"BLACK BOX"
ACCIDENT INFORMATION IS NOW AVAILABLE FROM SOME AUTOMOBILES

An update on leading edge technology in Accident Reconstruction from Timothy J. Reust

Most people today are familiar with the terms "black box" or "flight data recorder" because of the publicity detailing aviation accidents. Now a similar device also exists in our automobiles. After an accident, information can be retrieved from the "black box" in the vehicle for the purpose of evaluating an accident event.

In 1997, the National Transportation Safety Board (NTSB) made the recommendation that the National Highway Traffic Safety Administration (NHTSA) and automobile manufactures work together to develop a method to collect motor vehicle collision data by means of on-board recording devices. In response, General Motors agreed to add a memory device to the existing airbag sensing and diagnostic module **(SDM)** found on their vehicles. That agreement led to the development of hardware and software capable of downloading and displaying the crash information in a usable format. This new development is called the **Crash Data Retrieval system (CDR)** and is produced by the Vetronix Corporation.

Currently, the Crash Data Retrieval system works with the newer General Motors vehicles (Buick, Chevrolet, Cadillac, GMC, Oldsmobile and Pontiac) as well as a few of the Saturn and Isuzu vehicles.

The ability to download accident information from Ford, Lincoln and Mercury vehicles will be available in the Fall/Winter of 2001. Vetronix recently signed an agreement with Ford Motor Company and is currently in the process of developing the software and hardware for that application.

Information from the "black box" can be used for several purposes. The information can be used in conjunction with traditional methods of accident reconstruction to evaluate the speed of the vehicle at the time of impact and along its path leading up to impact. The information can be used to evaluate driver input in terms of throttle and brake application. The information can be used to evaluate the performance of the vehicle in terms of acceleration and deceleration. **The data can also be used to provide an early understanding of potential liability and as a means to evaluate fraud.**

With the General Motors, Saturn and Isuzu vehicles, the type of information available from the "black box" depends on the year of the vehicle. With the 2000 and newer vehicles and some 1999 models, the "black box" in the vehicle will record five seconds of data pertaining to **vehicle speed, engine RPM, throttle position, brake application, driver's seat belt status and velocity change (delta V)**. The system will also work with vehicles dated back to 1996, but contains less information. A deployment of the front air bag is usually required to trigger the recording. A minor frontal collision or sometimes very hard brake application can cause the sensors to "wake up" and record a near-deployment event (no deployment of the air bag). Near-deployment data is available from some 1999 models and all 2000 and newer vehicles. Near-deployment data includes five seconds of information pertaining to vehicle speed, throttle position, brake application and driver's seat belt status. After an accident this information can be downloaded from a port inside the vehicle or directly from the SDM. The SDM can also be removed from the vehicle and downloaded at a later time if necessary. The SDM is typically located under the driver's or passenger seat or under the center console and its physical dimensions are approximately 4 by 4 by 1.5 inches. The equipment used for the download consists of the CDR system and a laptop computer.

Timothy J. Reust has the equipment, certified training and experience to utilize this innovative development. When you begin working with your next case involving issues that can be answered by the "black box", consider making use of current technology to assist with the evaluation. Copies of typical printouts from the downloaded information have been included with this letter. A copy of the list detailing all the vehicles that are currently supported by the CDR software is available. Please give us a call or visit our website at **www.accidentscience.com** for further information on this and other accident reconstruction services.

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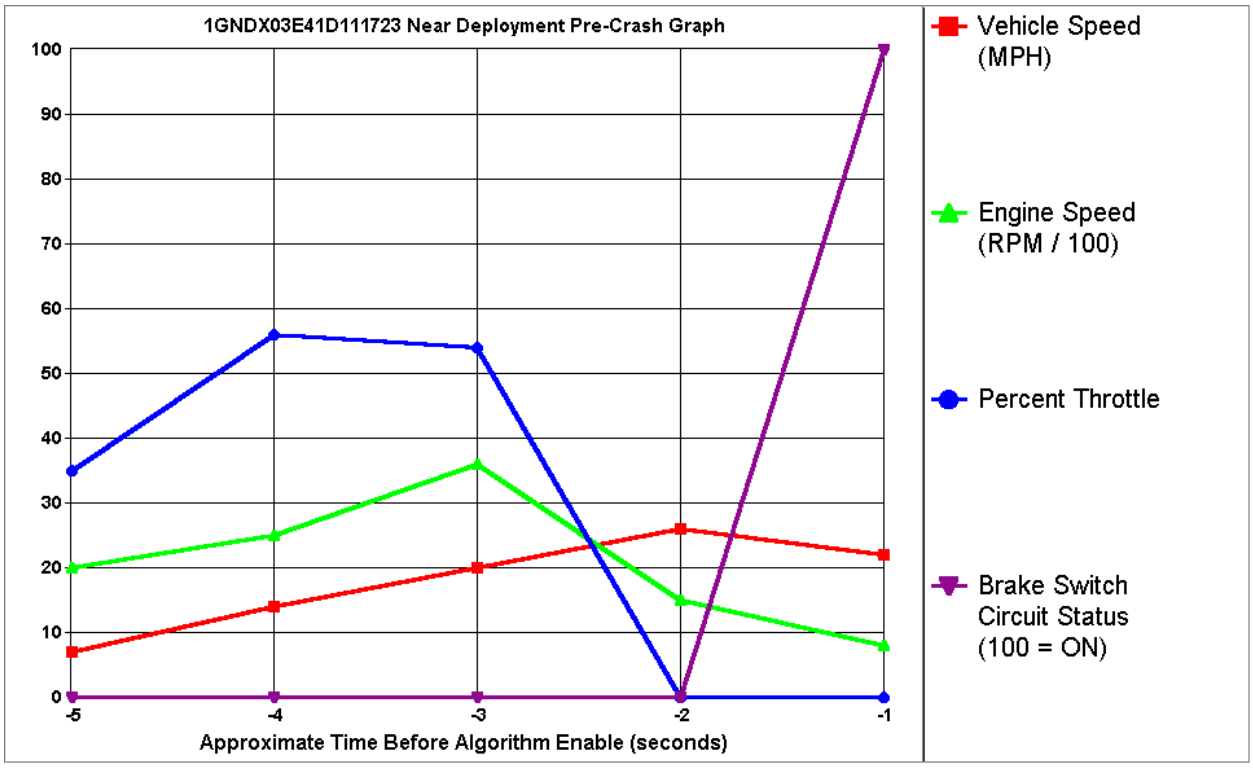
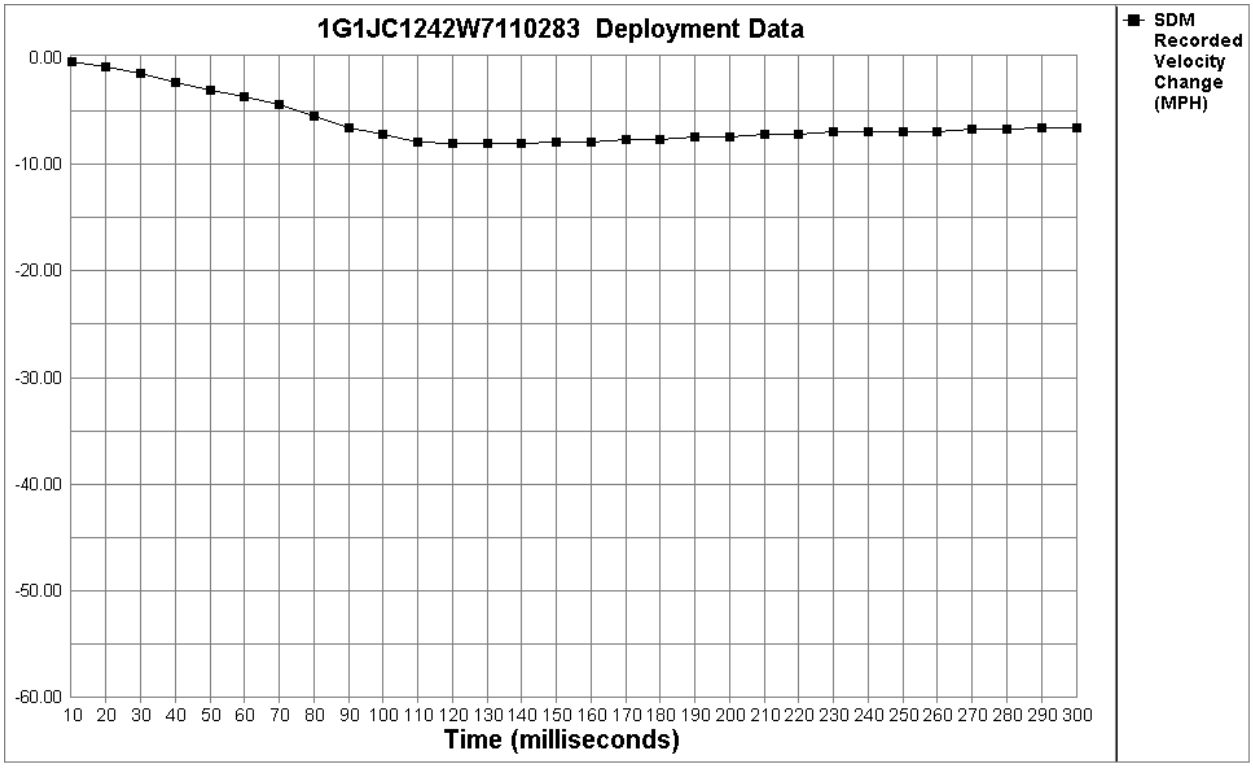


1GNDX03E41D111723 System Status At Near Deployment	
SIR Warning Lamp Status	OFF
Driver's Belt Switch Circuit Status	BUCKLED
Passenger Front Air Bag Suppression Switch Circuit Status	Air Bag Not Suppressed
Ignition Cycles At Near Deployment	1578

PRE-CRASH DATA			Electronic Data Validity Check Status = VALID	
Seconds Before AE	Vehicle Speed (MPH)	Engine Speed (RPM)	Percent Throttle	Brake Switch Circuit Status
-5	7	2048	35	OFF
-4	14	2496	56	OFF
-3	20	3584	54	OFF
-2	26	1472	0	OFF
-1	22	768	0	ON



1G1JC1242W7110283 System Status At Deployment	
SIR Warning Lamp Status	OFF
Driver's Belt Switch Circuit Status	BUCKLED
Passenger Front Air Bag Suppression Switch Circuit Status	Air Bag Not Suppressed
Ignition Cycles At Deployment	3687
Ignition Cycles At Investigation	3723
Time From Algorithm Enable To Deployment Command (msec)	31.25
Time Between Near Deployment And Deployment Events (sec)	2.28

Time (milliseconds)	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150
Recorded Velocity Change (MPH)	-0.44	-0.88	-1.54	-2.41	-3.07	-3.73	-4.39	-5.49	-6.58	-7.24	-7.90	-8.12	-8.12	-8.12	-7.90
Time (milliseconds)	160	170	180	190	200	210	220	230	240	250	260	270	280	290	300
Recorded Velocity Change (MPH)	-7.90	-7.68	-7.68	-7.46	-7.46	-7.24	-7.24	-7.02	-7.02	-7.02	-7.02	-6.80	-6.80	-6.58	-6.58