFR0200EV0A | Bullet Vehicle Passenger Airbag - Secondary | 1000 | + | no | 5 |
| 115 | 11SEBA0000B5DS0A | Bullet Vehicle Driver lap belt spool | 1000 | + | yes | 635 |
| 116 | 11SEBA0000B3DS0A | Bullet Vehicle Driver shoulder belt spool and retraction | 1000 | + | yes | 635 |
| 117 | 13SEBA0000B3DS0A | Bullet Vehicle RF Pass shoulder belt spool and retraction | 1000 | + | yes | 635 |
| 118 | 12DASH000000ACXA | Bullet Vehicle IP Center | 60 | + | yes | 1500 |
| 119 | 21HEADCG00H3ACXA | Target Driver Head X-Axis Acceleration | 1000 | + | yes | 1000 |
| 120 | 21HEADCG00H3ACYA | Target Driver Head Y-Axis Acceleration | 1000 | + | yes | 1000 |
| 121 | 21HEADCG00H3ACZA | Target Driver Head Z-Axis Acceleration | 1000 | + | yes | 1000 |
| 121A | 21HEADCG00H3ACRA | Target Driver Head Resultant Acceleration | 1000 | | | |
| 122 | 21HEADFR00H3ACYA | Target Driver Head Front Y-Axis Acceleration | 1000 | + | yes | 1000 |
| 123 | 21HEADFR00H3ACZA | Target Driver Head Front Z-Axis Acceleration | 1000 | + | yes | 1000 |
| 124 | 21HEADUP00H3ACXA | Target Driver Head Top X-Axis Acceleration | 1000 | + | yes | 1000 |
| 125 | 21HEADUP00H3ACYA | Target Driver Head Top Y-Axis Acceleration | 1000 | + | yes | 1000 |
| 126 | 21HEADLE00H3ACXA | Target Driver Head Side X-Axis Acceleration | 1000 | + | yes | 1000 |
| 127 | 21HEADLE00H3ACZA | Target Driver Head Side Z-Axis Acceleration | 1000 | + | yes | 1000 |
| 128 | 21NECKUP00H3FOXA | Target Driver Upper Neck X-Axis Force | 1000 | + | yes | 8896.4 |
| 129 | 21NECKUP00H3FOYA | Target Driver Upper Neck Y-Axis Force | 1000 | + | yes | 8896.4 |
| 130 | 21NECKUP00H3FOZA | Target Driver Upper Neck Z-Axis Force | 1000 | + | yes | 13344 |
| 131 | 21NECKUP00H3MOXA | Target Driver Upper Neck Moment About X Axis | 600 | + | yes | 282 |
| 132 | 21NECKUP00H3MOYA | Target Driver Upper Neck Moment About Y Axis | 600 | + | yes | 282 |
| 133 | 21NECKUP00H3MOZA | Target Driver Upper Neck Moment About Z Axis | 600 | + | yes | 282 |
| 134 | 21NECKLO00H3FOXA | Target Driver Lower Neck X-Axis Force | 1000 | + | yes | 13344 |
| 135 | 21NECKLO00H3FOYA | Target Driver Lower Neck Y-Axis Force | 1000 | + | yes | 13344 |
| 136 | 21NECKLO00H3FOZA | Target Driver Lower Neck Z-Axis Force | 1000 | + | yes | 13344 |
| 137 | 21NECKLO00H3MOXA | Target Driver Lower Neck Moment About X Axis | 600 | + | yes | 452 |
| 138 | 21NECKLO00H3MOYA | Target Driver Lower Neck Moment About Y Axis | 600 | + | yes | 452 |
| 139 | 21NECKLO00H3MOZA | Target Driver Lower Neck Moment About Z Axis | 600 | + | yes | 452 |
| 140 | 21CHSTCG00H3ACXA | Target Driver Chest CG X-Axis Acceleration | 180 | + | yes | 1000 |
| 141 | 21CHSTCG00H3ACYA | Target Driver Chest CG Y-Axis Acceleration | 180 | + | yes | 1000 |
| 142 | 21CHSTCG00H3ACZA | Target Driver Chest CG Z-Axis Acceleration | 180 | + | yes | 1000 |
| 142A | 21CHSTCG00H3ACRA | Target Driver Chest CG Resultant Acceleration | 180 | | | |
| 143 | 21CHSTCGRDH3ACXA | Target Driver Redundant Chest CG X-Axis Acceleration | 180 | + | yes | 1000 |
| 144 | 21CHSTCGRDH3ACYA | Target Driver Redundant Chest CG Y-Axis Acceleration | 180 | + | yes | 1000 |

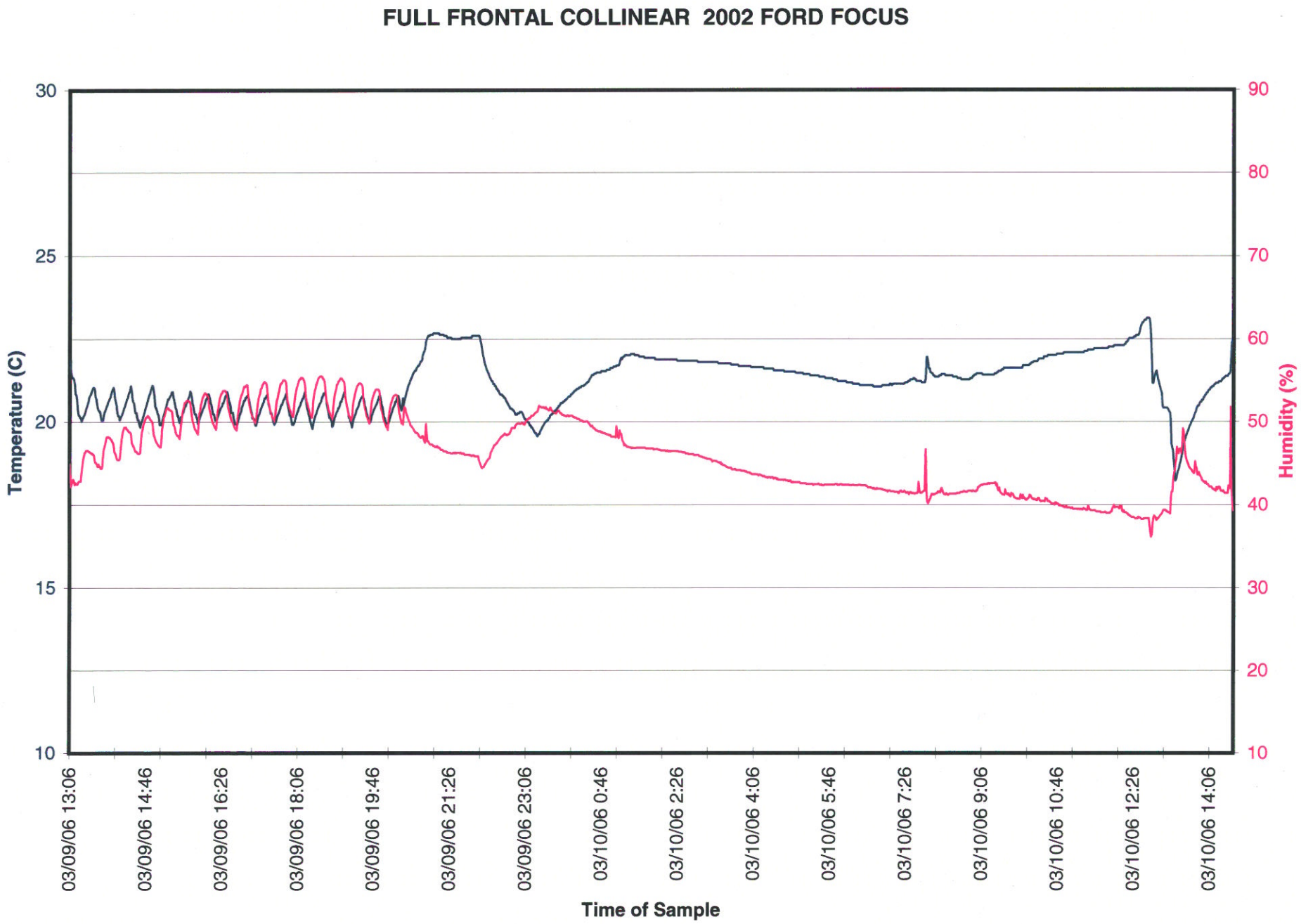
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| 145 | 21CHSTCGRDH3ACZA | Target Driver Redundant Chest CG Z-Axis Acceleration | 180 | + | yes | 1000 |
| 145A | 21CHSTCGRDH3ACRA | Target Driver Redundant Chest CG Resultant Acceleration | 180 | | | |
| 146 | 21CHST0000H3DSXA | Target Driver Chest Displacement | 600 | + | yes | 100 |
| 147 | 21PELVCG00H3ACXA | Target Driver Pelvis CG X-Axis Acceleration | 1000 | + | yes | 600 |
| 148 | 21PELVCG00H3ACYA | Target Driver Pelvis CG Y-Axis Acceleration | 1000 | + | yes | 600 |
| 149 | 21PELVCG00H3ACZA | Target Driver Pelvis CG Z-Axis Acceleration | 1000 | + | yes | 600 |
| 149A | 21PELVCG00H3ACRA | Target Driver Pelvis CG Resultant Acceleration | 1000 | | | |
| 150 | 21FEMRLL00H3FOZA | Target Driver Left Femur Z-Axis Force | 600 | + | yes | 13344 |
| 151 | 21KNSLLE00H3DSXA | Target Driver Left Knee Displacement | 180 | + | yes | 21.1 |
| 152 | 21TIBILULXH3FOXA | Target Driver Left Upper Tibia X-Axis Force | 600 | + | yes | 11120 |
| 153 | 21TIBILULXH3FOZA | Target Driver Left Upper Tibia Z-Axis Force | 600 | + | yes | 11120 |
| 154 | 21TIBILULXH3MOXA | Target Driver Left Upper Tibia Moment About X Axis | 600 | + | yes | 395.4 |
| 155 | 21TIBILULXH3MOYA | Target Driver Left Upper Tibia Moment About Y Axis | 600 | + | yes | 395.4 |
| 156 | 21TIBILELXH3ACXA | Target Driver Left Tibia X-Axis Acceleration | 1000 | + | yes | 1000 |
| 157 | 21TIBILELXH3ACYA | Target Driver Left Tibia Y-Axis Acceleration | 1000 | + | yes | 1000 |
| 158 | 21TIBILLLXH3FOXA | Target Driver Left Lower Tibia X-Axis Force | 600 | + | yes | 11120 |
| 159 | 21TIBILLLXH3FOYA | Target Driver Left Lower Tibia Y-Axis Force | 600 | + | yes | 11120 |
| 160 | 21TIBILLLXH3FOZA | Target Driver Left Lower Tibia Z-Axis Force | 600 | + | yes | 11120 |
| 161 | 21TIBILLLXH3MOXA | Target Driver Left Lower Tibia Moment About X Axis | 600 | + | yes | 395.4 |
| 162 | 21TIBILLLXH3MOYA | Target Driver Left Lower Tibia Moment About Y Axis | 600 | + | yes | 395.4 |
| 163 | 21FOOTLELXH3ANXA | Target Driver Left Foot X-Axis Rotation | 180 | + | no | 165 |
| 164 | 21FOOTLELXH3ANYA | Target Driver Left Foot Y-Axis Rotation | 180 | + | no | 165 |
| 165 | 21FOOTLELXH3ANZA | Target Driver Left Foot Z-Axis Rotation | 180 | + | no | 165 |
| 166 | 21FOOTLELXH3ACXA | Target Driver Left Foot X-Axis Acceleration | 1000 | + | yes | 1000 |
| 167 | 21FOOTLELXH3ACYA | Target Driver Left Foot Y-Axis Acceleration | 1000 | + | yes | 1000 |
| 168 | 21FOOTLELXH3ACZA | Target Driver Left Foot Z-Axis Acceleration | 1000 | + | yes | 1000 |
| 168A | 21FOOTLELXH3ACRA | Target Driver Left Foot Resultant Acceleration | 1000 | | | |
| 169 | 21FEMRRL00H3FOZA | Target Driver Right Femur Z-Axis Force | 600 | + | yes | 13344 |
| 170 | 21KNSLRI00H3DSXA | Target Driver Right Knee Displacement | 180 | + | yes | 21.1 |
| 171 | 21TIBIRULXH3FOXA | Target Driver Right Upper Tibia X-Axis Force | 600 | + | yes | 11120 |
| 172 | 21TIBIRULXH3FOZA | Target Driver Right Upper Tibia Z-Axis Force | 600 | + | yes | 11120 |
| 173 | 21TIBIRULXH3MOXA | Target Driver Right Upper Tibia Moment About X Axis | 600 | + | yes | 395.4 |
| 174 | 21TIBIRULXH3MOYA | Target Driver Right Upper Tibia Moment About Y Axis | 600 | + | yes | 395.4 |

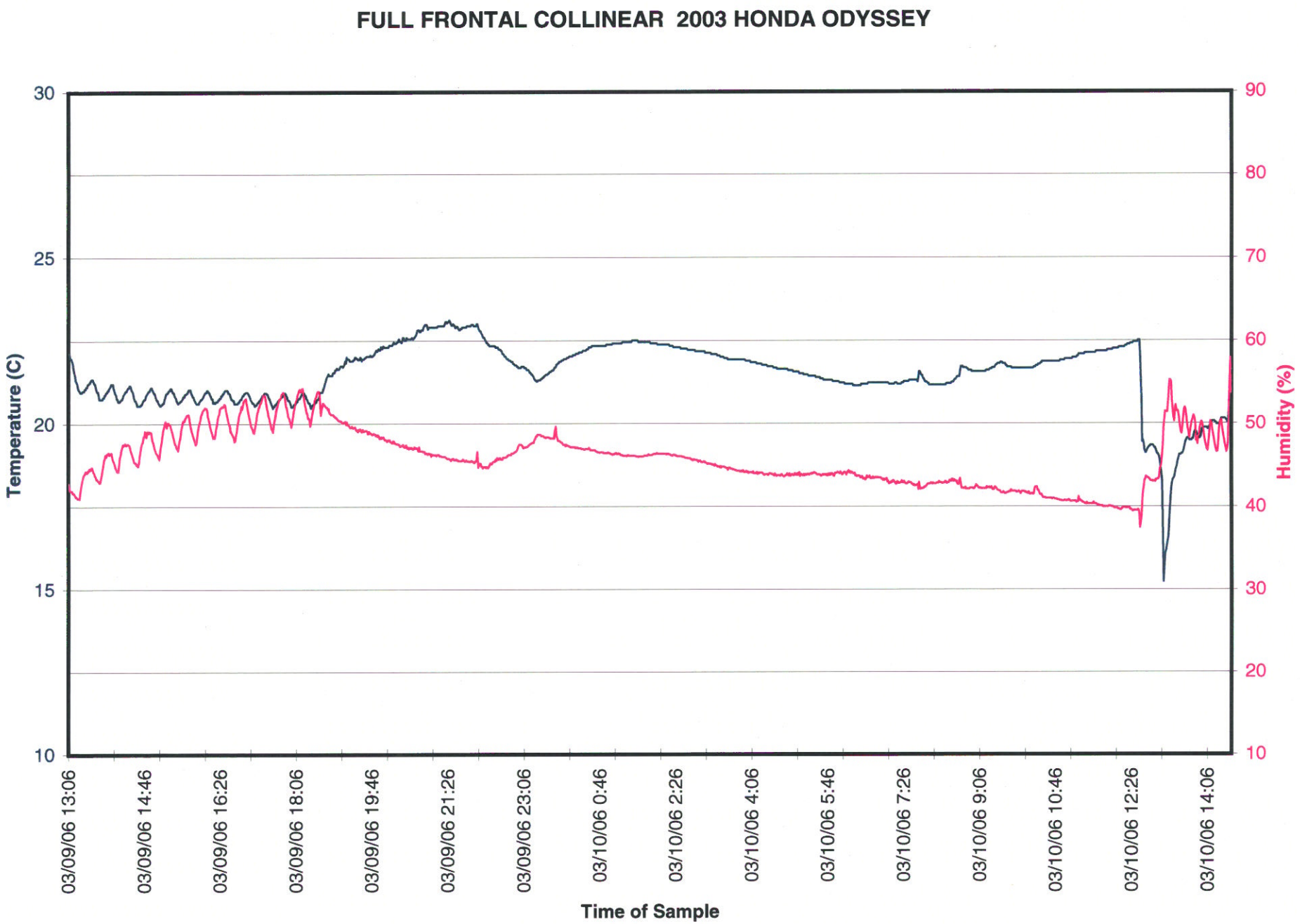
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|---|---|---|---|---|---|---|
| 175 | 21TIBIRILXH3ACXA | Target Driver Right Tibia X-Axis Acceleration | 1000 | + | yes | 1000 |
| 176 | 21TIBIRILXH3ACYA | Target Driver Right Tibia Y-Axis Acceleration | 1000 | + | yes | 1000 |
| 177 | 21TIBIRLLXH3FOXA | Target Driver Right Lower Tibia X-Axis Force | 600 | + | yes | 11120 |
| 178 | 21TIBIRLLXH3FOYA | Target Driver Right Lower Tibia Y-Axis Force | 600 | + | yes | 11120 |
| 179 | 21TIBIRLLXH3FOZA | Target Driver Right Lower Tibia Z-Axis Force | 600 | + | yes | 11120 |
| 180 | 21TIBIRLLXH3MOXA | Target Driver Right Lower Tibia Moment About X Axis | 600 | + | yes | 395.4 |
| 181 | 21TIBIRLLXH3MOYA | Target Driver Right Lower Tibia Moment About Y Axis | 600 | + | yes | 395.4 |
| 182 | 21FOOTRILXH3ANXA | Target Driver Right Foot X-Axis Rotation | 180 | + | no | 164 |
| 183 | 21FOOTRILXH3ANYA | Target Driver Right Foot Y-Axis Rotation | 180 | + | no | 165 |
| 184 | 21FOOTRILXH3ANZA | Target Driver Right Foot Z-Axis Rotation | 180 | + | no | 165 |
| 185 | 21FOOTRILXH3ACXA | Target Driver Right Foot X-Axis Acceleration | 1000 | + | yes | 1000 |
| 186 | 21FOOTRILXH3ACYA | Target Driver Right Foot Y-Axis Acceleration | 1000 | + | yes | 1000 |
| 187 | 21FOOTRILXH3ACZA | Target Driver Right Foot Z-Axis Acceleration | 1000 | + | yes | 1000 |
| 187A | 21FOOTRILXH3ACRA | Target Driver Right Foot Resultant Acceleration | 1000 | | | |
| 188 | 23HEADCG00HFACXA | Target Passenger Head CG X-Axis Acceleration | 1000 | + | yes | 1000 |
| 189 | 23HEADCG00HFACYA | Target Passenger Head CG Y-Axis Acceleration | 1000 | + | yes | 1000 |
| 190 | 23HEADCG00HFACZA | Target Passenger Head CG Z-Axis Acceleration | 1000 | + | yes | 1000 |
| 190A | 23HEADCG00HFACRA | Target Passenger Head CG Resultant Acceleration | 1000 | | | |
| 191 | 23HEADCGRDHFACXA | Target Passenger Redundant Head CG X-Axis Acceleration | 1000 | + | yes | 1000 |
| 192 | 23HEADCGRDHFACYA | Target Passenger Redundant Head CG Y-Axis Acceleration | 1000 | + | yes | 1000 |
| 193 | 23HEADCGRDHFACZA | Target Passenger Redundant Head CG Z-Axis Acceleration | 1000 | + | yes | 1000 |
| 193A | 23HEADCGRDHFACRA | Target Passenger Redundant Head CG Resultant Acceleration | 1000 | | | |
| 194 | 23HEADFR00HFACYA | Target Passenger Head Front Y-Axis Acceleration | 1000 | + | yes | 1000 |
| 195 | 23HEADFR00HFACZA | Target Passenger Head Front Z-Axis Acceleration | 1000 | + | yes | 1000 |
| 196 | 23HEADUP00HFACXA | Target Passenger Head Top X-Axis Acceleration | 1000 | + | yes | 1000 |
| 197 | 23HEADUP00HFACYA | Target Passenger Head Top Y-Axis Acceleration | 1000 | + | yes | 1000 |
| 198 | 23HEADLE00HFACXA | Target Passenger Head Side X-Axis Acceleration | 1000 | + | yes | 1000 |
| 199 | 23HEADLE00HFACZA | Target Passenger Head Side Z-Axis Acceleration | 1000 | + | yes | 1000 |
| 200 | 23NECKUP00HFFOXA | Target Passenger Upper Neck X-Axis Force | 1000 | + | yes | 8896 |
| 201 | 23NECKUP00HFFOYA | Target Passenger Upper Neck Y-Axis Force | 1000 | + | yes | 8896 |
| 202 | 23NECKUP00HFFOZA | Target Passenger Upper Neck Z-Axis Force | 1000 | + | yes | 13344 |
| 203 | 23NECKUP00HFMOXA | Target Passenger Upper Neck Moment About X Axis | 600 | + | yes | 282 |
| 204 | 23NECKUP00HFMOYA | Target Passenger Upper Neck Moment About Y Axis | 600 | + | yes | 282 |

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|---|---|---|---|---|---|---|
| 205 | 23NECKUP00HFMOZA | Target Passenger Upper Neck Moment About Z Axis | 600 | + | yes | 282 |
| 206 | 23NECKLO00HFFOXA | Target Passenger Lower Neck X-Axis Force | 1000 | + | yes | 13344 |
| 207 | 23NECKLO00HFFOYA | Target Passenger Lower Neck Y-Axis Force | 1000 | + | yes | 13344 |
| 208 | 23NECKLO00HFFOZA | Target Passenger Lower Neck Z-Axis Force | 1000 | + | yes | 13344 |
| 209 | 23NECKLO00HFMOXA | Target Passenger Lower Neck Moment About X Axis | 600 | + | yes | 452 |
| 210 | 23NECKLO00HFMOYA | Target Passenger Lower Neck Moment About Y Axis | 600 | + | yes | 452 |
| 211 | 23NECKLO00HFMOZA | Target Passenger Lower Neck Moment About Z Axis | 600 | + | yes | 339 |
| 212 | 23CHSTCG00HFACXA | Target Passenger Chest CG X-Axis Acceleration | 180 | + | yes | 1000 |
| 213 | 23CHSTCG00HFACYA | Target Passenger Chest CG Y-Axis Acceleration | 180 | + | yes | 1000 |
| 214 | 23CHSTCG00HFACZA | Target Passenger Chest CG Z-Axis Acceleration | 180 | + | yes | 1000 |
| 214A | 23CHSTCG00HFACRA | Target Passenger Chest CG Resultant Acceleration | 180 | | | |
| 215 | 23CHSTCGRDHFACXA | Target Passenger Redundant Chest CG X-Axis Acceleration | 180 | + | yes | 1000 |
| 216 | 23CHSTCGRDHFACYA | Target Passenger Redundant Chest CG Y-Axis Acceleration | 180 | + | yes | 1000 |
| 217 | 23CHSTCGRDHFACZA | Target Passenger Redundant Chest CG Z-Axis Acceleration | 180 | + | yes | 1000 |
| 217A | 23CHSTCGRDHFACRA | Target Passenger Redundant Chest CG Resultant Acceleration | 180 | | | |
| 218 | 23CHST0000HFDSXA | Target Passenger Chest Displacement | 600 | + | yes | 100 |
| 219 | 23STRNUP00HFACXA | Target Passenger Sternum Upper X-Axis Acceleration | 1000 | + | yes | 1000 |
| 220 | 23STRNMI00HFACXA | Target Passenger Sternum Mid X-Axis Acceleration | 1000 | + | yes | 1000 |
| 221 | 23STRNLO00HFACXA | Target Passenger Sternum Lower X-Axis Acceleration | 1000 | + | yes | 1000 |
| 222 | 23PELVCG00HFACXA | Target Passenger Pelvis CG X-Axis Acceleration | 1000 | + | yes | 1000 |
| 223 | 23PELVCG00HFACYA | Target Passenger Pelvis CG Y-Axis Acceleration | 1000 | + | yes | 1000 |
| 224 | 23PELVCG00HFACZA | Target Passenger Pelvis CG Z-Axis Acceleration | 1000 | + | yes | 1000 |
| 224A | 23PELVCG00HFACRA | Target Passenger Pelvis CG Resultant Acceleration | 1000 | | | |
| 225 | 23FEMRLL00HFFOZA | Target Passenger Left Femur Z-Axis Force | 600 | + | yes | 13344 |
| 226 | 23KNSLLE00HFDSXA | Target Passenger Left Knee Displacement | 180 | + | yes | 40 |
| 227 | 23TIBILUFXHFFOXA | Target Passenger Left Upper Tibia X-Axis Force | 600 | + | yes | 8896 |
| 228 | 23TIBILUFXHFFOZA | Target Passenger Left Upper Tibia Z-Axis Force | 600 | + | yes | 8896 |
| 229 | 23TIBILUFXHFMOXA | Target Passenger Left Upper Tibia Moment About X Axis | 600 | + | yes | 282.4 |
| 230 | 23TIBILUFXHFMOYA | Target Passenger Left Upper Tibia Moment About Y Axis | 600 | + | yes | 282.4 |
| 231 | 23TIBILEFXHFACXA | Target Passenger Left Tibia X-Axis Acceleration | 1000 | + | yes | 1000 |
| 232 | 23TIBILEFXHFACYA | Target Passenger Left Tibia Y-Axis Acceleration | 1000 | + | yes | 1000 |
| 233 | 23TIBILLFXHFFOXA | Target Passenger Left Lower Tibia X-Axis Force | 600 | + | yes | 8896.4 |
| 234 | 23TIBILLFXHFFOYA | Target Passenger Left Lower Tibia Y-Axis Force | 600 | + | yes | 8896.4 |

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|---|---|---|---|---|---|---|
| 235 | 23TIBILLFXHFFOZA | Target Passenger Left Lower Tibia Z-Axis Force | 600 | + | yes | 8896.4 |
| 236 | 23TIBILLFXHFMOXA | Target Passenger Left Lower Tibia Moment About X Axis | 600 | + | yes | 282.4 |
| 237 | 23TIBILLFXHFMOYA | Target Passenger Left Lower Tibia Moment About Y Axis | 600 | + | yes | 282.4 |
| 238 | 23FOOTLEFXHFANXA | Target Passenger Left Foot X-Axis Rotation | 180 | + | no | 318 |
| 239 | 23FOOTLEFXHFANYA | Target Passenger Left Foot Y-Axis Rotation | 180 | + | no | 318 |
| 240 | 23FOOTLEFXHFANZA | Target Passenger Left Foot Z-Axis Rotation | 180 | + | no | 318 |
| 241 | 23FOOTLEFXHFACXA | Target Passenger Left Foot X-Axis Acceleration | 1000 | + | yes | 1000 |
| 242 | 23FOOTLEFXHFACYA | Target Passenger Left Foot Y-Axis Acceleration | 1000 | + | yes | 1000 |
| 243 | 23FOOTLEFXHFACZA | Target Passenger Left Foot Z-Axis Acceleration | 1000 | + | yes | 1000 |
| 243A | 23FOOTLEFXHFACRA | Target Passenger Left Foot Resultant Acceleration | 1000 | | | |
| 244 | 23FEMRRL00HFFOZA | Target Passenger Right Femur Z-Axis Force | 600 | + | yes | 13344 |
| 245 | 23KNSLRI00HFDSXA | Target Passenger Right Knee Displacement | 180 | + | yes | 22.1 |
| 246 | 23TIBIRUFXHFFOXA | Target Passenger Right Upper Tibia X-Axis Force | 600 | + | yes | 8896.4 |
| 247 | 23TIBIRUFXHFFOZA | Target Passenger Right Upper Tibia Z-Axis Force | 600 | + | yes | 8896.4 |
| 248 | 23TIBIRUFXHFMOXA | Target Passenger Right Upper Tibia Moment About X Axis | 600 | + | yes | 282.4 |
| 249 | 23TIBIRUFXHFMOYA | Target Passenger Right Upper Tibia Moment About Y Axis | 600 | + | yes | 282.4 |
| 250 | 23TIBIRIFXHFACXA | Target Passenger Right Tibia X-Axis Acceleration | 1000 | + | yes | 1000 |
| 251 | 23TIBIRIFXHFACYA | Target Passenger Right Tibia Y-Axis Acceleration | 1000 | + | yes | 1000 |
| 252 | 23TIBIRLFXHFFOXA | Target Passenger Right Lower Tibia X-Axis Force | 600 | + | yes | 8896.4 |
| 253 | 23TIBIRLFXHFFOYA | Target Passenger Right Lower Tibia Y-Axis Force | 600 | + | yes | 8896.4 |
| 254 | 23TIBIRLFXHFFOZA | Target Passenger Right Lower Tibia Z-Axis Force | 600 | + | yes | 8896.4 |
| 255 | 23TIBIRLFXHFMOXA | Target Passenger Right Lower Tibia Moment About X Axis | 600 | + | yes | 282.4 |
| 256 | 23TIBIRLFXHFMOYA | Target Passenger Right Lower Tibia Moment About Y Axis | 600 | + | yes | 282.4 |
| 257 | 23FOOTRIFXHFANXA | Target Passenger Right Foot X-Axis Rotation | 180 | + | no | 318 |
| 258 | 23FOOTRIFXHFANYA | Target Passenger Right Foot Y-Axis Rotation | 180 | + | no | 318 |
| 259 | 23FOOTRIFXHFANZA | Target Passenger Right Foot Z-Axis Rotation | 180 | + | no | 318 |
| 260 | 23FOOTRIFXHFACXA | Target Passenger Right Foot X-Axis Acceleration | 1000 | + | yes | 1000 |
| 261 | 23FOOTRIFXHFACYA | Target Passenger Right Foot Y-Axis Acceleration | 1000 | + | yes | 1000 |
| 262 | 23FOOTRIFXHFACZA | Target Passenger Right Foot Z-Axis Acceleration | 1000 | + | yes | 1000 |
| 262A | 23FOOTRIFXHFACRA | Target Passenger Right Foot Resultant Acceleration | 1000 | | | |
| 263 | 24CRME000000ACXA | Target Vehicle Left Rear Seat Crossmember X-Axis Acceleration | 60 | + | yes | 1000 |
| 264 | 26CRME000000ACXA | Target Vehicle Right Rear Seat Crossmember X-Axis Acceleration | 60 | + | yes | 1000 |
| 265 | 22ENGNTP0000ACXA | Target Vehicle Top of Engine X-Axis Acceleration | 60 | + | yes | 2000 |

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|---|---|---|---|---|---|---|
| 266 | 22ENGNBO0000ACXA | Target Vehicle Bottom of Engine X-Axis Acceleration | 60 | + | yes | 2000 |
| 267 | 23VEHCRI0000ACXA | Target Vehicle Right Front Brake Caliper X-Axis Acceleration | 60 | + | yes | 2000 |
| 268 | 21VEHCLE0000ACXA | Target Vehicle Left Front Brake Caliper X-Axis Acceleration | 60 | + | yes | 2000 |
| 269 | 21PEAC000000ACXA | Target Vehicle Toe Pan Accelerator X-Axis Acceleration | 60 | + | yes | 2000 |
| 270 | 21PEAC000000ACZA | Target Vehicle Toe Pan Accelerator Z-Axis Acceleration | 60 | + | yes | 2000 |
| 271 | 21VEHC000001ACXA | Target Vehicle Toe Pan Footrest X-Axis Acceleration | 60 | - | yes | 2000 |
| 272 | 21VEHC000001ACZA | Target Vehicle Toe Pan Footrest Z-Axis Acceleration | 60 | - | yes | 2000 |
| 273 | 25TUNNCY0000ACXA | Target Vehicle Rear Tunnel Center X-Axis Acceleration | 60 | + | yes | 1000 |
| 274 | 20VEHCCG0000ACXA | Target Vehicle CG X-Axis Acceleration | 60 | + | yes | 1500 |
| 274A | 20VEHCCG0000VEXA | Target Vehicle CG X-Axis Velocity | 180 | | | |
| 274B | 20VEHCCG0000DCXA | Target Vehicle CG X-Axis Displacement | 180 | | | |
| 275 | 20VEHCCG0000ACYA | Target Vehicle CG Y-Axis Acceleration | 60 | + | yes | 1500 |
| 275A | 20VEHCCG0000VEYA | Target Vehicle CG Y-Axis Velocity | 180 | | | |
| 275B | 20VEHCCG0000DCYA | Target Vehicle CG Y-Axis Displacement | 180 | | | |
| 276 | 20VEHCCG0000ACZA | Target Vehicle CG Z-Axis Acceleration | 60 | + | yes | 1500 |
| 276A | 20VEHCCG0000VEZA | Target Vehicle CG Z-Axis Velocity | 180 | | | |
| 276B | 20VEHCCG0000DCZA | Target Vehicle CG Z-Axis Displacement | 180 | | | |
| 276C | 20VEHCCG0000ACRA | Target Vehicle CG Resultant Acceleration | 60 | | | |
| 277 | 28VEHC000000ACXA | Target Vehicle Rear Deck X-Axis Acceleration | 60 | + | yes | 1000 |
| 278 | 28VEHC000000ACYA | Target Vehicle Rear Deck Y-Axis Acceleration | 60 | + | yes | 1000 |
| 279 | 28VEHC000000ACZA | Target Vehicle Rear Deck Z-Axis Acceleration | 60 | + | yes | 1000 |
| 279A | 28VEHC000000ACRA | Target Vehicle Rear Deck Resultant Acceleration | 60 | | | |
| 280 | 21AIRBFR0100EV0A | Target Vehicle Driver Airbag - Primary | 1000 | + | no | 5 |
| 281 | 21AIRBFR0200EV0A | Target Vehicle Driver Airbag - Secondary | 1000 | + | no | 5 |
| 282 | 23AIRBFR0100EV0A | Target Vehicle Passenger Airbag - Primary | 1000 | + | no | 5 |
| 283 | 23AIRBFR0200EV0A | Target Vehicle Passenger Airbag - Secondary | 1000 | + | no | 5 |
| 284 | 21SEBA0000B5DS0A | Target Vehicle Driver Lap Belt Spool | 1000 | + | yes | 635 |
| 285 | 21SEBA0000B3DS0A | Target Vehicle Driver Shoulder Belt Spool and Retraction | 1000 | + | yes | 1270 |
| 286 | 23SEBA0000B5DS0A | Target Vehicle RF Pass Lap Belt Spool | 1000 | + | yes | 635 |
| 287 | 23SEBA0000B3DS0A | Target Vehicle RF Pass Shoulder Belt Spool and Retraction | 1000 | + | yes | 635 |
| 288 | 22DASH000000ACXA | Target Vehicle IP Center | 60 | + | yes | 1500 |


FULL FRONTAL COLLINEAR 2002 FORD FOCUS
Temperature (C)
Humidity (%)
30
25
20
15
10
90
80
70
60
50
40
30
20
10
03/09/06 13:06
03/09/06 14:46
03/09/06 16:26
03/09/06 18:06
03/09/06 19:46
03/09/06 21:26
03/09/06 23:06
03/10/06 0:46
03/10/06 2:26
03/10/06 4:06
03/10/06 5:46
03/10/06 7:26
03/10/06 9:06
03/10/06 10:46
03/10/06 12:26
03/10/06 14:06
Time of Sample


FULL FRONTAL COLLINEAR 2003 HONDA ODYSSEY
Temperature (C)
Humidity (%)
30
25
20
15
10
90
80
70
60
50
40
30
20
10
03/09/06 13:06
03/09/06 14:46
03/09/06 16:26
03/09/06 18:06
03/09/06 19:46
03/09/06 21:26
03/09/06 23:06
03/10/06 0:46
03/10/06 2:26
03/10/06 4:06
03/10/06 5:46
03/10/06 7:26
03/10/06 9:06
03/10/06 10:46
03/10/06 12:26
03/10/06 14:06
Time of Sample

Appendix E

INSIA Report on Structural Measurements

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

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March, 1999

| REPORT DOCUMENTATION PAGE |
|---|
| **Title:**<br>*STRUCTURAL SURVEY OF CARS. MEASUREMENT METHODOLOGY OF THE MAIN RESISTANT ELEMENTS IN THE CAR BODY* |
| **Author(s):**<br>Aparicio Izquierdo, Francisco<br>Páez Ayuso, Francisco Javier |
| **Performing Organisation name and address:**<br>INSIA – University Institute for Automobile Research<br>Carretera de Valencia, Km. 7 – Campus Sur de la Universidad Politécnica de Madrid<br>28031 – Madrid – Spain |
| **Suplementary notes:**<br>Under contract to:<br><br>THE EUROPEAN COMMUNITY<br>Project: "Improvement of Crash Compatibility between Cars"<br>Contract Nº: RO – 97 – SC.1064 |
| **Abstract**:<br><br>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.<br><br>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.<br><br>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.<br><br>This report shows the methodology followed to get these measurements. |
| **Subject terms:**<br>Crash compatibility, geometric compatibility, resistant elements, measure methodology |
| **Date:**<br>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.

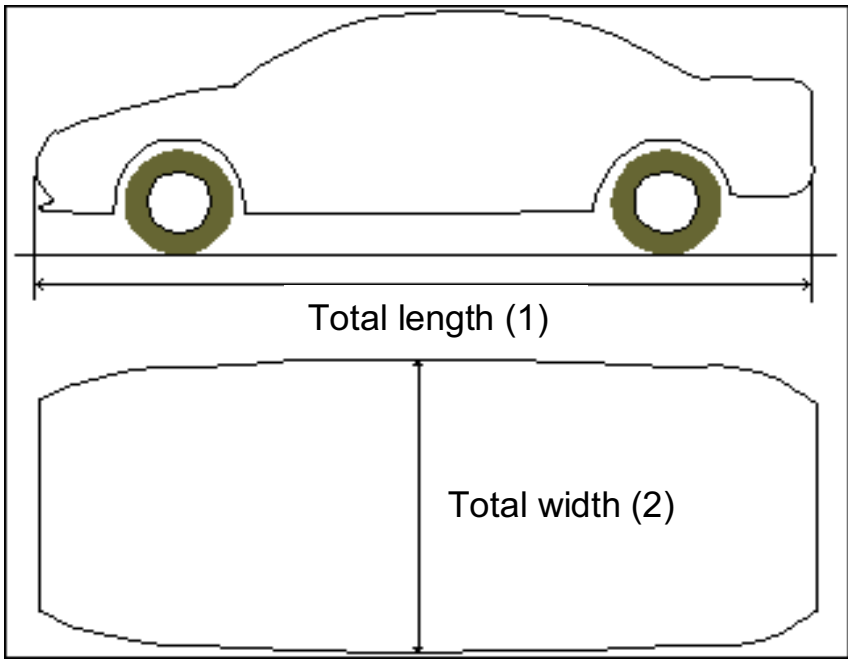



*Figure 1.- Definition of the main resistant elements. General dimensions.*

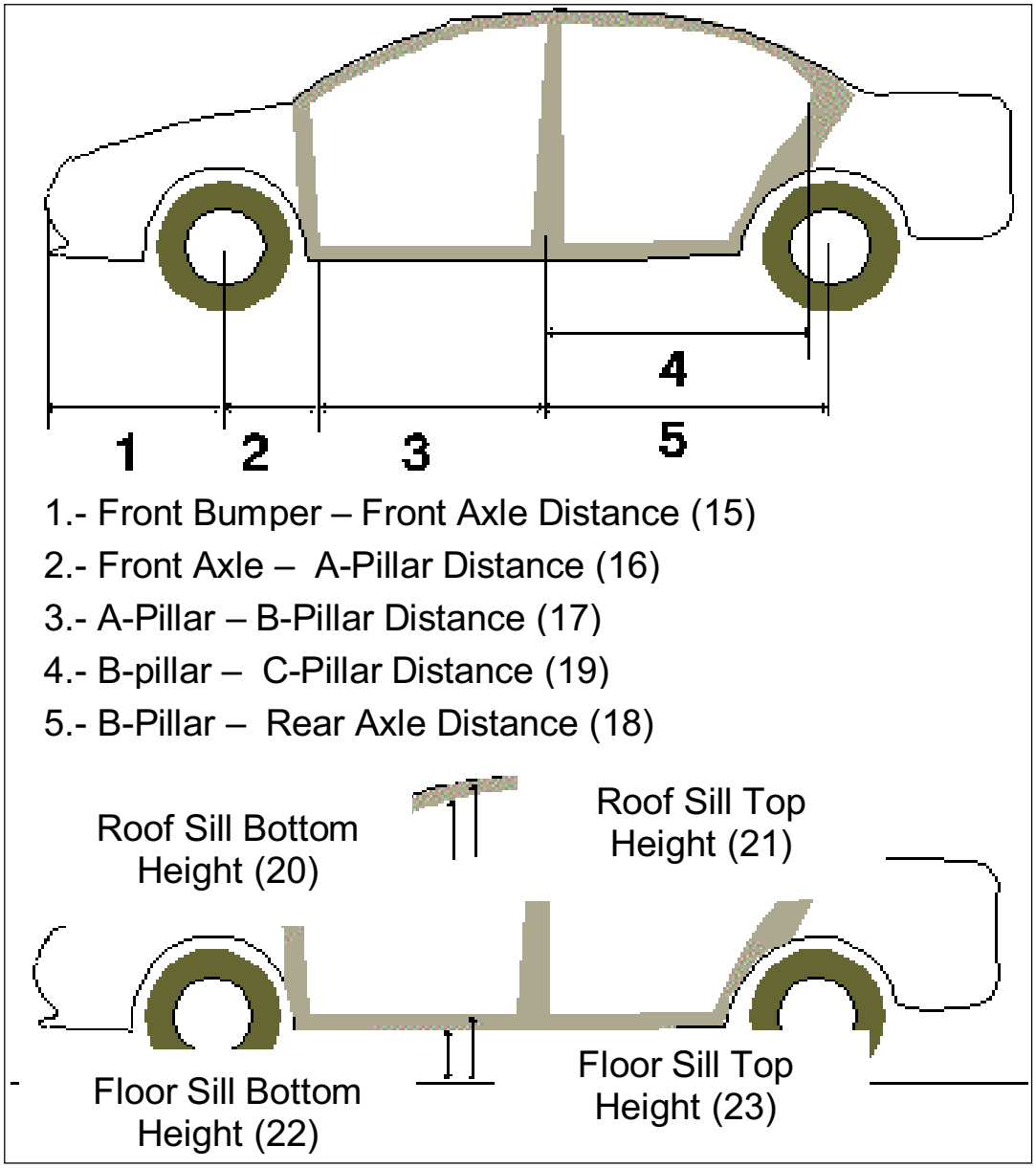



*Figure 2.- Definition of the main resistant elements. Side elements.*

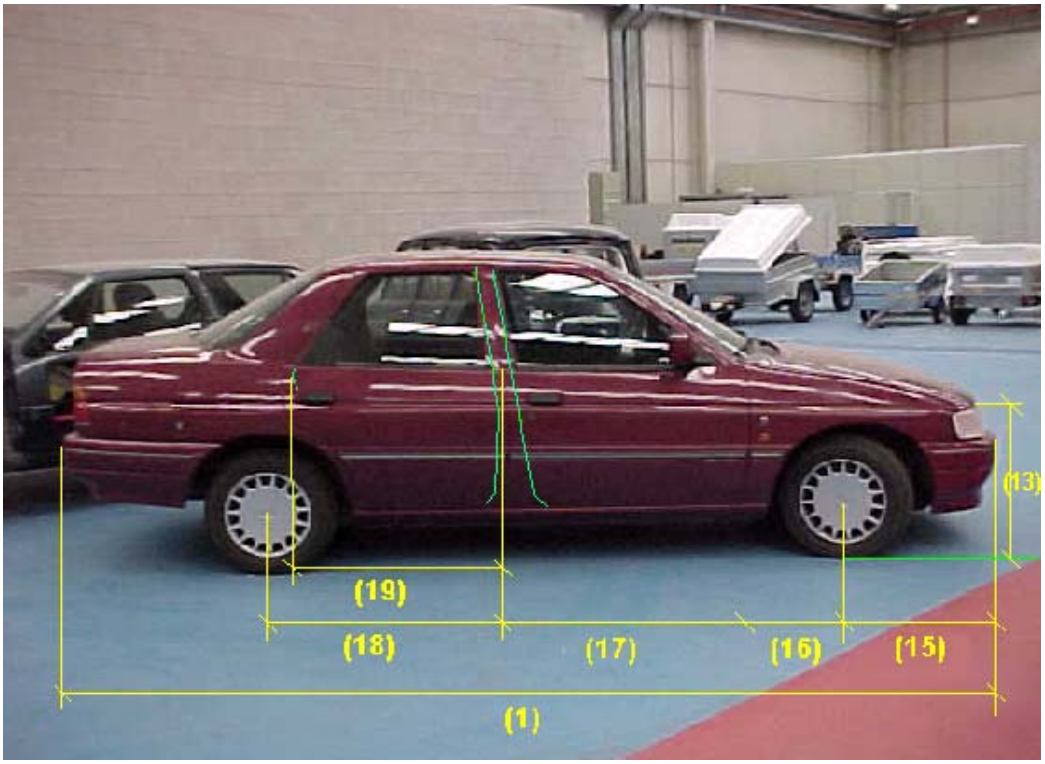



*Figure 3.- Measurements of the side resistant elements (outer).*

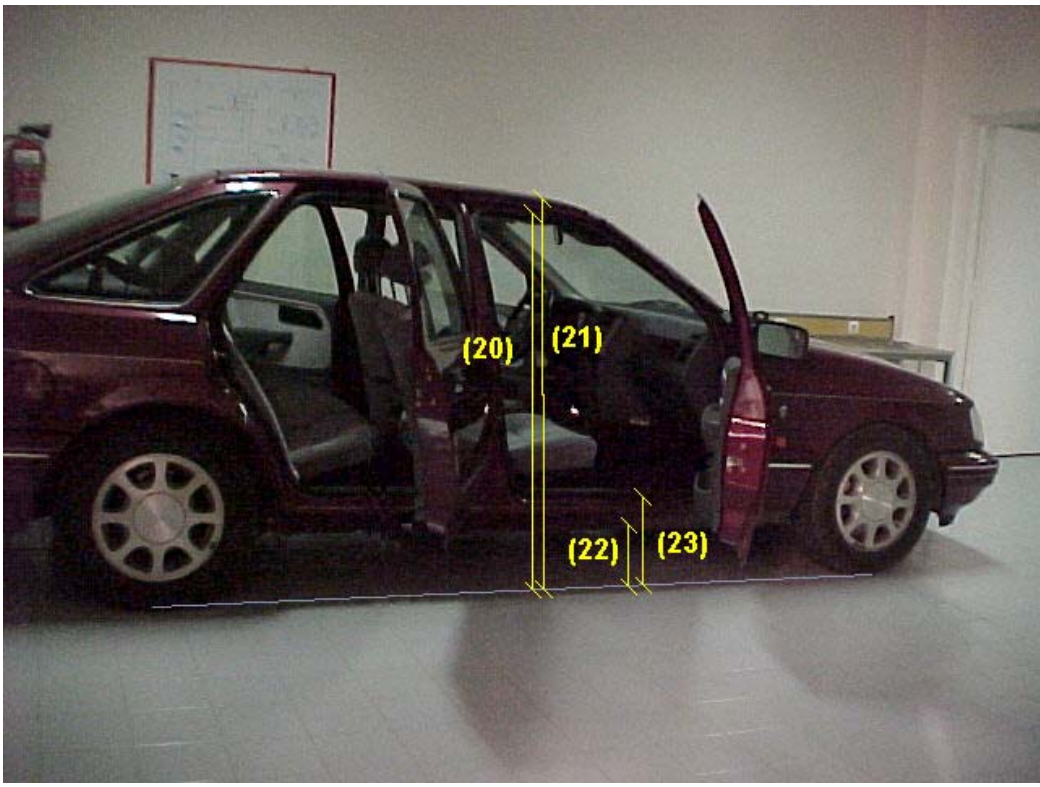



*Figure 4.- Measurements of the side resistant elements (inner).*

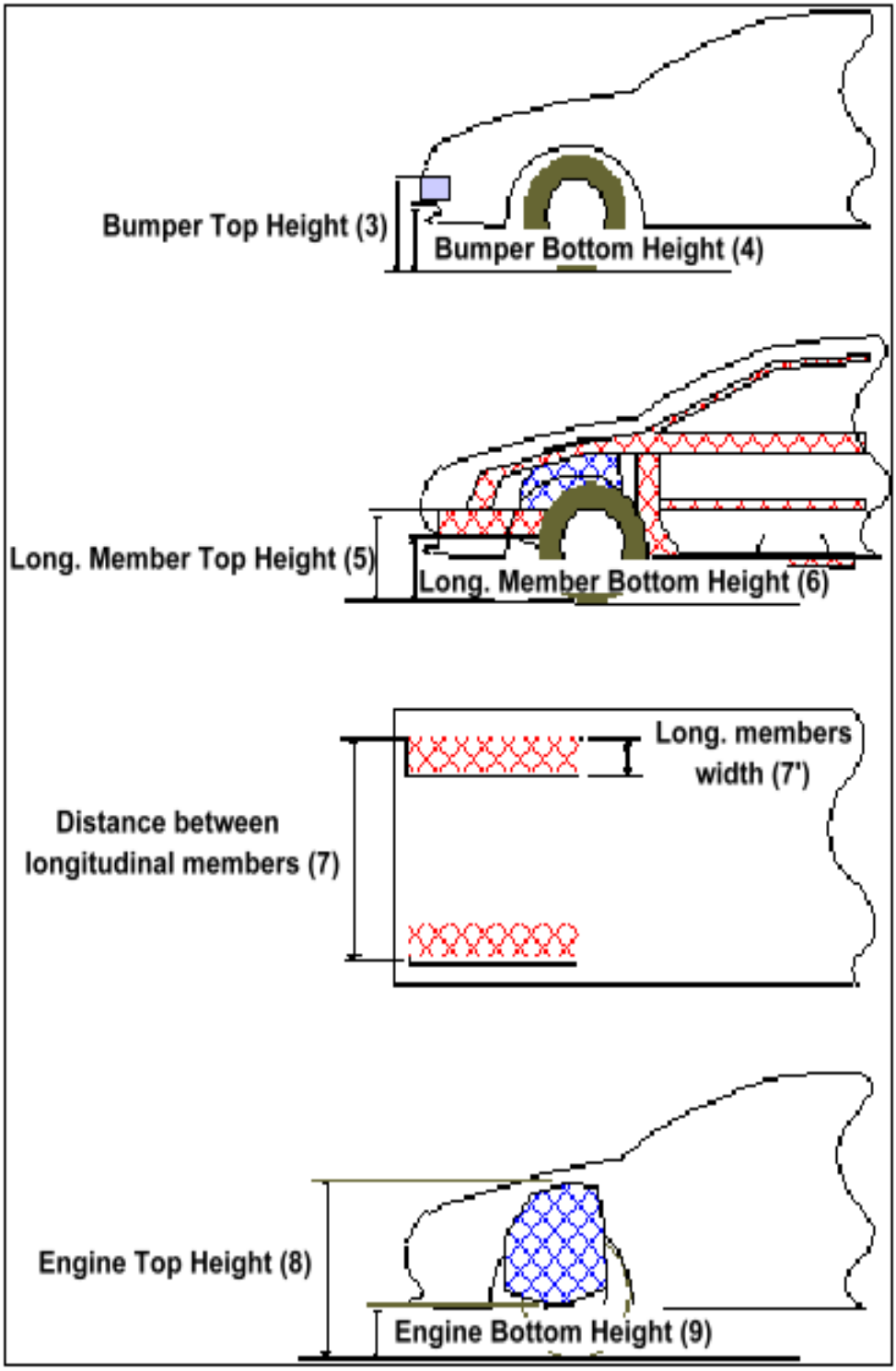



*Figure 5.- Definition of the main resistant elements. Front elements.*

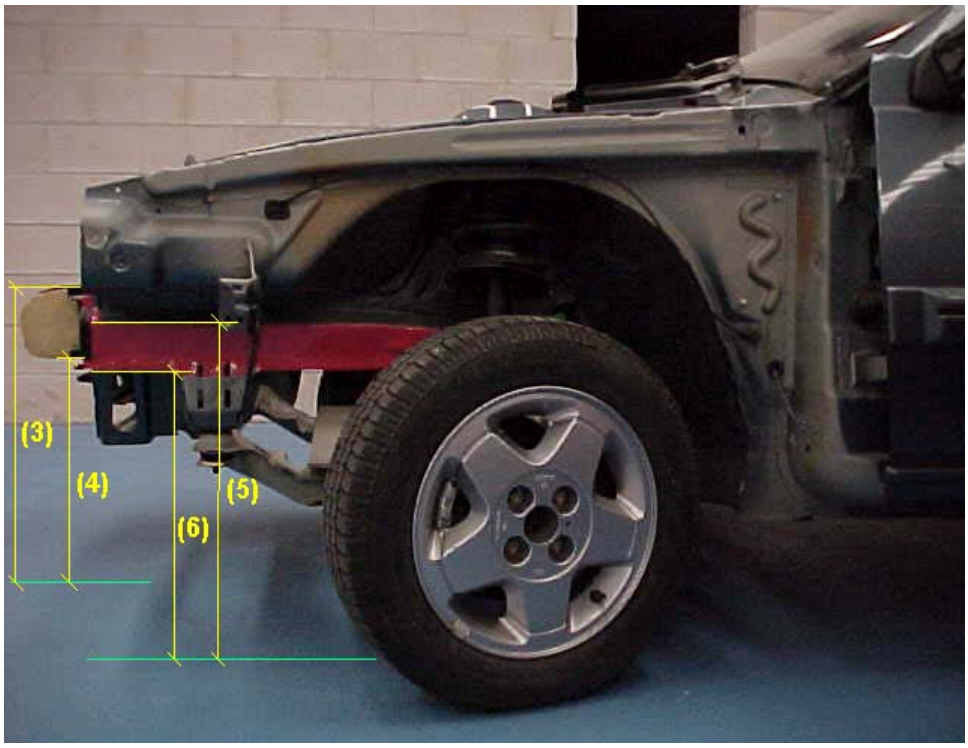



*Figure 6.- Measurements of the main resistant elements. Front elements 1.*

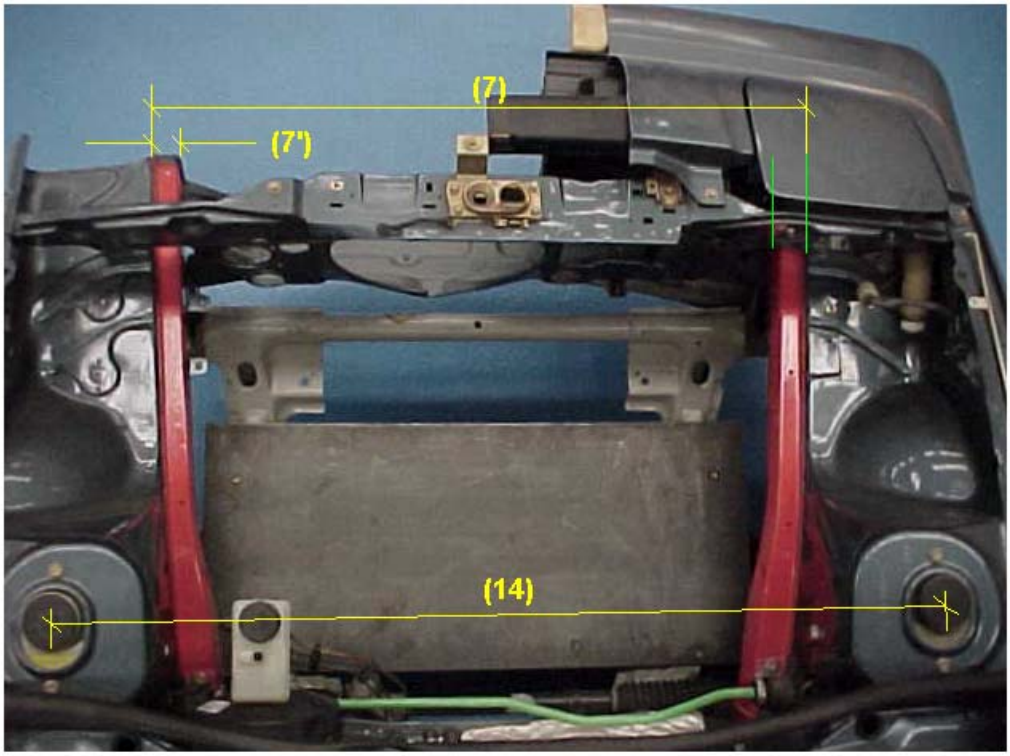



*Figure 7.- Measurements of the main resistant elements. Front elements 2.*

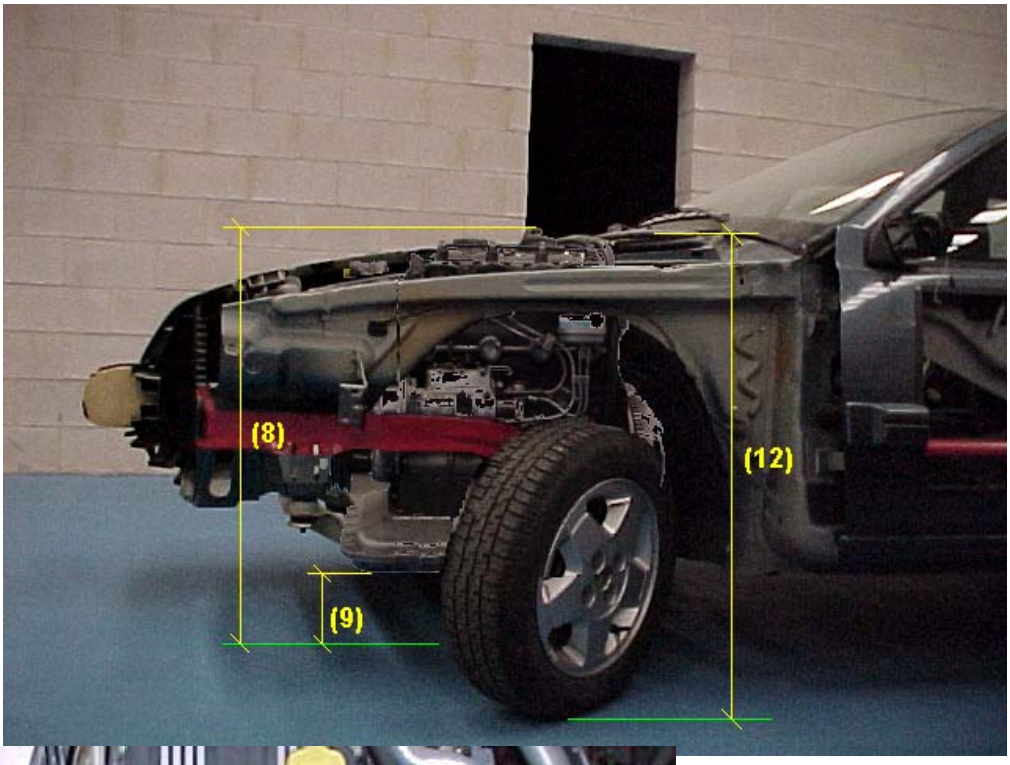



*Figure 8.- Measurements of the main resistant elements. Front elements 3.*

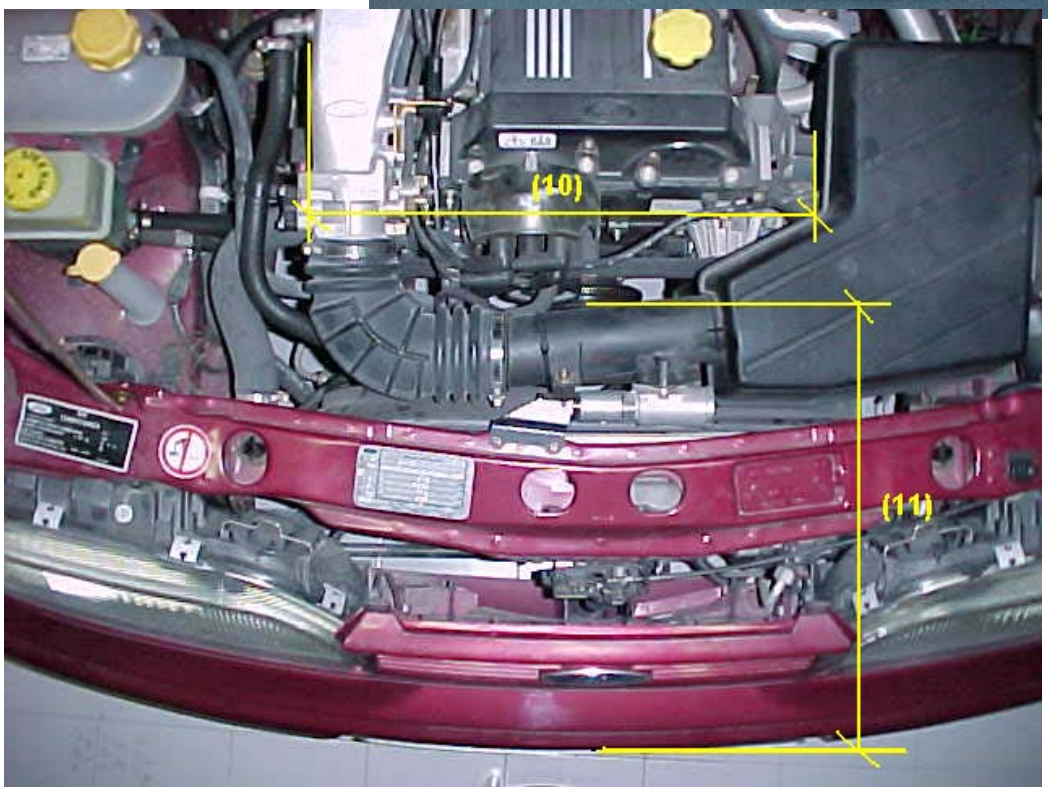



*Figure 9.- Definition of the main resistant elements. Front elements (Longitudinal engine).*

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.