

Insurance Institute for Highway Safety Crashworthiness Evaluation

Crash Test Report 2001 Mitsubishi Montero (CF00022)

Vehicle identification number: JA4MW51RA1J003130
Body style: Midsize 4-door utility vehicle
Engine/transmission: Longitudinal 3.5-liter V6, 5-speed automatic,
4-wheel drive

Standard crashworthiness features:

- Driver and right front passenger airbags
- Driver and right front passenger seat-mounted side airbags (designed to protect thorax)
- Dual-locking shoulder belts (front, second row outboard, and third row seating positions)
- Shoulder belt upper anchorage height adjusters (front seating positions only)
- Seat belt force-limiting mechanisms (front seating positions only)
- Right front and all rear shoulder belt retractors are convertible from emergency to automatic locking for ease of child restraint use
- LATCH system (rigid lower anchorages and top tether attachments) for child restraints (second row outboard seating positions)
- Rear seat head restraints (second row outboard and third row seating positions)

Other standard safety features:

- 4-wheel antilock brakes

Vehicle specifications (provided by manufacturer):

Wheelbase:	278 cm
Overall length:	480 cm
Overall width:	188 cm
Curb weight:	2,059 kg (base model)

Vehicle specifications (measured):

Front bumper to firewall:	110 cm
Curb weight:	2,172 kg
Test weight:	2,264 kg (47% front, 53% rear)
Overall width:	189 cm

Nominal test parameters:

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

Crash test date:

July 12, 2000

Figure 1
Precrash and Postcrash Side Views — 2001 Mitsubishi Montero



Summary

A 2001 Mitsubishi Montero was crash tested on July 12, 2000 into a fixed deformable barrier at 40.1 mi/h (64.5 km/h) and a 39 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 1-2 cm. Resultant intrusion in the driver footwell measured 7 cm at the footrest and 15-22 cm at other places on the toepan. All doors remained closed during the crash. After the crash, the right front door required additional effort but no tools to open, and all other doors opened with ease.

The driver dummy was restrained by a three-point lap/shoulder belt and an airbag. During the crash, 9 cm of webbing spooled off the retractor, including about 8 cm from the force-limiting mechanism. Also, a portion of the tear stitching on the lap portion of the belt webbing tore, allowing 6 cm of slack to enter the webbing. The airbag contacted the dummy's chin during deployment. During the crash, the steering wheel and column moved significantly upward and forward as the dummy loaded the airbag. While the steering wheel was in this position, the dummy's face contacted the lower portion of the steering wheel rim through the airbag. During rebound from the airbag, the dummy moved slightly outward and upward, with the head contacting the left side of the head restraint, the B-pillar, and the upper portion of the shoulder belt upper anchorage height adjuster. It was estimated that the upper end of the steering column had moved dynamically upward 19 cm and forward 11 cm during the crash.

The maximum resultant head accelerations were 72 g from the steering wheel contact and 29 g from the B-pillar contact. The maximum left upper tibia A-P moment was 213 Nm, significantly contributing to the left upper tibia index of 0.95. The maximum left tibia-femur displacement was -16 mm.

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 49 cm behind its center of gravity (196 cm behind the front axle). The vehicle speed recorded just prior to impact was 40.1 mi/h (64.5 km/h), and the actual overlap was 39 percent.

Structural Performance

All doors remained closed during the crash. The driver door aperture shortened 2 cm, as measured at the lower edge of the window. After the crash, the right front door required additional effort but no tools to open, and all other doors (including the driver door) opened with ease.

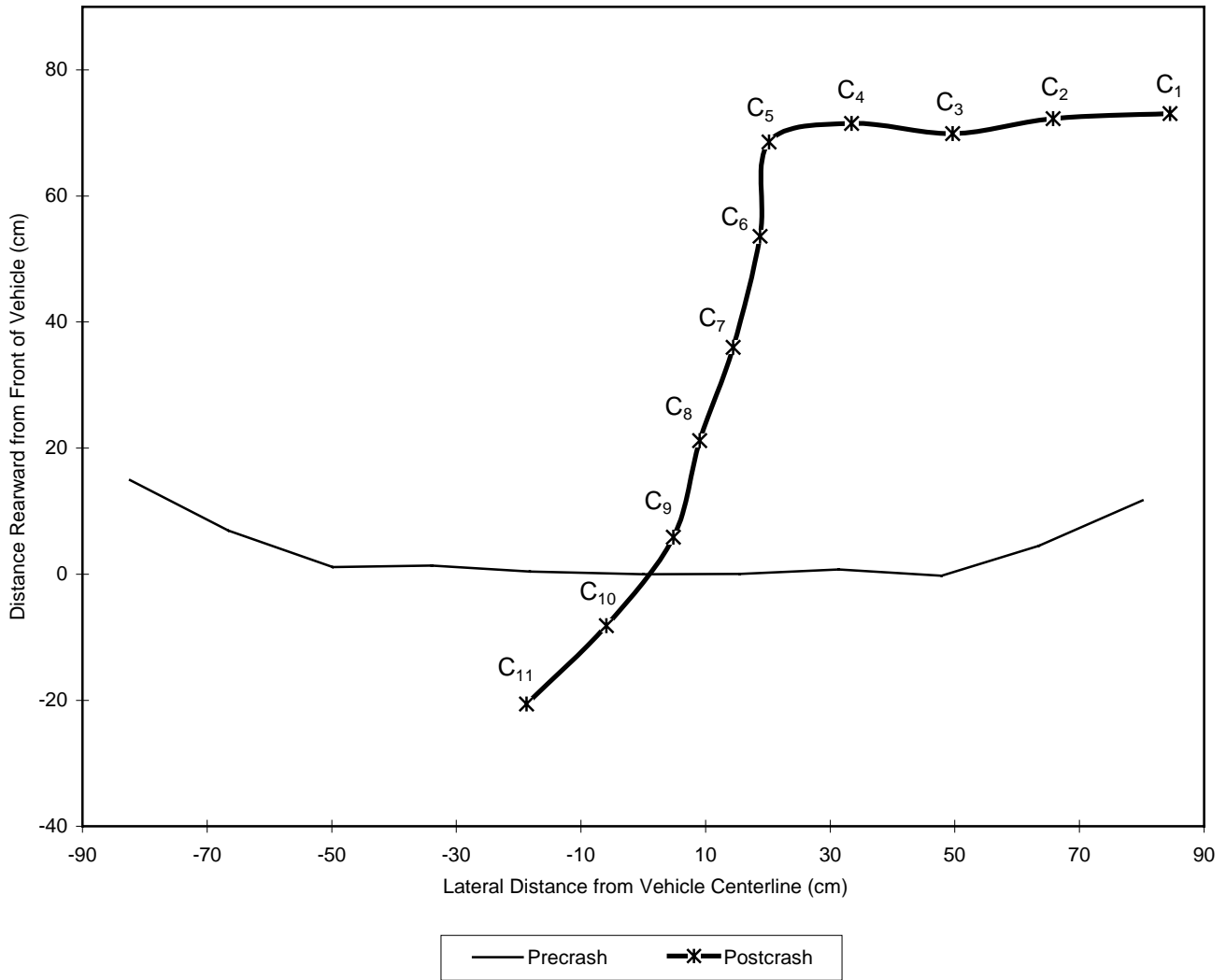
No fuel system leaks were observed after the crash. In addition, no fuel system leaks were observed when the vehicle was rotated onto its right side to allow postcrash photography.

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

Figure 2
Overhead View of Crash Deformation — 2001 Mitsubishi Montero



Figure 3
Front Bumper Cover Crush Contour — 2001 Mitsubishi Montero



	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)	73	72	70	72	69	54	36	21	6	-8	-21
Precrash Contour (cm)	12	5	0	1	0	0	0	1	1	7	15
Resulting Crush (cm)	61	67	70	71	69	54	36	20	5	-15	-36

The bumper cover at C₁ was torn off the vehicle during the crash. The postcrash measurement for C₁ represents the best attempt to fit the cover back onto the vehicle. The length of the reference line was 162 cm precrash and 103 cm postcrash.

Figure 4
Pre-crash and Post-crash Views from Below — 2001 Mitsubishi Montero

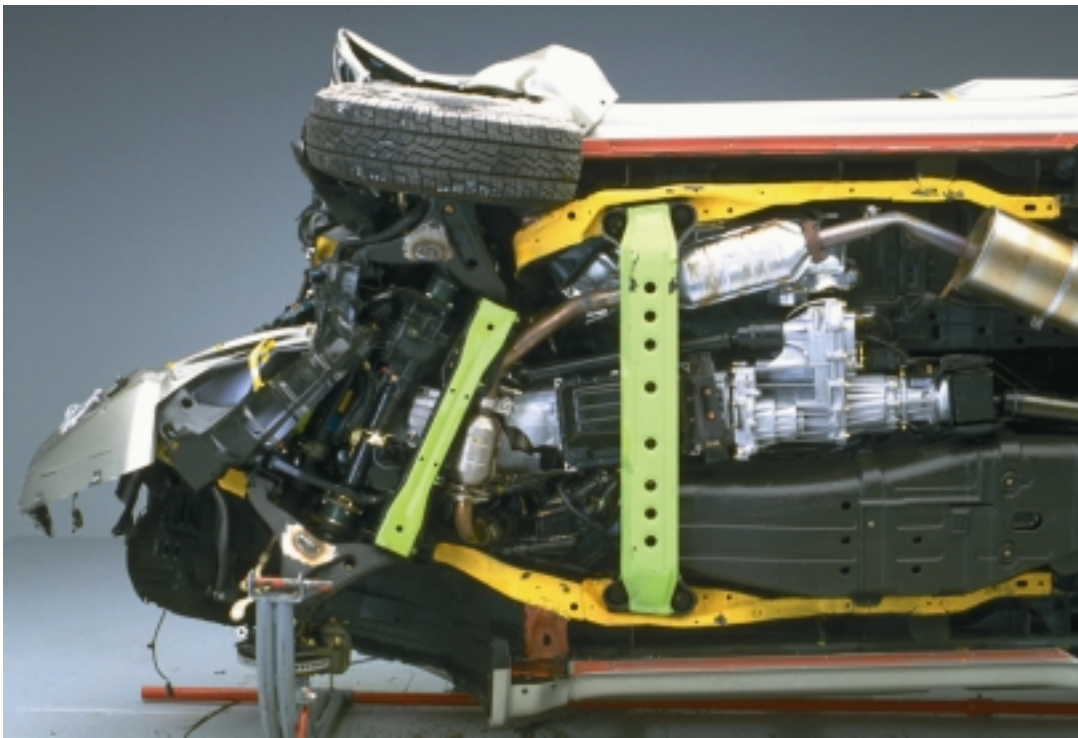
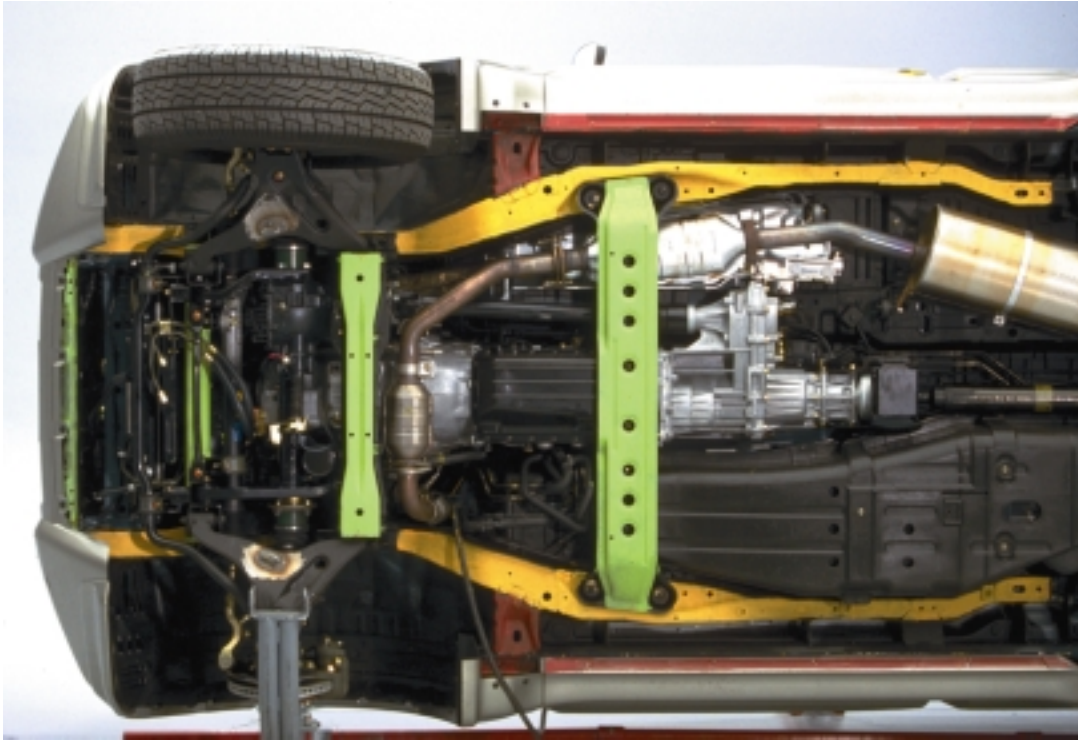
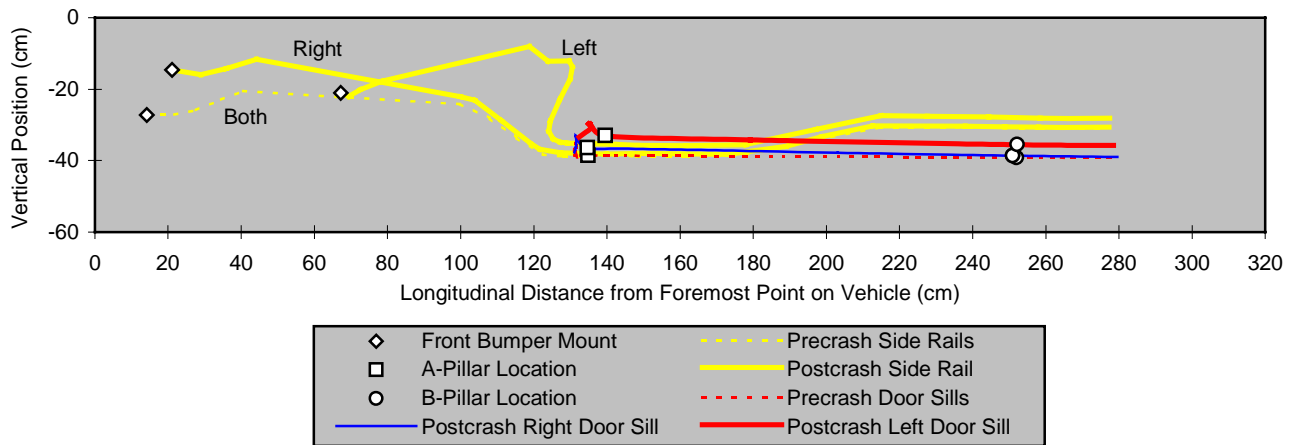
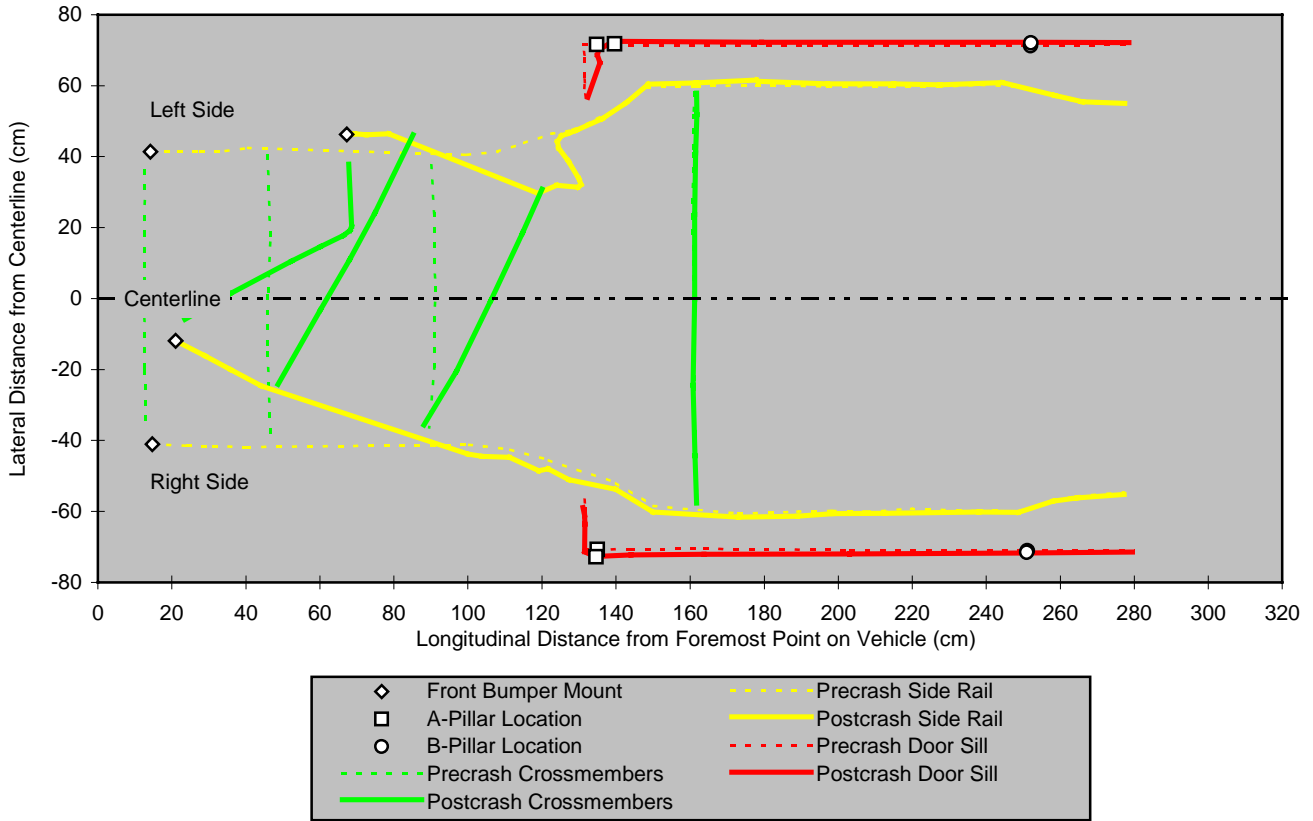


Figure 5
Structural Deformation, Views from Below and Side — 2001 Mitsubishi Montero



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)**	-8	-5	2	10
Steering column dynamic movement (cm)***	11	n/a	19	n/a
Left lower instrument panel (cm)	-1	-1	2	2
Right lower instrument panel (cm)	-2	0	1	3
Brake pedal (cm)	-11	0	2	11
Left toepan (cm)	-14	0	5	15
Center toepan (cm)	-21	3	8	22
Right toepan (cm)	-19	3	7	20
Footrest (cm)	-6	-1	4	7
Average displacement of the four seat-attachment bolts relative to reference system (cm)	0	0	-1	n/a

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

** Steering column postcrash measurement was taken while it was resting on the dummy's legs.

*** See "Steering Column" paragraph on next page for measurement description.

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 position D indicated the airbag deployed at 36 ms into the crash and appeared to be fully inflated at 66 ms. The seat-mounted side airbag did not deploy during the crash.

Passenger: The corner-mounted passenger airbag deployed at an angle and is untethered. The cylinder-shaped airbag is vented by two holes located at the lateral ends. The airbag did not contribute to windshield damage during deployment. The seat-mounted side airbag did not deploy during the crash.

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 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 lower B-pillars. During the crash, 9 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 torsion bar within the retractor spool indicated it was twisted about 180 degrees from its precrash orientation. This measure, combined with the estimated diameter of the retractor spool and stowed webbing (54 mm), suggested the force limiter contributed about 8 cm of webbing to the total amount pulled through the D-ring. An additional 6 cm of webbing was introduced into the lap portion of the webbing due to partial tearing of the tear stitching.

Seat

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

Steering Column

During the crash, the shear modules completely separated, and the steering wheel moved significantly upward and forward as the dummy loaded the airbag and steering wheel. Film analysis from camera positions D and E showed that the plane of the steering wheel rim was almost horizontal when the upper end of the column had reached its forwardmost point. Film analysis from camera position B showed that almost half the steering wheel was over the top of the instrument panel. After the crash, the steering wheel was found resting on the dummy's legs. In this position, the upper end of the steering column had moved upward 2 cm and rearward 8 cm relative to the driver seat. The steering wheel was then placed in the approximate position that it had reached dynamically and measured again. These measurements showed that the upper end of the column had moved upward 19 cm and forward 11 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 chin at 52 ms into the crash. The airbag receded from the chin by 62 ms, and full inflation occurred at 66 ms. Paint transferred from the dummy's face indicated the nose began to load the fully inflated airbag 7 cm below and 1 cm to the left of its center. The steering column then moved sharply upward and forward as the dummy continued to move forward. Although the airbag fabric obscured the dummy's face and the steering wheel, the lower portion of the dummy's face appeared to approach the lower center (6 o'clock) portion of the steering wheel rim. Sudden increases in the dummy's rearward head acceleration, neck shear force, and neck tension force, all occurring at the same time (103-106 ms), were consistent with contact between the dummy's head and the steering wheel. During rebound from the airbag, the dummy's head moved slightly downward and outward. The head then moved upward, and the left upper rear of the head contacted the B-pillar and the upper portion of the shoulder belt upper anchorage height adjuster. Head acceleration and neck force measurements indicated this contact initially occurred at 232 ms. At about the same time, the right upper rear of the head contacted the left side of the head restraint. The dummy moved inward and outward again, and the head contacted the lower portion of the shoulder belt upper anchorage adjuster. As the dummy settled into the seat, the head contacted the right side of the head restraint. Table 2 provides the timing of these events.

Event	Time (ms)
Deployment of airbag	36
Airbag contacts face during deployment	52
Airbag fully inflated and face begins to load airbag	66
Steering wheel begins rapid movement upward	78
Head contacts steering wheel rim through airbag	103
Head contacts B-pillar, shoulder belt upper anchorage height adjuster, and head restraint	232

Figure 6
Dummy and Vehicle Interior, Postcrash — 2001 Mitsubishi Montero



Legs and Feet

Left leg and foot: Paint transferred from the dummy's left knee indicated the knee contacted the instrument panel just to the left of the steering column and just above the knee bolster. 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. The left foot was found slightly dorsiflexed and fully everted. The medial back of the heel was found resting on the floormat/carpeting, and the medial toe was touching the intruded toepan to the right of the footrest.

Right leg and foot: Paint transferred from the dummy's right knee indicated the knee contacted the instrument panel just to the right of the steering column and above the knee bolster. The knee also contacted the ignition key, which was bent forward. Paint transferred from the dummy's right shin indicated the shin contacted the bolster just below the knee impact location. The right foot was found somewhat dorsiflexed and fully everted. The sole of the instep and forefoot was pressed against the fully depressed accelerator pedal and pedal arm. The lateral back of the heel was pressed against a downward buckle of the floormat/carpeting, and the medial side of the foot was pressed against the inboard edge of the brake pedal.

Dummy Injury Measures

Head

The maximum vector resultant accelerations and the HICs were calculated during an interval that corresponds with the dummy's head excursion into the airbag. The maximum vector resultant head accelerations were 72 g at 105 ms from the steering wheel contact through the airbag and 29 g at 242 g 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	72	105
Vector resultant acceleration — 3 ms clip (g)	80	60	95-98
Head Injury Criterion (HIC)	1000	633	82-118
Head Injury Criterion — 15 ms interval (HIC-15)*	700	397	93-108

* 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).

Measure	Published Tolerance Threshold	Result	Time (ms)
A-P shear force (kN)	±3.1	0.2	98
Axial compression force (kN)	4.0	0.5	249
Axial tension force (kN)	3.3	1.9	89
Flexion bending moment (Nm)	310	16	172
Extension bending moment (Nm)	122	24	107

Chest

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

Table 5 Chest Injury Measurements — 2001 Mitsubishi Montero			
Measure	Published Tolerance Threshold	Result	Time (ms)
Vector resultant spine acceleration — 3 ms clip (g)	60	56	101-104
Rib compression (mm)	-50	-39	111
Sternum deflection rate (m/s)	-8.2	-1.8	76

Legs and Feet

Left leg and foot: The left upper tibia A-P moment was 213 Nm at 99 ms, significantly contributing to the left upper tibia index of 0.95 at 99 ms. The left tibia-femur displacement was -16 mm at 100 ms.

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

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

**Table 6
Leg and Foot Injury Measurements — 2001 Mitsubishi Montero**

Measure	Published Tolerance Threshold	Left		Right	
		Result	Time (ms)	Result	Time (ms)
Femur axial force (kN)	-9.1*	-3.6	96	-1.5	77
Tibia-femur displacement (mm)	-15	-16	100	-5	77
Upper Tibia					
L-M moment (Nm)	±225	-23	294	79	101
A-P moment (Nm)	±225	213	99	78	75
Vector resultant moment (Nm)	225	213	99	82	75
Index	1.00	0.95	99	0.45	64
Lower Tibia					
L-M moment (Nm)	±225**	-10	301	-23	92
A-P moment (Nm)	±225**	54	98	57	98
Vector resultant moment (Nm)	225**	54	98	58	98
Axial force (kN)	-8.0**	-1.2	66	-3.9	64
Index	1.00	0.24	98	0.28	98
Foot					
A-P acceleration (g)	±150	-34	64	-81	63
I-S acceleration (g)	±150	-47	90	-63	62
Vector resultant acceleration (g)	150	51	90	98	63

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

** 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

2001 Mitsubishi Montero Midsize Four-Door Utility Vehicle: 5 mi/h Front into Angle Barrier

Test Number: LA00014

VIN: JA4MW51R41J003130

Mileage: 265

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

Description	Part		Labor	
	Mfg. No	Price	Operation	Hours
Bumper cover, front	MR508782	\$408.33	Replace	
Bumper cover, front			Refinish	3.2
Wheel flare extension, bumper cover, right front	MR612083	123.65	Replace	
Wheel flare extension, bumper cover, right front			Refinish	0.4
Bumper reinforcement/retainer, upper front	MR437253	208.88	Replace*	2.4
Crossmember/reinforcement, lower front	MR485700	180.69	Replace*	2.0
Crossmember/reinforcement, lower front			Refinish	1.0
Headlamp/ turn signal assembly, left			Remove/reinstall	0.7
Headlamp/ turn signal assembly, right	MR558828	285.23	Replace	0.7
Headlamps			Aim	0.5
Fog lamp assembly, right	MR537965	233.58	Replace	
Fog lamp mounting bracket, right inner	MR416410	5.75	Replace	
Fog lamp mounting bracket, right outer	MR482714	6.58	Replace	
Fog lamp bezel (trim), right	MR388020	21.43	Replace	
Fog lamps			Aim	0.4
Frame sidemember end/radiator support/inner fender panel			Set up*	1.0
Frame sidemember end, right front			Pull/align*	1.0
Radiator support/inner fender panel			Pull/align*	2.0
Radiator support/inner fender panel			Repair*	2.5
Radiator support/inner fender panel			Refinish	0.5
Fender, right front			Repair*	2.5
Fender, right front			Refinish	2.7
Wheel flare extension, fender, right front			Remove/reinstall	0.4
Fender, left front			Align*	0.5
Antenna mast, fender, right front			Remove/reinstall	0.1
Montero emblem, fender, right front			Remove/reinstall	0.2
Limited emblem, fender, right front	MR557600	7.88	Replace	0.2
Windshield washer reservoir	MR515932	32.33	Replace	0.2
Air cleaner assembly			Remove/reinstall	0.5
Paint and materials		140.40		
Total Parts		\$1,654.73		
Total Labor		870.40		25.6
Grand Total		\$2,525.13		

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

Dummy Clearance Measurements

Test Number: CF00022
Vehicle Make/Model: Mitsubishi Montero
Vehicle Model Year: 2001
Seat Type: Electrically adjusted bucket seat (fore/aft, height, and seat back angle)

Manufacturer's Specifications

Seat Back Information: Reclined to 21°, as measured on outboard rear frame of seat back

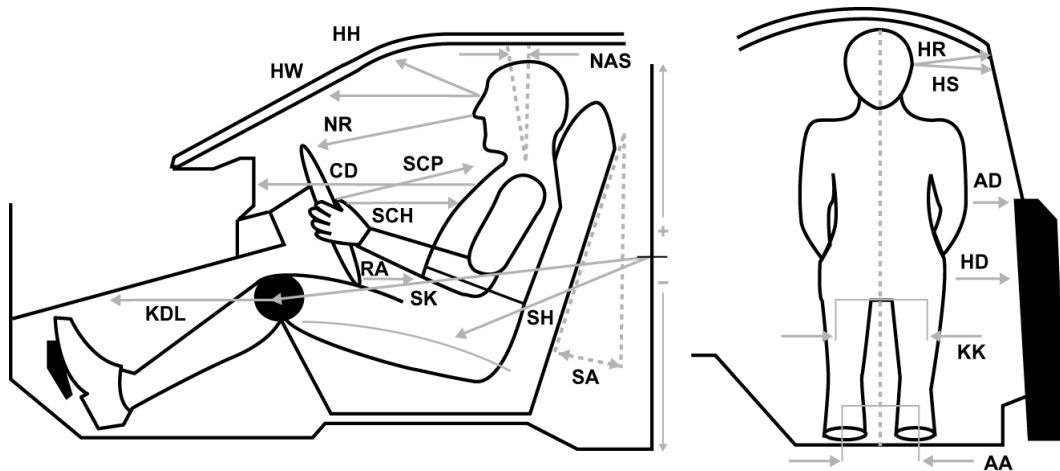
Upper Belt Anchorage: Set to 3rd of 5 positions

Steering Column Adjustment: Set to midpoint of tilt adjustment range

Location	Code	Measure	Location	Code	Measure
Head to header	HH	464	Neck angle, torso 90	NAT90	20.6°
Head to windshield	HW	633	Neck angle, seated	NAS	7.3°
Nose to rim	NR	422	Torso angle (NAT90 – NAS)	TA	13.3°
Chest to dash	CD	622	Striker to knee*	SK	598
Rim to abdomen	RA	194	Striker to knee angle*	SKA	4.2°
Knee to dash, left	KDL	138	Striker to H-point, horizontal	SHH	196
Knee to dash, right	KDR	150	Striker to H-point, vertical	SHV	47
Steering wheel to chest, horizontal	SCH	296	Ankle to ankle	AA	338
Steering wheel to chest, perpendicular	SCP	303	Knee to knee	KK	328
Steering wheel to chest, reference	SCR	378	Arm to door	AD	100
Hub to chest, minimum	HCM	298	H-point to door	HD	140
Pelvic angle	PA	25°	Head to A-pillar	HA	470
Seat back angle	SA	21°	Head to roof	HR	245
			Head to side window	HS	245

All distance measurements are in millimeters (mm).

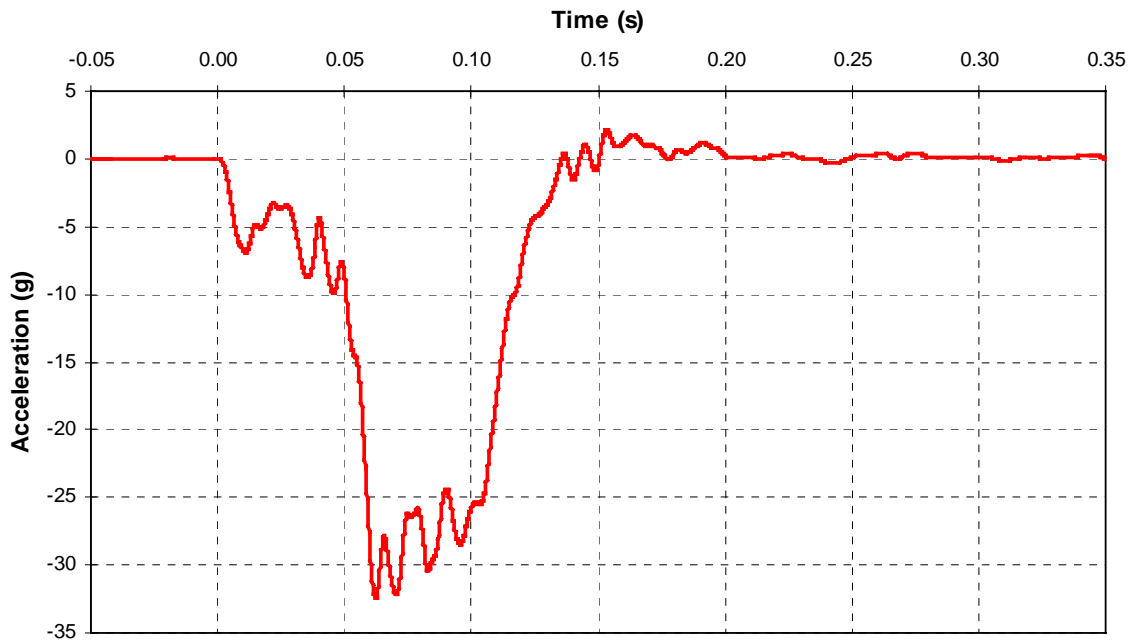
* These measurements were made in a vertical plane containing the striker and parallel to the driver door sill.



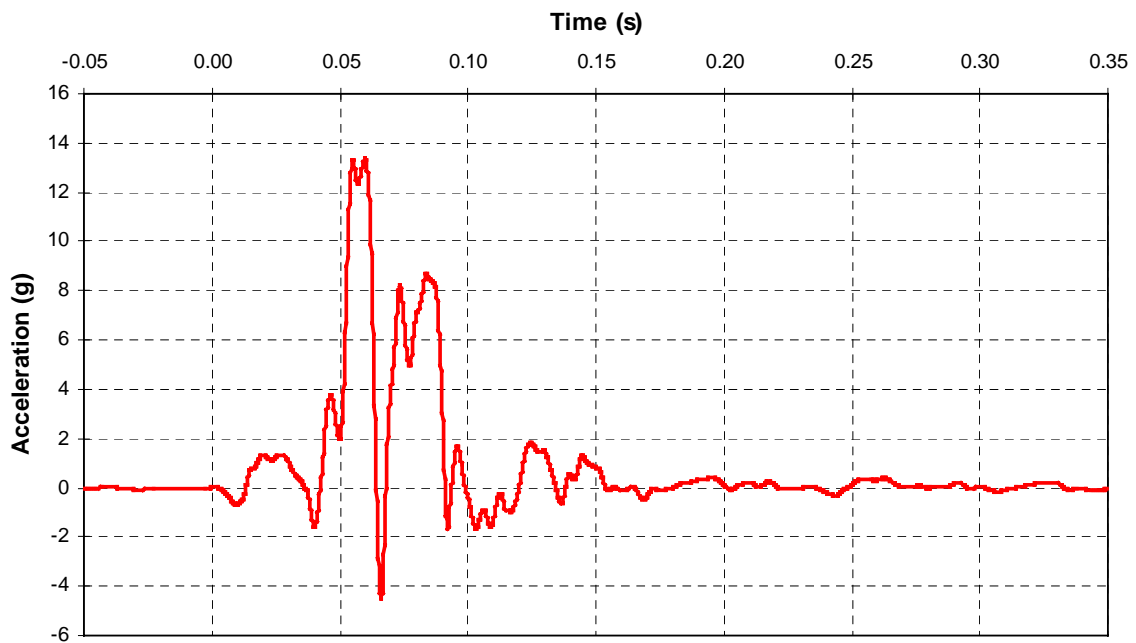
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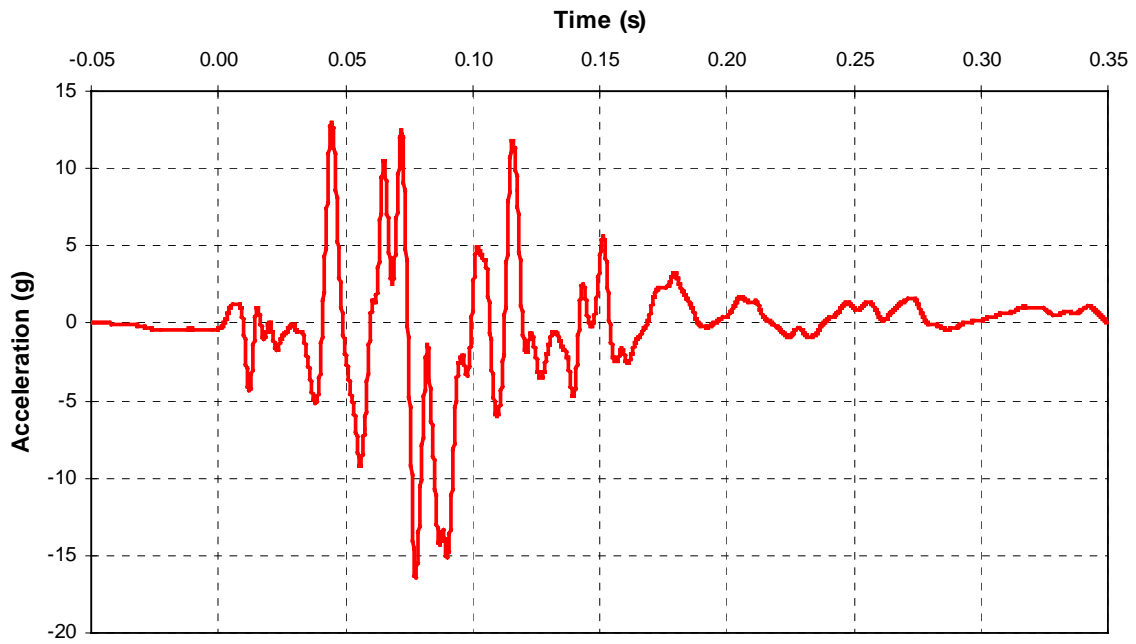
A- 1 CF00022 2001 Mitsubishi Montero Vehicle Longitudinal Acceleration



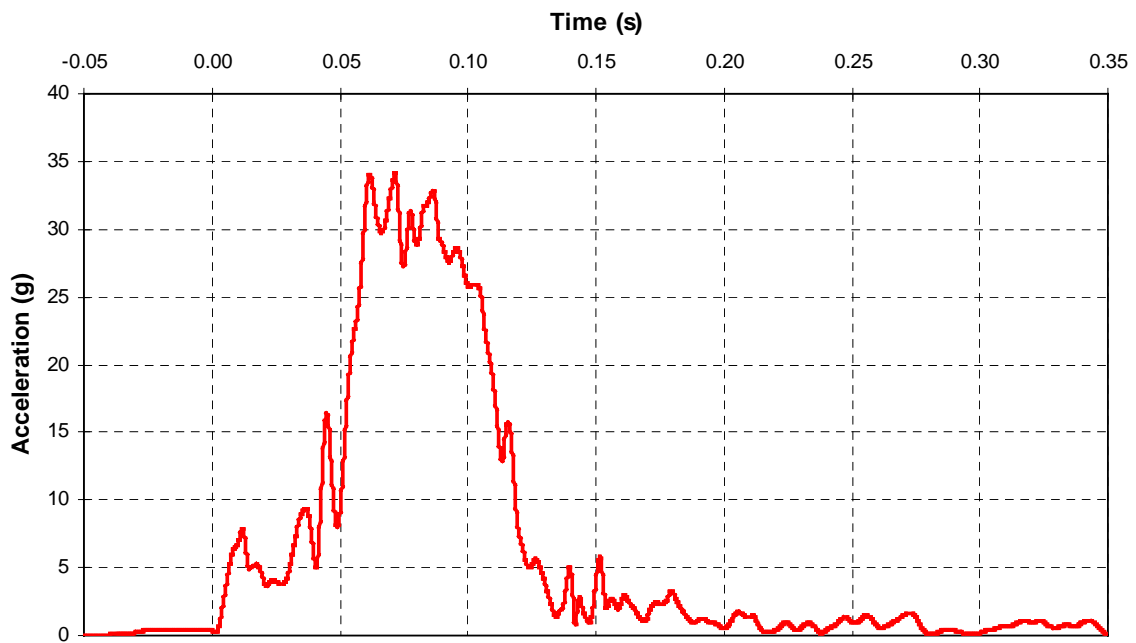
A- 2 CF00022 2001 Mitsubishi Montero Vehicle Lateral Acceleration



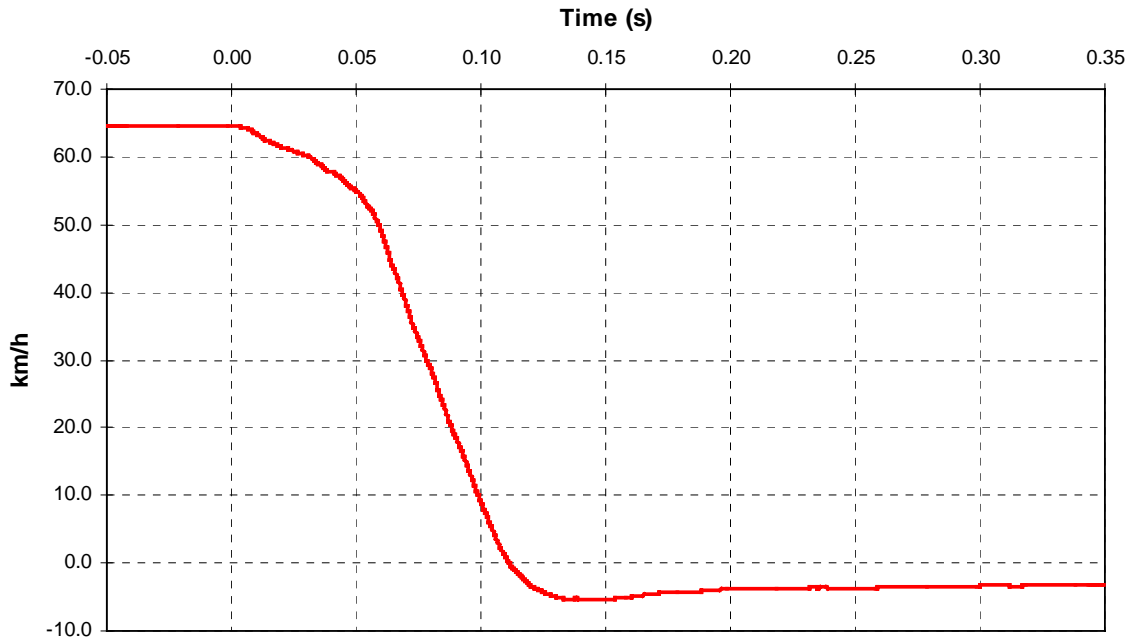
A- 3 CF00022 2001 Mitsubishi Montero Vehicle Vertical Acceleration



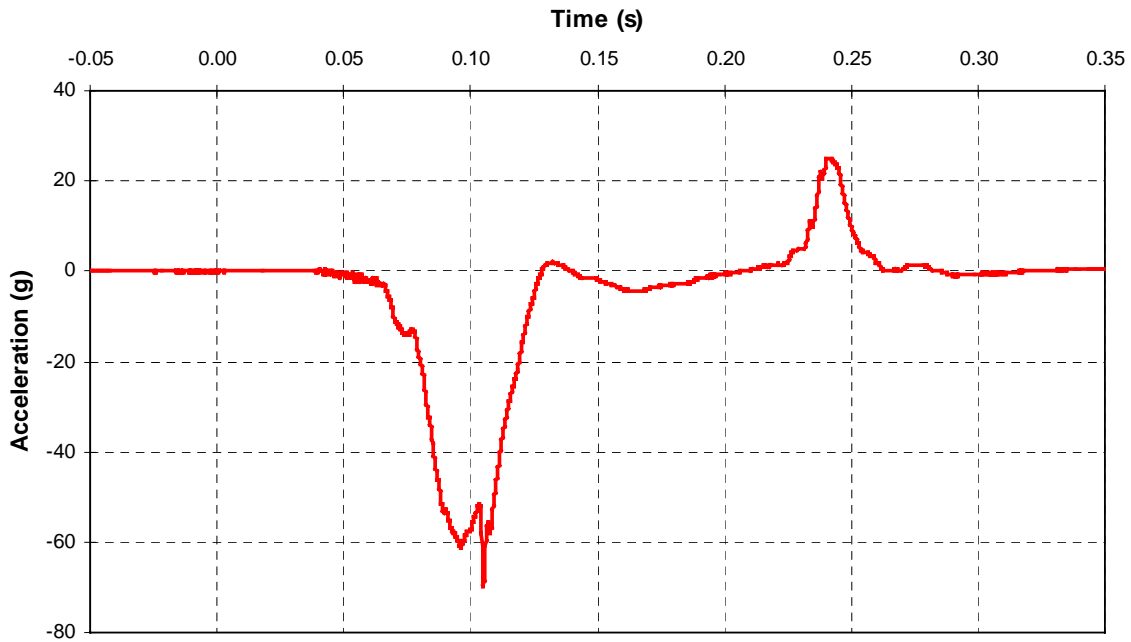
A- 4 CF00022 2001 Mitsubishi Montero Vehicle Vector Resultant Acceleration



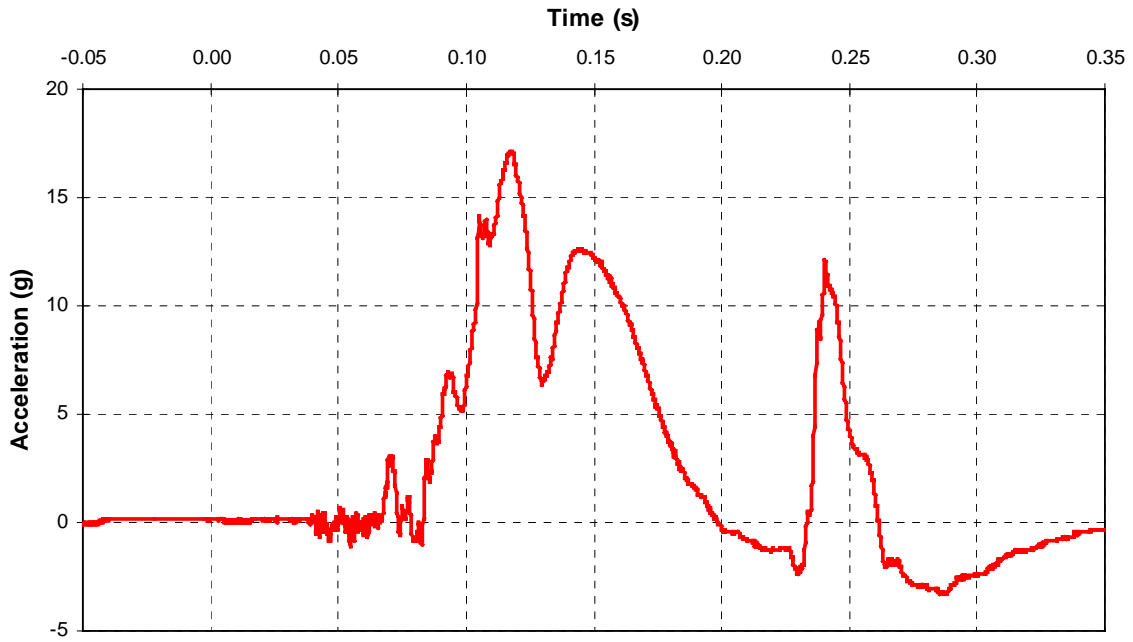
A- 5 CF00022 2001 Mitsubishi Montero Integration of Vehicle Longitudinal Acceleration



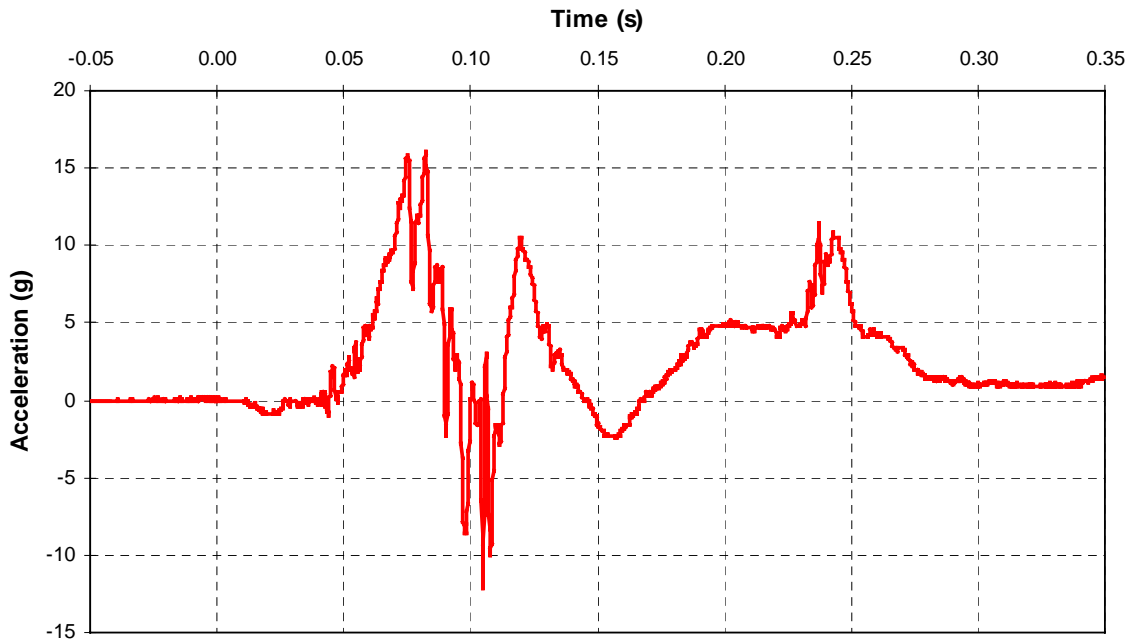
A- 6 CF00022 2001 Mitsubishi Montero Head A-P Acceleration



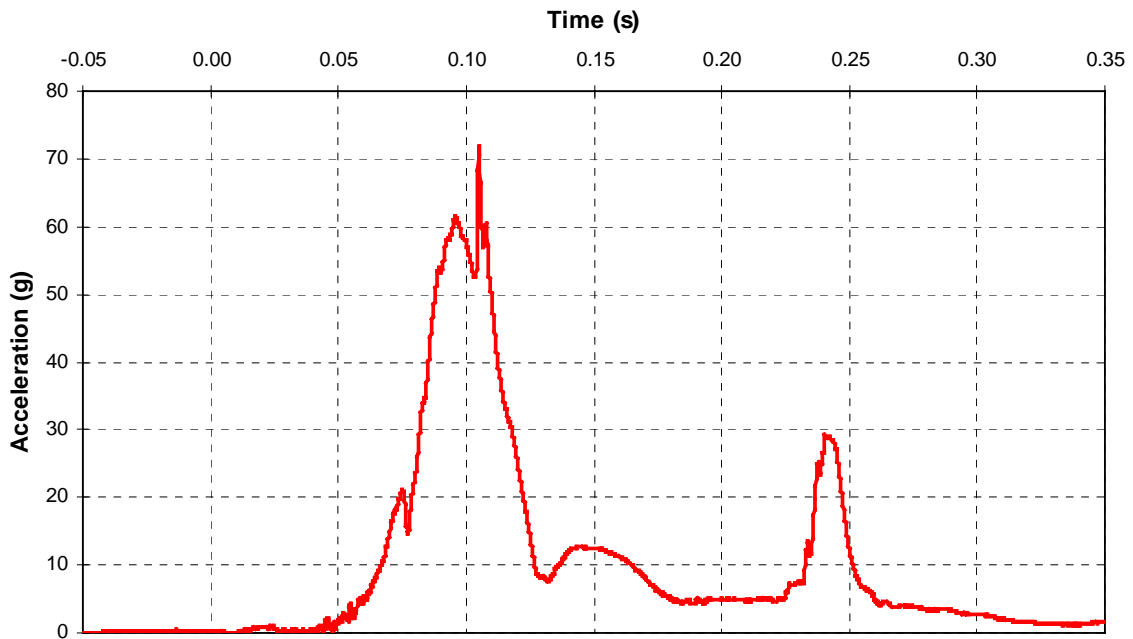
A- 7 CF00022 2001 Mitsubishi Montero Head L-M Acceleration



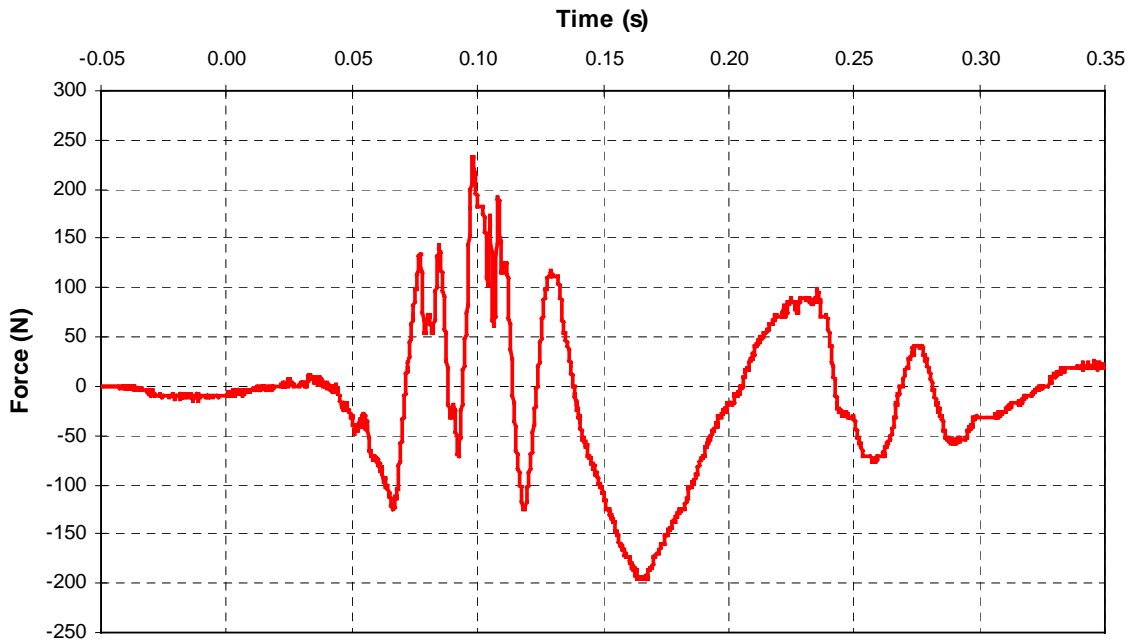
A- 8 CF00022 2001 Mitsubishi Montero Head I-S Acceleration



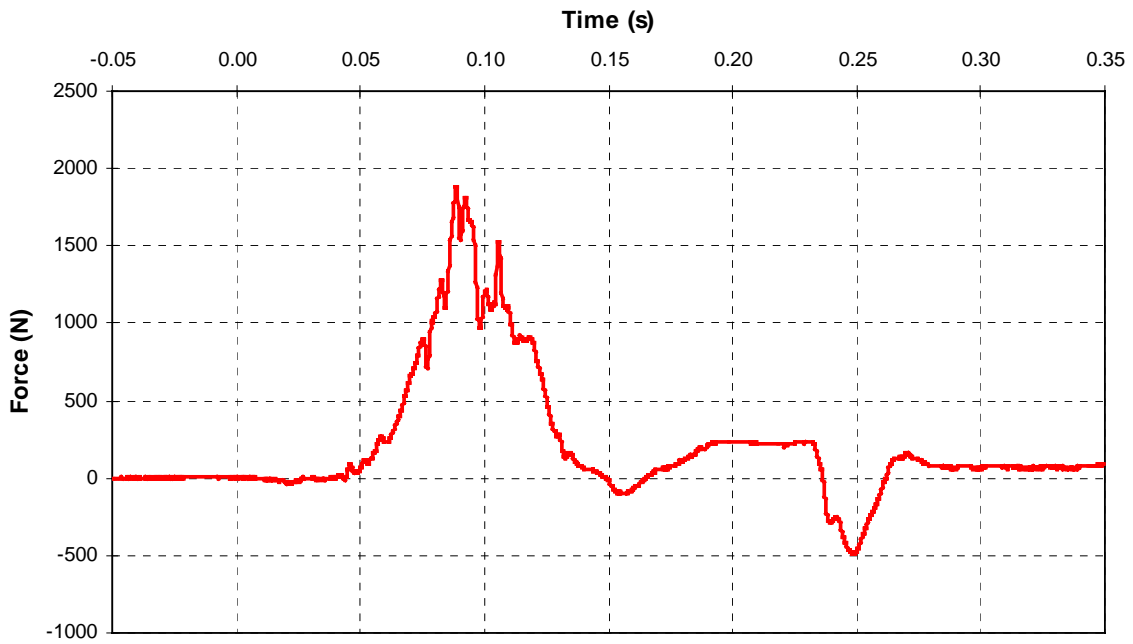
A- 9 CF00022 2001 Mitsubishi Montero Head Vector Resultant Acceleration



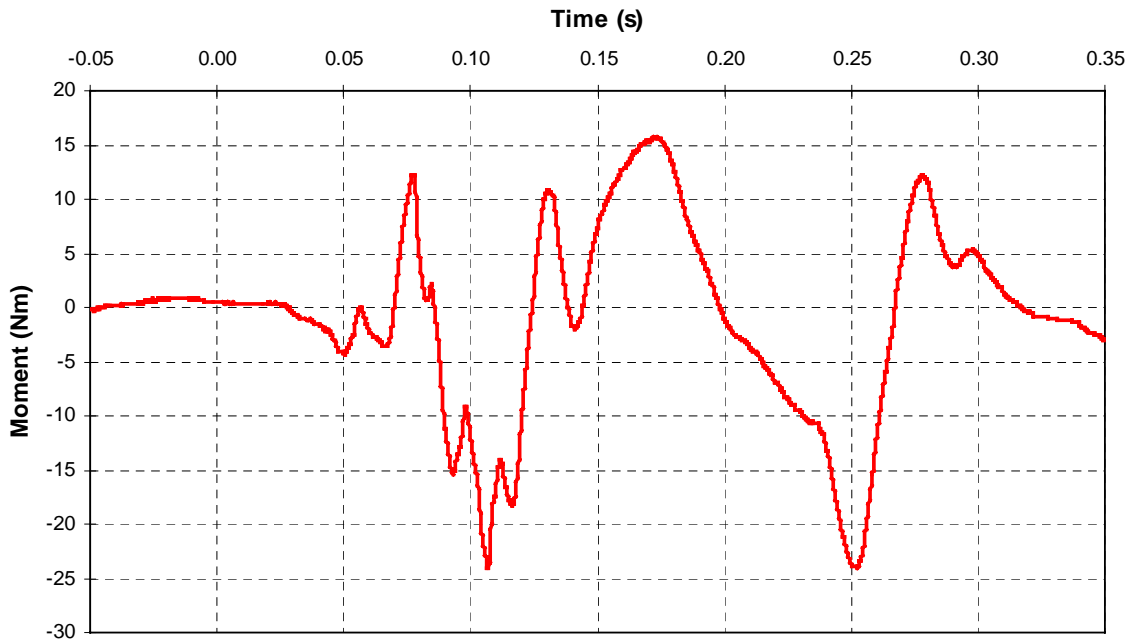
A- 10 CF00022 2001 Mitsubishi Montero Neck A-P Shear Force



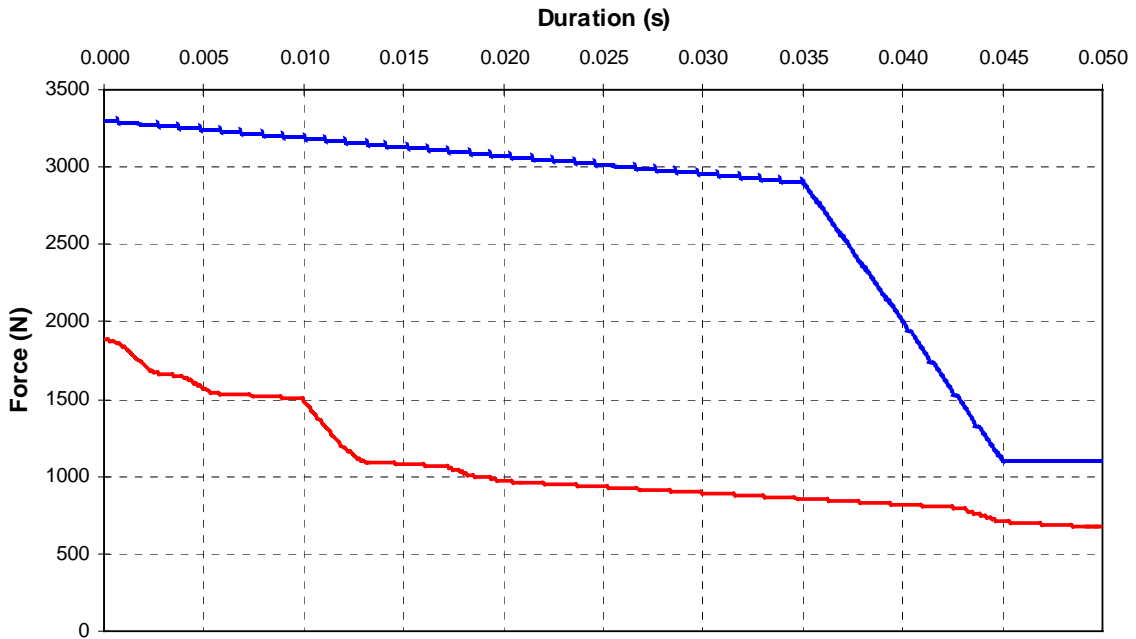
A- 11 CF00022 2001 Mitsubishi Montero Neck Axial Force



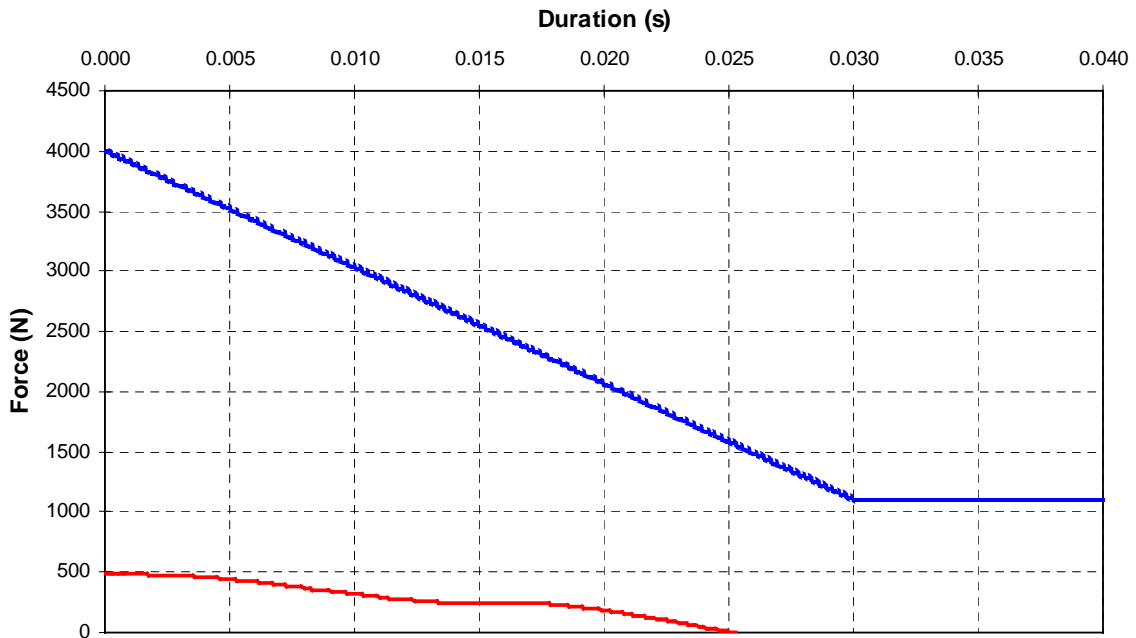
A- 12 CF00022 2001 Mitsubishi Montero Neck Occipital A-P Moment



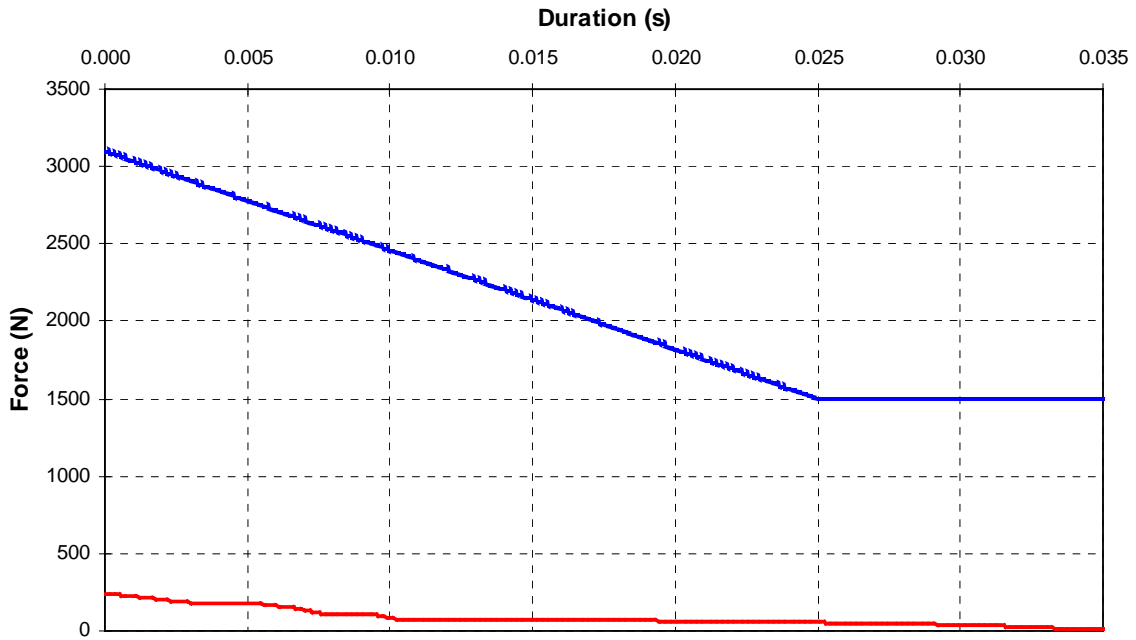
A- 13 CF00022 2001 Mitsubishi Montero Neck Tension Analysis



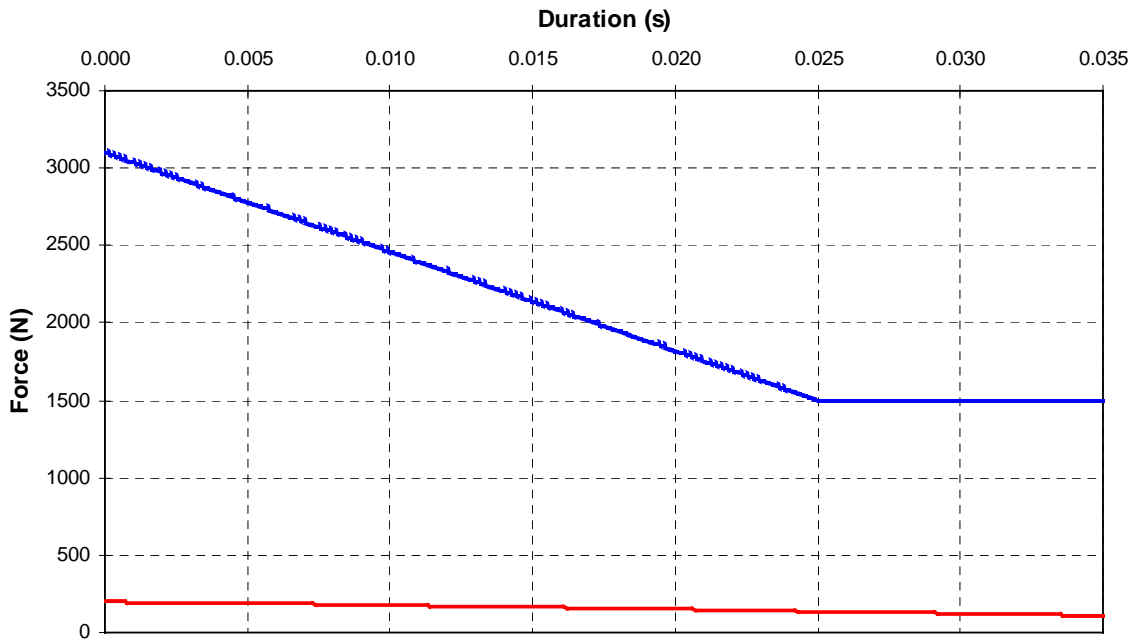
A- 14 CF00022 2001 Mitsubishi Montero Neck Compression Analysis



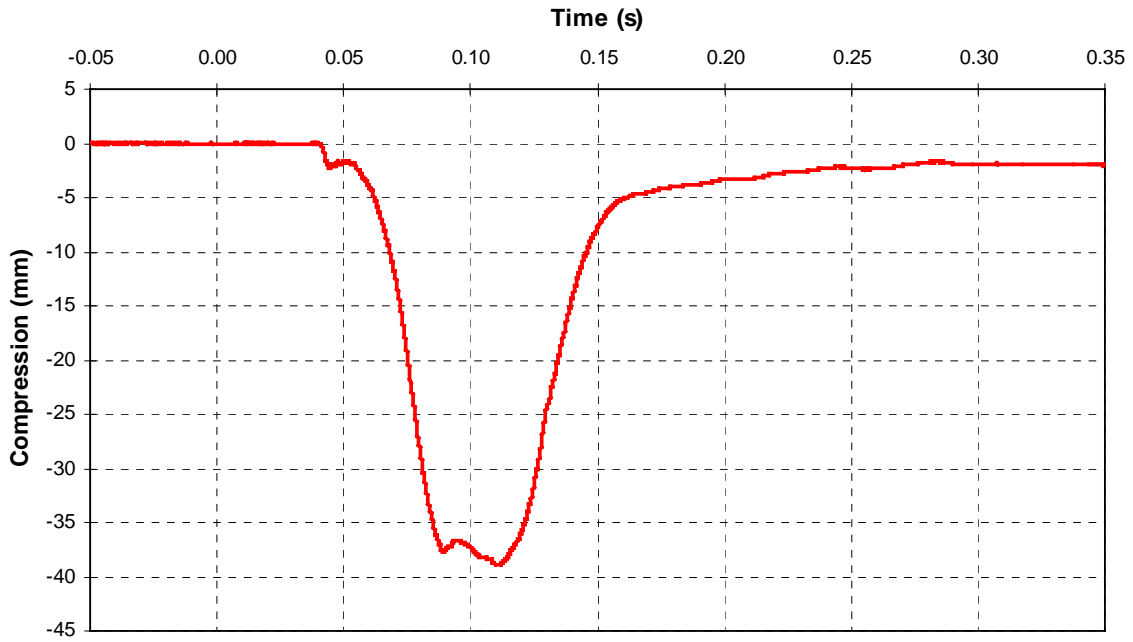
A- 15 CF00022 2001 Mitsubishi Montero Neck A-P Shear (Positive) Analysis



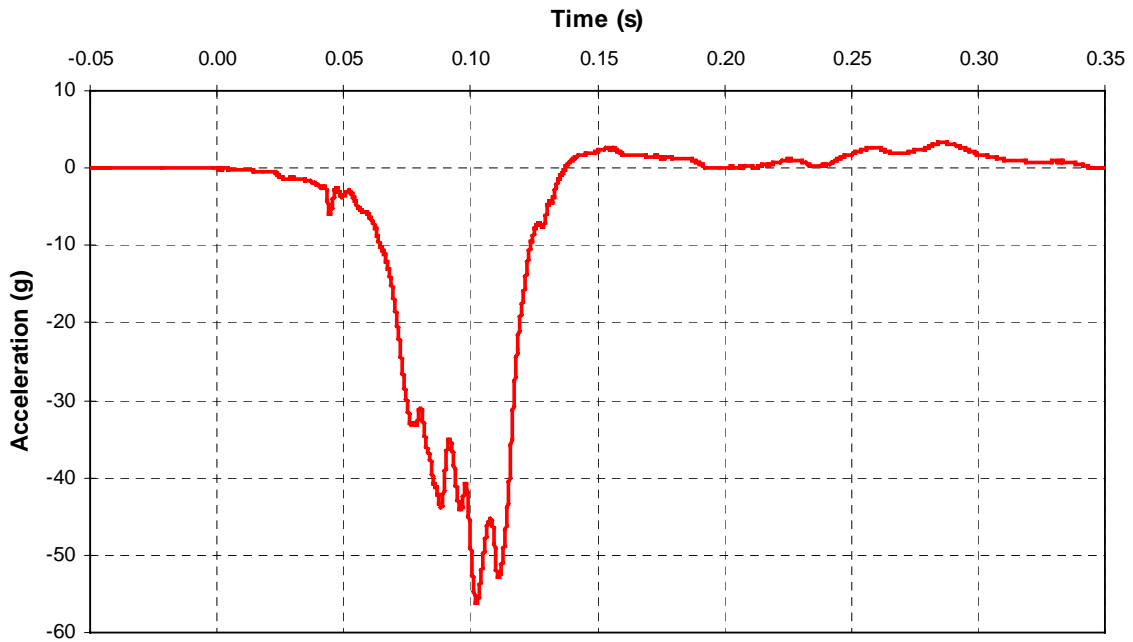
A- 16 CF00022 2001 Mitsubishi Montero Neck A-P Shear (Negative) Analysis



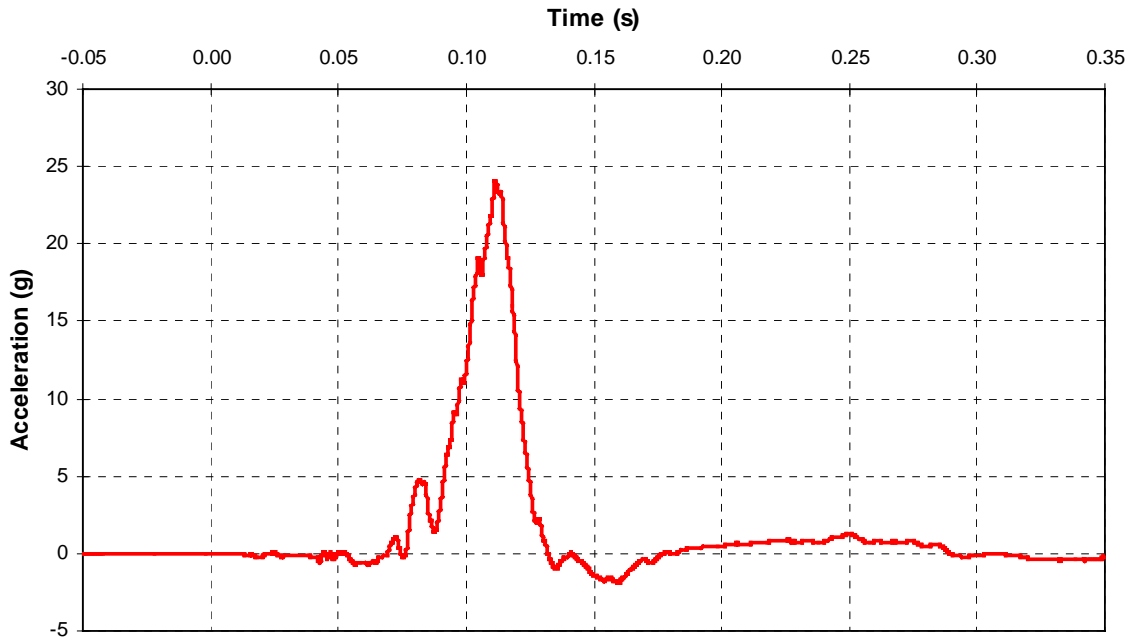
A- 17 CF00022 2001 Mitsubishi Montero Chest Compression



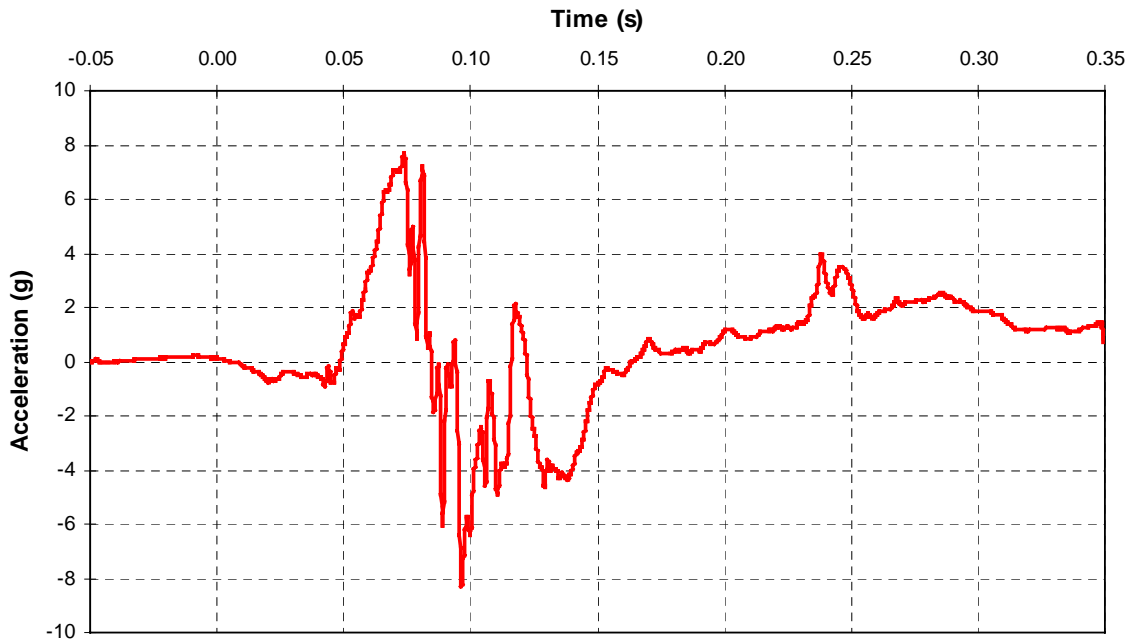
A- 18 CF00022 2001 Mitsubishi Montero Chest A-P Acceleration



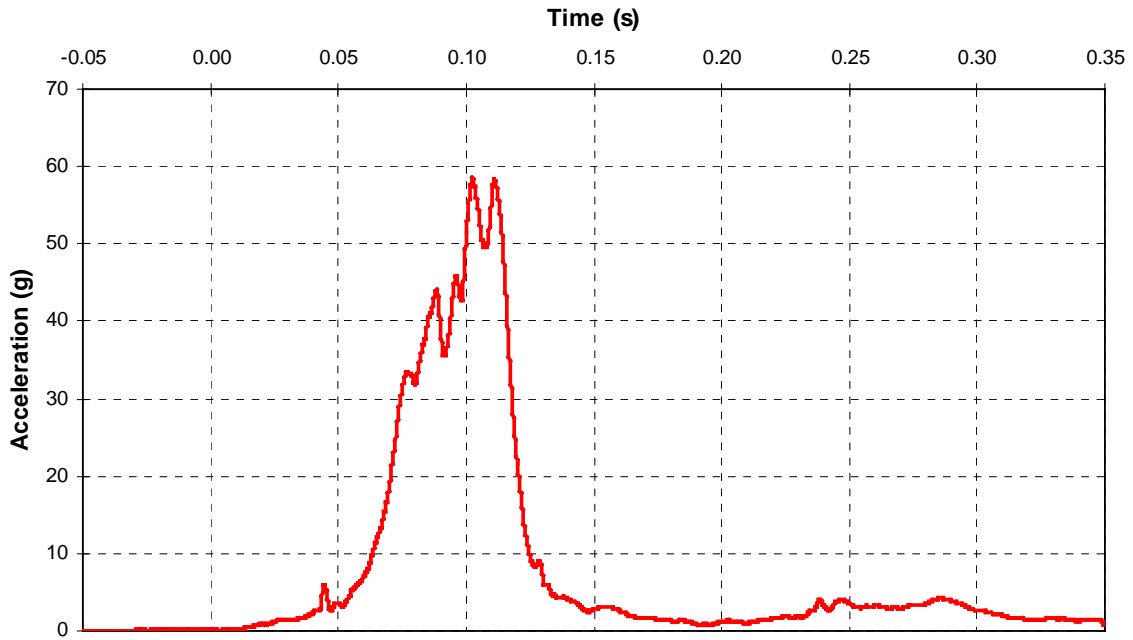
A- 19 CF00022 2001 Mitsubishi Montero Chest L-M Acceleration



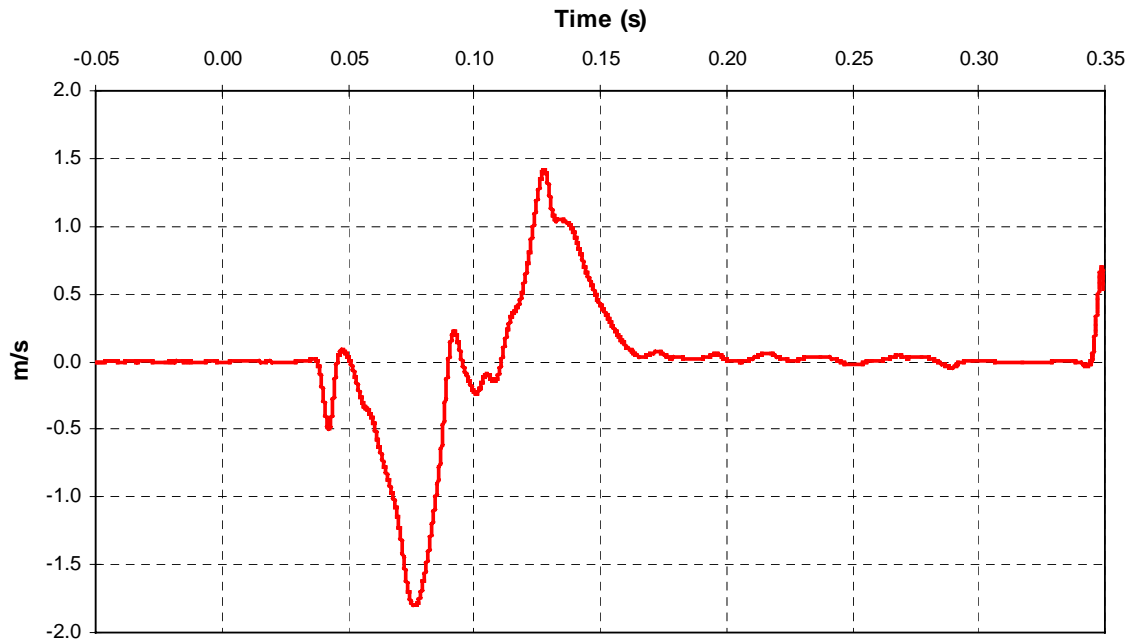
A- 20 CF00022 2001 Mitsubishi Montero Chest I-S Acceleration



A- 21 CF00022 2001 Mitsubishi Montero Chest Vector Resultant Acceleration

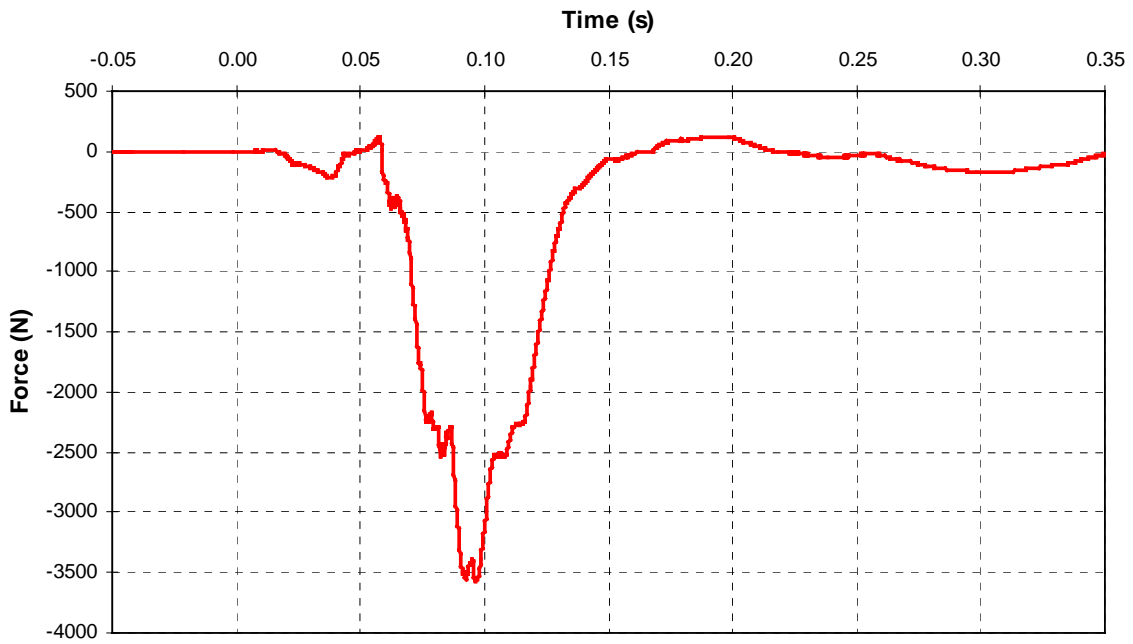


A- 22 CF00022 2001 Mitsubishi Montero Sternum Deflection Rate

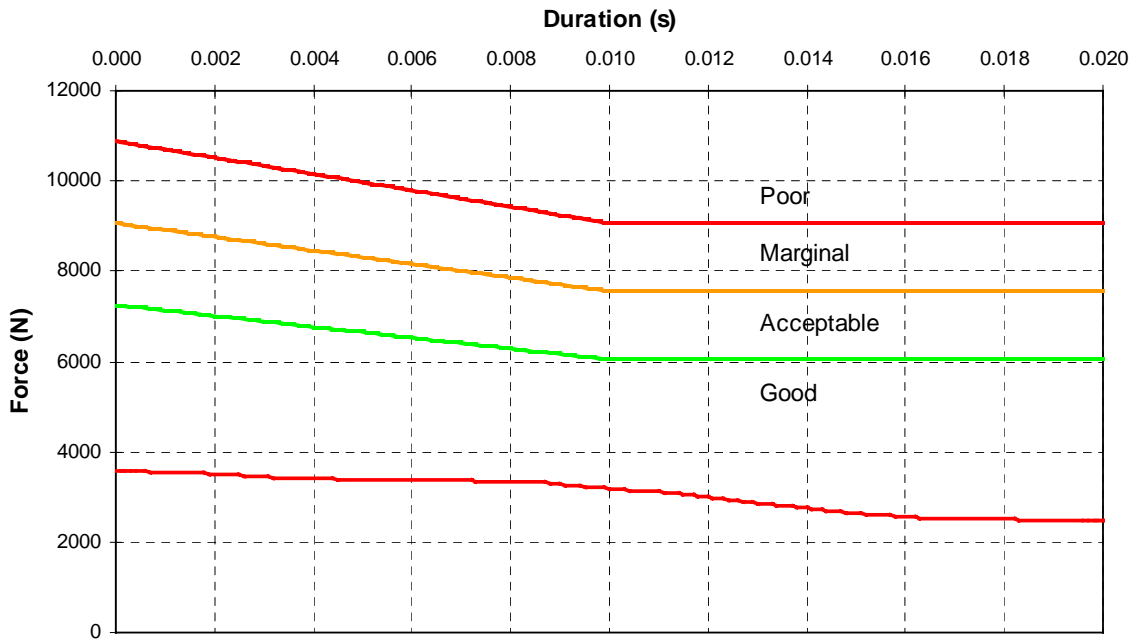


Sternum deflection rate is calculated from the sternum deflection filtered to CFC 60

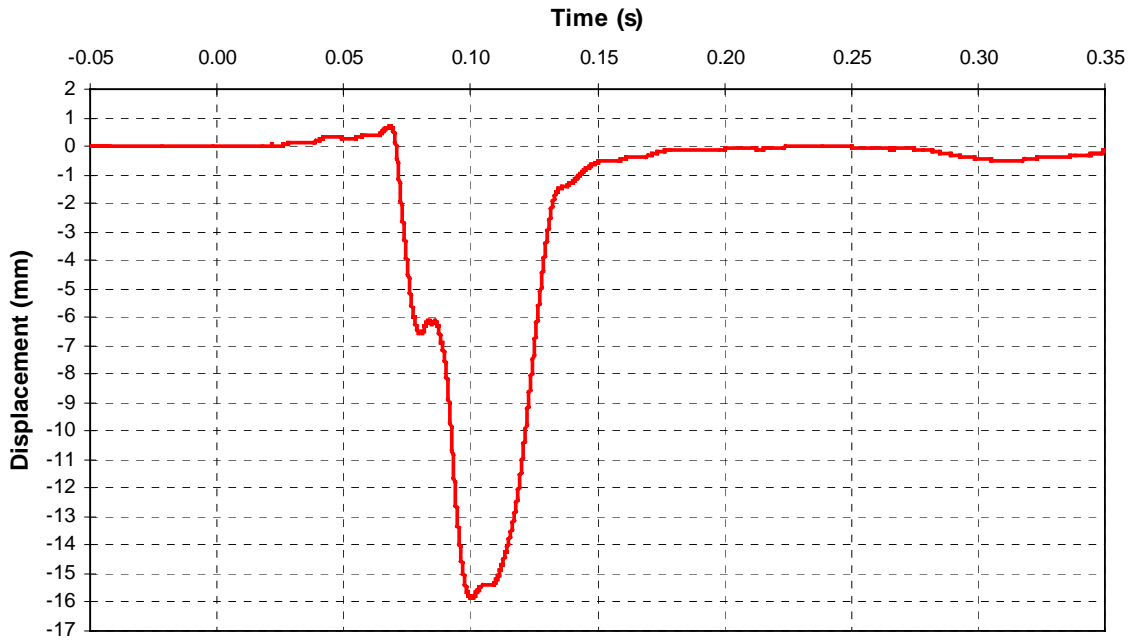
A- 23 CF00022 2001 Mitsubishi Montero Left Femur Axial Force



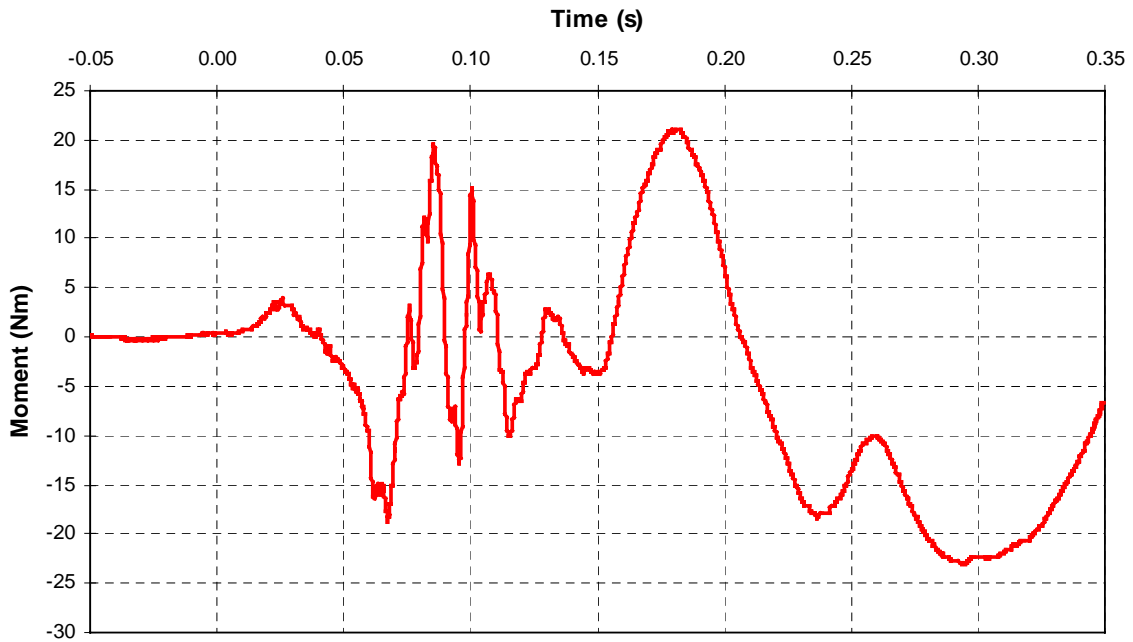
A- 24 CF00022 2001 Mitsubishi Montero Left Femur Axial Force Analysis



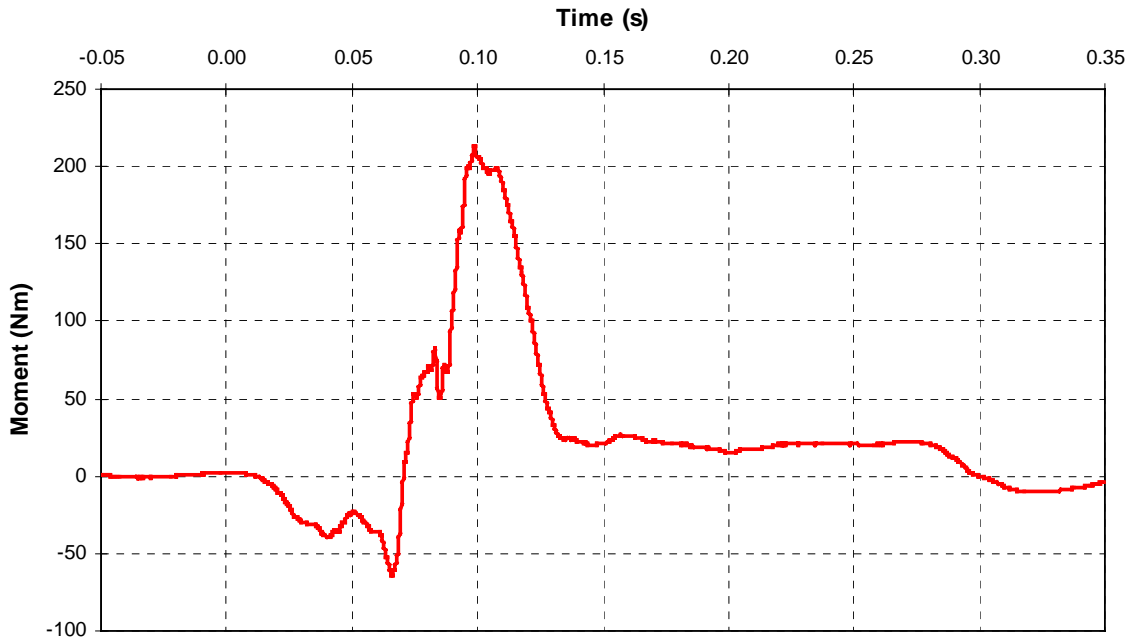
A- 25 CF00022 2001 Mitsubishi Montero Left Tibia-Femur Displacement



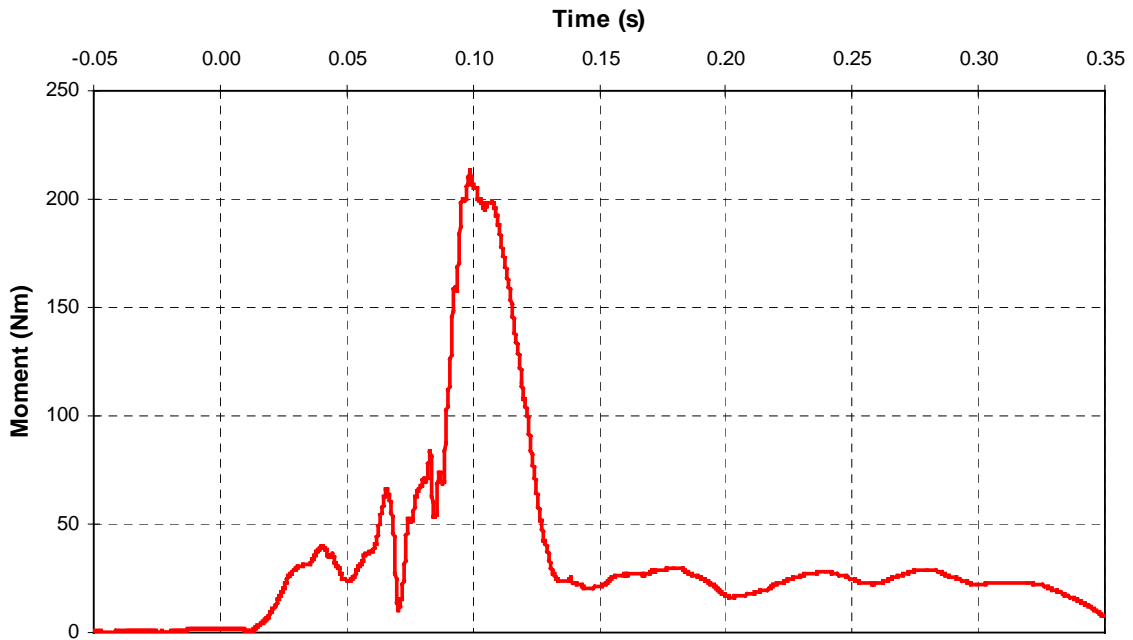
A- 26 CF00022 2001 Mitsubishi Montero Left Upper Tibia L-M Moment



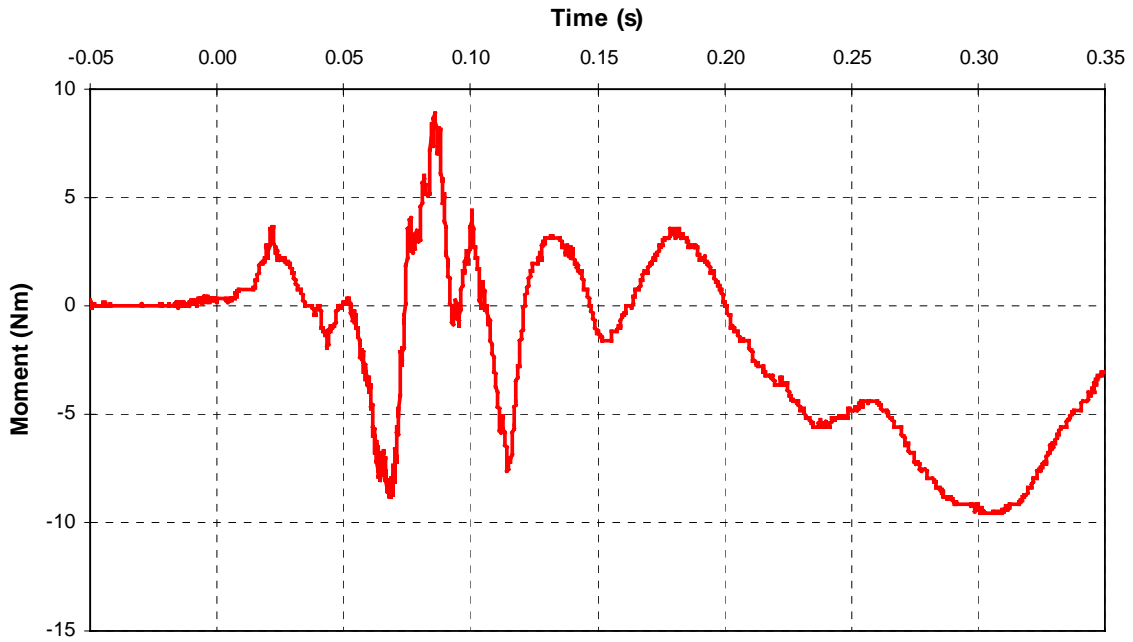
A- 27 CF00022 2001 Mitsubishi Montero Left Upper Tibia A-P Moment



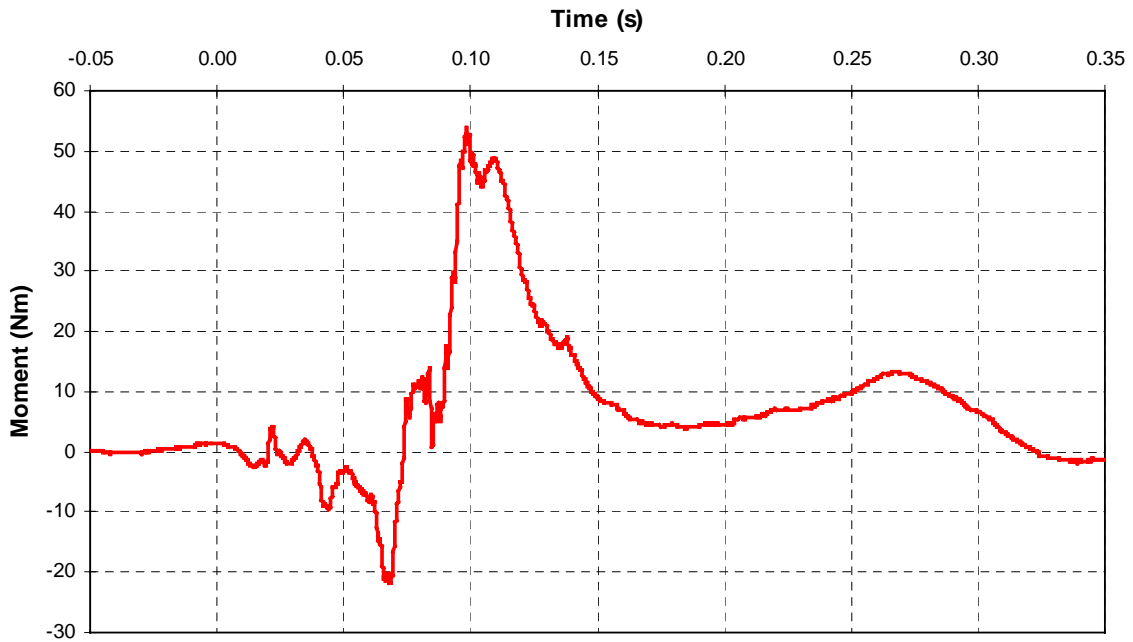
A- 28 CF00022 2001 Mitsubishi Montero Left Upper Tibia Vector Resultant Moment



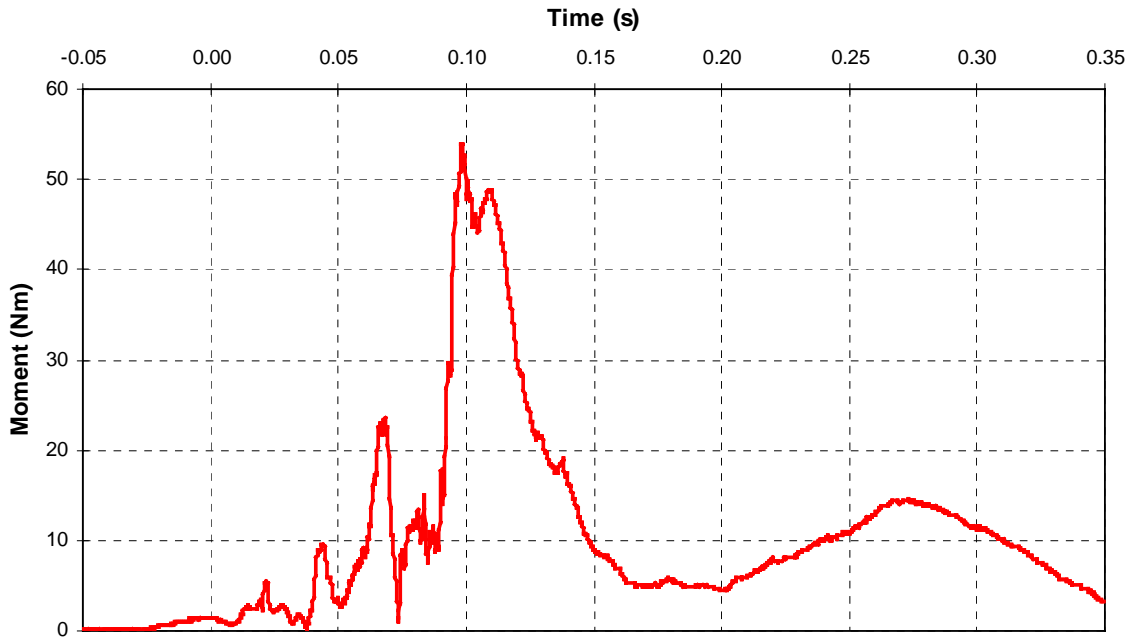
A- 29 CF00022 2001 Mitsubishi Montero Left Lower Tibia L-M Moment



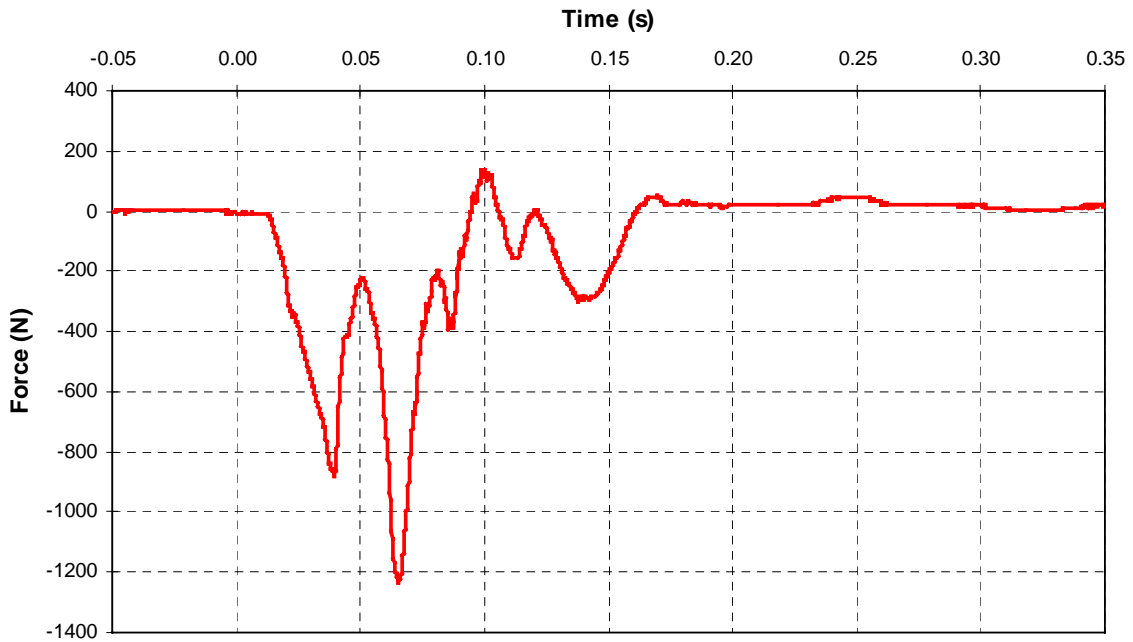
A- 30 CF00022 2001 Mitsubishi Montero Left Lower Tibia A-P Moment



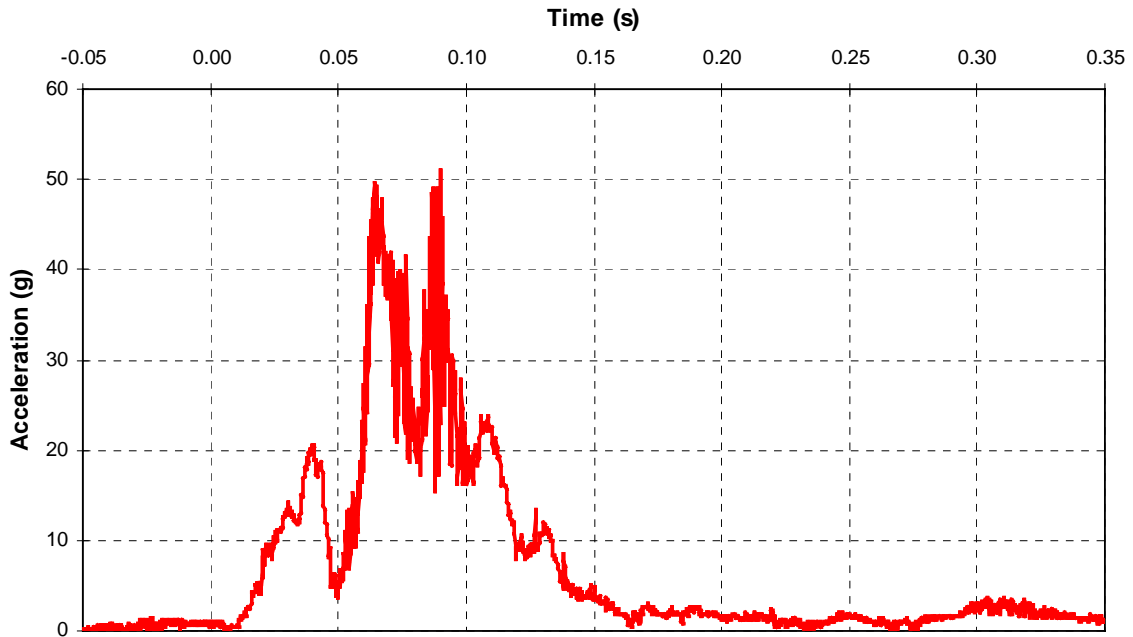
A- 31 CF00022 2001 Mitsubishi Montero Left Lower Tibia Vector Resultant Moment



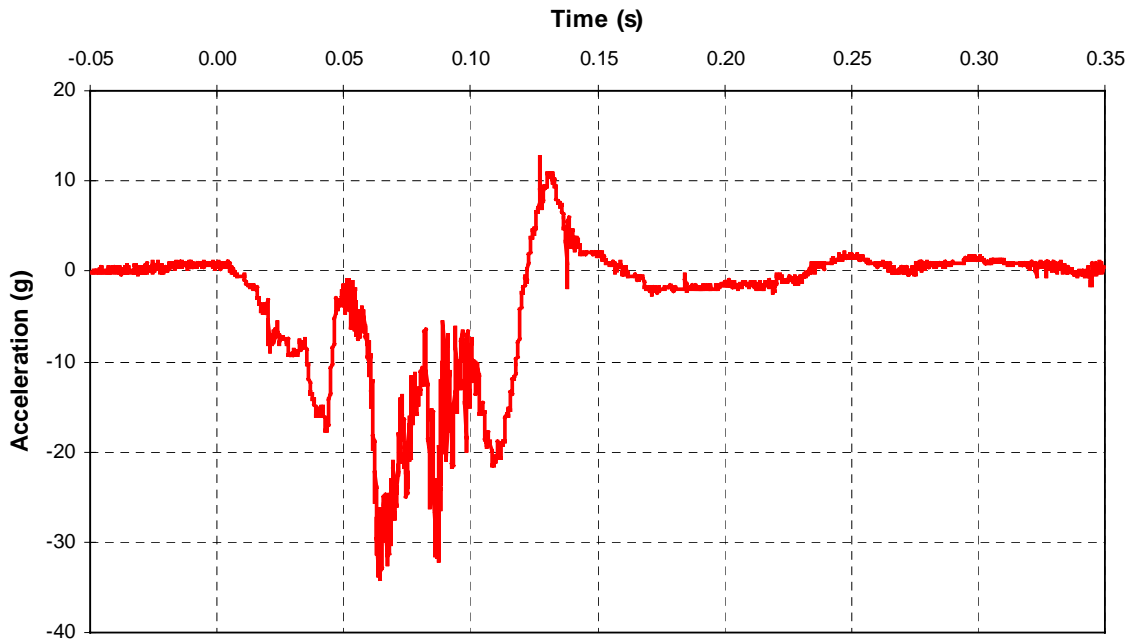
A- 32 CF00022 2001 Mitsubishi Montero Left Lower Tibia Axial Force



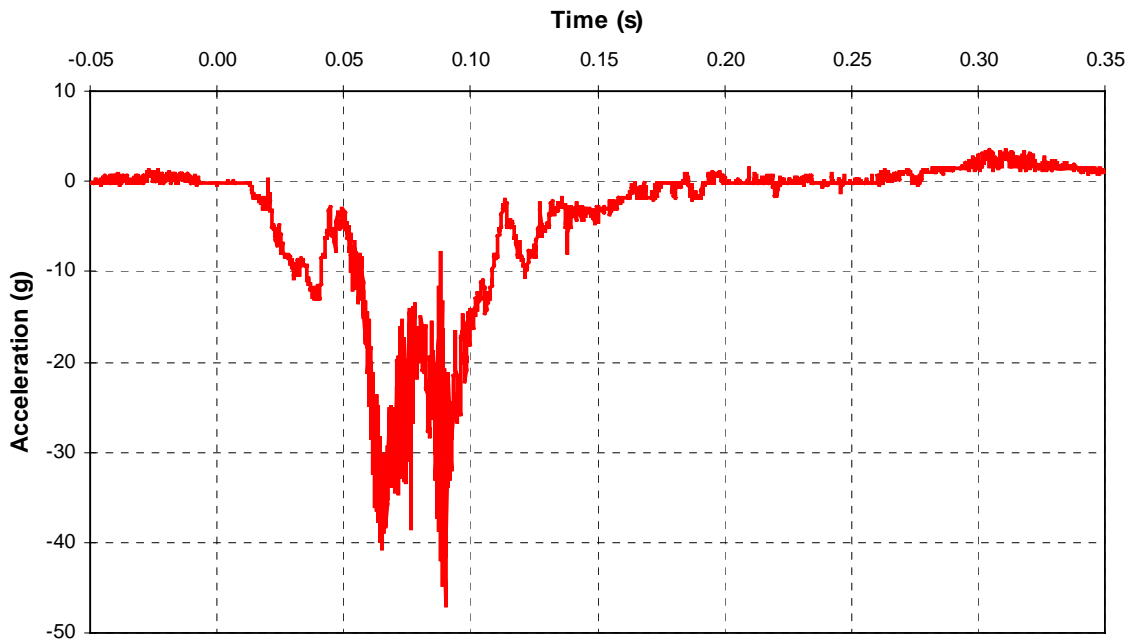
A- 33 CF00022 2001 Mitsubishi Montero Left Foot Vector Resultant Acceleration



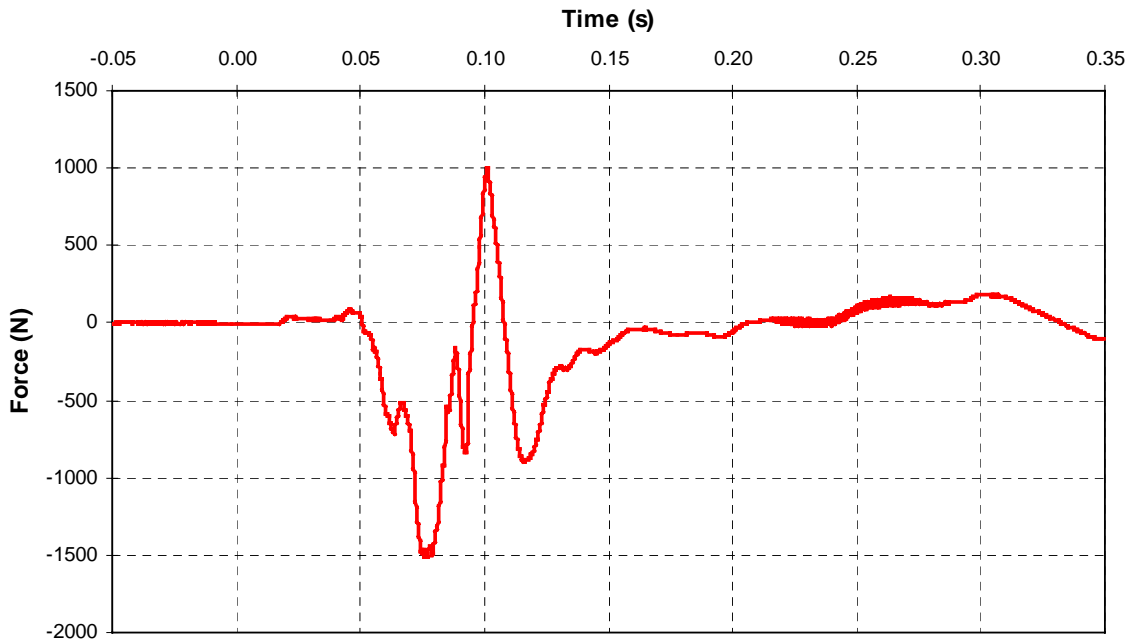
A- 34 CF00022 2001 Mitsubishi Montero Left Foot A-P Acceleration



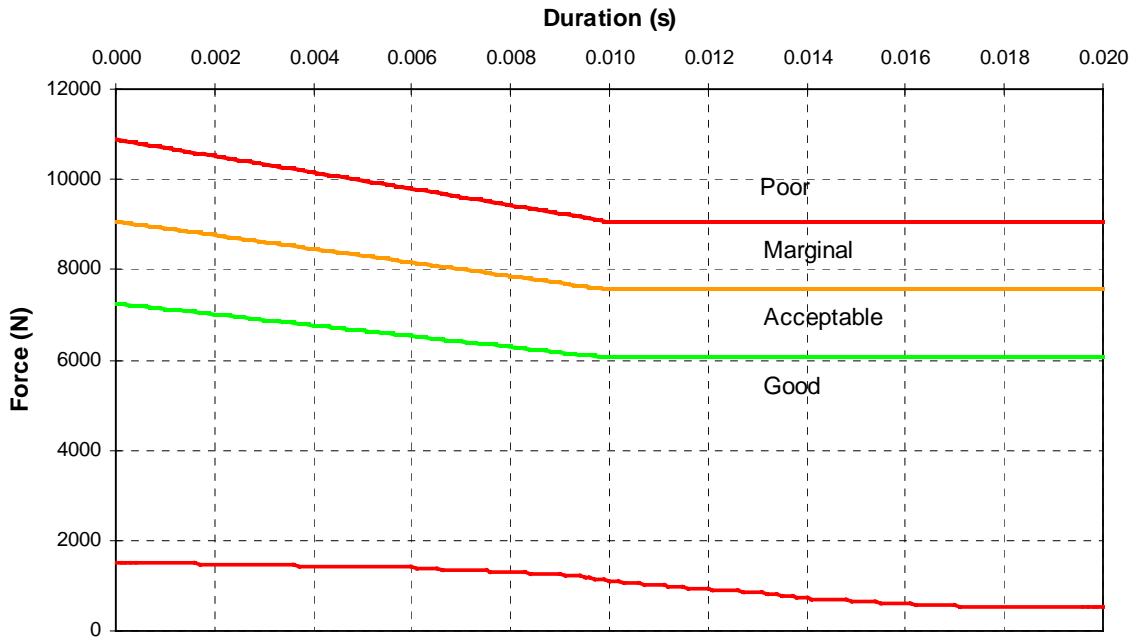
A- 35 CF00022 2001 Mitsubishi Montero Left Foot I-S Acceleration



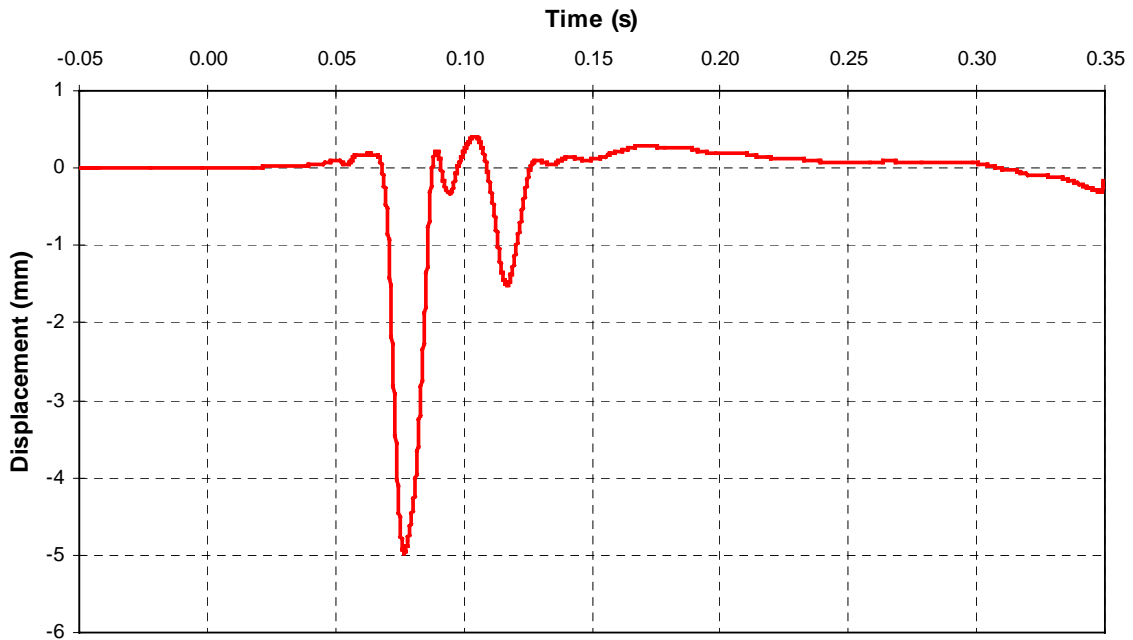
A- 36 CF00022 2001 Mitsubishi Montero Right Femur Axial Force



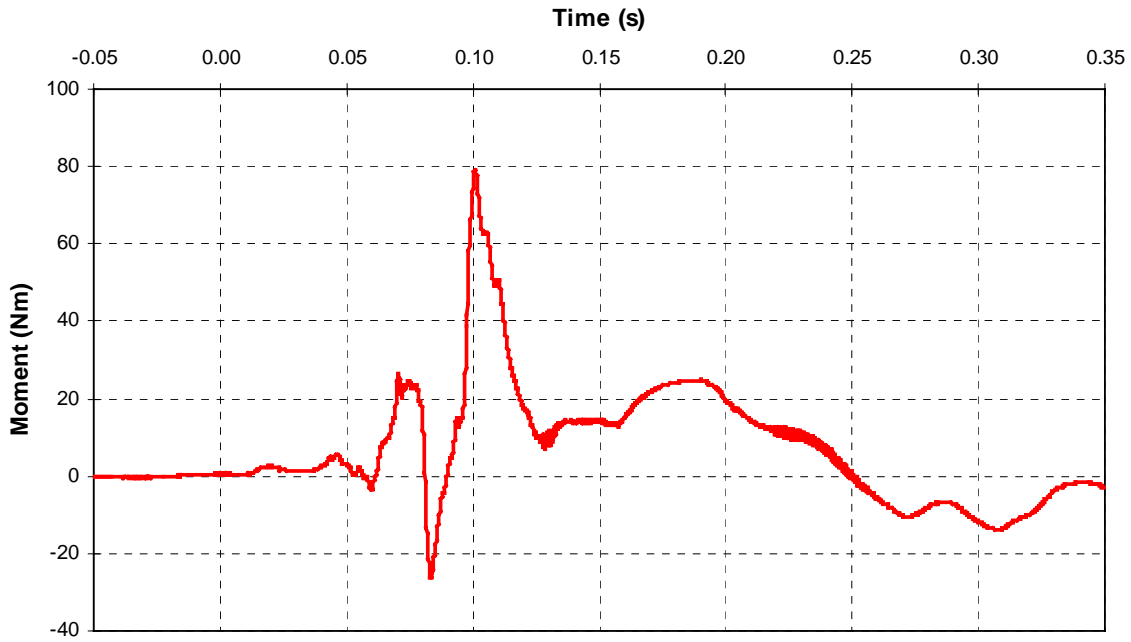
A- 37 CF00022 2001 Mitsubishi Montero Right Femur Axial Force Analysis



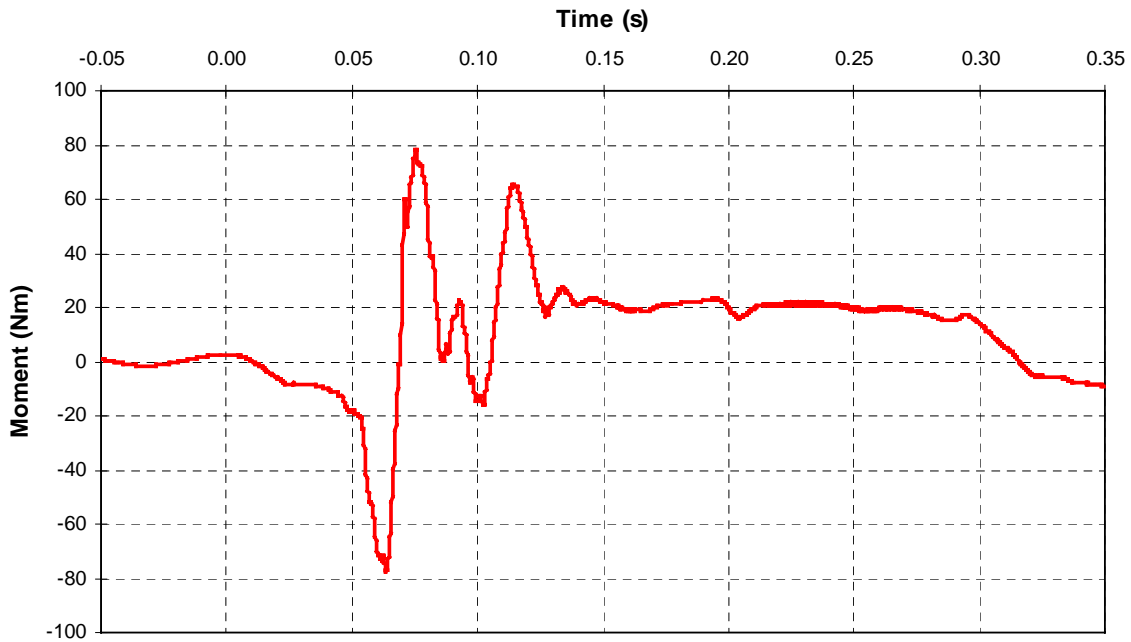
A- 38 CF00022 2001 Mitsubishi Montero Right Tibia-Femur Displacement



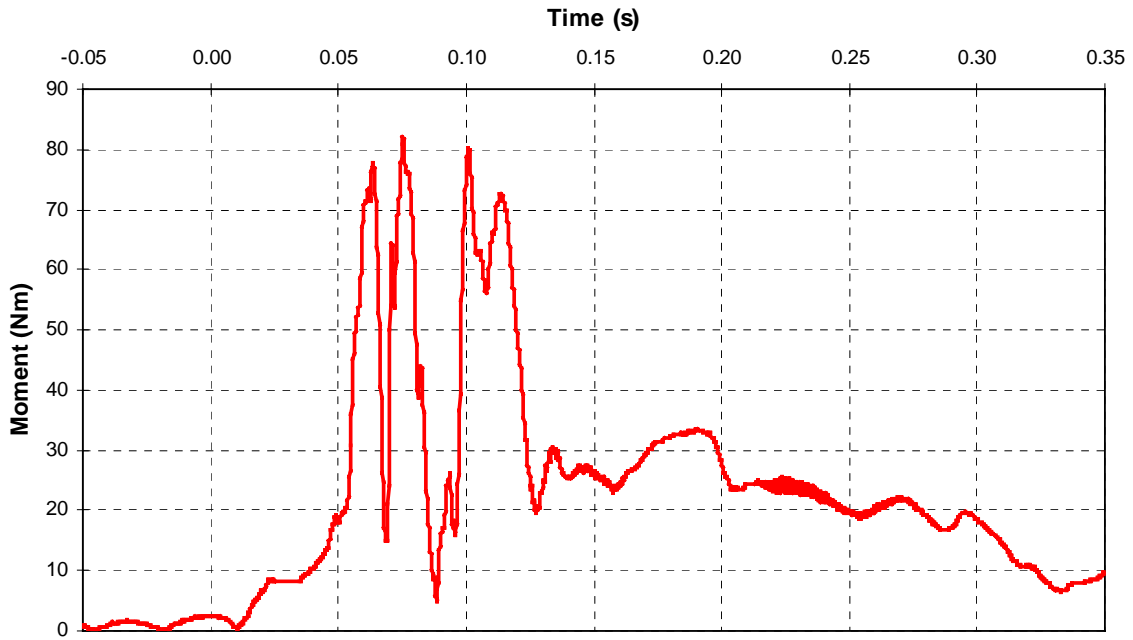
A- 39 CF00022 2001 Mitsubishi Montero Right Upper Tibia L-M Moment



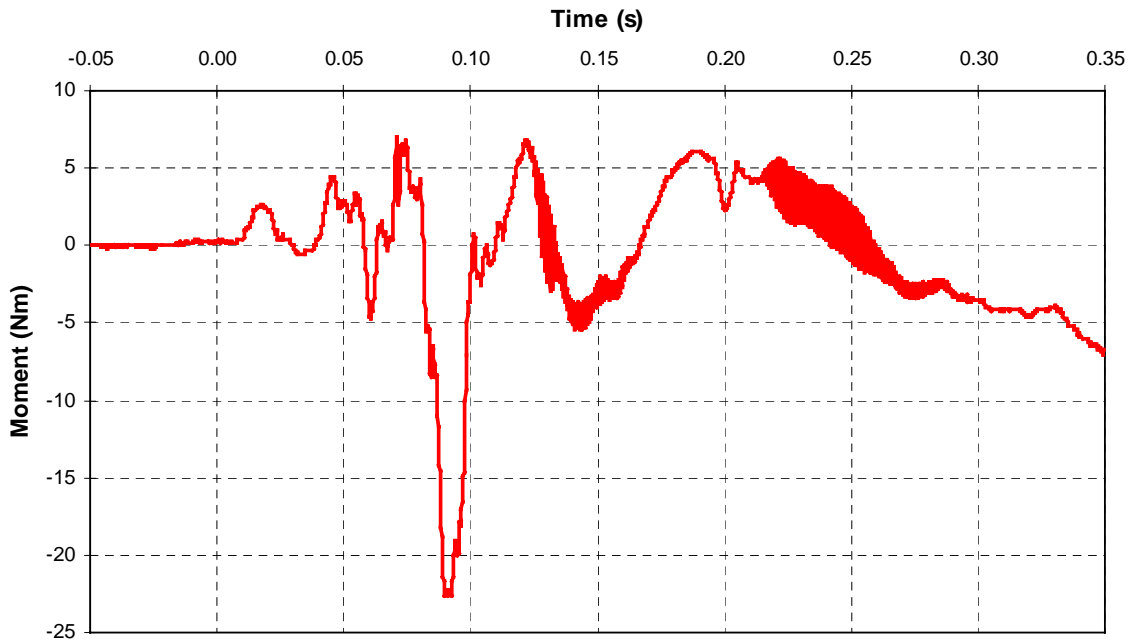
A- 40 CF00022 2001 Mitsubishi Montero Right Upper Tibia A-P Moment



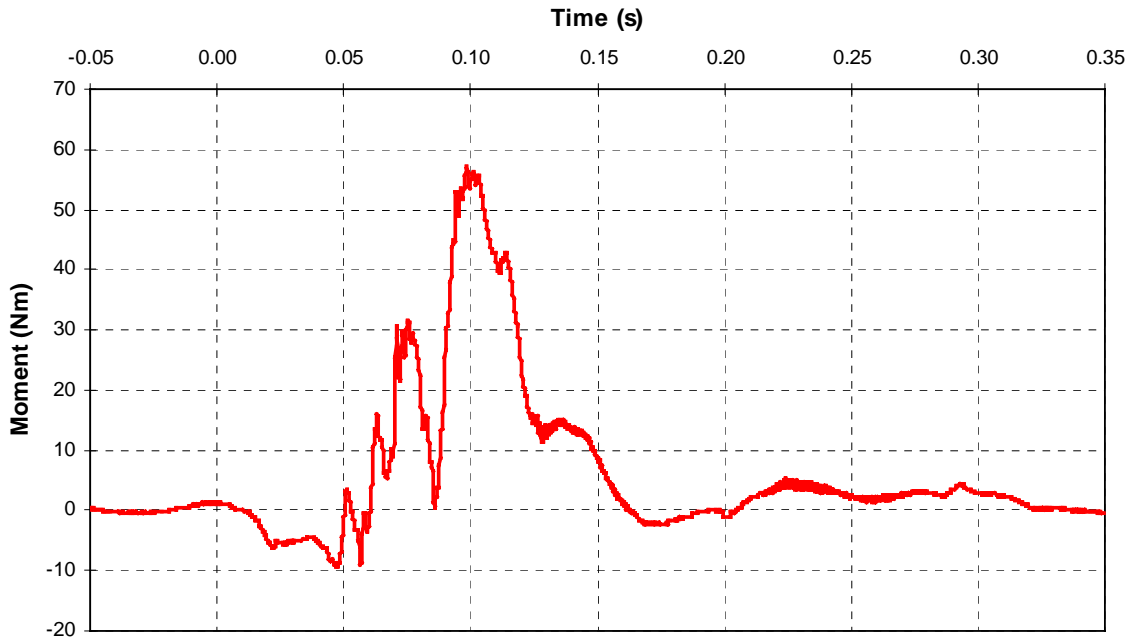
A- 41 CF00022 2001 Mitsubishi Montero Right Upper Tibia Vector Resultant Moment



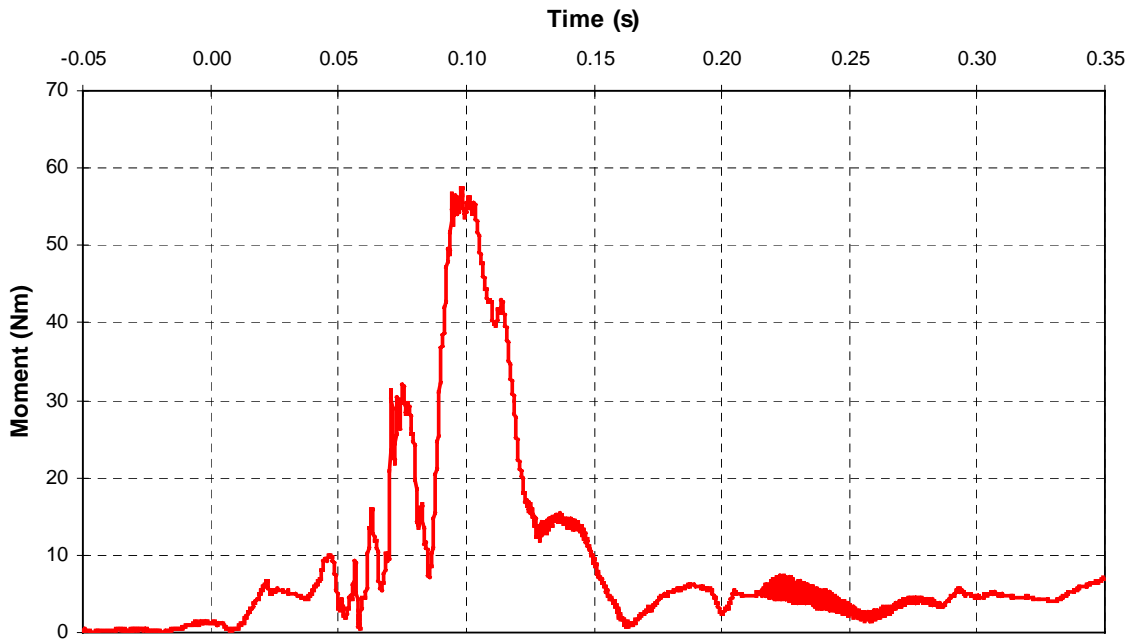
A- 42 CF00022 2001 Mitsubishi Montero Right Lower Tibia L-M Moment



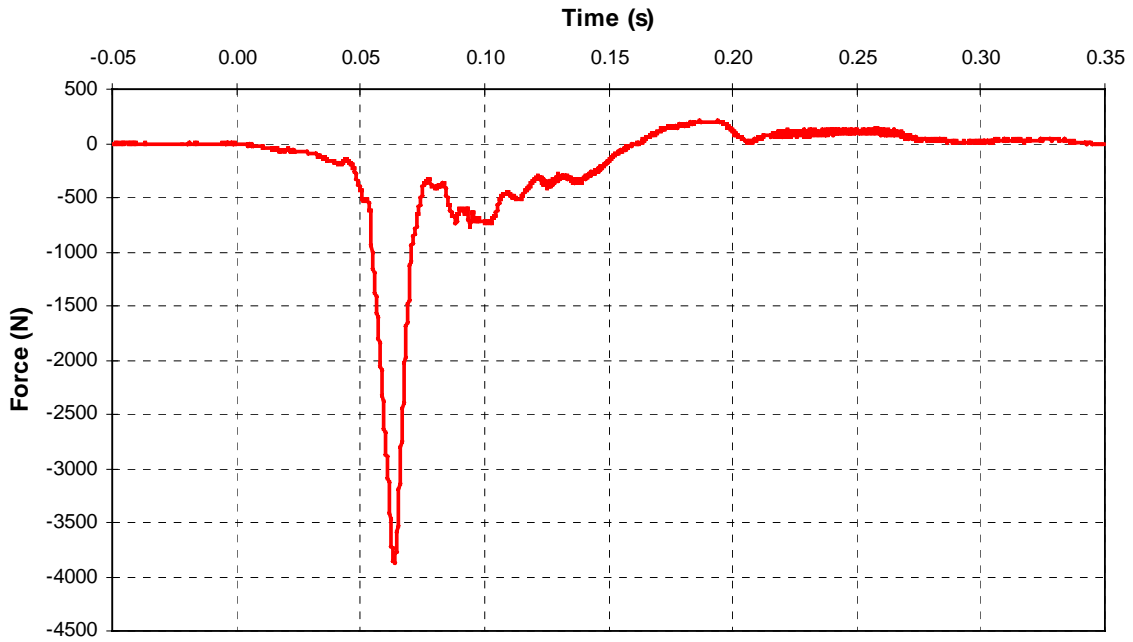
A- 43 CF00022 2001 Mitsubishi Montero Right Lower Tibia A-P Moment



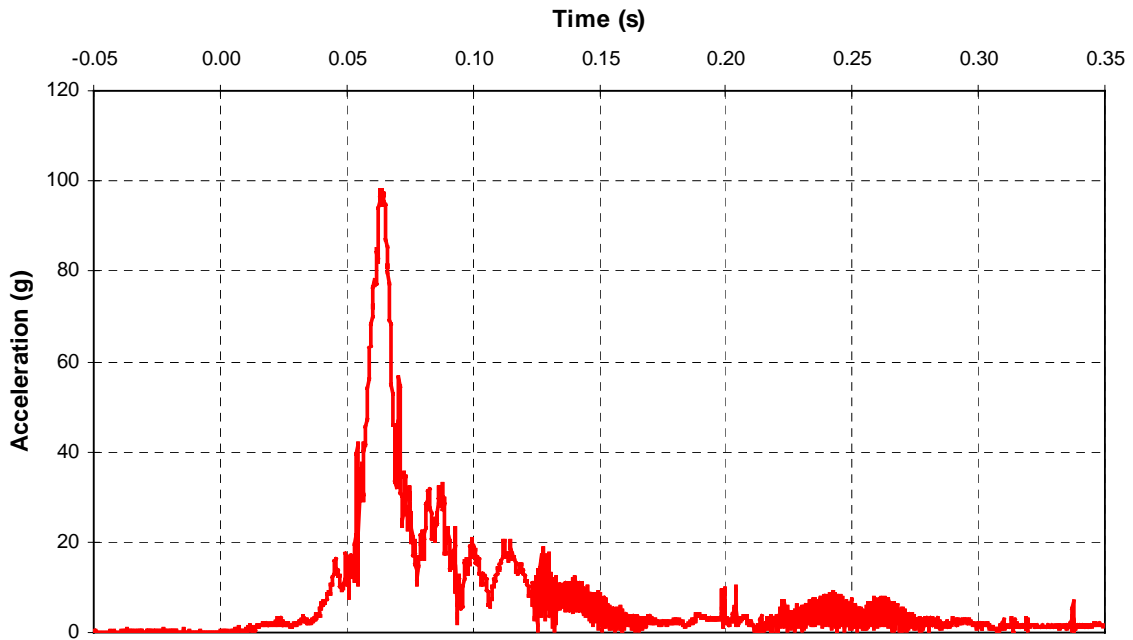
A- 44 CF00022 2001 Mitsubishi Montero Right Lower Tibia Vector Resultant Moment



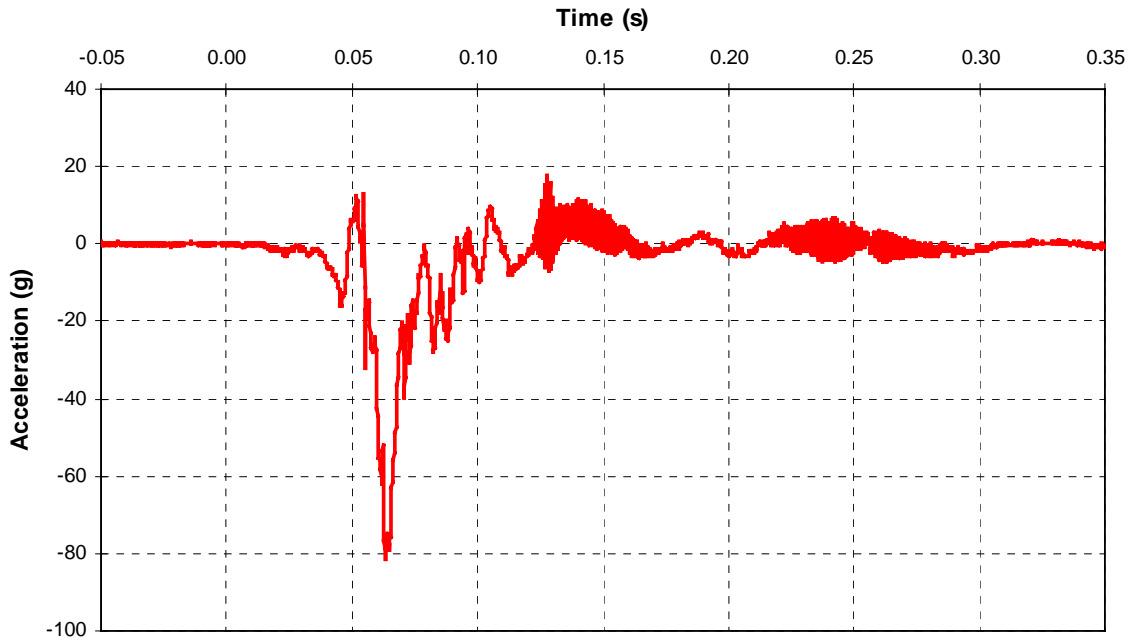
A- 45 CF00022 2001 Mitsubishi Montero Right Lower Tibia Axial Force



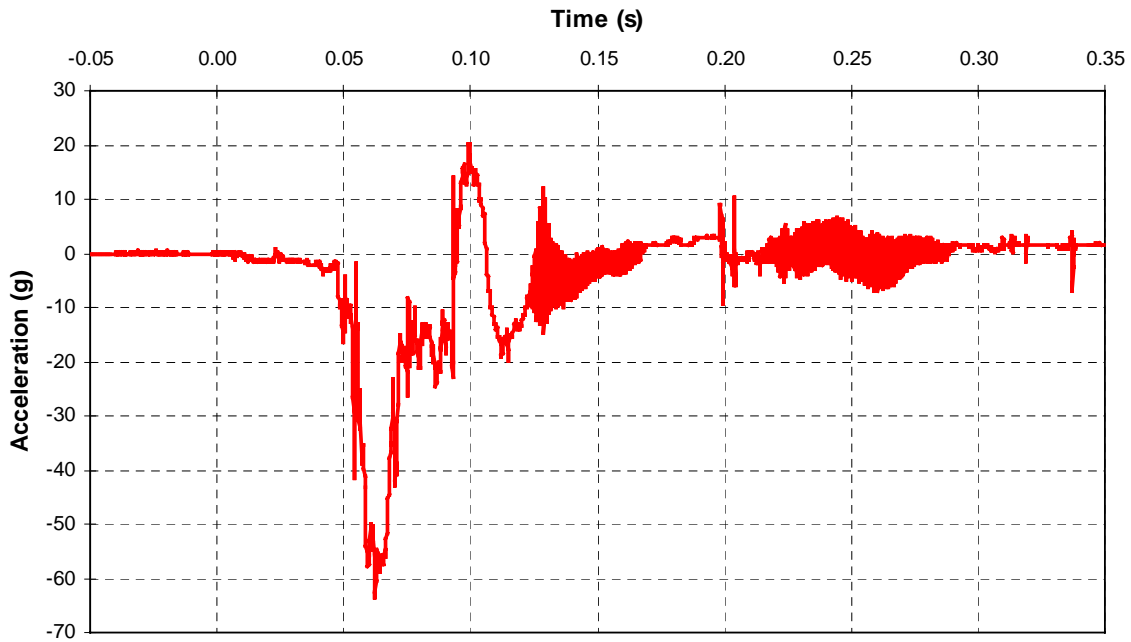
A- 46 CF00022 2001 Mitsubishi Montero Right Foot Vector Resultant Acceleration



A- 47 CF00022 2001 Mitsubishi Montero Right Foot A-P Acceleration



A- 48 CF00022 2001 Mitsubishi Montero Right Foot I-S Acceleration





CONSUMER INFORMATION

Gasoline, license and title fees, applicable federal, state and local taxes and dealer and distributor installed options and accessories are not included in the manufacturer's suggested retail price. This label has been applied to this vehicle pursuant to federal law and cannot be moved or altered prior to delivery to ultimate purchaser.

PARTS CONTENT INFORMATION

For vehicles in this carline:
 U.S./Canadian Parts Content: 3%
 Major Sources of Foreign Parts Content: JAPAN 97%

For this vehicle:
 Final Assembly Point: MINOKAMO, JAPAN
 Country of Origin: JAPAN
 Engine: JAPAN
 Transmission: JAPAN

Note: Parts content does not include final assembly, distribution, or other non-parts cost.

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

CITY MPG
13



HIGHWAY MPG
18

Actual mileage will vary with options, driving conditions, driving habits and vehicle condition. Results reported to EPA indicated that the majority of vehicles with these estimates will achieve between 11 and 15 mpg in the city, and between 15 and 21 mpg on the highway.

2001 MITSUBISHI MONTERO LIMITED 4WD SPORT-UTILITY
 3.5L SOHC 24V V6 MFI FUEL INJECTION
 SPORTRONIC 5-SPD AUTO O/D TRANS
 50 STATE EMISSION CONTROL SYSTEM

Estimated Annual Fuel Cost

\$1351

For Comparison Shopping, all vehicles classified as SPECIAL PURCHASE have been issued mileage ratings ranging from NA to NA mpg city and NA to NA mpg highway.

MITSUBISHI "wake up and drive"™

Year/Model 2001 MONTERO LIMITED 4WD
 4-DR 4WD SPORT-UTILITY
 Color SEQUOIA GREEN PEARL/SUDAN BEIGE
 3.5L SOHC 24V V6 MPI
 SPORTRONIC 5-SPD AUTO O/D TRANS
 TAN LEATHER INTERIOR

STANDARD EQUIPMENT & INSTALLED OPTIONS

MANUFACTURER'S SUGGESTED RETAIL PRICE \$ 34,997.00

SAFETY/FEATURES	INCLUDED	EXTERIOR FEATURES	INCLUDED
◆ DUAL FRONT & FRONT SIDE AIR BAGS	INCLUDED	◆ HEATED FRONT SEAT/SIDEVIEW MIRRORS	INCLUDED
◆ SIDE-GUARD DOOR BEAMS	INCLUDED	◆ CENTER CONSOLE W/SLIDING ARMREST AND DUAL STORAGE COMPARTMENTS	INCLUDED
◆ CHILD SAFETY LOCKS	INCLUDED	◆ PRIVACY GLASS	INCLUDED
◆ 3-POINT OUTBOARD SEATBELTS	INCLUDED	◆ FRONT, MIDDLE & REAR CUPHOLDERS	INCLUDED
◆ HEIGHT ADJUSTABLE FRONT SHOULDER BELT ANCHORS	INCLUDED	◆ (3) 12V AUXILIARY OUTLETS	INCLUDED
◆ MULTI-MODE 4-WHEEL ABS	INCLUDED	◆ WOODGRAIN INTERIOR TRIM	INCLUDED
◆ ANTI-THIEF ENGINE IMMOBILIZER	INCLUDED	◆ DUAL V8OR MIRRORS & TACHOMETER	INCLUDED
◆ PERFORMANCE/HANDLING	INCLUDED	◆ REMOVABLE TOOL KIT	INCLUDED
◆ 4-WHEEL INDEPENDENT SUSPENSION	INCLUDED	◆ CARGO COVER & FLOOR MATS	INCLUDED
◆ ACTIVE-TRAC AND SYSTEM	INCLUDED	◆ 16X6 ALLOY WHEELS W/ P265/70 R16 MUD/SNOW/ALL-SEASON TIRES	INCLUDED
◆ LIMITED-SLIP REAR DIFFERENTIAL	INCLUDED	◆ FULL-SIZE ALLOY SPARE WHEEL	INCLUDED
◆ VARIABLE-ASSIST POWER RACK & PNEUM STEERING	INCLUDED	◆ FRONT & REAR MUDGUARDS	INCLUDED
◆ FRONT & REAR STABILIZER BARS	INCLUDED	◆ POWER GLASS SUNROOF W/TILT FEATURE	INCLUDED
◆ POWER-ASSIST VENTILATED FRONT & REAR DISC BRAKES	INCLUDED	◆ POWER RACK & FOG LIGHTS	INCLUDED
◆ 5,000 LB MAXIMUM TOWING CAPACITY	INCLUDED	◆ POWER & GLASS DIVERSITY ANTENNAS	INCLUDED
◆ DURABILITY/RELIABILITY	INCLUDED	◆ SPARE TIRE COVER & LOCK	INCLUDED
◆ UNBODIED CONSTRUCTION	INCLUDED	◆ TOW HOOKS, FRONT AND REAR	INCLUDED
◆ MAINTENANCE FREE BATTERY	INCLUDED		
◆ 3 YR/36,000 NEW CAR WARRANTY	INCLUDED		
◆ 5 YR/80,000 POWERTRAIN WARRANTY	INCLUDED		
◆ 7 YR/100,000 CORROSION WARRANTY	INCLUDED		
◆ CONFORT/CONVENIENCE	INCLUDED		
◆ AIR CONDITIONING	INCLUDED		
◆ 175-WATT MITSUBISHI HIFI PREMIUM AM/FM STEREO CD PLAYER W/7 SPEAKERS	INCLUDED		
◆ PWR WINDOWS/LOOKS/SIDEVIEW MIRRORS	INCLUDED		
◆ CRUISE CONTROL & TACHOMETER	INCLUDED		
◆ SECURITY ALARM SYSTEM W/ REMOTE KEYLESS ENTRY & PANIC FEATURE	INCLUDED		
◆ VARIABLE INTERMITTENT WIPERS	INCLUDED		
◆ REAR WINDOW WIPER/WASHER/DEFOGGER	INCLUDED		
◆ 2ND ROW 60/40 SPLIT FOLD-DOWN SEAT	INCLUDED		
◆ STOWABLE 3RD-HOW SEAT	INCLUDED		
◆ POWER ADJUSTABLE DRIVER'S SEAT	INCLUDED		
◆ LEATHER FRONT & 2ND ROW SEATS	INCLUDED		
◆ WOOD & LEATHER STEERING WHEEL	INCLUDED		

Sold To: (Same unless indicated)

Sub-Total	\$ 35,897.00
Destination/Handling	\$ 495.00
TOTAL	\$ 36,392.00

Ship To:
 (DBA) DUNCAN MITSUBISHI
 2006 PETERS CREEK ROAD
 ROANOKE, VA 24017
 Case #: 18314676 BAF684
 Method of Transport: TRUCK
 Plant/Port of Entry: BALTIMORE, MD



VIN: JAAMW51E4J003130