INDIANA UNIVERSITY
TRANSPORTATION RESEARCH CENTER
School of Public and Environmental Affairs
222 West Second Street
Bloomington, Indiana 47403-1501
(812) 855-3908 Fax: (812) 855-3537

ON-SITE CERTIFIED ADVANCED 208-COMPLIANT VEHICLE INVESTIGATION

CASE NUMBER - IN-04-012
LOCATION - Texas
VEHICLE - 2004 HONDA ACCORD EX
CRASH DATE - March 2004

Submitted:

March 27, 2006
Revised: April 3, 2008

Contract Number: DTNH22-01-C-07002

Prepared for:

U.S. Department of Transportation
National Highway Traffic Safety Administration
National Center for Statistics and Analysis
Washington, D.C. 20590-0003

DISCLAIMERS

This document is disseminated under the sponsorship of the Department of Transportation in the interest of information exchange. The United States Government assumes no responsibility for the contents or use thereof.

The opinions, findings, and conclusions expressed in this publication are those of the authors and not necessarily those of the National Highway Traffic Safety Administration.

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

1. *Report No.* IN-04-012	2. *Government Accession No.*	3. *Recipient's Catalog No.*	
4. *Title and Subtitle* On-Site Certified Advanced 208-Compliant Vehicle Investigation Vehicle - 2004 Honda Accord EX Location - Texas		5. *Report Date:* March 27, 2006 6. *Performing Organization Code*	
7. *Author(s)* Special Crash Investigations Team #2		8. *Performing Organization Report No.*	
9. *Performing Organization Name and Address* Transportation Research Center Indiana University 222 West Second Street Bloomington, Indiana 47403-1501		10. *Work Unit No. (TRAIS)* 11. *Contract or Grant No.* DTNH22-01-C-07002	
12. *Sponsoring Agency Name and Address* U.S. Department of Transportation (NPO-122) National Highway Traffic Safety Administration National Center for Statistics and Analysis Washington, D.C. 20590-0003		13. *Type of Report and Period Covered* Technical Report Crash Date: March 2004 14. *Sponsoring Agency Code*	
15. *Supplementary Notes* On-site air bag investigation involving a 2004 Honda Accord EX with manual safety belts and dual front certified advanced 208-compliant air bag system.			
16. *Abstract* This report covers an on-site investigation of an air bag deployment crash that involved a 2004 Honda Accord EX (case vehicle) and a1999 Chrysler Cirrus LXi (other vehicle), which collided front to left side in the intersection of two city streets. This crash is of special interest because the supplemental restraint (air bag) system in the Honda Accord 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 was also equipped with an Event Data Recorder (EDR), and the case vehicle's driver [31-year-old, White (non-Hispanic) male] sustained a police reported “B” (non-incapacitating-evident) injury as a result of the crash. The case vehicle was northwest-bound on a four-lane, undivided city street and was stopped at the stop sign in the outside lane. The driver proceeded into the intersection as the Chrysler, which was traveling southwest in the left inside lane of a multi-lane divided city street, entered the intersection in front of the case vehicle. The case vehicle’s driver took no avoidance actions, and the front of the case vehicle impacted the left side of the Chrysler causing a first stage deployment of the case vehicle’s driver air bag. The case vehicle rotated counterclockwise and came to rest in the intersection facing west. The Chrysler rotated clockwise. It’s final rest position is not known. The case vehicle driver was leaning slightly to the right in an upright driving position with both hands on the steering wheel at the moment of impact, and was unrestrained. His face and chest impacted his deployed air bag and his right hand most likely impacted the rear-view mirror. He remained in his seat throughout the crash and was able to exit the case vehicle under his own power. He refused transport from the scene to a medical facility and reported that he was not injured.			
17. *Key Words* Advanced Air Bag Deployment Motor Vehicle Traffic Crash Injury Severity		18. *Distribution Statement* General Public	
19 *Security Classif. (of this report)* Unclassified	20. *Security Classif. (of this page)* Unclassified	21. *No. of Pages* 11	22. *Price*

Form DOT 1700.7 (8-72) Reproduction of completed page authorized

TABLE OF CONTENTS

IN-04-012

This on-site investigation was brought to NHTSA's attention on April 14, 2004 by the Nationwide insurance company. This crash involved a 2004 Honda Accord EX (case vehicle) and a 1999 Chrysler Cirrus LXi (other vehicle). The crash occurred in March 2004, at 1:55 p.m., in Texas and was investigated by the applicable city police department. This crash is of special interest because the supplemental restraint (air bag) system in the Honda Accord 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 was also equipped with an Event Data Recorder (EDR), and the case vehicle's driver [31-year-old, White (non-Hispanic) male] sustained a police reported "B" (non-incapacitating-evident) injury as a result of the crash. This contractor inspected the scene, both vehicles and harvested the case vehicle's air bag system Electronic Control Unit (ECU) on May 10, 2004. This contractor interviewed the driver of the case vehicle on May 15, 2004. This report is based on the police crash report, scene and vehicle inspections, an interview with the case vehicle's driver, occupant kinematic principles, and this contractor's evaluation of the evidence.

SUMMARY

The case vehicle was northwest-bound on a four-lane, undivided city street and was stopped at the stop sign in the outside lane. The driver proceeded into the intersection intending to continue northwest through the intersection into a sports stadium parking lot. The Chrysler was traveling southwest in the left inside lane of a multi-lane, divided city street and entered the intersection in front of the case vehicle. The case vehicle's driver stated he took no avoidance actions, and the front of the case vehicle impacted the left side of the Chrysler causing a first stage deployment of the case vehicle's driver air bag. The case vehicle rotated counterclockwise and came to rest in the intersection facing west. The Chrysler rotated clockwise. It's final rest position is not known. At the time of the crash the light condition was daylight, the atmospheric condition was clear, and the roadway pavement was level, dry, concrete. Traffic density was light and the site of the crash was urban commercial.

The CDC for the case vehicle was determined to be: **82-FDEW-1** (**50** degrees). The WinSMASH reconstruction program, CDC only algorithm, calculated the case vehicle's Total, Longitudinal, and Lateral Delta Vs respectively as: 18 km.p.h. (11.2 m.p.h.), -11.6 km.p.h. (-7.2 m.p.h.), and -13.8 km.p.h. (-8.6 m.p.h.). The EDR recorded a longitudinal component of Delta V of -14.3 km.p.h. (-8.9 m.p.h). Using the longitudinal component of Delta V and the assigned 50 degree direction of principal force, the Total and Lateral Delta Vs were calculated respectively as: 22.2 km.p.h. (13.8 m.p.h.) and -17.3 km.p.h. (-10.8 m.p.h).

The CDC for the Chrysler was determined to be: **11-LYEW-2** (**320** degrees). The WinSMASH reconstruction program, CDC only algorithm, calculated the Chrysler's Total, Longitudinal, and Lateral Delta Vs respectively as: 19 km.p.h. (11.8 m.p.h.), -16.5 km.p.h. (-10.3 m.p.h.), and 9.5 km.p.h. (5.9 m.p.h.).

Immediately prior to the crash, the case vehicle's driver was seated in an upright posture, but leaning slightly to the right. His left foot was on the floor, his right foot on the accelerator,

and both hands were on the steering wheel. His seat track was located between its middle and rear-most positions, the seat back was slightly reclined, the tilt steering wheel was located in its center position, and the driver was unrestrained.

The driver made no pre-crash avoidance actions and remained in his upright driving position at the time of the impact. The case vehicle's impact with the Chrysler caused the driver to move forward and to the right along a path opposite the case vehicle's 50 degree direction of principal force as the case vehicle decelerated, and his face and chest impacted his deployed air bag, and his right hand most likely contacted the rear view mirror. The driver then most likely rebounded off the air bag and back into his seat. The driver remained in his seat as the case vehicle rotated counterclockwise to its final rest position, and he exited the case vehicle without assistance. The first stage deployment of the driver's air bag mitigated his interaction with the case vehicle's interior front components and prevented him from sustaining any injuries.

The police crash report indicated the driver sustained a "B" (non-incapacitating-evident) injury and refused transport to a medical facility. The driver stated he was not injured, sought no treatment subsequent to the crash and lost no work days as a result of the crash.

CRASH CIRCUMSTANCES

Crash Environment: The trafficway on which the case vehicle was traveling was a two-way, four-lane, undivided, city street, traversing in a northwesterly and southeasterly direction approaching a four-leg intersection. The trafficway on which the Chrysler was traveling was a curved, two-way, seven-lane, divided, city street traversing in a northeasterly and southwesterly direction approaching the same intersection. The southeast leg of the intersection had two northwest-bound lanes and two southeast-bound lanes. The northwest-bound roadway (i.e., case vehicle's approach roadway) was controlled by a stop sign and had a left turn lane and an outside right/left turn lane. Each lane was 3.1 meters (10.1 feet) in width, and the roadway markings consisted of broken white lane lines, left and right turn arrows and a double yellow center line. The southeast-bound roadway had two through-lanes. The northwest leg of the intersection was a two lane entrance into a sports stadium parking lot. The northeast leg of the intersection had three northeast-bound through-lanes each approximately 3.7 meters (12.1 feet) in width, a painted median 1.4 meters (5.3 feet) in width, a left turn lane 4.1 meters (13.4 feet) in width and three southwest-bound through-lanes (i.e., Chrysler's approach roadway) each 3.2 meters (10.5 feet) in width. The southwest leg of the intersection had two northeast -bound through-lanes, a left turn lane; a painted median, two southwest-bound through lanes and an outside merge lane. Pavement markings for the northeast and southwest-bound roadways consisted of broken white lane lines, painted medians with "Bots" dots, left turn arrows and merge arrows. The speed limit for the case vehicle was 48 km.p.h. (30 m.p.h.), and the speed limit for the Chrysler was 56 km.p.h. (35 m.p.h.). At the time of the crash the light condition was daylight, the atmospheric condition was clear, and the roadway pavement was level, dry, concrete with an estimated coefficient of friction of 0.70. Traffic density was light and the site of the crash was urban commercial.

Pre-Crash: The case vehicle was northwest-bound and was stopped at the stop sign in the outside lane (**Figure 1**). The driver proceeded into the intersection intending to continue northwest, straight through the intersection into a sports stadium parking lot. The Chrysler was traveling southwest in the left inside lane (**Figure 2**), and the driver was intending to continue through the intersection and continue southwest. The case vehicle's driver stated he took no actions to avoid the crash. The crash occurred within the intersection of the two trafficways.

Figure 1: Overview of case vehicle's approach northwest-bound to intersection, arrow shows area of the crash, case vehicle stopped at stop sign

Figure 2: Approach of Chrysler's southwest-bound in inside through-lane, arrow shows location of driveway case vehicle was attempting to enter

Figure 3: Case vehicle's front damage from impact with Chrysler, damaged sheet metal parts had been removed and were not available for inspection

Figure 4: Chrysler's left side damage from impact with case vehicle

Crash: The front of the case vehicle impacted the left fender and driver's door of the Chrysler (**Figures 3** and **4**), causing a first stage deployment of the case vehicle's driver air bag. The case vehicle's front right air bag did not deploy because there was no front right occupant in the case vehicle. The weight sensor in the front right seat properly determined the absence of an occupant and suppressed deployment of the front right air bag.

Post-Crash: As a result of the impact, the case vehicle rotated counterclockwise, traveled a short distance and came to final rest in the intersection facing west (**Figure 5** below). The impact likely

caused the Chrysler to deflect to the right; however, no specific heading direction and area of final rest for the Chrysler could be determined. The police crash schematic showed no positions of impact or final rest for either vehicle, and the case vehicle's driver was unclear as to where the Chrysler came to final rest. The driver of the case vehicle could only report that the Chrysler traveled off the right side of roadway following the impact. A complete roadside departure of the Chrysler is unlikely due to a line of closely spaced trees along the northwest side of the roadway (**Figure 5**). There was no evidence of tree impacts on the Chrysler, and no trees were observed to be damaged during the scene inspection.

Figure 5: Overview of trees on southwest corner of intersection and parking lot driveway case vehicle was attempting to enter is on right, arrow shows case vehicle's area of final rest

CASE VEHICLE

The 2004 Honda Accord EX was a front wheel drive, two-door coupe (VIN: 1HGCM82604A------) equipped with a V6 engine, five-speed automatic transmission, four wheel, anti-lock brakes and electronic traction control. The front seating row was equipped with bucket seats with adjustable head restraints, tilt steering column, dual stage driver and front right passenger air bags, front seat back-mounted side impact air bags with front right passenger "Occupant Position Detection System" (OPDS), side curtain air bags, driver seat position sensor; driver and front right passenger manual, three-point lap-and-shoulder safety belts with usage sensors and pretensioners with belt force limiters. The front right seat was also equipped with sensors that detect the weight, height and seating position of the front right passenger. The back seating row was equipped with a bench seat with manual, three-point lap and shoulder safety belts in all three seat positions and adjustable head restraints and side curtain air bags in the outboard seat positions. In addition, the back seat was also equipped with a LATCH system for securing child safety seats. The case vehicle's driver estimated the vehicle mileage at approximately 14,484 kilometers (9000 miles). The case vehicle's actual mileage is unknown because the vehicle was equipped with an electronic odometer. The case vehicle's wheelbase was 267 centimeters (105.1 inches).

The various sensors in the case vehicle's advanced occupant restraint system analyze a combination of factors including the predicted crash severity, safety belt usage and presence of a front right passenger to determine the front air bag inflation level appropriate for the severity of the crash. The OPDS monitors the position of the front right passenger, and if a small statured person is in the deployment path of the seat back-mounted side impact air bag, the system suppresses deployment of the side impact air bag.

Exterior Damage: Based on the damaged parts that remained on the case vehicle and the damage to the Chrysler, it appears the case vehicle most likely sustained direct damage across the full width of its front bumper. Additionally, the grille, hood, and the front of both fenders were most likely directly damaged and crushed rearward and to the left. Crush measurements were taken at the lower radiator support, and maximum crush at this component was measured as 17 centimeters (6.6 inches) occurring at C_6. Based on the damage to the case vehicle and the Chrysler, the direct damage width was considered to be 154 centimeters (60.6 inches), the undeformed width of the front bumper. The table below shows the case vehicle's crush profile.

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	154	17	107	8	4	7	10	12	17	0	0
in		60.6	6.7	42.1	3.2	1.6	2.8	3.9	4.7	6.7	0.0	0.0

The case vehicle's left side wheelbase was reduced 1 centimeter (0.4 inch) and the right side wheelbase was extended 2 centimeters (0.8 inch). Induced damage involved the hood and both front fenders as well as both front unibody frame members (**Figure 6**). Additionally, the right lower corner of the windshield was cracked.

Figure 6: Leftward shift of case vehicle's front unibody frame members

The case vehicle's recommended tire size was: P205/60R16 and the 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	179	26	221	32	6	8	None	No	No
RF	248	36	221	32	7	9	None	No	No
LR	186	27	207	30	7	9	None	No	No
RR	186	27	207	30	7	9	None	No	No

Vehicle Interior: Inspection of the case vehicle's interior (**Figure 7** below)revealed a possible occupant contact to the rear view mirror (**Figure 8** below) and a small area of very light scuffing

to the top right quadrant of the air bag. The scuffing appeared to be related to the deployment and not occupant contact. No other occupant contact evidence was found, and no intrusion of the passenger compartment was observed. Finally, there was no evidence of compression of the energy absorbing steering column, and no deformation of the steering wheel rim was observed (**Figure 9**).

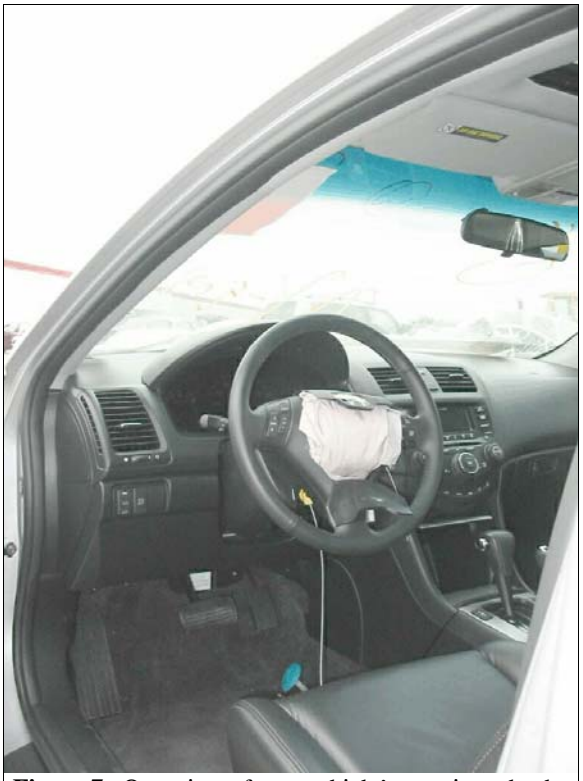


Figure 7: Overview of case vehicle's steering wheel, instrument panel, rear view mirror and windshield

Figure 8: Case vehicle's cracked rear view mirror, yellow tape identifies a small smudge area on the mirror

Figure 9: Overview of the case vehicle's steering wheel and steering column showing no evidence of deformation or loading

Damage Classification: The front bumper, hood, and fenders had been removed from the case vehicle and were not present at the inspection; however, based on the damaged components remaining on the case vehicle and the damage profile on the Chrysler, this contractor determined that a CDC could be reasonably estimated. The CDC was estimated to be **82-FDEW-1** (**50** degrees). The CDC force direction was incremented because both front unibody frame members were shifted to the left beyond the 10 centimeter (4 inch) threshold.

The WinSMASH reconstruction program, Damage Only algorithm was used to determine the case vehicle's Delta V. The Total, Longitudinal, and Lateral Delta Vs are, respectively: 18 km.p.h. (11.2 m.p.h.), -11.6 km.p.h. (-7.2 m.p.h.), and -13.8 km.p.h. (-8.6 m.p.h.). The EDR recorded a longitudinal component of Delta V of -14.3 km.p.h. (-8.9 m.p.h). Using the longitudinal component of Delta V and the assigned 50 degree direction of principal force, the Total and Lateral Delta Vs were calculated respectively as: 22.2 km.p.h. (13.8 m.p.h.) and -17.3

km.p.h. (-10.8 m.p.h). The case vehicle was towed due to damage.

Figure 10: Case vehicle driver's air bag module cover flaps

AUTOMATIC RESTRAINT SYSTEM

The case vehicle was equipped with certified advanced, 208-compliant air bags in the driver and front right passenger positions. The driver's air bag deployed in this crash. The front right passenger air bag did not deploy because there was no front right passenger in the case vehicle. The seat back-mounted side impact and side curtain air bags did not deploy because there was no side impact in this crash.

Figure 11: Case vehicle driver's air bag

The case vehicle's driver air bag was located in the steering wheel hub. An inspection of the air bag module cover flaps and the air bag fabric revealed that the cover flaps opened at the designated tear points (**Figure 10**). There was no evidence of damage during the deployment to the air bag module cover flaps. The top module cover flap was approximately rectangular in shape with a rounded contour in the center of the flap that accommodated the Honda emblem. The top cover flap was 13.5 centimeters (5.3 inches) in width and 7 centimeters (2.8 inches) in height. The bottom module cover flap was approximately triangular in shape with a rounded concave contour in the center of the flap that accommodated the Honda emblem on the top flap. The bottom module cover flap was 13.5 centimeters (5.3 inches) in width at its widest point and 7 centimeters (2.8 inches) in height. The deployed driver's air bag (**Figure 11**) was round with a diameter of approximately 60 centimeters (23.6 inches). The air bag was designed with two tethers, each approximately 7 centimeters (2.8 inches) in width and had two vent ports, each approximately 5 centimeters (2.0 inches) in diameter, located at the 9 and 3 o'clock positions (**Figure 12**). The distance between the mid-center of the driver's seat back, as positioned at the time of the inspection (i.e., approximately between the middle and rear-most track position), and the front surface of the air bag fabric at full excursion was 45 centimeters (17.7 inches). A small area of very light scuffing was found on the upper right quadrant of the air bag that appeared to be related to the interaction

Figure 12: Case vehicle driver's air bag vent ports

of the air bag with the back of the module cover flap.

The front right passenger's air bag was located on the top of the instrument panel (**Figure 13**). The deployment of the front right passenger air bag was properly suppressed by the case vehicle's advanced occupant protection system because there was no front right passenger in the case vehicle at the time of the crash.

Figure 13: Overview of instrument panel and location of front right passenger air bag (arrow)

CRASH DATA RECORDING

The case vehicle's ECU was harvested and forwarded to Washington D.C. for subsequent transfer to the manufacturer for decoding of the crash data. The decoded data indicated that the driver was not restrained, the front crash sensor sensed the impact in 1 millisecond, the time to air bag deployment was 76 milliseconds, and the driver's air bag activated in "delay firing mode". The air bag system is designed with two inflators, each with different output power. Both inflators will activate simultaneously in a high severity crash, or the second stage activation will be delayed in a low to medium severity crash to reduce the force of deployment. The ECU determined that this was a low to medium severity crash and activated in "delay firing mode". In addition, the right side sensors recognized the crash event; however, the side curtain air-bag did not activate. The right side crash sensor on-time was 255 milliseconds. Lastly, the system recorded an approximate longitudinal Delta V of -14.3 km.p.h. (-8.9 m.p.h.).

CASE VEHICLE DRIVER KINEMATICS

Immediately prior to the crash, the case vehicle's driver [31-year-old, White (non-Hispanic) male; 183 centimeters and 91 kilograms (72 inches, 200 pounds)] was seated in an upright posture. His left foot was on the floor, his right foot on the accelerator, and both hands were on the steering wheel. His seat track was located between its middle and rear-most positions. The seat back was slightly reclined, and the tilt steering wheel was located in its center position. The driver was not wearing glasses at the time of the crash.

The case vehicle's driver was not restrained by his manual, three-point, lap-and-shoulder, safety belt system. The safety belt system was equipped with a belt pretensioner and load limiter. The pretensioner did not activate in the crash, and the inspection of the safety belt assembly revealed no load markings on the seat belt webbing, latch plate, or "D"-ring. In addition, the EDR data indicated that the driver was not restrained.

The driver stated in his interview that he made no pre-crash avoidance actions and remained in his upright driving position at the time of the impact. The case vehicle's impact with the Chrysler caused the driver to continue forward and to the right along a path opposite the case vehicle's 50 degree direction of principal force as the case vehicle decelerated and his face and

chest impacted his deployed air bag, and his right hand most likely contacted the rear view mirror. The rear view mirror was cracked, and there appeared to be a small smudge on the lower right corner (**Figure 8** above). The driver then most likely rebounded off the air bag and back into his seat. The driver remained in his seat as the case vehicle rotated counterclockwise to its final rest position, and he exited the case vehicle without assistance.

CASE VEHICLE DRIVER INJURIES

The police crash report indicated the driver sustained a "B" (non-incapacitating-evident) injury and refused transport to a medical facility. The driver stated in his interview that he was not injured, sought no treatment subsequent to the crash and lost no work days as a result of the crash.

OTHER VEHICLE

The 1999 Chrysler Cirrus LXi was a front wheel drive, four-door sedan (VIN: 1C3EJ56H2XN------) equipped with a 2.5L, V6 engine and four-speed, automatic transmission. The Chrysler was equipped with driver and front right passenger air bags which deployed as a result of the impact with the case vehicle. The Chrysler's wheelbase was 274 centimeters (107.9 inches).

Figure 14: Left front corner view of damage to left side of Chrysler from impact with case vehicle

Figure 15: Chrysler's damaged left fender and left front door from impact with case vehicle

Exterior Damage: The Chrysler's impact with the case vehicle involved the left fender, left front wheel and left front door (**Figures 14** and **15**) . The direct damage began 118 centimeters (46.5 inches) forward of the left rear axle and extended 203 centimeters (80 inches) forward along the left side of the Chrysler. Crush measurements were taken at the mid-door level, and the maximum residual crush was measured as 10 centimeters (3.9 inches) occurring at C_2 and C_3 The table below shows the Chrysler's left side crush profile.

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	203	10	172	0	10	10	4	4	0	86	93
in		79.9	3.9	67.7	0.0	3.9	3.9	1.6	1.6	0.0	33.9	36.6

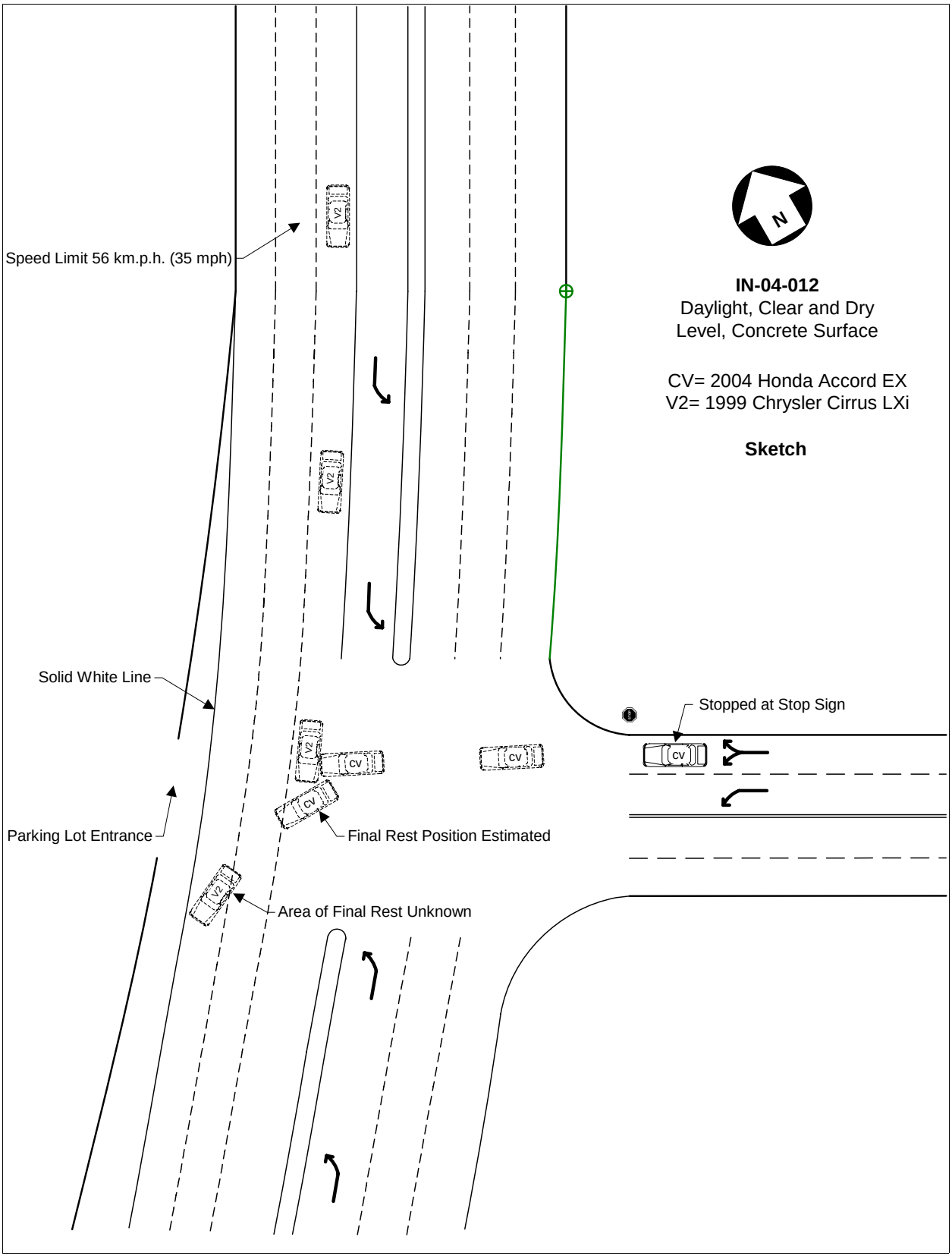
The Chrysler's left side wheelbase was reduced 6 centimeters (2.4 inches) while the right side wheelbase was extended 2 centimeters (0.8 inch). The Chrysler's left fender, left front door and left front wheel were directly damaged and crushed inward. Induced damage involved the front portion of the left fender and back portion of the left front door. In addition, the windshield the cracked.

The Chrysler's recommended tire size was: P195/70R14; however, the vehicle was equipped with tires sized P195/65R15. The Chrysler'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	248	36	207	30	4	5	Sidewall abraded, piece broken out of rim	No	No
RF	234	34	207	30	5	6	None	No	No
LR	165	24	207	30	5	6	None	No	No
RR	172	25	207	30	4	5	None	No	No

Damage Classification: Based on the vehicle inspection, the CDC for the Chrysler was determined to be: **11-LYEW-2** (**320** degrees). The WinSMASH reconstruction program, CDC only algorithm, was used to determine the Chrysler's Delta V. The Total, Longitudinal, and Lateral Delta Vs are, respectively: 19 km.p.h. (11.8 m.p.h.), -16.5 km.p.h. (-10.3 m.p.h.), and 9.5 km.p.h. (5.9 m.p.h.).

Chrysler's Occupants: According to the police crash report, the Chrysler's driver [17-year-old, White (non-Hispanic) male] was restrained by his manual, three-point, lap-and-shoulder, safety belt system. The police crash report indicated the driver sustained a "B" (non-incapacitating-evident) injury and refused transport to a treatment facility.


Speed Limit 56 km.p.h. (35 mph)
Solid White Line
Parking Lot Entrance
Stopped at Stop Sign
Final Rest Position Estimated
Area of Final Rest Unknown
V2
CV
N
IN-04-012
Daylight, Clear and Dry
Level, Concrete Surface
CV= 2004 Honda Accord EX
V2= 1999 Chrysler Cirrus LXi
Sketch