



Metallurgical failure analysis

August 30, 2006

Mr. Jim Tussey

Via e-mail

Re: G68/BMW
D/A July 2003

Dear Mr. Tussey:

This is in response to your request for an informal opinion regarding the evidence in this case. I submitted a short report on Jan. 15, 2005, to Ms. Lauren Jeffries, Esq.; this report will expand somewhat on that opinion.

Based solely on my examination of the subject parts, it is my opinion that a critical portion of the fracture surface exhibits macroscopic evidence demonstrating that this is a fatigue fracture. This would lead to the conclusion that a crack existed in this part prior to the time of the accident.



Right fracture (Photo 027)

The photograph of the right fracture shows the classic semicircular progression marks that are the unique characteristic of fatigue fracture, which is the result of a substantial number of repetitive loads, of the order of at least thousands or more. Not only is a relatively large semicircular mark visible, but just to its right are several smaller semicircular progression marks. This portion of the fracture grew as several independent small fatigue fractures ultimately joined with the larger progression mark (fracture). At some point, under ordinary operating conditions, the overall size of the crack grew to critical size and sudden and complete fracture occurred, causing the accident.

From an engineering point of view, this accident appears to be a case of *res ipsa loquitur*, for the failure occurred under normal operating conditions: 35 mph on a straight road, with an experienced rider. Furthermore, the fracture could not have taken place as a consequence of the subsequent fall, because in that case the fracture appearance would have been different. If it didn't occur in the fall, the fracture had to have preceded and been the cause of the fall. Whether the strut was defective because of a deficiency in design or improper manufacture has not yet been established.

Sincerely yours,

David K. Felbeck