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ON-SITE CERTIFIED ADVANCED 208-COMPLIANT VEHICLE INVESTIGATION

CASE NUMBER - IN-05-027
LOCATION - MICHIGAN
VEHICLE - 2005 CHRYSLER PACIFICA
CRASH DATE - July 2005

Submitted:

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The crash investigation process is an inexact science which requires that physical evidence such as skid marks, vehicular damage measurements, and occupant contact points be coupled with the investigator's expert knowledge and experience of vehicle dynamics and occupant kinematics in order to determine the pre-crash, crash, and post-crash movements of involved vehicles and occupants.

Because each crash is a unique sequence of events, generalized conclusions cannot be made concerning the crashworthiness performance of the involved vehicle(s) or their safety systems.

Technical Report Documentation Page

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16. *Abstract* This report covers an on-site investigation of an air bag deployment crash that involved a 2005 Chrysler Pacifica (case vehicle), a 2002 Chrysler Sebring (1st other vehicle) and a 2004 Chevrolet Monte Carlo LS (2nd other vehicle). This crash is of special interest because the supplemental restraint (air bag) system in the Chrysler Pacifica is certified by the manufacturer to be compliant to the Advanced Air Bag portion of the Federal Motor Vehicle Standard (FMVSS) No. 208. The case vehicle's driver [19-year-old, White (non-Hispanic) female] sustained a police reported "C" (possible) injury as a result of the crash. The case vehicle was traveling west in the inside through lane of a six-lane, undivided county roadway approaching a three-leg intersection. The Chrysler Sebring was traveling east in the left turn lane of the same roadway, and the driver was in the process of making a left turn to travel north. The Monte Carlo was traveling south in the southbound lane and was stopped at the intersection at the traffic light. As the Sebring and the case vehicle entered the intersection, the case vehicle's driver steered right and braked in an attempt to avoid the crash. The front of the case vehicle impacted the right side of the Sebring causing the case vehicle's driver air bag and inflatable knee blocker to deploy. The front right passenger air bag did not deploy. As a result of the impact, the Sebring deflected to the left. It traveled across the intersection into the north leg of the intersection, and the front of the Sebring impacted the front of the Chevrolet and came to rest. The case vehicle rotated clockwise from the impact and came to rest in the intersection. The case vehicle's driver was restrained by her three-point, lap-and-shoulder belt. She loaded her knees and lower legs into the inflatable knee blocker causing abrasions to both knees and contusions to both shins. Her face, upper chest and both arms impacted her deployed air bag causing contusions and abrasions to both arms. She was transported to a local hospital and admitted. The front right passenger (13-year-old, female) was also restrained by her three-point, lap-and-shoulder belt. She was not injured in the crash.			
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TABLE OF CONTENTS

IN-05-027

This on-site investigation was brought to NHTSA's attention on or about August 19, 2005 by the Nationwide Insurance Company. This crash involved a 2005 Chrysler Pacifica (case vehicle), a 2002 Chrysler Sebring (1st other vehicle), and a 2004 Chevrolet Monte Carlo LS (2nd other vehicle). The crash occurred in July, 2005 at 6:27 p.m., in Michigan and was investigated by the applicable township police department. This crash is of special interest because the supplemental restraint (air bag) system in the Chrysler Pacifica is certified by the manufacturer to be compliant to the Advanced Air Bag portion of the Federal Motor Vehicle Standard (FMVSS) No. 208. The case vehicle's driver [19-year-old, White (non-Hispanic) female] sustained a police reported "C" (possible) injury as a result of the crash. This contractor inspected the scene, case vehicle and the Chrysler Sebring on September 13, 2005. The Chevrolet was not inspected. It could not be located. This contractor interviewed the case vehicle's driver on September 26, 2005. This report is based on the police crash report, scene and vehicle inspections, driver medical records, an interview with the case vehicle's driver, occupant kinematic principles, and this contractor's evaluation of the evidence.

SUMMARY

The case vehicle was traveling west in the inside through lane of a six-lane, undivided county roadway approaching a three-leg intersection. The Chrysler Sebring was traveling east in the left turn lane of the same roadway, and the driver was in the process of making a left turn to travel north. The Monte Carlo was traveling south in the southbound lane and was stopped at the intersection at the traffic light. As the Sebring and the case vehicle entered the intersection, the case vehicle's driver steered right and braked in an attempt to avoid the crash. The front of the case vehicle impacted the right side of the Sebring causing the case vehicle's driver air bag and inflatable knee blocker to deploy. The front right passenger air bag did not deploy. It is unknown whether more than one stage of the multi-stage air bag deployed. As a result of the impact, the Sebring deflected to the left. It traveled across the intersection into the north leg of the intersection, and the front of the Sebring impacted the front of the Chevrolet and came to rest. The case vehicle rotated clockwise from the impact and came to rest in the intersection. The Sebring came to rest against the front of the Chevrolet. At the time of the crash, the light condition was daylight, the atmospheric condition was clear, the roadway pavement was dry, level concrete and traffic density was light.

The CDC for the case vehicle was determined to be: **11-FDEW-2** (**330** degrees). The case vehicle's maximum residual crush occurred at the front bumper and was measured as 27 centimeters (10.6 inches). The WinSMASH reconstruction program, damage only, algorithm, calculated the case vehicle's Total, Longitudinal, and Lateral Delta Vs respectively as: 21 km.p.h. (13.0 m.p.h.), -18.2 km.p.h. (-11.3 m.p.h.), and 10.5 km.p.h. (6.5 m.p.h.). The case vehicle was towed due to damage.

The CDCs for the Chrysler Sebring were determined to be: **02-RPEW-3** (**60** degrees) for the impact with the case vehicle and **12-FDEW-1** (**0** degrees) for the impact with the Chevrolet.

The Sebring's maximum residual right side crush was measured as 36 centimeters (14.2 inches). The WinSMASH reconstruction program, damage only, algorithm, calculated the Sebring's Total, Longitudinal, and Lateral Delta Vs respectively as: 31 km.p.h. (19.3 m.p.h.), -15.5 km.p.h. (-9.6 m.p.h.), and -26.8 km.p.h. (-16.7 m.p.h.). The Sebring was towed due to damage.

Immediately prior to the crash the case vehicle's driver was seated in an upright posture with her back against the seat back, her left foot on the floor, her right foot on the brake, her left hand on the steering wheel, and her right arm on the center console. Her seat track was located between its middle and forward-most positions, the seat back was slightly reclined, and the tilt steering wheel was located between its center and full up positions. The case vehicle's driver was restrained by her manual, three-point, lap-and-shoulder safety belt system.

The case vehicle's driver said she steered to the right and braked, attempting to avoid the crash. As a result of the braking, her safety belt retractor most likely locked and, due to the right steer maneuver, she most likely moved slightly to her left just prior to impact. The case vehicle's impact with the Sebring caused the case vehicle's driver to continue forward and to the left opposite the case vehicle's 330 degree direction of principal force as the case vehicle decelerated longitudinally and accelerated laterally to the right. She loaded her knees and lower legs into the inflatable knee blocker causing abrasions to both knees and contusions to both shins. Her face, upper chest and both arms impacted her deployed air bag causing abrasions and contusions to both arms. The driver most likely rebounded back into her seat following the impact and remained restrained in her seat as the case vehicle came to rest in the intersection. The case vehicle driver's use of her three-point, lap-and-shoulder safety belt system and the deployment of her air bag and inflatable knee blocker mitigated her interaction with the steering wheel and instrument panel and reduced her injury potential.

The case vehicle's driver was transported by ambulance to a hospital and was admitted overnight for treatment of her injuries. She missed one work day as a result of the crash.

The case vehicle's front right passenger (i.e., sister of driver) [13-year-old, White (non-Hispanic) female] was seated in an upright posture with her back against the seat back, her feet on the floor, and both hands/arms in her lap. Her seat track was located between its middle and rearmost positions, and the seat back was slightly reclined. She was restrained by her manual, three-point, lap-and-shoulder safety belt system.

As a result of the driver's braking, the front right passenger's safety belt retractor most likely locked and, due to the driver's right steer maneuver, the passenger most likely moved slightly to her left just prior to impact. The case vehicle's impact with the Sebring caused the front right passenger to continue forward and to the left opposite the case vehicle's 330 degree direction of principal force as the case vehicle decelerated longitudinally and accelerated laterally to the right. She loaded her safety belt system and was prevented from contacting the instrument panel. The front right passenger most likely rebounded back into her seat following the impact and remained restrained in her seat as the case vehicle came to rest in the intersection. The front right

passenger's use of her three-point, lap-and-shoulder safety belt system prevented her from sustaining any injury in this crash. Her air bag did not deploy because the case vehicle's advanced occupant protection system most likely suppressed deployment of the air bag. She weighed 41 kilograms (90 pounds).

CRASH CIRCUMSTANCES

Crash Environment: The trafficway on which the case vehicle was traveling was a six-lane, undivided county roadway, traversing in an east-west direction (**Figure 1**), and the case vehicle was approaching a three-leg (i.e., "T") intersection. The case vehicle's roadway had a right turn lane, two westbound through lanes, a center two-way left turn lane and two eastbound through lanes. The right turn lane was 4.4 meters (14.4 feet) in width, the westbound through lanes were each approximately 3.8 meters (12.5 feet) in width, the center two-way left turn lane was 3.4 meters (11.2 feet) in width, the inside eastbound through lane was 3.9 meters (12.8 feet) in width and the outside eastbound through lane was 4.4 meters (14.4 feet) in width. Both sides of the roadway were bordered by barrier curbs. The trafficway on which the Chrysler Sebring was traveling was a six-lane undivided county roadway traversing in an east-west direction. The Sebring was approaching the same "T" intersection. The Sebring's roadway had two eastbound through lanes, a left turn lane, and two westbound through lanes and an outside right turn lane. The outside eastbound through lane was 4.4 meters (14.4 feet) in width, the inside eastbound through lane was 3.9 meters (12.8 feet) in width, the left turn lane was 3.4 meters (11.2 feet) in width, the two westbound through lanes were each approximately 3.8 meters (12.5 feet) in width and the outside right turn lane was 4.4 meters (14.4 feet) in width. Both sides of the roadway were bordered by barrier curbs. The trafficway on which the Chevrolet was traveling was a two lane, undivided street traversing in a north-south direction and approached the same "T" intersection. The Chevrolet was stopped at the traffic signal. The Chevrolet's roadway had one northbound and one southbound travel lane. Each lane was 5.4 meters (17.7 feet) in width. The roadway was bordered by barrier curbs. Pavement markings for westbound traffic consisted of a solid white right turn lane line with a right turn arrow, broken white center line, solid yellow center two-way left turn lane line and a solid white stop bar at the intersection. Pavement markings for eastbound traffic consisted of a broken white lane line, solid yellow left turn lane line with a left turn arrow and solid, double yellow center lines and a solid white stop bar at the intersection. Pavement markings for southbound traffic consisted of solid double yellow center line. The intersection was controlled by three phase traffic signals. At the time of the crash the light condition was daylight, the atmospheric condition was clear; the roadway pavement was dry, level concrete and traffic density was light. The site of the crash was commercial and the speed limit was 80 km.p.h (50 m.p.h.). See the Crash Diagram at the end of this report.

Figure 1: Overview of approach of case vehicle to intersection, westbound in inside lane

Pre-Crash: The case vehicle was traveling west in the inside through lane (**Figure 1** above). The driver was intending to continue straight ahead through the intersection. The Chrysler Sebring was traveling east in the left turn lane (**Figure 2**), and the driver was in the process of making a left turn to travel north. The Monte Carlo was traveling south in the southbound lane and was stopped at the traffic light (**Figure 3**). As the Sebring and the case vehicle entered the intersection, the case vehicle's driver steered right and braked in an attempt to avoid the crash. The crash occurred in the "T" intersection of the two roadways.

Figure 2: Approach of the Chrysler Sebring eastbound in the left turn lane, arrow shows area of impact

Figure 3: View north to position of Chevrolet stopped at intersection (arrow)

Figure 4: Overview of damage to front of case vehicle from impact with the Sebring, each increment on the rods is 5 cm (2 in)

Figure 5: Damage to right side of the Sebring from impact with the case vehicle

Crash: The front of the case vehicle (**Figure 4**) impacted the right side of the Sebring (**Figure 5**) causing the case vehicle's driver air bag to deploy. The front right passenger air bag did not deploy. It is unknown whether more than one stage of the driver's multi-stage air bag deployed. In addition, the case vehicle driver's inflatable knee blocker also deployed. As a result of the impact, the Sebring was deflected to the left. It traveled across the intersection and into the north leg of the intersection. The front of the Sebring then impacted the front of the Chevrolet.

Post-Crash: As a result of the impact, the case vehicle rotated clockwise and came to rest in the intersection. The Sebring came to rest against the front of the Chevrolet.

CASE VEHICLE

The 2005 Chrysler Pacifica was an all wheel drive, five-door multi-purpose vehicle (VIN: 2C4GF48415R------) equipped with a 3.5L, V6 engine; four-speed automatic transmission with overdrive and four-wheel anti-lock disc brakes. The front seating row was equipped with driver and front right passenger multi-stage air bags, a front right occupant classification system, inflatable driver knee blocker; driver and front right passenger manual, three-point, lap-and-shoulder safety belt systems with safety belt usage sensors, pretensioners and constant force retractors. Side impact and side curtain air bags were an option, but the case vehicle was not so equipped. The case vehicle's wheelbase was 295 centimeters (116.3 inches). The case vehicle's odometer reading at the time of the vehicle inspection is not known because the vehicle was equipped with an electronic odometer.

The various sensors in the case vehicle's advanced occupant restraint system analyze a combination of factors including the predicted crash severity and driver and front right passenger seat belt usage to determine the front air bag inflation level appropriate for the severity of the crash. For the front right seat position, the occupant classification system determines the size of the occupant based on weight and determines if the air bag should be enabled or suppressed.

CASE VEHICLE DAMAGE

Exterior Damage: The case vehicle's contact with the Sebring involved the entire frontal plane (**Figure 4** above). The case vehicle's front bumper, bumper fascia, grille, left headlamp/turn signal assembly, front portion of the left fender, and hood were directly damaged and crushed rearward. Direct damage began at the left front bumper corner and extended 152 centimeters (59.8 inches) across the bumper. The Field L was measured as 143 centimeters (56.2 inches) and residual maximum crush was measured as 27 centimeters (10.6 inches) occurring 14 centimeters (5.5 inches) right of C_2 (**Figure 6**). The table below shows the case vehicle's crush profile.

Figure 6: Top view of crush to front of case vehicle

Units	Event	Direct Damage		Field L	C_1	C_2	C_3	C_4	C_5	C_6	Direct	Field L
		Width CDC	Max Crush								±D	±D
cm	1	152	27	143	10	18	25	22	17	18	0	0
in		59.8	10.6	56.3	3.9	7.1	9.8	8.7	6.7	7.1	0.0	0.0

The case vehicle's left side wheelbase was extended 3 centimeters (1.2 inches) while the right side wheelbase was shortened 2 centimeters (0.79 inches). There was induced damage to the right headlamp/turn signal assembly, hood, and both fenders and left and right frame rails. No obvious induced damage or remote buckling was noted to the remainder of the case vehicle's exterior.

The recommended tire size was: P235/65R17 and the case vehicle was equipped with tires of this size. The case vehicle's tire data are shown in the table below.

Tire	*Measured Pressure*		*Recommend Pressure*		*Tread Depth*		*Damage*	*Restricted*	*Deflated*
	kpa	psi	kpa	psi	milli-meters	32nd of an inch			
LF	207	30	228	33	8	10	None	No	No
RF	241	35	228	33	7	9	None	No	No
LR	207	30	228	33	8	10	None	No	No
RR	248	36	228	33	7	9	None	No	No

Vehicle Interior: Inspection of the case vehicle's interior (**Figure 7**) revealed no evidence of occupant contact to any interior surfaces or components. A small dirt scuff was observed on the lower left quadrant of the driver air bag; however, this did not appear to be an occupant contact mark. There was no passenger compartment intrusion, and no evidence of deformation of the steering wheel or compression of the energy absorbing steering column was observed (**Figure 8**).

Figure 7: Overview of case vehicle's instrument panel, windshield and steering wheel

Figure 8: Left side view of steering wheel and steering column showing lack of deformation

Damage Classification: Based on the vehicle inspection, the CDC for the case vehicle was determined to be: **11-FDEW-2** (**330** degrees). The WinSMASH reconstruction program, damage only, algorithm, was used to reconstruct the case vehicle's Delta V. The Total, Longitudinal, and Lateral Delta Vs are, respectively: 21 km.p.h. (13.0 m.p.h.), -18.2 km.p.h. (-11.3 m.p.h.), and

10.5 km.p.h. (6.5 m.p.h.). The case vehicle was towed due to damage.

Figure 9: Driver's air bag module cover flap

Figure 10: Case vehicle driver's air bag vent port

Figure 11: Case vehicle driver's air bag

AUTOMATIC RESTRAINT SYSTEM

The case vehicle's driver air bag was located in the steering wheel hub. An inspection of the air bag module cover flap (**Figure 9**) and the air bag fabric revealed that the cover flaps opened at the designated tear points. There was no evidence of damage during the deployment to the air bag or the cover flap. The air bag module cover consisted of a single trapezoidal-shaped cover flap constructed of pliable vinyl. The cover flap was 11 centimeters (4.3 inches) in width at the top, 15 centimeters (5.9 inches) in width at the bottom and 10 centimeters (3.9 inches) in height. The driver's air bag was designed with two tethers, each approximately 11 centimeters (4.3 inches) in width. The driver's air bag had one vent port (**Figure 10** below), approximately 3 centimeters (1.2 inches) in diameter, located at the 12 o'clock position. The deployed driver's air bag (**Figure 11**) was round with a diameter of approximately 60 centimeters (23.6 inches). The distance between the mid-center of the driver's seat back, as positioned as the time of the vehicle inspection (i.e., seat between middle and forward-most track position, seat back slightly reclined), and the front surface of the air bag's fabric at approximate full excursion was 30 centimeters (11.8 inches). An inspection of the driver's air bag fabric revealed no evidence of occupant contact.

The case vehicle was also equipped with an inflatable driver knee blocker located behind the driver's knee bolster panel (**Figure 12** below). The knee blocker also inflated in this crash. There was no evidence of damage to the knee blocker or the knee bolster panel. The knee blocker was approximately 40 centimeters (15.7 inches) in width and 33 centimeters (13 inches) in height. It was attached to a thin steel plate located directly behind the knee bolster panel. Inflation of the knee blocker provides a cushion to absorb energy as the driver's knees and lower legs load into the knee bolster panel during a crash. The evidence indicated that the knee blocker performed as designed.

The front right passenger's air bag was located in the top of the right instrument panel (**Figure 13**). This air bag did not deploy in the crash. The case vehicle's advanced occupant protection system most likely suppressed the deployment of the air bag. The 13-year old female front right passenger was restrained by her three-point, lap-and-shoulder safety belt system and weighed 41 kilograms (90 pounds).

Figure 12: Case vehicle driver's inflatable knee blocker

Figure 13: Case vehicle's front right air bag located in top of right instrument panel

CASE VEHICLE DRIVER KINEMATICS

Immediately prior to the crash, the case vehicle's driver [19-year-old, White (non-Hispanic) female; [160 centimeters and 57 kilograms (63 inches, 125 pounds)] was seated in an upright posture with her back against the seat back, her left foot on the floor, her right foot on the brake, her left hand on the steering wheel, and her right arm on the center console. Her seat track was located between its middle and forward-most positions, the seat back was slightly reclined, and the tilt steering wheel was located between its center and full up positions. The driver was not wearing glasses.

Based on this contractor's vehicle inspection, the case vehicle's driver was restrained by her manual, three-point, lap-and-shoulder safety belt system. The safety belt system was equipped with a constant force retractor and retractor-mounted pretensioner housed within the "B"-pillar. Inspection of the driver's seat belt assembly revealed that the pretensioner had actuated, and the belt showed evidence of loading indicating the driver was restrained at the time of the crash.

The case vehicle's driver said she steered to the right and braked, attempting to avoid the crash. As a result of the braking, her safety belt retractor most likely locked and, due to the right steer maneuver, she most likely moved slightly to her left just prior to impact. The case vehicle's impact with the Sebring caused the case vehicle's driver to continue forward and to the left opposite the case vehicle's 330 degree direction of principal force as the case vehicle decelerated longitudinally and accelerated laterally to the right. She loaded her knees and lower legs into the inflatable knee blocker causing abrasions to both knees and contusions to both shins. Her face, upper chest and both arms impacted her deployed air bag causing abrasions and contusions to both arms. The driver most likely rebounded back into her seat following the impact and remained restrained in her seat as the case vehicle came to rest in the intersection. She was able to exit the case vehicle under her own power following the crash. The case vehicle driver's use of her three-

point, lap-and-shoulder safety belt system and the deployment of her air bag and inflatable knee blocker mitigated her interaction with the steering wheel and instrument panel and reduced her injury potential.

CASE VEHICLE DRIVER INJURIES

The driver sustained police reported "C" injuries and was transported by ambulance to the hospital and admitted overnight. The reported that she lost one work day as a result of the crash. The case vehicle driver's injuries and injury mechanisms are shown in the table below.

Injury Number	Injury Description (including Aspect)	NASS Injury Code & AIS 90	Injury Source (Mechanism)	Source Confidence	Source of Injury Data
	Pain, abdomen, right upper quadrant and diffuse[1]	Not coded			Hospitalization records
1	Abrasions bilateral upper extremities, not further specified	minor 790202.1,3	Air bag, driver's	Probable	Hospitalization records
2	Contusions {bruises}, 5.1 cm (2 in) in diameter over postero-lateral upper arms, bilaterally	minor 790402.1,3	Air bag, driver's	Probable	Interviewee (same person)
3	Abrasions bilateral knees, not further specified	minor 890202.1,3	Air bag, driver's knee blocker	Certain	Hospitalization records
4	Contusions {bruises}, 7.6-10.2 cm (3-4 in) over bilateral shins	minor 890402.1,3	Air bag, driver's knee blocker	Certain	Interviewee (same person)

CASE VEHICLE FRONT RIGHT PASSENGER KINEMATICS

Immediately prior to the crash, the case vehicle's front right passenger (i.e., sister of the driver) [13-year-old, White (non-Hispanic) female; 152 centimeters and 41 kilograms (60 inches, 90 pounds)] was seated in an upright posture with her back against the seat back, her feet on the floor, and both hands/arms in her lap. Her seat track was located between its middle and rearmost positions, and the seat back was slightly reclined. The front right passenger was not wearing glasses.

Based on the driver interview and the absence of any injury to this passenger, the front right passenger was restrained by her manual, three-point, lap-and-shoulder safety belt system. The vehicle inspection revealed no evidence of loading to the safety belt assembly.

[1] This occupant was admitted overnight for observation for abdominal pain, but it was concluded that there was no evidence of internal injury.

As a result of the driver's braking, the front right passenger's safety belt retractor most likely locked and, due to the driver's right steer maneuver, the passenger most likely moved slightly to her left just prior to impact. The case vehicle's impact with the Sebring caused the front right passenger to continue forward and to the left opposite the case vehicle's 330 degree direction of principal force as the case vehicle decelerated longitudinally and accelerated laterally to the right. She loaded her safety belt system and was prevented from contacting the instrument panel. The front right passenger most likely rebounded back into her seat following the impact and remained restrained in her seat as the case vehicle came to rest in the intersection. She was able to exit the case vehicle under her own power following the crash. The front right passenger's use of her three-point, lap-and-shoulder safety belt system prevented her from impacting the instrument panel and sustaining any injury.

CASE VEHICLE FRONT RIGHT PASSENGER INJURIES

The front right passenger's injury status was not reported on the police crash report. The driver stated that the front right passenger was not transported to the hospital and sustained no injury as a result of the crash.

1ST OTHER VEHICLE

The 2002 Chrysler Sebring was a front wheel drive, four-door sedan (VIN: 2C4GF48415R------) equipped with a 2.4L, 4-cylinder engine and four-speed automatic transmission. Four-wheel, anti-lock brakes were an option, but it is not known if the Sebring was so equipped. The Sebring was also equipped with redesigned driver and front right passenger air bags, which did not deploy as a result this vehicle's impact.

Figure 14: Overview of front and right side damage to the Sebring

Exterior Damage: The Sebring's impact with the case vehicle involved the right side doors (**Figure 14**). Both the right front and right rear doors were directly damaged and crushed inward into the passenger compartment. The direct damage began 19 centimeters (7.5 inches) forward of the right rear axle and extended 182 centimeters (71.6 inches) forward along the right side. The Field L was determined to be 237 centimeters (93.3 inches), and the residual maximum crush was 36 centimeters (14.2 inches) occurring at C_4 (**Figure 15**). The table below shows the Sebring's right side crush profile.

Figure 15: Top view of the crush to the right side of the Sebring

Units	Event	Direct Damage		Field L	C_1	C_2	C_3	C_4	C_5	C_6	Direct	Field L
		Width CDC	Max Crush								±D	±D
cm	1	182	36	237	0	24	29	36	34	0	-26	-44
in		71.7	14.2	93.3	0.0	9.4	11.4	14.2	13.4	0.0	-10.2	-17.3

The Sebring's impact with the Chevrolet involved approximately the right two-thirds of the front bumper and right portion of the hood (**Figure 14** above). The direct damage began at the right bumper corner and extended 89 centimeters (35 inches) along the bumper. There was no residual crush to the front bumper. Induced damage involved the hood and the right headlamp/turn signal assembly.

The Sebring's left side wheelbase was unchanged while the right side wheelbase was reduced 2 centimeters. Induced damage involved the roof and windshield.

Damage Classification: Based on the vehicle inspection, the CDCs for the Chrysler Sebring were determined to be: **02-RPEW-3** (**60** degrees) for the impact with the case vehicle and **12-FZEW-1** (**0** degrees) for the impact with the Chevrolet. The WinSMASH reconstruction program, damage only, algorithm, was used to reconstruct the Sebring's Delta V for the impact with the case vehicle. The Total, Longitudinal, and Lateral Delta Vs are, respectively: 31 km.p.h. (19.2 m.p.h.), -15.5 km.p.h. (-9.6 m.p.h.), and -26.8 km.p.h. (-10.1 m.p.h.). The Sebring was towed due to damage.

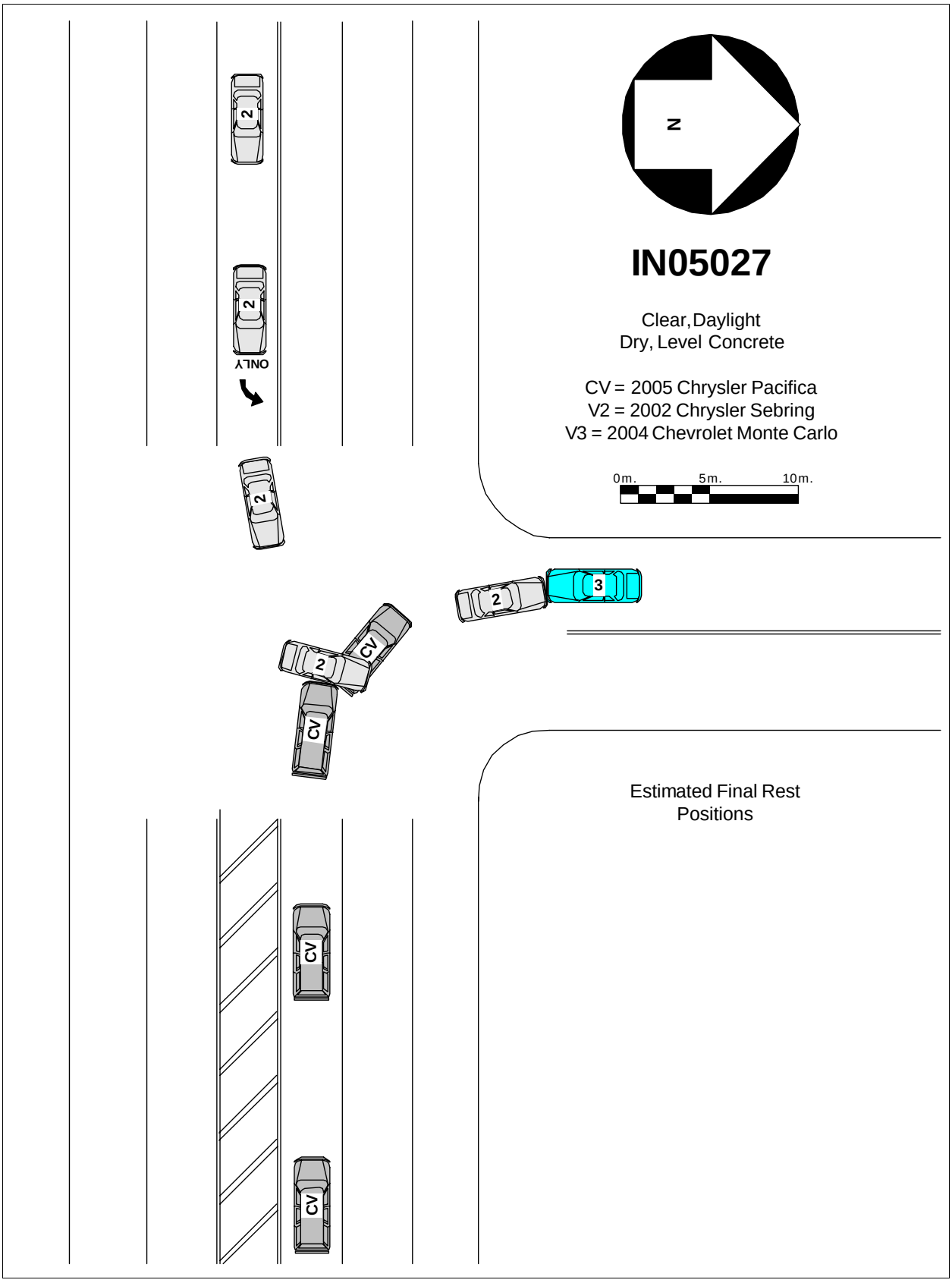
Chrysler Sebring's Occupants: According to the police crash report, the Sebring's driver [56-year-old, (unknown race and ethnic origin) female] was restrained by her manual, three-point, lap-and-shoulder safety belt system. The driver was not transported by ambulance to the hospital, and she did not sustain any injuries as a result of this crash.

2nd Other Vehicle

The 2004 Chevrolet Monte Carlo LS was a two-door, front wheel drive coupe (VIN: 2G1WW12E249------) equipped with a 3.4L, V6 engine and four-speed automatic transmission. Four-wheel anti-lock brakes and traction control were an option, but it is unknown if the Chevrolet was so equipped. The Chevrolet was also equipped with dual stage driver and front right passenger air bags, which did not deploy as a result of the impact with the Sebring.

Exterior Damage: The Chevrolet was not inspected. Without photographs of the damaged vehicle a CDC could not be assigned. The Chevrolet was driven from the scene by the driver.

Chevrolet's Occupants: According to the police crash report, the Monte Carlo's driver [41-year-old, White (unknown race and ethnic origin) male] was restrained by his manual, three-point, lap-and-shoulder safety belt system. The driver was not transported by ambulance to the hospital and did not sustain any injuries as a result of this crash.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Clear, Daylight
Dry, Level Concrete
CV = 2005 Chrysler Pacifica
V2 = 2002 Chrysler Sebring
V3 = 2004 Chevrolet Monte Carlo
0m. 5m. 10m.
ONLY
Estimated Final Rest Positions