

Hybrid Cars Are Harder to Hear

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Hybrid cars are so quiet when operating only with their electric motors that they may pose a risk to the blind and some other pedestrians, research by a University of California, Riverside psychologist suggests.

Preliminary results of the on-going research project show that hybrid cars operating at very slow speeds must be 40 percent closer to pedestrians than combustion-engine vehicles before their location can be audibly detected, said Lawrence Rosenblum, professor of psychology. Those findings have implications for pedestrians who are blind, runners, cyclists, small children, and others, he said.

“There is a real difference between the audibility of hybrid vehicles and those with traditional internal combustion engines that could have effects on the safety of pedestrians which need to be studied,” Rosenblum said. “Our preliminary findings could mean that there is an added danger with hybrid cars, particularly at intersections and in parking lots.”

In a research project funded by the National Federation of the Blind, Rosenblum made audio recordings of hybrid and combustion-engine cars in a quiet parking lot. The vehicles moved no faster than 5 miles per hour to assure that the hybrid car operated only with its electric motor. Subjects in a lab listened to the recordings and indicated when they could hear from which direction the car approached. Subjects could make these judgments sooner when listening to the combustion-engine car than when listening to the hybrid car.

At speeds above 20 to 25 miles per hour hybrid cars likely generate

enough tire and aerodynamic noise to make them sufficiently audible, Rosenblum said.

“This research provides evidence that hybrid cars, when operating in silent mode, pose a substantial risk to blind people and other pedestrians. We hope that regulators and car manufacturers will take notice of these results and take steps to eliminate this risk,” said Dr. Marc Maurer, president of the National Federation of the Blind, a 50,000-member advocacy organization for people who are blind or have low vision.

Rosenblum, who is an adviser to the Society of Automotive Engineers and sits on committees that make recommendations to the auto industry, has spent many years researching perception of approaching cars and whether there are similarities between visual and auditory perception of approach.

“I really do feel this is an issue for more than those who are blind,” he said. “We’re also talking about bike riders, runners and others. Walking around with my kids in a parking lot makes it very clear that I’m using hearing and vision to determine where things are.”

Rosenblum is continuing the study with greater levels of background noise and eventually will test people who are blind in parking lots to determine the level of risk. In April he will meet with Stanford University researchers who are developing different sounds that would enhance the ability of pedestrians to hear approaching hybrid and electric cars.

“Everyone’s aware of the issue,” he said. However, Rosenblum said, “We are not talking about major changes to the way automobiles are designed, but about slightly increasing their audibility when they are traveling slowly. Only a subtle sound enhancement should be required.”

Source: University of California, Riverside

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