

# CRASH TALK

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## Timely Evidence Gathering

By Donald K. Pohl, P.Eng., Partner

When reconstructing an accident, we often rely on data gathered by someone else. This data typically consists of Police scene information such as photographs and measurements, but may also consist of vehicle photographs taken by an adjuster or appraiser. This is just a fact of life in this business. However, relying on external data can have certain disadvantages including delays in getting the data (Police) and potentially less weight given to our opinion in court if we have not gathered the data ourselves. Last year, the RCMP Analysts were told by RCMP management not to release data, and any requests must go through the RCMP Access to Information and Privacy (ATIP) Office in Ottawa. This had the unfortunate consequence of denied data requests and/or blacked out data, not to mention the significant time delay in getting data, if Ottawa released it at all. Fortunately, RCMP procedures have been reviewed and the RCMP Analysts are once again allowed to release data such as their scene photographs and measurements. However, this experience highlighted the importance of gathering data in a timely fashion, before evidence erodes and especially when the Police did not gather scene data.

Roadway evidence is relatively short lived and should be well documented as soon as possible after a crash (within a week or two). Tire marks start to deteriorate within hours or minutes and thus, the sooner the site is photographed and measured, the more data can be gathered and the stronger the analysis will be. Furthermore, weather and traffic rapidly erode evidence if not documented soon after a crash.

Vehicles are typically less important to document immediately, as long as they are not tampered with. However, with lower speed crashes, vehicles are often repairable and thus, a thorough vehicle examination within days of the incident may be critical to these cases. Many newer vehicles also record crash data (e.g. speed) and, in many cases, this data is volatile and can be over-written, especially in low speed crashes without air bag deployment. Therefore, if a vehicle is driveable after a collision, the electronic (“black box”) data should be downloaded as soon as possible (within a week or two).

**Good data  
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Survey Total Station

In summary, good data is vital for a reliable analysis and thereby a solid foundation for litigation. For this, we recommend a site inspection be completed within a week or two after the collision (if roadway evidence exists). Appropriate site photographs and measurements are the cornerstone of most collision reconstructions, without which, vehicle damage only provides one piece of the puzzle. Vehicle inspections are next in line of importance, and vehicles should be examined (and downloaded if applicable) before being sold for parts

or repaired. Lastly, any other data should be obtained, such as Police and witness data, as Police may purge their file, and witnesses tend to forget details as time passes.

*Don Pohl, P. Eng. has been a Collision Reconstruction Engineer with Graham Ryan Consulting Ltd. for eight years. He has been involved in local ice racing events as well as in-house vehicle crash tests, skid tests and acceleration tests.*

# Black Box Technology Update

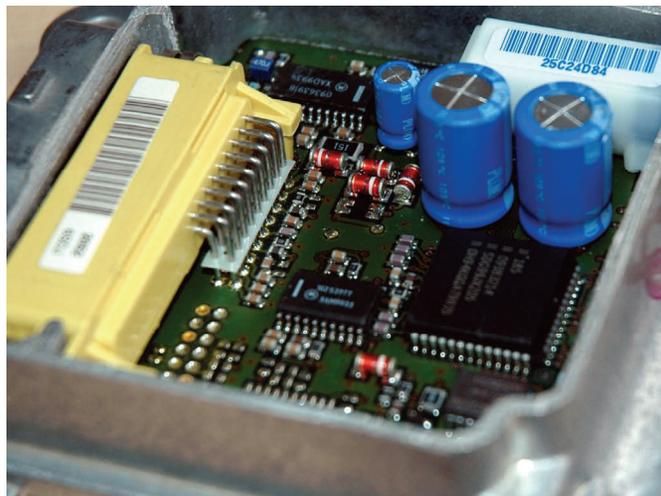
By Craig Assenheimer, P.Eng.

The ever-changing landscape of “black box” electronic crash-related data was shifted dramatically in January 2008, with significant changes to the download hardware and software. This allows access to information stored on many more vehicles than were previously available:

## Chrysler (Dodge, Jeep):

One of the biggest developments from this update was Chrysler coming on board and allowing access to information from their vehicles. Starting from model year (MY) 2004, the list of supported vehicles includes many popular vehicles such as Durango, Ram, Caliber and Liberty. Notably, information is not available from the Caravan minivan—one of the most popular vehicles on the road.

Chrysler vehicles only record data when an air bag is deployed, and only record pre-crash data. This may include vehicle speed, throttle position, braking, cruise control status, traction control status, gear shift position, tire pressure status, and so forth; it does not include  $\Delta V$  or seat belt status. Pre-crash data is recorded every 0.1 second for 2 seconds prior to deployment.



Cutaway view showing the workings of a GMC air bag control module.

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## General Motors (Buick, Cadillac, Chevrolet, Hummer, Pontiac, Saab, Saturn, Isuzu):

We can now download 2008 MY vehicles. As before, the information recorded may include pre-crash information such as speed, braking, speed change ( $\Delta V$ ), accelerator position, seat belt use, and engine RPM, for up to 5 seconds prior to the event. Additionally, some modules record vehicle status information, such as low tire pressure warnings, exterior temperature, and cruise control status.

Starting in MY 2007, some vehicles, including the popular Silverado and Sierra pickup truck, have an additional downloadable roll-over sensing module which records information about lateral acceleration and vehicle roll rate.

## Ford (Lincoln, Mercury):

Traditionally, Ford air bag control modules have recorded only  $\Delta V$  and sometimes, seat belt status. While this has not changed, we can now access some information stored in the power train control module (PCM). The PCM records engine management information such as cruise control status, accelerator pedal position, braking, ABS status, vehicle speed, shifter position, and such. Most PCMs record 25 seconds of data, but a few modules record for up to 6 minutes.

A complete list of supported vehicles is available at [www.cdr-system.com](http://www.cdr-system.com) or by contacting a member of our technical staff.

Because this technology is so new, there are still many wrinkles to iron out, in terms of data reliability and interpretation. There are many quirks with downloaded data which continue to reinforce that electronic data downloads do not replace a reconstruction, they merely provide another source of information to help decipher what happened during a crash, and should be used to support or corroborate an analysis. 

*Craig Assenheimer has been on staff for six years and has worked on many types of accidents, specializing in black box downloading. He has also performed numerous low speed crash tests at the GRC test facility .*

## Recalls

 2006-2007 Ford E-150, E-250, E-350, 2007 Expedition and Lincoln Navigators with 5.4L engines. The fuel rail cross-over hose may crack, causing a fuel odor and/or fuel leak which may result in a fire.

 2002-2003 Subaru Impreza wagons. The stud bolt(s) of the rear gate stay may not have been tightened sufficiently. After repeated use the gate inner panel at the welding nut (hinge) may break, which will lead to detachment. This may cause injury to someone loading or unloading under the rear gate panel.

## Crash Corner

 Stop Now! Our testing has shown that an ABS equipped car may require a longer stopping distance than a regular hydraulic braked car on snow, ice or gravel.