Insurance Institute for Highway Safety
Crashworthiness Evaluation

Crash Test Report
1998 Jeep Wrangler (CF98008)

Vehicle identification number: 1J4FY29P7WP760709
Body style: Small two-door utility vehicle
Engine/transmission: Longitudinal, 2.5-liter 4-cylinder, 5-speed manual, 4-wheel drive

Standard crashworthiness features:
Driver and right front passenger airbags
Shoulder belt upper anchorage height adjusters (front seating positions only)

Optional safety features:
Four-wheel antilock brakes

Vehicle specifications (provided by manufacturer):

Wheelbase:	237 cm
Overall length:	386 cm
Overall width:	168 cm
Curb weight:	1,414 kg

Vehicle specifications (measured):

Front bumper to firewall:	123 cm
Curb weight:	1,473 kg
Test weight:	1,594 kg
Overall width:	170 cm

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

Crash test date:
April 14, 1998

Figure 1
Precrash and Postcrash Side Views — 1998 Jeep Wrangler

Summary

A 1998 Jeep Wrangler was crash tested on April 14, 1998 into a fixed deformable barrier at 39.8 mi/h (64.1 km/h) and a 40 percent overlap on the driver side. A Hybrid III 50th percentile male dummy was positioned in the driver seat with the lap/shoulder belt fastened.

Measures of intrusion taken after the crash indicated the lower instrument panel in front of the dummy moved forward 1 cm. Resultant intrusion in the driver footwell measured 18 cm at the area where a footrest typically would be located and 9-22 cm at other places on the toepan. Both doors remained closed during the crash. After the crash, the driver door required tools to open, and the passenger door required additional effort but no tools to open.

The driver dummy was restrained by a three-point lap/shoulder belt and an airbag. During the crash, 4 cm of webbing spooled off the retractor, and the deploying airbag contacted the dummy's face and chest. During rebound, the head and upper torso moved outward past the top of the driver door. After the crash, the upper end of the steering column had moved upward 7 cm and rearward 3 cm.

The left femur axial force reached a maximum of 6.6 kN and remained above 6.1 kN for 5 ms.

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 V). 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 area where a footrest typically would be located.

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 63 cm behind its center of gravity (191 cm behind the front axle). The vehicle speed recorded just prior to impact was 39.8 mi/h (64.1 km/h), and the actual overlap was 40 percent.

Structural Performance

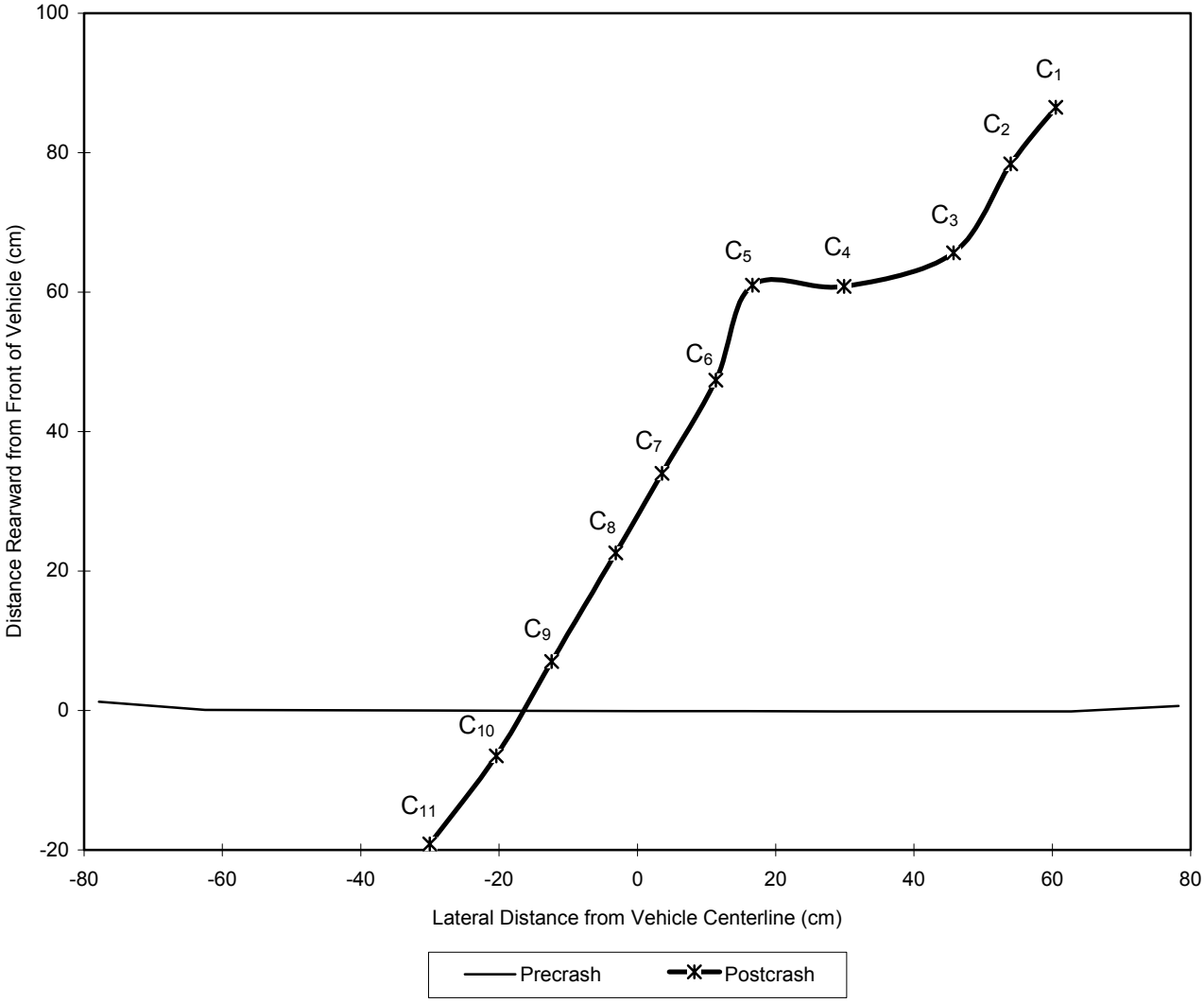
Both doors remained closed during the crash. The driver door aperture shortened 8 cm as measured at the height of the metal door top at the B-pillar. After the crash, the driver door required tools to open, and the passenger door required additional effort but no tools to open.

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. Figures 3 and 4 illustrate the precrash and postcrash contour measures of the front bumper face bar and upper crossmember of the radiator support. Figure 5 shows the precrash and postcrash views from below. Figure 6 illustrates the deformation of the frame rails, door sills, and front crossmember, which are visible in Figure 5.

Figure 2
Overhead View of Crash Deformation — 1998 Jeep Wrangler

Figure 3
Front Bumper Bar Crush Contour — 1998 Jeep Wrangler



	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)	87	78	66	61	61	47	34	23	7	-7	-19
Precrash Contour (cm)	1	0	0	0	0	0	0	0	0	0	1
Resulting Crush (cm)	86	78	66	61	61	47	34	23	7	-7	-20

The length of the reference line was 156 cm precrash and 91 cm postcrash.

Figure 4
Upper Radiator Support Crossmember Crush Contour — 1998 Jeep Wrangler

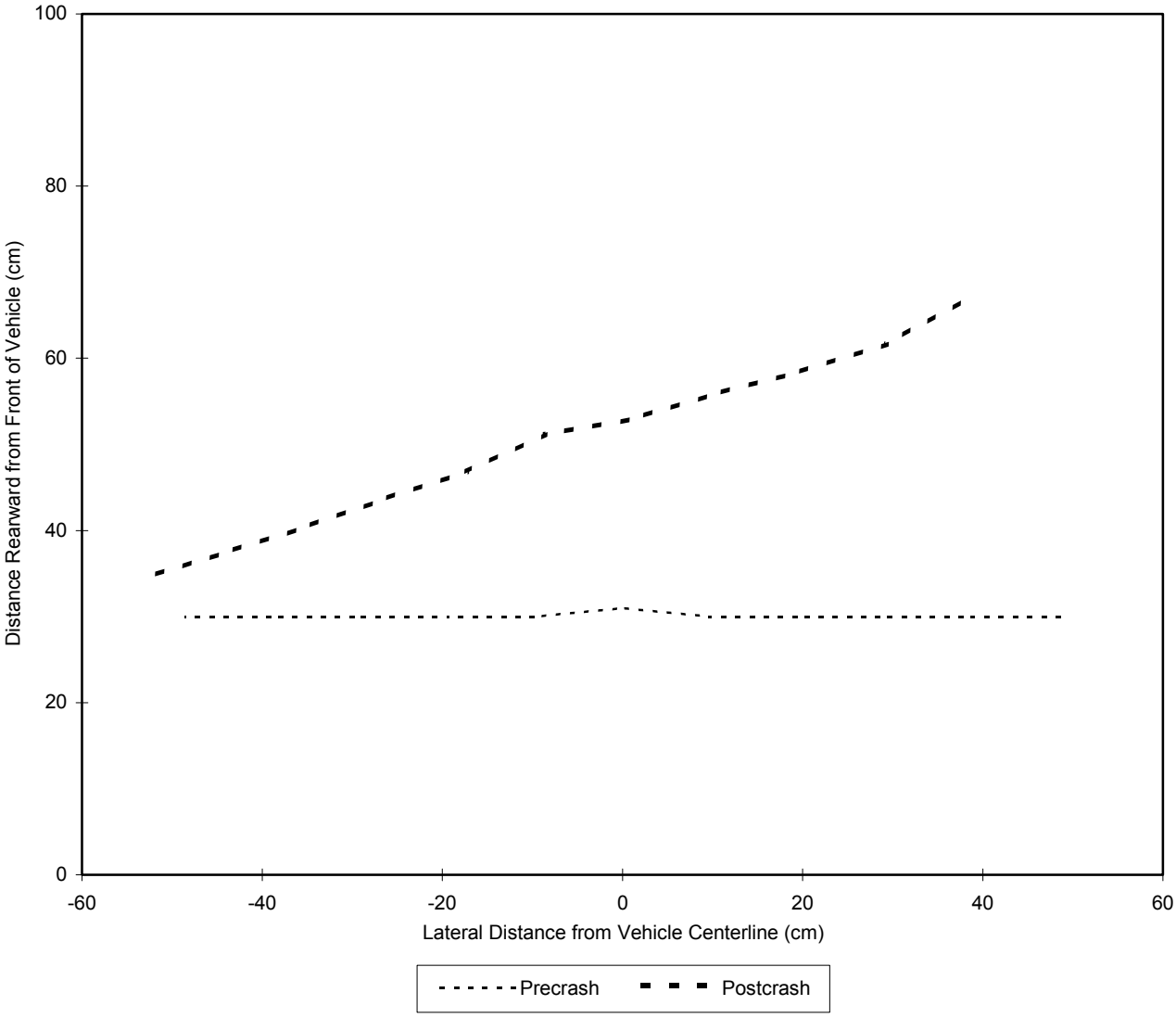


Figure 5
Precrash and Postcrash Views from Below — 1998 Jeep Wrangler

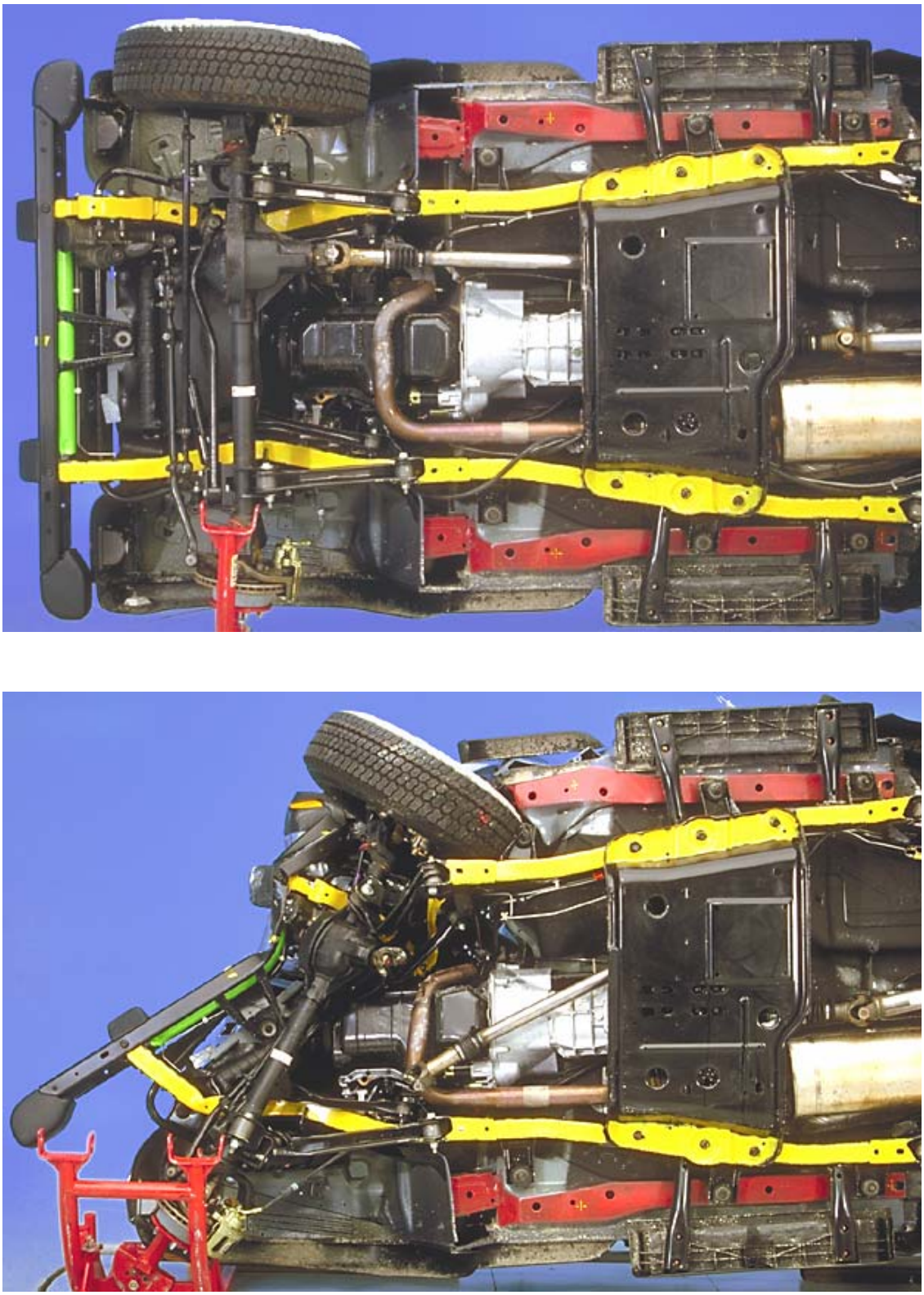
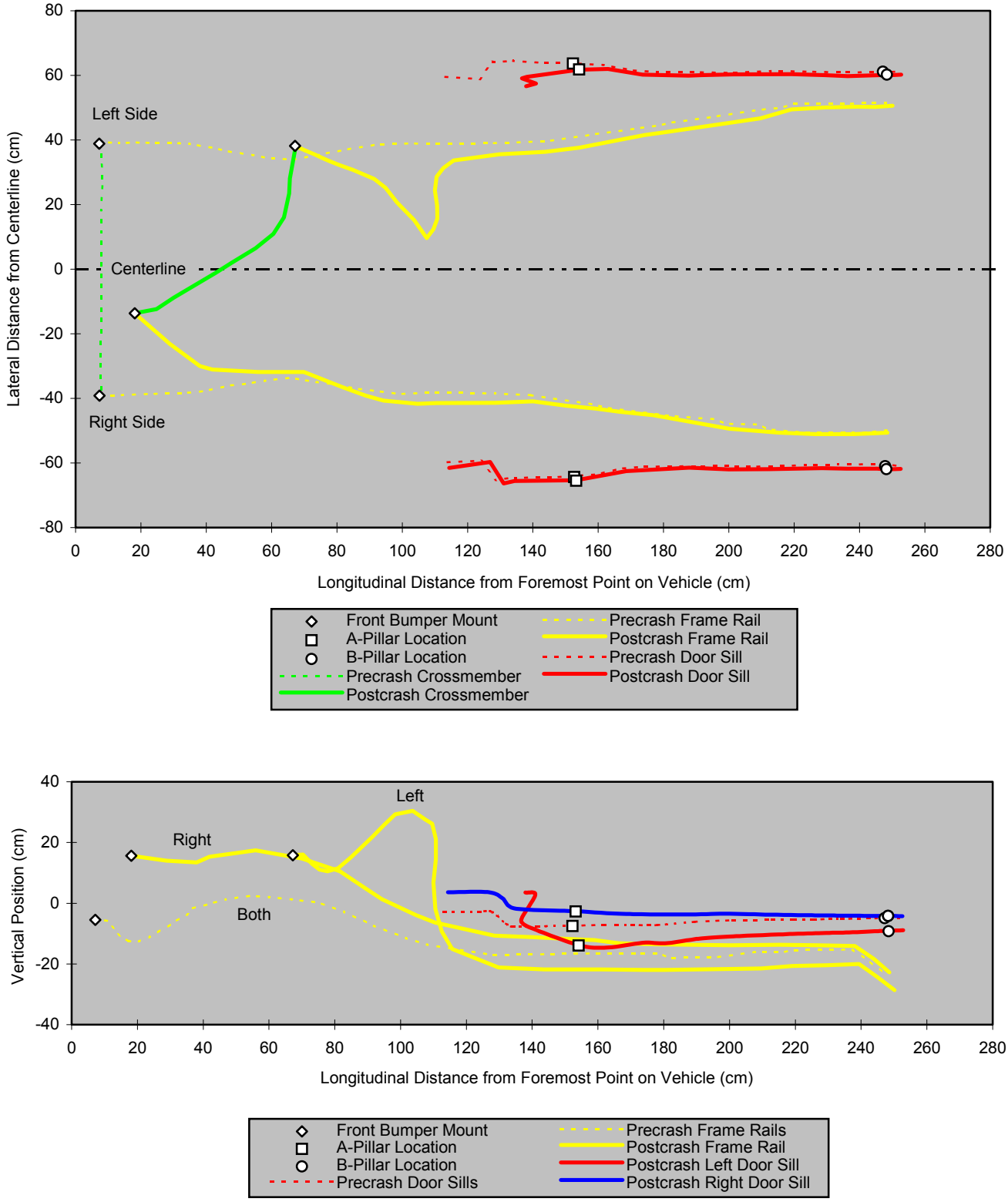


Figure 6
Structural Deformation, Views from Below and Side — 1998 Jeep Wrangler



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 primary coordinate reference system for these measures is described in the IIHS Offset Barrier Crash Test Protocol (Version V). 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. This was done by subtracting the average component displacements of the four seat-attachment bolts, which also were measured relative to the primary coordinate system, from the respective components of displacement for each of the target locations. The average displacement of the four seat-attachment bolts relative to the primary reference system also is shown in Table 1.

Table 1
Residual Measurements of Intrusion Relative to Driver Seat — 1998 Jeep Wrangler

Selected Locations*	Longitudinal	Lateral	Vertical	Resultant
Steering column (cm)	-3	-5	7	9
Left lower instrument panel (cm)	1	-1	3	3
Right lower instrument panel (cm)	1	-1	3	3
Brake pedal (cm)	-19	0	9	21
Left toepan (cm)	-22	0	5	22
Center toepan (cm)	-17	1	4	18
Right toepan (cm)	-8	3	3	9
Footrest (cm)	-17	-2	3	18
Average displacement of the four seat attachment bolts from primary reference system (cm)	-3	0	0	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 61 cm in diameter, and the excursion of its center when inflated is limited by two 19 cm-long tethers. The airbag does not have vent holes but is made of porous fabric. Analysis of the high-speed film taken from camera positions D and E indicated the airbag deployed at 50 ms into the crash and appeared to be fully inflated at 74 ms.

Passenger: The mid-mounted passenger airbag deployed rearward and is untethered. The square-shaped airbag does not have 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 lap/shoulder belts with sliding latch plates and adjustable upper anchorage points at both front outboard seating positions. The front inboard lower anchorage points are attached to and move with the seats. The front outboard lower anchorage points are attached to the floor. During the crash, 4 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 above the retractor.

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 ahead of the driver seat caused the seat to pitch forward and tip outward somewhat. (Vertical movement of the left front seat-attachment bolt measured 1 cm downward; the corresponding measure for the right rear bolt was 3 cm upward.)

Steering Column

The upper end of the steering column moved upward 7 cm and rearward 3 cm relative to the driver seat. The portion of the steering column between the instrument panel and firewall uses a rod-in-tube, energy-absorbing design combined with a universal joint connecting the upper and lower segments of the column. No residual compression was found after the crash, but the universal joint allowed the lower segment to move into a more vertical position. Also, the steering column or linkage separated ahead of the firewall, as indicated by free rotation of the steering wheel through about a 30-degree angle following the crash. (Interference between components in the engine compartment prevented further rotation.) Separation of the shear modules on the upper portion of the column (beneath the instrument panel crossbeam) measured 1 cm on the left side and 2 cm on the right side.

Dummy Kinematics

Head, Neck, and Torso

Analysis of the high-speed film taken from camera positions B, D, and E indicated the deploying airbag contacted the dummy's chest at 52 ms into the crash and the dummy's face at 58 ms. The chest remained in contact with the airbag as it inflated; full inflation occurred by 74 ms. Paint transferred from the dummy's face onto the airbag indicated the nose loaded the fully inflated airbag 5 cm directly above its center. During rebound from the airbag, the head and upper torso moved outward past the top of the driver door, which had buckled outward. The head approached but did not contact the shoulder belt upper anchorage on the rollbar at about 350 ms. Table 2 provides the timing of these events.

Table 2 Restraint System Performance and Dummy Kinematics — 1998 Jeep Wrangler	
Event	**Time (ms)**
Deployment of airbag	50
Airbag contacts chest during deployment	52
Airbag contacts face during deployment	58
Airbag fully inflated and face begins to load airbag	74
Head approaches shoulder belt upper anchorage	350

Figure 7
Dummy and Vehicle Interior, Postcrash — 1998 Jeep Wrangler

Legs and Feet

Left leg and foot: Paint transferred from the dummy's left knee indicated the knee primarily contacted the flat portion of the knee bolster to the left of the steering column, 4 cm above and 2 cm to the left of the left instrument panel intrusion reference point. A small amount of paint was transferred to the left edge of the bolster's protrusion around the steering column. The plastic bolster trim was undeformed, but the steel plate underlying the bolster was dented inward about 2 cm at the primary left knee impact location. Paint transferred from the dummy's left shin indicated the shin contacted the bolster on the flat area below the primary left knee impact location, extending downward to a separate lower section of the bolster. The plastic trim of this lower section was found cracked. The left foot was found fully dorsiflexed, slightly inverted, and externally rotated about 40 degrees. The left rear of the heel was pressed into a downward buckle of the floormat/carpeting, and the entire lateral edge of the sole was resting against the kick panel and buckled floormat/carpeting.

Right leg and foot: Paint transferred from the dummy's right knee indicated the knee contacted the knee bolster at and to the right of the bolster's protrusion around the steering column, 3 cm above and 3 cm to the left of the right instrument panel intrusion reference point. A much smaller amount of paint was transferred to the bolster's protrusion above and to the left of the primary right knee impact location. The underlying steel plate was not dented on its right side. Paint transferred from the dummy's right shin indicated the shin contacted the bolster directly below the primary right knee impact location; the shin also contacted the lowermost section of the bolster. The right foot was found fully dorsiflexed, slightly inverted, and externally rotated about 15 degrees. The back of the heel was pressed into a downward buckle in the floormat/ carpeting, and the medial sole at the ball of the foot and the heel was touching the floormat on the intruded toepan.

Dummy Injury Measures

Head

The maximum vector resultant head accelerations were recorded and the HICs were calculated during an interval that corresponds with the dummy's head excursion into the airbag. Table 3 provides a summary of the maximum head injury measurements recorded during the crash.

Table 3 Head Injury Measurements — 1998 Jeep Wrangler			
Measure	**Published Tolerance Threshold**	**Result**	**Time (ms)**
Vector resultant acceleration (g)	80	58	99
Vector resultant acceleration — 3 ms clip (g)	80	57	98-101
Head Injury Criterion (HIC)	1000	541	83-116
Head Injury Criterion — 15 ms interval (HIC-15)*	700	335	91-106

* A proposed amendment to the Canadian Motor Vehicle Safety Regulations suggests calculating HIC during a 15 ms interval rather than the 36 ms interval specified by the U.S. standard. The Canadian proposal includes an injury threshold of 700 for front-seat occupants protected by airbags.

Neck

Table 4 provides a summary of the maximum neck injury measurements recorded during the crash.

Table 4 Neck Injury Measurements — 1998 Jeep Wrangler			
Measure	**Published Tolerance Threshold**	**Result**	**Time (ms)**
A-P shear force (kN)	±3.1*	0.4	91
Axial compression force (kN)	4.0*	<0.1	17
Axial tension force (kN)	3.3*	2.1	91
Flexion bending moment (Nm)	190**	15	108
Extension bending moment (Nm)	57**	18	75

* These values are for instantaneous loading. Neck loads are compared with magnitude-duration injury criteria in Figures A-13 to A-16.

** These published thresholds are recommended injury assessment reference values from Backaitis and Mertz (1994), but significant neck injury may occur at lower bending moments. Mertz and Patrick (1971) report that bending moments of 47 Nm in extension and 88 Nm in flexion would be non-injurious for occupants represented by the Hybrid III 50th percentile adult male dummy.

Chest

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

Table 5
Chest Injury Measurements — 1998 Jeep Wrangler

Measure	Published Tolerance Threshold	Result	Time (ms)
Vector resultant spine acceleration — 3 ms clip (g)	60	38	85-88
Rib compression (mm)	50	46	105
Viscous criterion (m/s)	1.0	0.3	79

Legs and Feet

Left leg and foot: The left femur axial force reached a maximum of 6.6 kN at 114 ms and remained above 6.1 kN for 5 ms.

Right leg and foot: None of the injury measures approached the reference 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 — 1998 Jeep Wrangler

Measure	Published Tolerance Threshold	Left		Right	
		Result	Time (ms)	Result	Time (ms)
Axial femur force (kN)	9.1*	6.6	114	3.0	72
Tibia-femur displacement (mm)	15	10	57	6	64
Upper Tibia					
L-M moment (Nm)	±225	33	61	-45	113
A-P moment (Nm)	±225	-120	56	-70	61
Vector resultant moment (Nm)	225	122	56	71	61
Index	1.00	0.56	56	0.33	61
Lower Tibia					
L-M moment (Nm)	±225**	40	102	-22	55
A-P moment (Nm)	±225**	-38	72	41	186
Vector resultant moment (Nm)	225**	47	72	45	183
Axial force (kN)	8.0**	1.5	71	1.5	73
Index	1.00	0.25	72	0.20	183
Foot					
A-P foot acceleration (g)	±150	-105	71	-59	52
I-S foot acceleration (g)	±150	54	73	35	70
Vector resultant foot acceleration (g)	150	108	57	60	52

* 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

Backaitis, S.H. and Mertz, H.J. (eds). 1994. *Hybrid III: The First Human-Like Crash Test Dummy.* Warrendale, PA: Society of Automotive Engineers.

Begeman, P.C. and Prasad, P. 1990. Human ankle impact response in dorsiflexion (SAE 902308). *Thirty-fourth Stapp Car Crash Conference Proceedings,* 39-53. Warrendale, PA: Society of Automotive Engineers.

Begeman, P.; Balakrishnan, P.; Levine, R.; and King, A. 1993. Dynamic human ankle response to inversion and eversion (SAE 933115). *Thirty-seventh Stapp Car Crash Conference Proceedings,* 83-93. Warrendale, PA: Society of Automotive Engineers.

Part 1 Amendments to Motor Vehicle Safety Regulations 208 & 210. December 2, 1995. Canada Gazette, pp. 4131-60.

Mertz, H.J. and Patrick, L.M. 1971. Strength and response of the human neck (SAE 710855). *Biomechanics of Impact Injury and Injury Tolerances of the Head-Neck Complex*, 821-46. Warrendale, PA: Society of Automobile Engineers.

Parenteau, C.S. 1995. Foot-ankle injury: epidemiology and method to investigate joint biomechanics. Gothenburg, Sweden: Chalmers University of Technology.

Prasad, P. and Mertz, H.J. 1985. The position of the United States delegation to the ISO Working Group 6 on the use of HIC in the automotive environment (SAE 851246). *Biomechanics of Impact Injury and Injury Tolerances of the Head-Neck Complex*, 373-83. Warrendale, PA: Society of Automotive Engineers.

Welbourne, E.R. 1994. Vehicle performance requirements for head injury protection: a comparison of the head injury criterion with an 80 g limit on resultant acceleration. Technical Memorandum. Ottawa, Ontario: Transport Canada, Vehicle System Division.

Zeidler, F. 1984. The significance of lower limb injuries of belted drivers. *Journal of Orthopedics* [German].

Appendix

Low-Speed Crash Test Damage Repair Estimate

Dummy Clearance Measurements

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

Manufacturer's window sticker

Low-Speed Crash Test Damage Repair Estimate

1998 Jeep Wrangler Small Two-Door Utility Vehicle: 5 mi/h Front into Angle Barrier

Test Number: LA98011
VIN: 1J4FY29P7WP760709
Mileage: 70
Features: Driver and passenger airbags, air conditioning, manual transmission, power steering, tilt steering wheel, tailgate-mounted full-size spare tire, two-stage paint.

	Part		Labor	
Description	**Mfg. No**	**Price**	**Operation**	**Hours**
Bumper face bar, front	5ED16JX8AC	$94.50	Replace*	1.1
Bumper extension, right front	55155756AA	15.50	Replace*	
Fender, right front			Repair/align*	1.5
Fender, right front			Refinish	3.1
Wheel opening flare, right front			Remove/reinstall	0.5
Paint and materials		52.70		
Total Parts		$162.70		
Total Labor		204.60		6.2
Grand Total		$367.30		

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

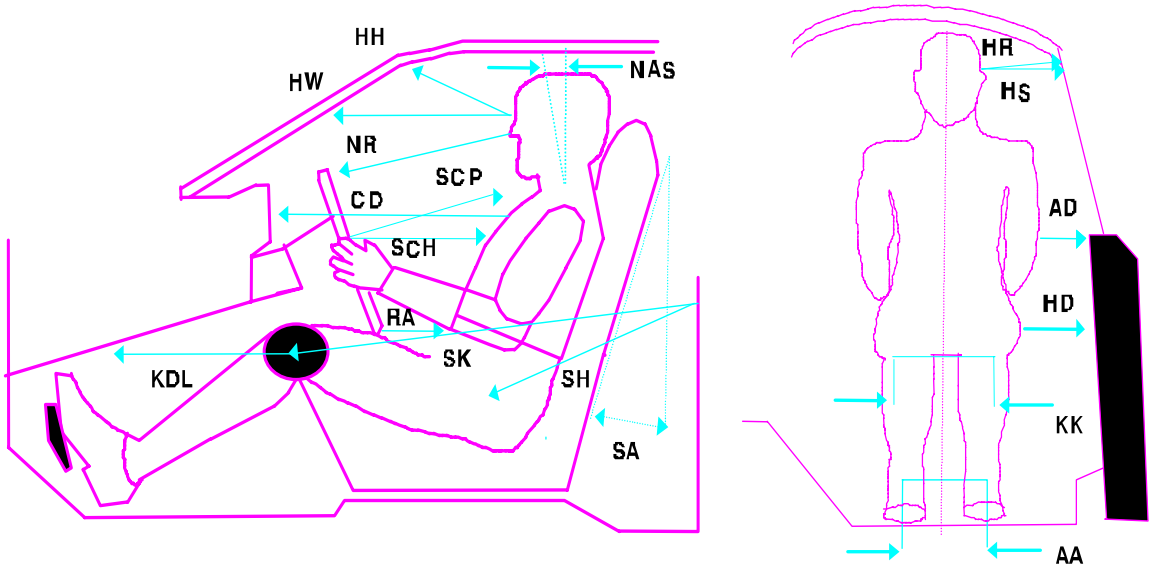
Dummy Clearance Measurements

Test Number: CF98008
Vehicle Make/Model: Jeep Wrangler
Vehicle Model Year: 1998
Seat Type: Manually adjusted bucket seat (fore/aft and seat back angle)

Manufacturer's Specifications
Seat Back Information: Reclined rearward 7 degrees from most upright position (or 24 degrees from vertical), as measured on rear of seat back frame
Upper Belt Anchorage: Set to midpoint of 5 positions
Steering Column Adjustment: Set to midpoint of tilt adjustment range (24 degrees from horizontal sill of vehicle)

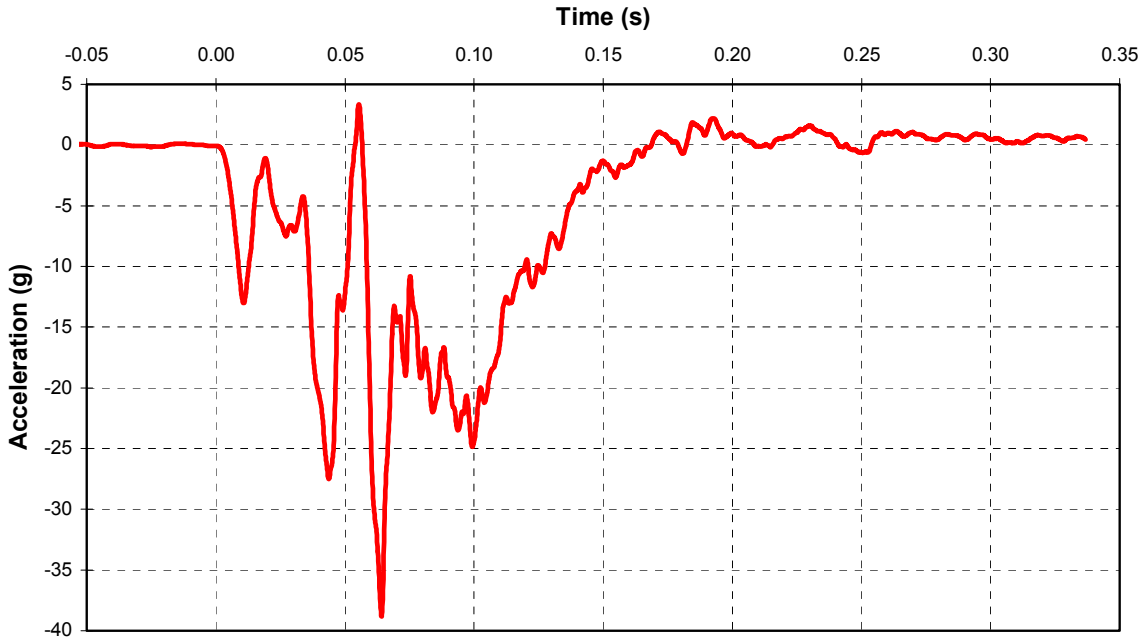
Location	Code	Measure	Location	Code	Measure
Head to header	HH	560	Neck angle, torso 90	NAT90	20.9°
Head to windshield	HW	620	Neck angle, seated	NAS	4.2°
Nose to rim	NR	380	Torso angle (NAT90 – NAS)	TA	16.7°
Chest to dash	CD	568	Striker to knee**	SK	573
Rim to abdomen	RA	143	Striker to knee angle**	SKA	0°
Knee to dash, left	KDL	138	Striker to H-point, horizontal	SHH	185
Knee to dash, right	KDR	136	Striker to H-point, vertical	SHV	89
Steering wheel to chest, horizontal	SCH	256	Ankle to ankle	AA	285
Steering wheel to chest, perpendicular	SCP	385	Knee to knee	KK	329
Steering wheel to chest, reference	SCR	341	Arm to door	AD	14
Hub to chest, minimum	HCM	212	H-point to door	HD	80
Pelvic angle	PA	24.5°	Head to A-pillar	HA	720
Seat back angle*	SA	7°	Head to roof	HR	260
			Head to side window	HS	238

All distance measurements are in millimeters (mm).
* Indicated angle is difference between most upright position and specified position for testing.
** These measurements are made in a vertical plane containing the striker and parallel to the driver door sill.

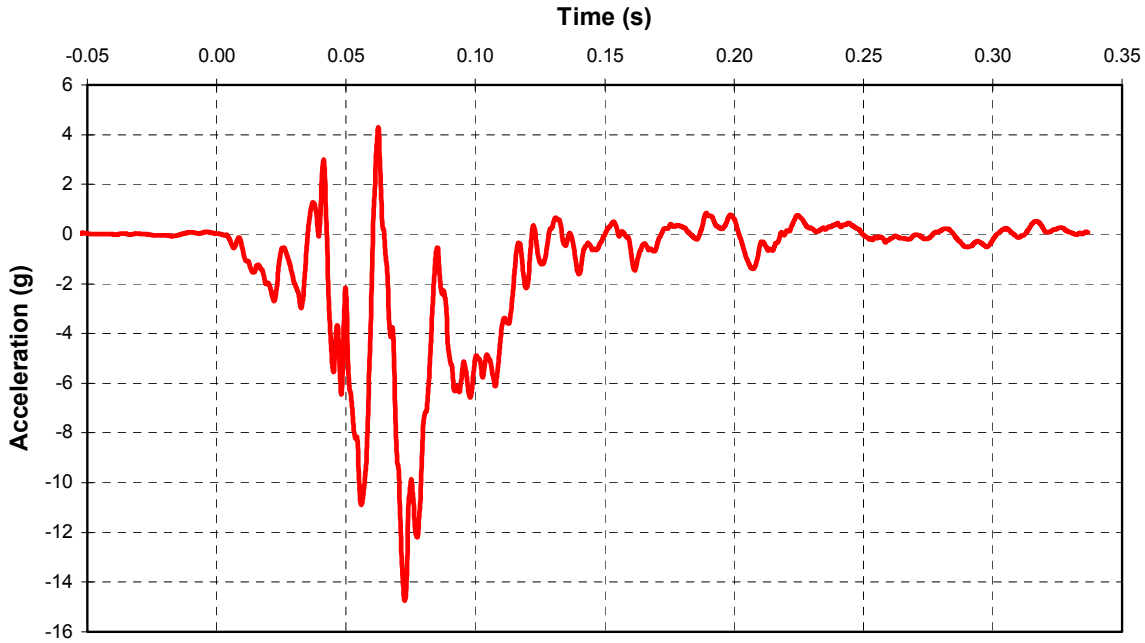


Graph Index

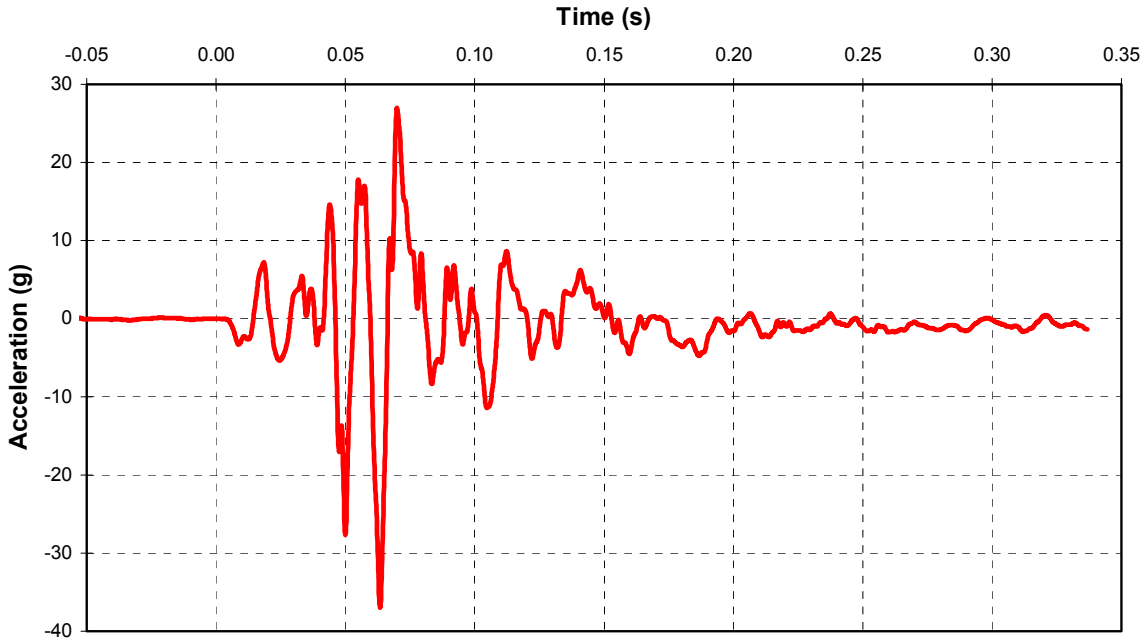
A-1 CF98008 1998 Jeep Wrangler Vehicle Longitudinal Acceleration



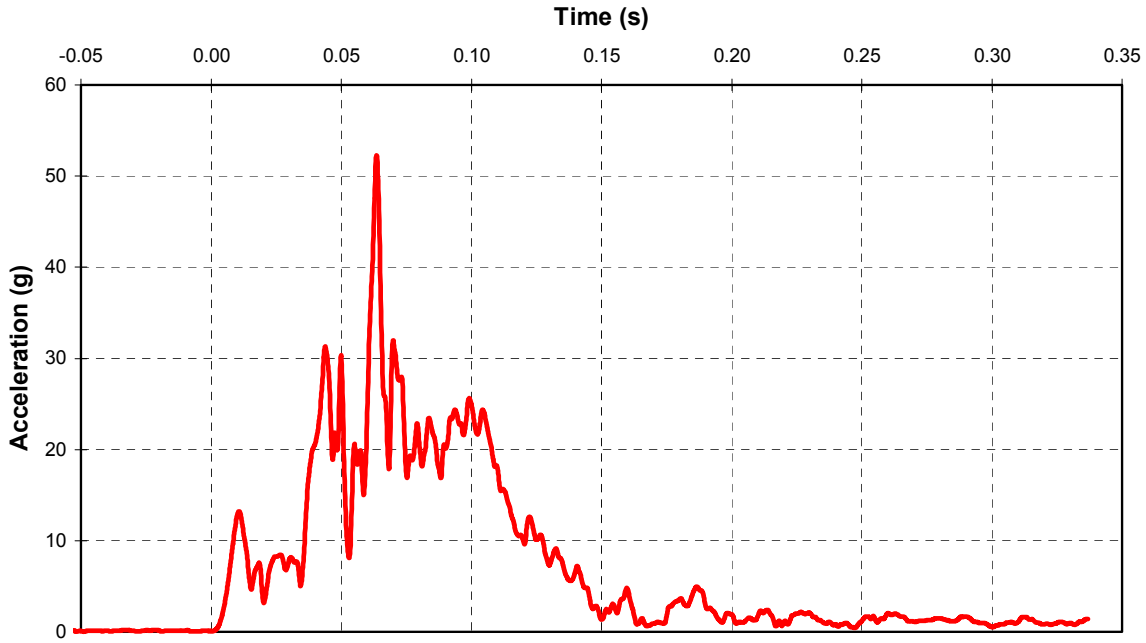
A-2 CF98008 1998 Jeep Wrangler Vehicle Lateral Acceleration



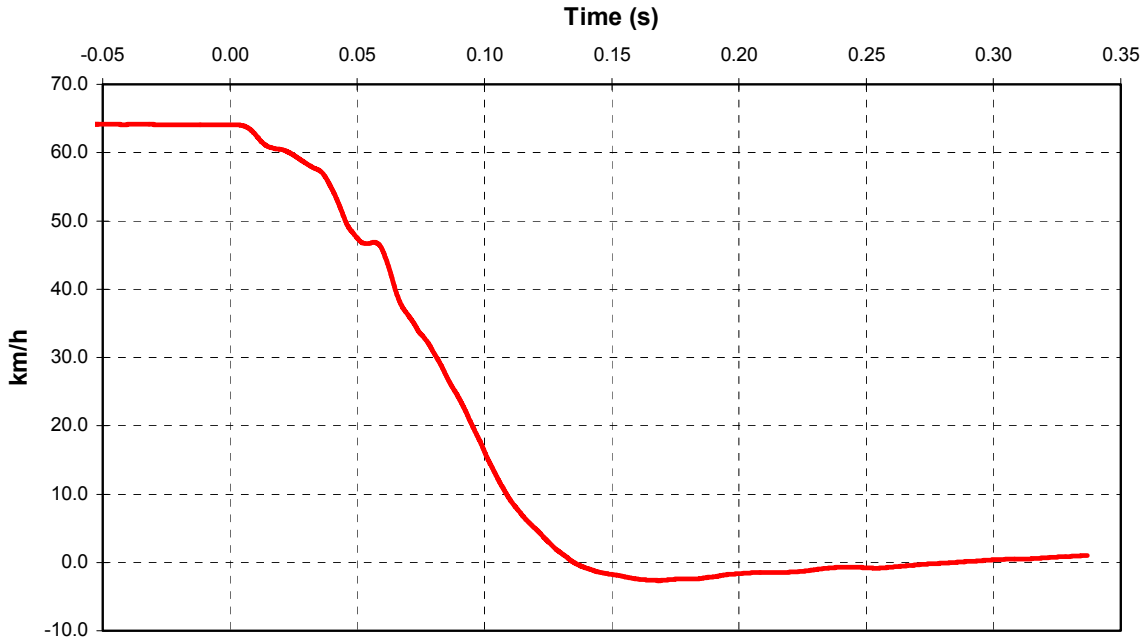
A-3 CF98008 1998 Jeep Wrangler Vehicle Vertical Acceleration



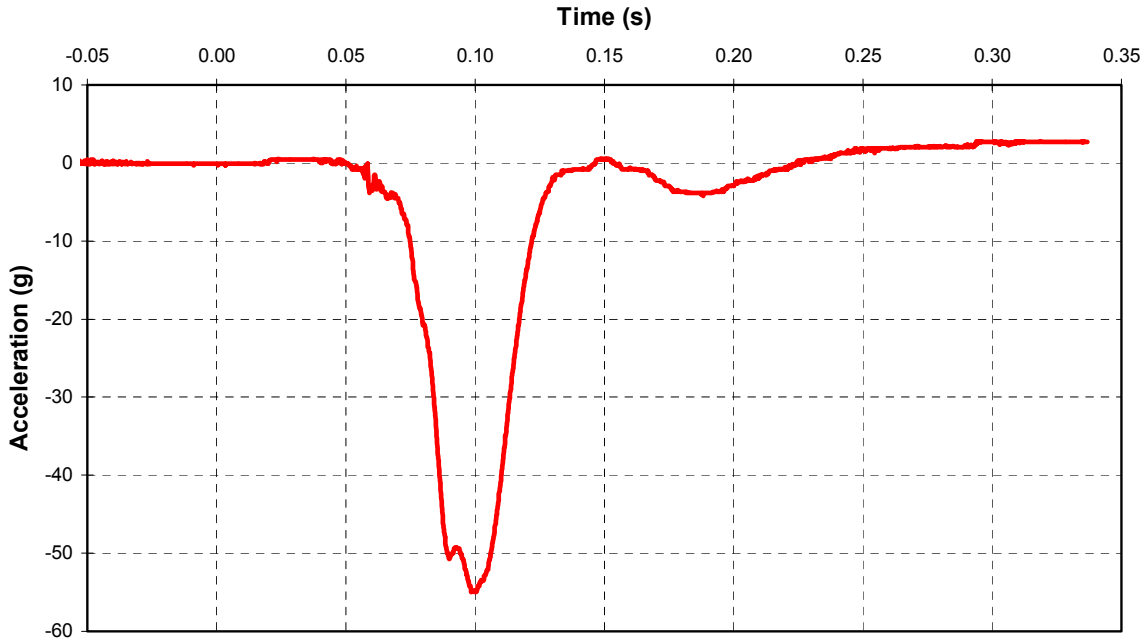
A-4 CF98008 1998 Jeep Wrangler Vehicle Vector Resultant Acceleration



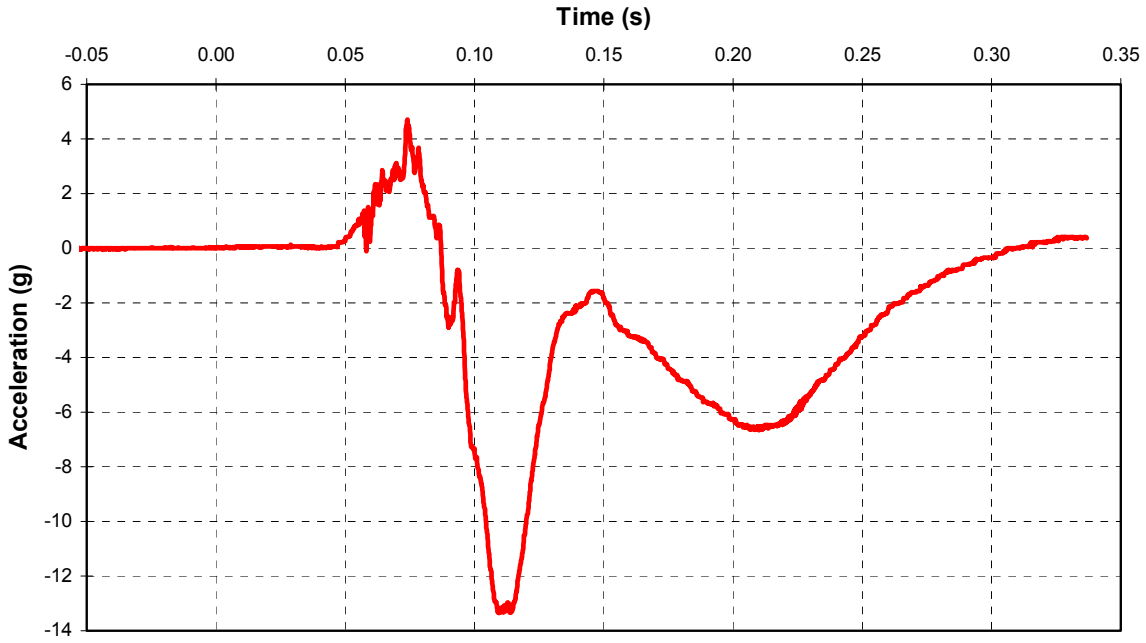
A-5 CF98008 1998 Jeep Wrangler Integration of Vehicle Longitudinal Acceleration



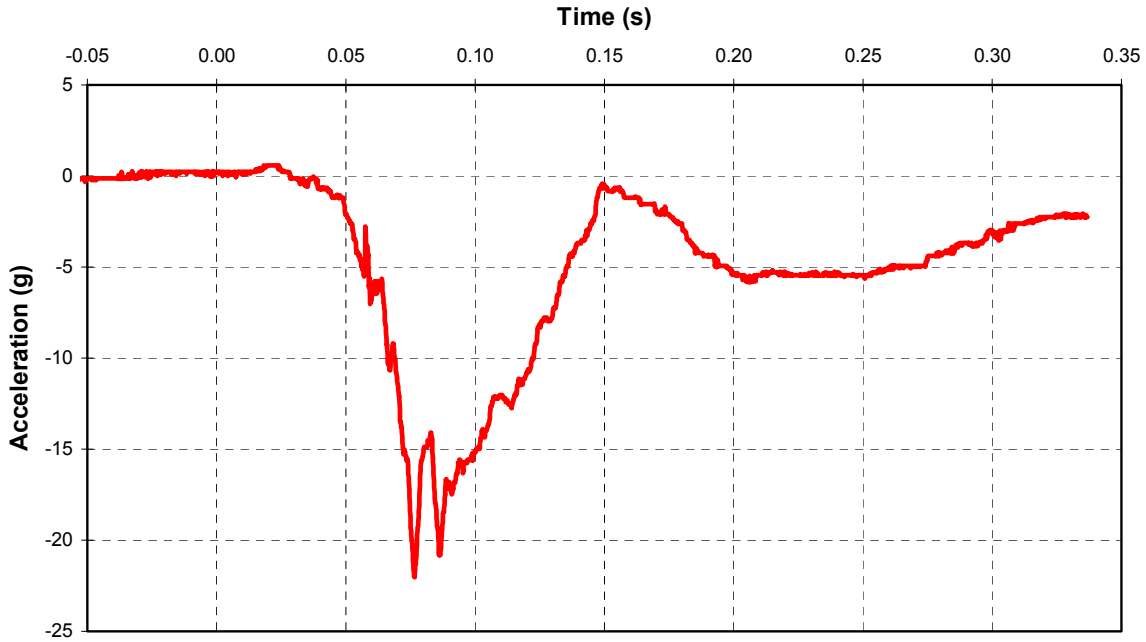
A-6 CF98008 1998 Jeep Wrangler Head A-P Acceleration



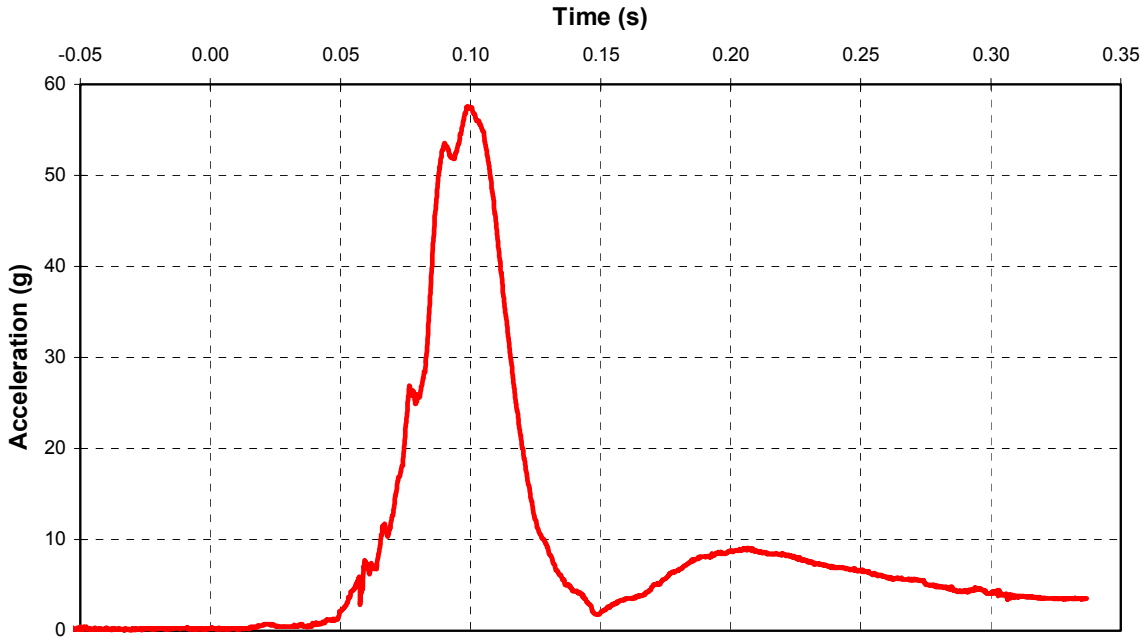
A-7 CF98008 1998 Jeep Wrangler Head L-M Acceleration



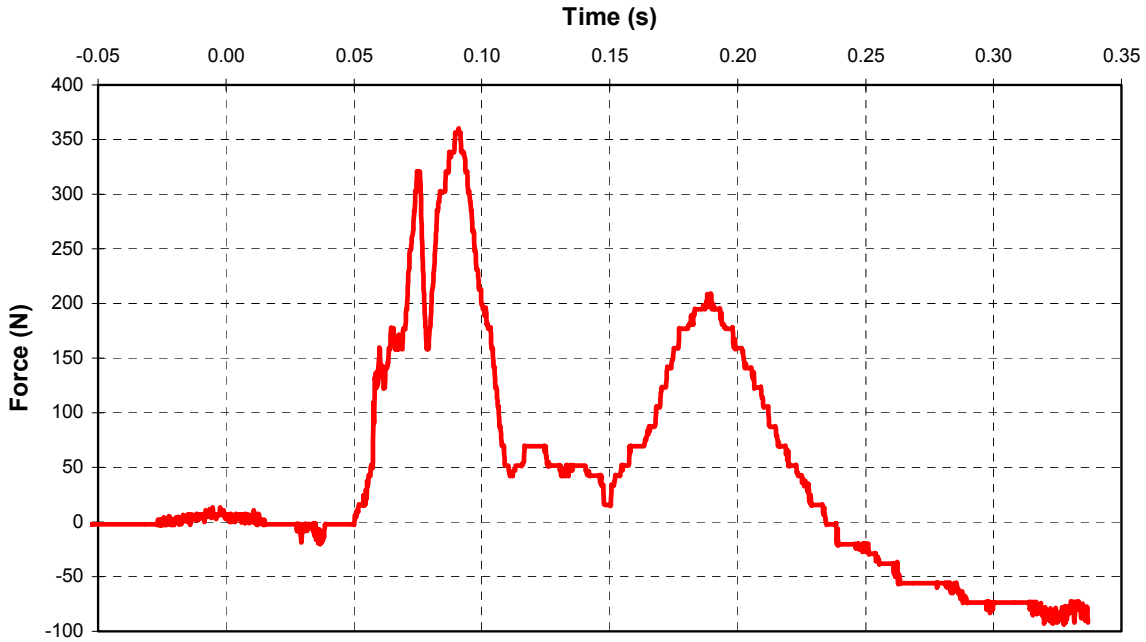
A-8 CF98008 1998 Jeep Wrangler Head I-S Acceleration



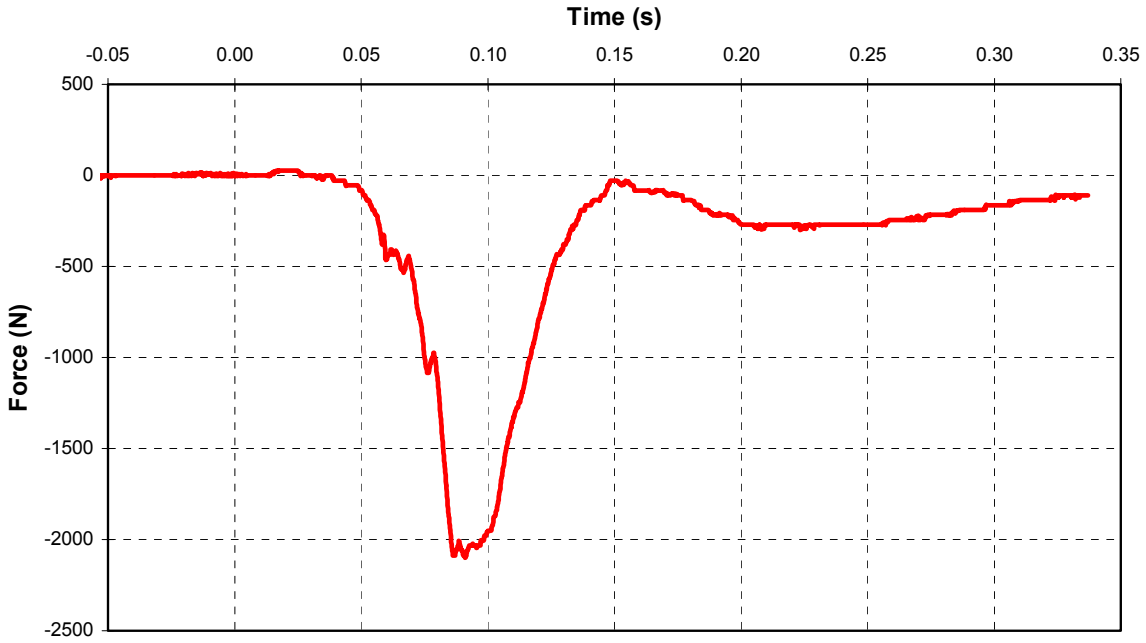
A-9 CF98008 1998 Jeep Wrangler Head Vector Resultant Acceleration



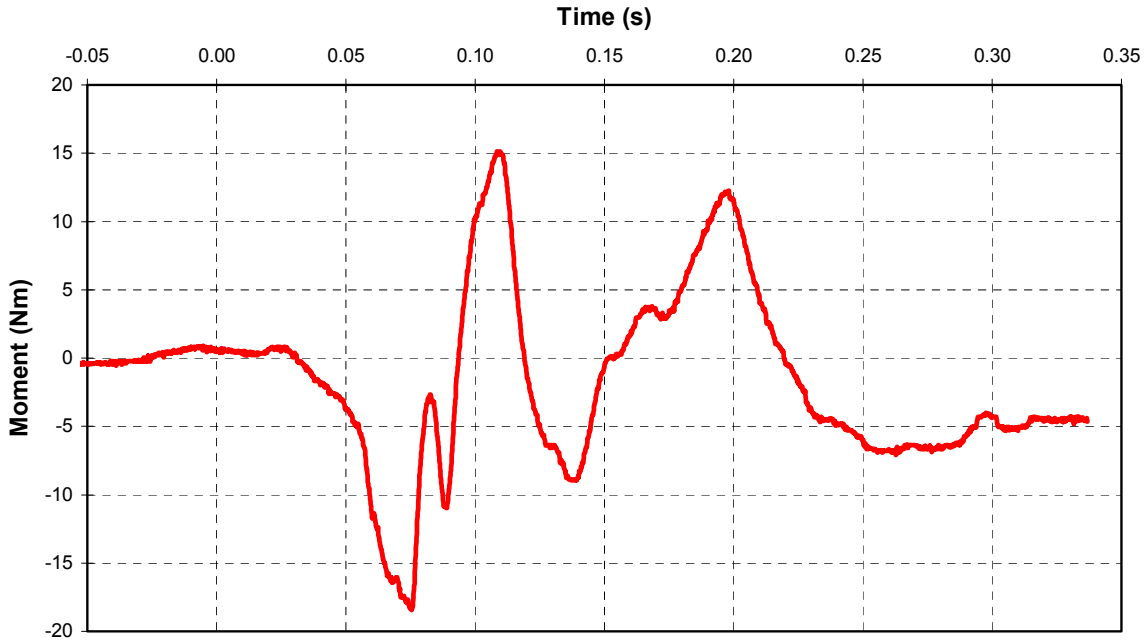
A-10 CF98008 1998 Jeep Wrangler Neck A-P Shear Force



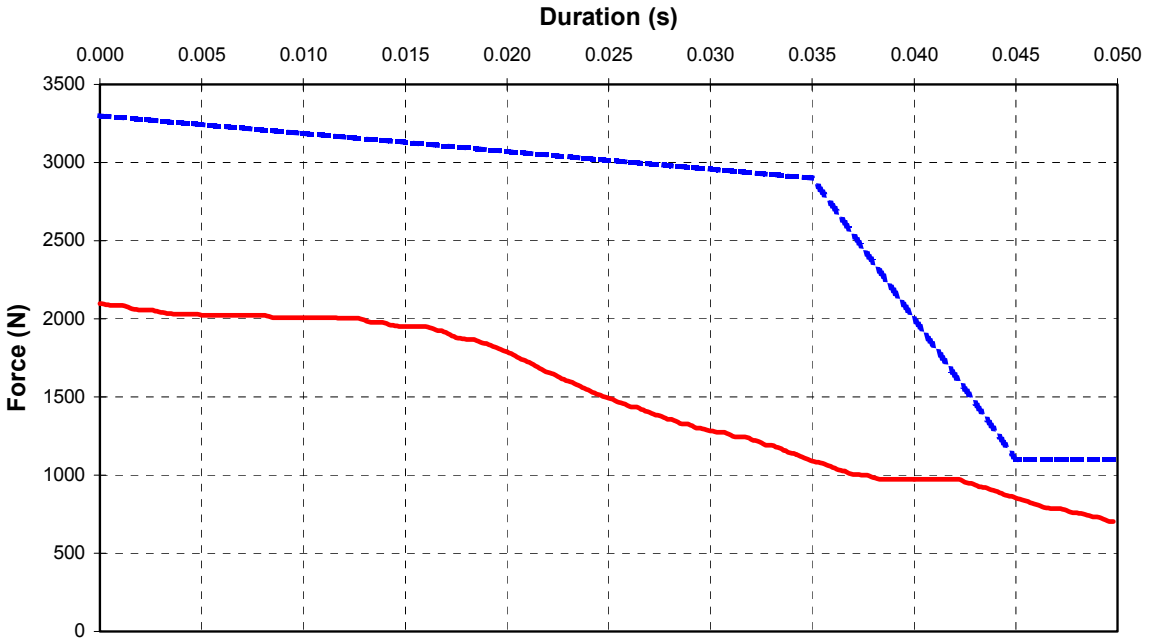
A-11 CF98008 1998 Jeep Wrangler Neck Axial Force



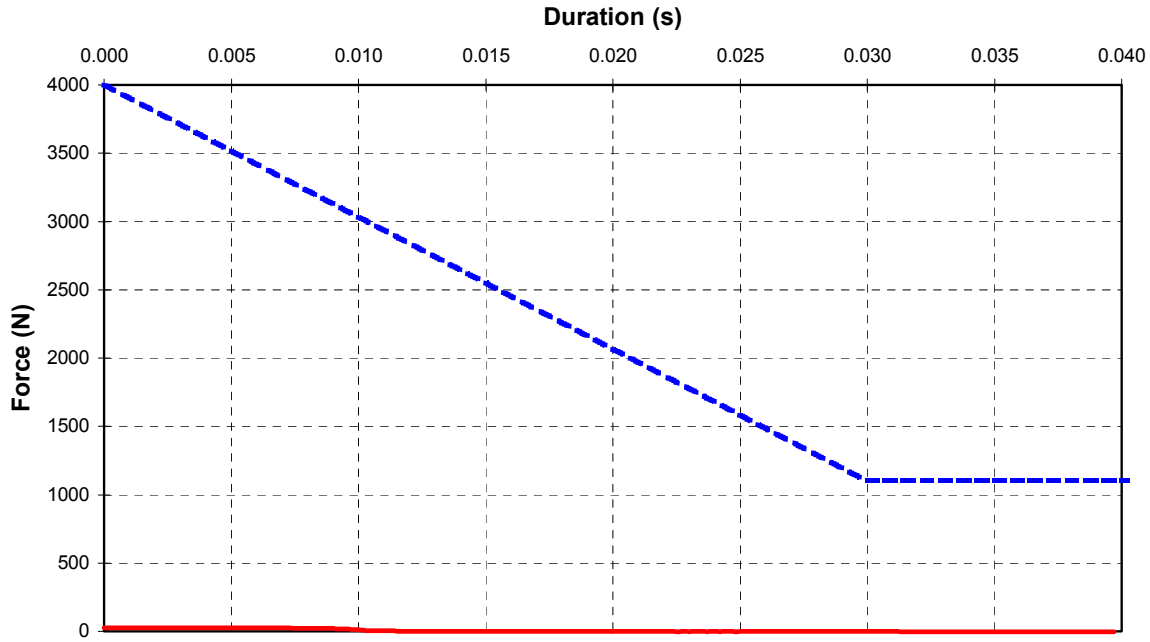
A-12 CF98008 1998 Jeep Wrangler Neck Occipital A-P Moment



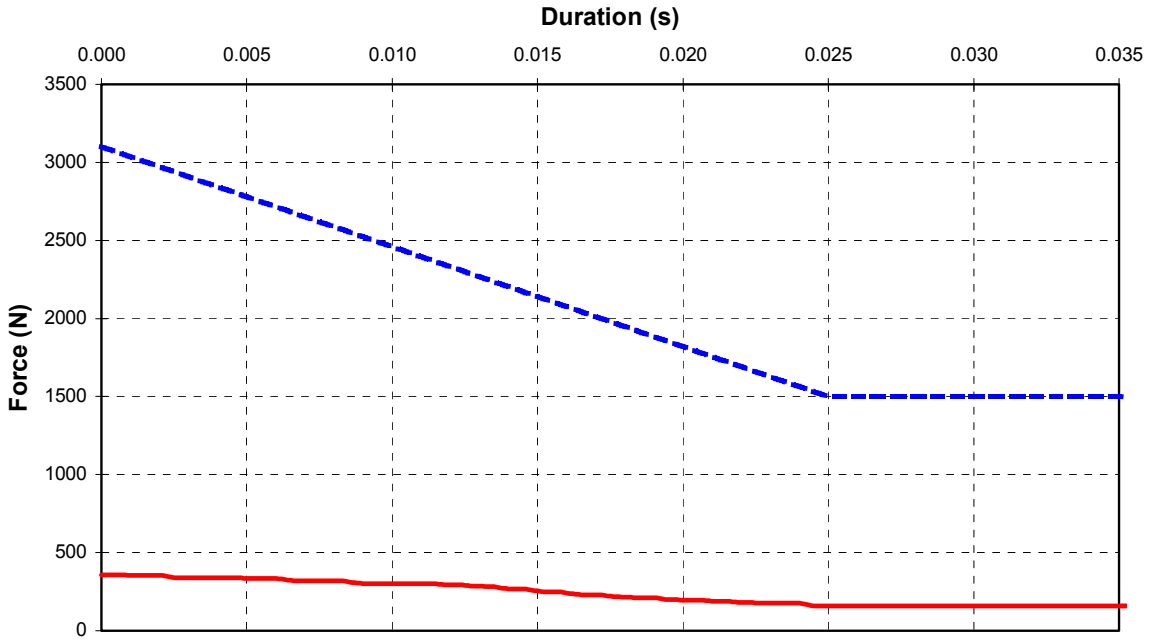
A-13 CF98008 1998 Jeep Wrangler Neck Tension Analysis



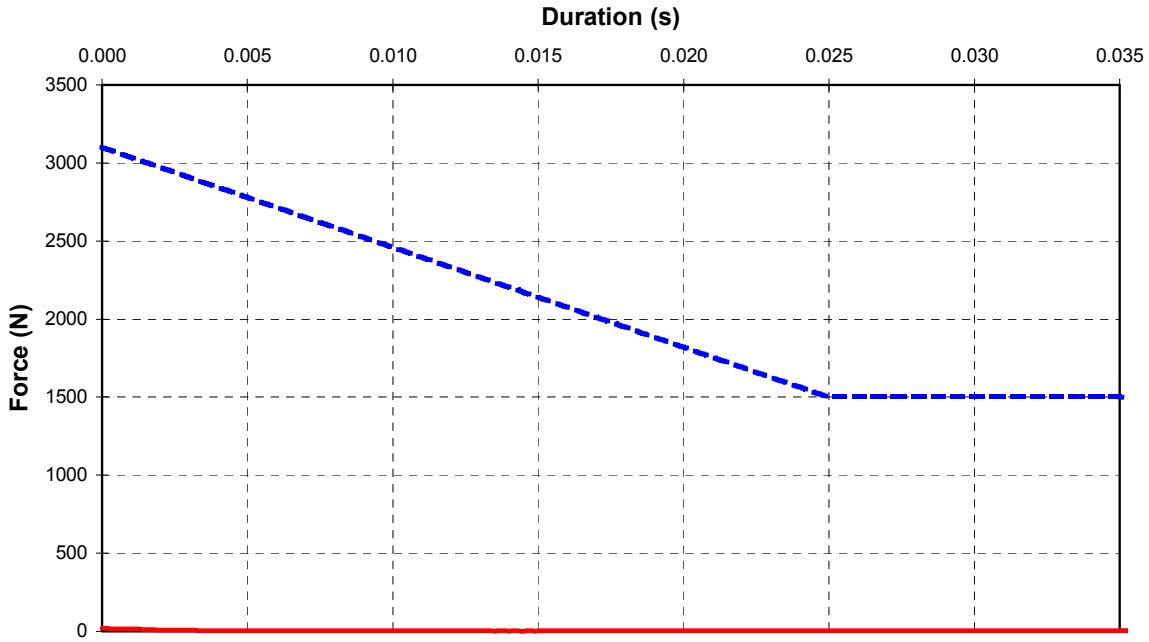
A-14 CF98008 1998 Jeep Wrangler Neck Compression Analysis



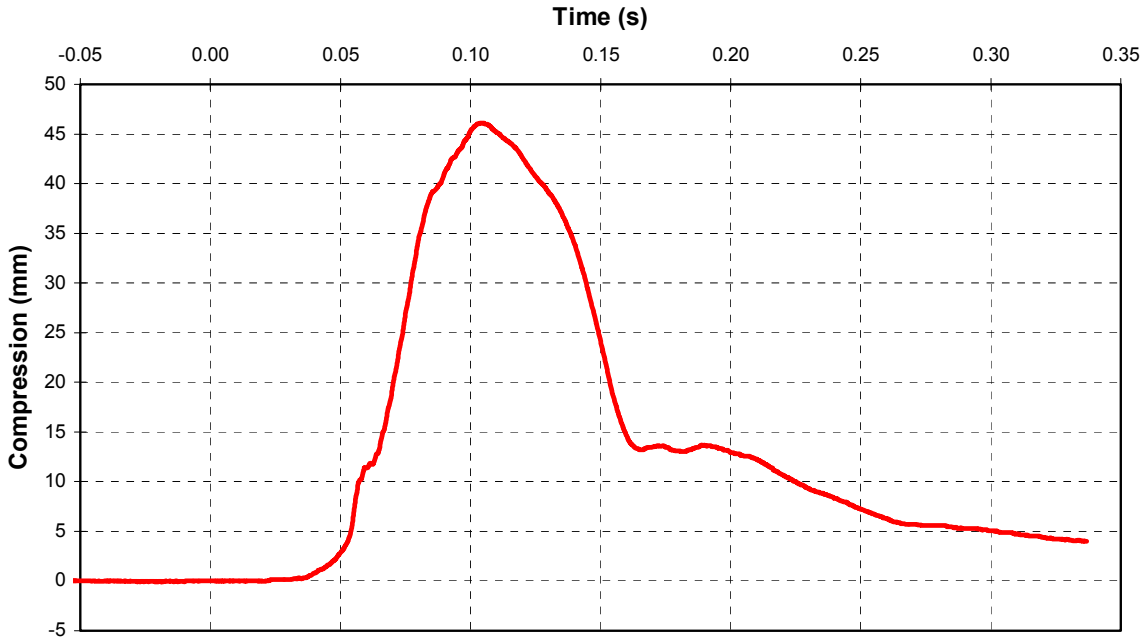
A-15 CF98008 1998 Jeep Wrangler Neck A-P Shear (Positive) Analysis



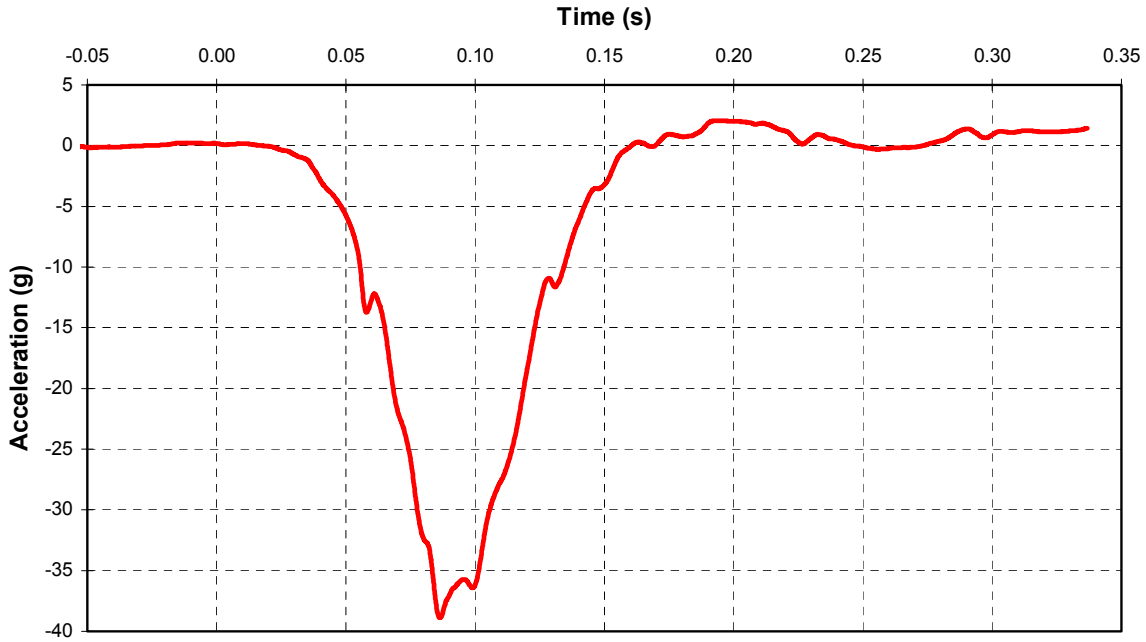
A-16 CF98008 1998 Jeep Wrangler Neck A-P Shear (Negative) Analysis



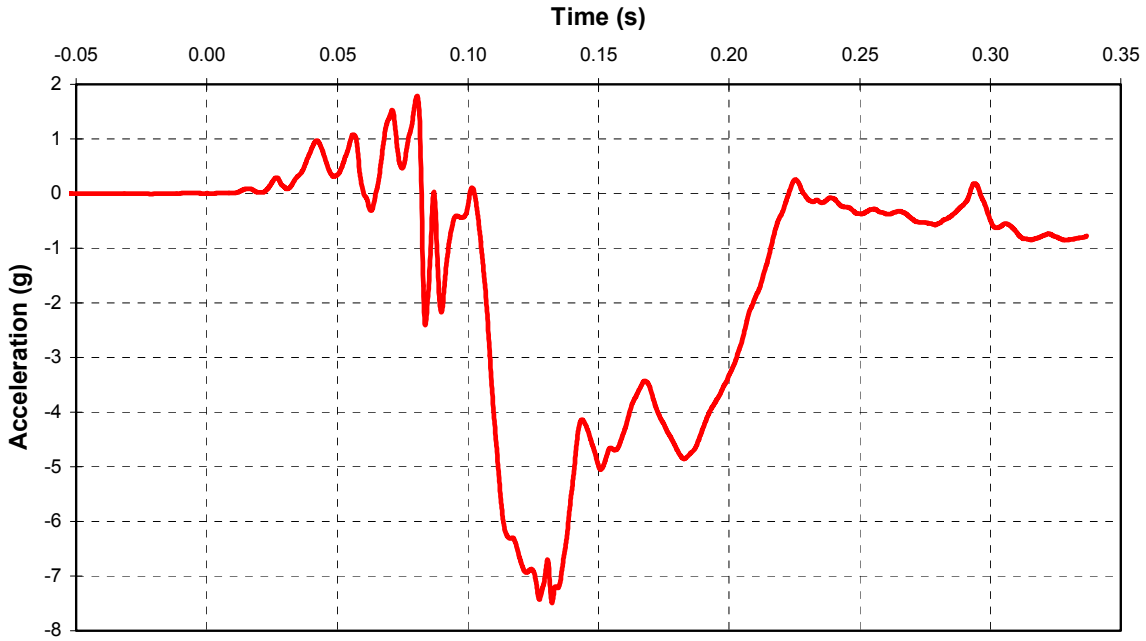
A-17 CF98008 1998 Jeep Wrangler Chest Compression



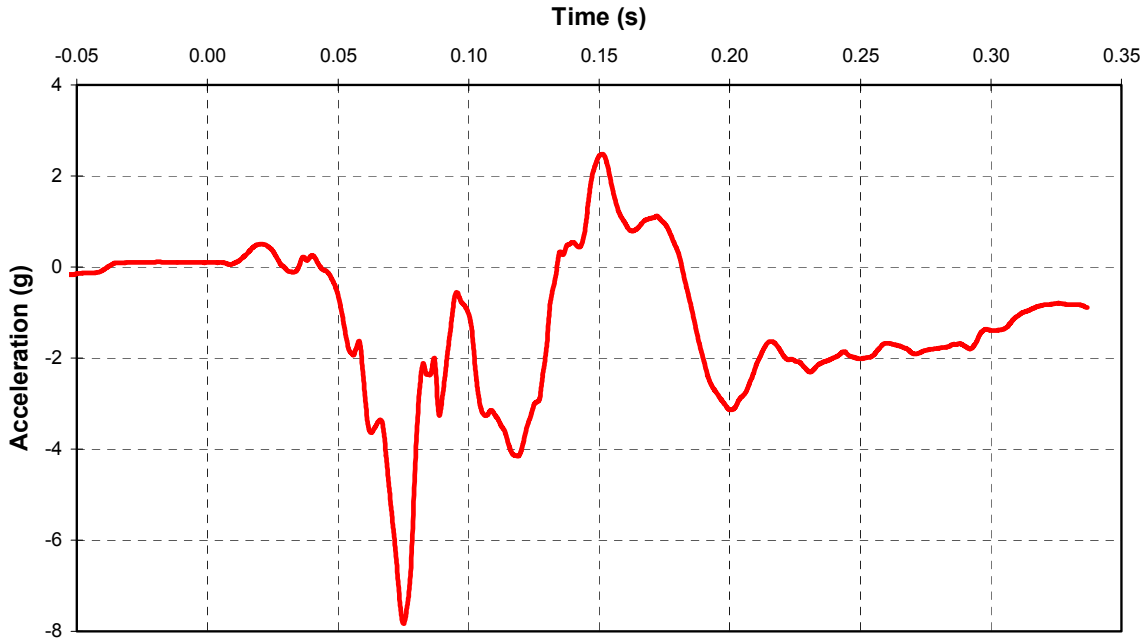
A-18 CF98008 1998 Jeep Wrangler Chest A-P Acceleration



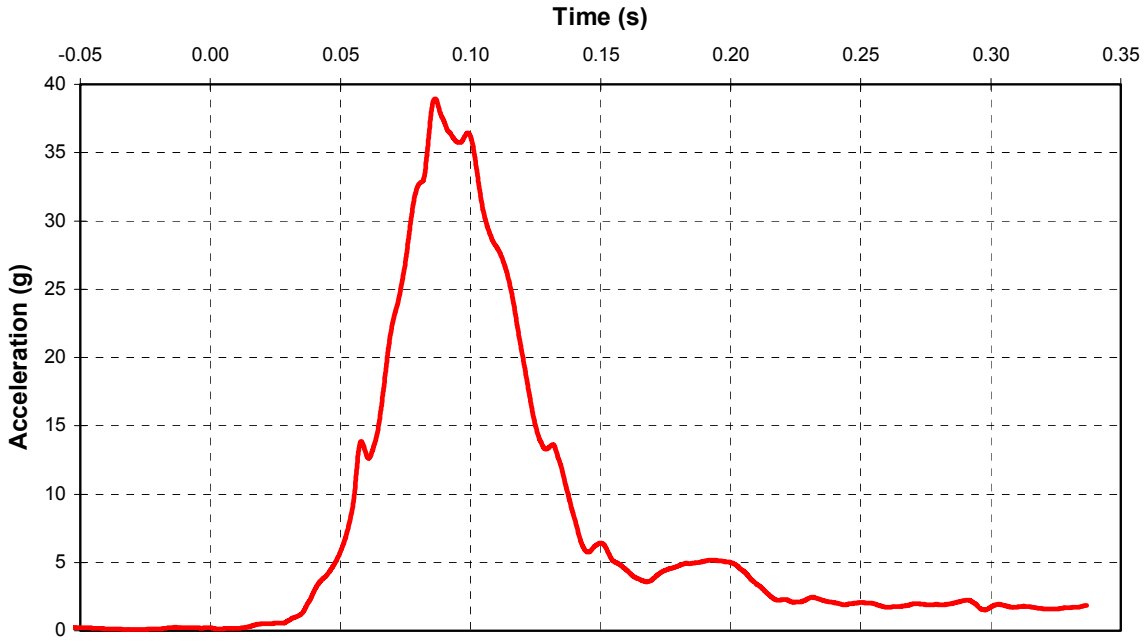
A-19 CF98008 1998 Jeep Wrangler Chest L-M Acceleration



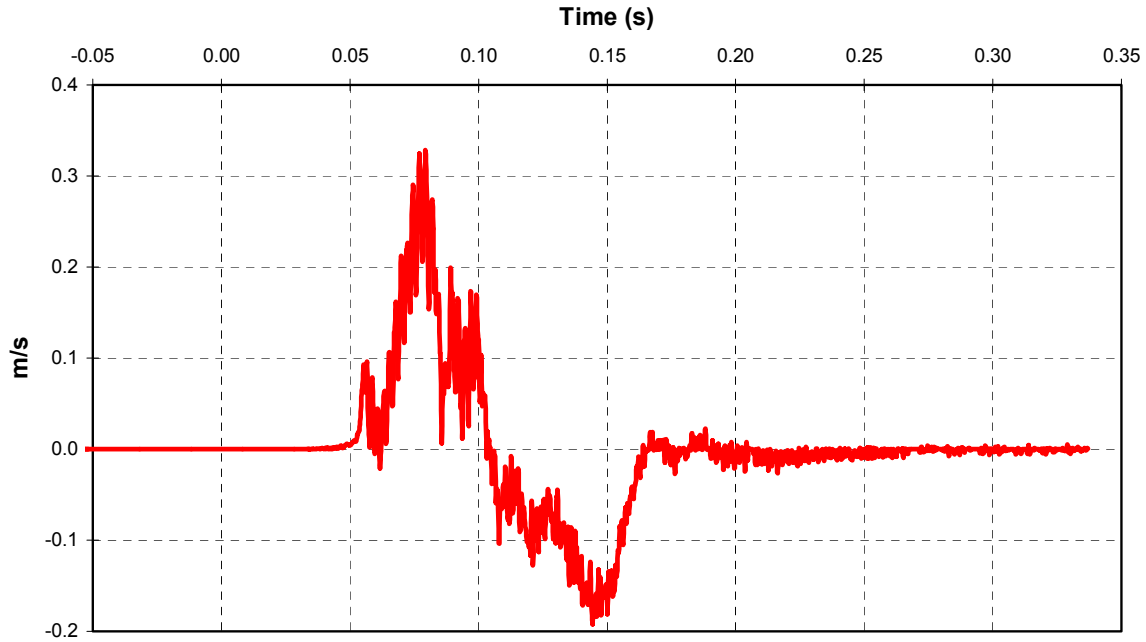
A-20 CF98008 1998 Jeep Wrangler Chest I-S Acceleration



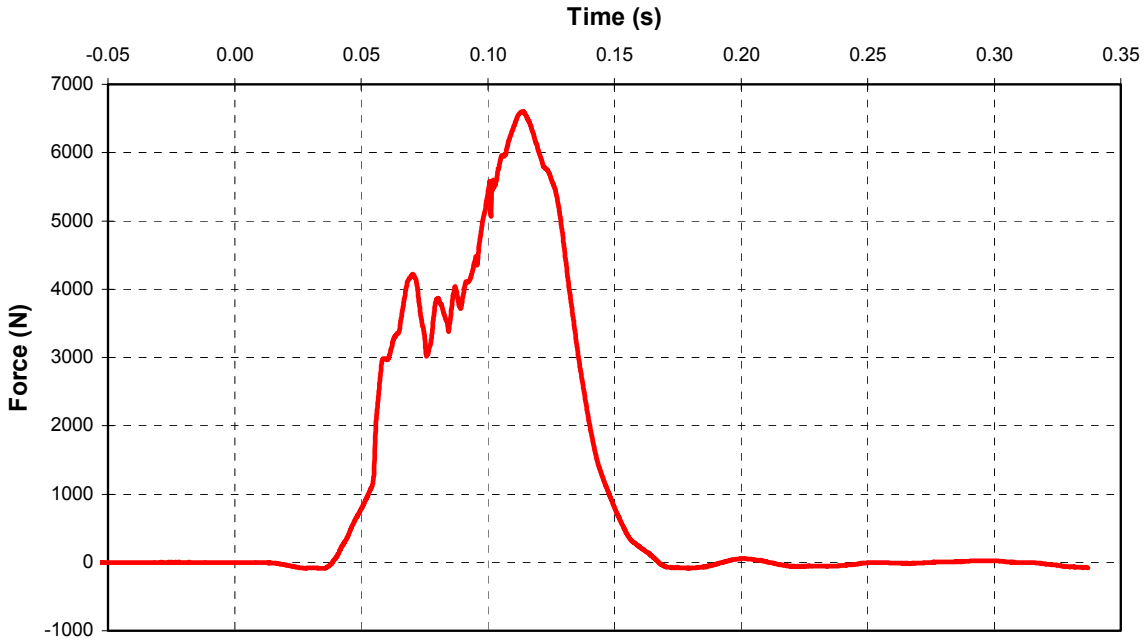
A-21 CF98008 1998 Jeep Wrangler Chest Vector Resultant Acceleration



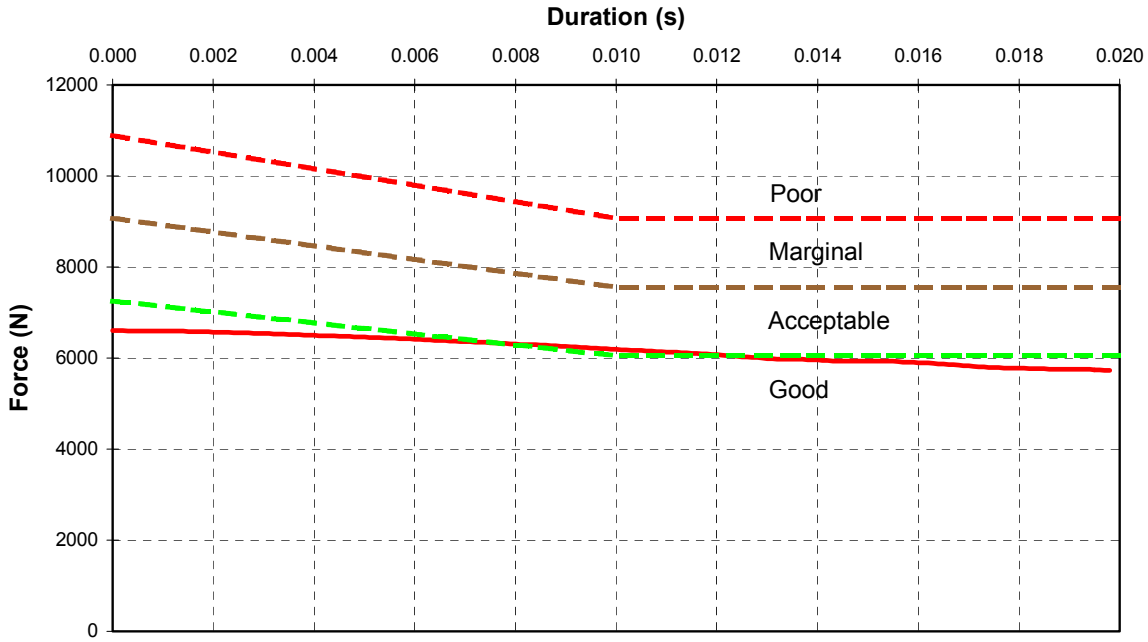
A-22 CF98008 1998 Jeep Wrangler Viscous Criterion



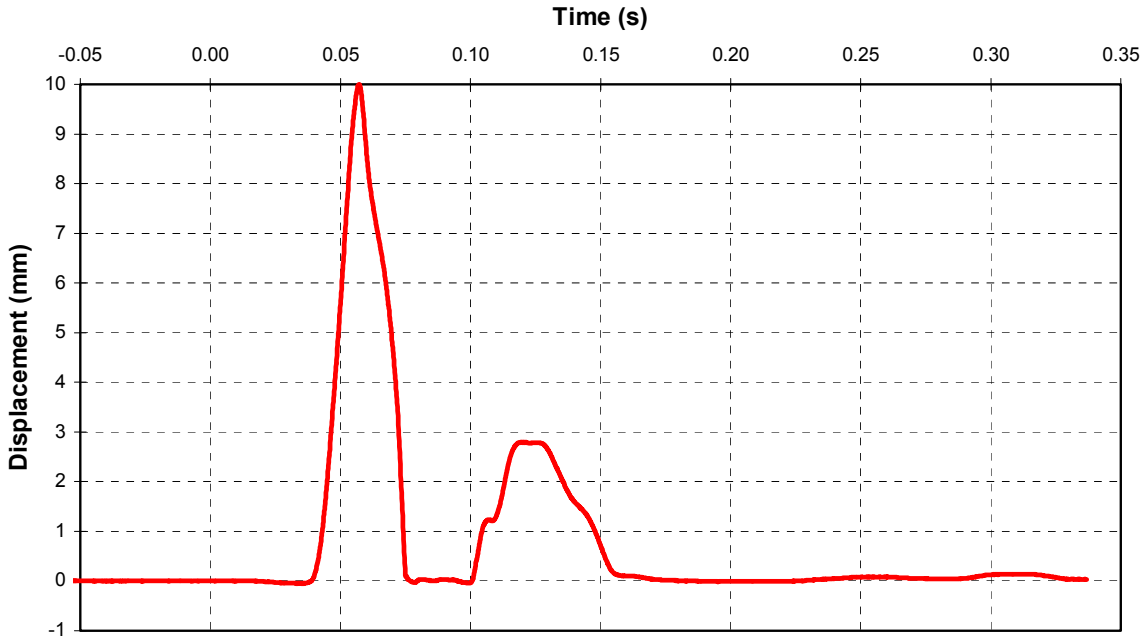
A-23 CF98008 1998 Jeep Wrangler Left Femur Axial Force



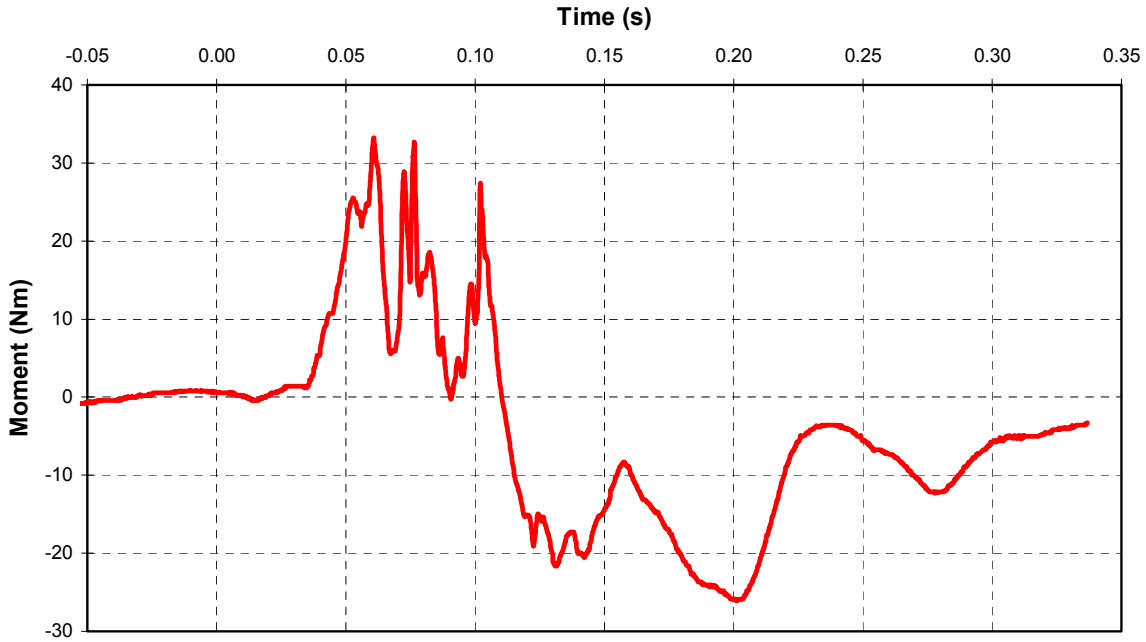
A-24 CF98008 1998 Jeep Wrangler Left Femur Axial Force Analysis



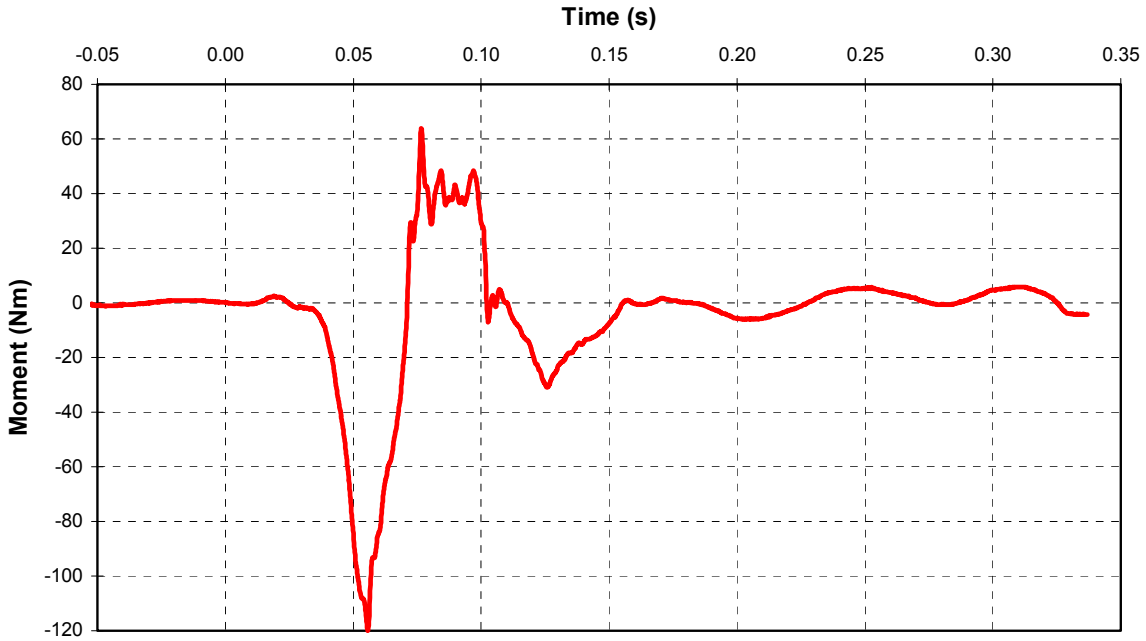
A-25 CF98008 1998 Jeep Wrangler Left Tibia-Femur Displacement



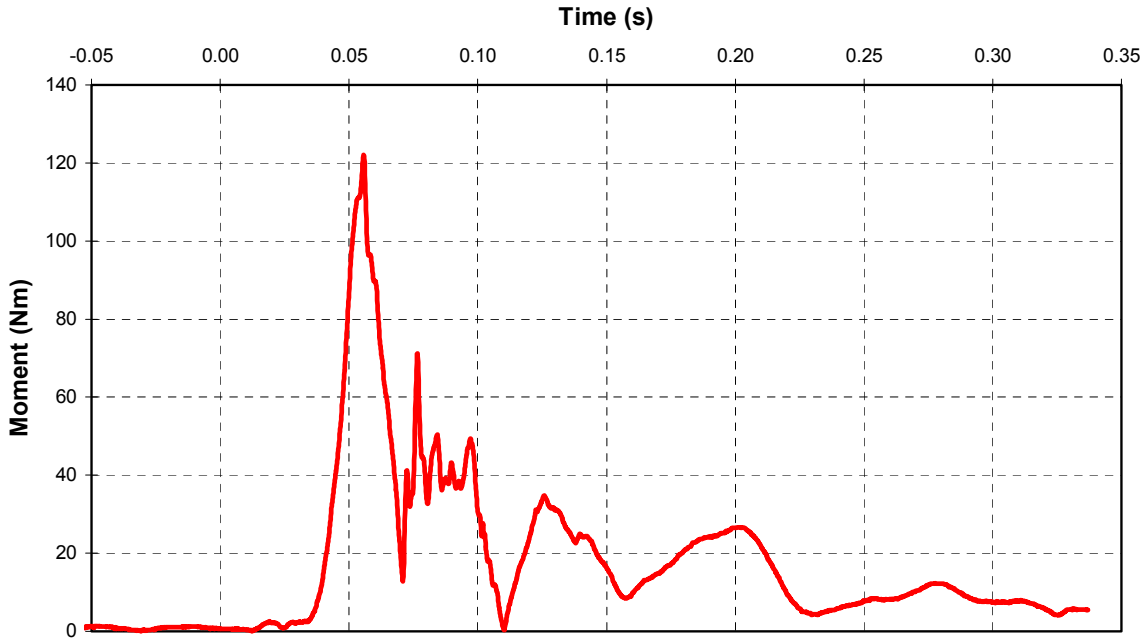
A-26 CF98008 1998 Jeep Wrangler Left Upper Tibia L-M Moment



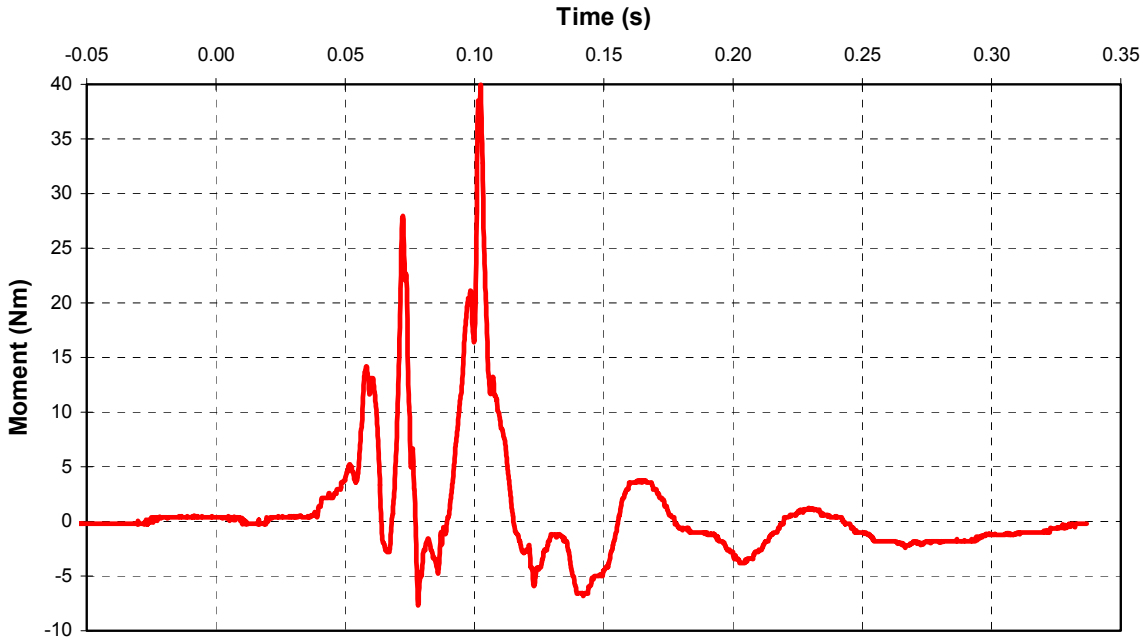
A-27 CF98008 1998 Jeep Wrangler Left Upper Tibia A-P Moment



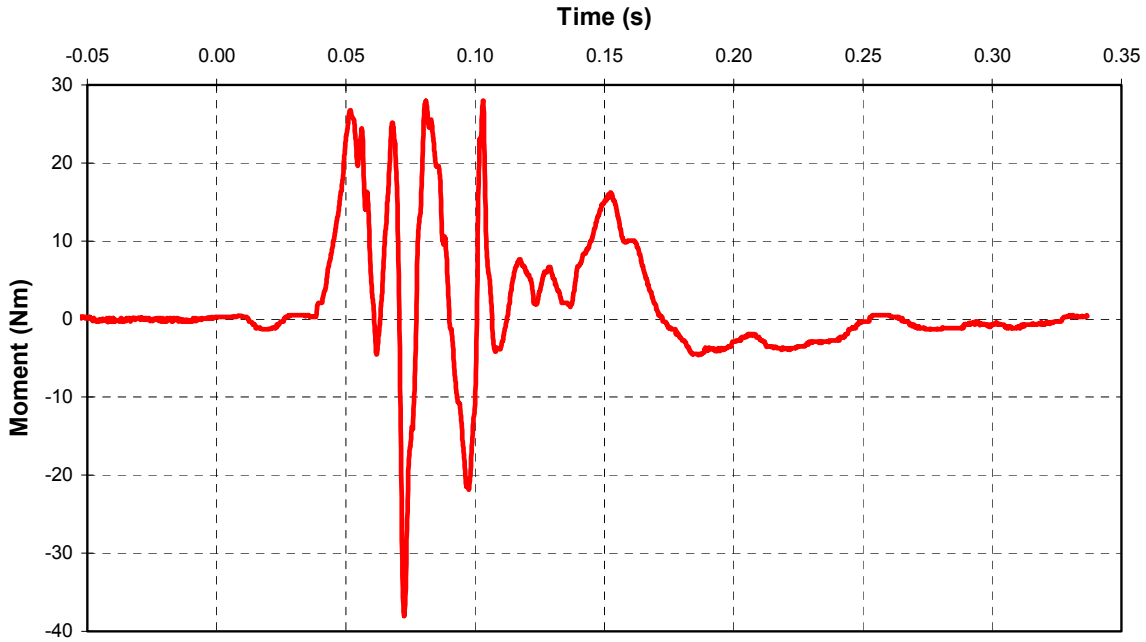
A-28 CF98008 1998 Jeep Wrangler Left Upper Tibia Vector Resultant Moment



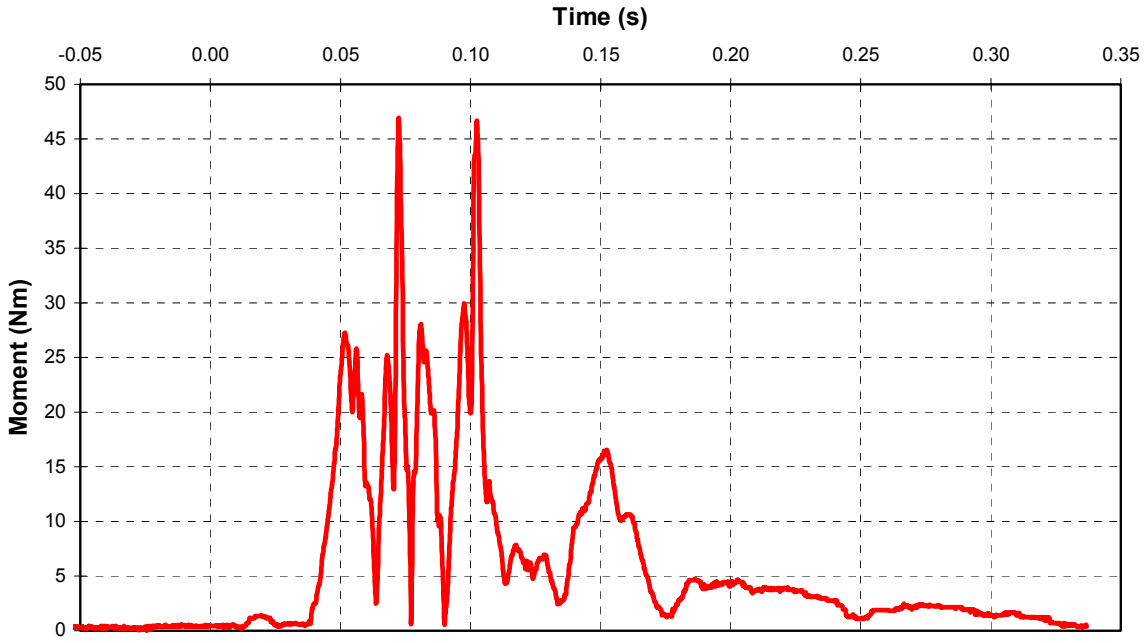
A-29 CF98008 1998 Jeep Wrangler Left Lower Tibia L-M Moment



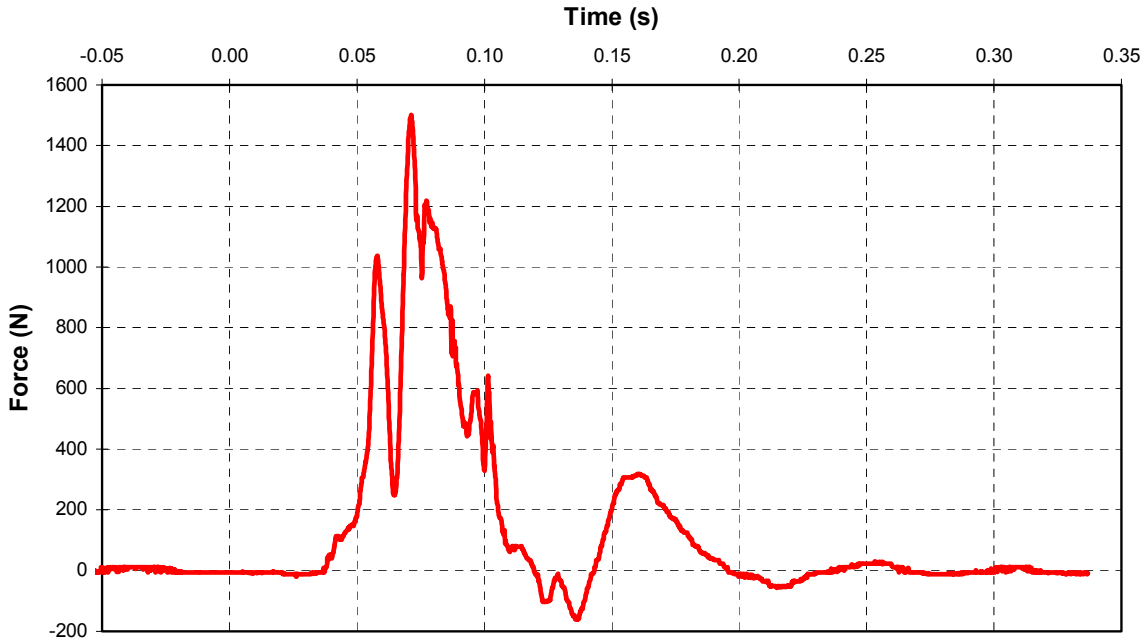
A-30 CF98008 1998 Jeep Wrangler Left Lower Tibia A-P Moment



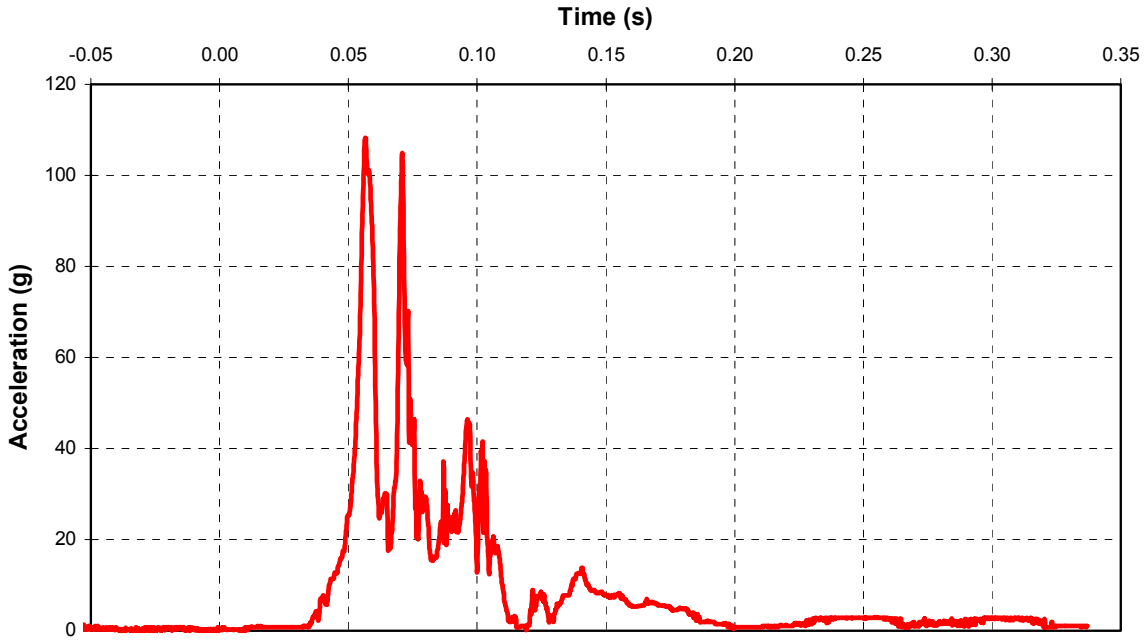
A-31 CF98008 1998 Jeep Wrangler Left Lower Tibia Vector Resultant Moment



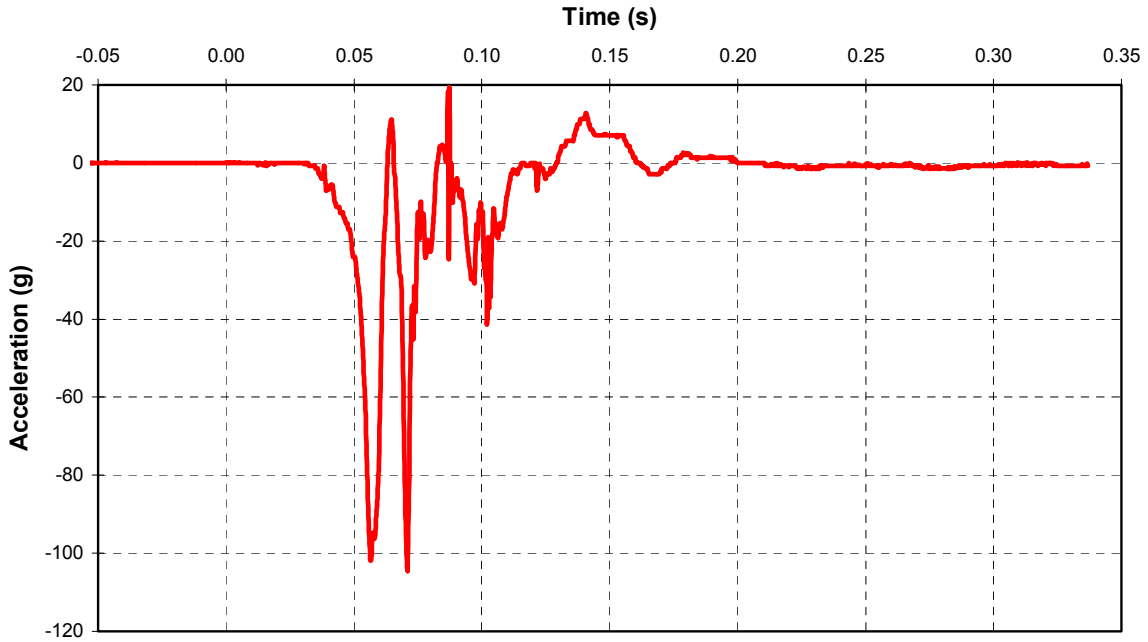
A-32 CF98008 1998 Jeep Wrangler Left Lower Tibia Axial Force



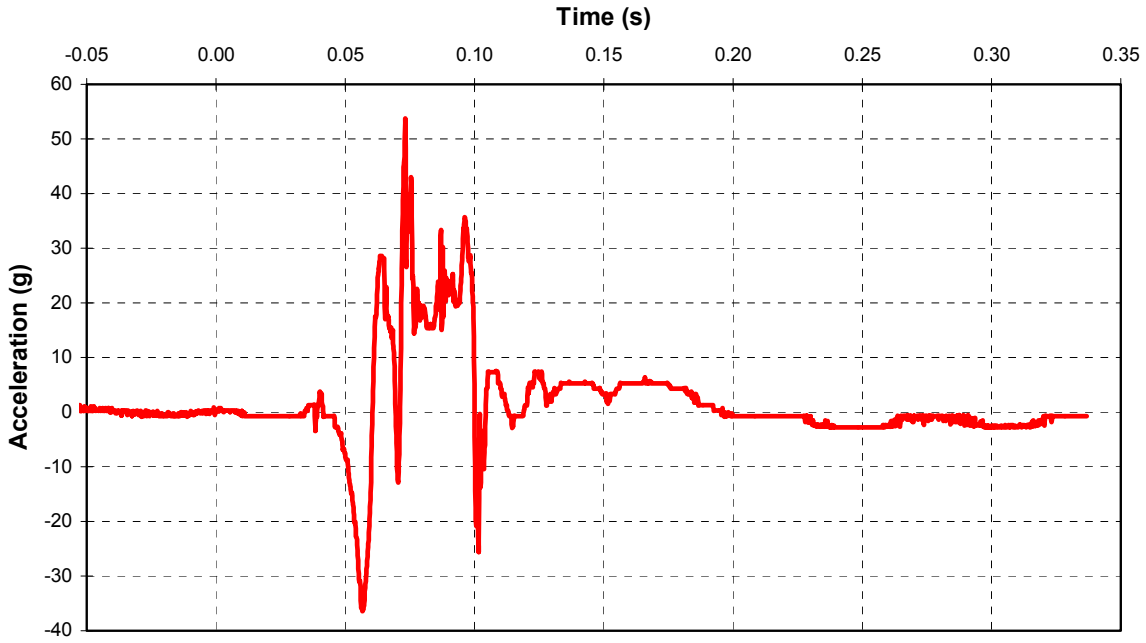
A-33 CF98008 1998 Jeep Wrangler Left Foot Vector Resultant Acceleration



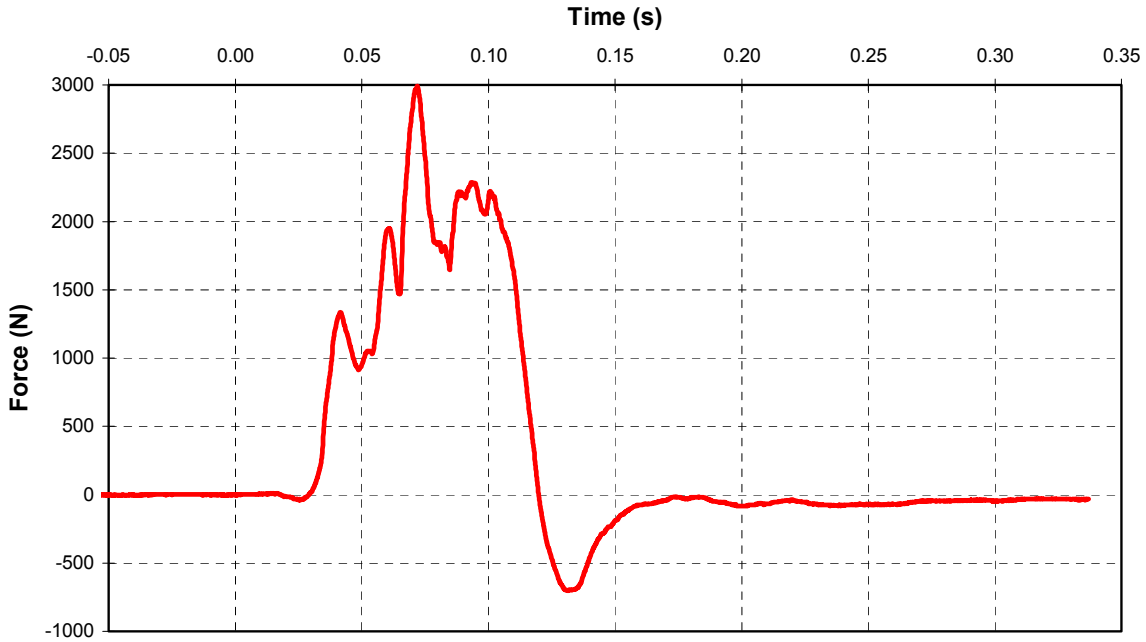
A-34 CF98008 1998 Jeep Wrangler Left Foot A-P Acceleration



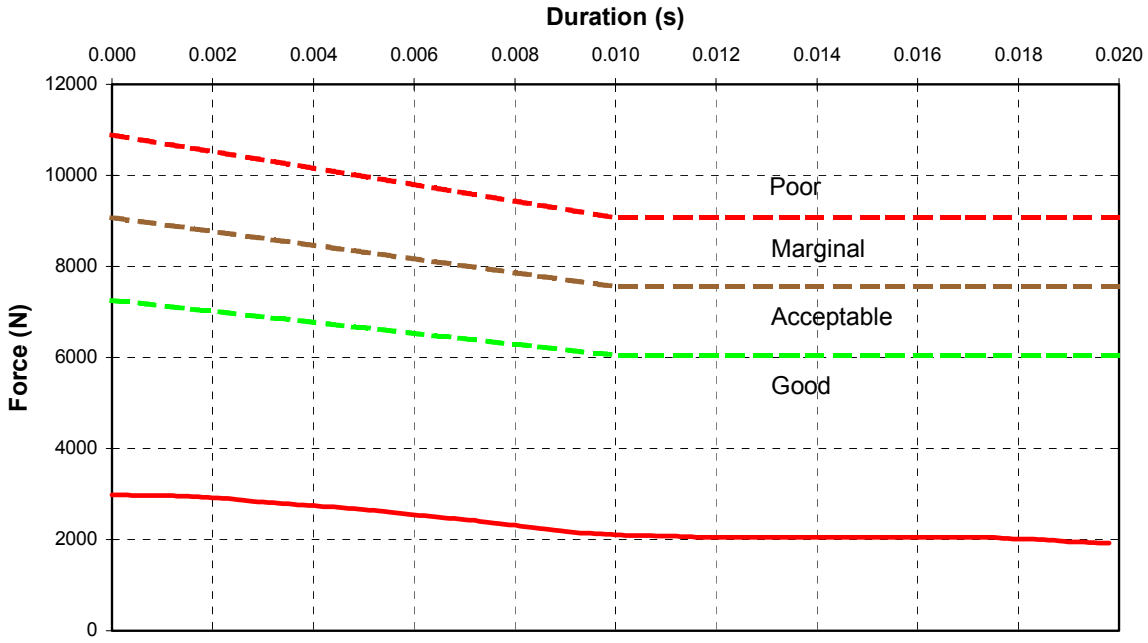
A-35 CF98008 1998 Jeep Wrangler Left Foot I-S Acceleration



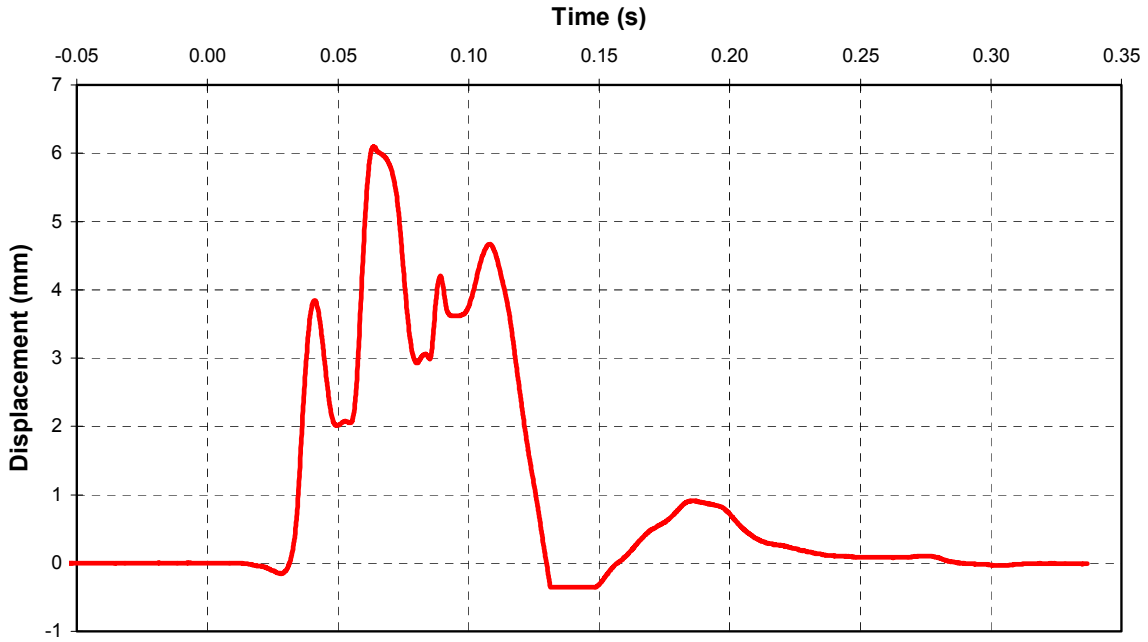
A-36 CF98008 1998 Jeep Wrangler Right Femur Axial Force



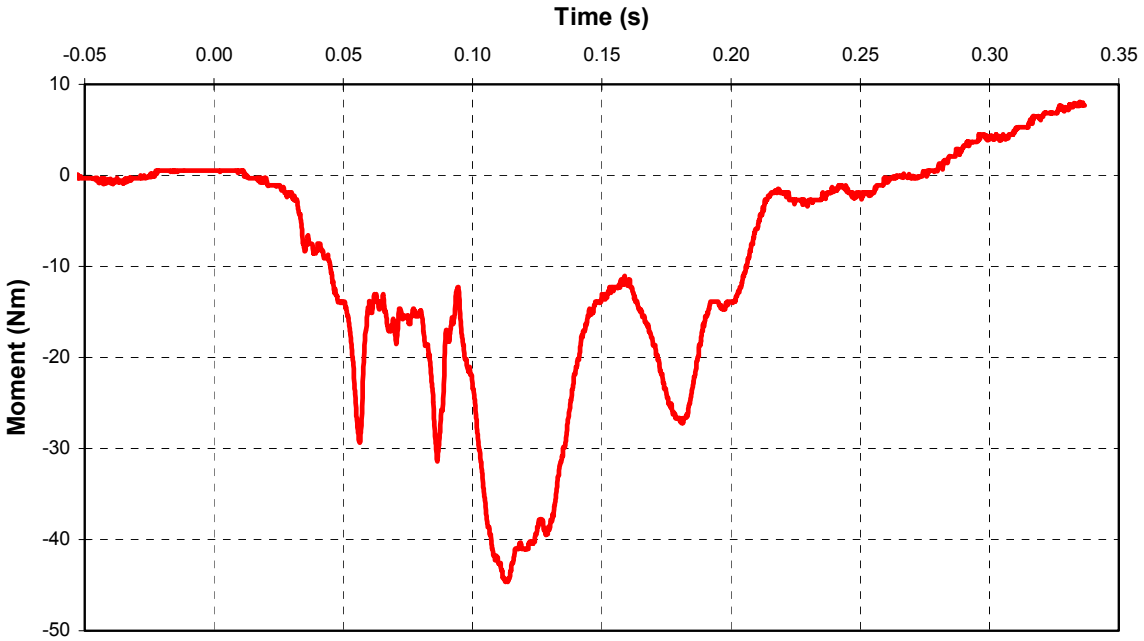
A-37 CF98008 1998 Jeep Wrangler Right Femur Axial Force Analysis



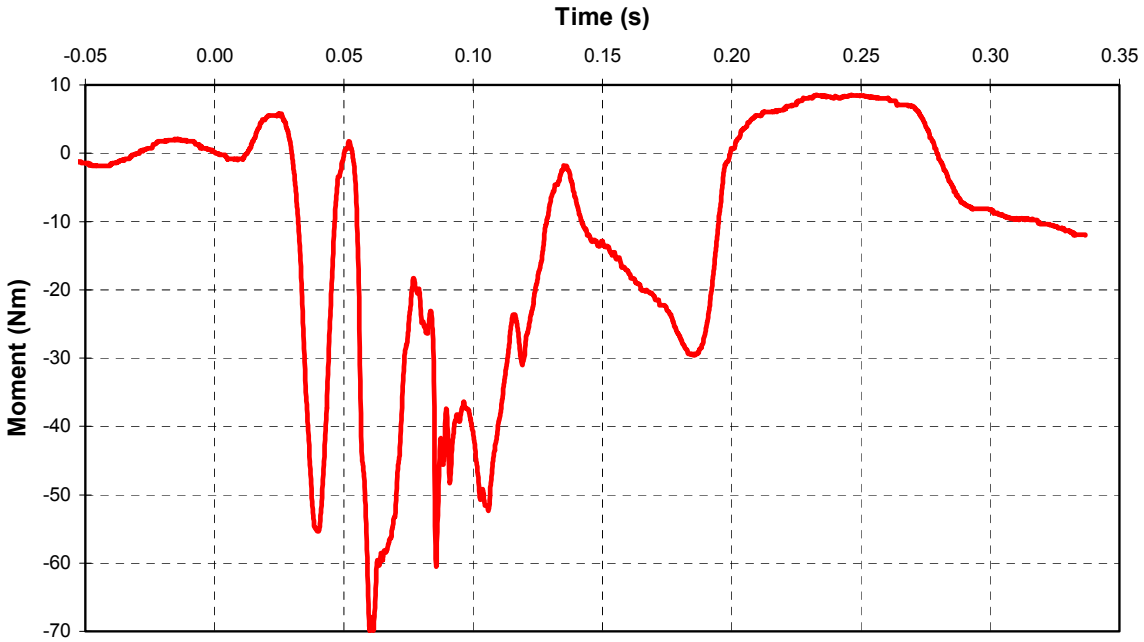
A-38 CF98008 1998 Jeep Wrangler Right Tibia-Femur Displacement



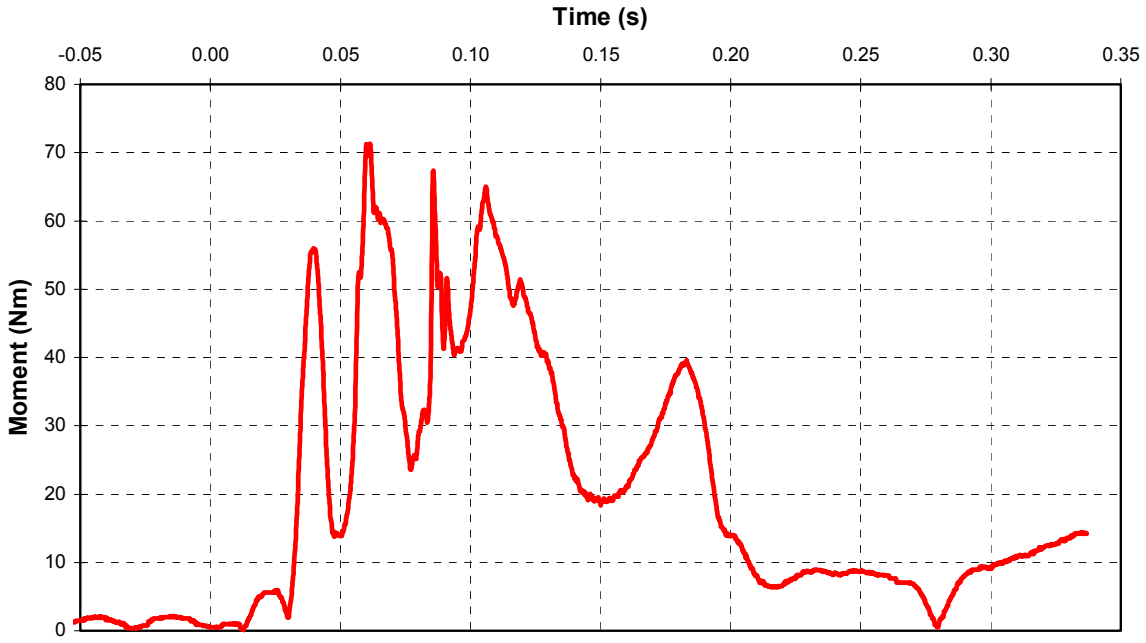
A-39 CF98008 1998 Jeep Wrangler Right Upper Tibia L-M Moment



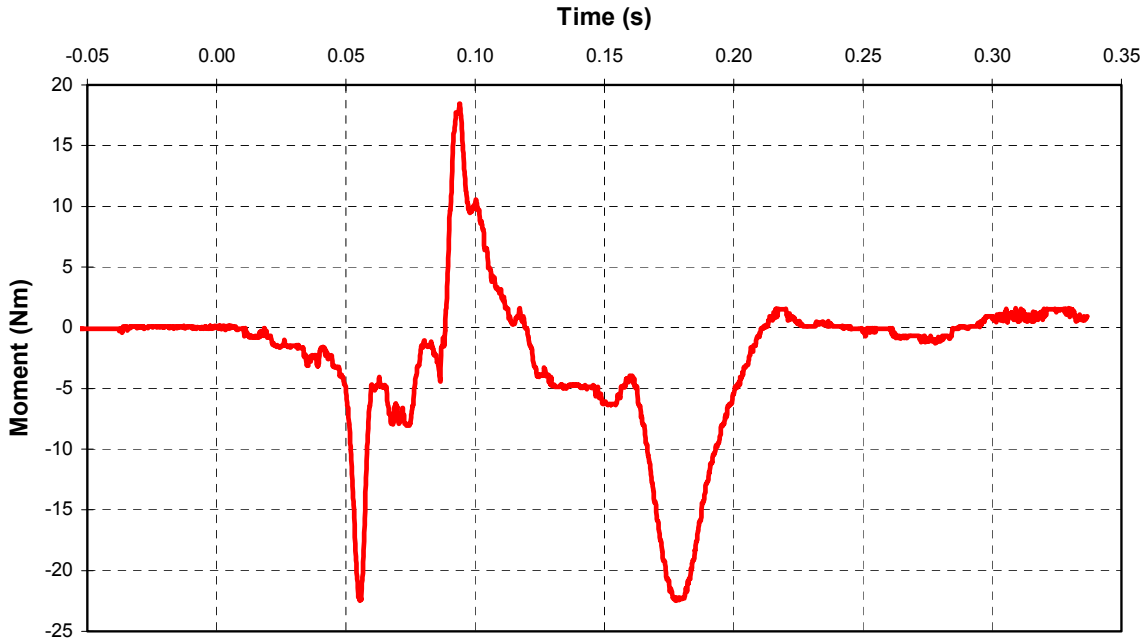
A-40 CF98008 1998 Jeep Wrangler Right Upper Tibia A-P Moment



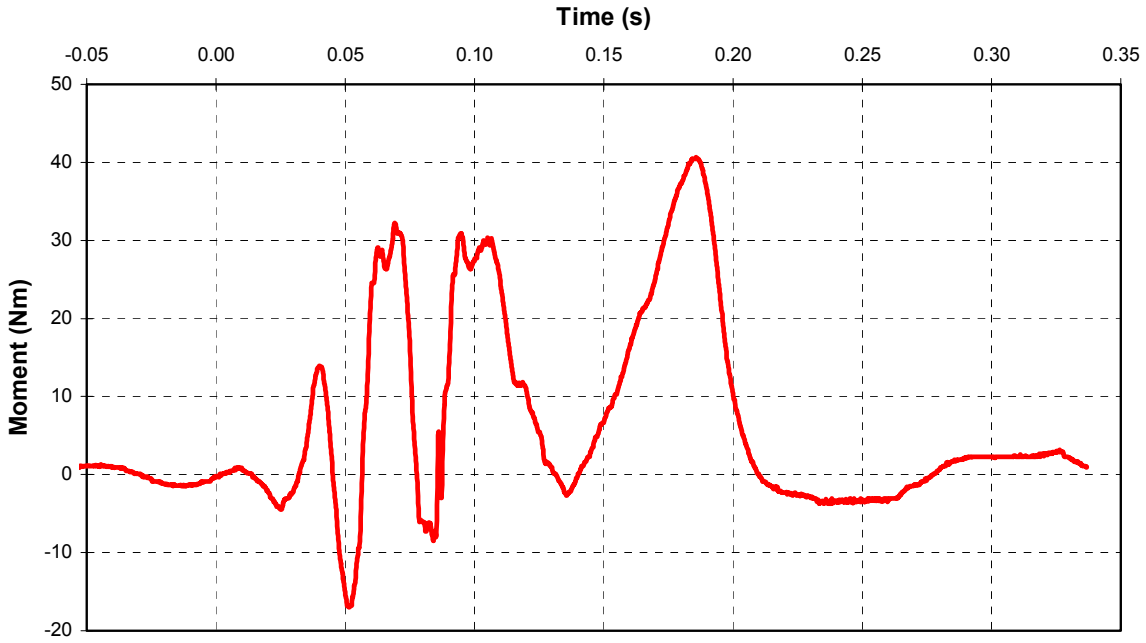
A-41 CF98008 1998 Jeep Wrangler Right Upper Tibia Vector Resultant Moment



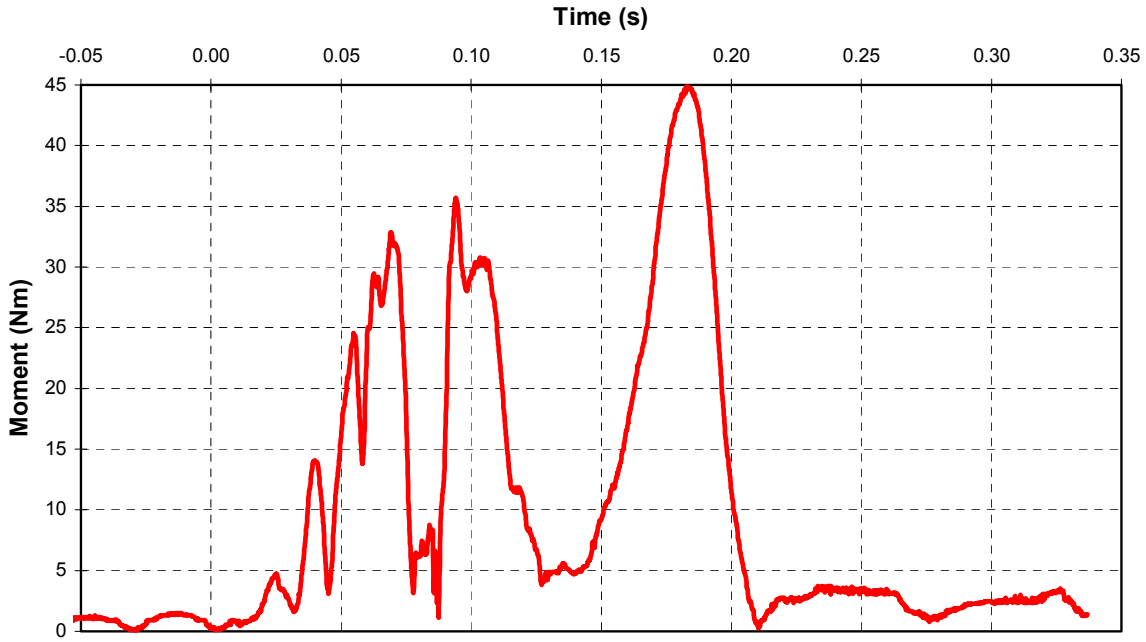
A-42 CF98008 1998 Jeep Wrangler Right Lower Tibia L-M Moment



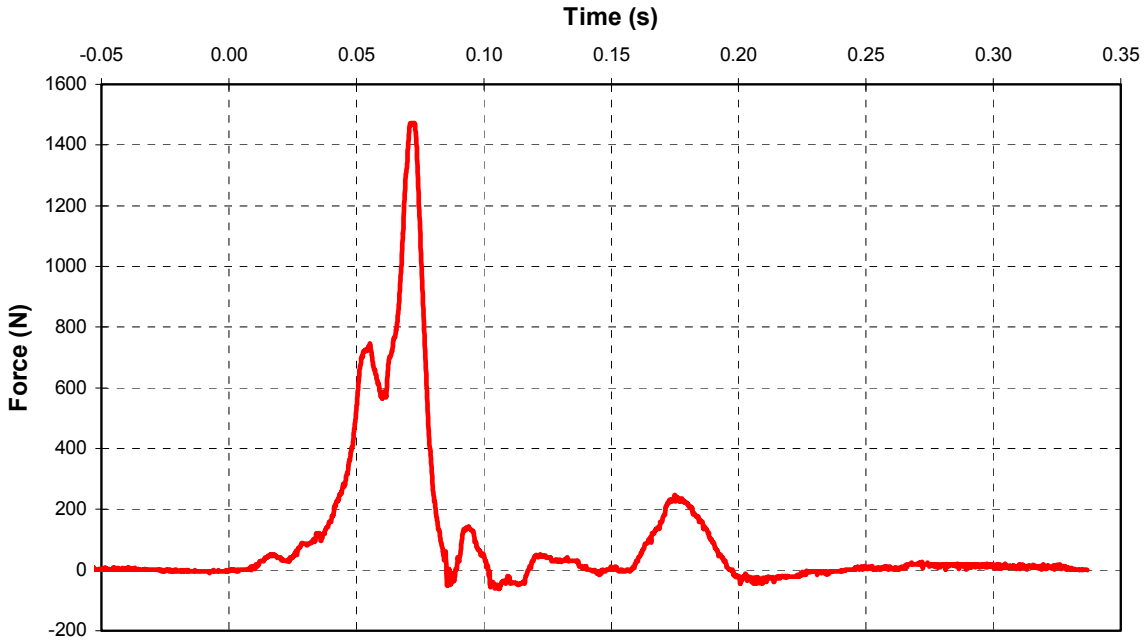
A-43 CF98008 1998 Jeep Wrangler Right Lower Tibia A-P Moment



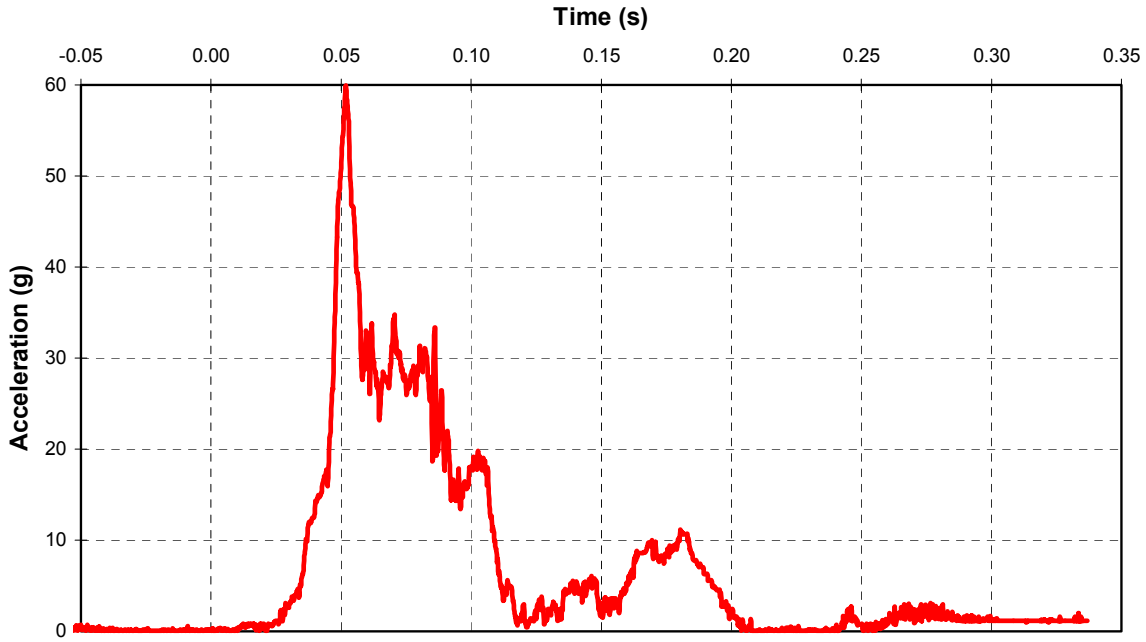
A-44 CF98008 1998 Jeep Wrangler Right Lower Tibia Vector Resultant Moment



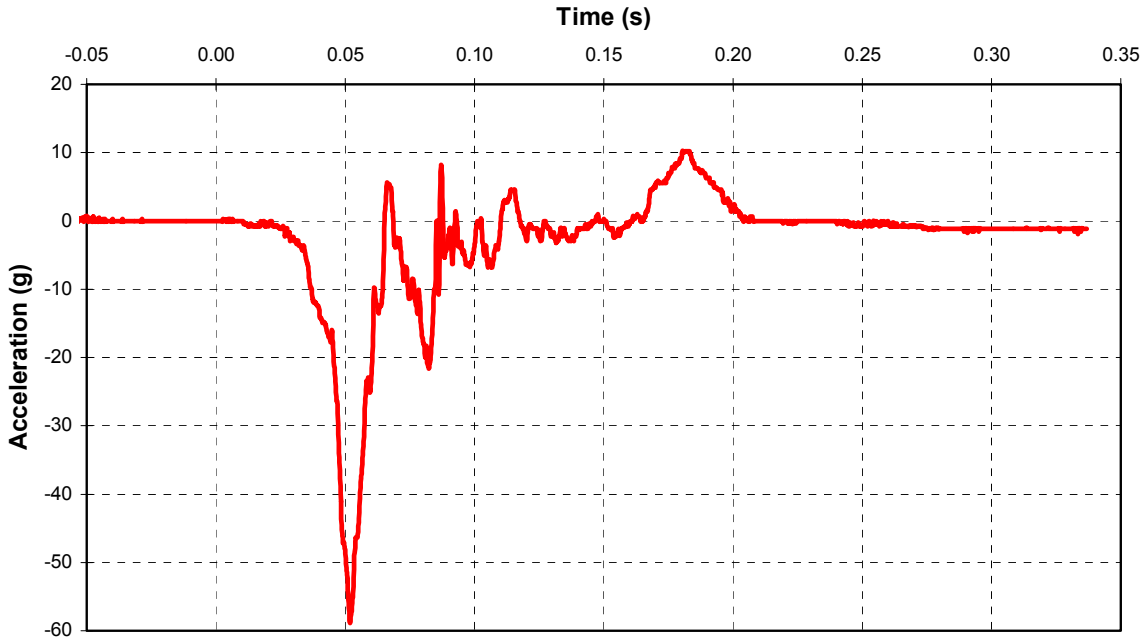
A-45 CF98008 1998 Jeep Wrangler Right Lower Tibia Axial Force



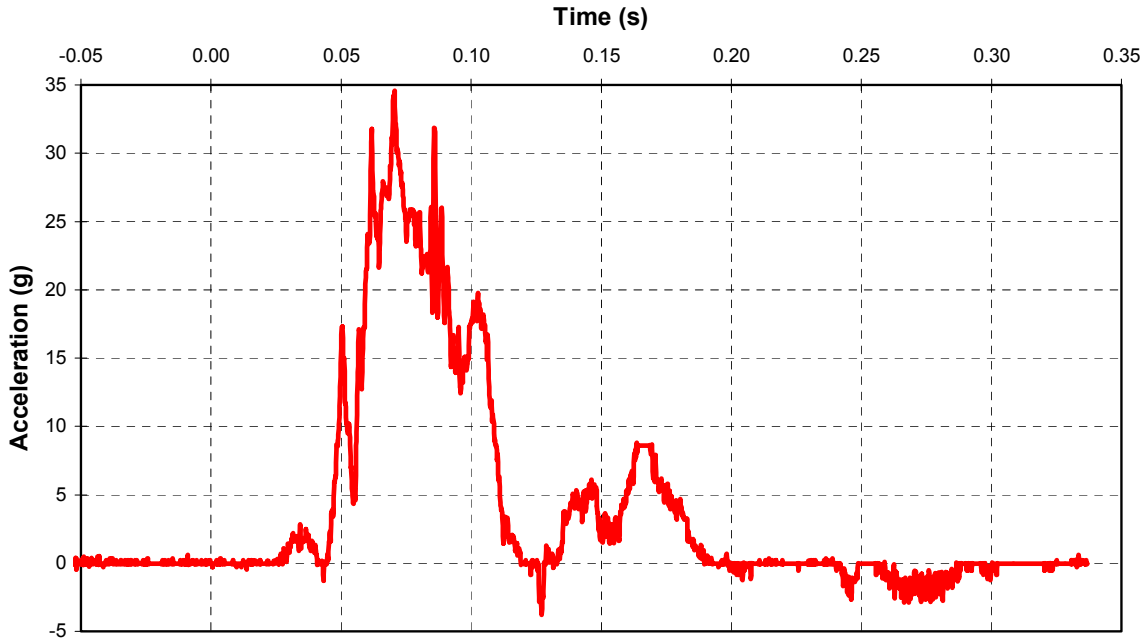
A-46 CF98008 1998 Jeep Wrangler Right Foot Vector Resultant Acceleration



A-47 CF98008 1998 Jeep Wrangler Right Foot A-P Acceleration



A-48 CF98008 1998 Jeep Wrangler Right Foot I-S Acceleration



1998 MODEL YEAR

Jeep® WRANGLER SE 4WD

PRICE INFORMATION

MANUFACTURER'S SUGGESTED RETAIL PRICE OF THIS MODEL INCLUDING DEALER PREPARATION

Base Price: $14,090

Jeep Wrangler SE 4WD
Exterior Color: Gunmetal Pearl Coat
Interior Color: Mist Gray
Interior: Seats - Cloth High-Back Bucket
Seat - Rear Folding
Carpet- Rear Seat/Wheelhouse/Cargo
Engine: Engine - 2.5L 4 Cylinder SMPI
Transmission: Transmission - Manual 5-Speed

STANDARD EQUIPMENT (UNLESS REPLACED BY OPTIONAL EQUIPMENT)

FUNCTIONAL/SAFETY FEATURES

Air Bags - Next Generation**
Brakes - Power Front Disc/Rear Drum
Steering - Power
Shock Absorbers - Gas Charged
Stabilizer Bar - Rear
Battery - 500 Amp Maintenance Free
Alternator - 81 Amp
Transfer Case - Command-Trac 4WD
Skid Plate Shield - Transfer Case
Skid Plate Shield - Fuel Tank
Fuel Tank - 15 Gallon w/Tethered Cap
Spare Tire - Compact

INTERIOR FEATURES

Sport Bar w/Padded Side Bars
Carpet - Front Seat Area
Seats - Reclining Front
Power Outlet - Auxiliary 12 V
Glove Box - Locking
Gauges - Fuel/Volts/Coolant Temp/Oil Pressure
Instrument Cluster w/Tach
Cargo Tie Down Loops
Console - Floor w/Cupholder/Tray

EXTERIOR FEATURES

Mirrors - Swing-Away
Soft Top - Easy Folding
Doors - Half Metal with Locks
Tires - P205/75R15 Wrangler RT/S AT
Wheels - 15 x 6.0 Styled Steel

PRICE INFORMATION (cont'd)

OPTIONAL EQUIPMENT	
Seats - Cloth High-Back Bucket	$745
Seat - Rear Folding	
Carpet- Rear Seat/Wheelhouse/Cargo	
Floor Mats - Front	$30
Spare Tire Cover	$50
Air Conditioning	$895
Heavy Duty Electrical Group	
Battery - 600 Amp Maintenance Free	
Alternator - 117 Amp	
Steps - Bodyside	$75
Radio - AM/FM Cassette	$715
Antenna - Fixed	
Speakers - Four w/Sound Bar	
Sport Bar - Rear w/Full Padding	
Steering Column - Tilt	$195
Windshield Wipers - Var Intermittent	
Tires - P225/75R15 OWL Wrangler AT	$470
Wheel - Matching Spare	
Spare Tire - Full Size	
Black Soft Top	NO CHARGE
Wheels - 15 x 7.0 Full-Face Steel	$230
Tow Hooks - 2 Front	$40
DESTINATION CHARGE	**$525**

TOTAL PRICE: * $18,060

Rearward-facing child seats cannot be used in this vehicle.

Assembly Point/Port of Entry: TOLEDO, OHIO, U.S.A.

VIN 1J4-FY29P7WP-760709 L4-VON 2232 0221

SHIPTO: 67720 47
BRITT CHRYSLER-PLYMOUTH-JEEP-EAGLE
3427 JEFFERSON-DAVIS HIGHWAY
FREDERICKSBURG VA 22401-4160

SOLDTO: 35 67720
BRITT CHRYSLER-PLYMOUTH-JEEP-EAGLE
3427 JEFFERSON-DAVIS HIGHWAY
FREDERICKSBURG VA 22401-4160

THIS LABEL IS ADDED TO THIS VEHICLE TO COMPLY WITH FEDERAL LAW. THE LABEL CANNOT BE REMOVED OR ALTERED PRIOR TO DELIVERY TO THE ULTIMATE PURCHASER.

* STATE AND/OR LOCAL TAXES IF ANY, LICENSE AND TITLE FEES, AND DEALER SUPPLIED AND INSTALLED OPTIONS AND ACCESSORIES ARE NOT INCLUDED IN THIS PRICE. DISCOUNT, IF ANY, IS BASED ON PRICE OF OPTIONS IF PURCHASED SEPARATELY.

CHRYSLER CORPORATION

THIS VEHICLE IS MANUFACTURED TO MEET SPECIFIC UNITED STATES REQUIREMENTS. THIS VEHICLE IS NOT MANUFACTURED FOR SALE OR REGISTRATION OUTSIDE OF THE UNITED STATES.

PARTS CONTENT INFORMATION

FOR VEHICLES IN THIS CARLINE:
U.S./CANADIAN PARTS CONTENT: 81 %

FOR THIS VEHICLE:
FINAL ASSEMBLY POINT:
TOLEDO, OHIO, U.S.A.

COUNTRY OF ORIGIN:
ENGINE PARTS: UNITED STATES
TRANSMISSION PARTS: JAPAN

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

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

CITY MPG

18

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

17 and 23 mpg on the highway.

1998 WRANGLER 4WD
4 CYL, 2.5 L (150 CID),
MULTIPOINT FUEL INJECTION.
5-SPEED MANUAL TRANS.
W/ SHIFT INDICATOR LIGHT.

Estimated Annual Fuel Cost:
$ 986

HIGHWAY MPG

20

For Comparison Shopping, all vehicles classified as **SPECIAL PURPOSE** have been issued mileage ratings ranging from 12 to 24 mpg city and 16 to 29 mpg highway.