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Bright headlights under review

Group of lighting suppliers promotes high-intensity bulbs as safety equipment.

By Tim Moran / Special to The Detroit News

They're blue, they're bright and to many startled drivers they seem blinding, but high-intensity Xenon headlights are being heralded by the lighting supply industry as potentially life-saving in the face of possible federal regulations that might endanger the future of the technology.

Lighting suppliers joined forces in 2003 to form the Motor Vehicle Lighting Council, which promotes advances in automotive lighting.

The group has been a staunch defender of high-intensity lights, which have come under scrutiny by the National Highway Traffic Safety Administration as the agency rewrites federal safety standards for automotive lighting.

In 2001, the traffic safety agency put out a call for public comment on potential new headlight rules that covered height and aiming, and the brilliance of high-performance bulbs.

NHTSA has received more than 5,000 separate reports on the topic, ranging from one-page letters from individuals to multi-section technical briefs.

The response is not the biggest in the agency's history -- airbags top all other issues -- but is "a high number" for any automotive issue, said agency spokeswoman Liz Neblitt.

High intensity lights are more expensive than traditional headlights, but their brighter light and better durability make them a technology whose time has come, according to the council.

A study by the University of Michigan's Transportation Research Institute found a safety need for high-intensity lights, which have been gradually coming into the North American auto market on luxury and import vehicles.

"People routinely over-drive their headlamps at night," said researcher Michael J. Flannagan, noting that about 2,300 pedestrians are killed each year in the United States alone because drivers didn't see them in darkness until a collision was unavoidable.

Many motorists who wrote to NHTSA support the bright lights, saying they help avoid accidents or improve night driving by reducing eyestrain. Many others, however, criticize the lights as potential safety risks.

High-intensity lights

Advantages

- Offer 70 percent more light than halogen headlights
- Wider beam patterns mean more even distribution of light, for better peripheral and down-the-road visibility
- Improve visibility at night
- Require less maintenance for the life of the vehicle
- Use 25-percent less power than halogen lights

Disadvantages

- Bluish tint and glare can be blinding to oncoming drivers.
- Visibility is poor in areas that are not directly illuminated.
- Cost more to replace than halogens, up to thousands of dollars on some vehicles

Sources: Motor Vehicle Lighting Council, USA TODAY

"It is our wish, even, that they would be made illegal to use," one consumer wrote. Another said: "(They) are blinding to other drivers -- they should be banned or more stringent design and installation standards implemented and enforced."

"They either love them, because you can see really well with them, or you hate them because you think they're blinding you," NHTSA's Neblitt said.

Dan Robusto, CEO of Ill.-based North American Lighting Inc. and chairman of the lighting council, said drivers perceive the light as a "discomfort issue," but that "it isn't glare, really."

He said a number of factors may lead drivers to blame the newer headlights when other problems are at fault, such as poorly installed fog lamps, misaimed headlights and the increasing height of headlights on light trucks and sport utility vehicles.

High headlights on an SUV following too closely can lead to a blinding beam reflected through the side-view mirror, he said.

Some replacement products that allow a driver to swap a Xenon lamp for a halogen may also be causing glare, Robusto said.

Headlight reflector lenses are molded to shape a beam of light generated by a bulb at a precise place inside the headlamp assembly. If a replacement bulb emits the light at a slightly different distance within the headlight, the optics of the reflector can focus the beam in the wrong place.

Traditional headlights feature a lamp that encases a glowing filament in halogen gas, and cast a yellowish light. High intensity bulbs have no fragile filament and instead make light by using an electric arc to excite the Xenon gas inside them. The light they produce is whiter, covers about 70 percent more area than halogen and has more blue wavelengths included, making the light more conspicuous.

A Xenon bulb typically lasts 3,000 hours and operates at about 150 degrees F, while its halogen relatives typically average 200 hours and generate temperatures up to 300 degrees F. A normal car is used for about 5,000 hours during its driving lifetime.

High intensity lights are not the only emerging technology in automotive lighting. Bright white LED headlamps, expected to make a major impact in the \$2.2 billion North American automotive lighting market beginning in about 2010, could last for up to 100,000 hours at even lower power than high intensity headlights, and their low heat could allow for even smaller packaging, said Veerender Kaul, program manager for automotive analyst Frost & Sullivan.

Kaul predicts that halogen will continue to dominate automotive lighting.

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