

# Headlamp Technology



## Ralph Seekins

Have you noticed that it is getting darker at night these days? I've already been using my bright headlamps cruising down the road to Delta and back. And one thing I've noticed while doing so is that headlamp technology is getting better and better all the time.

I'm old enough to remember back when what we had for vehicle headlamps were incandescent bulbs – something that started around 1940. They were called “sealed beam” headlamps. All the sealed beam lamps were manufactured as a single big and round unit with two elements (one for high beam and one for low beam) sealed inside.

Then, in the late 1970s, the manufacturers switched to halogen sealed beam lamps – a big improvement in light generation over the old incandescents. Night driving visibility became much, much better at that time.

Sometime in the early 1980s, the federal government changed its regulations and allowed replaceable bulbs to be used in place of the sealed beams on new vehicles. That's when the automobile manufacturers began

using those replaceable bulbs installed inside high impact plastic headlamp assemblies. Designers were no longer limited to the simple round or square lamps from yesteryear. Hence, the multitude of headlamp styles you've seen on the road since that time.

Then, bulb technology has evolved. From halogen we went to High Intensity Discharge (HID) bulbs that produced as much as 60% more light than halogen and used a whole lot less power. Once again, the brighter, replaceable bulb inside a high impact plastic assembly made nighttime driving safer and cheaper than ever before. And, just about anyone could replace a burned out bulb without any real difficulty.

Today, we're seeing even newer headlamp systems. For example, some very high end vehicles are now using Light Emitting Diode (LED) bulbs in the headlamp assemblies. An LED is a silicone-based semiconductor that very efficiently creates a very bright light. They produce very little heat and last longer than bulbs with filaments. For these reasons, you will see more and more LED headlamps over time as you drive down the road.

So, since the streets and highways are getting darker by 6–7 minutes each day, NOW is a good time to check all the lights on your vehicle for proper operation – particularly the headlights and taillights. For headlight replacement I recommend you visit your vehicle's authorized dealer to get Original Equipment Manufacturer (OEM) replacements. That way you know you are getting

the right bulb with the right filament position and the right power draw for your vehicle. The filament has to be in the right place since the headlamp assembly directs light in a particular pattern by reflecting it off the reflecting back portion and through a projector-type lens. The wrong filament and your lights shine in the wrong place and create a real safety issue. And different bulbs draw different amounts of power. If your headlamps draw too much power, you can end up with electrical system problems you don't need. A good word of advice here is to avoid “cheap” bulbs. They are seldom what you need.

If, for some reason, you don't have access to OEM recommended bulbs, your automotive parts store should have information demonstrating compatibility with your make, model and year vehicle. In all cases, make sure the bulb has a Department of Transportation (DOT) stamp on it. Otherwise, it does not meet the required standard for on-highway use. Again, one size does not fit all and the right bulb will make night driving easier and safer.

Down the road, we'll talk about driving lights and how you might benefit from adding some to your vehicle. Meanwhile – safe driving for you and your family.

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