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Lights, Camera, Crash — The Story of a Staged Crash

By Shawn Harrington, Larry Sicher and William Brem

A claimant needs some extra cash and decides that insurance fraud is the answer, so he stages a collision or just enhances the damage to his car caused by an actual impact and tries to cash in on the loss. But how can you tell the difference? You get a report for the umpteenth time today about a claim that your insureds have sustained damage to their vehicle. But something about this claim makes you think twice about it. Whether it is because the damage was allegedly from a “phantom” vehicle, or because the parties involved have recently filed a similar claim, or because the photographs do not seem to match the description; whatever the reason, this one makes you suspicious. But there is damage and there is no claim of any injury, so what can you do? Pay the claim or investigate it further? If

you want to investigate further, who can help and what will it cost?

An accident reconstructionist may be able to assist you with this matter. Frequently, an investigation can be done based on the claimant’s incident description, the police report, repair records, and photographs. During such an investigation, there are several different aspects that the accident reconstructionist should be investigating. Typical approaches include: matching the damages to the claimant’s statement of the incident sequence; ensuring the damages are consistent with the police report description; or confirming the damages between the involved vehicles are consistent with the shape and height of the damaged vehicles. Because of the limited scope of the assignment, an accident reconstructionist is often able to quote a specific price for the effort based on the exact nature of the claim,

the available evidence and the scope of the assignment (i.e., verbal update only or a written report).

The key to many of these claims lies in the geometry of the involved vehicles and their respective damage patterns. Photographs of the subject vehicle, as well as information related to the specific make and model enable an accident reconstructionist to obtain the vehicle’s specific damage dimensions for use in the analysis. Of course, every case is different and must be considered independently. The accident reconstructionists should attempt to identify as early in the review process as possible if they will be able to assist or not and provide the client with an update of their findings before writing the report. The following examples are some of the more common situations where an investigation has proven favorable for a client.

Case Study 1:

The driver of a 1993 Toyota Corolla reported that while he was slowing down for traffic, a Honda Accord struck him from behind, but did not stop to exchange information. The adjuster took photographs (Figures 1 and 2) of the vehicle soon thereafter and felt that the damages were old and were not consistent with the claimant's story. After obtaining sworn testimony from the claimant, the expert was asked to evaluate if the front of a Honda Accord could have caused the damages claimed.

The driver of the Corolla testified that he was pretty sure that the phantom vehicle that struck his vehicle was a dark blue Honda Accord. He also testified that both vehicles were travelling straight in the same lane and that the impact was between the front of the Accord and rear of his vehicle.

As seen in Figure 1, the top of the Corolla's rear bumper is approximately 23 inches, this is in agreement with other data that was

available to the accident reconstructionist.

The exact year of the phantom vehicle was unknown but research included a range of Honda Accords from the model years of 1990 through 2006. As seen in Figures 3 and 4, these vehicles had a front bumper that was essentially flat in the center area and contoured smoothly towards the outer bumper edge. The Accords during this timeframe were also available in both 2 and 4 door models. Data was researched for the different model years and variants and it was found that the top of the bumper of these vehicles was always at or below 22 inches.

The damage seen in Figures 1 and 2 also showed no signs of paint transfer and the striking Accord was reported to be blue in color. Clearly the direct contact damage seen in the photographs of the subject Corolla included areas above 22 inches and was not of a shape consistent with the profile of an Accord front bumper that was

directly behind the Corolla. Using this information, the accident reconstructionist was able to definitively conclude that the damage as seen on the Corolla was not consistent with the driver's testimony and the claim was denied.

Case Study 1 back story and analysis: The claims adjuster wanted these damages further evaluated because the vehicle had recently been added to the policy, he thought that the damages looked old when he saw them and the claimant had gotten a claim check several months earlier on a different vehicle but with a similar story. The expert report and analysis summarized above was provided in a report that included various photographs for \$800. The repair damage estimate was for almost \$3,000 due to some underlying damages to the rear structures and after the expert review, the claims adjuster denied the claim in full. This represents a savings of almost \$2,200.



Figure 1 – Case Study 1, Rear of Toyota Corolla



Figure 2 – Case Study 1, Rear of Toyota Corolla, top down view



Figure 3 – Case Study 1, Front of an Exemplar 1993 Honda Accord



Figure 4 – Case Study 1, Front of an 2003 Exemplar Honda Accord

Case Study 2:

In this case, there was minor contact between the rear of a Chevrolet Malibu (Figures 5 and 6) and the front of a Hyundai Elantra (Figures 7 and 8). In addition, the scuff on the Elantra was noted to be consistent with a sliding motion, consistent with the left front of the Elantra contacting and sliding past the right rear corner of the Malibu.

The driver of the Malibu claimed that in addition to the small dented area seen on the right rear corner of the rear bumper cover (Figure 6) that there was damage from this impact to the Malibu's trunk area (Figures 9 and 10). The claimed damage to the trunk area was more prominent on the left side of the vehicle.

The front bumper of the Elantra comprises a painted plastic cover over a foam absorber and a steel reinforcement bar. The accident reconstructionist engineer had test data on an Elantra from the same model run from a 3-mile-per-hour corner impact test. This data indicated that as a result of a

3-mile-per-hour impact into the front corner of the vehicle, the headlamp was driven into the fender, bending the leading edge of the fender. The lack of additional damage to the incident Hyundai Elantra is indicative of less energy transfer or force applied to the incident Hyundai Elantra compared to the tested vehicle. Therefore, based upon the fundamental laws of physics and coefficients of restitution, the damage for the incident 2007 Hyundai Elantra is consistent with a collision resulting in a Delta-V at less than 4.2-miles-per-hour. (The Delta-V is the change in velocity of the vehicle from its pre-impact, initial velocity, to its post-impact velocity.) A Conservation of Momentum analysis was then performed. Given the mass difference between the incident Hyundai Elantra and the subject Chevrolet Malibu, the fundamental laws of physics and conservation of momentum calculations dictate that an impact resulting in a Delta-V of 4.2 miles per hour for the Hyundai Elantra would result in a Delta-V of 3.5

miles per hour for the Chevrolet Malibu.

Test data was obtained from the Insurance Institute for Highway Safety (IIHS) for the Chevrolet Malibu. The rear bumper system of a 2007 Chevrolet Malibu uses a foam absorber mounted between a steel bumper reinforcement bar, a flexible plastic bumper cover, and a stiff foam block inserted into its center. The bumper reinforcement has an additional reinforcement welded to its center and is bolted to frame sidemember end flanges at the rear body panel. The damage sustained to the rear of the tested Chevrolet Malibu in the 6.75 mph Delta-V impact into a flat barrier is shown in the Figure 11.

The 5 mph IIHS test represented a condition nearly twice as fast as what was experienced by the subject Malibu in this incident. However, the claimed damage was even more severe and the damage was partially in an area that was remote from the actual contact point.

From this analysis, the accident reconstructionist was able to determine that not all



Figure 5 – Case Study 2, Rear of Chevrolet Malibu



Figure 6 – Case Study 2, Rear of Chevrolet Malibu



Figure 7 – Case Study 2, Front of the Hyundai Elantra

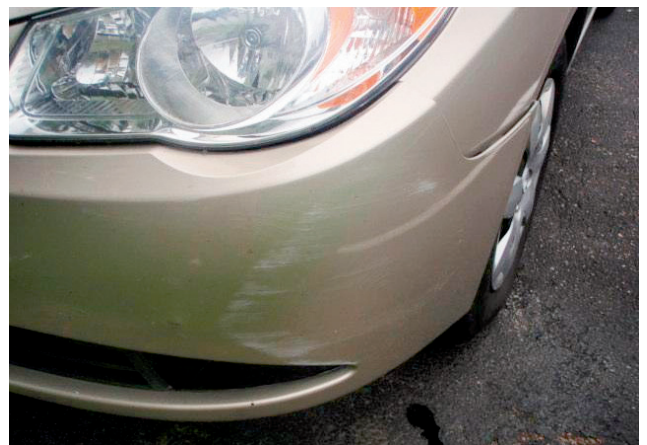


Figure 8 – Case Study 2, Front of the Hyundai Elantra

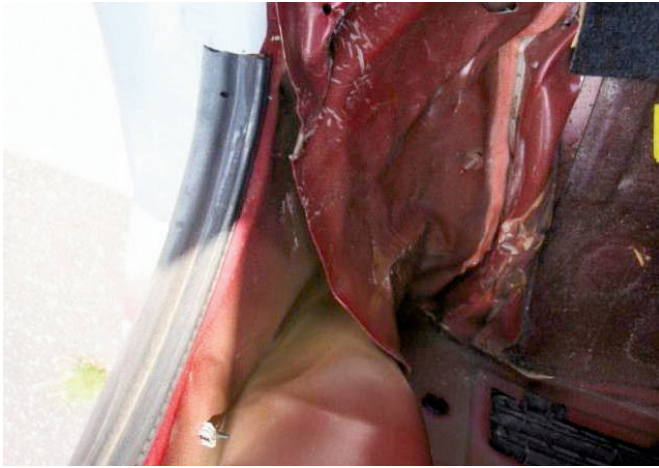


Figure 9 – Case Study 2, Trunk area of the Chevrolet Malibu



Figure 10 – Case Study 2, Trunk area of the Chevrolet Malibu

of the claimed damages to the Malibu could be attributed to contact from the Elantra.

Case Study 2 back story and analysis: Further research was requested, revealing that the subject Malibu had been in a previous crash that was severe enough that it was sold with a salvage title. No other details of that crash were found and no repair records were able to be reviewed related to the repairs performed. The expert report in this case cost \$900 but with the expert review and the information related to the previous history of the vehicle, the insurance company denied all costs associated with the underlying damages. This represented a savings of nearly \$3,000.

Case Study 3:

In this case, the insureds claimed that they had parked their car along the side of road and gone into their apartment for the night. They claimed they had brought their keys with them and had locked the vehicle. They reported that they did not hear or know anything about the impact until seeing the damage to their car the next morning.

Sometime overnight, the insureds claimed that their car was struck along its side. This impact resulted in the frontal airbags deploying in addition to the body damage along the side of the car.

The claim was for over \$7,000 and included replacing several airbags. The claims adjuster was just not sure about the airbag deployment while the car was parked and wanted it investigated because several key facts about the situation did not seem to agree. Most notably, the car was shown parked in line with several other cars in



Figure 11 – Case Study 2, Trunk area of the IIHS tested Chevrolet Malibu at 5 mph, showing no deformations to the trunk area

front of it and behind it, but none of these other cars were damaged.

The accident reconstructionist expert was also a certified airbag crash data retrieval trained expert who explained that frontal airbags are designed to deploy in response to a frontal impact. In order for a frontal impact to occur, the impacting car would need to be going in the opposite direction to the direction that our car was facing, and most airbag systems will not deploy after the car has been turned off for one to three minutes. The insureds had to walk over 300 feet along the sidewalk before entering their apartment complex, putting them within the one to three-minute window of turning the car off. They still would have been outside and should have heard any impact severe enough to deploy an airbag.

Research revealed that the vehicle make and model could be checked for what data (if any) might be stored in its airbag 'black box'. Vehicle airbag black boxes do not provide GPS location or time information, but they often provide data such as throttle position, brake light status and/or ignition switch position at time of deployment. A frontal airbag may deploy even if the car is stopped under the right circumstances, but review of other parameters within the black box could assist with refuting the claim that the car was parked and the owner inside his apartment when the airbag deployed.

Many accident reconstructionists have the capability of obtaining and interpreting all of the vehicle black boxes that are currently publically accessible via the Bosch data retrieval system.

Case Study 3 back story and analysis: After determining that the data in the vehicle's black box could be obtained (imaged via a download), the accident reconstructionist discussed this with the claims adjuster, the reasons for requesting the data, and what information was likely to be obtained and what it could possibly prove (i.e., the car was likely turned to the 'on' position and that it had some forward speed

with either accelerator or brake input, thus proving that the car was not "parked" and unoccupied). The claims adjuster explained to the client why he wanted access to the vehicle before paying for the claim, what was likely to be learned from the data, and also discussed the possible legal implications of insurance fraud. At this point, the clients dropped their claim, thus the claims adjuster did not pay the \$7,000 claim. In

this case, after the initial review, a written report was not requested and the total expert billing was less than \$600.

Limitations

The analyses listed here do not address any issues related to the occupants such as their claimed injuries or motions. Cases involving claimed injuries or motions usually need to be handled differently. The initial analysis of the incidents listed here, whether the damages match the claimant's statement or if the vehicle damages are enhanced following an incident, are initially addressed without a vehicle inspection and many can be completed through a written report. These types of analyses can be completed at a very economical price. If the accident reconstructionist requires additional information, this will be communicated with the client as soon as possible. Normally, the initial analysis does not include detailed vehicle history research unless it is discussed and agreed upon by the parties. These items may be required or requested on an individual basis.

When the damage in the photographs or vehicles doesn't seem to match the story or there are questions about the claim, an accident reconstructionist familiar with these types of claims can often assist in providing the missing data to close a claim. 📌

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