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LIGHT READING

IS CARAVAN LIGHTING ON THE BRINK OF A CHANGE? YOUR SOURCE OF ILLUMINATION ON THE SUBJECT IS JOHN WICKERSHAM

I LIKED the gas lights in my first caravan but their days were numbered. Surprisingly they weren't superseded by car-type light bulbs, even though several caravanners were connecting them to their towcar's battery. That idea wasn't adopted because 12V tungsten filament incandescent bulbs consume high power compared with their light output.

Gas lighting lost its place when a manufacturer called Labcraft found a method of running fluorescent tube lights from a 12V DC source. Initially, sceptical caravan manufacturers fitted a single fluorescent light together with a gas lamp in case it failed. My 1972 Lynton Javelin was one example.

Fluorescent tube lights

In spite of early uncertainty, these new

products soon consigned gas lamps to caravanning history.

Strictly speaking, fluorescent tubes don't actually run on 12V DC electricity. Inside the lamp casing, a small electronic device (called an inverter) converts the battery feed into a much higher AC voltage. Labcraft found that by boosting and converting a 12V DC supply to around 130V AC, it could then ignite a fluorescent tube.

The resulting product is better than tungsten filament lighting in several ways. Features include:

- A good lumen/watt ratio – helped by the use of a long tube
- Low power consumption – claimed to be around 80% for an equivalent light output
- An ability to survive vibration and sudden jolts
- A notable working life – sometimes claimed to be five to eight times

longer than a conventional tungsten filament bulb

But fluorescent lighting in caravans isn't perfect. For instance, electronic components used in their inexpensive inverters sometimes cause radio interference. In addition, the inverter may not tolerate higher DC voltages (such as 13.8V or more). These arise if lights are in use when the caravan's battery is simultaneously undergoing a charge.

Similar problems can arise if an inverter is used to run a low-energy light bulb.

Low-energy lighting

These products operate on similar principles to fluorescent lights. A 16W example is reckoned to produce almost as much light as a conventional 60W bulb. Surprisingly, 230V AC low-energy bulbs are seldom fitted in caravans.

1 New LED lights being sold by CAK have been shown at two of the NEC caravan exhibitions held in 2006

2 Though used for reading lights, tungsten filament bulbs consume a significant amount of power

3 To illuminate a living space, fluorescent lamps create a good output for a relatively low power consumption

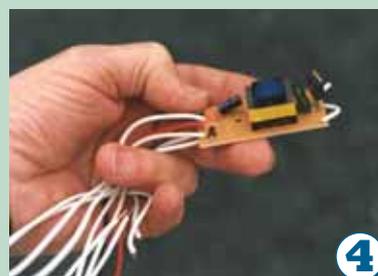
4 A miniature inverter is mounted within the casing of fluorescent lamps fitted in caravans



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5 Low-energy lights with an inverter mounted within the holder were once sold for caravan use

6 Included in the BCA conversion kit are four complete lamps, each of which contains 24 LEDs

7 Pins on the G4 panels made in China fit the sockets originally intended for halogen bulbs

8 Larger CAK units include a 48 LED slim light, an 18 LED low-profile light and a nine LED courtesy light

9 Many LED lamps need a voltage stabiliser and most CAK products have one mounted within the casing



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However, in the 1990s, a West Midlands manufacturer introduced pendant and table lamps in which a tiny inverter was again mounted within the light holder. The battery-driven units looked smart but the product wasn't on sale for long.

Halogen lighting

Paradoxically, incandescent lighting is back in fashion, albeit in the guise of high-output halogen bulbs. They yield good levels of light. I fitted 20 of these lights in my motor caravan, with five individually controlled circuits to create zoned illumination.

However, in caravans, halogen lights have weaknesses. For example:

- They consume a significant amount of current
- In DC situations, life expectancy isn't good – around a tenth compared with the Xelogen lights fitted in boats
- Resistance to voltage overload is poor – which occurs when a charger/power supply is operating in a caravan
- They have low tolerance to vibration
- High temperatures are generated – apparently as great as 700degC – so good ventilation is essential
- Changing a bulb is challenging – connectors easily break and the pure silicon glass is soon degraded if touched by fingers

Now there's a product to replace this halogen heaven.

Light emitting diodes (LEDs)

LEDs have been fitted on domestic hi-fi systems for many years and the boat industry has also installed LED clusters in

cabin cruisers. Though costly, that's hardly an issue in a £1 million yacht, but with prices now falling, these lights are appearing in motor caravans, too.

Five years ago I fitted floor-level LED glow lights in clusters of five in my motor caravan. I also started using an LED head torch on mountain expeditions. This essential navigation aid was excellent because the torch batteries lasted for ages. This is where LED lighting will score well.

I knew changes were afoot when a boat supplier displayed a stunning wall lamp with 16 red LEDs at the Earl's Court Caravan Show in 2004. The £65 price tag frightened off many caravanners at the time, but costs were coming down. China was making its mark.

The case for LED lighting is strong, especially when so many 12V accessories have to be powered by a leisure battery; their parsimonious current consumption is an extraordinary feature. It's claimed that whereas a halogen downlighter draws 0.81amp, an equivalent LED downlighter takes 0.12amp. In rough and ready terms, six LED cluster lamp units consume less power than one typical halogen light.

Other points to note:

- LED units don't create the extraordinary heat of halogen bulbs
- They seldom fail and I wouldn't be surprised if a light lasted the lifetime of a caravan

Acceptance and application

Vehicle manufacturers have responded and the rear lights on some of the latest

cars are sealed LED units. The living space in some motor caravans, such as models from Wingamm, is also illuminated by LED ceiling lights.

Caravan manufacturers, such as Bailey, are also looking closely at LED products.

Present availability

BCA Leisure, one of the first manufacturers to introduce LED caravan lighting, has supplied wiring harnesses and light components to caravan/motor caravan manufacturers for many years. In conjunction with Pennine Leisure Wholesalers, BCA Leisure has also assembled a kit of LED components which caravanners can order from their local dealer.

Included in the kit are G4 1.3W panels comprising 21 LEDs which fit directly into some types of lamp units, thereby replacing the halogen bulb. I recently fitted some G4 panels and while the LED colour tone is rather clinically white, low current consumption and the lack of heat are remarkable.

A large range of LED units is also being sold by CAK, whose Mail Order catalogue is essential bedtime reading for all anorakian enthusiasts. It includes swivelling spotlights, downlighters, dome lights (with 42 LEDs), courtesy lights (with nine LEDs) and so on. There are nearly 20 models and their casings house a tiny voltage stabiliser which LEDs normally need.

So new luminaries are now on the scene. While I liked stuttering gas lights, the mantle has now been claimed by another contender.

Further information

Caravan Accessories
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