Insurance Institute for Highway Safety
Crashworthiness Evaluation

Crash Test Report
2000 Nissan Altima (CF00004)

Vehicle identification number: 1N4DL01D7YC113115
Body style: Midsize four-door sedan
Engine/transmission: Transverse 2.4-liter 4-cylinder, 4-speed automatic, front-wheel drive

Standard crashworthiness features:

Driver and right front passenger front airbags
Dual-locking shoulder belts (all 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 all rear belt retractors are convertible from emergency to automatic locking for ease of child restraint use

Optional safety features:

Driver and right front passenger seat-mounted side airbags (designed to protect head and torso)
Four-wheel antilock brakes

Vehicle specifications (provided by manufacturer):

Wheelbase:	262 cm
Overall length:	472 cm
Overall width:	175 cm
Curb weight:	1,293 kg (base model with manual transmission)

Vehicle specifications (measured):

Front bumper to firewall:	116 cm
Curb weight:	1,372 kg
Test weight:	1,512 kg (57% front, 43% rear)
Overall width:	175 cm

Nominal test parameters:

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

Crash test date:

February 9, 2000

Figure 1
Precrash and Postcrash Side Views — 2000 Nissan Altima

Summary

A 2000 Nissan Altima was crash tested on February 9, 2000 into a fixed deformable barrier at 39.7 mi/h (63.9 km/h) and a 41 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 13-15 cm. Resultant intrusion in the driver footwell measured 28 cm at the footrest and 26-37 cm at other places on the toepan. All doors remained closed during the crash. After the crash, the driver door required tools to open, the 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 6 cm of shoulder belt webbing. No more than 6 cm of webbing, including the tensioner-retracted length, spooled off the retractor during the crash. The force-limiting mechanism on the driver belt was not activated. The airbag contacted the dummy's face during deployment. During rebound from the airbag, the dummy's head moved downward and outward toward the window sill and then moved upward and contacted the B-pillar. After the crash, the upper end of the steering column had moved upward 11 cm and rearward 9 cm.

The right leg had a maximum tibia axial force of –5.0 kN and a maximum lower tibia L-M moment of –166 Nm, which contributed to a lower tibia index of 0.87. The left leg had a maximum tibia-femur displacement of –16 mm. The knee bolster in front of the left knee and shin was fractured, and the exposed edge of the underlying corrugated metal reinforcement tore the vinyl skin of the dummy's shin.

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 60 cm behind its center of gravity (172 cm behind the front axle). The vehicle speed recorded just prior to impact was 39.7 mi/h (63.9 km/h), and the actual overlap was 41 percent.

Structural Performance

All doors remained closed during the crash. The driver door aperture shortened 15 cm, as measured at the lower edge of the window. After the crash, the driver door required tools to open, the left rear door required slight additional effort but no tools to open, and the right front and right rear other doors opened with ease.

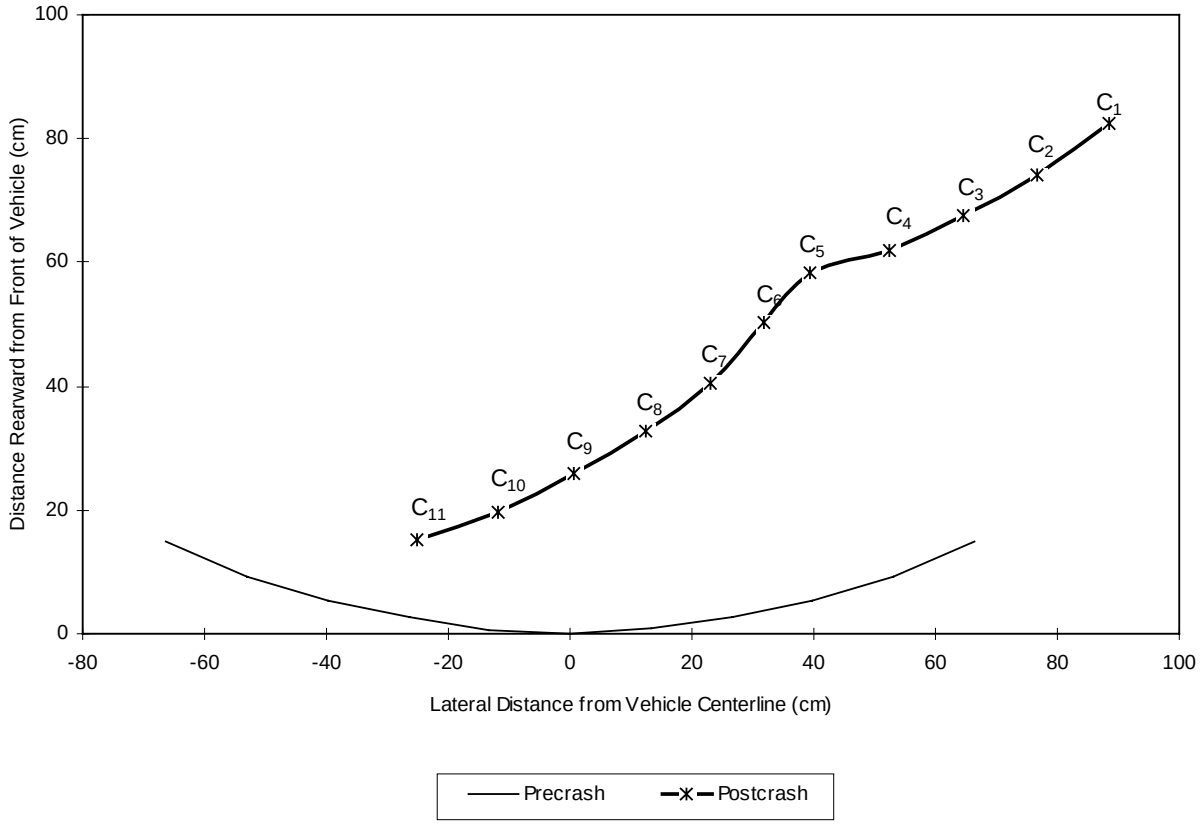
No fuel system leaks were observed after the crash. In addition, no fuel system leaks were observed when the vehicle was rotated onto its right side to allow postcrash photography.

The floor in front of the driver's seat was severely buckled at the intersection of the floorpan and toepan. A 50-cm length of the spot-welded seam between the left side of the driver floorpan and driver door sill was split apart.

Figure 2 shows the overhead view of the crash deformation. Figure 3 illustrates the precrash and postcrash contour measures of the front bumper cover profile and the resulting permanent crush. Figure 4 shows the precrash and postcrash views from below. Figure 5 illustrates the deformation of the side rails, floor stiffeners, and radiator and engine supports, which are visible in Figure 4.

Figure 2
Overhead View of Crash Deformation — 2000 Nissan Altima

Figure 3
Front Bumper Cover Crush Contour — 2000 Nissan Altima



	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)	82	74	68	62	58	50	40	33	26	20	15
Precrash Contour (cm)	15	9	5	3	1	0	1	3	5	9	15
Resulting Crush (cm)	67	65	63	59	57	50	39	30	21	11	0

The bumper cover was torn completely off the vehicle during the crash. The postcrash contour represents the best attempt to fit the cover back onto the vehicle. The length of the reference line was 133 cm precrash and 114 cm postcrash.

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

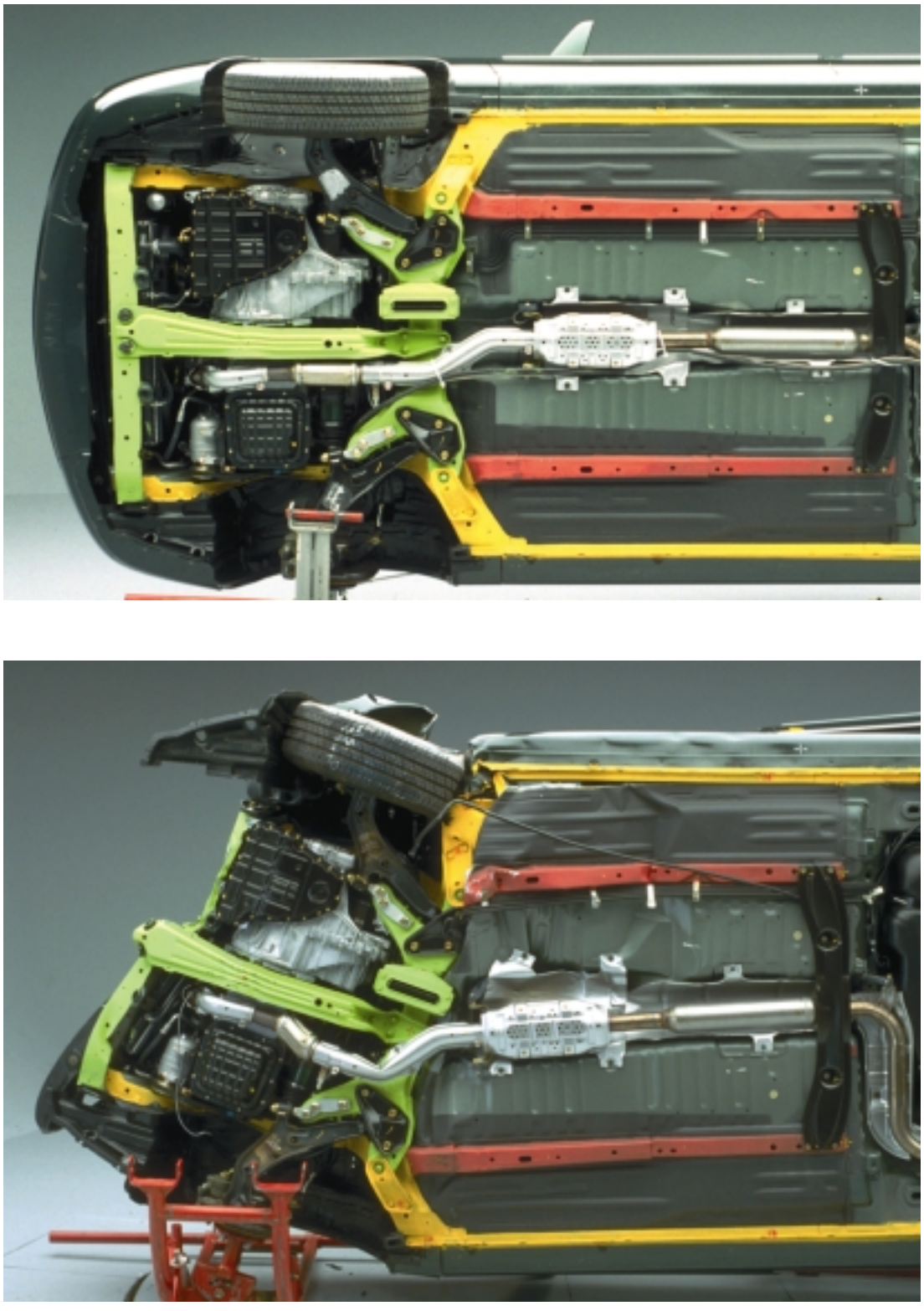
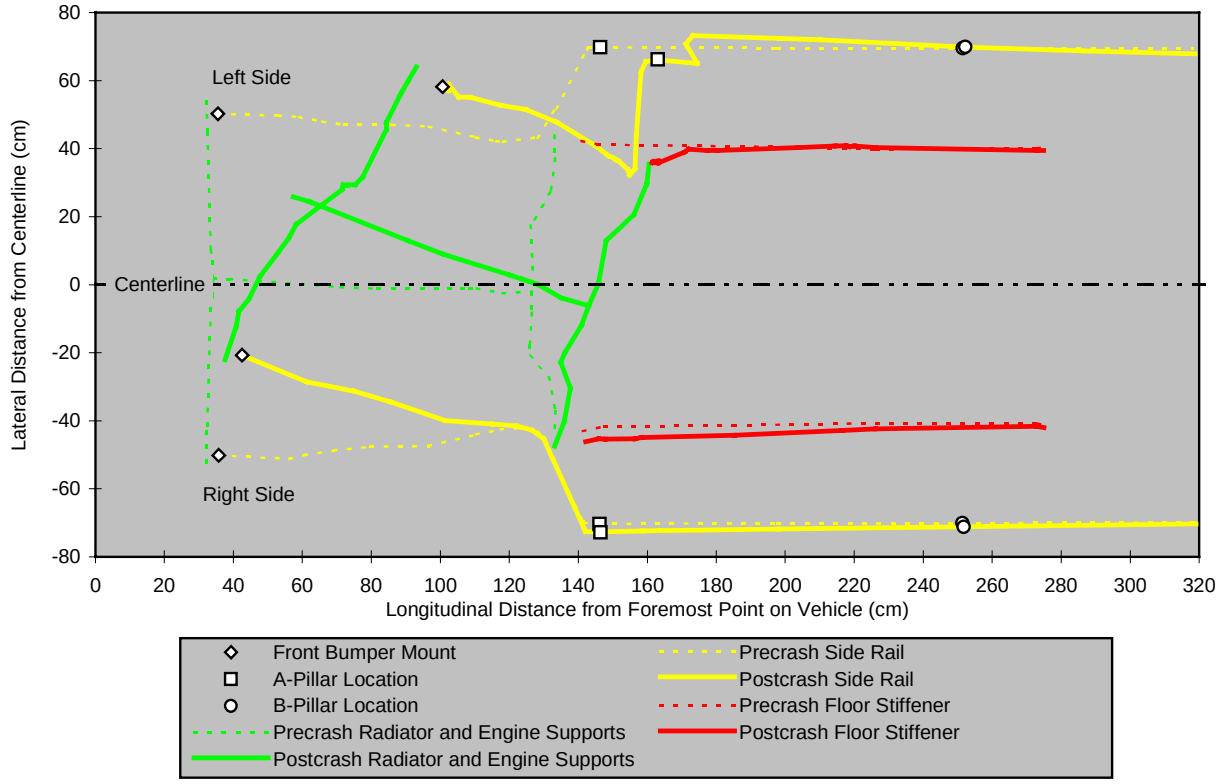
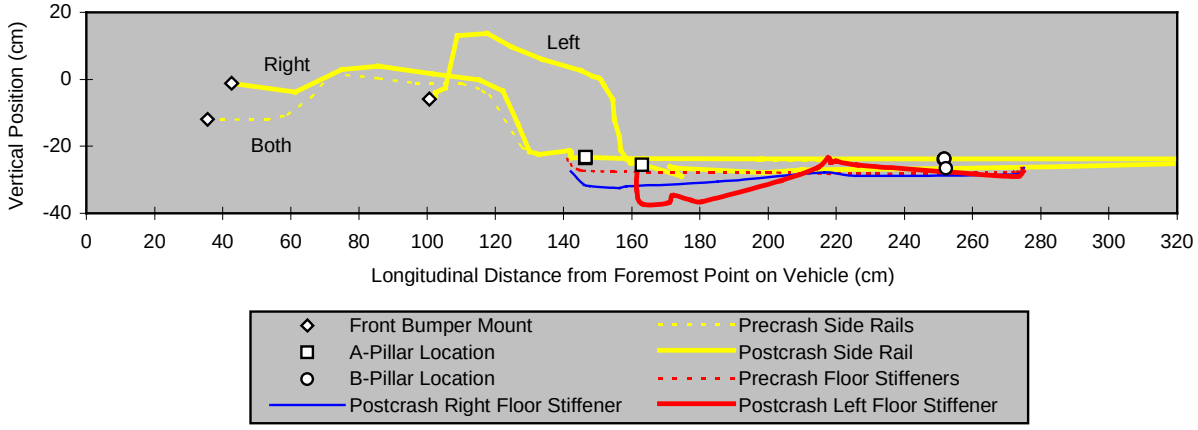


Figure 5
Structural Deformation, Views from Below and Side — 2000 Nissan Altima





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.

Table 1
Residual Measurements of Intrusion Relative to Driver Seat — 2000 Nissan Altima

Selected Locations*	Longitudinal	Lateral	Vertical	Resultant
Steering column (cm)	–9	–6	11	15
Left lower instrument panel (cm)	–15	–4	4	16
Right lower instrument panel (cm)	–13	–4	1	13
Brake pedal (cm)	–25	–4	5	26
Left toepan (cm)	–35	–8	4	37
Center toepan (cm)	–33	–5	5	34
Right toepan (cm)	–26	–3	3	26
Footrest (cm)	–27	–6	1	28
Average displacement of the four seat-attachment bolts relative to reference system (cm)	0	3	–1	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 66 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 position D indicated the airbag deployed at 30 ms into the crash and appeared to be fully inflated at 64 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 all 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 sills at the base of the B-pillars. During the crash, 6 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 just above the D-ring. A second pull-string, mounted between the retractor housing and the webbing beyond the retractor, had not moved at all, indicating that no more than 6 cm of webbing was pulled out of the retractor during the crash. (The second pull string does not record any movement until the amount of webbing initially pulled into the retractor is pulled back out.) Postcrash investigation of the force-limiting torsion bar within the retractor spool indicated it was not activated during the crash.

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 outboard slightly, with the left edge of the seat back almost touching the B-pillar.

Steering Column

The upper end of the steering column moved upward 11 cm and rearward 9 cm relative to the driver seat.

Dummy Kinematics

Head, Neck, and Torso

Analysis of the high-speed film taken from camera position D indicated the deploying airbag contacted the dummy's face at 46 ms into the crash. The dummy's head began to load the airbag at 68 ms (4 ms after the airbag was fully inflated). Paint transferred from the dummy's face indicated the nose contacted the airbag 4 cm above and 1 cm to the right of its center. During rebound from the airbag, the dummy's head rotated to the right and moved outward and downward toward the window sill without contacting it. The head then moved upward, and the rear of the head contacted the B-pillar, shoulder belt upper anchorage D-ring, and head restraint. Analysis of head acceleration data indicated the head initially contacted the B-pillar at 256 ms. Analysis of the film indicated the head contacted the head restraint at 282 ms. Table 2 provides the timing of these events.

Table 2 Restraint System Performance and Dummy Kinematics — 2000 Nissan Altima	
Event	**Time (ms)**
Deployment of airbag	30
Airbag contacts face during deployment	46
Airbag fully inflated	64
Face begins to load airbag	68
Back of head contacts B-pillar and shoulder belt D-ring	256
Back of head contacts head restraint	282

Figure 6
Dummy and Vehicle Interior, Postcrash — 2000 Nissan Altima

Legs and Feet

Left leg and foot: Paint transferred from the dummy's left knee indicated the knee contacted the instrument panel padding approximately 10 cm above the left instrument panel intrusion reference point. Paint transferred from the dummy's left shin indicated the shin contacted the knee bolster directly below the knee impact location. The shin's contact with the knee bolster fractured the bolster, and the vinyl skin of the upper anterior tibia was torn by an exposed edge of the underlying steel bolster support. The left foot was found fully dorsiflexed and considerably everted, with the lateral sole of the forefoot pressed against the intruded toepan to the right of the footrest and the medial back of the heel against a sharp downward buckle in the floorpan.

Right leg and foot: Paint transferred from the dummy's right knee indicated the knee contacted and broke the right underside portion of the steering column trim just below the ignition switch. Paint transferred from the dummy's right shin indicated the shin primarily contacted the knee bolster below and to the right of the knee impact location. The shin also contacted the instrument panel padding approximately 10 cm above and 5 cm to the left of the right instrument panel intrusion reference point. The right foot was fully dorsiflexed but neither inverted nor everted, with the entire sole pressed against the toepan, apparently still on the accelerator pedal, and the back of the heel against a downward buckle in the floorpan.

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 peak resultant head acceleration from the B-pillar contact was 8 g at 265 ms. Table 3 provides a summary of the maximum head injury measurements recorded during the crash.

Table 3
Head Injury Measurements — 2000 Nissan Altima

Measure	Published Tolerance Threshold	Result	Time (ms)
Vector resultant acceleration (g)	80	57	100
Vector resultant acceleration — 3 ms clip (g)	80	56	100-103
Head Injury Criterion (HIC)	1000	456	87-121
Head Injury Criterion — 15 ms interval (HIC-15)*	700	316	96-111

* 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 Altima

Measure	Published Tolerance Threshold	Result	Time (ms)
A-P shear force (kN)	±3.1	0.4	119
Axial compression force (kN)	4.0	0.2	145
Axial tension force (kN)	3.3	1.3	95
Flexion bending moment (Nm)	310	24	93
Extension bending moment (Nm)	122	20	146

Chest

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

Table 5
Chest Injury Measurements — 2000 Nissan Altima

Measure	Published Tolerance Threshold	Result	Time (ms)
Vector resultant spine acceleration — 3 ms clip (g)	60	37	99-102
Rib compression (mm)	–50	–32	97
Viscous criterion (m/s)	1.0	0.2	84

Legs and Feet

Left leg and foot: The left leg had a maximum tibia-femur displacement of –16 mm at 96 ms. All other injury measures were below injury reference values.

Right leg and foot: The right leg had a maximum tibia axial force of –5.0 kN at 68 ms and a maximum lower tibia L-M moment of –166 Nm at 70 ms, which contributed to a lower tibia index of 0.87 at 70 ms.

The right upper tibia A-P bending moment had a time signature similar to the tibia axial force (Figures A-40 and A-45). The ratio of the A-P bending moment to the axial force (approximately 0.03 m from 20 to 90 ms into the crash) is slightly less than 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. 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. Consequently, the reported upper tibia A-P moment is the maximum value that occurred outside of 20-90 ms. The reported right upper tibia index and resultant bending moment were calculated by excluding the upper tibia A-P bending moment from 20 to 90 ms.

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 Altima

Measure	Published Tolerance Threshold	Left		Right	
		Result	Time (ms)	Result	Time (ms)
Femur axial force (kN)	–9.1*	–3.5	105	–2.2	85
Tibia–femur displacement (mm)	–15	–16	96	–10	109
Upper Tibia					
L–M moment (Nm)	±225	–40	142	–87	70
A–P moment (Nm)	±225	145	95	114	105
Vector resultant moment (Nm)	225	145	95	138	107
Index	1.00	0.65	95	0.62	107
Lower Tibia					
L–M moment (Nm)	±225**	–58	88	–166	70
A–P moment (Nm)	±225**	144	96	40	116
Vector resultant moment (Nm)	225**	152	96	168	70
Axial force (kN)	–8.0**	–1.4	67	–5.0	68
Index	1.00	0.68	96	0.87	70
Foot					
A–P acceleration (g)	±150	–42	73	–91	73
I–S acceleration (g)	±150	–61	72	–73	70
Vector resultant acceleration (g)	150	68	71	94	73

* This critical value is for instantaneous loading. Femur loads are compared with magnitude-duration injury criteria in Figures A-23 and A-34.

** 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.

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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 Altima Midsize Four-Door Sedan: 5 mi/h Front into Angle Barrier

Test Number: LA00001
VIN: 1N4DL01D7YC113115
Mileage: 117
Features: Driver and passenger front airbags, air conditioning, automatic transmission, power mirrors, keyless entry system, power door locks, power windows, heated back glass, tilt steering wheel, cruise control, two-stage paint.

	Part		Labor	
Description	**Mfg. No**	**Price**	**Operation**	**Hours**
Bumper cover, front			Repair/align	1.0
Bumper absorber, front			Repair/align	0.2
Bumper mounting bracket, right front	622101E400	$38.65	Replace*	1.6
Headlamp lens and housing, left			Repair/align	0.2
Headlamp lens and housing, right	260149E000	71.50	Replace	0.3
Headlamps			Aim	0.5
Frame sidemember end, right front			Repair/align*	1.0
Frame sidemember end, right front			Refinish	0.5
Paint and materials		9.00		
Total Parts		$119.15		
Total Labor		180.20		5.3
Grand Total		$299.35		

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

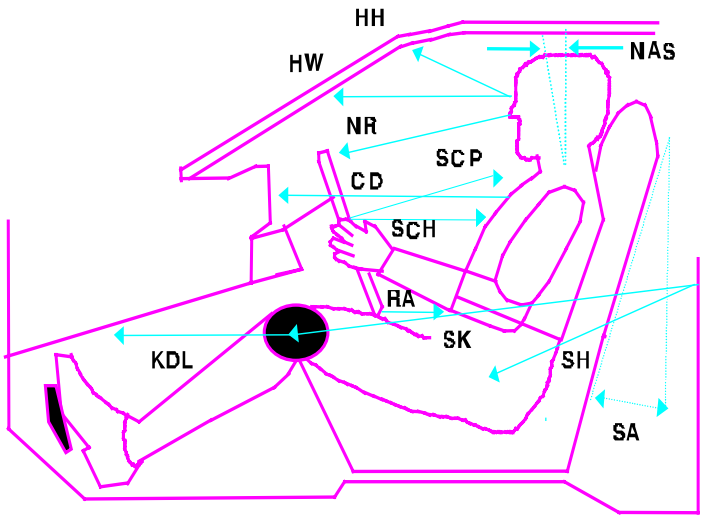
Dummy Clearance Measurements

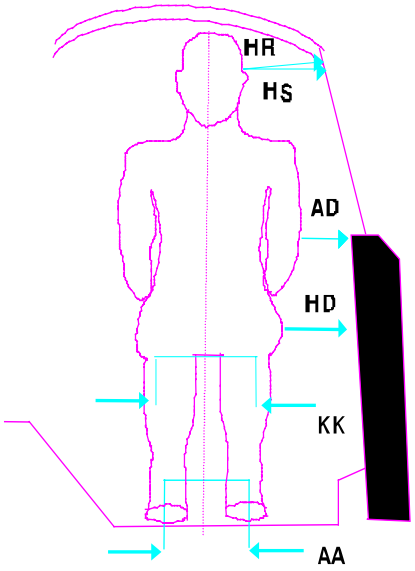
Test Number: CF00004
Vehicle Make/Model: Nissan Altima
Vehicle Model Year: 2000
Seat Type: Manually adjusted bucket seat (fore/aft, height, and seat back angle)

Manufacturer's Specifications
Seat Back Information: Reclined to 14.7 degrees (8th locking position rearward), as measured on lower left edge of driver seat back frame
Upper Belt Anchorage: Set to 3rd of 4 positions from top
Steering Column Adjustment: Set to midpoint of tilt adjustment range

Location	Code	Measure	Location	Code	Measure
Head to header	HH	316	Neck angle, torso 90	NAT90	22.1°
Head to windshield	HW	572	Neck angle, seated	NAS	4.8°
Nose to rim	NR	441	Torso angle (NAT90 – NAS)	TA	17.3°
Chest to dash	CD	610	Striker to knee*	SK	568
Rim to abdomen	RA	209	Striker to knee angle*	SKA	–2.6°
Knee to dash, left	KDL	243	Striker to H-point, horizontal	SHH	192
Knee to dash, right	KDR	203	Striker to H-point, vertical	SHV	135
Steering wheel to chest, horizontal	SCH	316	Ankle to ankle	AA	315
Steering wheel to chest, perpendicular	SCP	423	Knee to knee	KK	349
Steering wheel to chest, reference	SCR	390	Arm to door	AD	91
Hub to chest, minimum	HCM	259	H-point to door	HD	117
Pelvic angle	PA	24.8°	Head to A-pillar	HA	500
Seat back angle	SA	14.8°	Head to roof	HR	190
			Head to side window	HS	235

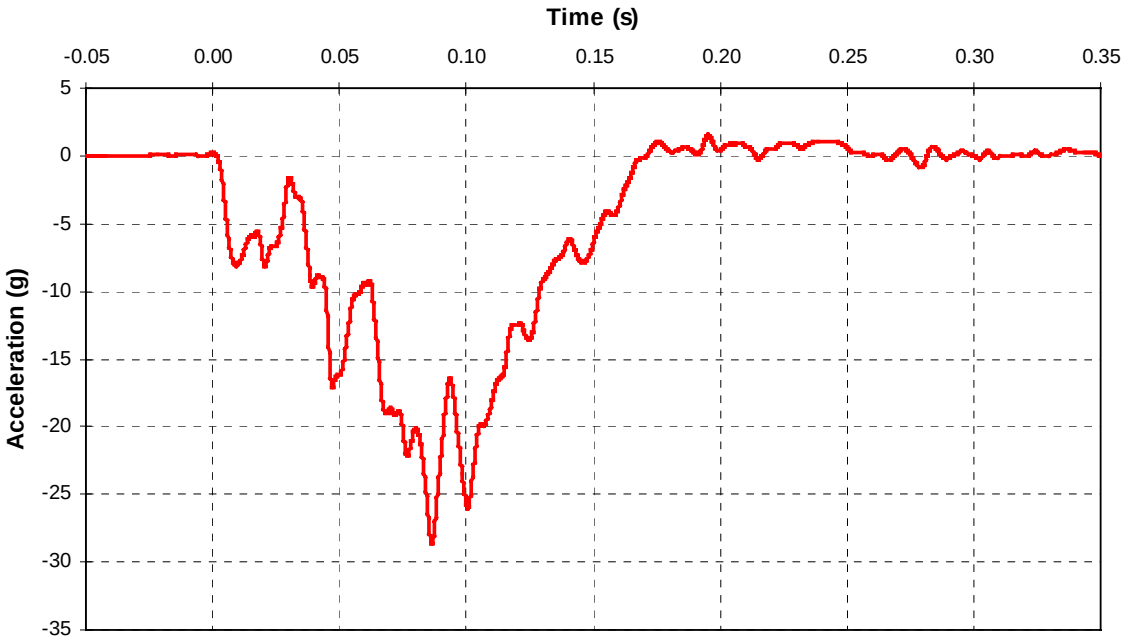
All distance measurements are in millimeters (mm).
* These measurements were made in a vertical plane containing the striker and parallel to the driver door sill.



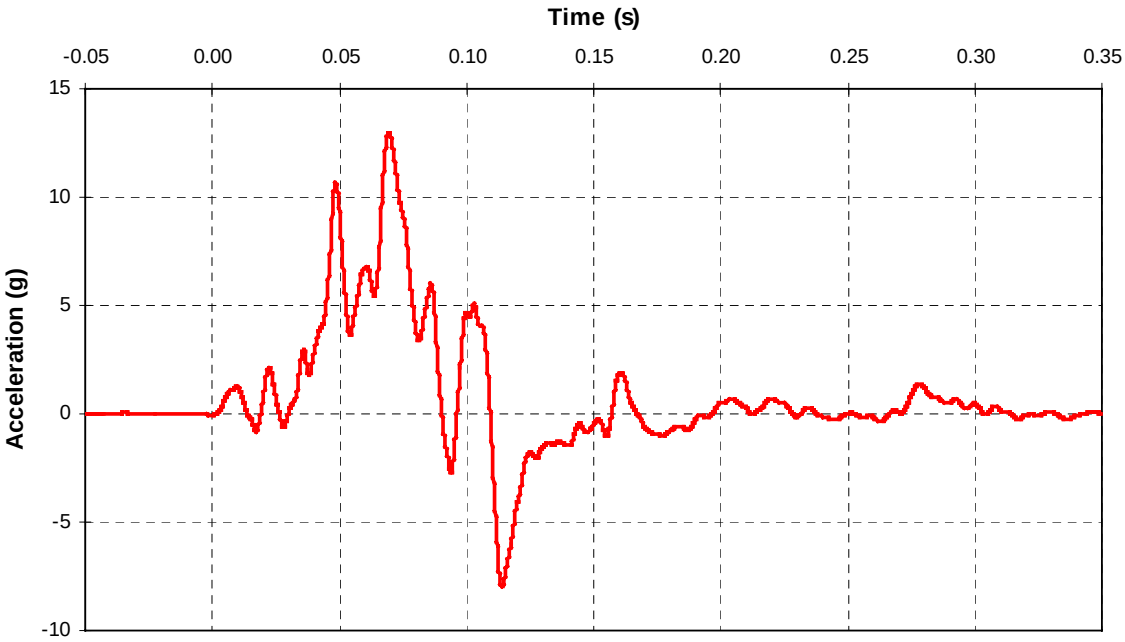


Graph Index

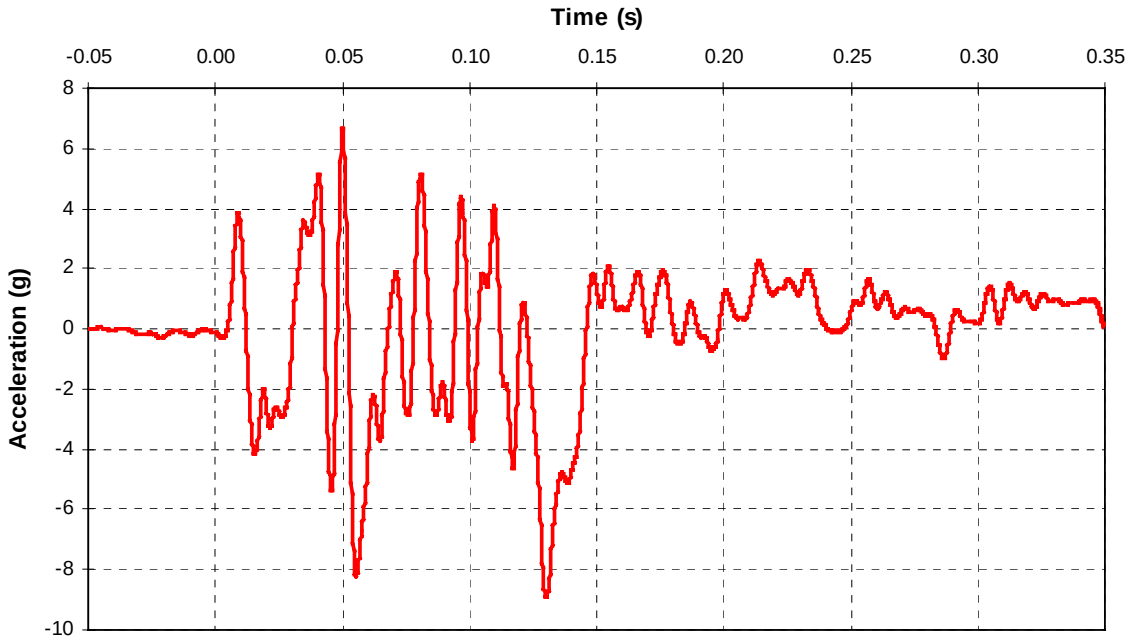
A- 1 CF00004 2000 Nissan Altima Vehicle Longitudinal Acceleration



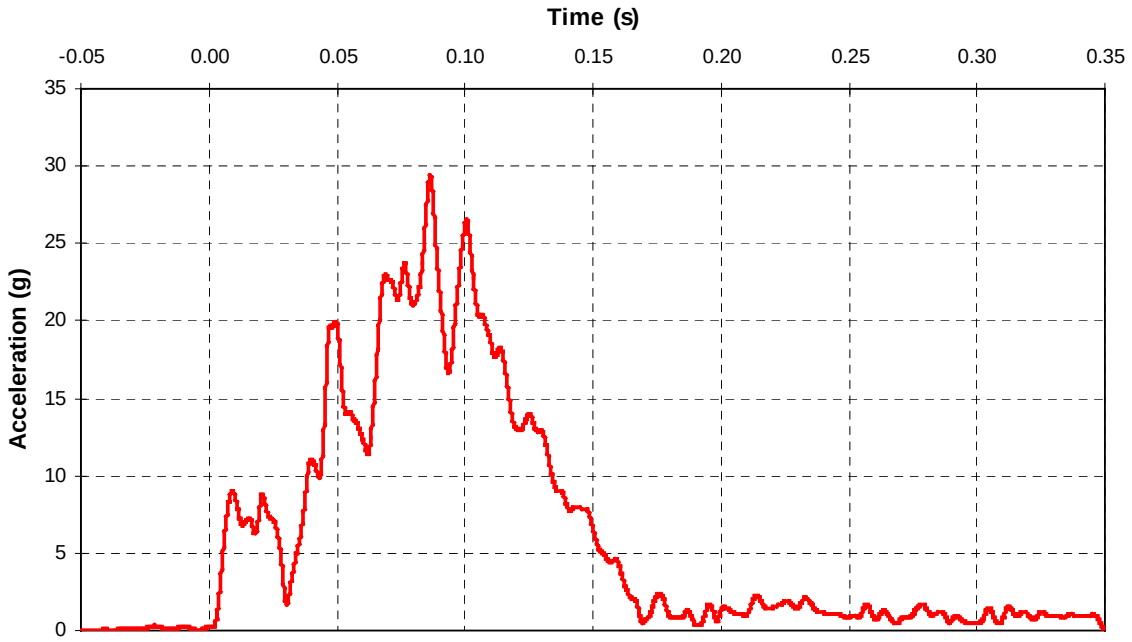
A- 2 CF00004 2000 Nissan Altima Vehicle Lateral Acceleration



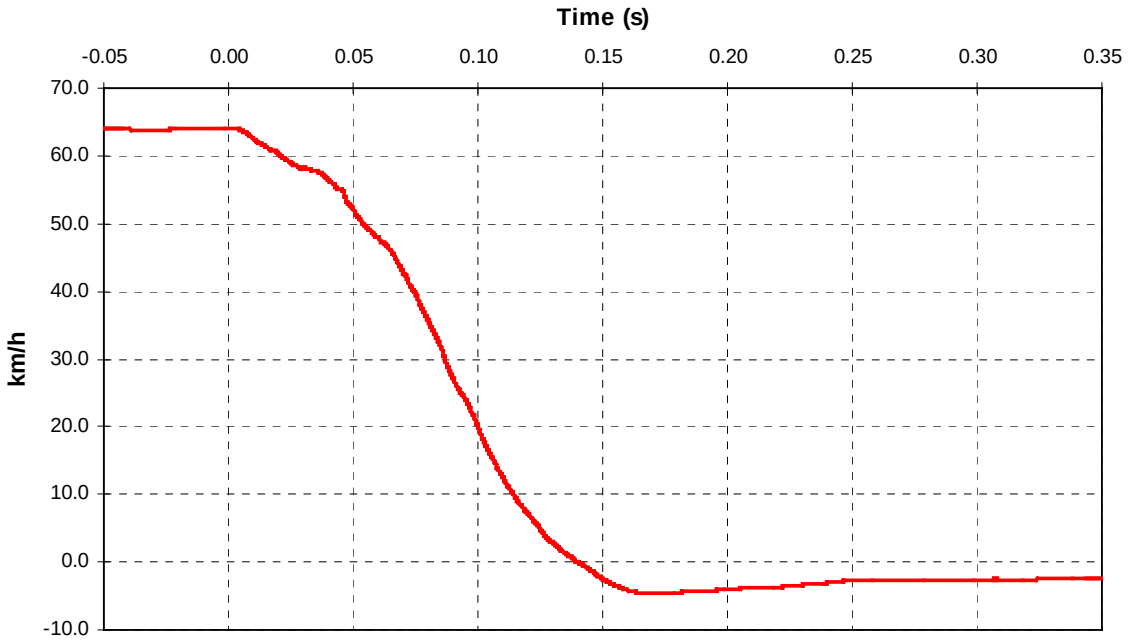
A- 3 CF00004 2000 Nissan Altima Vehicle Vertical Acceleration



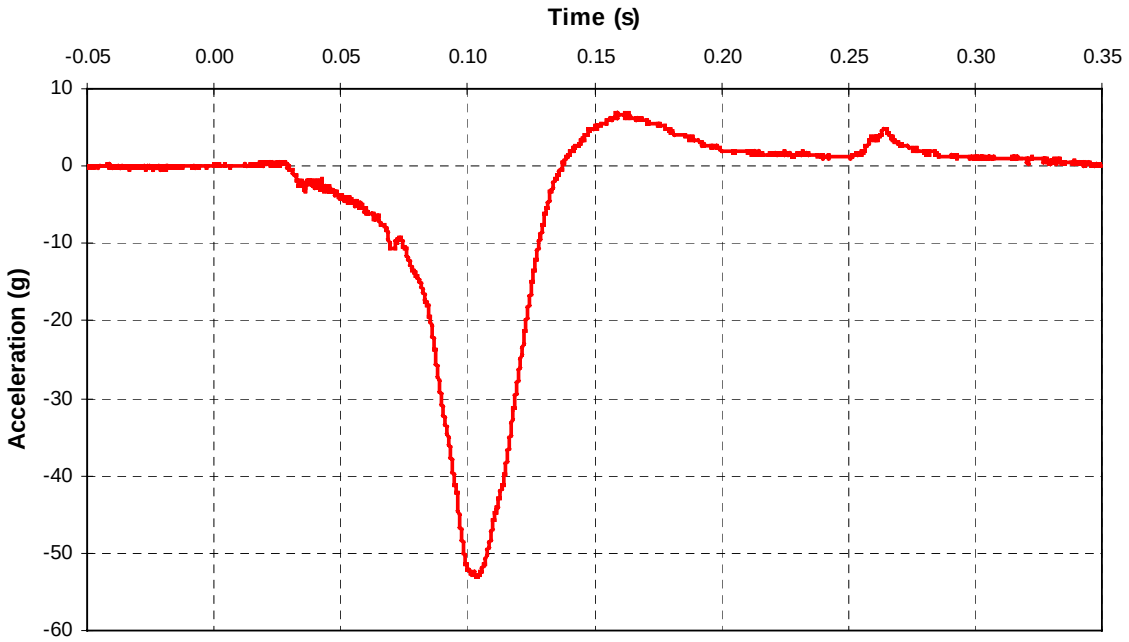
A- 4 CF00004 2000 Nissan Altima Vehicle Vector Resultant Acceleration



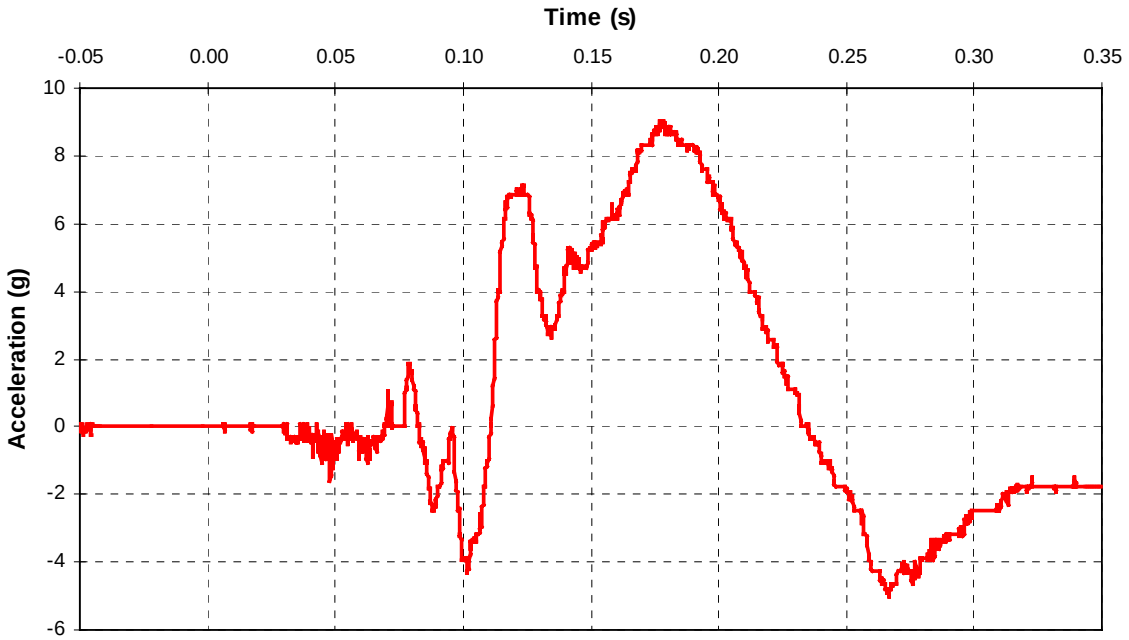
A- 5 CF00004 2000 Nissan Altima Integration of Vehicle Longitudinal Acceleration



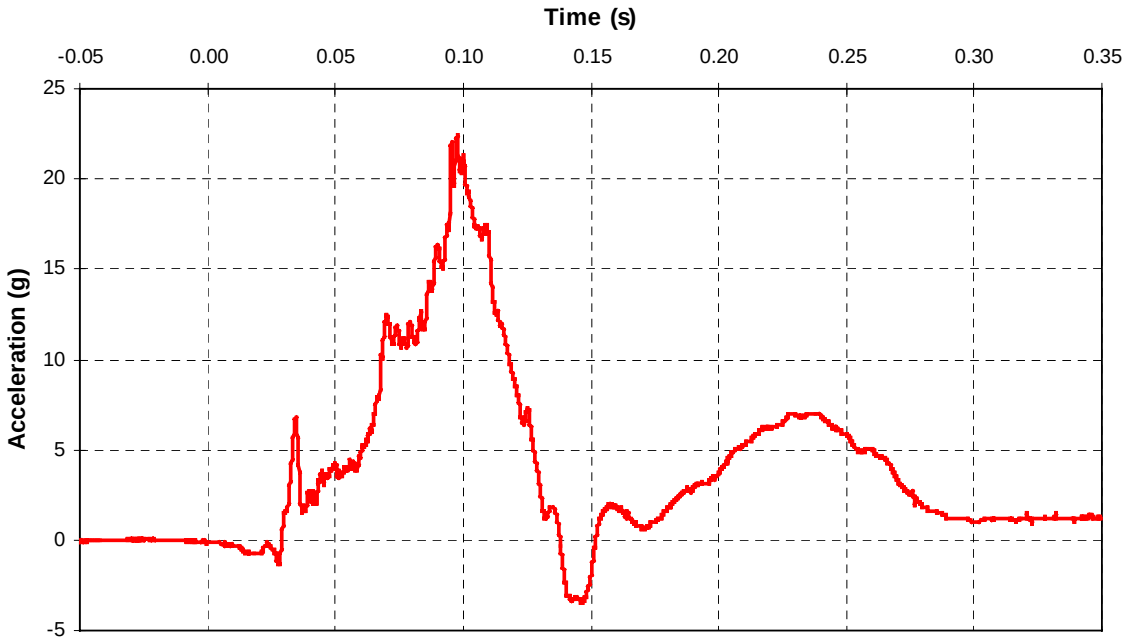
A- 6 CF00004 2000 Nissan Altima Head A-P Acceleration



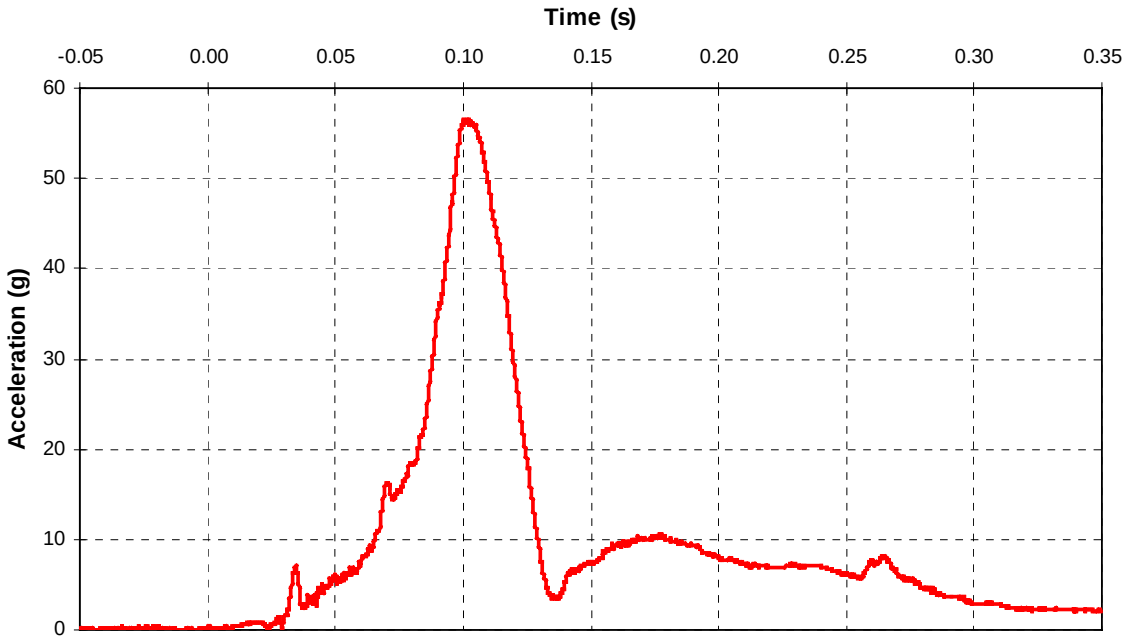
A- 7 CF00004 2000 Nissan Altima Head L-M Acceleration



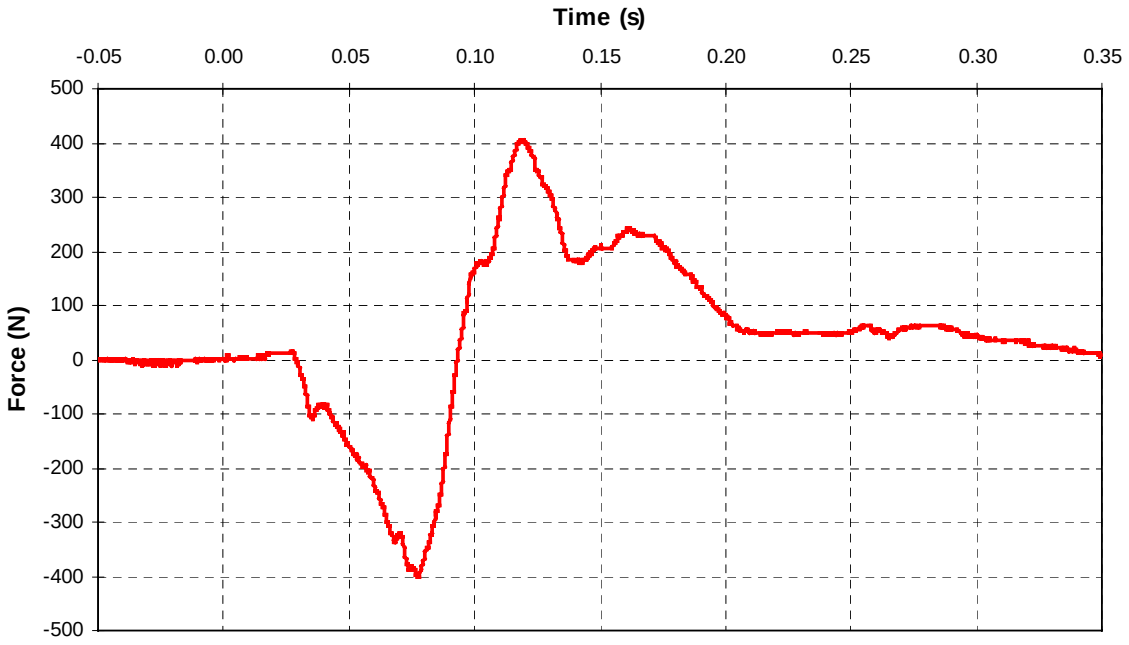
A- 8 CF00004 2000 Nissan Altima Head I-S Acceleration



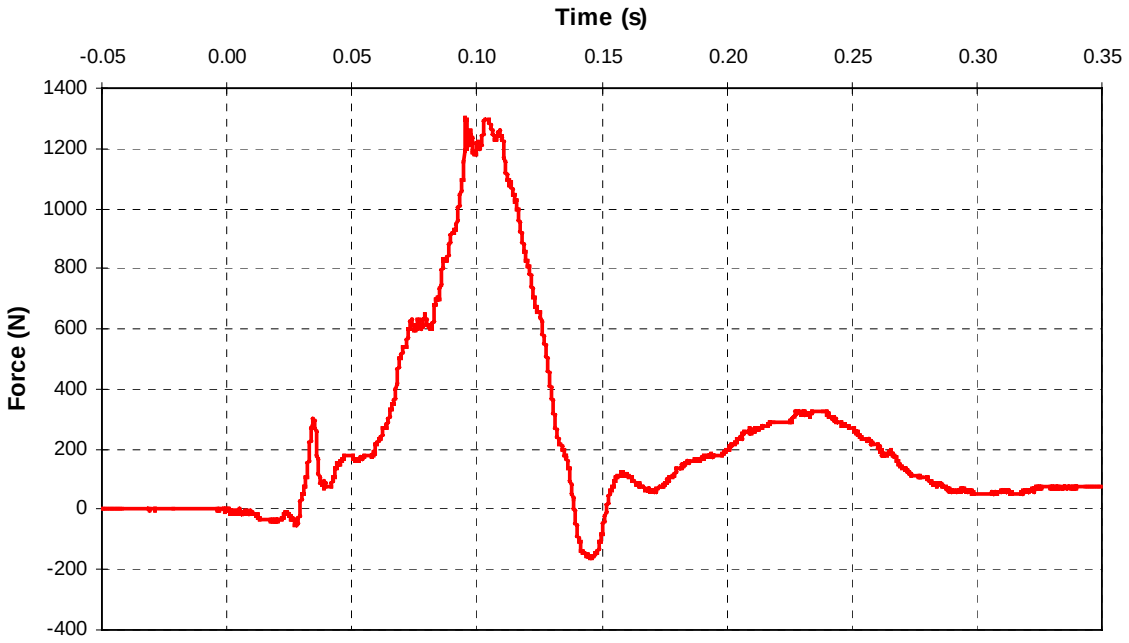
A- 9 CF00004 2000 Nissan Altima Head Vector Resultant Acceleration



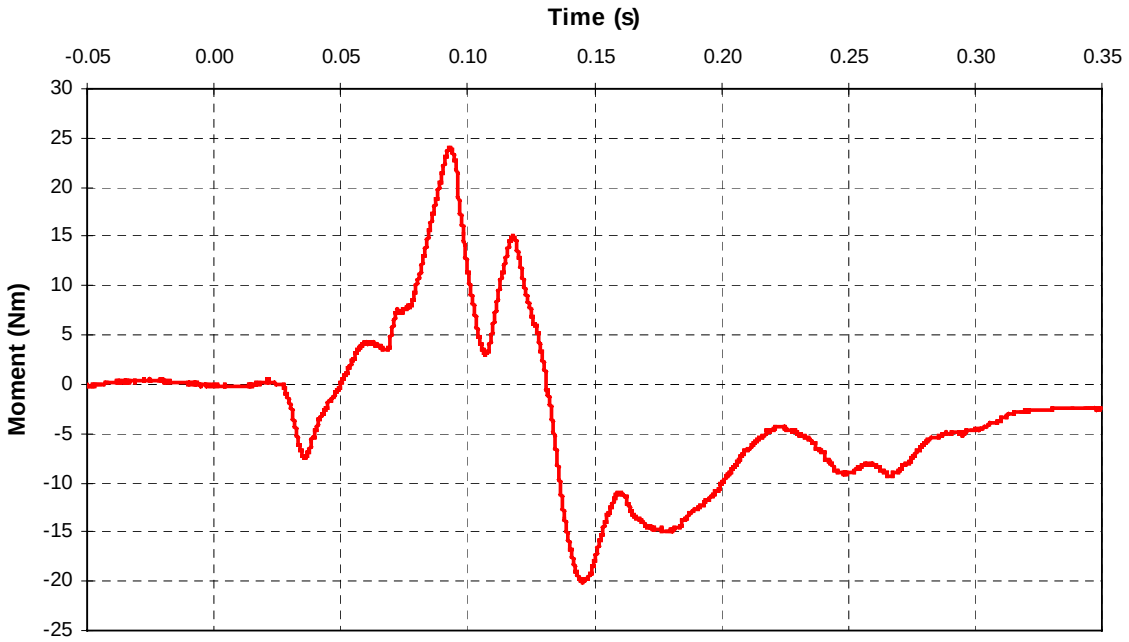
A- 10 CF00004 2000 Nissan Altima Neck A-P Shear Force



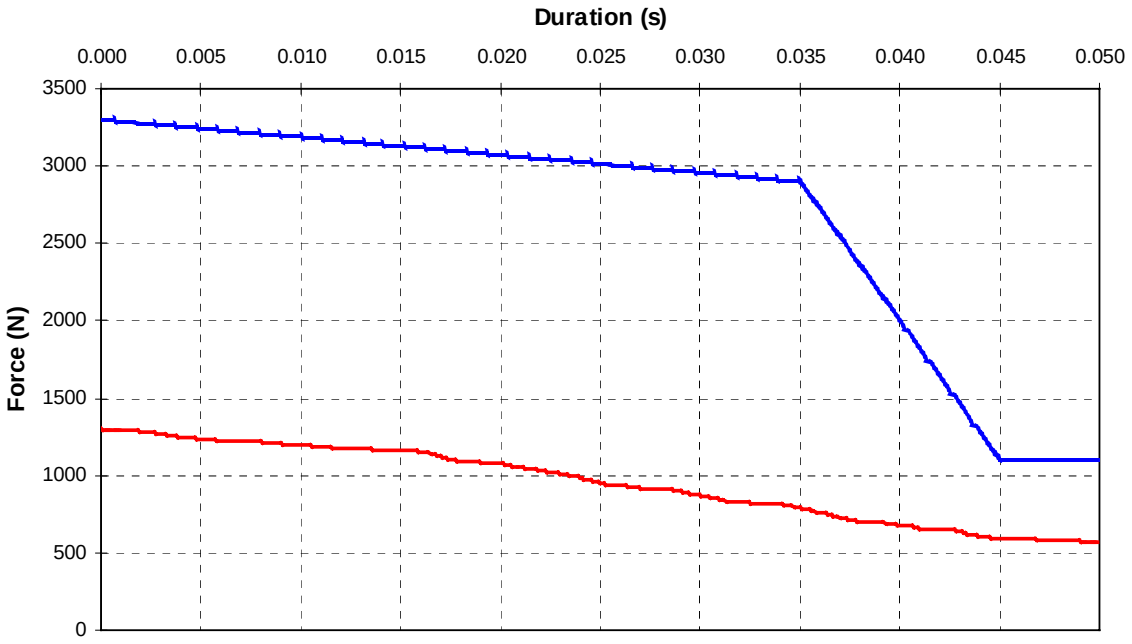
A- 11 CF00004 2000 Nissan Altima Neck Axial Force



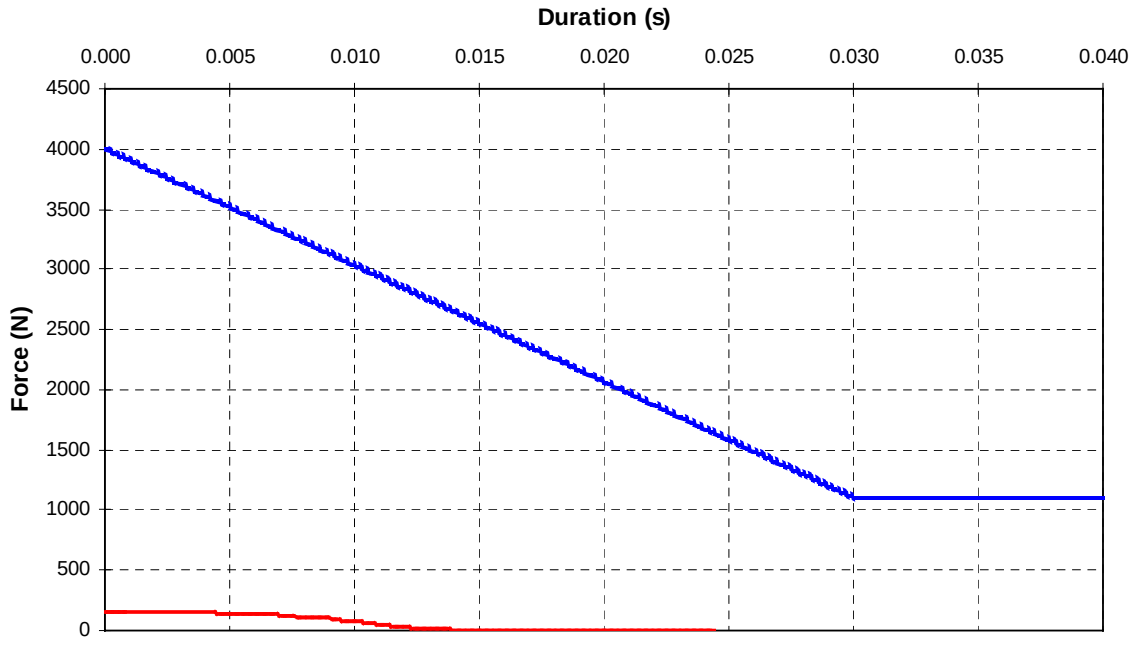
A- 12 CF00004 2000 Nissan Altima Neck Occipital A-P Moment



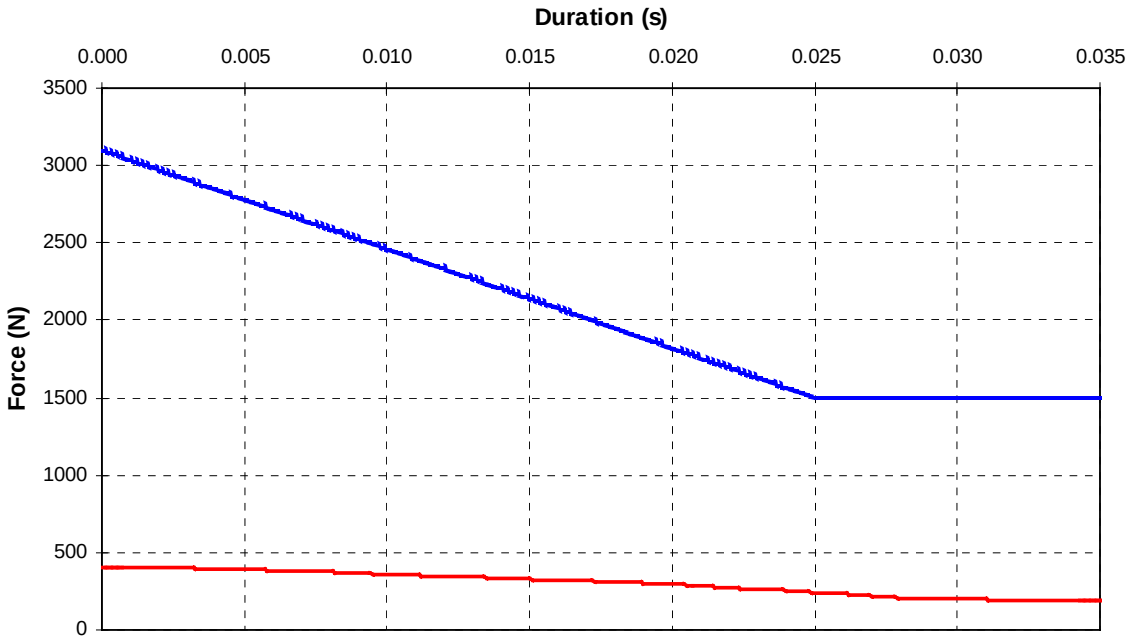
A- 13 CF00004 2000 Nissan Altima Neck Tension Analysis



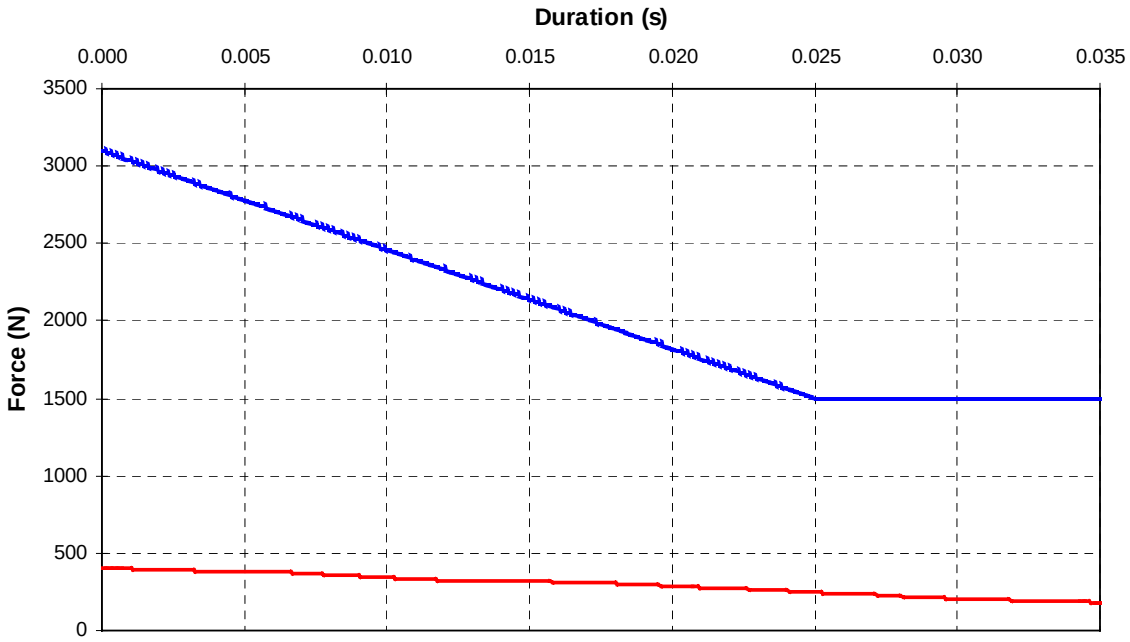
A- 14 CF00004 2000 Nissan Altima Neck Compression Analysis



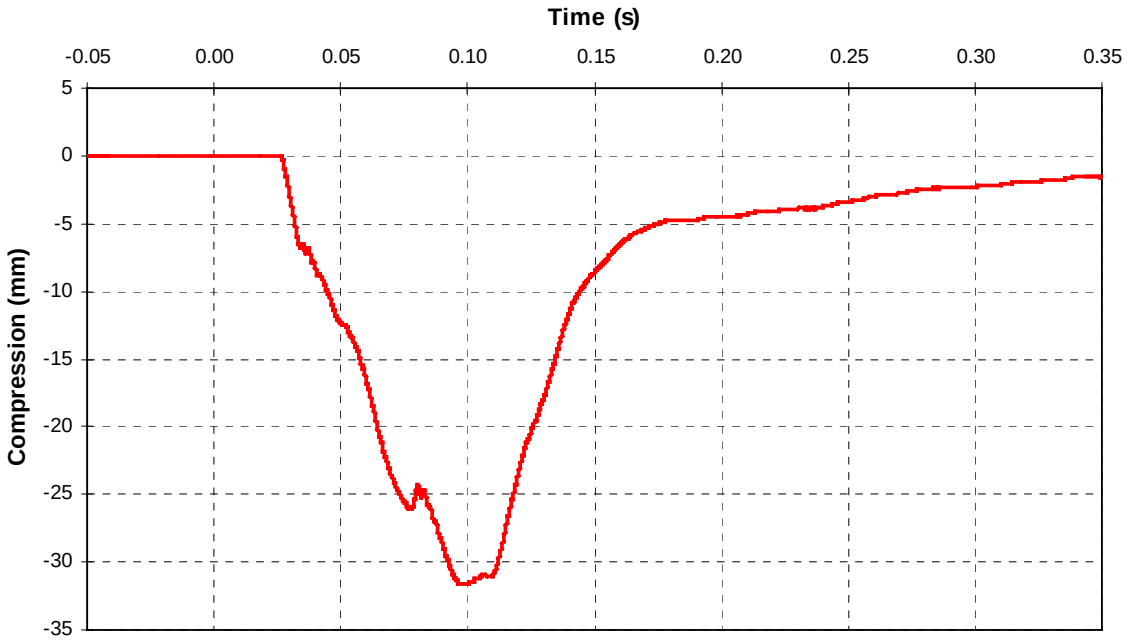
A- 15 CF00004 2000 Nissan Altima Neck A-P Shear (Positive) Analysis



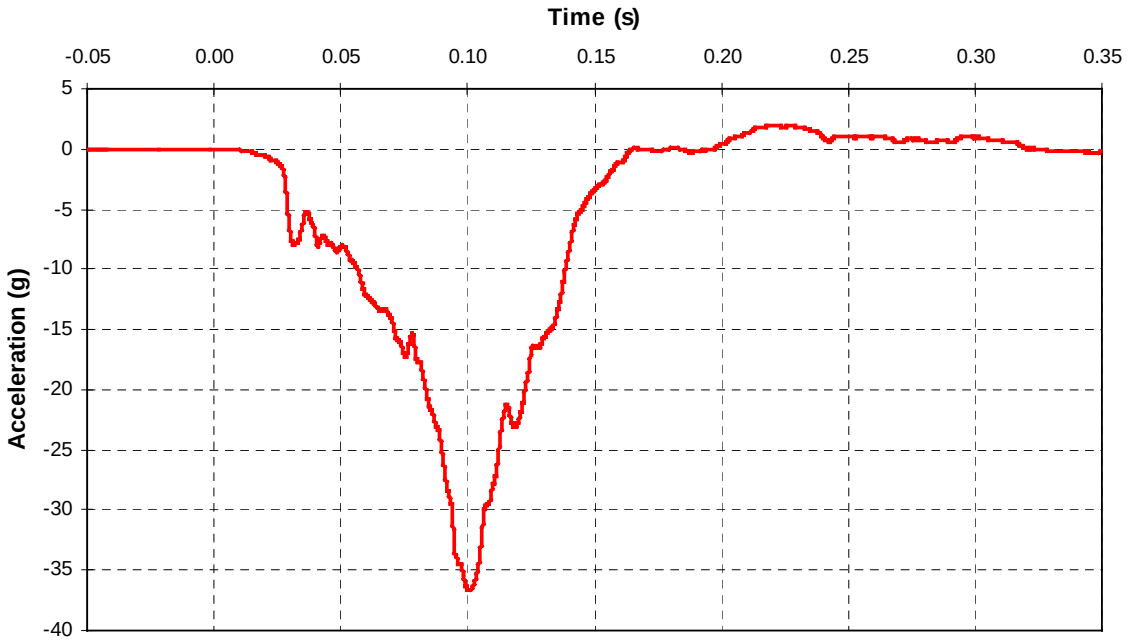
A- 16 CF00004 2000 Nissan Altima Neck A-P Shear (Negative) Analysis



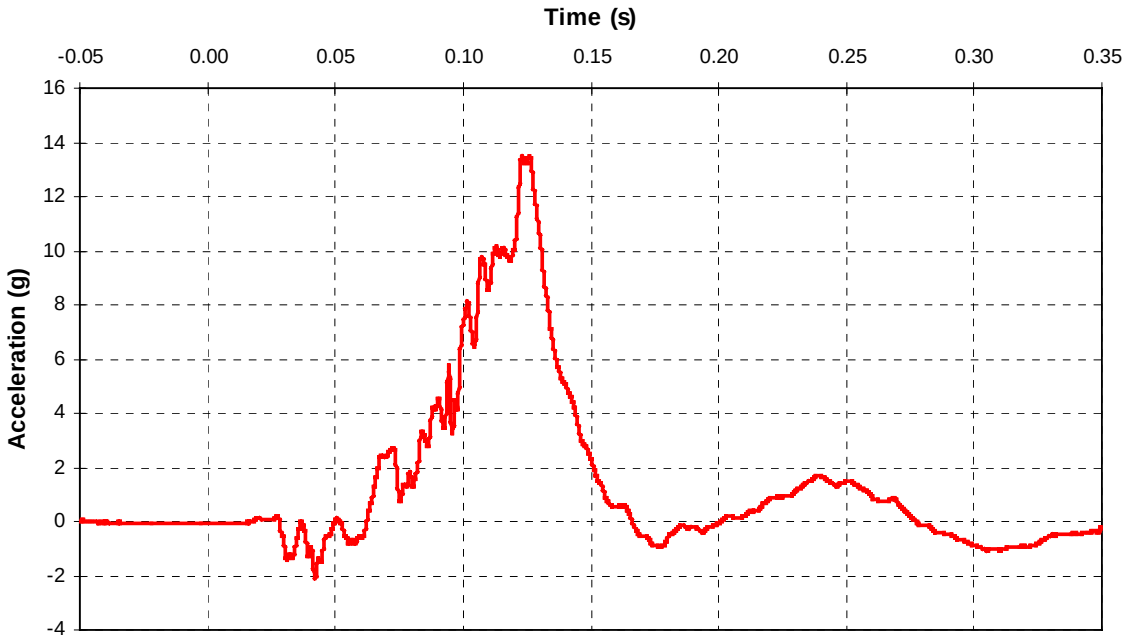
A- 17 CF00004 2000 Nissan Altima Chest Compression



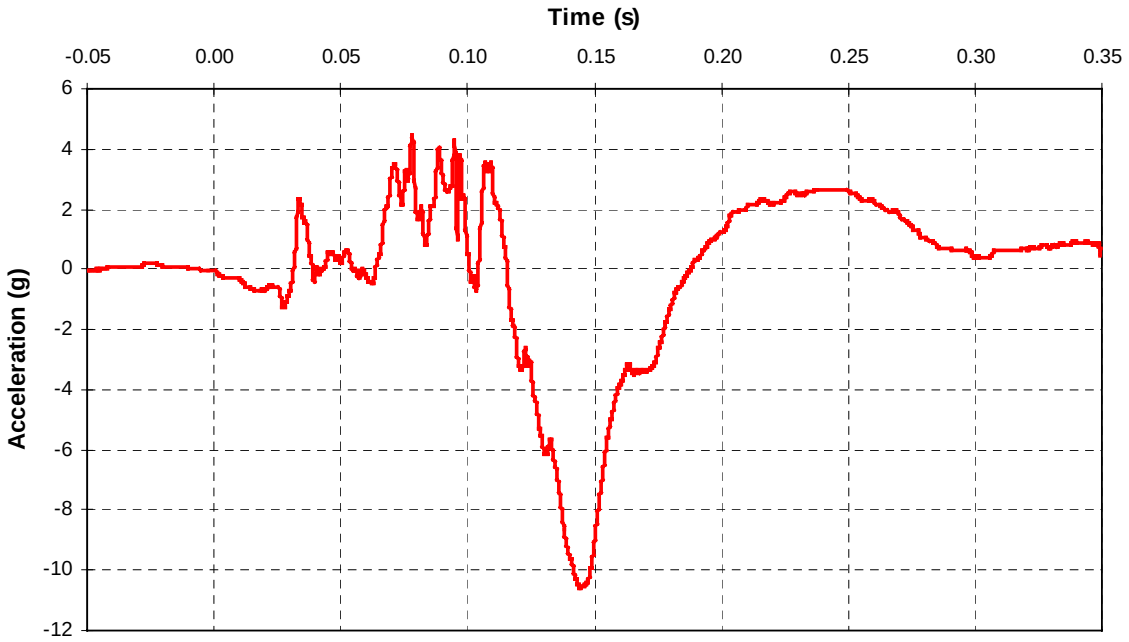
A- 18 CF00004 2000 Nissan Altima Chest A-P Acceleration



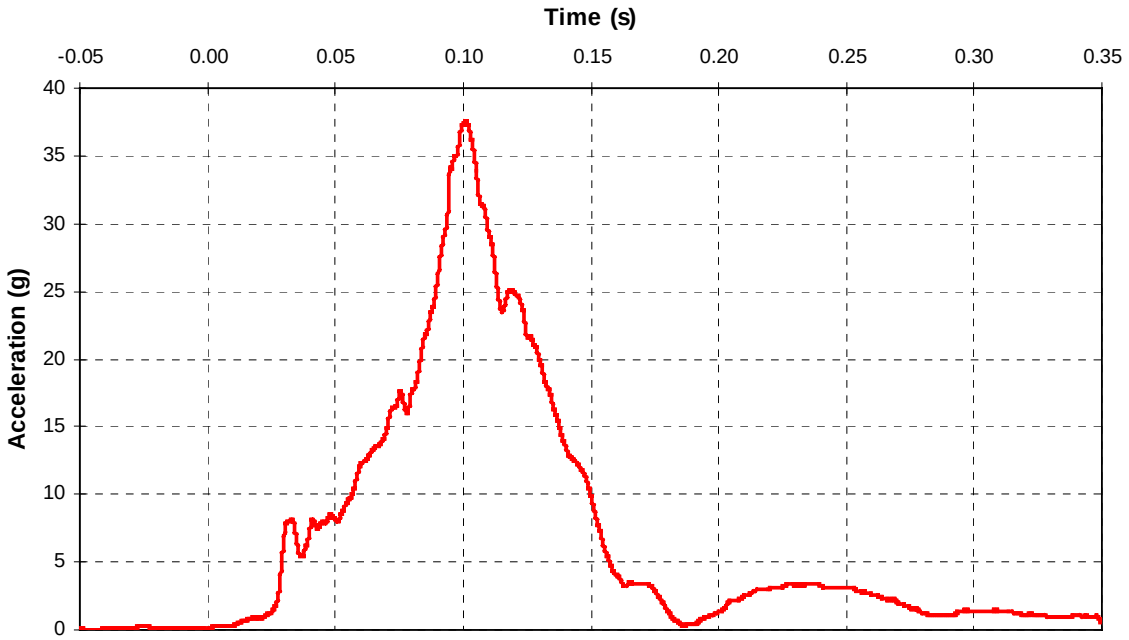
A- 19 CF00004 2000 Nissan Altima Chest L-M Acceleration



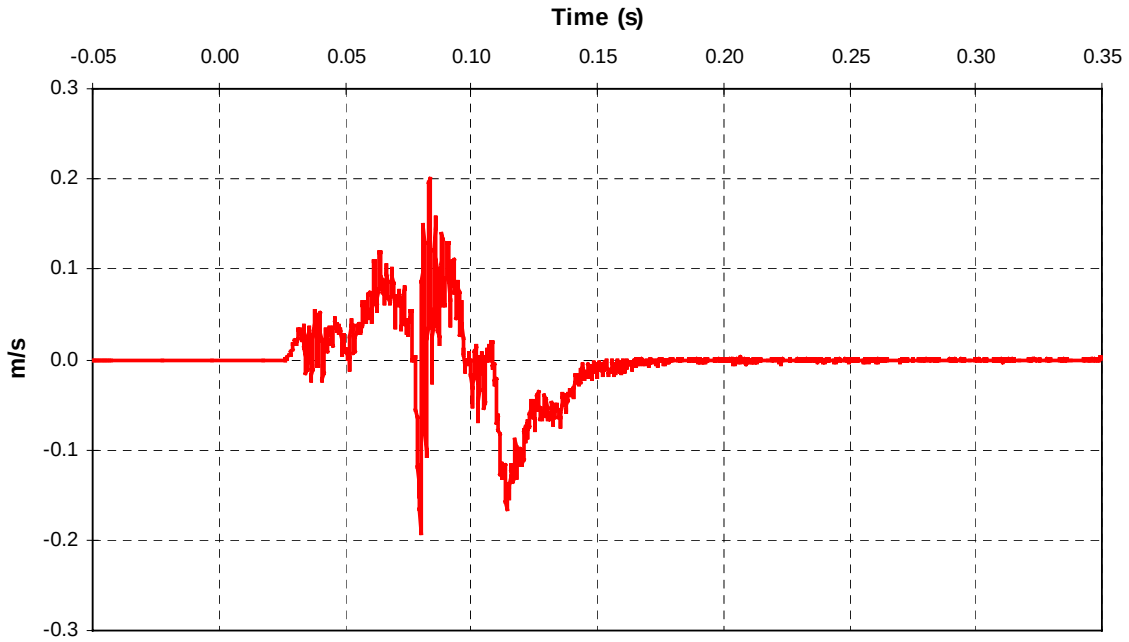
A- 20 CF00004 2000 Nissan Altima Chest I-S Acceleration



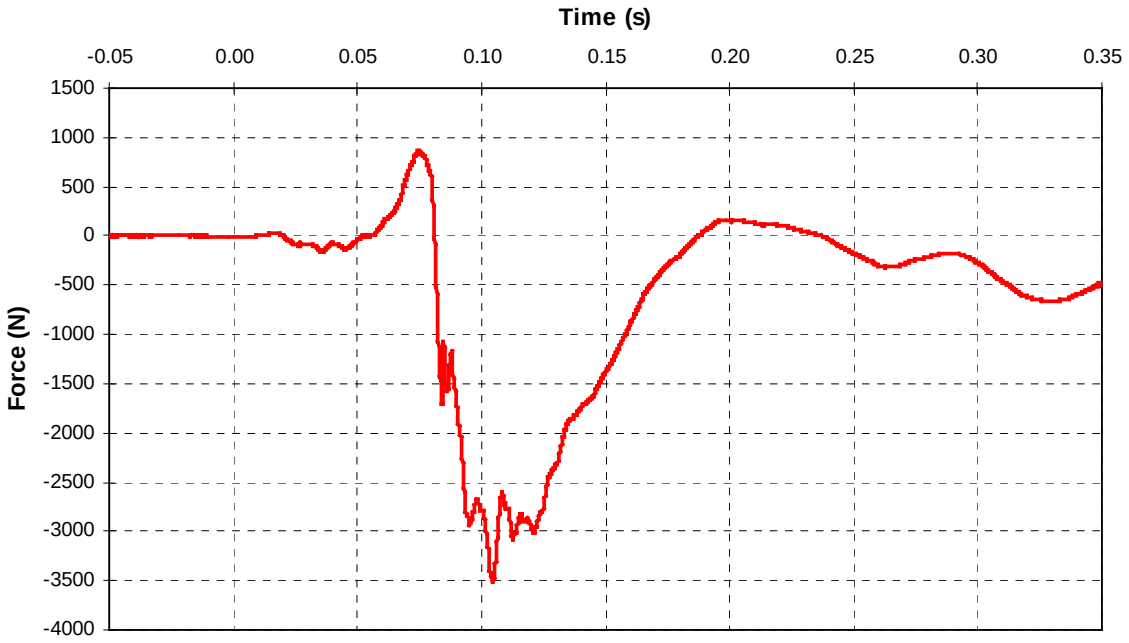
A- 21 CF00004 2000 Nissan Altima Chest Vector Resultant Acceleration



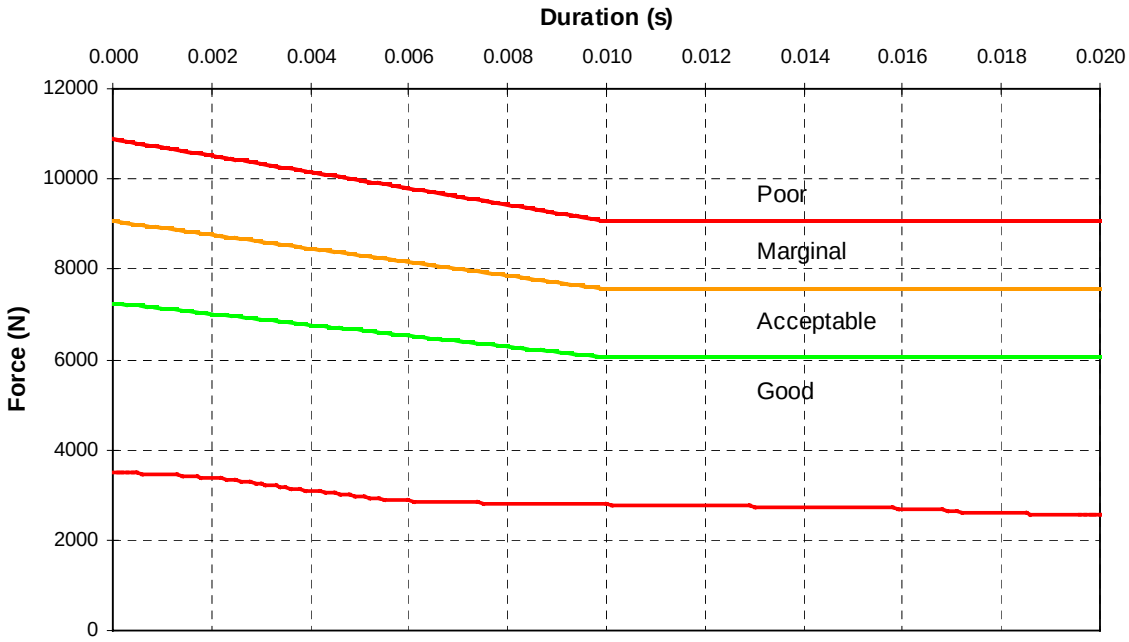
A- 22 CF00004 2000 Nissan Altima Viscous Criterion



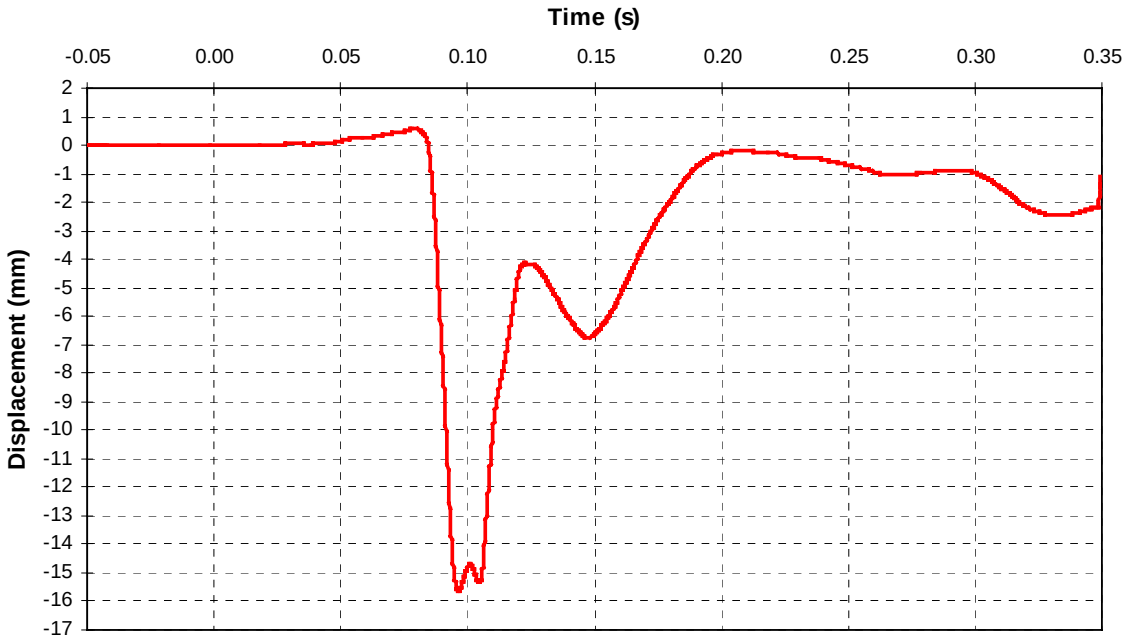
A- 23 CF00004 2000 Nissan Altima Left Femur Axial Force



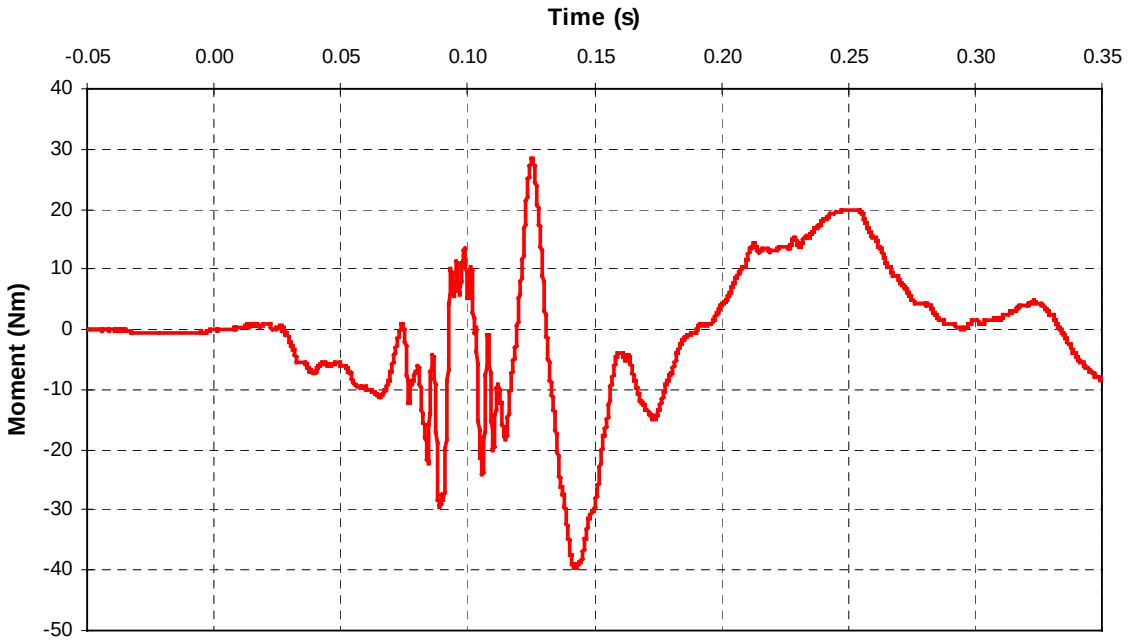
A- 24 CF00004 2000 Nissan Altima Left Femur Axial Force Analysis



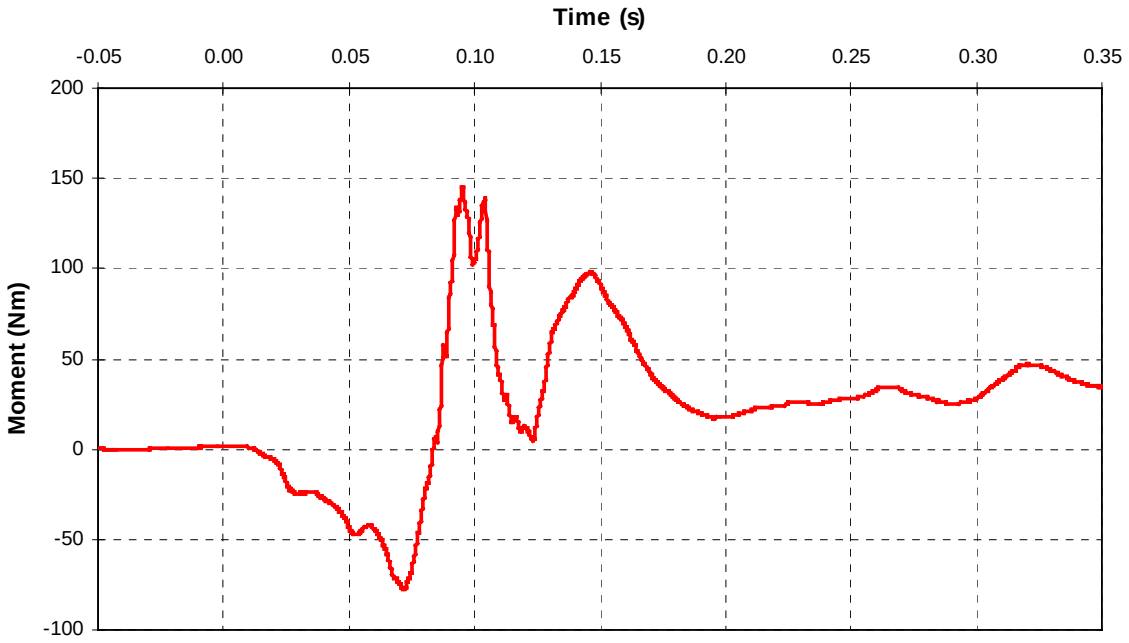
A- 25 CF00004 2000 Nissan Altima Left Tibia-Femur Displacement



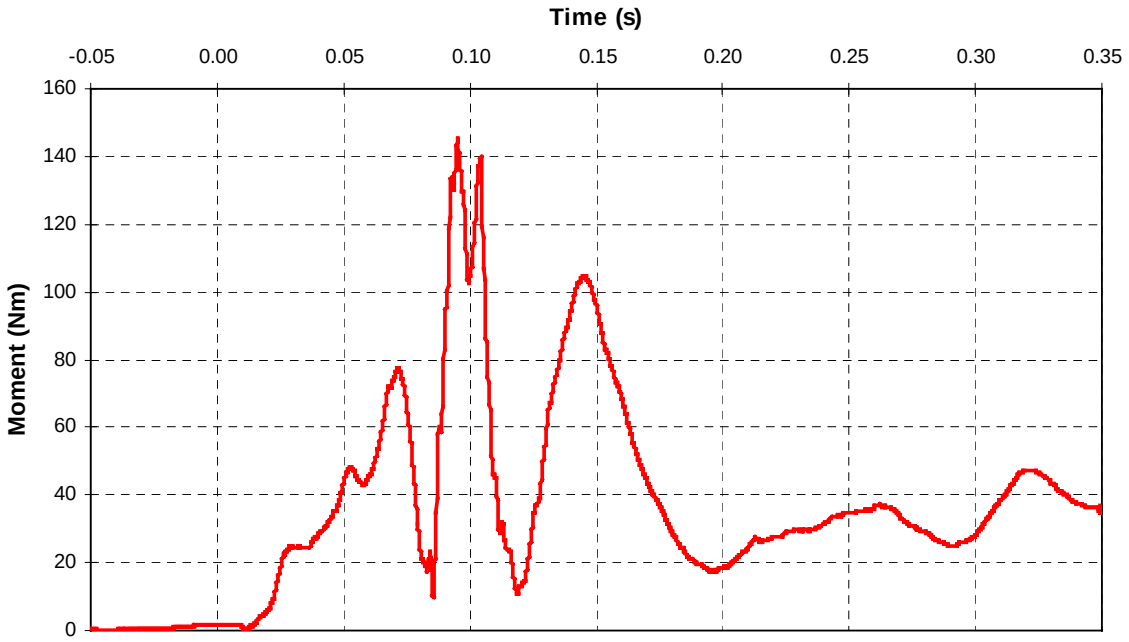
A- 26 CF00004 2000 Nissan Altima Left Upper Tibia L-M Moment



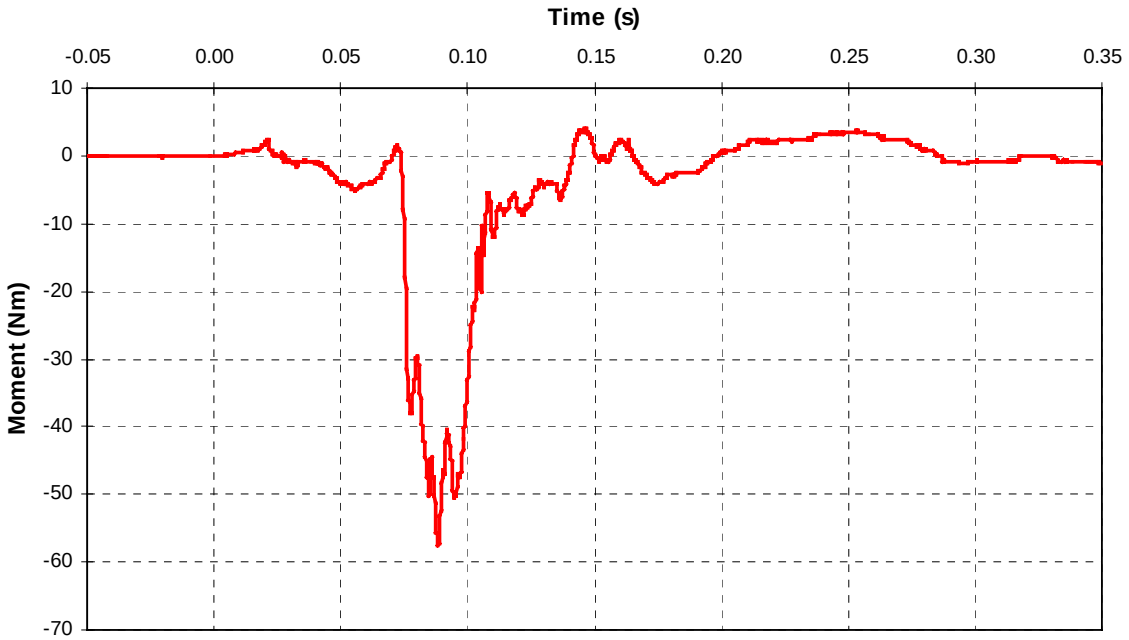
A- 27 CF00004 2000 Nissan Altima Left Upper Tibia A-P Moment



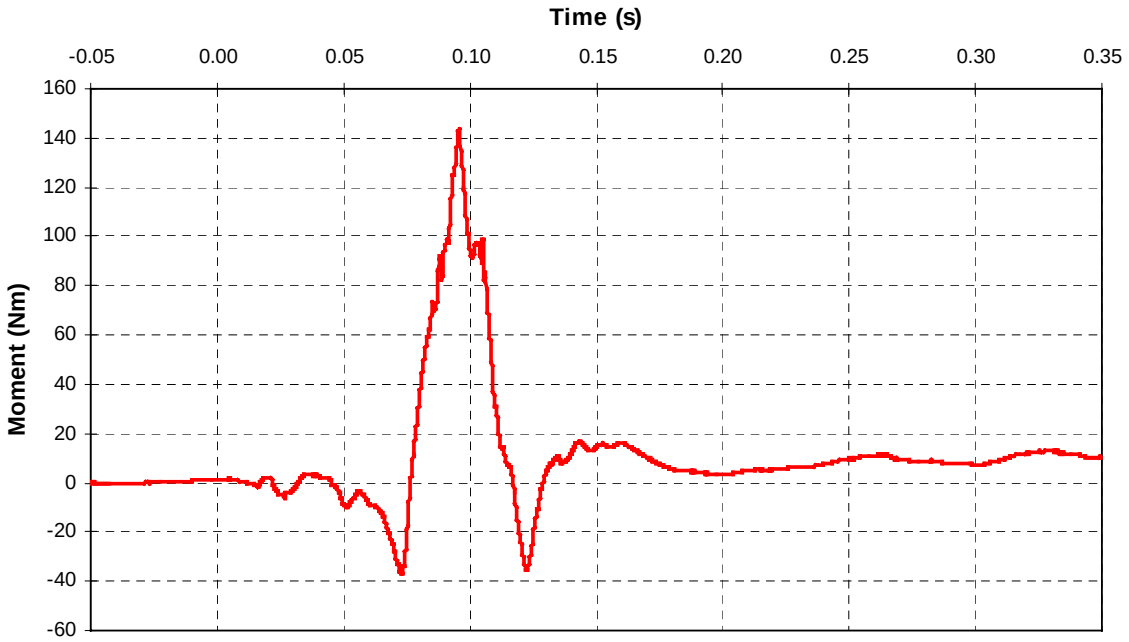
A- 28 CF00004 2000 Nissan Altima Left Upper Tibia Vector Resultant Moment



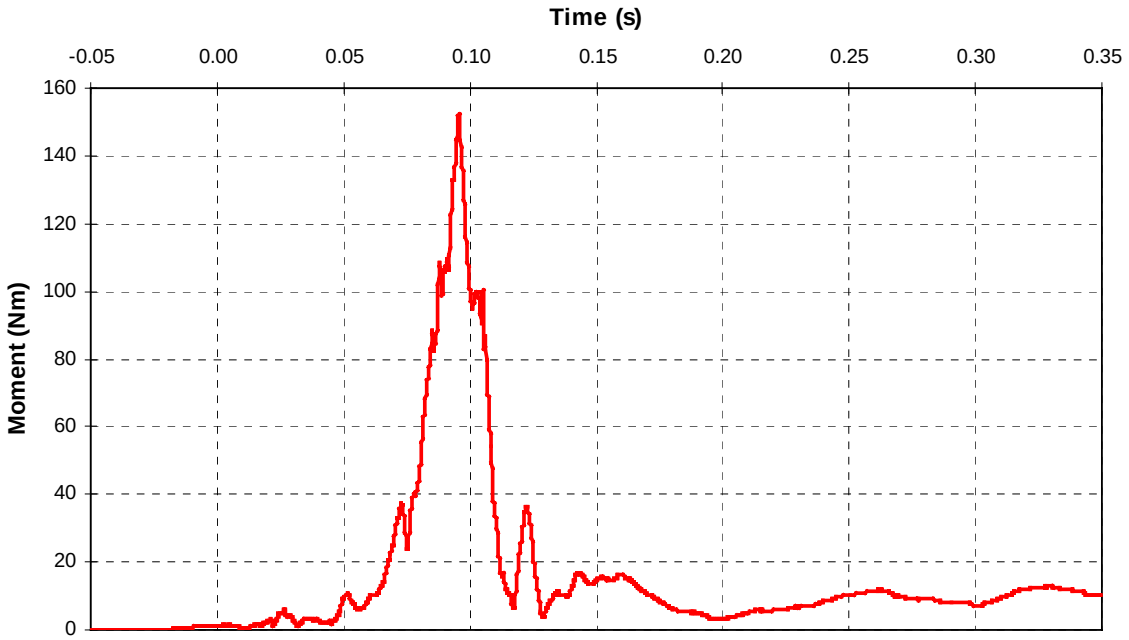
A- 29 CF00004 2000 Nissan Altima Left Lower Tibia L-M Moment



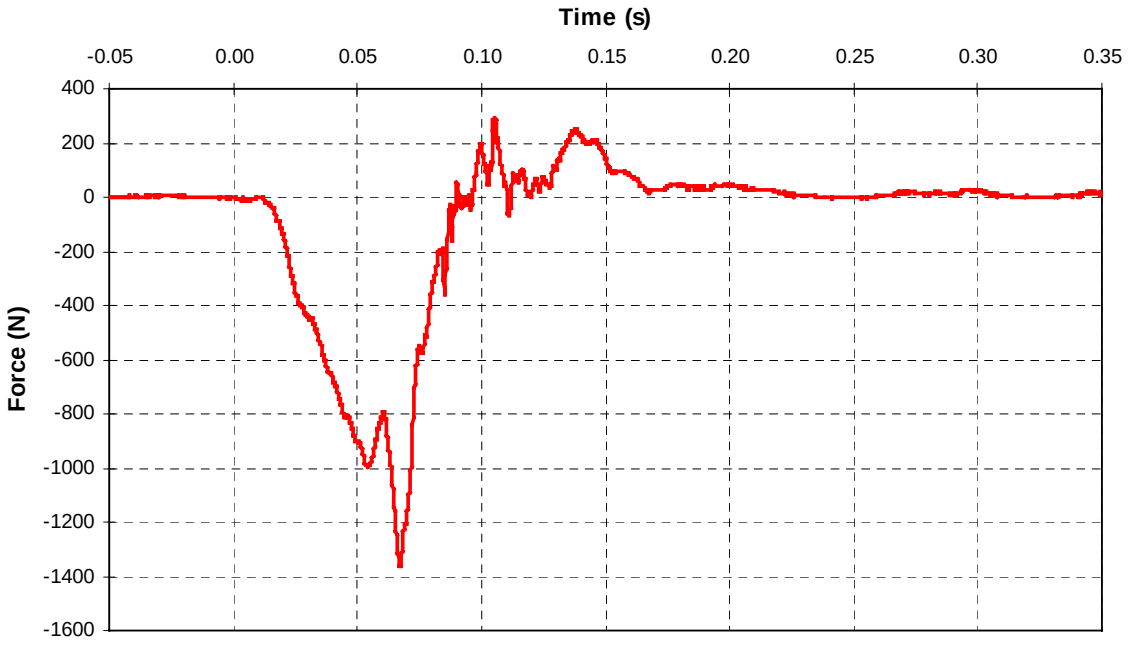
A- 30 CF00004 2000 Nissan Altima Left Lower Tibia A-P Moment



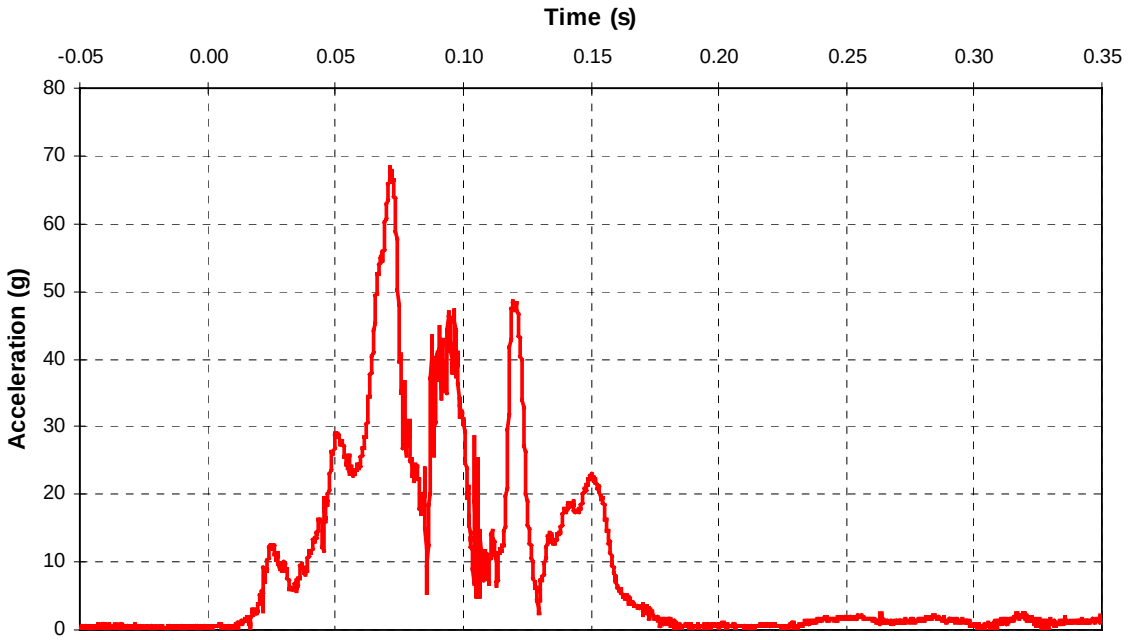
A- 31 CF00004 2000 Nissan Altima Left Lower Tibia Vector Resultant Moment



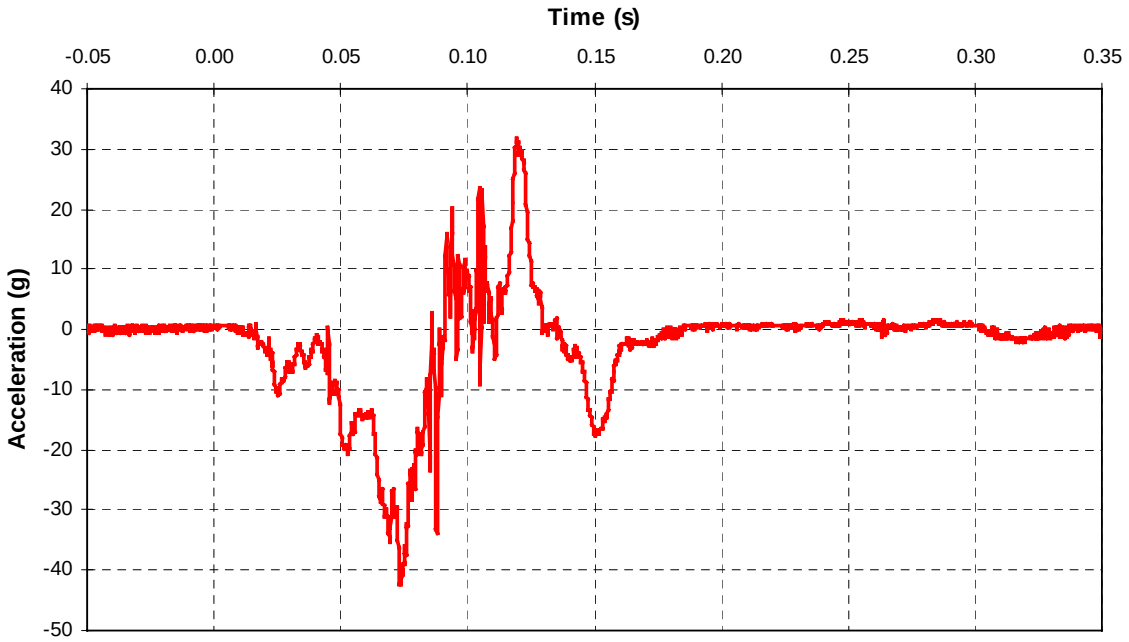
A- 32 CF00004 2000 Nissan Altima Left Lower Tibia Axial Force



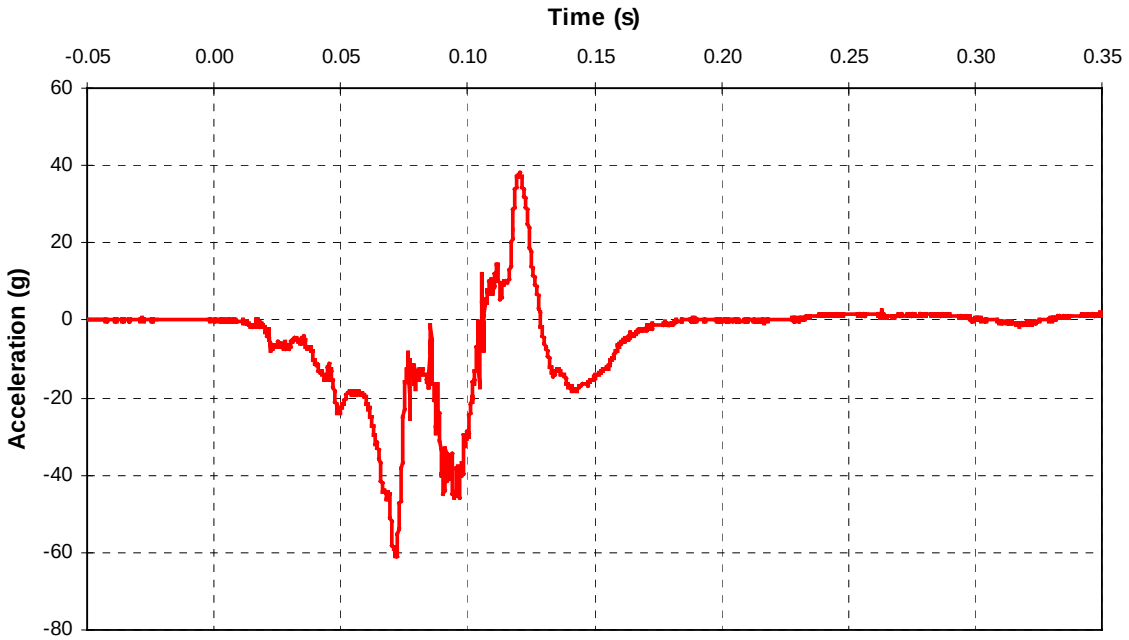
A- 33 CF00004 2000 Nissan Altima Left Foot Vector Resultant Acceleration



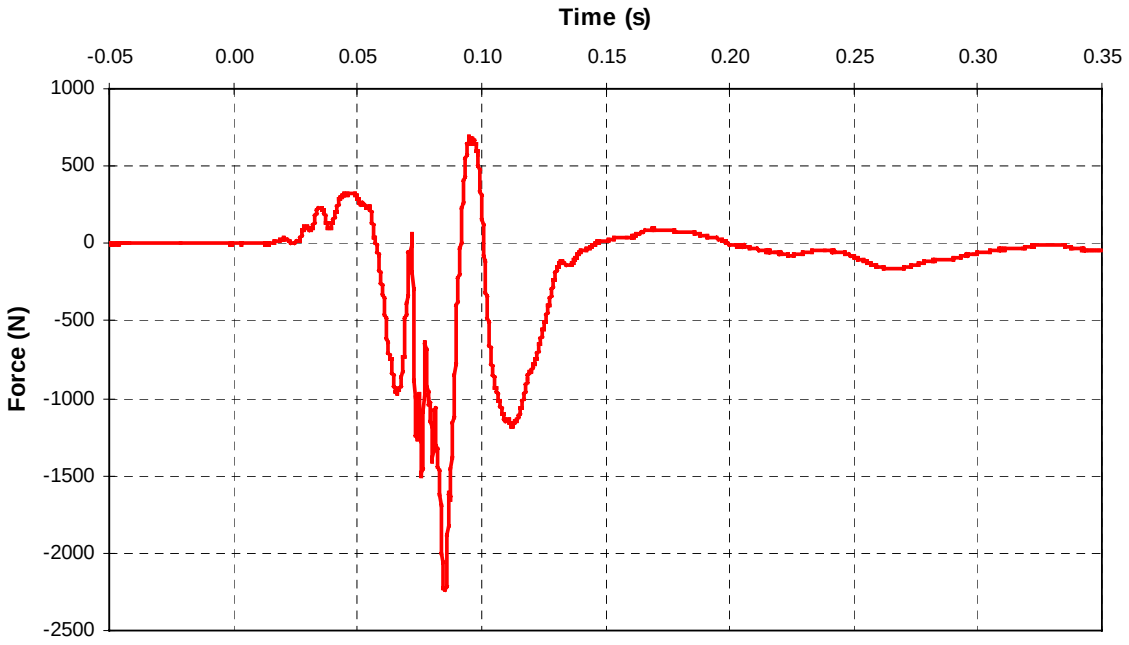
A- 34 CF00004 2000 Nissan Altima Left Foot A-P Acceleration



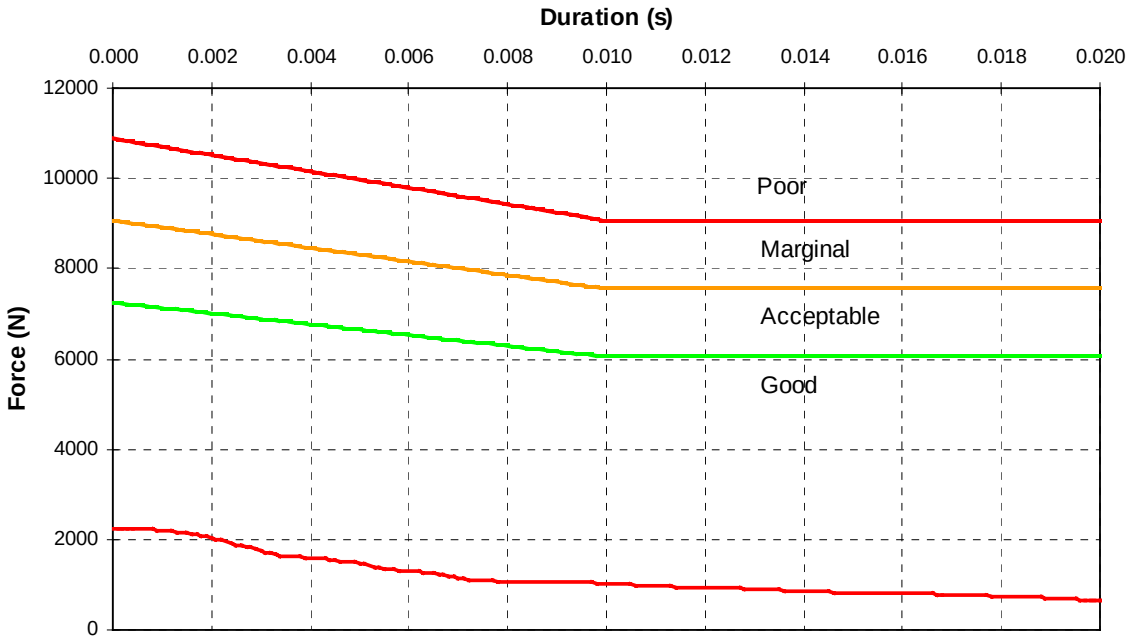
A- 35 CF00004 2000 Nissan Altima Left Foot I-S Acceleration



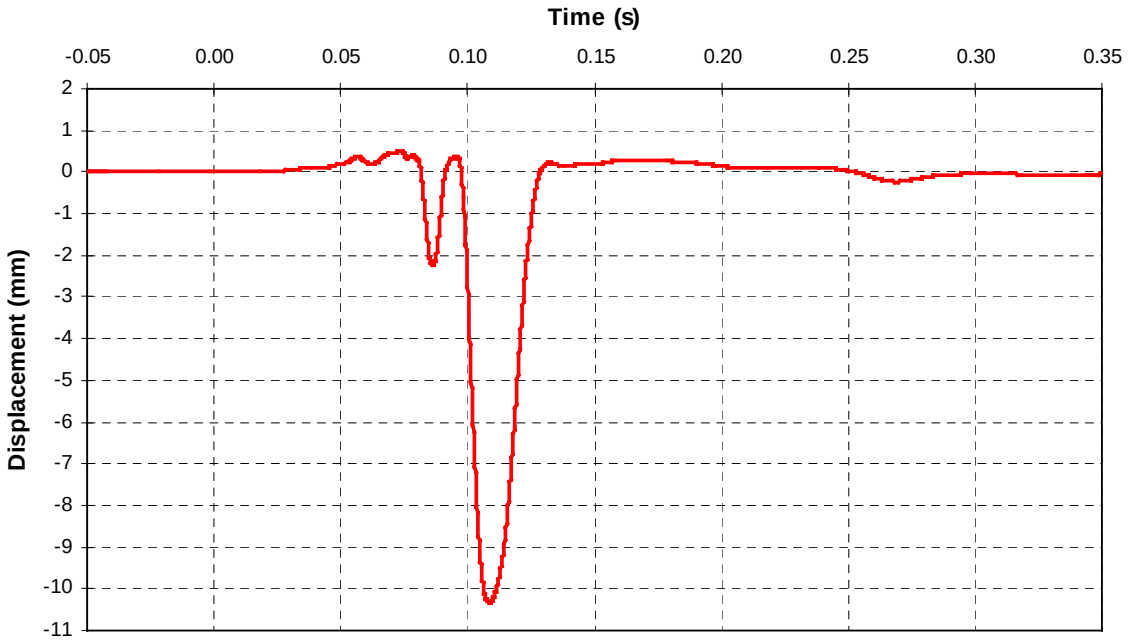
A- 36 CF00004 2000 Nissan Altima Right Femur Axial Force



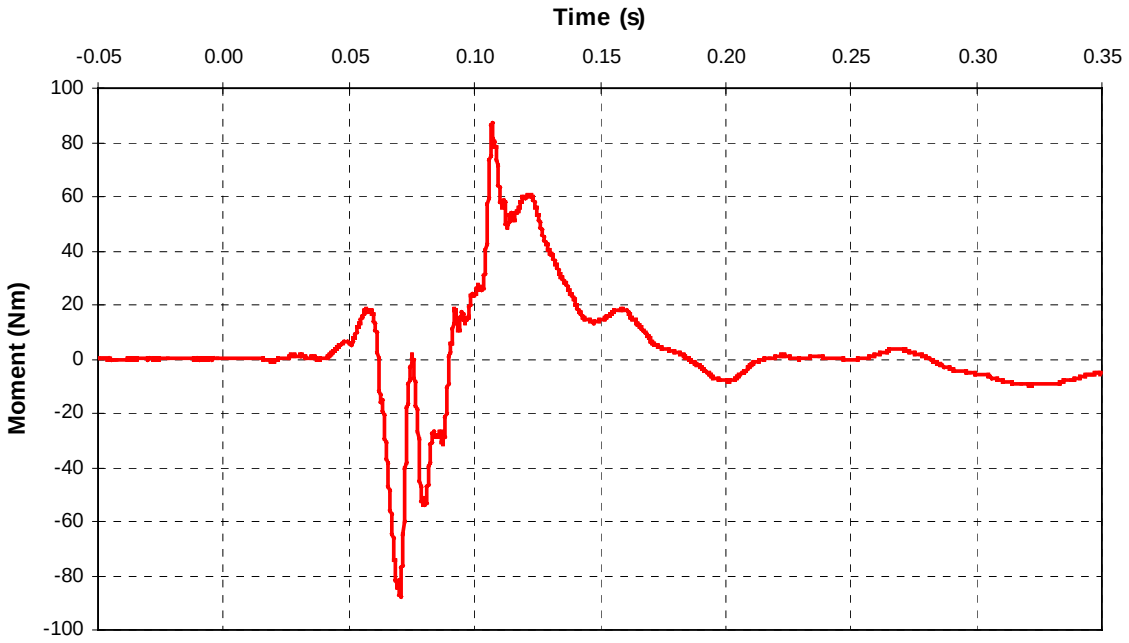
A- 37 CF00004 2000 Nissan Altima Right Femur Axial Force Analysis



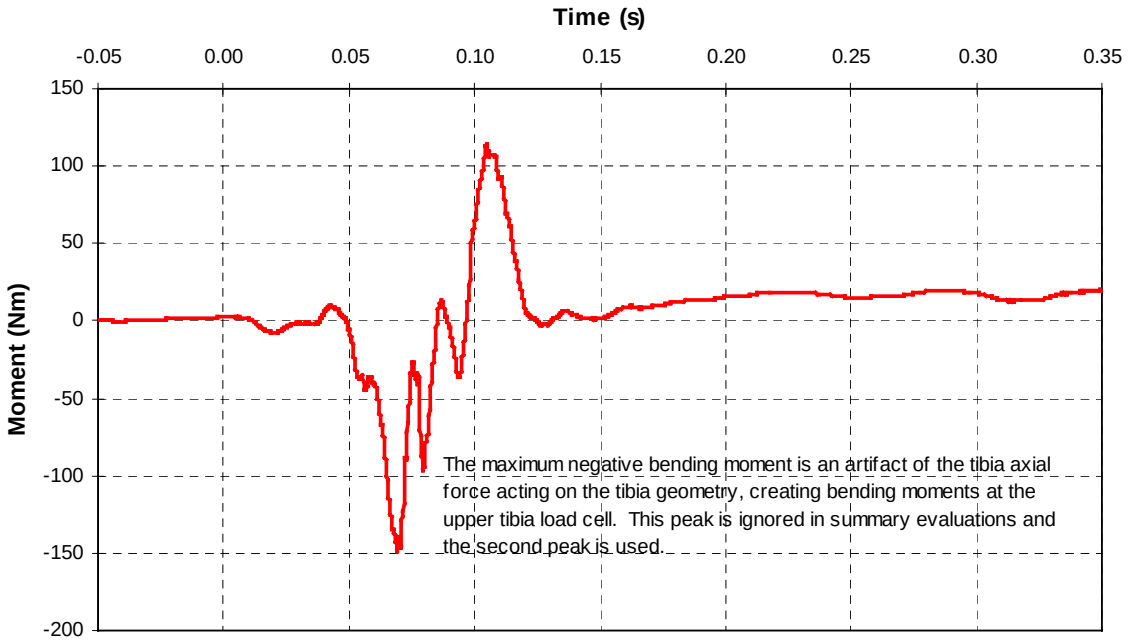
A- 38 CF00004 2000 Nissan Altima Right Tibia-Femur Displacement



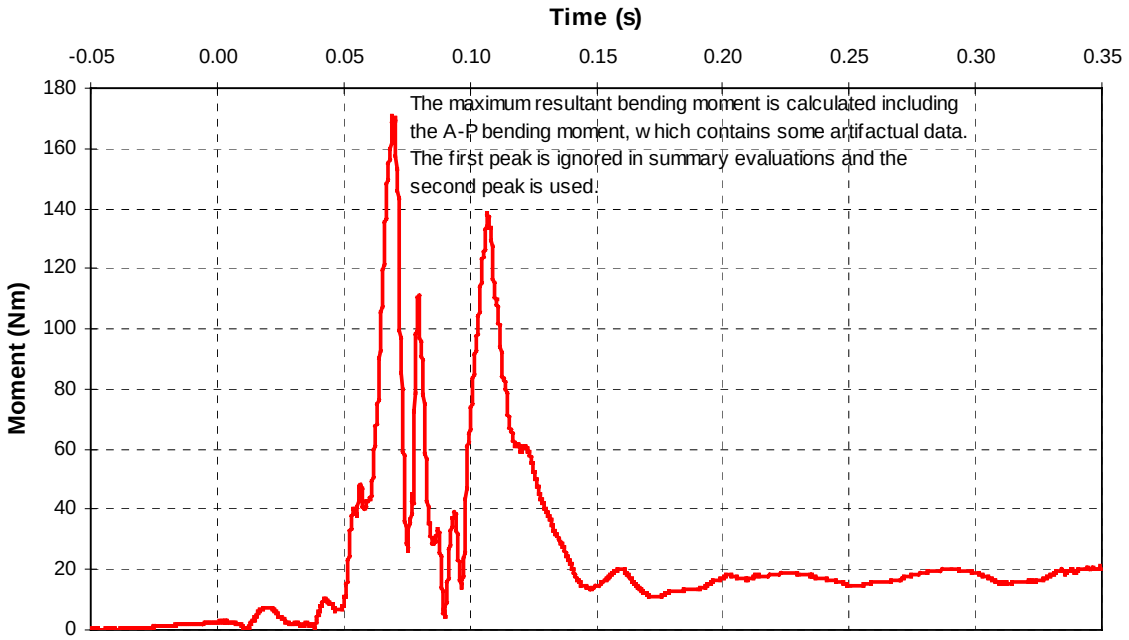
A- 39 CF00004 2000 Nissan Altima Right Upper Tibia L-M Moment



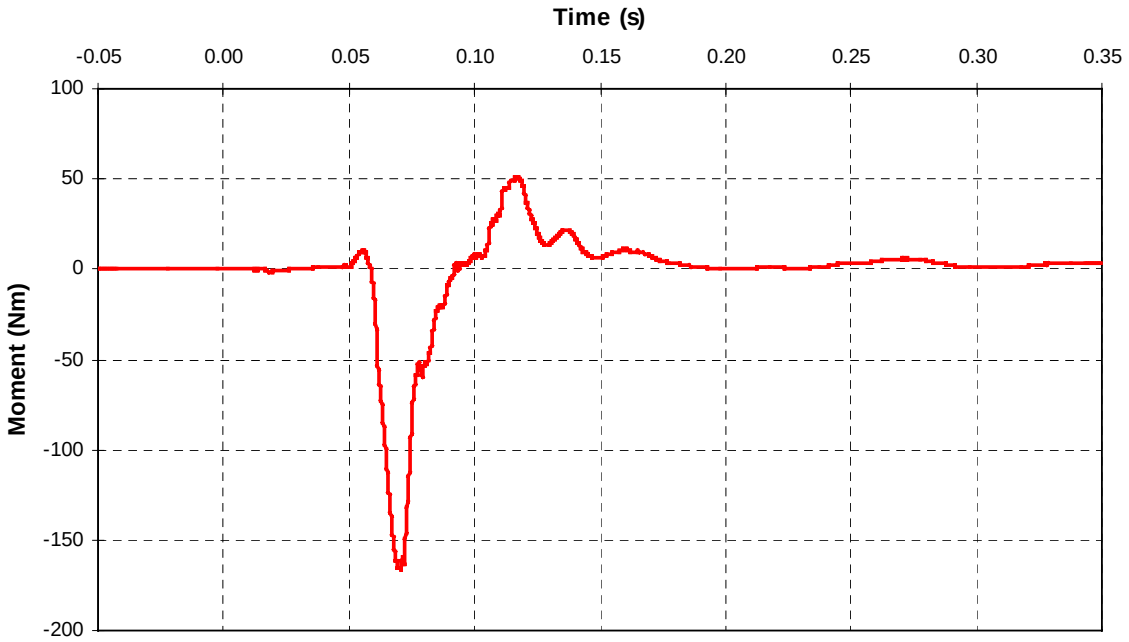
A- 40 CF00004 2000 Nissan Altima Right Upper Tibia A-P Moment



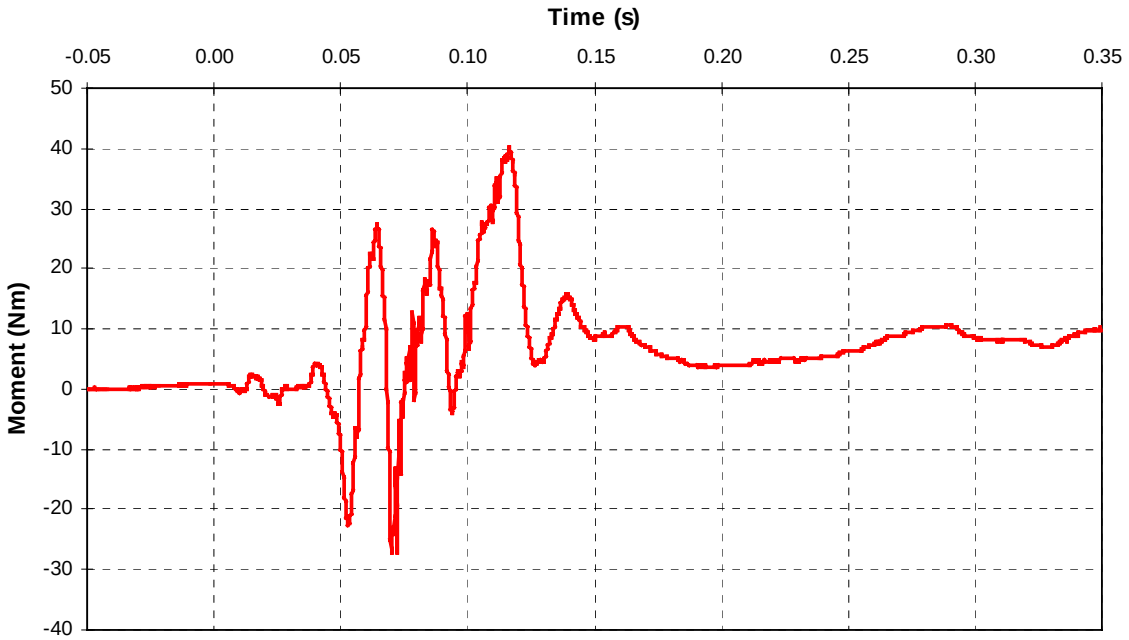
A- 41 CF00004 2000 Nissan Altima Right Upper Tibia Vector Resultant Moment



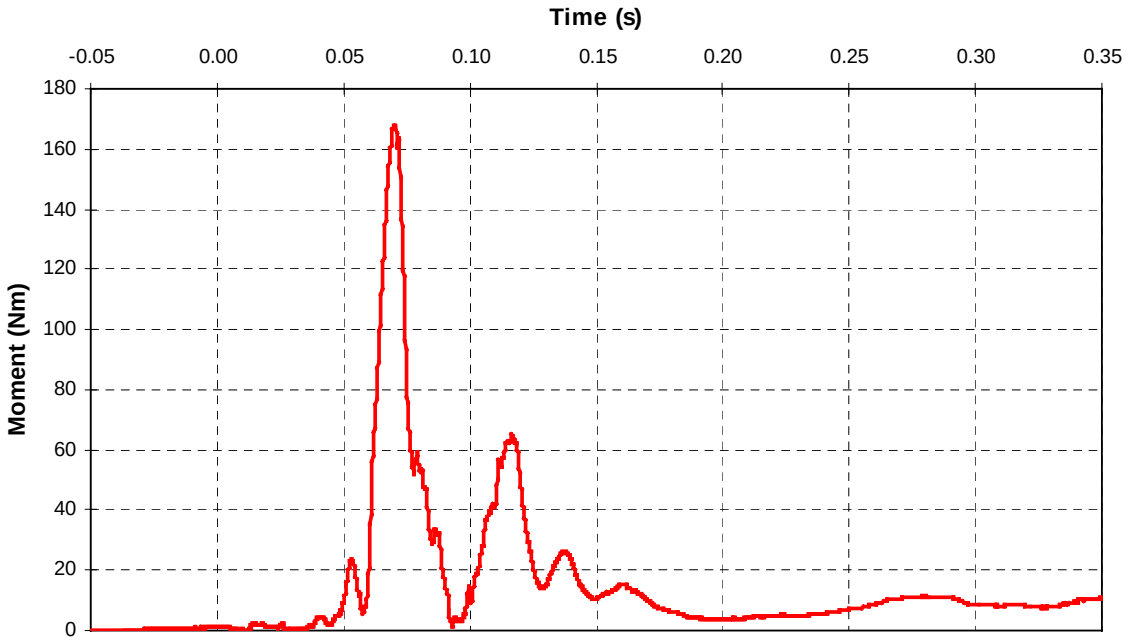
A- 42 CF00004 2000 Nissan Altima Right Lower Tibia L-M Moment



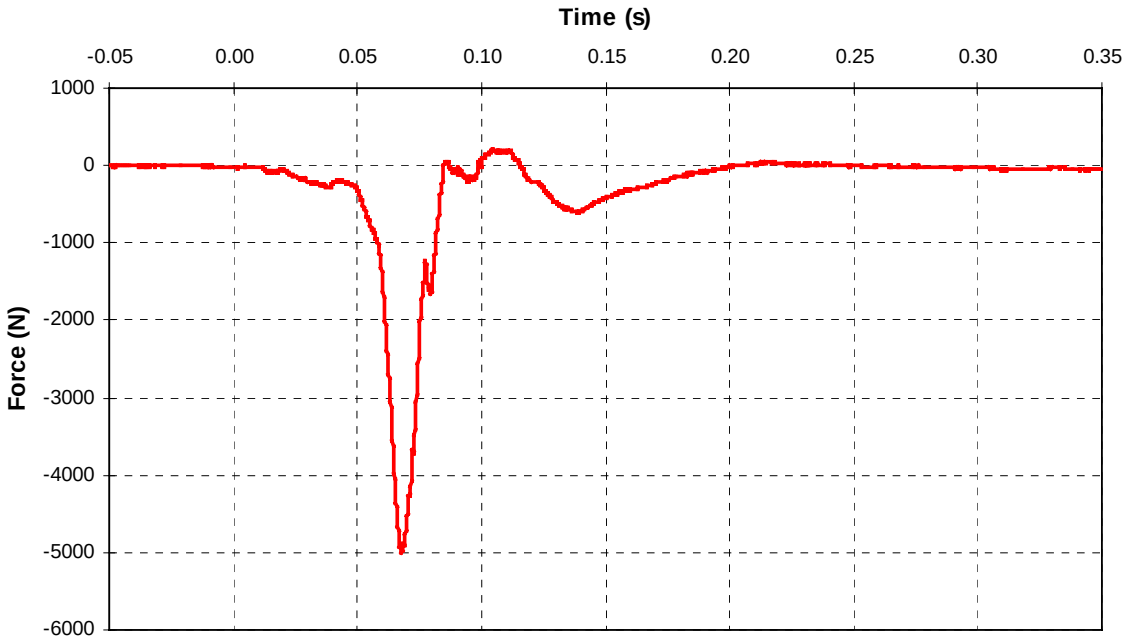
A- 43 CF00004 2000 Nissan Altima Right Lower Tibia A-P Moment



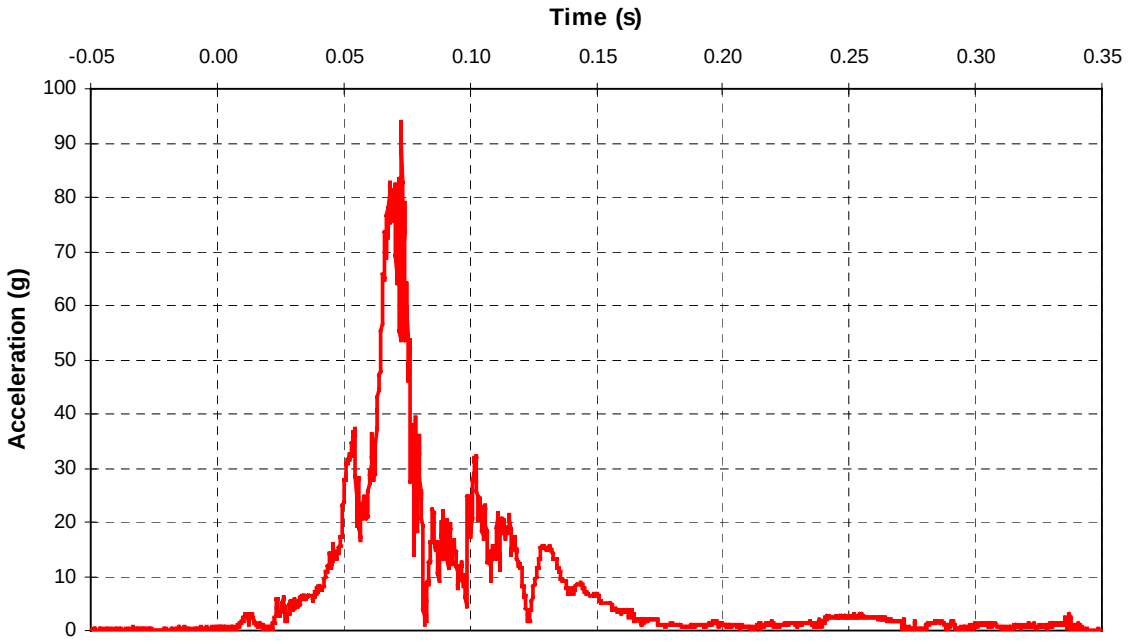
A- 44 CF00004 2000 Nissan Altima Right Lower Tibia Vector Resultant Moment



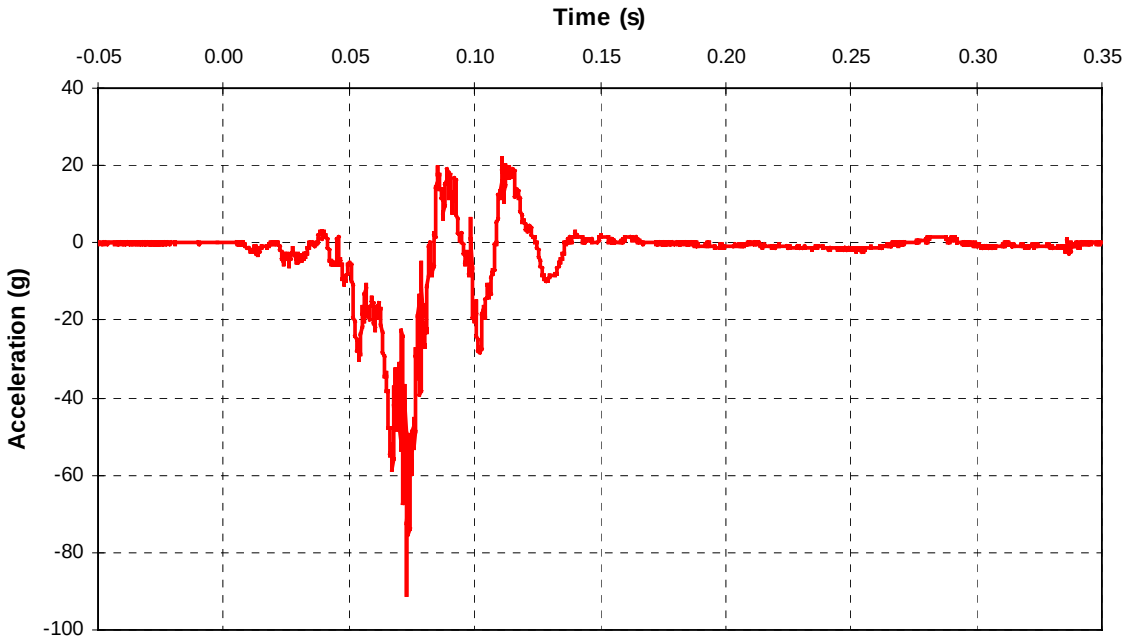
A- 45 CF00004 2000 Nissan Altima Right Lower Tibia Axial Force



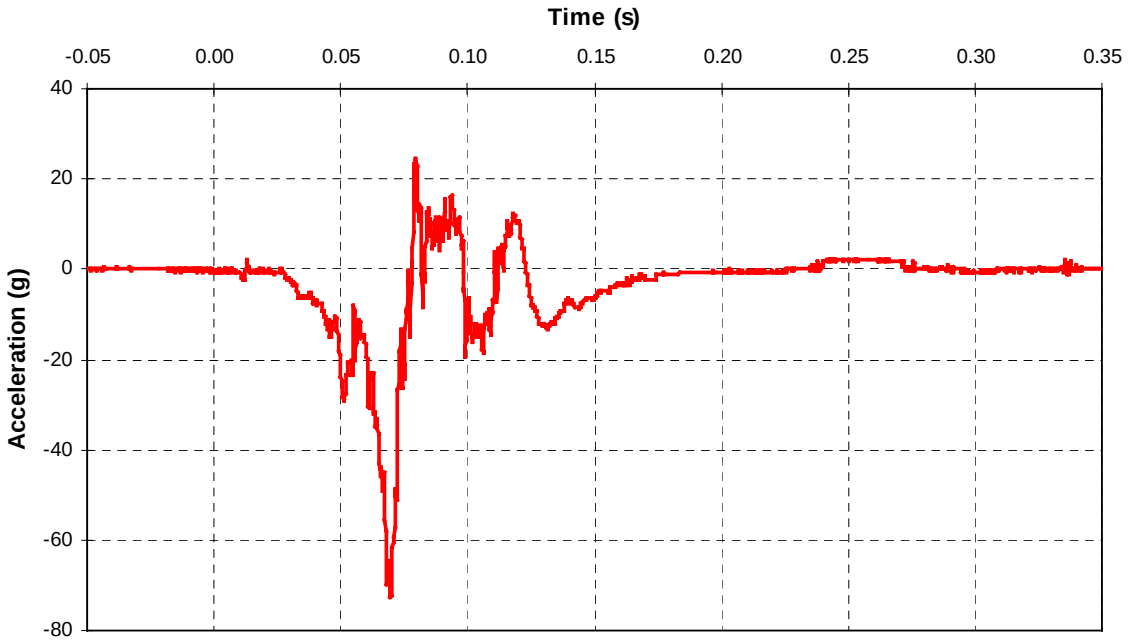
A- 46 CF00004 2000 Nissan Altima Right Foot Vector Resultant Acceleration



A- 47 CF00004 2000 Nissan Altima Right Foot A-P Acceleration



A- 48 CF00004 2000 Nissan Altima Right Foot I-S Acceleration



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COMFORT & CONVENIENCE (CONT.)
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Tilt Steering Column
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Front/Passenger Side Seatback Map Pockets
In-glass Antenna
Rear Seat Armrest
Manual Seat Lifters on Drivers Seat
Rear Coat Hooks
Retractable Assist Grip (Front)

Manufacturer's Suggested Retail Base Price		17,140.00
Options Included by Manufacturer		
VALUE OPTION PACKAGE (VOP)		999.00
Total Package Value	$1,999	
Less Package Savings	$1,000	
*CFC Air Conditioning		
*100W AM/FM CD Audio System		
*Cruise Control *Power Door Locks		
*Remote Keyless Entry System		
*15" P205/65R15 Radial Tires		
*Variable Intermittent Wipers		
*Dual Illum Visor Mirrors		
*Glove Compartment Lock & Lamp		
*Rear Cupholders/Rear Power Point		
*Illuminated Entry/Exit		
*Overhead Map Lamps*Sunglass Holder		
*Battery Saver *Slant Cut Tailpipe		
CAL/NLEV RESTRICTED EMISSION EQUIP		
Destination Charges		520.00
Total*		**18,659.00**

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HIGHWAY MPG

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VIN: 1N4DL01D7YC113115

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