

# CRASH TALK

IN THIS ISSUE



**Inaugural Issue!**

**Ten-Year Anniversary Celebrated with Edmonton Open House  
Event Data Recorder Update**

*NEXT ISSUE: Was the motorcycle speeding?*

## Welcome

By James W. Graham, P.Eng., Principal Engineer

Welcome to the first edition of CRASHTALK, the newsletter published by Graham Ryan Consulting (GRC) Accident Reconstruction Engineering for the insurance and legal community of Alberta. We specialize in vehicle collision analysis and investigate just about everything that goes wrong. Whether the issues involve a crash, a defect, a blown tire, a recall, an air bag, a "black box" or a mechanical failure, GRC can help unravel the technical issues surrounding a vehicle problem.

CRASHTALK is designed to be a quick and interesting read. The page is hole-punched to allow you to archive the newsletters into a personalized binder (e-mail or call us if you would like one). We hope you will enjoy the newsletter and offer some feedback. We plan to publish quarterly. There are many topics to cover so let us know if there is a subject of particular interest to you.

### HISTORY


Ten years ago, in October 1995, I opened an office in Manulife Place. When I started Graham Ryan Consulting Ltd in 1995, the "low-speed" investigation



was the hot topic. We didn't have a crash test barrier at the time, but we found our underground parking garage was a quick and convenient place to bump cars. It came complete with lights, a clean, dry floor and power outlets for our test equipment. Thus, our first crash tests were something of an "underground" operation. Expansion saw us grow in Manulife Place to several offices until we moved to our Edmonton west end facility, complete with an "above ground" crash testing barrier and inspection bay. Our Calgary office joined in the fun in 1997 (on St. Patrick's Day) with partner Patrick Ryan, P.Eng.

### ANNIVERSARY

On October 20<sup>th</sup>, 2005, we celebrated our 10<sup>th</sup> Anniversary at Graham Ryan Consulting Ltd. Over 100 attendees helped us celebrate the milestone and reminisce about things of the past (clients, employees, hair, etc...). To help celebrate the event, we crashed a Buick into our 110,000 pound concrete and steel barrier. The final score was Barrier "2", Buick "0". We crashed it backwards and forwards into the wall to demonstrate "bumper over-ride" damage. I buckled up and gave the Buick its final journey. Bang! In 1/10<sup>th</sup> of a second, the car lost 15 km/h (and about 20 cm of the front end). The seat belt did its job and I returned to manning the displays.

We now have 7 full time vehicle collision reconstruction staff 4 in Edmonton and 3 in Calgary. Both offices are equipped with 9000 lb hoists for drive-in vehicle inspections, as well as vehicle storage bays for written-off vehicles. To all the clients over the last 10 years, a sincere "Thank you" for the opportunity to be of service. 

*Our first crash tests were something of an "underground" operation*

# Event Data Recorder Update

By D. Patrick Ryan, P.Eng., Partner

Event Data Recorder (EDR) technology is a rapidly evolving accident reconstruction tool, and Graham Ryan Consulting Ltd. maintains a high degree of technical proficiency in its use. NHTSA (the National Highway Traffic Safety Administration) estimates that 65-90% of model year 2004 passenger vehicles have "some data recording capability". EDR downloads (often referred to as "black box" downloads) are accomplished by means of the Crash Data Retrieval (CDR) system, developed by Vetronix Corporation.

At the time of the public introduction of the CDR download kit by Vetronix in 2000, the data available to investigators was relatively limited. Since then, coverage has become increasingly more extensive, with downloads from most GM and some Ford models now being possible. Currently, Vetronix estimates the system is capable of accessing approximately 41 million passenger vehicles currently registered throughout North America.

A 2001 Ford Taurus download can indicate:

- Whether front seat belts were buckled
- Was the driver's seat in the forward position
- The severity of the crash (delta-V), and more



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A 2003 Chevrolet Silverado download provides:


- Speed prior to the crash
- Driver's seat belt status
- Gas & brake pedal status 5 seconds before impact

In the context of complete collision investigations, Event Data Recorder downloads can help determine:


- If the gas pedal was floored to "beat the amber"
- Vehicle speed prior to braking
- Whether the brakes were applied before the crash
- If the driver steered to avoid the crash
- Whether the cruise control was "on", and more.


Other manufacturers are in the process of coming online in the near future (Toyota and Chrysler are most likely next), and the volume of crash data available for download continues to expand rapidly. However, users of the CDR system must undergo and maintain appropriate training to understand both the capabilities and limitations of this technology.

*The CDR System is capable of accessing approximately 41 million passenger vehicles in North America*

Training in the use of the CDR system has evolved along with the system itself. The current certification process consists of two parts: a "Download Technician" (the operator's ability to obtain the data), and "Analyst" (the operator's ability to evaluate the results). In addition to being among the first to make use of this CDR technology, Graham Ryan Consulting Ltd. maintains certification for all technical staff, to keep up with its rapidly-changing pace. Moreover, we are now the first and only fully private company in Western Canada certified to offer Download Technician training to other organizations. We encourage you to contact us to see how EDR data may assist your collision investigation. 

## Crash Corner

 When speed is doubled, it takes four times as far to stop.

 A full size diesel pickup truck weighs about four times more than a Smart Car. So, the Smart Car driver would "feel" four times more impact.