

SELF-LEVELLING RADAR MOUNT

NEW GEAR TRIED & TESTED

On the level

Nobody needs convincing of the benefits of radar, but how well does it work when you're heeled? Chris Beeson finds out

Radar has navigational uses, establishing range primarily, and provides the skipper with a reassuring image of what's happening in reduced visibility. But its main benefit is collision avoidance, using its target-tracking MARPA (mini automatic radar plotting aid), EBL (electronic bearing line) and VRM (variable range marker) features.

But without a hydraulically damped self-levelling radar mount, how effective are these tools when

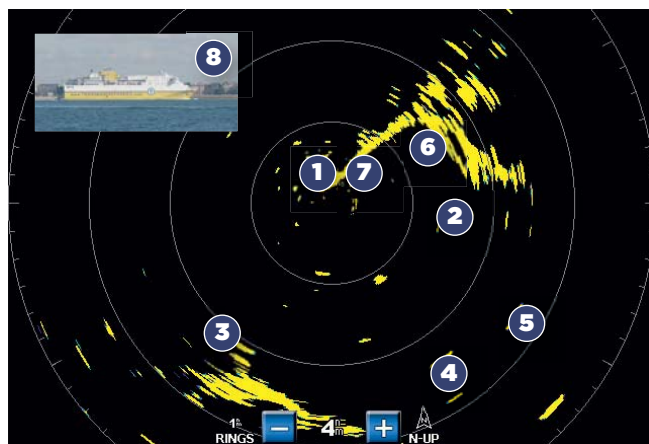
you're heeled? Will MARPA still work, for instance?

The test

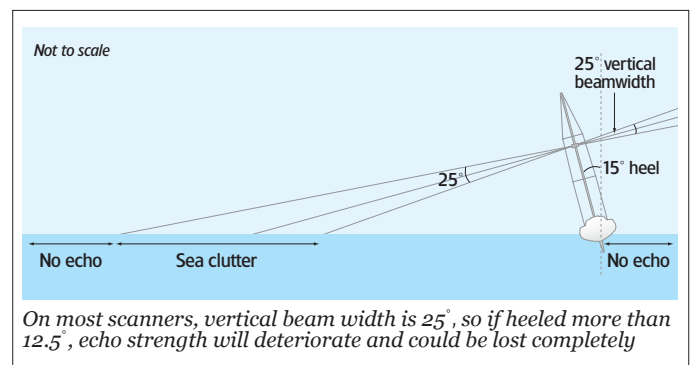
YM photographer Graham Snook's Sadler 32, *Pixie*, beats with 20–25° of heel, occasionally 30° or above. *Pixie* has a Scanstrut self-levelling radar mount (right). To find out how radar's performance is affected by heel, we fitted an inclinometer to *Pixie*'s scanner and tied a line to it to induce 5°, 10°, 15°, 20°, 25° and 30° of heel. At each angle, we noted any effects on the radar screen.



Above: *Pixie*'s Scanstrut self-levelling radar mount. Price: £621.58. Tel: 01803 863800. Website: www.scanstrut.com



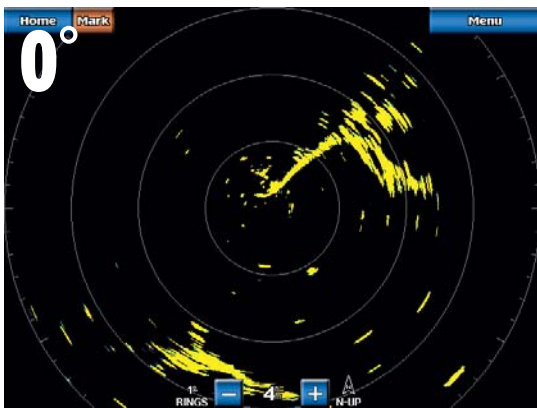
Anchored off Portsmouth, our targets were: 1. Gilkicker (0.2nm), 2. Spitbank Fort (1.4nm), 3. Ryde Pier (2nm), 4. No Man's Land Fort (2.4nm) and 5. Horse Sand Fort (2.6nm). We also saw 6. Southsea seafront, 7. Fort Blockhouse and picked up a MARPA target (inset 8.)



PHOTOS: GRAHAM SNOOK (1/2) PIXIE

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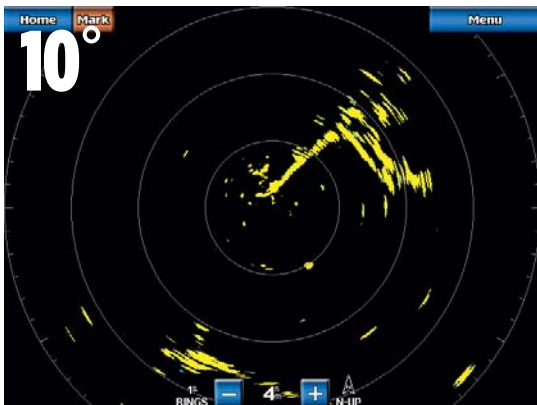
Visit YM Plus to see a video of the test, showing echoes fading as heel increases, and additional photography of the test rig in action



Results

0° Gilkicker Point, Fort Blockhouse, Southsea seafront, the three forts and Ryde Pierhead are all clearly visible on the radar plotter, as are several other echoes from commercial and leisure traffic

5° Echo strength is already deteriorating slightly. No Man's Land Fort has a much reduced echo, as does Ryde Pierhead. The echo from Spitbank Fort remains strong and Gilkicker Point, Fort Blockhouse and Southsea seafront are all distinct.



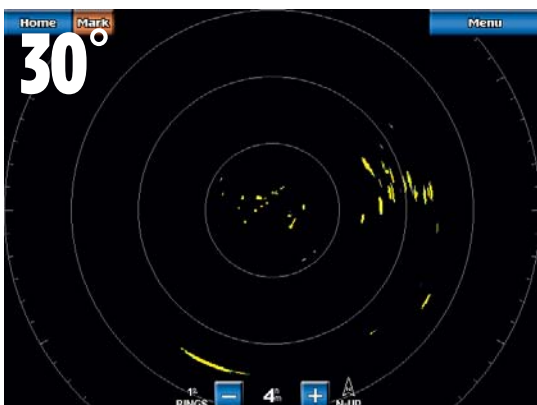
10° Echoes from Ryde Pierhead and Ryde itself are fading steadily. Slightly attenuated echoes from all three forts, Gilkicker Point, Fort Blockhouse and Southsea seafront.

15° This is the point at which we should expect echoes to weaken significantly. Ryde Pierhead has disappeared and Ryde is just a smear. Echoes from all three forts are significantly smaller. Gilkicker Point, Fort Blockhouse and Southsea still have strong echoes.

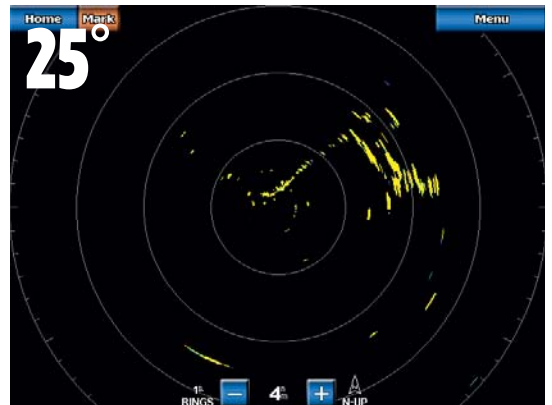
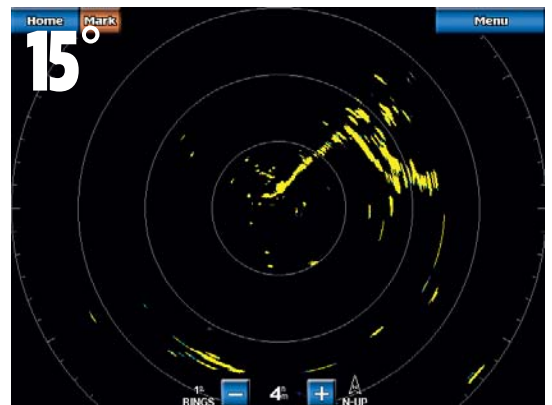
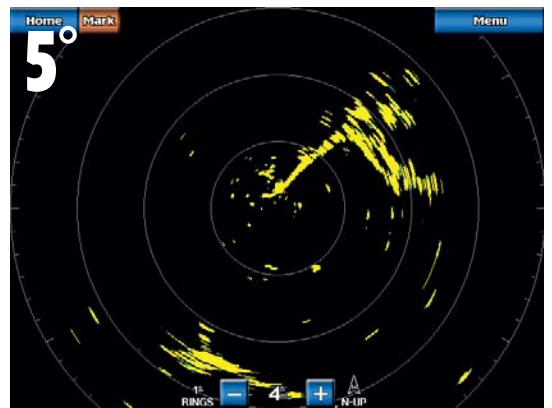


20° Ryde itself has all but gone. There are still echoes from the three forts, which haven't weakened too badly, but Fort Blockhouse is much weaker. Gilkicker Point itself and Southsea seafront are still quite strong echoes.

25° Southsea seafront is providing the strongest echo. Ryde, Gilkicker and the three forts are still producing echoes, albeit very faint ones. Fort Blockhouse's echo is fading steadily.



30° Ryde is returning the strongest echo followed by Southsea seafront. There are still echoes from the three forts but the echoes bear no relation to the size of the target. No Man's Land Fort has faded to almost nothing. Gilkicker Point, just 0.2nm away, has almost gone and Fort Blockhouse has disappeared completely.



MARPA

We lost acquisition on our target at just 10° of heel and after that the target began to behave erratically, with direction and speed changing randomly.

Verdict

It's in no way unusual to generate 20° of heel when sailing upwind, even more on older boats with less form stability. Our test shows clearly that, as expected, heeling does significantly affect the

strength of a target's echo, but what we might not have anticipated is just how much weaker the echoes are. It would be difficult to look at the plots for 0° and 30°, illustrated above, and identify

them as the same place.

Perhaps the most concerning aspect of this test, though, is the comparatively low level of heel – just 10° – at which the MARPA target was lost. This makes a

strong case for a self-levelling radar mount on board any yacht that does a fair amount of upwind sailing in areas with heavy traffic, such as the English Channel and North Sea. ▲