

Insurance Institute for Highway Safety Crashworthiness Evaluation

Crash Test Report 1999 Chevrolet Malibu (CF99025)

Vehicle identification number: 1G1ND52J3X6271101
Body style: Midsize four-door sedan
Engine/transmission: Transverse 3.1-liter V6, 4-speed automatic,
front-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 force-limiting mechanisms (front seating positions only)

Other standard safety features:

- Four-wheel antilock brakes
- Daytime running lamps

Vehicle specifications (provided by manufacturer):

- Wheelbase: 272 cm
- Overall length: 484 cm
- Overall width: 176 cm
- Curb weight: 1,369 kg

Vehicle specifications (measured):

- Front bumper to firewall: 126 cm
- Curb weight: 1,387 kg
- Test weight: 1,500 kg (61% front, 39% rear)
- Overall width: 176 cm

Nominal test parameters:

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

Crash test date:

October 25, 1999

Figure 1
Precrash and Postcrash Side Views — 1999 Chevrolet Malibu



Summary

A 1999 Chevrolet Malibu was crash tested on October 25, 1999 into a fixed deformable barrier at 39.9 mi/h (64.2 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 8-11 cm. Resultant intrusion in the driver footwell measured 18 cm in the area where a footrest typically would be located and 16-26 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 floorpan was buckled sharply upward just in front of the driver seat, and the welded seam joining the floorpan to the door sill was torn open.

The driver dummy was restrained by a three-point lap/shoulder belt and an airbag. During the crash, 6 cm of webbing spooled off the retractor. During rebound from the airbag, the dummy's head leaned outward past the precrash plane of the open side window and moved downward toward the driver door, which had bowed outward. The left upper rear part of the head contacted the door panel interior trim just below the window sill. The head then moved rearward and upward, also rotating to face nearly straight up, and the right side of the head contacted the leading edge of the B-pillar. After the crash, the upper end of the steering column had moved upward 11 cm and rearward 5 cm.

The maximum resultant head acceleration was 25 g from the door panel trim contact and 17 g from the B-pillar contact. The right leg had a maximum lower tibia L-M moment of -161 Nm, which contributed to a lower tibia index of 0.83.

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 most outboard flat surface of the toepan that is inboard of the typical footrest location.

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 68 cm behind its center of gravity (174 cm behind the front axle). The vehicle speed recorded just prior to impact was 39.9 mi/h (64.2 km/h), and the actual overlap was 41 percent.

Structural Performance

All doors remained closed during the crash. The driver door aperture shortened 9 cm, as measured at the lower edge of the window. After the crash, the driver door required extensive prying with 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 floorpan was buckled sharply upward just in front of the driver seat, and the welded seam joining the floorpan to the door sill was torn open. The tear was 22 cm long and had a maximum gap width of 11 cm.

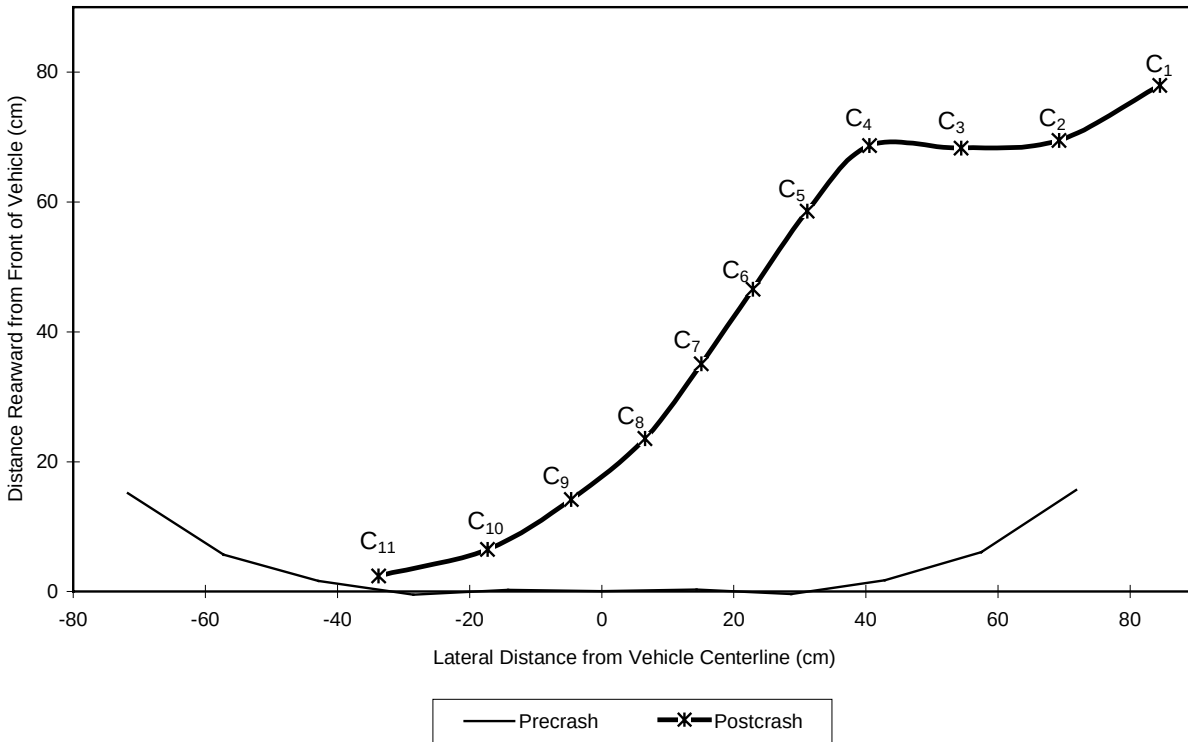
No fuel system leaks were observed after the crash. In addition, no fuel system leaks were observed when the vehicle was rotated onto its right side to allow postcrash photography.

Figure 2 shows the overhead view of the crash deformation. Figure 3 illustrates the precrash and postcrash contour measures of the front bumper 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, door sills, and engine cradle, which are visible in Figure 4.

Figure 2
Overhead View of Crash Deformation — 1999 Chevrolet Malibu



Figure 3
Front Bumper Cover Crush Contour — 1999 Chevrolet Malibu



	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)	78	69	68	69	59	47	35	24	14	6	2
Precrash Contour (cm)	16	6	2	0	0	0	0	0	2	6	15
Resulting Crush (cm)	62	63	66	69	59	47	35	24	12	0	-13

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 144 cm precrash and 118 cm postcrash.

Figure 4
Preocrash and Postocrash Views from Below — 1999 Chevrolet Malibu

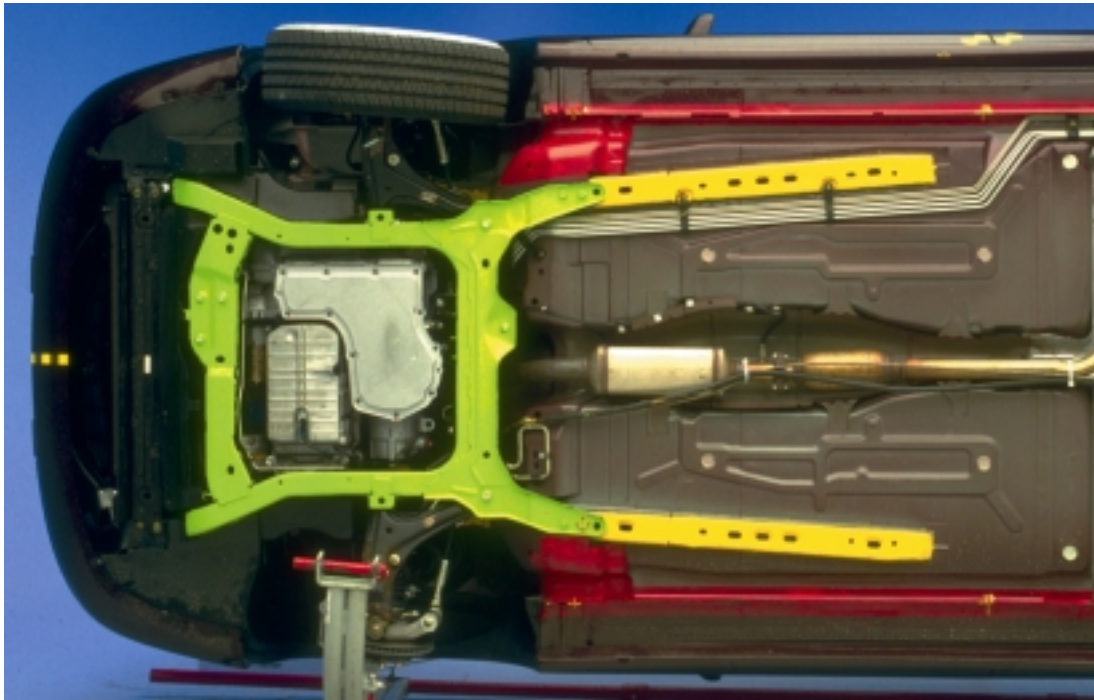
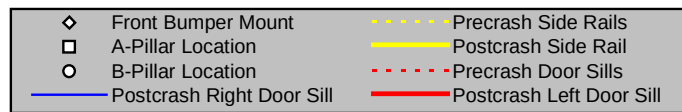
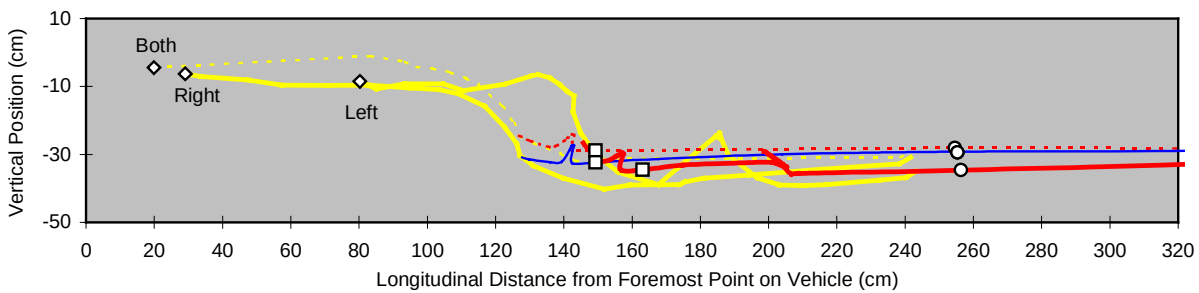
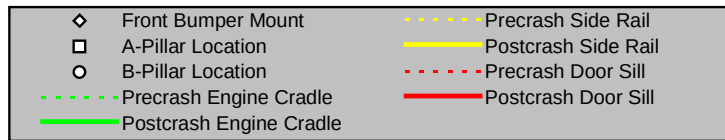
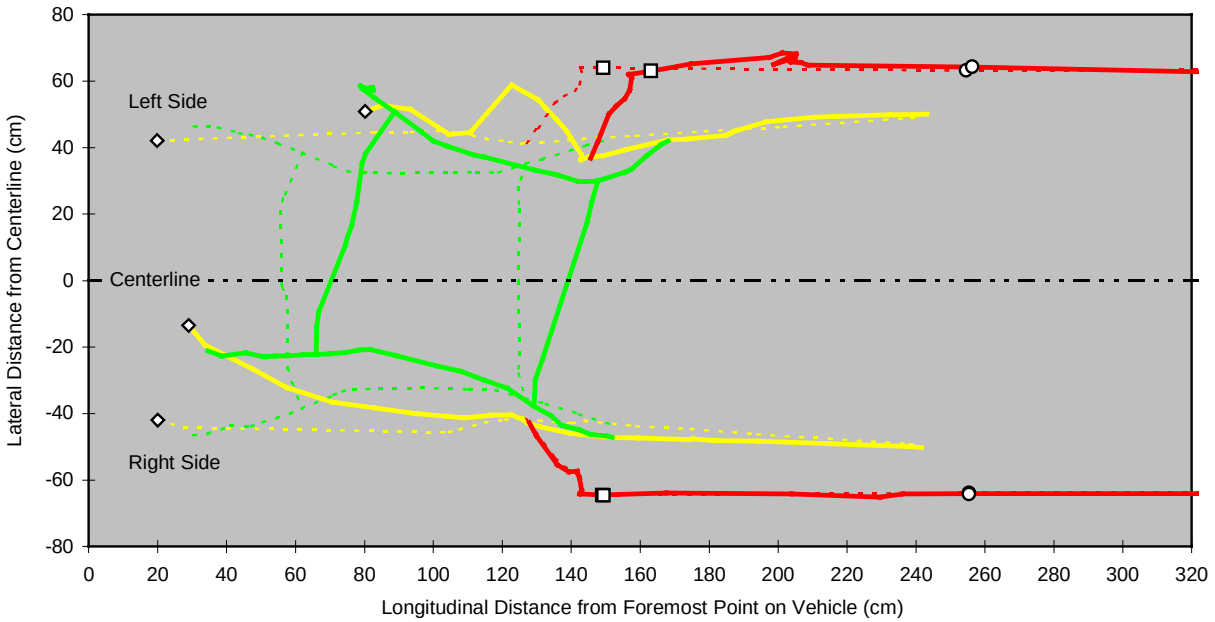


Figure 5
Structural Deformation, Views from Below and Side — 1999 Chevrolet Malibu



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 — 1999 Chevrolet Malibu				
Selected Locations*	Longitudinal	Lateral	Vertical	Resultant
Steering column (cm)	-5	-3	11	12
Left lower instrument panel (cm)	-11	-3	7	13
Right lower instrument panel (cm)	-8	-3	8	11
Brake pedal (cm)	-16	-3	4	17
Left toepan (cm)	-24	-6	7	26
Center toepan (cm)	-23	-5	8	25
Right toepan (cm)	-15	-3	4	16
Footrest (cm)	-17	-4	4	18
Average displacement of the four seat-attachment bolts relative to reference system (cm)	0	2	-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 64 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 E indicated the airbag deployed at 32 ms into the crash and appeared to be fully inflated at 58 ms.

Passenger: The top-mounted passenger airbag deployed vertically, and the excursion of its center when inflated is limited by two tethers. The cylinder-shaped airbag has no vent holes but is made of porous fabric. 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, adjustable upper anchorage points, and mechanical force-limiting mechanisms at both front seating positions. 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 from the retractor through the D-ring, as measured by a pull-string mounted between the retractor housing and the webbing beyond the retractor. Postcrash investigation of the force-limiting sliding mount to which the retractor mechanism is attached indicated it was essentially unchanged from its precrash orientation. Therefore, the force limiter did not contribute any 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 pitch forward somewhat.

Steering Column

The upper end of the steering column moved upward 11 cm and rearward 5 cm relative to the driver seat.

Dummy Kinematics

Head, Neck, and Torso

Analysis of the high-speed film taken from camera position E indicated the dummy's head began to load the airbag at 68 ms into the crash (10 ms after the airbag was fully inflated). Paint transferred from the dummy's face indicated the nose contacted the airbag 10 cm above and 2 cm to the left of its center. During rebound from the airbag, the dummy's head leaned outward past the precrash plane of the open side window and moved downward toward the driver door, which had bowed outward. The left upper rear part of the head contacted the door panel interior trim just below the window sill and just ahead of the B-pillar at 168 ms. The head then moved rearward and upward, also rotating to face nearly straight up, and the right side of the head contacted the leading edge of the B-pillar at 206 ms. The head then slid upward along the B-pillar and moved inside the vehicle. Table 2 provides the timing of these events.

Table 2 Restraint System Performance and Dummy Kinematics — 1999 Chevrolet Malibu	
Event	Time (ms)
Deployment of airbag	32
Airbag fully inflated	58
Face begins to load airbag	68
Left upper rear of head contacts door panel interior trim	168
Right side of head contacts B-pillar	206

Figure 6
Dummy and Vehicle Interior, Postcrash — 1999 Chevrolet Malibu



Legs and Feet

Left leg and foot: Paint transferred from the dummy's left knee indicated the knee primarily contacted the knee bolster 5 cm directly to the right of the left instrument panel intrusion reference point. The knee also contacted the left underside part of the steering column trim and the underside of the tilt adjustment lever. Paint transferred from the dummy's left shin indicated the shin contacted the bolster below and slightly to the left of the knee impact location on the bolster. The left foot was found fully dorsiflexed and considerably inverted, with the sole of the forefoot and heel against the intruded toepan and the back of the heel against a sharp downward buckle in the floorpan. The upper left corner of the brake pedal was lying on top of the medial forefoot.

Right leg and foot: Paint transferred from the dummy's right knee indicated the knee contacted the knee bolster about 4 cm below and 6 cm to the left of the right instrument panel intrusion reference point. Paint transferred from the dummy's right shin indicated the shin contacted the bolster directly below the knee impact location. The right foot was found almost fully dorsiflexed but neither inverted nor everted, with the back of the heel against a sharp downward buckle in the floormat/carpeting on the floorpan. The medial sole of the heel was pressed against the intruded toepan, and the lateral sole of the heel was pressed against the accelerator pedal, which had broken free of its mounting arm. The sole of the forefoot was pressed against the accelerator pedal arm, which in turn was pressed against the intruded toepan. The lateral edge of the sole near the toe was against a steel brace to the right of the accelerator pedal arm.

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 accelerations were 25 g at 178 ms from the door panel trim contact and 17 g at 212 ms from the B-pillar contact. Table 3 provides a summary of the maximum head injury measurements recorded during the crash.

Table 3 Head Injury Measurements — 1999 Chevrolet Malibu			
Measure	Published Tolerance Threshold	Result	Time (ms)
Vector resultant acceleration (g)	80	65	100
Vector resultant acceleration — 3 ms clip (g)	80	64	102-105
Head Injury Criterion (HIC)	1000	768	82-118
Head Injury Criterion — 15 ms interval (HIC-15)*	700	466	95-110

* 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 — 1999 Chevrolet Malibu			
Measure	Published Tolerance Threshold	Result	Time (ms)
A-P shear force (kN)	±3.1	0.8	110
Axial compression force (kN)	4.0	0.4	185
Axial tension force (kN)	3.3	1.4	100
Flexion bending moment (Nm)	310	34	94
Extension bending moment (Nm)	122	47	190

Chest

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

Table 5 Chest Injury Measurements — 1999 Chevrolet Malibu			
Measure	Published Tolerance Threshold	Result	Time (ms)
Vector resultant spine acceleration — 3 ms clip (g)	60	38	106-109
Rib compression (mm)	–50	–35	88
Viscous criterion (m/s)	1.0	0.2	83

Legs and Feet

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

Right leg and foot: The right leg had a maximum lower tibia L-M moment of –161 Nm at 82 ms, which contributed to a lower tibia index of 0.83 at 82 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 — 1999 Chevrolet Malibu					
Measure	Published Tolerance Threshold	Left		Right	
		Result	Time (ms)	Result	Time (ms)
Femur axial force (kN)	–9.1*	–3.7	70	–2.2	93
Tibia-femur displacement (mm)	–15	–3	113	–2	72
Upper Tibia					
L-M moment (Nm)	±225	–51	86	–105	83
A-P moment (Nm)	±225	–69	57	–78	82
Vector resultant moment (Nm)	225	70	57	126	82
Index	1.00	0.36	62	0.65	82
Lower Tibia					
L-M moment (Nm)	±225**	–108	83	–161	82
A-P moment (Nm)	±225**	67	84	45	83
Vector resultant moment (Nm)	225**	124	83	166	82
Axial force (kN)	–8.0**	–2.4	64	–3.3	82
Index	1.00	0.61	83	0.83	82
Foot					
A-P acceleration (g)	±150	–60	60	–92	77
I-S acceleration (g)	±150	–46	93	–80	77
Vector resultant acceleration (g)	150	68	61	107	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.

References

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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

1999 Chevrolet Malibu Midsize Four-Door Sedan: 5 mi/h Front into Angle Barrier

Test Number: LA99014

VIN: 1G1ND52J3X6271101

Mileage: 34

Features: Driver and passenger airbags, four-wheel antilock brakes, air conditioning, automatic transmission, power mirrors, power door locks, power windows, heated back glass, tilt steering wheel, cruise control, two-stage paint.

Description	Part		Labor	
	Mfg. No	Price	Operation	Hours
Unibody, front			Set up*	1.0
Bumper reinforcement, front	22594042	\$167.81	Replace*	2.1
Bumper absorber, front			Repair/align	0.3
Fender, right front			Repair/align*	1.5
Fender, right front			Refinish	3.2
Frame sidemember, right front			Repair/align*	1.0
Frame sidemember, right front			Refinish	0.5
End plate, frame sidemember, right front			Repair/align*	0.5
Horn assembly			Remove/reinstall	0.3
Paint and materials		66.60		
Total Parts		\$234.41		
Total Labor		353.60		10.4
Grand Total		\$588.01		

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

Dummy Clearance Measurements

Test Number: CF99025
Vehicle Make/Model: Chevrolet Malibu
Vehicle Model Year: 1999
Seat Type: Manually adjusted bucket seat (fore/aft and seat back angle)

Manufacturer's Specifications

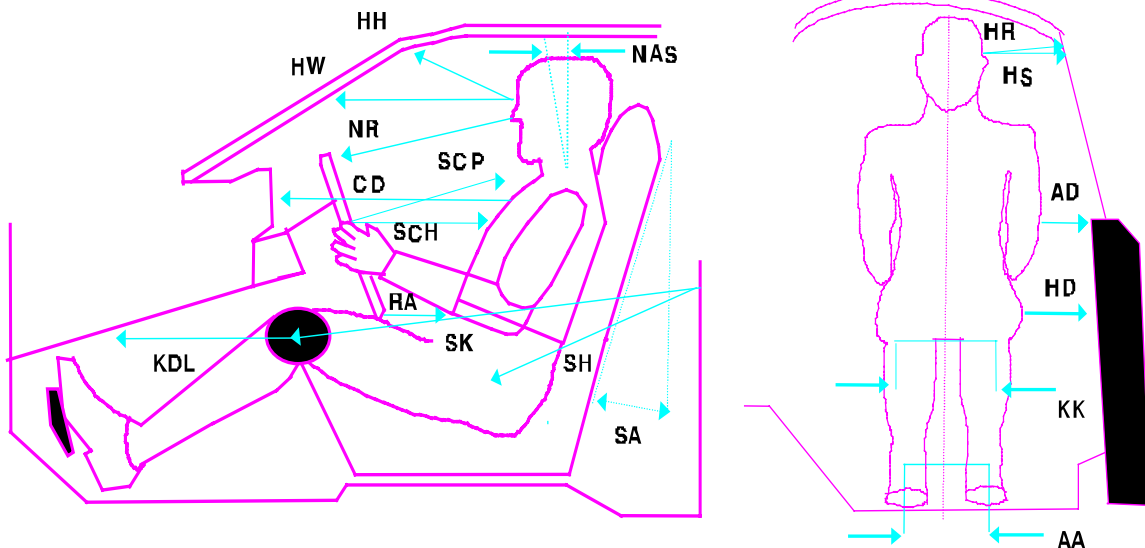
Seat Back Information: Reclined to 27 degrees from vertical, as measured on outboard rear frame of seat back at adjuster hinge
Upper Belt Anchorage: Set to 2nd position from top
Steering Column Adjustment: Set to midpoint of 5 positions

Location	Code	Measure	Location	Code	Measure
Head to header	HH	345	Neck angle, torso 90	NAT90	19.8°
Head to windshield	HW	579	Neck angle, seated*	NAS	1.6°
Nose to rim	NR	420	Torso angle (NAT90 – NAS)	TA	18.2°
Chest to dash	CD	648	Striker to knee**	SK	575
Rim to abdomen	RA	206	Striker to knee angle**	SKA	2.8°
Knee to dash, left	KDL	215	Striker to H-point, horizontal	SHH	194
Knee to dash, right	KDR	155	Striker to H-point, vertical	SHV	86
Steering wheel to chest, horizontal	SCH	316	Ankle to ankle	AA	280
Steering wheel to chest, perpendicular	SCP	446	Knee to knee	KK	315
Steering wheel to chest, reference	SCR	406	Arm to door	AD	95
Hub to chest, minimum	HCM	271	H-point to door	HD	160
Pelvic angle	PA	24.2°	Head to A-pillar	HA	505
Seat back angle	SA	27.3°	Head to roof	HR	195
			Head to side window	HS	255

All distance measurements are in millimeters (mm).

* Dummy's neck bracket was adjusted to –3.5 degrees to achieve a level instrumentation plane.

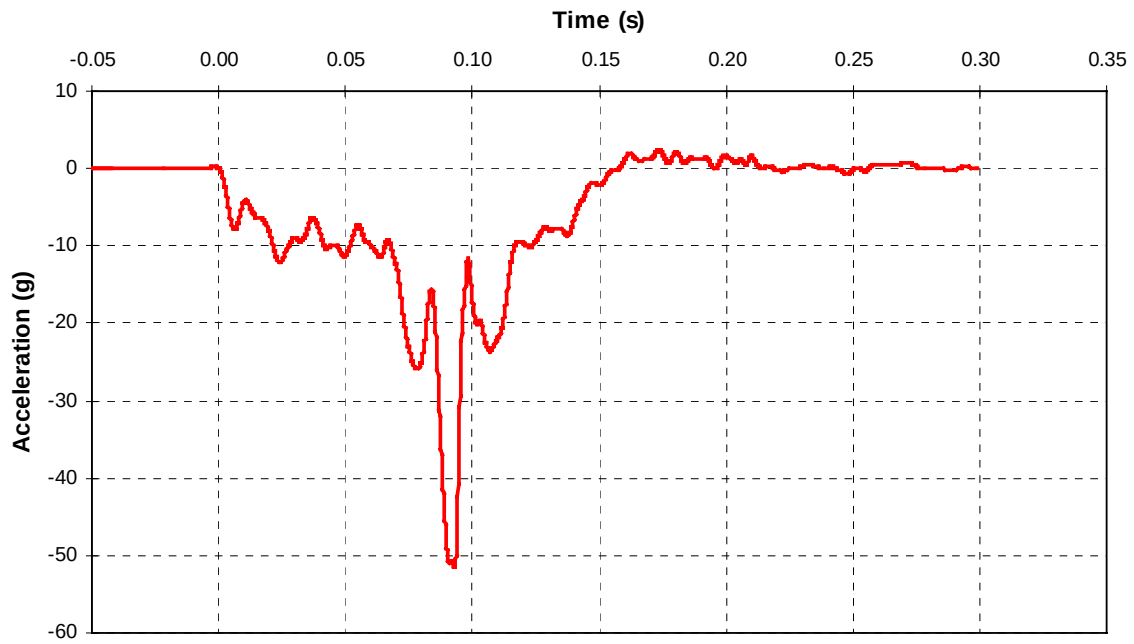
** These measurements were made in a vertical plane containing the striker and parallel to the driver door sill.



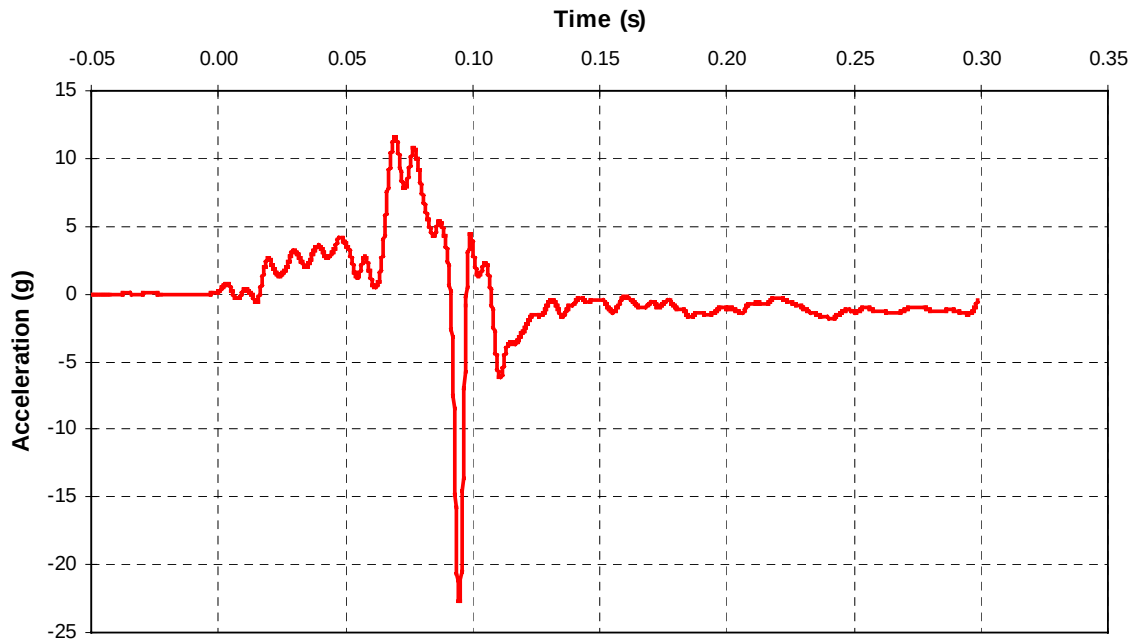
Graph Index

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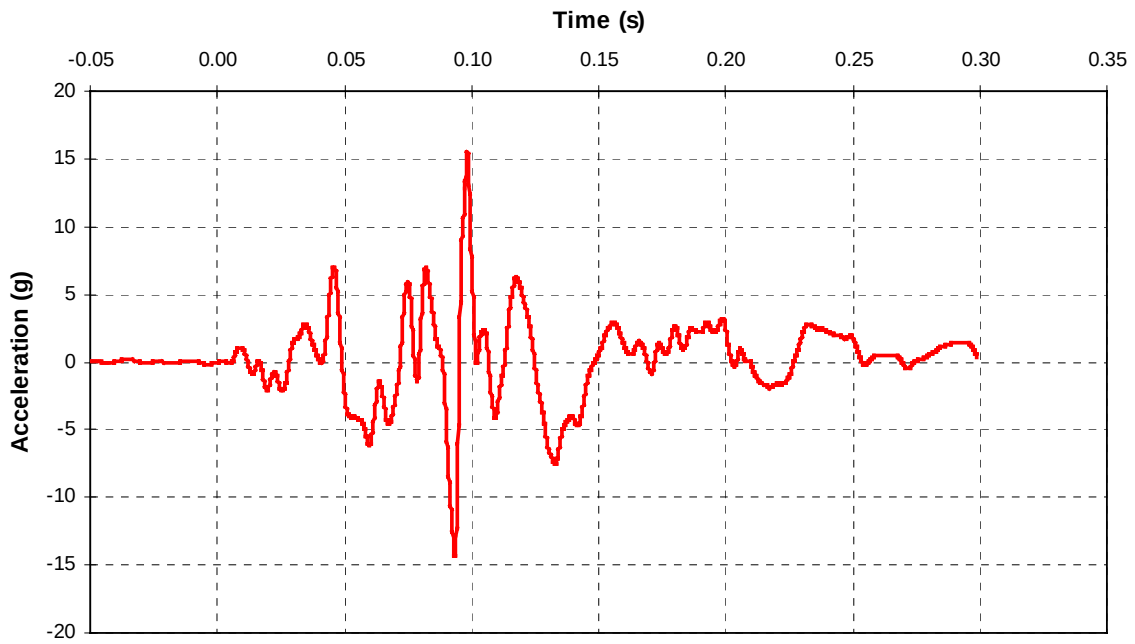
A- 1 CF99025 1999 Chevrolet Malibu Vehicle Longitudinal Acceleration



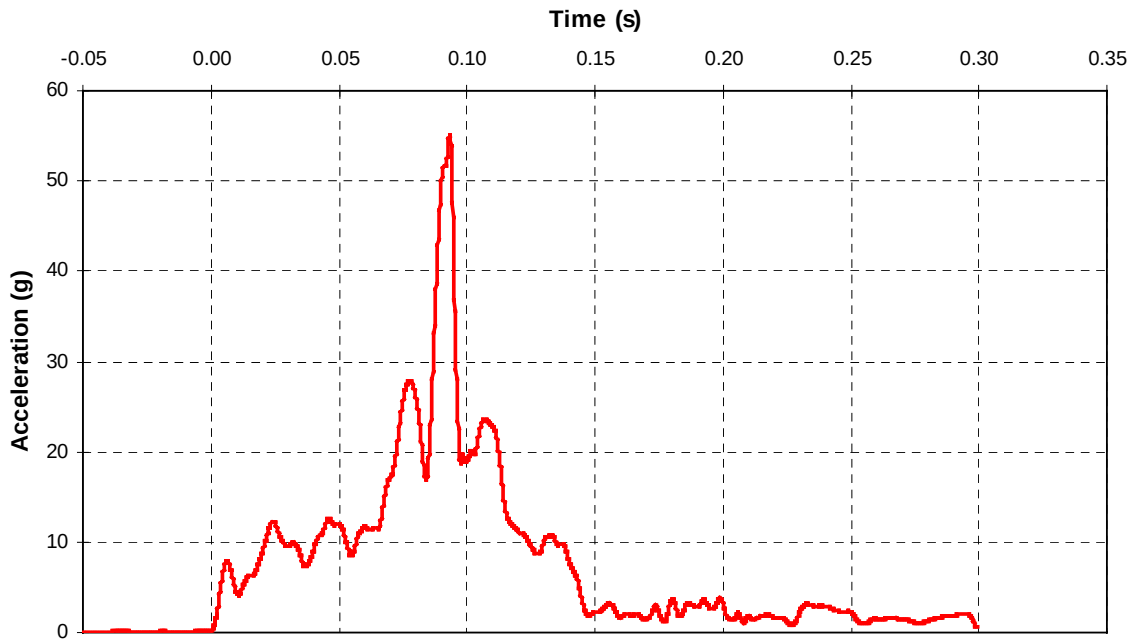
A- 2 CF99025 1999 Chevrolet Malibu Vehicle Lateral Acceleration



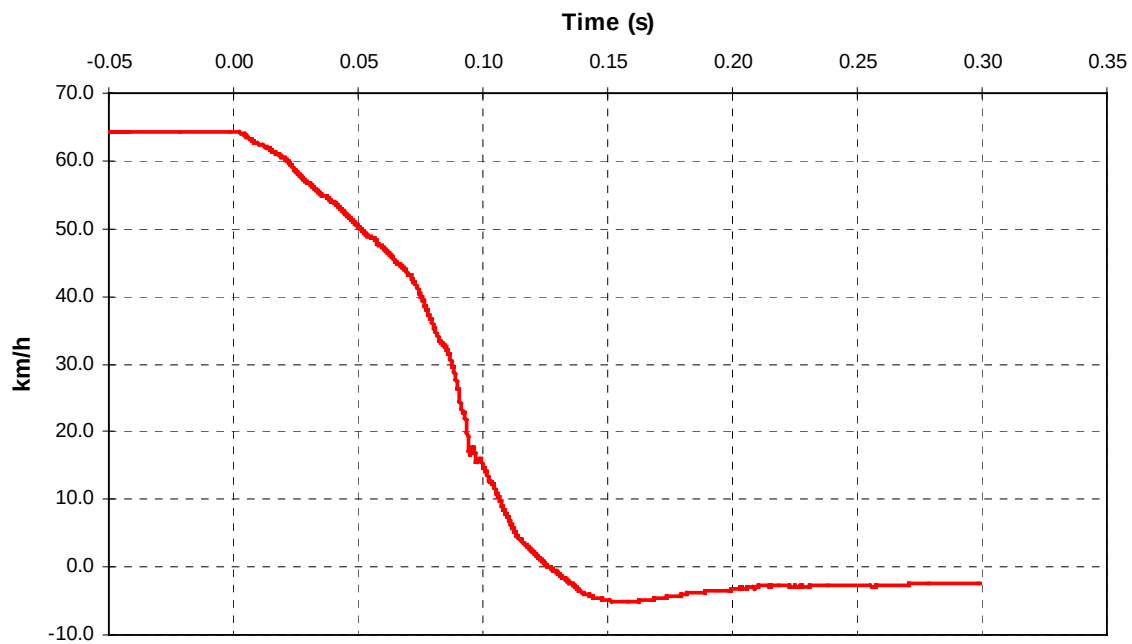
A- 3 CF99025 1999 Chevrolet Malibu Vehicle Vertical Acceleration



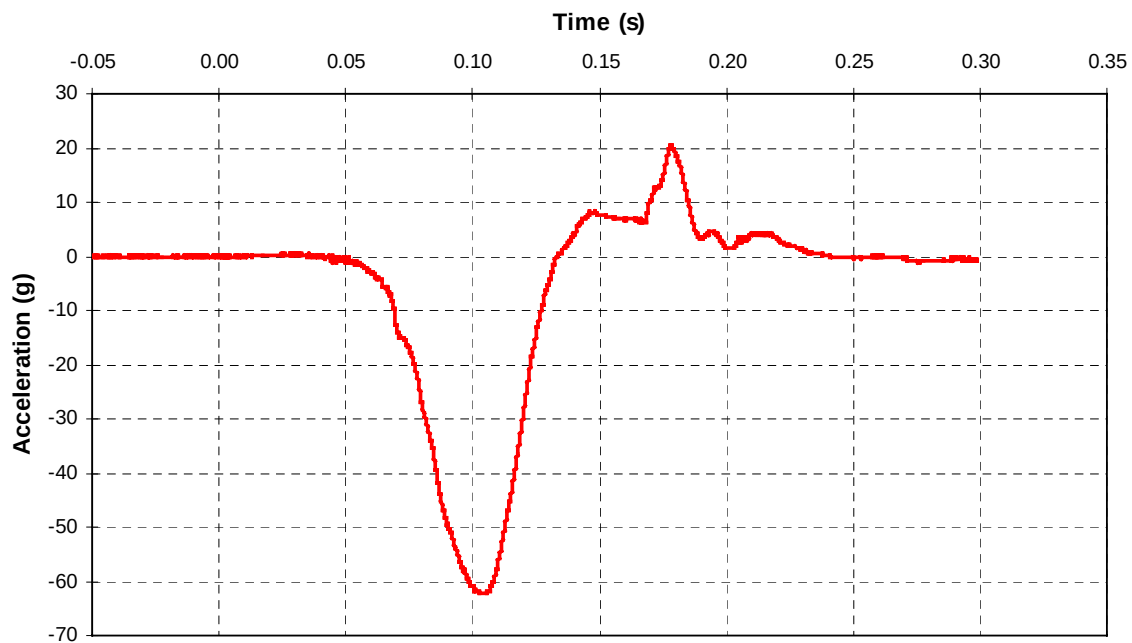
A- 4 CF99025 1999 Chevrolet Malibu Vehicle Vector Resultant Acceleration



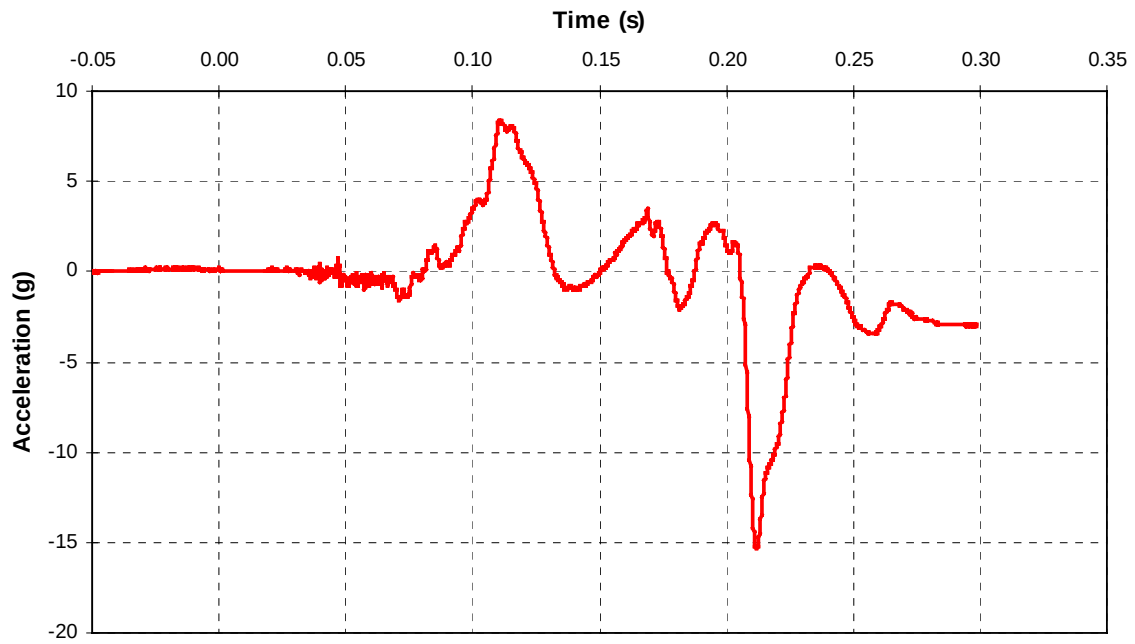
A- 5 CF99025 1999 Chevrolet Malibu Integration of Vehicle Longitudinal Acceleration



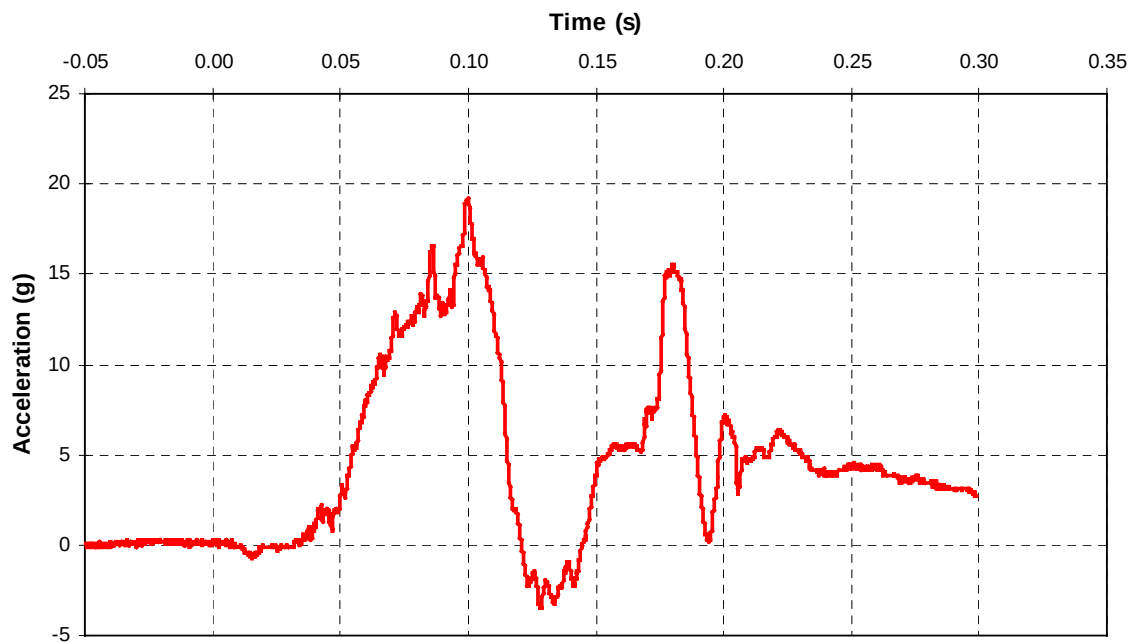
A- 6 CF99025 1999 Chevrolet Malibu Head A-P Acceleration



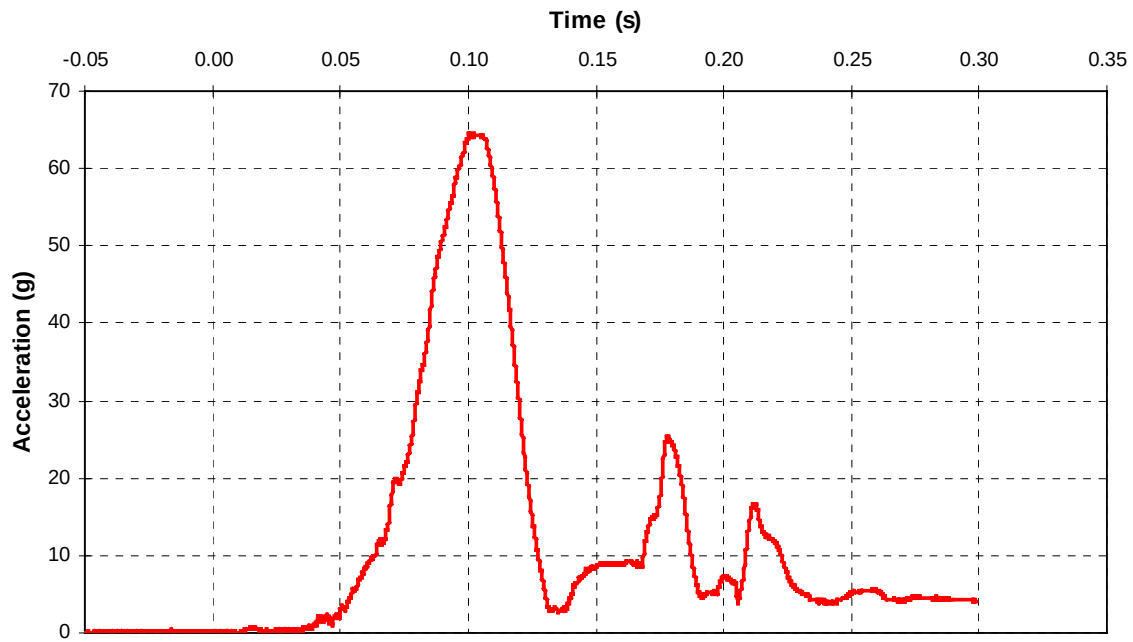
A- 7 CF99025 1999 Chevrolet Malibu Head L-M Acceleration



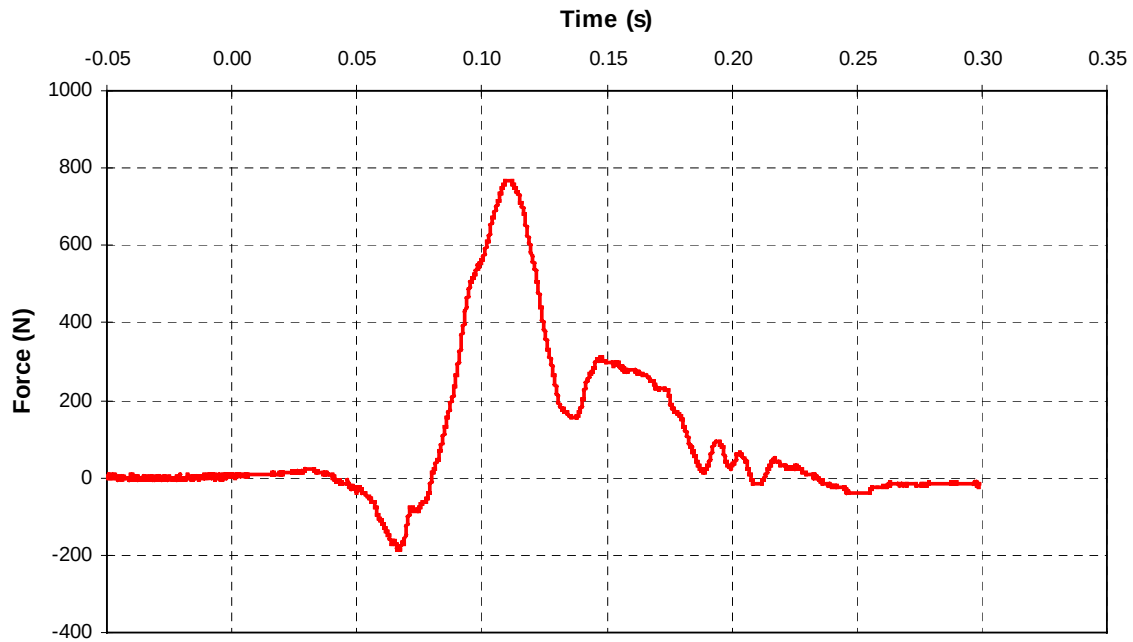
A- 8 CF99025 1999 Chevrolet Malibu Head I-S Acceleration



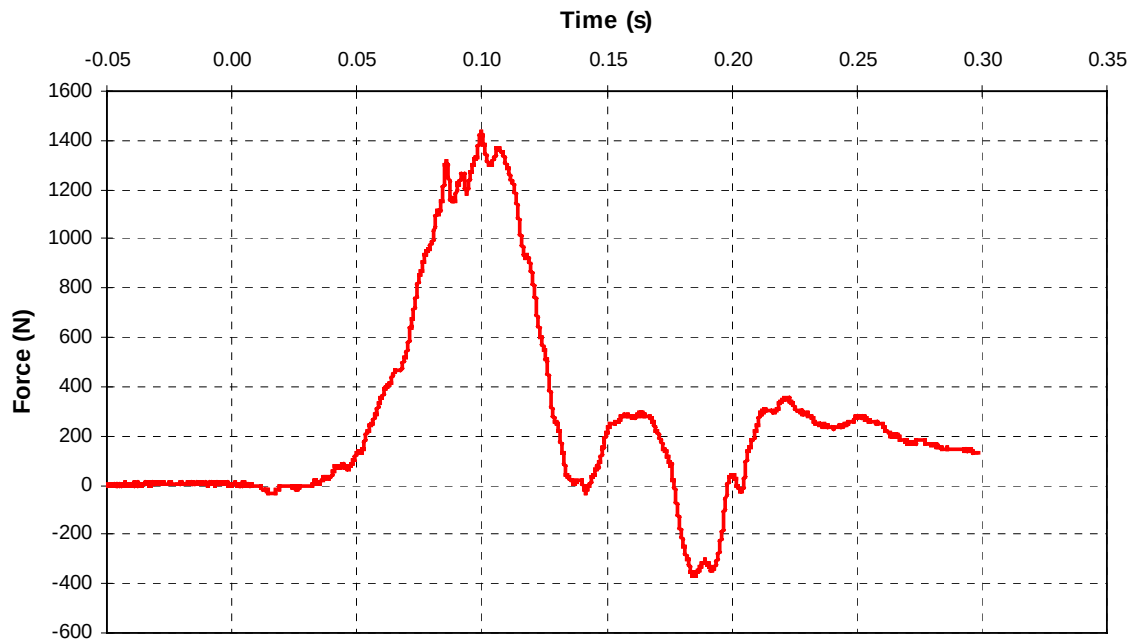
A- 9 CF99025 1999 Chevrolet Malibu Head Vector Resultant Acceleration



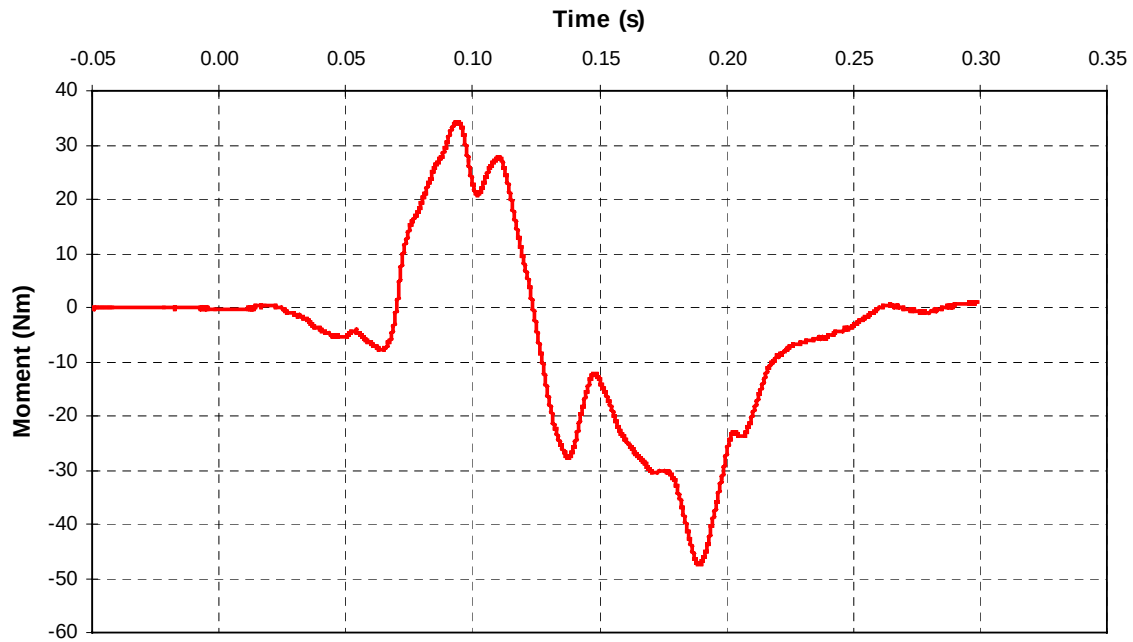
A- 10 CF99025 1999 Chevrolet Malibu Neck A-P Shear Force



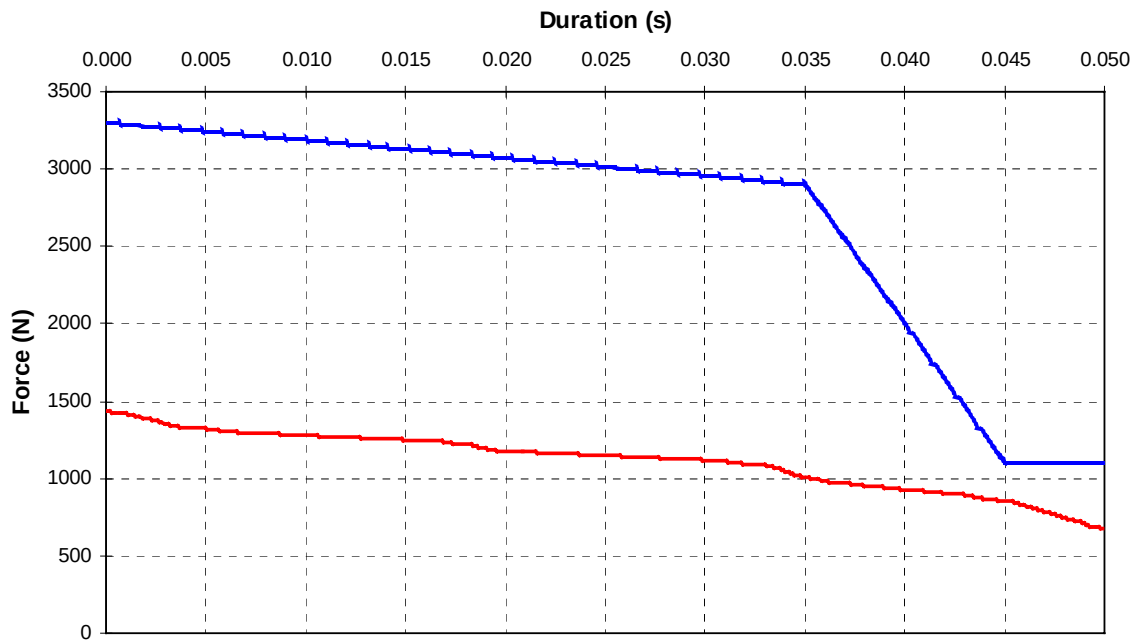
A- 11 CF99025 1999 Chevrolet Malibu Neck Axial Force



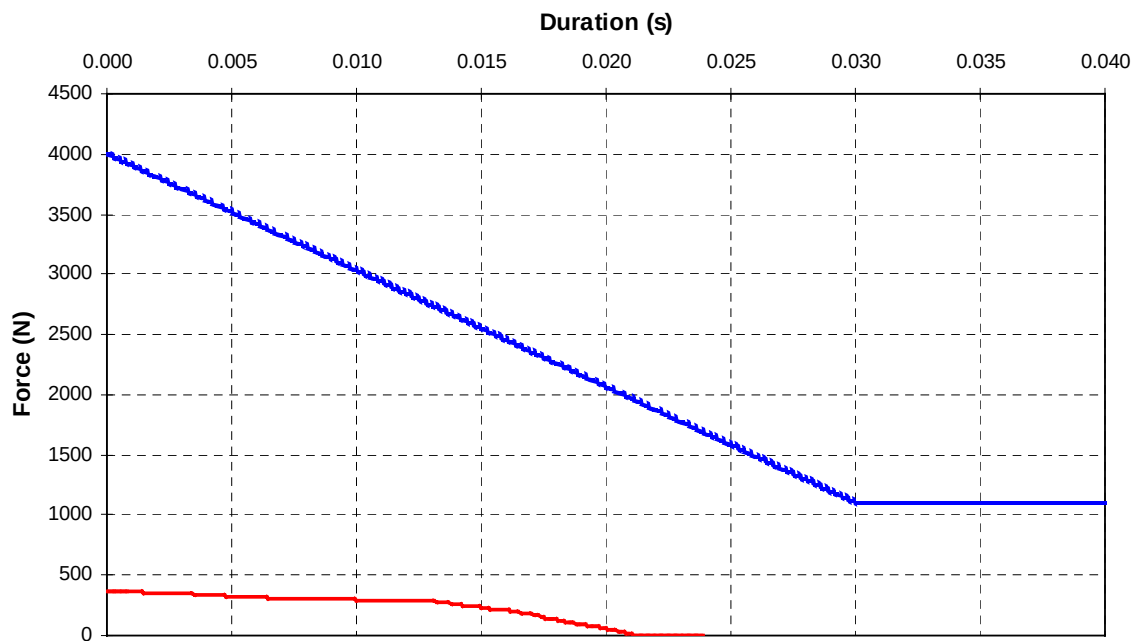
A- 12 CF99025 1999 Chevrolet Malibu Neck Occipital A-P Moment



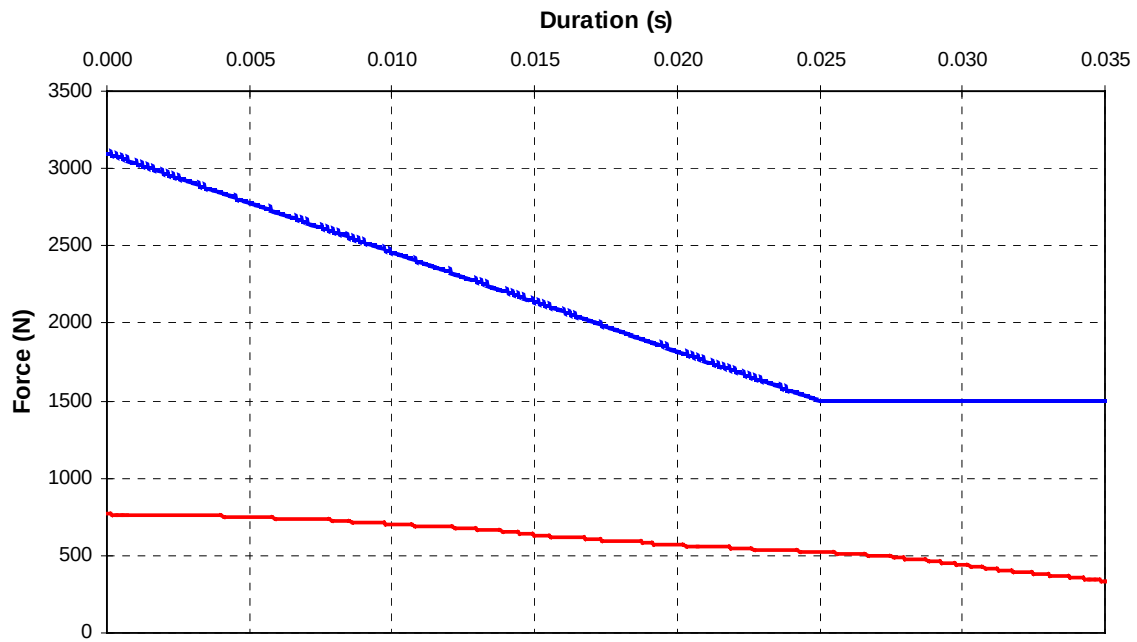
A- 13 CF99025 1999 Chevrolet Malibu Neck Tension Analysis



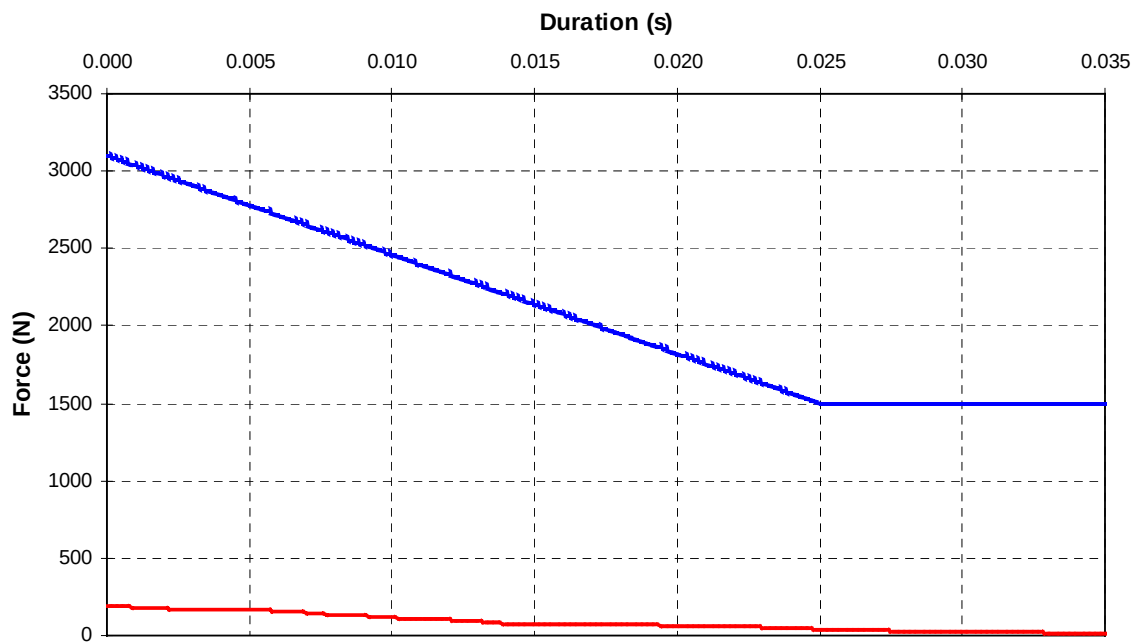
A- 14 CF99025 1999 Chevrolet Malibu Neck Compression Analysis



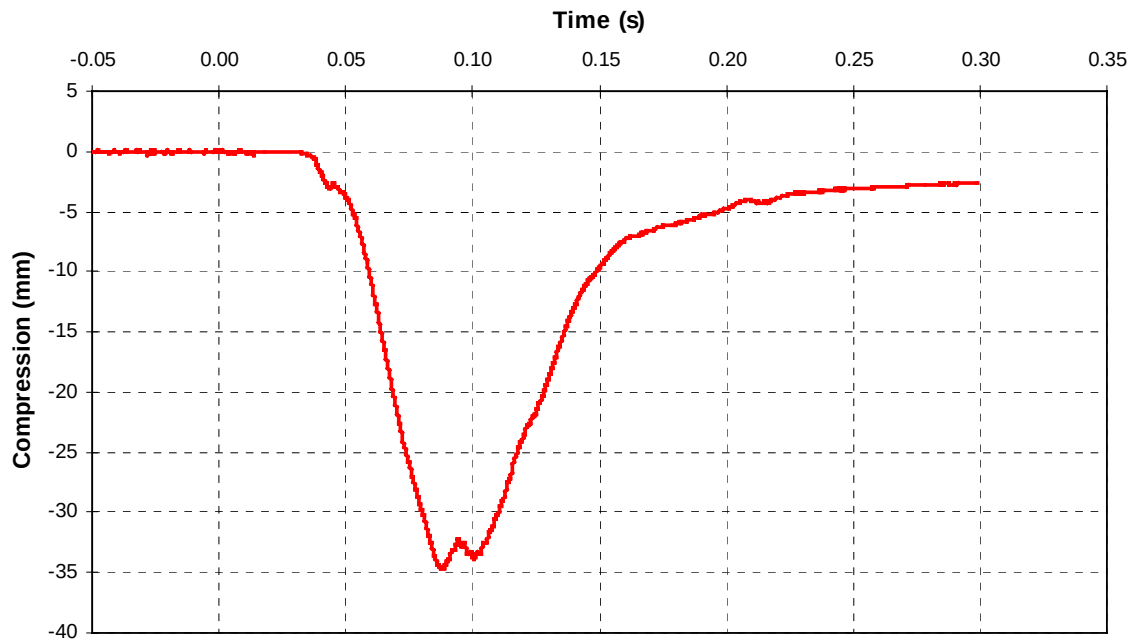
A- 15 CF99025 1999 Chevrolet Malibu Neck A-P Shear (Positive) Analysis



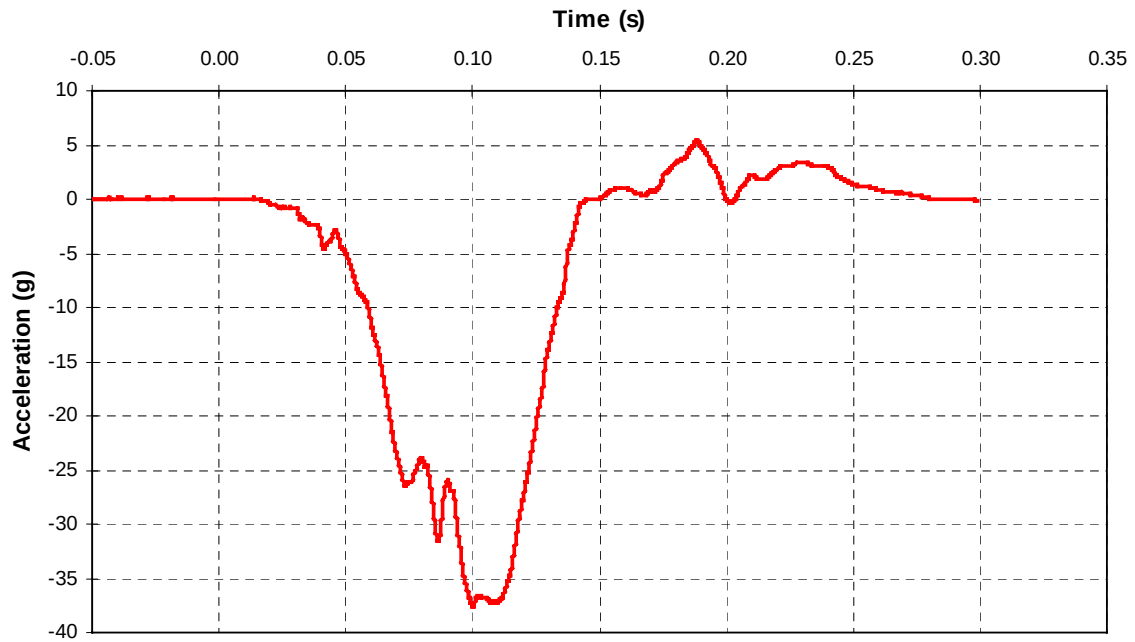
A- 16 CF99025 1999 Chevrolet Malibu Neck A-P Shear (Negative) Analysis



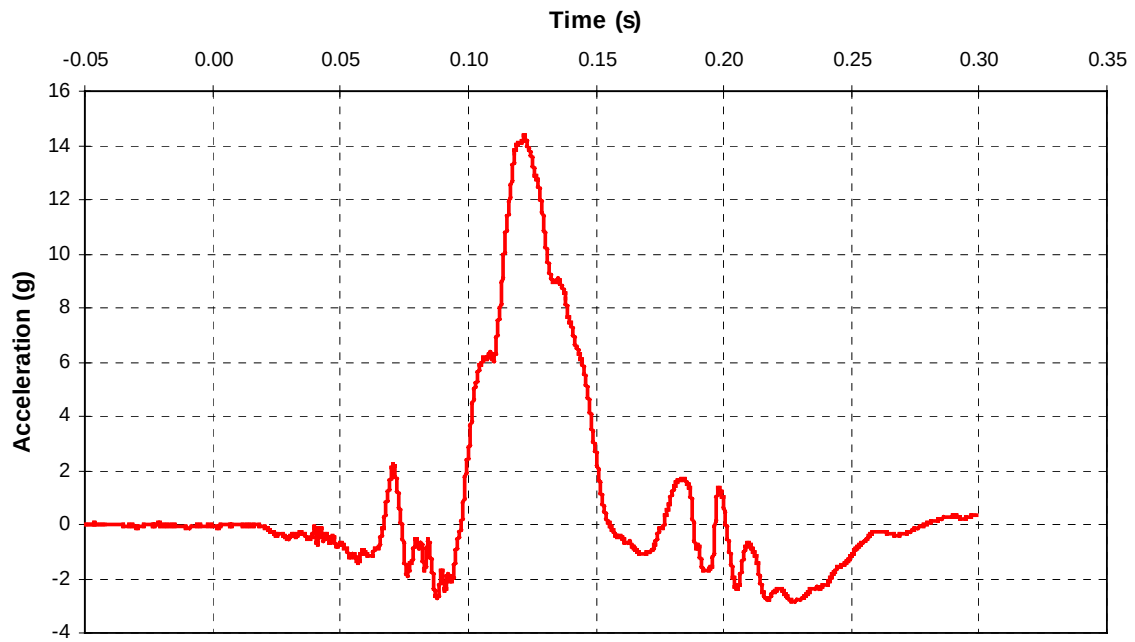
A- 17 CF99025 1999 Chevrolet Malibu Chest Compression



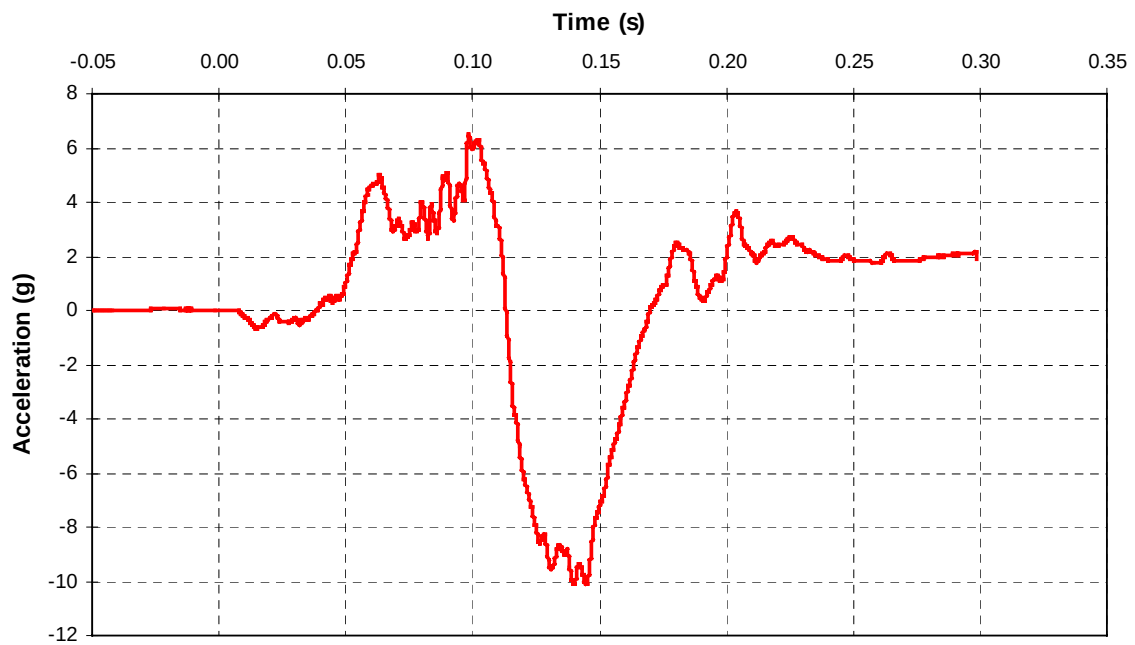
A- 18 CF99025 1999 Chevrolet Malibu Chest A-P Acceleration



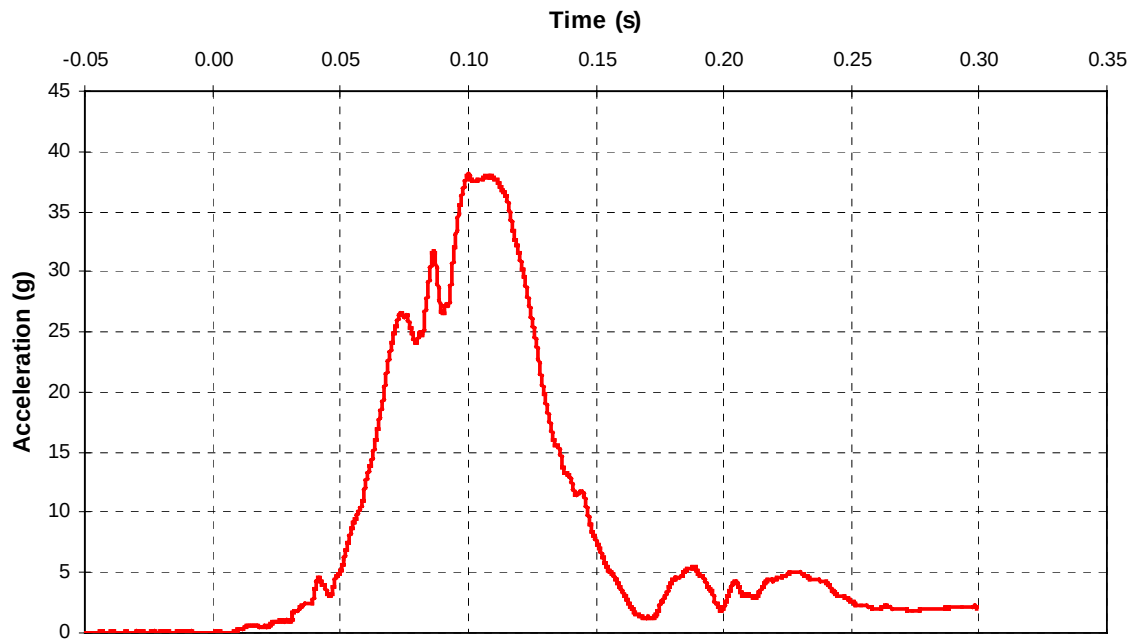
A- 19 CF99025 1999 Chevrolet Malibu Chest L-M Acceleration



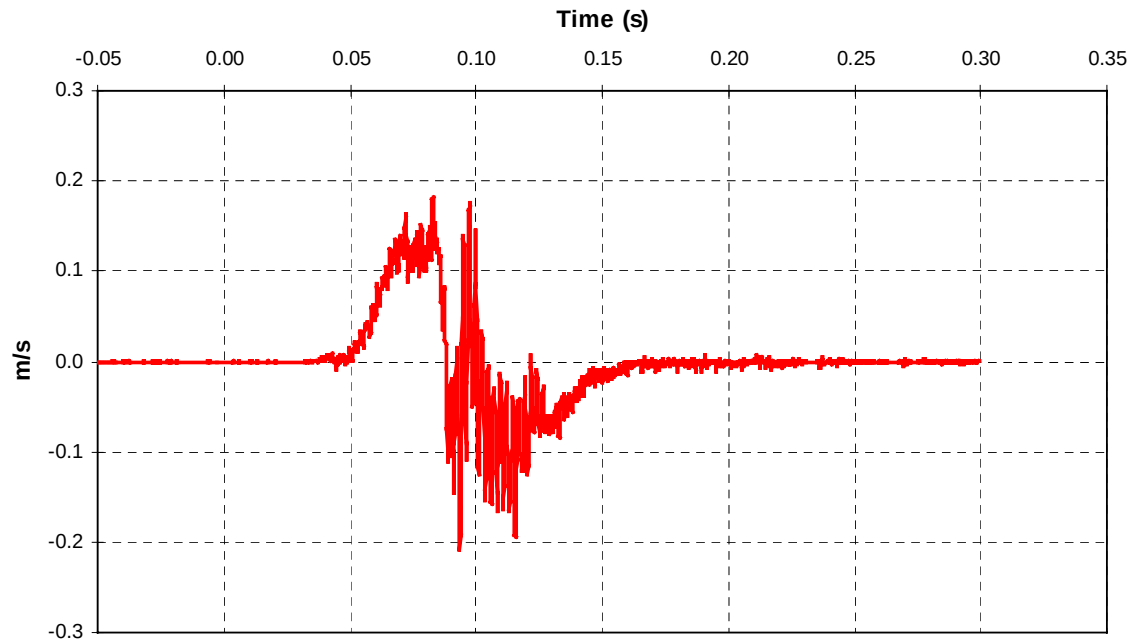
A- 20 CF99025 1999 Chevrolet Malibu Chest I-S Acceleration



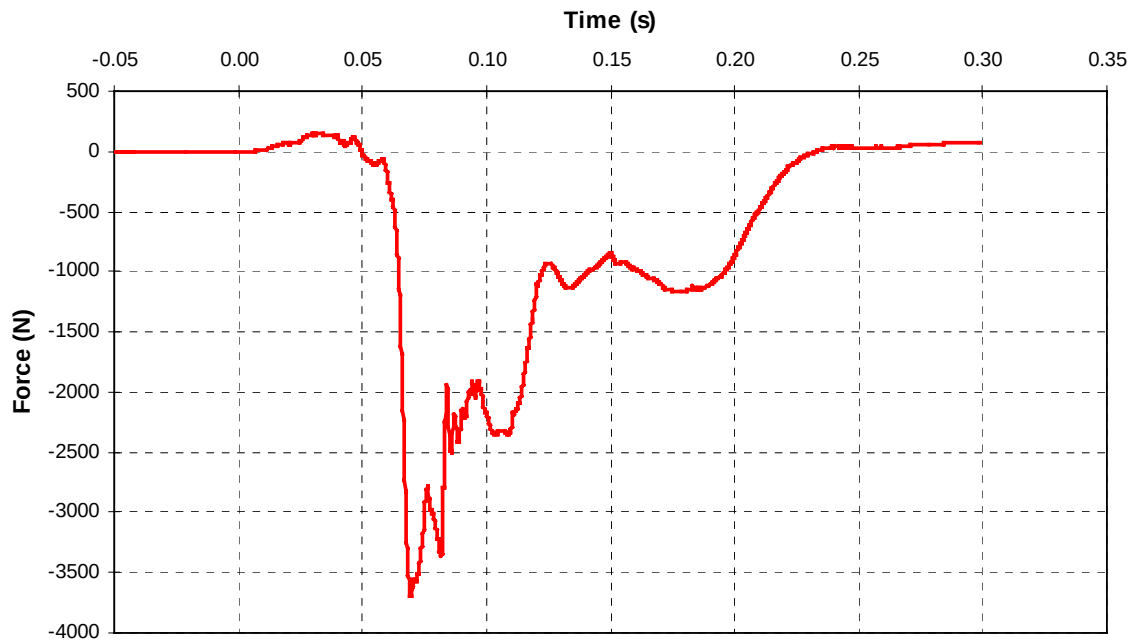
A- 21 CF99025 1999 Chevrolet Malibu Chest Vector Resultant Acceleration



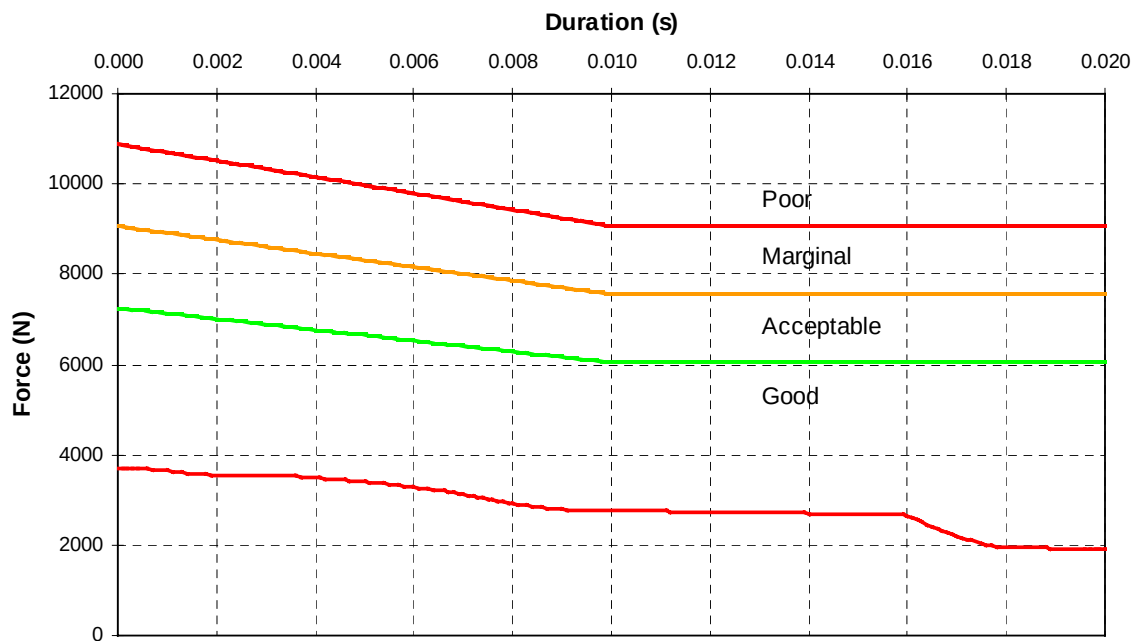
A- 22 CF99025 1999 Chevrolet Malibu Viscous Criterion



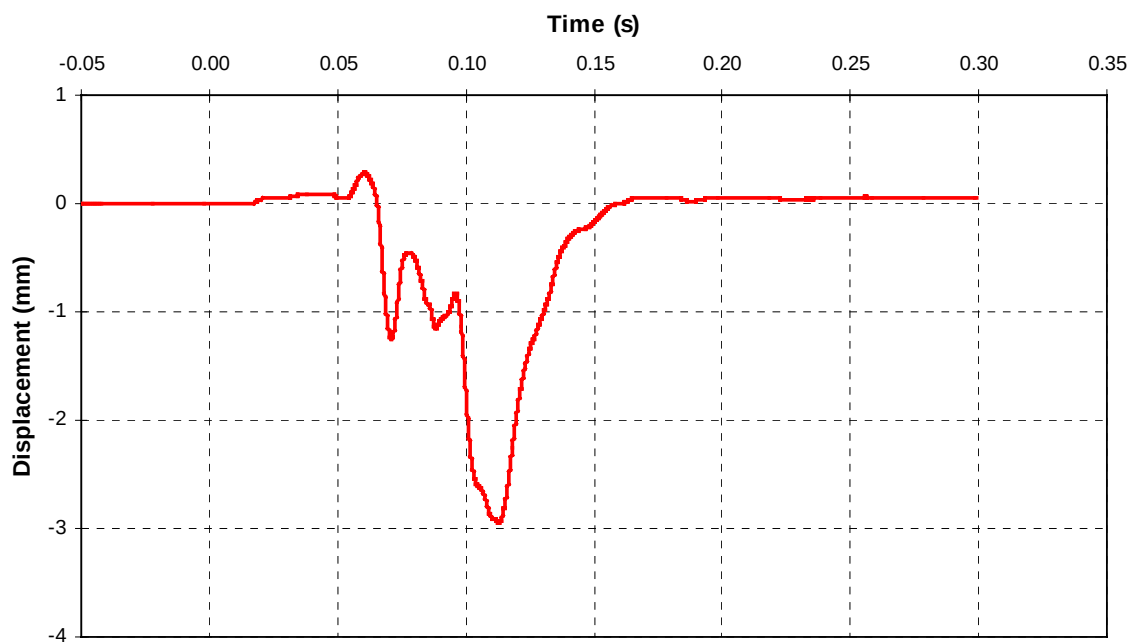
A- 23 CF99025 1999 Chevrolet Malibu Left Femur Axial Force



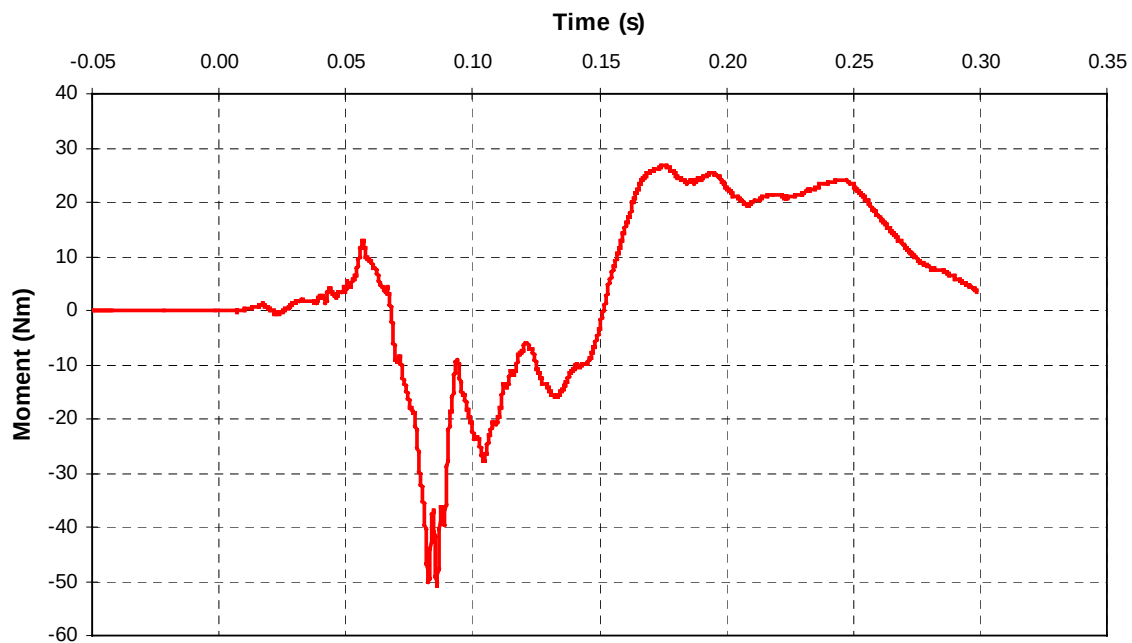
A- 24 CF99025 1999 Chevrolet Malibu Left Femur Axial Force Analysis



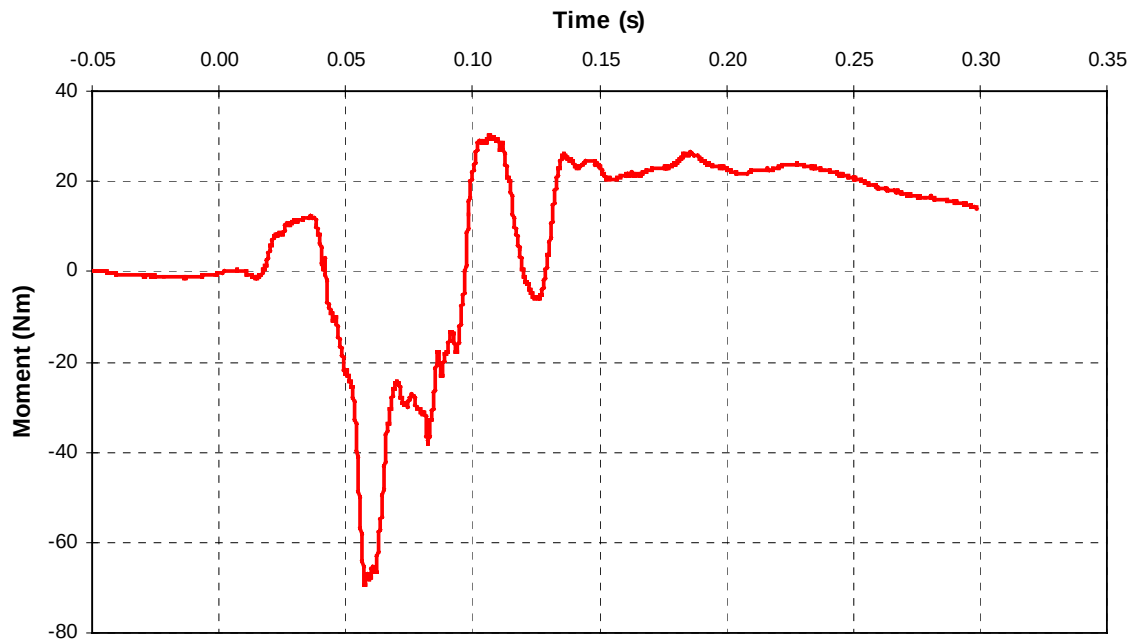
A- 25 CF99025 1999 Chevrolet Malibu Left Tibia-Femur Displacement



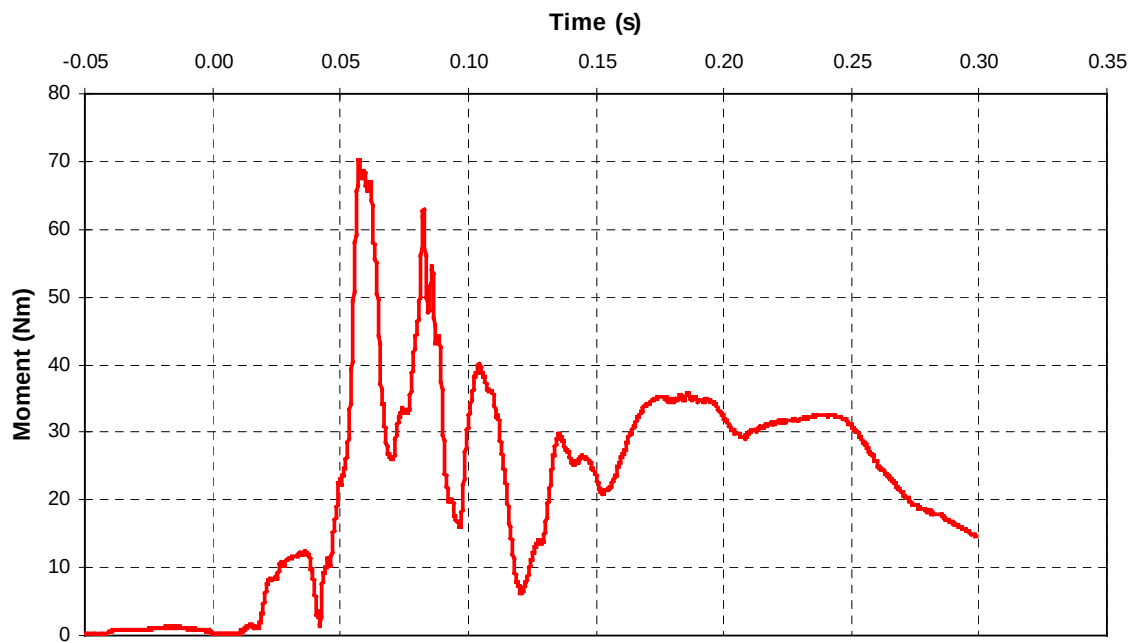
A- 26 CF99025 1999 Chevrolet Malibu Left Upper Tibia L-M Moment



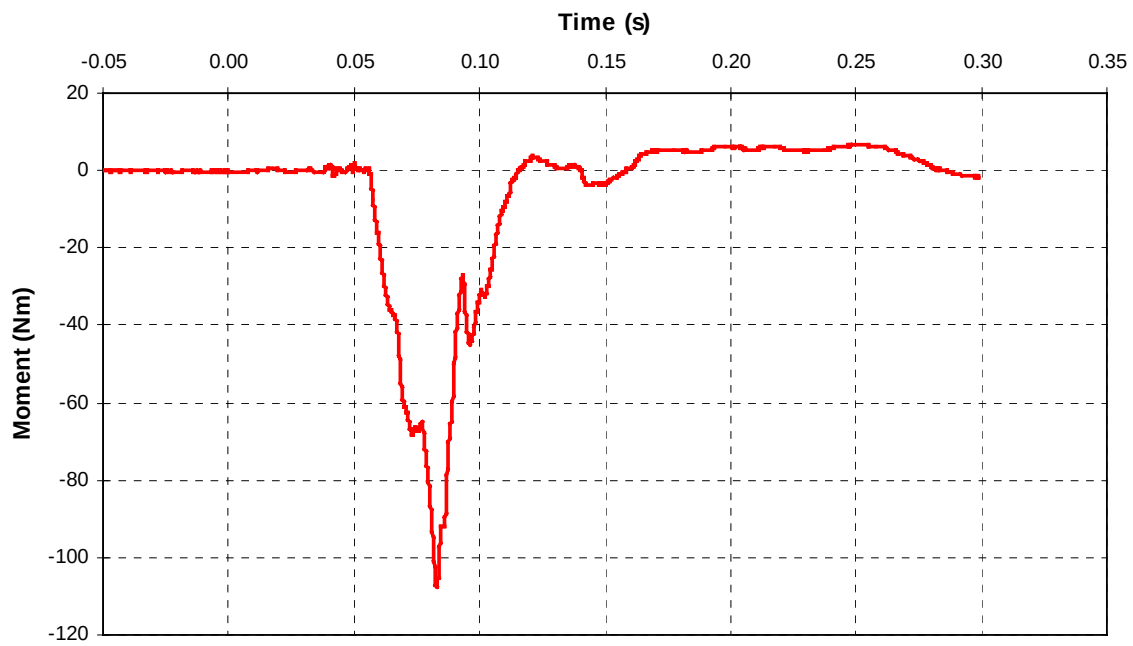
A- 27 CF99025 1999 Chevrolet Malibu Left Upper Tibia A-P Moment



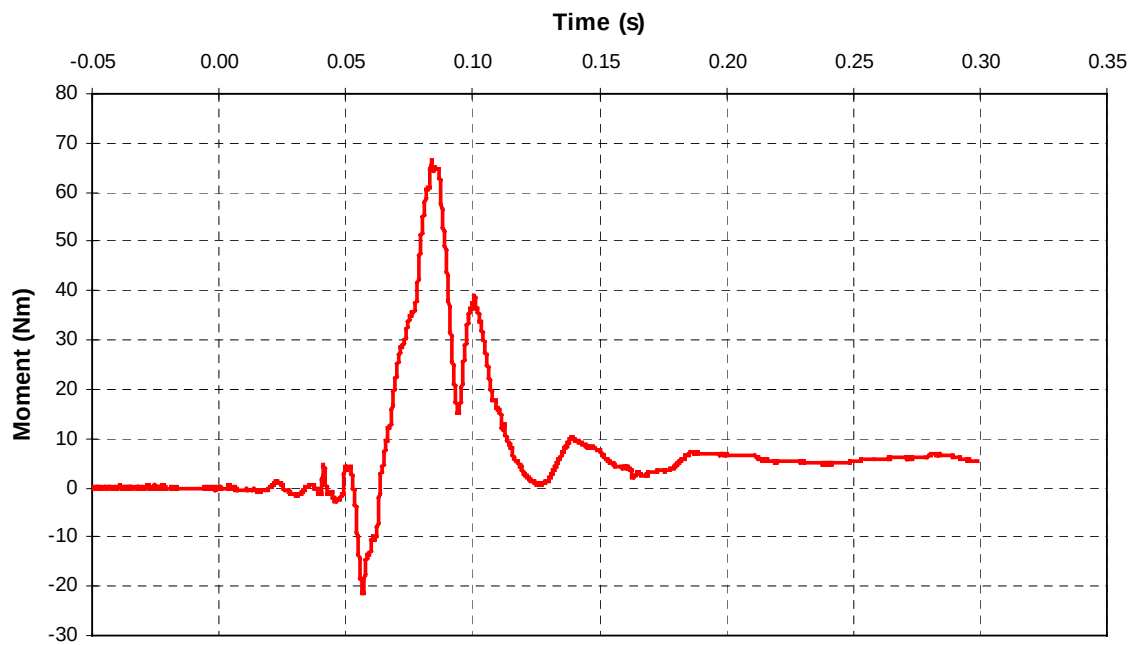
A- 28 CF99025 1999 Chevrolet Malibu Left Upper Tibia Vector Resultant Moment



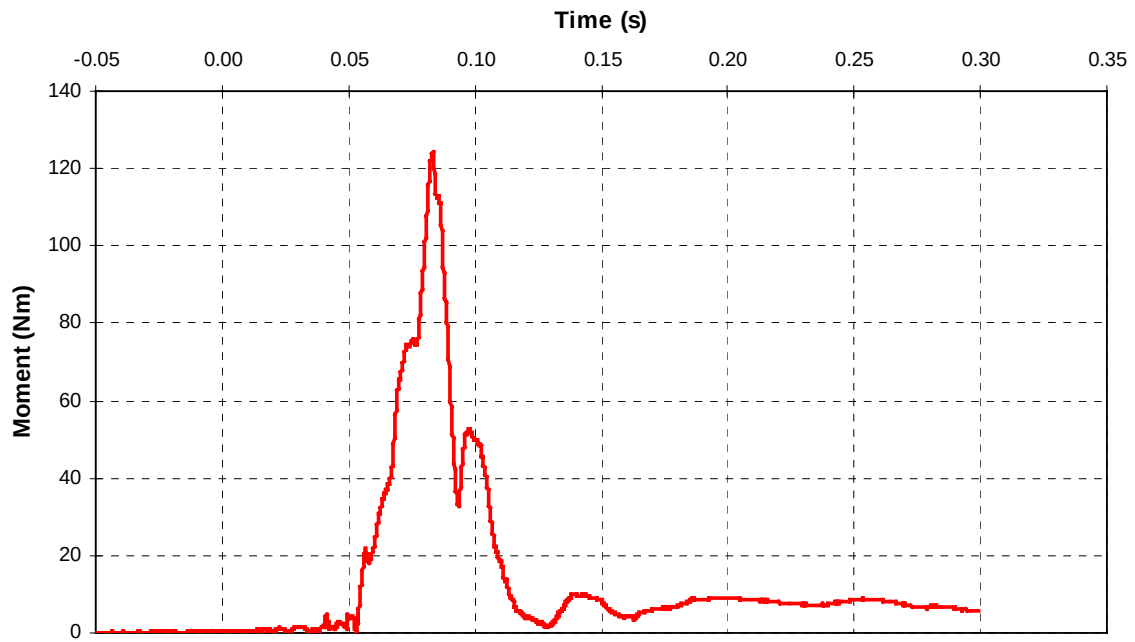
A- 29 CF99025 1999 Chevrolet Malibu Left Lower Tibia L-M Moment



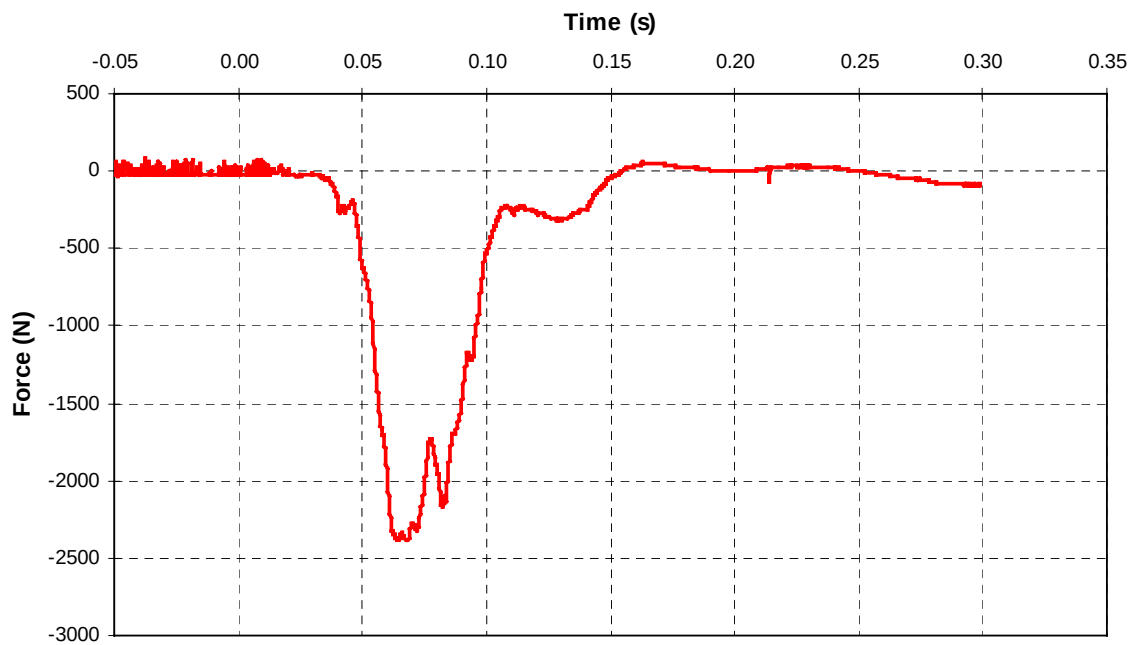
A- 30 CF99025 1999 Chevrolet Malibu Left Lower Tibia A-P Moment



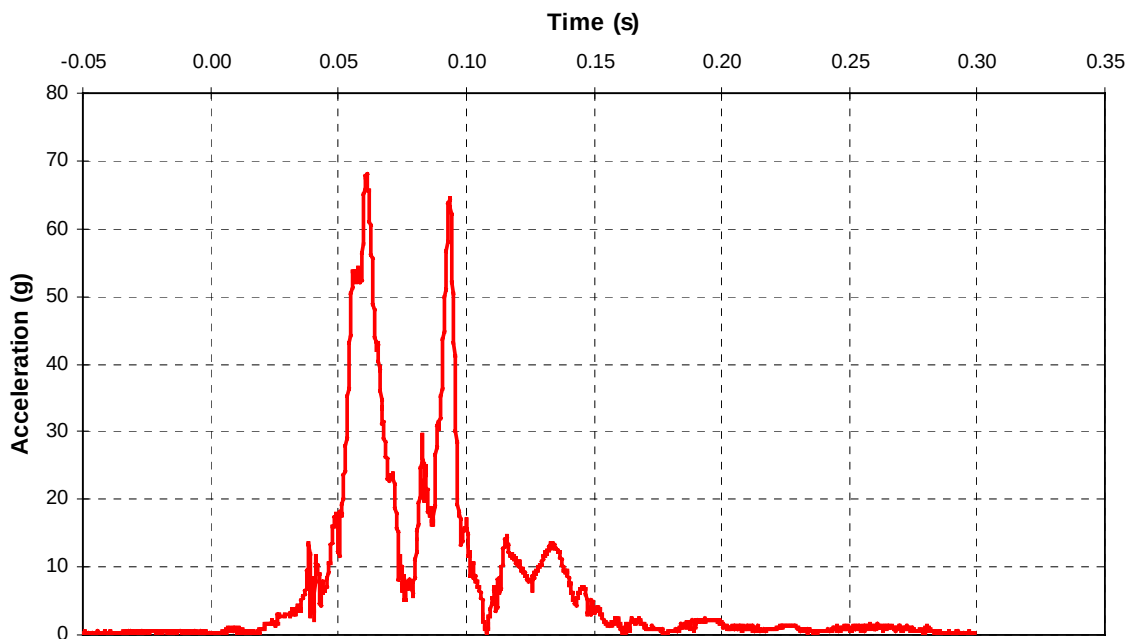
A- 31 CF99025 1999 Chevrolet Malibu Left Lower Tibia Vector Resultant Moment



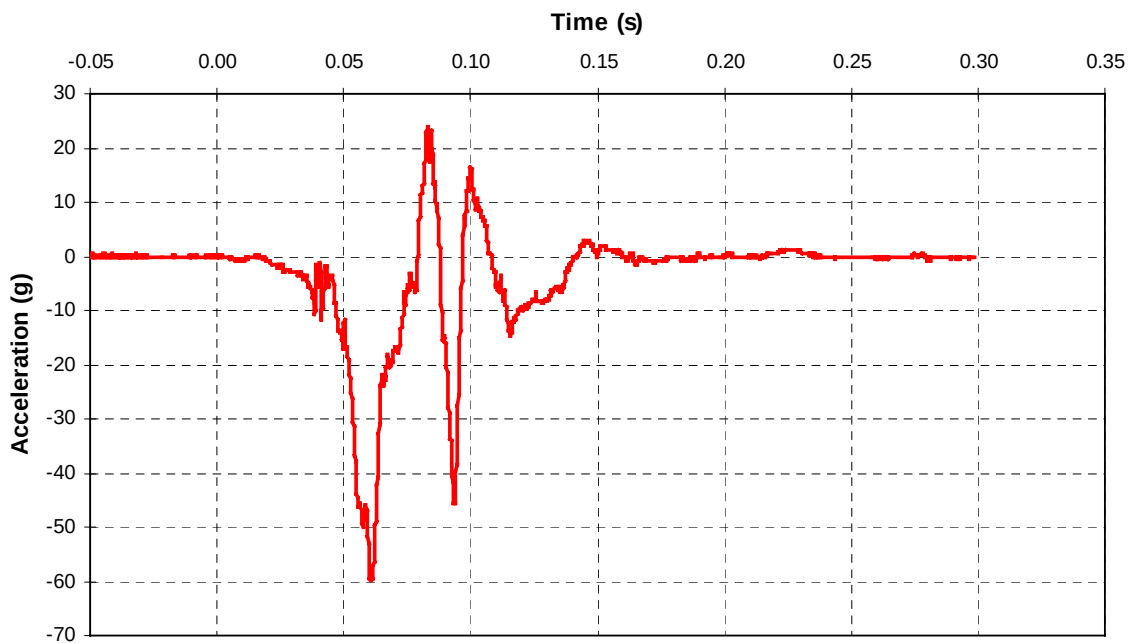
A- 32 CF99025 1999 Chevrolet Malibu Left Lower Tibia Axial Force



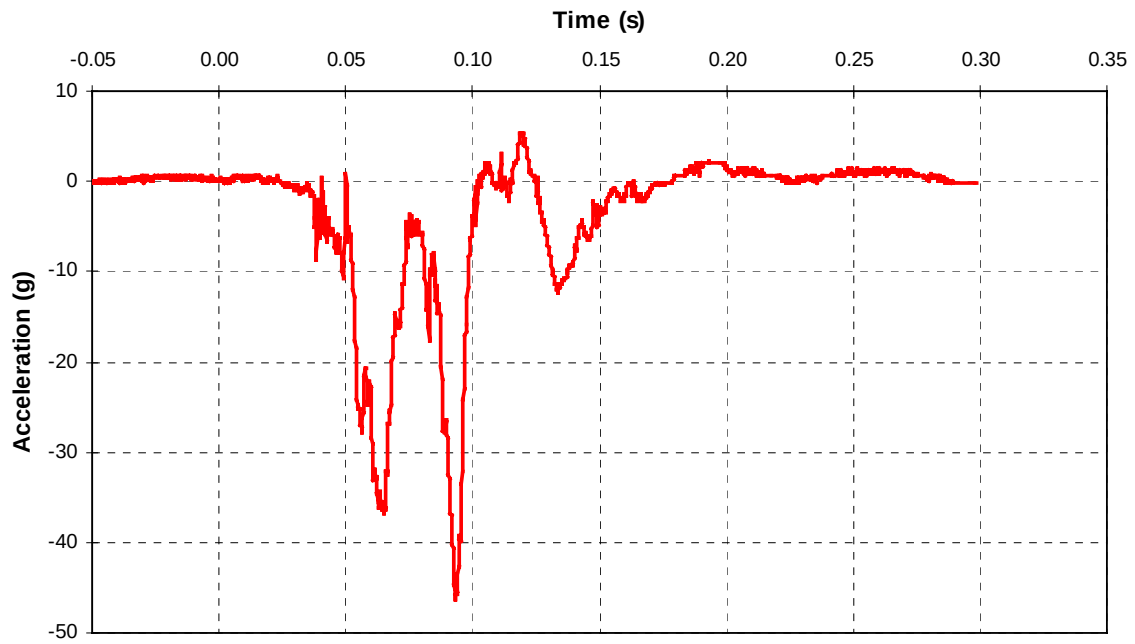
A- 33 CF99025 1999 Chevrolet Malibu Left Foot Vector Resultant Acceleration



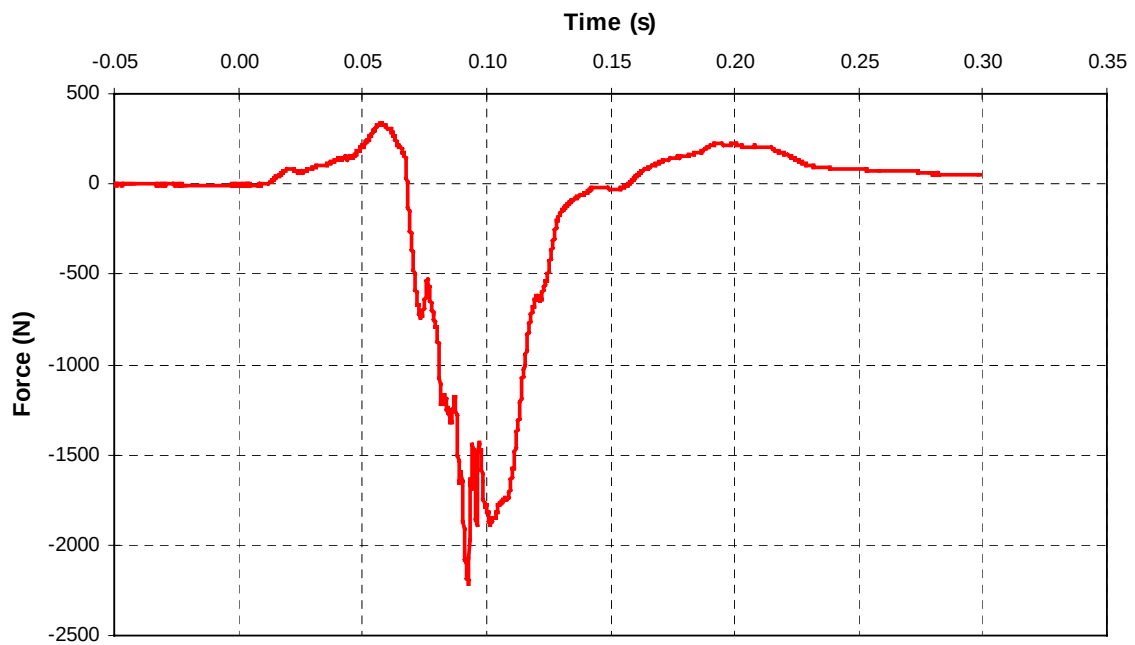
A- 34 CF99025 1999 Chevrolet Malibu Left Foot A-P Acceleration



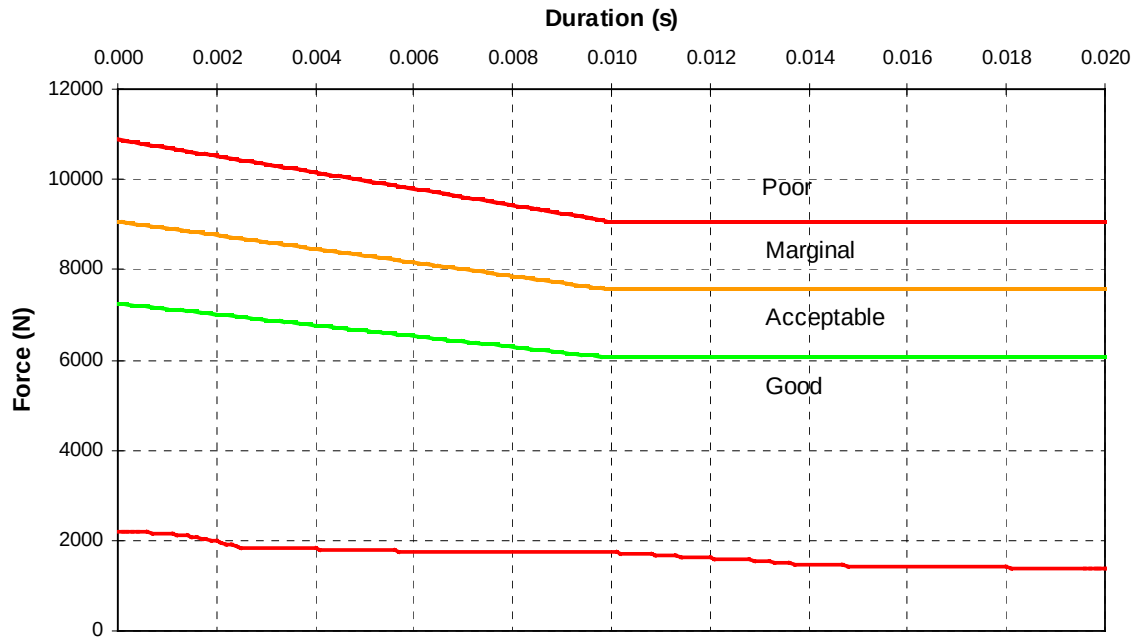
A- 35 CF99025 1999 Chevrolet Malibu Left Foot I-S Acceleration



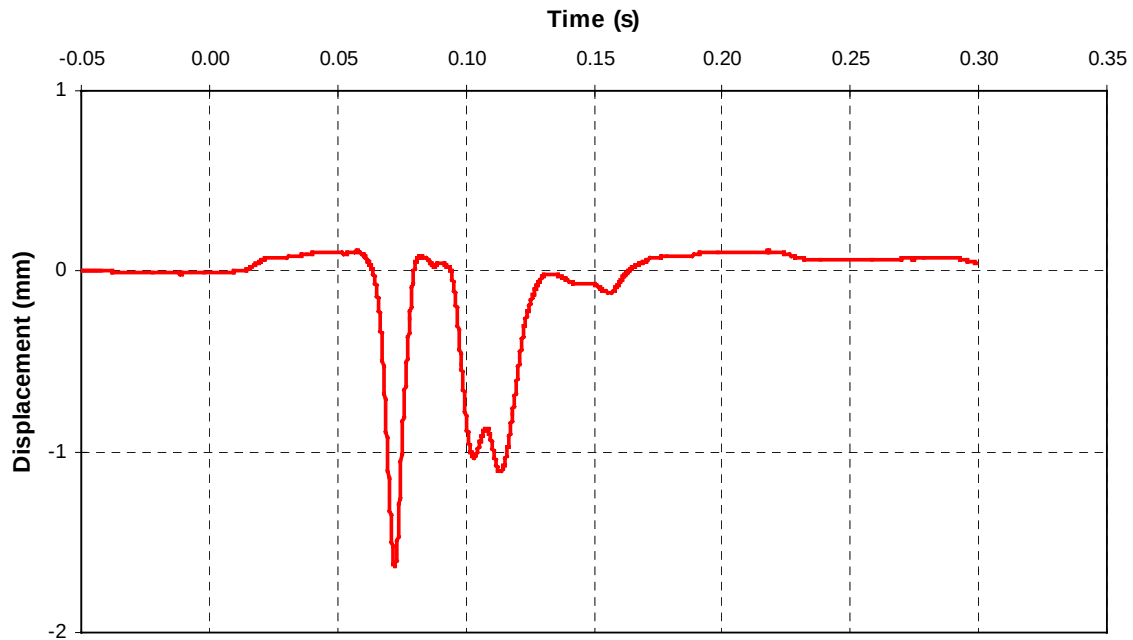
A- 36 CF99025 1999 Chevrolet Malibu Right Femur Axial Force



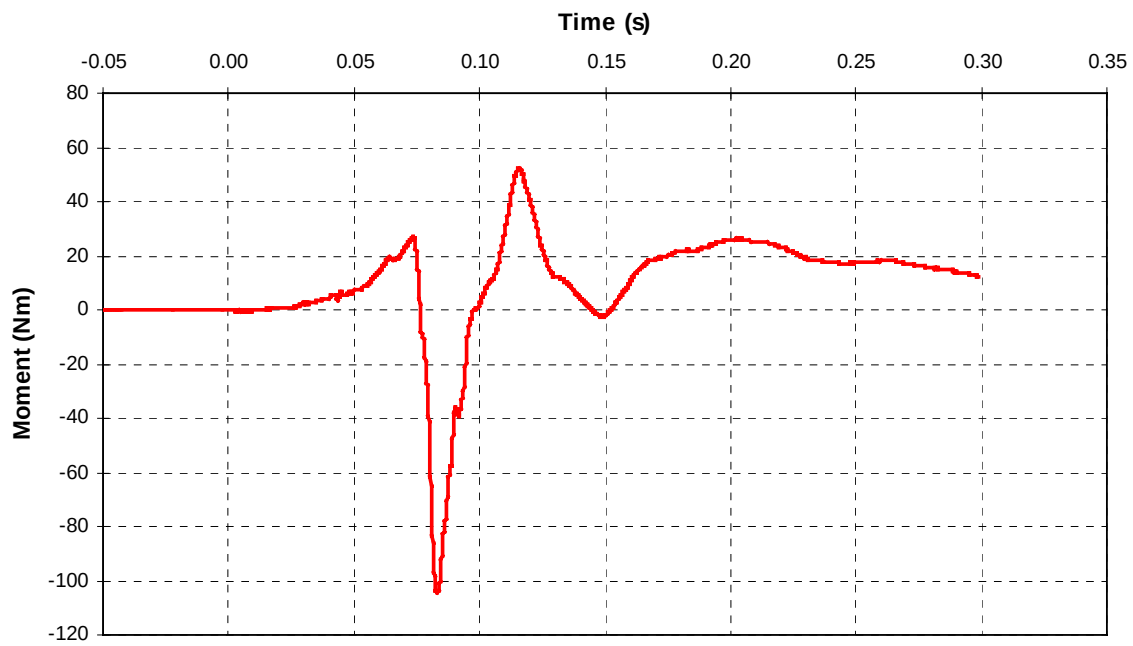
A- 37 CF99025 1999 Chevrolet Malibu Right Femur Axial Force Analysis



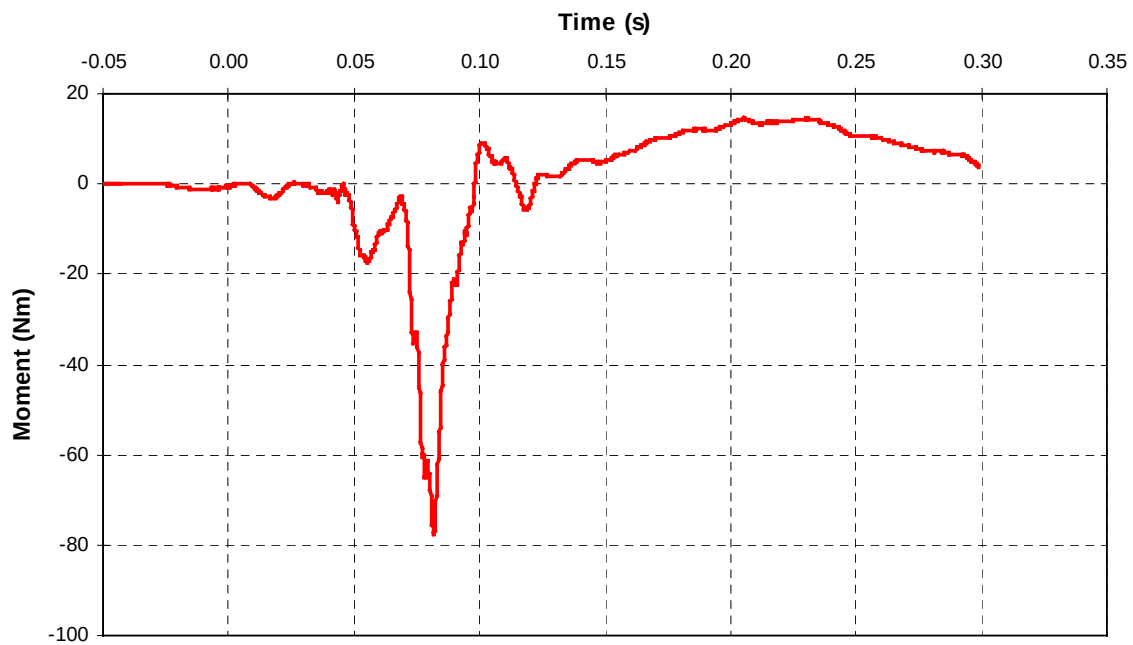
A- 38 CF99025 1999 Chevrolet Malibu Right Tibia-Femur Displacement



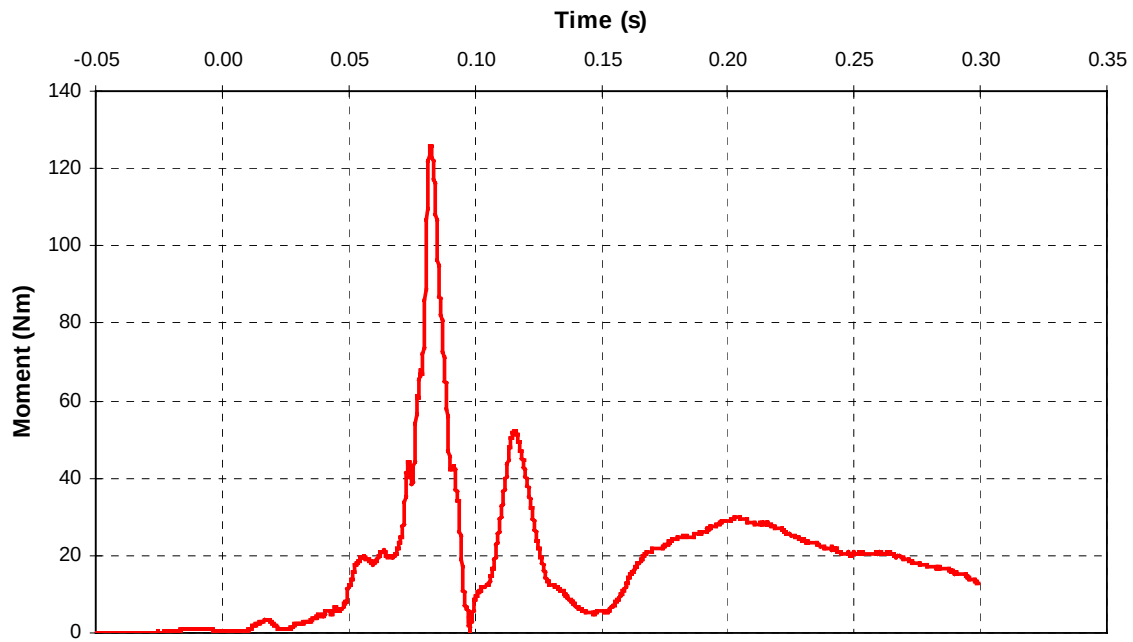
A- 39 CF99025 1999 Chevrolet Malibu Right Upper Tibia L-M Moment



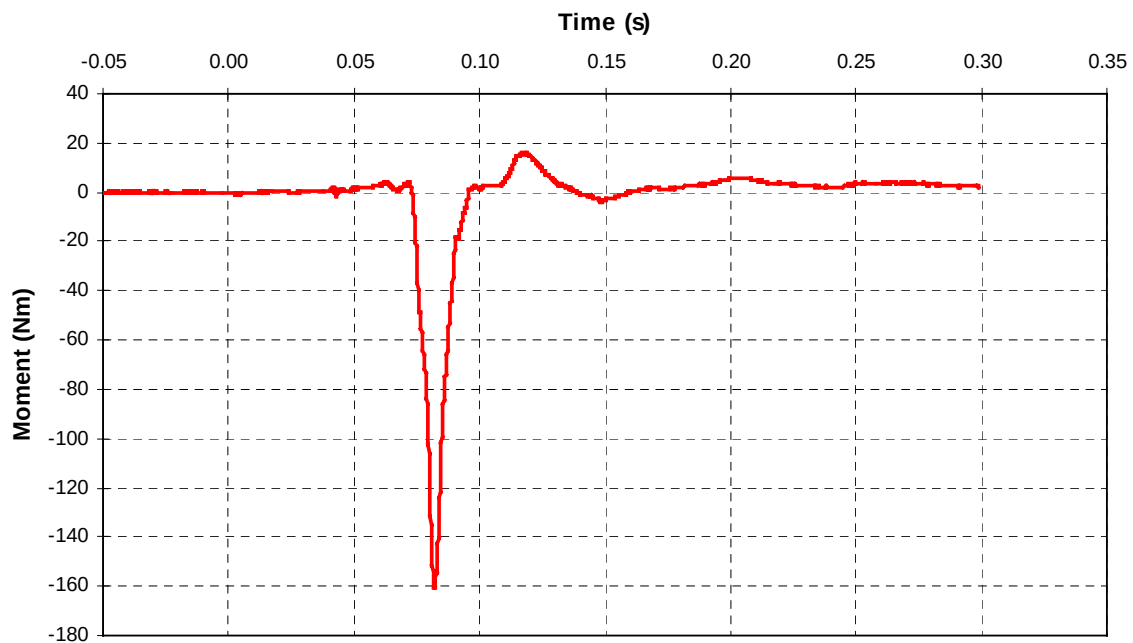
A- 40 CF99025 1999 Chevrolet Malibu Right Upper Tibia A-P Moment



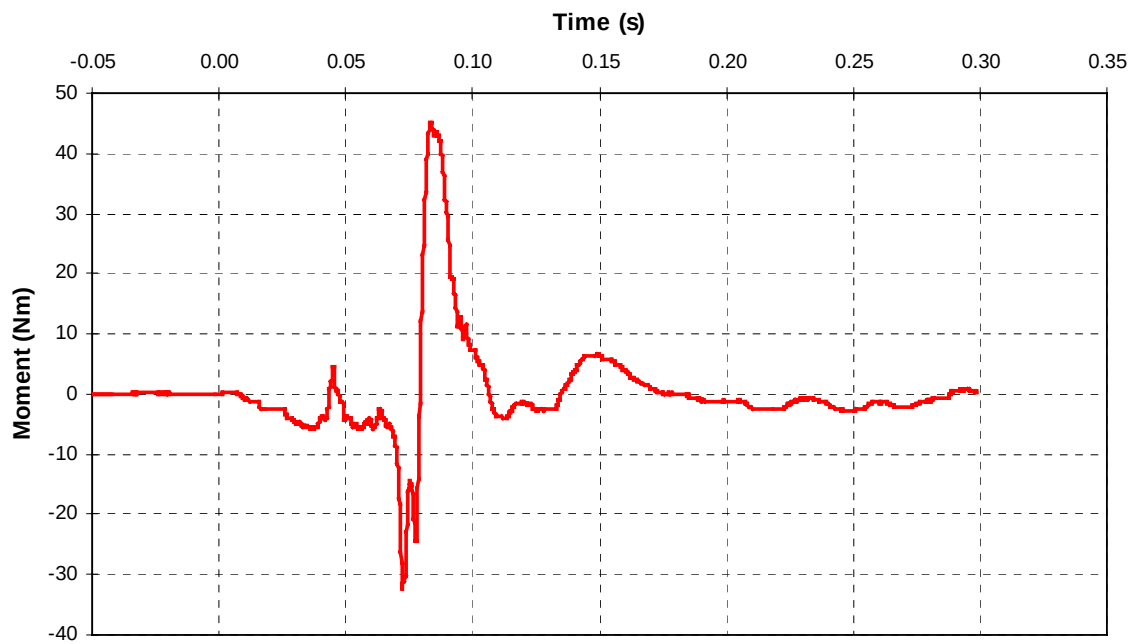
A- 41 CF99025 1999 Chevrolet Malibu Right Upper Tibia Vector Resultant Moment



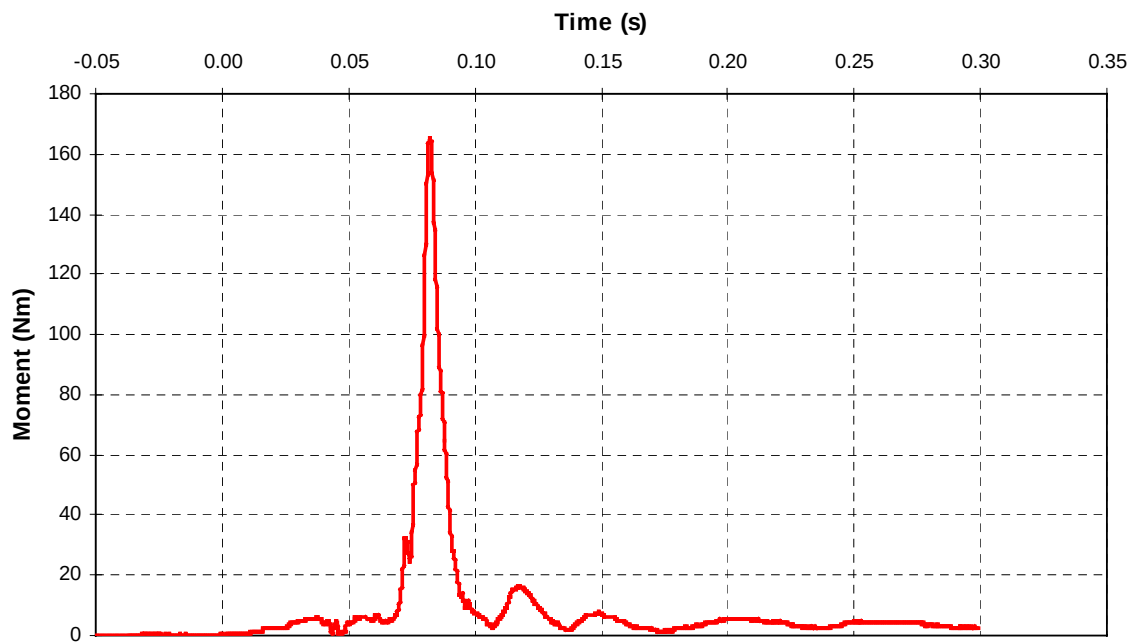
A- 42 CF99025 1999 Chevrolet Malibu Right Lower Tibia L-M Moment



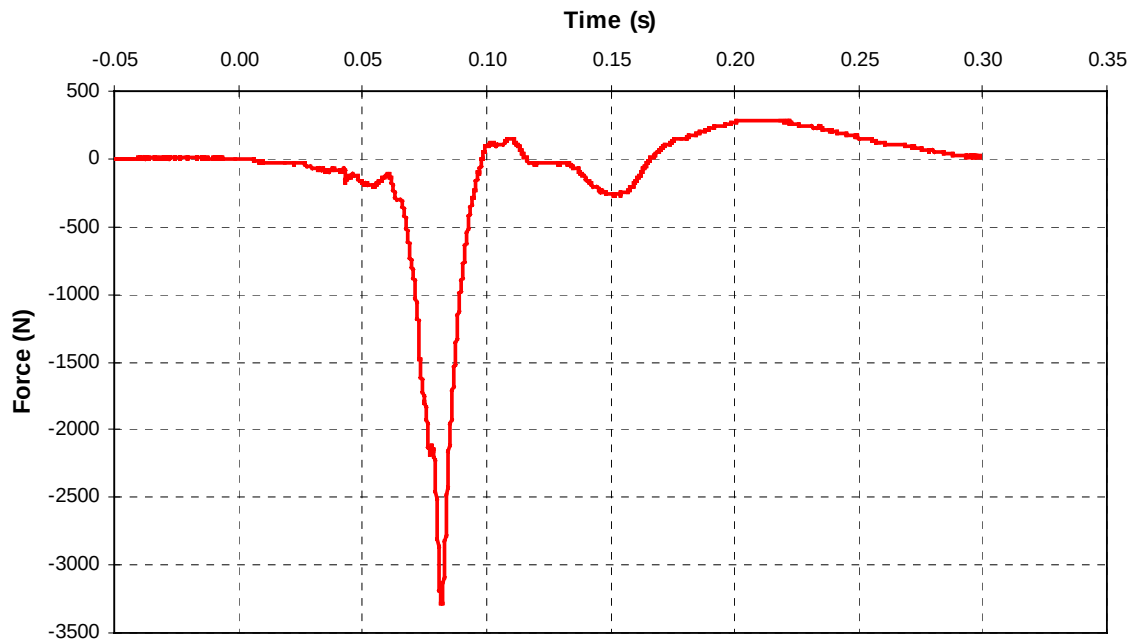
A- 43 CF99025 1999 Chevrolet Malibu Right Lower Tibia A-P Moment



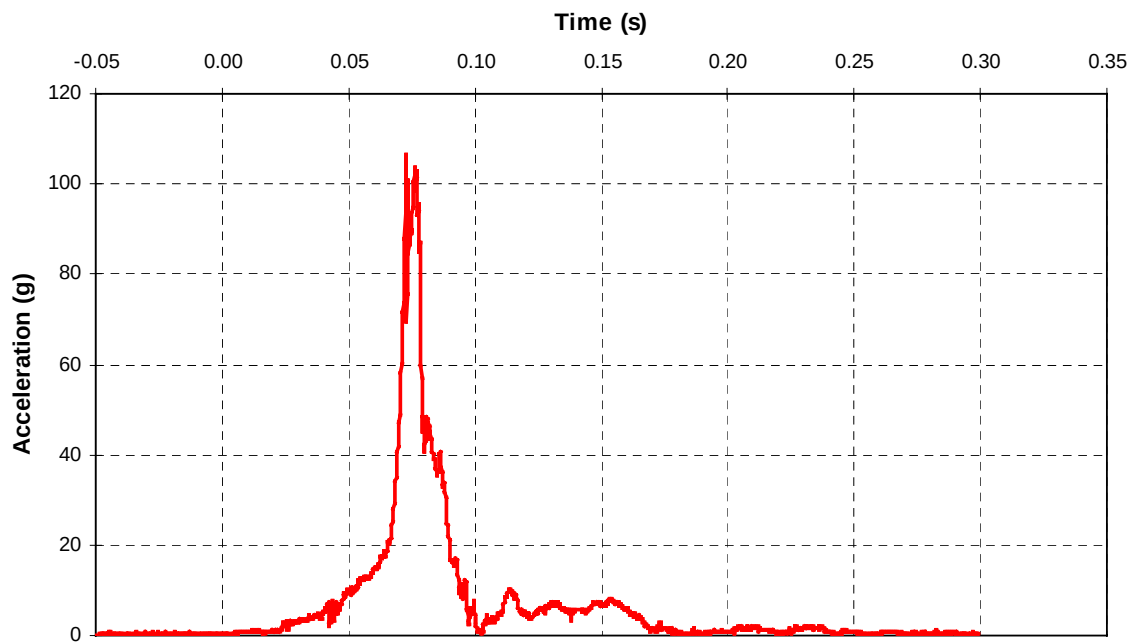
A- 44 CF99025 1999 Chevrolet Malibu Right Lower Tibia Vector Resultant Moment



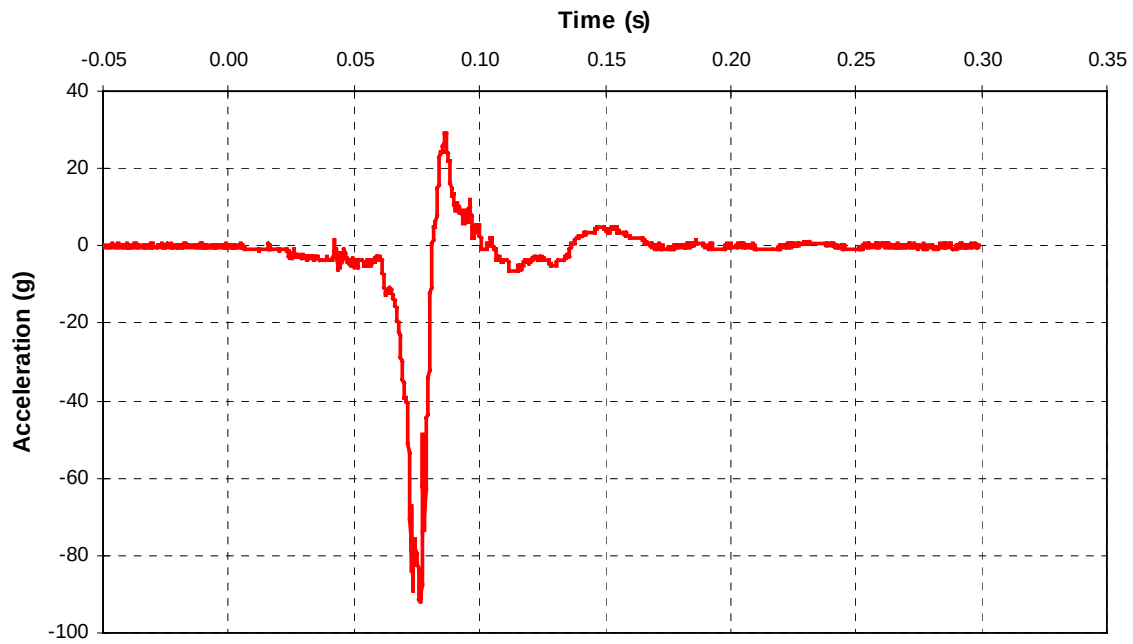
A- 45 CF99025 1999 Chevrolet Malibu Right Lower Tibia Axial Force



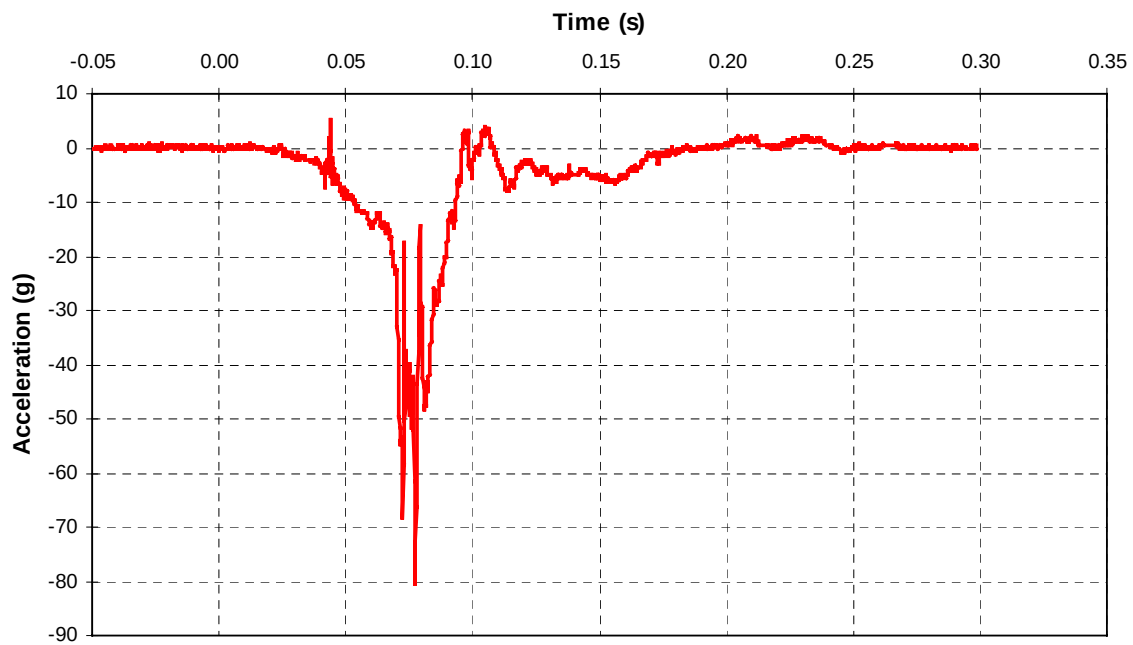
A- 46 CF99025 1999 Chevrolet Malibu Right Foot Vector Resultant Acceleration



A- 47 CF99025 1999 Chevrolet Malibu Right Foot A-P Acceleration



A- 48 CF99025 1999 Chevrolet Malibu Right Foot I-S Acceleration



1999 MALIBU SEDAN

3100 SFI V6 ENGINE
4-SPD. AUTO. TRANS. W/OVERDRIVE

EXTERIOR DARK CHERRY METALLIC
INTERIOR LIGHT GRAY CLOTH



GENUINE CHEVROLET®

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MANUFACTURER'S SUGGESTED RETAIL PRICE



STANDARD EQUIPMENT

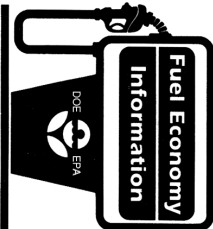
Items Featured Below are Included at NO EXTRA CHARGE in the Standard Vehicle Price Shown at Right

- P O W E R T E A M / C H A S S :
- SEQUENTIAL FUEL INJECTION
- PLATINUM TIPPED SPARK PLUGS
- STAINLESS STEEL EXHAUST
- FULL FRAME FRONT CHASSIS
- 4-WHEEL INDEPENDT SUSPENSION
- POWER RACK & PINION STEERING
- FRONT & REAR STABILIZER BARS
- FRONT WHEEL DRIVE
- S A F E T Y / S E C U R I T Y
- NEXT GENERATION DRIVER & FRONT PASSENGER AIR BAGS
- 4-WHEEL ANTILOCK BRAKES
- BATTERY RUNDOWN PROTECTION
- PASSLOCK II THEFT DETERRENT
- DAYTIME RUNNING LAMPS WITH AUTOMATIC LAMP CONTROL
- THEATER LIGHTING
- CHILD SECURITY REAR DOOR LOCK E X T E R I O R
- BOLT-ON WHEEL COVERS
- P215/60R15 B/W TOURING TIRES
- BASE COAT/CLEAR COAT PAINT
- 2-SIDED GALVANIZED STEEL ON EXTERIOR PANELS EXCEPT ROOF
- BODY COLOR 5-MPH BUMPERS
- BODY COLOR SIDE MOLDINGS & DOOR HANDLES
- REFLECTOR OPTICS HEADLAMPS
- DUAL BODY COLOR MIRRORS I N T E R I O R
- AIR CONDITIONING
- AM/FM STEREO W/SEEK-SCAN,CLOCK
- TILT-WHEEL ADJ STEERING COL
- VARIABLE INTERMITTENT WIPERS
- BACKLIT SWITCHES
- CENTER SHIFT CONSOLE WITH ARMREST, STORAGE & CUPHOLDERS
- RECLINING FRONT BUCKET SEATS
- AUXILIARY POWER OUTLETS
- REAR SEAT HEAT DUCTS

Compare this vehicle to others in the **FREE FUEL ECONOMY GUIDE** available at the dealer.

CITY MPG

20



HIGHWAY MPG

29

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 BETWEEN

17 AND 23 MPG IN THE CITY
AND BETWEEN

24 AND 34 MPG ON THE
HIGHWAY.

FOR COMPARISON SHOPPING,
ALL VEHICLES CLASSIFIED AS
1999 MALIBU
3.1 LITER V6 ENGINE
FUEL INJECTION, AUTOMATIC
4 SPD ELECTRONIC TRANS
CATALYST, FEEDBACK FUEL SYSTEM

ESTIMATED ANNUAL FUEL COST: \$750

N/A

STANDARD VEHICLE PRICE \$16,000.00

Options Installed by Manufacturer

MALIBU PREFERRED EQUIPMENT GROUP 1 INCLUDES:	740.00
• POWER DOOR LOCKS	
• POWER WINDOWS	
• MIRRORS: POWER O/S REARVIEW	
3100 SFI V6 ENGINE	595.00
CRUISE CONTROL-AUTO	225.00
ELECTRONICALLY TUNED AM/FM STEREO RADIO W/SEEK-SCAN	220.00
AUTO TONE CONTROL, STEREO CASSETTE TAPE PLAYER, DIGITAL CLOCK, AND THEFT DETERRENT	
ELECTRIC REAR WINDOW DEFOGGER	180.00
COLOR-KEYED FRONT AND REAR CARPETED FLOOR MATS	40.00
NORTHEAST STATES EMISSIONS	.00
TOTAL OPTIONS	2,000.00

TOTAL VEHICLE & OPTIONS	\$18,000.00
DESTINATION CHARGE	535.00
TOTAL VEHICLE PRICE*	\$18,535.00

DEALER TO WHOM DELIVERED PRICE CHEVROLET CO

PO BOX 7463

VA 22906

FINAL ASSEMBLY OKLAHOMA CITY, OK USA

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MODEL NO. 10D83

SALES CODE E

DEALER NO 14-377

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