

Insurance Institute for Highway Safety Crashworthiness Evaluation

Crash Test Report 2000 Nissan Xterra (CF00020)

Vehicle identification number: 5N1ED28Y4YC588507
Body style: Midsize 4-door utility vehicle
Engine/transmission: Longitudinal 3.3-liter V6, 4-speed automatic,
4-wheel drive

Standard crashworthiness features:

- Driver and right front passenger airbags
- Dual-locking shoulder belts (front and rear outboard seating positions)
- Shoulder belt upper anchorage height adjusters (front seating positions only)
- Seat belt crash tensioners (pyrotechnic, front seating positions only)
- Seat belt force-limiting mechanisms (front seating positions only)
- Right front and both rear shoulder belt retractors are convertible from emergency to automatic locking for ease of child restraint use

Other standard safety features:

- 4-wheel antilock brakes

Vehicle specifications (provided by manufacturer):

Wheelbase:	265 cm
Overall length:	452 cm
Overall width:	179 cm
Curb weight:	1,784 kg

Vehicle specifications (measured):

Front bumper to firewall:	108 cm
Curb weight:	1,888 kg
Test weight:	1,998 kg (53% front, 47% rear)
Overall width:	181 cm

Nominal test parameters:

40.0 mi/h (64.4 km/h), 40% overlap, deformable barrier face with slotted bumper

Crash test date:

June 20, 2000

Figure 1
Pre-crash and Post-crash Side Views — 2000 Nissan Xterra



Summary

A 2000 Nissan Xterra was crash tested on June 20, 2000 into a fixed deformable barrier at 40.1 mi/h (64.6 km/h) and a 40 percent overlap on the driver side. A Hybrid III 50th percentile male dummy was positioned in the driver seat with the lap/shoulder belt fastened.

Measures of intrusion taken after the crash indicated the lower instrument panel in front of the dummy moved rearward 4-10 cm. Resultant intrusion in the driver footwell measured 11 cm at the footrest and 9-13 cm at other places on the toepan. All doors remained closed during the crash. After the crash, the driver door and left rear door required additional effort but no tools to open, and the right front and right rear doors opened with ease.

The driver dummy was restrained by a three-point lap/shoulder belt and an airbag. During the crash, the belt crash tensioner activated and retracted 5 cm of shoulder belt webbing. A net amount of 8 cm of webbing (or a total of 13 cm including the tensioner-retracted length) spooled off the retractor, including about 12 cm from the force-limiting mechanism. After the dummy loaded the airbag, the head contacted the steering wheel twice through the deflating airbag. During rebound from the airbag, the head moved upward until it contacted the upper B-pillar and head restraint. After the crash, the upper end of the steering column had moved upward 15 cm and rearward 2 cm.

The HIC-15 was 617 and was calculated during the interval when the dummy's head loaded the airbag. The peak resultant head accelerations were 96 g from the first steering wheel contact, 42 g from the second steering wheel contact, and 15 g from the B-pillar contact. The maximum right lower tibia L-M moment was -200 Nm, significantly contributing to the right lower tibia index of 1.05. The maximum right tibia axial force was -5.3 kN. The maximum resultant right foot acceleration was 165 g.

Test Conditions

This vehicle had been tested previously in the Institute's Low-Speed Crash Test Program and subjected to an impact on the front corner of the passenger side at 5 mi/h (8 km/h) into a 30-degree angle barrier and a rear impact at 5 mi/h (8 km/h) into a flat barrier. All structural damage on the front was repaired prior to this test (see Appendix, Low-Speed Crash Test Damage Repair Estimate).

This test was conducted according to the procedures specified in the IIHS Offset Barrier Crash Test Protocol (Version VII). The Hybrid III dummy positioned in the driver seat was equipped with instrumented lower legs that included feet modified to include two accelerometers and to have a 45 degree dorsiflexion range with soft stops at all extremes of foot-ankle motion. All dummy seating parameters were set according to the procedures specified for Federal Motor Vehicle Safety Standard 208 compliance testing (49 *CFR* Part 571.208 § 11). The dummy's left foot was placed on the footrest.

Seat back, shoulder belt upper anchorage, and steering column adjustments were set according to the manufacturer's specifications for government crash testing. Other adjustments were set according to the procedure specified for Federal Motor Vehicle Safety Standard 208 compliance testing (49 *CFR* Part 571.208 § 7 and 8). After final positioning of the dummy, measurements from various parts of the dummy to a number of vehicle interior points were made. These measurements and the seat back, shoulder belt upper anchorage, and steering column adjustments are described in the Appendix, Dummy Clearance Measurements.

Vehicle acceleration measurements were made by a triaxial arrangement of accelerometers mounted on the vehicle's longitudinal centerline and 54 cm behind its center of gravity (178 cm behind the front axle). The vehicle speed recorded just prior to impact was 40.1 mi/h (64.6 km/h), and the actual overlap was 40 percent.

Structural Performance

All doors remained closed during the crash. The driver door aperture shortened 3 cm, as measured at the lower edge of the window. After the crash, the driver door and left rear door required additional effort but no tools to open, and the right front and right rear doors opened with ease.

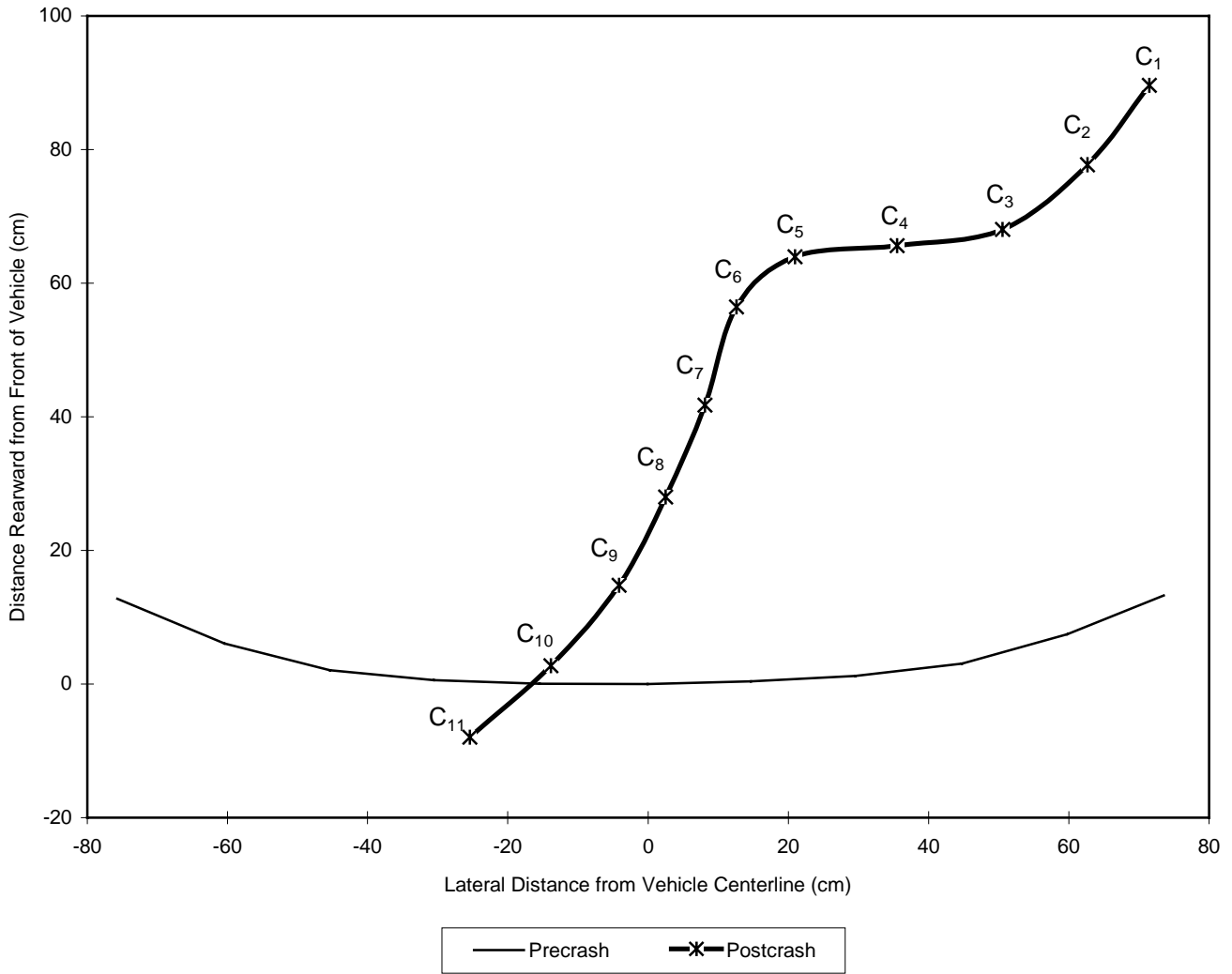
No fuel system leaks were observed after the crash. In addition, no fuel system leaks were observed when the vehicle was rotated onto its right side to allow postcrash photography.

Figure 2 shows the overhead view of the crash deformation. Figure 3 illustrates the precrash and postcrash contour measures of the front bumper face bar profile and the resulting permanent crush. Figure 4 shows the precrash and postcrash views from below. Figure 5 illustrates the deformation of the frame rails, door sills, and crossmembers, which are visible in Figure 4.

Figure 2
Overhead View of Crash Deformation — 2000 Nissan Xterra



Figure 3
Front Bumper Face Bar Crush Contour — 2000 Nissan Xterra



	C ₁	C ₂	C ₃	C ₄	C ₅	C ₆	C ₇	C ₈	C ₉	C ₁₀	C ₁₁
Postcrash Contour (cm)	90	78	68	66	64	56	42	28	15	3	-8
Precrash Contour (cm)	13	7	3	1	0	0	0	1	2	6	13
Resulting Crush (cm)	77	71	65	65	64	56	42	27	13	-3	-21

The length of the reference line was 149 cm precrash and 97 cm postcrash.

Figure 4
Precrash and Postcrash Views from Below — 2000 Nissan Xterra

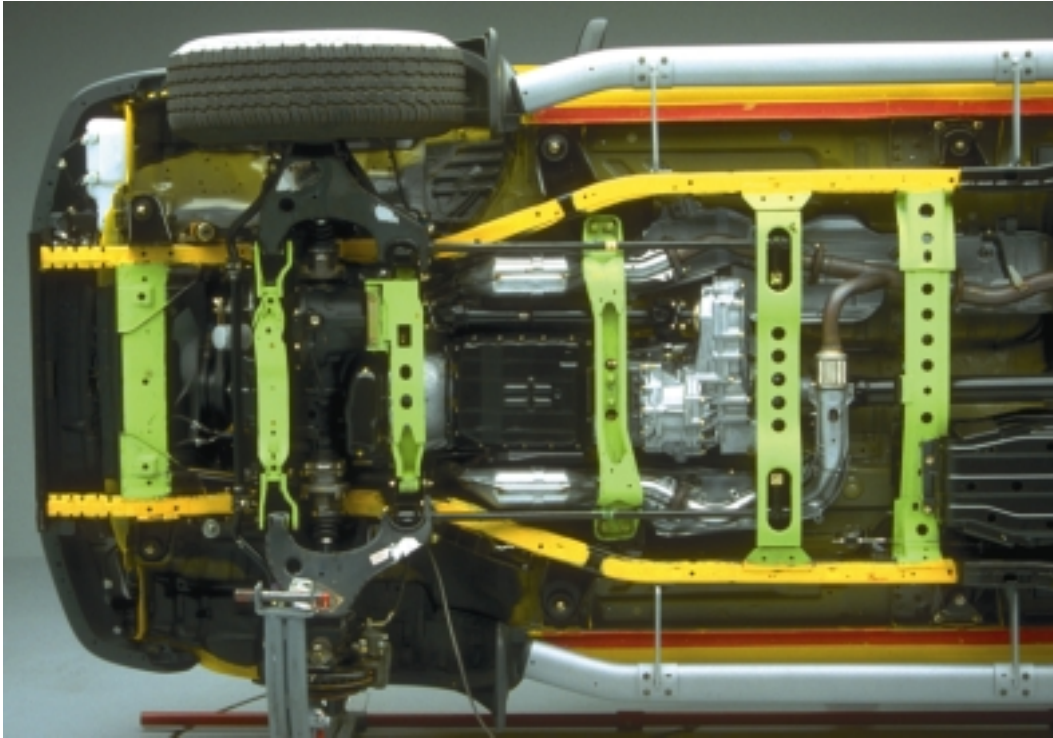
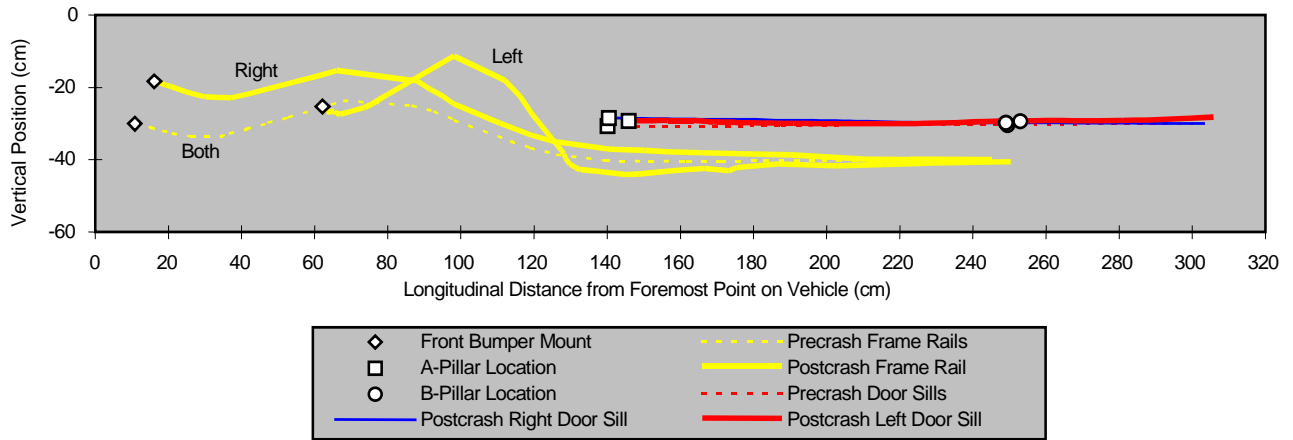
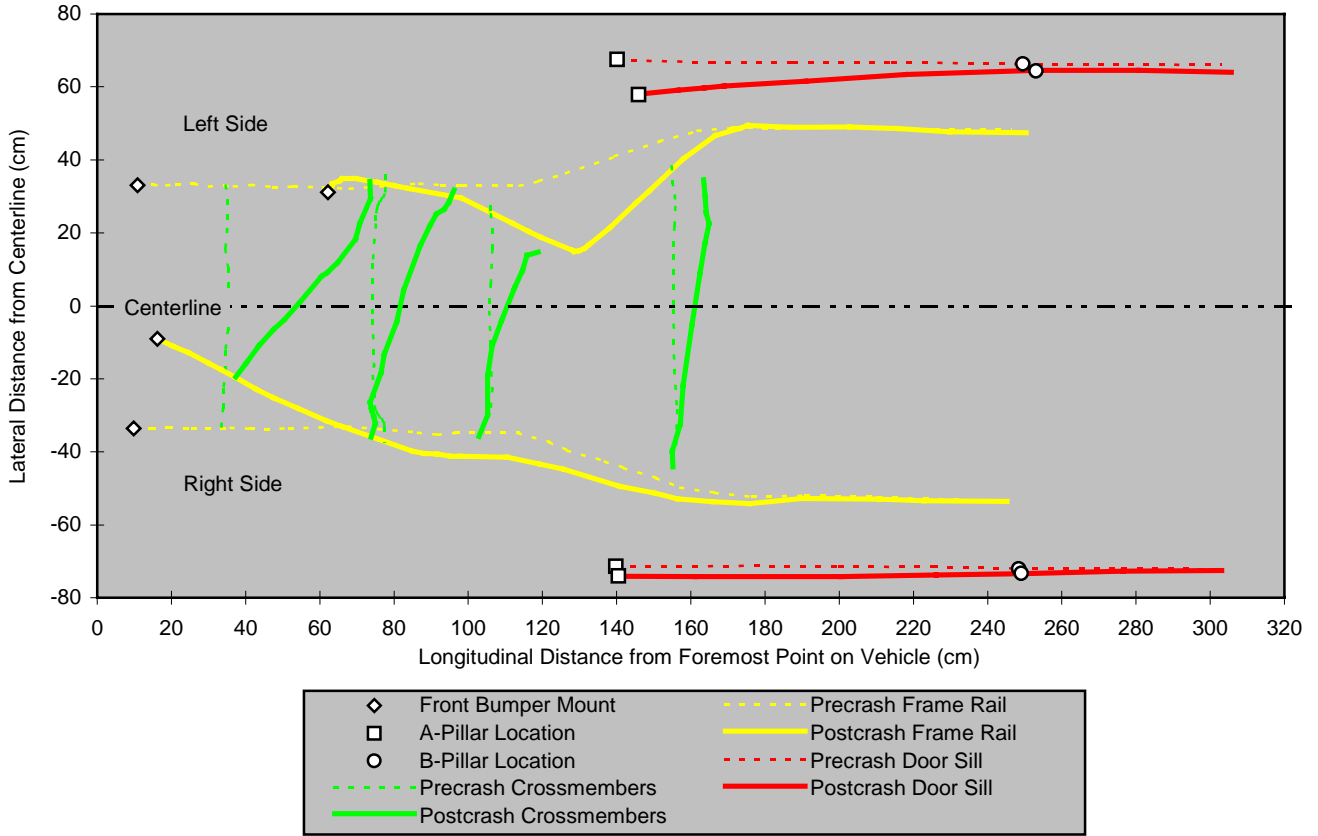


Figure 5
Structural Deformation, Views from Below and Side — 2000 Nissan Xterra



Various measures of intrusion were made after the crash. These residual measures of intrusion typically are less than the maximum deformation that occurs during the crash. The coordinate reference system for these measures is described in the IIHS Offset Barrier Crash Test Protocol (Version VII). The measures of deformation shown in Table 1 have been adjusted to better reflect the displacement of the various target locations relative to the driver, based on the locations of the four driver seat-attachment bolts. The average displacement of the seat-attachment bolts relative to the reference system also is shown in Table 1.

Selected Locations*	Longitudinal	Lateral	Vertical	Resultant
Steering column (cm)	-2	2	15	16
Left lower instrument panel (cm)	-4	1	5	7
Right lower instrument panel (cm)	-10	0	7	12
Brake pedal (cm)	-8	1	4	9
Left toepan (cm)	-8	-3	5	10
Center toepan (cm)	-11	-5	2	13
Right toepan (cm)	-8	0	5	9
Footrest (cm)	-9	-5	4	11
Average displacement of the four seat-attachment bolts relative to reference system (cm)	-4	-1	-3	n/a

* All measurements taken on driver side. From the driver's position, positive is forward, left, and up.

Restraint System Performance

Airbags

Driver: The uninflated driver airbag is approximately 62 cm in diameter, and the excursion of its center when inflated is limited by two tethers. The airbag is vented by two holes located at positions corresponding to 10 and 2 o'clock on the forward-facing surface of the airbag. Analysis of the high-speed film taken from camera positions D and E indicated the airbag deployed at 38 ms into the crash and appeared to be fully inflated at 66 ms.

Passenger: The corner-mounted passenger airbag deployed at an angle, and its excursion is limited by one broad tether. The cylinder-shaped airbag is vented by two holes located at the lateral ends. The airbag did not contribute to windshield damage during deployment.

Seat Belts

This vehicle is equipped with dual-locking lap/shoulder belts with sliding latch plates at the outboard seating positions and adjustable upper anchorage points at both front seating positions. The front belts also are equipped with pyrotechnic crash tensioners and mechanical force-limiting mechanisms. The front inboard lower anchorage points are attached to and move with the seats. The front outboard lower anchorage points are bolted to the floor just inboard of the B-pillars. During the crash, 5 cm of webbing was pulled by the belt crash tensioner into the retractor through the D-ring, as measured by a pull-string mounted between the webbing and B-pillar trim near the D-ring. A net amount of 8 cm of webbing (or a total of 13 cm including the tensioner-retracted length) was pulled from the retractor through the D-ring, as measured by a second pull-string mounted between the retractor housing and the webbing beyond the retractor. Postcrash investigation of the force-limiting torsion bar within the retractor spool indicated it was twisted about 290 degrees from its precrash orientation. This measure, combined with the estimated diameter of the retractor spool and stowed webbing (47 mm), suggested the force limiter contributed about 12 cm of webbing to the total amount pulled through the D-ring.

Seat

Postcrash examination of the driver seat rails indicated no discernible movement of the seat in its tracks during the crash. Deformation of the floor under the driver seat caused the seat to tip slightly outward and pitch slightly forward.

Steering Column

The upper end of the steering column moved upward 15 cm and rearward 2 cm relative to the driver seat.

Dummy Kinematics

Head, Neck, and Torso

Analysis of the high-speed film taken from camera positions D and E indicated the dummy's face began to load the airbag at 68 ms into the crash (2 ms after the airbag became fully inflated). Paint transferred from the dummy's face indicated the nose loaded the airbag 2 cm directly to the right of its center. Although the airbag fabric obscured the dummy's face and the steering wheel, the dummy's face appeared to contact the hub through the airbag at about 96 ms. Sudden increases in the rearward head acceleration, neck A-P shear force, and neck tension occurring at the same time (96 ms) were consistent with contact between the dummy's head and the steering wheel. As the head started to rebound from the airbag, a second contact between the dummy's head and steering wheel appeared to occur. Again, sudden increases in the rearward head acceleration, neck A-P shear force, and neck tension occurred at the same time (105 ms) as the dummy's head was in close proximity to the steering wheel rim. Leaving the airbag, the head moved upward and slightly outward, until the left upper rear part of the head contacted the

leading edge of the B-pillar and the shoulder belt upper anchorage D-ring. At about the same time, the center rear and right rear of the head contacted the head restraint; head acceleration data indicated the initial contact with the B-pillar occurred at 270 ms. Table 2 provides the timing of these events.

Table 2 Restraint System Performance and Dummy Kinematics — 2000 Nissan Xterra	
Event	Time (ms)
Deployment of airbag	38
Airbag fully inflated	66
Face begins to load airbag	68
Head contacts steering wheel through airbag	96
Head contacts steering wheel again through airbag	105
Head contacts head restraint and B-pillar	270

**Figure 6
Dummy and Vehicle Interior, Postcrash — 2000 Nissan Xterra**



Legs and Feet

Left leg and foot: Paint transferred from the dummy's left knee indicated the knee initially contacted the knee bolster (including the fuse box compartment door) approximately 5 cm below and 2 cm to the left of the left instrument panel intrusion reference point. Paint transferred from the dummy's left shin indicated the shin initially contacted the bolster directly below the knee impact location. The leg then moved to the right, and the shin contacted the bolster protrusion under the steering column; the shin was found against this protrusion after the crash. The left foot was found fully dorsiflexed but neither inverted or everted, with the back of the heel in a downward buckle of the floormat/carpeting and the sole of the forefoot pressed against the lower edge of the brake pedal.

Right leg and foot: Paint transferred from the dummy's right knee indicated the knee contacted the upper right corner of the knee bolster protrusion. Paint transferred from the dummy's right shin indicated the shin contacted the bolster protrusion in the same area as the knee, but also continued to the lower edge of the bolster. The right foot was found somewhat dorsiflexed and slightly inverted, with the back of heel against a downward buckle of the floormat/carpeting. The sole of the foot was suspended behind and above the toepan.

Dummy Injury Measures

Head

The maximum vector resultant head accelerations were recorded and the HICs were calculated during an interval that corresponds with the dummy's head excursion into the airbag. The HIC-15 was 617 during the interval 87-102 ms. The peak resultant head accelerations were 96 g at 99 ms from the first steering wheel contact, 42 g at 110 ms from the second steering wheel contact, and 15 g at 279 ms from the B-pillar contact. Table 3 provides a summary of the maximum head injury measurements recorded during the crash.

Measure	Published Tolerance Threshold	Result	Time (ms)
Vector resultant acceleration (g)	80	96	99
Vector resultant acceleration — 3 ms clip (g)	80	78	97-100
Head Injury Criterion (HIC)	1000	669	78-112
Head Injury Criterion — 15 ms interval (HIC-15)*	700	617	87-102

* Canadian Motor Vehicle Safety Regulations (Standard 208) allow the resultant head acceleration to exceed 80 g in airbag-equipped vehicles if HIC-15 is less than 700 (Transport Canada, 1998).

Neck

Table 4 provides a summary of the maximum neck injury measurements recorded during the crash. None of the recorded neck force measures exceeded the magnitude-duration injury criteria (Figures A-13 to A-16).

Table 4 Neck Injury Measurements — 2000 Nissan Xterra			
Measure	Published Tolerance Threshold	Result	Time (ms)
A-P shear force (kN)	±3.1	0.7	99
Axial compression force (kN)	4.0	0.4	282
Axial tension force (kN)	3.3	2.4	101
Flexion bending moment (Nm)	310	22	84
Extension bending moment (Nm)	122	35	114

Chest

Table 5 provides a summary of the maximum chest injury measurements recorded during the crash.

Table 5 Chest Injury Measurements — 2000 Nissan Xterra			
Measure	Published Tolerance Threshold	Result	Time (ms)
Vector resultant spine acceleration — 3 ms clip (g)	60	42	94-97
Rib compression (mm)	-50	-40	91
Sternum deflection rate (m/s)	-8.2	-2	43

Legs and Feet

Left leg and foot: None of the injury measures exceeded the published threshold values.

Right leg and foot: The maximum right lower tibia L-M moment was -200 Nm at 74 ms, significantly contributing to the right lower tibia index of 1.05 at 74 ms. The maximum right tibia axial force was -5.3 kN at 74 ms. The maximum resultant right foot acceleration was 165 g at 71 ms.

Both the left and right upper tibia A-P bending moments had time signatures similar to the tibia axial force (Figures A-27 and A-32 and Figures A-40 and A-45). The ratio of the left A-P bending moment to the left tibia axial force (approximately 0.038 m) from 64 to 66 ms into the crash is about the same as the distance (in meters) between a line through the knee and ankle joints and the upper load cell midline due to the bent shape of the dummy's tibia. The ratio of the right A-P bending moment to the right tibia axial force was approximately 0.029 m from 72 to 75 ms into the crash. Therefore, the upper tibia bending could have resulted from the foot force acting through the moment arm of the tibia bend rather than from transverse forces applied by contact with the knee bolster and, as a result, no upper tibia A-P or resultant moments are reported for either leg. The reported maximum left and right upper tibia indices were calculated from only the upper tibia L-M moments and the corresponding tibia axial force.

Table 6 provides a summary of the maximum leg and foot injury measurements recorded during the crash.

**Table 6
Leg and Foot Injury Measurements — 2000 Nissan Xterra**

Measure	Published Tolerance Threshold	Left		Right	
		Result	Time (ms)	Result	Time (ms)
Femur axial force (kN)	-9.1*	1.2	81	-2.1	79
Tibia-femur displacement (mm)	-15	-1	122	0	266
Upper Tibia					
L-M moment (Nm)	±225	-58	95	-96	74
A-P moment (Nm)	±225	**	n/a	**	n/a
Vector resultant moment (Nm)	225	**	n/a	**	n/a
Index	1.00	0.34	67	0.58	74
Lower Tibia					
L-M moment (Nm)	±225***	-41	67	-200	74
A-P moment (Nm)	±225***	46	116	72	82
Vector resultant moment (Nm)	225***	53	67	204	74
Axial force (kN)	-8.0***	-3.8	66	-5.3	74
Index	1.00	0.34	67	1.05	74
Foot					
A-P acceleration (g)	±150	-66	67	-110	72
I-S acceleration (g)	±150	-129	65	-128	71
Vector resultant acceleration (g)	150	139	66	165	71

* This critical value is for instantaneous loading. Femur loads are compared with magnitude-duration injury criteria in Figures A-24 and A-37.

** The upper tibia A-P bending could have resulted from the foot force acting through the moment arm of the tibia bend rather than from transverse forces applied by contact with the knee bolster; therefore the A-P and resultant moments are not indicated. The listed upper tibia index was calculated from only the upper tibia L-M moment and tibia axial force.

*** These published thresholds are for fractures of the tibia. Ankle and foot injuries have been associated with bending moments as low as 50-100 Nm, and heel fractures have been associated with axial forces as low as -6.0 kN.

References

- Backaitis, S.H. and Mertz, H.J. (eds). 1994. *Hybrid III: The First Human-Like Crash Test Dummy*. Warrendale, PA: Society of Automotive Engineers.
- Begeman, P.C. and Prasad, P. 1990. Human ankle impact response in dorsiflexion (SAE 902308). *Thirty-fourth Stapp Car Crash Conference Proceedings*, 39-53. Warrendale, PA: Society of Automotive Engineers.
- Begeman, P.; Balakrishnan, P.; Levine, R.; and King, A. 1993. Dynamic human ankle response to inversion and eversion (SAE 933115). *Thirty-seventh Stapp Car Crash Conference Proceedings*, 83-93. Warrendale, PA: Society of Automotive Engineers.
- Mertz, H.J. and Patrick, L.M. 1971. Strength and response of the human neck (SAE 710855). *Biomechanics of Impact Injury and Injury Tolerances of the Head-Neck Complex*, 821-46. Warrendale, PA: Society of Automobile Engineers.
- Parenteau, C.S. 1995. Foot-ankle injury: epidemiology and method to investigate joint biomechanics. Gothenburg, Sweden: Chalmers University of Technology.
- Prasad, P. and Mertz, H.J. 1985. The position of the United States delegation to the ISO Working Group 6 on the use of HIC in the automotive environment (SAE 851246). *Biomechanics of Impact Injury and Injury Tolerances of the Head-Neck Complex*, 373-83. Warrendale, PA: Society of Automotive Engineers.
- Transport Canada. 1998. Motor Vehicle Safety Regulations – Canadian Motor Vehicle Safety Standards, Schedule IV Part III Standard 208, Occupant Restraint Systems in Frontal Impact. Ottawa, Ontario.
- Welbourne, E.R. 1994. Vehicle performance requirements for head injury protection: a comparison of the head injury criterion with an 80 g limit on resultant acceleration. Technical Memorandum. Ottawa, Ontario: Transport Canada, Vehicle System Division.
- Zeidler, F. 1984. The significance of lower limb injuries of belted drivers. *Journal of Orthopedics* [German].

Appendix

Low-Speed Crash Test Damage Repair Estimate

Dummy Clearance Measurements

Graph Index — index to graphs of time plots of dummy and vehicle data

Manufacturer's window sticker

Low-Speed Crash Test Damage Repair Estimate

2000 Nissan Xterra Midsize Four-Door Utility Vehicle: 5 mi/h Front into Angle Barrier

Test Number: LA00013

VIN: 5N1ED28Y4YC588507

Mileage: 105

Features: Driver and passenger airbags, four-wheel antilock brakes, air conditioning, automatic transmission, power mirrors, keyless entry system, power door locks, power windows, heated back glass, rear wiper, tilt steering wheel, cruise control, front fog lamps, full-size spare tire, luggage rack, and two-stage paint.

Description	Part		Labor	
	Mfg. No	Price	Operation	Hours
Bumper face bar, front	620147Z000	\$319.73	Replace*	2.4
Bumper cover, lower front	F20127Z025	188.32	Replace	
Bolt-on crossmember, outer front	501807Z000	44.82	Replace*	0.2
Frame rail end plate, right front			Repair*	0.2
Isolator, fender to bumper, right front	620682S410	3.06	Replace*	
Bumper mounting bracket, right front	622143S530	13.00	Replace*	
Bracket, fender to bumper, left front	620493S535	2.07	Replace	
Bracket, fender to bumper, left front	620463S500	6.23	Replace*	0.1
Bracket, fender to bumper, right front	631407Z030	16.20	Replace*	
Brackets, fenders to bumper, front			Refinish	0.2
Grille assembly	623107Z000	82.13	Replace	
Nissan nameplate, grille			Remove/reinstall	0.2
Fog lamps			Aim	0.3
Headlamps			Aim	0.5
Headlamp assembly, right	260153S500	49.85	Replace	0.3
Parking/turn signal lamp, right	261203S525	48.10	Replace*	
Hood			Repair*	2.0
Hood			Refinish	4.1
Coolant recovery tank			Remove/reinstall	0.2
Fender, right front	F31127Z031	222.30	Replace**	1.5
Fender, right front			Refinish	2.9
Wheel flare on bumper cover, right	638147Z000	19.28	Replace	
Radiator support/inner fender panel			Set up*	1.0
Radiator support/inner fender panel			Pull/align*	1.0
Radiator support			Repair*	3.0
Radiator support			Refinish	0.7
Inner fender panel, right front			Repair*	3.0
Battery/fuse block/wire harness			Remove/reinstall	0.4
Windshield washer nozzles, hood			Remove/reinstall	0.2
Air conditioning condenser			Loosen/retighten	0.2
Paint and materials		142.20		
Total Parts		\$1,157.29		
Total Labor		836.40		24.6
Grand Total		\$1,993.69		

* This item was repaired or replaced as indicated before the 40 mi/h frontal offset test.

** This cosmetic part was repaired rather than replaced before the 40 mi/h frontal offset test.

Dummy Clearance Measurements

Test Number: CF00020
Vehicle Make/Model: Nissan Xterra
Vehicle Model Year: 2000
Seat Type: Manually adjusted bucket seat (fore/aft and seat back angle)

Manufacturer's Specifications

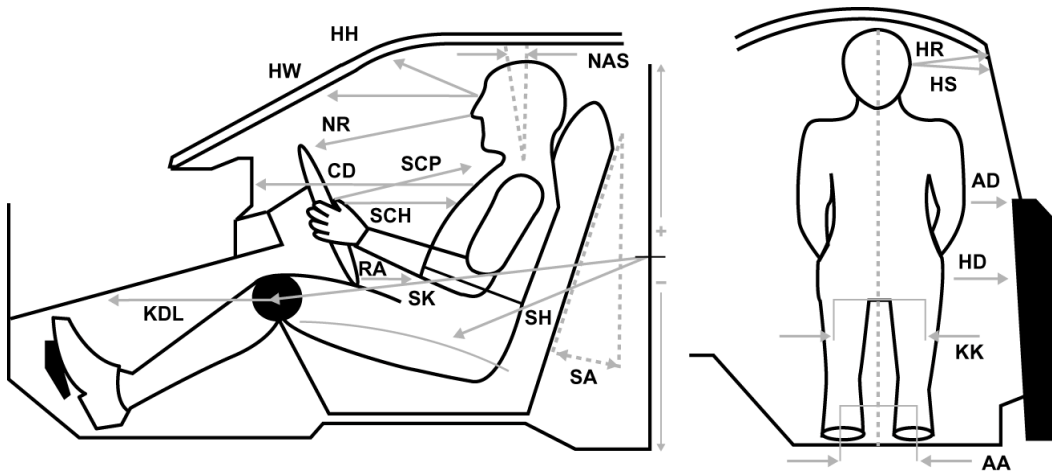
Seat Back Information: Reclined to 10°, as measured on head restraint post (or 8th position from most upright),
Upper Belt Anchorage: Set to topmost of 4 positions
Steering Column Adjustment: Set to midpoint of tilt adjustment range

Location	Code	Measure	Location	Code	Measure
Head to header	HH	460	Neck angle, torso 90	NAT90	20.6°
Head to windshield	HW	672	Neck angle, seated	NAS	6.2°
Nose to rim	NR	437	Torso angle (NAT90 – NAS)	TA	14.4°
Chest to dash	CD	658	Striker to knee**	SK	623
Rim to abdomen	RA	207	Striker to knee angle**	SKA	0.7°
Knee to dash, left	KDL	255	Striker to H-point, horizontal	SHH	333
Knee to dash, right	KDR	315	Striker to H-point, vertical	SHV	-94
Steering wheel to chest, horizontal	SCH	315	Ankle to ankle	AA	344
Steering wheel to chest, perpendicular	SCP	406	Knee to knee	KK	330
Steering wheel to chest, reference	SCR	411	Arm to door	AD	85
Hub to chest, minimum	HCM	269	H-point to door	HD	131
Pelvic angle	PA	24.9°	Head to A-pillar	HA	646
Seat back angle*	SA	9.6°	Head to roof	HR	240
			Head to side window	HS	262

All distance measurements are in millimeters (mm).

* Indicated value is from vertical, as measured on head restraint post.

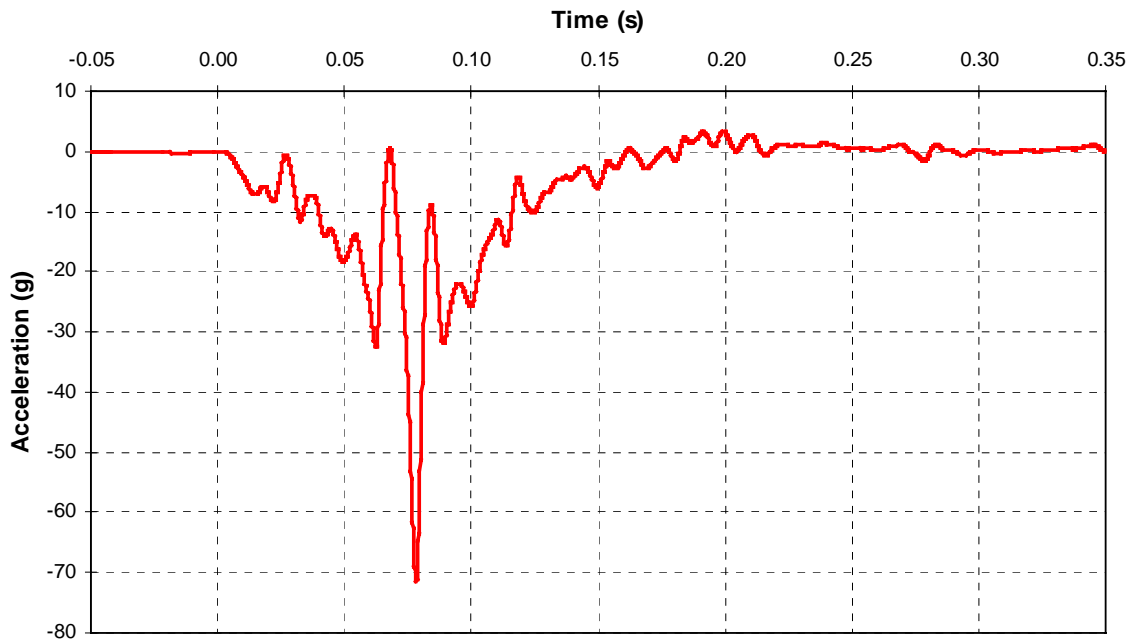
** These measurements were made in a vertical plane containing the striker and parallel to the driver door sill.



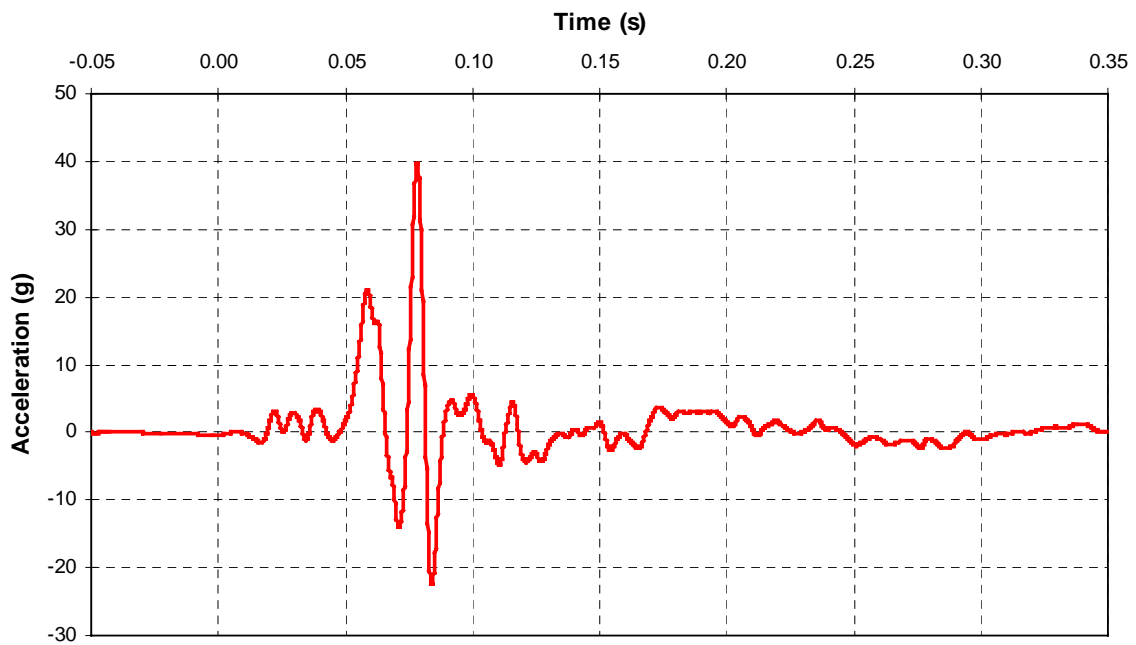
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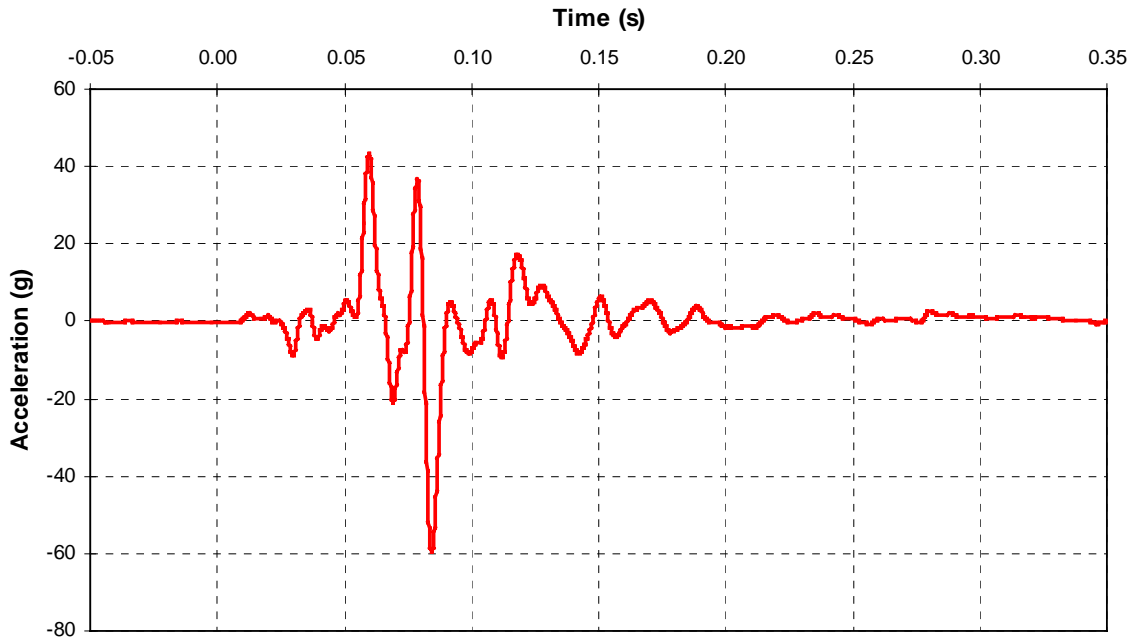
A- 1 CF00020 2000 Nissan Xterra Vehicle Longitudinal Acceleration



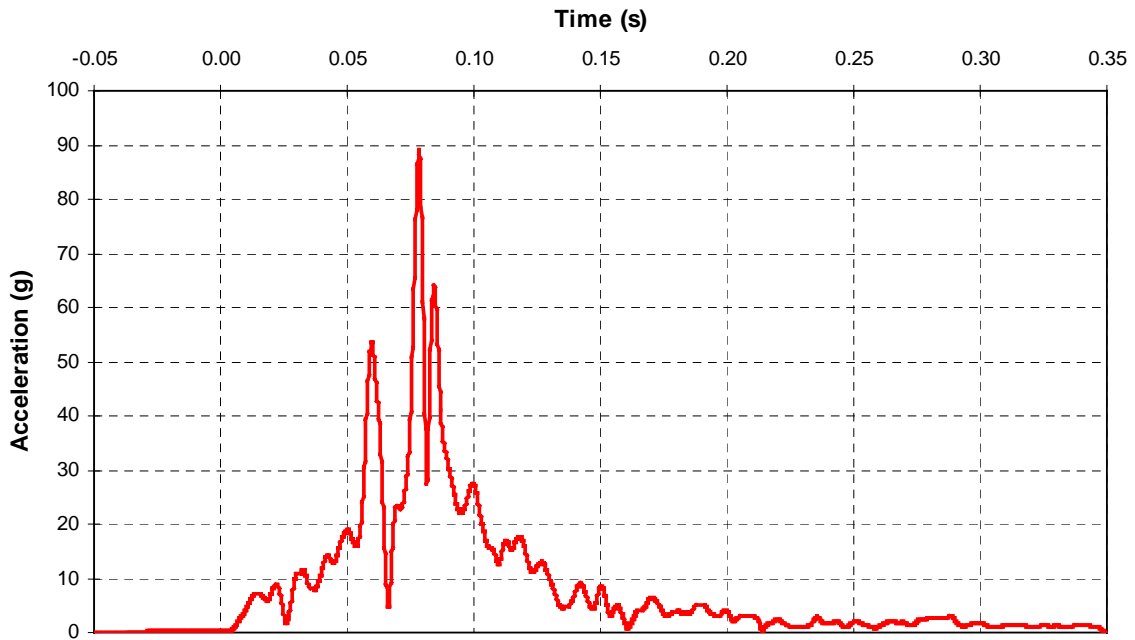
A- 2 CF00020 2000 Nissan Xterra Vehicle Lateral Acceleration



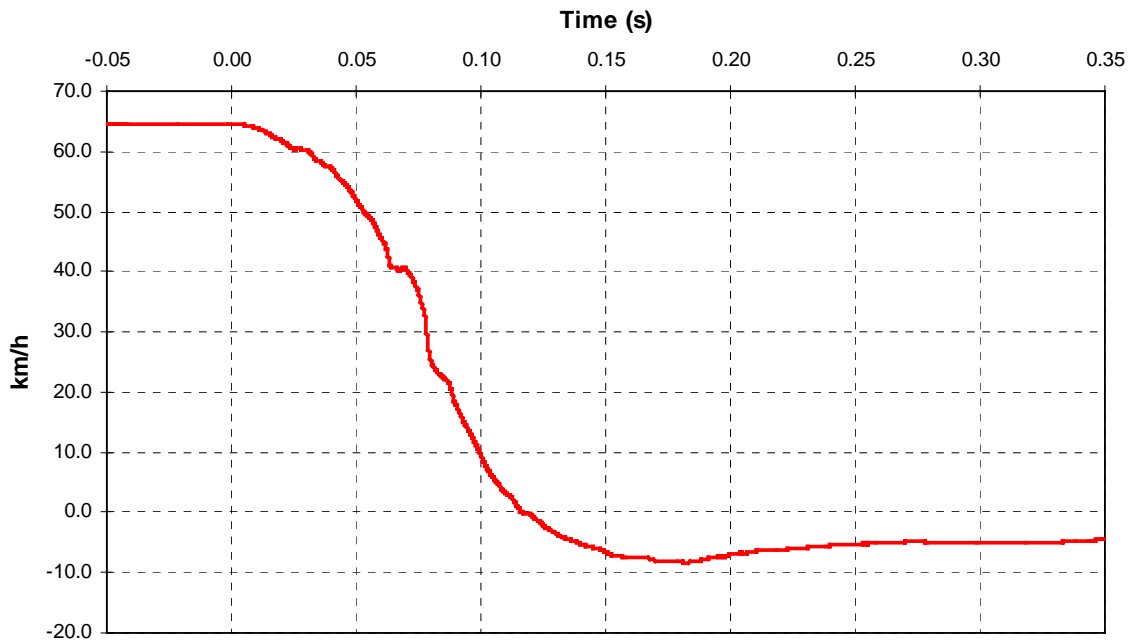
A- 3 CF00020 2000 Nissan Xterra Vehicle Vertical Acceleration



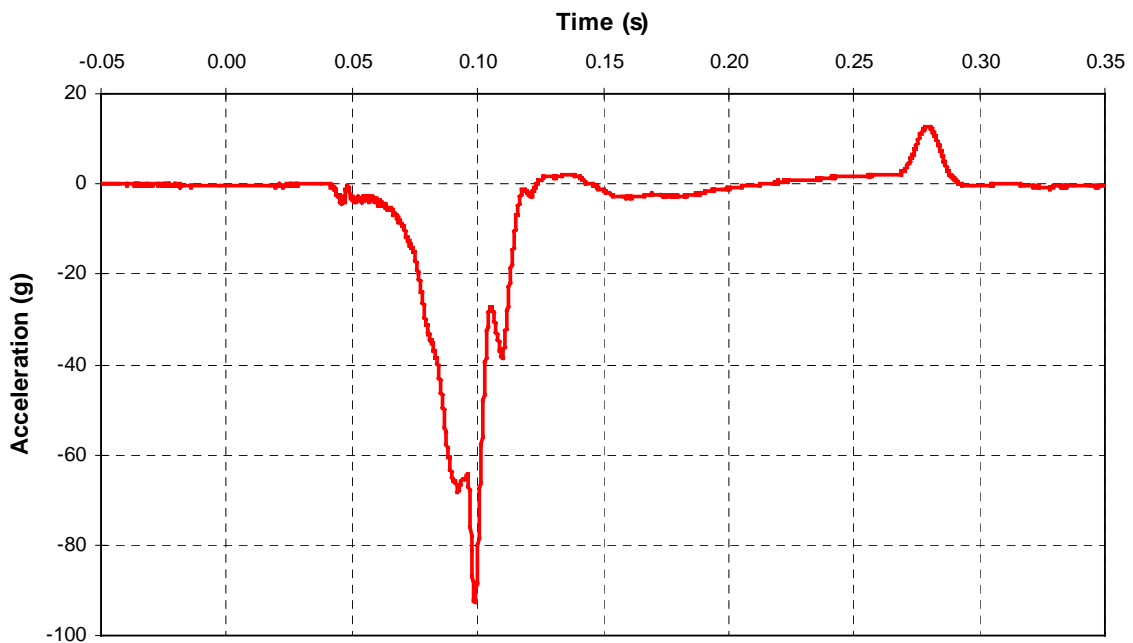
A- 4 CF00020 2000 Nissan Xterra Vehicle Vector Resultant Acceleration



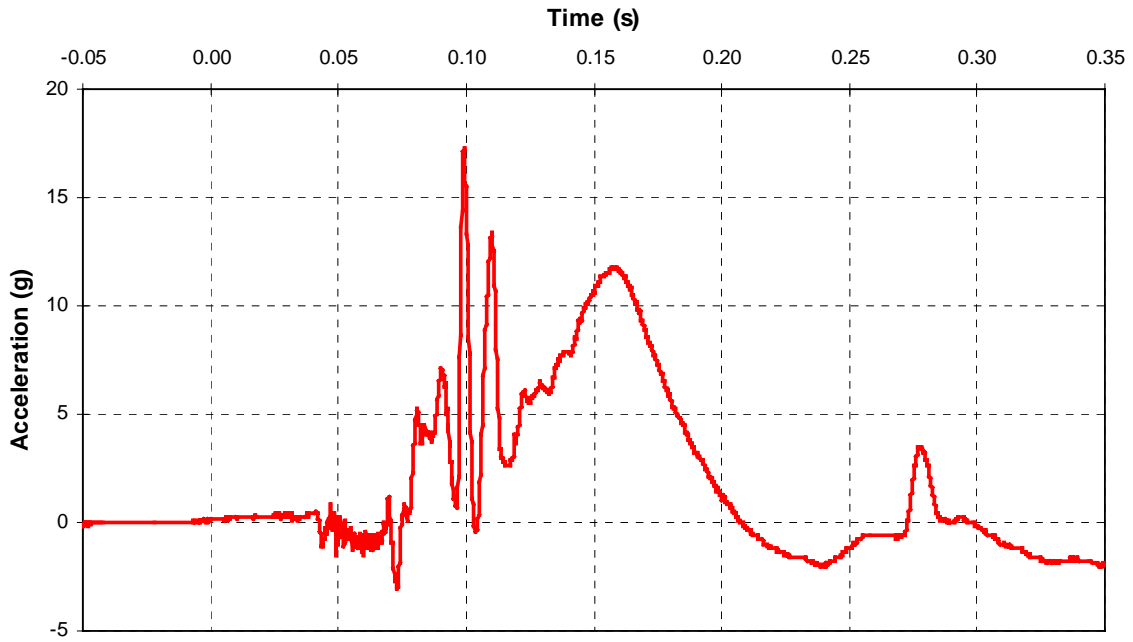
A- 5 CF00020 2000 Nissan Xterra Integration of Vehicle Longitudinal Acceleration



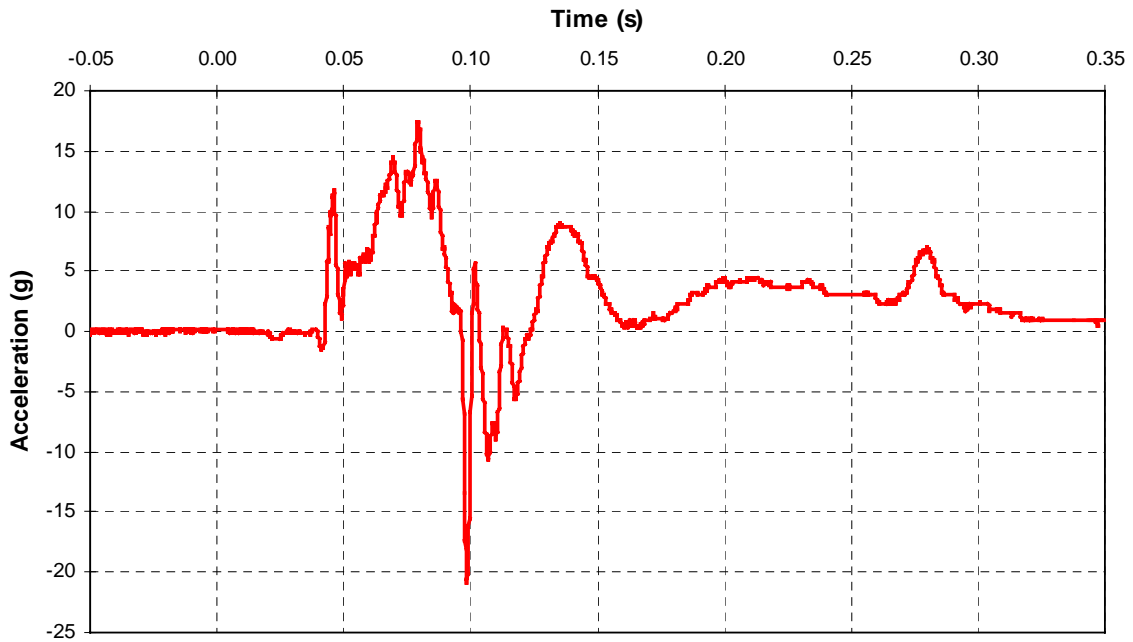
A- 6 CF00020 2000 Nissan Xterra Head A-P Acceleration



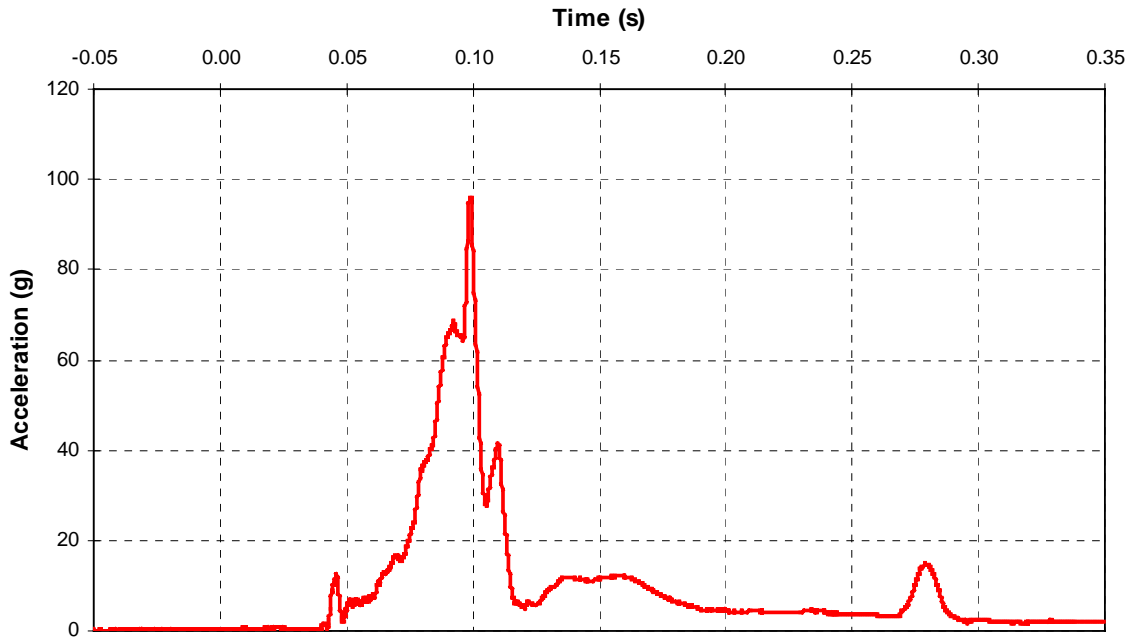
A- 7 CF00020 2000 Nissan Xterra Head L-M Acceleration



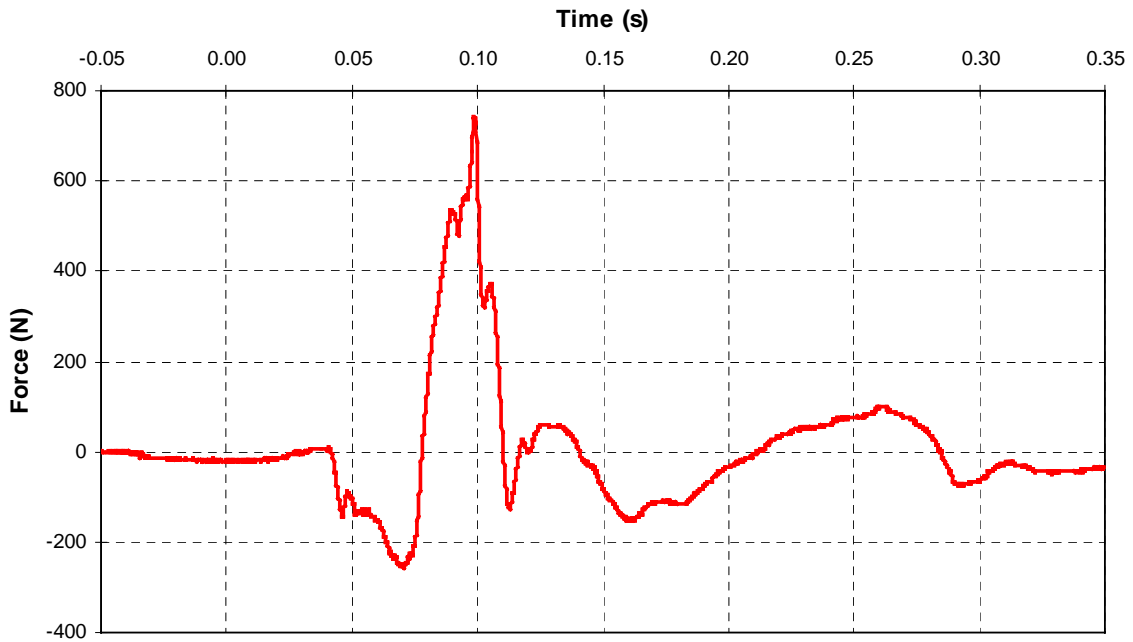
A- 8 CF00020 2000 Nissan Xterra Head I-S Acceleration



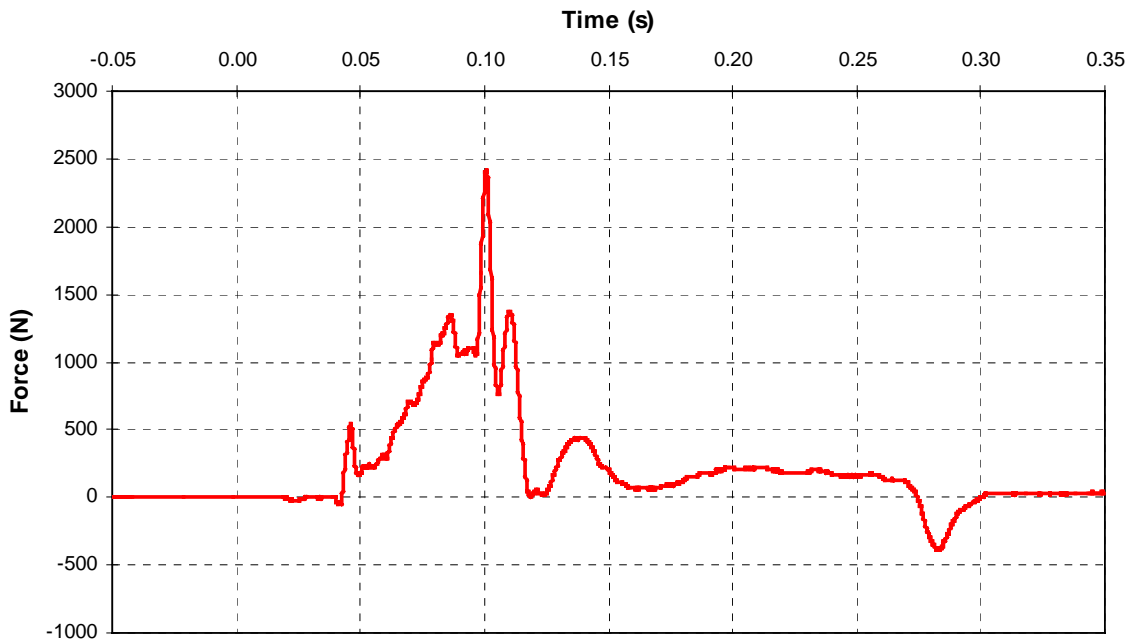
A- 9 CF00020 2000 Nissan Xterra Head Vector Resultant Acceleration



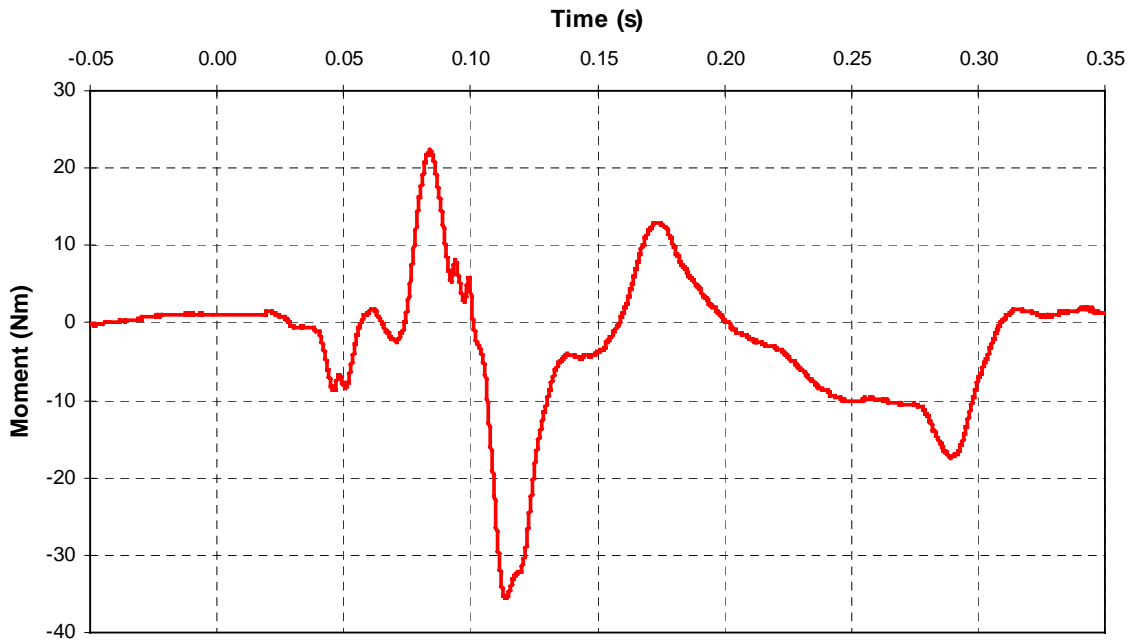
A- 10 CF00020 2000 Nissan Xterra Neck A-P Shear Force



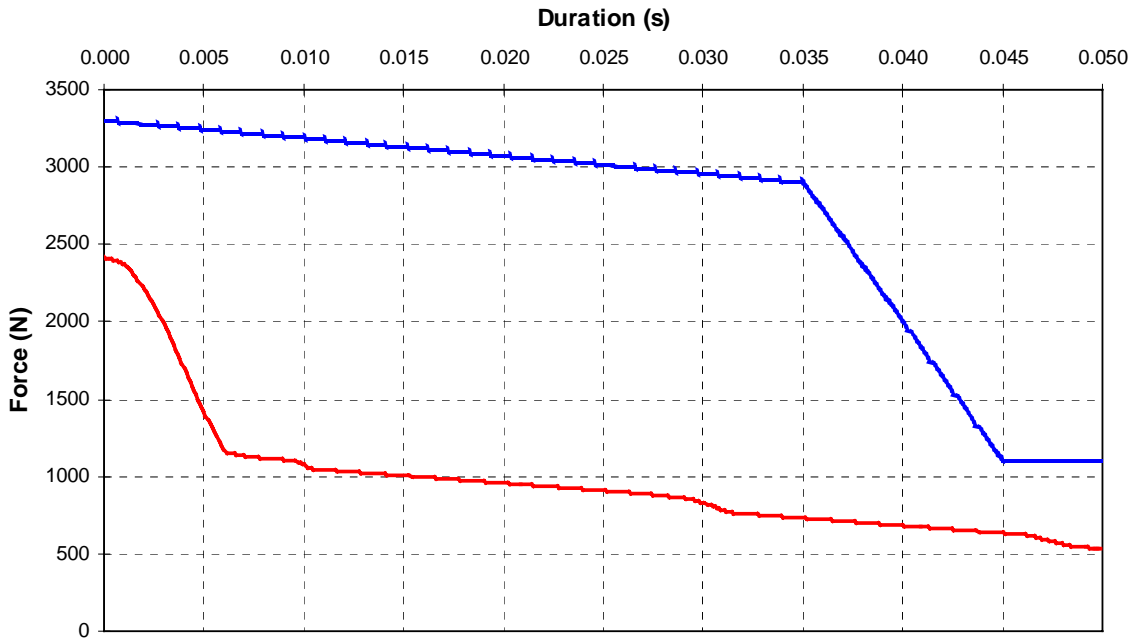
A- 11 CF00020 2000 Nissan Xterra Neck Axial Force



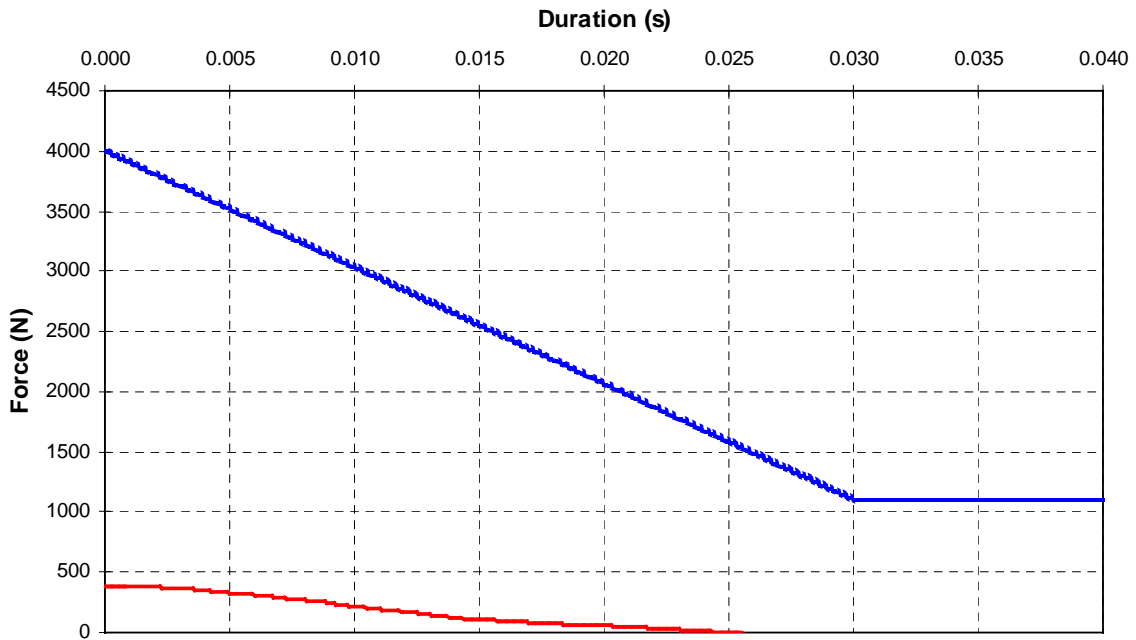
A- 12 CF00020 2000 Nissan Xterra Neck Occipital A-P Moment



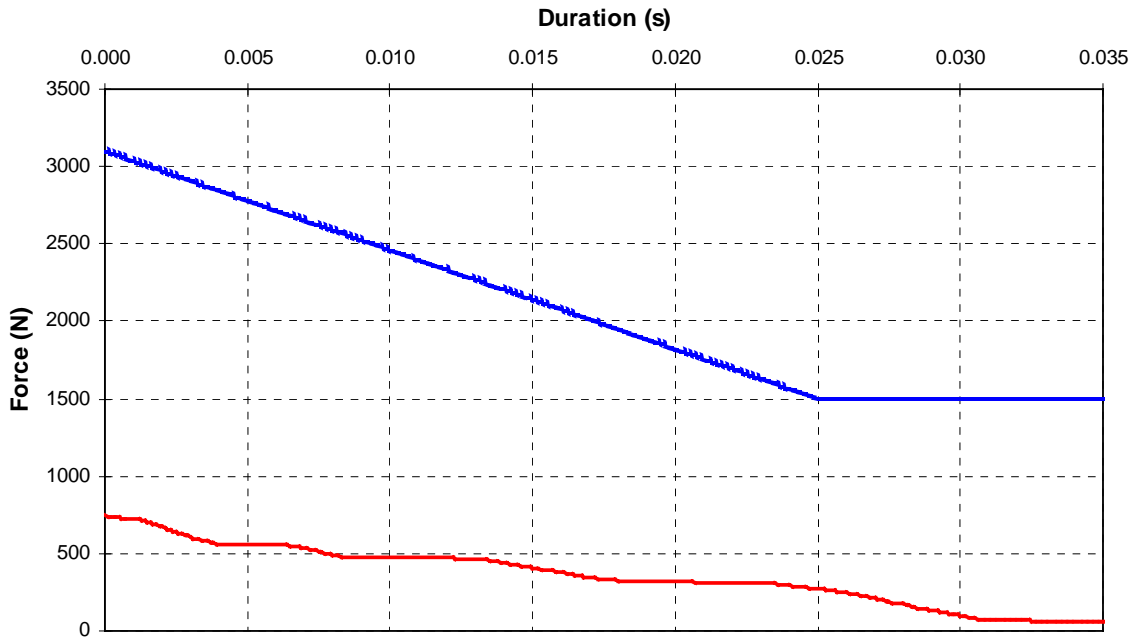
A- 13 CF00020 2000 Nissan Xterra Neck Tension Analysis



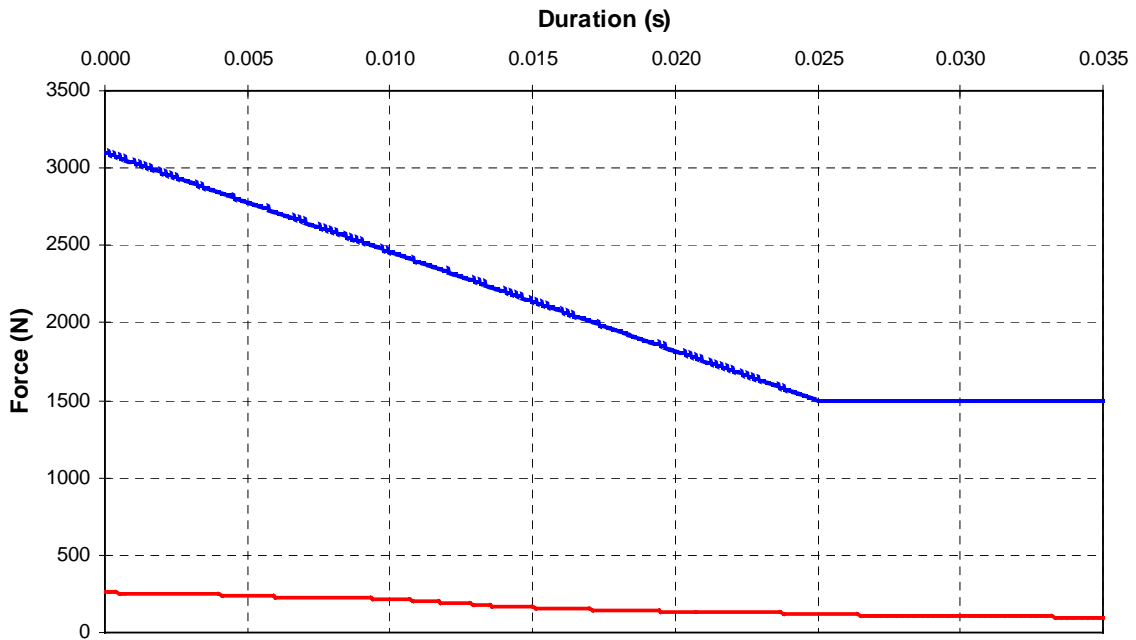
A- 14 CF00020 2000 Nissan Xterra Neck Compression Analysis



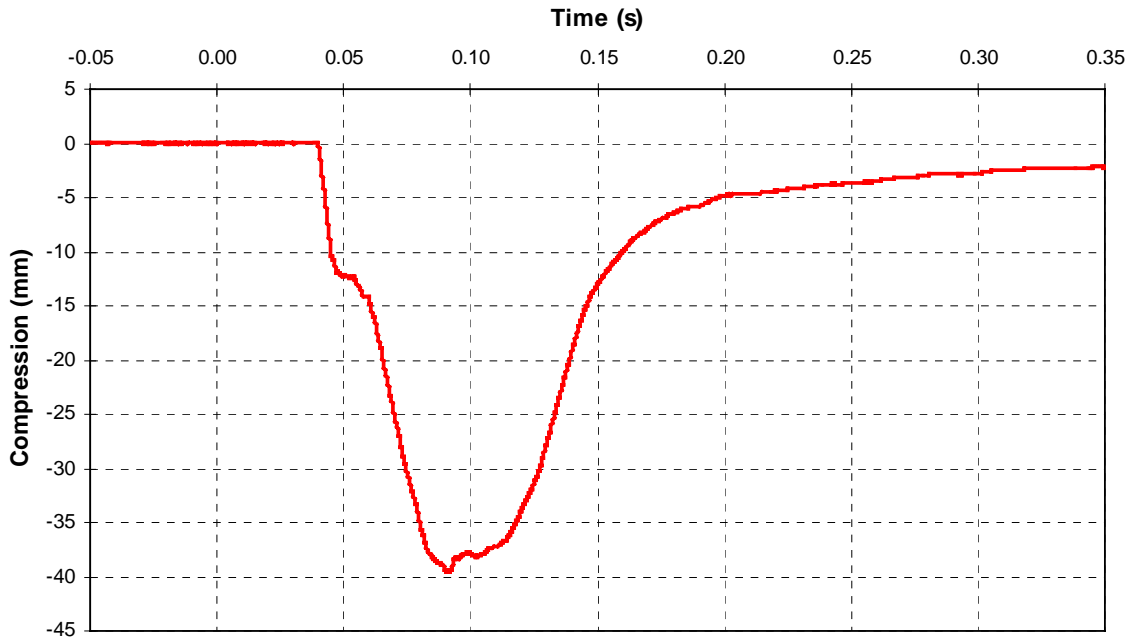
A- 15 CF00020 2000 Nissan Xterra Neck A-P Shear (Positive) Analysis



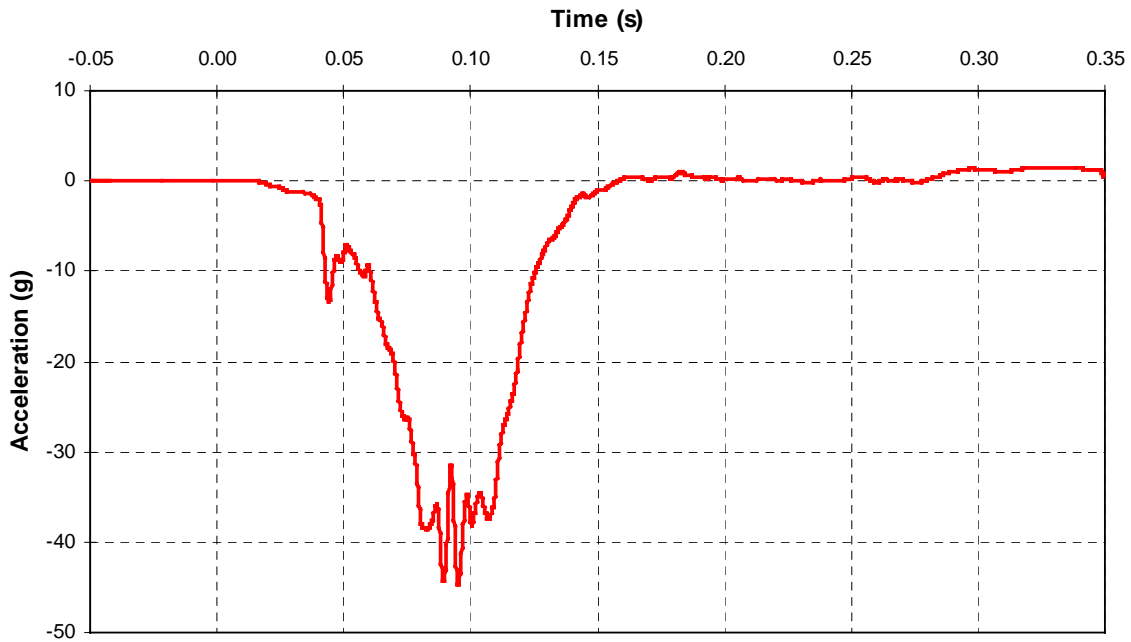
A- 16 CF00020 2000 Nissan Xterra Neck A-P Shear (Negative) Analysis



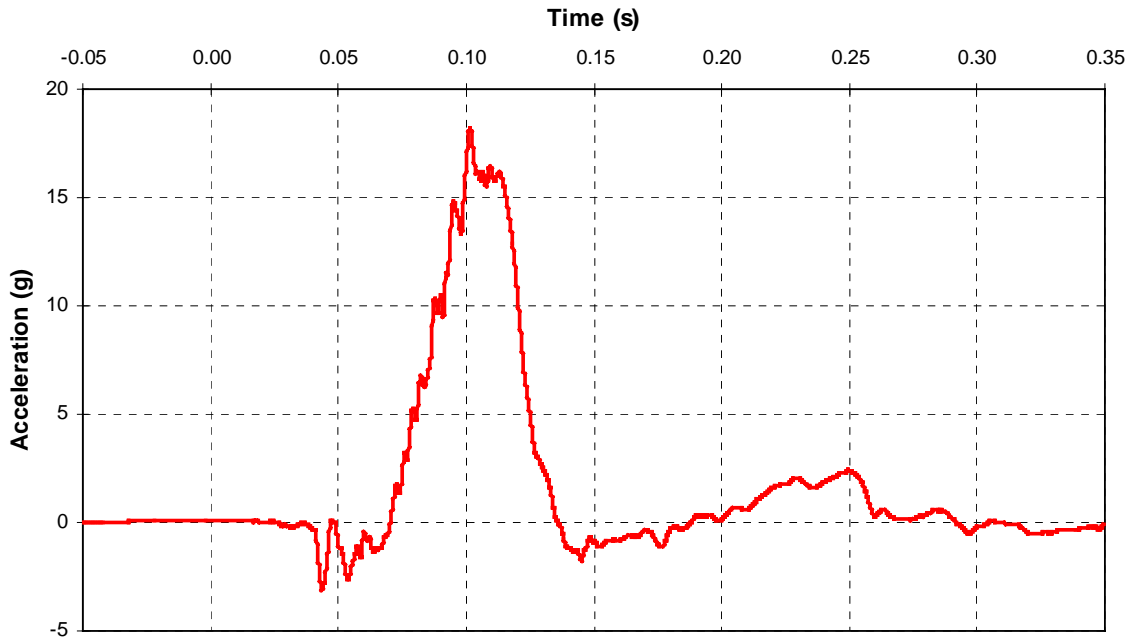
A- 17 CF00020 2000 Nissan Xterra Chest Compression



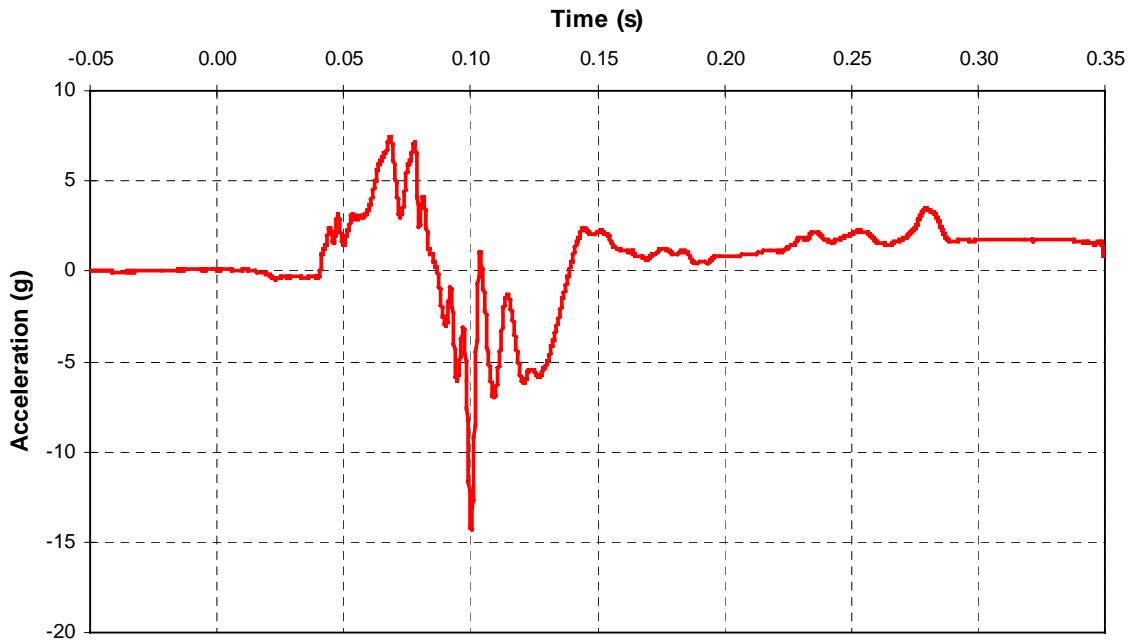
A- 18 CF00020 2000 Nissan Xterra Chest A-P Acceleration



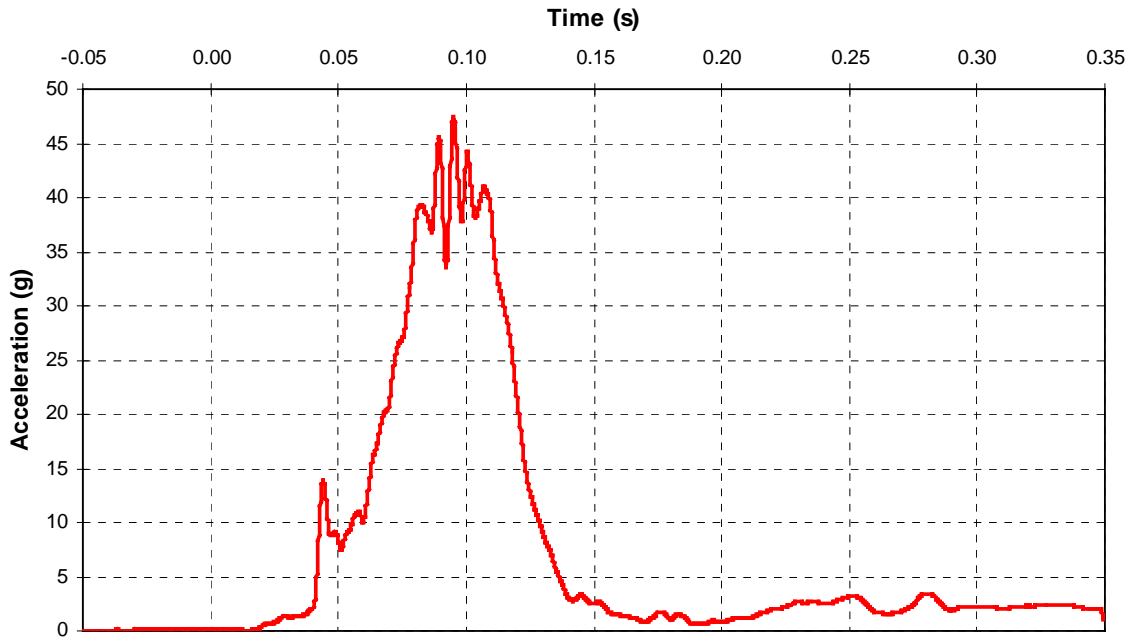
A- 19 CF00020 2000 Nissan Xterra Chest L-M Acceleration



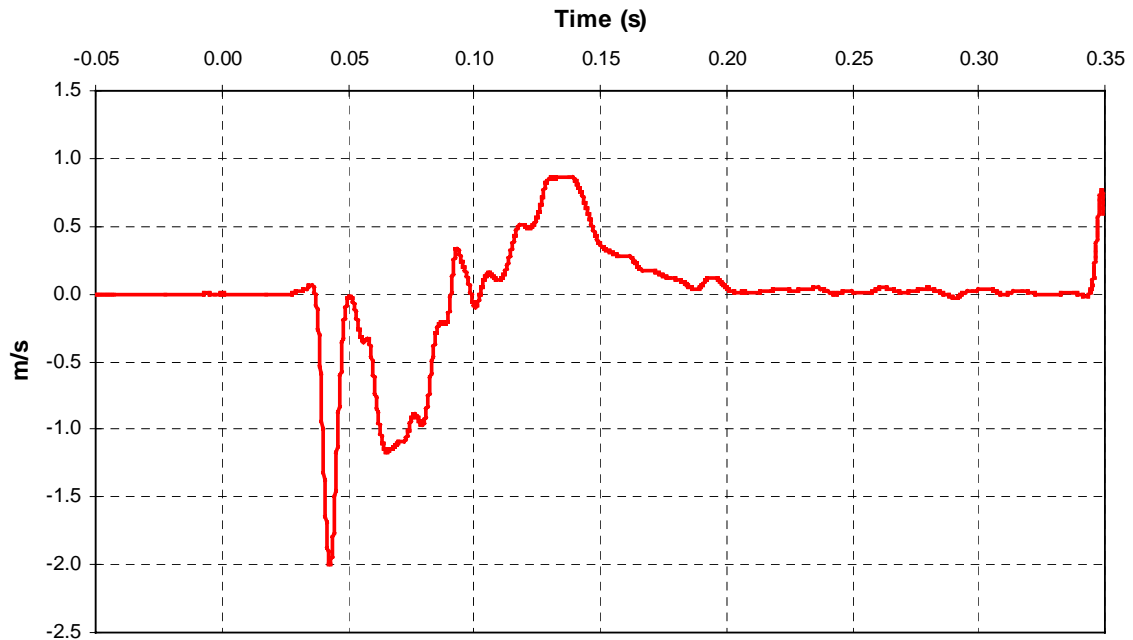
A- 20 CF00020 2000 Nissan Xterra Chest I-S Acceleration



A- 21 CF00020 2000 Nissan Xterra Chest Vector Resultant Acceleration

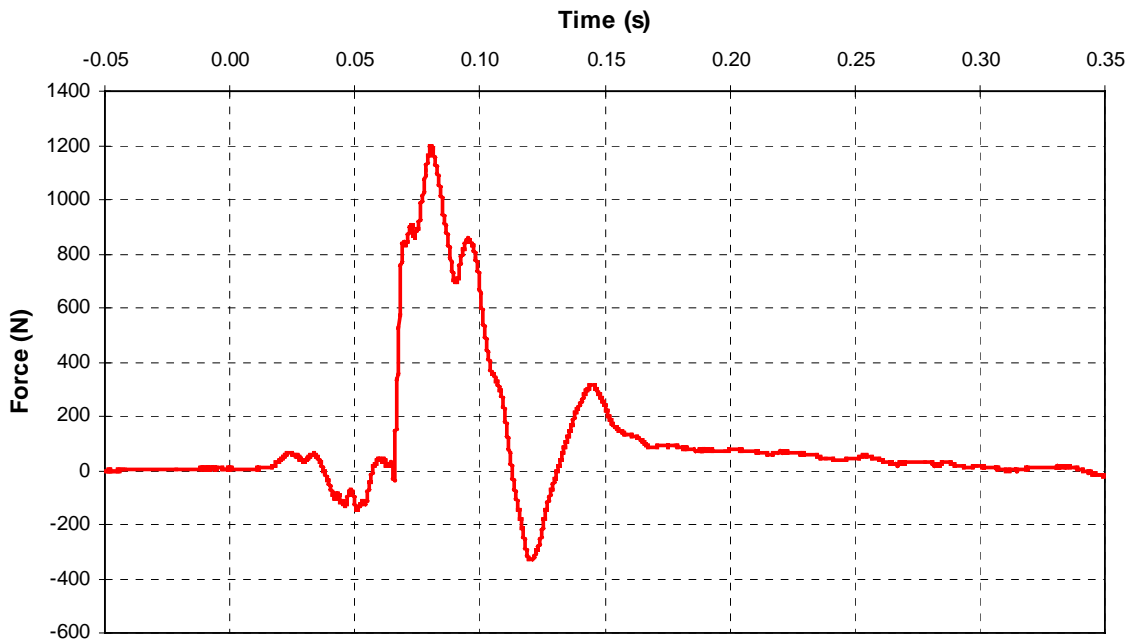


A- 22 CF00020 2000 Nissan Xterra Sternum Deflection Rate

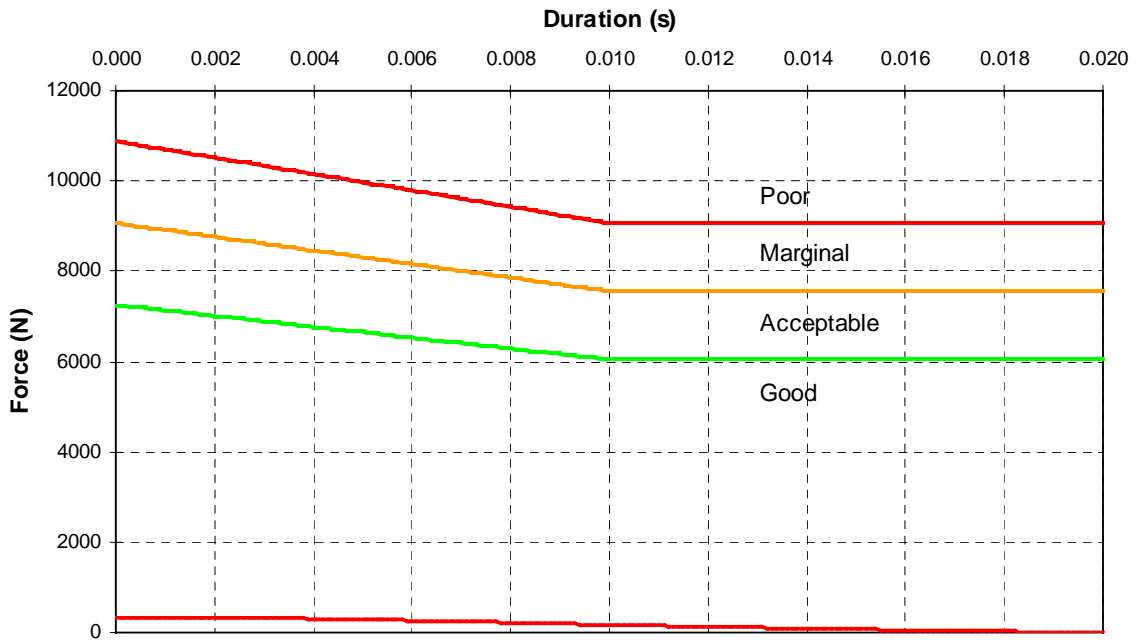


Sternum deflection rate is calculated from the sternum deflection filtered to CFC 60

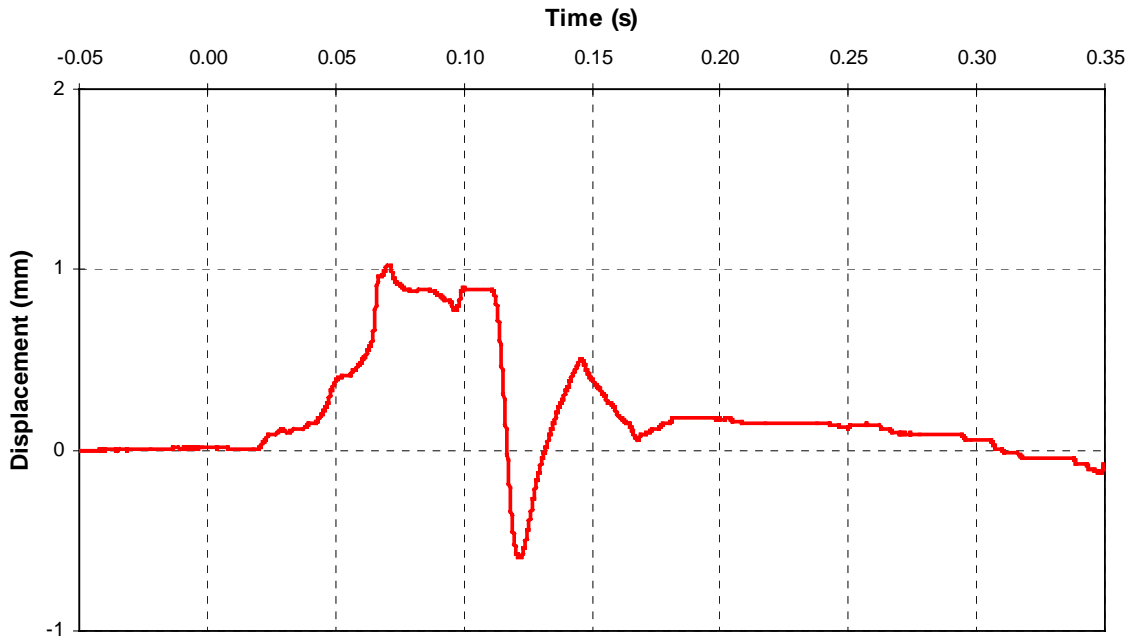
A- 23 CF00020 2000 Nissan Xterra Left Femur Axial Force



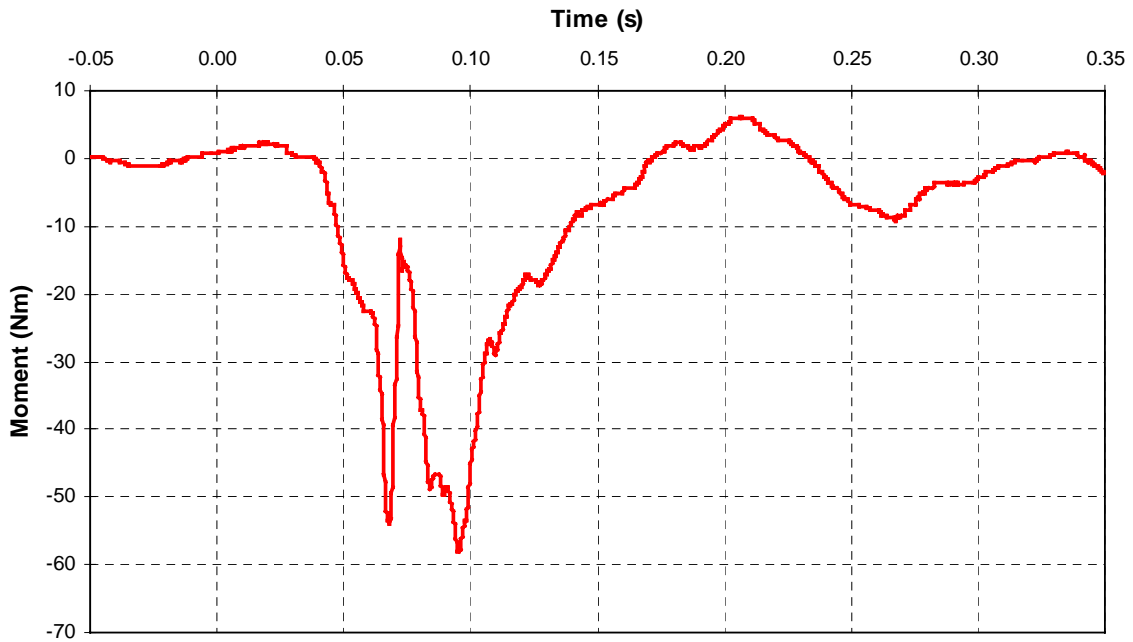
A- 24 CF00020 2000 Nissan Xterra Left Femur Axial Force Analysis



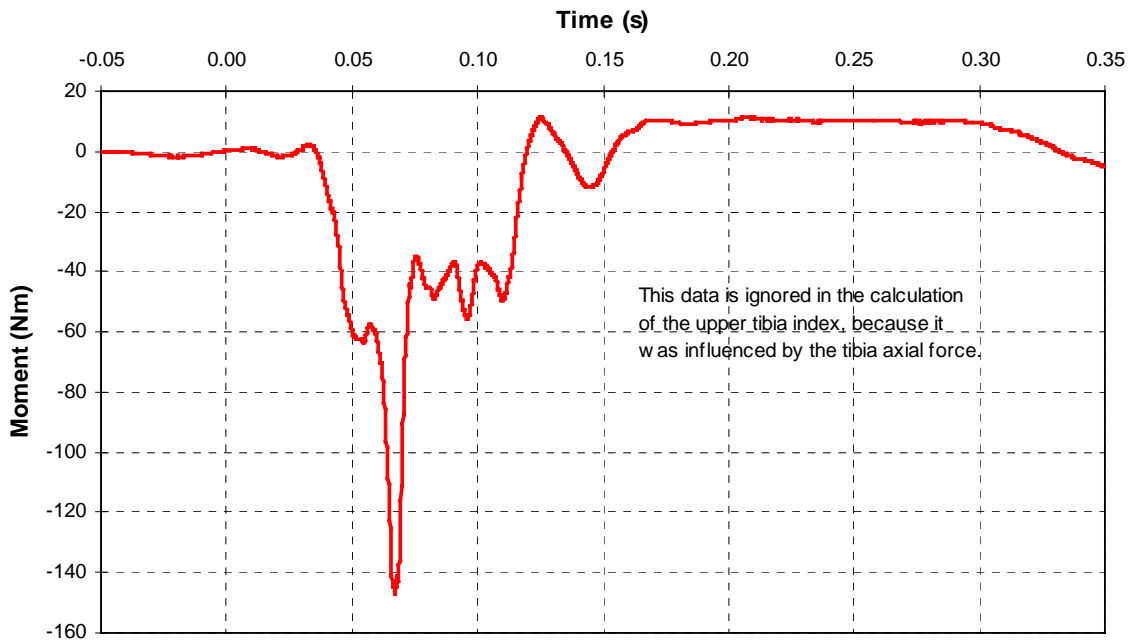
A- 25 CF00020 2000 Nissan Xterra Left Tibia-Femur Displacement



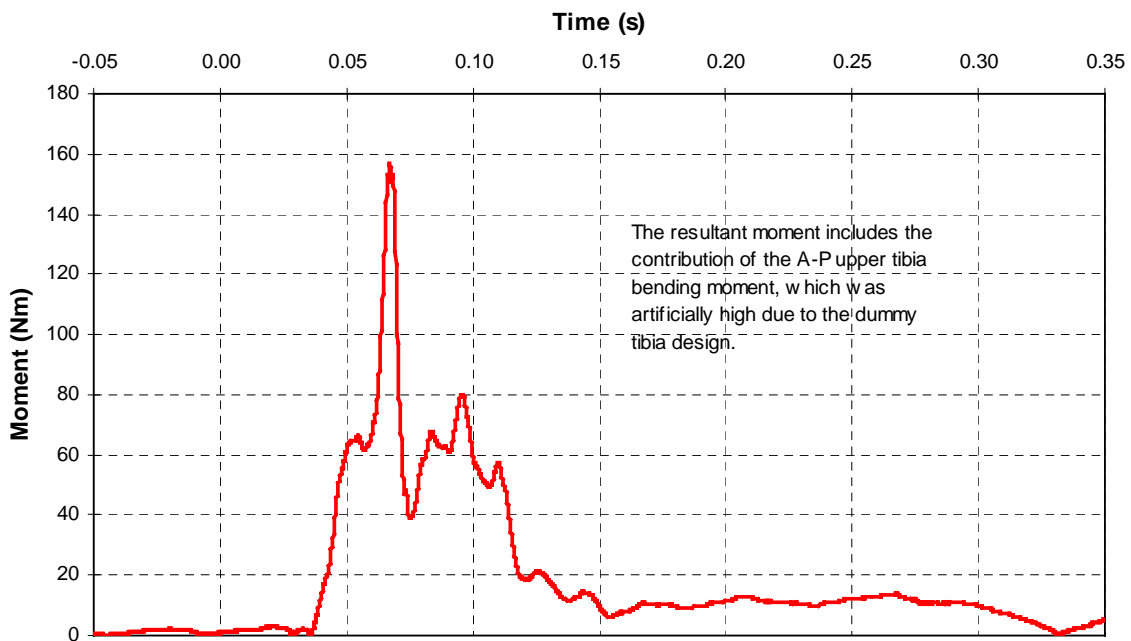
A- 26 CF00020 2000 Nissan Xterra Left Upper Tibia L-M Moment



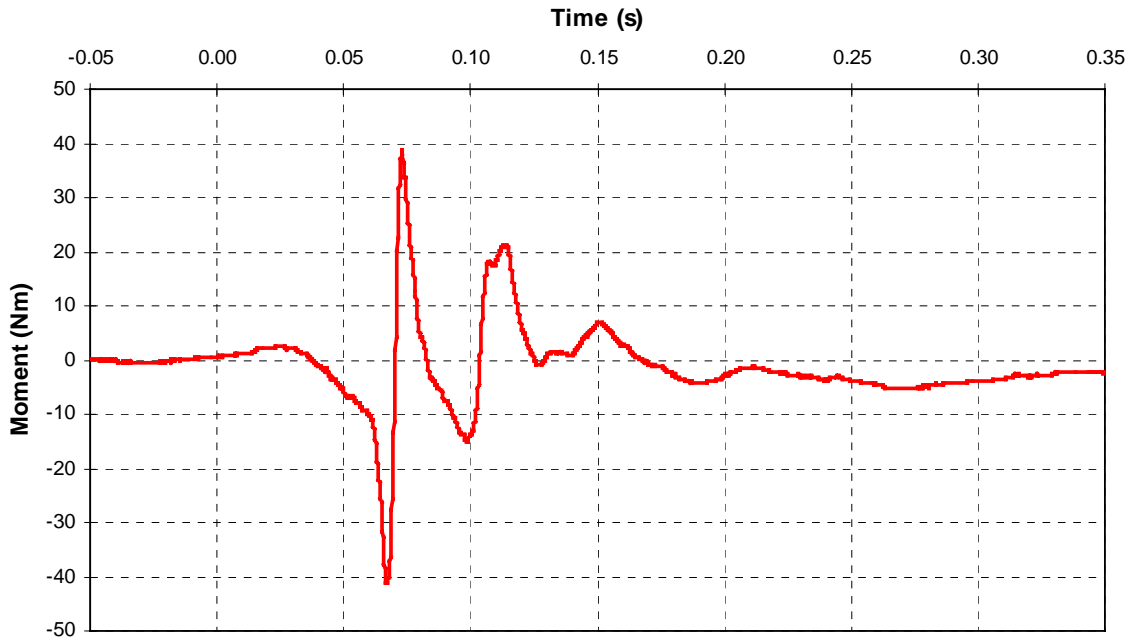
A- 27 CF00020 2000 Nissan Xterra Left Upper Tibia A-P Moment



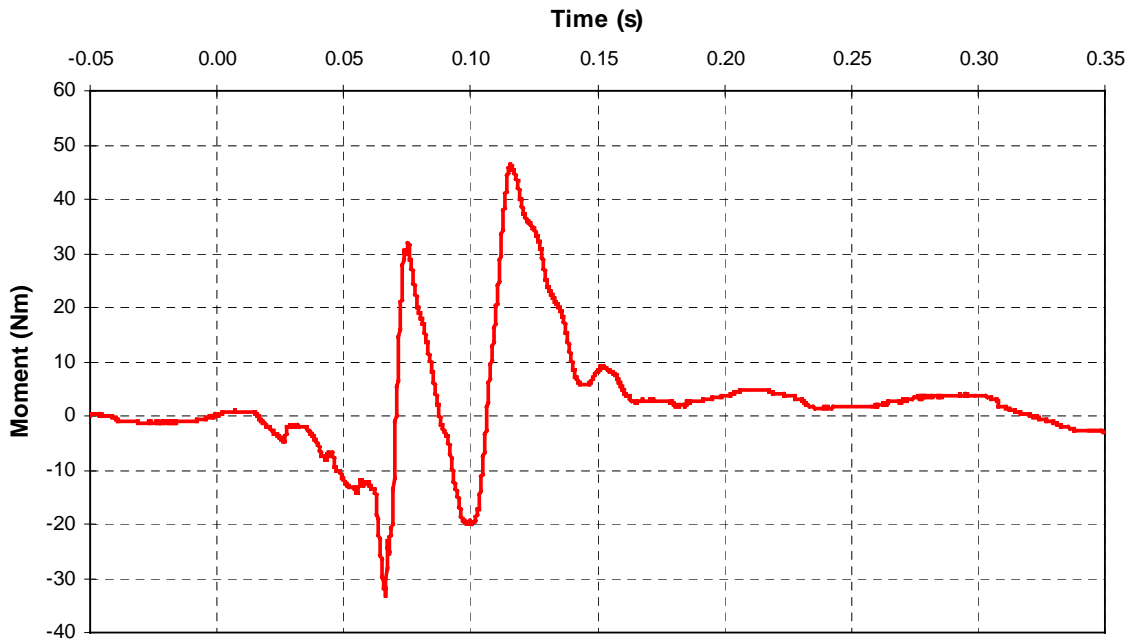
A- 28 CF00020 2000 Nissan Xterra Left Upper Tibia Vector Resultant Moment



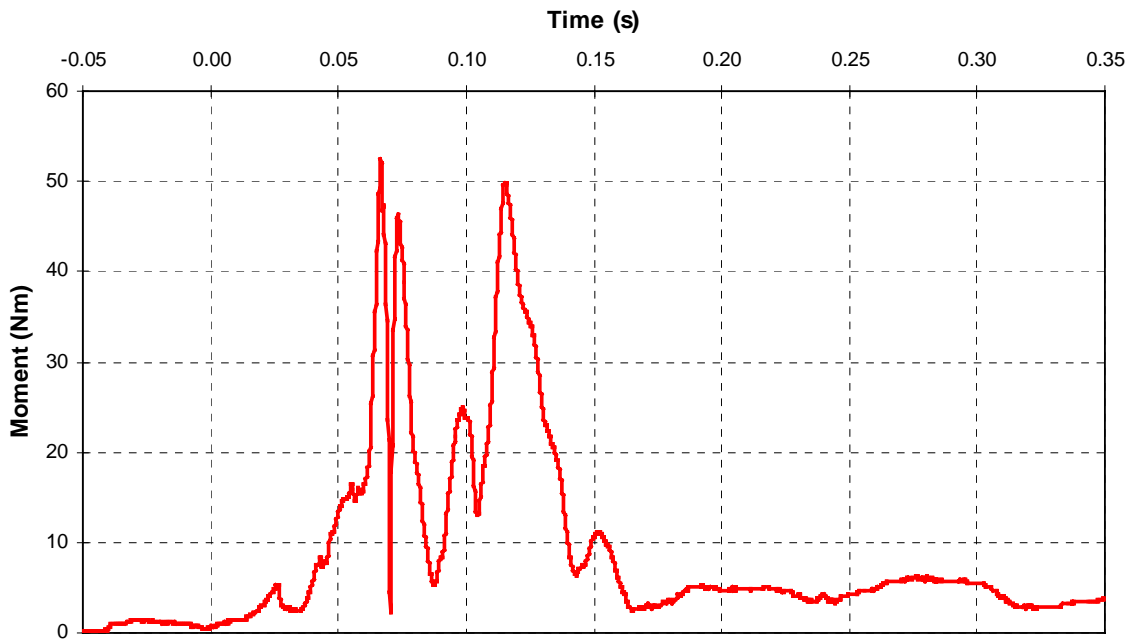
A- 29 CF00020 2000 Nissan Xterra Left Lower Tibia L-M Moment



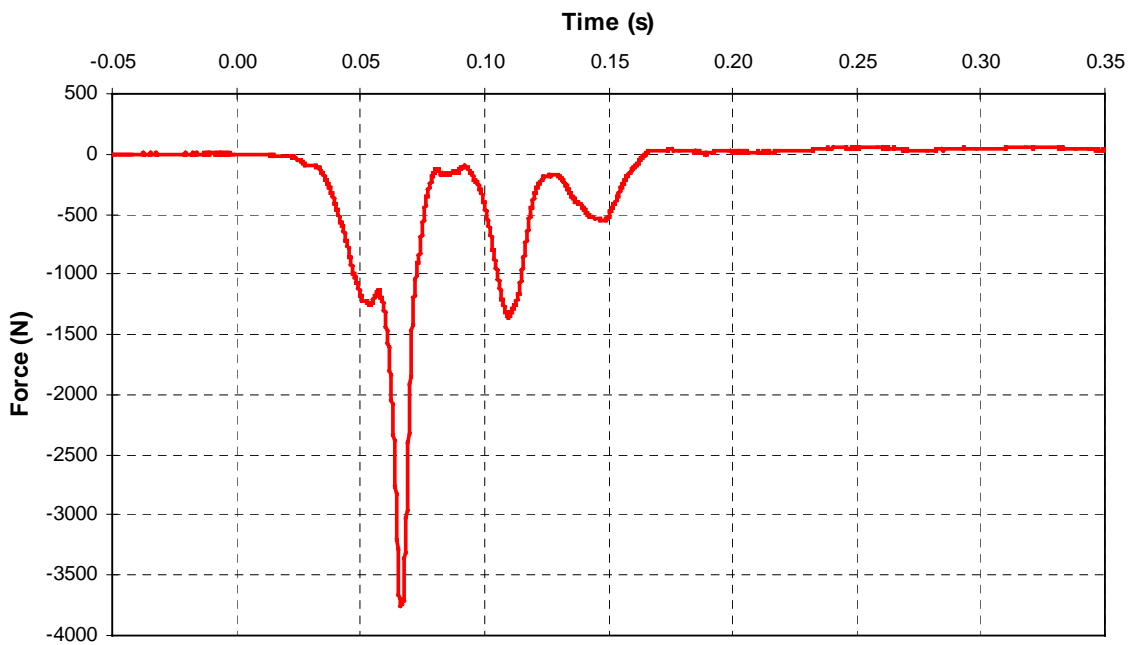
A- 30 CF00020 2000 Nissan Xterra Left Lower Tibia A-P Moment



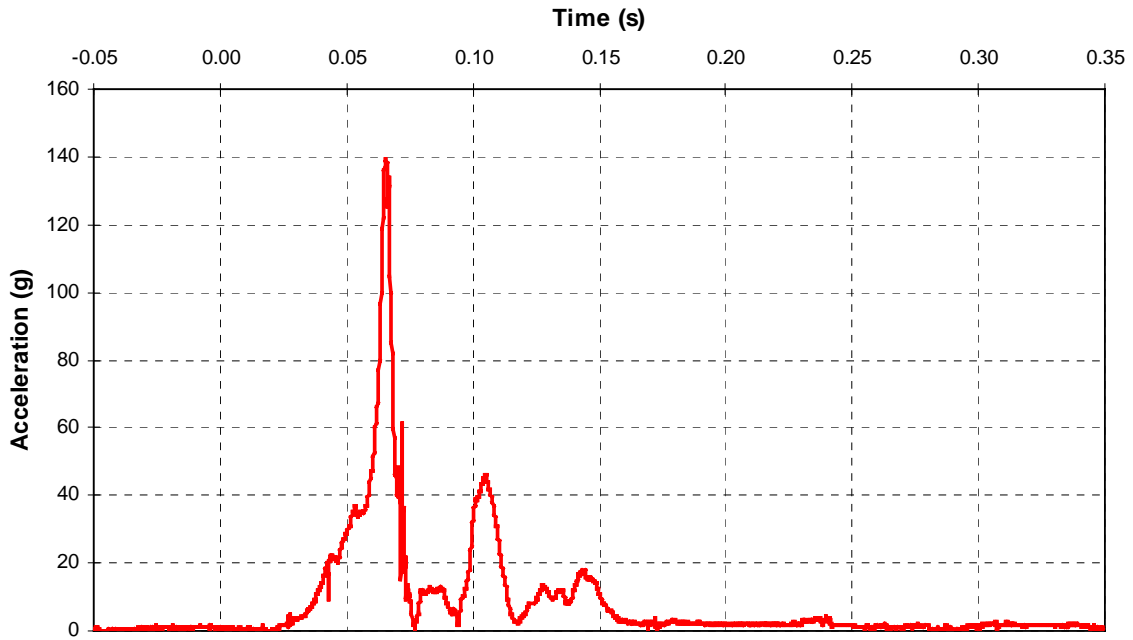
A- 31 CF00020 2000 Nissan Xterra Left Lower Tibia Vector Resultant Moment



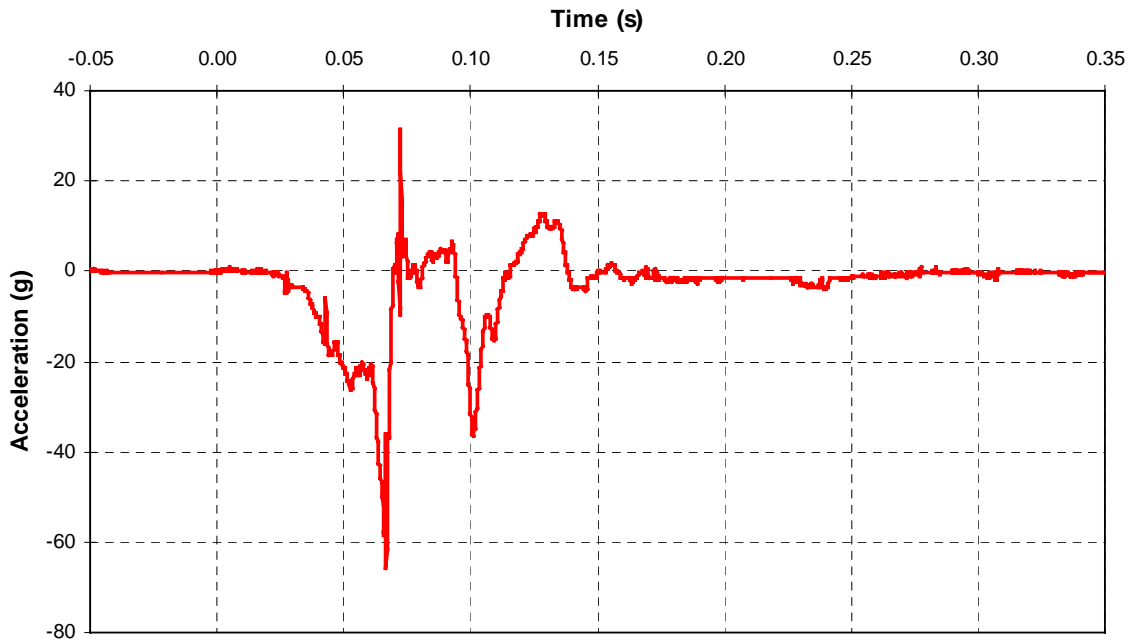
A- 32 CF00020 2000 Nissan Xterra Left Lower Tibia Axial Force



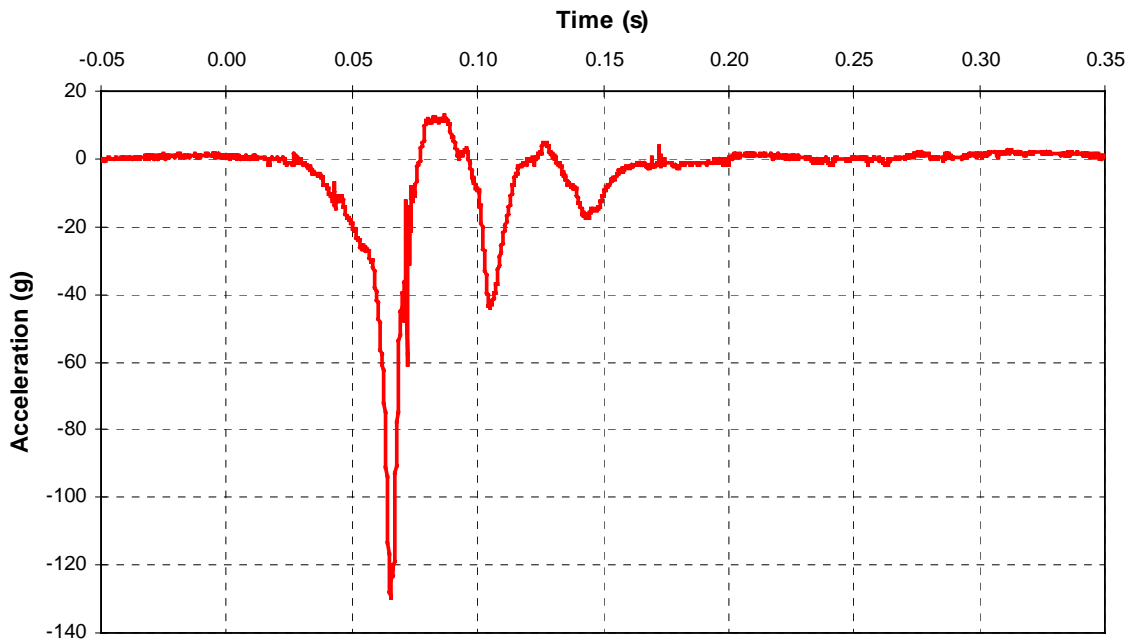
A- 33 CF00020 2000 Nissan Xterra Left Foot Vector Resultant Acceleration



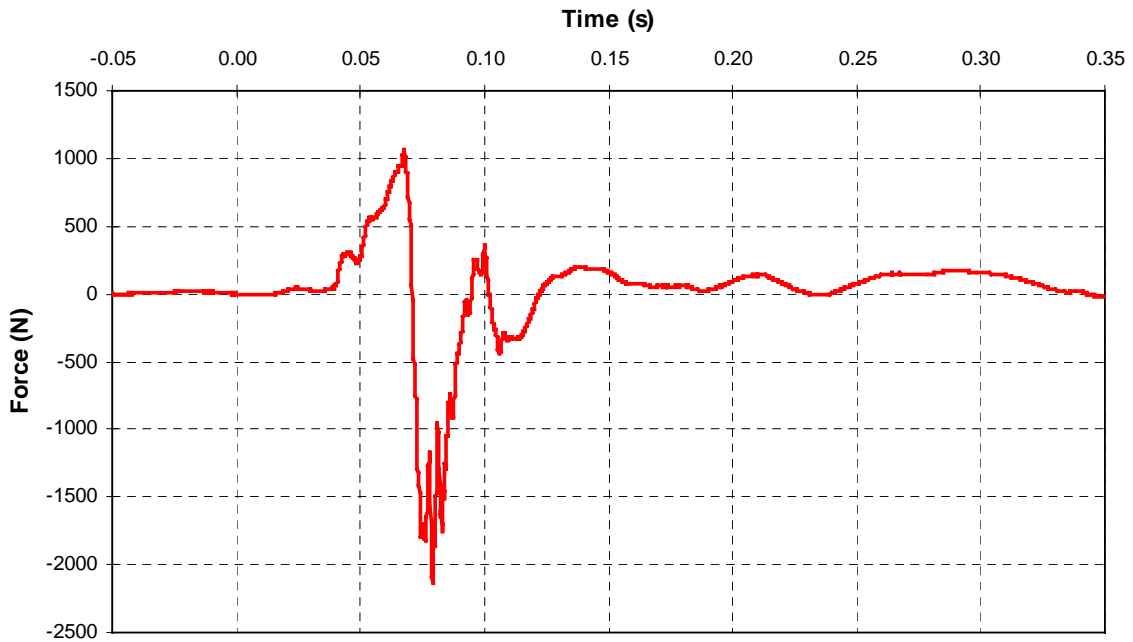
A- 34 CF00020 2000 Nissan Xterra Left Foot A-P Acceleration



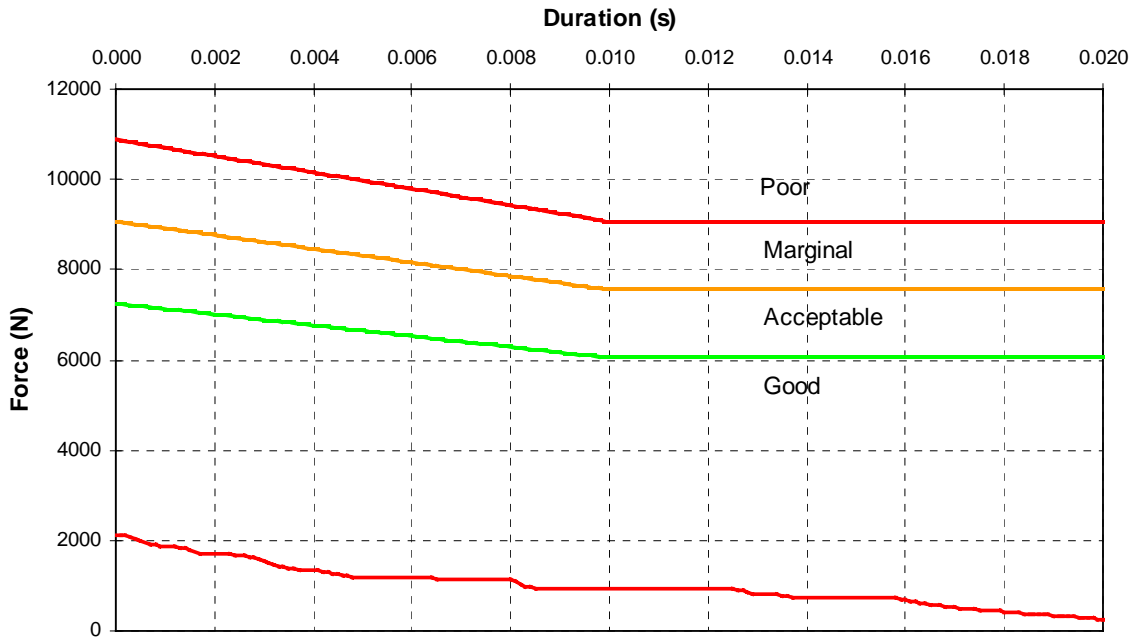
A- 35 CF00020 2000 Nissan Xterra Left Foot I-S Acceleration



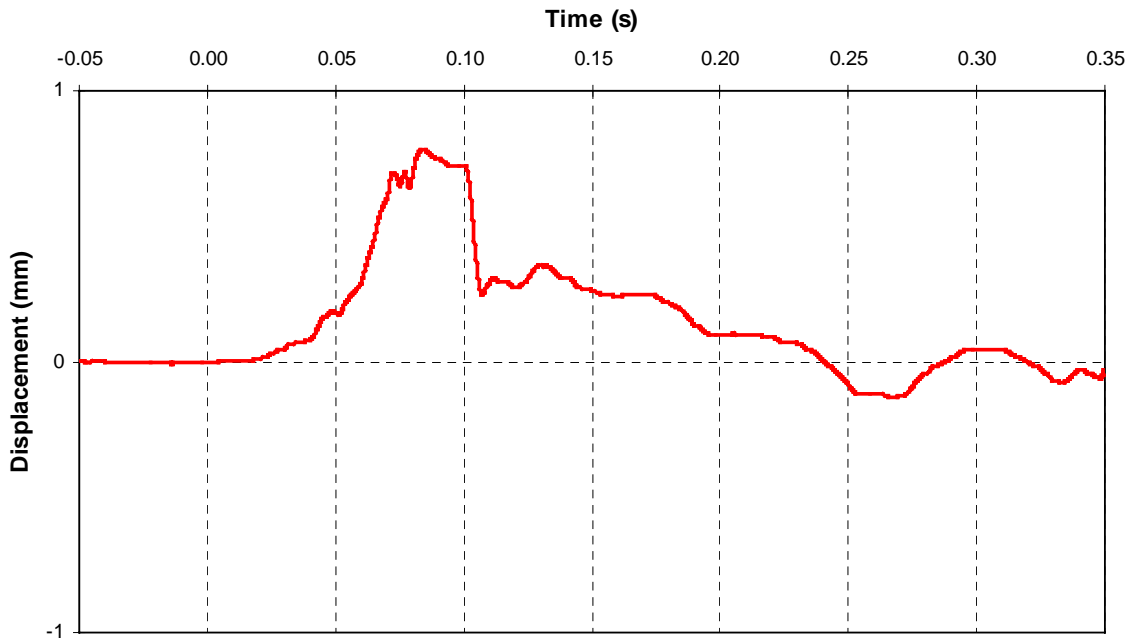
A- 36 CF00020 2000 Nissan Xterra Right Femur Axial Force



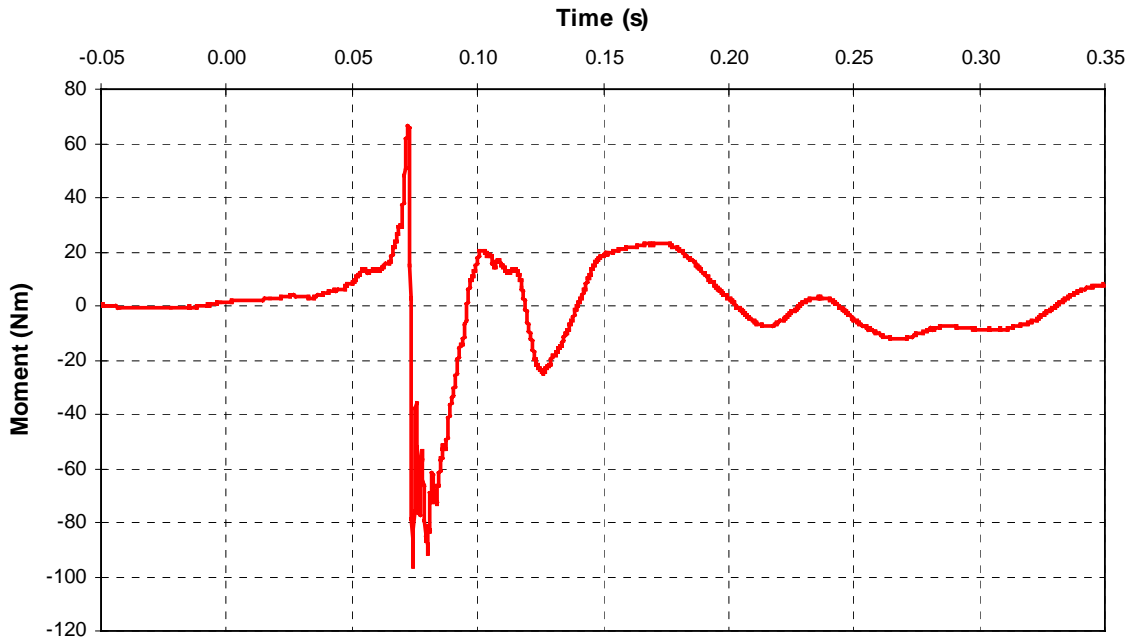
A- 37 CF00020 2000 Nissan Xterra Right Femur Axial Force Analysis



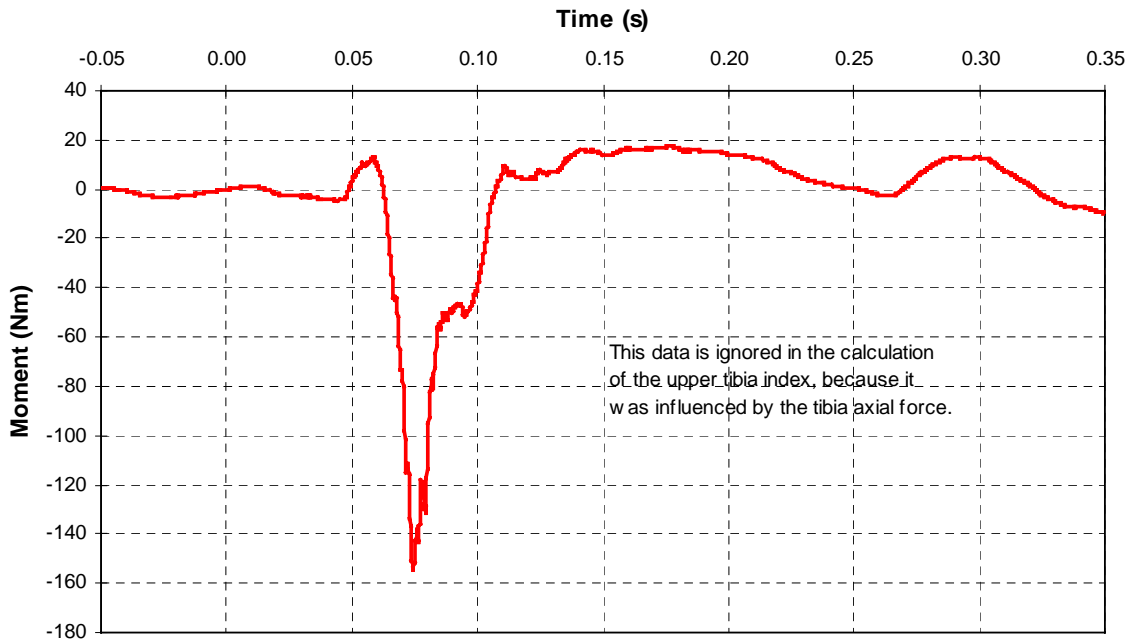
A- 38 CF00020 2000 Nissan Xterra Right Tibia-Femur Displacement



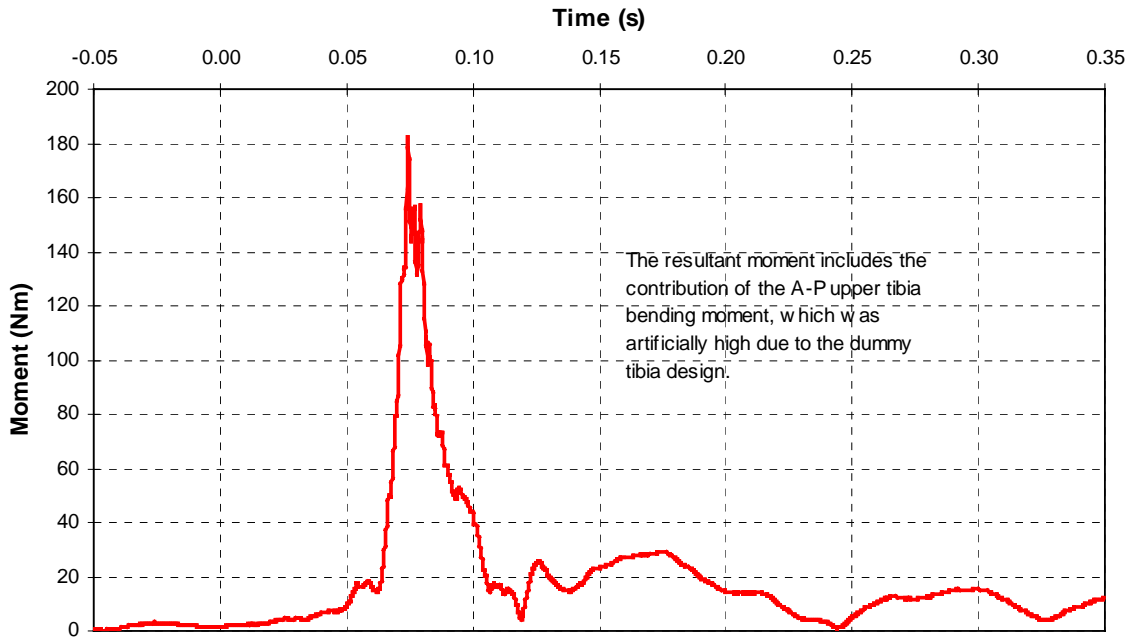
A- 39 CF00020 2000 Nissan Xterra Right Upper Tibia L-M Moment



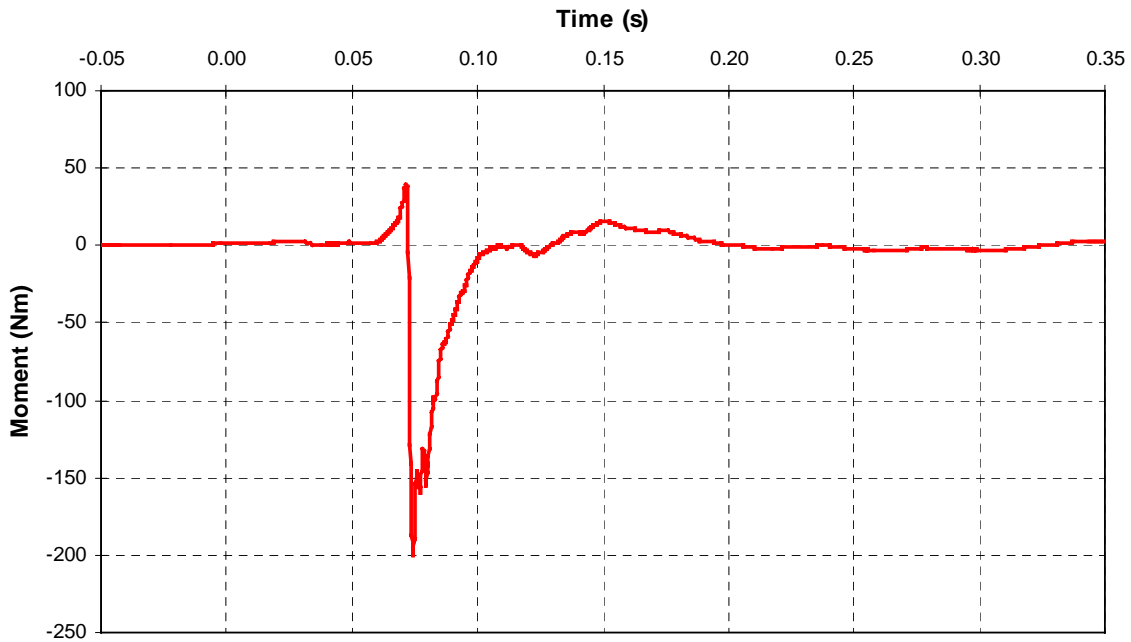
A- 40 CF00020 2000 Nissan Xterra Right Upper Tibia A-P Moment



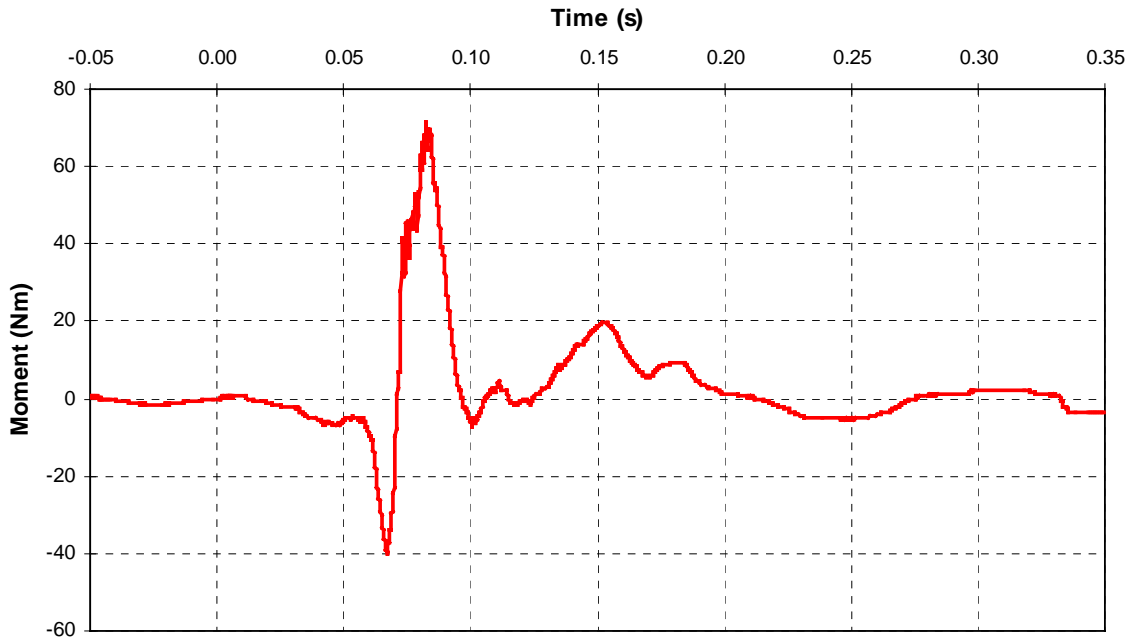
A- 41 CF00020 2000 Nissan Xterra Right Upper Tibia Vector Resultant Moment



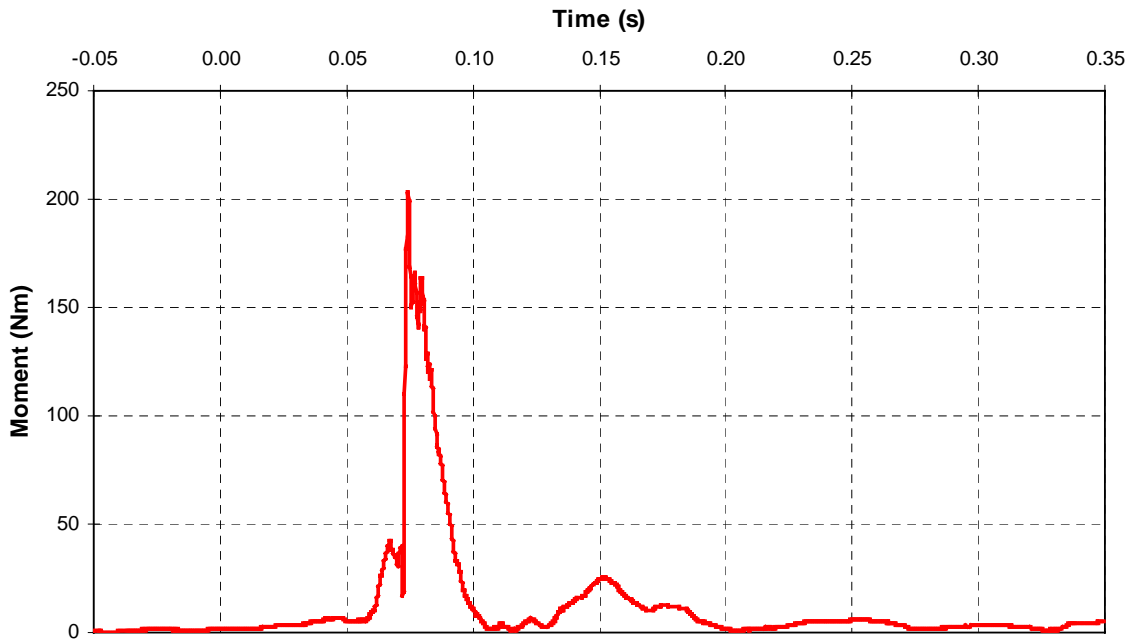
A- 42 CF00020 2000 Nissan Xterra Right Lower Tibia L-M Moment



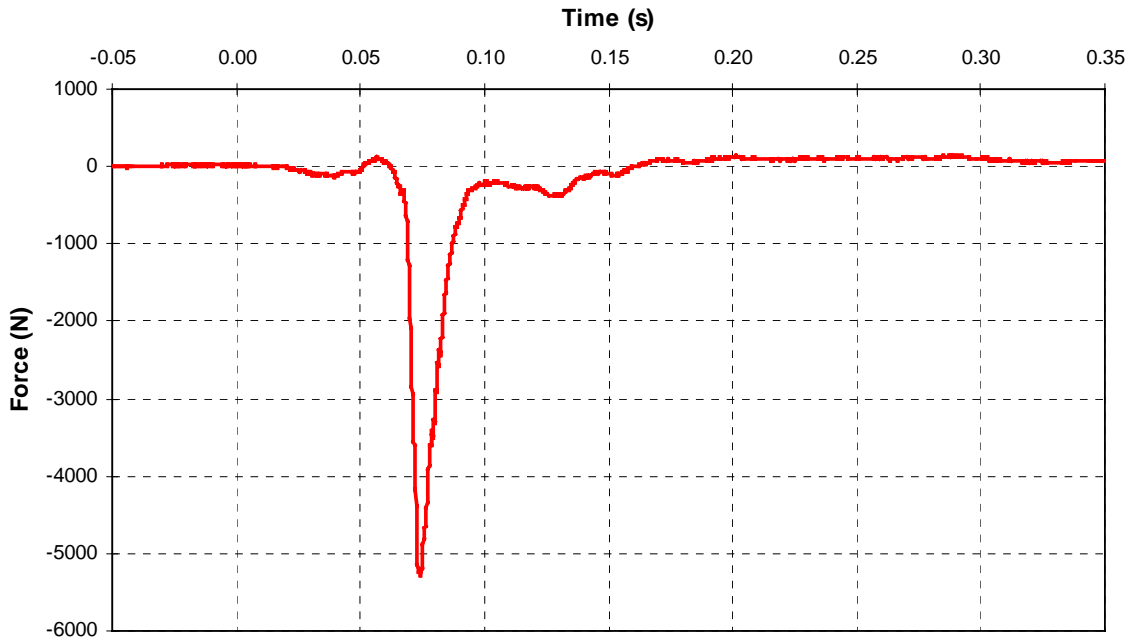
A- 43 CF00020 2000 Nissan Xterra Right Lower Tibia A-P Moment



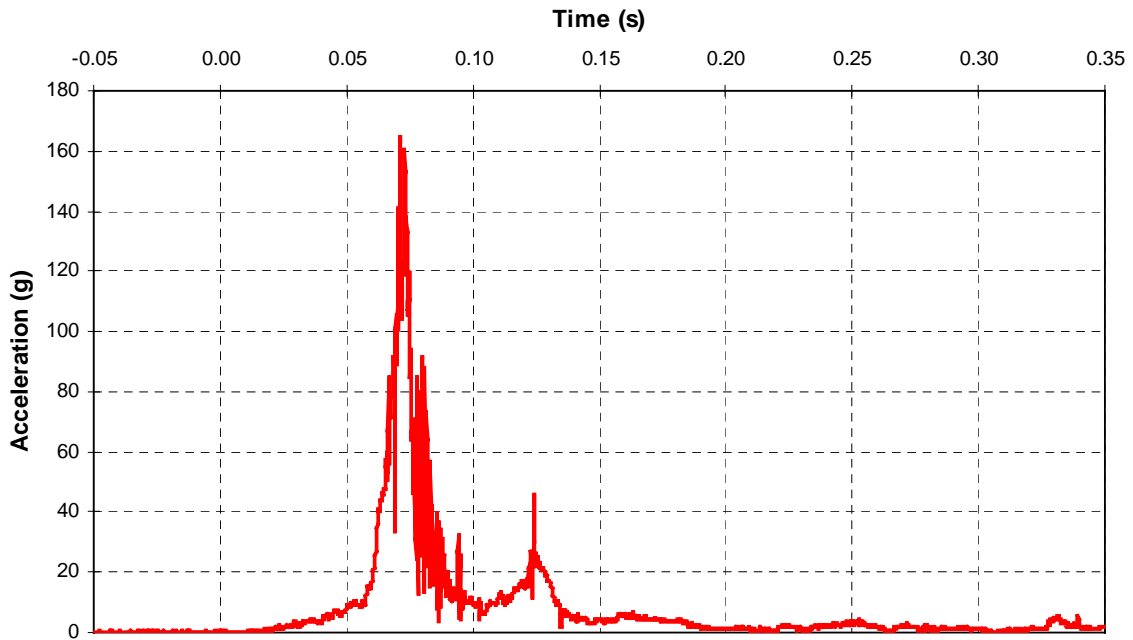
A- 44 CF00020 2000 Nissan Xterra Right Lower Tibia Vector Resultant Moment



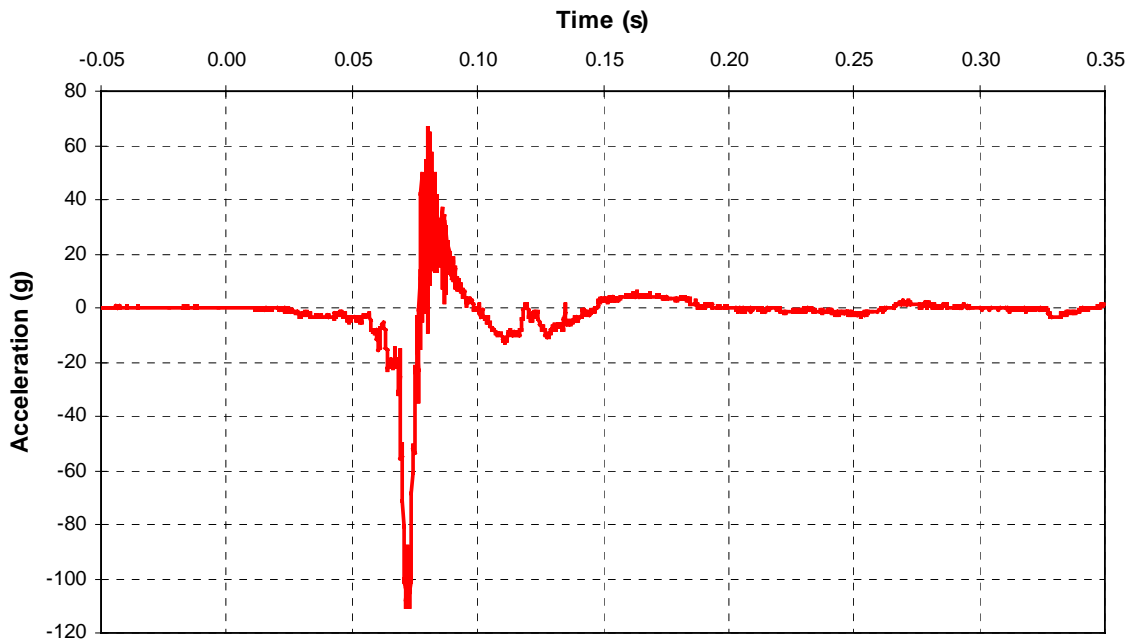
A- 45 CF00020 2000 Nissan Xterra Right Lower Tibia Axial Force



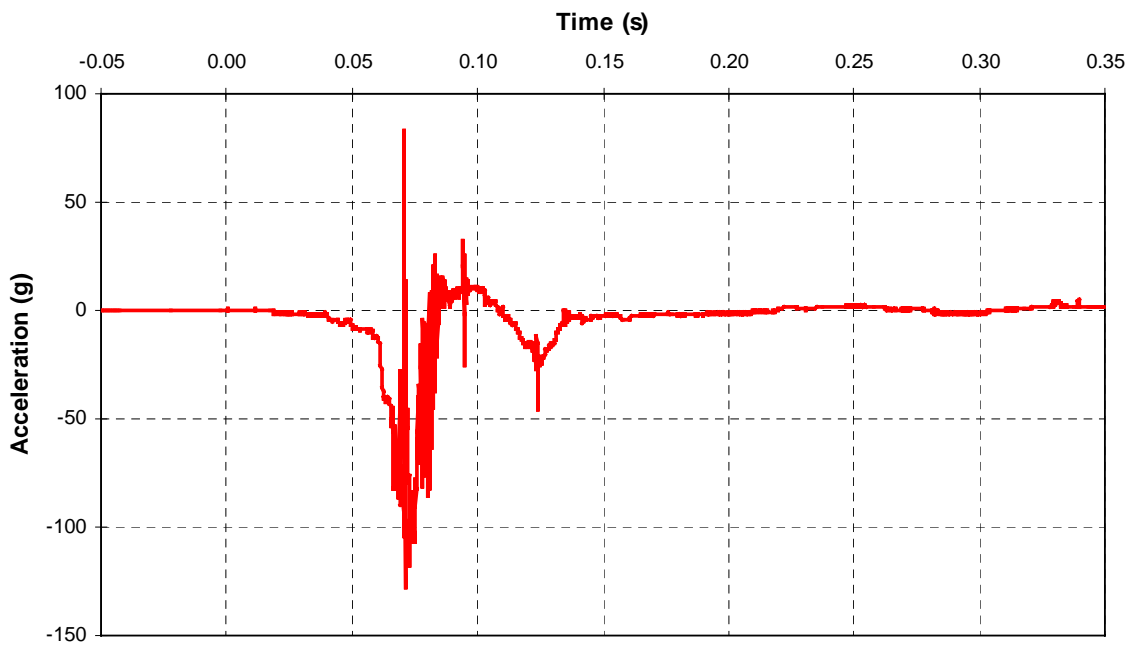
A- 46 CF00020 2000 Nissan Xterra Right Foot Vector Resultant Acceleration



A- 47 CF00020 2000 Nissan Xterra Right Foot A-P Acceleration



A- 48 CF00020 2000 Nissan Xterra Right Foot I-S Acceleration





XTERRA XE-V6 4X4

AUTOMATIC TRANSMISSION
Color: EW3 SOLAR YELLOW

Motor Trend Sport/Utility of the Year

Standard Equipment Included at No Extra Charge

MECHANICAL AND PERFORMANCE

- 3.3 Liter SOHC 170HP V6 Engine
- 4-Speed Automatic Transmission
- 19.4 Gallon Fuel Tank
- Up to 5,000 lbs Towing Capacity
- Double Wishbone Front Suspension
- 4-Wheel Anti-Lock Braking System (ABS) w/ G Sensor
- Front and Rear Stabilizer Bars
- Fuel Tank and Engine Skid Plates
- Power Assisted Front Disc/Rear Drum Brakes
- Power Steering
- P235/70R15 All-Season Tires
- Platinum-Tipped Spark Plugs
- 4-Wheel Drive System w/ Auto Locking Hubs Tachometer

EXTERIOR STYLING AND AMENITIES

- Black Rear Privacy Glass
- Full Sized Spare Tire
- Black Side Window Moldings
- Center High-Mount Stop Lamp
- Rear Glass Defroster

COMFORT AND CONVENIENCE

- Dual Manual Adjustable Outside Mirrors
- Mounting Provisions for Side Step Rails
- Black Door Handles
- Recessed Mounted Halogen Headlamps
- Styled Steel Wheels w/ Black Center Caps
- CFC-Free Air Conditioning
- 6 Speaker AM/FM/CD Stereo
- Woven Cloth Seat Fabric
- 50/50 Split Folding Rear Seats w/ Removable Cushions
- Integrated Storage Compartment in Center Console
- Cargo Area Dome Lamp
- Cargo Area Storage Bins
- Cargo Floor Area Tie-Down Hooks
- Center Console w/ High Armrest
- Front and Rear Cup Holders
- Large Door Mounted Armrest
- Dual Speed Windshield Wipers

SAFETY AND SECURITY

- Rear Floor Heater Ducts
- Twin Trip Odometers
- Front Seat Belts with Upper Adjustable Seat Belt Anchor
- ALR/ELR Seat Belt System for Outboard Passenger Seats
- Child Safety Rear Door Locks
- Dual Air Bags
- Energy Absorbing Steering Column
- "Fasten Front Seat Belt" Warning Light
- Front and Rear Crumple Zones
- Front Seat Belts with Pretensioners
- Side-Door Guard Beams

Manufacturer's Suggested Retail Base Price

21,749.00

Options included by Manufacturer:

POWER PACKAGE

1,299.00

CRUISE CONTROL
MAP LAMPS

POWER MIRRORS

POWER WINDOWS AND DOOR LOCKS

VEH SECURITY SYSTEM W/REMOTE

DOOR FABRIC INSERTS

SPORT PACKAGE

ALLOY WHEELS

FOG LAMPS

FRONT TOW HOOK

LIMITED SLIP DIFFERENTIAL

FLOOR MATS

TOW HITCH III

UTILITY PACKAGE

SPLASH GUARDS

CAL/NEV RESTRICTED EMISSION EQUIP

Destination Charges

79.00

349.00

999.00

79.00

520.00

Total* 25,873.00



CITY MPG

15

HIGHWAY MPG

19

Actual Mileage will vary with options, driving conditions, driving habits and vehicle's condition. Results reported to EPA indicate that the majority of vehicles with these estimates will achieve better.

12 and 18 mpg in the city and between
16 and 22 mpg on the highway.

2000 NISSAN XTERRA XE-V6 4WD
181 CUBIC INCH ENGINE,
6 CYLINDERS,
FUEL INJECTION,
FEEDBACK FUEL SYSTEM,
4-SPEED AUTOMATIC TRANSMISSION,
CATALYTIC CONVERTER,
CATALYEV RESTRICTED EMISSION EQUIP

Estimated Annual Fuel Cost: \$1125

For Comparison Shopping, all vehicles classified as SPECIAL PURPOSE VEHICLES have been issued mileage ratings ranging from 12 to 25 mpg city and 15 to 29 mpg hwy.

Security+Plus Vehicle Protection Plan

The only service agreement backed by Nissan!
Ask your dealer for details, or call
1-800-NISSAN-6 for information.

Dealer: FIRST TEAM NISSAN
6900 PETERS CREEK RD,
ROANOKE VA 24019
Transport Method: TRUCK
Final Assembly Point: SMYRNA

3258 36 4382 A PB06

106624 3258

041000 - 7036

04210-588507 EW3 4382



2000 XTERRA XE-V6 4X4
VIN: SN1ED28Y4YCS88507

*Does not include dealer-installed options & accessories, local taxes or license fees, does not include manufacturer's recommended post-delivery service. This label has been applied pursuant to federal law. Do not remove prior to delivery to the ultimate purchaser.