

COLLISION ANALYSIS & RECONSTRUCTION REPORT



EAU CLAIRE POST CASE # [REDACTED]

ST. CROIX COUNTY CASE # [REDACTED]

COLLISION DATE: 10-24-2006

**LOCATION: CTH N East of North Skyline Drive
ST CROIX COUNTY, WI**

PREPARED BY: KEITH A. YOUNG

**TROOPER
TECHNICAL RECONSTRUCTION UNIT
WISCONSIN STATE PATROL ACADEMY
608-269-2500**

REPORT DATE: February 14, 2007

TABLE OF CONTENTS

INFORMATION UTILIZED FOR COMPLETION OF REPORT	3
SYNOPSIS	4
OBJECTIVE	4
COLLISION SCENE.....	4
COLLISION SEQUENCE.....	5
SERVICE BULLETIN	6
VEHICLE INSPECTION	6
FORENSIC SCENE MAPPING	7
SENSING AND DIAGNOSTIC MODULE.....	7
EXEMPLAR VEHICLE MEASUREMENTS.....	8
SPEED ANALYSIS	9
VEHICLE FACTORS.....	9
HUMAN FACTORS.....	10
ENVIRONMENTAL FACTORS.....	10
WEATHER.....	10
MOON POSITION	11
ROADWAY CONDITION.....	11
VISIBILITY CONDITIONS.....	11
INVESTIGATIVE SUMMARY	11
APPENDIX	12
TROOPER TRAYNOR'S REPORT	ATTACHED
INSPECTOR WRIGHT'S REPORT.....	ATTACHED
SCALED SCENE DRAWING.....	ATTACHED
VETRONIX CRASH DATA RETRIEVAL REPORT	ATTACHED

INFORMATION UTILIZED FOR COMPLETION OF REPORT

1. Wisconsin Motor Vehicle Accident Report MV4000 completed by Deputy Eric Johnson.
2. Narrative Reports by St Croix County Sheriff's Department Deputy Eric Johnson.
3. Narrative Report by Trooper William Traynor.
4. Forensic Mapping Measurements by Troopers Keith Young and William Traynor.
5. Scene Photographs by Deputy Sommers and Trooper Young.
6. SDM Photographs at St Croix County impound lot by Trooper Young.
7. Moon Position Data, U.S. Naval Observatory.
8. Weather Conditions Data, Weather Underground.
9. Vetronix CDR Report for 2005 Chevrolet Cobalt VIN; [REDACTED]
10. Interview by Deputy Johnson with:
 - [REDACTED]
 - [REDACTED]
 - [REDACTED]
11. Wisconsin Department of Transportation Records for [REDACTED]

SYNOPSIS

On October 24, 2006, a Chevrolet Cobalt driven by [REDACTED] was eastbound on CTH N just east of North Skyline Drive. The [REDACTED] vehicle traveled onto the south shoulder and into the south ditch. The vehicle then launched off of the west edge of a driveway and became airborne. The vehicle landed and traveled through the ditch before striking a telephone junction box and two trees. The vehicle then rotated clockwise coming to rest in the south ditch facing south. [REDACTED] sustained serious injuries. The right front seat passenger [REDACTED] and left rear seat passenger [REDACTED] later died as a result of injuries they received in the crash.

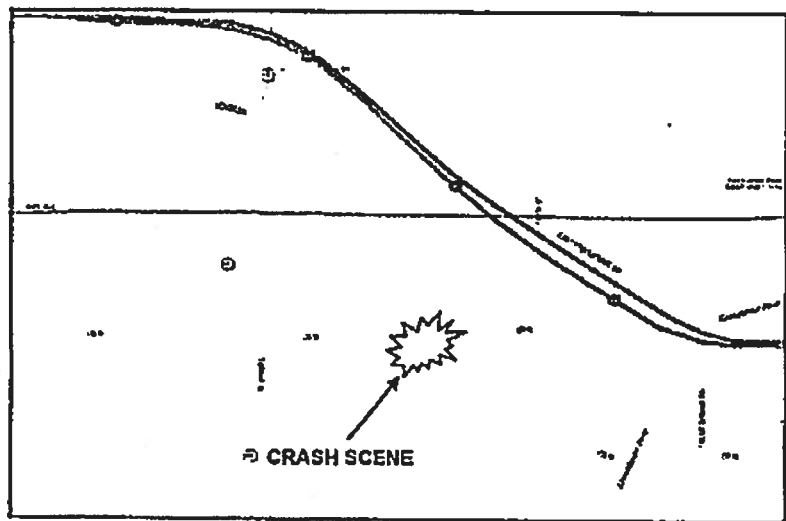
OBJECTIVE

The primary objective of this analysis is to evaluate the speed and positions of the [REDACTED] vehicle during the collision sequence. A study of the vehicle, human or environmental factors including safety belt use and airbag non-deployment will also be performed.

COLLISION SCENE

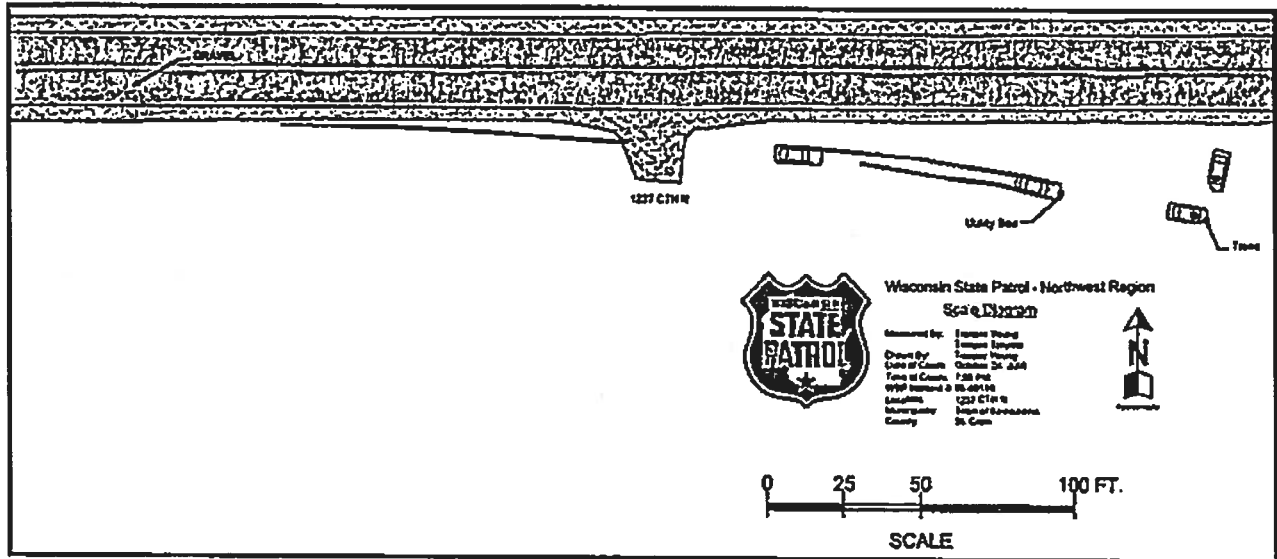
The crash scene is located on CTH N east of Skyline Drive in the Township of Kinnickinnic. This is a rural area of St. Croix County. The pavement in the area of the crash is traveled asphalt flanked by gravel shoulders. Traffic traveling east on CTH N has a downgrade of approximately 0.05 percent.

Upon my arrival on scene I viewed the scene with Deputy Mark Sommers and Trooper William Traynor. The roadway leading up to the crash scene was inspected for any indication as to why the [REDACTED] vehicle left the road. The first evidence that could be observed was gravel from the shoulder scattered onto the eastbound lane approximately 195 feet west of the driveway at 1237 CTH N. This was most likely caused by the tires of the [REDACTED] vehicle as they left the roadway. There were rolling tire marks in the south ditch that lead up to the edge of the driveway. The vehicle then struck the sloped driveway embankment and vaulted approximately 59 feet through the air. The vehicle landed and traveled another 82 feet before striking a telephone junction box. The vehicle then traveled an additional 46 feet before striking a grouping of two trees, and rotating approximately 94 degrees. The vehicle came to rest just north of the trees, facing south in the south ditch.



COLLISION SEQUENCE

As the [REDACTED] vehicle traveled down a slight grade her vehicle went onto the south shoulder and into the south ditch. When the vehicle approached the driveway at house number 1237 it launched off of the west edge of the driveway and was airborne for approximately 59 feet. The vehicle landed and traveled approximately 82 feet before striking a telephone junction box and knocking it down. The vehicle then traveled another 46 feet through some brush before striking two larger trees. The vehicle then rotated clockwise approximately 94 degrees while traveling another 14 feet before coming to rest.



SERVICE BULLETIN

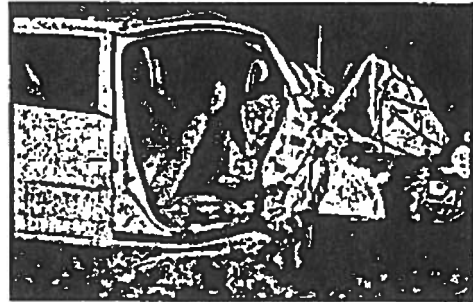
On October 27, 2006, I obtained a printout of a General Motors document ID# 1686453 (*A/C system wiring or dual stage airbag module wiring # 05034A – (07/22/2005)*) for a 2005 Chevrolet Cobalt. I also obtained a copy of the GM Vehicle Inquiry System Summary for the 2005 Chevrolet Cobalt VIN: [REDACTED]. These reports were forwarded to State Patrol Inspector George Wright. Inspector Wright reviewed the two GM reports to determine if the appropriate repairs were made. Inspector Wright advised me that the air conditioning wiring repair was the correct repair for this vehicle and that the reports indicate that the air conditioning wiring repair was done. Inspector Wright further advised that the dual stage airbag module wiring was not required to be changed on this vehicle. (See *Inspector Wright's report*).

VEHICLE INSPECTION

2005 CHEVROLET COBALT VIN [REDACTED] DRIVER: [REDACTED]

On October 24, 2006, while at the scene I examined the vehicle and the following observations were made:

There was heavy frontal contact damage concentrated on the right side and induced damage to the roof and passenger side. Emergency medical services (EMS) had removed the right front passenger door and cut both A-pillars to extricate the front seat occupants.



Tires

Left Front tire, P195 60 R15 Continental, tire flat 0/32 tread depth
Right Front tire, P195 60 R15 Continental, 1/32 – 2/32 tread depth
Left Rear tire, P195 60 R15 Continental, 6/32 – 6/32 tread depth
Right Rear tire, P195 60 R15 Continental, 5/32 – 6/32 tread depth

Seatbelts

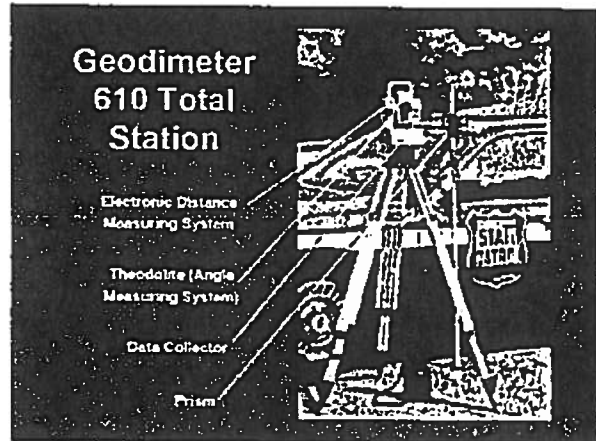
Driver seat belt retracted, no signs of use
Right Front passenger seat belt retracted, no signs of use
Left Rear passenger seat belt retracted, no signs of use
Center Rear passenger seat belt retracted, no signs of use
Right Rear passenger seat belt locked retracted, no signs of use

On December 11, 2006, I met with Robert Wozniak an engineer from Skogen Engineering at the St. Croix County impound lot to inspect the vehicle. The fuse block was examined, it was determined that fuse number 28 for the audio system was blown. It was also confirmed that the airbag wiring procedure noted in service bulletin #05034A had not been done.

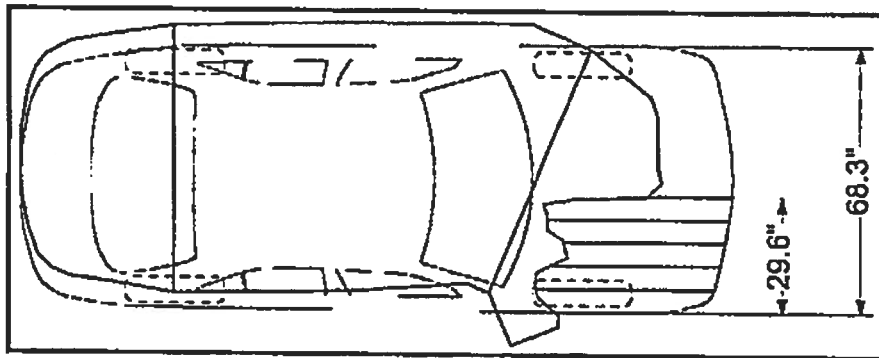
**** Note:** As mentioned in the above section titled *Service Bulletin*, the airbag wiring procedure did not apply to this vehicle.

FORENSIC SCENE MAPPING

On October 24, 2006, with the assistance of Trooper William Traynor the crash scene was mapped with the State Patrol's Geodimeter 610 Total Station. Detailed measurements of the scene were taken locating roadway and lane edges, tire marks, a utility box and tree as well as the final rest position of the vehicle involved in the crash. The measurements obtained using the total station were then used in *Crash Zone*, a *Computer Aided Drawing* (CAD) program to produce a forensic map of the crash scene.



On November 6, 2006, Trooper Traynor and myself went to the St. Croix County Impound Lot to measure the damage profile of the [REDACTED] vehicle. Using the State Patrol's Geodimeter 610 Total Station, measurements of the [REDACTED] vehicle were taken to determine the amount of deformation that was caused by the collision with the trees.



SENSING AND DIAGNOSTIC MODULE

On November 8, 2006, I obtained a signed release to retrieve the data stored in the Sensing and Diagnostic Module (SDM) from [REDACTED] the registered owner of the 2005 Chevrolet Cobalt VIN: [REDACTED].

On November 13, 2006, Trooper Traynor and myself returned to the St. Croix County Impound Lot. We located the SDM between the front seats of the [REDACTED] vehicle. I photographed the SDM prior to and after its removal. The SDM appeared to be connected and undamaged.

On November 15, 2006, I used the State Patrol's Vetronix Crash Data Retrieval (CDR) equipment connected directly to the module to read the information recorded on the SDM. The data was successfully downloaded to my Panasonic CF-28 laptop computer. The data retrieved from the SDM was recorded on the CDR File Report (*See attached CDR report*).

SPEED ANALYSIS

The ***Vault Formula*** was used to determine the speed of the vehicle when it vaulted off of the driveway. The vault speed was calculated to be approximately **48 mph**. A crush analysis was also performed to determine the speed lost impacting the grouping of two trees and damaging the front of the vehicle. The crush calculations indicated a speed of approximately **38 mph** at the trees.

VEHICLE FACTORS

The ignition switch on the [REDACTED] vehicle appears to have been in the accessory position when it impacted the trees preventing the airbags from deploying. A search of the National Highway Transportation Safety Administration (NHTSA) web site indicates five complaints of 2005 Chevrolet Cobalt ignition switches turning off while the vehicle was being driven. Three of the complaints talk about the knee or leg touching the ignition or key chain causing the engine to turn off.

On December 12, 2006, a printout of General Motors Document ID# 1869035 (*inadvertent turning of key cylinder, loss of electrical system and no DTSS # 05-02-35-007A-(10/25/2006)*) for the 2005 – 2007 Chevrolet Cobalt was obtained. The bulletin discusses the potential for the driver to inadvertently turn off the ignition due to low key cylinder torque/effort.

The bulletin goes on to mention that the condition is more likely to occur if the driver is short and the key chain is large and/or heavy. A shorter person would have the seat position closer to the steering column.

It appears likely that the vehicles' key turned to accessory as a result of the low key cylinder torque/effort.

While both front tires of the [REDACTED] vehicle had illegal tread depth it does not appear that this condition contributed to the crash in any way. There was an inspection of the pavement for several hundred feet leading up to the point that the [REDACTED] vehicle went onto the gravel, no tire or rim marks of any kind were found. If a vehicle has a flat tire causing loss of control, some tire marking from the flat tire and/or the metal rim should have been visible on the asphalt pavement.

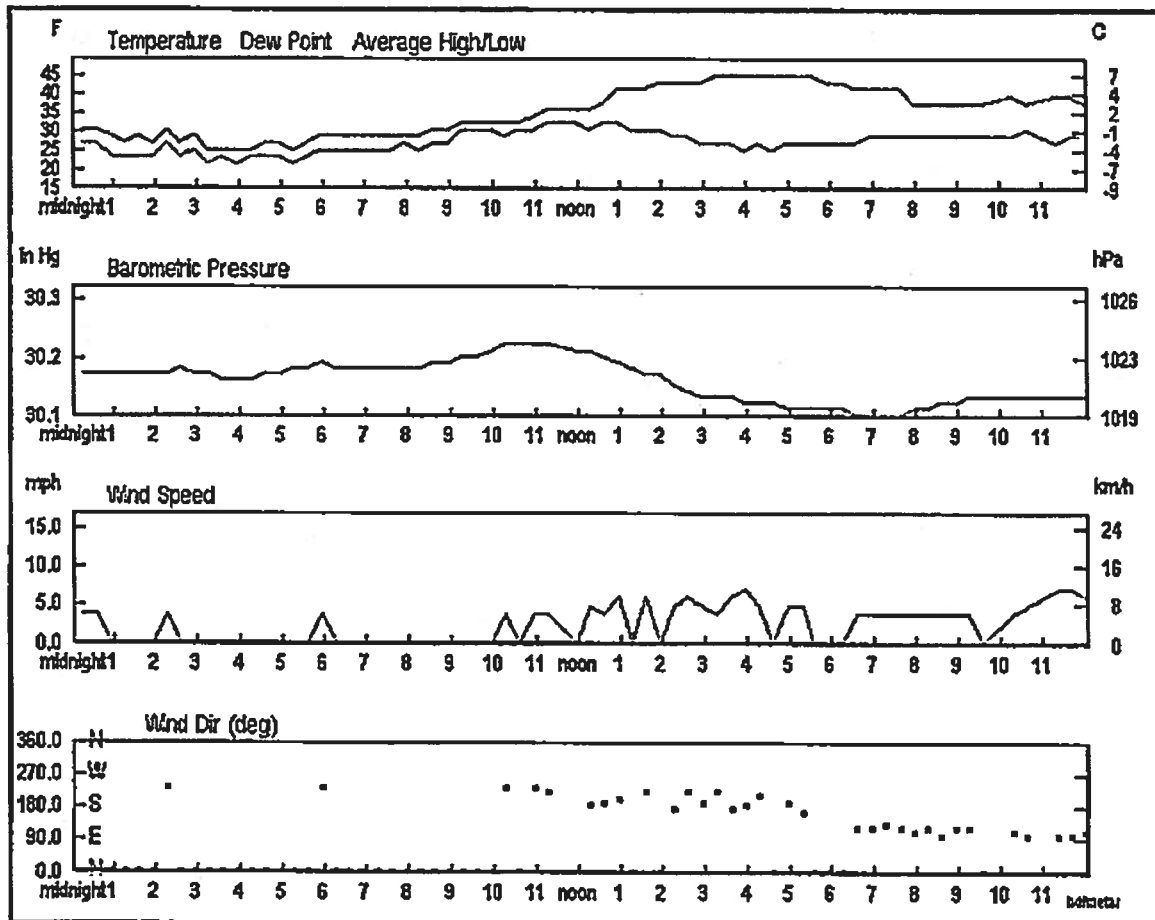
HUMAN FACTORS

[REDACTED] was traveling east down a slight grade on a straight portion of CTH N. For some unknown reason the vehicle traveled off of the pavement at a gradual angle into the south ditch. A review of [REDACTED] Wisconsin drivers' license status showed that she had a valid instruction permit. The instruction permit requires a qualified licensed driver be seated in the right front seat. According to the Wisconsin Department of Transportation driver license files, the right front seat passenger [REDACTED] did not have a drivers' license and was not a qualified licensed driver.

ENVIRONMENTAL FACTORS

Weather

The weather conditions were reported by the Weather Underground for New Richmond, Wisconsin (*the nearest reporting station*) on October 24, 2006, at 7:55 pm as mostly cloudy skies, visibility was 10 miles, the wind was out of the east south east at 3.5 mph and the temperature was 37.8 degrees. The weather does not appear to have been a factor in the crash.



Moon Position

U.S. Naval observatory data indicates that on October 24, 2006, at 7:55 pm the moon was below the horizon and would not have been a factor in the crash.

Roadway Condition

The roadway surface for CTH N is a traveled asphalt pavement. The surface was dry. The yellow centerlines and white edge stripes were clearly visible. The road does not appear to have been a factor in the crash.

Visibility Conditions

There were no observed visibility conditions that contributed to the crash.

INVESTIGATIVE SUMMARY

The following statements are opinions and inferences of this author. They are based upon the information reviewed to date. These statements are accurate to a reasonable degree of scientific certainty:

- None of the occupants were wearing their safety belts at the time of the crash.
- The two front seat airbags did not deploy. It appears that the ignition switch had somehow been turned from the run position to accessory prior to the collision with the trees.
- [REDACTED] drivers' license status was a valid instruction permit. [REDACTED] was violating the restrictions on her instruction permit by operating a vehicle without a qualified licensed driver in the right front seat.
- The front tires of the [REDACTED] vehicle did not have the required minimum legal tire tread depth of 2/32 inch in two or more places on each front tire.
- The speed calculated from the vault at the driveway of 48 mph and the crush speed at the trees of 38 mph do not match the information recorded in the five seconds of pre-crash data on the SDM; this may be due to power loss.

Respectfully Submitted,

[REDACTED]

Keith A. Young

Accredited Crash Reconstruction Specialist ACTAR #1426
Wisconsin State Patrol



APPENDIX

Trooper Traynor's Narrative Report
Inspector Wrights Narrative Report
Vetronix Crash Data Retrieval Report
Scaled Scene Drawing

CRASH RECONSTRUCTION REPORT SUPPLEMENT WISCONSIN STATE PATROL NORTHWEST REGION



CASE NUMBER: 06-49116

REPORTING INVESTIGATOR: Trooper William Traynor

CRASH TYPE: Fatal

(715) 839-3800

CRASH INFORMATION

Date of Activity

On Tuesday, October 24 2006, I was called out from my residence to respond to a serious personal injury motor vehicle crash in the 1200 block of CTH N in St. Croix County. I responded to the scene arriving at 9:30pm. DSP Technical Reconstruction Unit (TRU) Investigator Keith Young, and DSP Troopers Lance Loonsfoot and Korey Shilts met me at the scene. St. Croix County (SCSO) Deputies Eric Johnson and Marc Sommers were also on scene. Information I received at the scene indicated a one-vehicle crash involving collision with a tree. All three occupants of the vehicle had been transported from the scene prior to my arrival. Vehicle was a white Chevrolet Cobalt displaying Wisconsin registration [REDACTED]. Inspecting the scene it appeared the vehicle was eastbound on CTH N when vehicle left the roadway to the right entering a steep ditch where it continued striking a driveway embankment at 1248 CTH N. Vehicle appeared to vault after impact with the driveway continuing in an south easterly decent into the ditch where it struck a phone junction box and continuing into a tree where it impacted in the right front causing the vehicle to rotate clockwise before final rest. Vehicle sustained major frontal structure damage.

Vehicle examination showed that there were no airbag(s) deployment and a visual inspection revealed airbags still seeded inside of their steering wheel cavity and dash compartment. I was advised the occupants were not restrained inside of the vehicle. Front tires on the vehicle displayed excessive wear. Vehicle was towed to the St. Croix County Impound lot in Hudson under escort by SCSO deputy Dick Koenig.

Young and myself set up the Geodimeter 610 Total Station unit and mapped the roadway profile, tire marks, tree and final rest of the vehicle. We completed the on-scene mapping at approximately 1:00am.

On Monday, November 6, 2006 at approximately 11:00am, where I met with TRU Investigator Young. There was also a representative from the National Highway Safety Institute was inspecting the vehicle due to the non-deployment of supplement restraint system. Again using the Geodimeter 610 unit, Young and I mapped the vehicle profile of the Chevrolet Cobalt recording crush damage.

Respectfully submitted,

William Traynor
Technical Crash Investigator
Wisconsin State Patrol
Northwest Region, Eau Claire Post



Wisconsin Department of Transportation



State Patrol Headquarters District 3
Junction Highways 41 & 151
PO Box 984
Fond du Lac, WI 54936-0984
Telephone [REDACTED]
Office Fax [REDACTED]
Radio Fax [REDACTED]

11-16-06

N501 State Highway 40
Elk mound, WI 54739

Trooper Young,

On 11-16-06, I, Inspector G. Wright, stopped at Sheboygan Chevrolet and spoke with the Service Manager, Tim Wilsing. I had him look up the recall information on VIN number [REDACTED]. I was informed that the recall was completed on this vehicle. I asked him if we removed the airbag/seatbelt module would have any effect on future testing, he then called and asked the technician which we were informed that this would not be a problem.

Sincerely,

Inspector G. Wright