



# Modern Lights for Older Cars

By Gil Fuqua (TN)

Advancements in automotive lighting technology have resulted in brighter lights and longer-life bulbs compared with conventional incandescent bulbs used in older cars. Some of the new technology, including halogen headlight bulbs and light emitting diodes (LED) bulbs, can provide similar benefits to older cars.

Halogen headlights are standard equipment on many new cars. They provide more light output per watt and have a longer life expectancy than conventional incandescent bulbs. A few specialty manufacturers have adapted halogen bulbs as direct substitutes for incandescent bulbs used in older cars. Before jumping at the opportunity to upgrade to halogen bulbs, be aware that halogens generate a lot more heat than an incandescent bulb. Look closely at your wiring and light bulb sockets to be sure that the extra heat from a halogen bulb will not cook the components or melt the wiring! A second consideration for substituting any headlight bulb, including halogens, is the focus point of the bulb. Headlights were designed for a particular bulb so that the light is properly focused in the reflector to cast an even beam. If the focus point is different than the original, it may not focus properly and result in a light beam that is too narrow or one that spreads too much. This is a safety issue and it's important to compare the light coverage of a new bulb with an original one to be sure you are getting the same light patterns.

LED bulbs have a number of advantages in automotive applications. They are noted for their extremely long life (10,000 hours or more) and may never need replacing. In addition, LEDs are resistant to vibration-induced failures and draw only about 5% the power of their incandescent counterparts. The reduced power requirement of LED bulbs translates into much lower operating temperatures than incandescent bulbs.

LED bulbs are available in many standard sizes and can be substituted for an equivalent incandescent bulb without any modifications. They are excellent replacements for turn signals, running lights and brake lights. They are readily available in 12 volt versions, and 6 volt bulbs are available through specialty manufacturers.

LEDs emit light primarily at their tip compared with an incandescent bulb that emits light evenly around its circumference. The difference in light output has resulted in various designs that incorporate multiple LEDs to mimic the light output of an incandescent bulb. (See photos showing comparison of two types of LEDs in a tail light).



LED bulb from Ledtronics (left) is similar in size to a twin element 1157 incandescent bulb (right).




A halogen twin element headlight bulb (right) has the same socket size as the comparable incandescent bulb. Restoration Supply Company ([www.restorationstuff.com](http://www.restorationstuff.com)) carries bayonet-based halogen bulbs in 6 volt and 12 volt versions.



LED bulbs are more expensive than conventional incandescent bulbs, selling for about \$5 for automotive store bulbs to \$35 for specialty bulbs. The less expensive LEDs are suitable for some applications but do not offer the side-light or wide-beam options that are available from specialty makers like Ledtronics ([www.ledtronics.com](http://www.ledtronics.com)). For example, Ledtronics makes bulbs with LEDs around the

side and top to mimic incandescent bulbs used in reflector lights and has models with as many as 40 LEDs in a cluster.

If you substitute LED bulbs in turn signal lights you may find that the new LEDs do not blink. If so, you will have to swap your old thermal flasher unit for an electronic flasher/blinker module since the LEDs do not

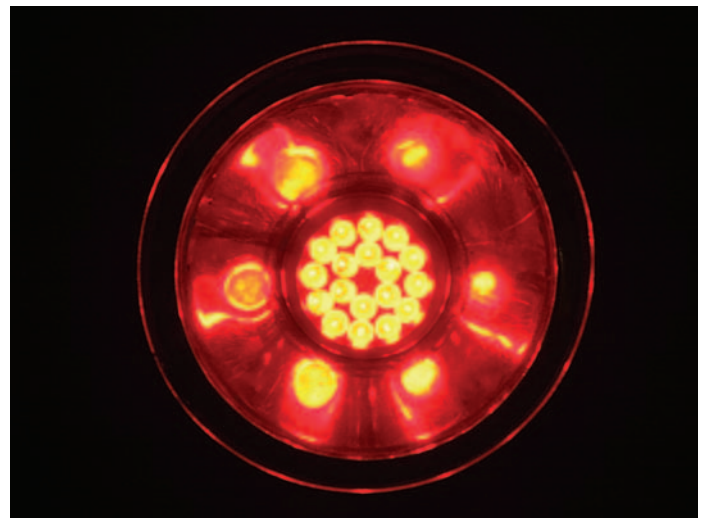
draw enough current to activate the thermal flasher element. Electronic flashers are available from most automotive parts stores for under \$10 and are a direct plug-in replacement for the original thermal flasher units. No changes are necessary to wiring or other components to substitute LED bulbs for incandescent ones for brake and running light applications. 



*LED bulbs can vary widely. The 12 segment LED bulb (left) sells for about \$5 and is widely available at automotive stores. The 24 segment LED bulb (right) is made by Ledtronics ([www.ledtronics.com](http://www.ledtronics.com)) and sells for about \$25. The Ledtronics bulb includes side- and top-facing LEDs that provide brighter and more even illumination in many reflector assemblies than designs with all the LEDs pointed in one direction.*



*The \$5 LED has 12 individual LEDs that are all located on its tip and that results in a quarter-sized point of light. Very little of the light is picked up in the mirrored reflector of the prewar tail lights since the LED's light is very directional.*



*Ledtronics bulb with 24 individual LEDs, including side-facing LEDs, that provide bright and even illumination. This bulb was mounted in a prewar tail light and shows the reflection of the LEDs on the mirrored reflector internal to the light.*