NATIONAL TRANSPORTATION SAFETY BOARD
Office of Research and Engineering
Materials Laboratory Division
Washington, D.C. 20594

November 13, 2012

MATERIALS LABORATORY FACTUAL REPORT Report No. 12-116

A. ACCIDENT INFORMATION

Place	:	Houston, Texas
Date	:	September 10, 2012
Vehicle	:	Robinson R-22
NTSB No.	:	CEN12FA621
Investigator	:	Leah Yeager

B. COMPONENTS EXAMINED

Light bulbs from "Low Rotor" and "Clutch" warning lights.

C. DETAILS OF THE EXAMINATION

The light bulbs from the “Low Rotor” and “Clutch” warning lights were submitted to the Materials Laboratory for examination as shown in Figures 1 and 2. The glass globe from the “Clutch” light was intact but was loose from the base. The filament was broken, however a section of the filament was still attached to the base. Due to the fragility of the remaining filament, the filament section was removed from the light bulb and secured to a piece of carbon tape and placed on a mounting stub for examination in the scanning electron microscope (SEM). Under magnification, it was found that the filament exhibited hot coil stretching as shown in Figures 3 and 4.

The glass globe for the “Low Rotor” light bulb had melted and encased the filament inside the glass. This bulb was x-rayed to examine the filament inside. The radiograph is shown in Figure 5. The filament was broken but exhibited no hot coil stretching.

Nancy B. McAtee
Chemist

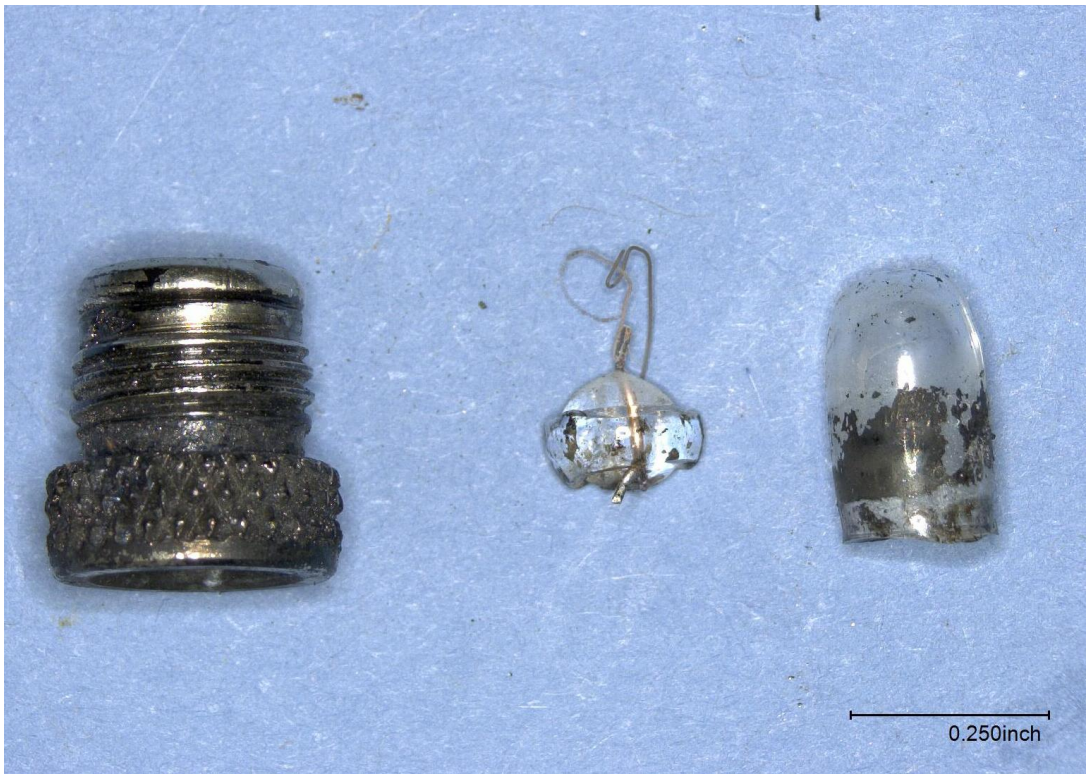

Figure 1. Overall photograph of light bulb from "Clutch" warning light.

Figure 2. Overall photograph of light bulb from "Low Rotor" warning light.

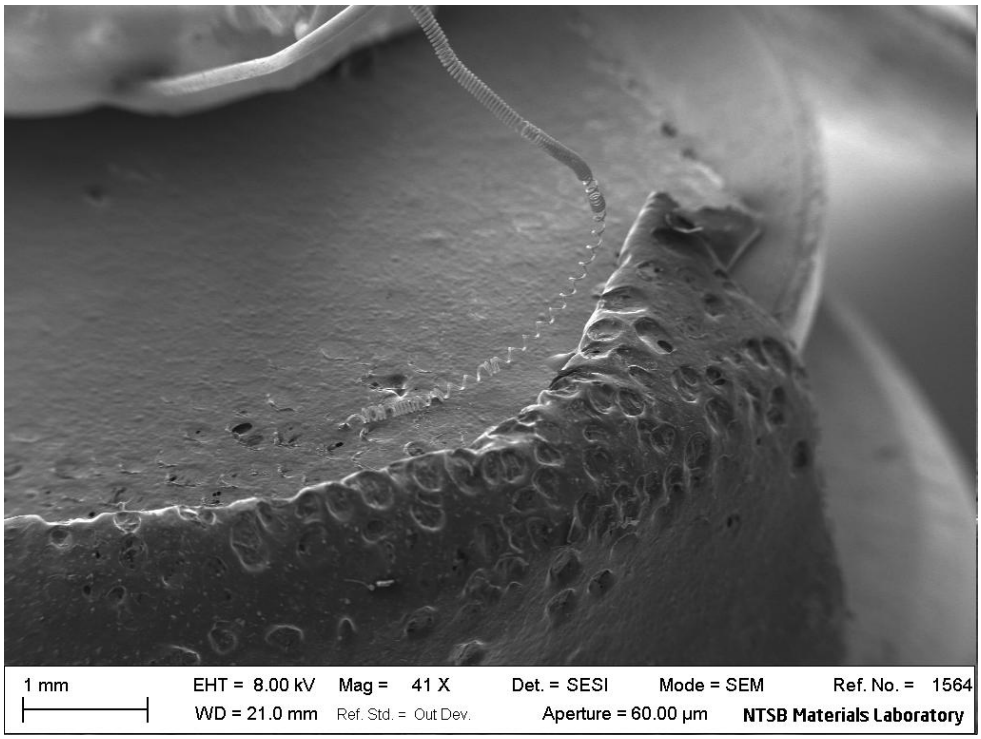

Figure 3. Scanning electron micrograph of filament section from "Clutch" warning light.

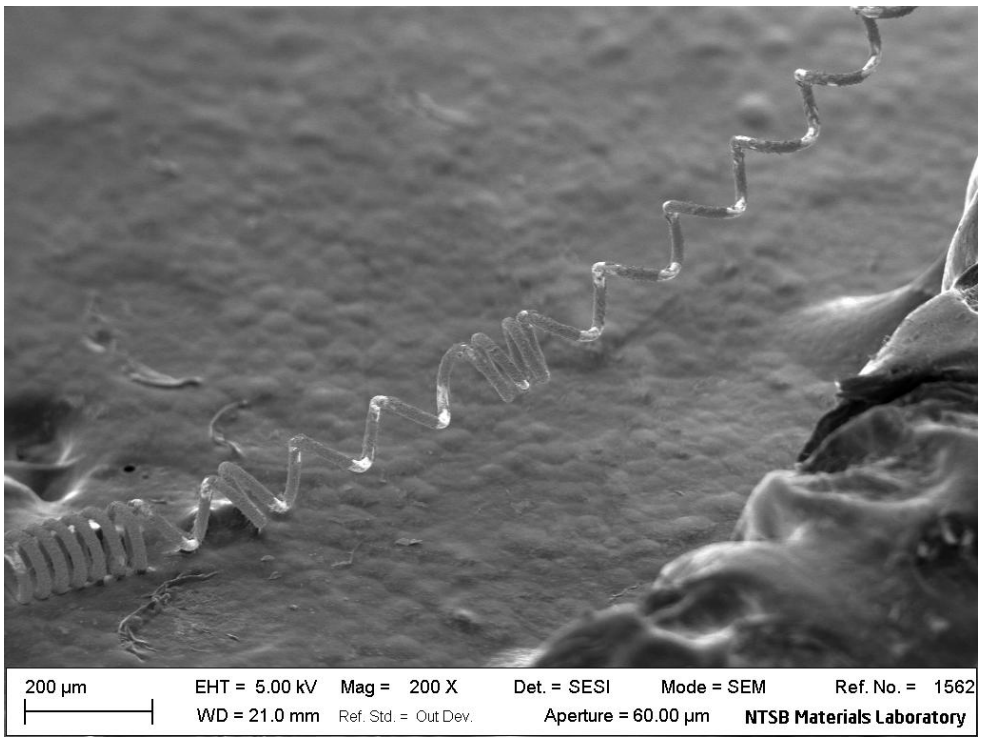

Figure 4. Scanning electron close-up micrograph of stretched filament section from "Clutch" warning light.

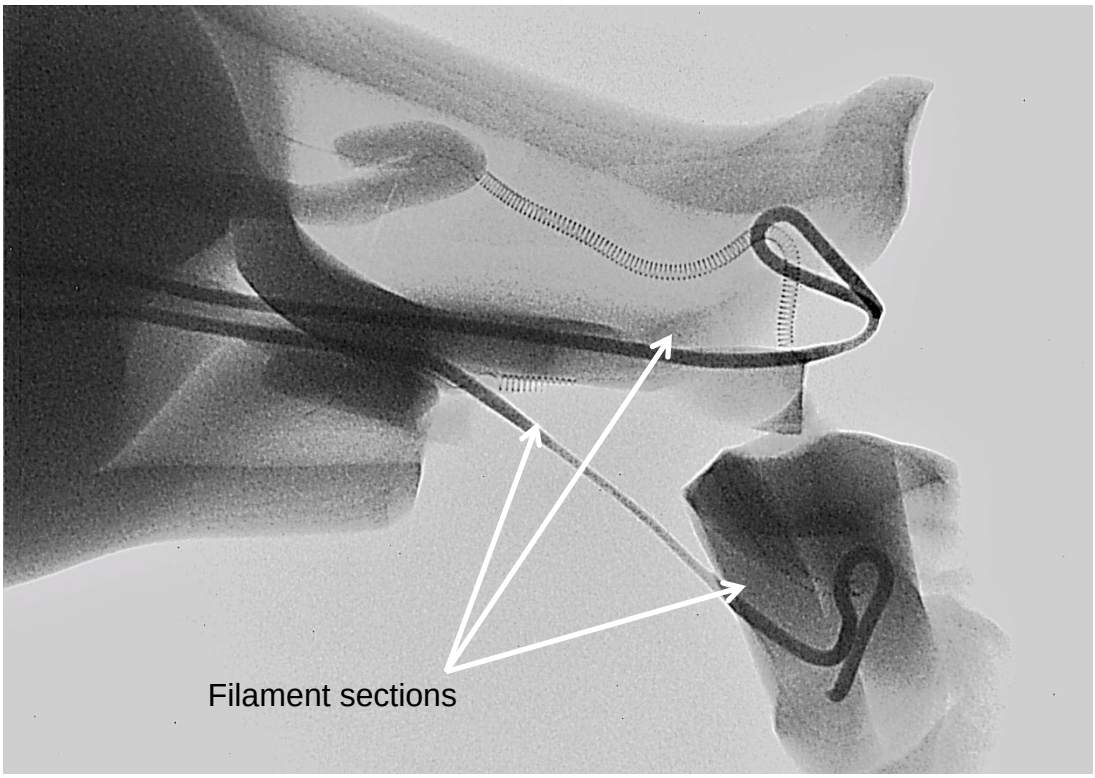

Figure 5. Radiograph of light bulb from "Low Rotor" warning light.