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The handheld Odeo flare can be tested and reused – all you have to do is replace the AA batteries



Are laser beacons as good as flares?



Nobody likes pyrotechnic flares but all yachtsmen need them. Or do we?
Chris Beeson tests the Odeo Laser Flare

Essentially, pyrotechnic flares are small explosive devices. They're hard to dispose of, and expensive to replace. But in case you should ever need to raise the alarm and attract rescue, you have no choice but to have them on board, right? Well, perhaps, a few decades ago, but not now. Among the modern options are GPS-enabled EPIRBs and PLBs for offshore emergencies, and AIS SARTs, handheld DSC VHF radios, even ordinary handheld VHF, for inshore dramas.

In an emergency, you have to trust that your electronics are actually doing what you need them to do. Your GPS position narrows the search down massively but with drift and poor light, it's helpful to have something on you that shouts out: 'I'm over here!'

Assuming you have a flare pack with you, and you know how to fire them, and the flare pack doesn't fail and sink while you're trying to get a flare out, and it works properly – a red handheld pyrotechnic flare will make you extremely visible for a minute or so. But is being showered with molten metal still the best we can do?

A step forward?

In the hundred years since red flares were first used as rescue aids, a lot has happened in the field of technology. Lasers, for instance, are no longer seen as fiendish weapons of terror, but as reliable tools for fixing dodgy eyesight. The cost of producing useful lasers has also dropped dramatically.

So, could lasers become effective, low-cost rescue aids?

Nick Lonsdale, a transatlantic yachtsman and Coastguard rescue operation coordinator, was quick to see the marine potential. He was aware of an Alaskan company, Greatland, making laser flares (see *YM* August 2009), which shine a beam in one direction only, so you need to know which direction rescue is coming from – not always possible at sea.

He also knew a better solution could be found. So he set out, with

electro-mechanical engineer Steve Groves, to develop what would become the Odeo laser flare.

Perfecting a laser flare

From the start they knew they had to use Class 3R laser diodes because anything else would require certified training for users, and export licences to sell.

The Odeo MkII flare has five 10mW Class 3R lasers in its head. Four shine through side lenses that form vertical beams of red light reaching 300m (1,000ft) above sea level at a range of 1.5nm. The fifth, mounted on the top, covers an 88° arc above, completing a full hemisphere of light coverage.

An electric motor spins the head at an irregular speed not greater than 240rpm, stopping when the motor brushes create enough friction. This produces a random light, carefully designed to avoid any confusion with navigation aids or lights. Powered by three L91 lithium iron-disulphide batteries (sold as Energiser Ultimate AA), it will keep shining for up to five hours – equivalent to using 600 handheld red pyrotechnic flares (costing a total of £7,200 at £12 each). Ordinary alkaline AA batteries will keep it going for up to three hours.

The environmental ruggedness of this device is astounding. Its shelf life is 14 years with one set



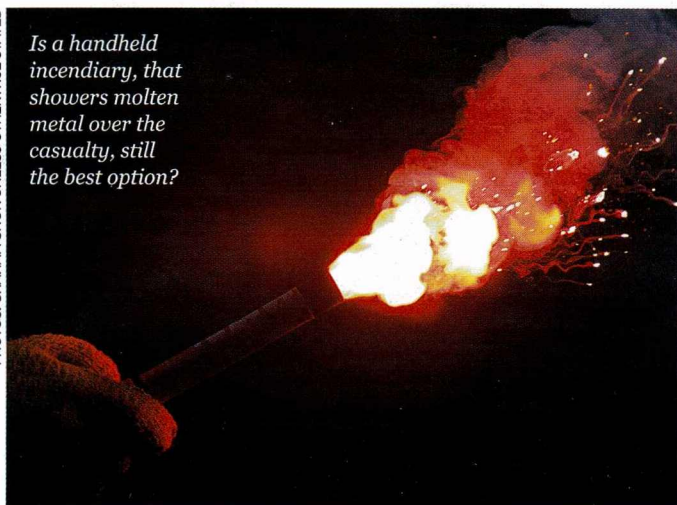
Greatland rescue lasers have good reach, but you must know which direction rescue is coming from



PHOTO: GREATLAND LASER

PHOTOS: GRAHAM SNOK UNLESS OTHERWISE STATED

Is a handheld incendiary, that showers molten metal over the casualty, still the best option?



of batteries and all five lasers are independent so, if one fails, the others keep going. It's waterproof, buoyant and floats the right way up. It weighs just 330g (12oz), can survive a three-metre (10ft) drop, and will continue to work if the dome breaks or seawater gets into the battery compartment. Should it overheat, there's a protective auto-off function, and an auto-on for when it cools down. It has also been tested at -17°C, the only effect being extended battery life!

Does it work?

Nick Lonsdale invited us down to Weymouth to see it in action just after a new moon in January. We tested its range and compared it to a conventional pyrotechnic flare.

We borrowed two boats from Scimitar Diving in Portland, with Nick and the Odeo setting off in the first one five miles into the darkness of Weymouth Bay. Once there, he turned off the boat's navigation lights (he had arranged all the necessary clearances) and turned on the Odeo flare. We then we set off in the second boat to see how quickly we could find him.

'Three miles off and the flare was in plain sight – not dazzling, but twinkling'

At a range of 3.3 miles, we saw the first flickers of the Odeo in the distance. By the time we were three nautical miles off, it was in plain sight, moving up and down behind the swell. It wasn't dazzling, but it was clearly visible, the random head rotation giving it the appearance of a twinkling star.

We came alongside 45 minutes after first spotting the Odeo flare. Forty-five pyrotechnic flares (each one lasting a minute) would have cost £540. The Odeo flare is £148.

Steve Groves pointed out that after 45 minutes of continuous operation, the laser will lose 10-15% of its brightness. He therefore recommends an intermittent duty cycle to optimise brightness – twisting the base so it's on for three or four minutes, then off for the next 10-15 seconds.

Having established a range of three nautical miles on a slight swell, we headed back to Portland where Nick held a lit pyrotechnic red handheld flare in his right hand and an Odeo flare in his left.

There's no doubt the pyrotechnic flare dazzled, it was much brighter than the Odeo flare – a hundred times or more. But a minute later the pyrotechnic flare went out and, as Nick pointed out, 'For the next four hours and fifty-nine minutes, the Odeo flare will be brighter.'

Naval approval

Odeo already exports to various navies around the world. French and New Zealand maritime authorities have tested the Odeo laser flare to their satisfaction and it now qualifies as the handheld distress flare mandated as part of a yacht's safety equipment. The US Coast Guard is testing it too – the only one of several non-pyrotechnic products that was felt to merit serious testing.

Steve also told me that they're working on some other products: one is a pocket version that takes two AA batteries, has one less laser and works for three hours; the other is a parachute flare that uses a pump to compress air, which then fires a smaller, more intense laser, with parachute, into the sky.

As things stand, the Odeo is the only flare you can be 100% certain will work – because it's the only flare you can test – and it's a bona fide British success story.

Hopefully the MCA will get its head out of the tar barrel, test and approve this ingenious product and give it the backing it deserves. ▲

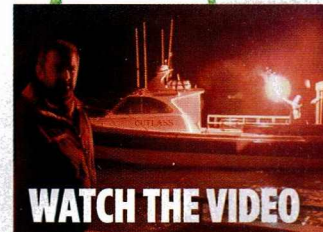
Price £148

Contact Odeo Flare

Email info@odeoflare.co.uk

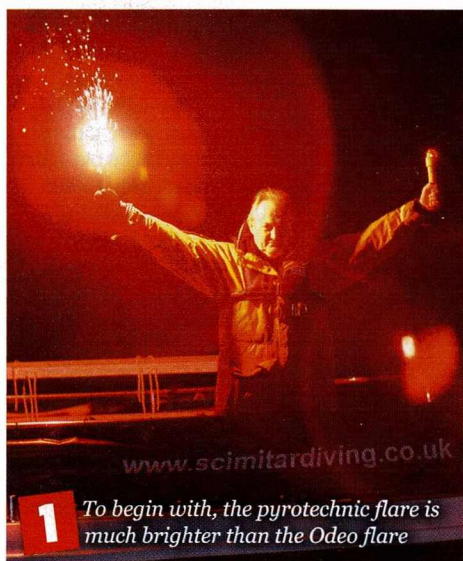
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It has five lasers and an electric motor packed into the head and the batteries live in the handle. Just twist the base to turn it on and off

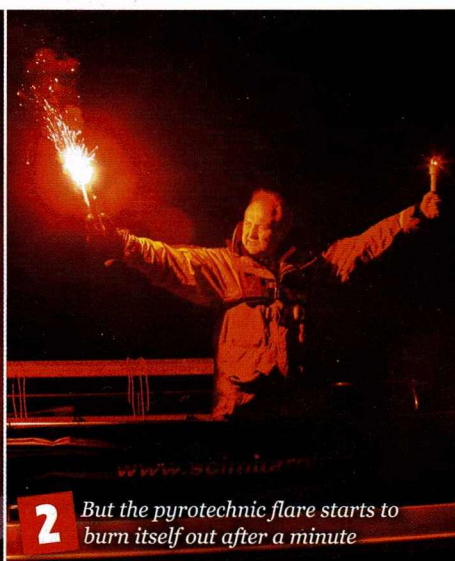


WATCH THE VIDEO

To view a video of how we tested the Odeo flare, and compared its performance to a conventional pyrotechnic flare, scan the QR code or go to: www.yachtingmonthly.com/odeoflare



1 To begin with, the pyrotechnic flare is much brighter than the Odeo flare



2 But the pyrotechnic flare starts to burn itself out after a minute



3 The Odeo flare is then 'brighter for the next four hours and 59 minutes'