

James Turner, Yachtmaster Ocean and retired instructor, explains plastic sextants and dispels common misconceptions

Plastic sextants

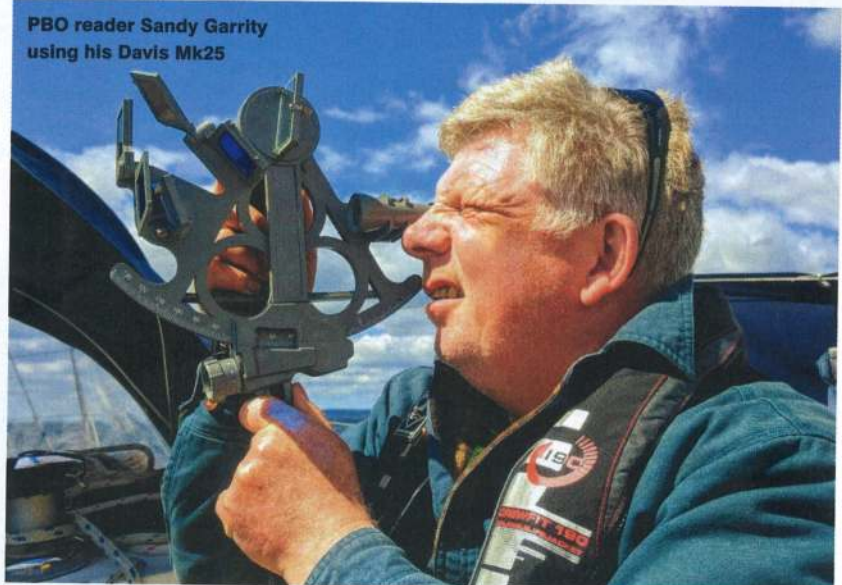
In the mid-1970s I sailed a small boat from the UK to Tahiti, crossing the Atlantic, Caribbean and Pacific. My primary navigation tool was a plastic sextant, with timing provided by a quartz-crystal bedside alarm clock, itself a very new invention. My shipmate had a very expensive metal sextant. We navigated separately, but compared noon positions every day and were invariably within four miles of each other.

I know from my apprenticeship in the merchant navy that if two officers took sights from the bridge of a tanker, a steady and high platform compared with a yacht, and were within seven miles of one another, they got full marks.

In the 1970s there was no GPS, and even the earlier satellite system, Transit, that gave on average one fix per hour, hadn't been invented, so for long-distance sailing a sextant, along with the knowledge to use it, was essential.

Four-mile accuracy is perfectly good for ocean cruising. It'll get you to the right Caribbean island or Pacific atoll with no problem at all.

If you're in the market for a sextant, whether just to master the art, as a back-up on a bluewater cruise, or to take part in the Golden Globe Race, you'll be choosing between a metal-bodied instrument costing from £600 to £3,000 and a Davis plastic sextant costing up to £350. There's your first decision. It was an easy one for me.



PBO reader Sandy Garrity using his Davis Mk25

Accuracy of a metal sextant has oft been cited as the reason for spending the extra money, but in my experience the inaccuracy inherent in a low 'Height of eye' (your height above sea level) on a rolling deck – two features we endure on sailing boats regardless of which sextant we buy – cancel out any advantage in instrument accuracy.

An argument that hugely favours the plastic over the metal is that it's lightweight. I know from bitter experience that when you are reliant on celestial

navigation, it's sod's law that creates overcast sky, so you spend ages standing in the shrouds, arms wrapped around the rigging, sextant ready, waiting for that 30-second glimpse of the sun that's all you're going to see for a few hours. The difference on your shoulders between a heavy metal instrument and a light plastic one in this situation is immense.

In summary, plastic sextants cost less, weigh less and are plenty accurate enough. Now we'll look at the choices of instrument in the market today.



You can find vintage metal sextants at antiques dealers such as Trinity Marine, but they can still fetch high prices

Gilbert Park

EBBCO

Harping back to the 1970s again, there was a brand of rough-and-ready plastic sextants called Ebbco who made two models – the Ebbco Standard and Ebbco Special. If you can pick one up on ebay in good condition, either model will be fine for sun and moon sights, but the telescope optics were never good enough for stars and planets. The telescope on both was awful, and best done without.

Both models featured a micrometer and vernier scale. The key difference was that whereas the Standard had the scale moulded into the plastic, the Special then had paint applied, so the numbers and arc markings stood out and were much easier to see. Does that matter? Well yes, if you're learning, when you'll probably do three sights each time, but this is less important when you're more experienced, because you just know when you've taken a good sight.

DAVIS

Made in the USA, there are three models of Davis sextant, the Mk3, Mk15 and Mk25.

The Mk3, costing just under £100, is really a classroom instrument, and is fine for standing on the pier and learning, but because it doesn't have a micrometer – only the main scale with a vernier – it's extremely limited. I'd go as far as saying 'Don't use this one for navigation'. It also has a very limited selection of sun shades, and due to having a plastic telescope isn't suited to shooting stars and planets. However, if you want to get started, learn the art of taking sun sights, and not spend a fortune, it'll be just fine.

The Mk15 is the first of the two 'serious navigation' sextants from Davis. It features a traditional split screen, with three horizon shades and four sun shades, so it's easy to use in any light conditions. There's a 3x magnification telescope for stars and planets too. The main scale is easy to read, as is the micrometer and vernier. Priced at around £280 this is the most popular choice for serious navigators

The Mk25 features an all-view screen, quaintly called a 'beam converger' where the heavenly body is superimposed

RIGHT Ebbco plastic sextant from the 1970s




ABOVE LEFT The Mk15 Davis sextant – a popular choice for serious navigators
ABOVE RIGHT Mk25 Davis has a built-in light and all-view screen

across the horizon glass. This is inherently easier for beginners to master, but as an experienced navigator used to the traditional split screen, I don't find it an advantage. The other key benefit of the Mk25 is the illuminated arc, which is brilliant if you're shooting stars, which you do at dawn and dusk when the stars and horizon are both visible. Time is of the essence when taking star sights, and the built-in light helps a lot. You might think that using a head torch would be just as good, but it isn't, it's way too bright and mucks up your vision for the next sight. It'll cost you around £350.

If you want the benefit of the built-in light but with a split screen, you can buy the Mk25 plus a spare mirror set for a Mk15. It's an expensive route, but for those favouring a split screen it is an excellent solution.

Summary

Having crossed a few oceans with the Davis Mk15 I have to say it's my firm favourite, but having the light on the Mk25 is a big feature, and it's not hugely more expensive. If you're just starting out, there's little doubt you'll find the allview mirror of the Mk25 a big benefit. 

Books for learning astro navigation

Phil Somerville's *The Practical Guide to Celestial Navigation* tells you how to use just the sun to navigate. It's 160 pages long and is beautifully written. All the theory and practice is explained clearly with well illustrated diagrams. Price: £30.

■ bloomsbury.com

Andrew Johnson's *Astro Navigation from Home (without a sextant)* explains how to use most of the celestial bodies.

You don't actually need a sextant. Instead, you use a planetarium app (Winstars or Stellarium) that will show you all the heavenly bodies and allow you to make your 'sextant' readings. From there you complete your calculations and use a plotting sheet or another app, TeacupNav, to get your position. Price: £14.50.

■ astronavfromhome.co.uk

