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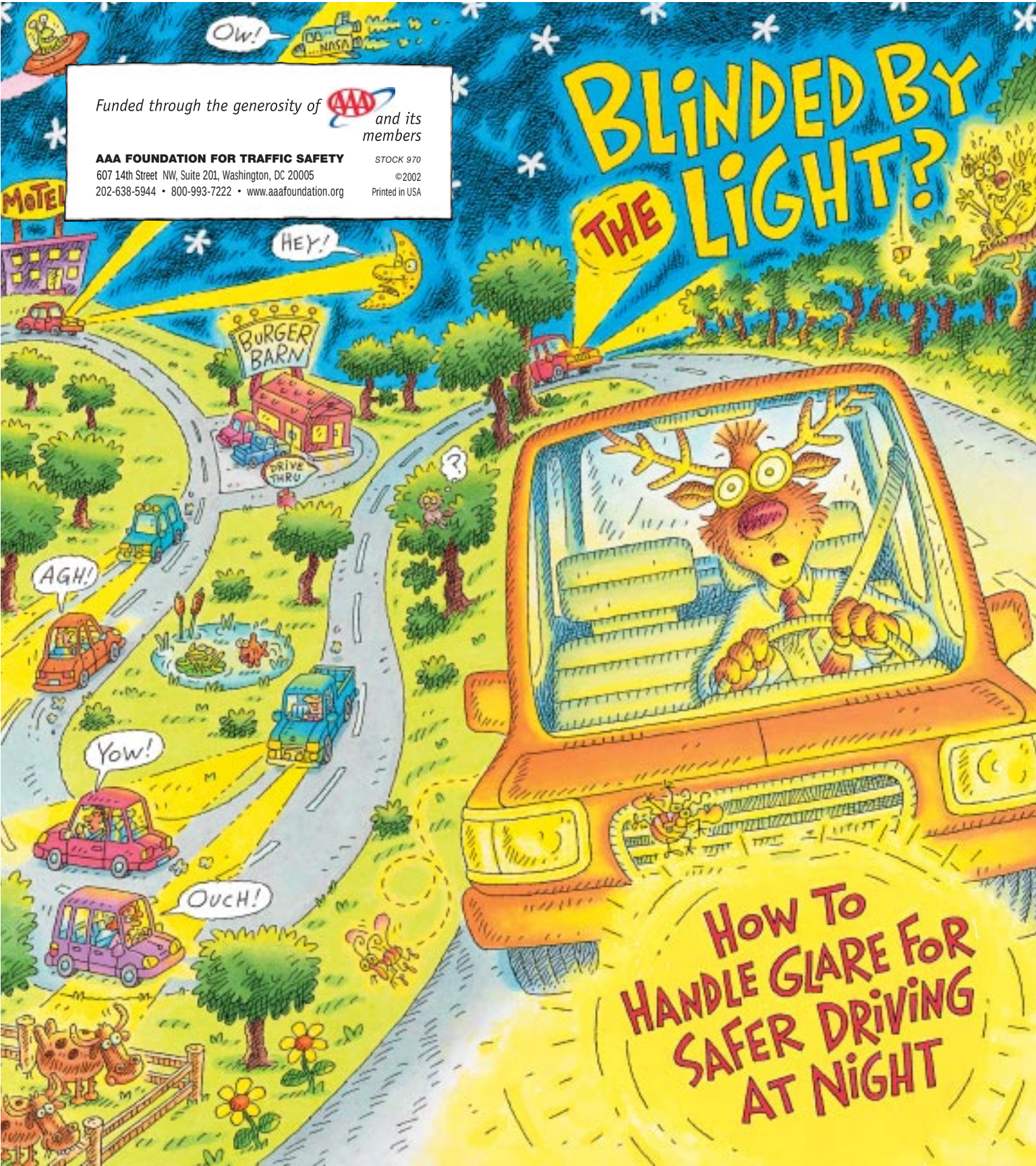


BLINDED BY THE LIGHT?

How To Handle Glare For Safer Driving At Night

"I feel like I just stared at an arc welder."

If bright lights have been bothering you more lately when you drive at night, you're not alone. The comment above, like hundreds of other complaints received recently by the government and AAA clubs across the country, indicates that glare from headlights has flared into a bigger problem than ever.

But you don't need to continue to suffer. With the right strategies, the right driving techniques, and the right equipment, you can fight back at nighttime glare.

New Lights, Old Problems

Drivers have been complaining about glare ever since electric headlights began replacing oil lamps on automobiles more than 85 years ago. So what's the big deal now? Why does glare seem to have grown worse? The answer involves technology, automotive design, and demographics.

Extra lights.

Many vehicles now sport fog lamps or other auxiliary lights in front. Ideally, fog lamps cast a low, broad beam to reduce "back-scatter" from the vehicle's headlights when water droplets hang in the air. They're intended to improve a driver's ability to see in foggy, misty, or hazy conditions. However, when they're aimed improperly or used on clear nights, they can annoy other drivers.

High-tech lights.

Introduced in Europe in 1996, high-intensity discharge (HID) lights are showing up on more cars in the United States, especially upscale models. Unlike conventional bulbs, HID headlights don't have filaments. Instead, they use a high-voltage electrical arc to ionize xenon gas and make it glow. HIDs emit twice the light of halogen headlamps, but also produce a blue-white light. Other headlights look yellow by comparison.

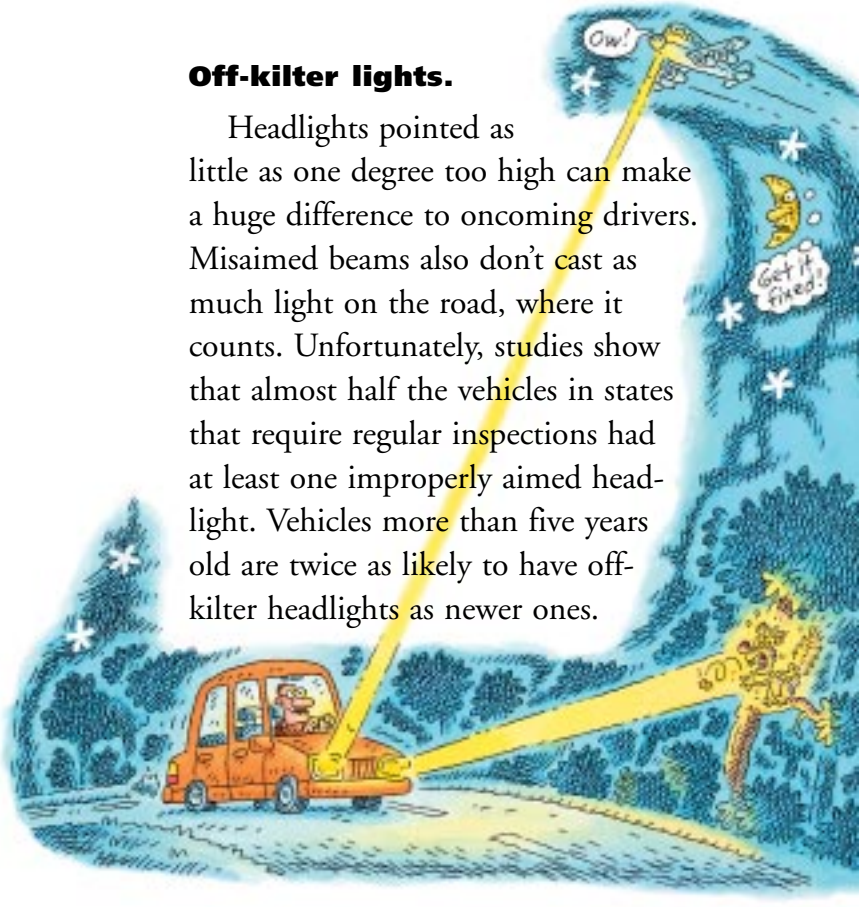
Whether you love HIDs or hate them depends on which side of the light you're on. Drivers with HIDs swear by them, while other drivers swear *at* them. Many motorists who are faced with HID lights find the amount of light and its blue-white quality blinding.

Higher lights.

After years of steady growth, sales of SUVs and light trucks have surpassed sales of passenger cars. Many of these larger vehicles—especially the four-wheel-drive variety—ride higher than cars. As a result their headlights ride higher, too. Although no headlights can exceed the 54-inch height limit set by federal safety standards, the lights on SUVs typically measure about 33 inches—almost 9 inches higher than headlights on passenger cars. It's no wonder car drivers often complain that the lights on big 4X4s shine directly in their eyes.

Off-kilter lights.

Headlights pointed as little as one degree too high can make a huge difference to oncoming drivers. Misaimed beams also don't cast as much light on the road, where it counts. Unfortunately, studies show that almost half the vehicles in states that require regular inspections had at least one improperly aimed headlight. Vehicles more than five years old are twice as likely to have off-kilter headlights as newer ones.



Your eyes.

Like beauty, glare is often in the eye of the beholder. Middle-aged and older drivers are more sensitive to glare than younger drivers because their eyes take longer to adjust to changing light levels. As the population ages, the number of older drivers will continue to rise—and complaints about glare will rise, too. Lighter-colored eyes are more sensitive, which means the lighter your eyes are the more glare will bother you. Certain other conditions, such as having had vision-correction surgery that affects the corneas, may also increase your sensitivity to glare.

DO-IT-YOURSELF HEADLIGHT ALIGNMENT

You'll need:

- A level
- A tape measure
- Masking tape
- A spacious parking area near a flat, light-colored wall

❑ Park so that both the left and right headlights are precisely 25 feet from the wall.

❑ Using your tape measure, find the exact middle of both the windshield and rear window and mark them with strips of tape, creating vertical centerlines front and rear.

❑ Standing behind the car, now sight along those centerlines, as if you were lining up sights on a rifle in a carnival shooting gallery. When centerlines are aligned you can locate the headlight centerline on the wall. Mark this with another strip of tape.

❑ Now measure the distance between headlight lenses, center to center. Divide the headlight-to-headlight distance in half and measure that distance to the right of the centerline on the wall. Mark it with a vertical strip of tape. Do same to the left side.

❑ Finally, measure the distance from the ground to the center of each headlight lens; mark that distance on the wall with a horizontal strip of tape.
You should now have two crosses on the wall, with centers that correspond exactly to the center of each headlight lens.

❑ Turn your headlights on low beam. The left edge of the bright spots on the wall should just touch the vertical bars of the crosses in the lower-right quadrants. The top edge should just touch the horizontal bars. On some cars, you can adjust the headlight aim yourself by turning small set screws at the top and sides of each lamp.

If you cannot do it yourself, a mechanic can adjust your headlights at a garage or dealership. Aligning your headlights does not substitute for any required state inspections.

Prepare to Fight Glare

Even before you hit the road, prepare yourself and your vehicle for combating the bright lights ahead.

Clean your headlights.

When you squeegee your windshield at the gas station, be sure to clean your headlights, too. Even a thin layer of road grime on the lenses can block up to 90 percent of the light and severely restrict your ability to see at night.

Clean lenses are even more important if you have HID headlights. Dirt diffuses the light from HIDs and causes glare that can temporarily blind other drivers, so headlight-cleaning systems are standard equipment on many cars with HIDs. Using the headlight cleaners regularly becomes a matter of "enlightened" self-interest for you; when you reduce glare for oncoming drivers you improve your own safety as well. After all, everybody shares the same road.

Keep all glass clear—really clear.

Streaks, smudges, and road grime on your windows catch and refract light. This includes the inside of your windshield. Chemicals from the plastic in your car's interior slowly build up on the glass, until pretty soon you're looking at the windshield, not through it. Scratched eyeglasses or contact lenses also make glare worse.

For maximum glare prevention, keep every surface between your eyes and the road as clear as possible—including both sides of your windshield and your eyeglasses. Clean the windows (inside and out!) at least once a month to get rid of haze—more often if you smoke in the car.

While you're at it, clean your wiper blades with a paper towel dipped in windshield washer fluid. This removes grime and oxidized rubber from the edge of the blade and helps prevent streaking. If streaks persist, you need new blade refills. (These are available at any auto parts store or discount chain.)

Have chips or cracks in the windshield repaired, pronto. Often a trained glass repair technician can fill small damaged areas with special resin—a fast, inexpensive process that not only improves visibility but also prevents the crack or chip from growing and requiring a windshield replacement.

Aim your headlights correctly.

If you live in a state that requires regular safety inspections, ask the technician to check and correct the aim of your headlights. If your state doesn't require such an inspection, take your vehicle to a dealer or other properly equipped repair shop at least once a year for a headlight checkup. Your properly aligned headlights will help you see the road better, and will help other drivers avoid glare.

See p. 6-7 on how to align your own headlights.

Adjust both outside mirrors.

Properly aligned mirrors not only reduce blind spots, they also reduce glare from vehicles behind you.

AAA recommends the following method: While sitting in the driver's seat, lean to the left and tilt your head until it rests against the window. From that position, adjust the driver's side mirror so you can just see the left rear fender. Next, while sitting in the driver's seat, lean to the right and tilt your head until it's in the center of the vehicle. From that position, adjust the passenger-side mirror so that the right rear fender is just visible.

Now when cars pass you, you'll notice that your mirrors don't direct the brightest part of the headlights into your eyes. You'll also notice that the arrangement reduces blind spots and makes it easier to spot vehicles to the side and rear.

Have your vision checked regularly.

The American Optometric Association recommends that everyone under age 40 have a thorough eye exam at least every three years; drivers 41 to 60, every two years; and drivers over age 60, every year. Age makes eyes more sensitive to glare, but certain medical conditions, such as encroaching cataracts, will increase the

problem. If the problem is detected early, your eye care professional can recommend effective treatment.

Behind-the-Wheel Tips

A few simple but surprisingly effective techniques will help you fight glare:

Avert your eyes.

When oncoming vehicles shine light directly into your eyes, look down and to

the right. Turn your gaze to the white line on the right side of the road, or to where pavement meets the shoulder, until the vehicle goes by. You can still see the vehicles around you with your peripheral vision, but the glare won't bother you as much because you are not using the most light-sensitive part of your eyes.

Use the mirror's "night" setting.

All cars have "day/night" interior mirrors to reduce reflected glare from vehicles directly behind you. You can change the mirror to its "night" setting by flipping the small lever at the bottom of the mirror.

This changes the angle of the reflective surface and appears to dim the mirror. Lights will still show up in the glass, but they're much less bright and not so bothersome.

Use your lights courteously.

If your car has fog lamps, don't use them if there is no fog. In fog, use only your low-beam headlights; high beams reduce your own ability to see and may temporarily blind other drivers. Avoid using your high beams when you see oncoming vehicles or when you drive in urban areas.

Take frequent breaks.

If you're driving at night for a long time, stop often to reduce fatigue and give your eyes a chance to recover. Take a short nap, or at least a brisk walk and some caffeine to help you stay alert.

Extra Glare Protection

OK, you prepped your car completely for night driving. You've had your eyes checked by a professional. And you've tried the behind-the-wheel techniques above. But glare *still* bothers you. Don't give up! Try these strategies:

Anti-reflective eyeglass coating.

Many eye care professionals strongly recommend glasses with an anti-reflective (AR) coating. This ultra-thin film, made from zircon and silicon, reduces internal reflections in the lenses. Unlike sunglasses or self-darkening lenses, which block some light, AR-coated glasses actually transmit more light—about 8 percent more. This improves vision at night and helps distinguish fine details during the day. Highway patrol troopers have reported better night and day vision and reduced nighttime glare with AR-coated lenses. These lenses may help you, too.

Self-dimming mirrors.

Many upscale cars now offer self-dimming mirrors that reduce glare but allow you to maintain excellent rearward visibil-

ity. As the glare becomes brighter, the mirrors become darker; as the glare diminishes, the mirrors lighten up. These mirrors are available from some dealers and automobile parts stores. If you're particularly sensitive to reflected glare, consider getting self-dimming mirrors, either as replacements for your current mirrors or as equipment on your next car.

If all else fails.

Drivers with vision problems may find that even these techniques don't help. In that case, think about driving less at night, or restricting your travel to routes that have good overhead roadway lighting and clear, well-maintained pavement markings.

THINK TWICE BEFORE...

... Using "night-driving" glasses.

Some marketers offer specially tinted glasses (usually yellow) that supposedly block the wavelengths of light responsible for most troublesome glare. Unfortunately, no matter what their tint, these glasses also reduce the amount of light that reaches your eyes, and you need light to see. While these glasses may reduce glare, they also reduce your night vision overall—hardly a safe bargain.

... Wearing sunglasses at night.

Eye care professionals warn against wearing sunglasses at night or indoors. They not only restrict your night vision but eventually, as your eyes get used to them, they become inadequate for daytime protection.

... Installing "blue-light specials" on your car.

Status-seekers who envy the blue-white HID headlights on upscale cars often fall for the fake HIDs offered by some manufacturers as replacements. Even though they may have "xenon" or "blue" in their names, they're often just ordinary halogen headlights that have been given a blue tint. Because of the added coloring they may actually provide less light than regular bulbs. If you must replace your headlights, don't buy cheap, imitation HIDs; consider using the lights recommended by your vehicle's manufacturer.