

Fatal Acura Impact On Hwy 53 West of Burford April 8th, 2011

Posting Date: 08 Apr 2011

A fatal loss-of-control collision occurred this early morning on Highway #53 west of Burford, Ontario. The right front occupant, Sheldon Howell, sustained fatal injuries while the driver survived. Although news reports indicate this was a rollover that is not true. I was at the site this morning and will have detailed photos displayed shortly.

A lot of photos have been taken in the past 48 hours from several collisions and these have to be downloaded and size/resolution adjusted before being placed here as a website article. I will get these photos uploaded as soon as possible.

UPDATED: April 8th, 2011 1855 Hours

OK, I have gathered up a selection of photos and will now give you some details. First, a view from the intersecting Road (Middletown line) looking west toward the accident site, The Acura's impact with the trees was located about 400 metres west of this location around the curve that you see in the distance.



Now a view from 300 metres east of the point of impact (POI) still looking west along the curve of Highway #53.



The small orange cones that I usually set up on the roadside are positioned 50 metres apart this time because of the longer distance of road that I want to show. The most westerly cone is 50 metres east of the POI at the trees. My black Regal is positioned on the north roadside close the area of impact.

Now the view below is taken from 200 metres east, still looking west. If you are observant you will see the commencement of the yaw marks on the north gravel shoulder in the vicinity of about 160 metres east.



Although I have numerous photos of the start of the yaw marks I am not going to bother with them for now. I want to get closer to the area of impact where I want to show you some details. So below is a view from 100 metres east of the area of impact.



In the photo above you can see that the right side tires (front and rear) have already split off from each other means that the vehicle is in a state of yaw.

Now some details about speed calculation from yaw marks. Normally, for speed calculation, the police would have located a position very close the point where the tires split off and this is where they would begin the measurement of the chord from which they would then take the offsetting "middle ordinate" at a perpendicular angle to the chord. Hopefully they would have taken about a 20 or 30 metre long chord for the calculation and made sure that the chord was solely on the gravel shoulder. If their chord was partially on the gravel and road then I think they would have a difficulty using an average lateral force from which the vehicle slid out from.

Since I do not have to attend court and provide a speed estimate I did not conduct a speed calculation from the yaw marks. But I can take the 160 metres over which the marks were visible and I can simply apply a reason rate of deceleration over that distance from various sources of testing. An unreasonably low value would be 0.2g over the total distance. A more reasonable value could be near 0.4g. Using the low value with an assumed change-in-velocity from the tree impact of about 50 km/h would result in an initial speed of only 103 km/h. Using the more reasonable value of 0.4g and the same assumed Delta-V we would get an initial speed calculation in the range of 121 km/h. Obviously I have not seen the vehicle so the actual Delta-V could be something else. But from my general impression of the evidence I think the police were correct in

their initial description to the press that this Acura was speeding, well beyond the speed limit. Let's go back to some more photos.

Below I'm now taking to the position where the vehicle has already crossed to the south side of the roadway and you can see in the background where it struck a number of small trees. The left side yaw marks are from the front of the vehicle and the right side marks are from the rear of the vehicle and the vehicle is rotating counter-clockwise.



You can see in the above photo that shortly after the vehicle enters the south gravel shoulder the two front wheel marks and the two rear wheel marks converge meaning that the vehicle is now sliding sideways and leading with it right side.

Note in the photo below how the right corner of the front bumper digs into the up-raised slope here at the south roadside and this causes the an increase in counter-clockwise rotation of the vehicle.



In the above photo, the gouging of the earth on the right is caused by the right front wheel and the short burst of gouging at the left is where the right corner of the bumper dug in. So although the media reports indicated this was a rollover it was not really. I mean the vehicle is very close to striking the trees in the background when its right front corner is suddenly arrested by plowing into this earth and this has increased the rotation such that we will see shortly that likely the right rear corner of the vehicle struck the first tree. Before that however, let's look backwards, to the east, in the photo below to examine how the rotation was accentuated.



In the photo above we are looking back to the north east from where the Acura came from and we are just beyond the point where the front end of the vehicle dug into the earth. Look at the two tire marks caused by the rear wheels and note how they suddenly diverge very quickly in the short distance at about the point where the front end was arrested. This is an indication of the increased counter-clockwise rotation that I mentioned.

Now let's look more closely at the impact with the trees. The photo below shows an overall view of the area of impact between two clumps of small trees. The primary impact was with the trees in the foreground and then, following rotation, I suspect the trees at the second grouping were struck.



Following this impact the vehicle was deflected back onto the roadway and likely came to rest in the eastbound lane of Highway #53 a few metres west of the trees.

Although I have not seen the damaged vehicle, study of the markings on the trees and what has been imbedded in them can give us clues as to what portion of the vehicle made contact and how the occupants might have incurred their injuries. Let us look at the damage to the first tree as shown in the photo below.



As I have mentioned in previous articles, a tape measure can be placed against the tree trunk and photos can be taken to locate the various evidence at different heights for comparison to other similar collisions. I think the manner in which this Acura struck the trees is rather unique and does not bode well for comparison to other cases so I have not used the tape measure technique. But we can still look closely at some of the markings and imbedded materials. For example, near the base of the tree we can see the materials imbedded in the wood as shown in the photo below.



The red lens material is often associated with tail-lights while orange lens material is often associated with frontal corners of a vehicle. So it may be perplexing to find both red and orange lens material imbedded in this wood. This may be so until we look around and find some of the lens material as shown below.



So the Acura manufacturer has incorporated a lens with both red and orange lens material at the rear tail-lights. So that explains it. We can study other imbedded material such as patterns in the tempered glass as shown in the photo below.



The black spotted material on this imbedded glass is generally not found on side window glass but one could examine an Acura and confirm precisely from where it originated. This gives us some idea of how the vehicle interacted with the trees.

We may find black, greasy substances such as what exists at the second clump of trees shown in the photo below.



The close-up view of the black substance is shown below.



And we may take a macro photo of the substance as shown below to examine in which direction the material was transferred onto the wood and therefore how that portion of the vehicle was travelling during the impact.



By taking such macro views of the evidence we can get an appreciation of what was happening at various stages of the impact and we can combine all this evidence to map out the vehicle's motion. This is no different than what we would do to map out the motion of two vehicles as they crush during contact with each other. Or in the way we would map gouges and tire marks to the portions of the vehicle that caused them.

In many ways accident reconstruction is the art of collecting a lot of minute bits of physical evidence to understand the motion before the actual calculations of speed or Delta-v are commenced. I might comment at this time that any monkey can be made to press a bunch of computer buttons to commence a calculation that is already pre-programmed. I think we are at the stage now with multiple computer applications where such calculations are done for us. But what is important is proper application of those theories and principles. That requires that you understand the physical evidence so that you know if your application fits the facts.

For example the photo below provides a macro view of a horizontal imprint into the bark of one of the trees.



This imprint has a very specific dimension and could be traced to a specific portion of the vehicle. This very specific imprint can provide you with very specific information about the interaction between the vehicle and the tree. If you did not recognize it and you did not document it you would have lost an opportunity to understand something very detailed about the crash. Unfortunately many reconstructions are based on the absence of such detailed study and documentation. Sometimes it seems that if you have a multitude of degrees and many years of experience you can be exempt from providing proof of your opinion, or so it sometimes seems in the court room. But I digress.

Before closing my comments let me give you some idea of where this vehicle travelled to its rest position as noted in the photo below.



As always you have to be careful about evidence caused by emergency personnel, towing and previous investigations. Particularly at final rest positions, obviously the vehicle would have to be visited by various people and equipment to remove the occupants or to remove the vehicle. So you also have to be familiar with what evidence is created by all these entities. If I was involved in a real accident reconstruction I would have many more details to rely upon. But when I come out to an accident site like this without the benefit of other information, evidence can sometimes be mysterious. In fact, at almost every accident site there is always a multitude of suspicious evidence left behind. Before I close out I will give you one example as shown below.



Larger areas of blood are often indications of the rest positions of the victims. So the photo below would suggest such a rest position. But in the background of this photo is a trail of blood out onto the pavement. The photo below shows that trail a little more closely.



This trail leads from the south shoulder back onto the roadway where there is evidence of a possible rest position of the vehicle. Now, was this trail related to one of the victims or was it deposited when the vehicle was moved, or did something else happen? I won't know but in a real investigation I could find out because there would be much more information available. It is evidence like this which exists all over almost every site where a collision occurs and often this provides a road map of what persons were doing after a collision.

UPDATE: April 12, 0815 Hours

It is reported that Andrew Cherewka, 20 of Norfolk County was the driver of the Acura and he has been charged with exceeding 80 milligrams blood alcohol content causing death and impaired driving causing death.