

IS THE ACCIDENT THE DRIVER'S FAULT?

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Whenever there is a vehicle accident, the first inclination is typically to “blame” one of the drivers. This inclination is even more pronounced if alcohol is involved. In reviewing these accidents, it is especially important to evaluate the situation for other potential factors. Frequently the driver may not be aware of some of the factors which contributed to the accident. The objective of this paper is to heighten your awareness of the range of potential factors leading to an accident.

Accidents occur for a variety of reasons. Some are more obvious than others. In vehicle accidents, it may be helpful to break the potential areas into groups such as the following:

- A. Vehicle – Obviously, blown tires, failed brakes and broken steering can cause an accident. But what about worn windshield wipers, fogged windows, misaligned headlights, poor acceleration, mismatched tires or bad suspension? Under the right circumstances, any of these could be a major factor in the accident.

- B. Roadway – We could quickly point out a pothole or a section of “ponded” water which caused an accident. Identifying a poorly positioned sign,

conflicting speed limit or reverse banking on a curve might take a little more effort.

C. Environmental – Snow and rain are obvious. Just as important are the setting sun, deep shadows, background lighting and that third person in the center of the back seat that blocked the rear view mirror.

D. Driver – Drivers can certainly cause accidents. They sometimes fail to see the obvious. They misjudge the speed or the distance of an approaching vehicle and they frequently travel too fast or change lanes without checking all the mirrors. They also, read maps, eat food, talk on the cell phone, and dig through the glove compartment trying to find a CD. *Drivers almost never say they were doing anything other than “paying strict attention, facing forward with both hands on the wheel” when the accident developed. We understand that this is the story and the driver will be sticking to it.*

It is obvious that in many accidents, we will readily identify the primary factors. In others, it should be equally obvious that we will likely never uncover the primary factors. What we are concentrating on is the remainder. Those, that may not be readily obvious, but that are still discoverable.

VEHICLE

The modern vehicle is a technological wonder. It is also a compilation of compromises. As a technological wonder, it has well designed and tested machine components, electronically controlled and monitored engines, drive trains and suspensions as well as numerous gadgets for our pleasure and convenience. As a compilation of compromises, parts are supplied by the lowest bidder, it must comply with marketing conditions, a myriad of state and federal laws, and manufacturing costs must be held to a minimum. Most of the time we operate safe, reliable vehicles.

Unfortunately, on occasion, design, maintenance, manufacturing, age or abuse act singly or in combinations to create a vehicle problem. Of the accidents caused by vehicle problems, only a small portion are caused by sudden catastrophic failure. Many more are caused by reduced capabilities from aged or worn components.

With a heavily damaged vehicle, it may be difficult to differentiate a pre-impact problem from the collision damage. This task is much easier if the range of possibilities can be narrowed. In this process, driver or witness statements, roadway evidence and other indications of the sequence of events can be extremely critical to the successful analysis of the problem. While it is possible to examine vehicles without knowledge of the accident, the chances of finding a problem are diminished and the time involved usually increases significantly.

A driver, passenger or witness will typically be the first source for a potential problem. They should be queried about repairs, changes and problems. There are, however, many problems that could be significant that would not be identified by these individuals. For example, undersized tires on the rear of a vehicle could cause “oversteer”. In this condition, the vehicle steers more rapidly than a driver would normally expect. Oversteer would probably not become apparent until the driver started approaching the traction limits. Once this occurred, spinout and overturn could result.

Clues to more common problems for a particular vehicle can be found at the National Highway Traffic Safety Administration (NHTSA) website www.nhtsa.com/cars. A search can be conducted by vehicle make, model and year for:

- a) recalls,
- b) defect investigations,
- c) service bulletins and
- d) consumer complaints.

A web search with key words may also turn up interesting information. Imagine the data available if for example, you search for “sport utility rollover”.

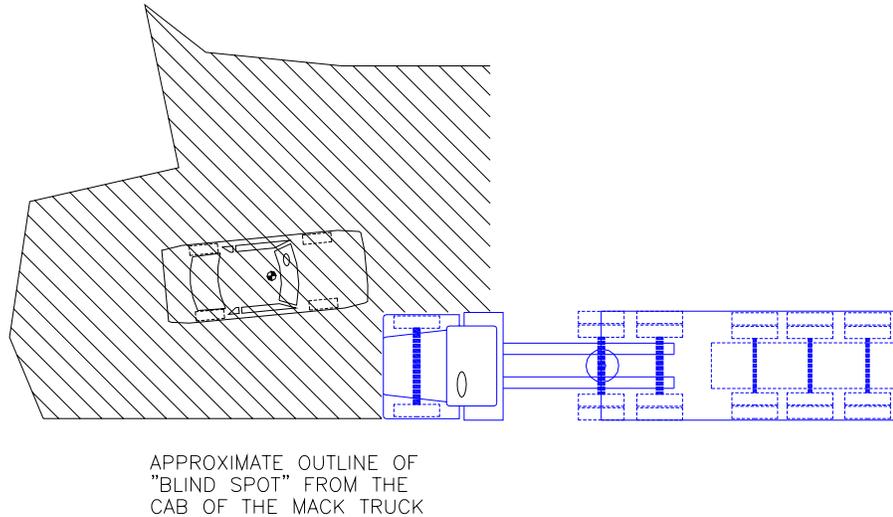


Fig. 1 All vehicles have blind spots. This automobile cannot be seen from the cab of the truck.

ROADWAY

Generally we look for a potential roadway problem if the vehicle would up where it should not have been. In these types of accidents, we are concentrating not so much on where the collision took place as much as where the vehicle left the normal path of travel. Is there a curve? What is the banking? Is the posted speed correct? Are there any drop-offs or potholes? Could a domestic or wild animal have been a problem? Modern roadways facilitate high speed travel. However, many have their origins as dirt paths for pedestrians and horse drawn wagons. Others were restricted by buildings, railroads and landholders. Still others have compromises created by rivers, hills, and rock outcroppings. Even if properly laid out and constructed, roadways require maintenance, reassessment and modification to handle increased traffic density or flow patterns. As a result, many roadways are too narrow, have poor shoulders,

inadequate site distance or speed limits incompatible with current traffic densities and conditions.

Important clues to a roadway problem are the presence of any new construction, repairs or recent maintenance. Be sure to check for evidence of other accidents at the same location. Damaged trees, collision debris, gouges, older skids can all indicate that other drivers have had similar problems.



Fig 2 Shoulder dropoff on U.S. Highway 17 near Georgetown, South Carolina. Note the scrape at the pavement edge.



Fig. 3 Shoulder “dropoff” is 5 inches. Many drivers would have trouble if they left the pavement in this area.

ENVIRONMENTAL

Environmental concerns include the weather but also other factors such as ambient or background lighting, other traffic, pedestrians, parked vehicles, etc. In short, anything that could change and affect an operator's view of the scene or the ability to perceive the situation properly. For example, many failure to yield accidents are readily explained with the presence of intervening traffic or visual problems from a parked vehicle.

Check to see how the site is oriented. Could a rising or setting sun influence visibility? At night, what is the background lighting? How would the roadway geometry effect high or low beam light distributions? What are the traffic patterns? Look for any situation that could affect a driver's perception or visibility.



*Fig. 4 The pickup driver turned left in front of the oncoming motorcycle.
The accident was at night. A witness was following behind the motorcycle.*



*Fig. 5 Three headlights viewed at night. One is 150 feet from the camera.
The other two are 300 feet away. Do you see the motorcycle?*



*Fig. 6 Three headlights viewed at night. One is 150 feet from the camera.
The other two are 300 feet away. Now you see the motorcycle.*

DRIVER

Driving is a relatively easy task most of the time. It can, however, get very complex in a hurry. Imagine tossing a baseball a few feet in the air and catching it. Easy, right. Now imagine doing it for a few hours. Chances are that you will drop it once or twice. While driving, we make similar mistakes. Most of the time there is no conflict. We recover and proceed on. Occasionally, there is conflict and an accident develops. Trying to figure out exactly what caused you to miss the baseball that one time can be difficult. So can trying to figure out how you made the driving error.

Driving error generally comes in one of three ways. These are:

Inattention – reading a map, talking on the cell phone, daydreaming, etc. which causes us to miss a stop light, wander out of the lane or fail to note the stopped vehicle ahead.

Aggressive Driving – Speeding, approaches which require hard braking, taking risks in crossing maneuvers, etc.

Perception and Identification – In general, drivers can only respond to things that they can “see”. However, they do not always see things that are visible. For example, at an intersection a driver may not “see” an approaching vehicle for many reasons. The vehicle could be behind a curve or hidden by a parked vehicle, advertising sign or even a roof support. Even if the driver “sees” the vehicle, the driver has to evaluate its speed, direction of travel and the time available to conduct a maneuver. There are many opportunities to get this wrong. If the incident is at night and the headlights of the approaching vehicle are close together, as on a jeep, the offending driver may “see” a vehicle that is closer than he thinks.

Examples of Less than Obvious Problems:

Vehicle:

- Different tire types or sizes. Creates handling difficulties.
- Speedometer error from oversize tires. Indicated speed is less than actual speed.
- Low air pressure in tires. Increases potential for hydroplaning.
- Add-on tinted windows. Reduce visibility especially at night.
- Misadjusted headlights. Give driver inadequate nighttime illumination.

Roadway:

- Quick yellow light. Inadequate time to complete crossing or turning maneuver.
- Stop sign poorly positioned. Driver does not notice in time to stop.
- Driveway drains across the roadway. Increases chance of hydroplaning and encountering ice.
- Background lighting confuses driver. Common in construction zones.
- Foliage, signs obstructing portions of the sight triangle. Reduces opportunity to assess approaching traffic.

Environmental:

- Objects, animals or people in the road, on the shoulder or in the vehicle. Potential to create distraction or reason to deviate from normal path.
- Visibility restrictions e.g. sun visors, passengers, dirty windows, or decals and stickers on the windows. Provide opportunity to miss or misinterpret another vehicle's position.
- Blind Spots. All vehicles have blind spots over the front, on the sides, and at the rear.

- Traffic. Other traffic and its movement control our actions and what we can see.

Driver:

- Nighttime vision reduces significantly with age.
- Older drivers may have trouble turning their head and shoulders sufficiently to see at an acute intersection.
- Younger drivers may have less experience with a different vehicle or a manual transmission.
- Is the driver familiar with the vehicle? Particularly in rental vehicles, the driver may have problems with the signals and controls.
- Driver familiarity with the area. Has it changed? A new stop sign may not be “seen” by drivers accustomed to another condition.
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Fig. 7 This driver floored the accelerator and drove off a parking garage. This type of accident is common. It is known as a Sudden Acceleration Incident (SAI).



Fig. 8 If the driver momentarily confuses the pedal position, the accelerator is depressed and not the brake. Unfamiliarity is a major cause. This was a rental vehicle.

Searching for the less obvious causes of an accident is a lot like fishing. We use some known techniques and approaches that have worked before. Frequently, we will catch something, even if it was not what we had in mind. The more knowledge, effort, and thought that we put into it, the better our chance of success. However, you still have to be in the “right spot”. Sometimes, we will come home empty-handed. And then sometimes, with a little luck and persistence, we hook the “big one”.