HUILA

Volume 6 Issue 10 **The Newsletter of The Hawaii Region of The Sports Car Club of America** *October 1997*

Failure From Within: ECD

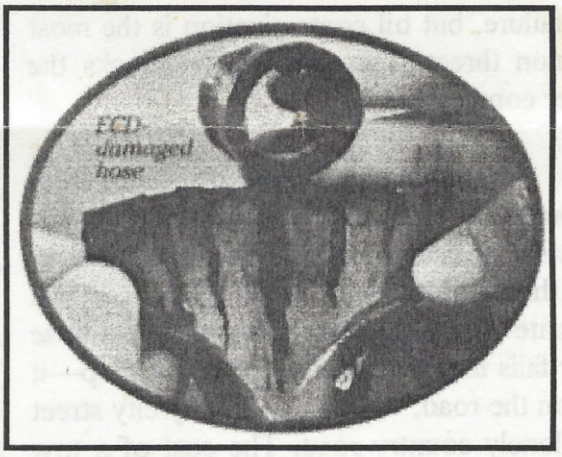
By: Scott J. Schulte

According to the car care council, 30 percent of all vehicles on the road need replacement of their coolant hoses or belts. Most technicians agree that about 70,000Mi. is the life expectancy of coolant hoses. Here in Hawaii I would recommend coolant hose replacement more frequently—probably 40,000 to 50,000Mi. intervals. (We sit in a great deal more traffic per mile driven then do most drivers in other states.)

Traditionally, hoses have been visually inspected from the outside. But with today's cars, that method isn't always the best way to tell a hose's condition. Most hoses fail from the inside, where weakened elements can't be seen and their symptoms are not always obvious.

Failure From Within

The materials now used in the engine and related components are different. Cast iron has been replaced with aluminum, plastic, and brass. Used together, these dissimilar materials can create a sort of battery, with the hose conducting electricity through itself. The electrical current can create tiny cracks which eventually weaken and cause the hose to fail (see photo). This phenomenon is called electro-chemical degradation or ECD.



Higher operating temperatures and cramped engine compartments result in hotter temperatures for hoses. While the increased temperatures result in greater engine efficiency, heat also increases the rate of ECD in hoses. In fact, for every 128 degrees F increase in temperature, the rate of ECD doubles. Heat also weakens some types of hose reinforcement, which over time can reduce the overall burst pressure, and performance of the cooling system.