

## **Ralph's Accident Reconstruction Newsletter**

### **Volume 6, Number 2—Page 2**

hot shock It may experience a cold break, or it may remain in its normal condition. A cold break is identified as filament pieces which could (in theory) be glued back together to reform a filament of normal appearance.

Finding two normal filaments in an intact bulb does not (usually) indicate that the bulb was off at impact. Generally, such bulbs are called indeterminate, meaning that examination of the bulb does not reveal evidence that the bulb was on or off. Two normal, clean, shiny filaments in a broken bulb indicate that both filaments were off when the bulb was broken.

Many people do not realize the high level of impact force required to cause hot shock in an incandescent filament. Many other reconstructionists and I have found cases where filament(s) in a bulb on the struck side of a car showed hot shock while the corresponding bulb on the other side of the car, away from the direct impact, was fully normal. Some staged collisions have also included incandescent automotive lamps to enable researchers to relate impact force to the presence or absence of hot shock in bulbs.

When a bulb is broken and the filament is ripped from its holders, there may be evidence that it was incandescent when it was broken. During failure, tungsten filaments in air usually emanate the white or yellow powder at the point of failure, and that powder may be deposited on adjacent surfaces. Finding a white (or other color) spot on the glass bead which typically contains the filament holders near the base of the bulb must be carefully evaluated: most bulb manufacturers place a small amount of chemical inside the bulb to remove any trace of oxygen, and that dot of material is often white. Is it tungsten oxide, or is it oxygen absorbent?

Last year was a busy year, both from a business standpoint and from the standpoint of new hardware for me. Early this year, I bought a new computer. Basic features included the Intel Core 2 Duo processor, 4 gigabytes of 800 MHz Hyperex RAM, two 500 gigabyte SATA II hard drives, dual optical-disc burners which will handle anything but HD-DVD and Blu-Ray, and a Direct-X-10-ready video card with 768 megabytes of its own video RAM. I also bought two HP LP2065 20-inch LCD monitors. Two monitors, I have discovered, are more than twice as good as one. If you have an opportunity to buy new hardware this year and do very much multi-tasking, I highly recommend a dual-monitor setup. If most of your work does not involve having and using more than one active program at a time (such as Word and Excel) or more than one spreadsheet open at a time, dual monitors would probably be overkill. If your eyes are getting a little older, as are mine, bigger is definitely better.

I am grateful for your consideration of my services. If you have any questions regarding automotive lamp filament examination or any of the other automotive-related services I offer, including complete accident reconstruction, conspicuity evaluations, and downloads from event data recorders in cars and light trucks, please contact me.

**Ralph Cunningham, Inc.**  
**Accident Reconstruction**  
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