

Case 442 : Narrative

Case Vehicle (A): 2003 Pontiac	Vehicle (B): 2002 Buick
Type: Grand Am SE, 4-door sedan	Type: Century Custom, 4-door sedan
Driver: 82-year-old female	Driver: 34-year-old male
CDC: 01-FDEW-2	CDC: 11-FYEW-2

SITUATION

[1](#) [2](#) [3](#) On a cloudy day, [4](#) case vehicle (A) was stopped in the southbound lane of a two-lane, north-south road where it intersects with a two-lane, east-west road in a rural area. The intersection is controlled by four stop signs and the asphalt road surface was dry and the speed limit was 55 mph (89 kph). [5](#) [6](#) Vehicle (B) was traveling north in the northbound lane of the same road at an EDR-recorded speed of 68 mph, and was being pursued by the police. [7](#) [8](#) As vehicle (B) and the police car approached the intersection, the driver of case vehicle (A) entered the intersection to make a left turn and case vehicle (A) entered the northbound lane into the path of vehicle (B), which did not stop at the intersection. According to EDR data from both vehicles, both drivers braked but they could not avoid a head-on collision. Both vehicles were towed from the scene.

The police accident report (PAR) indicates A-level injuries for the driver of case vehicle (A), who was transported to a local hospital and hospitalized for two days. The PAR indicates B-level injuries for the driver of vehicle (B) and he was transported to a local hospital. The driver of vehicle (B) tested positive for THC and cocaine, and he had reportedly used crack cocaine two hours prior to the collision.

GENERAL VEHICLE DAMAGE AND ESTIMATED CRASH SEVERITIES

[9](#) Damage to the front of case vehicle (A) was moderate. Direct damage began at the right-front bumper corner and extended 120-cm across the front of the vehicle, resulting in 72-percent vehicle overlap (% VOL). [10](#) The maximum frontal crush was 51 cm and it occurred 21-cm to the left of the right-front bumper corner.

[11](#) Damage to the front of vehicle (B) was moderate. Direct damage began at the left-front bumper corner and extended 72-cm across the front, resulting in a 44% VOL. The maximum crush was 38 cm and it occurred at the left-front bumper corner. [12](#) The majority of the damage was to the left and center sections of the front end, which were crushed rearward into the engine compartment. The grille was damaged, the left headlight assembly was broken, and the hood was pushed up and to the rear. The left fender was crushed, the left wheel was pushed rearward into the wheel well, and the left wheelbase was reduced by 13 cm.

[13](#) [14](#) [15](#) [16](#) [17](#) [18](#) [19](#) [20](#) [21](#) [22](#) Using the WinSMASH crash-reconstruction program and crush profiles measured for both vehicles, the following impact severities were estimated for the head-on collision between the front of case vehicle (A) and the left front of vehicle (B):

	Estimated Velocity Change - kph (mph)
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Vehicle	Variable	Total	Longitudinal	Latitudinal
Case Vehicle (A)	delta V	42 (26)	-39 (-24)	-14 (-9)
Vehicle (B)	delta V	37 (23)	-35 (-22)	13 (8)

Case vehicle (A) was equipped with an Event Data Recorder (EDR) that recorded a maximum longitudinal velocity change of 24.5 mph at 117-ms into the event. The EDR data also indicate that the driver seatbelt was buckled and that the brakes were on with a vehicle speed of 7 mph at five seconds before the impact. Two seconds prior to the impact, the brakes were off and the vehicle speed had increased to 11 mph.

Vehicle (B) was also equipped with an EDR that recorded a maximum longitudinal velocity change of 27.1 mph at 107 ms into the event. The EDR data also indicate that the driver seatbelt was buckled, that the vehicle speed was 68 mph with the brake on at five seconds before impact, and that the vehicle speed was 37 mph one second before the impact.

DESCRIPTION OF DAMAGE TO CASE VEHICLE (A)

Exterior

[23](#) In the front, the majority of the damage occurred to the right and center sections of the front bumper and grille, [24](#) which were crushed rearward into the engine compartment. [25](#) [26](#) Both headlight assemblies were broken and the bumper cover was partially separated from its attachments. [27](#) The hood was crushed up and to the rear, the hood latch was damaged and jammed, [28](#) [29](#) and both hood hinges were bent up, but they were not separated. [30](#) The rear edge of the hood was elevated but it did not contact the windshield, [31](#) [32](#) which was not damaged.

[33](#) On the right side, the fender was buckled and [34](#) shifted approximately 37-cm to the left. [35](#) [36](#) There was no damage to the left-side wheels and there was no change in the right wheelbase. [37](#) Both doors were undamaged and operational and the windows were intact. [38](#) There was no other damage to the right side.

[39](#) On the left side, the fender was crushed rearward and shifted approximately 15-cm to the left. [40](#) The front wheel was damaged and pushed rearward, which reduced the left wheelbase by 8 cm. [41](#) There was no damage to the left-rear wheel, [42](#) [43](#) both left-side doors were undamaged and operational, all door glazing was intact, [44](#) and there was no damage to the left quarter panel.

[45](#) [46](#) There was no damage to the rear of case vehicle (A).

Interior

[47](#) This vehicle was equipped with steering-wheel and dash-mounted frontal-impact airbags, and both deployed during the frontal impact. [48](#) [49](#) [50](#) [51](#) In the driver seating area, there was no damage to the steering-wheel airbag but there was facial makeup on the center section of the fabric. [56](#) There was no damage to the knee bolster but there were scuffmarks on the [57](#) center and [58](#) right sections of the bolster cover. [61](#) The cover over the lower section of the B-pillar was pulled out but [52](#) [53](#) [54](#) [55](#) [59](#) [60](#) there was no other damage in the driver area.

[62](#) The only damage in the center-front area was [63](#) [64](#) [65](#) misalignment of the plastic that surrounds the

floor console and the transmission selector. [66 67 68 69 70](#) There was no damage in the right-front seating area.

OCCUPANT KINEMATICS AND INJURIES

[71](#) The 165-cm, 63-kg (5-ft 5-in, 138-lb) 82-year-old female driver was using the three-point belt and the [48](#) steering-wheel airbag deployed. [72 73](#) Belt use is indicated by D-ring marks on the shoulder-belt webbing and [74 75 76 77](#) loading marks on the D-ring and continuous loop of the latch plate. [78 79](#) Also, the plastic cover of the retractor system on the lower portion of the B-pillar was displaced. [80](#) The shoulder-belt anchor point on the B-pillar was adjusted to the highest position.

During the frontal impact, the driver moved forward and to the right relative to the vehicle interior, into the belt restraints, airbag, and knee bolster. She sustained a laceration to the bridge of the nose and contusions around the right eye and eyelid, probably [48](#) from the airbag contacting her eyeglasses, which were bent, and pushing them into her face. She sustained contusions to the left shoulder, both breasts, and the center of the chest, and fractures to the sternum and the right 5th and 8th ribs, from loading by the shoulder belt. She sustained a contusion across the abdomen from loading by the lap belt. She sustained a comminuted fracture to the shaft of the right ulna, possibly from forearm contact with the transmission selector on the floor console, [63 64 65](#) as evidenced by misalignment of the selector and housing, or [52 53](#) possibly from loading by the deploying airbag. She sustained contusions to both knees [57 58](#) from contact with the knee bolster, as evidenced by scuffmarks on the center and right sections of the knee-bolster cover. She sustained a contusion to the arch of the right foot, [59](#) probably from foot contact with the brake pedal during braking and impact loading.

The following table [81](#) and attached drawing summarize the injuries and sources of injuries for the belt-plus-airbag-restrained elderly driver.

Occupant: Driver	Age: 82 years	Gender: Female		
Restraints: 3-point belt; steering-wheel airbag	Stature: 165 cm (5 ft, 5 in)	Mass: 63 kg (138 lb)		
Injury Description	A.I.S.	Injury Source		
		Definite	Probable	Possible
—	—	—	—	—
Laceration, bridge of nose	1	—	Eyeglasses contacted by airbag	—
Contusions around right eye and eyelid	1	—	Eyeglasses contacted by airbag	—
Contusion, left shoulder	1	Shoulder belt	—	—
Contusions, across left and right breasts and center of chest	1	Shoulder belt	—	—
Fracture, sternum	2	Shoulder belt	—	—
Fracture, right 5th and 8th ribs	2	Shoulder	—	—

		belt		
Contusions, across abdomen	1	Lap belt	—	—
Comminuted fracture, shaft of right ulna	3	—	—	Transmission lever on floor console; airbag
Contusion, left knee	1	Knee bolster	—	—
Contusion, right knee	1	Knee bolster	—	—
Contusion, arch of right foot	1	—	Brake pedal/braking	—
Maximum A.I.S. Level	3	—	—	—
Injury Severity Score	14	—	—	—

CASE NO.: 442

CASE VEHICLE: 2003 Pontiac

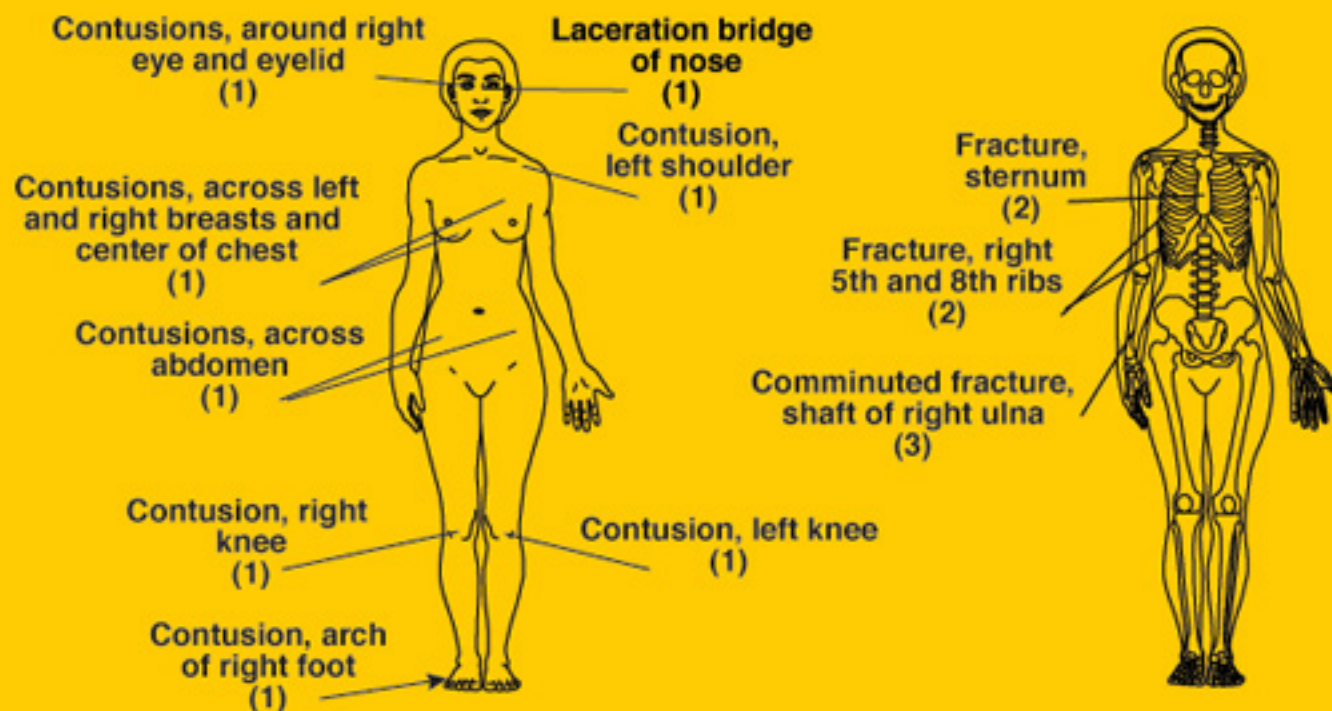
TYPE: Grand Am SE, 4-door sedan

OCCUPANT: (Driver) 82-year-old female

STATURE: 165 cm (5 ft 5 in) MASS: 63 kg (138 lb)

RESTRAINTS: 3-point belt, steering-wheel airbag

SEVERITY: MAIS - 3 ISS - 14



Case No.: 442

Case Veh. (A): 2003 Pontiac

Type: Grand Am SE, 4-door sedan

Driver: 82-year-old female

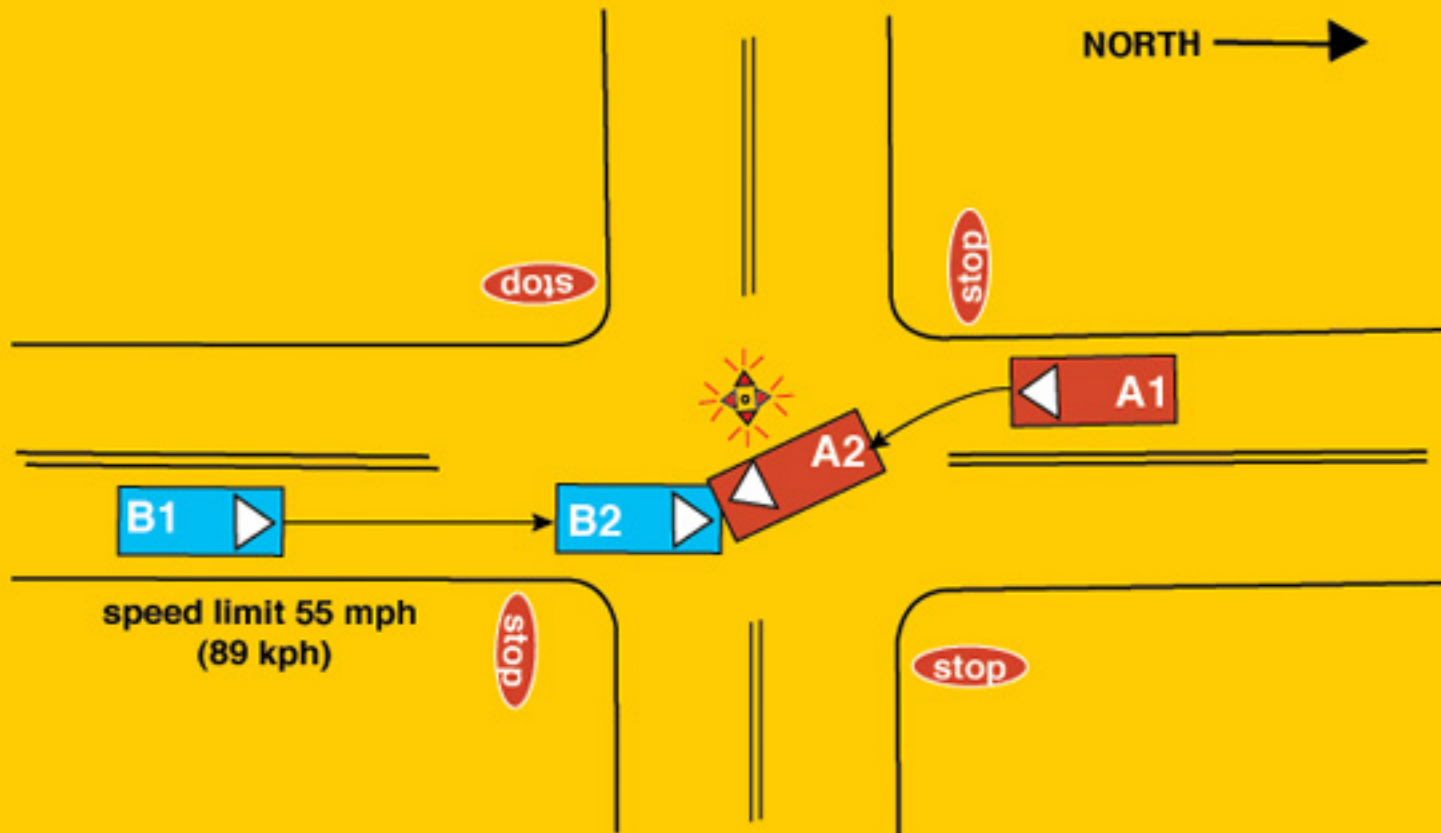
Vehicle (B): 2002 Buick Century Custom, 4-door sedan

Weather: Cloudy

Road Surface: Dry

Road Construction: Asphalt

Light Condition: Daylight



UM-4253: Vehicle Report

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General Information

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Variable Number	Variable Name	Code Value	Code Description	Other Options
V0204	Collision Hour	1311	Time of day (24 hour clock)	more
V0205	State Fips Code	26	Michigan	more
V0206	Urban/rural Area	2	Rural	more
V0207	Limited Access Highway	0	No	more
V0208	Road Total Lanes	2	2 lanes	more
V0209	Intersect Road Total Lanes	2	2 lanes	more
V0210	Trafficway Flow	0	Not physically divided - two way traffic	more
V0211	Road Surface Type	1	Asphalt	more
V0212	Road Defects	0	No	more
V0213	Construction Zone	0	No	more
	Road Alignment Vertical			

V0214	Plane	1	Level	more
V0215	Road Alignment Horizontal Plane	1	Straight	more
V0216	Surface Covering	10	Dry	more
V0217	Visibility Limitation	0	None	more
V0218	Visibility Obstruction	0	None	more
V0219	Speed Limit	6	86-90 km/h .. 55 mph	more
V0220	Precipitation Type	0	None	more
V0221	Precipitation Rate	8	Not applicable	more
V0222	Temperature	9	Unknown	more
V0223	Crosswind	9	Unknown	more
V0224	Light Conditions	1	Daylight	more
V0225	Mechanical Malfunction Mention	0	No	more
V0226	Case Vehicle And Object	0	No	more
V0227	Case Vehicle Rollover	0	No	more
V0228	Rollover Location	0	No rollover	more
V0229	Roll Direction	0	No rollover	more
V0230	Rollover Initiation Type	0	No rollover	more
V0231	Rollover Number Of Turns	0	No rollover	more
V0232	Case Vehicle Preimpact Braking	1	Yes	more
V0233	Case Vehicle Preimpact Stability	1	Case vehicle tracking before impact	more
V0234	Case Vehicle Ran Off Roadway	0	No	more
V0235	Moving Case Vehicle Contacted Moving Vehicle	1	Yes	more
V0236	Case Vehicle Contacted Stopped Vehicle	0	No	more
V0237	Stopped Case Vehicle Contacted Vehicle	0	No	more
V0238	Total Vehicles Hit By Case Vehicle	1	1 vehicle	more
V0239	Any Fire In Crash?	0	No	more
V0240	Maximum Police Severity-acc	3	A - Incapacitating Injury	more
V0241	Driver Alcohol Involvmnt	0	Had not been drinking	more
V0242	Driver Alcohol BAC (Case Vehicle)	80	No test	more
V0243	Driver Impairment Mention	0	No	more

V0244	Driver Distraction	01	Attentive or not distracted	more
V0245	Driver Drug Involvement	0	None	more
V0246	Driver Drug Type	0	No drug use	more
V0247	Driven/towed From Scene	2	Towed Due to Damage	more

Other Vehicle

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Variable Number	Variable Name	Code Value	Code Description	Other Options
V0301	Other Vehicle VIN	2G4WS52JX2XXXXXXX	Click for Contacted Vehicle figure	more
V0302	Other Vehicle Manufacturer/Body Code	21128	—	—
V0303	Other Vehicle Manufacturer	211	Buick	more
V0304	Other Vehicle Body Code	28	Intermediate 105-109.9 in. wb.	more
V0305	Other Vehicle Make/model	0422	Century	more
V0306	Other Vehicle Model Year	2002	Year	more
V0307	Other Vehicle Mass	001528 kg	Mass (Kg.)	more
V0308	Other Vehicle Number	2	Vehicle #2	more
V0309	Other Vehicle Number of Occupants	01	number of occupants	more
V0310	Other Vehicle Traveling Speed	109 kph	Speed (km/h)	more
V0311	Highest Police Injury Severity	2	B - Non-Incapacitating Injury	more
V0312	Other Vehicle Type	28	Intermediate 105-109.9 in. wb.	more
V0313	Other Vehicle Wheelbase in Centimeters	277 cm	Actual Wheelbase (cm)	more
V0314	Other Vehicle Average Track Width	156 cm	actual measurement (cm)	more
V0315	Other Vehicle Overall Length	495 cm	actual measurement (cm)	more
V0316	Other Vehicle Overall Width (OAW)	185 cm	actual measurement (cm)	more
V0317	Other Vehicle Front Overhang	106 cm	actual measurement (cm)	more

V0318	Other Vehicle Rear Overhang	112 cm	actual measurement (cm)	more
V0319	Other Vehicle Undeformed End Width (UEW)	165 cm	actual measurement (cm)	more
V0320	Other Vehicle Engine Displacement	3.1 l	Liters	more
V0321	Other Vehicle Engine: Number of Cylinders	06	number of cylinders	more
V0322	Other Vehicle Direct Damage Length (DDL)	072 cm	actual measurement (cm)	more
V0323	Other Vehicle Front-End Overlap	44	percentage (%)	more
V0324	Other Vehicle - Vehicle Overlap	44	percentage (%)	more

Case Vehicle General

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Variable Number	Variable Name	Code Value	Code Description	Other Options
V0401	VIN	1G2NE52FX3XXXXXXX	Click for Case Vehicle figure	more
V0402	Manufacturer/Body Code	11528	—	—
V0403	Vehicle Manufacturer	115	Pontiac	more
V0404	Vehicle Body Code	28	Intermediate 105-109.9 in. wb.	more
V0405	Make/model Code	0331	Grand Am	more
V0406	Model Year	2003	Model year	more
V0407	Vehicle Mass	001413 kg	Mass (Kg)	more
V0408	Odometer Reading	888888	—	—
V0409	Number of Occupants	01	1 occupant	more
V0410	Traveling Speed	011 kph	Speed (km/h)	more
V0411	Body Type	14	4-door sedan	more
V0412	Stolen Vehicle	8	Not currently collected	more
V0413	Body Structure	2	Unitized	more
V0414	Transmission Type	1	Automatic	more
V0415	Transmission Lever Location	2	Console	more
V0416	Steering	1	Power	more
V0417	Brakes	1	Power	more
V0418	Brake Type	2	Disc - front wheels	more

V0419	Adjustable Pedals?	0	No	more
V0420	Brake Anti-lock Device	1	Two-wheel	more
V0421	Air Conditioning in Vehicle	8	Not currently collected	more
V0422	Drive Type	2	Front wheel	more
V0423	Dual Rear Wheels	0	No	more
V0424	Original Restraint System Type	3	Air bag	more
V0425	Equipped With Roll Bar	0	No	more
V0426	Roof Type	1	Solid	more
V0427	Case Vehicle Wheelbase in Centimeters	272 cm	Actual Wheelbase	more
V0428	Anti-lacerative Glass	8	Not Collected	more
V0429	Case Vehicle average track Width	150 cm	actual measurement (cm)	more
V0430	Case Vehicle Overall Length	475 cm	actual measurement (cm)	more
V0431	Case Vehicle Overall Width (OAW)	179	actual measurement (cm)	more
V0432	Case Vehicle Front Overhang	101 cm	actual measurement (cm)	more
V0433	Case Vehicle Rear Overhang	102 cm	actual measurement (cm)	more
V0434	Case Vehicle Undeformed End Width (UEW)	162 cm	actual measurement (cm)	more
V0435	Case Vehicle Engine Displacement	2.2 l	Liters	more
V0436	Case Vehicle Engine: Number of Cylinders	04	number of cylinders	more
V0437	Case Vehicle Direct Damage Length (DDL)	120 cm	actual measurement (cm)	more
V0438	Case Vehicle Front-end Overlap	74	percentage (%)	more
V0439	Case Vehicle - Vehicle Overlap	72	percentage (%)	more

Case Vehicle Damage Description

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Variable Number	Variable Name	Code Value	Code Description	Other Options
V0501	Maximum Sheet Metal Crush - Front	051 cm	Depth of Crush (cm)	more
V0502	Maximum Sheet Metal Crush - Rear	000 cm	No Crush (or less than 1 cm.)	more
V0503	Maximum Sheet Metal Crush - Roof	000 cm	No Crush (or less than 1 cm.)	more
V0504	Maximum Sheet Metal Crush - Right Side	000 cm	No Crush (or less than 1 cm.)	more
V0505	Maximum Sheet Metal Crush - Left Side	000 cm	No Crush (or less than 1 cm.)	more
V0506	Maximum Sheet Metal Crush - Other	000 cm	No Crush (or less than 1 cm.)	more
V0507	Seq In Chronological Ord	1	Yes	more
V0508	Event 1 -impact Location	1	On Roadway	more
V0509	Event 1 -Impact Configuration	11	FRONT of case veh - FRONT of contacted veh	more
V0510	Event 1 -Object/Vehicle Contactd	28	Intermediate 105-109.9 in. wb.	more
V0511	Event 2 -impact Location	8	No 2nd event	more
V0512	Event 2 -Impact Configuration	88	No 2nd event	more
V0513	Event 2 -Object/Vehicle Contactd	00	No object/vehicle contacted	more
V0514	Event 3 -impact Location	8	No 3rd event	more
V0515	Event 3 -Impact Configuration	88	No 3rd event	more
V0516	Event 3 -Object/Vehicle Contactd	00	No object/vehicle contacted	more
V0517	Event 4 -impact Location	8	No 4th event	more
V0518	Event 4 -Impact Configuration	88	No 4th event	more
V0519	Event 4 -Object/Vehicle Contactd	00	No object/vehicle contacted	more
V0520	Event 5 -impact Location	8	No 5th event	more
V0521	Event 5 -Impact Configuration	88	No 5th event	more
V0522	Event 5 -Object/Vehicle Contactd	00	No object/vehicle contacted	more
V0523	Event 6 -impact Location	8	No 6th event	more
	Event 6 -Impact			

V0524	Configuration	88	No 6th event	more
V0525	Event 6 -Object/Vehicle Contactd	00	No object/vehicle contacted	more
V0526	Event 7 -impact Location	8	No 7th event	more
V0527	Event 7 -Impact Configuration	88	No 7th event	more
V0528	Event 7 -Object/Vehicle Contactd	00	No object/vehicle contacted	more
V0529	Primary CDC Case Vehicle - event Number	1	Event 1	more
V0530	Primary CDC Case Vehicle - Impact Speed (kph)	018	Impact speed (kph)	more
V0531	Primary CDC Case Vehicle- estimatr	6	EDR data	more
V0532	Primary CDC Case Vehicle - Crush (CM)	051	Crush measurements in cm	more
V0533	Primary CDC Case Vehicle- clock #1	01	1 o'clock	more
V0534	Primary CDC Case Vehicle- Letter 1 #1	06	F - Front	more
V0535	Primary CDC Case Vehicle- Letter 2 #1	04	D - Distributed (Side or End)	more
V0536	Primary CDC Case Vehicle- Letter 3 #1	05	E - Everything below belt line	more
V0537	Primary CDC Case Vehicle- Letter 4 #1	23	W - Wide impact area	more
V0538	Primary CDC Case Vehicle - Extent #1	2	—	—
V0539	Primary CDC - Contacted Vehicles Assoc CDC - CDC #1	01FDEW2	—	—
V0540	Primary CDC Case Vehicle- clock #2	98	Not Applicable	more
V0541	Primary CDC Case Vehicle- Letter 1 #2	00	Missing Data/Not applicable	more
V0542	Primary CDC Case Vehicle- Letter 2 #2	00	Missing Data/Not applicable	more
V0543	Primary CDC Case Vehicle- Letter 3 #2	00	Missing Data/Not applicable	more
V0544	Primary CDC Case Vehicle- Letter 4 #2	00	Missing Data/Not applicable	more
V0545	Primary CDC Case Vehicle - Extent #2	0	—	—

V0546	Primary CDC - Case Vehicle Assoc CDC - CDC #2	9800000	—	—
V0547	Primary CDC Contacted Vehicle - Impact Speed (kph)	060	Impact speed (kph)	more
V0548	Primary CDC Contacted Vehicle-estimator	6	EDR data	more
V0549	Primary CDC Contacted Vehicle - Crush (CM)	038	Crush measurements in cm	more
V0550	Primary CDC Contacted Vehicle-clock #1	11	11 o'clock	more
V0551	Primary CDC Contacted Vehicle-Letter 1 #1	06	F - Front	more
V0552	Primary CDC Contacted Vehicle-Letter 2 #1	25	Y - Side or end (F + P or L + C)	more
V0553	Primary CDC Contacted Vehicle-Letter 3 #1	05	E - Everything below belt line	more
V0554	Primary CDC Contacted Vehicle-Letter 4 #1	23	W - Wide impact area	more
V0555	Primary CDC Contacted Vehicle - Extent #1	2	—	—
V0556	primary CDC - Contacted Vehicles Assoc CDC - CDC #1	11FYEW2	—	—
V0557	Primary CDC Contacted Vehicle-clock #2	98	Not Applicable	more
V0558	Primary CDC Contacted Vehicle-Letter 1 #2	00	Missing Data/Not applicable	more
V0559	Primary CDC Contacted Vehicle-Letter 2 #2	00	Missing Data/Not applicable	more
V0560	Primary CDC Contacted Vehicle-Letter 3 #2	00	Missing Data/Not applicable	more
V0561	Primary CDC Contacted Vehicle-Letter 4 #2	00	Missing Data/Not applicable	more
V0562	Primary CDC Contacted Vehicle - Extent #2	0	—	—
V0563	Primary CDC - Contacted Vehicles Assoc CDC - CDC #2	9800000	—	—
V0564	Secondary CDC Case Vehicle-event No	8	Not applicable	more
V0565	Secondary CDC Case Vehicle - Impact Speed (kph)	998	Not Applicable	more

V0566	Secondary CDC Case Vehicle-estimator	8	Not applicable (no vehicle/no impact)	more
V0567	Secondary CDC Case Vehicle - Crush (CM)	998	Not Applicable	more
V0568	Secondary CDC Case Vehicle-clock #1	98	Not Applicable	more
V0569	Secondary CDC Case Vehicle-Letter 1 #1	00	Missing Data/Not applicable	more
V0570	Secondary CDC Case Vehicle-Letter 2 #1	00	Missing Data/Not applicable	more
V0571	Secondary CDC Case Vehicle-Letter 3 #1	00	Missing Data/Not applicable	more
V0572	Secondary CDC Case Vehicle-Letter 4 #1	00	Missing Data/Not applicable	more
V0573	SECONDARY CDC CASE VEHICLE - EXTENT #1	0	—	—
V0574	Secondary CDC - Case Vehicle Assoc CDC - CDC #1	9800000	—	—
V0575	Secondary CDC Case Vehicle-clock #2	98	Not Applicable	more
V0576	Secondary CDC Case Vehicle-Letter 1 #2	00	Missing Data/Not applicable	more
V0577	Secondary CDC Case Vehicle-Letter 2 #2	00	Missing Data/Not applicable	more
V0578	Secondary CDC Case Vehicle-Letter 3 #2	00	Missing Data/Not applicable	more
V0579	Secondary CDC Case Vehicle-Letter 4 #2	00	Missing Data/Not applicable	more
V0580	SECONDARY CDC CASE VEHICLE - EXTENT #2	0	—	—
V0581	Secondary CDC - Case Vehicle Assoc CDC - CDC #2	9800000	—	—
V0582	Secondary CDC Contacted Vehicle - Impact Speed (kph)	998	Not Applicable	more
V0583	Secondary CDC Contacted Vehicle-estimator	8	Not applicable (no vehicle/no impact)	more
V0584	Secondary CDC Contacted Vehicle - Crush (CM)	998	Not Applicable	more
V0585	Secondary CDC Contacted Vehicle-clock #1	98	Not Applicable	more
	Secondary CDC Contacted			

V0586	Vehicle-Letter 1 #1	00	Missing Data/Not applicable	more
V0587	Secondary CDC Contacted Vehicle-Letter 2 #1	00	Missing Data/Not applicable	more
V0588	Secondary CDC Contacted Vehicle-Letter 3 #1	00	Missing Data/Not applicable	more
V0589	Secondary CDC Contacted Vehicle-Letter 4 #1	00	Missing Data/Not applicable	more
V0590	Secondary CDC Contacted Vehicle - Extent #1	0	—	—
V0591	Secondary CDC - Contacted Vehicle Assoc CDC - CDC #1	9800000	—	—
V0592	Secondary CDC Contacted Vehicle-clock #2	98	Not Applicable	more
V0593	Secondary CDC Contacted Vehicle-Letter 1 #2	00	Missing Data/Not applicable	more
V0594	Secondary CDC Contacted Vehicle-Letter 2 #2	00	Missing Data/Not applicable	more
V0595	Secondary CDC Contacted Vehicle-Letter 3 #2	00	Missing Data/Not applicable	more
V0596	Secondary CDC Contacted Vehicle-Letter 4 #2	00	Missing Data/Not applicable	more
V0597	Secondary CDC Contacted Vehicle - Extent #2	0	—	—
V0598	Secondary CDC - Contacted Vehicle Assoc CDC - CDC #2	9800000	—	—

Crash Reconstruction

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Variable Number	Variable Name	Code Value	Code Description	Other Options
V0601	Primary Delta-V Case Vehicle-event #	1	Event number 1	more
V0602	Primary Delta V Case Vehicle - Total Delta V	042 kph	kph	more
V0603	Primary delta-V Case Vehicle -LONGITUD	-039	—	—
V0604	Primary delta-V Case Vehicle-Lateral	-014	—	—
V0605	Primary Delta V Case Vehicle - Energy Dissipated	0012	—	—

	by Crush (k			
V0606	Primary Delta-V Case Vehicle-Reconstruction	22	Reconstructed, moderate confidence level	more
V0607	Primary Delta-V Case Vehicle- Mode	2	CDC & detailed damage	more
V0608	Primary Delta V Contacted Vehicle - Total Delta V	037 kph	kph	more
V0609	Primary delta-V Contacted Vehicle-LONGITUD	-035	—	—
V0610	Primary delta-V Contacted Vehicle-Lateral	0013	—	—
V0611	Primary delta-V Contacted Vehicle - Energy Dissipated by Cru	0008	—	—
V0612	Secondary Delta-V Case Vehicle-event #	8	Not applicable	more
V0613	Secondary Delta V Case Vehicle - Total Delta V	888	Not applicable	more
V0614	Secondarydelta-V Case Vehicle -LONGITUD	8888	—	—
V0615	Secondary delta-V Case Vehicle-Lateral	8888	—	—
V0616	Secondary delta-V Case Vehicle - Energy Dissipated by Crush	8888	—	—
V0617	Secondary Delta-V Case Vehicle-Reconstruction	88	Not applicable	more
V0618	Secondary Delta-V Case Vehicle- Mode	8	Not applicable	more
V0619	Secondary Delta V Contacted Vehicle - Total Delta V	888	Not applicable	more
V0620	Secondary delta-V Contacted Vehicle-LONGITUD	8888	—	—
V0621	Secondary delta-V Contacted Vehicle-Lateral	8888	—	—
V0622	Secondary delta-V Contacted Vehicle - Energy Dissipated By C	8888	—	—
V0623	Primary EBS Case Vehicle-event #	1	Event number 1	more
	Primary EBS Case Vehicle -			

V0624	Total EBS	042 kph	kph	more
V0625	Primary EBS Case Vehicle - LONGITUD	-039	—	—
V0626	Primary EBS Case Vehicle-Lateral	-014	—	—
V0627	Primary EBS Case Vehicle - Energy Dissipated by Crush (kj)	0012	—	—
V0628	Primary EBS Case Vehicle-Reconstruction	22	Reconstructed, moderate confidence level	more
V0629	Primary EBS Case Vehicle-Mode	2	CDC & detailed damage	more
V0630	Primary EBS Contacted Vehicle - Total EBS	037 kph	kph	more
V0631	Primary EBS Contacted Vehicle-LONGITUD	-035	—	—
V0632	Primary EBS Contacted Vehicle-Lateral	0013	—	—
V0633	Primary EBS Contact Vehicle - Energy Dissipated by Crush (kj)	0008	—	—
V0634	Secondary EBS Case Vehicle-event #	8	Not applicable	more
V0635	Secondary EBS Case Vehicle - Total EBS	888	Not Applicable	more
V0636	Secondary EBS Case Vehicle -LONGITUD	8888	—	—
V0637	Secondary EBS Case Vehicle-Lateral	8888	—	—
V0638	Secondary EBS Case Vehicle - Energy Dissipated by Crush (kj)	8888	—	—
V0639	Secondary EBS Case Vehicle-Reconstruction	88	Not applicable	more
V0640	Secondary EBS Case Vehicle- Mode	8	Not applicable	more
V0641	Secondary EBS Contacted Vehicle - Total EBS	888	Not Applicable	more
V0642	Secondary EBS Contacted Vehicle-LONGITUD	8888	—	—
V0643	Secondary EBS Contacted Vehicle-Lateral	8888	—	—

V0644	Secondary EBS Contact Vehicle - Energy Dissipated by Crush (8888	—	—
V0645	Specific Event # Case(1)	1	Event number 1	more
V0646	Plane of Impact Case Vehicle (1)	1	Bumper	more
V0647	Direct Damage Length (DDL) - Case Vehicle (1)	120 cm	cm	more
V0648	Direct Damage Maximum Crush - Case Vehicle (1)	051 cm	cm	more
V0649	Direct and Induced Damage Length in CM	105 cm	cm	more
V0650	Field C1 - Case Vehicle (1)	017 cm	cm	more
V0651	Field C2 - Case Vehicle (1)	015 cm	cm	more
V0652	Field C3 - Case Vehicle (1)	028 cm	cm	more
V0653	Field C4 - Case Vehicle (1)	042 cm	cm	more
V0654	Field C5 - Case Vehicle (1)	051 cm	cm	more
V0655	Field C6 - Case Vehicle (1)	020 cm	cm	more
V0656	Direct Damage D Value = The Center of Direct Damage Offset t	+035 cm	Offset (cm)	more
V0657	Specific Event # Case(2)	1	Event number 1	more
V0658	Plane of Impact Case Vehicle(2)	1	Bumper	more
V0659	Direct Damage Length (DDL) - Case Vehicle (2)	120 cm	cm	more
V0660	Direct Damage MaximumCrush - Case Vehicle (2)	051 cm	cm	more
V0661	Direct and Induced Damage Length in CM	105 cm	cm	more
V0662	Field C1 - Case Vehicle (2)	017 cm	cm	more
V0663	Field C2 - Case Vehicle (2)	015 cm	cm	more
V0664	Field C3 - Case Vehicle (2)	028 cm	cm	more
V0665	Field C4 - Case Vehicle (2)	042 cm	cm	more
V0666	Field C5 - Case Vehicle (2)	051 cm	cm	more
V0667	Field C6 - Case Vehicle (2)	020 cm	cm	more
V0668	Direct Damage D Value = The Center of Direct Damage Offset t	+035 cm	cm	more
V0669	Specific Event # Cont(1)	1	Event number 1	more

V0670	Plane of Impact Contacted Vehicle(1)	1	Bumper	more
V0671	Direct Damage Length (DDL) - Contacted Vehicle (1)	072 cm	cm	more
V0672	Direct Damage Maximum Crush - Contacted Vehicle (1)	038 cm	cm	more
V0673	Field L - Contacted Vehicle (1)	127 cm	cm	more
V0674	Field C1 - Contacted Vehicle (1)	038 cm	cm	more
V0675	Field C2 - Contacted Vehicle (1)	036 cm	cm	more
V0676	Field C3 - Contacted Vehicle (1)	032 cm	cm	more
V0677	Field C4 - Contacted Vehicle (1)	024 cm	cm	more
V0678	Field C5 - Contacted Vehicle (1)	006 cm	cm	more
V0679	Field C6 - Contacted Vehicle (1)	000 cm	No Crush	more
V0680	Direct Damage D Value = The Center of Direct Damage Offset t	+018 cm	offset (cm)	more
V0681	Specific Event # Contacted Vehicle (2)	1	Event number	more
V0682	Plane of Impact Contacted Vehicle(2)	1	Bumper	more
V0683	Direct Damage Length (DDL) - Contacted Vehicle (2)	072 cm	cm	more
V0684	Direct Damage Maximum Crush - Contacted Vehicle (2)	038 cm	cm	more
V0685	Direct and Induced Damage Length in CM	127 cm	cm	more
V0686	Field C1 - Contacted Vehicle (2)	038 cm	cm	more
V0687	Field C2 - Contacted Vehicle (2)	036 cm	cm	more
V0688	Field C3 - Contacted Vehicle (2)	032 cm	cm	more
	Field C4 - Contacted Vehicle	024 cm		

V0689	(2)		cm	more
V0690	Field C5 - Contacted Vehicle (2)	006 cm	cm	more
V0691	Field C6 - Contacted Vehicle (2)	000 cm	No Crush	more
V0692	Direct Damage D Value = The Center of Direct Damage Offset t	+018 cm	Offset (cm)	more

Case Vehicle Tires & Rims

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Variable Number	Variable Name	Code Value	Code Description	Other Options
V0701	Left Front Wheel Damaged	1	Yes	more
V0702	Right Front Wheel Damaged	0	No	more
V0703	Right Rear Wheel Damaged	0	No	more
V0704	Left Rear Wheel Damaged	0	No	more
V0705	Left Front Tire Tread Type	4	All Weather	more
V0706	Right Front Tire Tread Type	4	All Weather	more
V0707	Right Rear Tire Tread Type	4	All Weather	more
V0708	Left Rear Tire Tread Type	4	All Weather	more
V0709	Left Front Carcass Construction	3	Radial	more
V0710	Right Front Carcass Construction	3	Radial	more
V0711	Right Rear Carcass Construction	3	Radial	more
V0712	Left Rear Carcass Construction	3	Radial	more
V0713	Left Front Tire Condition Precrash	0	Normal - no pre-crash problems	more
V0714	Right Front Tire Condition Precrash	0	Normal - no pre-crash problems	more
V0715	Right Rear Tire Condition Precrash	0	Normal - no pre-crash problems	more
V0716	Left Rear Tire Condition Precrash	0	Normal - no pre-crash problems	more
V0717	Left Front Tire Condition Postcrash	0	Normal - no damage to tire	more
	Right Front Tire Condition			

V0718	Postcrash	0	Normal - no damage to tire	more
V0719	Right Rear Tire Condition Postcrash	0	Normal - no damage to tire	more
V0720	Left Rear Tire Condition Postcrash	0	Normal - no damage to tire	more
V0721	Left Front Tire Involvement	0	No	more
V0722	Right Front Tire Involvement	0	No	more
V0723	Right Rear Tire Involvement	0	No	more
V0724	Left Rear Tire Involvement	0	No	more
V0725	Left Front Tire Size	P21560R15	—	—
V0726	Right Front Tire Size	P21560R15	—	—
V0727	Right Rear Tire Size	P21560R15	—	—
V0728	Left Rear Tire Size	P21560R15	—	—
V0729	Left Front Tire Pressure (recorded in psi)	27.5 psi	Actual tire pressure in psi	more
V0730	Right Front Tire Pressure (recorded in psi)	29.0 psi	Actual tire pressure in psi	more
V0731	Right Rear Tire Pressure (recorded in psi)	28.5 psi	Actual tire pressure in psi	more
V0732	Left Rear Tire Pressure (recorded in psi)	28.0 psi	Actual tire pressure in psi	more
V0733	Left Front Tread Depth	07	07/32"	more
V0734	Right Front Tread Depth	07	07/32"	more
V0735	Right Rear Tread Depth	09	09/32"	more
V0736	Left Rear Tread Depth	09	09/32"	more

Case Vehicle Fuel Tank

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Variable Number	Variable Name	Code Value	Code Description	Other Options
V0801	Propulsive Fuel Type	1	Gasoline	more
V0802	Main Tank Location	322	Within frame/centered laterally - within vertica	more
V0803	Main Filler Cap Location	133	Right of frame laterally - above vertically	more
V0804	Main Tank Material	9	Unknown	more
V0805	Aux Tank Type	8	Not applicable (not equipped)	more
V0806	Aux Tank Location	888	Not applicable (not equipped)	more

V0807	Aux Filler Cap Location	888	Not applicable (not equipped)	more
V0808	Aux Tank Material	8	Not applicable	more

Case Vehicle Fuel Leakage

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Variable Number	Variable Name	Code Value	Code Description	Other Options
V0901	Fuel Leakage From Crash	0	No	more

Case Vehicle Fire

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Variable Number	Variable Name	Code Value	Code Description	Other Options
V1001	Fire In Or On Case Vehicle	0	No	more

Case Vehicle Exterior

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Variable Number	Variable Name	Code Value	Code Description	Other Options
V1101	Hood Latch Released	0	No	more
V1102	Hood Latch Damaged	1	Yes	more
V1103	Hood Latch Jammed	1	Yes	more
V1104	Left Hood Hinge Damaged	1	Yes	more
V1105	Left Hood Hinge Separated	0	No	more
V1106	Right Hood Hinge Damaged	1	Yes	more
V1107	Right Hood Hinge Separated	0	No	more
V1108	Hood Remained On Vehicle	1	Yes	more
V1109	Rear Hood Edge Elevated	1	Yes	more
V1110	Edge Contacted Windshield	0	No	more
V1111	Edge Penetrated Windshield	8	Not applicable	more
V1112	Hood Latch Location	1	Front of Vehicle	more
V1113	Eng/transmissn Mount Separated	0	No	more
V1114	Steering Column Flex Couplng	9	Unknown if equipped	more
V1115	Steering Column Coupling Dam	9	Unknown	more
V1116	Steering Column Coupling Separated	9	Unknown	more

V1117	Eng Comp Telescopng Unit	88	Not currently collected	more
V1118	Compartment Unit's Original/telescoped Length Difference	888	Not currently collected	more
V1119	Left Side Body Mount Separated	8	Not applicable (unitized)	more
V1120	Upper Left A-pillar Sep	0	No	more
V1121	Lower Left A-pillar Sep	0	No	more
V1122	Upper Left B-pillar Sep	0	No	more
V1123	Lower Left B-pillar Sep	0	No	more
V1124	Upper Left C-pillar Sep	0	No	more
V1125	Lower Left C-pillar Sep	0	No	more
V1126	Upper Left D-pillar Sep	8	Not applicable (not equipped)	more
V1127	Lower Left D-pillar Sep	8	Not applicable (not equipped)	more
V1128	Left Front Door Opening Cause	00	Door did not open	more
V1129	Left Rear Door Opening Cause	00	Door did not open	more
V1130	Left Front Door Jammed Closed	0	No	more
V1131	Left Rear Door Jammed Closed	0	No	more
V1132	Van Left Rear Door Type	8	Not applicable (not a van)	more
V1133	Left Front Glazing Availability	2	Closed	more
V1134	Left Rear Glazing Availability	2	Closed	more
V1135	Lr2 Glazing Availability	1	Fixed	more
V1136	Left Front Glazing Damage	0	No damage	more
V1137	Left Rear Glazing Damage	0	No damage	more
V1138	Lr2 Glazing Damage	0	No damage	more
V1139	Rear Door Type	0	No door (includes pickups)	more
V1140	Rear Door Opening Cause	8	Not applicable (no rear door)	more
V1141	Rear Door Jammed Closed	8	Not applicable (no rear door)	more
V1142	Rear Glazng Availability	8	Not Applicable (No Door)	more
V1143	Rear Glazing Damage	8	Not Applicable (No Door)	more
V1144	Luggage Partition Damaged	0	No	more
V1145	Spare Tire Status	8	Not collected	more
V1146	Trailer Hitch Type	0	No hitch	more
V1147	Trailer Type	0	No trailer	more

V1148	Rght Side Body Mount Separated	8	Not applicable (unitized)	more
V1149	Upper Right A-pillar Separated	0	No	more
V1150	Lower Right A-pillar Separated	0	No	more
V1151	Upper Right B-pillar Separated	0	No	more
V1152	Lower Right B-pillar Separated	0	No	more
V1153	Upper Right C-pillar Separated	0	No	more
V1154	Lower Right C-pillar Separated	0	No	more
V1155	Upper Right D-pillar Separated	8	Not applicable (not equipped)	more
V1156	Lower Right D-pillar Separated	8	Not applicable (not equipped)	more
V1157	Right Front Door Opening Cause	00	Door did not open	more
V1158	Right Rear Door Opening Cause	00	Door did not open	more
V1159	Right Front Door Jammed Closed	0	No	more
V1160	Right Rear Door Jammed Closed	0	No	more
V1161	Van Right-rear Door Type	8	Not applicable (not a van)	more
V1162	Right Front Glazing Availability	2	Closed	more
V1163	Right Rear Glazing Availability	2	Closed	more
V1164	Rr2 Glazing Availability	1	Fixed	more
V1165	Right Front Glazing Damage	0	No damage	more
V1166	Right Rear Glazing Damage	0	No damage	more
V1167	Rr2 Glazing Damage	0	No damage	more
V1168	Windshield Cracked	0	No	more
V1169	Windshield Broken	8	Not applicable Click for Windshield Damage figure	more
V1170	Occupant Cracked/Broke Wndshld	8	Not applicable	more
V1171	Bond Separation Extent	0	None	more
V1172	Windshield Code	97	Click for Windshield Mark figure	more

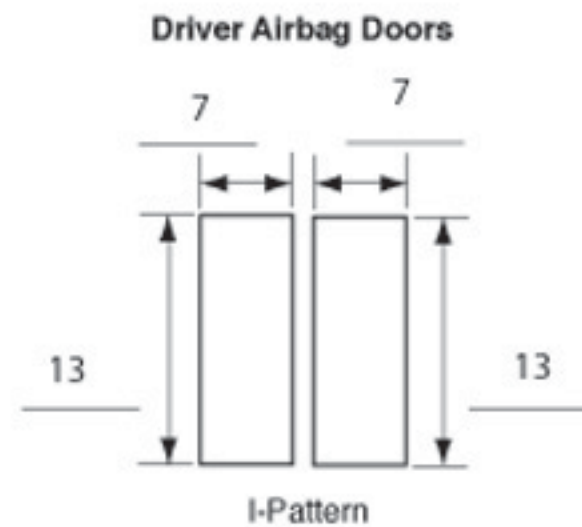
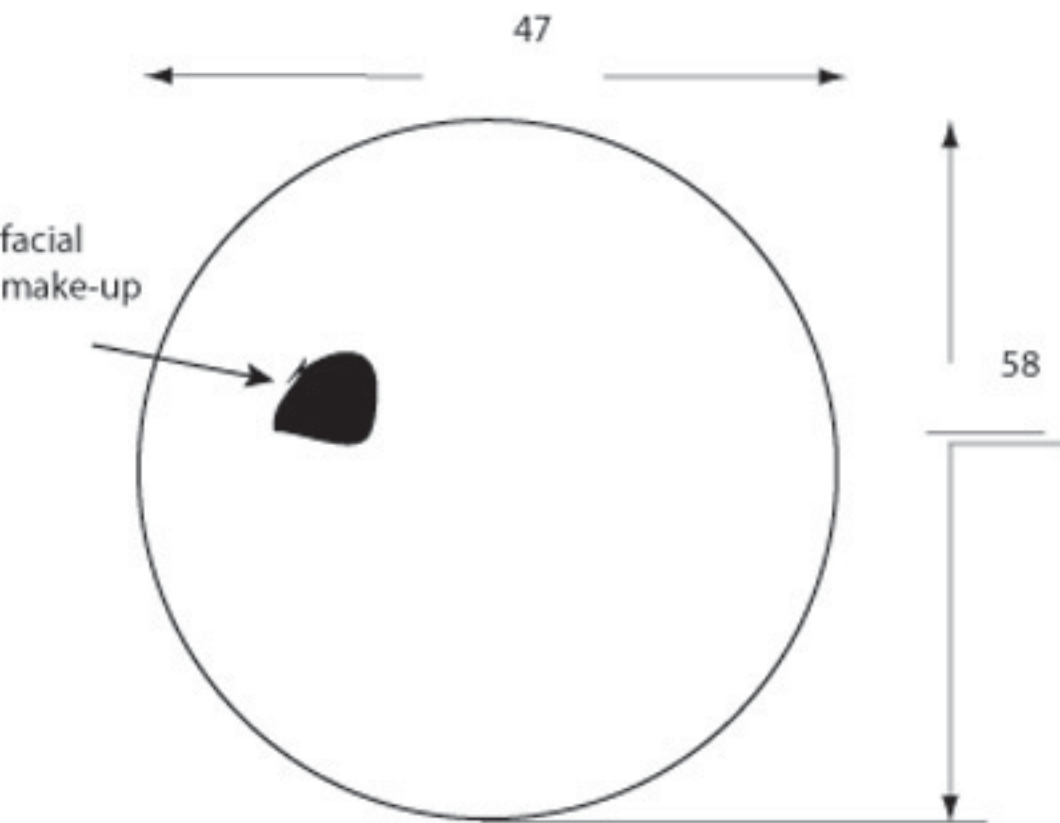
V1173	Did Sun Roof/T-Roof Open	8	Not Applicable	more
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Case Vehicle Steering Column/Rim

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Variable Number	Variable Name	Code Value	Code Description	Other Options
V1201	Steering Wheel Rim Damage	0	None	more
V1202	Number of Steering Wheel Spokes	4	4 spokes	more
V1203	Steering Wheel Spoke Damage	0	None	more
V1204	Steering Wheel Hub Damage	0	None	more
V1205	Steering Wheel Location of Rim Damage	0	No damage	more
V1206	Aftermarket Add-on Device	0	None	more

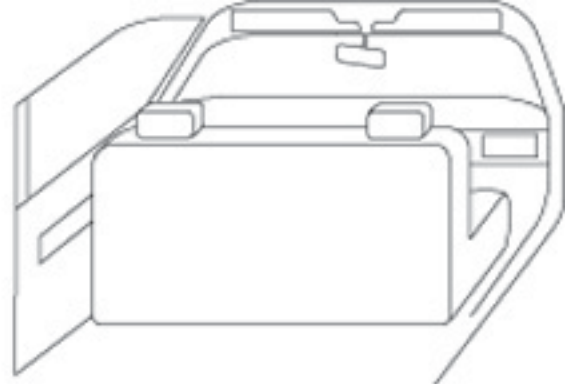
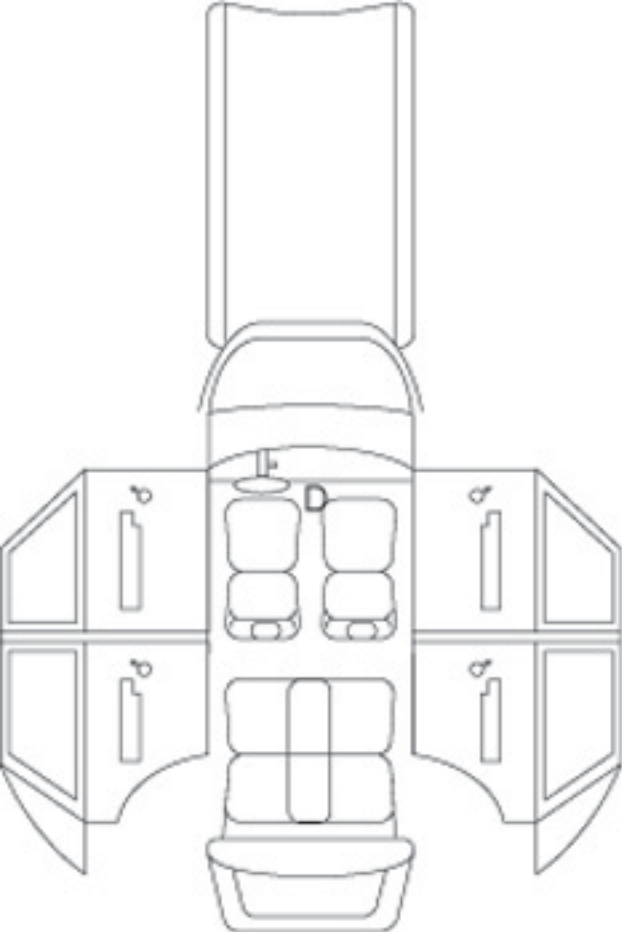
Driver Airbag



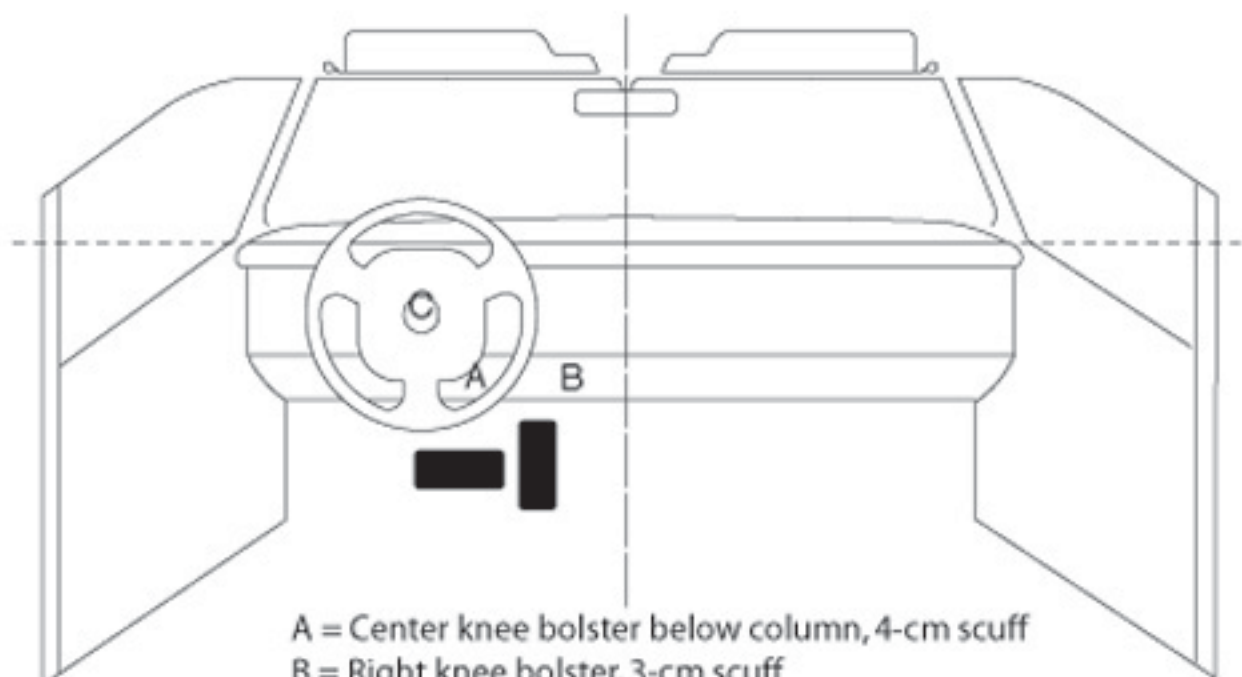
wheel at 6:00 position

Vents: Y N
if yes, how many: 2

Tethers: Y N
if yes, how many: 2



Evidence of belt use: yes
D-ring scrape
Black D-ring scrape on webbing
Scratches on continuous loop
Cover over retractor system at B-pillar
pulled out
up on B-pillar



A = Center knee bolster below column, 4-cm scuff
B = Right knee bolster, 3-cm scuff
C = Airbag, facial make-up
D = Transmission selector, housing is displaced

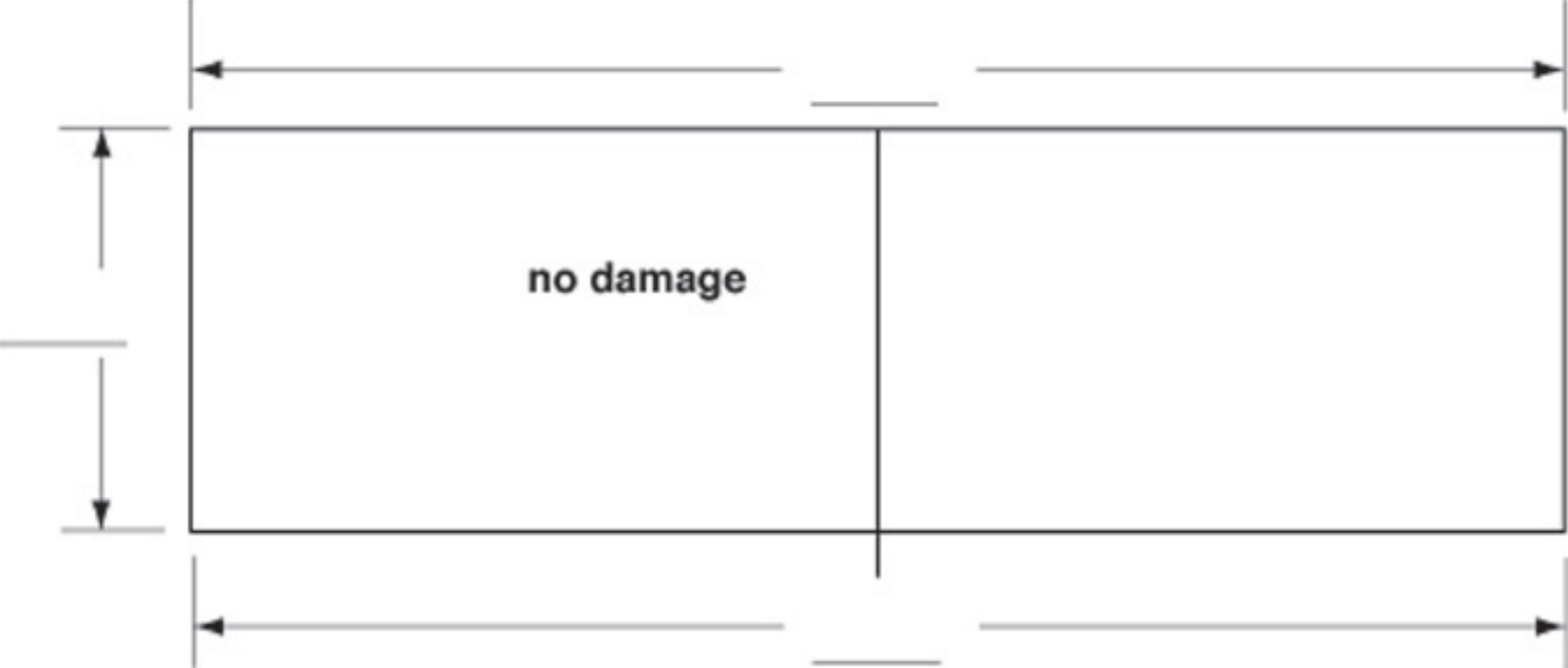
1 = Definitely 2 = Probably 3 = Possible

INTRUSION IT-1

Location of Intrusion	Intruded Component	(All Measurements Are in Centimeters)			Dominant Crush Direction
		Comparison Value	–	Intruded Value = Intrusion	
none			–	=	
			–	=	
			–	=	
			–	=	
			–	=	
			–	=	
			–	=	
			–	=	
			–	=	
			–	=	
			–	=	
			–	=	
			–	=	

OCCUPANT CONTACT WORKSHEET

Contact	Interior Component Contacted	Occupant No. if Known	Body Region if Known	Supporting Physical Evidence	Confidence Level of Contact Point
A	Center knee bolster below column	1	Knee	4-cm scuff	1
B	Right knee bolster	1	Knee	3-cm scuff	1
C	Airbag	1	Face	Facial make-up	1
D	Transmission selector	1	Right hand	Plastic housing is displaced	2
E					
F					
G					
H					
I					



WINDSHIELD MARK ON CASE VEHICLE:

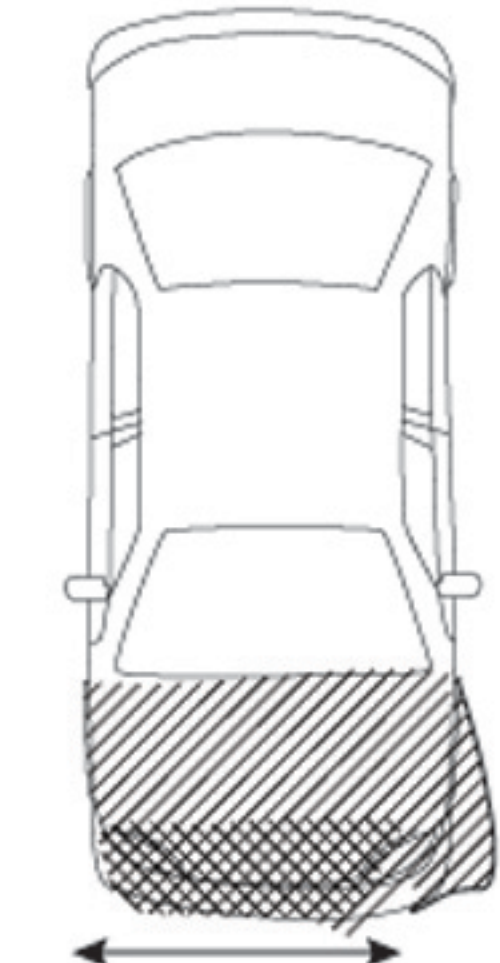
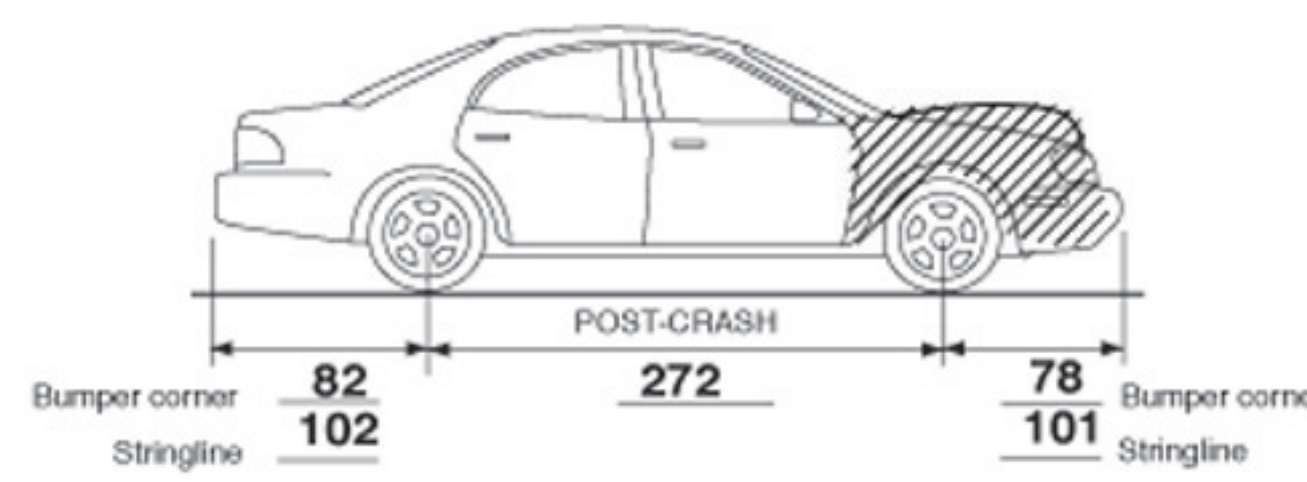
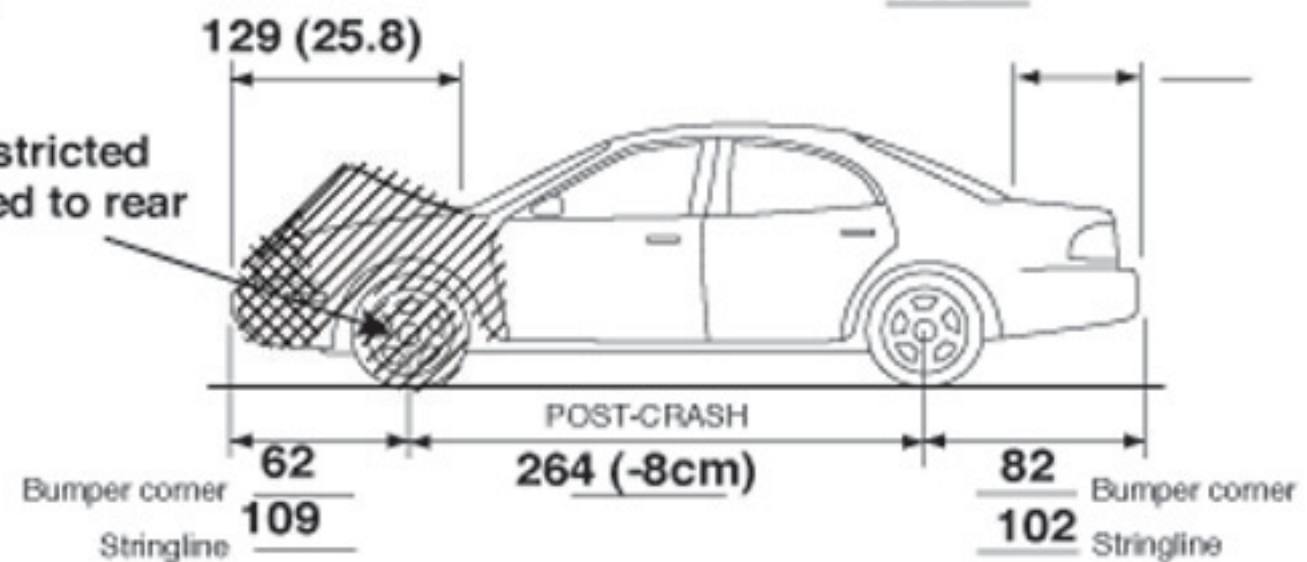
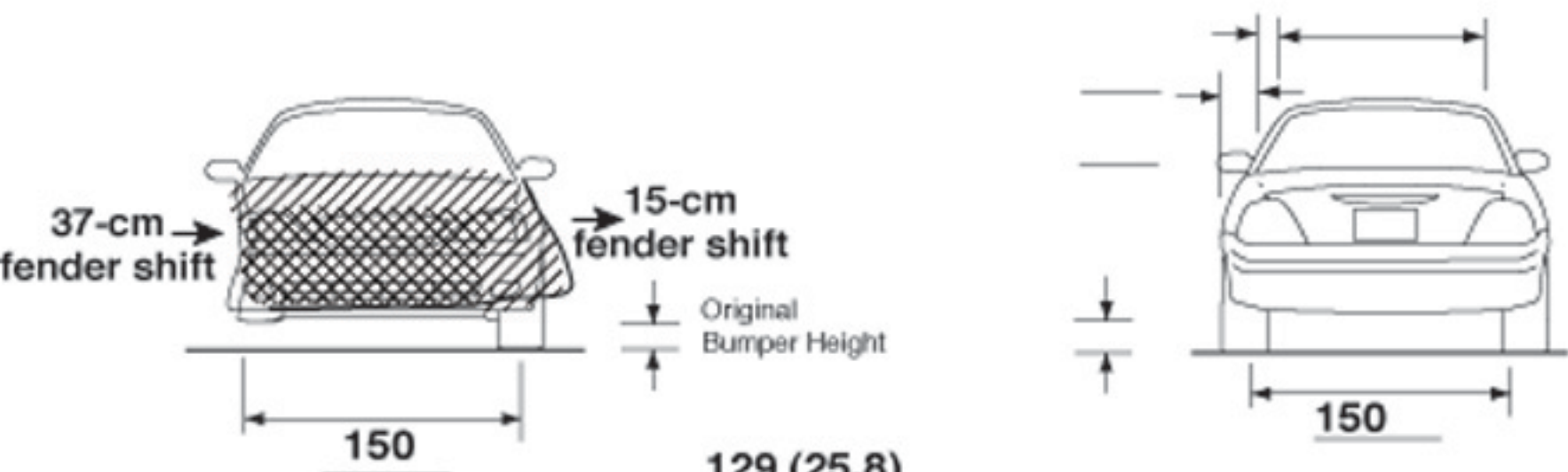
SHADED
SOLAR-RAY

SAFETY LOF FLO-LITE
AS-1 C..

LAMINATED
X 2

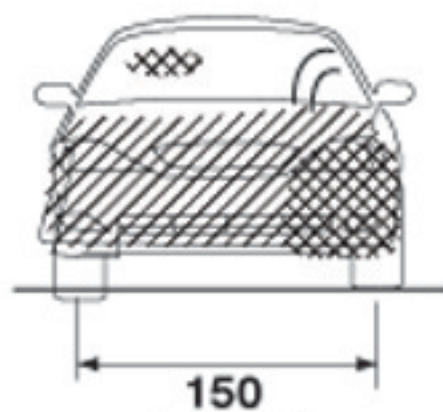
DOT15 M 16
MADE IN CANADA

MEASUREMENTS IN CENTIMETERS

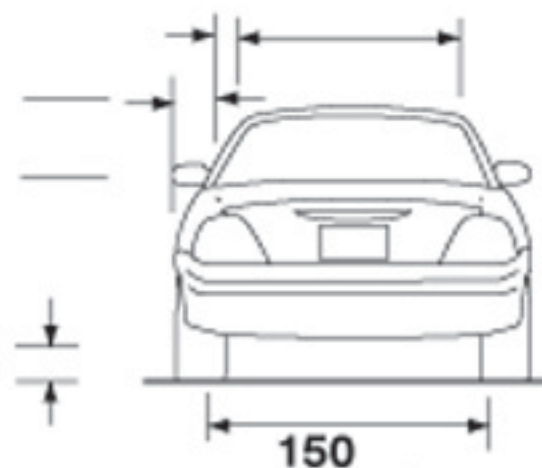


120-cm direct damage
51-cm max crush

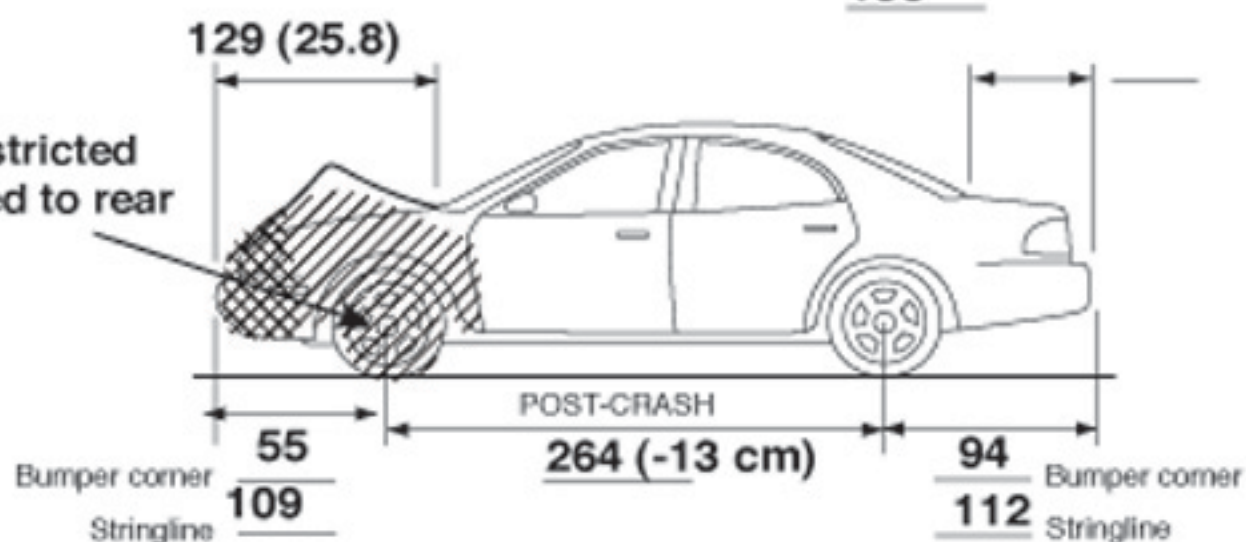
MEASUREMENTS IN CENTIMETERS



Original
Bumper Height

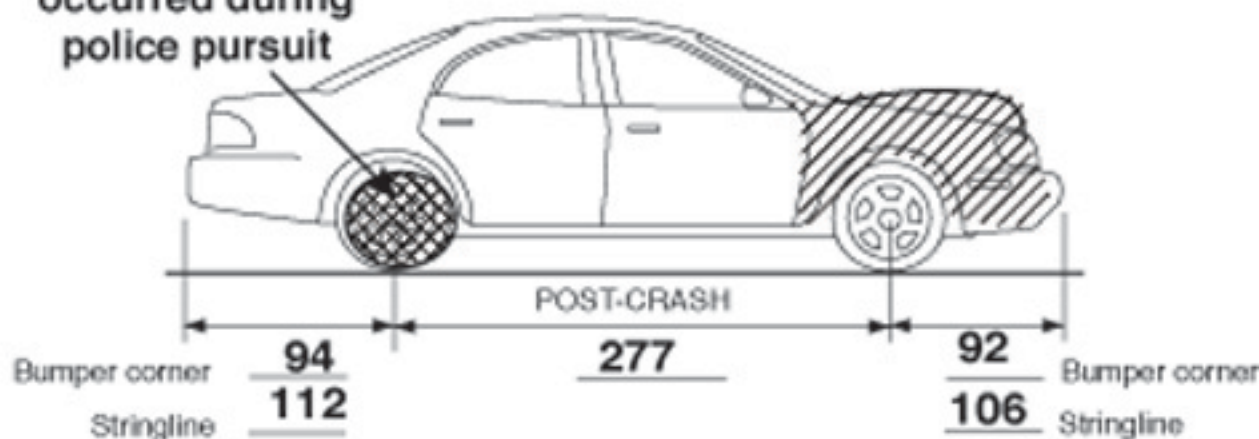


wheel restricted
and pushed to rear



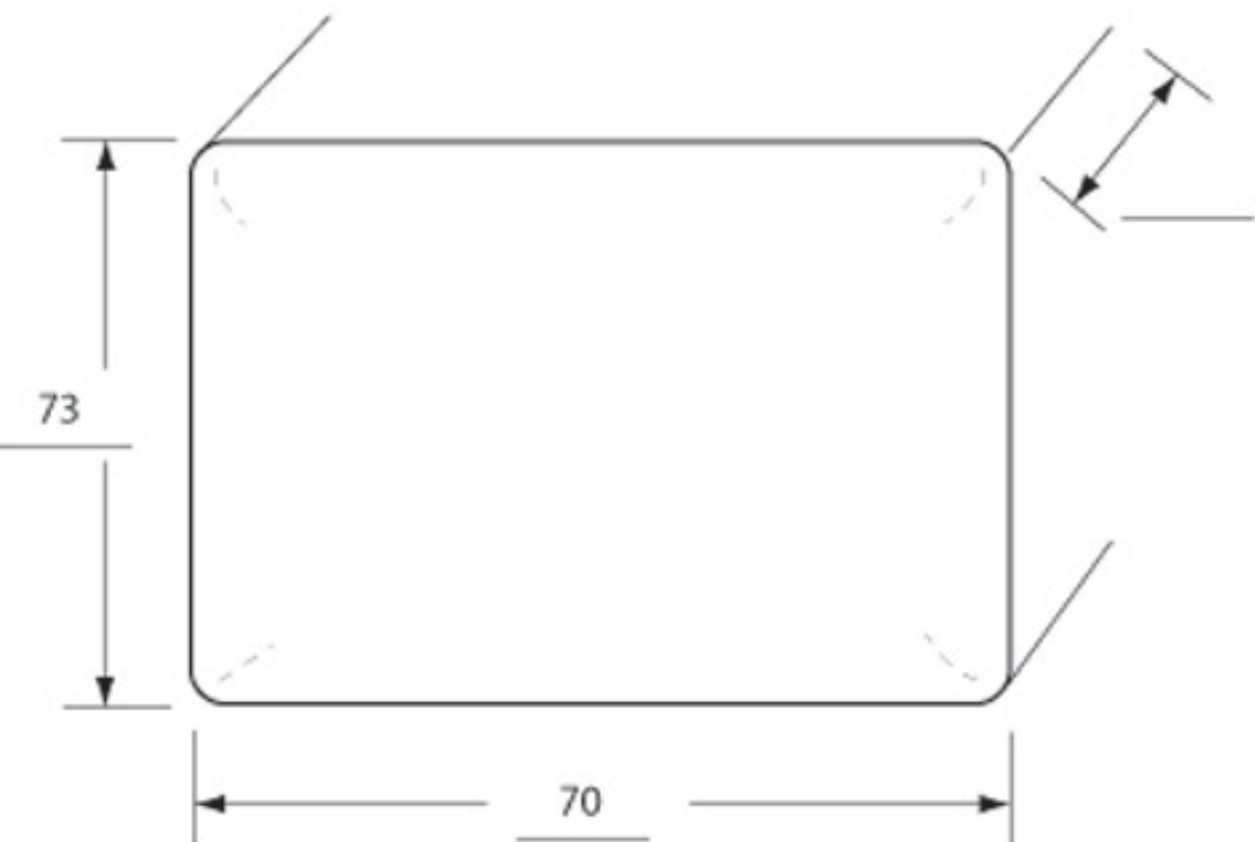
airbag
cover
contact

tire damage may have
occurred during
police pursuit



72-cm direct damage
38-cm max crush

Passenger Airbag



Vents: Y

N

If yes, how many: _____

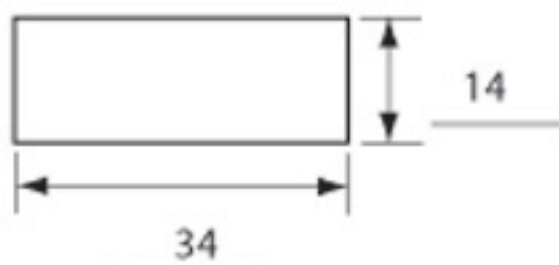
Tethers: Y

N

if yes, how many: _____

Passenger Airbag Doors

Single Door





16085





















































266

42010

30-7



312266

420d

A6-1





312286
420d

312286

Make	
Model	
Year	
Color	
Engine	
Transmission	
Drive	
MPG	
MSRP	
Actual Price	
Dealer Name	
Address	
City	
State	
Zip	
Phone	
Fax	
Website	





GRAND AM

PONTIAC





GRAND AM

PONTIAC







































































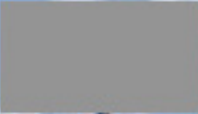












STOP

C-101



[Blurred rectangular sign]

STOP





