

NEW TECHNOLOGY IN TOW TRUCK LIGHT BARS

By Tim Jackson, Editor

The primary emergency warning light associated with a tow truck is the light bar, and light bar technology — like cell phones and computers — is advancing daily. While today's light bars continue the same mission as the gumball beacons of the 1950s, evolving technology allows manufacturers to produce potent and efficient light sources that do more with less.

LEDs Lead the Way

At the crest of new light bar technology is the Light Emitting Diode (LED). LEDs aren't new, but the capability of the LED light bar has made robust gains in the last few years.

"The evolution has gone from rotating halogen lights, to strobe systems to LEDs," says Mike Lyons, vice president of Amber Warning Business at Code 3 Inc., which manufactures a full range of emergency and warning lighting products. "LEDs are the leading edge of technology in light bars."

LED light bars for tow trucks were introduced years ago, but had drawbacks. The latest technology has refined and improved function and reliability.

"Five or six years ago, people were more resistant to this new light bar technology," says Bob Williams, Technical sales representative for Phoenix USA, which supplies light bar systems and accessory products to the towing industry. "LEDs weren't bright enough, and durability was a concern."

It wasn't that the LED itself wasn't durable, says Scott McCormick, New Product Development with Phoenix USA, but the components the LEDs were installed *into* sometimes didn't

hold up well. “Five years ago, the LED light bar was not a justifiable expense,” McCormick says, “but technology has come a long way.”

Brightness

When it comes to projecting color, the LED is the hallmark of efficiency.

“If you take a halogen light and put an amber dome over it, what’s coming out of the light bar is amber,” says Paul Gergets, director of Engineering for Federal Signal Corporation, manufacturer of a range of emergency lighting products for multiple industries. “The rest of the light generated from the halogen bulb — approximately 30 to 40 percent — is reflected back into the light bar. White light contains every color of the rainbow and you have to filter out the colors you don’t want. The Light Emitting Diode only creates the color you want,” Gergets says. “Almost 100 percent of the light is amber. Optical efficiency has improved dramatically from halogen and strobe systems.”

Along with a more pure light source, manufacturers use advanced optical systems to direct the light for optimum performance. Early LEDs cast more of a directional light, Lyons says, like a spotlight rather than a floodlight. Today’s LED systems utilize reflecting and lens technology to generate 360-degree visibility — which is very useful at places like intersections.

“Risk to tow truck operators can come from all directions,” Lyons says, “not just from forward or behind.”

Some guys may get hung up on the old “the more LEDs the better,” but newer LEDs can get the same done with less.

“Where an older light bar may have had 12 diodes, today you can run six that are just as bright,” McCormick says. “With newer technology, there are better LEDs with greater diffusion and reflective technology.”

Versatility

Modular construction, the ability to upgrade and selectable light output modes enable a towing operator to customize a light bar using multi-

ple flash patterns and colors. Light bars can also be programmed to function as directional bars to alert oncoming traffic signaling left or right movement.

Less Power Draw

Advancing LED technology has made the modern light bar a miser in power consumption, which is significant when running light bars for extended periods.

“LEDs utilize one-quarter to one-third of the total power consumption versus halogen or strobe systems,” Gergets says. “An older halogen light bar in police application, for example, might require 40 amps. With an LED light bar it’s 12 to 15 amps. It’s less of a load on the vehicle’s electrical system.”

As a result, an LED light bar can run much longer than older light bars with rotators and strobes McCormick adds, estimating 10 times as long on a 12-volt battery.

For the same power it takes to run a conventional light bar with only four rotators, Lyons says, a truck owner can run an LED model that’s fully loaded. Power draw has been reduced to the point that the truck owner can take advantage of the excess electrical capacity.

“The operator can add more electrical components like computers or rechargeable flashlights on the truck because the battery is not maxed out supplying power to the light bar,” Lyons says.

Durability

“When LED light bars first came out, they physically weren’t that strong and couldn’t withstand the vibration,” Williams says. “Now that’s been solved. Light bars are much stronger with multiple mounting points. The towing industry is probably one of the worst environments for an LED light bar. If it can survive there, it can survive in any application.”

LEDs are solid state components, resistant to vibration, Gergets adds, with no filament or tubes to break. This adds to the increased life of the LED.

“A typical halogen bulb lasts

approximately 500 hours,” Gergets says. “An LED would last in excess of 10,000 hours.”

Low Profile

The latest light bars sport a low profile, keeping the bar closer to the truck cab, reducing wind noise and offering more protection from overhanging branches or other obstacles.

Maintenance

Rotator light bars have electric motors that turn the rotators, and they can wear out over time. The cost of replacing strobe housings can add up as well. Light bars with newer LED technology have no moving parts to wear out, drastically reducing maintenance issues.

Warranty

Less maintenance and longer life leads into why manufacturers have increased their warranties on LED light bars as compared to halogens and strobes in the past.

“The warranty issue is huge,” Williams says. “Conventional light bars may have a one-year warranty from the date stamped on the part. Now manufacturers are standing behind LED models for five years-plus.”

Cost

While newer light bar technology offers towers more, it also costs more. Depending on the features, the cost of an LED light bar is typically more than a rotating halogen light bar, Lyons says, but given the improvements made in recent years, it’s becoming less of an issue.

And when considering the total cost of ownership, Gergets says, if you don’t have to replace bulbs, worry about vibration, enjoy lower service hours and power consumption, the total cost of the LED light bar is less.

“Five years ago, the LED light bar was not a justifiable expense,” McCormick adds, “but with lower power draw, less maintenance and longer warranties, it’s now easy to justify spending extra to get the latest technology.”