Auto "Black Box" Data – Industry Update

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October 31, 2003

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Since *Claims* published an article on auto "black boxes" in August 2002, there have been significant developments regarding auto "black box" technology, or event data recorders (EDRs). This article examines the developments pertaining to their use in the evaluation and resolution of auto insurance claims.

Increased Availability

The EDR is original equipment which detects a collision event and determines if the airbag should deploy or if restraint systems should be activated. Activation of the system stores various collision data in the vehicle's air bag control module. Initially, with the proper equipment, this data could be extracted from selected GMs manufactured since 1996 (including Saturns) and virtually all GM models manufactured since 1998. Within the last 12 months, data from selected Ford and Isuzu models manufactured since 2001 and certain 1994 and 1995 GM models can now be extracted. Additional models to have this capability in the near term include other Ford, Lincoln, and Mercury vehicles as well as Toyotas.

With these additions, approximately 19 percent of all operational private passenger sedans, pickup trucks, SUVs, vans and minivans will have extractable black box data. Without the addition of any other makes and models, this level of coverage will increase by roughly 4 percentage points per year. Consequently, in 2004, since nearly 23 percent of all such vehicles will have extractable EDR data, in a two car collision there will be almost a 46 percent chance that *one* of the vehicles involved will have EDR data that is accessible. This technology has now progressed far beyond the novelty stage and has achieved "critical mass" for those insurers interested in using objective vehicle information in the evaluation its claims.

The types of data available from GM EDRs include driver seat belt usage at the time of the collision, longitudinal or forward post-crash velocity changes at 10 millisecond increments for the first 150 to 300 milliseconds after a collision; and/or pre-crash information measuring vehicle speed, engine speed (in RPMs), percent throttle, and braking status at one second intervals for five seconds prior to impact. For Ford models, seat belt usage for the driver and front seat passenger are recorded, as well as longitudinal post-crash velocity changes at 2 millisecond increments for the first 78 milliseconds after a collision and, for a few models, lateral accelerations are also measured.

Concrete Applicability to Auto Insurance Claims

EDR data has been shown to be extremely useful in addressing numerous questions or issues relative to the investigation and evaluation of a claim when properly analyzed. These include:

- Was the driver speeding and/or belted?
- What was the required stopping distance at the recorded speeds? What was the actual stopping distance?
- Did braking occur early or late in the accident sequence? Were there multiple braking events? How hard were the brakes applied? When should have braking started?
- How severe was the impact? Is the collision a low velocity or minor impact? Are the reported injuries consistent with the collision?
- Was the vehicle being operated at the time of the collision?
- Were there multiple frontal collisions? What was the sequence of collisions in a multi-car collision (i.e., who hit whom first)?
- Is the replacement of the airbag system required?

The benefits of quickly and objectively addressing these types of questions are intuitive. Even when the data is not favorable to an insurer, significant investigative and legal costs can be avoided. Consequently, insurers are increasingly utilizing EDR information to assist with determining comparative/contributory negligence, investigating fraud, deterring opportunistic injury claims, and subrogation. Because the data can now be economically obtained, EDR information is not just relegated to serious accidents but is now being used to evaluate minor impact and non-casualty claims.

Proper analysis of EDR is consistently required due to the various limitations of the data. For example, speed data can be misleading if traction is lost during the collision sequence or if the wheel diameter of the vehicle has been altered. Because of these and other limitations, cost effective, web-based EDR audit and analysis technologies are commercially available to flag and correct the effects of these limitations to provide adjusters with reliable and accurate insights into the nature and possible cause of a collision. Properly trained forensic engineers can also identify and correct these effects. When coupled with the application of Newtonian physics, EDR information can give remarkable insights as to the collision severity and dynamics of the second or third vehicle involved in the collision which may not have EDR data available.

Still No Standards

To date, there is no universal standard data set or format for the information that can be extracted from existing EDRs. For example, within the eligible GM models, some will have only pre-crash data, others will have only post-crash data and others will have both data sets. Also, depending on the manufacturer's design and subsequent performance of the EDR system, single or multiple impact events may be recorded.

There are organizations working on standards for Event Data Recorders. Also, the National Highway Traffic Safety Administration (NHTSA) has been petitioned to require

a minimum data set from all vehicle manufacturer's EDRs. NHTSA has solicited public comment on the petition but has not issued a final ruling. Since substantial time is required for such changes to be evidenced in significant numbers of vehicles actually operated, universal predictability of the types of EDR information availability is not on the near term horizon. In the interim, insurers interested in obtaining the information will have to rely on databases which track the types of data available on individual vehicles.

Established Admissibility of EDR in the Courtroom

EDR data has been used in products liability litigation for approximately a decade and there are now two appellate cases governing the admissibility of EDR information. The first was Harris v GMC (2000) in the US Court of Appeals for the Sixth Circuit. This case established that EDR should be admitted under the *Daubert* criteria that governs the qualification and admission of scientific testimony.

The second appellate case is Harris vs. GMC (2002) in the Appellate Court of Illinois, Fourth District. This case established that EDR data satisfied the *Frye* standard for the admissibility of scientific data and downloaded EDR data did not involve a novel technique or method.

Both cases indicate that EDR data can be used in litigation *if* the proper scientific foundation for the use of the data is established. In this regard, there have publicized trial court proceedings recently in Florida, Georgia, Illinois and North Carolina where EDR data was successfully used in trial and its contents were instrumental in the eventual outcome.

Clarification of Data Ownership and Privacy Issues

The consensus is the vehicle owner owns the EDR data. This position is held y NHTSA and the Center for Economic Justice in Austin, Texas. In September 2003, the State of California amended their Vehicle code to add Section 9951 which addresses these issues in vehicles sold after July 01, 2004. This amendment specifies that EDR data is the sole property of the registered owner and it prohibits the extraction of data without consent of the registered vehicle owner or a court order, subject to certain exceptions for manufacturers and auto technicians. The amendment is not specific as to the timing of registered ownership and thus can be construed that data can be owned by an insurer should it become the registered vehicle owner in the salvaging process. However, this amendment will be adverse to arguments that an insurer owns the data contained in the salvage (i.e., the replaced EDR unit) when the vehicle is not a total loss.

In a draft of a paper entitled "Legal Issues Surrounding the Implementation and Use of Event Data Recorders" by Michael Edmund O'Neil, an Associate Professor at the George Mason University School of Law, data ownership and privacy issues have been extensively researched and thoughtfully addressed. This work noted that although EDR data, and the recording device, may be owned by the vehicle owner or lessee, the data may almost certainly be used against that owner or another driver in either a civil or

criminal case. Furthermore, in such cases the Federal rules of discovery, evidence spoliation and admissibility apply. With respect to privacy, the paper indicates that Fourth Amendment protections only applies relative to an owner's expectation to privacy pertaining to EDR data and police may not be able to seize such data as a routine without a warrant or express legislative authorization.

With respect to insurance claims, privacy is often a "red herring" argument. Invasion of privacy can be argued if EDR data is extracted without the owner's knowledge or permission. However, the vast majority of this author's experience with auto insurers indicates that most are implementing procedures to obtain the vehicle owner's written permission to extract the data. As with medical records, once an individual elects to make a claim, privacy rights to information relevant to the investigation and evaluation of the claim are waived. To continue with this analogy, releases are regularly obtained to gain access to and evaluate private medical records as a routine part of settling auto injury claims. Similarly, failure of a claimant to grant access to the EDR information can create outcomes fairly similar to refusing to grant access to medical records. In first party claims, such refusal may be viewed as a breach of the "duty to cooperate" clause pertaining to the insurer's right to fully investigate a claim. Some auto insurers are now reviewing their policy language to ensure that this right is clearly articulated in the insurance contract.

Emerging Trends and Issues for Auto Insurers

Public Perception - In 2002, the Insurance Research Council (IRC) updated its year 2000 survey pertaining to the public's views on using EDR data to investigate accidents and resolve claims. The study found decreasing public acceptance, specifically 50% acceptance declining to 43% for accident investigation and 50% acceptance declining to 46% acceptance for fault determination/claim resolution. However, respondents who were previously aware of EDRs were much more likely to support their use than those who were less familiar with the technology (59% to 39%). Consequently, if an individual is unfamiliar with EDRs, they may incorrectly assume that data exists which tracks their driving history or other sensitive data and, in turn, develop privacy concerns. Consequently, insurers may experience more cooperation by educating the individual as to what information actually exists before seeking permission to extract the data.

Accessing the Data - Auto insurers have limited windows of opportunity to obtain EDR information. When the airbag does not deploy and the impact is very minor but sufficient to "wake up" the EDR system (which can include collisions less sever than bumper car impacts), the data is only retained by GM vehicles for 250 ignition cycle counts (about 6 weeks to 60 days of normal use) or until an impact of greater severity is recorded. If the airbag is replaced, it is *usually* required that the EDR unit also be replaced. In most repair situations, these units are discarded. Lastly, if the vehicle is salvaged, the salvage is often sold before data or the EDR data is retrieved. To take advantage of these opportunities, the auto insurer must quickly identify its opportunities and intervene before the data is lost. Fortunately, commercial databases exist to help insurance companies determine which vehicles have harvestable EDRs and what data can be retrieved from

each eligible vehicle. Also, a network of service providers exists, including some repair shops, which have the necessary harvesting equipment to harvest the EDR data, EDR unit or both, regardless where the vehicle may be located. These service providers also offer a valuable source of efficiency to insurers since retrieving the data may require transportable power sources to extract the data, and may involve removal of seats or other components to get access to the unit should the vehicle's electrical network be compromised.

Spoliation - Because of the growing publicity of cases involving EDRs, auto insurers will soon be faced with a "Spoliation Catch 22". When an insurer approaches a third party for their EDR data, they may be informed that the third party was unaware the data existed and it is no longer available. Conversely, when an insurer is requested to produce the data, they may soon be confronted with the argument that they "should have known" the data existed and that they should have taken steps to preserve the evidence. Early recognition of opportunities to obtain the data can assist in both instances. In third party situations, a claimant can be given notice that the data exists and it could be critical to the investigation of the claim, even if the third party elects not to disclose the data. In all circumstances, business recognition rules will facilitate early recognition of opportunities to obtain and preserve relevant evidence.

Chain of Custody - When the data is obtained, the chain of custody of the EDR data, EDR unit, or both, should be documented. Not only will the insurer be required to demonstrate that EDR data or the EDR unit came from the subject vehicle, but the insurer must also be able to document the entire extraction process and demonstrate that nothing has been done to alter the evidence. Standard protocols, including recommended photography guidelines and chain of custody forms, have been developed by the experienced service providers to assist with this requirement. Also, electronic data vaults are available to secure and preserve EDR data.

Final Observations

The increased use of EDR data by auto insurers has helped define solutions to the previously-noted issues. This increased use is strongly correlated to the increasing availability of EDR information, increasing awareness of the technology by the media and legal community, and greater clarification of the surrounding data ownership and privacy issues. Use has also expanded because of the significant benefits associated with quickly and reliably determining what actually happened in an accident, leading to faster and more cost effective resolution of claims. In the future, EDR data is expected to become a standard source of objective data to investigate and evaluate auto claims. However, as with any other technology, the ultimate benefits will be closely tied to its responsible and consistent use.