Insurance Institute for Highway Safety
Crashworthiness Evaluation

Crash Test Report
2000 Mazda MPV (CF00011)

Vehicle identification number: JM3LW28G9Y0102571
Body style: Passenger van with sliding doors on both sides
Engine/transmission: Transverse 2.5-liter V6, 4-speed automatic front-wheel drive

Standard crashworthiness features:

Driver and right front passenger front airbags
Dual-locking shoulder belts (all outboard seating positions)
Shoulder belt upper anchorage height adjusters (front and middle row seating positions only)
Seat belt force-limiting mechanisms (front seating positions only)
Right front, middle row, and rear outboard shoulder belt retractors are convertible from emergency to automatic locking for ease of child restraint use
Rear seat head restraints (middle row and rear outboard seating positions)

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:	284 cm
Overall length:	475 cm
Overall width:	183 cm
Curb weight:	1,659 kg

Vehicle specifications (measured):

Front bumper to firewall:	112 cm
Curb weight:	1,659 kg
Test weight:	1,775 kg (56% front, 44% rear)
Overall width:	182 cm

Nominal test parameters:

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

Crash test date:

March 22, 2000

Figure 1
Precrash and Postcrash Side Views — 2000 Mazda MPV

Summary

A 2000 Mazda MPV was crash tested on March 22, 2000 into a fixed deformable barrier at 40.0 mi/h (64.3 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 4-6 cm. Resultant intrusion in the driver footwell measured 23 cm at the footrest and 21-29 cm at other places on the toepan. The seam between the driver floorpan and toepan was separated across the entire width of the driver footwell. All doors remained closed during the crash. After the crash, the driver door required tools to open, and the left rear sliding door required additional effort but no tools to open. The right front door and right rear sliding door opened with ease.

The driver dummy was restrained by a three-point lap/shoulder belt and an airbag. During the crash, a total amount of 7 cm of webbing spooled off the retractor, including about 1 cm from the force-limiting mechanism. The airbag contacted the dummy's face during deployment. During rebound from the airbag, the dummy's head initially moved downward and then moved rearward and slightly outward toward the B-pillar. The head then moved upward and contacted the shoulder belt webbing near the B-pillar. After the crash, the upper end of the steering column had moved upward 6 cm and rearward 2 cm.

The HIC-15 was 693, and the maximum neck tension was 2.8 kN, both of which occurred as the dummy's head loaded the airbag. The maximum right lower tibia L-M bending moment was –244 Nm, significantly contributing to the right lower tibia index of 1.21.

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 37 cm behind its center of gravity (161 cm behind the front axle). The vehicle speed recorded just prior to impact was 40.0 mi/h (64.3 km/h), and the actual overlap was 41 percent.

Structural Performance

All doors remained closed during the crash. After the crash, the driver door required tools (minor manipulation of the latch) to open, and the left rear sliding door required slight additional effort but no tools to open. The right front door and right rear sliding door opened with ease. The driver door aperture shortened 7 cm, as measured at the lower edge of the window.

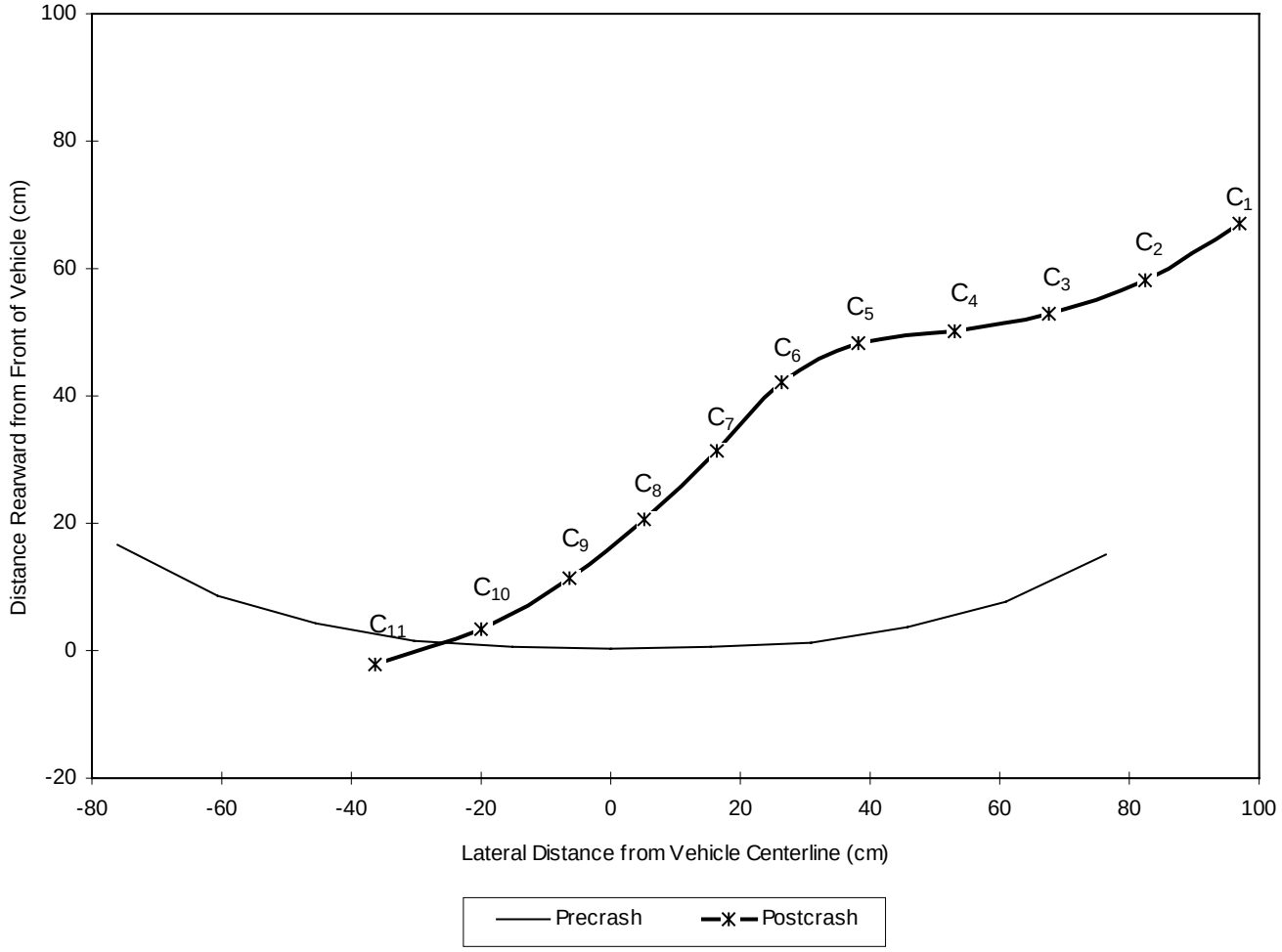
No fuel system leaks were observed after the crash. In addition, no fuel system leaks were observed when the vehicle was rotated onto its right side to allow postcrash photography.

After the crash, the spot-welded seam between the driver floorpan and driver toepan was torn across the full width of the driver footwell. The left side rail that intruded into the footwell was visible through the tear.

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 radiator and engine supports, which are visible in Figure 4.

Figure 2
Overhead View of Crash Deformation — 2000 Mazda MPV

Figure 3
Front Bumper Cover Crush Contour — 2000 Mazda MPV



	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)	67	58	53	50	48	42	31	21	11	4	–2
Precrash Contour (cm)	15	8	4	1	0	0	1	2	4	9	17
Resulting Crush (cm)	52	50	49	49	48	42	30	19	7	–5	–19

The bumper cover and reinforcement bar were torn completely off the vehicle during the crash. The postcrash contour represents the best attempt to fit the cover and bar back onto the vehicle. The length of the reference line was 152 cm precrash and 134 cm postcrash.

Figure 4
Precrash and Postcrash Views from Below — 2000 Mazda MPV

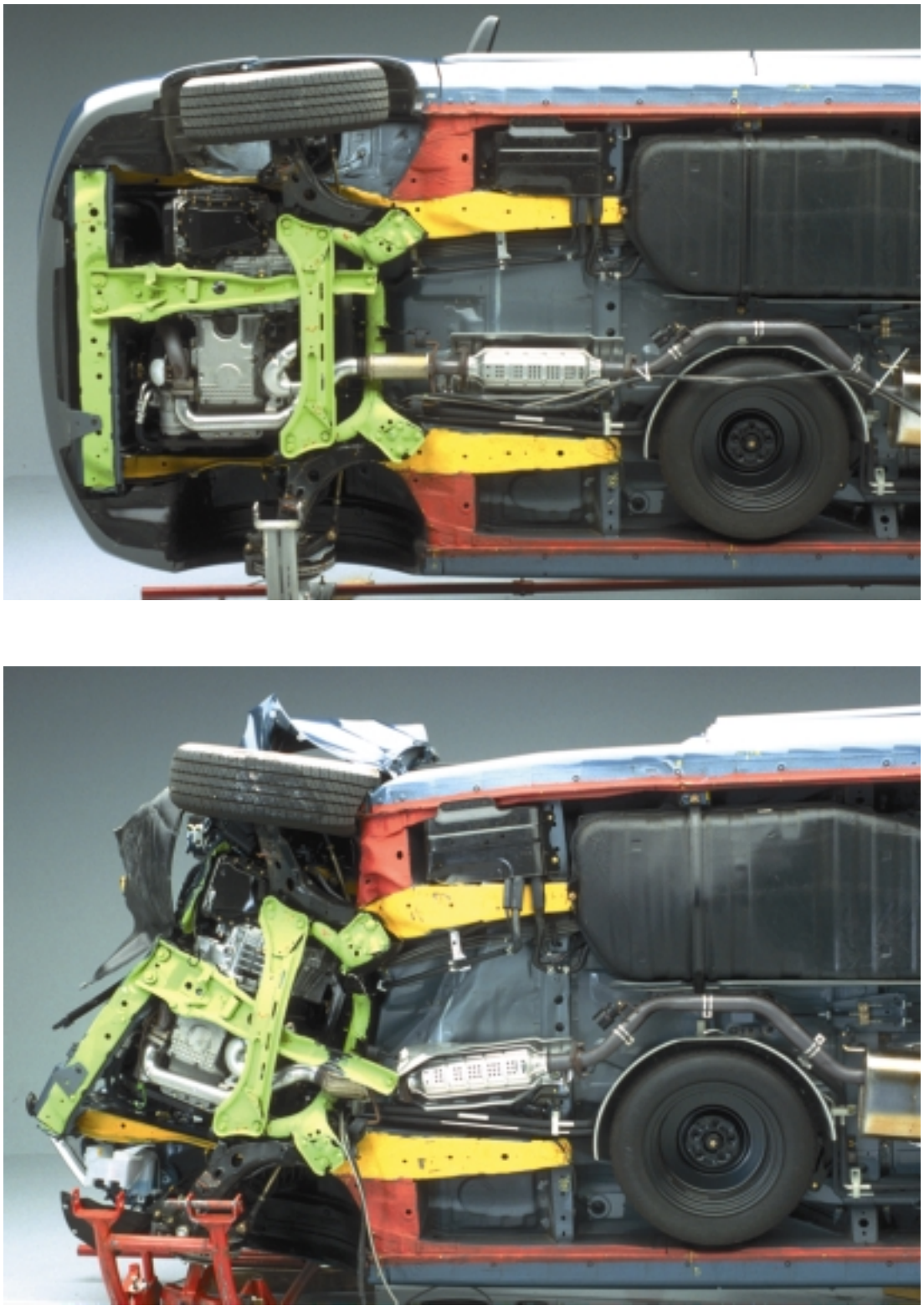
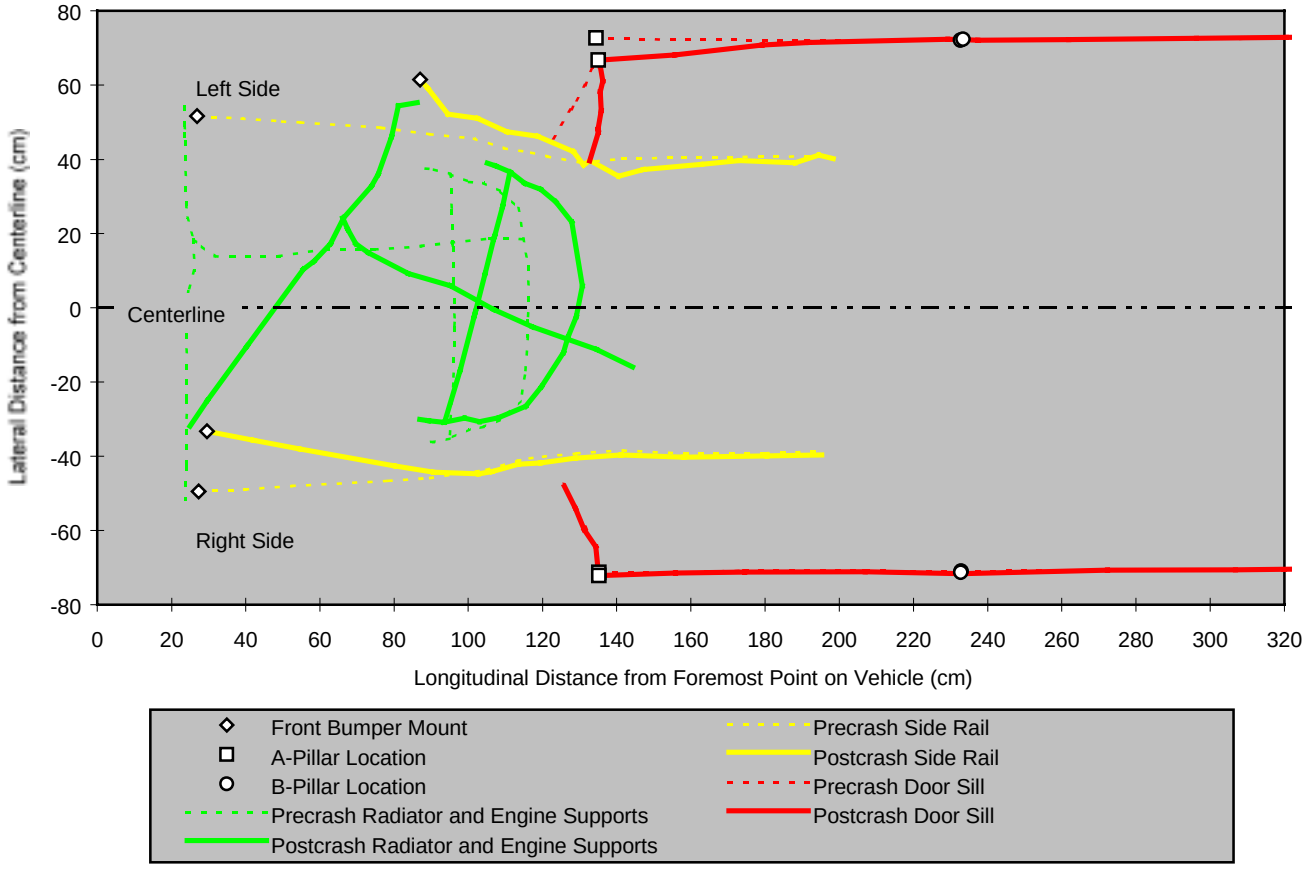
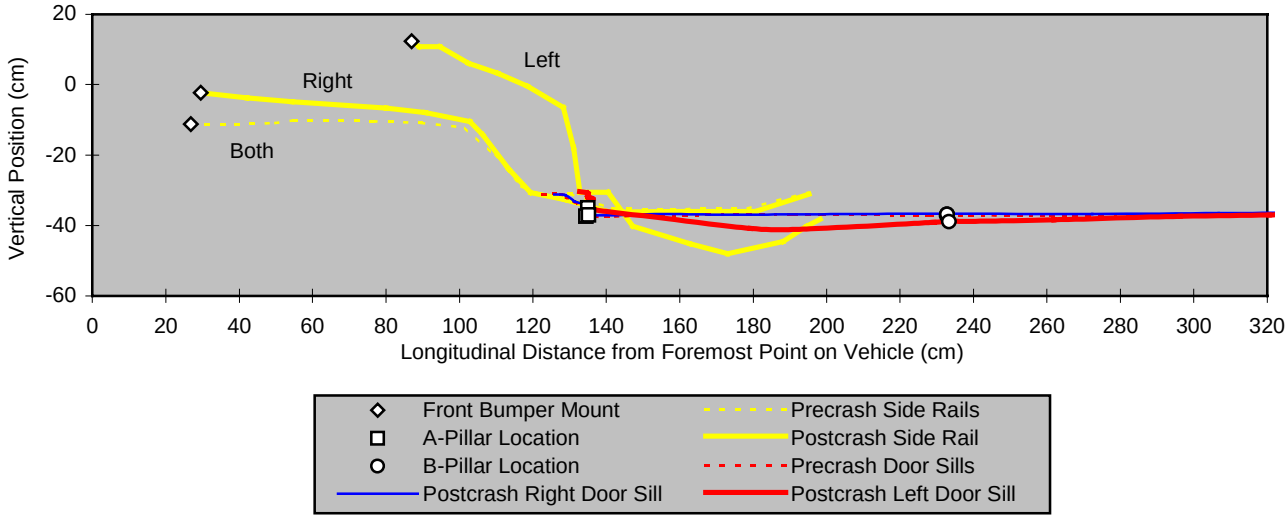


Figure 5
Structural Deformation, Views from Below and Side — 2000 Mazda MPV





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 Mazda MPV

Selected Locations*	Longitudinal	Lateral	Vertical	Resultant
Steering column (cm)**	–2	–2	6	7
Left lower instrument panel (cm)	–4	–2	7	9
Right lower instrument panel (cm)	–6	–1	8	10
Brake pedal (cm)	–16	0	10	19
Left toepan (cm)	–26	–3	12	29
Center toepan (cm)	–24	–6	4	25
Right toepan (cm)	–20	–1	7	21
Footrest (cm)	–21	–5	10	23
Average displacement of the four seat-attachment bolts relative to reference system (cm)	–1	0	–4	n/a

* All measurements taken on driver side. From the driver's position, positive is forward, left, and up.
** The steering column shear modules separately completely during the crash, allowing the steering column to pivot downward. The postcrash steering column intrusion measurement was made by pivoting the column up to its precrash alignment with the instrument panel.

Restraint System Performance

Airbags

Driver: The uninflated driver airbag is approximately 61 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 60 ms into the crash and appeared to be fully inflated at 86 ms.

Passenger: The top-mounted passenger airbag deployed vertically 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.

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 all front and middle row 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 floor just inboard of the B-pillars. During the crash, a total amount of 7 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 30 degrees from its precrash orientation. This measure, combined with the estimated diameter of the retractor spool and stowed webbing (50 mm), suggested the force limiter contributed about 1 cm of webbing to the total amount pulled though 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 slightly.

Steering Column

The two shear modules connecting the steering column to the instrument panel separated completely during the crash. After the crash, the steering column was free to pivot below its precrash position. Analysis of the high-speed film from camera positions D and E indicated little discernable vertical movement of the column until after the dummy rebounded from the airbag. The steering column intrusion measurement was made after pivoting the steering column back to its precrash position with respect to the instrument panel. Based on this measure, the upper end of the steering column moved upward 6 cm and rearward 2 cm relative to the driver seat.

Dummy Kinematics

Head, Neck, and Torso

Analysis of the high-speed film taken from camera position E indicated the deploying airbag contacted the dummy's face at 64 ms into the crash. The dummy's head began to load the airbag at 78 ms (8 ms before the airbag was fully inflated). Paint transferred from the dummy's face indicated the nose contacted the airbag 2 cm above and 8 cm to the left of its center. As the dummy's head ended its forward motion into the airbag and began to rebound, the head moved downward slightly on the airbag and then moved rearward, upward, and outboard toward the B-pillar. The back of the head and the upper neck contacted the shoulder belt webbing just below the D-ring on the B-pillar (no significant head accelerations were recorded on the head during this contact). Table 2 provides the timing of these events.

Table 2 Restraint System Performance and Dummy Kinematics — 2000 Mazda MPV	
Event	**Time (ms)**
Deployment of airbag	60
Airbag contacts face during deployment	64
Face begins to load airbag	78
Airbag fully inflated	86
Back of head/upper neck contacts shoulder belt webbing	320

Figure 6
Dummy and Vehicle Interior, Postcrash — 2000 Mazda MPV

Left leg and foot: After the crash, the left knee and shin were found pressed against the knee bolster. Paint transferred from the dummy's left knee indicated the knee contacted the bolster to the left of the steering column at the left instrument panel intrusion reference point. Paint transferred from the dummy's left shin indicated the shin contacted the bolster directly below the knee impact location and then slid upward into the initial knee contact location. The left foot was found fully dorsiflexed and slightly inverted, with the sole at the heel and medial forefoot pressed against the intruded toepan and the back of the heel resting on the floorpan.

Right leg and foot: After the crash, the right knee and shin were found pressed against the knee bolster. Paint transferred from the dummy's right knee indicated the knee primarily contacted the bolster to the right of steering column. The knee also contacted the lower edge of the column-mounted ignition key and the switch housing. Paint transferred from the dummy's right shin indicated the shin contacted the bolster below the knee impact location on the bolster. The right foot was found fully dorsiflexed and slightly everted, with the medial sole of the forefoot pressed against the fully depressed 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 HIC-15 was 693 during the interval 95-110 ms. Table 3 provides a summary of the maximum head injury measurements recorded during the crash.

Table 3
Head Injury Measurements — 2000 Mazda MPV

Measure	Published Tolerance Threshold	Result	Time (ms)
Vector resultant acceleration (g)	80	77	105
Vector resultant acceleration — 3 ms clip (g)	80	76	103-107*
Head Injury Criterion (HIC)	1000	976	84-117
Head Injury Criterion — 15 ms interval (HIC-15)**	700	693	95-110

* The acceleration level that was continuously maintained for at least 3 ms is indicated. There was no level associated with an interval of exactly 3 ms in duration.

** 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. The maximum neck axial tension was 2.8 kN at 99 ms, when the dummy's head was loading the airbag. 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 Mazda MPV

Measure	Published Tolerance Threshold	Result	Time (ms)
A-P shear force (kN)	±3.1	–0.5	82
Axial compression force (kN)	4.0	0.2	151
Axial tension force (kN)	3.3	2.8	99
Flexion bending moment (Nm)	310	19	189
Extension bending moment (Nm)	122	29	82

Chest

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

Table 5
Chest Injury Measurements — 2000 Mazda MPV

Measure	Published Tolerance Threshold	Result	Time (ms)
Vector resultant spine acceleration — 3 ms clip (g)	60	47	98–101
Rib compression (mm)	–50	–30	100
Sternum deflection rate (m/s)	–8.2	–1.2	66

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 tibia axial force of –3.1 kN at 78 ms and a maximum lower tibia L-M moment of –244 Nm at 78 ms, which contributed to a lower tibia index of 1.21 at 78 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) after about 70 ms into the crash. The ratio of the A-P bending moment to the axial force (approximately 0.04 m) is about equal to 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 during this time 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 before 70 ms. The reported right upper tibia index and resultant bending moment were calculated by excluding the upper tibia A-P bending moment after 70 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 Mazda MPV

Measure	Published Tolerance Threshold	Left		Right	
		Result	Time (ms)	Result	Time (ms)
Femur axial force (kN)	–9.1*	–6.3	78	–2.1	60
Tibia-femur displacement (mm)	–15	–5	55	–6	112
Upper Tibia					
L-M moment (Nm)	±225	–30	136	–146	79
A-P moment (Nm)	±225	–68	74	77**	53
Vector resultant moment (Nm)	225	71	76	146**	79
Index	1.00	0.35	76	0.72**	79
Lower Tibia					
L-M moment (Nm)	±225***	–90	76	–244	78
A-P moment (Nm)	±225***	53	128	74	98
Vector resultant moment (Nm)	225***	92	76	253	78
Axial force (kN)	–8.0***	–1.5	70	–3.1	78
Index	1.00	0.44	76	1.21	78
Foot					
A-P acceleration (g)	±150	–87	69	–91	76
I-S acceleration (g)	±150	–57	68	–65	72
Vector resultant acceleration (g)	150	98	68	99	76

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

** The right upper tibia A-P bending moment was influenced by the tibia axial force acting upon the geometry of the upper tibia after about 70 ms into the crash. The right upper tibia resultant bending moment and tibia index were calculated by excluding the contribution of the A-P moment after this time.

*** 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 Mazda MPV Passenger Van: 5 mi/h Front into Angle Barrier

Test Number: LA00004
VIN: JM3LW28G9Y0102571
Mileage: 879
Features: Driver and passenger front airbags, driver and front passenger side impact airbags, four-wheel antilock brakes, air conditioning, automatic transmission, keyless entry system, power door locks, power windows, privacy glass, heated tailgate glass, rear wiper, tilt steering wheel, cruise control, two-stage paint.

	Part		Labor	
Description	**Mfg. No**	**Price**	**Operation**	**Hours**
Unibody, right front			Set up/pull/align*	2.0
Frame sidemember, right front			Repair*	1.0
Fender skirt, right front			Remove/reinstall	0.2
Bumper cover, front	LC7050031CAA	$452.09	Replace	0.5
Bumper cover, front			Refinish	3.6
Bumper seal, left front	LC62500G8A	1.75	Replace	
Bumper seal, right front	LC62500G8A	1.75	Replace	
Bumper mounting bracket, right front	LC625312YA	32.85	Replace*	2.6
Grille assembly	LC6250710A	221.45	Replace	
Headlamps			Aim	0.5
Headlamp lens and housing, right	LC62510K0A	164.30	Replace	0.3
Lamp lens and housing, parking/turn signal, right front	LC625106XA	117.30	Replace	
Radiator support			Repair*	1.5
Radiator support			Refinish	1.2
Fender, right front			Repair/align*	1.5
Fender, right front			Refinish	2.8
Paint and materials		136.80		
Total Parts		$1,128.29		
Total Labor		601.80		17.7
Grand Total		$1,730.09		

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

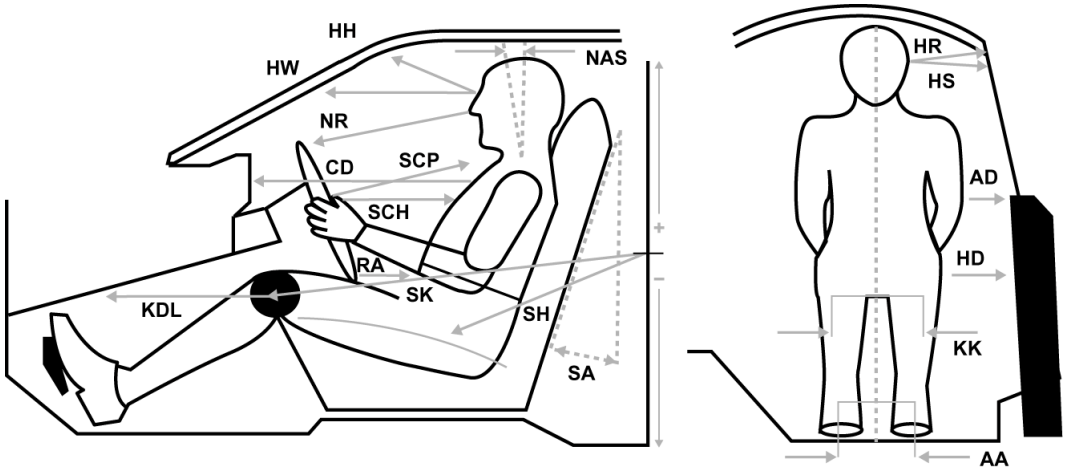
Dummy Clearance Measurements

Test Number: CF00011
Vehicle Make/Model: Mazda MPV
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 17.6° (9th position rearward), as measured on the rear edge of outer seatback frame
Upper Belt Anchorage: Set to topmost of 5 positions
Steering Column Adjustment: Set to midpoint of tilt adjustment range

Location	Code	Measure	Location	Code	Measure
Head to header	HH	415	Neck angle, torso 90	NAT90	20.7°
Head to windshield	HW	738	Neck angle, seated	NAS	5.5°
Nose to rim	NR	411	Torso angle (NAT90 – NAS)	TA	15.2°
Chest to dash	CD	571	Striker to knee*	SK	609
Rim to abdomen	RA	153	Striker to knee angle*	SKA	3.6°
Knee to dash, left	KDL	173	Striker to H-point, horizontal	SHH	228
Knee to dash, right	KDR	85	Striker to H-point, vertical	SHV	–68
Steering wheel to chest, horizontal	SCH	280	Ankle to ankle	AA	349
Steering wheel to chest, perpendicular	SCP	402	Knee to knee	KK	324
Steering wheel to chest, reference	SCR	370	Arm to door	AD	140
Hub to chest, minimum	HCM	230	H-point to door	HD	130
Pelvic angle	PA	23.3°	Head to A-pillar	HA	650
Seat back angle	SA	17.6°	Head to roof	HR	255
			Head to side window	HS	263

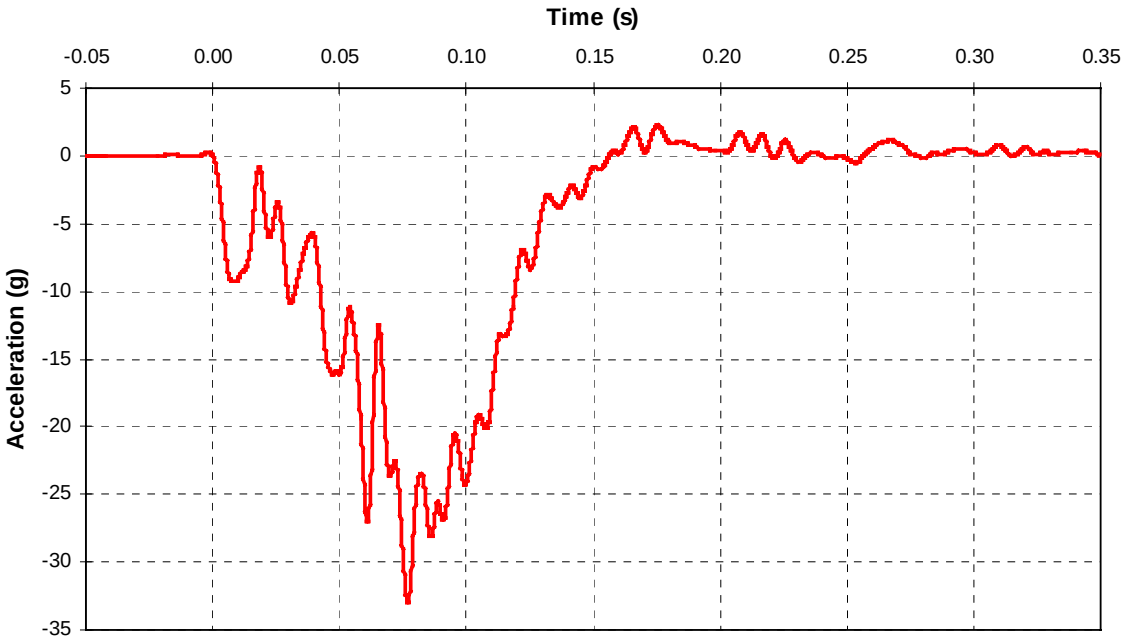
All distance measurements are in millimeters (mm).
* These measurements were made in a vertical plane containing the striker and parallel to the driver door sill.



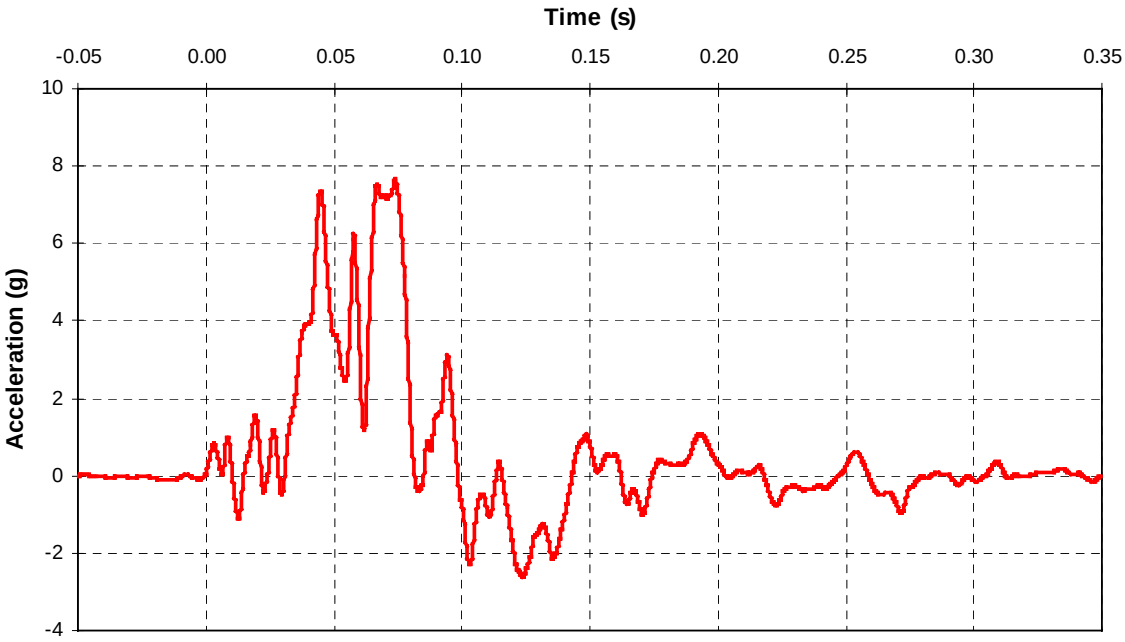
Graph Index

A-47 Right foot A-P acceleration
A-48 Right foot I-S acceleration

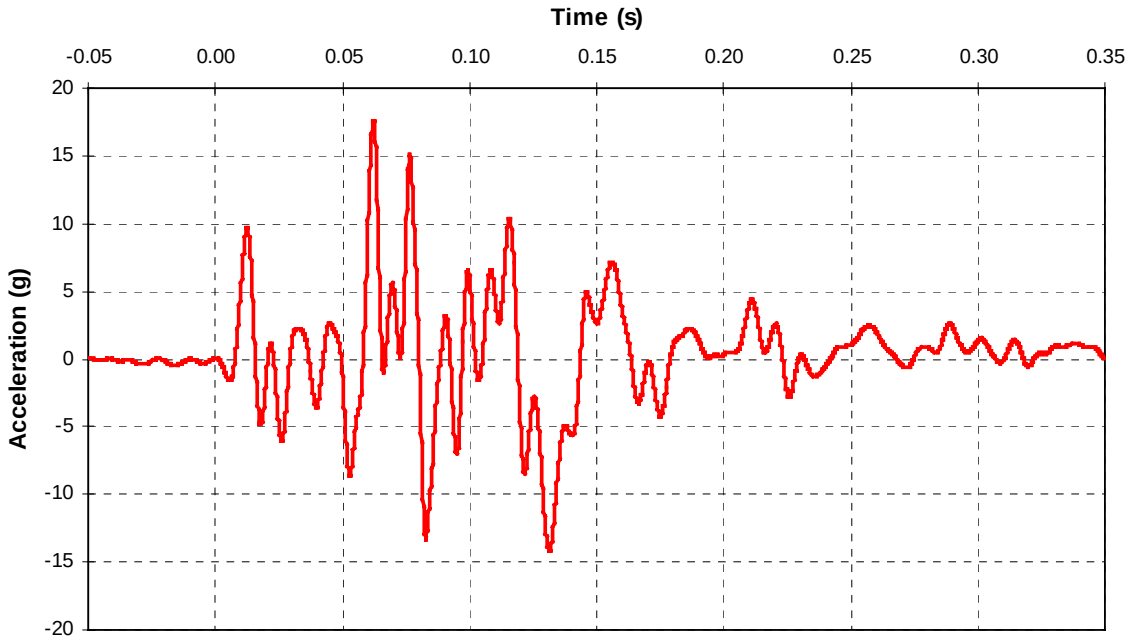
A- 1 CF00011 2000 Mazda MPV Vehicle Longitudinal Acceleration



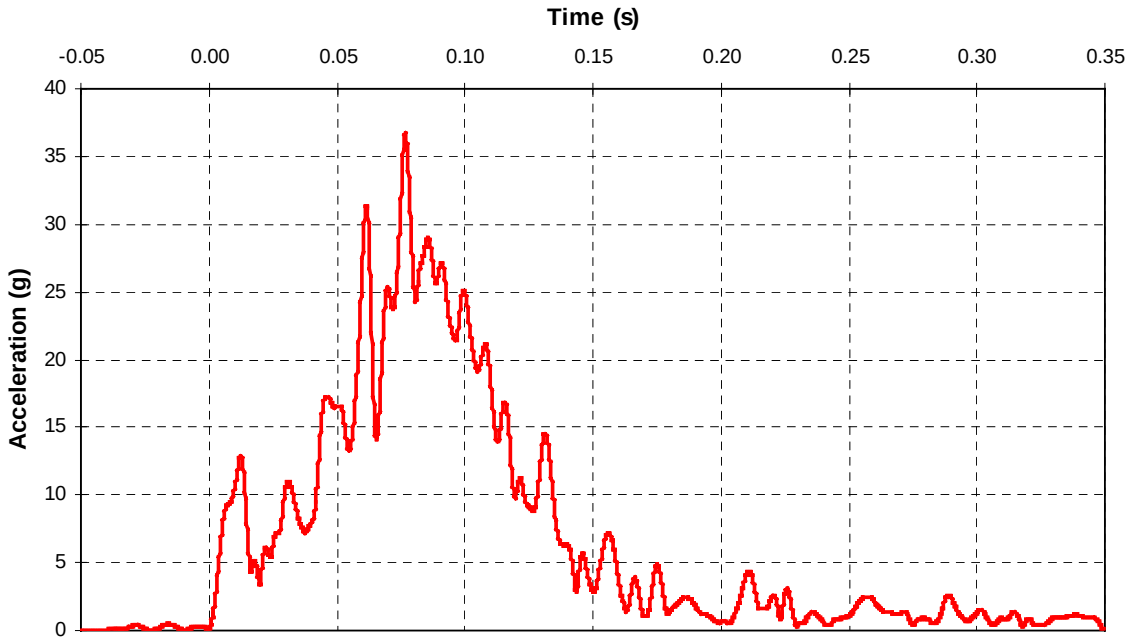
A- 2 CF00011 2000 Mazda MPV Vehicle Lateral Acceleration



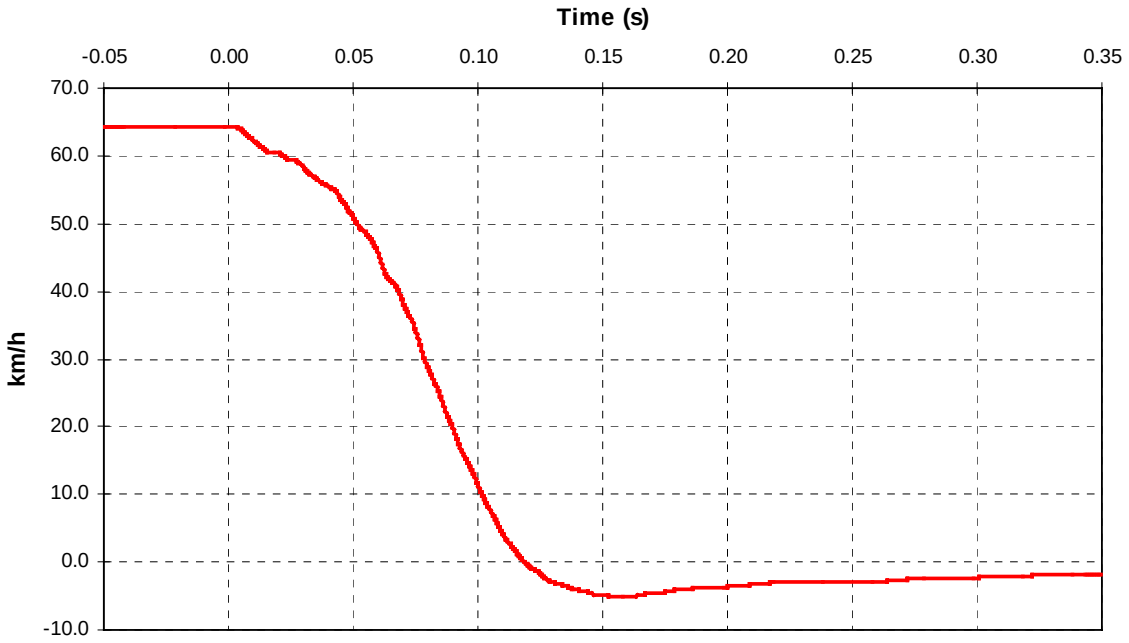
A- 3 CF00011 2000 Mazda MPV Vehicle Vertical Acceleration



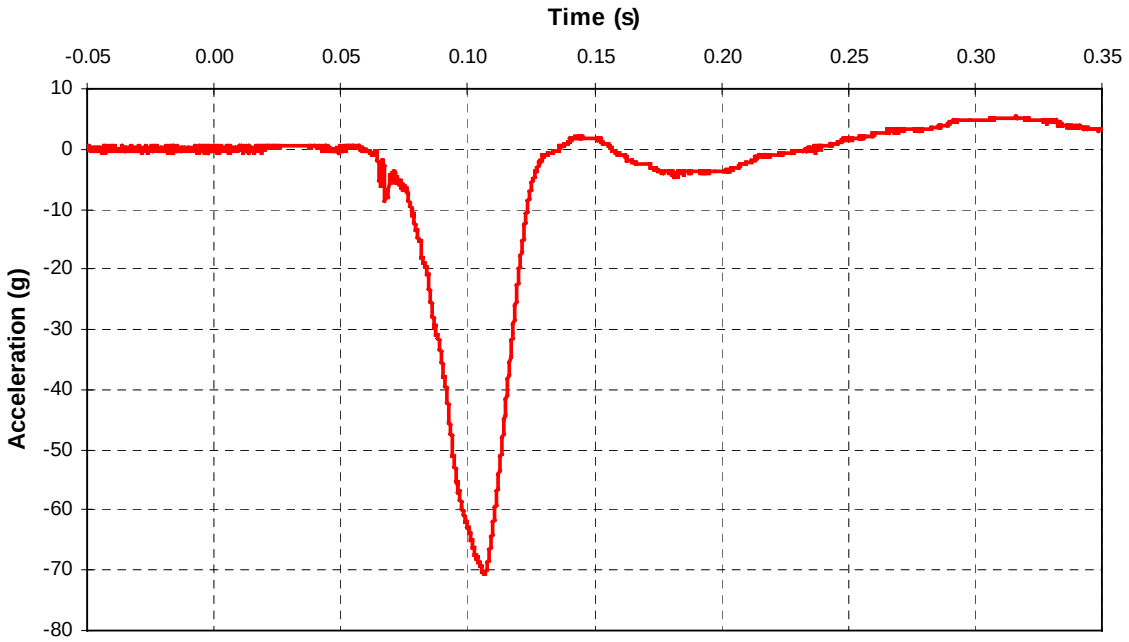
A- 4 CF00011 2000 Mazda MPV Vehicle Vector Resultant Acceleration



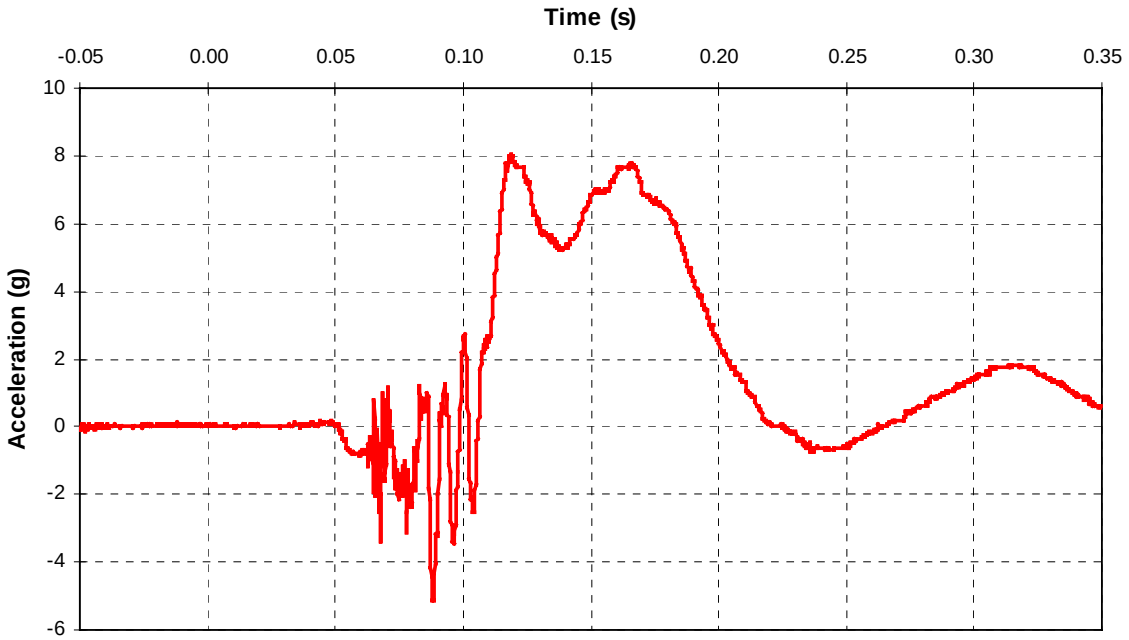
A- 5 CF00011 2000 Mazda MPV Integration of Vehicle Longitudinal Acceleration



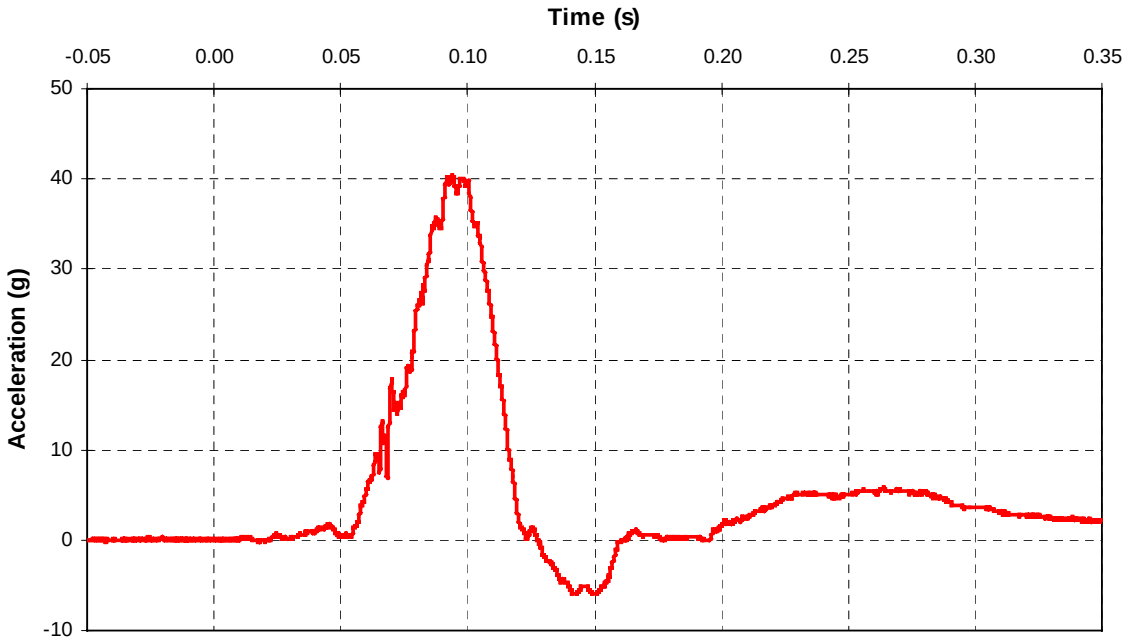
A- 6 CF00011 2000 Mazda MPV Head A-P Acceleration



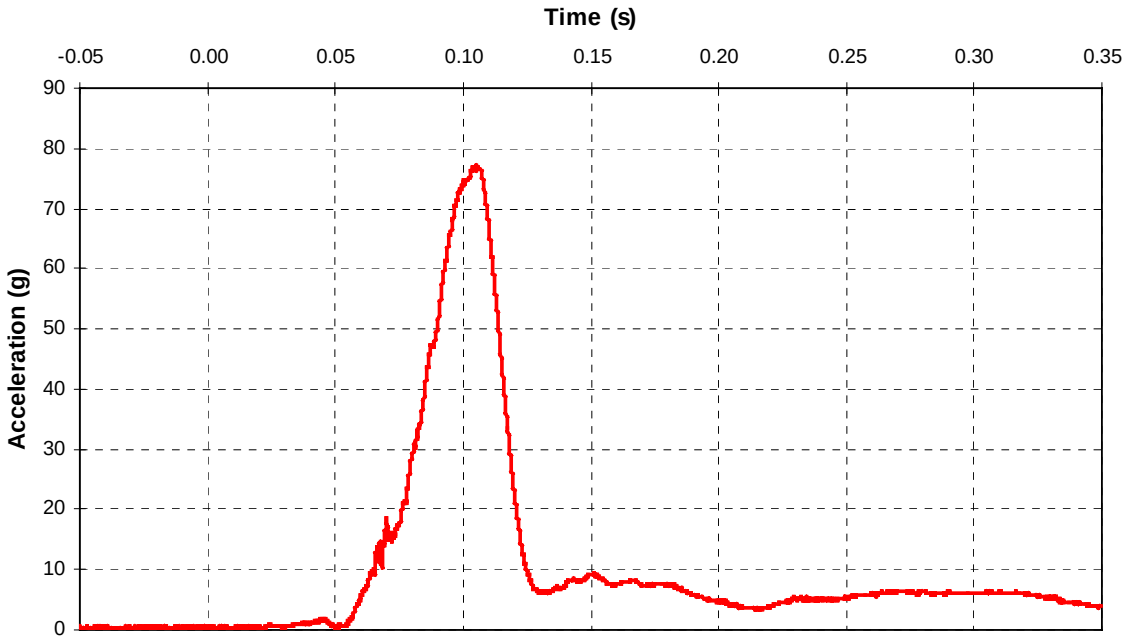
A- 7 CF00011 2000 Mazda MPV Head L-M Acceleration



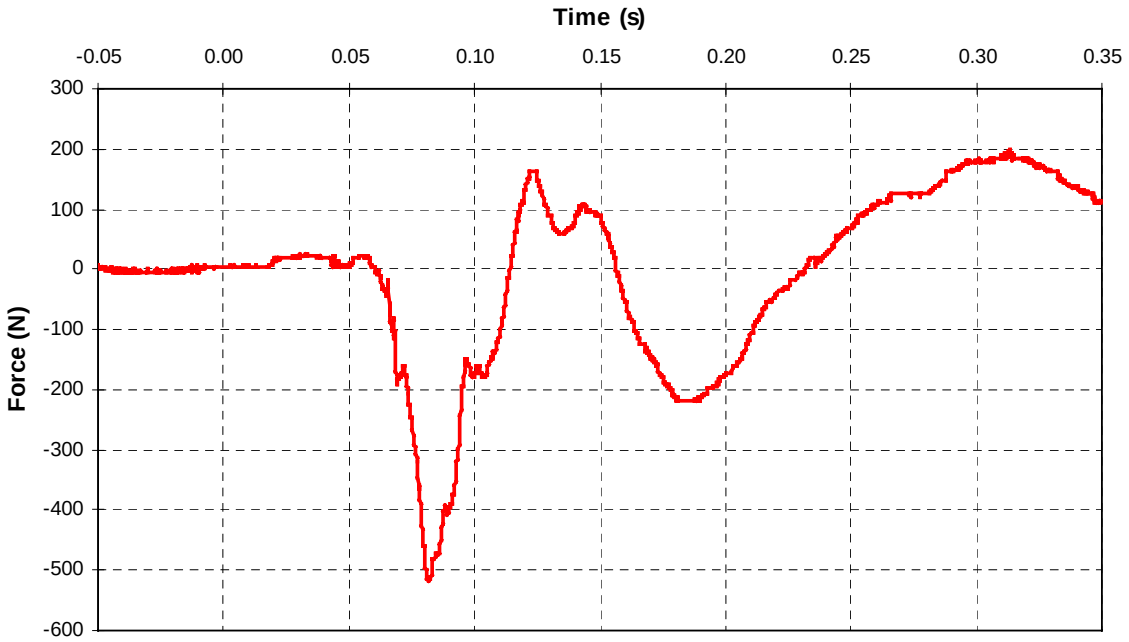
A- 8 CF00011 2000 Mazda MPV Head I-S Acceleration



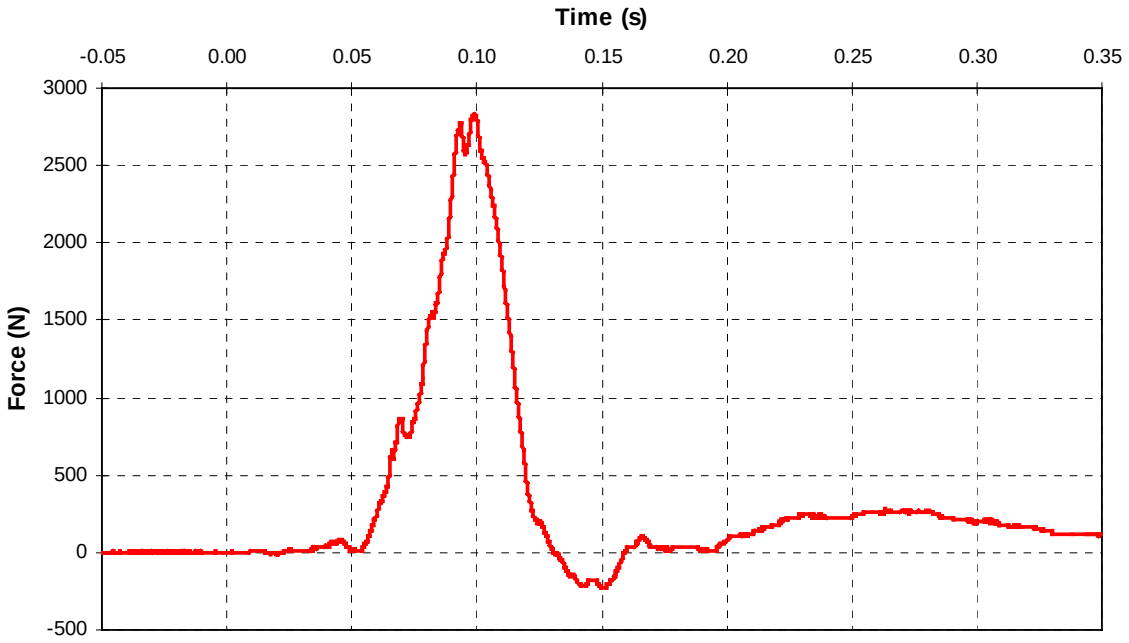
A- 9 CF00011 2000 Mazda MPV Head Vector Resultant Acceleration



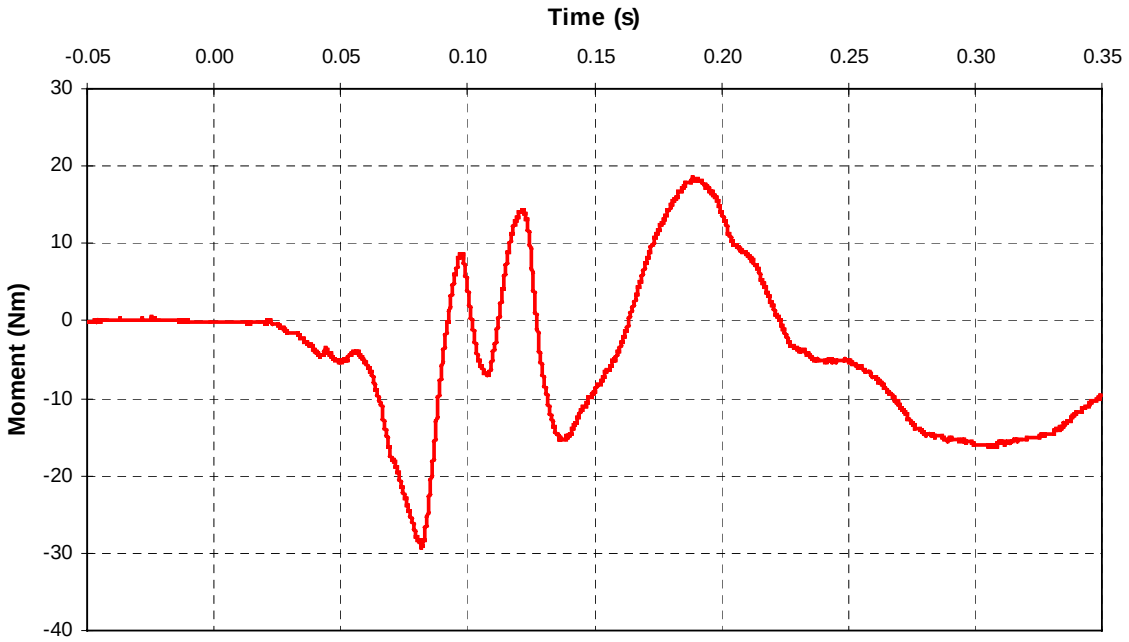
A- 10 CF00011 2000 Mazda MPV Neck A-P Shear Force



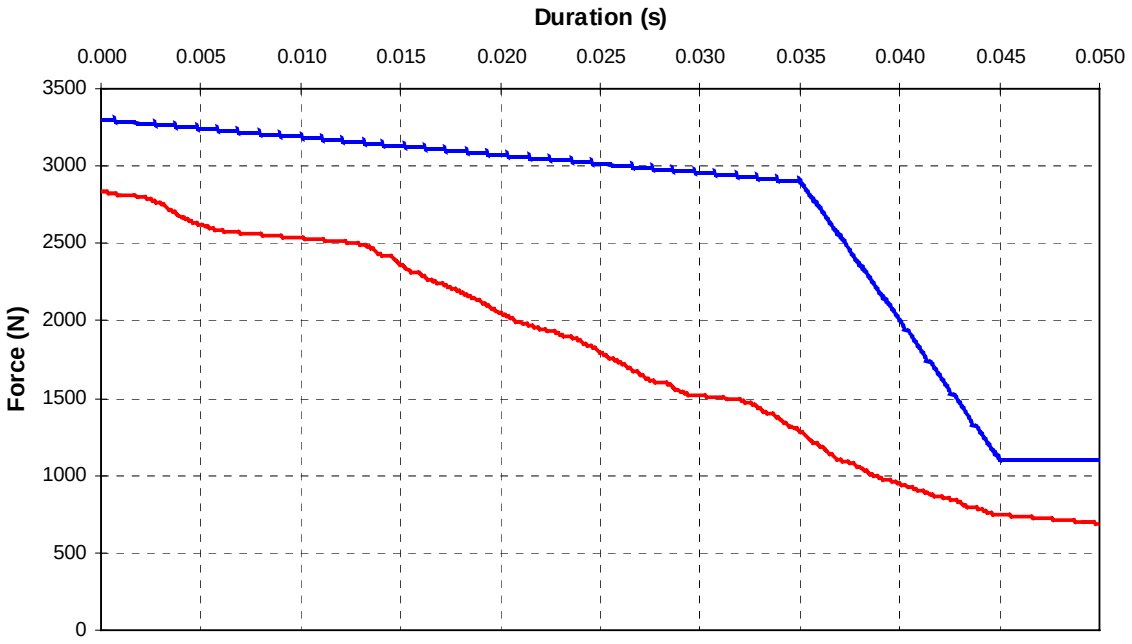
A- 11 CF00011 2000 Mazda MPV Neck Axial Force



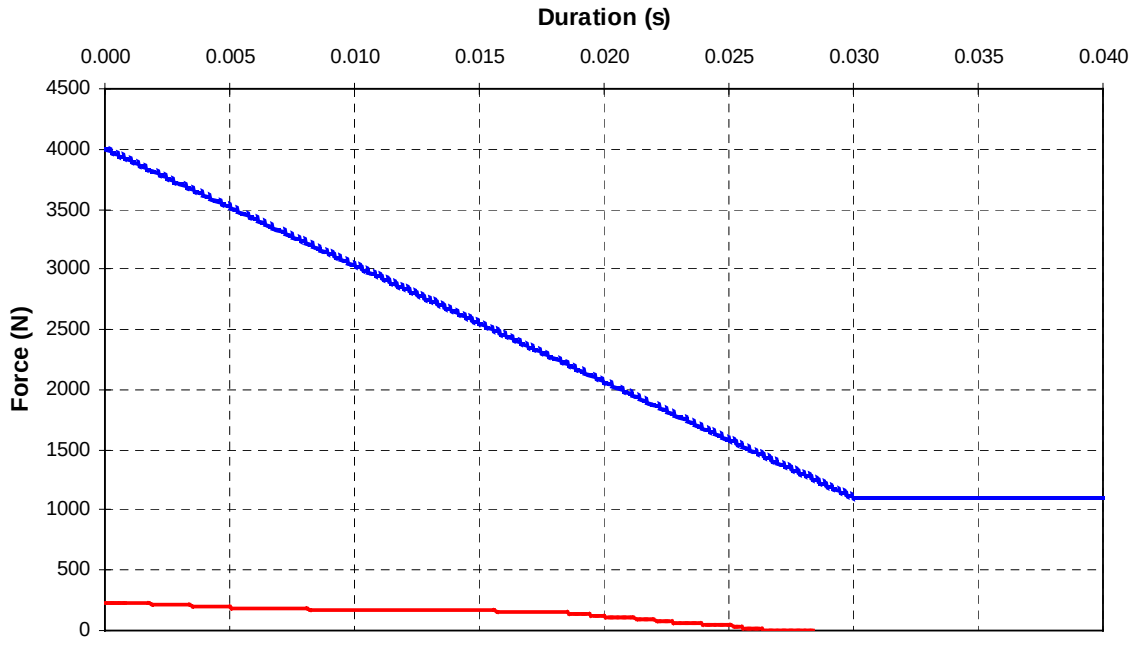
A- 12 CF00011 2000 Mazda MPV Neck Occipital A-P Moment



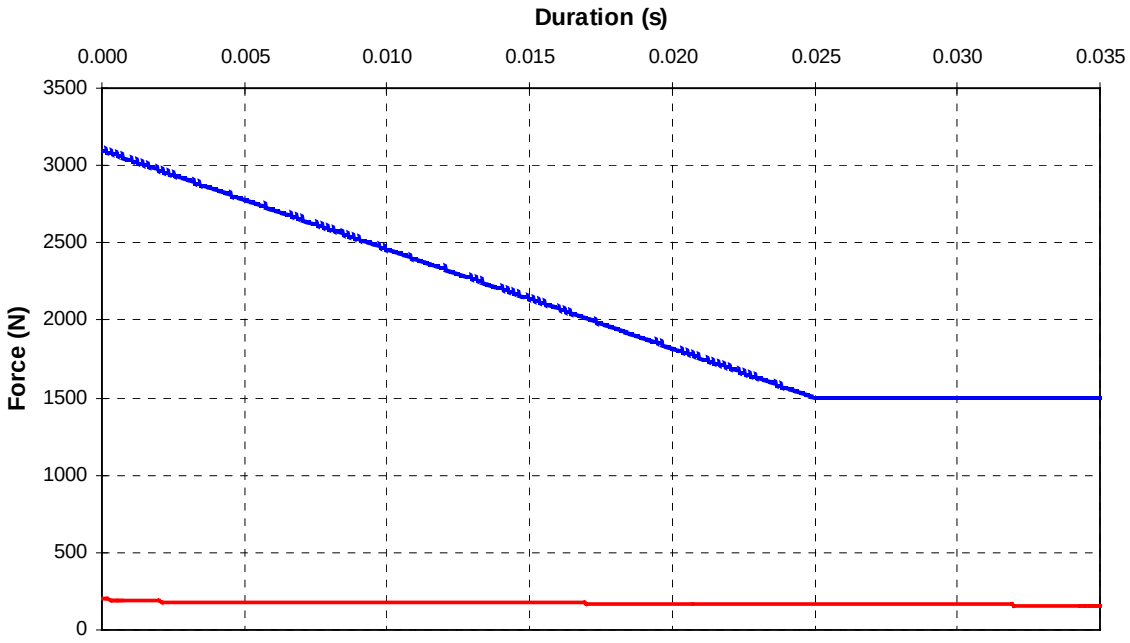
A- 13 CF00011 2000 Mazda MPV Neck Tension Analysis



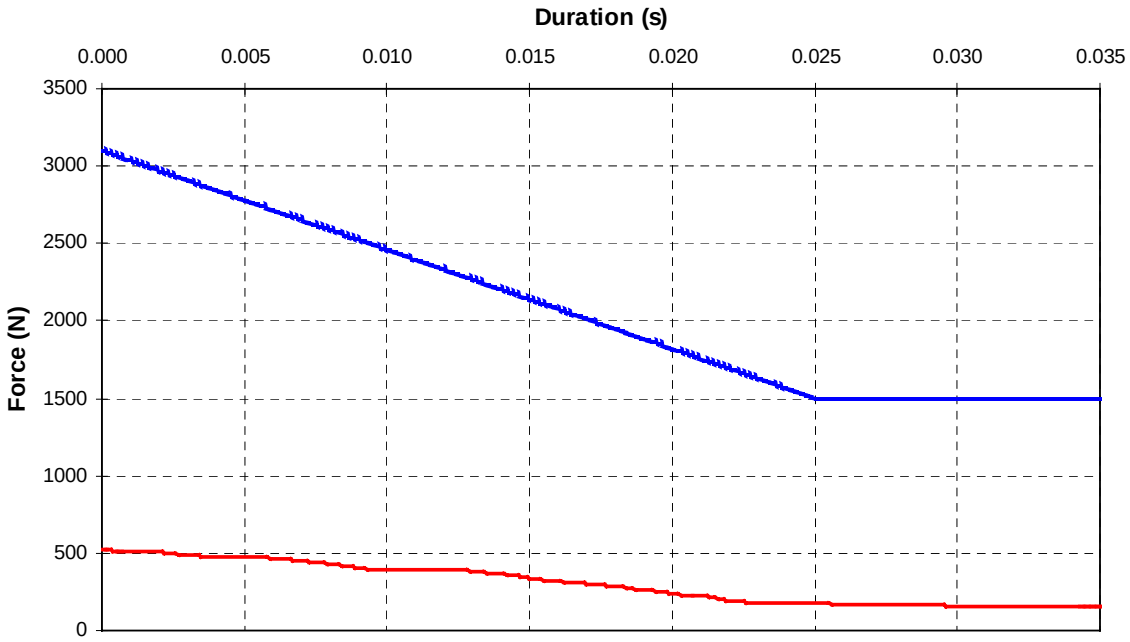
A- 14 CF00011 2000 Mazda MPV Neck Compression Analysis



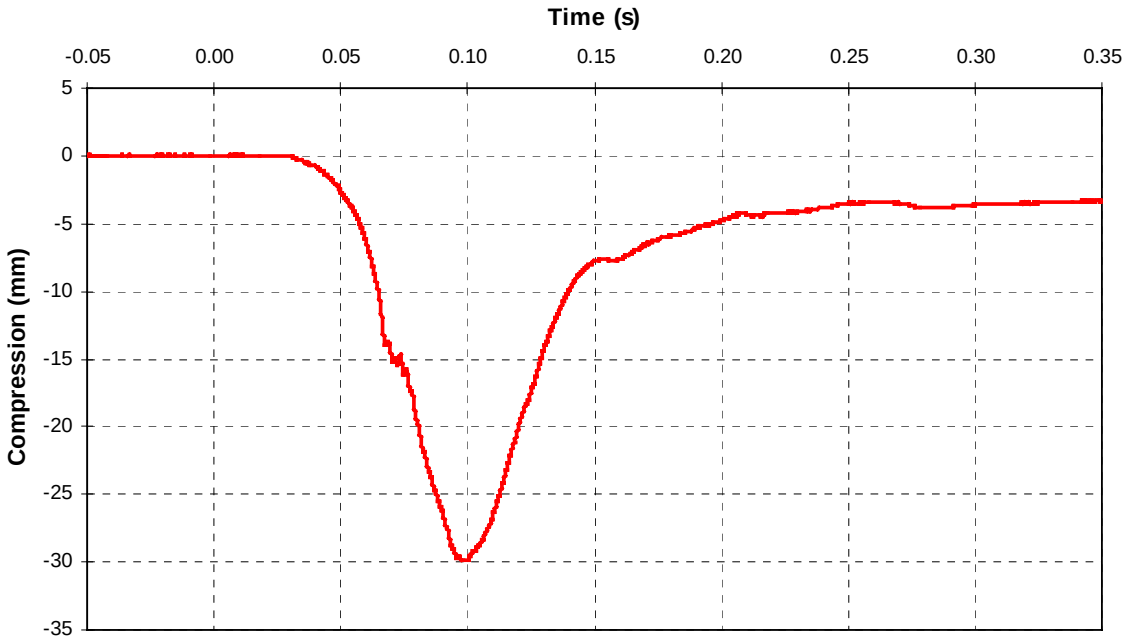
A- 15 CF00011 2000 Mazda MPV Neck A-P Shear (Positive) Analysis



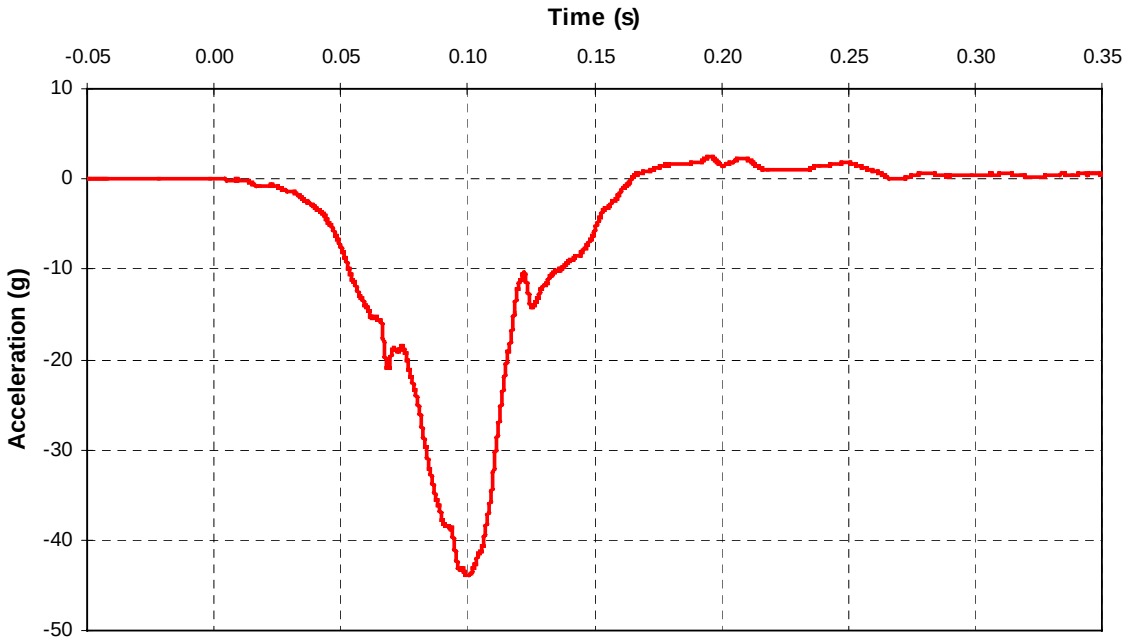
A- 16 CF00011 2000 Mazda MPV Neck A-P Shear (Negative) Analysis



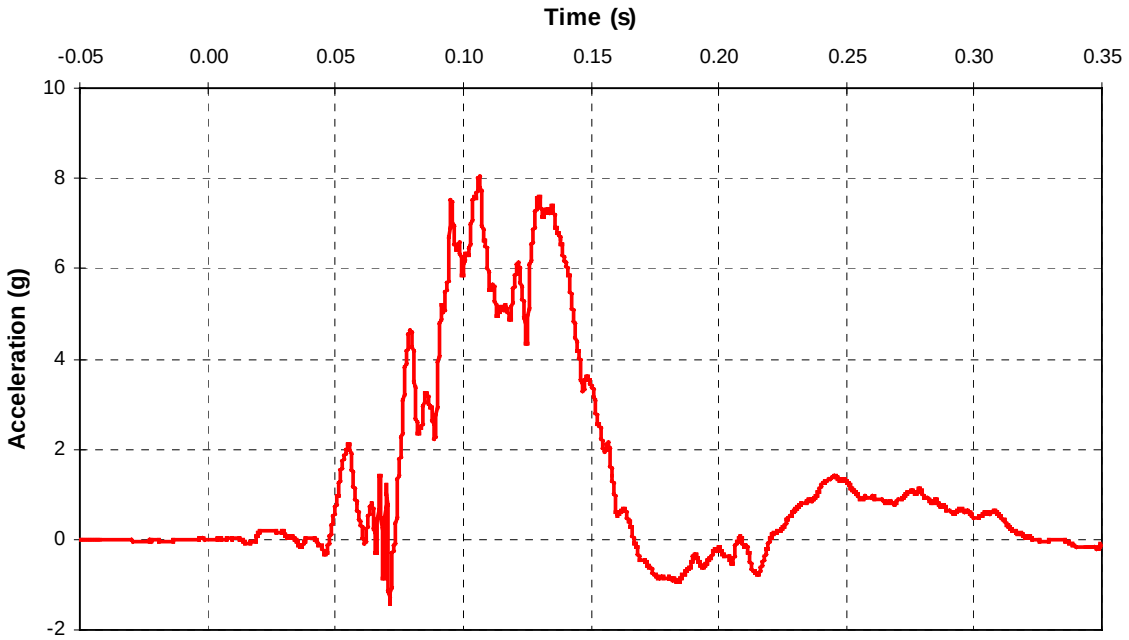
A- 17 CF00011 2000 Mazda MPV Chest Compression



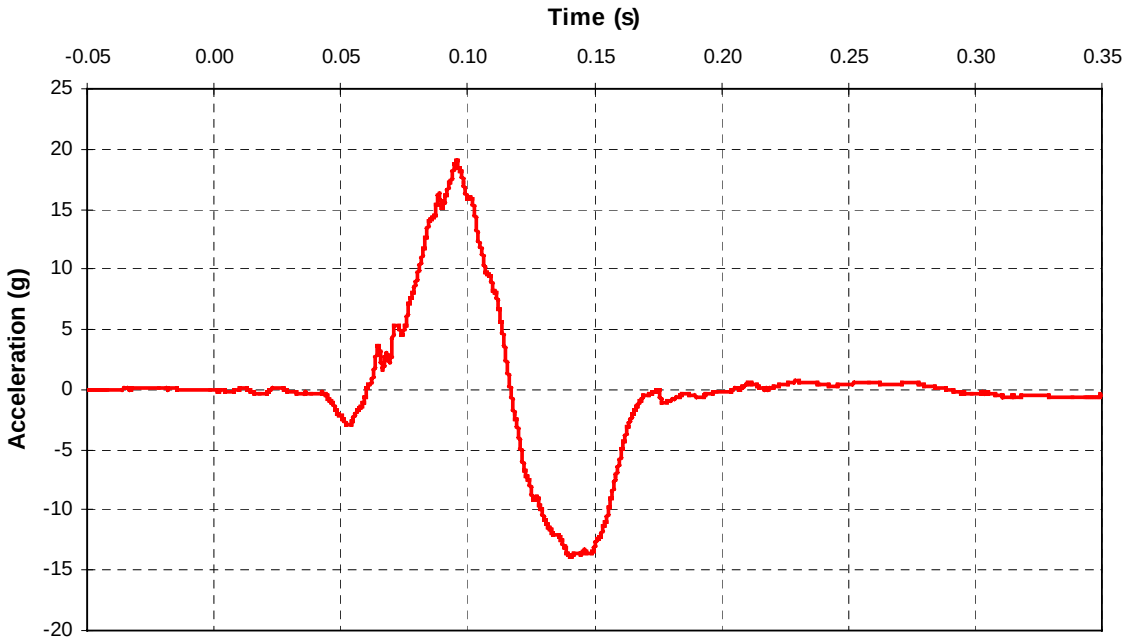
A- 18 CF00011 2000 Mazda MPV Chest A-P Acceleration



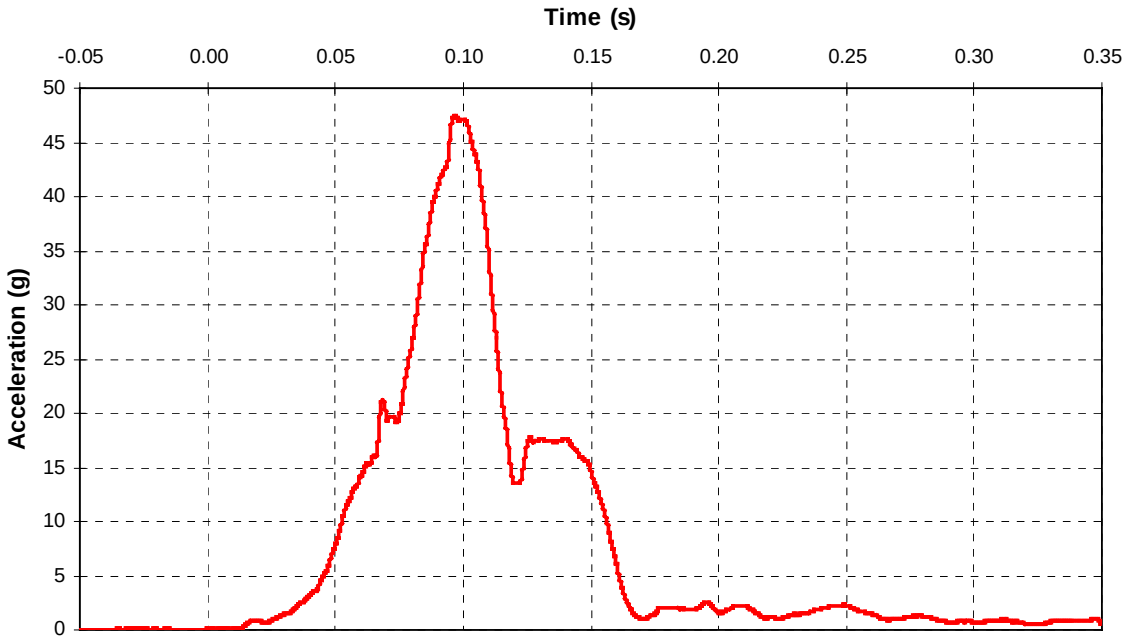
A- 19 CF00011 2000 Mazda MPV Chest L-M Acceleration



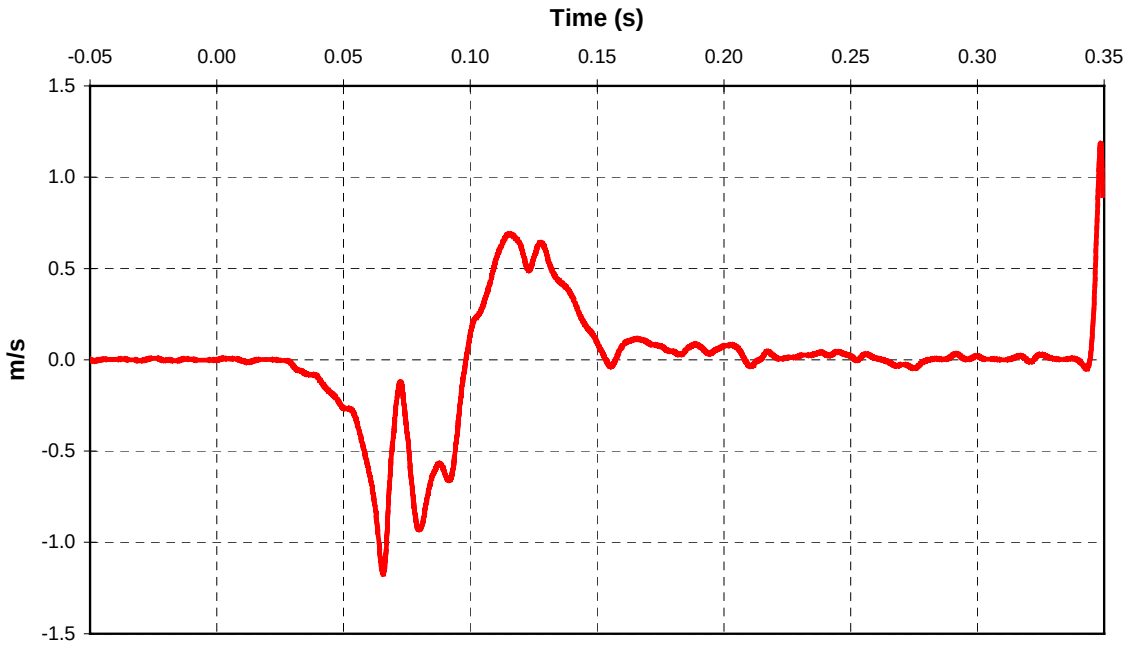
A- 20 CF00011 2000 Mazda MPV Chest I-S Acceleration



A- 21 CF00011 2000 Mazda MPV Chest Vector Resultant Acceleration

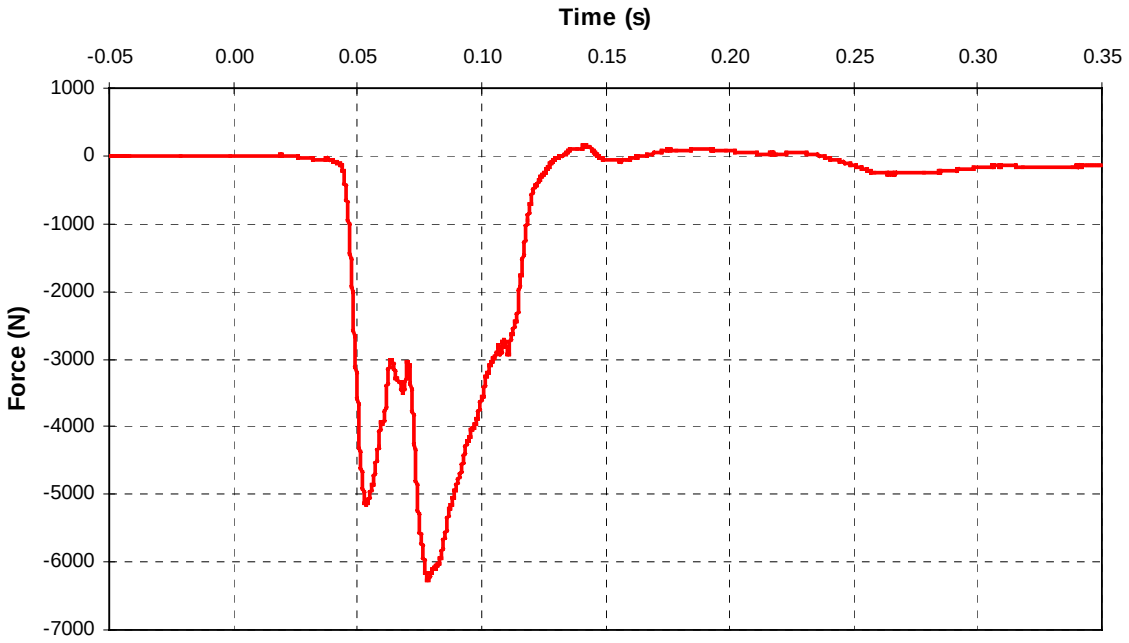


A- 22 CF00011 2000 Mazda MPV Sternum Deflection Rate

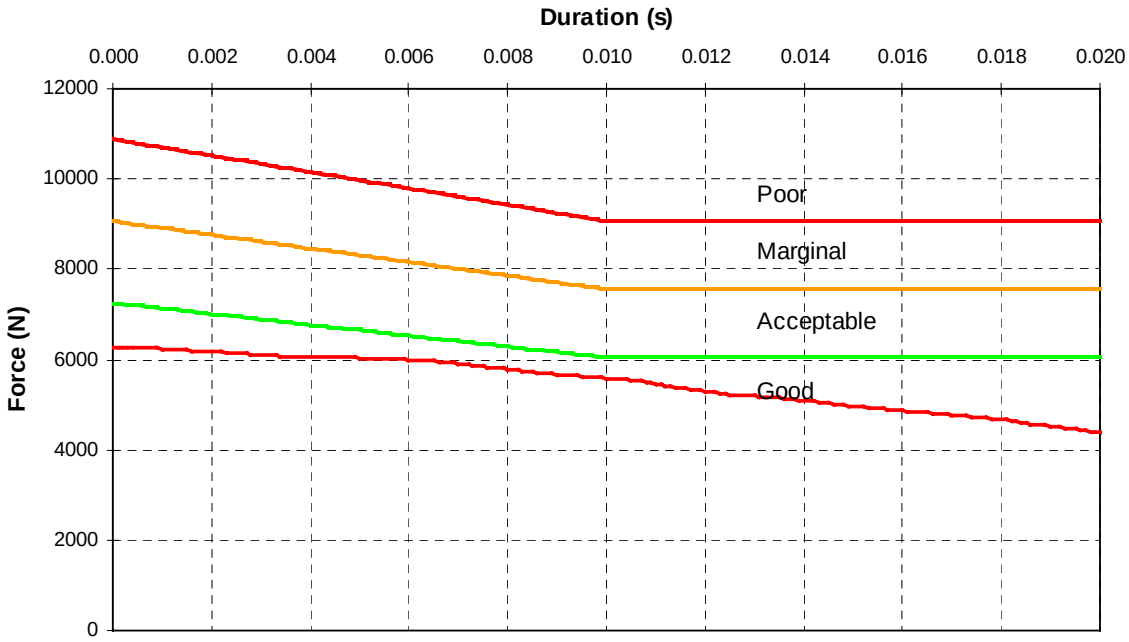


Sternum deflection rate is calculated from the sternum deflection filtered to CFC 60

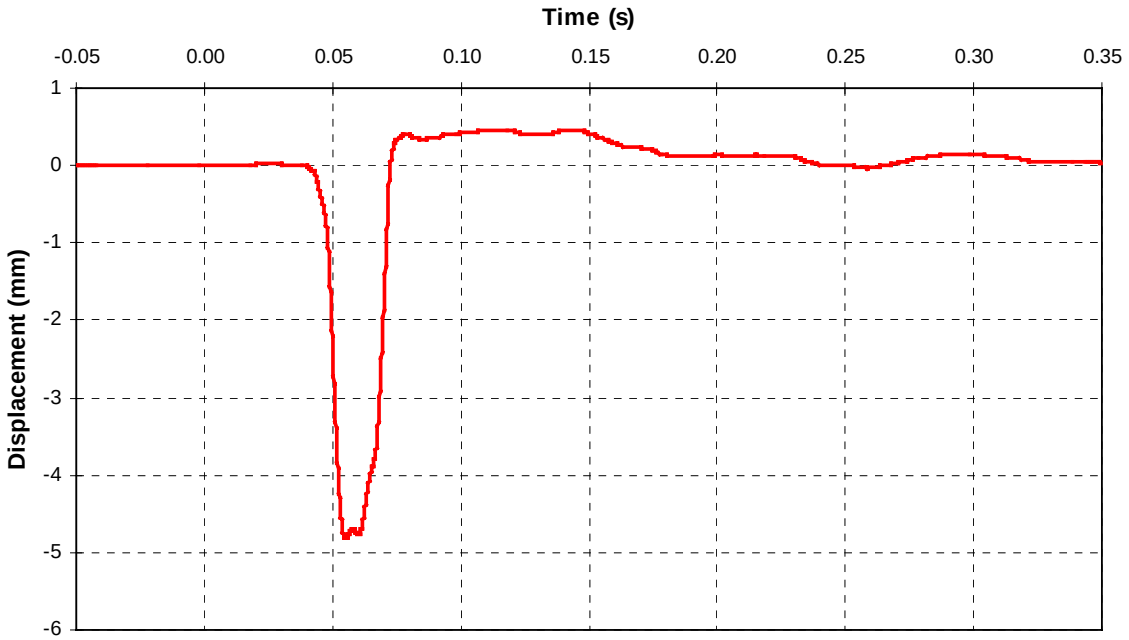
A- 23 CF00011 2000 Mazda MPV Left Femur Axial Force



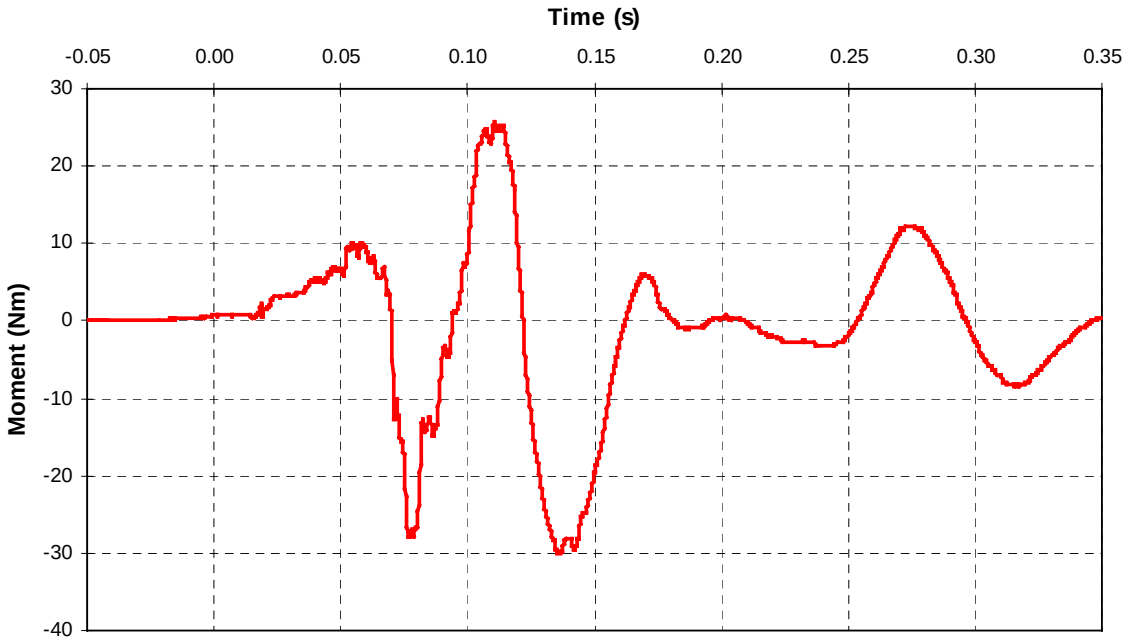
A- 24 CF00011 2000 Mazda MPV Left Femur Axial Force Analysis



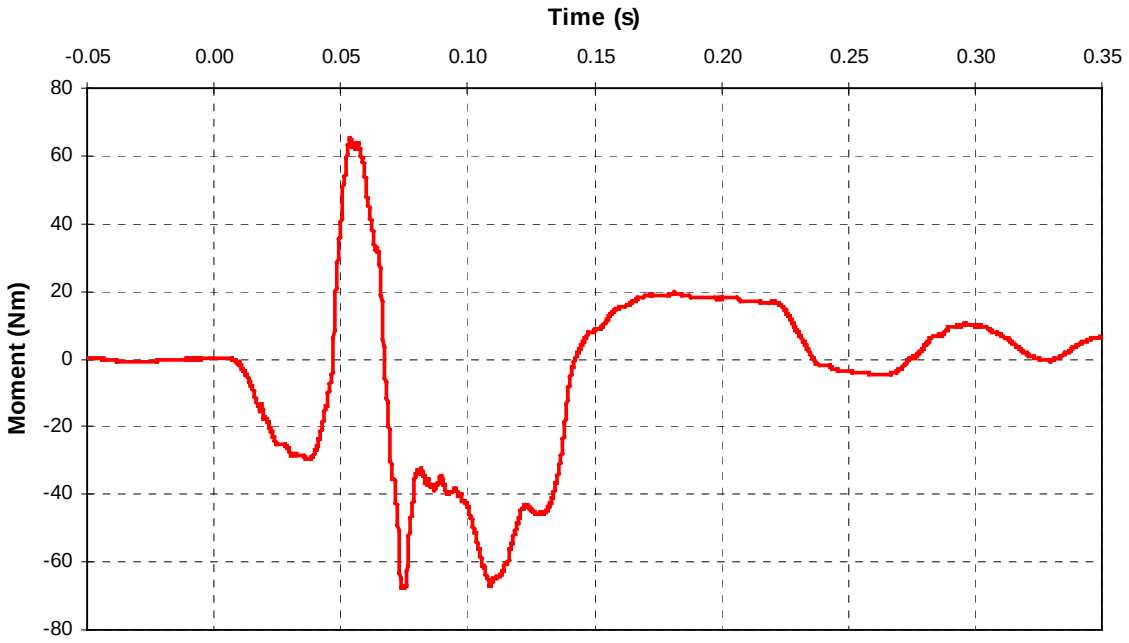
A- 25 CF00011 2000 Mazda MPV Left Tibia-Femur Displacement



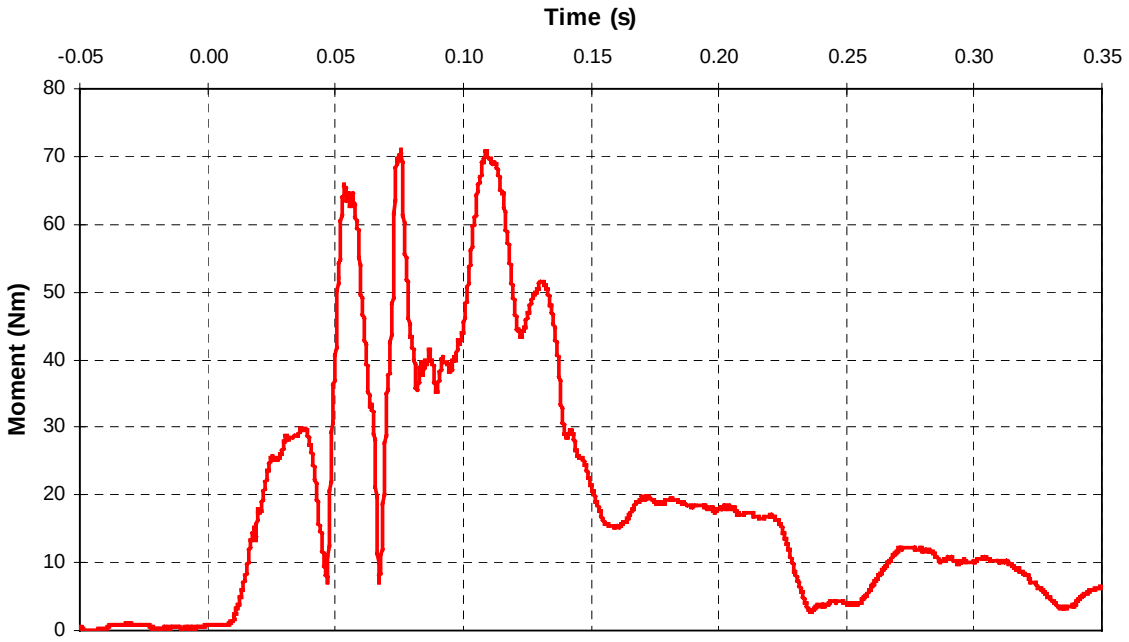
A- 26 CF00011 2000 Mazda MPV Left Upper Tibia L-M Moment



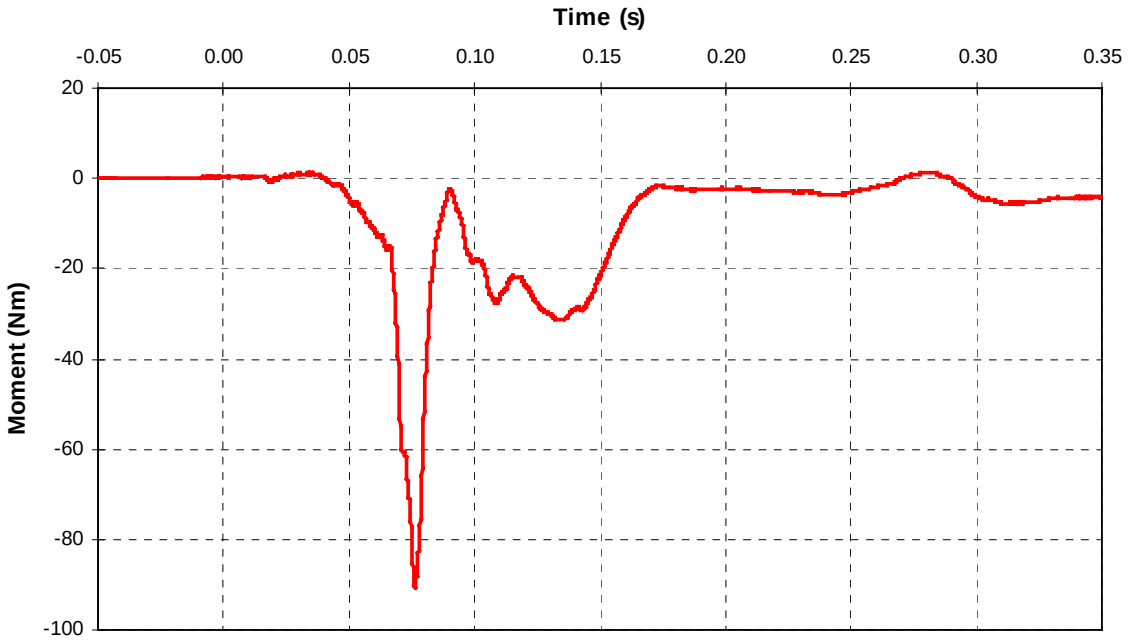
A- 27 CF00011 2000 Mazda MPV Left Upper Tibia A-P Moment



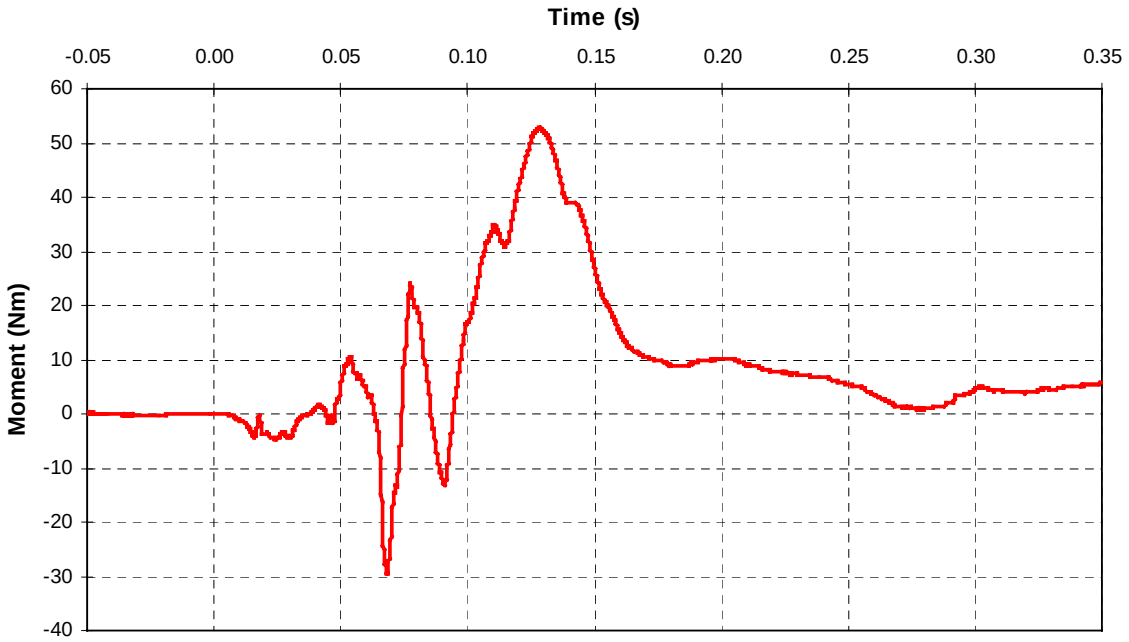
A- 28 CF00011 2000 Mazda MPV Left Upper Tibia Vector Resultant Moment



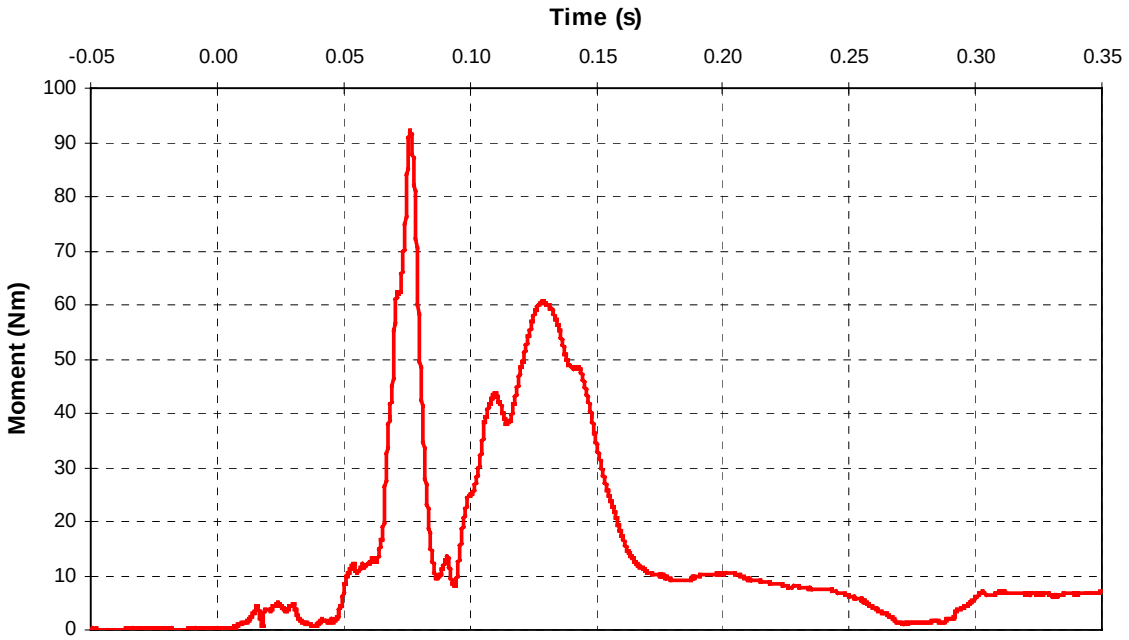
A- 29 CF00011 2000 Mazda MPV Left Lower Tibia L-M Moment



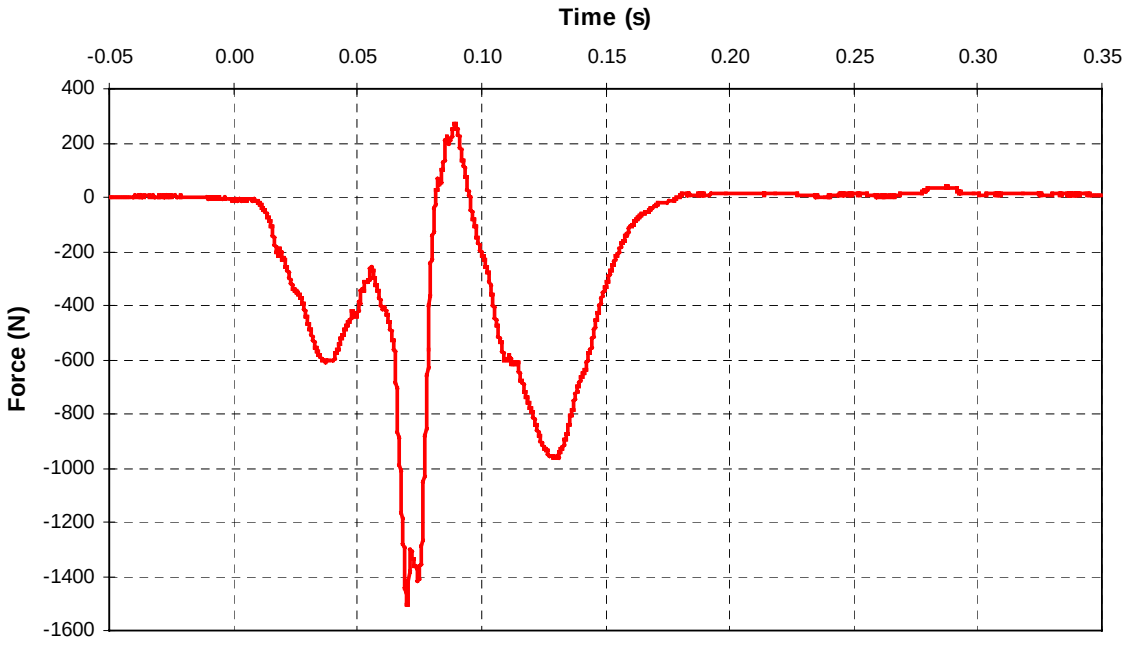
A- 30 CF00011 2000 Mazda MPV Left Lower Tibia A-P Moment



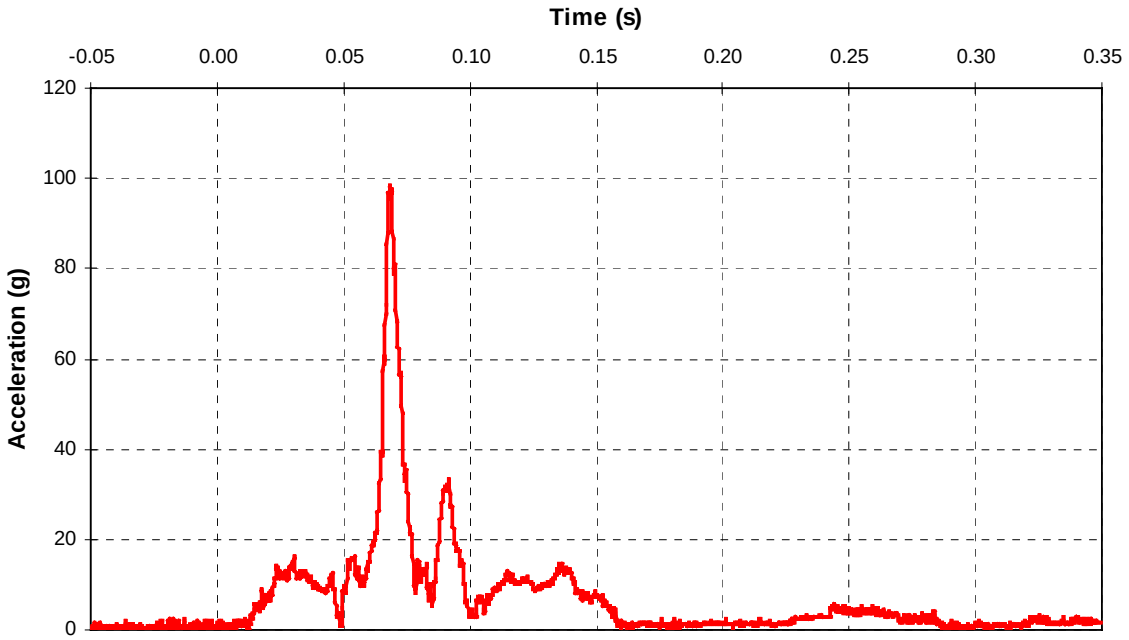
A- 31 CF00011 2000 Mazda MPV Left Lower Tibia Vector Resultant Moment



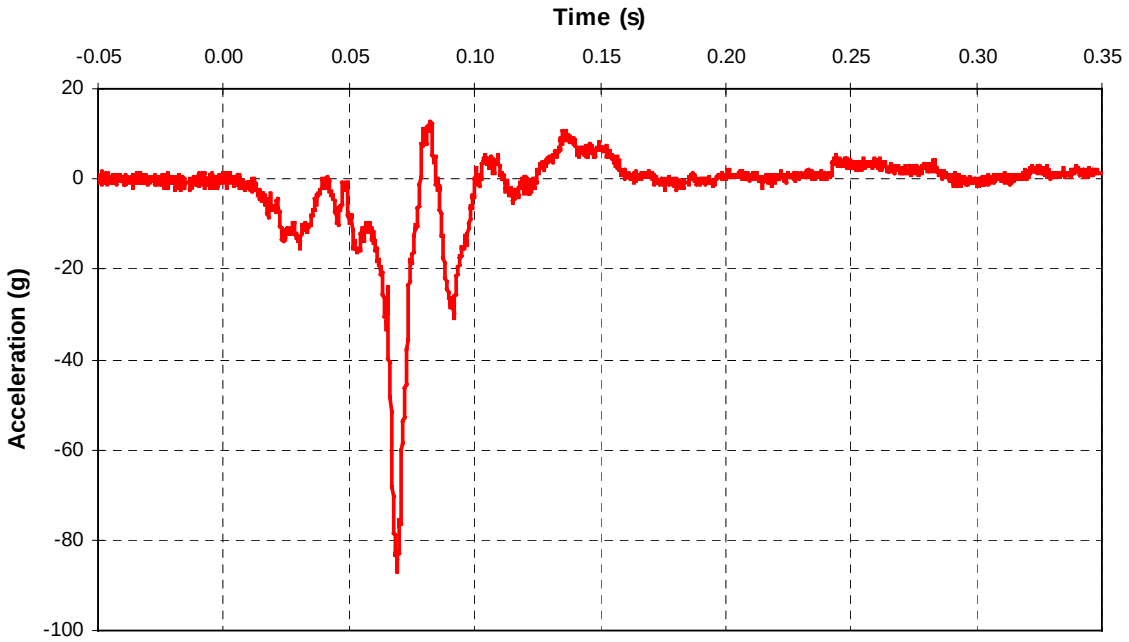
A- 32 CF00011 2000 Mazda MPV Left Lower Tibia Axial Force



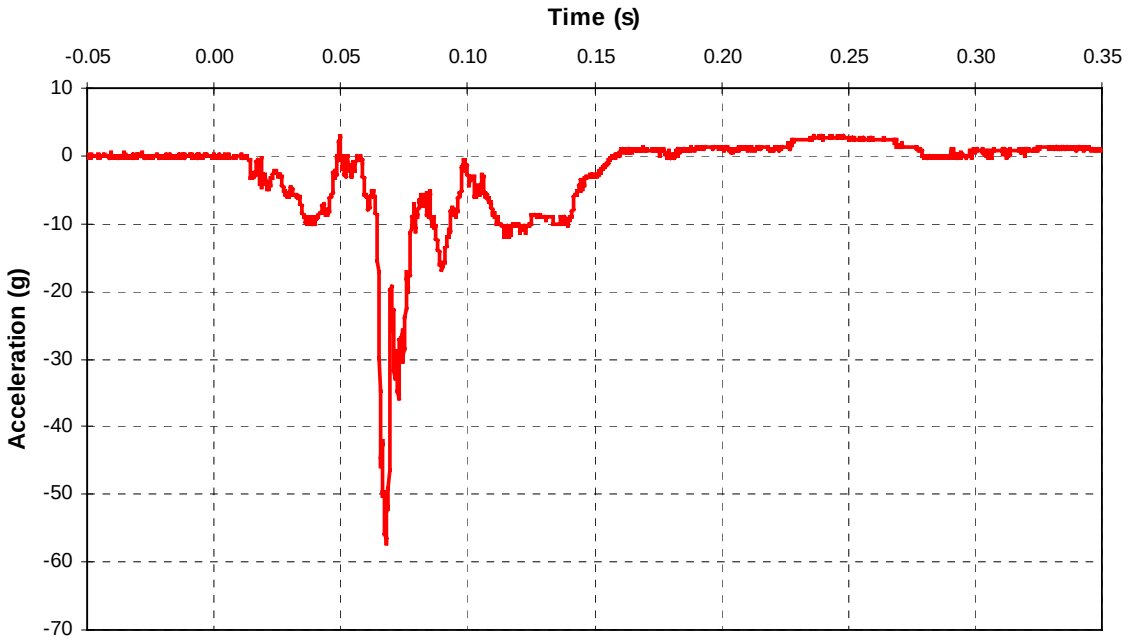
A- 33 CF00011 2000 Mazda MPV Left Foot Vector Resultant Acceleration



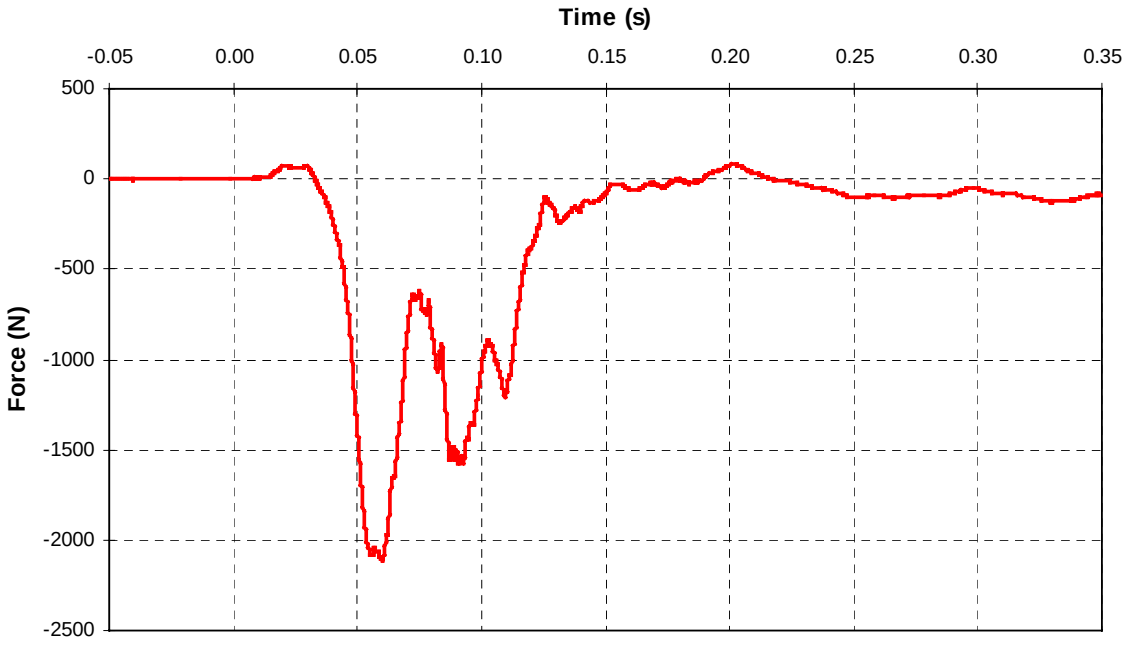
A- 34 CF00011 2000 Mazda MPV Left Foot A-P Acceleration



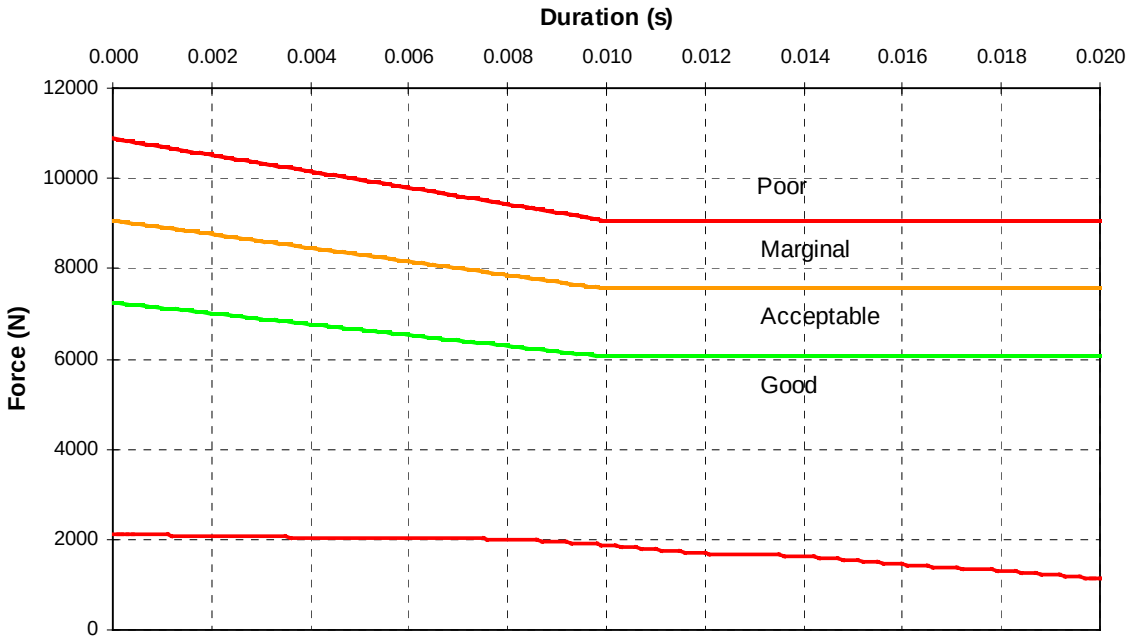
A- 35 CF00011 2000 Mazda MPV Left Foot I-S Acceleration



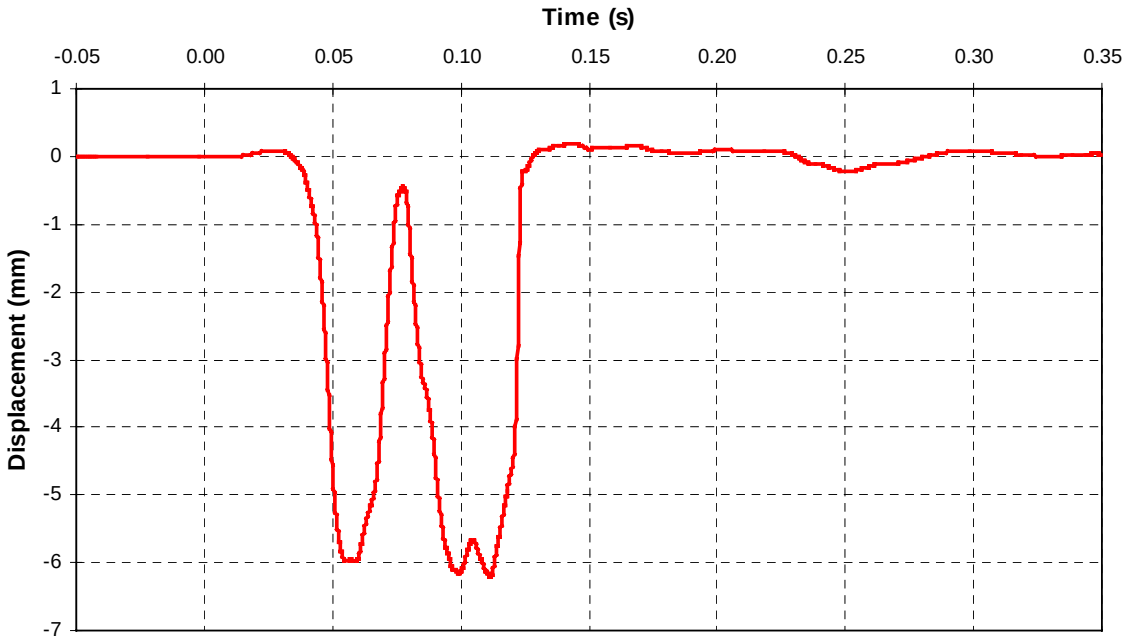
A- 36 CF00011 2000 Mazda MPV Right Femur Axial Force



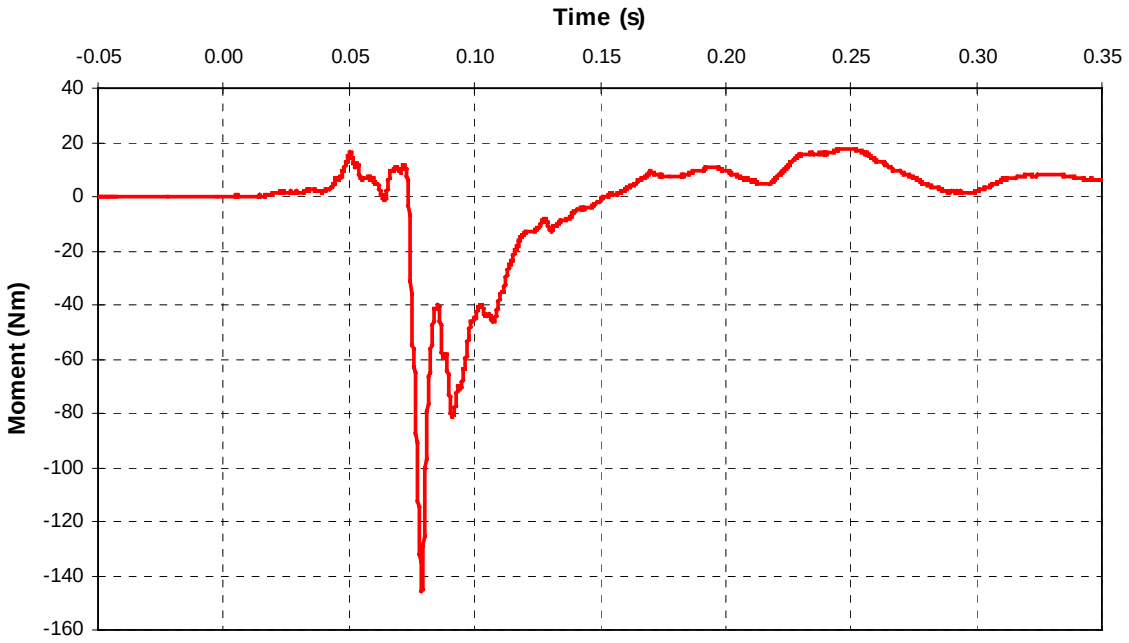
A- 37 CF00011 2000 Mazda MPV Right Femur Axial Force Analysis



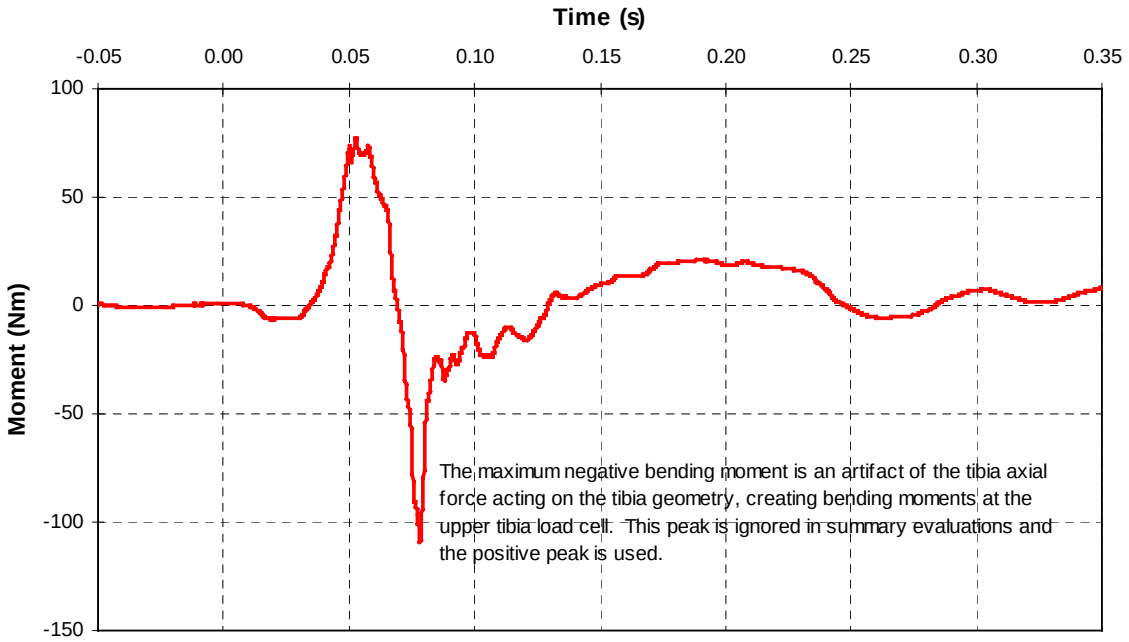
A- 38 CF00011 2000 Mazda MPV Right Tibia-Femur Displacement



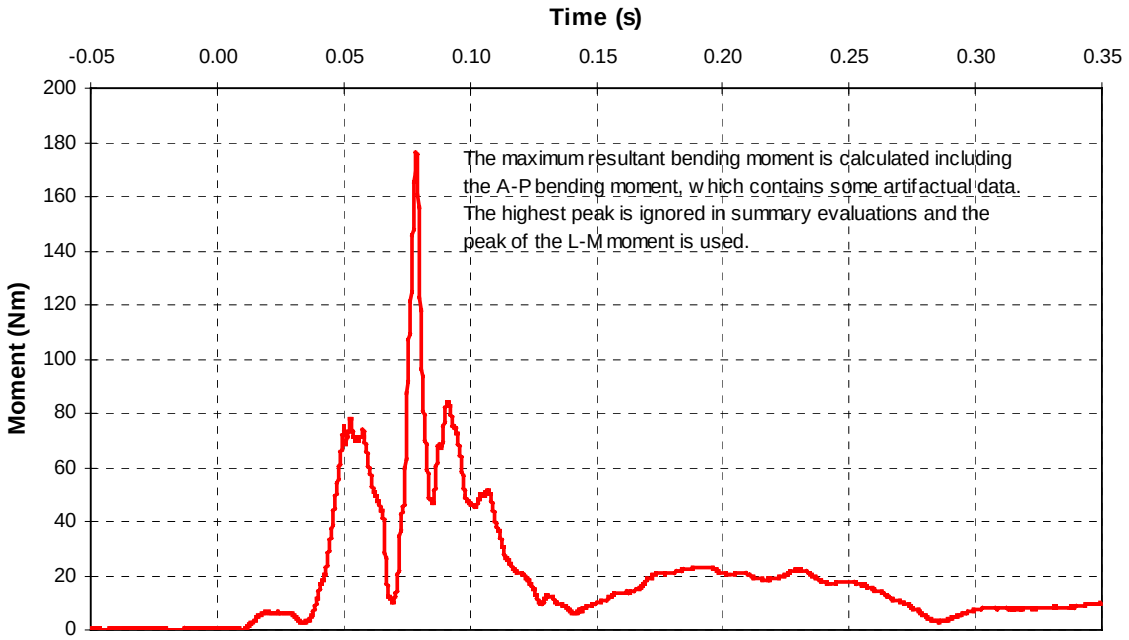
A- 39 CF00011 2000 Mazda MPV Right Upper Tibia L-M Moment



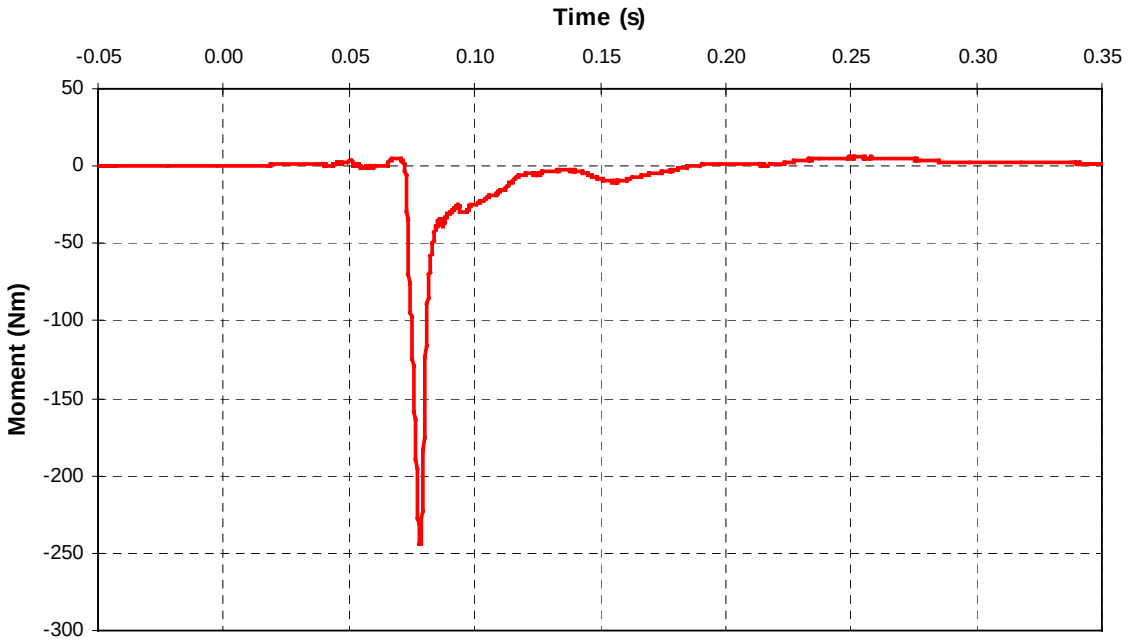
A- 40 CF00011 2000 Mazda MPV Right Upper Tibia A-P Moment



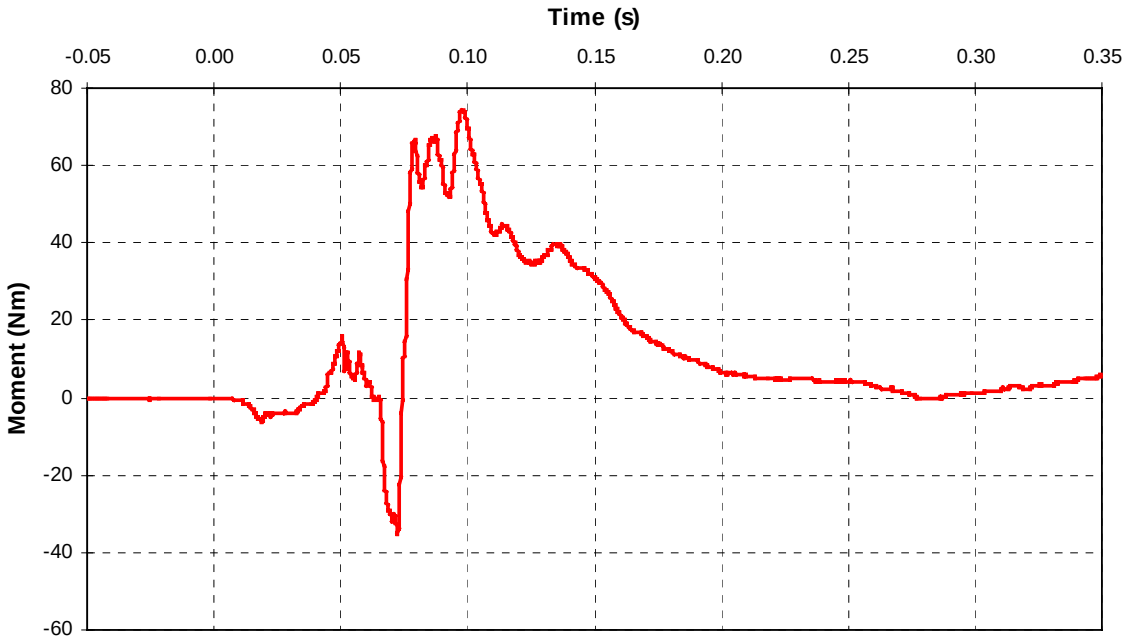
A- 41 CF00011 2000 Mazda MPV Right Upper Tibia Vector Resultant Moment



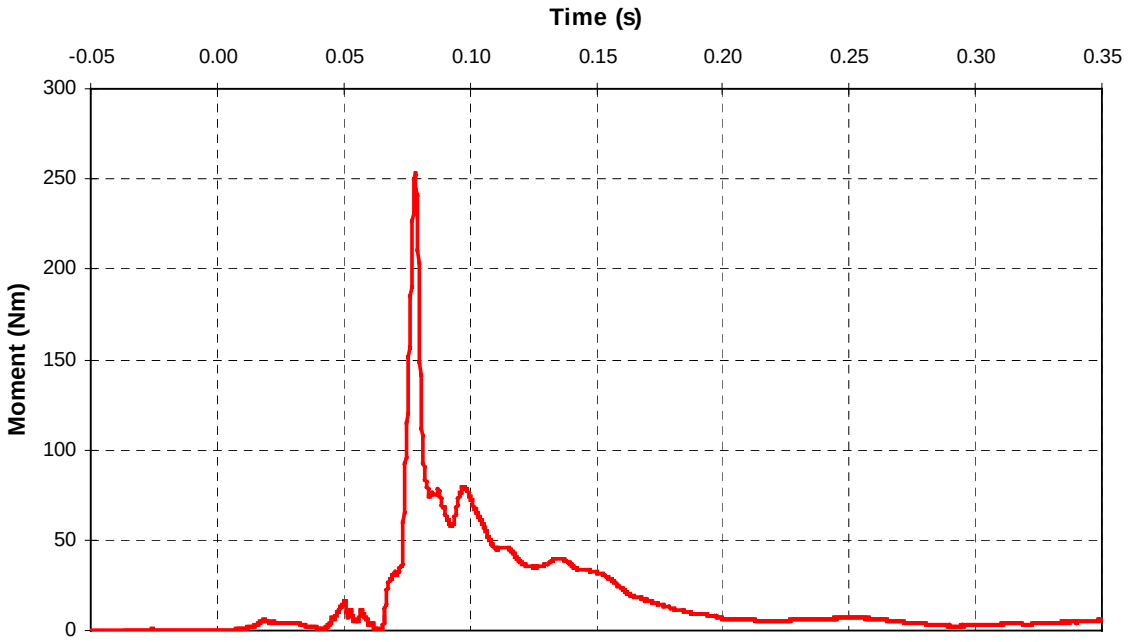
A- 42 CF00011 2000 Mazda MPV Right Lower Tibia L-M Moment



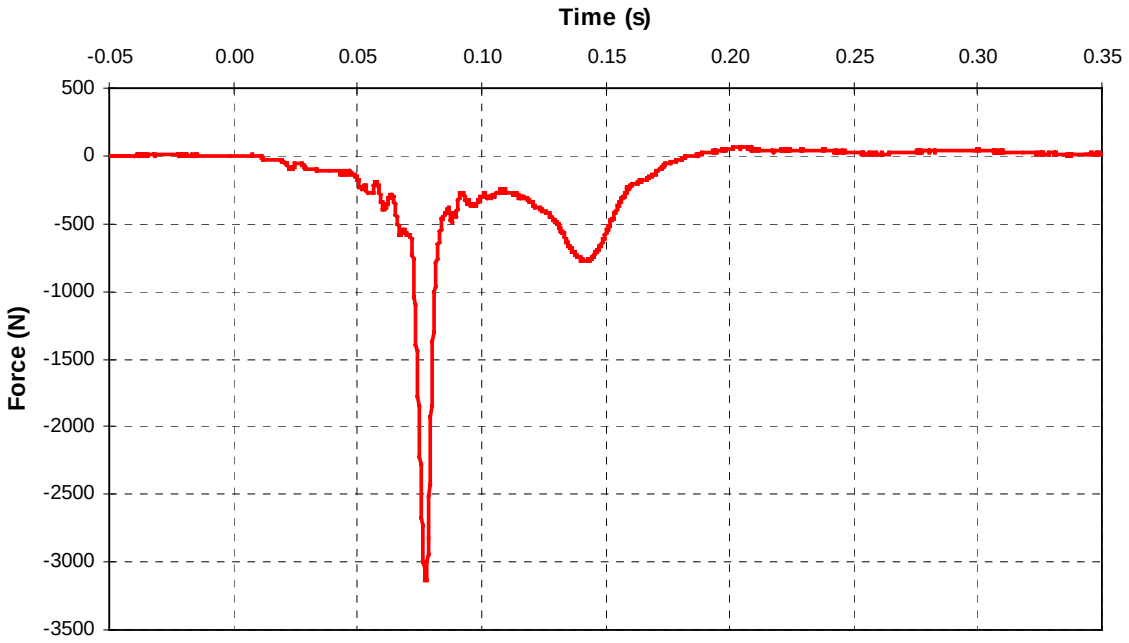
A- 43 CF00011 2000 Mazda MPV Right Lower Tibia A-P Moment



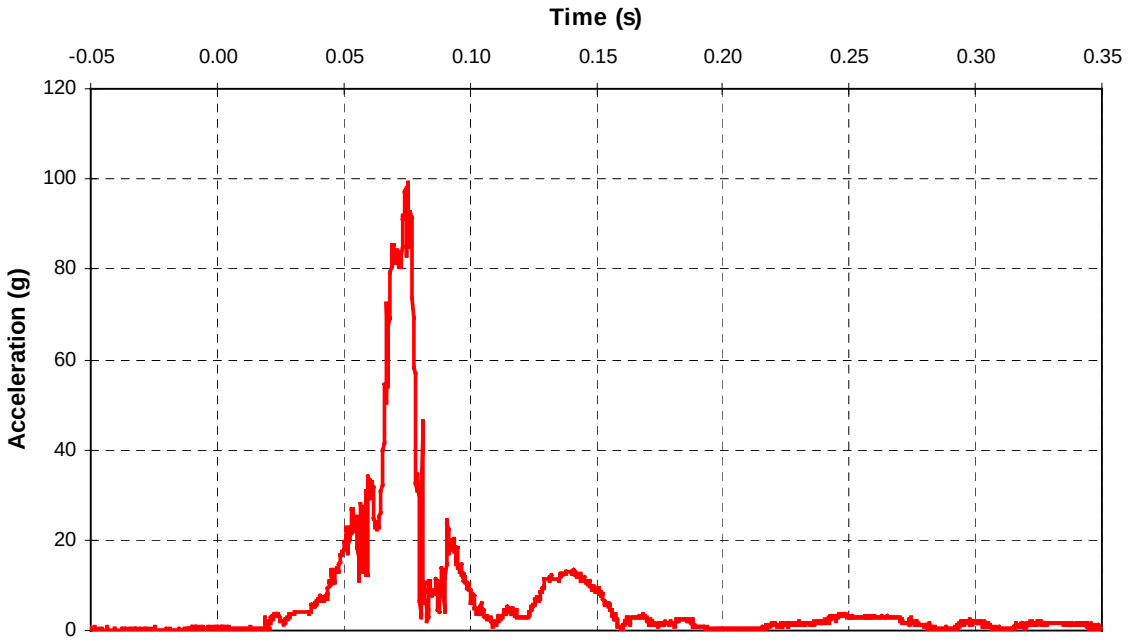
A- 44 CF00011 2000 Mazda MPV Right Lower Tibia Vector Resultant Moment



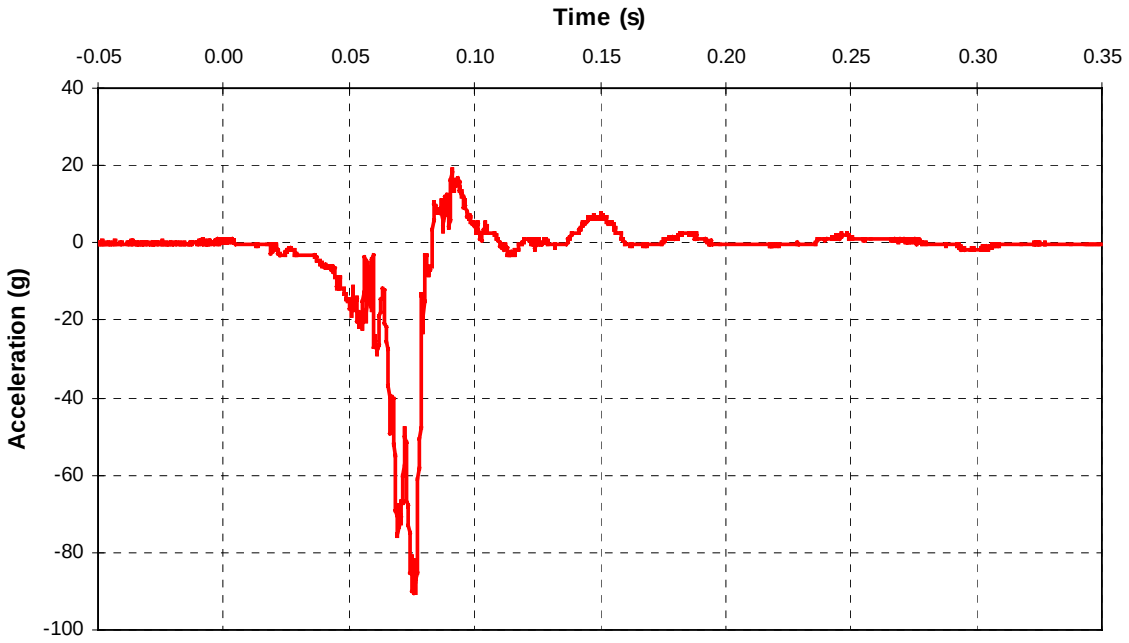
A- 45 CF00011 2000 Mazda MPV Right Lower Tibia Axial Force



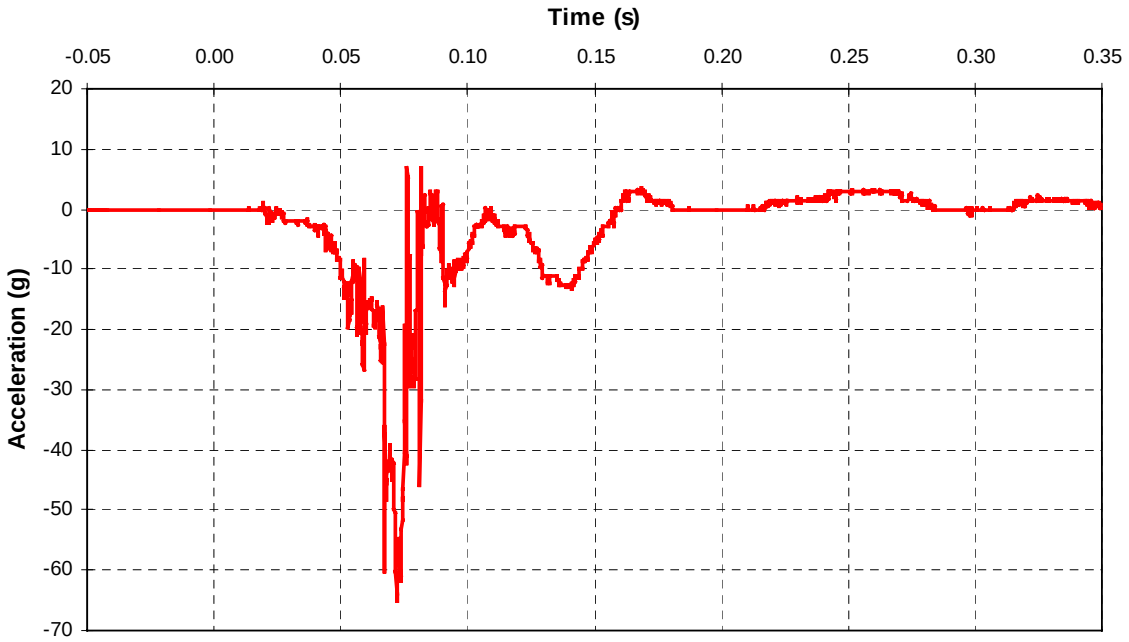
A- 46 CF00011 2000 Mazda MPV Right Foot Vector Resultant Acceleration



A- 47 CF00011 2000 Mazda MPV Right Foot A-P Acceleration



A- 48 CF00011 2000 Mazda MPV Right Foot I-S Acceleration



mazda®

Model: 2000 MP2 LX A
Exterior Color: LIGHT TEAL
Interior Color: GRAY

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

CITY MPG

18

HIGHWAY MPG

23

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
15 and **21** mpg in the city, and between
19 and **27** mpg on the highway.

2000 MAZDA MPV WAGON

6-CYLINDER, 180 CUBIC INCH DISPLACEMENT. ELECTRONIC GASOLINE INJECTION. 4-SPEED AUTOMATIC OD TRANSMISSION. CATALYST EQUIPPED.

Estimated Annual Fuel Cost:
$862

For Comparison Shopping,
all vehicles classified as

SPC PURPOSE 2WD

have been issued mileage ratings ranging from **NA** to **NA** mpg city and **NA** to **NA** mpg highway.

STANDARD EQUIPMENT

MANUFACTURER'S SUGGESTED RETAIL PRICE

THE FEATURES LISTED BELOW ARE INCLUDED AT NO EXTRA CHARGE IN THE STANDARD VEHICLE PRICE

SAFETY AND SECURITY FEATURES
*36 MONTH / 50,000 MILE BUMPER-TO-BUMPER WARRANTY
*24 HOUR ROADSIDE ASSISTANCE
*DUAL DE-POWERED AIR BAGS (SRS)
*TRIPLE-H BODY REINFORCEMENT

INTERIOR FEATURES
*7-PASSENGER SEATING
*FULL VELOUR CLOTH SEATS
*2ND ROW SIDE-BY-SLIDE SEAT
*3RD ROW TUMBLE UNDER SEAT
*FRONT DOOR MAP POCKETS
*POWER WINDOWS / DOOR LOCKS
*UNDERSEAT STORAGE TRAY
*AM/FM/CD STEREO W/4 SPEAKERS
*AIR CONDITIONING
*TILT STEERING WHEEL
*8 CUP HOLDERS/2 DRINK HOLDERS
*OVERHEAD CONSOLE W/MAP LIGHT
*ILLUMINATED VANITY MIRRORS

EXTERIOR FEATURES
*P205/65R15 ALL-SEASON RADIAL TIRES
*FULL WHEEL COVERS
*POWER HEATED MIRRORS
*HALOGEN HEADLIGHTS
*COLOR-KEYED SIDE MOLDINGS
*2-SPEED INTERMITTENT WIPERS
*REAR INTERMITTENT WIPER/WASHER
*REAR WINDOW DEFOGGER
*PRIVACY GLASS / TINTED GLASS
*DUAL SLIDING DOORS W/POWER-DOWN WINDOWS

ENGINE / MECHANICAL FEATURES
*2.5L DOHC V6 ENGINE 170 HP
*FRONT-WHEEL DRIVE
*ANTI-LOCK BRAKES (A.B.S.) WITH ELECT. BRAKE FORCE DISTRIBUTION SYSTEM
*4-SPEED ELECTRONIC-CONTROLLED *AUTOMATIC TRANSMISSION
*POWER RACK & PINION STEERING
*POWER FRONT DISC BRAKES
*COMPLIMENTARY TANK OF FUEL

BASE PRICE $22,050.00

OPTIONAL EQUIPMENT

AC8 DUAL AIR CONDITIONING - CFC FREE	$595.00
2LX LX TOURING PACKAGE	$1,975.00
* FRONT SIDE AIR BAGS (SRS)	* ALARM SYSTEM W/IMMOBILIZER
* REMOTE KEYLESS ENTRY SYSTEM	* 16" ALLOY WHEELS W/LOCKS
* WOOD-TONE INTERIOR TRIM	* P215/60R16 ALL SEASON RADIAL TIRES
* CARPETED FLOOR MATS	
* 9-SPEAKER SUPER SOUND SYSTEM	
TOTAL VEHICLE AND OPTIONS	$24,620.00
INLAND FREIGHT	$480.00
TOTAL VEHICLE PRICE	$25,100.00

SOLD TO: 50520
JOHN LINKOUS MAZDA
1313 RICHMOND ROAD
CHARLOTTESVILLE, VA 22911

SHIP TO: 50520
JOHN LINKOUS MAZDA
1313 RICHMOND ROAD
CHARLOTTESVILLE, VA 22911

SERIAL NUMBER
JM3LW28G9Y0102571
TRUCK

PARTS CONTENT INFORMATION
FOR VEHICLES IN THIS CARLINE:
U.S./CANADIAN PARTS CONTENT: 1%
MAJOR SOURCES OF FOREIGN PARTS CONTENT:
JAPAN: 98%

NOTE: PARTS CONTENT DOES NOT INCLUDE FINAL ASSEMBLY DISTRIBUTION, OR OTHER NON-PARTS COST

FOR THIS VEHICLE:
FINAL ASSEMBLY POINT: HIROSHIMA, JAPAN
COUNTRY OF ORGIN:
ENGINE: JAPAN
TRANSMISSION: JAPAN

LC76NA3-JX----------19990615

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