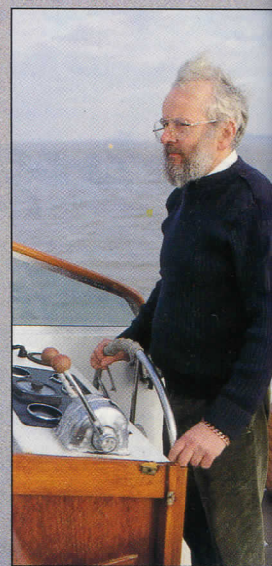


ECHOPILOT



Mike Phillips' Nelson 40, fitted out in 1978 as a Humber 42, has suffered barely a glitch in two decades' use as a workboat for testing depth-sounders. Jake Kavanagh seeks the secret of eternal youth.



"Engine hours? I'm not sure. The port clock packed up after just 400 hours, and the starboard one did the same at 3000 hours. That was ten years ago."

Mike Phillips says he hasn't a clue how many hours the twin 212hp Ford Sabre diesels in his Nelson have done since then. He reckons they must be among the most heavily used leisure-rated engines that have

remained in active service without undergoing a rebuild, but he points out that they sound as good as new.

Part of the secret of this longevity is the fact that Mike and his wife Susan are meticulous with maintenance. *Echopilot* is a working boat, and her deep blue hull and purposeful lines can be seen in the Solent every Thursday going about her business. Typically she will appear to be moving at random, but there is method in her manoeuvring: she is scanning the bottom to test the latest forward-looking depth-sounders developed by the company she is named after.

Mike and Susan met at evening classes, while studying for their RYA Yachtmaster exams. "We were both pretty bad at Morse code," says Mike, "so we were sent into a dark room with torches to practice." Both starting giving off all the right signals, however, and they got married in 1978.

"At the time we were hardened yachtsmen," Mike recalls. "I had a Hillyard, a lovely wooden sailing boat, and Susan had a Rival 32, which was more sleek and racy." So how did they end up with a Nelson motorboat?

Susan was in the depth-sounder business, her father having set up *Echopilot* originally under the name Incastec Associates. When Mike too joined the firm, he realised they would need a specialist test boat for developing new equipment. "To calibrate a new transducer, or the hardware that goes with it, test tanks are a waste of time. You've got to go to sea, and find water with different depths, and varying bottoms. There





is usually a team of people to accommodate for these tests, and a sailing boat would be too cramped and too slow."

Neither Mike nor Susan knew anything about motorboats, but advice on what to look for came from friends in the marine industry. The local pilots, in particular, swore by their Nelsons' year-round abilities, so the Phillips decided to take a closer look.

This brought them to the door of the late Commander Peter Thornycroft, who had developed the first wooden Nelsons, and then to Arthur Mursell of TT Boat Designs, the company set up to design future boats.

"We found that the Nelson was a very practical boat," Mike explains. "It has a long keel, so if you accidentally run aground you are unlikely to damage

Above (left to right): as a workboat, Echopilot has less-than-pristine interior decor, although her elderly electronics are still in sound working order and her layout would lend itself to comfortable cruising.

the props. The decks are wide and safe, and the wheelhouse has good all-round visibility."

Mike and Susan had their Nelson 40 moulded by Halmatic in Southampton and fitted-out by Barnsley-based Fred Booker Marine (now trading as Humber Boats), who called her a Humber 42.

It was a cold but clear day in January when we joined Mike for a routine test run.

The Phillips are among the lucky few boatowners who have a swinging mooring in picturesque Keyhaven harbour in Hampshire. "Getting a place here is very much a case of dead man's shoes," says Mike. "You have to be a local taxpayer, but even then there is about an 18-year waiting list. The only way you move up the queue is when someone dies."

Previously *Echopilot* occupied a marina pontoon in Lymington, where her 42ft hull commanded an annual fee of £4108; now her mooring costs just £305 a year, yet the Solent is accessible for all but a short period on days when an easterly gale coincides with low-water springs. The only disadvantage is that you need to use a dinghy to get on and off.

The dinghy Mike uses is a lightweight plywood boat, home-built from a kit. "I could use an inflatable tender," he says, "but I prefer a solid dinghy because it is more easily handled, and you can row it almost effortlessly."

It is propelled by an ancient but nippy Seagull outboard. "Susan bought it secondhand in 1970, and it looked tatty then. We replace the spark-plug once a year, but apart from that we don't bother to service it. I might treat it to a new starter cord for the year 2000."

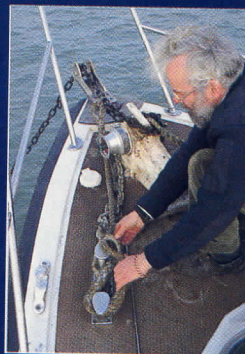
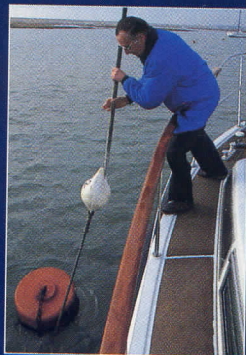
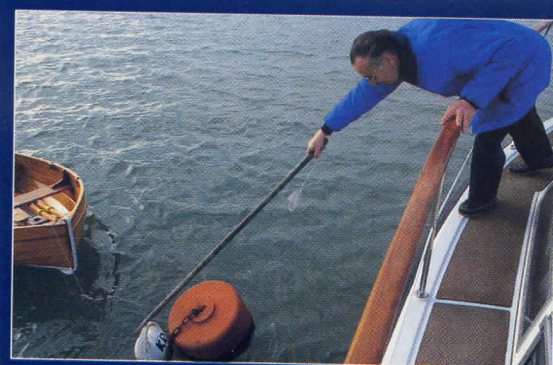
Mike transports the dinghy in a horsebox towed behind a Land Rover, which makes it look as if he is heading for a gymkhana. "It's a mobile boat shed," he grins when we point this out. "It keeps the boat out of the elements, and allows it to be stored at home. It even acts as a changing room."

After a 20-minute denture-rattling burn-up across the glassy waters of Keyhaven harbour, we arrive at the mooring, where *Echopilot* is secured by a heavy chain to a necklace of moorings on the seabed. The Nelson has a comparatively low freeboard amidships, which makes climbing aboard quite easy.

Being gentle with your engines is part of the secret of keeping them happy, and Mike has a routine check and start-up procedure which he follows carefully, especially in winter and when the boat has been unused for a while.

Raising the floorboards gives access to the engineroom, where Mike crawls around checking the water filters and engine and gear oil."

We notice thick ingots of lead lying across the keel, held in place by wooden battens. Mike and Susan have added nearly three quarters of a ton of ballast to make the boat stiffer in a seaway.



Picking up Echopilot's mooring in Keyhaven harbour can be done singlehanded, as Mike Phillips demonstrates. The small pick-up buoy is brought aboard by boathook, and the heavier chain beneath it is then fed through the anchor roller. A pin stops it from jumping out, and a secondary rope to another cleat gives extra protection.





To start the boat up, Mike first turns each engine over with the fuel turned off (manual fuel shut-offs are located at the helm, just beneath the wheel). "You need good batteries for this," he explains as he throws a bridging switch to pair up his single 180Ah domestic battery with each engine battery in turn.

The engine turns over for about 20 seconds until the oil pressure needle quivers up to its full reading. This ensures that oil has been pumped right through the machine, including the turbocharger bearings, which are prone to failure if they suffer high-revving cold starts. Then Mike throws the fuel taps, although when the unit catches he is careful not to let it rev too high too soon.

We are a little surprised the engine fires at all with this technique, having half-expected Mike to wind up having to demonstrate how to bleed the system, but clearly *Echopilot's* fuel lines are very sound and the Ford Sabre starts without fuss.

After repeating the operation with the other engine, it is a case of checking over the stern for water flow. We find ourselves peering through clouds of white smoke. "They belch a bit," Mike admits, "but that is a trait of diesels of this era."

Casting off the chain and its security line, which for Mike is a singlehanded operation, we motor up the harbour to a rickety jetty. Here we pick up *Echopilot's* quality control manager John Clarke, and two boxes full of new depth-sounders which are ready for their pre-delivery inspection.

What impresses us immediately is the manoeuvrability of the Nelson. With her engines just ticking over, she turns quickly and gracefully on her keel, and the thick rubber strake around her hull makes the deployment of fenders unnecessary. "You can pivot this boat around piles, nudge it against harbour walls and do all sorts of things that other boatowners would blanch at," Mike enthuses.

You can also 'walk' the boat sideways, by putting the helm hard over, and running one engine gently ahead and the other gently astern. It takes practice, but never fails to impress.

However, the rubbing strake also gave the Phillips a headache, when the long band of galvanised metal inside it began to corrode, leaving ugly rust streaks



Above left: interior joinery features plenty of teak. Above: running aft from the forward part of the coachroof are stainless steel lines to which safety harnesses can be attached. Below left: the fitting-out boatyard, F Booker Marine, took great pride in their woodwork, as the teak deck storage box shows.

on the hull. The only remedy was to replace it with aluminium.

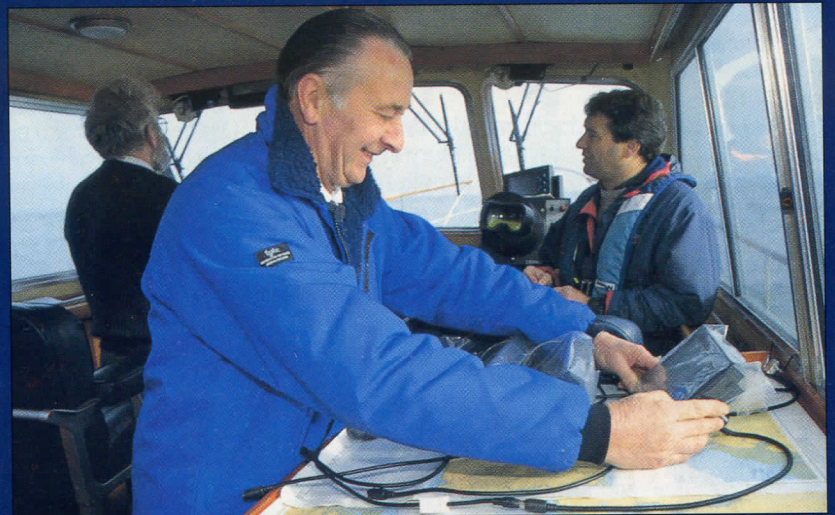
Further hull protection comes by way of a thick teak sprayrail which adds a little lift to the fine-entry bow and the flat hull sections aft. Attempts to keep this wood varnished have been abandoned however.

The workmanlike deck areas also lend themselves to use in all sorts of conditions. Fittings are solid and businesslike, and the midships cleat is particularly useful, for aiding close-quarters manoeuvres as well as for tying springs. The side decks are comparatively wide given the narrow hull, and covered in diamond-pattern Treadmaster non-slip; stainless steel lines to which safety harnesses can be clipped are run along both sides.

Clearing the narrow and shallow harbour entrance, we power out into the Solent, accelerating smoothly, with the turbos cutting in as we reach about 1500rpm.

Both engines have been downrated slightly from their 212hp specification by adjustments to the injector timing, but Mike assures us *Echopilot* is still good for a top speed of about 20 knots. "She needs a clean bottom, of course, but she has such a narrow hull that she performs very well on the power available."

Mike has also fined-up the propellers, and the boat now runs on 24in-diameter props with a 23in pitch. "The diesels don't seem quite so stressed at all



Taking soundings

Mike and Susan Phillips have been running their depth-sounder business *Echopilot Ltd* for 20 years.

The company was set up in 1973, as *Incastec Associates Ltd*, by Susan's father, Harold Whitfield, who had worked in the pre-war development of radar. He built the first prototype for marine leisure use on his kitchen table.

In 1991 the advent of the Siemens 80C166 micro-controller allowed the creation of the 'real time' forward-looking sounder, a device patented and produced exclusively in the UK by *Echopilot*.

The firm's products are exported all over the world, and they can also supply spares for the *Seafarer* range. Tel: 01425 476211.

power," he reports, "and as a result the turbochargers are still original." So are the shafts; they have simply been turned round so that the wear caused by the cutless bearing is now further up the shaft, and fresh metal is running in the stern gland.

Over two decades, however, corrosion has taken its toll on the cooling system, and most of the tube stacks in the intercoolers and heat-exchangers have had to be replaced. "There are so many dissimilar metals in these systems that corrosion is accelerated by electrolysis," Mike explains. "Brass tubes, bronze end-caps and aluminium castings don't always sit well together in a saltwater environment."

When we near the Sconce buoy and its adjacent deepwater trench, John sets up the starboard-side navigation table, which is big enough to take a full-sized Admiralty chart, as a testing station for the sounders. As he does so, a couple of trickles of water find their way through the headlining and drip onto the chart.

"We've got one or two leaks," Mike concedes, nonplussed. Still, the Eberspächer D7L central heating system is beginning to fight off the damp air in the wheelhouse.

Echopilot features plenty of attractive teak, most of it in veneer panels but also in two impressive solid wooden deck-boxes beside the exterior helm position on the raised aft deck. Her internal layout lends itself to comfortable cruising, with two berths in a forward cabin, two in an aft cabin and a further two that can be made up from the dinette in the saloon. But the fact that *Echopilot* is a workboat, and no spring chicken either, is reflected in her interior decor. As far as Mike and Susan are concerned, her looks are not a priority.

As we sweep up and down past the buoy, John plugs each of the depth-sounders in turn into the transducer in the hull. It is curious to note how the forward-looking models can even pick up the buoy's chain as it curves down to the seabed, and this serves to highlight a big irony: despite being used to test the very latest in technology, the boat's own electronics are very dated.

"I believe that if it ain't broke, you don't change it," says Mike, pointing out the Furuno 701 radar, a traditional cathode-ray tube model bought at the Hamburg Boat Show in 1979. "It's as tough as old boots, and quite easy to use. You have to put your whole face to the display, but that's no bad thing if it forces the navigator to concentrate on radar watch in fog rather than leave the helmsman to do it."

The scanner is sufficiently heavily built to have survived the collapse of the boat's original wooden mast. "We were trying to get to Poole in conditions in which we should have stayed at home," Mike recalls, "and we flew off a wave by The Needles. We literally



Left: the tender which provides transport out to the Nelson's swinging mooring emerges incongruously from the back of a horsebox. Below: its Seagull outboard was bought secondhand in 1970, and has proved reliable despite having little maintenance work

went airborne, and as we came down there was a smack from above and the mast gave way. The radar kept turning, even though it was sitting in a pile of wreckage on the cabintop."

The replacement mast, made of welded aluminium, is stayed by stainless steel rods.

Equally dated is the AP Mk1 Decca navigator from Philips, smuggled into the country in the days when a Decca set could not be bought in the UK, only rented for £2500 a year; in the early days, both the aerial and the receiver had to be hidden with a dish cloth! However, apart from a few electronic upgrades, made necessary by signal changes, it has performed faultlessly.

The Demek/Shipmate VHF is also teetering on the verge of senility, but Mike describes its stainless steel case as indestructible. And there are no fancy hydraulics in the Whitlock steering, just straight rods of torque-tube metal with bevelled gearboxes.

Mike and Susan have taken their 42 across the Channel on several occasions, sometimes combining leisure with work by sounding out the Hurd Deep off the Alderney coast. They have also carried out experiments with other pieces of gear, including sea anchors, although Mike quickly concluded these were not much use with this kind of boat. "She just lies across the weather, rather than into it. Not comfortable at all."

In heavy weather, though, *Echopilot* has proved what Nelson owners always maintain, that these boats can take a lot more abuse than any crew.

Despite working at the cutting edge of electronic technology, at heart Mike is a traditionalist. He loves his Nelson for her functional design, her ease of handling and the fact that she can cope with almost any conditions thrown at her, but he admits he keeps a 104-year-old wooden sailing yacht purely for pleasure, with no engine and no electronics.

"Not even a depth-sounder?" we ask.

"Definitely not," he grins. "It's nice to get away from work sometimes, you know."



Echopilot

Hull
Nelson 40.
Model
Humber 42.
Builders
mouldings by Halmatic, Southampton; fit-out by F Booker Marine, Barnsley.
Year built
1978.
Loa
41ft 6in (12.65m).
Beam
12ft (3.66m).
Draught
4ft 6in (1.07m).
Displacement
14 tonnes.
Fuel capacity
360gal (1590lt).
Engines
twin 212hp Ford Sabre diesels.

30 years on

When retired Royal Navy Commander Peter Thornycroft designed the first Nelsons, he envisaged tough, easily driven vessels serving as all-weather commercial craft. To this day they remain true to that original ideal.

The first model was a 23ft (7m) wooden displacement boat, built from 1958 by Keith, Nelson & Co, from whom the marque took its name, but the more recognisable

forerunner of the modern range was a 30ft semi-displacement design which appeared in 1959.

Subsequently a GRP-hulled 34 was built in large numbers for pilot and patrol duties, and gradually wooden superstructures also gave way to GRP. The 40 (see MBM Feb 96 p84) was introduced in 1965.

Most Nelson 40s continued to be fitted out by Keith, Nelson, on hulls moulded by Halmatic. But several other companies have completed them, and given them their own brand names based on

their overall length. These include the Weymouth 42 from James & Caddy in Weymouth, the Mallard 42 from T J Clune in Chichester, the Castlemaine 42 from Castlemaine Marine in Guernsey, and the Humber 42 from F Booker Marine in Barnsley.

A new, slightly beamier version of the same boat, the 42 MkII, now costs upwards of £320,000 with 370hp Perkins Sabre diesels. Secondhand prices vary between £40,000 and £200,000, depending on age and condition.